Testing Laboratory
3787

RADIO TEST REPORT

FCC ID	:	RSE-OWA3111
Equipment Name	:	MESH Extender
Trade Name	:	Technicolor
Model Number	:	OWA3111, GFEX310
Product Code	:	MESH Extender
Applicant	:	Technicolor Delivery Technologies Belgium Prins Boudewijnlaan 47 Edegem B-2650 Belgium
Standard	:	47 CFR FCC Part 15 Subpart E § 15.407

The product was received on Jun. 08, 2020, and testing was started from Jun. 08, 2020 and completed on Jul. 14, 2020. 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 variant 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

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Appendix A. Test Photos

Photographs of EUT v03

History of this test report

Report No.	Version	Description	Issued Date
FR071024-01	01	Initial issue of report	Sep. 28, 2020
FR071024-01	02	1. Adding one equipment name “JioExtender JMB43”. 2. Adding one model number “JMB43”. 3. Adding one product code “JioExtender JMB43”.	Sep. 29, 2020
FR071024-01	03	1. Rmoving one equipment name “JioExtender JMB43”. 2. Rmoving one model number “JMB43”. 3. Rmoving one product code “JioExtender JMB43”.	Feb. 26, 2021
FR071024-01	04	Revising the information on section 1.11.	May 25, 2021

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Measured	Limit
2.1	15.407(a)	26dB Spectrum Bandwidth and 99% Occupied Bandwidth	PASS	99% Occupied Bandwidth [MHz]: **For CDD Mode:** 5250-5350MHz 11a: 16.762MHz 11ax(20M): 19.130MHz 11ax(40M): 37.661MHz 11ax(80M): 77.001MHz 5470-5725MHz 11a: 16.822MHz 11ax(20M): 19.100MHz 11ax(40M): 37.661MHz 11ax(80M): 76.882MHz 11ax(160M): 154.723MHz **For TXBF Mode:** 5250-5350MHz 11ax(20M): 19.100MHz 11ax(40M): 37.661MHz 11ax(80M): 77.001MHz 5470-5725MHz 11ax(20M): 19.130MHz 11ax(40M): 37.661MHz 11ax(80M): 77.001MHz 11ax(160M): 155.442MHz 26dB Bandwidth [MHz]: **For CDD Mode:** 5250-5350MHz 11a: 21.840MHz 11ax(20M): 23.280MHz 11ax(40M): 40.260MHz 11ax(80M): 81.840MHz 5470-5725MHz 11a: 21.390MHz 11ax(20M): 21.570MHz 11ax(40M): 40.260MHz 11ax(80M): 81.840MHz 11ax(160M): 164.400MHz **For TXBF Mode:** 5250-5350MHz 11ax(20M): 23.250MHz 11ax(40M): 40.260MHz 11ax(80M): 81.840MHz 5470-5725MHz 11ax(20M): 21.630MHz 11ax(40M): 40.320MHz 11ax(80M): 81.840MHz 11ax(160M): 165.360MHz	-

2.4.1	15.407(e)	6dB Bandwidth and 99% Occupied Bandwidth for U-NII-3	PASS	99% Occupied Bandwidth [MHz]: **For CDD Mode:** 11a: 4.273MHz 11ax(20M): 4.723MHz 11ax(40M): 4.078MHz 11ax(80M): 4.213MHz **For TXBF Mode:** 11ax(20M): 4.723MHz 11ax(40M): 4.078MHz 11ax(80M): 4.123MHz 6dB Bandwidth [MHz]: **For CDD Mode:** 11a: 3.150MHz 11ax(20M): 4.515MHz 11ax(40M): 3.900MHz 11ax(80M): 3.825MHz **For TXBF Mode:** 11ax(20M): 4.485MHz 11ax(40M): 3.885MHz 11ax(80M): 3.840MHz	≥500kHz
2.2 2.4.2	15.407(a) (1/2/3)	Maximum Conducted Output Power	PASS	Power [dBm]: **For CDD Mode:** 5250-5350MHz 11a: 23.68 dBm 11ax(20M): 23.87 dBm 11ax(40M): 23.93 dBm 11ax(80M): 22.26 dBm 5470-5725MHz 11a: 23.49 dBm 11ax(20M): 23.96 dBm 11ax(40M): 23.92 dBm 11ax(80M): 23.95 dBm 11ax(160M): 23.78 dBm 5725-5850MHz 11a: 16.31 dBm 11ax(20M): 17.38 dBm 11ax(40M): 14.24 dBm 11ax(80M): 10.81 dBm **For TXBF Mode:** 5250-5350MHz Nss 1 MCS0 1S2T 11ax(20M): 23.85 dBm 11ax(40M): 23.94 dBm 11ax(80M): 22.62 dBm 5470-5725MHz Nss 1 MCS0 1S4T 11ax(20M): 23.21 dBm 11ax(40M): 23.27 dBm 11ax(80M): 23.15 dBm 11ax(160M): 23.21 dBm	Power [dBm] 5250-5350MHz:23.98 5470-5725MHz:23.98 5725-5850MHz:30.00

				Nss 2 MCS0 2S4T 11ax(20M): 23.96 dBm 11ax(40M): 23.93 dBm 11ax(80M): 23.93 dBm 11ax(160M): 22.99 dBm Nss 3 MCS0 3S4T 11ax(20M): 23.93 dBm 11ax(40M): 23.94 dBm 11ax(80M): 23.94 dBm 11ax(160M): 22.43 dBm 5725-5850MHz Nss 1 MCS0 1S4T 11ax(20M): 16.94 dBm 11ax(40M): 13.36 dBm 11ax(80M): 10.00 dBm Nss 2 MCS0 2S4T 11ax(20M): 17.73 dBm 11ax(40M): 14.07 dBm 11ax(80M): 10.68 dBm Nss 3 MCS0 3S4T 11ax(20M): 17.59 dBm 11ax(40M): 14.13 dBm 11ax(80M): 10.85 dBm	
2.3 2.4.3	15.407(a) (1/2/3)	Power Spectral Density	PASS	**For CDD Mode:** 5250-5350MHz [dBm/MHz]: 11a: 10.43 dBm/MHz 11ax(20M): 10.33 dBm/MHz 11ax(40M): 7.62 dBm/MHz 11ax(80M): 3.35 dBm/MHz 5470-5725MHz [dBm/MHz]: 11a: 10.31 dBm/MHz 11ax(20M): 10.30 dBm/MHz 11ax(40M): 7.79 dBm/MHz 11ax(80M): 5.04 dBm/MHz 11ax(160M): 2.12 dBm/MHz 5725-5850MHz [dBm/500kHz]: 11a: 8.64 dBm/500kHz 11ax(20M): 8.32 dBm/500kHz 11ax(40M): 5.88 dBm/500kHz 11ax(80M): 2.66 dBm/500kHz **For TXBF Mode:** 5250-5350MHz [dBm/MHz]: Nss 1 MCS0 1S2T 11ax(20M): 10.31 dBm/MHz 11ax(40M): 7.59 dBm/MHz 11ax(80M): 3.68 dBm/MHz 5470-5725MHz [dBm/MHz]: Nss 1 MCS0 1S4T 11ax(20M): 9.87 dBm/MHz 11ax(40M): 6.93 dBm/MHz 11ax(80M): 4.22 dBm/MHz 11ax(160M): 1.64 dBm/MHz	5250-5350MHz: 11 [dBm/MHz] 5470-5725MHz: 11 [dBm/MHz] 5725-5850MHz: 30 [dBm/500kHz]

				Nss 2 MCS0 2S4T 11ax(20M): 10.55 dBm/MHz 11ax(40M): 7.86 dBm/MHz 11ax(80M): 5.18 dBm/MHz 11ax(160M): 2.06 dBm/MHz Nss 3 MCS0 3S4T 11ax(20M): 10.81 dBm/MHz 11ax(40M): 8.10 dBm/MHz 11ax(80M): 5.50 dBm/MHz 11ax(160M): 1.65 dBm/MHz 5725-5850MHz [dBm/500kHz]: Nss 1 MCS0 1S4T 11ax(20M): 7.88 dBm/500kHz 11ax(40M): 4.91 dBm/500kHz 11ax(80M): 1.84 dBm/500kHz Nss 2 MCS0 2S4T 11ax(20M): 8.84 dBm/500kHz 11ax(40M): 5.90 dBm/500kHz 11ax(80M): 2.64 dBm/500kHz Nss 3 MCS0 3S4T 11ax(20M): 8.75 dBm/500kHz 11ax(40M): 6.05 dBm/500kHz 11ax(80M): 2.92 dBm/500kHz	
2.5	15.407(b) (1/2/3/4/6)	Radiated Emissions	PASS	15.7676GHz 53.97dBuV/m (Margin -0.03dB)	-
		Band Edge Emissions		5.468GHz 68.18dBuV/m (Margin -0.02dB)	-
2.6	15.407(g)	Frequency Stability	PASS	14.5361 ppm	Signal shall remain in-band
2.7	15.203	Antenna Requirements	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:
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: Cindy Peng

1. General Information

1.1. Product Details

Items	Description			
Equipment Name	MESH Extender			
Trade Name	Technicolor			
Model Number	OWA3111, GFEX310			
Product Code	MESH Extender			
FCC ID	RSE-OWA3111			
Power Type	From power adapter			
Antenna Type	Please see Section 1.8			
EUT Stage	■	Product Unit	□	Pre-Sample
Operating Band, Conducted Output Power	**U-NII-2A** 5250~5350MHz		■	IEEE 802.11a: 23.68 dBm
			■	IEEE 802.11ax (20MHz): 23.87 dBm
			■	IEEE 802.11ax (40MHz): 23.94 dBm
			■	IEEE 802.11ax (80MHz): 22.62 dBm
	U-NII-2C 5470~5725 MHz		■	IEEE 802.11a: 23.49 dBm
			■	IEEE 802.11ax (20MHz): 23.96 dBm
			■	IEEE 802.11ax (40MHz): 23.94 dBm
			■	IEEE 802.11ax (80MHz): 23.95 dBm
			■	IEEE 802.11ax (160MHz): 23.78 dBm
Product Type	**U-NII-2A** 5250~5350MHz		For IEEE 802.11a: WLAN (2TX, 2RX) For IEEE 802.11n: WLAN (2TX, 2RX) For IEEE 802.11ac: WLAN (2TX, 2RX) For IEEE 802.11ax: WLAN (2TX, 2RX)	
	U-NII-2C 5470~5725 MHz		For IEEE 802.11a: WLAN (4TX, 4RX) For IEEE 802.11n: WLAN (4TX, 4RX) For IEEE 802.11ac: WLAN (4TX, 4RX) For IEEE 802.11ax: WLAN (4TX, 4RX)	
Nominal Channel Bandwidth	20MHz/40MHz/80MHz/160MHz			

Modulation	802.11a: OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11n: OFDM (BPSK / QPSK / 16QAM / 64QAM)See the below table. 802.11ac: OFDM (BPSK / QPSK / 16QAM / 64QAM/ 256QAM) See the below table 802.11ax: OFDMA(BPSK / QPSK / 16QAM / 64QAM/ 256QAM/1024QAM) See the below table	
Data Rate (Mbps)	**U-NII-2A** 5250~5350MHz	11a mode: OFDM (6/9/12/18/24/36/48/54) 11n(20MHz) mode: MCS0~MCS15 11n(40MHz) mode: MCS0~MCS15 11ac(20MHz) mode: MCS0~MCS9 for Nss1~Nss2 See the below table 11ac(40MHz) mode: MCS0~MCS9 for Nss1~Nss2 See the below table 11ac(80MHz) mode: MCS0~MCS9 for Nss1~Nss2 See the below table 11ax(20MHz) mode: MCS0~MCS11 for Nss1~Nss2 See the below table 11ax(40MHz) mode: MCS0~MCS11 for Nss1~Nss2 See the below table 11ax(80MHz) mode: MCS0~MCS11 for Nss1~Nss2 See the below table

	U-NII-2C 5470~5725 MHz			11a mode: OFDM (6/9/12/18/24/36/48/54) 11n(20MHz) mode: MCS0~MCS31 11n(40MHz) mode: MCS0~MCS31 11ac(20MHz) mode: MCS0~MCS9 for Nss1~Nss4 See the below table 11ac(40MHz) mode: MCS0~MCS9 for Nss1~Nss4 See the below table 11ac(80MHz) mode: MCS0~MCS9 for Nss1~Nss4 See the below table 11ac(160MHz) mode: MCS0~MCS9 for Nss1~Nss4 See the below table 11ax(20MHz) mode: MCS0~MCS11 for Nss1~Nss4 See the below table 11ax(40MHz) mode: MCS0~MCS11 for Nss1~Nss4 See the below table 11ax(80MHz) mode: MCS0~MCS11 for Nss1~Nss4 See the below table 11ax(160MHz) mode: MCS0~MCS11 for Nss1~Nss4 See the below table
TPC Function	■	With TPC	□	Without TPC
Beam forming Function	■	With Beam forming	□	Without Beam forming
I/O Ports	LAN Port x 1 WAN Port x 1 USB Port x 1			
Hardware Version	BETA 2			
Software Version	19.4.0292-4849007-20200616180558-f2534517ca3ad3f315c2e982b801eb89d87dc5a6			

802.11n Data Rate spec

Standard	INDEX	Data Rate (Mbps)		Standard	INDEX	Data Rate (Mbps)	
		LGI (800ns)	SGI (400ns)			LGI (800ns)	SGI (400ns)
11n 20MHz Nss=1	MCS0	6.5	7.2	11n 40MHz Nss=1	MCS0	13.5	15
	MCS1	13	14.4		MCS1	27	30
	MCS2	19.5	21.7		MCS2	40.5	45
	MCS3	26	28.9		MCS3	54	60
	MCS4	39	43.3		MCS4	81	90
	MCS5	52	57.8		MCS5	108	120
	MCS6	58.5	65		MCS6	121.5	135
	MCS7	65	72.2		MCS7	135	150
11n 20MHz Nss=2	MCS8	13	14.4	11n 40MHz Nss=2	MCS8	27	30
	MCS9	26	28.9		MCS9	54	60
	MCS10	39	43.3		MCS10	81	90
	MCS11	52	57.8		MCS11	108	120
	MCS12	78	86.7		MCS12	162	180
	MCS13	104	115.6		MCS13	216	240
	MCS14	117	130		MCS14	243	270
	MCS15	130	144.4		MCS15	270	300
11n 20MHz Nss=3	MCS16	19.5	21.7	11n 40MHz Nss=3	MCS16	40.5	45
	MCS17	39	43.3		MCS17	81	90
	MCS18	58.5	65		MCS18	121.5	135
	MCS19	78	86.7		MCS19	162	180
	MCS20	117	130		MCS20	243	270
	MCS21	156	173.3		MCS21	324	360
	MCS22	175.5	195		MCS22	364.5	405
	MCS23	195	216.7		MCS23	405	450
11n 20MHz Nss=4	MCS24	26	28.9	11n 40MHz Nss=4	MCS24	54	60
	MCS25	52	57.8		MCS25	108	120
	MCS26	78	86.7		MCS26	162	180
	MCS27	104	115.6		MCS27	216	240
	MCS28	156	173.3		MCS28	324	360
	MCS29	208	231.1		MCS29	432	480
	MCS30	234	260		MCS30	486	540
	MCS31	260	288.9		MCS31	540	600

802.11ac Data Rate spec

Standard	INDEX	Data Rate (Mbps)		Standard	INDEX	Data Rate (Mbps)		Standard	INDEX	Data Rate (Mbps)	
		LGI (800ns)	SGI (400ns)			LGI (800ns)	SGI (400ns)			LGI (800ns)	SGI (400ns)
11ac 20MHz Nss=1	MCS0	6.5	7.2	11ac 40MHz Nss=1	MCS0	13.5	15.0	11ac 80MHz Nss=1	MCS0	29.3	32.5
	MCS1	13.0	14.4		MCS1	27	30.0		MCS1	58.5	65.0
	MCS2	19.5	21.7		MCS2	40.5	45.0		MCS2	87.8	97.5
	MCS3	26	28.9		MCS3	54	60.0		MCS3	117.0	130.0
	MCS4	39	43.3		MCS4	81	90.0		MCS4	175.5	195.0
	MCS5	52	57.8		MCS5	108	120.0		MCS5	234.0	260.0
	MCS6	58.5	65		MCS6	121.5	135.0		MCS6	263.3	292.5
	MCS7	65	72.2		MCS7	135.0	150.0		MCS7	292.5	325.0
	MCS8	78	86.7		MCS8	162.0	180.0		MCS8	351.0	390.0
	MCS9	Note	Note		MCS9	180.0	200.0		MCS9	390.0	433.3
NOTE: MCS 9 is invalid due to mod(NCBPS/NES, DR) not being equal to 0.											

Standard	INDEX	Data Rate (Mbps)		Standard	INDEX	Data Rate (Mbps)		Standard	INDEX	Data Rate (Mbps)	
		LGI (800ns)	SGI (400ns)			LGI (800ns)	SGI (400ns)			LGI (800ns)	SGI (400ns)
11ac 20MHz Nss=2	MCS0	13.0	14.4	11ac 40MHz Nss=2	MCS0	27.0	30.0	11ac 80MHz Nss=2	MCS0	58.5	65.0
	MCS1	26.0	28.9		MCS1	54.0	60.0		MCS1	117.0	130.0
	MCS2	39.0	43.3		MCS2	81.0	90.0		MCS2	175.5	195.0
	MCS3	52.0	57.8		MCS3	108.-0	120.0		MCS3	234.0	260.0
	MCS4	78.0	86.7		MCS4	162.0	180.0		MCS4	351.0	390.0
	MCS5	104.0	115.6		MCS5	216.0	240.0		MCS5	468.0	520.0
	MCS6	117.0	130.0		MCS6	243.0	270.0		MCS6	526.5	585.0
	MCS7	130.0	144.4		MCS7	270.0	300.0		MCS7	585.0	650.0
	MCS8	156.0	173.3		MCS8	324.0	360.0		MCS8	702.0	780.0
	MCS9	13.0	14.4		MCS9	360.0	400.0		MCS9	780.0	866.7

Standard	INDEX	Data Rate (Mbps)		Standard	INDEX	Data Rate (Mbps)		Standard	INDEX	Data Rate (Mbps)	
		LGI (800ns)	SGI (400ns)			LGI (800ns)	SGI (400ns)			LGI (800ns)	SGI (400ns)
11ac 20MHz Nss=3	MCS0	19.5	21.7	11ac 40MHz Nss=3	MCS0	40.5	45.0	11ac 80MHz Nss=3	MCS0	87.8	97.5
	MCS1	39.0	43.3		MCS1	81.0	90.0		MCS1	175.5	195.0
	MCS2	58.5	65.0		MCS2	121.5	135.0		MCS2	263.3	292.5
	MCS3	78.0	86.7		MCS3	162.0	180.0		MCS3	351.0	190.0
	MCS4	117.0	130		MCS4	243.0	270.0		MCS4	526.5	585.0
	MCS5	156.0	173.3		MCS5	324.0	360.0		MCS5	702.0	780.0
	MCS6	175.5	195.0		MCS6	364.5	405.0		MCS6	Note	Note
	MCS7	195.0	216.7		MCS7	405.0	450.0		MCS7	877.5	975.0
	MCS8	234.0	260.0		MCS8	486.0	540.0		MCS8	1053.0	1170.0
	MCS9	260.0	228.9		MCS9	540.0	600.0		MCS9	1170.0	1300.0
NOTE: MCS 6 is invalid due to mod(NCBPS/NES, DR) not being equal to 0.											

Standard	INDEX	Data Rate (Mbps)		Standard	INDEX	Data Rate (Mbps)		Standard	INDEX	Data Rate (Mbps)	
		LGI (800ns)	SGI (400ns)			LGI (800ns)	SGI (400ns)			LGI (800ns)	SGI (400ns)
11ac 20MHz Nss=4	MCS0	26.0	28.9	11ac 40MHz Nss=4	MCS0	54.0	60.0	11ac 80MHz Nss=4	MCS0	117.0	130.0
	MCS1	52.0	57.8		MCS1	108.0	120.0		MCS1	234.0	260.0
	MCS2	78.0	86.7		MCS2	162.0	180.0		MCS2	351.0	390.0
	MCS3	104.0	115.6		MCS3	216.0	240.0		MCS3	468.0	520.0
	MCS4	156.0	173.3		MCS4	324.0	360.0		MCS4	702.0	780.0
	MCS5	208.0	231.1		MCS5	432.0	480.0		MCS5	936.0	1040.0
	MCS6	234.0	260.0		MCS6	486.0	540.0		MCS6	1053.0	1170.0
	MCS7	260.0	288.9		MCS7	540.0	600.0		MCS7	1170.0	1300.0
	MCS8	312.0	346.7		MCS8	648.0	720.0		MCS8	1404.0	1560.0
	MCS9	Note	Note		MCS9	720.0	800.0		MCS9	1560.0	1733.3
NOTE: MCS 9 is invalid due to mod(NCBPS/NES, DR) not being equal to 0.											

Standard	Index	Data Rate (Mbps)		Standard	Index	Data Rate (Mbps)	
		LGI (800ns)	SGI (400ns)			LGI (800ns)	SGI (400ns)
11ac 160MHz NSS = 1	MCS0	58.5	65	11ac 160MHz NSS = 2	MCS0	117	130
	MCS1	117	130		MCS1	234	260
	MCS2	175.5	195		MCS2	351	390
	MCS3	234	260		MCS3	468	520
	MCS4	351	390		MCS4	702	780
	MCS5	468	520		MCS5	936	1040
	MCS6	526.5	585		MCS6	1053	1170
	MCS7	585	650		MCS7	1170	1300
	MCS8	702	780		MCS8	1404	1560
	MCS9	780	866.7		MCS9	1560	1733.3
Standard	Index	Data Rate (Mbps)		Standard	Index	Data Rate (Mbps)	
		LGI (800ns)	SGI (400ns)			LGI (800ns)	SGI (400ns)
11ac 160MHz NSS = 3	MCS0	175.5	195	11ac 160MHz NSS = 4	MCS0	234	260
	MCS1	351	390		MCS1	468	520
	MCS2	526.5	585		MCS2	702	780
	MCS3	702	780		MCS3	936	1040
	MCS4	1053	1170		MCS4	1404	1560
	MCS5	1404	1560		MCS5	1872	2080
	MCS6	1579.5	1755		MCS6	2106	2340
	MCS7	1755	1950		MCS7	2340	2600
	MCS8	2106	2340		MCS8	2808	3120
	MCS9	N/A	N/A		MCS9	3120	3466.7
Note: MCS 9 is invalid due to mod (NCBPS/NES, DR) not being equal to 0.							

802.11ax Data Rate spec

Standard	Index	Data Rate (Mbps)			Standard	Index	Data Rate (Mbps)			Standard	Index	Data Rate (Mbps)		
		SGI (0.8us)	MGI (1.6us)	LGI (3.2us)			SGI (0.8us)	MGI (1.6us)	LGI (3.2us)			SGI (0.8us)	MGI (1.6us)	LGI (3.2us)
11ax 20MH NSS=1	MCS0	8.6	8.1	7.3	11ax 40MHz NSS=1	MCS0	17.2	16.3	14.6	11ax 80MHz NSS=1	MCS0	36	34	30.6
	MCS1	17.2	16.3	14.6		MCS1	34.4	32.5	29.3		MCS1	72.1	68.1	61.3
	MCS2	25.8	24.4	21.9		MCS2	51.6	48.8	43.9		MCS2	108.1	102.1	91.9
	MCS3	34.4	32.5	29.3		MCS3	68.8	65	58.5		MCS3	144.1	136.1	122.5
	MCS4	51.6	48.8	43.9		MCS4	103.2	97.5	87.8		MCS4	216.2	204.2	183.8
	MCS5	68.8	65	58.5		MCS5	137.6	130	117		MCS5	288.2	272.2	245
	MCS6	77.4	73.1	65.8		MCS6	154.9	146.3	131.6		MCS6	324.3	306.3	275.6
	MCS7	86	81.3	73.1		MCS7	172.1	162.5	146.3		MCS7	360.3	340.3	306.3
	MCS8	103.2	97.5	87.8		MCS8	206.5	195	175.5		MCS8	432.4	408.3	367.5
	MCS9	114.7	108.3	97.5		MCS9	229.4	216.7	195		MCS9	480.4	453.7	408.3
	MCS10	129	121.9	109.7		MCS10	258.1	243.8	219.4		MCS10	540.4	510.4	459.4
	MCS11	143.4	135.4	121.9		MCS11	286.8	270.8	243.8		MCS11	600.5	567.1	510.4
Standard	Index	Data Rate (Mbps)			Standard	Index	Data Rate (Mbps)			Standard	Index	Data Rate (Mbps)		
		SGI (0.8us)	MGI (1.6us)	LGI (3.2us)			SGI (0.8us)	MGI (1.6us)	LGI (3.2us)			SGI (0.8us)	MGI (1.6us)	LGI (3.2us)
11ax 20MHz NSS=2	MCS0	17.2	16.3	14.6	11ax 40MHz NSS=2	MCS0	34.4	32.5	29.3	11ax 80MHz NSS=2	MCS0	72.1	68.1	61.3
	MCS1	34.4	32.5	29.3		MCS1	68.8	65	58.5		MCS1	144.1	136.1	122.5
	MCS2	51.6	48.8	43.9		MCS2	103.2	97.5	87.8		MCS2	216.2	204.2	183.8
	MCS3	68.8	65	58.5		MCS3	137.6	130	117		MCS3	288.2	272.2	245
	MCS4	103.2	97.5	87.8		MCS4	206.5	195	175.5		MCS4	432.4	408.3	367.5
	MCS5	137.6	130	117		MCS5	275.3	260	234		MCS5	576.5	544.4	490
	MCS6	154.9	146.3	131.6		MCS6	309.7	292.5	263.3		MCS6	648.5	612.5	551.3
	MCS7	172.1	162.5	146.3		MCS7	344.1	325	292.5		MCS7	720.6	680.6	612.5
	MCS8	206.5	195	175.5		MCS8	412.`9	390	351		MCS8	864.7	816.7	735
	MCS9	229.4	216.7	195		MCS9	458.8	433.3	390		MCS9	960.8	907.4	816.7
	MCS10	258.1	243.8	219.4		MCS10	516.2	487.5	438.8		MCS10	1080.9	1020.8	918.8
	MCS11	286.8	270.8	243.8		MCS11	573.5	541.7	487.5		MCS11	1201	1134.3	1020.8

Standard	Index	Data Rate (Mbps)			Standard	Index	Data Rate (Mbps)			Standard	Index	Data Rate (Mbps)		
		SGI (0.8us)	MGI (1.6us)	LGI (3.2us)			SGI (0.8us)	MGI (1.6us)	LGI (3.2us)			SGI (0.8us)	MGI (1.6us)	LGI (3.2us)
11ax 20MHz NSS=3	MCS0	25.8	24.4	21.9	11ax 40MHz NSS=3	MCS0	51.6	48.8	43.9	11ax 80MHz NSS=3	MCS0	108.1	102.1	91.9
	MCS1	51.6	48.8	43.9		MCS1	103.2	97.5	87.8		MCS1	216.2	204.2	183.8
	MCS2	77.4	73.1	65.8		MCS2	154.9	146.3	131.6		MCS2	324.3	306.3	275.6
	MCS3	103.2	97.5	87.8		MCS3	206.5	195	175.5		MCS3	432.4	408.3	367.5
	MCS4	154.9	146.3	131.6		MCS4	309.7	292.5	263.3		MCS4	648.5	612.5	551.3
	MCS5	206.5	195	175.5		MCS5	412.9	390	351		MCS5	864.7	816.7	735
	MCS6	232.3	219.4	197.4		MCS6	464.6	438.8	394.9		MCS6	972.8	918.8	826.9
	MCS7	258.1	243.8	219.4		MCS7	516.2	487.5	438.8		MCS7	1080.9	1020.8	918.8
	MCS8	309.7	292.5	263.3		MCS8	619.4	585	526.5		MCS8	1297.1	1225	1102.5
	MCS9	344.1	325	292.5		MCS9	688.2	650	585		MCS9	1441.2	1361.1	1225
	MCS10	387.1	365.6	329.1		MCS10	774.3	731.3	658.1		MCS10	1621.3	1531.3	1378.1
	MCS11	430.1	406.3	365.6		MCS11	860.3	812.5	731.3		MCS11	1801.5	1701.4	1531.3

Standard	Index	Data Rate (Mbps)			Standard	Index	Data Rate (Mbps)			Standard	Index	Data Rate (Mbps)		
		SGI (0.8us)	MGI (1.6us)	LGI (3.2us)			SGI (0.8us)	MGI (1.6us)	LGI (3.2us)			SGI (0.8us)	MGI (1.6us)	LGI (3.2us)
11ax 20MHz NSS=4	MCS0	34.4	32.5	29.3	11ax 40MHz NSS=4	MCS0	68.8	65	58.5	11ax 80MHz NSS=4	MCS0	144.1	136.1	122.5
	MCS1	68.8	65	58.5		MCS1	137.6	130	117		MCS1	288.2	272.2	245
	MCS2	103.2	97.5	87.8		MCS2	206.5	195	175.5		MCS2	432.4	408.3	367.5
	MCS3	137.6	130	117		MCS3	275.3	260	234		MCS3	576.5	544.4	490
	MCS4	206.5	195	175.5		MCS4	412.9	390	351		MCS4	864.7	816.7	735
	MCS5	275.3	260	234		MCS5	550.6	520	468		MCS5	1152.9	1088.9	980
	MCS6	309.7	292.5	263.3		MCS6	619.4	585	526.5		MCS6	1297.1	1225	1102.5
	MCS7	344.1	325	292.5		MCS7	688.2	650	585		MCS7	1441.2	1361.1	1225
	MCS8	412.9	390	351		MCS8	825.9	780	702		MCS8	1729.4	1633.3	1470
	MCS9	458.8	433.3	390		MCS9	917.6	866.7	780		MCS9	1921.6	1814.8	1633.3
	MCS10	516.2	487.5	438.8		MCS10	1032.4	975	877.5		MCS10	2161.8	2041.7	1837.5
	MCS11	573.5	541.7	487.5		MCS11	1147.1	1083.3	975		MCS11	2401.9	2268.5	2041.7

Standard	Index	Data Rate (Mbps)			Standard	Index	Data Rate (Mbps)		
		SGI (0.8us)	MGI (1.6us)	LGI (3.2us)			SGI (0.8us)	MGI (1.6us)	LGI (3.2us)
11ax 160MHz NSS = 1	MCS0	72.1	68.1	61.3	11ax 160MHz NSS = 2	MCS0	144.1	136.1	122.5
	MCS1	144.1	136.1	122.5		MCS1	288.2	272.2	245
	MCS2	216.2	204.2	183.8		MCS2	432.4	408.3	367.5
	MCS3	288.2	272.2	245		MCS3	576.5	544.4	490
	MCS4	432.4	408.3	367.5		MCS4	864.7	816.7	735
	MCS5	576.5	544.4	490		MCS5	1152.9	1088.9	980
	MCS6	648.5	612.5	551.3		MCS6	1297.1	1225	1102.5
	MCS7	720.6	680.6	612.5		MCS7	1441.2	1361.1	1225
	MCS8	864.7	816.7	735		MCS8	1729.4	1633.3	1470
	MCS9	960.8	907.4	816.7		MCS9	1921.6	1814.8	1633.3
	MCS10	1080.9	1020.8	918.8		MCS10	2161.8	2041.7	1837.5
	MCS11	1201	1134.3	1020.8		MCS11	2402	2268.5	2041.7

Standard	Index	Data Rate (Mbps)			Standard	Index	Data Rate (Mbps)		
		SGI (0.8us)	MGI (1.6us)	LGI (3.2us)			SGI (0.8us)	MGI (1.6us)	LGI (3.2us)
11ax 160MHz NSS = 3	MCS0	216.2	204.2	183.8	11ax 160MHz NSS = 4	MCS0	288.2	272.2	245
	MCS1	432.4	408.3	367.5		MCS1	576.5	544.4	490
	MCS2	648.5	612.5	551.3		MCS2	864.7	816.7	735
	MCS3	864.7	816.7	735		MCS3	1152.9	1088.9	980
	MCS4	1297.1	1225	1102.5		MCS4	1729.4	1633.3	1470
	MCS5	1729.4	1633.3	1470		MCS5	2305.9	2177.8	1960
	MCS6	1945.6	1837.5	1653.8		MCS6	2594.1	2450	2205
	MCS7	2161.8	2041.7	1837.5		MCS7	2882.4	2722.2	2450
	MCS8	2594.1	2450	2205		MCS8	3458.8	3266.7	2940
	MCS9	2882.4	2722.2	2450		MCS9	3843.1	3629.6	3266.7
	MCS10	3242.6	3062.5	2756.3		MCS10	4323.5	4083.3	3675
	MCS11	3602.9	3402.8	3062.5		MCS11	4803.9	4537	4083.3

1.2. Accessories

Adapter

Model	ADS-24FUA-12 12024EPCU
Technicolor P/N	6265293A
ID	01
Manufacturer	HONOR
Input Power	100-240V~50/60Hz, MAX. 0.7A
Output Power	12V, 2.0A
Cable Length	Non-shielded 1.2m

RJ-45 cable

Cable Length	Non-shielded 1.5m

1.3. Information Provided by the Manufacturer

Interface Availability

Interface / Model Number	Internal AC~DC Power Input:100~240V Output: DC 12Vdc 2A	LAN 10/100/1000 Mbps	WAN 10/100/1000 Mbps	USB 2.0	WLAN IEEE 802.11a/b/g/n/ac/ax (2.4GHz 2*2) (5GHz L 2*2 ax) (5GHz H 4*4 ax)
OWA3111, GFEX310	● (2A)	● (1 port)	● (1 port)	● (1 port)	●

Note:

● : Equipped

○ : Not Equipped

1.4. Applicable Standards

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

- 47 CFR FCC Part 15 Subpart E § 15.407
- ANSI C63.10-2013
- FCC KDB 789033 D02 General U-NII Test Procedures New Rules v02r0112/14/2017

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

- FCC KDB 662911 D01 Multiple Transmitter Output v02r01, 10/31/2013
- FCC KDB 412172 D01 v01r01
- FCC KDB 414788 D01 v01r01

All test items have been performed and recorded as per the above standards.

1.5. Cabling Attached to the Equipment

Table 1- Cable and Interconnection

Interface	Cable type	Cable length delivered with the modem	"Real life" Cable length that can be attached to this type of interface	Cable length to be used for testing	Internal/External connection
WAN	UTP Cat 5	1 meter	> 10 meter	10 meter	External
LAN	UTP Cat 5	1 meter	> 10 meter	10 meter	Internal
USB	STP	1 meter	< 3meter	1 meter	Internal
AC power	-	-	-	-	External

1.6. Panel Drawing

1.7. Transmit Operating Modes

<For 5250~5350MHz>

Transmit Operating Mode							Transmit Multiple Antennas					
■	Operating mode 1 (single antenna)						■	1TX				
■	Operating mode 2 (multiple antenna, no beam forming)						■	2TX	□	3TX	□	4TX
■	Operating mode 3 (multiple antenna, with beam forming)						■	2TX	□	3TX	□	4TX
■	802.11a	Operating mode	■	1TX	■	2TX	□	3TX	□	4TX		
■	802.11n(20MHz)	Operating mode	■	1TX	■	2TX	□	3TX	□	4TX		
■	802.11n(40MHz)	Operating mode	■	1TX	■	2TX	□	3TX	□	4TX		
■	802.11ac(20MHz)	Operating mode	■	1TX	■	2TX	□	3TX	□	4TX		
■	802.11ac(40MHz)	Operating mode	■	1TX	■	2TX	□	3TX	□	4TX		
■	802.11ac(80MHz)	Operating mode	■	1TX	■	2TX	□	3TX	□	4TX		
■	802.11ax(20MHz)	Operating mode	■	1TX	■	2TX	□	3TX	□	4TX		
■	802.11ax(40MHz)	Operating mode	■	1TX	■	2TX	□	3TX	□	4TX		
■	802.11ax(80MHz)	Operating mode	■	1TX	■	2TX	□	3TX	□	4TX		

For IEEE802.11a,

6Mbps~54Mbps: 1TX; 2TX;

For IEEE802.11n,

MCS0~MCS7: 1 Stream 1TX, 1 Stream 2TX;

MCS8~MCS15: 2 Stream 2TX;

For IEEE802.11ac 20MHz,

Nss1 MCS0~Nss1 MCS8: 1 Stream 1TX, 1 Stream 2TX;

Nss2 MCS0~Nss2 MCS9: 2 Stream 2TX;

For IEEE802.11ac 40/80MHz,

Nss1 MCS0~Nss1 MCS9: 1 Stream 1TX, 1 Stream 2TX;

Nss2 MCS0~Nss2 MCS9: 2 Stream 2TX;

For IEEE802.11ax 20/40/80MHz,

Nss1 MCS0~Nss1 MCS11: 1 Stream 1TX, 1 Stream 2TX;

Nss2 MCS0~Nss2 MCS11: 2 Stream 2TX;

<For 5470~5725MHz>

Transmit Operating Mode							Transmit Multiple Antennas					
■	Operating mode 1 (single antenna)						■	1TX				
■	Operating mode 2 (multiple antenna, no beam forming)						■	2TX	■	3TX	■	4TX
■	Operating mode 3 (multiple antenna, with beam forming)						■	2TX	■	3TX	■	4TX
■	802.11a	Operating mode	■	1TX	■	2TX	■	3TX	■	4TX		
■	802.11n(20MHz)	Operating mode	■	1TX	■	2TX	■	3TX	■	4TX		
■	802.11n(40MHz)	Operating mode	■	1TX	■	2TX	■	3TX	■	4TX		
■	802.11ac(20MHz)	Operating mode	■	1TX	■	2TX	■	3TX	■	4TX		
■	802.11ac(40MHz)	Operating mode	■	1TX	■	2TX	■	3TX	■	4TX		
■	802.11ac(80MHz)	Operating mode	■	1TX	■	2TX	■	3TX	■	4TX		
■	802.11ac(160MHz)	Operating mode	■	1TX	■	2TX	■	3TX	■	4TX		
■	802.11ax(20MHz)	Operating mode	■	1TX	■	2TX	■	3TX	■	4TX		
■	802.11ax(40MHz)	Operating mode	■	1TX	■	2TX	■	3TX	■	4TX		
■	802.11ax(80MHz)	Operating mode	■	1TX	■	2TX	■	3TX	■	4TX		
■	802.11ax(160MHz)	Operating mode	■	1TX	■	2TX	■	3TX	■	4TX		

For IEEE802.11a,

6Mbps~54Mbps: 1TX; 2TX; 3TX; 4TX

For IEEE802.11n,

MCS0~MCS7: 1 Stream 1TX, 1 Stream 2TX, 1 Stream 3TX, 1 Stream 4TX;

MCS8~MCS15: 2 Stream 2TX, 2 Stream 3TX, 2 Stream 4TX;

MCS16~MCS23: 3 Stream 3TX, 3 Stream 4TX;

MCS24~MCS31: 4 Stream 4TX.

For IEEE802.11ac 20MHz,

Nss1 MCS0~Nss1 MCS8: 1 Stream 1TX, 1 Stream 2TX, 1 Stream 3TX, 1 Stream 4TX;

Nss2 MCS0~Nss2 MCS9: 2 Stream 2TX, 2 Stream 3TX, 2 Stream 4TX;

Nss3 MCS0~Nss3 MCS9: 3 Stream 3TX, 3 Stream 4TX;

Nss4 MCS0~Nss4 MCS9: 4 Stream 4TX.

For IEEE802.11ac 40/80/160MHz,

Nss1 MCS0~Nss1 MCS9: 1 Stream 1TX, 1 Stream 2TX, 1 Stream 3TX, 1 Stream 4TX;

Nss2 MCS0~Nss2 MCS9: 2 Stream 2TX, 2 Stream 3TX, 2 Stream 4TX;

Nss3 MCS0~Nss3 MCS9: 3 Stream 3TX, 3 Stream 4TX;

Nss4 MCS0~Nss4 MCS9: 4 Stream 4TX.

For IEEE802.11ax 20/40/80/160MHz,

Nss1 MCS0~Nss1 MCS11: 1 Stream 1TX, 1 Stream 2TX, 1 Stream 3TX, 1 Stream 4TX;

Nss2 MCS0~Nss2 MCS11: 2 Stream 2TX, 2 Stream 3TX, 2 Stream 4TX;

Nss3 MCS0~Nss3 MCS11: 3 Stream 3TX, 3 Stream 4TX;

Nss4 MCS0~Nss4 MCS11: 4 Stream 4TX.

1.8. Table for Filed Antenna

Ant.	Brand	Model Name	Antenna Type	Connector	Support	Cable Length
5GHz-Ant. 1	WALSIN	RFPCA291205IMLB303	PCB Antenna	I-PEX	5150~5250MHz	50mm
5GHz-Ant. 2	WALSIN	RFPCA291203IMLB302	PCB Antenna	I-PEX	5150~5250MHz	30mm
5GHz-Ant. 3	WALSIN	RFPCA160905IM5B302	PCB Antenna	I-PEX	5725~5850MHz	55mm
5GHz-Ant. 4	WALSIN	RFPCA160906IM5B303	PCB Antenna	I-PEX	5725~5850MHz	65mm
5GHz-Ant. 5	SUNRISE	02081S4-001	Metal Antenna	N/A	5725~5850MHz	-
5GHz-Ant. 6	WALSIN	RFPCA160904IM5B303	PCB Antenna	I-PEX	5725~5850MHz	40mm

Antenna Photo:

Number of Transmitter Antennas & Bandwidth

<For 5250~5350MHz>

Number of Transmitter Antennas	1TX			2TX		
Bandwidth Mode	20 MHz	40 MHz	80 MHz	20 MHz	40 MHz	80 MHz
802.11a	V	X	X	V	X	X
802.11n	V	V	X	V	V	X
802.11ac	V	V	V	V	V	V
802.11ax	V	V	V	V	V	V

<For 5470~5725MHz>

Number of Transmitter Antennas	1TX				2TX				3TX				4TX			
Bandwidth Mode	20 MHz	40 MHz	80 MHz	160 MHz	20 MHz	40 MHz	80 MHz	160 MHz	20 MHz	40 MHz	80 MHz	160 MHz	20 MHz	40 MHz	80 MHz	160 MHz
802.11a	V	X	X	X	V	X	X	X	V	X	X	X	V	X	X	X
802.11n	V	V	X	X	V	V	X	X	V	V	X	X	V	V	X	X
802.11ac	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V
802.11ax	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V

Frequency	Maximum Gain (dBi) for CDD mode					
	CDD mode (1 Stream 2 TX) for Power Gain (KDB 662911 Option 1)			CDD mode (1 Stream 2 TX) for PSD Gain (KDB 662911 Option 2)		
	20 MHz	40 MHz	80MHz	20 MHz	40 MHz	80MHz
5260MHz	4.61	-	-	5.79	-	-
5270MHz	-	4.67	-	-	5.73	-
5290MHz	-	-	4.73	-	-	5.80
5300MHz	4.70	-	-	5.81	-	-
5310MHz	-	4.68	-	-	5.72	-
5320MHz	4.62	-	-	5.58	-	-

Frequency	Maximum Gain (dBi) for CDD mode							
	CDD mode (1 Stream 4 TX) for Power Gain (KDB 662911 Option 1)				CDD mode (1 Stream 4 TX) for PSD Gain (KDB 662911 Option 2)			
	20 MHz	40 MHz	80MHz	160MHz	20 MHz	40 MHz	80MHz	160MHz
5500MHz	3.58	-	-	-	6.69	-	-	-
5510MHz	-	3.50	-	-	-	6.67	-	-
5530MHz	-	-	3.73	-	-	-	6.91	-
5550MHz	-	3.88	-	-	-	6.88	-	-
5570MHz	-	-	-	3.88	-	-	-	6.75
5580MHz	3.79	-	-	-	6.66	-	-	-
5610MHz	-	-	3.72	-	-	-	6.59	-
5670MHz	-	4.16	-	-	-	6.77	-	-
5690MHz	-	-	4.23	-	-	-	6.67	-
5700MHz	4.38	-	-	-	6.71	-	-	-
5710MHz	-	4.58	-	-	-	6.80	-	-
5720MHz	4.74	-	-	-	6.85	-	-	-

Frequency	Maximum Gain (dBi) for TXBF mode TXBF mode (1 Stream 2 TX) for Power Gain and PSD Gain (KDB 662911 Option 2)		
	20 MHz	40 MHz	80MHz
5260MHz	5.79	-	-
5270MHz	-	5.73	-
5290MHz	-	-	5.80
5300MHz	5.81	-	-
5310MHz	-	5.72	-
5320MHz	5.58	-	-

Frequency	Maximum Gain (dBi) for TXBF mode TXBF mode (1 Stream 4 TX) for Power Gain and PSD Gain (KDB 662911 Option 2)			
	20 MHz	40 MHz	80MHz	160MHz
5500MHz	6.69	-	-	-
5510MHz	-	6.67	-	-
5530MHz	-	-	6.91	-
5550MHz	-	6.88	-	-
5570MHz	-	-	-	6.75
5580MHz	6.66	-	-	-
5610MHz	-	-	6.59	-
5670MHz	-	6.77	-	-
5690MHz	-	-	6.67	-
5700MHz	6.71	-	-	-
5710MHz	-	6.80	-	-
5720MHz	6.85	-	-	-

Frequency	Maximum Gain (dBi) for TXBF mode TXBF mode (2 Stream 4 TX) for Power Gain and PSD Gain (KDB 662911 Option 2)			
	20 MHz	40 MHz	80MHz	160MHz
5500MHz	4.96	-	-	-
5510MHz	-	4.95	-	-
5530MHz	-	-	5.20	-
5550MHz	-	5.22	-	-
5570MHz	-	-	-	5.10
5580MHz	5.01	-	-	-
5610MHz	-	-	4.91	-
5670MHz	-	5.01	-	-
5690MHz	-	-	4.96	-
5700MHz	5.01	-	-	-
5710MHz	-	5.08	-	-
5720MHz	5.17	-	-	-

Frequency	Maximum Gain (dBi) for TXBF mode			
	TXBF mode (3 Stream 4 TX) for Power Gain and PSD Gain (KDB 662911 Option 2)			
	20 MHz	40 MHz	80MHz	160MHz
5500MHz	3.04	-	-	-
5510MHz	-	3.03	-	-
5530MHz	-	-	3.33	-
5550MHz	-	3.31	-	-
5570MHz	-	-	-	3.26
5580MHz	3.22	-	-	-
5610MHz	-	-	3.00	-
5670MHz	-	3.15	-	-
5690MHz	-	-	3.06	-
5700MHz	3.12	-	-	-
5710MHz	-	3.20	-	-
5720MHz	3.33	-	-	-

Note:

1. Antenna Gain refer to "OWA3111_NAM_Directional_Gain_20200120" files

2. Maximum Correlated Directional Gain = $Directiona\ lGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$

3. Maximum Uncorrelated Directional Gain = $Directiona\ lGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$

1.9. Table for Carrier Frequencies

16 channels are provided for 802.11a / 802.11n / 802.11ac / 802.11ax (20MHz):

Frequency Band	Channel No.	Frequency	Channel No.	Frequency
5250~5350MHz	52	5260 MHz	60	5300 MHz
	56	5280 MHz	64	5320 MHz
5470~5725MHz	100	5500 MHz	124	5620 MHz
	104	5520 MHz	128	5640 MHz
	108	5540 MHz	132	5660 MHz
	112	5560 MHz	136	5680 MHz
	116	5580 MHz	140	5700 MHz
	120	5600 MHz	144	5720 MHz

8 channels are provided for 802.11n / 802.11ac / 802.11ax (40MHz):

Frequency Band	Channel No.	Frequency	Channel No.	Frequency
5250~5350MHz	54	5270 MHz	62	5310 MHz
5470~5725MHz	102	5510 MHz	126	5630 MHz
	110	5550 MHz	134	5670 MHz
	118	5590 MHz	142	5710 MHz

4 channels are provided for 802.11ac / 802.11ax (80MHz):

Frequency Band	Channel No.	Frequency	Channel No.	Frequency
5250~5350MHz	58	5290 MHz	-	-
5470~5725MHz	106	5530 MHz	138	5690 MHz
	122	5610 MHz	-	-

1 channel is provided for 802.11ac / 802.11ax (160MHz):

Frequency Band	Channel No.	Frequency	Channel No.	Frequency
5470~5725MHz	114	5570 MHz	-	-

1.10. Table for Test Modes

Preliminary tests were performed in different data rate to find the worst radiated emission. The data rate shown in the table below is the worst-case rate with respect to the specific test item. The following table is a list of the test modes shown in this test report.

Test Items	Mode		Channel	Data Rate	Ant.
Max. Conducted Output Power	11a	OFDM/ BPSK	52/60/64	1S2T CDD 6Mbps	1+2
			100/116/140/144	1S4T CDD 6Mbps	3+4+5+6
	11ax(20MHz)	OFDMA/ BPSK	52/60/64	1S2T CDD Nss1 MCS0	1+2
				1S2T TXBF Nss 1 MCS 0	
			100/116/140/144	1S4T CDD Nss1 MCS0	3+4+5+6
				1S4T TXBF Nss 1 MCS 0	
				2S4T TXBF Nss 2 MCS 0	
				3S4T TXBF Nss 3 MCS 0	
	11ax(40MHz)		54/62	1S2T CDD Nss1 MCS0	1+2
				1S2T TXBF Nss 1 MCS 0	
			102/110/134/142	1S4T CDD Nss1 MCS0	3+4+5+6
				1S4T TXBF Nss 1 MCS 0	
				2S4T TXBF Nss 2 MCS 0	
				3S4T TXBF Nss 3 MCS 0	
	11ax(80MHz)		58	1S2T CDD Nss1 MCS0	1+2
				1S2T TXBF Nss 1 MCS 0	
			106/122/138	1S4T CDD Nss1 MCS0	3+4+5+6
				1S4T TXBF Nss 1 MCS 0	
				2S4T TXBF Nss 2 MCS 0	
				3S4T TXBF Nss 3 MCS 0	

	11ax(160MHz)		114	1S4T CDD Nss1 MCS0	3+4+5+6
				1S4T TXBF Nss 1 MCS 0	
				2S4T TXBF Nss 2 MCS 0	
				3S4T TXBF Nss 3 MCS 0	
Power Spectral Density	11a	OFDM/ BPSK	52/60/64	1S2T CDD 6Mbps	1+2
			100/116/140/144	1S4T CDD 6Mbps	3+4+5+6
	11ax(20MHz)	OFDMA/ BPSK	52/60/64	1S2T CDD Nss1 MCS0	1+2
				1S2T TXBF Nss 1 MCS 0	
			100/116/140/144	1S4T CDD Nss1 MCS0	3+4+5+6
				1S4T TXBF Nss 1 MCS 0	
				2S4T TXBF Nss 2 MCS 0	
				3S4T TXBF Nss 3 MCS 0	
	11ax(40MHz)		54/62	1S2T CDD Nss1 MCS0	1+2
				1S2T TXBF Nss 1 MCS 0	
			102/110/134/142	1S4T CDD Nss1 MCS0	3+4+5+6
				1S4T TXBF Nss 1 MCS 0	
				2S4T TXBF Nss 2 MCS 0	
				3S4T TXBF Nss 3 MCS 0	
	11ax(80MHz)		58	1S2T CDD Nss1 MCS0	1+2
				1S2T TXBF Nss 1 MCS 0	
			106/122/138	1S4T CDD Nss1 MCS0	3+4+5+6
				1S4T TXBF Nss 1 MCS 0	
				2S4T TXBF Nss 2 MCS 0	

				3S4T TXBF Nss 3 MCS 0	
	11ax(160MHz)		114	1S4T CDD Nss1 MCS0	3+4+5+6
				1S4T TXBF Nss 1 MCS 0	
				2S4T TXBF Nss 2 MCS 0	
				3S4T TXBF Nss 3 MCS 0	
26dB Spectrum Bandwidth & 99% Occupied Bandwidth Measurement	11a	OFDM/ BPSK	52/60/64	1S2T CDD 6Mbps	1+2
			100/116/140/144	1S4T CDD 6Mbps	3+4+5+6
	11ax(20MHz)	OFDMA/ BPSK	52/60/64	1S2T CDD Nss1 MCS0	1+2
				1S2T TXBF Nss 1 MCS 0	
			100/116/140/144	1S4T CDD Nss1 MCS0	3+4+5+6
				1S4T TXBF Nss 1 MCS 0	
				2S4T TXBF Nss 2 MCS 0	
				3S4T TXBF Nss 3 MCS 0	
	11ax(40MHz)		54/62	1S2T CDD Nss1 MCS0	1+2
				1S2T TXBF Nss 1 MCS 0	
			102/110/134/142	1S4T CDD Nss1 MCS0	3+4+5+6
				1S4T TXBF Nss 1 MCS 0	
				2S4T TXBF Nss 2 MCS 0	
				3S4T TXBF Nss 3 MCS 0	
	11ax(80MHz)		58	1S2T CDD Nss1 MCS0	1+2
				1S2T TXBF Nss 1 MCS 0	
			106/122/138	1S4T CDD Nss1 MCS0	3+4+5+6
				1S4T TXBF Nss 1 MCS 0	

				2S4T TXBF Nss 2 MCS 0	
				3S4T TXBF Nss 3 MCS 0	
	11ax(160MHz)		114	1S4T CDD Nss1 MCS0	3+4+5+6
				1S4T TXBF Nss 1 MCS 0	
				2S4T TXBF Nss 2 MCS 0	
				3S4T TXBF Nss 3 MCS 0	
6dB Spectrum Bandwidth and 99% Occupied Bandwidth Measurement (U-NII-3)	11a	OFDM/ BPSK	144	1S4T CDD 6Mbps	3+4+5+6
	11ax(20MHz)	OFDMA/BPSK	144	1S4T CDD Nss1 MCS0	3+4+5+6
				1S4T TXBF Nss 1 MCS 0	
				2S4T TXBF Nss 2 MCS 0	
				3S4T TXBF Nss 3 MCS 0	
	11ax(40MHz)		142	1S4T CDD Nss1 MCS0	3+4+5+6
				1S4T TXBF Nss 1 MCS 0	
				2S4T TXBF Nss 2 MCS 0	
				3S4T TXBF Nss 3 MCS 0	
	11ax(80MHz)		138	1S4T CDD Nss1 MCS0	3+4+5+6
				1S4T TXBF Nss 1 MCS 0	
				2S4T TXBF Nss 2 MCS 0	
				3S4T TXBF Nss 3 MCS 0	
Radiated Emission Above 1GHz& Band Edge Emission	11a	OFDM/ BPSK	52/60/64	1S2T CDD 6Mbps	1+2
			100/116/140/144	1S4T CDD 6Mbps	3+4+5+6
	11ax(20MHz)	OFDMA/ BPSK	52/60/64	1S2T CDD Nss1 MCS0	1+2
				1S2T TXBF Nss 1 MCS 0	
			100/116/140/144	1S4T CDD Nss1 MCS0	3+4+5+6

				1S4T TXBF Nss 1 MCS 0	
				2S4T TXBF Nss 2 MCS 0	
				3S4T TXBF Nss 3 MCS 0	
	11ax(40MHz)		54/62	1S2T CDD Nss1 MCS0	1+2
				1S2T TXBF Nss 1 MCS 0	
			102/110/134/142	1S4T CDD Nss1 MCS0	3+4+5+6
				1S4T TXBF Nss 1 MCS 0	
				2S4T TXBF Nss 2 MCS 0	
				3S4T TXBF Nss 3 MCS 0	
	11ax(80MHz)		58	1S2T CDD Nss1 MCS0	1+2
				1S2T TXBF Nss 1 MCS 0	
			106/122/138	1S4T CDD Nss1 MCS0	3+4+5+6
				1S4T TXBF Nss 1 MCS 0	
				2S4T TXBF Nss 2 MCS 0	
				3S4T TXBF Nss 3 MCS 0	
	11ax(160MHz)		114	1S4T CDD Nss1 MCS0	3+4+5+6
				1S4T TXBF Nss 1 MCS 0	
				2S4T TXBF Nss 2 MCS 0	
				3S4T TXBF Nss 3 MCS 0	
Frequency Stability	20 MHz	Un-modulation	52/60/64	-	1+2
			100/116/140/144	-	3+4+5+6
	40 MHz		54/62	-	1+2
			102/110/134/142	-	3+4+5+6
	80 MHz		58	-	1+2
			106/122/138	-	3+4+5+6
	160 MHz		114	-	3+4+5+6

Note1: The device with multiple operating mode, measurements on the middle channel were tested to determine the worst case mode. (Each modulation family were tested in band edge, spurious emission and in band PSD after investigate worst case mode)

Note 2: Base on tx core command, the 802.11a default mode are Low band 1S2T and High band 1S4T CDD , the 802.11ax 20MHz/40MHz/80MHz/160MHz, default Low band mode are 1S2T CDD ,1S2T TxBF,High band mode are 1S4T CDD ,1S4T TxBF,2S4T TxBF,3S4T TXBF.
wl -i wl1 txcore
txcore enabled bitmap (Nsts {4..1}) 0x00 0x00 0x03 0x03
txcore mask OFDM 0x03 CCK 0x03
wl -i wl2_1 txcore
txcore enabled bitmap (Nsts {4..1}) 0x0f 0x0f 0x0f 0x0f
txcore mask OFDM 0x0f CCK 0x0f

Note 3: Base on same power setting, the 802.11a Low band 1S2T and High band 1S4T CDD mode covered by 802.11ax low band 1S2T and High 1S4T CDD mode, SDM mode cover by the CDD mode with the same setting.

Note 4: Base on same power setting, the 802.11a mode were only tested the “Maximum Conducted Output Power” , “Power Spectral Density” and” Bandwidth”

Note 5: The EUT can only be used at Y axis position.

The following test modes were performed for all tests:

For Radiated Emission Above 1GHz test:

Test Mode 1: CTX mode, EUT Y axis

For Co-location MPE Test:

The EUT could be applied with WLAN 2.4GHz function, WLAN 5GHz Band 1~2 function and WLAN 5GHz Band 3~4 function.

For Co-location Maximum Permissible Exposure: Co-location Maximum Permissible Exposure (Please refer to FA071024-01) test is added for simultaneously transmit between WLAN 2.4GHz function, WLAN 5GHz Band 1~2 function and WLAN 5GHz Band 3~4 function.

1.11. Table for Testing Locations

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	Test Date
RF Conducted	TH01-CB	Serway Li	24.7~25.9°C / 58~62%	Jul. 01, 2020~Jul. 14, 2020
Radiated Above 1GHz	03CH04-CB	Ron Huang	24.8~26.8°C / 53~57%	Jun. 08, 2020~Jul. 13, 2020

1.12. Table for Multiple Listing

1. The equipment names in the following table are all refer to the identical product.

Equipment Name	Description
MESH Extender	For marketing reason the same product will be covered by different name.
JioExtender JMB43	

From the above equipment names, equipment name: MESH Extender was selected as representative model for the test and its data was recorded in this report.

2. The model numbers in the following table are all refer to the identical product.

Model Number	Description
OWA3111	For marketing reason the same product will be covered by different name.
GFEX310	
JMB43	

From the above model numbers, model number: OWA3111 was selected as representative model for the test and its data was recorded in this report.

3. The product codes in the following table are all refer to the identical product.

Product Code	Description
MESH Extender	For marketing reason the same product will be covered by different name.
JioExtender JMB43	

From the above product codes, product code: MESH Extender was selected as representative model for the test and its data was recorded in this report.

1.13. Table for Class II Change

This product is an extension of original one reported under Sporton project number: FR071024AB

Below is the table for the change of the product with respect to the original one.

Modifications	Performance Checking
1. Adding the 5GHz band 2 and band 3 (5250~5350 MHz, 5470~5725 MHz) for this device. 2. Adding the 160MHz (5570 MHz).	1. 26dB Spectrum Bandwidth and 99% Occupied Bandwidth. 2. 6dB Spectrum Bandwidth and 99% Occupied Bandwidth. 3. Maximum Conducted Output Power. 4. Power Spectral Density. 5. Radiated Emission Above 1GHz. 6. Band Edge Emission. 7. Frequency Stability.
3. Adding one equipment name “JioExtender JMB43”. 4. Adding one model number “JMB43”. 5. Adding one product code “JioExtender JMB43”.	It does not affect the test result.

1.14. Table for Parameters of Test Software Setting

During testing, Channel & Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

The Power Setting Parameter					
Test Software Version	19.4.0292-4849007-20200616180558-f2534517ca3ad3f315c2e982b801eb89d87dc5a6				
Worst Modulation Mode	**Number of Transmit Chains (NTX)**	**Frequency (MHz)**	**Maximum Output Power (dBm)**	**Power Setting**	**Data Rate / MCS**
802.11a (CDD)	1 stream 2TX	5260	23.56	80	6Mbps
802.11a (CDD)	1 stream 2TX	5300	23.68	81	6Mbps
802.11a (CDD)	1 stream 2TX	5320	23.52	82	6Mbps
802.11a (CDD)	1 stream 4TX	5500	23.41	72	6Mbps
802.11a (CDD)	1 stream 4TX	5580	23.49	73	6Mbps
802.11a (CDD)	1 stream 4TX	5700	23.35	72	6Mbps
802.11a (CDD)	1 stream 4TX	5720	22.20	72	6Mbps
802.11ax 20MHz (CDD)	1 stream 2TX	5260	23.78	80	Nss1 MCS0 (8.6)
802.11ax 20MHz (CDD)	1 stream 2TX	5300	23.87	81	Nss1 MCS0 (8.6)
802.11ax 20MHz (CDD)	1 stream 2TX	5320	23.74	82	Nss1 MCS0 (8.6)
802.11ax 20MHz (CDD)	1 stream 4TX	5500	23.63	72	Nss1 MCS0 (8.6)
802.11ax 20MHz (CDD)	1 stream 4TX	5580	23.96	73	Nss1 MCS0 (8.6)
802.11ax 20MHz (CDD)	1 stream 4TX	5700	23.85	72	Nss1 MCS0 (8.6)
802.11ax 20MHz (CDD)	1 stream 4TX	5720	22.52	72	Nss1 MCS0 (8.6)
802.11ax 20MHz (TxBF)	1 stream 2TX	5260	23.83	80	Nss1 MCS0 (8.6)
802.11ax 20MHz (TxBF)	1 stream 2TX	5300	23.85	81	Nss1 MCS0 (8.6)
802.11ax 20MHz (TxBF)	1 stream 2TX	5320	23.49	81	Nss1 MCS0 (8.6)
802.11ax 20MHz (TxBF)	1 stream 4TX	5500	23.21	70	Nss1 MCS0 (8.6)
802.11ax 20MHz (TxBF)	1 stream 4TX	5580	23.20	70	Nss1 MCS0 (8.6)
802.11ax 20MHz (TxBF)	1 stream 4TX	5700	23.15	69	Nss1 MCS0 (8.6)
802.11ax 20MHz (TxBF)	1 stream 4TX	5720	22.03	70	Nss1 MCS0 (8.6)
802.11ax 20MHz (TxBF)	2 stream 4TX	5500	23.90	72	Nss2 MCS0 (17.2)
802.11ax 20MHz (TxBF)	2 stream 4TX	5580	23.80	73	Nss2 MCS0 (17.2)
802.11ax 20MHz (TxBF)	2 stream 4TX	5700	23.96	72	Nss2 MCS0 (17.2)
802.11ax 20MHz (TxBF)	2 stream 4TX	5720	22.87	72	Nss2 MCS0 (17.2)
802.11ax 20MHz (TxBF)	3 stream 4TX	5500	23.92	72	Nss3 MCS0 (25.8)
802.11ax 20MHz (TxBF)	3 stream 4TX	5580	23.93	73	Nss3 MCS0 (25.8)
802.11ax 20MHz (TxBF)	3 stream 4TX	5700	23.92	72	Nss3 MCS0 (25.8)
802.11ax 20MHz (TxBF)	3 stream 4TX	5720	22.82	71	Nss3 MCS0 (25.8)
802.11ax 40MHz (CDD)	1 stream 2TX	5270	23.93	81	Nss1 MCS0 (17.2)
802.11ax 40MHz (CDD)	1 stream 2TX	5310	22.38	77	Nss1 MCS0 (17.2)
802.11ax 40MHz (CDD)	1 stream 4TX	5510	23.92	73	Nss1 MCS0 (17.2)
802.11ax 40MHz (CDD)	1 stream 4TX	5550	23.88	73	Nss1 MCS0 (17.2)
802.11ax 40MHz (CDD)	1 stream 4TX	5670	23.76	73	Nss1 MCS0 (17.2)
802.11ax 40MHz (CDD)	1 stream 4TX	5710	23.85	76	Nss1 MCS0 (17.2)
802.11ax 40MHz (TxBF)	1 stream 2TX	5270	23.94	81	Nss1 MCS0 (17.2)
802.11ax 40MHz (TxBF)	1 stream 2TX	5310	22.70	78	Nss1 MCS0 (17.2)
802.11ax 40MHz (TxBF)	1 stream 4TX	5510	23.27	71	Nss1 MCS0 (17.2)
802.11ax 40MHz (TxBF)	1 stream 4TX	5550	22.95	70	Nss1 MCS0 (17.2)
802.11ax 40MHz (TxBF)	1 stream 4TX	5670	23.01	70	Nss1 MCS0 (17.2)

802.11ax 40MHz (TxBF)	1 stream 4TX	5710	23.06	73	Nss1 MCS0 (17.2)
802.11ax 40MHz (TxBF)	2 stream 4TX	5510	23.77	72	Nss2 MCS0 (34.4)
802.11ax 40MHz (TxBF)	2 stream 4TX	5550	23.81	73	Nss2 MCS0 (34.4)
802.11ax 40MHz (TxBF)	2 stream 4TX	5670	23.93	73	Nss2 MCS0 (34.4)
802.11ax 40MHz (TxBF)	2 stream 4TX	5710	23.77	74	Nss2 MCS0 (34.4)
802.11ax 40MHz (TxBF)	3 stream 4TX	5510	23.88	72	Nss3 MCS0 (51.6)
802.11ax 40MHz (TxBF)	3 stream 4TX	5550	23.94	73	Nss3 MCS0 (51.6)
802.11ax 40MHz (TxBF)	3 stream 4TX	5670	23.80	72	Nss3 MCS0 (51.6)
802.11ax 40MHz (TxBF)	3 stream 4TX	5710	23.84	73	Nss3 MCS0 (51.6)
802.11ax 80MHz (CDD)	1 stream 2TX	5290	22.26	76	Nss1 MCS0 (36)
802.11ax 80MHz (CDD)	1 stream 4TX	5530	23.95	73	Nss1 MCS0 (36)
802.11ax 80MHz (CDD)	1 stream 4TX	5610	23.88	75	Nss1 MCS0 (36)
802.11ax 80MHz (CDD)	1 stream 4TX	5690	23.89	76	Nss1 MCS0 (36)
802.11ax 80MHz (TxBF)	1 stream 2TX	5290	22.62	77	Nss1 MCS0 (36)
802.11ax 80MHz (TxBF)	1 stream 4TX	5530	23.00	70	Nss1 MCS0 (36)
802.11ax 80MHz (TxBF)	1 stream 4TX	5610	23.15	72	Nss1 MCS0 (36)
802.11ax 80MHz (TxBF)	1 stream 4TX	5690	23.13	72	Nss1 MCS0 (36)
802.11ax 80MHz (TxBF)	2 stream 4TX	5530	23.92	73	Nss2 MCS0 (72.1)
802.11ax 80MHz (TxBF)	2 stream 4TX	5610	23.93	76	Nss2 MCS0 (72.1)
802.11ax 80MHz (TxBF)	2 stream 4TX	5690	23.81	73	Nss2 MCS0 (72.1)
802.11ax 80MHz (TxBF)	3 stream 4TX	5530	23.74	72	Nss3 MCS0 (108.1)
802.11ax 80MHz (TxBF)	3 stream 4TX	5610	23.80	75	Nss3 MCS0 (108.1)
802.11ax 80MHz (TxBF)	3 stream 4TX	5690	23.94	73	Nss3 MCS0 (108.1)
802.11ax 160MHz (CDD)	1 stream 4TX	5570	23.78	74	Nss1 MCS0 (72.1)
802.11ax 160MHz (TxBF)	1 stream 4TX	5570	23.21	72	Nss1 MCS0 (72.1)
802.11ax 160MHz (TxBF)	2 stream 4TX	5570	22.99	71	Nss2 MCS0 (144.2)
802.11ax 160MHz (TxBF)	3 stream 4TX	5570	22.43	68	Nss3 MCS0 (216.2)

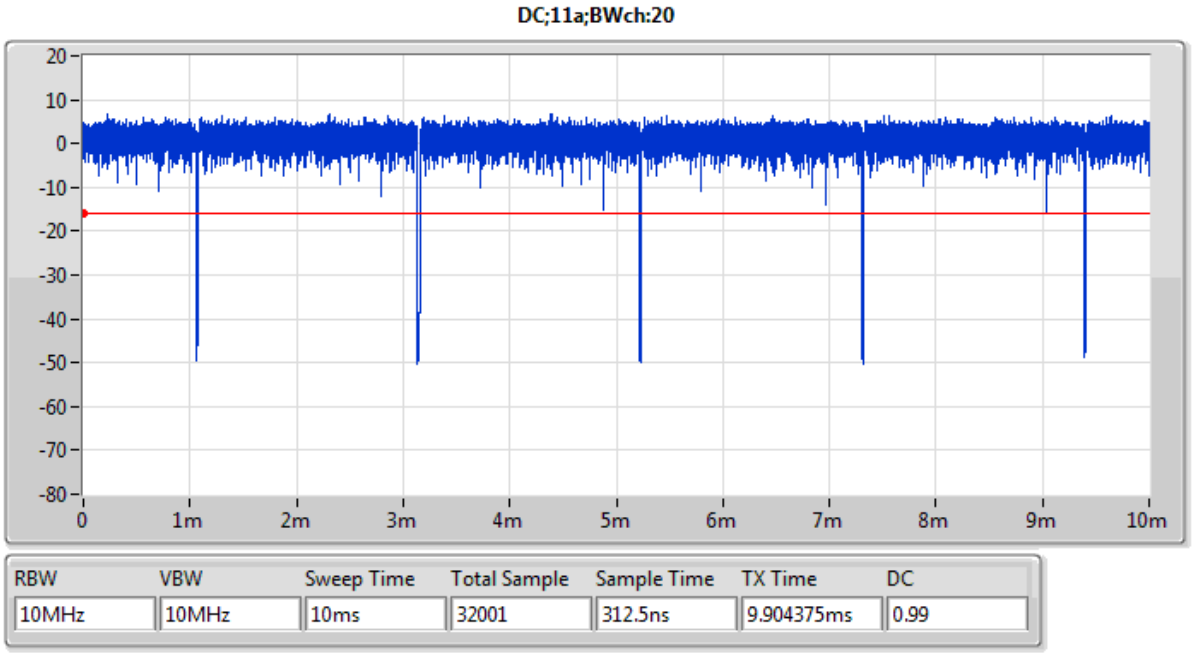
1.15. On Time and Duty Cycle

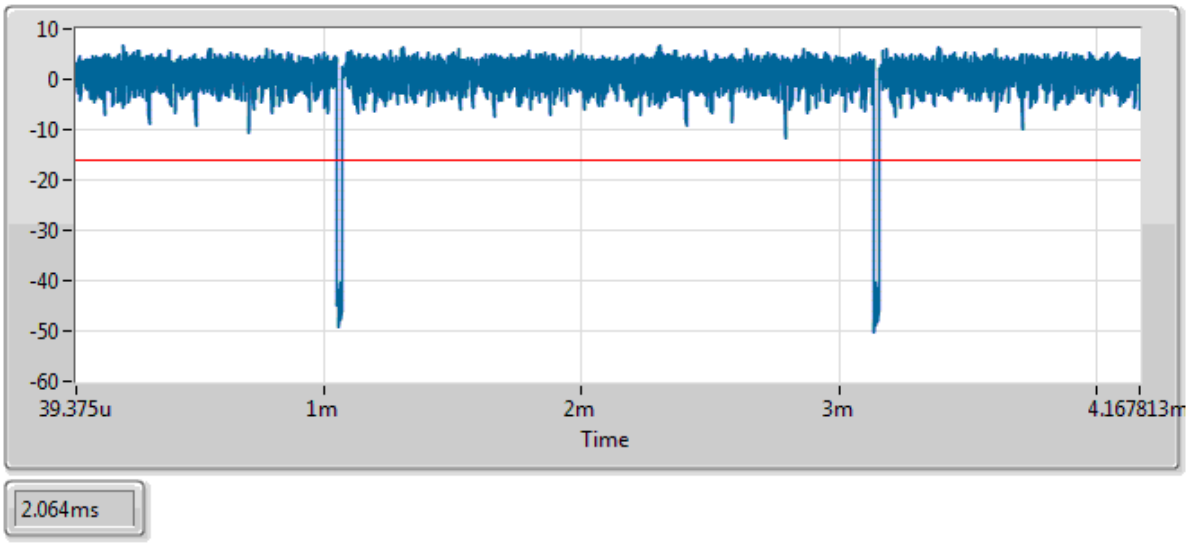
Frequency Band	Mode	Total On Time (ms)	Period (ms)	On Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW/(kHz)
5250~5350 MHz	802.11a 1S2T CDD	9.904	10	2.064	99.0%	0.04	0.01
	802.11ax(20MHz) 1S2T CDD	9.856	10	1.489	98.6%	0.06	0.01
	802.11ax(40MHz) 1S2T CDD	9.744	10	0.774	97.4%	0.11	1.29
	802.11ax(80MHz) 1S2T CDD	9.518	10	0.403	95.2%	0.21	2.48
	802.11ax(20MHz) 1S2T TXBF	9.439	10	2.926	94.4%	0.25	0.34
	802.11ax(40MHz) 1S2T TXBF	18.853	20	4.360	94.3%	0.26	0.23
	802.11ax(80MHz) 1S2T TXBF	28.444	30	4.849	94.8%	0.23	0.21
5470~5725 MHz	802.11a 1S4T CDD	9.904	10	2.064	99.0%	0.04	0.01
	802.11ax(20MHz) 1S4T CDD	9.870	10	1.488	98.7%	0.06	0.01
	802.11ax(40MHz) 1S4T CDD	9.861	10	1.471	98.6%	0.06	0.01
	802.11ax(80MHz) 1S4T CDD	9.876	10	1.404	98.8%	0.05	0.01
	802.11ax(160MHz) 1S4T CDD	9.889	10	1.730	98.9%	0.05	0.01
	802.11ax(20MHz) 1S4T TXBF	9.388	10	2.926	93.9%	0.27	0.34
	802.11ax(40MHz) 1S4T TXBF	19.248	20	4.360	96.2%	0.17	0.23
	802.11ax(80MHz) 1S4T TXBF	28.778	30	5.194	95.9%	0.18	0.19
	802.11ax(160MHz) 1S4T TXBF	28.980	30	5.175	96.6%	0.15	0.19
	802.11ax(20MHz) 2S4T TXBF	28.759	30	4.372	95.9%	0.18	0.23
	802.11ax(40MHz) 2S4T TXBF	28.245	30	5.089	94.2%	0.26	0.20
	802.11ax(80MHz) 2S4T TXBF	28.793	30	4.834	96.0%	0.18	0.21
	802.11ax(160MHz) 2S4T TXBF	38.495	40	5.415	96.2%	0.17	0.18
	802.11ax(20MHz) 3S4T TXBF	28.841	30	4.864	96.1%	0.17	0.21
	802.11ax(40MHz) 3S4T TXBF	29.156	30	5.336	97.2%	0.12	0.19
	802.11ax(80MHz) 3S4T TXBF	27.263	30	4.732	90.9%	0.42	0.21
	802.11ax(160MHz) 3S4T TXBF	28.886	30	5.344	96.3%	0.16	0.19

Note:
1. Power measurement using sweep trigger and gating of the power meter, duty factor is not required.
2. Duty cycle > 98%, duty factor is not required.

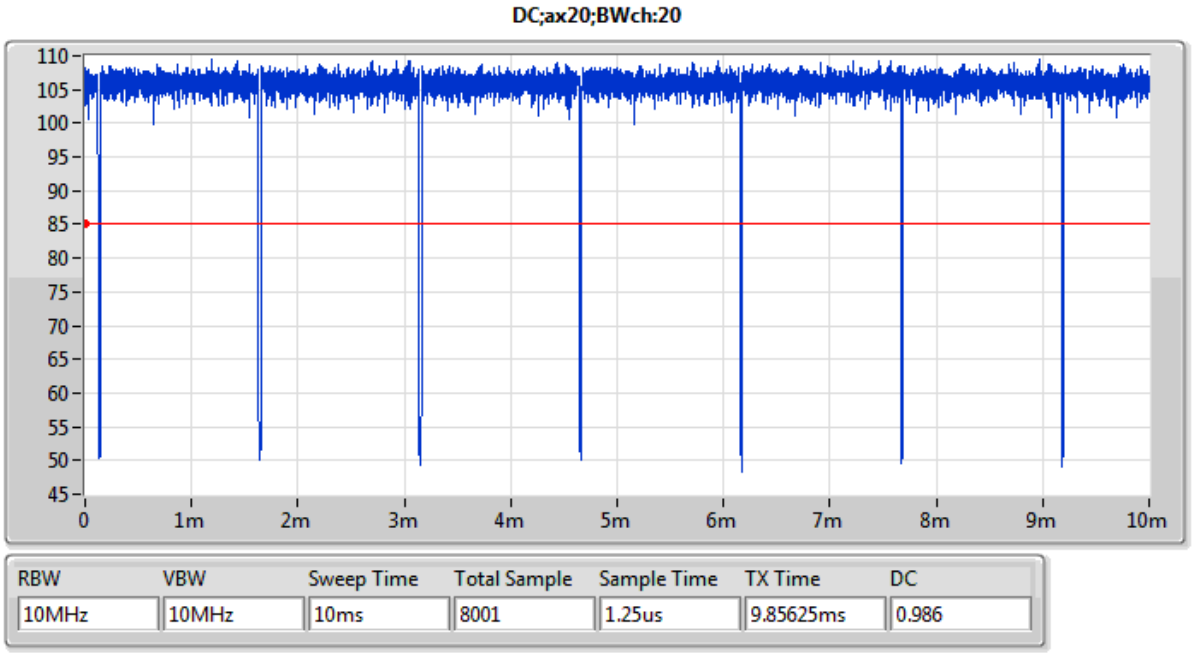
For 5250~5350MHz, Plot:

802.11a 1S2T CDD

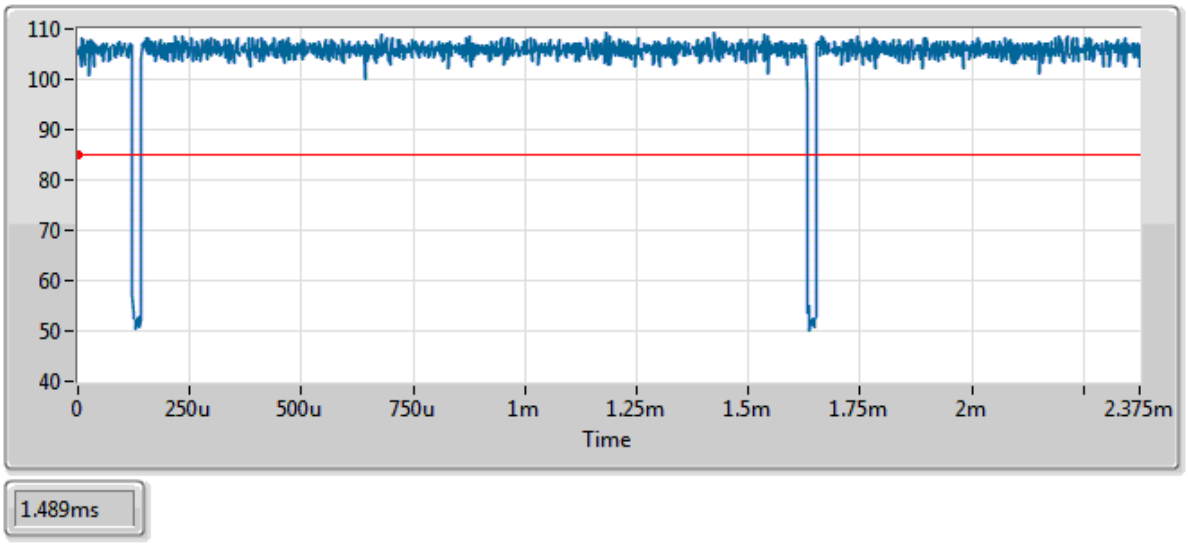




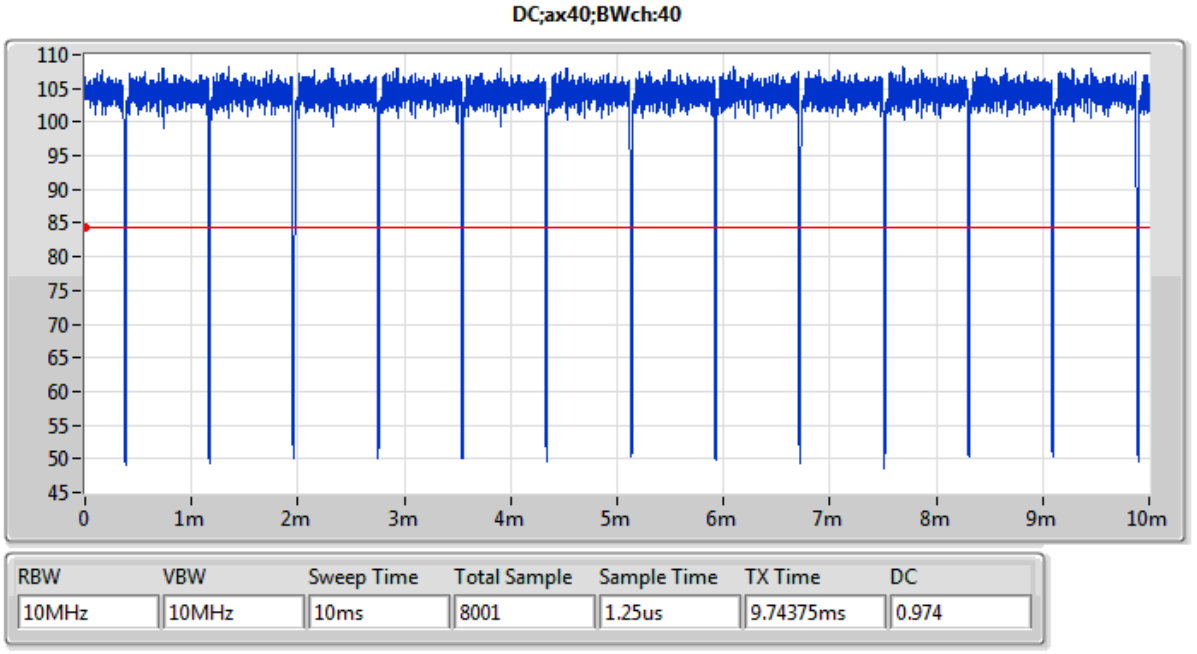
802.11ax(20MHz) 1S2T CDD

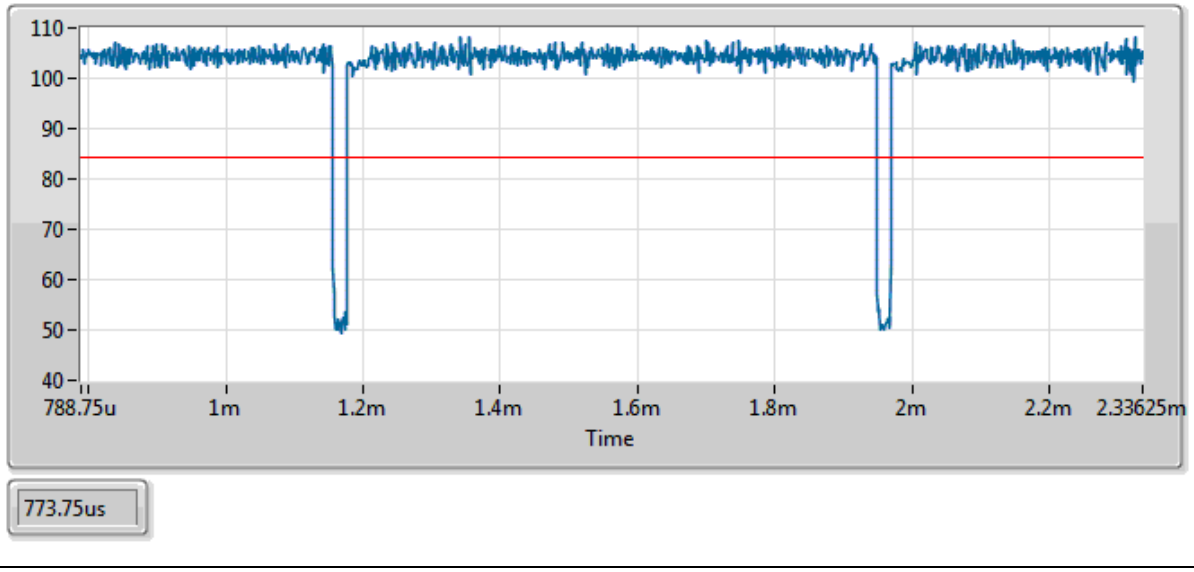


RBW	VBW	Sweep Time	Total Sample	Sample Time	TX Time	DC
10MHz	10MHz	10ms	8001	1.25us	9.85625ms	0.986

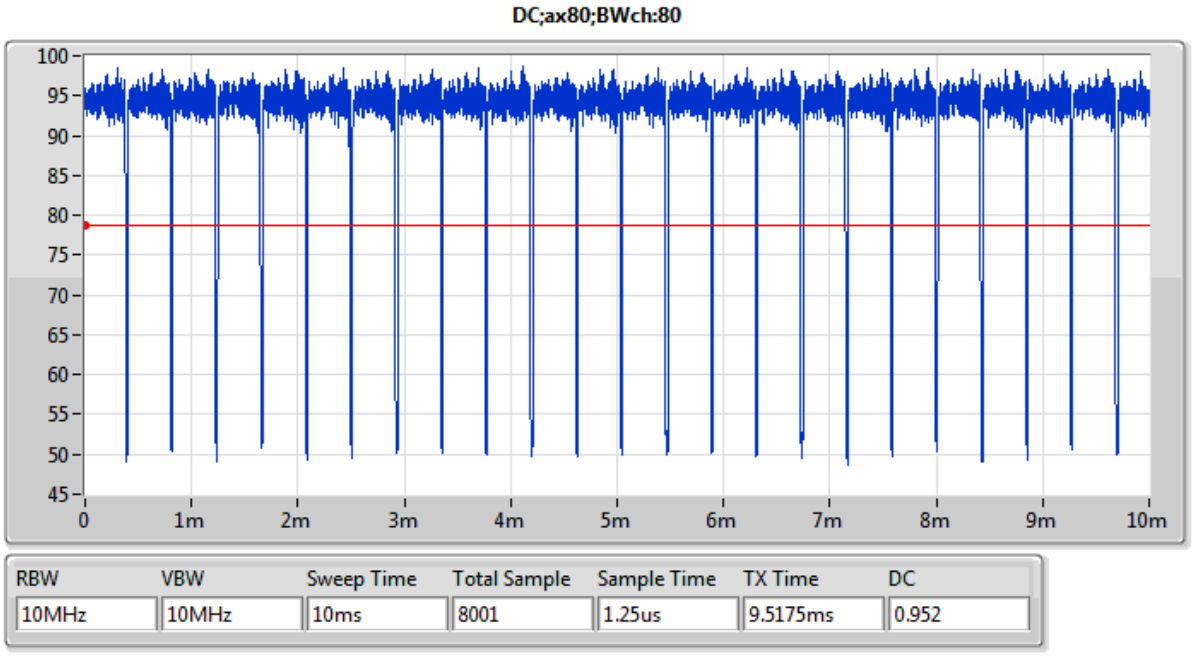


802.11ax(40MHz) 1S2T CDD

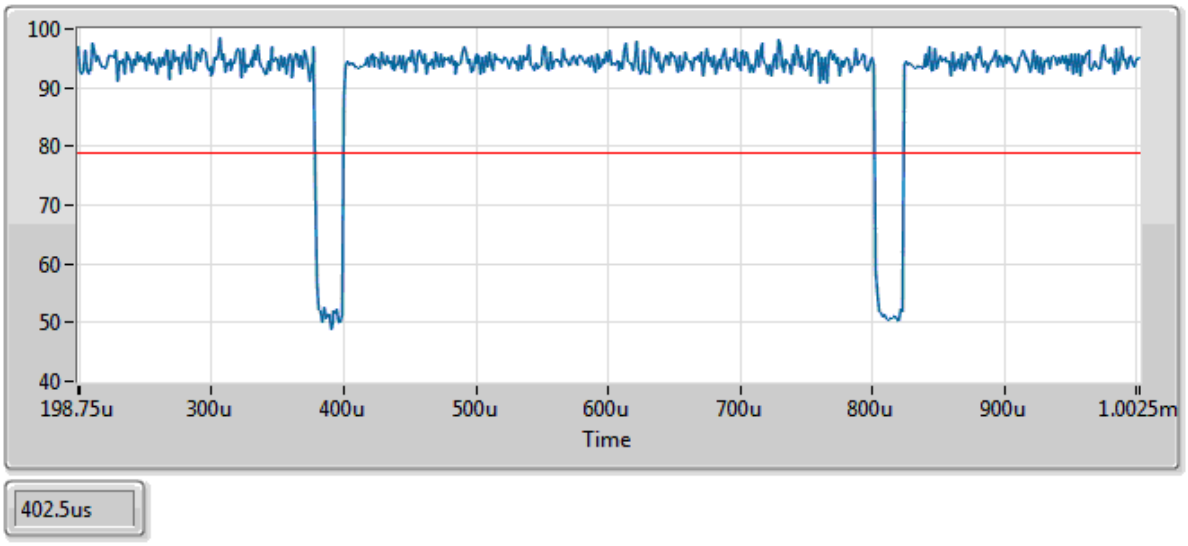




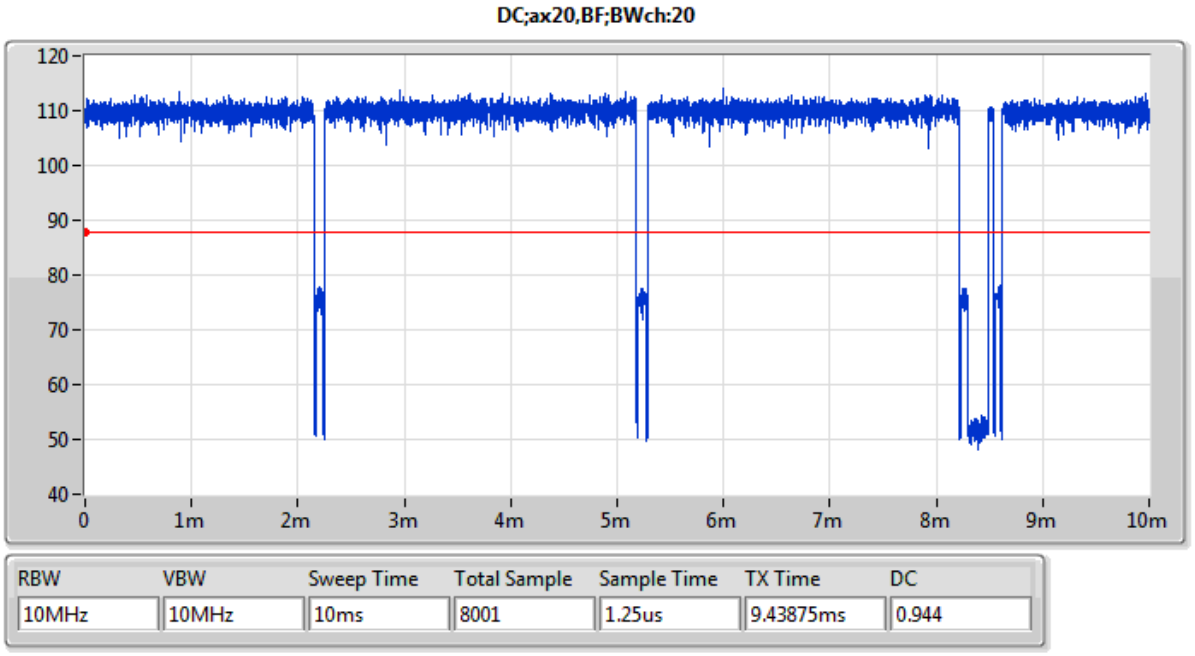
802.11ax(80MHz) 1S2T CDD



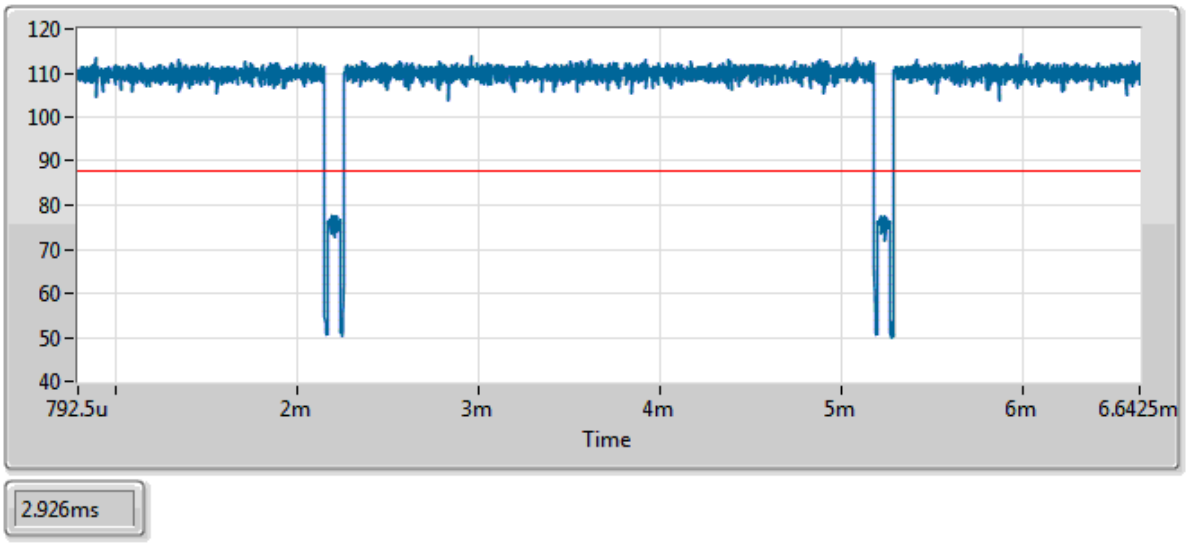
RBW	VBW	Sweep Time	Total Sample	Sample Time	TX Time	DC
10MHz	10MHz	10ms	8001	1.25us	9.5175ms	0.952



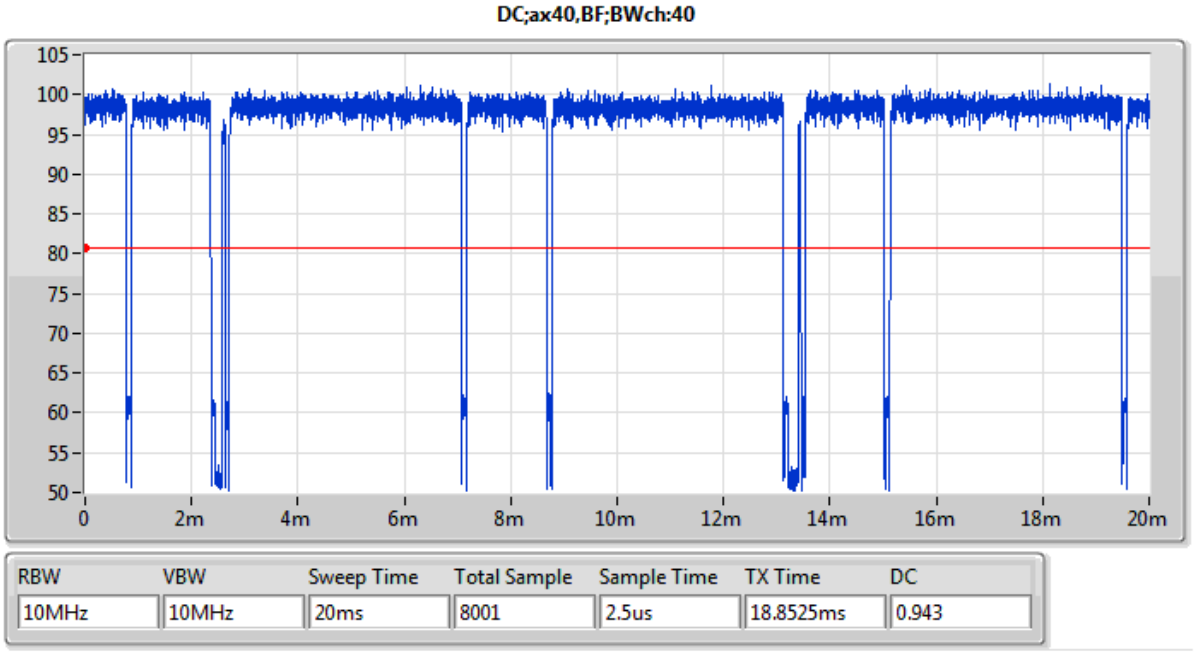
802.11ax(20MHz) 1S2T TXBF



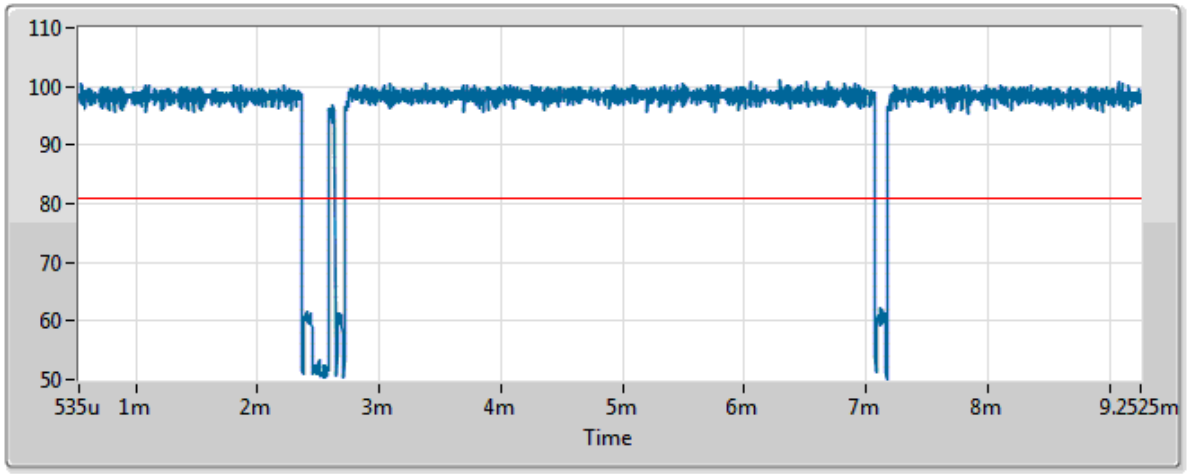
RBW	VBW	Sweep Time	Total Sample	Sample Time	TX Time	DC
10MHz	10MHz	10ms	8001	1.25us	9.43875ms	0.944



