



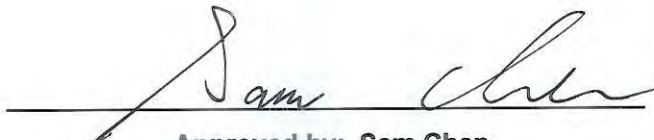
FCC RADIO TEST REPORT

FCC ID : QXO-AP510E
Equipment : 802.11ax Access Point
Brand Name : Extreme Networks
Model Name : AP510e
Applicant : Extreme Networks, Inc.
6480 Via Del Oro, San Jose, CA 95119
Manufacturer : Extreme Networks, Inc.
6480 Via Del Oro, San Jose, CA 95119
Standard : 47 CFR FCC Part 15.407

The product was received on Nov. 09, 2018, and testing was started from Feb. 20, 2019 and completed on May 14, 2019. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications 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 report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

The test results in this variant report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.


Approved by: Sam Chen

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TEL : 886-3-656-9065
FAX : 886-3-656-9085
Report Template No.: CB Ver1.0



Summary of Test Result

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



1 General Description

1.1 Information

1.1.1 RF General Information

Frequency Range (MHz)	IEEE Std. 802.11	Ch. Frequency (MHz)	Channel Number
5250-5350	a, n (HT20), ac (VHT20), ax (HEW20)	5260-5320	52-64 [4]
5470-5725		5500-5720	100-144 [12]
5250-5350	n (HT40), ac (VHT40), ax (HEW40)	5270-5310	54-62 [2]
5470-5725		5510-5710	102-142 [6]
5250-5350	ac (VHT80), ax (HEW80)	5290	58 [1]
5470-5725		5530-5690	106-138 [3]
5150-5350	ac (VHT160), ax (HEW160)	5250	50 [1]
5470-5725		5570	114 [1]

Band	Mode	BWch (MHz)	Nant
5.15-5.25GHz	802.11ac VHT160	160	1TX, 2TX, 4TX
5.15-5.25GHz	802.11ax HEW160	160	1TX, 2TX, 4TX
5.15-5.25GHz	802.11ac VHT160-BF	160	2TX, 4TX
5.15-5.25GHz	802.11ax HEW160-BF	160	2TX, 4TX
5.25-5.35GHz	802.11a	20	1TX, 2TX, 4TX
5.25-5.35GHz	802.11n HT20	20	1TX, 2TX, 4TX
5.25-5.35GHz	802.11n HT20-BF	20	2TX, 4TX
5.25-5.35GHz	802.11ac VHT20	20	1TX, 2TX, 4TX
5.25-5.35GHz	802.11ac VHT20-BF	20	2TX, 4TX
5.25-5.35GHz	802.11ax HEW20	20	1TX, 2TX, 4TX
5.25-5.35GHz	802.11ax HEW20-BF	20	2TX, 4TX
5.25-5.35GHz	802.11n HT40	40	1TX, 2TX, 4TX
5.25-5.35GHz	802.11n HT40-BF	40	2TX, 4TX
5.25-5.35GHz	802.11ac VHT40	40	1TX, 2TX, 4TX
5.25-5.35GHz	802.11ac VHT40-BF	40	2TX, 4TX
5.25-5.35GHz	802.11ax HEW40	40	1TX, 2TX, 4TX
5.25-5.35GHz	802.11ax HEW40-BF	40	2TX, 4TX
5.25-5.35GHz	802.11ac VHT80	80	1TX, 2TX, 4TX
5.25-5.35GHz	802.11ac VHT80-BF	80	2TX, 4TX
5.25-5.35GHz	802.11ax HEW80	80	1TX, 2TX, 4TX
5.25-5.35GHz	802.11ax HEW80-BF	80	2TX, 4TX
5.25-5.35GHz	802.11ac VHT160	160	1TX, 2TX, 4TX
5.25-5.35GHz	802.11ac VHT160-BF	160	2TX, 4TX



5.25-5.35GHz	802.11ax HEW160	160	1TX, 2TX, 4TX
5.25-5.35GHz	802.11ax HEW160-BF	160	2TX, 4TX
5.47-5.725GHz	802.11a	20	1TX, 2TX, 4TX
5.47-5.725GHz	802.11n HT20	20	1TX, 2TX, 4TX
5.47-5.725GHz	802.11n HT20-BF	20	2TX, 4TX
5.47-5.725GHz	802.11ac VHT20	20	1TX, 2TX, 4TX
5.47-5.725GHz	802.11ac VHT20-BF	20	2TX, 4TX
5.47-5.725GHz	802.11ax HEW20	20	1TX, 2TX, 4TX
5.47-5.725GHz	802.11ax HEW20-BF	20	2TX, 4TX
5.47-5.725GHz	802.11n HT40	40	1TX, 2TX, 4TX
5.47-5.725GHz	802.11n HT40-BF	40	2TX, 4TX
5.47-5.725GHz	802.11ac VHT40	40	1TX, 2TX, 4TX
5.47-5.725GHz	802.11ac VHT40-BF	40	2TX, 4TX
5.47-5.725GHz	802.11ax HEW40	40	1TX, 2TX, 4TX
5.47-5.725GHz	802.11ax HEW40-BF	40	2TX, 4TX
5.47-5.725GHz	802.11ac VHT80	80	1TX, 2TX, 4TX
5.47-5.725GHz	802.11ac VHT80-BF	80	2TX, 4TX
5.47-5.725GHz	802.11ax HEW80	80	1TX, 2TX, 4TX
5.47-5.725GHz	802.11ax HEW80-BF	80	2TX, 4TX
5.47-5.725GHz	802.11ac VHT160	160	1TX, 2TX, 4TX
5.47-5.725GHz	802.11ac VHT160-BF	160	2TX, 4TX
5.47-5.725GHz	802.11ax HEW160	160	1TX, 2TX, 4TX
5.47-5.725GHz	802.11ax HEW160-BF	160	2TX, 4TX

Note:

- ♦ 11a, HT20 and HT40 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.
- ♦ VHT20, VHT40, VHT80 and VHT160 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM modulation.
- ♦ HEW20, HEW40, HEW80 and HEW160 use a combination of OFDMA-BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM modulation.
- ♦ BWch is the nominal channel bandwidth.
- ♦ Nss-Min is the minimum number of spatial streams.
- ♦ Nant is the number of outputs. e.g., 2(2,3) means have 2 outputs for port 2 and port 3. 2 means have 2 outputs for port 1 and port 2.



