

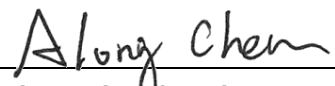
FCC Test Report

FCC ID : I8803935
Equipment : 802.11be (WiFi 7) Triple-Radio Unified Pro
Access Point
Model No. : WBE660S
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 : Jul. 17, 2023
Tested Date : Aug. 08, ~ Aug. 23, 2023

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

Reviewed by:

Approved by:


Along Chen / Assistant Manager

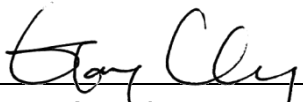

Gary Chang / Manager

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Appendix A. 6dB and Occupied Bandwidth

Appendix B. Conducted Output Power

Appendix C. Power Spectral Density

Appendix D. Unwanted Emissions into Restricted Frequency Bands

Appendix E. Emissions in Non-Restricted Frequency Bands

Appendix F. AC Power Line Conducted Emissions

Release Record

Report No.	Version	Description	Issued Date
FR371702AC	Rev. 01	Initial issue	Sep. 22, 2023

Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	AC Power Line Conducted Emission	[dBuV]: 16.228MHz 45.08 (Margin -4.92dB) - AV	Pass
15.247(d) 15.209	Unwanted Emissions	[dBuV/m at 3m]: 2488.00MHz 53.81 (Margin -0.19dB) - AV	Pass
15.247(b)(3)	Conducted Output Power	Max Power [dBm]: Non-beamforming mode 29.81 Beamforming mode 23.79	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]	4	1-11 Mbps
2400-2483.5	g	2412-2462	1-11 [11]	4	6-54 Mbps
2400-2483.5	n (HT20)	2412-2462	1-11 [11]	4	MCS 0-31
2400-2483.5	n (HT40)	2422-2452	3-9 [7]	4	MCS 0-31
2400-2483.5	ax (HE20)	2412-2462	1-11 [11]	4	MCS 0-11
2400-2483.5	ax (HE40)	2422-2452	3-9 [7]	4	MCS 0-11
2400-2483.5	be (EHT20)	2412-2462	1-11 [11]	4	MCS 0-13
2400-2483.5	be (EHT40)	2422-2452	3-9 [7]	4	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: 802.11ax/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
M.gear	D047	Antenna 1	PIFA	0.82	--	--	--	--
M.gear	D047	Antenna 2	PIFA	4.34	--	--	--	--
M.gear	D047	Antenna 3	PIFA	2.58	--	--	--	--
M.gear	D047	Antenna 4	PIFA	1.61	--	--	--	--
M.gear	D047	Antenna 5	PIFA	--	7.92	8	7.57	6.63
M.gear	D047	Antenna 6	PIFA	--	5.7	6.51	6.67	7.73
M.gear	D047	Antenna 7	PIFA	--	7.11	8.12	8.25	9.18
M.gear	D047	Antenna 8	PIFA	--	6.01	6.94	6.47	7.31
M.gear	D047	Antenna 9	PIFA	--	8.02	7.45	6.82	6.44
M.gear	D047	Antenna 10	PIFA	--	8.13	8.14	8.2	7.74

1.1.3 Power Supply Type of Equipment under Test (EUT)

Power Supply Type	15Vdc from adapter 56Vdc from PoE injector
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Note: The above power supplies are not bundled in market.

1.1.4 Accessories

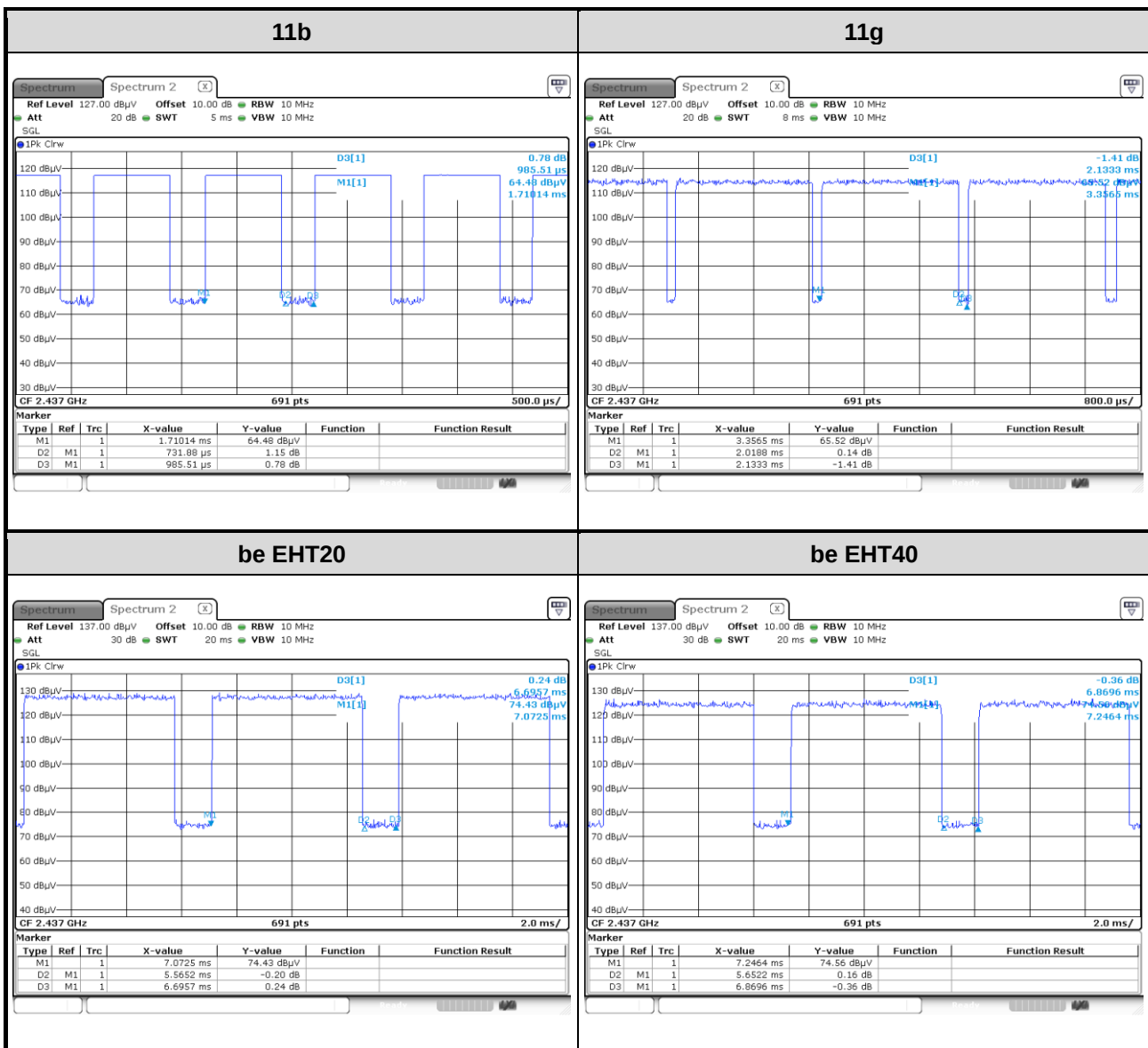
N/A

1.1.5 Channel List

Frequency band (MHz)		2400~2483.5	
802.11 b / g / n HT20 / ax HE20 / be EHT20		802.11n HT40 / 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, version: 5.0-00202		
Duty Cycle and Duty Factor	Mode	Duty Cycle (%)	Duty Factor (dB)
	11b	74.26%	1.29
	11g	94.63%	0.24
	be EHT20	83.12%	0.80
	be EHT40	82.28%	0.85



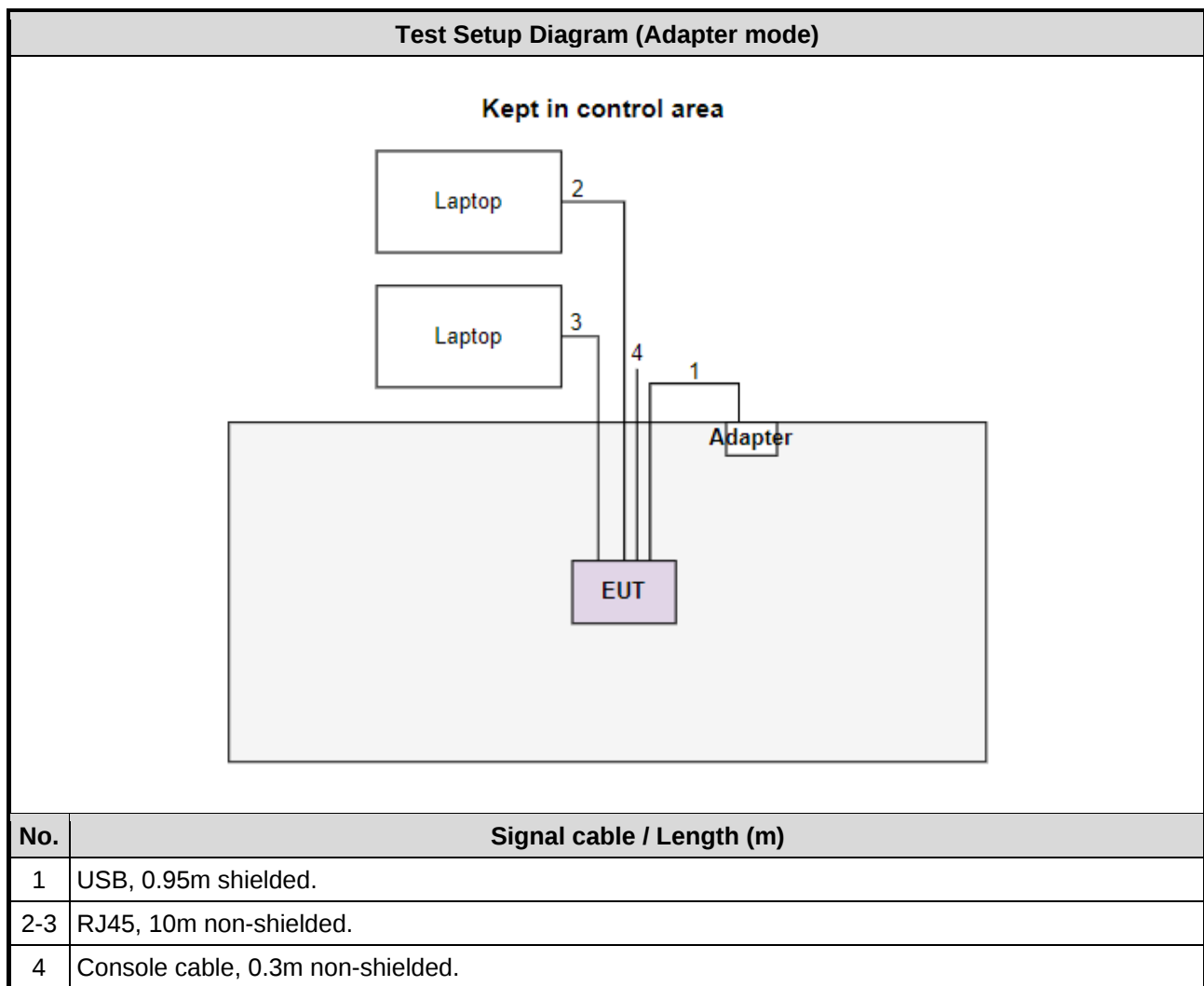
1.1.7 Power Index of Test Tool

Modulation Mode	Test Frequency (MHz)	Power Index
11b	2412	23
11b	2437	23
11b	2462	22.5
11g	2412	20.5
11g	2437	24
11g	2462	20
be EHT20	2412	19.5
be EHT20	2437	24
be EHT20	2462	19
be EHT40	2422	19
be EHT40	2437	20
be EHT40	2452	18

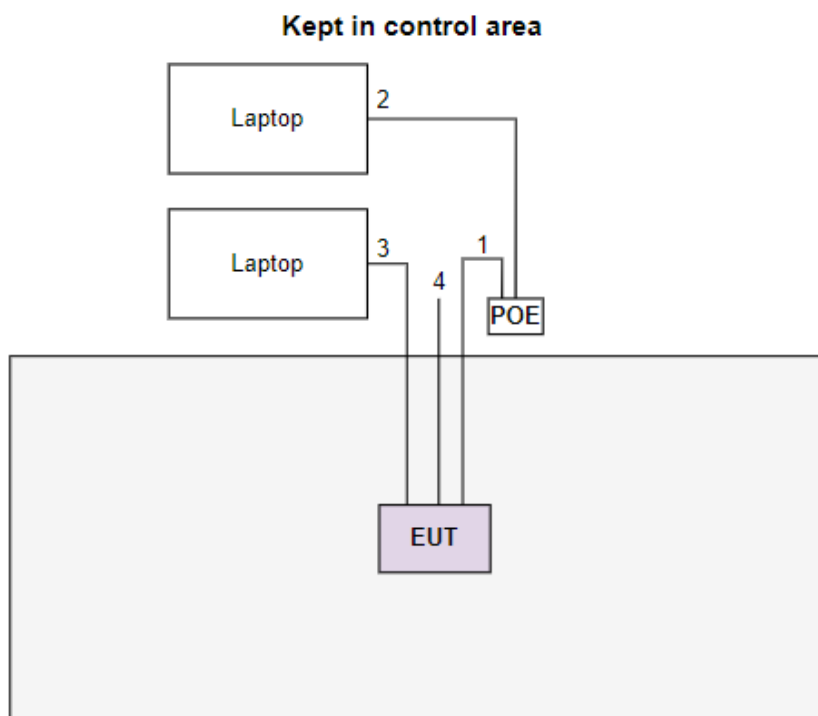
1.2 Local Support Equipment List

Support Equipment List					
No.	Equipment	Brand	Model	FCC ID	Remarks
1	Laptop	DELL	Latitude 5400	DoC	---
2	Laptop	DELL	Latitude E5470	DoC	---
3	PoE injector	ZYXEL	PoE12-60W	---	Provided by applicant. Remarks: I/P: 100-240V~50-60Hz 2.0A O/P: 56.0V=1.161A, 65.1W
4	Adapter	DEEVAN	DSA-45PDH	---	Provided by applicant. Remarks: I/P: 100-240V~50/60Hz 1.5A O/P: +15.0V=3.0A, 45.0W

1.3 Test Setup Chart



Test Setup Diagram (POE mode)



No.	Signal cable / Length (m)
1	RJ45, 10m non-shielded.
2	RJ45, 1.3m non-shielded.
3	RJ45, 10m non-shielded.
4	Console cable, 0.3m non-shielded.

1.4 The Equipment List

Test Item	Conducted Emission				
Test Site	Conduction room 1 / (CO01-WS)				
Tested Date	Aug. 23, 2023				
Instrument	Brand	Model No.	Serial No.	Calibration Date	Calibration Until
Receiver	R&S	ESR3	101658	Feb. 17, 2023	Feb. 16, 2024
LISN	R&S	ENV216	101579	May 09, 2023	May 08, 2024
LISN (Support Unit)	SCHWARZBECK	Schwarzbeck 8127	8127667	Jan .03, 2023	Jan .02, 2024
RF Cable-CON	Woken	CFD200-NL	CFD200-NL-001	Oct. 17, 2022	Oct. 16, 2023
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				
Test Site	966 chamber3 / (03CH03-WS)				
Tested Date	Aug. 08 ~ Aug. 17, 2023				
Instrument	Brand	Model No.	Serial No.	Calibration Date	Calibration Until
Receiver	R&S	ESR3	101657	Mar. 03, 2023	Mar. 02, 2024
Spectrum Analyzer	R&S	FSV40	101499	Mar. 16, 2023	Mar. 15, 2024
Loop Antenna	R&S	HFH2-Z2	100330	Nov. 01, 2022	Oct. 31, 2023
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. 15, 2022	Dec. 14, 2023
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Oct. 27, 2022	Oct. 26, 2023
Preamplifier	EMC	EMC02325	980187	Jul. 10, 2023	Jul. 09, 2024
Preamplifier	EMC	EMC184045SE	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. 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
RF cable-3M	HUBER+SUHNER	SUCOFLEX104	MY22620/4	Sep. 23, 2022	Sep. 22, 2023
RF cable-8M	EMC	EMC104-SM-SM-8000	181107	Sep. 23, 2022	Sep. 22, 2023
Attenuator	Pasternack	PE7005-10	10-3	Oct. 14, 2022	Oct. 13, 2023
HIGHPASS FILTER	WI	WHK3.1-18G-10SS	43	Sep. 28, 2022	Sep. 27, 2023
Measurement Software	AUDIX	e3	6.120210g	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

Test Item	RF Conducted				
Test Site	(TH01-WS)				
Tested Date	Aug. 14 ~ Aug. 18, 2023				
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. 23, 2022	Nov. 22, 2023
Power Sensor	Anritsu	MA2411B	1207366	Nov. 23, 2022	Nov. 22, 2023
Attenuator	Pasternack	PE7005-10	10-2	Oct. 06, 2022	Oct. 05, 2023
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
Unwanted Emission ≤ 1 GHz	± 3.96 dB
Unwanted 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	be EHT20	2437	MCS 0	1, 2
Unwanted Emissions ≤ 1GHz	be EHT20	2437	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	be EHT20	2412 / 2437 / 2462	MCS 0	
Power spectral density	be EHT40	2422 / 2437 / 2452	MCS 0	
Beamforming mode				
Conducted Output Power	be EHT20 be EHT40	2412 / 2437 / 2462 2422 / 2437 / 2452	MCS 0 MCS 0	1
NOTE:				
1. The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement – X, Y, and Z-plane. The Y-plane results were found as the worst case and were shown in this report.				
2. The EUT had been tested by following test configurations. 1) Configuration 1: Adapter mode 2) Configuration 2: POE mode				
3. Beamforming mode is calculated not measured. The calculation method is conducted power of non-beamforming – 6.02dB.				