802.11ax(40MHz) 1S2T TXBF

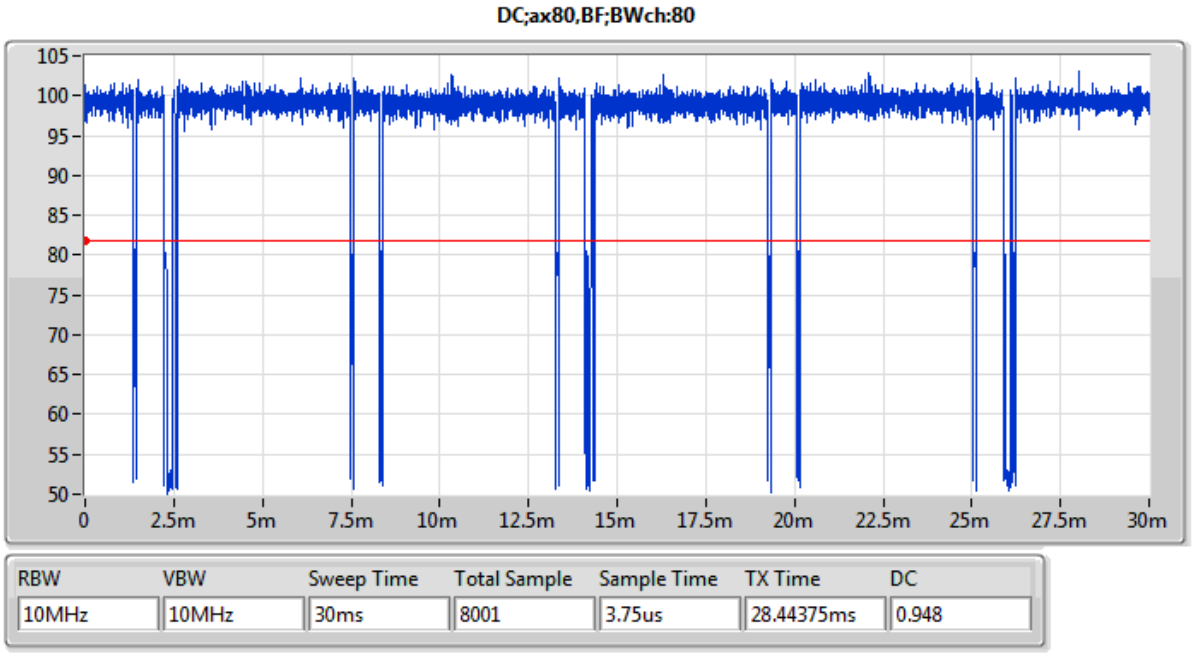


RBW	VBW	Sweep Time	Total Sample	Sample Time	TX Time	DC
10MHz	10MHz	20ms	8001	2.5us	18.8525ms	0.943

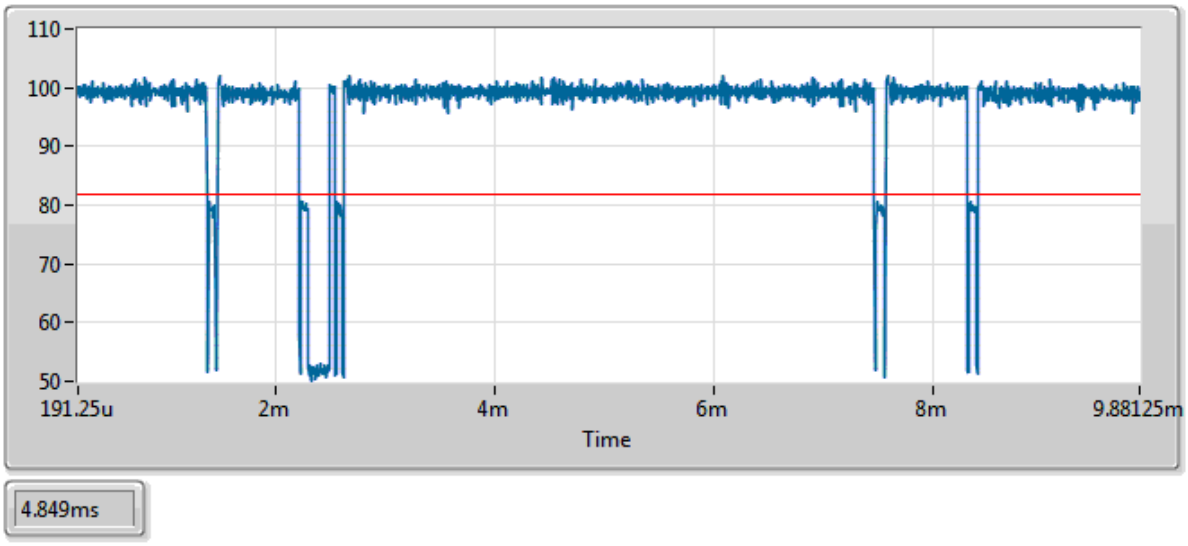


4.36ms

802.11ax(80MHz) 1S2T TXBF

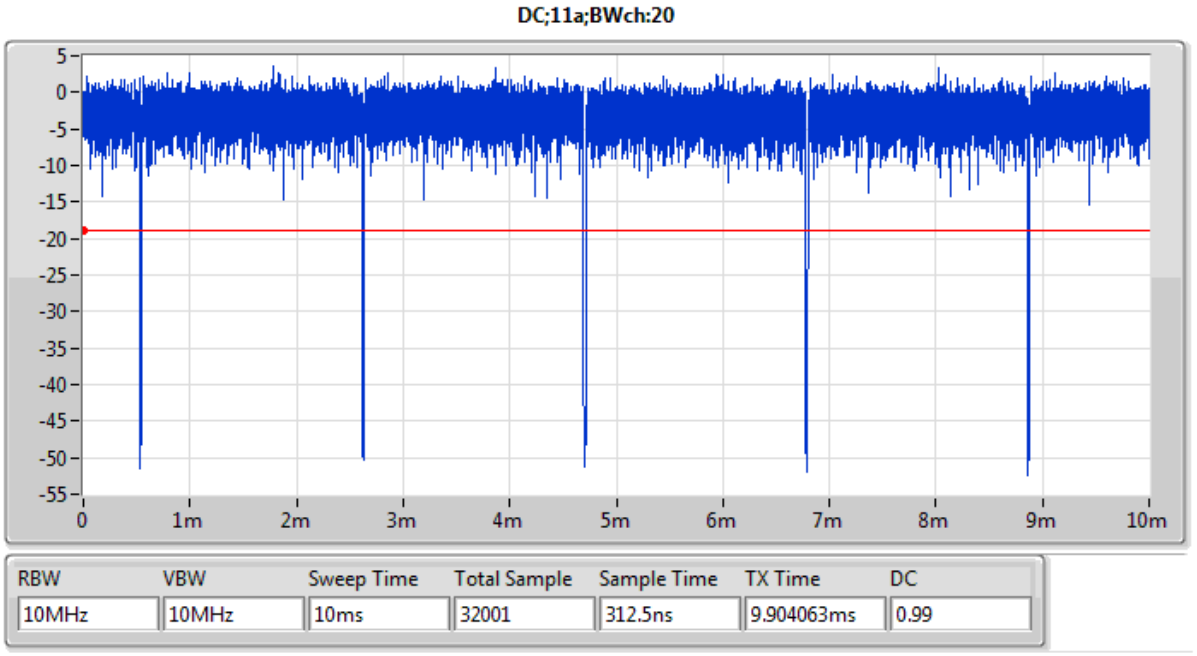


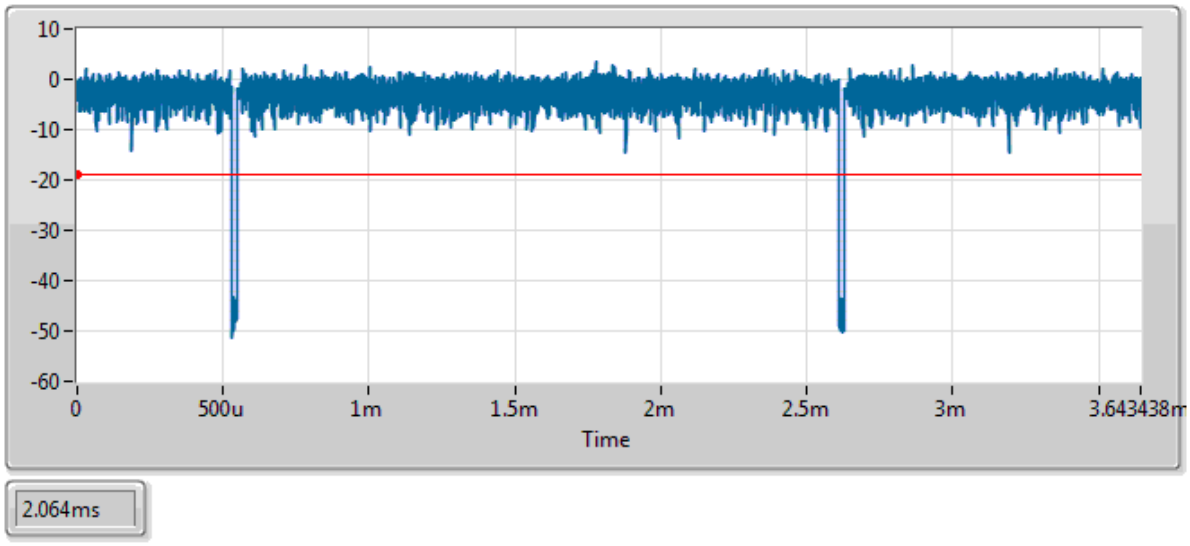
RBW	VBW	Sweep Time	Total Sample	Sample Time	TX Time	DC
10MHz	10MHz	30ms	8001	3.75us	28.44375ms	0.948



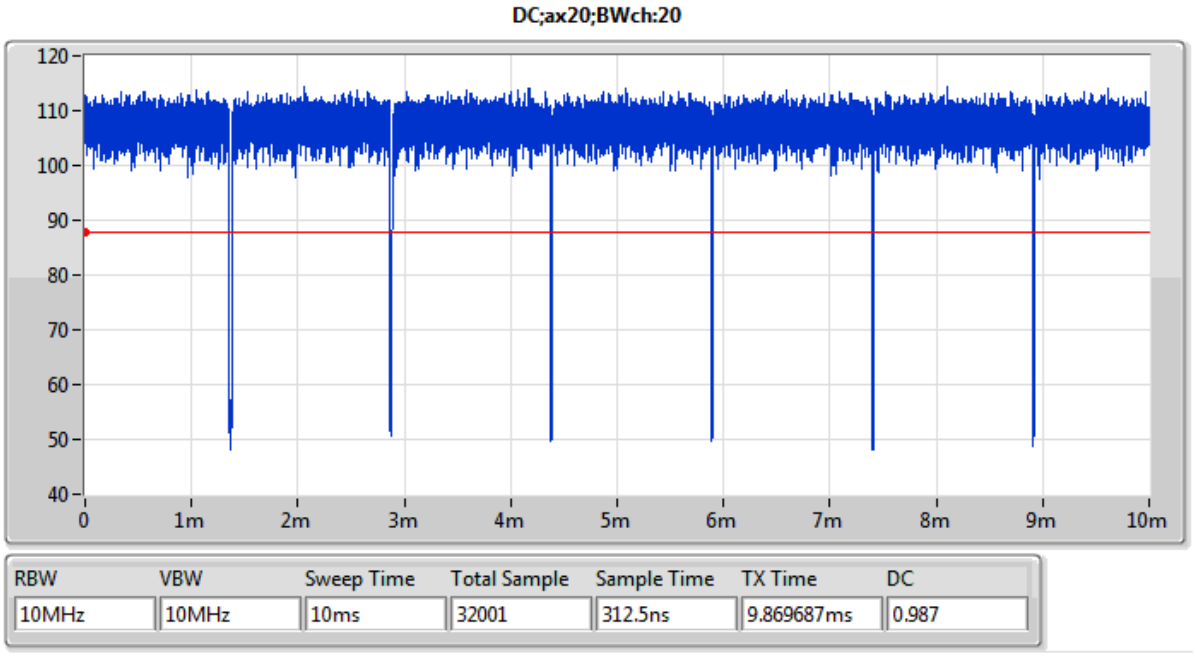
For 5470~5725MHz, Plot:

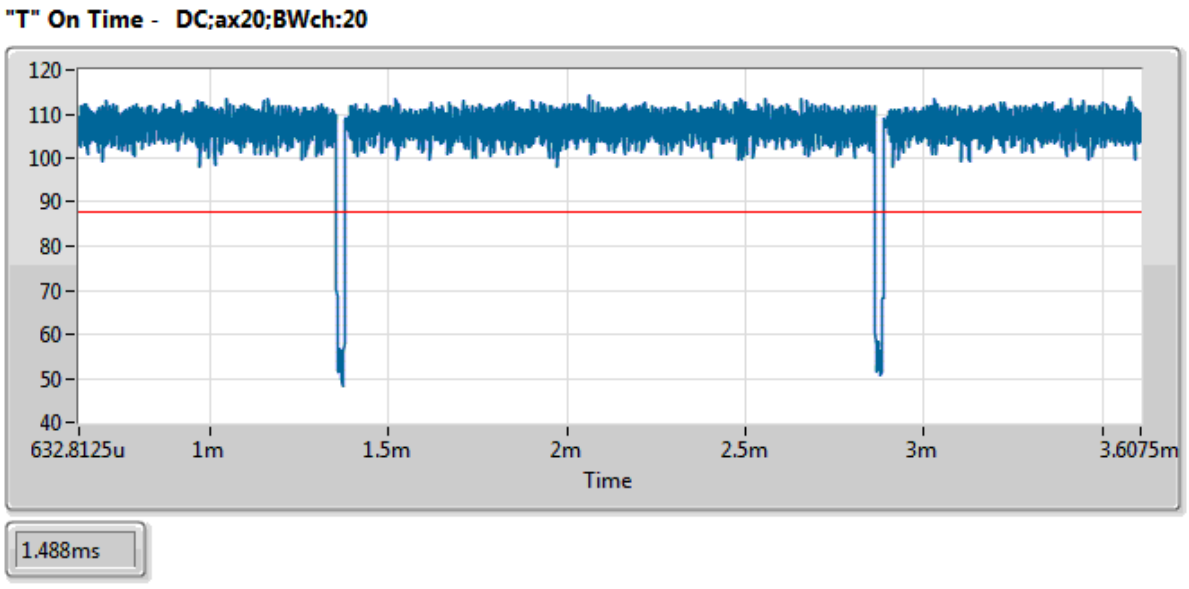
802.11a 1S4T CDD



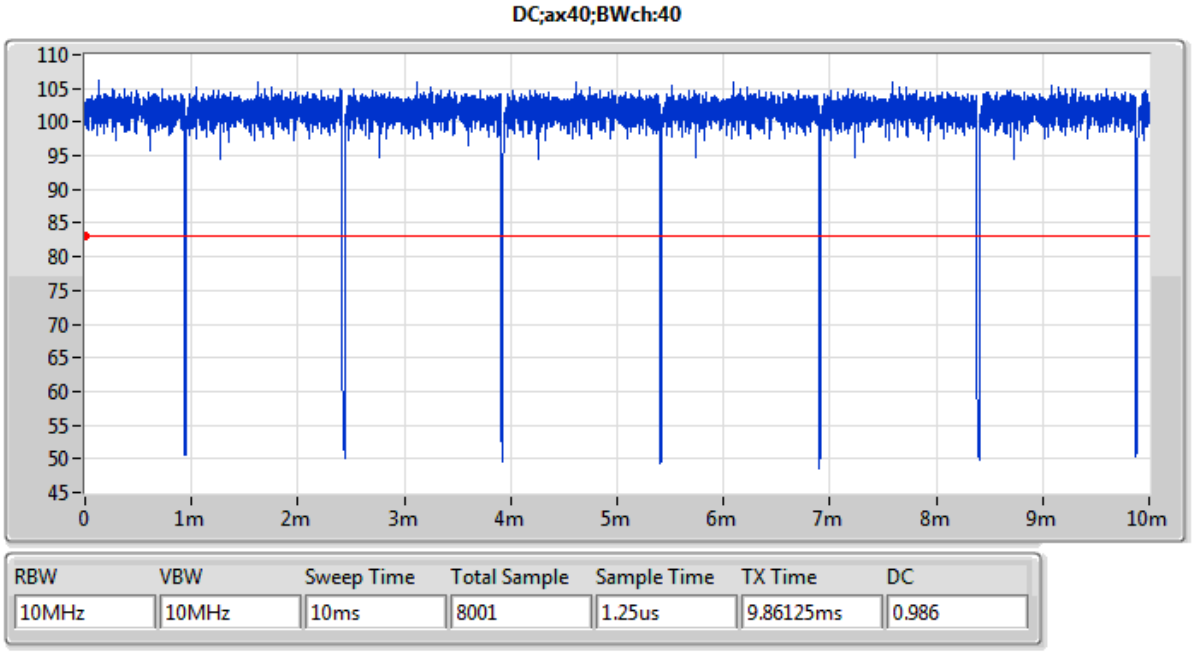


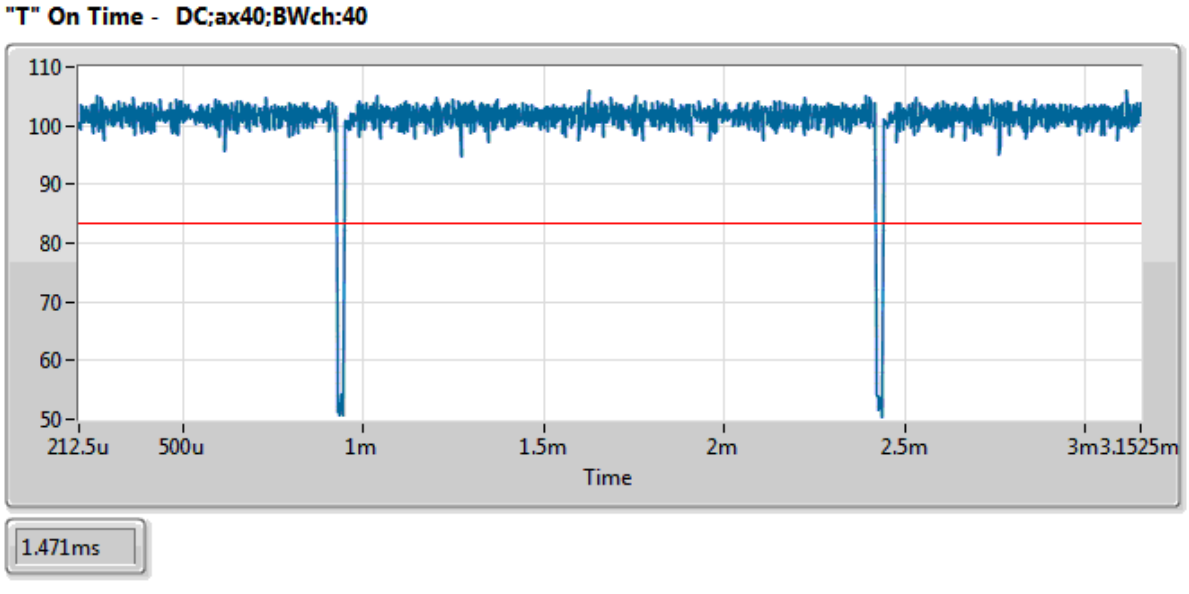
802.11ax(20MHz) 1S4T CDD



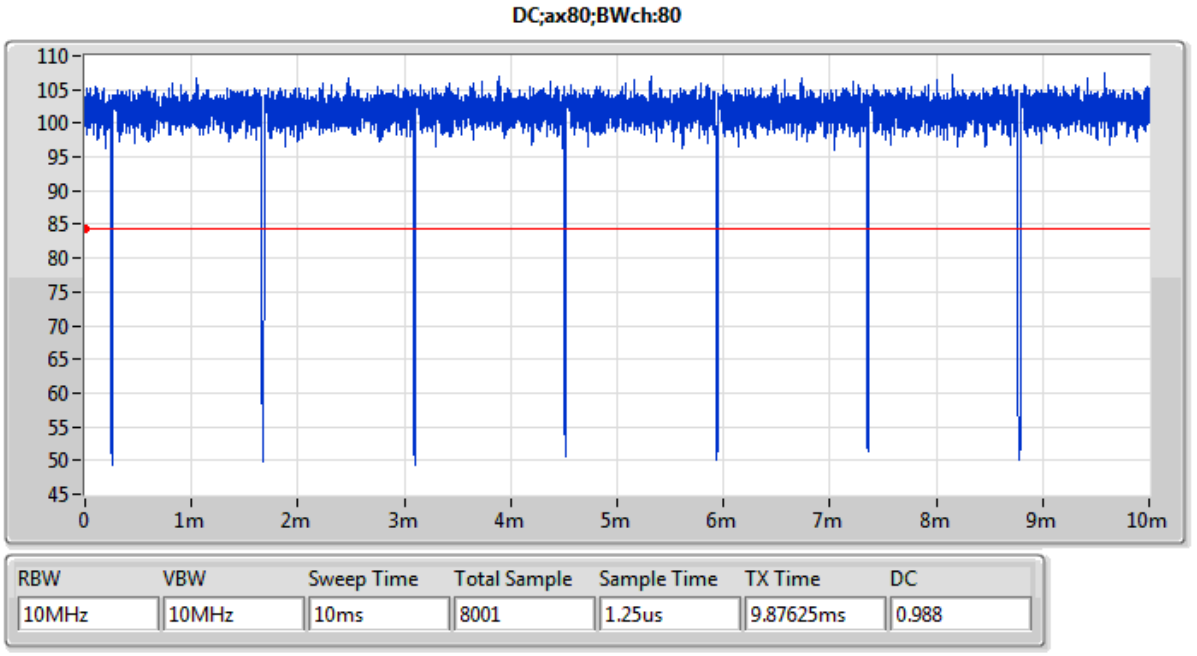


802.11ax(40MHz) 1S4T CDD

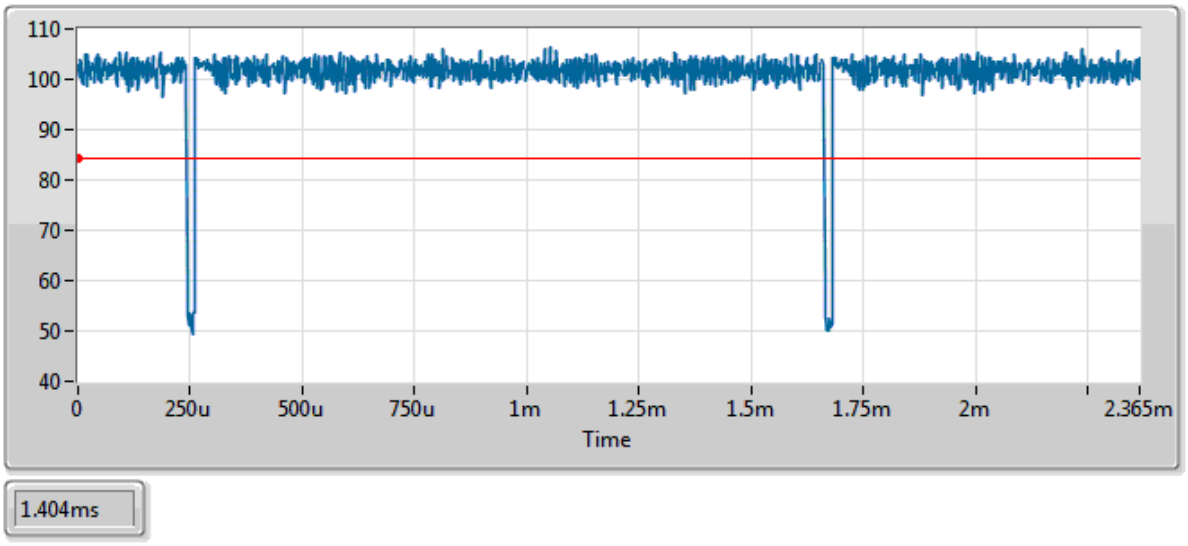




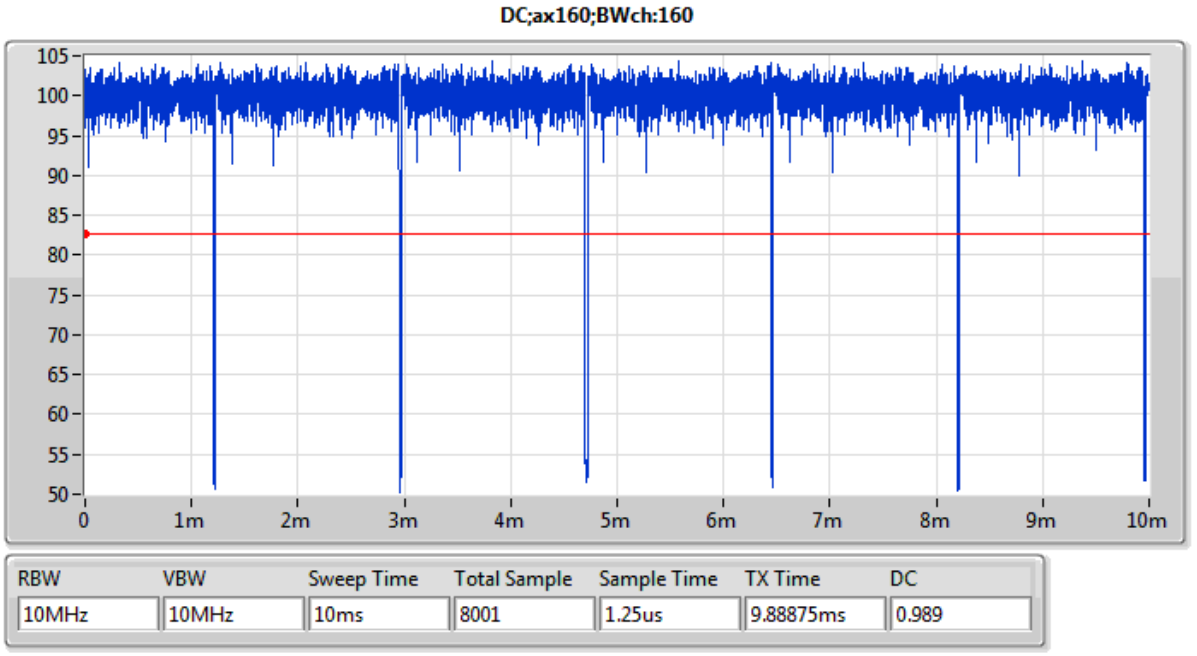
802.11ax(80MHz) 1S4T CDD

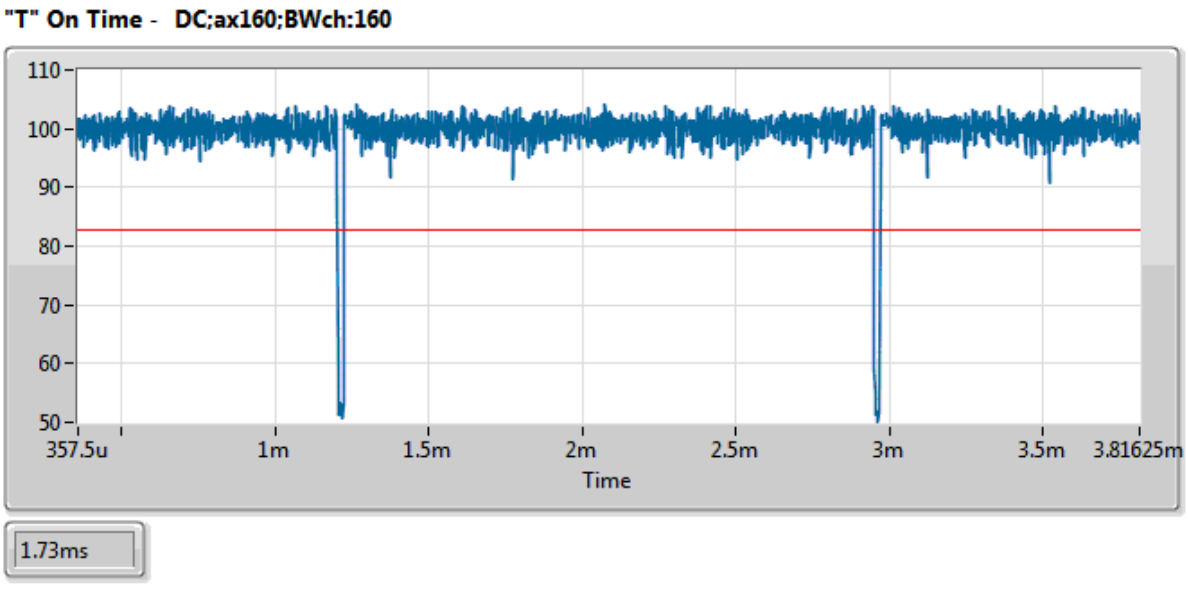


RBW	VBW	Sweep Time	Total Sample	Sample Time	TX Time	DC
10MHz	10MHz	10ms	8001	1.25us	9.87625ms	0.988

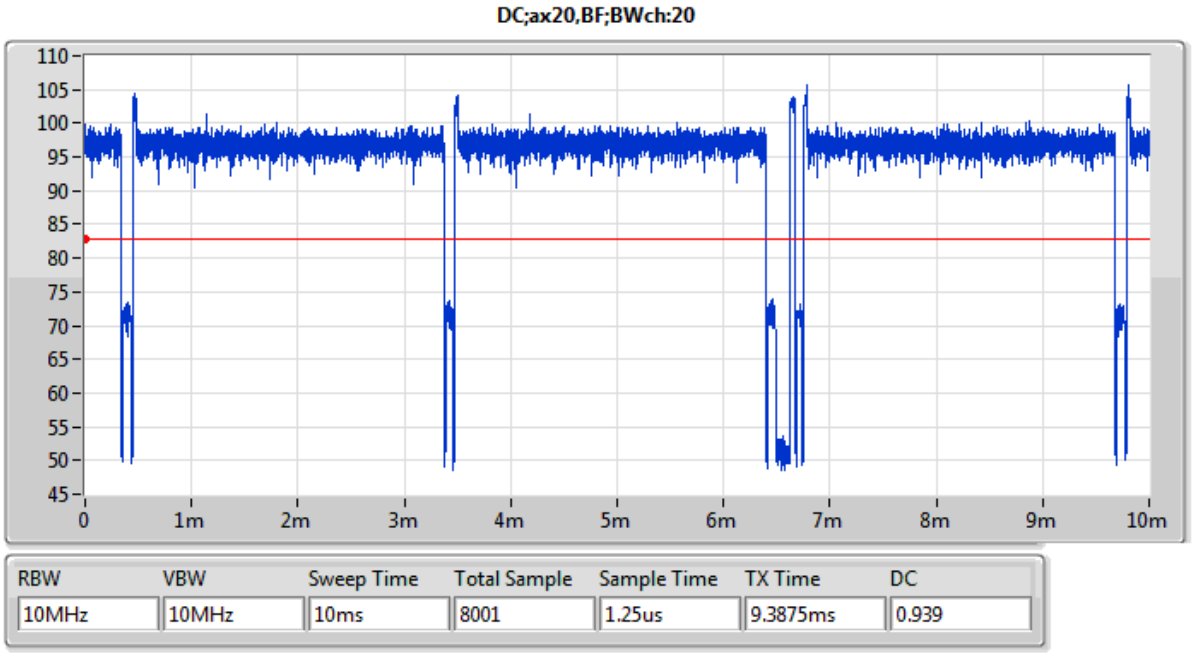


802.11ax(160MHz) 1S4T CDD

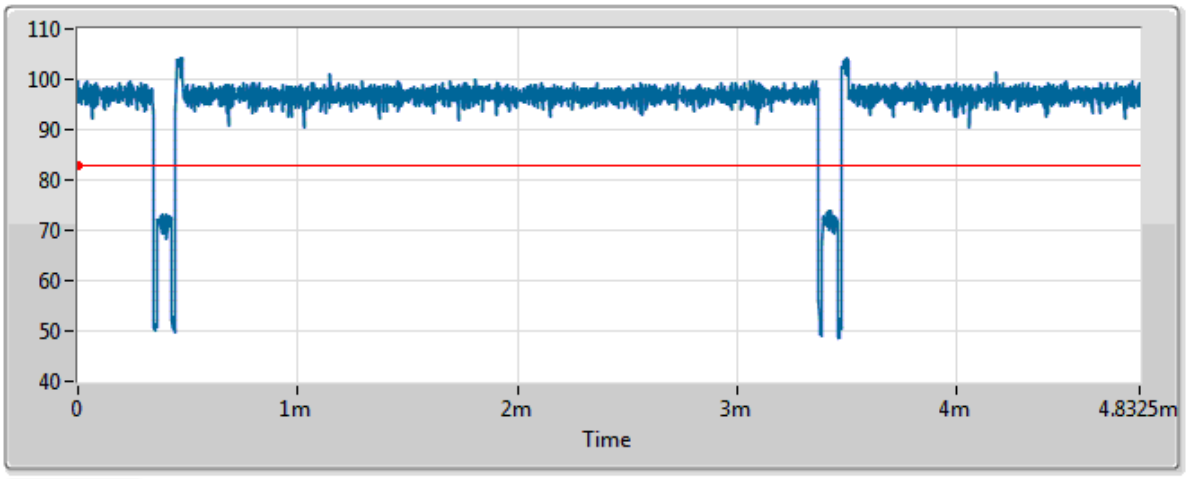




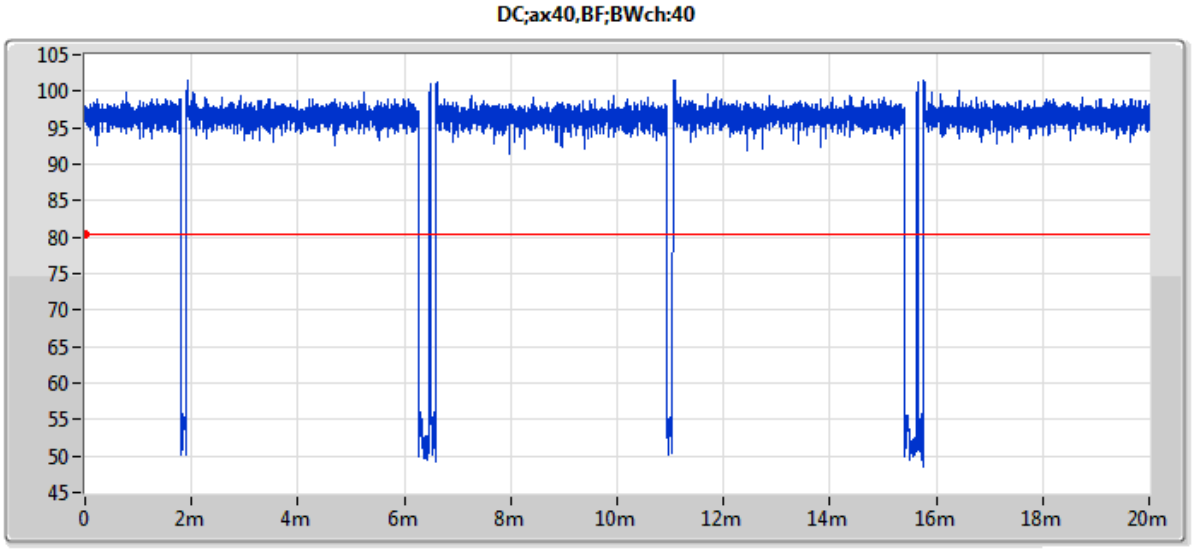
802.11ax(20MHz) 1S4T TXBF



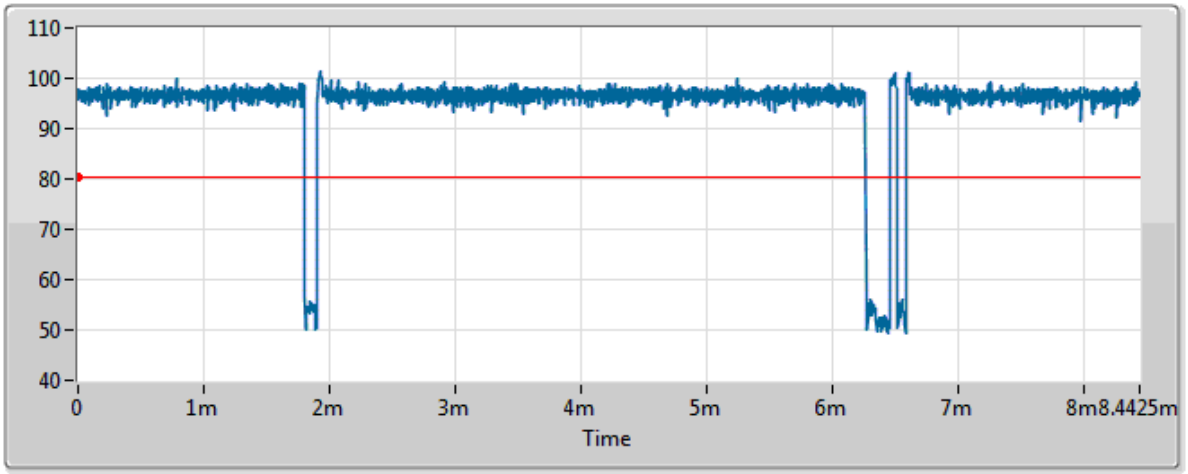
RBW	VBW	Sweep Time	Total Sample	Sample Time	TX Time	DC
10MHz	10MHz	10ms	8001	1.25us	9.3875ms	0.939



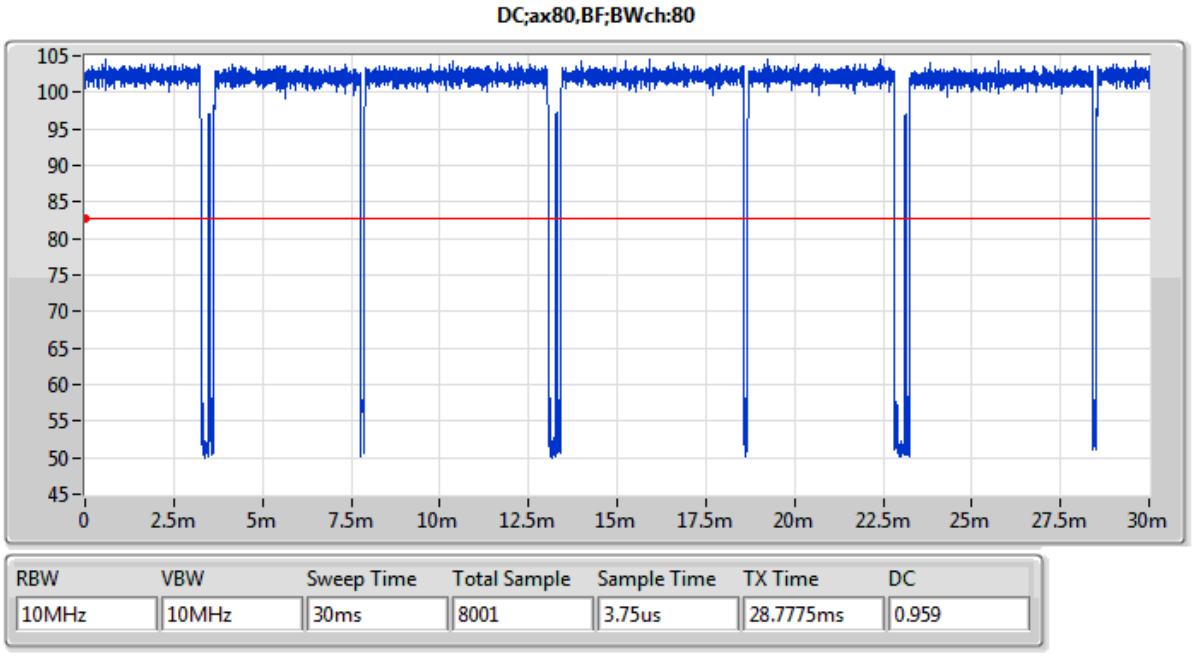
802.11ax(40MHz) 1S4T TXBF



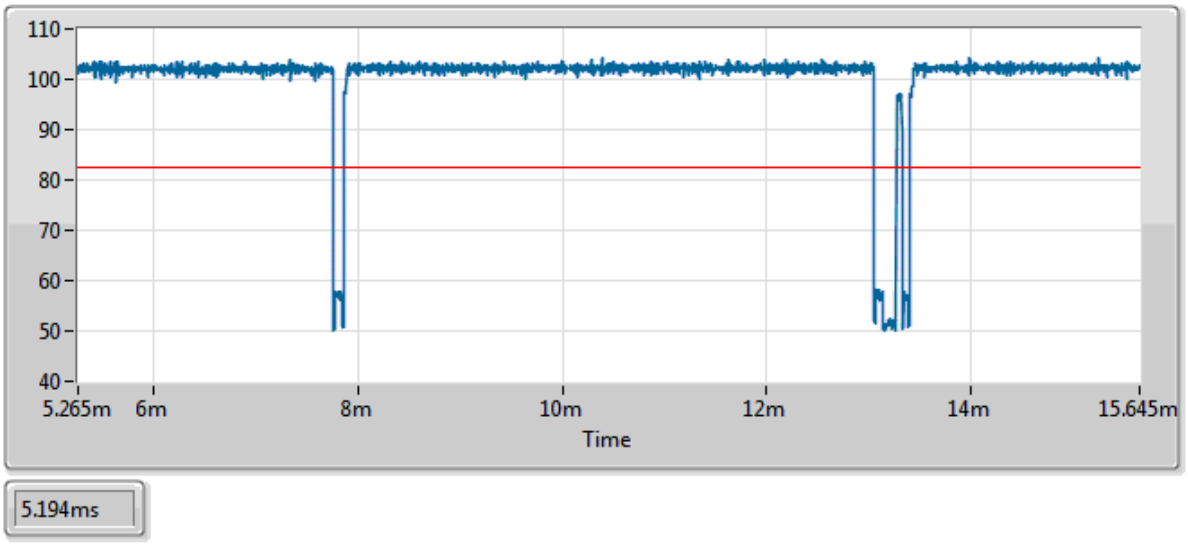
RBW	VBW	Sweep Time	Total Sample	Sample Time	TX Time	DC
10MHz	10MHz	20ms	8001	2.5us	19.2475ms	0.962



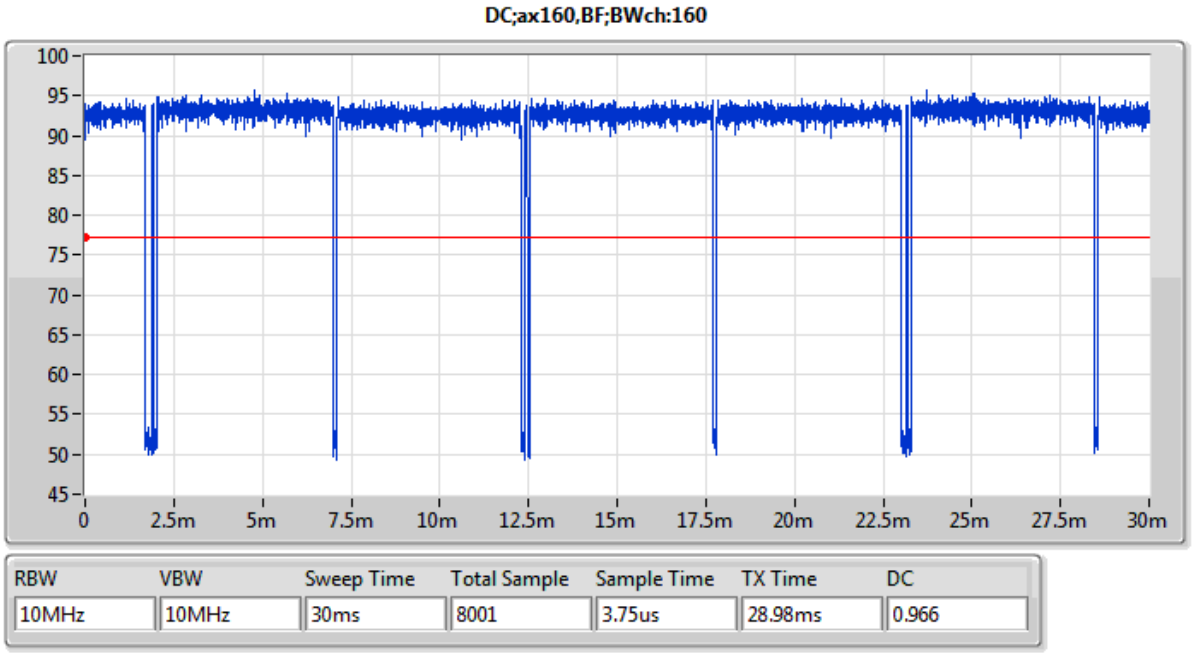
802.11ax(80MHz) 1S4T TXBF



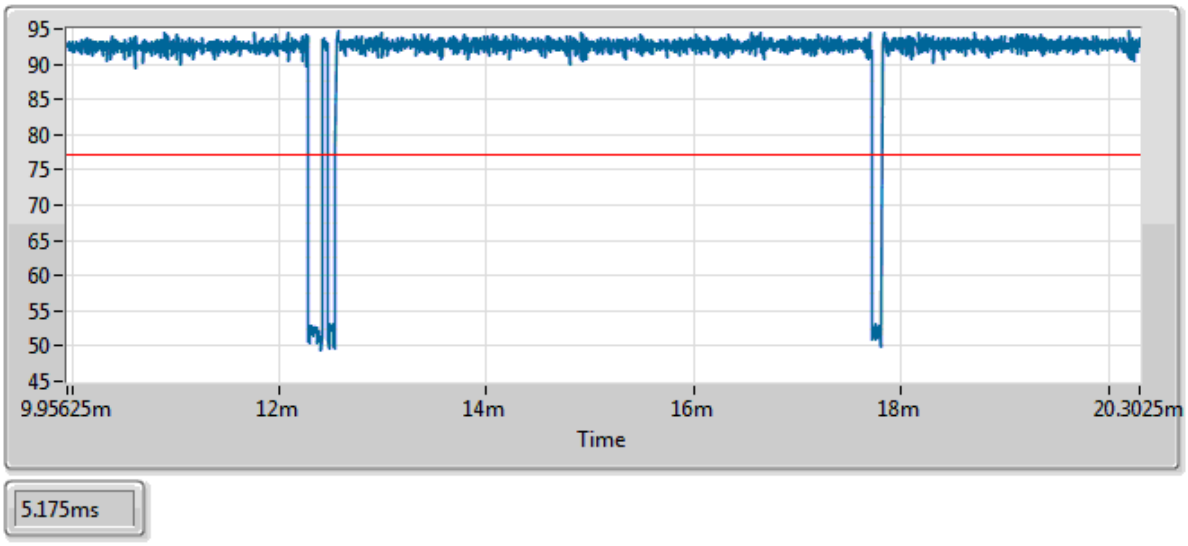
RBW	VBW	Sweep Time	Total Sample	Sample Time	TX Time	DC
10MHz	10MHz	30ms	8001	3.75us	28.7775ms	0.959



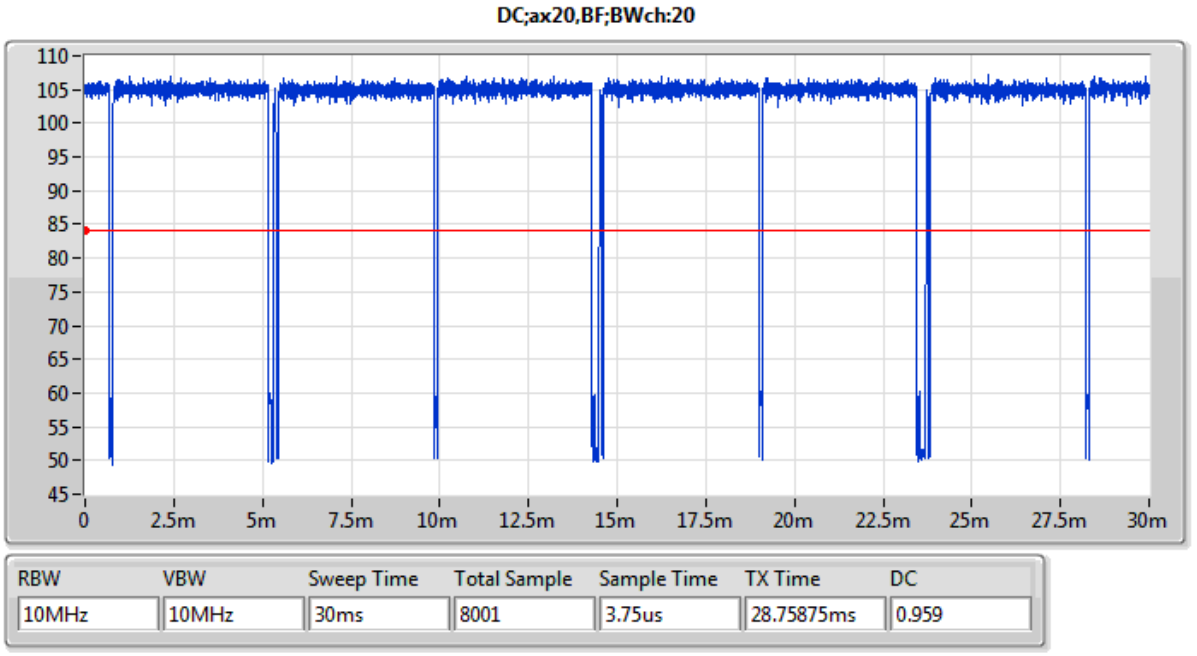
802.11ax(160MHz) 1S4T TXBF



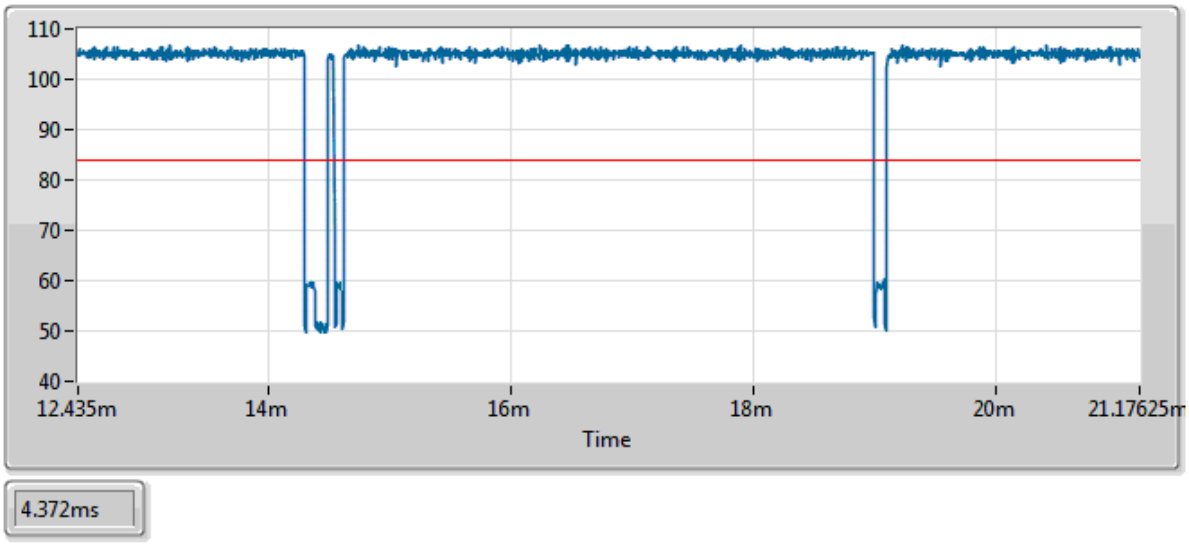
RBW	VBW	Sweep Time	Total Sample	Sample Time	TX Time	DC
10MHz	10MHz	30ms	8001	3.75us	28.98ms	0.966



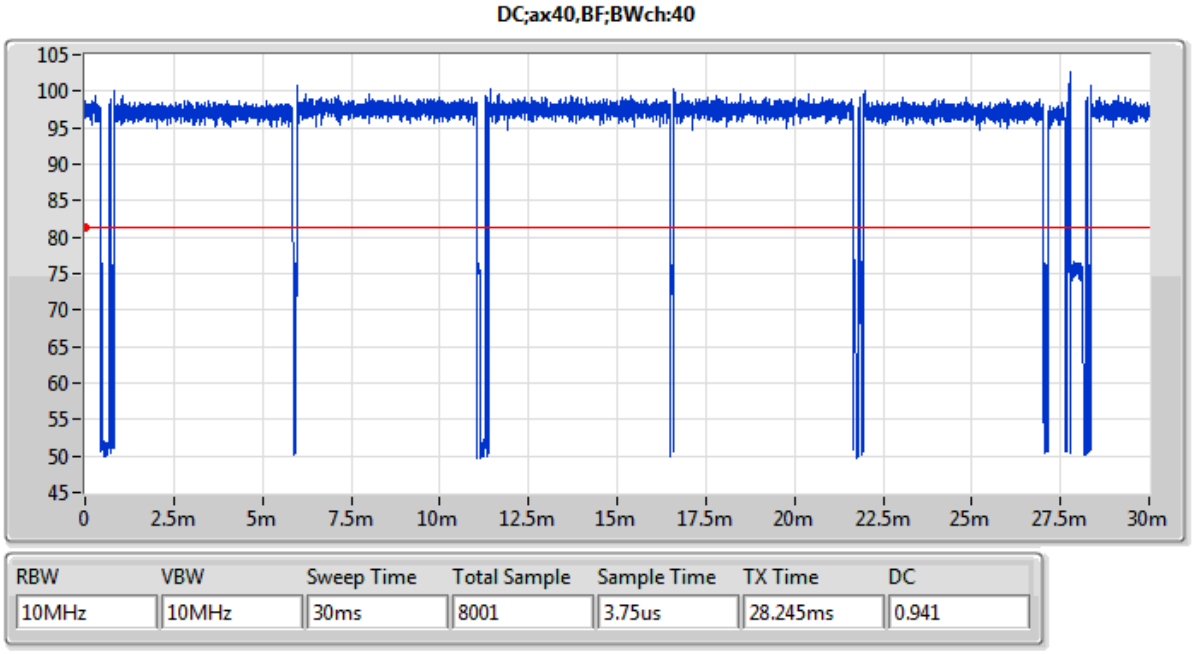
802.11ax(20MHz) 2S4T TXBF



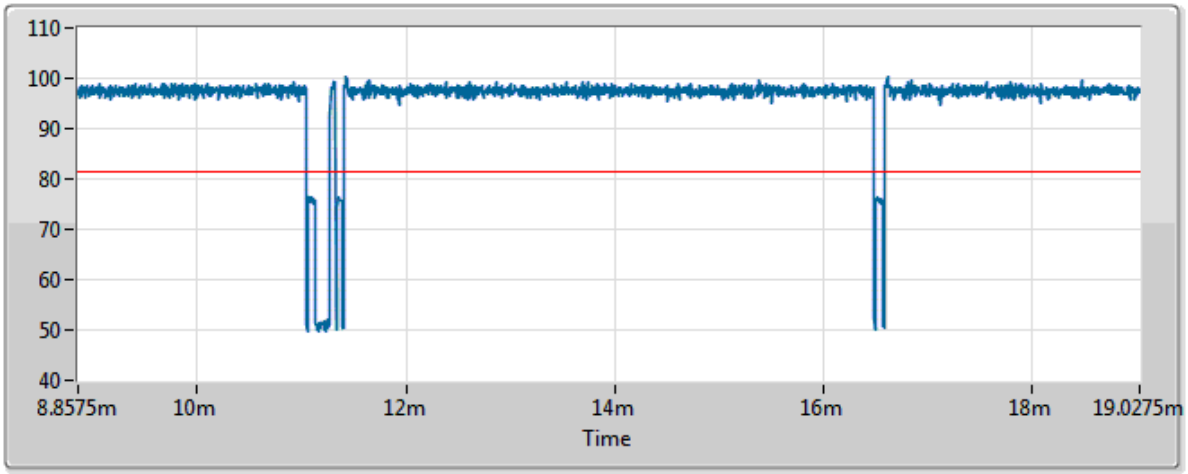
RBW	VBW	Sweep Time	Total Sample	Sample Time	TX Time	DC
10MHz	10MHz	30ms	8001	3.75us	28.75875ms	0.959



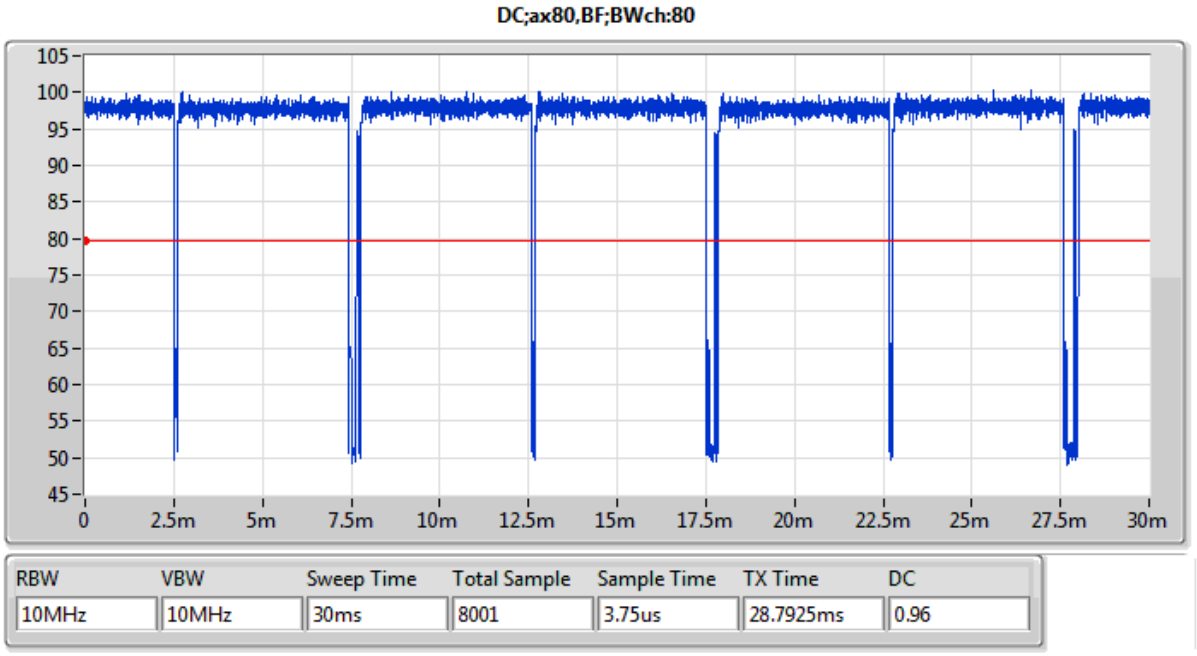
802.11ax(40MHz) 2S4T TXBF

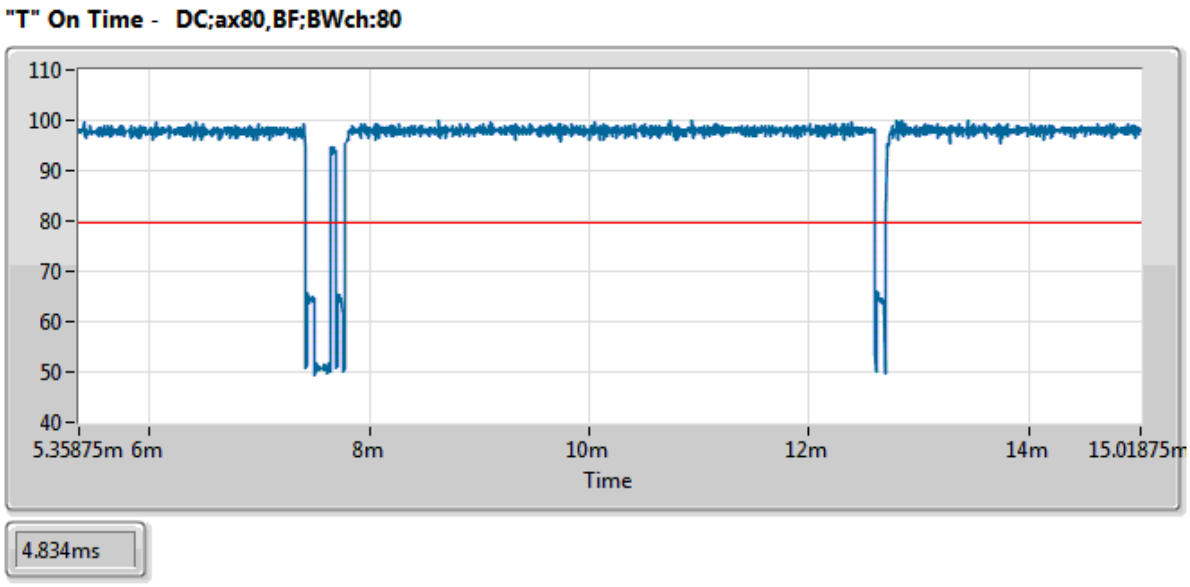


RBW	VBW	Sweep Time	Total Sample	Sample Time	TX Time	DC
10MHz	10MHz	30ms	8001	3.75us	28.245ms	0.941

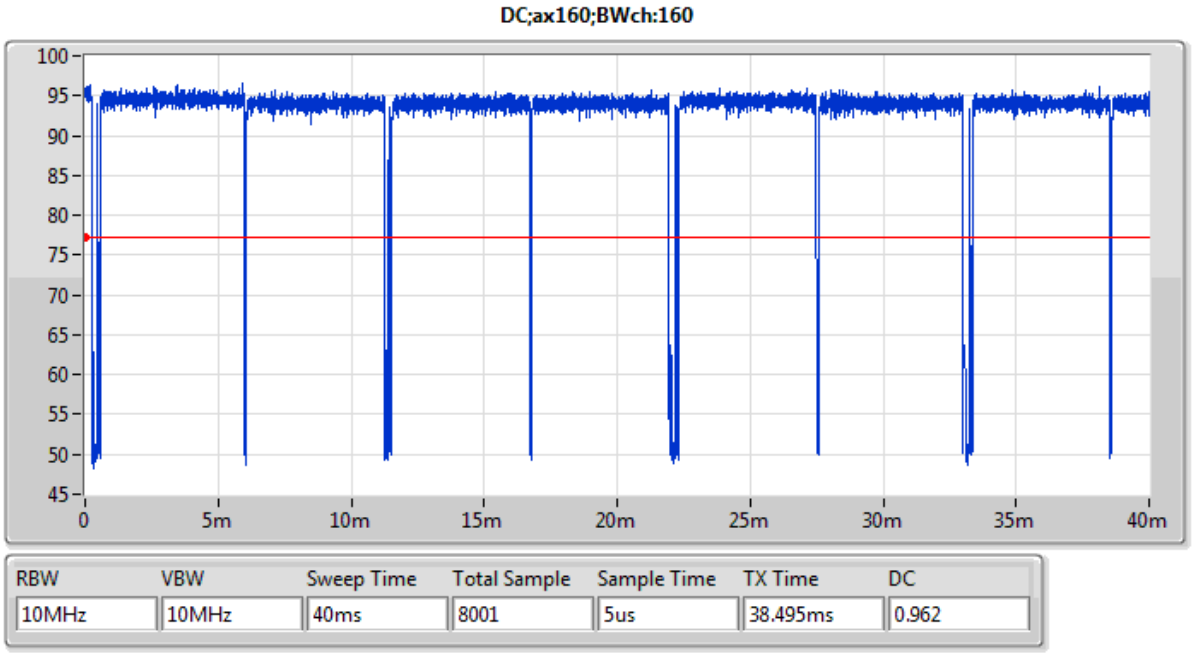


802.11ax(80MHz) 2S4T TXBF

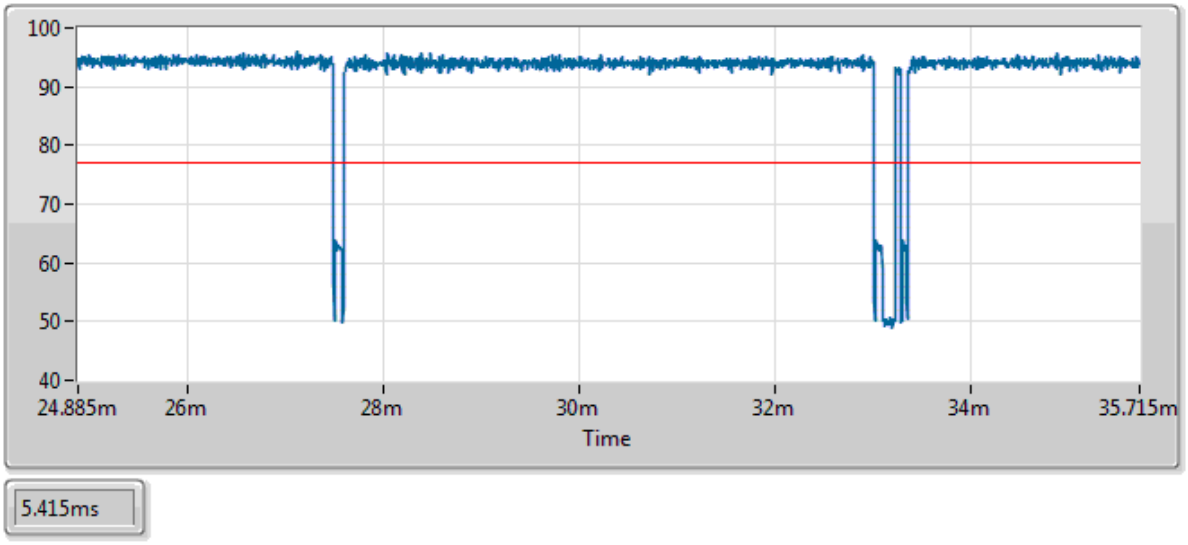




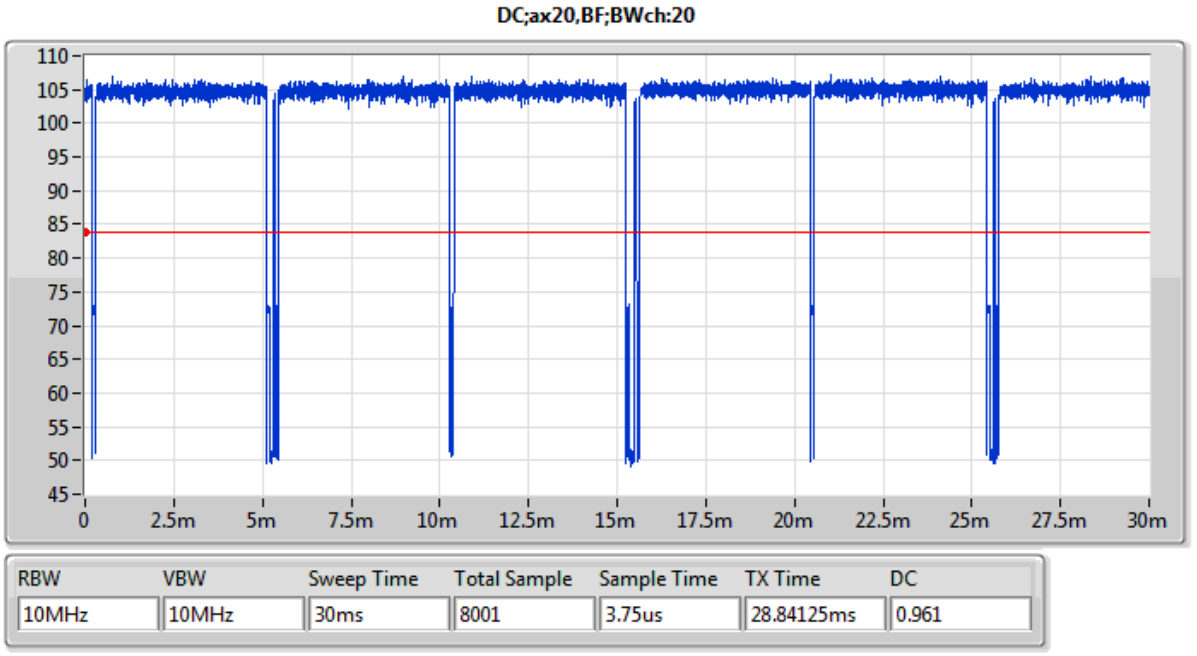
802.11ax(160MHz) 2S4T TXBF

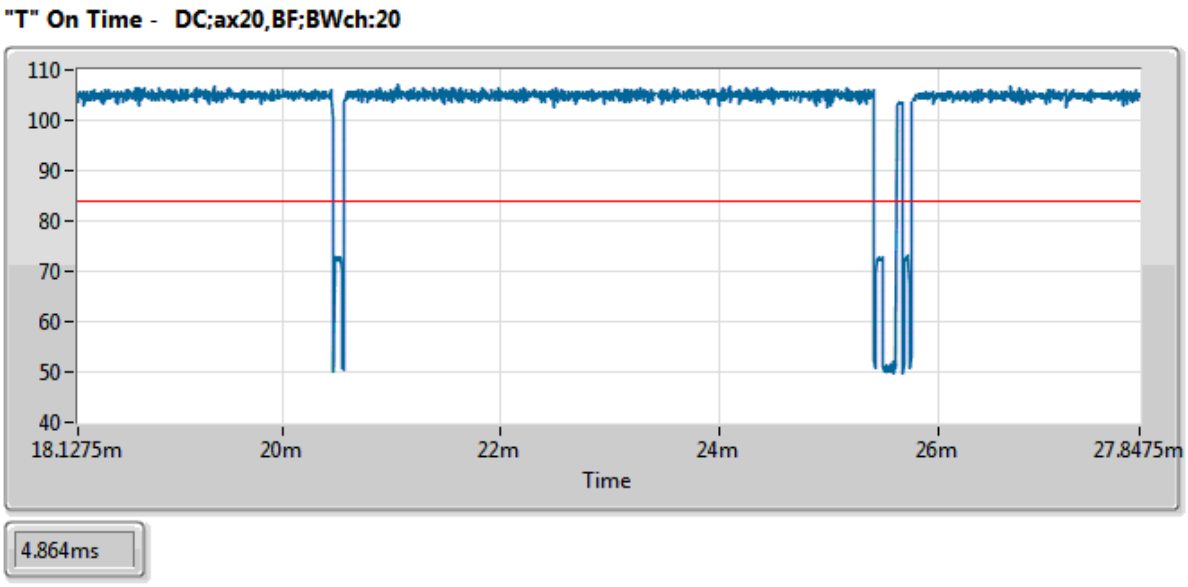


RBW	VBW	Sweep Time	Total Sample	Sample Time	TX Time	DC
10MHz	10MHz	40ms	8001	5us	38.495ms	0.962

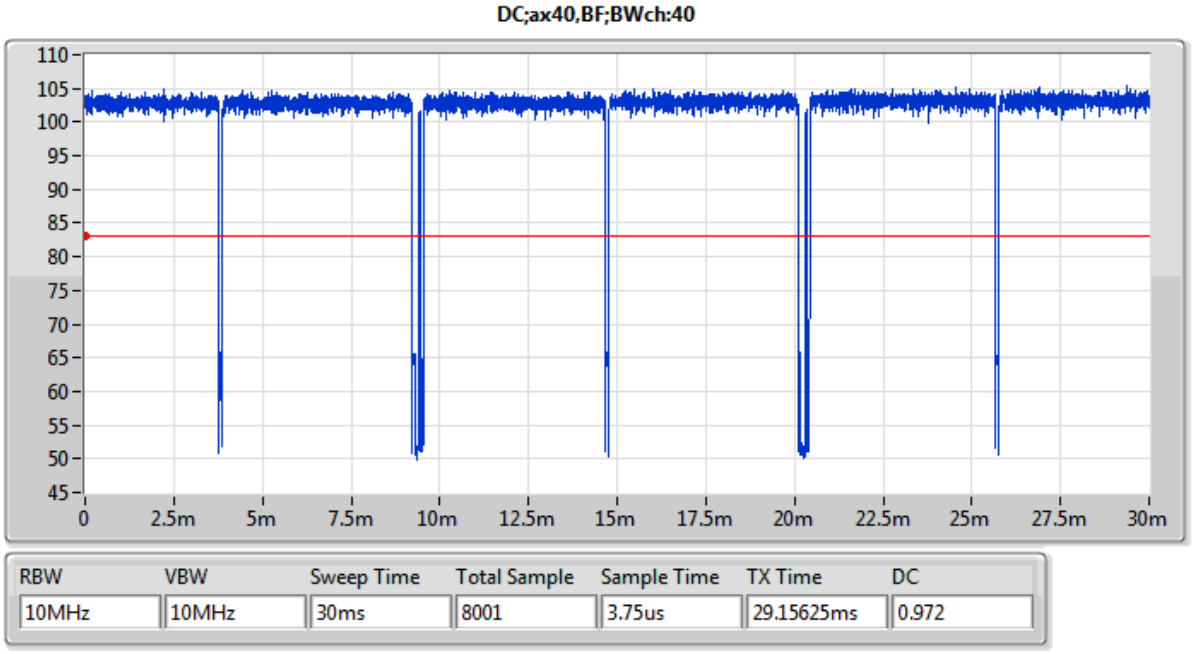


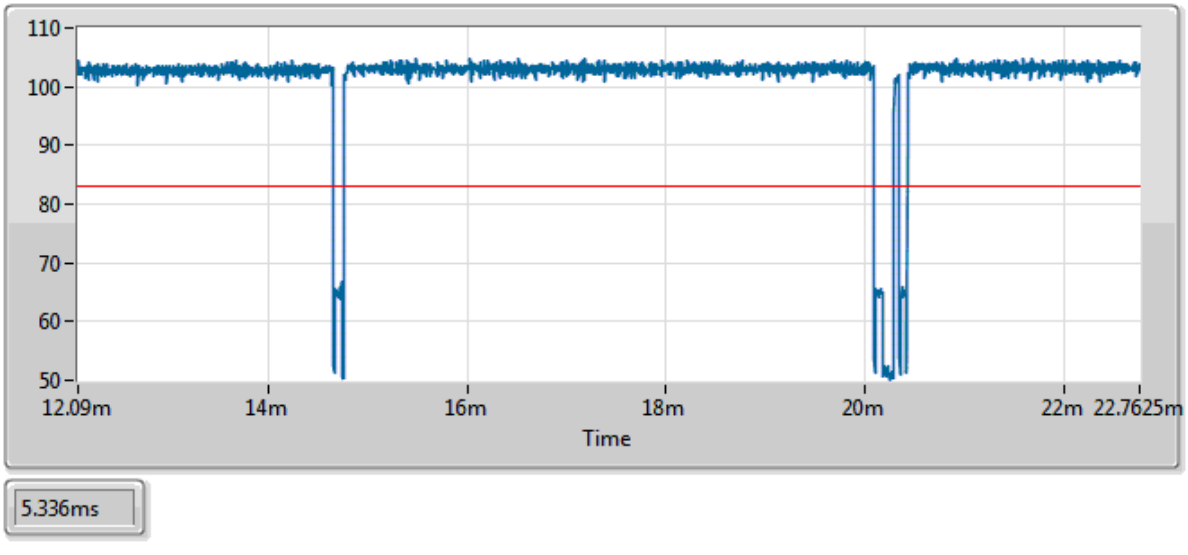
802.11ax(20MHz) 3S4T TXBF



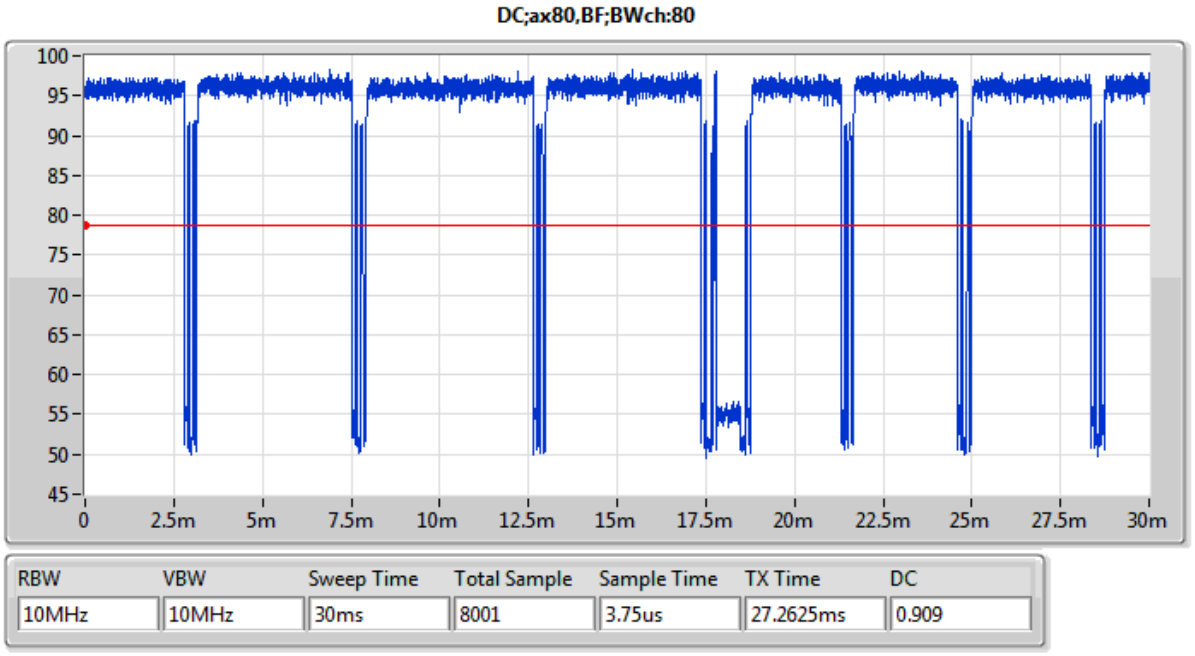


802.11ax(40MHz) 3S4T TXBF

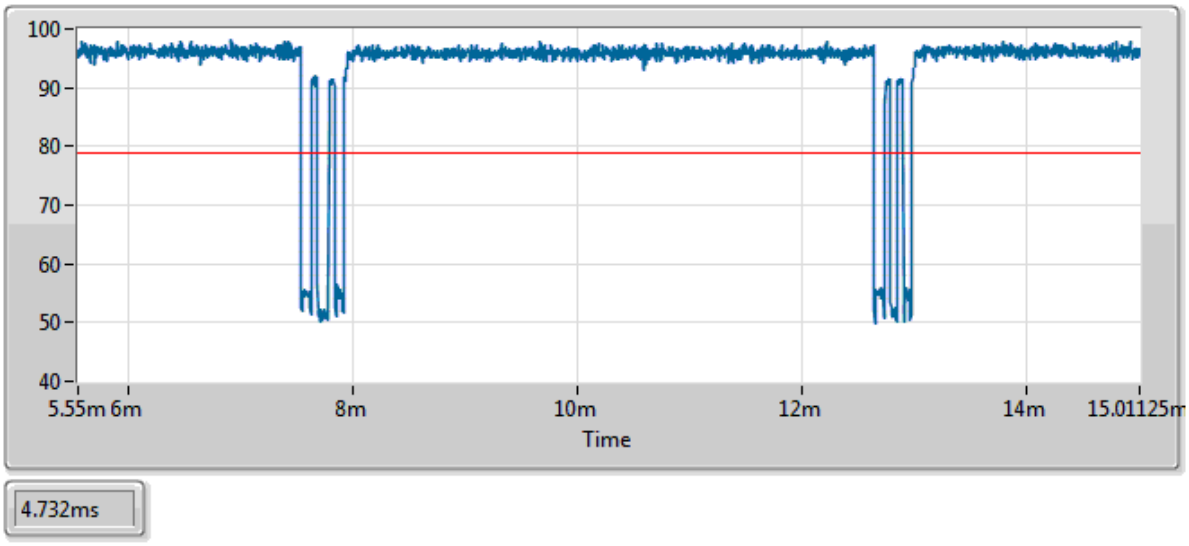




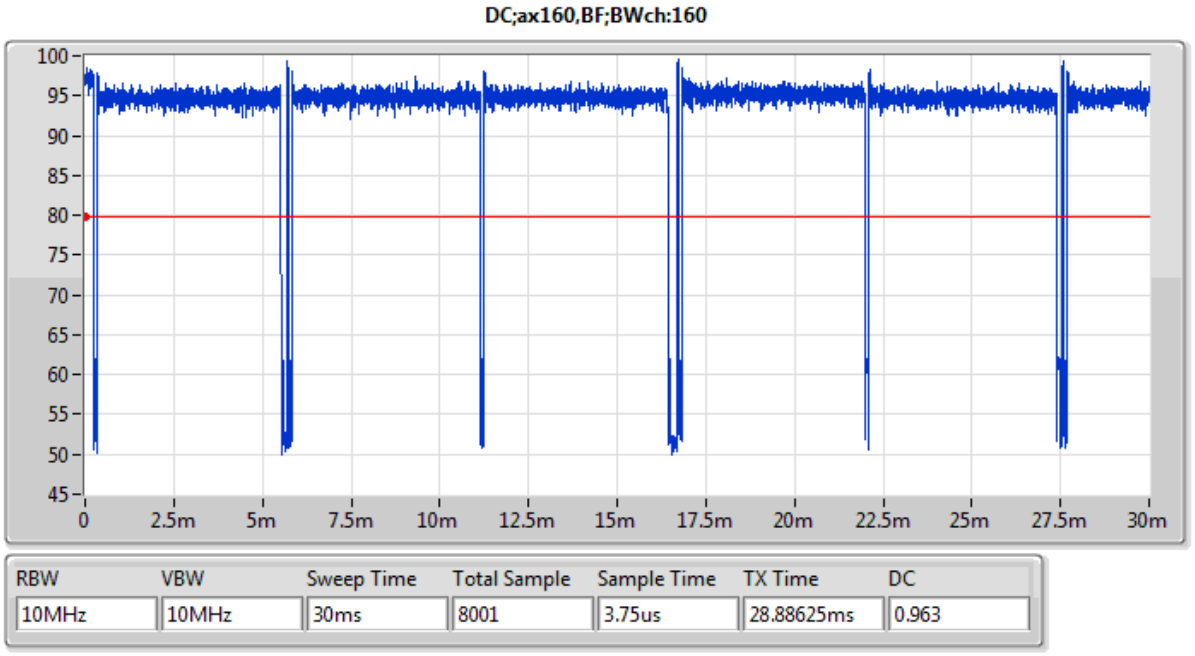
802.11ax(80MHz) 3S4T TXBF



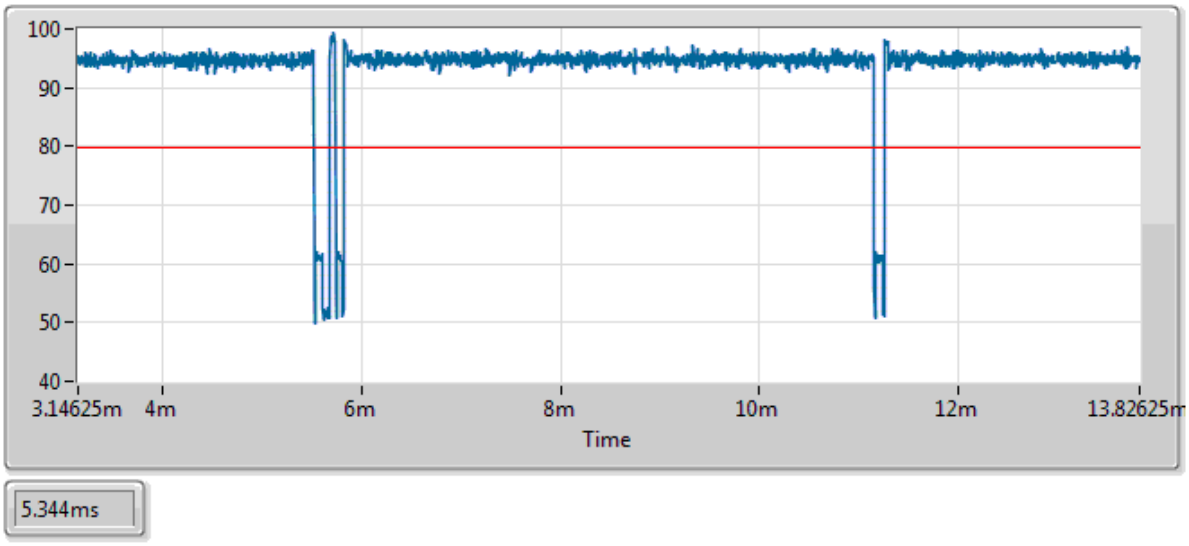
RBW	VBW	Sweep Time	Total Sample	Sample Time	TX Time	DC
10MHz	10MHz	30ms	8001	3.75us	27.2625ms	0.909



802.11ax(160MHz) 3S4T TXBF



RBW	VBW	Sweep Time	Total Sample	Sample Time	TX Time	DC
10MHz	10MHz	30ms	8001	3.75us	28.88625ms	0.963



1.16. Table for Supporting Units

For Radiated (CDD mode) and RF Conducted (CDD mode):

Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
A	NB	DELL	E4300	N/A

For Radiated (TXBF mode) and RF Conducted (TXBF mode):

Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
A	NB	DELL	E4300	N/A
B	NB	DELL	E4300	N/A
C	WLAN AP (RX Device)	ASUS	RT-AX88U	MSQ-RTAXHP00

1.17. EUT Operation during Test

For CTX Mode:

For CDD mode:

The EUT was programmed to be in continuously transmitting mode.

For TXBF mode:

During the test, the following programs under WIN 7 were executed.

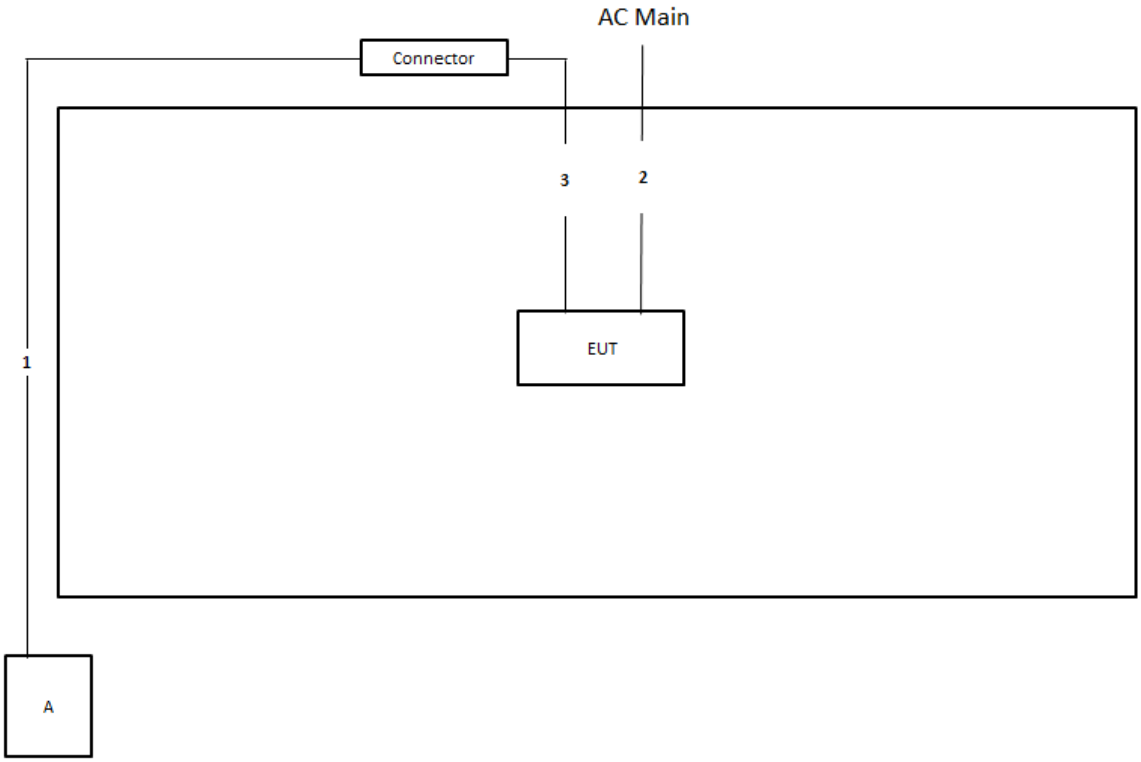
The program was executed as follows:

1. During the test, the EUT operation to normal function.
2. Execute command via SSH to fix channel under test.
3. Run "Iperf.exe" to generate traffic to max transmit duty cycle and receive by Rx device.

1.18. Test Configurations

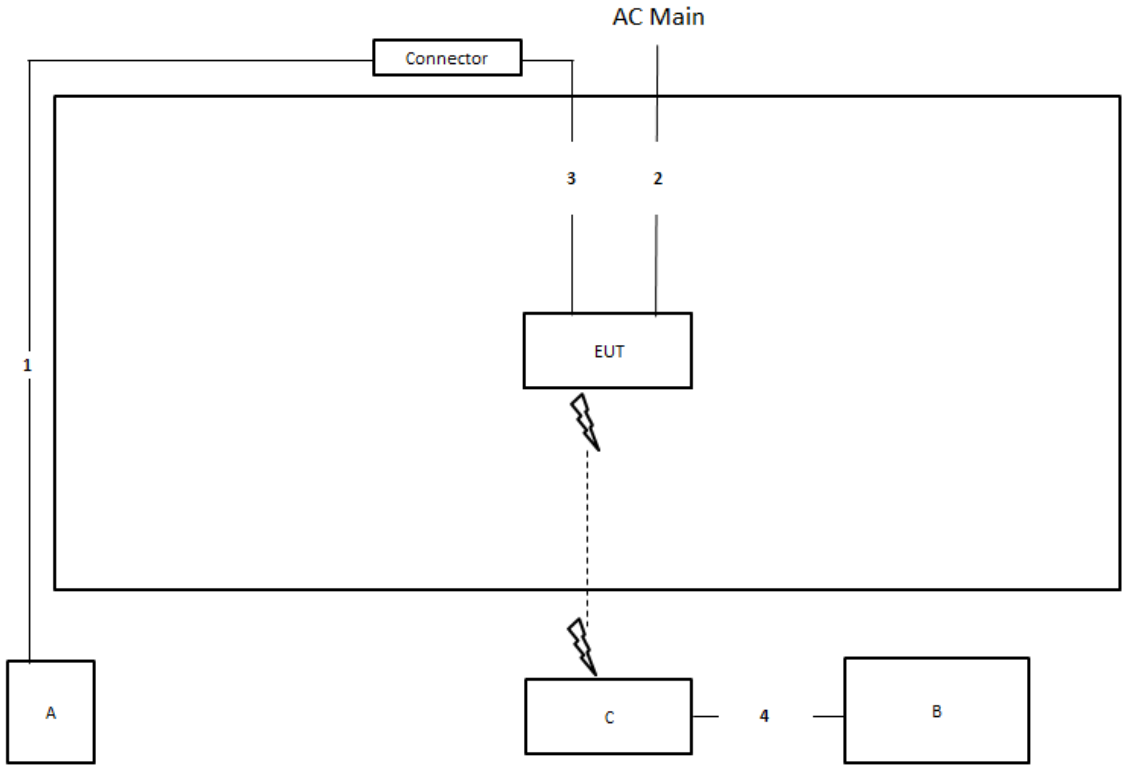
1.18.1. Radiation Emissions Test Configuration

Test Configuration: Above 1GHz (CDD mode)



Item	Connection	Shielded	Length
1	RJ-45 cable	No	10m
2	Power cable	No	1.2m
3	RJ-45 cable	No	1.5m

Test Configuration: Above 1GHz (TXBF mode)



Item	Connection	Shielded	Length
1	RJ-45 cable	No	10m
2	Power cable	No	1.2m
3	RJ-45 cable	No	1.5m
4	RJ-45 cable	No	1m

2. Test Result

2.1. Emission Bandwidth and 99% Occupied Bandwidth Measurement

2.1.1. Limit

No restriction limits.

2.1.2. 26dB Bandwidth Measuring Instruments and Setting

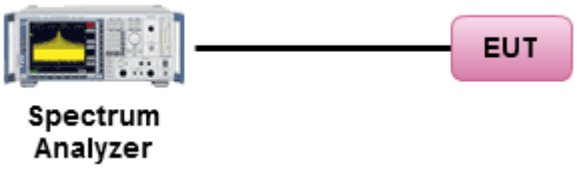
Please refer to section 3 of equipments list in this report. The following table is the setting of the spectrum analyzer.

26dB Bandwidth	
Spectrum Parameters	**Setting**
Attenuation	Auto
Span Frequency	> 26dB Bandwidth
RBW	Approximately 1% of the emission bandwidth
VBW	VBW > RBW
Detector	Peak
Trace	Max Hold
Sweep Time	Auto
99% Occupied Bandwidth	
Spectrum Parameters	**Setting**
Span	1.5 times to 5.0 times the OBW
RBW	1 % to 5 % of the OBW
VBW	≥ 3 x RBW
Detector	Peak
Trace	Max Hold

2.1.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. Test was performed in accordance with Measurement of Digital Transmission Systems Operating under 789033 D02 General U-NII Test Procedures New Rules v02r01, in section “Emission bandwidth (C)(1)” & "99 Percent Occupied Bandwidth"(D). 12/14/2017.
3. When measuring Emission bandwidth with multiple antenna systems, add every result of the values by mathematic formula.

2.1.4. Test Setup Layout

Emission Bandwidth and 99% Occupied Bandwidth


2.1.5. Test Deviation

There is no deviation with the original standard.

