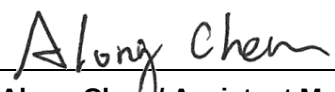


FCC Test Report

FCC ID : AK8NSDG3000T
Equipment : XGS-PON
Model No. : NSD-G3000T
Brand Name : SONY
Applicant : Sony Group Corporation
Address : 1-7-1 Konan Minato-ku, Tokyo, Japan,
108-0075
Standard : 47 CFR FCC Part 15.407
Received Date : Mar. 17, 2023
Tested Date : Mar. 22 ~ Apr. 06, 2023

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

Reviewed by:


Along Chen / Assistant Manager

Approved by:

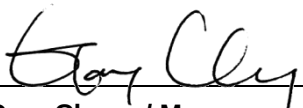

Gary Chang / Manager

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Release Record

Report No.	Version	Description	Issued Date
FR331701AN	Rev. 01	Initial issue	Apr. 28, 2023

Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	AC Power Line Conducted Emissions	[dBuV]: 8.456MHz 29.15 (Margin -20.85dB) - AV	Pass
15.407(b) 15.209	Unwanted Emissions	[dBuV/m at 3m]: 5150.00MHz 73.89 (Margin -0.11dB) - PK [dBuV/m at 3m]: 5650.00MHz 68.09 (Margin -0.11dB) - PK [dBuV/m at 3m]: 20800.00MHz 53.89 (Margin -0.11dB) - AV [dBuV/m at 3m]: 22980.00MHz 53.89 (Margin -0.11dB) - AV	Pass
15.407(a)	Emission Bandwidth	Meet the requirement of limit	Pass
15.407(e)	6dB bandwidth	Meet the requirement of limit	Pass
15.407(a)	Conducted Output Power	Max Power [dBm]: Non-beamforming mode 5150~5250MHz: 27.16 5250~5350MHz: 23.73 5470~5725MHz: 23.90 5725~5850MHz: 28.49 Beamforming mode 5150~5250MHz: 26.85 5250~5350MHz: 20.79 5470~5725MHz: 20.84 5725~5850MHz: 26.48	Pass
15.407(a)	Power Spectral Density	Meet the requirement of limit	Pass
15.407(g)	Frequency Stability	Meet the requirement of limit	Pass
15.203	Antenna Requirement	Meet the requirement of limit	Pass

Declaration of Conformity:

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

Comments and Explanations:

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

1 General Description

1.1 Information

1.1.1 Specification of the Equipment under Test (EUT)

RF General Information					
Frequency Range (MHz)	IEEE Std. 802.11	Ch. Freq. (MHz)	Channel Number	Transmit Chains (N _{TX})	Data Rate / MCS
5150-5250 5250-5350 5470-5725 5725-5850	a	5180-5240 5260-5320 5500-5720 5745-5825	36-48 [4] 52-64 [4] 100-144 [12] 149-165 [5]	4	6-54 Mbps
5150-5250 5250-5350 5470-5725 5725-5850	n (HT20)	5180-5240 5260-5320 5500-5720 5745-5825	36-48 [4] 52-64 [4] 100-144 [12] 149-165 [5]	4	MCS 0-31
5150-5250 5250-5350 5470-5725 5725-5850	n (HT40)	5190-5230 5270-5310 5510-5710 5755-5795	38-46 [2] 54-62 [2] 102-142 [6] 151-159 [2]	4	MCS 0-31
5150-5250 5250-5350 5470-5725 5725-5850	ac (VHT20)	5180-5240 5260-5320 5500-5720 5745-5825	36-48 [4] 52-64 [4] 100-144 [12] 149-165 [5]	4	MCS 0-9
5150-5250 5250-5350 5470-5725 5725-5850	ac (VHT40)	5190-5230 5270-5310 5510-5710 5755-5795	38-46 [2] 54-62 [2] 102-142 [6] 151-159 [2]	4	MCS 0-9
5150-5250 5250-5350 5470-5725 5725-5850	ac (VHT80)	5210 5290 5530~5690 5775	42 [1] 58 [1] 106-138 [3] 155 [1]	4	MCS 0-9
5150-5250 5250-5350 5500-5700	ac (VHT160)	5250 5570	50 [1] 114 [1]	4	MCS 0-11
5150-5250 5250-5350 5470-5725 5725-5850	ax (HE20)	5180-5240 5260-5320 5500-5720 5745-5825	36-48 [4] 52-64 [4] 100-144 [12] 149-165 [5]	4	MCS 0-11
5150-5250 5250-5350 5470-5725 5725-5850	ax (HE40)	5190-5230 5270-5310 5510-5710 5755-5795	38-46 [2] 54-62 [2] 102-142 [6] 151-159 [2]	4	MCS 0-11
5150-5250 5250-5350 5470-5725 5725-5850	ax (HE80)	5210 5290 5530~5690 5775	42 [1] 58 [1] 106-138 [3] 155 [1]	4	MCS 0-11
5150-5250 5250-5350 5500-5700	ax (HE160)	5250 5570	50 [1] 114 [1]	4	MCS 0-11

Note 1: OFDM/OFDMA- BPSK, QPSK, 16QAM, 64QAM, 256QAM and 1024QAM modulation.
Note 2: 802.11n/ac/ax supports beamforming function.

1.1.2 Antenna Details

Ant. No.	Model	Type	Connector	Operating Frequencies (MHz) / Antenna Gain (dBi)				
				2400~2483.5	5150~5250	5250~5350	5470~5725	5725~5850
1	Ant 1	Dipole	IPEX	3.3	2.9	2.9	3	3.1
2	Ant 2	Dipole	IPEX	2.7	2.7	2.7	2.7	2.8
3	Ant 3	Dipole	IPEX	2.9	3.3	3.3	3.5	3.4
4	Ant 4	Dipole	IPEX	3.1	3.2	3.2	2.9	2.7

1.1.3 Power Supply Type of Equipment under Test (EUT)

Power Supply Type	12Vdc from adapter
--------------------------	--------------------

1.1.4 Accessories

Accessories		
No.	Equipment	Description
1	AC adapter	Brand: LEADER ELECTRONICS INC. Model: MU30AY120250-A1 I/P: 100-240Vac, 50/60Hz, 0.8A O/P: 12Vdc, 2.5A Power Line: 1.0m non-shielded without core
2	RJ45 cable	1.45m shielded without core

1.1.5 Channel List

802.11a / n HT20 / ac VHT20 / ax HE20		802.11n HT40 / ac VHT40 / ax HE40	
Channel	Frequency(MHz)	Channel	Frequency(MHz)
36	5180	38	5190
40	5200	46	5230
44	5220	54	5270
48	5240	62	5310
52	5260	102	5510
56	5280	110	5550
60	5300	118	5590
64	5320	126	5630
100	5500	134	5670
104	5520	142	5710
108	5540	151	5755
112	5560	159	5795
116	5580	802.11ac VHT80 / ax HE80	
120	5600	42	5210
124	5620	58	5290
128	5640	106	5530
132	5660	122	5610
136	5680	138	5690
140	5700	155	5775
144	5720	ac VHT160 / ax HE160	
149	5745	50	5250
153	5765	114	5570
157	5785	---	---
161	5805	---	---
165	5825	---	---

1.1.6 Test Tool and Duty Cycle

Test Tool	Non-beamforming: access Mtool, V3.2.1.5 Beamforming: Tera Term, V4.74				
Duty Cycle and Duty Factor	Mode	Non-beamforming		Beamforming	
		Duty cycle (%)	Duty factor (dB)	Duty cycle (%)	Duty factor (dB)
	11a	96.76%	0.14	---	---
	ax HE20-OFDMA	99.04%	0.04	93.87%	0.27
	ax HE40-OFDMA	98.39%	0.07	95.21%	0.21
	ax HE80-OFDMA	94.12%	0.26	94.77%	0.23
	ax HE160-OFDMA	90.27%	0.44	94.41%	0.25

1.1.7 Power Index of Test Tool

Modulation Mode	Test Frequency (MHz)	Power Index	
		Non-Beamforming	Beamforming
11a	5180	76	---
11a	5200	84	---
11a	5240	84	---
11a	5260	58	---
11a	5300	58	---
11a	5320	58	---
11a	5500	58	---
11a	5580	58	---
11a	5700	58	---
11a	5720	58	---
11a	5745	80	---
11a	5785	78	---
11a	5825	76	---
ax HE20-OFDMA	5180	72	72
ax HE20-OFDMA	5200	84	84
ax HE20-OFDMA	5240	84	84
ax HE20-OFDMA	5260	58	58
ax HE20-OFDMA	5300	58	58
ax HE20-OFDMA	5320	58	58
ax HE20-OFDMA	5500	58	56
ax HE20-OFDMA	5580	58	56
ax HE20-OFDMA	5700	56	54
ax HE20-OFDMA	5720	58	58
ax HE20-OFDMA	5745	80	76
ax HE20-OFDMA	5785	78	74
ax HE20-OFDMA	5825	76	74

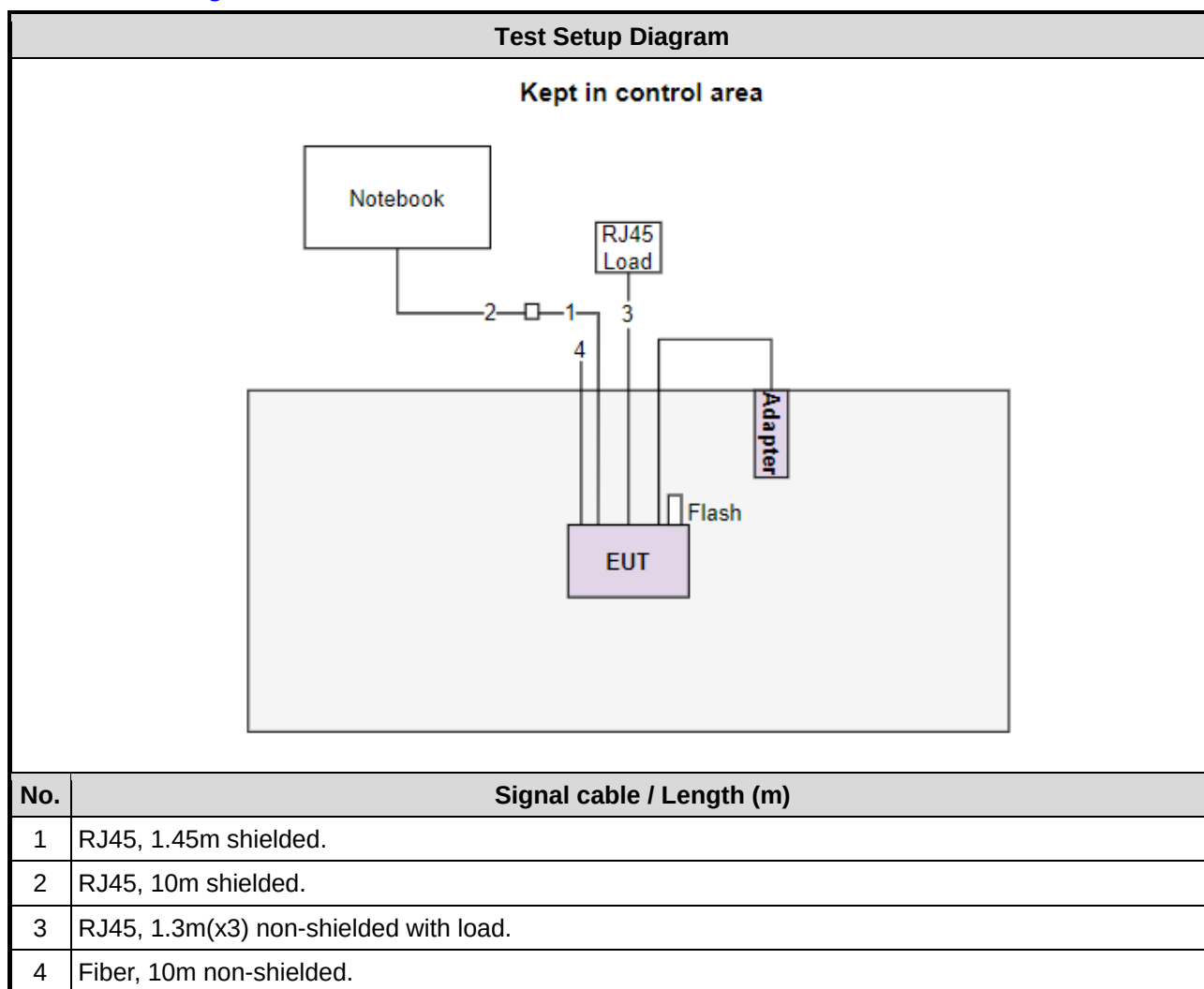
Modulation Mode	Test Frequency (MHz)	Power Index	
		Non-Beamforming	Beamforming
ax HE40-OFDMA	5190	66	64
ax HE40-OFDMA	5230	84	84
ax HE40-OFDMA	5270	70	58
ax HE40-OFDMA	5310	66	58
ax HE40-OFDMA	5510	60	58
ax HE40-OFDMA	5590	70	58
ax HE40-OFDMA	5670	70	58
ax HE40-OFDMA	5710	70	58
ax HE40-OFDMA	5755	88	78
ax HE40-OFDMA	5795	90	74
ax HE80-OFDMA	5210	60	60
ax HE80-OFDMA	5290	58	58
ax HE80-OFDMA	5530	56	56
ax HE80-OFDMA	5610	68	56
ax HE80-OFDMA	5690	68	58
ax HE80-OFDMA	5775	82	82
ax HE160-OFDMA	5250	56	56
ax HE160-OFDMA	5570	60	60

1.2 Local Support Equipment List

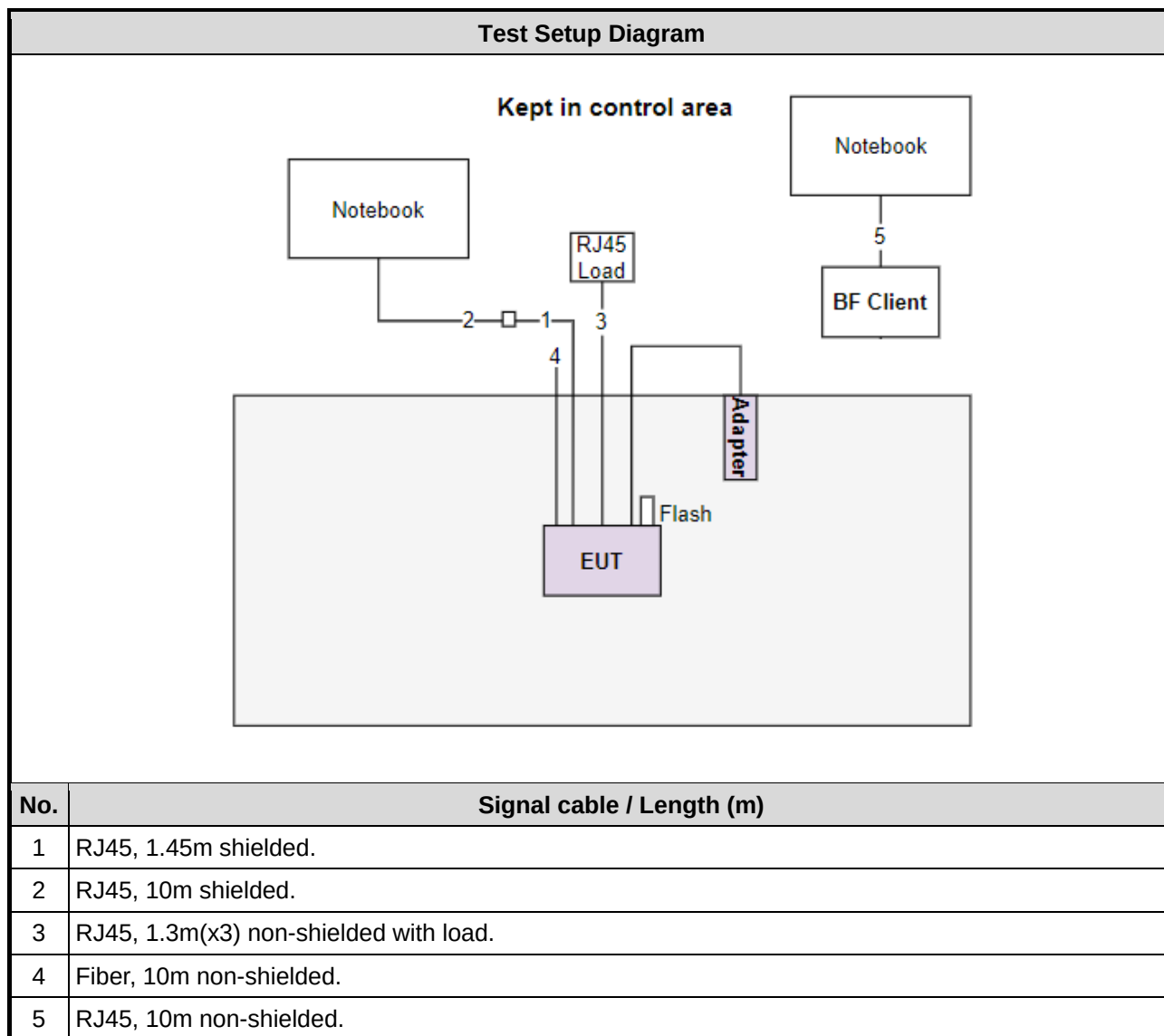
Support Equipment List					
No.	Equipment	Brand	Model	FCC ID	Remarks
1	Notebook	DELL	Latitude E5420	DoC	---
2	USB 3.0 Flash	pqi	JetFlash 700	---	---
3	RJ45 Load	ICC	---	---	---
4	Notebook	DELL	Latitude 5400	DoC	For Beamforming mode only.
5	BF Client	SONY	NSD-G3000T	---	For Beamforming mode only. (Provided by applicant.)

1.3 Test Setup Chart

Non-beamforming mode



Beamforming mode



1.4 The Equipment List

Test Item	Conducted Emission				
Test Site	Conduction room 1 / (CO01-WS)				
Tested Date	Apr. 06, 2023				
Instrument	Brand	Model No.	Serial No.	Calibration Date	Calibration Until
Receiver	R&S	ESR3	101658	Feb. 17, 2023	Feb. 16, 2024
LISN	R&S	ENV216	101579	Apr. 21, 2022	Apr. 20, 2023
LISN (Support Unit)	SCHWARZBECK	Schwarzbeck 8127	8127667	Jan .03, 2023	Jan .02, 2024
RF Cable-CON	Woken	CFD200-NL	CFD200-NL-001	Oct. 17, 2022	Oct. 16, 2023
50 ohm terminal (Support Unit)	NA	50	01	May 10, 2022	May 09, 2023
Measurement Software	AUDIX	e3	6.120210k	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

Test Item	Radiated Emission				
Test Site	966 chamber3 / (03CH03-WS)				
Tested Date	Mar. 22 ~ Mar. 28, 2023				
Instrument	Brand	Model No.	Serial No.	Calibration Date	Calibration Until
Receiver	R&S	ESR3	101657	Mar. 03, 2023	Mar. 02, 2024
Spectrum Analyzer	R&S	FSV40	101499	Mar. 16, 2023	Mar. 15, 2024
Loop Antenna	R&S	HFH2-Z2	100330	Nov. 01, 2022	Oct. 31, 2023
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-685	Jun. 28, 2022	Jun. 27, 2023
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1206	Dec. 15, 2022	Dec. 14, 2023
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Oct. 27, 2022	Oct. 26, 2023
Preamplifier	EMC	EMC02325	980187	Jul. 16, 2022	Jul. 15, 2023
Preamplifier	EMC	EMC184045SE	980897	Aug. 01, 2022	Jul. 31, 2023
Preamplifier	EMC	EMC184045SE	980903	Jul. 16, 2022	Jul. 15, 2023
Loop Antenna Cable	KOAX KABEL	101354-BW	101354-BW	Oct. 04, 2022	Oct. 03, 2023
LF cable-0.8M	EMC	EMC8D-NM-NM-800	EMC8D-NM-NM-800-001	Sep. 23, 2022	Sep. 22, 2023
LF cable-3M	EMC	EMC8D-NM-NM-3000	131103	Sep. 23, 2022	Sep. 22, 2023
LF cable-13M	EMC	EMC8D-NM-NM-13000	131104	Sep. 23, 2022	Sep. 22, 2023
RF cable-3M	HUBER+SUHNER	SUCOFLEX104	MY22620/4	Sep. 23, 2022	Sep. 22, 2023
RF cable-8M	EMC	EMC104-SM-SM-8000	181107	Sep. 23, 2022	Sep. 22, 2023
Measurement Software	AUDIX	e3	6.120210g	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

Test Item	RF Conducted				
Test Site	(TH01-WS)				
Tested Date	Mar. 31 ~ Apr. 06, 2023				
Instrument	Brand	Model No.	Serial No.	Calibration Date	Calibration Until
Spectrum Analyzer	R&S	FSV40	101910	Apr. 18, 2022	Apr. 17, 2023
Power Meter	Anritsu	ML2495A	1241002	Nov. 23, 2022	Nov. 22, 2023
Power Sensor	Anritsu	MA2411B	1207366	Nov. 23, 2022	Nov. 22, 2023
AC POWER SOURCE	GIANT FORCE	GCT-225-40-SP-SD	MAF1212-002	Jun. 22, 2022	Jun. 21, 2023
TEMP&HUMIDITY CHAMBER	APC	AFC-500W	F312060012	Dec. 09, 2022	Dec. 08, 2023
Measurement Software	Sporton	SENSE-15407_NII	V5.11	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

1.5 Test Standards

47 CFR FCC Part 15.407
ANSI C63.10-2013

1.6 Reference Guidance

FCC KDB 412172 D01 Determining ERP and EIRP v01r01
FCC KDB 662911 D01 Multiple Transmitter Output v02r01
FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01

1.7 Deviation from Test Standard and Measurement Procedure

None

1.8 Measurement Uncertainty

The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor ($k=2$)).

Measurement Uncertainty	
Parameters	Uncertainty
Bandwidth	± 34.130 Hz
Conducted power	± 0.808 dB
Frequency error	$\pm 1 \times 10^{-9}$
Power density	± 0.583 dB
Conducted emission	± 2.715 dB
AC conducted emission	± 2.92 dB
Unwanted Emission ≤ 1 GHz	± 3.96 dB
Unwanted Emission > 1 GHz	± 4.51 dB
Time	$\pm 0.1\%$
Temperature	± 0.4 °C

2 Test Configuration

2.1 Testing Facility

Test Laboratory	International Certification Corporation
Test Site	CO01-WS, TH01-WS
Address of Test Site	No.3-1, Lane 6, Wen San 3rd St., Kwei Shan Dist., Tao Yuan City 33381, Taiwan (R.O.C.)
Test Site	03CH03-WS
Address of Test Site	No.14-1, Lane 19, Wen San 3rd St., Kwei Shan Dist., Tao Yuan City 33381, Taiwan (R.O.C.)

- FCC Designation No.: TW0009
- FCC site registration No.: 207696
- ISED#: 10807C
- CAB identifier: TW2732

2.2 The Worst Test Modes and Channel Details

Non-beamforming mode

Frequency band 5150~5350 MHz / 5470~5725 MHz				
Test item	Modulation Mode	Test Frequency (MHz)	Data Rate	Test Configuration
AC Power Line Conducted Emissions	ax HE40-OFDMA	5230	MCS 0	---
Unwanted Emissions ≤1GHz	ax HE40-OFDMA	5230	MCS 0	---
Unwanted Emissions >1GHz Conducted Output Power Emission Bandwidth Power Spectral Density	11a	5180 / 5200 / 5240 / 5260 / 5300 5320 / 5500 / 5580 / 5700 / 5720	6 Mbps	---
	ax HE20-OFDMA	5180 / 5200 / 5240 / 5260 / 5300 5320 / 5500 / 5580 / 5700 / 5720	MCS 0	
	ax HE40-OFDMA	5190 / 5230 / 5270 / 5310 / 5510 5590 / 5670 / 5710	MCS 0	
	ax HE80-OFDMA	5210 / 5290 / 5530 / 5610 / 5690	MCS 0	
	ax HE160-OFDMA	5250 / 5570	MCS 0	
Frequency Stability	Un-modulation	5300	---	---
Frequency band 5725-5850 MHz				
Test item	Modulation Mode	Test Frequency (MHz)	Data Rate	Test Configuration
AC Power Line Conducted Emissions	ax HE40-OFDMA	5795	MCS 0	---
Unwanted Emissions ≤1GHz	ax HE40-OFDMA	5795	MCS 0	---
Unwanted Emissions >1GHz Conducted Output Power Emission Bandwidth 6dB bandwidth Power Spectral Density	11a	5745 / 5785 / 5825	6 Mbps	---
	ax HE20-OFDMA	5745 / 5785 / 5825	MCS 0	
	ax HE40-OFDMA	5755 / 5795	MCS 0	
	ax HE80-OFDMA	5775	MCS 0	
Frequency Stability	Un-modulation	5785	---	---
NOTE:				
1. The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement – X, Y, and Z-plane. The Z-plane results were found as the worst case and were shown in this report.				

Beamforming mode

Frequency band 5150~5350 MHz / 5470~5725 MHz				
Test item	Modulation Mode	Test Frequency (MHz)	Data Rate	Test Configuration
AC Power Line Conducted Emissions	ax HE40-OFDMA	5230	MCS 0	---
Unwanted Emissions ≤1GHz	ax HE40-OFDMA	5230	MCS 0	---
Unwanted Emissions >1GHz Conducted Output Power Emission Bandwidth Power Spectral Density	ax HE20-OFDMA	5180 / 5200 / 5240 / 5260 / 5300 5320 / 5500 / 5580 / 5700 / 5720	MCS 0	---
	ax HE40-OFDMA	5190 / 5230/ 5270 / 5310 / 5510 5590 / 5670 / 5710	MCS 0	
	ax HE80-OFDMA	5210 / 5290 / 5530 / 5610 / 5690	MCS 0	
	ax HE160-OFDMA	5250 / 5570	MCS 0	
Frequency band 5725-5850 MHz				
Test item	Modulation Mode	Test Frequency (MHz)	Data Rate	Test Configuration
AC Power Line Conducted Emissions	ax HE80-OFDMA	5775	MCS 0	---
Unwanted Emissions ≤1GHz	ax HE80-OFDMA	5775	MCS 0	---
Unwanted Emissions >1GHz Conducted Output Power Emission Bandwidth 6dB bandwidth Power Spectral Density	ax HE20-OFDMA	5745 / 5785 / 5825	MCS 0	---
	ax HE40-OFDMA	5755 / 5795	MCS 0	
	ax HE80-OFDMA	5775	MCS 0	
NOTE:				
2. The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement – X, Y, and Z-plane. The Z-plane results were found as the worst case and were shown in this report.				