3 Transmitter Test Results

3.1 6dB and Occupied Bandwidth

3.1.1 Limit of 6dB Bandwidth

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

3.1.2 Test Procedures

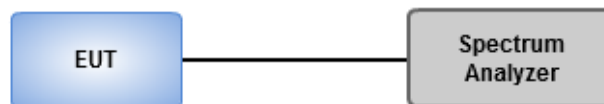
6dB Bandwidth

1. Set resolution bandwidth (RBW) = 100 kHz, Video bandwidth = 300 kHz.
2. Detector = Peak, Trace mode = max hold.
3. Sweep = auto couple, Allow the trace to stabilize.
4. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6dB relative to the maximum level measured in the fundamental emission.

Occupied Bandwidth

1. Set resolution bandwidth (RBW) = 1% ~ 5 % of OBW, Video bandwidth = 3 x RBW
2. Detector = Sample, Trace mode = max hold.
3. Sweep = auto couple, Allow the trace to stabilize.
4. Use the OBW measurement function of spectrum analyzer to measure the occupied bandwidth.

3.1.3 Test Setup



3.1.4 Test Results

Ambient Condition	23-24°C / 63-65%	Tested By	Aska Huang
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Refer to Appendix A.

3.2 Conducted Output Power

3.2.1 Limit of Conducted Output Power

Conducted power shall not exceed 1Watt.

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

Antenna gain $> 6\text{dBi}$

Non Fixed, point to point operations.

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

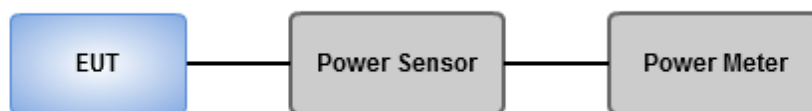
Fixed, point to point operations

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

3.2.2 Test Procedures

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

3.2.3 Test Setup



3.2.4 Test Results

Ambient Condition	23-24°C / 63-65%	Tested By	Aska Huang
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Refer to Appendix B.

3.3 Power Spectral Density

3.3.1 Limit of Power Spectral Density

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

3.3.2 Test Procedures

Peak PSD

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

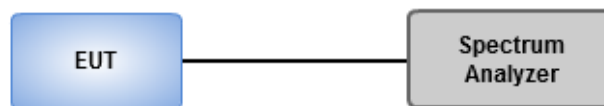
Average PSD, duty cycle $\geq 98\%$

1. Set the RBW = 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	23-24°C / 63-65%	Tested By	Aska Huang
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Refer to Appendix C.

3.4 Unwanted Emissions into Restricted Frequency Bands

3.4.1 Limit of Unwanted Emissions into Restricted Frequency Bands

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

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

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

3.4.2 Test Procedures

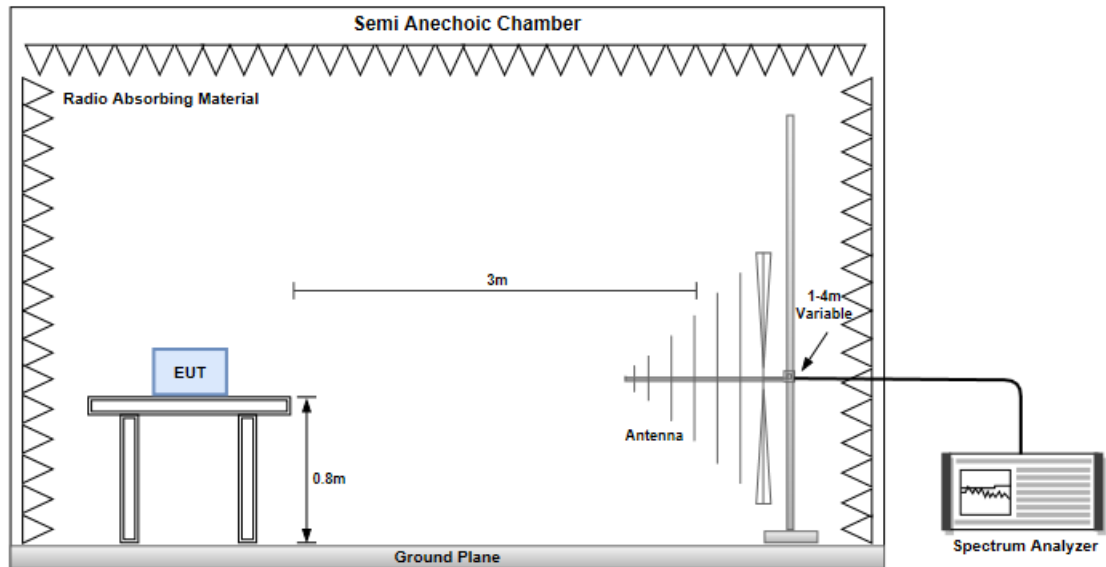
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission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

Note:

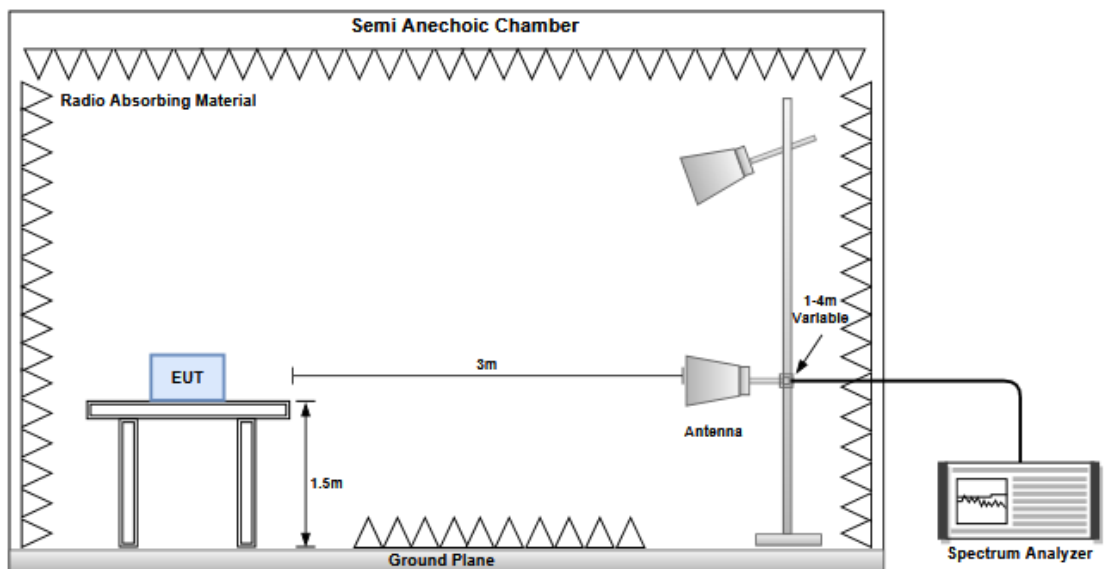
1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above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

3.4.3 Test Setup

Radiated Emissions below 1 GHz



Radiated Emissions above 1 GHz



3.4.4 Test Results

Refer to Appendix D.

3.5 Emissions in Non-Restricted Frequency Bands

3.5.1 Emissions in Non-Restricted Frequency Bands Limit

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

3.5.2 Test Procedures

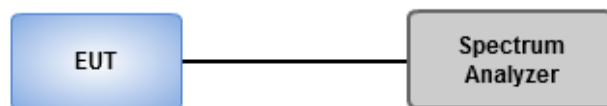
Reference level measurement

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

Emission level measurement

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

3.5.3 Test Setup



3.5.4 Test Results

Ambient Condition	23-24°C / 63-65%	Tested By	Aska Huang
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Refer to Appendix E.

3.6 AC Power Line Conducted Emissions

3.6.1 Limit of AC Power Line Conducted Emissions

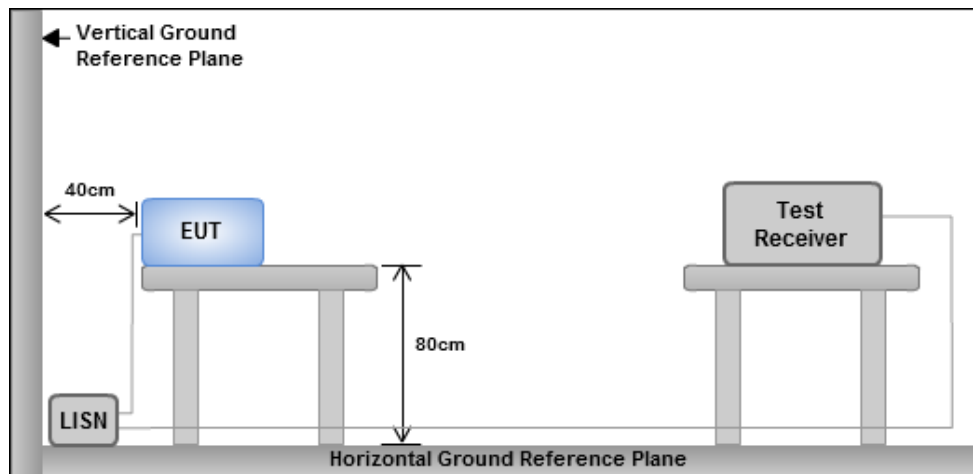
Conducted Emissions Limit		
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50

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

3.6.2 Test Procedures

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

3.6.3 Test Setup



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

3.6.4 Test Results

Refer to Appendix F.

4 Test laboratory information

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

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

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

Linkou

Tel: 886-2-2601-1640

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(R.O.C.)

Kwei Shan

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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)_4TX	13.5M	16.117M	16M1G1D	12.9M	15.997M
802.11g_Nss1,(6Mbps)_4TX	16.375M	16.976M	17M0D1D	16.3M	16.712M
802.11be EHT20_Nss1,(MCS0)_4TX	19.075M	19.24M	19M2D1D	18.65M	19.015M
802.11be EHT40_Nss1,(MCS0)_4TX	38.2M	38.181M	38M2D1D	36.85M	37.981M

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)	Port 3-N dB (Hz)	Port 3-OBW (Hz)	Port 4-N dB (Hz)	Port 4-OBW (Hz)
802.11b_Nss1,(1Mbps)_4TX	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	500k	13.5M	16.042M	13.5M	15.997M	13.075M	16.027M	13.125M	16.027M
2437MHz	Pass	500k	13.1M	16.102M	13.05M	16.102M	12.9M	16.117M	13.075M	16.102M
2462MHz	Pass	500k	13.1M	16.012M	13.05M	16.027M	13.05M	16.012M	13.1M	16.027M
802.11g_Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	500k	16.35M	16.8M	16.375M	16.756M	16.375M	16.756M	16.375M	16.778M
2437MHz	Pass	500k	16.3M	16.932M	16.35M	16.888M	16.375M	16.91M	16.35M	16.976M
2462MHz	Pass	500k	16.35M	16.712M	16.375M	16.734M	16.375M	16.756M	16.35M	16.734M
802.11be EHT20_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	500k	18.85M	19.09M	18.975M	19.04M	18.975M	19.065M	19.075M	19.065M
2437MHz	Pass	500k	18.8M	19.115M	19.05M	19.09M	18.85M	19.24M	18.65M	19.165M
2462MHz	Pass	500k	19.05M	19.04M	18.9M	19.09M	18.975M	19.015M	18.95M	19.065M
802.11be EHT40_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
2422MHz	Pass	500k	37.9M	38.031M	36.85M	37.981M	37.5M	37.981M	37.9M	38.081M
2437MHz	Pass	500k	37.55M	38.081M	38.05M	38.181M	37.95M	38.081M	38.2M	38.081M
2452MHz	Pass	500k	38.2M	38.131M	38.2M	38.081M	38.05M	37.981M	38M	38.081M

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

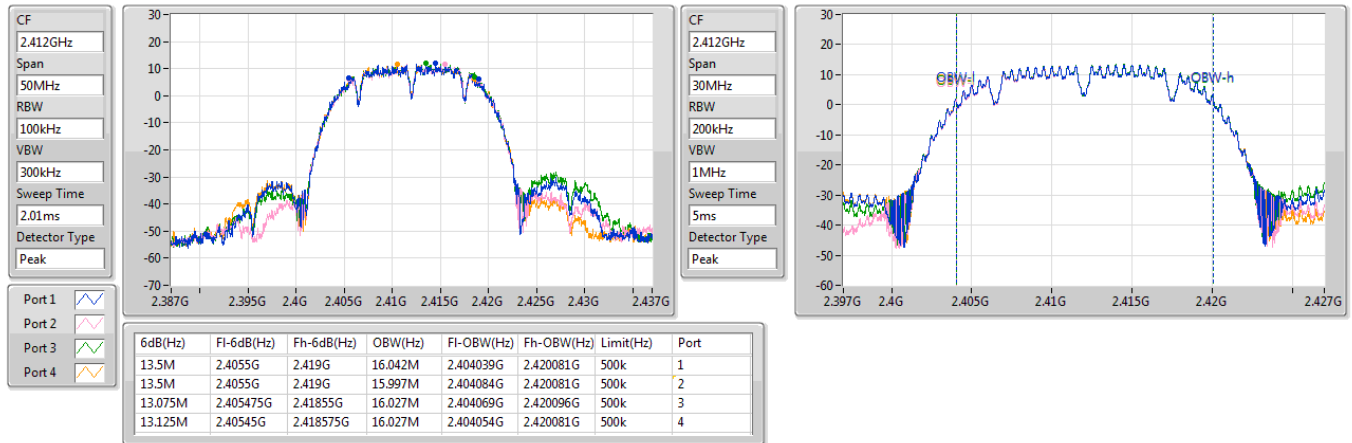
Port X-OBW = Port X 99% occupied bandwidth



2.4-2.4835GHz_802.11b_Nss1,(1Mbps)_4TX

EBW

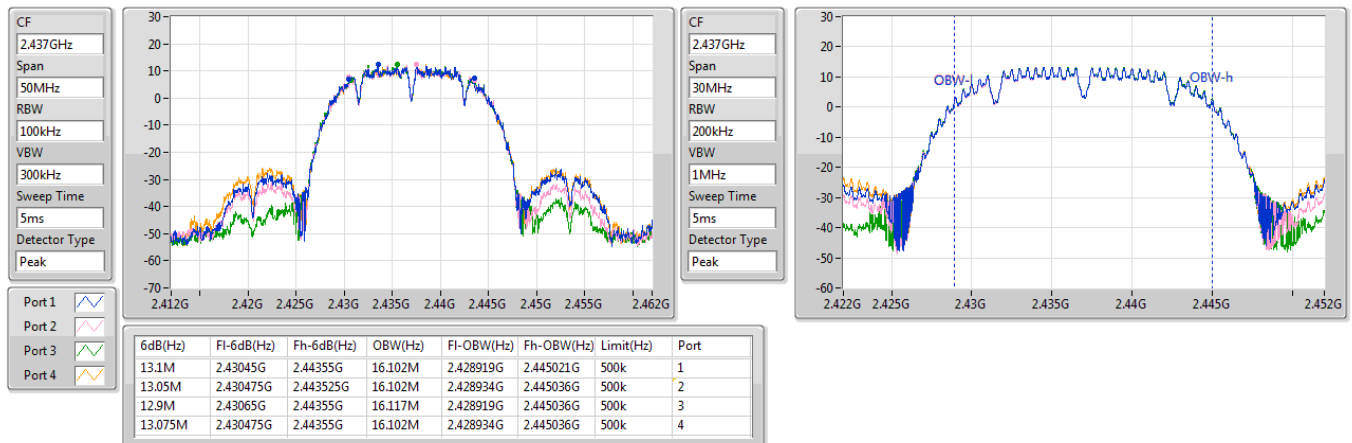
2412MHz



2.4-2.4835GHz_802.11b_Nss1,(1Mbps)_4TX

EBW

2437MHz

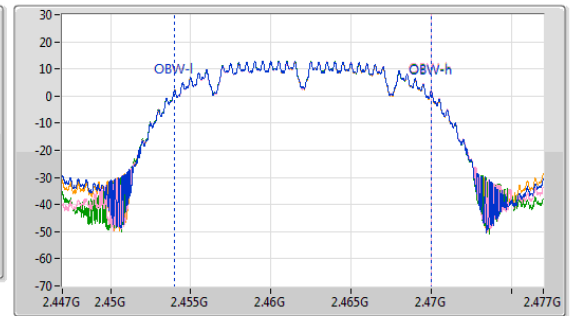
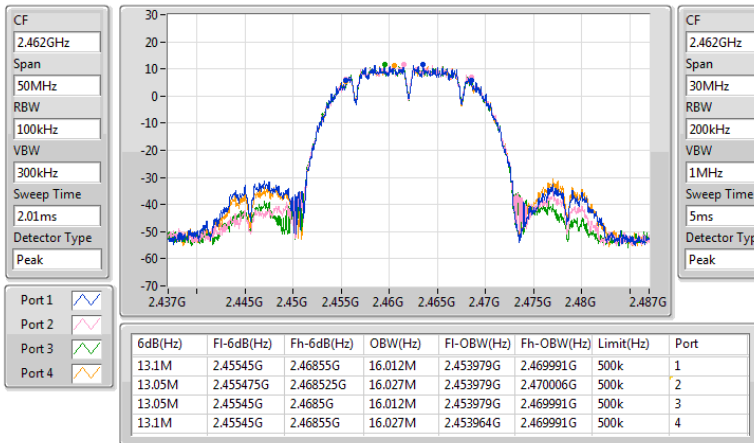