1.1.2 Antenna Information

Ant.	Brand	Model Name	Antenna Type	Connector	Radio	Elevation angle above 30 degree Max Gain (dBi)
1	Extreme Networks	ML-2452-APA2-01	Omni	RP SMA male	1, 2	-
2	Extreme Networks	ML-2452-APA2-02	Omni	RP SMA male	1, 2	-
3	Extreme Networks	ML-2452-HPA5-036	Omni	RP SMA male	1, 2	-
4	Extreme Networks	ML-2452-HPAG4A6-01	Omni	N Male	1, 2	5.7
5	Extreme Networks	ML-2452-PNA5-01R	Panel	N Male	1, 2	5.26
6	Extreme Networks	ML-2452-HPAG5A8-01	Omni	N Male	1, 2	-6.05
7	Extreme Networks	ML-2452-PTA4M4-036	Omni	RP SMA male	1, 2	-
8	Extreme Networks	WS-AO-DQ04360N	Omni	N Male	1, 2	-
9	Extreme Networks	ML-2452-SEC6M4-036	Panel	RP SMA male	1, 2	-
10	Extreme Networks	WS-AI-DQ05120	Panel	RP SMA male	1, 2	-
11	Extreme Networks	ML-2452-PNA7-01R	Panel	RP SMA male	1, 2, 3	7.9
12	Extreme Networks	ML-2499-HPA8-01	Omni	N Male	3	-
13	Extreme Networks	AI-DQ04360S	Omni	RP SMA male	1, 2	-

Note1:

Ant.	Antenna Gain(dBi)				Cable loss(dB)				True Gain(dBi)			
	WLAN 2.4GHz	WLAN 5GHz	Bluetooth	Thread	WLAN 2.4GHz	WLAN 5GHz	Bluetooth	Thread	WLAN 2.4GHz	WLAN 5GHz	Bluetooth	Thread
1	3.17	4.85	-	-	1	2	-	-	2.17	2.85	-	-
2	3.17	4.85	-	-	1	2	-	-	2.17	2.85	-	-
3	3.9	5.7	-	-	1	2	-	-	2.9	3.7	-	-
4	4	7.3	-	-	1	2	-	-	3	5.3	-	-
5	4.5	5	-	-	1	2	-	-	3.5	3	-	-
6	5	8	-	-	1	2	-	-	4	6	-	-
7	5	6.6	-	-	1	2	-	-	4	4.6	-	-
8	5.5	6	-	-	1	2	-	-	4.5	4	-	-
9	6.92	7.23	-	-	1	2	-	-	5.92	5.23	-	-
10	6.92	7.23	-	-	1	2	-	-	5.92	5.23	-	-
11	7.8	10.7	7.8	7.8	1	2	1	1	6.8	8.7	6.8	6.8
12	-	-	8	8	-	-	1	1	-	-	7	7
13	5.5	6	-	-	1	2	-	-	4.5	4	-	-

Note2: The above information was declared by manufacturer.

Note3:

For 2.4GHz function:

For IEEE 802.11b/g/n/ax mode (1TX, 2TX, 4TX/4RX):

For 1TX

Only Port 1 can be use as transmitting antenna.

For 2TX

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

Port 1 and Port 2 could transmit simultaneously.

For 4TX

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

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

For 4RX

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

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

For 5GHz function:

For IEEE 802.11a/n/ac/ax mode (1TX, 2TX, 4TX/4RX):

For 1TX

Only Port 1 can be use as transmitting antenna.

For 2TX

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

Port 1 and Port 2 could transmit simultaneously.

For 4TX

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

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

For 4RX

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

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

For Bluetooth and Thread mode (1TX/1RX):

Only Port 1 can be use as transmitting/receiving antenna.

**1.1.3 Mode Test Duty Cycle****For Radio 1:****For 1T1S Mode:**

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
802.11a	0.958	0.186	2.065m	1k
802.11ax HEW20	0.986	0.061	n/a (DC $\geq$ 0.98)	n/a (DC $\geq$ 0.98)
802.11ax HEW40	0.97	0.132	910u	3k
802.11ax HEW80	0.945	0.246	473.75u	3k
802.11ax HEW160	0.913	0.395	272.25u	10k

For 2T2S Mode:

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
802.11ax HEW20	0.97	0.132	925u	3k
802.11ax HEW40	0.948	0.232	506.25u	3k
802.11ax HEW80	0.915	0.386	290u	10k
802.11ax HEW160	0.886	0.526	188.25u	10k

For 4T1S Mode:

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
802.11a	0.958	0.186	2.065m	1k
802.11ax HEW20	0.984	0.07	n/a (DC $\geq$ 0.98)	n/a (DC $\geq$ 0.98)
802.11ax HEW40	0.969	0.137	910u	3k
802.11ax HEW80	0.945	0.246	473.75u	3k
802.11ax HEW160	0.908	0.419	273.75u	10k
802.11ax HEW20-BF	0.872	0.595	1.5m	1k
802.11ax HEW40-BF	0.902	0.448	827.5u	3k
802.11ax HEW80-BF	0.929	0.32	401.875u	3k
802.11ax HEW160-BF	0.906	0.429	272.5u	10k

For 4T4S Mode:

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
802.11ax HEW20	0.951	0.218	538.125u	3k
802.11ax HEW40	0.925	0.339	330u	10k
802.11ax HEW80	0.891	0.501	223.125u	10k
802.11ax HEW160	0.862	0.645	170u	10k

**For Radio 2:****For 1T1S Mode:**

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
802.11a	0.958	0.186	2.065m	1k
802.11ax HEW20	0.986	0.061	n/a (DC $\geq$ 0.98)	n/a (DC $\geq$ 0.98)
802.11ax HEW40	0.972	0.123	910u	3k
802.11ax HEW80	0.945	0.246	473.75u	3k
802.11ax HEW160	0.904	0.437	273.125u	10k

For 2T2S Mode:

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
802.11ax HEW20	0.97	0.132	926.25u	3k
802.11ax HEW40	0.948	0.232	506.25u	3k
802.11ax HEW80	0.915	0.386	290u	10k
802.11ax HEW160	0.871	0.602	188.75u	10k

For 4T1S Mode:

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
802.11a	0.953	0.209	2.068m	1k
802.11ax HEW20	0.983	0.074	n/a (DC $\geq$ 0.98)	n/a (DC $\geq$ 0.98)
802.11ax HEW40	0.973	0.119	910u	3k
802.11ax HEW80	0.946	0.241	473.75u	3k
802.11ax HEW160	0.909	0.414	273.75u	10k
802.11ax HEW20-BF	0.894	0.487	1.498m	1k
802.11ax HEW40-BF	0.881	0.55	2.343m	1k
802.11ax HEW80-BF	0.938	0.278	2.804m	1k
802.11ax HEW160-BF	0.872	0.591	402.5u	3k

For 4T4S Mode:

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
802.11ax HEW20	0.952	0.214	537.5u	3k
802.11ax HEW40	0.923	0.348	330u	10k
802.11ax HEW80	0.889	0.511	221.25u	10k
802.11ax HEW160	0.909	0.413	273.75u	10k

Note:

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

**1.1.4 EUT Operational Condition**

EUT Power Type	From Power adapter or PoE			
Beamforming Function	☒	With beamforming	☐	Without beamforming
	For 802.11ax in 2.4GHz and 802.11n/ac/ax in 5GHz.			
Weather Band	☒	With 5600~5650MHz	☐	Without 5600~5650MHz
Function	☒	Outdoor P2M	☒	Indoor P2M
	☐	Fixed P2P	☐	Client
TPC Function	☒	With TPC	☐	Without TPC
Test Software Version	accessMtool 3.0.0.6			

Note: The above information was declared by manufacturer.

