



RADIO TEST REPORT

FCC ID : QXO-AP5050
Equipment : Access Point
Brand Name : Extreme Networks
Model Name : AP5050D
Applicant : Extreme Networks, Inc.
2121 RDU Center Drive Morrisville North Carolina
United States 27560
Manufacturer : Extreme Networks, Inc.
2121 RDU Center Drive Morrisville North Carolina
United States 27560
Standard : 47 CFR FCC Part 15.407

The product was received on May 16, 2022, and testing was started from May 30, 2022 and completed on Sep. 12, 2022. We, Sporton International Inc. Hsinchu Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. Hsinchu Laboratory, the test report shall not be reproduced except in full.

Approved by: Sam Chen

Sporton International Inc. Hsinchu Laboratory

No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County 302010, Taiwan (R.O.C.)



Table of Contents

History of this test report.....	3
Summary of Test Result.....	4
1 General Description	5
1.1 Information.....	5
1.2 Applicable Standards	17
1.3 Testing Location Information	17
1.4 Measurement Uncertainty	18
2 Test Configuration of EUT	19
2.1 Test Channel Mode	19
2.2 The Worst Case Measurement Configuration	31
2.3 EUT Operation during Test	33
2.4 Accessories	33
2.5 Support Equipment.....	34
2.6 Test Setup Diagram	35
3 Transmitter Test Result	38
3.1 AC Power-line Conducted Emissions	38
3.2 Emission Bandwidth	40
3.3 Maximum Output Power	42
3.4 Power Spectral Density	44
3.5 Unwanted Emissions.....	47
4 Test Equipment and Calibration Data	51
Appendix A. Test Results of AC Power-line Conducted Emissions	
Appendix B. Test Results of Emission Bandwidth	
Appendix C. Test Results of Maximum Output Power	
Appendix D. Test Results of Power Spectral Density	
Appendix E. Test Results of Unwanted Emissions	
Appendix F. Test Photos	
Photographs of EUT v01	



TEL : 886-3-656-9065
FAX : 886-3-656-9085
Report Template No.: CB-A12_1 Ver1.4



Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
1.1.2	15.203	Antenna Requirement	PASS	-
3.1	15.207	AC Power-line Conducted Emissions	PASS	-
3.2	15.407(a)	Emission Bandwidth	PASS	-
3.3	15.407(a)	Maximum Output Power	PASS	-
3.4	15.407(a)	Power Spectral Density	PASS	-
3.5	15.407(b)	Unwanted Emissions	PASS	-

Declaration of Conformity:

1. The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers. It's means measurement values may risk exceeding the limit of regulation standards, if measurement uncertainty is include in test results.
2. The measurement uncertainty please refer to report "Measurement Uncertainty".

Comments and Explanations:

1. The test configuration, test mode and test software were written in this test report are declared by the manufacturer.
2. 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.

Reviewed by: Sam Chen**Report Producer: Viola Huang**



1 General Description

1.1 Information

1.1.1 RF General Information

Frequency Range (MHz)	IEEE Std. 802.11	Ch. Frequency (MHz)	Channel Number
5150-5250	a, n (HT20), ac (VHT20), ax (HEW20)	5180-5240	36-48 [4]
5725-5850		5745-5825	149-165 [5]
5150-5250	n (HT40), ac (VHT40), ax (HEW40)	5190-5230	38-46 [2]
5725-5850		5755-5795	151-159 [2]
5150-5250	ac (VHT80), ax (HEW80)	5210	42 [1]
5725-5850		5775	155 [1]

For Radio 2

Band	Mode	BWch (MHz)	Nant
5.15-5.25GHz	802.11a	20	1, 2, 4
5.15-5.25GHz	802.11n HT20	20	1, 2, 4
5.15-5.25GHz	802.11n HT20-BF	20	2, 4
5.15-5.25GHz	802.11ac VHT20	20	1, 2, 4
5.15-5.25GHz	802.11ac VHT20-BF	20	2, 4
5.15-5.25GHz	802.11ax HEW20	20	1, 2, 4
5.15-5.25GHz	802.11ax HEW20-BF	20	2, 4
5.15-5.25GHz	802.11n HT40	40	1, 2, 4
5.15-5.25GHz	802.11n HT40-BF	40	2, 4
5.15-5.25GHz	802.11ac VHT40	40	1, 2, 4
5.15-5.25GHz	802.11ac VHT40-BF	40	2, 4
5.15-5.25GHz	802.11ax HEW40	40	1, 2, 4
5.15-5.25GHz	802.11ax HEW40-BF	40	2, 4
5.15-5.25GHz	802.11ac VHT80	80	1, 2, 4
5.15-5.25GHz	802.11ac VHT80-BF	80	2, 4
5.15-5.25GHz	802.11ax HEW80	80	1, 2, 4
5.15-5.25GHz	802.11ax HEW80-BF	80	2, 4
5.725-5.85GHz	802.11a	20	1, 2, 4
5.725-5.85GHz	802.11n HT20	20	1, 2, 4
5.725-5.85GHz	802.11n HT20-BF	20	2, 4
5.725-5.85GHz	802.11ac VHT20	20	1, 2, 4
5.725-5.85GHz	802.11ac VHT20-BF	20	2, 4
5.725-5.85GHz	802.11ax HEW20	20	1, 2, 4
5.725-5.85GHz	802.11ax HEW20-BF	20	2, 4
5.725-5.85GHz	802.11n HT40	40	1, 2, 4



Band	Mode	BWch (MHz)	Nant
5.725-5.85GHz	802.11n HT40-BF	40	2, 4
5.725-5.85GHz	802.11ac VHT40	40	1, 2, 4
5.725-5.85GHz	802.11ac VHT40-BF	40	2, 4
5.725-5.85GHz	802.11ax HEW40	40	1, 2, 4
5.725-5.85GHz	802.11ax HEW40-BF	40	2, 4
5.725-5.85GHz	802.11ac VHT80	80	1, 2, 4
5.725-5.85GHz	802.11ac VHT80-BF	80	2, 4
5.725-5.85GHz	802.11ax HEW80	80	1, 2, 4
5.725-5.85GHz	802.11ax HEW80-BF	80	2, 4

For Scanning radio 1

Band	Mode	BWch (MHz)	Nant
5.15-5.25GHz	802.11a	20	2
5.15-5.25GHz	802.11n HT20	20	2
5.15-5.25GHz	802.11ac VHT20	20	2
5.15-5.25GHz	802.11ax HEW20	20	2
5.15-5.25GHz	802.11n HT40	40	2
5.15-5.25GHz	802.11ac VHT40	40	2
5.15-5.25GHz	802.11ax HEW40	40	2
5.15-5.25GHz	802.11ac VHT80	80	2
5.15-5.25GHz	802.11ax HEW80	80	2
5.725-5.85GHz	802.11a	20	2
5.725-5.85GHz	802.11n HT20	20	2
5.725-5.85GHz	802.11ac VHT20	20	2
5.725-5.85GHz	802.11ax HEW20	20	2
5.725-5.85GHz	802.11n HT40	40	2
5.725-5.85GHz	802.11ac VHT40	40	2
5.725-5.85GHz	802.11ax HEW40	40	2
5.725-5.85GHz	802.11ac VHT80	80	2
5.725-5.85GHz	802.11ax HEW80	80	2

Note:

- ♦ 11a, HT20 and HT40 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.
- ♦ VHT20, VHT40, VHT80 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM modulation.
- ♦ HEW20, HEW40, HEW80 use a combination of OFDMA-BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM modulation.
- ♦ BWch is the nominal channel bandwidth.


1.1.2 Antenna Information

Set	Ant.	Port				Brand Name	Model Name	Antenna Type	Connector	Gain (dBi)
		WLAN 2.4GHz (Radio 1) (Scanning Radio 1)	WLAN 5GHz (Radio 2)	WLAN 5GHz (Scanning Radio 1)	BT / IEEE802.15.4 (Radio 3)					
1	1	1	-	-	-	-	WNC	95XEAJ15.G62	Patch	I-PEX
	2	2	-	-	-	-	WNC	95XEAJ15.G62	Patch	I-PEX
	3	3	-	-	-	-	WNC	95XEAJ15.G63	Patch	I-PEX
	4	4	-	-	-	-	WNC	95XEAJ15.G63	Patch	I-PEX
2	5	1	-	-	-	-	WNC	95XEAJ15.G64	Patch	I-PEX
		2	-	-	-	-	WNC	95XEAJ15.G64	Patch	I-PEX
	6	3	-	-	-	-	WNC	95XEAJ15.G65	Patch	I-PEX
		4	-	-	-	-	WNC	95XEAJ15.G65	Patch	I-PEX
3	7	-	1	-	-	-	WNC	95XEAJ15.G70	Patch	I-PEX
	8	-	2	-	-	-	WNC	95XEAJ15.G70	Patch	I-PEX
	9	-	3	-	-	-	WNC	95XEAJ15.G71	Patch	I-PEX
	10	-	4	-	-	-	WNC	95XEAJ15.G71	Patch	I-PEX
4	11	-	1	-	-	-	WNC	95XEAJ15.G67	Patch	I-PEX
		-	2	-	-	-	WNC	95XEAJ15.G67	Patch	I-PEX
	12	-	3	-	-	-	WNC	95XEAJ15.G68	Patch	I-PEX
		-	4	-	-	-	WNC	95XEAJ15.G68	Patch	I-PEX
5	13	-	-	1	-	-	WNC	95XEAJ15.G69	Patch	I-PEX
		-	-	2	-	-	WNC	95XEAJ15.G69	Patch	I-PEX
6	14	-	-	-	-	-	WNC	95XEAJ15.G72	Patch	I-PEX
	15	-	-	-	-	-	WNC	95XEAJ15.G72	Patch	I-PEX
	16	-	-	-	-	-	WNC	95XEAJ15.G73	Patch	I-PEX
	17	-	-	-	-	-	WNC	95XEAJ15.G73	Patch	I-PEX
7	18	-	-	-	-	-	WNC	95XEAJ15.G61	Patch	I-PEX
		-	-	-	-	-	WNC	95XEAJ15.G61	Patch	I-PEX
	19	-	-	-	-	-	WNC	95XEAJ15.G66	Patch	I-PEX
		-	-	-	-	-	WNC	95XEAJ15.G66	Patch	I-PEX
8	20	-	-	-	-	-	WNC	95XEAJ15.GA8	Patch	I-PEX
		-	-	-	-	-	WNC	95XEAJ15.GA8	Patch	I-PEX
9	21	-	-	-	1	-	WNC	95XEAJ15.G74	PCB	I-PEX
10	22	-	-	-	-	1	WNC	95XEAJ15.G75	PCB	I-PEX

Note 1



Note 1:

Set	Ant.	Port	Antenna Gain (dBi)						Cable loss (dB)			Net Gain (dBi)		
			WLAN 2.4GHz (Radio 1)			WLAN 2.4GHz (Scanning Radio 1)			WLAN 2.4GHz (Radio 1) (Scanning Radio 1)			WLAN 2.4GHz (Radio 1) (Scanning Radio 1)		
			2412MHz	2442MHz	2472MHz	2412MHz	2442MHz	2472MHz	2412MHz	2442MHz	2472MHz	2412MHz	2442MHz	2472MHz
1	1	1	8.8	8.8	8.8	-	-	-	2.6	2.6	2.6	6.2	6.2	6.2
	2	2	8.8	8.8	8.8	-	-	-	3.0	3.0	3.0	5.8	5.8	5.8
	3	3	8.8	8.8	8.8	-	-	-	3.1	3.2	3.2	5.7	5.7	5.7
	4	4	8.8	8.8	8.8	-	-	-	4.3	4.3	4.4	4.5	4.5	4.4
2	5	1	6.2	6.2	6.2	6.2	6.2	6.2	2.6	2.6	2.6	3.6	3.6	3.6
		2	6.2	6.2	6.2	6.2	6.2	6.2	3.0	3.0	3.0	3.2	3.2	3.2
	6	3	6.2	6.2	6.2	6.2	6.2	6.2	4.0	4.0	4.0	2.2	2.2	2.2
		4	6.2	6.2	6.2	6.2	6.2	6.2	4.3	4.3	4.4	1.9	1.9	1.8

Set	Ant.	Port	Antenna Gain (dBi)								Cable loss (dB)								Net Gain (dBi)							
			WLAN 5GHz (Radio 2)				WLAN 5GHz (Scanning Radio 1)				WLAN 5GHz (Radio 2)				WLAN 5GHz (Scanning Radio 1)				WLAN 5GHz (Radio 2)				WLAN 5GHz (Scanning Radio 1)			
			UNII 1	UNII 2A	UNII 2C	UNII 3	UNII 1	UNII 2A	UNII 2C	UNII 3	UNII 1	UNII 2A	UNII 2C	UNII 3	UNII 1	UNII 2A	UNII 2C	UNII 3	UNII 1	UNII 2A	UNII 2C	UNII 3	UNII 1	UNII 2A	UNII 2C	UNII 3
3	7	1	7.5	8.0	8.1	8.0	-	-	-	-	4.7	4.7	5.1	5.7	-	-	-	-	2.8	3.3	3.0	2.3	-	-	-	-
	8	2	7.5	8.0	8.1	8.0	-	-	-	-	4.3	4.3	5.2	4.7	-	-	-	-	3.2	3.7	2.9	3.3	-	-	-	-
	9	3	7.5	8.0	8.1	8.0	-	-	-	-	4.7	4.7	5.0	4.9	-	-	-	-	2.8	3.3	3.1	3.1	-	-	-	-
	10	4	7.5	8.0	8.1	8.0	-	-	-	-	4.7	4.7	5.6	5.4	-	-	-	-	2.8	3.3	2.5	2.6	-	-	-	-
4	11	1	5.8	6.2	6.3	6.7	-	-	-	-	4.6	4.6	5.6	6.2	-	-	-	-	1.2	1.6	0.7	0.5	-	-	-	-
		2	5.8	6.2	6.3	6.7	-	-	-	-	5.8	5.8	6.2	6.4	-	-	-	-	0	0.4	0.1	0.3	-	-	-	-
	12	3	5.8	6.2	6.3	6.7	-	-	-	-	4.8	4.8	4.9	5.0	-	-	-	-	1.0	1.4	1.4	1.7	-	-	-	-
		4	5.8	6.2	6.3	6.7	-	-	-	-	4.7	4.7	5.5	5.4	-	-	-	-	1.1	1.5	0.8	1.3	-	-	-	-
5	13	1	-	-	-	-	5.8	6.2	6.3	6.7	-	-	-	-	3.9	3.9	3.7	3.5	-	-	-	-	1.9	2.3	2.6	3.2
		2	-	-	-	-	5.8	6.2	6.3	6.7	-	-	-	-	5.0	5.0	3.9	3.9	-	-	-	-	0.8	1.2	2.4	2.8

Set	Ant.	Antenna Gain (dBi)											
		BT / IEEE802.15.4 (Radio 3)						GPS (Radio 4)					
9	21	2.7						-					
10	22	-						3					

Note 2: The EUT has ten sets of antennas.

Note 3:

The antenna set 1, set 3, set 6 are used for 3dB Beam width (azimuth/elevation)-Narrow Beam: 30/70 degree.

The antenna set 2, set 4, set 7 are used for 3dB Beam width (azimuth/elevation)-Wide Beam: 70/70 degree.

Note 4: The EUT doesn't enable the DFS and 6GHz band.

Note 5: The antenna set 6~8 is 6GHz's antenna. Thus, the set 6~8 function doesn't enable it at this time.

Note 6: Directional_gain information.

Type	Maximum Output Power	Power Spectral Density
Non-BF	Directional gain = Max.gain + array gain. For power measurements on IEEE 802.11 devices Array Gain = 0 dB (i.e., no array gain) for N ANT ≤ 4	$Directional\ Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{ANT}} \left(\sum_{k=1}^{N_{ANT}} P_{j,k} \right)^2}{N_{ANT}} \right]$
BF	$Directional\ Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{ANT}} \left(\sum_{k=1}^{N_{ANT}} P_{j,k} \right)^2}{N_{ANT}} \right]$	$Directional\ Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{ANT}} \left(\sum_{k=1}^{N_{ANT}} P_{j,k} \right)^2}{N_{ANT}} \right]$

Ex.

Directional Gain (NSS1) formula :

$$Directional\ Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{ANT}} \left(\sum_{k=1}^{N_{ANT}} P_{j,k} \right)^2}{N_{ANT}} \right]$$

$$NSS1(g1,1) = 10^{G1/20} ; NSS1(g1,2) = 10^{G2/20} ; NSS1(g1,3) = 10^{G3/20} ; NSS1(g1,4) = 10^{G4/20}$$

$$g_{j,k} = (NSS1(g1,1) + NSS1(g1,2) + NSS1(g1,3) + NSS1(g1,4))^2$$

$$DG = 10 \log[(NSS1(g1,1) + NSS1(g1,2) + NSS1(g1,3) + NSS1(g1,4))^2 / N_{ANT}] \Rightarrow 10$$

$$\log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / N_{ANT}]$$

Where ;

$$G1 = 10 ; G2 = 10 ; G3 = 10 ; G4 = 10 ;$$

Set 1 and Set 3 antenna narrow band 30 degree

$$2.4G\ G1 = 6.2\ dBi ; G2 = 5.8\ dBi ; G3 = 5.7\ dBi ; G4 = 4.5\ dBi$$

$$2.4G\ 2T1S\ DG = 9.01\ dBi ; 2T2S\ DG = 6\ dBi ; 4T1S\ DG = 11.55\ dBi ; 4T4S\ DG = 5.55\ dBi ;$$

$$5G\ Band1\ G1 = 2.8\ dBi ; G2 = 3.2\ dBi ; G3 = 2.8\ dBi ; G4 = 2.8\ dBi$$

$$5G\ Band1\ 2T1S\ DG = 6.01\ dBi ; 2T2S\ DG = 3\ dBi ; 4T1S\ DG = 8.92\ dBi ; 4T4S\ DG = 2.90\ dBi ;$$

$$5G\ Band2\ G1 = 3.3\ dBi ; G2 = 3.7\ dBi ; G3 = 3.3\ dBi ; G4 = 3.3$$

$$5G\ Band2\ 2T1S\ DG = 6.46\ dBi ; 2T2S\ DG = 3.46\ dBi ; 4T1S\ DG = 9.30\ dBi ; 4T4S\ DG = 3.28\ dBi ;$$

$$5G\ Band3\ G1 = 3\ dBi ; G2 = 2.9\ dBi ; G3 = 3.1\ dBi ; G4 = 2.5$$

$$5G\ Band3\ 2T1S\ DG = 6.06\ dBi ; 2T2S\ DG = 3.06\ dBi ; 4T1S\ DG = 9.10\ dBi ; 4T4S\ DG = 3.08\ dBi ;$$

$$5G\ Band4\ G1 = 2.3\ dBi ; G2 = 3.3\ dBi ; G3 = 3.1\ dBi ; G4 = 2.6$$

$$5G\ Band4\ 2T1S\ DG = 5.82\ dBi ; 2T2S\ DG = 2.83\ dBi ; 4T1S\ DG = 8.85\ dBi ; 4T4S\ DG = 2.84\ dBi ;$$

**Set 2 and Set 4 antenna wide band 70 degree**

2.4G G1 = 3.6 dBi; G2 = 3.2 dBi; G3 = 2.2 dBi; G4 = 1.9 dBi

2.4G 2T1S DG= 9.01 dBi; 2T2S DG= 6 dBi; 4T1S DG= 11.55 dBi; 4T4S DG= 5.55 dBi;

5G Band1 G1 = 1.2 dBi; G2 = 0 dBi; G3 = 1 dBi; G4 = 1.1 dBi

5G Band1 2T1S DG= 3.63 dBi; 2T2S DG= 0.64 dBi; 4T1S DG= 6.86 dBi; 4T4S DG= 0.85 dBi;

5G Band2 G1 = 1.6 dBi; G2 = 0.4 dBi; G3 = 1.4 dBi; G4 = 1.5 dBi

5G Band2 2T1S DG= 4.03 dBi; 2T2S DG= 1.04 dBi; 4T1S DG= 7.26 dBi; 4T4S DG= 1.25 dBi;

5G Band3 G1 = 0.7 dBi; G2 = 0.1 dBi; G3 = 1.4 dBi; G4 = 0.8 dBi

5G Band3 2T1S DG= 3.42 dBi; 2T2S DG= 0.41 dBi; 4T1S DG= 6.78 dBi; 4T4S DG= 0.77 dBi;

5G Band4 G1 = 0.5 dBi; G2 = 0.3 dBi; G3 = 1.7 dBi; G4 = 1.3 dBi

5G Band4 2T1S DG= 3.41 dBi; 2T2S DG= 0.40 dBi; 4T1S DG= 6.99 dBi; 4T4S DG= 0.99 dBi;

Set 5 antenna scanning radio

5G Band1 G1 = 1.9 dBi; G2 = 0.8 dBi

5G Band1 2T1S DG= 4.38 dBi; 2T2S DG= 1.38 dBi

5G Band2 G1 = 2.3 dBi; G2 = 1.2 dBi

5G Band2 2T1S DG= 4.78 dBi; 2T2S DG= 1.78 dBi

5G Band3 G1 = 2.6 dBi; G2 = 2.4 dBi

5G Band3 2T1S DG= 5.51 dBi; 2T2S DG= 2.50 dBi

5G Band4 G1 = 3.2 dBi; G2 = 2.8 dBi

5G Band4 2T1S DG= 6.01 dBi; 2T2S DG= 3.00 dBi

**For Radio 1****For 2.4GHz:****For IEEE 802.11b/g/n/VHT/ax mode (1TX, 2TX, 4TX/4RX):****1TX**

Only Port 1 can be use as transmitting antenna.

2TX

Port 1, Port 2 can be use as transmitting antenna.

Port 1, Port 2 could transmitting simultaneously.

4TX

Port 1, Port 2, Port 3 and Port 4 can be used as transmitting antenna.

Port 1, Port 2, Port 3 and Port 4 could transmit simultaneously.

4RX

Port 1, Port 2, Port 3, Port 4 can be used as receiving antennas.

Port 1, Port 2, Port 3, Port 4 could receive simultaneously.

For Scanning Radio 1**For 2.4GHz:****For IEEE 802.11b/g/n/VHT/ax mode (4TX/4RX):**

Port 1, Port 2, Port 3 and Port 4 can be used as transmitting/receiving antenna.

Port 1, Port 2, Port 3 and Port 4 could transmit/receive simultaneously.

For 5GHz UNII 1, 3:**For IEEE 802.11a/n/ac/ax mode (2TX/2RX):**

Port 1, Port 2 can be used as transmitting/receiving antenna.

Port 1, Port 2 could transmit/receive simultaneously.

For Radio 2**For 5GHz UNII 1, 3:****For IEEE 802.11a/n/ac/ax mode (1TX, 2TX, 4TX/4RX):****1TX**

Only Port 1 can be use as transmitting antenna.

2TX

Port 1, Port 2 can be use as transmitting antenna.

Port 1, Port 2 could transmitting simultaneously.

4TX

Port 1, Port 2, Port 3 and Port 4 can be used as transmitting antenna.

Port 1, Port 2, Port 3 and Port 4 could transmit simultaneously.

4RX

Port 1, Port 2, Port 3, Port 4 can be used as receiving antennas.

Port 1, Port 2, Port 3, Port 4 could receive simultaneously.

For Radio 3**Bluetooth / IEEE802.15.4 (1TX):**

Only Port 1 can be used as transmitting antenna.

For Radio 4**GPS (1RX):**

Only Port 1 can be used as receiving antenna.

**1.1.3 Mode Test Duty Cycle**

For indoor and UNII 3 indoor/outdoor use

For Radio 2

For Set 3 antenna with narrow beam 30 degree

1T1S

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
802.11a	0.954	0.2	2.068m	1k
802.11ax HEW20	0.983	0.07	n/a (DC $\geq$ 0.98)	n/a (DC $\geq$ 0.98)
802.11ax HEW40	0.968	0.14	782.5u	3k
802.11ax HEW80	0.942	0.26	415u	3k

2T1S

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
802.11a	0.954	0.2	2.068m	1k

2T2S

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
802.11ax HEW20	0.969	0.14	782.5u	3k
802.11ax HEW40	0.943	0.25	430u	3k
802.11ax HEW80	0.904	0.44	247.5u	10k

4T1S

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
802.11a	0.95	0.22	2.068m	1k
802.11ax HEW20	0.983	0.07	n/a (DC $\geq$ 0.98)	n/a (DC $\geq$ 0.98)
802.11ax HEW40	0.968	0.14	782.5u	3k
802.11ax HEW80	0.94	0.27	415u	3k

4T4S

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
802.11ax HEW20	0.944	0.25	437.5u	3k
802.11ax HEW40	0.906	0.43	261.25u	10k
802.11ax HEW80	0.864	0.63	170u	10k

For Set 4 antenna with wide beam 70 degree

1T1S

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
802.11a	0.948	0.23	2.066m	1k
802.11ax HEW20	0.981	0.08	n/a (DC $\geq$ 0.98)	n/a (DC $\geq$ 0.98)
802.11ax HEW40	0.967	0.15	781.25u	3k
802.11ax HEW80	0.937	0.28	413.75u	3k

2T1S

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
802.11a	0.954	0.2	2.068m	1k

**2T2S**

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
802.11ax HEW20	0.969	0.14	782.5u	3k
802.11ax HEW40	0.943	0.25	430u	3k
802.11ax HEW80	0.904	0.44	247.5u	10k

4T1S

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
802.11a	0.958	0.19	2.066m	1k
802.11ax HEW20	0.984	0.07	n/a (DC $\geq$ 0.98)	n/a (DC $\geq$ 0.98)
802.11ax HEW40	0.968	0.14	781.25u	3k
802.11ax HEW80	0.938	0.28	415u	3k

4T4S

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
802.11ax HEW20	0.944	0.25	437.5u	3k
802.11ax HEW40	0.906	0.43	261.25u	10k
802.11ax HEW80	0.862	0.64	170u	10k

For Scanning radio 1**For Set 5 antenna with wide beam 70 degree****2T1S**

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
802.11a	0.948	0.23	2.066m	1k

2T2S

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
802.11ax HEW20	0.968	0.14	781.25u	3k
802.11ax HEW40	0.941	0.26	427.5u	3k
802.11ax HEW80	0.901	0.45	245u	10k

**For outdoor use****For Radio 2****For Set 3 antenna with narrow beam 30 degree****1T1S**

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
802.11a	0.954	0.2	2.068m	1k
802.11ax HEW20	0.983	0.07	n/a (DC $\geq$ 0.98)	n/a (DC $\geq$ 0.98)
802.11ax HEW40	0.968	0.14	782.5u	3k
802.11ax HEW80	0.942	0.26	415u	3k

2T1S

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
802.11a	0.954	0.2	2.068m	1k

2T2S

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
802.11ax HEW20	0.969	0.14	782.5u	3k
802.11ax HEW40	0.943	0.25	430u	3k
802.11ax HEW80	0.904	0.44	247.5u	10k

4T1S

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
802.11a	0.95	0.22	2.068m	1k
802.11ax HEW20	0.983	0.07	n/a (DC $\geq$ 0.98)	n/a (DC $\geq$ 0.98)
802.11ax HEW40	0.968	0.14	782.5u	3k
802.11ax HEW80	0.94	0.27	415u	3k

4T4S

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
802.11ax HEW20	0.944	0.25	437.5u	3k
802.11ax HEW40	0.906	0.43	261.25u	10k
802.11ax HEW80	0.864	0.63	170u	10k

For Set 4 antenna with wide beam 70 degree**1T1S**

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
802.11a	0.948	0.23	2.066m	1k
802.11ax HEW20	0.981	0.08	n/a (DC $\geq$ 0.98)	n/a (DC $\geq$ 0.98)
802.11ax HEW40	0.967	0.15	781.25u	3k
802.11ax HEW80	0.937	0.28	413.75u	3k

2T1S

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
802.11a	0.954	0.2	2.068m	1k

**2T2S**

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
802.11ax HEW20	0.969	0.14	782.5u	3k
802.11ax HEW40	0.943	0.25	430u	3k
802.11ax HEW80	0.904	0.44	247.5u	10k

4T1S

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
802.11a	0.958	0.19	2.066m	1k
802.11ax HEW20	0.984	0.07	n/a (DC $\geq$ 0.98)	n/a (DC $\geq$ 0.98)
802.11ax HEW40	0.968	0.14	781.25u	3k
802.11ax HEW80	0.938	0.28	415u	3k

4T4S

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
802.11ax HEW20	0.944	0.25	437.5u	3k
802.11ax HEW40	0.906	0.43	261.25u	10k
802.11ax HEW80	0.862	0.64	170u	10k

For Scanning radio 1**For Set 5 antenna with wide beam 70 degree****2T1S**

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
802.11a	0.948	0.23	2.066m	1k

2T2S

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
802.11ax HEW20	0.968	0.14	781.25u	3k
802.11ax HEW40	0.941	0.26	427.5u	3k
802.11ax HEW80	0.901	0.45	245u	10k

Note:

- ♦ DC is Duty Cycle.
- ♦ DCF is Duty Cycle Factor.

**1.1.4 EUT Operational Condition**

EUT Power Type	From PoE			
Beamforming Function	☒	With beamforming	☐	Without beamforming
	The product has beamforming function for 11n/VHT/11ax in radio 1 2.4GHz, 11n/11ac/11ax in radio 2 5GHz.			
Function	☒	Outdoor P2M	☒	Indoor P2M
	☐	Fixed P2P	☐	Client
	☒	Point-to-multipoint	☐	Point-to-point
Channel Puncturing Function	☐	Supported	☒	Unsupported
Test Software Version	Mtool (v3.2.1.5)			

Note: The above information was declared by manufacturer.

1.1.5 Table for EUT support function

Function
AP
Bridge
Mesh

Note1: For above table list, only AP mode was tested and recorded in this test.

Note2: The above information was declared by manufacturer.

1.1.6 Table for Radio function

Radio (R)	WLAN 2.4GHz	5GHz	Scanning radio (WLAN 2.4GHz 4TX / 5GHz 2TX)	Bluetooth / IEEE802.15.4	GPS
R1	V (AP, Bridge, Mesh)	-	V (AP, Bridge, Mesh for 2.4GHz, AP for 5GHz UNII 1, 3)	-	-
R2	-	V (AP for UNII 1, 3 / Bridge, Mesh for UNII 1, 3)	-	-	-
R3	-	-	-	V	-
R4	-	-	-	-	V

Note: The above information was declared by manufacturer.



1.2 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ 47 CFR FCC Part 15
- ♦ ANSI C63.10-2013
- ♦ FCC KDB 789033 D02 v02r01

The following reference test guidance is not within the scope of accreditation of TAF.

- ♦ FCC KDB 662911 D01 v02r01
- ♦ FCC KDB 412172 D01 v01r01
- ♦ FCC KDB 414788 D01 v01r01

1.3 Testing Location Information

Testing Location Information	
Test Lab. : Sporton International Inc. Hsinchu Laboratory	
Hsinchu (TAF: 3787)	ADD: No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County 302010, Taiwan (R.O.C.) TEL: 886-3-656-9065 FAX: 886-3-656-9085 Test site Designation No. TW3787 with FCC. Conformity Assessment Body Identifier (CABID) TW3787 with ISED.

Test Condition	Test Site No.	Test Engineer	Test Environment (°C / %)	Test Date
RF Conducted	TH03-CB	Caster Chang	25.6~26.1 / 65~69	Jun. 06, 2022~Aug. 15, 2022
Radiated below 1GHz	10CH01-CB	Joe Chu	22~23 / 57~58	May 30, 2022~Sep. 12, 2022
Radiated above 1GHz	03CH01-CB	RJ Huang	24.1~26.1 / 60~65	May 31, 2022~Jul. 01, 2022
	03CH03-CB		23.7~25.1 / 66~68	
AC Conduction	CO01-CB	Allen Chung	23~24 / 56~57	May 30, 2022

1.4 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))

Test Date : After Mar. 10, 2022

Test Items	Uncertainty	Remark
Radiated Emission (9kHz ~ 30MHz)	5.0 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	4.9 dB	Confidence levels of 95%

Test Date : Before Nov. 04, 2022

Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	3.4 dB	Confidence levels of 95%

Test Date : Before Jun. 01, 2022

Test Items	Uncertainty	Remark
Radiated Emission (1GHz ~ 18GHz)	4.7 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	4.2 dB	Confidence levels of 95%

Test Date : After May 31, 2022

Test Items	Uncertainty	Remark
Radiated Emission (1GHz ~ 18GHz)	5.2 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	4.7 dB	Confidence levels of 95%
Conducted Emission	3.2 dB	Confidence levels of 95%
Output Power Measurement	0.8 dB	Confidence levels of 95%
Power Density Measurement	3.2 dB	Confidence levels of 95%
Bandwidth Measurement	2.0 %	Confidence levels of 95%



2 Test Configuration of EUT

2.1 Test Channel Mode

For indoor and UNII 3 indoor/outdoor use

For Radio 2

For Set 3 antenna with narrow beam 30 degree

1T1S

Mode	Power Setting
802.11a_Nss1,(6Mbps)_1TX	-
5180MHz	91
5200MHz	97
5240MHz	87
5745MHz	103
5785MHz	108
5825MHz	108
802.11ax HEW20_Nss1,(MCS0)_1TX	-
5180MHz	91
5200MHz	97
5240MHz	85
5745MHz	102
5785MHz	108
5825MHz	108
802.11ax HEW40_Nss1,(MCS0)_1TX	-
5190MHz	82
5230MHz	85
5755MHz	99
5795MHz	108
802.11ax HEW80_Nss1,(MCS0)_1TX	-
5210MHz	80
5775MHz	97

2T1S

Mode	Power Setting
802.11a_Nss1,(6Mbps)_2TX	-
5180MHz	83
5200MHz	86
5240MHz	85
5745MHz	75
5785MHz	99
5825MHz	108

**2T2S**

Mode	Power Setting
802.11ax HEW20_Nss2,(MCS0)_2TX	-
5180MHz	82
5200MHz	87
5240MHz	84
5745MHz	89
5785MHz	99
5825MHz	108
802.11ax HEW40_Nss2,(MCS0)_2TX	-
5190MHz	73
5230MHz	85
5755MHz	86
5795MHz	100
802.11ax HEW80_Nss2,(MCS0)_2TX	-
5210MHz	73
5775MHz	82

4T1S for non beamforming and beamforming mode

Mode	Power Setting
802.11a_Nss1,(6Mbps)_4TX	-
5180MHz	81
5200MHz	79
5240MHz	77
5745MHz	94
5785MHz	94
5825MHz	97
802.11ax HEW20_Nss1,(MCS0)_4TX	-
5180MHz	81
5200MHz	79
5240MHz	78
5745MHz	92
5785MHz	94
5825MHz	97
802.11ax HEW40_Nss1,(MCS0)_4TX	-
5190MHz	67
5230MHz	82
5755MHz	93
5795MHz	93
802.11ax HEW80_Nss1,(MCS0)_4TX	-
5210MHz	69
5775MHz	80



Mode	Power Setting
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	-
5180MHz	81
5200MHz	77
5240MHz	75
5745MHz	83
5785MHz	83
5825MHz	83
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	-
5190MHz	67
5230MHz	76
5755MHz	81
5795MHz	81
802.11ax HEW80-BF_Nss1,(MCS0)_4TX	-
5210MHz	69
5775MHz	80

4T4S

Mode	Power Setting
802.11ax HEW20_Nss4,(MCS0)_4TX	-
5180MHz	83
5200MHz	88
5240MHz	83
5745MHz	93
5785MHz	87
5825MHz	97
802.11ax HEW40_Nss4,(MCS0)_4TX	-
5190MHz	64
5230MHz	80
5755MHz	92
5795MHz	94
802.11ax HEW80_Nss4,(MCS0)_4TX	-
5210MHz	70
5775MHz	91

**For Set 4 antenna with wide beam 70 degree
1T1S**

Mode	Power Setting
802.11a_Nss1,(6Mbps)_1TX	-
5180MHz	88
5200MHz	89
5240MHz	87
5745MHz	102
5785MHz	104
5825MHz	108
802.11ax HEW20_Nss1,(MCS0)_1TX	-
5180MHz	87
5200MHz	90
5240MHz	86
5745MHz	102
5785MHz	102
5825MHz	108
802.11ax HEW40_Nss1,(MCS0)_1TX	-
5190MHz	77
5230MHz	85
5755MHz	99
5795MHz	108
802.11ax HEW80_Nss1,(MCS0)_1TX	-
5210MHz	79
5775MHz	95

2T1S

Mode	Power Setting
802.11a_Nss1,(6Mbps)_2TX	-
5180MHz	85
5200MHz	85
5240MHz	86
5745MHz	80
5785MHz	91
5825MHz	91

**2T2S**

Mode	Power Setting
802.11ax HEW20_Nss2,(MCS0)_2TX	-
5180MHz	84
5200MHz	87
5240MHz	85
5745MHz	85
5785MHz	96
5825MHz	108
802.11ax HEW40_Nss2,(MCS0)_2TX	-
5190MHz	76
5230MHz	84
5755MHz	99
5795MHz	107
802.11ax HEW80_Nss2,(MCS0)_2TX	-
5210MHz	76
5775MHz	91

4T1S for non beamforming and beamforming mode

Mode	Power Setting
802.11a_Nss1,(6Mbps)_4TX	-
5180MHz	81
5200MHz	78
5240MHz	84
5745MHz	80
5785MHz	90
5825MHz	97
802.11ax HEW20_Nss1,(MCS0)_4TX	-
5180MHz	82
5200MHz	79
5240MHz	83
5745MHz	86
5785MHz	95
5825MHz	95
802.11ax HEW40_Nss1,(MCS0)_4TX	-
5190MHz	73
5230MHz	83
5755MHz	93
5795MHz	92
802.11ax HEW80_Nss1,(MCS0)_4TX	-
5210MHz	73
5775MHz	82



Mode	Power Setting
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	-
5180MHz	82
5200MHz	79
5240MHz	83
5745MHz	86
5785MHz	90
5825MHz	91
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	-
5190MHz	73
5230MHz	83
5755MHz	88
5795MHz	88
802.11ax HEW80-BF_Nss1,(MCS0)_4TX	-
5210MHz	73
5775MHz	82

4T4S

Mode	Power Setting
802.11ax HEW20_Nss4,(MCS0)_4TX	-
5180MHz	83
5200MHz	82
5240MHz	84
5745MHz	86
5785MHz	93
5825MHz	95
802.11ax HEW40_Nss4,(MCS0)_4TX	-
5190MHz	72
5230MHz	83
5755MHz	76
5795MHz	92
802.11ax HEW80_Nss4,(MCS0)_4TX	-
5210MHz	75
5775MHz	88



For Scanning radio 1
For Set 5 antenna with wide beam 70 degree
2T1S

Mode	Power Setting
802.11a_Nss1,(6Mbps)_2TX	-
5180MHz	83
5200MHz	89
5240MHz	80
5745MHz	83
5785MHz	86
5825MHz	90

2T2S

Mode	Power Setting
802.11ax HEW20_Nss2,(MCS0)_2TX	-
5180MHz	82
5200MHz	86
5240MHz	79
5745MHz	84
5785MHz	86
5825MHz	108
802.11ax HEW40_Nss2,(MCS0)_2TX	-
5190MHz	72
5230MHz	78
5755MHz	83
5795MHz	89
802.11ax HEW80_Nss2,(MCS0)_2TX	-
5210MHz	70
5775MHz	84

**For outdoor use****For Radio 2****For Set 3 antenna with narrow beam 30 degree****1T1S**

Mode	Power Setting
802.11a_Nss1,(6Mbps)_1TX	-
5180MHz	88
5200MHz	85
5240MHz	84
802.11ax HEW20_Nss1,(MCS0)_1TX	-
5180MHz	88
5200MHz	85
5240MHz	83
802.11ax HEW40_Nss1,(MCS0)_1TX	-
5190MHz	82
5230MHz	83
802.11ax HEW80_Nss1,(MCS0)_1TX	-
5210MHz	80

2T1S

Mode	Power Setting
802.11a_Nss1,(6Mbps)_2TX	-
5180MHz	77
5200MHz	73
5240MHz	72

2T2S

Mode	Power Setting
802.11ax HEW20_Nss2,(MCS0)_2TX	-
5180MHz	76
5200MHz	72
5240MHz	70
802.11ax HEW40_Nss2,(MCS0)_2TX	-
5190MHz	73
5230MHz	72
802.11ax HEW80_Nss2,(MCS0)_2TX	-
5210MHz	73

**4T1S for non beamforming and beamforming mode**

Mode	Power Setting
802.11a_Nss1,(6Mbps)_4TX	-
5180MHz	65
5200MHz	60
5240MHz	58
802.11ax HEW20_Nss1,(MCS0)_4TX	-
5180MHz	63
5200MHz	58
5240MHz	57
802.11ax HEW40_Nss1,(MCS0)_4TX	-
5190MHz	63
5230MHz	57
802.11ax HEW80_Nss1,(MCS0)_4TX	-
5210MHz	63
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	-
5180MHz	40
5200MHz	35
5240MHz	35
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	-
5190MHz	39
5230MHz	35
802.11ax HEW80-BF_Nss1,(MCS0)_4TX	-
5210MHz	38

4T4S

Mode	Power Setting
802.11ax HEW20_Nss4,(MCS0)_4TX	-
5180MHz	65
5200MHz	59
5240MHz	57
802.11ax HEW40_Nss4,(MCS0)_4TX	-
5190MHz	64
5230MHz	59
802.11ax HEW80_Nss4,(MCS0)_4TX	-
5210MHz	64

**For Set 4 antenna with wide beam 70 degree
1T1S**

Mode	Power Setting
802.11a_Nss1,(6Mbps)_1TX	-
5180MHz	70
5200MHz	65
5240MHz	63
802.11ax HEW20_Nss1,(MCS0)_1TX	-
5180MHz	70
5200MHz	63
5240MHz	61
802.11ax HEW40_Nss1,(MCS0)_1TX	-
5190MHz	67
5230MHz	62
802.11ax HEW80_Nss1,(MCS0)_1TX	-
5210MHz	68

2T1S

Mode	Power Setting
802.11a_Nss1,(6Mbps)_2TX	-
5180MHz	56
5200MHz	52
5240MHz	50

2T2S

Mode	Power Setting
802.11ax HEW20_Nss2,(MCS0)_2TX	-
5180MHz	57
5200MHz	51
5240MHz	49
802.11ax HEW40_Nss2,(MCS0)_2TX	-
5190MHz	55
5230MHz	51
802.11ax HEW80_Nss2,(MCS0)_2TX	-
5210MHz	55

**4T1S for non beamforming and beamforming mode**

Mode	Power Setting
802.11a_Nss1,(6Mbps)_4TX	-
5180MHz	45
5200MHz	40
5240MHz	40
802.11ax HEW20_Nss1,(MCS0)_4TX	-
5180MHz	45
5200MHz	40
5240MHz	38
802.11ax HEW40_Nss1,(MCS0)_4TX	-
5190MHz	42
5230MHz	39
802.11ax HEW80_Nss1,(MCS0)_4TX	-
5210MHz	42
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	-
5180MHz	22
5200MHz	17
5240MHz	15
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	-
5190MHz	20
5230MHz	15
802.11ax HEW80-BF_Nss1,(MCS0)_4TX	-
5210MHz	20

4T4S

Mode	Power Setting
802.11ax HEW20_Nss4,(MCS0)_4TX	-
5180MHz	45
5200MHz	40
5240MHz	38
802.11ax HEW40_Nss4,(MCS0)_4TX	-
5190MHz	43
5230MHz	39
802.11ax HEW80_Nss4,(MCS0)_4TX	-
5210MHz	44



For Scanning radio 1
For Set 5 antenna with wide beam 70 degree
2T1S

Mode	Power Setting
802.11a_Nss1,(6Mbps)_2TX	-
5180MHz	57
5200MHz	54
5240MHz	54

2T2S

Mode	Power Setting
802.11ax HEW20_Nss2,(MCS0)_2TX	-
5180MHz	56
5200MHz	53
5240MHz	53
802.11ax HEW40_Nss2,(MCS0)_2TX	-
5190MHz	54
5230MHz	52
802.11ax HEW80_Nss2,(MCS0)_2TX	-
5210MHz	56

Note:

- ♦ Evaluated HEW20/HEW40/HEW80 mode only due to the similar modulation. The power setting of HT20/HT40/VHT20/VHT40/VHT80 mode are the same or lower than HEW20/HEW40/HEW80.
- ♦ The EUT supports beamforming and CDD modes, and the CDD mode is the worst case. Therefore, all test items are evaluated in the report. The beamforming mode only evaluates the output power.

2.2 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
Tests Item	AC power-line conducted emissions
Condition	AC power-line conducted measurement for line and neutral Test Voltage: 120Vac / 60Hz
Operating Mode	Normal Link(WLAN, GPS), CTX(Bluetooth, IEEE802.15.4)
1	R1 (2.4GHz+Set 1)+R2 (5GHz+Set 3)+R3 (BT)+R4 (GPS)+PoE 1
2	R1 (2.4GHz+Set 1)+R2 (5GHz+Set 3)+R3 (802.15.4)+R4 (GPS)+PoE 1
Mode 1 has been evaluated to be the worst case between Mode 1~2, thus measurement for Mode 3 will follow this same test mode.	
3	Scanning R1 (5GHz + Set 5)+R2 (5GHz+Set 3)+R3 (BT)+R4 (GPS)+PoE 1
4	R1 (2.4GHz+Set 2)+R2 (5GHz+Set 4)+R3 (BT)+R4 (GPS)+PoE 1
5	R1 (2.4GHz+Set 2)+R2 (5GHz+Set 4)+R3 (802.15.1)+R4 (GPS)+PoE 1
Mode 4 has been evaluated to be the worst case between Mode 4~5, thus measurement for Mode 6 will follow this same test mode.	
6	Scanning R1 (5GHz + Set 5)+R2 (5GHz+Set 4)+R3 (BT)+R4 (GPS)+PoE 1
For operating mode 4 is the worst case and it was record in this test report.	

The Worst Case Mode for Following Conformance Tests	
Tests Item	Emission Bandwidth Maximum Output Power Power Spectral Density
Test Condition	Conducted measurement at transmit chains
1	Refer to note 1 for detail operating mode



The Worst Case Mode for Following Conformance Tests	
Tests Item	Unwanted Emissions
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.
Operating Mode < 1GHz	Normal Link(WLAN, GPS), CTX(Bluetooth, IEEE802.15.4)
	The EUT was performed at X axis, Y axis and Z axis position, and the worst case was found at Y axis. So the measurement will follow this same test configuration.
1	EUT in Y axis_R1 (2.4GHz+Set 1)+R2 (5GHz+Set 3)+R3 (BT)+R4 (GPS)+PoE 1
2	EUT in Y axis_R1 (2.4GHz+Set 1)+R2 (5GHz+Set 3)+R3 (802.15.4)+R4 (GPS)+PoE 1
3	EUT in Y axis_Scanning R1 (5GHz + Set 5)+R2 (5GHz+Set 3)+R3 (BT)+R4 (GPS)+PoE 1
4	EUT in Y axis_Scanning R1 (5GHz + Set 5)+R2 (5GHz+Set 3)+R3 (802.15.4)+R4 (GPS)+PoE 1
5	EUT in Y axis_R1 (2.4GHz+Set 2)+R2 (5GHz+Set 4)+R3 (BT)+R4 (GPS)+PoE 1
6	EUT in Y axis_R1 (2.4GHz+Set 2)+R2 (5GHz+Set 4)+R3 (802.15.4)+R4 (GPS)+PoE 1
7	EUT in Y axis_Scanning R1 (5GHz + Set 5)+R2 (5GHz+Set 4)+R3 (BT)+R4 (GPS)+PoE 1
8	EUT in Y axis_Scanning R1 (5GHz + Set 5)+R2 (5GHz+Set 4)+R3 (802.15.4)+R4 (GPS)+PoE 1
For operating mode 1 is the worst case and it was record in this test report.	
Operating Mode > 1GHz	CTX
	1. The EUT was performed at X axis, Y axis and Z axis position, and the worst case was found at Y axis. So the measurement will follow this same test configuration. 2. Refer to note 1 for detail operating mode
1	EUT in Y axis_Set 3 antenna with 30 degree_R2_1T1S
2	EUT in Y axis_Set 3 antenna with 30 degree_R2_2T1S_2T2S
3	EUT in Y axis_Set 3 antenna with 30 degree_R2_4T1S
4	EUT in Y axis_Set 3 antenna with 30 degree_R2_4T4S
5	EUT in Y axis_Set 4 antenna with 70 degree_R2_1T1S
6	EUT in Y axis_Set 4 antenna with 70 degree_R2_2T1S_2T2S
7	EUT in Y axis_Set 4 antenna with 70 degree_R2_4T1S
8	EUT in Y axis_Set 4 antenna with 70 degree_R2_4T4S
9	EUT in Y axis_Set 5 antenna with 70 degree_Scanning R1_2T1S_2T2S



Note 1: Test Mode

Test Item	Test Mode										
	802.11a					802.11ax HEW20/40/80					
	1T1S	2T1S	2T2S	4T1S	4T4S	1T1S	2T1S	2T2S	4T1S	TXBF 4T1S	4T4S
Maximum Conducted Output Power	V	V	-	V	-	V	Note2	V	V	V	V
Emission Bandwidth	V	V	-	V	-	V	Note2	V	V	-	V
Peak Power Spectral Density	V	V	-	V	-	V	Note2	V	V	-	V
Radiated Emission	V	V	-	V	-	V	Note2	V	V	-	V
Band Edge Emission	V	V	-	V	-	V	Note2	V	V	-	V

Note 2: 802.11ax HEW20/40/80 2T1S CDD mode was covered by 802.11ax HEW20/40/80 2T2S, due to
 $2T1S = \min(2T2S, (2T2S - (10 \cdot \log(2/1) - 2T2S) \text{ (worst case of PSD/BE/Harmonic) MARGIN}))$.

Note 3: The PoE and adapter are for measurement only, would not be marketed.

Their information as below:

Power	Brand	Model
PoE 1	Microsemi	PD-9501-10GC/AC
PoE 2	Microsemi	PD-9001GR/AT/AC

2.3 EUT Operation during Test

For CTX Mode:

The EUT was programmed to be in continuously transmitting mode.

For Normal Link Mode:

During the test, the EUT operation to normal function.

2.4 Accessories

Accessories
Bracket*1
Sealing Collar*2



2.5 Support Equipment

For AC Conduction and Radiated (below 1GHz):

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	PoE 1	Microsemi	PD-9501-10GC/AC	N/A
B	PD Load	JUNIPER	RXRB-MIB	N/A
C	5G LAN PC	DELL	T3400	N/A
D	2.5G LAN NB	DELL	E6430	N/A
E	WiFi (R2) 5G NB	DELL	E6430	N/A
F	WiFi (R1) 2.4G / 5G SCAN NB	DELL	E6430	N/A
G	GPS Simulator	WELNAVIGATE	GS-100	N/A

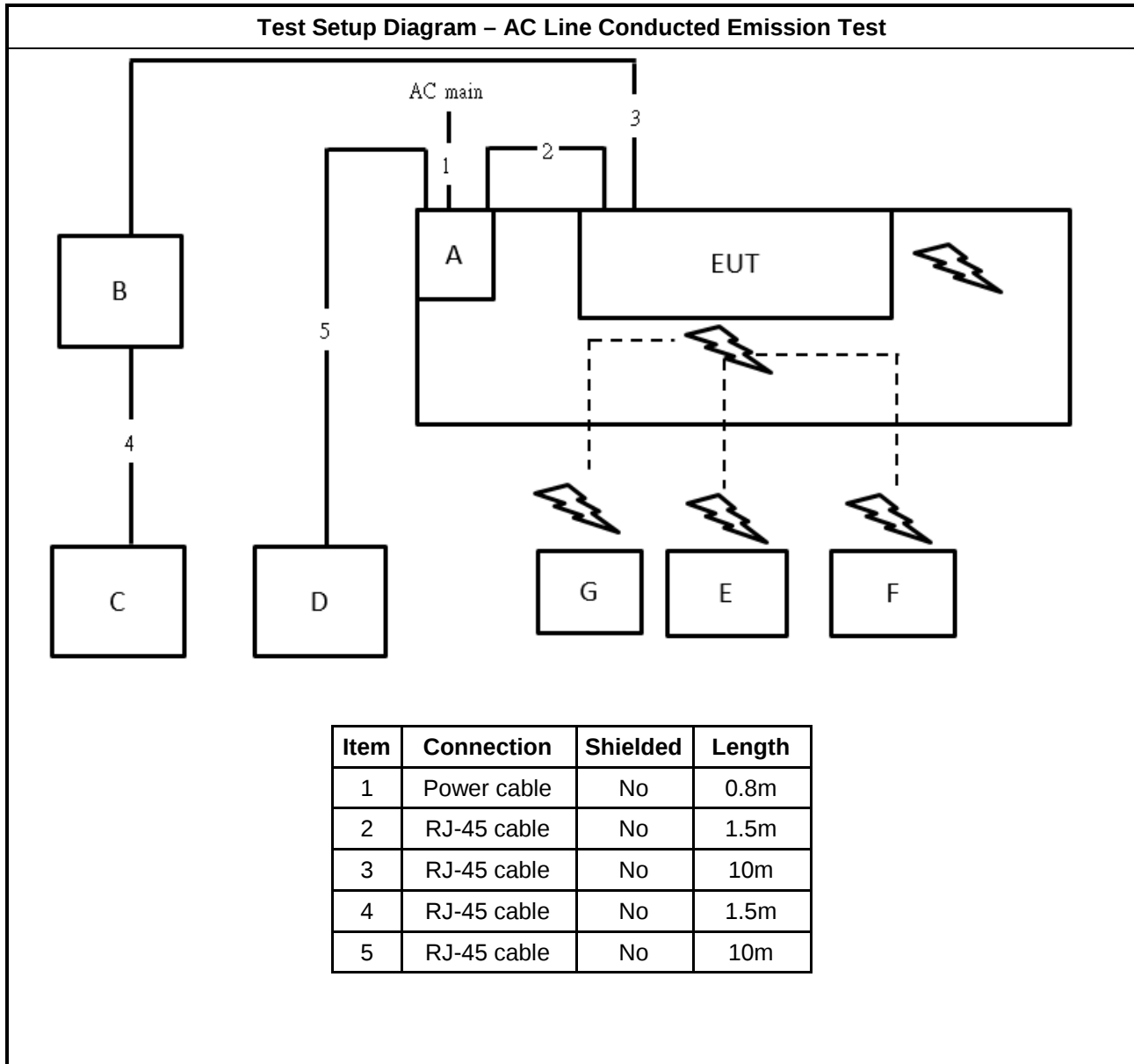
For Radiated (above 1GHz):

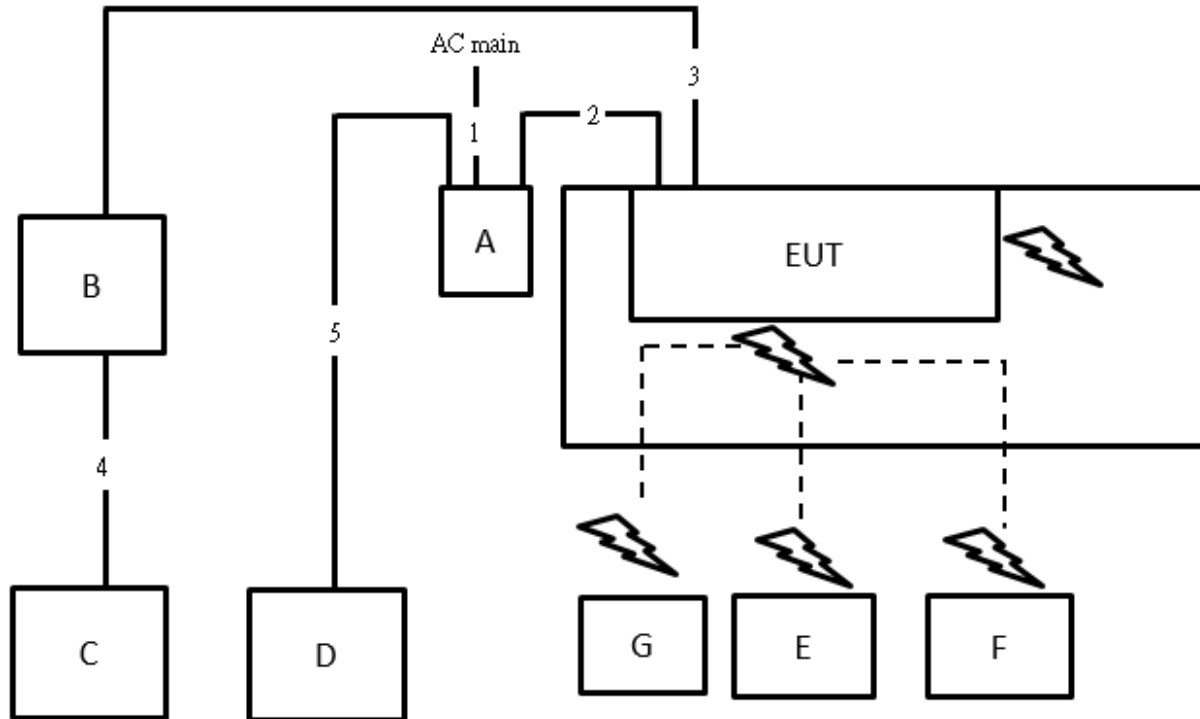
Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	Notebook	DELL	E4300	N/A
B	PoE 1	Microsemi	PD-9501-10GC/AC	N/A

For RF Conducted:

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	Notebook	DELL	E4300	N/A
B	PoE 2	Microsemi	PD-9001GR/AT/AC	N/A

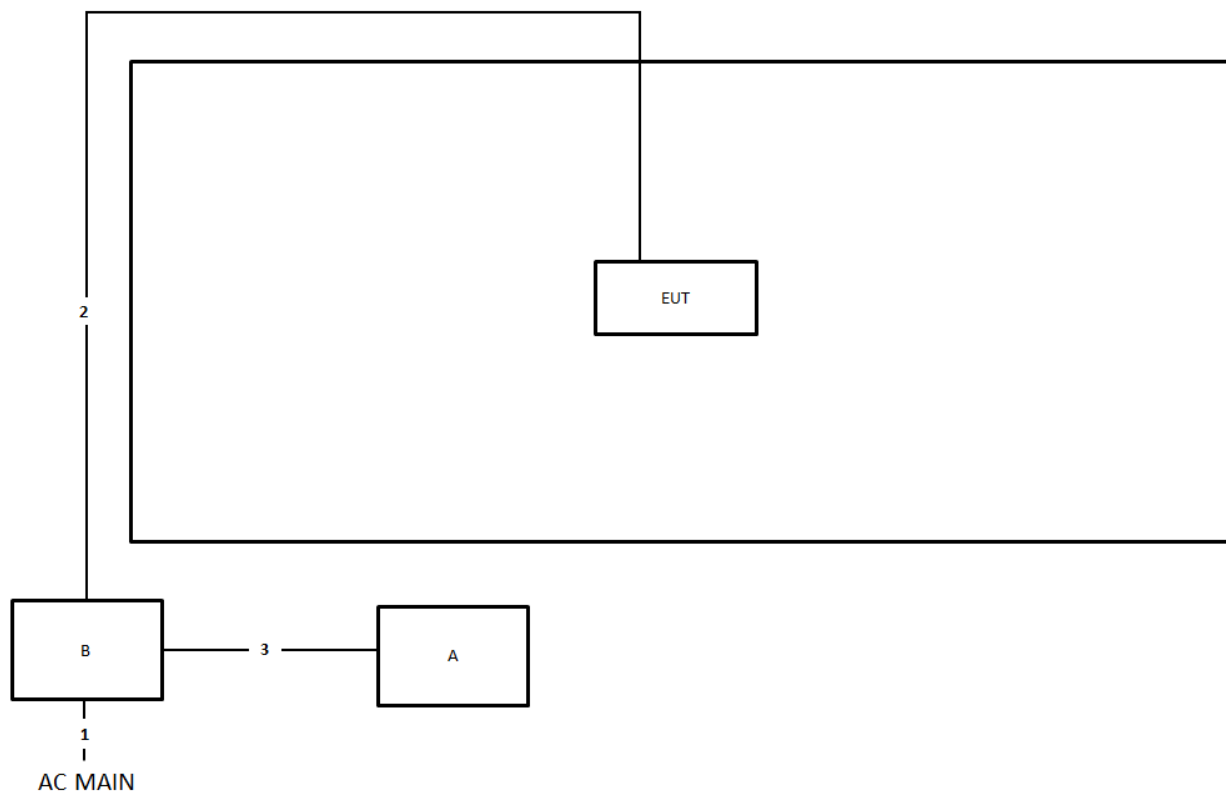
2.6 Test Setup Diagram



Test Setup Diagram - Radiated Test < 1GHz


Item	Connection	Shielded	Length
1	Power cable	No	0.8m
2	RJ-45 cable	No	1.5m
3	RJ-45 cable	No	10m
4	RJ-45 cable	No	1.5m
5	RJ-45 cable	No	10m

Test Setup Diagram - Radiated Test > 1GHz



Item	Connection	Shielded	Length
1	Power cable	No	1.5m
2	RJ-45 cable	No	10m
3	RJ-45 cable	No	1.5m



3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

AC Power-line 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.		