2.4-2.4835GHz_802.11b_Nss1,(1Mbps)_4TX

EBW

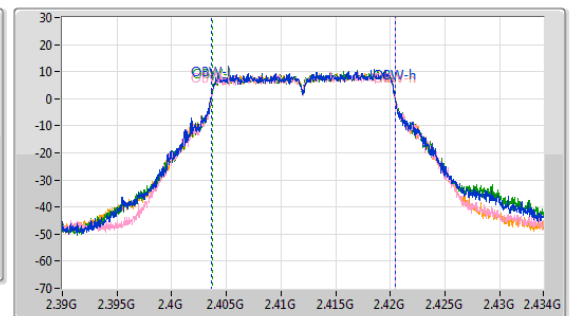
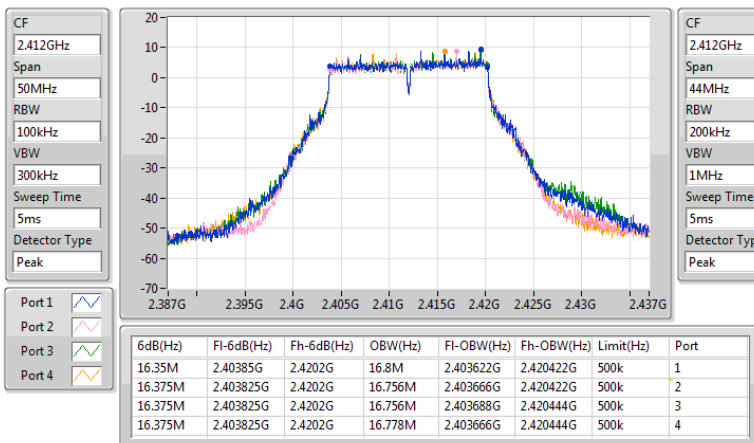
2462MHz



2.4-2.4835GHz_802.11g_Nss1,(6Mbps)_4TX

EBW

2412MHz

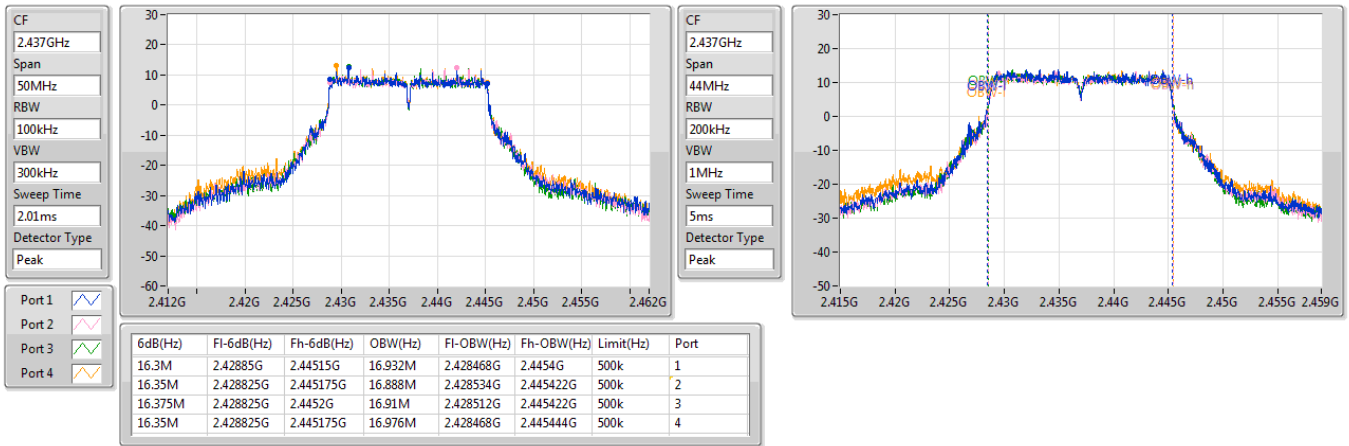




2.4-2.4835GHz_802.11g_Nss1,(6Mbps)_4TX

EBW

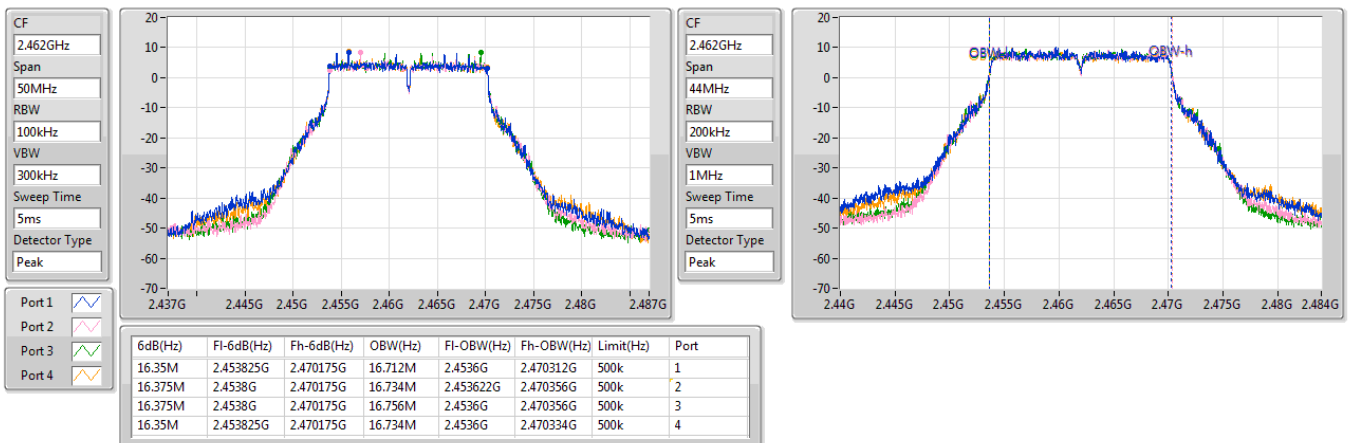
2437MHz



2.4-2.4835GHz_802.11g_Nss1,(6Mbps)_4TX

EBW

2462MHz

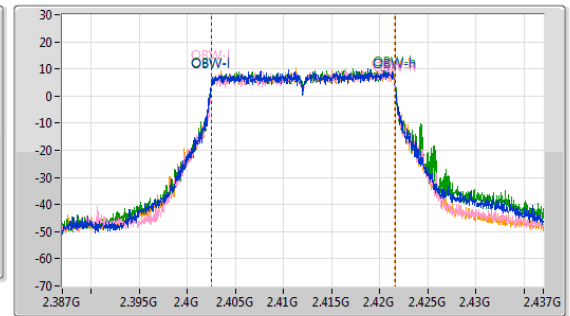
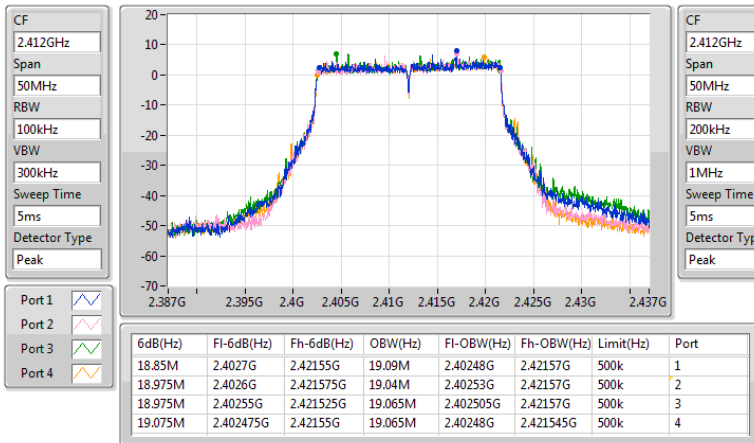




2.4-2.4835GHz_802.11be EHT20_Nss1,(MCS0)_4TX

EBW

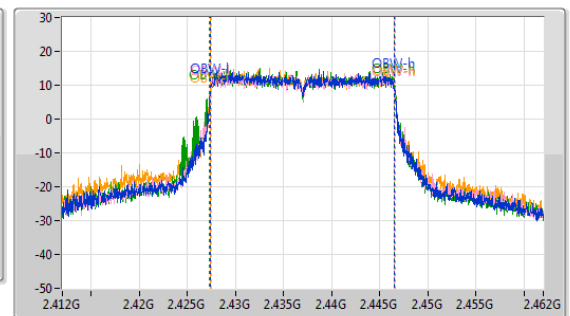
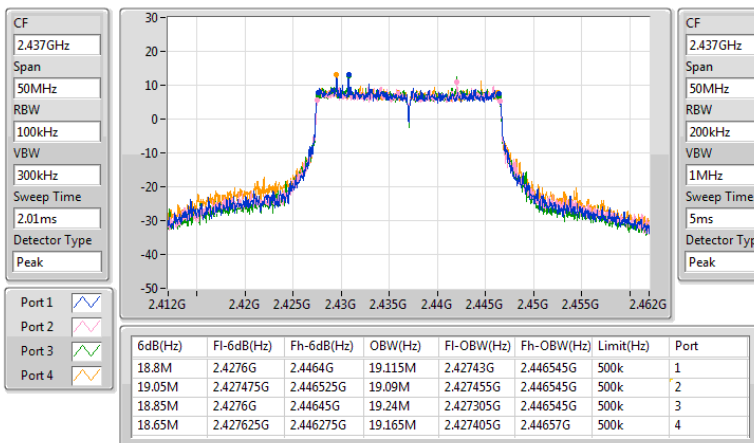
2412MHz



2.4-2.4835GHz_802.11be EHT20_Nss1,(MCS0)_4TX

EBW

2437MHz

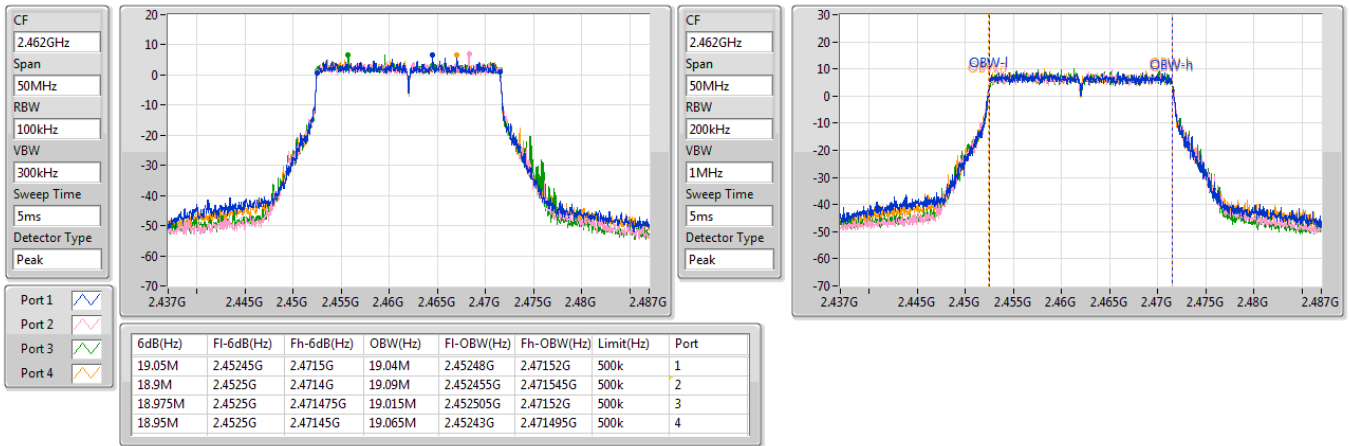




2.4-2.4835GHz_802.11be EHT20_Nss1,(MCS0)_4TX

EBW

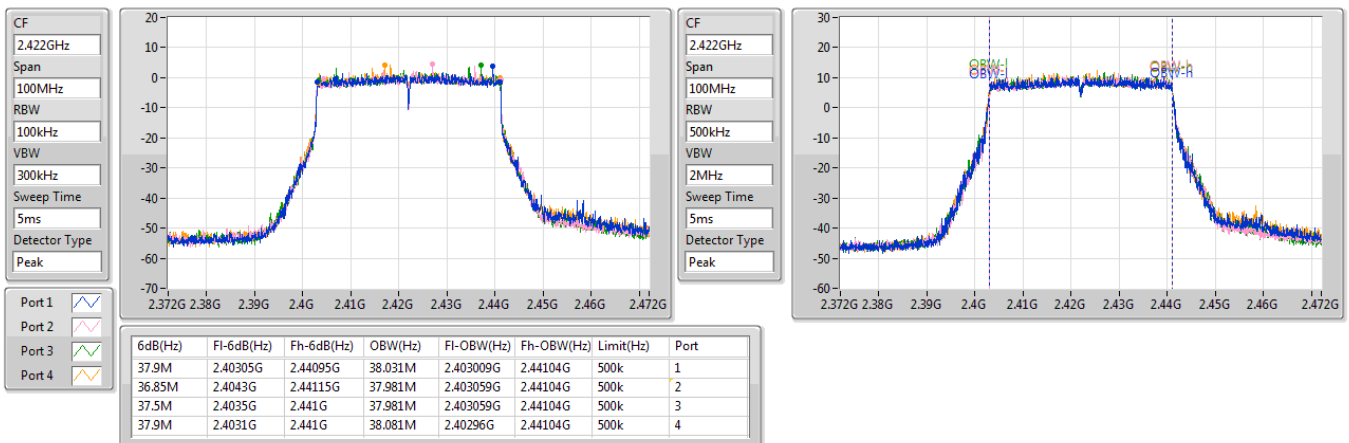
2462MHz



2.4-2.4835GHz_802.11be EHT40_Nss1,(MCS0)_4TX

EBW

2422MHz

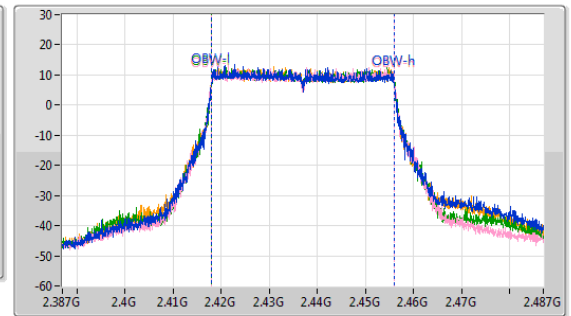
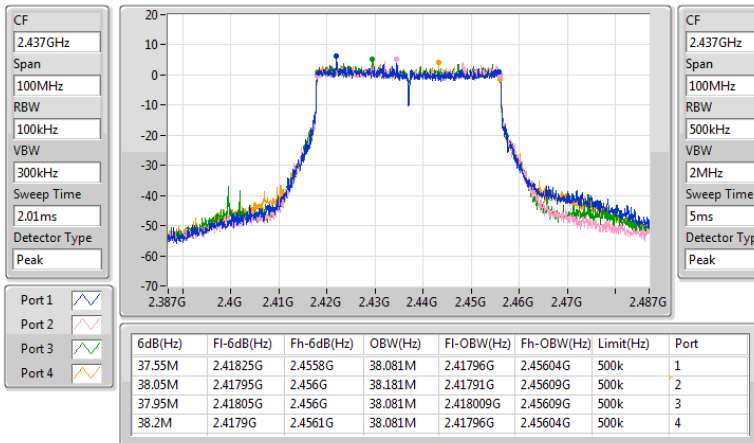




2.4-2.4835GHz_802.11be EHT40_Nss1,(MCS0)_4TX

EBW

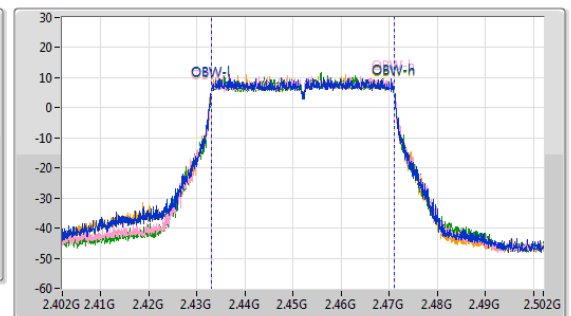
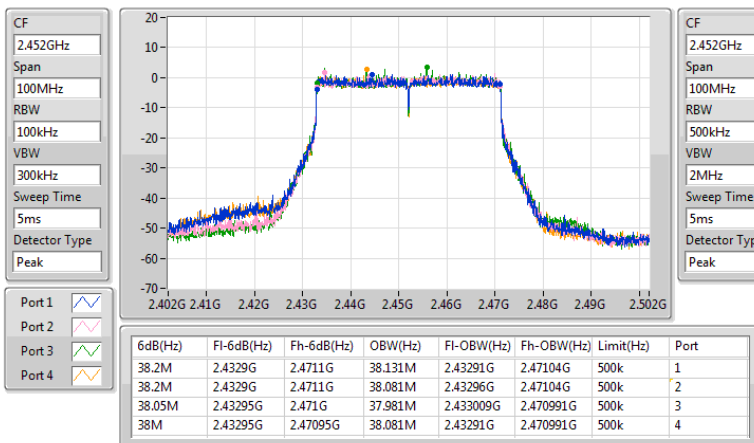
2437MHz