3 Transmitter Test Results

3.1 Emission Bandwidth

3.1.1 Limit of Emission Bandwidth

Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

3.1.2 Test Procedures

26dB Bandwidth

1. Set RBW = approximately 1% of the emission bandwidth.
2. Set the VBW > RBW, Detector = Peak.
3. Trace mode = max hold.
4. Measure the maximum width of the emission that is 26 dB down from the peak of the emission.

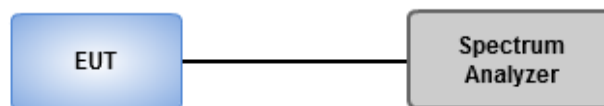
Occupied Bandwidth

1. Set RBW = 1 % to 5 % of the OBW.
2. Set VBW $\geq$ 3 RBW.
3. Sample detection and single sweep mode shall be used.
4. Use the 99 % power bandwidth function of the instrument.

6dB Bandwidth

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

3.1.3 Test Setup



3.1.4 Test Results

Ambient Condition	23-24°C / 65-66%	Tested By	Akun Chung
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Refer to Appendix A.

3.2 Conducted Output Power

3.2.1 Limit of Conducted Output Power

Frequency band 5150-5250 MHz		
Operating Mode		Limit
☐	Outdoor access point	Conducted Power: 1 W The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm)
☒	Indoor access point	Conducted Power: 1 W
☐	Fixed point-to-point access points	Conducted Power: 1 W
☐	Client devices	Conducted Power: 250 mW

Frequency Band (MHz)		Limit
☒	5250 ~ 5350	Conducted Power: 250mW or 11dBm+10 log B
☒	5470 ~ 5725	Conducted Power: 250mW or 11dBm+10 log B
☒	5725 ~ 5850	Conducted Power: 1 W
Note: "B" is the 26dB emission bandwidth in MHz.		

3.2.2 Test Procedures

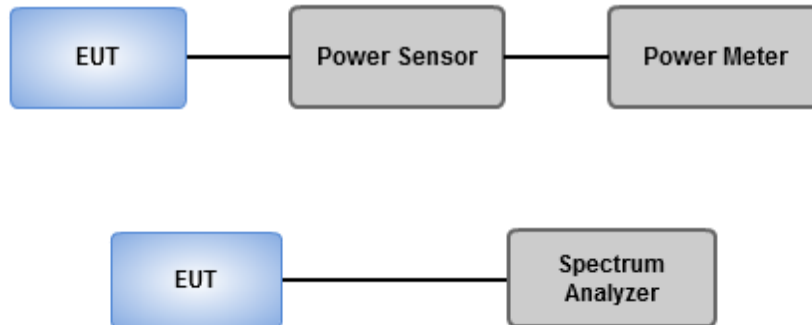
Method PM-G (Measurement using a gated RF average power meter)

Measurements is performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

Spectrum analyzer (For channel that extends across the 5.725 GHz boundary)

1. Set RBW = 1MHz, VBW = 3MHz, Sweep time = Auto, Detector = RMS.
2. Trace average at least 100 traces in power averaging mode.
3. Compute power by integrating the spectrum across the 26 dB EBW.
4. Add 10 log(1/X, X:duty cycle) if duty cycle is <98%.

3.2.3 Test Setup



3.2.4 Test Results

Ambient Condition	23-24°C / 65-66%	Tested By	Akun Chung
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Refer to Appendix B.

3.3 Power Spectral Density

3.3.1 Limit of Power Spectral Density

Frequency band 5150-5250 MHz		
Operating Mode		Limit
☐	Outdoor access point	17 dBm / MHz
☒	Indoor access point	17 dBm / MHz
☐	Fixed point-to-point access points	17 dBm / MHz
☐	Client devices	11 dBm / MHz

Frequency Band (MHz)		Limit
☒	5250 ~ 5350	11 dBm / MHz
☒	5470 ~ 5725	11 dBm / MHz
☒	5725 ~ 5850	30 dBm /500 kHz

3.3.2 Test Procedures

For 5150 ~ 5250 MHz / 5250 ~ 5350 MHz / 5470 ~ 5725 MHz

Duty cycle $\geq 98\%$

1. Set RBW = 1 MHz, VBW = 3 MHz, Sweep time = auto, Detector = RMS.
2. Trace average 100 traces.
3. Use the peak marker function to determine the maximum amplitude level.

Duty cycle $< 98\%$

1. Set RBW = 1 MHz, VBW = 3 MHz, Detector = RMS.
2. Set sweep time $\geq 10 \times (\text{number of points in sweep}) \times (\text{total on/off period of the transmitted signal})$.
3. Perform a single sweep.
4. Use the peak marker function to determine the maximum amplitude level.
5. Add $10 \log(1/x)$, where x is the duty cycle.

For 5725 ~ 5850 MHz

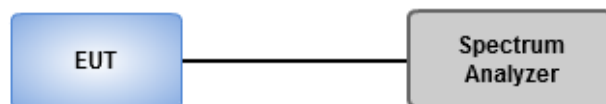
Duty cycle $\geq 98\%$

1. Set RBW = 500 kHz, VBW = 3 MHz, Sweep time = auto, Detector = RMS.
2. Trace average 100 traces.
3. Use the peak marker function to determine the maximum amplitude level.

Duty cycle $< 98\%$

1. Set RBW = 500 kHz, VBW = 3 MHz, Detector = RMS.
2. Set sweep time $\geq 10 \times (\text{number of points in sweep}) \times (\text{total on/off period of the transmitted signal})$.
3. Perform a single sweep.
4. Use the peak marker function to determine the maximum amplitude level.
5. Add $10 \log(1/x)$, where x is the duty cycle.

3.3.3 Test Setup



3.3.4 Test Results

Ambient Condition	23-24°C / 65-66%	Tested By	Akun Chung
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Refer to Appendix C.

3.4 Unwanted Emissions

3.4.1 Limit of Unwanted Emissions

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

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

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

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 - 5.850 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.

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).

3.4.2 Test Procedures

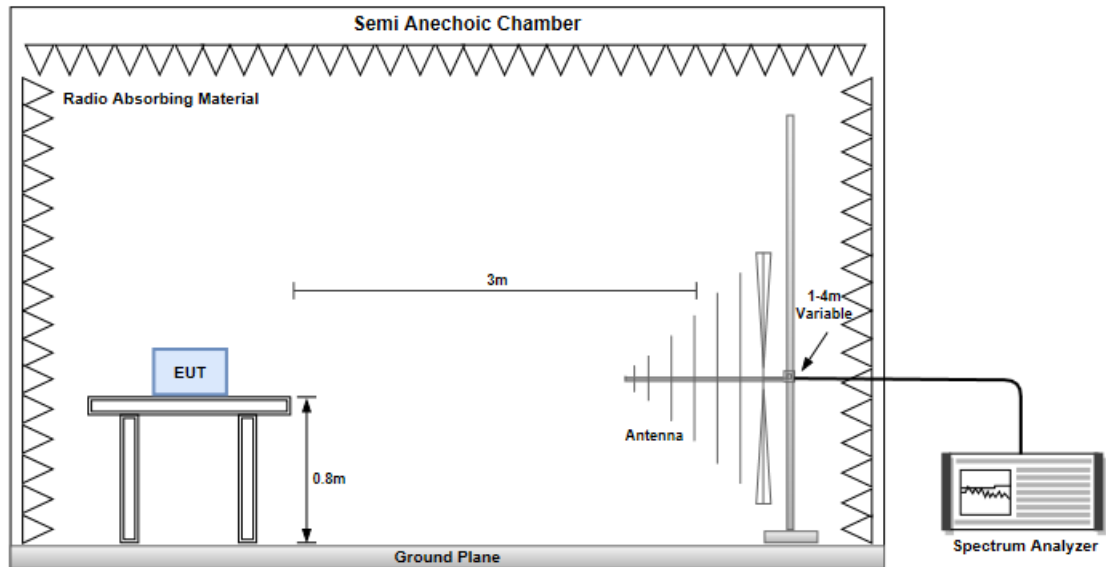
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission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

Note:

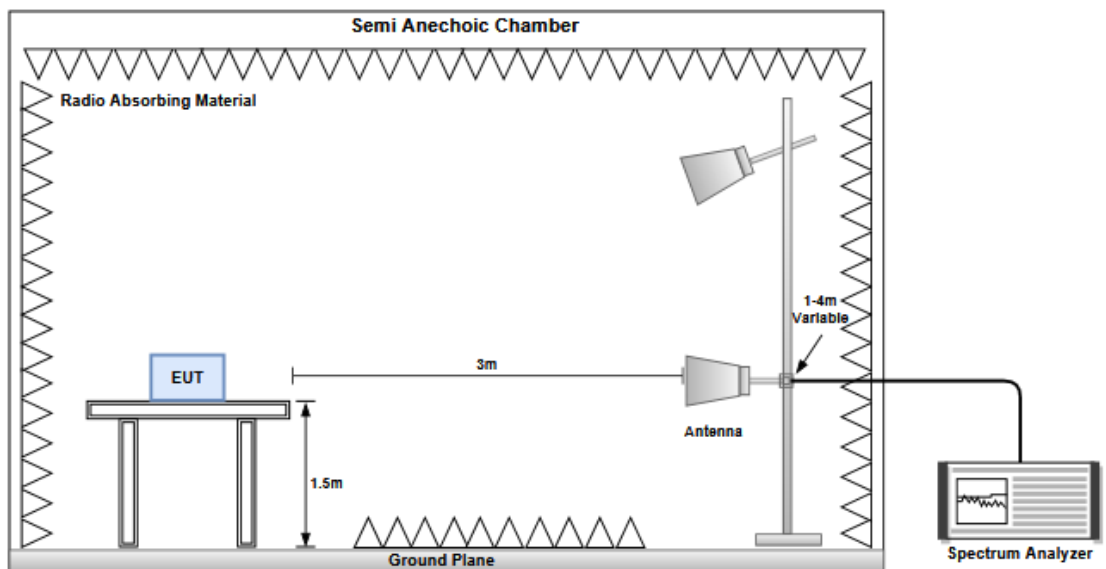
1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above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

3.4.3 Test Setup

Unwanted Emissions below 1 GHz



Unwanted Emissions above 1 GHz



3.4.4 Test Results

Refer to Appendix D.

3.5 Frequency Stability

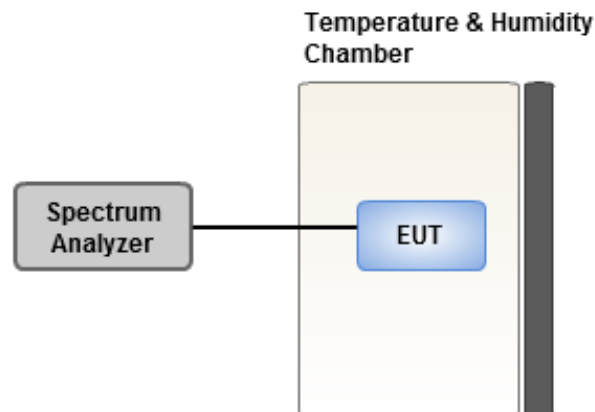
3.5.1 Limit of Frequency Stability

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

3.5.2 Test Procedures

1. The EUT is installed in an environment test chamber with external power source.
2. Set the chamber to operate at 20 centigrade and external power source to output at nominal voltage of EUT.
3. A sufficient stabilization period at each temperature is used prior to each frequency measurement.
4. When temperature is stabled, measure the frequency stability.
5. The test shall be performed under normal and extreme condition for temperature and voltage.

3.5.3 Test Setup



3.5.4 Test Results

Ambient Condition	23-24°C / 65-66%	Tested By	Akun Chung
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Refer to Appendix E.

3.6 AC Power Line Conducted Emissions

3.6.1 Limit of AC Power Line Conducted Emissions

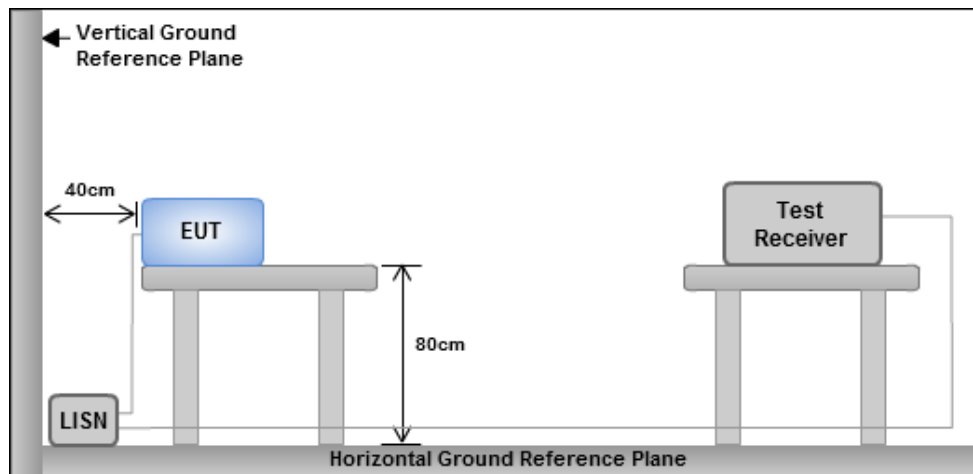
Conducted Emissions Limit		
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50

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

3.6.2 Test Procedures

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

3.6.3 Test Setup



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

3.6.4 Test Results

Refer to Appendix F.

4 Test laboratory information

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

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

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

Linkou

Tel: 886-2-2601-1640

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

Kwei Shan

Tel: 886-3-271-8666

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

Kwei Shan Site II

Tel: 886-3-271-8640

No.14-1, Lane 19, Wen San 3rd
St., Kwei Shan Dist., Tao Yuan
City 33381, Taiwan (R.O.C.)

If you have any suggestion, please feel free to contact us as below information.

Tel: 886-3-271-8666

Fax: 886-3-318-0345

Email: ICC_Service@icertifi.com.tw

==END==

Non-beamforming mode
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	37.818M	18.365M	18M4D1D	21.252M	16.729M
802.11ax HEW20_Nss1,(MCS0)_4TX-OFDMA	40.92M	19.73M	19M7D1D	21.384M	19.07M
802.11ax HEW40_Nss1,(MCS0)_4TX-OFDMA	79.992M	38.561M	38M6D1D	39.468M	37.481M
802.11ax HEW80_Nss1,(MCS0)_4TX-OFDMA	81.84M	76.882M	76M9D1D	81.312M	76.762M
802.11ax HEW160_Nss1,(MCS0)_4TX-OFDMA	81.12M	77.241M	77M2D1D	80.56M	77.161M
5.25-5.35GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_4TX	21.45M	16.782M	16M8D1D	21.12M	16.676M
802.11ax HEW20_Nss1,(MCS0)_4TX-OFDMA	21.582M	19.13M	19M1D1D	20.988M	19.01M
802.11ax HEW40_Nss1,(MCS0)_4TX-OFDMA	39.864M	37.661M	37M7D1D	39.336M	37.481M
802.11ax HEW80_Nss1,(MCS0)_4TX-OFDMA	81.576M	76.882M	76M9D1D	81.048M	76.762M
802.11ax HEW160_Nss1,(MCS0)_4TX-OFDMA	81.84M	77.321M	77M3D1D	81.2M	77.161M
5.47-5.725GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_4TX	21.516M	16.808M	16M8D1D	15.21M	13.328M
802.11ax HEW20_Nss1,(MCS0)_4TX-OFDMA	21.582M	19.1M	19M1D1D	15.675M	14.468M
802.11ax HEW40_Nss1,(MCS0)_4TX-OFDMA	39.864M	37.661M	37M7D1D	34.685M	33.583M
802.11ax HEW80_Nss1,(MCS0)_4TX-OFDMA	81.84M	77.001M	77M0D1D	75.675M	72.789M
802.11ax HEW160_Nss1,(MCS0)_4TX-OFDMA	164.736M	155.202M	155MD1D	163.68M	154.963M
5.725-5.85GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_4TX	16.368M	17.204M	17M2D1D	3.16M	4.038M
802.11ax HEW20_Nss1,(MCS0)_4TX-OFDMA	19.14M	19.16M	19M2D1D	4.48M	4.698M
802.11ax HEW40_Nss1,(MCS0)_4TX-OFDMA	37.62M	59.43M	59M4D1D	3.76M	4.078M
802.11ax HEW80_Nss1,(MCS0)_4TX-OFDMA	77.616M	77.721M	77M7D1D	3.82M	4.118M

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 / Minimum 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	27.126M	16.967M	21.252M	16.729M	24.42M	16.94M	21.648M	16.861M
5200MHz	Pass	Inf	37.686M	17.706M	37.554M	17.046M	37.224M	18.365M	32.802M	17.178M
5240MHz	Pass	Inf	37.686M	17.178M	36.564M	16.914M	37.818M	18.101M	37.158M	17.072M
5260MHz	Pass	Inf	21.318M	16.782M	21.252M	16.676M	21.252M	16.729M	21.45M	16.782M
5300MHz	Pass	Inf	21.252M	16.782M	21.252M	16.676M	21.186M	16.756M	21.12M	16.782M
5320MHz	Pass	Inf	21.186M	16.676M	21.252M	16.676M	21.12M	16.729M	21.12M	16.756M
5500MHz	Pass	Inf	21.318M	16.756M	21.318M	16.676M	21.318M	16.756M	21.45M	16.782M
5580MHz	Pass	Inf	21.252M	16.782M	21.318M	16.676M	21.186M	16.756M	21.45M	16.808M
5700MHz	Pass	Inf	21.252M	16.756M	21.45M	16.676M	21.318M	16.729M	21.516M	16.808M
5720MHz Straddle 5.47-5.725GHz	Pass	Inf	15.69M	13.433M	15.57M	13.328M	15.63M	13.328M	15.21M	13.388M
5720MHz Straddle 5.725-5.85GHz	Pass	500k	3.18M	4.038M	3.16M	4.038M	3.18M	4.038M	3.26M	4.118M
5745MHz	Pass	500k	16.368M	17.019M	16.368M	16.861M	16.368M	17.204M	16.368M	16.94M
5785MHz	Pass	500k	16.368M	16.914M	16.302M	16.808M	16.368M	16.94M	16.368M	16.835M
5825MHz	Pass	500k	16.368M	16.888M	16.368M	16.729M	16.368M	16.835M	16.368M	16.835M
802.11ax HEW20_Nss1,(MCS0)_4TX-OFDMA	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	Inf	24.75M	19.1M	21.45M	19.13M	23.298M	19.07M	21.384M	19.07M
5200MHz	Pass	Inf	38.94M	19.4M	27.06M	19.25M	40.92M	19.73M	28.776M	19.19M
5240MHz	Pass	Inf	37.554M	19.31M	29.7M	19.31M	40.722M	19.55M	29.568M	19.22M
5260MHz	Pass	Inf	21.582M	19.04M	21.45M	19.1M	21.516M	19.01M	21.45M	19.04M
5300MHz	Pass	Inf	21.45M	19.04M	21.318M	19.1M	21.45M	19.01M	20.988M	19.07M
5320MHz	Pass	Inf	21.582M	19.07M	21.45M	19.13M	21.516M	19.01M	21.186M	19.07M
5500MHz	Pass	Inf	21.516M	19.1M	21.384M	19.07M	21.582M	19.01M	21.318M	19.04M
5580MHz	Pass	Inf	21.384M	19.04M	21.582M	19.1M	21.582M	19.01M	21.384M	19.04M
5700MHz	Pass	Inf	21.45M	19.07M	21.582M	19.04M	21.582M	19.01M	21.384M	19.04M
5720MHz Straddle 5.47-5.725GHz	Pass	Inf	15.765M	14.468M	15.75M	14.498M	15.675M	14.483M	15.705M	14.498M
5720MHz Straddle 5.725-5.85GHz	Pass	500k	4.48M	4.738M	4.56M	4.798M	4.5M	4.698M	4.48M	4.718M
5745MHz	Pass	500k	18.942M	19.1M	19.14M	19.13M	18.744M	19.16M	18.876M	19.07M
5785MHz	Pass	500k	18.876M	19.13M	18.942M	19.13M	18.942M	19.1M	18.876M	19.04M
5825MHz	Pass	500k	18.744M	19.13M	18.942M	19.13M	18.876M	19.07M	18.942M	19.07M
802.11ax HEW40_Nss1,(MCS0)_4TX-OFDMA	-	-	-	-	-	-	-	-	-	-
5190MHz	Pass	Inf	39.864M	37.541M	39.6M	37.541M	39.732M	37.541M	39.468M	37.481M
5230MHz	Pass	Inf	58.608M	37.901M	52.272M	37.781M	79.992M	38.561M	55.704M	37.841M
5270MHz	Pass	Inf	39.468M	37.601M	39.468M	37.601M	39.6M	37.661M	39.468M	37.601M
5310MHz	Pass	Inf	39.864M	37.481M	39.468M	37.601M	39.6M	37.541M	39.336M	37.541M
5510MHz	Pass	Inf	39.6M	37.541M	39.468M	37.601M	39.732M	37.481M	39.468M	37.481M
5590MHz	Pass	Inf	39.6M	37.601M	39.468M	37.541M	39.6M	37.661M	39.204M	37.541M
5670MHz	Pass	Inf	39.336M	37.541M	39.6M	37.601M	39.864M	37.661M	39.336M	37.541M
5710MHz Straddle 5.47-5.725GHz	Pass	Inf	34.685M	33.653M	34.895M	33.723M	34.79M	33.653M	34.685M	33.583M

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)
5710MHz Straddle 5.725-5.85GHz	Pass	500k	3.9M	4.078M	3.82M	4.078M	3.78M	4.358M	3.76M	4.098M
5755MHz	Pass	500k	37.092M	38.681M	37.356M	38.441M	36.96M	54.573M	37.62M	38.021M
5795MHz	Pass	500k	37.488M	41.199M	37.62M	39.58M	37.62M	59.43M	37.488M	38.081M
802.11ax HEW80_Nss1,(MCS0)_4TX-OFDMA	-	-	-	-	-	-	-	-	-	-
5210MHz	Pass	Inf	81.576M	76.762M	81.576M	76.762M	81.84M	76.882M	81.312M	76.762M
5290MHz	Pass	Inf	81.576M	76.882M	81.576M	76.762M	81.312M	76.762M	81.048M	76.762M
5530MHz	Pass	Inf	81.312M	76.882M	81.576M	76.882M	81.576M	76.762M	81.048M	76.882M
5610MHz	Pass	Inf	81.576M	76.882M	81.84M	76.882M	81.576M	77.001M	80.784M	76.762M
5690MHz Straddle 5.47-5.725GHz	Pass	Inf	75.9M	72.864M	75.9M	72.939M	75.675M	72.789M	75.825M	72.864M
5690MHz Straddle 5.725-5.85GHz	Pass	500k	3.9M	4.138M	3.86M	4.138M	3.9M	5.717M	3.82M	4.118M
5775MHz	Pass	500k	77.616M	77.481M	76.032M	77.361M	75.504M	77.721M	77.616M	77.121M
802.11ax HEW160_Nss1,(MCS0)_4TX-OFDMA	-	-	-	-	-	-	-	-	-	-
5250MHz Straddle 5.15-5.25GHz	Pass	Inf	80.56M	77.161M	80.64M	77.241M	80.72M	77.241M	81.12M	77.161M
5250MHz Straddle 5.25-5.35GHz	Pass	Inf	81.2M	77.321M	81.44M	77.321M	81.84M	77.161M	81.28M	77.161M
5570MHz	Pass	Inf	164.208M	154.963M	163.68M	155.202M	164.208M	154.963M	164.736M	154.963M

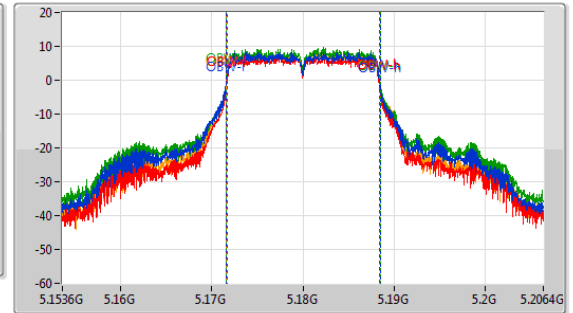
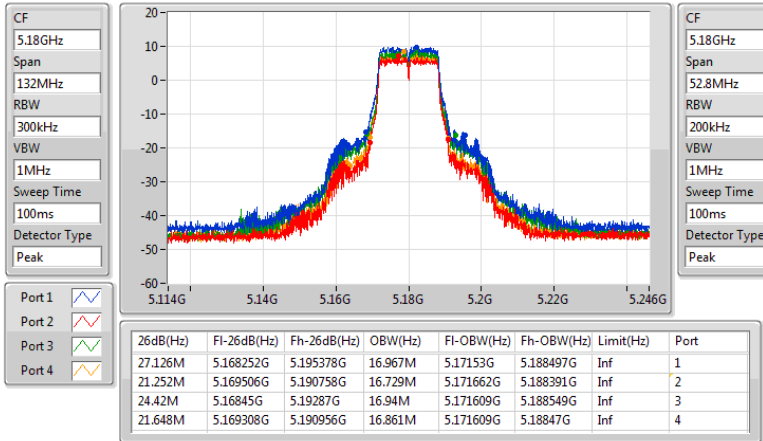
Port X-N dB = Port X 6dB down bandwidth for 5.725-5.85GHz band / 26dB down bandwidth for other band