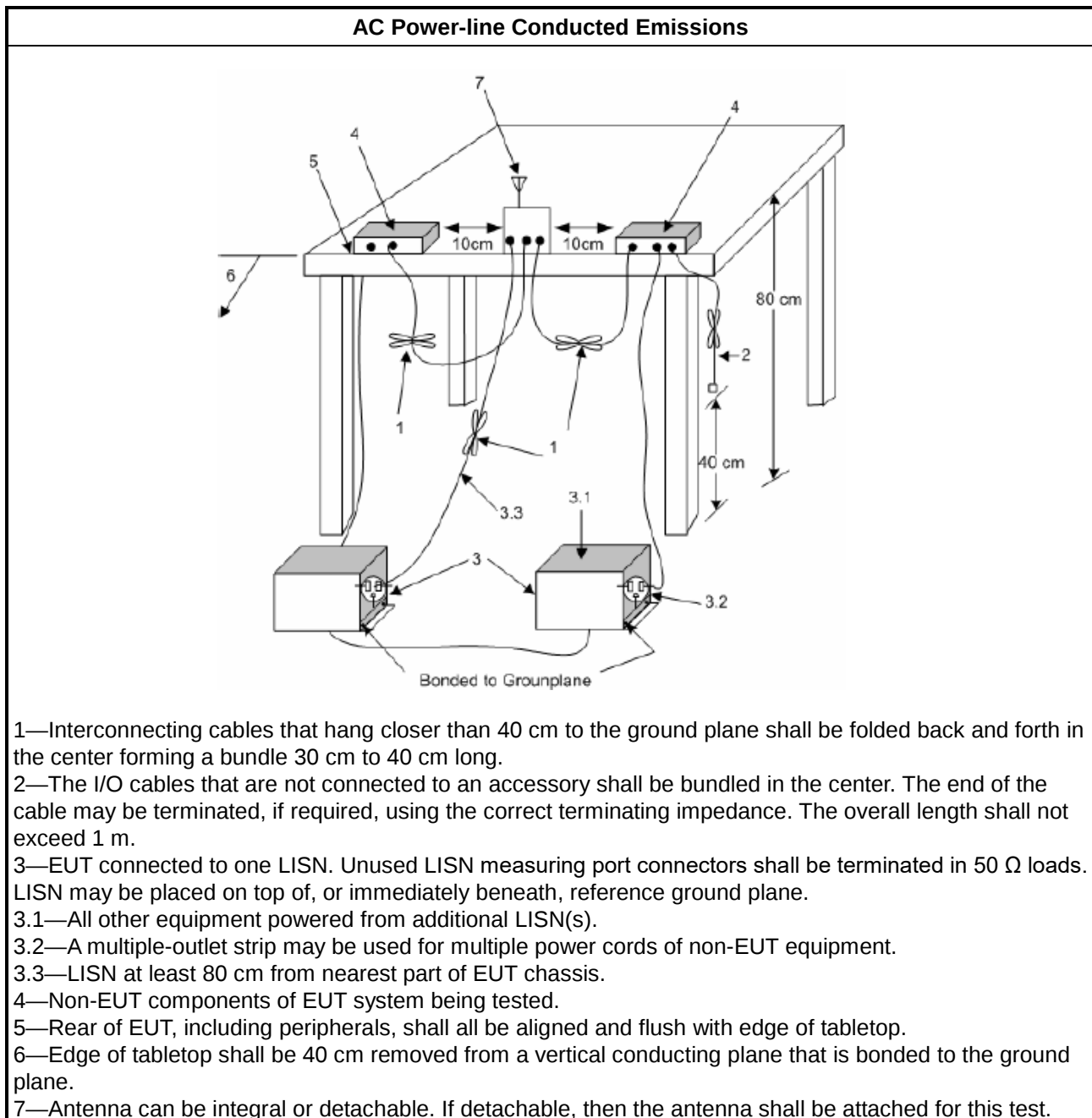
3.1.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.1.3 Test Procedures

Test Method
☒ Refer as ANSI C63.10-2013, clause 6.2 for AC power-line conducted emissions.

3.1.4 Test Setup



3.1.5 Measurement Results Calculation

The measured Level is calculated using:

- Corrected Reading: LISN Factor (LISN) + Attenuator (AT/AUX) + Cable Loss (CL) + Read Level (Raw) = Level
- Margin = -Limit + Level

3.1.6 Test Result of AC Power-line Conducted Emissions

Refer as Appendix A



3.2 Emission Bandwidth

3.2.1 Emission Bandwidth Limit

Emission Bandwidth Limit	
UNII Devices	
☒	For the 5.15-5.25 GHz band, N/A
☐	For the 5.25-5.35 GHz band, the maximum conducted output power shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in MHz.
☐	For the 5.47-5.725 GHz band, the maximum conducted output power shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in MHz.
☒	For the 5.725-5.85 GHz band, 26 dB emission bandwidth ,N/A. 6 dB emission bandwidth $\geq 500\text{kHz}$.
☐	For the 5.85-5.895 GHz band, 26 dB emission bandwidth ,N/A. 6 dB emission bandwidth $\geq 500\text{kHz}$.
LE-LAN Devices	
☐	For the band 5.15-5.25 GHz, the maximum e.i.r.p. shall not exceed 200 mW or $10 + 10 \log B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz.
☐	For the 5.25-5.35 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or $17 + 10 \log B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz
☐	For the 5.47-5.6 GHz band and 5.65-5.725 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or $17 + 10 \log B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz
☐	For the 5.725-5.85 GHz band, 6 dB emission bandwidth $\geq 500\text{kHz}$.

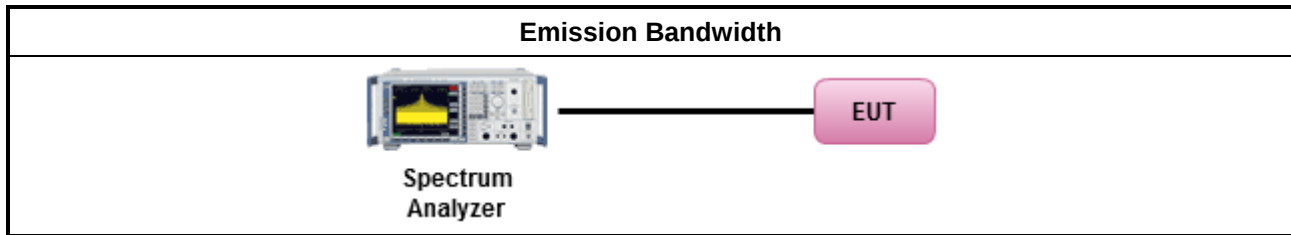
3.2.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.2.3 Test Procedures

Test Method	
▪ For the emission bandwidth shall be measured using one of the options below:	
☒	Refer as FCC KDB 789033 D02, clause C for EBW and clause D for OBW measurement.
☐	Refer as ANSI C63.10, clause 6.9.1 for occupied bandwidth testing.
☐	Refer as IC RSS-Gen, clause 4.6 for bandwidth testing.

3.2.4 Test Setup



3.2.5 Test Result of Emission Bandwidth

Refer as Appendix B



3.3 Maximum Output Power

3.3.1 Limit

Maximum Output Power Limit	
UNII Devices	
☒ For the 5.15-5.25 GHz band:	
☐	- Outdoor AP: the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$. e.i.r.p. at any elevation angle above 30 degrees ≤ 125mW [21dBm] - Indoor AP: the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$ - Point-to-point AP: the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If $G_{TX} > 23$ dBi, then $P_{Out} = 30 - (G_{TX} - 23)$. - Mobile or Portable Client: the maximum conducted output power (P_{Out}) shall not exceed the lesser of 250 mW. If $G_{TX} > 6$ dBi, then $P_{Out} = 24 - (G_{TX} - 6)$.
☐	For the 5.25-5.35 GHz band, the maximum conducted output power (P_{Out}) shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 24 - (G_{TX} - 6)$.
☐	For the 5.47-5.725 GHz band, the maximum conducted output power (P_{Out}) shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 24 - (G_{TX} - 6)$.
☒ For the 5.725-5.85 GHz band:	
☐	- Point-to-multipoint systems (P2M): the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$. - Point-to-point systems (P2P): the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W.
Maximum EIRP Limit	
☐ For the 5.85-5.895 GHz band:	
☐	- Indoor AP & subordinate device < 36 dBm - Client device < 30 dBm
LE-LAN Devices	
☐	For the 5.15-5.25 GHz band, the maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz.
☐	For the 5.25-5.35 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz
☐	For the 5.47-5.6 GHz band and 5.65-5.725 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz
☐ For the 5.725-5.85 GHz band:	
☐	- Point-to-multipoint systems (P2M): the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$. - Point-to-point systems (P2P): the maximum conducted output power (P_{Out}) shall not exceed the

lesser of 1 W.

P_{Out} = maximum conducted output power in dBm,

G_{TX} = the maximum transmitting antenna directional gain in dBi.

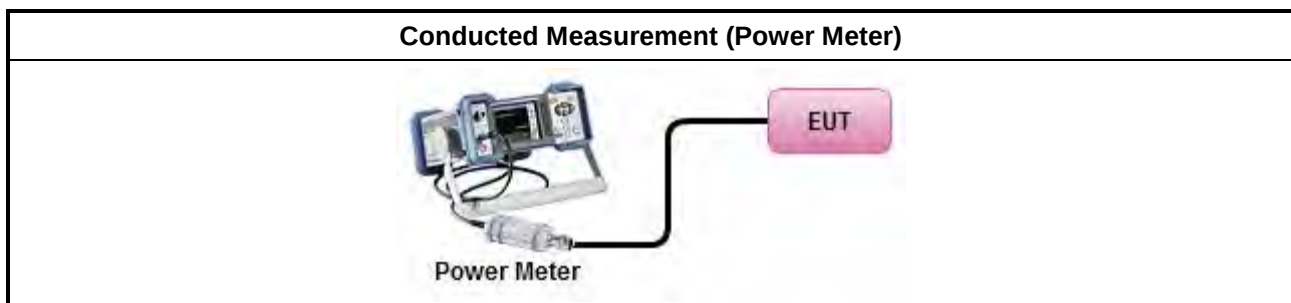
3.3.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.3.3 Test Procedures

Test Method	
	Average over on/off periods with duty factor
☐	Refer as FCC KDB 789033 D02, clause E Method SA-2 (spectral trace averaging).
☐	Refer as FCC KDB 789033 D02, clause E Method SA-2 Alt. (RMS detection with slow sweep speed)
	Wideband RF power meter and average over on/off periods with duty factor
☒	Refer as FCC KDB 789033 D02, clause E Method PM-G (using an RF average power meter).
☒	For conducted measurement.
	If the EUT supports multiple transmit chains using options given below: Refer as FCC KDB 662911, In-band power measurements. Using the measure-and-sum approach, measured all transmit ports individually. Sum the power (in linear power units e.g., mW) of all ports for each individual sample and save them.
	If multiple transmit chains, EIRP calculation could be following as methods: $P_{total} = P_1 + P_2 + \dots + P_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $EIRP_{total} = P_{total} + DG$
☐	For radiated measurement.
	- Refer as FCC KDB 789033 D02 clause II A.1.F "Antenna-port Conducted versus Radiated Testing" - Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1GHz. - Refer as FCC KDB 412172 D01 clause 2.2 for EIRP calculation.

3.3.4 Test Setup



3.3.5 Test Result of Maximum Output Power

Refer as Appendix C

3.4 Power Spectral Density

3.4.1 Limit

Peak Power Spectral Density Limit	
UNII Devices	
☒ For the 5.15-5.25 GHz band:	
	- Outdoor AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 17 - (G_{TX} - 6)$. - Indoor AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 17 - (G_{TX} - 6)$. - Point-to-point AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If $G_{TX} > 23$ dBi, then $P_{Out} = 17 - (G_{TX} - 23)$. - Mobile or Portable Client: the peak power spectral density (PPSD) ≤ 11 dBm/MHz. If $G_{TX} > 6$ dBi, then $PPSD = 11 - (G_{TX} - 6)$.
☐ For the 5.25-5.35 GHz band, the peak power spectral density (PPSD) ≤ 11 dBm/MHz. If $G_{TX} > 6$ dBi, then $PPSD = 11 - (G_{TX} - 6)$.	
☐ For the 5.47-5.725 GHz band, the peak power spectral density (PPSD) ≤ 11 dBm/MHz. If $G_{TX} > 6$ dBi, then $PPSD = 11 - (G_{TX} - 6)$.	
☒ For the 5.725-5.85 GHz band:	
	- Point-to-multipoint systems (P2M): the peak power spectral density (PPSD) ≤ 30 dBm/500kHz. If $G_{TX} > 6$ dBi, then $PPSD = 30 - (G_{TX} - 6)$. - Point-to-point systems (P2P): the peak power spectral density (PPSD) ≤ 30 dBm/500kHz.
EIRP Power Spectral Density Limit	
☐ For the 5.85-5.895 GHz band:	
	- Indoor AP & subordinate device < 20dBm/MHz - Client device < 14dBm/MHz
LE-LAN Devices	
☐ For the 5.15-5.25 GHz band, the e.i.r.p. peak power spectral density (PPSD) ≤ 10 dBm/MHz.	
☐ For the 5.25-5.35 GHz band, the peak power spectral density (PPSD) ≤ 11 dBm/MHz.	
	e.i.r.p. greater than 200 mW shall comply with the following e.i.r.p. at different elevations, where θ is the angle above the local horizontal plane (of the Earth) as shown below: -13 dBW/MHz for $0^\circ \leq \theta < 8^\circ$; -13 - 0.716 (θ-8) dBW/MHz for $8^\circ \leq \theta < 40^\circ$ -35.9 - 1.22 (θ-40) dBW/MHz for $40^\circ \leq \theta \leq 45^\circ$; -42 dBW/MHz for $\theta > 45^\circ$
☐ For the 5.47-5.6 GHz band and 5.65-5.725 GHz band, the peak power spectral density (PPSD) ≤ 11 dBm/MHz.	
☐ For the 5.725-5.85 GHz band:	
	- Point-to-multipoint systems (P2M): the peak power spectral density (PPSD) ≤ 30 dBm/500kHz. If $G_{TX} > 6$ dBi, then $PPSD = 30 - (G_{TX} - 6)$. - Point-to-point systems (P2P): the peak power spectral density (PPSD) ≤ 30 dBm/500kHz.
PPSD = peak power spectral density that he same method as used to determine the conducted output	



power shall be used to determine the power spectral density. And power spectral density in dBm/MHz
 G_{TX} = the maximum transmitting antenna directional gain in dBi.

3.4.2 Measuring Instruments

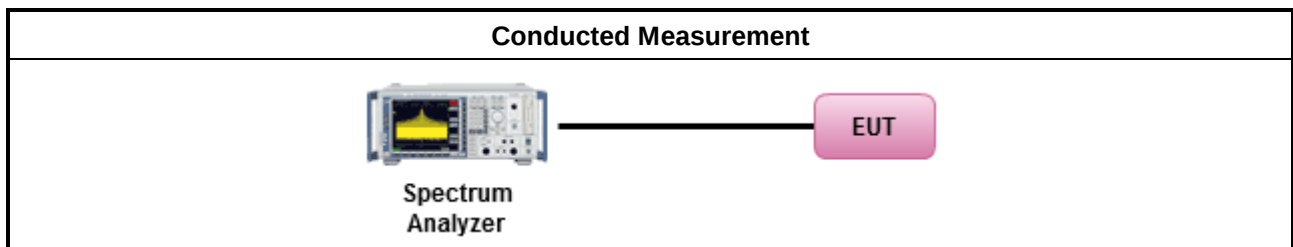
Refer a test equipment and calibration data table in this test report.

3.4.3 Test Procedures

Test Method	
Peak power spectral density procedures that the same method as used to determine the conducted output power shall be used to determine the peak power spectral density and use the peak search function on the spectrum analyzer to find the peak of the spectrum. For the peak power spectral density shall be measured using below options:	
☐	Refer as FCC KDB 789033 D02, F)5) power spectral density can be measured using resolution bandwidths < 1 MHz provided that the results are integrated over 1 MHz bandwidth
[duty cycle ≥ 98% or external video / power trigger]	
☒	Refer as FCC KDB 789033 D02, clause E Method SA-1 (spectral trace averaging).
☐	Refer as FCC KDB 789033 D02, clause E Method SA-1 Alt. (RMS detection with slow sweep speed)
duty cycle < 98% and average over on/off periods with duty factor	
☒	Refer as FCC KDB 789033 D02, clause E Method SA-2 (spectral trace averaging).
☐	Refer as FCC KDB 789033 D02, clause E Method SA-2 Alt. (RMS detection with slow sweep speed)
☒ For conducted measurement.	
If the EUT supports multiple transmit chains using options given below:	
☒	Option 1: Measure and sum the spectra across the outputs. Refer as FCC KDB 662911, In-band power spectral density (PSD). Sample all transmit ports simultaneously using a spectrum analyzer for each transmit port. Where the trace bin-by-bin of each transmit port summing can be performed. (i.e., in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3, and so on up to the NTX output to obtain the value for the first frequency bin of the summed spectrum.). Add up the amplitude (power) values for the different transmit chains and use this as the new data trace.
☐	Option 2: Measure and sum spectral maxima across the outputs. With this technique, spectra are measured at each output of the device at the required resolution bandwidth. The maximum value (peak) of each spectrum is determined. These maximum values are then summed mathematically in linear power units across the outputs. These operations shall be performed separately over frequency spans that have different out-of-band or spurious emission limits,
☐	Option 3: Measure and add 10 log(N) dB, where N is the number of transmit chains. Refer as FCC KDB 662911, In-band power spectral density (PSD). Performed at each transmit chains and each transmit chains shall be compared with the limit have been reduced with 10 log(N). Or each transmit chains shall be add 10 log(N) to compared with the limit.
If multiple transmit chains, EIRP PPSD calculation could be following as methods: $PPSD_{total} = PPSD_1 + PPSD_2 + \dots + PPSD_n$ (calculated in linear unit [mW] and transfer to log unit [dBm])	

Test Method	
	$EIRP_{total} = PPSD_{total} + DG$
☐	For radiated measurement.
	Refer as FCC KDB 789033 D02 clause II A.1.F "Antenna-port Conducted versus Radiated Testing"
	Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1GHz.
	Refer as FCC KDB 412172 D01 clause 2.2 for EIRP calculation.

3.4.4 Test Setup



3.4.5 Test Result of Power Spectral Density

Refer as Appendix D



3.5 Unwanted Emissions

3.5.1 Transmitter Unwanted Emissions Limit

Unwanted emissions below 1 GHz and restricted band emissions above 1GHz 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: Test distance for frequencies at or above 30 MHz, measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).

Note 2: Test distance for frequencies at below 30 MHz, measurements may be performed at a distance closer than the EUT limit distance; however, an attempt should be made to avoid making measurements in the near field. When performing measurements below 30 MHz at a closer distance than the limit distance, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two or more distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade). The test report shall specify the extrapolation method used to determine compliance of the EUT.

Note 3: Using the distance of 1m during the test for above 18 GHz, and the test value to correct for the distance factor at 3m.

Un-restricted band emissions above 1GHz Limit	
Operating Band	Limit
☒ 5.15 - 5.25 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
☐ 5.25 - 5.35 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
☐ 5.47 - 5.725 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
☒ 5.725 - 5.85 GHz	all emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.
☐ 5.85 - 5.895 GHz	(i) For an indoor access point or subordinate device, all emissions at or above 5.895 GHz shall not exceed an e.i.r.p. of 15 dBm/MHz and shall decrease linearly to an e.i.r.p. of - 7 dBm/MHz at or above 5.925 GHz. (ii) For a client device, all emissions at or above 5.895 GHz shall not exceed an



	e.i.r.p. of -5 dBm/MHz and shall decrease linearly to an e.i.r.p. of -27 dBm/MHz at or above 5.925 GHz. (iii) For a client device or indoor access point or subordinate device, all emissions below 5.725 GHz shall not exceed an e.i.r.p. of -27 dBm/MHz at 5.65 GHz increasing linearly to 10 dBm/ MHz at 5.7 GHz, and from 5.7 GHz increasing linearly to a level of 15.6 dBm/MHz at 5.72 GHz, and from 5.72 GHz increasing linearly to a level of 27 dBm/MHz at 5.725 GHz.
Note 1: Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).	

3.5.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.5.3 Test Procedures

Test Method	
Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 m for frequencies above 30 MHz, unless it can be further demonstrated that measurements at a distance of 30 m or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).	
The average emission levels shall be measured in [duty cycle $\geq$ 98 or duty factor].	
For the transmitter unwanted emissions shall be measured using following options below:	
- Refer as FCC KDB 789033 D02, clause G)2) for unwanted emissions into non-restricted bands. - Refer as FCC KDB 789033 D02, clause G)1) for unwanted emissions into restricted bands.	☐ Refer as FCC KDB 789033 D02, G)6) Method AD (Trace Averaging).
	☒ Refer as FCC KDB 789033 D02, G)6) Method VB (Reduced VBW).
	☐ Refer as ANSI C63.10, clause 11.12.2.5.3 (Reduced VBW). VBW $\geq$ 1/T, where T is pulse time.
	☐ Refer as ANSI C63.10, clause 7.5 average value of pulsed emissions.
	☒ Refer as FCC KDB 789033 D02, clause G)5) measurement procedure peak limit.
	☐ Refer as ANSI C63.10, clause 4.1.4.2.2 measurement procedure peak limit.
For radiated measurement.	
- Refer as ANSI C63.10, clause 6.4 for radiated emissions below 30 MHz and test distance is 3m. - Refer as ANSI C63.10, clause 6.5 for radiated emissions 30 MHz to 1 GHz and test distance is 3m. - Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1GHz.	
The any unwanted emissions level shall not exceed the fundamental emission level.	

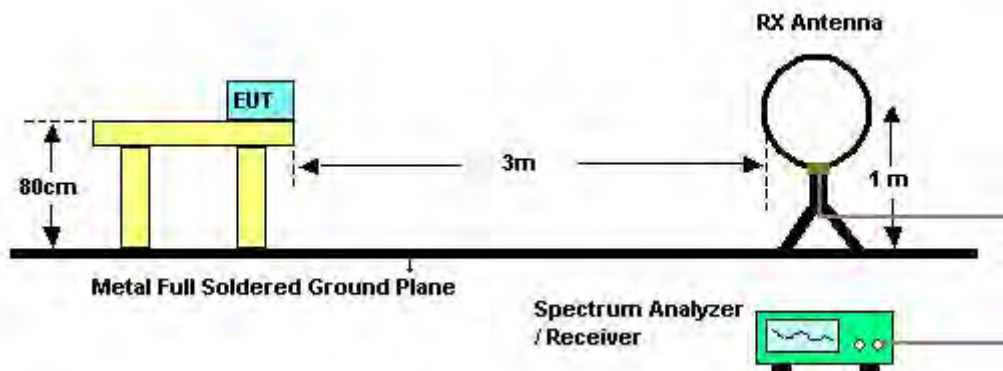
Test Method

- All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.

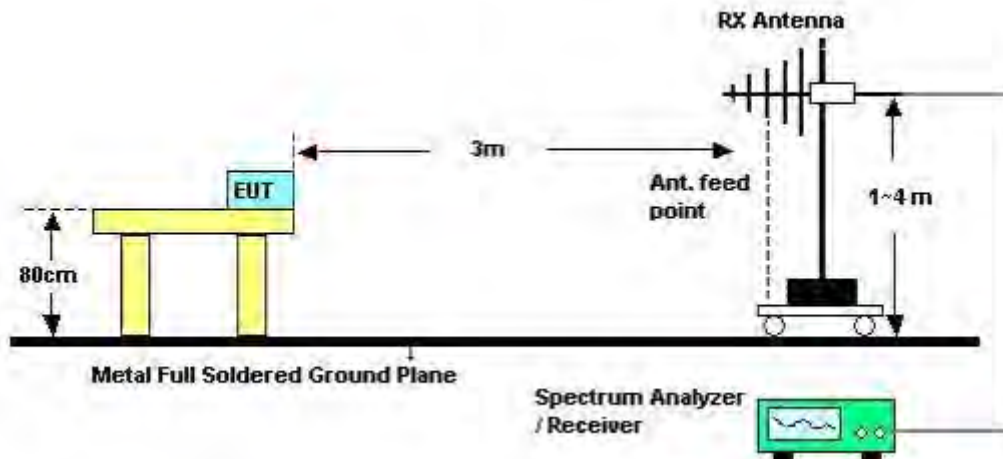
3.5.4 Test Setup

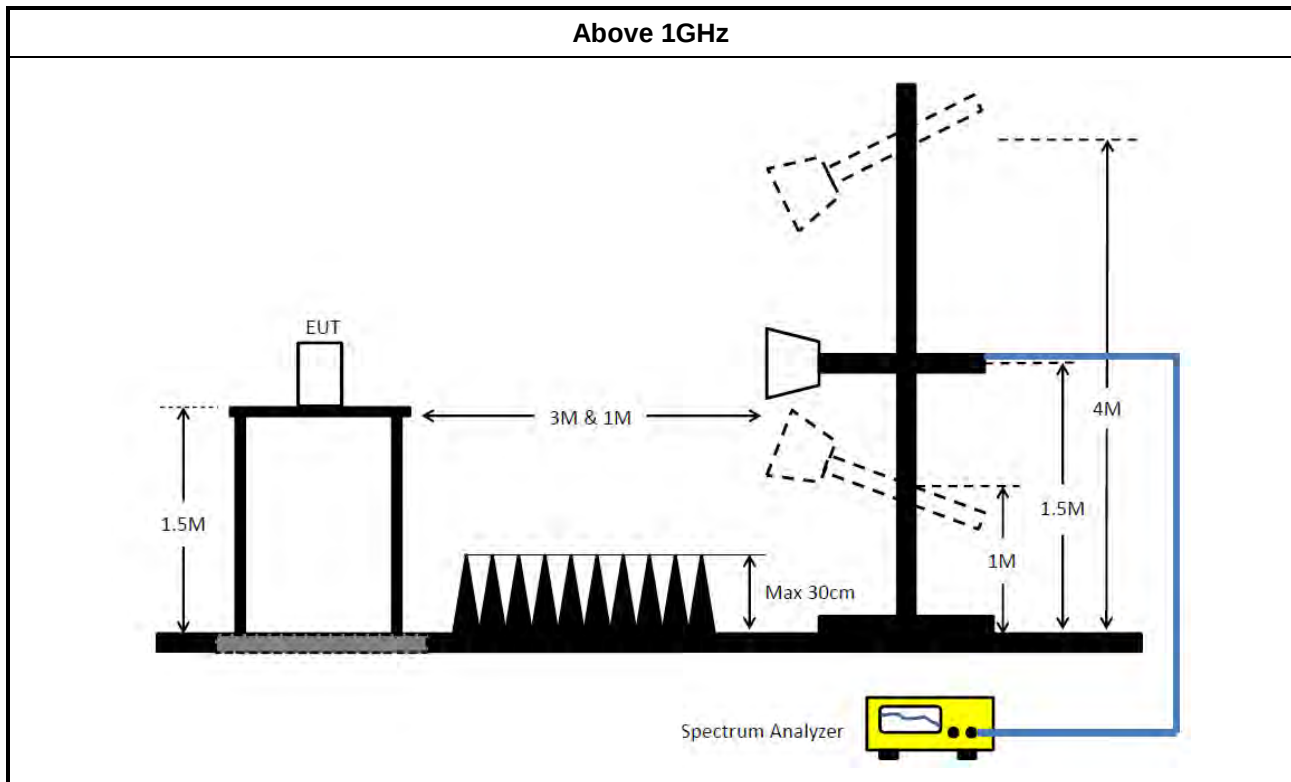
Transmitter Radiated Unwanted Emissions

9kHz ~30MHz



30MHz~1GHz





3.5.5 Measurement Results Calculation

The measured Level is calculated using:

Corrected Reading: Antenna factor (AF) + Cable loss (CL) + Read level (Raw) - Preamp factor (PA)(if applicable) = Level.

3.5.6 Transmitter Unwanted Emissions (Below 30MHz)

There is a comparison data of both open-field test site and alternative test site - semi-Anechoic chamber according to KDB414788 Radiated Test Site, and the result came out very similar.

All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.

The radiated emissions were investigated from 9 kHz or the lowest frequency generated within the device, up to the 10th harmonic or 40 GHz, whichever is appropriate.

3.5.7 Test Result of Transmitter Unwanted Emissions

Refer as Appendix E



4 Test Equipment and Calibration Data

Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
EMI Receiver	Agilent	N9038A	My52260123	9kHz ~ 8.4GHz	Feb. 22, 2022	Feb. 21, 2023	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-1 6-2	04083	150kHz ~ 100MHz	Feb. 09, 2022	Feb. 08, 2023	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Apr. 12, 2022	Apr. 11, 2023	Conduction (CO01-CB)
Pulse Limiter	Rohde& Schwarz	ESH3-Z2	100430	9kHz ~ 30MHz	Feb. 10, 2022	Feb. 09, 2023	Conduction (CO01-CB)
COND Cable	Woken	Cable	Low cable-CO01	9kHz ~ 30MHz	May 18, 2022	May 17, 2023	Conduction (CO01-CB)
Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Conduction (CO01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	May 14, 2022	May 13, 2023	Radiation (10CH01-CB)
10m Semi Anechoic Chamber NSA	TDK	SAC-10M	10CH01-CB	30MHz~1GHz 10m,3m	Jan. 27, 2022	Jan. 26, 2023	Radiation (10CH01-CB)
Amplifier	Agilent	8447D	2944A10783	9kHz ~ 1.3GHz	Mar. 11, 2022	Mar. 10, 2023	Radiation (10CH01-CB)
Amplifier	Agilent	8447D	2944A10784	9kHz ~ 1.3GHz	Mar. 11, 2022	Mar. 10, 2023	Radiation (10CH01-CB)
Low Cable	Woken	SUCOFLEX 104	low cable-01	25MHz ~ 1GHz	Oct. 19, 2021	Oct. 18, 2022	Radiation (10CH01-CB)
Low Cable	Woken	SUCOFLEX 104	low cable-02	25MHz ~ 1GHz	Oct. 19, 2021	Oct. 18, 2022	Radiation (10CH01-CB)
EMI Test Receiver	Rohde& Schwarz	ESCI	100186	9kHz ~ 3GHz	Jul. 12, 2021	Jul. 11, 2022	Radiation (10CH01-CB)
EMI Test Receiver	Rohde& Schwarz	ESCI	100186	9kHz ~ 3GHz	Jul. 11, 2022	Jul. 10, 2023	Radiation (10CH01-CB)
Spectrum Analyzer	Rohde& Schwarz	FSV30	101026	9kHz ~ 30GHz	Apr. 22, 2022	Apr. 21, 2023	Radiation (10CH01-CB)
Bilog Antenna with 6dB Attenuator	Chase & EMCi	CBL6111A &N-6-06	1543 &AT-N0609	30MHz ~ 1GHz	Jul. 01, 2021	Jun. 30, 2022	Radiation (10CH01-CB)
Bilog Antenna with 6dB Attenuator	Chase & EMCi	CBL6111A &N-6-06	1543 &AT-N0609	30MHz ~ 1GHz	Jun. 25, 2022	Jun. 24, 2023	Radiation (10CH01-CB)
Amplifier	EM	EM101	060703	10MHz ~ 1GHz	Oct. 20, 2021	Oct. 19, 2022	Radiation (10CH01-CB)
Low Cable	TITAN	T318E	low cable-03	30MHz ~ 1GHz	Jun. 17, 2022	Jun. 16, 2023	Radiation (10CH01-CB)
Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (10CH01-CB)
3m Semi Anechoic Chamber VSWR	TDK	SAC-3M	03CH01-CB	1GHz ~18GHz 3m	May 06, 2022	May 05, 2023	Radiation (03CH01-CB)



Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
Horn Antenna	ETS-LINDGR EN	3115	00075790	750MHz ~ 18GHz	Nov. 06, 2021	Nov. 05, 2022	Radiation (03CH01-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Aug. 05, 2021	Aug. 04, 2022	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02121	1GHz ~ 26.5GHz	May 19, 2022	May 18, 2023	Radiation (03CH01-CB)
Pre-Amplifier	MITEQ	TTA1840-35-H G	1864479	18GHz ~ 40GHz	Jul. 13, 2021	Jul. 12, 2022	Radiation (03CH01-CB)
Spectrum Analyzer	R&S	FSP40	100056	9kHz ~ 40GHz	May 06, 2022	May 05, 2023	Radiation (03CH01-CB)
RF Cable-high	Woken	RG402	High Cable-16	1 GHz ~ 18 GHz	Oct. 04, 2021	Oct. 03, 2022	Radiation (03CH01-CB)
RF Cable-high	Woken	RG402	High Cable-16+17	1 GHz ~ 18 GHz	Oct. 04, 2021	Oct. 03, 2022	Radiation (03CH01-CB)
High Cable	Woken	WCA0929M	40G#5+7	1GHz ~ 40 GHz	Dec. 14, 2021	Dec. 13, 2022	Radiation (03CH01-CB)
High Cable	Woken	WCA0929M	40G#5	1GHz ~ 40 GHz	Dec. 08, 2021	Dec. 07, 2022	Radiation (03CH01-CB)
High Cable	Woken	WCA0929M	40G#7	1GHz ~ 40 GHz	Dec. 14, 2021	Dec. 13, 2022	Radiation (03CH01-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (03CH01-CB)
3m Semi Anechoic Chamber VSWR	TDK	SAC-3M	03CH03-CB	1GHz ~18GHz 3m	May 05, 2022	May 04, 2023	Radiation (03CH03-CB)
Horn Antenna	ETS-Lindgren	3115	6821	750MHz~18GHz	Jan. 21, 2022	Jan. 20, 2023	Radiation (03CH03-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Aug. 05, 2021	Aug. 04, 2022	Radiation (03CH03-CB)
Pre-Amplifier	Agilent	8449B	3008A02097	1GHz ~ 26.5GHz	Jul. 02, 2021	Jul. 01, 2022	Radiation (03CH03-CB)
Pre-Amplifier	Agilent	8449B	3008A02097	1GHz ~ 26.5GHz	Jul. 01, 2022	Jun. 30, 2023	Radiation (03CH03-CB)
Pre-Amplifier	MITEQ	TTA1840-35-H G	1864479	18GHz ~ 40GHz	Jul. 13, 2021	Jul. 12, 2022	Radiation (03CH03-CB)
Signal Analyzer	R&S	FSV40	101904	9kHz ~ 40GHz	Apr. 26, 2022	Apr. 25, 2023	Radiation (03CH03-CB)
RF Cable-high	Woken	RG402	High Cable-20+29	1GHz ~ 18GHz	Oct. 04, 2021	Oct. 03, 2022	Radiation (03CH03-CB)
RF Cable-high	Woken	RG402	High Cable-29	1GHz ~ 18GHz	Oct. 04, 2021	Oct. 03, 2022	Radiation (03CH03-CB)
High Cable	Woken	WCA0929M	40G#5+7	1GHz ~ 40 GHz	Dec. 14, 2021	Dec. 13, 2022	Radiation (03CH03-CB)
High Cable	Woken	WCA0929M	40G#5	1GHz ~ 40 GHz	Dec. 08, 2021	Dec. 07, 2022	Radiation (03CH03-CB)
High Cable	Woken	WCA0929M	40G#7	1GHz ~ 40 GHz	Dec. 14, 2021	Dec. 13, 2022	Radiation (03CH03-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (03CH03-CB)



Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
Spectrum analyzer	R&S	FSV40	101028	9kHz~40GHz	Jan. 07, 2022	Jan. 06, 2023	Conducted (TH03-CB)
Power Sensor	Anritsu	MA2411B	1726195	300MHz~40GHz	Aug. 22, 2021	Aug. 21, 2022	Conducted (TH03-CB)
Power Meter	Anritsu	ML2495A	1035008	300MHz~40GHz	Aug. 22, 2021	Aug. 21, 2022	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-11	1 GHz ~18 GHz	Oct. 04, 2021	Oct. 03, 2022	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-12	1 GHz ~18 GHz	Oct. 04, 2021	Oct. 03, 2022	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-13	1 GHz ~18 GHz	Oct. 04, 2021	Oct. 03, 2022	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-14	1 GHz ~18 GHz	Oct. 04, 2021	Oct. 03, 2022	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-15	1 GHz ~18 GHz	Oct. 04, 2021	Oct. 03, 2022	Conducted (TH03-CB)
Switch	SPTCB	SP-SWI	SWI-03	1 GHz ~26.5 GHz	Dec. 13, 2021	Dec. 12, 2022	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	SWI-03-P1	1 GHz ~26.5 GHz	Dec. 13, 2021	Dec. 12, 2022	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	SWI-03-P2	1 GHz ~26.5 GHz	Dec. 13, 2021	Dec. 12, 2022	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	SWI-03-P3	1 GHz ~26.5 GHz	Dec. 13, 2021	Dec. 12, 2022	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	SWI-03-P4	1 GHz ~26.5 GHz	Dec. 13, 2021	Dec. 12, 2022	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	SWI-03-P5	1 GHz ~26.5 GHz	Dec. 13, 2021	Dec. 12, 2022	Conducted (TH03-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Conducted (TH03-CB)

Note: Calibration Interval of instruments listed above is one year.

N.C.R. means Non-Calibration required.



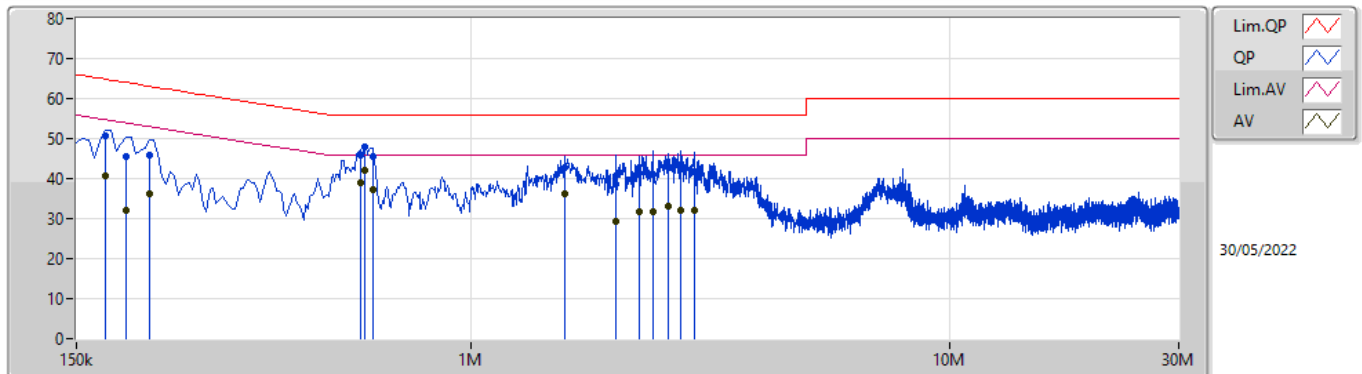
Conducted Emissions at Powerline

Appendix A.

Summary

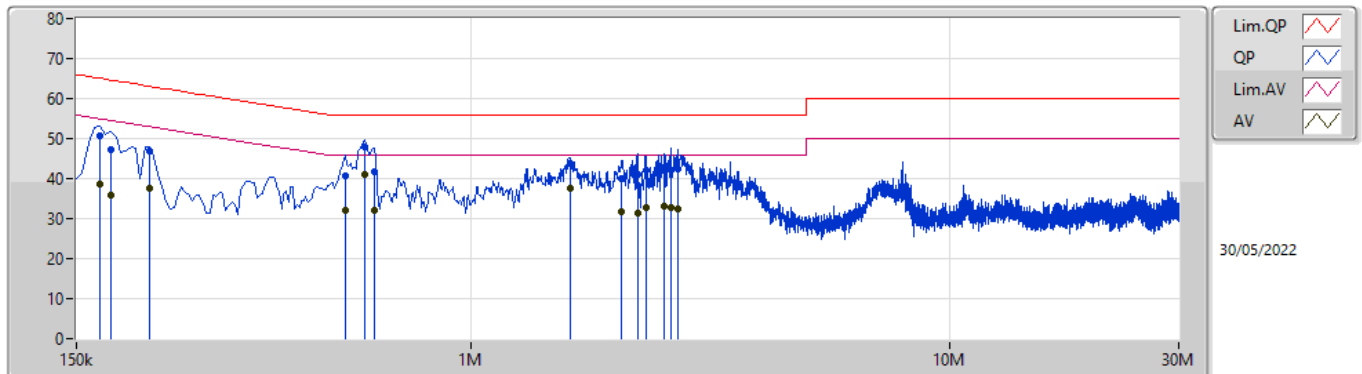
Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 4	Pass	AV	600k	41.92	46.00	-4.08	Line

Mode 4



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)			
QP	172.5k	50.66	64.83	-14.17	9.99	Line	-	40.67	0.06	0.04	9.89			
AV	172.5k	40.65	54.83	-14.18	9.99	Line	-	30.66	0.06	0.04	9.89			
QP	190.5k	45.51	64.01	-18.50	9.99	Line	-	35.52	0.06	0.04	9.89			
AV	190.5k	32.07	54.01	-21.94	9.99	Line	-	22.08	0.06	0.04	9.89			
QP	213k	45.96	63.09	-17.13	9.99	Line	-	35.97	0.06	0.04	9.89			
AV	213k	36.37	53.09	-16.72	9.99	Line	-	26.38	0.06	0.04	9.89			
QP	586.5k	45.96	56.00	-10.04	10.00	Line	-	35.96	0.06	0.05	9.89			
AV	586.5k	39.04	46.00	-6.96	10.00	Line	-	29.04	0.06	0.05	9.89			
QP	600k	48.10	56.00	-7.90	10.00	Line	-	38.10	0.06	0.05	9.89			
AV	600k	41.92	46.00	-4.08	10.00	Line	"Worst"	31.92	0.06	0.05	9.89			
QP	622.5k	45.52	56.00	-10.48	10.00	Line	-	35.52	0.06	0.05	9.89			
AV	622.5k	37.09	46.00	-8.91	10.00	Line	-	27.09	0.06	0.05	9.89			
QP	1.568M	42.87	56.00	-13.13	10.04	Line	-	32.83	0.08	0.07	9.89			
AV	1.568M	36.11	46.00	-9.89	10.04	Line	-	26.07	0.08	0.07	9.89			
QP	2.009M	38.68	56.00	-17.32	10.07	Line	-	28.61	0.09	0.09	9.89			
AV	2.009M	29.36	46.00	-16.64	10.07	Line	-	19.29	0.09	0.09	9.89			
QP	2.243M	41.48	56.00	-14.52	10.07	Line	-	31.41	0.09	0.09	9.89			
AV	2.243M	31.66	46.00	-14.34	10.07	Line	-	21.59	0.09	0.09	9.89			
QP	2.396M	41.08	56.00	-14.92	10.08	Line	-	31.00	0.10	0.09	9.89			
AV	2.396M	31.86	46.00	-14.14	10.08	Line	-	21.78	0.10	0.09	9.89			
QP	2.585M	42.76	56.00	-13.24	10.08	Line	-	32.68	0.10	0.09	9.89			
AV	2.585M	33.21	46.00	-12.79	10.08	Line	-	23.13	0.10	0.09	9.89			
QP	2.733M	42.40	56.00	-13.60	10.08	Line	-	32.32	0.10	0.09	9.89			
AV	2.733M	32.11	46.00	-13.89	10.08	Line	-	22.03	0.10	0.09	9.89			
QP	2.922M	41.57	56.00	-14.43	10.10	Line	-	31.47	0.11	0.10	9.89			
AV	2.922M	32.06	46.00	-13.94	10.10	Line	-	21.96	0.11	0.10	9.89			

Mode 4



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)			
QP	168k	50.68	65.06	-14.38	10.00	Neutral	-	40.68	0.07	0.04	9.89			
AV	168k	38.68	55.06	-16.38	10.00	Neutral	-	28.68	0.07	0.04	9.89			
QP	177k	47.37	64.62	-17.25	10.00	Neutral	-	37.37	0.07	0.04	9.89			
AV	177k	35.78	54.62	-18.84	10.00	Neutral	-	25.78	0.07	0.04	9.89			
QP	213k	46.84	63.09	-16.25	10.00	Neutral	-	36.84	0.07	0.04	9.89			
AV	213k	37.75	53.09	-15.34	10.00	Neutral	-	27.75	0.07	0.04	9.89			
QP	546k	40.57	56.00	-15.43	10.01	Neutral	-	30.56	0.07	0.05	9.89			
AV	546k	32.05	46.00	-13.95	10.01	Neutral	-	22.04	0.07	0.05	9.89			
QP	600k	47.79	56.00	-8.21	10.01	Neutral	-	37.78	0.07	0.05	9.89			
AV	600k	41.19	46.00	-4.81	10.01	Neutral	"Worst"	31.18	0.07	0.05	9.89			
QP	627k	41.85	56.00	-14.15	10.01	Neutral	-	31.84	0.07	0.05	9.89			
AV	627k	32.08	46.00	-13.92	10.01	Neutral	-	22.07	0.07	0.05	9.89			
QP	1.608M	43.94	56.00	-12.06	10.05	Neutral	-	33.89	0.09	0.07	9.89			
AV	1.608M	37.50	46.00	-8.50	10.05	Neutral	-	27.45	0.09	0.07	9.89			
QP	2.063M	40.17	56.00	-15.83	10.08	Neutral	-	30.09	0.10	0.09	9.89			
AV	2.063M	31.71	46.00	-14.29	10.08	Neutral	-	21.63	0.10	0.09	9.89			
QP	2.225M	40.98	56.00	-15.02	10.08	Neutral	-	30.90	0.10	0.09	9.89			
AV	2.225M	31.23	46.00	-14.77	10.08	Neutral	-	21.15	0.10	0.09	9.89			
QP	2.315M	42.01	56.00	-13.99	10.09	Neutral	-	31.92	0.11	0.09	9.89			
AV	2.315M	32.86	46.00	-13.14	10.09	Neutral	-	22.77	0.11	0.09	9.89			
QP	2.531M	42.59	56.00	-13.41	10.09	Neutral	-	32.50	0.11	0.09	9.89			
AV	2.531M	33.11	46.00	-12.89	10.09	Neutral	-	23.02	0.11	0.09	9.89			
QP	2.612M	42.04	56.00	-13.96	10.09	Neutral	-	31.95	0.11	0.09	9.89			
AV	2.612M	32.80	46.00	-13.20	10.09	Neutral	-	22.71	0.11	0.09	9.89			
QP	2.702M	42.36	56.00	-13.64	10.09	Neutral	-	32.27	0.11	0.09	9.89			
AV	2.702M	32.55	46.00	-13.45	10.09	Neutral	-	22.46	0.11	0.09	9.89			

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.15-5.25GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_1TX	55.59M	36.612M	36M7D1D	39.33M	19.79M
802.11ax HEW20_Nss1,(MCS0)_1TX	56.43M	39.82M	39M9D1D	42.84M	19.79M
802.11ax HEW40_Nss1,(MCS0)_1TX	76.98M	39.52M	39M6D1D	60.66M	38.381M
802.11ax HEW80_Nss1,(MCS0)_1TX	98.88M	78.201M	78M3D1D	98.88M	78.201M
5.725-5.85GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_1TX	16.32M	42.429M	42M5D1D	16.02M	34.423M
802.11ax HEW20_Nss1,(MCS0)_1TX	18.81M	44.258M	44M3D1D	18.66M	36.312M
802.11ax HEW40_Nss1,(MCS0)_1TX	37.32M	72.804M	72M9D1D	37.08M	56.792M
802.11ax HEW80_Nss1,(MCS0)_1TX	76.44M	88.996M	89M0D1D	76.44M	88.996M

Max-N dB = Maximum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;
 Max-OBW = Maximum 99% occupied bandwidth;
 Min-N dB = Minimum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;
 Min-OBW = Minimum 99% occupied bandwidth

Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
802.11a_Nss1,(6Mbps)_1TX	-	-	-	-
5180MHz	Pass	Inf	44.34M	29.355M
5200MHz	Pass	Inf	55.59M	36.612M
5240MHz	Pass	Inf	39.33M	19.79M
5745MHz	Pass	500k	16.02M	34.423M
5785MHz	Pass	500k	16.32M	42.429M
5825MHz	Pass	500k	16.29M	41.739M
802.11ax HEW20_Nss1,(MCS0)_1TX	-	-	-	-
5180MHz	Pass	Inf	47.49M	30.615M
5200MHz	Pass	Inf	56.43M	39.82M
5240MHz	Pass	Inf	42.84M	19.79M
5745MHz	Pass	500k	18.66M	36.312M
5785MHz	Pass	500k	18.81M	44.258M
5825MHz	Pass	500k	18.72M	43.178M
802.11ax HEW40_Nss1,(MCS0)_1TX	-	-	-	-
5190MHz	Pass	Inf	60.66M	38.381M
5230MHz	Pass	Inf	76.98M	39.52M
5755MHz	Pass	500k	37.32M	56.792M
5795MHz	Pass	500k	37.08M	72.804M
802.11ax HEW80_Nss1,(MCS0)_1TX	-	-	-	-
5210MHz	Pass	Inf	98.88M	78.201M
5775MHz	Pass	500k	76.44M	88.996M

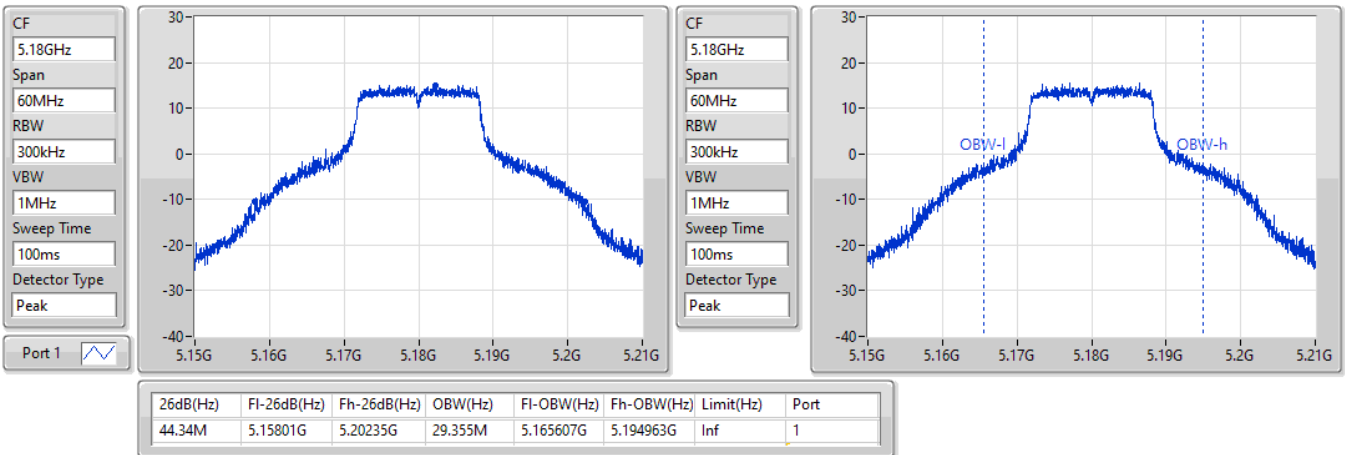
Port X-N dB = Port X 6dB down bandwidth for 5.725-5.85GHz band / 26dB down bandwidth for other band
Port X-OBW = Port X 99% occupied bandwidth

