

# FCC Test Report

**FCC ID** : I8803911  
**Equipment** : 802.11ax (WiFi 6) Dual-Radio PoE Access Point  
**Model No.** : NWA50AX PRO  
(Please refer to section 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** : Nov. 16, 2022  
**Tested Date** : Nov. 22 ~ Dec. 30, 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

## Table of Contents

<b>1</b>	<b>GENERAL DESCRIPTION .....</b>	<b>5</b>
1.1	Information.....	5
1.2	Local Support Equipment List .....	9
1.3	Test Setup Chart .....	9
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 .....	13
<b>2</b>	<b>TEST CONFIGURATION.....</b>	<b>14</b>
2.1	Testing Facility .....	14
2.2	The Worst Test Modes and Channel Details .....	14
<b>3</b>	<b>TRANSMITTER TEST RESULTS .....</b>	<b>15</b>
3.1	6dB and Occupied Bandwidth .....	15
3.2	Conducted Output Power .....	16
3.3	Power Spectral Density .....	17
3.4	Unwanted Emissions into Restricted Frequency Bands .....	18
3.5	Emissions in Non-Restricted Frequency Bands.....	20
3.6	AC Power Line Conducted Emissions .....	21
<b>4</b>	<b>TEST LABORATORY INFORMATION .....</b>	<b>22</b>

**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
FR2N1601AC	Rev. 01	Initial issue	Jan. 16, 2023

## Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	AC Power Line Conducted Emission	[dBuV]: 13.534MHz 41.15 (Margin -8.85dB) - AV	Pass
15.247(d) 15.209	Unwanted Emissions	[dBuV/m at 3m]: 2390.00MHz 51.72 (Margin -2.28dB) - AV	Pass
15.247(b)(3)	Conducted Output Power	Max Power [dBm]: <b>Non-beamforming mode</b> 29.59 <b>Beamforming mode</b> 26.58	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
ZYLXEL	NWA50AX PRO	802.11ax (WiFi 6) Dual-Radio PoE Access Point	Software cloud management functions are different
	NWA90AX PRO		
<p>✦ The above models, model <b>NWA50AX PRO</b> was selected as a representative one for the final test and only its data was recorded in this report.</p>			

### 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 <sub>TX</sub> )	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
<p>Note 1: RF output power specifies that Maximum Conducted (Average) Output Power.            Note 2: Modulation: DSSS-DBPSK, DQPSK, CCK BPSK, QPSK, 16QAM, 64QAM, 256QAM and 1024QAM.            Note 3: 802.11 ax supports beamforming function.</p>					

### 1.1.3 Antenna Details

Ant. No.	Brand	Model	Type	Connector	Gain (dBi)
1	Aristotole	11825-DB1	PIFA	No	0.9
2	Aristotole	11825-DB2	PIFA	No	2.6

### 1.1.4 Power Supply Type of Equipment under Test (EUT)

Power Supply Type	12Vdc from adapter 56V dc from POE
-------------------	---------------------------------------

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

### 1.1.5 Accessories

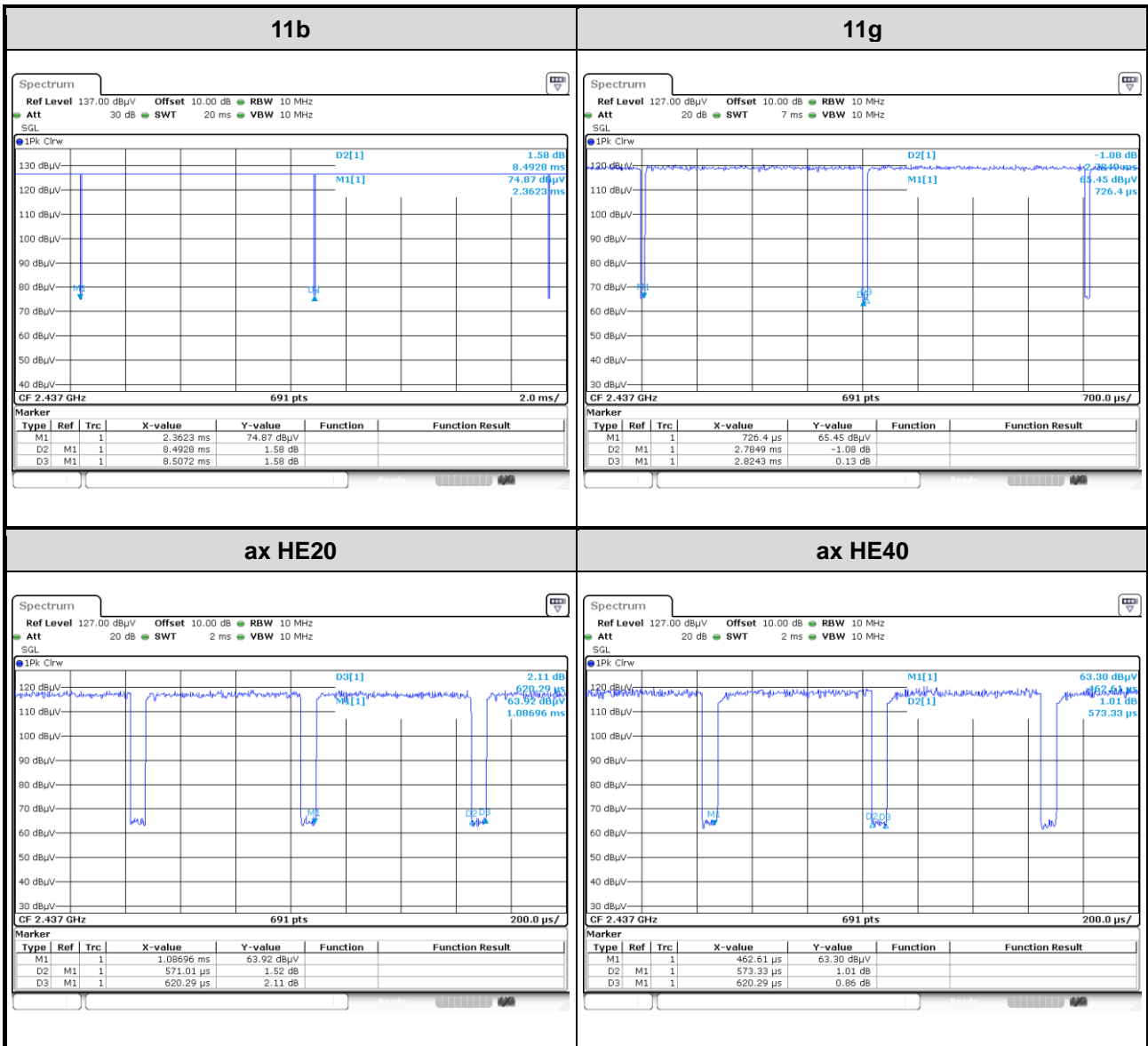
Accessories		
No.	Equipment	Description
1	AC adapter	Brand: DEE VAN Model: DSA-24PFS-12 FCA 120200 I/P: 100-240Vac, 50/60Hz, 0.8A O/P: 12V =2.0A Power Line: 1.5m non-shielded without core

### 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	QATool, V 0.0.2.78		
Duty Cycle and Duty Factor	Mode	Duty Cycle (%)	Duty Factor (dB)
	11b	99.83%	0.01
	11g	98.60%	0.06
	ax HE20	92.06%	0.36
	ax HE40	92.43%	0.34



### 1.1.8 Power Index of Test Tool

Modulation Mode	Test Frequency (MHz)	Power Index
11b	2412	19.5
11b	2437	19.5
11b	2462	19
11g	2412	20
11g	2437	20
11g	2462	19.5
ax HE20	2412	20
ax HE20	2437	20
ax HE20	2462	19
ax HE40	2422	19.5
ax HE40	2437	20
ax HE40	2452	19.5



## 1.2 Local Support Equipment List

### Adapter Mode

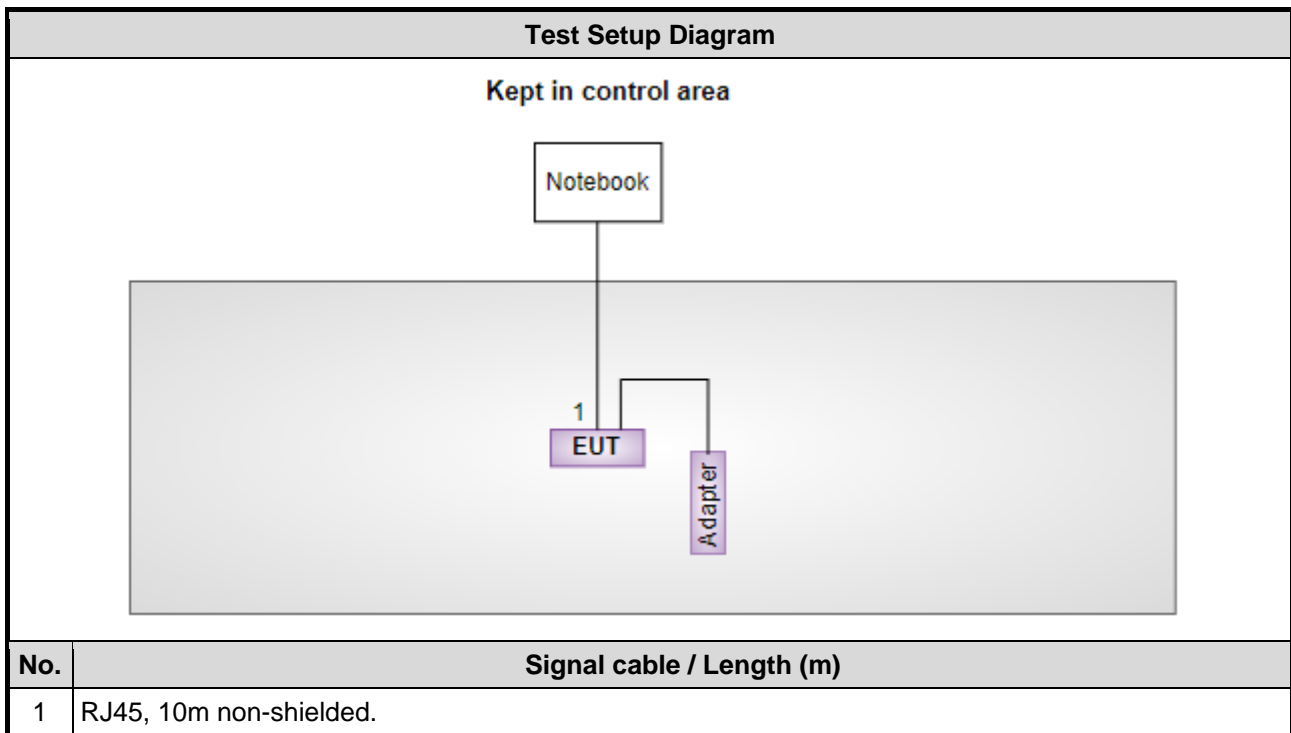
Support Equipment List					
No.	Equipment	Brand	Model	FCC ID	Remarks
1	Notebook	DELL	Latitude E5470	DoC	---

### POE Mode

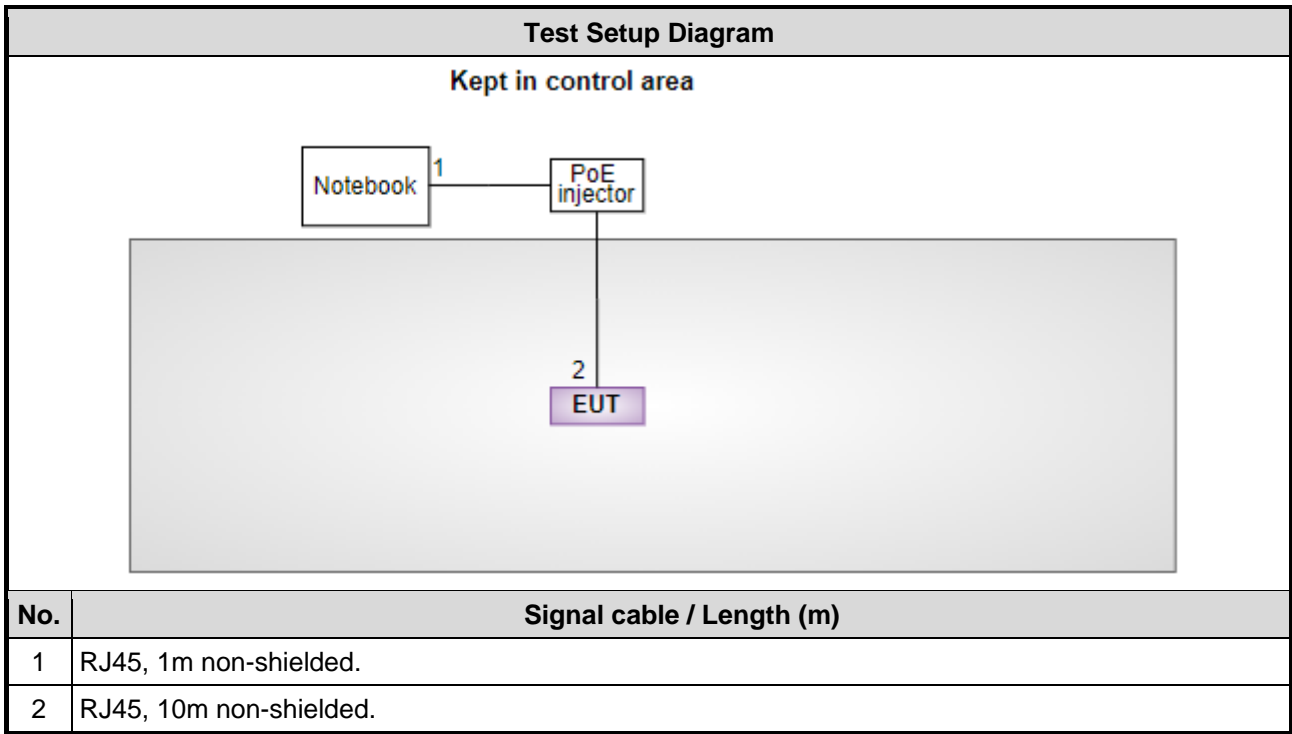
Support Equipment List					
No.	Equipment	Brand	Model	FCC ID	Remarks
1	Notebook	DELL	Latitude E5470	DoC	---
2	PoE injector	ZYXEL	PoE12-60W	---	---

## 1.3 Test Setup Chart

### Adapter Mode



**POE Mode**



## 1.4 The Equipment List

<b>Test Item</b>	Conducted Emission				
<b>Test Site</b>	Conduction room 1 / (CO01-WS)				
<b>Tested Date</b>	Dec. 30, 2022				
<b>Instrument</b>	<b>Brand</b>	<b>Model No.</b>	<b>Serial No.</b>	<b>Calibration Date</b>	<b>Calibration Until</b>
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. 17, 2022	Oct. 16, 2023
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.					

<b>Test Item</b>	Radiated Emission below 1 GHz				
<b>Test Site</b>	966 chamber3 / (03CH03-WS)				
<b>Tested Date</b>	Dec. 29, 2022				
<b>Instrument</b>	<b>Brand</b>	<b>Model No.</b>	<b>Serial No.</b>	<b>Calibration Date</b>	<b>Calibration Until</b>
Receiver	R&S	ESR3	101657	Mar. 15, 2022	Mar. 14, 2023
Loop Antenna	R&S	HFH2-Z2	100330	Jun. 28, 2022	Jun. 27, 2023
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-685	Jun. 28, 2022	Jun. 27, 2023
Preamplifier	EMC	EMC02325	980187	Jul. 16, 2022	Jul. 15, 2023
Loop Antenna Cable	KOAX KABEL	101354-BW	101354-BW	Oct. 04, 2022	Oct. 03, 2023
LF cable-0.8M	EMC	EMC8D-NM-NM-800	EMC8D-NM-NM-800-001	Sep. 23, 2022	Sep. 22, 2023
LF cable-3M	EMC	EMC8D-NM-NM-3000	131103	Sep. 23, 2022	Sep. 22, 2023
LF cable-13M	EMC	EMC8D-NM-NM-13000	131104	Sep. 23, 2022	Sep. 22, 2023
Measurement Software	AUDIX	e3	6.120210g	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

<b>Test Item</b>	Radiated Emission above 1 GHz				
<b>Test Site</b>	966 chamber3 / (03CH03-WS)				
<b>Tested Date</b>	Nov. 22 ~ Nov. 25, 2022				
<b>Instrument</b>	<b>Brand</b>	<b>Model No.</b>	<b>Serial No.</b>	<b>Calibration Date</b>	<b>Calibration Until</b>
Spectrum Analyzer	R&S	FSV40	101499	Mar. 08, 2022	Mar. 07, 2023
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	EMC184045SE	980897	Aug. 01, 2022	Jul. 31, 2023
Preamplifier	EMC	EMC184045SE	980903	Jul. 16, 2022	Jul. 15, 2023
RF cable-3M	HUBER+SUHNER	SUCOFLEX104	MY22620/4	Sep. 23, 2022	Sep. 22, 2023
RF cable-8M	EMC	EMC104-SM-SM-80 00	181107	Sep. 23, 2022	Sep. 22, 2023
Measurement Software	AUDIX	e3	6.120210g	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

<b>Test Item</b>	RF Conducted				
<b>Test Site</b>	(TH01-WS)				
<b>Tested Date</b>	Dec. 13, 2022				
<b>Instrument</b>	<b>Brand</b>	<b>Model No.</b>	<b>Serial No.</b>	<b>Calibration Date</b>	<b>Calibration Until</b>
Spectrum Analyzer	R&S	FSV40	101910	Apr. 08, 2022	Apr. 07, 2023
Power Meter	Anritsu	ML2495A	1241002	Nov. 23, 2022	Nov. 22, 2023
Power Sensor	Anritsu	MA2411B	1207366	Nov. 23, 2022	Nov. 22, 2023
Measurement Software	Sporton	SENSE-15247_DTS	V5.10.8.7.3	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

<b>Test Laboratory</b>	International Certification Corporation
<b>Test Site</b>	CO01-WS, TH01-WS
<b>Address of Test Site</b>	No.3-1, Lane 6, Wen San 3rd St., Kwei Shan Dist., Tao Yuan City 33381, Taiwan (R.O.C.)
<b>Test Site</b>	03CH03-WS
<b>Address of Test Site</b>	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
<b>Non-beamforming mode</b>				
AC Power Line Conducted Emission	ax HE20	2412	MCS 0	1, 2
Unwanted Emissions ≤ 1GHz	ax HE20	2412	MCS 0	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	
<b>Beamforming mode</b>				
Conducted Output Power	ax HE20 ax HE40	2412 / 2437 / 2462 2422 / 2437 / 2452	MCS 0 MCS 0	1
<b>NOTE:</b>				
1. The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement – X, Y, and Z-plane. The <b>Z-plane</b> results were found as the worst case and were shown in this report.				
2. The EUT had been tested by following test configurations.				
1) Configuration 1: Adapter mode				
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

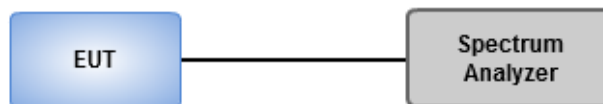
###### 6dB Bandwidth

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

<b>Ambient Condition</b>	23°C / 63%	<b>Tested By</b>	Brad Wu
--------------------------	------------	------------------	---------

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  $\leq$  6dBi, no any corresponding reduction is in output power limit.

Antenna gain  $>$  6dBi

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

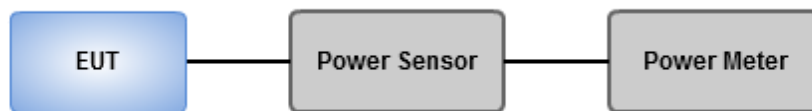
Fixed, point to point operations

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

<b>Ambient Condition</b>	23°C / 63%	<b>Tested By</b>	Brad Wu
--------------------------	------------	------------------	---------

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.

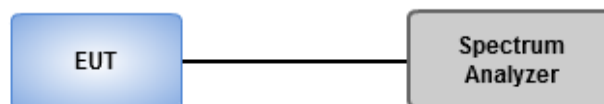
##### Average PSD, duty cycle $\geq$ 98%

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:  $\geq 10$  (number of measurement points in sweep) x (total on/off period of the transmitted signal).
3. Perform the measurement over a single sweep.
4. Use the peak marker function to determine the maximum amplitude level.
5. Add  $10 \log (1/x)$ , where x is the duty cycle.

#### 3.3.3 Test Setup



#### 3.3.4 Test Results

<b>Ambient Condition</b>	23°C / 63%	<b>Tested By</b>	Brad Wu
--------------------------	------------	------------------	---------

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:**  
Qusai-Peak value is measured for frequency below 1GHz except for 9–90 kHz, 110–490 kHz frequency band. Peak and average value are measured for frequency above 1GHz. The limit on average radio frequency emission is as above table. The limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit

**Note 2:**  
Measurements may be performed at a distance other than what is specified provided. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor as below, Frequency at or above 30 MHz: 20 dB/decade Frequency below 30 MHz: 40 dB/decade.

#### 3.4.2 Test Procedures

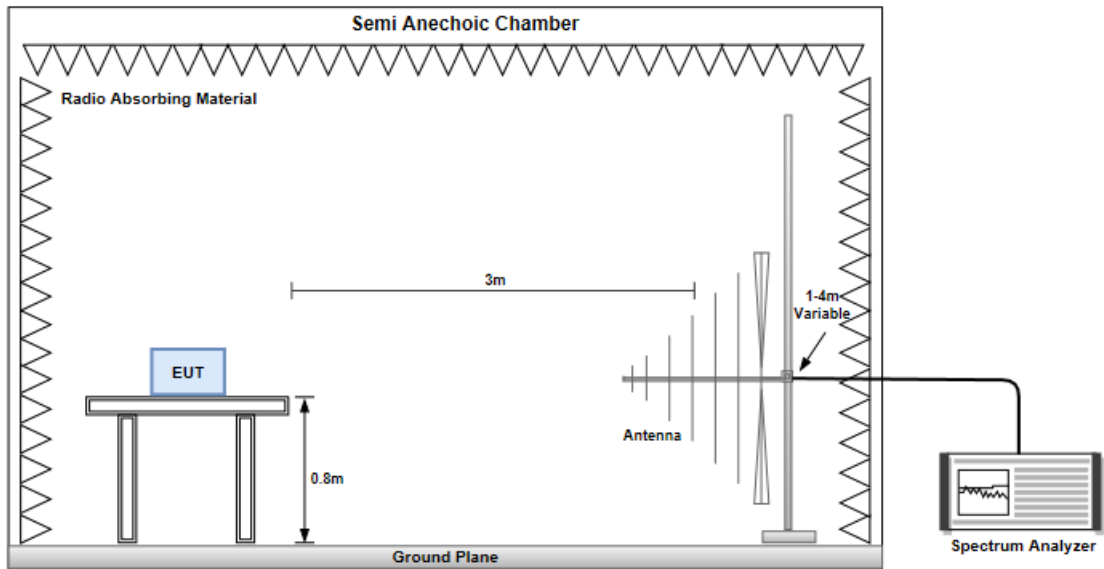
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission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

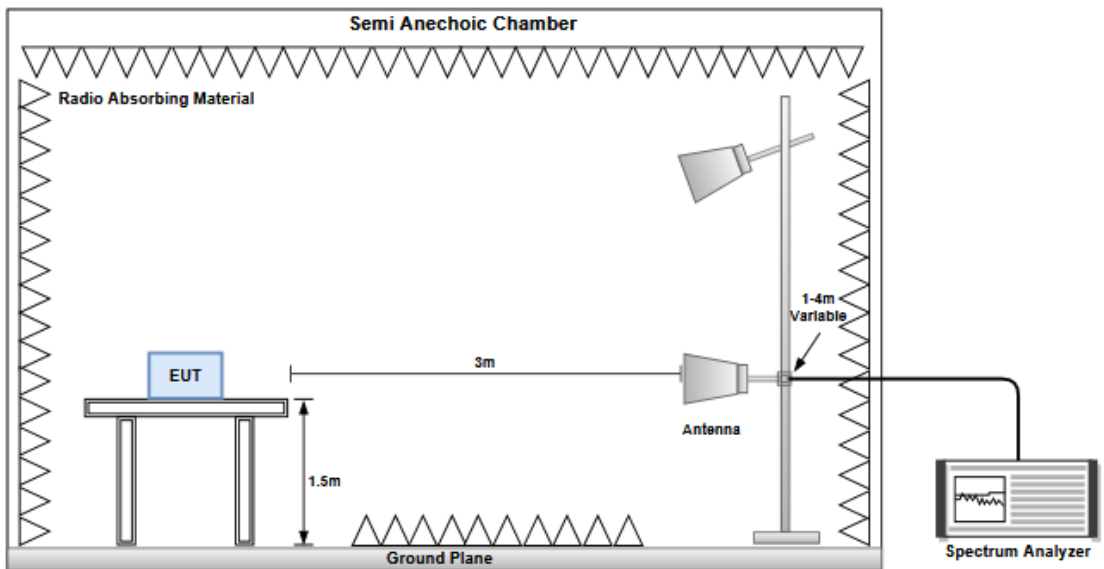
1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above 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 20 dB relative to the maximum in-band peak PSD level in 100 kHz.