Port X-OBW = Port X 99% occupied bandwidth

5.15-5.25GHz_802.11a_Nss1,(6Mbps)_4TX

EBW

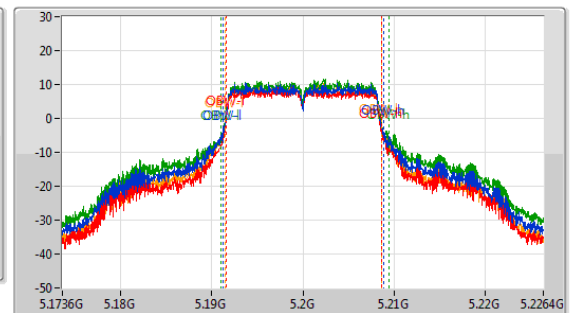
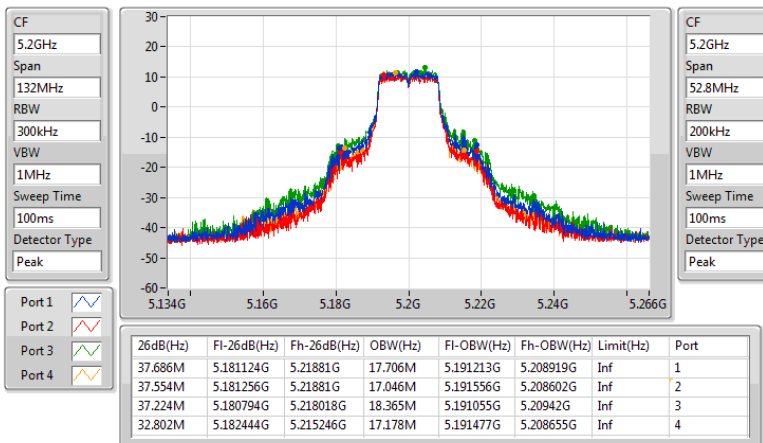
5180MHz



5.15-5.25GHz_802.11a_Nss1,(6Mbps)_4TX

EBW

5200MHz

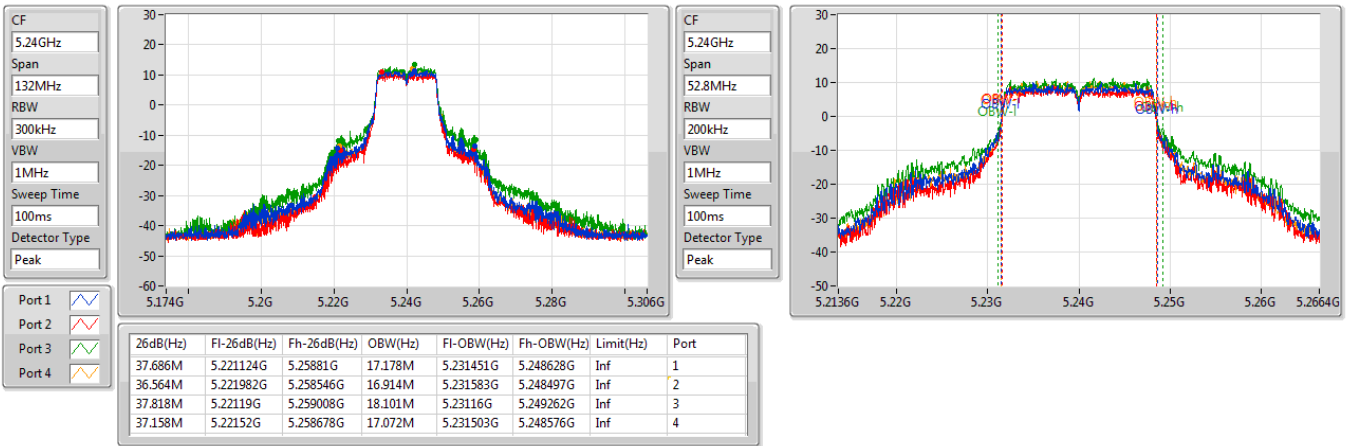




5.15-5.25GHz_802.11a_Nss1,(6Mbps)_4TX

EBW

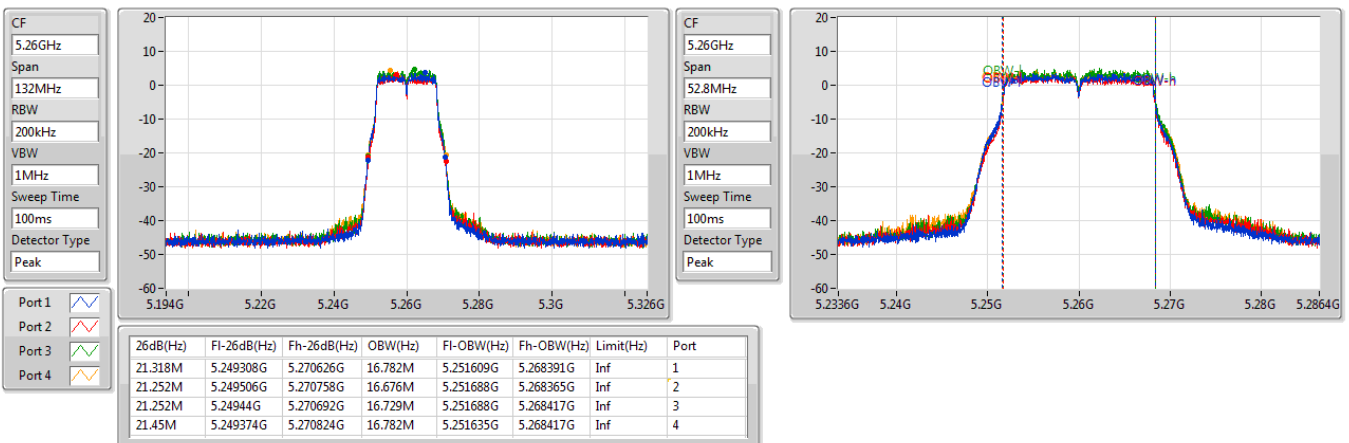
5240MHz



5.25-5.35GHz_802.11a_Nss1,(6Mbps)_4TX

EBW

5260MHz

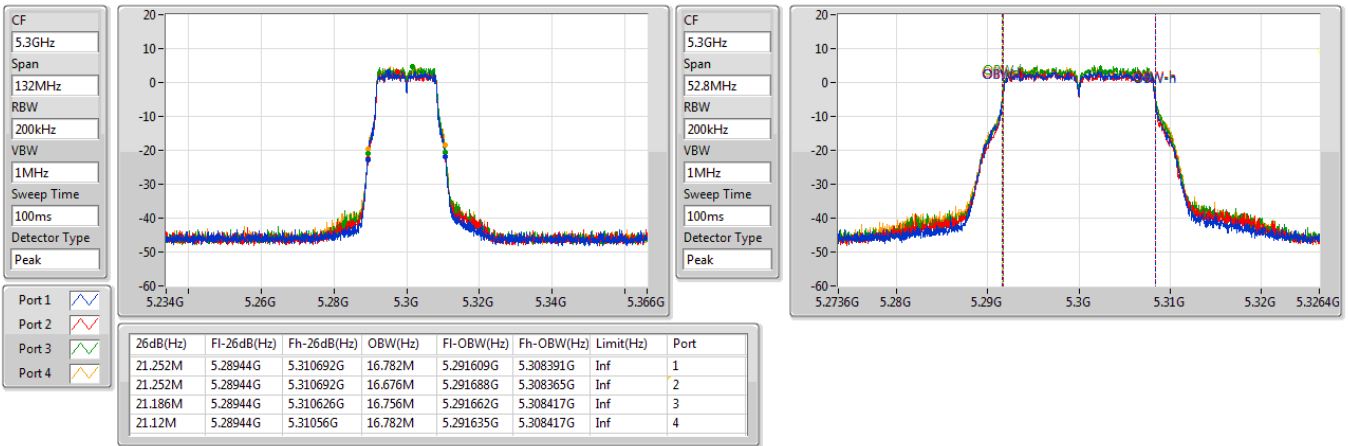




5.25-5.35GHz_802.11a_Nss1,(6Mbps)_4TX

EBW

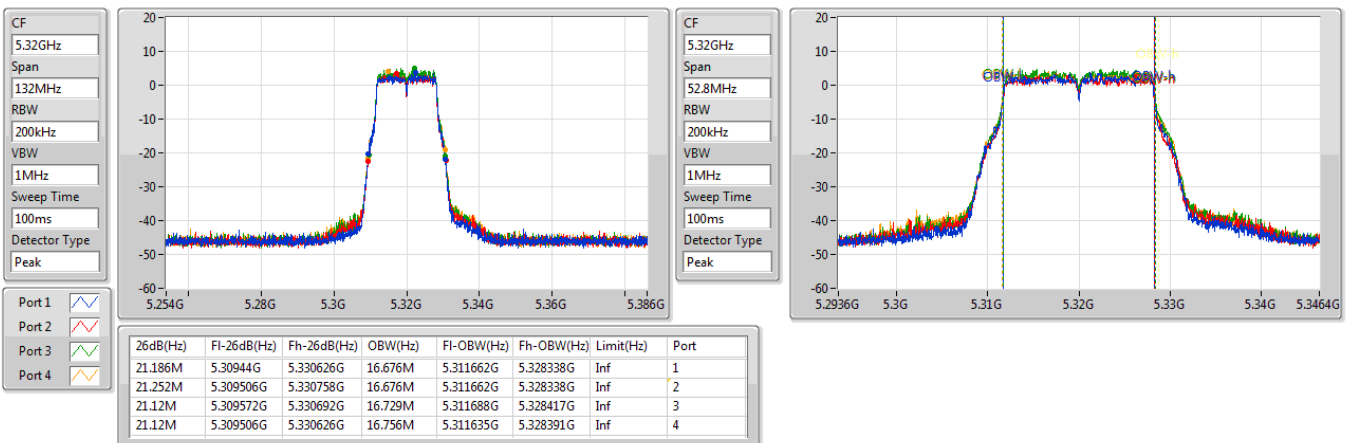
5300MHz



5.25-5.35GHz_802.11a_Nss1,(6Mbps)_4TX

EBW

5320MHz





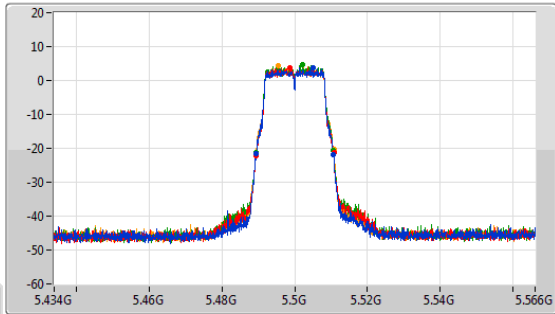
5.47-5.725GHz_802.11a_Nss1,(6Mbps)_4TX

EBW

5500MHz

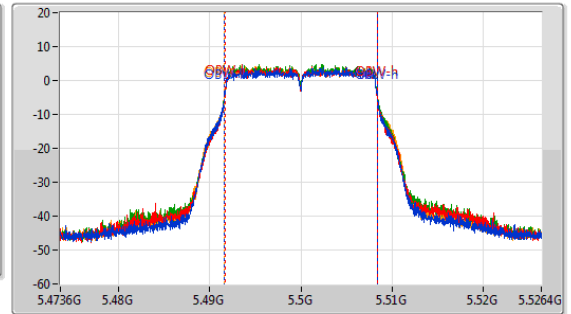
CF
5.5GHz
Span
132MHz
RBW
200kHz
VBW
1MHz
Sweep Time
100ms
Detector Type
Peak

Port 1
Port 2
Port 3
Port 4



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
21.318M	5.489374G	5.510692G	16.756M	5.491635G	5.508391G	Inf	1
21.318M	5.48944G	5.510758G	16.676M	5.491688G	5.508365G	Inf	2
21.318M	5.489374G	5.510692G	16.756M	5.491662G	5.508417G	Inf	3
21.45M	5.489308G	5.510758G	16.782M	5.491635G	5.508417G	Inf	4

CF
5.5GHz
Span
52.8MHz
RBW
200kHz
VBW
1MHz
Sweep Time
100ms
Detector Type
Peak



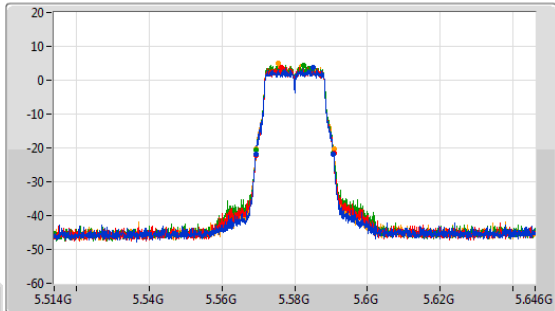
5.47-5.725GHz_802.11a_Nss1,(6Mbps)_4TX

EBW

5580MHz

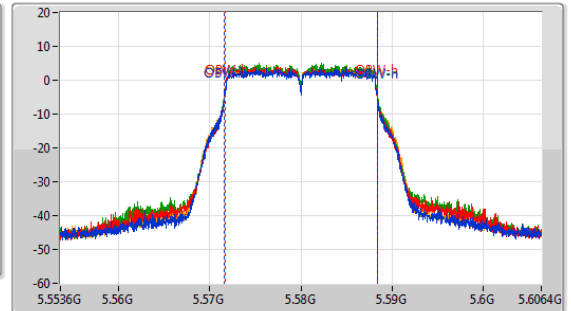
CF
5.58GHz
Span
132MHz
RBW
200kHz
VBW
1MHz
Sweep Time
100ms
Detector Type
Peak

Port 1
Port 2
Port 3
Port 4



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
21.252M	5.56944G	5.590692G	16.782M	5.571609G	5.588391G	Inf	1
21.318M	5.56944G	5.590758G	16.676M	5.571688G	5.588365G	Inf	2
21.186M	5.56944G	5.590626G	16.756M	5.571662G	5.588417G	Inf	3
21.45M	5.569374G	5.590824G	16.808M	5.571609G	5.588417G	Inf	4

CF
5.58GHz
Span
52.8MHz
RBW
200kHz
VBW
1MHz
Sweep Time
100ms
Detector Type
Peak

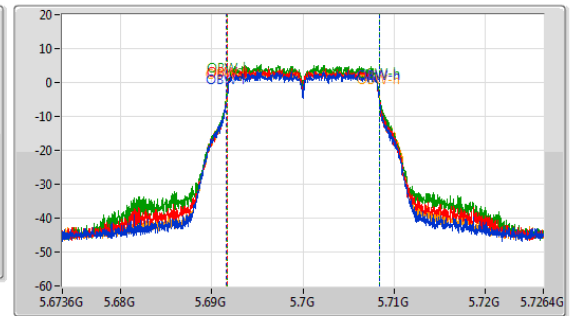
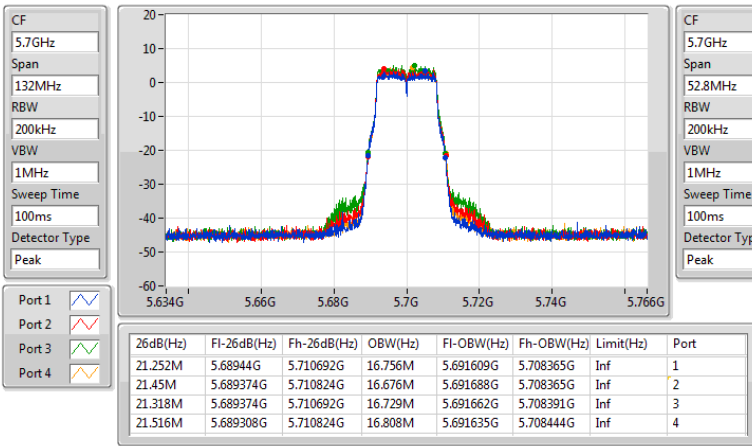




5.47-5.725GHz_802.11a_Nss1,(6Mbps)_4TX

EBW

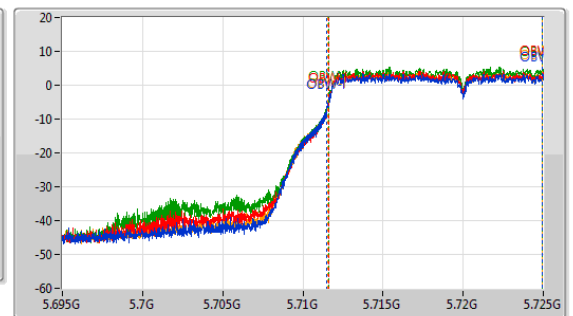
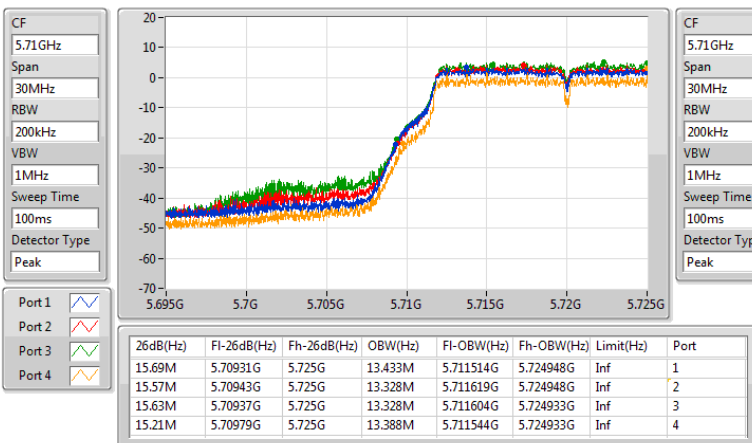
5700MHz