802.11a_Nss1,(6Mbps)_1TX

EBW

5180MHz

16/07/2022

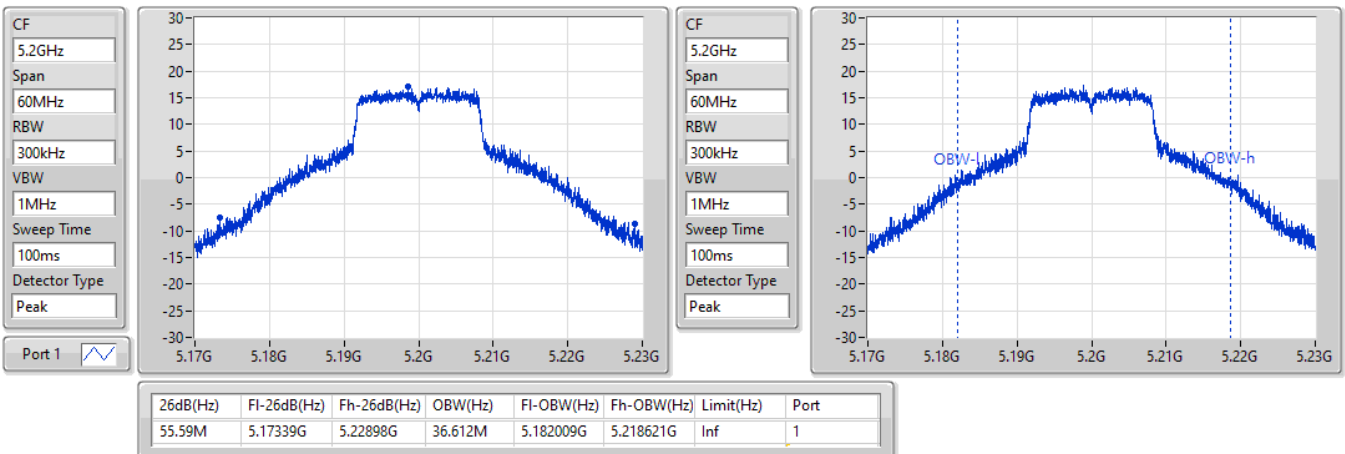


802.11a_Nss1,(6Mbps)_1TX

EBW

5200MHz

16/07/2022

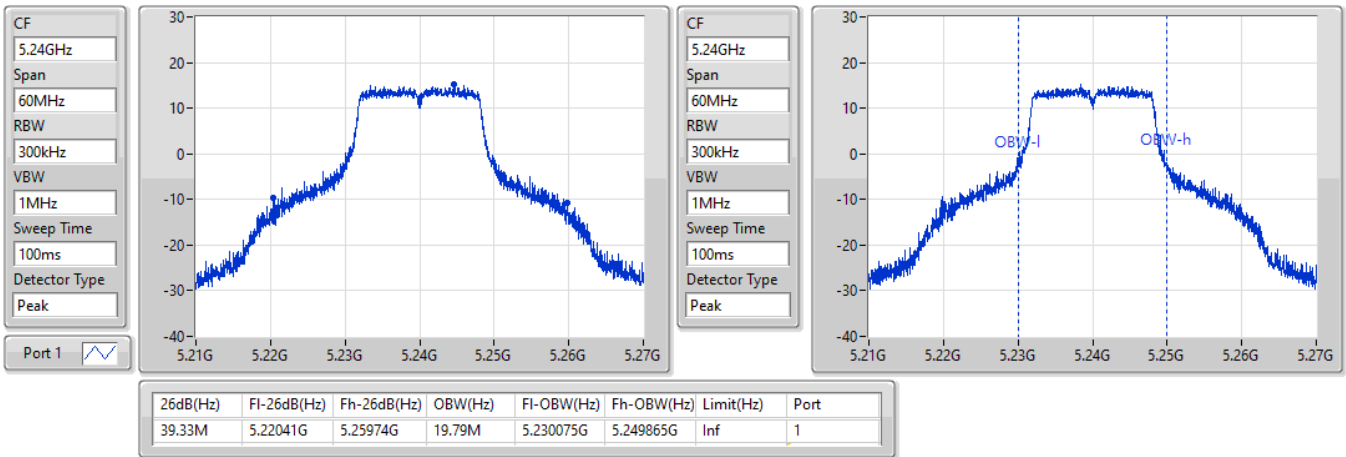


802.11a_Nss1,(6Mbps)_1TX

EBW

5240MHz

16/07/2022

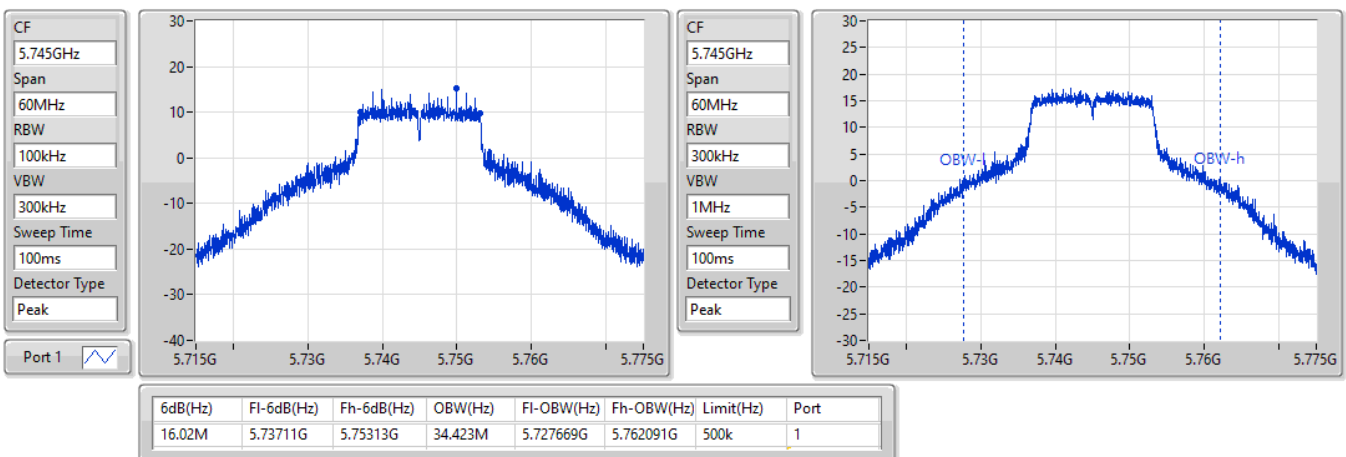


802.11a_Nss1,(6Mbps)_1TX

EBW

5745MHz

07/07/2022

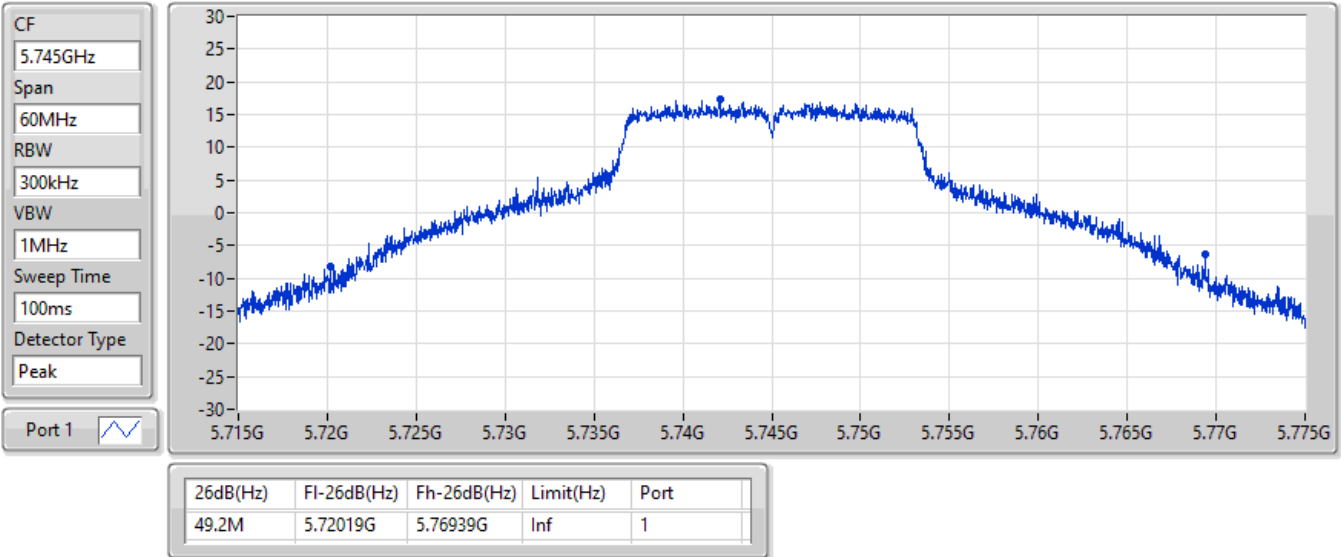


802.11a_Nss1,(6Mbps)_1TX

EBW

5745MHz

07/07/2022

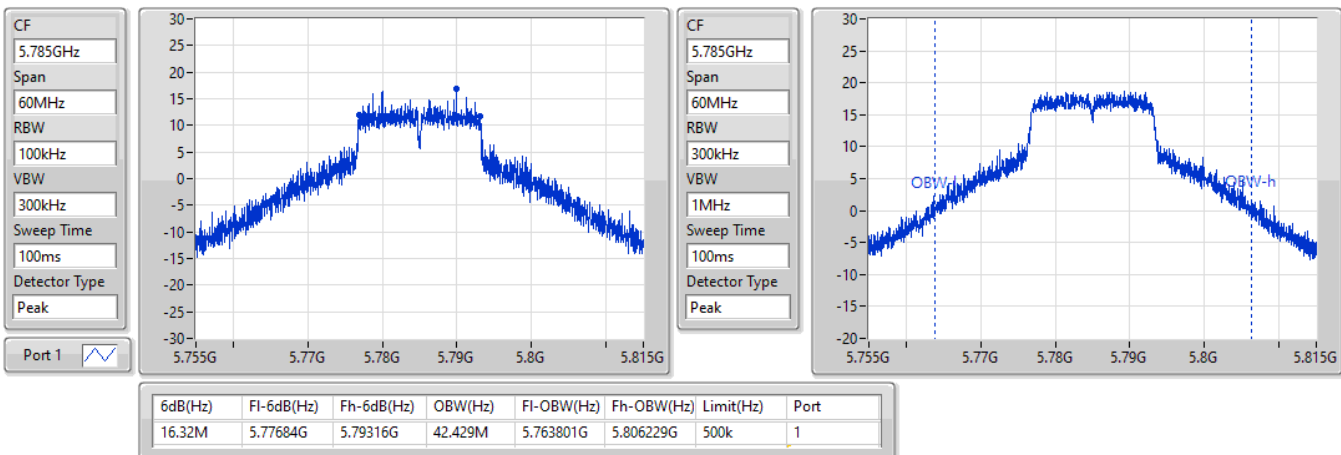


802.11a_Nss1,(6Mbps)_1TX

EBW

5785MHz

07/07/2022

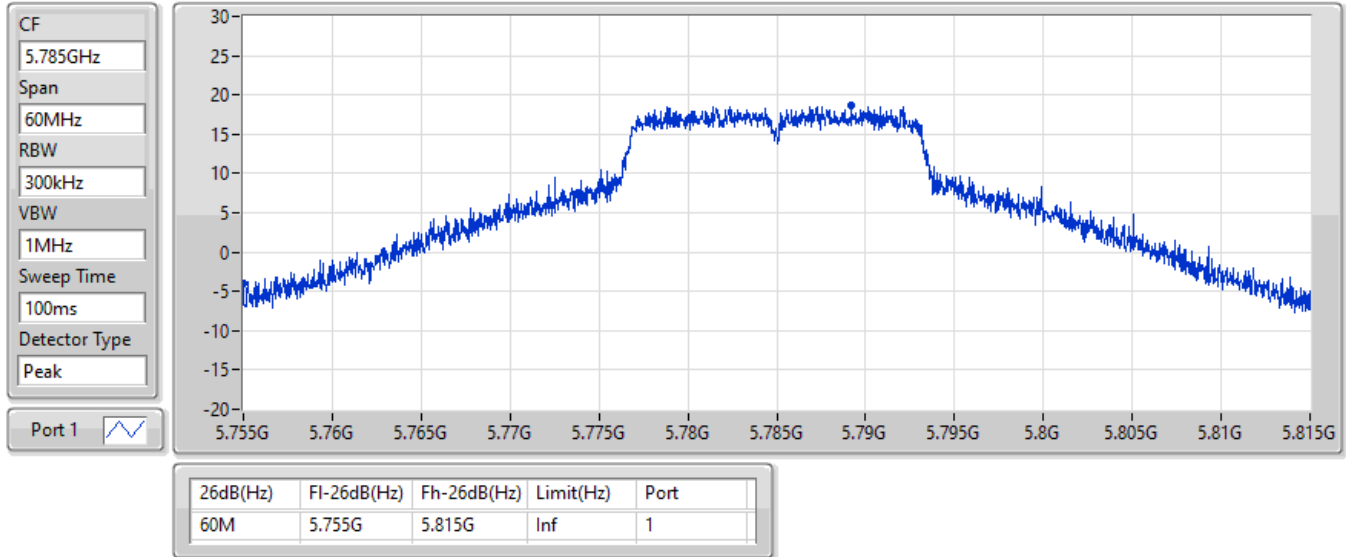


802.11a_Nss1,(6Mbps)_1TX

EBW

5785MHz

07/07/2022

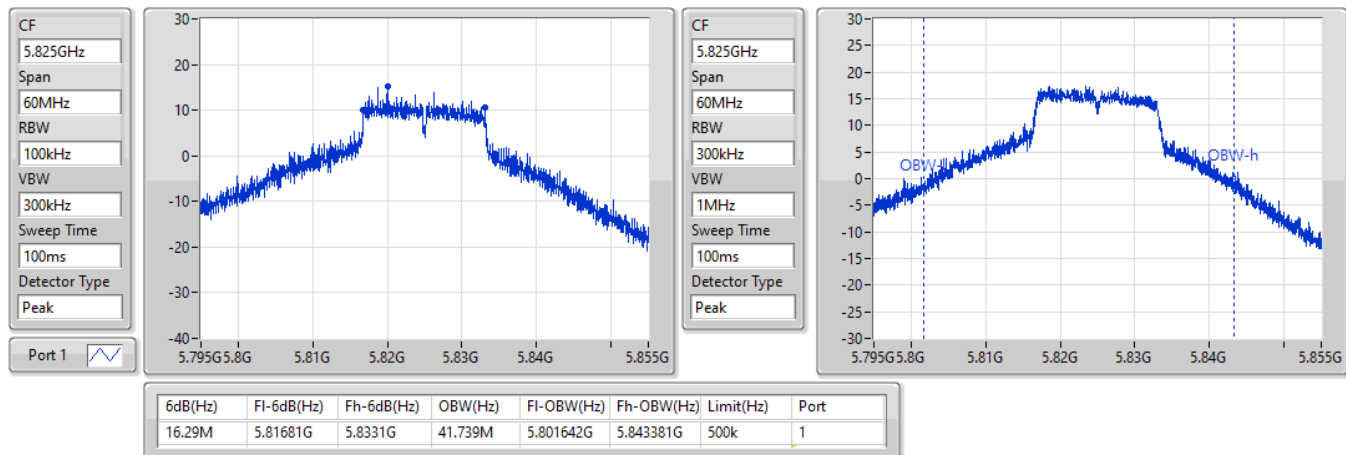


802.11a_Nss1,(6Mbps)_1TX

EBW

5825MHz

07/07/2022

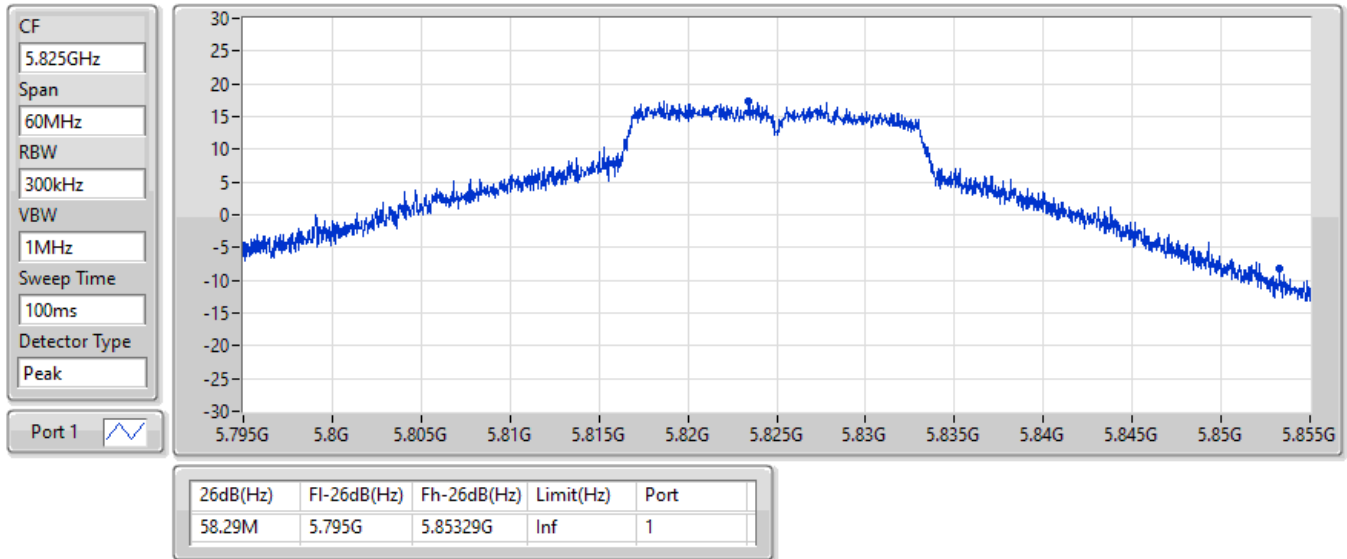


802.11a_Nss1,(6Mbps)_1TX

EBW

5825MHz

07/07/2022

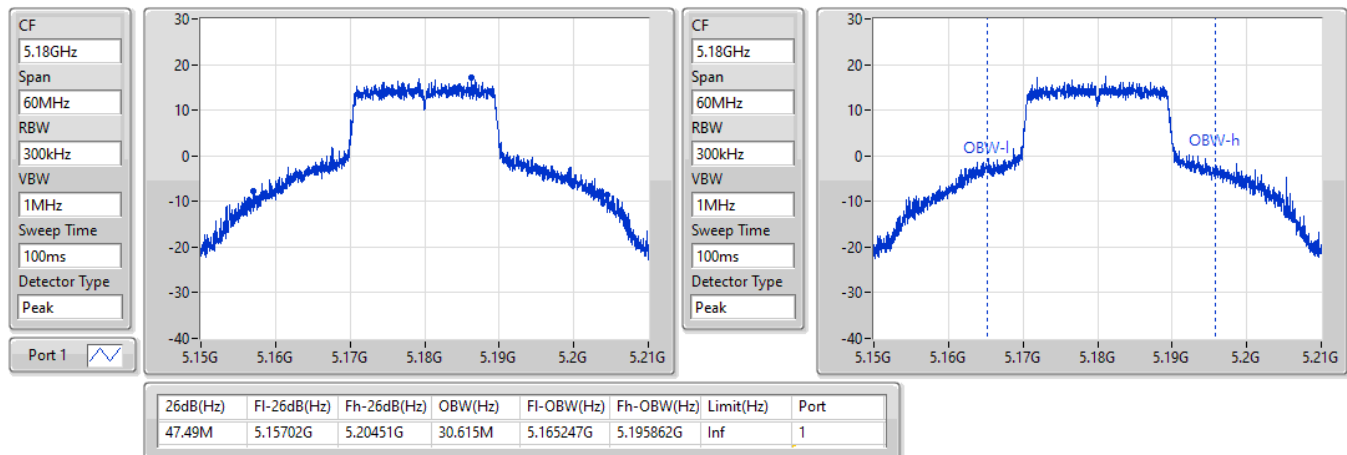


802.11ax HEW20_Nss1,(MCS0)_1TX

EBW

5180MHz

16/07/2022

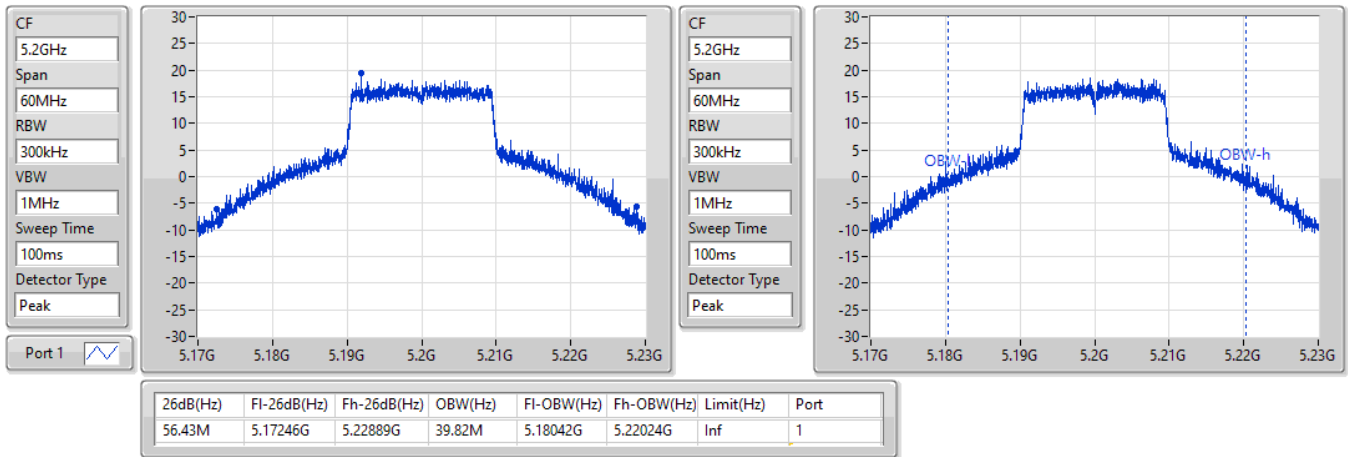


802.11ax HEW20_Nss1,(MCS0)_1TX

EBW

5200MHz

16/07/2022

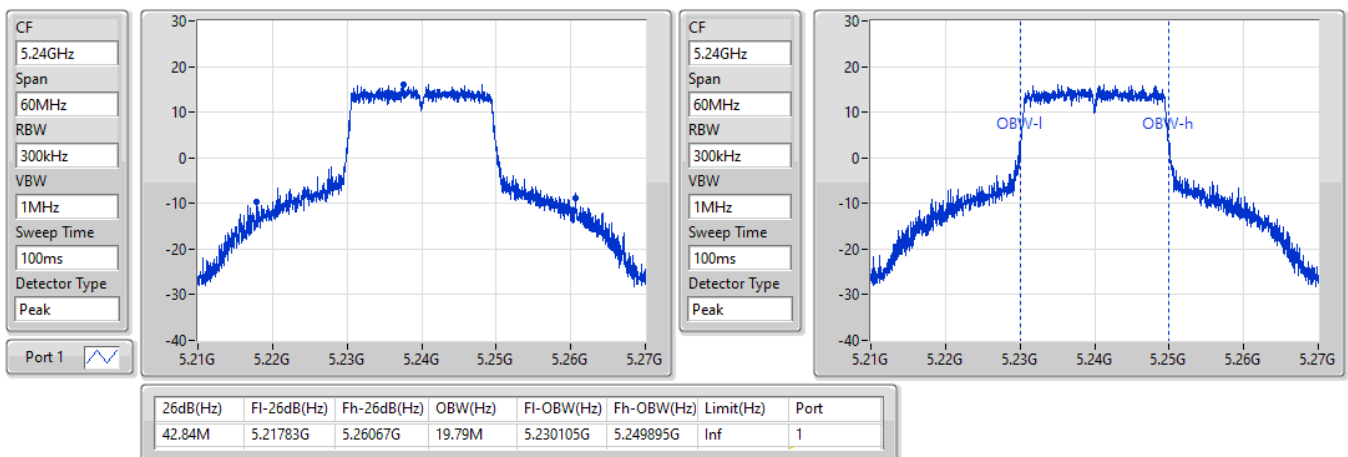


802.11ax HEW20_Nss1,(MCS0)_1TX

EBW

5240MHz

16/07/2022

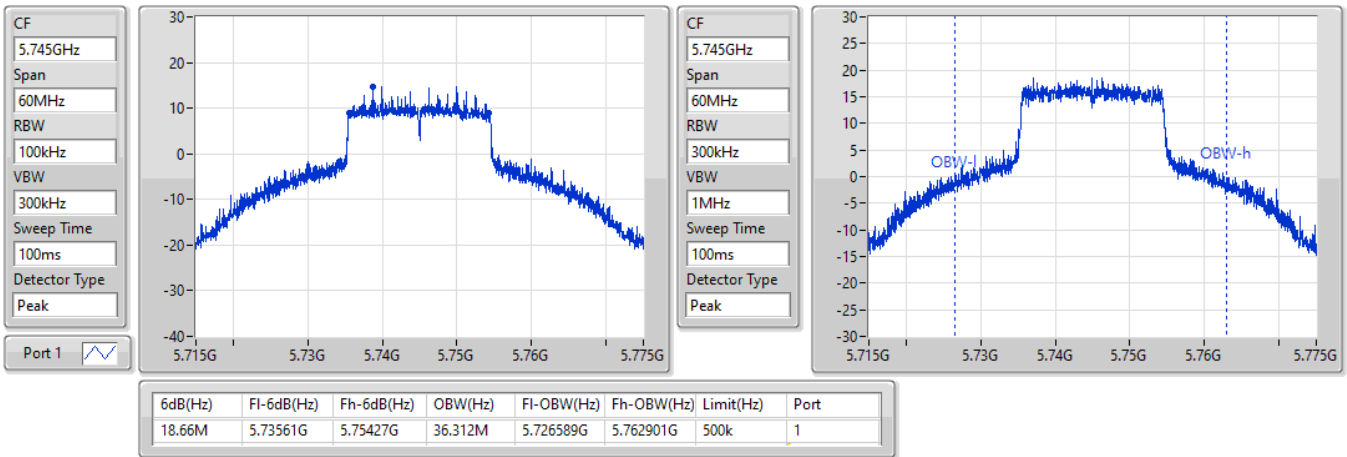


802.11ax HEW20_Nss1,(MCS0)_1TX

EBW

5745MHz

07/07/2022

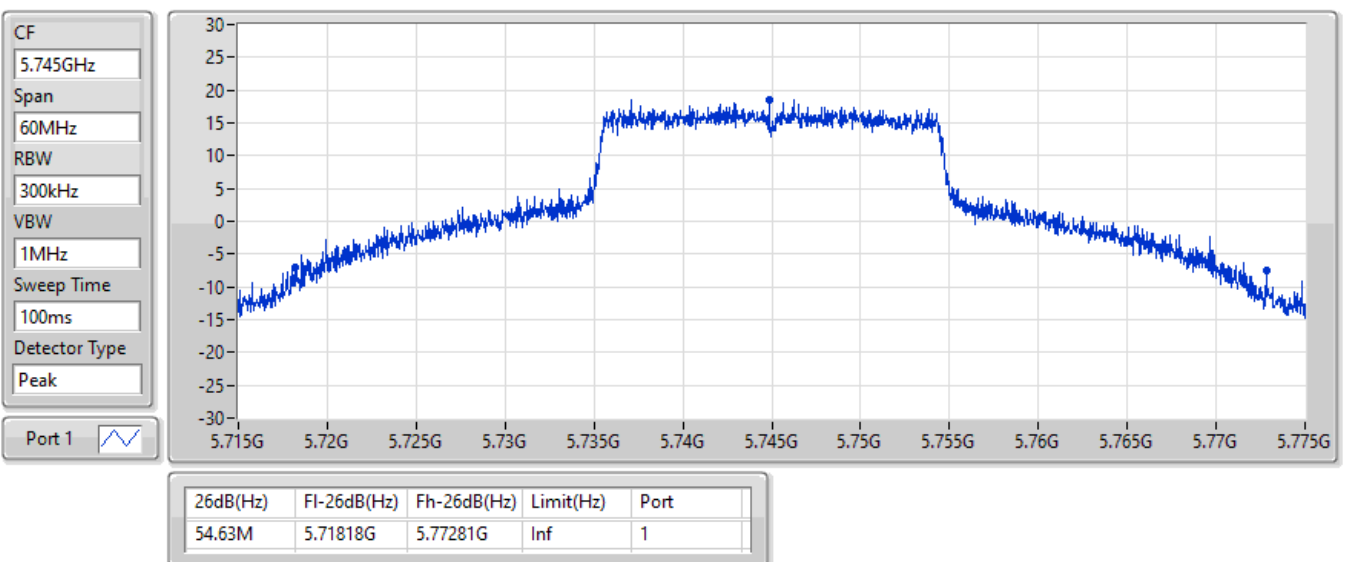


802.11ax HEW20_Nss1,(MCS0)_1TX

EBW

5745MHz

07/07/2022

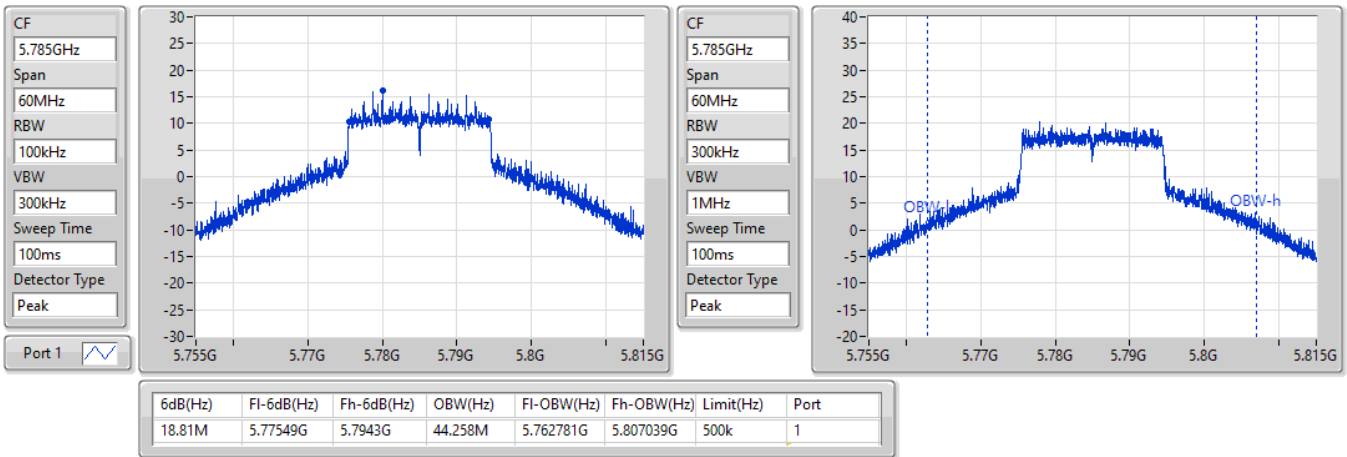


802.11ax HEW20_Nss1,(MCS0)_1TX

EBW

5785MHz

07/07/2022

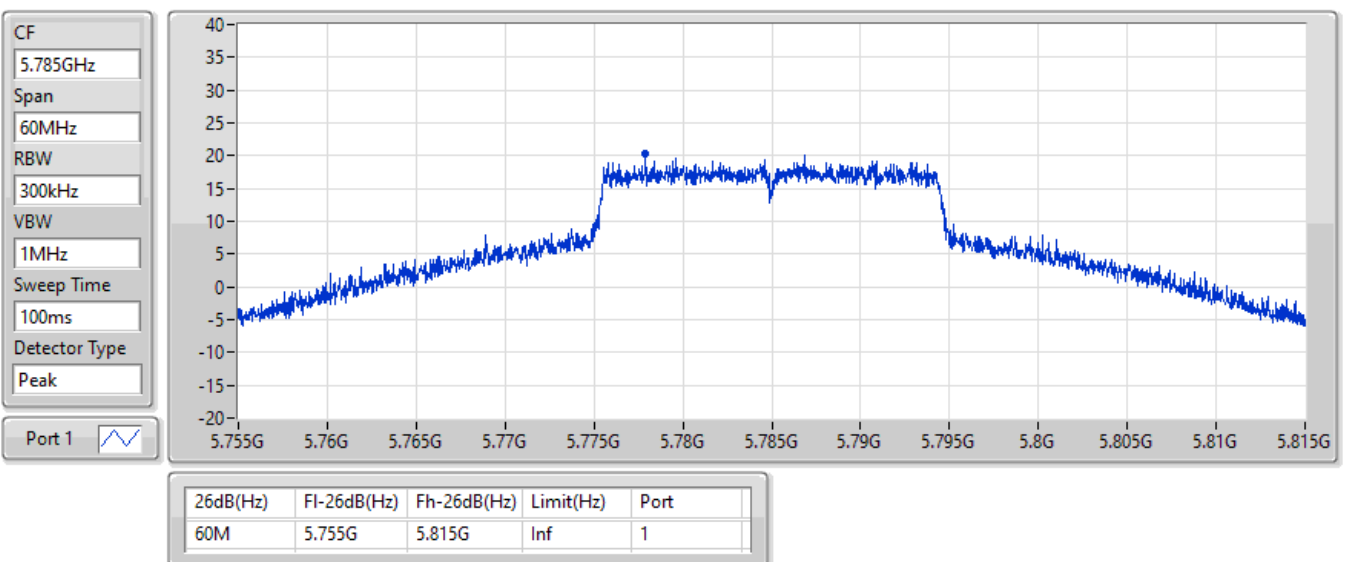


802.11ax HEW20_Nss1,(MCS0)_1TX

EBW

5785MHz

07/07/2022

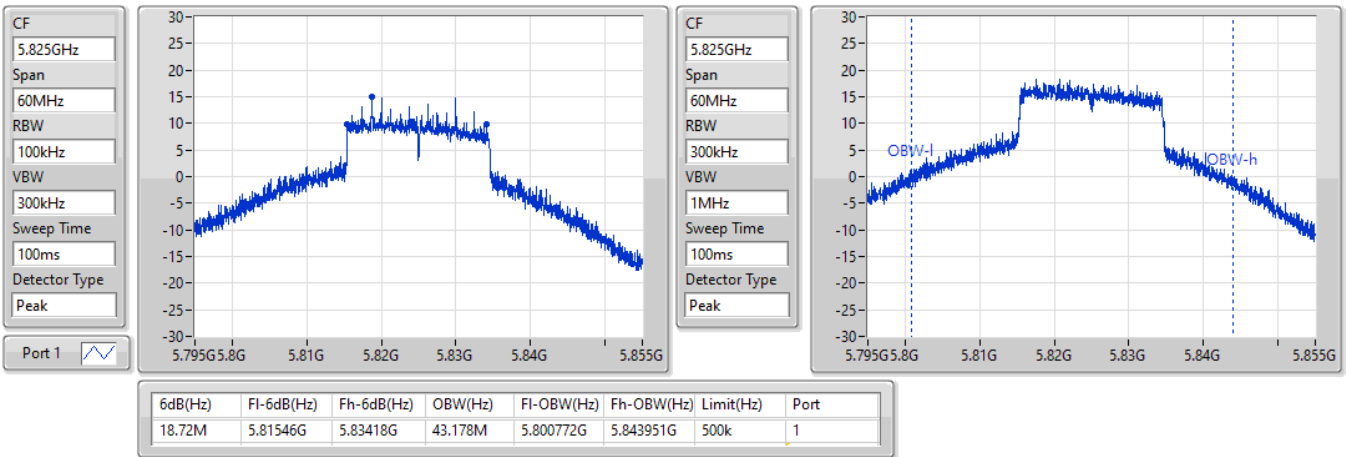


802.11ax HEW20_Nss1,(MCS0)_1TX

EBW

5825MHz

07/07/2022

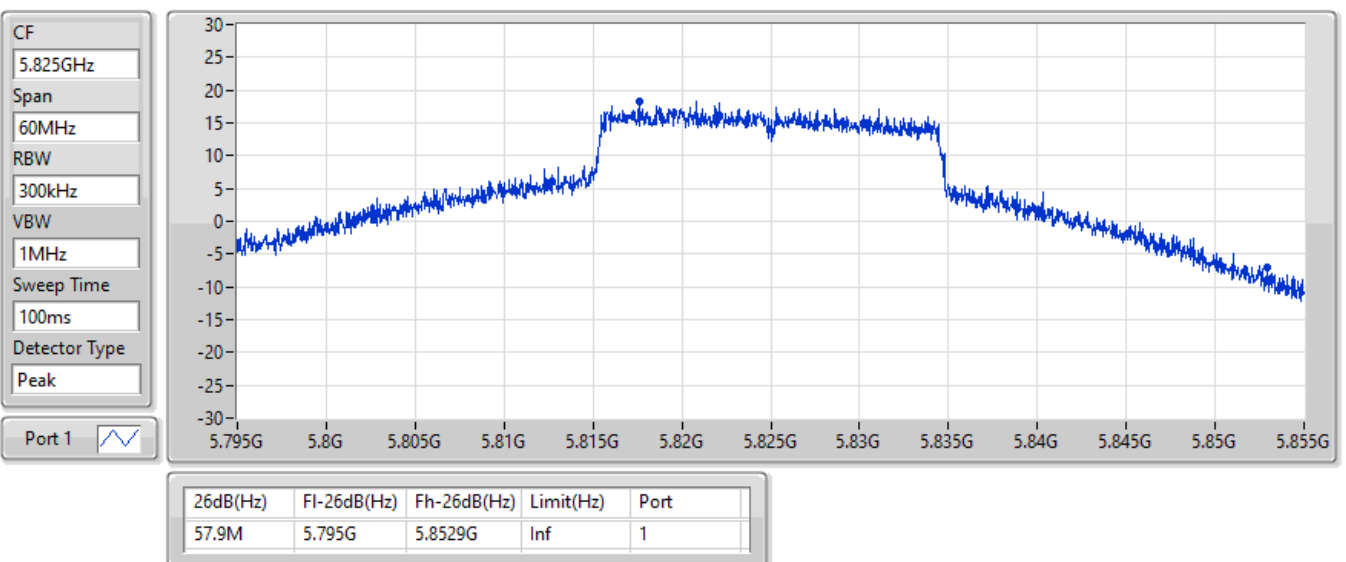


802.11ax HEW20_Nss1,(MCS0)_1TX

EBW

5825MHz

07/07/2022

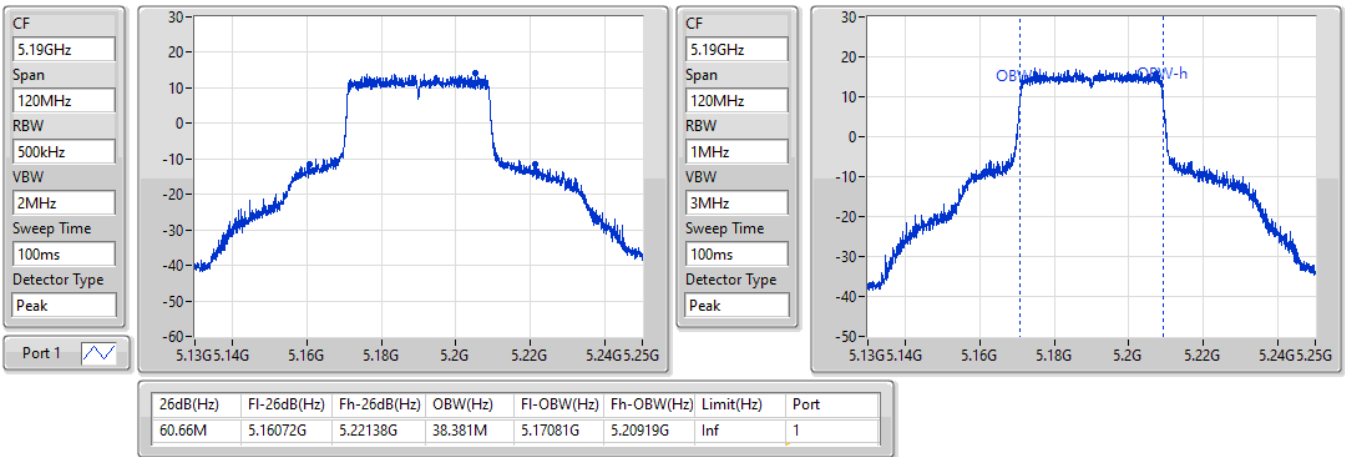


802.11ax HEW40_Nss1,(MCS0)_1TX

EBW

5190MHz

07/07/2022

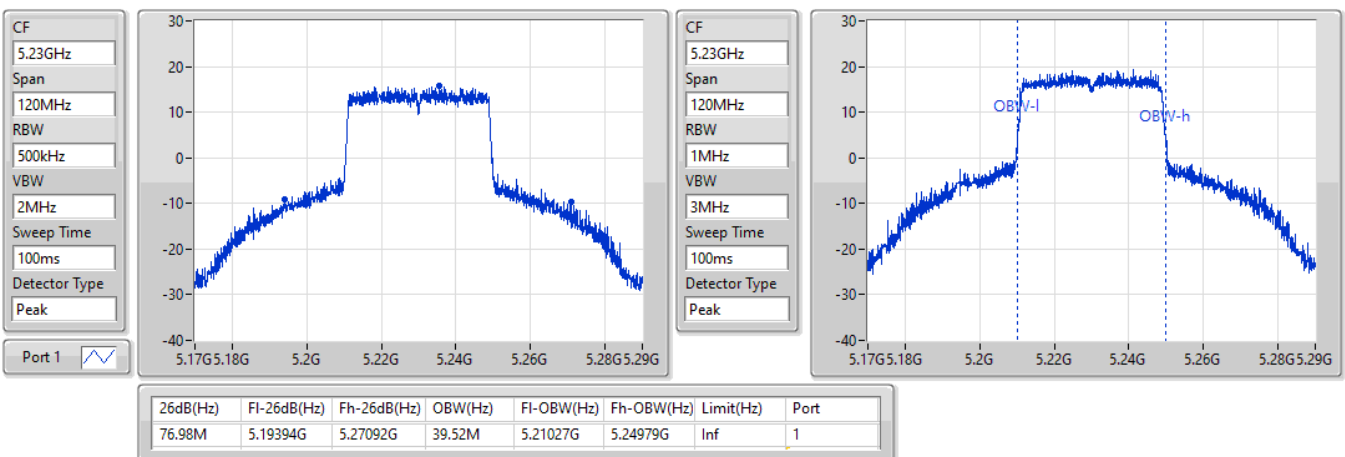


802.11ax HEW40_Nss1,(MCS0)_1TX

EBW

5230MHz

16/07/2022

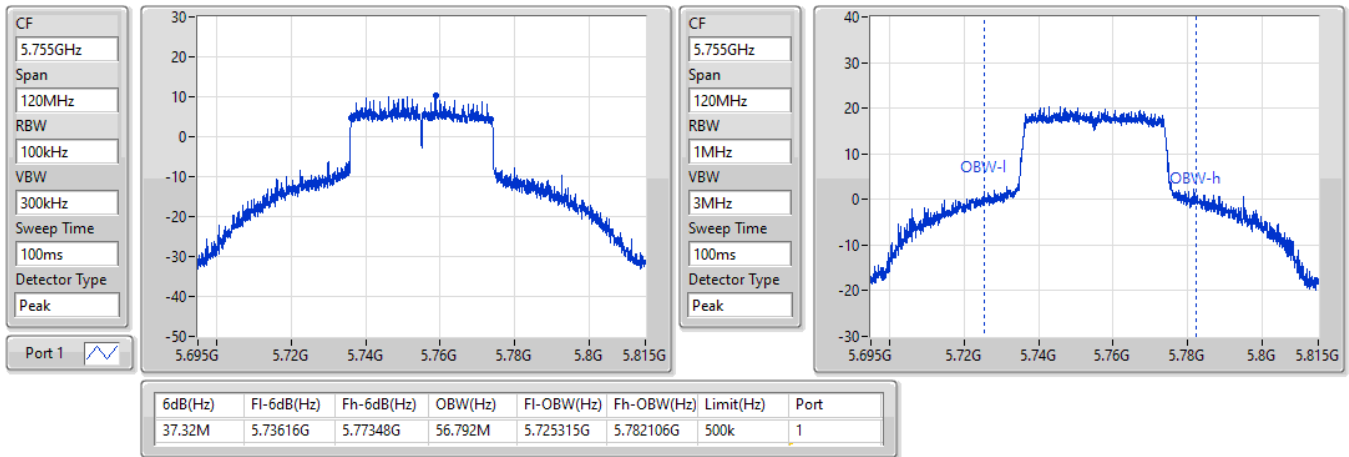


802.11ax HEW40_Nss1,(MCS0)_1TX

EBW

5755MHz

07/07/2022

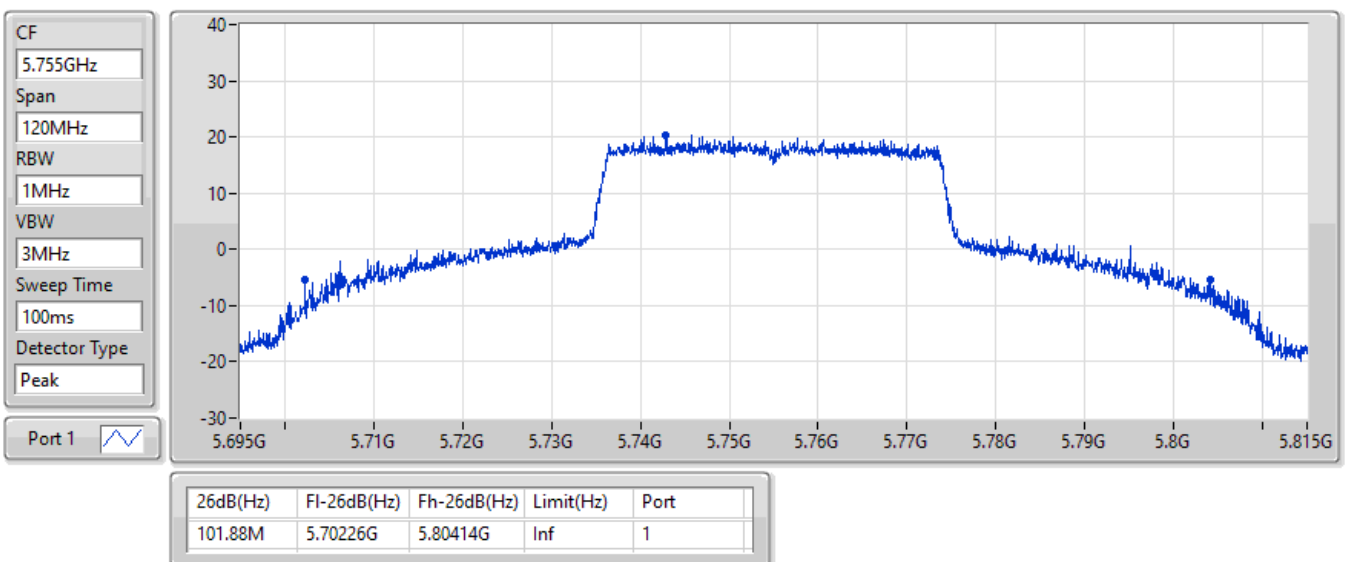


802.11ax HEW40_Nss1,(MCS0)_1TX

EBW

5755MHz

07/07/2022

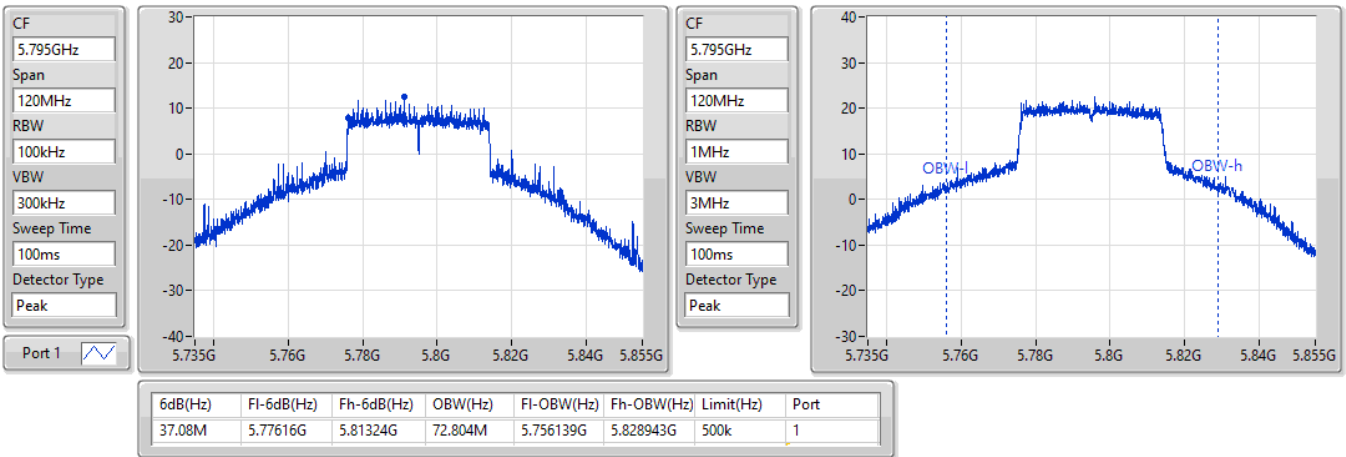


802.11ax HEW40_Nss1,(MCS0)_1TX

EBW

5795MHz

07/07/2022

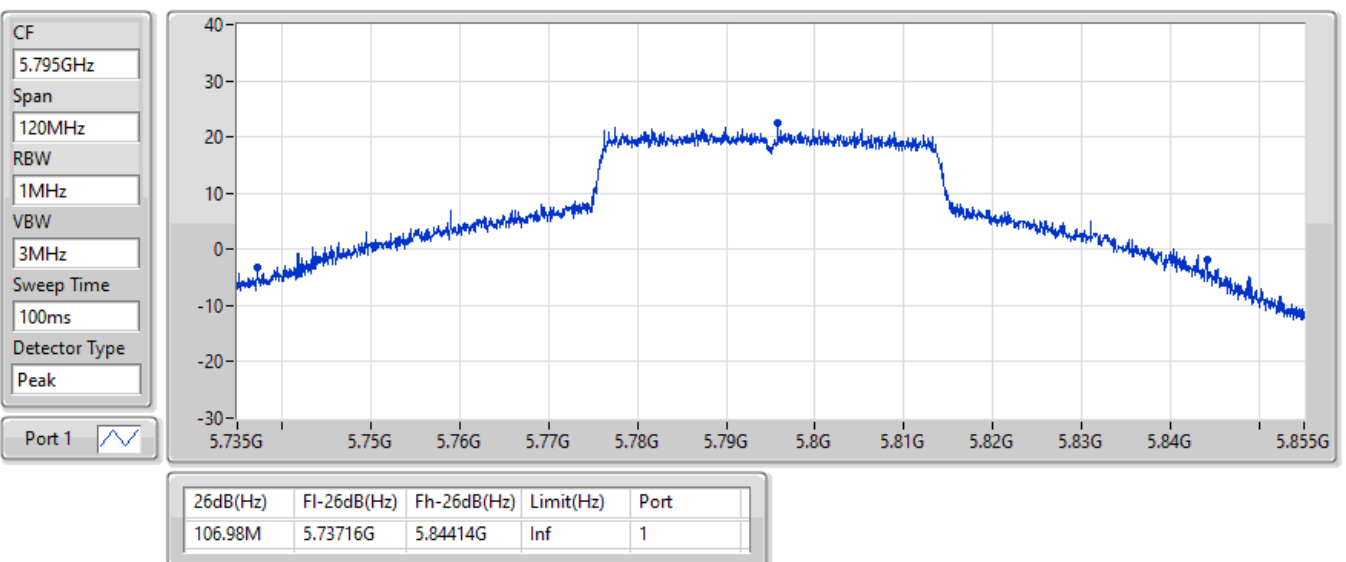


802.11ax HEW40_Nss1,(MCS0)_1TX

EBW

5795MHz

07/07/2022

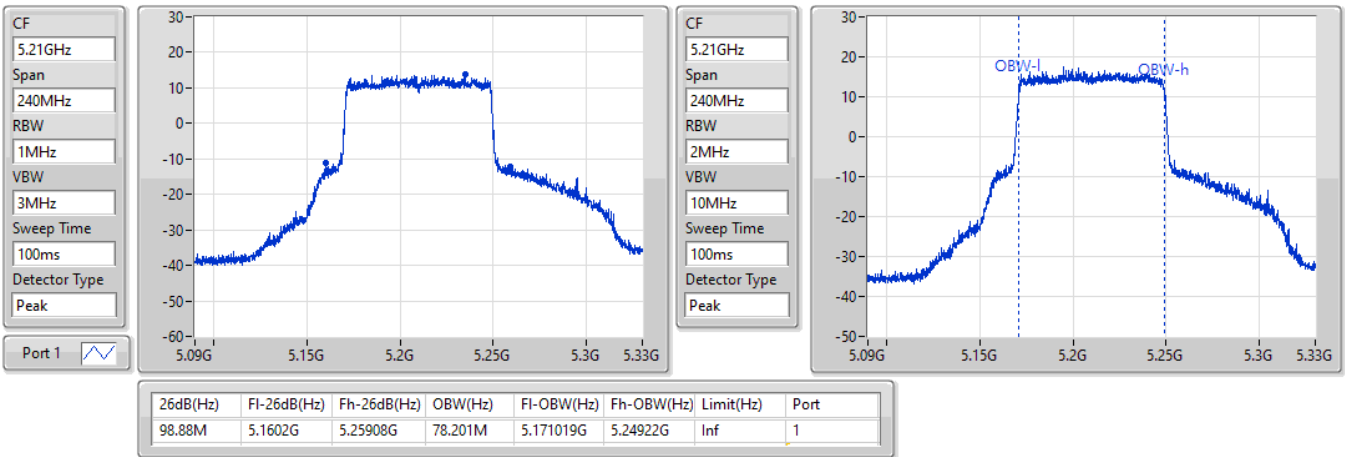


802.11ax HEW80_Nss1,(MCS0)_1TX

EBW

5210MHz

07/07/2022

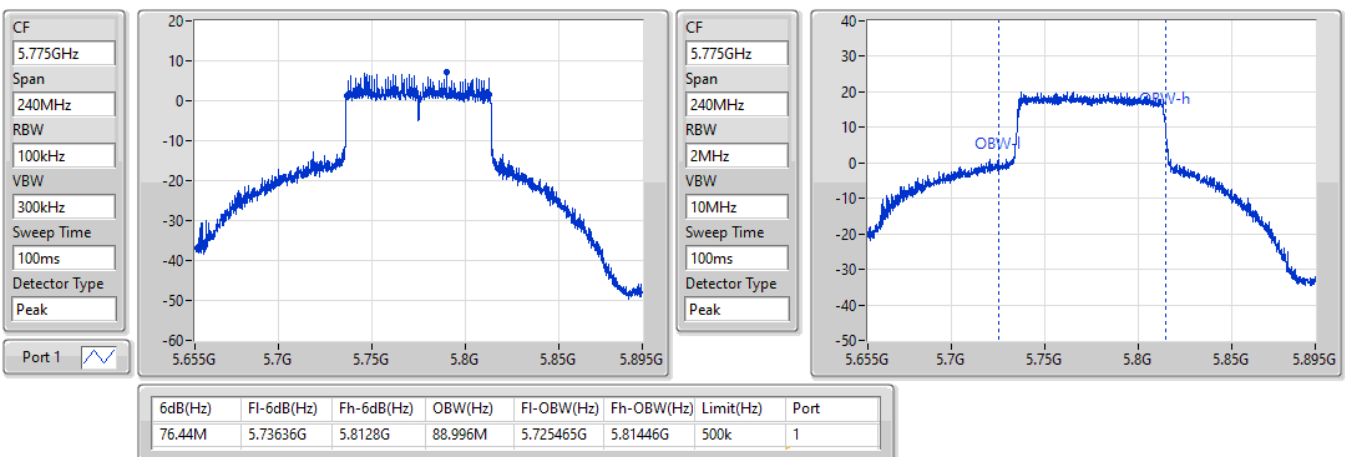


802.11ax HEW80_Nss1,(MCS0)_1TX

EBW

5775MHz

07/07/2022

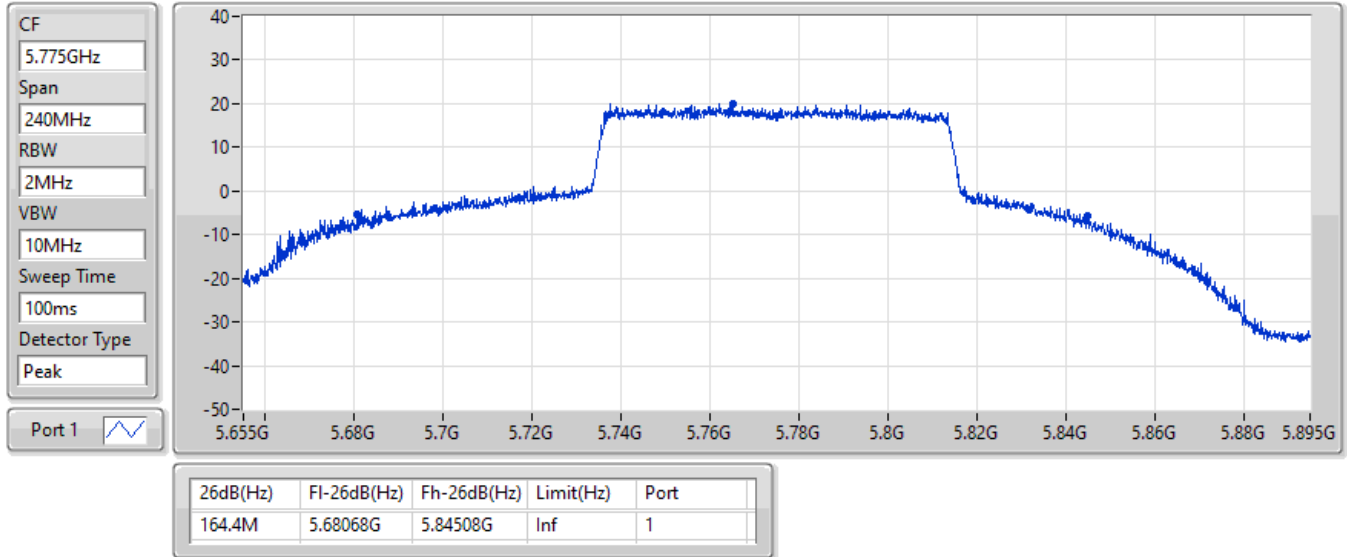


802.11ax HEW80_Nss1,(MCS0)_1TX

EBW

5775MHz

07/07/2022



**Summary**

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.15-5.25GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_2TX	43.65M	24.738M	24M8D1D	33.93M	18.231M
5.725-5.85GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_2TX	16.35M	41.679M	41M7D1D	16.05M	17.211M

Max-N dB = Maximum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;
Max-OBW = Maximum 99% occupied bandwidth;
Min-N dB = Minimum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;
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)
802.11a_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
5180MHz	Pass	Inf	34.23M	18.231M	33.93M	18.231M
5200MHz	Pass	Inf	40.83M	21.439M	43.65M	24.738M
5240MHz	Pass	Inf	38.46M	18.681M	38.64M	19.25M
5745MHz	Pass	500k	16.32M	17.451M	16.35M	17.211M
5785MHz	Pass	500k	16.32M	23.898M	16.29M	32.144M
5825MHz	Pass	500k	16.35M	41.679M	16.05M	38.441M

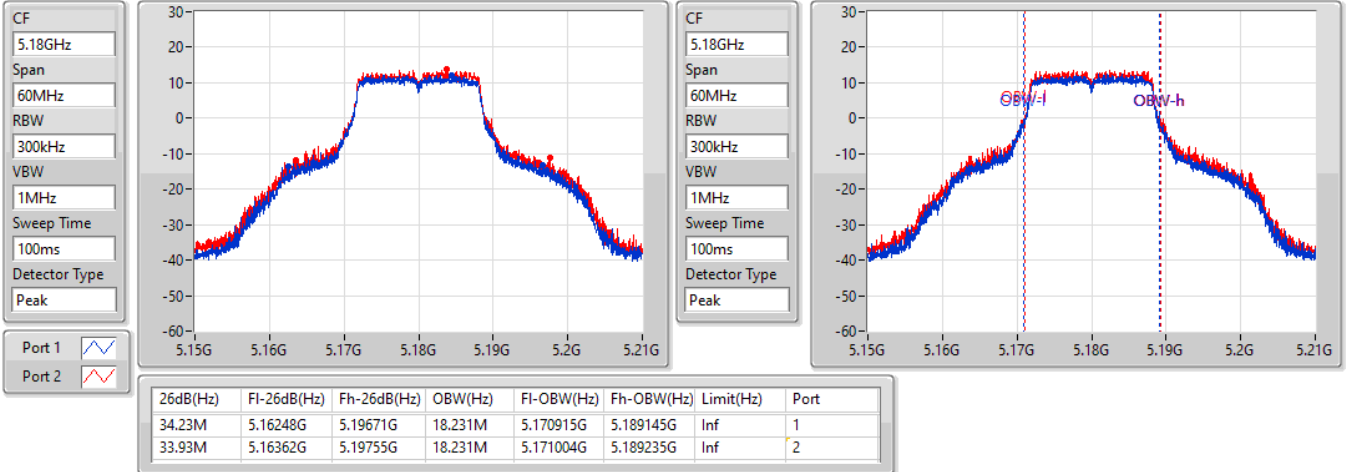
Port X-N dB = Port X 6dB down bandwidth for 5.725-5.85GHz band / 26dB down bandwidth for other band
Port X-OBW = Port X 99% occupied bandwidth

802.11a_Nss1,(6Mbps)_2TX

EBW

5180MHz

16/07/2022

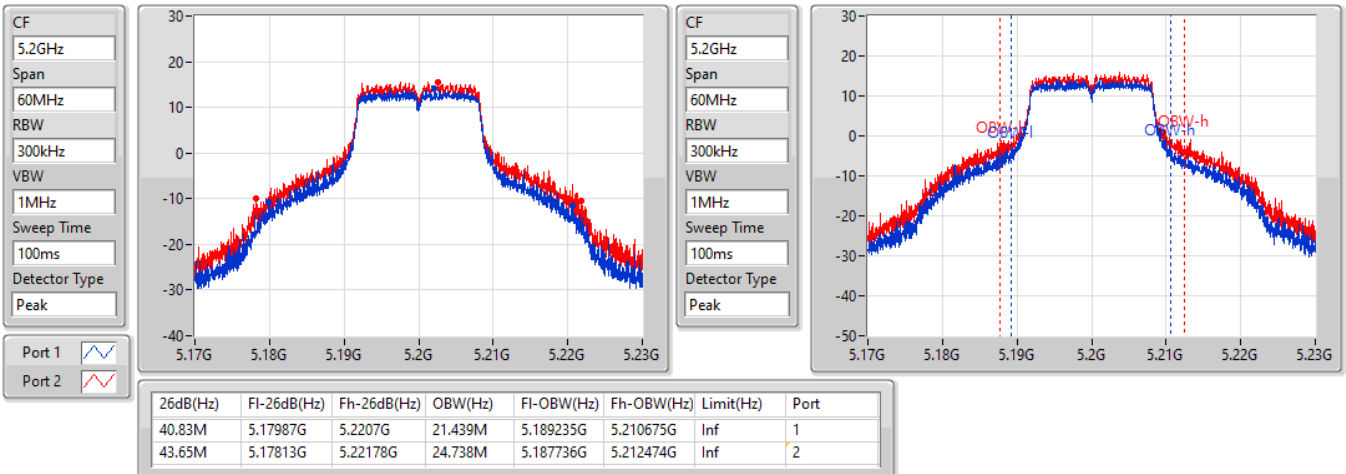


802.11a_Nss1,(6Mbps)_2TX

EBW

5200MHz

16/07/2022

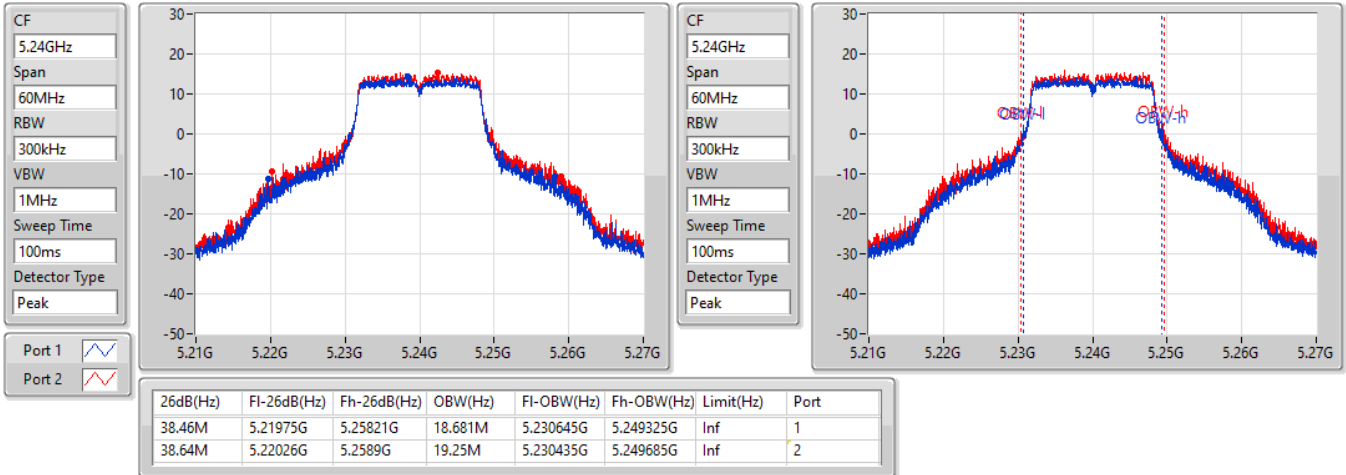


802.11a_Nss1,(6Mbps)_2TX

EBW

5240MHz

16/07/2022

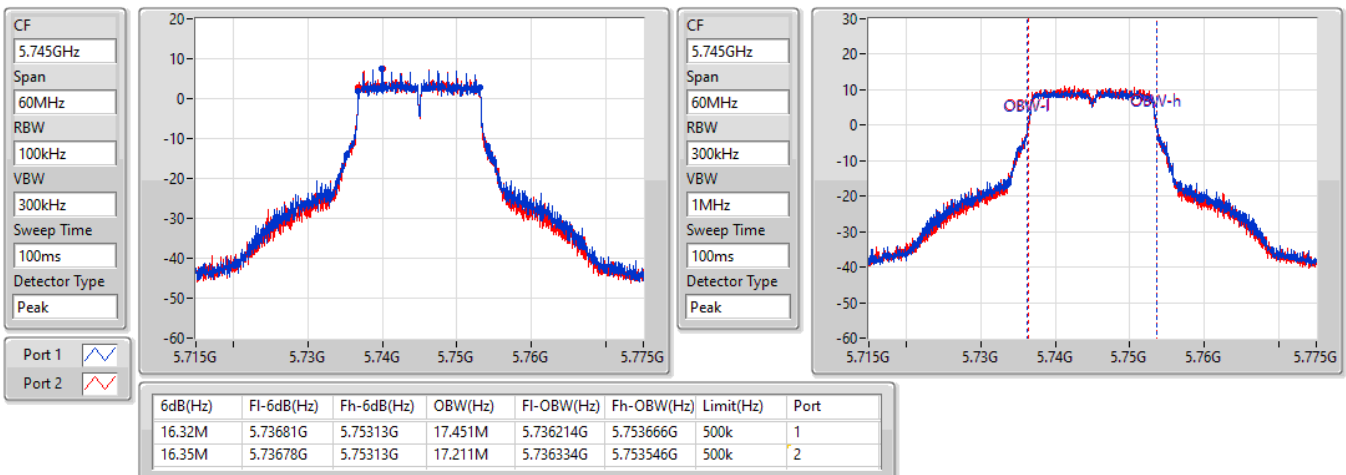


802.11a_Nss1,(6Mbps)_2TX

EBW

5745MHz

07/07/2022

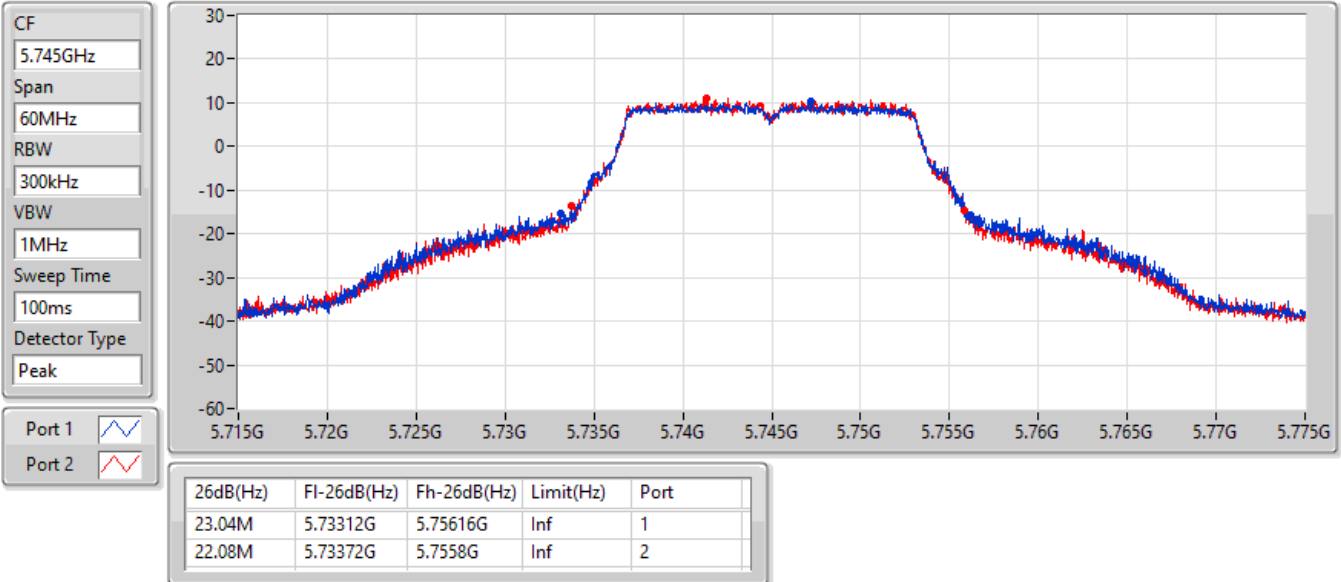


802.11a_Nss1,(6Mbps)_2TX

EBW

5745MHz

07/07/2022

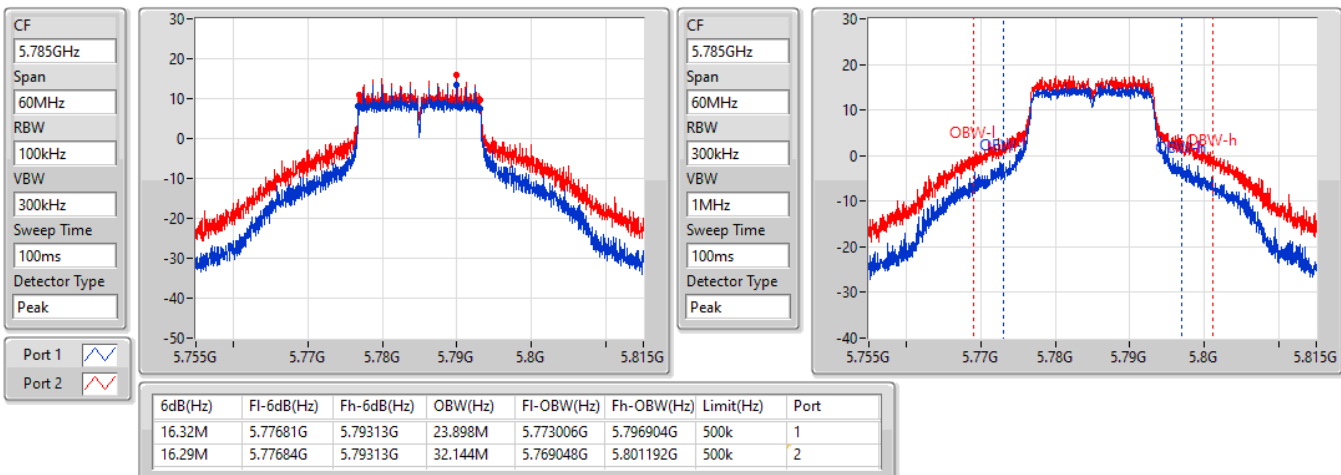


802.11a_Nss1,(6Mbps)_2TX

EBW

5785MHz

07/07/2022

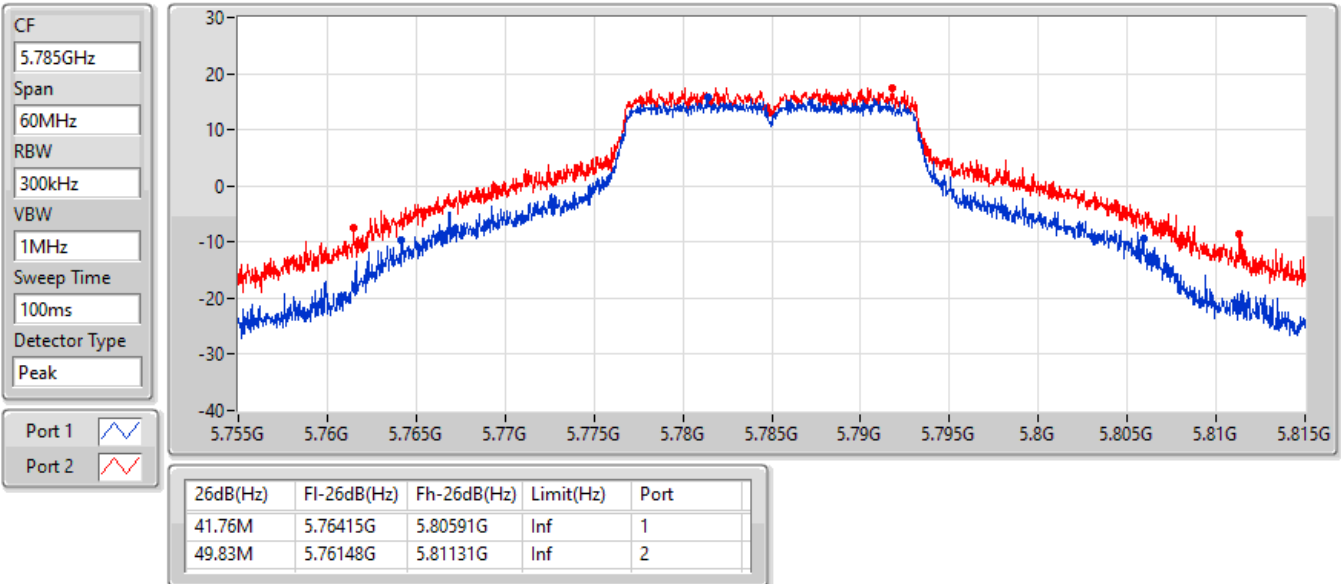


802.11a_Nss1,(6Mbps)_2TX

EBW

5785MHz

07/07/2022

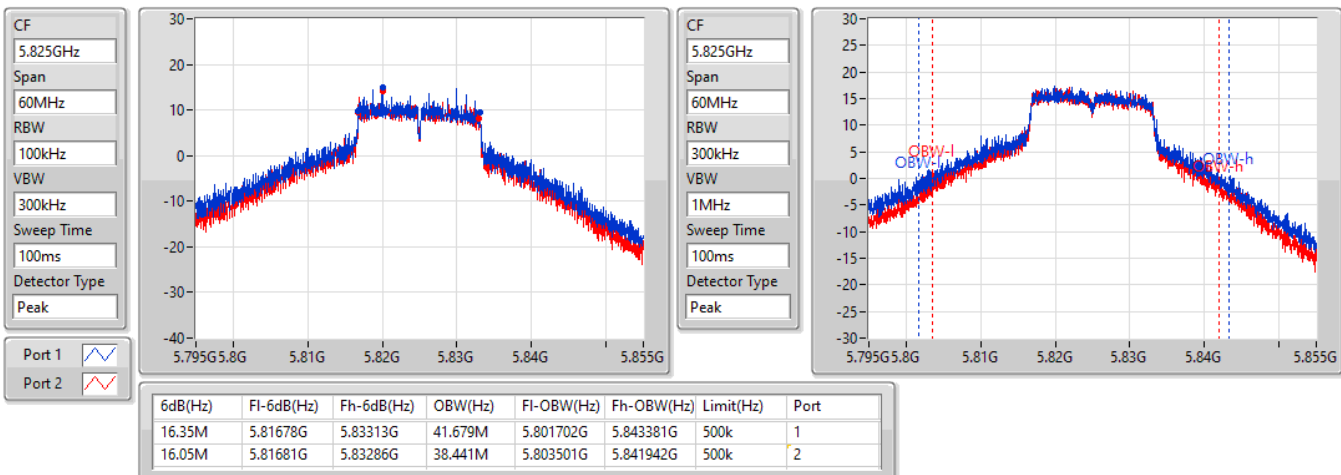


802.11a_Nss1,(6Mbps)_2TX

EBW

5825MHz

07/07/2022

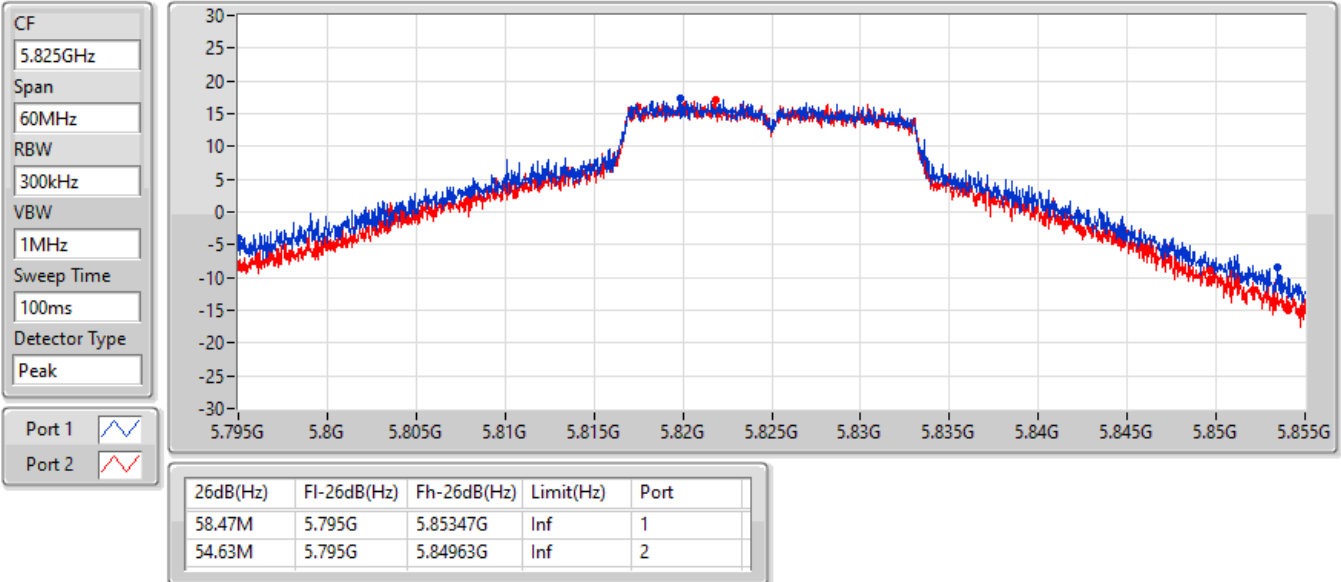


802.11a_Nss1,(6Mbps)_2TX

EBW

5825MHz

07/07/2022



**Summary**

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.15-5.25GHz	-	-	-	-	-
802.11ax HEW20_Nss2,(MCS0)_2TX	49.08M	28.006M	28M0D1D	32.67M	19.4M
802.11ax HEW40_Nss2,(MCS0)_2TX	76.5M	39.82M	39M9D1D	44.94M	38.141M
802.11ax HEW80_Nss2,(MCS0)_2TX	87.96M	78.081M	78M1D1D	84M	77.961M
5.725-5.85GHz	-	-	-	-	-
802.11ax HEW20_Nss2,(MCS0)_2TX	18.96M	42.909M	43M0D1D	16.71M	19.43M
802.11ax HEW40_Nss2,(MCS0)_2TX	37.92M	65.367M	65M4D1D	37.38M	38.381M
802.11ax HEW80_Nss2,(MCS0)_2TX	77.76M	78.201M	78M3D1D	77.52M	78.081M