### 3.5.2 Test Procedures

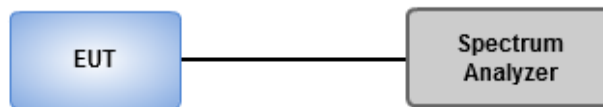
#### Reference level measurement

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

<b>Ambient Condition</b>	23°C / 63%	<b>Tested By</b>	Brad Wu
--------------------------	------------	------------------	---------

Refer to Appendix E.

## 3.6 AC Power Line Conducted Emissions

### 3.6.1 Limit of AC Power Line Conducted Emissions

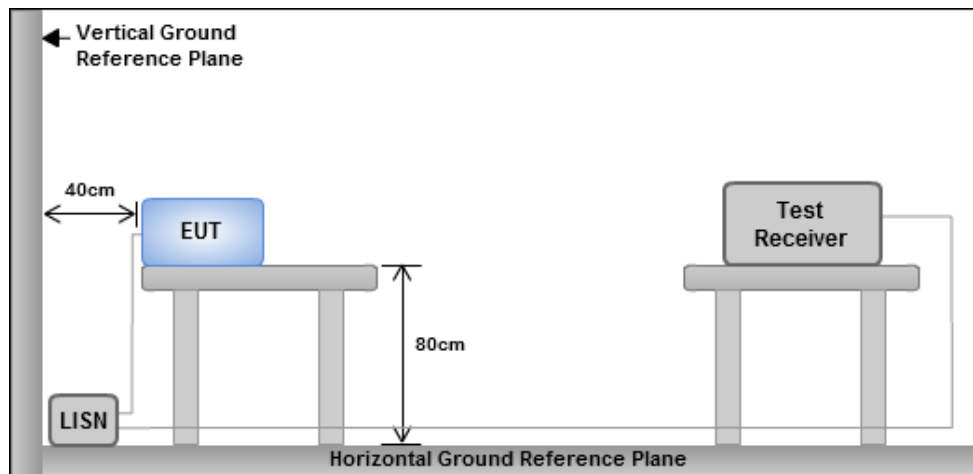
Conducted Emissions Limit		
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50

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  $\Omega$  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	8.025M	12.565M	12M6G1D	7.55M	12.188M
802.11g_Nss1,(6Mbps)_2TX	15.075M	16.482M	16M5D1D	13.075M	16.376M
802.11ax HEW20_Nss2,(MCS0)_2TX	17.8M	18.856M	18M9D1D	15.075M	18.782M
802.11ax HEW40_Nss2,(MCS0)_2TX	36.2M	37.613M	37M6D1D	32.45M	37.564M

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

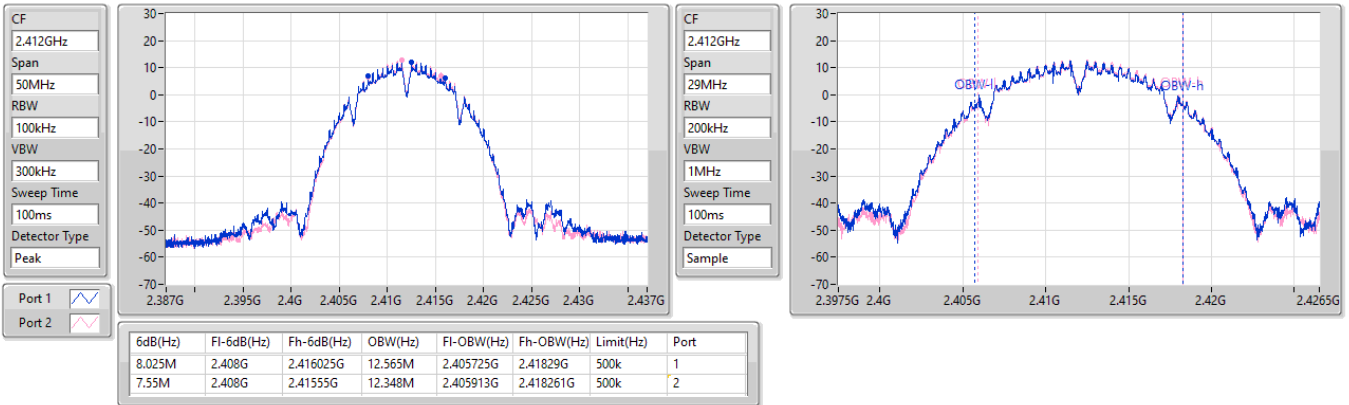
Result

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	8.025M	12.565M	7.55M	12.348M
2437MHz	Pass	500k	8M	12.464M	7.55M	12.188M
2462MHz	Pass	500k	7.55M	12.217M	8.025M	12.232M
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	14.95M	16.482M	15.075M	16.439M
2437MHz	Pass	500k	14.775M	16.418M	13.075M	16.397M
2462MHz	Pass	500k	14.95M	16.376M	15.075M	16.376M
802.11ax HEW20_Nss2,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	17.8M	18.782M	16.1M	18.807M
2437MHz	Pass	500k	15.325M	18.782M	16.05M	18.856M
2462MHz	Pass	500k	15.325M	18.807M	15.075M	18.782M
802.11ax HEW40_Nss2,(MCS0)_2TX	-	-	-	-	-	-
2422MHz	Pass	500k	32.45M	37.564M	35M	37.564M
2437MHz	Pass	500k	35.05M	37.564M	35.05M	37.613M
2452MHz	Pass	500k	36.2M	37.564M	35.05M	37.564M

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

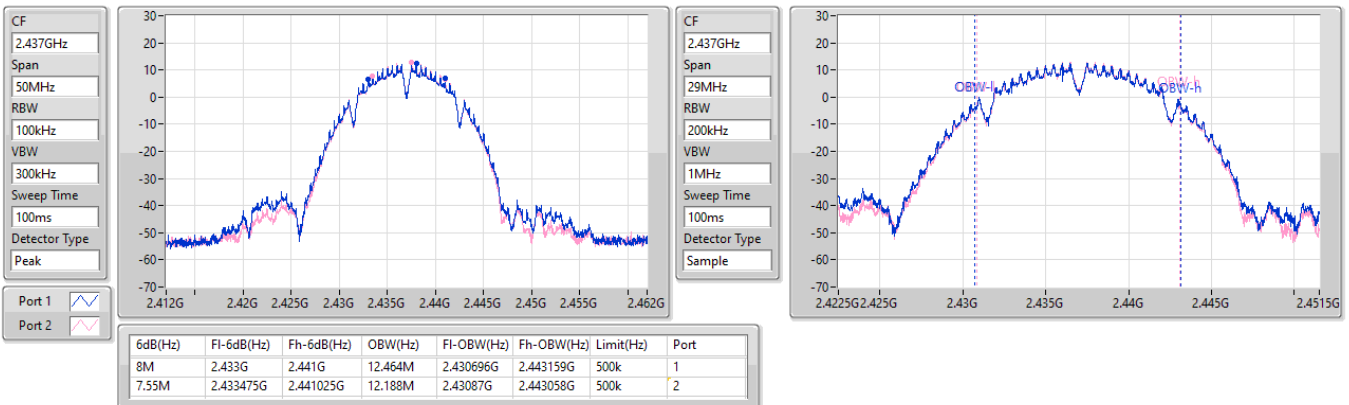
2.4-2.4835GHz\_802.11b\_Nss1,(1Mbps)\_2TX  
2412MHz

EBW



2.4-2.4835GHz\_802.11b\_Nss1,(1Mbps)\_2TX  
2437MHz

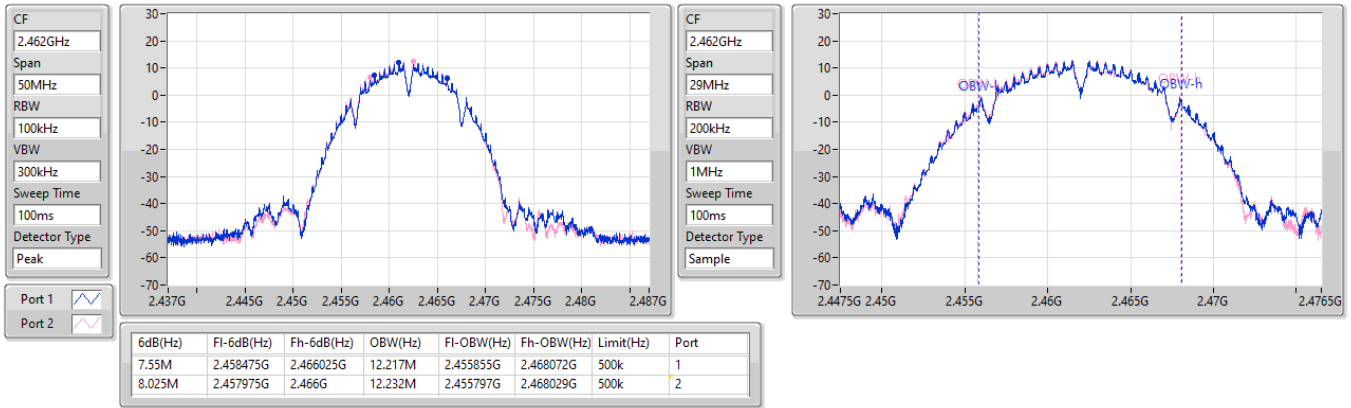
EBW





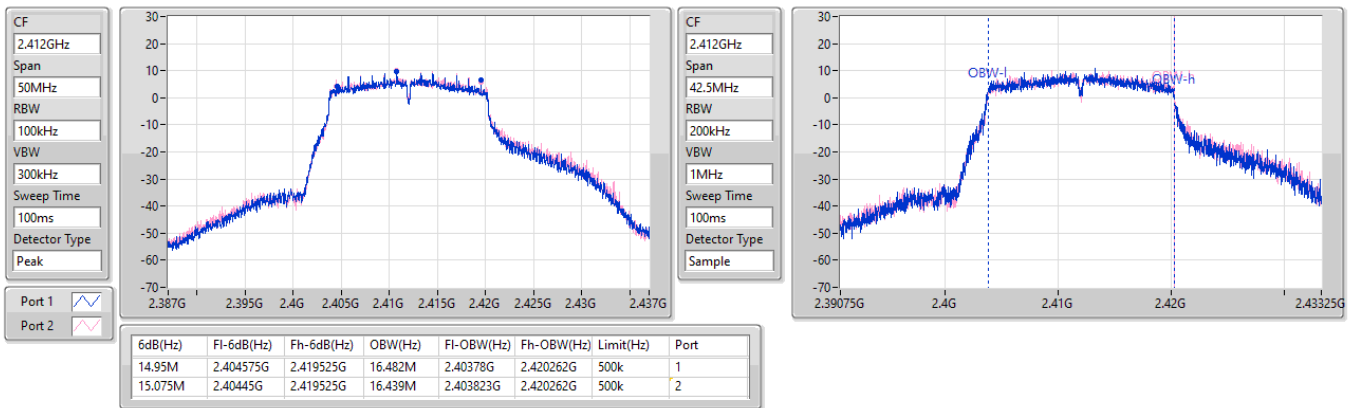
2.4-2.4835GHz\_802.11b\_Nss1,(1Mbps)\_2TX  
2462MHz

EBW



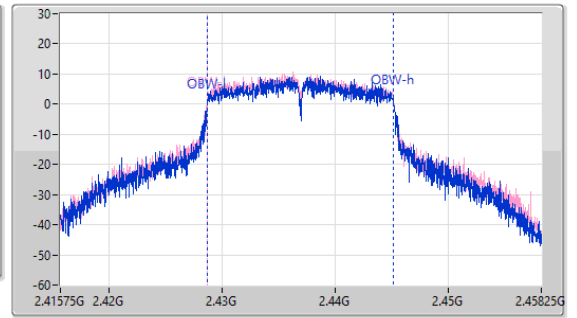
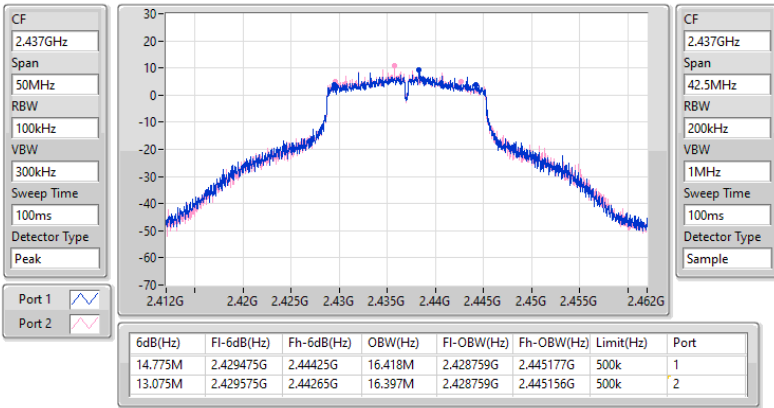
2.4-2.4835GHz\_802.11g\_Nss1,(6Mbps)\_2TX  
2412MHz

EBW



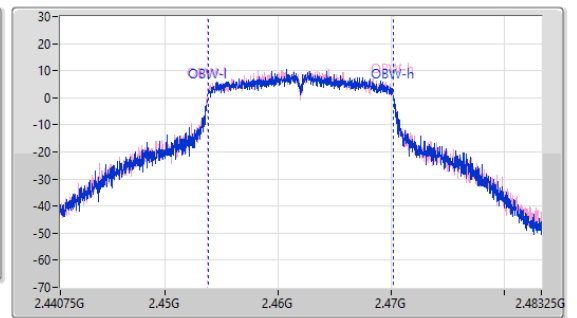
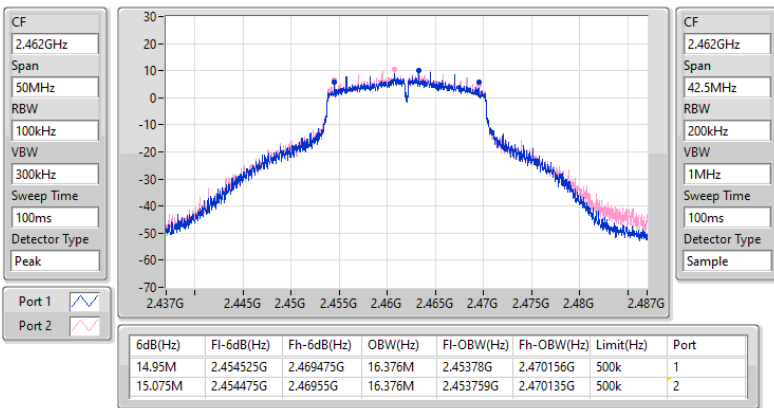
2.4-2.4835GHz\_802.11g\_Nss1,(6Mbps)\_2TX  
2437MHz

EBW



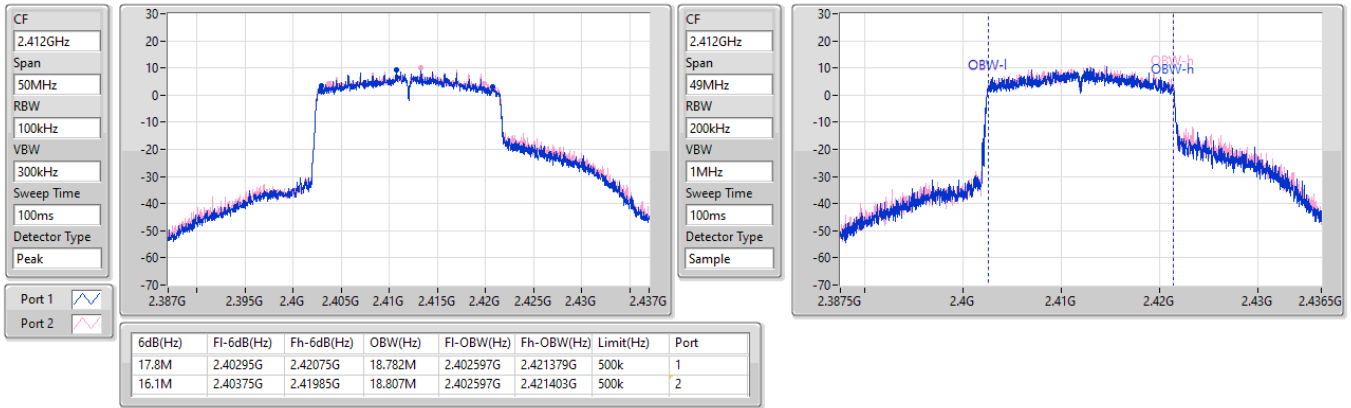
2.4-2.4835GHz\_802.11g\_Nss1,(6Mbps)\_2TX  
2462MHz

EBW



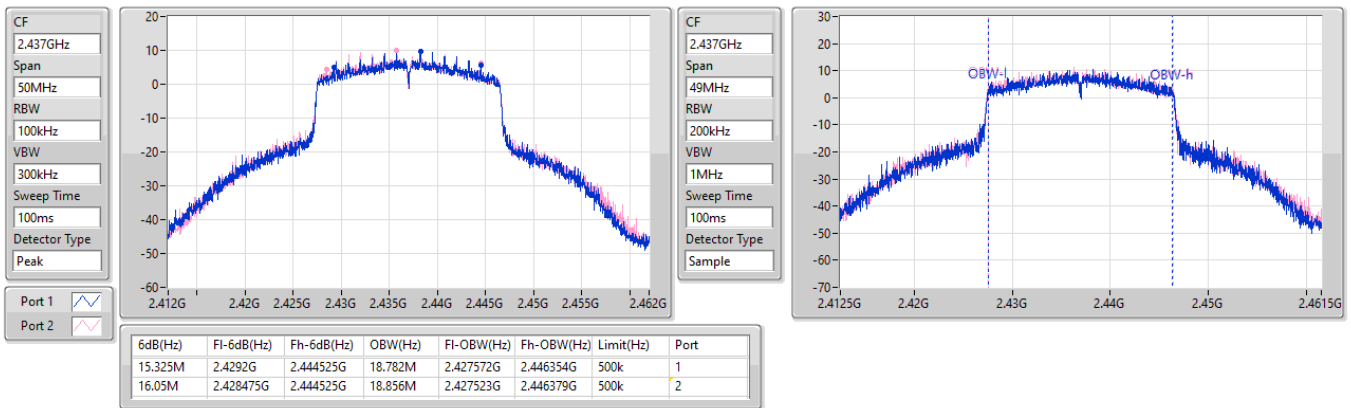
2.4-2.4835GHz\_802.11ax HEW20\_Nss2,(MCS0)\_2TX  
2412MHz

EBW



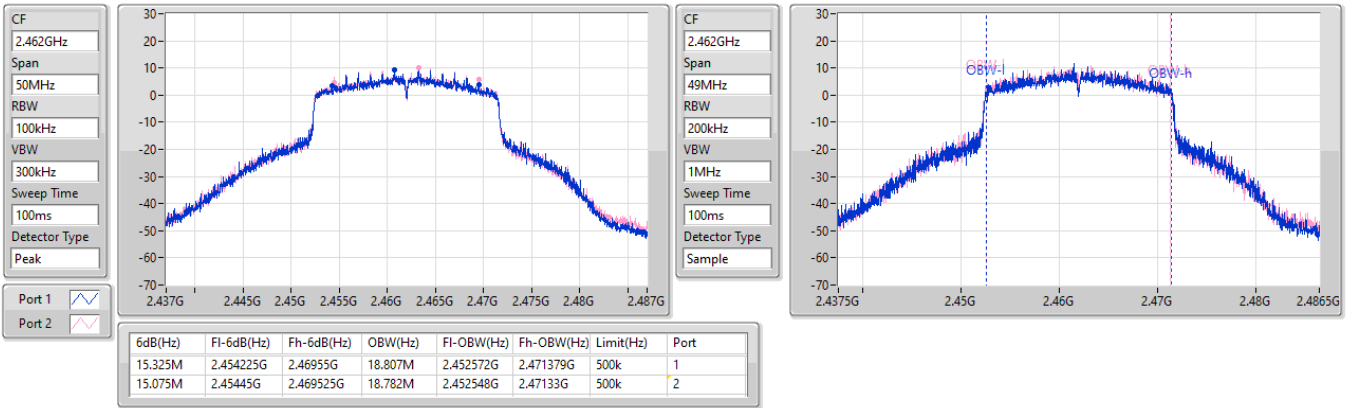
2.4-2.4835GHz\_802.11ax HEW20\_Nss2,(MCS0)\_2TX  
2437MHz

EBW



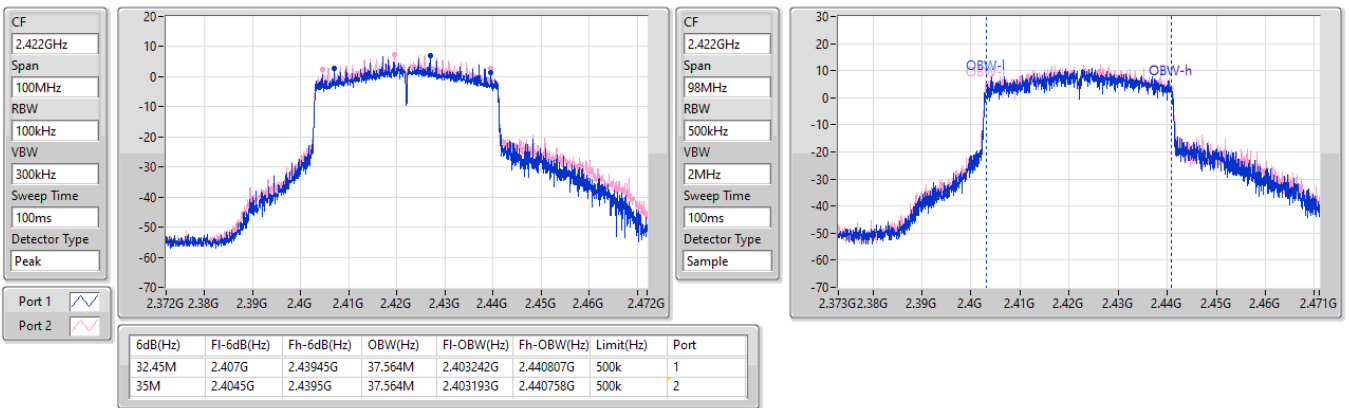
2.4-2.4835GHz\_802.11ax HEW20\_Nss2,(MCS0)\_2TX  
2462MHz

