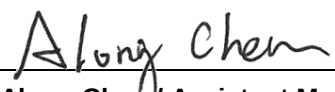


FCC Test Report

FCC ID : I4L-MRBE50
Equipment : Roamii BE Lite Mesh System
Model No. : MRBE50
Brand Name : msi
Applicant : Micro-Star Int'l Co.,Ltd
Address : No.69, Lide St., Zhonghe Dist., New Taipei City
235, Taiwan
Standard : 47 CFR FCC Part 15.247
Received Date : Mar. 07, 2024
Tested Date : Mar. 21 ~ Apr. 09, 2024

We, International Certification Corporation, would like to declare that the tested sample has been evaluated and in compliance with the requirement of the above standards. The test results contained in this report refer exclusively to the product. It shall not be reproduced except in full without the written approval of our laboratory.

Reviewed by:


Along Chen / Assistant Manager

Approved by:

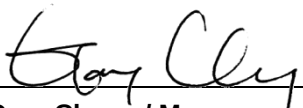

Gary Chang / Manager

Table of Contents

1	GENERAL DESCRIPTION	5
1.1	Information.....	5
1.2	Local Support Equipment List	8
1.3	Test Setup Chart	8
1.4	The Equipment List	9
1.5	Test Standards	10
1.6	Reference Guidance	10
1.7	Deviation from Test Standard and Measurement Procedure.....	10
1.8	Measurement Uncertainty	10
2	TEST CONFIGURATION	11
2.1	Testing Facility.....	11
2.2	The Worst Test Modes and Channel Details	11
3	TRANSMITTER TEST RESULTS.....	12
3.1	6dB and Occupied Bandwidth	12
3.2	Conducted Output Power	13
3.3	Power Spectral Density	14
3.4	Unwanted Emissions into Restricted Frequency Bands	15
3.5	Emissions in Non-Restricted Frequency Bands.....	17
3.6	AC Power Line Conducted Emissions	18
4	TEST LABORATORY INFORMATION	19
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
FR430702AC	Rev. 01	Initial issue	May 08, 2024

Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	AC Power Line Conducted Emission	[dBuV]: 0.153MHz 52.07 (Margin -13.75dB) - QP	Pass
15.247(d) 15.209	Unwanted Emissions	[dBuV/m at 3m]: 2390.00MHz 53.87 (Margin -0.13dB) - AV	Pass
15.247(b)(3)	Conducted Output Power	Non-beamforming mode Max Power [dBm]: 29.85 Beamforming mode Max Power [dBm]: 29.48	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	ac (VHT20)	2412-2462	1-11 [11]	2	MCS 0-9
2400-2483.5	ac (VHT40)	2422-2452	3-9 [7]	2	MCS 0-9
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
2400-2483.5	be (EHT20)	2412-2462	1-11 [11]	2	MCS 0-13
2400-2483.5	be (EHT40)	2422-2452	3-9 [7]	2	MCS 0-13
Note 1: RF output power specifies that Maximum Conducted (Average) Output Power. Note 2: DBPSK, DQPSK, CCK modulation BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM and 4096QAM modulation. Note 3: 802.11n/ac/ax/be supports beamforming function.					

1.1.2 Antenna Details

Brand	Model	Type	Connector	Operating Frequencies (MHz) / Antenna Gain (dBi)				
				2400~2483.5	5150~5250	5250~5350	5470~5725	5725~5850
Aristotle	JP887-2G-P1 (2G-1)	Dipole	UFL	2.41	---	---	---	---
Aristotle	JP868-2G-V2 (2G-2)	Dipole	UFL	2.36	---	---	---	---
Aristotle	JP887-5G-P1 (5G-1)	Dipole	UFL	---	3.66	3.88	3.24	2.99
Aristotle	JP887-5G-P2-V2 (5G-2)	Dipole	UFL	---	3.76	4.34	4.09	3.74

1.1.3 EUT Operational Condition

Power Supply Type	12Vdc from adapter	
RU Configuration	☒ Full RU	☐ Partial RU

1.1.4 Accessories

Accessories		
No.	Equipment	Description
1	AC adapter	Brand: DVE Model: DSA-18PFCA-09 120150 Power Rating: I/P: 100-240V~ 50/60Hz, 0.6A O/P: 12.0V= 1.5A, 18.0W Power line: 1.5m non-shielded without core
2	Ethernet Cable	1m non-shielded without core
3	Wall mount	---
4	Wall mount screw bag	---

1.1.5 Channel List

Frequency band (MHz)		2400~2483.5	
802.11 b / g / n HT20 / ac VHT20 / ax HE20 / be EHT20		802.11n HT40 / ac VHT40 / ax HE40 / be EHT40	
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	---	---

1.1.6 Test Tool and Duty Cycle

Test Tool	QSPR, V6.00.00110.1				
Duty Cycle and Duty Factor	Mode	2T1S		2T2S	
		Duty cycle (%)	Duty factor (dB)	Duty cycle (%)	Duty factor (dB)
	11b	99.18%	0.04	---	---
	11g	100.00%	0.00	---	---
	be EHT20	99.48%	0.02	98.44%	0.07
	be EHT40	99.36%	0.03	98.44%	0.07

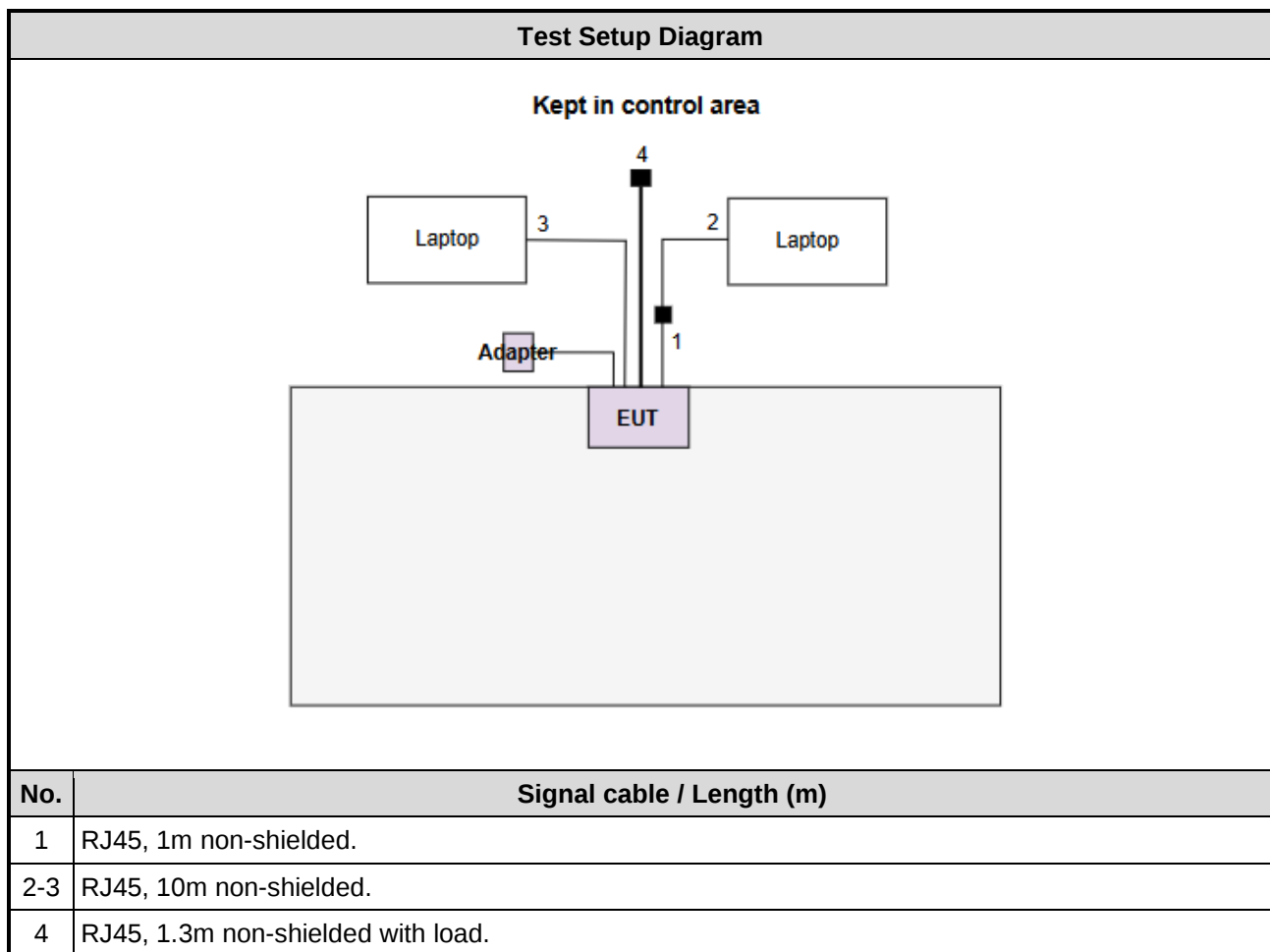
1.1.7 Power Index of Test Tool

Modulation Mode	Test Frequency (MHz)	Power Index	
		2T1S	2T2S
11b	2412	26	---
11b	2437	26.5	---
11b	2462	26	---
11g	2412	23.5	---
11g	2437	26.5	---
11g	2462	24	---
be EHT20	2412	23	22.5
be EHT20	2437	26.5	26.5
be EHT20	2462	23.5	23.5
be EHT40	2422	21.5	21.5
be EHT40	2437	23	23
be EHT40	2452	22.5	22.5

1.2 Local Support Equipment List

Support Equipment List					
No.	Equipment	Brand	Model	FCC ID	Remarks
1	Laptop	DELL	Latitude 5400	DoC	---
2	Laptop	DELL	Latitude 3440	DoC	---
3	RJ45 Load	ICC	DTSE9	---	---

1.3 Test Setup Chart



1.4 The Equipment List

Test Item	Conducted Emission				
Test Site	Conduction room 1 / (CO01-WS)				
Tested Date	Mar. 22, 2024				
Instrument	Brand	Model No.	Serial No.	Calibration Date	Calibration Until
Receiver	R&S	ESR3	101658	Feb. 23, 2024	Feb. 22, 2025
LISN	R&S	ENV216	101579	May 09, 2023	May 08, 2024
LISN (Support Unit)	SCHWARZBECK	Schwarzbeck 8127	8127667	Jan. 10, 2024	Jan. 09, 2025
RF Cable-CON	Woken	CFD200-NL	CFD200-NL-001	Oct. 11, 2023	Oct. 10, 2024
50 ohm terminal (Support Unit)	NA	50	01	Jun. 14, 2023	Jun. 13, 2024
Measurement Software	AUDIX	e3	6.120210k	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

Test Item	Radiated Emission Below 1GHz				
Test Site	966 chamber 3 / (03CH03-WS)				
Tested Date	Mar. 21 ~ Apr. 02, 2024				
Instrument	Brand	Model No.	Serial No.	Calibration Date	Calibration Until
Receiver	R&S	ESR3	101657	Mar. 05, 2024	Mar. 04, 2025
Spectrum Analyzer	R&S	FSV3044	101516	Jun. 27, 2023	Jun. 26, 2024
Loop Antenna	R&S	HFH2-Z2	100330	Oct. 31, 2023	Oct. 30, 2024
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-685	Jul. 04, 2023	Jul. 03, 2024
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1206	Dec. 14, 2023	Dec. 13, 2024
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170508	Dec. 28, 2023	Dec. 27, 2024
Preamplifier	SCHWARZBECK	EMC02325	980187	Jul. 10, 2023	Jul. 09, 2024
Preamplifier	EMC	EMC118A45SE	980897	Aug. 01, 2023	Jul. 31, 2024
Preamplifier	EMC	EMC184045SE	980903	Jul. 17, 2023	Jul. 16, 2024
Loop Antenna Cable	KOAX KABEL	101354-BW	101354-BW	Oct. 03, 2023	Oct. 02, 2024
LF cable-0.8M	SCHWARZBECK	EMC8D-NM-NM-800	EMC8D-NM-NM-800-001	Sep. 22, 2023	Sep. 21, 2024
LF cable-3M	SCHWARZBECK	EMC8D-NM-NM-3000	131103	Sep. 22, 2023	Sep. 21, 2024
LF cable-13M	SCHWARZBECK	EMC8D-NM-NM-13000	131104	Sep. 22, 2023	Sep. 21, 2024
RF cable-3M	SCHWARZBECK	SUCOFLEX104	MY22620/4	Sep. 22, 2023	Sep. 21, 2024
RF cable-8M	SCHWARZBECK	EMC104-SM-SM-8000	181107	Sep. 22, 2023	Sep. 21, 2024
Attenuator	Pasternack	PE7005-10	10-3	Sep. 27, 2023	Sep. 26, 2024
HIGHPASS FILTER	SCHWARZBECK	11SH10-7000/T18000-O/OP	21	Sep. 27, 2023	Sep. 26, 2024
Measurement Software	SCHWARZBECK	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. 02 ~ Apr. 09, 2024				
Instrument	Brand	Model No.	Serial No.	Calibration Date	Calibration Until
Spectrum Analyzer	R&S	FSV40	101910	Apr. 14, 2023	Apr. 13, 2024
Power Meter	Anritsu	ML2495A	1241002	Nov. 21, 2023	Nov. 20, 2024
Power Sensor	Anritsu	MA2411B	1207366	Nov. 21, 2023	Nov. 20, 2024
Attenuator	Pasternack	PE7005-10	10-2	Oct. 05, 2023	Oct. 04, 2024
Measurement Software	Sporton	SENSE-15247_DTS	V5.11	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
Radiated emission ≤ 1 GHz	± 3.96 dB
Radiated emission > 1 GHz	± 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 33381, 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	11b	2437	1 Mbps	2T1S
Unwanted Emissions $\leq$ 1GHz	11b	2437	1 Mbps	2T1S
Unwanted Emissions >1GHz Conducted Output Power 6dB bandwidth Power spectral density	11b 11g be EHT20 be EHT40	2412 / 2437 / 2462 2412 / 2437 / 2462 2412 / 2437 / 2462 2422 / 2437 / 2452	1 Mbps 6 Mbps MCS 0 MCS 0	2T1S
Unwanted Emissions >1GHz Conducted Output Power 6dB bandwidth Power spectral density	be EHT20 be EHT40	2412 / 2437 / 2462 2422 / 2437 / 2452	MCS 0 MCS 0	2T2S
Beamforming mode				
Conducted Output Power	be EHT20 be EHT40	2412 / 2437 / 2462 2422 / 2437 / 2452	MCS 0 MCS 0	2T1S
				2T2S

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

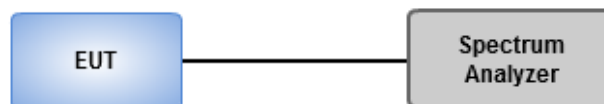
6dB Bandwidth

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	22-23°C / 64-65%	Tested By	Roger Lu
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Refer to Appendix A.

3.2 Conducted Output Power

3.2.1 Limit of Conducted Output Power

Conducted power shall not exceed 1Watt.

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

Antenna gain $> 6\text{dBi}$

Non Fixed, point to point operations.

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

Fixed, point to point operations

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

3.2.2 Test Procedures

A broadband RF power meter is used for output power measurement. The video bandwidth of power meter is greater than DTS bandwidth of EUT. If duty cycle of test signal is not 100 %, trigger and gating function of power meter will be enabled to capture transmission burst for measuring output power.

3.2.3 Test Setup



3.2.4 Test Results

Ambient Condition	22-23°C / 64-65%	Tested By	Roger Lu
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Refer to Appendix B.

3.3 Power Spectral Density

3.3.1 Limit of Power Spectral Density

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

3.3.2 Test Procedures

Peak PSD

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

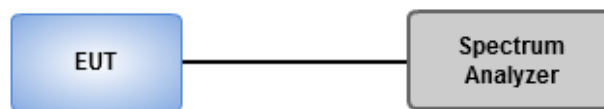
Average PSD, duty cycle $\geq 98\%$

1. Set the RBW = 3 kHz, VBW = 10 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 = 3 kHz, VBW = 10 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.
6. Add $10 \log (1/x)$, where x is the duty cycle.

3.3.3 Test Setup



3.3.4 Test Results

Ambient Condition	22-23°C / 64-65%	Tested By	Roger Lu
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Refer to Appendix C.

3.4 Unwanted Emissions into Restricted Frequency Bands

3.4.1 Limit of Unwanted Emissions into Restricted Frequency Bands

Restricted Band Emissions Limit			
Frequency Range (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m)	Measure Distance (m)
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300
0.490~1.705	24000/F(kHz)	33.8 - 23	30
1.705~30.0	30	29	30
30~88	100	40	3
88~216	150	43.5	3
216~960	200	46	3
Above 960	500	54	3

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

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

3.4.2 Test Procedures

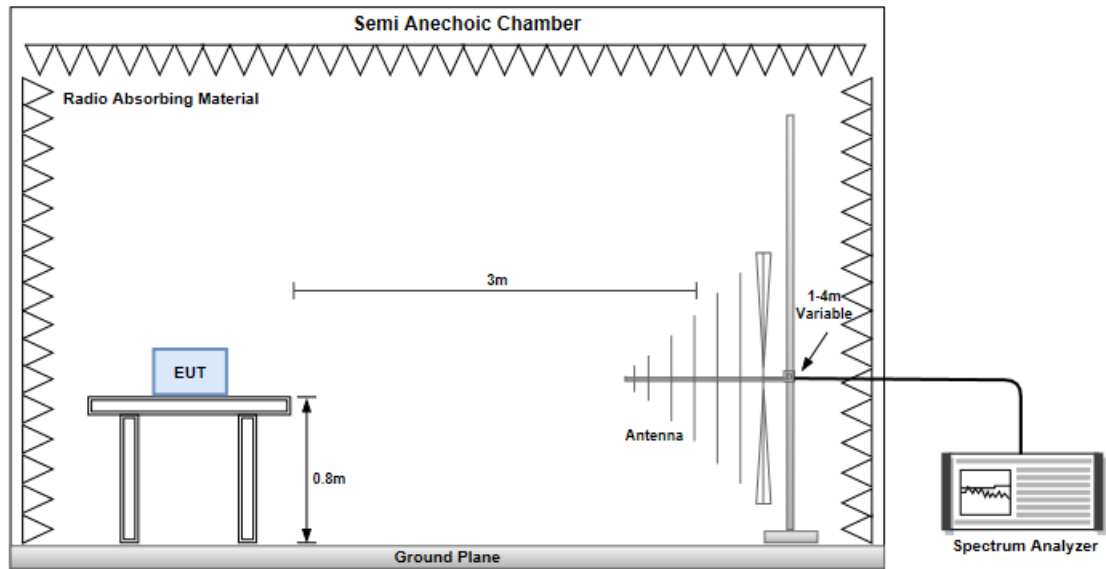
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission frequency. The EUT is placed at test table. For emissions testing at or below 1 GHz, the table height is 80 cm above the reference ground plane. For emission measurements above 1 GHz, the table height is 1.5 m
2. Measurement is made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna is varied in height (1m ~ 4m) above the reference ground plane to obtain the maximum signal strength. Distance between EUT and antenna is 3 m.
3. This investigation is performed with the EUT rotated 360°, the antenna height scanned between 1 m and 4 m, and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations.

Note:

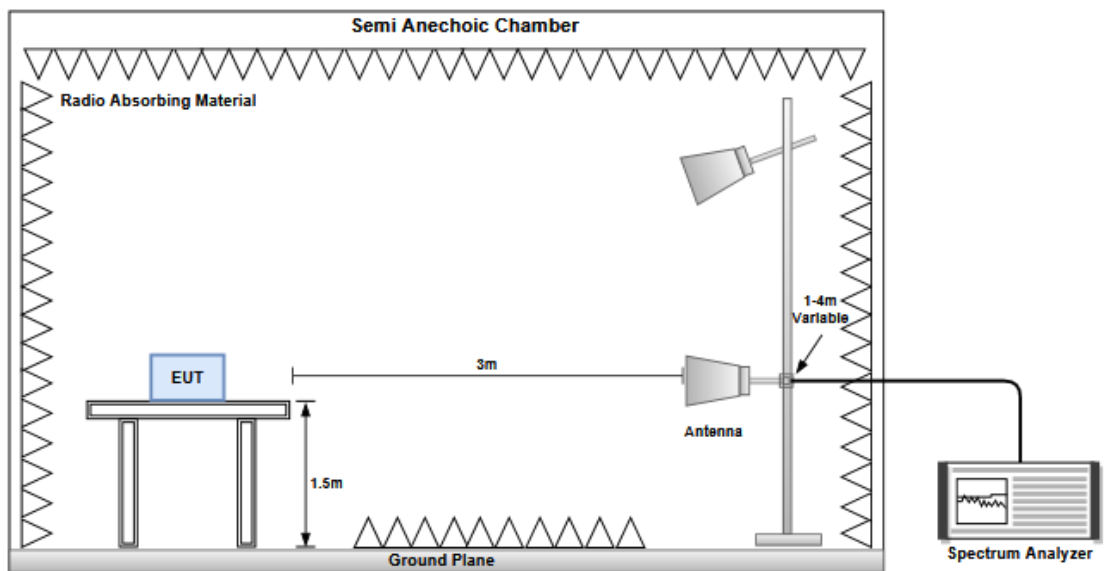
1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above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

3.4.3 Test Setup

Radiated Emissions below 1 GHz



Radiated Emissions above 1 GHz



3.4.4 Test Results

Refer to Appendix D.

3.5 Emissions in Non-Restricted Frequency Bands

3.5.1 Emissions in Non-Restricted Frequency Bands Limit

Peak power in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum in-band peak PSD level in 100 kHz.