2.4-2.4835GHz_802.11be EHT40_Nss1,(MCS0)_4TX

EBW

2452MHz



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

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
802.11b_Nss1,(1Mbps)_4TX	29.46	0.88308
802.11g_Nss1,(6Mbps)_4TX	29.68	0.92897
802.11be EHT20_Nss1,(MCS0)_4TX	29.81	0.95719
802.11be EHT40_Nss1,(MCS0)_4TX	25.82	0.38194

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Port 3 (dBm)	Port 4 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
802.11b_Nss1,(1Mbps)_4TX	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	4.34	23.41	23.43	23.44	23.46	29.46	30.00	33.80	36.00
2437MHz	Pass	4.34	23.38	23.39	23.31	23.42	29.40	30.00	33.74	36.00
2462MHz	Pass	4.34	22.54	22.84	23.04	22.75	28.82	30.00	33.16	36.00
802.11g_Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	4.34	20.12	20.29	20.15	20.19	26.21	30.00	30.55	36.00
2437MHz	Pass	4.34	23.65	23.67	23.61	23.72	29.68	30.00	34.02	36.00
2462MHz	Pass	4.34	19.58	19.74	19.83	19.75	25.75	30.00	30.09	36.00
802.11be EHT20_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	4.34	19.25	19.5	19.38	19.39	25.40	30.00	29.74	36.00
2437MHz	Pass	4.34	23.74	23.74	23.76	23.92	29.81	30.00	34.15	36.00
2462MHz	Pass	4.34	18.56	18.81	18.85	18.81	24.78	30.00	29.12	36.00
802.11be EHT40_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
2422MHz	Pass	4.34	18.51	18.54	18.62	18.49	24.56	30.00	28.90	36.00
2437MHz	Pass	4.34	19.71	19.82	19.86	19.82	25.82	30.00	30.16	36.00
2452MHz	Pass	4.34	17.53	17.75	17.91	17.61	23.72	30.00	28.06	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)_4TX	23.79	0.23933
802.11be EHT40-BF_Nss1,(MCS0)_4TX	19.80	0.09550

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Port 3 (dBm)	Port 4 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
802.11be EHT20-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	8.46	13.23	13.48	13.36	13.37	19.38	27.54	27.84	36.00
2437MHz	Pass	8.46	17.72	17.72	17.74	17.9	23.79	27.54	32.25	36.00
2462MHz	Pass	8.46	12.54	12.79	12.83	12.79	18.76	27.54	27.22	36.00
802.11be EHT40-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
2422MHz	Pass	8.46	12.49	12.52	12.6	12.47	18.54	27.54	27.00	36.00
2437MHz	Pass	8.46	13.69	13.8	13.84	13.8	19.80	27.54	28.26	36.00
2452MHz	Pass	8.46	11.51	11.73	11.89	11.59	17.70	27.54	26.16	36.00

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

Remarks:

Directional gain = $10 \times \log((10^{0.82/20} + 10^{4.34/20} + 10^{2.58/20} + 10^{1.61/20})^2 / 4) = 8.46 \text{ dBi} > 6\text{dBi}$, so the limit shall be reduced to 30 dBm – (8.46dBi – 6dBi) = 27.54 dBm

Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
802.11b_Nss1,(1Mbps)_4TX	-0.43
802.11g_Nss1,(6Mbps)_4TX	-2.37
802.11be EHT20_Nss1,(MCS0)_4TX	-4.98
802.11be EHT40_Nss1,(MCS0)_4TX	-12.13

RBW = 3kHz;

Result

Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	Port 3 (dBm/RBW)	Port 4 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
802.11b_Nss1,(1Mbps)_4TX	-	-	-	-	-	-	-	-
2412MHz	Pass	8.46	-6.23	-5.73	-5.52	-6.48	-1.13	5.54
2437MHz	Pass	8.46	-6.14	-5.71	-5.87	-5.92	-0.43	5.54
2462MHz	Pass	8.46	-6.97	-6.29	-6.01	-6.47	-0.99	5.54
802.11g_Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-
2412MHz	Pass	8.46	-10.90	-11.80	-11.29	-10.71	-5.91	5.54
2437MHz	Pass	8.46	-8.01	-8.32	-8.02	-7.44	-2.37	5.54
2462MHz	Pass	8.46	-11.71	-11.17	-11.59	-11.69	-5.98	5.54
802.11be EHT20_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
2412MHz	Pass	8.46	-14.24	-14.57	-13.97	-13.67	-9.46	5.54
2437MHz	Pass	8.46	-9.66	-10.42	-9.88	-9.63	-4.98	5.54
2462MHz	Pass	8.46	-15.27	-14.26	-15.05	-14.73	-10.15	5.54
802.11be EHT40_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
2422MHz	Pass	8.46	-17.95	-17.40	-17.72	-17.46	-13.04	5.54
2437MHz	Pass	8.46	-16.90	-16.80	-16.84	-16.49	-12.13	5.54
2452MHz	Pass	8.46	-17.38	-18.53	-18.72	-18.81	-13.97	5.54

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;

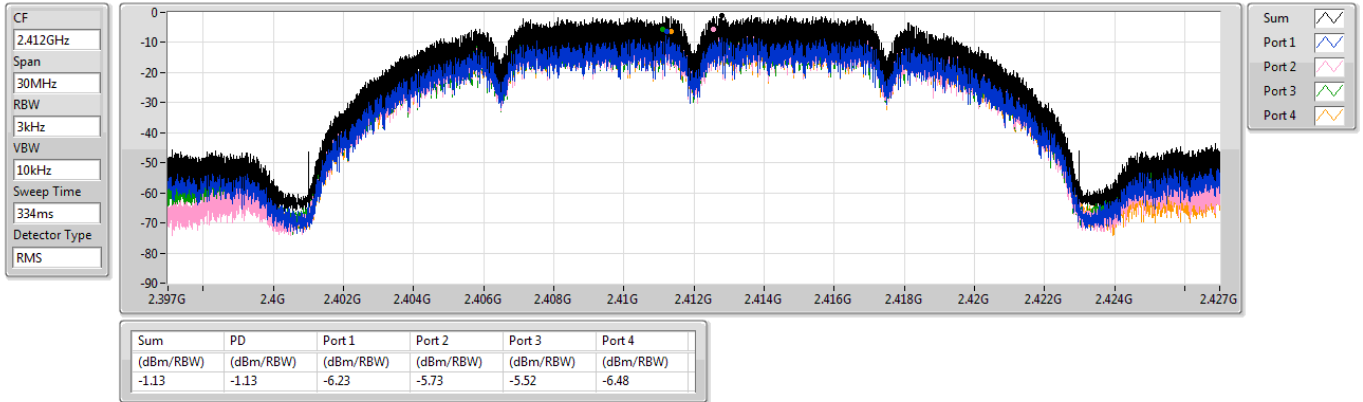
Remarks:

Directional gain = $10 \times \log((10^{0.82/20} + 10^{4.34/20} + 10^{2.58/20} + 10^{1.61/20})^2/4) = 8.46 \text{ dBi} > 6\text{dBi}$, so the limit shall be reduced to 8 dBm – (8.46dBi – 6dBi) = 5.54 dBm

2.4-2.4835GHz_802.11b_Nss1,(1Mbps)_4TX

PSD

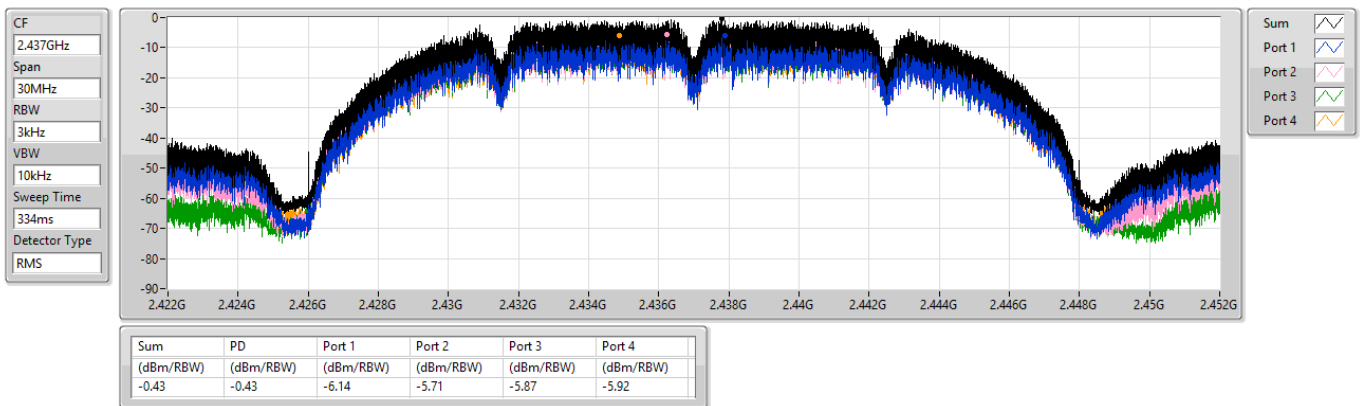
2412MHz



2.4-2.4835GHz_802.11b_Nss1,(1Mbps)_4TX

PSD

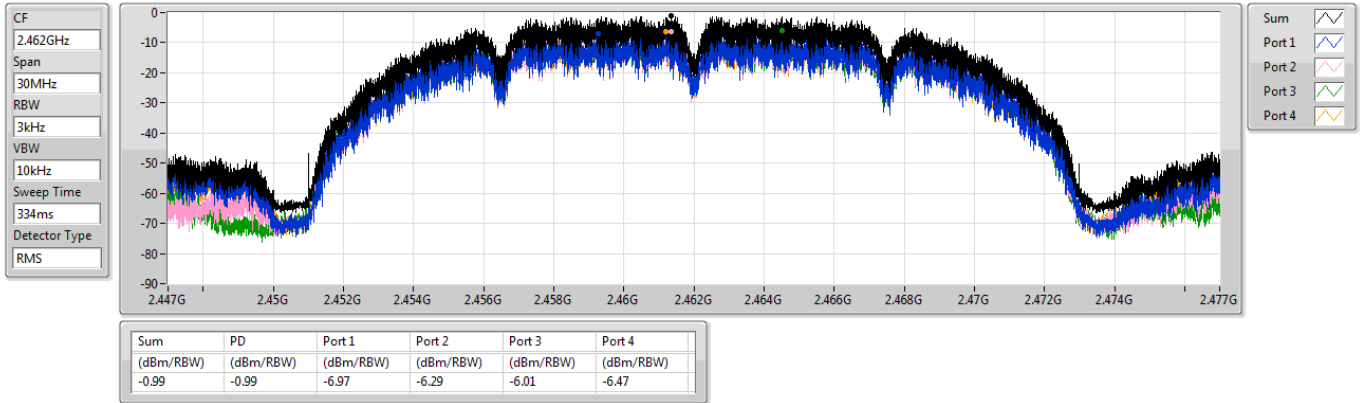
2437MHz



2.4-2.4835GHz_802.11b_Nss1,(1Mbps)_4TX

PSD

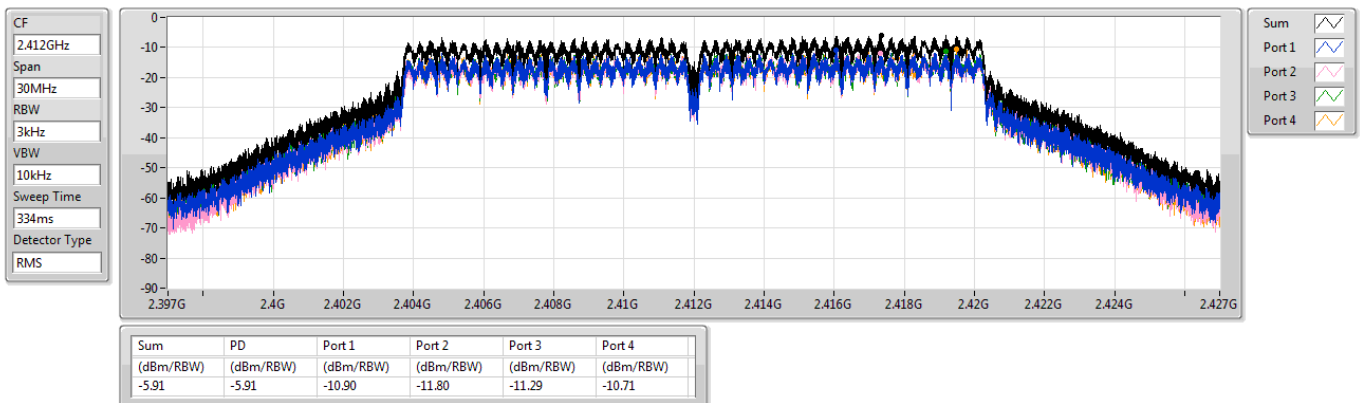
2462MHz



2.4-2.4835GHz_802.11g_Nss1,(6Mbps)_4TX

PSD

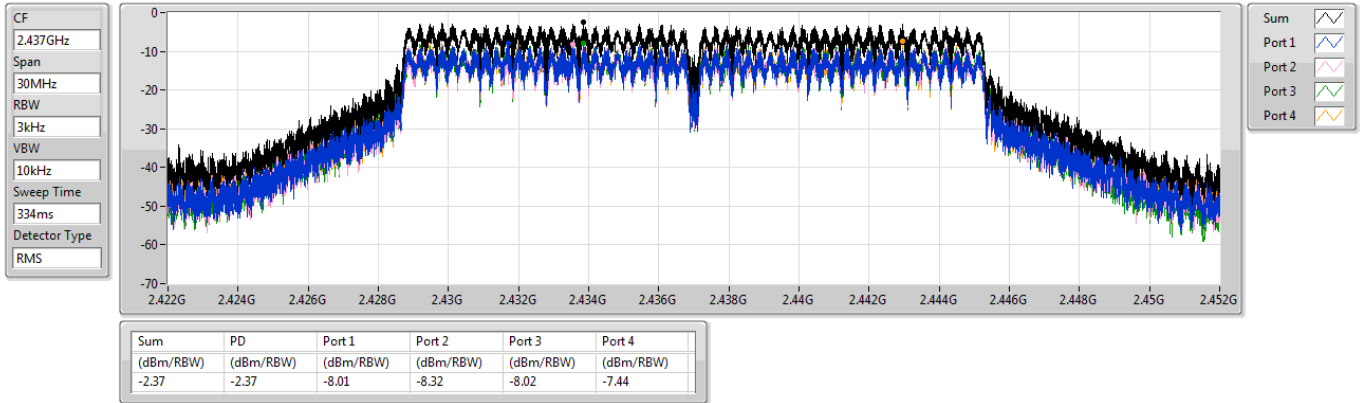
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2.4-2.4835GHz_802.11g_Nss1,(6Mbps)_4TX

PSD

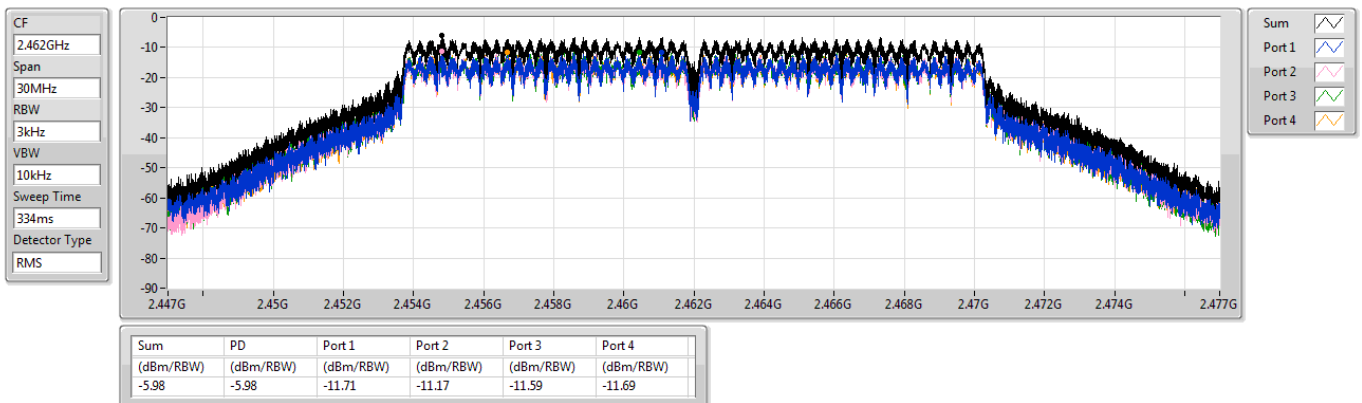
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2.4-2.4835GHz_802.11g_Nss1,(6Mbps)_4TX