5.47-5.725GHz_802.11a_Nss1,(6Mbps)_4TX

EBW

5720MHz Straddle 5.47-5.725GHz

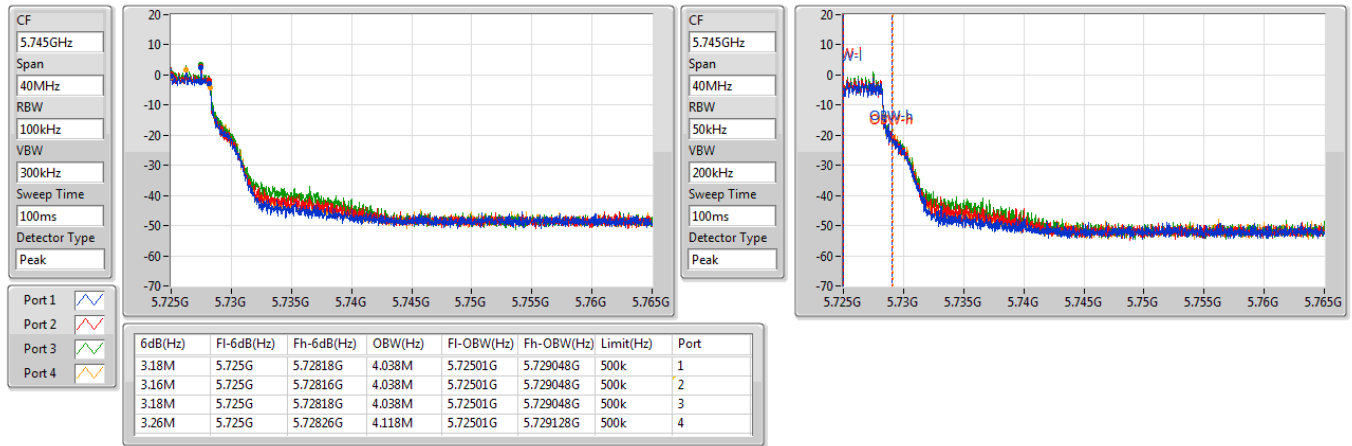




5.725-5.85GHz_802.11a_Nss1,(6Mbps)_4TX

EBW

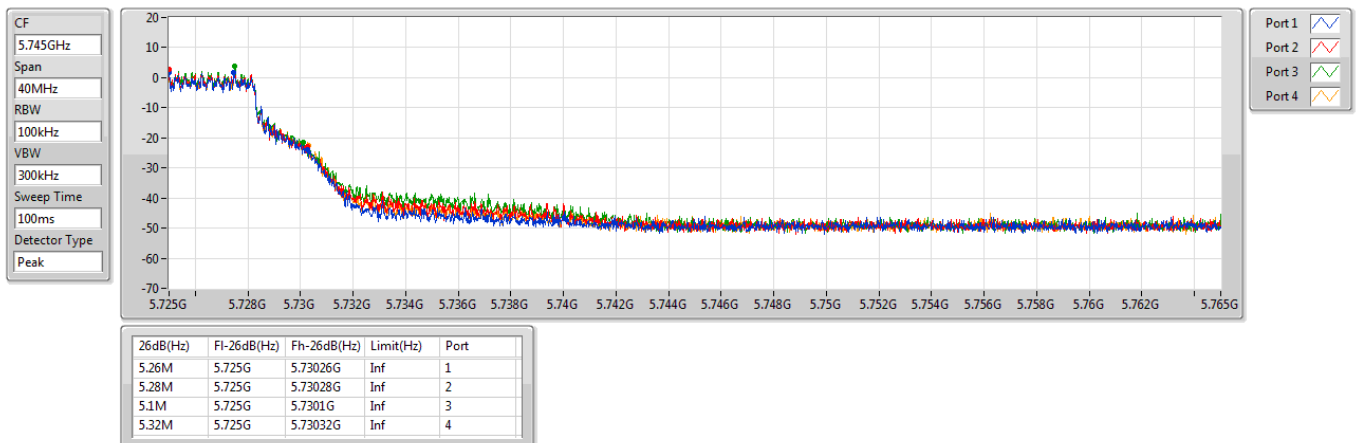
5720MHz Straddle 5.725-5.85GHz



5.725-5.85GHz_802.11a_Nss1,(6Mbps)_4TX

EBW

5720MHz Straddle 5.725-5.85GHz

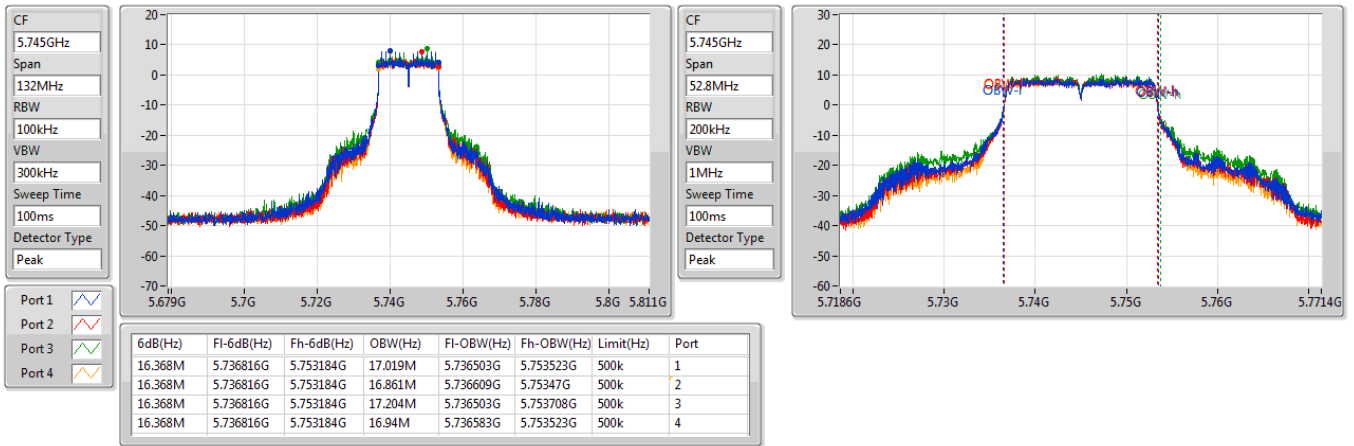




5.725-5.85GHz_802.11a_Nss1,(6Mbps)_4TX

EBW

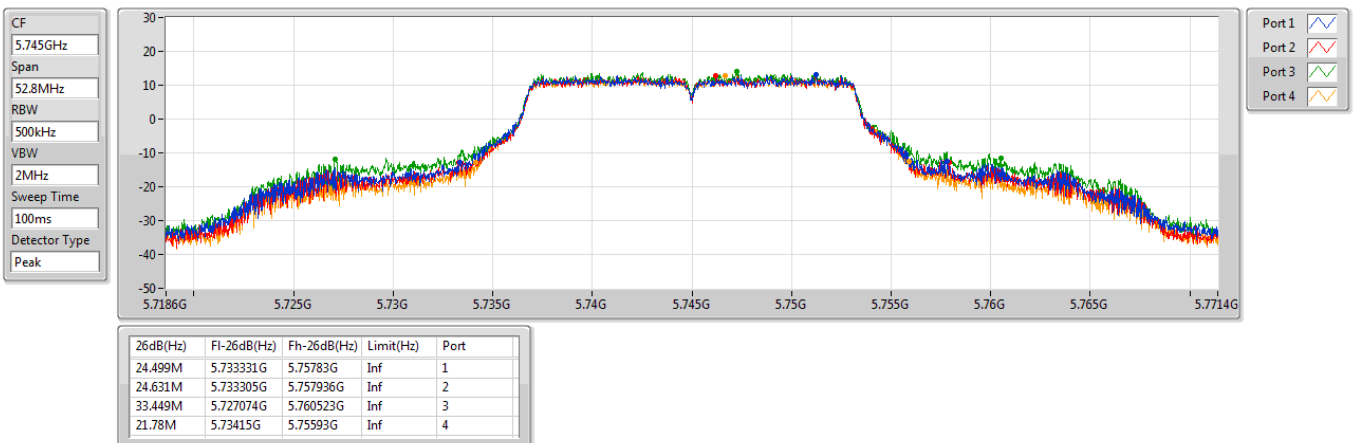
5745MHz



5.725-5.85GHz_802.11a_Nss1,(6Mbps)_4TX

EBW

5745MHz

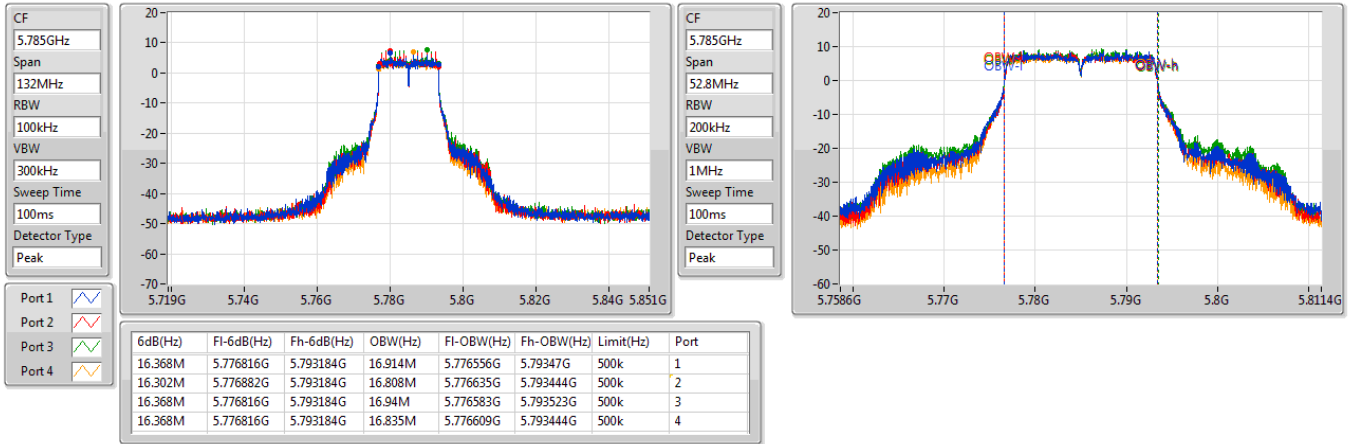




5.725-5.85GHz_802.11a_Nss1,(6Mbps)_4TX

EBW

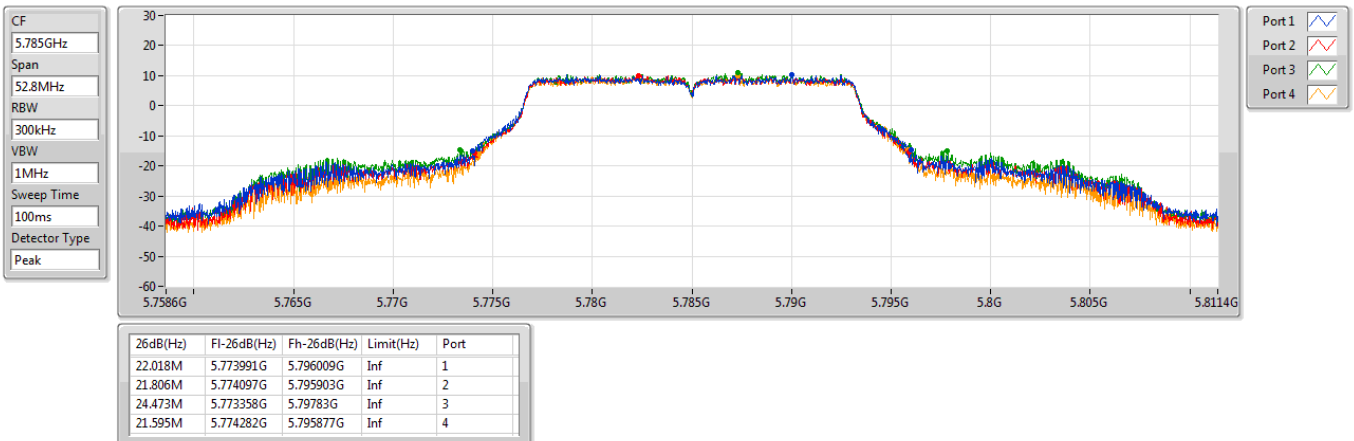
5785MHz



5.725-5.85GHz_802.11a_Nss1,(6Mbps)_4TX

EBW

5785MHz





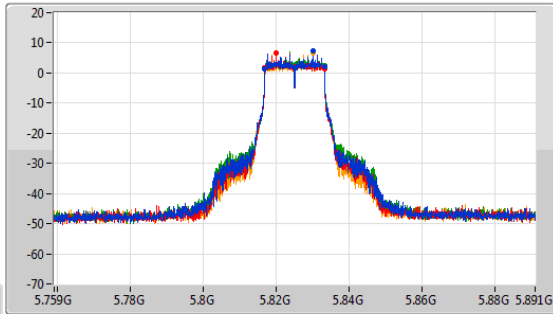
5.725-5.85GHz_802.11a_Nss1,(6Mbps)_4TX

EBW

5825MHz

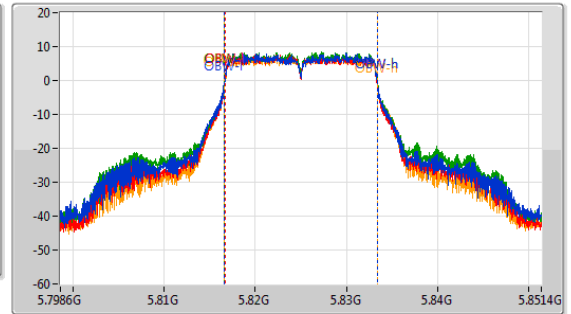
CF
5.825GHz
Span
132MHz
RBW
100kHz
VBW
300kHz
Sweep Time
100ms
Detector Type
Peak

Port 1
Port 2
Port 3
Port 4



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
16.368M	5.816816G	5.833184G	16.888M	5.816556G	5.833444G	500k	1
16.368M	5.816816G	5.833184G	16.729M	5.816662G	5.833391G	500k	2
16.368M	5.816816G	5.833184G	16.835M	5.816635G	5.83347G	500k	3
16.368M	5.816816G	5.833184G	16.835M	5.816635G	5.83347G	500k	4

CF
5.825GHz
Span
52.8MHz
RBW
200kHz
VBW
1MHz
Sweep Time
100ms
Detector Type
Peak

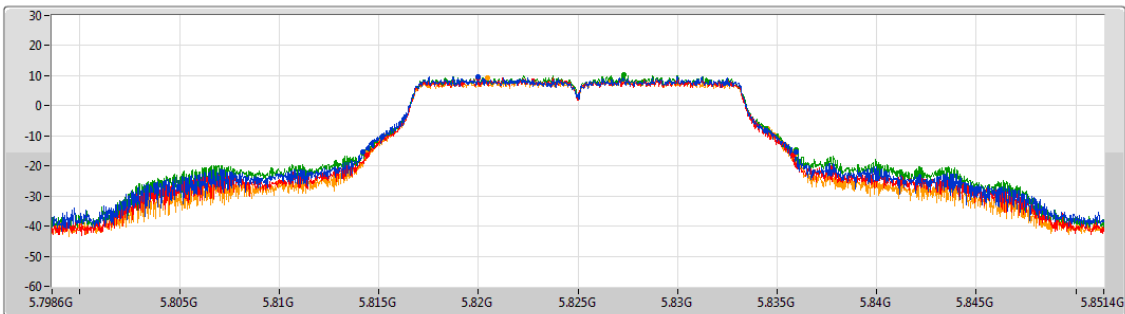


5.725-5.85GHz_802.11a_Nss1,(6Mbps)_4TX

EBW

5825MHz

CF
5.825GHz
Span
52.8MHz
RBW
300kHz
VBW
1MHz
Sweep Time
100ms
Detector Type
Peak



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	Limit(Hz)	Port
21.806M	5.814176G	5.835982G	Inf	1
21.41M	5.814414G	5.835824G	Inf	2
21.754M	5.814202G	5.835956G	Inf	3
21.595M	5.814334G	5.83593G	Inf	4

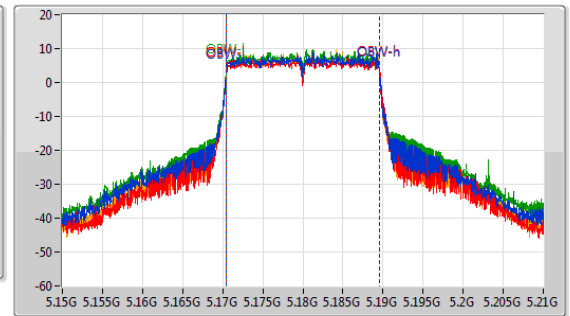
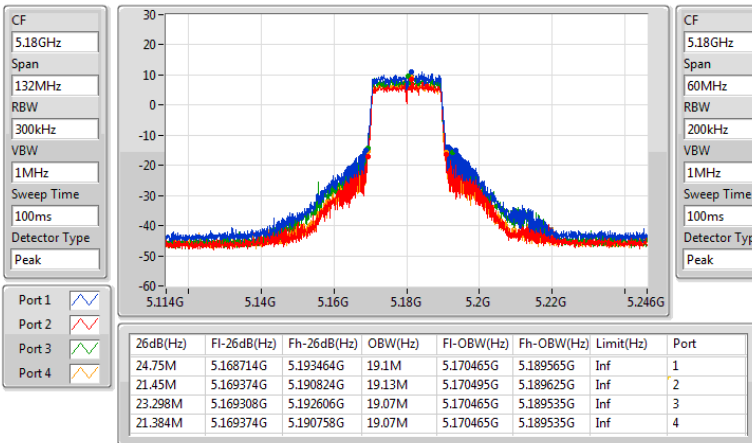
Port 1
Port 2
Port 3
Port 4



5.15-5.25GHz_802.11ax_HEW20_Nss1,(MCS0)_4TX

EBW

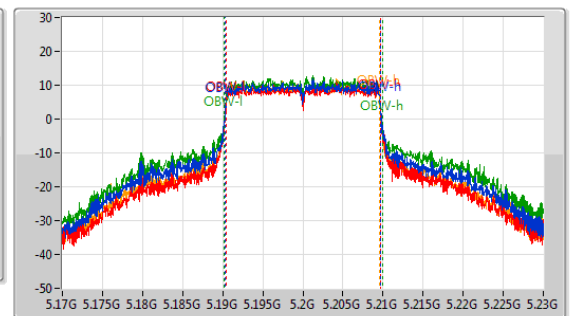
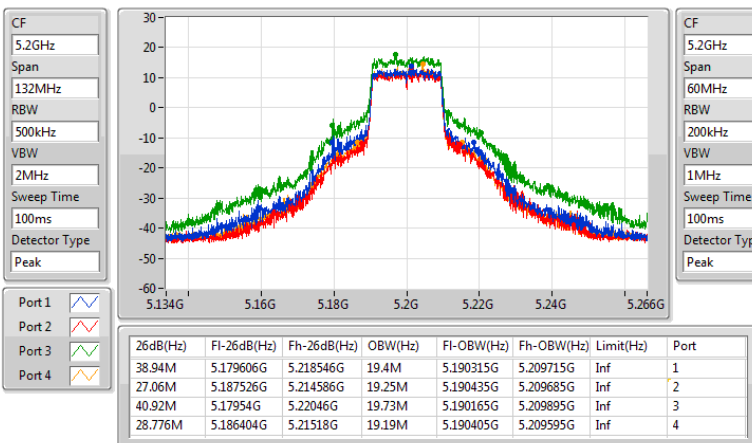
5180MHz



5.15-5.25GHz_802.11ax_HEW20_Nss1,(MCS0)_4TX

EBW

5200MHz

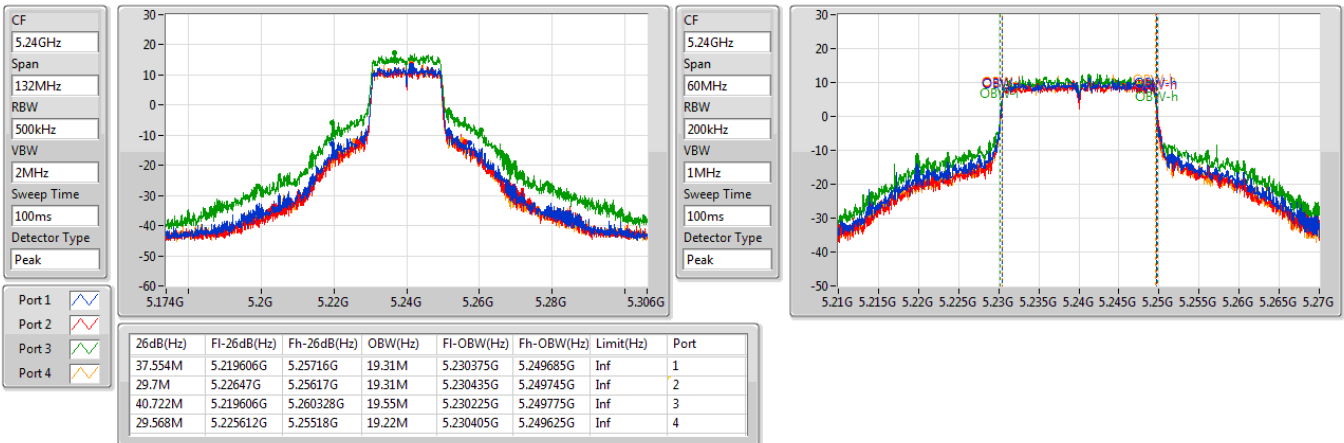




5.15-5.25GHz_802.11ax_HEW20_Nss1,(MCS0)_4TX

EBW

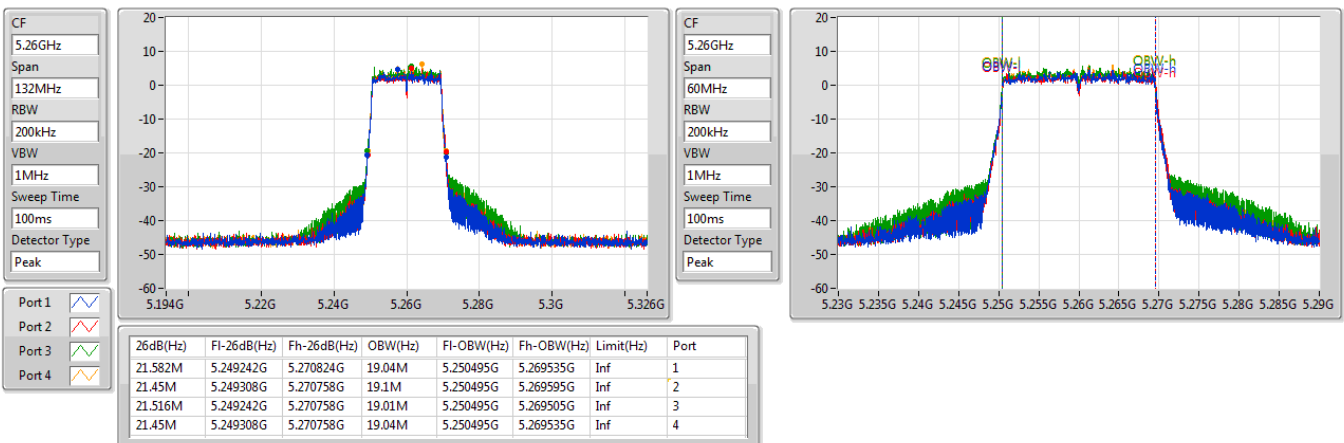
5240MHz



5.25-5.35GHz_802.11ax_HEW20_Nss1,(MCS0)_4TX

EBW

5260MHz

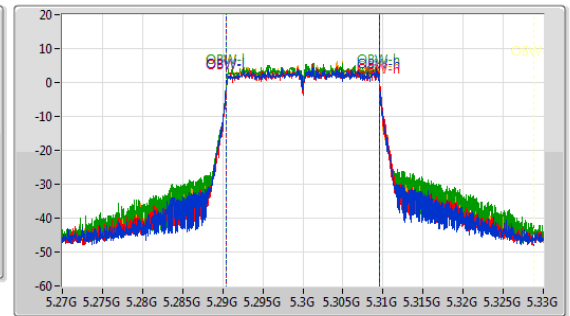
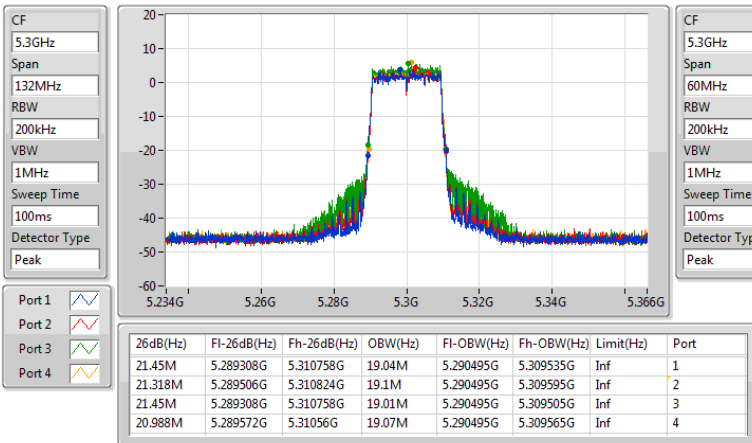




5.25-5.35GHz_802.11ax_HEW20_Nss1,(MCS0)_4TX

EBW

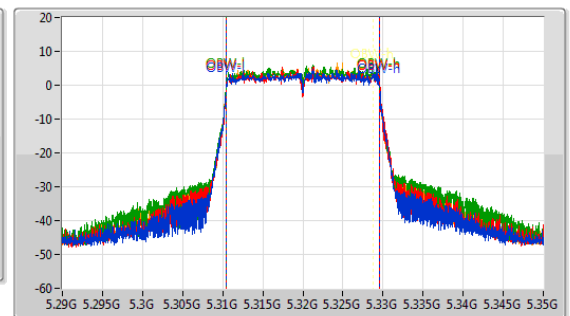
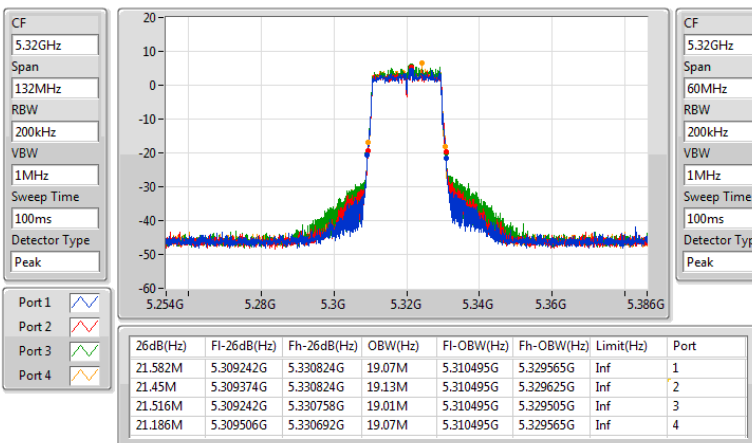
5300MHz