2.1.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

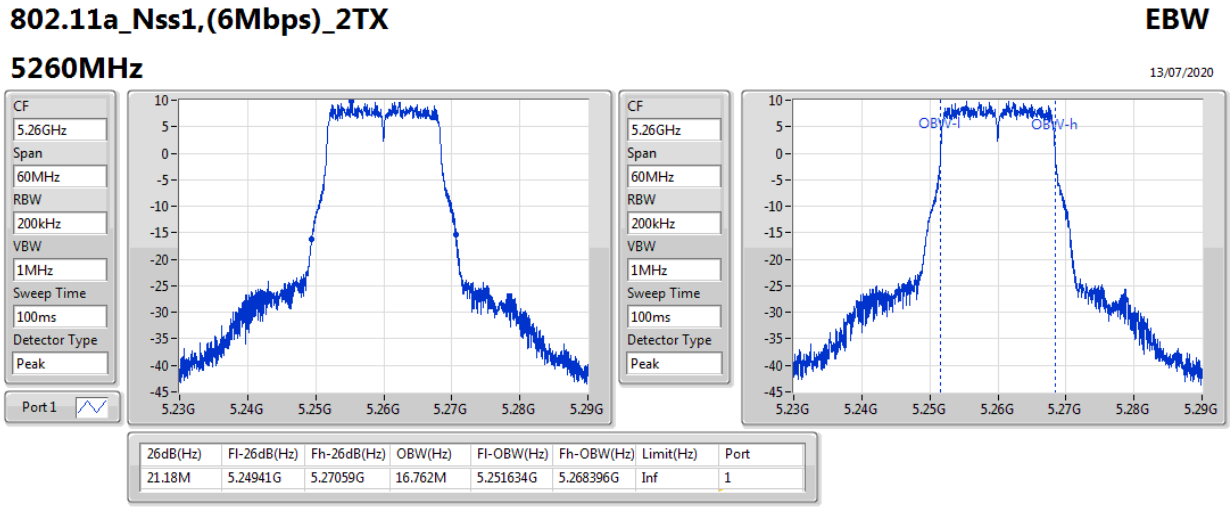
2.1.7. Test Result of Emission Bandwidth and 99% Occupied Bandwidth

Configuration IEEE 802.11a

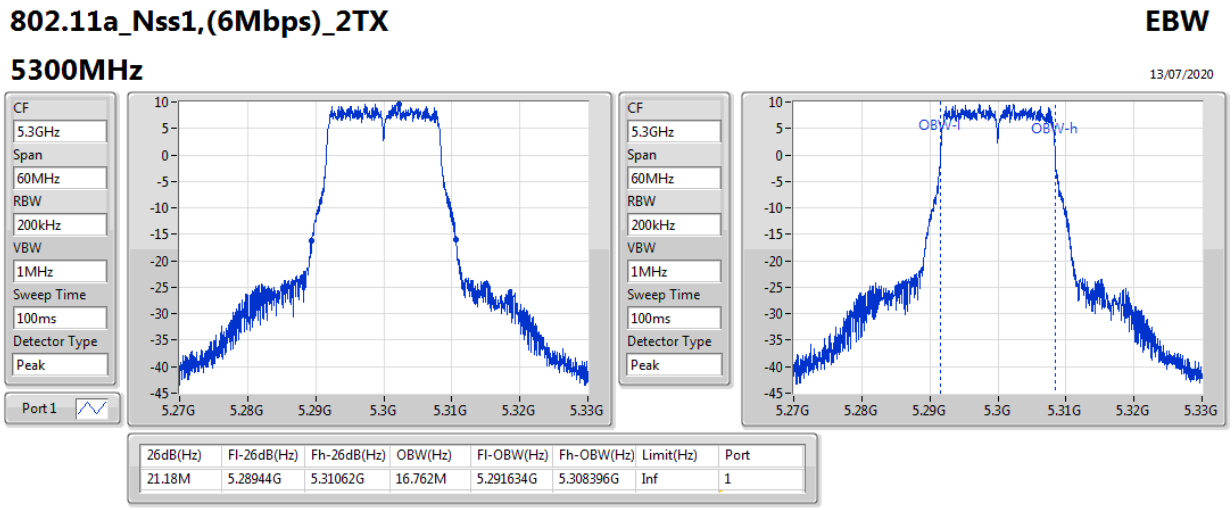
26dB Emission Bandwidth (MHz)						
Mode	Number of Transmit Chains (NTX)	Frequency	26dB Emission Bandwidth (MHz)			
			Ant. 1		Ant. 2	
802.11a (CDD)	1 stream 2TX	5260 MHz	21.180		21.660	
802.11a (CDD)	1 stream 2TX	5300 MHz	21.180		21.840	
802.11a (CDD)	1 stream 2TX	5320 MHz	21.210		21.750	
Mode	Number of Transmit Chains (NTX)	Frequency	26dB Emission Bandwidth (MHz)			
			Ant. 3	Ant. 4	Ant. 5	Ant. 6
802.11a (CDD)	1 stream 4TX	5500 MHz	21.120	21.330	21.330	21.300
802.11a (CDD)	1 stream 4TX	5580 MHz	21.180	21.150	21.390	21.240
802.11a (CDD)	1 stream 4TX	5700 MHz	21.150	21.450	21.270	21.180

99% Occupied Bandwidth (MHz)						
Mode	Number of Transmit Chains (NTX)	Frequency	99% Occupied Bandwidth (MHz)			
			Ant. 1		Ant. 2	
802.11a (CDD)	1 stream 2TX	5260 MHz	16.762		16.702	
802.11a (CDD)	1 stream 2TX	5300 MHz	16.762		16.762	
802.11a (CDD)	1 stream 2TX	5320 MHz	16.762		16.762	
Mode	Number of Transmit Chains (NTX)	Frequency	99% Occupied Bandwidth (MHz)			
			Ant. 3	Ant. 4	Ant. 5	Ant. 6
802.11a (CDD)	1 stream 4TX	5500 MHz	16.732	16.792	16.792	16.672
802.11a (CDD)	1 stream 4TX	5580 MHz	16.732	16.732	16.762	16.642
802.11a (CDD)	1 stream 4TX	5700 MHz	16.762	16.822	16.762	16.672

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / OFDM / 1S2T CDD / Ant. 1 / CH52 / 5260 MHz



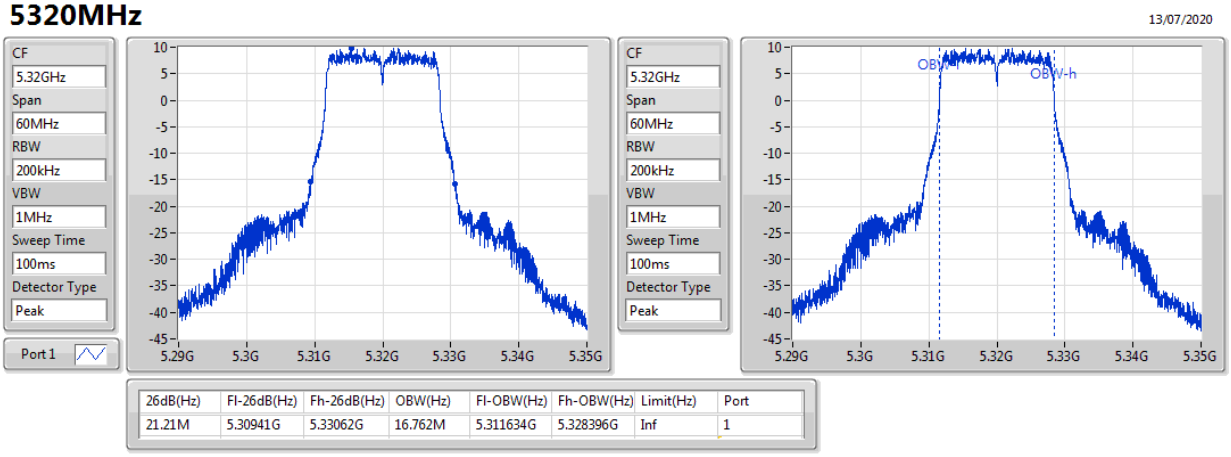
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / OFDM / 1S2T CDD / Ant. 1 / CH60 / 5300 MHz



26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / OFDM / 1S2T CDD / Ant. 1 / CH64 / 5320 MHz

802.11a_Nss1,(6Mbps)_2TX **EBW**

5320MHz

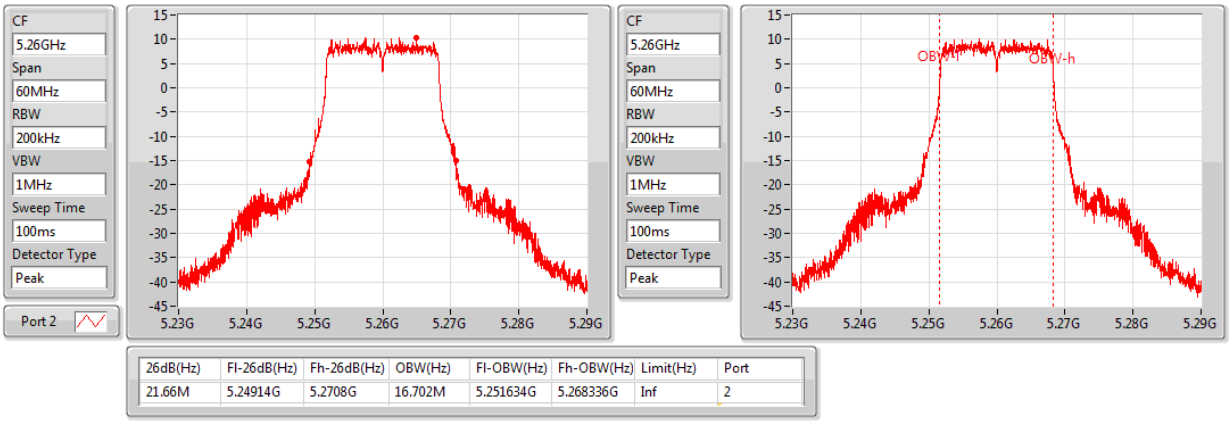


26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
21.21M	5.30941G	5.33062G	16.762M	5.311634G	5.328396G	Inf	1

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / OFDM / 1S2T CDD / Ant. 2 / CH52 / 5260 MHz

802.11a_Nss1,(6Mbps)_2TX **EBW**

5260MHz

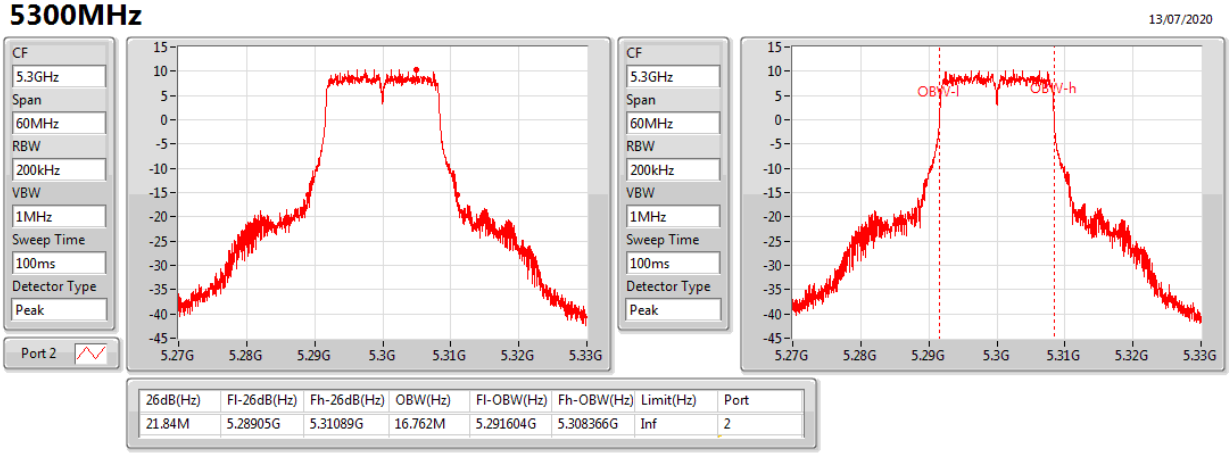


26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
21.66M	5.24914G	5.2708G	16.702M	5.251634G	5.268336G	Inf	2

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / OFDM / 1S2T CDD / Ant. 2 / CH60 / 5300 MHz

802.11a_Nss1,(6Mbps)_2TX **EBW**

5300MHz

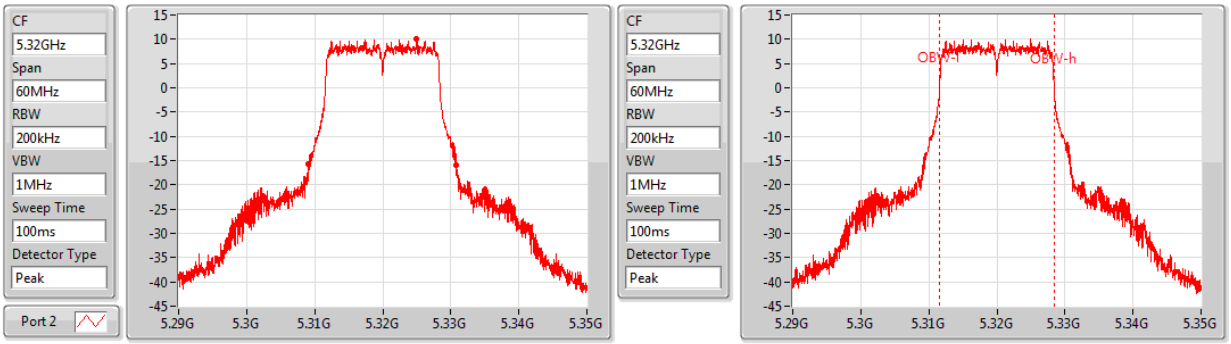


26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
21.84M	5.28905G	5.31089G	16.762M	5.291604G	5.308366G	Inf	2

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / OFDM / 1S2T CDD / Ant. 2 / CH64 / 5320 MHz

802.11a_Nss1,(6Mbps)_2TX **EBW**

5320MHz

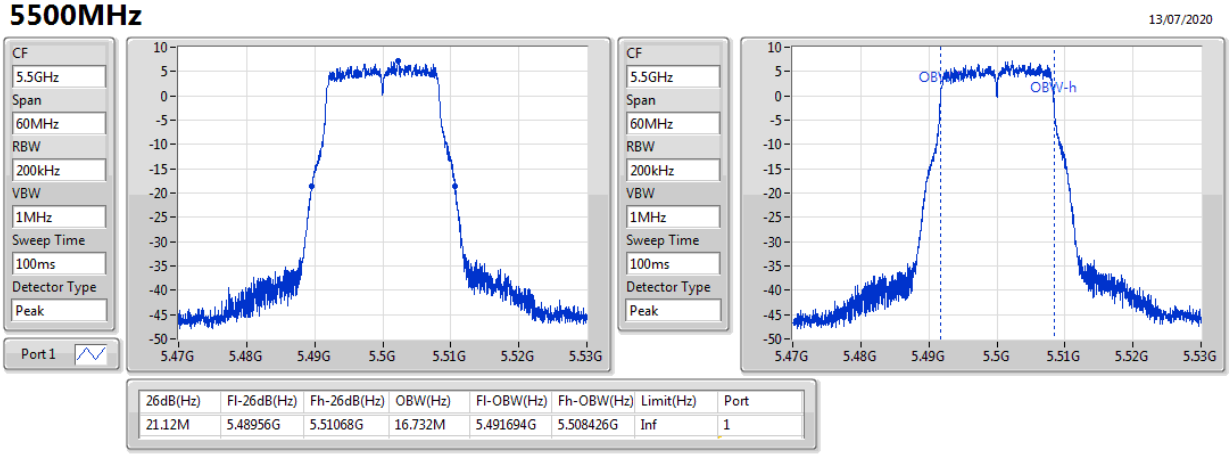


26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
21.75M	5.30911G	5.33086G	16.762M	5.311604G	5.328366G	Inf	2

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / OFDM / 1S4T CDD / Ant. 3 / CH100 / 5500 MHz

802.11a_Nss1,(6Mbps)_4TX **EBW**

5500MHz

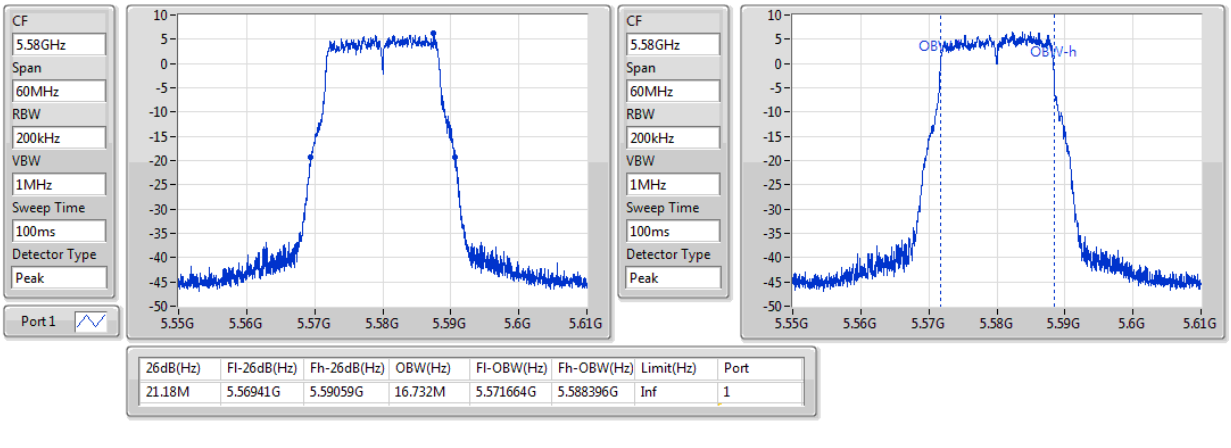


26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
21.12M	5.48956G	5.51068G	16.732M	5.491694G	5.508426G	Inf	1

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / OFDM / 1S4T CDD / Ant. 3 / CH116 / 5580 MHz

802.11a_Nss1,(6Mbps)_4TX **EBW**

5580MHz

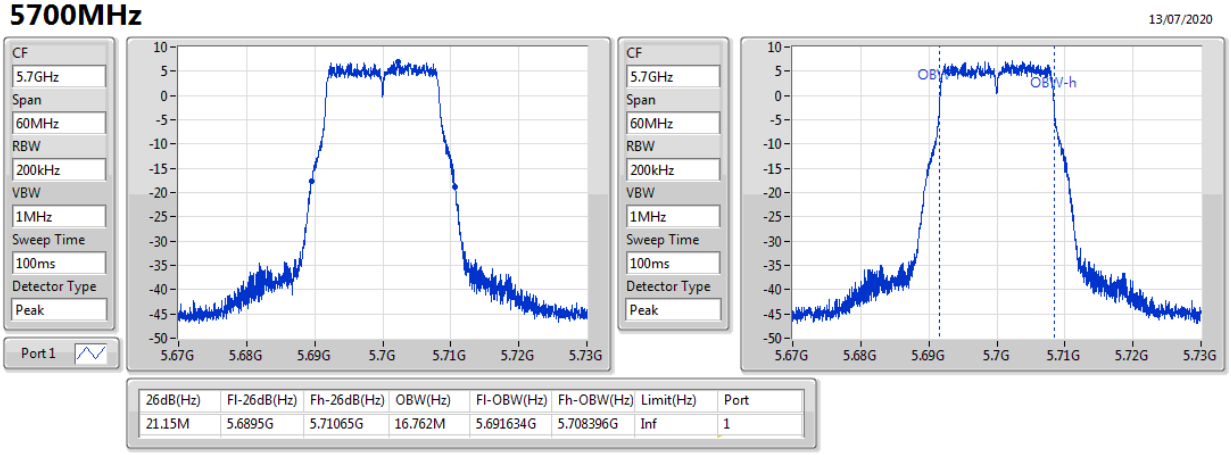


26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
21.18M	5.56941G	5.59059G	16.732M	5.571664G	5.588396G	Inf	1

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / OFDM / 1S4T CDD / Ant. 3 / CH140 / 5700 MHz

802.11a_Nss1,(6Mbps)_4TX **EBW**

5700MHz

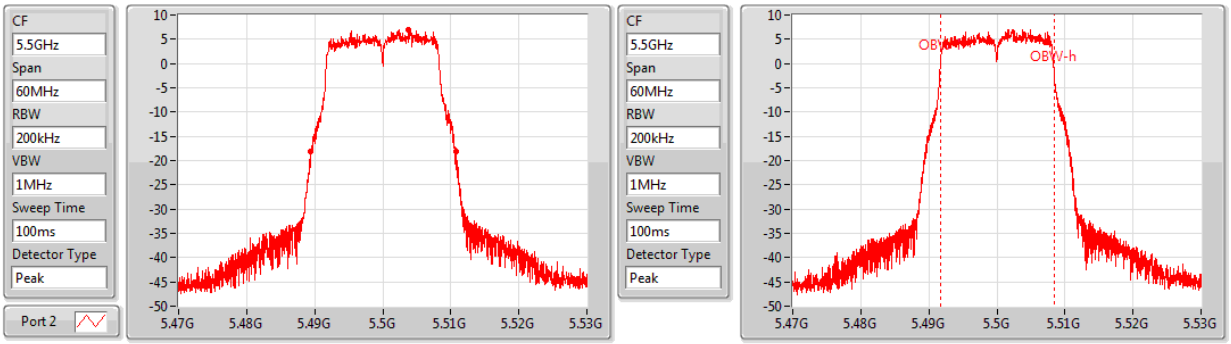


26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
21.15M	5.6895G	5.71065G	16.762M	5.691634G	5.708396G	Inf	1

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / OFDM / 1S4T CDD / Ant. 4 / CH100 / 5500 MHz

802.11a_Nss1,(6Mbps)_4TX **EBW**

5500MHz

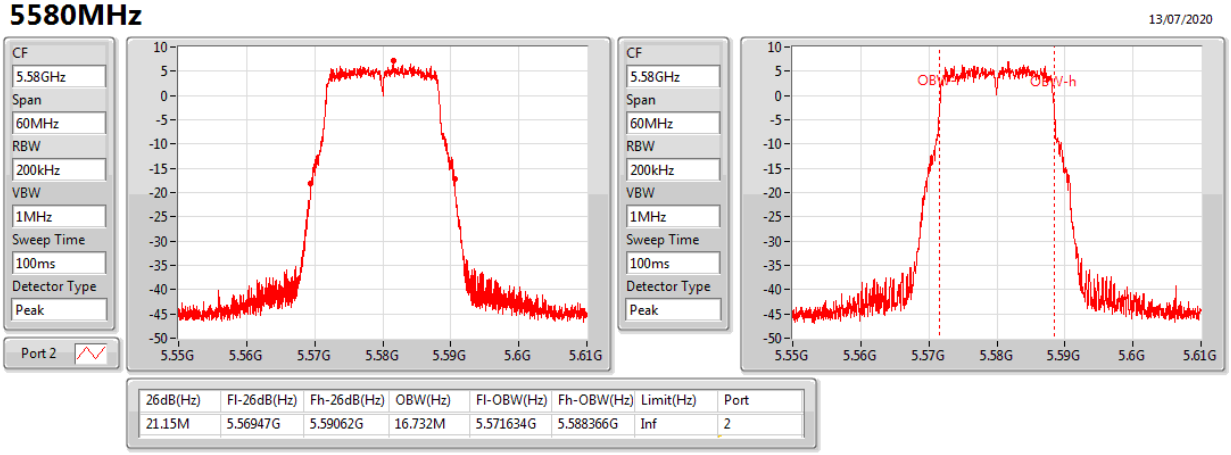


26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
21.33M	5.48944G	5.51077G	16.792M	5.491664G	5.508456G	Inf	2

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / OFDM / 1S4T CDD / Ant. 4 / CH116 / 5580 MHz

802.11a_Nss1,(6Mbps)_4TX **EBW**

5580MHz

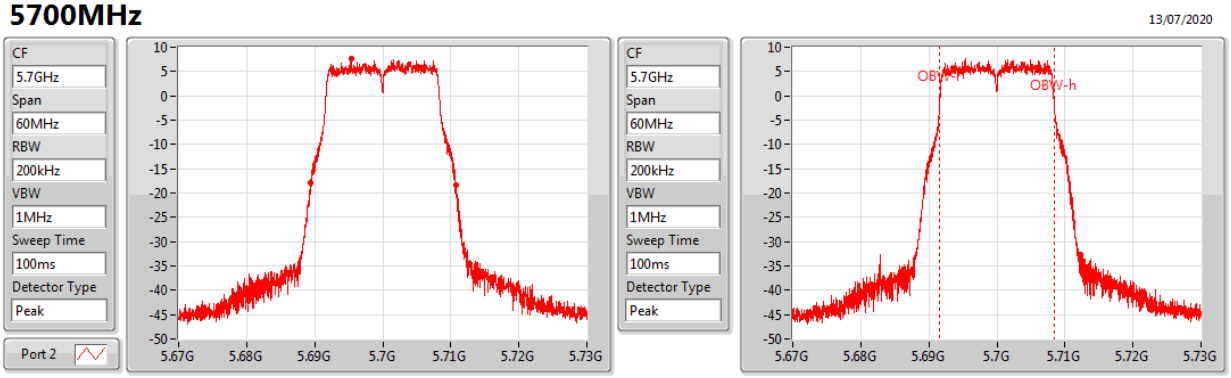


26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
21.15M	5.56947G	5.59062G	16.732M	5.571634G	5.588366G	Inf	2

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / OFDM / 1S4T CDD / Ant. 4 / CH140 / 5700 MHz

802.11a_Nss1,(6Mbps)_4TX **EBW**

5700MHz

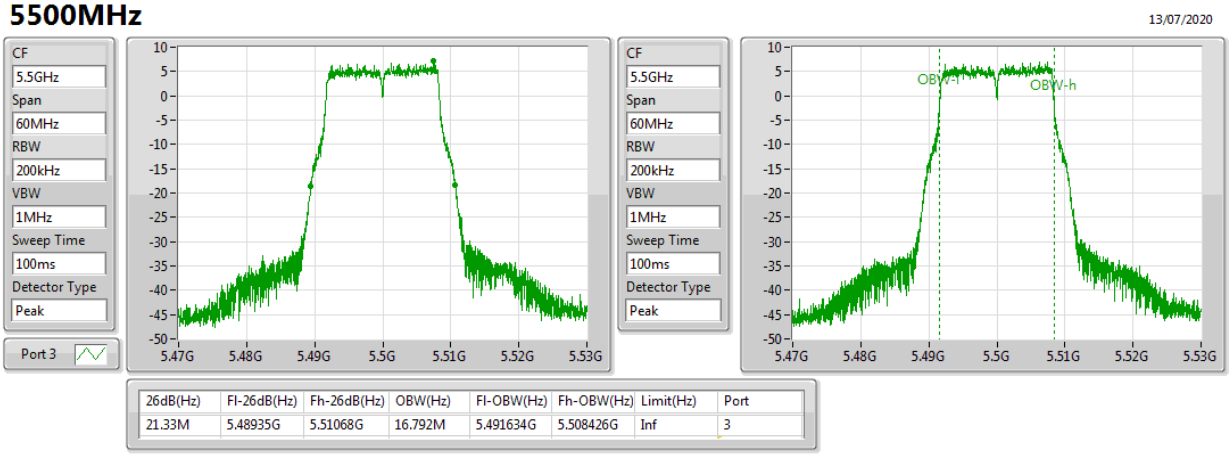


26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
21.45M	5.68935G	5.7108G	16.822M	5.691604G	5.708426G	Inf	2

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / OFDM / 1S4T CDD / Ant. 5 / CH100 / 5500 MHz

802.11a_Nss1,(6Mbps)_4TX **EBW**

5500MHz

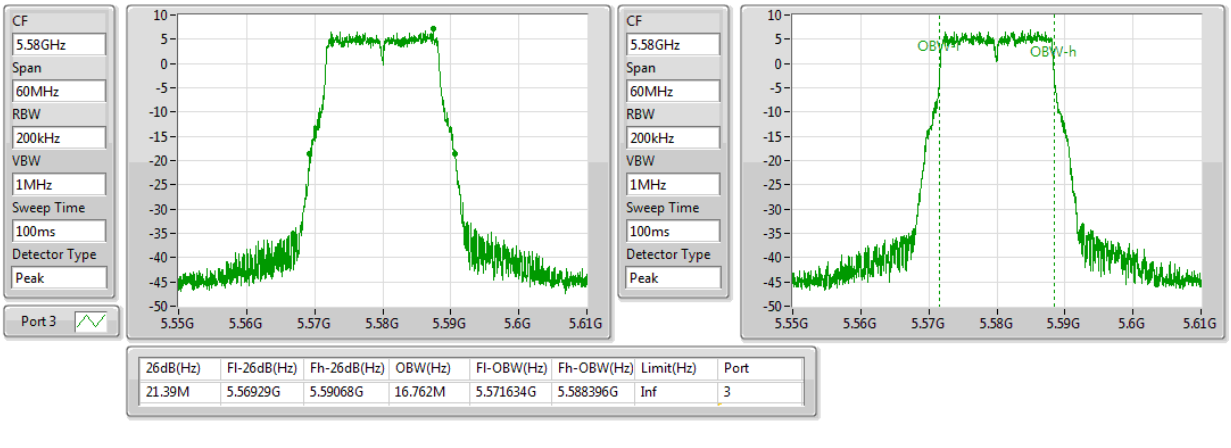


26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
21.33M	5.48935G	5.51068G	16.792M	5.491634G	5.508426G	Inf	3

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / OFDM / 1S4T CDD / Ant. 5 / CH116 / 5580 MHz

802.11a_Nss1,(6Mbps)_4TX **EBW**

5580MHz

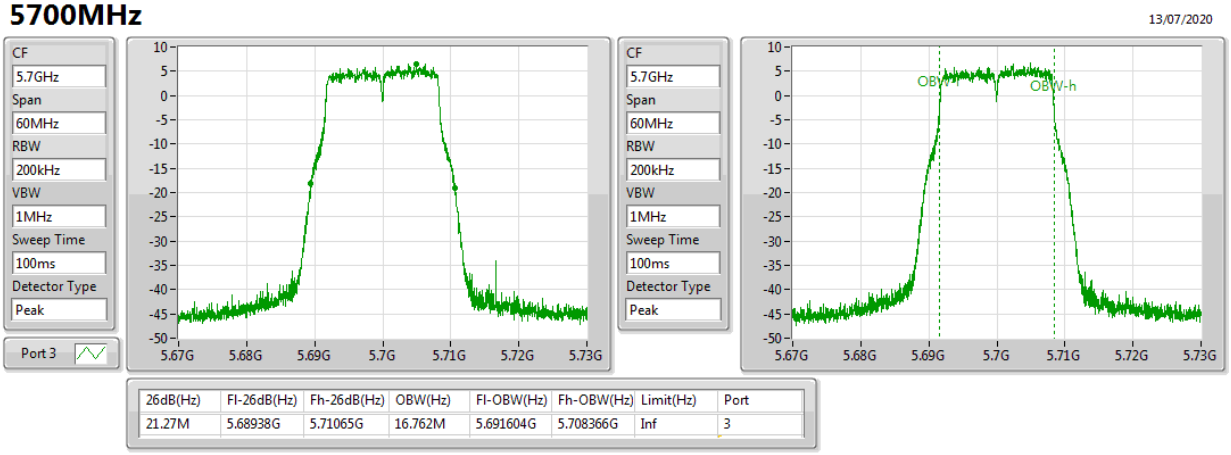


26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
21.39M	5.56929G	5.59068G	16.762M	5.571634G	5.588396G	Inf	3

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / OFDM / 1S4T CDD / Ant. 5 / CH140 / 5700 MHz

802.11a_Nss1,(6Mbps)_4TX **EBW**

5700MHz

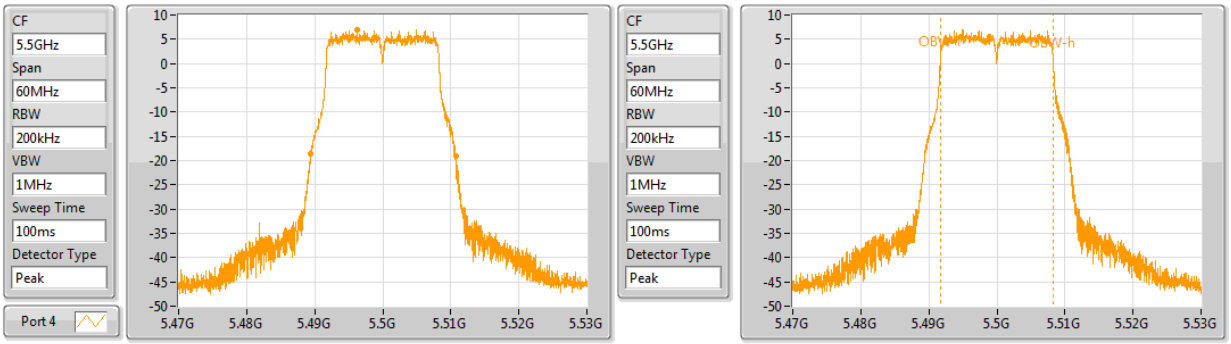


26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
21.27M	5.68938G	5.71065G	16.762M	5.691604G	5.708366G	Inf	3

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / OFDM / 1S4T CDD / Ant. 6 / CH100 / 5500 MHz

802.11a_Nss1,(6Mbps)_4TX **EBW**

5500MHz

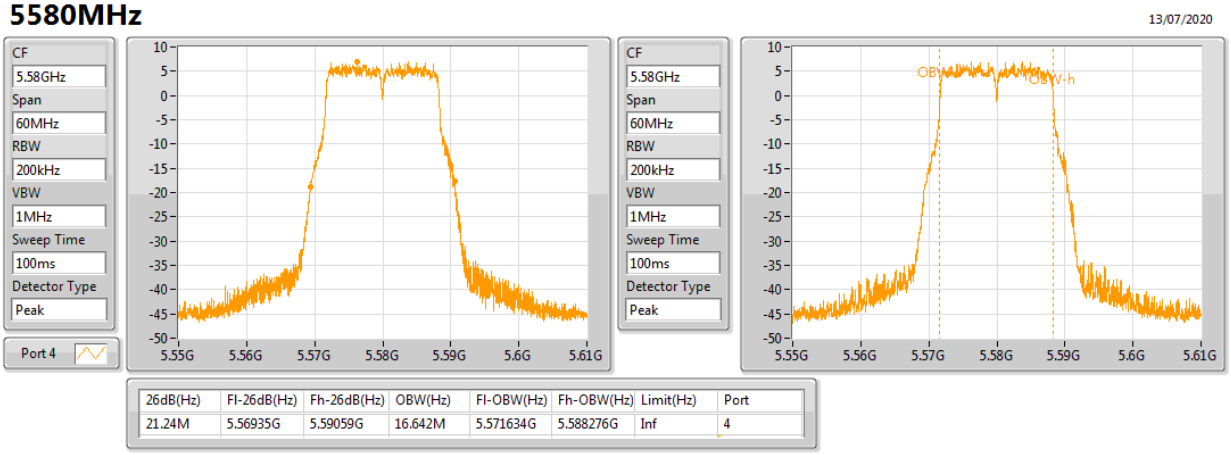


26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
21.3M	5.48941G	5.51071G	16.672M	5.491664G	5.508336G	Inf	4

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / OFDM / 1S4T CDD / Ant. 6 / CH116 / 5580 MHz

802.11a_Nss1,(6Mbps)_4TX **EBW**

5580MHz

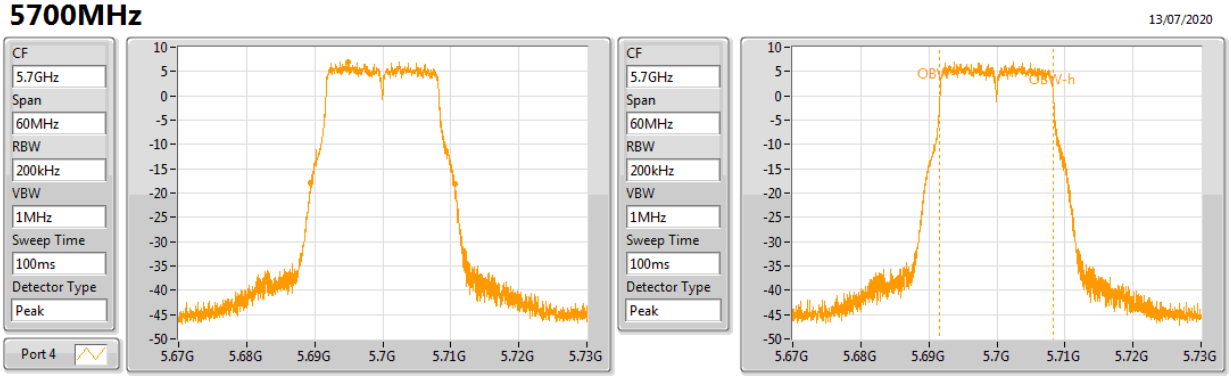


26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
21.24M	5.56935G	5.59059G	16.642M	5.571634G	5.588276G	Inf	4

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / OFDM / 1S4T CDD / Ant. 6 / CH140 / 5700 MHz

802.11a_Nss1,(6Mbps)_4TX **EBW**

5700MHz



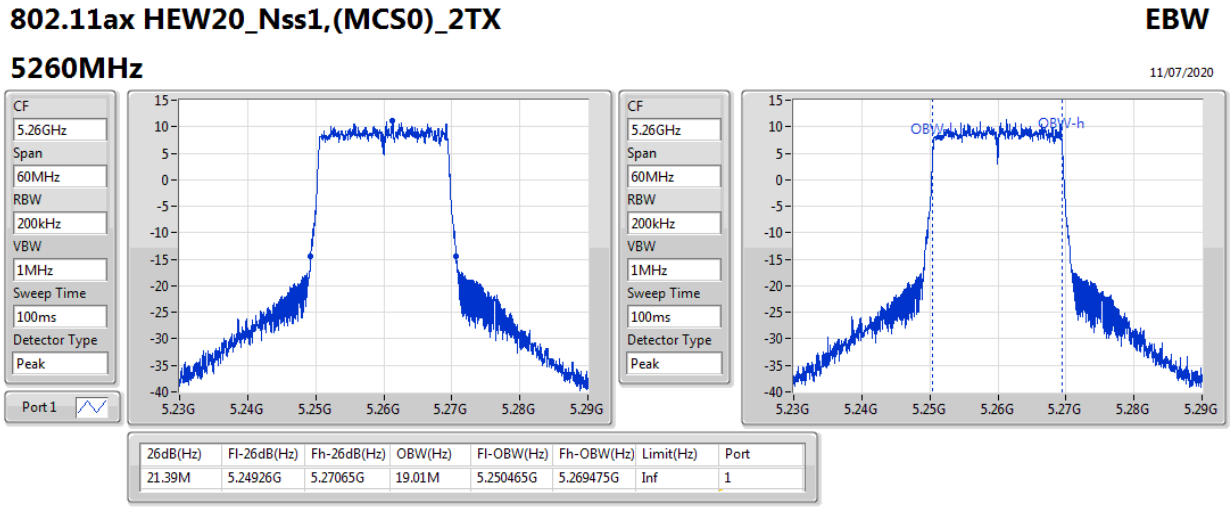
26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
21.18M	5.68941G	5.71059G	16.672M	5.691634G	5.708306G	Inf	4

Configuration IEEE 802.11ax 20MHz

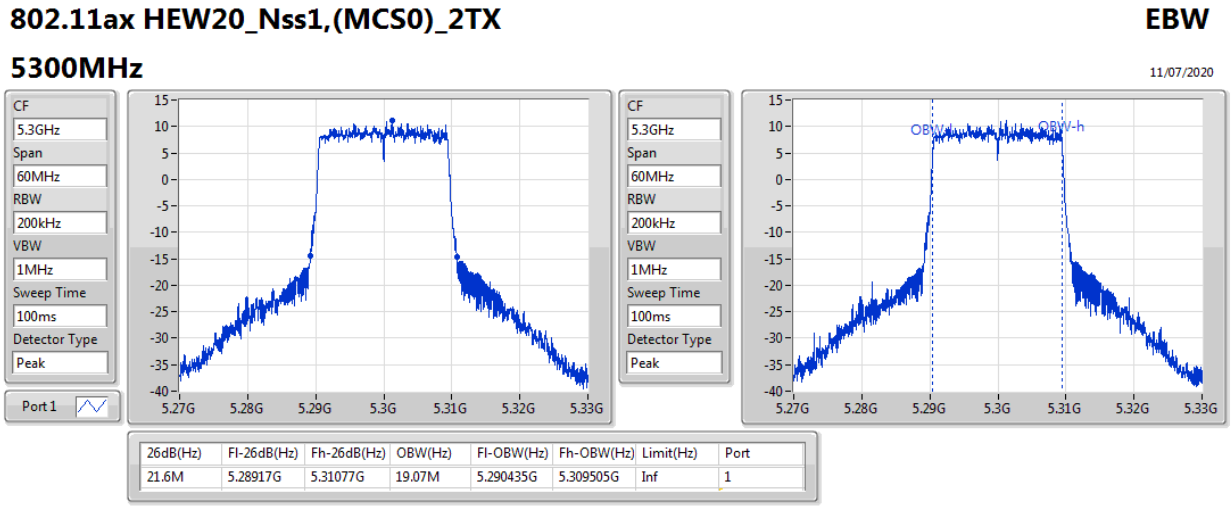
26dB Emission Bandwidth (MHz)						
Mode	Number of Transmit Chains (NTX)	Frequency	26dB Emission Bandwidth (MHz)			
			Ant. 1	Ant. 2		
802.11ax 20MHz (CDD)	1 stream 2TX	5260 MHz	21.390	21.300		
802.11ax 20MHz (CDD)	1 stream 2TX	5300 MHz	21.600	21.450		
802.11ax 20MHz (CDD)	1 stream 2TX	5320 MHz	23.280	21.330		
802.11ax 20MHz (TXBF)	1 stream 2TX	5260 MHz	21.390	21.360		
802.11ax 20MHz (TXBF)	1 stream 2TX	5300 MHz	21.480	21.330		
802.11ax 20MHz (TXBF)	1 stream 2TX	5320 MHz	23.250	21.360		
Mode	Number of Transmit Chains (NTX)	Frequency	26dB Emission Bandwidth (MHz)			
			Ant. 3	Ant. 4	Ant. 5	Ant. 6
802.11ax 20MHz (CDD)	1 stream 4TX	5500 MHz	21.420	21.420	21.480	21.510
802.11ax 20MHz (CDD)	1 stream 4TX	5580 MHz	21.270	21.330	21.570	21.540
802.11ax 20MHz (CDD)	1 stream 4TX	5700 MHz	21.330	21.330	21.510	21.540
802.11ax 20MHz (TXBF)	1 stream 4TX	5500 MHz	21.390	21.390	21.540	21.450
802.11ax 20MHz (TXBF)	1 stream 4TX	5580 MHz	21.450	21.480	21.450	21.510
802.11ax 20MHz (TXBF)	1 stream 4TX	5700 MHz	21.390	21.480	21.540	21.540
802.11ax 20MHz (TXBF)	2 stream 4TX	5500 MHz	21.630	21.120	21.420	21.330
802.11ax 20MHz (TXBF)	2 stream 4TX	5580 MHz	21.600	21.300	21.510	21.210
802.11ax 20MHz (TXBF)	2 stream 4TX	5700 MHz	21.570	21.210	21.510	21.300
802.11ax 20MHz (TXBF)	3 stream 4TX	5500 MHz	21.450	21.090	21.150	21.270
802.11ax 20MHz (TXBF)	3 stream 4TX	5580 MHz	21.390	21.000	21.120	21.150
802.11ax 20MHz (TXBF)	3 stream 4TX	5700 MHz	21.420	21.060	21.150	21.210

99% Occupied Bandwidth (MHz)						
Mode	Number of Transmit Chains (NTX)	Frequency	99% Occupied Bandwidth (MHz)			
			Ant. 1	Ant. 2		
802.11ax 20MHz (CDD)	1 stream 2TX	5260 MHz	19.010	19.040		
802.11ax 20MHz (CDD)	1 stream 2TX	5300 MHz	19.070	19.070		
802.11ax 20MHz (CDD)	1 stream 2TX	5320 MHz	19.130	19.100		
802.11ax 20MHz (TXBF)	1 stream 2TX	5260 MHz	19.040	19.040		
802.11ax 20MHz (TXBF)	1 stream 2TX	5300 MHz	19.070	19.070		
802.11ax 20MHz (TXBF)	1 stream 2TX	5320 MHz	19.100	19.100		
Mode	Number of Transmit Chains (NTX)	Frequency	99% Occupied Bandwidth (MHz)			
			Ant. 3	Ant. 4	Ant. 5	Ant. 6
802.11ax 20MHz (CDD)	1 stream 4TX	5500 MHz	19.010	19.070	19.070	19.070
802.11ax 20MHz (CDD)	1 stream 4TX	5580 MHz	19.010	19.040	19.070	19.100
802.11ax 20MHz (CDD)	1 stream 4TX	5700 MHz	19.010	19.040	19.070	19.070
802.11ax 20MHz (TXBF)	1 stream 4TX	5500 MHz	19.010	19.070	19.070	19.130
802.11ax 20MHz (TXBF)	1 stream 4TX	5580 MHz	19.040	19.070	19.070	19.070
802.11ax 20MHz (TXBF)	1 stream 4TX	5700 MHz	19.040	19.070	19.040	19.040
802.11ax 20MHz (TXBF)	2 stream 4TX	5500 MHz	19.010	19.040	19.010	19.040
802.11ax 20MHz (TXBF)	2 stream 4TX	5580 MHz	19.040	19.040	19.040	19.040
802.11ax 20MHz (TXBF)	2 stream 4TX	5700 MHz	19.010	19.040	19.040	19.040
802.11ax 20MHz (TXBF)	3 stream 4TX	5500 MHz	19.070	19.010	19.040	19.100
802.11ax 20MHz (TXBF)	3 stream 4TX	5580 MHz	19.070	19.010	19.040	19.130
802.11ax 20MHz (TXBF)	3 stream 4TX	5700 MHz	19.070	19.010	19.040	19.130

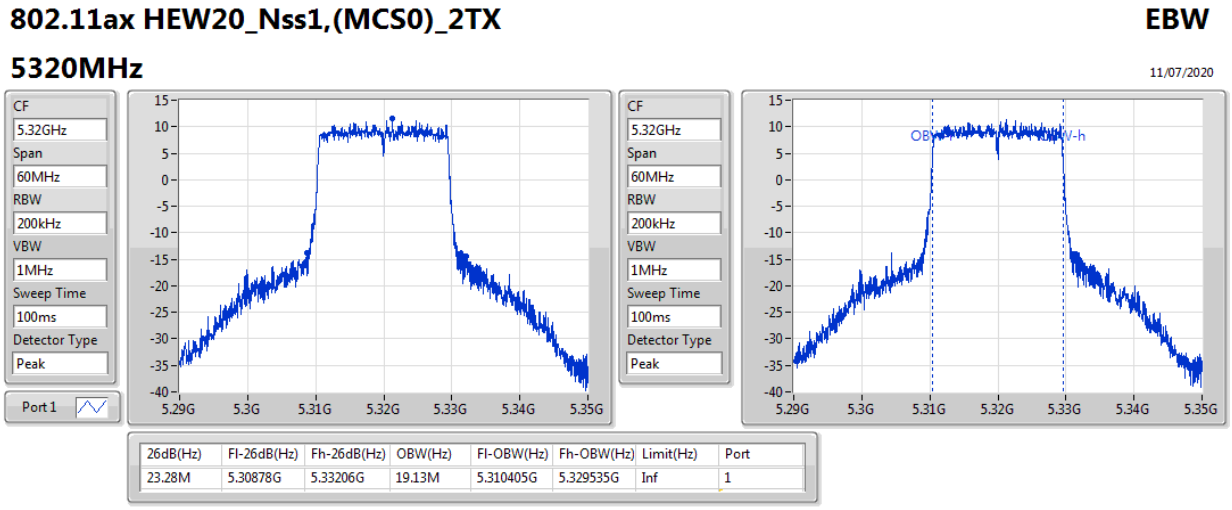
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 1 MCS 0 / 1S2T CDD / Ant. 1 / CH52 / 5260 MHz



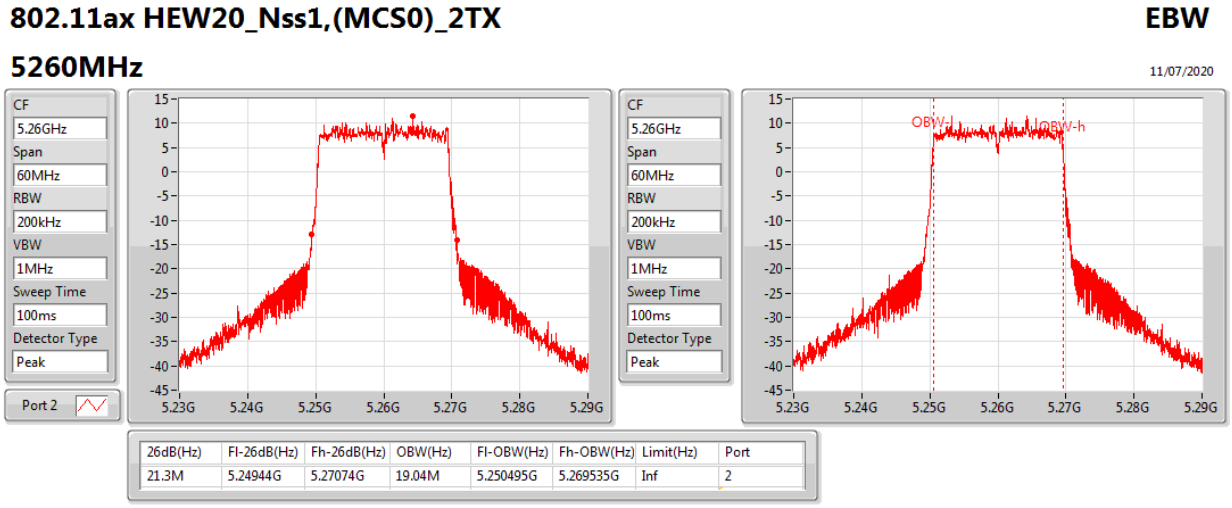
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 1 MCS 0 / 1S2T CDD / Ant. 1 / CH60 / 5300 MHz



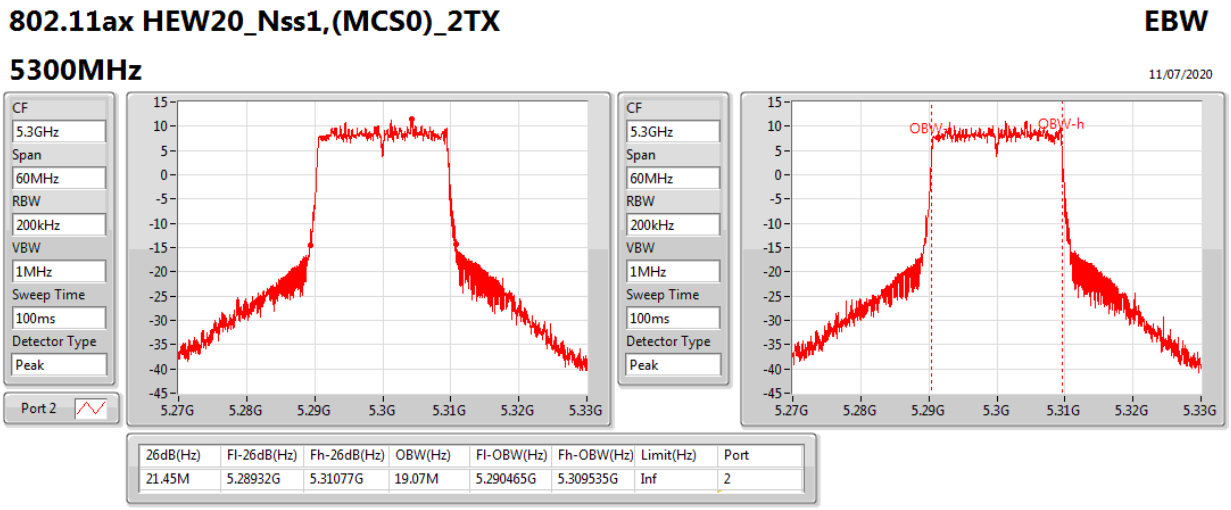
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 1 MCS 0 / 1S2T CDD / Ant. 1 / CH64 / 5320 MHz



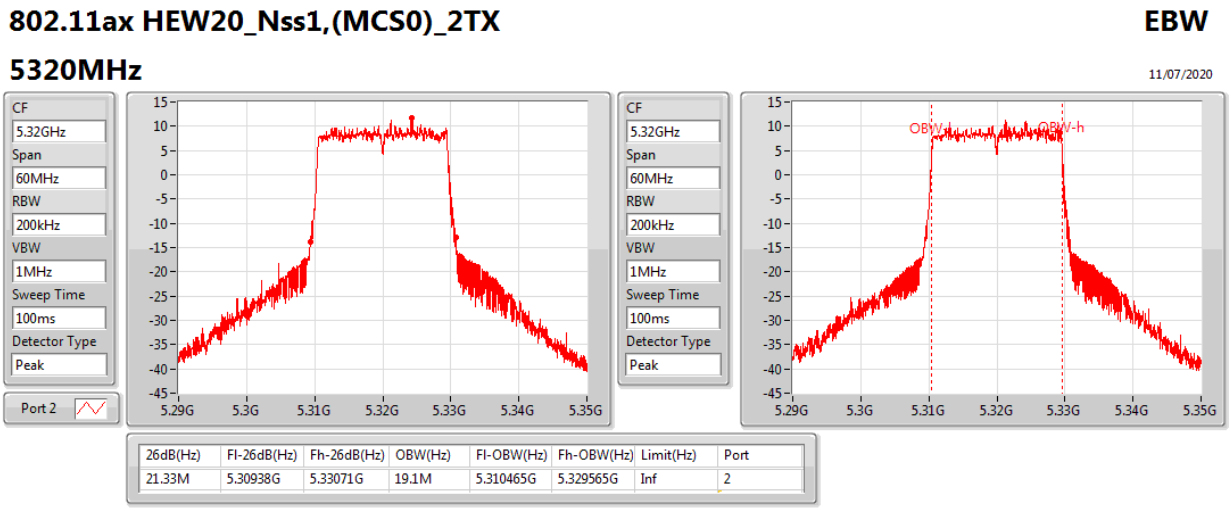
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 1 MCS 0 / 1S2T CDD / Ant. 2 / CH52 / 5260 MHz



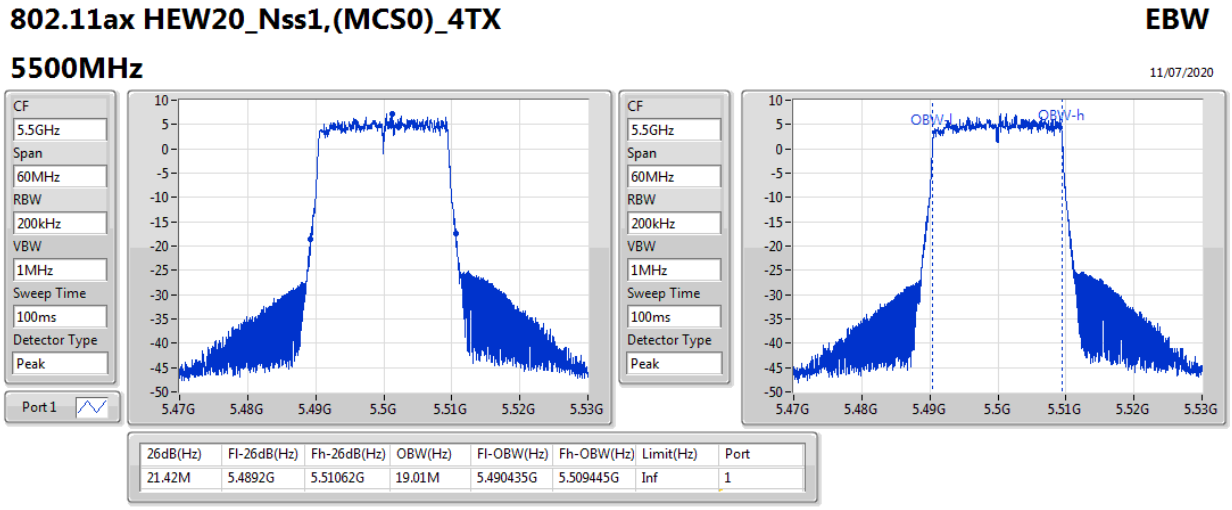
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 1 MCS 0 / 1S2T CDD / Ant. 2 / CH60 / 5300 MHz



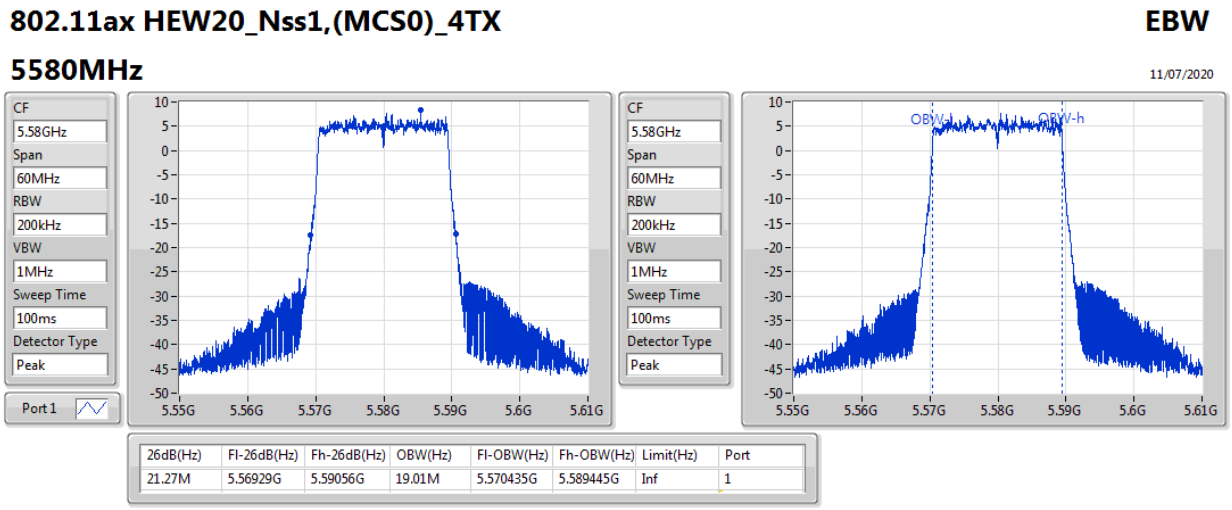
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 1 MCS 0 / 1S2T CDD / Ant. 2 / CH64 / 5320 MHz



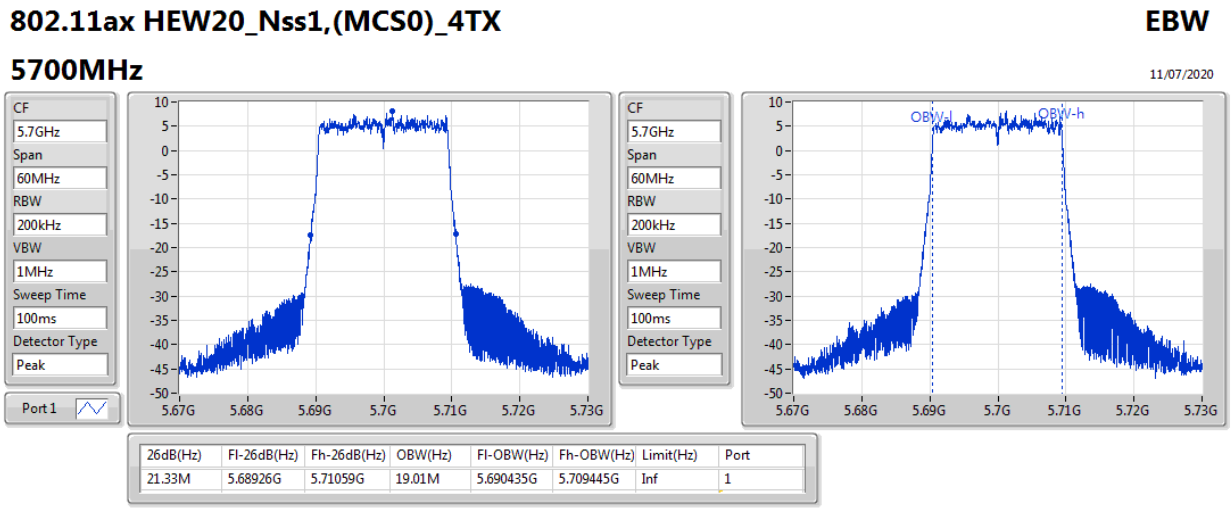
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 1 MCS 0 / 1S4T CDD / Ant. 3 / CH100 / 5500 MHz



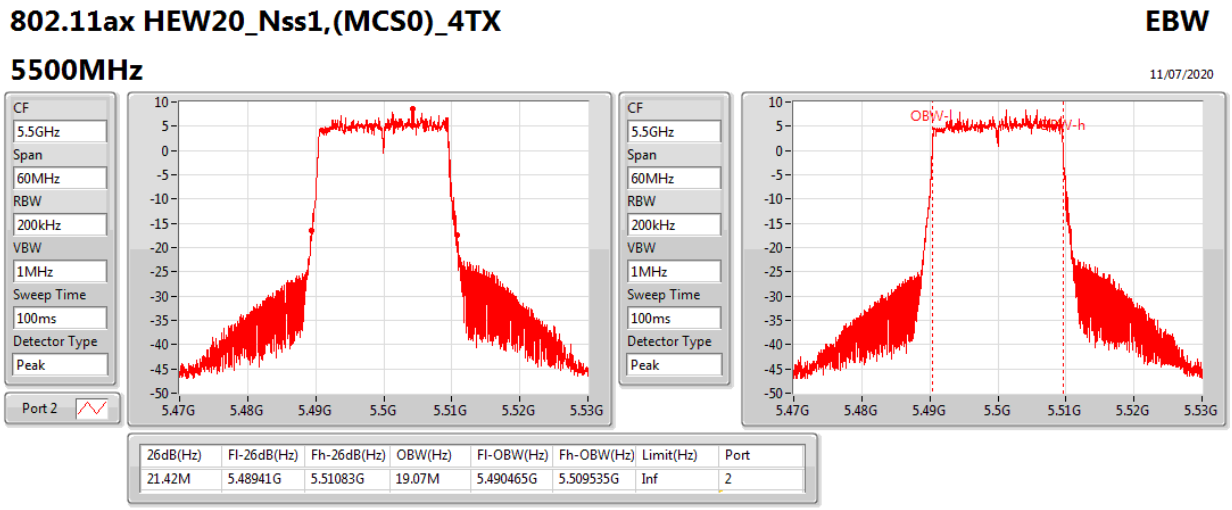
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 1 MCS 0 / 1S4T CDD / Ant. 3 / CH116 / 5580 MHz



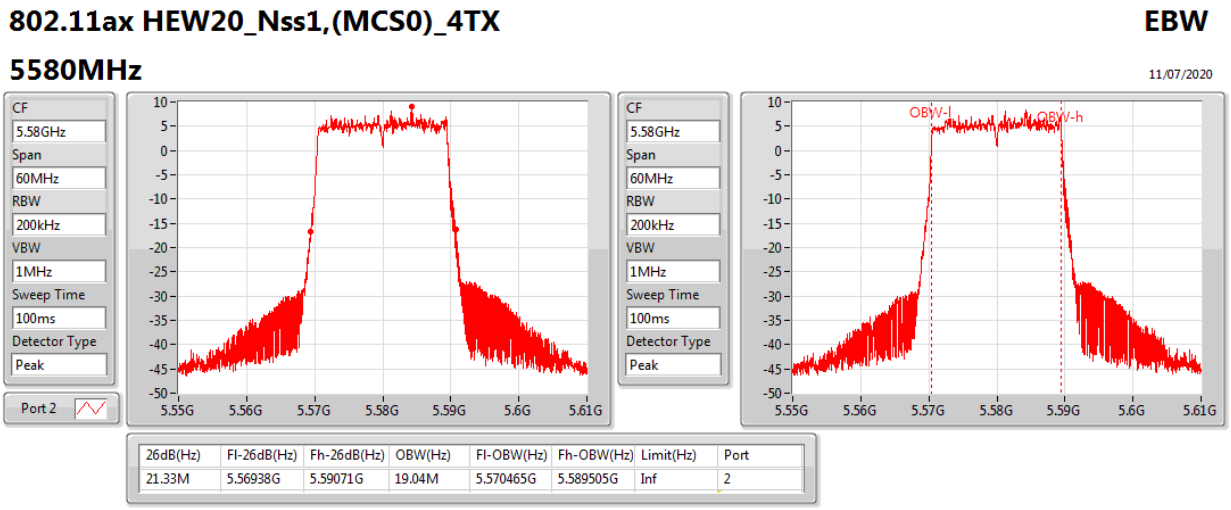
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 1 MCS 0 / 1S4T CDD / Ant. 3 / CH140 / 5700 MHz



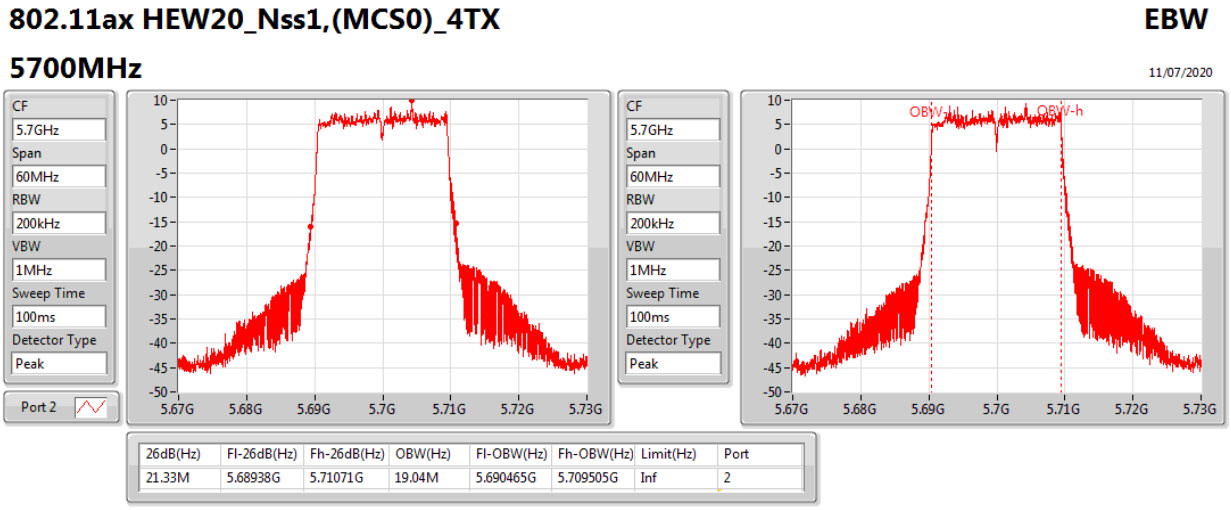
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 1 MCS 0 / 1S4T CDD / Ant. 4 / CH100 / 5500 MHz



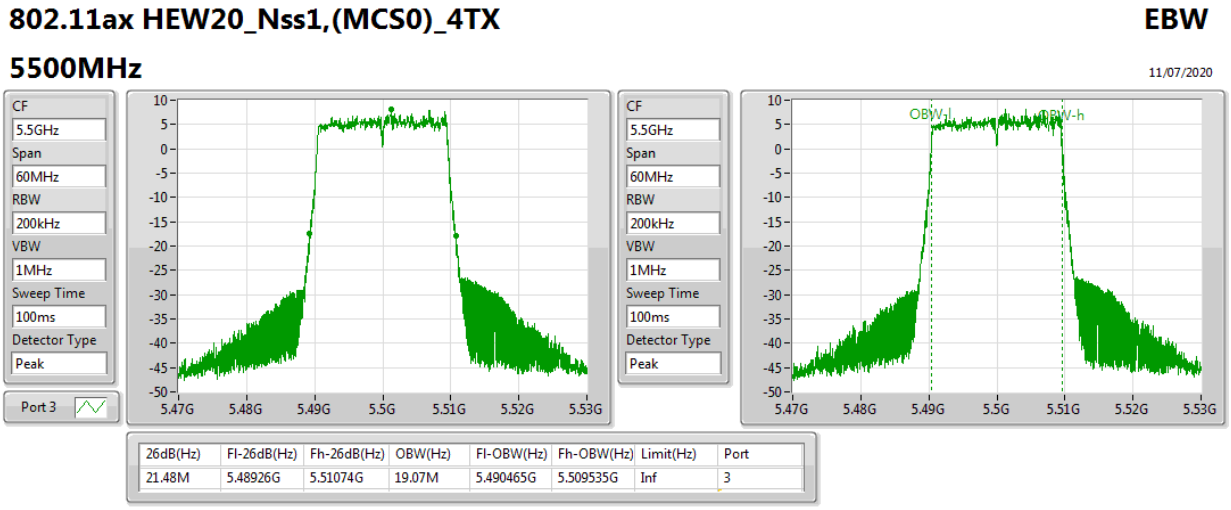
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 1 MCS 0 / 1S4T CDD / Ant. 4 / CH116 / 5580 MHz



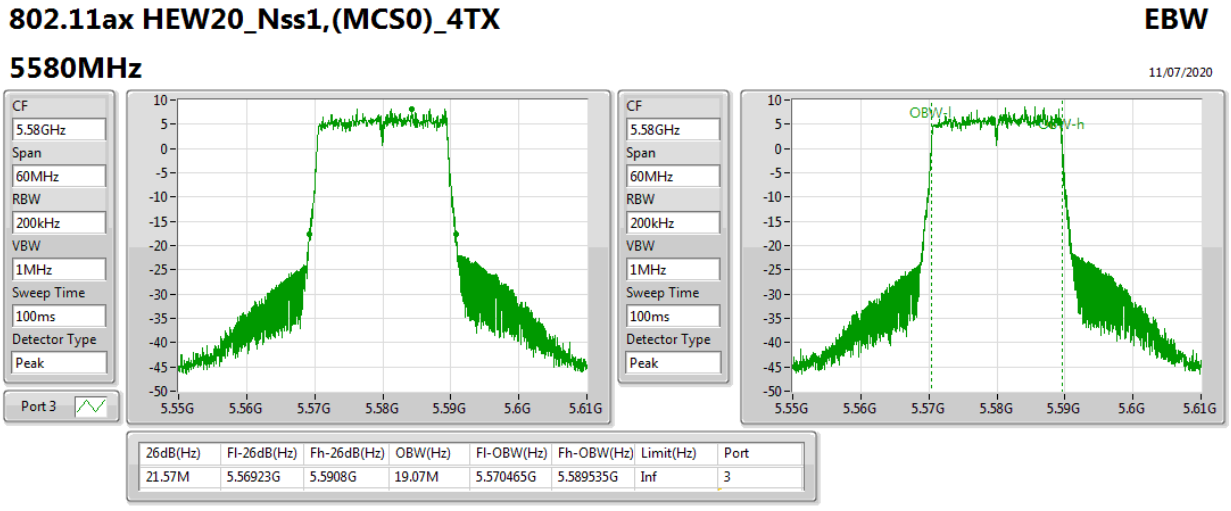
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 1 MCS 0 / 1S4T CDD / Ant. 4 / CH140 / 5700 MHz



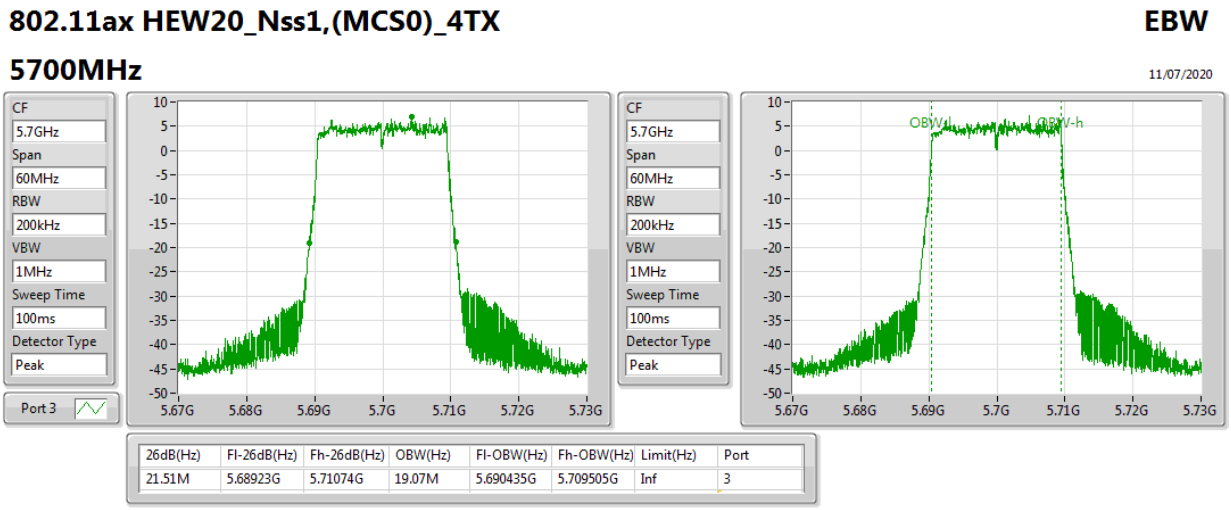
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE802.11ax 20MHz / Nss 1 MCS 0 / 1S4T CDD / Ant. 5 / CH100 / 5500 MHz



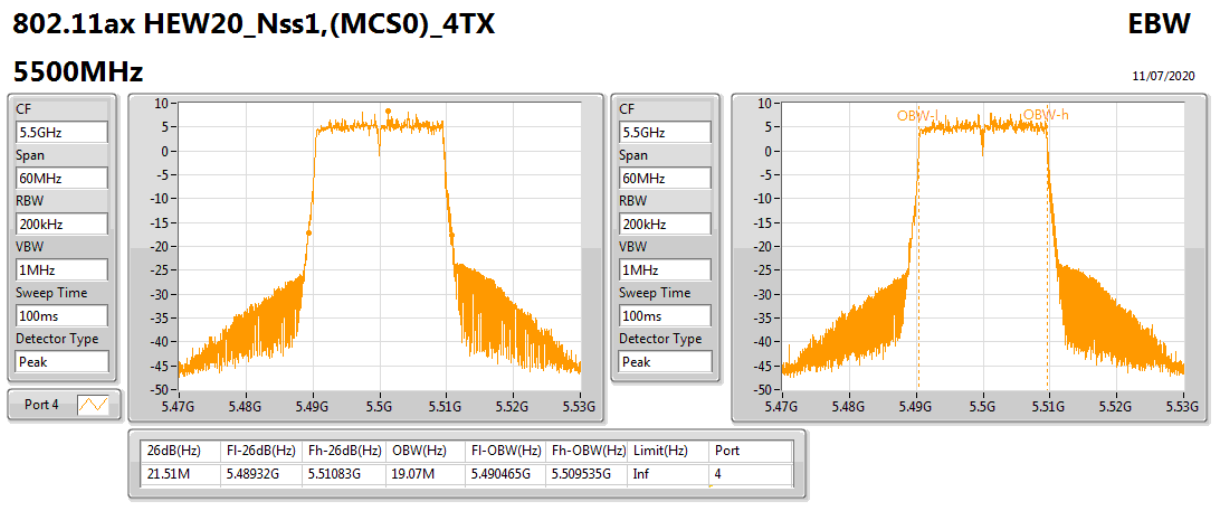
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 1 MCS 0 / 1S4T CDD / Ant. 5 / CH116 / 5580 MHz



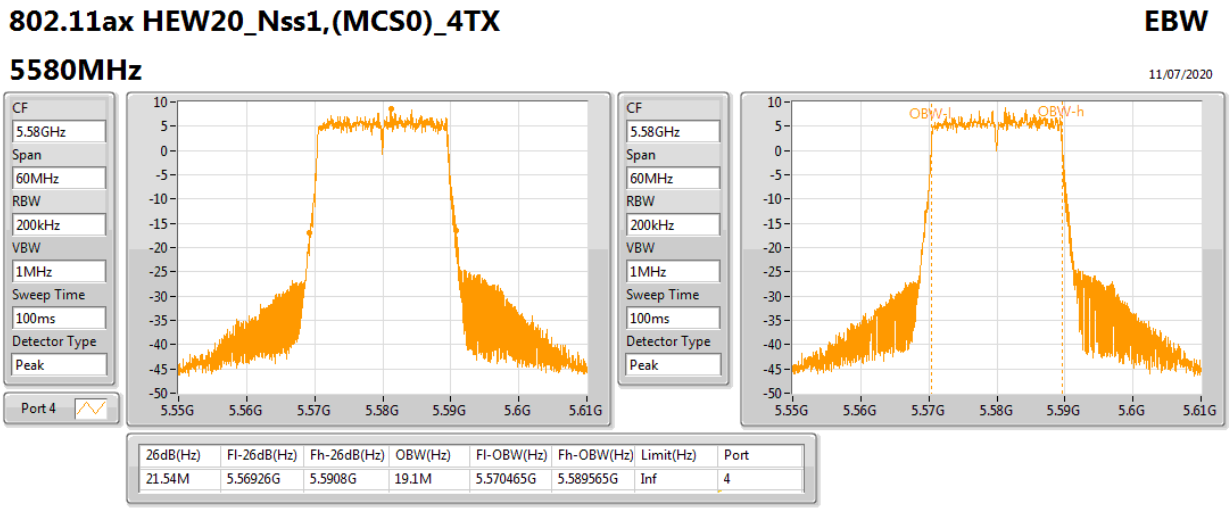
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 1 MCS 0 / 1S4T CDD / Ant. 5 / CH140 / 5700 MHz



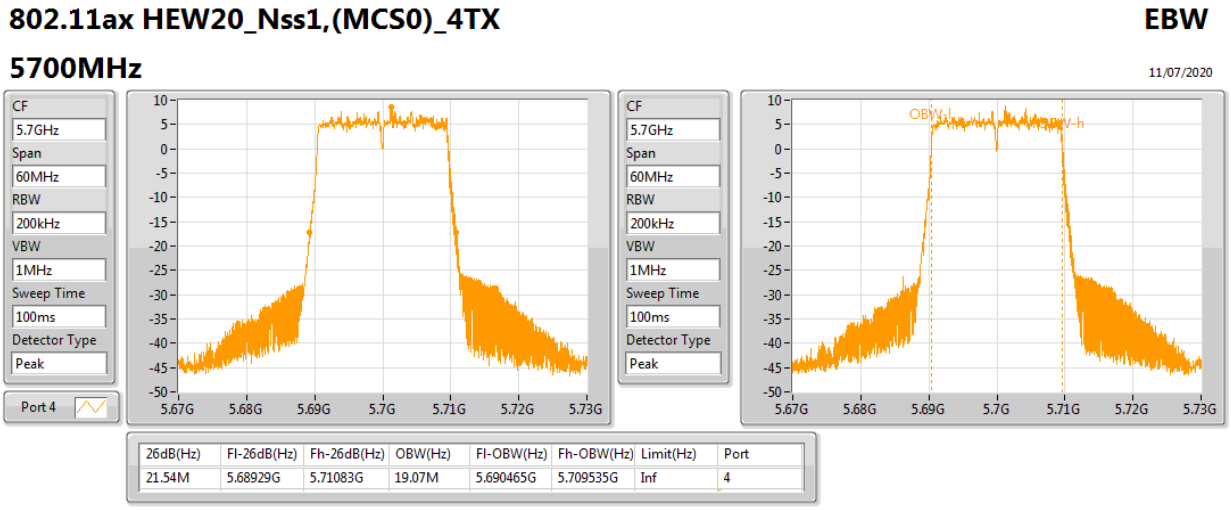
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 1 MCS 0 / 1S4T CDD / Ant. 6 / CH100 / 5500 MHz



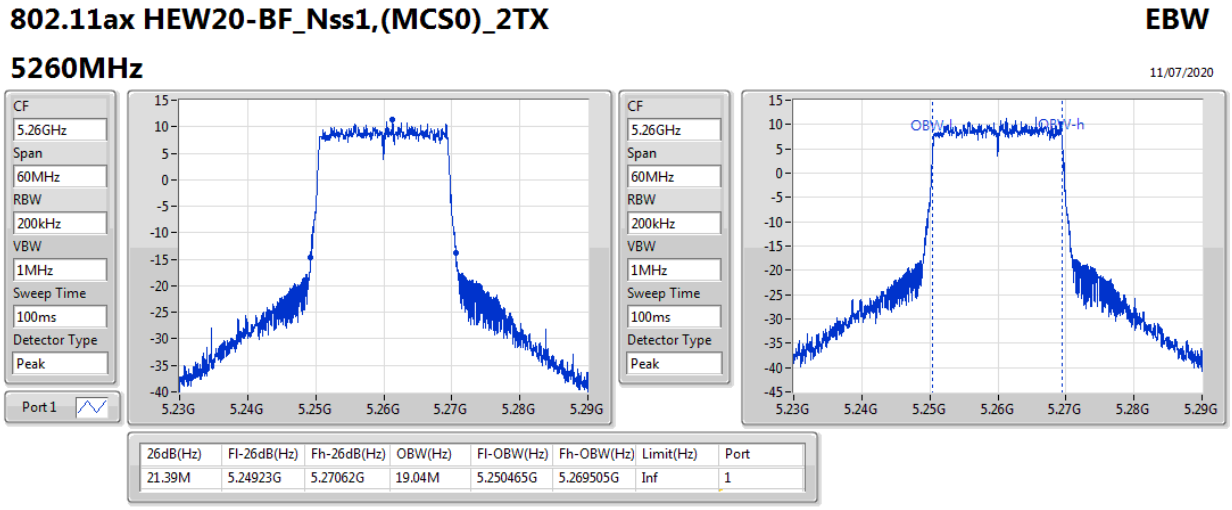
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 1 MCS 0 / 1S4T CDD / Ant. 6 / CH116 / 5580 MHz



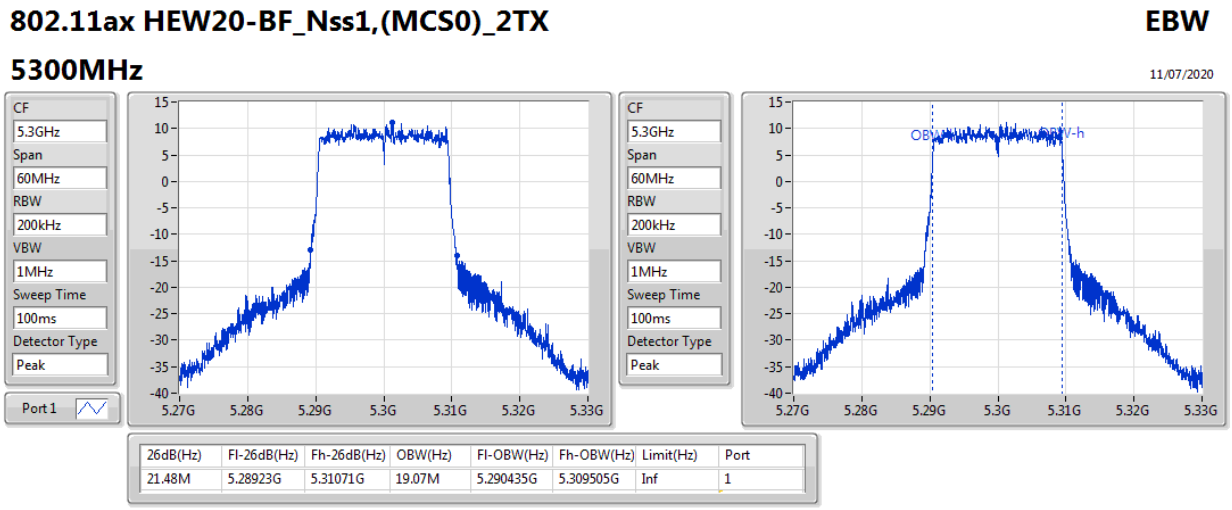
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 1 MCS 0 / 1S4T CDD / Ant. 6 / CH140 / 5700 MHz



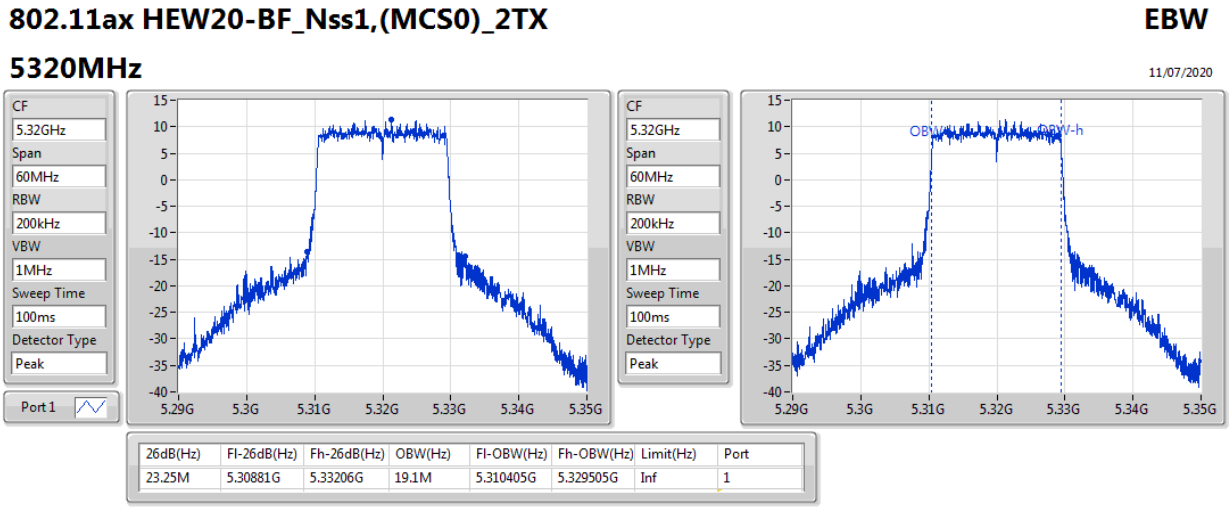
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 1 MCS 0 / TXBF 1S2T / Ant. 1 / CH52 / 5260 MHz



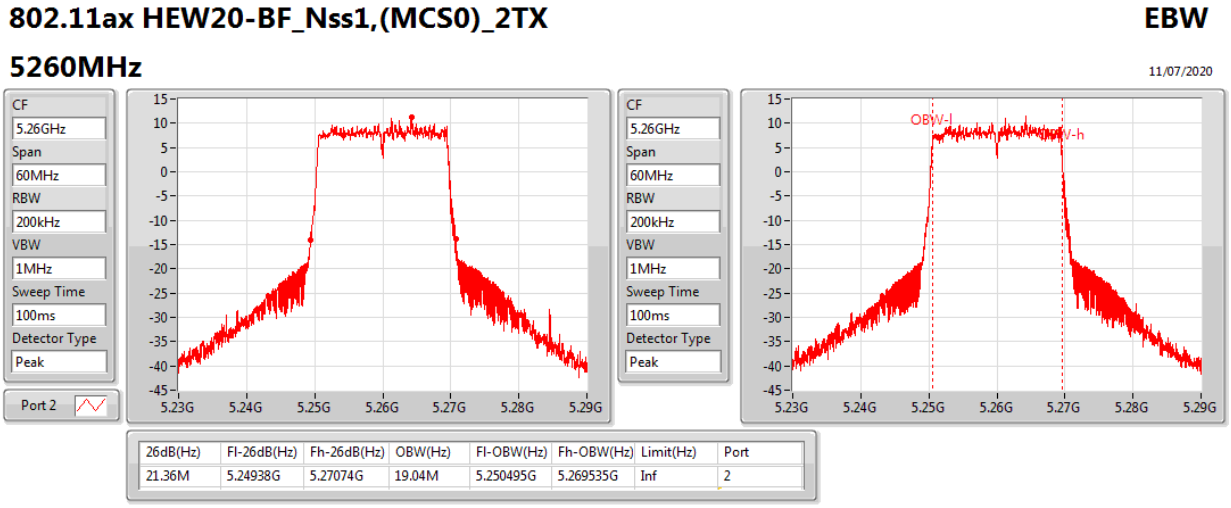
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 1 MCS 0 / TXBF 1S2T / Ant. 1 / CH60 / 5300 MHz



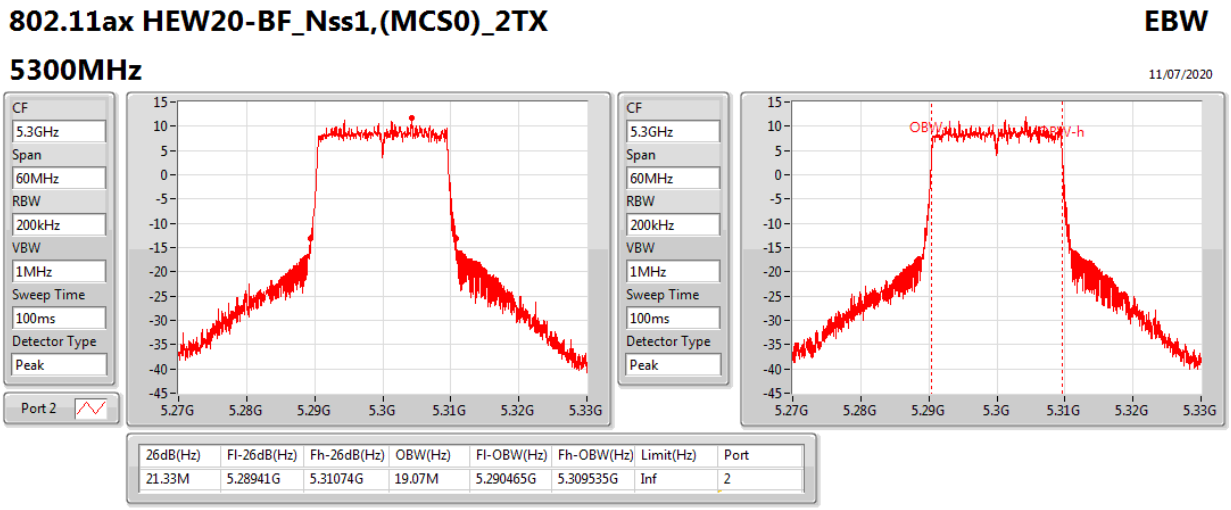
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 1 MCS 0 / TXBF 1S2T / Ant. 1 / CH64 / 5320 MHz



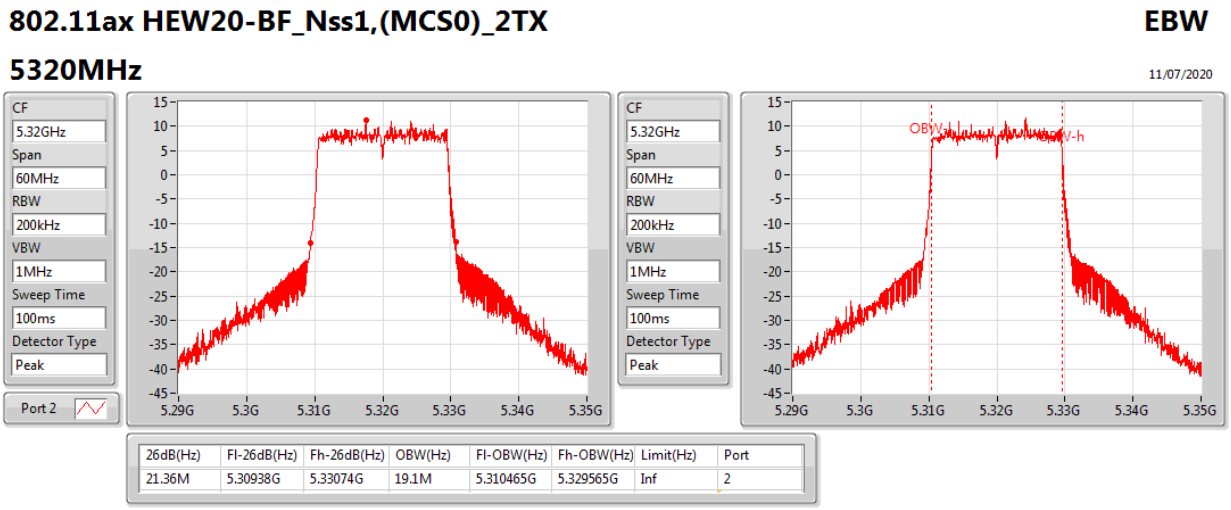
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 1 MCS 0 / TXBF 1S2T / Ant. 2 / CH52 / 5260 MHz



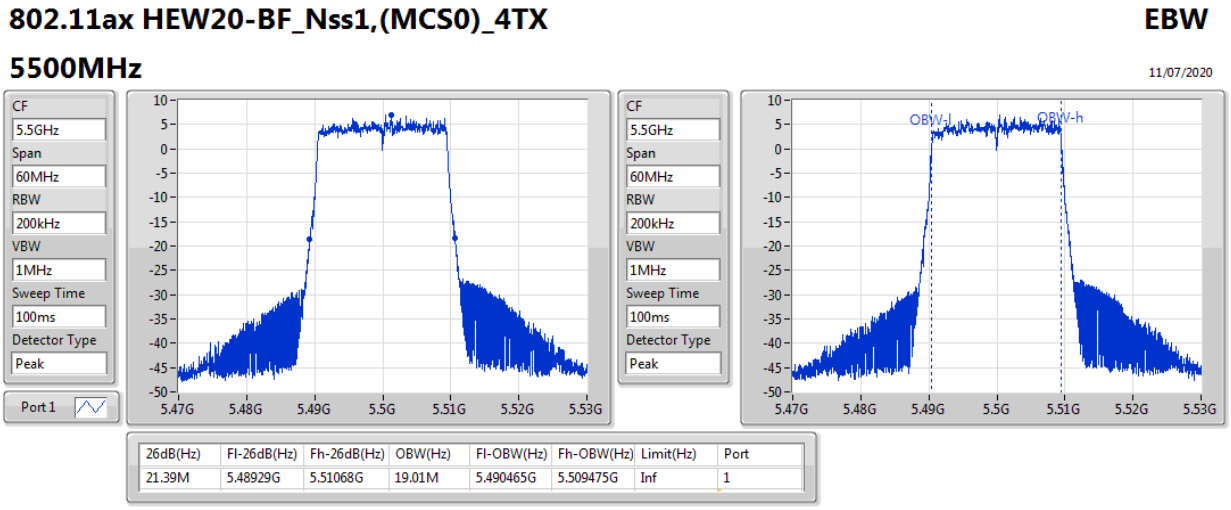
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 1 MCS 0 / TXBF 1S2T / Ant. 2 / CH60 / 5300 MHz



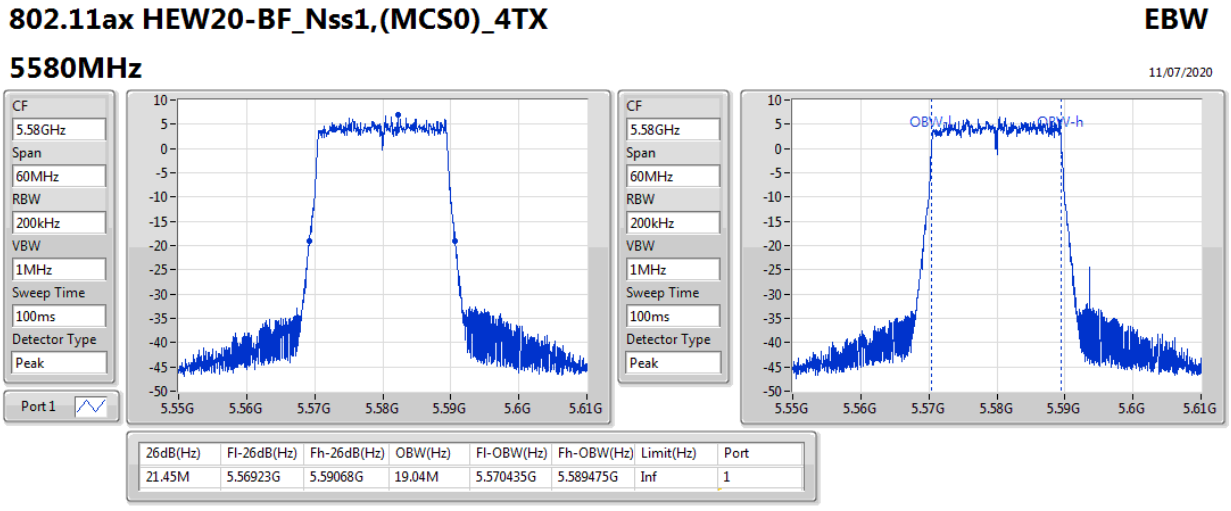
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 1 MCS 0 / TXBF 1S2T / Ant. 2 / CH64 / 5320 MHz



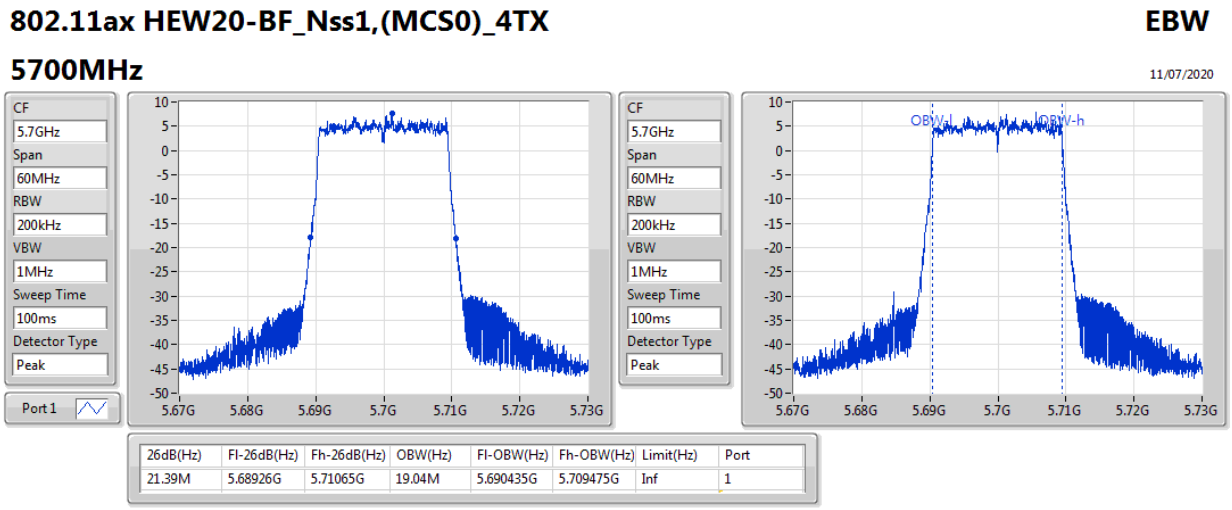
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 1 MCS 0 / 1S4T TXBF / Ant. 3 / CH100 / 5500 MHz



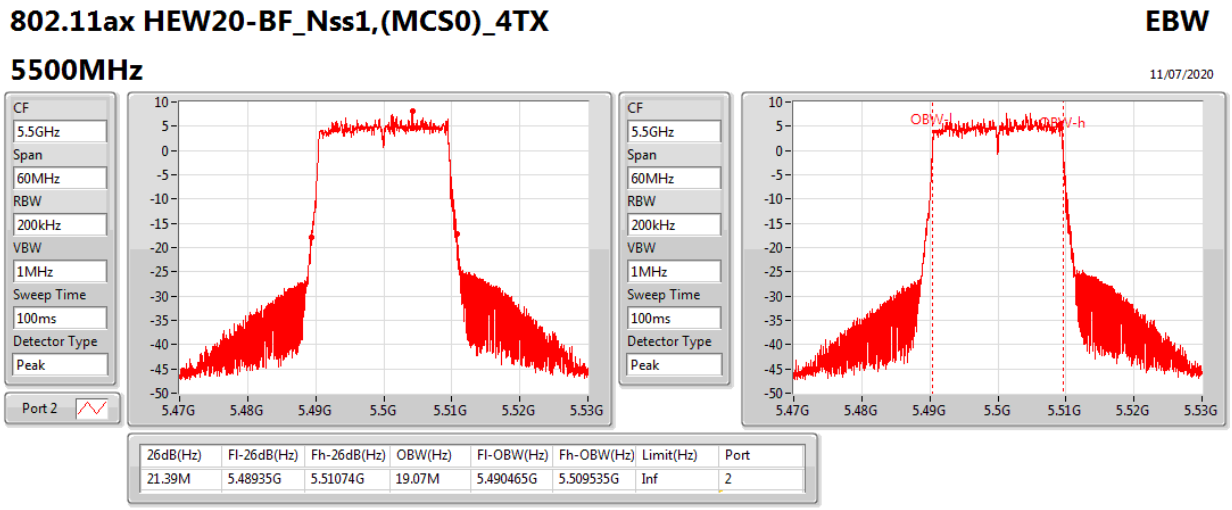
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 1 MCS 0 / 1S4T TXBF / Ant. 3 / CH116 / 5580 MHz



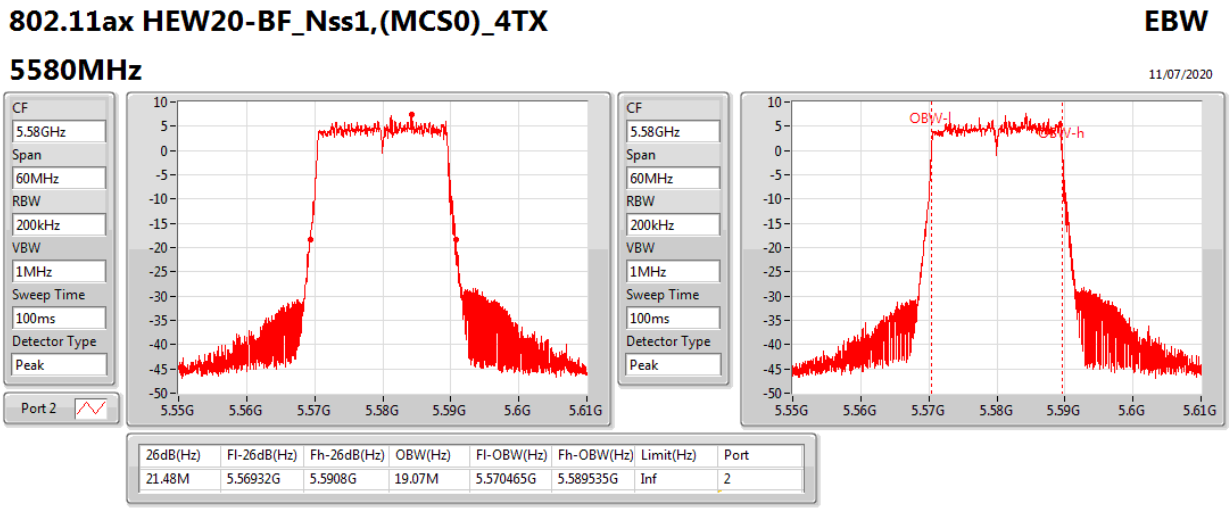
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 1 MCS 0 / 1S4T TXBF / Ant. 3 / CH140 / 5700 MHz



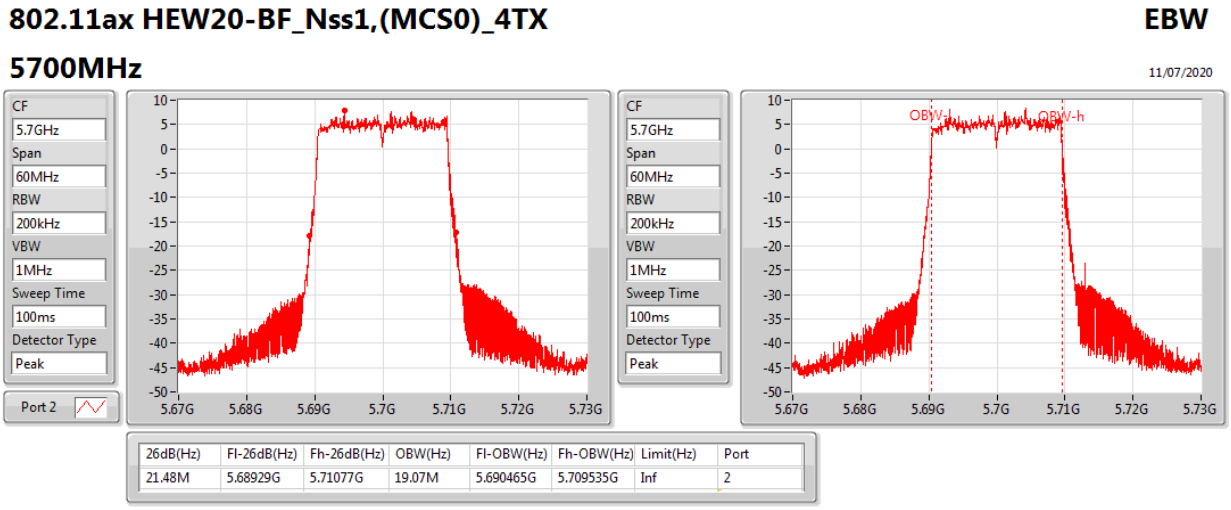
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 1 MCS 0 / 1S4T TXBF / Ant. 4 / CH100 / 5500 MHz



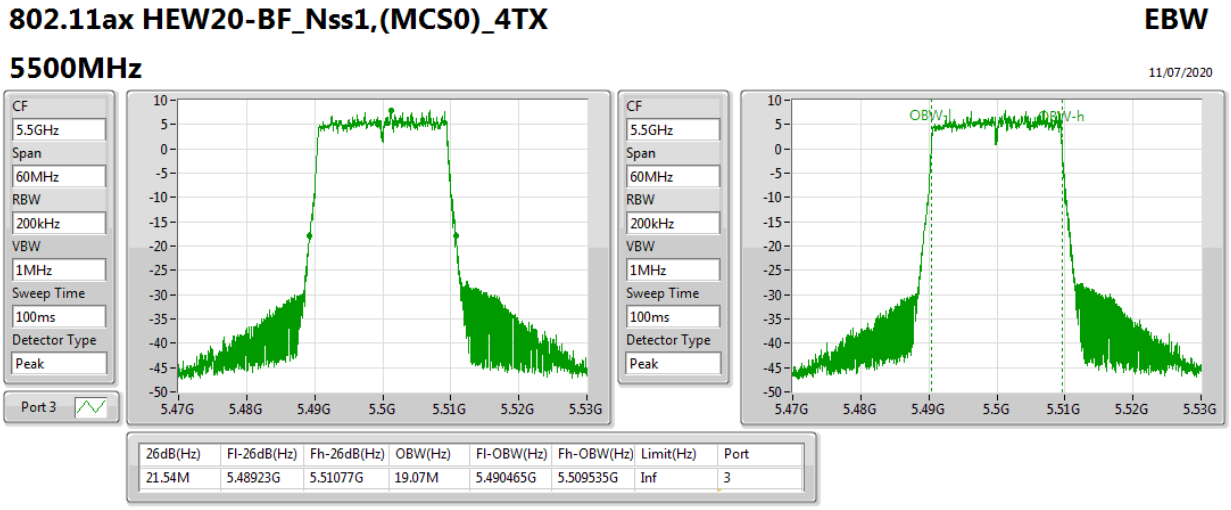
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 1 MCS 0 / 1S4T TXBF / Ant. 4 / CH116 / 5580 MHz