3.5.2 Test Procedures

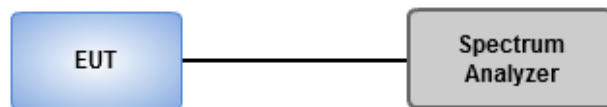
Reference level measurement

1. Set RBW=100kHz, VBW = 300kHz , Detector = Peak, Sweep time = Auto
2. Trace = max hold , Allow Trace to fully stabilize
3. Use the peak marker function to determine the maximum PSD level

Emission level measurement

1. Set RBW=100kHz, VBW = 300kHz , Detector = Peak, Sweep time = Auto
2. Trace = max hold , Allow Trace to fully stabilize
3. Scan Frequency range is up to 25GHz
4. Use the peak marker function to determine the maximum amplitude level

3.5.3 Test Setup



3.5.4 Test Results

Ambient Condition	22-23°C / 64-65%	Tested By	Roger Lu
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Refer to Appendix E.

3.6 AC Power Line Conducted Emissions

3.6.1 Limit of AC Power Line Conducted Emissions

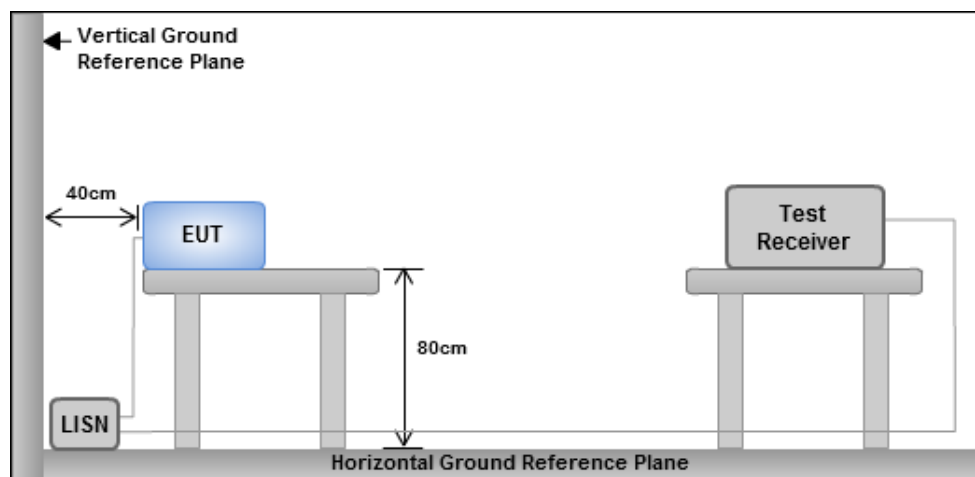
Conducted Emissions Limit		
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50

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

3.6.2 Test Procedures

1. The device is placed on a test table, raised 80 cm above the reference ground plane. The vertical conducting plane is located 40 cm to the rear of the device.
2. The device is connected to line impedance stabilization network (LISN) and other accessories are connected to other LISN. Measured levels of AC power line conducted emission are across the 50 Ω LISN port.
3. AC conducted emission measurements is made over frequency range from 150 kHz to 30 MHz.
4. This measurement was performed with AC 120V / 60Hz.

3.6.3 Test Setup



- Note: 1. Support units were connected to second LISN.
 2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

3.6.4 Test Results

Refer to Appendix F.

4 Test laboratory information

Established in 2012, ICC provides foremost EMC & RF Testing and advisory consultation services by our skilled engineers and technicians. Our services employ a wide variety of advanced edge test equipment and one of the widest certification extents in the business.

International Certification Corporation (EMC and Wireless Communication Laboratory), it is our definitive objective is to institute long term, trust-based associations with our clients. The expectation we set up with our clients is based on outstanding service, practical expertise and devotion to a certified value structure. Our passion is to grant our clients with best EMC / RF services by oriented knowledgeable and accommodating staff.

Our Test sites are located at Linkou District and Kwei Shan District. Location map can be found on our website <http://www.icertifi.com.tw>.

Linkou

Tel: 886-2-2601-1640

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

Kwei Shan

Tel: 886-3-271-8666

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

Kwei Shan Site II

Tel: 886-3-271-8640

No.14-1, Lane 19, Wen San 3rd
St., Kwei Shan Dist., Tao Yuan
City 33381, 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	8.575M	13.646M	13M6G1D	7M	12.633M
802.11g_Nss1,(6Mbps)_2TX	15.1M	16.751M	16M8D1D	13.725M	16.621M
802.11be EHT20_Nss1,(MCS0)_2TX	19.025M	19.077M	19M1D1D	11.225M	18.712M
802.11be EHT40_Nss1,(MCS0)_2TX	36.4M	37.864M	37M9D1D	24.95M	37.482M

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

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

Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)
802.11b_Nss1,(1Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	7.025M	13.129M	8.575M	12.633M
2437MHz	Pass	500k	7.55M	12.994M	7M	13.646M
2462MHz	Pass	500k	8.05M	13.084M	7.05M	13.573M
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	13.725M	16.621M	15.1M	16.634M
2437MHz	Pass	500k	14.975M	16.671M	14.95M	16.711M
2462MHz	Pass	500k	15.075M	16.646M	14.95M	16.751M
802.11be EHT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	16.775M	18.979M	13.75M	18.712M
2437MHz	Pass	500k	11.225M	18.818M	19.025M	19.077M
2462MHz	Pass	500k	16.8M	18.922M	15.05M	18.772M
802.11be EHT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2422MHz	Pass	500k	30.05M	37.655M	25.75M	37.864M
2437MHz	Pass	500k	28.75M	37.65M	36.4M	37.843M
2452MHz	Pass	500k	34M	37.765M	24.95M	37.482M

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

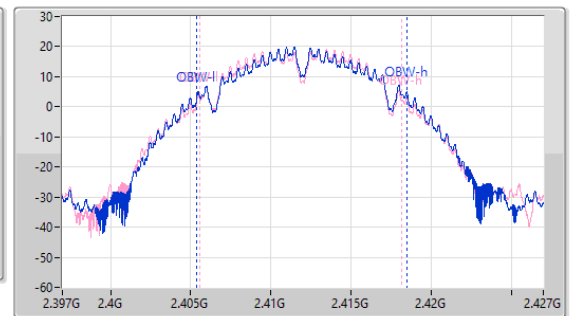
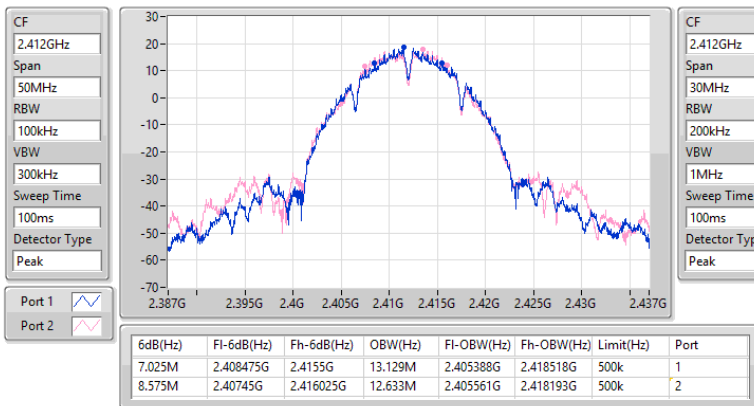
Port X-OBW = Port X 99% occupied bandwidth



2.4-2.4835GHz_802.11b_Nss1,(1Mbps)_2TX

EBW

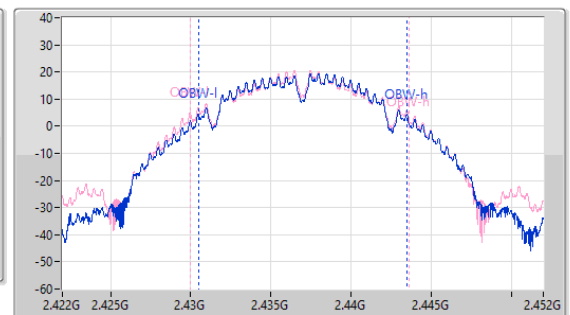
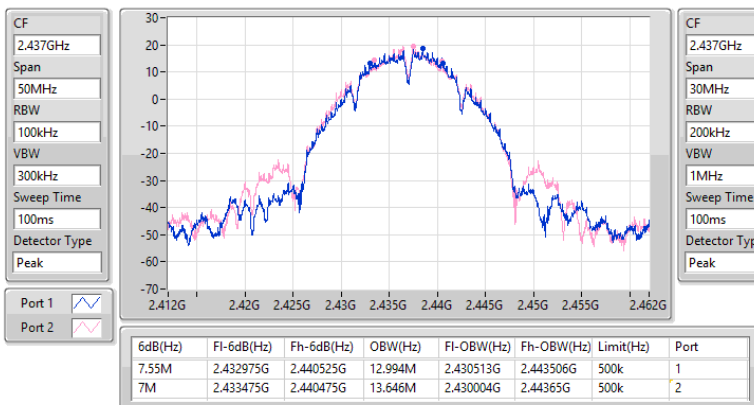
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2.4-2.4835GHz_802.11b_Nss1,(1Mbps)_2TX

EBW

2437MHz

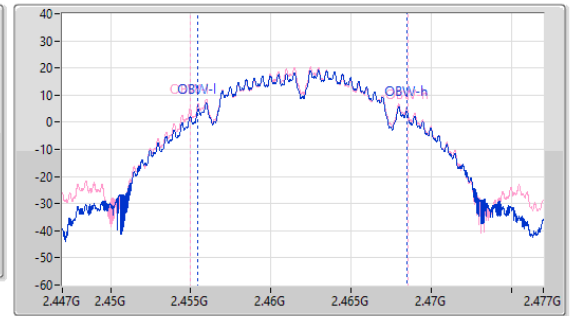
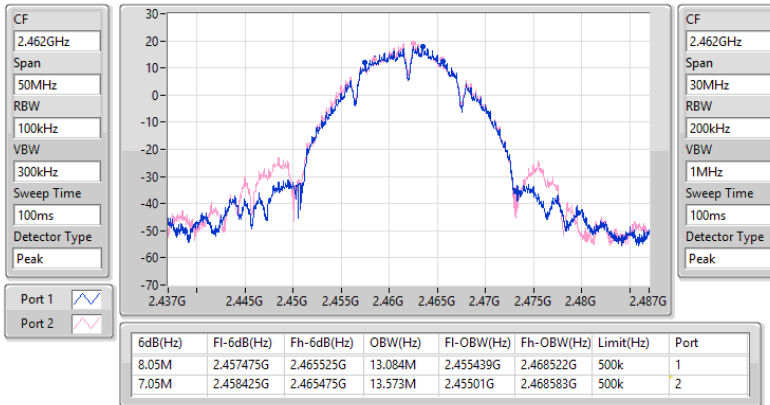




2.4-2.4835GHz_802.11b_Nss1,(1Mbps)_2TX

EBW

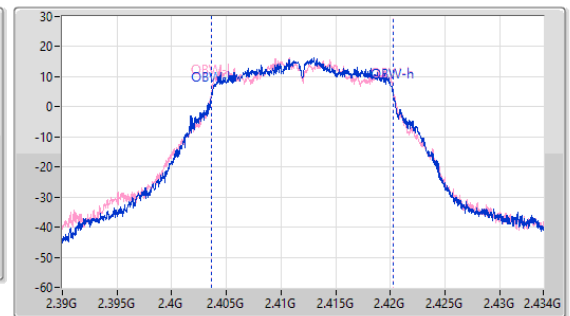
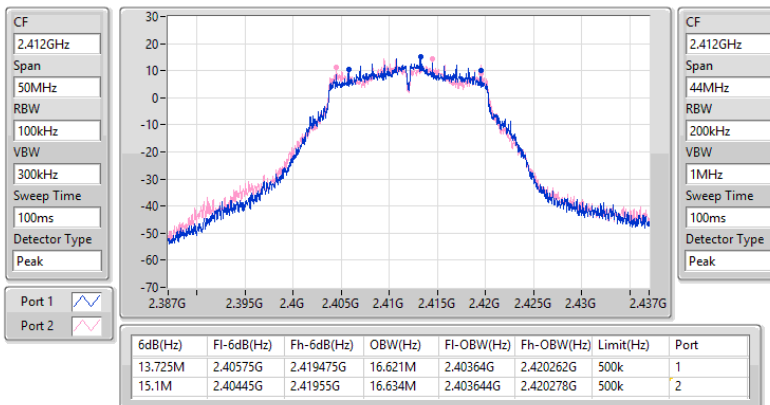
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2.4-2.4835GHz_802.11g_Nss1,(6Mbps)_2TX

EBW

2412MHz

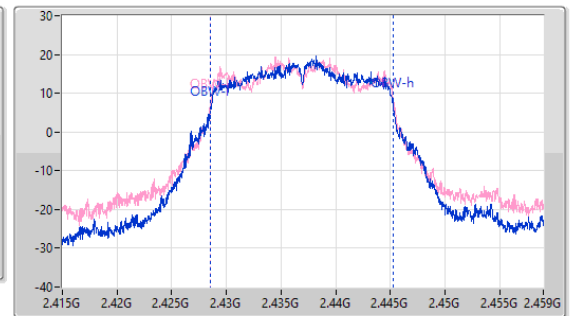
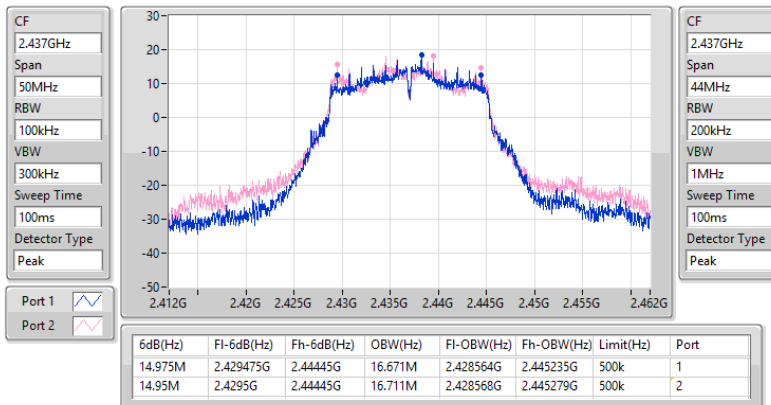




2.4-2.4835GHz_802.11g_Nss1,(6Mbps)_2TX

EBW

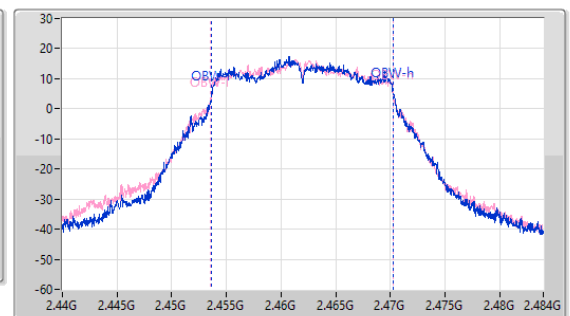
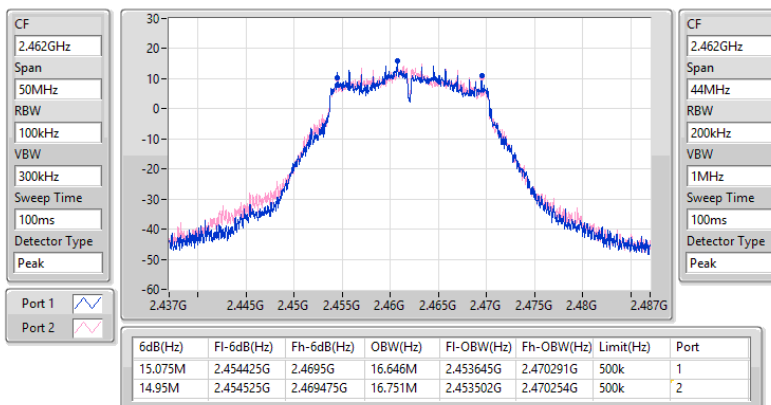
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2.4-2.4835GHz_802.11g_Nss1,(6Mbps)_2TX

EBW

2462MHz

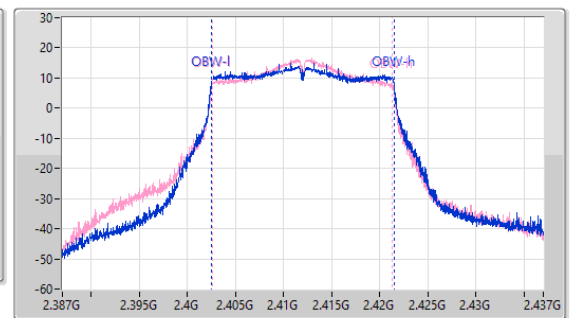
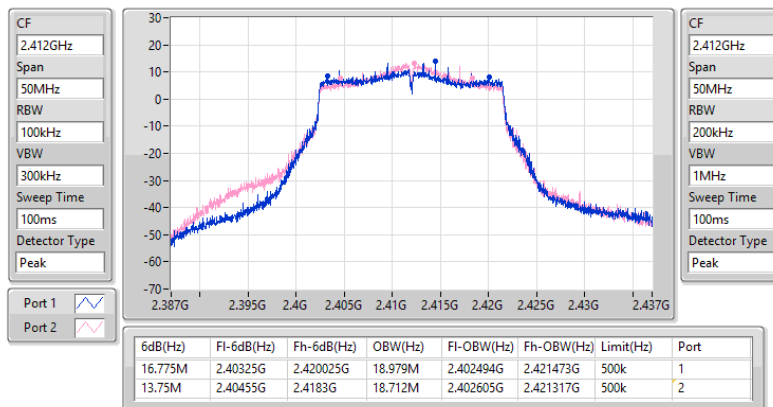




2.4-2.4835GHz_802.11be EHT20_Nss1,(MCS0)_2TX

EBW

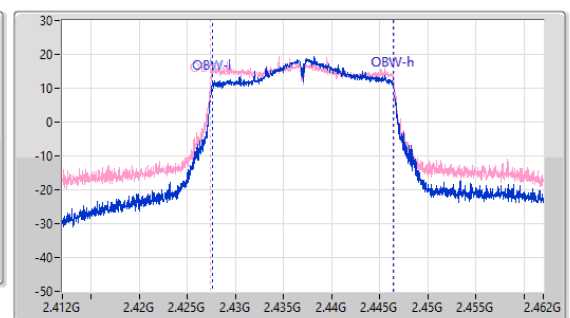
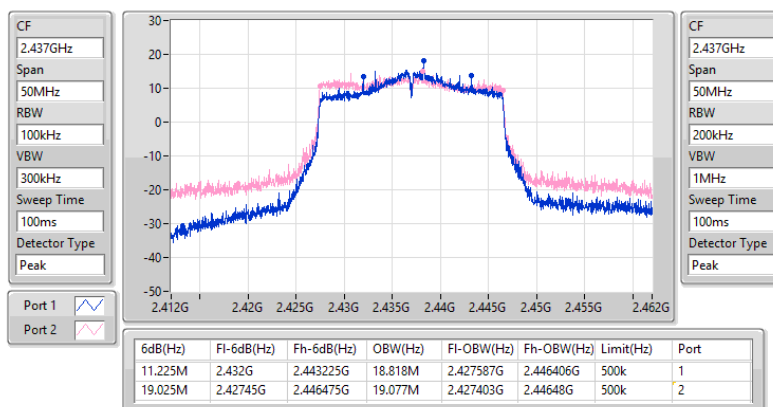
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2.4-2.4835GHz_802.11be EHT20_Nss1,(MCS0)_2TX

EBW

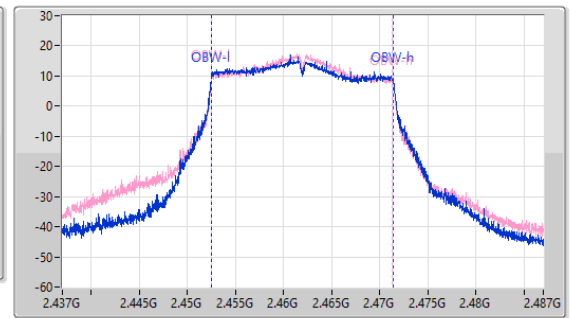
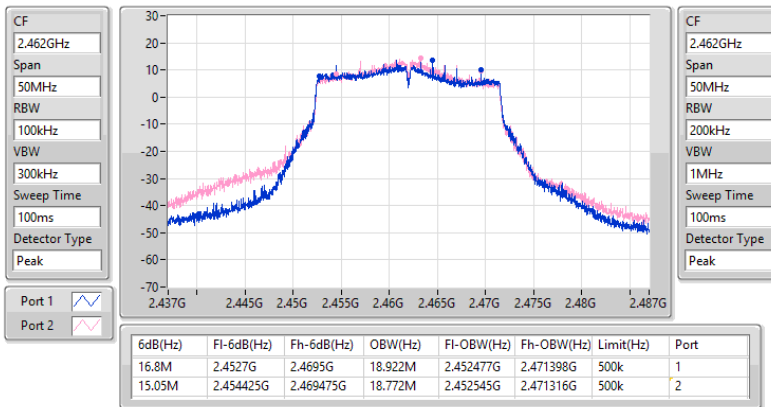
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2.4-2.4835GHz_802.11be EHT20_Nss1,(MCS0)_2TX