EBW



2.4-2.4835GHz\_802.11ax HEW40\_Nss2,(MCS0)\_2TX  
2422MHz

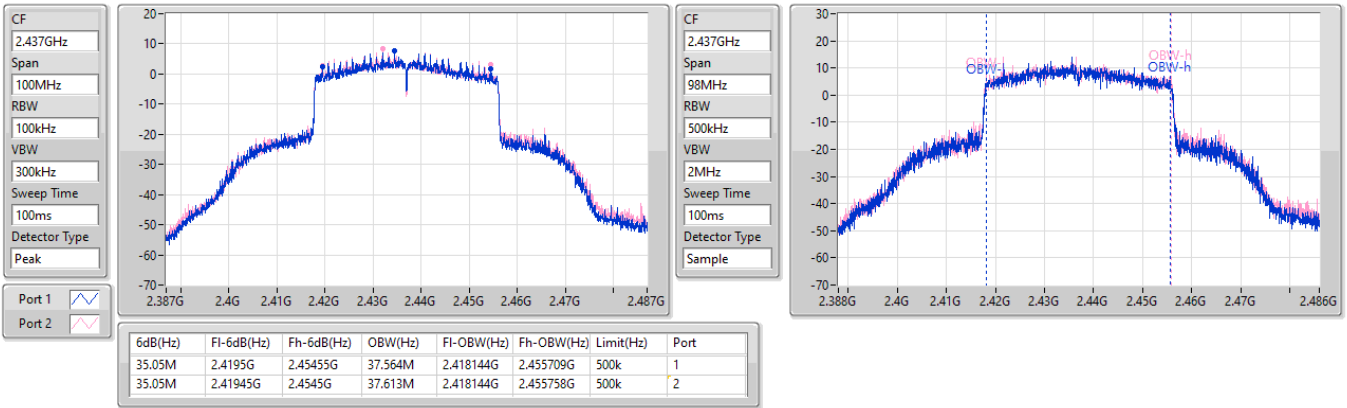
EBW





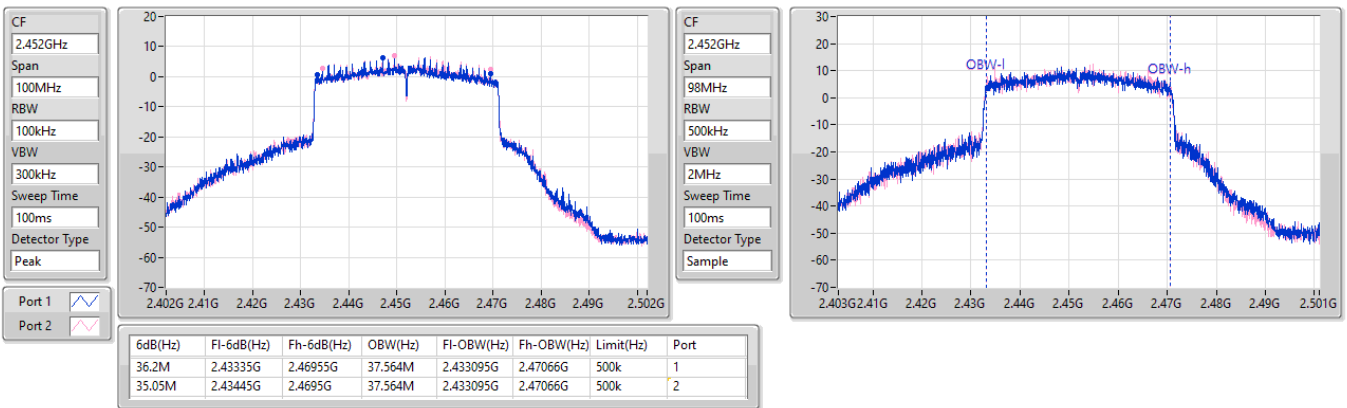
2.4-2.4835GHz\_802.11ax HEW40\_Nss2,(MCS0)\_2TX  
2437MHz

EBW



2.4-2.4835GHz\_802.11ax HEW40\_Nss2,(MCS0)\_2TX  
2452MHz

EBW





**Non-beamforming mode**

**Summary**

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
802.11b_Nss1,(1Mbps)_2TX	26.31	0.42756
802.11g_Nss1,(6Mbps)_2TX	29.23	0.83753
802.11ax HEW20_Nss2,(MCS0)_2TX	29.59	0.90991
802.11ax HEW40_Nss2,(MCS0)_2TX	29.54	0.89950

**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	2.60	23.11	23.46	26.30	30.00	28.90	36.00
2437MHz	Pass	2.60	23.18	23.39	26.30	30.00	28.90	36.00
2462MHz	Pass	2.60	23.08	23.51	26.31	30.00	28.91	36.00
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-	-	-
2412MHz	Pass	2.60	26.05	26.38	29.23	30.00	31.83	36.00
2437MHz	Pass	2.60	26.11	26.27	29.20	30.00	31.80	36.00
2462MHz	Pass	2.60	25.73	26.24	29.00	30.00	31.60	36.00
802.11ax HEW20_Nss2,(MCS0)_2TX	-	-	-	-	-	-	-	-
2412MHz	Pass	1.83	26.43	26.72	29.59	30.00	31.42	36.00
2437MHz	Pass	1.83	26.11	26.19	29.16	30.00	30.99	36.00
2462MHz	Pass	1.83	25.78	26.34	29.08	30.00	30.91	36.00
802.11ax HEW40_Nss2,(MCS0)_2TX	-	-	-	-	-	-	-	-
2422MHz	Pass	1.83	26.11	26.55	29.35	30.00	31.18	36.00
2437MHz	Pass	1.83	26.42	26.64	29.54	30.00	31.37	36.00
2452MHz	Pass	1.83	25.62	26.14	28.90	30.00	30.73	36.00

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

For 802.11ax

$$\text{Directional gain} = 10 \log [(10^{0.9/10} + 10^{2.6/10}) / 2] = 1.83 \text{ dBi}$$



Beamforming mode

Summary

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
802.11ax HEW20-BF_Nss2,(MCS0)_2TX	26.58	0.45499
802.11ax HEW40-BF_Nss2,(MCS0)_2TX	26.53	0.44978

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	1.83	23.42	23.71	26.58	30.00	28.41	36.00
2437MHz	Pass	1.83	23.1	23.18	26.15	30.00	27.98	36.00
2462MHz	Pass	1.83	22.77	23.33	26.07	30.00	27.90	36.00
802.11ax HEW40-BF_Nss2,(MCS0)_2TX	-	-	-	-	-	-	-	-
2422MHz	Pass	1.83	23.1	23.54	26.34	30.00	28.17	36.00
2437MHz	Pass	1.83	23.41	23.63	26.53	30.00	28.36	36.00
2452MHz	Pass	1.83	22.61	23.13	25.89	30.00	27.72	36.00

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

Directional gain =  $10 \log [(10^{0.9/10} + 10^{2.6/10}) / 2] = 1.83 \text{ dBi}$



**Non-beamforming mode**

**Summary**

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
802.11b_Nss1,(1Mbps)_2TX	23.68	0.23335
802.11g_Nss1,(6Mbps)_2TX	23.67	0.23281
802.11ax HEW20_Nss2,(MCS0)_2TX	23.67	0.23281
802.11ax HEW40_Nss2,(MCS0)_2TX	23.79	0.23933

**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	2.60	20.49	20.85	23.68	-	26.28	-
2437MHz	Pass	2.60	20.51	20.76	23.65	-	26.25	-
2462MHz	Pass	2.60	20.36	20.82	23.61	-	26.21	-
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-	-	-
2412MHz	Pass	2.60	20.37	20.93	23.67	-	26.27	-
2437MHz	Pass	2.60	20.45	20.82	23.65	-	26.25	-
2462MHz	Pass	2.60	20.12	20.51	23.33	-	25.93	-
802.11ax HEW20_Nss2,(MCS0)_2TX	-	-	-	-	-	-	-	-
2412MHz	Pass	1.83	20.42	20.89	23.67	-	25.50	-
2437MHz	Pass	1.83	20.25	20.73	23.51	-	25.34	-
2462MHz	Pass	1.83	20.01	20.64	23.35	-	25.18	-
802.11ax HEW40_Nss2,(MCS0)_2TX	-	-	-	-	-	-	-	-
2422MHz	Pass	1.83	20.41	20.82	23.63	-	25.46	-
2437MHz	Pass	1.83	20.59	20.97	23.79	-	25.62	-
2452MHz	Pass	1.83	20.11	20.57	23.36	-	25.19	-

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

Note : Conducted average output power is for reference

For 802.11ax

Directional gain =  $10 \log [(10^{0.9/10} + 10^{2.6/10}) / 2] = 1.83 \text{ dBi}$





**Beamforming mode**

**Summary**

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
802.11ax HEW20-BF_Nss2,(MCS0)_2TX	20.66	0.11641
802.11ax HEW40-BF_Nss2,(MCS0)_2TX	20.78	0.11967

**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	1.83	17.41	17.88	20.66	-	22.49	-
2437MHz	Pass	1.83	17.24	17.72	20.50	-	22.33	-
2462MHz	Pass	1.83	17	17.63	20.34	-	22.17	-
802.11ax HEW40-BF_Nss2,(MCS0)_2TX	-	-	-	-	-	-	-	-
2422MHz	Pass	1.83	17.4	17.81	20.62	-	22.45	-
2437MHz	Pass	1.83	17.58	17.96	20.78	-	22.61	-
2452MHz	Pass	1.83	17.1	17.56	20.35	-	22.18	-

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

Note : Conducted average output power is for reference

Directional gain =  $10 \log [(10^{0.9/10} + 10^{2.6/10}) / 2] = 1.83 \text{ dBi}$



Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
802.11b_Nss1,(1Mbps)_2TX	1.30
802.11g_Nss1,(6Mbps)_2TX	-1.26
802.11ax HEW20_Nss2,(MCS0)_2TX	-2.11
802.11ax HEW40_Nss2,(MCS0)_2TX	-4.31

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	4.80	-1.71	-1.22	0.62	8.00
2437MHz	Pass	4.80	0.14	-1.06	1.30	8.00
2462MHz	Pass	4.80	-1.70	0.28	1.14	8.00
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	4.80	-3.05	-3.97	-1.26	8.00
2437MHz	Pass	4.80	-4.44	-3.59	-1.44	8.00
2462MHz	Pass	4.80	-3.40	-3.66	-1.42	8.00
802.11ax HEW20_Nss2,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	1.83	-5.48	-5.17	-2.96	8.00
2437MHz	Pass	1.83	-3.73	-4.36	-2.11	8.00
2462MHz	Pass	1.83	-5.60	-4.60	-3.35	8.00
802.11ax HEW40_Nss2,(MCS0)_2TX	-	-	-	-	-	-
2422MHz	Pass	1.83	-7.18	-7.77	-5.36	8.00
2437MHz	Pass	1.83	-5.50	-6.03	-4.31	8.00
2452MHz	Pass	1.83	-8.35	-7.23	-6.24	8.00

DG = Directional Gain; RBW = 3kHz;

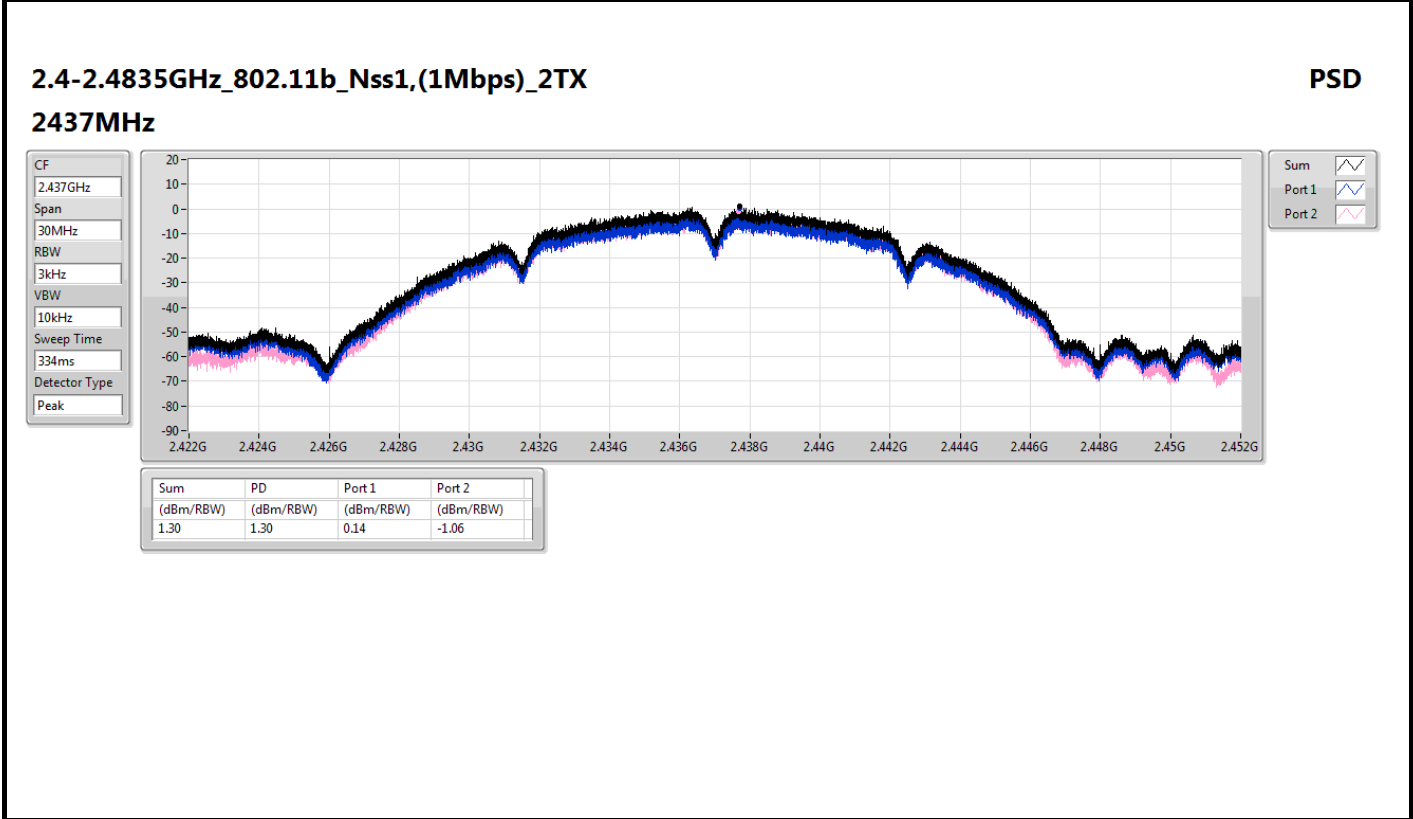
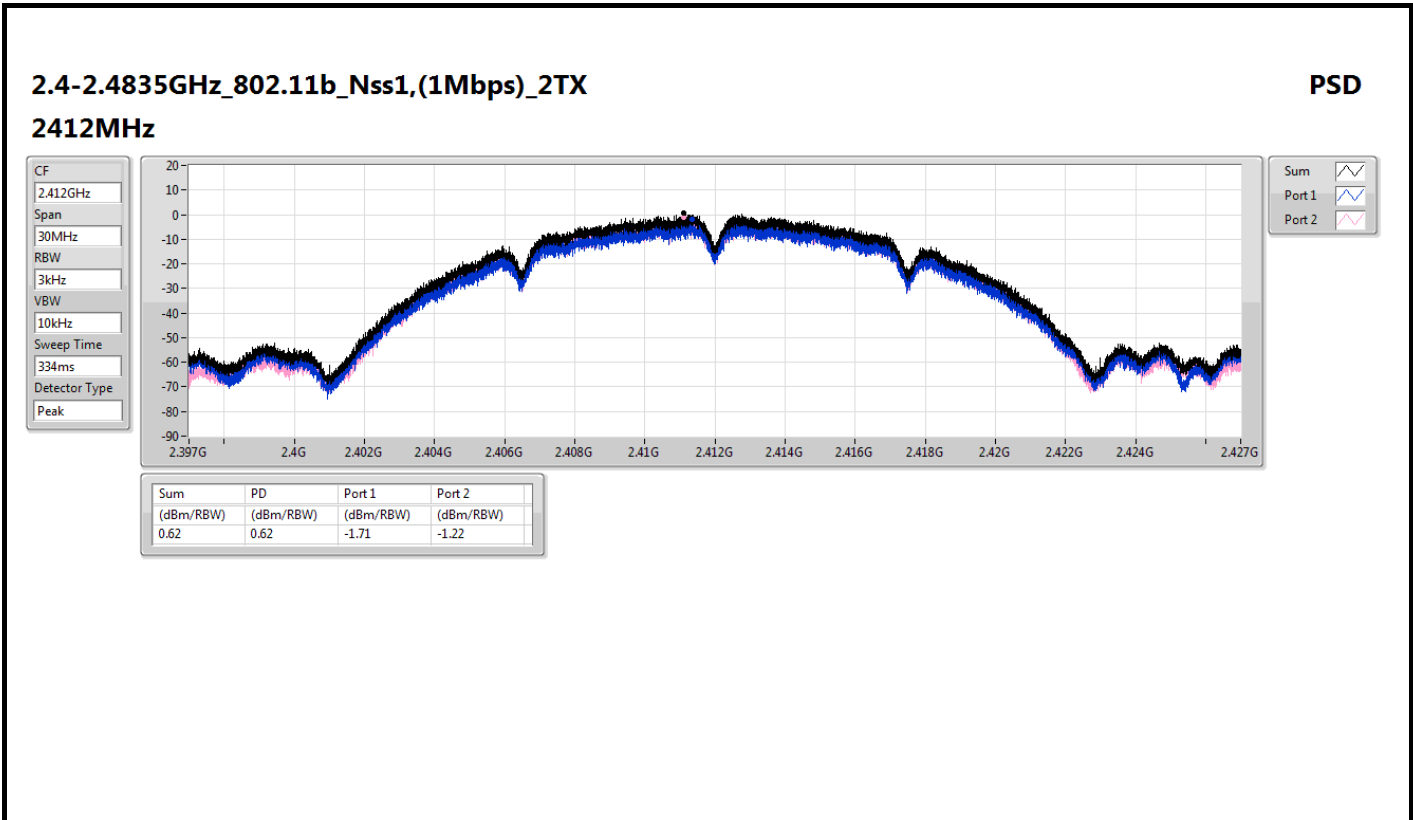
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; Port X = Port X Power Density;

For 802.11b/g

$$\text{Directional gain} = 10 \log [(10^{0.9/20} + 10^{2.6/20})^2 / 2] = 4.8 \text{ dBi}$$

For 802.11ax

$$\text{Directional gain} = 10 \log [(10^{0.9/10} + 10^{2.6/10}) / 2] = 1.83 \text{ dBi}$$



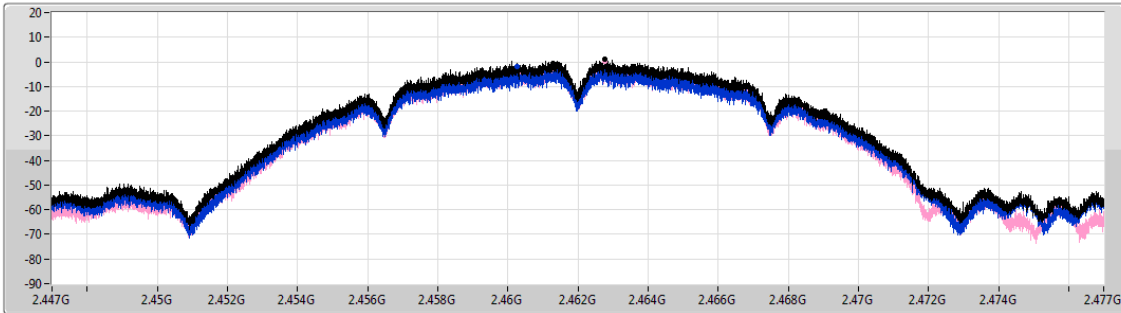


2.4-2.4835GHz\_802.11b\_Nss1,(1Mbps)\_2TX

PSD

2462MHz

CF  
2.462GHz  
Span  
30MHz  
RBW  
3kHz  
VBW  
10kHz  
Sweep Time  
334ms  
Detector Type  
Peak



Sum  
Port 1  
Port 2

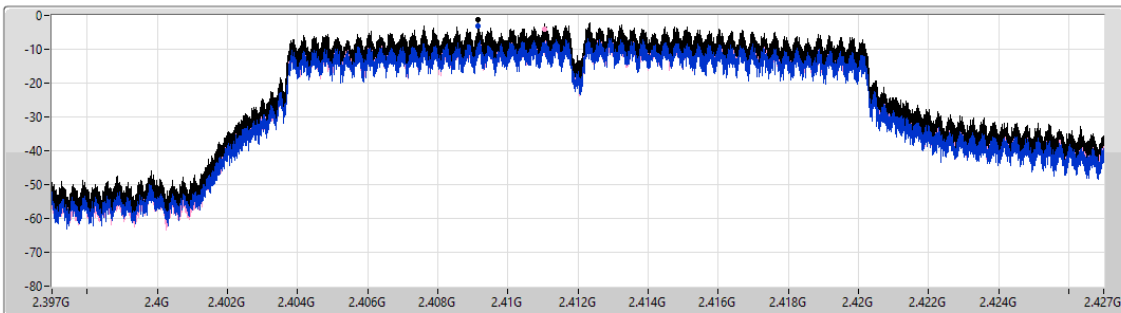
Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
1.14	1.14	-1.70	0.28

2.4-2.4835GHz\_802.11g\_Nss1,(6Mbps)\_2TX

PSD

2412MHz

CF  
2.412GHz  
Span  
30MHz  
RBW  
3kHz  
VBW  
10kHz  
Sweep Time  
334ms  
Detector Type  
Peak



Sum  
Port 1  
Port 2

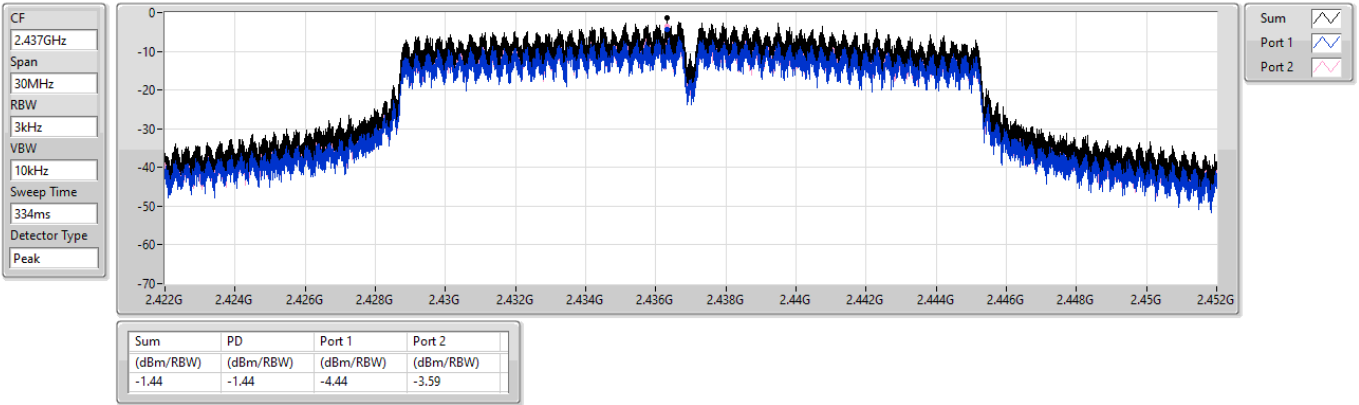
Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-1.26	-1.26	-3.05	-3.97



2.4-2.4835GHz\_802.11g\_Nss1,(6Mbps)\_2TX

PSD

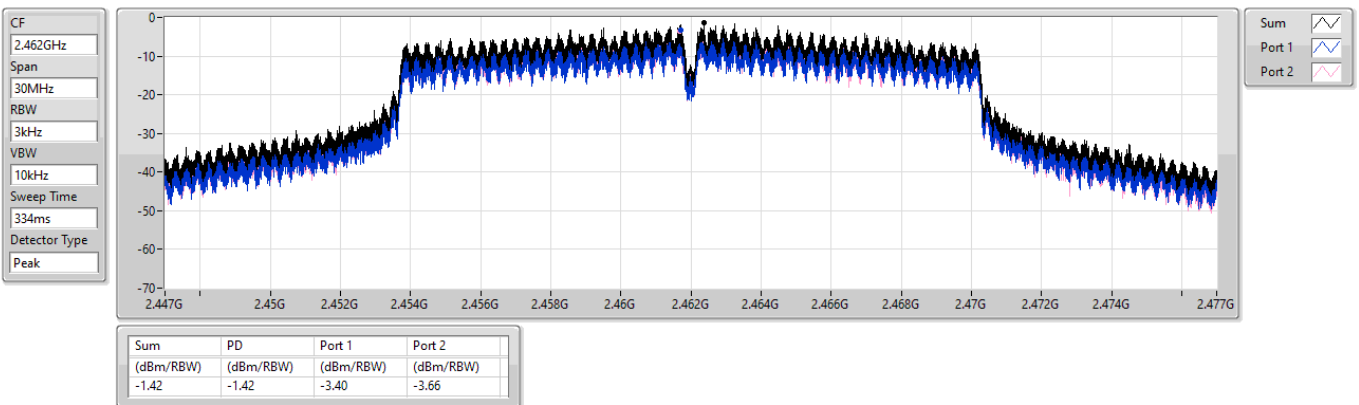
2437MHz



2.4-2.4835GHz\_802.11g\_Nss1,(6Mbps)\_2TX

PSD

2462MHz



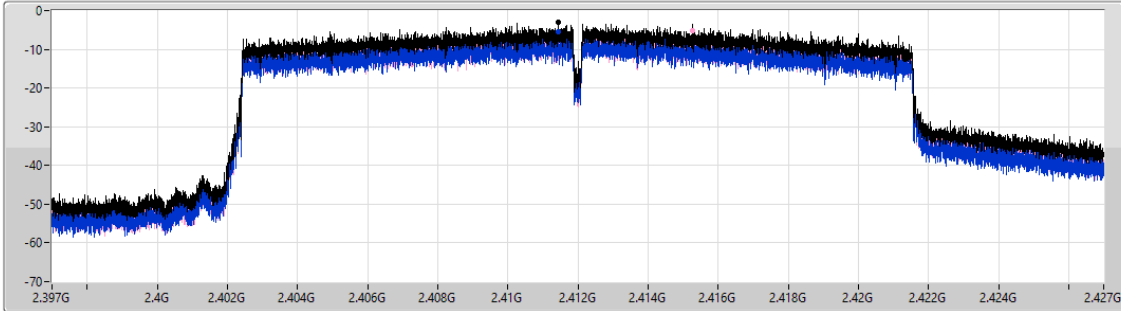


2.4-2.4835GHz\_802.11ax HEW20\_Nss2,(MCS0)\_2TX

PSD

2412MHz

CF  
2.412GHz  
Span  
30MHz  
RBW  
3kHz  
VBW  
10kHz  
Sweep Time  
334ms  
Detector Type  
Peak