PSD

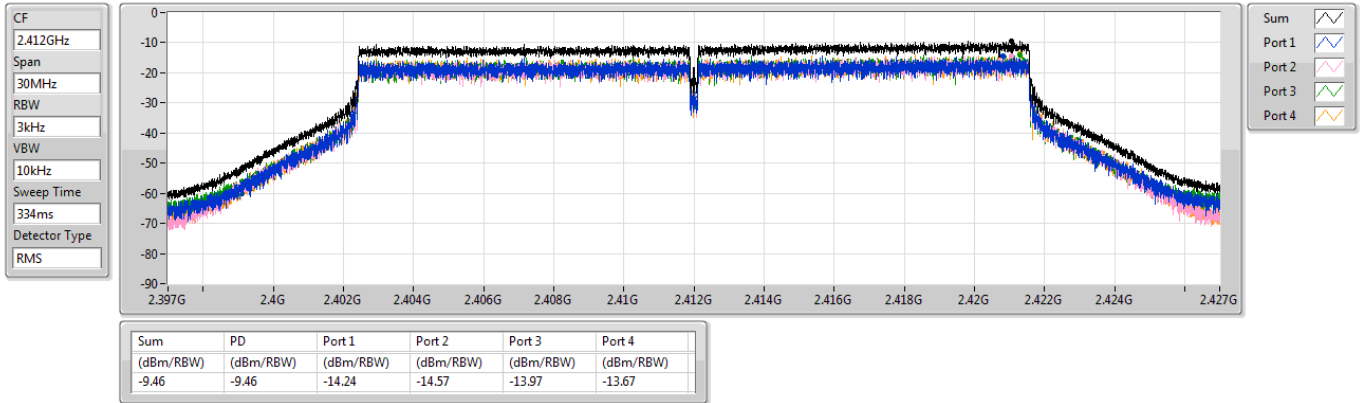
2462MHz



2.4-2.4835GHz_802.11be EHT20_Nss1,(MCS0)_4TX

PSD

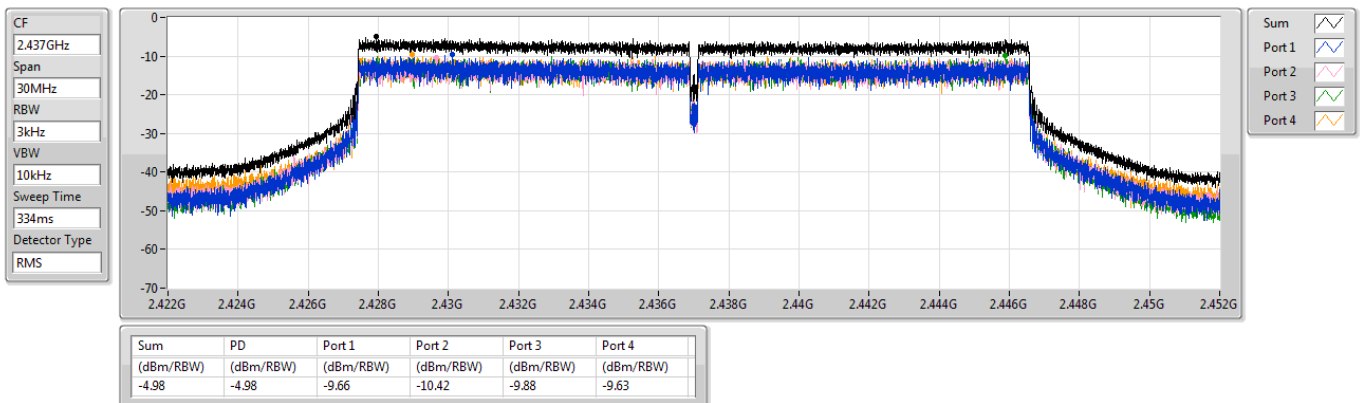
2412MHz



2.4-2.4835GHz_802.11be EHT20_Nss1,(MCS0)_4TX

PSD

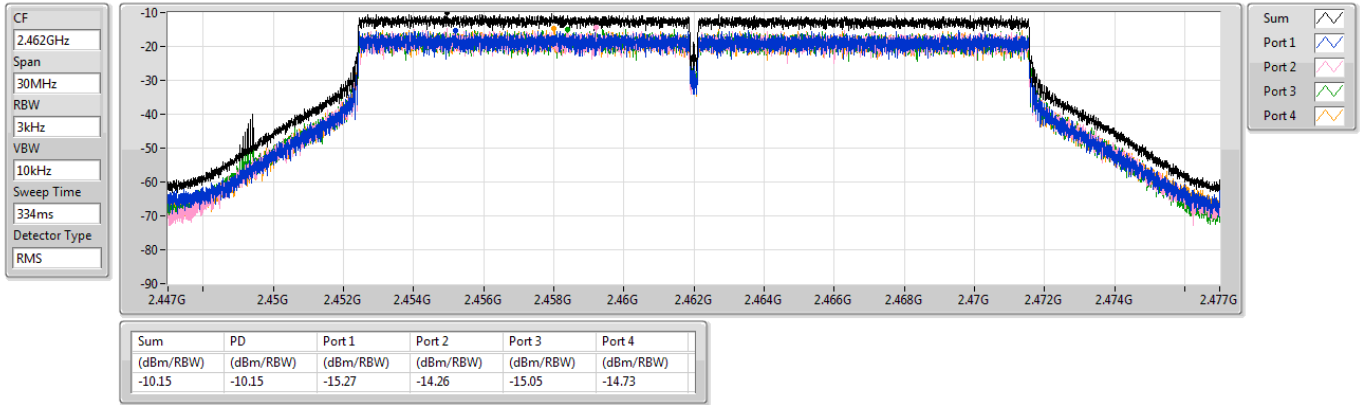
2437MHz



2.4-2.4835GHz_802.11be EHT20_Nss1,(MCS0)_4TX

PSD

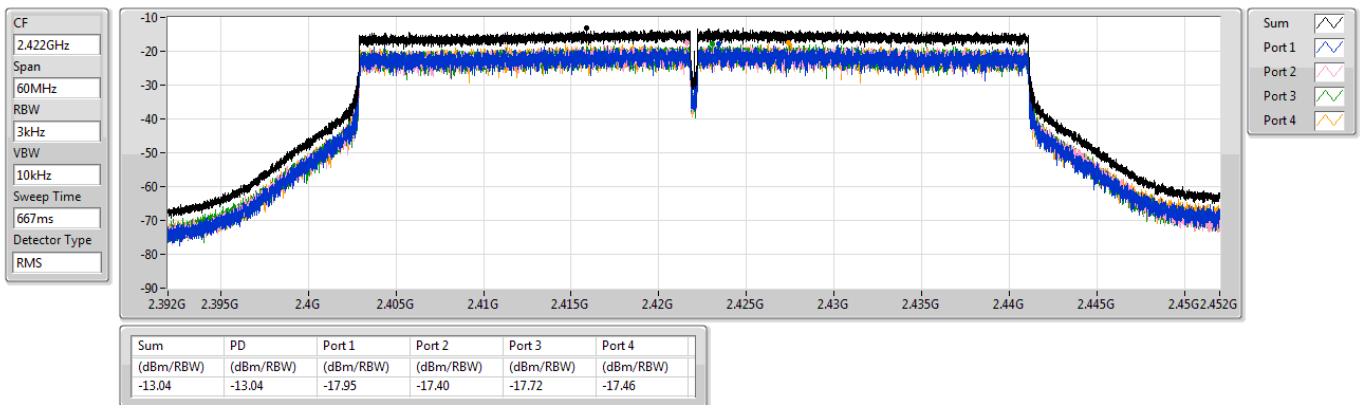
2462MHz



2.4-2.4835GHz_802.11be EHT40_Nss1,(MCS0)_4TX

PSD

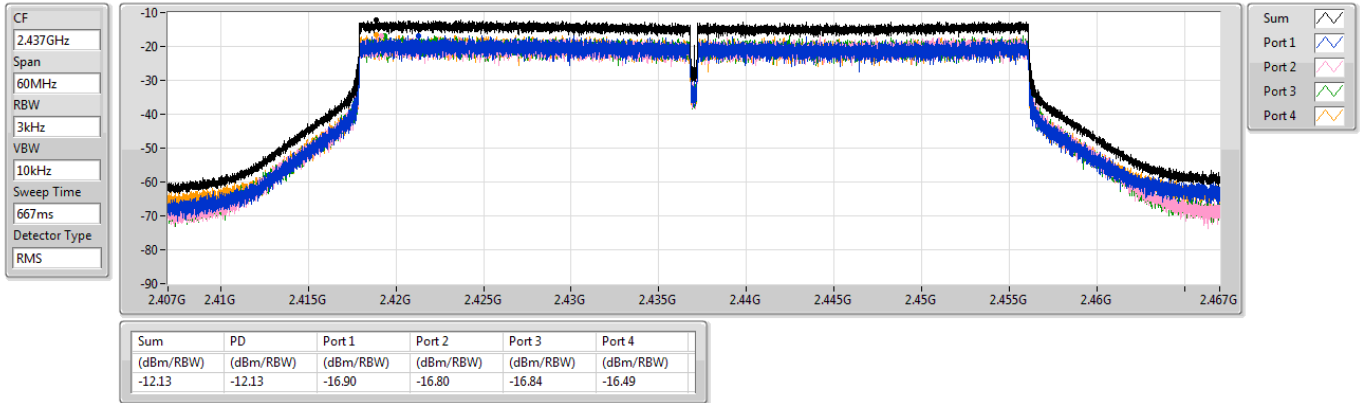
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2.4-2.4835GHz_802.11be EHT40_Nss1,(MCS0)_4TX

PSD

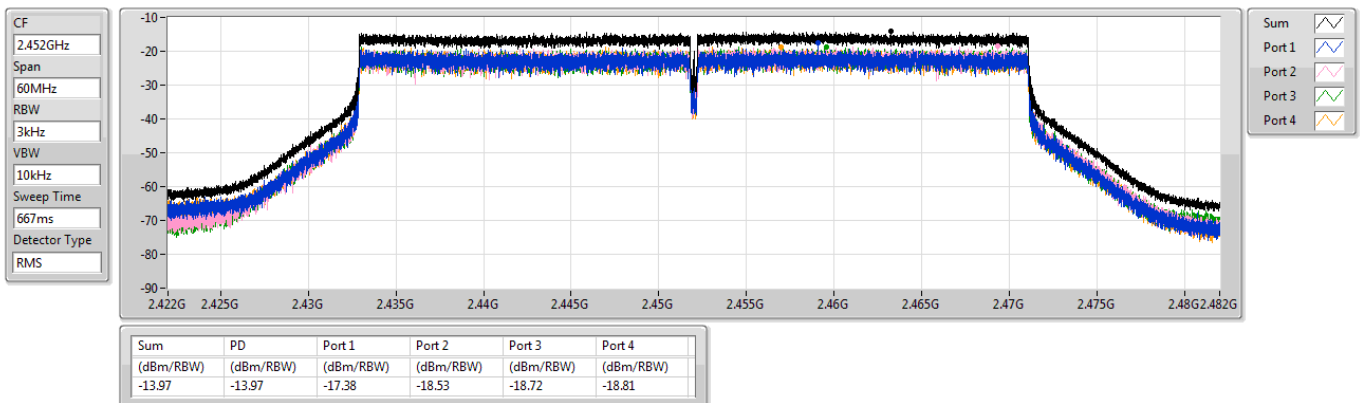
2437MHz



2.4-2.4835GHz_802.11be EHT40_Nss1,(MCS0)_4TX

PSD

2452MHz





PoE mode

Unwanted Emissions (Below 1GHz)

Modulation	be EHT20	Test Freq. (MHz)	2437																																																															
Polarization	Horizontal																																																																	
Test By :Brad Wu Temperature(°C):26 Humidity(%):65																																																																		
Level (dBuV/m) Frequency (MHz) <table><tr><th>Freq. MHz</th><th>Emission level dBuV/m</th><th>Limit dBuV/m</th><th>Margin dB</th><th>SA reading dBuV</th><th>Factor dB/m</th><th>Remark</th><th>ANT High cm</th><th>Turn Table deg</th></tr><tr><td>1</td><td>81.41</td><td>28.52</td><td>40.00</td><td>-11.48</td><td>42.07</td><td>-13.55</td><td>Peak</td><td>---</td></tr><tr><td>2</td><td>122.15</td><td>35.22</td><td>43.50</td><td>-8.28</td><td>46.10</td><td>-10.88</td><td>Peak</td><td>---</td></tr><tr><td>3</td><td>143.49</td><td>31.01</td><td>43.50</td><td>-12.49</td><td>39.70</td><td>-8.69</td><td>Peak</td><td>---</td></tr><tr><td>4</td><td>160.95</td><td>33.11</td><td>43.50</td><td>-10.39</td><td>41.73</td><td>-8.62</td><td>Peak</td><td>---</td></tr><tr><td>5</td><td>250.19</td><td>31.20</td><td>46.00</td><td>-14.80</td><td>40.92</td><td>-9.72</td><td>Peak</td><td>---</td></tr><tr><td>6</td><td>481.05</td><td>34.29</td><td>46.00</td><td>-11.71</td><td>36.93</td><td>-2.64</td><td>Peak</td><td>---</td></tr></table>				Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg	1	81.41	28.52	40.00	-11.48	42.07	-13.55	Peak	---	2	122.15	35.22	43.50	-8.28	46.10	-10.88	Peak	---	3	143.49	31.01	43.50	-12.49	39.70	-8.69	Peak	---	4	160.95	33.11	43.50	-10.39	41.73	-8.62	Peak	---	5	250.19	31.20	46.00	-14.80	40.92	-9.72	Peak	---	6	481.05	34.29	46.00	-11.71	36.93	-2.64	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																																																										
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Modulation	be EHT20	Test Freq. (MHz)	2437
Polarization	Vertical		
Test By :Brad Wu Temperature(°C):26 Humidity(%):65			
Level (dBUV/m) </			

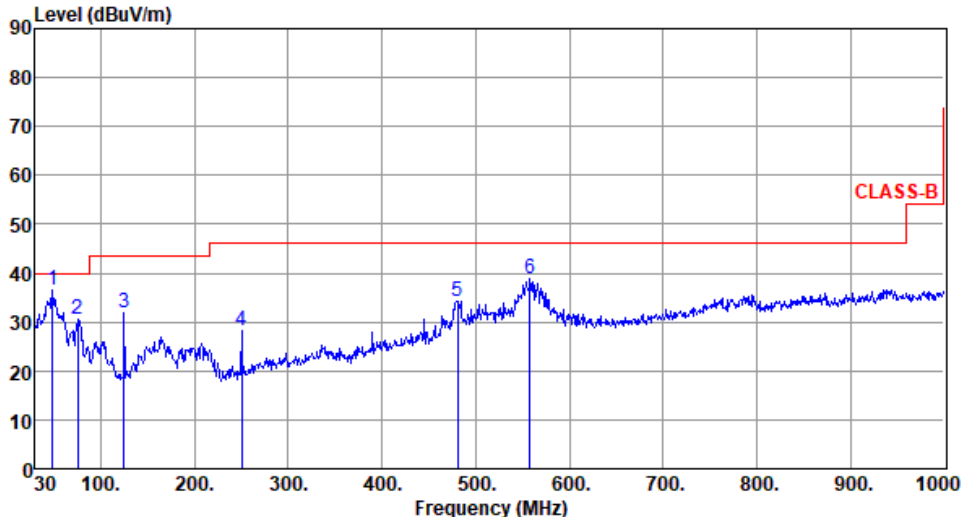


Adapter mode

Unwanted Emissions (Below 1GHz)

Modulation	be EHT20	Test Freq. (MHz)	2437																																																															
Polarization	Horizontal																																																																	
Test By :Brad Wu Temperature(°C):26 Humidity(%):65																																																																		
Level (dBUV/m) Frequency (MHz) <table><thead><tr><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>77.53</td><td>29.57</td><td>40.00</td><td>-10.43</td><td>42.06</td><td>-12.49</td><td>Peak</td><td>---</td></tr><tr><td>2</td><td>97.90</td><td>29.22</td><td>43.50</td><td>-14.28</td><td>42.73</td><td>-13.51</td><td>Peak</td><td>---</td></tr><tr><td>3</td><td>125.06</td><td>35.98</td><td>43.50</td><td>-7.52</td><td>46.55</td><td>-10.57</td><td>Peak</td><td>---</td></tr><tr><td>4</td><td>191.99</td><td>26.86</td><td>43.50</td><td>-16.64</td><td>38.27</td><td>-11.41</td><td>Peak</td><td>---</td></tr><tr><td>5</td><td>250.19</td><td>31.05</td><td>46.00</td><td>-14.95</td><td>40.77</td><td>-9.72</td><td>Peak</td><td>---</td></tr><tr><td>6</td><td>484.93</td><td>34.15</td><td>46.00</td><td>-11.85</td><td>36.77</td><td>-2.62</td><td>Peak</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	77.53	29.57	40.00	-10.43	42.06	-12.49	Peak	---	2	97.90	29.22	43.50	-14.28	42.73	-13.51	Peak	---	3	125.06	35.98	43.50	-7.52	46.55	-10.57	Peak	---	4	191.99	26.86	43.50	-16.64	38.27	-11.41	Peak	---	5	250.19	31.05	46.00	-14.95	40.77	-9.72	Peak	---	6	484.93	34.15	46.00	-11.85	36.77	-2.62	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	77.53	29.57	40.00	-10.43	42.06	-12.49	Peak	---																																																										
2	97.90	29.22	43.50	-14.28	42.73	-13.51	Peak	---																																																										
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Modulation	be EHT20	Test Freq. (MHz)	2437																																																																						
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	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB/m	Remark	ANT High cm	Turn Table deg																																																																
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Unwanted Emission (Above 1GHz) for 11b