Max-N dB = Maximum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;

Max-OBW = Maximum 99% occupied bandwidth;

Min-N dB = Minimum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;

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)
802.11ax HEW20_Nss2,(MCS0)_2TX	-	-	-	-	-	-
5180MHz	Pass	Inf	32.67M	19.4M	33.09M	19.43M
5200MHz	Pass	Inf	49.08M	23.868M	46.65M	28.006M
5240MHz	Pass	Inf	42.06M	19.61M	42.33M	19.64M
5745MHz	Pass	500k	18.78M	19.43M	18.66M	20.21M
5785MHz	Pass	500k	18.96M	25.067M	18.15M	35.052M
5825MHz	Pass	500k	18.03M	42.909M	16.71M	40.57M
802.11ax HEW40_Nss2,(MCS0)_2TX	-	-	-	-	-	-
5190MHz	Pass	Inf	49.08M	38.201M	44.94M	38.141M
5230MHz	Pass	Inf	76.5M	39.82M	70.38M	39.7M
5755MHz	Pass	500k	37.92M	38.381M	37.68M	38.681M
5795MHz	Pass	500k	37.38M	55.292M	37.62M	65.367M
802.11ax HEW80_Nss2,(MCS0)_2TX	-	-	-	-	-	-
5210MHz	Pass	Inf	84M	77.961M	87.96M	78.081M
5775MHz	Pass	500k	77.76M	78.081M	77.52M	78.201M

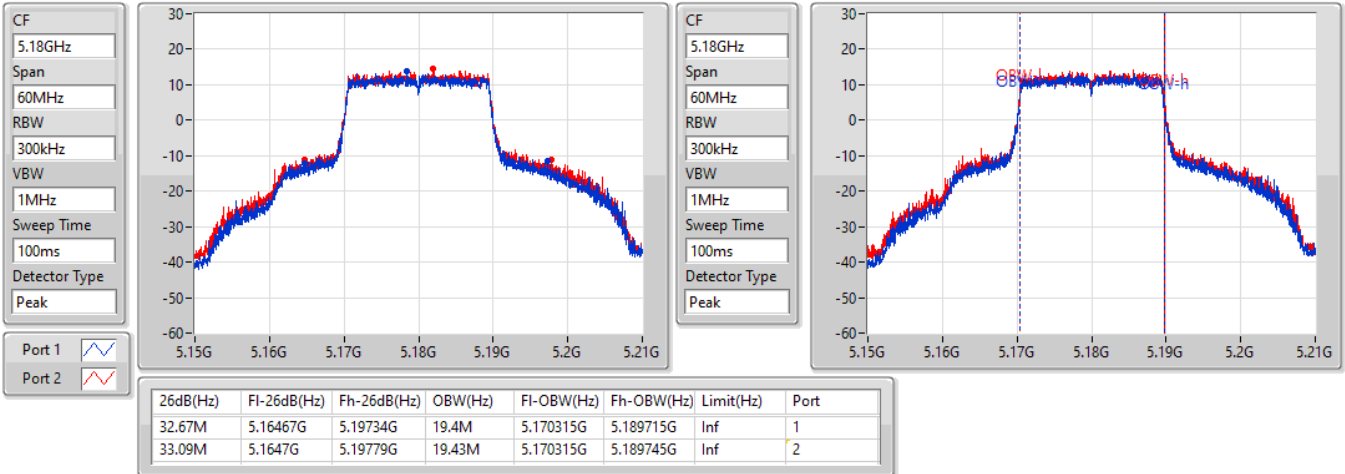
Port X-N dB = Port X 6dB down bandwidth for 5.725-5.85GHz band / 26dB down bandwidth for other band
Port X-OBW = Port X 99% occupied bandwidth

802.11ax HEW20_Nss2,(MCS0)_2TX

EBW

5180MHz

16/07/2022

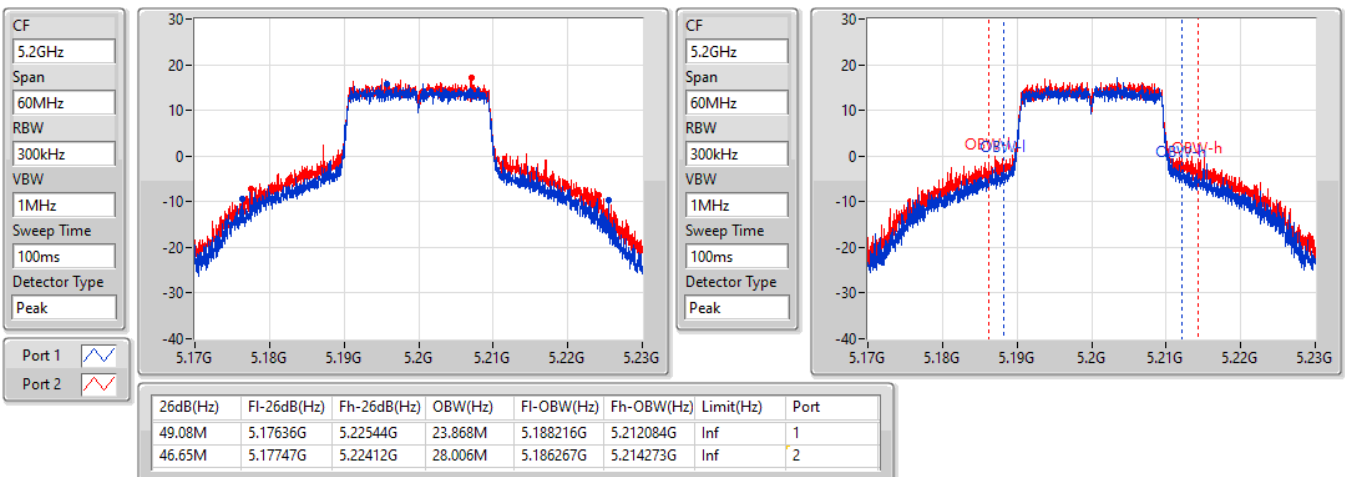


802.11ax HEW20_Nss2,(MCS0)_2TX

EBW

5200MHz

16/07/2022

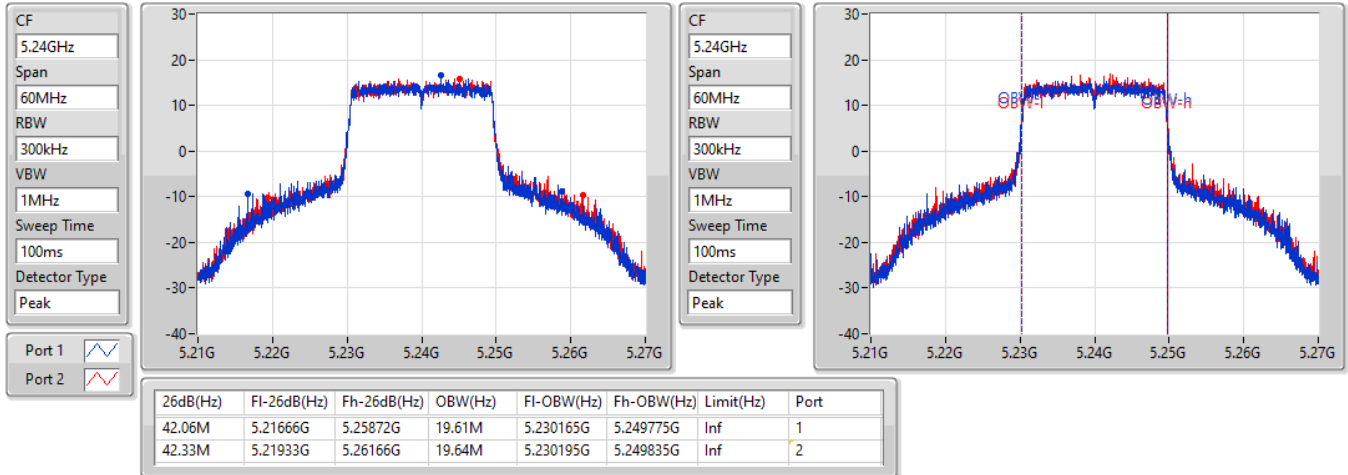


802.11ax HEW20_Nss2,(MCS0)_2TX

EBW

5240MHz

16/07/2022

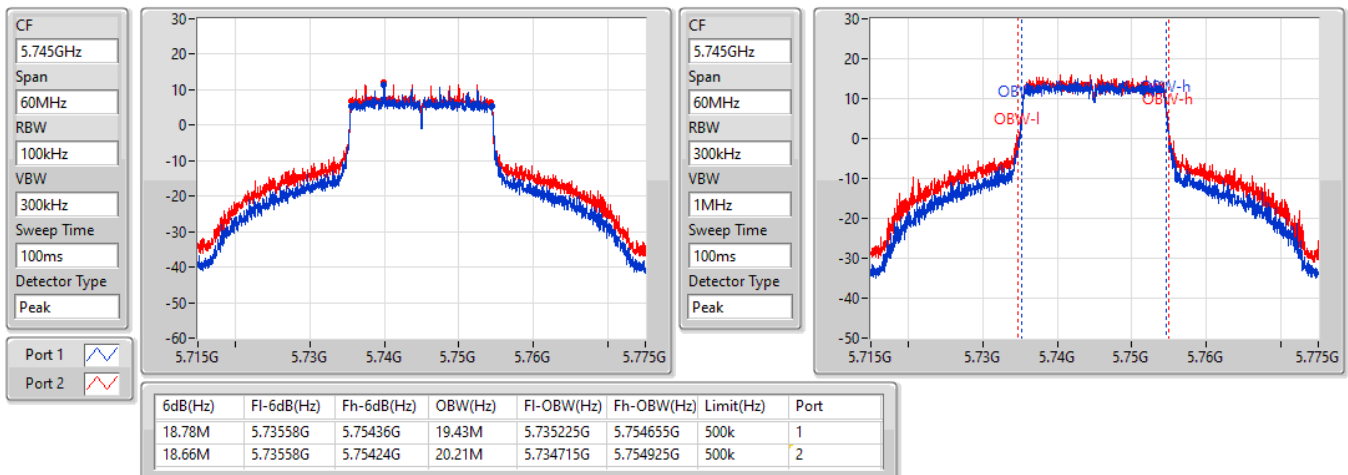


802.11ax HEW20_Nss2,(MCS0)_2TX

EBW

5745MHz

07/07/2022

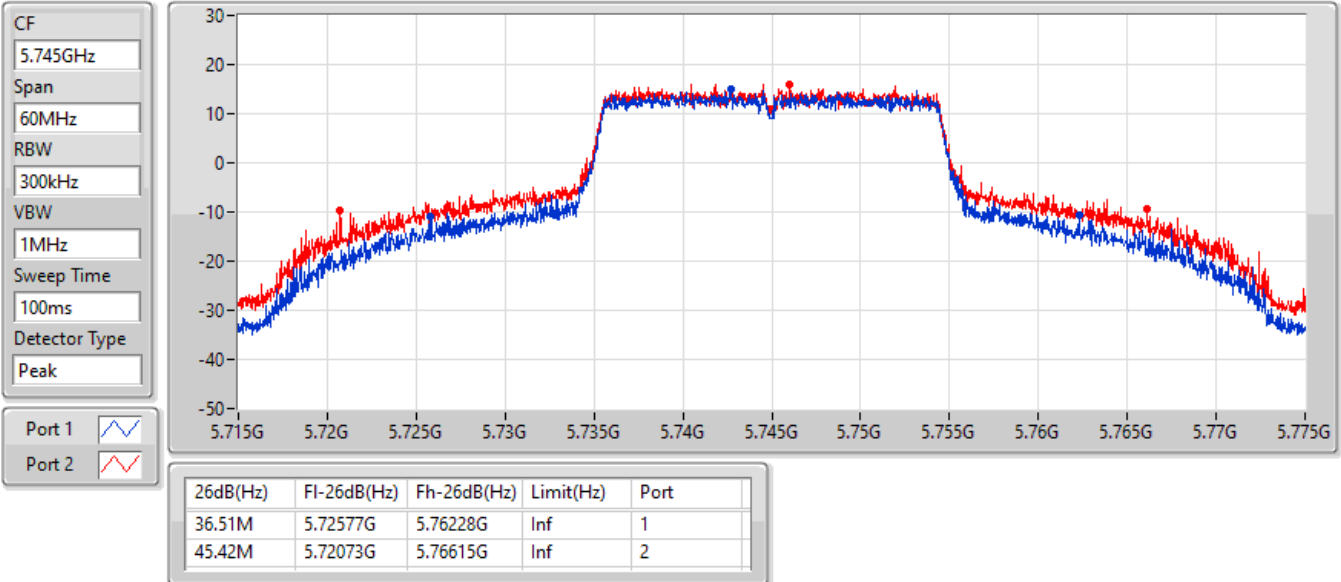


802.11ax HEW20_Nss2,(MCS0)_2TX

EBW

5745MHz

07/07/2022

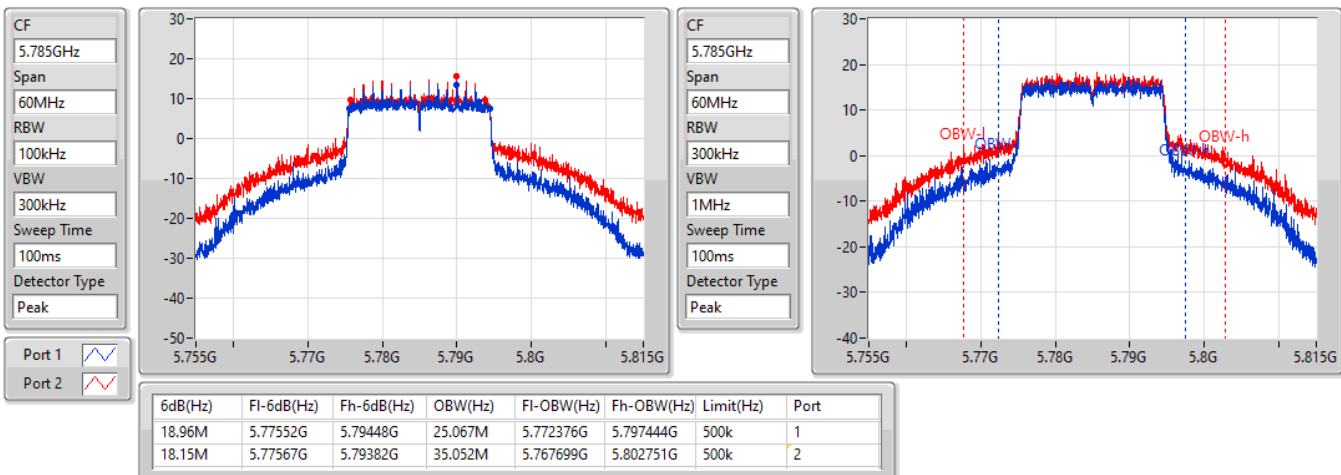


802.11ax HEW20_Nss2,(MCS0)_2TX

EBW

5785MHz

07/07/2022

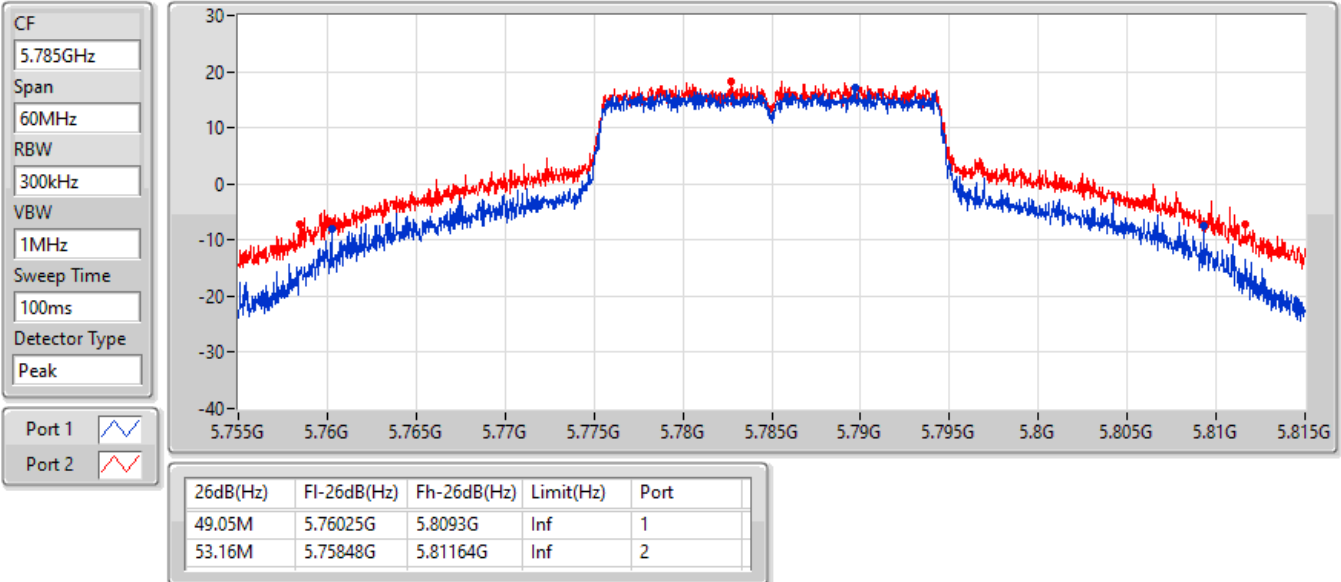


802.11ax HEW20_Nss2,(MCS0)_2TX

EBW

5785MHz

07/07/2022

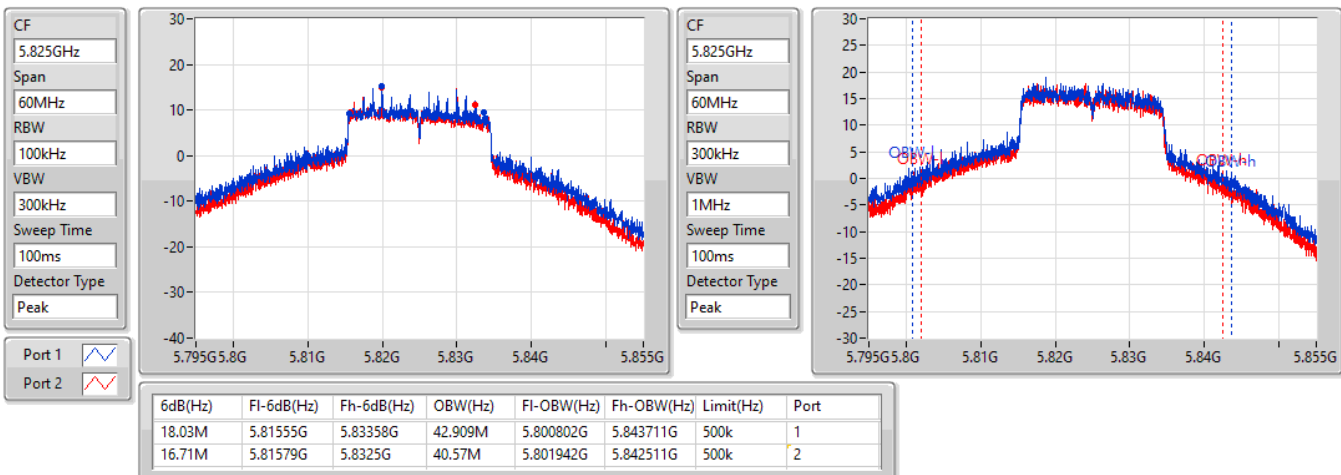


802.11ax HEW20_Nss2,(MCS0)_2TX

EBW

5825MHz

07/07/2022

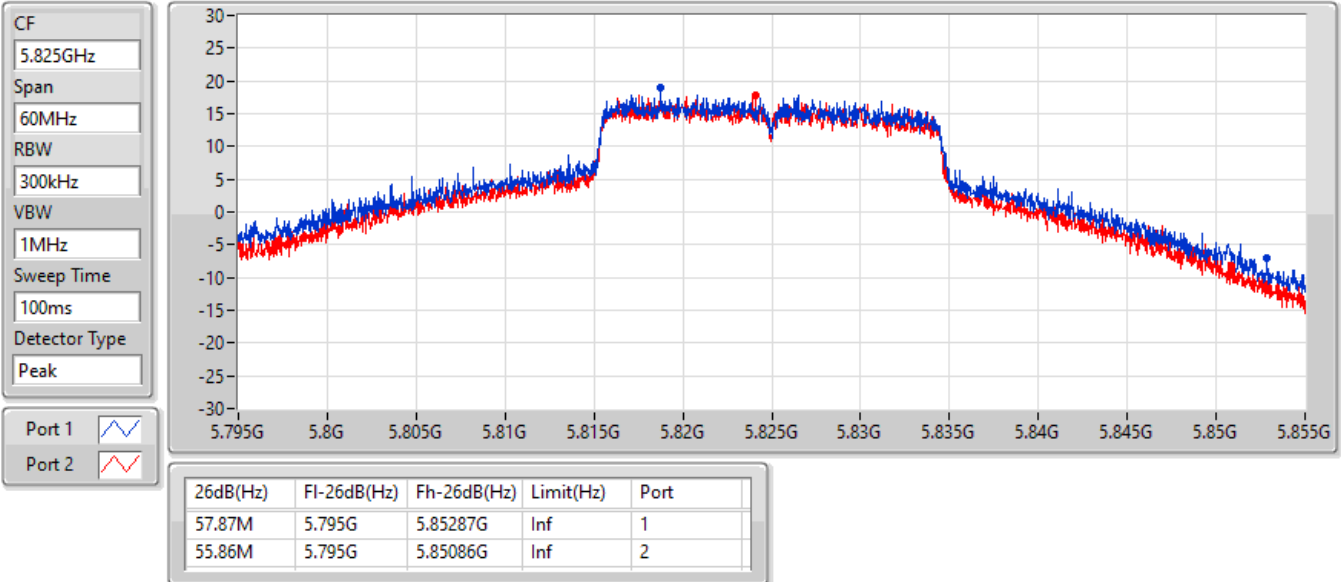


802.11ax HEW20_Nss2,(MCS0)_2TX

EBW

5825MHz

07/07/2022

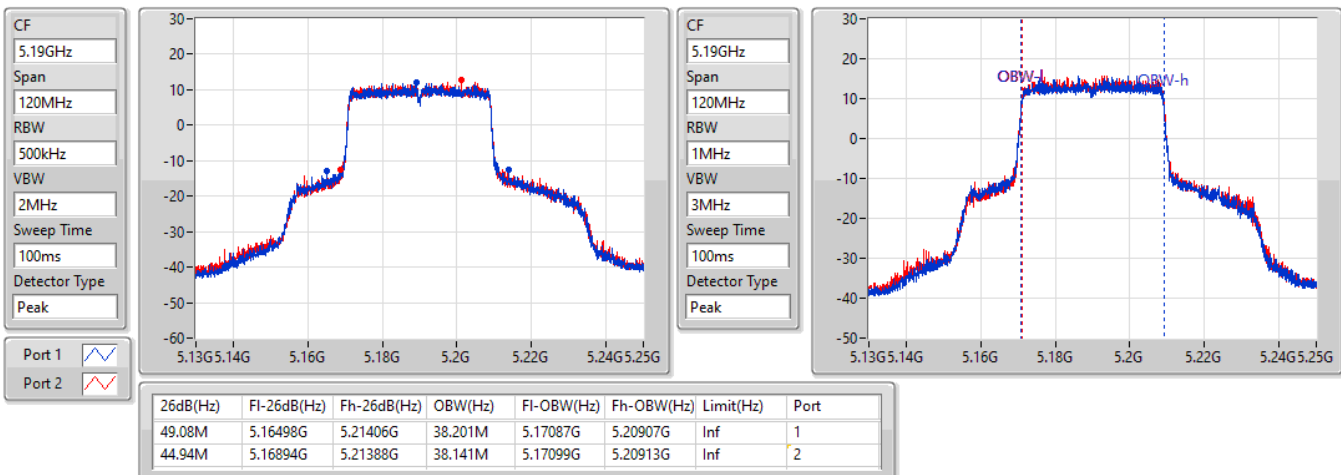


802.11ax HEW40_Nss2,(MCS0)_2TX

EBW

5190MHz

07/07/2022

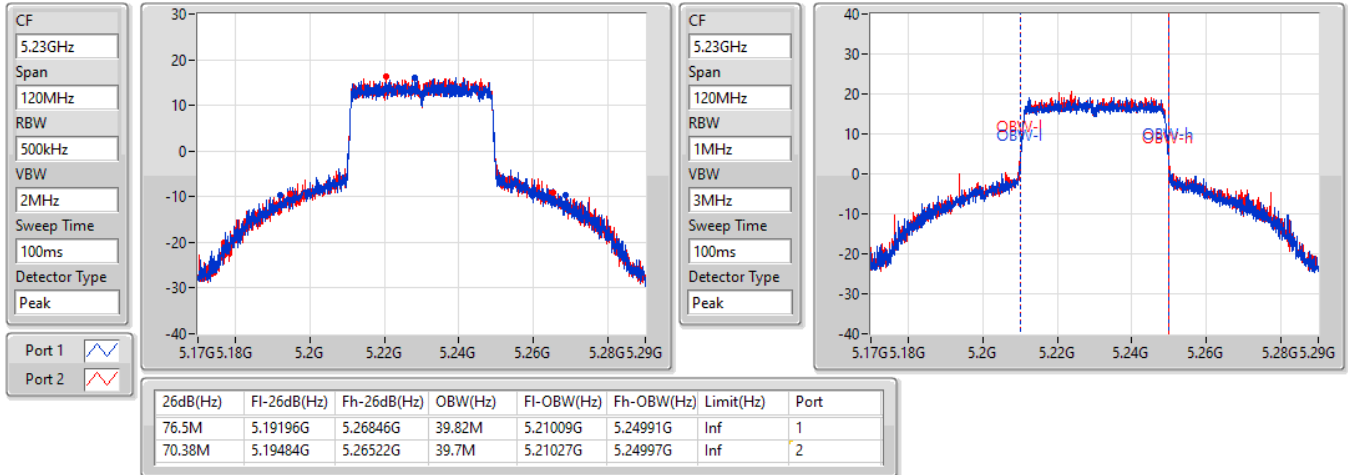


802.11ax HEW40_Nss2,(MCS0)_2TX

EBW

5230MHz

16/07/2022

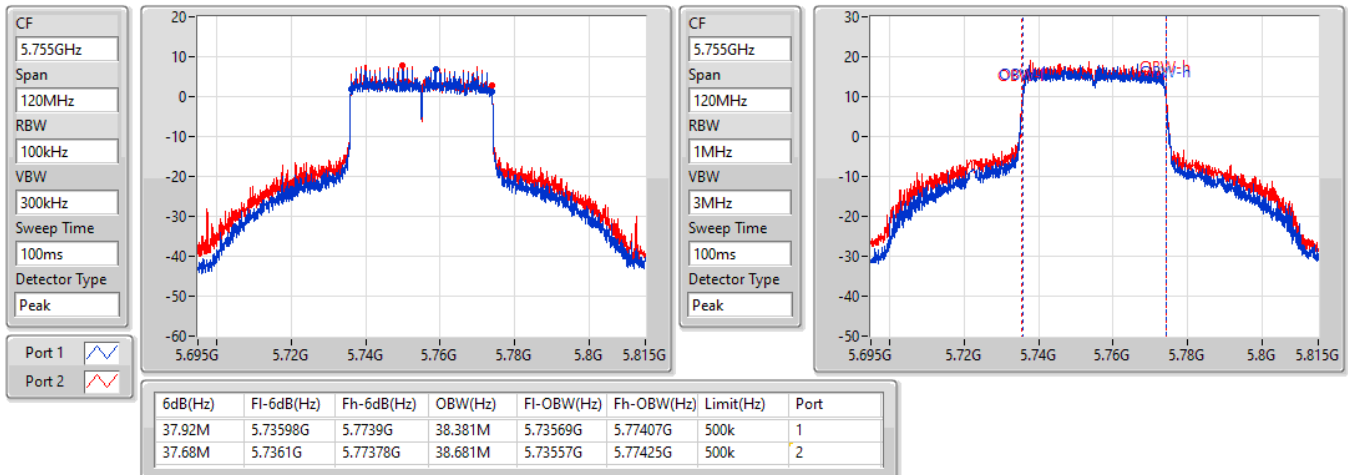


802.11ax HEW40_Nss2,(MCS0)_2TX

EBW

5755MHz

07/07/2022

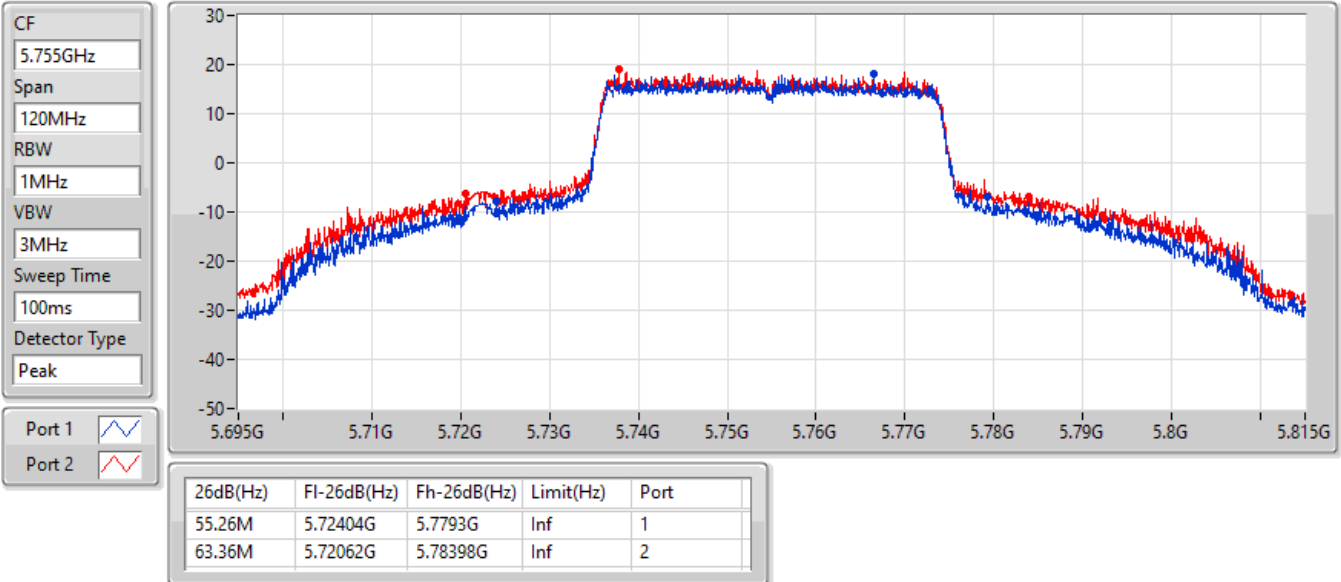


802.11ax HEW40_Nss2,(MCS0)_2TX

EBW

5755MHz

07/07/2022

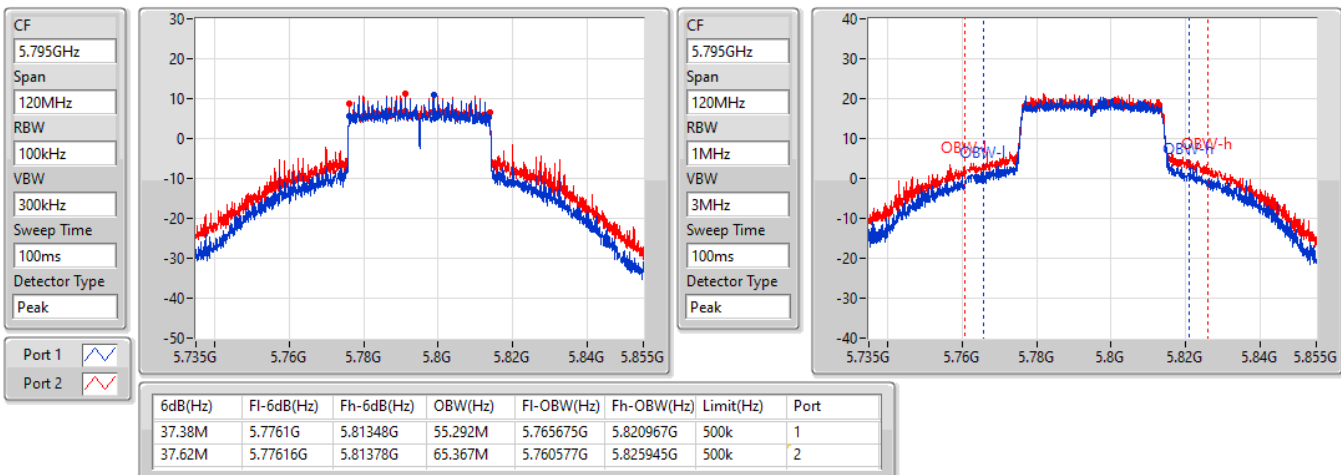


802.11ax HEW40_Nss2,(MCS0)_2TX

EBW

5795MHz

07/07/2022

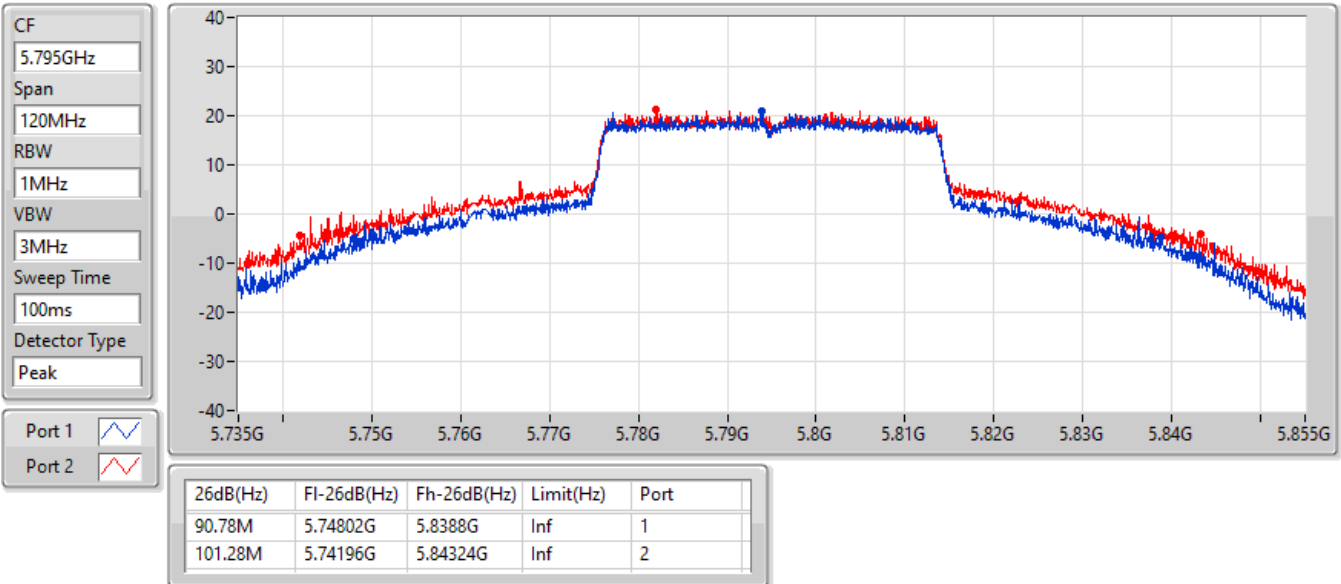


802.11ax HEW40_Nss2,(MCS0)_2TX

EBW

5795MHz

07/07/2022

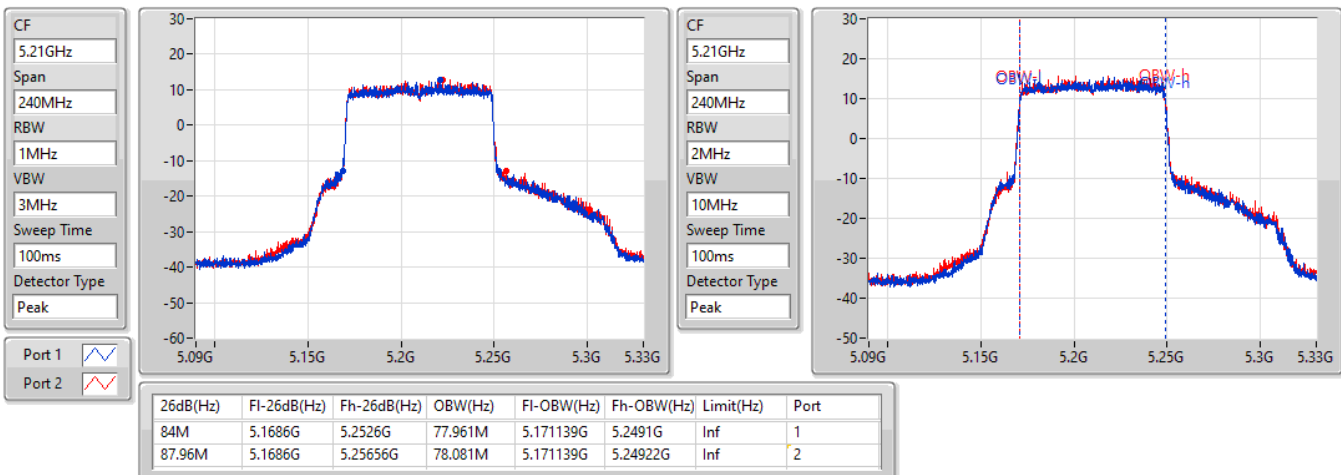


802.11ax HEW80_Nss2,(MCS0)_2TX

EBW

5210MHz

07/07/2022

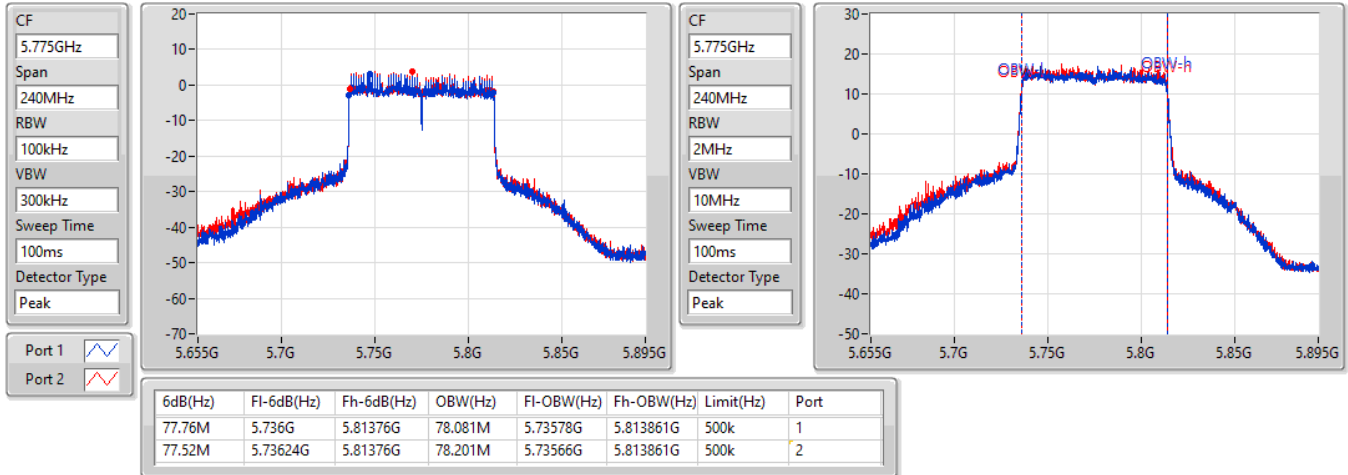


802.11ax HEW80_Nss2,(MCS0)_2TX

EBW

5775MHz

07/07/2022

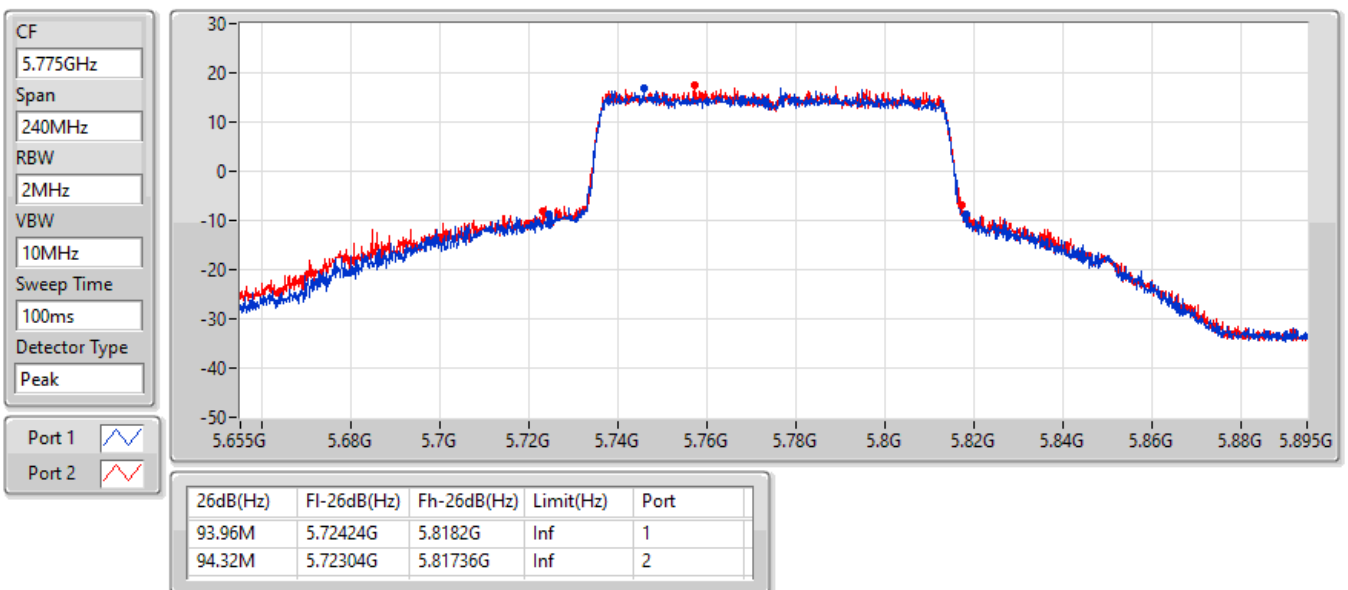


802.11ax HEW80_Nss2,(MCS0)_2TX

EBW

5775MHz

07/07/2022



Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.15-5.25GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_4TX	36.12M	18.441M	18M5D1D	26.16M	17.181M
802.11ax HEW20_Nss1,(MCS0)_4TX	39.09M	19.61M	19M7D1D	27.3M	19.22M
802.11ax HEW40_Nss1,(MCS0)_4TX	76.86M	38.981M	39M0D1D	43.56M	38.141M
802.11ax HEW80_Nss1,(MCS0)_4TX	90.36M	77.961M	78M0D1D	83.28M	77.841M
5.725-5.85GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_4TX	16.35M	34.153M	34M2D1D	15.75M	19.04M
802.11ax HEW20_Nss1,(MCS0)_4TX	18.9M	36.222M	36M3D1D	16.53M	19.67M
802.11ax HEW40_Nss1,(MCS0)_4TX	37.8M	56.552M	56M6D1D	37.38M	39.88M
802.11ax HEW80_Nss1,(MCS0)_4TX	77.64M	78.201M	78M3D1D	76.2M	78.081M

Max-N dB = Maximum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;
 Max-OBW = Maximum 99% occupied bandwidth;
 Min-N dB = Minimum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;
 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)
802.11a_Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	Inf	31.77M	17.931M	34.44M	17.871M	29.97M	17.631M	33.03M	18.351M
5200MHz	Pass	Inf	34.08M	17.931M	34.92M	17.841M	31.2M	17.631M	36.12M	18.441M
5240MHz	Pass	Inf	26.16M	17.421M	26.34M	17.301M	26.49M	17.181M	29.76M	17.451M
5745MHz	Pass	500k	16.32M	20.24M	16.32M	28.666M	16.32M	20.6M	16.32M	22.909M
5785MHz	Pass	500k	16.32M	19.04M	16.32M	24.588M	16.35M	19.22M	16.35M	21.019M
5825MHz	Pass	500k	16.29M	26.417M	15.75M	34.153M	15.93M	29.715M	16.05M	32.294M
802.11ax HEW20_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	Inf	34.35M	19.4M	31.98M	19.37M	34.65M	19.34M	36.6M	19.52M
5200MHz	Pass	Inf	37.74M	19.4M	34.53M	19.37M	29.61M	19.4M	39.09M	19.61M
5240MHz	Pass	Inf	27.3M	19.28M	29.76M	19.28M	30.6M	19.22M	35.94M	19.31M
5745MHz	Pass	500k	18.9M	19.67M	18.66M	26.447M	18.9M	19.76M	18.87M	20.48M
5785MHz	Pass	500k	18.9M	19.88M	18.84M	26.897M	18.9M	20.39M	18.84M	22.399M
5825MHz	Pass	500k	18.27M	28.186M	16.53M	36.222M	18.63M	31.874M	18.39M	34.753M
802.11ax HEW40_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5190MHz	Pass	Inf	43.86M	38.261M	44.4M	38.201M	43.56M	38.141M	50.16M	38.141M
5230MHz	Pass	Inf	68.46M	38.741M	63.06M	38.741M	69.42M	38.681M	76.86M	38.981M
5755MHz	Pass	500k	37.74M	39.88M	37.62M	56.552M	37.62M	40.18M	37.74M	51.394M
5795MHz	Pass	500k	37.74M	40M	37.62M	52.474M	37.38M	43.418M	37.8M	49.655M
802.11ax HEW80_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5210MHz	Pass	Inf	87.36M	77.961M	85.8M	77.961M	83.28M	77.841M	90.36M	77.961M
5775MHz	Pass	500k	77.64M	78.201M	77.52M	78.081M	77.4M	78.201M	76.2M	78.201M

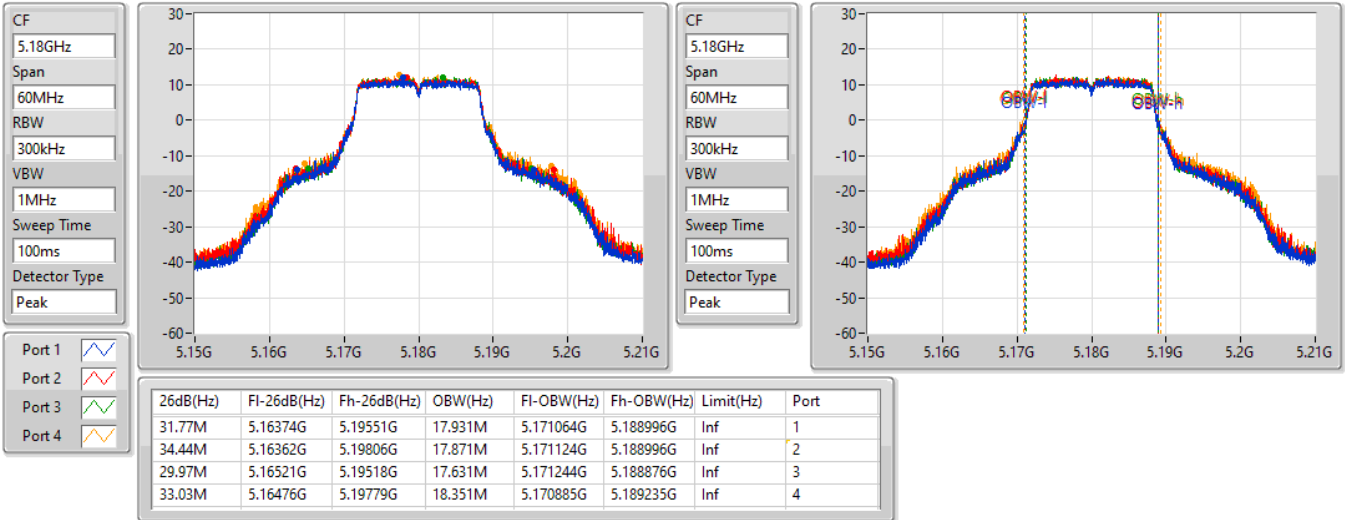
Port X-N dB = Port X 6dB down bandwidth for 5.725-5.85GHz band / 26dB down bandwidth for other band
Port X-OBW = Port X 99% occupied bandwidth