1.1.5 Table for EUT support function

The EUT has three radios, the information as following table:

Radio	Function		
	WLAN 2.4GHz	WLAN 5GHz	Bluetooth/Thread
1	V	V	-
2	-	V	-
3	-	-	V

Function	Radio	Support Type	Support Band
AP	1,2,3	Master	WLAN 2.4GHz/Bluetooth/Thread/WLAN 5GHz Band 1~4
Client	1	Slave without Radar Detection (Sensor Mode)	WLAN 2.4GHz/WLAN 5GHz Band 1+4
Bridge	1,2,3	Master	WLAN 2.4GHz/Bluetooth/Thread/WLAN 5GHz Band 1+4
Mesh	1,2,3	Master	WLAN 2.4GHz/Bluetooth/Thread/WLAN 5GHz Band 1+4

Note: The above information was declared by manufacturer.

1.1.6 Table for EUT operation function

Mode	Radio 1	Radio 2	Radio 3
1	2.4G(Master-AP)	5G-Full Band(Master-AP)	Bluetooth/Thread
2	5G Band 1+4 / 2.4G Slave without Radar Detection (Sensor Mode)	5G-Full Band(Master-AP)	Bluetooth/Thread
3	5G-Low Band(Master-AP)	5G-High Band(Master-AP)	Bluetooth/Thread

Note: 1. The above information was declared by manufacturer.
2. The Mode 2 was same as client function of section 1.1.5.

**1.1.7 Table for Class II Change**

This product is an extension of original one reported under Sporton project number: FR8O1739-03AD

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

Modifications	Performance Checking
1. Adding 5GHz band 2 and band 3 (5250~5350 MHz, 5470~5725 MHz) for this device. 2. Adding 802.11ac 160MHz and 802.11ax 160MHz Mode.	1. Emission Bandwidth. 2. Maximum Conducted Output Power. 3. Peak Power Spectral Density. 4. Unwanted Emissions Radiated Emission >1GHz.



1.2 Applicable Standards

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

- ♦ 47 CFR FCC Part 15
- ♦ ANSI C63.10-2013
- ♦ FCC KDB 789033 D02 v02r01
- ♦ FCC KDB 662911 D01 v02r01
- ♦ FCC KDB 412172 D01 v01r01

1.3 Testing Location Information

Testing Location				
☐	HWA YA	ADD : No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)	TEL : 886-3-327-3456	FAX : 886-3-327-0973
☒	JHUBEI	ADD : No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C.	TEL : 886-3-656-9065	FAX : 886-3-656-9085

Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
RF Conducted	TH01-CB	Jeff Wu	20~23°C / 55~60%	Feb. 26, 2019~May 14, 2019
Radiated	03CH01-CB	Mason Chen	22~24°C / 50~60%	Feb. 20, 2019~Apr. 26, 2019

Test site Designation No. TW0006 with FCC

Test site registered number IC 4086B with Industry Canada.

1.4 Measurement Uncertainty

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

Test Items	Uncertainty	Remark
Radiated Emission (1GHz ~ 18GHz)	3.7 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	3.5 dB	Confidence levels of 95%
Conducted Emission	1.7 dB	Confidence levels of 95%
Output Power Measurement	1.33 dB	Confidence levels of 95%
Power Density Measurement	1.27 dB	Confidence levels of 95%
Bandwidth Measurement	9.74 x10 ⁻⁸	Confidence levels of 95%



2 Test Configuration of EUT

2.1 Test Channel Mode

For Radio 1:

For Conducted measurement and Band Edge Emission test:

For Indoor use for 5G Band 1 and Indoor/Outdoor use for 5G Band 2~4:

For Mode 1: (Ant. 5 Panel antenna / 3 dBi)

For 1T1S Mode:

Mode	Power Setting	Power Setting (dBm)
802.11a_Nss1,(6Mbps)_1TX	-	-
5260MHz	85	21.25
5300MHz	90	22.5
5320MHz	79	19.75
5500MHz	68	17
5580MHz	88	22
5700MHz	60	15
5720MHz Straddle 5.47-5.725GHz	81	20.25
5720MHz Straddle 5.725-5.85GHz	81	20.25
802.11ax HEW20_Nss1,(MCS0)_1TX	-	-
5260MHz	88	22
5300MHz	90	22.5
5320MHz	76	19
5500MHz	65	16.25
5580MHz	86	21.5
5700MHz	52	13
5720MHz Straddle 5.47-5.725GHz	79	19.75
5720MHz Straddle 5.725-5.85GHz	79	19.75
802.11ax HEW40_Nss1,(MCS0)_1TX	-	-
5270MHz	85	21.25
5310MHz	68	17
5510MHz	62	15.5
5550MHz	85	21.25
5670MHz	70	17.5
5710MHz Straddle 5.47-5.725GHz	80	20
5710MHz Straddle 5.725-5.85GHz	80	20
802.11ax HEW80_Nss1,(MCS0)_1TX	-	-
5290MHz	67	16.75
5530MHz	62	15.5
5610MHz	74	18.5
5690MHz Straddle 5.47-5.725GHz	83	20.75
5690MHz Straddle 5.725-5.85GHz	83	20.75



Mode	Power Setting	Power Setting (dBm)
802.11ax HEW160_Nss1,(MCS0)_1TX	-	-
5250MHz Straddle 5.15-5.25GHz	59	14.75
5250MHz Straddle 5.25-5.35GHz	59	14.75
5570MHz	55	13.75

**For 2T2S Mode:**

Mode	Power Setting	Power Setting (dBm)
802.11ax HEW20_Nss2,(MCS0)_2TX	-	-
5260MHz	84	21
5300MHz	85	21.25
5320MHz	70	17.5
5500MHz	63	15.75
5580MHz	84	21
5700MHz	54	13.5
5720MHz Straddle 5.47-5.725GHz	78	19.5
5720MHz Straddle 5.725-5.85GHz	78	19.5
802.11ax HEW40_Nss2,(MCS0)_2TX	-	-
5270MHz	81	20.25
5310MHz	65	16.25
5510MHz	60	15
5550MHz	82	20.5
5670MHz	62	15.5
5710MHz Straddle 5.47-5.725GHz	80	20
5710MHz Straddle 5.725-5.85GHz	80	20
802.11ax HEW80_Nss2,(MCS0)_2TX	-	-
5290MHz	60	15
5530MHz	56	14
5610MHz	67	16.75
5690MHz Straddle 5.47-5.725GHz	75	18.75
5690MHz Straddle 5.725-5.85GHz	75	18.75
802.11ax HEW160_Nss2,(MCS0)_2TX	-	-
5250MHz Straddle 5.15-5.25GHz	55	13.75
5250MHz Straddle 5.25-5.35GHz	55	13.75
5570MHz	51	12.75