5.25-5.35GHz_802.11ax_HEW20_Nss1,(MCS0)_4TX

EBW

5320MHz

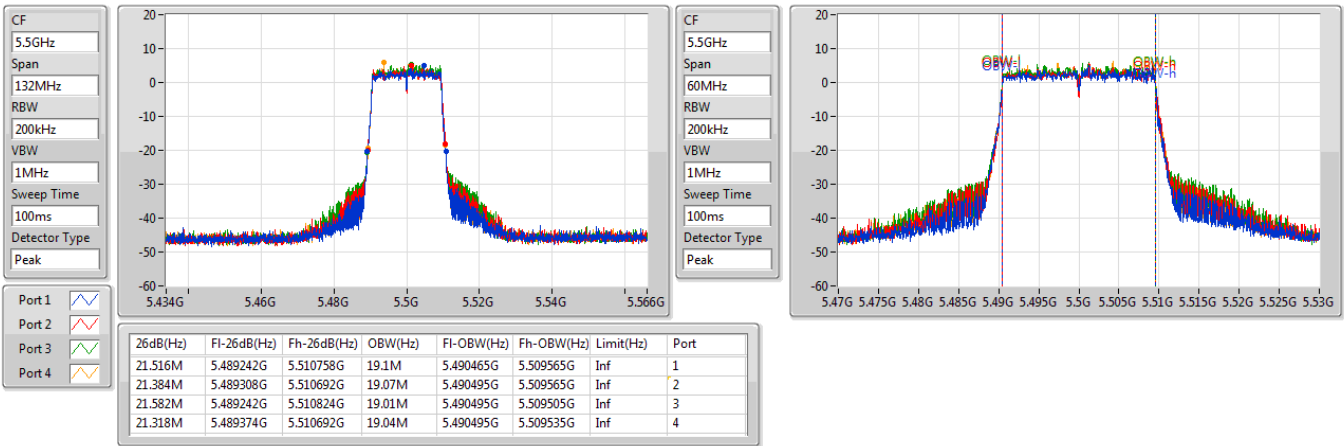




5.47-5.725GHz_802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

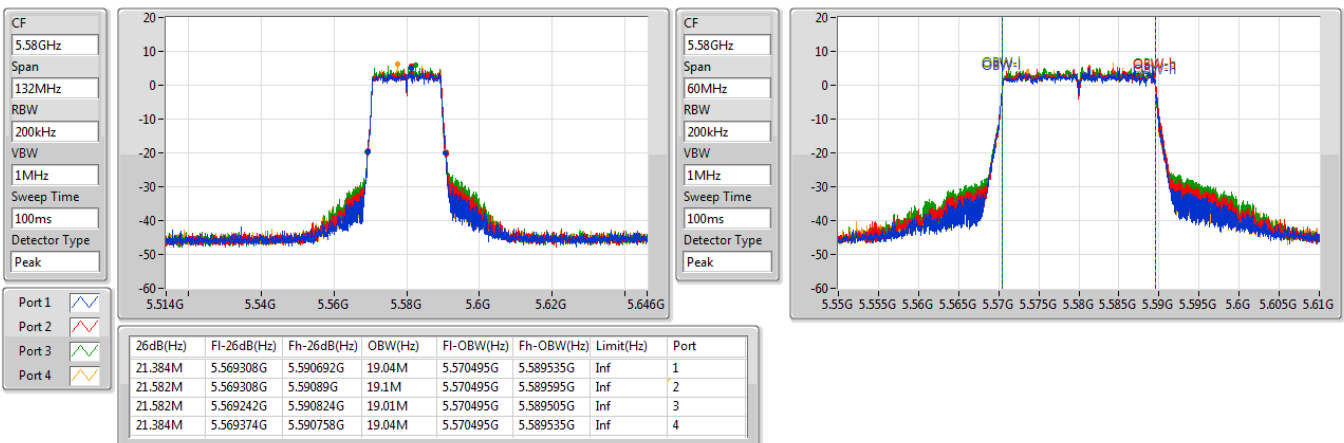
5500MHz



5.47-5.725GHz_802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

5580MHz

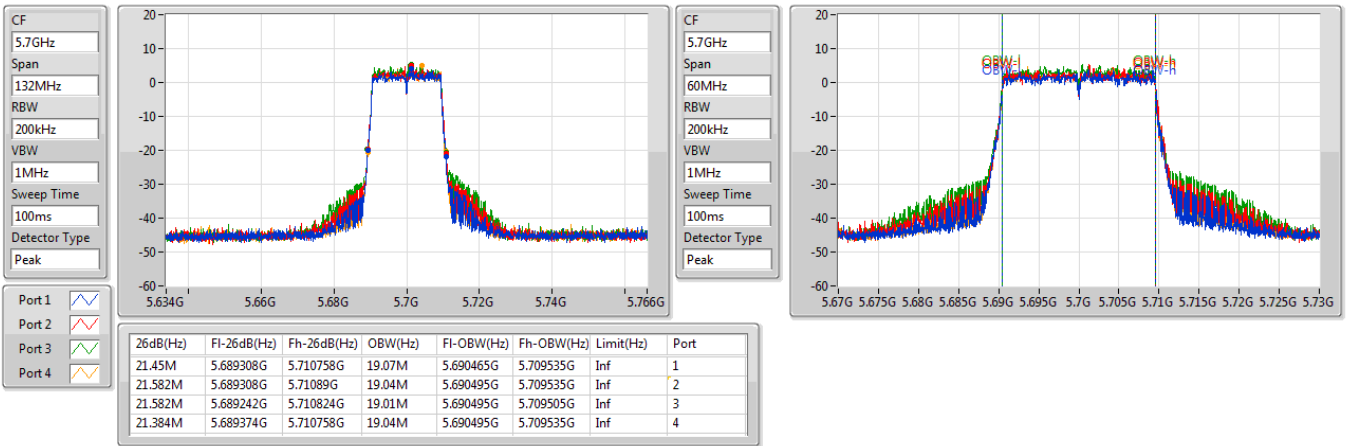




5.47-5.725GHz_802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

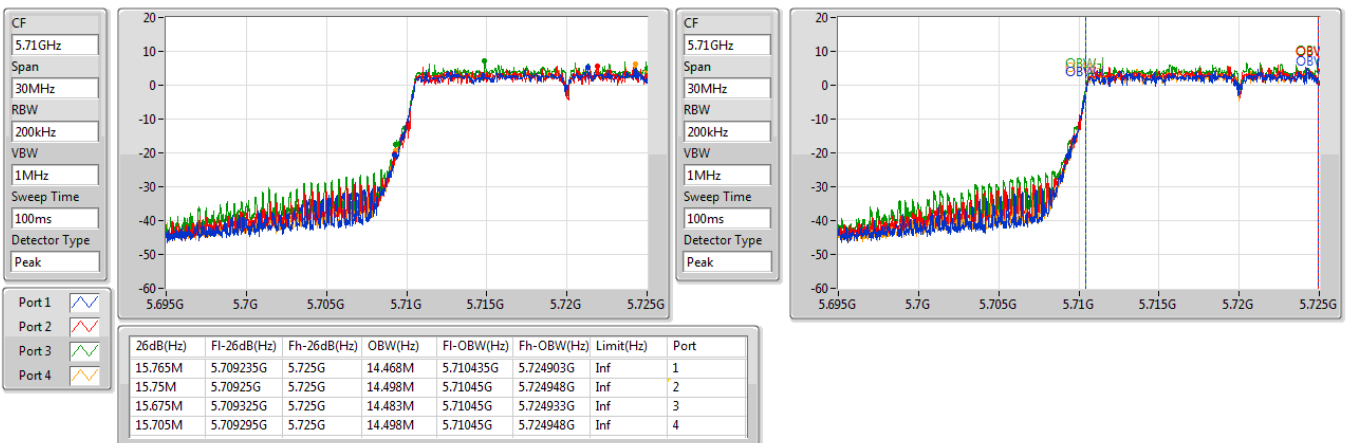
5700MHz



5.47-5.725GHz_802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

5720MHz Straddle 5.47-5.725GHz

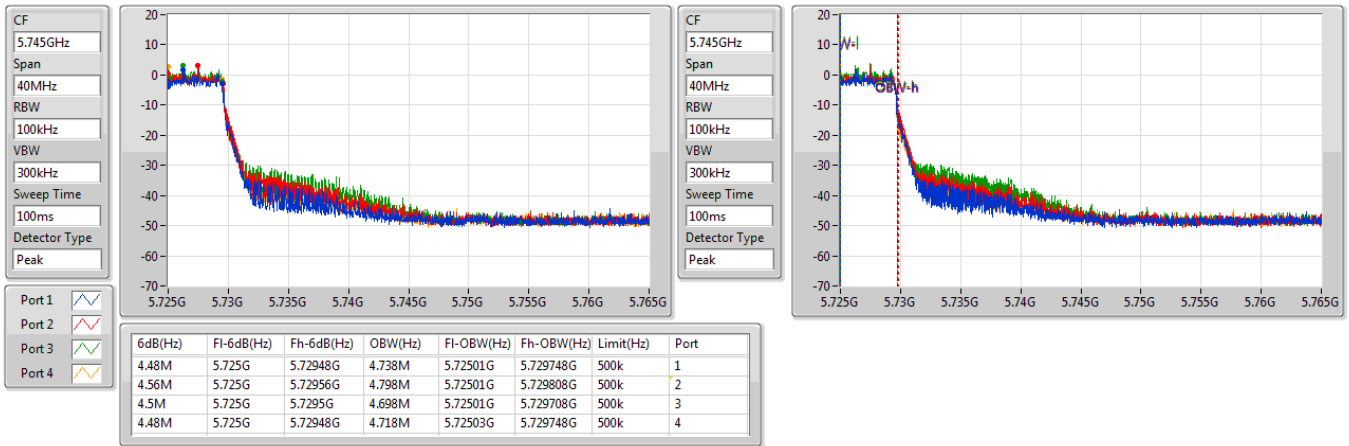




5.725-5.85GHz_802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

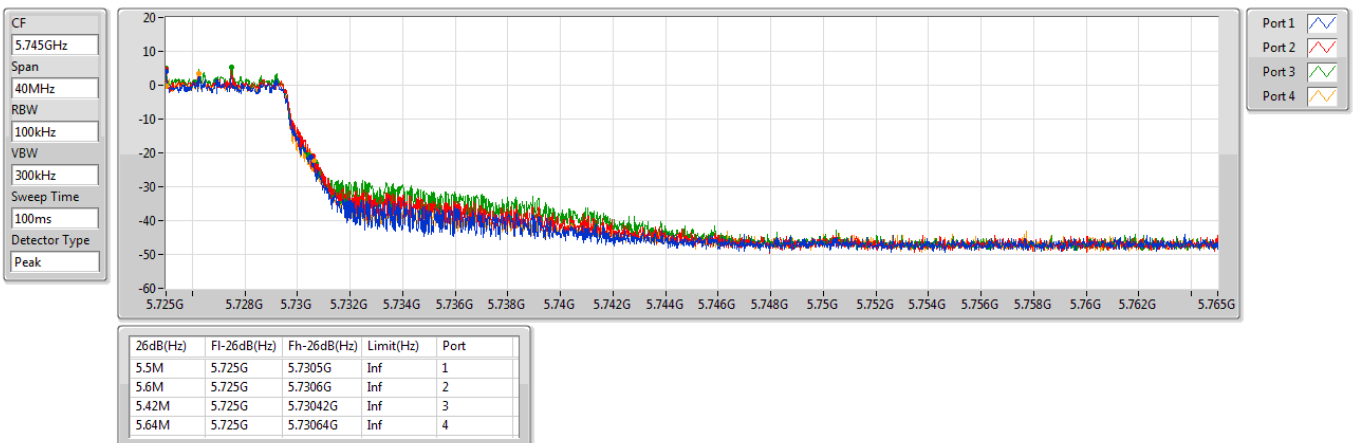
5720MHz Straddle 5.725-5.85GHz



5.725-5.85GHz_802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

5720MHz Straddle 5.725-5.85GHz

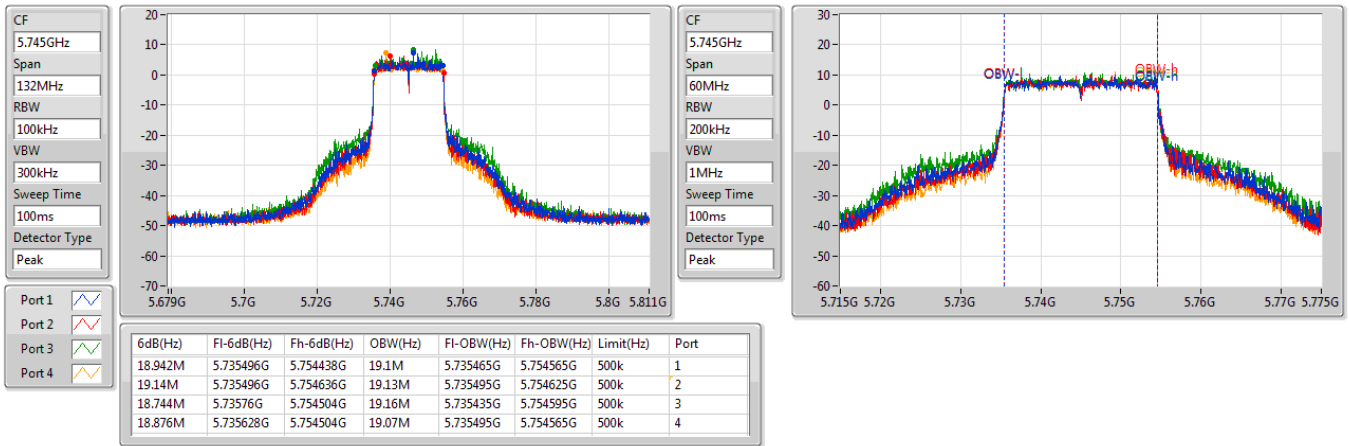




5.725-5.85GHz_802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

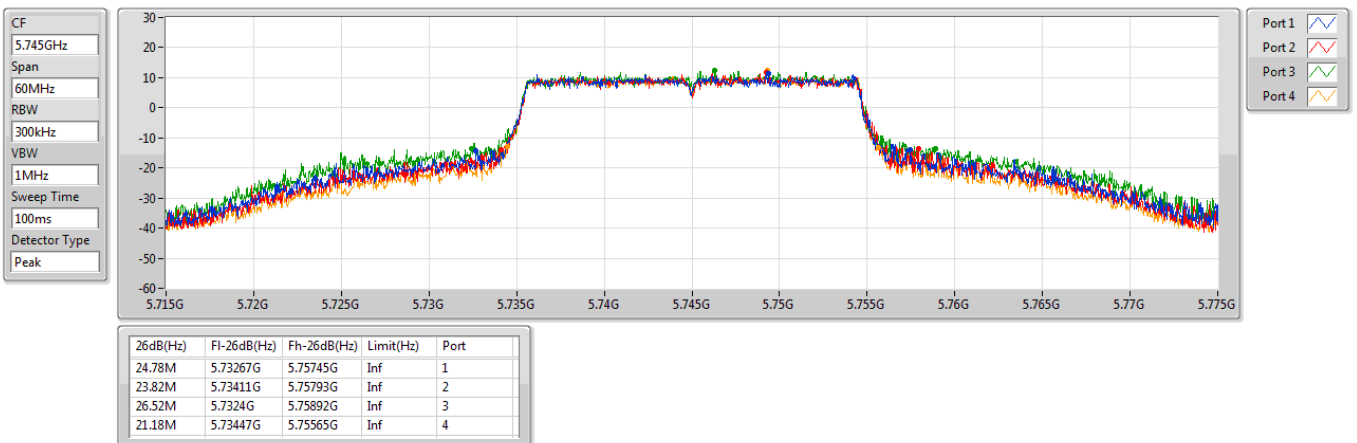
5745MHz



5.725-5.85GHz_802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

5745MHz

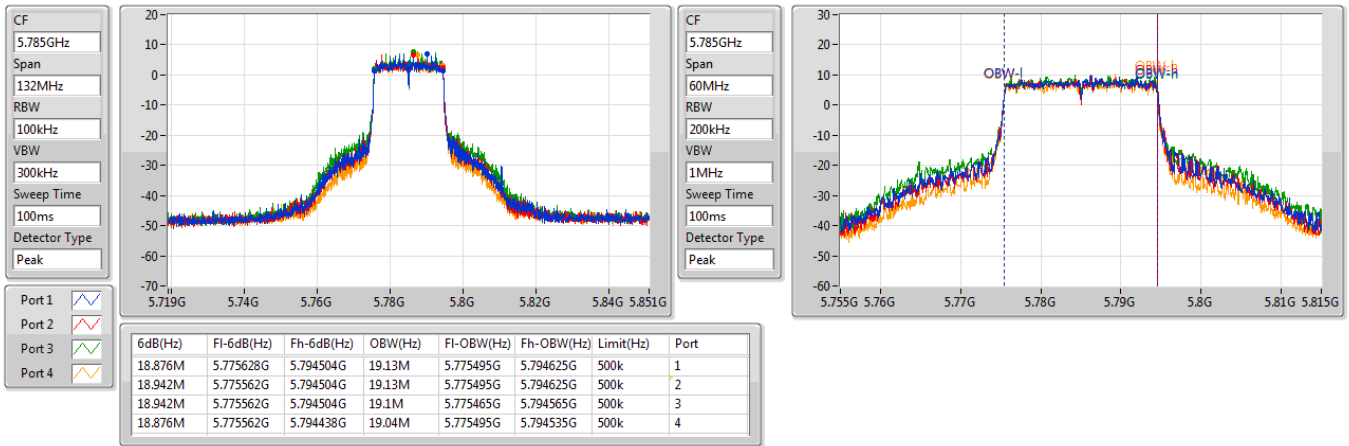




5.725-5.85GHz_802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

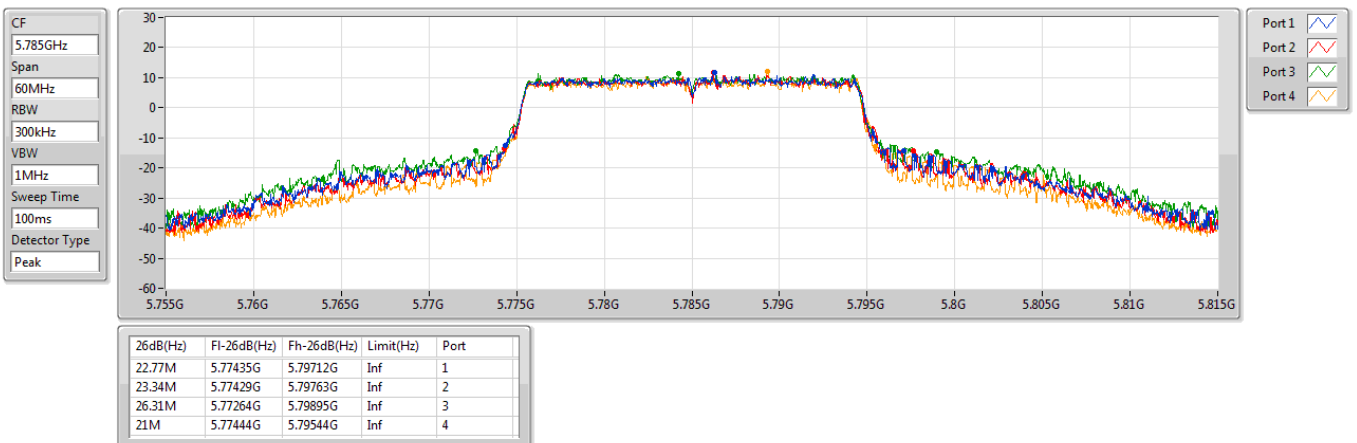
5785MHz



5.725-5.85GHz_802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

5785MHz

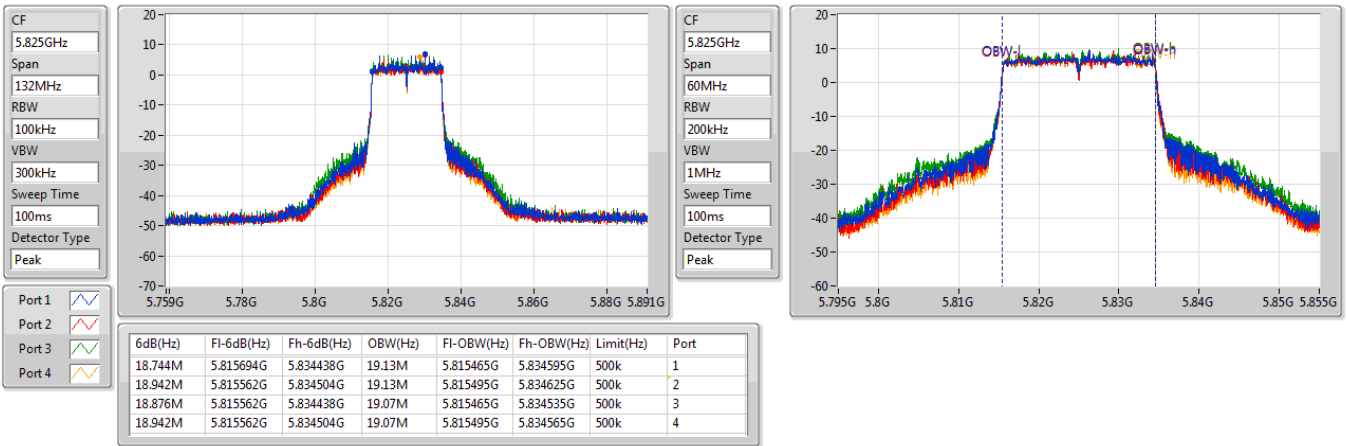




5.725-5.85GHz_802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

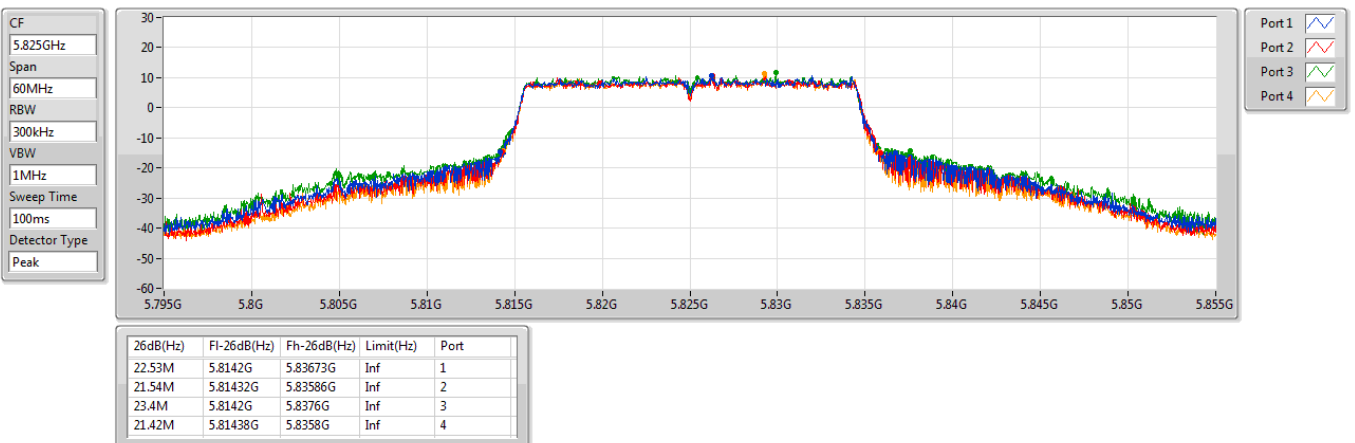
5825MHz



5.725-5.85GHz_802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

5825MHz

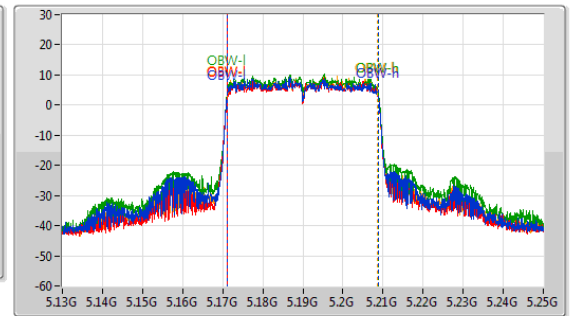
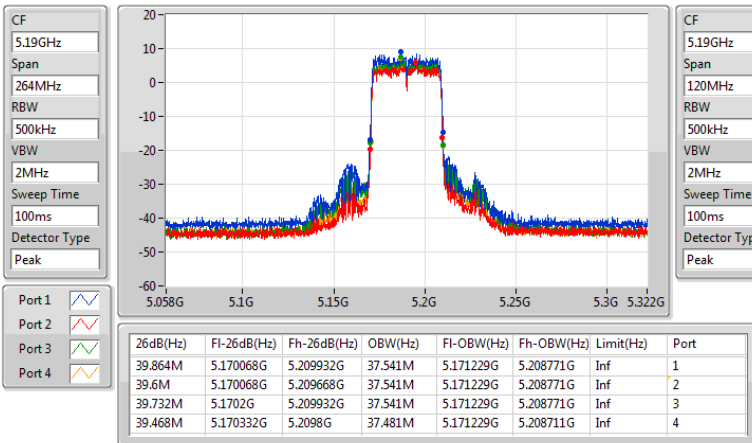




5.15-5.25GHz_802.11ax_HEW40_Nss1,(MCS0)_4TX

EBW

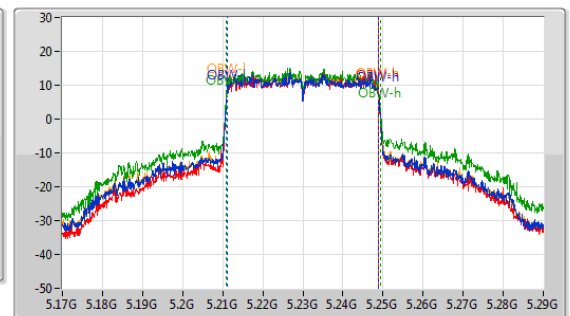
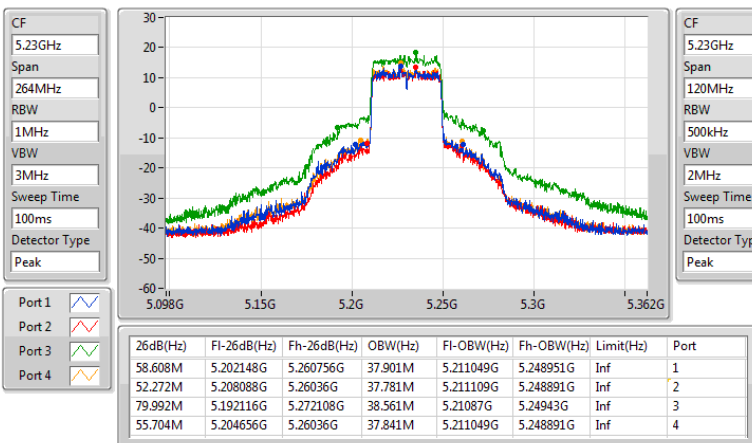
5190MHz



5.15-5.25GHz_802.11ax_HEW40_Nss1,(MCS0)_4TX

EBW

5230MHz

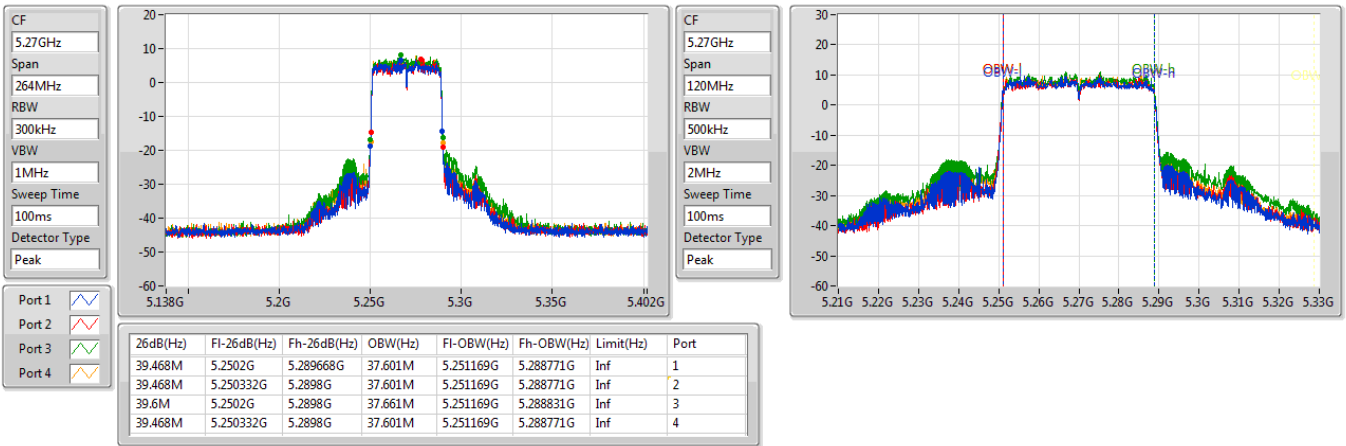




5.25-5.35GHz_802.11ax_HEW40_Nss1,(MCS0)_4TX

EBW

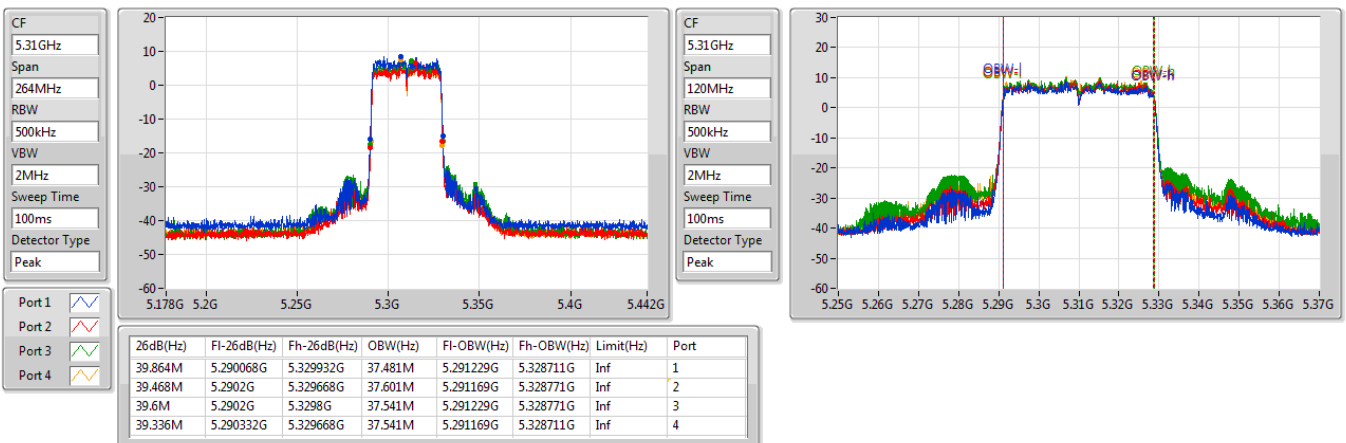
5270MHz



5.25-5.35GHz_802.11ax_HEW40_Nss1,(MCS0)_4TX

EBW

5310MHz

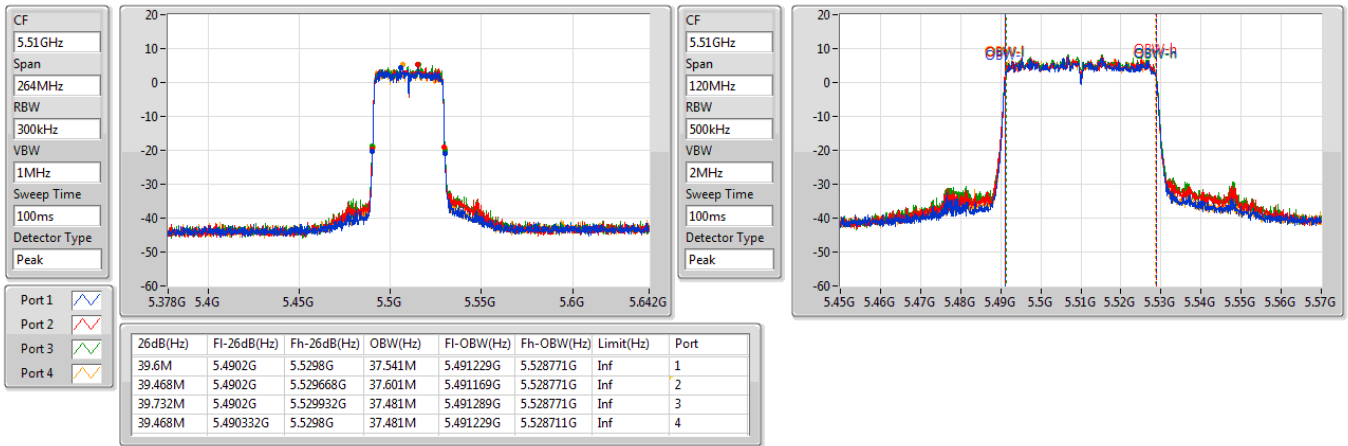




5.47-5.725GHz_802.11ax HEW40_Nss1,(MCS0)_4TX

EBW

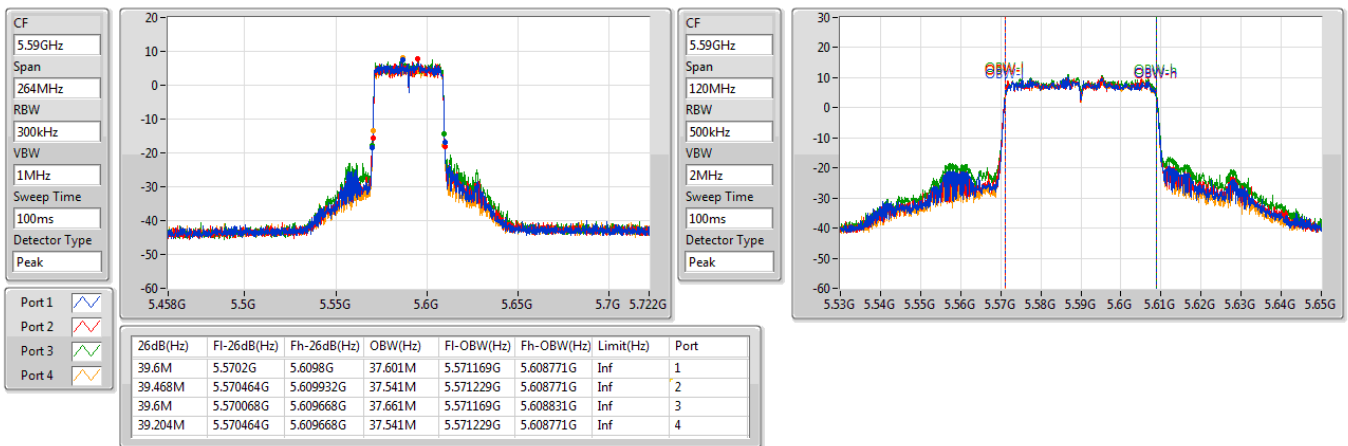
5510MHz



5.47-5.725GHz_802.11ax HEW40_Nss1,(MCS0)_4TX

EBW

5590MHz

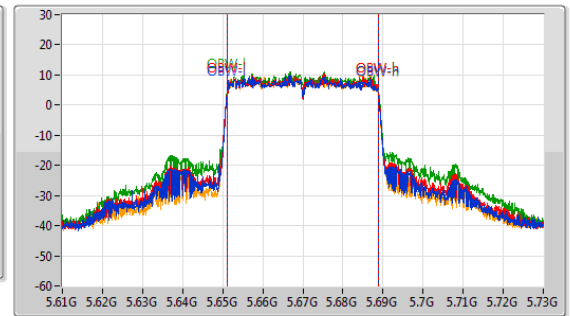
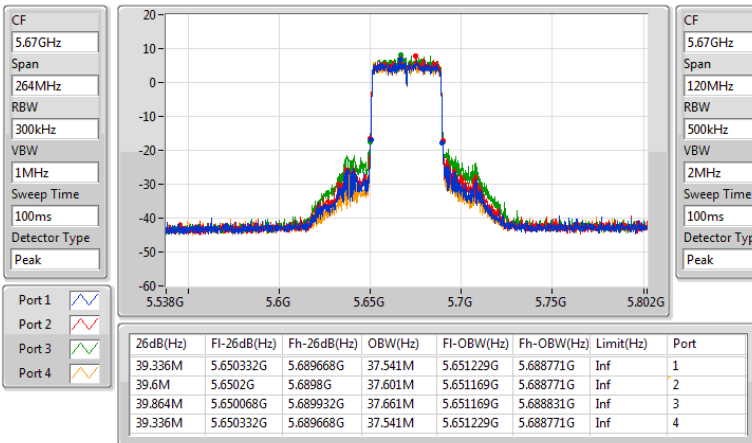