Modulation	11b	Test Freq. (MHz)	2412
Polarization	Horizontal		
Test By :Brad Wu Temperature(°C):23 Humidity(%):66			
Level (dBUV/m)			



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



Modulation	11b	Test Freq. (MHz)	2437
Polarization	Horizontal		
Test By :Brad Wu Temperature(°C):23 Humidity(%):65			
Level (dBuV/m)			



Modulation	11b	Test Freq. (MHz)	2437
Polarization	Vertical		
Test By :Brad Wu Temperature(°C):23 Humidity(%):65			
Level (dBuV/m) <			



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



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



Unwanted Emissions (Above 1GHz) for 11g

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



Modulation	11g	Test Freq. (MHz)	2412																																																																																																														
Polarization	Vertical																																																																																																																
Test By :Brad Wu Temperature(°C):23 Humidity(%):66																																																																																																																	
Level (dBuV/m) 90 80 70 60 50 40 30 20 10 0 1 2 6 8 7 1000 4000 6000 8000 10000 12000 14000 16000 18000 20000 22000 25000 CLASS-B CLASS-B (AVG) Frequency (MHz) <table><tr><th></th><th>Freq.</th><th>Emission</th><th>Limit</th><th>Margin</th><th>SA</th><th>Factor</th><th>Remark</th><th>ANT</th><th>Turn</th></tr><tr><th></th><th>MHz</th><th>level</th><th></th><th></th><th>reading</th><th></th><th></th><th>High</th><th>Table</th></tr><tr><th></th><th></th><th>dBuV/m</th><th>dBuV/m</th><th>dB</th><th>dBuV</th><th>dB/m</th><th></th><th>cm</th><th>deg</th></tr><tr><td>1</td><td>2390.00</td><td>51.96</td><td>54.00</td><td>-2.04</td><td>55.70</td><td>-3.74</td><td>Average</td><td>151</td><td>328</td></tr><tr><td>2</td><td>2390.00</td><td>68.18</td><td>74.00</td><td>-5.82</td><td>71.92</td><td>-3.74</td><td>Peak</td><td>151</td><td>328</td></tr><tr><td>3 *</td><td>2412.00</td><td>106.99</td><td></td><td></td><td>110.83</td><td>-3.84</td><td>Average</td><td>151</td><td>328</td></tr><tr><td>4 *</td><td>2412.00</td><td>117.87</td><td></td><td></td><td>121.71</td><td>-3.84</td><td>Peak</td><td>151</td><td>328</td></tr><tr><td>5</td><td>4824.00</td><td>37.45</td><td>54.00</td><td>-16.55</td><td>37.28</td><td>0.17</td><td>Average</td><td>116</td><td>328</td></tr><tr><td>6</td><td>4824.00</td><td>51.96</td><td>74.00</td><td>-22.04</td><td>51.79</td><td>0.17</td><td>Peak</td><td>116</td><td>328</td></tr><tr><td>7</td><td>12060.00</td><td>43.88</td><td>54.00</td><td>-10.12</td><td>36.03</td><td>7.85</td><td>Average</td><td>100</td><td>29</td></tr><tr><td>8</td><td>12060.00</td><td>55.61</td><td>74.00</td><td>-18.39</td><td>47.76</td><td>7.85</td><td>Peak</td><td>100</td><td>29</td></tr></table>					Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn		MHz	level			reading			High	Table			dBuV/m	dBuV/m	dB	dBuV	dB/m		cm	deg	1	2390.00	51.96	54.00	-2.04	55.70	-3.74	Average	151	328	2	2390.00	68.18	74.00	-5.82	71.92	-3.74	Peak	151	328	3 *	2412.00	106.99			110.83	-3.84	Average	151	328	4 *	2412.00	117.87			121.71	-3.84	Peak	151	328	5	4824.00	37.45	54.00	-16.55	37.28	0.17	Average	116	328	6	4824.00	51.96	74.00	-22.04	51.79	0.17	Peak	116	328	7	12060.00	43.88	54.00	-10.12	36.03	7.85	Average	100	29	8	12060.00	55.61	74.00	-18.39	47.76	7.85	Peak	100	29
	Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn																																																																																																								
	MHz	level			reading			High	Table																																																																																																								
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Modulation	11g	Test Freq. (MHz)	2437
Polarization	Horizontal		
Test By :Brad Wu Temperature(°C):23 Humidity(%):66			
Level (dBuV/m)			



Modulation	11g	Test Freq. (MHz)	2437
Polarization	Vertical		
Test By :Brad Wu Temperature(°C):23 Humidity(%):66			
Level (dBuV/m) 90 80 70 60 50 40 30 20 10 0 1000 4000 6000 8000 10000 12000 14000 16000 18000 20000 22000 25000 CLASS-B CLASS-B (AVG) 6 2 5 8 10 7 9 Freq. Emission Limit Margin SA Factor Remark ANT Turn level reading High Table MHz dBuV/m dBuV/m dB dBuV dB/m cm deg 1 2390.00 39.97 54.00 -14.03 43.71 -3.74 Average 124 329 2 2390.00 54.62 74.00 -19.38 58.36 -3.74 Peak 124 329 3 * 2437.00 110.62 114.53 -3.91 Average 124 329 4 * 2437.00 120.70 124.61 -3.91 Peak 124 329 5 2483.50 45.45 54.00 -8.55 49.49 -4.04 Average 124 329 6 2483.50 60.22 74.00 -13.78 64.26 -4.04 Peak 124 329 7 4874.00 37.58 54.00 -16.42 37.41 0.17 Average 118 324 8 4874.00 52.08 74.00 -21.92 51.91 0.17 Peak 118 324 9 7311.00 41.40 54.00 -12.60 35.35 6.05 Average 190 35 10 7311.00 55.57 74.00 -18.43 49.52 6.05 Peak 190 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			



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



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



Unwanted Emissions (Above 1GHz) for be EHT20

Modulation	be EHT20		Test Freq. (MHz)		2412	
Polarization	Horizontal					
Test By :Brad Wu Temperature(°C):23 Humidity(%):66						
Level (dBUV/m)						



Modulation	be EHT20	Test Freq. (MHz)	2412
Polarization	Vertical		
Test By :Brad Wu Temperature(°C):23 Humidity(%):66			
Level (dBuV/m)			



Modulation	be EHT20	Test Freq. (MHz)	2437																																																																																																																																		
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Modulation	be EHT20	Test Freq. (MHz)	2437																																																																																																																																		
Polarization	Vertical																																																																																																																																				
Test By :Brad Wu Temperature(°C):23 Humidity(%):66																																																																																																																																					
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Modulation	be EHT20	Test Freq. (MHz)	2462
Polarization	Horizontal		
Test By :Brad Wu Temperature(°C):23 Humidity(%):66			
Level (dBuV/m)			



Modulation	be EHT20	Test Freq. (MHz)	2462
Polarization	Vertical		
Test By :Brad Wu Temperature(°C):23 Humidity(%):66			
Level (dBuV/m)			

Unwanted Emissions (Above 1GHz) for be EHT40

Modulation	be EHT40	Test Freq. (MHz)	2422
Polarization	Horizontal		
Test By :Brad Wu Temperature(°C):23 Humidity(%):66			
Level (dBUV/m)			



Modulation	be EHT40	Test Freq. (MHz)	2422
Polarization	Vertical		
Test By :Brad Wu Temperature(°C):23 Humidity(%):66			
Level (dBuV/m) </			



Modulation	be EHT40	Test Freq. (MHz)	2437
Polarization	Horizontal		
Test By :Brad Wu Temperature(°C):23 Humidity(%):66			
Level (dBUV/m) <			



Modulation	be EHT40	Test Freq. (MHz)	2437
Polarization	Vertical		
Test By :Brad Wu Temperature(°C):23 Humidity(%):66			
Level (dBuV/m) </			



Modulation	be EHT40	Test Freq. (MHz)	2452
Polarization	Horizontal		
Test By :Brad Wu Temperature(°C):23 Humidity(%):66			
Level (dBuV/m)			

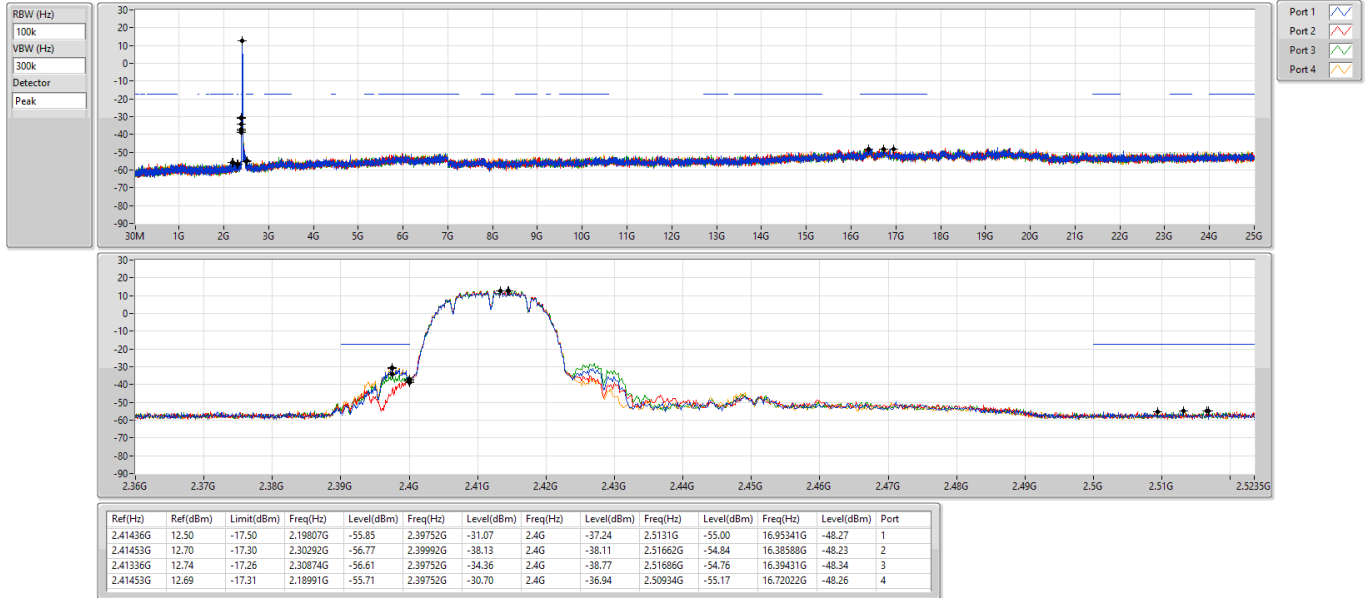


Modulation	be EHT40	Test Freq. (MHz)	2452
Polarization	Vertical		
Test By :Brad Wu Temperature(°C):23 Humidity(%):66			
Level (dBuV/m)			