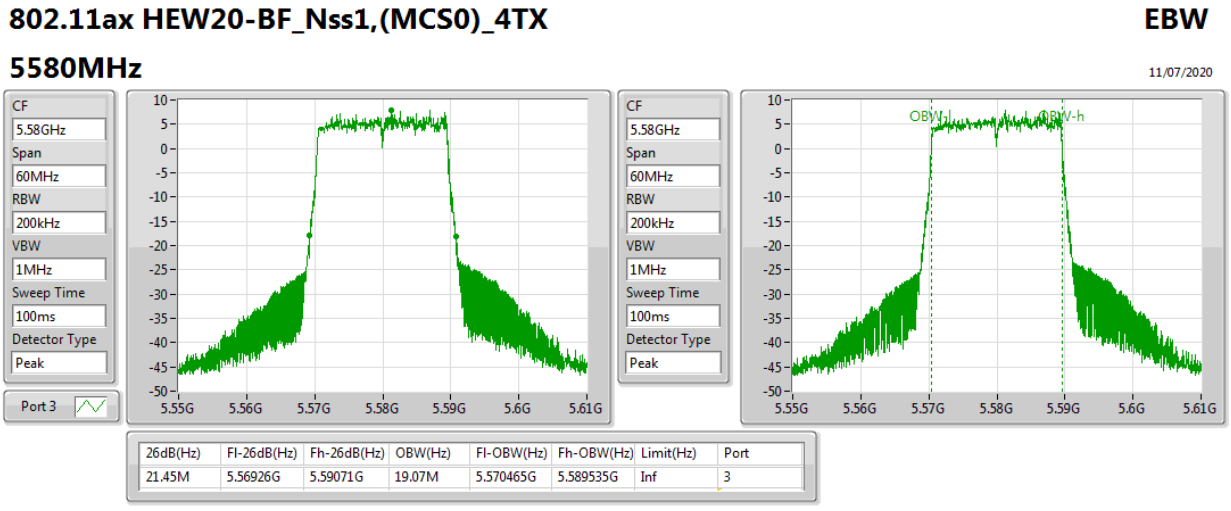
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 1 MCS 0 / 1S4T TXBF / Ant. 4 / CH140 / 5700 MHz



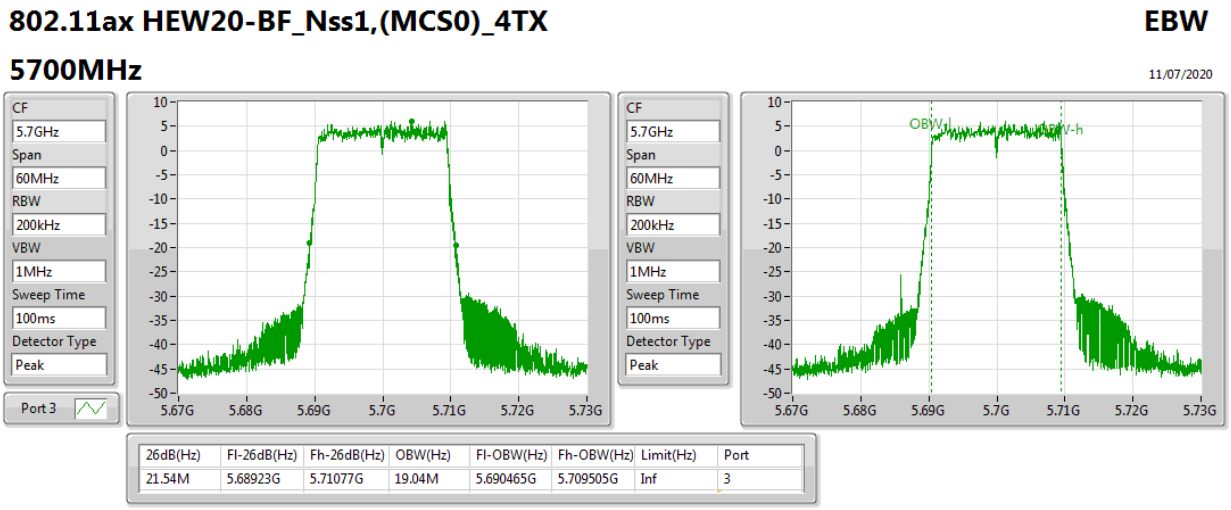
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE802.11ax 20MHz / Nss 1 MCS 0 / 1S4T TXBF / Ant. 5 / CH100 / 5500 MHz



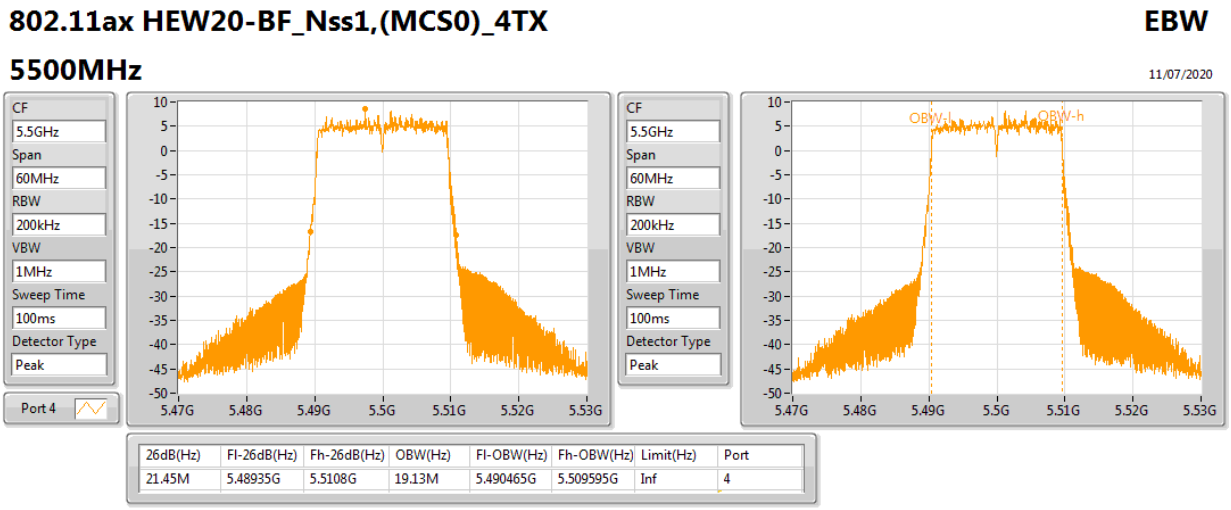
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 1 MCS 0 / 1S4T TXBF / Ant. 5 / CH116 / 5580 MHz



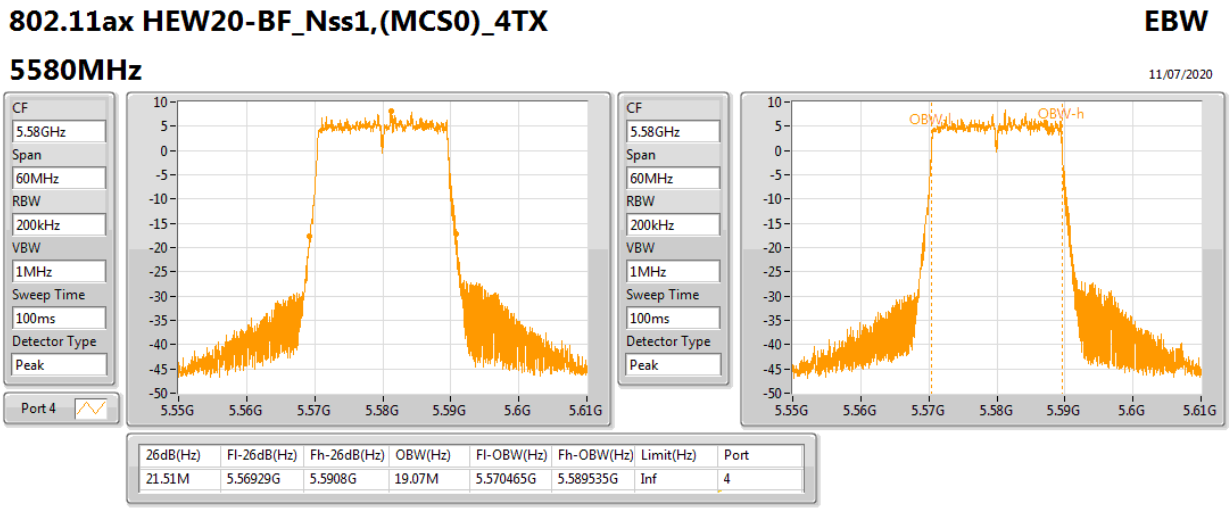
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 1 MCS 0 / 1S4T TXBF / Ant. 5 / CH140 / 5700 MHz



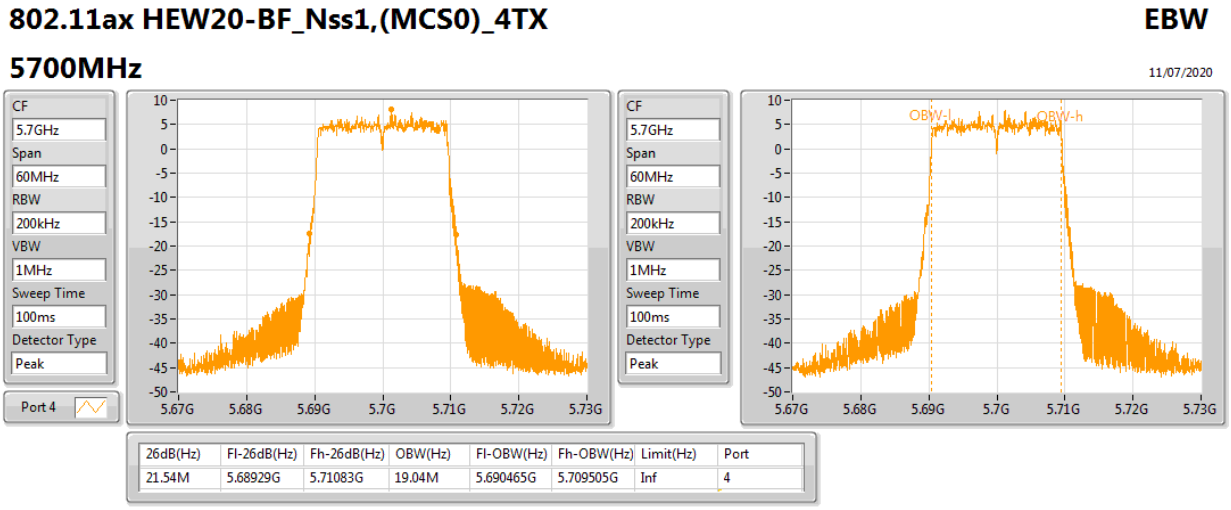
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 1 MCS 0 / 1S4T TXBF / Ant. 6 / CH100 / 5500 MHz



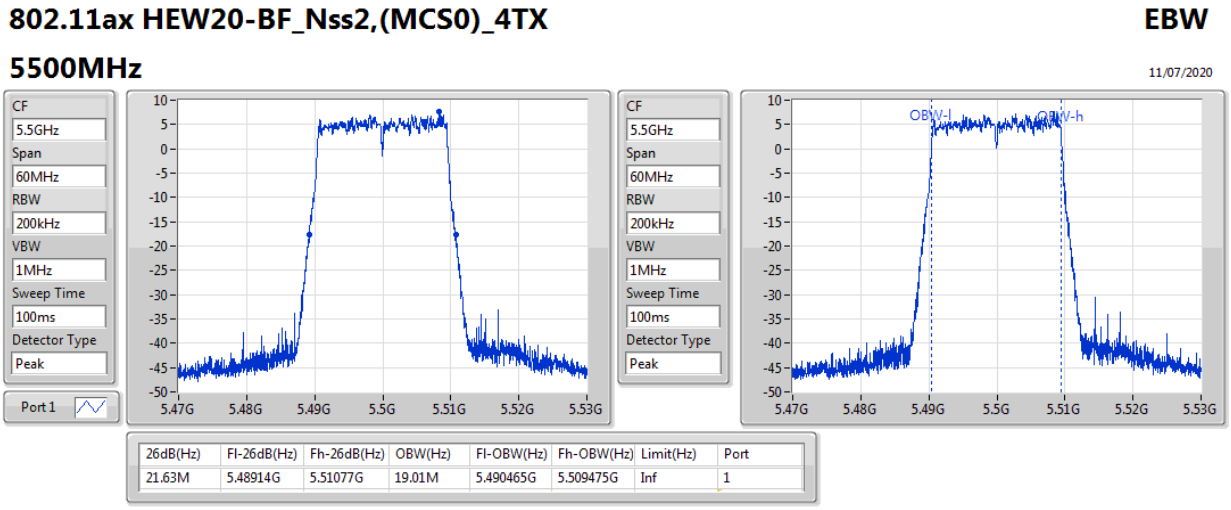
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 8802.11ax 20MHz / Nss 1 MCS 0 / 1S4T TXBF / Ant. 6 / CH116 / 5580 MHz



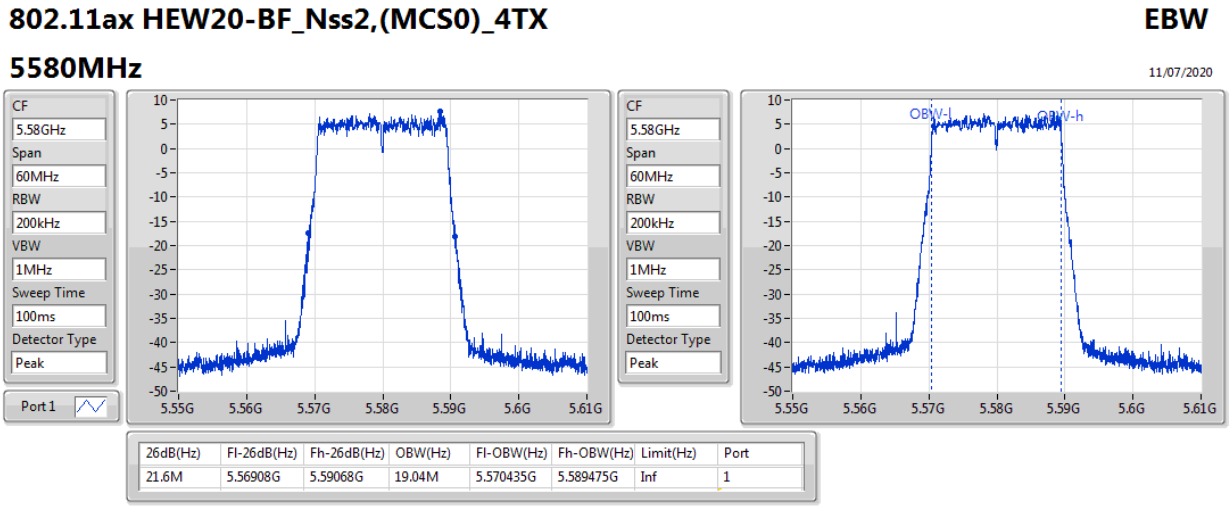
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 1 MCS 0 / 1S4T TXBF / Ant. 6 / CH140 / 5700 MHz



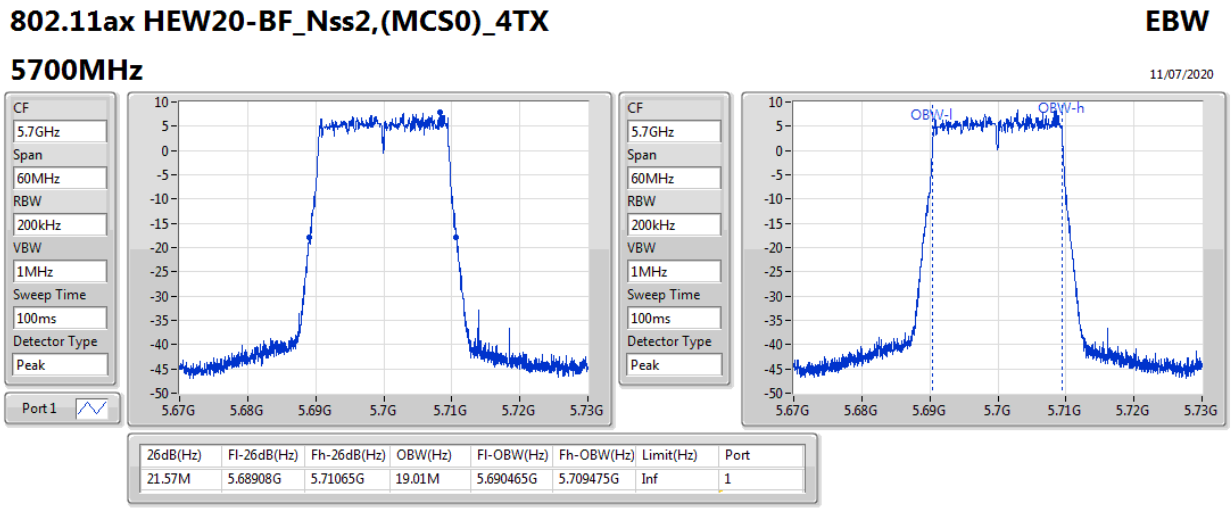
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 2 MCS 0 / 2S4T TXBF / Ant. 3 / CH100 / 5500 MHz



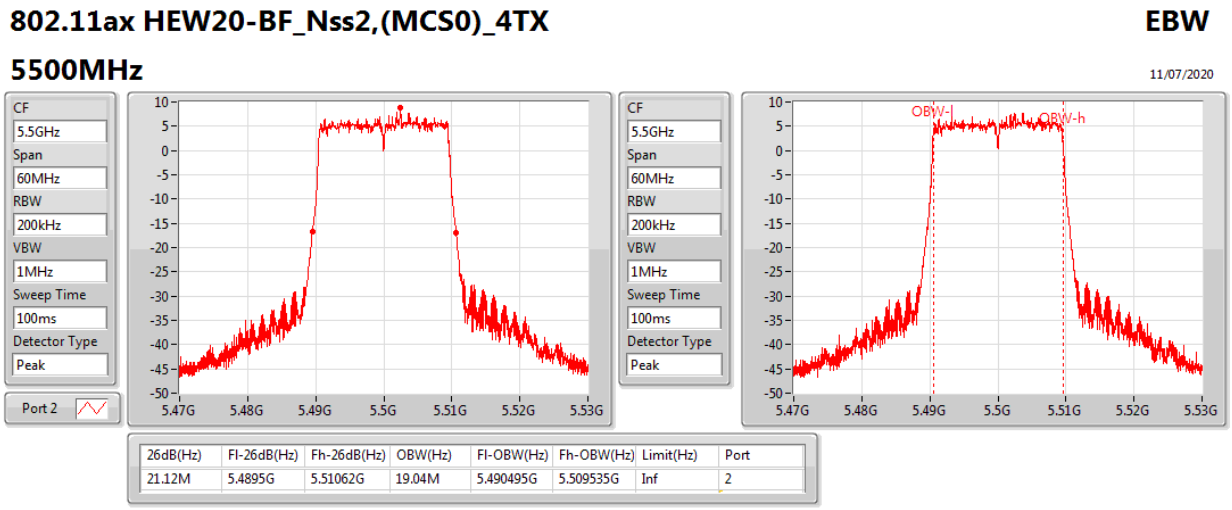
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 2 MCS 0 / 2S4T TXBF / Ant. 3 / CH116 / 5580 MHz



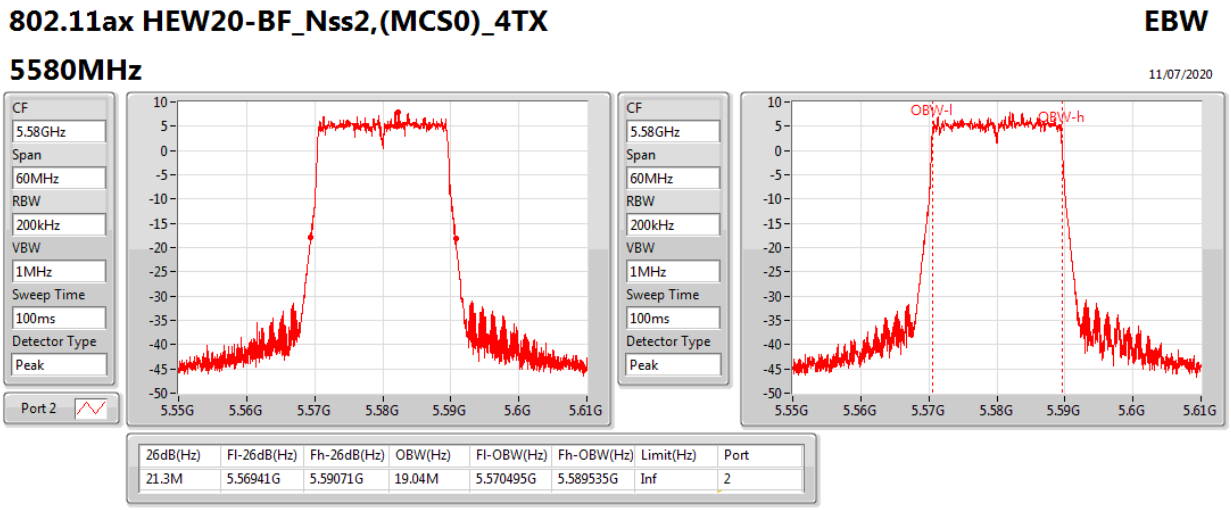
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 2 MCS 0 / 2S4T TXBF / Ant. 3 / CH140 / 5700 MHz



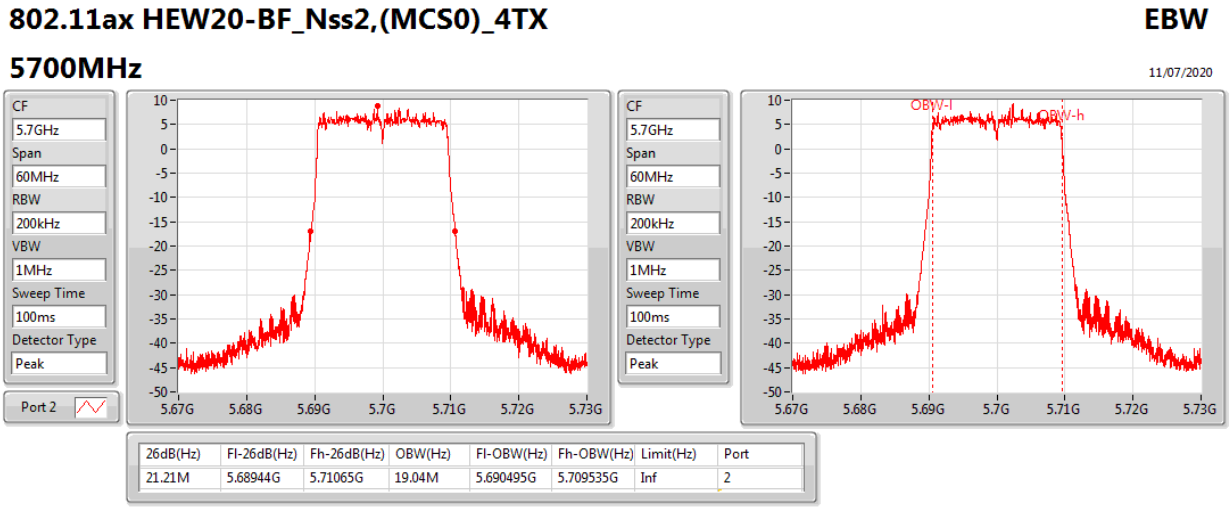
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 2 MCS 0 / 2S4T TXBF / Ant. 4 / CH100 / 5500 MHz



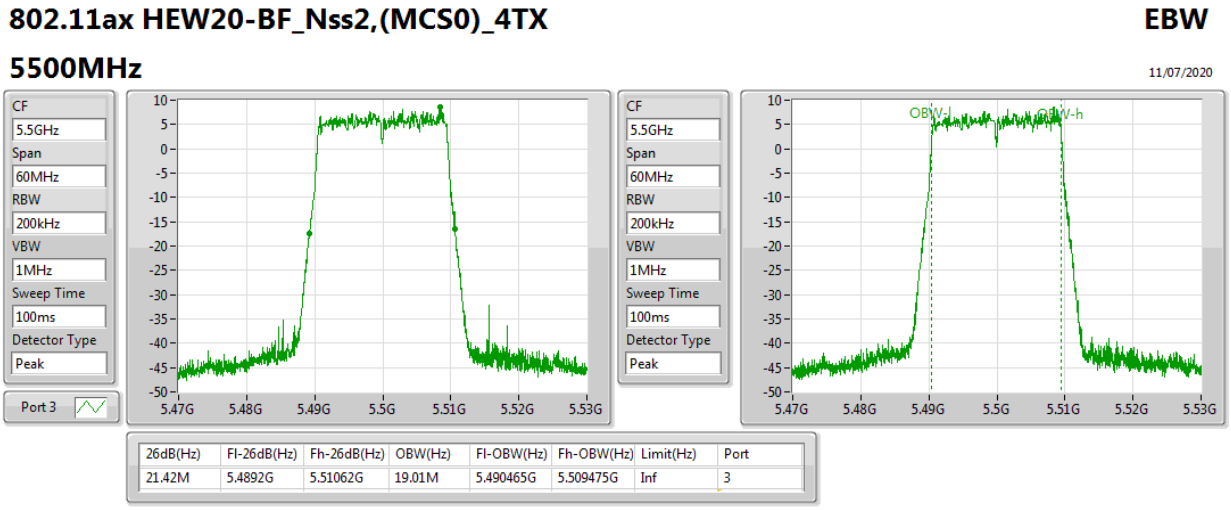
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 2 MCS 0 / 2S4T TXBF / Ant. 4 / CH116 / 5580 MHz



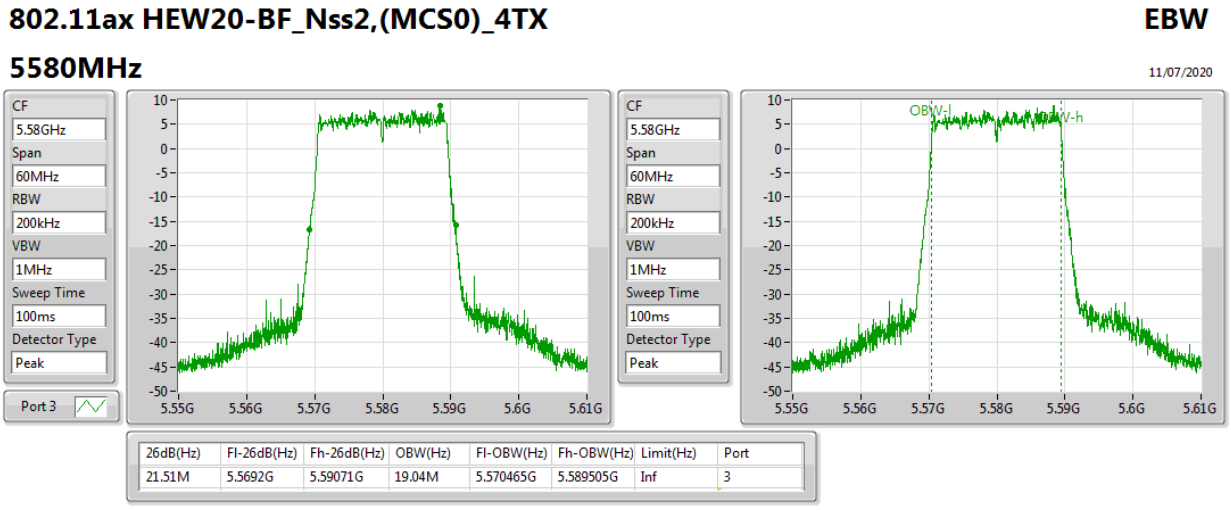
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 2 MCS 0 / 2S4T TXBF / Ant. 4 / CH140 / 5700 MHz



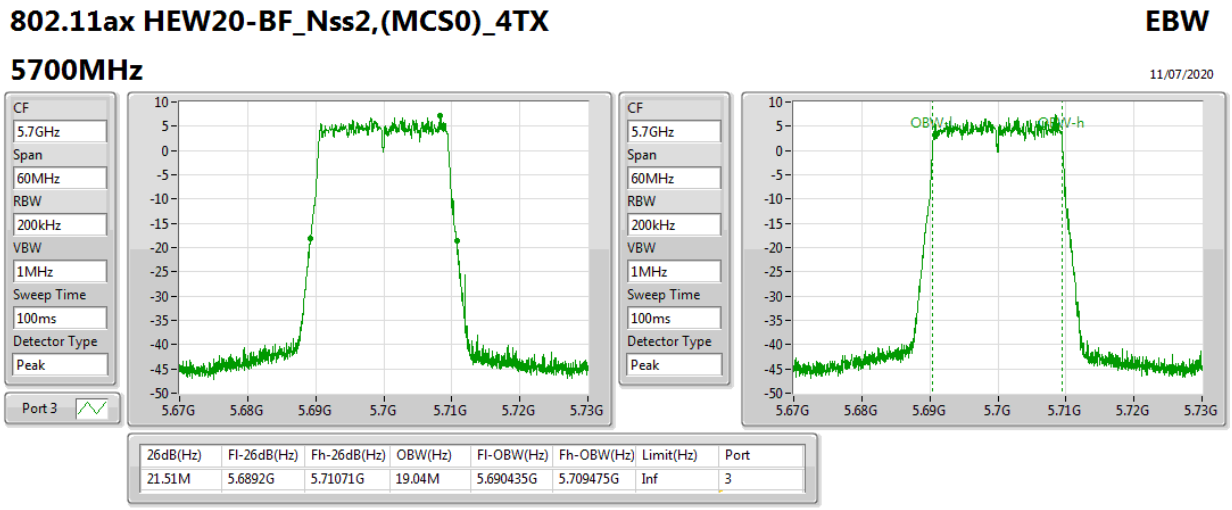
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE802.11ax 20MHz / Nss 2 MCS 0 / 2S4T TXBF / Ant. 5 / CH100 / 5500 MHz



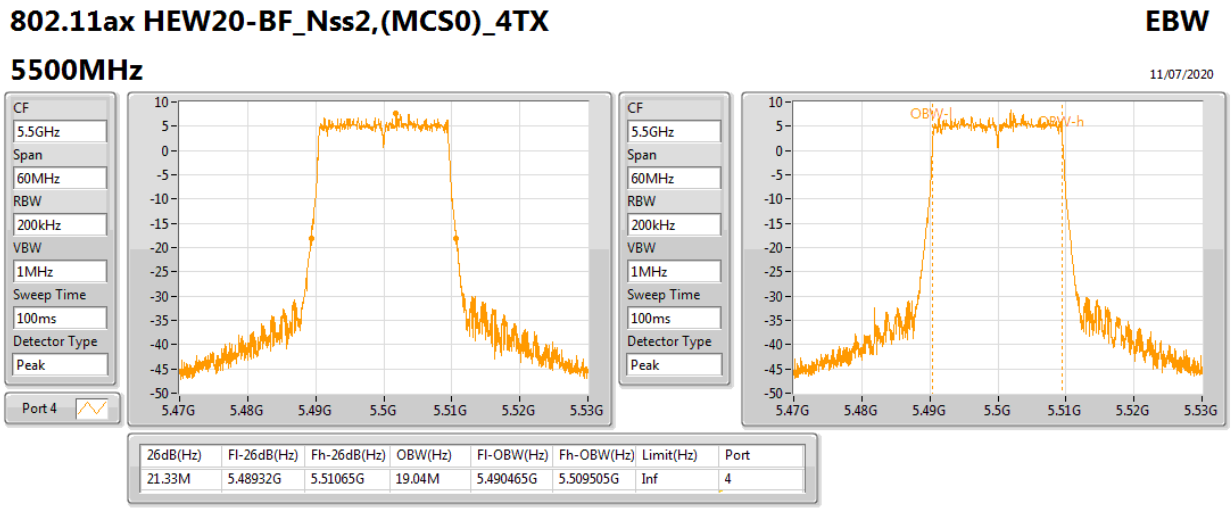
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 2 MCS 0 / 2S4T TXBF / Ant. 5 / CH116 / 5580 MHz



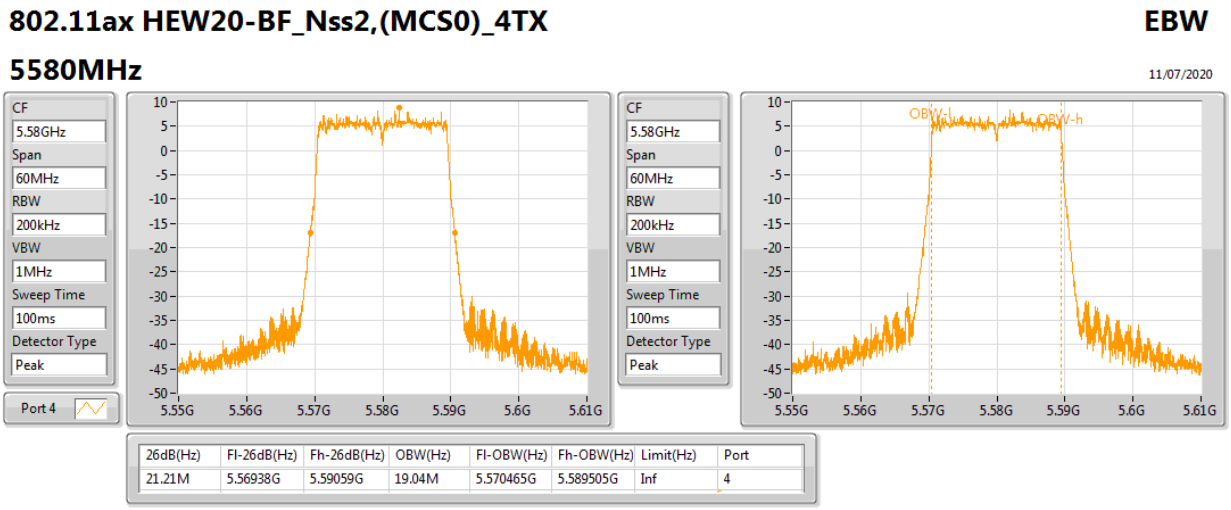
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 2 MCS 0 / 2S4T TXBF / Ant. 5 / CH140 / 5700 MHz



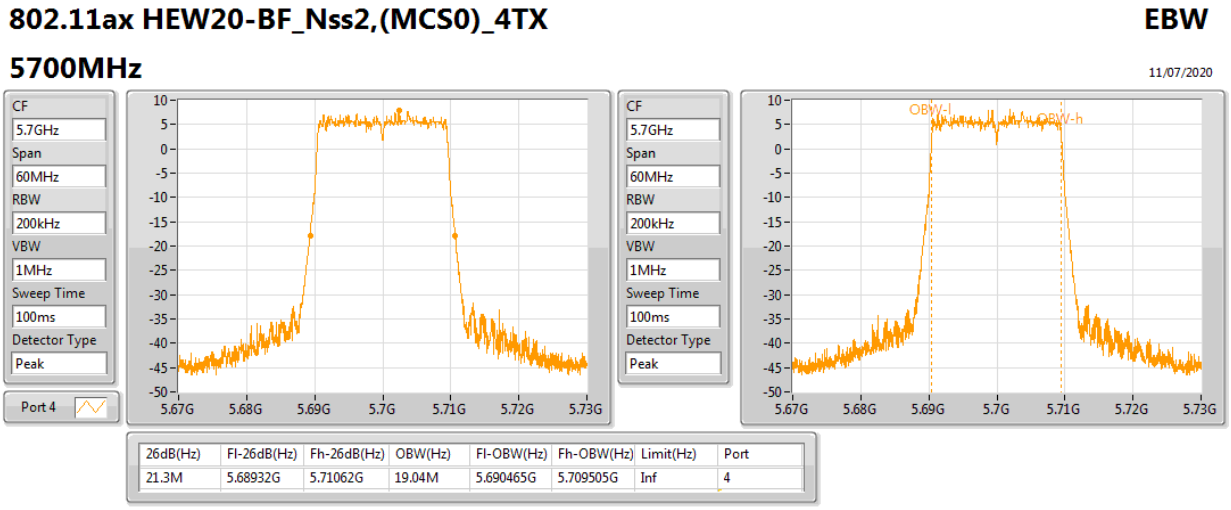
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 2 MCS 0 / 2S4T TXBF / Ant. 6 / CH100 / 5500 MHz



26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 8802.11ax 20MHz / Nss 2 MCS 0 / 2S4T TXBF / Ant. 6 / CH116 / 5580 MHz



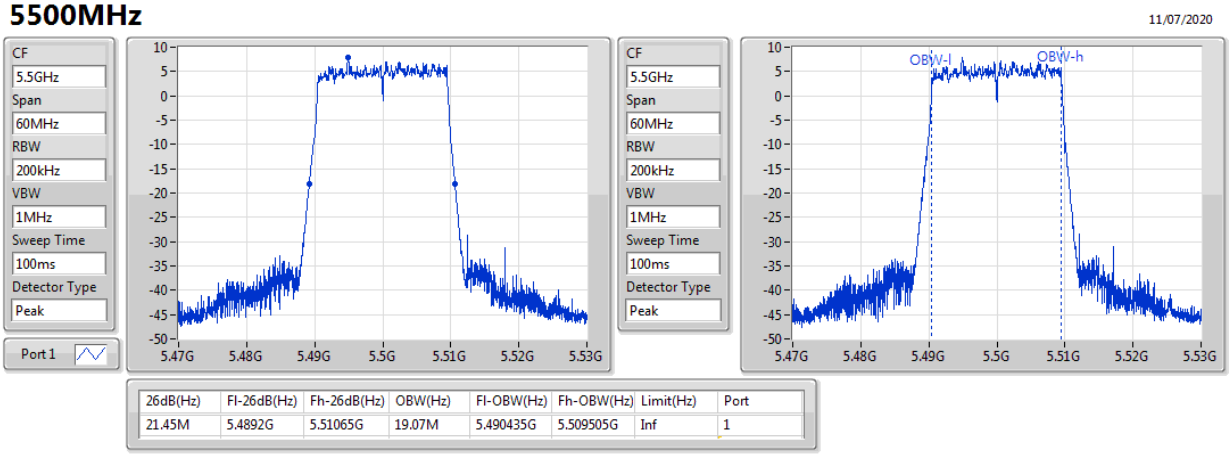
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 2 MCS 0 / 2S4T TXBF / Ant. 6 / CH140 / 5700 MHz



26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 3 MCS 0 / 3S4T TXBF / Ant. 3 / CH100 / 5500 MHz

802.11ax HEW20-BF_Nss3,(MCS0)_4TX **EBW**

5500MHz

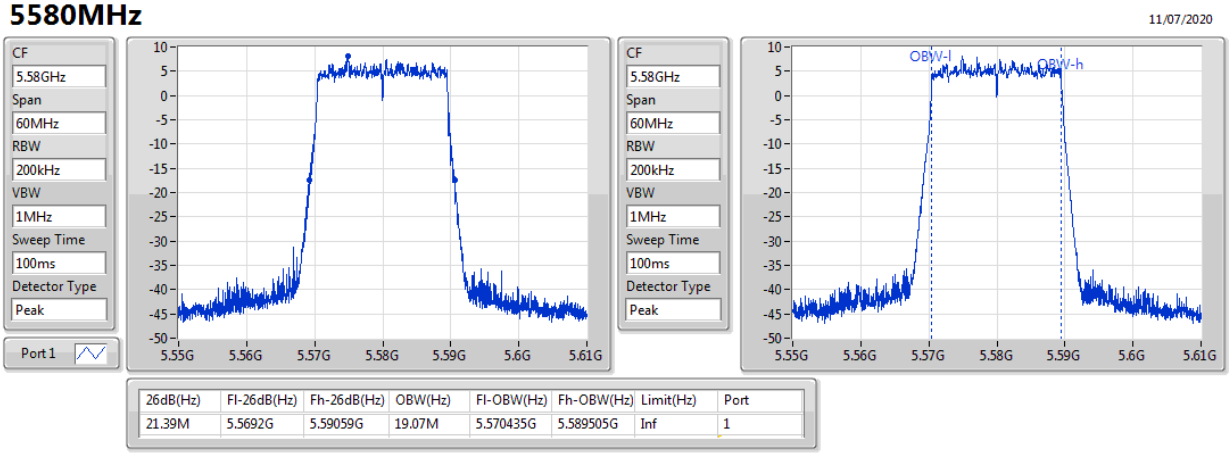


26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
21.45M	5.4892G	5.51065G	19.07M	5.490435G	5.509505G	Inf	1

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 3 MCS 0 / 3S4T TXBF / Ant. 3 / CH116 / 5580 MHz

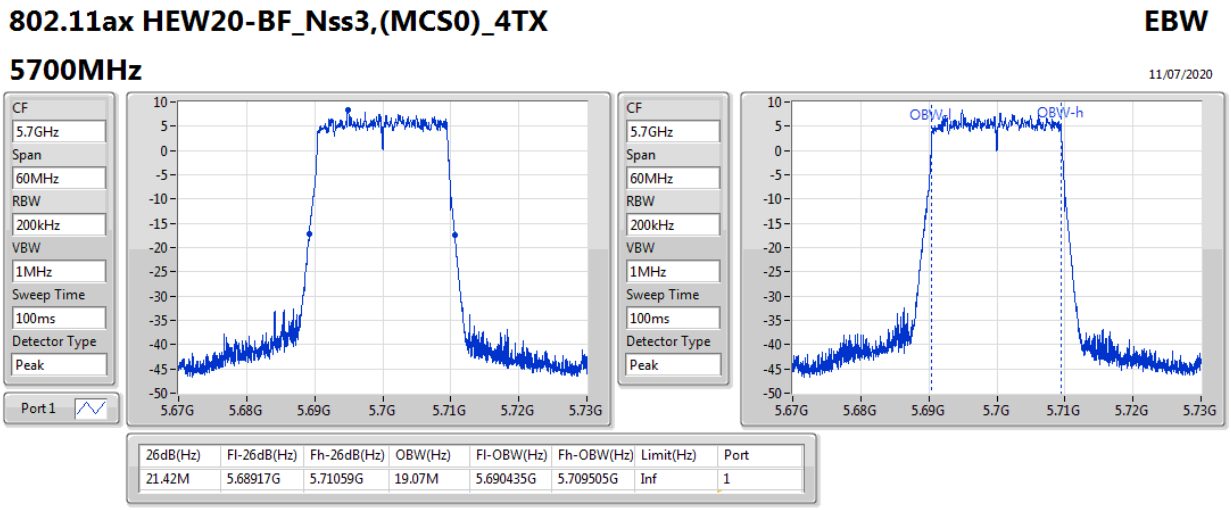
802.11ax HEW20-BF_Nss3,(MCS0)_4TX **EBW**

5580MHz

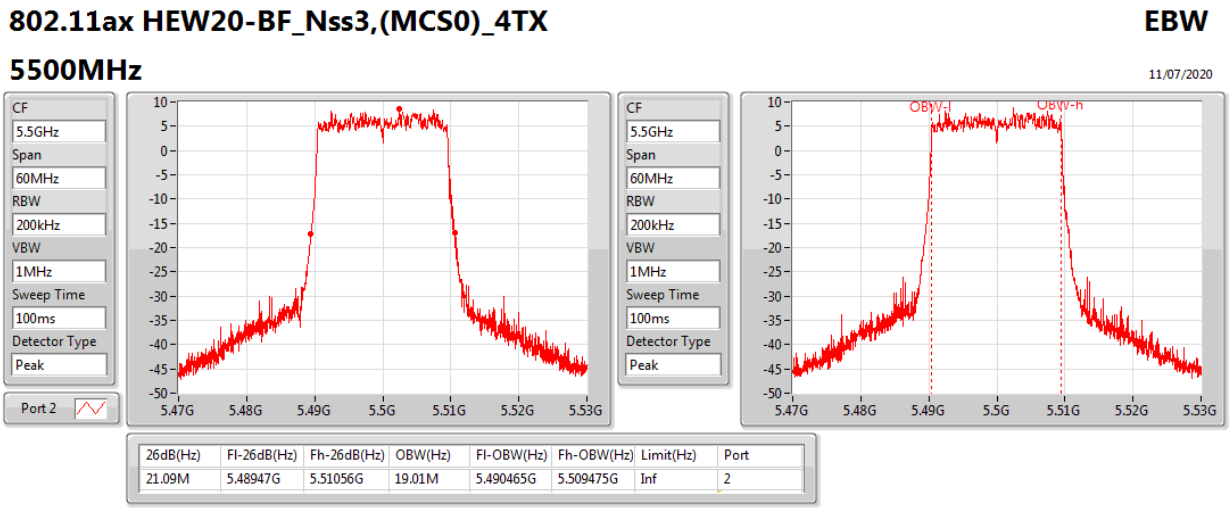


26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
21.39M	5.5692G	5.59059G	19.07M	5.570435G	5.589505G	Inf	1

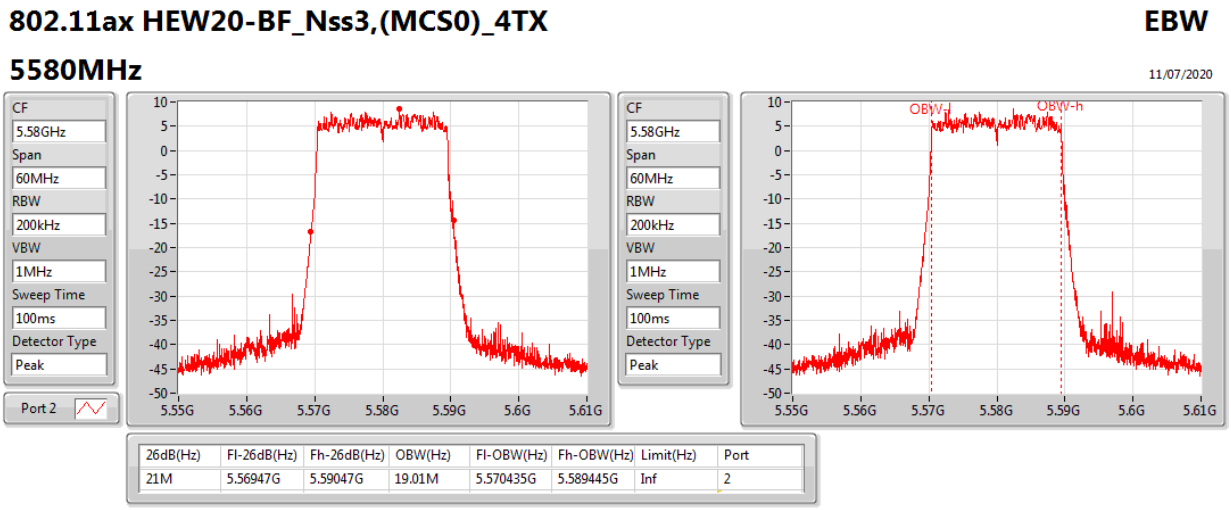
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 3 MCS 0 / 3S4T TXBF / Ant. 3 / CH140 / 5700 MHz



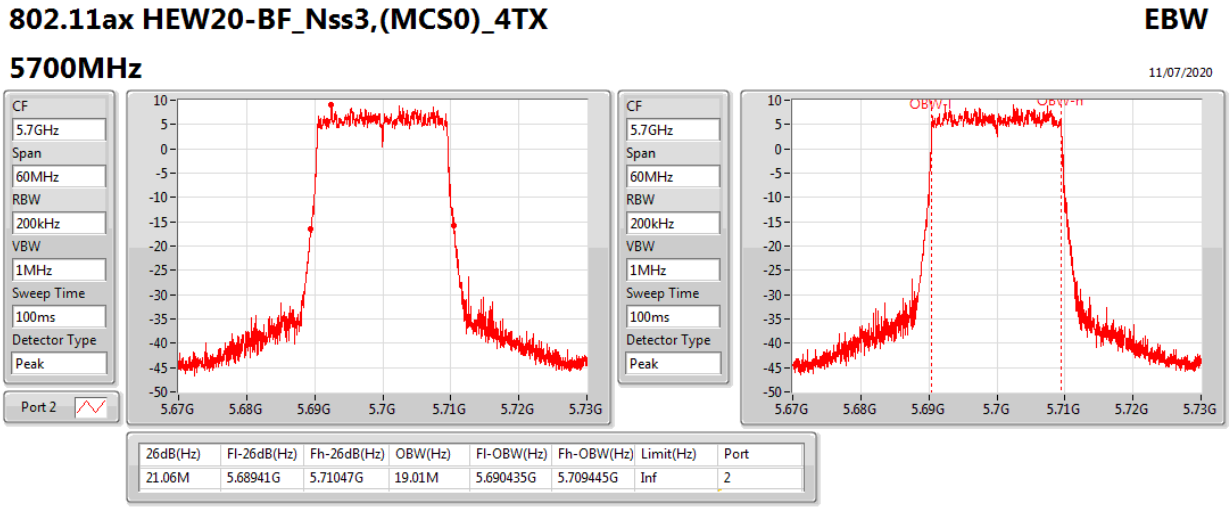
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 3 MCS 0 / 3S4T TXBF / Ant. 4 / CH100 / 5500 MHz



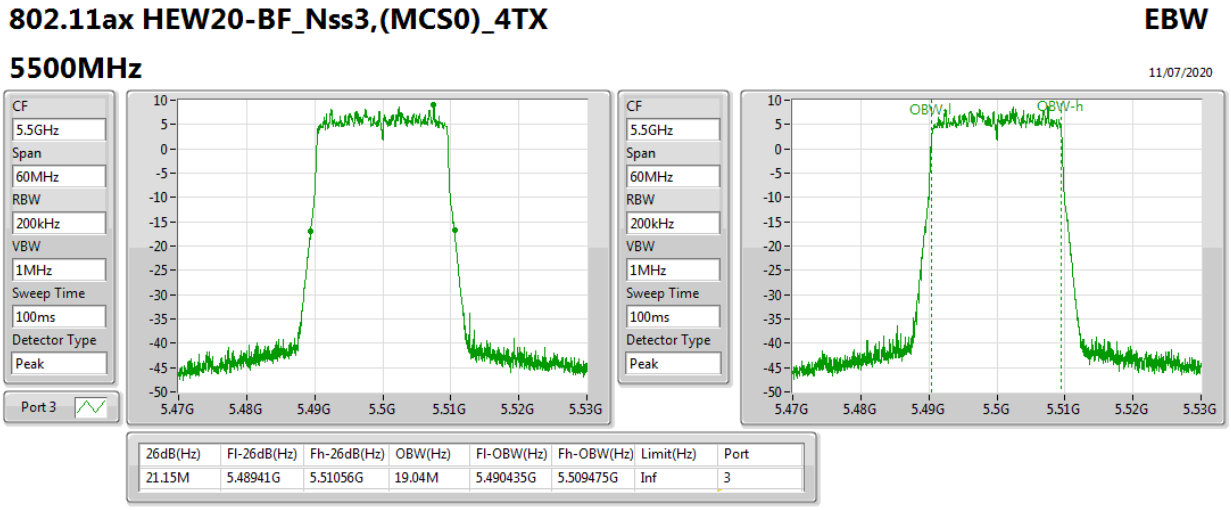
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 3 MCS 0 / 3S4T TXBF / Ant. 4 / CH116 / 5580 MHz



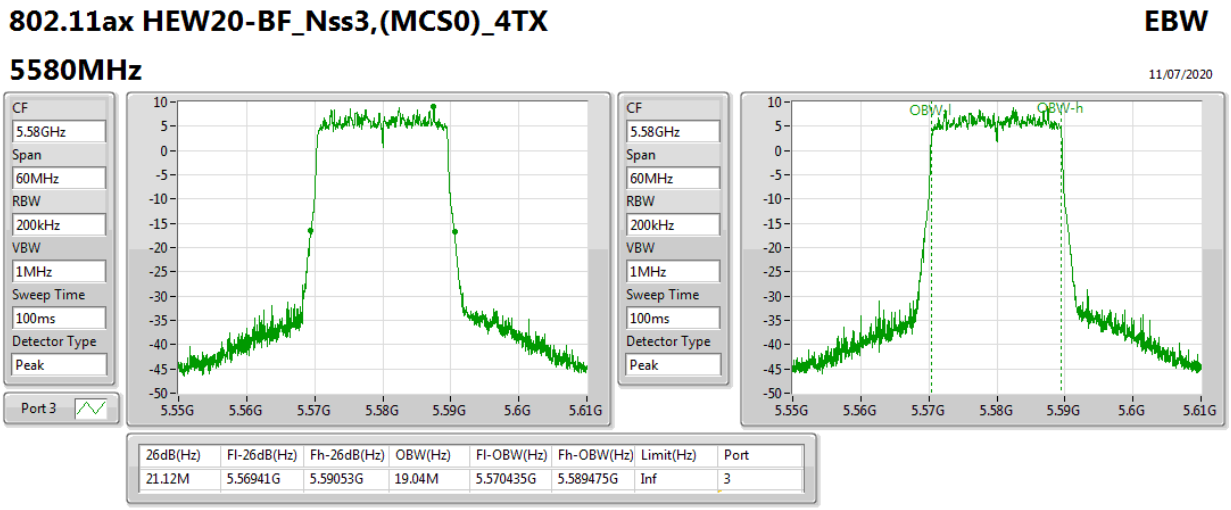
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 3 MCS 0 / 3S4T TXBF / Ant. 4 / CH140 / 5700 MHz



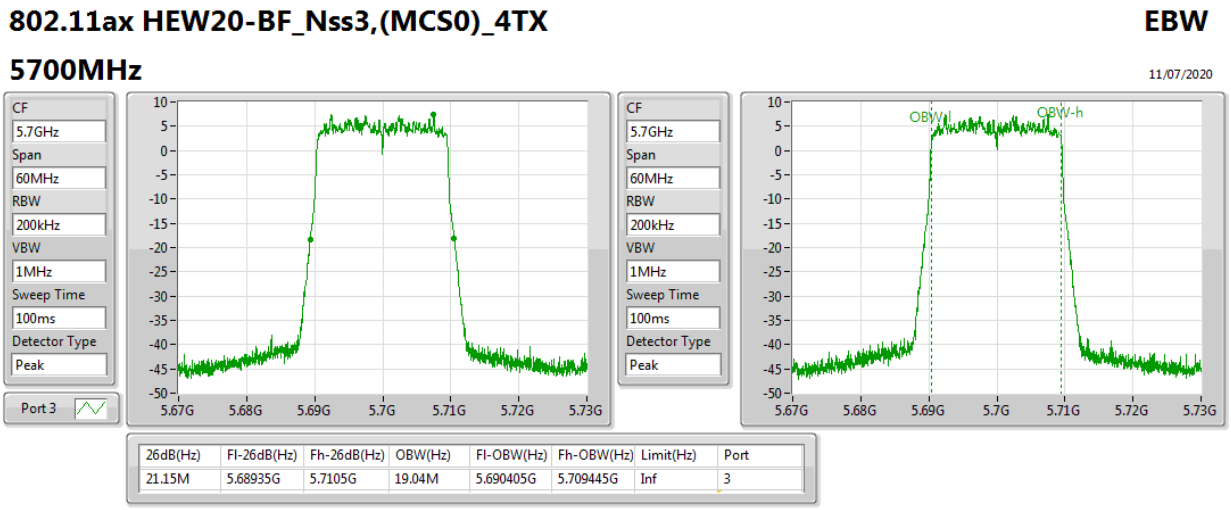
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE802.11ax 20MHz / Nss 3 MCS 0 / 3S4T TXBF / Ant. 5 / CH100 / 5500 MHz



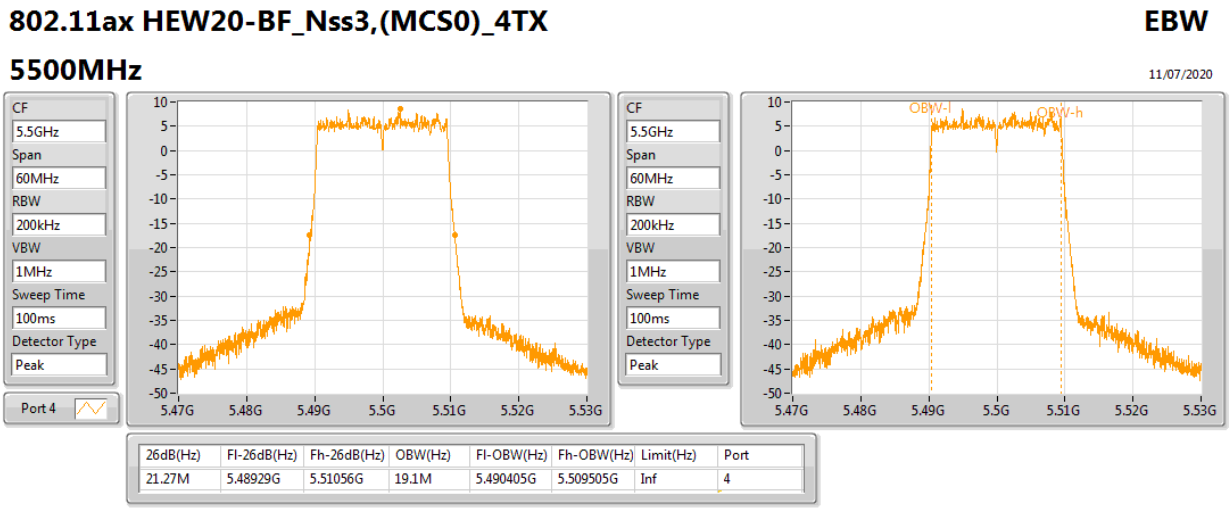
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 3 MCS 0 / 3S4T TXBF / Ant. 5 / CH116 / 5580 MHz



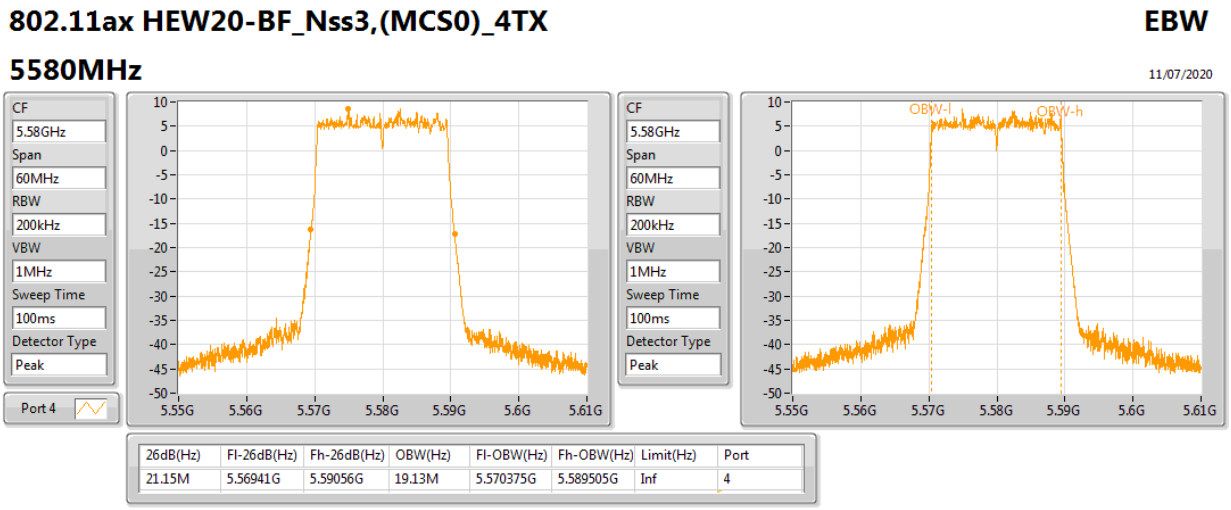
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 3 MCS 0 / 3S4T TXBF / Ant. 5 / CH140 / 5700 MHz



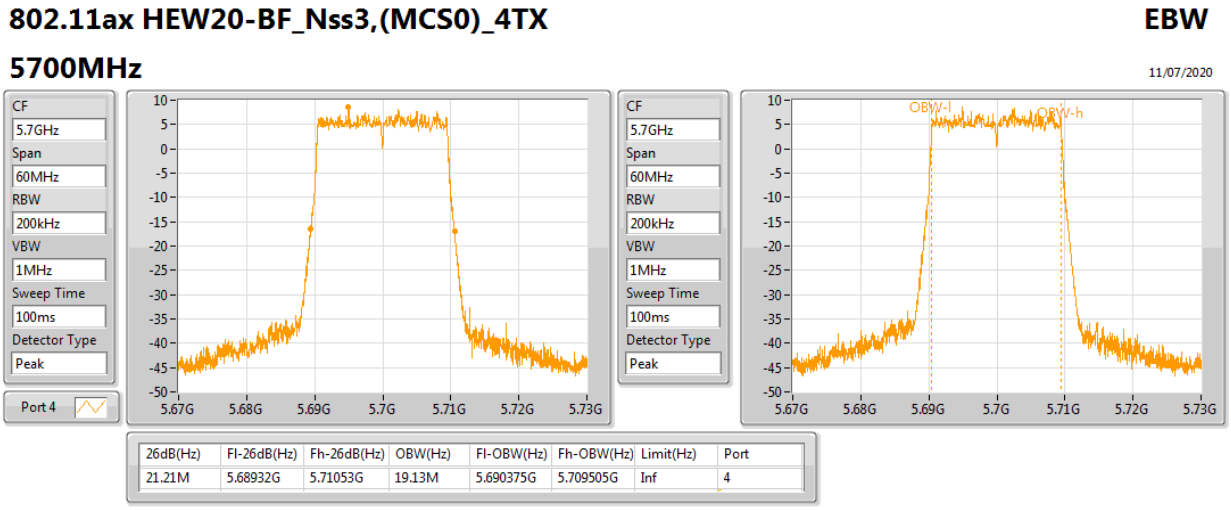
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 3 MCS 0 / 3S4T TXBF / Ant. 6 / CH100 / 5500 MHz



26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 8802.11ax 20MHz / Nss 3 MCS 0 / 3S4T TXBF / Ant. 6 / CH116 / 5580 MHz



26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 3 MCS 0 / 3S4T TXBF / Ant. 6 / CH140 / 5700 MHz

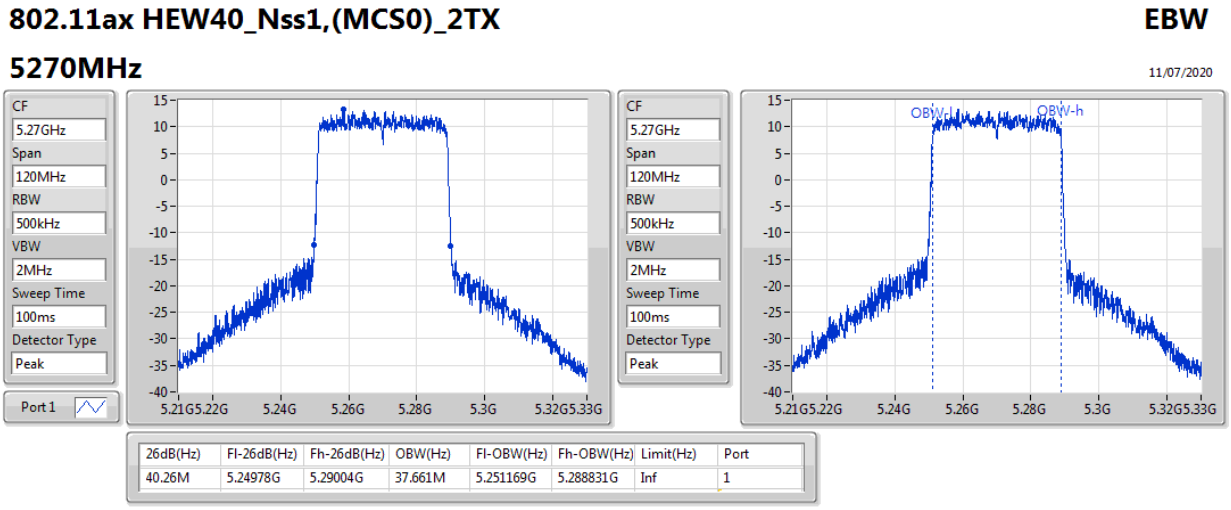


Configuration IEEE 802.11ax 40MHz

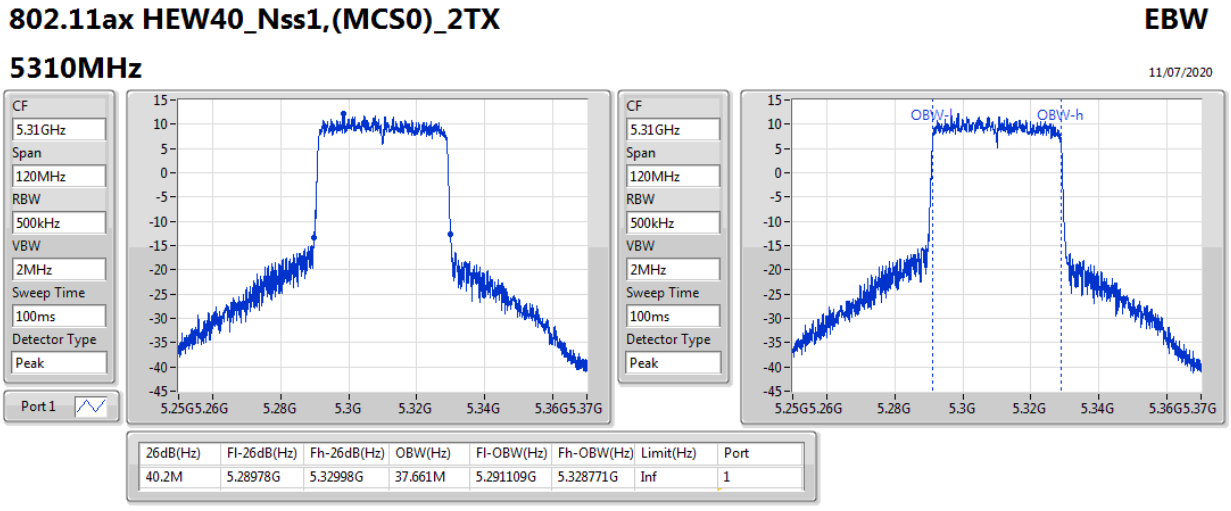
26dB Emission Bandwidth (MHz)						
Mode	Number of Transmit Chains (NTX)	Frequency	26dB Emission Bandwidth (MHz)			
			Ant. 1	Ant. 2		
802.11ax 40MHz (CDD)	1 stream 2TX	5270 MHz	40.260	40.080		
802.11ax 40MHz (CDD)	1 stream 2TX	5310 MHz	40.200	40.080		
802.11ax 40MHz (TXBF)	1 stream 2TX	5270 MHz	40.080	40.200		
802.11ax 40MHz (TXBF)	1 stream 2TX	5310 MHz	40.260	40.200		
Mode	Number of Transmit Chains (NTX)	Frequency	26dB Emission Bandwidth (MHz)			
			Ant. 3	Ant. 4	Ant. 5	Ant. 6
802.11ax 40MHz (CDD)	1 stream 4TX	5510 MHz	40.260	40.020	39.780	39.960
802.11ax 40MHz (CDD)	1 stream 4TX	5550 MHz	40.140	40.080	39.900	40.020
802.11ax 40MHz (CDD)	1 stream 4TX	5670 MHz	40.200	40.140	39.780	39.900
802.11ax 40MHz (TXBF)	1 stream 4TX	5510 MHz	40.080	40.080	39.780	39.900
802.11ax 40MHz (TXBF)	1 stream 4TX	5550 MHz	40.320	40.080	39.840	39.900
802.11ax 40MHz (TXBF)	1 stream 4TX	5670 MHz	40.080	40.020	39.960	40.020
802.11ax 40MHz (TXBF)	2 stream 4TX	5510 MHz	39.720	40.020	39.840	40.140
802.11ax 40MHz (TXBF)	2 stream 4TX	5550 MHz	40.020	40.020	39.900	40.260
802.11ax 40MHz (TXBF)	2 stream 4TX	5670 MHz	40.020	40.140	39.900	40.320
802.11ax 40MHz (TXBF)	3 stream 4TX	5510 MHz	40.140	40.200	40.020	39.960
802.11ax 40MHz (TXBF)	3 stream 4TX	5550 MHz	40.020	40.200	40.200	40.020
802.11ax 40MHz (TXBF)	3 stream 4TX	5670 MHz	40.080	40.200	40.080	39.960

99% Occupied Bandwidth (MHz)						
Mode	Number of Transmit Chains (NTX)	Frequency	99% Occupied Bandwidth (MHz)			
			Ant. 1		Ant. 2	
802.11ax 40MHz (CDD)	1 stream 2TX	5270 MHz	37.661		37.661	
802.11ax 40MHz (CDD)	1 stream 2TX	5310 MHz	37.661		37.601	
802.11ax 40MHz (TXBF)	1 stream 2TX	5270 MHz	37.661		37.661	
802.11ax 40MHz (TXBF)	1 stream 2TX	5310 MHz	37.661		37.661	
Mode	Number of Transmit Chains (NTX)	Frequency	99% Occupied Bandwidth (MHz)			
			Ant. 3	Ant. 4	Ant. 5	Ant. 6
802.11ax 40MHz (CDD)	1 stream 4TX	5510 MHz	37.541	37.601	37.541	37.541
802.11ax 40MHz (CDD)	1 stream 4TX	5550 MHz	37.601	37.601	37.601	37.541
802.11ax 40MHz (CDD)	1 stream 4TX	5670 MHz	37.601	37.661	37.601	37.661
802.11ax 40MHz (TXBF)	1 stream 4TX	5510 MHz	37.601	37.601	37.601	37.541
802.11ax 40MHz (TXBF)	1 stream 4TX	5550 MHz	37.541	37.661	37.661	37.541
802.11ax 40MHz (TXBF)	1 stream 4TX	5670 MHz	37.601	37.601	37.601	37.601
802.11ax 40MHz (TXBF)	2 stream 4TX	5510 MHz	37.481	37.601	37.601	37.541
802.11ax 40MHz (TXBF)	2 stream 4TX	5550 MHz	37.541	37.541	37.541	37.541
802.11ax 40MHz (TXBF)	2 stream 4TX	5670 MHz	37.541	37.601	37.541	37.541
802.11ax 40MHz (TXBF)	3 stream 4TX	5510 MHz	37.541	37.541	37.541	37.421
802.11ax 40MHz (TXBF)	3 stream 4TX	5550 MHz	37.601	37.541	37.601	37.421
802.11ax 40MHz (TXBF)	3 stream 4TX	5670 MHz	37.601	37.601	37.541	37.481

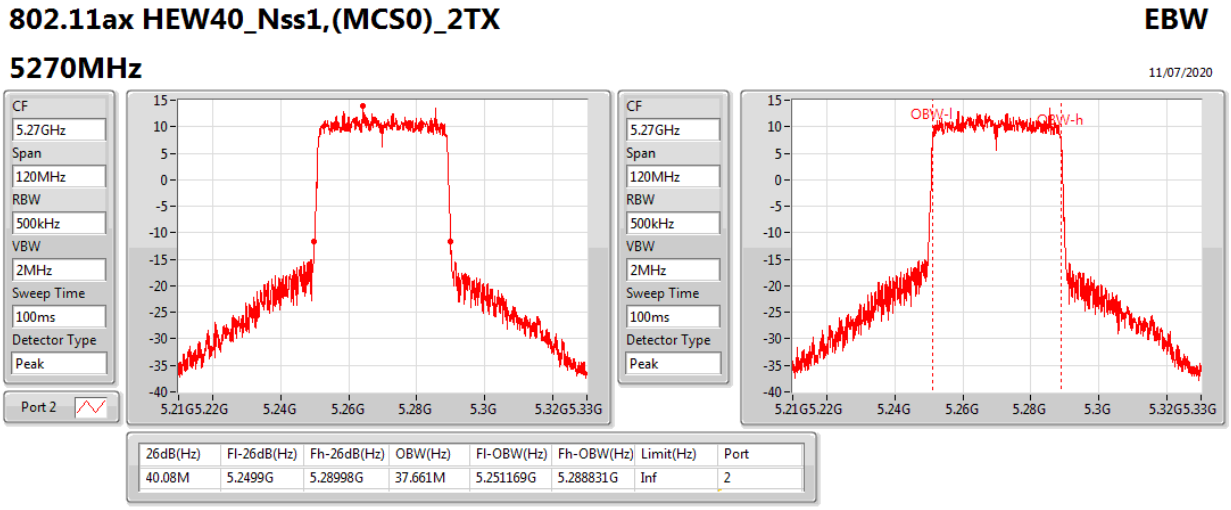
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 1 MCS 0 / 1S2T CDD / Ant. 1 / CH54 / 5270 MHz



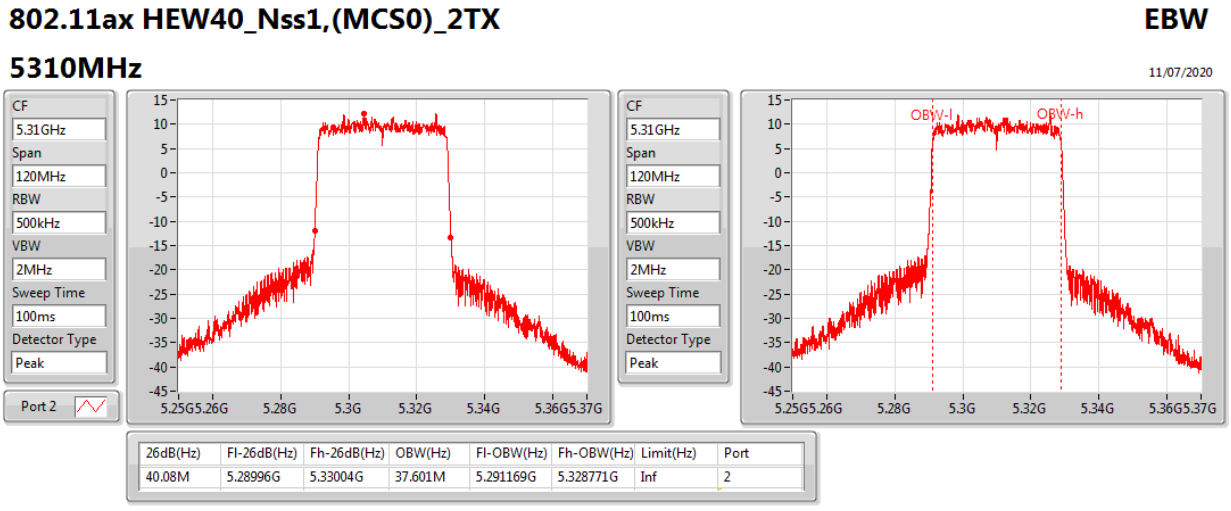
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 1 MCS 0 / 1S2T CDD / Ant. 1 / CH62 / 5310 MHz



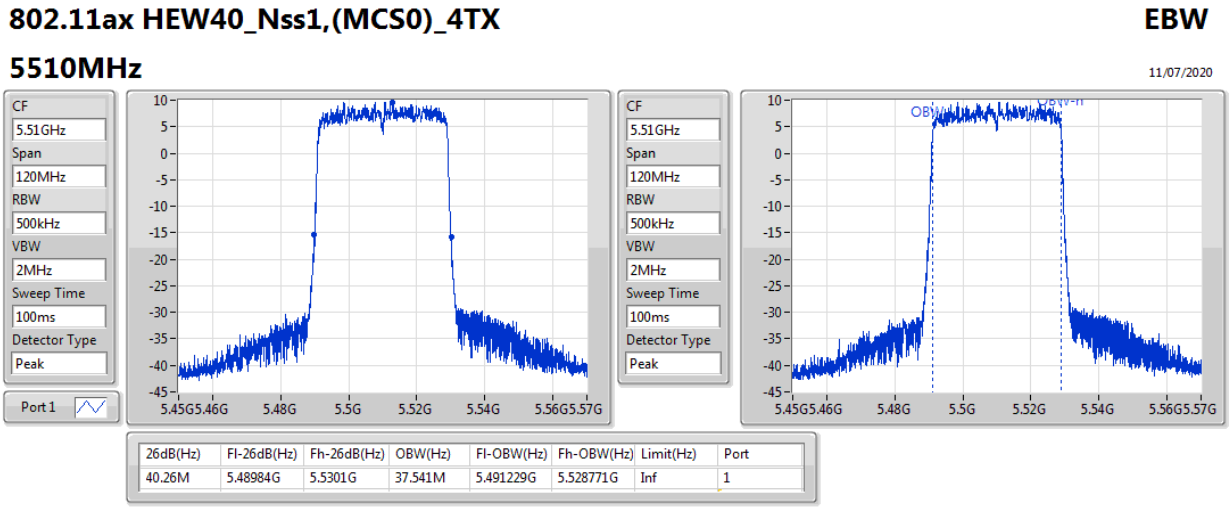
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 1 MCS 0 / 1S2T CDD / Ant. 2 / CH54 / 5270 MHz



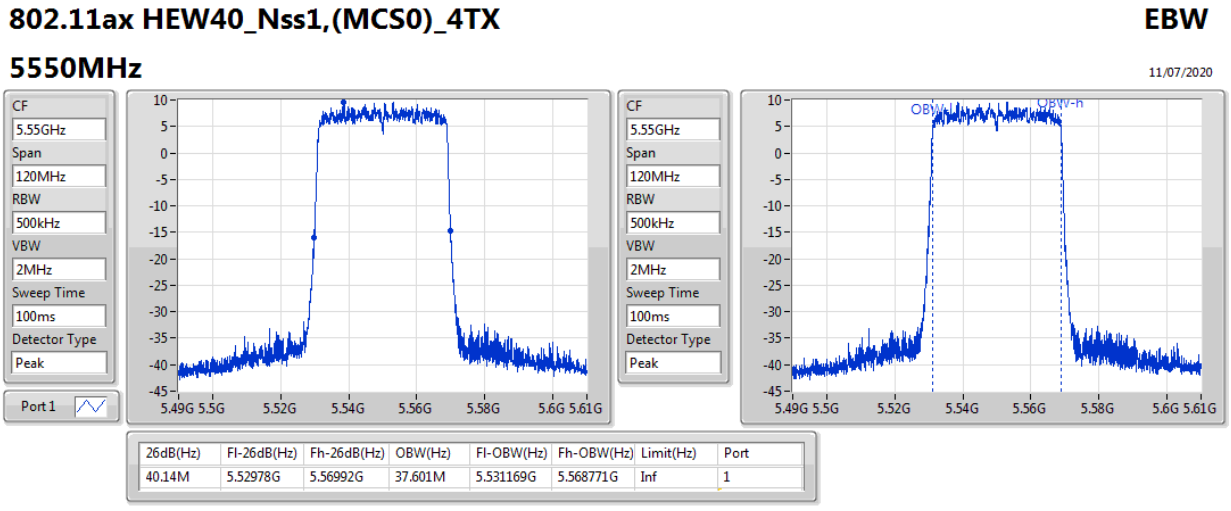
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 1 MCS 0 / 1S2T CDD / Ant. 2 / CH62 / 5310 MHz



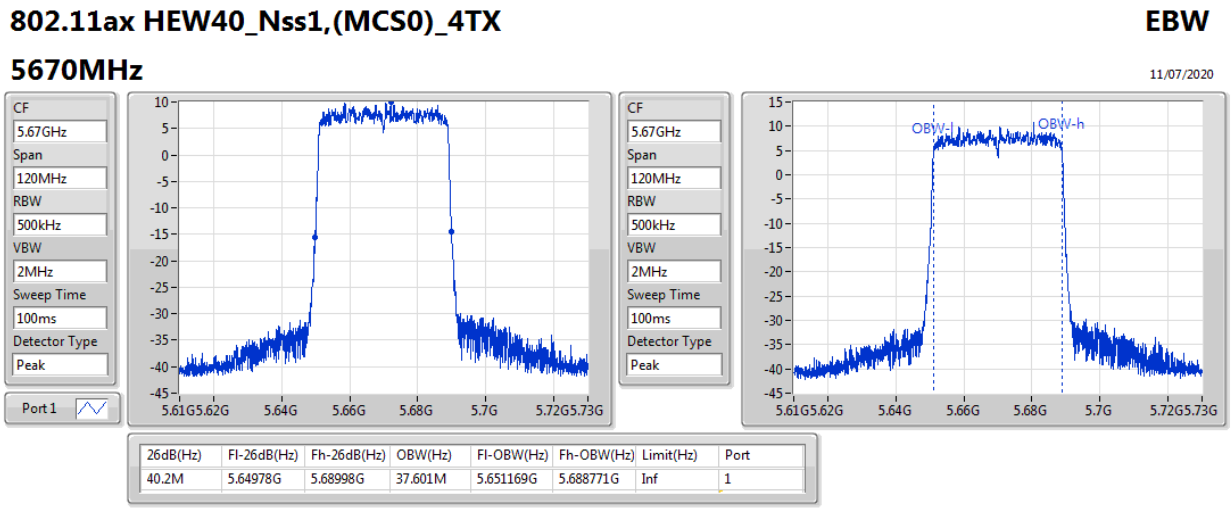
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 1 MCS 0 / 1S4T CDD / Ant. 3 / CH102 / 5510 MHz



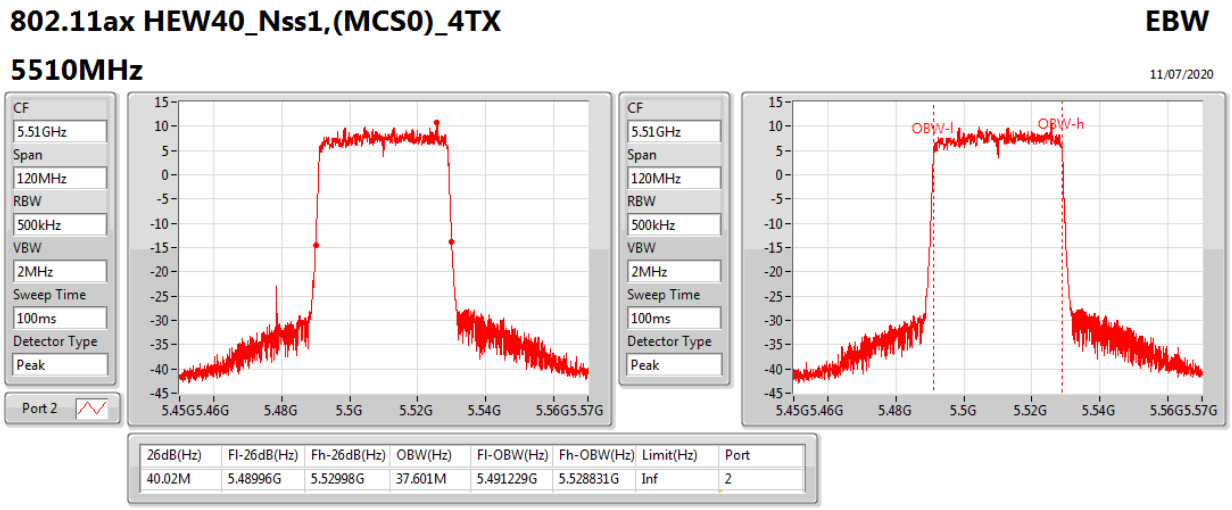
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 1 MCS 0 / 1S4T CDD / Ant. 3 / CH110 / 5550 MHz



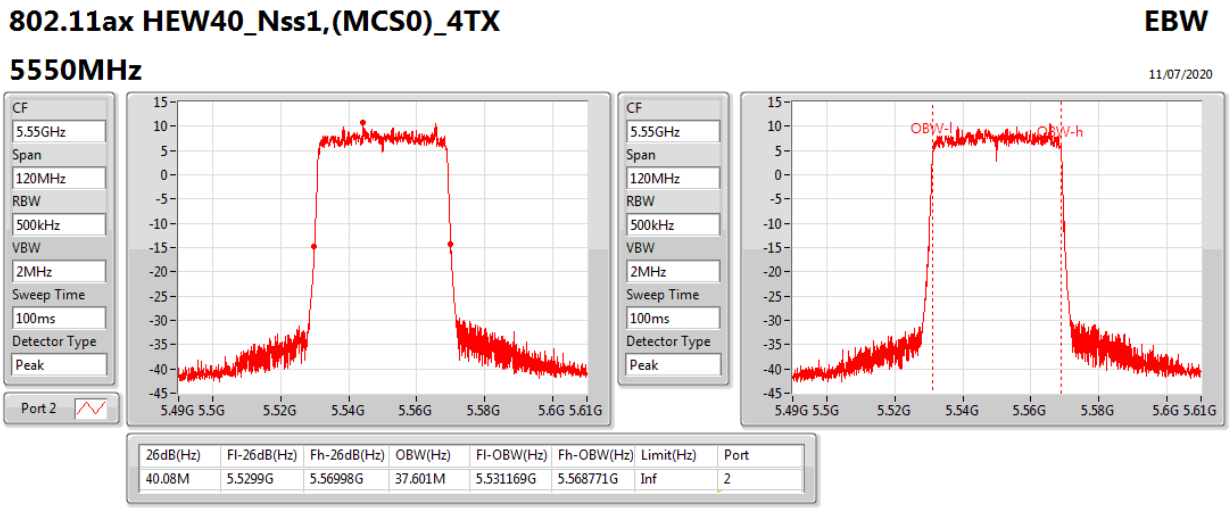
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 1 MCS 0 / 1S4T CDD / Ant. 3 / CH134 / 5670 MHz



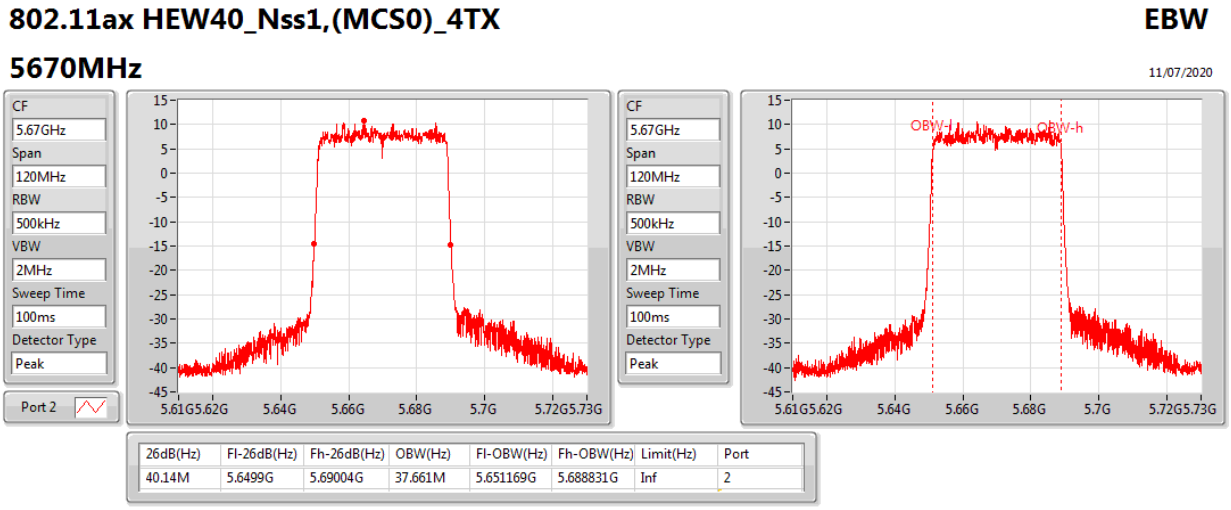
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 1 MCS 0 / 1S4T CDD / Ant. 4 / CH102 / 5510 MHz



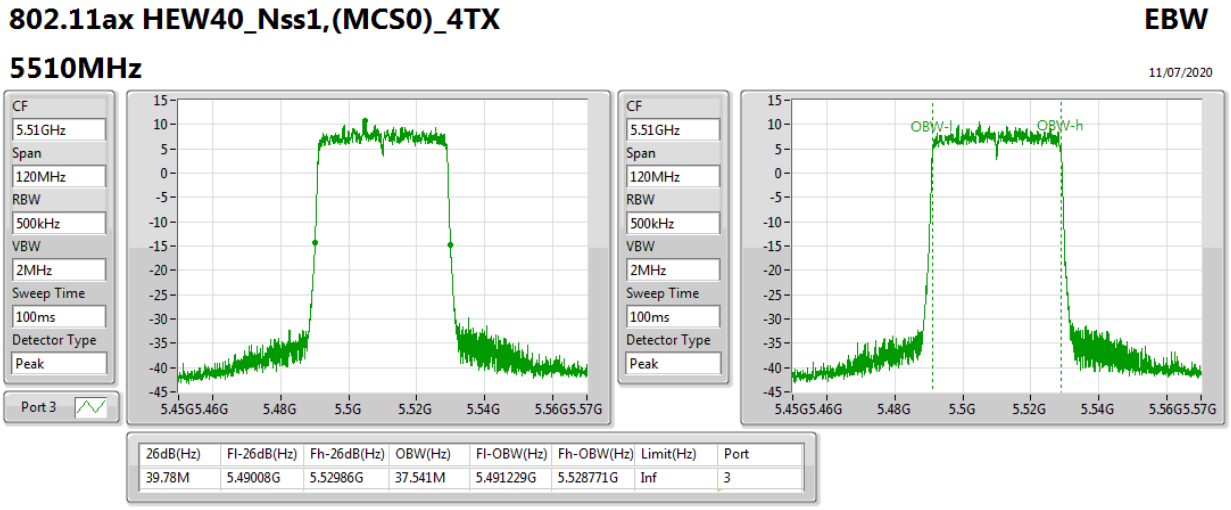
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 1 MCS 0 / 1S4T CDD / Ant. 4 / CH110 / 5550 MHz



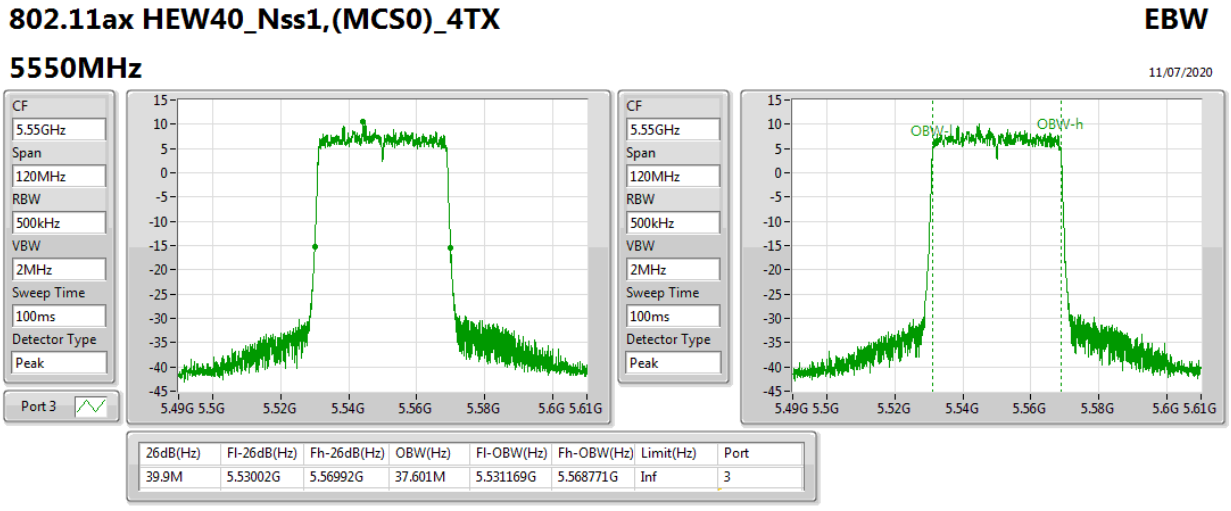
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 1 MCS 0 / 1S4T CDD / Ant. 4 / CH134 / 5670 MHz



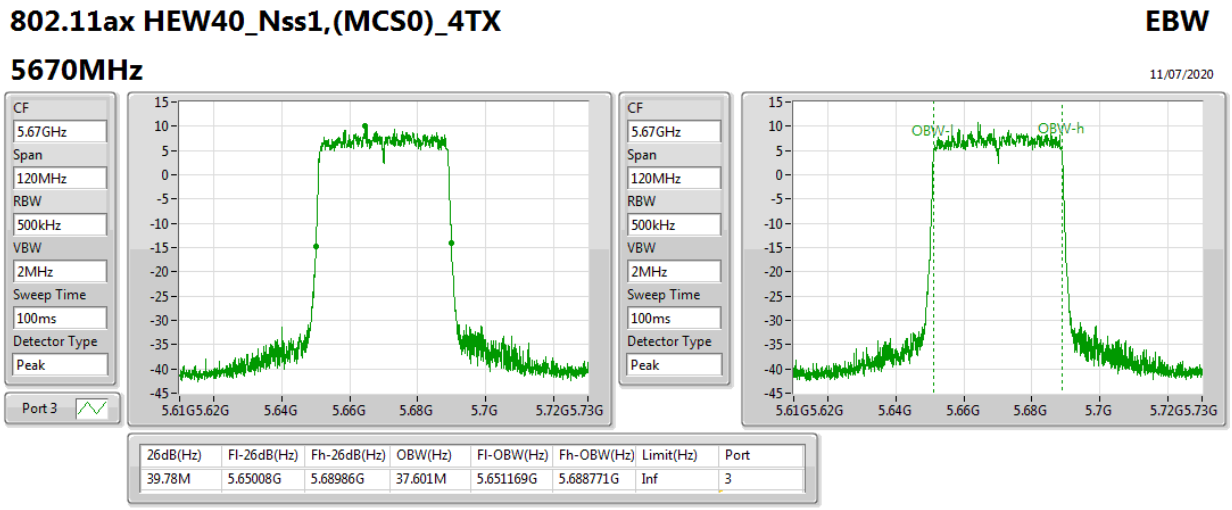
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 1 MCS 0 / 1S4T CDD / Ant. 5 / CH102 / 5510 MHz



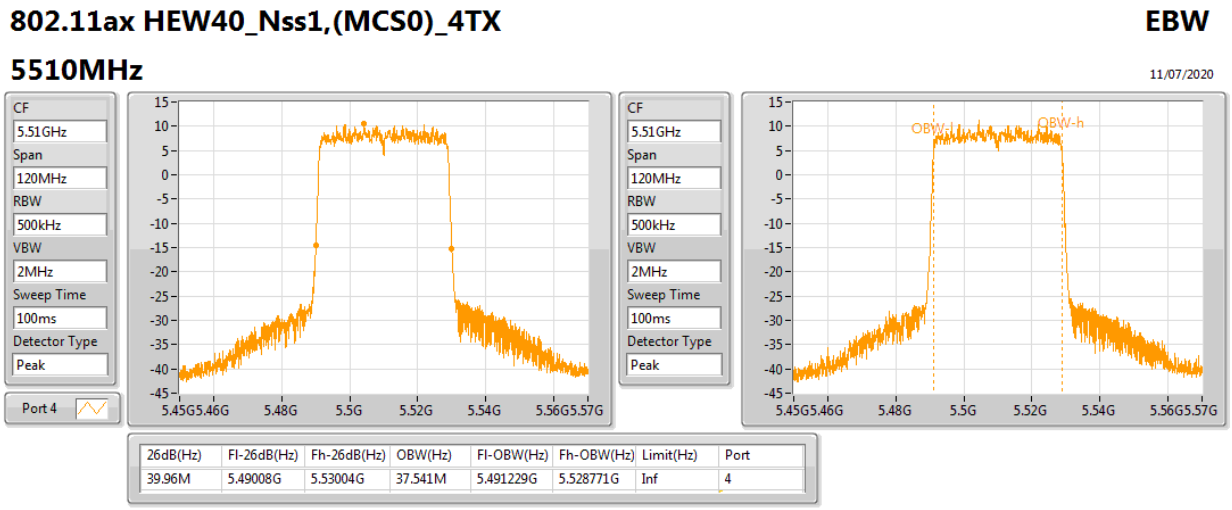
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 1 MCS 0 / 1S4T CDD / Ant. 5 / CH110 / 5550 MHz



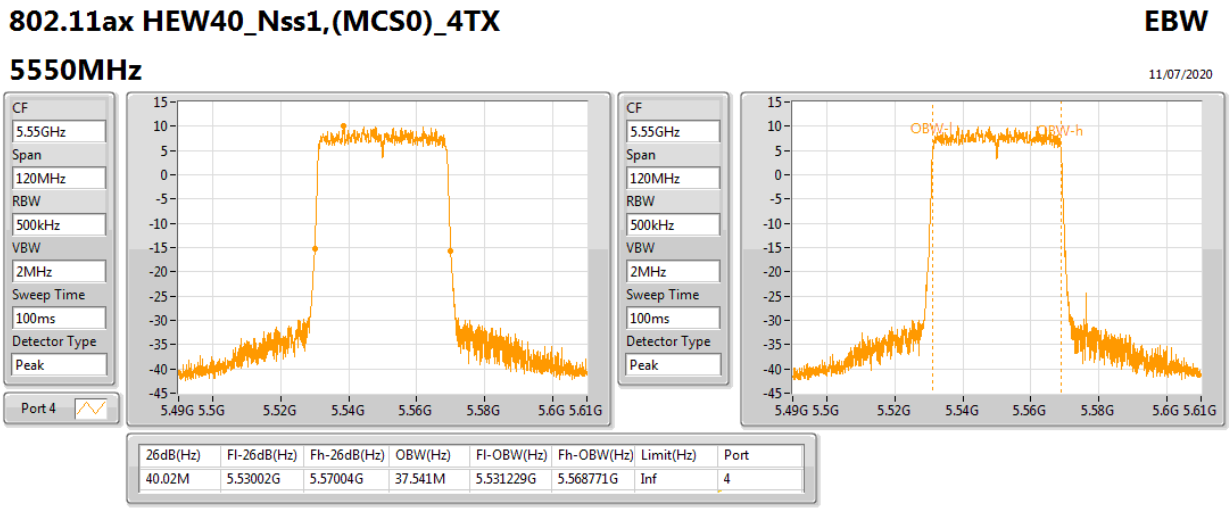
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 1 MCS 0 / 1S4T CDD / Ant. 5 / CH134 / 5670 MHz



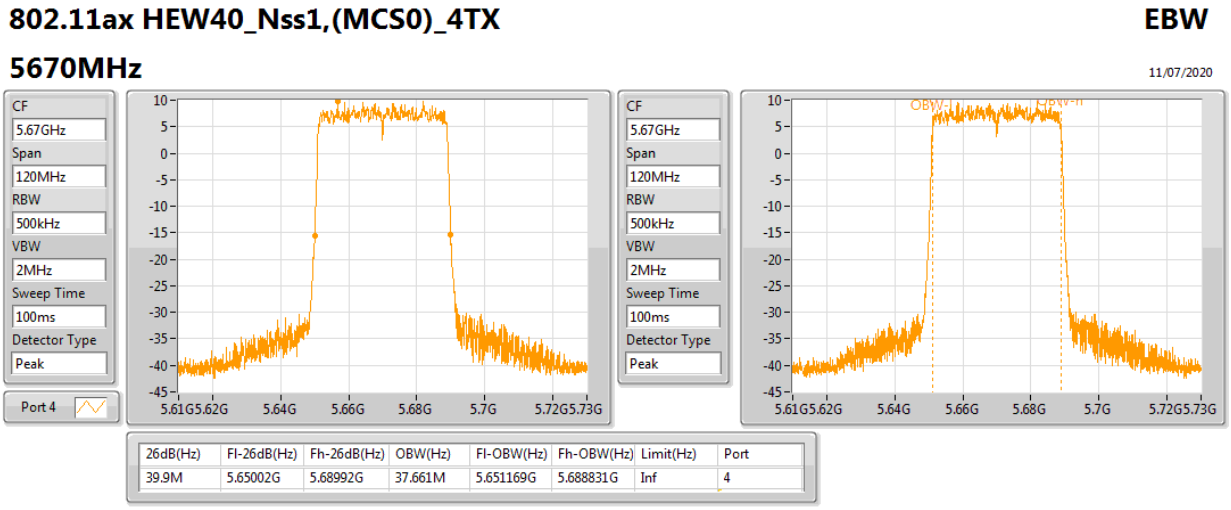
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 1 MCS 0 / 1S4T CDD / Ant. 6 / CH102 / 5510 MHz