5.47-5.725GHz_802.11ax HEW40_Nss1,(MCS0)_4TX

EBW

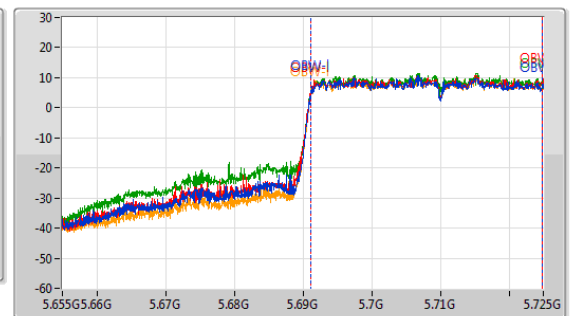
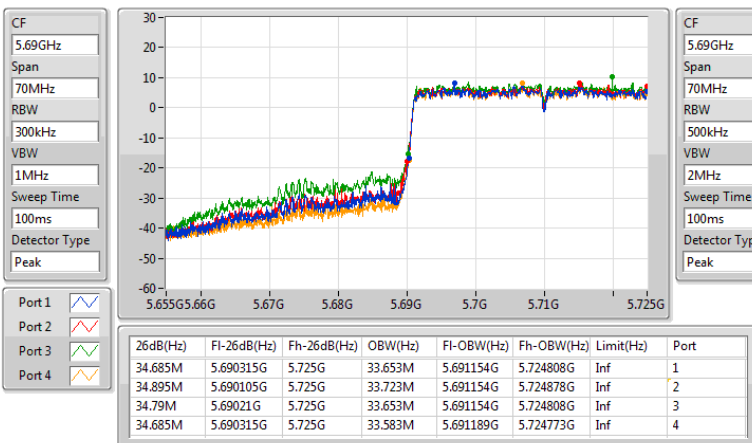
5670MHz



5.47-5.725GHz_802.11ax HEW40_Nss1,(MCS0)_4TX

EBW

5710MHz Straddle 5.47-5.725GHz

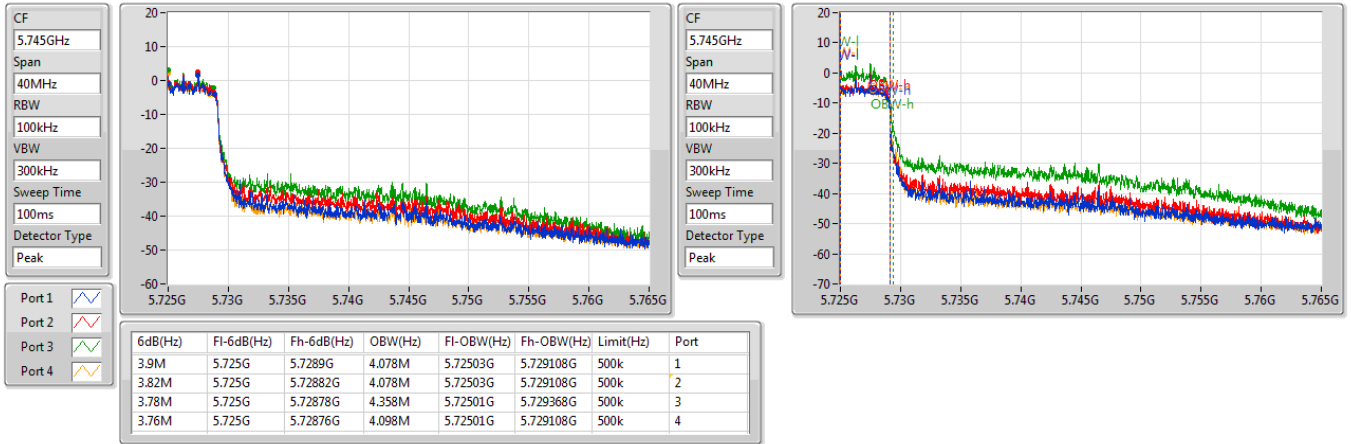




5.725-5.85GHz_802.11ax HEW40_Nss1,(MCS0)_4TX

EBW

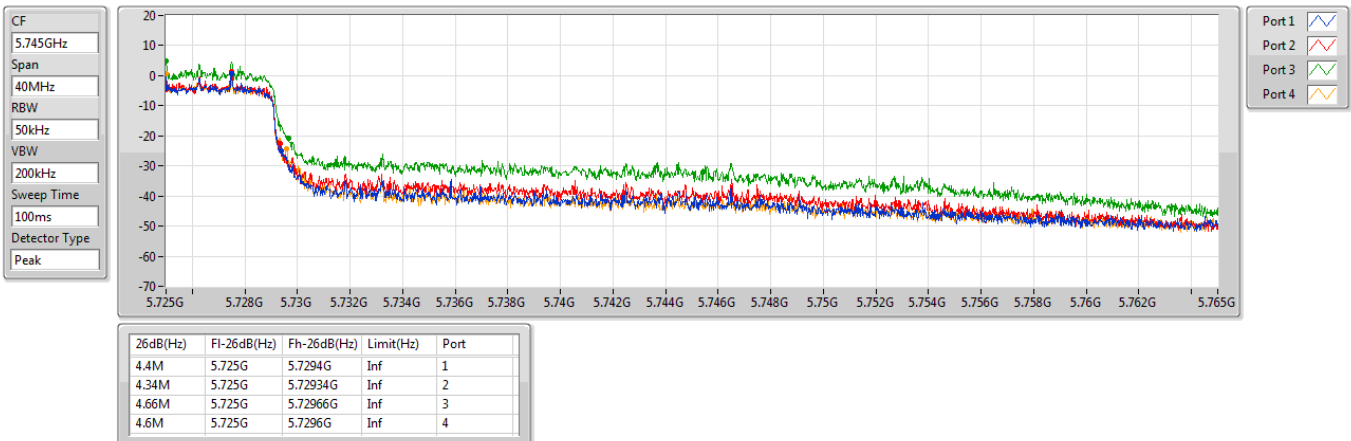
5710MHz Straddle 5.725-5.85GHz



5.725-5.85GHz_802.11ax HEW40_Nss1,(MCS0)_4TX

EBW

5710MHz Straddle 5.725-5.85GHz

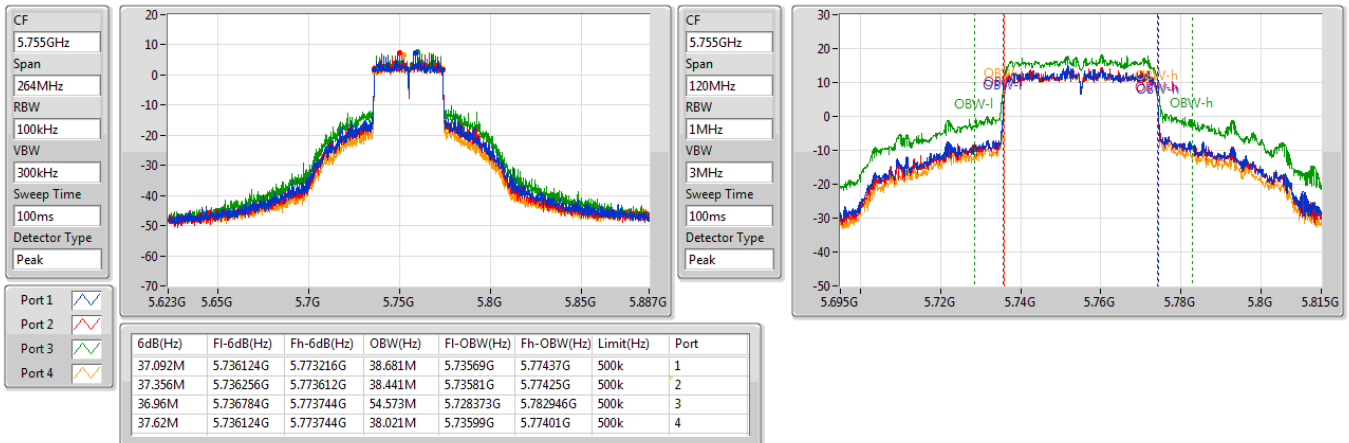




5.725-5.85GHz_802.11ax HEW40_Nss1,(MCS0)_4TX

EBW

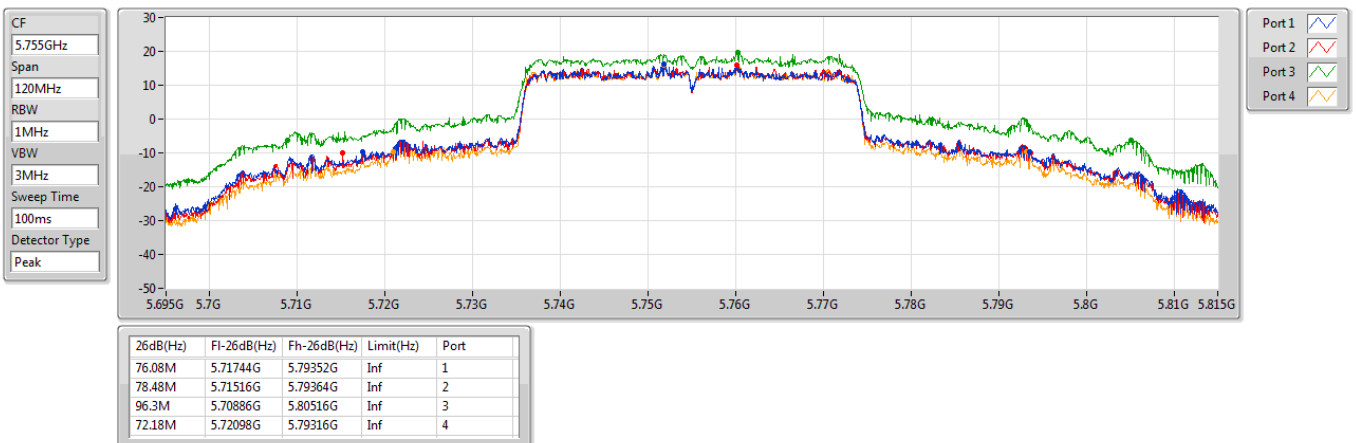
5755MHz



5.725-5.85GHz_802.11ax HEW40_Nss1,(MCS0)_4TX

EBW

5755MHz

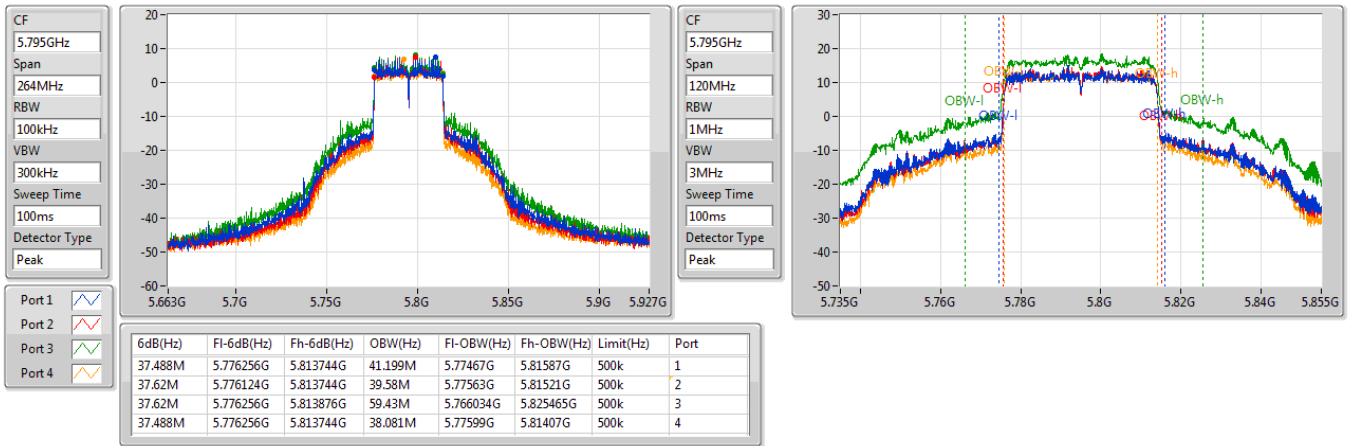




5.725-5.85GHz_802.11ax HEW40_Nss1,(MCS0)_4TX

EBW

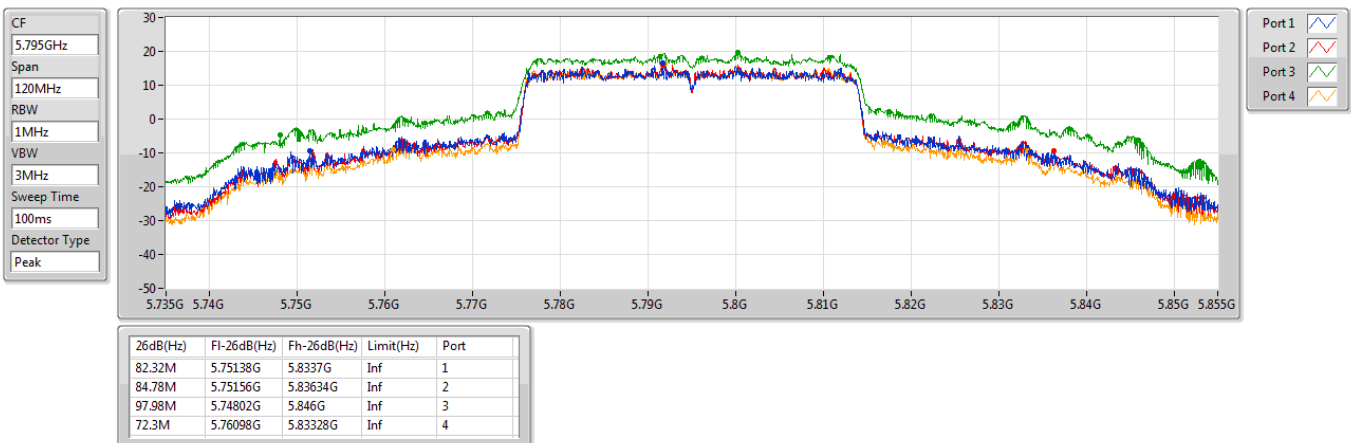
5795MHz



5.725-5.85GHz_802.11ax HEW40_Nss1,(MCS0)_4TX

EBW

5795MHz

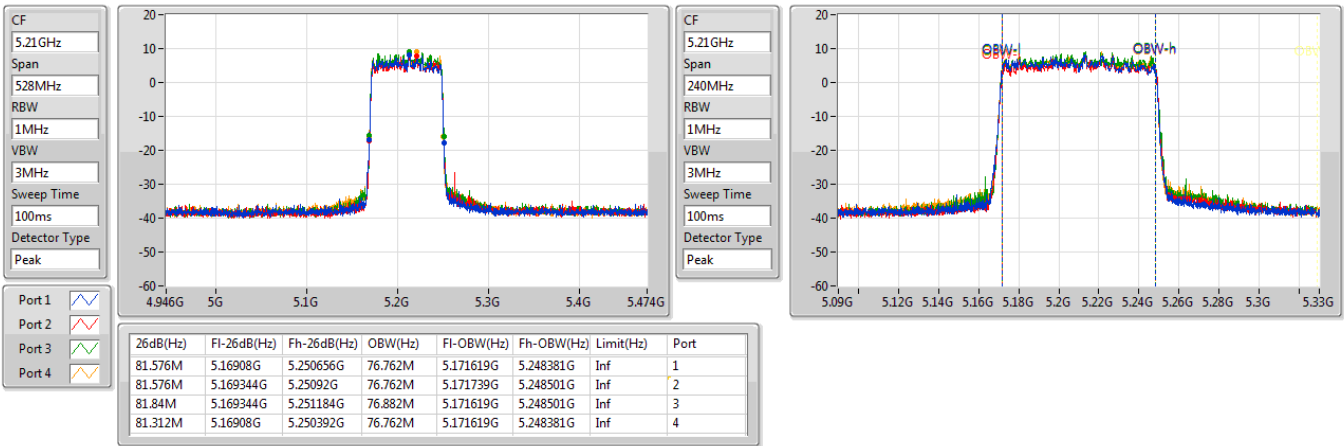




5.15-5.25GHz_802.11ax_HEW80_Nss1,(MCS0)_4TX

EBW

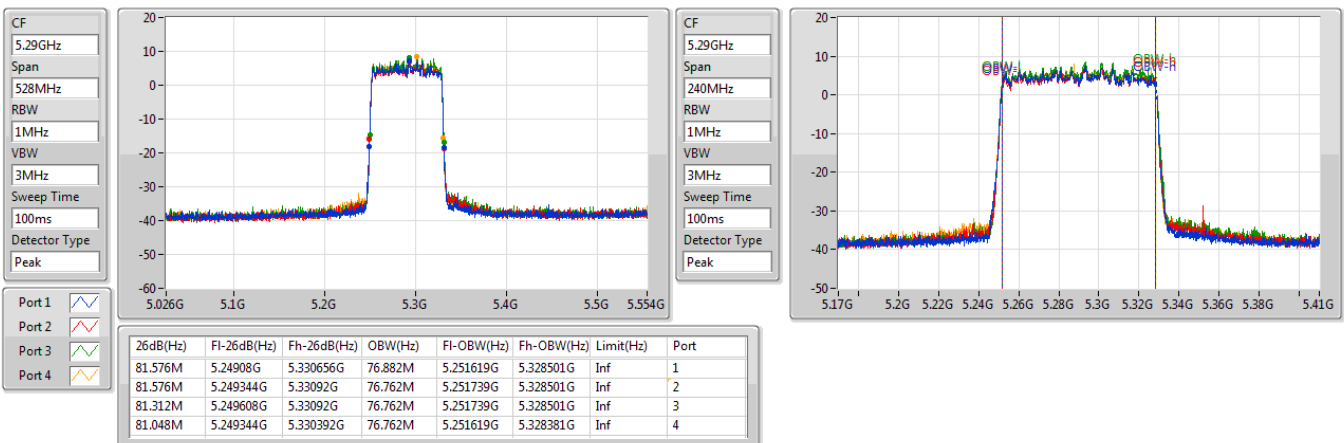
5210MHz



5.25-5.35GHz_802.11ax_HEW80_Nss1,(MCS0)_4TX

EBW

5290MHz

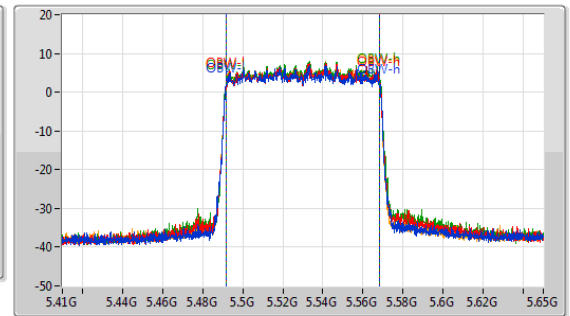
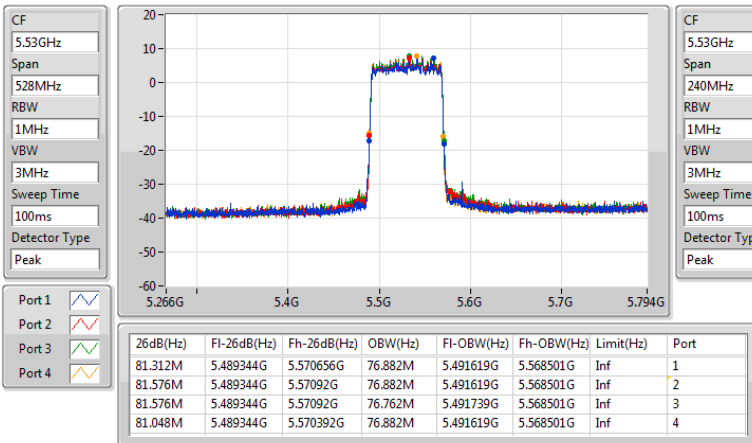




5.47-5.725GHz_802.11ax HEW80_Nss1,(MCS0)_4TX

EBW

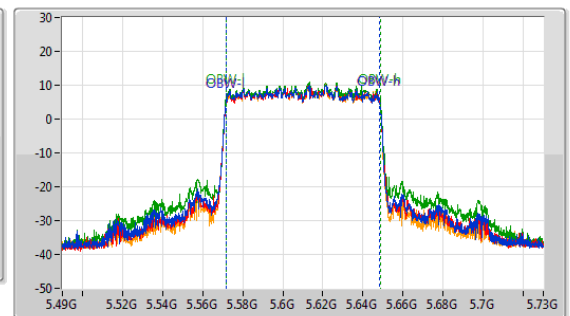
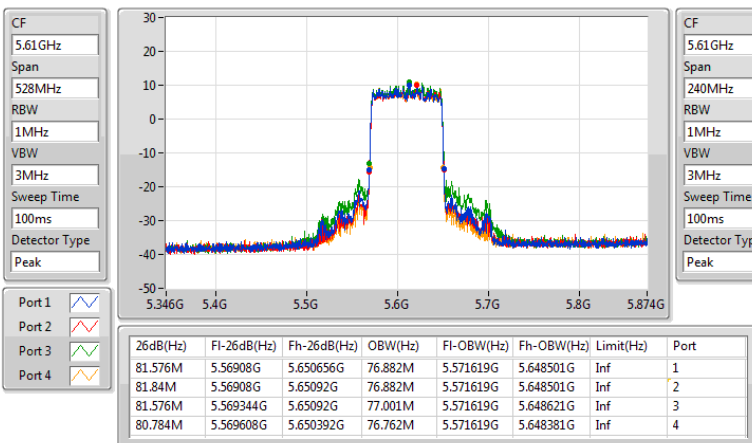
5530MHz