802.11a_Nss1,(6Mbps)_4TX

EBW

5180MHz

16/07/2022

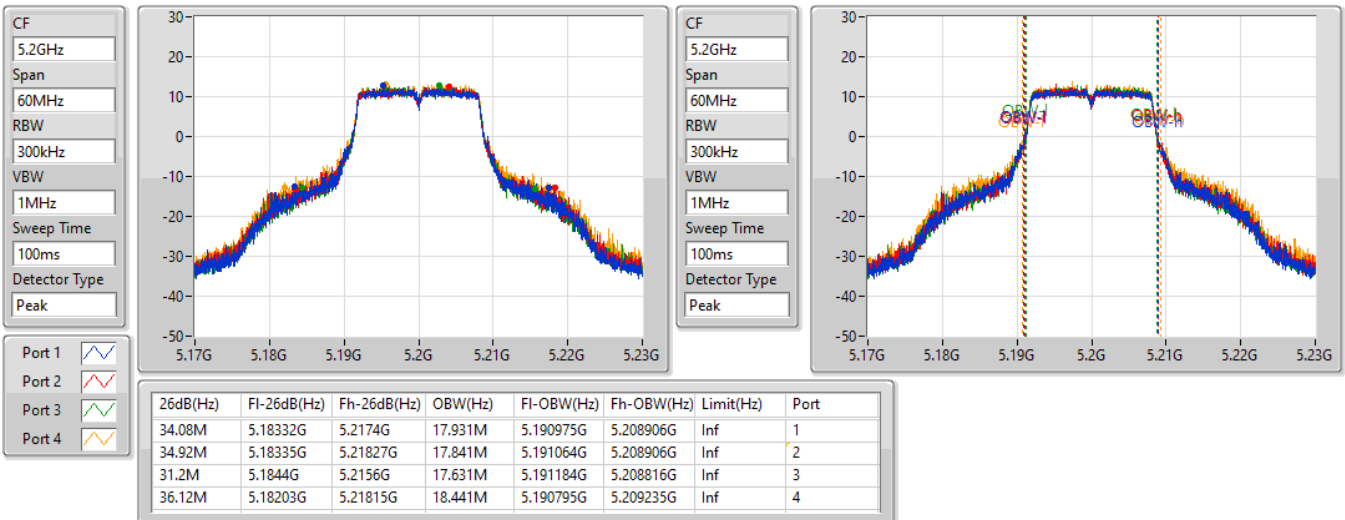


802.11a_Nss1,(6Mbps)_4TX

EBW

5200MHz

16/07/2022

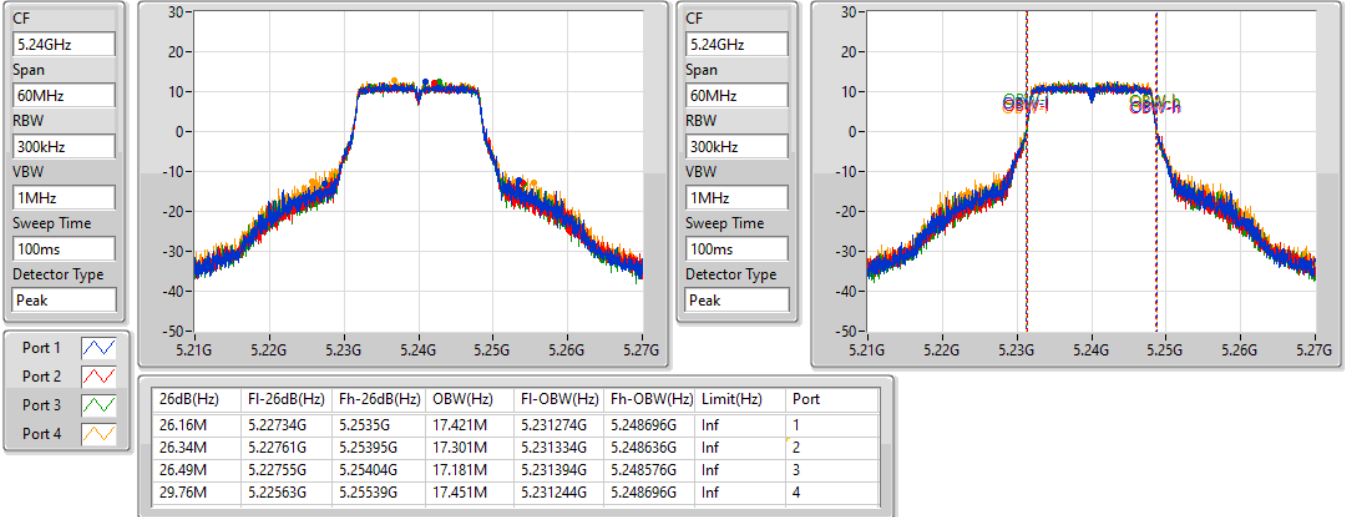


802.11a_Nss1,(6Mbps)_4TX

EBW

5240MHz

16/07/2022

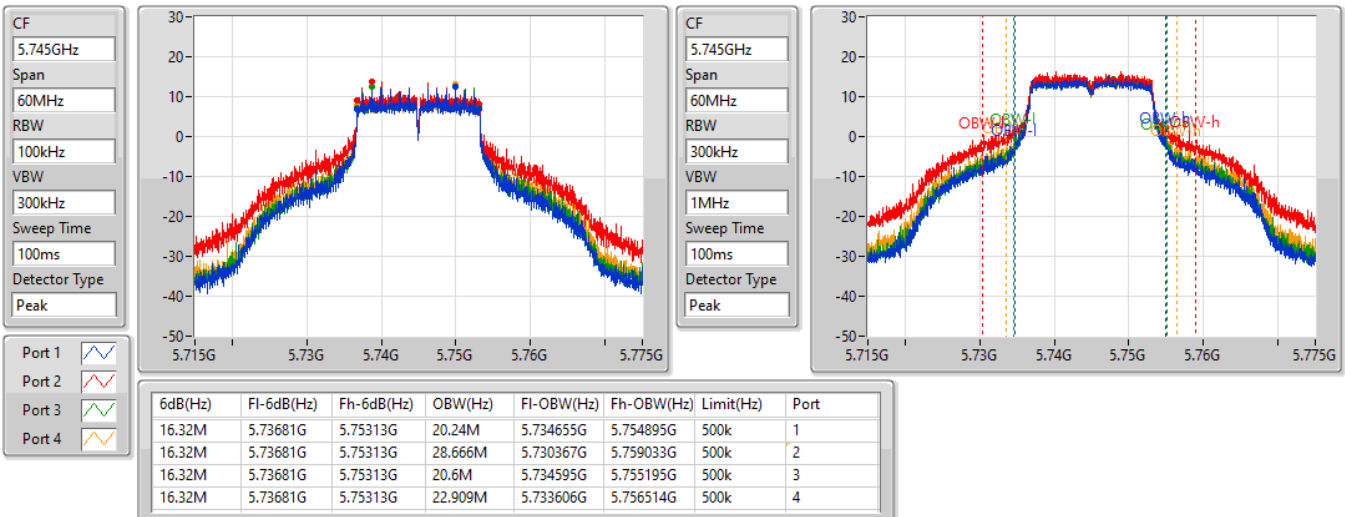


802.11a_Nss1,(6Mbps)_4TX

EBW

5745MHz

07/07/2022

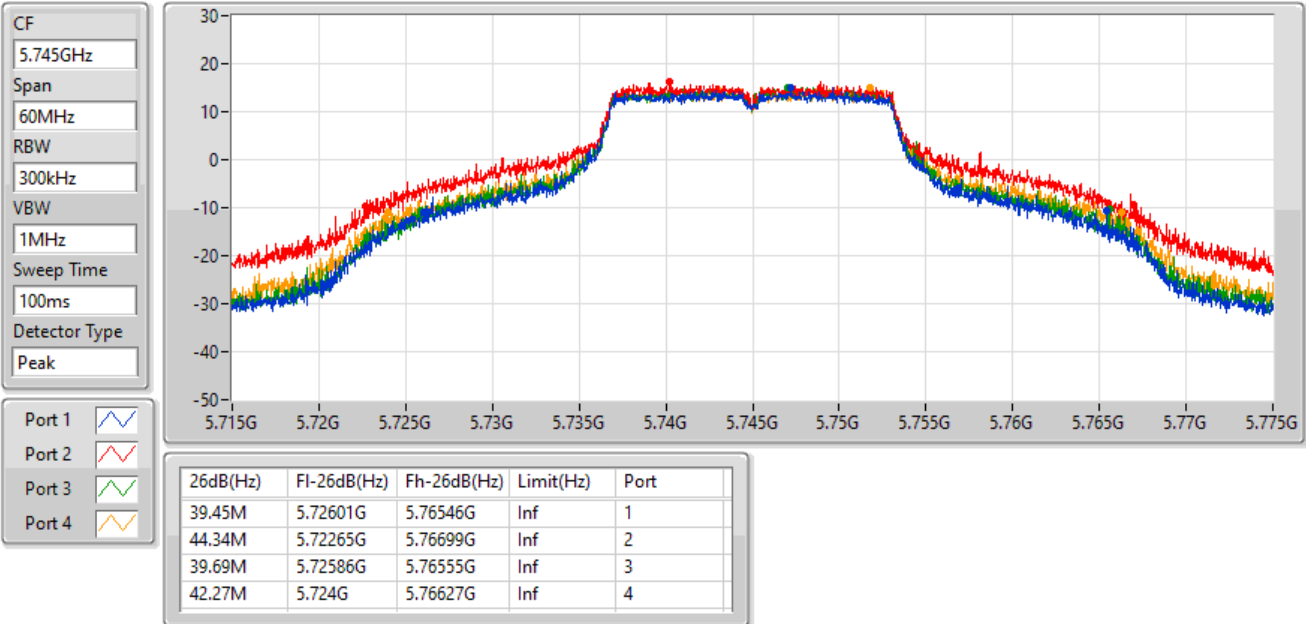


802.11a_Nss1,(6Mbps)_4TX

EBW

5745MHz

07/07/2022

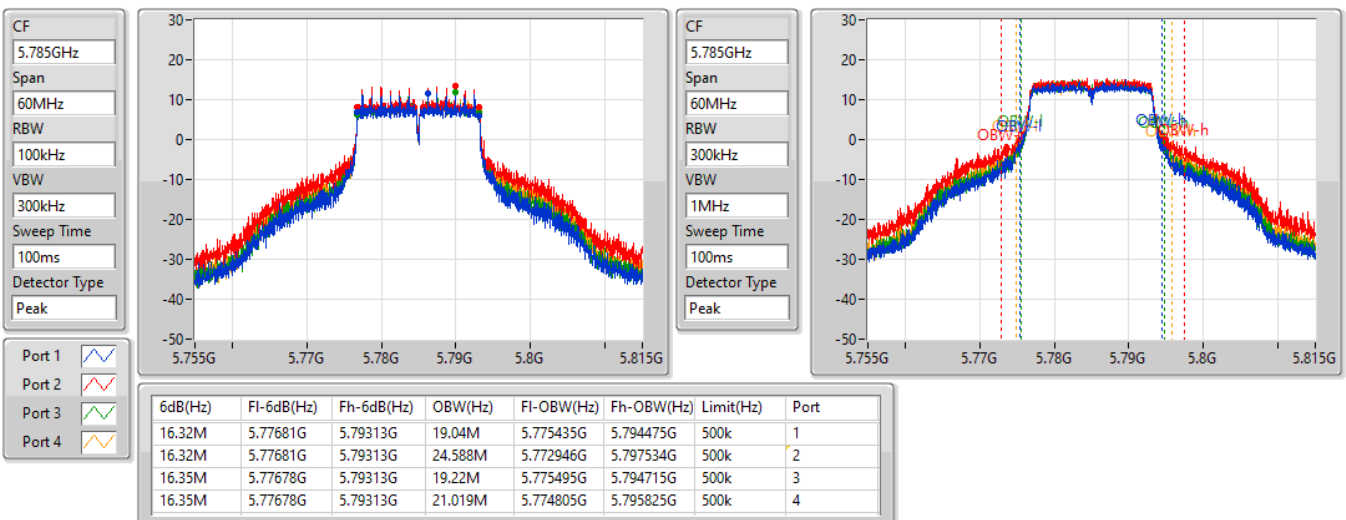


802.11a_Nss1,(6Mbps)_4TX

EBW

5785MHz

07/07/2022

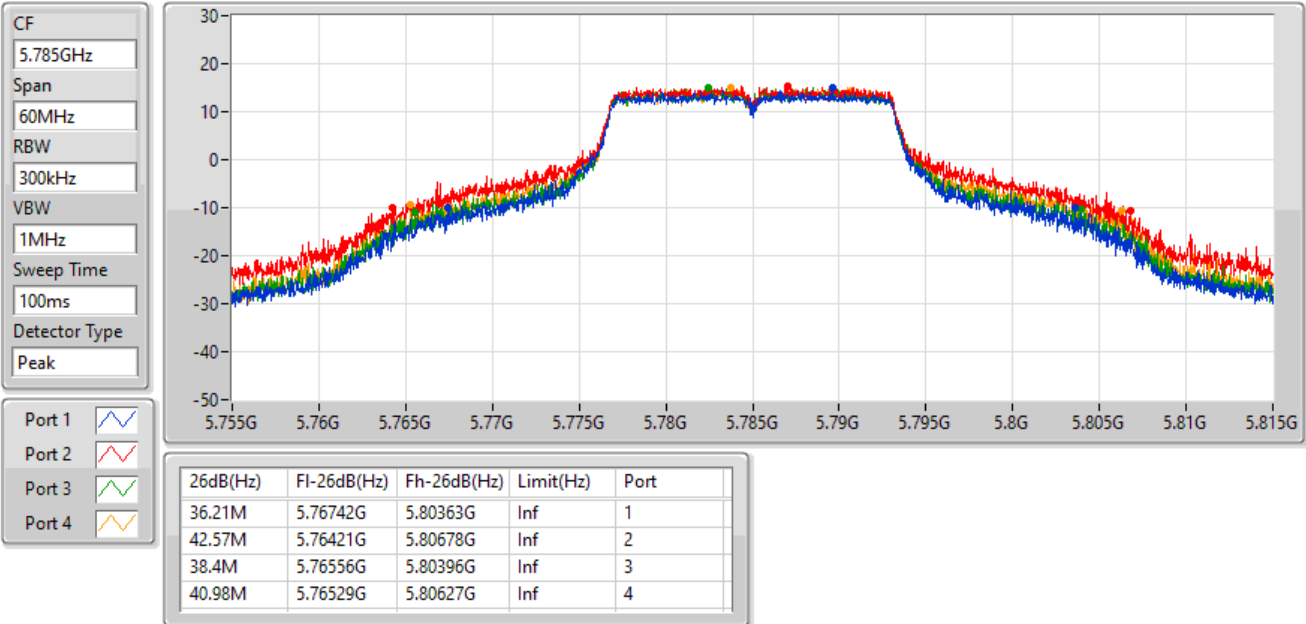


802.11a_Nss1,(6Mbps)_4TX

EBW

5785MHz

07/07/2022

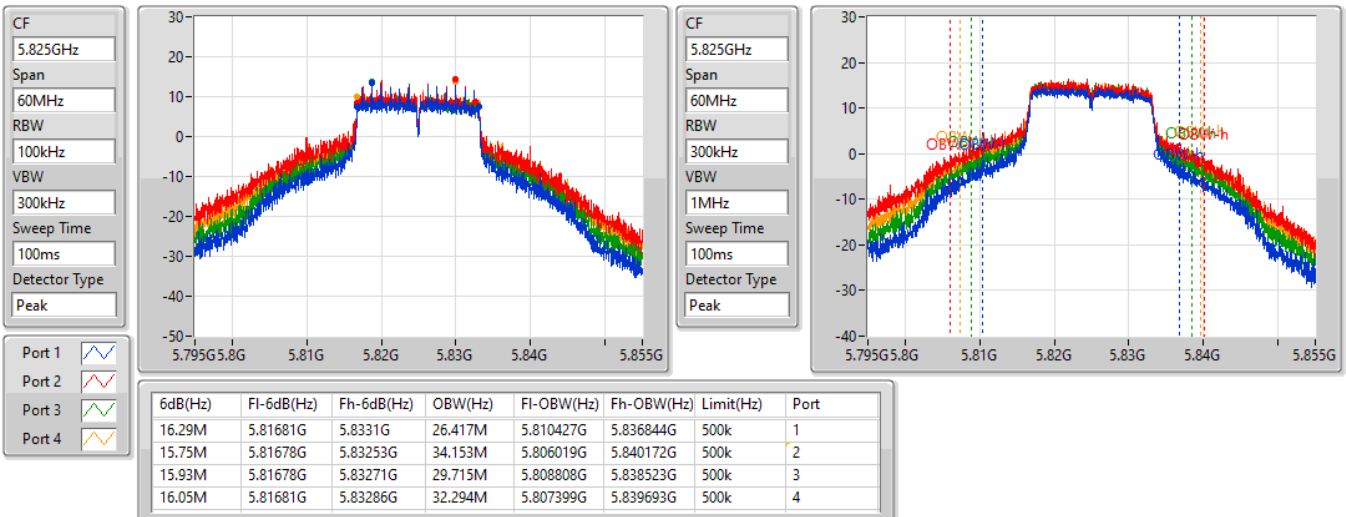


802.11a_Nss1,(6Mbps)_4TX

EBW

5825MHz

07/07/2022

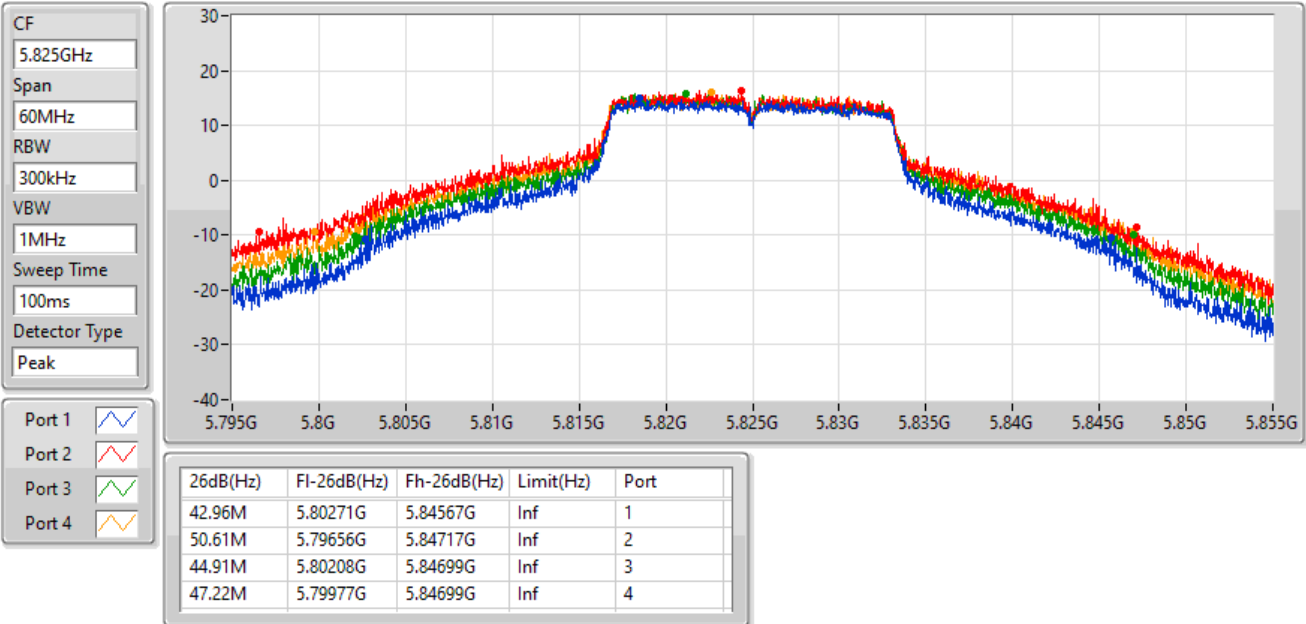


802.11a_Nss1,(6Mbps)_4TX

EBW

5825MHz

07/07/2022

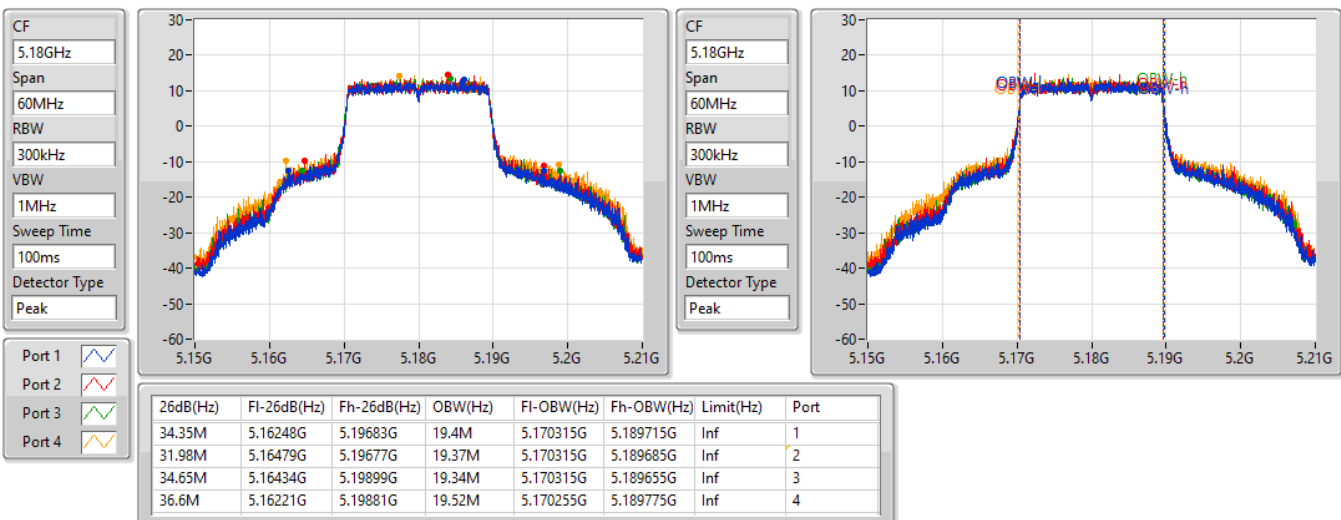


802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

5180MHz

16/07/2022

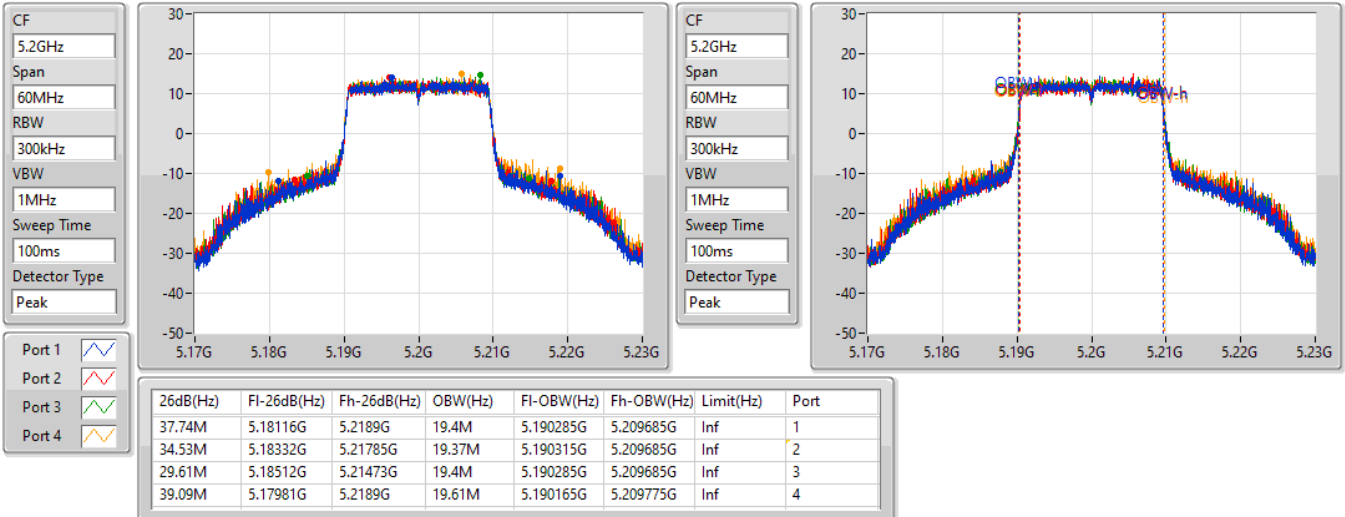


802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

5200MHz

16/07/2022

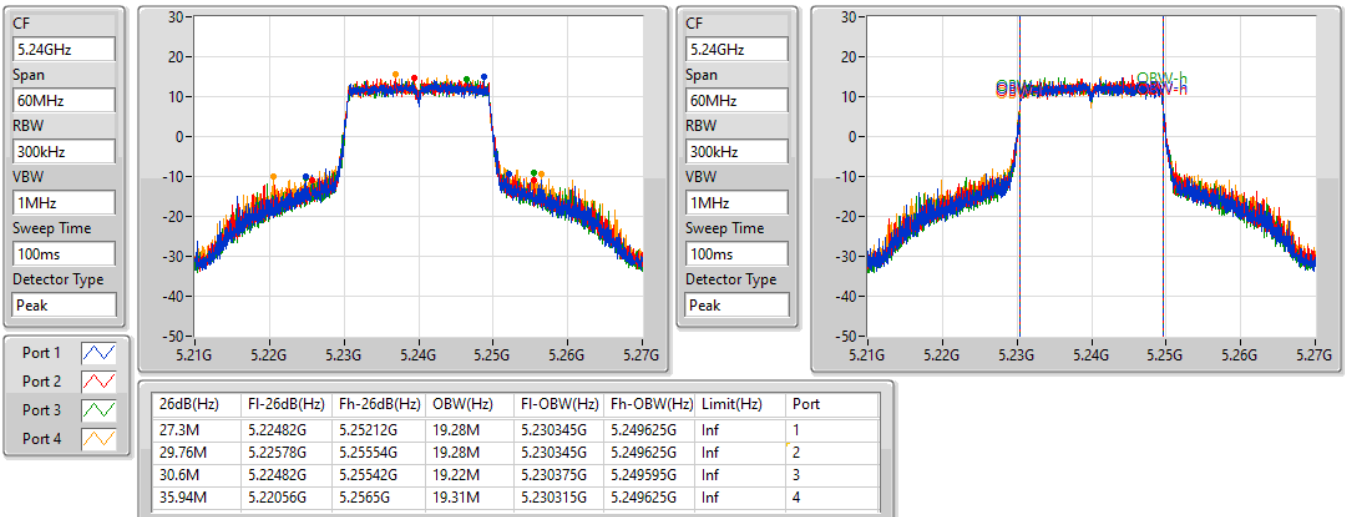


802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

5240MHz

16/07/2022

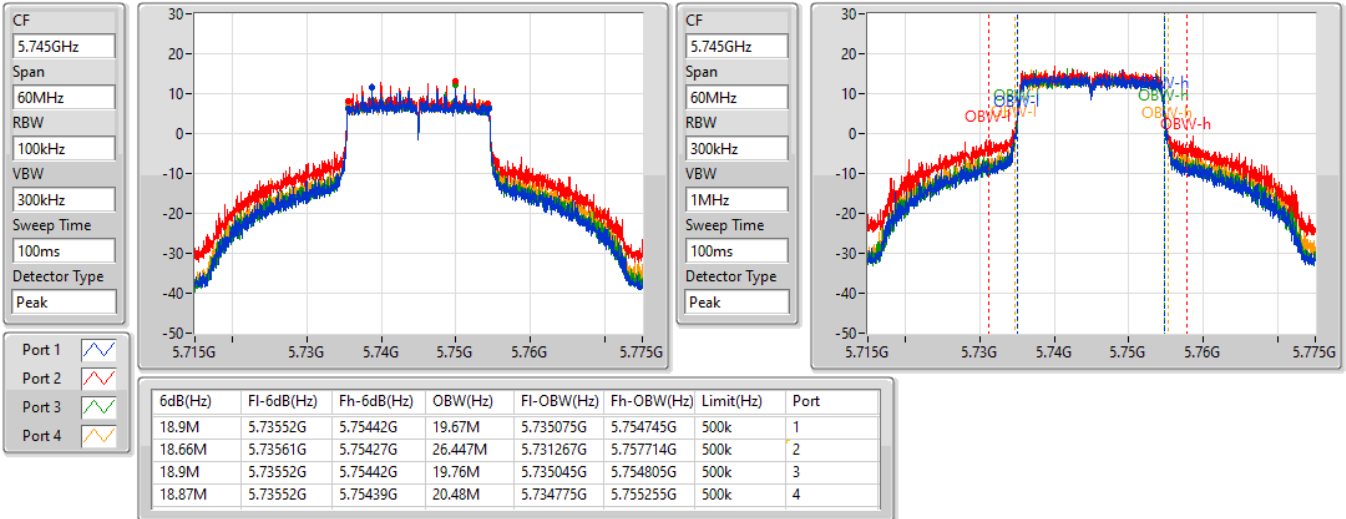


802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

5745MHz

07/07/2022

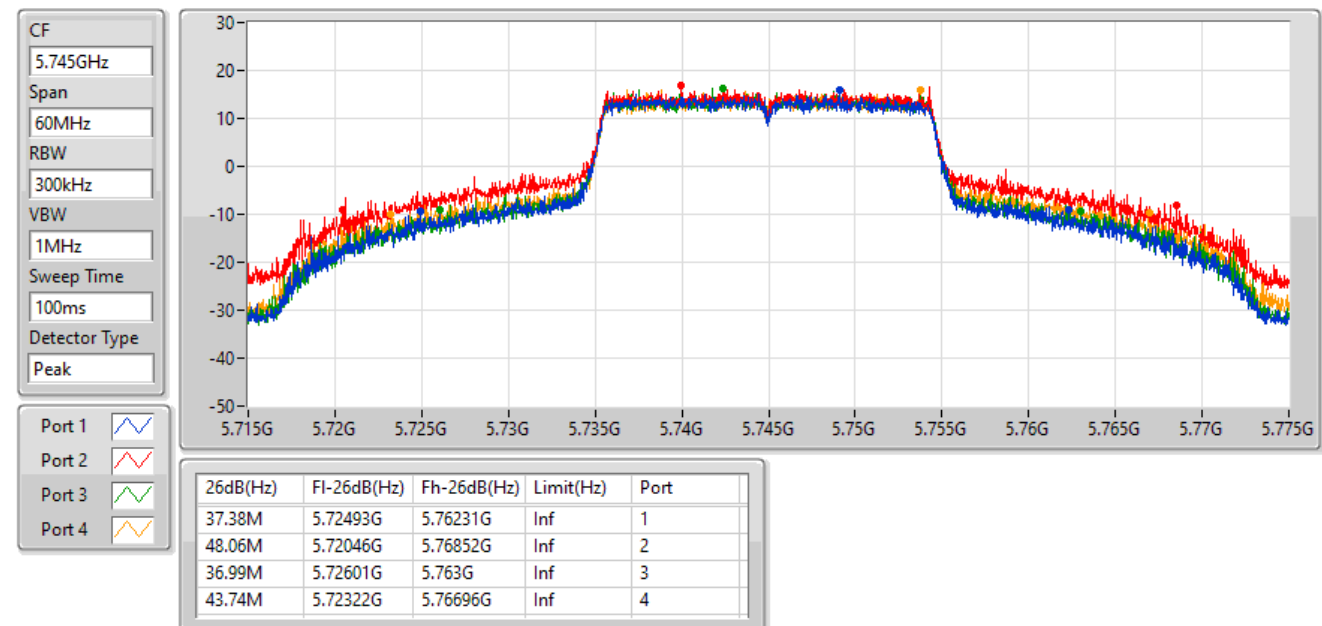


802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

5745MHz

07/07/2022

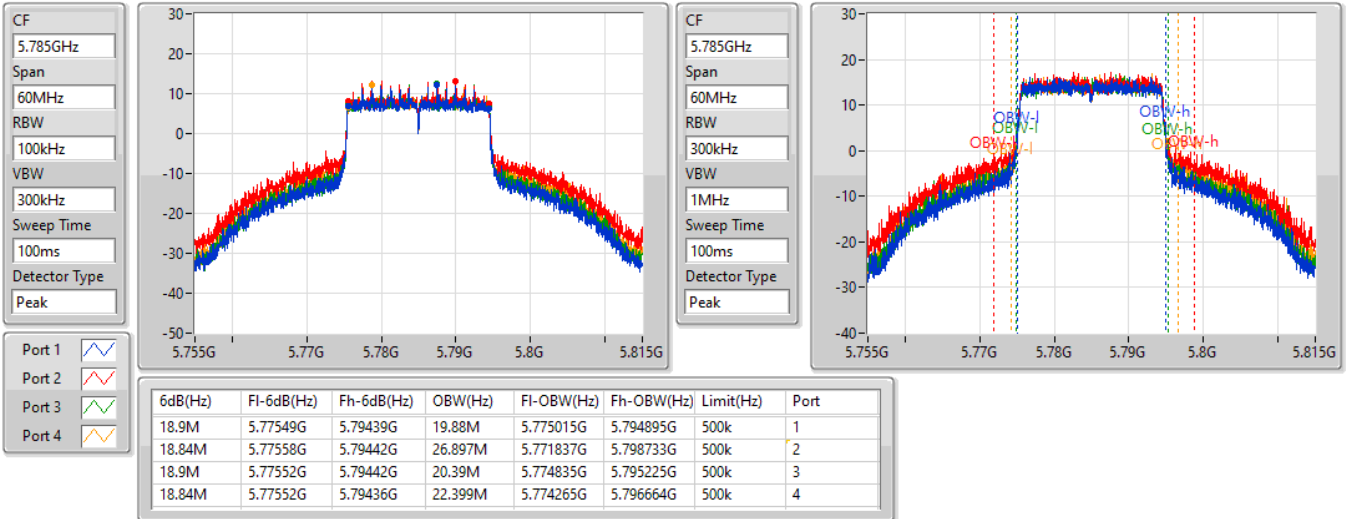


802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

5785MHz

07/07/2022

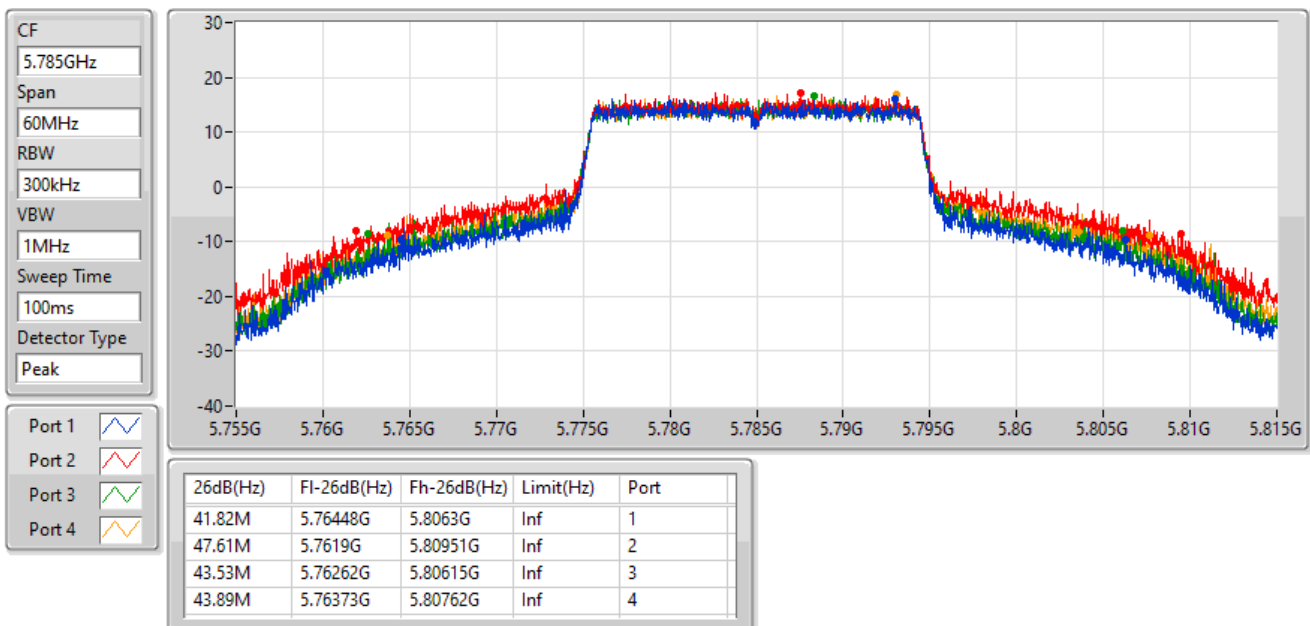


802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

5785MHz

07/07/2022

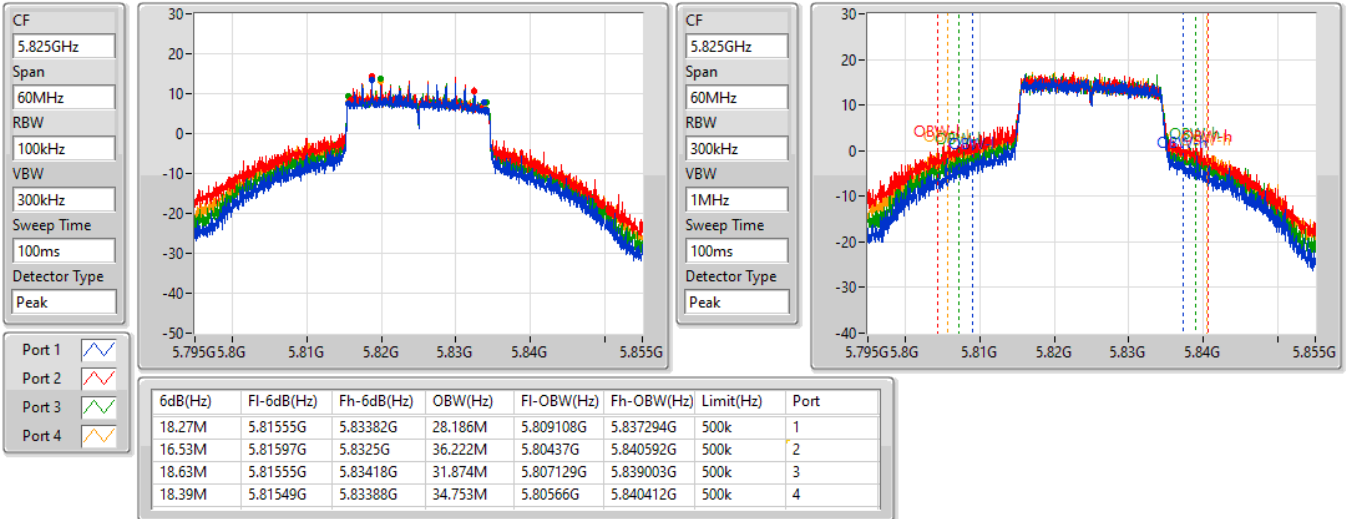


802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

5825MHz

07/07/2022

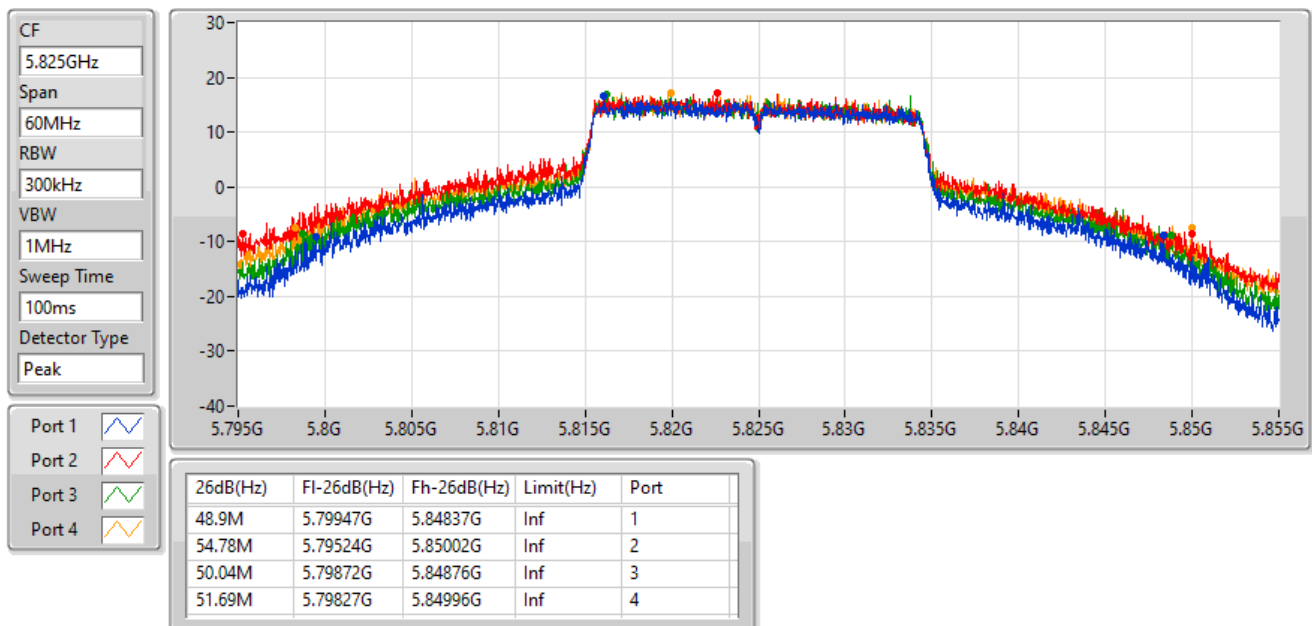


802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

5825MHz

07/07/2022

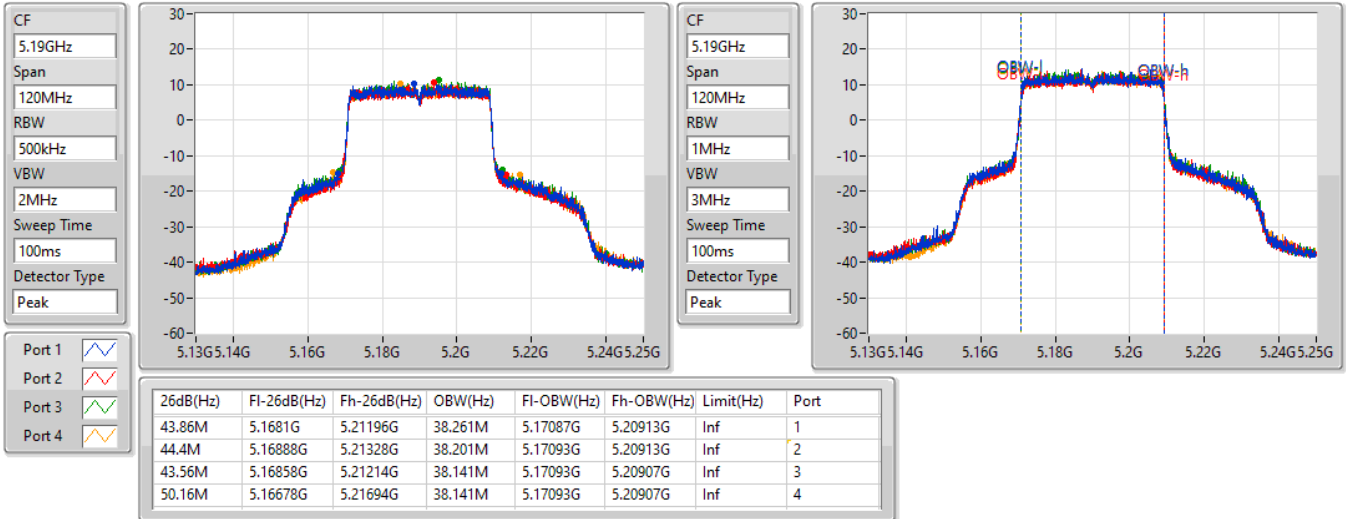


802.11ax HEW40_Nss1,(MCS0)_4TX

EBW

5190MHz

16/07/2022

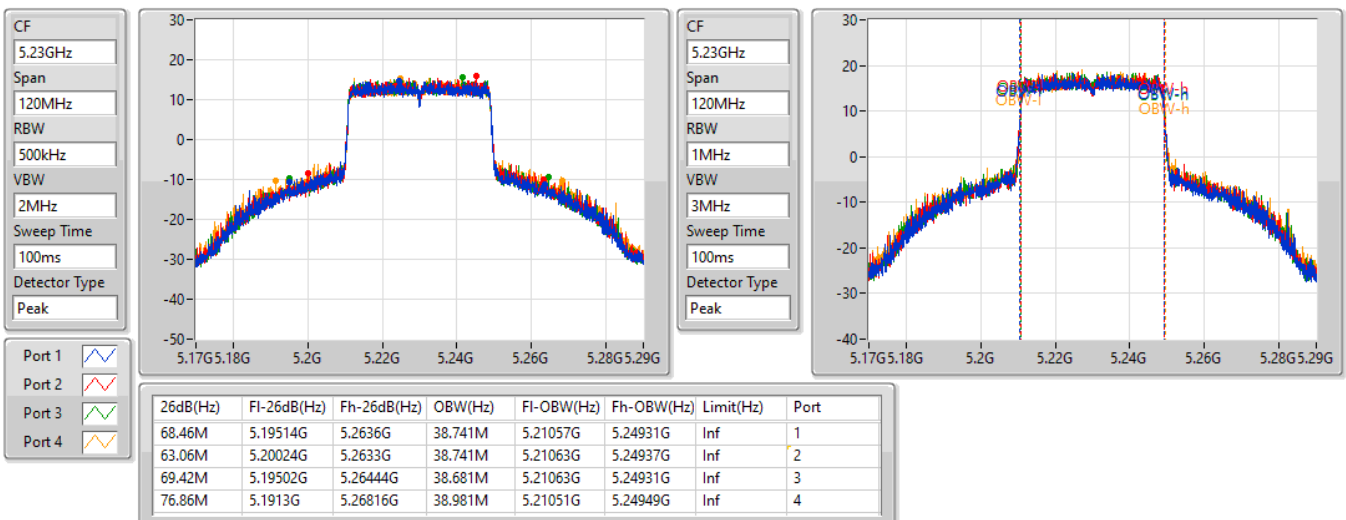


802.11ax HEW40_Nss1,(MCS0)_4TX

EBW

5230MHz

16/07/2022

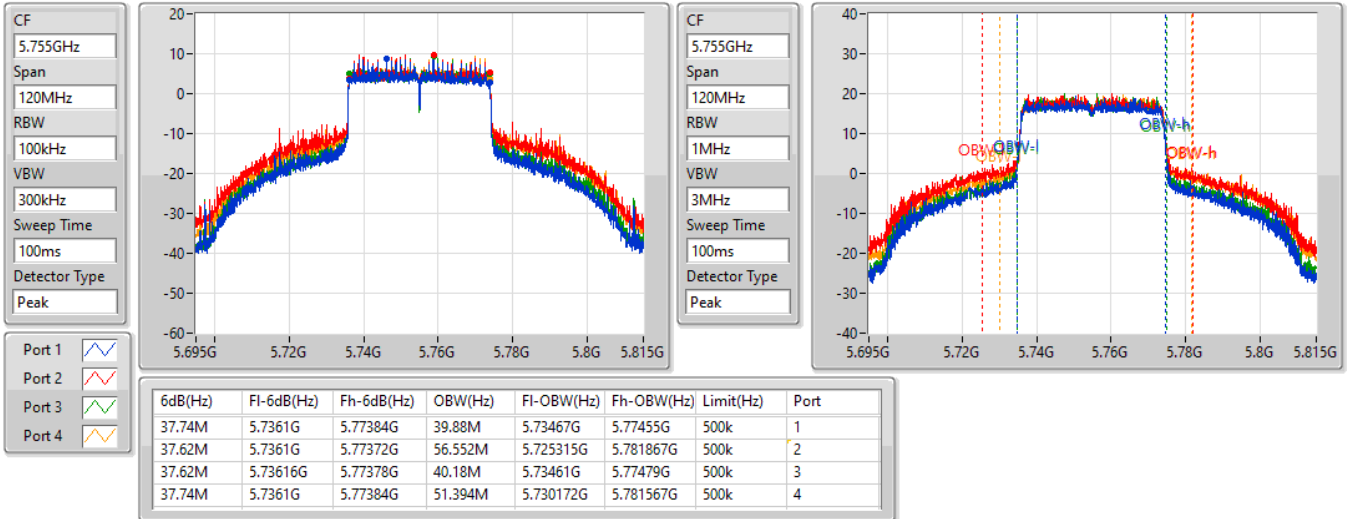


802.11ax HEW40_Nss1,(MCS0)_4TX

EBW

5755MHz

07/07/2022

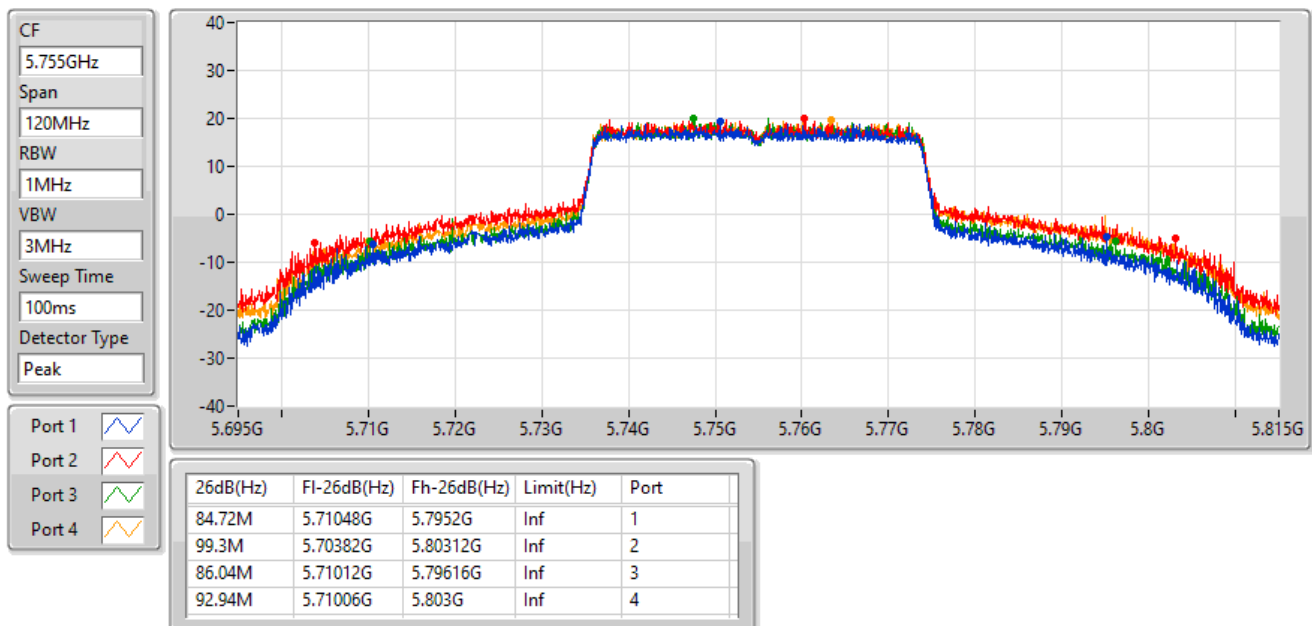


802.11ax HEW40_Nss1,(MCS0)_4TX

EBW

5755MHz

07/07/2022

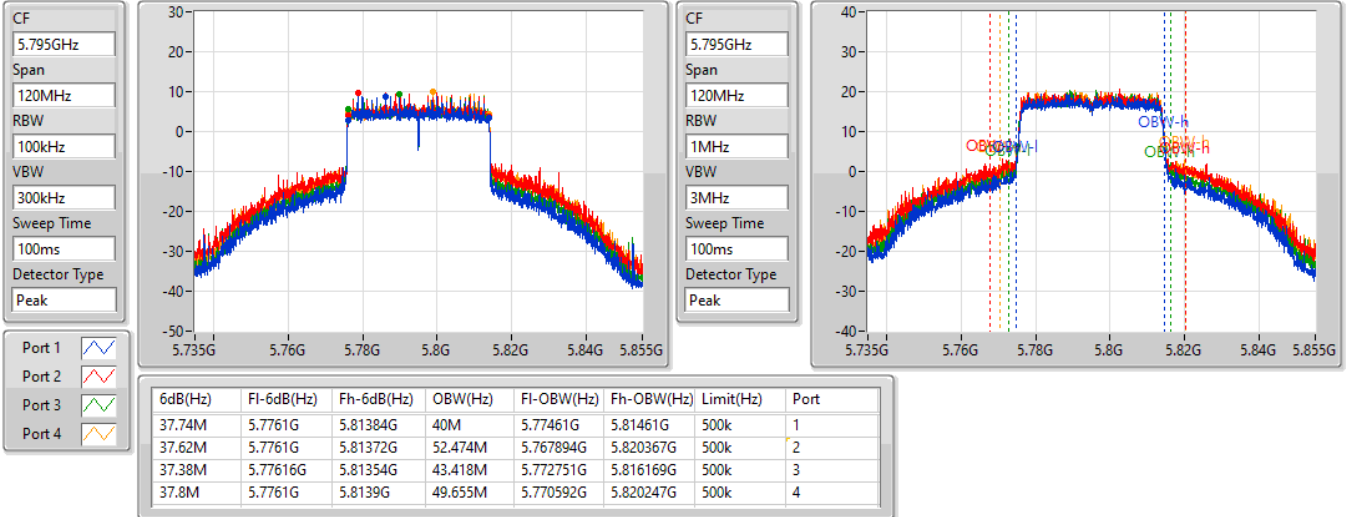


802.11ax HEW40_Nss1,(MCS0)_4TX

EBW

5795MHz

07/07/2022

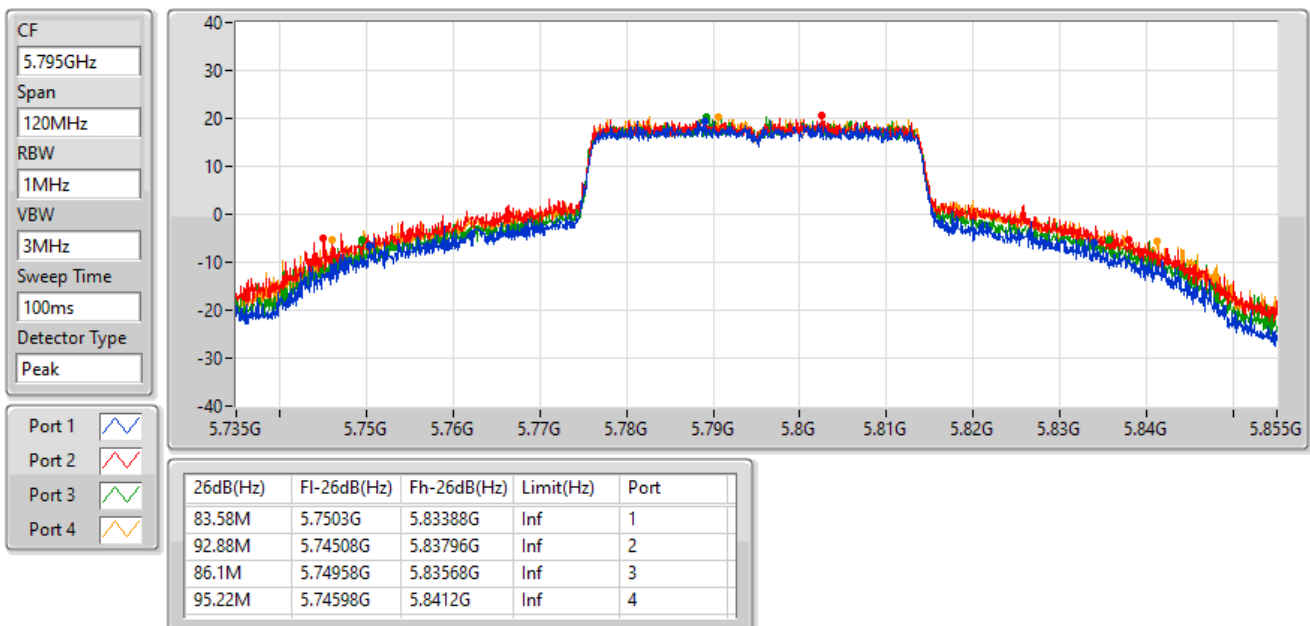


802.11ax HEW40_Nss1,(MCS0)_4TX

EBW

5795MHz

07/07/2022

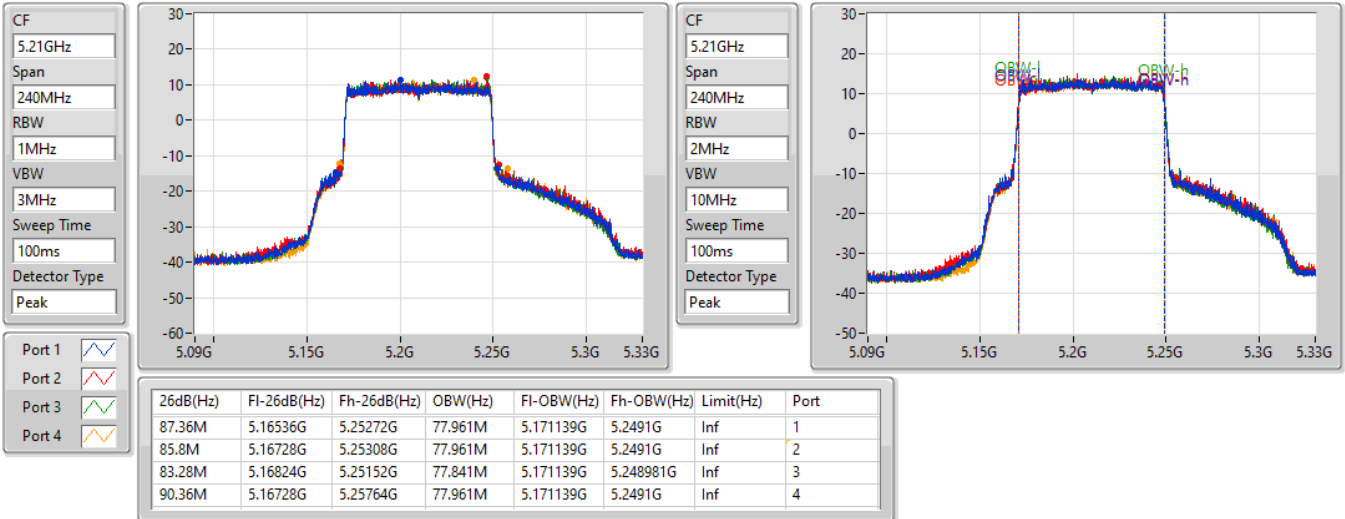


802.11ax HEW80_Nss1,(MCS0)_4TX

EBW

5210MHz

16/07/2022

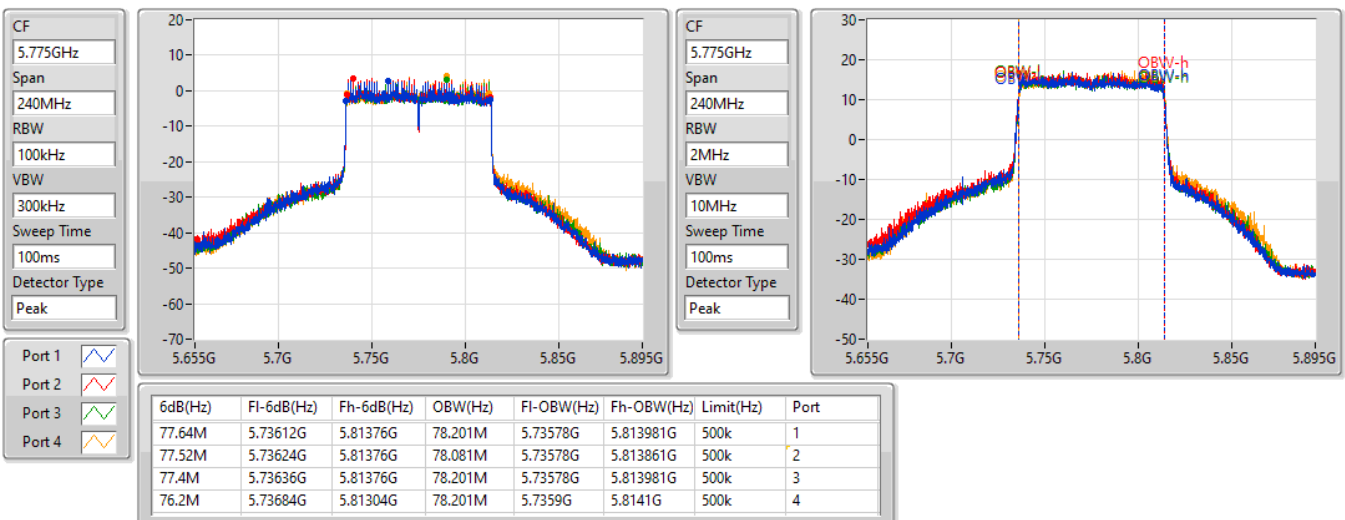


802.11ax HEW80_Nss1,(MCS0)_4TX

EBW

5775MHz

07/07/2022

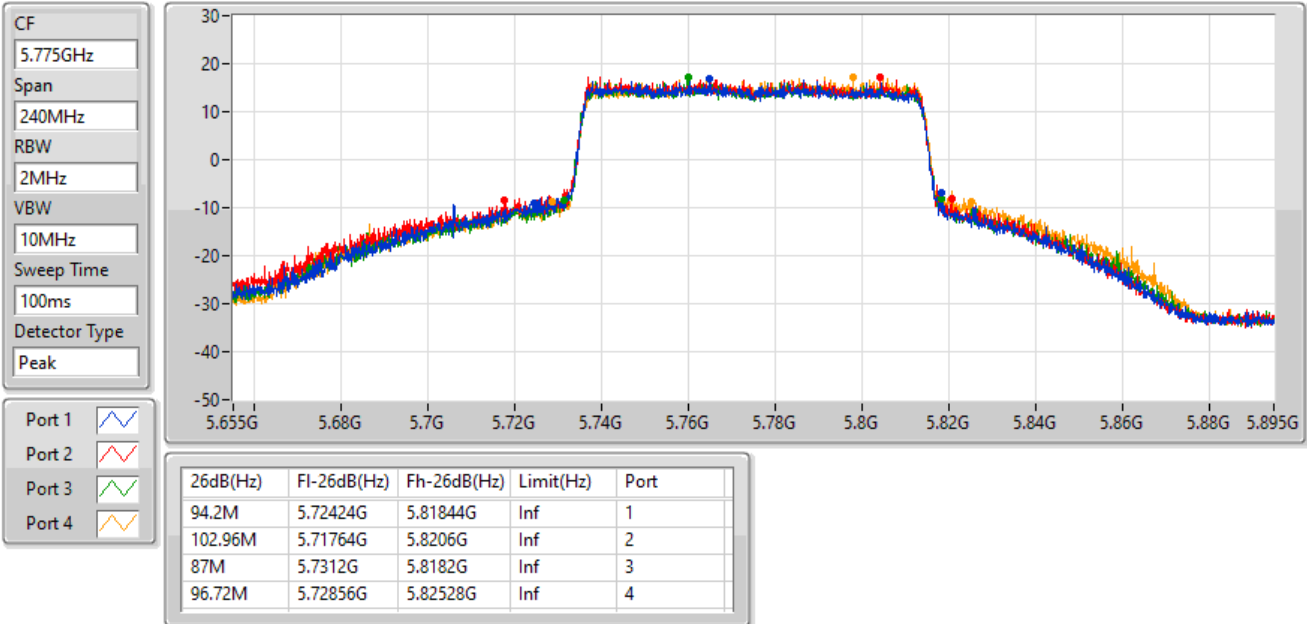


802.11ax HEW80_Nss1,(MCS0)_4TX

EBW

5775MHz

07/07/2022



**Summary**

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.15-5.25GHz	-	-	-	-	-
802.11ax HEW20_Nss4,(MCS0)_4TX	51.15M	31.514M	31M6D1D	34.5M	19.4M
802.11ax HEW40_Nss4,(MCS0)_4TX	64.56M	38.501M	38M6D1D	42.84M	38.141M
802.11ax HEW80_Nss4,(MCS0)_4TX	90.72M	78.081M	78M1D1D	84.24M	77.721M
5.725-5.85GHz	-	-	-	-	-
802.11ax HEW20_Nss4,(MCS0)_4TX	18.96M	36.372M	36M4D1D	16.77M	19.28M
802.11ax HEW40_Nss4,(MCS0)_4TX	37.68M	55.412M	55M5D1D	37.26M	39.46M
802.11ax HEW80_Nss4,(MCS0)_4TX	76.44M	88.036M	88M0D1D	75.84M	78.561M

Max-N dB = Maximum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;
Max-OBW = Maximum 99% occupied bandwidth;
Min-N dB = Minimum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;
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)
802.11ax HEW20_Nss4,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	Inf	34.98M	19.43M	34.53M	19.52M	34.8M	19.46M	39.99M	20.03M
5200MHz	Pass	Inf	47.22M	25.937M	51.15M	30.105M	47.97M	25.247M	50.7M	31.514M
5240MHz	Pass	Inf	38.91M	19.46M	34.5M	19.46M	42.24M	19.4M	42.45M	19.79M
5745MHz	Pass	500k	18.87M	19.88M	18.66M	27.796M	18.75M	20.03M	18.81M	20.93M
5785MHz	Pass	500k	18.96M	19.28M	18.81M	19.49M	18.9M	19.31M	18.96M	19.34M
5825MHz	Pass	500k	17.16M	27.496M	16.77M	36.372M	18.45M	31.244M	18.12M	35.412M
802.11ax HEW40_Nss4,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5190MHz	Pass	Inf	45.24M	38.141M	43.44M	38.201M	43.38M	38.141M	42.84M	38.201M
5230MHz	Pass	Inf	64.56M	38.441M	56.82M	38.381M	58.62M	38.441M	63.72M	38.501M
5755MHz	Pass	500k	37.68M	39.46M	37.26M	55.412M	37.62M	39.46M	37.5M	51.634M
5795MHz	Pass	500k	37.62M	42.159M	37.5M	54.753M	37.56M	46.897M	37.44M	53.133M
802.11ax HEW80_Nss4,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5210MHz	Pass	Inf	87.12M	77.841M	84.24M	78.081M	89.88M	77.961M	90.72M	77.721M
5775MHz	Pass	500k	76.08M	78.561M	75.84M	88.036M	76.08M	78.801M	76.44M	79.64M