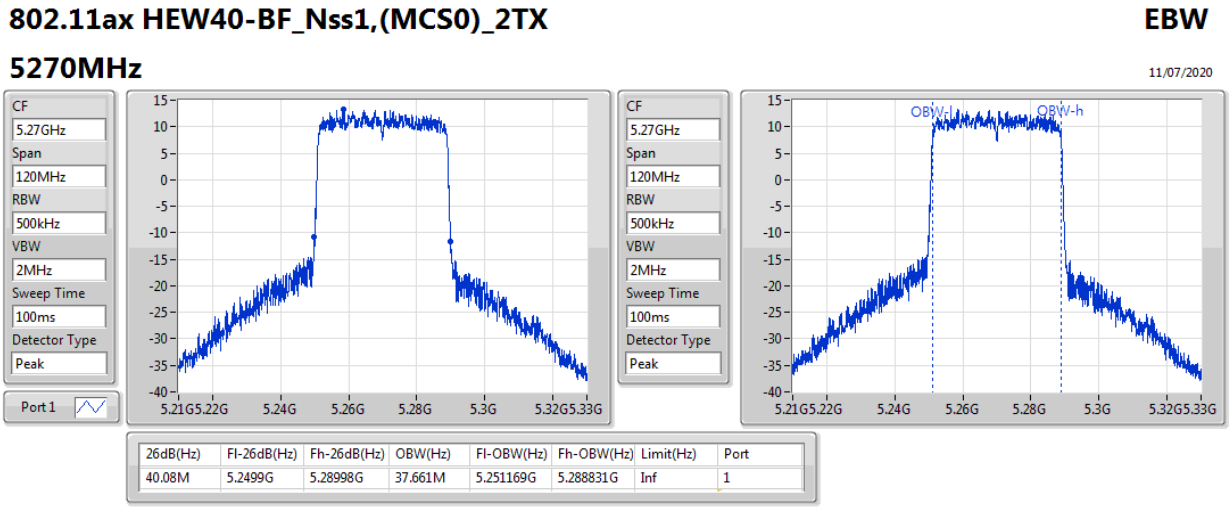
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 1 MCS 0 / 1S4T CDD / Ant. 6 / CH110 / 5550 MHz



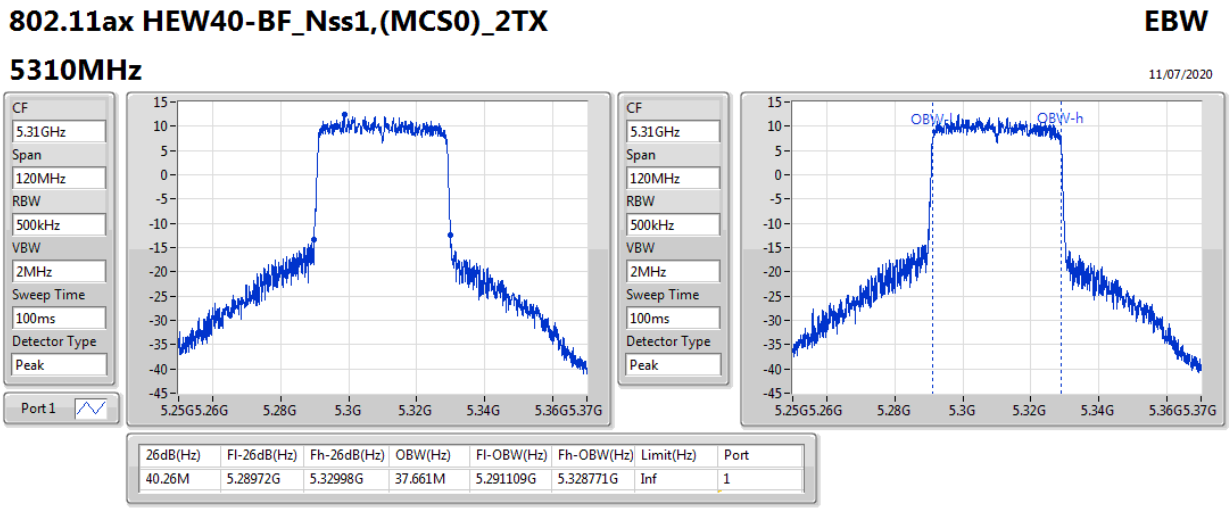
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 1 MCS 0 / 1S4T CDD / Ant. 6 / CH134 / 5670 MHz



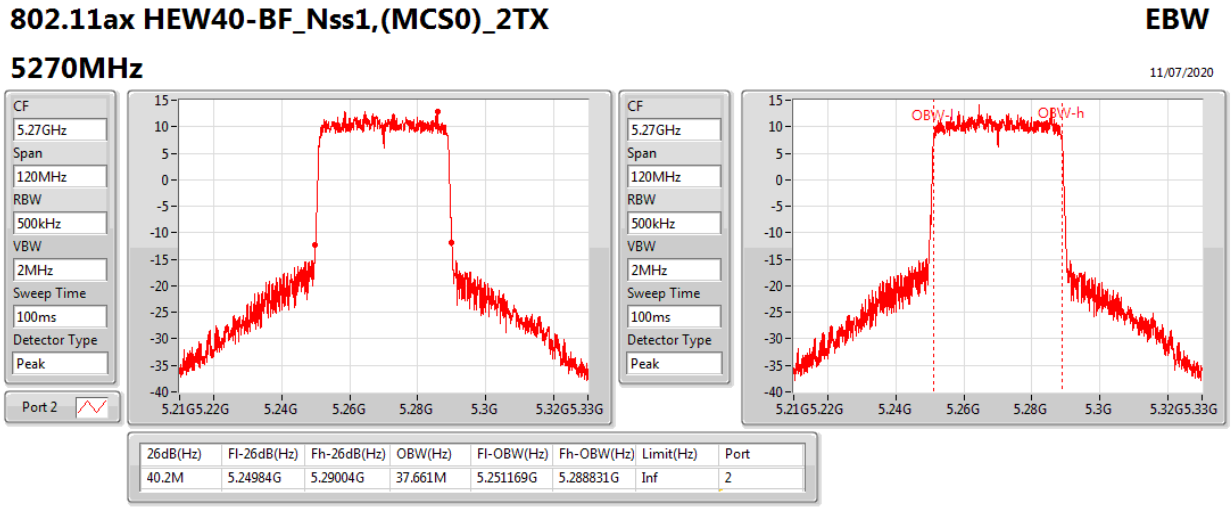
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 1 MCS 0 / TXBF 1S2T / Ant. 1 / CH54 / 5270 MHz



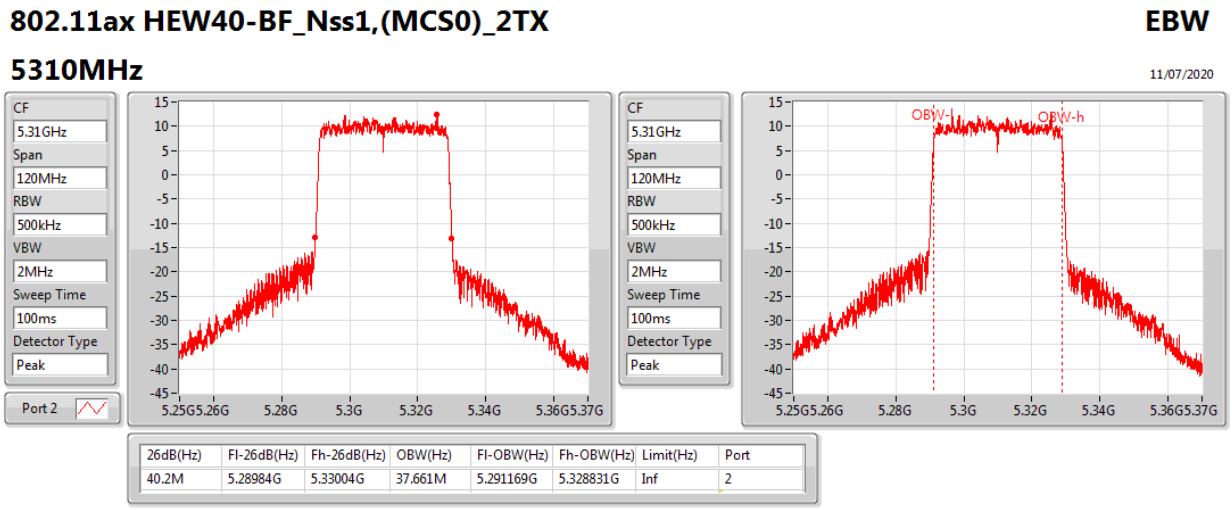
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 1 MCS 0 / TXBF 1S2T / Ant. 1 / CH62 / 5310 MHz



26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 1 MCS 0 / TXBF 1S2T / Ant. 2 / CH54 / 5270 MHz



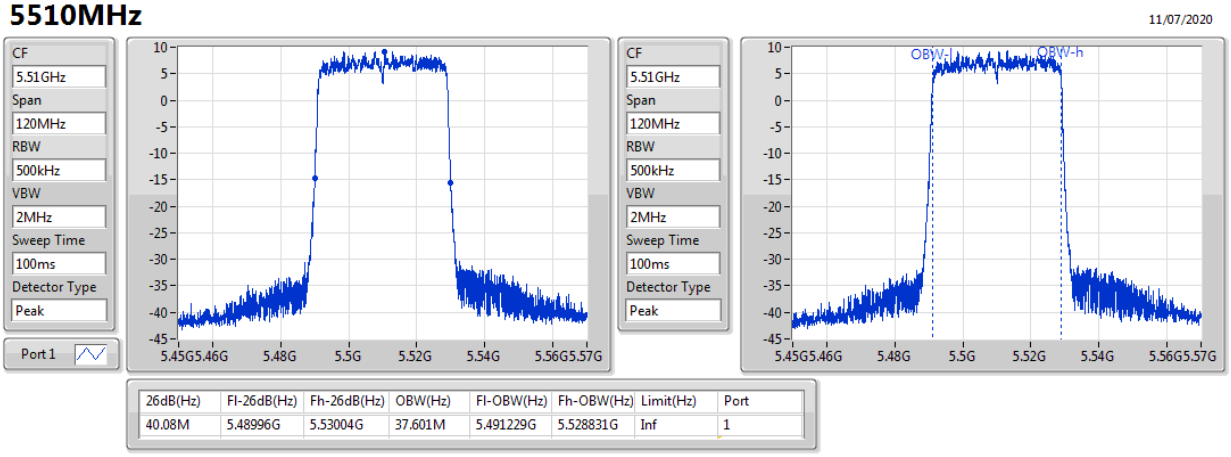
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 1 MCS 0 / TXBF 1S2T / Ant. 2 / CH62 / 5310 MHz



26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 1 MCS 0 / 1S4T TXBF / Ant. 3 / CH102 / 5510 MHz

802.11ax HEW40-BF_Nss1,(MCS0)_4TX **EBW**

5510MHz

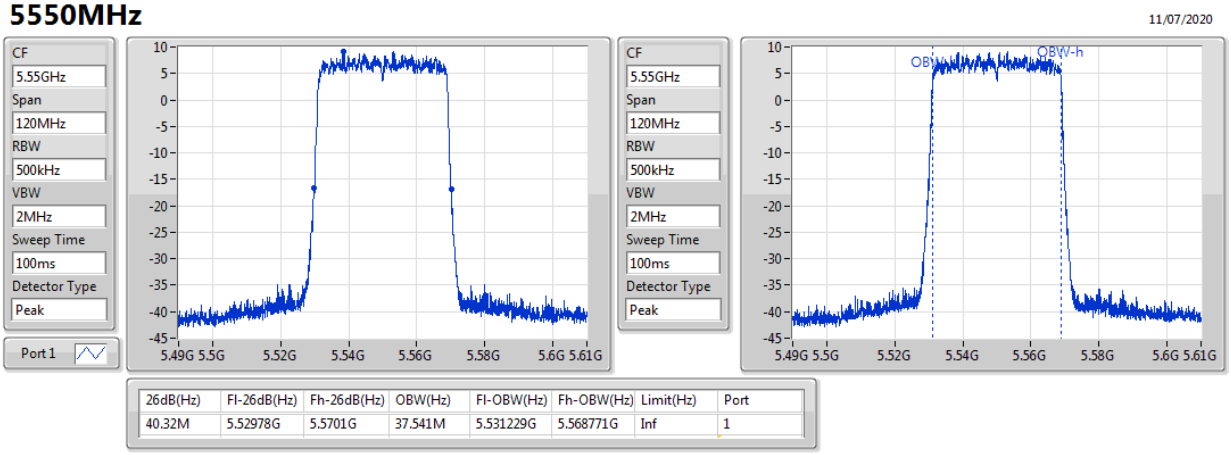


26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
40.08M	5.48996G	5.53004G	37.601M	5.491229G	5.528831G	Inf	1

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 1 MCS 0 / 1S4T TXBF / Ant. 3 / CH110 / 5550 MHz

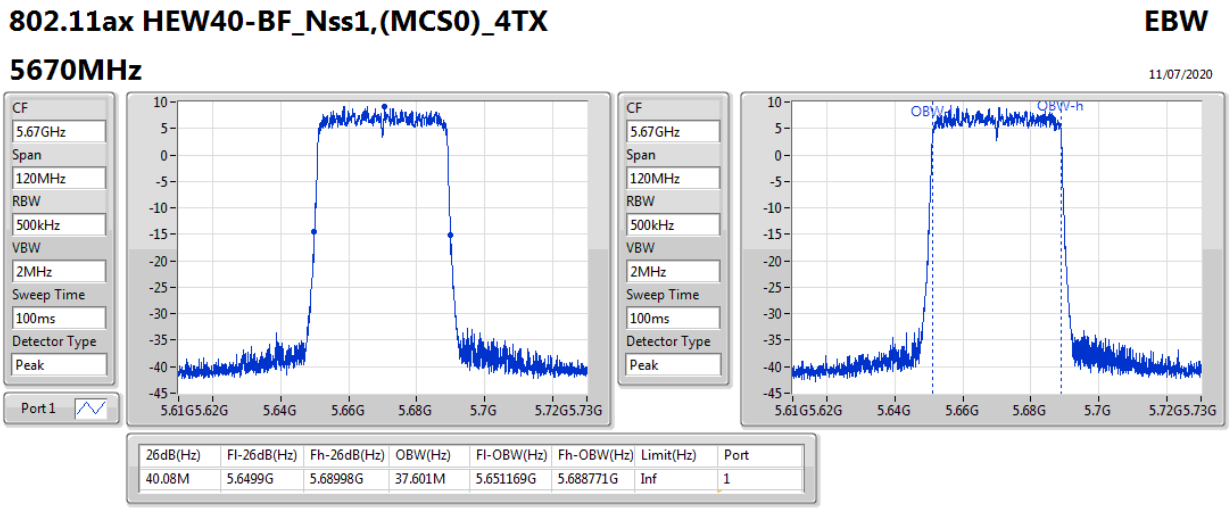
802.11ax HEW40-BF_Nss1,(MCS0)_4TX **EBW**

5550MHz

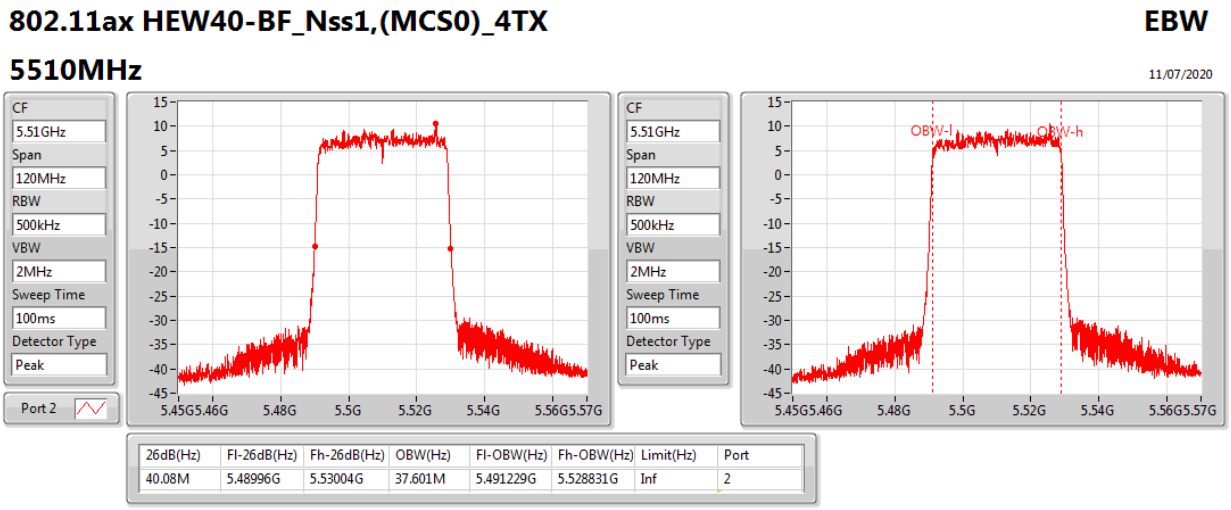


26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
40.32M	5.52978G	5.5701G	37.541M	5.531229G	5.568771G	Inf	1

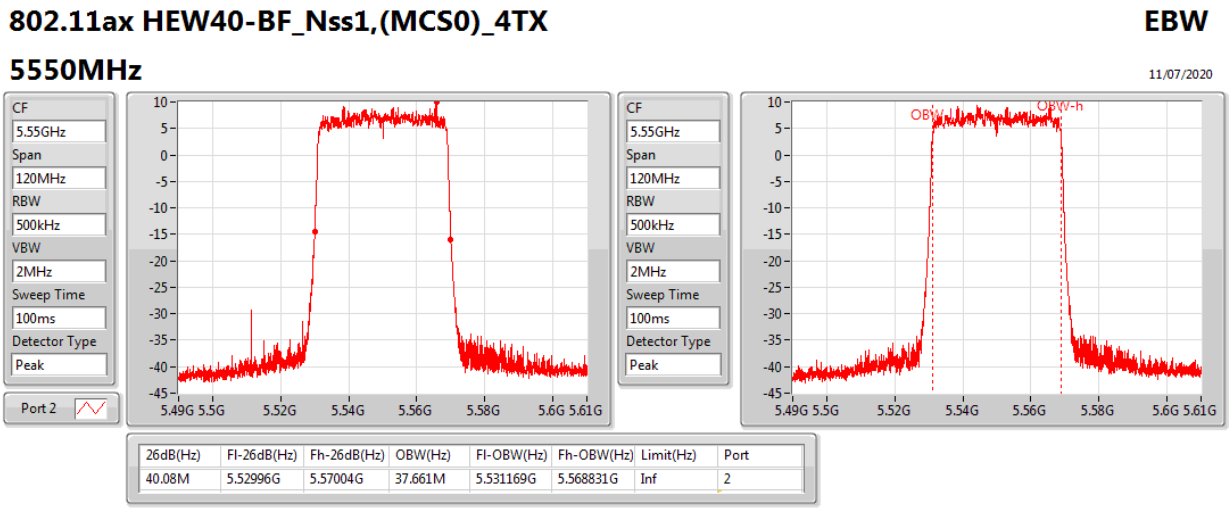
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 1 MCS 0 / 1S4T TXBF / Ant. 3 / CH134 / 5670 MHz



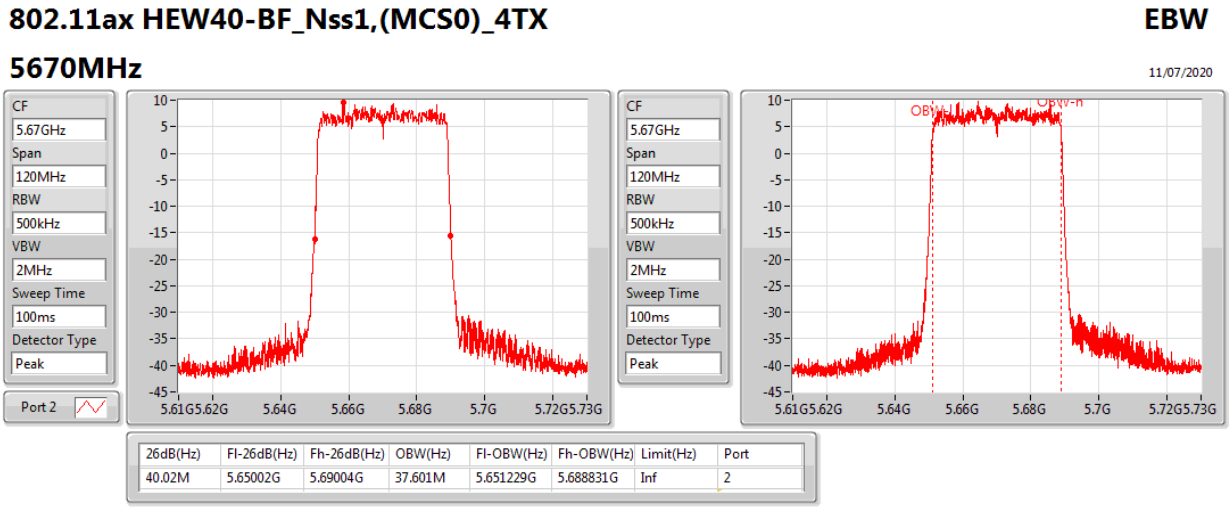
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 1 MCS 0 / 1S4T TXBF / Ant. 4 / CH102 / 5510 MHz



26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 1 MCS 0 / 1S4T TXBF / Ant. 4 / CH110 / 5550 MHz



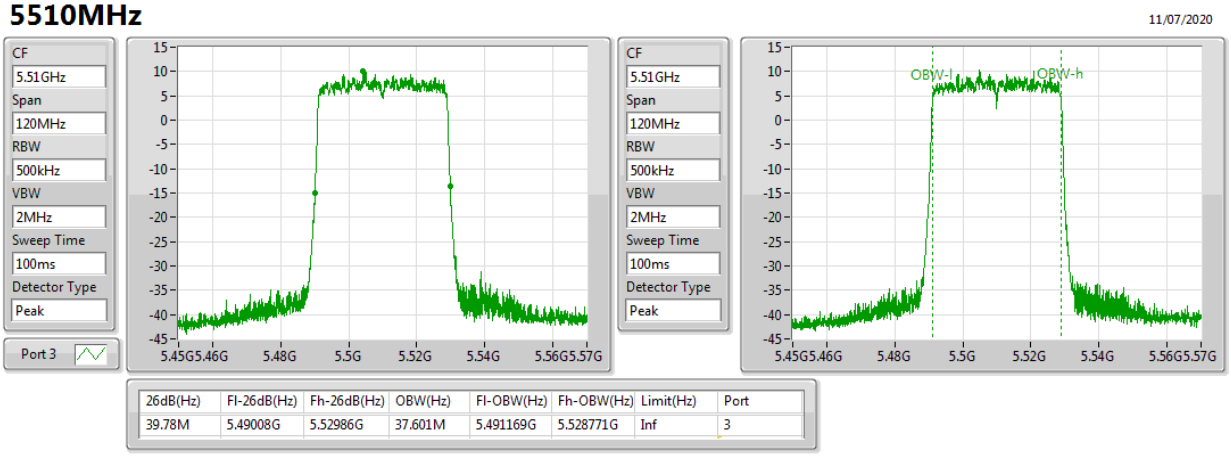
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 1 MCS 0 / 1S4T TXBF / Ant. 4 / CH134 / 5670 MHz



26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 1 MCS 0 / 1S4T TXBF / Ant. 5 / CH102 / 5510 MHz

802.11ax HEW40-BF_Nss1,(MCS0)_4TX **EBW**

5510MHz

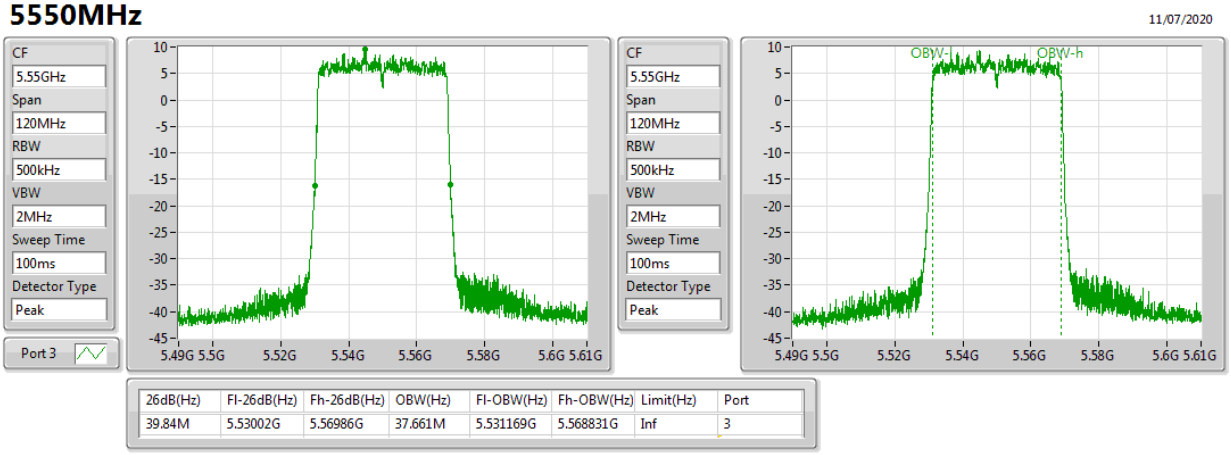


26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
39.78M	5.49008G	5.52986G	37.601M	5.491169G	5.528771G	Inf	3

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 1 MCS 0 / 1S4T TXBF / Ant. 5 / CH110 / 5550 MHz

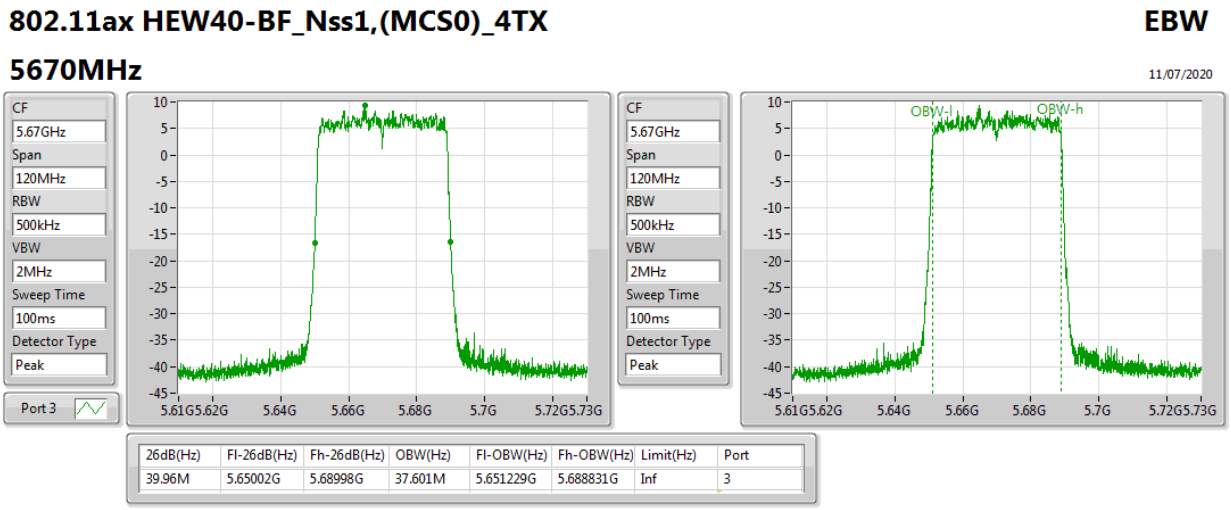
802.11ax HEW40-BF_Nss1,(MCS0)_4TX **EBW**

5550MHz

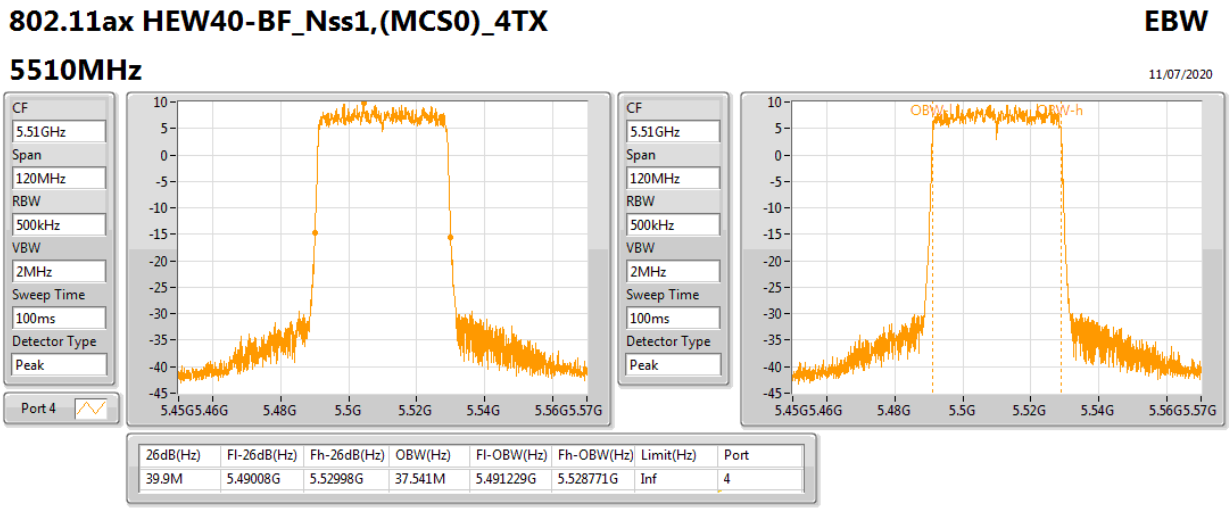


26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
39.84M	5.53002G	5.56986G	37.661M	5.531169G	5.568831G	Inf	3

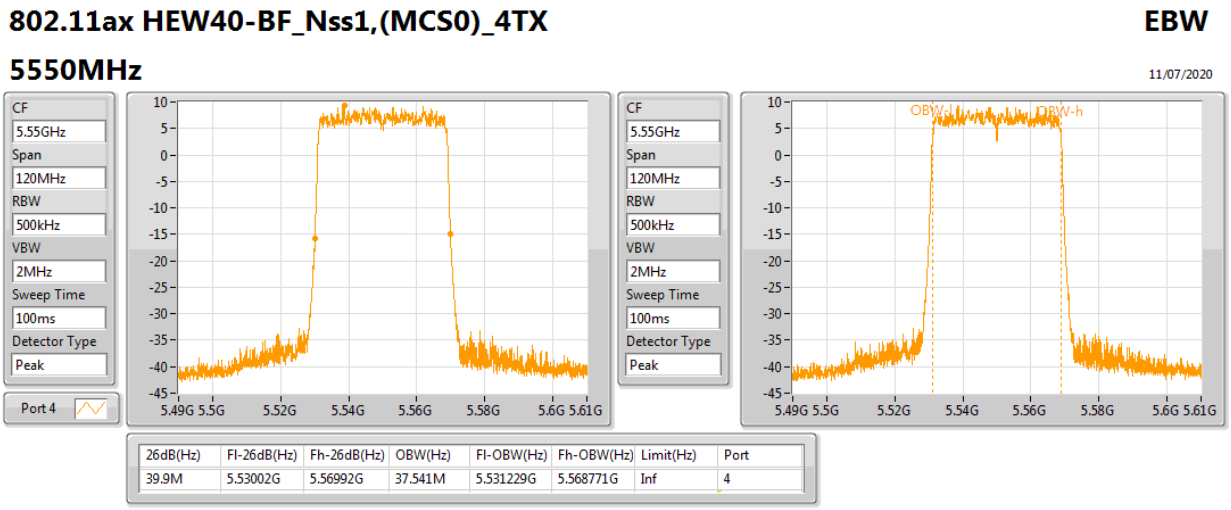
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 1 MCS 0 / 1S4T TXBF / Ant. 5 / CH134 / 5670 MHz



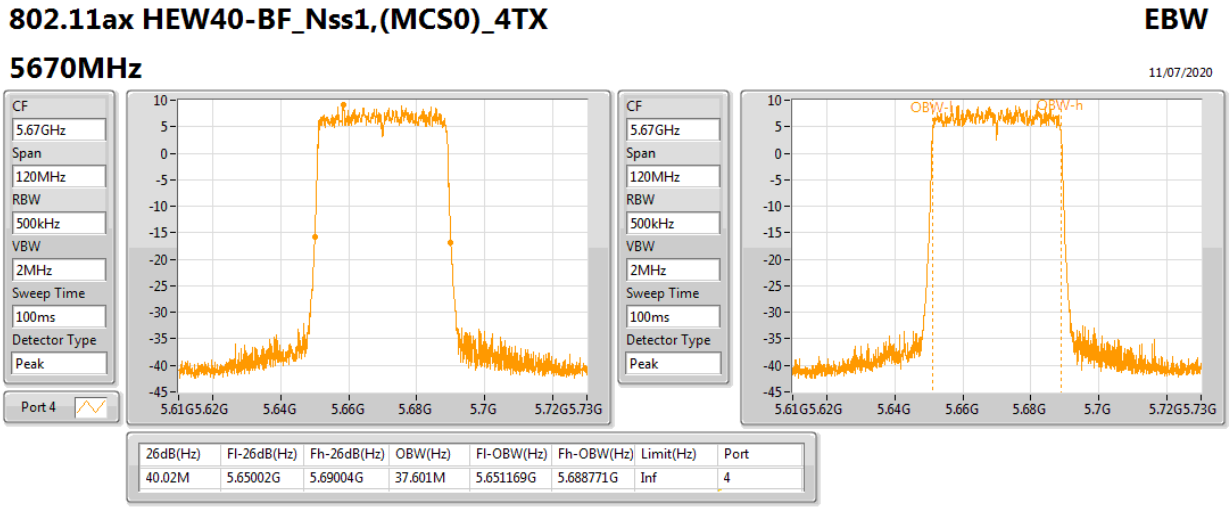
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 1 MCS 0 / 1S4T TXBF / Ant. 6 / CH102 / 5510 MHz



26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 1 MCS 0 / 1S4T TXBF / Ant. 6 / CH110 / 5550 MHz



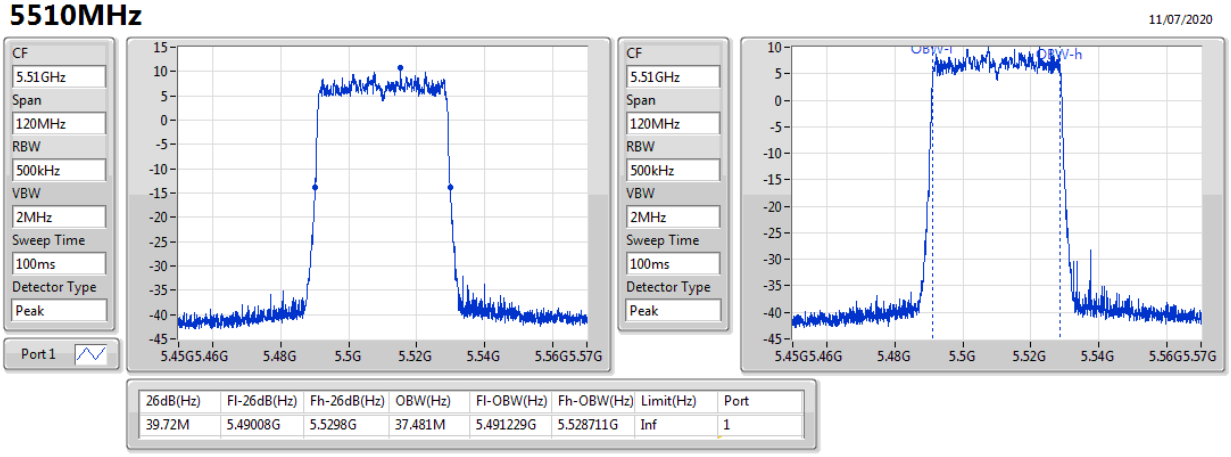
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 1 MCS 0 / 1S4T TXBF / Ant. 6 / CH134 / 5670 MHz



26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 2 MCS 0 / 2S4T TXBF / Ant. 3 / CH102 / 5510 MHz

802.11ax HEW40-BF_Nss2,(MCS0)_4TX **EBW**

5510MHz

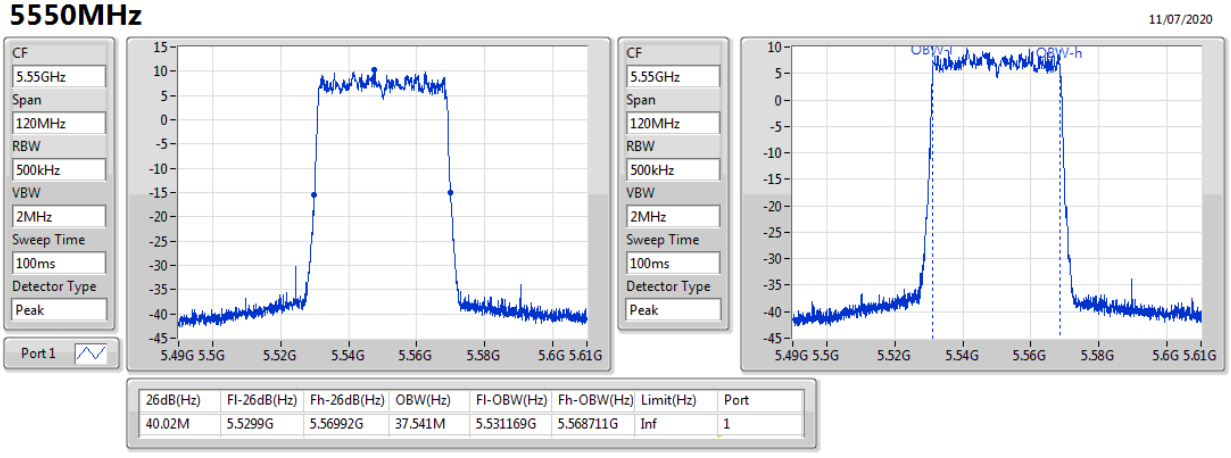


26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
39.72M	5.49008G	5.5298G	37.481M	5.491229G	5.528711G	Inf	1

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 2 MCS 0 / 2S4T TXBF / Ant. 3 / CH110 / 5550 MHz

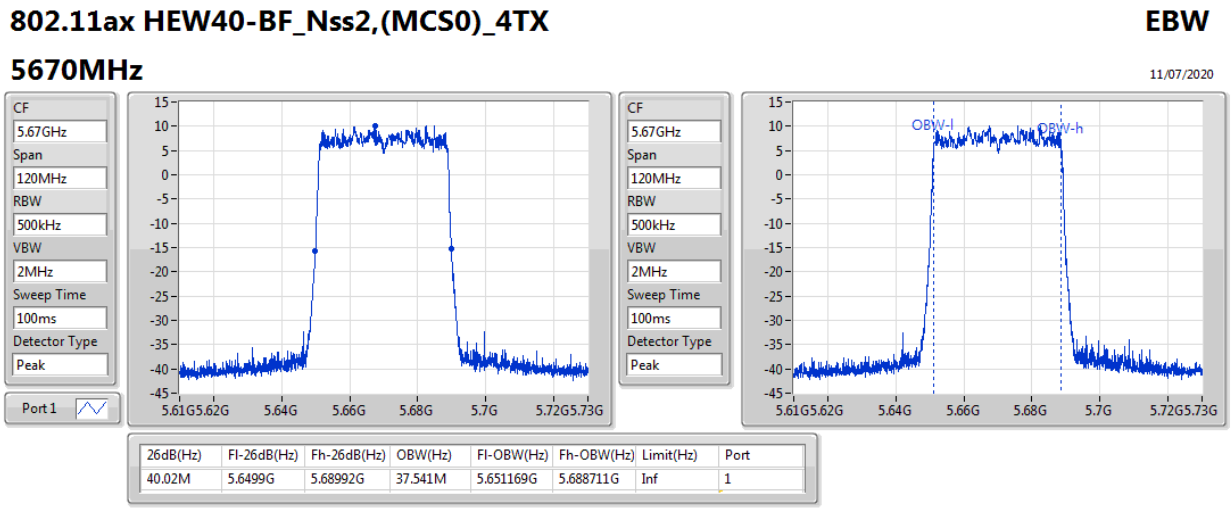
802.11ax HEW40-BF_Nss2,(MCS0)_4TX **EBW**

5550MHz

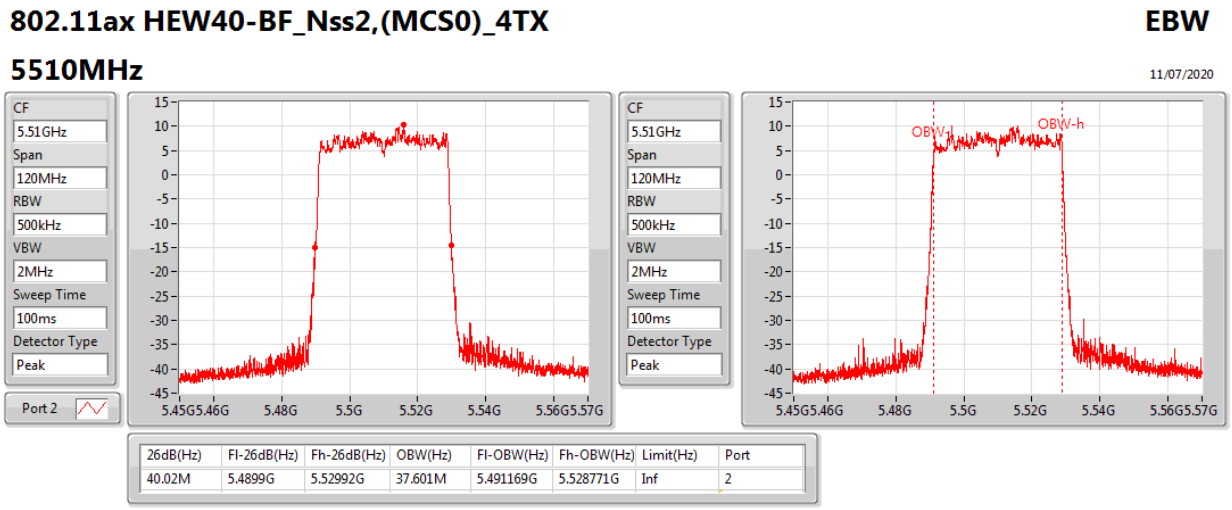


26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
40.02M	5.5299G	5.56992G	37.541M	5.531169G	5.568711G	Inf	1

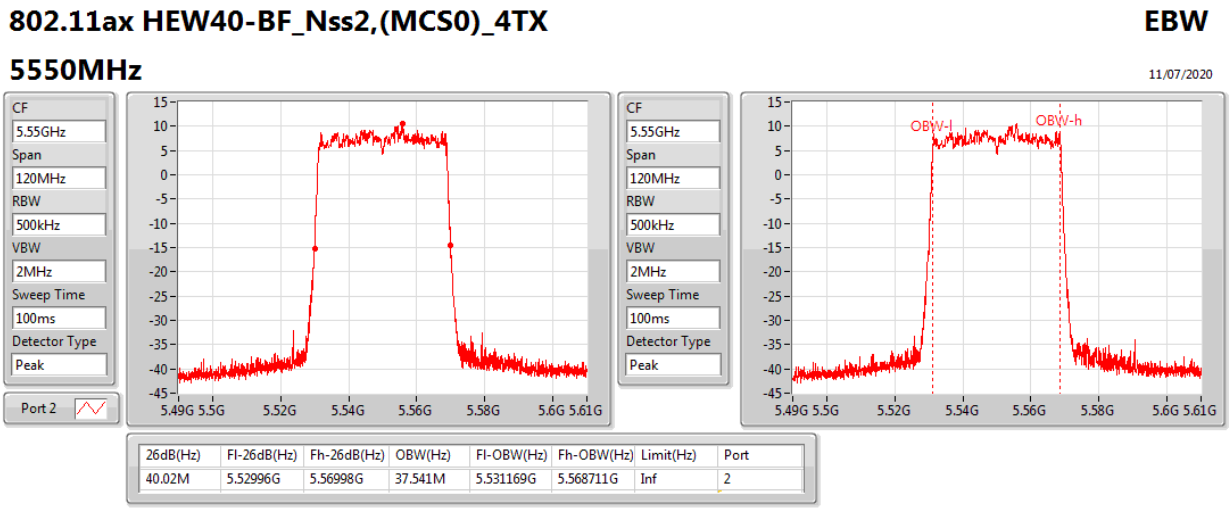
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 2 MCS 0 / 2S4T TXBF / Ant. 3 / CH134 / 5670 MHz



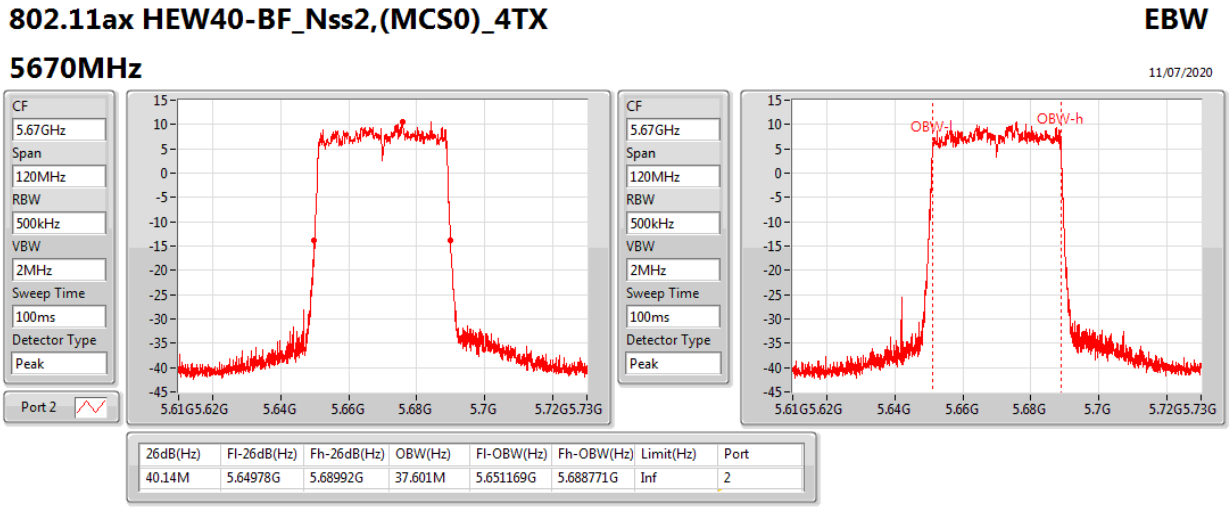
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 2 MCS 0 / 2S4T TXBF / Ant. 4 / CH102 / 5510 MHz



26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 2 MCS 0 / 2S4T TXBF / Ant. 4 / CH110 / 5550 MHz



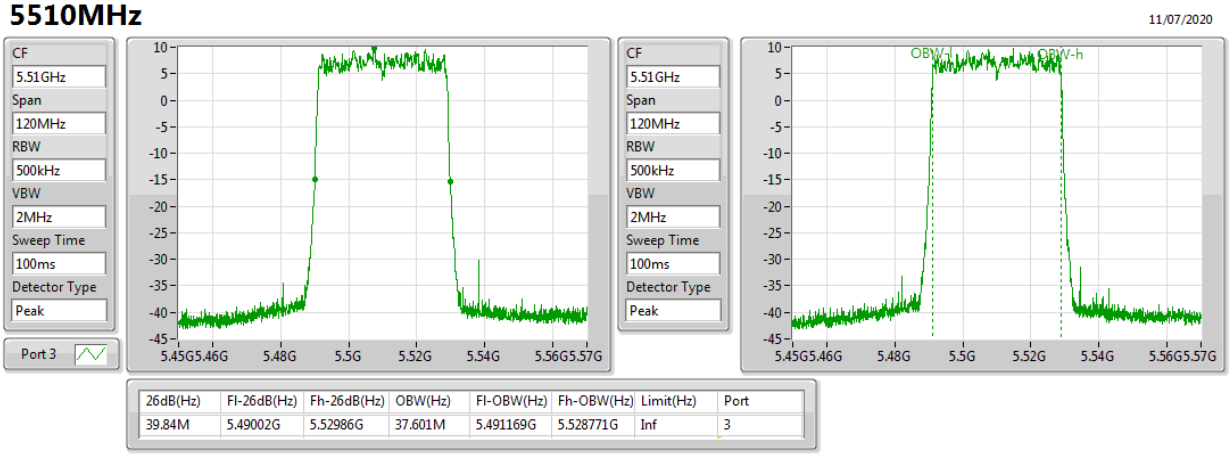
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 2 MCS 0 / 2S4T TXBF / Ant. 4 / CH134 / 5670 MHz



26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 2 MCS 0 / 2S4T TXBF / Ant. 5 / CH102 / 5510 MHz

802.11ax HEW40-BF_Nss2,(MCS0)_4TX **EBW**

5510MHz

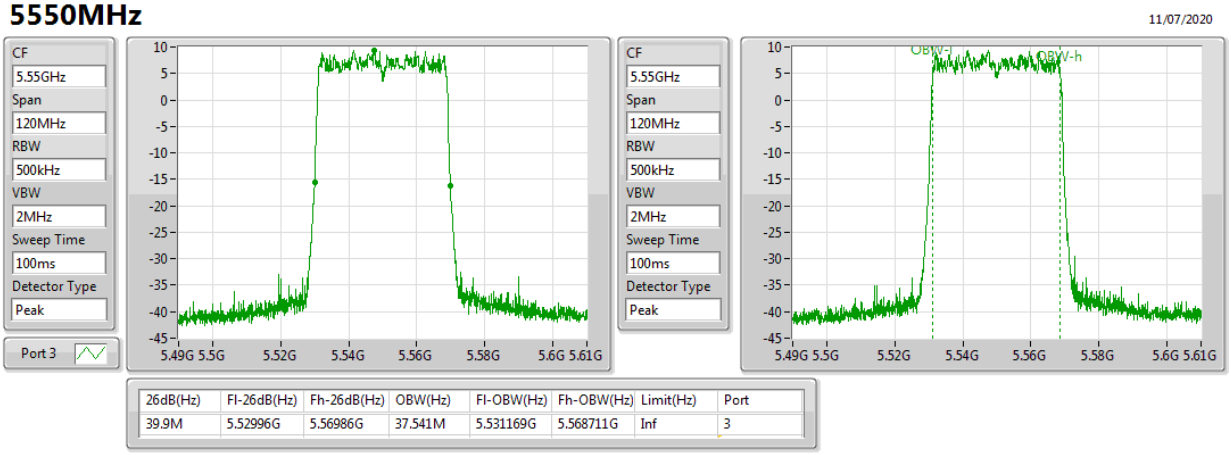


26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
39.84M	5.49002G	5.52986G	37.601M	5.491169G	5.528771G	Inf	3

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 2 MCS 0 / 2S4T TXBF / Ant. 5 / CH110 / 5550 MHz

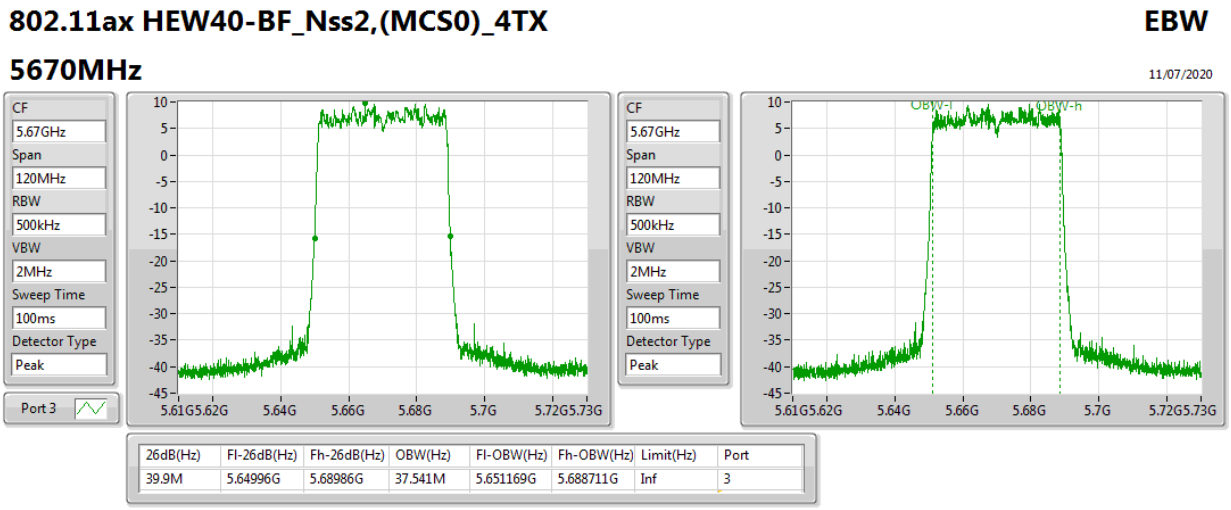
802.11ax HEW40-BF_Nss2,(MCS0)_4TX **EBW**

5550MHz

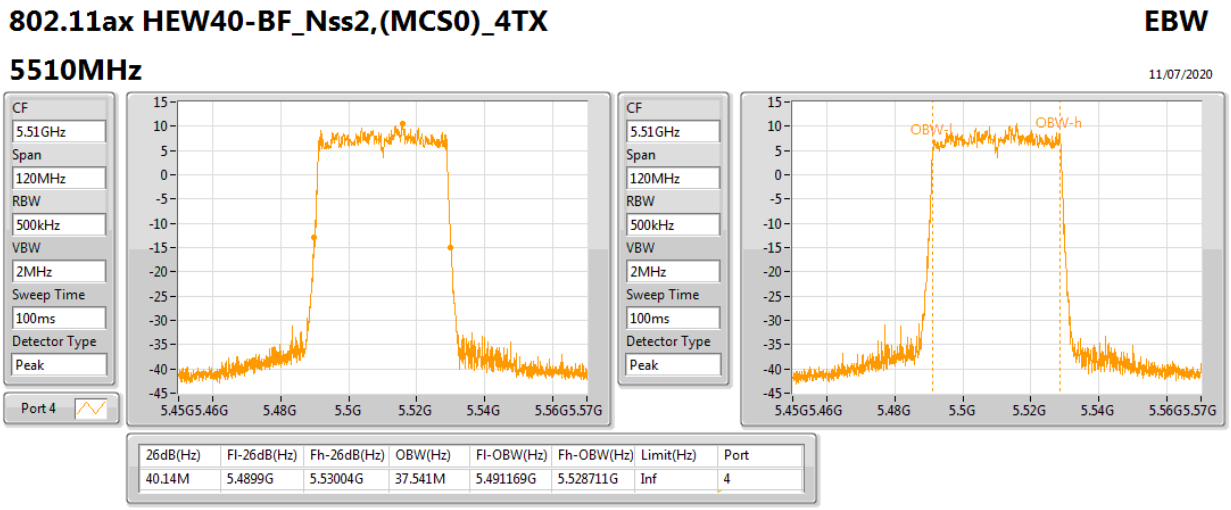


26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
39.9M	5.52996G	5.56986G	37.541M	5.531169G	5.568711G	Inf	3

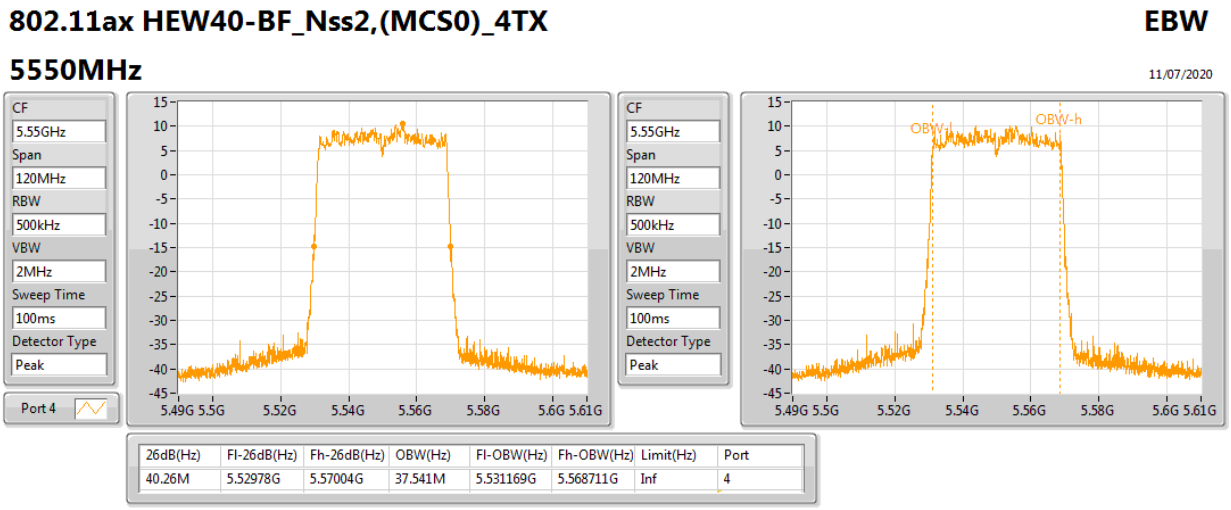
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 2 MCS 0 / 2S4T TXBF / Ant. 5 / CH134 / 5670 MHz



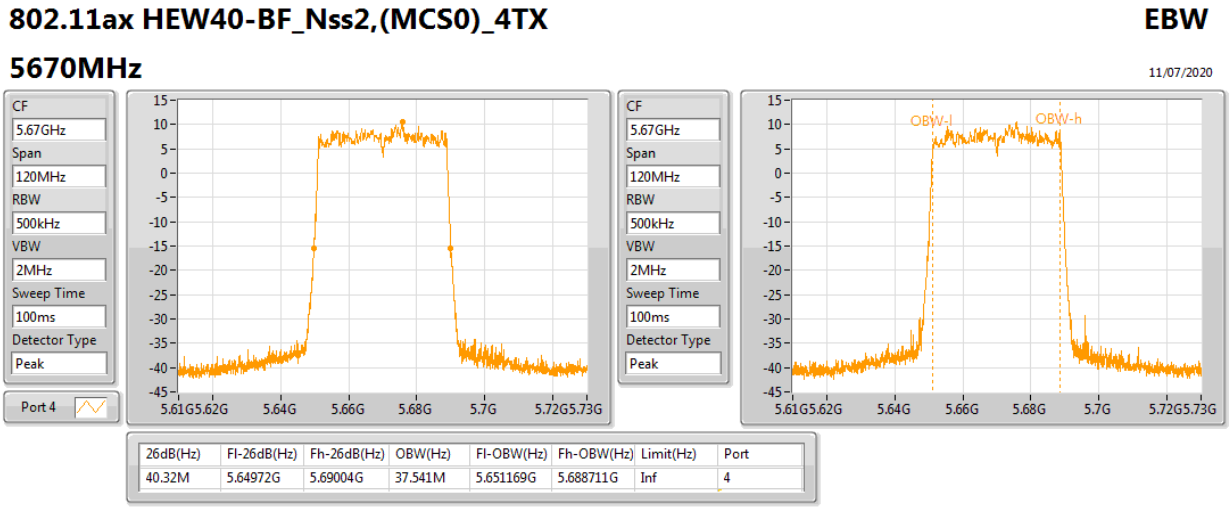
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 2 MCS 0 / 2S4T TXBF / Ant. 6 / CH102 / 5510 MHz



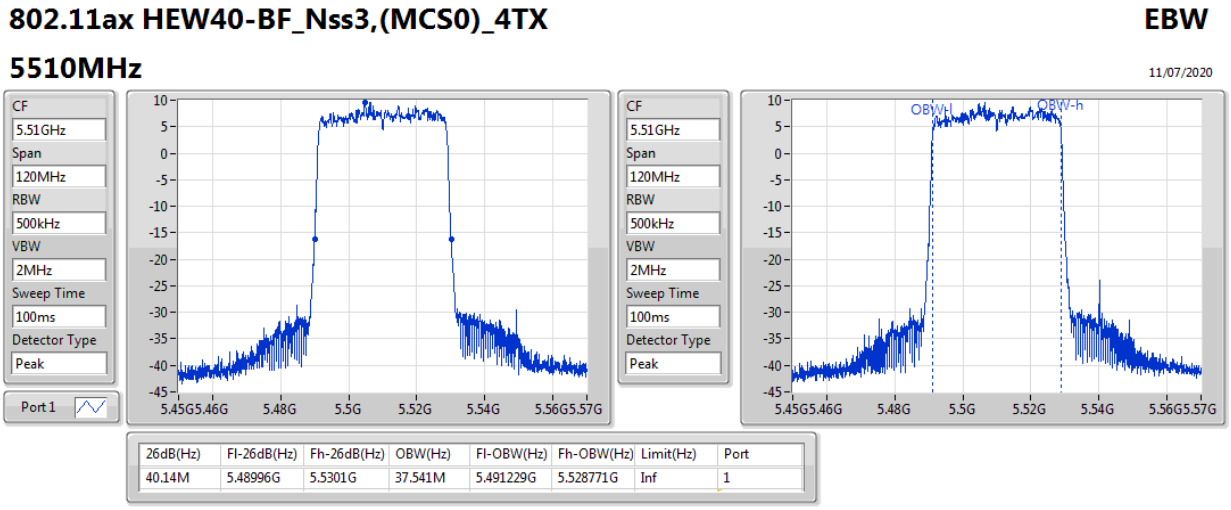
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 2 MCS 0 / 2S4T TXBF / Ant. 6 / CH110 / 5550 MHz



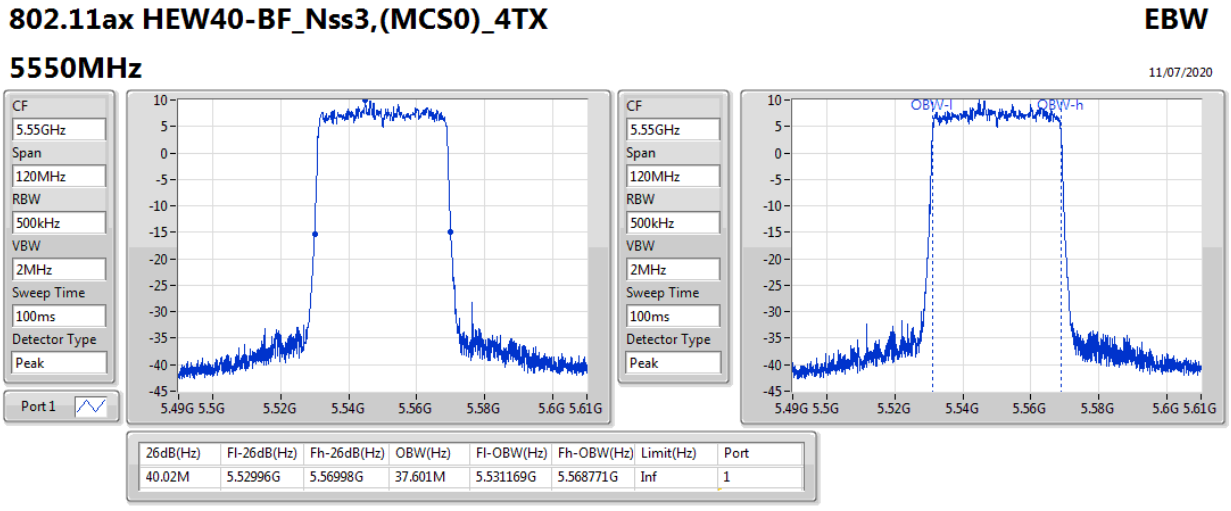
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 2 MCS 0 / 2S4T TXBF / Ant. 6 / CH134 / 5670 MHz



26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 3 MCS 0 / 3S4T TXBF / Ant. 3 / CH102 / 5510 MHz



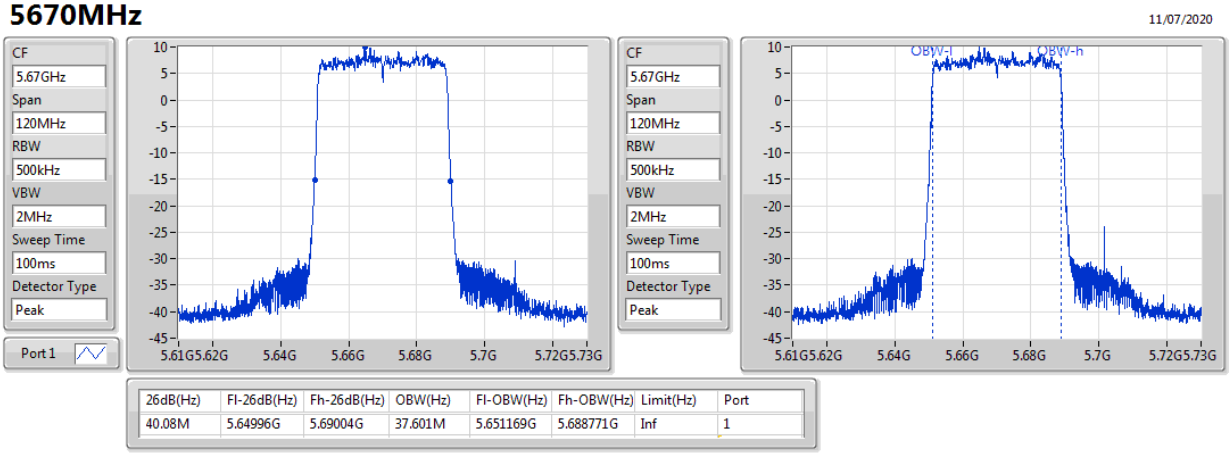
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 3 MCS 0 / 3S4T TXBF / Ant. 3 / CH110 / 5550 MHz



26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 3 MCS 0 / 3S4T TXBF / Ant. 3 / CH134 / 5670 MHz

802.11ax HEW40-BF_Nss3,(MCS0)_4TX **EBW**

5670MHz

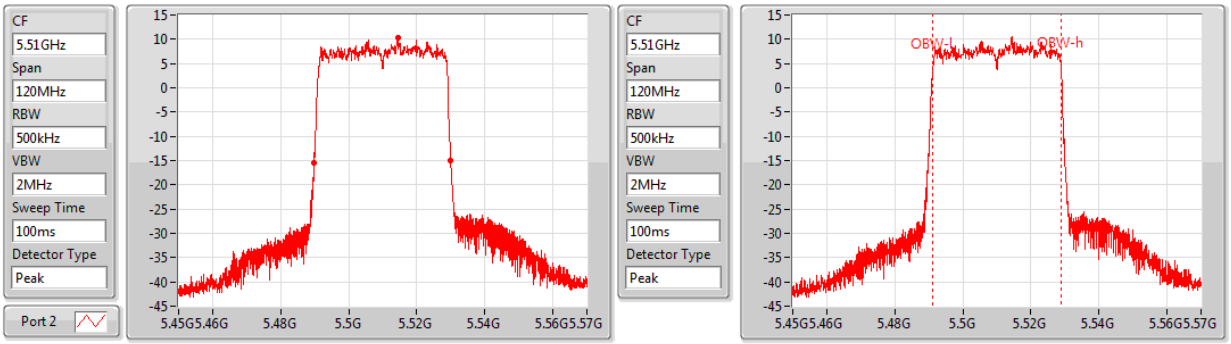


26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
40.08M	5.64996G	5.69004G	37.601M	5.651169G	5.688771G	Inf	1

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 3 MCS 0 / 3S4T TXBF / Ant. 4 / CH102 / 5510 MHz

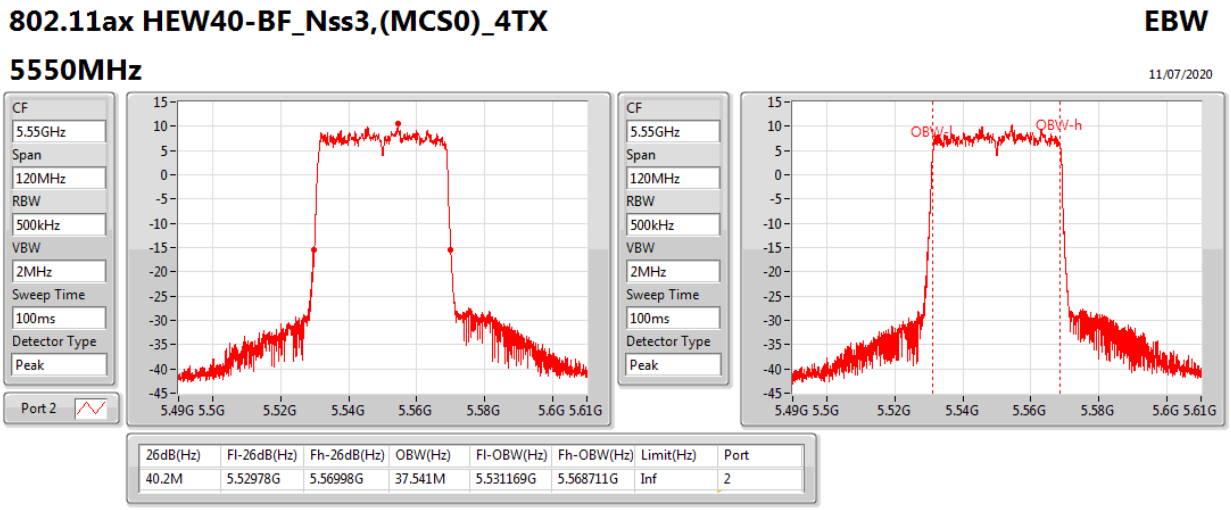
802.11ax HEW40-BF_Nss3,(MCS0)_4TX **EBW**

5510MHz

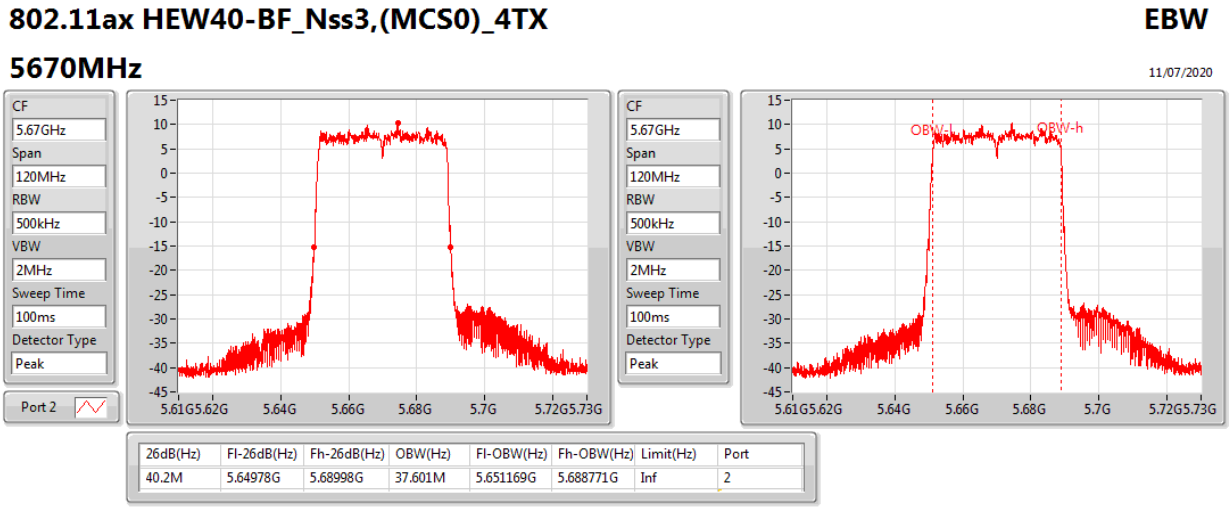


26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
40.2M	5.48978G	5.52998G	37.541M	5.491229G	5.528771G	Inf	2

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 3 MCS 0 / 3S4T TXBF / Ant. 4 / CH110 / 5550 MHz



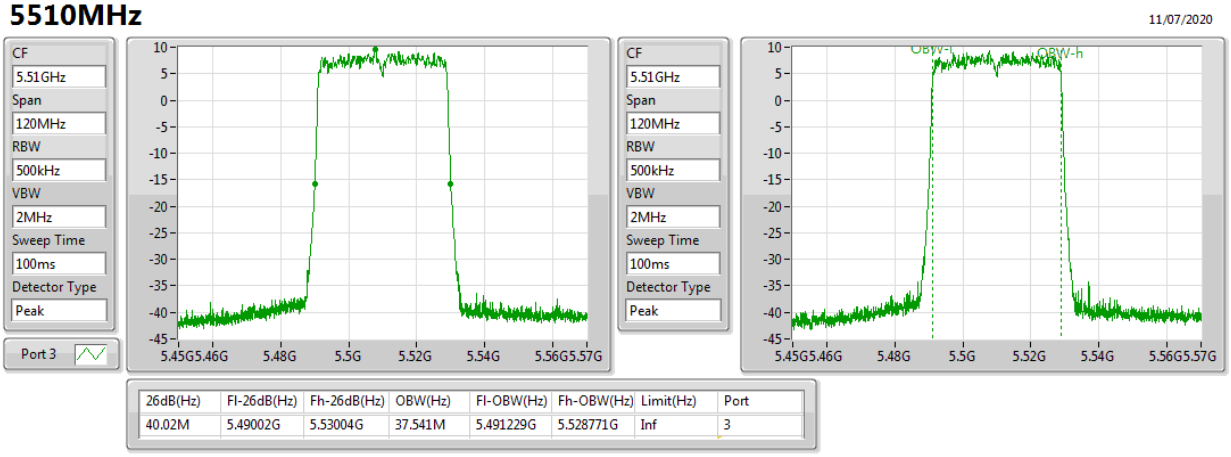
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 3 MCS 0 / 3S4T TXBF / Ant. 4 / CH134 / 5670 MHz



26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 3 MCS 0 / 3S4T TXBF / Ant. 5 / CH102 / 5510 MHz

802.11ax HEW40-BF_Nss3,(MCS0)_4TX **EBW**

5510MHz

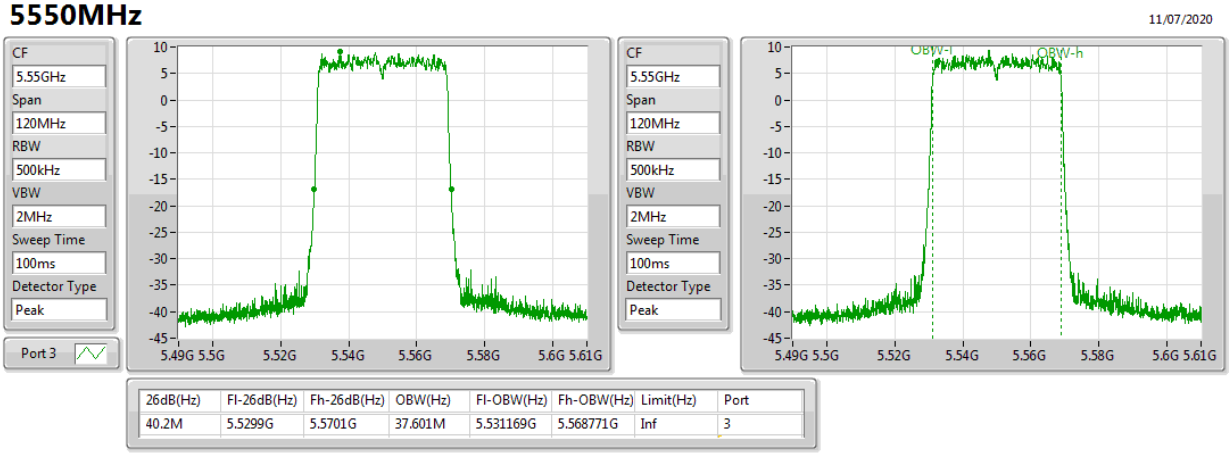


26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
40.02M	5.49002G	5.53004G	37.541M	5.491229G	5.528771G	Inf	3

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 3 MCS 0 / 3S4T TXBF / Ant. 5 / CH110 / 5550 MHz

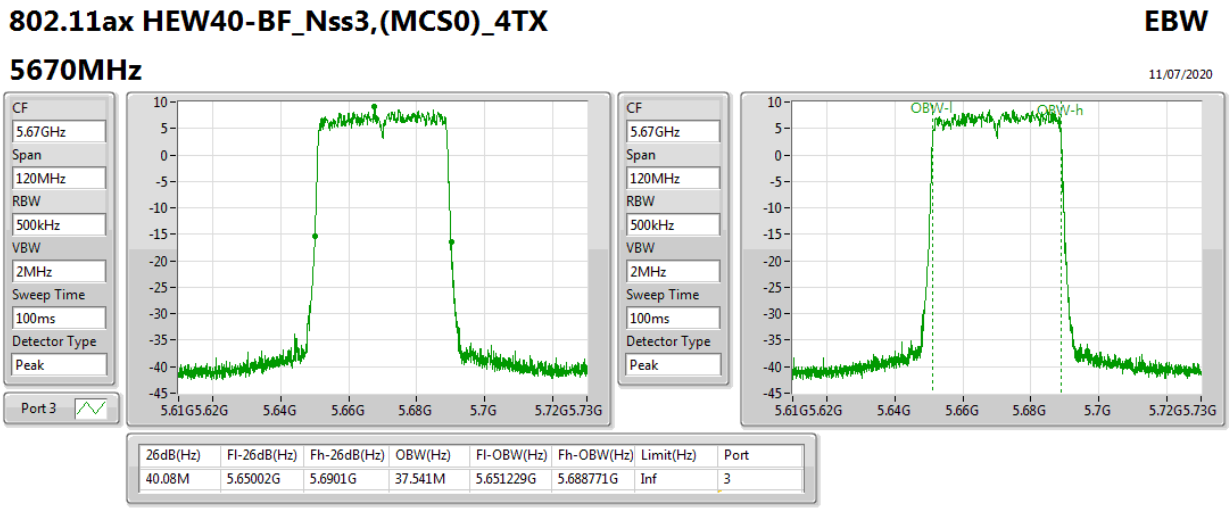
802.11ax HEW40-BF_Nss3,(MCS0)_4TX **EBW**

5550MHz

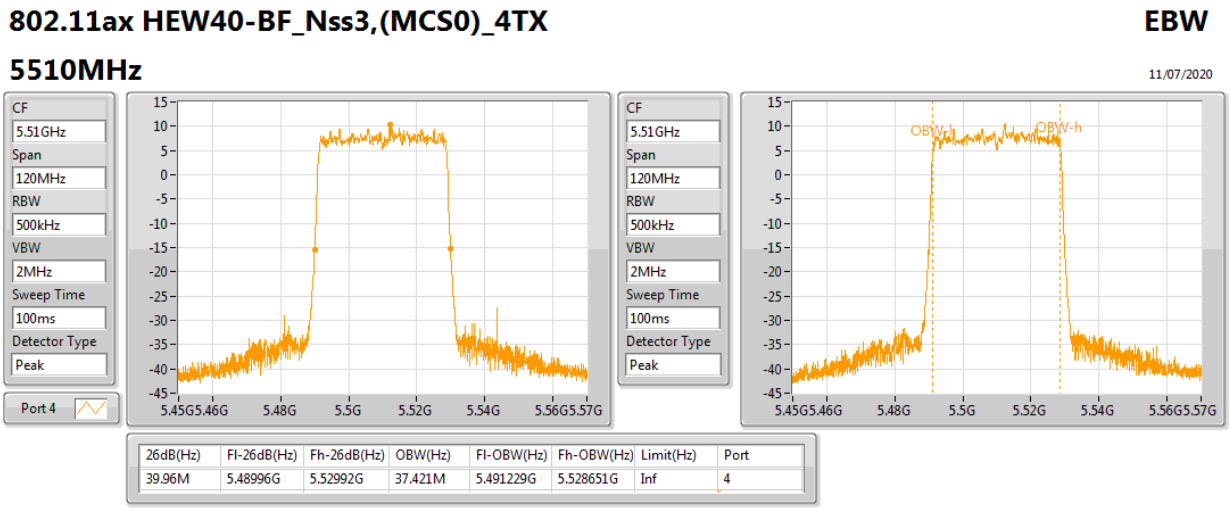


26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
40.2M	5.5299G	5.5701G	37.601M	5.531169G	5.568771G	Inf	3

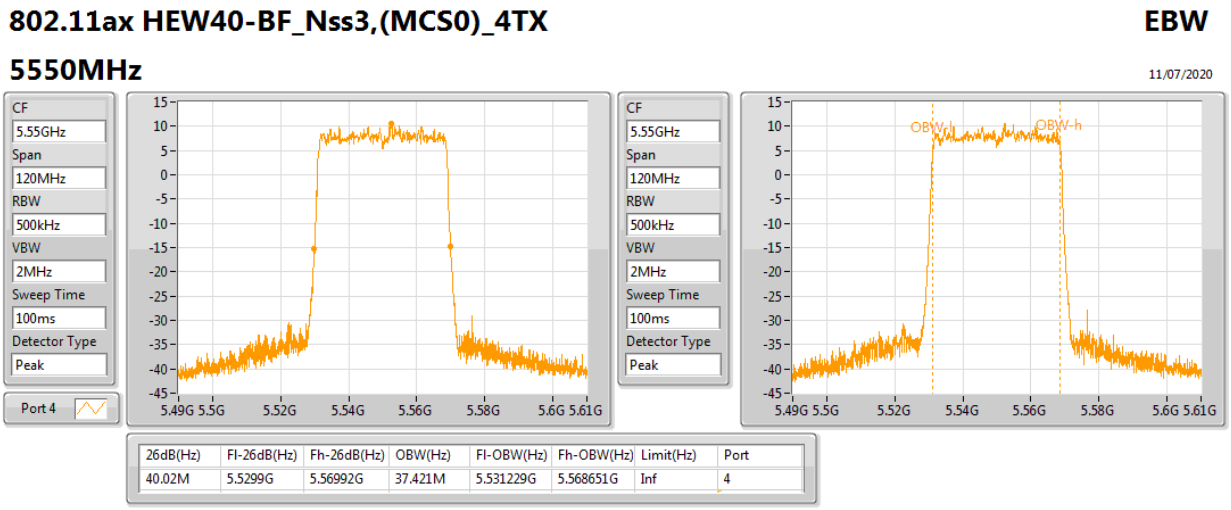
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 3 MCS 0 / 3S4T TXBF / Ant. 5 / CH134 / 5670 MHz



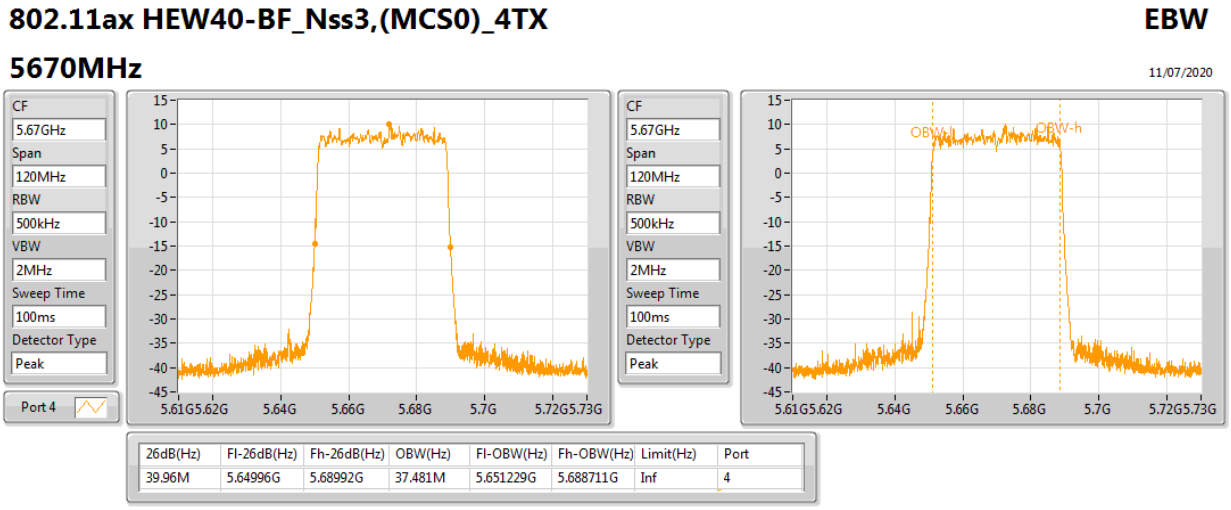
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 3 MCS 0 / 3S4T TXBF / Ant. 6 / CH102 / 5510 MHz



26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 3 MCS 0 / 3S4T TXBF / Ant. 6 / CH110 / 5550 MHz



26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 40MHz / Nss 3 MCS 0 / 3S4T TXBF / Ant. 6 / CH134 / 5670 MHz

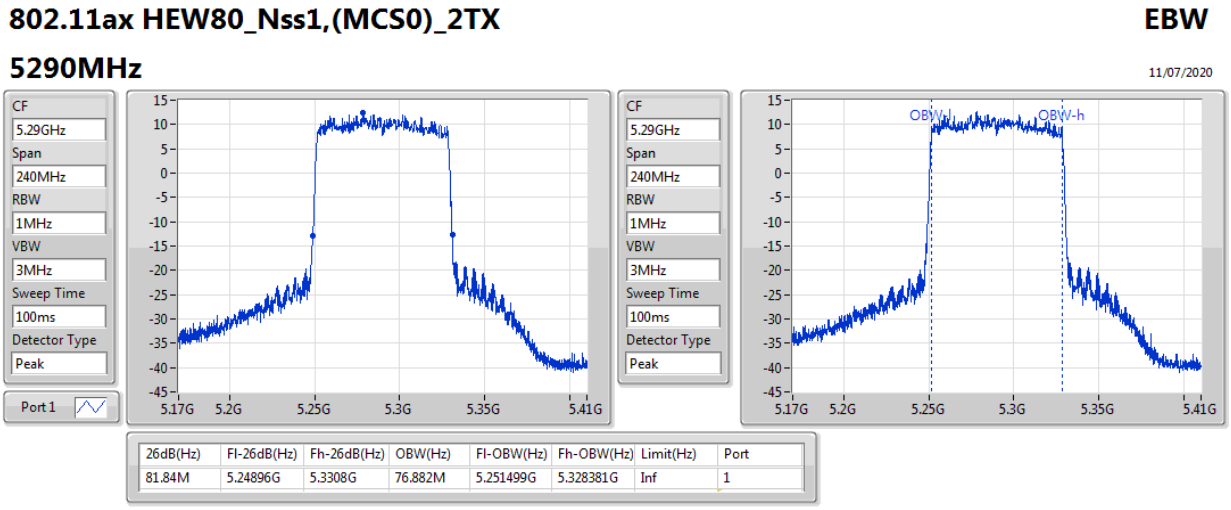


Configuration IEEE 802.11ax 80MHz

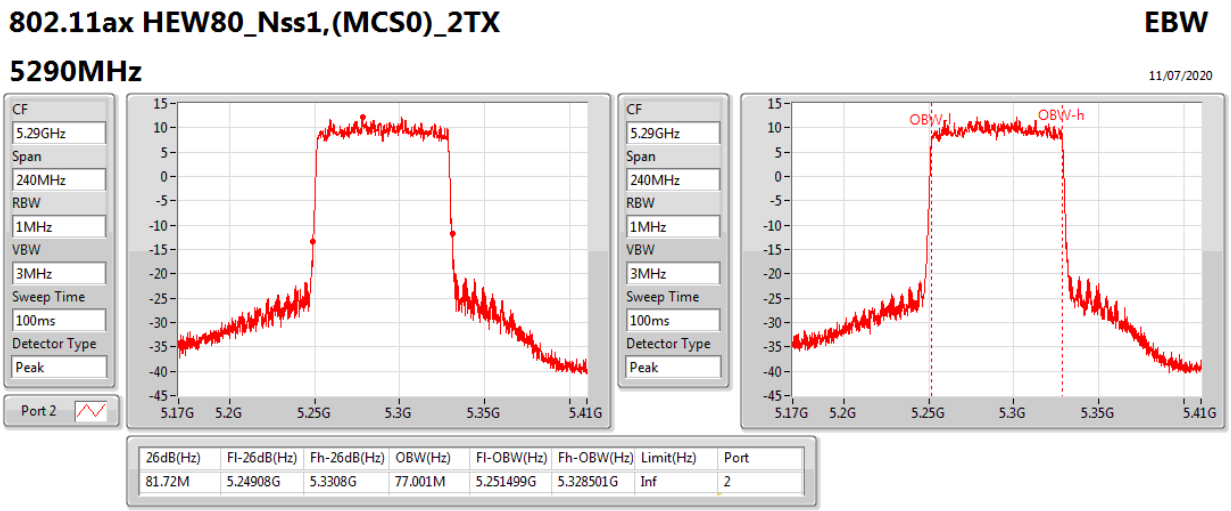
26dB Emission Bandwidth (MHz)						
Mode	Number of Transmit Chains (NTX)	Frequency	26dB Emission Bandwidth (MHz)			
			Ant. 1		Ant. 2	
802.11ax 80MHz (CDD)	1 stream 2TX	5290 MHz	81.840		81.720	
802.11ax 80MHz (TXBF)	1 stream 2TX	5290 MHz	81.840		81.600	
Mode	Number of Transmit Chains (NTX)	Frequency	26dB Emission Bandwidth (MHz)			
			Ant. 3	Ant. 4	Ant. 5	Ant. 6
802.11ax 80MHz (CDD)	1 stream 4TX	5530 MHz	81.720	81.360	81.720	81.720
802.11ax 80MHz (CDD)	1 stream 4TX	5610 MHz	81.840	81.720	81.480	81.600
802.11ax 80MHz (TXBF)	1 stream 4TX	5530 MHz	81.840	81.600	81.240	81.480
802.11ax 80MHz (TXBF)	1 stream 4TX	5610 MHz	81.720	81.720	81.840	81.600
802.11ax 80MHz (TXBF)	2 stream 4TX	5530 MHz	81.240	81.240	81.600	81.720
802.11ax 80MHz (TXBF)	2 stream 4TX	5610 MHz	81.360	81.120	81.840	81.840
802.11ax 80MHz (TXBF)	3 stream 4TX	5530 MHz	81.480	81.720	81.600	81.480
802.11ax 80MHz (TXBF)	3 stream 4TX	5610 MHz	81.480	81.840	81.480	81.480

99% Occupied Bandwidth (MHz)						
Mode	Number of Transmit Chains (NTX)	Frequency	99% Occupied Bandwidth (MHz)			
			Ant. 1		Ant. 2	
802.11ax 80MHz (CDD)	1 stream 2TX	5290 MHz	76.882		77.001	
802.11ax 80MHz (TXBF)	1 stream 2TX	5290 MHz	76.882		77.001	
Mode	Number of Transmit Chains (NTX)	Frequency	99% Occupied Bandwidth (MHz)			
			Ant. 3	Ant. 4	Ant. 5	Ant. 6
802.11ax 80MHz (CDD)	1 stream 4TX	5530 MHz	76.762	76.762	76.882	76.882
802.11ax 80MHz (CDD)	1 stream 4TX	5610 MHz	76.882	76.882	76.882	76.762
802.11ax 80MHz (TXBF)	1 stream 4TX	5530 MHz	76.882	76.762	76.762	76.882
802.11ax 80MHz (TXBF)	1 stream 4TX	5610 MHz	77.001	76.882	76.882	76.762
802.11ax 80MHz (TXBF)	2 stream 4TX	5530 MHz	76.882	76.762	76.882	76.882
802.11ax 80MHz (TXBF)	2 stream 4TX	5610 MHz	76.882	76.882	76.882	76.882
802.11ax 80MHz (TXBF)	3 stream 4TX	5530 MHz	76.882	76.882	76.762	76.882
802.11ax 80MHz (TXBF)	3 stream 4TX	5610 MHz	76.882	76.882	76.882	77.001

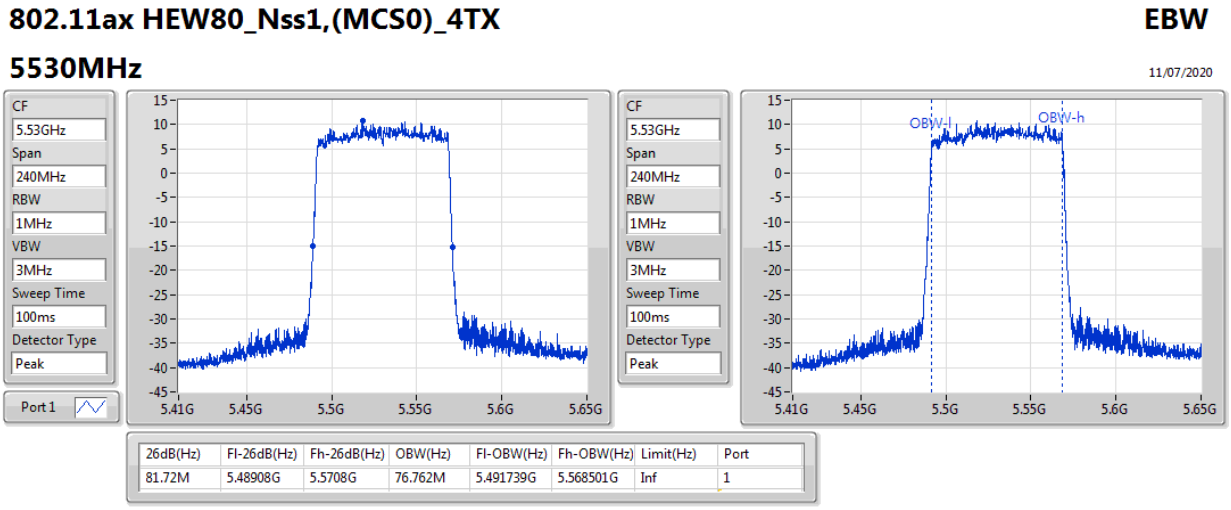
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 80MHz / Nss 1 MCS0 / 1S2T CDD / Ant. 1 / CH58 / 5290 MHz



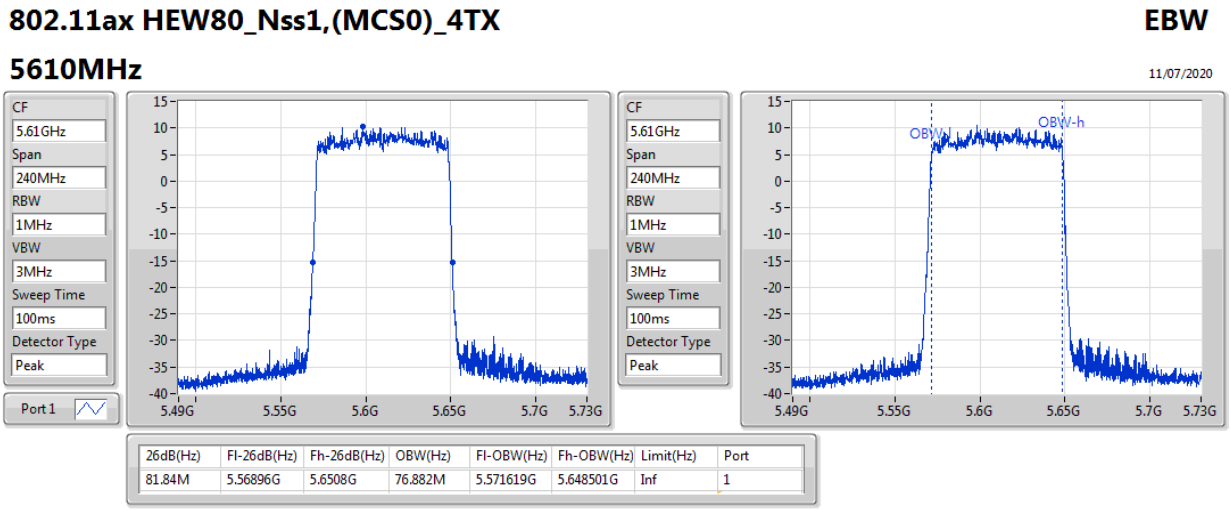
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 80MHz / Nss 1 MCS0 / 1S2T CDD / Ant. 2 / CH58 / 5290 MHz



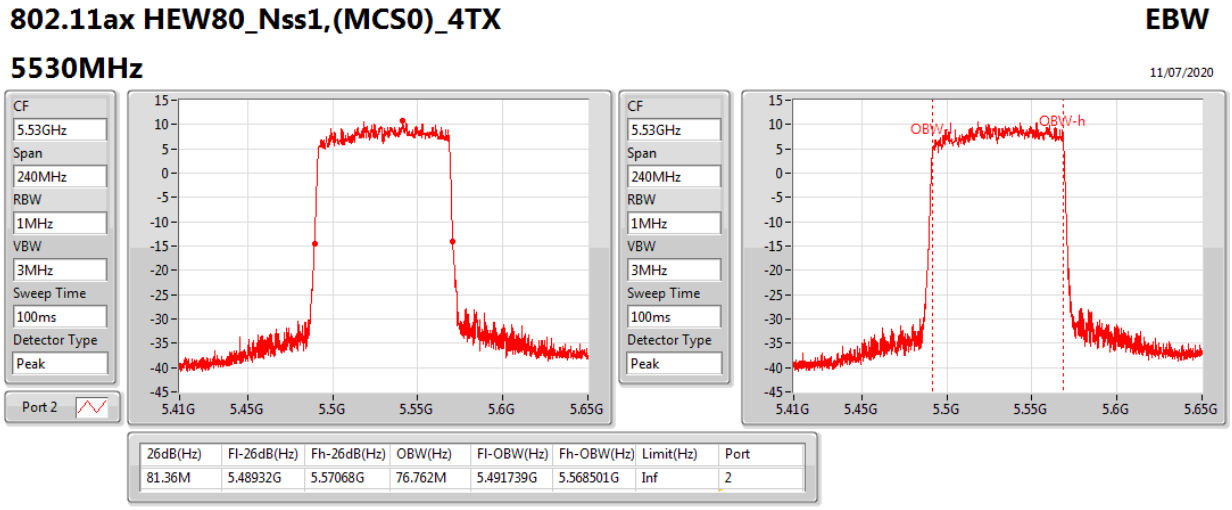
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 80MHz / Nss 1 MCS 0 / 1S4T CDD / Ant. 3 / CH106 / 5530 MHz



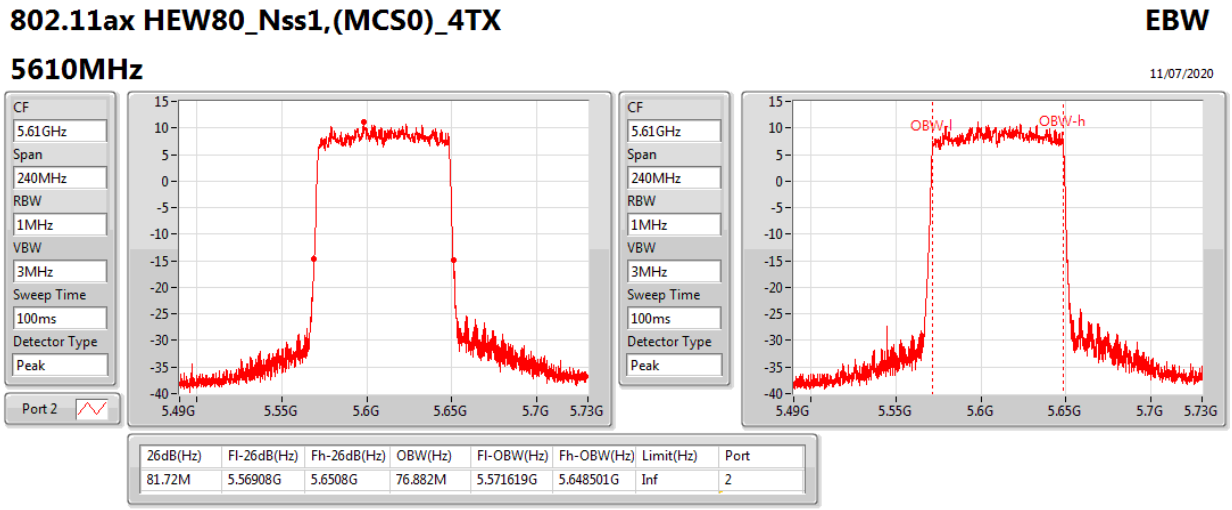
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 80MHz / Nss 1 MCS 0 / 1S4T CDD / Ant. 3 / CH122 / 5610 MHz