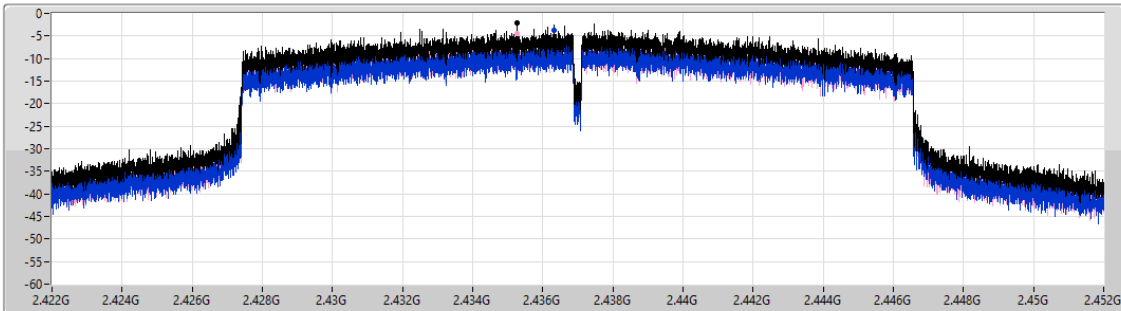
Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-2.96	-2.96	-5.48	-5.17

2.4-2.4835GHz\_802.11ax HEW20\_Nss2,(MCS0)\_2TX

PSD

2437MHz

CF  
2.437GHz  
Span  
30MHz  
RBW  
3kHz  
VBW  
10kHz  
Sweep Time  
334ms  
Detector Type  
Peak



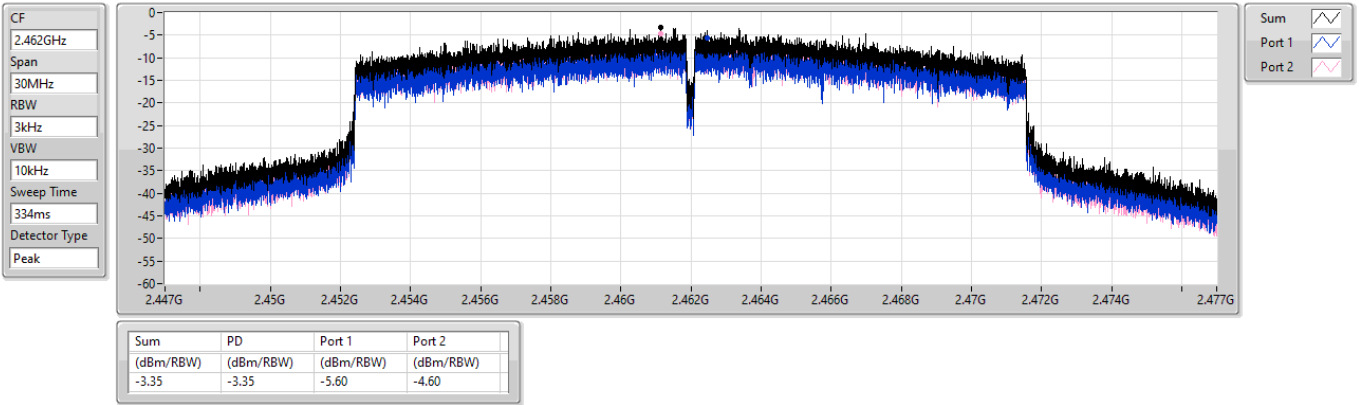
Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-2.11	-2.11	-3.73	-4.36



2.4-2.4835GHz\_802.11ax HEW20\_Nss2,(MCS0)\_2TX

PSD

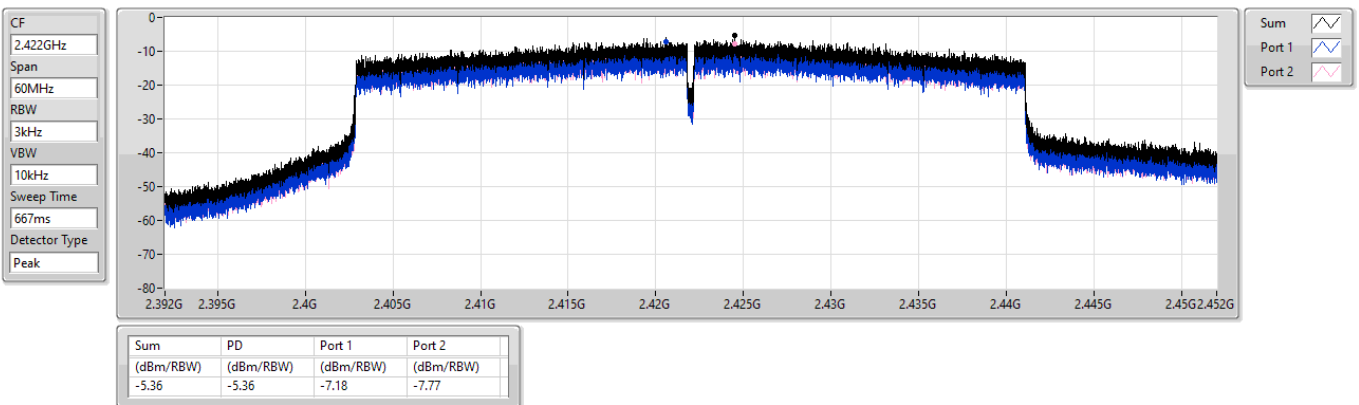
2462MHz



2.4-2.4835GHz\_802.11ax HEW40\_Nss2,(MCS0)\_2TX

PSD

2422MHz



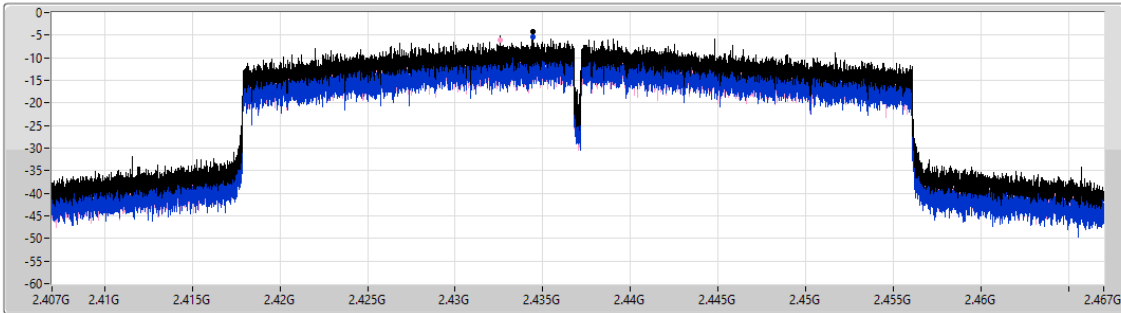


2.4-2.4835GHz\_802.11ax HEW40\_Nss2,(MCS0)\_2TX

PSD

2437MHz

CF  
2.437GHz  
Span  
60MHz  
RBW  
3kHz  
VBW  
10kHz  
Sweep Time  
667ms  
Detector Type  
Peak



Sum   
Port 1   
Port 2

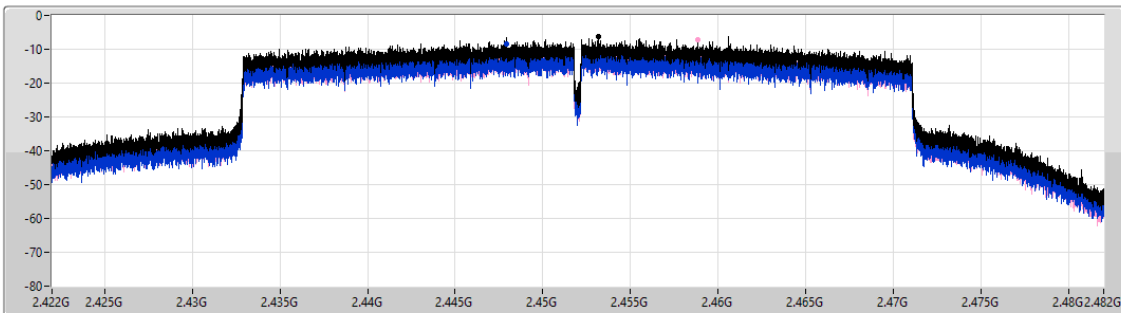
Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-4.31	-4.31	-5.50	-6.03

2.4-2.4835GHz\_802.11ax HEW40\_Nss2,(MCS0)\_2TX

PSD

2452MHz

CF  
2.452GHz  
Span  
60MHz  
RBW  
3kHz  
VBW  
10kHz  
Sweep Time  
667ms  
Detector Type  
Peak



Sum   
Port 1   
Port 2

Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-6.24	-6.24	-8.35	-7.23





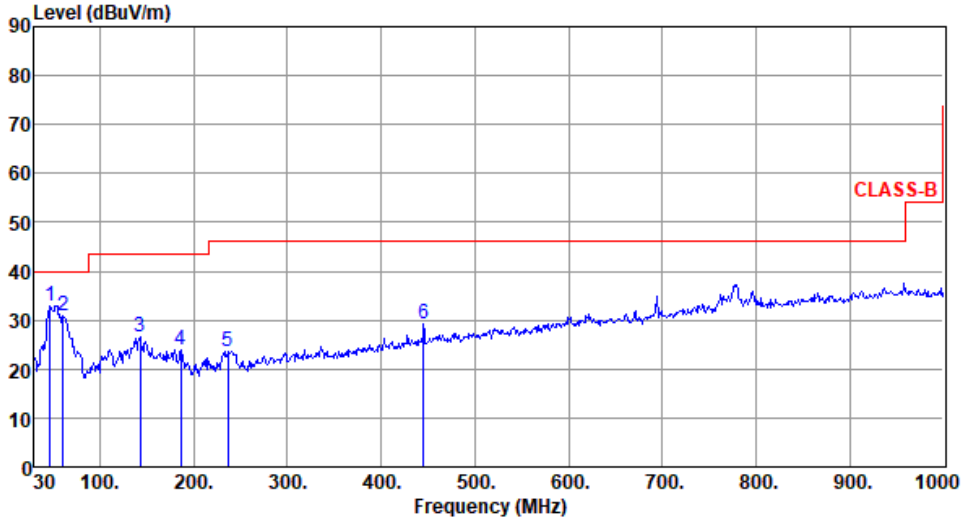
**Configuration 1: Adapter mode**  
**Unwanted Emissions (Below 1GHz)**

<b>Modulation</b>	ax HE20	<b>Test Freq. (MHz)</b>	2412						
<b>Polarization</b>	Horizontal								
Test By :Brad Wu      Temperature(°C):23      Humidity(%):64									
	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	55.22	24.57	40.00	-15.43	33.27	-8.70	Peak	---	---
2	111.48	23.61	43.50	-19.89	35.50	-11.89	Peak	---	---
3	147.37	26.99	43.50	-16.51	35.52	-8.53	Peak	---	---
4	201.69	23.01	43.50	-20.49	34.81	-11.80	Peak	---	---
5	251.16	23.14	46.00	-22.86	32.73	-9.59	Peak	---	---
6	445.16	28.15	46.00	-17.85	31.66	-3.51	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	ax HE20	Test Freq. (MHz)	2412
Polarization	Vertical		

Test By :Brad Wu      Temperature(°C):23      Humidity(%):64



	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	46.49	32.85	40.00	-7.15	41.32	-8.47	Peak	---	---
2	61.04	30.91	40.00	-9.09	40.34	-9.43	Peak	---	---
3	142.52	26.53	43.50	-16.97	35.45	-8.92	Peak	---	---
4	186.17	23.94	43.50	-19.56	34.76	-10.82	Peak	---	---
5	236.61	23.51	46.00	-22.49	33.73	-10.22	Peak	---	---
6	445.16	29.06	46.00	-16.94	32.57	-3.51	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 : Sean Yu      Temperature(°C): 24      Humidity(%): 66									
	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	40.71	54.00	-13.29	44.64	-3.93	Average	299	306
2	2390.00	53.49	74.00	-20.51	57.42	-3.93	Peak	299	306
3 *	2412.00	111.34			115.36	-4.02	Average	299	306
4 *	2412.00	114.66			118.68	-4.02	Peak	299	306
5	4824.00	48.65	54.00	-5.35	80.13	-31.48	Average	241	127
6	4824.00	52.04	74.00	-21.96	83.52	-31.48	Peak	241	127
7	12060.00	41.90	54.00	-12.10	34.42	7.48	Average	100	35
8	12060.00	55.29	74.00	-18.71	47.81	7.48	Peak	100	35

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



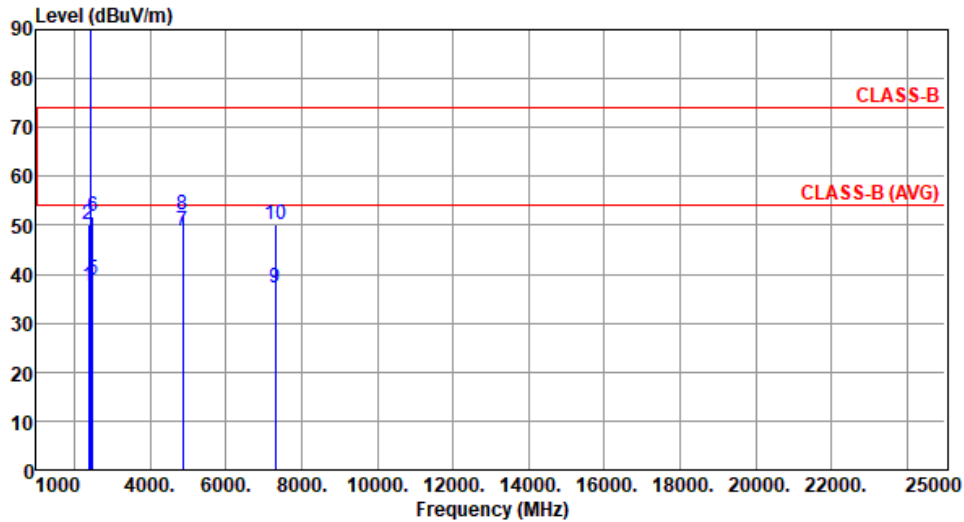
<b>Modulation</b>	11b	<b>Test Freq. (MHz)</b>	2412						
<b>Polarization</b>	Vertical								
Test By : Sean Yu      Temperature(°C): 24      Humidity(%): 66									
	Freq.	Emission level	Limit	Margin	SA reading	Factor	Remark	ANT High	Turn Table
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m		cm	deg
1	2390.00	37.49	54.00	-16.51	41.42	-3.93	Average	100	143
2	2390.00	50.32	74.00	-23.68	54.25	-3.93	Peak	100	143
3 *	2412.00	108.79			112.81	-4.02	Average	100	143
4 *	2412.00	111.03			115.05	-4.02	Peak	100	143
5	4824.00	44.72	54.00	-9.28	76.20	-31.48	Average	275	166
6	4824.00	49.68	74.00	-24.32	81.16	-31.48	Peak	275	166
7	12060.00	41.87	54.00	-12.13	34.39	7.48	Average	100	38
8	12060.00	55.09	74.00	-18.91	47.61	7.48	Peak	100	38

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



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

Test By :Brad Wu      Temperature(°C):23      Humidity(%):66



	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	37.49	54.00	-16.51	41.42	-3.93	Average	100	326
2	2390.00	50.30	74.00	-23.70	54.23	-3.93	Peak	100	326
3 *	2437.00	111.44			115.58	-4.14	Average	100	326
4 *	2437.00	114.81			118.95	-4.14	Peak	100	326
5	2483.50	38.94	54.00	-15.06	43.16	-4.22	Average	100	326
6	2483.50	51.79	74.00	-22.21	56.01	-4.22	Peak	100	326
7	4874.00	48.84	54.00	-5.16	49.17	-0.33	Average	256	130
8	4874.00	52.20	74.00	-21.80	52.53	-0.33	Peak	256	130
9	7311.00	37.22	54.00	-16.78	31.40	5.82	Average	100	29
10	7311.00	50.20	74.00	-23.80	44.38	5.82	Peak	100	29

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

\*Factor includes antenna factor , cable loss and amplifier gain

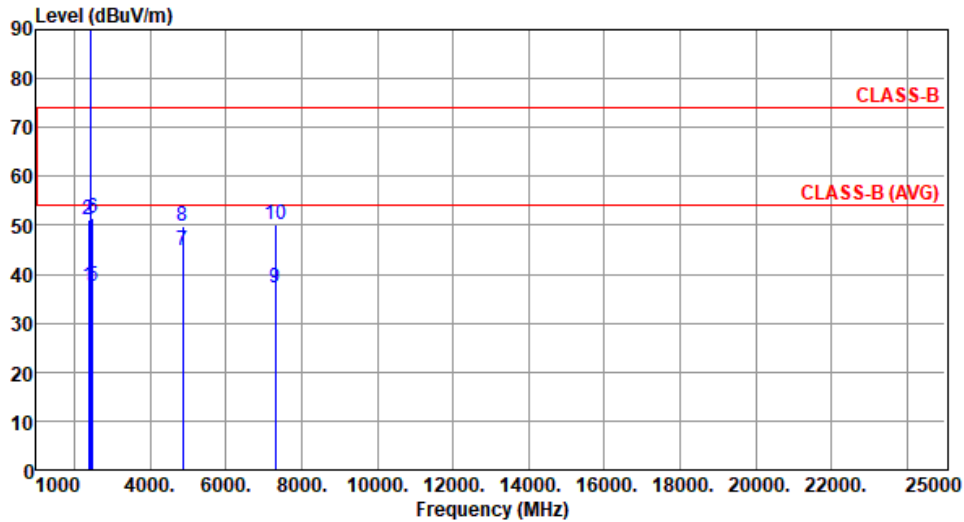
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Note 3:"\*" is Peak / Average value of fundamental frequency



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

Test By :Brad Wu      Temperature(°C):23      Humidity(%):66



	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	37.53	54.00	-16.47	41.46	-3.93	Average	100	233
2	2390.00	51.13	74.00	-22.87	55.06	-3.93	Peak	100	233
3 *	2437.00	109.62			113.76	-4.14	Average	100	233
4 *	2437.00	111.81			115.95	-4.14	Peak	100	233
5	2483.50	37.66	54.00	-16.34	41.88	-4.22	Average	100	233
6	2483.50	51.39	74.00	-22.61	55.61	-4.22	Peak	100	233
7	4874.00	44.88	54.00	-9.12	45.21	-0.33	Average	269	168
8	4874.00	49.84	74.00	-24.16	50.17	-0.33	Peak	269	168
9	7311.00	37.06	54.00	-16.94	31.24	5.82	Average	100	34
10	7311.00	50.06	74.00	-23.94	44.24	5.82	Peak	100	34

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

\*Factor includes antenna factor , cable loss and amplifier gain

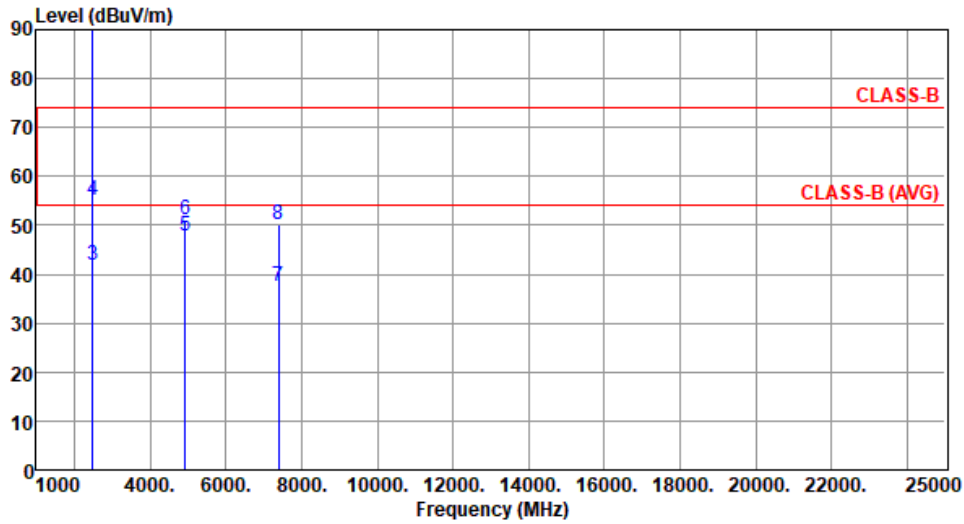
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Note 3:"\*" is Peak / Average value of fundamental frequency



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

Test By : Sean Yu      Temperature(°C): 24      Humidity(%): 66



		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	*	2462.00	111.77			115.97	-4.20	Average	100	306
2	*	2462.00	114.92			119.12	-4.20	Peak	100	306
3		2483.50	41.76	54.00	-12.24	45.98	-4.22	Average	100	306
4		2483.50	55.10	74.00	-18.90	59.32	-4.22	Peak	100	306
5		4924.00	47.75	54.00	-6.25	47.98	-0.23	Average	231	132
6		4924.00	51.02	74.00	-22.98	51.25	-0.23	Peak	231	132
7		7386.00	37.54	54.00	-16.46	31.92	5.62	Average	100	21
8		7386.00	50.14	74.00	-23.86	44.52	5.62	Peak	100	21

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

\*Factor includes antenna factor , cable loss and amplifier gain

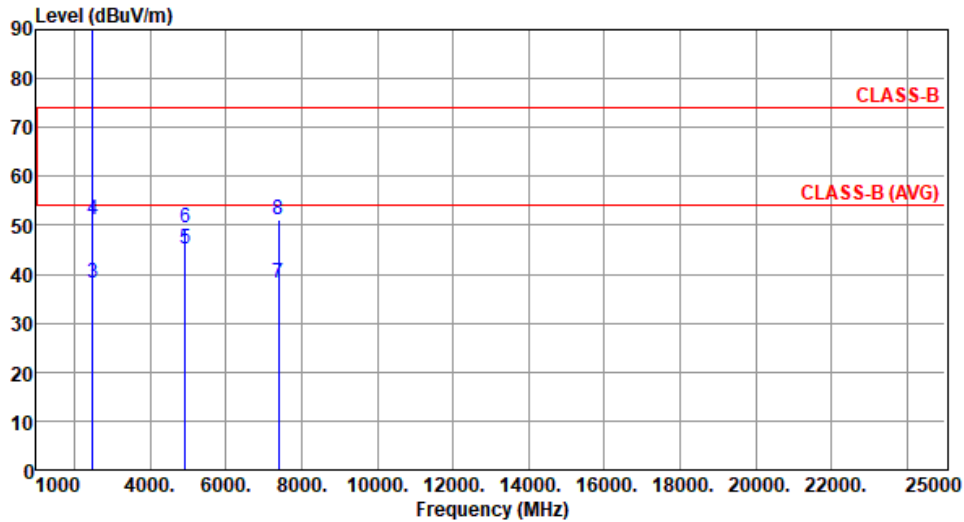
Note 2: Margin (dB) = Emission level (dBUV/m) – Limit (dBUV/m).