**For 4T1S Mode:**

Mode	Power Setting	Power Setting (dBm)
802.11a_Nss1,(6Mbps)_4TX	-	-
5260MHz	60	15
5300MHz	60	15
5320MHz	61	15.25
5500MHz	51	12.75
5580MHz	58	14.5
5700MHz	47	11.75
5720MHz Straddle 5.47-5.725GHz	56	14
5720MHz Straddle 5.725-5.85GHz	56	14
802.11ax HEW20_Nss1,(MCS0)_4TX	-	-
5260MHz	61	15.25
5300MHz	62	15.5
5320MHz	63	15.75
5500MHz	54	13.5
5580MHz	59	14.75
5700MHz	39	9.75
5720MHz Straddle 5.47-5.725GHz	58	14.5
5720MHz Straddle 5.725-5.85GHz	58	14.5
802.11ax HEW40_Nss1,(MCS0)_4TX	-	-
5270MHz	72	18
5310MHz	57	14.25
5510MHz	54	13.5
5550MHz	69	17.25
5670MHz	55	13.75
5710MHz Straddle 5.47-5.725GHz	69	17.25
5710MHz Straddle 5.725-5.85GHz	69	17.25
802.11ax HEW80_Nss1,(MCS0)_4TX	-	-
5290MHz	54	13.5
5530MHz	51	12.75
5610MHz	61	15.25
5690MHz Straddle 5.47-5.725GHz	68	17
5690MHz Straddle 5.725-5.85GHz	68	17
802.11ax HEW160_Nss1,(MCS0)_4TX	-	-
5250MHz Straddle 5.15-5.25GHz	45	11.25
5250MHz Straddle 5.25-5.35GHz	45	11.25
5570MHz	48	12
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	-	-
5260MHz	55	13.75
5300MHz	56	14



Mode	Power Setting	Power Setting (dBm)
5320MHz	57	14.25
5500MHz	50	12.5
5580MHz	51	12.75
5700MHz	35	8.75
5720MHz Straddle 5.47-5.725GHz	47	11.75
5720MHz Straddle 5.725-5.85GHz	47	11.75
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	-	-
5270MHz	56	14
5310MHz	50	12.5
5510MHz	32	8
5550MHz	50	12.5
5670MHz	45	11.25
5710MHz Straddle 5.47-5.725GHz	49	12.25
5710MHz Straddle 5.725-5.85GHz	49	12.25
802.11ax HEW80-BF_Nss1,(MCS0)_4TX	-	-
5290MHz	51	12.75
5530MHz	43	10.75
5610MHz	48	12
5690MHz Straddle 5.47-5.725GHz	47	11.75
5690MHz Straddle 5.725-5.85GHz	47	11.75
802.11ax HEW160-BF_Nss1,(MCS0)_4TX	-	-
5250MHz Straddle 5.15-5.25GHz	45	11.25
5250MHz Straddle 5.25-5.35GHz	45	11.25
5570MHz	35	8.75

**For 4T4S Mode:**

Mode	Power Setting	Power Setting (dBm)
802.11ax HEW20_Nss4,(MCS0)_4TX	-	-
5260MHz	72	18
5300MHz	72	18
5320MHz	66	16.5
5500MHz	58	14.5
5580MHz	70	17.5
5700MHz	52	13
5720MHz Straddle 5.47-5.725GHz	71	17.75
5720MHz Straddle 5.725-5.85GHz	71	17.75
802.11ax HEW40_Nss4,(MCS0)_4TX	-	-
5270MHz	72	18
5310MHz	57	14.25
5510MHz	52	13
5550MHz	70	17.5
5670MHz	57	14.25
5710MHz Straddle 5.47-5.725GHz	70	17.5
5710MHz Straddle 5.725-5.85GHz	70	17.5
802.11ax HEW80_Nss4,(MCS0)_4TX	-	-
5290MHz	55	13.75
5530MHz	54	13.5
5610MHz	65	16.25
5690MHz Straddle 5.47-5.725GHz	69	17.25
5690MHz Straddle 5.725-5.85GHz	69	17.25
802.11ax HEW160_Nss4,(MCS0)_4TX	-	-
5250MHz Straddle 5.15-5.25GHz	48	12
5250MHz Straddle 5.25-5.35GHz	48	12
5570MHz	47	11.75

**For Mode 2: (Ant. 6 Omni antenna / 6 dBi)****For 1T1S Mode:**

Mode	Power Setting	Power Setting (dBm)
802.11a_Nss1,(6Mbps)_1TX	-	-
5260MHz	82	20.5
5300MHz	90	22.5
5320MHz	74	18.5
5500MHz	56	14
5580MHz	79	19.75
5700MHz	54	13.5
5720MHz Straddle 5.47-5.725GHz	78	19.5
5720MHz Straddle 5.725-5.85GHz	78	19.5
802.11ax HEW20_Nss1,(MCS0)_1TX	-	-
5260MHz	84	21
5300MHz	85	21.25
5320MHz	70	17.5
5500MHz	60	15
5580MHz	84	21
5700MHz	43	10.75
5720MHz Straddle 5.47-5.725GHz	79	19.75
5720MHz Straddle 5.725-5.85GHz	79	19.75
802.11ax HEW40_Nss1,(MCS0)_1TX	-	-
5270MHz	76	19
5310MHz	62	15.5
5510MHz	57	14.25
5550MHz	77	19.25
5670MHz	61	15.25
5710MHz Straddle 5.47-5.725GHz	80	20
5710MHz Straddle 5.725-5.85GHz	80	20
802.11ax HEW80_Nss1,(MCS0)_1TX	-	-
5290MHz	61	15.25
5530MHz	59	14.75
5610MHz	66	16.5
5690MHz Straddle 5.47-5.725GHz	82	20.5
5690MHz Straddle 5.725-5.85GHz	82	20.5
802.11ax HEW160_Nss1,(MCS0)_1TX	-	-
5250MHz Straddle 5.15-5.25GHz	57	14.25
5250MHz Straddle 5.25-5.35GHz	57	14.25
5570MHz	52	13

**For 2T2S Mode:**

Mode	Power Setting	Power Setting (dBm)
802.11ax HEW20_Nss2,(MCS0)_2TX	-	-
5260MHz	84	21
5300MHz	79	19.75
5320MHz	65	16.25
5500MHz	58	14.5
5580MHz	84	21
5700MHz	49	12.25
5720MHz Straddle 5.47-5.725GHz	78	19.5
5720MHz Straddle 5.725-5.85GHz	78	19.5
802.11ax HEW40_Nss2,(MCS0)_2TX	-	-
5270MHz	75	18.75
5310MHz	61	15.25
5510MHz	56	14
5550MHz	73	18.25
5670MHz	54	13.5
5710MHz Straddle 5.47-5.725GHz	80	20
5710MHz Straddle 5.725-5.85GHz	80	20
802.11ax HEW80_Nss2,(MCS0)_2TX	-	-
5290MHz	57	14.25
5530MHz	54	13.5
5610MHz	63	15.75
5690MHz Straddle 5.47-5.725GHz	71	17.75
5690MHz Straddle 5.725-5.85GHz	71	17.75
802.11ax HEW160_Nss2,(MCS0)_2TX	-	-
5250MHz Straddle 5.15-5.25GHz	50	12.5
5250MHz Straddle 5.25-5.35GHz	50	12.5
5570MHz	49	12.25