2.4-2.4835GHz_802.11b_Nss1,(1Mbps)_4TX

CSEndB

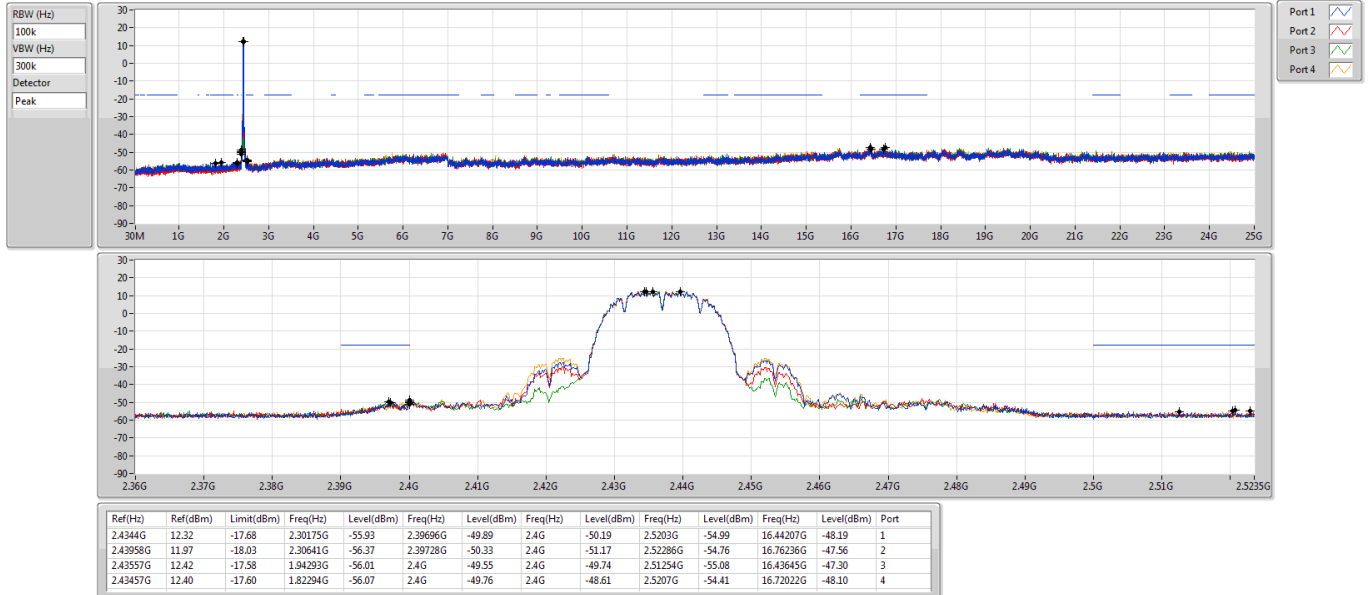
2412MHz



2.4-2.4835GHz_802.11b_Nss1,(1Mbps)_4TX

CSEndB

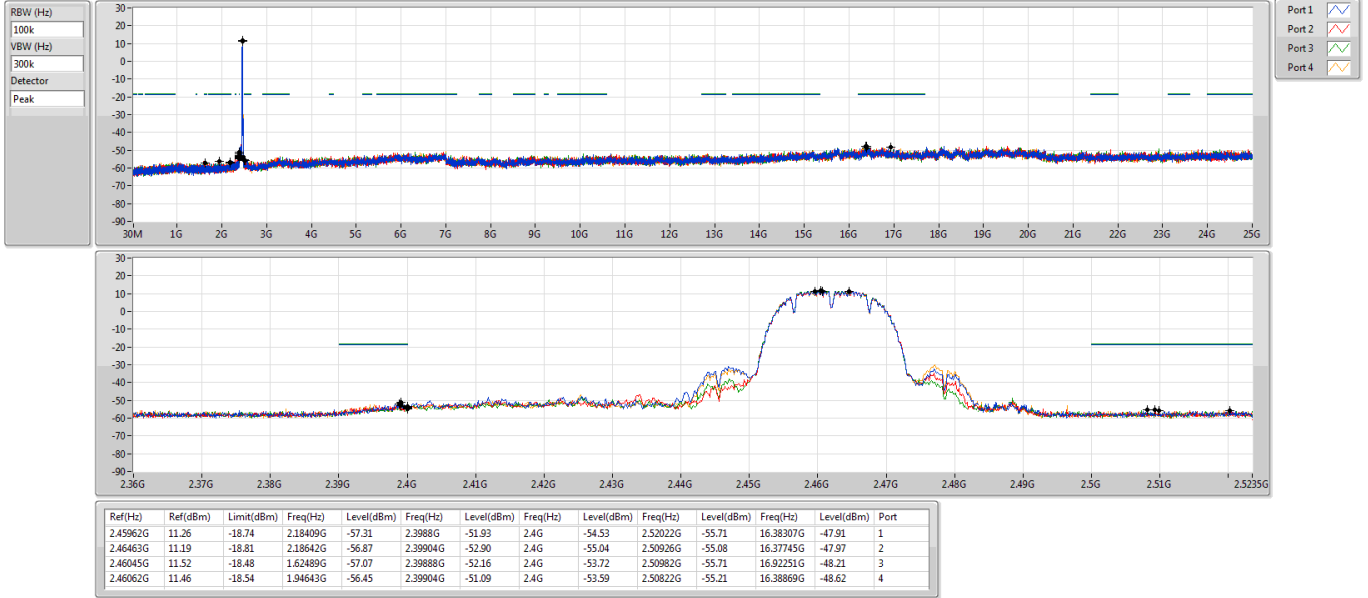
2437MHz



2.4-2.4835GHz_802.11b_Nss1,(1Mbps)_4TX

CSEndB

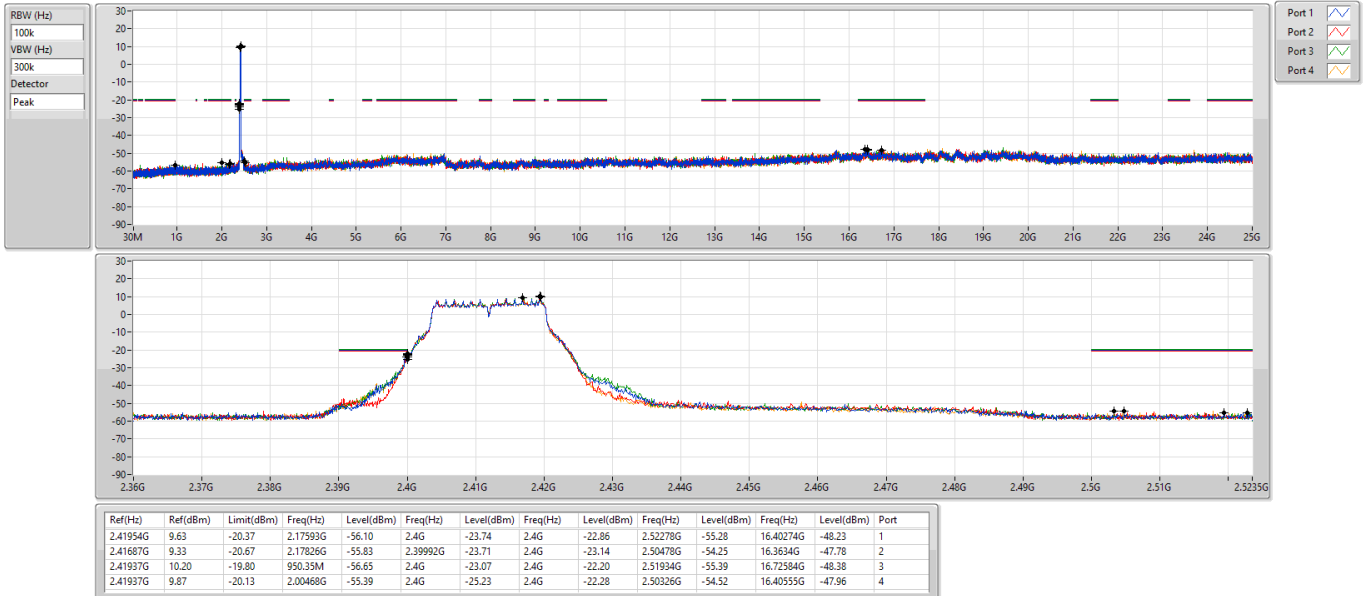
2462MHz



2.4-2.4835GHz_802.11g_Nss1,(6Mbps)_4TX

CSEndB

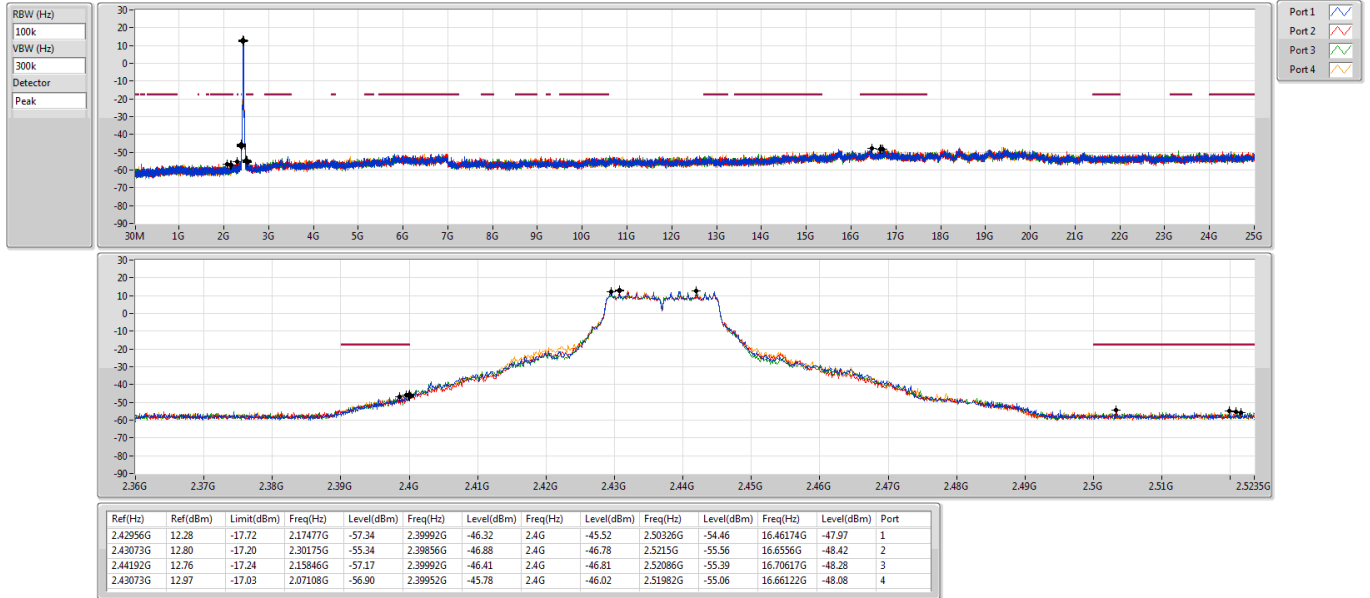
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2.4-2.4835GHz_802.11g_Nss1,(6Mbps)_4TX