5.47-5.725GHz_802.11ax HEW80_Nss1,(MCS0)_4TX

EBW

5610MHz

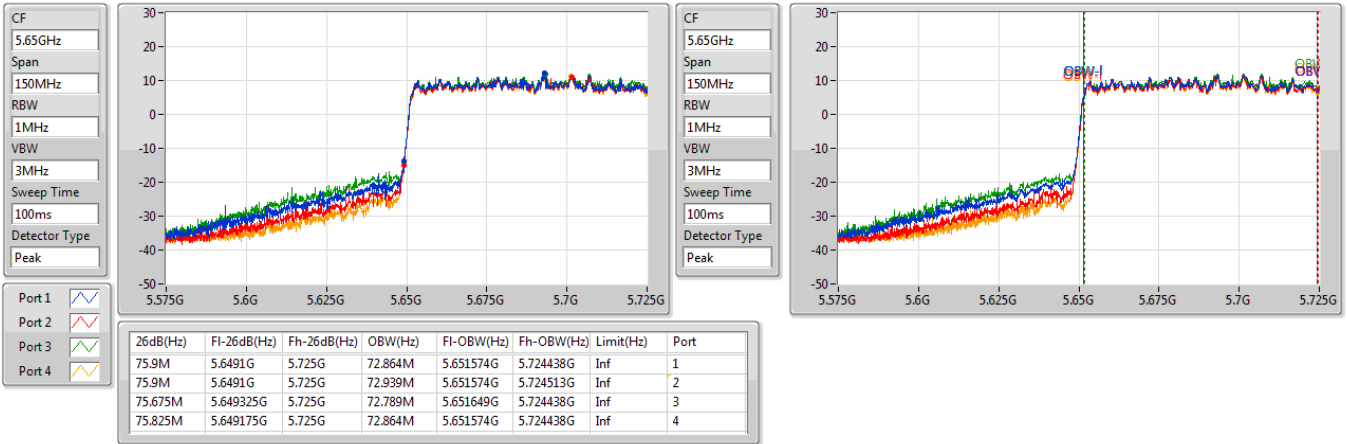




5.47-5.725GHz_802.11ax HEW80_Nss1,(MCS0)_4TX

EBW

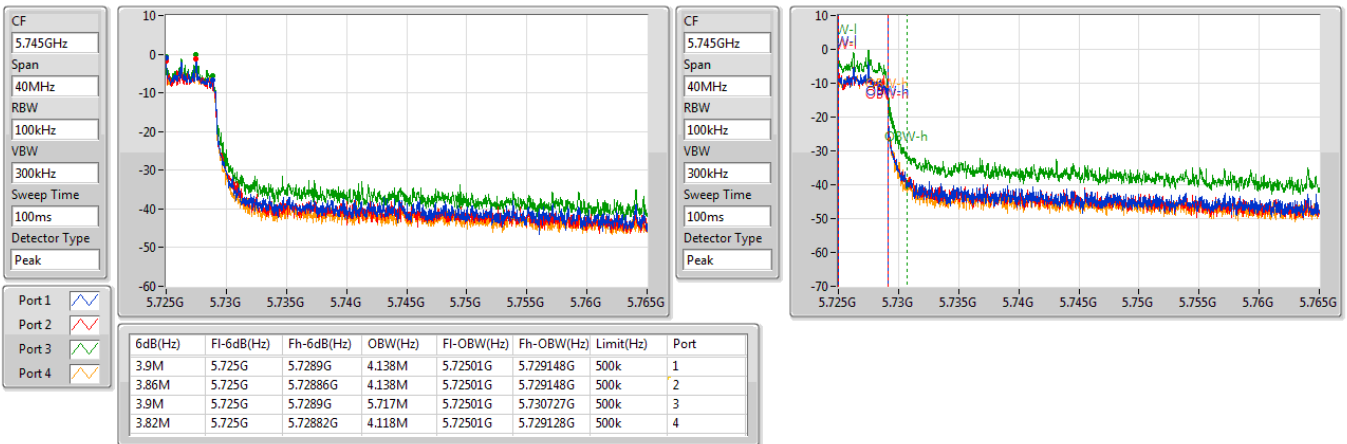
5690MHz Straddle 5.47-5.725GHz



5.725-5.85GHz_802.11ax HEW80_Nss1,(MCS0)_4TX

EBW

5690MHz Straddle 5.725-5.85GHz

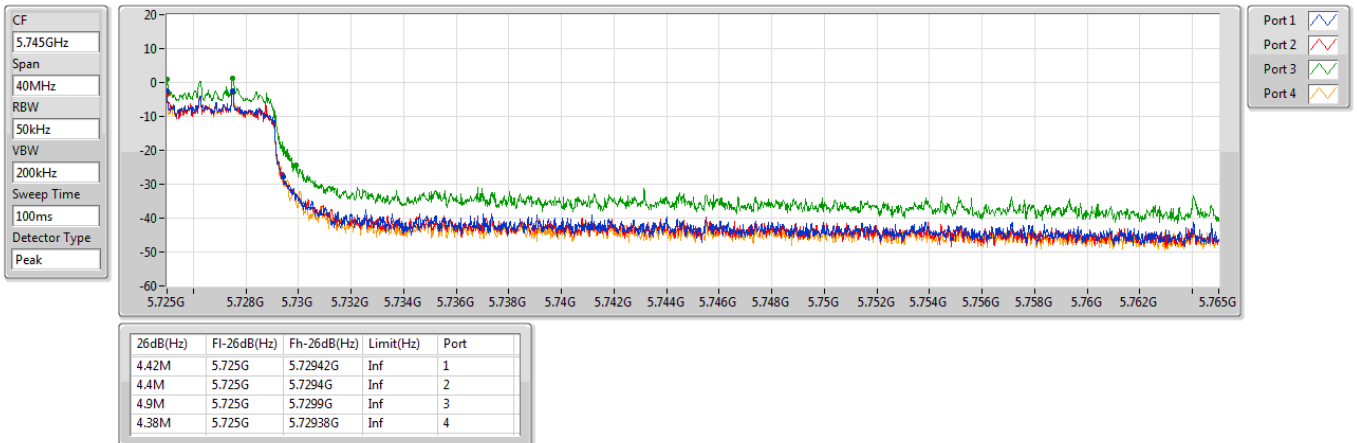




5.725-5.85GHz_802.11ax HEW80_Nss1,(MCS0)_4TX

EBW

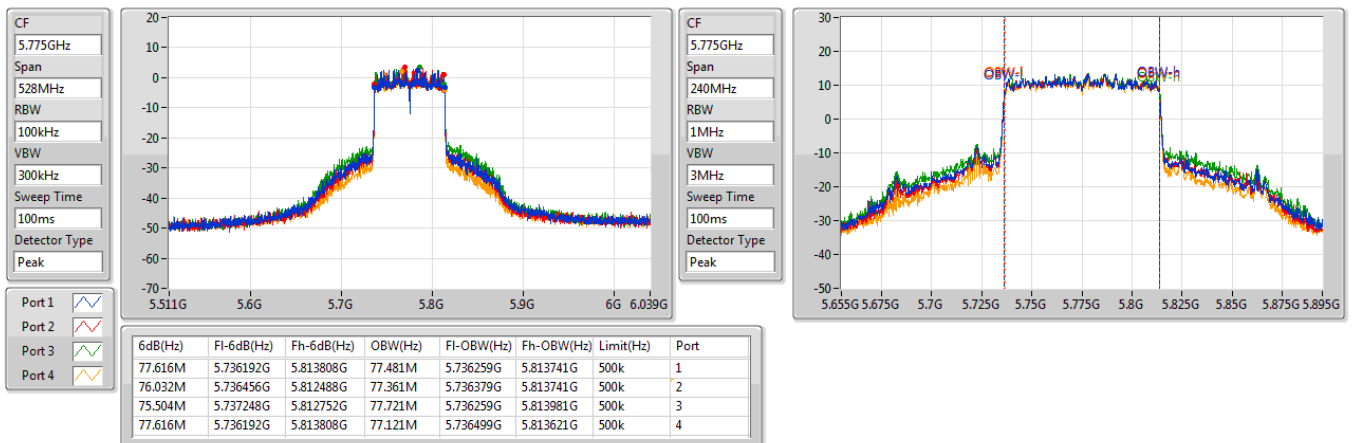
5690MHz Straddle 5.725-5.85GHz



5.725-5.85GHz_802.11ax HEW80_Nss1,(MCS0)_4TX

EBW

5775MHz

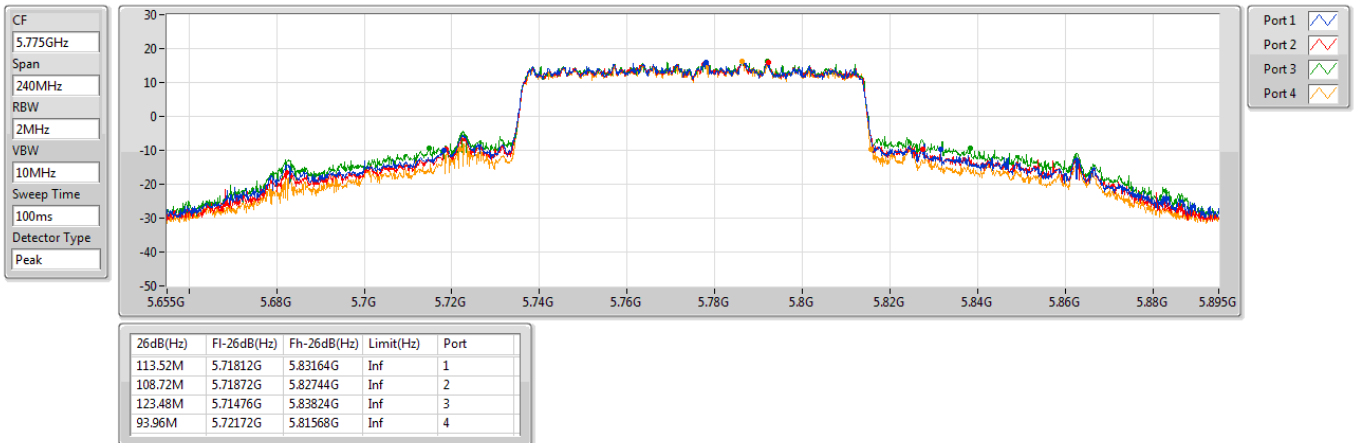




5.725-5.85GHz_802.11ax HEW80_Nss1,(MCS0)_4TX

EBW

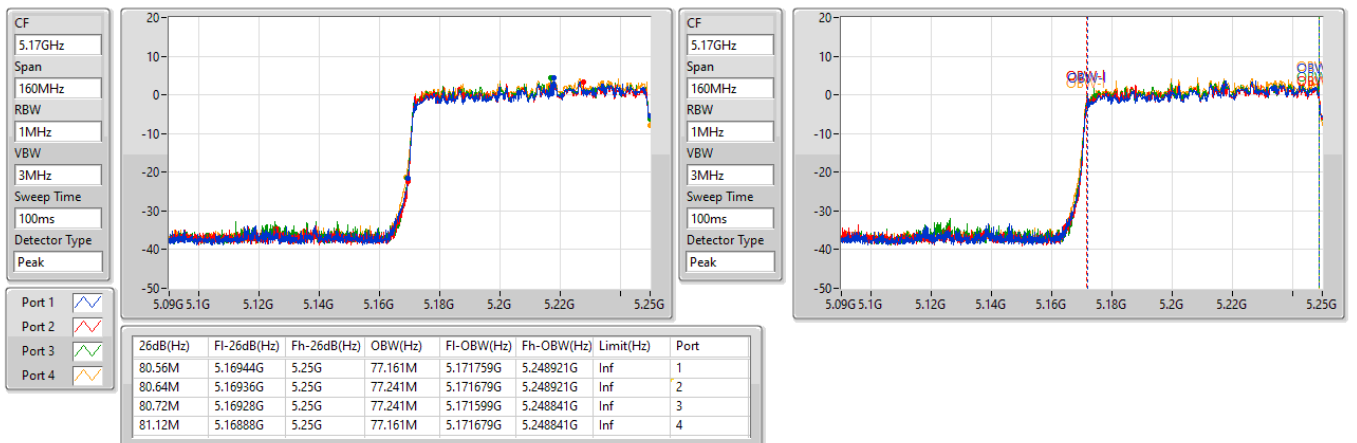
5775MHz



5.15-5.25GHz_802.11ax HEW160_Nss1,(MCS0)_4TX

EBW

5250MHz Straddle 5.15-5.25GHz

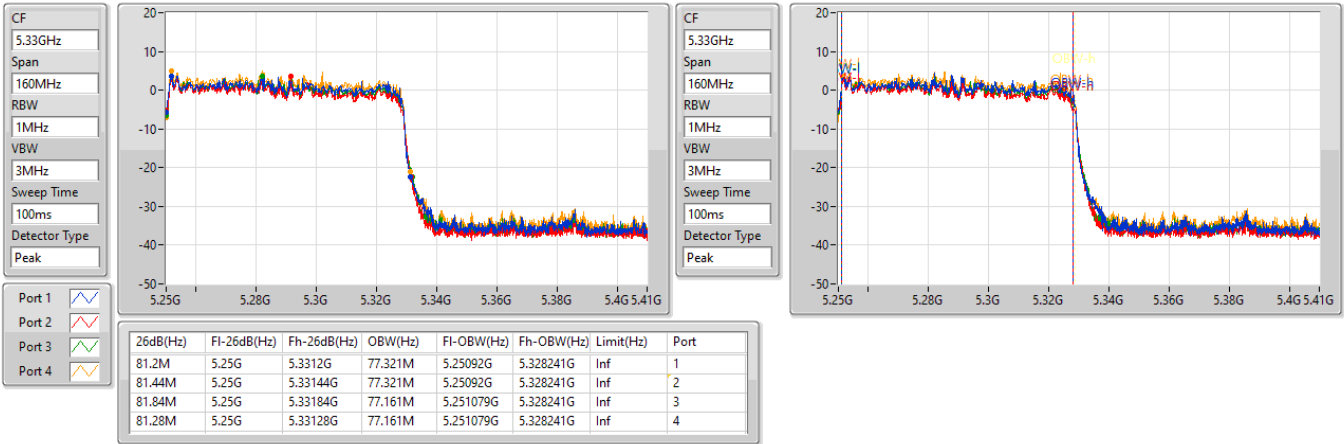




5.25-5.35GHz_802.11ax HEW160_Nss1,(MCS0)_4TX

EBW

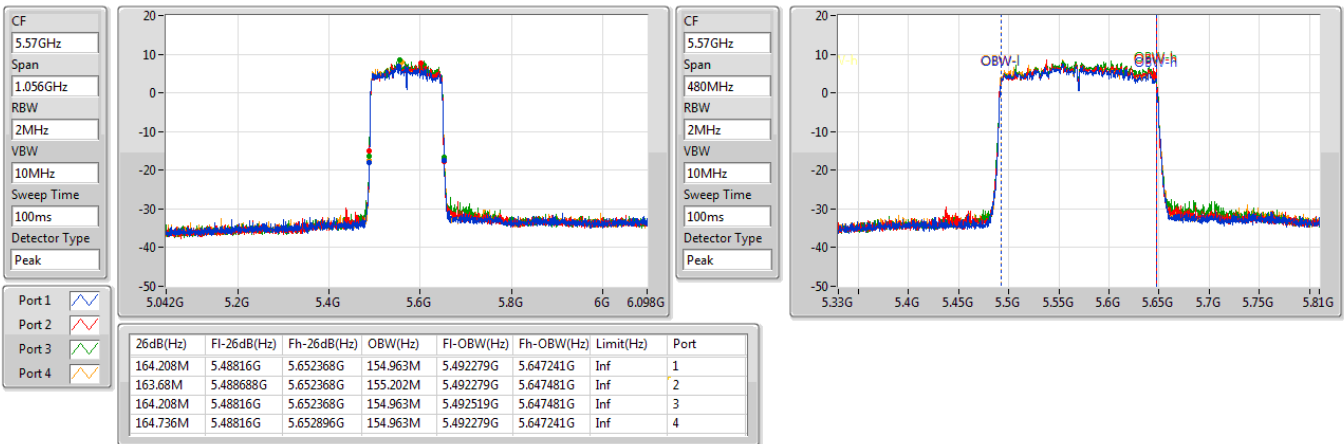
5250MHz Straddle 5.25-5.35GHz



5.47-5.725GHz_802.11ax HEW160_Nss1,(MCS0)_4TX

EBW

5570MHz



Beamforming mode
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-BF_Nss1,(MCS0)_4TX-OFDMA	35.97M	19.55M	19M6D1D	20.955M	19.09M
802.11ax HEW40-BF_Nss1,(MCS0)_4TX-OFDMA	81.4M	38.431M	38M4D1D	39.16M	37.131M
802.11ax HEW80-BF_Nss1,(MCS0)_4TX-OFDMA	81.62M	76.962M	77M0D1D	80.3M	76.762M
802.11ax HEW160-BF_Nss1,(MCS0)_4TX-OFDMA	80.8M	77.481M	77M5D1D	80.24M	76.922M
5.25-5.35GHz	-	-	-	-	-
802.11ax HEW20-BF_Nss1,(MCS0)_4TX-OFDMA	21.615M	19.065M	19M1D1D	21.23M	18.966M
802.11ax HEW40-BF_Nss1,(MCS0)_4TX-OFDMA	40.37M	37.581M	37M6D1D	39.38M	37.481M
802.11ax HEW80-BF_Nss1,(MCS0)_4TX-OFDMA	82.28M	76.862M	76M9D1D	80.52M	76.662M
802.11ax HEW160-BF_Nss1,(MCS0)_4TX-OFDMA	82M	77.561M	77M6D1D	81.2M	77.081M
5.47-5.725GHz	-	-	-	-	-
802.11ax HEW20-BF_Nss1,(MCS0)_4TX-OFDMA	21.615M	19.14M	19M1D1D	15.765M	14.513M
802.11ax HEW40-BF_Nss1,(MCS0)_4TX-OFDMA	39.93M	37.681M	37M7D1D	34.86M	33.583M
802.11ax HEW80-BF_Nss1,(MCS0)_4TX-OFDMA	81.62M	77.461M	77M5D1D	75.15M	73.013M
802.11ax HEW160-BF_Nss1,(MCS0)_4TX-OFDMA	165M	155.122M	155MD1D	161.92M	153.723M
5.725-5.85GHz	-	-	-	-	-
802.11ax HEW20-BF_Nss1,(MCS0)_4TX-OFDMA	19.085M	19.165M	19M2D1D	4.46M	4.578M
802.11ax HEW40-BF_Nss1,(MCS0)_4TX-OFDMA	37.73M	37.881M	37M9D1D	3.92M	4.078M
802.11ax HEW80-BF_Nss1,(MCS0)_4TX-OFDMA	77.22M	78.261M	78M3D1D	3.74M	4.218M

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 / Minimum 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-BF_Nss1,(MCS0)_4TX-OFDMA	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	Inf	20.955M	19.14M	21.175M	19.09M	21.505M	19.09M	21.34M	19.115M
5200MHz	Pass	Inf	30.558M	19.1M	27.126M	19.19M	35.97M	19.55M	31.086M	19.16M
5240MHz	Pass	Inf	30.294M	19.25M	27.324M	19.13M	35.31M	19.46M	29.238M	19.13M
5260MHz	Pass	Inf	21.285M	19.015M	21.285M	19.015M	21.505M	19.015M	21.34M	19.015M
5300MHz	Pass	Inf	21.45M	18.966M	21.285M	19.065M	21.56M	19.015M	21.615M	19.04M
5320MHz	Pass	Inf	21.395M	19.015M	21.285M	19.04M	21.23M	18.966M	21.45M	19.015M
5500MHz	Pass	Inf	21.285M	19.015M	21.34M	18.991M	21.45M	19.04M	21.395M	19.115M
5580MHz	Pass	Inf	21.45M	19.015M	21.395M	19.015M	21.615M	18.966M	21.395M	19.04M
5700MHz	Pass	Inf	21.45M	19.14M	21.285M	18.991M	21.34M	19.04M	21.285M	19.015M
5720MHz Straddle 5.47-5.725GHz	Pass	Inf	15.78M	14.513M	15.765M	14.528M	15.795M	14.513M	15.87M	14.558M
5720MHz Straddle 5.725-5.85GHz	Pass	500k	4.46M	4.578M	4.54M	4.598M	4.5M	4.618M	4.48M	4.598M
5745MHz	Pass	500k	19.085M	19.165M	19.03M	19.115M	18.7M	19.165M	19.03M	19.14M
5785MHz	Pass	500k	19.03M	19.115M	18.975M	19.115M	18.975M	19.14M	18.92M	19.065M
5825MHz	Pass	500k	18.92M	19.065M	18.975M	19.015M	19.03M	19.09M	18.81M	19.09M
802.11ax HEW40-BF_Nss1,(MCS0)_4TX-OFDMA	-	-	-	-	-	-	-	-	-	-
5190MHz	Pass	Inf	39.71M	37.131M	39.27M	37.331M	39.71M	37.631M	39.16M	37.131M
5230MHz	Pass	Inf	71.61M	37.981M	51.26M	37.881M	81.4M	38.431M	59.73M	37.881M
5270MHz	Pass	Inf	40.04M	37.581M	40.37M	37.581M	40.15M	37.481M	40.15M	37.581M
5310MHz	Pass	Inf	39.38M	37.531M	39.49M	37.531M	39.6M	37.481M	39.49M	37.531M
5510MHz	Pass	Inf	39.6M	37.531M	39.49M	37.581M	39.49M	37.531M	39.49M	37.531M
5590MHz	Pass	Inf	39.71M	37.531M	39.71M	37.631M	39.49M	37.431M	39.93M	37.681M
5670MHz	Pass	Inf	39.6M	37.581M	39.38M	37.531M	39.6M	37.581M	39.38M	37.531M
5710MHz Straddle 5.47-5.725GHz	Pass	Inf	35.245M	33.653M	34.93M	33.653M	35M	33.583M	34.86M	33.583M
5710MHz Straddle 5.725-5.85GHz	Pass	500k	3.96M	4.078M	3.92M	4.098M	3.98M	4.078M	4.04M	4.078M
5755MHz	Pass	500k	37.4M	37.681M	37.73M	37.681M	37.29M	37.881M	37.4M	37.681M
5795MHz	Pass	500k	37.51M	37.581M	37.73M	37.581M	37.07M	37.681M	37.73M	37.531M
802.11ax HEW80-BF_Nss1,(MCS0)_4TX-OFDMA	-	-	-	-	-	-	-	-	-	-
5210MHz	Pass	Inf	81.62M	76.962M	80.96M	76.762M	81.18M	76.962M	80.3M	76.962M
5290MHz	Pass	Inf	80.96M	76.662M	80.96M	76.762M	82.28M	76.662M	80.52M	76.862M
5530MHz	Pass	Inf	80.96M	76.562M	80.74M	76.962M	81.62M	77.061M	81.62M	76.862M
5610MHz	Pass	Inf	80.96M	77.461M	80.96M	76.862M	81.18M	77.061M	80.96M	76.862M
5690MHz Straddle 5.47-5.725GHz	Pass	Inf	75.15M	73.013M	75.3M	73.088M	75.225M	73.163M	75.225M	73.163M
5690MHz Straddle 5.725-5.85GHz	Pass	500k	3.74M	4.278M	4.04M	4.258M	4.08M	4.258M	4M	4.218M
5775MHz	Pass	500k	76.12M	77.361M	74.58M	77.261M	77.22M	78.261M	60.06M	77.561M
802.11ax HEW160-BF_Nss1,(MCS0)_4TX-OFDMA	-	-	-	-	-	-	-	-	-	-
5250MHz Straddle 5.15-5.25GHz	Pass	Inf	80.8M	77.401M	80.24M	76.922M	80.4M	77.481M	80.72M	77.161M
5250MHz Straddle 5.25-5.35GHz	Pass	Inf	82M	77.561M	81.6M	77.481M	81.92M	77.161M	81.2M	77.081M



Emission Bandwidth

Appendix A.2

Mode	Result	Limit	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)
5570MHz	Pass	Inf	161.92M	155.122M	165M	155.122M	163.68M	153.723M	162.8M	155.122M

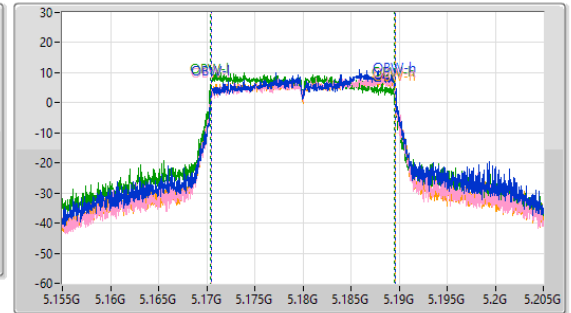
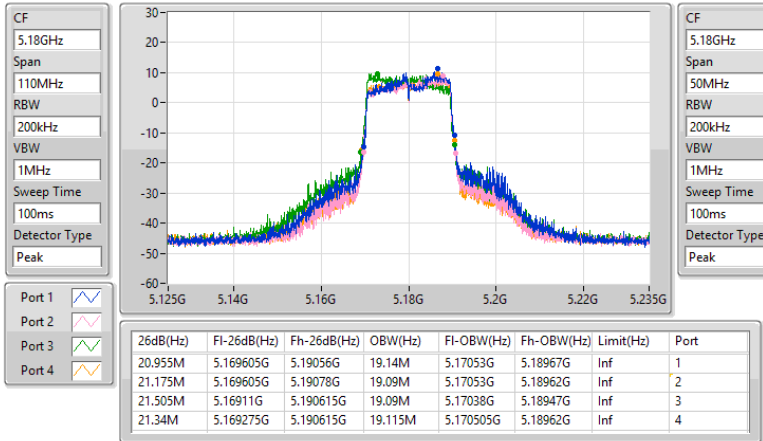
Port X-N dB = Port X 6dB down bandwidth for 5.725-5.85GHz band / 26dB down bandwidth for other band

Port X-OBW = Port X 99% occupied bandwidth

5.15-5.25GHz_802.11ax HEW20-BF_Nss1,(MCS0)_4TX

EBW

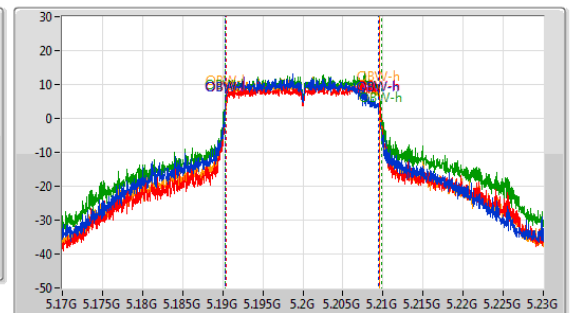
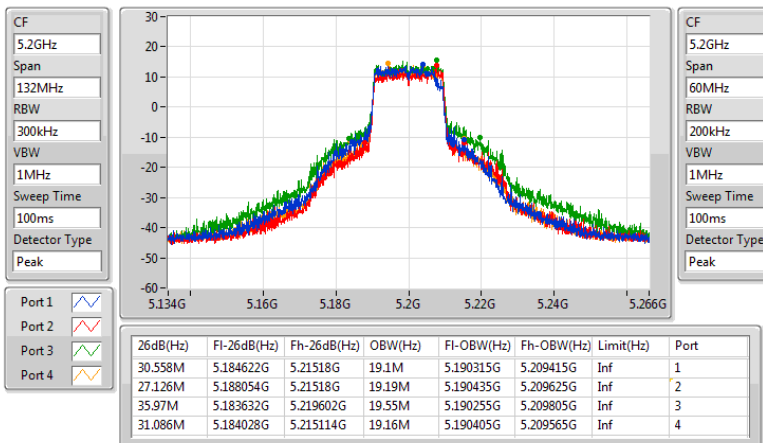
5180MHz