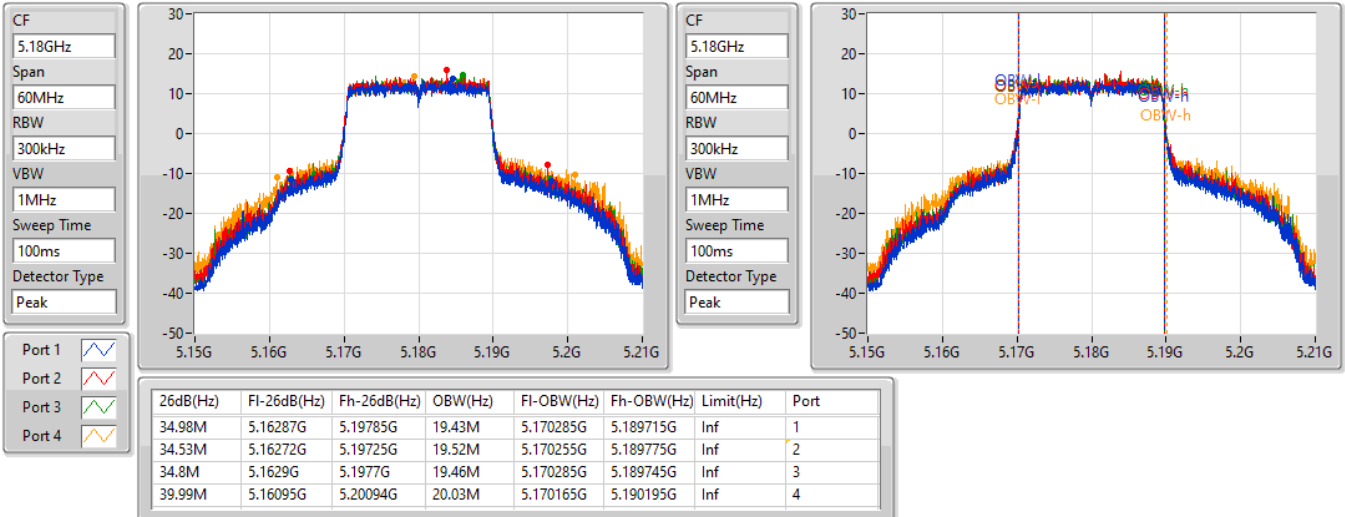
Port X-N dB = Port X 6dB down bandwidth for 5.725-5.85GHz band / 26dB down bandwidth for other band
Port X-OBW = Port X 99% occupied bandwidth

802.11ax HEW20_Nss4,(MCS0)_4TX

EBW

5180MHz

16/07/2022

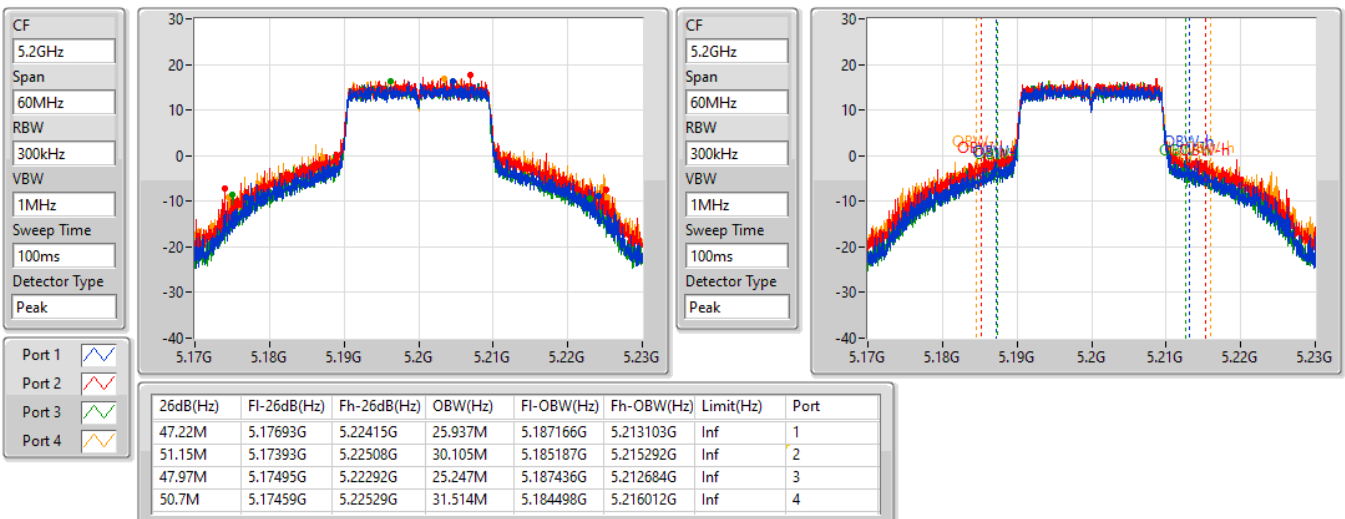


802.11ax HEW20_Nss4,(MCS0)_4TX

EBW

5200MHz

16/07/2022

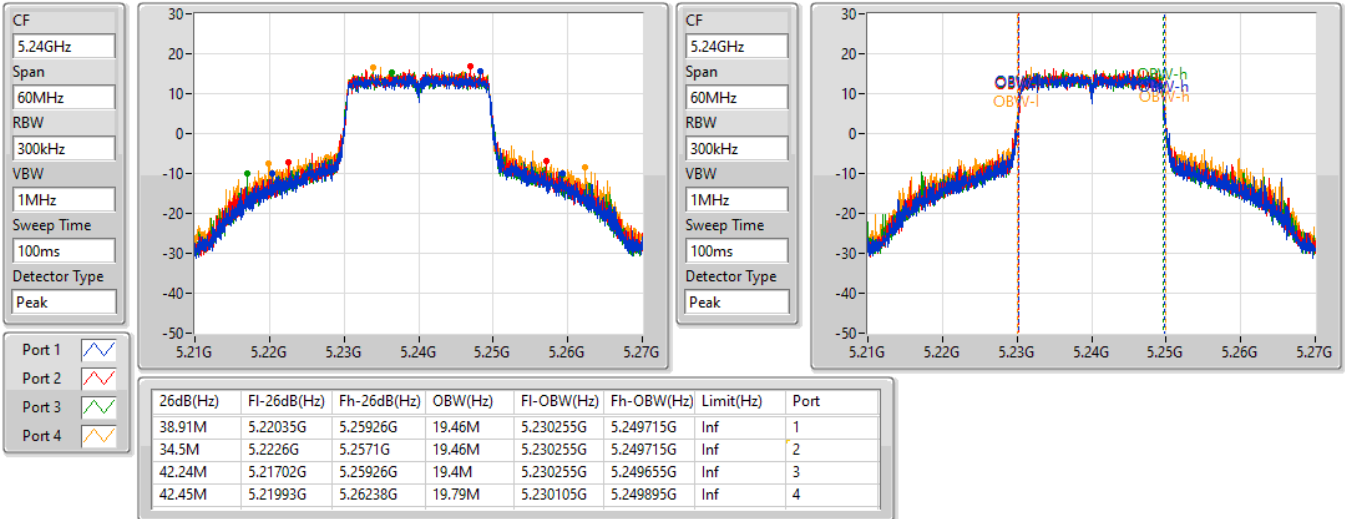


802.11ax HEW20_Nss4,(MCS0)_4TX

EBW

5240MHz

16/07/2022

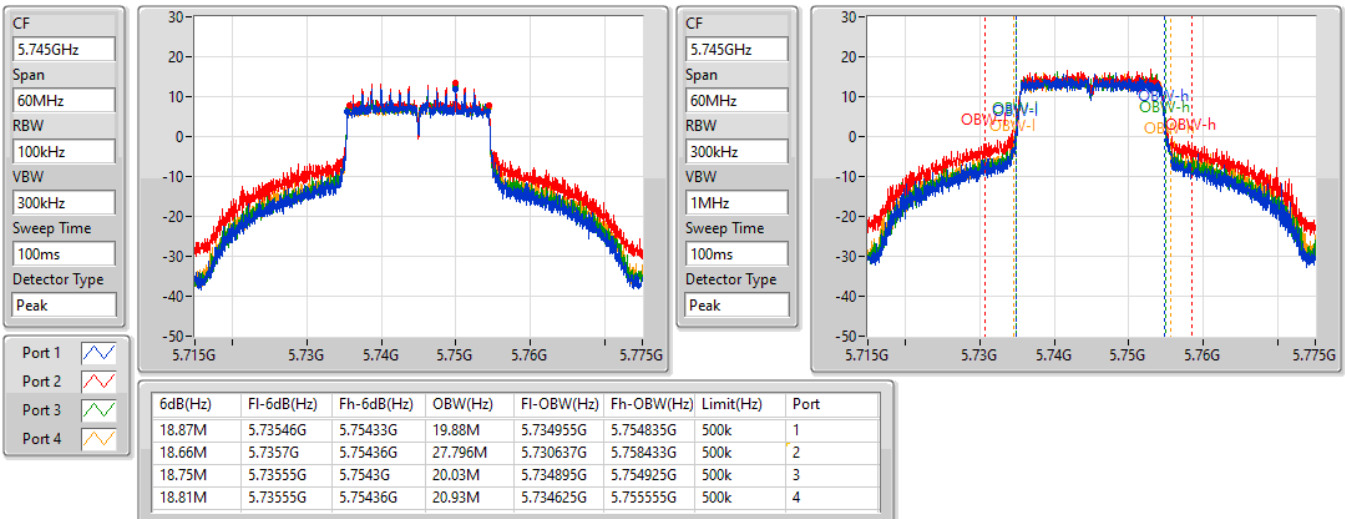


802.11ax HEW20_Nss4,(MCS0)_4TX

EBW

5745MHz

07/07/2022

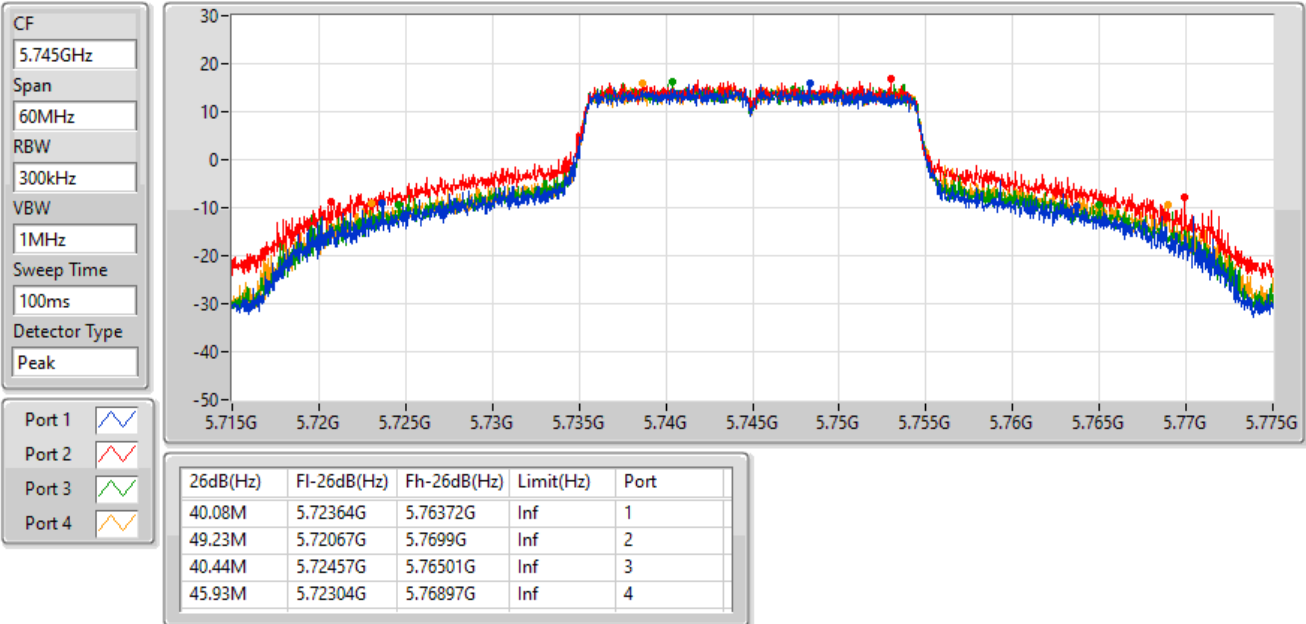


802.11ax HEW20_Nss4,(MCS0)_4TX

EBW

5745MHz

07/07/2022

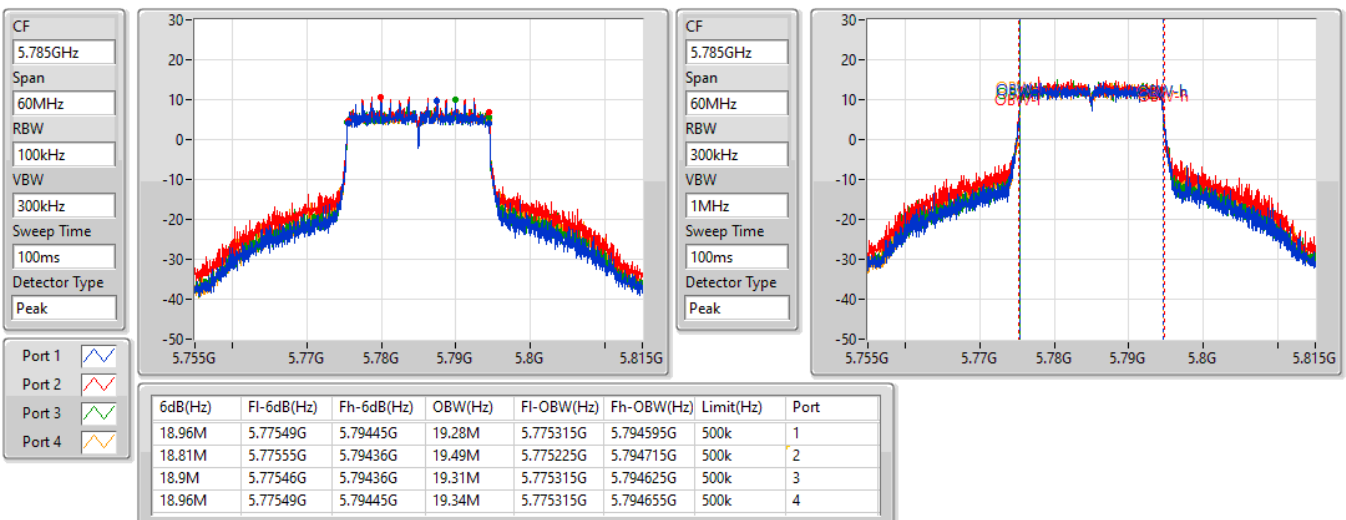


802.11ax HEW20_Nss4,(MCS0)_4TX

EBW

5785MHz

07/07/2022

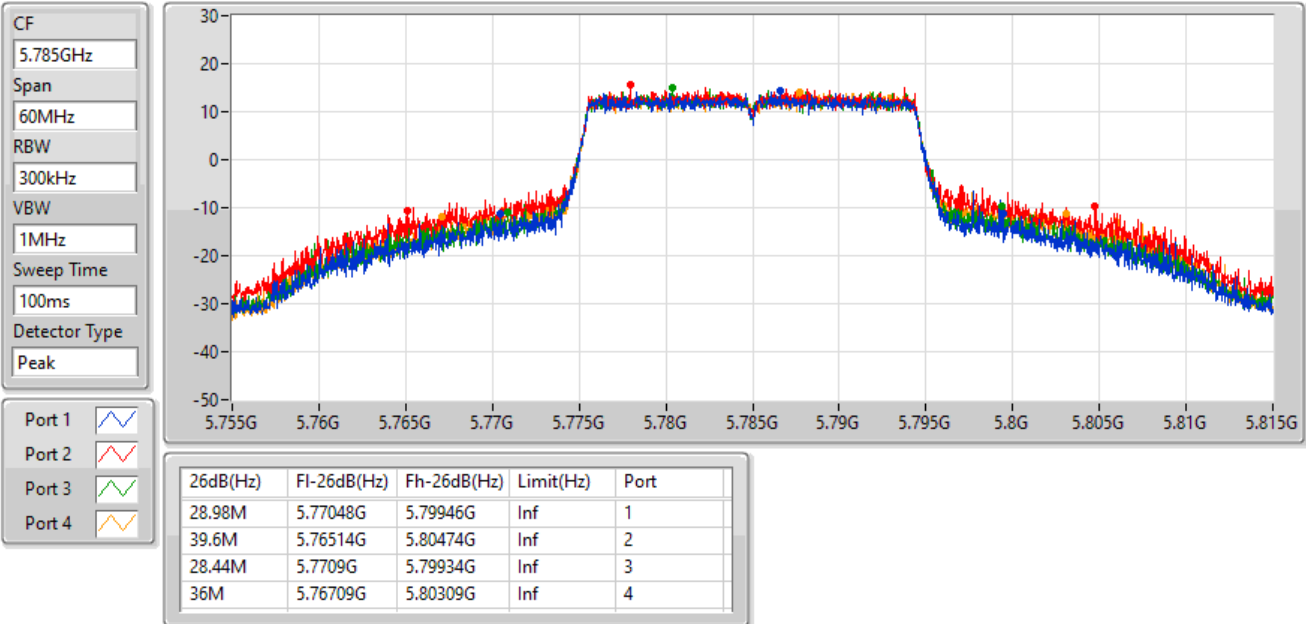


802.11ax HEW20_Nss4,(MCS0)_4TX

EBW

5785MHz

07/07/2022

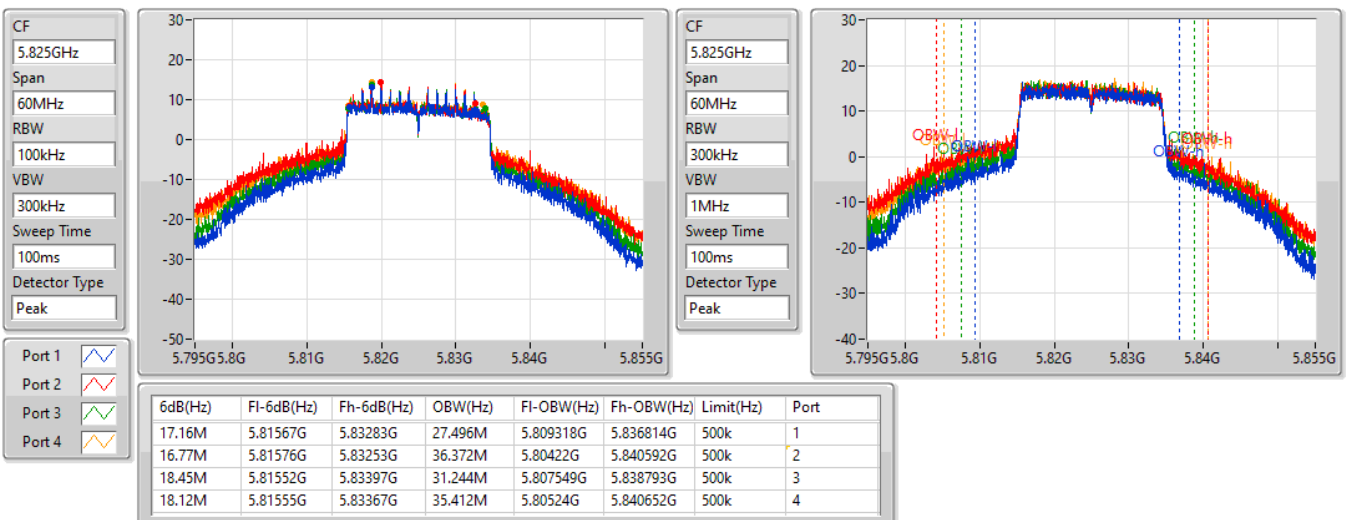


802.11ax HEW20_Nss4,(MCS0)_4TX

EBW

5825MHz

07/07/2022

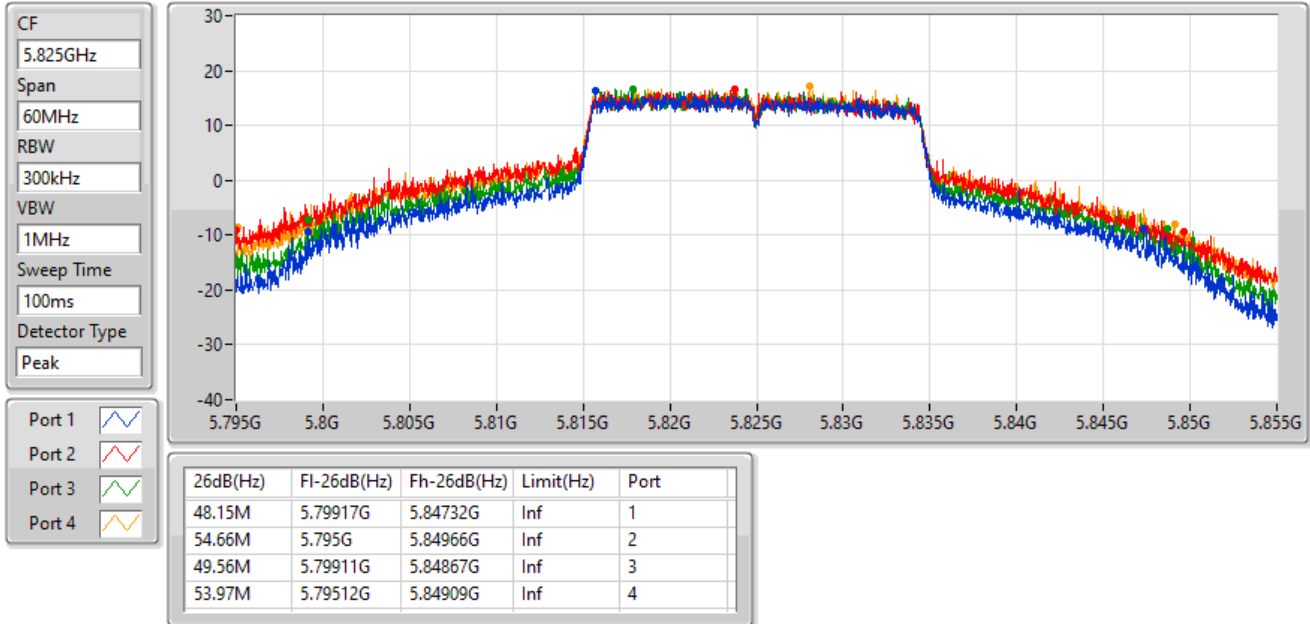


802.11ax HEW20_Nss4,(MCS0)_4TX

EBW

5825MHz

07/07/2022

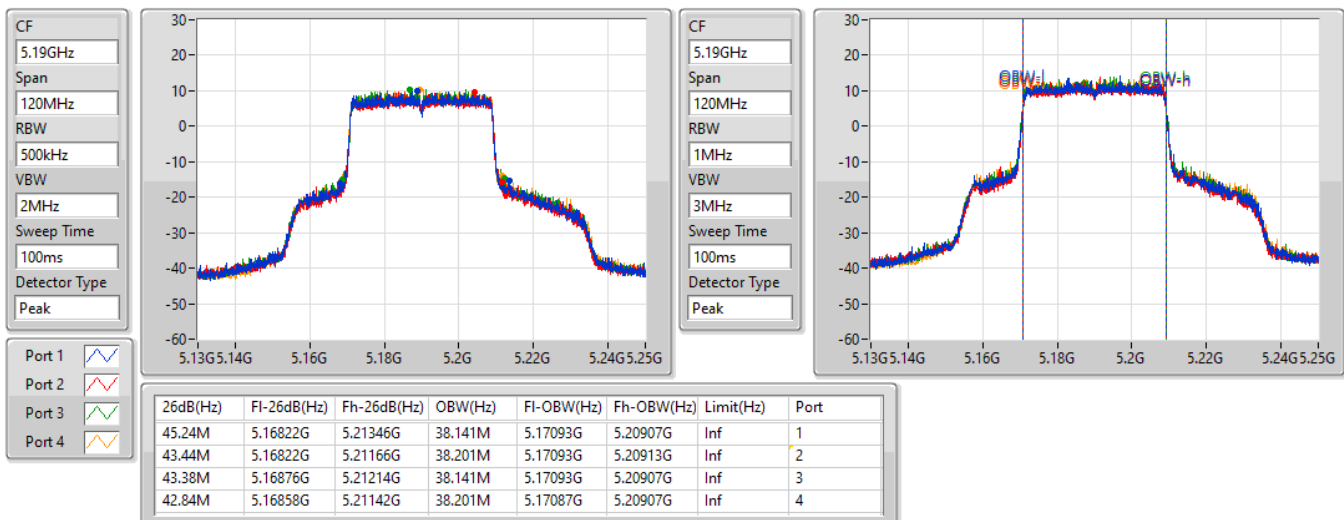


802.11ax HEW40_Nss4,(MCS0)_4TX

EBW

5190MHz

07/07/2022

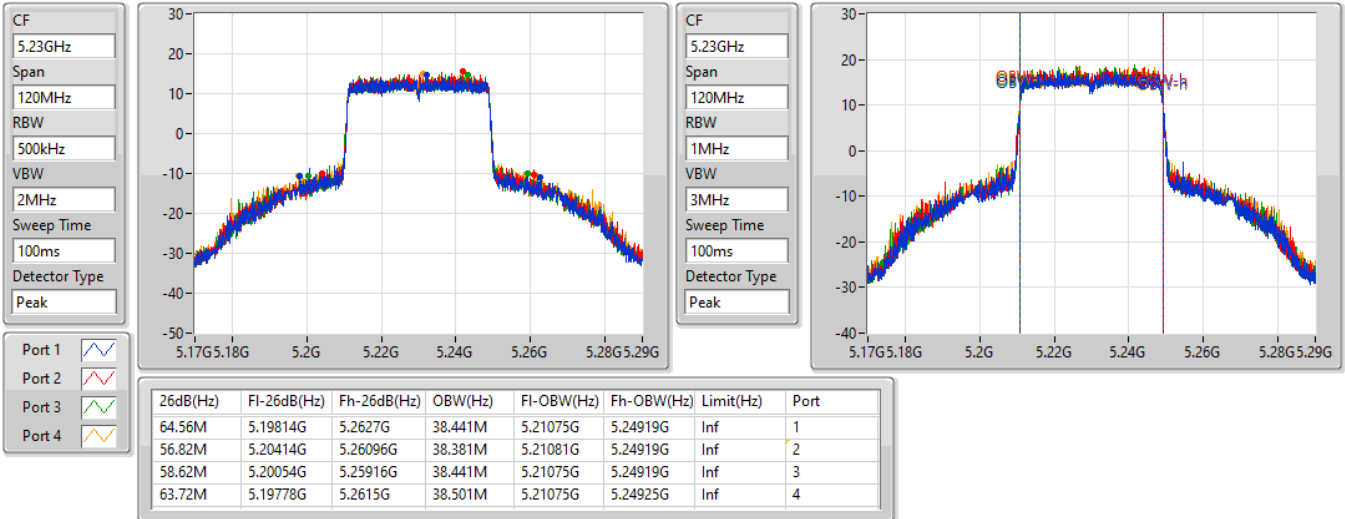


802.11ax HEW40_Nss4,(MCS0)_4TX

EBW

5230MHz

16/07/2022

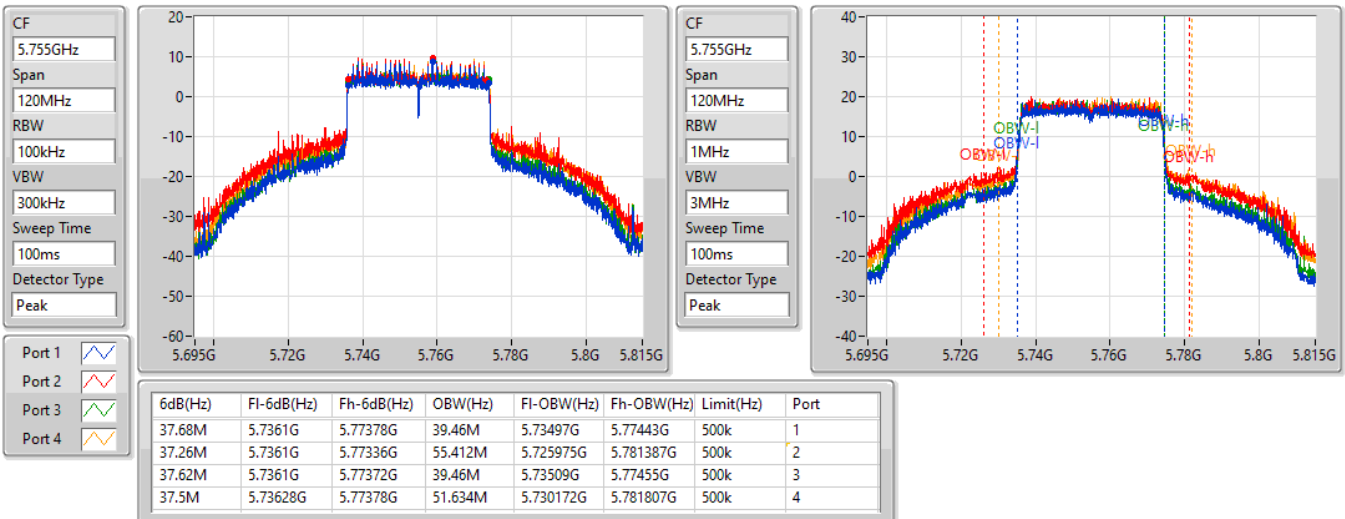


802.11ax HEW40_Nss4,(MCS0)_4TX

EBW

5755MHz

07/07/2022

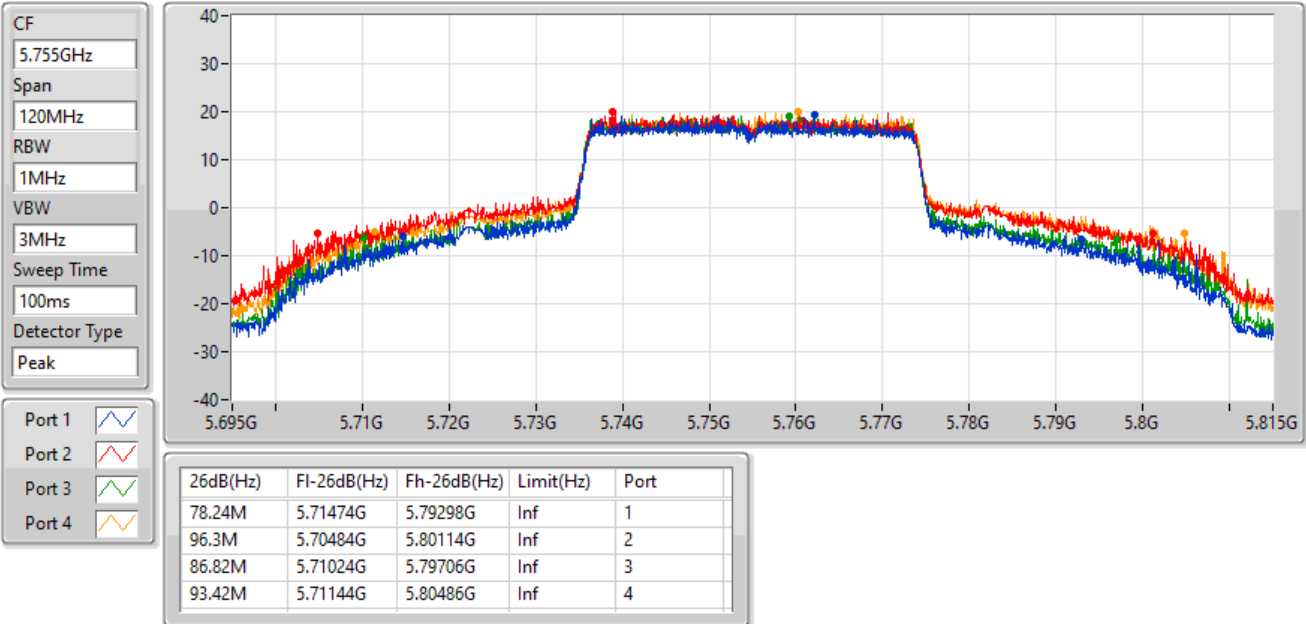


802.11ax HEW40_Nss4,(MCS0)_4TX

EBW

5755MHz

07/07/2022



802.11ax HEW40_Nss4,(MCS0)_4TX

EBW

5795MHz

07/07/2022

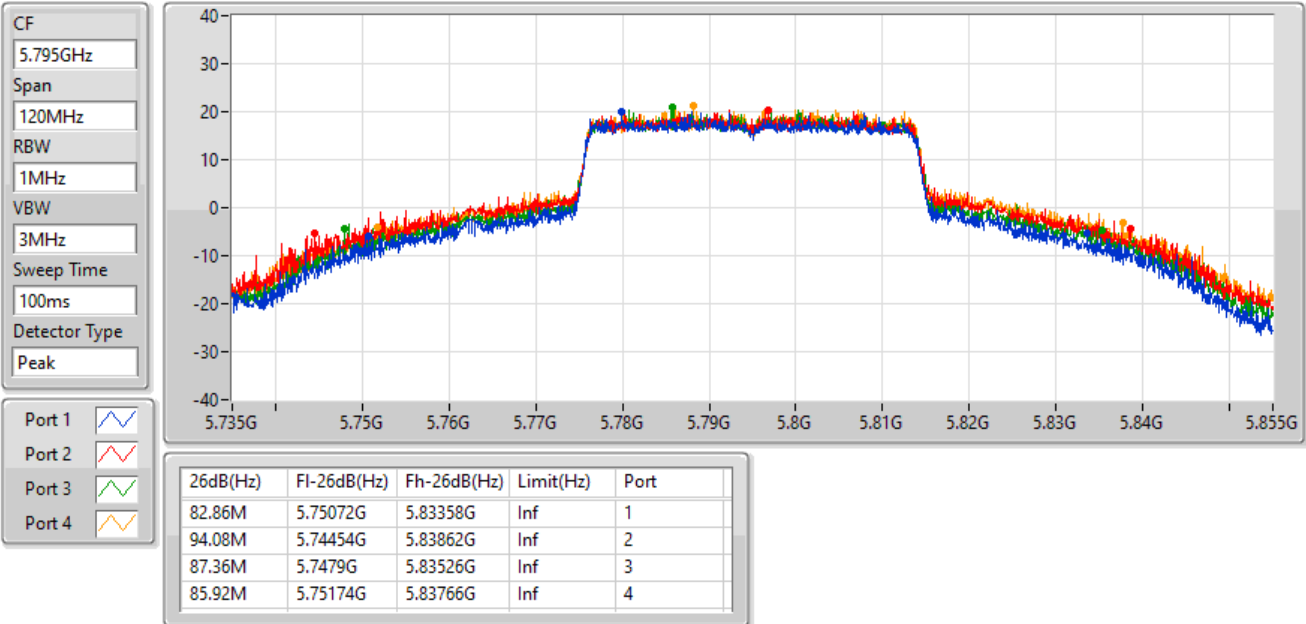


802.11ax HEW40_Nss4,(MCS0)_4TX

EBW

5795MHz

07/07/2022

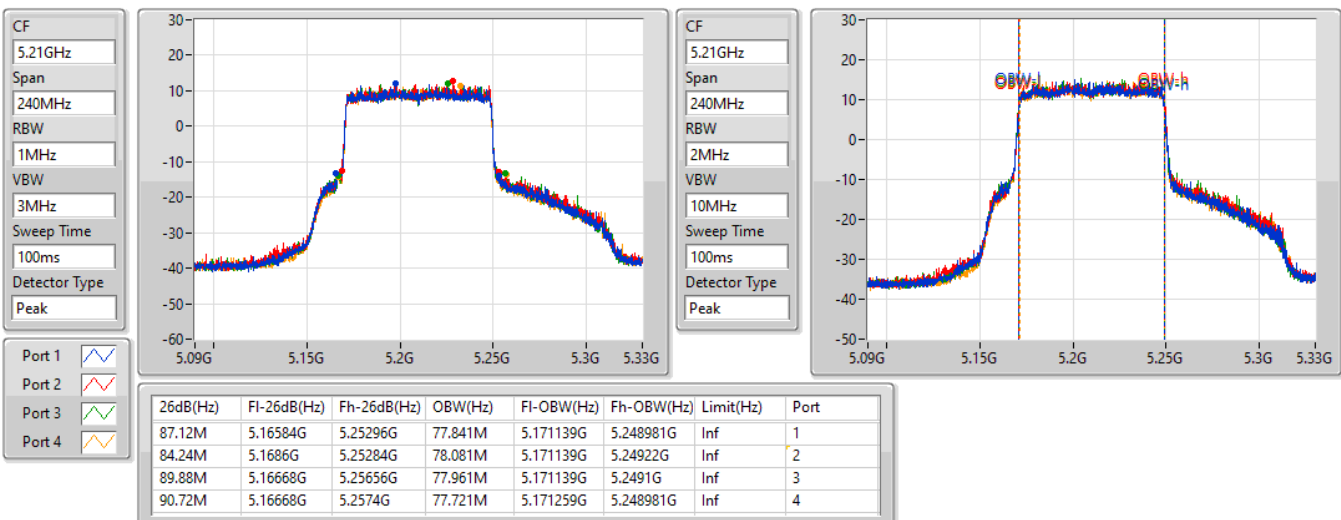


802.11ax HEW80_Nss4,(MCS0)_4TX

EBW

5210MHz

16/07/2022

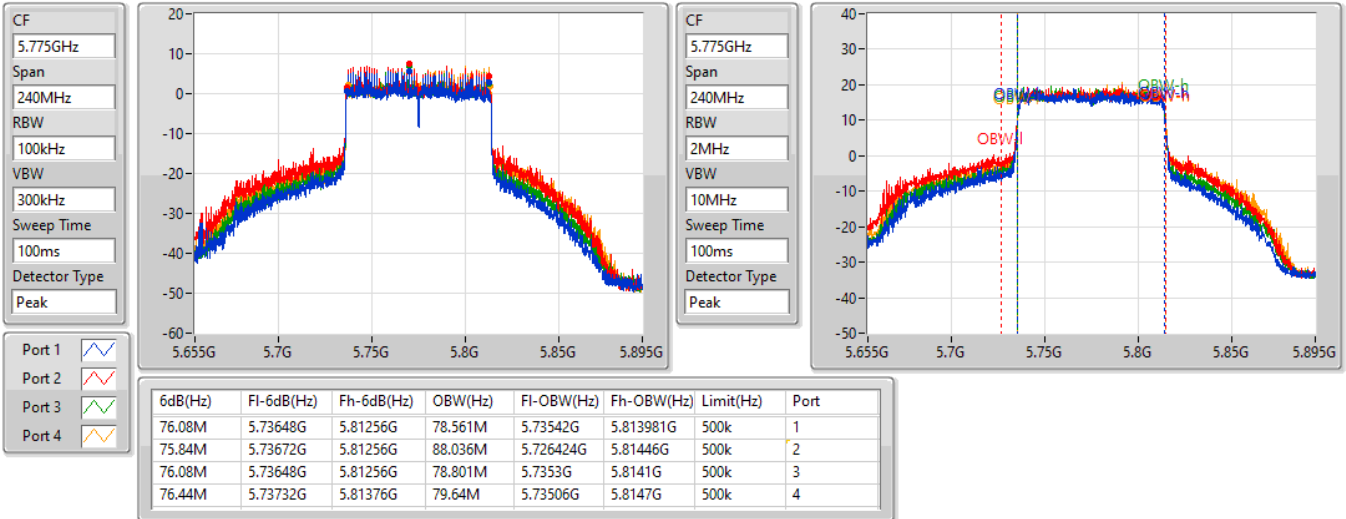


802.11ax HEW80_Nss4,(MCS0)_4TX

EBW

5775MHz

07/07/2022

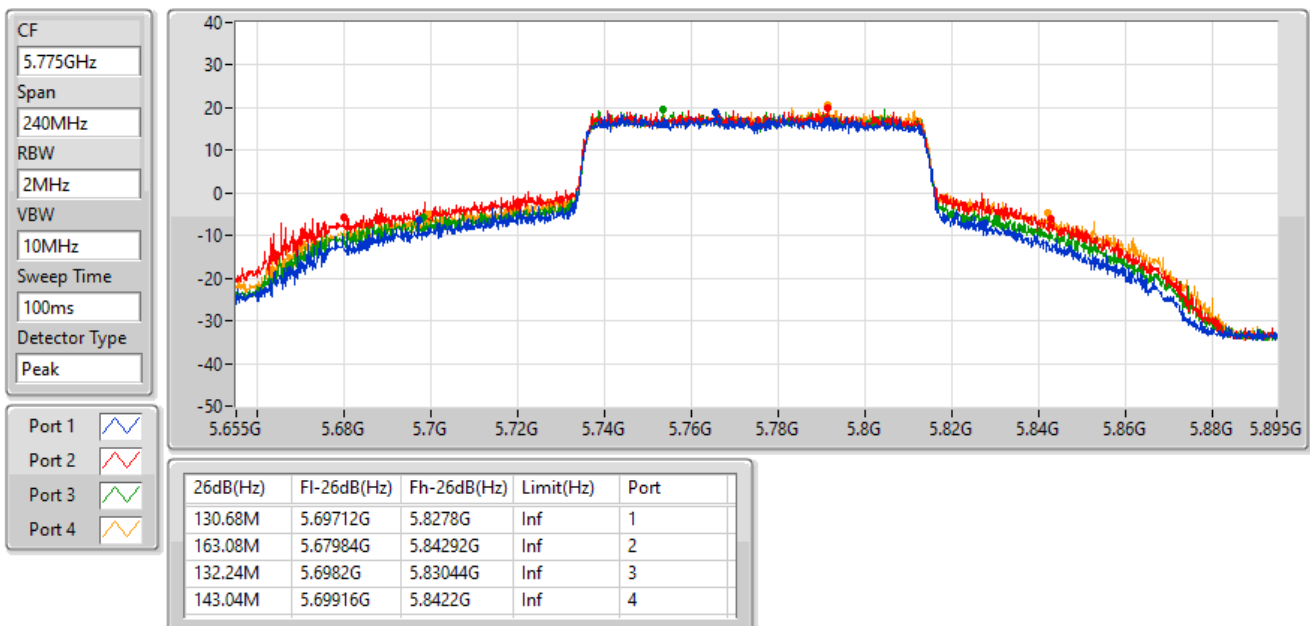


802.11ax HEW80_Nss4,(MCS0)_4TX

EBW

5775MHz

07/07/2022



Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.15-5.25GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_1TX	43.26M	25.847M	25M9D1D	38.82M	19.88M
802.11ax HEW20_Nss1,(MCS0)_1TX	47.25M	28.816M	28M9D1D	41.43M	19.88M
802.11ax HEW40_Nss1,(MCS0)_1TX	80.64M	39.58M	39M6D1D	48.12M	38.201M
802.11ax HEW80_Nss1,(MCS0)_1TX	90.96M	78.201M	78M3D1D	90.96M	78.201M
5.725-5.85GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_1TX	16.32M	41.349M	41M4D1D	15.99M	31.964M
802.11ax HEW20_Nss1,(MCS0)_1TX	18.84M	42.999M	43M0D1D	18.42M	30.975M
802.11ax HEW40_Nss1,(MCS0)_1TX	37.8M	73.103M	73M2D1D	37.38M	56.492M
802.11ax HEW80_Nss1,(MCS0)_1TX	77.04M	85.997M	86M0D1D	77.04M	85.997M

Max-N dB = Maximum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;
 Max-OBW = Maximum 99% occupied bandwidth;
 Min-N dB = Minimum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;
 Min-OBW = Minimum 99% occupied bandwidth

Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
802.11a_Nss1,(6Mbps)_1TX	-	-	-	-
5180MHz	Pass	Inf	38.82M	22.309M
5200MHz	Pass	Inf	43.26M	25.847M
5240MHz	Pass	Inf	39.57M	19.88M
5745MHz	Pass	500k	16.32M	34.663M
5785MHz	Pass	500k	16.29M	31.964M
5825MHz	Pass	500k	15.99M	41.349M
802.11ax HEW20_Nss1,(MCS0)_1TX	-	-	-	-
5180MHz	Pass	Inf	41.43M	20.48M
5200MHz	Pass	Inf	47.25M	28.816M
5240MHz	Pass	Inf	43.47M	19.88M
5745MHz	Pass	500k	18.42M	36.882M
5785MHz	Pass	500k	18.84M	30.975M
5825MHz	Pass	500k	18.78M	42.999M
802.11ax HEW40_Nss1,(MCS0)_1TX	-	-	-	-
5190MHz	Pass	Inf	48.12M	38.201M
5230MHz	Pass	Inf	80.64M	39.58M
5755MHz	Pass	500k	37.8M	56.492M
5795MHz	Pass	500k	37.38M	73.103M
802.11ax HEW80_Nss1,(MCS0)_1TX	-	-	-	-
5210MHz	Pass	Inf	90.96M	78.201M
5775MHz	Pass	500k	77.04M	85.997M

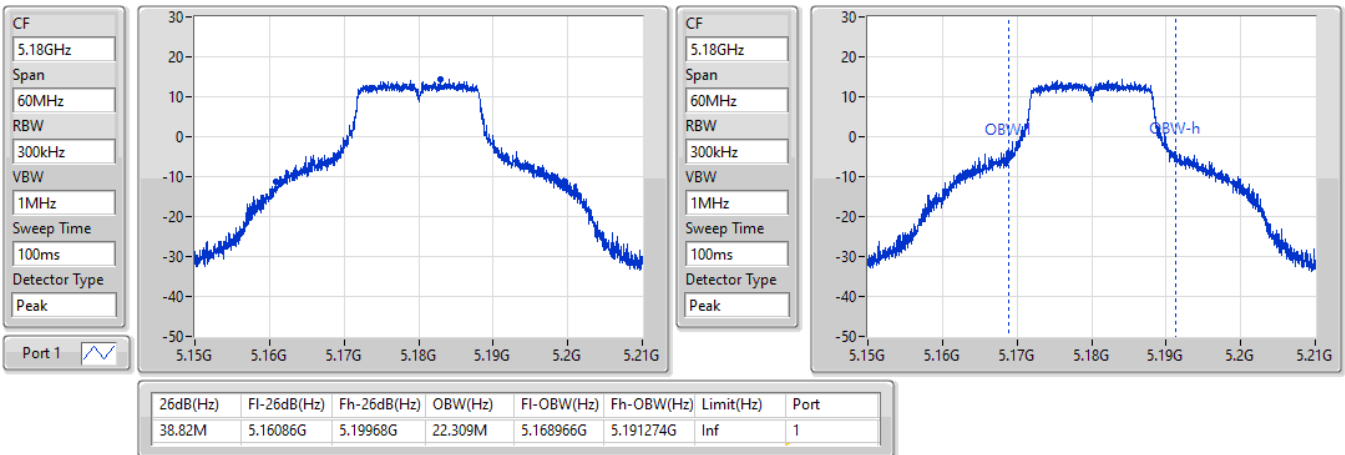
Port X-N dB = Port X 6dB down bandwidth for 5.725-5.85GHz band / 26dB down bandwidth for other band
Port X-OBW = Port X 99% occupied bandwidth