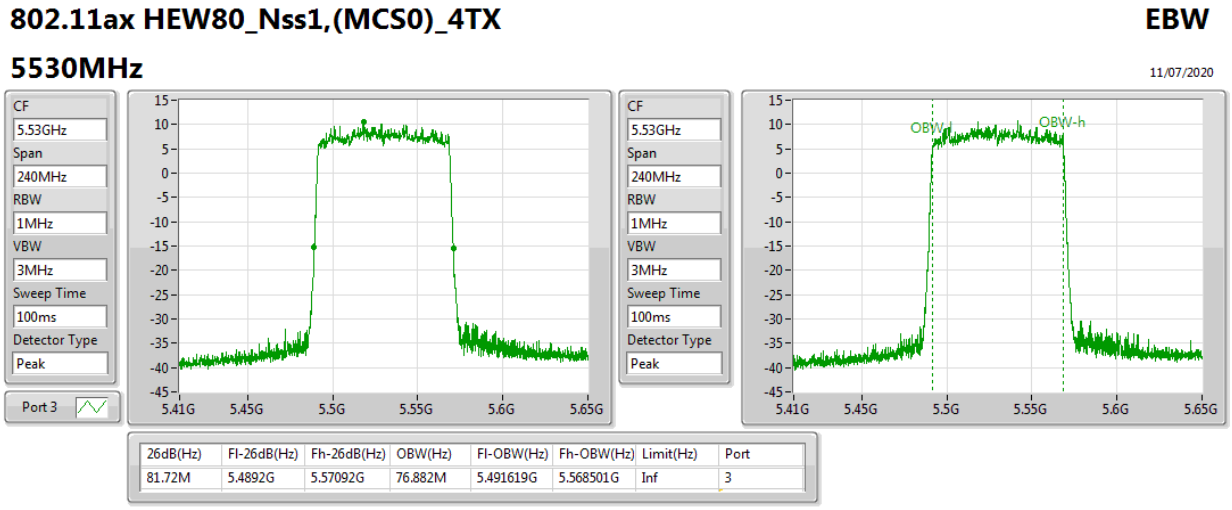
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 80MHz / Nss 1 MCS 0 / 1S4T CDD / Ant. 4 / CH106 / 5530 MHz



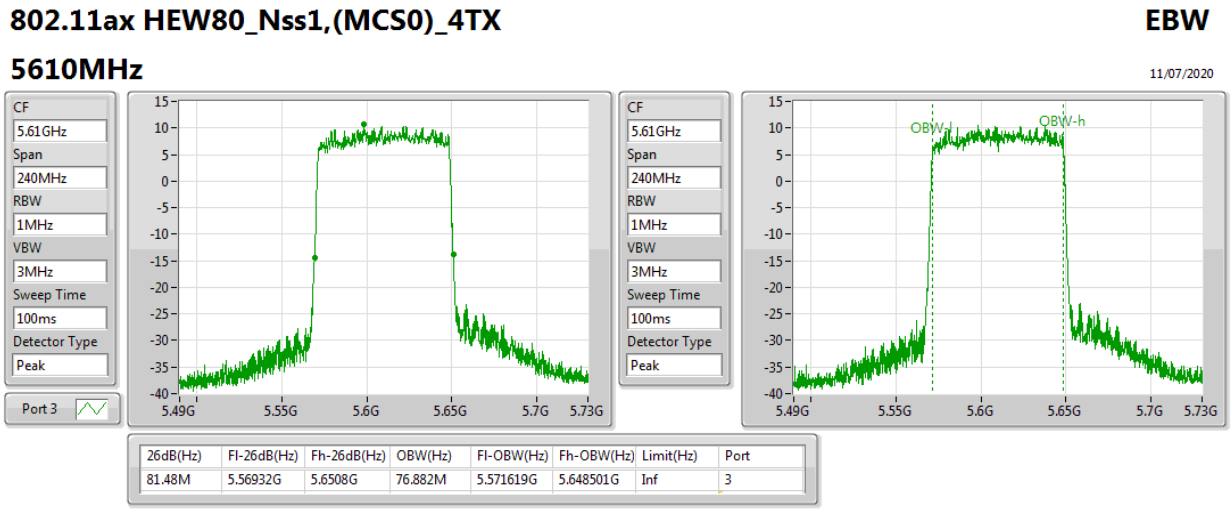
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 80MHz / Nss 1 MCS 0 / 1S4T CDD / Ant. 4 / CH122 / 5610 MHz



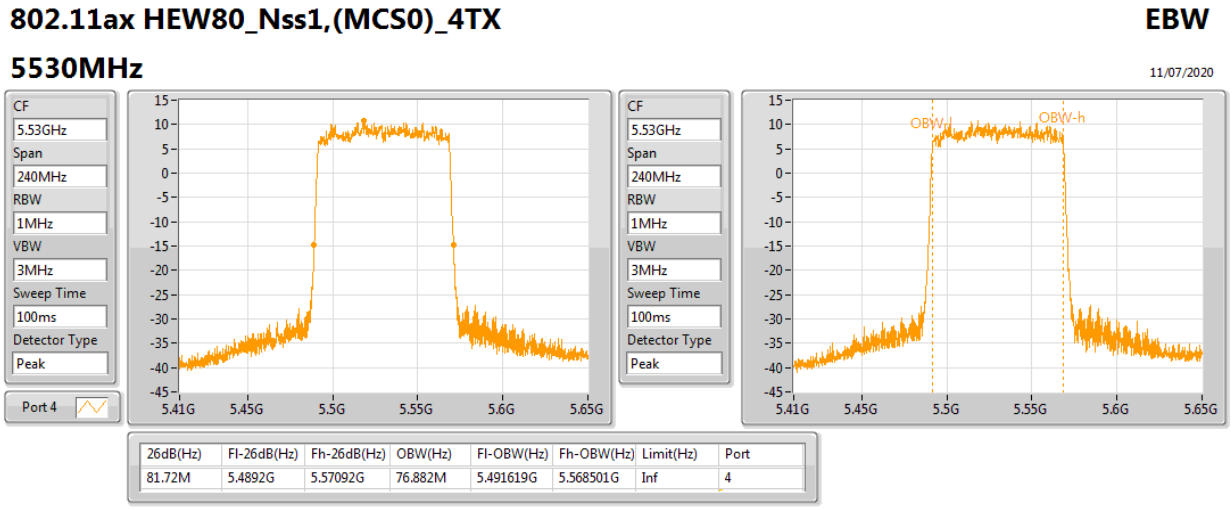
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 80MHz / Nss 1 MCS 0 / 1S4T CDD / Ant. 5 / CH106 / 5530 MHz



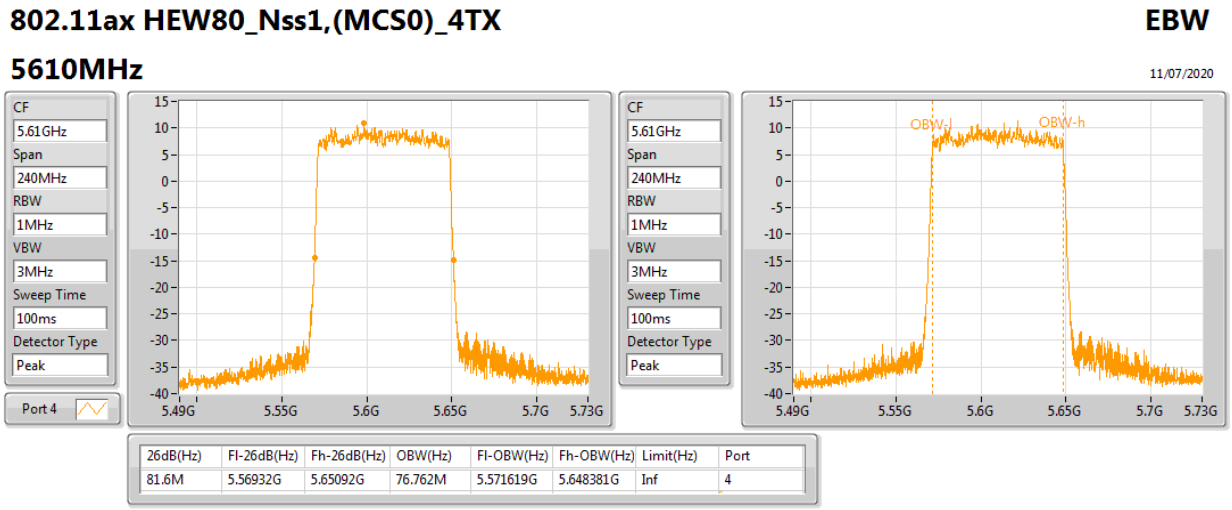
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 80MHz / Nss 1 MCS 0 / 1S4T CDD / Ant. 5 / CH122 / 5610 MHz



26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 80MHz / Nss 1 MCS 0 / 1S4T CDD / Ant. 6 / CH106 / 5530 MHz



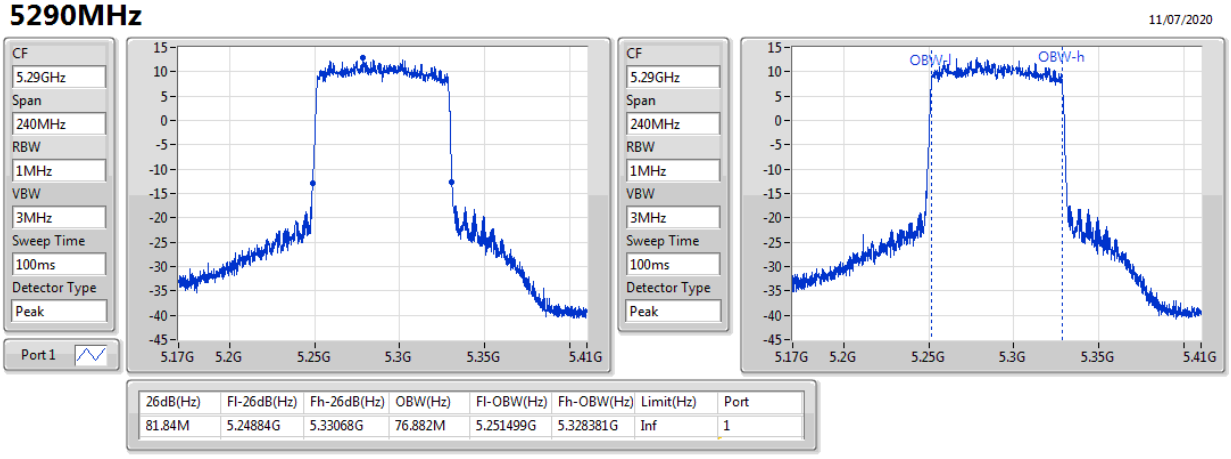
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 80MHz / Nss 1 MCS 0 / 1S4T CDD / Ant. 6 / CH122 / 5610 MHz



26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 80MHz / Nss 1 MCS0 / TXBF 1S2T / Ant. 1 / CH58 / 5290 MHz

802.11ax HEW80-BF_Nss1,(MCS0)_2TX **EBW**

5290MHz

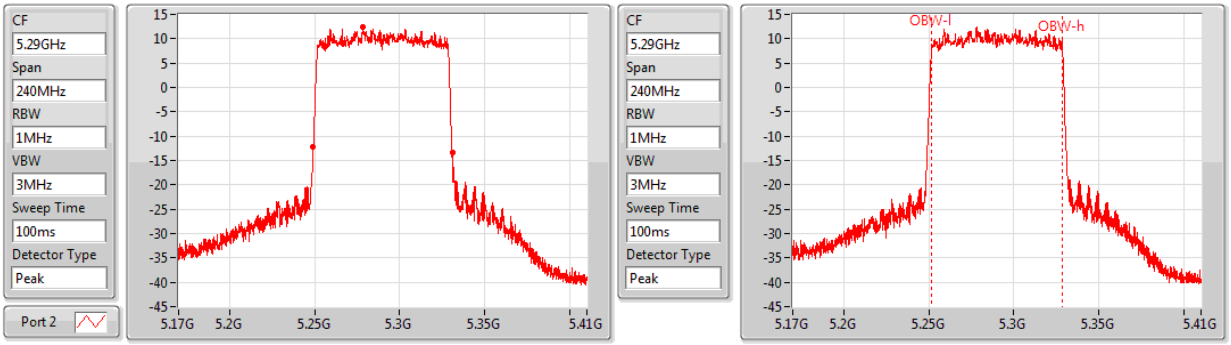


26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
81.84M	5.24884G	5.33068G	76.882M	5.251499G	5.328381G	Inf	1

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 80MHz / Nss 1 MCS0 / TXBF 1S2T / Ant. 2 / CH58 / 5290 MHz

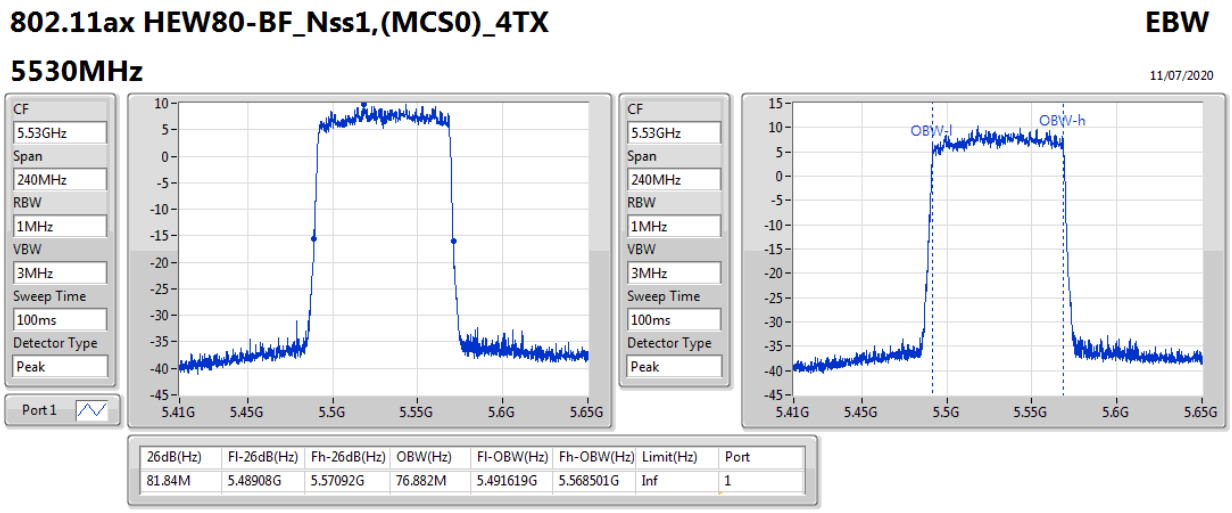
802.11ax HEW80-BF_Nss1,(MCS0)_2TX **EBW**

5290MHz

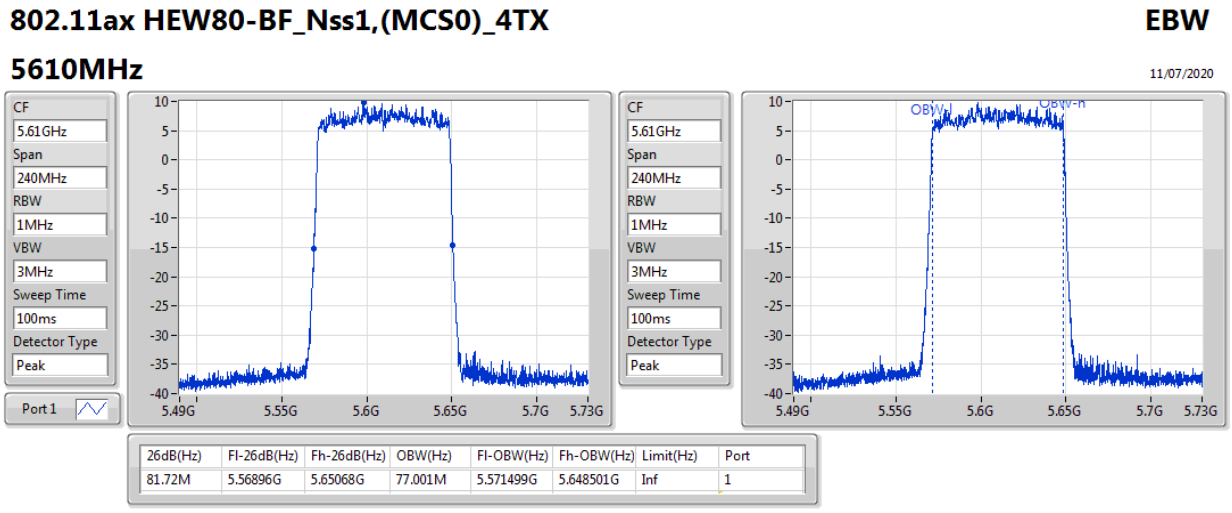


26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
81.6M	5.2492G	5.3308G	77.001M	5.251499G	5.328501G	Inf	2

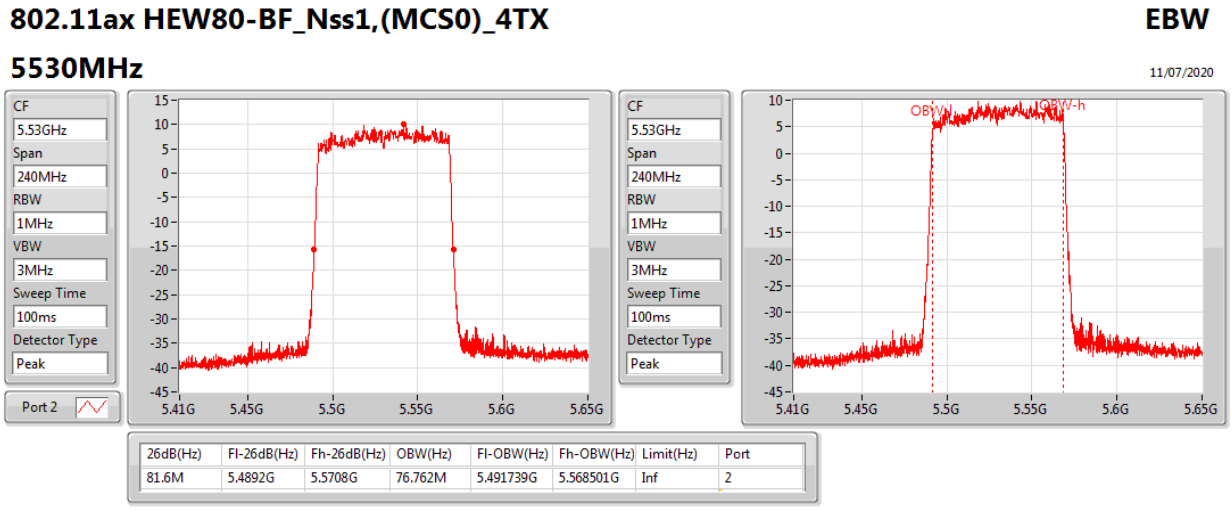
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 80MHz / Nss 1 MCS 0 / 1S4T TXBF / Ant. 3 / CH106 / 5530 MHz



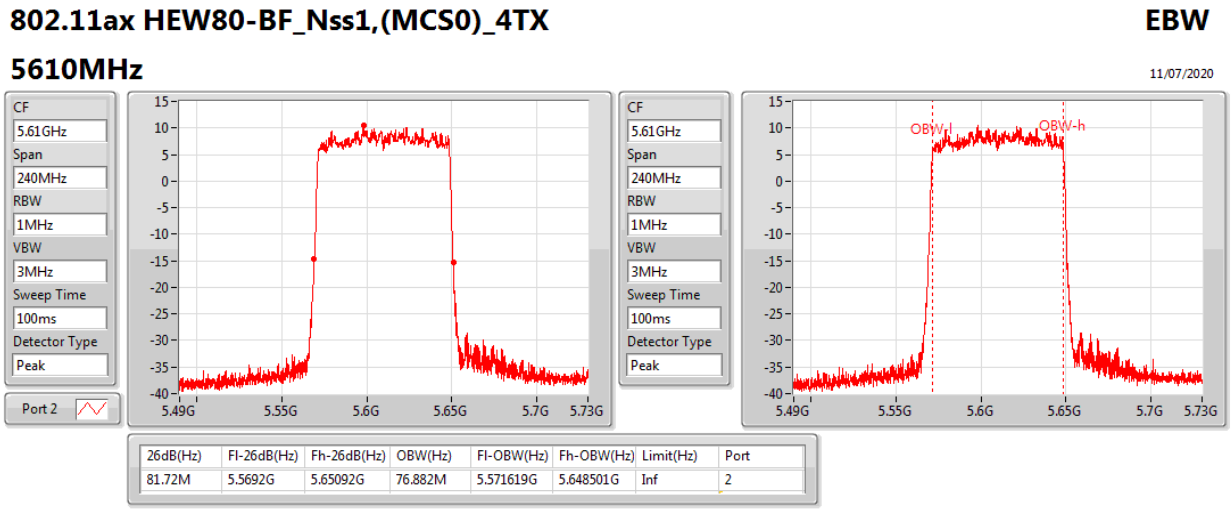
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 80MHz / Nss 1 MCS 0 / 1S4T TXBF / Ant. 3 / CH122 / 5610 MHz



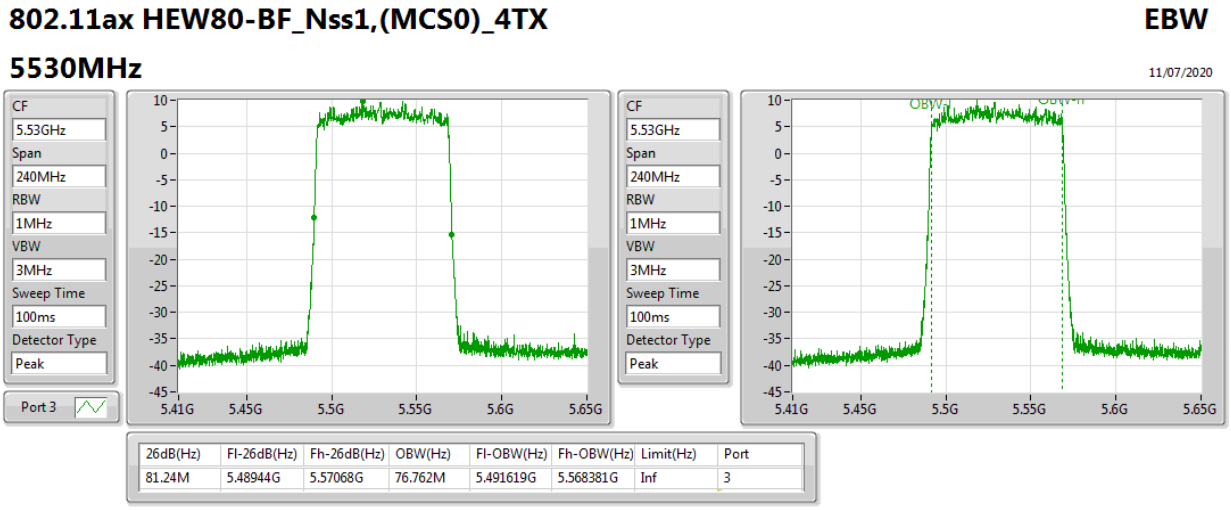
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 80MHz / Nss 1 MCS 0 / 1S4T TXBF / Ant. 4 / CH106 / 5530 MHz



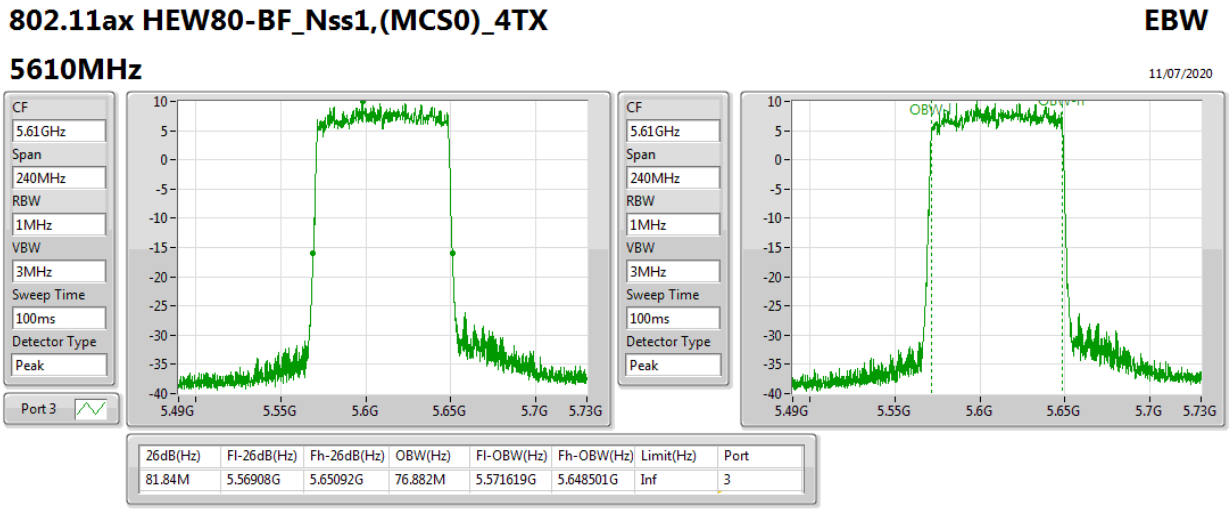
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 80MHz / Nss 1 MCS 0 / 1S4T TXBF / Ant. 4 / CH122 / 5610 MHz



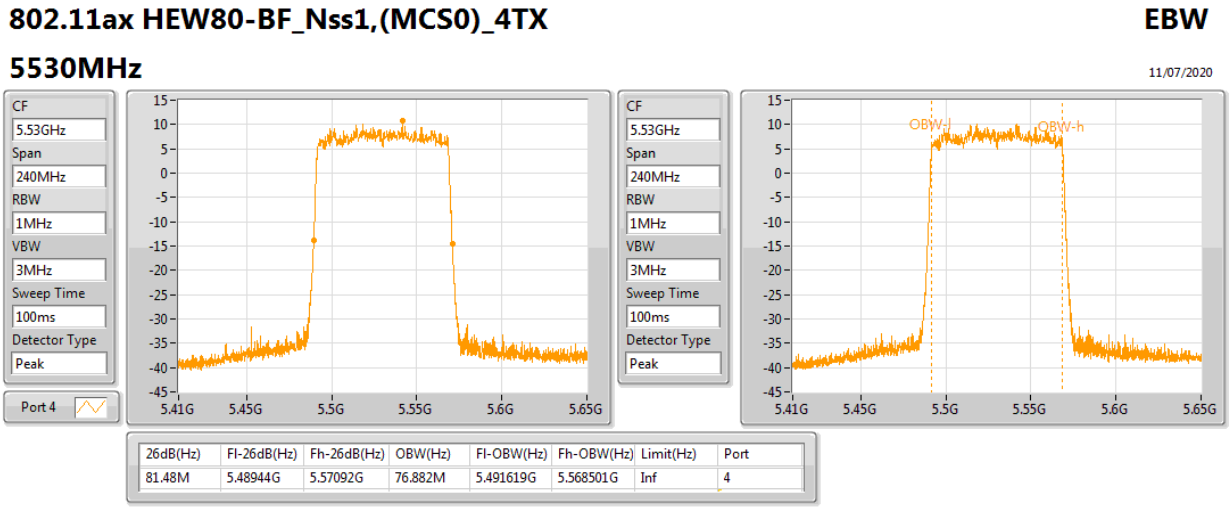
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 80MHz / Nss 1 MCS 0 / 1S4T TXBF / Ant. 5 / CH106 / 5530 MHz



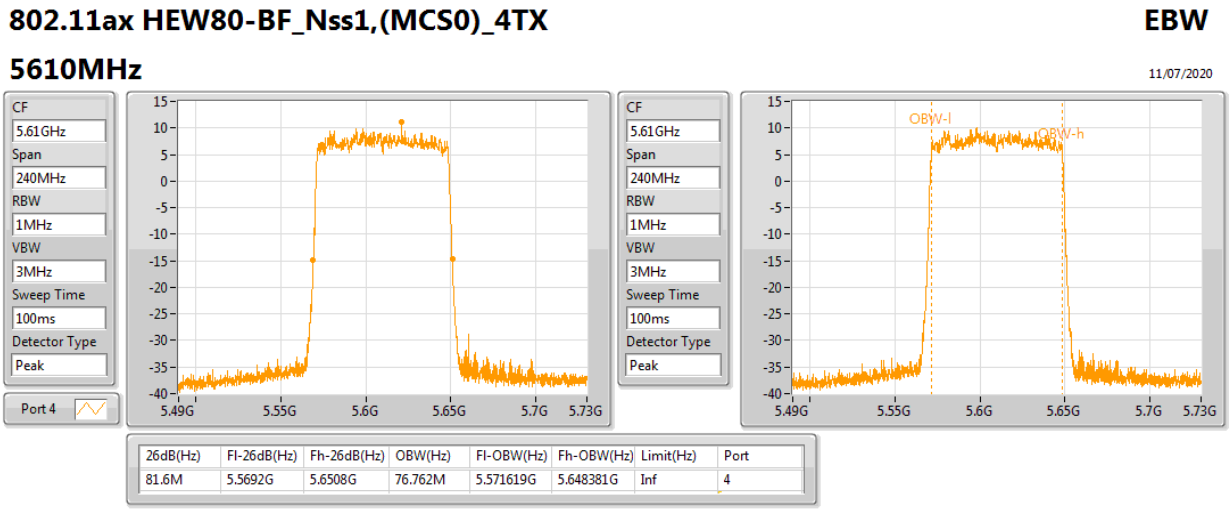
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 80MHz / Nss 1 MCS 0 / 1S4T TXBF / Ant. 5 / CH122 / 5610 MHz



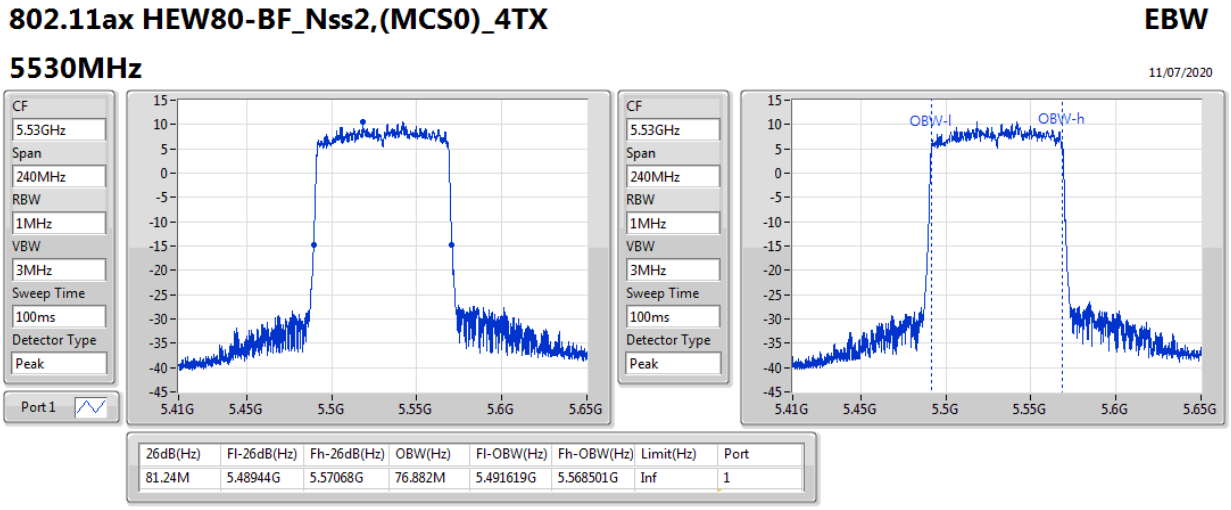
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 80MHz / Nss 1 MCS 0 / 1S4T TXBF / Ant. 6 / CH106 / 5530 MHz



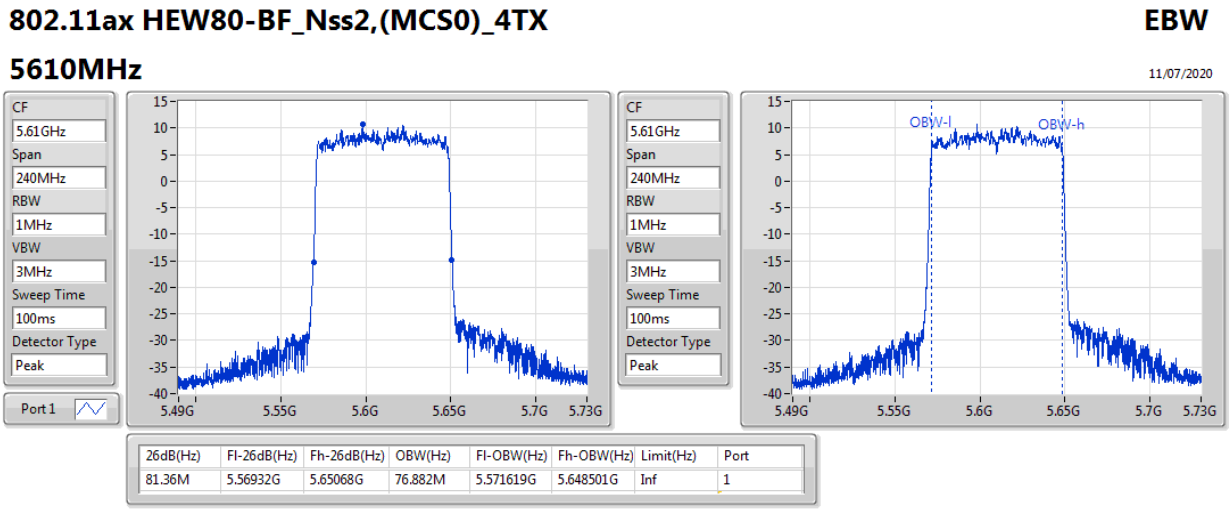
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 80MHz / Nss 1 MCS 0 / 1S4T TXBF / Ant. 6 / CH122 / 5610 MHz



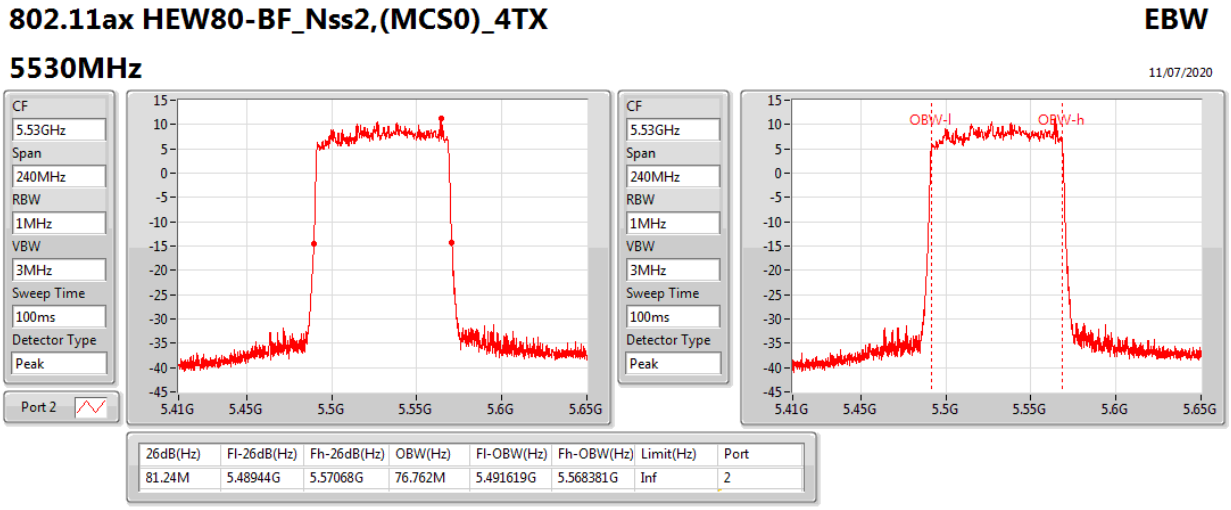
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 80MHz / Nss 2 MCS 0 / 2S4T TXBF / Ant. 3 / CH106 / 5530 MHz



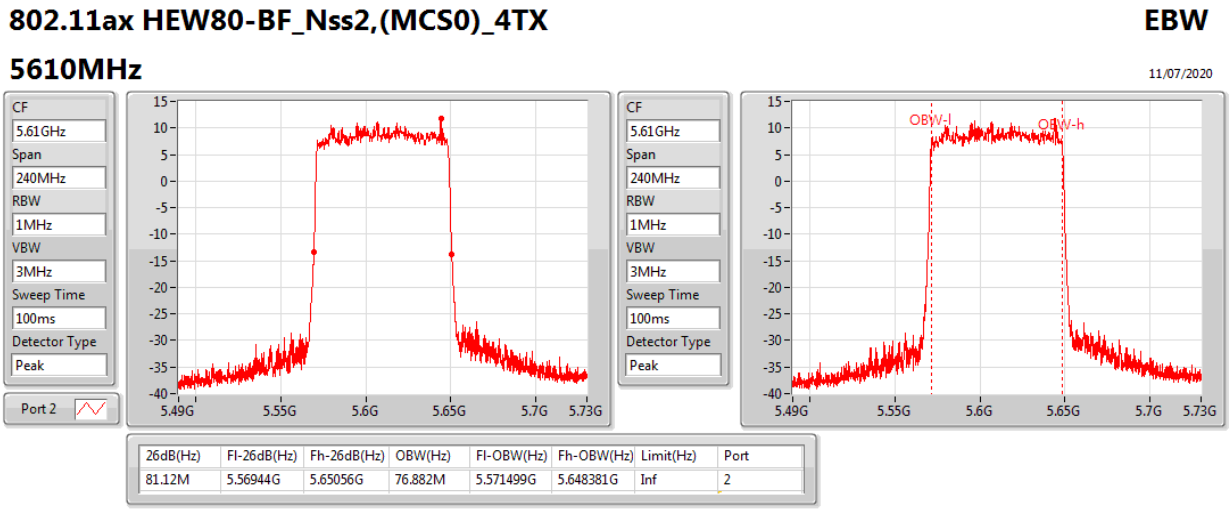
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 80MHz / Nss 2 MCS 0 / 2S4T TXBF / Ant. 3 / CH122 / 5610 MHz



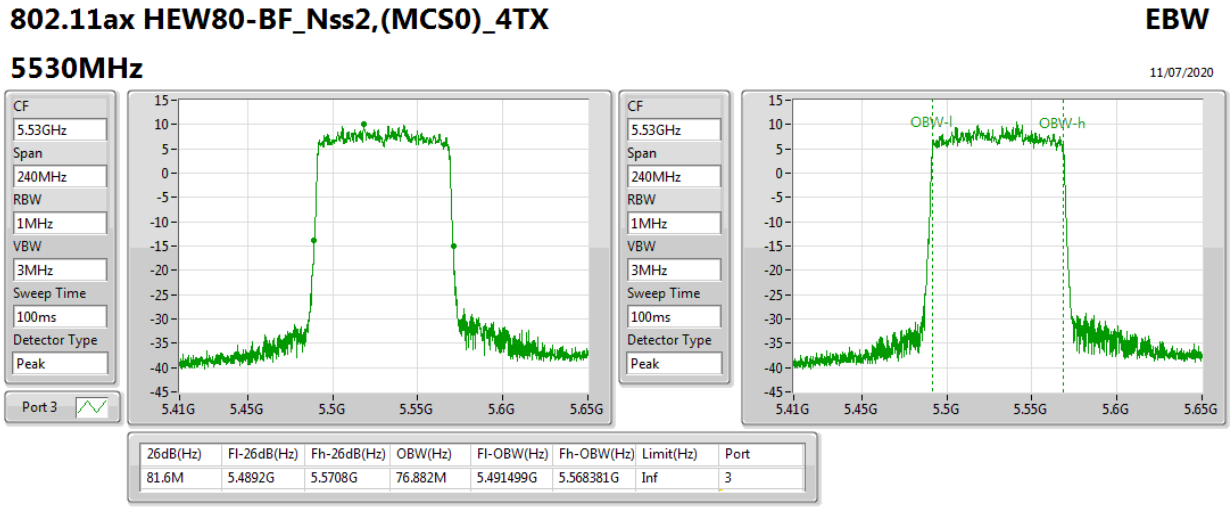
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 80MHz / Nss 2 MCS 0 / 2S4T TXBF / Ant. 4 / CH106 / 5530 MHz



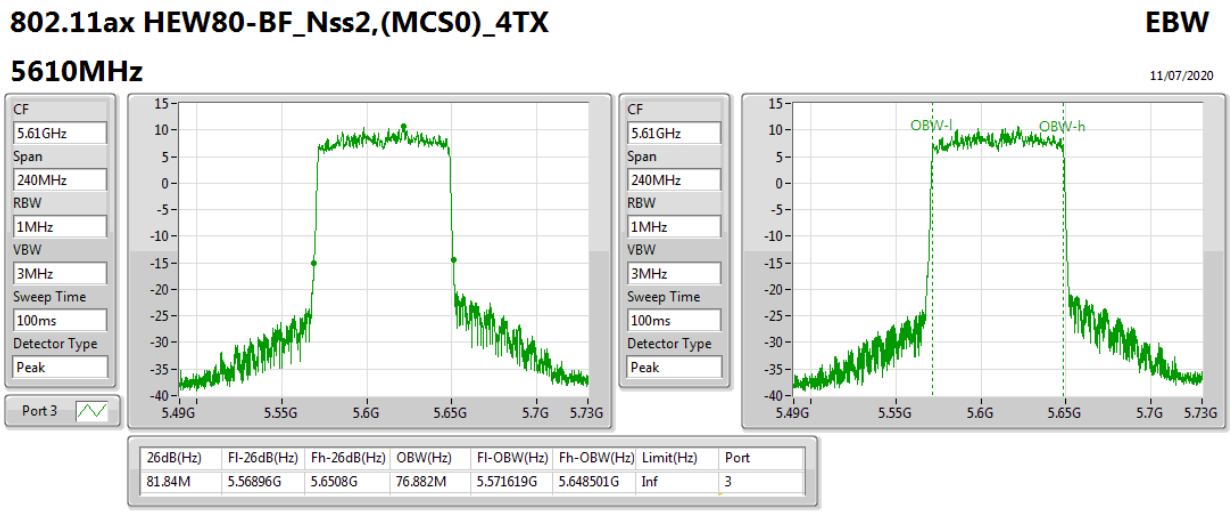
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 80MHz / Nss 2 MCS 0 / 2S4T TXBF / Ant. 4 / CH122 / 5610 MHz



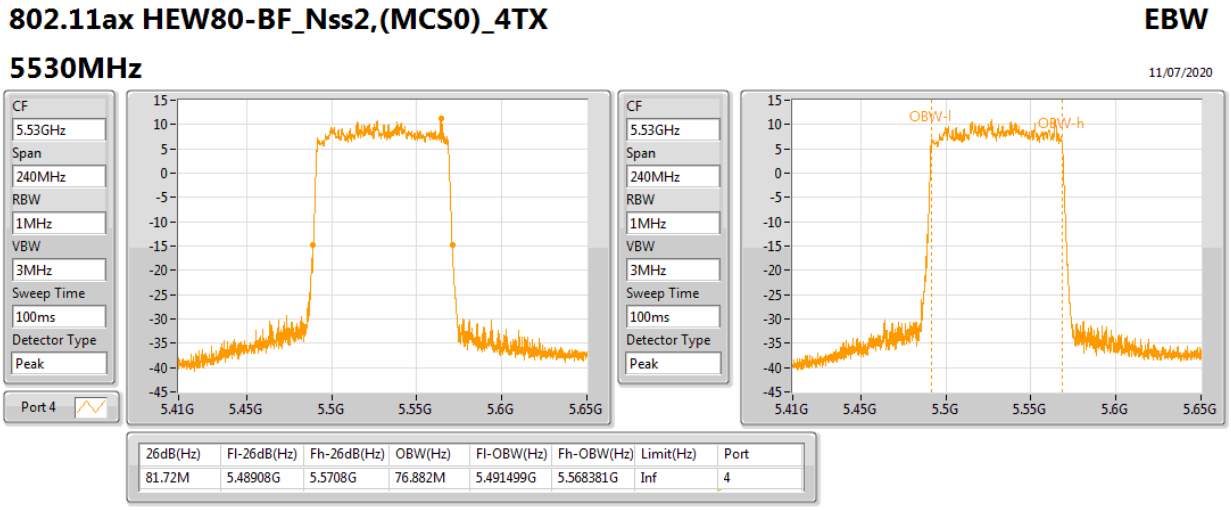
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 80MHz / Nss 2 MCS 0 / 2S4T TXBF / Ant. 5 / CH106 / 5530 MHz



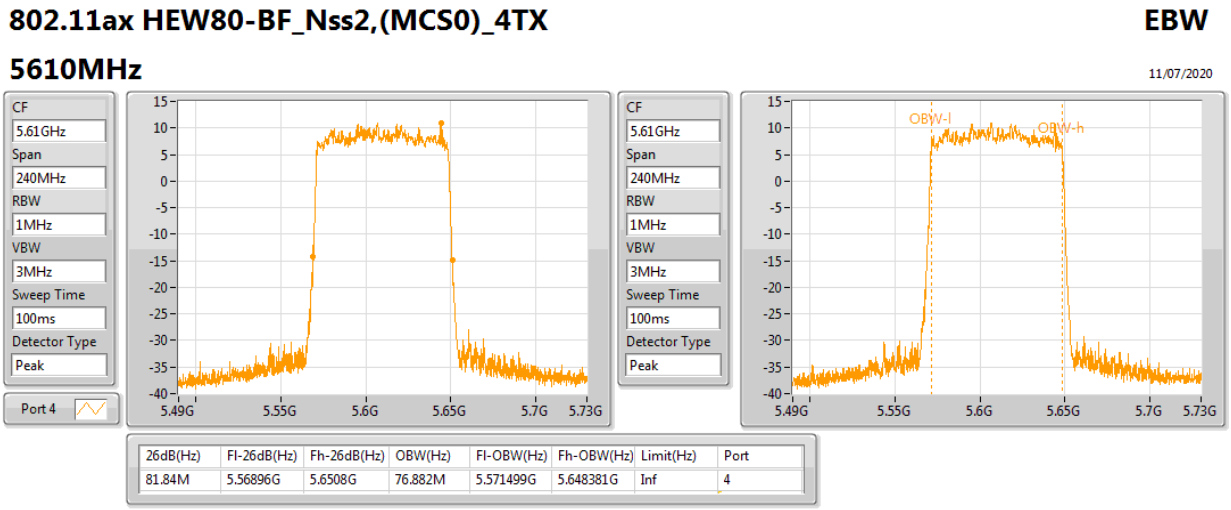
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 80MHz / Nss 2 MCS 0 / 2S4T TXBF / Ant. 5 / CH122 / 5610 MHz



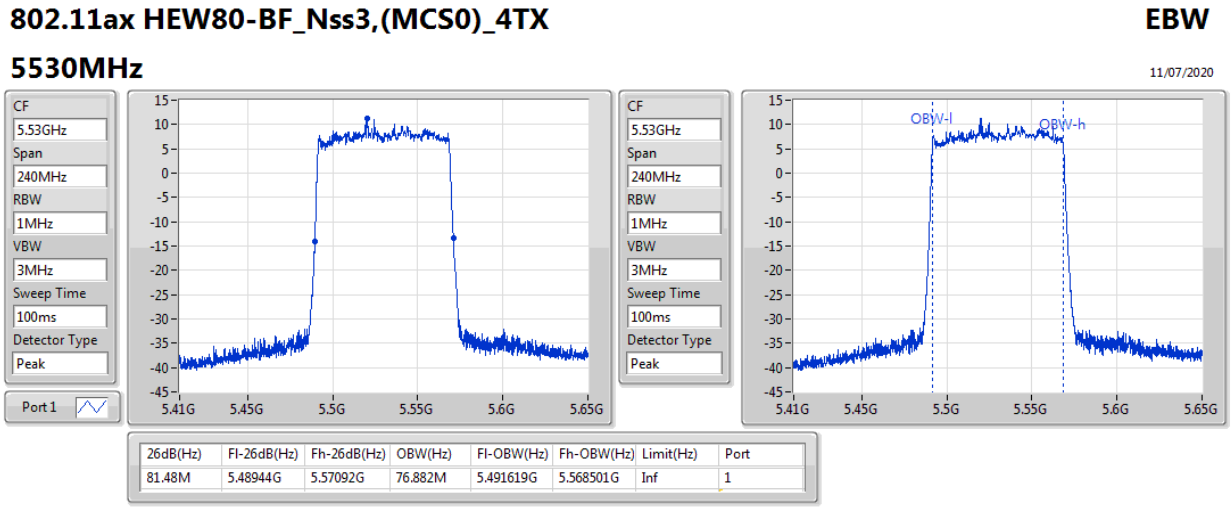
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 80MHz / Nss 2 MCS 0 / 2S4T TXBF / Ant. 6 / CH106 / 5530 MHz



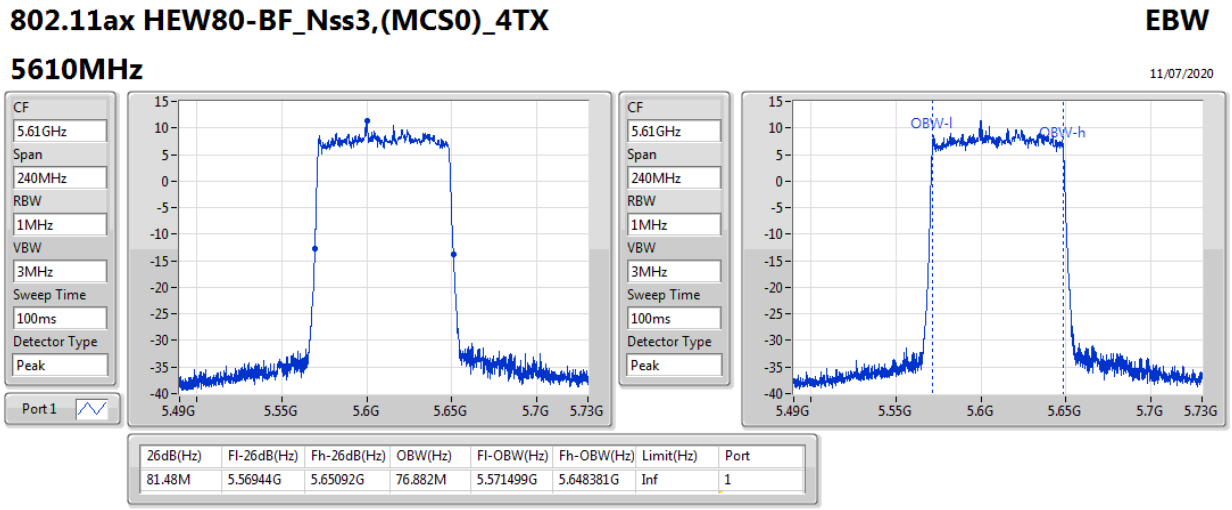
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 80MHz / Nss 2 MCS 0 / 2S4T TXBF / Ant. 6 / CH122 / 5610 MHz



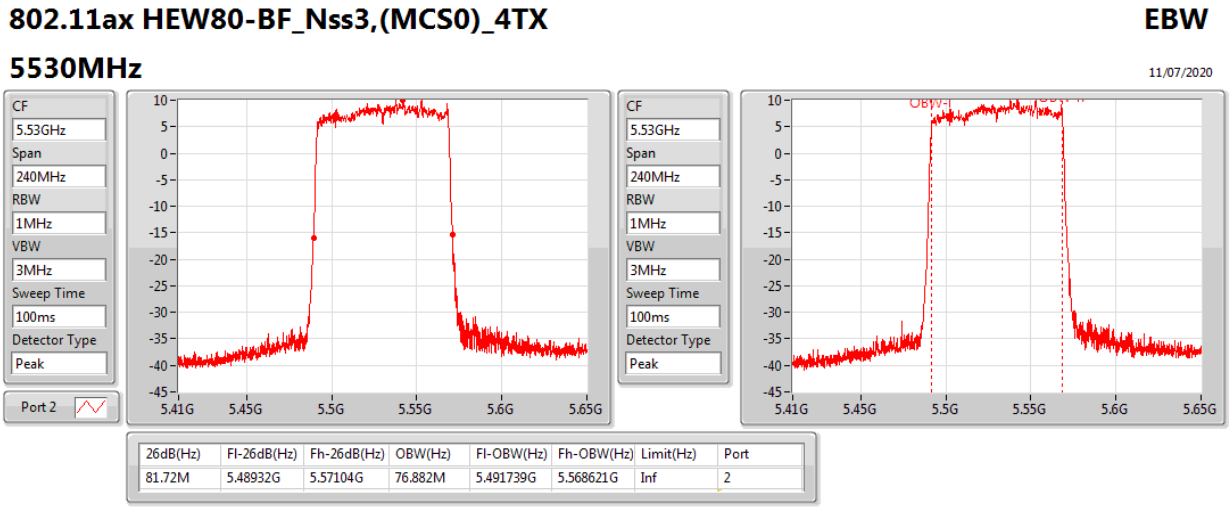
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 80MHz / Nss 3 MCS 0 / 3S4T TXBF / Ant. 3 / CH106 / 5530 MHz



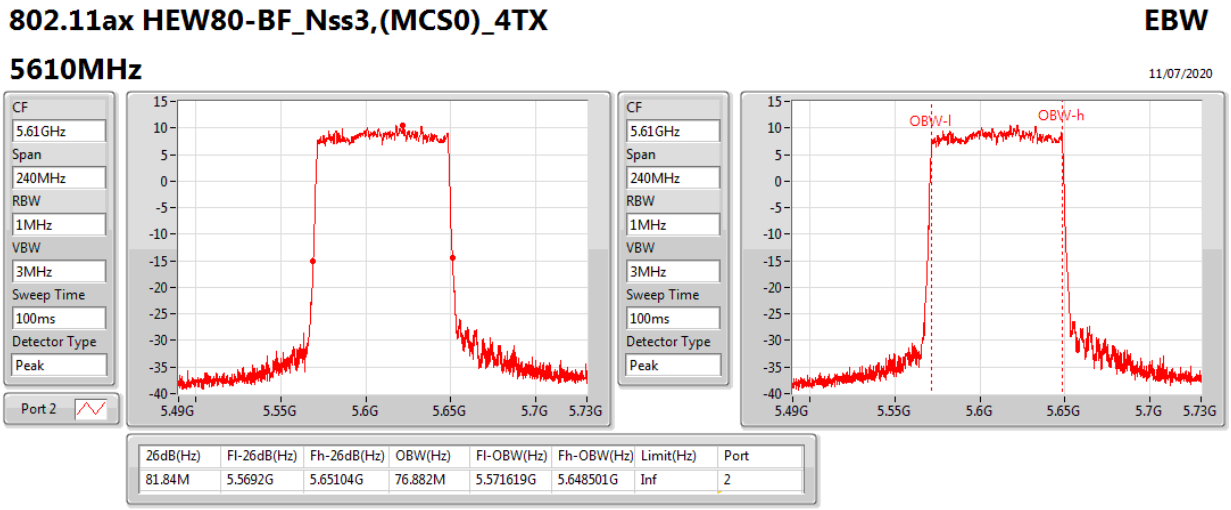
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 80MHz / Nss 3 MCS 0 / 3S4T TXBF / Ant. 3 / CH122 / 5610 MHz



26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 80MHz / Nss 3 MCS 0 / 3S4T TXBF / Ant. 4 / CH106 / 5530 MHz



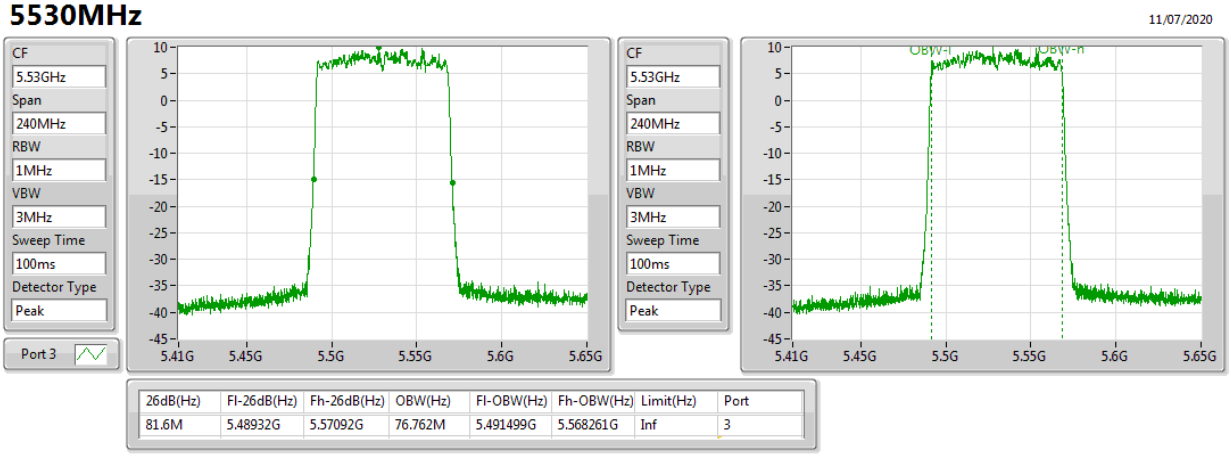
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 80MHz / Nss 3 MCS 0 / 3S4T TXBF / Ant. 4 / CH122 / 5610 MHz



26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 80MHz / Nss 3 MCS 0 / 3S4T TXBF / Ant. 5 / CH106 / 5530 MHz

802.11ax HEW80-BF_Nss3,(MCS0)_4TX **EBW**

5530MHz

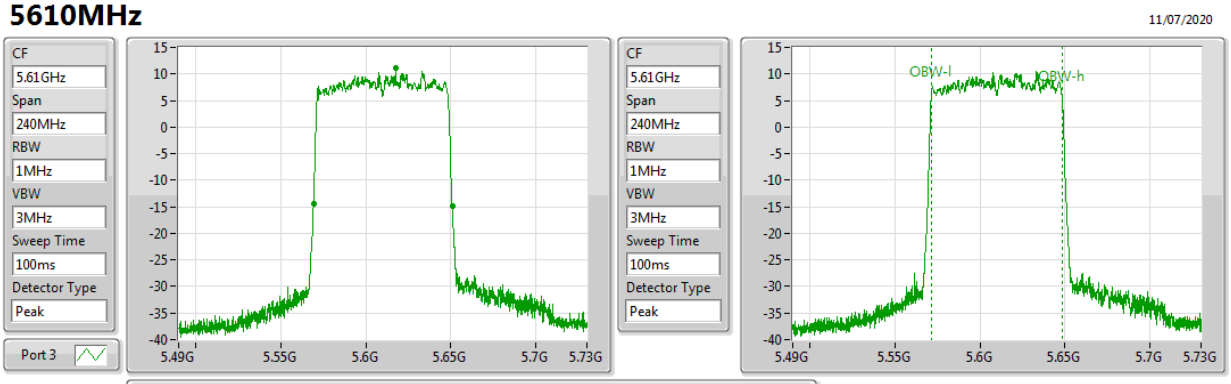


26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
81.6M	5.48932G	5.57092G	76.762M	5.491499G	5.568261G	Inf	3

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 80MHz / Nss 3 MCS 0 / 3S4T TXBF / Ant. 5 / CH122 / 5610 MHz

802.11ax HEW80-BF_Nss3,(MCS0)_4TX **EBW**

5610MHz

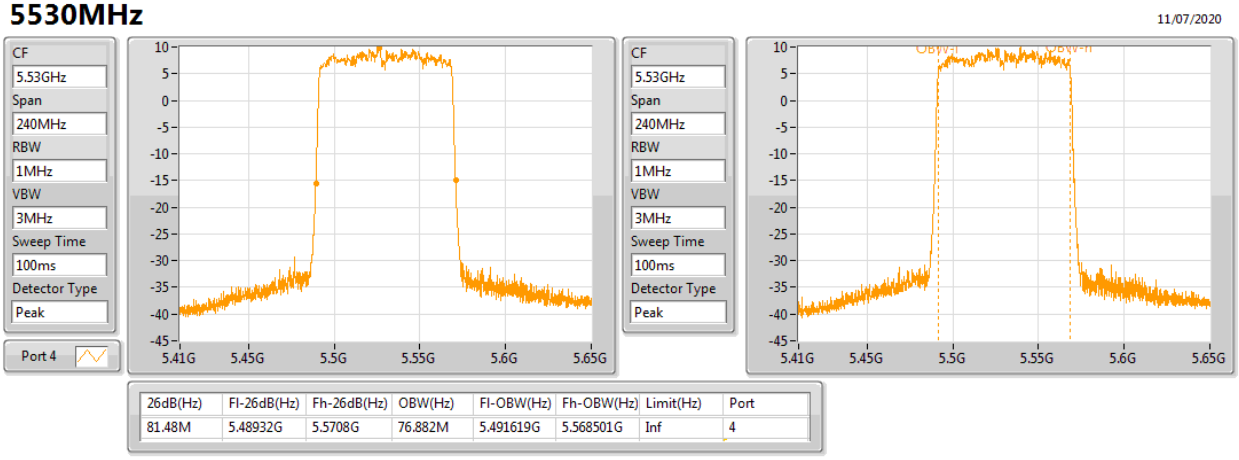


26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
81.48M	5.56932G	5.6508G	76.882M	5.571499G	5.648381G	Inf	3

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 80MHz / Nss 3 MCS 0 / 3S4T TXBF / Ant. 6 / CH106 / 5530 MHz

802.11ax HEW80-BF_Nss3,(MCS0)_4TX **EBW**

5530MHz

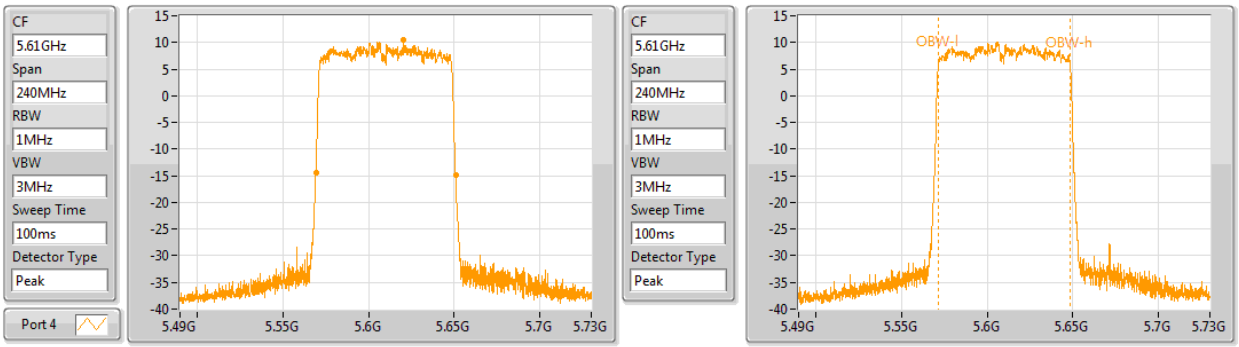


26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
81.48M	5.48932G	5.5708G	76.882M	5.491619G	5.568501G	Inf	4

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 80MHz / Nss 3 MCS 0 / 3S4T TXBF / Ant. 6 / CH122 / 5610 MHz

802.11ax HEW80-BF_Nss3,(MCS0)_4TX **EBW**

5610MHz



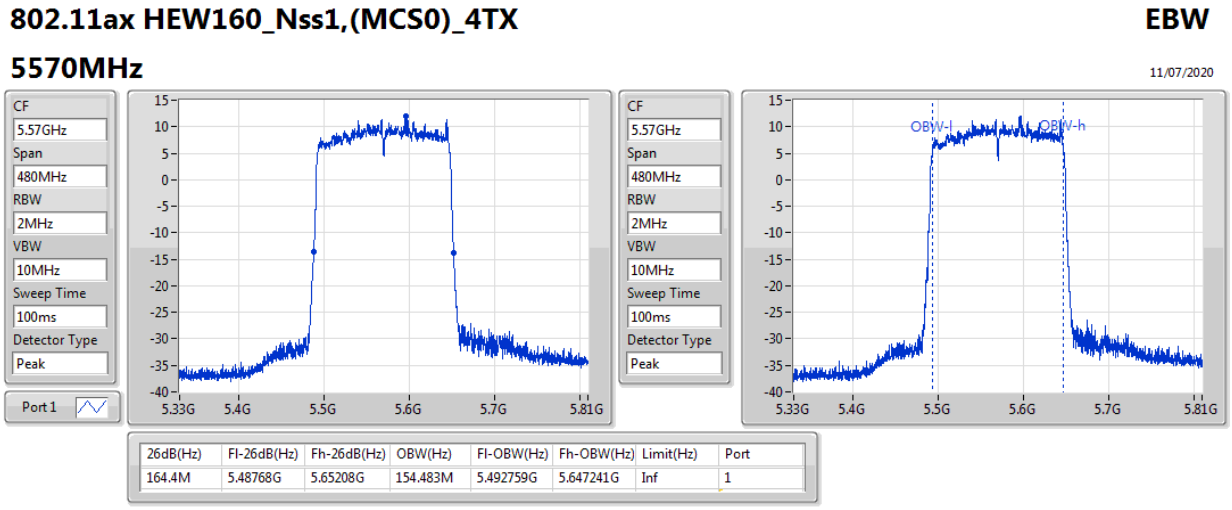
26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
81.48M	5.56932G	5.6508G	77.001M	5.571499G	5.648501G	Inf	4

Configuration IEEE 802.11ax 160MHz

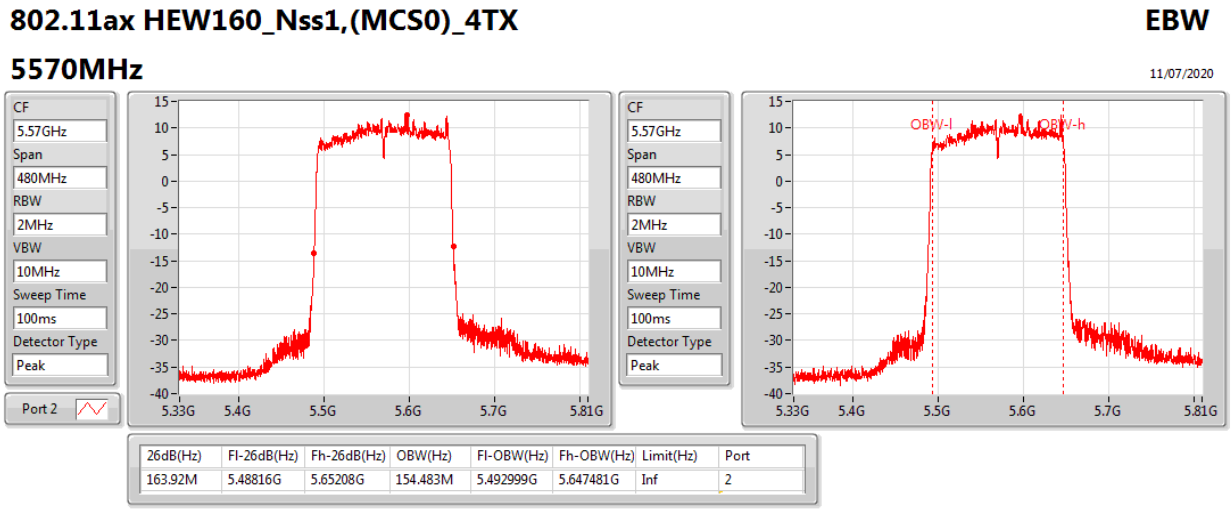
26dB Emission Bandwidth (MHz)						
Mode	Number of Transmit Chains (NTX)	Frequency	26dB Emission Bandwidth (MHz)			
			Ant. 3	Ant. 4	Ant. 5	Ant. 6
802.11ax 160MHz (CDD)	1 stream 4TX	5570 MHz	164.400	163.920	163.680	163.920
802.11ax 160MHz (TXBF)	1 stream 4TX	5570 MHz	164.640	164.160	163.680	163.920
802.11ax 160MHz (TXBF)	2 stream 4TX	5570 MHz	164.640	164.160	164.880	164.400
802.11ax 160MHz (TXBF)	3 stream 4TX	5570 MHz	164.880	164.160	164.400	165.360

99% Occupied Bandwidth (MHz)						
Mode	Number of Transmit Chains (NTX)	Frequency	99% Occupied Bandwidth (MHz)			
			Ant. 3	Ant. 4	Ant. 5	Ant. 6
802.11ax 160MHz (CDD)	1 stream 4TX	5570 MHz	154.483	154.483	154.963	154.723
802.11ax 160MHz (TXBF)	1 stream 4TX	5570 MHz	154.483	154.723	154.963	154.723
802.11ax 160MHz (TXBF)	2 stream 4TX	5570 MHz	154.723	154.723	155.202	154.963
802.11ax 160MHz (TXBF)	3 stream 4TX	5570 MHz	154.723	154.483	155.202	155.442

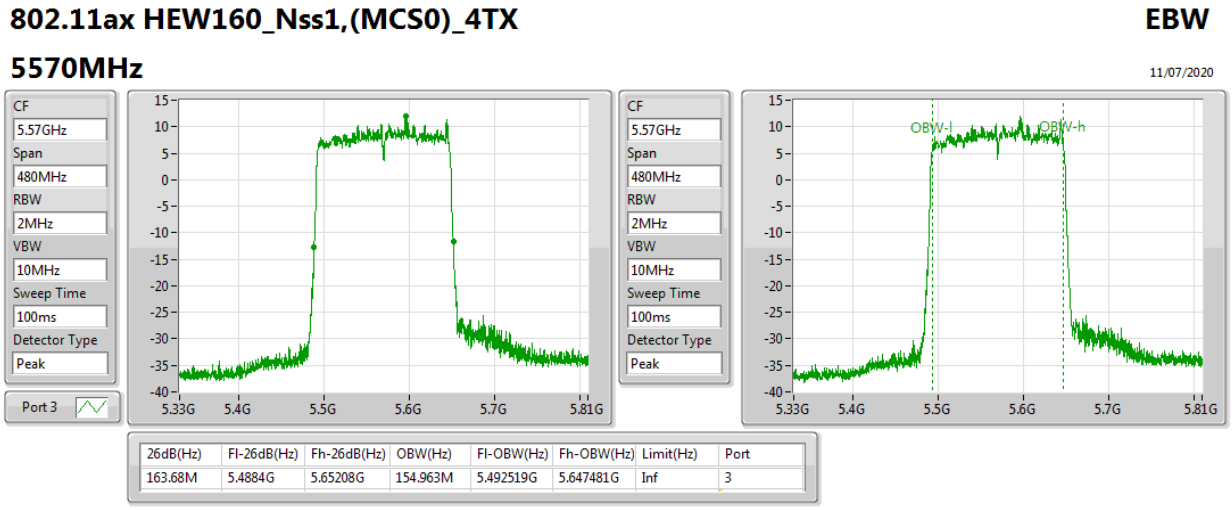
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 160MHz / Nss 1 MCS 0 / 1S4T CDD / Ant. 3 / CH114 / 5570 MHz



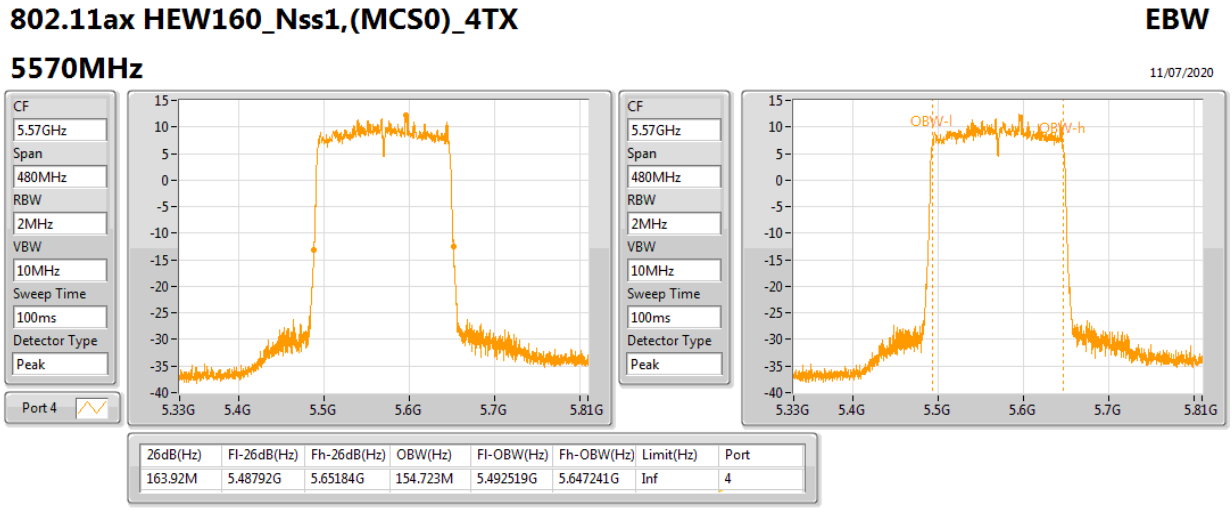
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 160MHz / Nss 1 MCS 0 / 1S4T CDD / Ant. 4 / CH114 / 5570 MHz



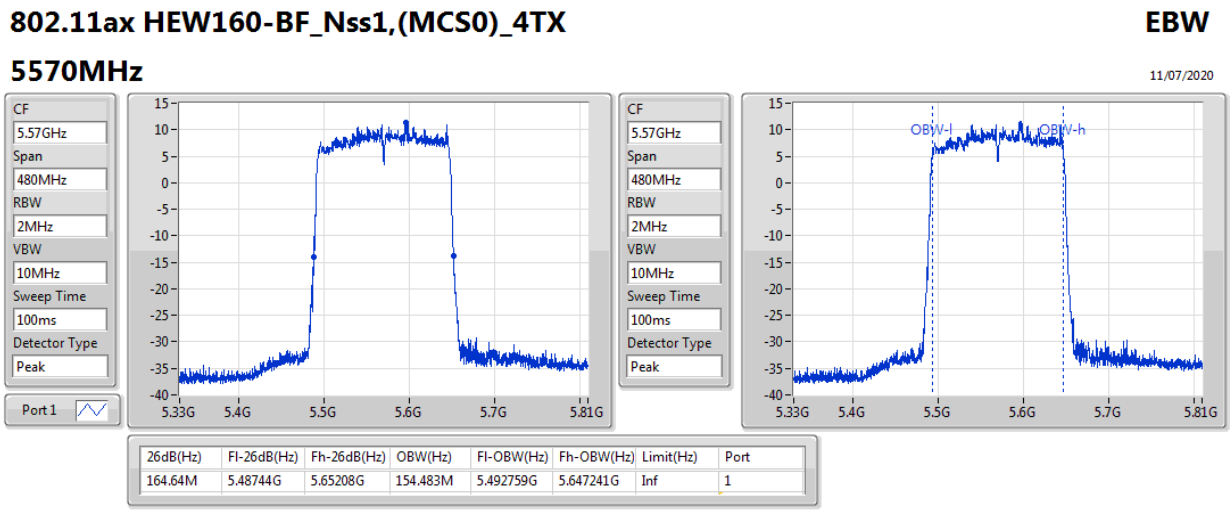
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 160MHz / Nss 1 MCS 0 / 1S4T CDD / Ant. 5 / CH114 / 5570 MHz



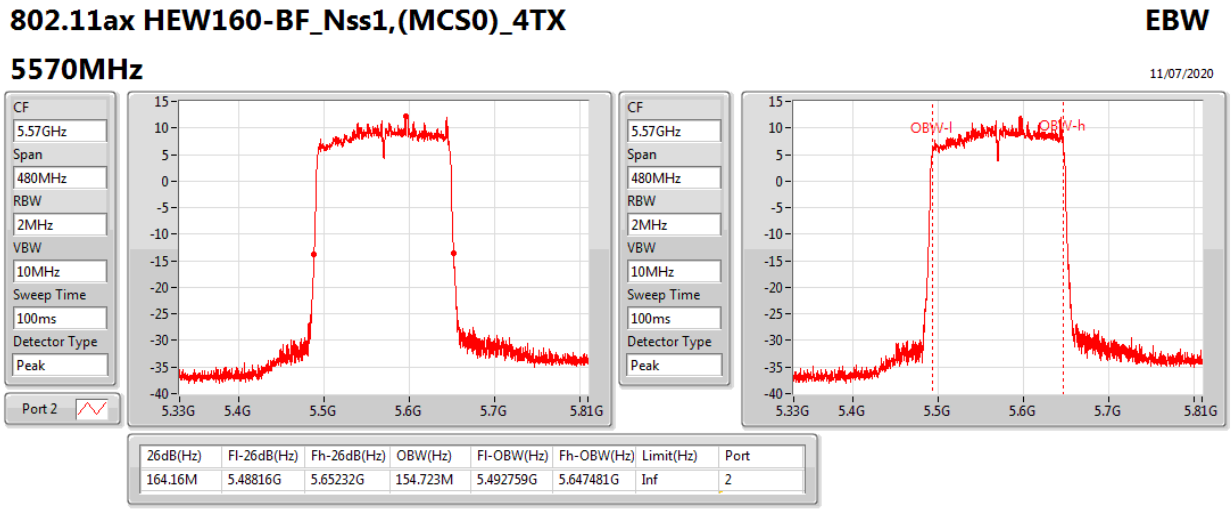
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 160MHz / Nss 1 MCS 0 / 1S4T CDD / Ant. 6 / CH114 / 5570 MHz



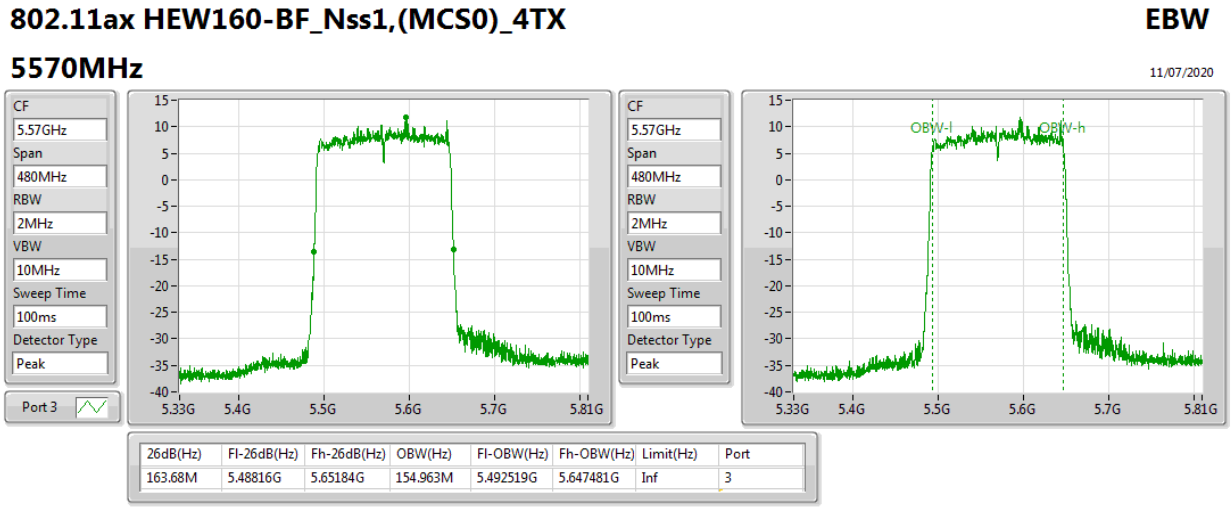
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 160MHz / Nss 1 MCS 0 / 1S4T TXBF / Ant. 3 / CH114 / 5570 MHz



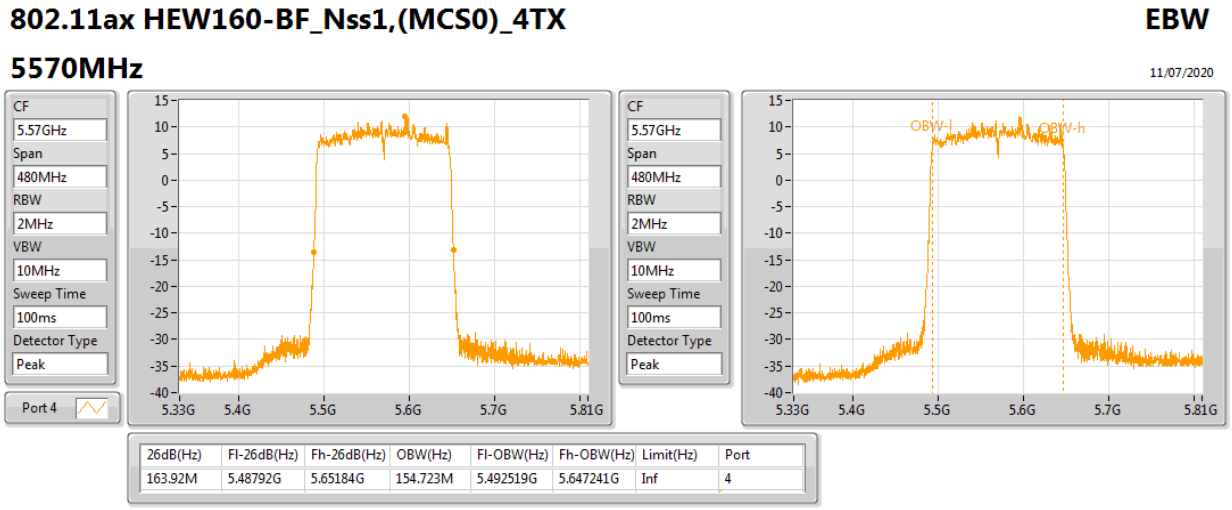
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 160MHz / Nss 1 MCS 0 / 1S4T TXBF / Ant. 4 / CH114 / 5570 MHz



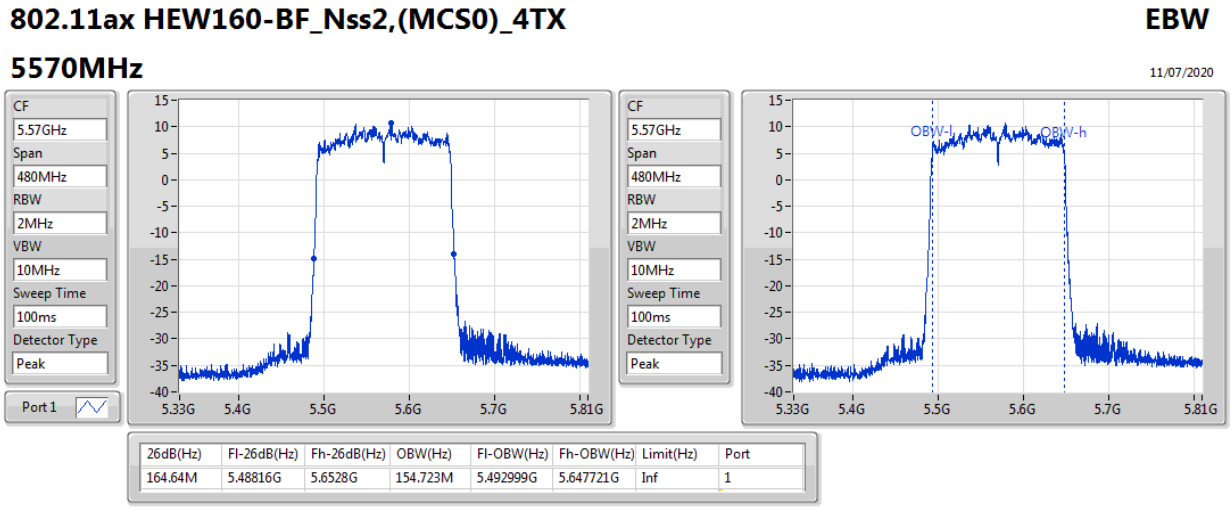
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 160MHz / Nss 1 MCS 0 / 1S4T TXBF / Ant. 5 / CH114 / 5570 MHz



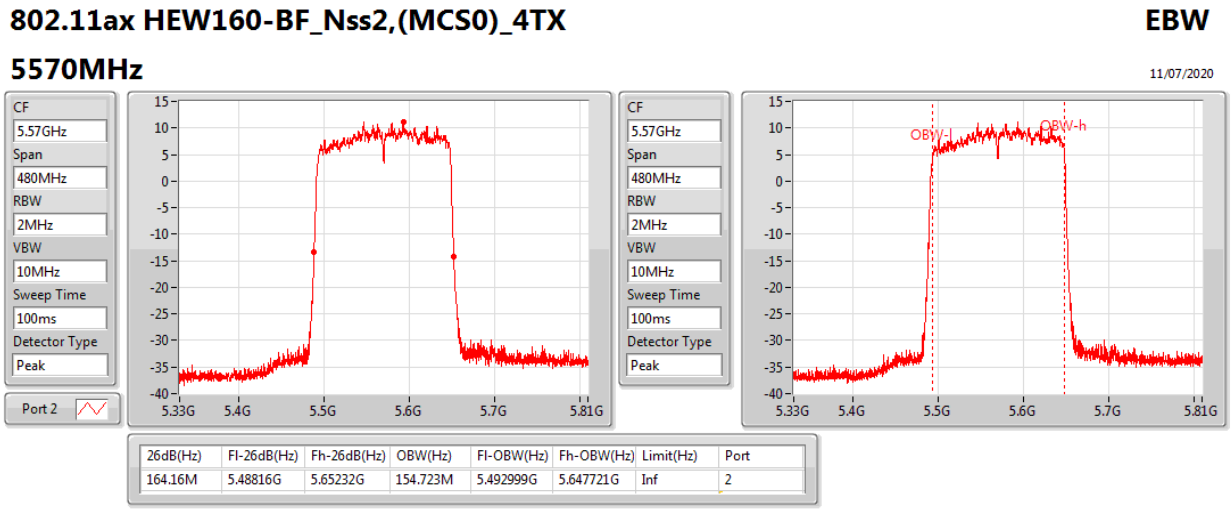
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 160MHz / Nss 1 MCS 0 / 1S4T TXBF / Ant. 6 / CH114 / 5570 MHz



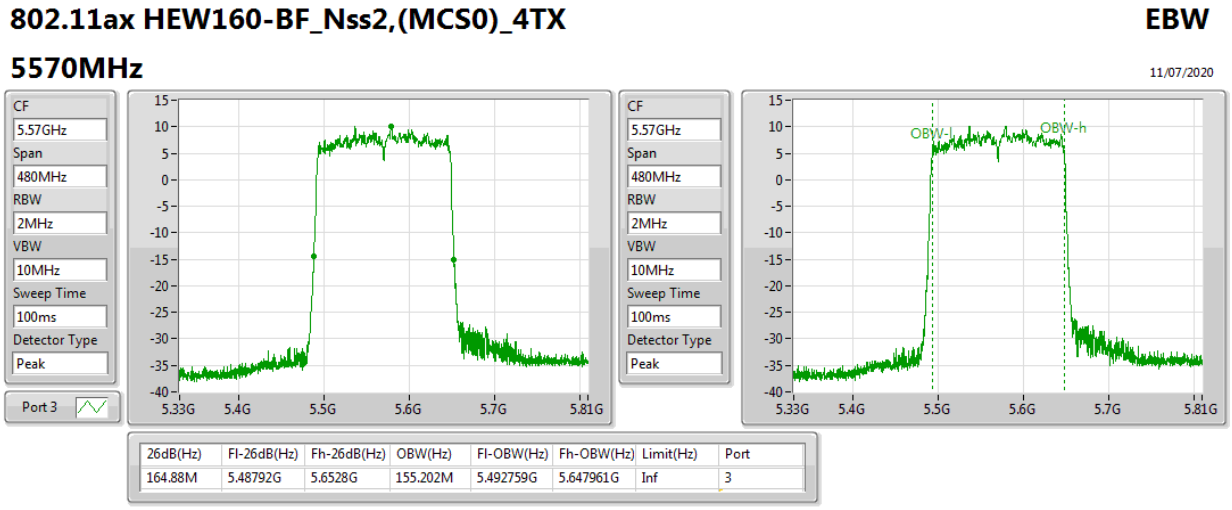
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 160MHz / Nss 2 MCS 0 / 2S4T TXBF / Ant. 3 / CH114 / 5570 MHz



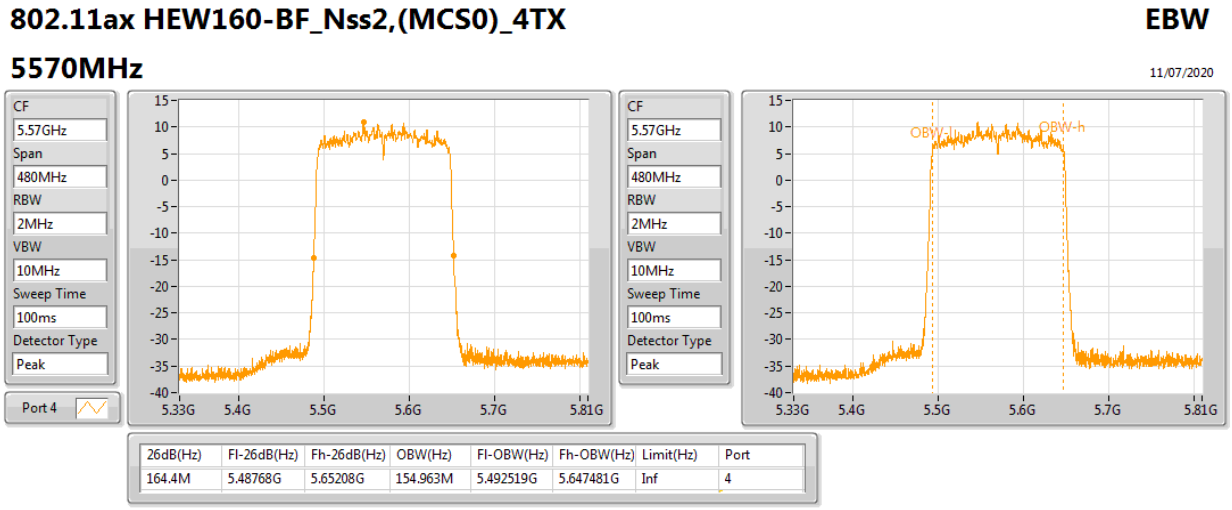
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 160MHz / Nss 2 MCS 0 / 2S4T TXBF / Ant. 4 / CH114 / 5570 MHz



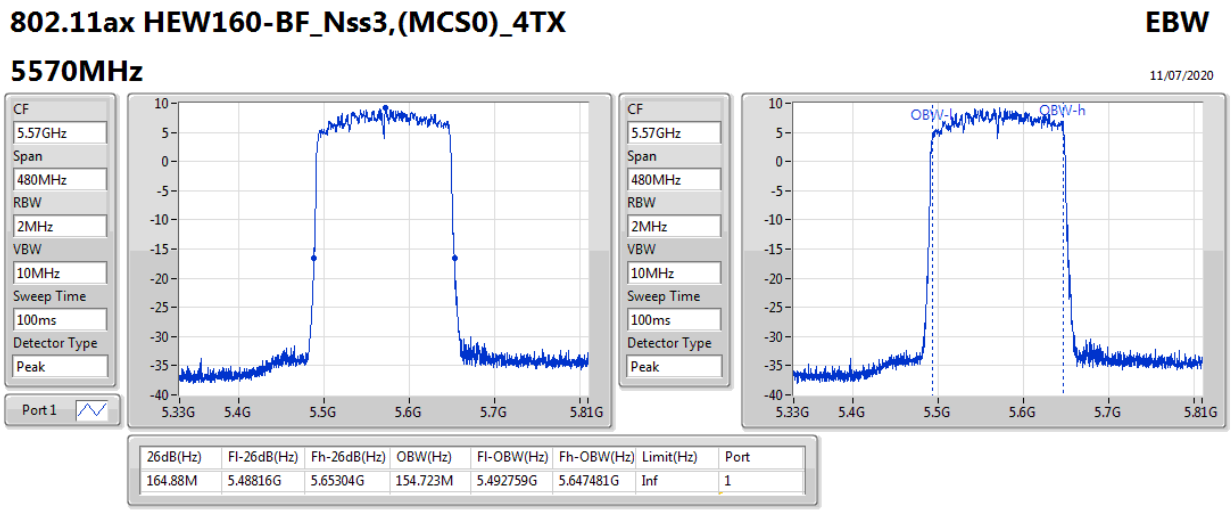
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 160MHz / Nss 2 MCS 0 / 2S4T TXBF / Ant. 5 / CH114 / 5570 MHz



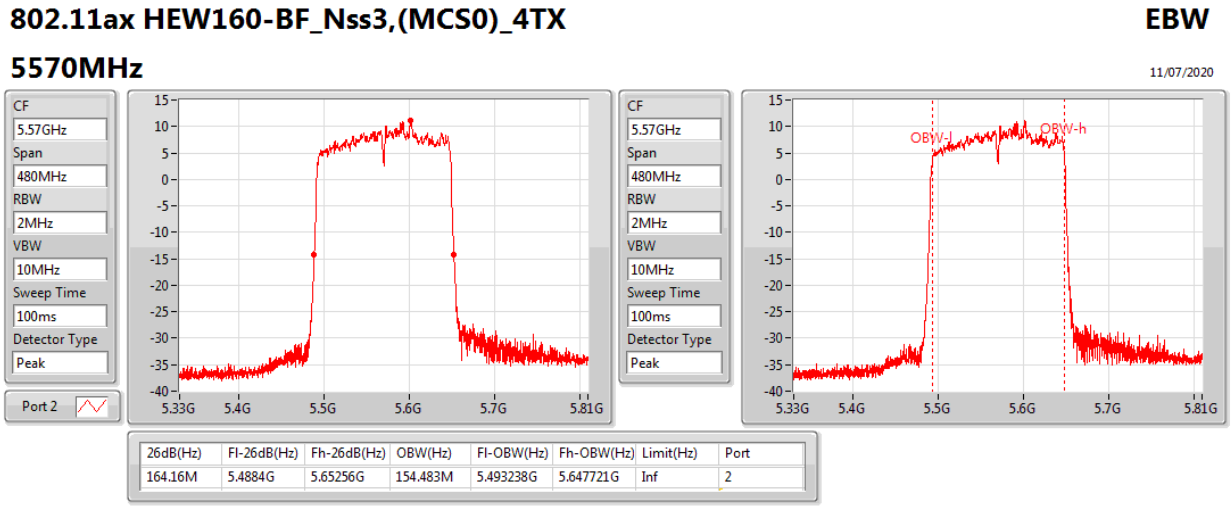
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 160MHz / Nss 2 MCS 0 / 2S4T TXBF / Ant. 6 / CH114 / 5570 MHz



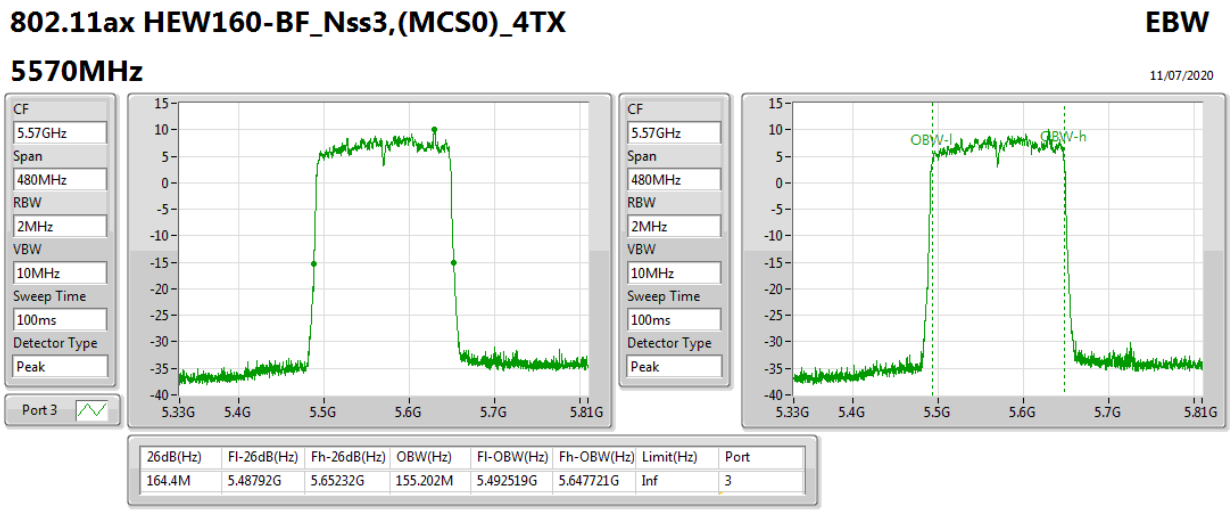
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 160MHz / Nss 3 MCS 0 / 3S4T TXBF / Ant. 3 / CH114 / 5570 MHz



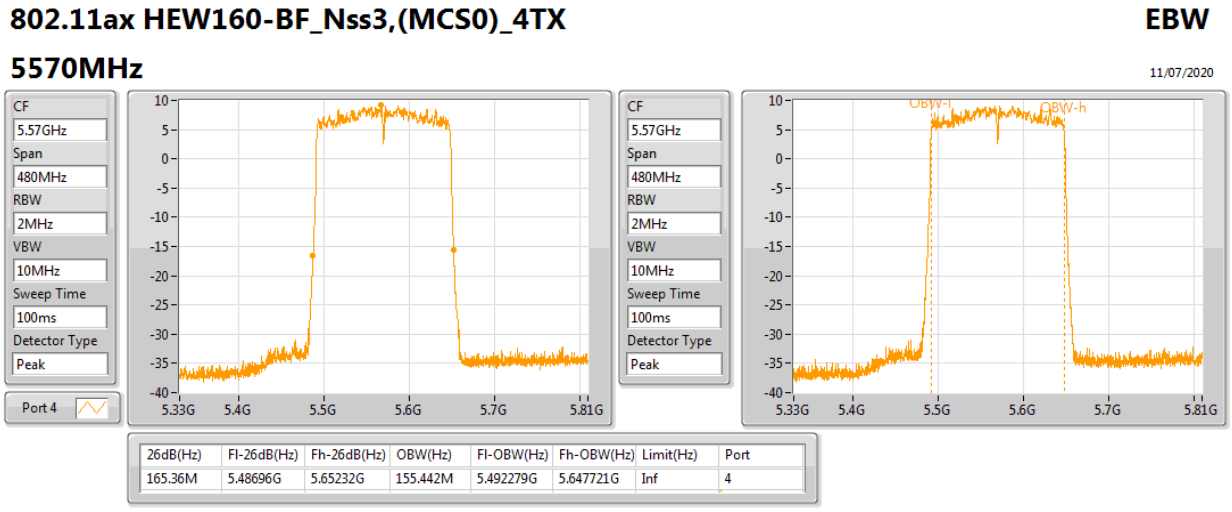
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 160MHz / Nss 3 MCS 0 / 3S4T TXBF / Ant. 4 / CH114 / 5570 MHz



26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 160MHz / Nss 3 MCS 0 / 3S4T TXBF / Ant. 5 / CH114 / 5570 MHz



26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 160MHz / Nss 3 MCS 0 / 3S4T TXBF / Ant. 6 / CH114 / 5570 MHz



2.2. Maximum Conducted Output Power Measurement

2.2.1. Limit

Maximum Conducted Output Power

Operation Band	EUT Category		Limit
U-NII-2A	☒	---	250mW (23.98 dBm) or 11 dBm+10 log B*
U-NII-2C	☒	---	250mW (23.98 dBm) or 11 dBm+10 log B*

NOTE: *B is the 26 dB emission bandwidth in megahertz

Per KDB 662911 Method of conducted output power measurement on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;

Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT};

Array Gain = 5 log(NANT/NSS) dB or 3 dB, whichever is less for 20-MHz channel widths with NANT ≥ 5.

For power measurements on all other devices: Array Gain = 10 log(N_{ANT}/N_{SS}) dB.