5.15-5.25GHz_802.11ax HEW20-BF_Nss1,(MCS0)_4TX

EBW

5200MHz

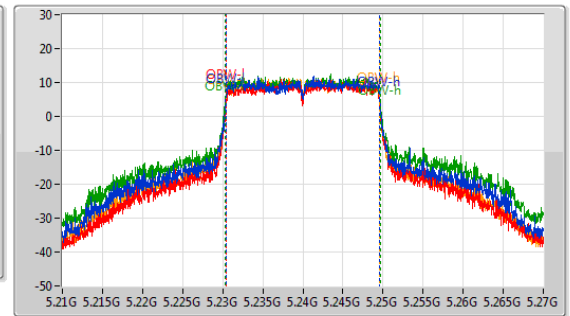
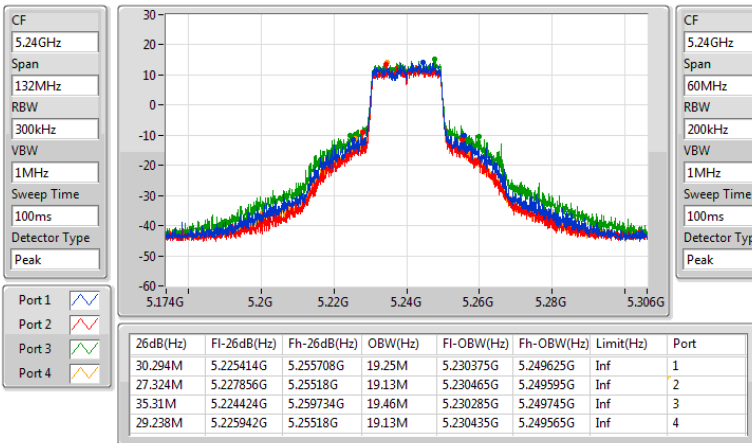




5.15-5.25GHz_802.11ax_HEW20-BF_Nss1,(MCS0)_4TX

EBW

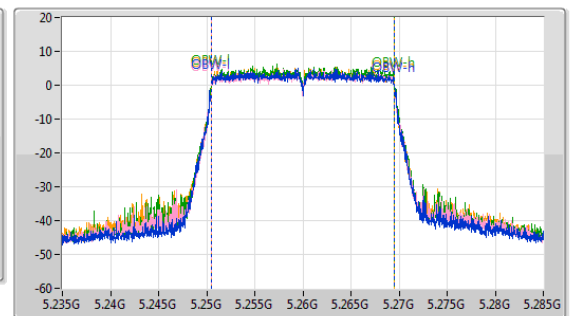
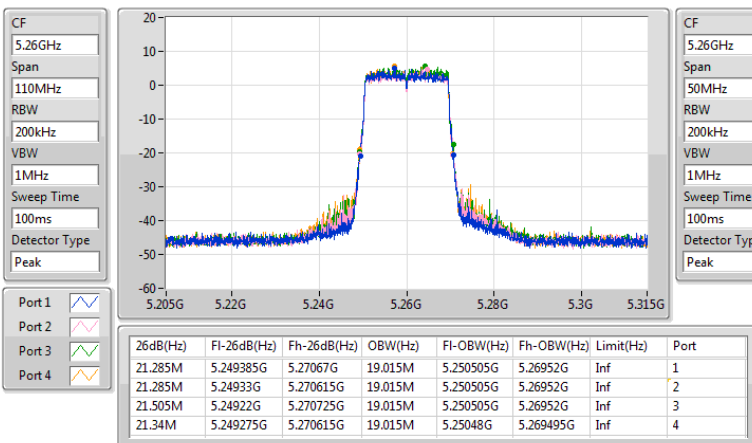
5240MHz



5.25-5.35GHz_802.11ax_HEW20-BF_Nss1,(MCS0)_4TX

EBW

5260MHz

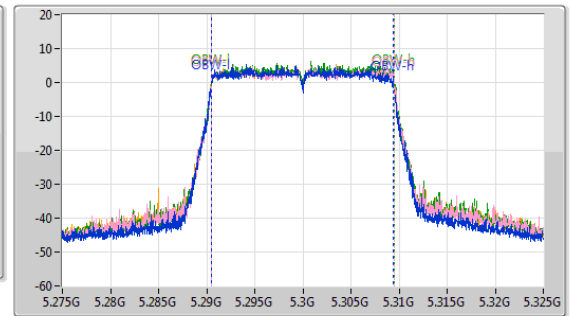
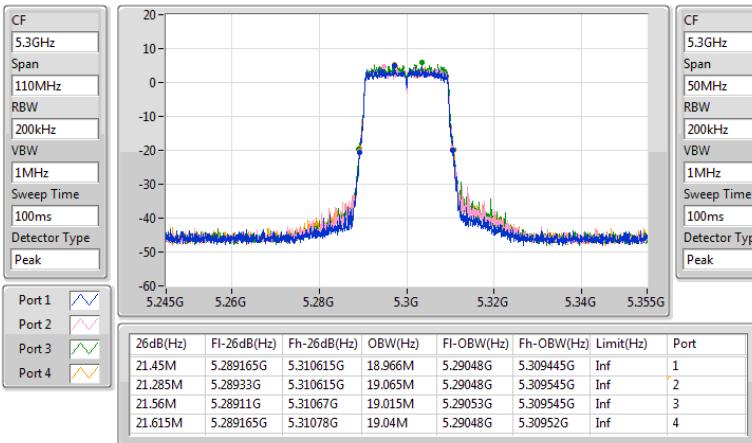




5.25-5.35GHz_802.11ax_HEW20-BF_Nss1,(MCS0)_4TX

EBW

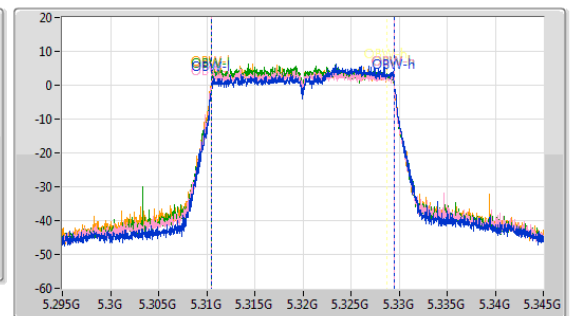
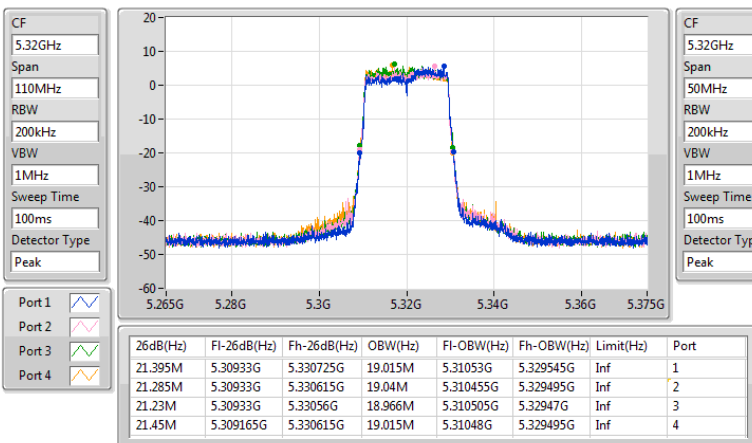
5300MHz



5.25-5.35GHz_802.11ax_HEW20-BF_Nss1,(MCS0)_4TX

EBW

5320MHz

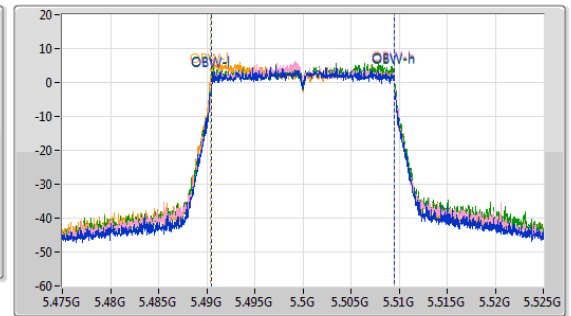
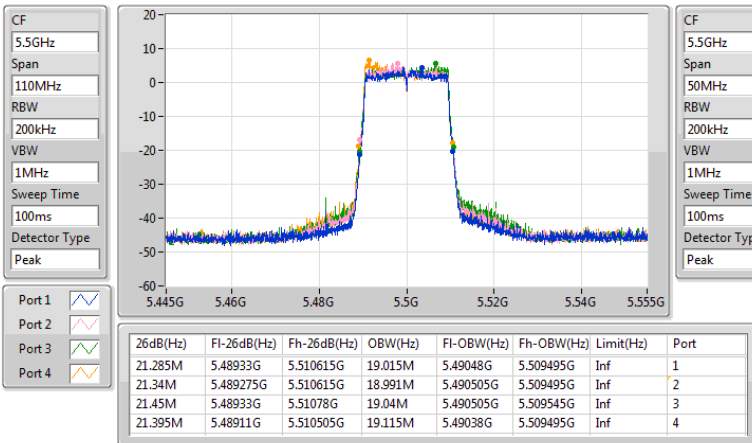




5.47-5.725GHz_802.11ax HEW20-BF_Nss1,(MCS0)_4TX

EBW

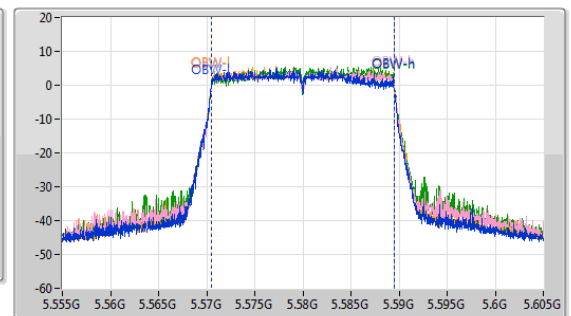
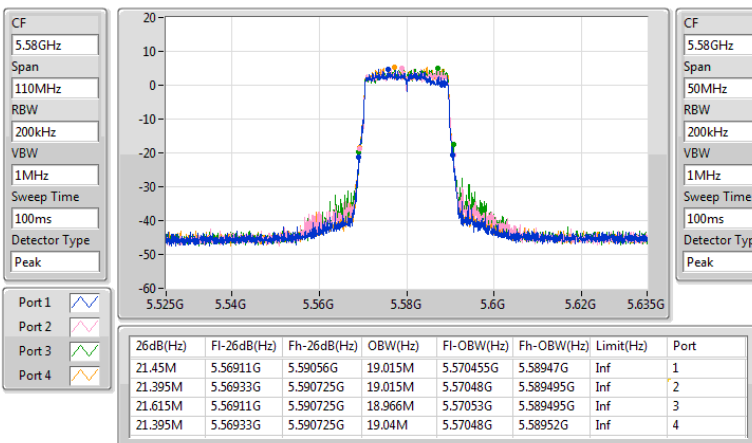
5500MHz



5.47-5.725GHz_802.11ax HEW20-BF_Nss1,(MCS0)_4TX

EBW

5580MHz

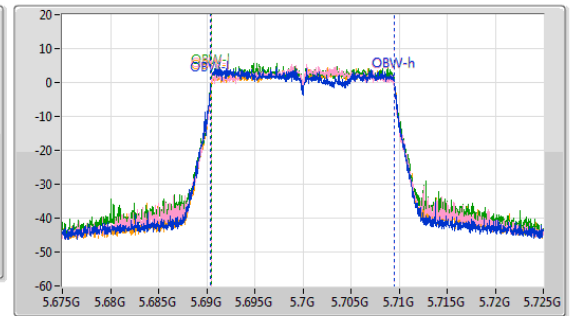
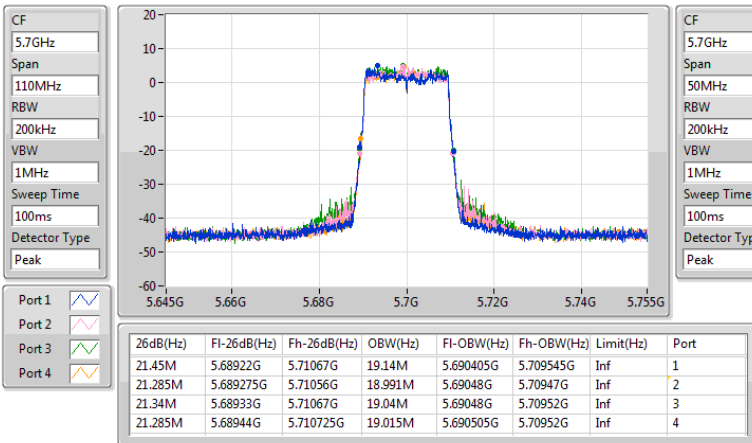




5.47-5.725GHz_802.11ax HEW20-BF_Nss1,(MCS0)_4TX

EBW

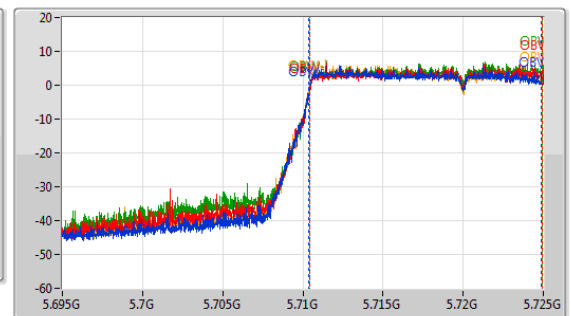
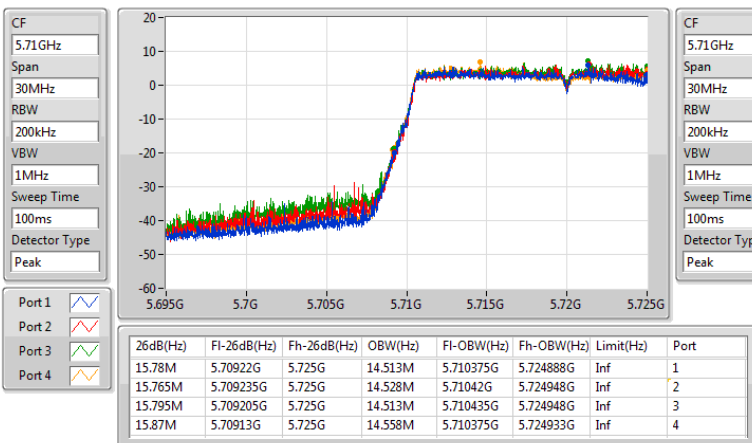
5700MHz



5.47-5.725GHz_802.11ax HEW20-BF_Nss1,(MCS0)_4TX

EBW

5720MHz Straddle 5.47-5.725GHz

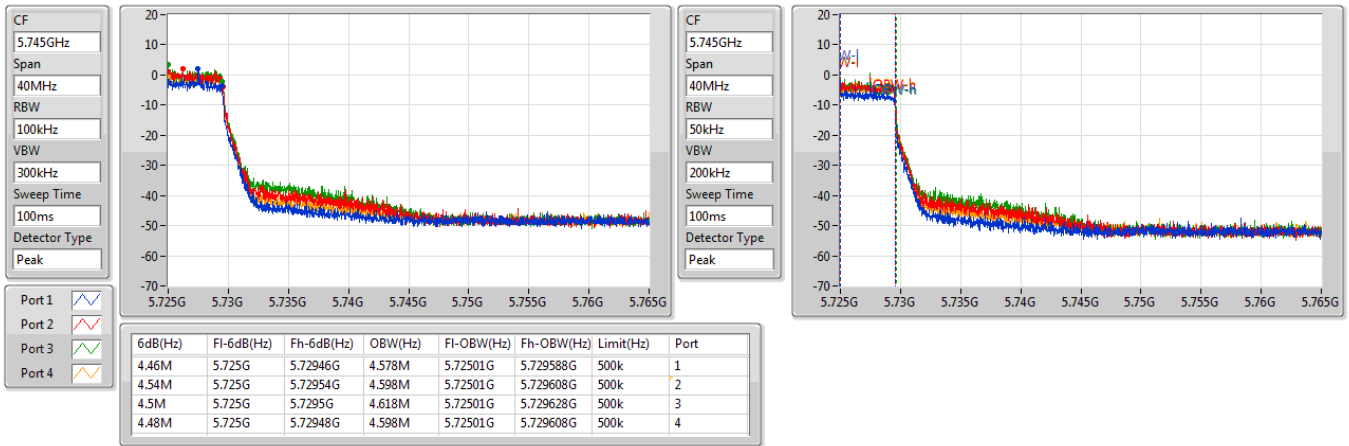




5.725-5.85GHz_802.11ax HEW20-BF_Nss1,(MCS0)_4TX

EBW

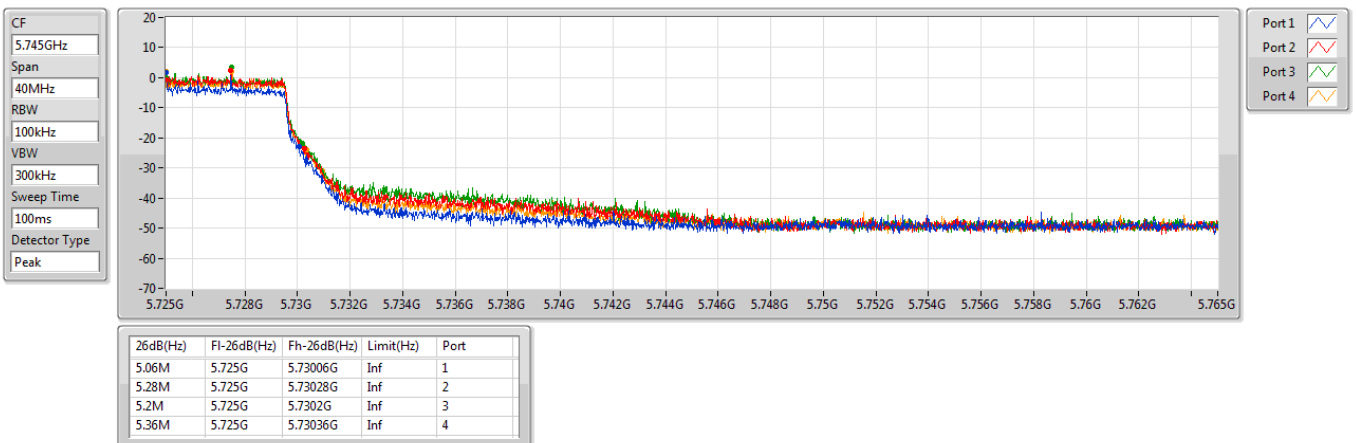
5720MHz Straddle 5.725-5.85GHz



5.725-5.85GHz_802.11ax HEW20-BF_Nss1,(MCS0)_4TX

EBW

5720MHz Straddle 5.725-5.85GHz

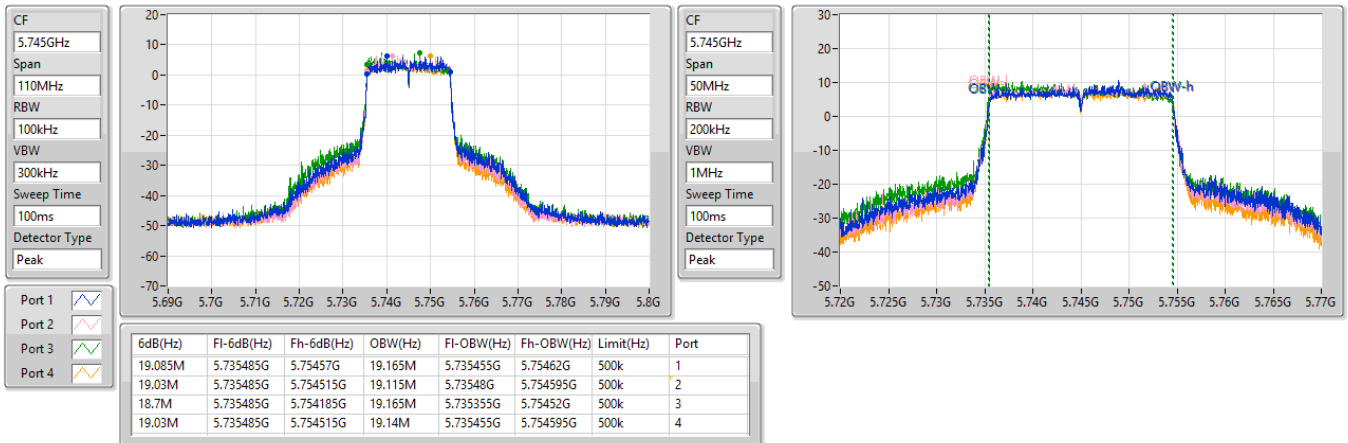




5.725-5.85GHz_802.11ax HEW20-BF_Nss1,(MCS0)_4TX

EBW

5745MHz



5.725-5.85GHz_802.11ax HEW20-BF_Nss1,(MCS0)_4TX

EBW

5745MHz

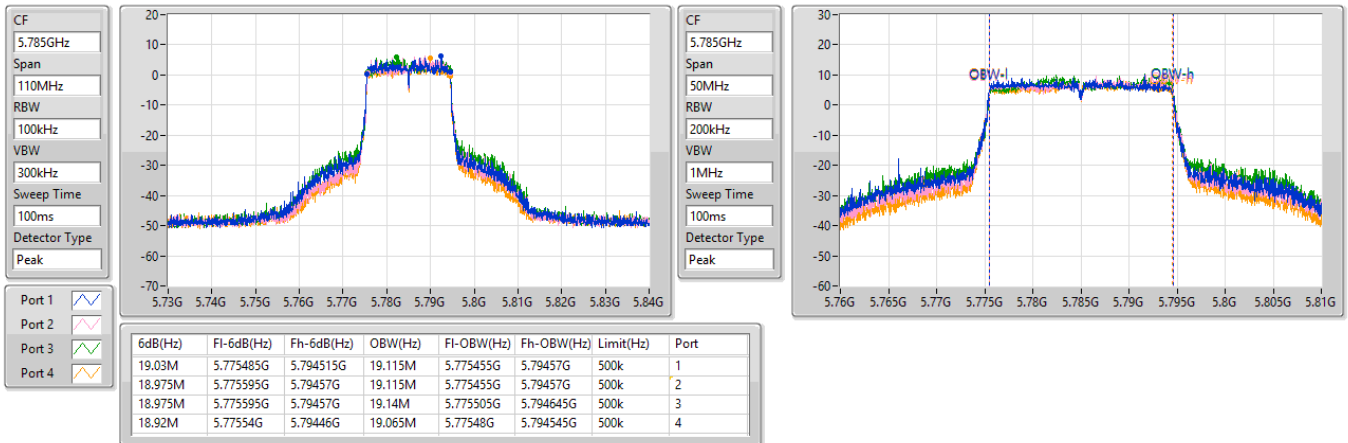




5.725-5.85GHz_802.11ax HEW20-BF_Nss1,(MCS0)_4TX

EBW

5785MHz



5.725-5.85GHz_802.11ax HEW20-BF_Nss1,(MCS0)_4TX

EBW

5785MHz

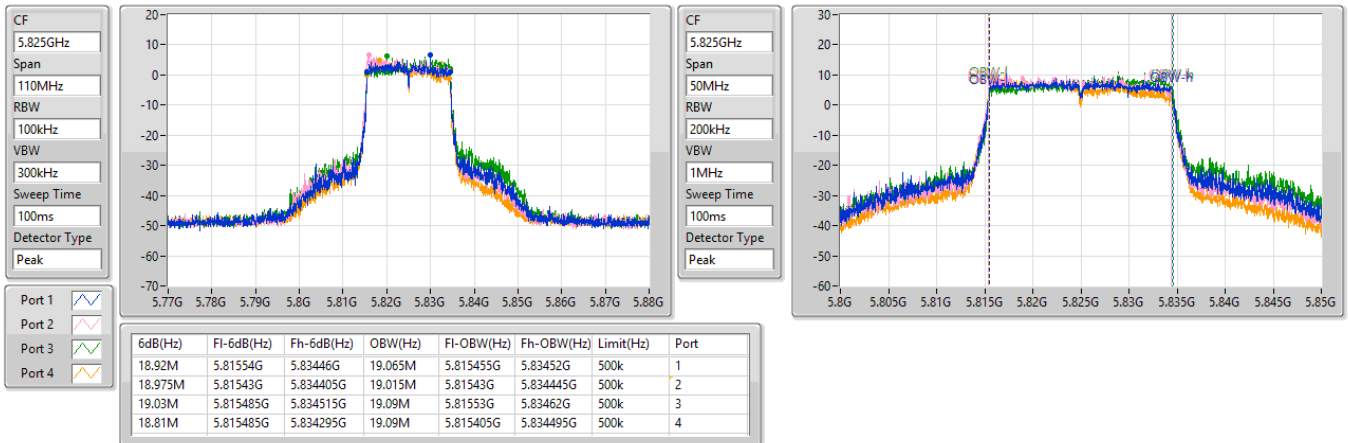




5.725-5.85GHz_802.11ax HEW20-BF_Nss1,(MCS0)_4TX

EBW

5825MHz



5.725-5.85GHz_802.11ax HEW20-BF_Nss1,(MCS0)_4TX

EBW

5825MHz