802.11a_Nss1,(6Mbps)_1TX

EBW

5180MHz

16/07/2022

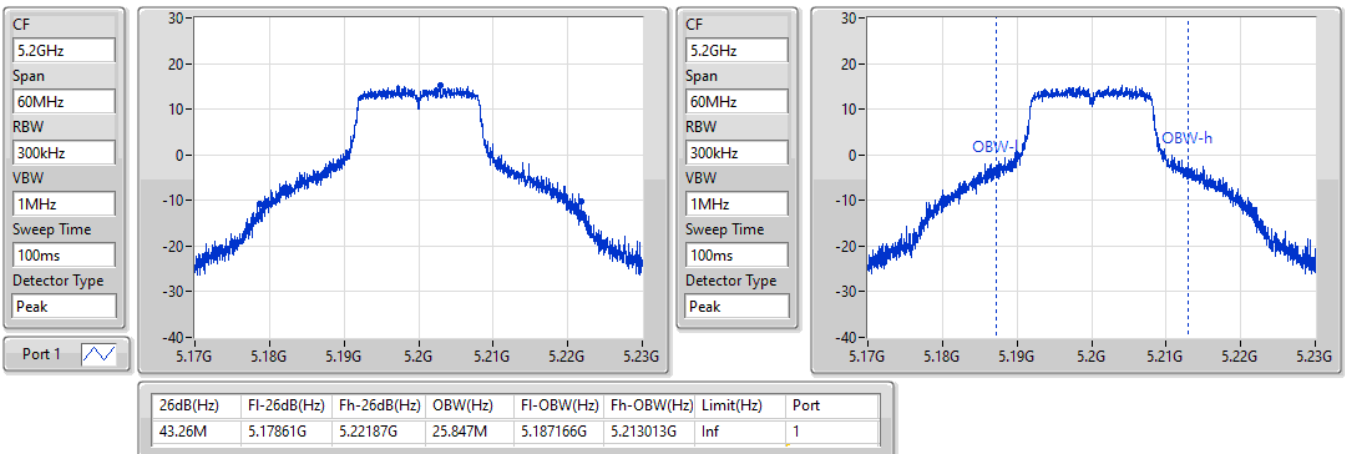


802.11a_Nss1,(6Mbps)_1TX

EBW

5200MHz

16/07/2022

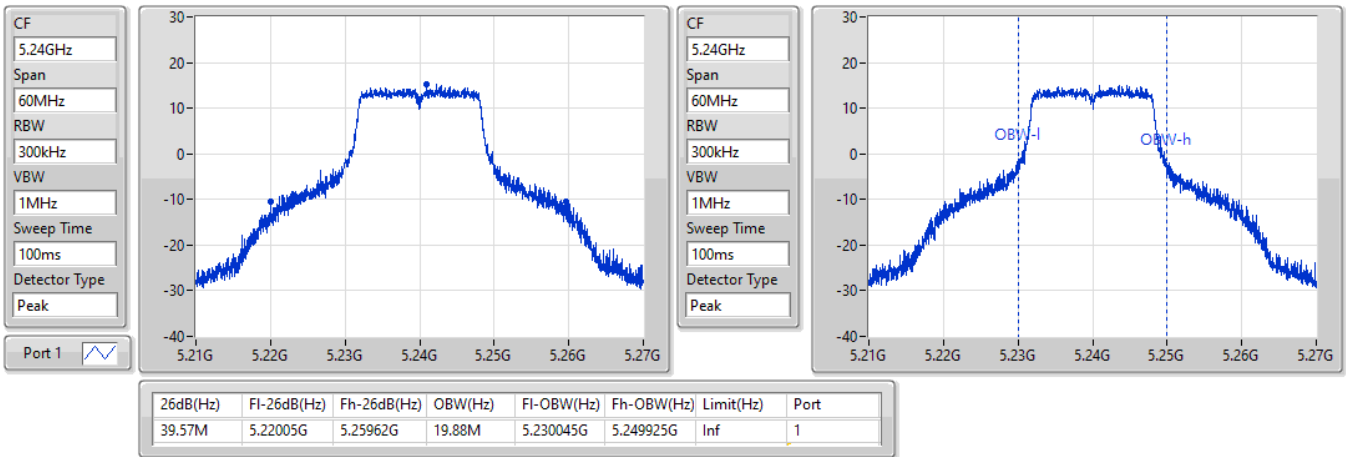


802.11a_Nss1,(6Mbps)_1TX

EBW

5240MHz

16/07/2022

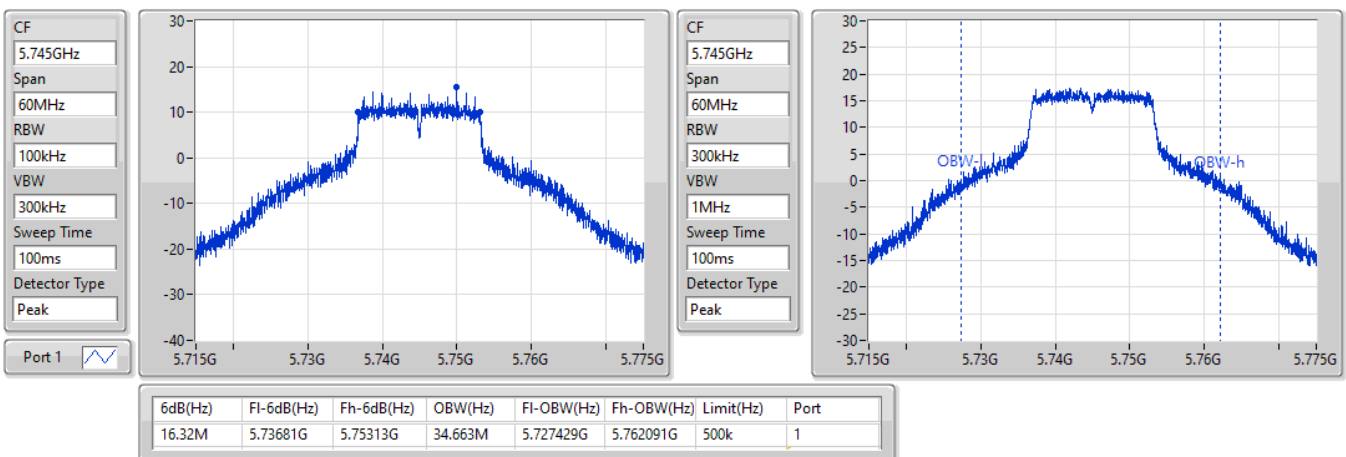


802.11a_Nss1,(6Mbps)_1TX

EBW

5745MHz

09/07/2022

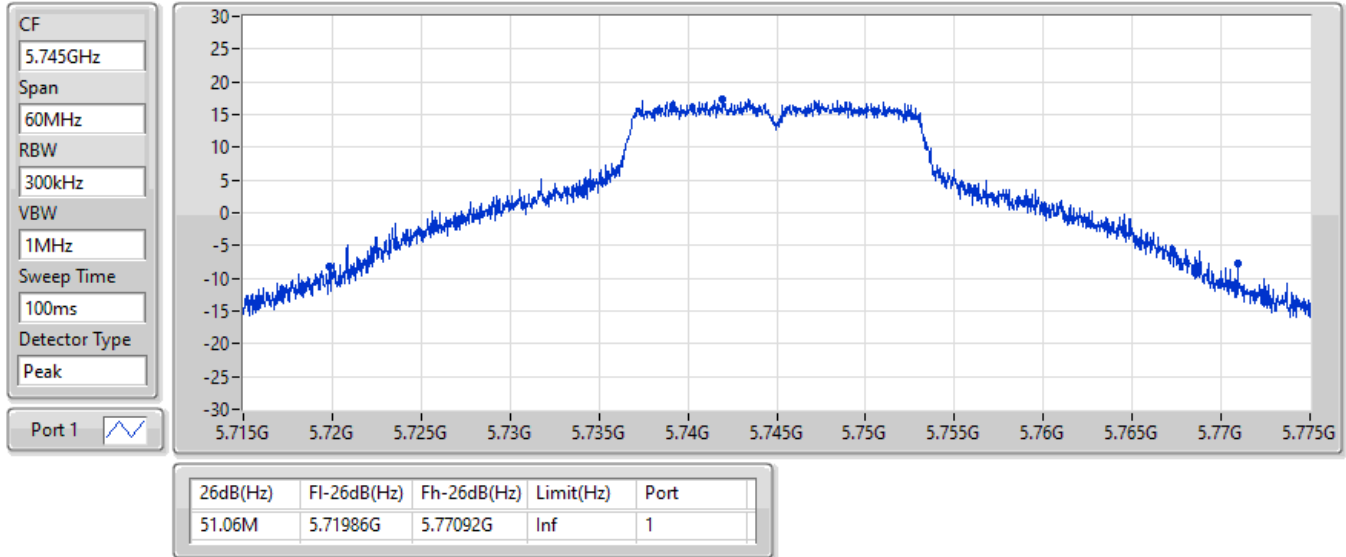


802.11a_Nss1,(6Mbps)_1TX

EBW

5745MHz

09/07/2022

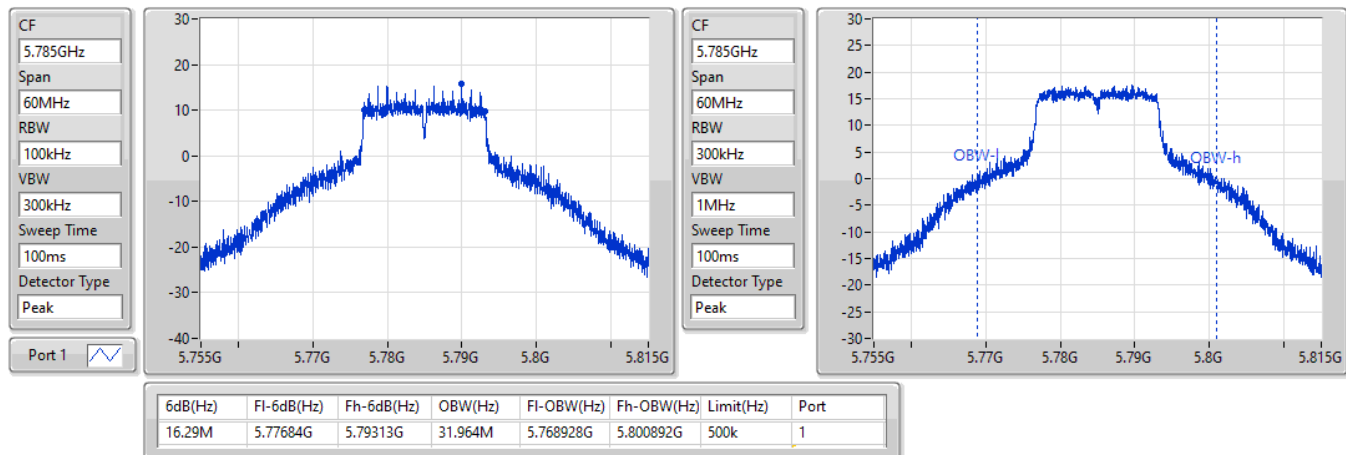


802.11a_Nss1,(6Mbps)_1TX

EBW

5785MHz

09/07/2022

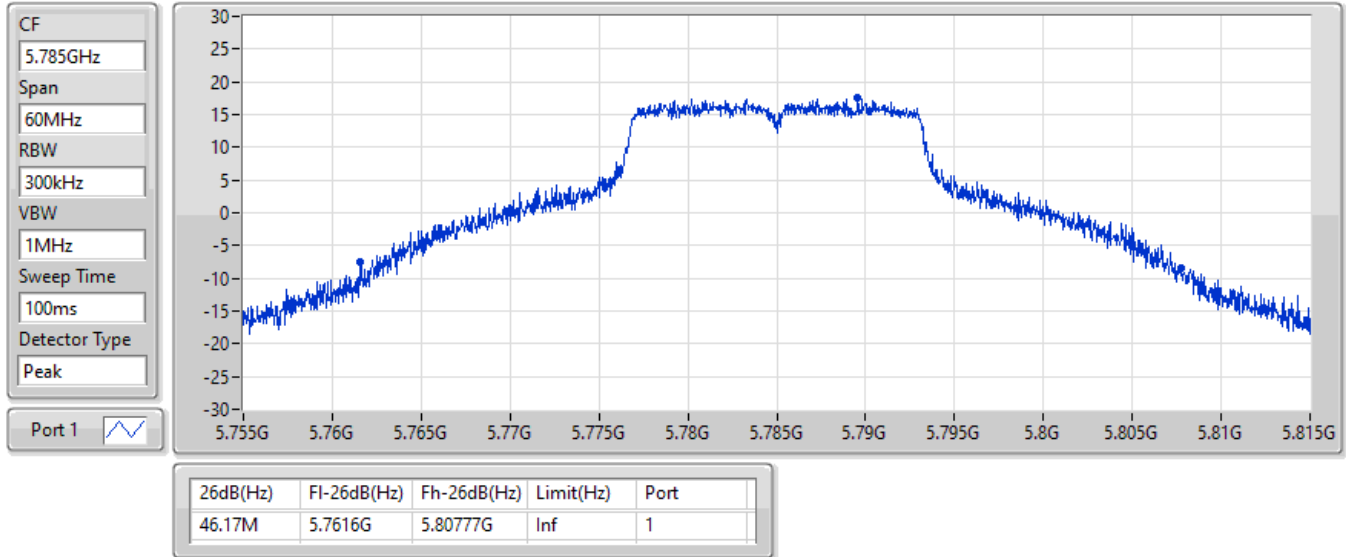


802.11a_Nss1,(6Mbps)_1TX

EBW

5785MHz

09/07/2022

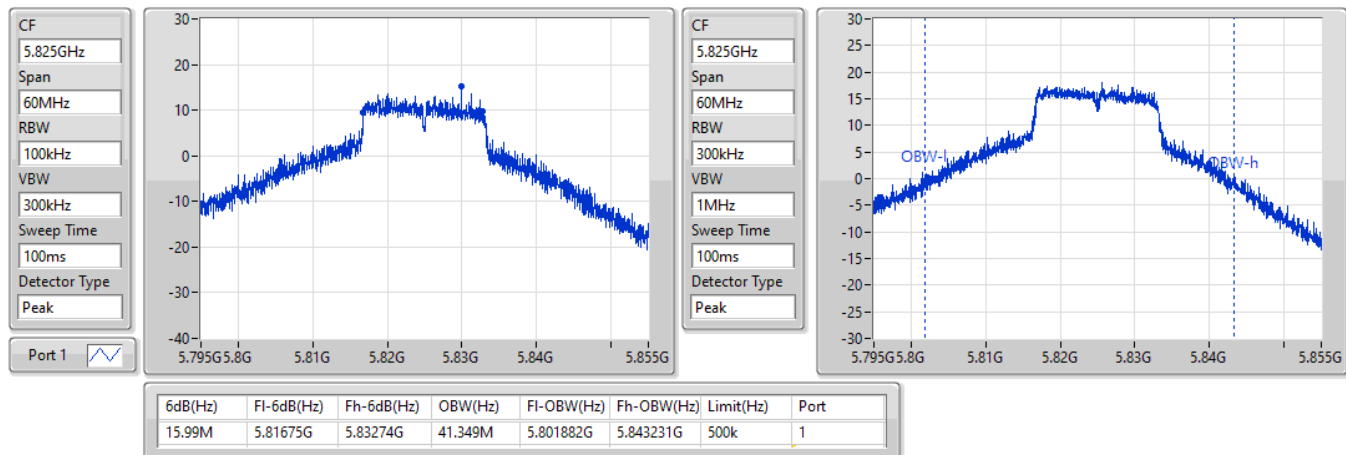


802.11a_Nss1,(6Mbps)_1TX

EBW

5825MHz

09/07/2022

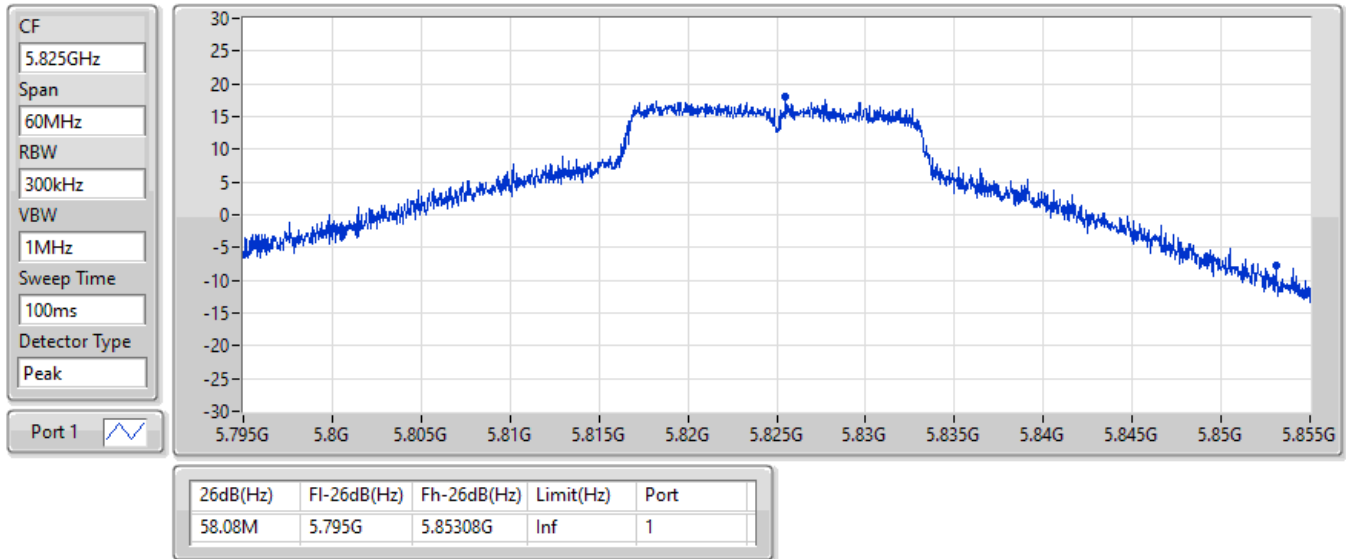


802.11a_Nss1,(6Mbps)_1TX

EBW

5825MHz

09/07/2022

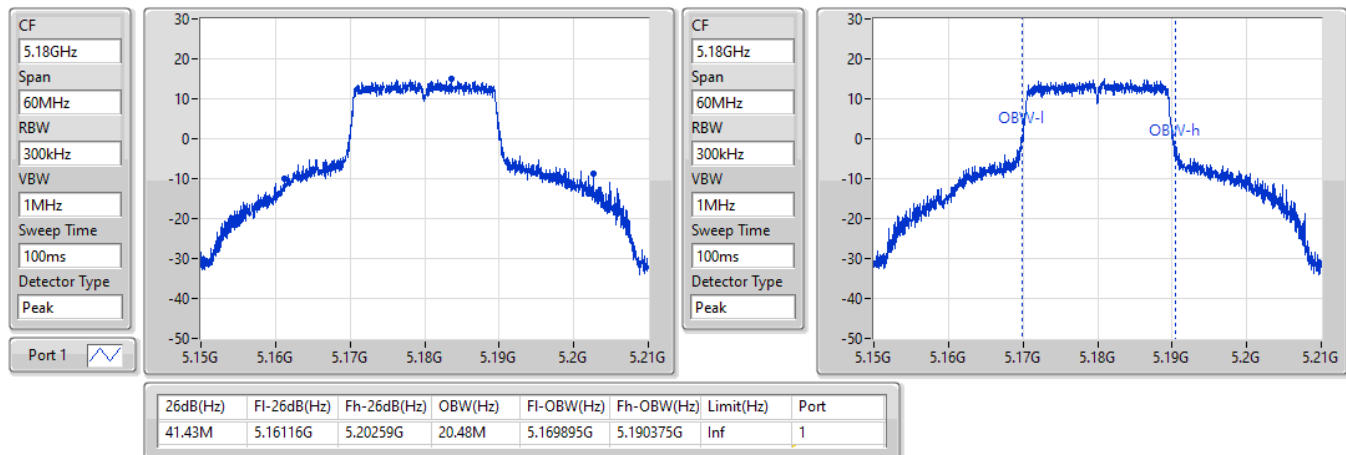


802.11ax HEW20_Nss1,(MCS0)_1TX

EBW

5180MHz

16/07/2022

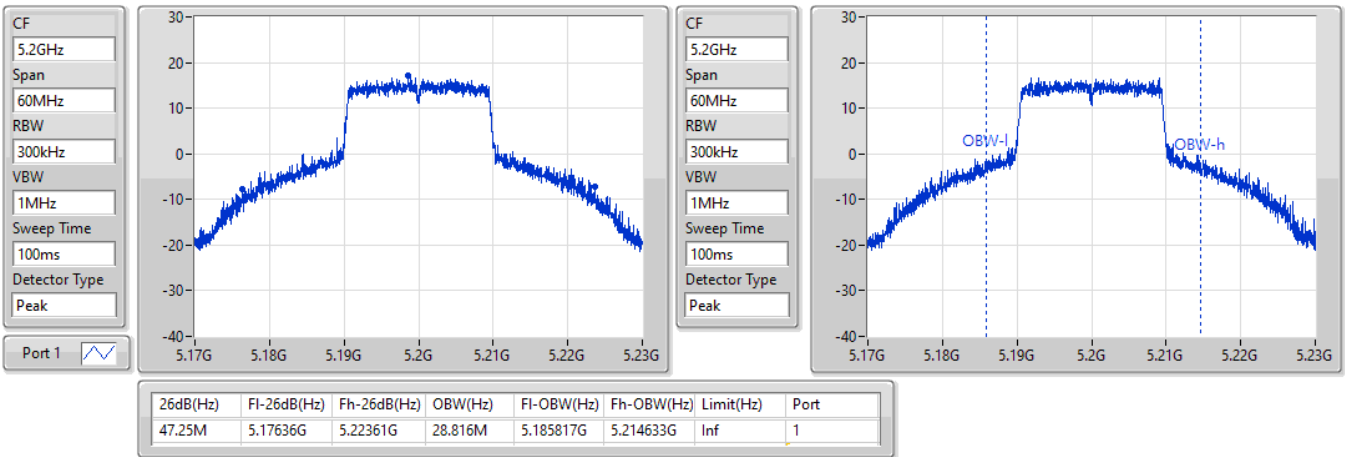


802.11ax HEW20_Nss1,(MCS0)_1TX

EBW

5200MHz

16/07/2022

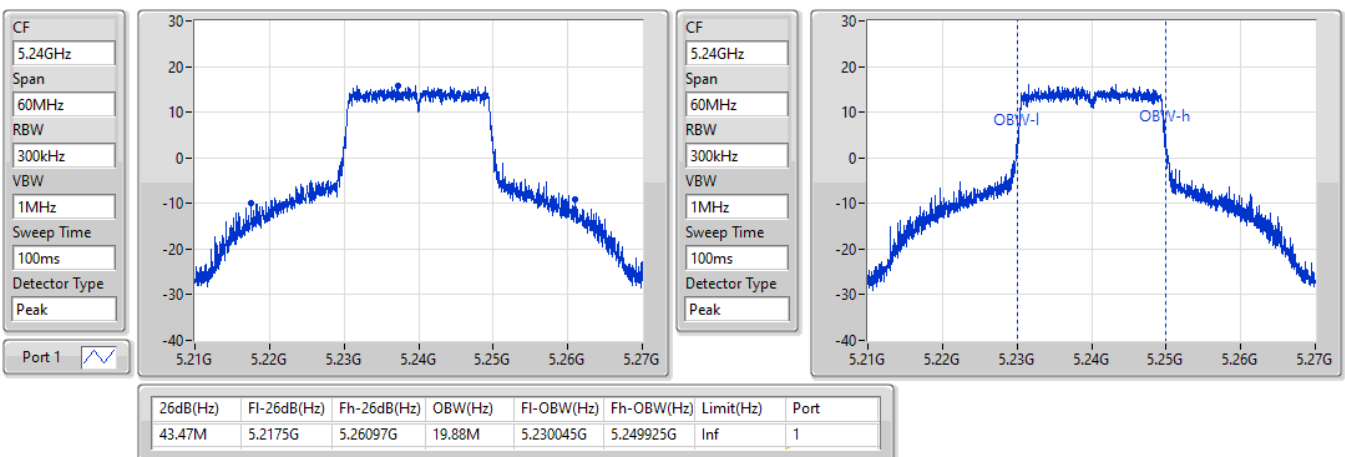


802.11ax HEW20_Nss1,(MCS0)_1TX

EBW

5240MHz

16/07/2022

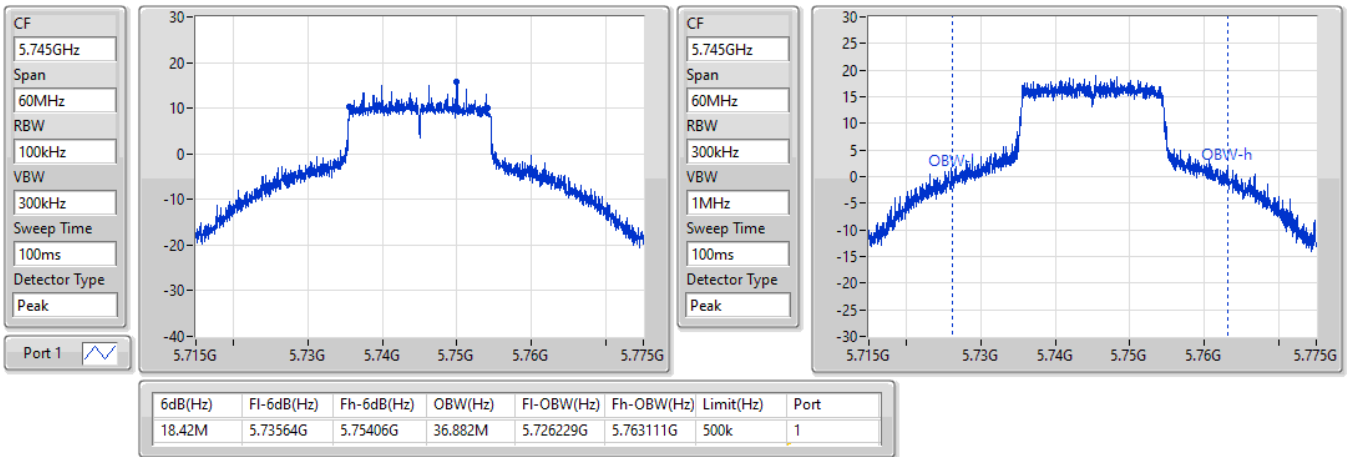


802.11ax HEW20_Nss1,(MCS0)_1TX

EBW

5745MHz

09/07/2022

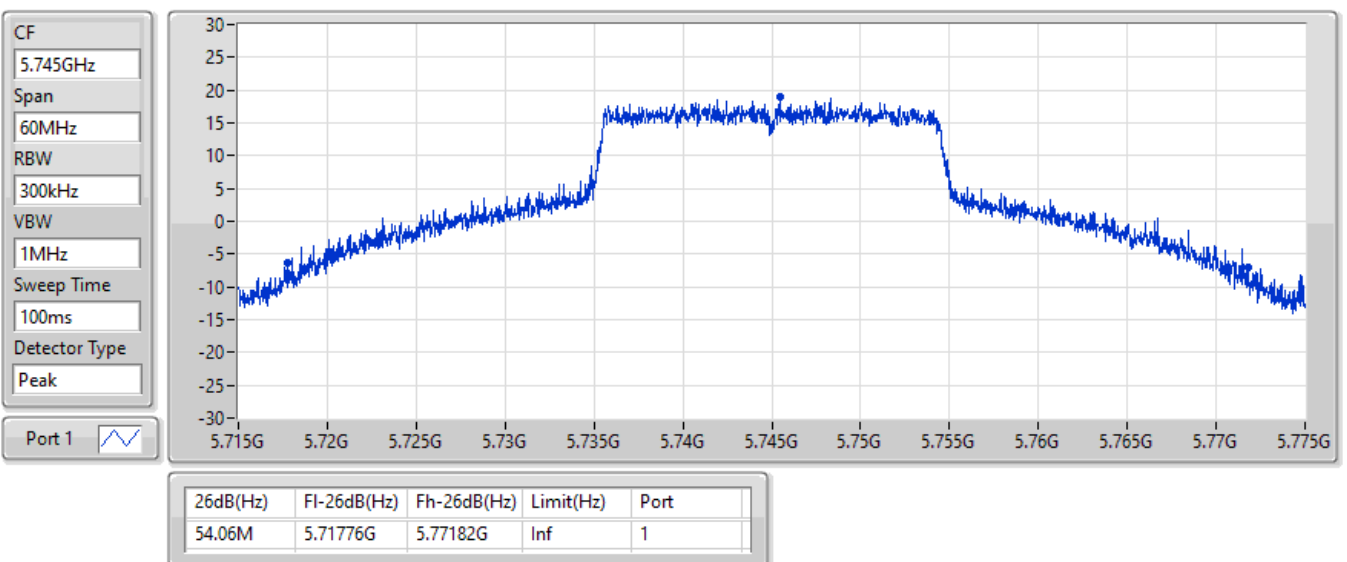


802.11ax HEW20_Nss1,(MCS0)_1TX

EBW

5745MHz

09/07/2022

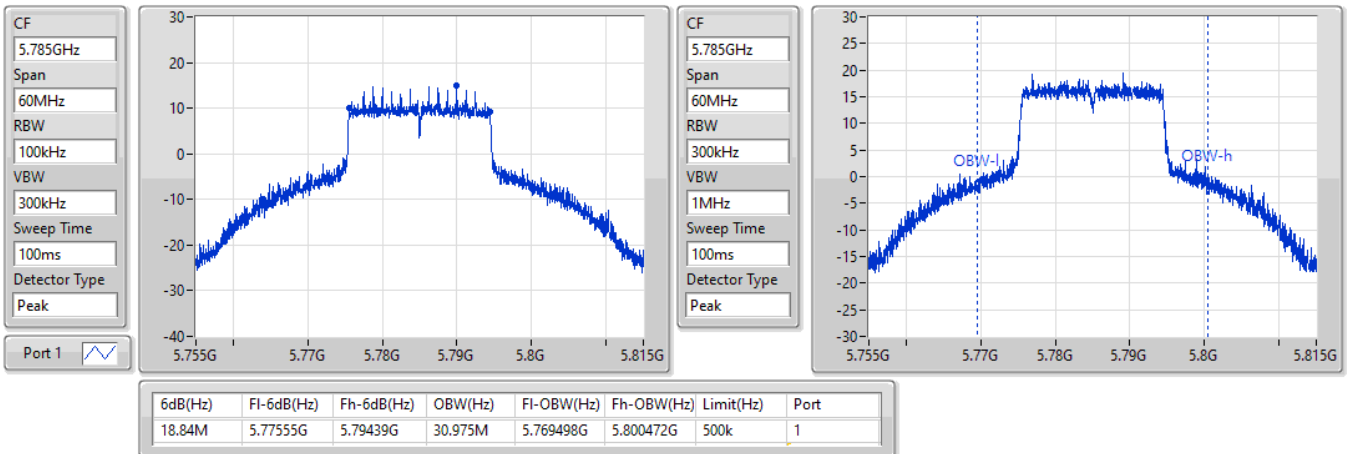


802.11ax HEW20_Nss1,(MCS0)_1TX

EBW

5785MHz

09/07/2022

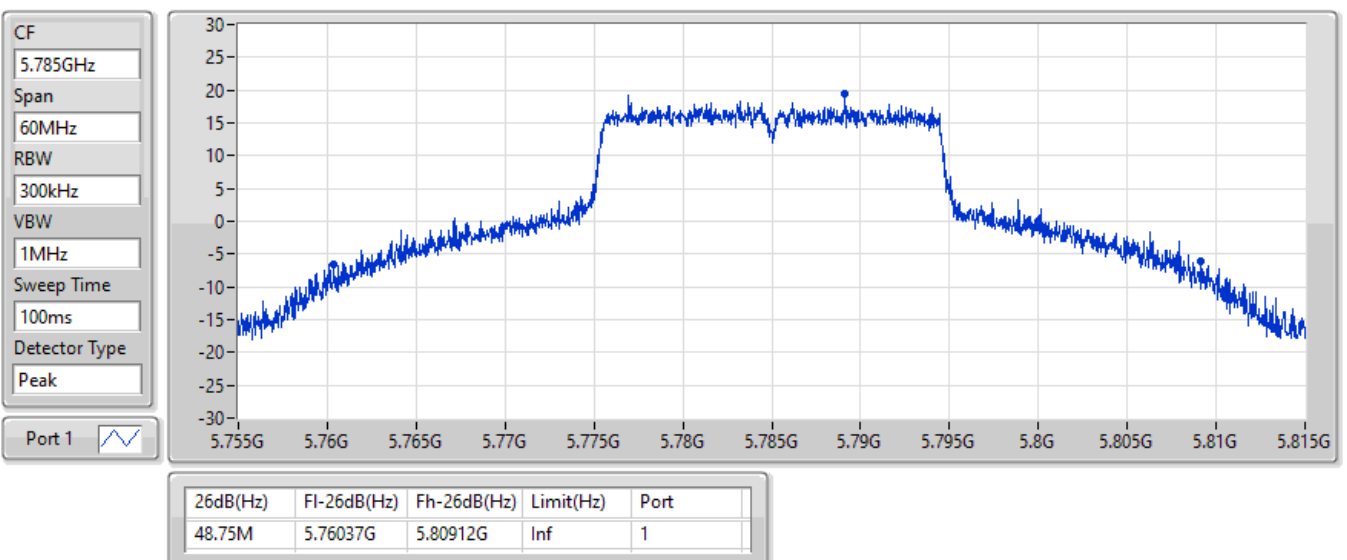


802.11ax HEW20_Nss1,(MCS0)_1TX

EBW

5785MHz

09/07/2022

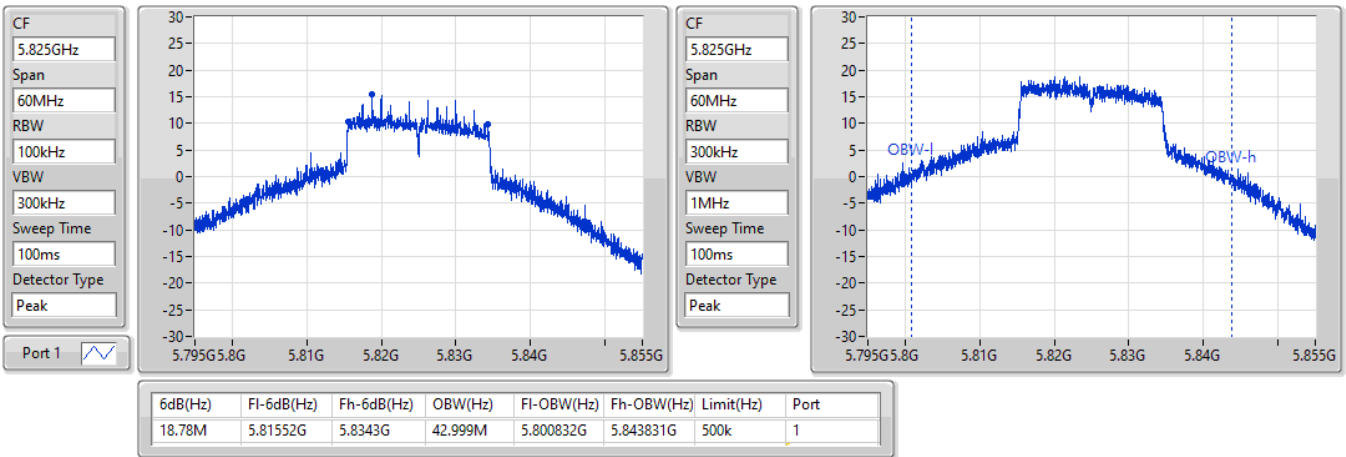


802.11ax HEW20_Nss1,(MCS0)_1TX

EBW

5825MHz

09/07/2022

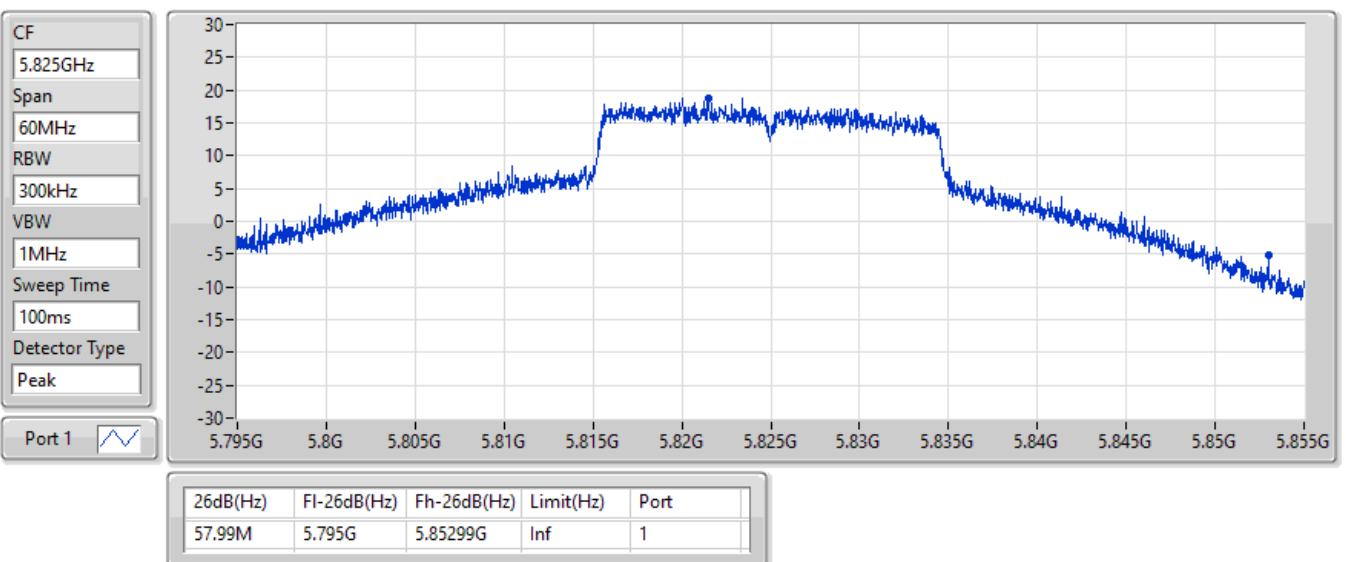


802.11ax HEW20_Nss1,(MCS0)_1TX

EBW

5825MHz

09/07/2022

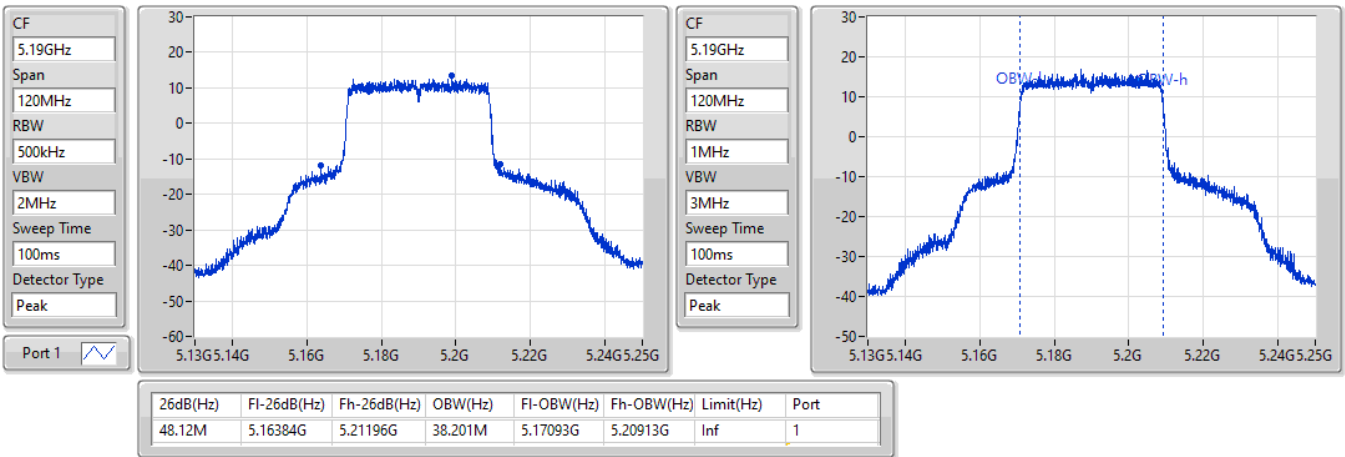


802.11ax HEW40_Nss1,(MCS0)_1TX

EBW

5190MHz

16/07/2022

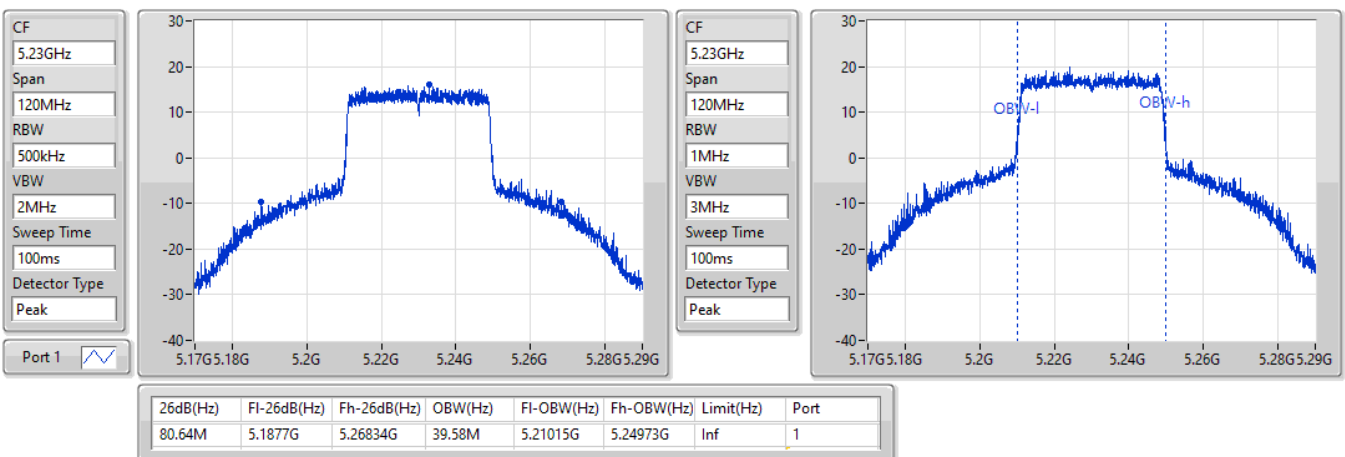


802.11ax HEW40_Nss1,(MCS0)_1TX

EBW

5230MHz

16/07/2022

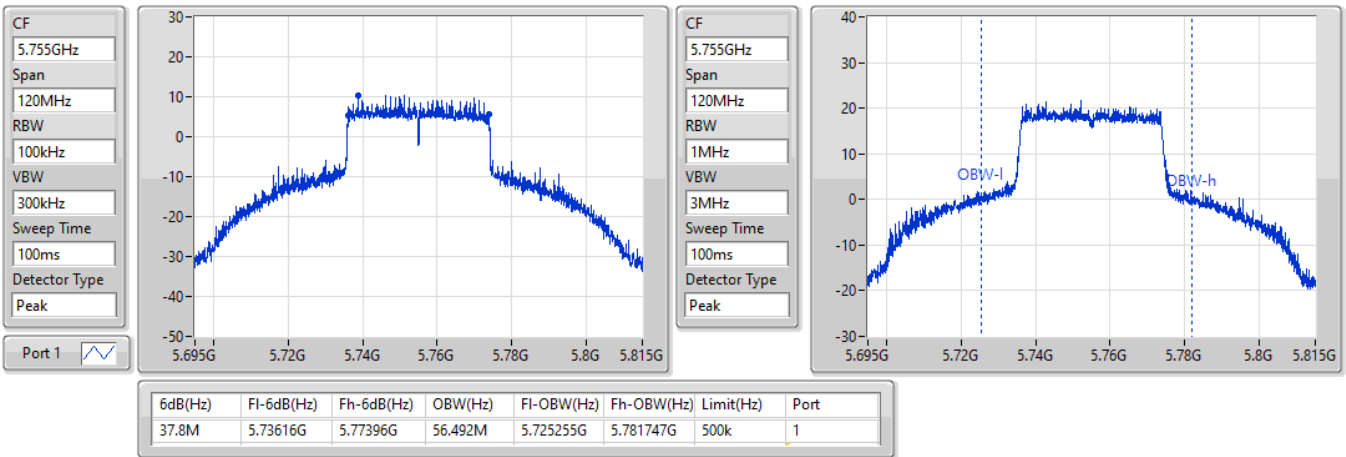


802.11ax HEW40_Nss1,(MCS0)_1TX

EBW

5755MHz

09/07/2022

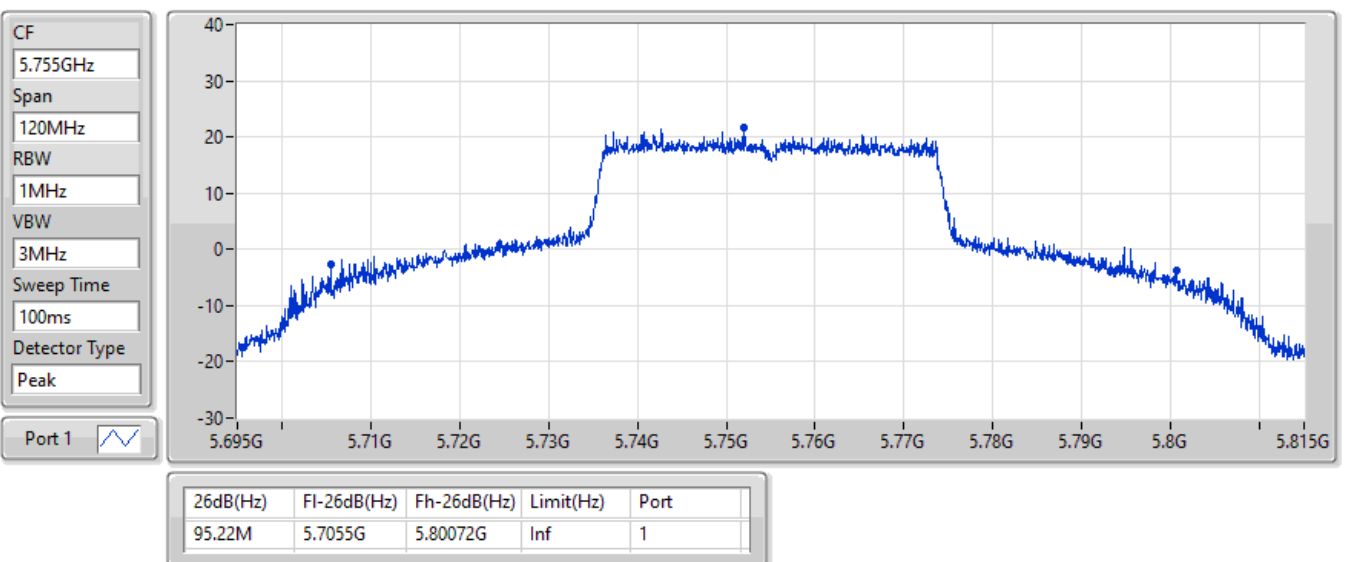


802.11ax HEW40_Nss1,(MCS0)_1TX

EBW

5755MHz

09/07/2022

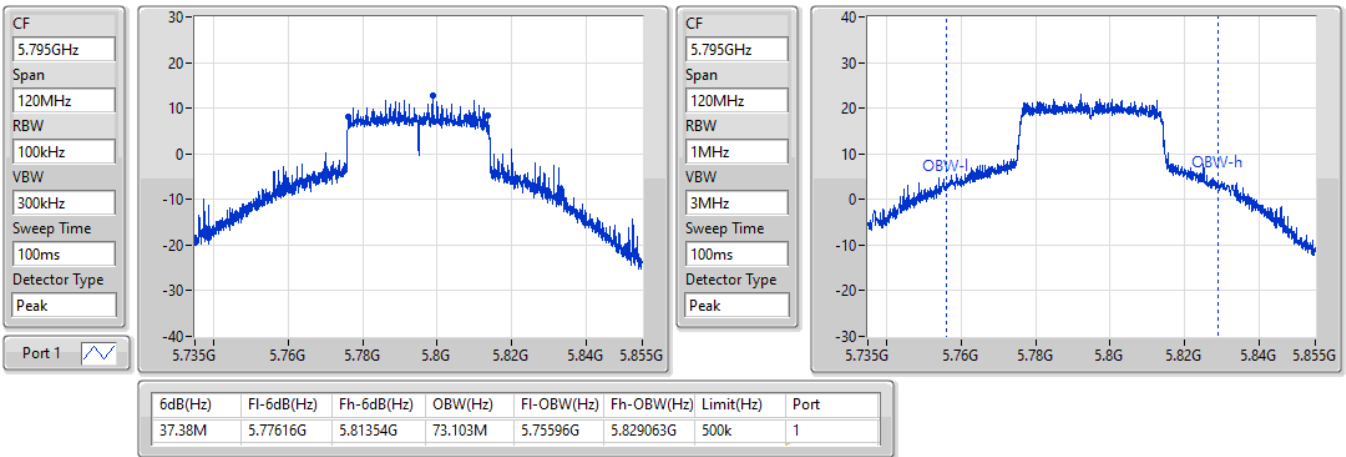


802.11ax HEW40_Nss1,(MCS0)_1TX

EBW

5795MHz

09/07/2022

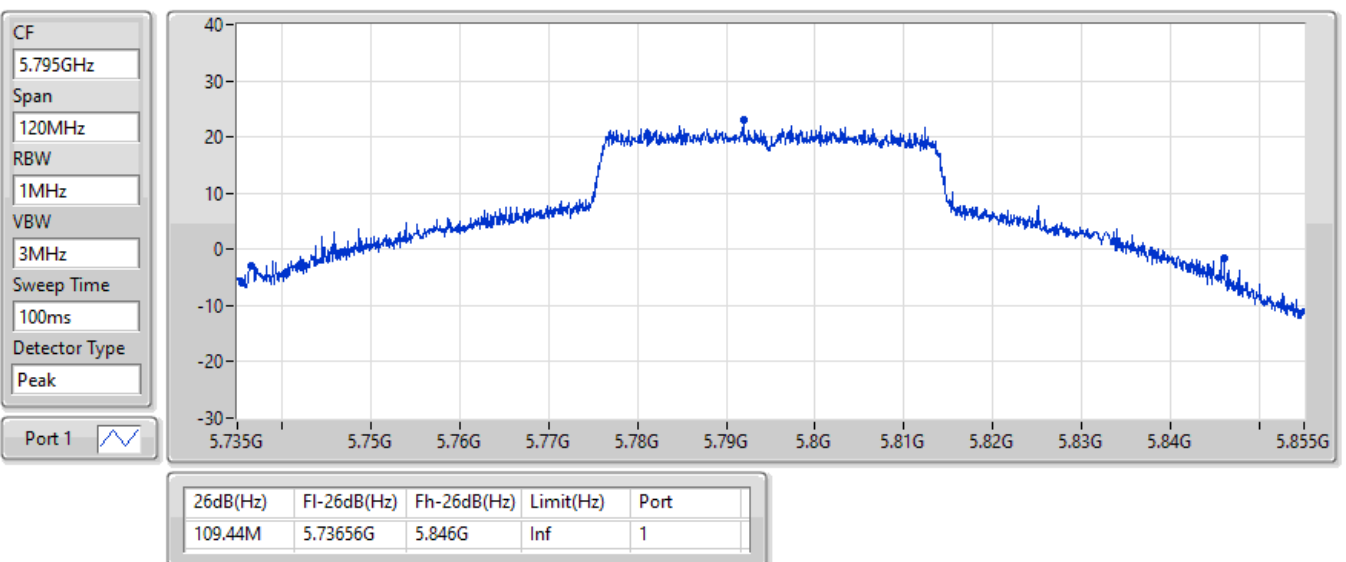


802.11ax HEW40_Nss1,(MCS0)_1TX

EBW

5795MHz

09/07/2022

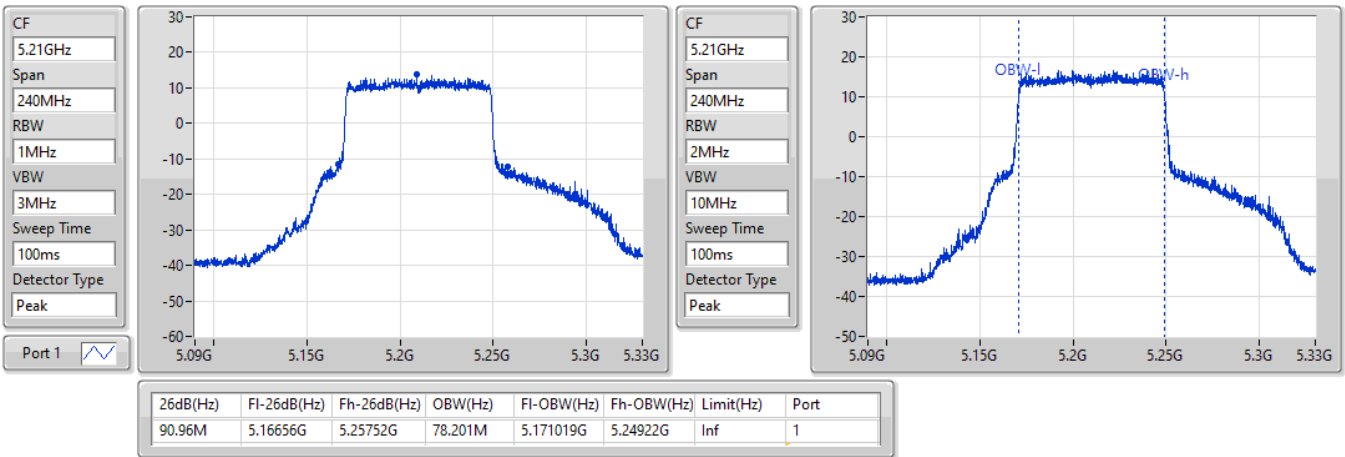


802.11ax HEW80_Nss1,(MCS0)_1TX

EBW

5210MHz

16/07/2022

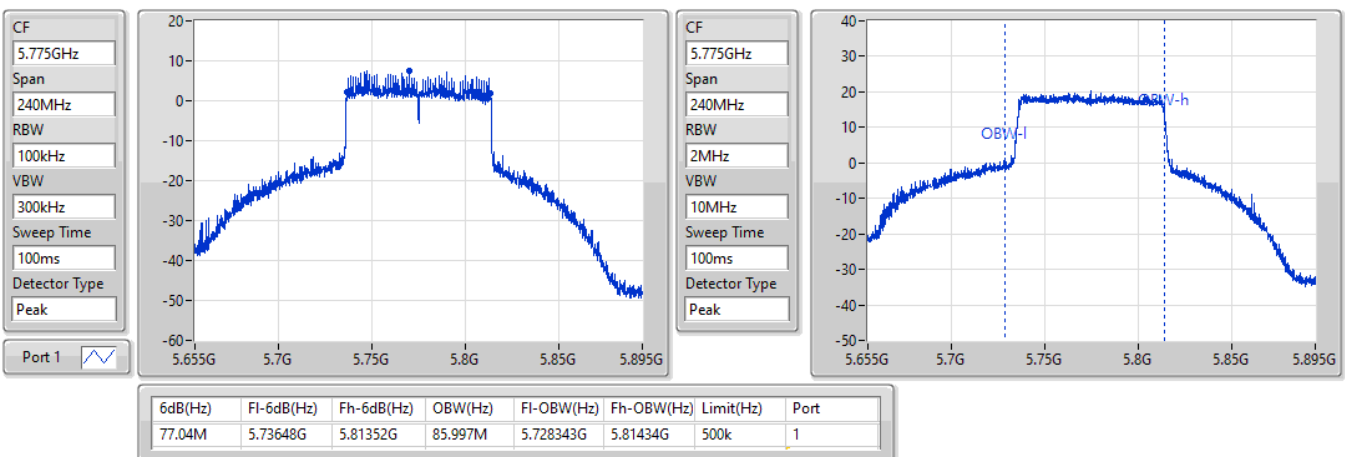


802.11ax HEW80_Nss1,(MCS0)_1TX

EBW

5775MHz

09/07/2022

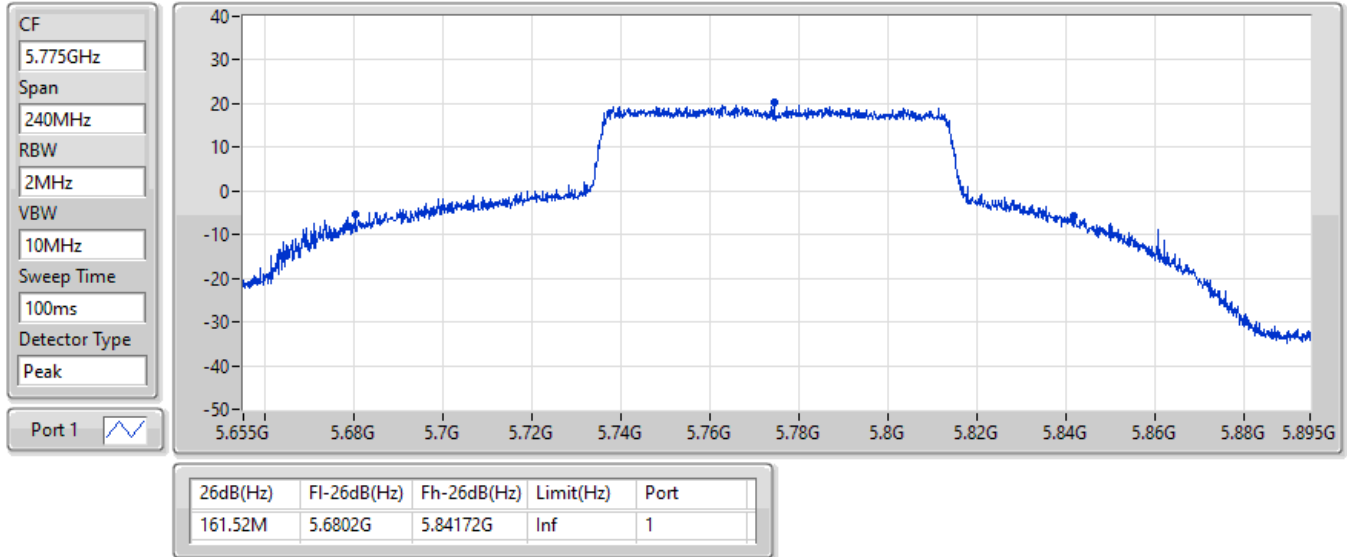


802.11ax HEW80_Nss1,(MCS0)_1TX

EBW

5775MHz

09/07/2022



**Summary**

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.15-5.25GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_2TX	41.97M	23.388M	23M4D1D	35.76M	18.771M
5.725-5.85GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_2TX	16.35M	24.828M	24M9D1D	15.69M	17.361M

Max-N dB = Maximum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;
Max-OBW = Maximum 99% occupied bandwidth;
Min-N dB = Minimum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;
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)
802.11a_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
5180MHz	Pass	Inf	35.76M	18.771M	39.48M	20.48M
5200MHz	Pass	Inf	39.93M	20.66M	41.97M	23.388M
5240MHz	Pass	Inf	38.4M	19.16M	39.69M	19.85M
5745MHz	Pass	500k	16.35M	17.511M	16.35M	17.361M
5785MHz	Pass	500k	16.32M	17.961M	16.35M	20.33M
5825MHz	Pass	500k	16.29M	19.16M	15.69M	24.828M

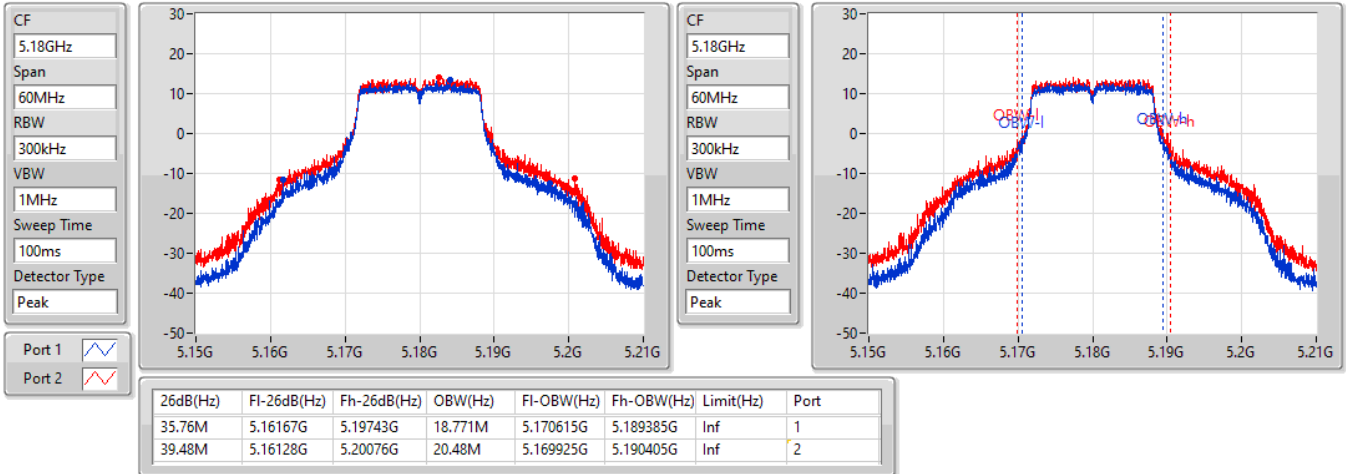
Port X-N dB = Port X 6dB down bandwidth for 5.725-5.85GHz band / 26dB down bandwidth for other band
Port X-OBW = Port X 99% occupied bandwidth

802.11a_Nss1,(6Mbps)_2TX

EBW

5180MHz

16/07/2022

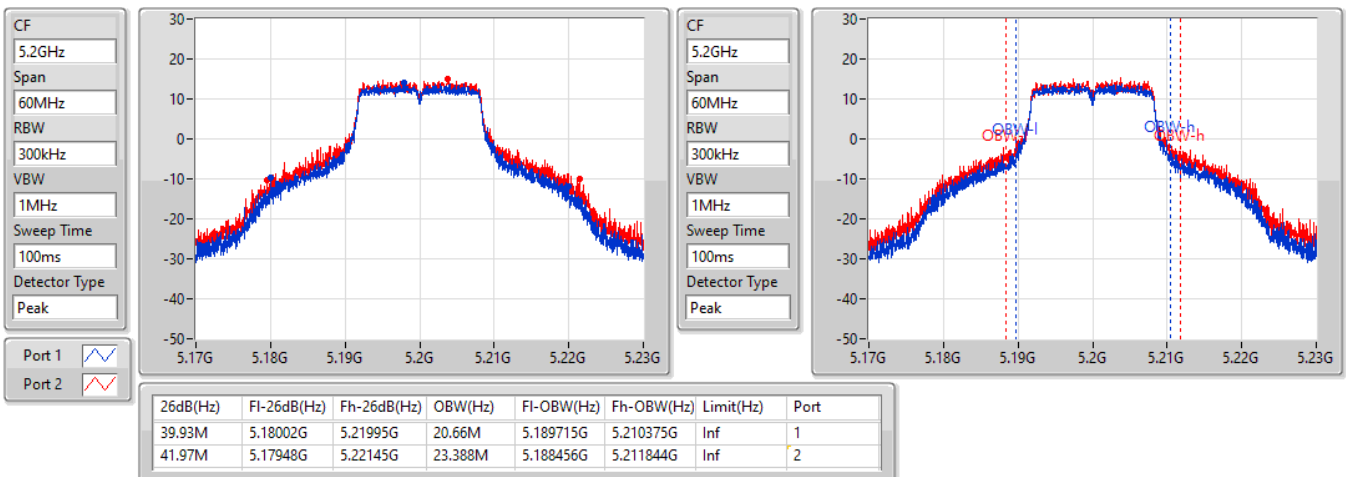


802.11a_Nss1,(6Mbps)_2TX

EBW

5200MHz

16/07/2022

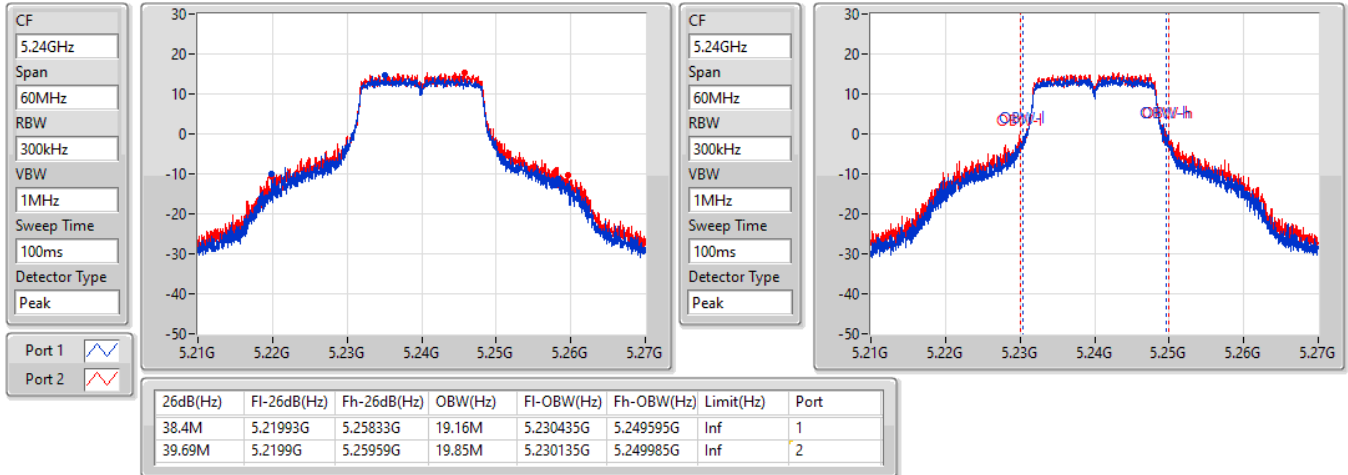


802.11a_Nss1,(6Mbps)_2TX

EBW

5240MHz

16/07/2022

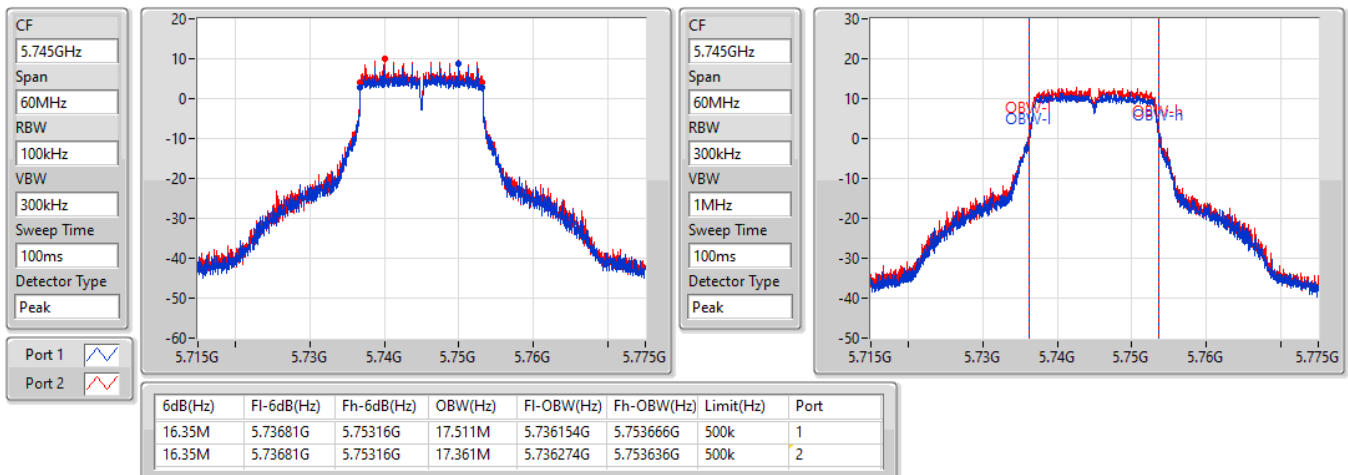


802.11a_Nss1,(6Mbps)_2TX

EBW

5745MHz

08/07/2022

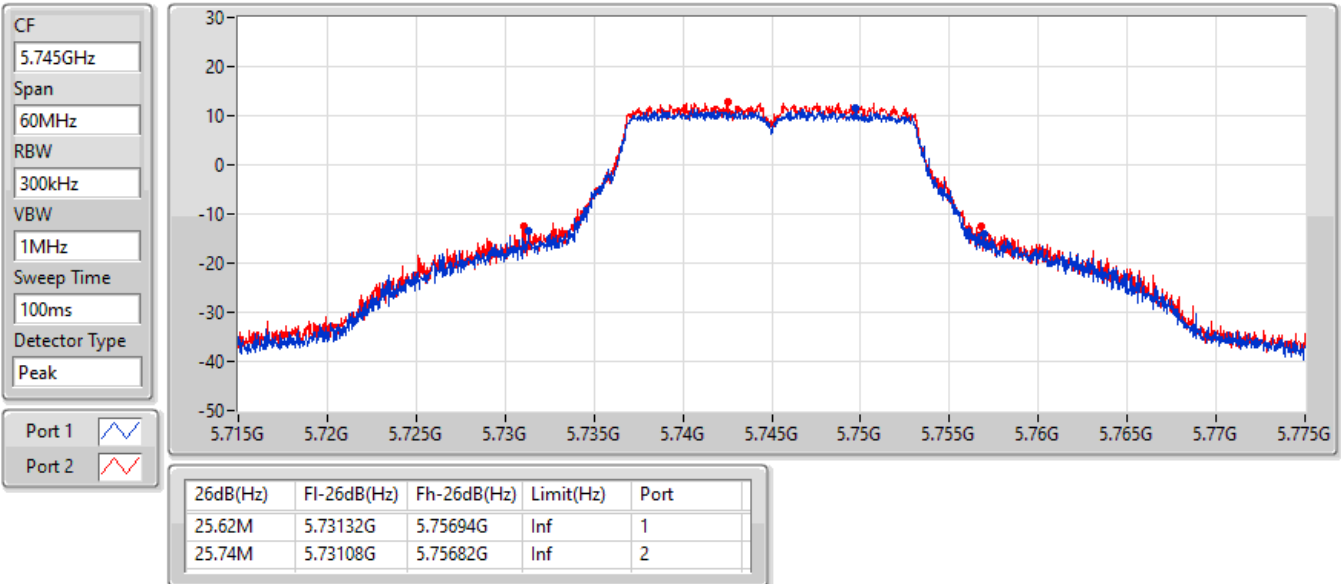


802.11a_Nss1,(6Mbps)_2TX

EBW

5745MHz

08/07/2022

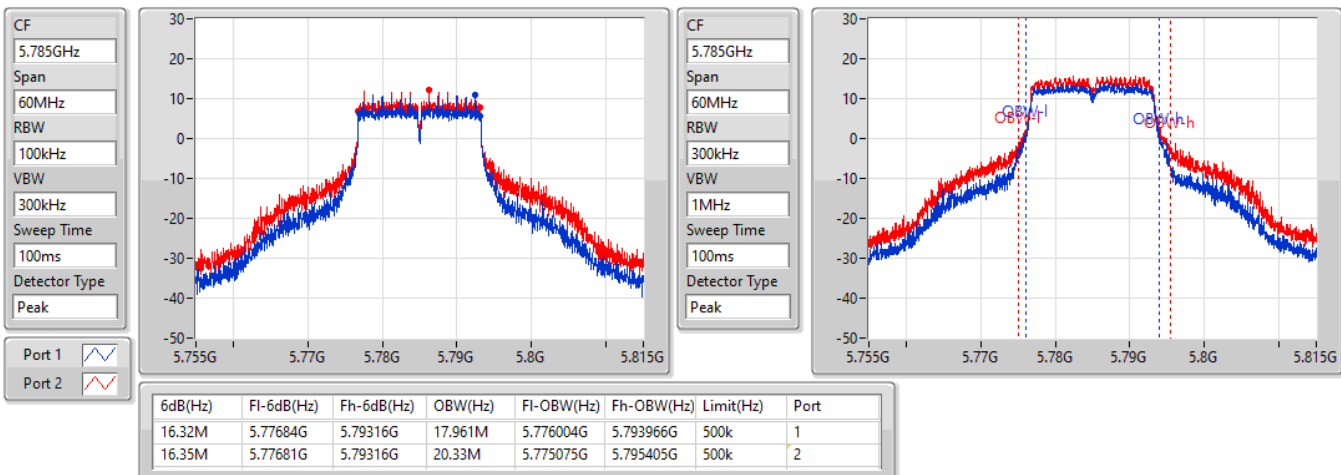


802.11a_Nss1,(6Mbps)_2TX

EBW

5785MHz

08/07/2022

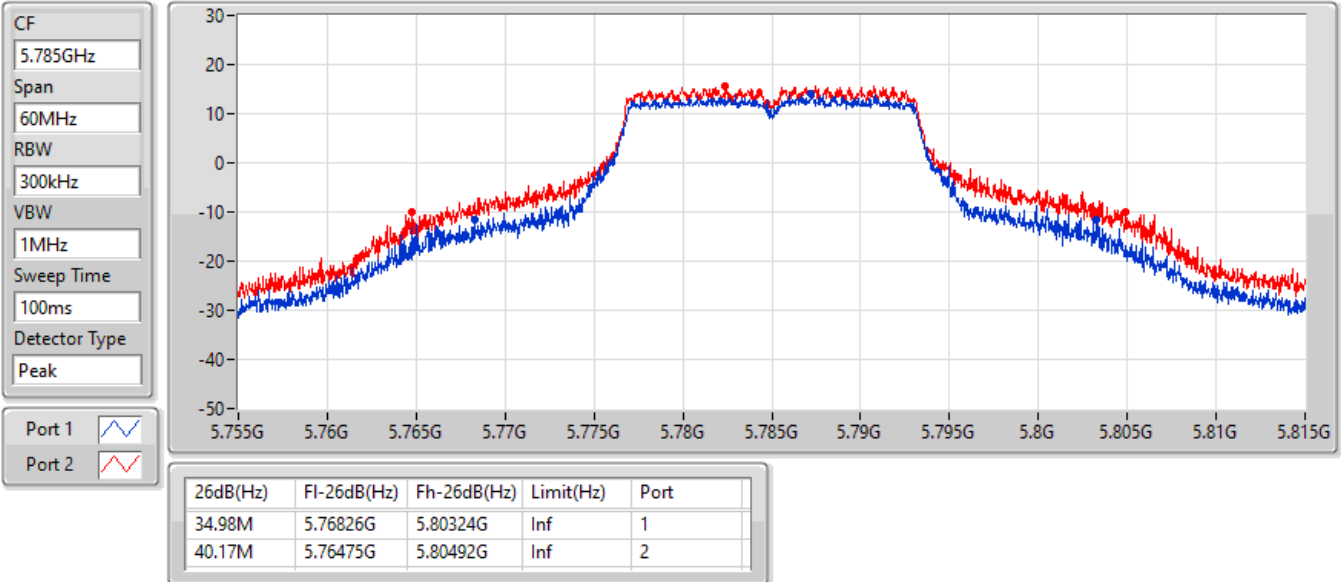


802.11a_Nss1,(6Mbps)_2TX

EBW

5785MHz

08/07/2022

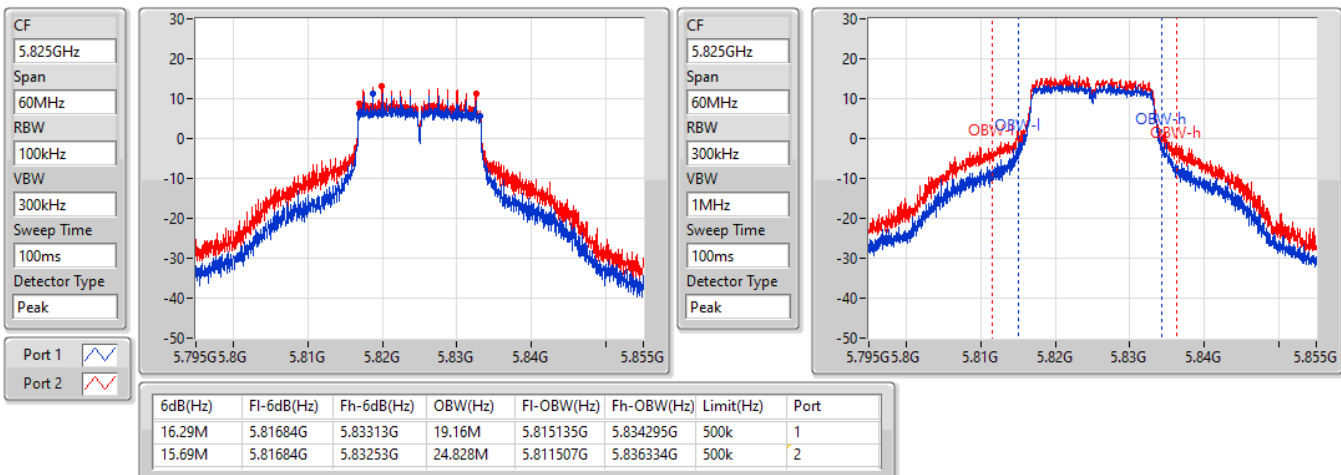


802.11a_Nss1,(6Mbps)_2TX

EBW

5825MHz

08/07/2022

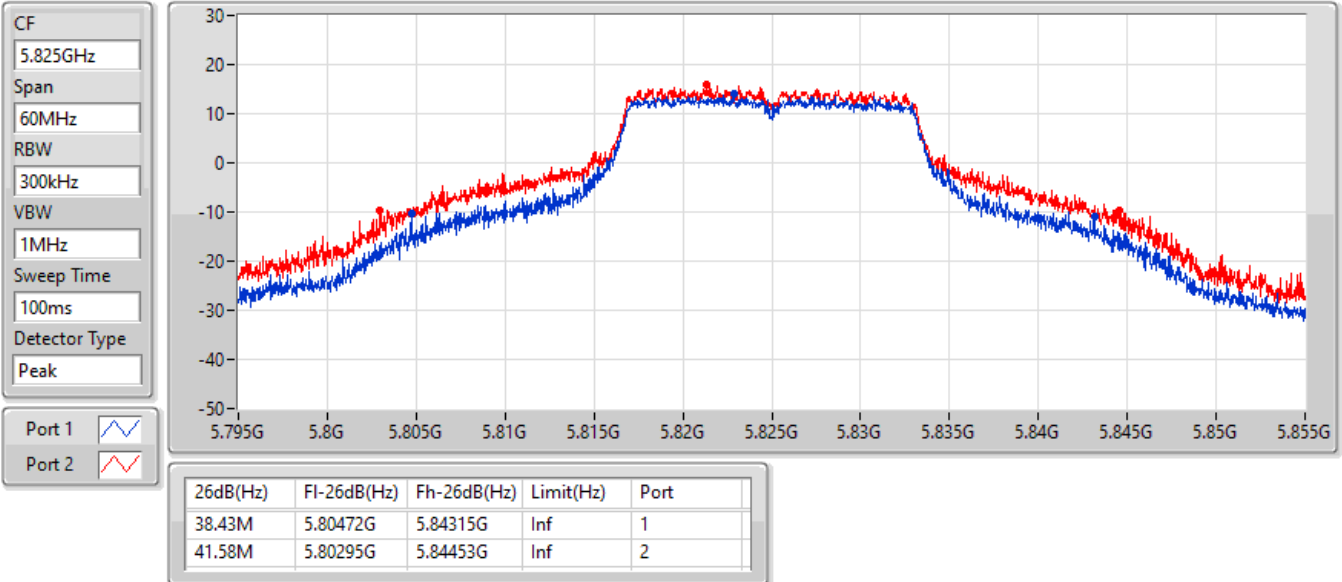


802.11a_Nss1,(6Mbps)_2TX

EBW

5825MHz

08/07/2022



Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.15-5.25GHz	-	-	-	-	-
802.11ax HEW20_Nss2,(MCS0)_2TX	48.96M	28.966M	29M0D1D	37.77M	19.58M
802.11ax HEW40_Nss2,(MCS0)_2TX	78.6M	39.22M	39M3D1D	46.26M	38.201M
802.11ax HEW80_Nss2,(MCS0)_2TX	96.36M	77.961M	78M0D1D	86.28M	77.961M
5.725-5.85GHz	-	-	-	-	-
802.11ax HEW20_Nss2,(MCS0)_2TX	18.9M	43.208M	43M3D1D	16.98M	19.34M
802.11ax HEW40_Nss2,(MCS0)_2TX	37.5M	78.261M	78M3D1D	36.78M	72.204M
802.11ax HEW80_Nss2,(MCS0)_2TX	77.4M	88.396M	88M4D1D	76.8M	78.921M