2.2.2. Measuring Instruments and Setting

Please refer to section 3 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Power Meter Paramete	Setting
Filter No.	Auto
Measurement time	0.135 s ~ 26 s
Power Sensor	E9327A
Power Meter	E4416A

2.2.3. Test Procedures

Maximum Conducted Output Power

1. Test was performed in accordance with Measurement of Digital Transmission Systems Operating under 789033 D02 General UNII Test Procedures New Rules v02r01, in section “Maximum conducted output power Method AVGPM-G” , 12/14/2017
2. The average power sensor was used on the output port of the EUT. A power meter was used to read the response of the average power sensor and enable the trigger function to get the all on time transmission . Record the average power level.
3. When measuring maximum conducted output power with multiple antenna systems, add every result of the values by mathematic formula.

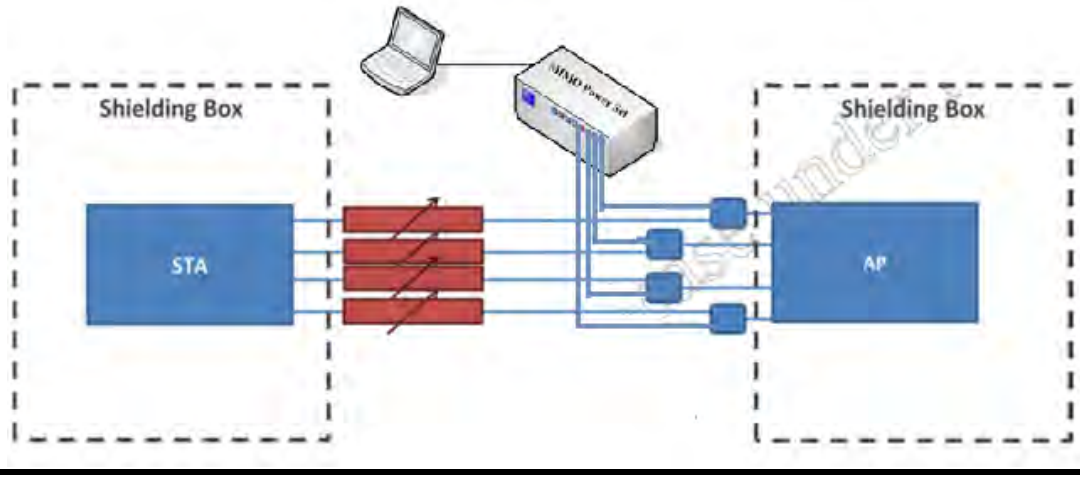
Transmit Power Control (TPC)

1. Test was performed in accordance with Measurement of Digital Transmission Systems Operating under 789033 D02 General UNII Test Procedures New Rules v02r01, in section “Maximum conducted output power Method AVGPM-G” , 12/14/2017.
2. Configure the CH, BW and SSID according to test plan at band 2 and band 3.
3. Make STA associate with AP.
4. Generate downlink data traffic with traffic generating tools (Iperf)
5. Use telnet via Ethernet port or console via Uart interface to control AP.
6. Use the TPC lowest power level command to measurement the TPC lowest power level.
7. The average power sensor was used on the output port of the EUT. A power meter was used to read the response of the average power sensor to get the all on time transmission. Record the average power level.
8. When measuring maximum conducted output power with multiple antenna systems, add every result of the values by mathematic formula.

2.2.4. Test Setup Layout

Maximum Conducted Output Power

Transmit Power Control (TPC)



2.2.5. Test Deviation

There is no deviation with the original standard.

2.2.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

2.2.7. Test Result of Maximum Conducted Output Power

Configuration IEEE 802.11a

<OFDM, 1S2T, CDD>

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Max. Gain (dBi)	Highest EIRP (dBm)	Highest EIRP Limit (dBm)	Result
		Ant. 1	Ant. 2	Total					
52	5260 MHz	20.33	20.76	23.56	23.98	4.61	28.17	30.00	**PASS**
60	5300 MHz	20.38	20.94	23.68	23.98	4.70	28.38	30.00	**PASS**
64	5320 MHz	20.40	20.61	23.52	23.98	4.62	28.14	30.00	**PASS**
Channel	Frequency	Conducted Power (dBm)			Max. Gain (dBi)		Lowest EIRP (dBm)	Lowest EIRP Limit (dBm)	Result
		Ant. 1	Ant. 2	Total					
52	5260 MHz	13.67	13.82	16.76	4.61		21.37	24.00	**PASS**
60	5300 MHz	13.69	13.87	16.79	4.70		21.49	24.00	**PASS**
64	5320 MHz	13.73	13.49	16.62	4.62		21.24	24.00	**PASS**

Note1: 5260 MHz= Max. Gain= 4.61dBi <6dBi, so the limit doesn't reduce.
Note2: 5300 MHz= Max. Gain= 4.70dBi <6dBi, so the limit doesn't reduce.
Note3: 5320 MHz= Max. Gain= 4.62dBi <6dBi, so the limit doesn't reduce.

<OFDM, 1S4T, CDD>

Channel	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Max. Gain (dBi)	Highest EIRP (dBm)	Highest EIRP Limit (dBm)	Result
		Ant. 3	Ant. 4	Ant. 5	Ant. 6	Total					
100	5500 MHz	17.36	17.29	17.35	17.56	23.41	23.98	3.58	26.99	30.00	**PASS**
116	5580 MHz	16.92	17.41	17.60	17.88	23.49	23.98	3.79	27.28	30.00	**PASS**
140	5700 MHz	17.38	17.83	16.60	17.40	23.35	23.98	4.38	27.73	30.00	**PASS**
Channel	**Frequency**	**Conducted Power (dBm)**					**Max. Gain (dBi)**		**Lowest EIRP (dBm)**	**Lowest EIRP Limit (dBm)**	**Result**
		Ant. 3	**Ant. 4**	**Ant. 5**	**Ant. 6**	**Total**					
100	5500 MHz	10.55	10.44	10.17	11.23	16.64	3.58		20.22	24.00	**PASS**
116	5580 MHz	10.40	10.62	10.59	11.34	16.77	3.79		20.56	24.00	**PASS**
140	5700 MHz	10.81	10.98	10.18	11.10	16.80	4.38		21.18	24.00	**PASS**

Note1: 5260 MHz= Max. Gain= 3.58dBi <6dBi, so the limit doesn't reduce.
Note2: 5300 MHz= Max. Gain= 3.79dBi <6dBi, so the limit doesn't reduce.
Note3: 5320 MHz= Max. Gain= 4.38dBi <6dBi, so the limit doesn't reduce.

Configuration IEEE 802.11ax 20MHz

<Nss 1 MCS0, 1S2T, CDD>

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Max. Gain (dBi)	Highest EIRP (dBm)	Highest EIRP Limit (dBm)	Result
		Ant. 1	Ant. 2	Total					
52	5260 MHz	20.51	21.01	23.78	23.98	4.61	28.39	30.00	**PASS**
60	5300 MHz	20.60	21.10	23.87	23.98	4.70	28.57	30.00	**PASS**
64	5320 MHz	20.63	20.83	23.74	23.98	4.62	28.36	30.00	**PASS**
Channel	**Frequency**	**Conducted Power (dBm)**			**Max. Gain (dBi)**		**Lowest EIRP (dBm)**	**Lowest EIRP Limit (dBm)**	**Result**
		Ant. 1	**Ant. 2**	**Total**					
52	5260 MHz	13.75	14.05	16.91	4.61		21.52	24.00	**PASS**
60	5300 MHz	13.84	14.11	16.99	4.70		21.69	24.00	**PASS**
64	5320 MHz	14.22	13.80	17.03	4.62		21.65	24.00	**PASS**

Note1: 5260 MHz= Max. Gain= 4.61dBi <6dBi, so the limit doesn't reduce.
Note2: 5300 MHz= Max. Gain= 4.70dBi <6dBi, so the limit doesn't reduce.
Note3: 5320 MHz= Max. Gain= 4.62dBi <6dBi, so the limit doesn't reduce.

<Nss 1 MCS0, 1S4T, CDD>

Channel	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Max. Gain (dBi)	Highest EIRP (dBm)	Highest EIRP Limit (dBm)	Result
		Ant. 3	Ant. 4	Ant. 5	Ant. 6	Total					
100	5500 MHz	17.62	17.54	17.58	17.68	23.63	23.98	3.58	27.21	30.00	**PASS**
116	5580 MHz	17.73	17.85	17.73	18.42	23.96	23.98	3.79	27.75	30.00	**PASS**
140	5700 MHz	18.12	18.16	16.91	18.00	23.85	23.98	4.38	28.23	30.00	**PASS**
Channel	**Frequency**	**Conducted Power (dBm)**					**Max. Gain (dBi)**		**Lowest EIRP (dBm)**	**Lowest EIRP Limit (dBm)**	**Result**
		Ant. 3	**Ant. 4**	**Ant. 5**	**Ant. 6**	**Total**					
100	5500 MHz	10.62	10.59	10.53	11.52	16.86	3.58		20.44	24.00	**PASS**
116	5580 MHz	10.47	10.84	10.76	11.62	16.96	3.79		20.75	24.00	**PASS**
140	5700 MHz	11.03	11.28	10.52	11.31	17.07	4.38		21.45	24.00	**PASS**

Note1: 5260 MHz= Max. Gain= 3.58dBi <6dBi, so the limit doesn't reduce.
Note2: 5300 MHz= Max. Gain= 3.79dBi <6dBi, so the limit doesn't reduce.
Note3: 5320 MHz= Max. Gain= 4.38dBi <6dBi, so the limit doesn't reduce.

<Nss 1 MCS0, 1S2T, TXBF>

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Directional Gain (dBi)	Highest EIRP (dBm)	Highest EIRP Limit (dBm)	Result
		Ant. 1	Ant. 2	Total					
52	5260 MHz	20.62	21.01	23.83	23.98	5.79	29.62	30.00	**PASS**
60	5300 MHz	20.54	21.12	23.85	23.98	5.81	29.66	30.00	**PASS**
64	5320 MHz	20.37	20.59	23.49	23.98	5.58	29.07	30.00	**PASS**

Channel	Frequency	Conducted Power (dBm)			Directional Gain (dBi)	Lowest EIRP (dBm)	Lowest EIRP Limit (dBm)	Result
		Ant. 1	Ant. 2	Total				
52	5260 MHz	13.84	14.08	16.97	5.79	22.76	24.00	**PASS**
60	5300 MHz	13.82	14.09	16.97	5.81	22.78	24.00	**PASS**
64	5320 MHz	13.87	13.56	16.73	5.58	22.31	24.00	**PASS**

Note1: 5260 MHz= $Directional Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 5.79dB<6dBi, so the limit doesn't reduce.

Note2: 5300 MHz= $Directional Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 5.81dBi<6dBi, so the limit doesn't reduce.

Note3: 5330 MHz= $Directional Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 5.58dBi<6dBi, so the limit doesn't reduce.

<Nss 1 MCS0, 1S4T, TXBF>

Channel	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Directional Gain (dBi)	Highest EIRP (dBm)	Highest EIRP Limit (dBm)	Result
		Ant. 3	Ant. 4	Ant. 5	Ant. 6	Total					
100	5500 MHz	17.24	17.16	17.17	17.20	23.21	23.29	6.69	29.90	30.00	**PASS**
116	5580 MHz	17.04	17.25	16.83	17.58	23.20	23.32	6.66	29.86	30.00	**PASS**
140	5700 MHz	17.45	17.49	16.31	17.18	23.15	23.27	6.71	29.86	30.00	**PASS**
Channel	**Frequency**	**Conducted Power (dBm)**					**Directional Gain (dBi)**		**Lowest EIRP (dBm)**	**Lowest EIRP Limit (dBm)**	**Result**
		Ant. 3	**Ant. 4**	**Ant. 5**	**Ant. 6**	**Total**					
100	5500 MHz	10.06	10.15	10.02	10.84	16.30	6.69		22.99	24.00	**PASS**
116	5580 MHz	9.84	9.91	10.06	10.89	16.22	6.66		22.88	24.00	**PASS**
140	5700 MHz	10.20	10.47	9.86	10.76	16.36	6.71		23.07	24.00	**PASS**

Note1: 5500 MHz= $Directional Gain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 6.69dBi>6dBi, so the power limit shall be reduced to 23.98-(6.69-6)=23.29dBm.

Note2: 5580 MHz= $Directional Gain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 6.66dBi>6dBi, so the power limit shall be reduced to 23.98-(6.66-6)=23.32dBm.

Note3: 5700 MHz= $Directional Gain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 6.71dBi>6dBi, so the power limit shall be reduced to 23.98-(6.71-6)=23.27dBm.

<Nss 2 MCS0, 2S4T, TXBF>

Channel	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Directional Gain (dBi)	Highest EIRP (dBm)	Highest EIRP Limit (dBm)	Result
		Ant. 3	Ant. 4	Ant. 5	Ant. 6	Total					
100	5500 MHz	17.86	17.77	17.84	18.04	23.90	23.98	4.96	28.86	30.00	**PASS**
116	5580 MHz	17.52	17.59	17.76	18.20	23.80	23.98	5.01	28.81	30.00	**PASS**
140	5700 MHz	18.24	18.44	16.92	18.02	23.96	23.98	5.01	28.97	30.00	**PASS**
Channel	**Frequency**	**Conducted Power (dBm)**					**Directional Gain (dBi)**		**Lowest EIRP (dBm)**	**Lowest EIRP Limit (dBm)**	**Result**
		Ant. 3	**Ant. 4**	**Ant. 5**	**Ant. 6**	**Total**					
100	5500 MHz	10.49	10.56	10.42	11.37	16.75	4.96		21.71	24.00	**PASS**
116	5580 MHz	10.51	10.49	10.75	11.46	16.84	5.01		21.85	24.00	**PASS**
140	5700 MHz	10.95	11.19	10.34	11.28	16.98	5.01		21.99	24.00	**PASS**

Note1: 5500 MHz= $Directional\ Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 4.96dB<6dBi, so the limit doesn't reduce.

Note2: 5580 MHz= $Directional\ Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 5.01dBi<6dBi, so the limit doesn't reduce.

Note3: 5700 MHz= $Directional\ Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 5.01dBi<6dBi, so the limit doesn't reduce.

<Nss 3 MCS0, 3S4T, TXBF>

Channel	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Directional Gain (dBi)	Highest EIRP (dBm)	Highest EIRP Limit (dBm)	Result
		Ant. 3	Ant. 4	Ant. 5	Ant. 6	Total					
100	5500 MHz	17.76	17.92	17.93	18.00	23.92	23.98	3.04	26.96	30.00	**PASS**
116	5580 MHz	17.54	17.99	17.87	18.22	23.93	23.98	3.22	27.15	30.00	**PASS**
140	5700 MHz	18.05	18.45	17.02	17.97	23.92	23.98	3.12	27.04	30.00	**PASS**
Channel	**Frequency**	**Conducted Power (dBm)**					**Directional Gain (dBi)**		**Lowest EIRP (dBm)**	**Lowest EIRP Limit (dBm)**	**Result**
		Ant. 3	**Ant. 4**	**Ant. 5**	**Ant. 6**	**Total**					
100	5500 MHz	10.45	10.71	10.54	11.21	16.76	3.04		19.80	24.00	**PASS**
116	5580 MHz	10.34	10.66	10.84	11.27	16.81	3.22		20.03	24.00	**PASS**
140	5700 MHz	10.73	11.23	10.48	11.19	16.94	3.12		20.06	24.00	**PASS**

Note1: 5500 MHz= $Directional\ Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 3.04dB<6dBi, so the limit doesn't reduce.

Note2: 5580 MHz= $Directional\ Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 3.22dBi<6dBi, so the limit doesn't reduce.

Note3: 5700 MHz= $Directional\ Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 3.12dBi<6dBi, so the limit doesn't reduce.

Configuration IEEE 802.11ax 40MHz

<Nss 1 MCS0, 1S2T, CDD>

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Max. Gain (dBi)	Highest EIRP (dBm)	Highest EIRP Limit (dBm)	Result
		Ant. 1	Ant. 2	Total					
54	5270 MHz	20.68	21.14	23.93	23.98	4.67	28.60	30.00	**PASS**
62	5310 MHz	19.13	19.59	22.38	23.98	4.68	27.06	30.00	**PASS**
Channel	**Frequency**	**Conducted Power (dBm)**			**Max. Gain (dBi)**		**Lowest EIRP (dBm)**	**Lowest EIRP Limit (dBm)**	**Result**
		Ant. 1	**Ant. 2**	**Total**					
54	5270 MHz	13.89	14.41	17.17	4.67		21.84	24.00	**PASS**
62	5310 MHz	12.90	13.22	16.07	4.68		20.75	24.00	**PASS**

Note1: 5270 MHz= Max. Gain= 4.67dBi <6dBi, so the limit doesn't reduce.
Note2: 5310 MHz= Max. Gain= 4.68dBi <6dBi, so the limit doesn't reduce.

<Nss 1 MCS0, 1S4T, CDD>

Channel	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Max. Gain (dBi)	Highest EIRP (dBm)	Highest EIRP Limit (dBm)	Result
		Ant. 3	Ant. 4	Ant. 5	Ant. 6	Total					
102	5510 MHz	18.12	18.00	17.56	17.90	23.92	23.98	3.50	27.42	30.00	**PASS**
110	5550 MHz	18.14	18.00	17.24	18.00	23.88	23.98	3.88	27.76	30.00	**PASS**
134	5670 MHz	17.94	17.76	17.37	17.87	23.76	23.98	4.16	27.92	30.00	**PASS**
Channel	**Frequency**	**Conducted Power (dBm)**					**Max. Gain (dBi)**		**Lowest EIRP (dBm)**	**Lowest EIRP Limit (dBm)**	**Result**
		Ant. 3	**Ant. 4**	**Ant. 5**	**Ant. 6**	**Total**					
102	5510 MHz	11.28	10.92	10.59	11.52	17.11	3.50		20.61	24.00	**PASS**
110	5550 MHz	10.89	11.01	10.19	11.54	16.95	3.88		20.83	24.00	**PASS**
134	5670 MHz	11.07	10.96	10.51	11.53	17.05	4.16		21.21	24.00	**PASS**

Note1: 5510 MHz= Max. Gain= 3.50dBi <6dBi, so the limit doesn't reduce.
Note2: 5550 MHz= Max. Gain= 3.88dBi <6dBi, so the limit doesn't reduce.
Note3: 5670 MHz= Max. Gain= 4.16dBi <6dBi, so the limit doesn't reduce.

<Nss 1 MCS0, 1S2T, TXBF>

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Directional Gain (dBi)	Highest EIRP (dBm)	Highest EIRP Limit (dBm)	Result
		Ant. 1	Ant. 2	Total					
54	5270 MHz	20.67	21.17	23.94	23.98	5.73	29.67	30.00	**PASS**
62	5310 MHz	19.41	19.96	22.70	23.98	5.72	28.42	30.00	**PASS**

Channel	Frequency	Conducted Power (dBm)			Directional Gain (dBi)	Lowest EIRP (dBm)	Lowest EIRP Limit (dBm)	Result
		Ant. 1	Ant. 2	Total				
54	5270 MHz	13.91	14.24	17.09	5.73	22.82	24.00	**PASS**
62	5310 MHz	13.16	13.31	16.25	5.72	21.97	24.00	**PASS**

Note1: 5270 MHz= $Directional Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 5.73dB<6dBi, so the limit doesn't reduce.

Note2: 5310 MHz= $Directional Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 5.72dBi<6dBi, so the limit doesn't reduce.

<Nss 1 MCS0, 1S4T, TXBF>

Channel	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Directional Gain (dBi)	Highest EIRP (dBm)	Highest EIRP Limit (dBm)	Result
		Ant. 3	Ant. 4	Ant. 5	Ant. 6	Total					
102	5510 MHz	17.63	17.24	17.17	16.92	23.27	23.31	6.67	29.94	30.00	**PASS**
110	5550 MHz	17.21	17.20	16.62	16.63	22.95	23.10	6.88	29.83	30.00	**PASS**
134	5670 MHz	17.36	17.08	16.58	16.89	23.01	23.21	6.77	29.78	30.00	**PASS**

Channel	Frequency	Conducted Power (dBm)					Directional Gain (dBi)	Lowest EIRP (dBm)	Lowest EIRP Limit (dBm)	Result
		Ant. 3	Ant. 4	Ant. 5	Ant. 6	Total				
102	5510 MHz	10.68	10.91	10.27	11.15	16.79	6.67	23.46	24.00	**PASS**
110	5550 MHz	10.19	10.34	9.52	10.77	16.25	6.88	23.13	24.00	**PASS**
134	5670 MHz	10.14	10.26	9.82	10.74	16.27	6.77	23.04	24.00	**PASS**

Note1: 5510 MHz= $Directional Gain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 6.67dBi>6dBi, so the power limit shall be reduced to 23.98-(6.67-6)=23.31dBm.

Note2: 5550 MHz= $Directional Gain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 6.88dBi>6dBi, so the power limit shall be reduced to 23.98-(6.88-6)=23.21dBm.

Note3: 5670 MHz= $Directional Gain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 6.77dBi>6dBi, so the power limit shall be reduced to 23.98-(6.77-6)=23.21dBm.

<Nss 2 MCS0, 2S4T, TXBF>

Channel	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Directional Gain (dBi)	Highest EIRP (dBm)	Highest EIRP Limit (dBm)	Result
		Ant. 3	Ant. 4	Ant. 5	Ant. 6	Total					
102	5510 MHz	17.93	17.81	17.19	18.02	23.77	23.98	4.95	28.72	30.00	**PASS**
110	5550 MHz	17.90	18.14	16.97	18.06	23.81	23.98	5.22	29.03	30.00	**PASS**
134	5670 MHz	18.05	18.07	17.37	18.10	23.93	23.98	5.01	28.94	30.00	**PASS**
Channel	**Frequency**	**Conducted Power (dBm)**					**Directional Gain (dBi)**		**Lowest EIRP (dBm)**	**Lowest EIRP Limit (dBm)**	**Result**
		Ant. 3	**Ant. 4**	**Ant. 5**	**Ant. 6**	**Total**					
102	5510 MHz	10.83	10.69	10.12	11.07	16.71	4.95		21.66	24.00	**PASS**
110	5550 MHz	10.96	10.77	10.05	11.12	16.76	5.22		21.98	24.00	**PASS**
134	5670 MHz	10.82	10.76	10.38	11.16	16.81	5.01		21.82	24.00	**PASS**

Note1: 5510 MHz= $Directional Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 4.95dB<6dBi, so the limit doesn't reduce.

Note2: 5550 MHz= $Directional Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 5.22dBi<6dBi, so the limit doesn't reduce.

Note3: 5670 MHz= $Directional Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 5.01dBi<6dBi, so the limit doesn't reduce.

<Nss 3 MCS0, 3S4T, TXBF>

Channel	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Directional Gain (dBi)	Highest EIRP (dBm)	Highest EIRP Limit (dBm)	Result
		Ant. 3	Ant. 4	Ant. 5	Ant. 6	Total					
102	5510 MHz	18.02	18.05	17.31	18.03	23.88	23.98	3.03	26.91	30.00	**PASS**
110	5550 MHz	18.11	18.06	17.35	18.13	23.94	23.98	3.31	27.25	30.00	**PASS**
134	5670 MHz	17.98	17.80	17.31	17.99	23.80	23.98	3.15	26.95	30.00	**PASS**
Channel	**Frequency**	**Conducted Power (dBm)**					**Directional Gain (dBi)**		**Lowest EIRP (dBm)**	**Lowest EIRP Limit (dBm)**	**Result**
		Ant. 3	**Ant. 4**	**Ant. 5**	**Ant. 6**	**Total**					
102	5510 MHz	10.81	10.62	10.14	11.06	16.69	3.03		19.72	24.00	**PASS**
110	5550 MHz	10.67	10.75	10.06	11.28	16.73	3.31		20.04	24.00	**PASS**
134	5670 MHz	10.61	10.43	10.02	11.04	16.56	3.15		19.71	24.00	**PASS**

Note1: 5510 MHz= $Directional\ Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 3.03dB<6dBi, so the limit doesn't reduce.

Note2: 5550 MHz= $Directional\ Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 3.31dBi<6dBi, so the limit doesn't reduce.

Note3: 5670 MHz= $Directional\ Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 3.15dBi<6dBi, so the limit doesn't reduce.

Configuration IEEE 802.11ax 80MHz

<Nss 1 MCS0, 1S2T, CDD>

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Max. Gain (dBi)	Highest EIRP (dBm)	Highest EIRP Limit (dBm)	Result
		Ant. 1	Ant. 2	Total					
58	5290 MHz	19.03	19.46	22.26	23.98	4.73	26.99	30.00	**PASS**
Channel	**Frequency**	**Conducted Power (dBm)**			**Max. Gain (dBi)**		**Lowest EIRP (dBm)**	**Lowest EIRP Limit (dBm)**	**Result**
		Ant. 1	**Ant. 2**	**Total**					
58	5290 MHz	12.56	12.69	15.64	4.73		20.37	24.00	**PASS**

Note1: 5290 MHz= Max. Gain= 4.73dBi <6dBi, so the limit doesn't reduce.

<Nss 1 MCS0, 1S4T, CDD>

Channel	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Max. Gain (dBi)	Highest EIRP (dBm)	Highest EIRP Limit (dBm)	Result
		Ant. 3	Ant. 4	Ant. 5	Ant. 6	Total					
106	5530 MHz	18.11	18.04	17.48	18.04	23.95	23.98	3.73	27.68	30.00	**PASS**
122	5610 MHz	18.06	18.12	17.29	17.92	23.88	23.98	3.72	27.60	30.00	**PASS**
Channel	**Frequency**	**Conducted Power (dBm)**					**Max. Gain (dBi)**		**Lowest EIRP (dBm)**	**Lowest EIRP Limit (dBm)**	**Result**
		Ant. 3	**Ant. 4**	**Ant. 5**	**Ant. 6**	**Total**					
106	5530 MHz	11.20	11.12	10.36	11.79	17.17	3.73		20.90	24.00	**PASS**
122	5610 MHz	10.98	11.19	10.55	11.22	17.01	3.72		20.73	24.00	**PASS**

Note1: 5530 MHz= Max. Gain= 3.73dBi <6dBi, so the limit doesn't reduce.
Note2: 5610 MHz= Max. Gain= 3.72dBi <6dBi, so the limit doesn't reduce.

<Nss 1 MCS0, 1S2T, TXBF >

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Directional Gain (dBi)	Highest EIRP (dBm)	Highest EIRP Limit (dBm)	Result
		Ant. 1	Ant. 2	Total					
58	5290 MHz	19.38	19.83	22.62	23.98	5.80	28.42	30.00	**PASS**
Channel	**Frequency**	**Conducted Power (dBm)**			**Directional Gain (dBi)**		**Lowest EIRP (dBm)**	**Lowest EIRP Limit (dBm)**	**Result**
		Ant. 1	**Ant. 2**	**Total**					
58	5290 MHz	12.84	13.03	15.95	5.80		21.75	24.00	**PASS**

Note1: 5290 MHz= $Directiona\ lGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 5.80dB<6dBi, so the limit doesn't reduce.

<Nss 1 MCS0, 1S4T, TXBF>

Channel	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Directional Gain (dBi)	Highest EIRP (dBm)	Highest EIRP Limit (dBm)	Result
		Ant. 3	Ant. 4	Ant. 5	Ant. 6	Total					
106	5530 MHz	17.25	17.02	16.34	17.25	23.00	23.07	6.91	29.91	30.00	**PASS**
122	5610 MHz	17.15	17.39	16.63	17.29	23.15	23.39	6.59	29.74	30.00	**PASS**
Channel	**Frequency**	**Conducted Power (dBm)**					**Directional Gain (dBi)**		**Lowest EIRP (dBm)**	**Lowest EIRP Limit (dBm)**	**Result**
		Ant. 3	**Ant. 4**	**Ant. 5**	**Ant. 6**	**Total**					
106	5530 MHz	10.09	10.41	9.65	10.92	16.31	6.91		23.22	24.00	**PASS**
122	5610 MHz	9.94	10.35	9.78	10.32	16.12	6.59		22.71	24.00	**PASS**

Note1: 5530 MHz= $Directional Gain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 6.91dBi>6dBi, so the power limit shall be reduced to 23.98-(6.91-6)=23.07dBm.

Note2: 5610 MHz= $Directional Gain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 6.59dBi>6dBi, so the power limit shall be reduced to 23.98-(6.59-6)=23.39dBm.

<Nss 2 MCS0, 2S4T, TXBF>

Channel	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Directional Gain (dBi)	Highest EIRP (dBm)	Highest EIRP Limit (dBm)	Result
		Ant. 3	Ant. 4	Ant. 5	Ant. 6	Total					
106	5530 MHz	17.95	18.08	17.30	18.23	23.92	23.98	5.20	29.12	30.00	**PASS**
122	5610 MHz	17.88	18.17	17.61	17.94	23.93	23.98	4.91	28.84	30.00	**PASS**
Channel	**Frequency**	**Conducted Power (dBm)**					**Directional Gain (dBi)**		**Lowest EIRP (dBm)**	**Lowest EIRP Limit (dBm)**	**Result**
		Ant. 3	**Ant. 4**	**Ant. 5**	**Ant. 6**	**Total**					
106	5530 MHz	10.87	10.81	10.35	11.47	16.91	5.20		22.11	24.00	**PASS**
122	5610 MHz	10.97	11.18	10.67	11.03	16.99	4.91		21.90	24.00	**PASS**

Note1: 5530 MHz= $Directional Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 5.20dB<6dBi, so the limit doesn't reduce.

Note2: 5610 MHz= $Directional Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 4.91dBi<6dBi, so the limit doesn't reduce.

<Nss 3 MCS0, 3S4T, TXBF>

Channel	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Directional Gain (dBi)	Highest EIRP (dBm)	Highest EIRP Limit (dBm)	Result
		Ant. 3	Ant. 4	Ant. 5	Ant. 6	Total					
106	5530 MHz	17.73	17.86	17.20	18.05	23.74	23.98	3.33	27.07	30.00	**PASS**
122	5610 MHz	17.73	18.14	17.64	17.59	23.80	23.98	3.00	26.80	30.00	**PASS**
Channel	**Frequency**	**Conducted Power (dBm)**					**Directional Gain (dBi)**		**Lowest EIRP (dBm)**	**Lowest EIRP Limit (dBm)**	**Result**
		Ant. 3	**Ant. 4**	**Ant. 5**	**Ant. 6**	**Total**					
106	5530 MHz	10.45	10.48	10.04	11.18	16.58	3.33		19.91	24.00	**PASS**
122	5610 MHz	10.72	10.87	10.55	10.82	16.76	3.00		19.76	24.00	**PASS**

Note1: 5530 MHz= $Directional Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 3.33dB<6dBi, so the limit doesn't reduce.

Note2: 5610 MHz= $Directional Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 3.00dBi<6dBi, so the limit doesn't reduce.

Configuration IEEE 802.11ax 160MHz

<Nss 1 MCS0, 1S4T, CDD>

Channel	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Max. Gain (dBi)	Highest EIRP (dBm)	Highest EIRP Limit (dBm)	Result
		Ant. 3	Ant. 4	Ant. 5	Ant. 6	Total					
114	5570 MHz	17.91	17.98	17.12	17.98	23.78	23.98	3.88	27.66	30.00	**PASS**
Channel	Frequency	Conducted Power (dBm)					Max. Gain (dBi)		Lowest EIRP (dBm)	Lowest EIRP Limit (dBm)	Result
		Ant. 3	Ant. 4	Ant. 5	Ant. 6	Total					
114	5570 MHz	10.87	11.39	10.43	11.65	17.13	3.88		21.01	24.00	**PASS**

Note1: 5570 MHz= Max. Gain= 3.88dBi <6dBi, so the limit doesn't reduce.

<Nss 1 MCS0, 1S4T, TXBF>

Channel	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Directional Gain (dBi)	Highest EIRP (dBm)	Highest EIRP Limit (dBm)	Result
		Ant. 3	Ant. 4	Ant. 5	Ant. 6	Total					
114	5570 MHz	17.22	17.49	16.57	17.40	23.21	23.23	6.75	29.96	30.00	**PASS**
Channel	**Frequency**	**Conducted Power (dBm)**					**Directional Gain (dBi)**		**Lowest EIRP (dBm)**	**Lowest EIRP Limit (dBm)**	**Result**
		Ant. 3	**Ant. 4**	**Ant. 5**	**Ant. 6**	**Total**					
114	5570 MHz	10.38	10.87	9.98	11.16	16.64	6.75		23.39	24.00	**PASS**

Note1: 5570 MHz= $Directiona\ lGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 6.75dBi>6dBi, so the power limit shall be reduced to 23.98-(6.75-6)=23.23dBm.

<Nss 2 MCS0, 2S4T, TXBF>

Channel	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Directional Gain (dBi)	Highest EIRP (dBm)	Highest EIRP Limit (dBm)	Result
		Ant. 3	Ant. 4	Ant. 5	Ant. 6	Total					
114	5570 MHz	17.04	17.30	16.42	17.06	22.99	23.98	5.10	28.09	30.00	**PASS**
Channel	**Frequency**	**Conducted Power (dBm)**					**Directional Gain (dBi)**		**Lowest EIRP (dBm)**	**Lowest EIRP Limit (dBm)**	**Result**
		Ant. 3	**Ant. 4**	**Ant. 5**	**Ant. 6**	**Total**					
114	5570 MHz	10.26	10.78	9.94	11.09	16.56	5.10		21.66	24.00	**PASS**

Note1: 5570 MHz= $Directiona\ lGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 5.10dB<6dBi, so the limit doesn't reduce.

<Nss 3 MCS0, 3S4T, TXBF>

Channel	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Directional Gain (dBi)	Highest EIRP (dBm)	Highest EIRP Limit (dBm)	Result
		Ant. 3	Ant. 4	Ant. 5	Ant. 6	Total					
114	5570 MHz	16.35	16.85	15.91	16.46	22.43	23.98	3.26	25.69	30.00	**PASS**
Channel	**Frequency**	**Conducted Power (dBm)**					**Directional Gain (dBi)**		**Lowest EIRP (dBm)**	**Lowest EIRP Limit (dBm)**	**Result**
		Ant. 3	**Ant. 4**	**Ant. 5**	**Ant. 6**	**Total**					
114	5570 MHz	9.37	10.02	9.36	10.27	15.79	3.26		19.05	24.00	**PASS**

Note1: 5570 MHz= $Directiona\ lGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 3.26dB<6dBi, so the limit doesn't reduce.

2.3. Power Spectral Density Measurement

2.3.1. Limit

Operation Band	EUT Category		Limit
U-NII-2A	☒	---	11dBm/ MHz
U-NII-2C	☒	---	11dBm/ MHz

2.3.2. Measuring Instruments and Setting

Please refer to section 3 of equipments list in this report. The following table is the setting of the spectrum analyzer.

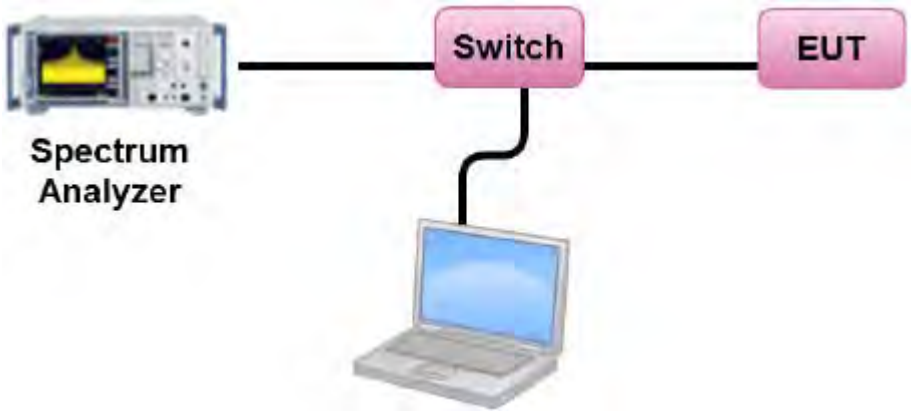
Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Encompass the entire emissions bandwidth (EBW) of the signal
RBW	1 MHz
VBW	≥ 3 MHz
Detector	RMS
Trace	Average
Sweep Time	Auto, trigger set to “free run”
Trace average	100 times

2.3.3. Test Procedures

1. The transmitter output (antenna port) was connected RF switch to the spectrum analyzer.
2. For U-NII-1 Bands, PSD Measure was performed in accordance with 789033 D02 General UNII Test Procedures New Rules v02r01, in section “Maximum conducted output power (E)(2)(d) Method SA-2”, 12/14/2017.
3. For U-NII-3 Band, PSD Measure was performed in accordance with 789033 D02 General UNII Test Procedures New Rules v02r01, in section “Maximum Power Spectral Density (F)(5)” , 12/14/2017
4. Multiple antenna systems was performed in accordance 662911 D01 Multiple Transmitter Output v02r01 in-Band Power Spectral Density (PSD) Measurements (a) Measure and sum the spectra across the outputs (bin-by-bin summing).
5. When measuring 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 Nth output to obtain the value for the first frequency bin of the summed spectrum. The summed spectrum value for each of the other frequency bins is computed in the same way.

2.3.4. Test Setup Layout

Power Spectral Density



2.3.5. Test Deviation

There is no deviation with the original standard.

2.3.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

2.3.7. Test Result of Power Spectral Density

Configuration IEEE 802.11a

<OFDM / 1S2T CDD / Ant. 1 + Ant. 2>

Channel	Frequency	Power Density (dBm/MHz)	Directional Gain (dBi)	Max. Limit (dBm/MHz)	Result
52	5260 MHz	10.25	5.79	11.00	**PASS**
60	5300 MHz	10.43	5.81	11.00	**PASS**
64	5320 MHz	10.34	5.58	11.00	**PASS**

Note1: Method 1 of powr density measurement of KDB 789033 is using for calculation totol power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

Note2: Refer to section 1.15 for duty cycle spectrum plot.

Note3: 5260 MHz= $Directiona\ lGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 5.79dB<6dBi, so the limit doesn't reduce.

Note4: 5300 MHz= $Directiona\ lGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 5.81dBi<6dBi, so the limit doesn't reduce.

Note5: 5320 MHz= $Directiona\ lGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 5.58dBi<6dBi, so the limit doesn't reduce.

<OFDM / 1S4T CDD / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6>

Channel	Frequency	Power Density (dBm/MHz)	Directional Gain (dBi)	Max. Limit (dBm/MHz)	Result
100	5500 MHz	10.29	6.69	10.31	**PASS**
116	5580 MHz	10.31	6.66	10.34	**PASS**
140	5700 MHz	10.22	6.71	10.29	**PASS**

Note1: Method 1 of powr density measurement of KDB 789033 is using for calculation totol power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

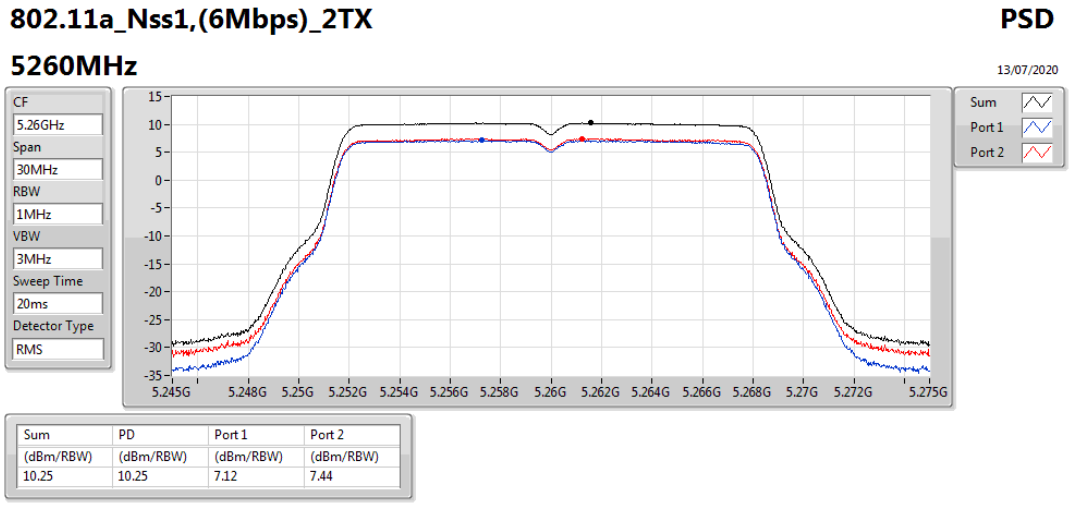
Note2: Refer to section 1.15 for duty cycle spectrum plot.

Note3: 5500 MHz= $Directiona\ lGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 6.69dBi>6dBi, so the power limit shall be reduced to 11.00-(6.69-6)=10.31dBm/MHz.

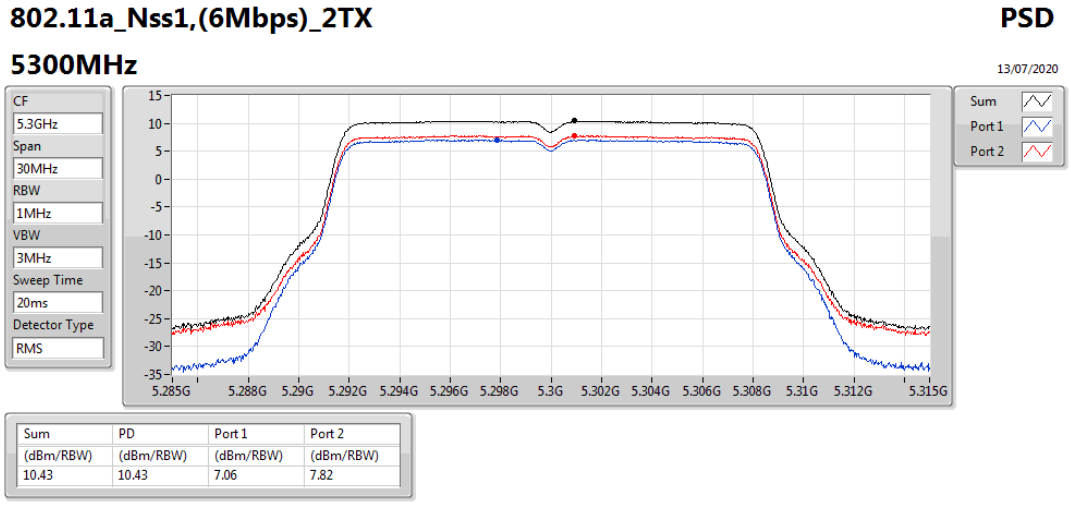
Note4: 5580 MHz= $Directiona\ lGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 6.66dBi>6dBi, so the power limit shall be reduced to 11.00-(6.66-6)=10.34dBm/MHz.

Note5: 5700 MHz= $Directiona\ lGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 6.71dBi>6dBi, so the power limit shall be reduced to 11.00-(6.71-6)=10.29dBm/MHz.

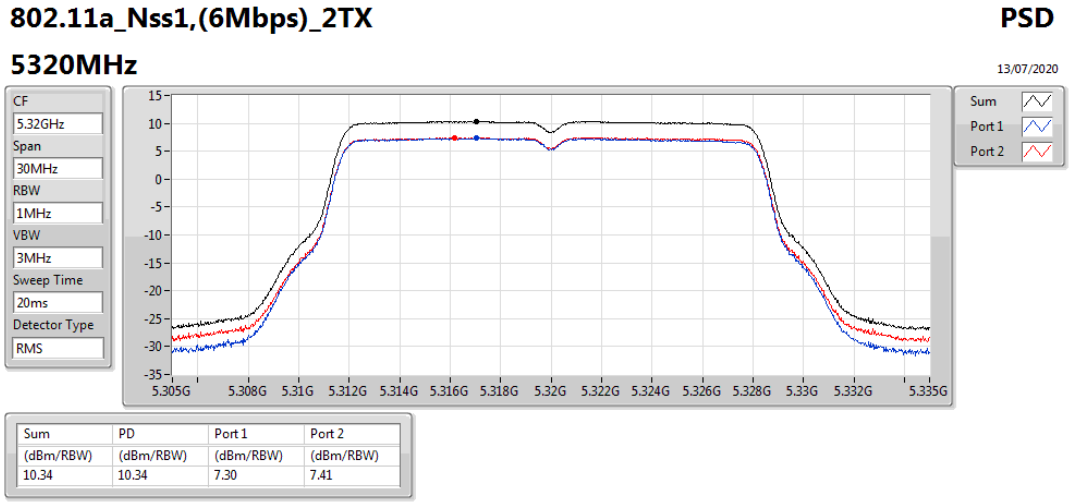
Power Density Plot on Configuration IEEE 802.11a / OFDM / 1S2T CDD / Ant. 1 + Ant. 2 / CH52 / 5260 MHz



Power Density Plot on Configuration IEEE 802.11a / OFDM / 1S2T CDD / Ant. 1 + Ant. 2 / CH60 / 5300 MHz

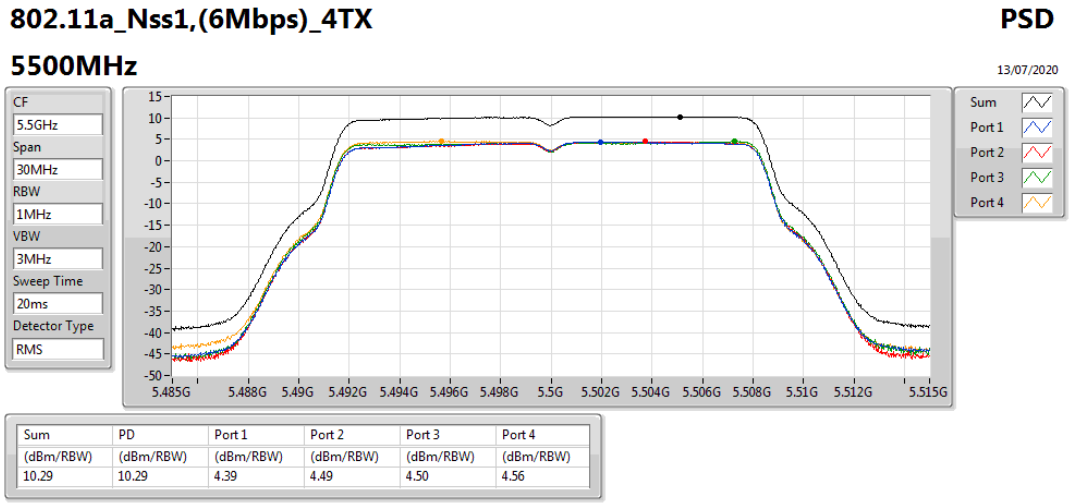


Power Density Plot on Configuration IEEE 802.11a / OFDM / 1S2T CDD / Ant. 1 + Ant. 2 / CH64 / 5320 MHz



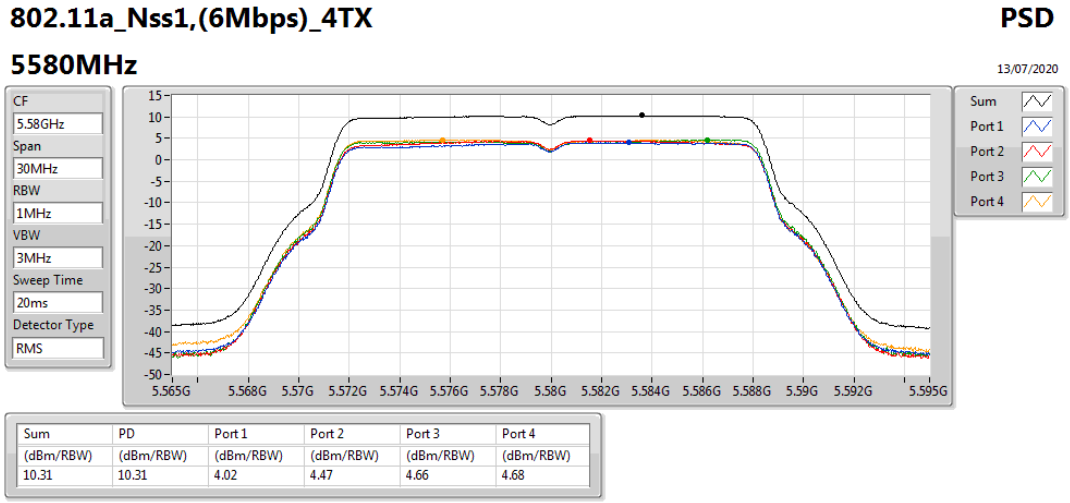
Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
10.34	10.34	7.30	7.41

Power Density Plot on Configuration IEEE 802.11a / OFDM / 1S4T CDD / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6 / CH100 / 5500 MHz



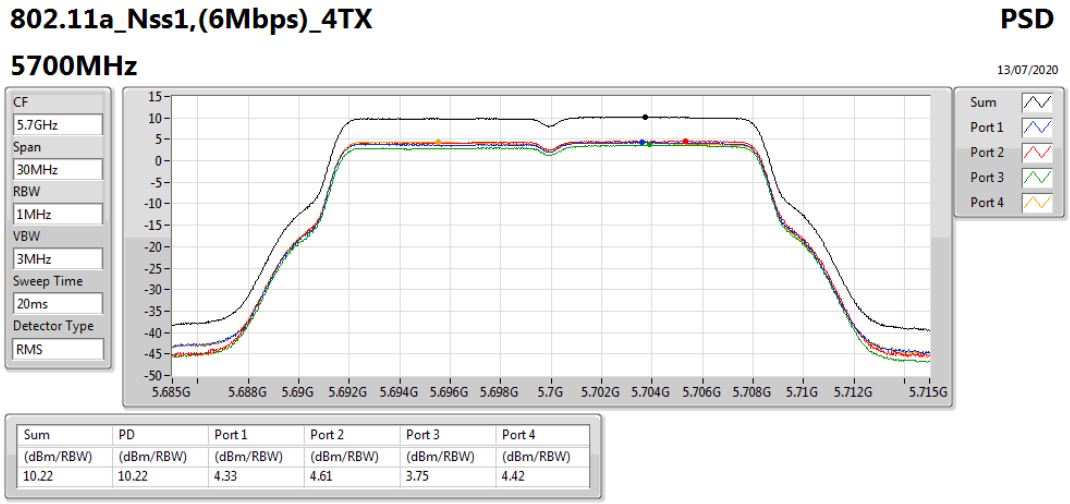
Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
10.29	10.29	4.39	4.49	4.50	4.56

Power Density Plot on Configuration IEEE 802.11a / Nss 1 MCS 0 / 1S4T CDD / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6 / CH116 / 5580 MHz



Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
10.31	10.31	4.02	4.47	4.66	4.68

Power Density Plot on Configuration IEEE 802.11a / OFDM / 1S4T CDD / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6 / CH140 / 5700 MHz



Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
10.22	10.22	4.33	4.61	3.75	4.42

Configuration IEEE 802.11ax 20MHz

<Nss 1 MCS 0 / 1S2T CDD / Ant. 1 + Ant. 2>

Channel	Frequency	Power Density (dBm/MHz)	Directional Gain (dBi)	Max. Limit (dBm/MHz)	Result
52	5260 MHz	10.17	5.79	11.00	**PASS**
60	5300 MHz	10.33	5.81	11.00	**PASS**
64	5320 MHz	10.17	5.58	11.00	**PASS**

Note1: Method 1 of powr density measurement of KDB 789033 is using for calculation totol power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

Note2: Refer to section 1.15 for duty cycle spectrum plot.

Note3: 5260 MHz= $Directional\ Gain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 5.79dB<6dBi, so the limit doesn't reduce.

Note4: 5300 MHz= $Directional\ Gain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 5.81dBi<6dBi, so the limit doesn't reduce.

Note5: 5320 MHz= $Directional\ Gain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 5.58dBi<6dBi, so the limit doesn't reduce.

<Nss 1 MCS 0 / 1S4T CDD / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6>

Channel	Frequency	Power Density (dBm/MHz)	Directional Gain (dBi)	Max. Limit (dBm/MHz)	Result
100	5500 MHz	10.10	6.69	10.31	**PASS**
116	5580 MHz	10.30	6.66	10.34	**PASS**
140	5700 MHz	10.14	6.71	10.29	**PASS**

Note1: Method 1 of powr density measurement of KDB 789033 is using for calculation totol power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

Note2: Refer to section 1.15 for duty cycle spectrum plot.

Note3: 5500 MHz= $Directiona\ lGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 6.69dBi>6dBi, so the power limit shall be reduced to 11.00-(6.69-6)=10.31dBm/MHz.

Note4: 5580 MHz= $Directiona\ lGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 6.66dBi>6dBi, so the power limit shall be reduced to 11.00-(6.66-6)=10.34dBm/MHz.

Note5: 5700 MHz= $Directiona\ lGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 6.71dBi>6dBi, so the power limit shall be reduced to 11.00-(6.71-6)=10.29dBm/MHz.

<Nss 1 MCS 0 / TXBF 1S2T / Ant. 1 + Ant. 2>

Channel	Frequency	Power Density (dBm/MHz)	Directional Gain (dBi)	Max. Limit (dBm/MHz)	Result
52	5260 MHz	10.20	5.79	11.00	**PASS**
60	5300 MHz	10.31	5.81	11.00	**PASS**
64	5320 MHz	9.93	5.58	11.00	**PASS**

Note1: Method 1 of powr density measurement of KDB 789033 is using for calculation totol power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

Note2: Refer to section 1.15 for duty cycle spectrum plot.

Note3: 5260 MHz= $Directiona\ lGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 5.79dB<6dBi, so the limit doesn't reduce.

Note4: 5300 MHz= $Directiona\ lGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 5.81dBi<6dBi, so the limit doesn't reduce.

Note5: 5320 MHz= $Directiona\ lGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 5.58dBi<6dBi, so the limit doesn't reduce.

<Nss 1 MCS 0 / 1S4T TXBF / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6>

Channel	Frequency	Power Density (dBm/MHz)	Directional Gain (dBi)	Max. Limit (dBm/MHz)	Result
100	5500 MHz	9.87	6.69	10.31	**PASS**
116	5580 MHz	9.76	6.66	10.34	**PASS**
140	5700 MHz	9.57	6.71	10.29	**PASS**

Note1: Method 1 of powr density measurement of KDB 789033 is using for calculation totol power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

Note2: Refer to section 1.15 for duty cycle spectrum plot.

Note3: 5500 MHz= $Directiona\ lGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 6.69dBi>6dBi, so the power limit shall be reduced to 11.00-(6.69-6)=10.31dBm/MHz.

Note2: 5580 MHz= $Directiona\ lGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 6.66dBi>6dBi, so the power limit shall be reduced to 11.00-(6.66-6)=10.34dBm/MHz.

Note3: 5700 MHz= $Directiona\ lGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 6.71dBi>6dBi, so the power limit shall be reduced to 11.00-(6.71-6)=10.29dBm/MHz.

<Nss 2 MCS 0 / 2S4T TXBF / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6>

Channel	Frequency	Power Density (dBm/MHz)	Directional Gain (dBi)	Max. Limit (dBm/MHz)	Result
100	5500 MHz	10.31	4.96	11.00	**PASS**
116	5580 MHz	10.30	5.01	11.00	**PASS**
140	5700 MHz	10.55	5.01	11.00	**PASS**

Note1: Method 1 of powr density measurement of KDB 789033 is using for calculation totol power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

Note2: Refer to section 1.15 for duty cycle spectrum plot.

Note3: 5500 MHz= $Directional\ Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 4.96dB<6dBi, so the limit doesn't reduce.

Note4: 5580 MHz= $Directional\ Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 5.01dBi<6dBi, so the limit doesn't reduce.

Note5: 5700 MHz= $Directional\ Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 5.01dBi<6dBi, so the limit doesn't reduce.

<Nss 3 MCS 0 / 3S4T TXBF / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6>

Channel	Frequency	Power Density (dBm/MHz)	Directional Gain (dBi)	Max. Limit (dBm/MHz)	Result
100	5500 MHz	10.63	3.04	11.00	**PASS**
116	5580 MHz	10.60	3.22	11.00	**PASS**
140	5700 MHz	10.81	3.12	11.00	**PASS**

Note1: Method 1 of powr density measurement of KDB 789033 is using for calculation totol power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

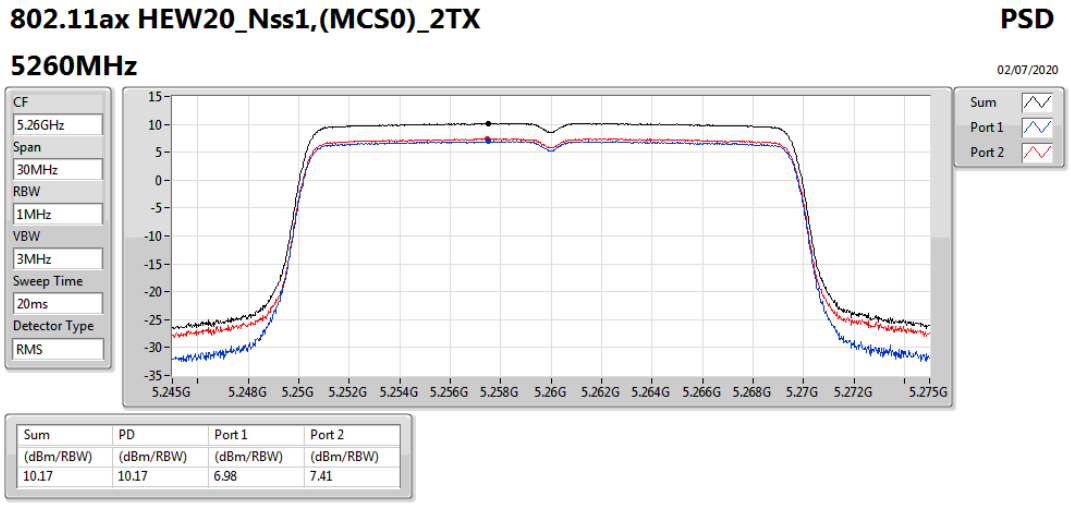
Note2: Refer to section 1.15 for duty cycle spectrum plot.

Note3: 5500 MHz= $Directional\ Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 3.04dB<6dBi, so the limit doesn't reduce.

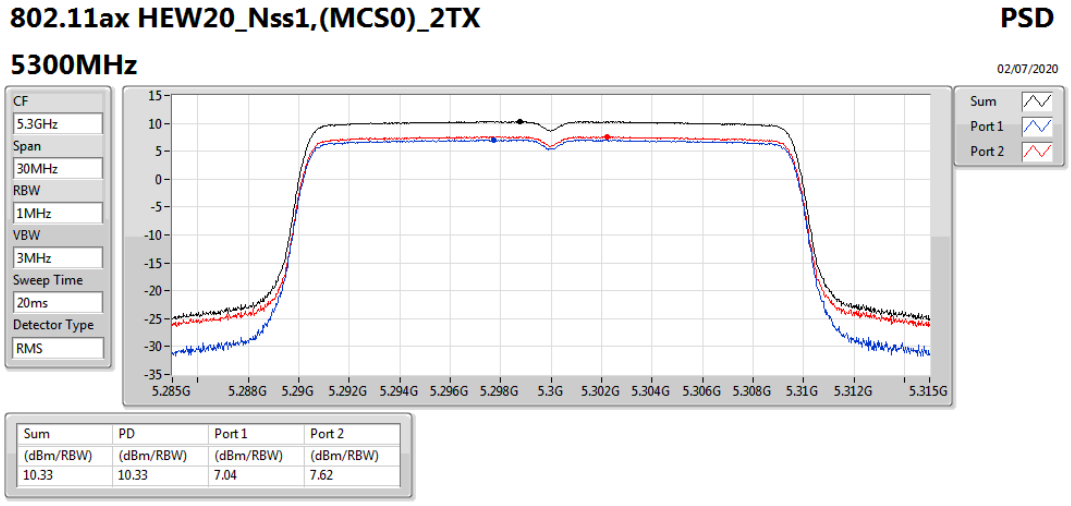
Note4: 5580 MHz= $Directional\ Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 3.22dBi<6dBi, so the limit doesn't reduce.

Note5: 5700 MHz= $Directional\ Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 3.12dBi<6dBi, so the limit doesn't reduce.

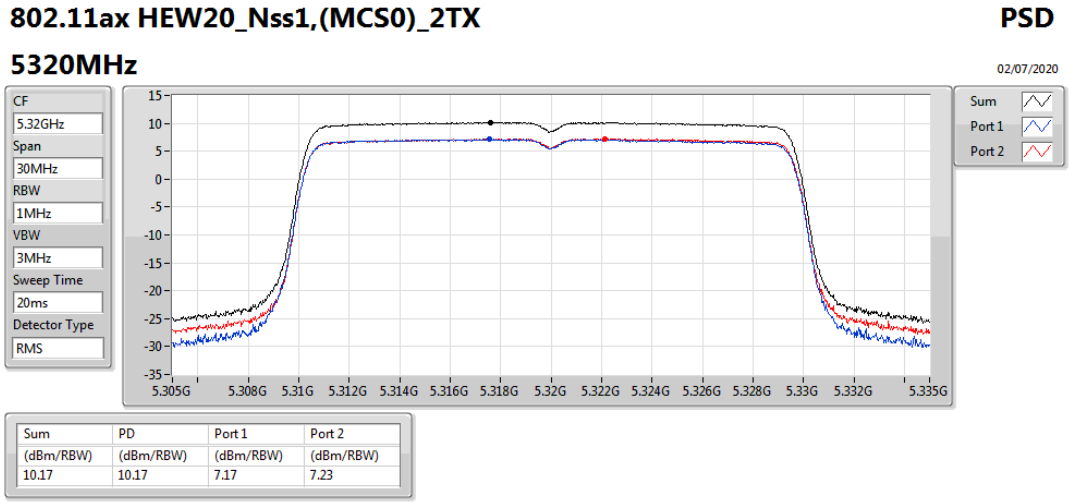
Power Density Plot on Configuration IEEE 802.11ax 20MHz / Nss 1 MCS 0 / 1S2T CDD / Ant. 1 + Ant. 2 / CH52 / 5260 MHz



Power Density Plot on Configuration IEEE 802.11ax 20MHz / Nss 1 MCS 0 / 1S2T CDD / Ant. 1 + Ant. 2 / CH60 / 5300 MHz

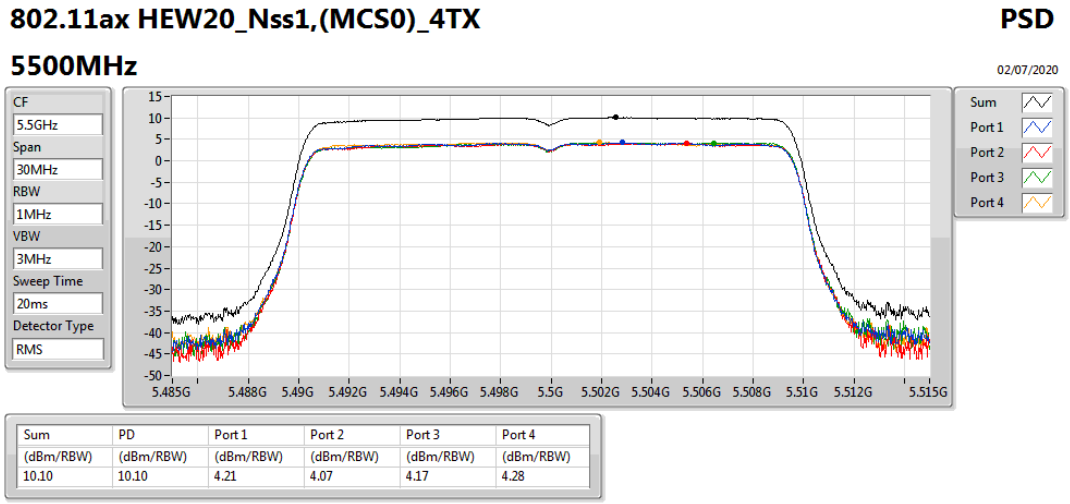


Power Density Plot on Configuration IEEE 802.11ax 20MHz / Nss 1 MCS 0 / 1S2T CDD / Ant. 1 + Ant. 2 / CH64 / 5320 MHz



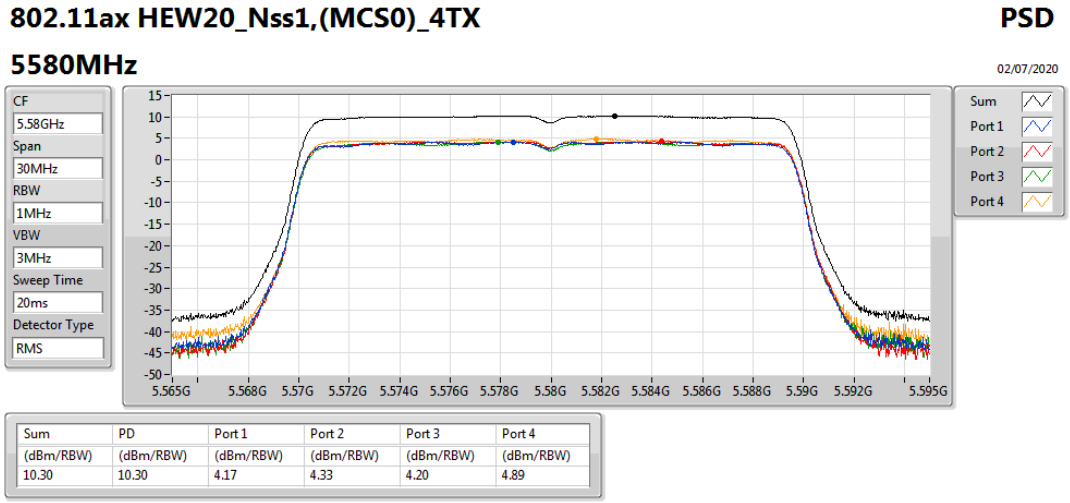
Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
10.17	10.17	7.17	7.23

Power Density Plot on Configuration IEEE 802.11ax 20MHz / Nss 1 MCS 0 / 1S4T CDD / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6 / CH100 / 5500 MHz



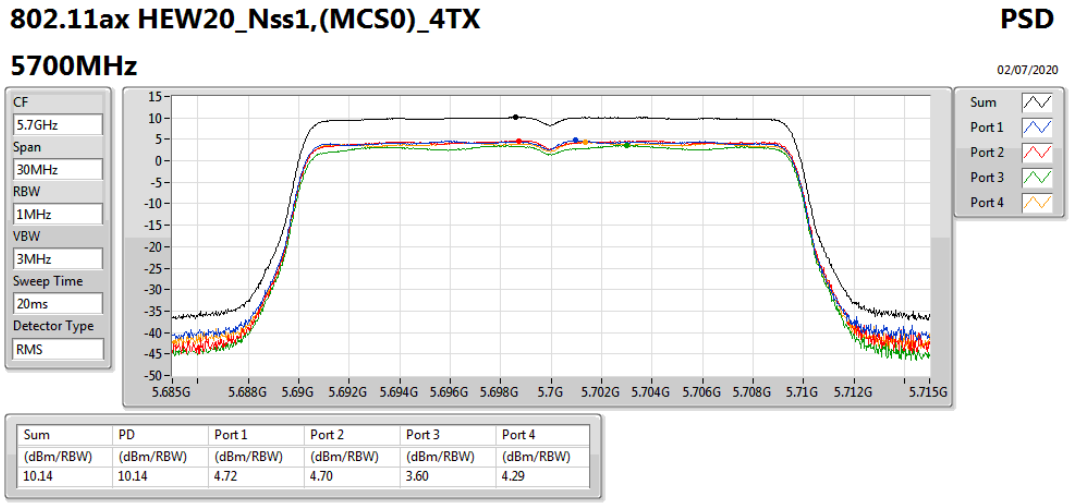
Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
10.10	10.10	4.21	4.07	4.17	4.28

Power Density Plot on Configuration IEEE 802.11ax 20MHz / Nss 1 MCS 0 / 1S4T CDD / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6 / CH116 / 5580 MHz



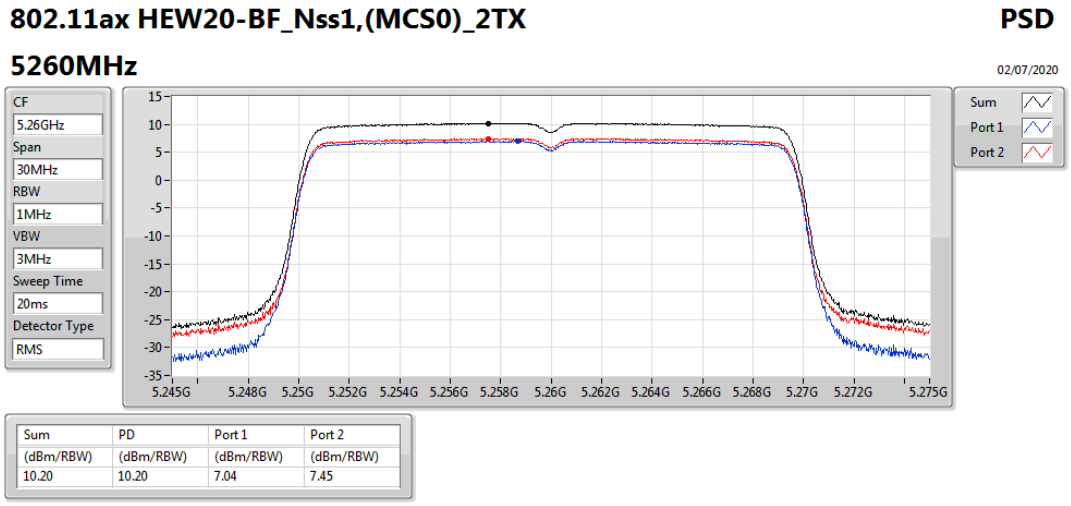
Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
10.30	10.30	4.17	4.33	4.20	4.89

Power Density Plot on Configuration IEEE 802.11ax 20MHz / Nss 1 MCS 0 / 1S4T CDD / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6 / CH140 / 5700 MHz



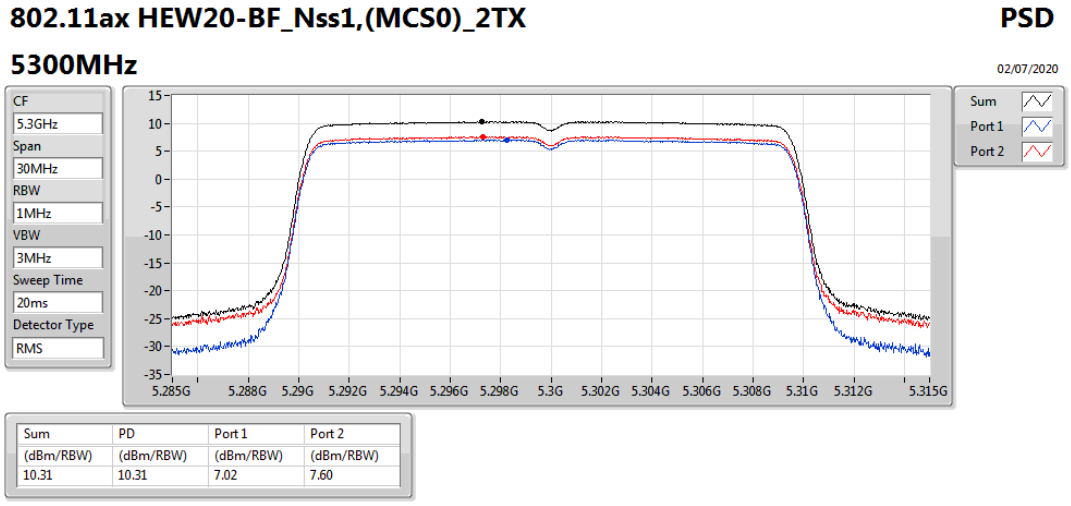
Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
10.14	10.14	4.72	4.70	3.60	4.29

Power Density Plot on Configuration IEEE 802.11ax 20MHz / Nss 1 MCS 0 / TXBF 1S2T / Ant. 1 + Ant. 2 / CH52 / 5260 MHz



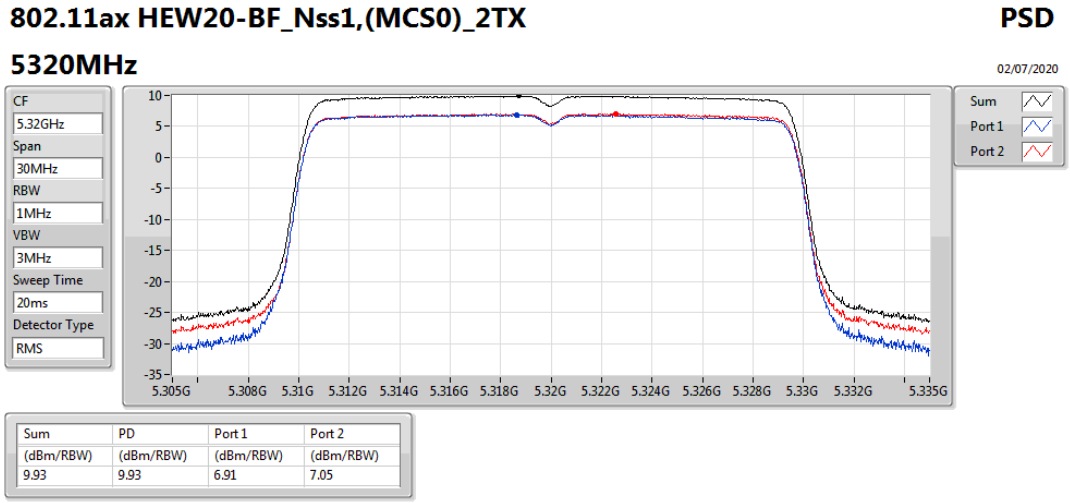
Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
10.20	10.20	7.04	7.45

Power Density Plot on Configuration IEEE 802.11ax 20MHz / Nss 1 MCS 0 / TXBF 1S2T / Ant. 1 + Ant. 2 / CH60 / 5300 MHz



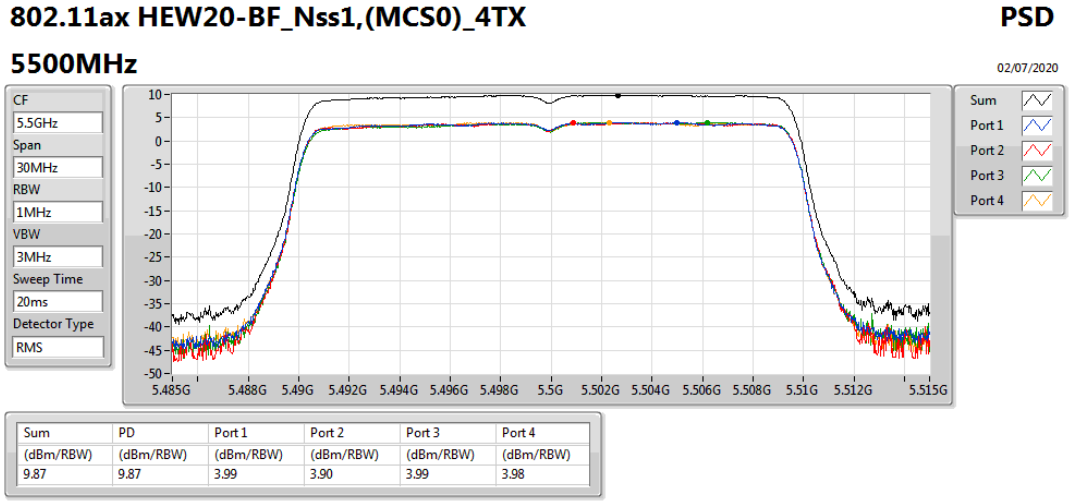
Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
10.31	10.31	7.02	7.60

Power Density Plot on Configuration IEEE 802.11ax 20MHz / Nss 1 MCS 0 / TXBF 1S2T / Ant. 1 + Ant. 2 / CH64 / 5320 MHz



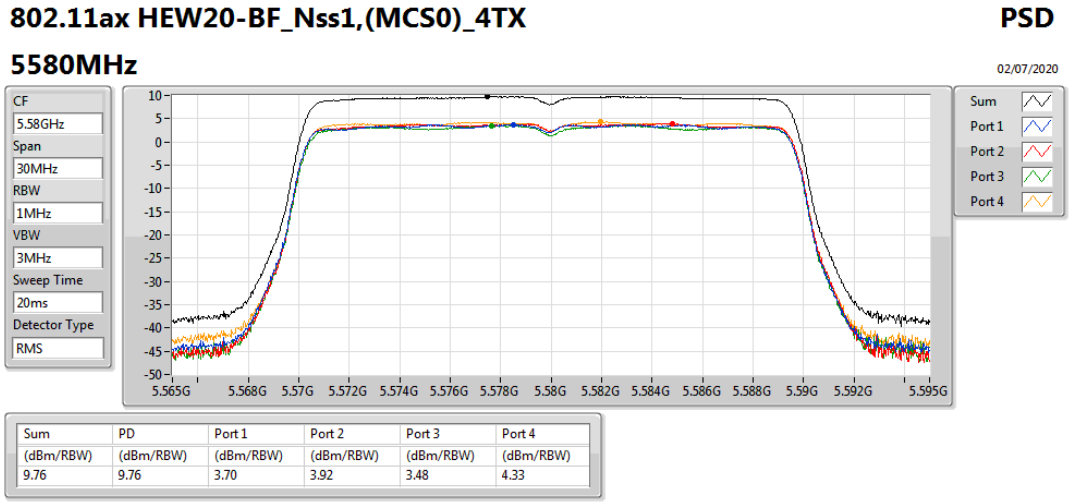
Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
9.93	9.93	6.91	7.05

Power Density Plot on Configuration IEEE 802.11ax 20MHz / Nss 1 MCS 0 / 1S4T TXBF / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6 / CH100 / 5500 MHz



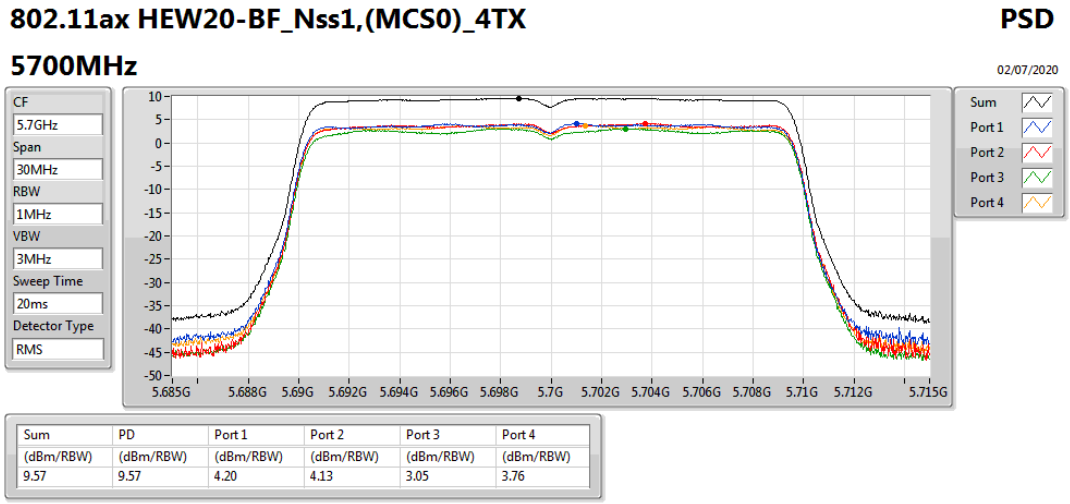
Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
9.87	9.87	3.99	3.90	3.99	3.98

Power Density Plot on Configuration IEEE 802.11ax 20MHz / Nss 1 MCS 0 / 1S4T TXBF / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6 / CH116 / 5580 MHz



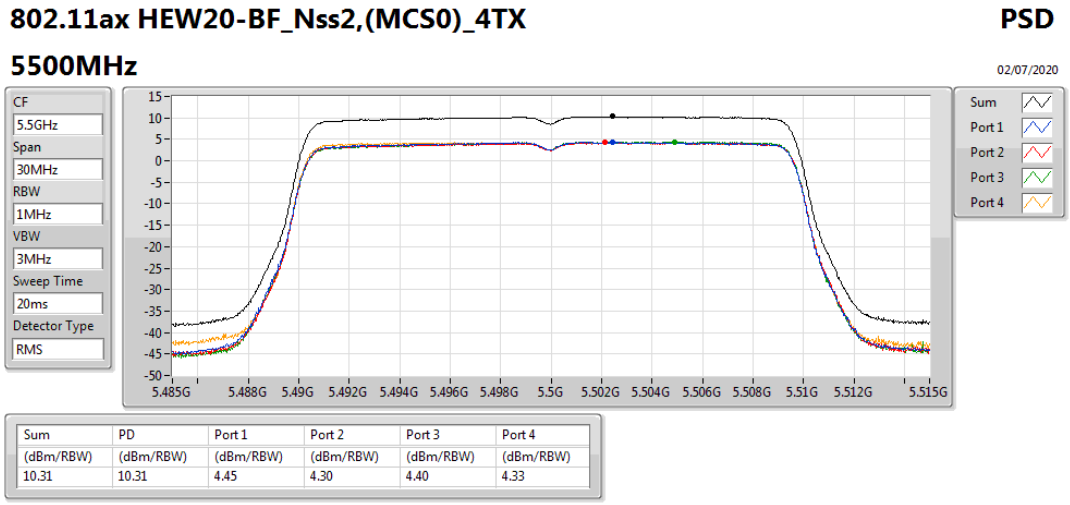
Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
9.76	9.76	3.70	3.92	3.48	4.33

Power Density Plot on Configuration IEEE 802.11ax 20MHz / Nss 1 MCS 0 / 1S4T TXBF / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6 / CH140 / 5700 MHz



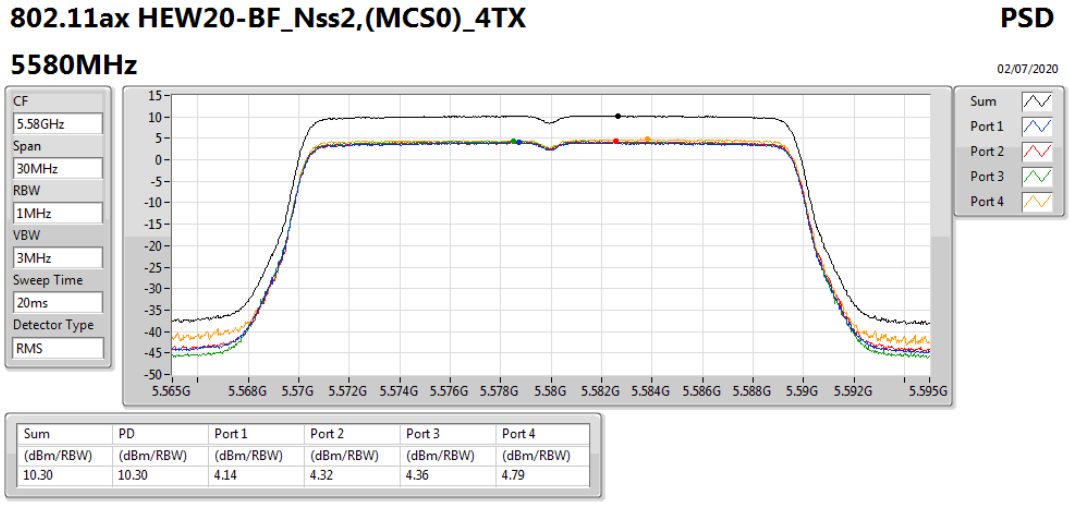
Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
9.57	9.57	4.20	4.13	3.05	3.76

Power Density Plot on Configuration IEEE 802.11ax 20MHz / Nss 2 MCS 0 / 2S4T TXBF / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6 / CH100 / 5500 MHz



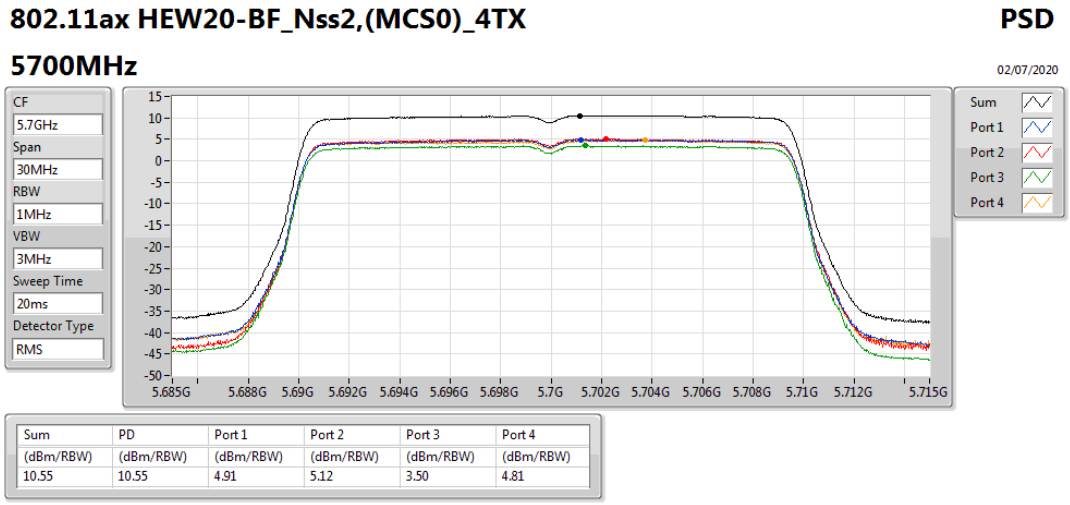
Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
10.31	10.31	4.45	4.30	4.40	4.33

Power Density Plot on Configuration IEEE 802.11ax 20MHz / Nss 2 MCS 0 / 2S4T TXBF / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6 / CH116 / 5580 MHz



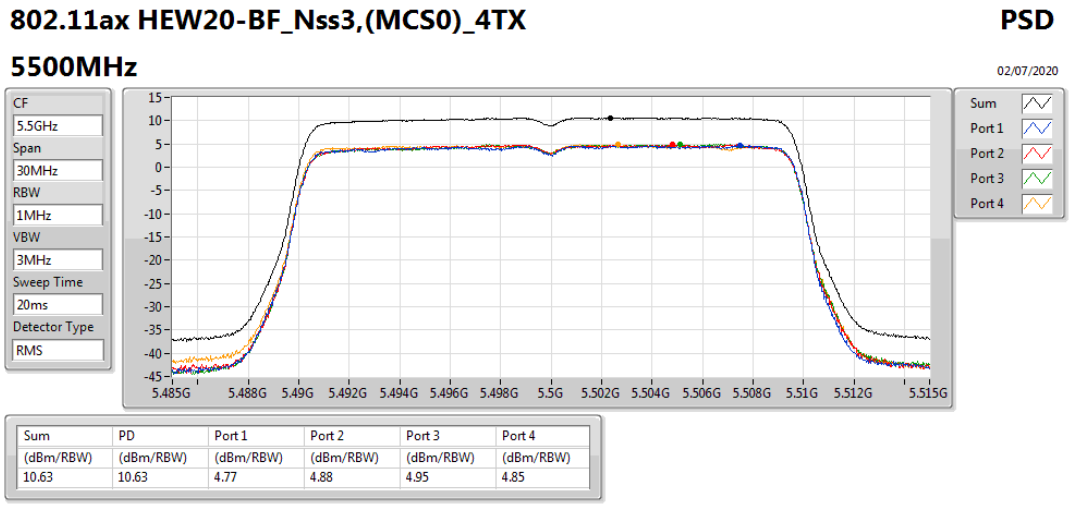
Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
10.30	10.30	4.14	4.32	4.36	4.79

Power Density Plot on Configuration IEEE 802.11ax 20MHz / Nss 2 MCS 0 / 2S4T TXBF / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6 / CH140 / 5700 MHz



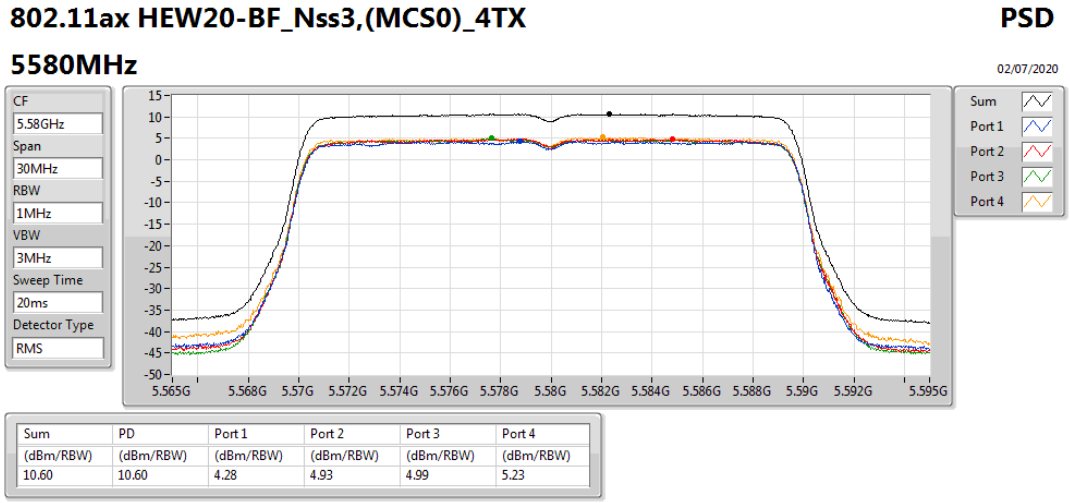
Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
10.55	10.55	4.91	5.12	3.50	4.81

Power Density Plot on Configuration IEEE 802.11ax 20MHz / Nss 3 MCS 0 / 3S4T TXBF / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6 / CH100 / 5500 MHz



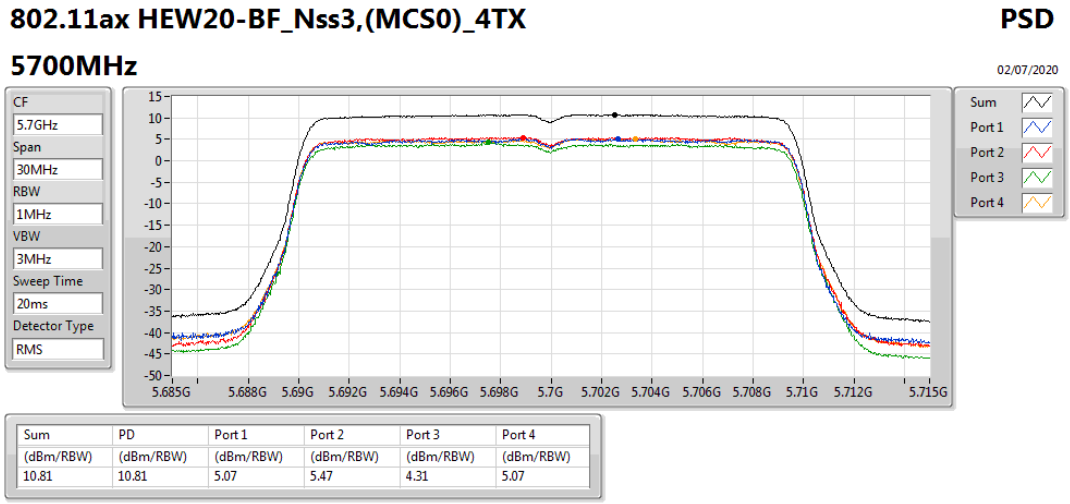
Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
10.63	10.63	4.77	4.88	4.95	4.85

Power Density Plot on Configuration IEEE 802.11ax 20MHz / Nss 3 MCS 0 / 3S4T TXBF / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6 / CH116 / 5580 MHz



Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
10.60	10.60	4.28	4.93	4.99	5.23

Power Density Plot on Configuration IEEE 802.11ax 20MHz / Nss 3 MCS 0 / 3S4T TXBF / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6 / CH140 / 5700 MHz



Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
10.81	10.81	5.07	5.47	4.31	5.07

Configuration IEEE 802.11ax 40MHz

<Nss 1 MCS 0 / 1S2T CDD / Ant. 1 + Ant. 2>

Channel	Frequency	Power Density (dBm/MHz)	Directional Gain (dBi)	Max. Limit (dBm/MHz)	Result
54	5270 MHz	7.62	5.73	11.00	**PASS**
62	5310 MHz	6.10	5.72	11.00	**PASS**

Note1: Method 1 of powr density measurement of KDB 789033 is using for calculation totol power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

Note2: Refer to section 1.15 for duty cycle spectrum plot.

Note3: 5270 MHz= $Directiona\ lGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 5.73dB<6dBi, so the limit doesn't reduce.

Note4: 5310 MHz= $Directiona\ lGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 5.72dBi<6dBi, so the limit doesn't reduce.

<Nss 1 MCS 0 / 1S4T CDD / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6>

Channel	Frequency	Power Density (dBm/MHz)	Directional Gain (dBi)	Max. Limit (dBm/MHz)	Result
102	5510 MHz	7.61	6.67	10.33	**PASS**
110	5550 MHz	7.40	6.88	10.12	**PASS**
134	5670 MHz	7.27	6.77	10.23	**PASS**

Note1: Method 1 of powr density measurement of KDB 789033 is using for calculation totol power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

Note2: Refer to section 1.15 for duty cycle spectrum plot.

Note3: 5510 MHz= $Directiona\ lGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 6.67dBi>6dBi, so the power limit shall be reduced to 11.00-(6.67-6)=10.33dBm/MHz.

Note4: 5550 MHz= $Directiona\ lGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 6.88dBi>6dBi, so the power limit shall be reduced to 11.00-(6.88-6)=10.12dBm/MHz.

Note5: 5670 MHz= $Directiona\ lGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 6.77dBi>6dBi, so the power limit shall be reduced to 11.00-(6.77-6)=10.23dBm/MHz.

<Nss 1 MCS 0 / TXBF 1S2T / Ant. 1 + Ant. 2>

Channel	Frequency	Power Density (dBm/MHz)	Directional Gain (dBi)	Max. Limit (dBm/MHz)	Result
54	5270 MHz	7.59	5.73	11	**PASS**
62	5310 MHz	6.40	5.72	11	**PASS**

Note1: Method 1 of powr density measurement of KDB 789033 is using for calculation totol power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

Note2: Refer to section 1.15 for duty cycle spectrum plot.

Note3: 5270 MHz= $Directiona\ lGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 5.73dB<6dBi, so the limit doesn't reduce.

Note4: 5310 MHz= $Directiona\ lGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 5.72dBi<6dBi, so the limit doesn't reduce.

<Nss 1 MCS 0 / 1S4T TXBF / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6>

Channel	Frequency	Power Density (dBm/MHz)	Directional Gain (dBi)	Max. Limit (dBm/MHz)	Result
102	5510 MHz	5.95	6.67	10.33	**PASS**
110	5550 MHz	5.59	6.88	10.12	**PASS**
134	5670 MHz	5.50	6.77	10.23	**PASS**

Note1: Method 1 of powr density measurement of KDB 789033 is using for calculation totol power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

Note2: Refer to section 1.15 for duty cycle spectrum plot.

Note3: 5510 MHz= $Directiona\ lGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 6.67dBi>6dBi, so the power limit shall be reduced to 11.00-(6.67-6)=10.33dBm/MHz.

Note4: 5550 MHz= $Directiona\ lGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 6.88dBi>6dBi, so the power limit shall be reduced to 11.00-(6.88-6)=10.12dBm/MHz.

Note5: 5670 MHz= $Directiona\ lGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 6.77dBi>6dBi, so the power limit shall be reduced to 11.00-(6.77-6)=10.23dBm/MHz.

<Nss 2 MCS 0 / 2S4T TXBF / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6>

Channel	Frequency	Power Density (dBm/MHz)	Directional Gain (dBi)	Max. Limit (dBm/MHz)	Result
102	5510 MHz	7.74	4.95	11.00	**PASS**
110	5550 MHz	7.67	5.22	11.00	**PASS**
134	5670 MHz	7.75	5.01	11.00	**PASS**

Note1: Method 1 of powr density measurement of KDB 789033 is using for calculation totol power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

Note2: Refer to section 1.15 for duty cycle spectrum plot.

Note3: 5510 MHz= $Directiona\ lGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 4.95dB<6dBi, so the limit doesn't reduce.

Note4: 5550 MHz= $Directiona\ lGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 5.22dBi<6dBi, so the limit doesn't reduce.

Note5: 5670 MHz= $Directiona\ lGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 5.01dBi<6dBi, so the limit doesn't reduce.

<Nss 3 MCS 0 / 3S4T TXBF / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6>

Channel	Frequency	Power Density (dBm/MHz)	Directional Gain (dBi)	Max. Limit (dBm/MHz)	Result
102	5510 MHz	8.10	3.03	11.00	**PASS**
110	5550 MHz	7.98	3.31	11.00	**PASS**
134	5670 MHz	7.79	3.15	11.00	**PASS**

Note1: Method 1 of powr density measurement of KDB 789033 is using for calculation totol power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

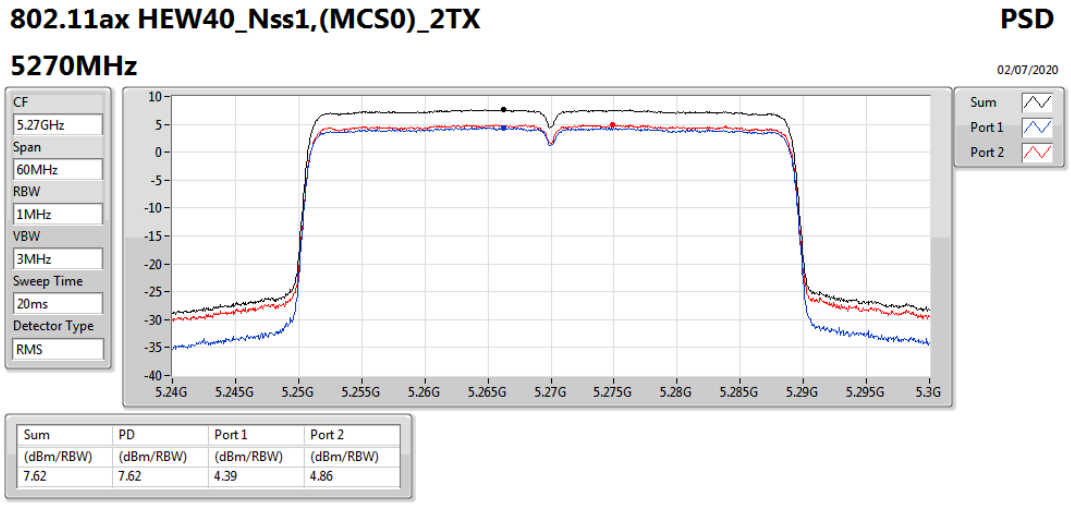
Note2: Refer to section 1.15 for duty cycle spectrum plot.

Note3: 5510 MHz= $Directional\ Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 3.03dB<6dBi, so the limit doesn't reduce.

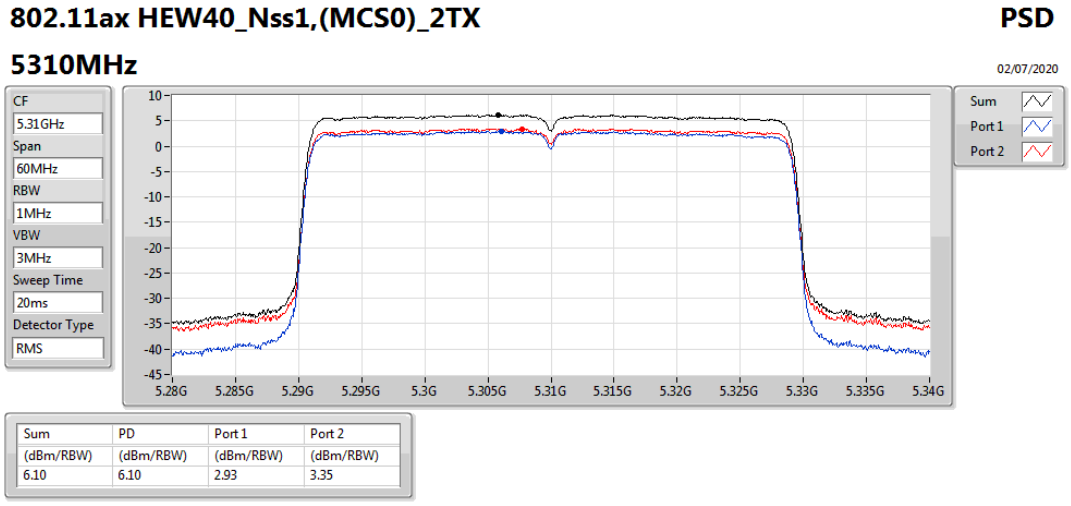
Note4: 5550 MHz= $Directional\ Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 3.31dBi<6dBi, so the limit doesn't reduce.