EBW

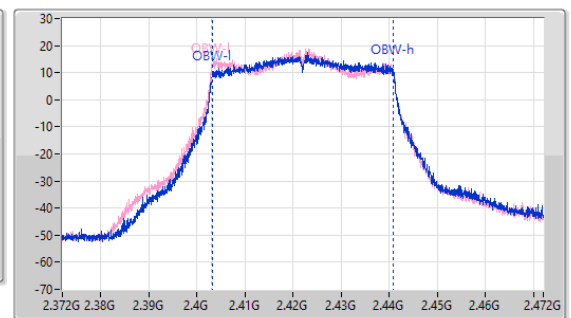
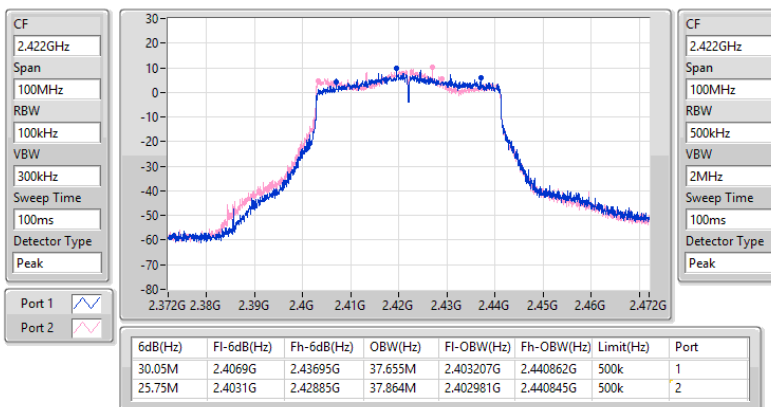
2462MHz



2.4-2.4835GHz_802.11be EHT40_Nss1,(MCS0)_2TX

EBW

2422MHz

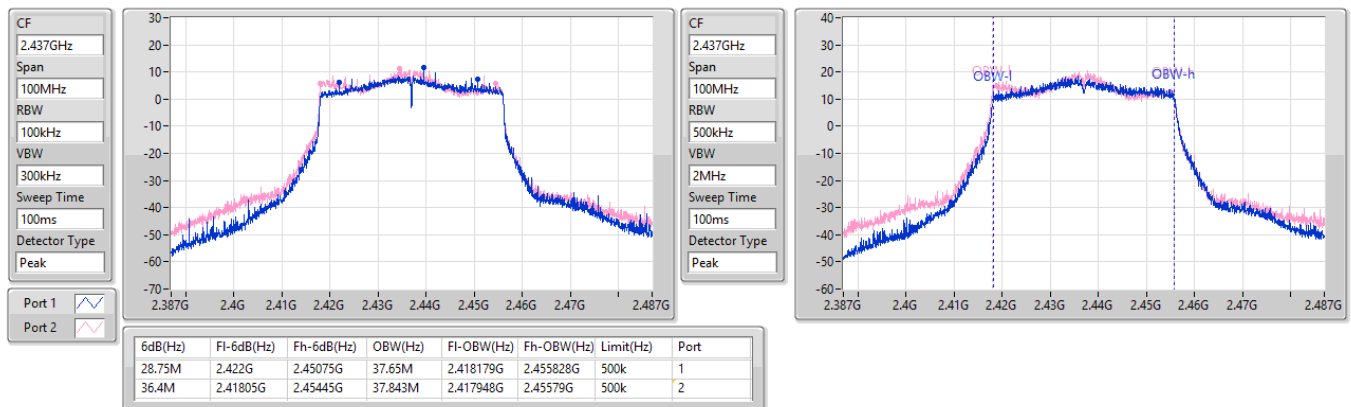




2.4-2.4835GHz_802.11be EHT40_Nss1,(MCS0)_2TX

EBW

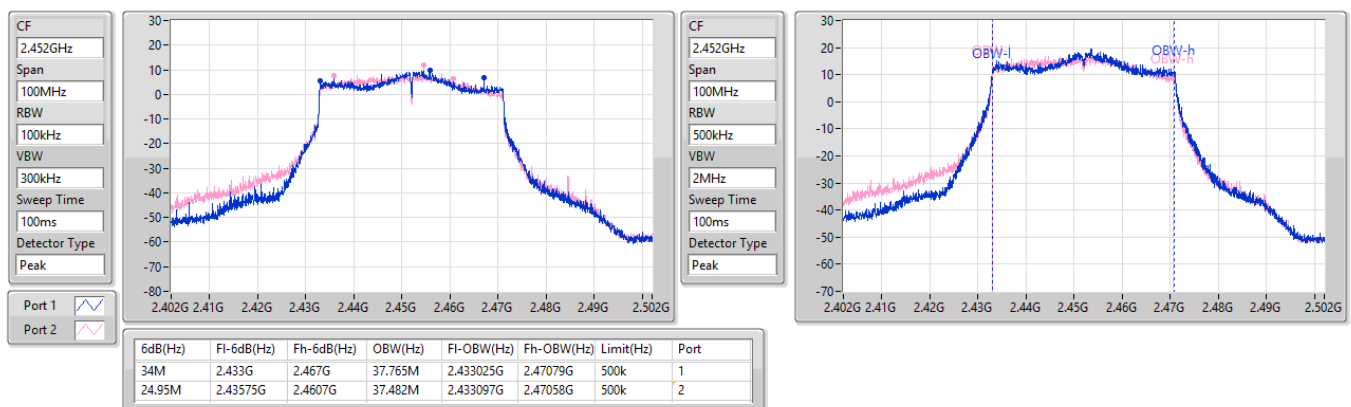
2437MHz



2.4-2.4835GHz_802.11be EHT40_Nss1,(MCS0)_2TX

EBW

2452MHz



Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
802.11be EHT20_Nss2,(MCS0)_2TX	16.175M	18.913M	18M9D1D	13.775M	18.867M
802.11be EHT40_Nss2,(MCS0)_2TX	36.45M	37.746M	37M7D1D	31.3M	37.671M

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)
802.11be EHT20_Nss2,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	15.05M	18.867M	16.075M	18.874M
2437MHz	Pass	500k	13.775M	18.897M	14.675M	18.913M
2462MHz	Pass	500k	15.025M	18.884M	16.175M	18.898M
802.11be EHT40_Nss2,(MCS0)_2TX	-	-	-	-	-	-
2422MHz	Pass	500k	31.3M	37.727M	34.75M	37.699M
2437MHz	Pass	500k	32.55M	37.746M	31.6M	37.671M
2452MHz	Pass	500k	36.45M	37.704M	35.4M	37.684M

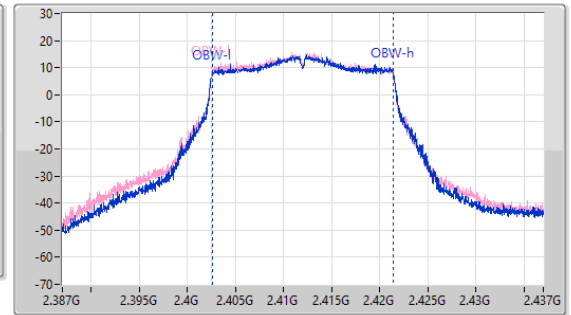
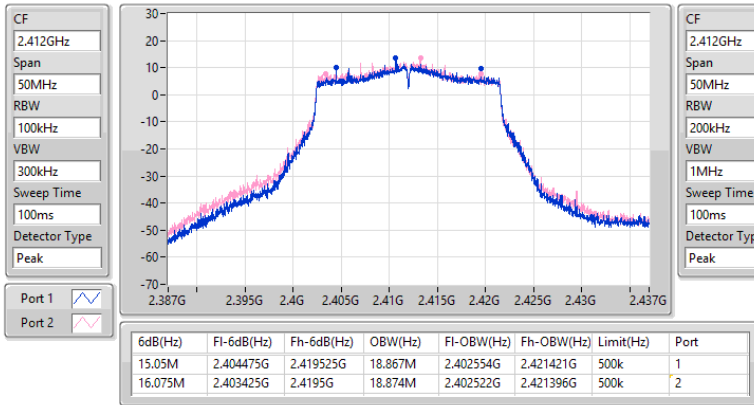
Port X-N dB = Port X 6dB down bandwidth;

Port X-OBW = Port X 99% occupied bandwidth

2.4-2.4835GHz_802.11be EHT20_Nss2,(MCS0)_2TX

EBW

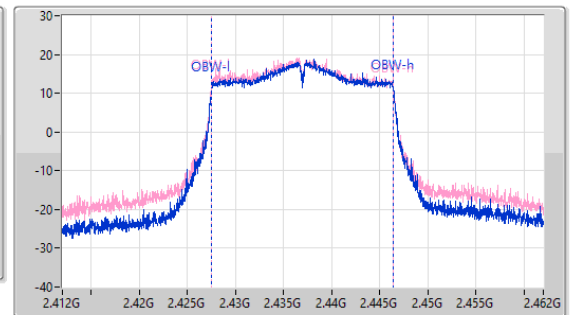
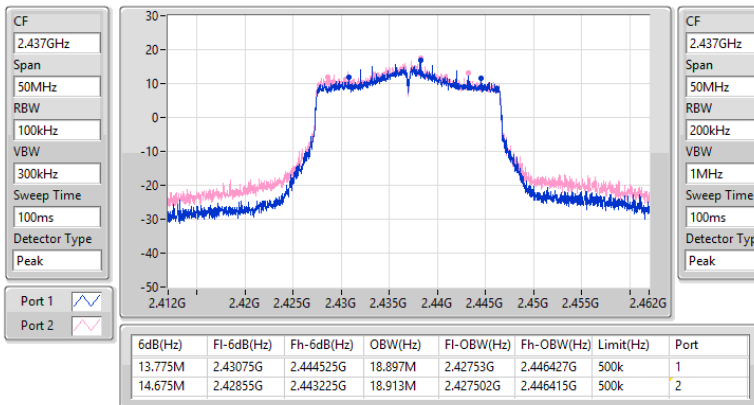
2412MHz



2.4-2.4835GHz_802.11be EHT20_Nss2,(MCS0)_2TX

EBW

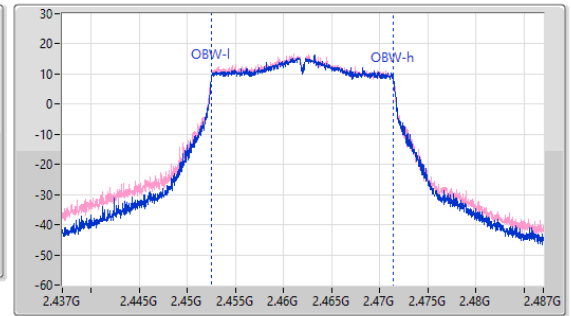
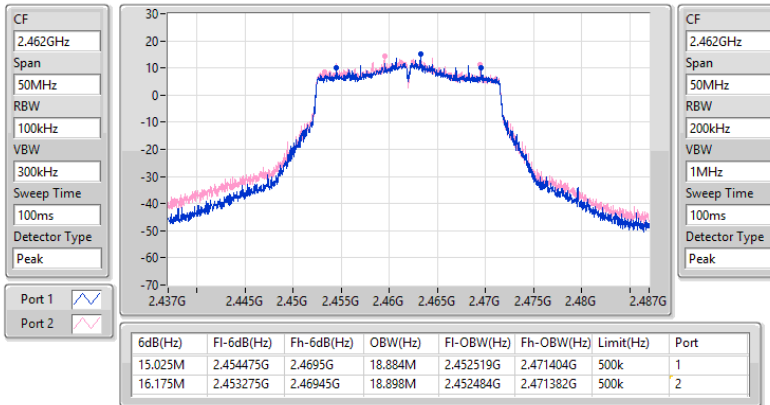
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2.4-2.4835GHz_802.11be EHT20_Nss2,(MCS0)_2TX

EBW

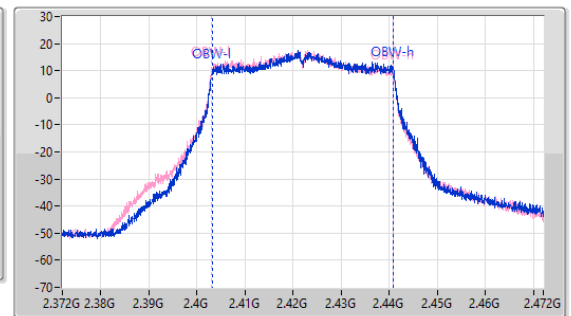
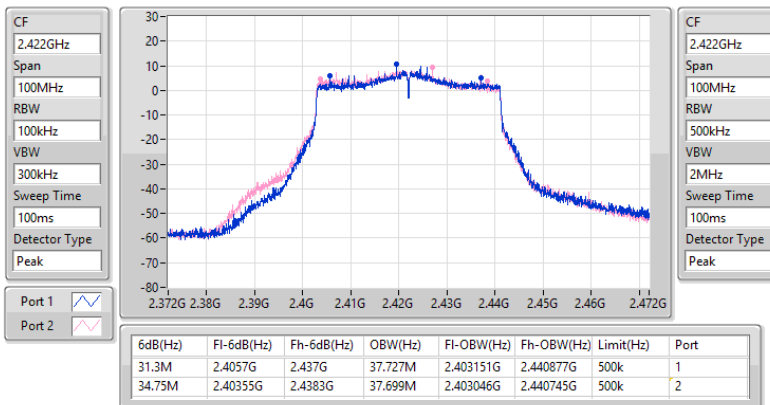
2462MHz



2.4-2.4835GHz_802.11be EHT40_Nss2,(MCS0)_2TX

EBW

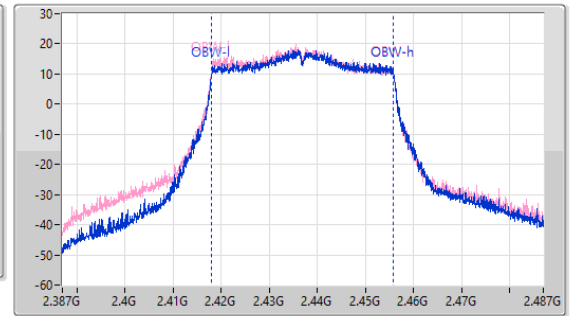
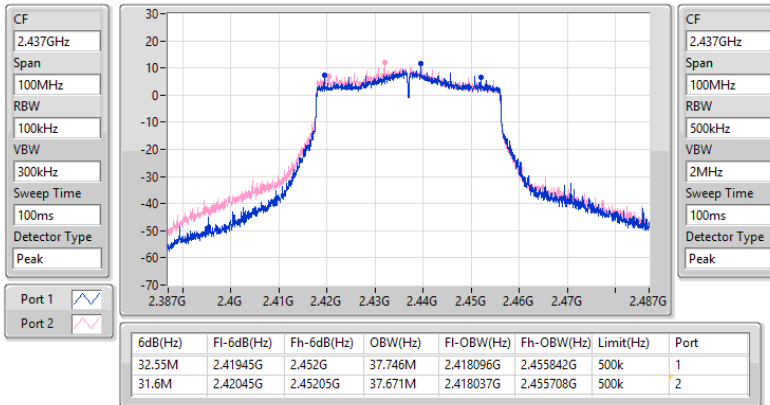
2422MHz



2.4-2.4835GHz_802.11be EHT40_Nss2,(MCS0)_2TX

EBW

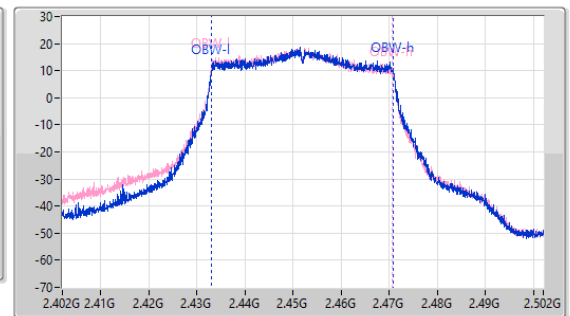
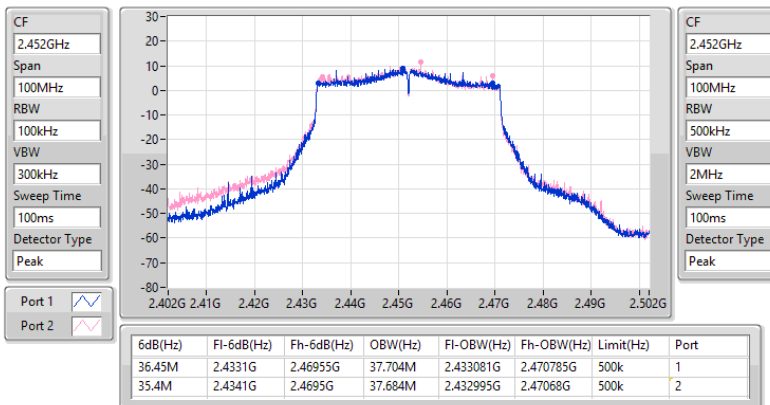
2437MHz



2.4-2.4835GHz_802.11be EHT40_Nss2,(MCS0)_2TX

EBW

2452MHz



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

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
802.11b_Nss1,(1Mbps)_2TX	29.85	0.96605
802.11g_Nss1,(6Mbps)_2TX	29.84	0.96383
802.11be EHT20_Nss1,(MCS0)_2TX	29.50	0.89125
802.11be EHT40_Nss1,(MCS0)_2TX	26.55	0.45186

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	2.41	26.43	26.57	29.51	30.00	31.92	36.00
2437MHz	Pass	2.41	26.75	26.92	29.85	30.00	32.26	36.00
2462MHz	Pass	2.41	26.45	26.96	29.72	30.00	32.13	36.00
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-	-	-
2412MHz	Pass	2.41	23.71	23.95	26.84	30.00	29.25	36.00
2437MHz	Pass	2.41	26.45	27.18	29.84	30.00	32.25	36.00
2462MHz	Pass	2.41	24.28	24.68	27.49	30.00	29.90	36.00
802.11be EHT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
2412MHz	Pass	2.41	22.97	23.94	26.49	30.00	28.90	36.00
2437MHz	Pass	2.41	26.28	26.69	29.50	30.00	31.91	36.00
2462MHz	Pass	2.41	23.84	23.72	26.79	30.00	29.20	36.00
802.11be EHT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
2422MHz	Pass	2.41	22.42	22.24	25.34	30.00	27.75	36.00
2437MHz	Pass	2.41	23.56	23.52	26.55	30.00	28.96	36.00
2452MHz	Pass	2.41	23.12	23.69	26.42	30.00	28.83	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	-	-
802.11be EHT20-BF_Nss1,(MCS0)_2TX	28.82	0.76208
802.11be EHT40-BF_Nss1,(MCS0)_2TX	25.87	0.38637

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
802.11be EHT20-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
2412MHz	Pass	3.09	22.29	23.26	25.81	30.00	28.90	36.00
2437MHz	Pass	3.09	25.6	26.01	28.82	30.00	31.91	36.00
2462MHz	Pass	3.09	23.16	23.04	26.11	30.00	29.20	36.00
802.11be EHT40-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
2422MHz	Pass	3.09	21.74	21.56	24.66	30.00	27.75	36.00
2437MHz	Pass	3.09	22.88	22.84	25.87	30.00	28.96	36.00
2452MHz	Pass	3.09	22.44	23.01	25.74	30.00	28.83	36.00

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

Directional Gain is measured.

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

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
802.11be EHT20_Nss2,(MCS0)_2TX	29.50	0.89125
802.11be EHT40_Nss2,(MCS0)_2TX	26.77	0.47534

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
802.11be EHT20_Nss2,(MCS0)_2TX	-	-	-	-	-	-	-	-
2412MHz	Pass	2.39	22.75	23.18	25.98	30.00	28.37	36.00
2437MHz	Pass	2.39	26.26	26.71	29.50	30.00	31.89	36.00
2462MHz	Pass	2.39	23.75	24.02	26.90	30.00	29.29	36.00
802.11be EHT40_Nss2,(MCS0)_2TX	-	-	-	-	-	-	-	-
2422MHz	Pass	2.39	22.31	22.52	25.43	30.00	27.82	36.00
2437MHz	Pass	2.39	23.66	23.85	26.77	30.00	29.16	36.00
2452MHz	Pass	2.39	23.11	23.65	26.40	30.00	28.79	36.00

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

Directional Gain = $10 \log [(10^{2.41/10} + 10^{2.36/10}) / 2] = 2.39 \text{ dBi}$

**Beamforming mode****Summary**

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
802.11be EHT20-BF_Nss2,(MCS0)_2TX	29.48	0.88716
802.11be EHT40-BF_Nss2,(MCS0)_2TX	26.75	0.47315

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
802.11be EHT20-BF_Nss2,(MCS0)_2TX	-	-	-	-	-	-	-	-
2412MHz	Pass	2.41	22.73	23.16	25.96	30.00	28.37	36.00
2437MHz	Pass	2.41	26.24	26.69	29.48	30.00	31.89	36.00
2462MHz	Pass	2.41	23.73	24	26.88	30.00	29.29	36.00
802.11be EHT40-BF_Nss2,(MCS0)_2TX	-	-	-	-	-	-	-	-
2422MHz	Pass	2.41	22.29	22.5	25.41	30.00	27.82	36.00
2437MHz	Pass	2.41	23.64	23.83	26.75	30.00	29.16	36.00
2452MHz	Pass	2.41	23.09	23.63	26.38	30.00	28.79	36.00

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

Directional Gain is measured.



Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
802.11b_Nss1,(1Mbps)_2TX	2.91
802.11g_Nss1,(6Mbps)_2TX	-0.57
802.11be EHT20_Nss1,(MCS0)_2TX	-2.48
802.11be EHT40_Nss1,(MCS0)_2TX	-7.39

RBW = 3kHz;

Result

Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
802.11b_Nss1,(1Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	3.09	0.4	-1.2	2.21	8.00
2437MHz	Pass	3.09	-0.47	0.92	2.91	8.00
2462MHz	Pass	3.09	-0.38	0.17	2.56	8.00
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	3.09	-5.17	-5.71	-3.82	8.00
2437MHz	Pass	3.09	-2.92	-3.54	-0.57	8.00
2462MHz	Pass	3.09	-4.79	-3.33	-1.53	8.00
802.11be EHT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	3.09	-8.66	-6.09	-4.76	8.00
2437MHz	Pass	3.09	-3.92	-5.24	-2.48	8.00
2462MHz	Pass	3.09	-7.52	-5.7	-4.15	8.00
802.11be EHT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2422MHz	Pass	3.09	-12.28	-9.39	-8.18	8.00
2437MHz	Pass	3.09	-10.83	-8.65	-7.39	8.00
2452MHz	Pass	3.09	-10.24	-11.77	-8.39	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;

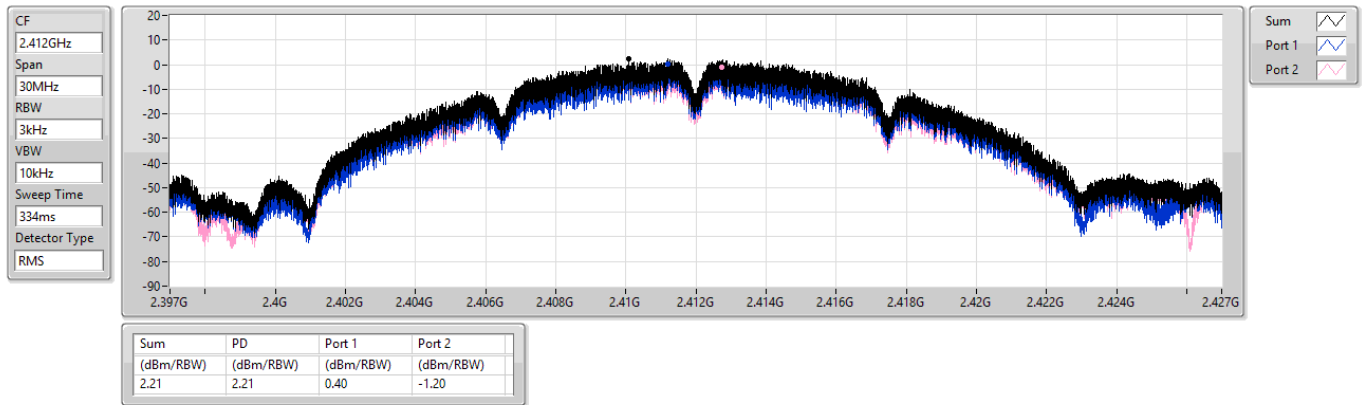
Directional Gain is measured.



2.4-2.4835GHz_802.11b_Nss1,(1Mbps)_2TX

PSD

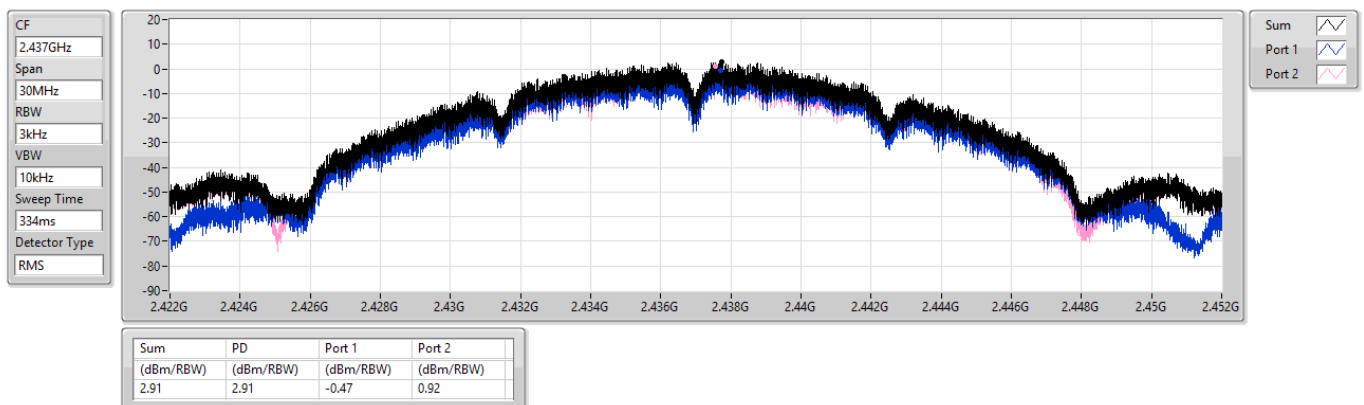
2412MHz



2.4-2.4835GHz_802.11b_Nss1,(1Mbps)_2TX

PSD

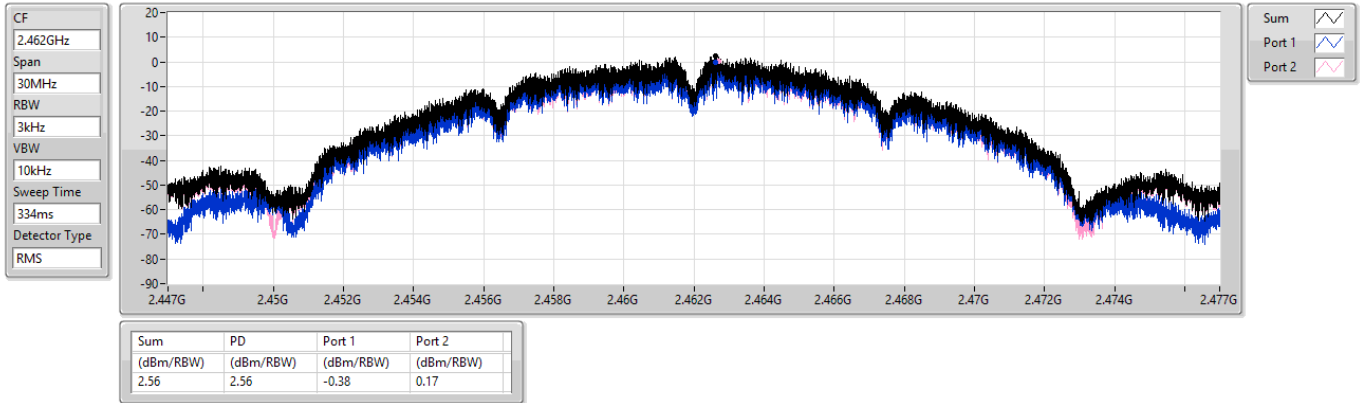
2437MHz



2.4-2.4835GHz_802.11b_Nss1,(1Mbps)_2TX

PSD

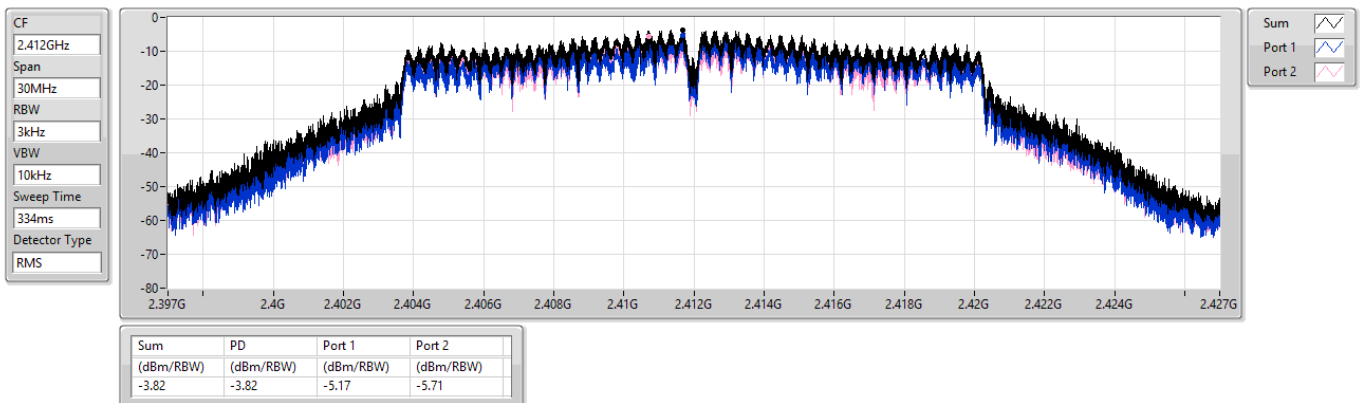
2462MHz



2.4-2.4835GHz_802.11g_Nss1,(6Mbps)_2TX

PSD

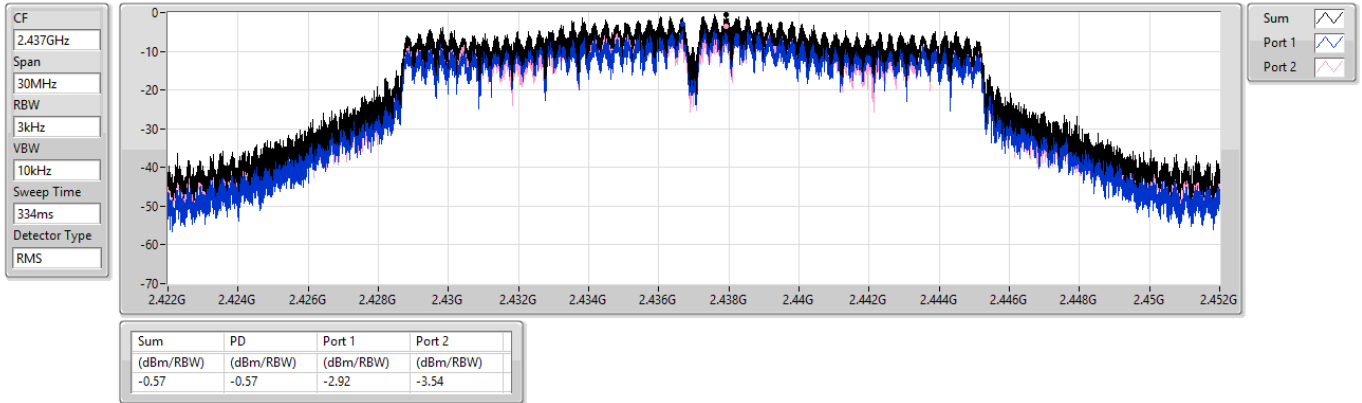
2412MHz



2.4-2.4835GHz_802.11g_Nss1,(6Mbps)_2TX

PSD

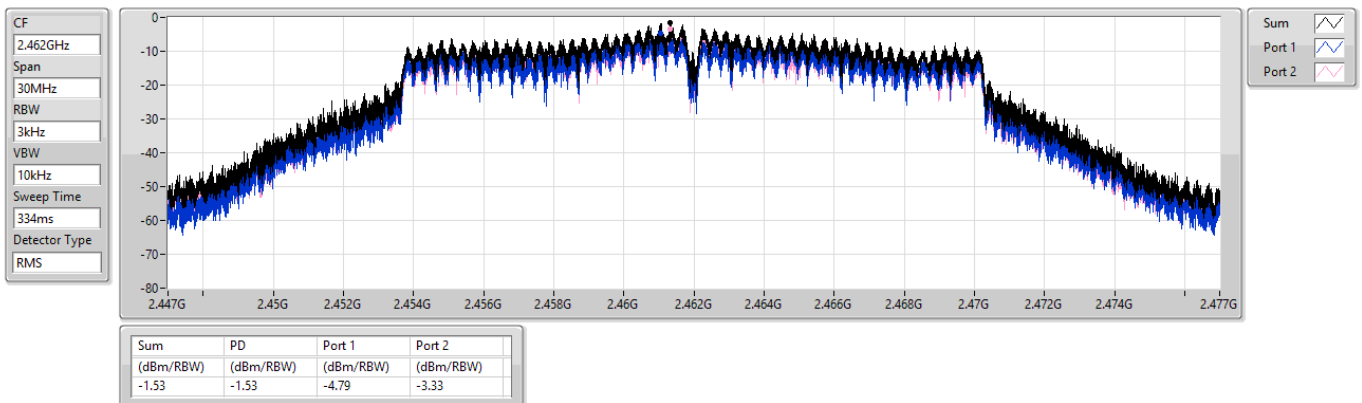
2437MHz



2.4-2.4835GHz_802.11g_Nss1,(6Mbps)_2TX

PSD

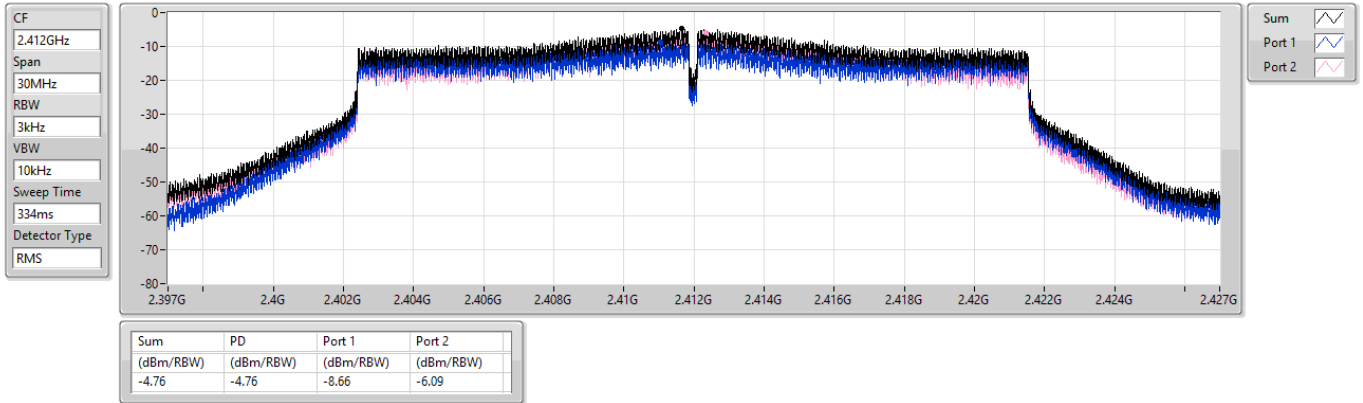
2462MHz



2.4-2.4835GHz_802.11be EHT20_Nss1,(MCS0)_2TX

PSD

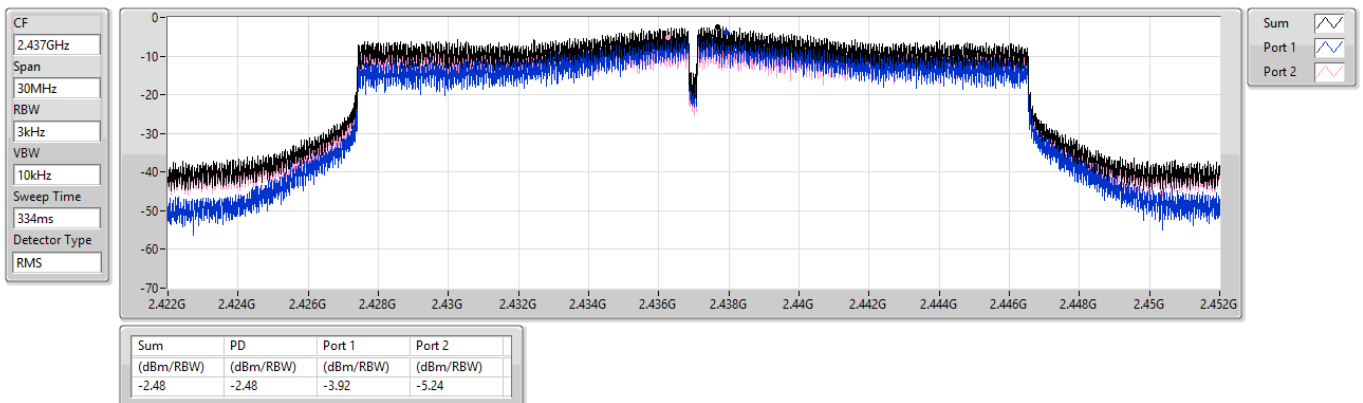
2412MHz



2.4-2.4835GHz_802.11be EHT20_Nss1,(MCS0)_2TX

PSD

2437MHz

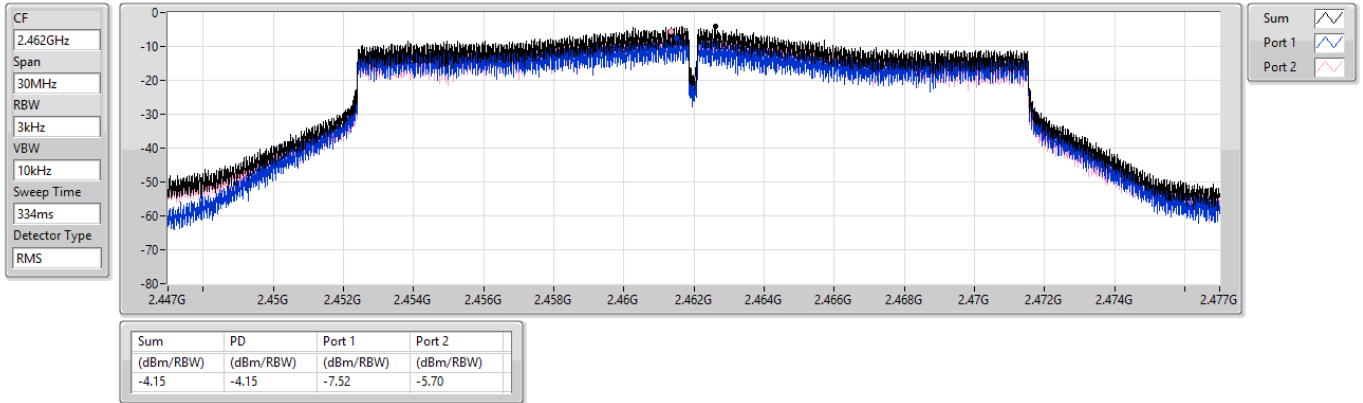




2.4-2.4835GHz_802.11be EHT20_Nss1,(MCS0)_2TX

PSD

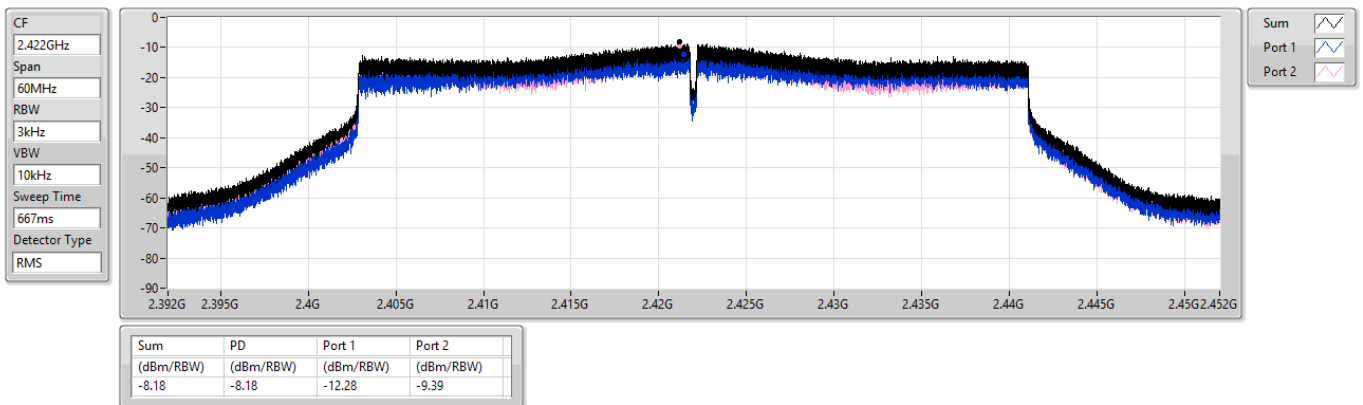
2462MHz



2.4-2.4835GHz_802.11be EHT40_Nss1,(MCS0)_2TX

PSD

2422MHz

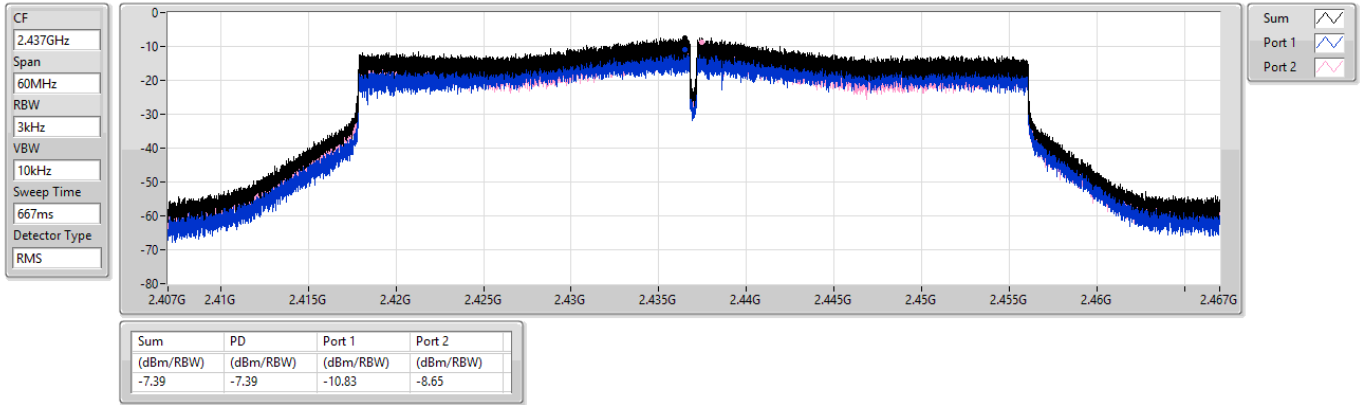




2.4-2.4835GHz_802.11be EHT40_Nss1,(MCS0)_2TX

PSD

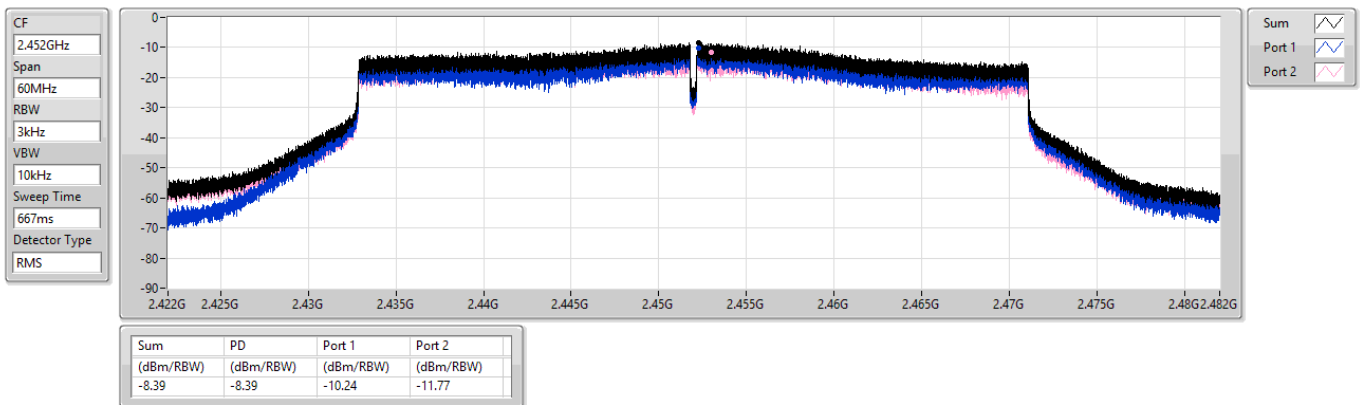
2437MHz



2.4-2.4835GHz_802.11be EHT40_Nss1,(MCS0)_2TX

PSD

2452MHz



**Summary**

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
802.11be EHT20_Nss2,(MCS0)_2TX	-1.6
802.11be EHT40_Nss2,(MCS0)_2TX	-7.62