CSEndB

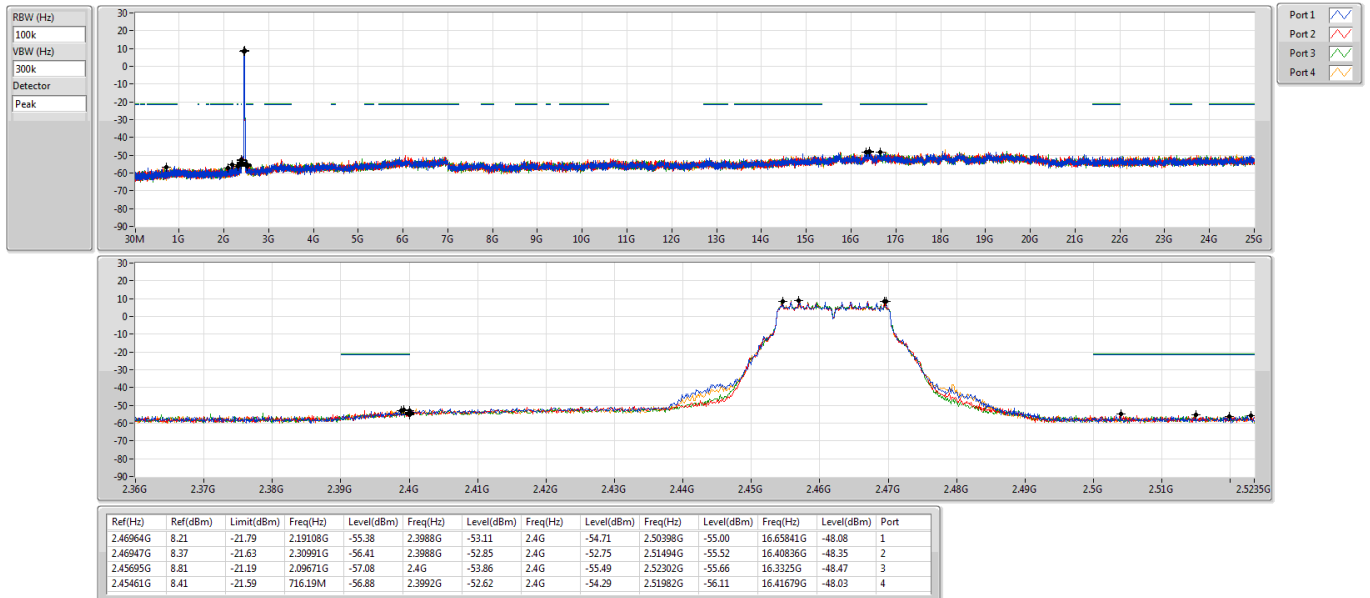
2437MHz



2.4-2.4835GHz_802.11g_Nss1,(6Mbps)_4TX

CSEndB

2462MHz

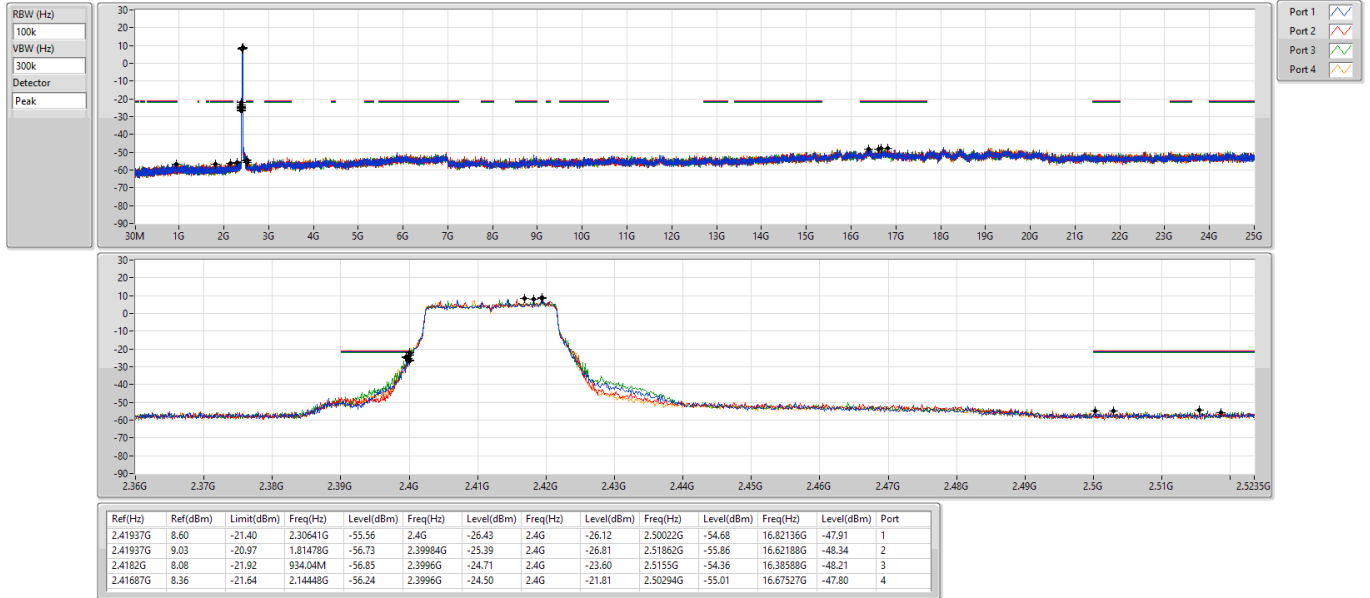




2.4-2.4835GHz_802.11be EHT20_Nss1,(MCS0)_4TX

CSEndB

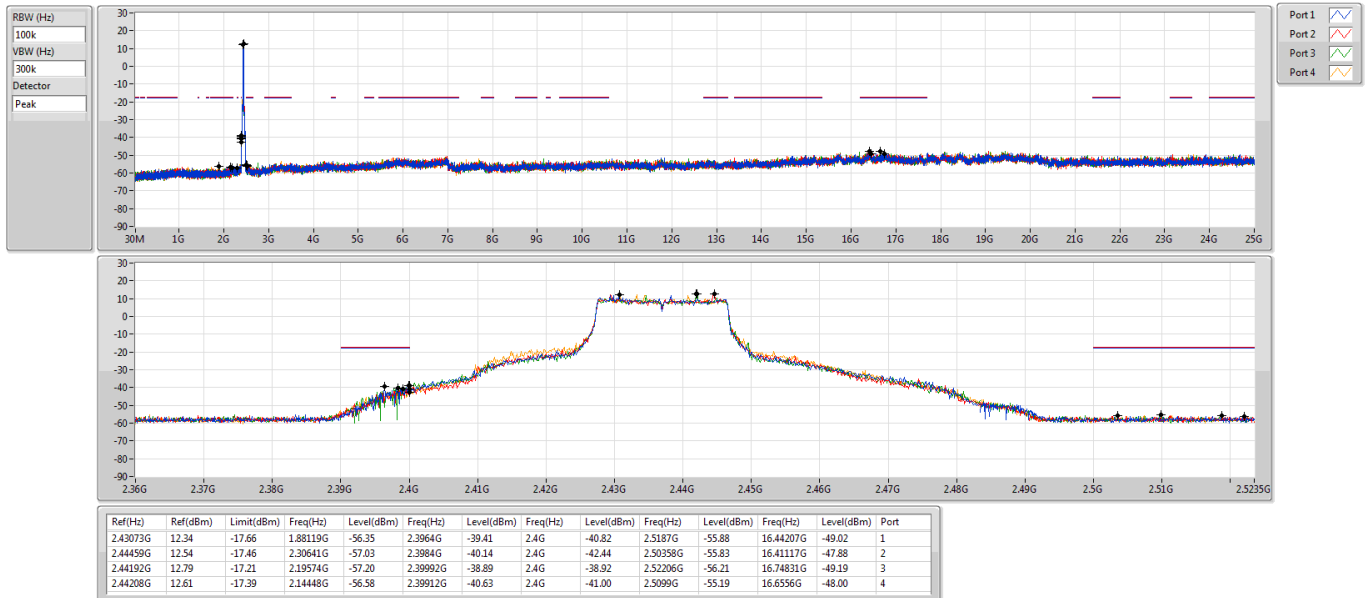
2412MHz



2.4-2.4835GHz_802.11be EHT20_Nss1,(MCS0)_4TX

CSEndB

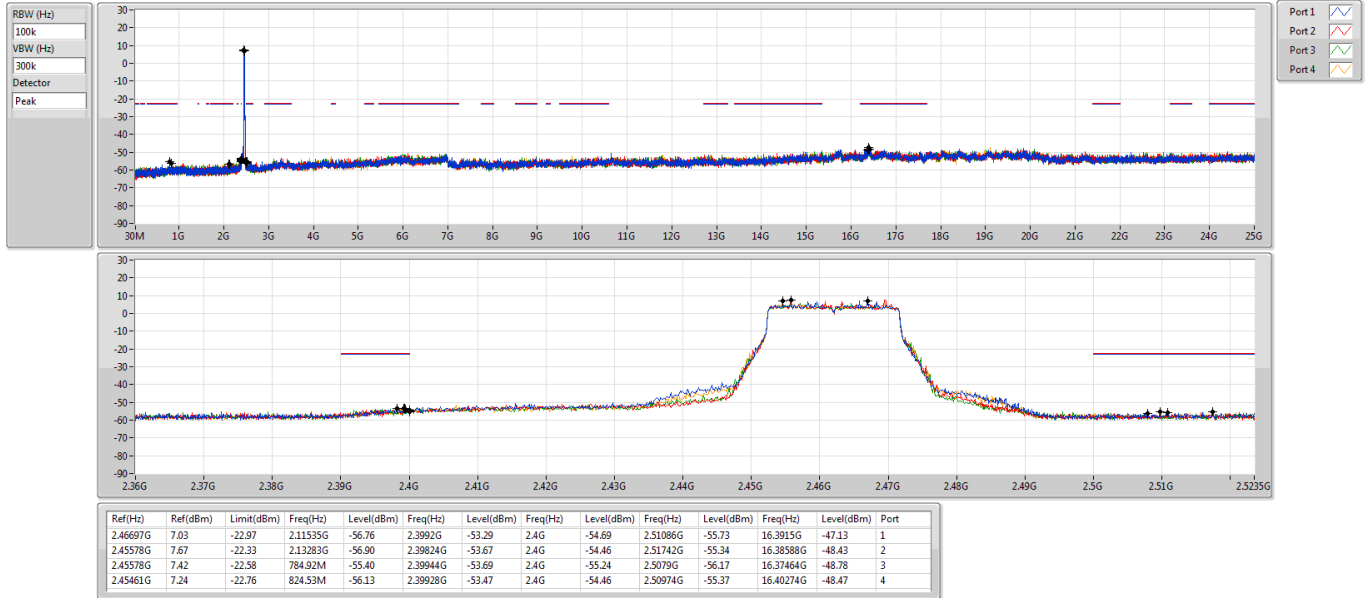
2437MHz



2.4-2.4835GHz_802.11be EHT20_Nss1,(MCS0)_4TX

CSEndB

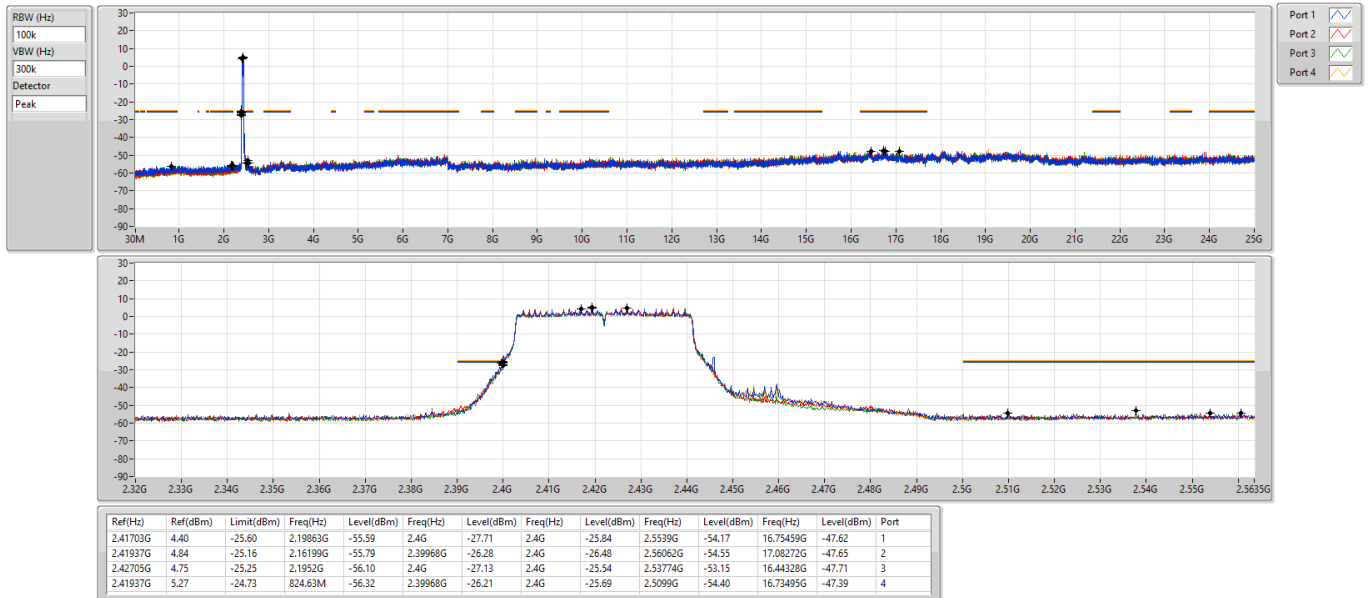
2462MHz



2.4-2.4835GHz_802.11be EHT40_Nss1,(MCS0)_4TX

CSEndB

2422MHz

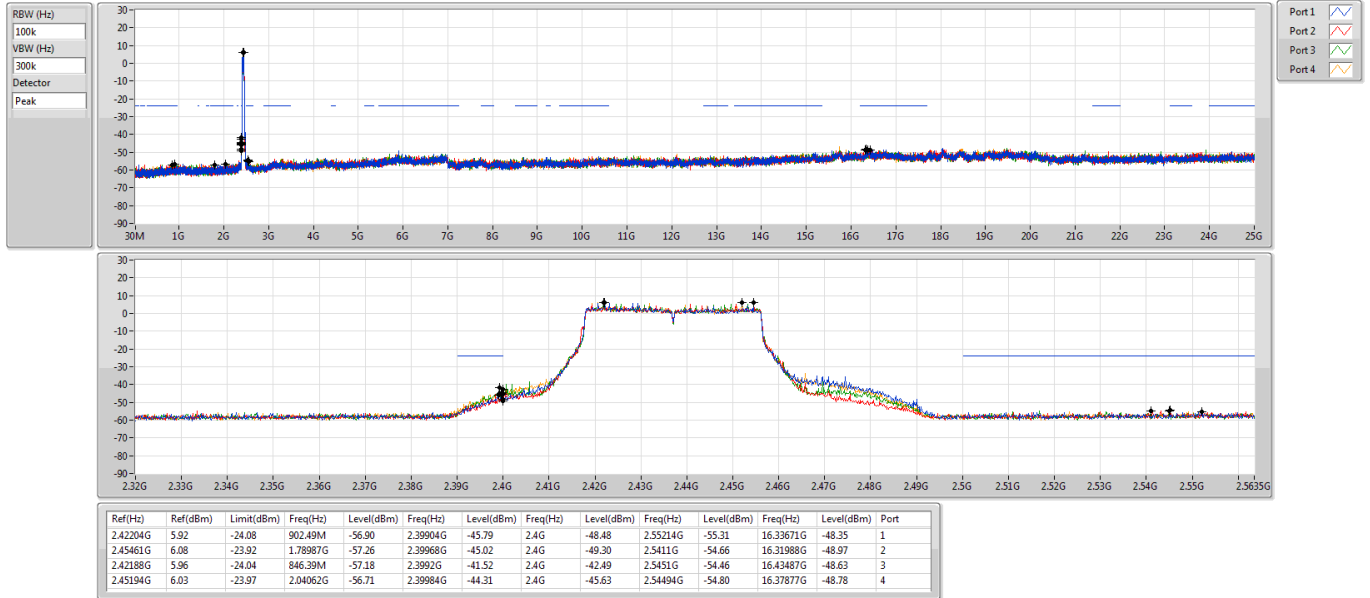




2.4-2.4835GHz_802.11be EHT40_Nss1,(MCS0)_4TX

CSEndB

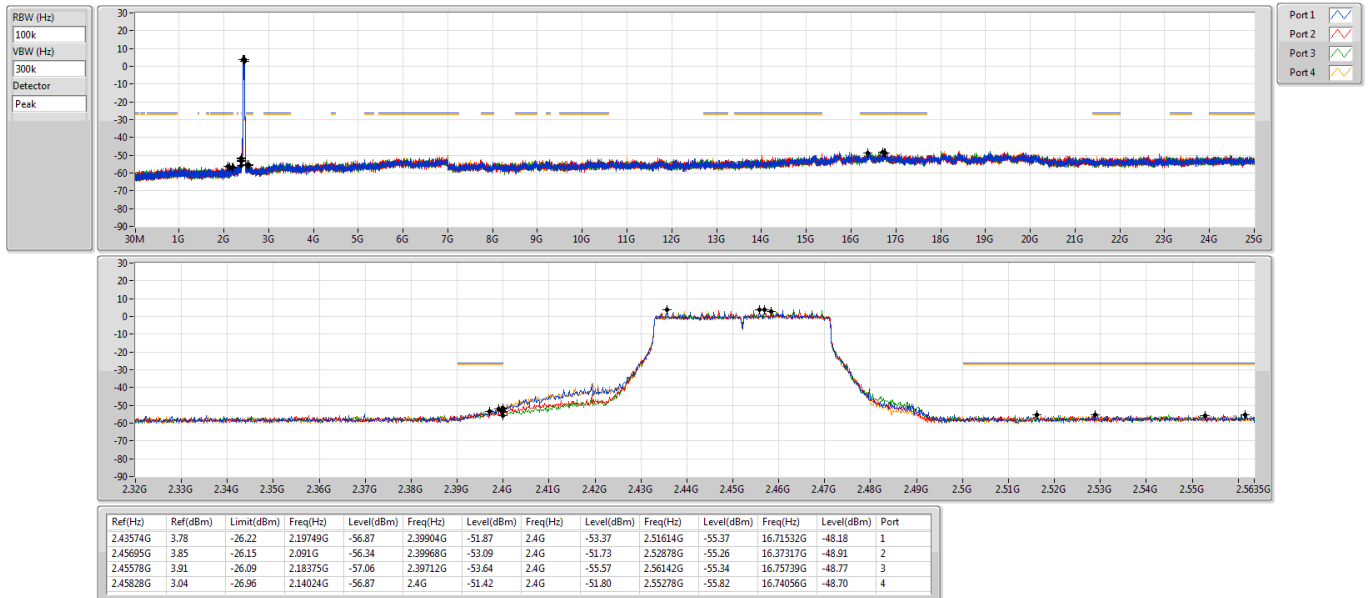
2437MHz



2.4-2.4835GHz_802.11be EHT40_Nss1,(MCS0)_4TX

CSEndB

2452MHz





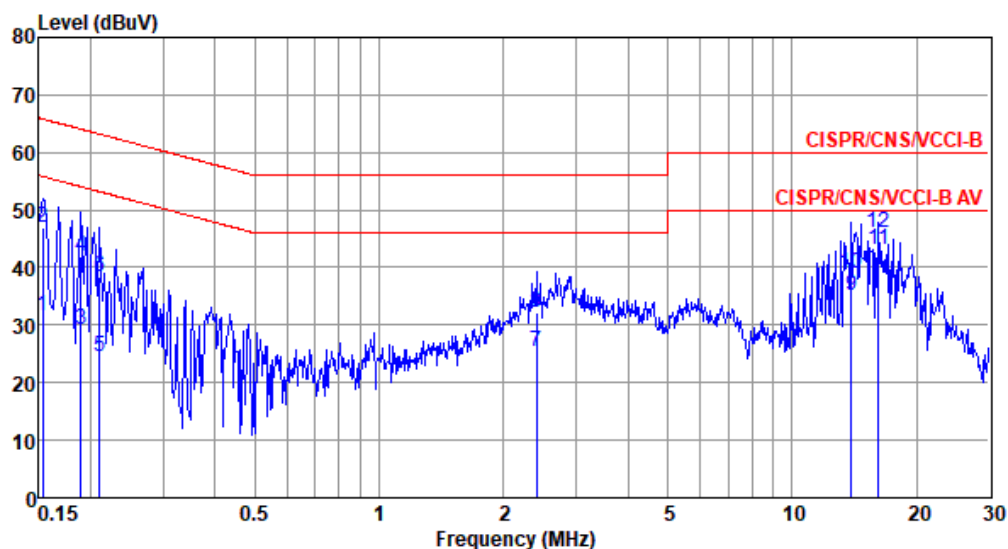
PoE mode

Modulation Mode	be EHT20	Test Freq. (MHz)	2437
Power Phase	Line		

Test by : Joe Liao

Temperature: 24°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	0.153	31.55	55.82	-24.27	21.86	9.63	0.06	0.00	Average
2	0.153	46.82	65.82	-19.00	37.13	9.63	0.06	0.00	QP
3	0.189	29.12	54.06	-24.94	19.44	9.62	0.06	0.00	Average
4	0.189	41.89	64.06	-22.17	32.21	9.62	0.06	0.00	QP
5	0.211	24.50	53.18	-28.68	14.82	9.62	0.06	0.00	Average
6	0.211	38.35	63.18	-24.83	28.67	9.62	0.06	0.00	QP
7	2.409	25.50	46.00	-20.50	15.72	9.64	0.14	0.00	Average
8	2.409	32.14	56.00	-23.86	22.36	9.64	0.14	0.00	QP
9	13.915	35.07	50.00	-14.93	24.95	9.69	0.43	0.00	Average
10	13.915	38.98	60.00	-21.02	28.86	9.69	0.43	0.00	QP
11*	16.226	43.20	50.00	-6.80	33.06	9.68	0.46	0.00	Average
12	16.226	45.97	60.00	-14.03	35.83	9.68	0.46	0.00	QP

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

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

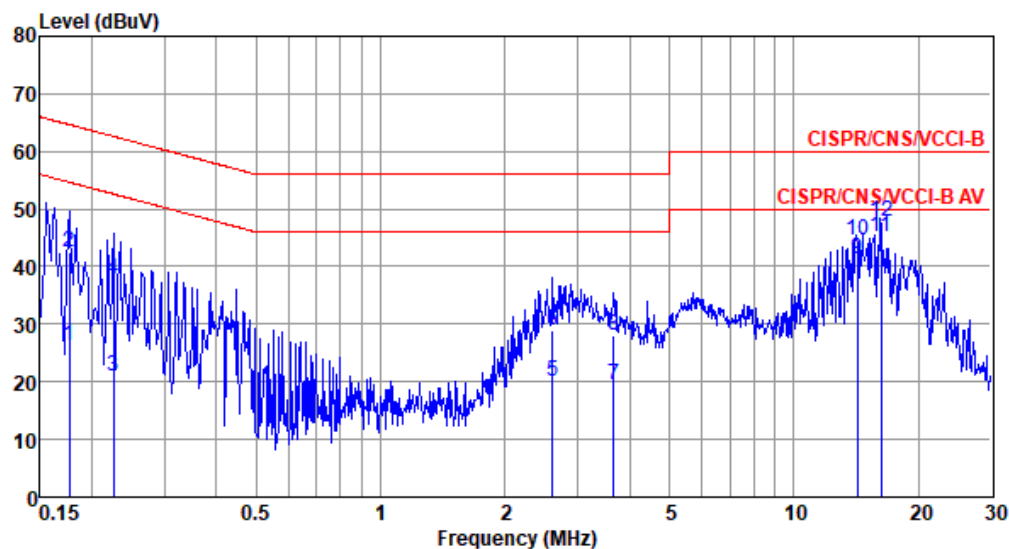


Modulation Mode	be EHT20	Test Freq. (MHz)	2437
Power Phase	Neutral		

Test by : Joe Liao

Temperature: 24°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	26.40	54.64	-28.24	16.71	9.63	0.06	0.00	Average
2	0.177	42.53	64.64	-22.11	32.84	9.63	0.06	0.00	QP
3	0.226	20.84	52.61	-31.77	11.15	9.63	0.06	0.00	Average
4	0.226	37.92	62.61	-24.69	28.23	9.63	0.06	0.00	QP
5	2.608	19.94	46.00	-26.06	10.15	9.64	0.15	0.00	Average
6	2.608	28.97	56.00	-27.03	19.18	9.64	0.15	0.00	QP
7	3.661	19.60	46.00	-26.40	9.78	9.65	0.17	0.00	Average
8	3.661	28.10	56.00	-27.90	18.28	9.65	0.17	0.00	QP
9	14.274	41.24	50.00	-8.76	31.05	9.76	0.43	0.00	Average
10	14.274	44.51	60.00	-15.49	34.32	9.76	0.43	0.00	QP
11*	16.228	45.08	50.00	-4.92	34.85	9.77	0.46	0.00	Average
12	16.228	47.79	60.00	-12.21	37.56	9.77	0.46	0.00	QP

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

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



Adapter mode

Modulation Mode	be EHT20	Test Freq. (MHz)	2437																																																																																																																																		
Power Phase	Line																																																																																																																																				
Test by : Joe Liao Temperature: 24°C Humidity: 62%																																																																																																																																					
Level (dBuV) Frequency (MHz) <table><tr><th></th><th>Freq MHz</th><th>Level dBuV</th><th>Limit Line dBuV</th><th>Over Limit dB</th><th>Read Level dBuV</th><th>Factor dB</th><th>Cable loss dB</th><th>Aux dB</th><th>Remark</th></tr><tr><td>1</td><td>0.150</td><td>33.48</td><td>56.00</td><td>-22.52</td><td>23.61</td><td>9.63</td><td>0.06</td><td>0.18</td><td>Average</td></tr><tr><td>2</td><td>0.150</td><td>45.91</td><td>66.00</td><td>-20.09</td><td>36.04</td><td>9.63</td><td>0.06</td><td>0.18</td><td>QP</td></tr><tr><td>3</td><td>0.159</td><td>34.93</td><td>55.52</td><td>-20.59</td><td>25.06</td><td>9.63</td><td>0.06</td><td>0.18</td><td>Average</td></tr><tr><td>4</td><td>0.159</td><td>47.82</td><td>65.52</td><td>-17.70</td><td>37.95</td><td>9.63</td><td>0.06</td><td>0.18</td><td>QP</td></tr><tr><td>5</td><td>0.192</td><td>28.58</td><td>53.93</td><td>-25.35</td><td>18.71</td><td>9.62</td><td>0.06</td><td>0.19</td><td>Average</td></tr><tr><td>6</td><td>0.192</td><td>40.74</td><td>63.93</td><td>-23.19</td><td>30.87</td><td>9.62</td><td>0.06</td><td>0.19</td><td>QP</td></tr><tr><td>7*</td><td>0.598</td><td>31.69</td><td>46.00</td><td>-14.31</td><td>21.68</td><td>9.62</td><td>0.08</td><td>0.31</td><td>Average</td></tr><tr><td>8</td><td>0.598</td><td>37.28</td><td>56.00</td><td>-18.72</td><td>27.27</td><td>9.62</td><td>0.08</td><td>0.31</td><td>QP</td></tr><tr><td>9</td><td>11.621</td><td>22.62</td><td>50.00</td><td>-27.38</td><td>12.08</td><td>9.69</td><td>0.39</td><td>0.46</td><td>Average</td></tr><tr><td>10</td><td>11.621</td><td>27.26</td><td>60.00</td><td>-32.74</td><td>16.72</td><td>9.69</td><td>0.39</td><td>0.46</td><td>QP</td></tr><tr><td>11</td><td>13.623</td><td>23.59</td><td>50.00</td><td>-26.41</td><td>13.00</td><td>9.69</td><td>0.42</td><td>0.48</td><td>Average</td></tr><tr><td>12</td><td>13.623</td><td>28.21</td><td>60.00</td><td>-31.79</td><td>17.62</td><td>9.69</td><td>0.42</td><td>0.48</td><td>QP</td></tr></table>					Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	Factor dB	Cable loss dB	Aux dB	Remark	1	0.150	33.48	56.00	-22.52	23.61	9.63	0.06	0.18	Average	2	0.150	45.91	66.00	-20.09	36.04	9.63	0.06	0.18	QP	3	0.159	34.93	55.52	-20.59	25.06	9.63	0.06	0.18	Average	4	0.159	47.82	65.52	-17.70	37.95	9.63	0.06	0.18	QP	5	0.192	28.58	53.93	-25.35	18.71	9.62	0.06	0.19	Average	6	0.192	40.74	63.93	-23.19	30.87	9.62	0.06	0.19	QP	7*	0.598	31.69	46.00	-14.31	21.68	9.62	0.08	0.31	Average	8	0.598	37.28	56.00	-18.72	27.27	9.62	0.08	0.31	QP	9	11.621	22.62	50.00	-27.38	12.08	9.69	0.39	0.46	Average	10	11.621	27.26	60.00	-32.74	16.72	9.69	0.39	0.46	QP	11	13.623	23.59	50.00	-26.41	13.00	9.69	0.42	0.48	Average	12	13.623	28.21	60.00	-31.79	17.62	9.69	0.42	0.48	QP
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Modulation Mode	be EHT20	Test Freq. (MHz)	2437																																																																																																																																		
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