Note5: 5670 MHz= $Directional\ Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 3.15dBi<6dBi, so the limit doesn't reduce.

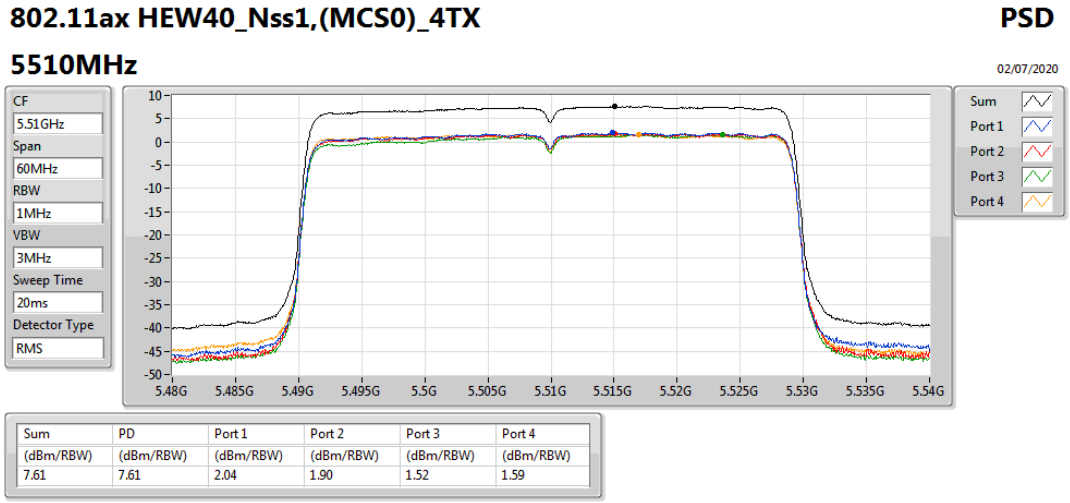
Power Density Plot on Configuration IEEE 802.11ax 40MHz / Nss 1 MCS 0 / 1S2T CDD / Ant. 1 + Ant. 2 / CH54 / 5270 MHz



Power Density Plot on Configuration IEEE 802.11ax 40MHz / Nss 1 MCS 0 / 1S2T CDD / Ant. 1 + Ant. 2 / CH62 / 5310 MHz

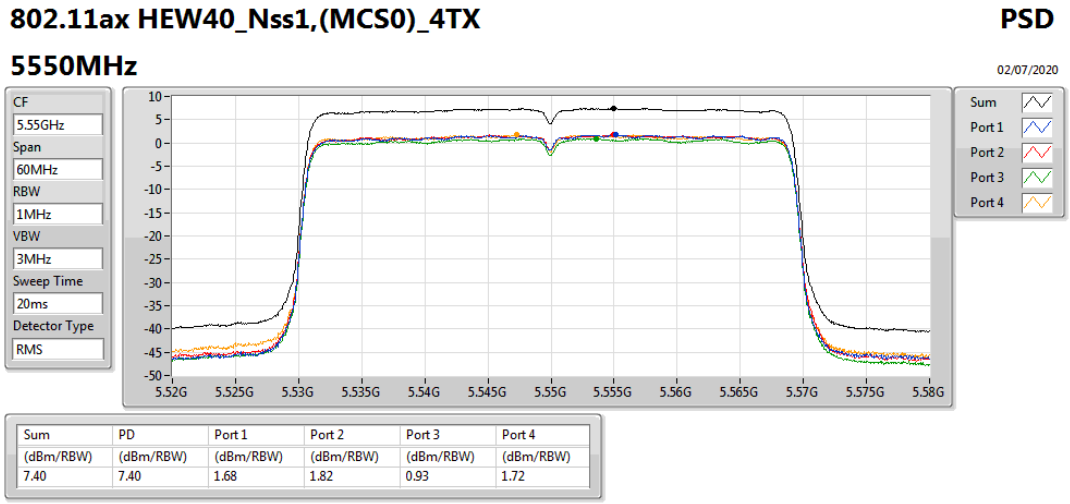


Power Density Plot on Configuration IEEE 802.11ax 40MHz / Nss 1 MCS 0 / 1S4T CDD / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6 / CH102 / 5510 MHz



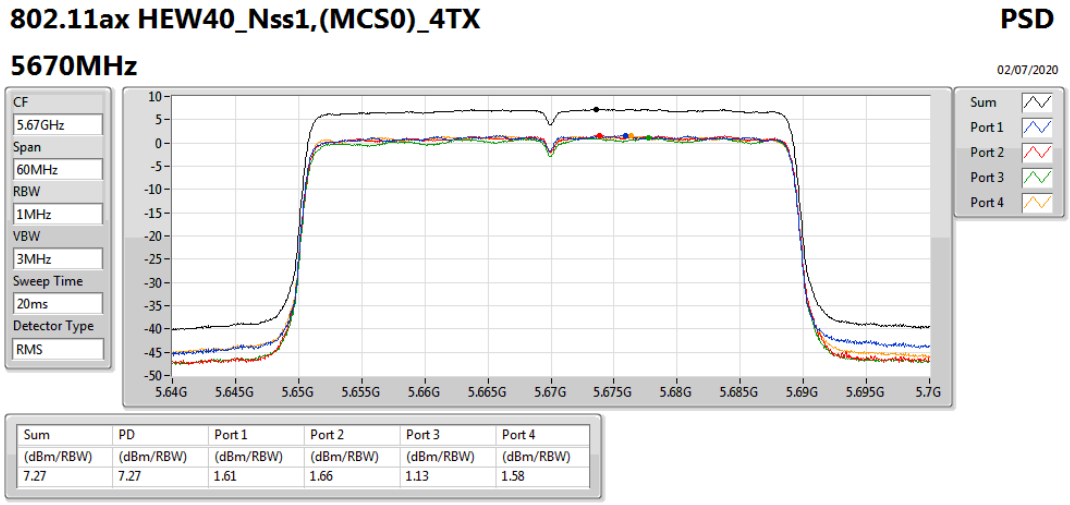
Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
7.61	7.61	2.04	1.90	1.52	1.59

Power Density Plot on Configuration IEEE 802.11ax 40MHz / Nss 1 MCS 0 / 1S4T CDD / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6 / CH110 / 5550 MHz



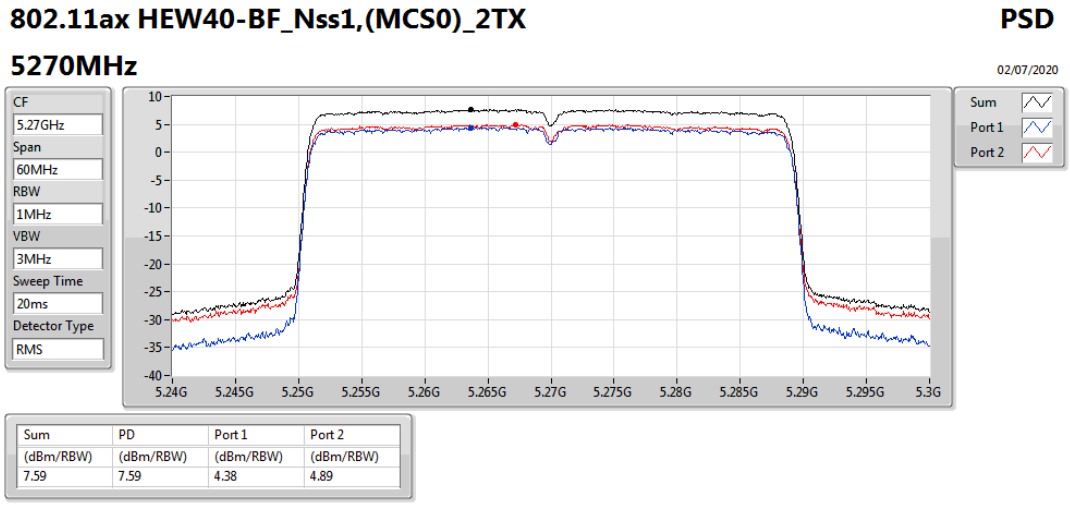
Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
7.40	7.40	1.68	1.82	0.93	1.72

Power Density Plot on Configuration IEEE 802.11ax 40MHz / Nss 1 MCS 0 / 1S4T CDD / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6 / CH134 / 5670 MHz



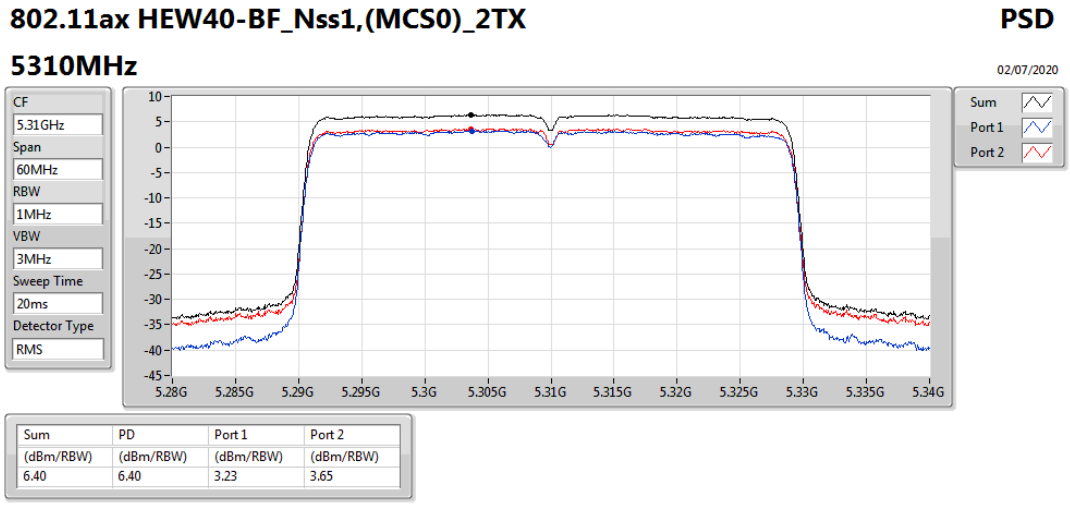
Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
7.27	7.27	1.61	1.66	1.13	1.58

Power Density Plot on Configuration IEEE 802.11ax 40MHz / Nss 1 MCS 0 / 1S2T TXBF / Ant. 1 + Ant. 2 / CH54 / 5270 MHz

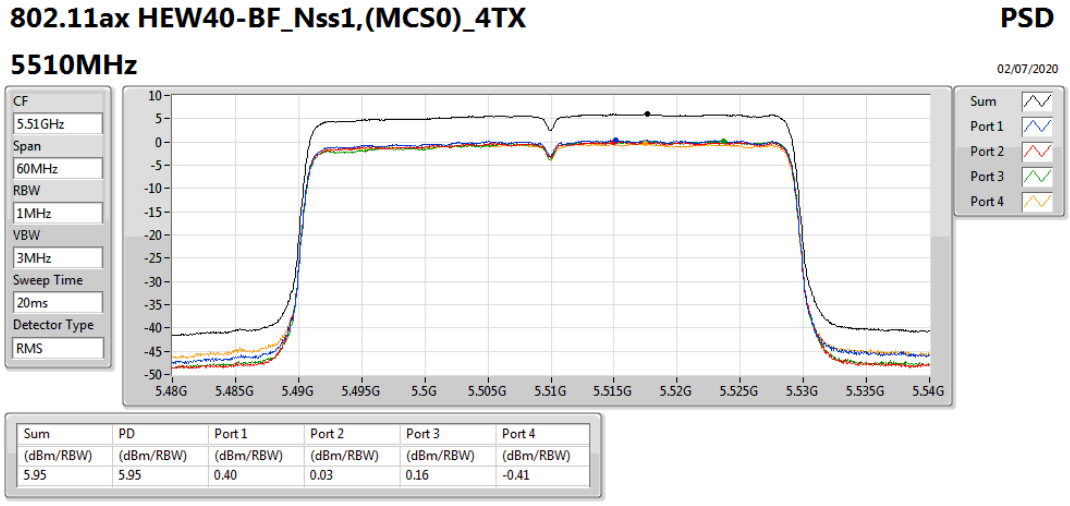


Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
7.59	7.59	4.38	4.89

Power Density Plot on Configuration IEEE 802.11ax 40MHz / Nss 1 MCS 0 / 1S2T TXBF / Ant. 1 + Ant. 2 / CH62 / 5310 MHz



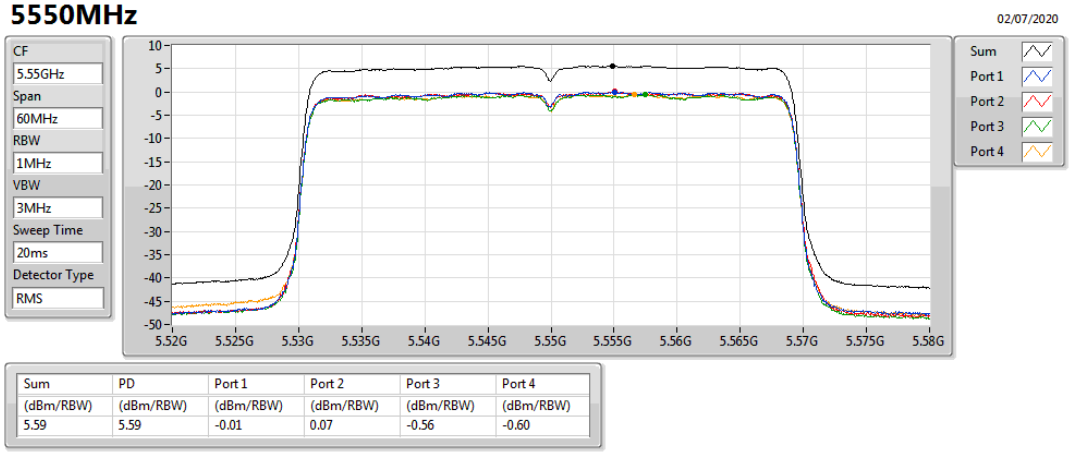
Power Density Plot on Configuration IEEE 802.11ax 40MHz / Nss 1 MCS 0 / 1S4T TXBF / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6 / CH102 / 5510 MHz



Power Density Plot on Configuration IEEE 802.11ax 40MHz / Nss 1 MCS 0 / 1S4T TXBF / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6 / CH110 / 5550 MHz

802.11ax HEW40-BF_Nss1,(MCS0)_4TX **PSD**

5550MHz

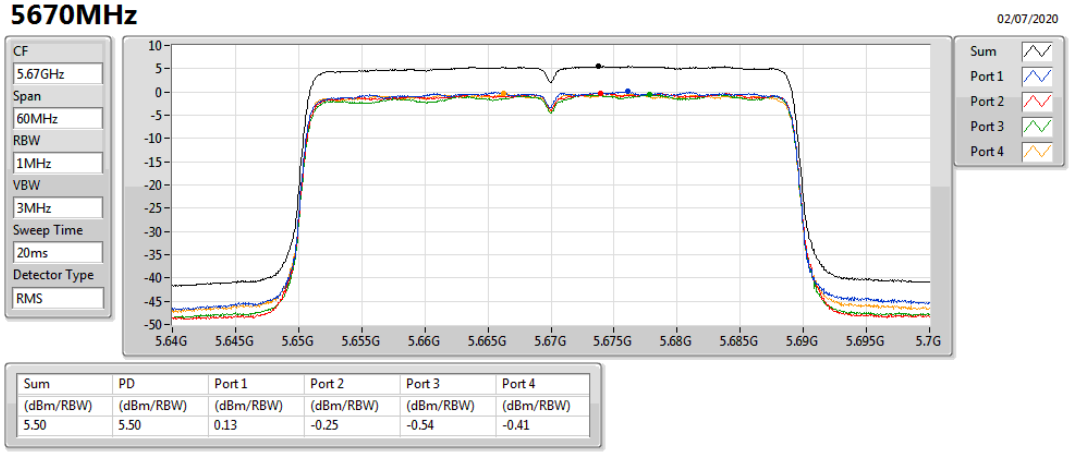


Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
5.59	5.59	-0.01	0.07	-0.56	-0.60

Power Density Plot on Configuration IEEE 802.11ax 40MHz / Nss 1 MCS 0 / 1S4T TXBF / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6 / CH134 / 5670 MHz

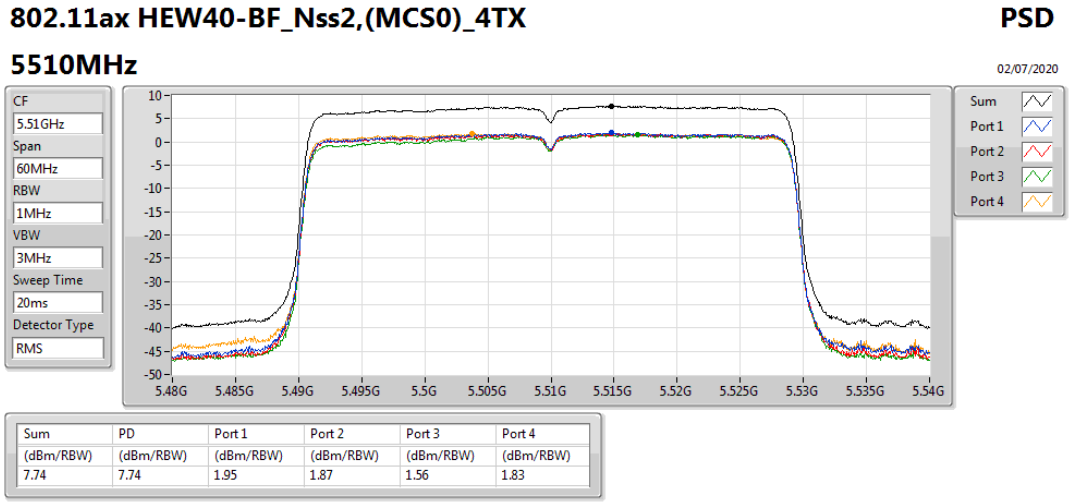
802.11ax HEW40-BF_Nss1,(MCS0)_4TX **PSD**

5670MHz



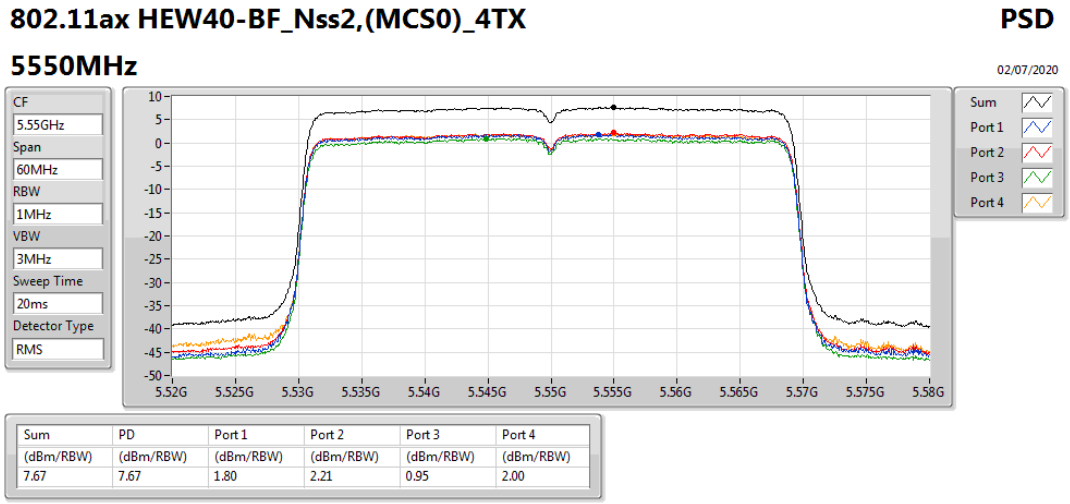
Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
5.50	5.50	0.13	-0.25	-0.54	-0.41

Power Density Plot on Configuration IEEE 802.11ax 40MHz / Nss 2 MCS 0 / 2S4T TXBF / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6 / CH102 / 5510 MHz



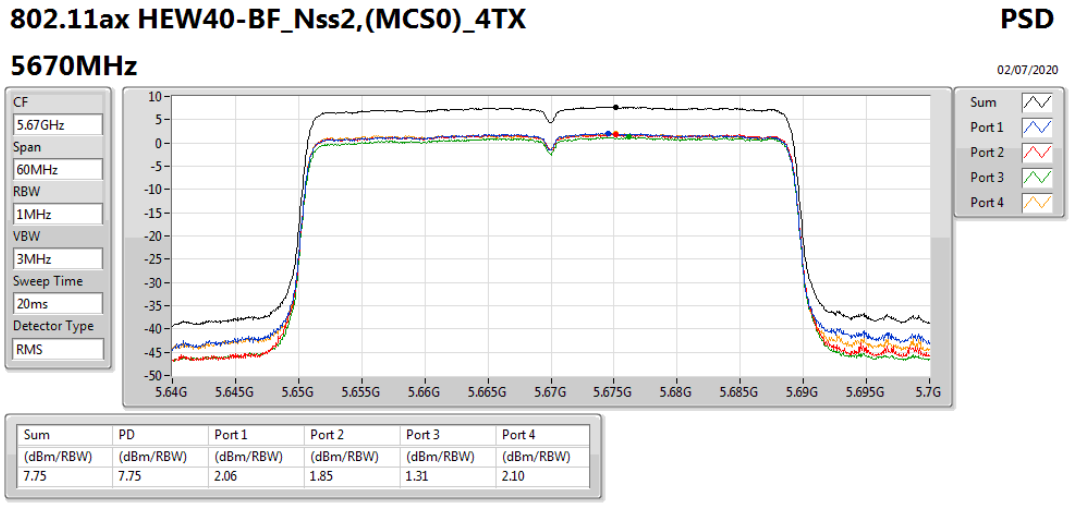
Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
7.74	7.74	1.95	1.87	1.56	1.83

Power Density Plot on Configuration IEEE 802.11ax 40MHz / Nss 2 MCS 0 / 2S4T TXBF / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6 / CH110 / 5550 MHz



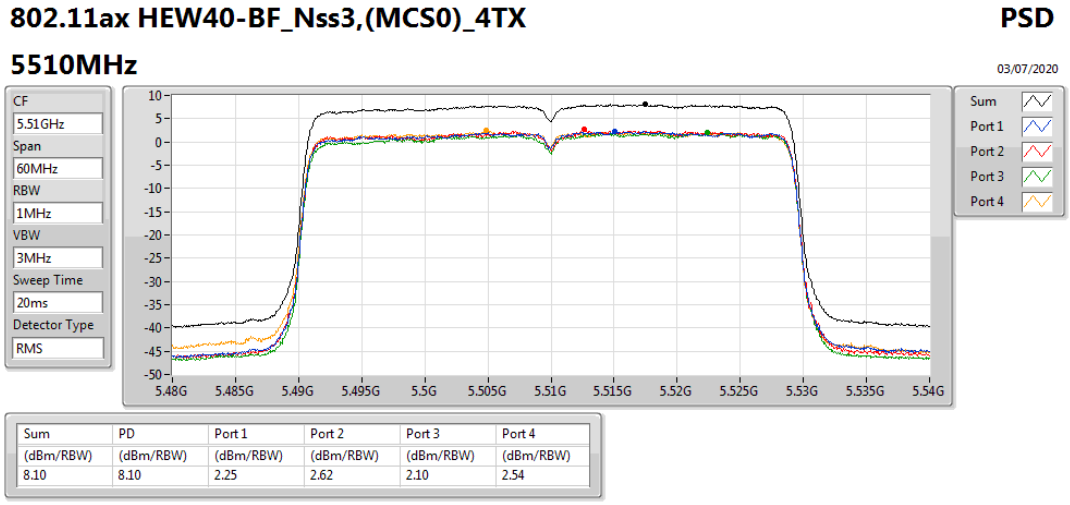
Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
7.67	7.67	1.80	2.21	0.95	2.00

Power Density Plot on Configuration IEEE 802.11ax 40MHz / Nss 2 MCS 0 / 2S4T TXBF / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6 / CH134 / 5670 MHz



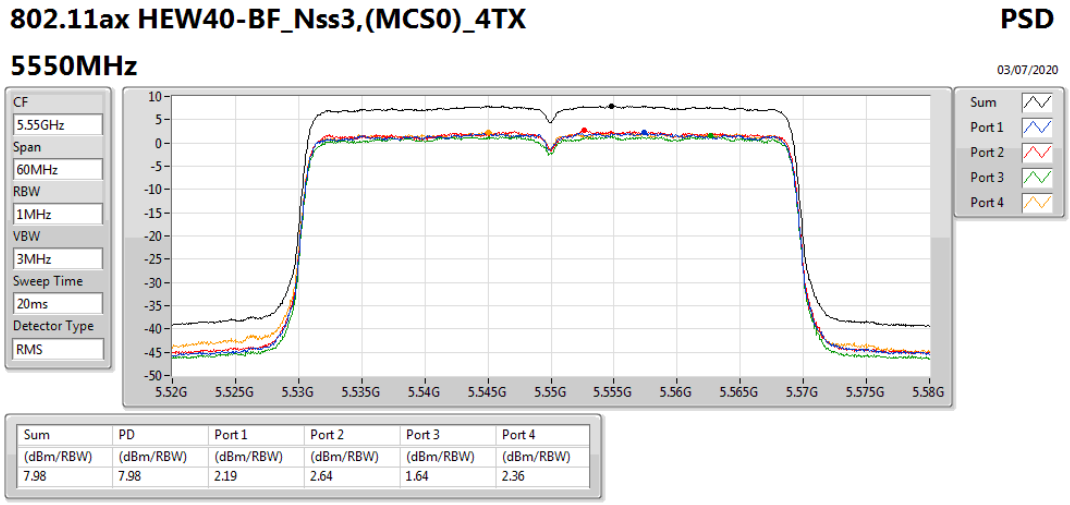
Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
7.75	7.75	2.06	1.85	1.31	2.10

Power Density Plot on Configuration IEEE 802.11ax 40MHz / Nss 3 MCS 0 / 3S4T TXBF / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6 / CH102 / 5510 MHz



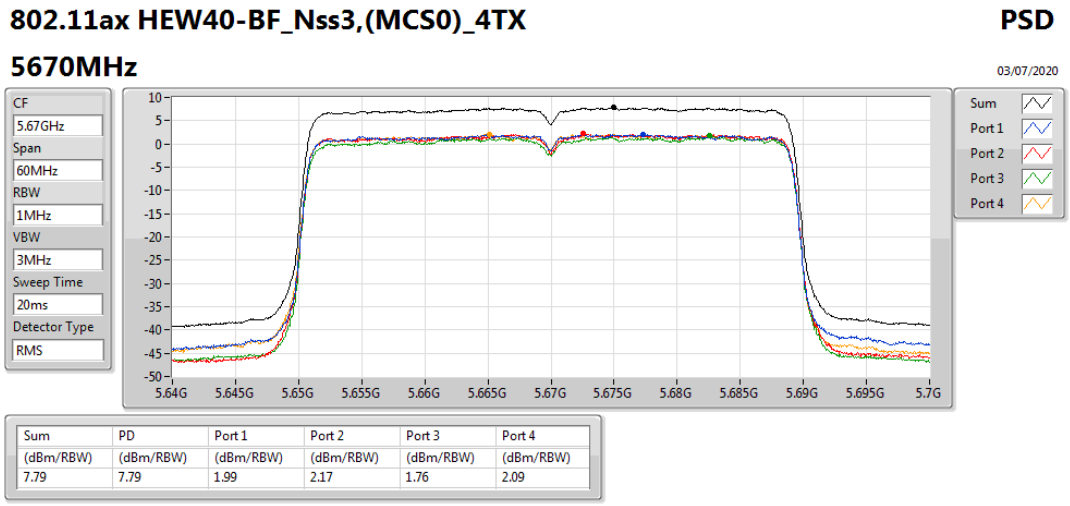
Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
8.10	8.10	2.25	2.62	2.10	2.54

Power Density Plot on Configuration IEEE 802.11ax 40MHz / Nss 3 MCS 0 / 3S4T TXBF / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6 / CH110 / 5550 MHz



Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
7.98	7.98	2.19	2.64	1.64	2.36

Power Density Plot on Configuration IEEE 802.11ax 40MHz / Nss 3 MCS 0 / 3S4T TXBF / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6 / CH134 / 5670 MHz



Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
7.79	7.79	1.99	2.17	1.76	2.09

Configuration IEEE 802.11ax 80MHz

<Nss 1 MCS 0 / 1S2T CDD / Ant. 1 + Ant. 2>

Channel	Frequency	Power Density (dBm/MHz)	Directional Gain (dBi)	Max. Limit (dBm/MHz)	Result
58	5290 MHz	3.35	5.80	11.00	**PASS**

Note1: Method 1 of powr density measurement of KDB 789033 is using for calculation totol power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

Note2: Refer to section 1.15 for duty cycle spectrum plot.

Note3: 5290 MHz= $Directional\ Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 5.80dB<6dBi, so the limit doesn't reduce.

<Nss 1 MCS 0 / 1S4T CDD / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6>

Channel	Frequency	Power Density (dBm/MHz)	Directional Gain (dBi)	Max. Limit (dBm/MHz)	Result
106	5530 MHz	5.04	6.91	10.09	**PASS**
122	5610 MHz	4.58	6.59	10.41	**PASS**

Note1: Method 1 of powr density measurement of KDB 789033 is using for calculation totol power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

Note2: Refer to section 1.15 for duty cycle spectrum plot.

Note3: 5530 MHz= $Directiona\ lGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 6.91dBi>6dBi, so the power limit shall be reduced to 11.00-(6.91-6)=10.09dBm/MHz.

Note4: 5610 MHz= $Directiona\ lGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 6.59dBi>6dBi, so the power limit shall be reduced to 11.00-(6.59-6)=10.41dBm/MHz.

<Nss 1 MCS 0 / TXBF 1S2T / Ant. 1 + Ant. 2>

Channel	Frequency	Power Density (dBm/MHz)	Directional Gain (dBi)	Max. Limit (dBm/MHz)	Result
58	5290 MHz	3.68	5.80	11.00	**PASS**

Note1: Method 1 of powr density measurement of KDB 789033 is using for calculation totol power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

Note2: Refer to section 1.15 for duty cycle spectrum plot.

Note3: 5290 MHz= $Directional\ Gain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 5.80dB<6dBi, so the limit doesn't reduce.

<Nss 1 MCS 0 / 1S4T TXBF / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6>

Channel	Frequency	Power Density (dBm/MHz)	Directional Gain (dBi)	Max. Limit (dBm/MHz)	Result
106	5530 MHz	4.17	6.91	10.09	**PASS**
122	5610 MHz	3.94	6.59	10.41	**PASS**

Note1: Method 1 of powr density measurement of KDB 789033 is using for calculation totol power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

Note2: Refer to section 1.15 for duty cycle spectrum plot.

Note3: 5530 MHz= $Directiona\ lGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 6.91dBi>6dBi, so the power limit shall be reduced to 11.00-(6.91-6)=10.09dBm/MHz.

Note4: 5610 MHz= $Directiona\ lGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 6.59dBi>6dBi, so the power limit shall be reduced to 11.00-(6.59-6)=10.41dBm/MHz.

<Nss 2 MCS 0 / 2S4T TXBF / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6>

Channel	Frequency	Power Density (dBm/MHz)	Directional Gain (dBi)	Max. Limit (dBm/MHz)	Result
106	5530 MHz	5.17	5.20	11.00	**PASS**
122	5610 MHz	5.18	4.91	11.00	**PASS**

Note1: Method 1 of powr density measurement of KDB 789033 is using for calculation totol power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

Note2: Refer to section 1.15 for duty cycle spectrum plot.

Note3: 5530 MHz= $Directiona\ lGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 5.20dB<6dBi, so the limit doesn't reduce.

Note4: 5610 MHz= $Directiona\ lGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 4.91dBi<6dBi, so the limit doesn't reduce.

<Nss 3 MCS 0 / 3S4T TXBF / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6>

Channel	Frequency	Power Density (dBm/MHz)	Directional Gain (dBi)	Max. Limit (dBm/MHz)	Result
106	5530 MHz	5.50	3.33	11.00	**PASS**
122	5610 MHz	5.34	3.00	11.00	**PASS**

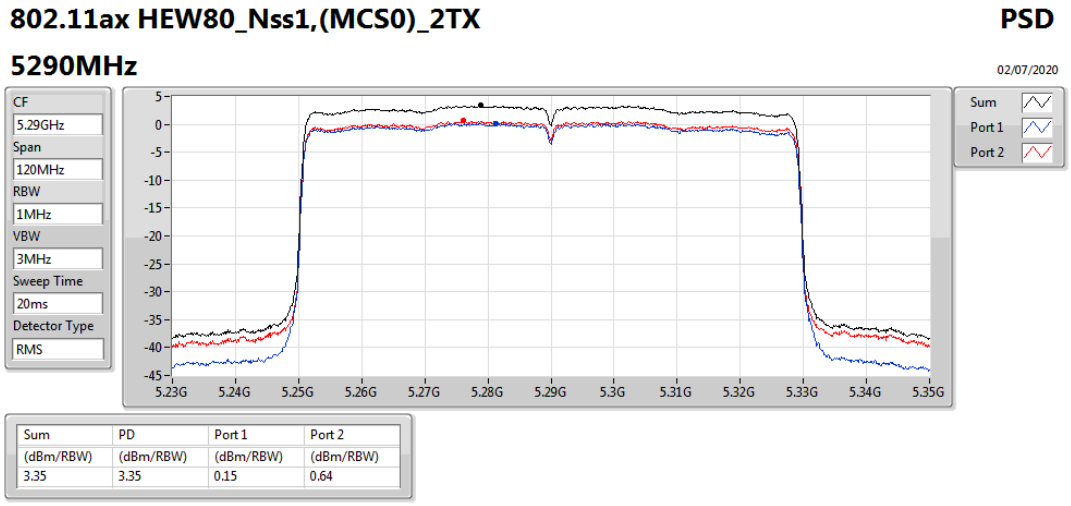
Note1: Method 1 of powr density measurement of KDB 789033 is using for calculation totol power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

Note2: Refer to section 1.15 for duty cycle spectrum plot.

Note3: 5530 MHz= $Directiona\ lGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 3.33dB<6dBi, so the limit doesn't reduce.

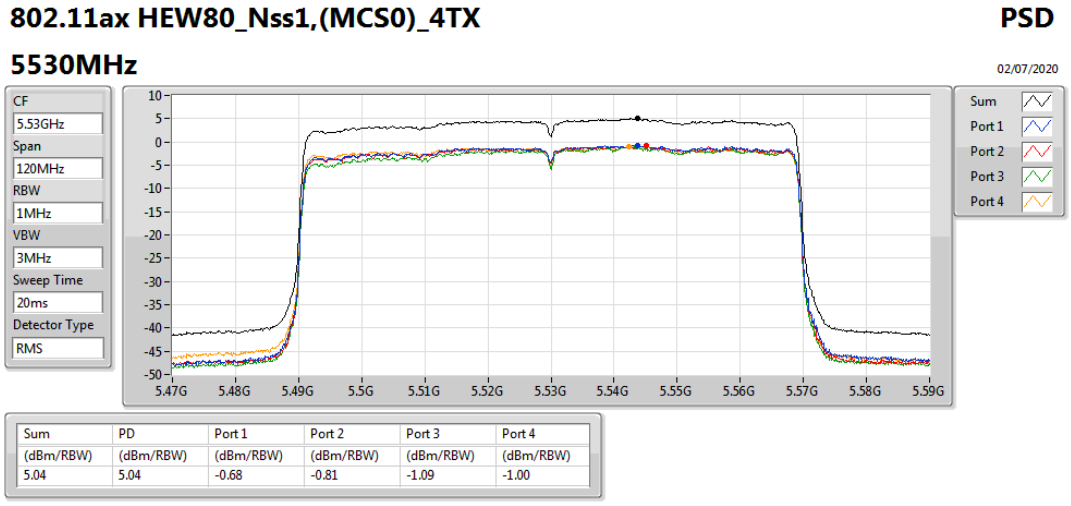
Note4: 5610 MHz= $Directiona\ lGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 3.00dBi<6dBi, so the limit doesn't reduce.

Power Density Plot on Configuration IEEE 802.11ax 80MHz / Nss 1 MCS 0 / 1S2T CDD / Ant. 1 + Ant. 2 / CH58 / 5290 MHz



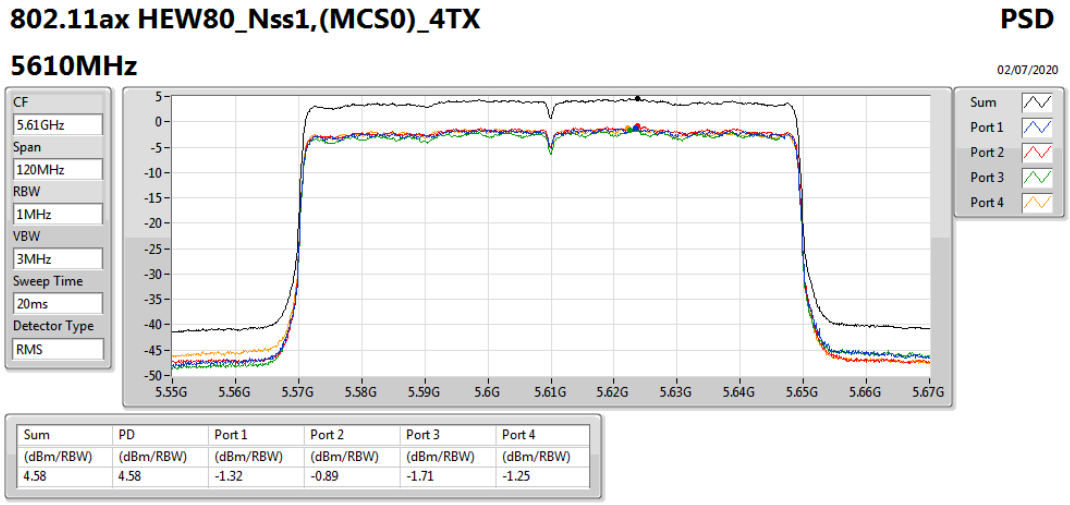
Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
3.35	3.35	0.15	0.64

Power Density Plot on Configuration IEEE 802.11ax 80MHz / Nss 1 MCS 0 / 1S4T CDD / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6 / CH106 / 5530 MHz



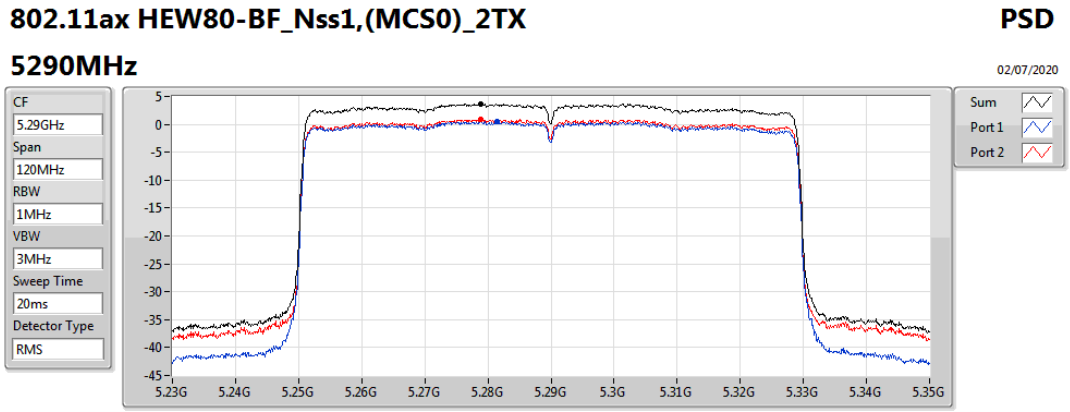
Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
5.04	5.04	-0.68	-0.81	-1.09	-1.00

Power Density Plot on Configuration IEEE 802.11ax 80MHz / Nss 1 MCS 0 / 1S4T CDD / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6 / CH122 / 5610 MHz



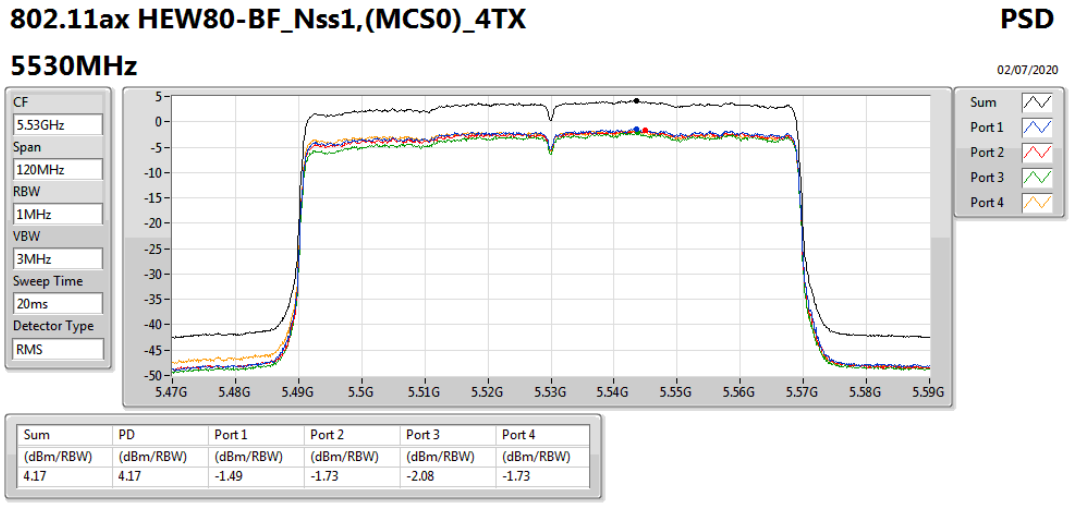
Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
4.58	4.58	-1.32	-0.89	-1.71	-1.25

Power Density Plot on Configuration IEEE 802.11ax 80MHz / Nss 1 MCS 0 / 1S2T TXBF / Ant. 1 + Ant. 2 / CH58 / 5290 MHz



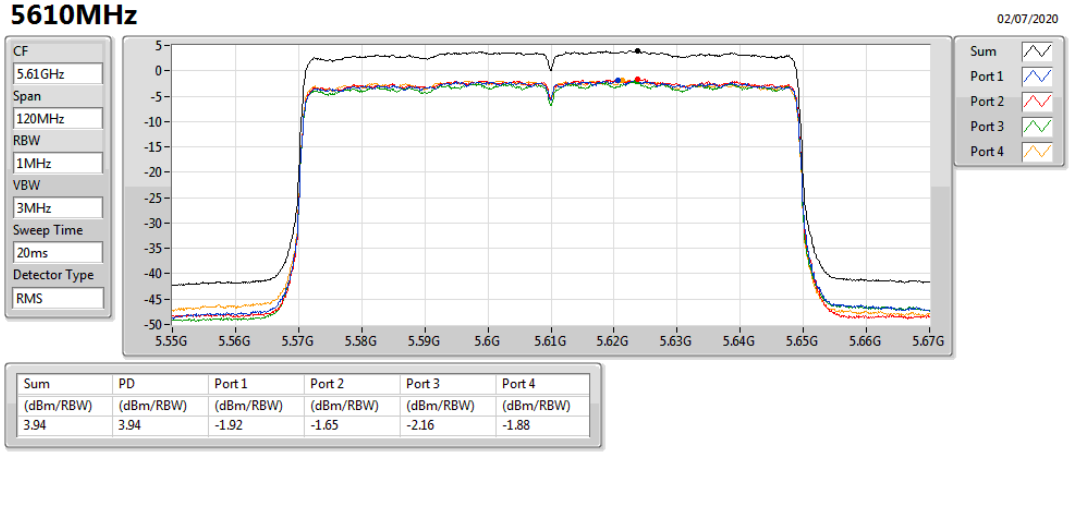
Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
3.68	3.68	0.51	0.87

Power Density Plot on Configuration IEEE 802.11ax 80MHz / Nss 1 MCS 0 / 1S4T TXBF / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6 / CH106 / 5530 MHz



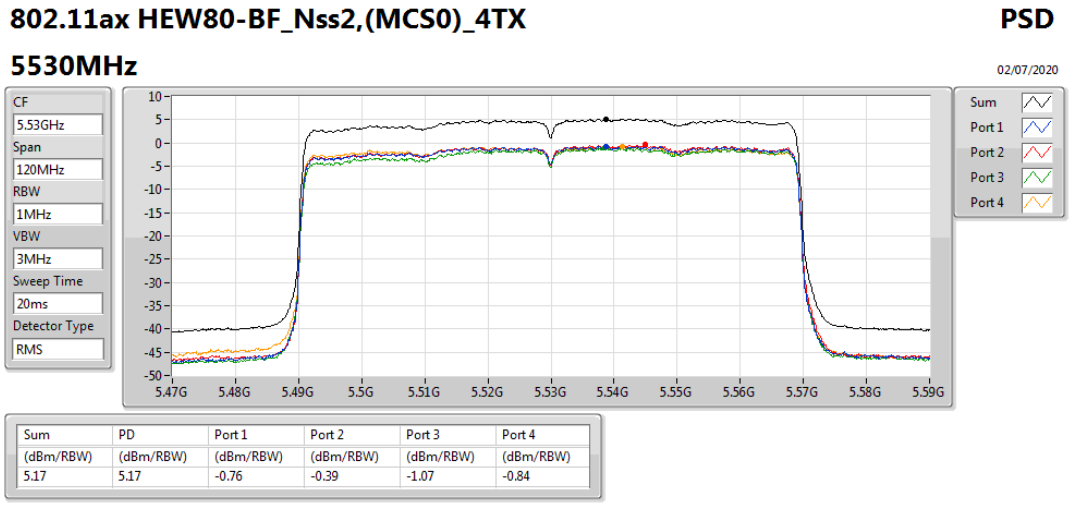
Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
4.17	4.17	-1.49	-1.73	-2.08	-1.73

Power Density Plot on Configuration IEEE 802.11ax 80MHz / Nss 1 MCS 0 / 1S4T TXBF / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6 / CH122 / 5610 MHz



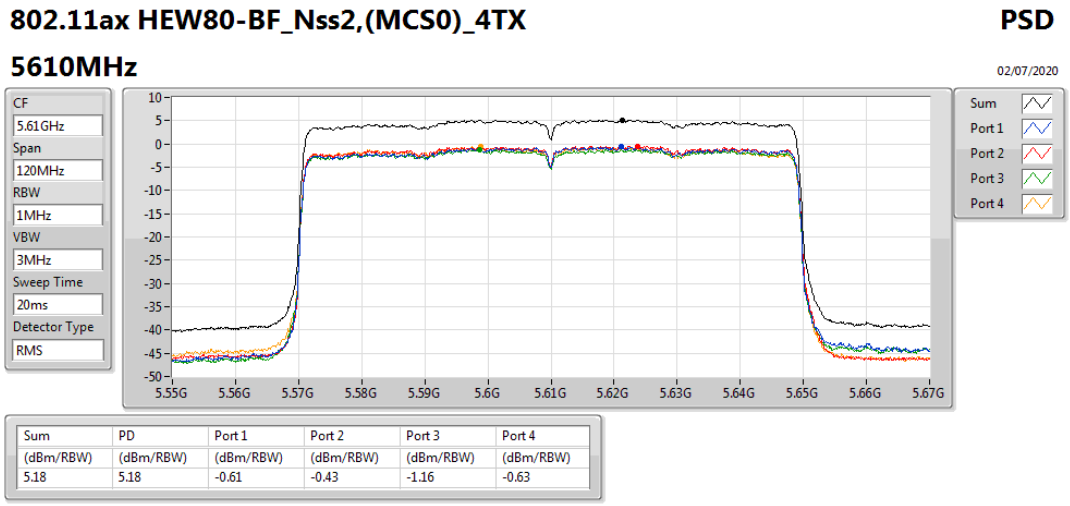
Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
3.94	3.94	-1.92	-1.65	-2.16	-1.88

Power Density Plot on Configuration IEEE 802.11ax 80MHz / Nss 2 MCS 0 / 2S4T TXBF / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6 / CH106 / 5530 MHz



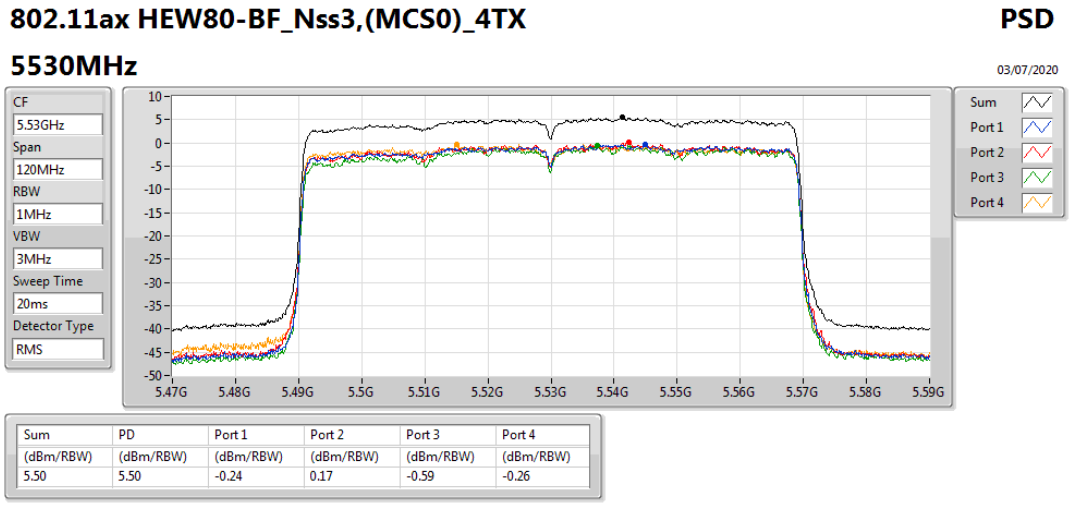
Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
5.17	5.17	-0.76	-0.39	-1.07	-0.84

Power Density Plot on Configuration IEEE 802.11ax 80MHz / Nss 2 MCS 0 / 2S4T TXBF / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6 / CH122 / 5610 MHz



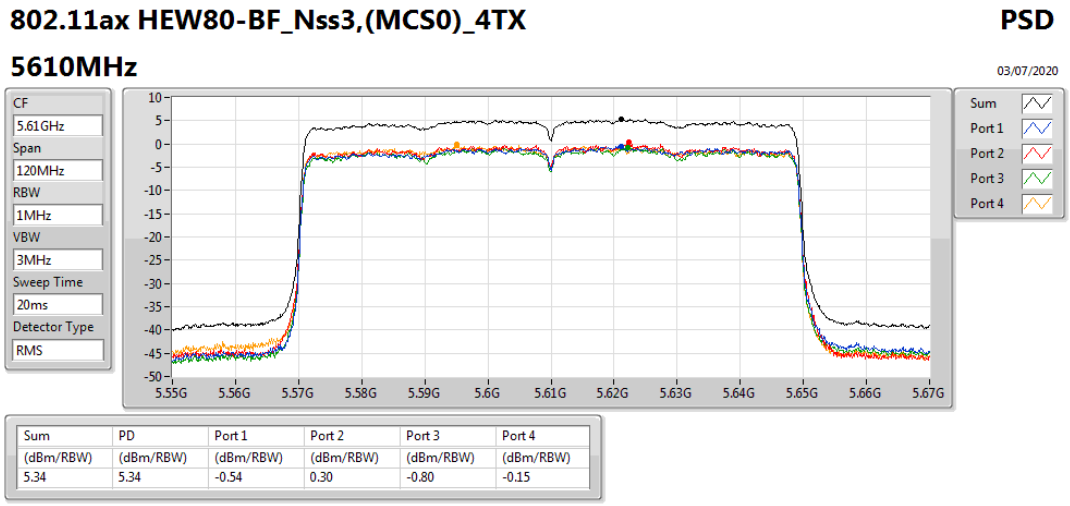
Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
5.18	5.18	-0.61	-0.43	-1.16	-0.63

Power Density Plot on Configuration IEEE 802.11ax 80MHz / Nss 3 MCS 0 / 3S4T TXBF / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6 / CH106 / 5530 MHz



Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
5.50	5.50	-0.24	0.17	-0.59	-0.26

Power Density Plot on Configuration IEEE 802.11ax 80MHz / Nss 3 MCS 0 / 3S4T TXBF / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6 / CH122 / 5610 MHz



Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
5.34	5.34	-0.54	0.30	-0.80	-0.15

Configuration IEEE 802.11ax 160MHz

<Nss 1 MCS 0 / 1S4T CDD / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6>

Channel	Frequency	Power Density (dBm/MHz)	Directional Gain (dBi)	Max. Limit (dBm/MHz)	Result
114	5570 MHz	2.12	6.75	10.25	**PASS**

Note1: Method 1 of powr density measurement of KDB 789033 is using for calculation totol power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

Note2: Refer to section 1.15 for duty cycle spectrum plot.

Note3: 5570 MHz= $Directional\ Gain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 6.75dBi>6dBi, so the power limit shall be reduced to 11.00-(6.75-6)=10.25dBm/MHz.

<Nss 1 MCS 0 / 1S4T TXBF / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6>

Channel	Frequency	Power Density (dBm/MHz)	Directional Gain (dBi)	Max. Limit (dBm/MHz)	Result
114	5570 MHz	1.64	6.75	10.25	**PASS**

Note1: Method 1 of powr density measurement of KDB 789033 is using for calculation totol power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

Note2: Refer to section 1.15 for duty cycle spectrum plot.

Note3: 5570 MHz= $Directional\ Gain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 6.75dBi>6dBi, so the power limit shall be reduced to 11.00-(6.75-6)=10.25dBm/MHz.

<Nss 2 MCS 0 / 2S4T TXBF / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6>

Channel	Frequency	Power Density (dBm/MHz)	Directional Gain (dBi)	Max. Limit (dBm/MHz)	Result
114	5570 MHz	2.06	5.10	11.00	**PASS**

Note1: Method 1 of powr density measurement of KDB 789033 is using for calculation totol power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

Note2: Refer to section 1.15 for duty cycle spectrum plot.

Note3: 5570 MHz= $Directional Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 5.10dB<6dBi, so the limit doesn't reduce.

<Nss 3 MCS 0 / 3S4T TXBF / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6>

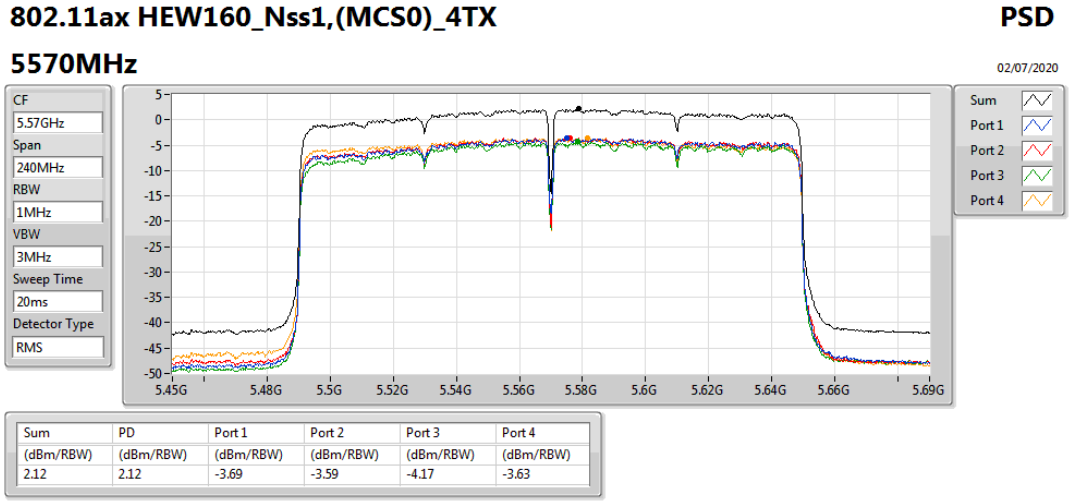
Channel	Frequency	Power Density (dBm/MHz)	Directional Gain (dBi)	Max. Limit (dBm/MHz)	Result
114	5570 MHz	1.65	3.26	11.00	**PASS**

Note1: Method 1 of powr density measurement of KDB 789033 is using for calculation totol power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

Note2: Refer to section 1.15 for duty cycle spectrum plot.

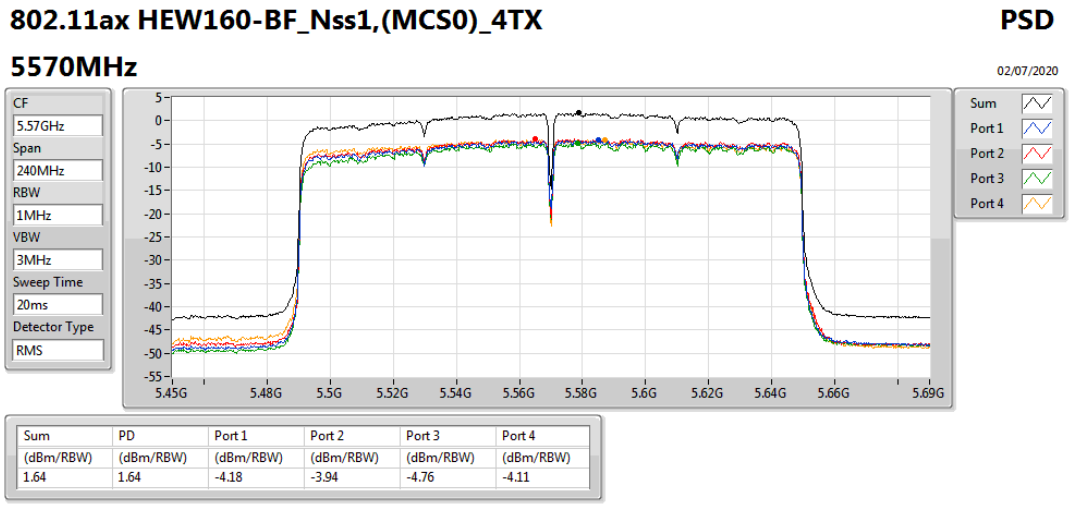
Note3: 5570 MHz= $Directional Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 3.26dB<6dBi, so the limit doesn't reduce.

Power Density Plot on Configuration IEEE 802.11ax 160MHz / Nss 1 MCS 0 / 1S4T CDD / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6 / CH114 / 5570 MHz



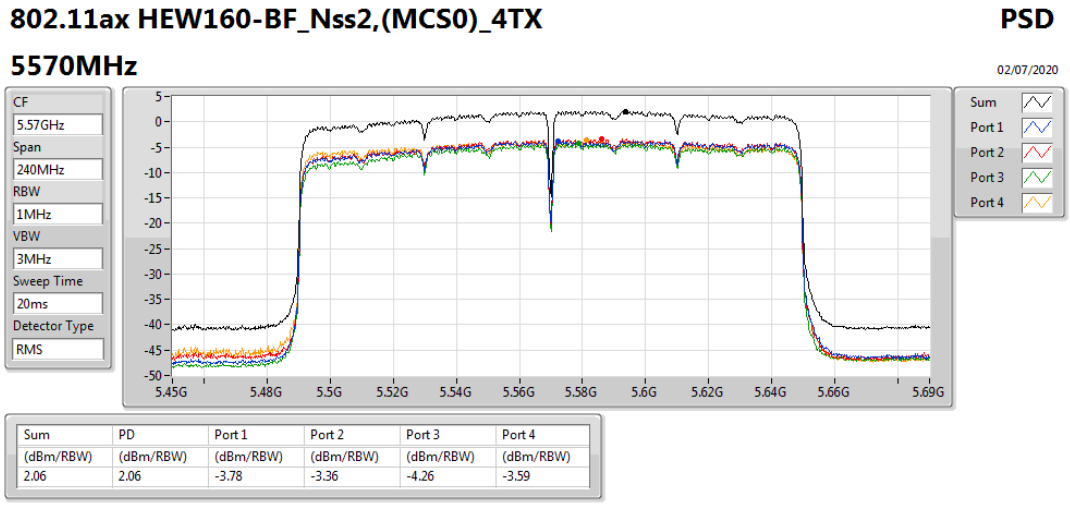
Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
2.12	2.12	-3.69	-3.59	-4.17	-3.63

Power Density Plot on Configuration IEEE 802.11ax 160MHz / Nss 1 MCS 0 / 1S4T TXBF / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6 / CH114 / 5570 MHz



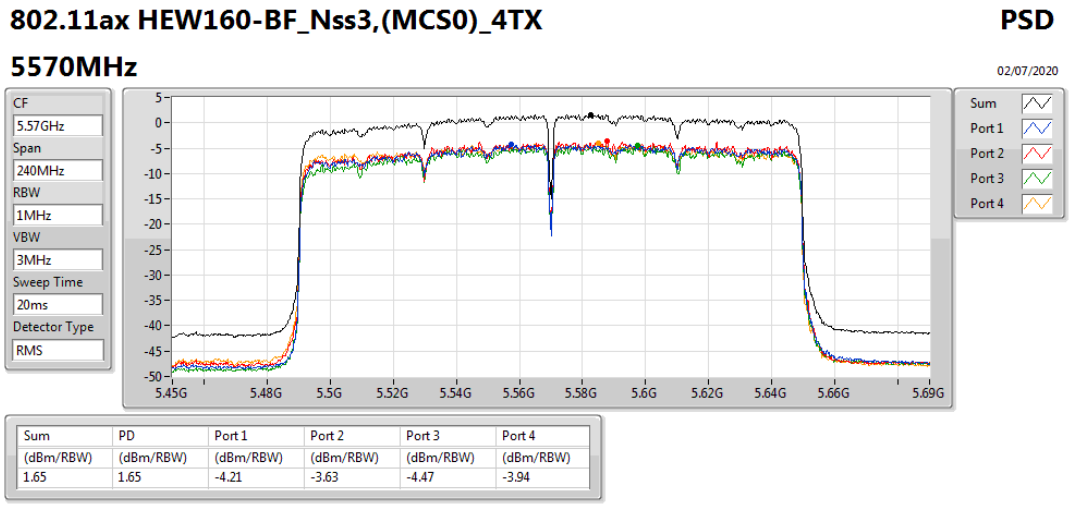
Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
1.64	1.64	-4.18	-3.94	-4.76	-4.11

Power Density Plot on Configuration IEEE 802.11ax 160MHz / Nss 2 MCS 0 / 2S4T TXBF / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6 / CH114 / 5570 MHz



Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
2.06	2.06	-3.78	-3.36	-4.26	-3.59

Power Density Plot on Configuration IEEE 802.11ax 160MHz / Nss 3 MCS 0 / 3S4T TXBF / Ant. 3 + Ant. 4 + Ant. 5 + Ant. 6 / CH114 / 5570 MHz



Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
1.65	1.65	-4.21	-3.63	-4.47	-3.94

2.4. Band-crossing Channel Measurement

2.4.1. Emission bandwidth Measurement for Band-Crossing Channel

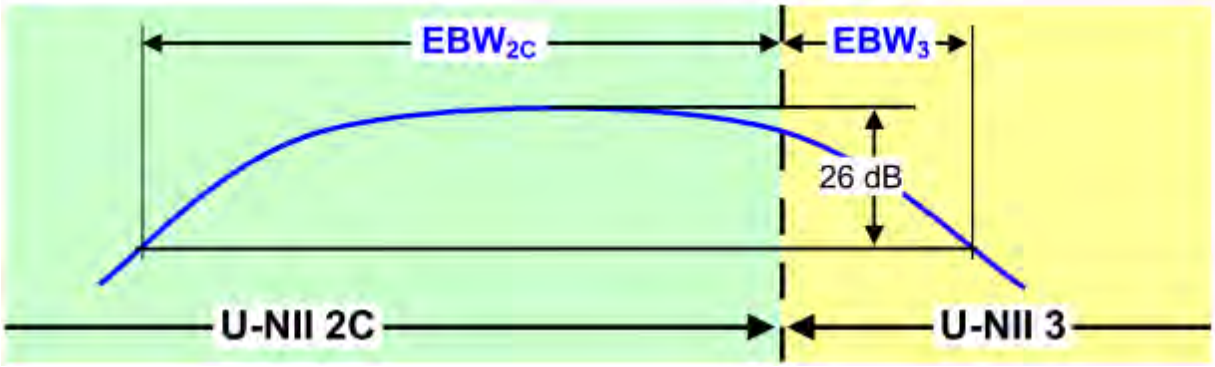
2.4.1.1 Limit

No restriction limits.

2.4.1.2 26dB Bandwidth Measuring Instruments and Setting

Please refer to section 3 of equipments list in this report. The following table is the setting of the spectrum analyzer.

26dB Bandwidth	
Spectrum Parameters	**Setting**
Attenuation	Auto
Span Frequency	> 26dB Bandwidth
RBW	Approximately 1% of the emission bandwidth
VBW	VBW > RBW
Detector	Peak
Trace	Max Hold
Sweep Time	Auto
6dB Spectrum Bandwidth	
Spectrum Parameters	**Setting**
Attenuation	Auto
Span Frequency	> 6dB Bandwidth
RBW	100kHz
VBW	≥ 3 x RBW
Detector	Peak
Trace	Max Hold
Sweep Time	Auto
99% Occupied Bandwidth	
Spectrum Parameters	**Setting**
Span	1.5 times to 5.0 times the OBW
RBW	1 % to 5 % of the OBW
VBW	≥ 3 x RBW
Detector	Peak
Trace	Max Hold



Emission Bandwidth (EBW) within a Band for Band-Crossing Signals

2.4.1.3 Test Procedures

26dB Emission Bandwidth and 99% Occupied Bandwidth

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. Test was performed in accordance with Measurement of Digital Transmission Systems Operating under 789033 D02 General U-NII Test Procedures New Rules v02r01, in section “Emission bandwidth (C)(1)” & "99 Percent Occupied Bandwidth"(D). 12/14/2017.
3. When measuring Emission bandwidth with multiple antenna systems, add every result of the values by mathematic formula.

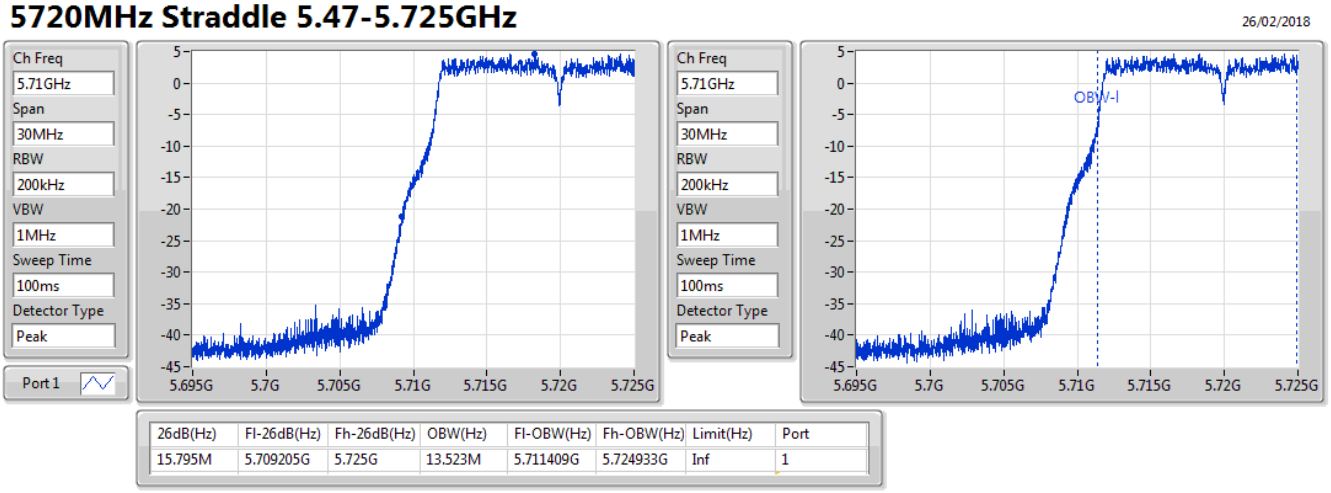
6dB Spectrum Bandwidth

1. The transmitter output (antenna port) was connected to the spectrum analyzer in peak hold mode.
2. Test was performed in accordance with Measurement of Digital Transmission Systems Operating under 789033 D02 General UNII Test Procedures New Rules v02r01, in section “Emission bandwidth (C)(2)” & "99 Percent Occupied Bandwidth"(D). , 12/14/2017
3. Measured the spectrum width with power higher than 6dB account by this measurement.

Example:

802.11ac VHT20-BF_Nss1,(MCS0)_4TX(Port1) **EBW**

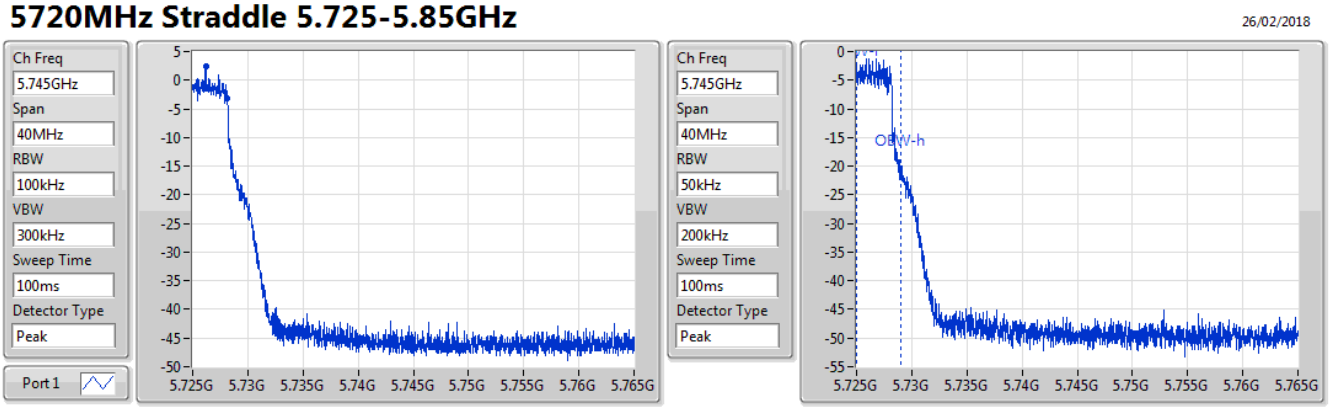
5720MHz Straddle 5.47-5.725GHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
15.795M	5.709205G	5.725G	13.523M	5.711409G	5.724933G	Inf	1

802.11ac VHT20-BF_Nss1,(MCS0)_4TX(Port1) **EBW**

5720MHz Straddle 5.725-5.85GHz



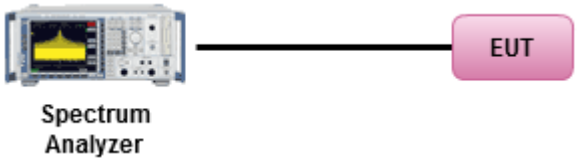
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
3.1M	5.725G	5.7281G	4.038M	5.72501G	5.729048G	500k	1

EBW2C= 5.725GHz - M1[1]

EBW3= M1[1] + D1[1](MHz)- 5.725GHz

2.4.1.4 Test Setup Layout

Emission Bandwidth



2.4.1.5 Test Deviation

There are no deviation with the original standard.

2.4.1.6 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

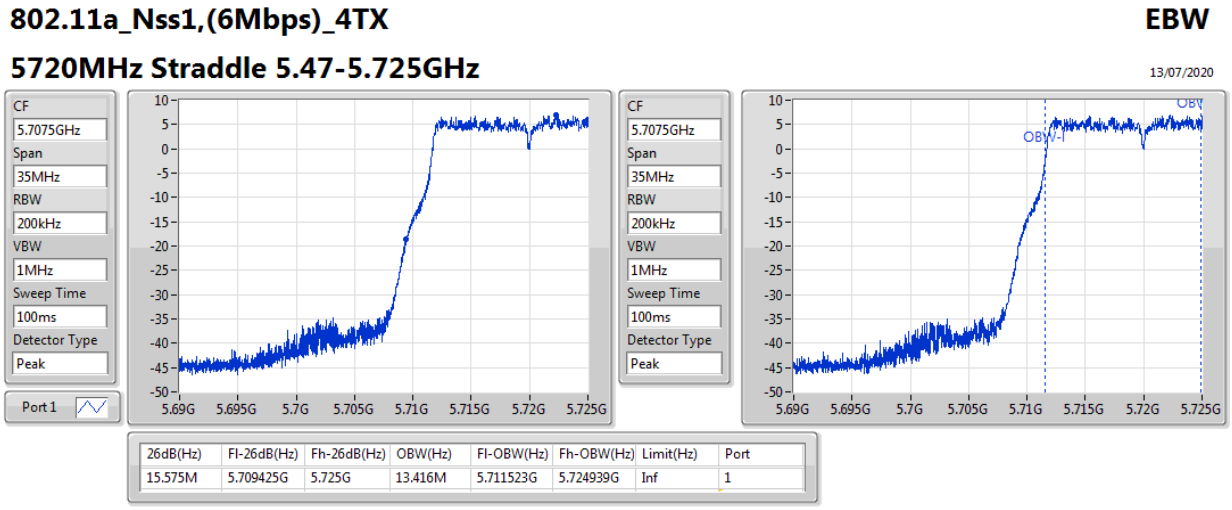
2.4.1.7 Test Result for Emission bandwidth

Configuration IEEE 802.11a

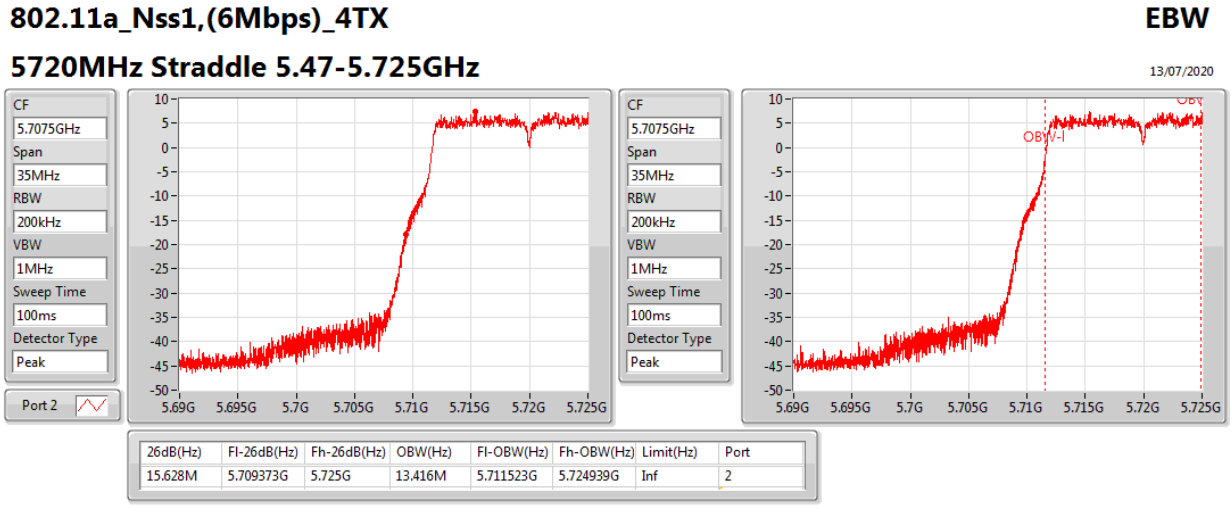
Emission Bandwidth (MHz)										
Mode	Number of Transmit Chains (NTX)	Frequency	EBW2c for 26dB Emission Bandwidth (MHz), EBW3 for 6dB Emission Bandwidth (MHz)							
			Ant. 3		Ant. 4		Ant. 5		Ant. 6	
			EBW2c	EBW3	EBW2c	EBW3	EBW2c	EBW3	EBW2c	EBW3
802.11a (CDD)	1 stream 4TX	5720 MHz	15.575	3.150	15.628	3.105	15.715	3.120	15.628	3.120

99% Occupied Bandwidth (MHz)										
Mode	Number of Transmit Chains (NTX)	Frequency	99% Occupied Bandwidth (MHz)							
			Ant. 3		Ant. 4		Ant. 5		Ant. 6	
			OBW2c	OBW3	OBW2c	OBW3	OBW2c	OBW3	OBW2c	OBW3
802.11a (CDD)	1 stream 4TX	5720 MHz	13.416	4.228	13.416	4.273	13.451	4.183	13.381	4.153

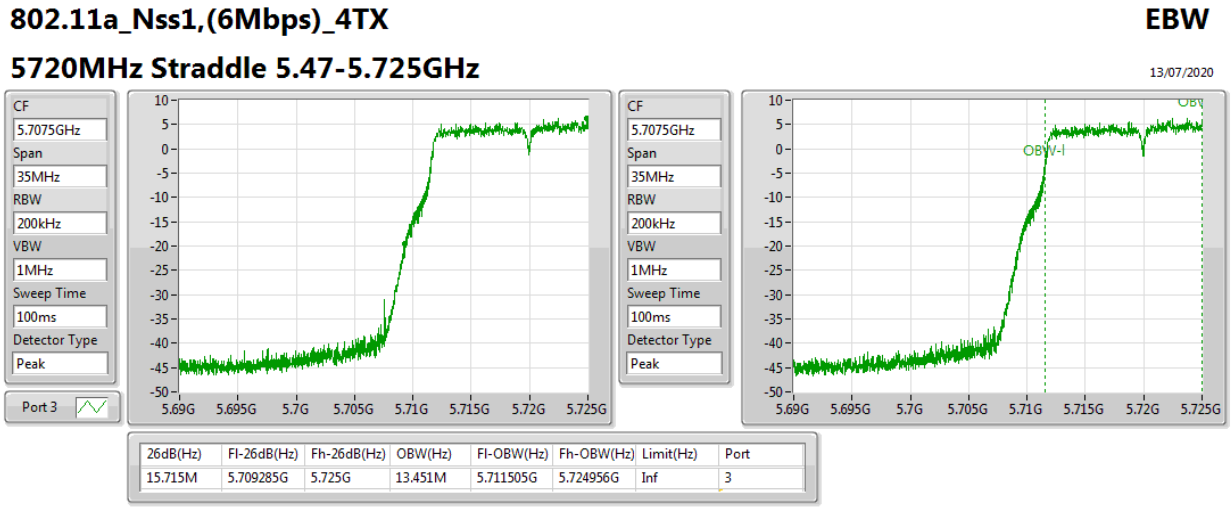
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / OFDM / 1S4T CDD / Ant. 3 / CH144 (EBW2c & OBW2c) / 5720 MHz



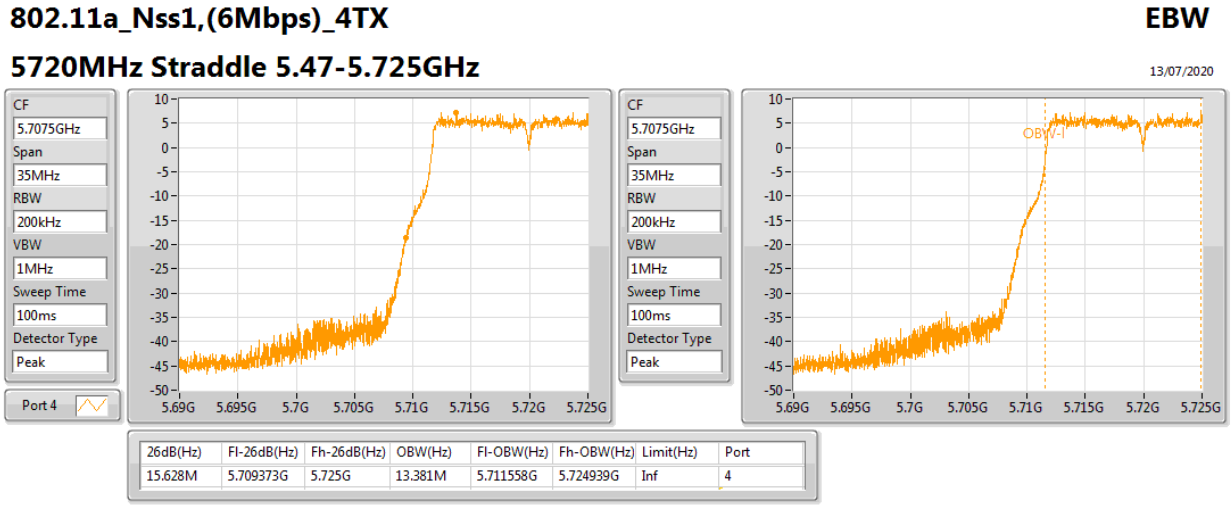
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / OFDM / 1S4T CDD / Ant. 4 / CH144 / 5720 MHz (EBW2c & OBW2c)



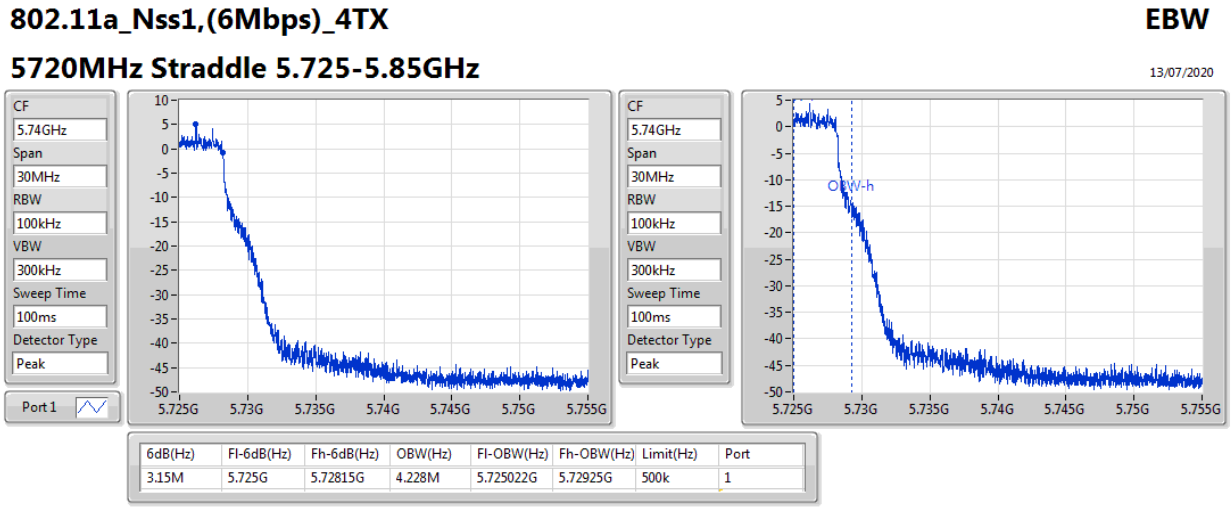
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / OFDM / 1S4T CDD / Ant. 5 / CH144 / 5720 MHz (EBW2c & OBW2c)



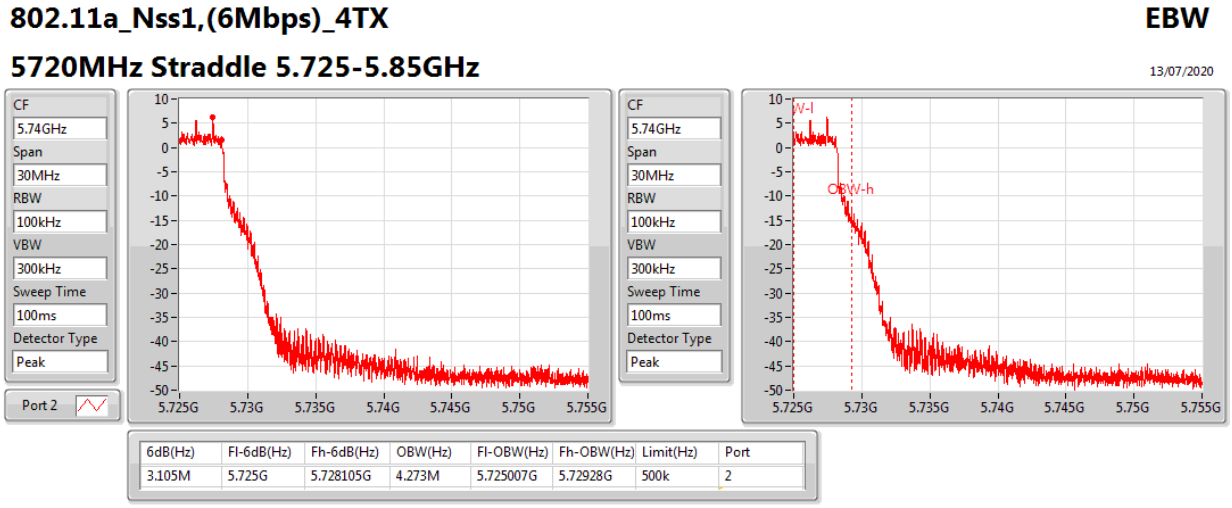
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / OFDM / 1S4T CDD / Ant. 6 / CH144 / 5720 MHz (EBW2c & OBW2c)



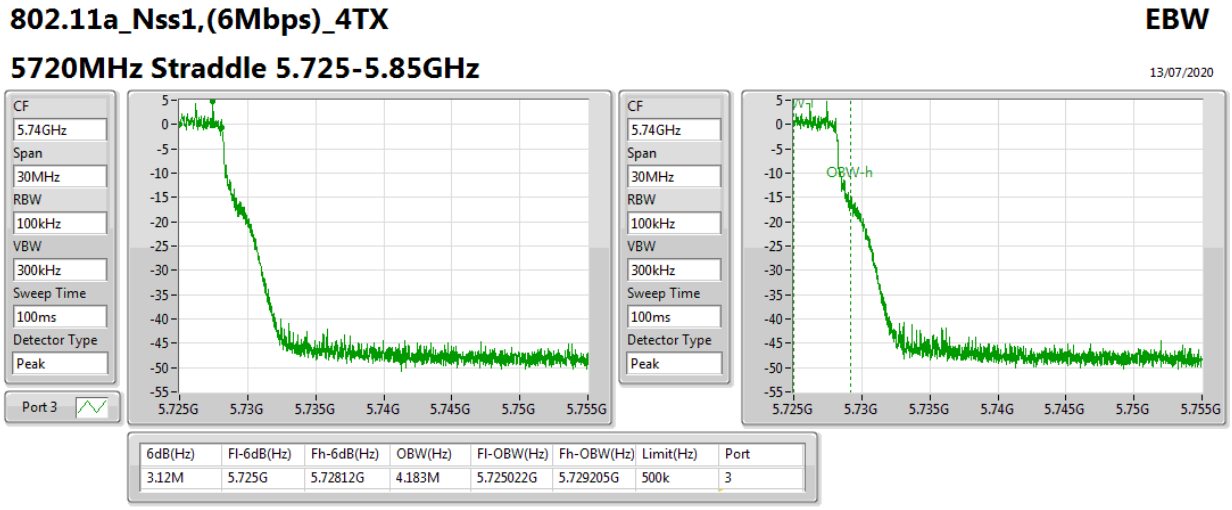
6dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / OFDM / 1S4T CDD / Ant. 3 / CH144 / 5720 MHz (EBW3 & OBW3)



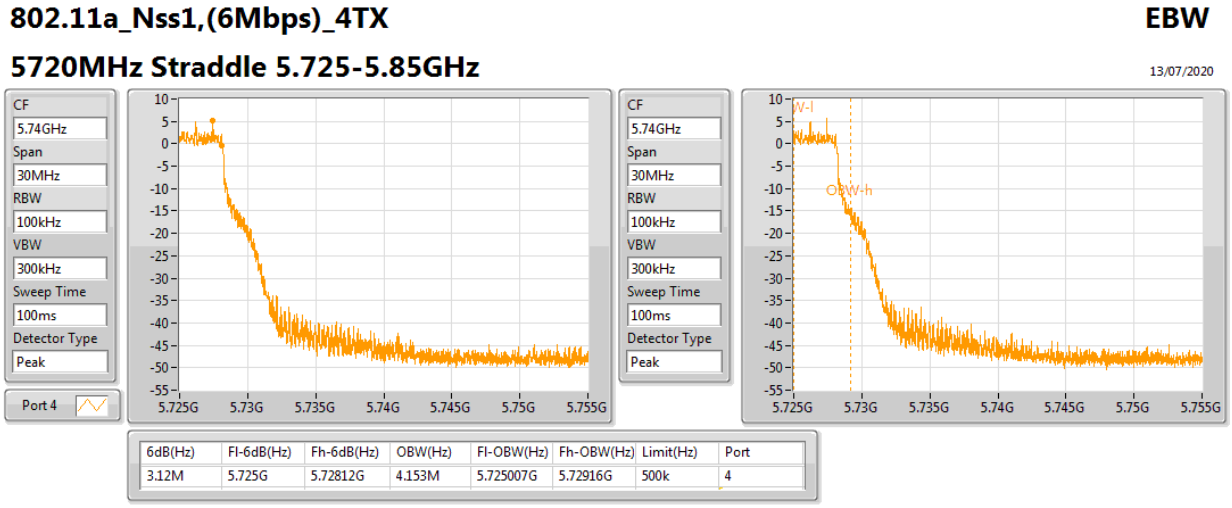
6dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / OFDM / 1S4T CDD / Ant. 4 / CH144 / 5720 MHz (EBW3 & OBW3)



6dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / OFDM / 1S4T CDD / Ant. 5 / CH144 / 5720 MHz (EBW3 & OBW3)



6dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / OFDM / 1S4T CDD / Ant. 6 / CH144 / 5720 MHz (EBW3 & OBW3)

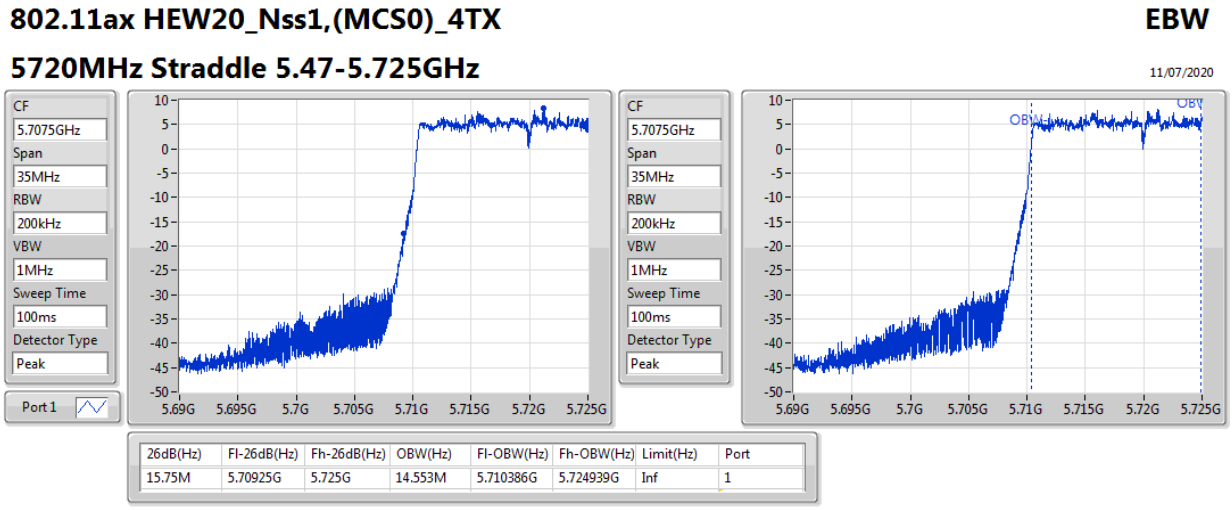


Configuration IEEE 802.11ax 20MHz

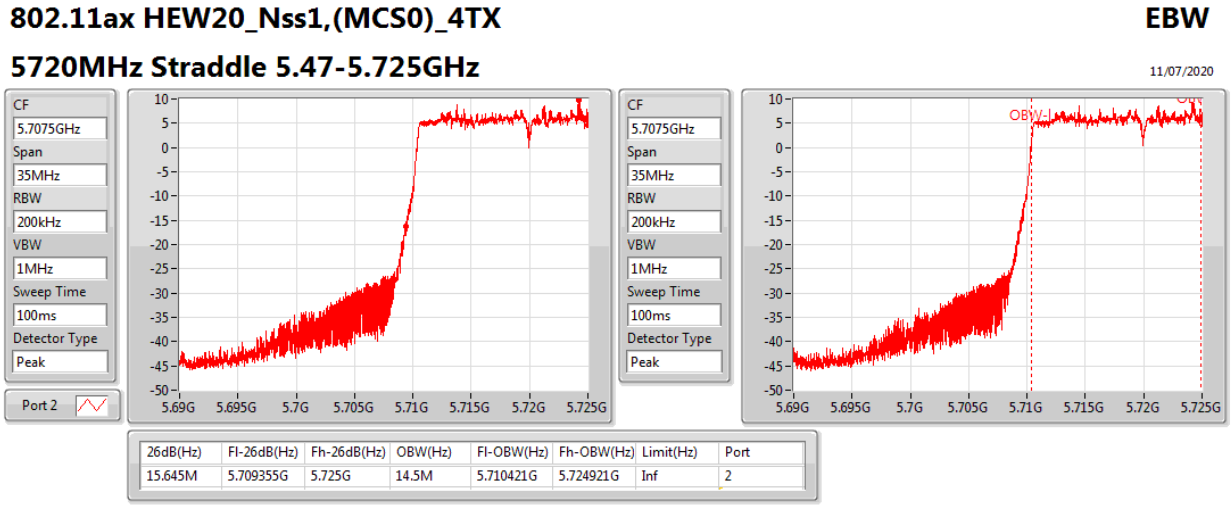
Emission Bandwidth (MHz)										
Mode	Number of Transmit Chains (NTX)	Frequency	EBW2c for 26dB Emission Bandwidth (MHz), EBW3 for 6dB Emission Bandwidth (MHz)							
			Ant. 3		Ant. 4		Ant. 5		Ant. 6	
			EBW2c	EBW3	EBW2c	EBW3	EBW2c	EBW3	EBW2c	EBW3
802.11ax 20MHz (CDD)	1 stream 4TX	5720 MHz	15.750	4.425	15.645	4.425	15.785	4.425	15.715	4.515
802.11ax 20MHz (TXBF)	1 stream 4TX	5720 MHz	15.733	4.455	15.593	4.410	15.803	4.425	15.715	4.440
802.11ax 20MHz (TXBF)	2 stream 4TX	5720 MHz	15.995	4.440	15.558	4.440	15.855	4.410	15.663	4.425
802.11ax 20MHz (TXBF)	3 stream 4TX	5720 MHz	15.820	4.470	15.593	4.470	15.645	4.485	15.663	4.470

99% Occupied Bandwidth (MHz)										
Mode	Number of Transmit Chains (NTX)	Frequency	99% Occupied Bandwidth (MHz)							
			Ant. 3		Ant. 4		Ant. 5		Ant. 6	
			OBW2c	OBW3	OBW2c	OBW3	OBW2c	OBW3	OBW2c	OBW3
802.11ax 20MHz (CDD)	1 stream 4TX	5720 MHz	14.553	4.603	14.500	4.693	14.535	4.663	14.518	4.723
802.11ax 20MHz (TXBF)	1 stream 4TX	5720 MHz	14.553	4.633	14.500	4.708	14.535	4.693	14.518	4.723
802.11ax 20MHz (TXBF)	2 stream 4TX	5720 MHz	14.553	4.603	14.500	4.678	14.535	4.633	14.518	4.663
802.11ax 20MHz (TXBF)	3 stream 4TX	5720 MHz	14.588	4.618	14.535	4.558	14.570	4.558	14.605	4.618

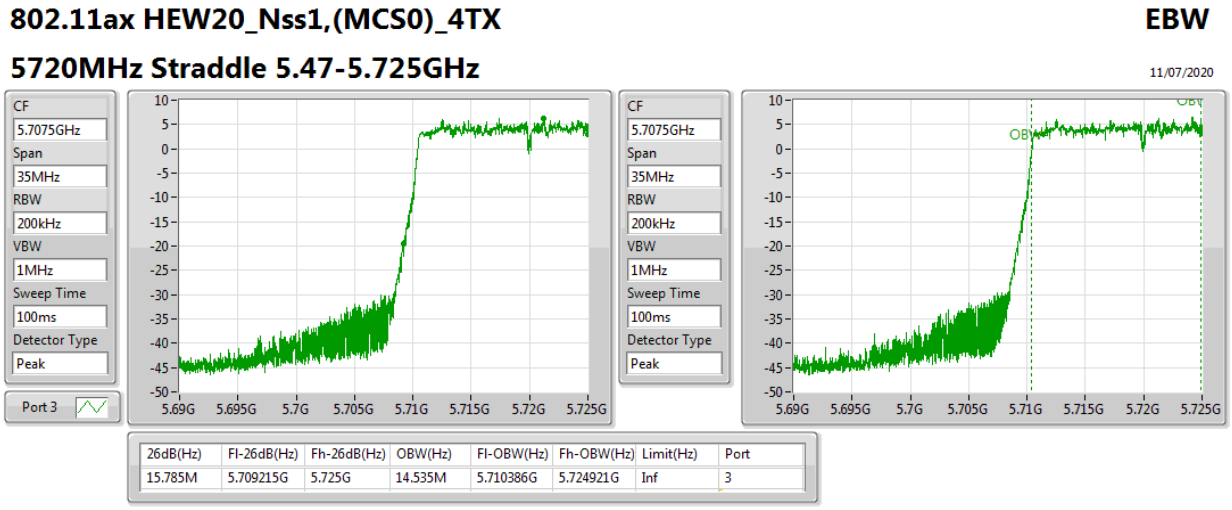
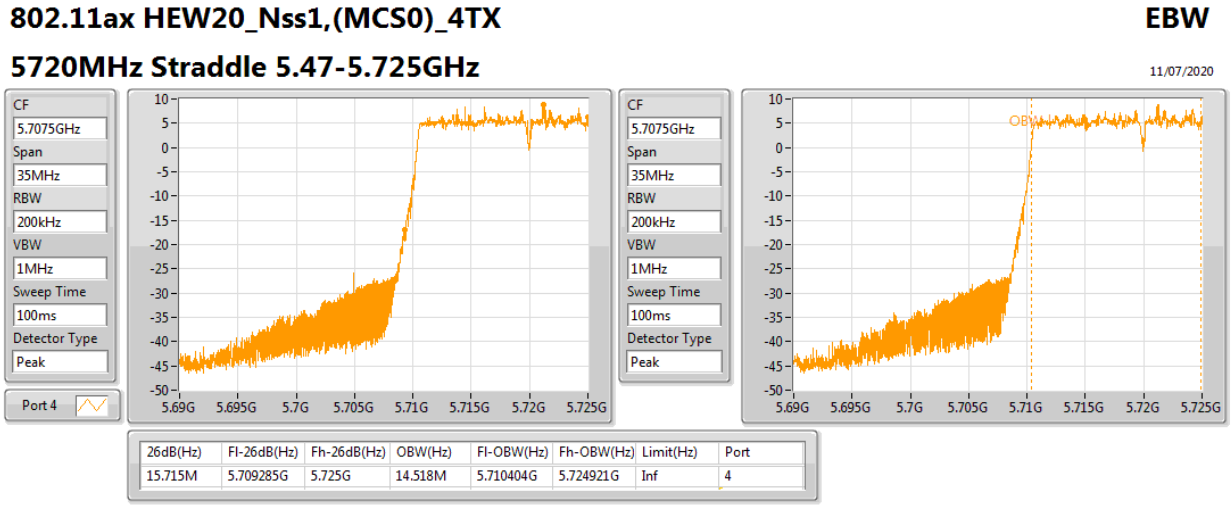
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 1 MCS 0 / 1S4T CDD / Ant. 3 / CH144 / 5720 MHz (EBW2c & OBW2c)



26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 1 MCS 0 / 1S4T CDD / Ant. 4 / CH144 / 5720 MHz (EBW2c & OBW2c)



26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 1 MCS 0 / 1S4T CDD / Ant. 5 / CH144 / 5720 MHz (EBW2c & OBW2c)



26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ax 20MHz / Nss 1 MCS 0 / 1S4T CDD / Ant. 6 / CH144 / 5720 MHz (EBW2c & OBW2c)