RBW = 3kHz;

Result

Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
802.11be EHT20_Nss2,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	2.39	-8.45	-7.6	-5.49	8.00
2437MHz	Pass	2.39	-4.45	-3.37	-1.60	8.00
2462MHz	Pass	2.39	-6.79	-6.39	-4.62	8.00
802.11be EHT40_Nss2,(MCS0)_2TX	-	-	-	-	-	-
2422MHz	Pass	2.39	-11.82	-11.4	-9.22	8.00
2437MHz	Pass	2.39	-10.26	-10.06	-7.62	8.00
2452MHz	Pass	2.39	-10.51	-10.81	-7.99	8.00

DG = Directional Gain; RBW = 3kHz;

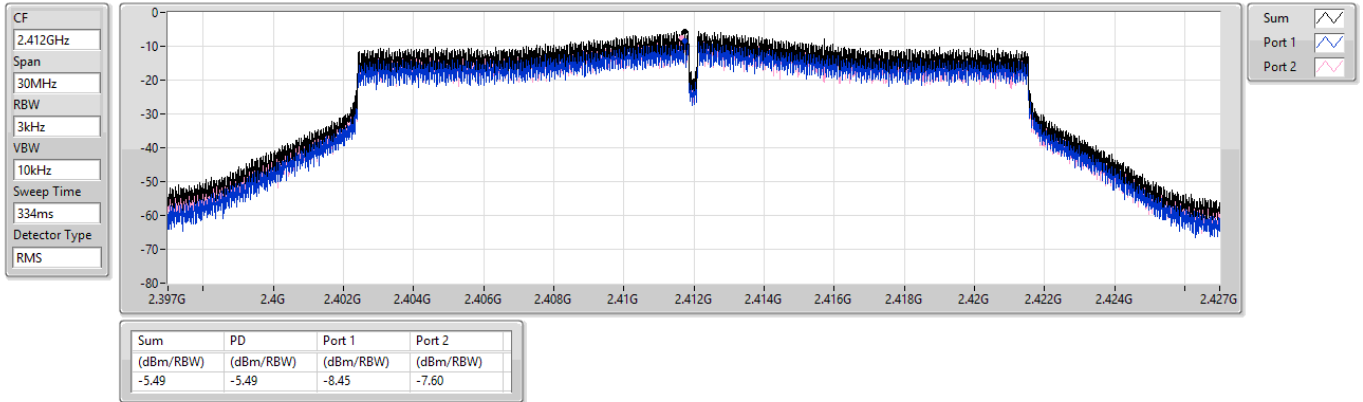
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; Port X = Port X Power Density;

Directional Gain = $10 \log [(10^{2.41/10} + 10^{2.36/10}) / 2] = 2.39 \text{ dBi}$

2.4-2.4835GHz_802.11be EHT20_Nss2,(MCS0)_2TX

PSD

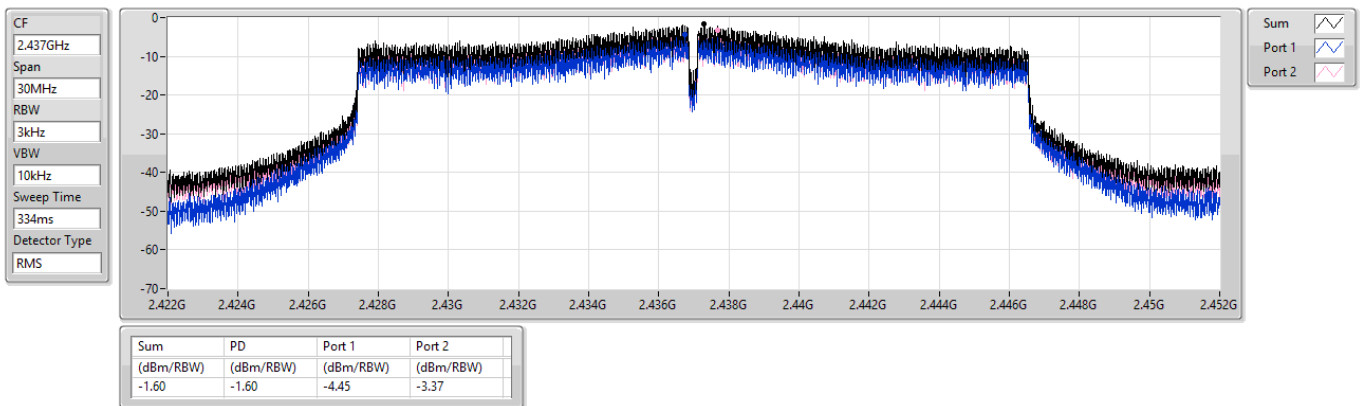
2412MHz



2.4-2.4835GHz_802.11be EHT20_Nss2,(MCS0)_2TX

PSD

2437MHz

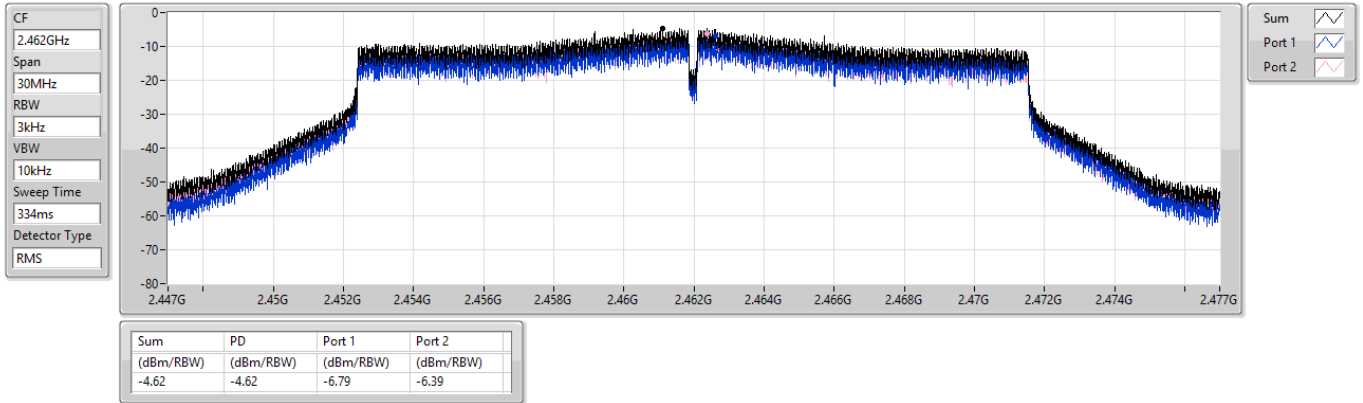




2.4-2.4835GHz_802.11be EHT20_Nss2,(MCS0)_2TX

PSD

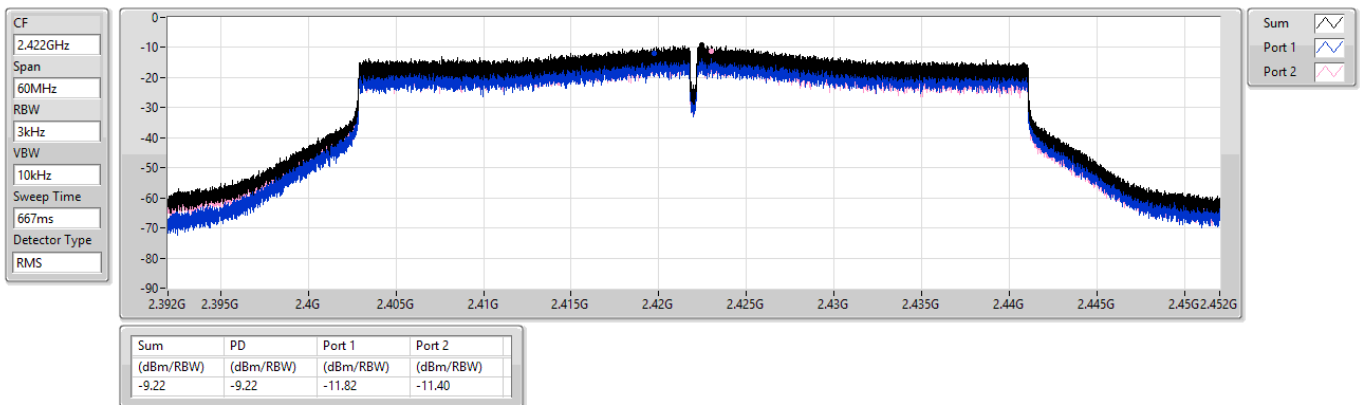
2462MHz



2.4-2.4835GHz_802.11be EHT40_Nss2,(MCS0)_2TX

PSD

2422MHz

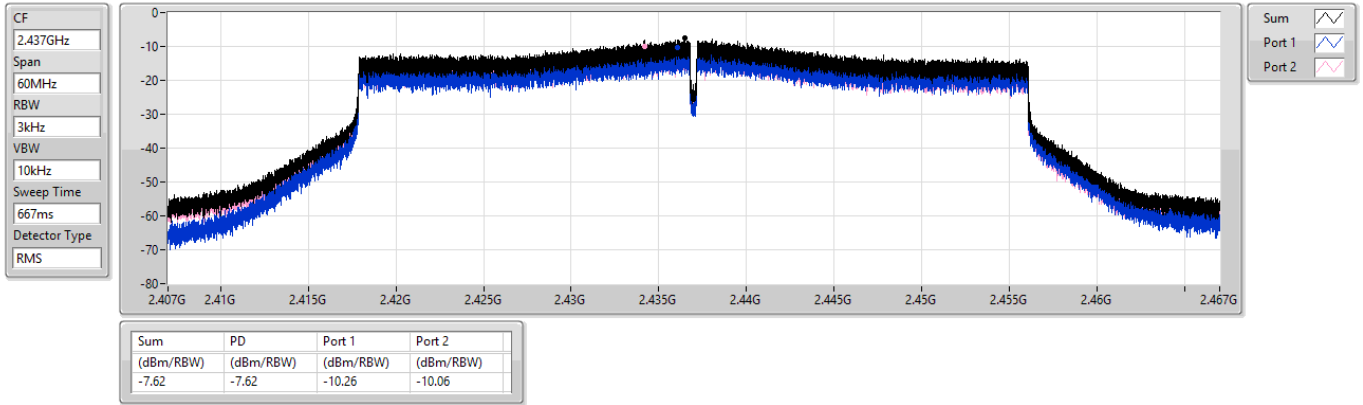




2.4-2.4835GHz_802.11be EHT40_Nss2,(MCS0)_2TX

PSD

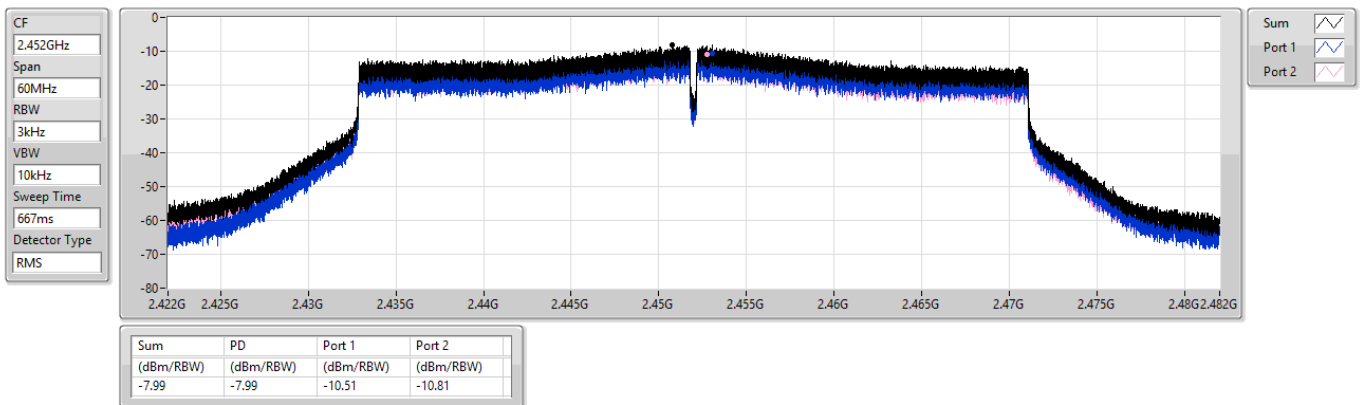
2437MHz



2.4-2.4835GHz_802.11be EHT40_Nss2,(MCS0)_2TX

PSD

2452MHz





Unwanted Emissions into Restricted Frequency Bands - 2T1S mode Appendix D.1

For 2T1S mode

Unwanted Emissions (Below 1GHz)

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

Test By :Sean Yu

Temperature(°C):23

Humidity(%):62

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	50.37	24.89	40.00	-15.11	32.90	-8.01	Peak	---	---
2	103.72	30.17	43.50	-13.33	42.33	-12.16	Peak	---	---
3	159.01	26.55	43.50	-16.95	35.04	-8.49	Peak	---	---
4	285.11	22.91	46.00	-23.09	31.26	-8.35	Peak	---	---
5	329.73	23.74	46.00	-22.26	30.56	-6.82	Peak	---	---
6	408.30	24.33	46.00	-21.67	29.15	-4.82	Peak	---	---

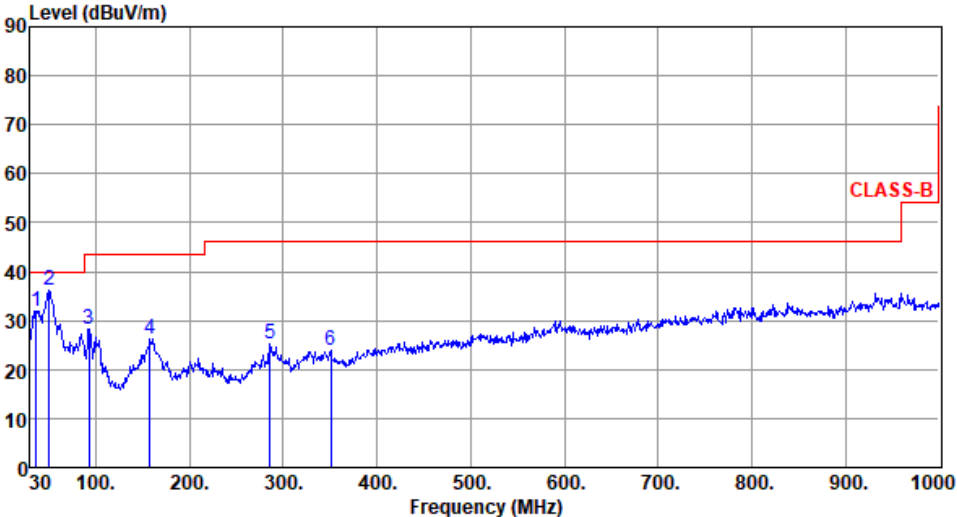
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m)
*Factor includes antenna factor , cable loss and amplifier gain

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 Emissions into Restricted Frequency Bands - 2T1S mode Appendix D.1

Modulation	11b	Test Freq. (MHz)	2437																																																																						
Polarization	Vertical																																																																								
Test By :Sean Yu Temperature(°C):23 Humidity(%):62																																																																									
Level (dBUV/m)  Frequency (MHz) <table><thead><tr><th></th><th>Freq. MHz</th><th>Emission level dBUV/m</th><th>Limit dBUV/m</th><th>Margin dB</th><th>SA reading dBUV</th><th>Factor dB/m</th><th>Remark</th><th>ANT High cm</th><th>Turn Table deg</th></tr></thead><tbody><tr><td>1</td><td>36.79</td><td>31.86</td><td>40.00</td><td>-8.14</td><td>40.93</td><td>-9.07</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>2</td><td>50.37</td><td>36.11</td><td>40.00</td><td>-3.89</td><td>44.12</td><td>-8.01</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>3</td><td>93.05</td><td>28.20</td><td>43.50</td><td>-15.30</td><td>42.23</td><td>-14.03</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>4</td><td>158.04</td><td>26.30</td><td>43.50</td><td>-17.20</td><td>34.80</td><td>-8.50</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>5</td><td>286.08</td><td>25.17</td><td>46.00</td><td>-20.83</td><td>33.47</td><td>-8.30</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>6</td><td>351.07</td><td>23.95</td><td>46.00</td><td>-22.05</td><td>30.54</td><td>-6.59</td><td>Peak</td><td>---</td><td>---</td></tr></tbody></table> Note 1: Emission Level (dBUV/m) = SA Reading (dBUV) + Factor* (dB/m) *Factor includes antenna factor , cable loss and amplifier gain Note 2: Margin (dB) = Emission level (dBUV/m) – Limit (dBUV/m). Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.					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	36.79	31.86	40.00	-8.14	40.93	-9.07	Peak	---	---	2	50.37	36.11	40.00	-3.89	44.12	-8.01	Peak	---	---	3	93.05	28.20	43.50	-15.30	42.23	-14.03	Peak	---	---	4	158.04	26.30	43.50	-17.20	34.80	-8.50	Peak	---	---	5	286.08	25.17	46.00	-20.83	33.47	-8.30	Peak	---	---	6	351.07	23.95	46.00	-22.05	30.54	-6.59	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	36.79	31.86	40.00	-8.14	40.93	-9.07	Peak	---	---																																																																
2	50.37	36.11	40.00	-3.89	44.12	-8.01	Peak	---	---																																																																
3	93.05	28.20	43.50	-15.30	42.23	-14.03	Peak	---	---																																																																
4	158.04	26.30	43.50	-17.20	34.80	-8.50	Peak	---	---																																																																
5	286.08	25.17	46.00	-20.83	33.47	-8.30	Peak	---	---																																																																
6	351.07	23.95	46.00	-22.05	30.54	-6.59	Peak	---	---																																																																

Unwanted Emission (Above 1GHz) for 11b

Modulation	11b	Test Freq. (MHz)	2412
Polarization	Horizontal		
Test By :Sean Yu Temperature(°C):22 Humidity(%):63			
Level (dBUV/m)			



Unwanted Emissions into Restricted Frequency Bands - 2T1S mode Appendix D.1

Modulation	11b	Test Freq. (MHz)	2412
Polarization	Vertical		
Test By :Sean Yu Temperature(°C):22 Humidity(%):63			
Level (dBUV/m)			



Unwanted Emissions into Restricted Frequency Bands - 2T1S mode Appendix D.1

Modulation	11b	Test Freq. (MHz)	2437
Polarization	Horizontal		
Test By :Sena Yu Temperature(°C):24 Humidity(%):62			
Level (dBUV/m)			



Unwanted Emissions into Restricted Frequency Bands - 2T1S mode Appendix D.1

Modulation	11b	Test Freq. (MHz)	2437
Polarization	Vertical		
Test By :Sena Yu Temperature(°C):24 Humidity(%):62			
Level (dBUV/m)			



Unwanted Emissions into Restricted Frequency Bands - 2T1S mode Appendix D.1

Modulation	11b	Test Freq. (MHz)	2462
Polarization	Horizontal		
Test By :Sena Yu Temperature(°C):24 Humidity(%):62			
Level (dBuV/m) </			



Unwanted Emissions into Restricted Frequency Bands - 2T1S mode Appendix D.1

Modulation	11b	Test Freq. (MHz)	2462
Polarization	Vertical		
Test By :Sena Yu Temperature(°C):24 Humidity(%):62			
Level (dBUV/m) </			



Unwanted Emissions (Above 1GHz) for 11g

Modulation	11g	Test Freq. (MHz)	2412
Polarization	Horizontal		
Test By :Brad Wu Temperature(°C):22 Humidity(%):63			
Level (dBUV/m)			