Note 3: "\*" is Peak / Average value of fundamental frequency



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

Test By : Sean Yu      Temperature(°C): 24      Humidity(%): 66



		Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn
		MHz	level	dBuV/m	dB	reading	dB/m		High	Table
			dBuV/m			dBuV			cm	deg
1	*	2462.00	110.10			114.30	-4.20	Average	100	235
2	*	2462.00	112.51			116.71	-4.20	Peak	100	235
3		2483.50	38.20	54.00	-15.80	42.42	-4.22	Average	100	235
4		2483.50	51.25	74.00	-22.75	55.47	-4.22	Peak	100	235
5		4924.00	45.17	54.00	-8.83	45.40	-0.23	Average	265	164
6		4924.00	49.44	74.00	-24.56	49.67	-0.23	Peak	265	164
7		7386.00	38.30	54.00	-15.70	32.68	5.62	Average	100	44
8		7386.00	51.18	74.00	-22.82	45.56	5.62	Peak	100	44

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

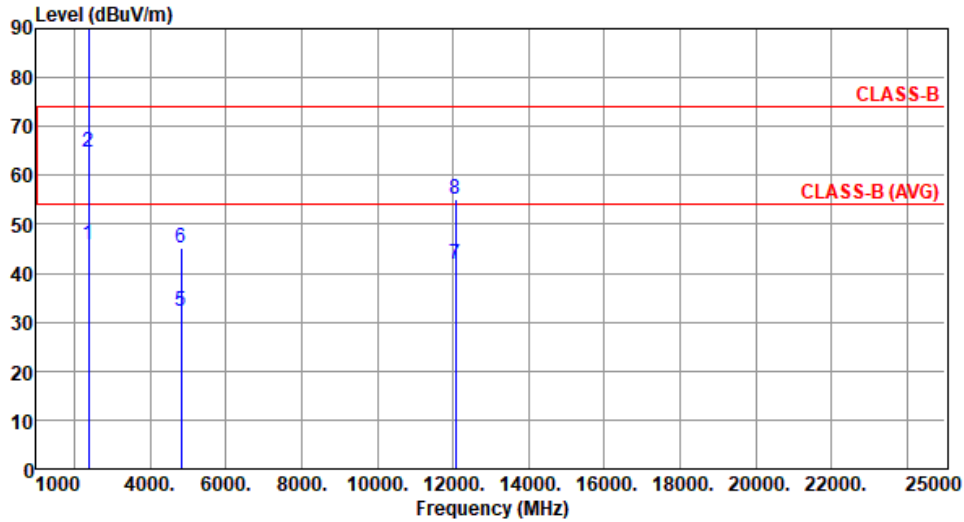




Unwanted Emissions (Above 1GHz) for 11g

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

Test By :Sean Yu      Temperature(°C):24      Humidity(%):61



	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	45.68	54.00	-8.32	49.61	-3.93	Average	100	304
2	2390.00	64.82	74.00	-9.18	68.75	-3.93	Peak	100	304
3 *	2412.00	107.59			111.61	-4.02	Average	100	304
4 *	2412.00	118.22			122.24	-4.02	Peak	100	304
5	4824.00	32.12	54.00	-21.88	32.45	-0.33	Average	100	52
6	4824.00	45.11	74.00	-28.89	45.44	-0.33	Peak	100	52
7	12060.00	41.84	54.00	-12.16	34.36	7.48	Average	100	31
8	12060.00	55.24	74.00	-18.76	47.76	7.48	Peak	100	31

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

\*Factor includes antenna factor , cable loss and amplifier gain

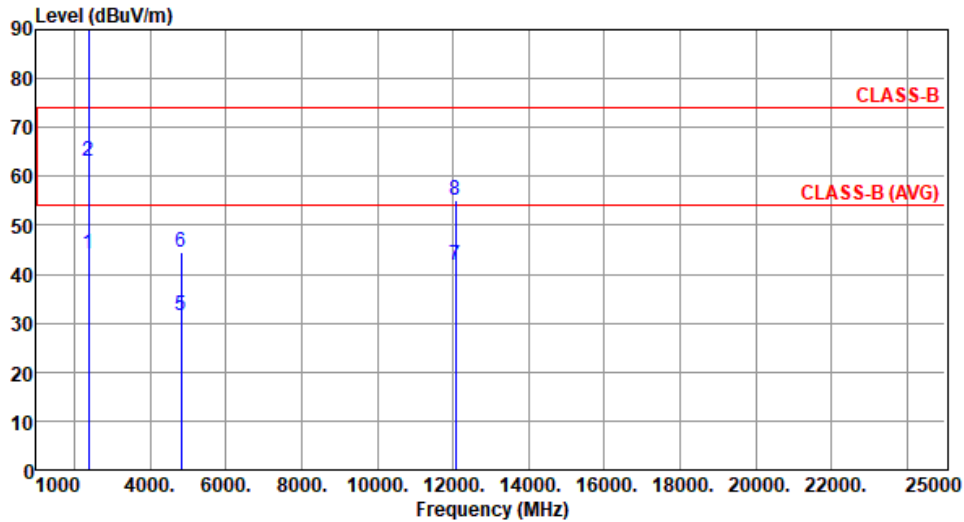
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Note 3:"\*" is Peak / Average value of fundamental frequency



<b>Modulation</b>	11g	<b>Test Freq. (MHz)</b>	2412
<b>Polarization</b>	Vertical		

Test By : Sean Yu      Temperature(°C): 24      Humidity(%): 61



	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	44.21	54.00	-9.79	48.14	-3.93	Average	105	241
2	2390.00	62.95	74.00	-11.05	66.88	-3.93	Peak	105	241
3 *	2412.00	105.46			109.48	-4.02	Average	105	241
4 *	2412.00	115.23			119.25	-4.02	Peak	105	241
5	4824.00	31.54	54.00	-22.46	31.87	-0.33	Average	100	66
6	4824.00	44.36	74.00	-29.64	44.69	-0.33	Peak	100	66
7	12060.00	41.82	54.00	-12.18	34.34	7.48	Average	100	25
8	12060.00	54.98	74.00	-19.02	47.50	7.48	Peak	100	25

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

\*Factor includes antenna factor , cable loss and amplifier gain

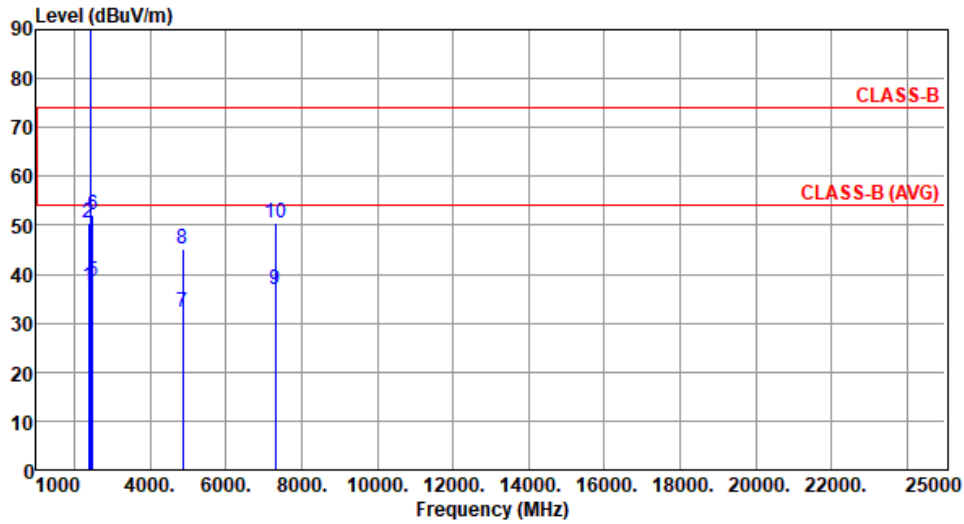
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Note 3: "\*" is Peak / Average value of fundamental frequency



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

Test By :Brad Wu      Temperature(°C):23      Humidity(%):66



	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	37.52	54.00	-16.48	41.45	-3.93	Average	100	327
2	2390.00	50.53	74.00	-23.47	54.46	-3.93	Peak	100	327
3 *	2437.00	106.57			110.71	-4.14	Average	100	327
4 *	2437.00	117.02			121.16	-4.14	Peak	100	327
5	2483.50	38.69	54.00	-15.31	42.91	-4.22	Average	100	327
6	2483.50	52.03	74.00	-21.97	56.25	-4.22	Peak	100	327
7	4874.00	32.26	54.00	-21.74	32.59	-0.33	Average	100	26
8	4874.00	45.19	74.00	-28.81	45.52	-0.33	Peak	100	26
9	7311.00	36.99	54.00	-17.01	31.17	5.82	Average	100	42
10	7311.00	50.32	74.00	-23.68	44.50	5.82	Peak	100	42

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

\*Factor includes antenna factor , cable loss and amplifier gain

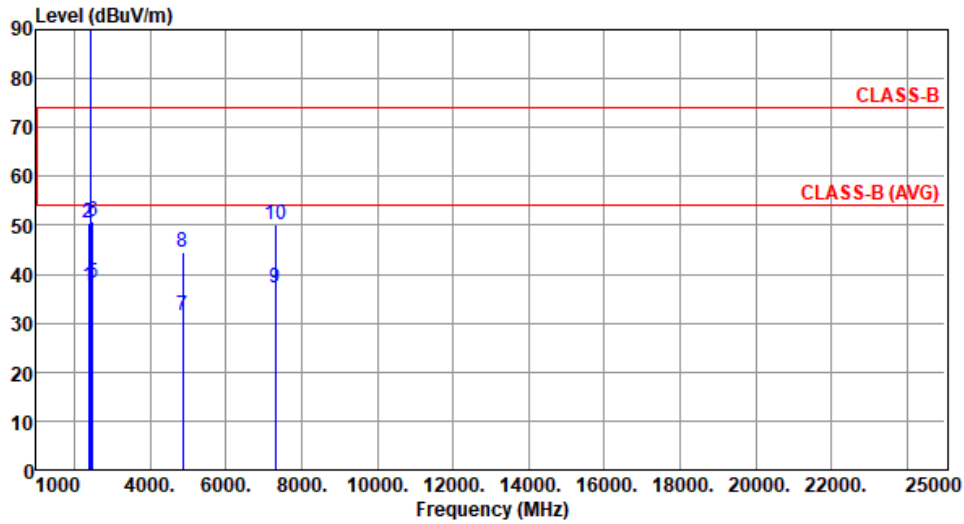
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Note 3:"\*" is Peak / Average value of fundamental frequency



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

Test By :Brad Wu      Temperature(°C):23      Humidity(%):66



	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	37.61	54.00	-16.39	41.54	-3.93	Average	106	235
2	2390.00	50.59	74.00	-23.41	54.52	-3.93	Peak	106	235
3 *	2437.00	104.53			108.67	-4.14	Average	106	235
4 *	2437.00	114.35			118.49	-4.14	Peak	106	235
5	2483.50	38.10	54.00	-15.90	42.32	-4.22	Average	106	235
6	2483.50	50.66	74.00	-23.34	54.88	-4.22	Peak	106	235
7	4874.00	31.61	54.00	-22.39	31.94	-0.33	Average	100	39
8	4874.00	44.48	74.00	-29.52	44.81	-0.33	Peak	100	39
9	7311.00	37.06	54.00	-16.94	31.24	5.82	Average	100	22
10	7311.00	50.17	74.00	-23.83	44.35	5.82	Peak	100	22

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

\*Factor includes antenna factor , cable loss and amplifier gain

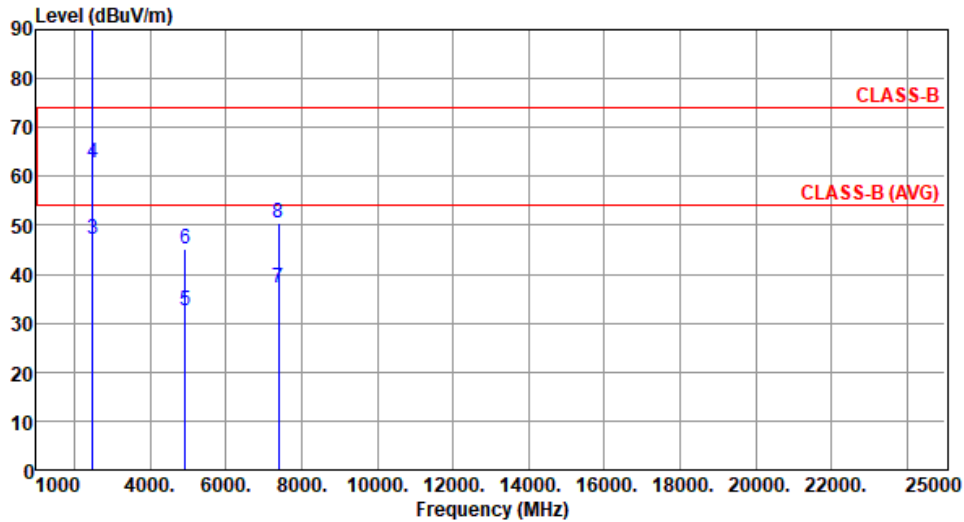
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Note 3:"\*" is Peak / Average value of fundamental frequency



<b>Modulation</b>	11g	<b>Test Freq. (MHz)</b>	2462
<b>Polarization</b>	Horizontal		

Test By : Sean Yu      Temperature(°C): 24      Humidity(%): 61



		Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn
		MHz	level	dBuV/m	dB	reading	dB/m		High	Table
			dBuV/m			dBuV			cm	deg
1	*	2462.00	105.99			110.19	-4.20	Average	116	311
2	*	2462.00	116.81			121.01	-4.20	Peak	116	311
3		2483.50	47.22	54.00	-6.78	51.44	-4.22	Average	247	313
4		2483.50	62.69	74.00	-11.31	66.91	-4.22	Peak	247	313
5		4924.00	32.45	54.00	-21.55	32.68	-0.23	Average	100	35
6		4924.00	45.28	74.00	-28.72	45.51	-0.23	Peak	100	35
7		7386.00	37.12	54.00	-16.88	31.50	5.62	Average	100	47
8		7386.00	50.45	74.00	-23.55	44.83	5.62	Peak	100	47

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

\*Factor includes antenna factor , cable loss and amplifier gain

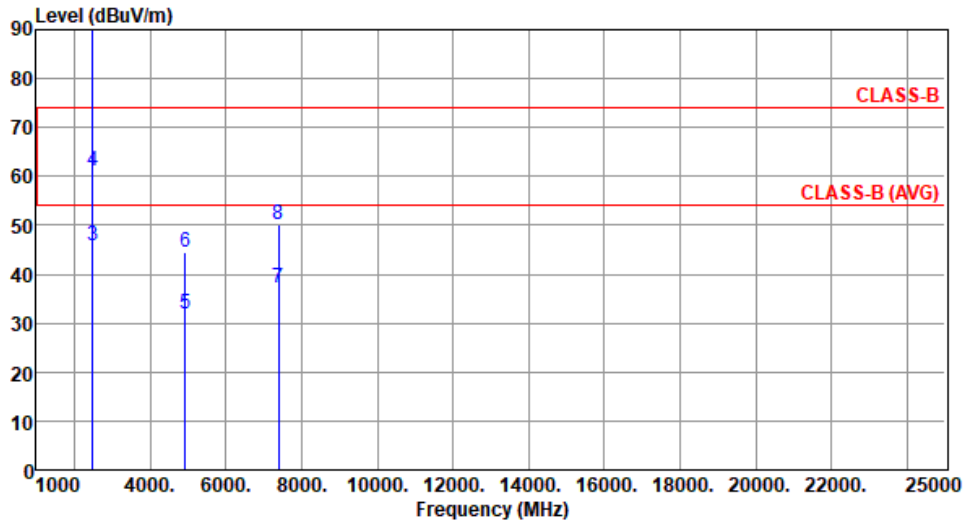
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Note 3: "\*" is Peak / Average value of fundamental frequency



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

Test By : Sean Yu      Temperature(°C): 24      Humidity(%): 61



		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	*	2462.00	103.94			108.14	-4.20	Average	108	242
2	*	2462.00	113.82			118.02	-4.20	Peak	108	242
3		2483.50	45.84	54.00	-8.16	50.06	-4.22	Average	108	242
4		2483.50	61.24	74.00	-12.76	65.46	-4.22	Peak	108	242
5		4924.00	31.82	54.00	-22.18	32.05	-0.23	Average	100	41
6		4924.00	44.58	74.00	-29.42	44.81	-0.23	Peak	100	41
7		7386.00	37.19	54.00	-16.81	31.57	5.62	Average	100	45
8		7386.00	50.25	74.00	-23.75	44.63	5.62	Peak	100	45

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).

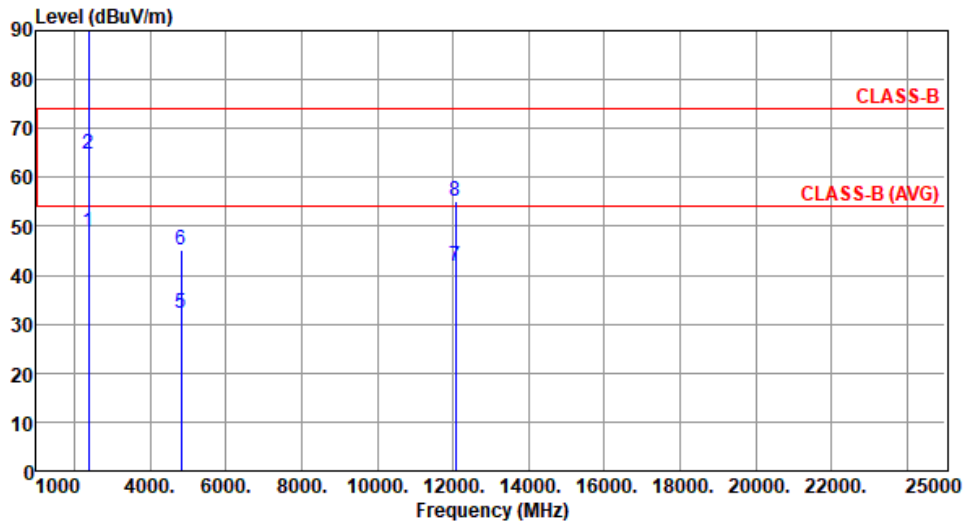
Note 3: "\*" is Peak / Average value of fundamental frequency



Unwanted Emissions (Above 1GHz) for ax HE20

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

Test By : Sean Yu      Temperature(°C): 24      Humidity(%): 66



	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	48.67	54.00	-5.33	52.60	-3.93	Average	100	307
2	2390.00	64.75	74.00	-9.25	68.68	-3.93	Peak	100	307
3 *	2412.00	105.69			109.71	-4.02	Average	100	307
4 *	2412.00	117.90			121.92	-4.02	Peak	100	307
5	4824.00	32.24	54.00	-21.76	32.57	-0.33	Average	100	36
6	4824.00	45.26	74.00	-28.74	45.59	-0.33	Peak	100	36
7	12060.00	41.75	54.00	-12.25	34.27	7.48	Average	100	22
8	12060.00	55.28	74.00	-18.72	47.80	7.48	Peak	100	22

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

\*Factor includes antenna factor , cable loss and amplifier gain

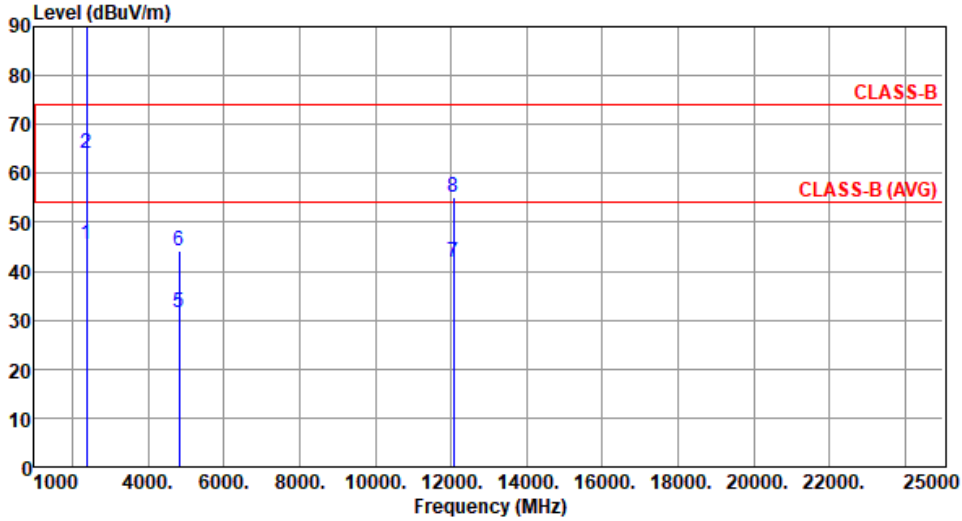
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Note 3: "\*" is Peak / Average value of fundamental frequency



<b>Modulation</b>	ax HE20	<b>Test Freq. (MHz)</b>	2412
<b>Polarization</b>	Vertical		

Test By : Sean Yu      Temperature(°C): 24      Humidity(%): 66



	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	45.62	54.00	-8.38	49.55	-3.93	Average	103	245
2	2390.00	64.11	74.00	-9.89	68.04	-3.93	Peak	103	245
3 *	2412.00	103.25			107.27	-4.02	Average	103	245
4 *	2412.00	115.14			119.16	-4.02	Peak	103	245
5	4824.00	31.45	54.00	-22.55	31.78	-0.33	Average	100	72
6	4824.00	44.28	74.00	-29.72	44.61	-0.33	Peak	100	72
7	12060.00	41.89	54.00	-12.11	34.41	7.48	Average	100	28
8	12060.00	55.12	74.00	-18.88	47.64	7.48	Peak	100	28

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).