Max-N dB = Maximum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;
 Max-OBW = Maximum 99% occupied bandwidth;
 Min-N dB = Minimum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;
 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)
802.11ax HEW20_Nss2,(MCS0)_2TX	-	-	-	-	-	-
5180MHz	Pass	Inf	37.77M	19.58M	38.76M	19.61M
5200MHz	Pass	Inf	48.96M	24.738M	48.57M	28.966M
5240MHz	Pass	Inf	43.86M	19.76M	45.42M	19.82M
5745MHz	Pass	500k	18.9M	19.34M	18.81M	19.4M
5785MHz	Pass	500k	18.87M	20.57M	18.27M	29.685M
5825MHz	Pass	500k	18.3M	43.208M	16.98M	41.499M
802.11ax HEW40_Nss2,(MCS0)_2TX	-	-	-	-	-	-
5190MHz	Pass	Inf	50.58M	38.261M	46.26M	38.201M
5230MHz	Pass	Inf	78.6M	39.22M	76.68M	39.04M
5755MHz						
5795MHz	Pass	500k	37.5M	72.204M	36.78M	78.261M
802.11ax HEW80_Nss2,(MCS0)_2TX	-	-	-	-	-	-
5210MHz	Pass	Inf	86.28M	77.961M	96.36M	77.961M
5775MHz	Pass	500k	77.4M	78.921M	76.8M	88.396M

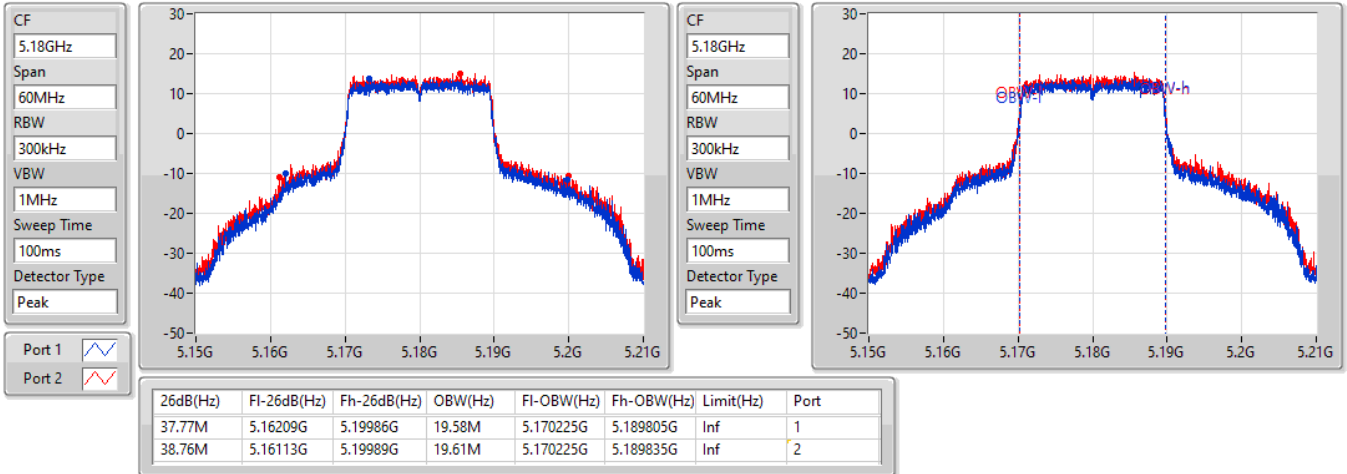
Port X-N dB = Port X 6dB down bandwidth for 5.725-5.85GHz band / 26dB down bandwidth for other band
Port X-OBW = Port X 99% occupied bandwidth

802.11ax HEW20_Nss2,(MCS0)_2TX

EBW

5180MHz

16/07/2022

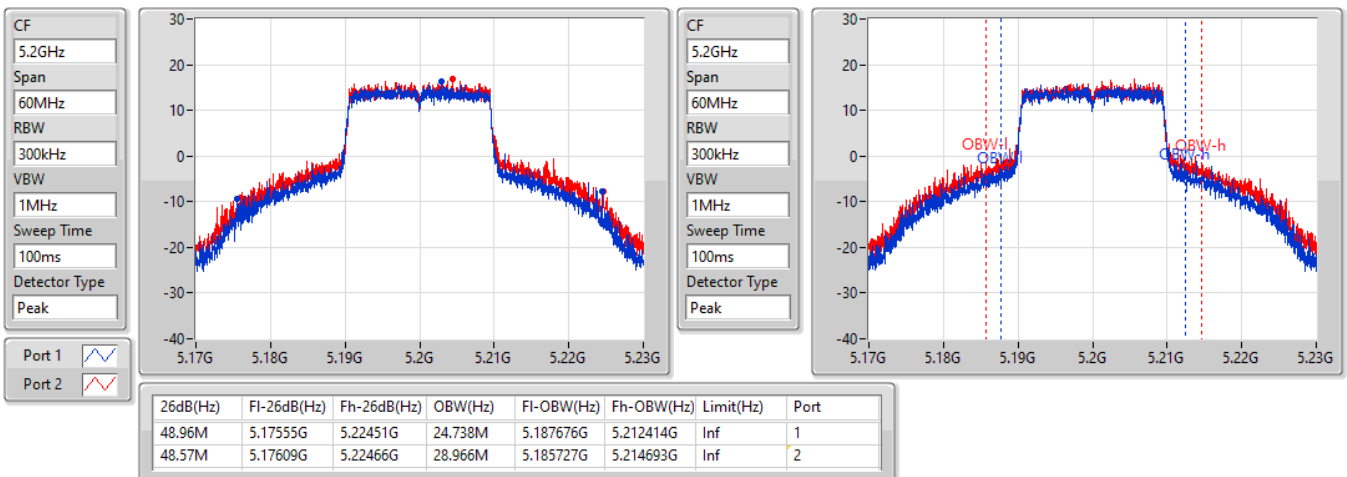


802.11ax HEW20_Nss2,(MCS0)_2TX

EBW

5200MHz

16/07/2022

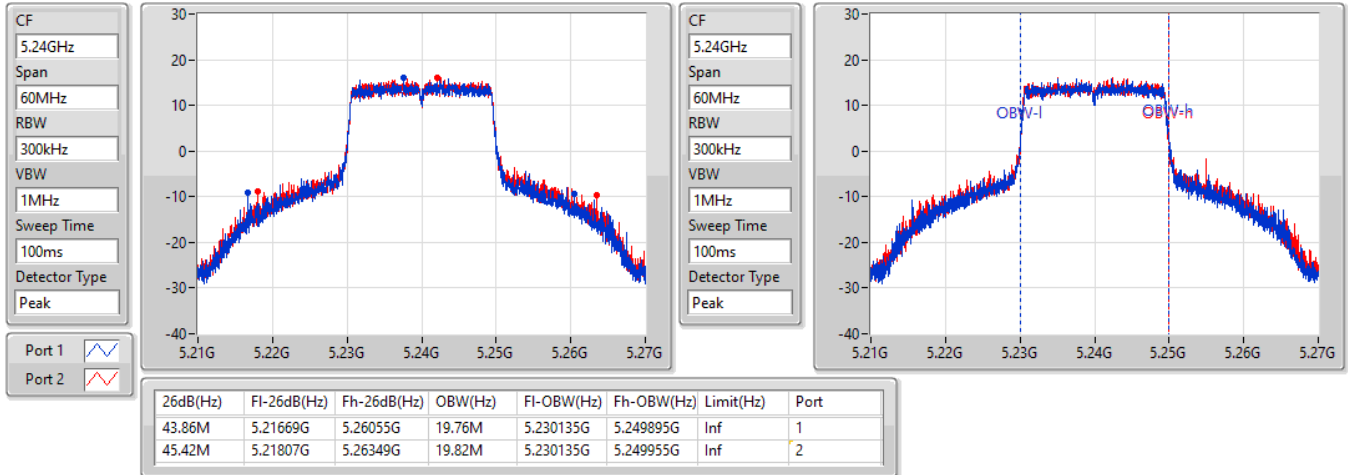


802.11ax HEW20_Nss2,(MCS0)_2TX

EBW

5240MHz

16/07/2022

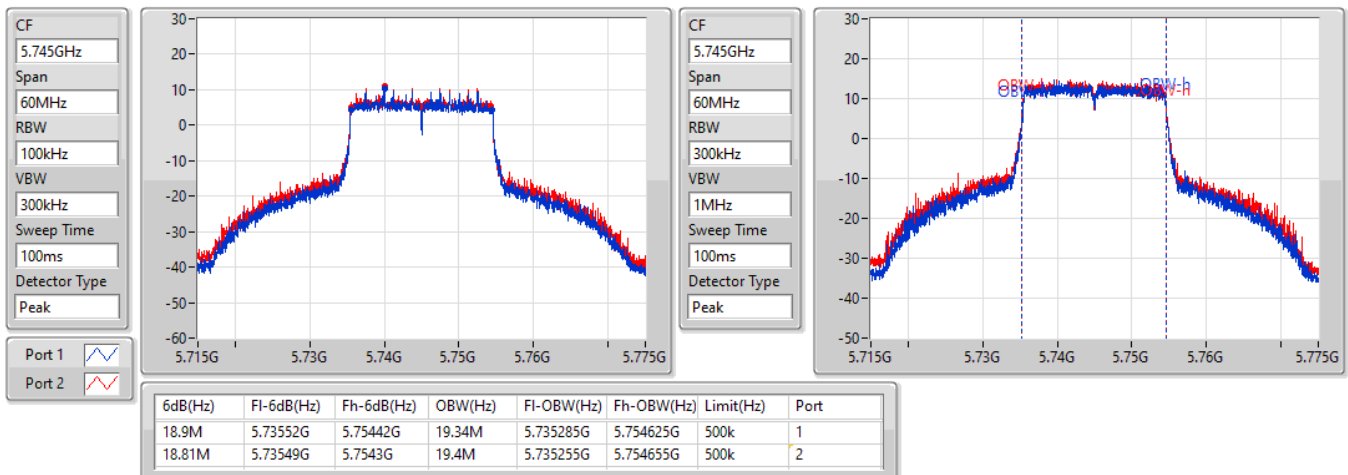


802.11ax HEW20_Nss2,(MCS0)_2TX

EBW

5745MHz

08/07/2022

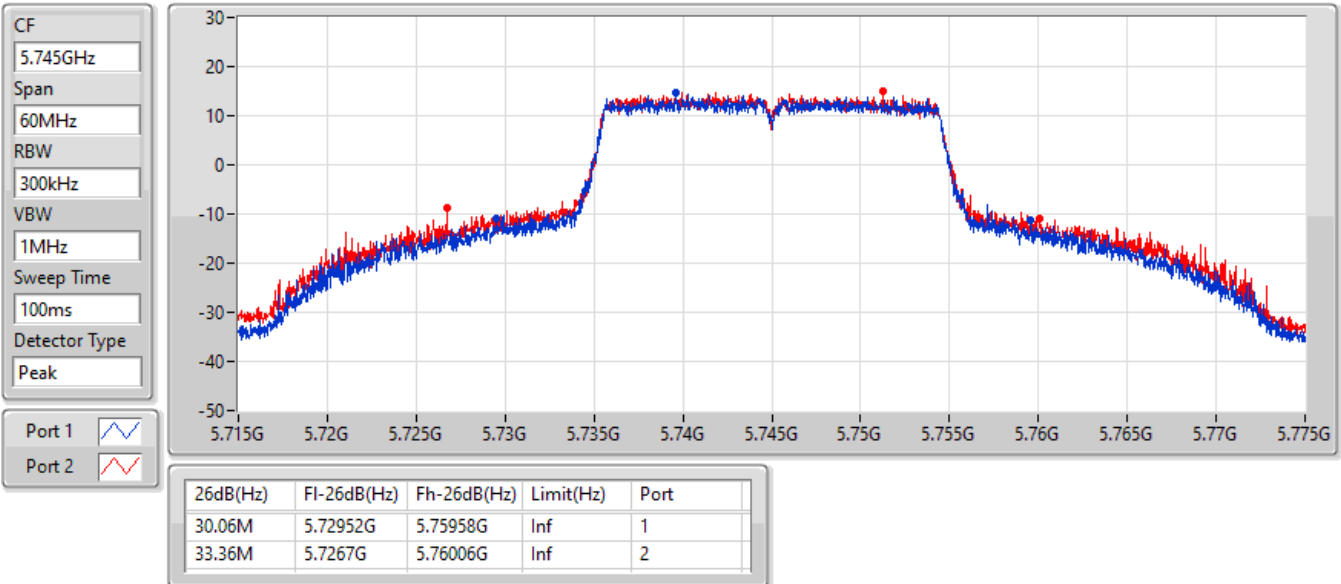


802.11ax HEW20_Nss2,(MCS0)_2TX

EBW

5745MHz

08/07/2022

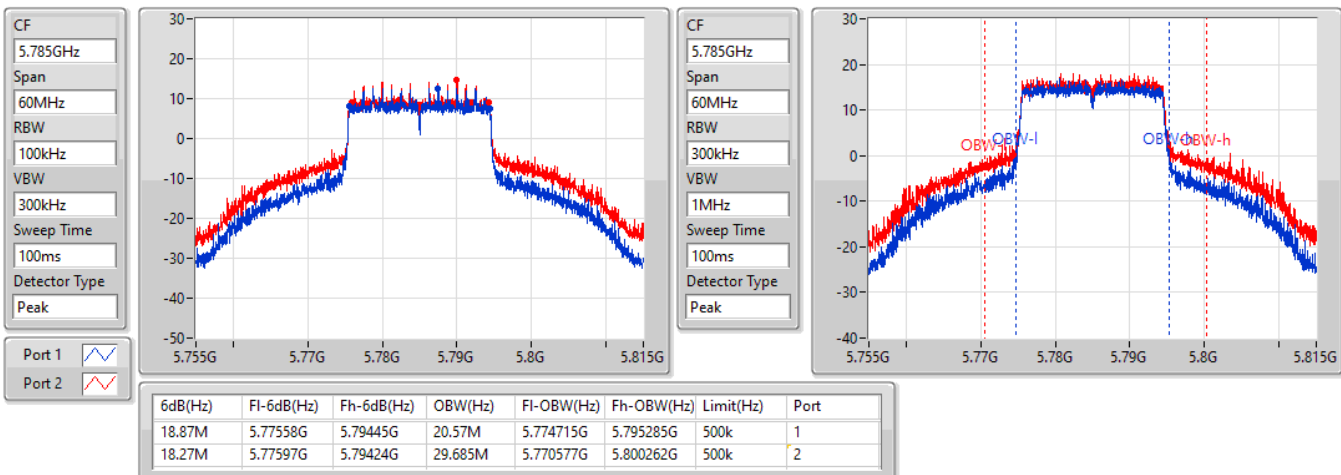


802.11ax HEW20_Nss2,(MCS0)_2TX

EBW

5785MHz

08/07/2022

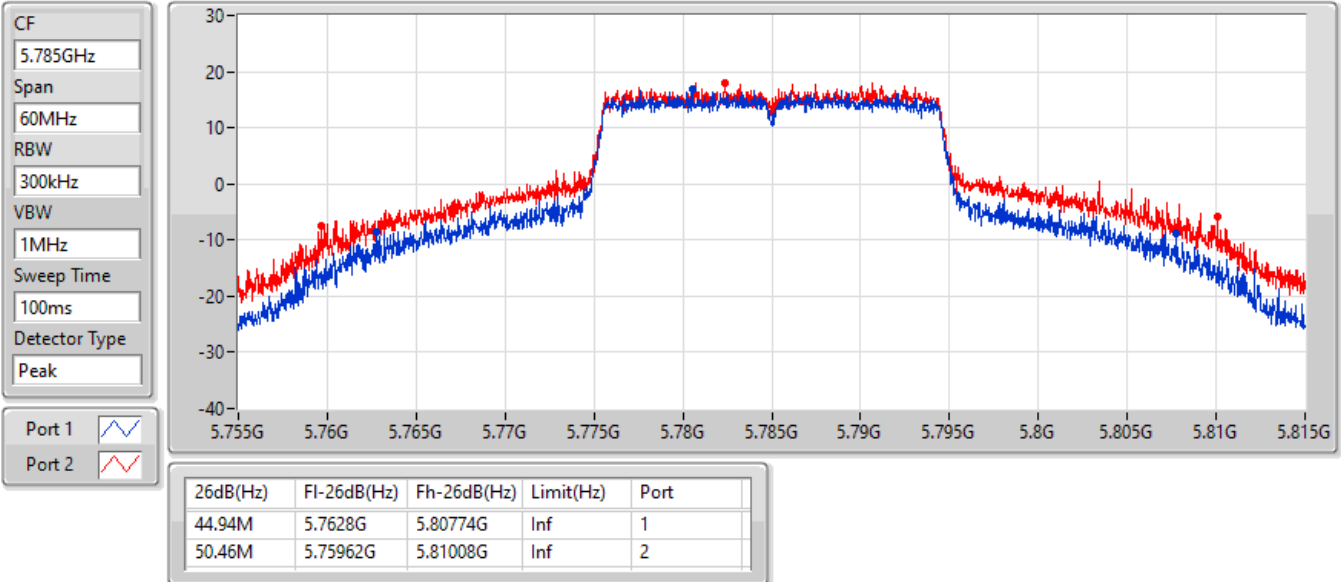


802.11ax HEW20_Nss2,(MCS0)_2TX

EBW

5785MHz

08/07/2022

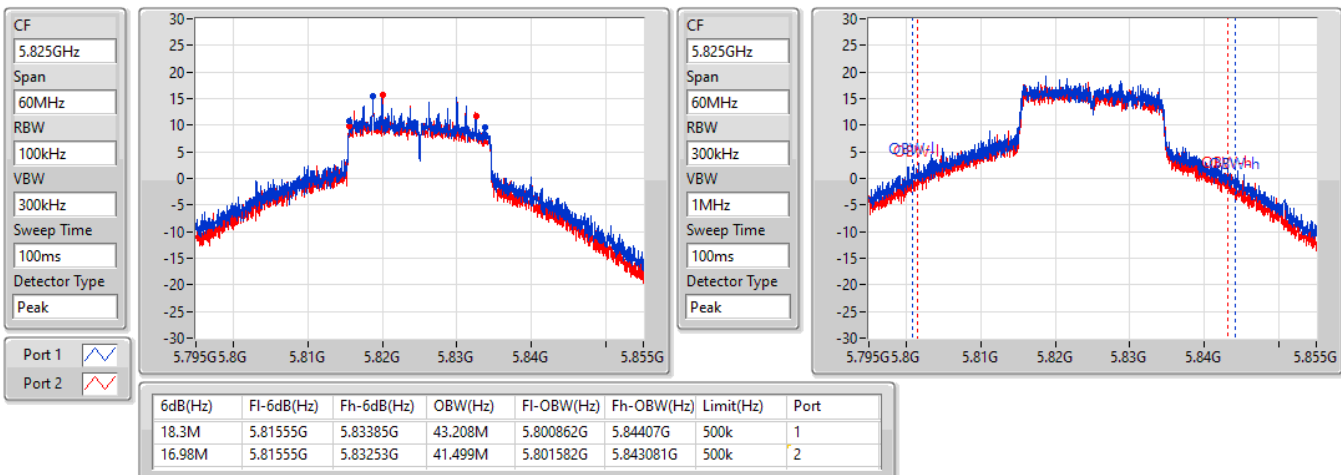


802.11ax HEW20_Nss2,(MCS0)_2TX

EBW

5825MHz

08/07/2022

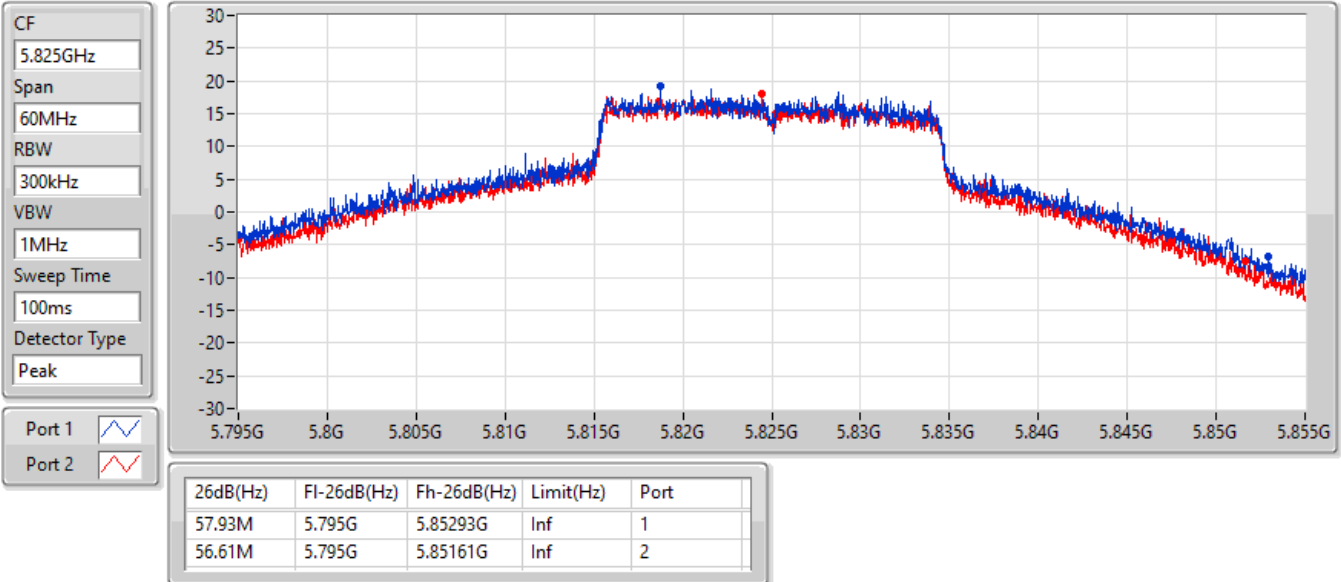


802.11ax HEW20_Nss2,(MCS0)_2TX

EBW

5825MHz

08/07/2022

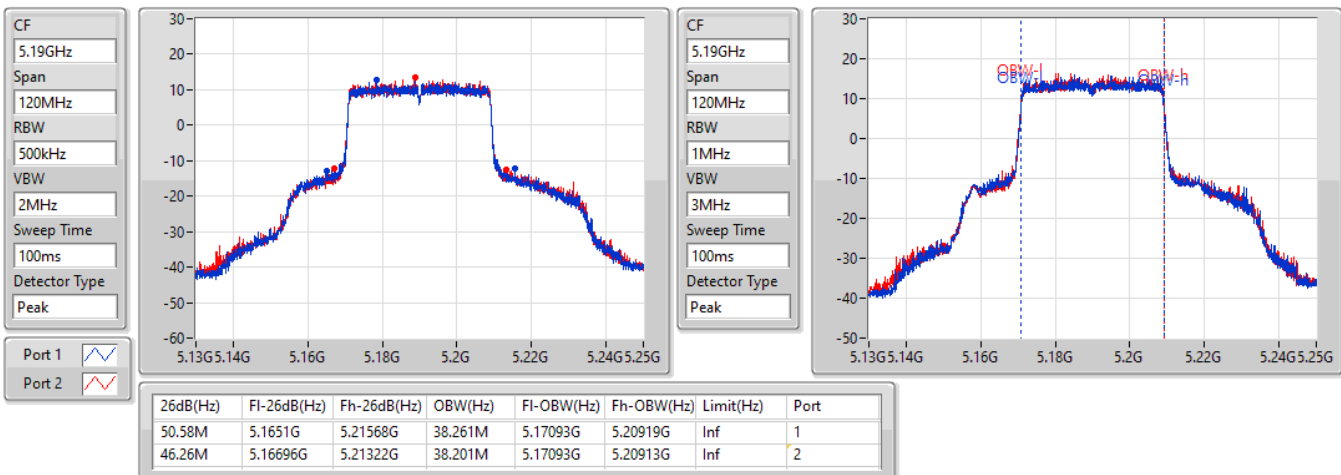


802.11ax HEW40_Nss2,(MCS0)_2TX

EBW

5190MHz

16/07/2022

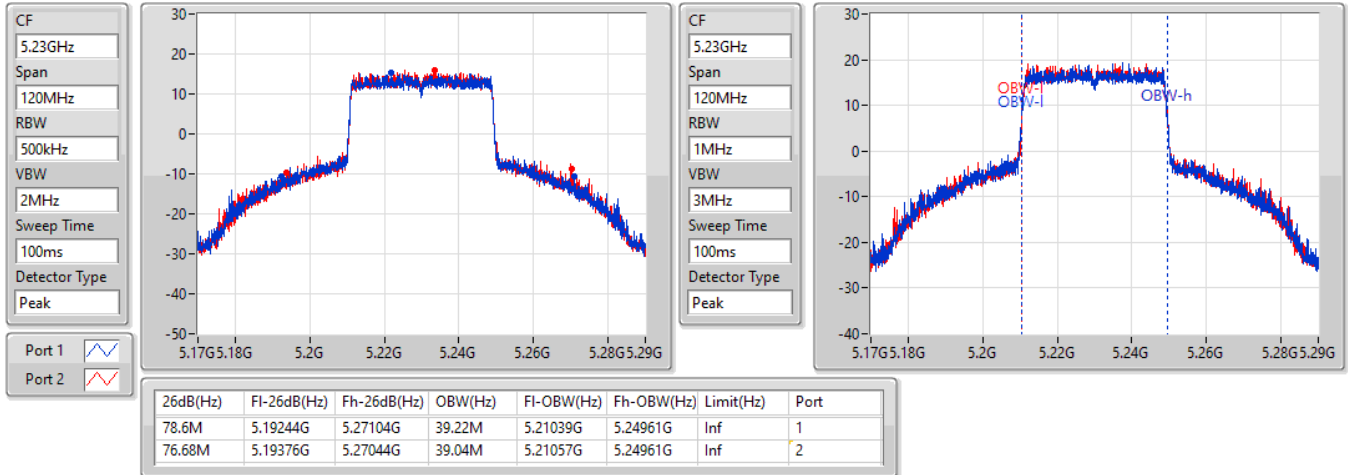


802.11ax HEW40_Nss2,(MCS0)_2TX

EBW

5230MHz

16/07/2022

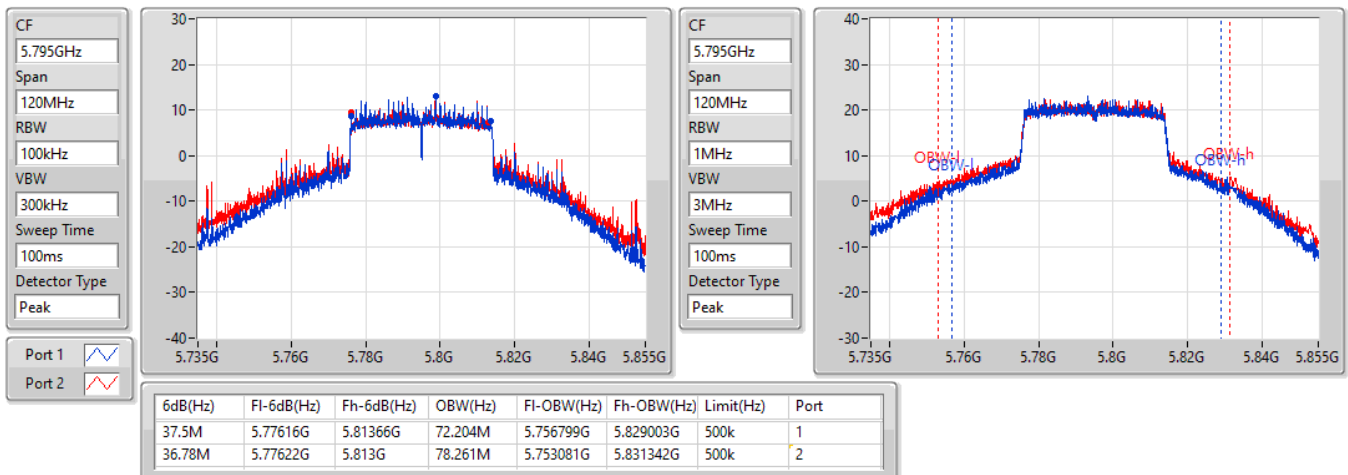


802.11ax HEW40_Nss2,(MCS0)_2TX

EBW

5795MHz

08/07/2022

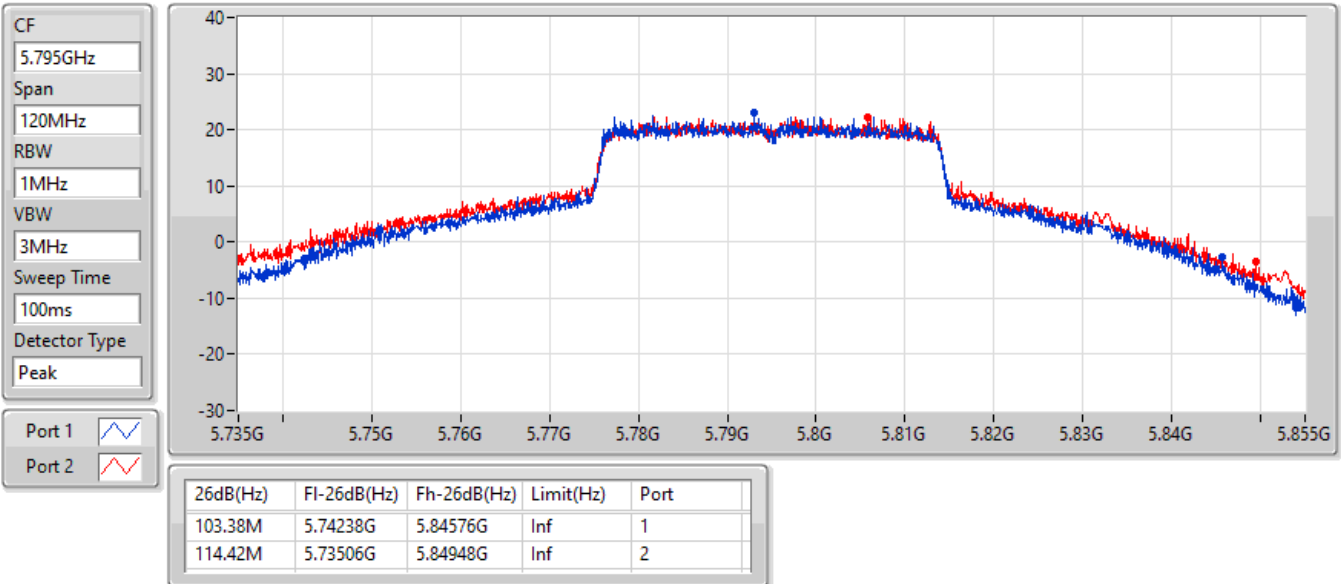


802.11ax HEW40_Nss2,(MCS0)_2TX

EBW

5795MHz

08/07/2022

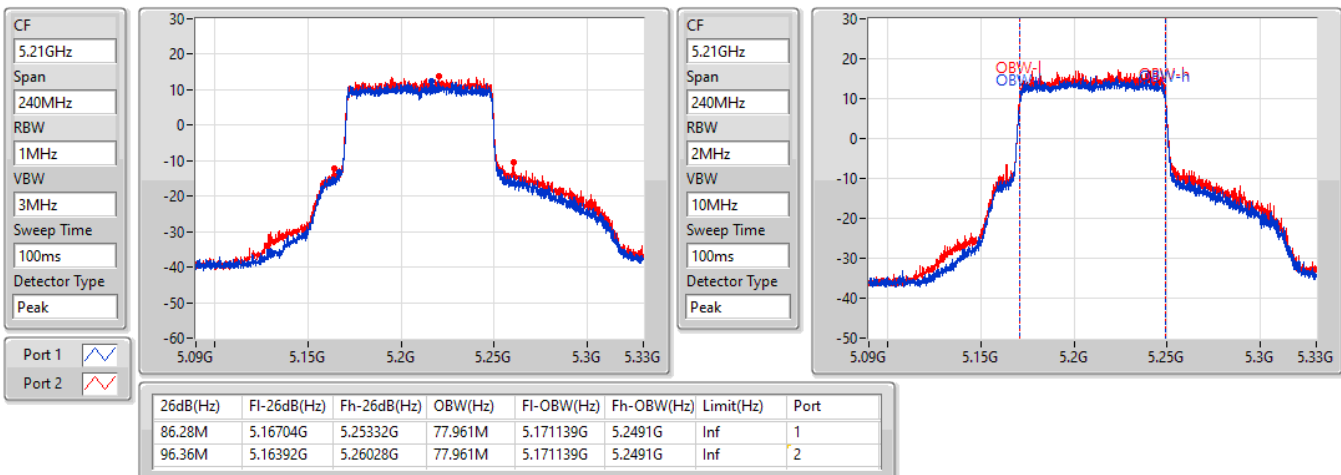


802.11ax HEW80_Nss2,(MCS0)_2TX

EBW

5210MHz

16/07/2022

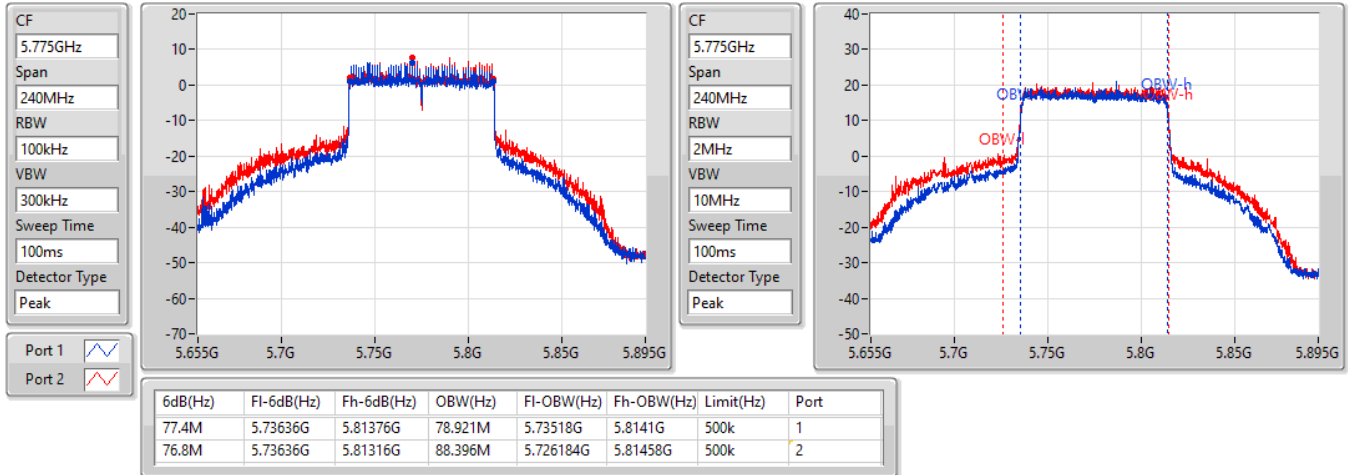


802.11ax HEW80_Nss2,(MCS0)_2TX

EBW

5775MHz

08/07/2022

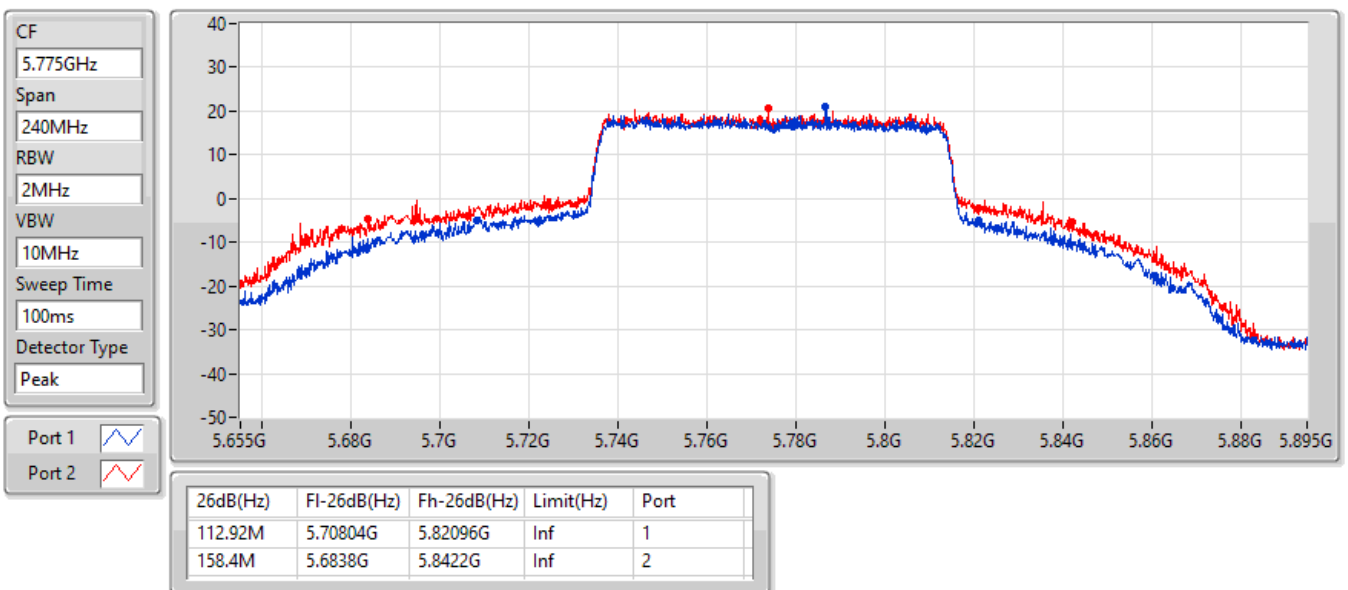


802.11ax HEW80_Nss2,(MCS0)_2TX

EBW

5775MHz

08/07/2022



Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.15-5.25GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_4TX	38.64M	19.85M	19M9D1D	29.73M	17.451M
802.11ax HEW20_Nss1,(MCS0)_4TX	41.67M	19.79M	19M8D1D	32.52M	19.4M
802.11ax HEW40_Nss1,(MCS0)_4TX	77.34M	39.28M	39M3D1D	44.88M	38.201M
802.11ax HEW80_Nss1,(MCS0)_4TX	94.8M	78.081M	78M1D1D	84.96M	77.961M
5.725-5.85GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_4TX	16.47M	35.682M	35M7D1D	15.72M	17.361M
802.11ax HEW20_Nss1,(MCS0)_4TX	18.96M	32.984M	33M0D1D	18.24M	19.34M
802.11ax HEW40_Nss1,(MCS0)_4TX	37.8M	57.271M	57M3D1D	37.5M	39.34M
802.11ax HEW80_Nss1,(MCS0)_4TX	77.64M	78.201M	78M3D1D	75.96M	78.081M

Max-N dB = Maximum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;
 Max-OBW = Maximum 99% occupied bandwidth;
 Min-N dB = Minimum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;
 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)
802.11a_Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	Inf	31.92M	17.931M	29.73M	17.931M	30.24M	17.751M	33.78M	18.561M
5200MHz	Pass	Inf	34.2M	17.721M	33.42M	17.691M	32.49M	17.451M	36.27M	18.141M
5240MHz	Pass	Inf	36.99M	18.681M	38.64M	18.351M	36.87M	18.021M	37.92M	19.85M
5745MHz	Pass	500k	16.32M	17.511M	16.41M	17.481M	16.35M	17.361M	16.32M	17.481M
5785MHz	Pass	500k	16.32M	18.021M	16.35M	20.09M	16.32M	17.781M	16.47M	18.231M
5825MHz	Pass	500k	16.32M	25.547M	15.72M	35.682M	15.72M	29.595M	16.29M	32.924M
802.11ax HEW20_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	Inf	35.07M	19.46M	34.98M	19.4M	32.52M	19.43M	40.98M	19.7M
5200MHz	Pass	Inf	37.5M	19.4M	38.19M	19.43M	33.75M	19.4M	41.67M	19.58M
5240MHz	Pass	Inf	41.19M	19.55M	37.47M	19.46M	38.85M	19.46M	40.38M	19.79M
5745MHz	Pass	500k	18.66M	19.4M	18.87M	19.49M	18.93M	19.34M	18.81M	19.37M
5785MHz	Pass	500k	18.96M	20.42M	18.51M	28.066M	18.84M	21.109M	18.93M	23.778M
5825MHz	Pass	500k	18.9M	24.828M	18.24M	32.984M	18.48M	28.306M	18.27M	31.814M
802.11ax HEW40_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5190MHz	Pass	Inf	48.84M	38.201M	47.52M	38.201M	44.88M	38.201M	47.82M	38.201M
5230MHz	Pass	Inf	70.68M	39.16M	65.76M	38.801M	71.46M	38.861M	77.34M	39.28M
5755MHz	Pass	500k	37.62M	40.9M	37.68M	57.271M	37.74M	40.72M	37.68M	54.813M
5795MHz	Pass	500k	37.74M	39.34M	37.5M	47.976M	37.8M	40.66M	37.5M	48.096M
802.11ax HEW80_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5210MHz	Pass	Inf	87.84M	77.961M	84.96M	77.961M	94.8M	78.081M	85.08M	77.961M
5775MHz	Pass	500k	77.64M	78.081M	76.8M	78.081M	75.96M	78.081M	77.04M	78.201M

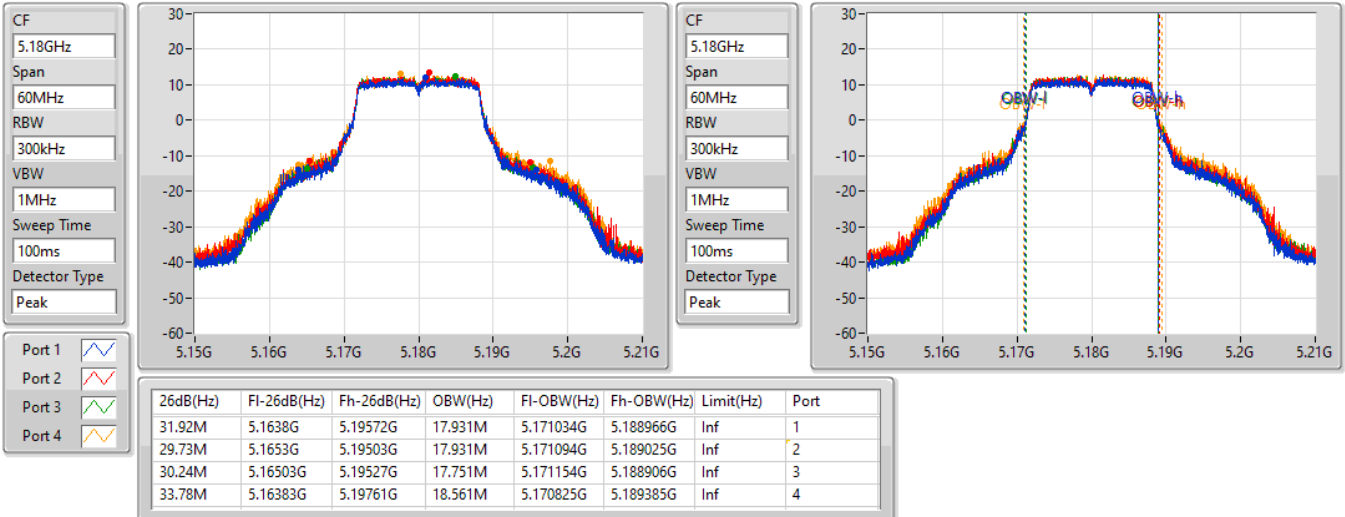
Port X-N dB = Port X 6dB down bandwidth for 5.725-5.85GHz band / 26dB down bandwidth for other band
Port X-OBW = Port X 99% occupied bandwidth

802.11a_Nss1,(6Mbps)_4TX

EBW

5180MHz

16/07/2022

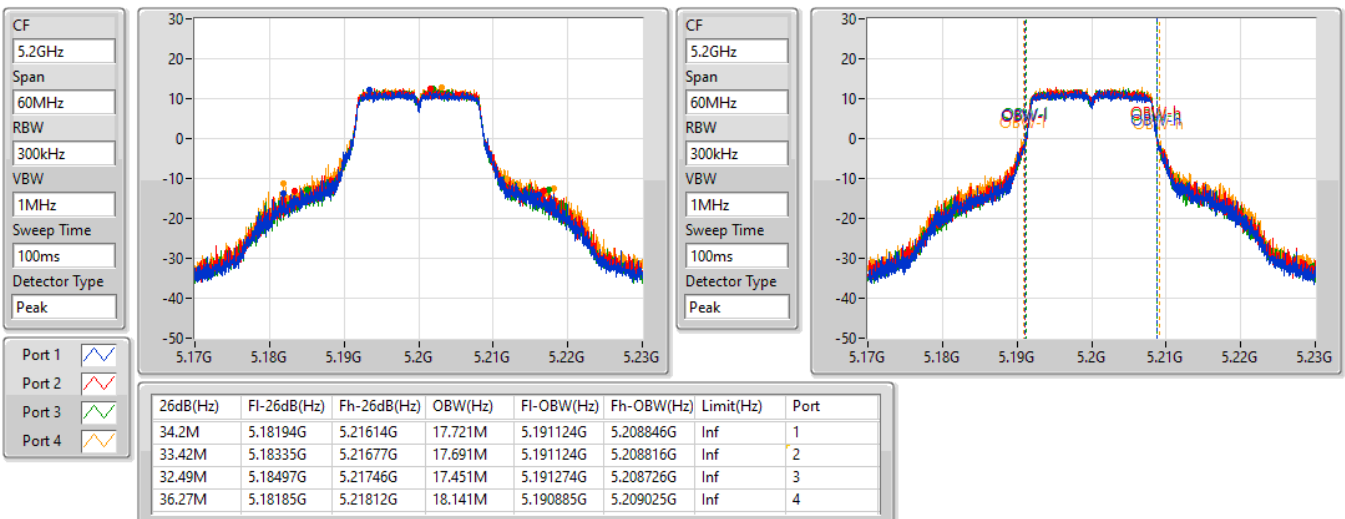


802.11a_Nss1,(6Mbps)_4TX

EBW

5200MHz

16/07/2022

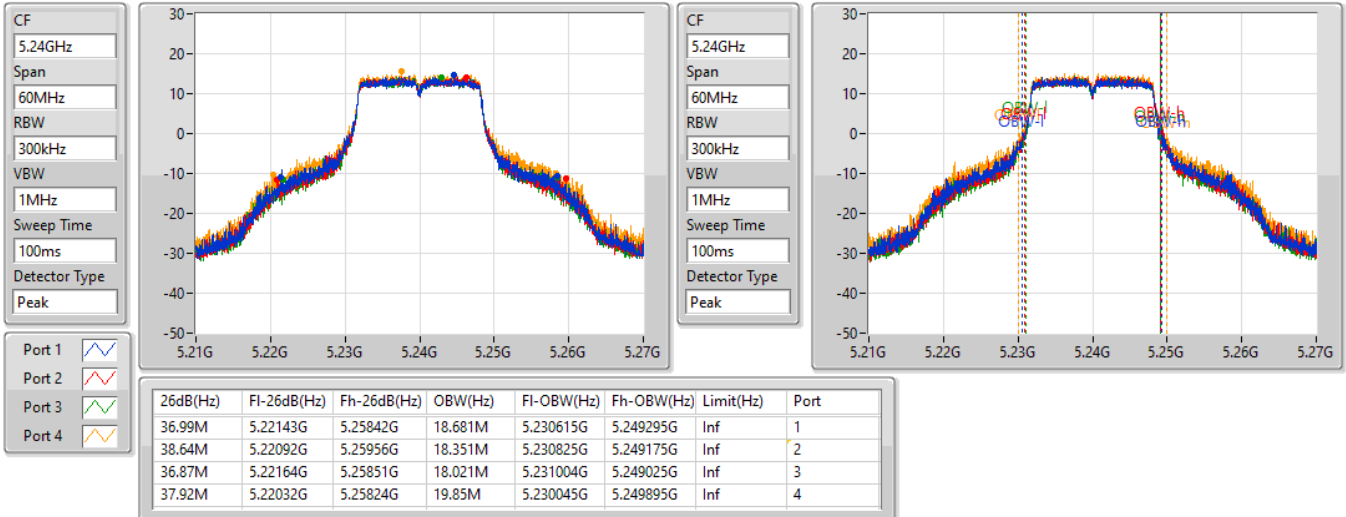


802.11a_Nss1,(6Mbps)_4TX

EBW

5240MHz

16/07/2022

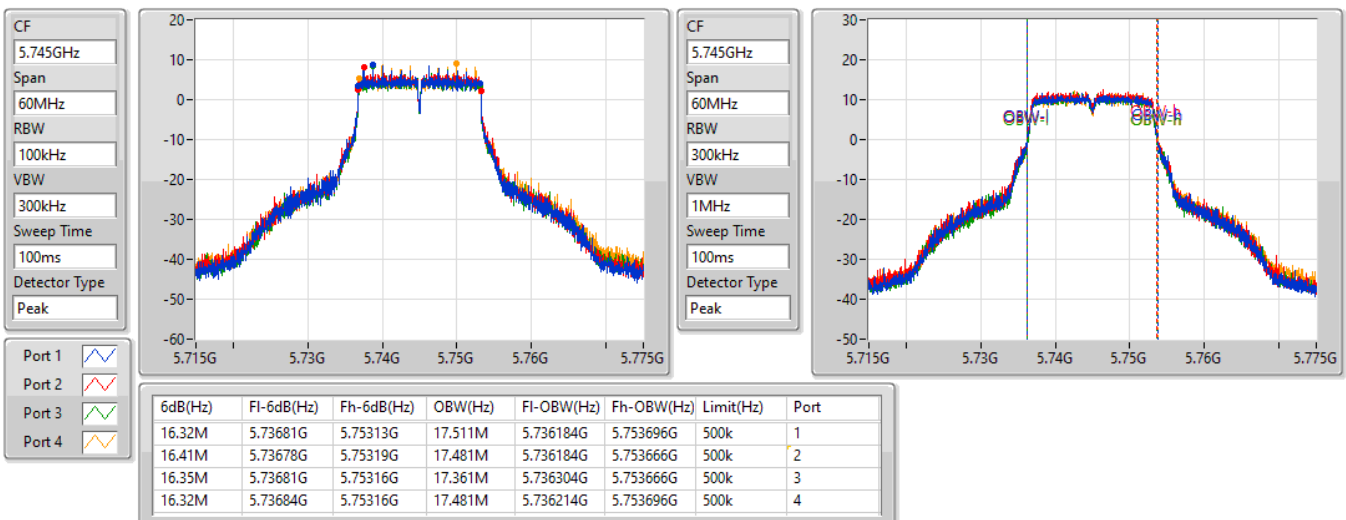


802.11a_Nss1,(6Mbps)_4TX

EBW

5745MHz

08/07/2022

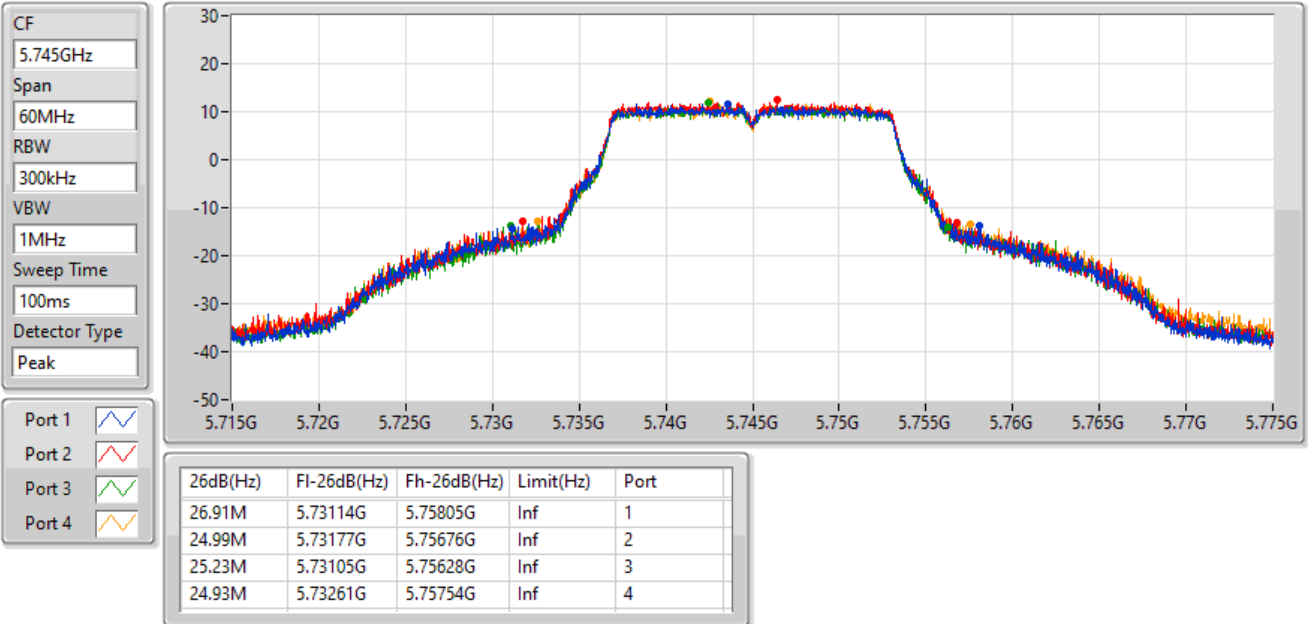


802.11a_Nss1,(6Mbps)_4TX

EBW

5745MHz

08/07/2022

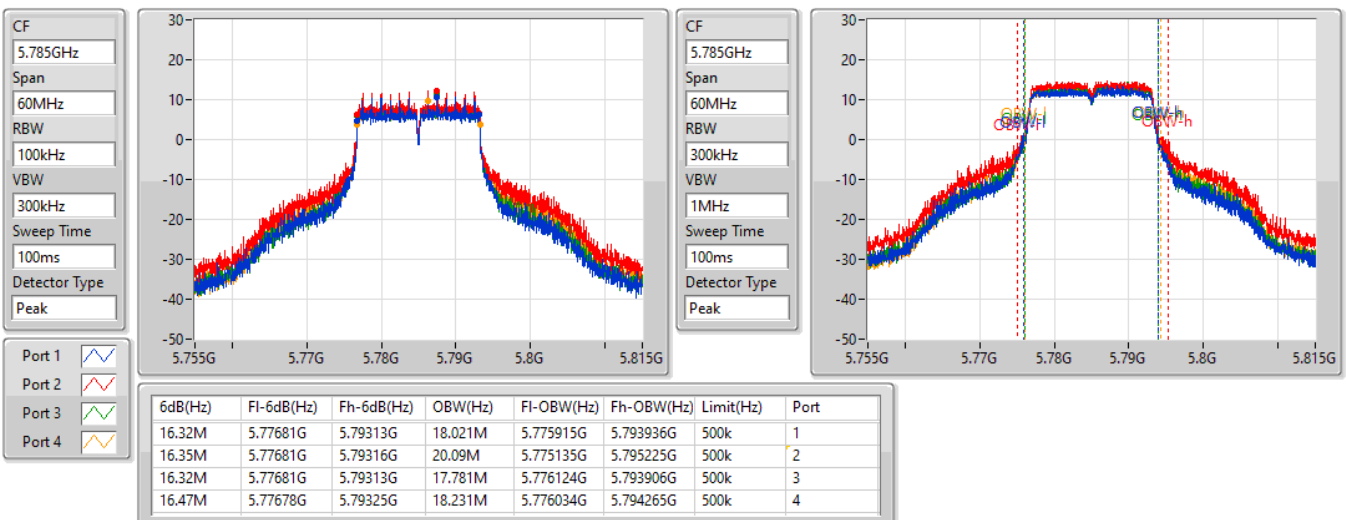


802.11a_Nss1,(6Mbps)_4TX

EBW

5785MHz

08/07/2022

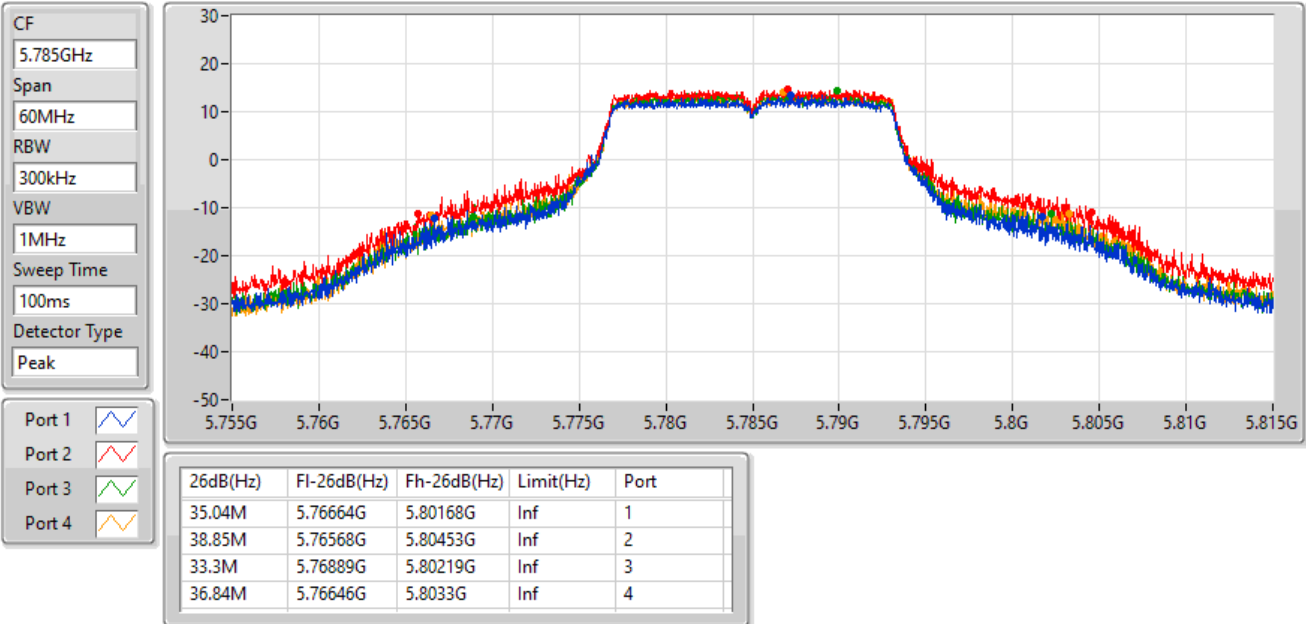


802.11a_Nss1,(6Mbps)_4TX

EBW

5785MHz

08/07/2022



802.11a_Nss1,(6Mbps)_4TX

EBW

5825MHz

08/07/2022