Unwanted Emissions into Restricted Frequency Bands - 2T1S mode Appendix D.1

Modulation	11g	Test Freq. (MHz)	2412
Polarization	Vertical		
Test By :Brad Wu Temperature(°C):22 Humidity(%):63			
Level (dBUV/m) </			



Unwanted Emissions into Restricted Frequency Bands - 2T1S mode Appendix D.1

Modulation	11g	Test Freq. (MHz)	2437
Polarization	Horizontal		
Test By :Sena Yu Temperature(°C):24 Humidity(%):62			
Level (dBuV/m)			



Unwanted Emissions into Restricted Frequency Bands - 2T1S mode Appendix D.1

Modulation	11g	Test Freq. (MHz)	2437
Polarization	Vertical		
Test By :Sena Yu Temperature(°C):24 Humidity(%):62			
Level (dBuV/m)			



Unwanted Emissions into Restricted Frequency Bands - 2T1S mode Appendix D.1

Modulation	11g	Test Freq. (MHz)	2462
Polarization	Horizontal		
Test By :Brad Wu Temperature(°C):22 Humidity(%):63			
Level (dBuV/m)			



Unwanted Emissions into Restricted Frequency Bands - 2T1S mode Appendix D.1

Modulation	11g	Test Freq. (MHz)	2462
Polarization	Vertical		
Test By :Brad Wu Temperature(°C):22 Humidity(%):63			
Level (dBUV/m)			



Unwanted Emissions (Above 1GHz) for be EHT20

Modulation	be EHT20	Test Freq. (MHz)	2412						
Polarization	Horizontal								
Test By :Sean Yu Temperature(°C):22 Humidity(%):63									
Level (dBUV/m) Frequency (MHz)									
	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	53.62	54.00	-0.38	57.25	-3.63	Average	198	242
2	2390.00	71.85	74.00	-2.15	75.48	-3.63	Peak	198	242
3 *	2412.00	110.23			113.89	-3.66	Average	111	253
4 *	2412.00	123.19			126.85	-3.66	Peak	111	253
5	4824.00	31.27	54.00	-22.73	31.16	0.11	Average	100	176
6	4824.00	45.37	74.00	-28.63	45.26	0.11	Peak	100	176
7	14472.00	44.43	54.00	-9.57	35.84	8.59	Average	100	182
8	14472.00	58.43	74.00	-15.57	49.84	8.59	Peak	100	182

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 into Restricted Frequency Bands - 2T1S mode Appendix D.1

Modulation	be EHT20	Test Freq. (MHz)	2412
Polarization	Vertical		
Test By :Sean Yu Temperature(°C):22 Humidity(%):63			
Level (dBUV/m)			

Modulation	be EHT20	Test Freq. (MHz)	2437
Polarization	Horizontal		
Test By :Sena Yu Temperature(°C):24 Humidity(%):62			
Level (dBuV/m)			



Unwanted Emissions into Restricted Frequency Bands - 2T1S mode Appendix D.1

Modulation	be EHT20	Test Freq. (MHz)	2437
Polarization	Vertical		
Test By :Sena Yu Temperature(°C):24 Humidity(%):62			
Level (dBuV/m) </			



Unwanted Emissions into Restricted Frequency Bands - 2T1S mode Appendix D.1

Modulation	be EHT20	Test Freq. (MHz)	2462
Polarization	Horizontal		
Test By :Sean Yu Temperature(°C):22 Humidity(%):63			
Level (dBuV/m)			



Unwanted Emissions into Restricted Frequency Bands - 2T1S mode Appendix D.1

Modulation	be EHT20	Test Freq. (MHz)	2462
Polarization	Vertical		
Test By :Sean Yu Temperature(°C):22 Humidity(%):63			
Level (dBUV/m)			



Unwanted Emissions (Above 1GHz) for be EHT40

Modulation	be EHT40	Test Freq. (MHz)	2422
Polarization	Horizontal		
Test By :Sean Yu Temperature(°C):22 Humidity(%):63			
Level (dBUV/m)			



Unwanted Emissions into Restricted Frequency Bands - 2T1S mode Appendix D.1

Modulation	be EHT40	Test Freq. (MHz)	2422
Polarization	Vertical		
Test By :Sean Yu Temperature(°C):22 Humidity(%):63			
Level (dBUV/m) </			



Unwanted Emissions into Restricted Frequency Bands - 2T1S mode Appendix D.1

Modulation	be EHT40	Test Freq. (MHz)	2437
Polarization	Horizontal		
Test By :Sean Yu Temperature(°C):22 Humidity(%):63			
Level (dBuV/m) </			



Unwanted Emissions into Restricted Frequency Bands - 2T1S mode Appendix D.1

Modulation	be EHT40	Test Freq. (MHz)	2437
Polarization	Vertical		
Test By :Sean Yu Temperature(°C):22 Humidity(%):63			
Level (dBUV/m) </			



Unwanted Emissions into Restricted Frequency Bands - 2T1S mode Appendix D.1

Modulation	be EHT40	Test Freq. (MHz)	2452
Polarization	Horizontal		
Test By :Sean Yu Temperature(°C):22 Humidity(%):63			
Level (dBUV/m)			



Unwanted Emissions into Restricted Frequency Bands - 2T1S mode Appendix D.1

Modulation	be EHT40	Test Freq. (MHz)	2452
Polarization	Vertical		
Test By :Sean Yu Temperature(°C):22 Humidity(%):63			
Level (dBuV/m) <			

For 2T2S mode

Unwanted Emissions (Above 1GHz) for be EHT20

Modulation	be EHT20	Test Freq. (MHz)	2412
Polarization	Horizontal		
Test By :Sean Yu Temperature(°C):22 Humidity(%):63			
Level (dBUV/m)			



Unwanted Emissions into Restricted Frequency Bands - 2T2S mode Appendix D.2

Modulation	be EHT20	Test Freq. (MHz)	2412
Polarization	Vertical		
Test By :Sean Yu Temperature(°C):22 Humidity(%):63			
Level (dBuV/m) </			



Unwanted Emissions into Restricted Frequency Bands - 2T2S mode Appendix D.2

Modulation	be EHT20	Test Freq. (MHz)	2437
Polarization	Horizontal		
Test By :Brad Wu Temperature(°C):23 Humidity(%):62			
Level (dBuV/m)			



Unwanted Emissions into Restricted Frequency Bands - 2T2S mode Appendix D.2

Modulation	be EHT20	Test Freq. (MHz)	2437
Polarization	Vertical		
Test By :Brad Wu Temperature(°C):23 Humidity(%):62			
Level (dBuV/m) </			



Unwanted Emissions into Restricted Frequency Bands - 2T2S mode Appendix D.2

Modulation	be EHT20	Test Freq. (MHz)	2462
Polarization	Horizontal		
Test By :Sean Yu Temperature(°C):22 Humidity(%):63			
Level (dBuV/m)			



Unwanted Emissions into Restricted Frequency Bands - 2T2S mode Appendix D.2

Modulation	be EHT20	Test Freq. (MHz)	2462
Polarization	Vertical		
Test By :Sean Yu Temperature(°C):22 Humidity(%):63			
Level (dBuV/m)			



Unwanted Emissions (Above 1GHz) for be EHT40

Modulation	be EHT40		Test Freq. (MHz)		2422	
Polarization	Horizontal					
Test By :Sean Yu Temperature(°C):22 Humidity(%):63						
Level (dBuV/m) </						

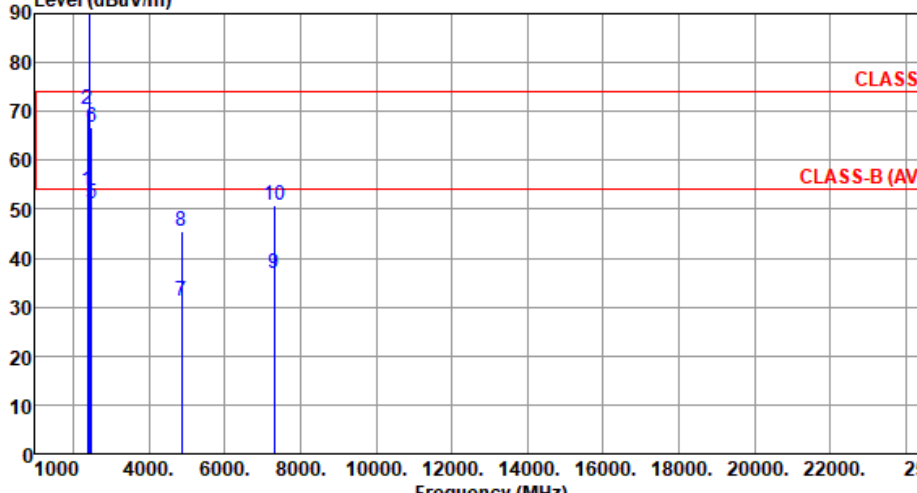


Unwanted Emissions into Restricted Frequency Bands - 2T2S mode Appendix D.2

Modulation	be EHT40	Test Freq. (MHz)	2422
Polarization	Vertical		
Test By :Sean Yu Temperature(°C):22 Humidity(%):63			
Level (dBuV/m)			



Unwanted Emissions into Restricted Frequency Bands - 2T2S mode Appendix D.2

Modulation	be EHT40	Test Freq. (MHz)	2437						
Polarization	Horizontal								
Test By :Sean Yu Temperature(°C):22 Humidity(%):63									
Level (dBuV/m)  Frequency (MHz)									
	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	53.87	54.00	-0.13	57.50	-3.63	Average	199	253
2	2390.00	70.30	74.00	-3.70	73.93	-3.63	Peak	199	253
3 *	2437.00	104.99			108.75	-3.76	Average	169	253
4 *	2437.00	117.48			121.24	-3.76	Peak	169	253
5	2483.50	51.15	54.00	-2.85	55.07	-3.92	Average	183	253
6	2483.50	66.78	74.00	-7.22	70.70	-3.92	Peak	183	253
7	4874.00	31.35	54.00	-22.65	31.30	0.05	Average	100	109
8	4874.00	45.48	74.00	-28.52	45.43	0.05	Peak	100	109
9	7311.00	36.78	54.00	-17.22	31.40	5.38	Average	100	112
10	7311.00	50.91	74.00	-23.09	45.53	5.38	Peak	100	112

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 into Restricted Frequency Bands - 2T2S mode Appendix D.2

Modulation	be EHT40	Test Freq. (MHz)	2437
Polarization	Vertical		
Test By :Sean Yu Temperature(°C):22 Humidity(%):63			
Level (dBuV/m)			



Unwanted Emissions into Restricted Frequency Bands - 2T2S mode Appendix D.2

Modulation	be EHT40	Test Freq. (MHz)	2452
Polarization	Horizontal		
Test By :Sean Yu Temperature(°C):22 Humidity(%):63			
Level (dBUV/m) <			



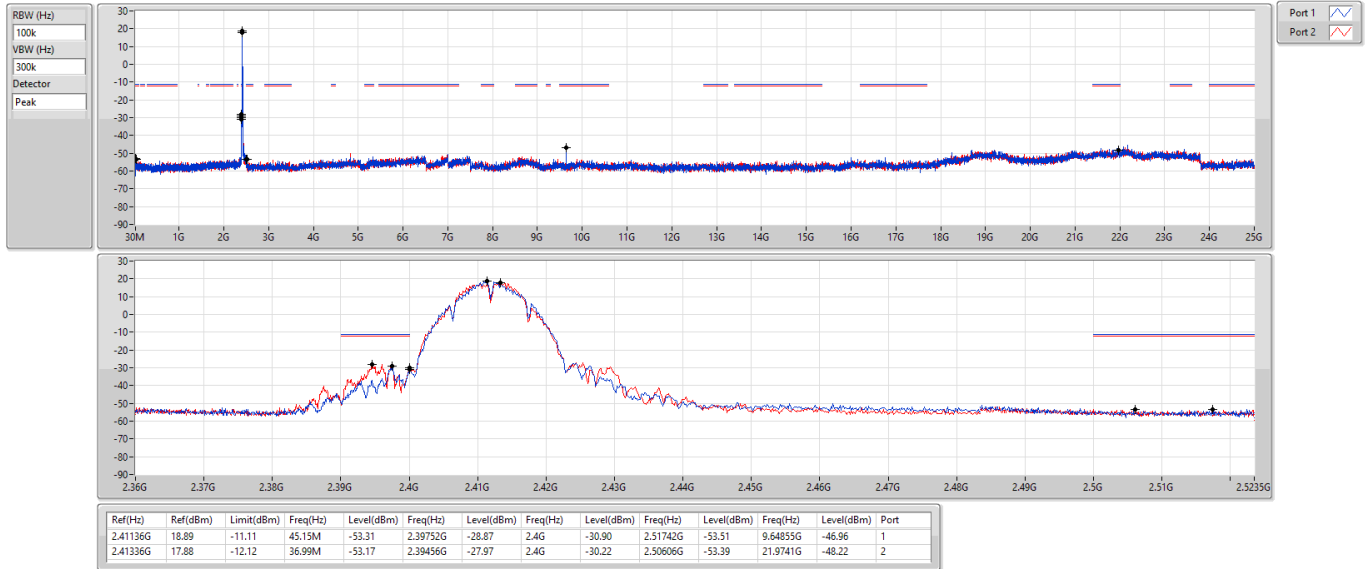
Unwanted Emissions into Restricted Frequency Bands - 2T2S mode Appendix D.2

Modulation	be EHT40	Test Freq. (MHz)	2452
Polarization	Vertical		
Test By :Sean Yu Temperature(°C):22 Humidity(%):63			
Level (dBUV/m) <			