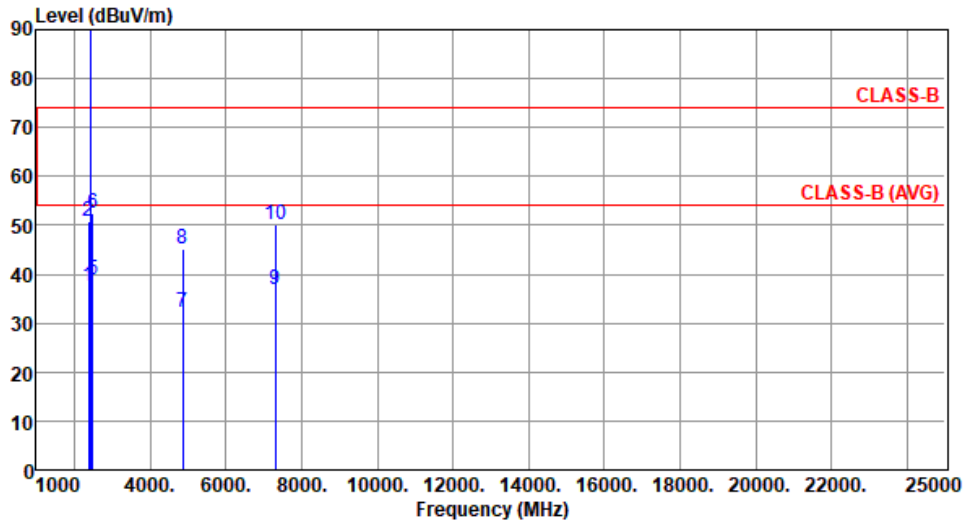
Note 3: "\*" is Peak / Average value of fundamental frequency





<b>Modulation</b>	ax HE20	<b>Test Freq. (MHz)</b>	2437
<b>Polarization</b>	Horizontal		

Test By :Brad Wu      Temperature(°C):23      Humidity(%):66



	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	37.62	54.00	-16.38	41.55	-3.93	Average	100	329
2	2390.00	50.68	74.00	-23.32	54.61	-3.93	Peak	100	329
3 *	2437.00	104.52			108.66	-4.14	Average	100	329
4 *	2437.00	116.14			120.28	-4.14	Peak	100	329
5	2483.50	38.96	54.00	-15.04	43.18	-4.22	Average	100	329
6	2483.50	52.59	74.00	-21.41	56.81	-4.22	Peak	100	329
7	4874.00	32.15	54.00	-21.85	32.48	-0.33	Average	100	29
8	4874.00	45.08	74.00	-28.92	45.41	-0.33	Peak	100	29
9	7311.00	36.84	54.00	-17.16	31.02	5.82	Average	100	31
10	7311.00	50.26	74.00	-23.74	44.44	5.82	Peak	100	31

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

\*Factor includes antenna factor , cable loss and amplifier gain

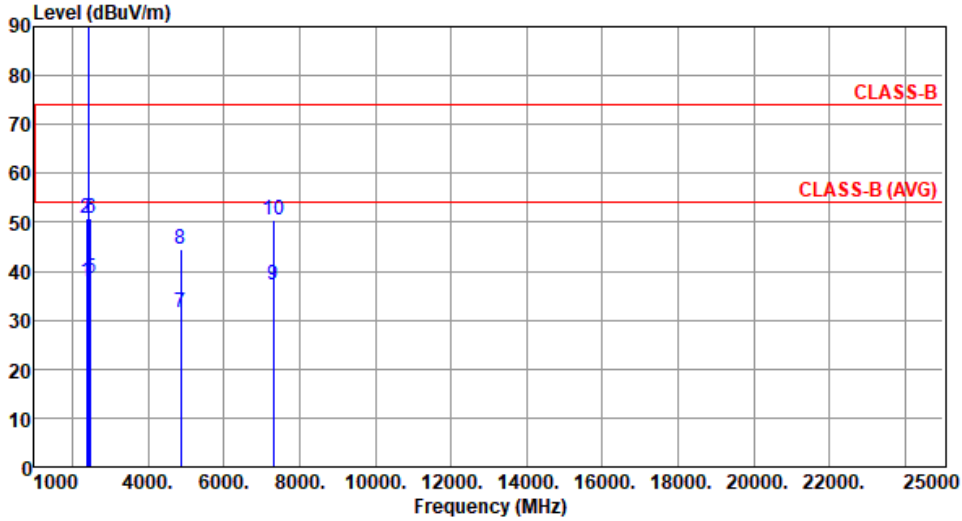
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Note 3:"\*" is Peak / Average value of fundamental frequency



<b>Modulation</b>	ax HE20	<b>Test Freq. (MHz)</b>	2437
<b>Polarization</b>	Vertical		

Test By :Brad Wu      Temperature(°C):23      Humidity(%):66



	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	37.88	54.00	-16.12	41.81	-3.93	Average	109	232
2	2390.00	50.74	74.00	-23.26	54.67	-3.93	Peak	109	232
3 *	2437.00	102.61			106.75	-4.14	Average	109	232
4 *	2437.00	113.42			117.56	-4.14	Peak	109	232
5	2483.50	38.42	54.00	-15.58	42.64	-4.22	Average	109	232
6	2483.50	50.75	74.00	-23.25	54.97	-4.22	Peak	109	232
7	4874.00	31.64	54.00	-22.36	31.97	-0.33	Average	100	46
8	4874.00	44.53	74.00	-29.47	44.86	-0.33	Peak	100	46
9	7311.00	37.22	54.00	-16.78	31.40	5.82	Average	100	15
10	7311.00	50.38	74.00	-23.62	44.56	5.82	Peak	100	15

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

\*Factor includes antenna factor , cable loss and amplifier gain

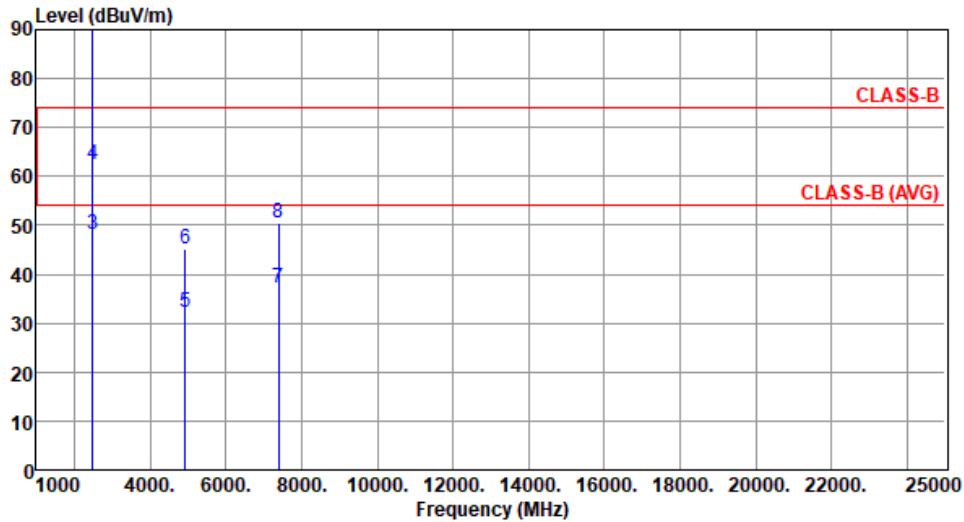
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Note 3:"\*" is Peak / Average value of fundamental frequency



<b>Modulation</b>	ax HE20	<b>Test Freq. (MHz)</b>	2462
<b>Polarization</b>	Horizontal		

Test By : Sean Yu      Temperature(°C): 24      Humidity(%): 66



		Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn
		MHz	level	dBuV/m	dB	reading	dB/m		High	Table
			dBuV/m			dBuV			cm	deg
1	*	2462.00	103.97			108.17	-4.20	Average	100	326
2	*	2462.00	116.47			120.67	-4.20	Peak	100	326
3		2483.50	48.29	54.00	-5.71	52.51	-4.22	Average	100	326
4		2483.50	62.32	74.00	-11.68	66.54	-4.22	Peak	100	326
5		4924.00	32.36	54.00	-21.64	32.59	-0.23	Average	100	25
6		4924.00	45.15	74.00	-28.85	45.38	-0.23	Peak	100	25
7		7386.00	37.08	54.00	-16.92	31.46	5.62	Average	100	42
8		7386.00	50.39	74.00	-23.61	44.77	5.62	Peak	100	42

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

\*Factor includes antenna factor , cable loss and amplifier gain

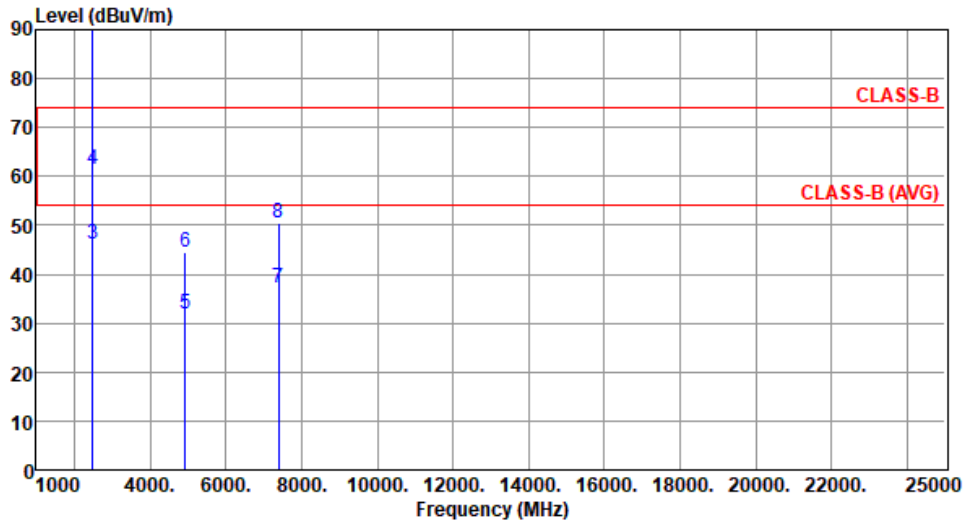
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Note 3: "\*" is Peak / Average value of fundamental frequency



<b>Modulation</b>	ax HE20	<b>Test Freq. (MHz)</b>	2462
<b>Polarization</b>	Vertical		

Test By : Sean Yu      Temperature(°C): 24      Humidity(%): 66



		Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn
		MHz	level	dBuV/m	dB	reading	dB/m		High	Table
			dBuV/m			dBuV			cm	deg
1	*	2462.00	102.04			106.24	-4.20	Average	104	245
2	*	2462.00	113.51			117.71	-4.20	Peak	104	245
3		2483.50	46.14	54.00	-7.86	50.36	-4.22	Average	104	245
4		2483.50	61.56	74.00	-12.44	65.78	-4.22	Peak	104	245
5		4924.00	31.77	54.00	-22.23	32.00	-0.23	Average	100	58
6		4924.00	44.52	74.00	-29.48	44.75	-0.23	Peak	100	58
7		7386.00	37.22	54.00	-16.78	31.60	5.62	Average	100	64
8		7386.00	50.38	74.00	-23.62	44.76	5.62	Peak	100	64

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).

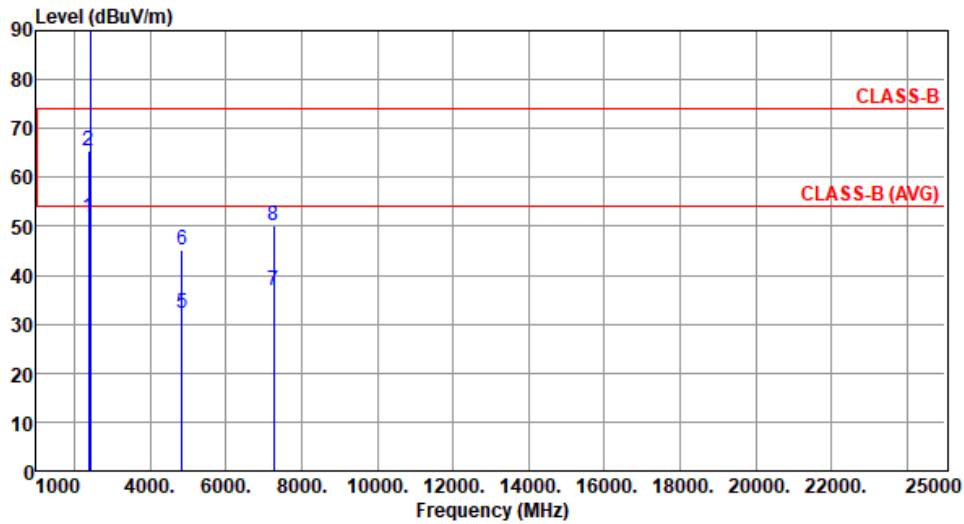
Note 3: "\*" is Peak / Average value of fundamental frequency



Unwanted Emissions (Above 1GHz) for ax HE40

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

Test By :Sean Yu      Temperature(°C):24      Humidity(%):61



	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	51.72	54.00	-2.28	55.65	-3.93	Average	101	313
2	2390.00	65.58	74.00	-8.42	69.51	-3.93	Peak	101	313
3 *	2422.00	101.82			105.88	-4.06	Average	101	313
4 *	2422.00	113.69			117.75	-4.06	Peak	101	313
5	4844.00	32.15	54.00	-21.85	32.44	-0.29	Average	100	22
6	4844.00	45.14	74.00	-28.86	45.43	-0.29	Peak	100	22
7	7266.00	36.75	54.00	-17.25	31.01	5.74	Average	100	28
8	7266.00	50.17	74.00	-23.83	44.43	5.74	Peak	100	28

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

\*Factor includes antenna factor , cable loss and amplifier gain

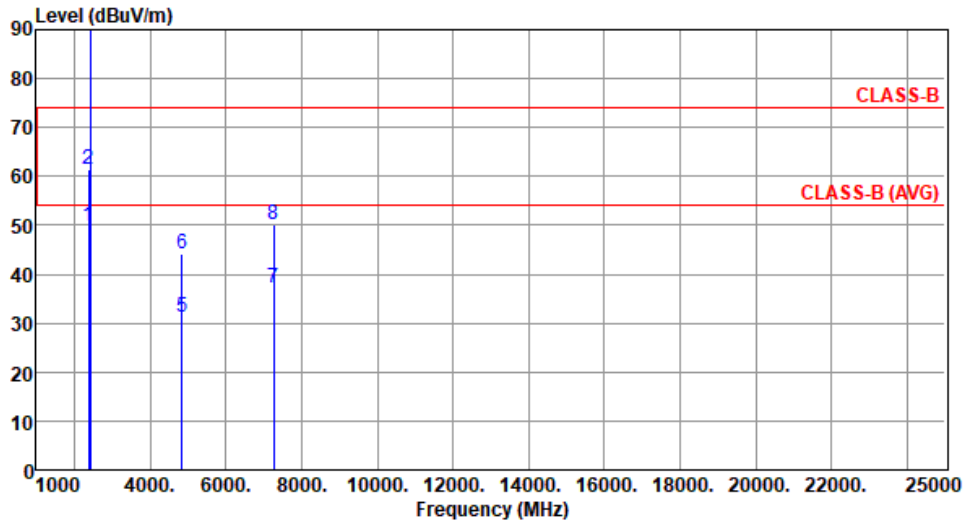
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Note 3:"\*" is Peak / Average value of fundamental frequency



<b>Modulation</b>	ax HE40	<b>Test Freq. (MHz)</b>	2422
<b>Polarization</b>	Vertical		

Test By : Sean Yu      Temperature(°C): 24      Humidity(%): 61



	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	49.85	54.00	-4.15	53.78	-3.93	Average	100	231
2	2390.00	61.52	74.00	-12.48	65.45	-3.93	Peak	100	231
3 *	2422.00	99.25			103.31	-4.06	Average	100	231
4 *	2422.00	111.34			115.40	-4.06	Peak	100	231
5	4844.00	31.34	54.00	-22.66	31.63	-0.29	Average	100	63
6	4844.00	44.22	74.00	-29.78	44.51	-0.29	Peak	100	63
7	7266.00	37.11	54.00	-16.89	31.37	5.74	Average	100	21
8	7266.00	50.26	74.00	-23.74	44.52	5.74	Peak	100	21

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

\*Factor includes antenna factor , cable loss and amplifier gain

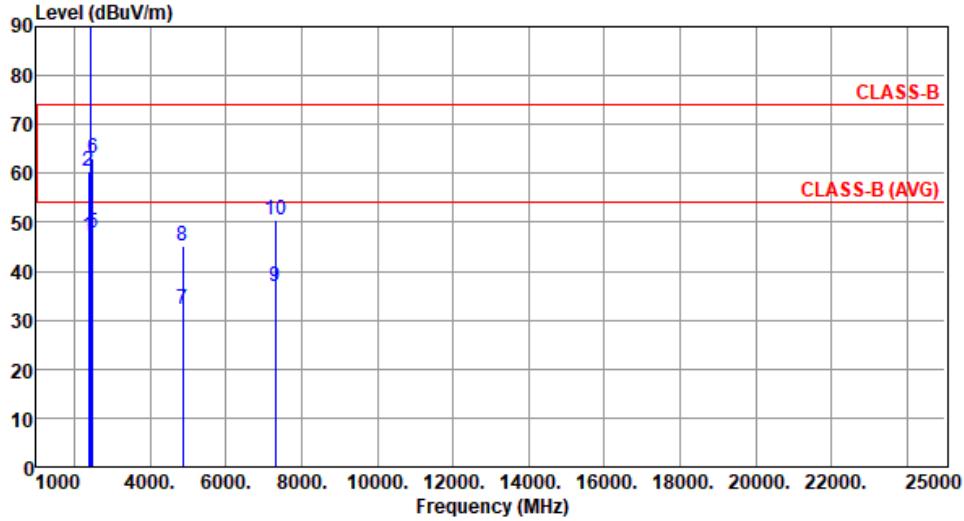
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Note 3: "\*" is Peak / Average value of fundamental frequency



<b>Modulation</b>	ax HE40	<b>Test Freq. (MHz)</b>	2437
<b>Polarization</b>	Horizontal		

Test By :Brad Wu      Temperature(°C):23      Humidity(%):66



	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	47.31	54.00	-6.69	51.24	-3.93	Average	100	326
2	2390.00	60.51	74.00	-13.49	64.44	-3.93	Peak	100	326
3 *	2437.00	100.96			105.10	-4.14	Average	100	326
4 *	2437.00	113.85			117.99	-4.14	Peak	100	326
5	2483.50	47.89	54.00	-6.11	52.11	-4.22	Average	100	326
6	2483.50	63.10	74.00	-10.90	67.32	-4.22	Peak	100	326
7	4874.00	32.08	54.00	-21.92	32.41	-0.33	Average	100	34
8	4874.00	45.04	74.00	-28.96	45.37	-0.33	Peak	100	34
9	7311.00	36.91	54.00	-17.09	31.09	5.82	Average	100	28
10	7311.00	50.34	74.00	-23.66	44.52	5.82	Peak	100	28

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

\*Factor includes antenna factor , cable loss and amplifier gain

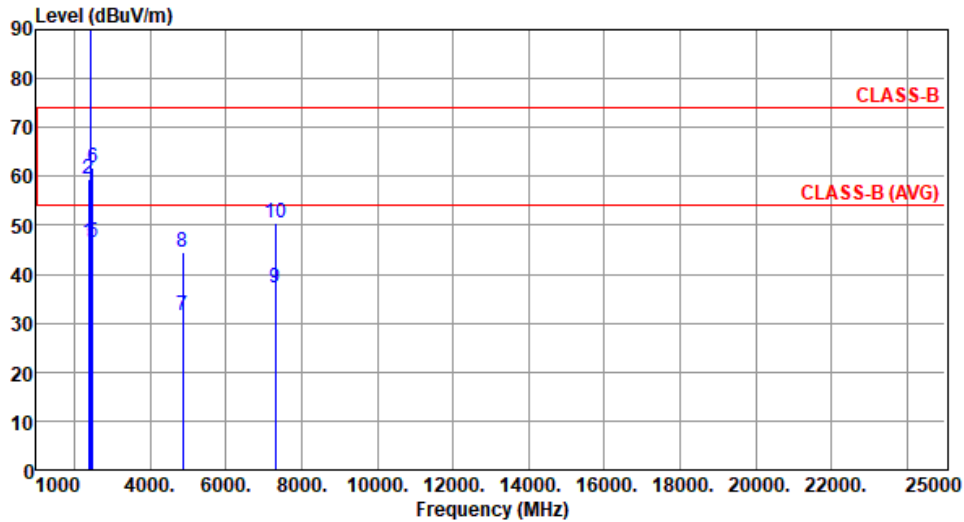
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Note 3:"\*" is Peak / Average value of fundamental frequency



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

Test By :Brad Wu      Temperature(°C):23      Humidity(%):66



	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	46.42	54.00	-7.58	50.35	-3.93	Average	110	235
2	2390.00	59.48	74.00	-14.52	63.41	-3.93	Peak	110	235
3 *	2437.00	99.82			103.96	-4.14	Average	110	235
4 *	2437.00	111.28			115.42	-4.14	Peak	110	235
5	2483.50	46.55	54.00	-7.45	50.77	-4.22	Average	110	235
6	2483.50	61.88	74.00	-12.12	66.10	-4.22	Peak	110	235
7	4874.00	31.58	54.00	-22.42	31.91	-0.33	Average	100	54
8	4874.00	44.39	74.00	-29.61	44.72	-0.33	Peak	100	54
9	7311.00	37.26	54.00	-16.74	31.44	5.82	Average	100	23
10	7311.00	50.42	74.00	-23.58	44.60	5.82	Peak	100	23

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).

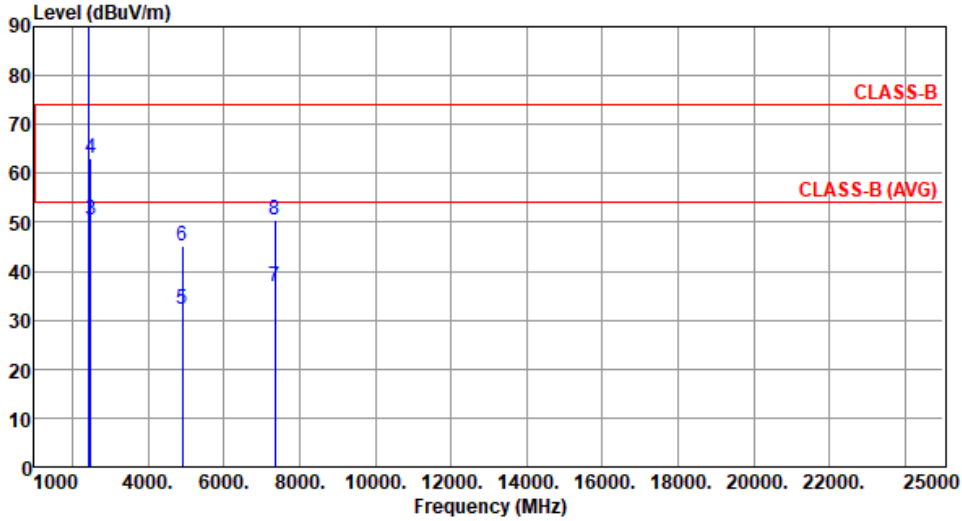
Note 3:"\*" is Peak / Average value of fundamental frequency





<b>Modulation</b>	ax HE40	<b>Test Freq. (MHz)</b>	2452
<b>Polarization</b>	Horizontal		

Test By :Sean Yu      Temperature(°C):24      Humidity(%):61



		Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn
		MHz	level	dBuV/m	dB	reading	dB/m		High	Table
			dBuV/m			dBuV			cm	deg
1	*	2452.00	101.45			105.65	-4.20	Average	101	309
2	*	2452.00	113.42			117.62	-4.20	Peak	101	309
3		2483.50	50.62	54.00	-3.38	54.84	-4.22	Average	101	309
4		2483.50	63.25	74.00	-10.75	67.47	-4.22	Peak	101	309
5		4904.00	32.25	54.00	-21.75	32.61	-0.36	Average	100	52
6		4904.00	45.13	74.00	-28.87	45.49	-0.36	Peak	100	52
7		7356.00	36.98	54.00	-17.02	31.34	5.64	Average	100	46
8		7356.00	50.35	74.00	-23.65	44.71	5.64	Peak	100	46

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

\*Factor includes antenna factor , cable loss and amplifier gain

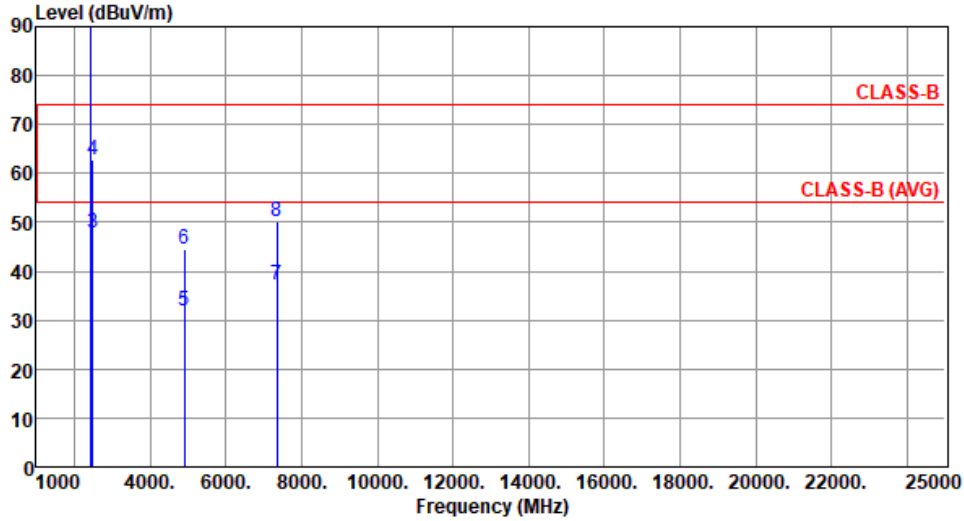
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Note 3:"\*" is Peak / Average value of fundamental frequency



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

Test By : Sean Yu      Temperature(°C): 24      Humidity(%): 61



		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	*	2452.00	98.95			103.15	-4.20	Average	100	230
2	*	2452.00	111.42			115.62	-4.20	Peak	100	230
3		2483.50	47.94	54.00	-6.06	52.16	-4.22	Average	100	230
4		2483.50	62.81	74.00	-11.19	67.03	-4.22	Peak	100	230
5		4904.00	31.82	54.00	-22.18	32.18	-0.36	Average	100	47
6		4904.00	44.61	74.00	-29.39	44.97	-0.36	Peak	100	47
7		7356.00	37.16	54.00	-16.84	31.52	5.64	Average	100	58
8		7356.00	50.27	74.00	-23.73	44.63	5.64	Peak	100	58

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



**Configuration 2: POE mode**

**Unwanted Emissions (Below 1GHz)**

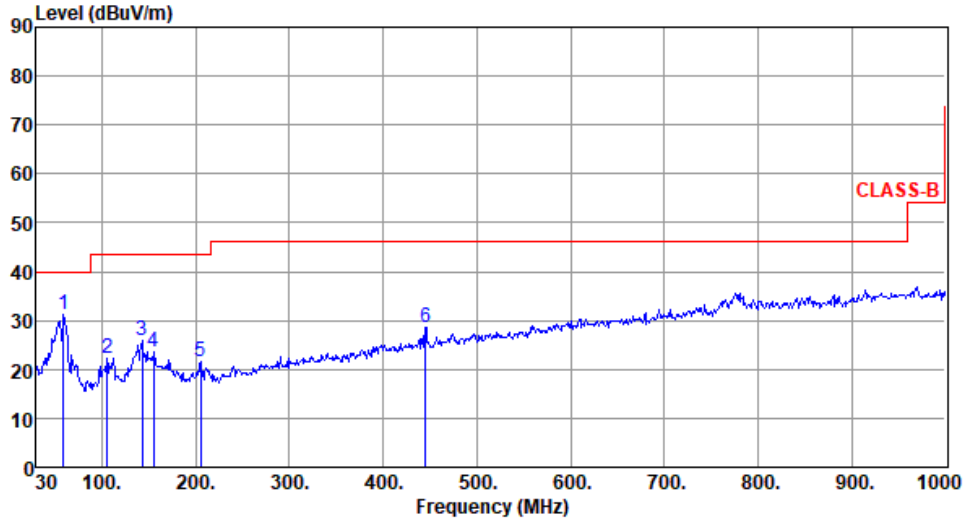
<b>Modulation</b>	ax HE20	<b>Test Freq. (MHz)</b>	2412						
<b>Polarization</b>	Horizontal								
Test By :Brad Wu      Temperature(°C):23      Humidity(%):64									
	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	52.31	23.90	40.00	-16.10	32.31	-8.41	Peak	---	---
2	111.48	21.25	43.50	-22.25	33.14	-11.89	Peak	---	---
3	138.64	26.02	43.50	-17.48	35.28	-9.26	Peak	---	---
4	201.69	22.11	43.50	-21.39	33.91	-11.80	Peak	---	---
5	321.97	23.21	46.00	-22.79	30.36	-7.15	Peak	---	---
6	445.16	28.13	46.00	-17.87	31.64	-3.51	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.