**For 4T1S Mode:**

Mode	Power Setting	Power Setting (dBm)
802.11a_Nss1,(6Mbps)_4TX	-	-
5260MHz	50	12.5
5300MHz	51	12.75
5320MHz	52	13
5500MHz	47	11.75
5580MHz	48	12
5700MHz	44	11
5720MHz Straddle 5.47-5.725GHz	46	11.5
5720MHz Straddle 5.725-5.85GHz	46	11.5
802.11ax HEW20_Nss1,(MCS0)_4TX	-	-
5260MHz	50	12.5
5300MHz	51	12.75
5320MHz	52	13
5500MHz	47	11.75
5580MHz	48	12
5700MHz	32	8
5720MHz Straddle 5.47-5.725GHz	47	11.75
5720MHz Straddle 5.725-5.85GHz	47	11.75
802.11ax HEW40_Nss1,(MCS0)_4TX	-	-
5270MHz	63	15.75
5310MHz	54	13.5
5510MHz	49	12.25
5550MHz	61	15.25
5670MHz	49	12.25
5710MHz Straddle 5.47-5.725GHz	57	14.25
5710MHz Straddle 5.725-5.85GHz	57	14.25
802.11ax HEW80_Nss1,(MCS0)_4TX	-	-
5290MHz	52	13
5530MHz	50	12.5
5610MHz	56	14
5690MHz Straddle 5.47-5.725GHz	66	16.5
5690MHz Straddle 5.725-5.85GHz	66	16.5
802.11ax HEW160_Nss1,(MCS0)_4TX	-	-
5250MHz Straddle 5.15-5.25GHz	41	10.25
5250MHz Straddle 5.25-5.35GHz	41	10.25
5570MHz	45	11.25
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	-	-
5260MHz	43	10.75
5300MHz	44	11



Mode	Power Setting	Power Setting (dBm)
5320MHz	45	11.25
5500MHz	39	9.75
5580MHz	39	9.75
5700MHz	35	8.75
5720MHz Straddle 5.47-5.725GHz	35	8.75
5720MHz Straddle 5.725-5.85GHz	35	8.75
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	-	-
5270MHz	44	11
5310MHz	45	11.25
5510MHz	27	6.75
5550MHz	38	9.5
5670MHz	36	9
5710MHz Straddle 5.47-5.725GHz	36	9
5710MHz Straddle 5.725-5.85GHz	36	9
802.11ax HEW80-BF_Nss1,(MCS0)_4TX	-	-
5290MHz	43	10.75
5530MHz	38	9.5
5610MHz	36	9
5690MHz Straddle 5.47-5.725GHz	35	8.75
5690MHz Straddle 5.725-5.85GHz	35	8.75
802.11ax HEW160-BF_Nss1,(MCS0)_4TX	-	-
5250MHz Straddle 5.15-5.25GHz	37	9.25
5250MHz Straddle 5.25-5.35GHz	37	9.25
5570MHz	30	7.5

**For 4T4S Mode:**

Mode	Power Setting	Power Setting (dBm)
802.11ax HEW20_Nss4,(MCS0)_4TX	-	-
5260MHz	72	18
5300MHz	72	18
5320MHz	64	16
5500MHz	58	14.5
5580MHz	70	17.5
5700MHz	51	12.75
5720MHz Straddle 5.47-5.725GHz	71	17.75
5720MHz Straddle 5.725-5.85GHz	71	17.75
802.11ax HEW40_Nss4,(MCS0)_4TX	-	-
5270MHz	69	17.25
5310MHz	54	13.5
5510MHz	47	11.75
5550MHz	67	16.75
5670MHz	47	11.75
5710MHz Straddle 5.47-5.725GHz	70	17.5
5710MHz Straddle 5.725-5.85GHz	70	17.5
802.11ax HEW80_Nss4,(MCS0)_4TX	-	-
5290MHz	52	13
5530MHz	51	12.75
5610MHz	61	15.25
5690MHz Straddle 5.47-5.725GHz	67	16.75
5690MHz Straddle 5.725-5.85GHz	67	16.75
802.11ax HEW160_Nss4,(MCS0)_4TX	-	-
5250MHz Straddle 5.15-5.25GHz	42	10.5
5250MHz Straddle 5.25-5.35GHz	42	10.5
5570MHz	42	10.5



For Mode 3: (Ant. 11 Panel antenna / 8.7 dBi)
For 1T1S Mode:

Mode	Power Setting	Power Setting (dBm)
802.11a_Nss1,(6Mbps)_1TX	-	-
5260MHz	87	21.75
5300MHz	88	22
5320MHz	76	19
5500MHz	60	15
5580MHz	88	22
5700MHz	57	14.25
5720MHz Straddle 5.47-5.725GHz	77	19.25
5720MHz Straddle 5.725-5.85GHz	77	19.25
802.11ax HEW20_Nss1,(MCS0)_1TX	-	-
5260MHz	87	21.75
5300MHz	87	21.75
5320MHz	72	18
5500MHz	64	16
5580MHz	86	21.5
5700MHz	45	11.25
5720MHz Straddle 5.47-5.725GHz	79	19.75
5720MHz Straddle 5.725-5.85GHz	79	19.75
802.11ax HEW40_Nss1,(MCS0)_1TX	-	-
5270MHz	83	20.75
5310MHz	66	16.5
5510MHz	60	15
5550MHz	83	20.75
5670MHz	66	16.5
5710MHz Straddle 5.47-5.725GHz	80	20
5710MHz Straddle 5.725-5.85GHz	80	20
802.11ax HEW80_Nss1,(MCS0)_1TX	-	-
5290MHz	65	16.25
5530MHz	61	15.25
5610MHz	72	18
5690MHz Straddle 5.47-5.725GHz	83	20.75
5690MHz Straddle 5.725-5.85GHz	83	20.75
802.11ax HEW160_Nss1,(MCS0)_1TX	-	-
5250MHz Straddle 5.15-5.25GHz	57	14.25
5250MHz Straddle 5.25-5.35GHz	57	14.25
5570MHz	47	11.75