2.4-2.4835GHz_802.11b_Nss1,(1Mbps)_2TX

CSEndB

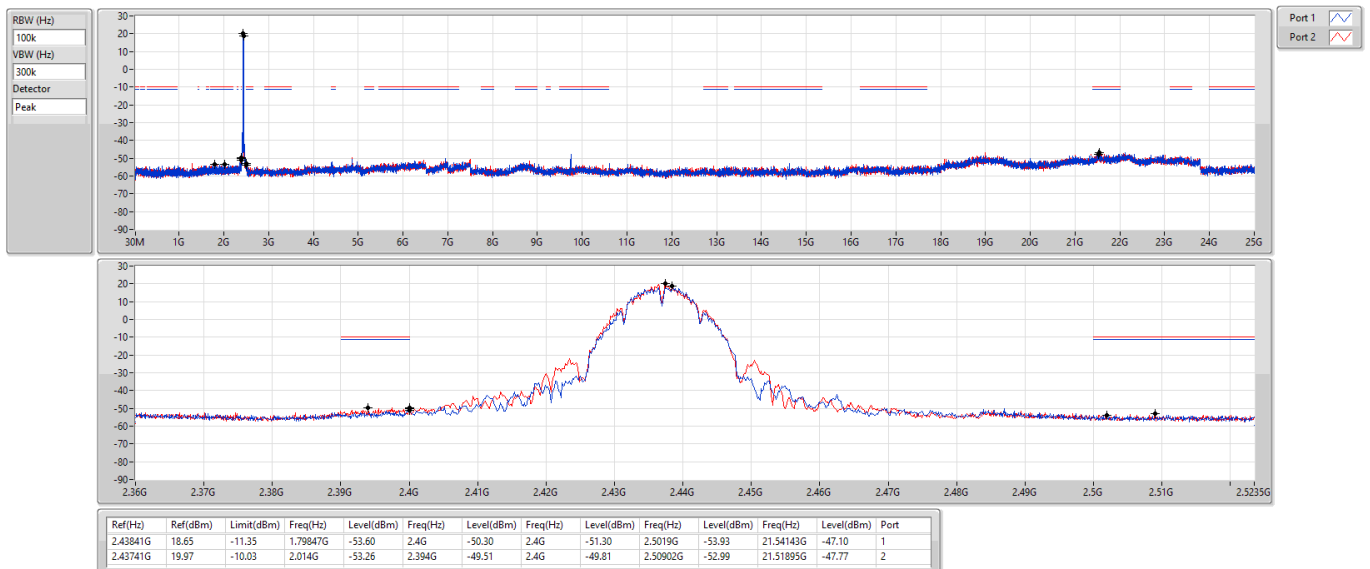
2412MHz



2.4-2.4835GHz_802.11b_Nss1,(1Mbps)_2TX

CSEndB

2437MHz

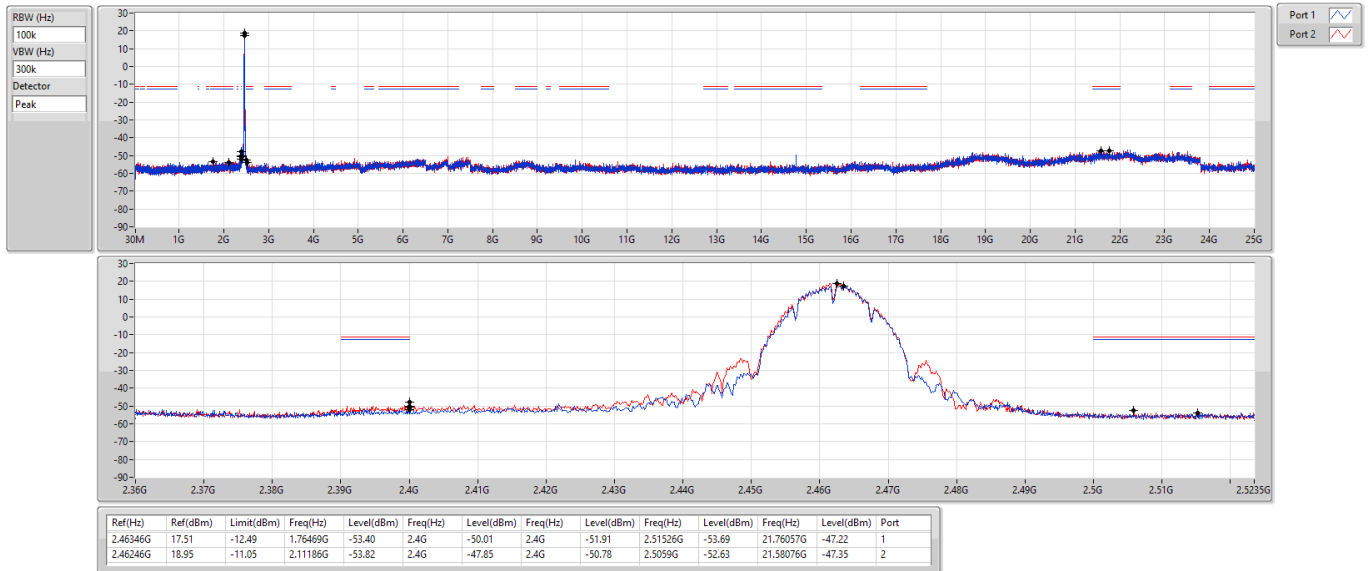




2.4-2.4835GHz_802.11b_Nss1,(1Mbps)_2TX

CSEndB

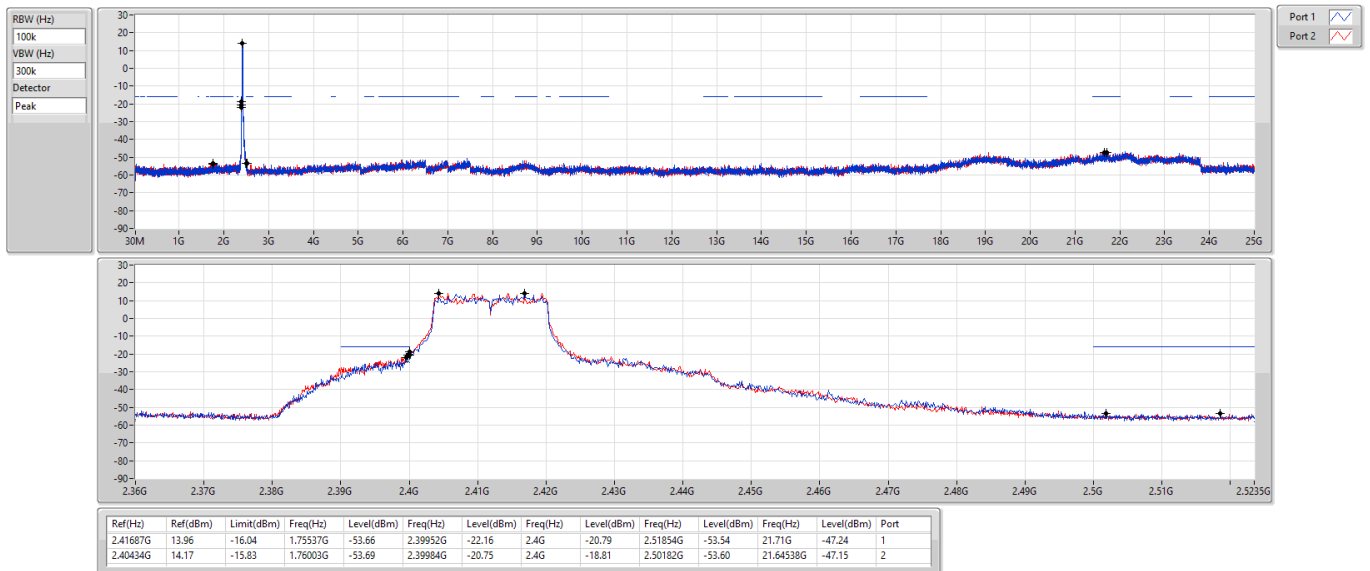
2462MHz



2.4-2.4835GHz_802.11g_Nss1,(6Mbps)_2TX

CSEndB

2412MHz

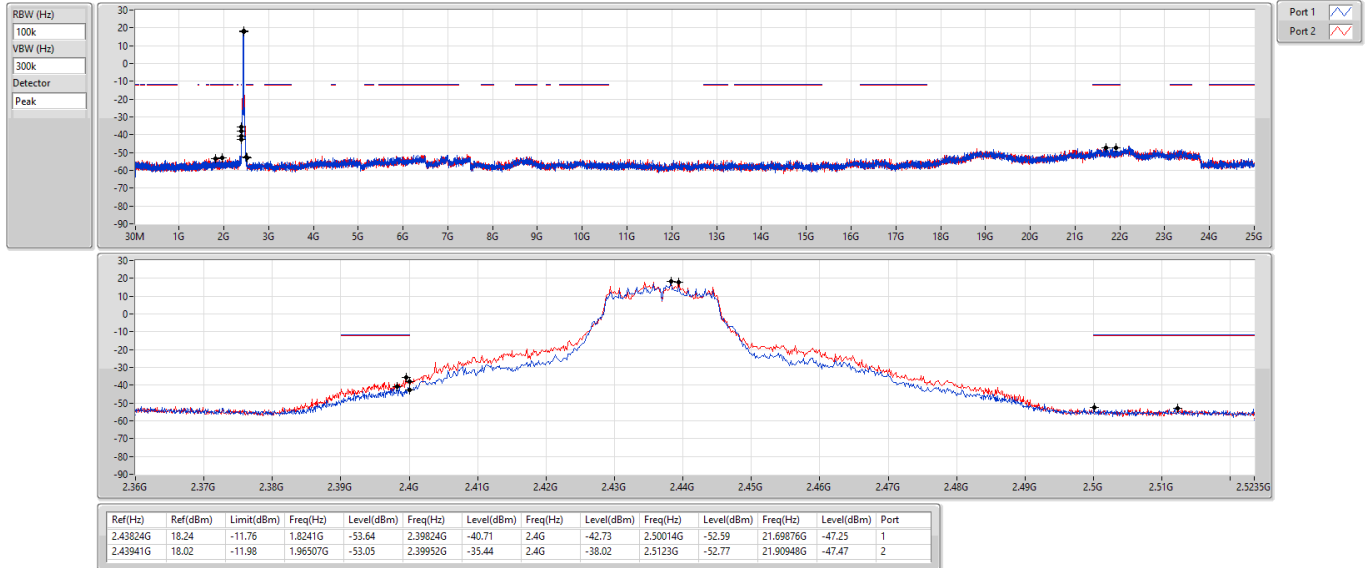




2.4-2.4835GHz_802.11g_Nss1,(6Mbps)_2TX

CSEndB

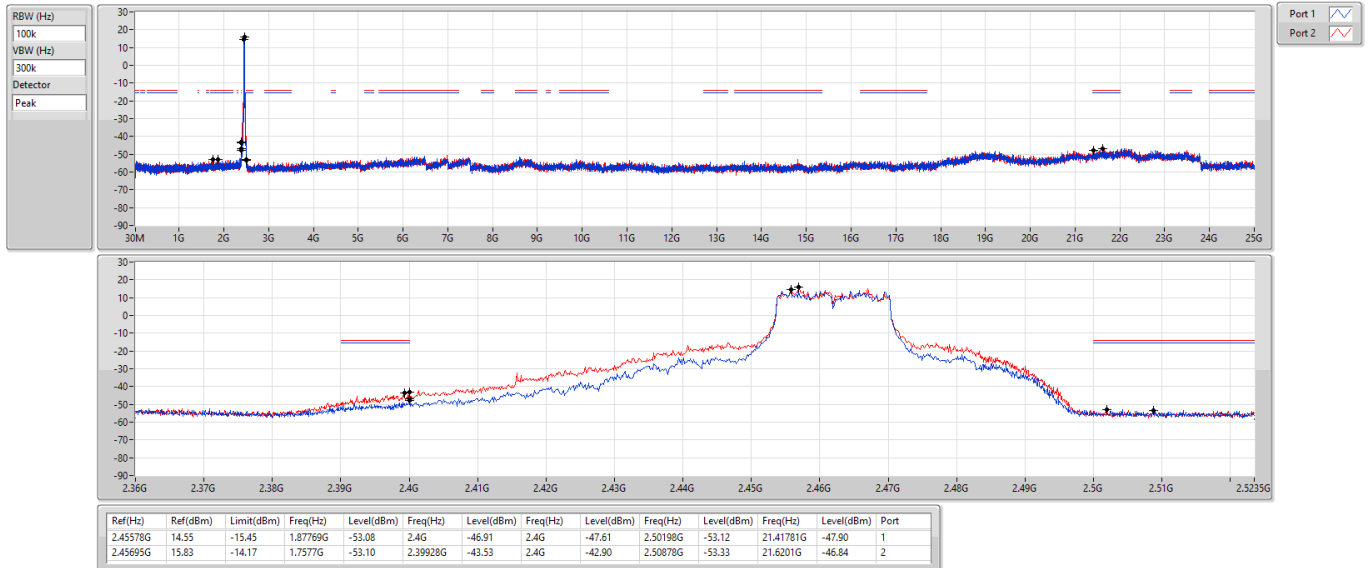
2437MHz



2.4-2.4835GHz_802.11g_Nss1,(6Mbps)_2TX

CSEndB

2462MHz

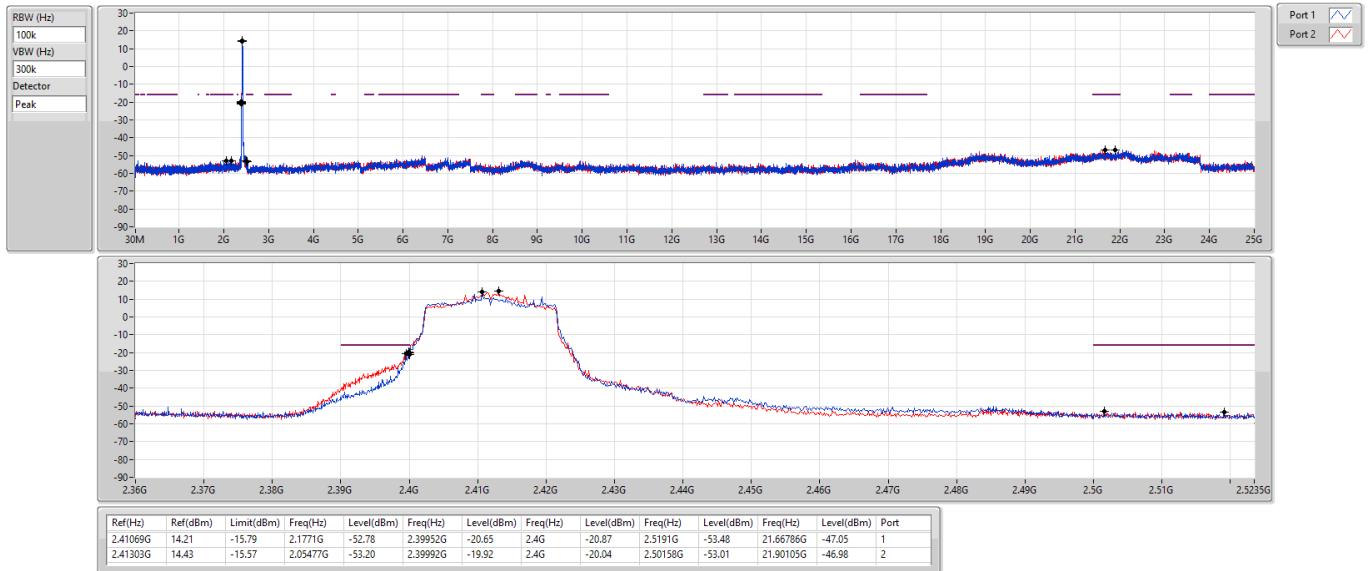




2.4-2.4835GHz_802.11be EHT20_Nss1,(MCS0)_2TX

CSEndB

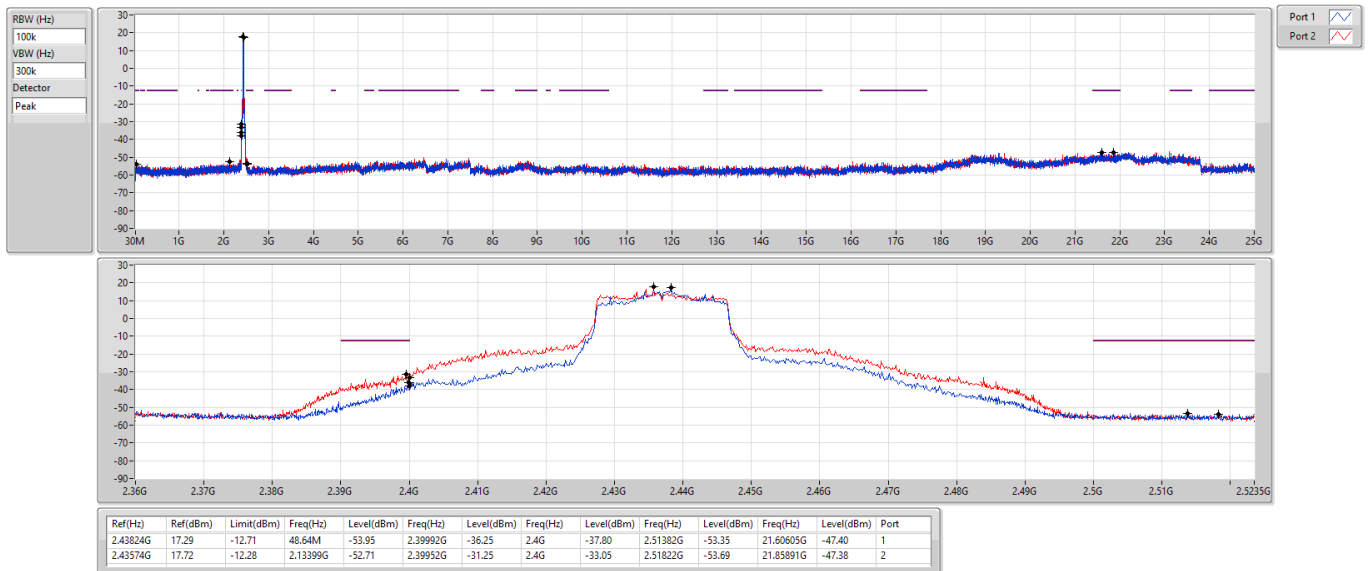
2412MHz



2.4-2.4835GHz_802.11be EHT20_Nss1,(MCS0)_2TX

CSEndB

2437MHz

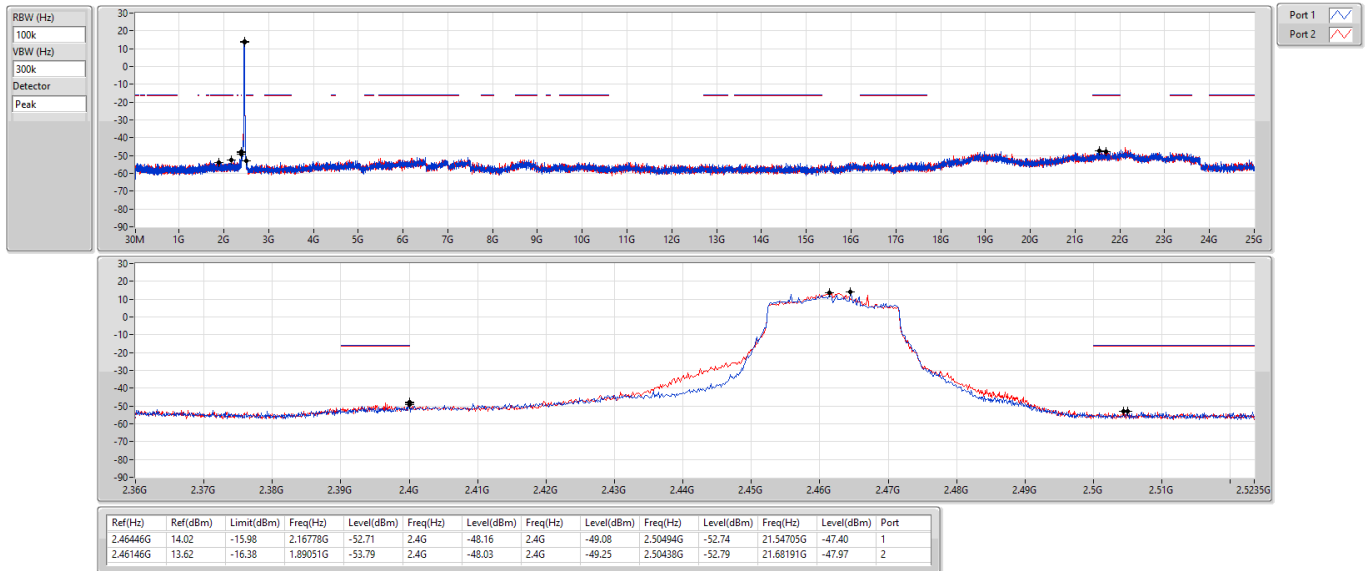




2.4-2.4835GHz_802.11be EHT20_Nss1,(MCS0)_2TX

CSEndB

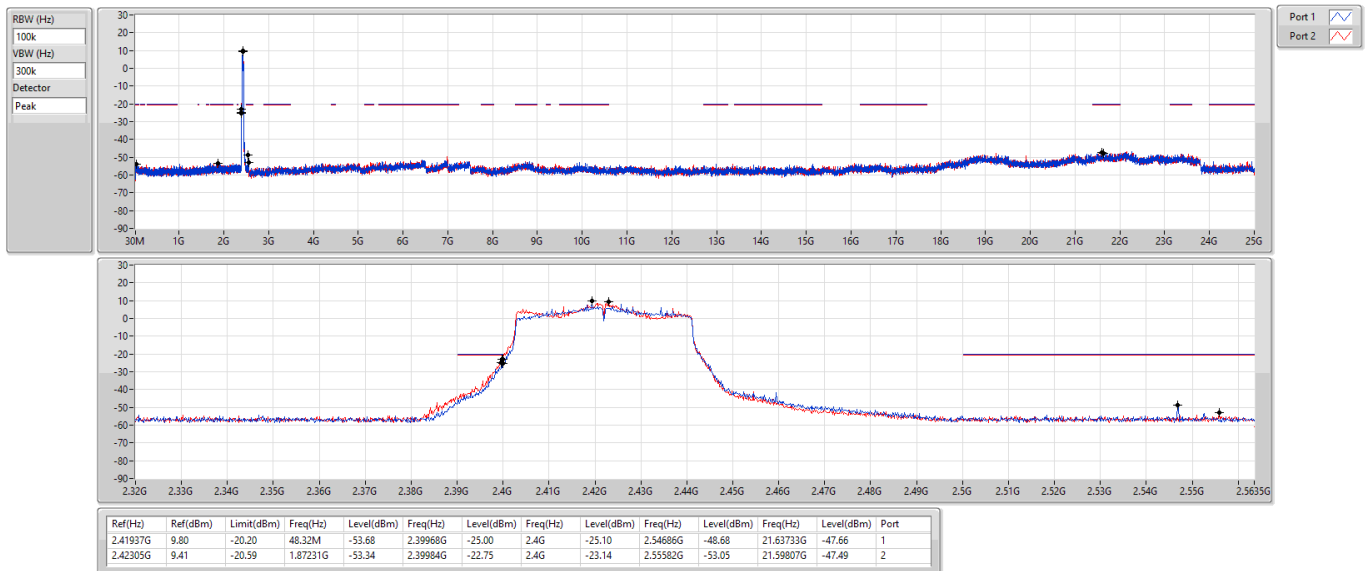
2462MHz



2.4-2.4835GHz_802.11be EHT40_Nss1,(MCS0)_2TX

CSEndB

2422MHz

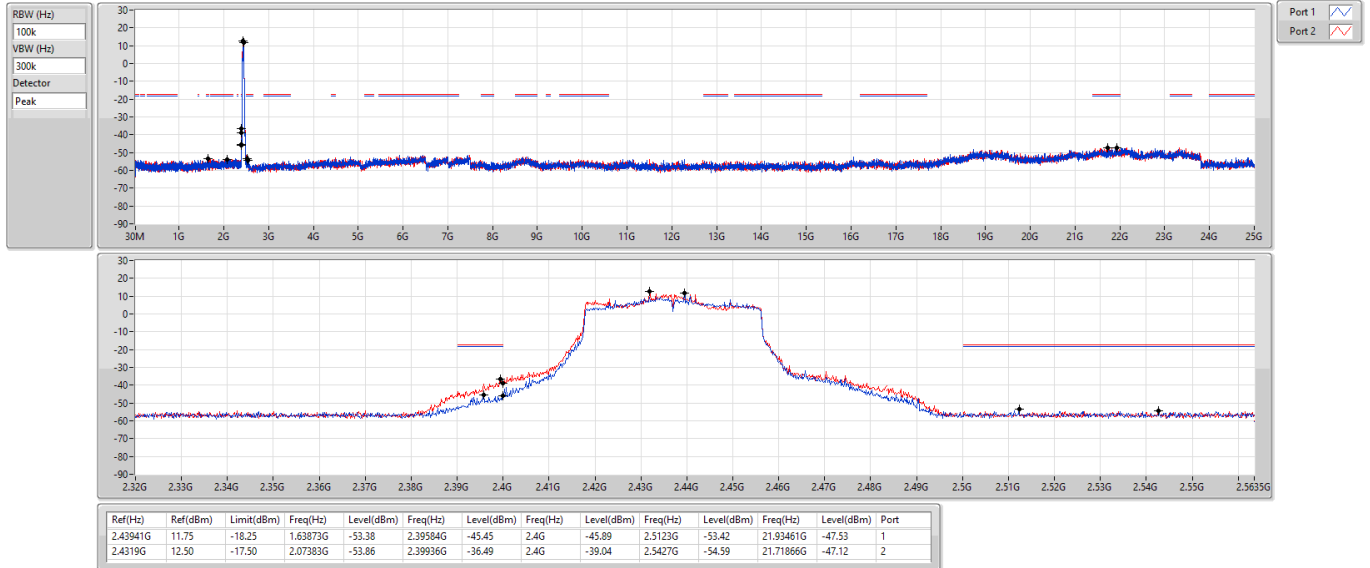




2.4-2.4835GHz_802.11be EHT40_Nss1,(MCS0)_2TX

CSEndB

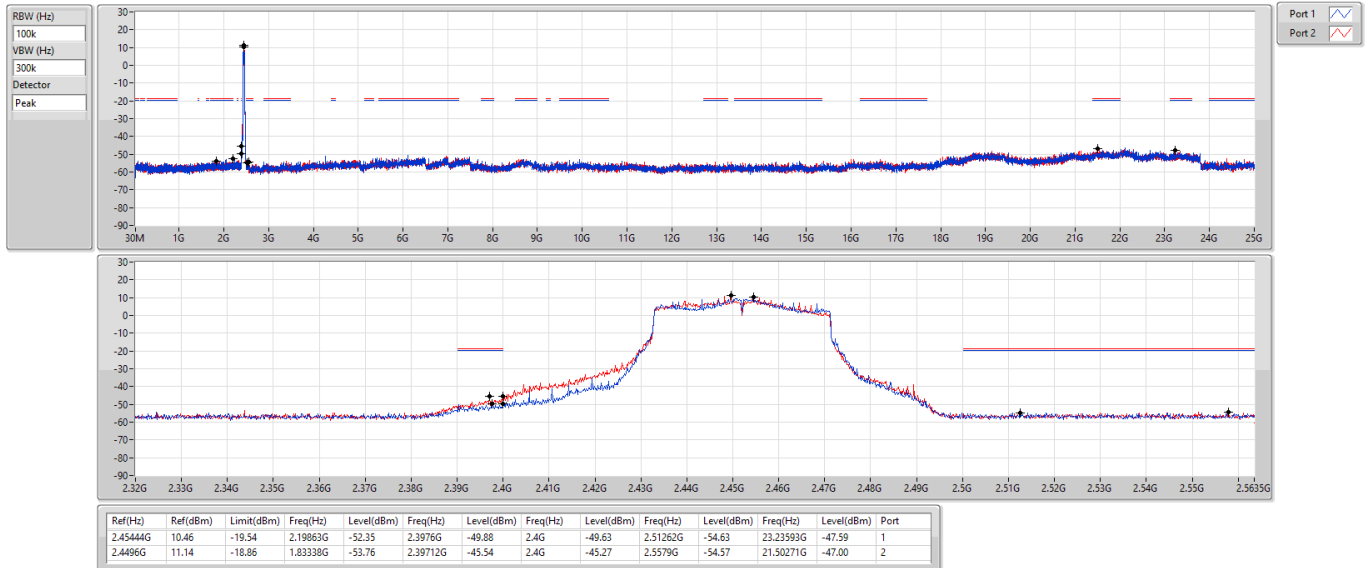
2437MHz



2.4-2.4835GHz_802.11be EHT40_Nss1,(MCS0)_2TX

CSEndB

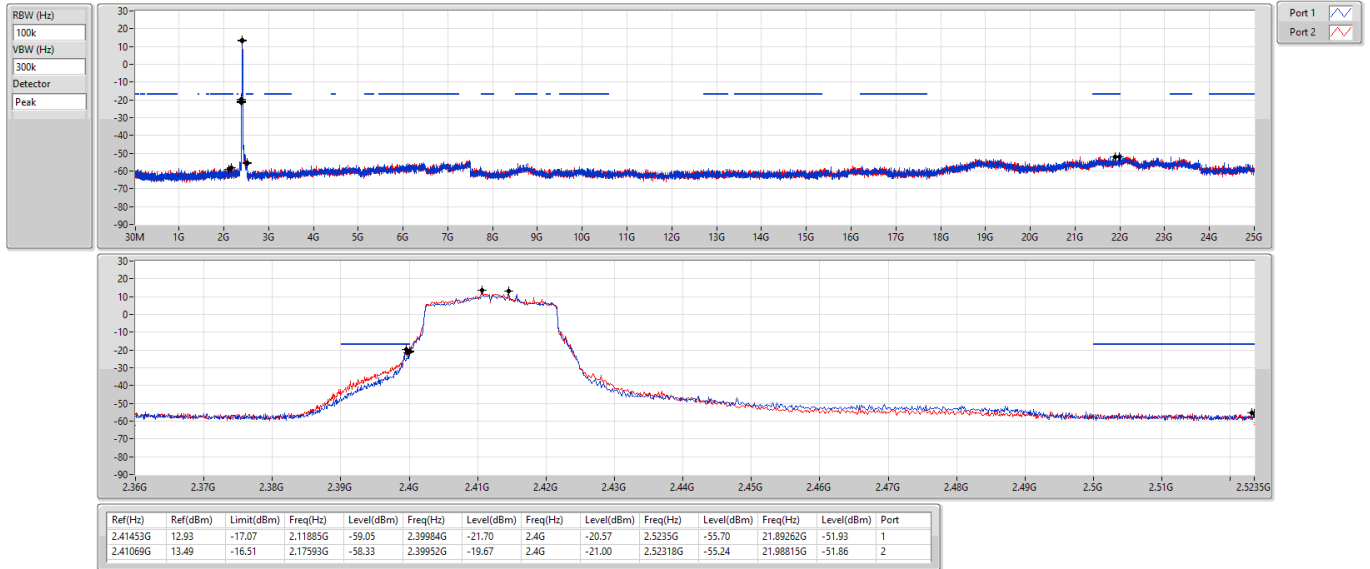
2452MHz



2.4-2.4835GHz_802.11be EHT20_Nss2,(MCS0)_2TX

CSendB

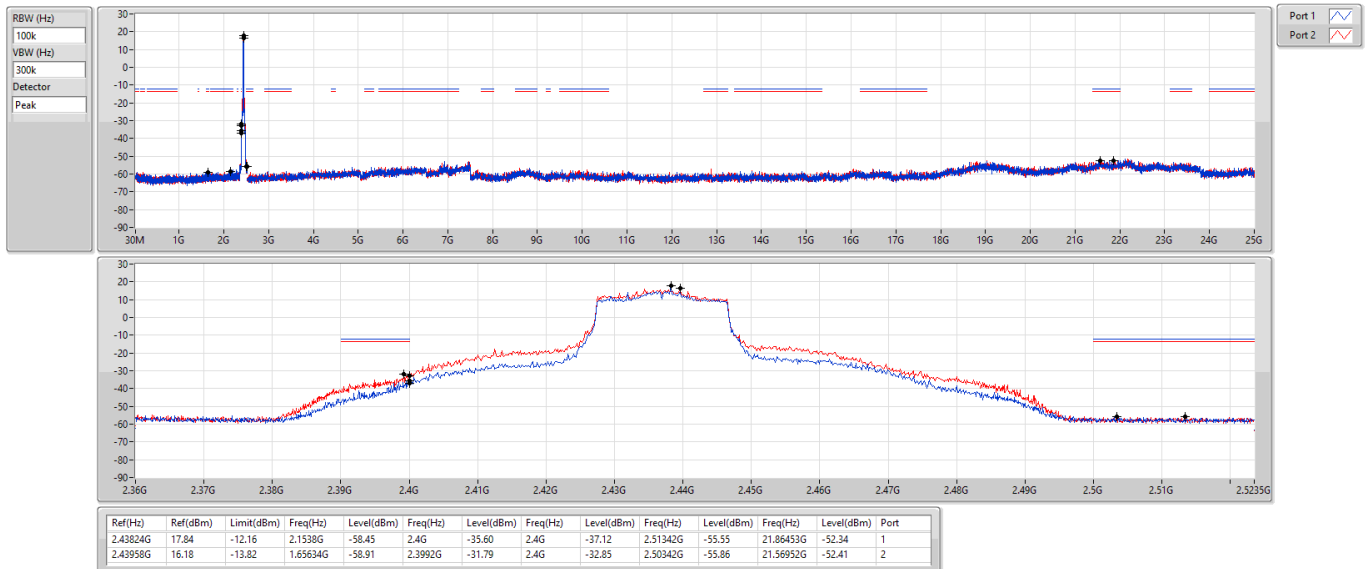
2412MHz



2.4-2.4835GHz_802.11be EHT20_Nss2,(MCS0)_2TX

CSendB

2437MHz

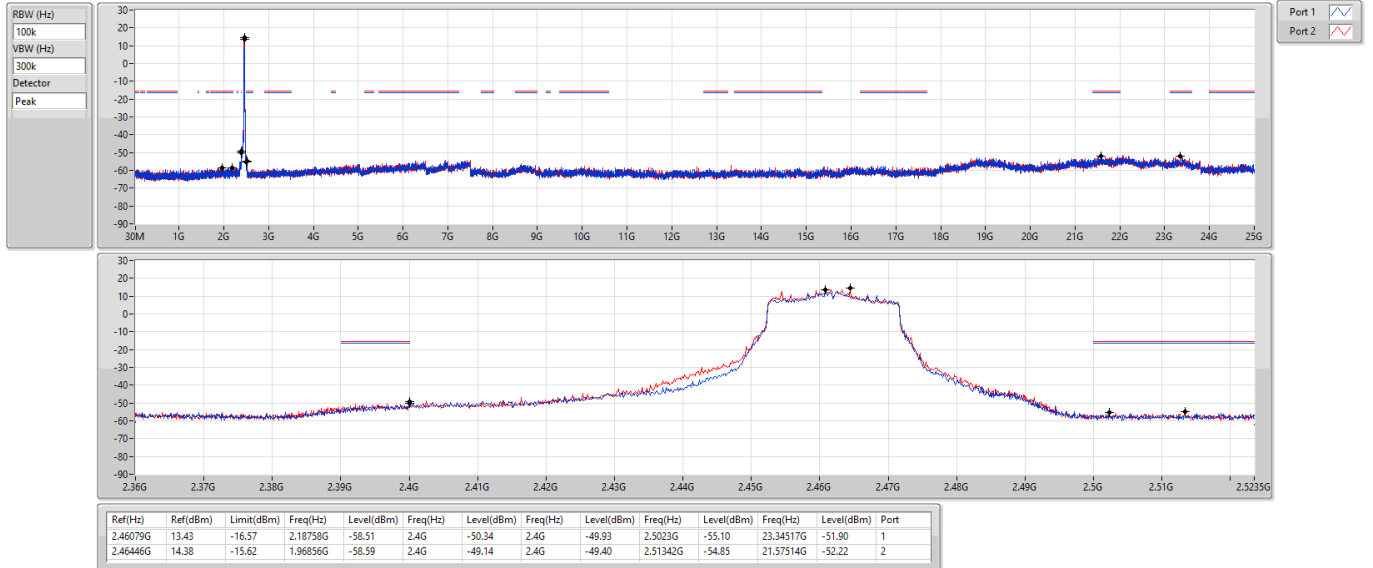




2.4-2.4835GHz_802.11be EHT20_Nss2,(MCS0)_2TX

CSEndB

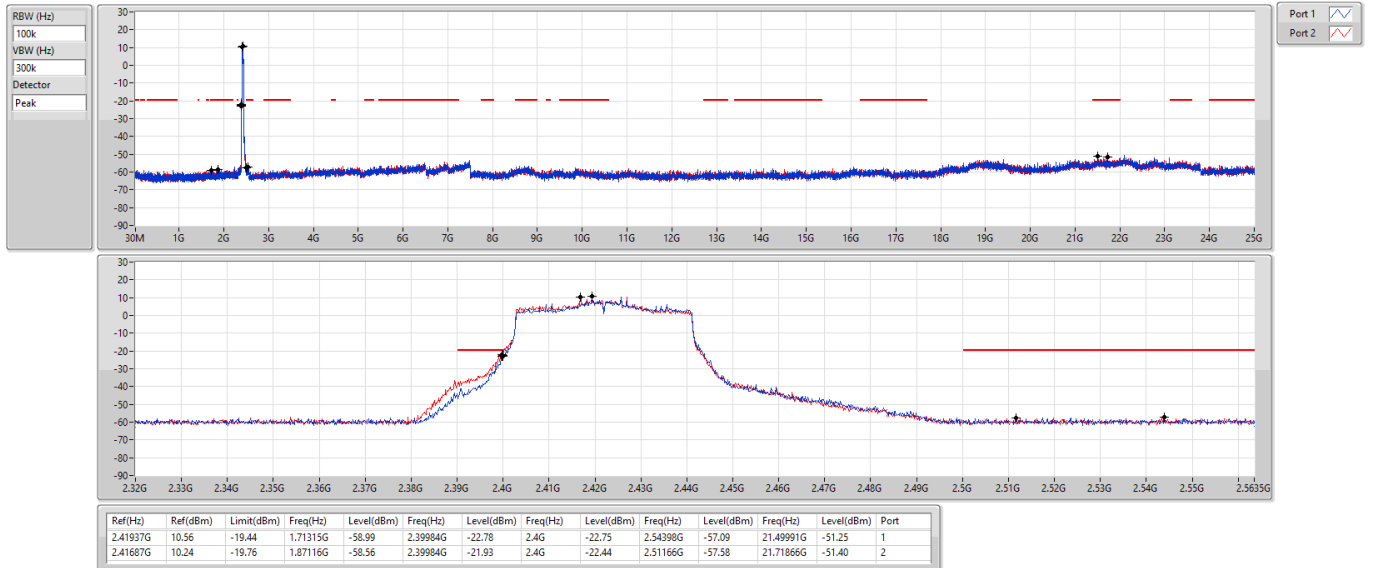
2462MHz



2.4-2.4835GHz_802.11be EHT40_Nss2,(MCS0)_2TX

CSEndB

2422MHz

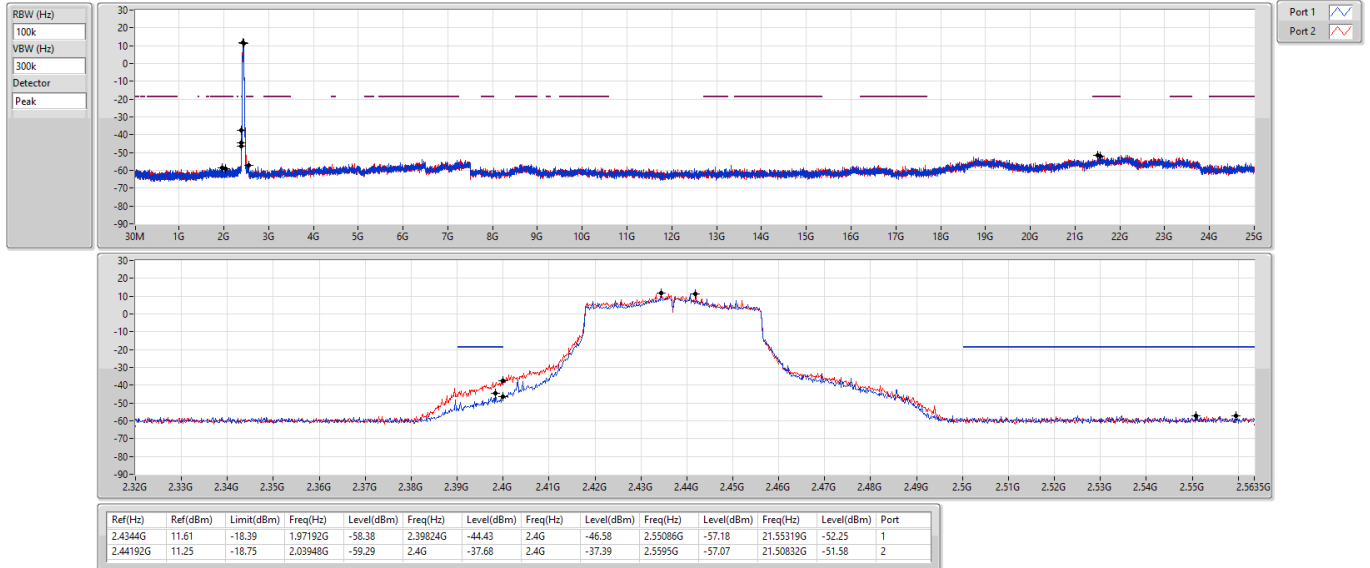




2.4-2.4835GHz_802.11be EHT40_Nss2,(MCS0)_2TX

CSEndB

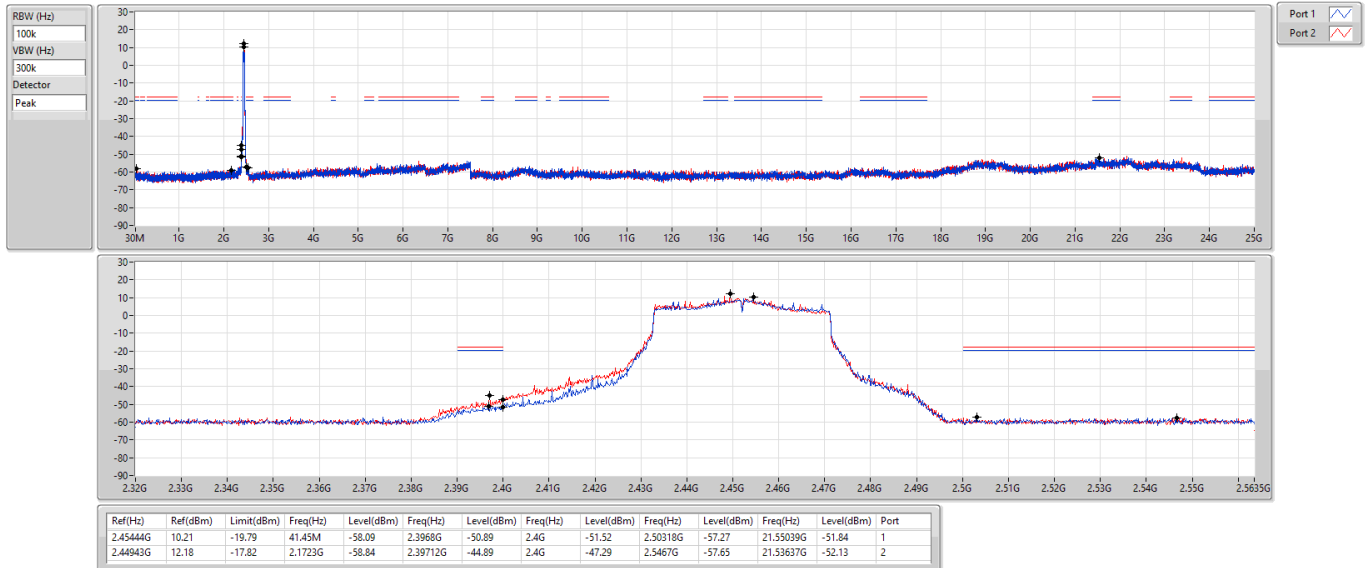
2437MHz



2.4-2.4835GHz_802.11be EHT40_Nss2,(MCS0)_2TX

CSEndB

2452MHz



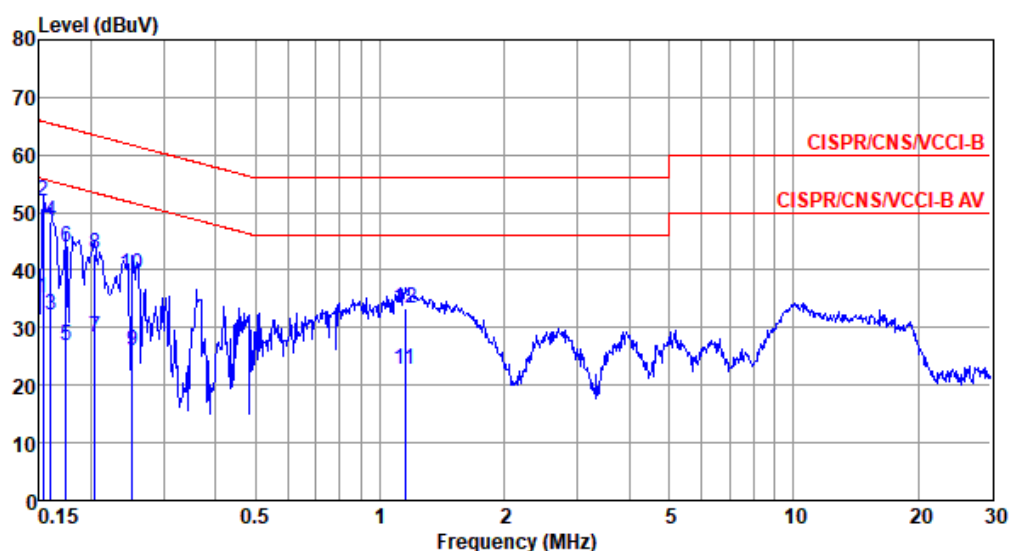