<b>Modulation</b>	ax HE20	<b>Test Freq. (MHz)</b>	2412
<b>Polarization</b>	Vertical		

Test By :Brad Wu      Temperature(°C):23      Humidity(%):64



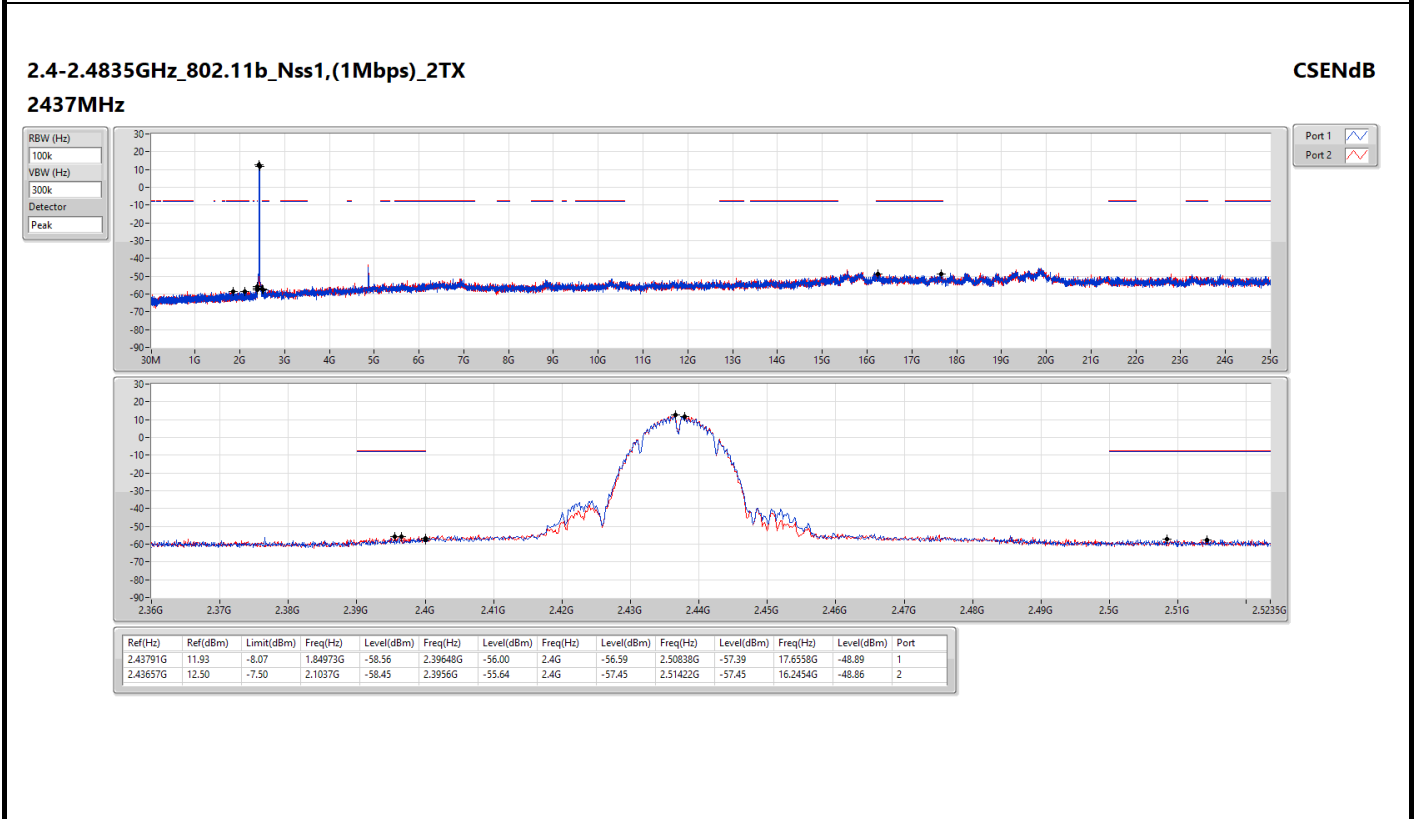
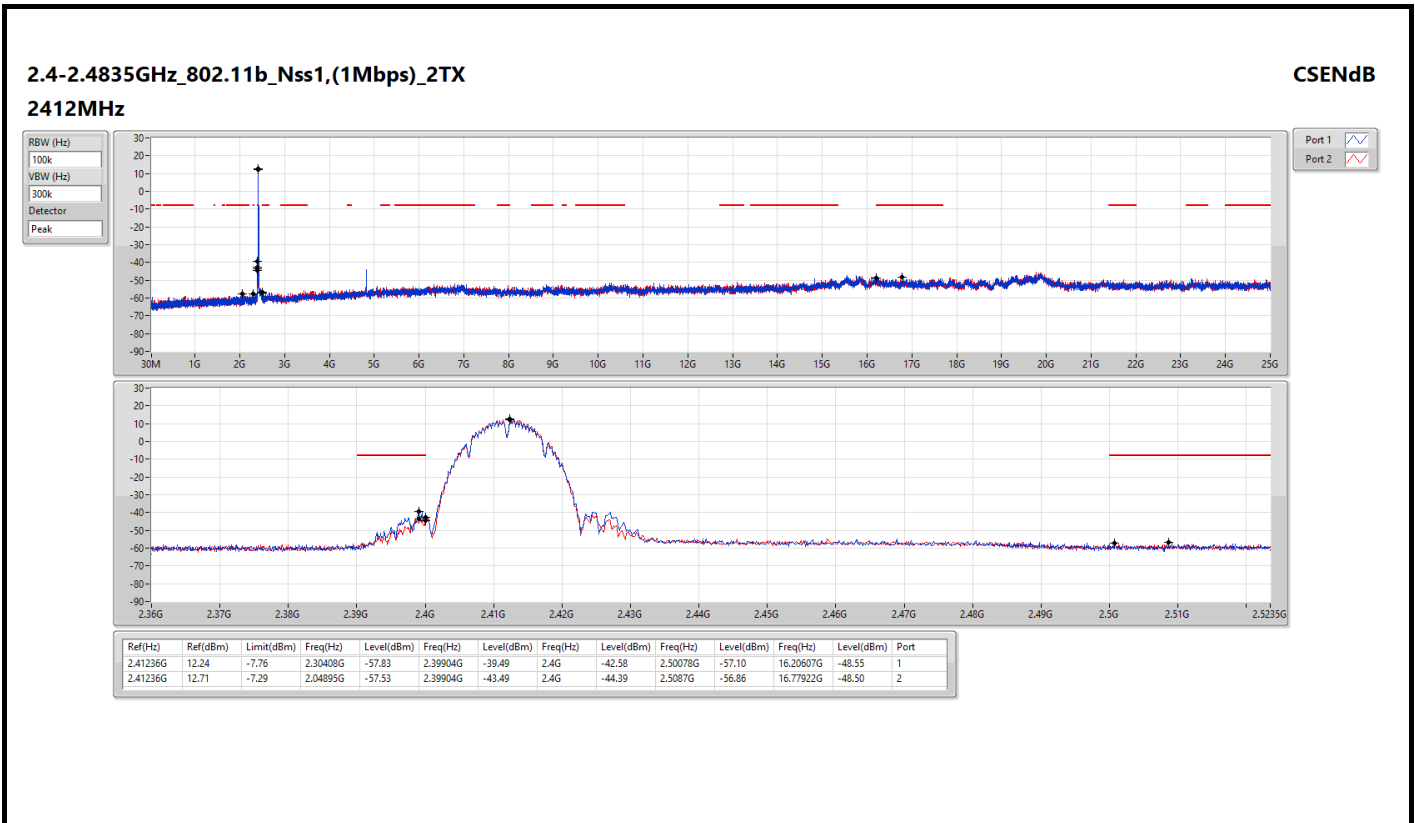
	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB/m	Remark	ANT High cm	Turn Table deg
1	59.10	31.36	40.00	-8.64	40.48	-9.12	Peak	---	---
2	105.66	22.13	43.50	-21.37	34.61	-12.48	Peak	---	---
3	142.52	25.95	43.50	-17.55	34.87	-8.92	Peak	---	---
4	155.13	23.55	43.50	-19.95	31.81	-8.26	Peak	---	---
5	205.57	21.69	43.50	-21.81	33.54	-11.85	Peak	---	---
6	445.16	28.42	46.00	-17.58	31.93	-3.51	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).

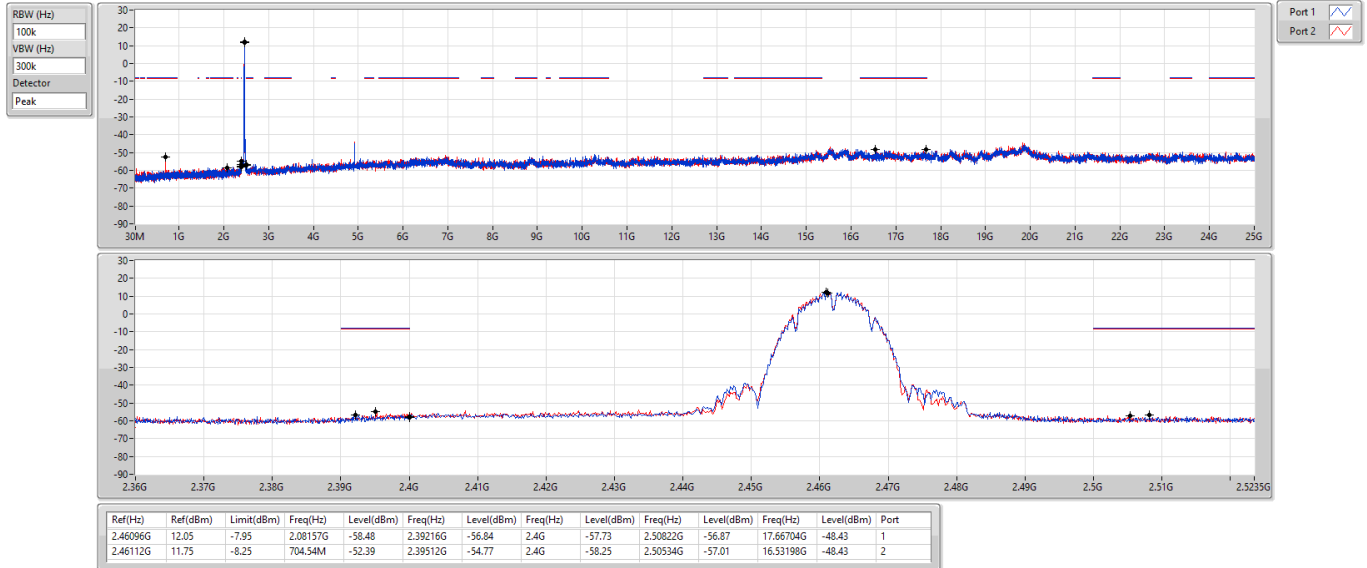
Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.





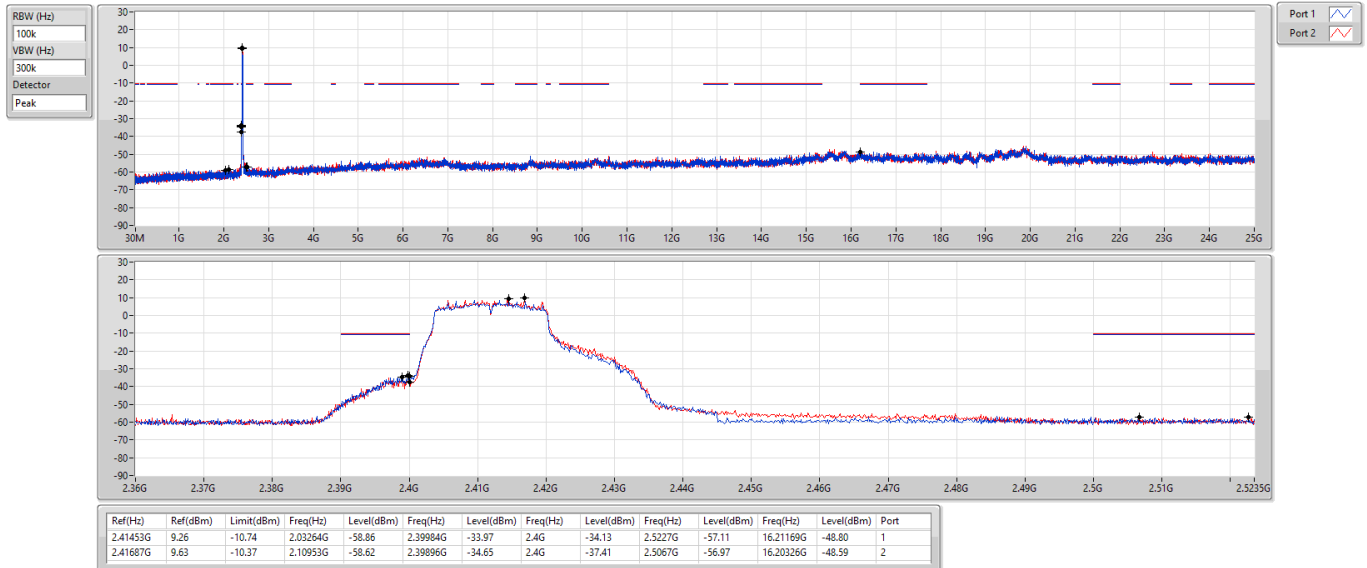
2.4-2.4835GHz\_802.11b\_Nss1,(1Mbps)\_2TX  
2462MHz

CSEndB



2.4-2.4835GHz\_802.11g\_Nss1,(6Mbps)\_2TX  
2412MHz

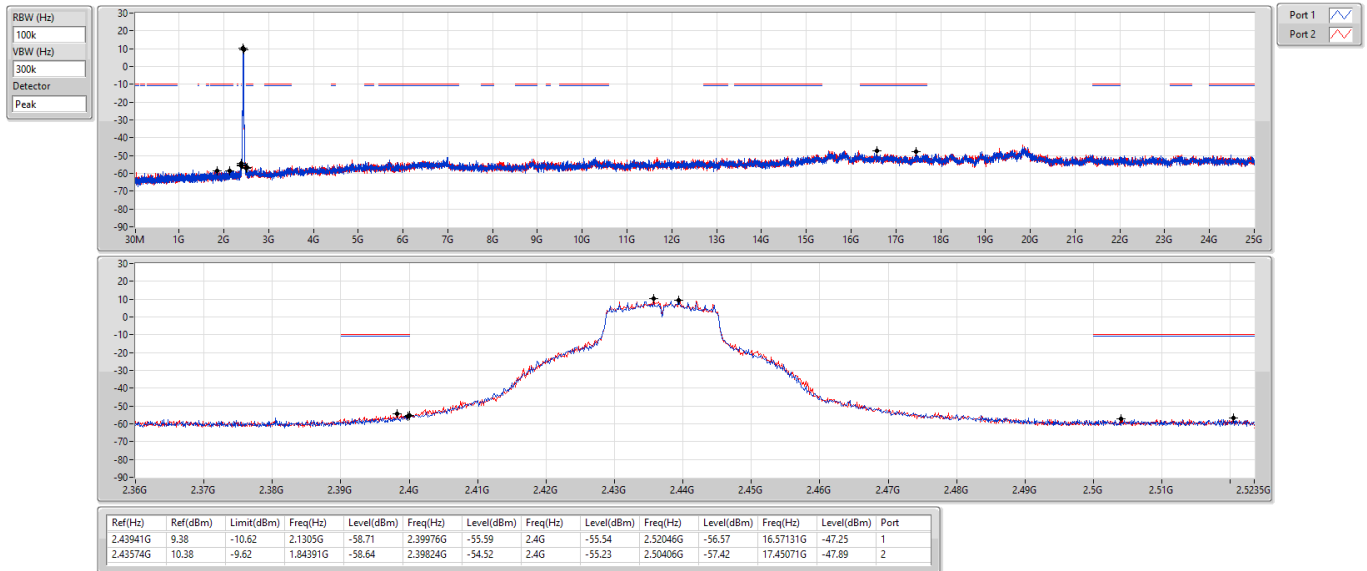
CSEndB





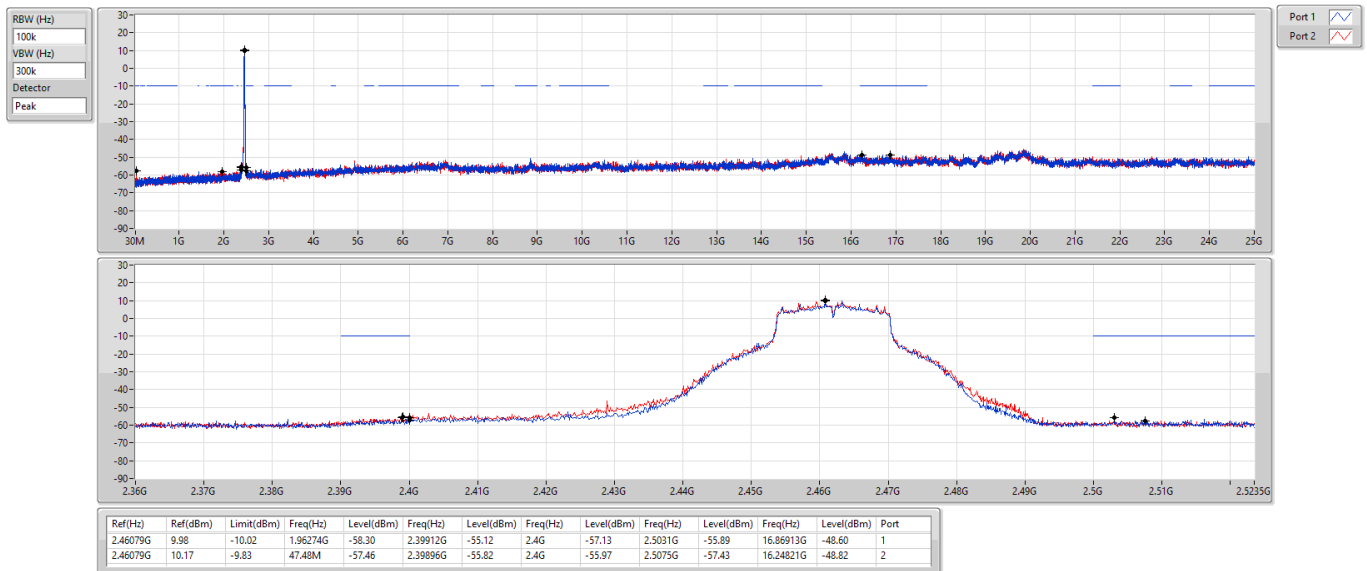
2.4-2.4835GHz\_802.11g\_Nss1,(6Mbps)\_2TX  
2437MHz

CSEndB



2.4-2.4835GHz\_802.11g\_Nss1,(6Mbps)\_2TX  
2462MHz

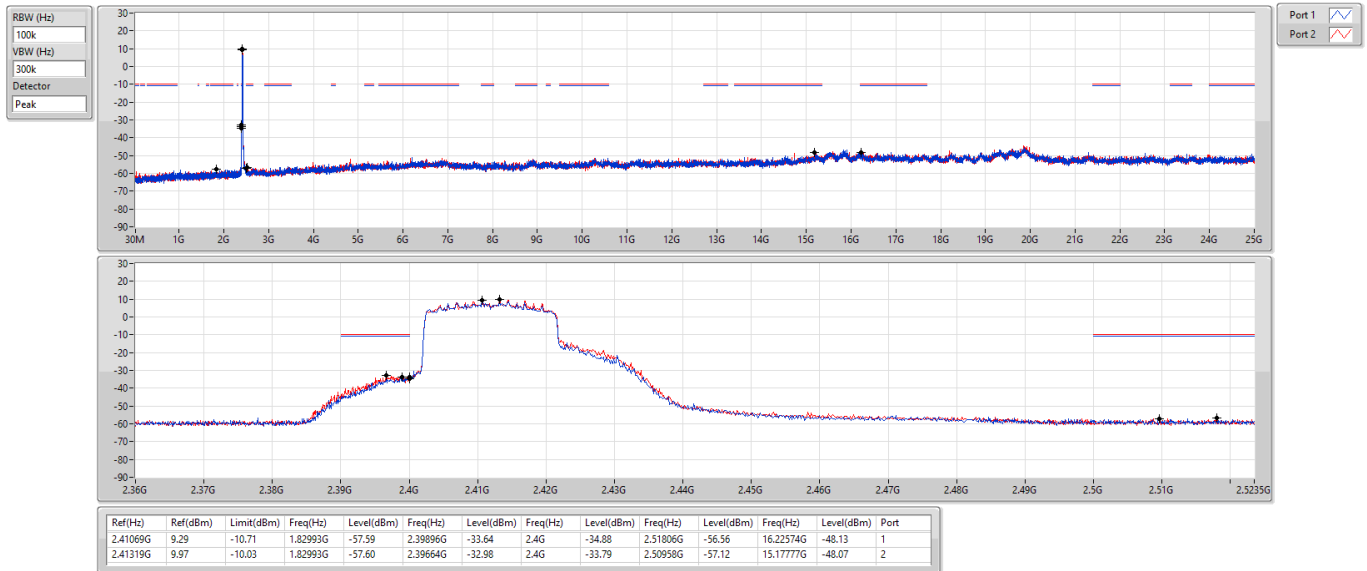
CSEndB





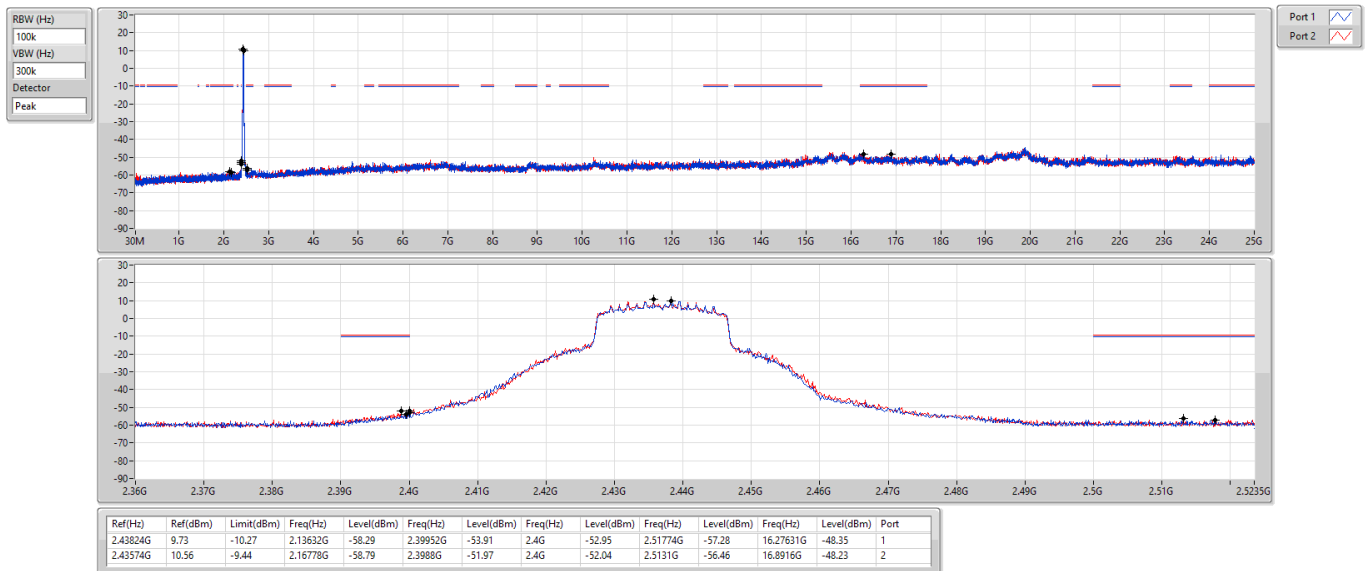
2.4-2.4835GHz\_802.11ax HEW20\_Nss2,(MCS0)\_2TX  
2412MHz