**For 2T2S Mode:**

Mode	Power Setting	Power Setting (dBm)
802.11ax HEW20_Nss2,(MCS0)_2TX	-	-
5260MHz	73	18.25
5300MHz	73	18.25
5320MHz	66	16.5
5500MHz	62	15.5
5580MHz	72	18
5700MHz	53	13.25
5720MHz Straddle 5.47-5.725GHz	68	17
5720MHz Straddle 5.725-5.85GHz	68	17
802.11ax HEW40_Nss2,(MCS0)_2TX	-	-
5270MHz	73	18.25
5310MHz	63	15.75
5510MHz	60	15
5550MHz	73	18.25
5670MHz	59	14.75
5710MHz Straddle 5.47-5.725GHz	73	18.25
5710MHz Straddle 5.725-5.85GHz	73	18.25
802.11ax HEW80_Nss2,(MCS0)_2TX	-	-
5290MHz	59	14.75
5530MHz	56	14
5610MHz	67	16.75
5690MHz Straddle 5.47-5.725GHz	71	17.75
5690MHz Straddle 5.725-5.85GHz	71	17.75
802.11ax HEW160_Nss2,(MCS0)_2TX	-	-
5250MHz Straddle 5.15-5.25GHz	53	13.25
5250MHz Straddle 5.25-5.35GHz	53	13.25
5570MHz	52	13

**For 4T1S Mode:**

Mode	Power Setting	Power Setting (dBm)
802.11a_Nss1,(6Mbps)_4TX	-	-
5260MHz	37	9.25
5300MHz	38	9.5
5320MHz	39	9.75
5500MHz	36	9
5580MHz	35	8.75
5700MHz	34	8.5
5720MHz Straddle 5.47-5.725GHz	34	8.5
5720MHz Straddle 5.725-5.85GHz	34	8.5
802.11ax HEW20_Nss1,(MCS0)_4TX	-	-
5260MHz	39	9.75
5300MHz	40	10
5320MHz	41	10.25
5500MHz	38	9.5
5580MHz	37	9.25
5700MHz	34	8.5
5720MHz Straddle 5.47-5.725GHz	35	8.75
5720MHz Straddle 5.725-5.85GHz	35	8.75
802.11ax HEW40_Nss1,(MCS0)_4TX	-	-
5270MHz	51	12.75
5310MHz	52	13
5510MHz	50	12.5
5550MHz	49	12.25
5670MHz	47	11.75
5710MHz Straddle 5.47-5.725GHz	45	11.25
5710MHz Straddle 5.725-5.85GHz	45	11.25
802.11ax HEW80_Nss1,(MCS0)_4TX	-	-
5290MHz	52	13
5530MHz	50	12.5
5610MHz	57	14.25
5690MHz Straddle 5.47-5.725GHz	56	14
5690MHz Straddle 5.725-5.85GHz	56	14
802.11ax HEW160_Nss1,(MCS0)_4TX	-	-
5250MHz Straddle 5.15-5.25GHz	43	10.75
5250MHz Straddle 5.25-5.35GHz	43	10.75
5570MHz	47	11.75
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	-	-
5260MHz	33	8.25
5300MHz	34	8.5



Mode	Power Setting	Power Setting (dBm)
5320MHz	35	8.75
5500MHz	29	7.25
5580MHz	28	7
5700MHz	26	6.5
5720MHz Straddle 5.47-5.725GHz	24	6
5720MHz Straddle 5.725-5.85GHz	24	6
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	-	-
5270MHz	33	8.25
5310MHz	34	8.5
5510MHz	28	7
5550MHz	28	7
5670MHz	26	6.5
5710MHz Straddle 5.47-5.725GHz	25	6.25
5710MHz Straddle 5.725-5.85GHz	25	6.25
802.11ax HEW80-BF_Nss1,(MCS0)_4TX	-	-
5290MHz	33	8.25
5530MHz	28	7
5610MHz	27	6.75
5690MHz Straddle 5.47-5.725GHz	25	6.25
5690MHz Straddle 5.725-5.85GHz	25	6.25
802.11ax HEW160-BF_Nss1,(MCS0)_4TX	-	-
5250MHz Straddle 5.15-5.25GHz	43	10.75
5250MHz Straddle 5.25-5.35GHz	43	10.75
5570MHz	27	6.75

**For 4T4S Mode:**

Mode	Power Setting	Power Setting (dBm)
802.11ax HEW20_Nss4,(MCS0)_4TX	-	-
5260MHz	61	15.25
5300MHz	62	15.5
5320MHz	63	15.75
5500MHz	59	14.75
5580MHz	59	14.75
5700MHz	50	12.5
5720MHz Straddle 5.47-5.725GHz	57	14.25
5720MHz Straddle 5.725-5.85GHz	57	14.25
802.11ax HEW40_Nss4,(MCS0)_4TX	-	-
5270MHz	62	15.5
5310MHz	55	13.75
5510MHz	51	12.75
5550MHz	59	14.75
5670MHz	50	12.5
5710MHz Straddle 5.47-5.725GHz	56	14
5710MHz Straddle 5.725-5.85GHz	56	14
802.11ax HEW80_Nss4,(MCS0)_4TX	-	-
5290MHz	52	13
5530MHz	51	12.75
5610MHz	58	14.5
5690MHz Straddle 5.47-5.725GHz	56	14
5690MHz Straddle 5.725-5.85GHz	56	14
802.11ax HEW160_Nss4,(MCS0)_4TX	-	-
5250MHz Straddle 5.15-5.25GHz	44	11
5250MHz Straddle 5.25-5.35GHz	44	11
5570MHz	44	11



For Conducted measurement and Band Edge Emission test:

For Outdoor use for 5G Band 1:

For Mode 1: (Ant. 5 Panel antenna / 3 dBi)

For 1T1S Mode:

Mode	Power Setting	Power Setting (dBm)
802.11ax HEW160_Nss1,(MCS0)_1TX	-	-
5250MHz Straddle 5.15-5.25GHz	59	14.75
5250MHz Straddle 5.25-5.35GHz	59	14.75

For 2T2S Mode:

Mode	Power Setting	Power Setting (dBm)
802.11ax HEW160_Nss2,(MCS0)_2TX	-	-
5250MHz Straddle 5.15-5.25GHz	55	13.75
5250MHz Straddle 5.25-5.35GHz	55	13.75

For 4T1S Mode:

Mode	Power Setting	Power Setting (dBm)
802.11ax HEW160_Nss1,(MCS0)_4TX	-	-
5250MHz Straddle 5.15-5.25GHz	45	11.25
5250MHz Straddle 5.25-5.35GHz	45	11.25
802.11ax HEW160-BF_Nss1,(MCS0)_4TX	-	-
5250MHz Straddle 5.15-5.25GHz	28	7
5250MHz Straddle 5.25-5.35GHz	28	7

For 4T4S Mode:

Mode	Power Setting	Power Setting (dBm)
802.11ax HEW160_Nss4,(MCS0)_4TX	-	-
5250MHz Straddle 5.15-5.25GHz	48	12
5250MHz Straddle 5.25-5.35GHz	48	12

**For Mode 2: (Ant. 6 Omni antenna / 6 dBi)****For 1T1S Mode:**

Mode	Power Setting	Power Setting (dBm)
802.11ax HEW160_Nss1,(MCS0)_1TX	-	-
5250MHz Straddle 5.15-5.25GHz	57	14.25
5250MHz Straddle 5.25-5.35GHz	57	14.25

For 2T2S Mode:

Mode	Power Setting	Power Setting (dBm)
802.11ax HEW160_Nss2,(MCS0)_2TX	-	-
5250MHz Straddle 5.15-5.25GHz	50	12.5
5250MHz Straddle 5.25-5.35GHz	50	12.5

For 4T1S Mode:

Mode	Power Setting	Power Setting (dBm)
802.11ax HEW160_Nss1,(MCS0)_4TX	-	-
5250MHz Straddle 5.15-5.25GHz	41	10.25
5250MHz Straddle 5.25-5.35GHz	41	10.25
802.11ax HEW160-BF_Nss1,(MCS0)_4TX	-	-
5250MHz Straddle 5.15-5.25GHz	37	9.25
5250MHz Straddle 5.25-5.35GHz	37	9.25

For 4T4S Mode:

Mode	Power Setting	Power Setting (dBm)
802.11ax HEW160_Nss4,(MCS0)_4TX	-	-
5250MHz Straddle 5.15-5.25GHz	42	10.5
5250MHz Straddle 5.25-5.35GHz	42	10.5

**For Mode 3: (Ant. 11 Panel antenna / 8.7 dBi)****For 1T1S Mode:**

Mode	Power Setting	Power Setting (dBm)
802.11ax HEW160_Nss1,(MCS0)_1TX	-	-
5250MHz Straddle 5.15-5.25GHz	57	14.25
5250MHz Straddle 5.25-5.35GHz	57	14.25

For 2T2S Mode:

Mode	Power Setting	Power Setting (dBm)
802.11ax HEW160_Nss2,(MCS0)_2TX	-	-
5250MHz Straddle 5.15-5.25GHz	53	13.25
5250MHz Straddle 5.25-5.35GHz	53	13.25

For 4T1S Mode:

Mode	Power Setting	Power Setting (dBm)
802.11ax HEW160_Nss1,(MCS0)_4TX	-	-
5250MHz Straddle 5.15-5.25GHz	41	10.25
5250MHz Straddle 5.25-5.35GHz	41	10.25
802.11ax HEW160-BF_Nss1,(MCS0)_4TX	-	-
5250MHz Straddle 5.15-5.25GHz	12	3
5250MHz Straddle 5.25-5.35GHz	12	3

For 4T4S Mode:

Mode	Power Setting	Power Setting (dBm)
802.11ax HEW160_Nss4,(MCS0)_4TX	-	-
5250MHz Straddle 5.15-5.25GHz	41	10.25
5250MHz Straddle 5.25-5.35GHz	41	10.25

**For Radiated Emission:****For Indoor/Outdoor use for 5G Band 1~4:****For Mode 1: (Ant. 5 Panel antenna / 3 dBi)****For 4T1S Mode:**

Mode	Power Setting
802.11a_Nss1,(6Mbps)_4TX	-
5260MHz	85
5300MHz	90
5320MHz	89
5500MHz	85
5580MHz	88
5700MHz	86
5720MHz Straddle 5.47-5.725GHz	88
802.11ax HEW20_Nss1,(MCS0)_4TX	-
5260MHz	89
5300MHz	95
5320MHz	97
5500MHz	95
5580MHz	92
5700MHz	92
5720MHz Straddle 5.47-5.725GHz	92
802.11ax HEW40_Nss1,(MCS0)_4TX	-
5270MHz	89
5310MHz	97
5510MHz	104
5550MHz	100
5670MHz	98
5710MHz Straddle 5.47-5.725GHz	97
802.11ax HEW80_Nss1,(MCS0)_4TX	-
5290MHz	98
5530MHz	110
5610MHz	110
5690MHz Straddle 5.47-5.725GHz	110
802.11ax HEW160_Nss1,(MCS0)_4TX	-
5250MHz Straddle 5.25-5.35GHz	93
5570MHz	110

**For Mode 2: (Ant. 6 Omni antenna / 6 dBi)****For 4T1S Mode:**

Mode	Power Setting
802.11a_Nss1,(6Mbps)_4TX	-
5260MHz	82
5300MHz	90
5320MHz	89
5500MHz	86
5580MHz	79
5700MHz	75
5720MHz Straddle 5.47-5.725GHz	78
802.11ax HEW20_Nss1,(MCS0)_4TX	-
5260MHz	84
5300MHz	92
5320MHz	92
5500MHz	82
5580MHz	84
5700MHz	77
5720MHz Straddle 5.47-5.725GHz	89
802.11ax HEW40_Nss1,(MCS0)_4TX	-
5270MHz	88
5310MHz	92
5510MHz	99
5550MHz	90
5670MHz	88
5710MHz Straddle 5.47-5.725GHz	99
802.11ax HEW80_Nss1,(MCS0)_4TX	-
5290MHz	106
5530MHz	107
5610MHz	110
5690MHz Straddle 5.47-5.725GHz	110
802.11ax HEW160_Nss1,(MCS0)_4TX	-
5250MHz Straddle 5.25-5.35GHz	98
5570MHz	110

**For Mode 3: (Ant. 11 Panel antenna / 8.7 dBi)****For 4T1S Mode:**

Mode	Power Setting
802.11a_Nss1,(6Mbps)_4TX	-
5260MHz	87
5300MHz	91
5320MHz	92
5500MHz	86
5580MHz	88
5700MHz	81
5720MHz Straddle 5.47-5.725GHz	77
802.11ax HEW20_Nss1,(MCS0)_4TX	-
5260MHz	91
5300MHz	96
5320MHz	96
5500MHz	93
5580MHz	90
5700MHz	84
5720MHz Straddle 5.47-5.725GHz	85
802.11ax HEW40_Nss1,(MCS0)_4TX	-
5270MHz	97
5310MHz	100
5510MHz	101
5550MHz	97
5670MHz	110
5710MHz Straddle 5.47-5.725GHz	109
802.11ax HEW80_Nss1,(MCS0)_4TX	-
5290MHz	110
5530MHz	110
5610MHz	110
5690MHz Straddle 5.47-5.725GHz	110
802.11ax HEW160_Nss1,(MCS0)_4TX	-
5250MHz Straddle 5.25-5.35GHz	105
5570MHz	110

**For Radio 2:****For Conducted measurement and Band Edge Emission test:****For Indoor use for 5G Band 1 and Indoor/Outdoor use for 5G Band 2~4:****For Mode 1: (Ant. 5 Panel antenna / 3 dBi)****For 1T1S Mode:**