Modulation Mode	11b	Test Freq. (MHz)	2437
Power Phase	Line		

Test by : Joe Liao

Temperature: 25°C

Humidity: 61%



	Freq MHz	Level dBUV	Limit dBUV	Over Limit dB	Read Level dBUV	Factor dB	Cable loss dB	Aux dB	Remark
1	0.153	35.24	55.82	-20.58	25.33	9.63	0.08	0.20	Average
2*	0.153	52.07	65.82	-13.75	42.16	9.63	0.08	0.20	QP
3	0.160	32.18	55.47	-23.29	22.26	9.63	0.08	0.21	Average
4	0.160	48.28	65.47	-17.19	38.36	9.63	0.08	0.21	QP
5	0.174	26.91	54.77	-27.86	16.99	9.62	0.07	0.23	Average
6	0.174	43.84	64.77	-20.93	33.92	9.62	0.07	0.23	QP
7	0.204	28.32	53.45	-25.13	18.39	9.62	0.06	0.25	Average
8	0.204	42.80	63.45	-20.65	32.87	9.62	0.06	0.25	QP
9	0.252	26.04	51.69	-25.65	16.07	9.62	0.07	0.28	Average
10	0.252	39.15	61.69	-22.54	29.18	9.62	0.07	0.28	QP
11	1.147	22.75	46.00	-23.25	12.67	9.63	0.09	0.36	Average
12	1.147	33.43	56.00	-22.57	23.35	9.63	0.09	0.36	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).

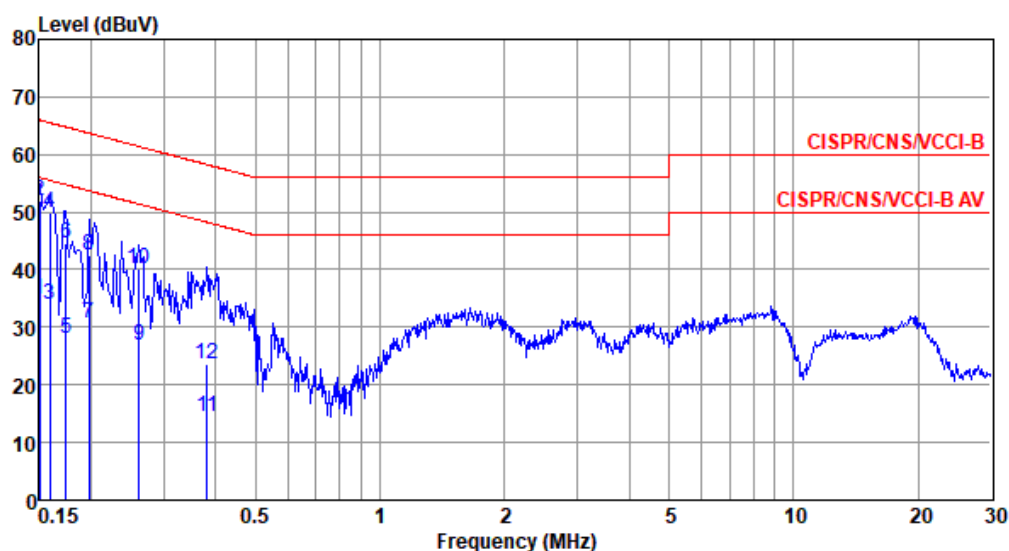


Modulation Mode	11b	Test Freq. (MHz)	2437
Power Phase	Neutral		

Test by : Joe Liao

Temperature: 25°C

Humidity: 61%



	Freq MHz	Level dBUV	Limit Line dBUV	Over Limit dB	Read Level dBUV	Factor dB	Cable loss dB	Aux dB	Remark
1	0.150	34.96	56.00	-21.04	25.13	9.63	0.08	0.12	Average
2*	0.150	51.94	66.00	-14.06	42.11	9.63	0.08	0.12	QP
3	0.159	33.81	55.52	-21.71	23.97	9.63	0.08	0.13	Average
4	0.159	49.95	65.52	-15.57	40.11	9.63	0.08	0.13	QP
5	0.174	27.98	54.77	-26.79	18.13	9.63	0.07	0.15	Average
6	0.174	44.47	64.77	-20.30	34.62	9.63	0.07	0.15	QP
7	0.198	30.72	53.71	-22.99	20.86	9.63	0.06	0.17	Average
8	0.198	42.61	63.71	-21.10	32.75	9.63	0.06	0.17	QP
9	0.262	26.95	51.38	-24.43	17.05	9.63	0.07	0.20	Average
10	0.262	40.10	61.38	-21.28	30.20	9.63	0.07	0.20	QP
11	0.381	14.61	48.25	-33.64	4.67	9.62	0.08	0.24	Average
12	0.381	23.74	58.25	-34.51	13.80	9.62	0.08	0.24	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).