CSEndB



2.4-2.4835GHz\_802.11ax HEW20\_Nss2,(MCS0)\_2TX  
2437MHz

CSEndB

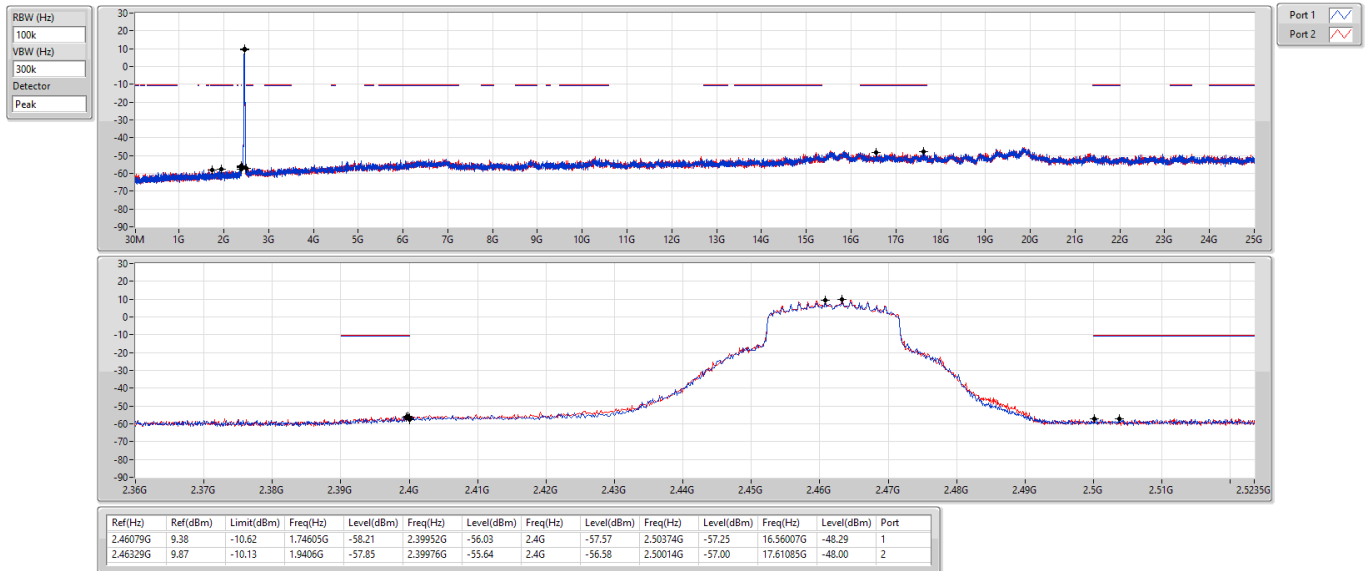






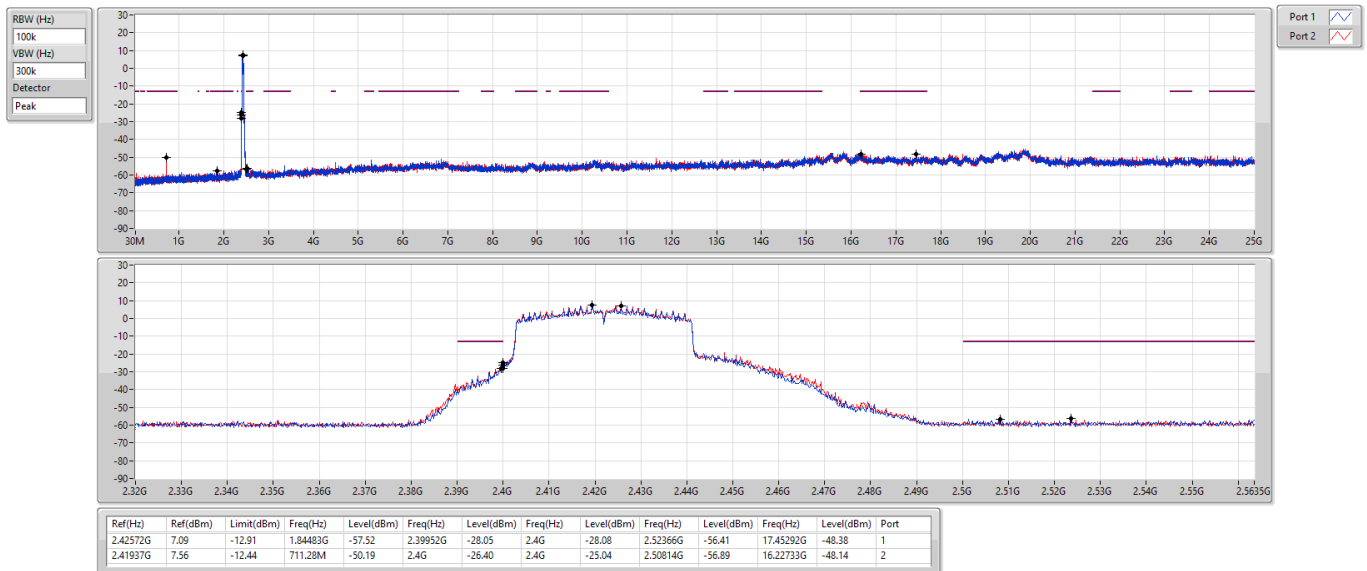
2.4-2.4835GHz\_802.11ax HEW20\_Nss2,(MCS0)\_2TX  
2462MHz

CSEndB



2.4-2.4835GHz\_802.11ax HEW40\_Nss2,(MCS0)\_2TX  
2422MHz

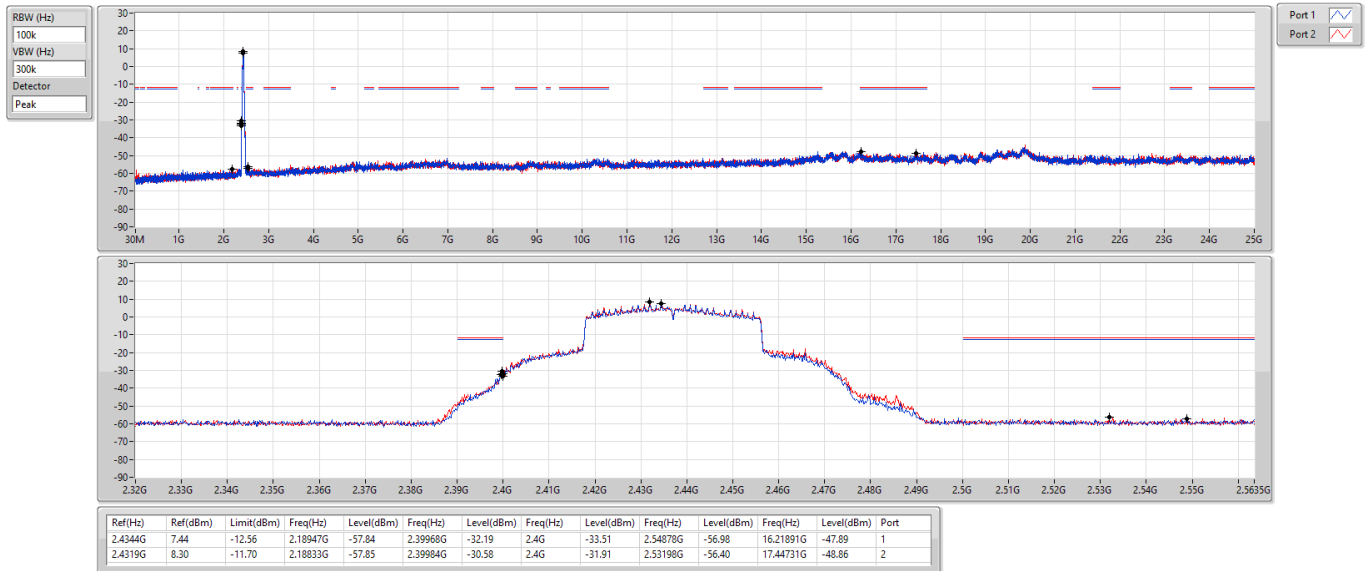
CSEndB





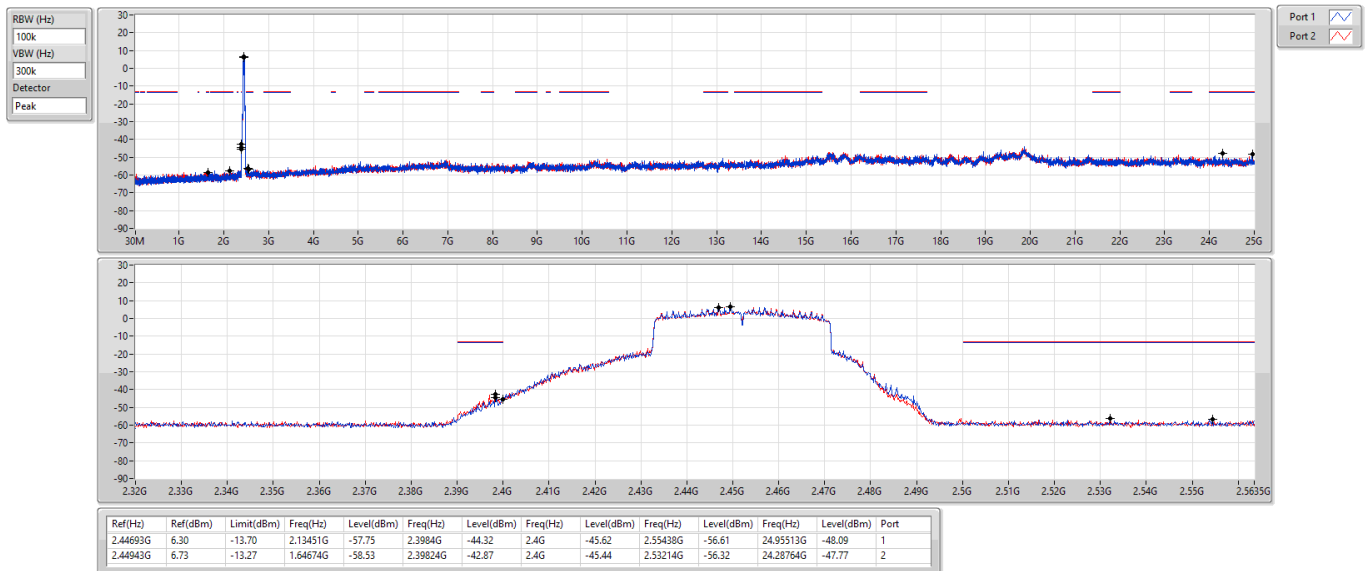
2.4-2.4835GHz\_802.11ax HEW40\_Nss2,(MCS0)\_2TX  
2437MHz

CSEndB



2.4-2.4835GHz\_802.11ax HEW40\_Nss2,(MCS0)\_2TX  
2452MHz

CSEndB

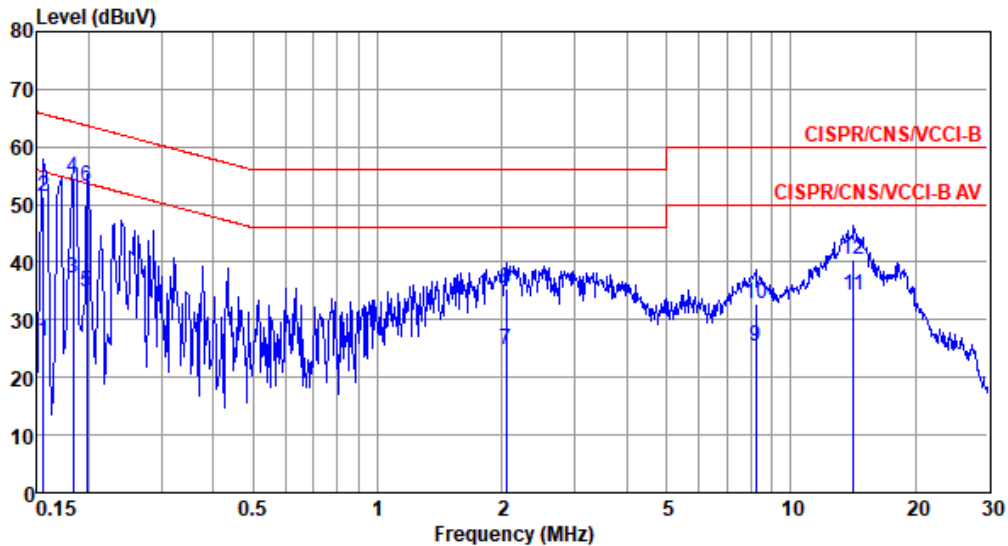




Configuration 1: Adapter mode

Modulation Mode	ax HE20	Test Freq. (MHz)	2412
Power Phase	Line		

Test by : Joe Liao      Temperature: 18°C      Humidity: 62%



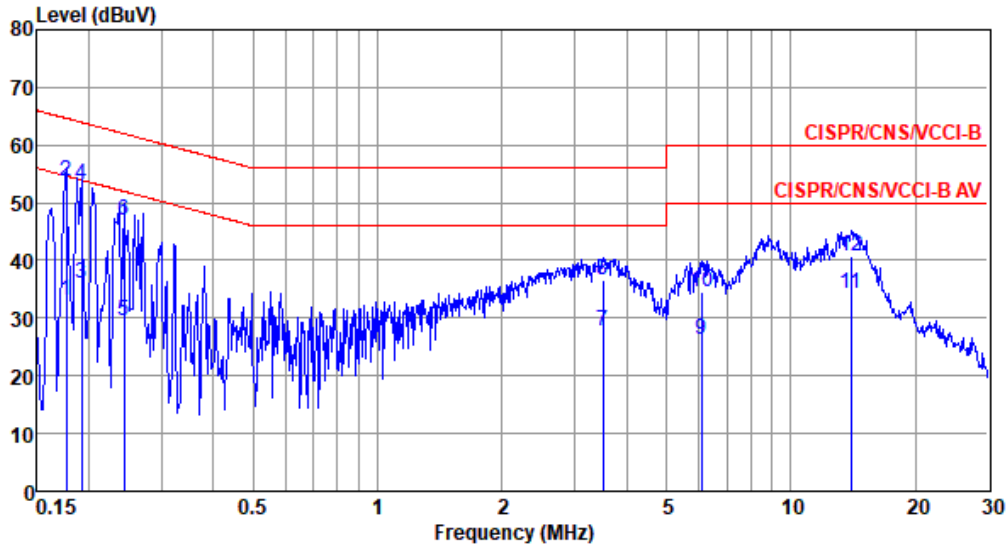
	Freq MHz	Level dBUV	Limit Line dBUV	Over Limit dB	Read Level dBUV	Factor dB	Cable loss dB	Aux dB	Remark
1	0.156	26.39	55.69	-29.30	16.47	9.68	0.06	0.18	Average
2	0.156	51.22	65.69	-14.47	41.30	9.68	0.06	0.18	QP
3	0.183	37.14	54.33	-17.19	27.21	9.68	0.06	0.19	Average
4*	0.183	54.56	64.33	-9.77	44.63	9.68	0.06	0.19	QP
5	0.198	34.97	53.71	-18.74	25.04	9.68	0.06	0.19	Average
6	0.198	53.15	63.71	-10.56	43.22	9.68	0.06	0.19	QP
7	2.044	24.80	46.00	-21.20	14.62	9.69	0.13	0.36	Average
8	2.044	35.47	56.00	-20.53	25.29	9.69	0.13	0.36	QP
9	8.235	25.30	50.00	-24.70	14.81	9.73	0.32	0.44	Average
10	8.235	32.80	60.00	-27.20	22.31	9.73	0.32	0.44	QP
11	14.213	34.12	50.00	-15.88	23.48	9.73	0.43	0.48	Average
12	14.213	40.43	60.00	-19.57	29.79	9.73	0.43	0.48	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	ax HE20	Test Freq. (MHz)	2412
Power Phase	Neutral		

Test by : Joe Liao      Temperature: 18°C      Humidity: 62%



	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	Factor dB	Cable loss dB	Aux dB	Remark
1	0.177	33.02	54.64	-21.62	23.16	9.61	0.06	0.19	Average
2*	0.177	53.82	64.64	-10.82	43.96	9.61	0.06	0.19	QP
3	0.192	36.10	53.93	-17.83	26.24	9.61	0.06	0.19	Average
4	0.192	53.04	63.93	-10.89	43.18	9.61	0.06	0.19	QP
5	0.243	29.59	52.00	-22.41	19.70	9.61	0.06	0.22	Average
6	0.243	46.87	62.00	-15.13	36.98	9.61	0.06	0.22	QP
7	3.509	27.65	46.00	-18.35	17.43	9.64	0.17	0.41	Average
8	3.509	36.49	56.00	-19.51	26.27	9.64	0.17	0.41	QP
9	6.089	26.41	50.00	-23.59	16.06	9.66	0.26	0.43	Average
10	6.089	34.64	60.00	-25.36	24.29	9.66	0.26	0.43	QP
11	13.989	34.25	50.00	-15.75	23.60	9.74	0.43	0.48	Average
12	13.989	40.75	60.00	-19.25	30.10	9.74	0.43	0.48	QP

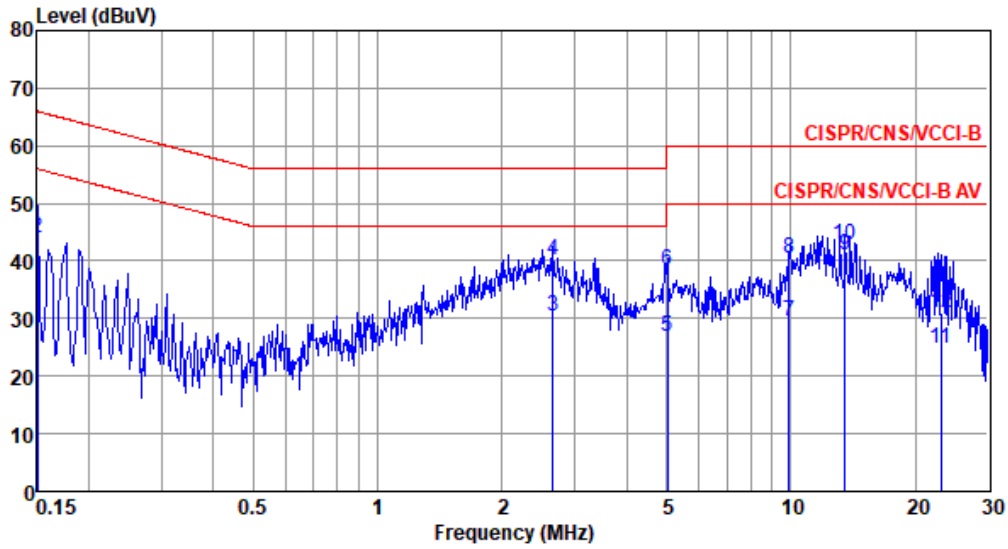
Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB) + Aux (dB).  
 2: Over Limit (dB) = Level (dBuV) – Limit Line (dBuV).



Configuration 2: POE mode

Modulation Mode	ax HE20	Test Freq. (MHz)	2412
Power Phase	Line		

Test by : Joe Liao      Temperature: 18°C      Humidity: 62%



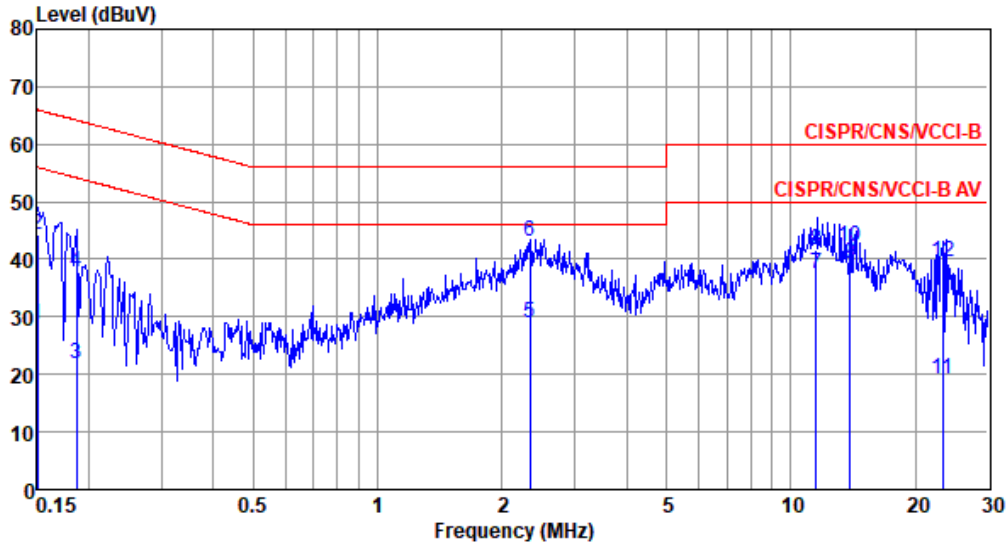
	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	Factor dB	Cable loss dB	Aux dB	Remark
1	0.150	28.12	56.00	-27.88	18.38	9.68	0.06	0.00	Average
2	0.150	44.12	66.00	-21.88	34.38	9.68	0.06	0.00	QP
3	2.650	30.41	46.00	-15.59	20.57	9.69	0.15	0.00	Average
4	2.650	40.19	56.00	-15.81	30.35	9.69	0.15	0.00	QP
5	5.031	26.89	50.00	-23.11	16.95	9.71	0.23	0.00	Average
6	5.031	38.48	60.00	-21.52	28.54	9.71	0.23	0.00	QP
7	9.918	29.60	50.00	-20.40	19.50	9.74	0.36	0.00	Average
8	9.918	40.49	60.00	-19.51	30.39	9.74	0.36	0.00	QP
9*	13.534	41.15	50.00	-8.85	30.99	9.74	0.42	0.00	Average
10	13.534	42.71	60.00	-17.29	32.55	9.74	0.42	0.00	QP
11	23.129	24.81	50.00	-25.19	14.57	9.71	0.53	0.00	Average
12	23.129	30.87	60.00	-29.13	20.63	9.71	0.53	0.00	QP

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



Modulation Mode	ax HE20	Test Freq. (MHz)	2412
Power Phase	Neutral		

Test by : Joe Liao      Temperature: 18°C      Humidity: 62%



	Freq MHz	Level dBUV	Limit Line dBUV	Over Limit dB	Read Level dBUV	Factor dB	Cable loss dB	Aux dB	Remark
1	0.150	28.66	56.00	-27.34	18.99	9.61	0.06	0.00	Average
2	0.150	44.24	66.00	-21.76	34.57	9.61	0.06	0.00	QP
3	0.186	21.90	54.20	-32.30	12.23	9.61	0.06	0.00	Average
4	0.186	37.78	64.20	-26.42	28.11	9.61	0.06	0.00	QP
5	2.334	29.03	46.00	-16.97	19.27	9.62	0.14	0.00	Average
6	2.334	42.98	56.00	-13.02	33.22	9.62	0.14	0.00	QP
7	11.537	37.58	50.00	-12.42	27.48	9.71	0.39	0.00	Average
8	11.537	41.73	60.00	-18.27	31.63	9.71	0.39	0.00	QP
9*	13.933	39.29	50.00	-10.71	29.12	9.74	0.43	0.00	Average
10	13.933	42.16	60.00	-17.84	31.99	9.74	0.43	0.00	QP
11	23.327	19.24	50.00	-30.76	8.93	9.78	0.53	0.00	Average
12	23.327	39.55	60.00	-20.45	29.24	9.78	0.53	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).