Mode	Power Setting	Power Setting (dBm)
802.11a_Nss1,(6Mbps)_1TX	-	-
5260MHz	67	16.75
5300MHz	72	18
5320MHz	69	17.25
5500MHz	55	13.75
5580MHz	84	21
5700MHz	52	13
5720MHz Straddle 5.47-5.725GHz	76	19
5720MHz Straddle 5.725-5.85GHz	76	19
802.11ax HEW20_Nss1,(MCS0)_1TX	-	-
5260MHz	71	17.75
5300MHz	73	18.25
5320MHz	66	16.5
5500MHz	62	15.5
5580MHz	82	20.5
5700MHz	43	10.75
5720MHz Straddle 5.47-5.725GHz	74	18.5
5720MHz Straddle 5.725-5.85GHz	74	18.5
802.11ax HEW40_Nss1,(MCS0)_1TX	-	-
5270MHz	72	18
5310MHz	56	14
5510MHz	53	13.25
5550MHz	75	18.75
5670MHz	60	15
5710MHz Straddle 5.47-5.725GHz	76	19
5710MHz Straddle 5.725-5.85GHz	76	19
802.11ax HEW80_Nss1,(MCS0)_1TX	-	-
5290MHz	54	13.5
5530MHz	54	13.5
5610MHz	65	16.25
5690MHz Straddle 5.47-5.725GHz	71	17.75
5690MHz Straddle 5.725-5.85GHz	71	17.75
802.11ax HEW160_Nss1,(MCS0)_1TX	-	-
5250MHz Straddle 5.15-5.25GHz	50	12.5
5250MHz Straddle 5.25-5.35GHz	50	12.5
5570MHz	51	12.75

**For 2T2S Mode:**

Mode	Power Setting	Power Setting (dBm)
802.11ax HEW20_Nss2,(MCS0)_2TX	-	-
5260MHz	71	17.75
5300MHz	73	18.25
5320MHz	58	14.5
5500MHz	53	13.25
5580MHz	77	19.25
5700MHz	47	11.75
5720MHz Straddle 5.47-5.725GHz	75	18.75
5720MHz Straddle 5.725-5.85GHz	75	18.75
802.11ax HEW40_Nss2,(MCS0)_2TX	-	-
5270MHz	69	17.25
5310MHz	51	12.75
5510MHz	46	11.5
5550MHz	69	17.25
5670MHz	52	13
5710MHz Straddle 5.47-5.725GHz	75	18.75
5710MHz Straddle 5.725-5.85GHz	75	18.75
802.11ax HEW80_Nss2,(MCS0)_2TX	-	-
5290MHz	50	12.5
5530MHz	49	12.25
5610MHz	60	15
5690MHz Straddle 5.47-5.725GHz	67	16.75
5690MHz Straddle 5.725-5.85GHz	67	16.75
802.11ax HEW160_Nss2,(MCS0)_2TX	-	-
5250MHz Straddle 5.15-5.25GHz	43	10.75
5250MHz Straddle 5.25-5.35GHz	43	10.75
5570MHz	44	11

**For 4T1S Mode:**

Mode	Power Setting	Power Setting (dBm)
802.11a_Nss1,(6Mbps)_4TX	-	-
5260MHz	55	13.75
5300MHz	55	13.75
5320MHz	55	13.75
5500MHz	46	11.5
5580MHz	55	13.75
5700MHz	44	11
5720MHz Straddle 5.47-5.725GHz	52	13
5720MHz Straddle 5.725-5.85GHz	52	13
802.11ax HEW20_Nss1,(MCS0)_4TX	-	-
5260MHz	56	14
5300MHz	56	14
5320MHz	56	14
5500MHz	49	12.25
5580MHz	55	13.75
5700MHz	34	8.5
5720MHz Straddle 5.47-5.725GHz	54	13.5
5720MHz Straddle 5.725-5.85GHz	54	13.5
802.11ax HEW40_Nss1,(MCS0)_4TX	-	-
5270MHz	66	16.5
5310MHz	50	12.5
5510MHz	46	11.5
5550MHz	65	16.25
5670MHz	50	12.5
5710MHz Straddle 5.47-5.725GHz	64	16
5710MHz Straddle 5.725-5.85GHz	64	16
802.11ax HEW80_Nss1,(MCS0)_4TX	-	-
5290MHz	49	12.25
5530MHz	46	11.5
5610MHz	55	13.75
5690MHz Straddle 5.47-5.725GHz	64	16
5690MHz Straddle 5.725-5.85GHz	64	16
802.11ax HEW160_Nss1,(MCS0)_4TX	-	-
5250MHz Straddle 5.15-5.25GHz	43	10.75
5250MHz Straddle 5.25-5.35GHz	43	10.75
5570MHz	44	11
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	-	-
5260MHz	55	13.75
5300MHz	55	13.75



Mode	Power Setting	Power Setting (dBm)
5320MHz	55	13.75
5500MHz	52	13
5580MHz	54	13.5
5700MHz	47	11.75
5720MHz Straddle 5.47-5.725GHz	51	12.75
5720MHz Straddle 5.725-5.85GHz	51	12.75
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	-	-
5270MHz	53	13.25
5310MHz	53	13.25
5510MHz	47	11.75
5550MHz	53	13.25
5670MHz	51	12.75
5710MHz Straddle 5.47-5.725GHz	51	12.75
5710MHz Straddle 5.725-5.85GHz	51	12.75
802.11ax HEW80-BF_Nss1,(MCS0)_4TX	-	-
5290MHz	53	13.25
5530MHz	49	12.25
5610MHz	52	13
5690MHz Straddle 5.47-5.725GHz	51	12.75
5690MHz Straddle 5.725-5.85GHz	51	12.75
802.11ax HEW160-BF_Nss1,(MCS0)_4TX	-	-
5250MHz Straddle 5.15-5.25GHz	44	11
5250MHz Straddle 5.25-5.35GHz	44	11
5570MHz	38	9.5

**For 4T4S Mode:**

Mode	Power Setting	Power Setting (dBm)
802.11ax HEW20_Nss4,(MCS0)_4TX	-	-
5260MHz	66	16.5
5300MHz	66	16.5
5320MHz	57	14.25
5500MHz	52	13
5580MHz	66	16.5
5700MHz	46	11.5
5720MHz Straddle 5.47-5.725GHz	63	15.75
5720MHz Straddle 5.725-5.85GHz	63	15.75
802.11ax HEW40_Nss4,(MCS0)_4TX	-	-
5270MHz	66	16.5
5310MHz	46	11.5
5510MHz	46	11.5
5550MHz	65	16.25
5670MHz	50	12.5
5710MHz Straddle 5.47-5.725GHz	64	16
5710MHz Straddle 5.725-5.85GHz	64	16
802.11ax HEW80_Nss4,(MCS0)_4TX	-	-
5290MHz	47	11.75
5530MHz	47	11.75
5610MHz	58	14.5
5690MHz Straddle 5.47-5.725GHz	63	15.75
5690MHz Straddle 5.725-5.85GHz	63	15.75
802.11ax HEW160_Nss4,(MCS0)_4TX	-	-
5250MHz Straddle 5.15-5.25GHz	41	10.25
5250MHz Straddle 5.25-5.35GHz	41	10.25
5570MHz	36	9

**For Mode 2: (Ant. 6 Omni antenna / 6 dBi)****For 1T1S Mode:**

Mode	Power Setting	Power Setting (dBm)
802.11a_Nss1,(6Mbps)_1TX	-	-
5260MHz	72	18
5300MHz	74	18.5
5320MHz	61	15.25
5500MHz	50	12.5
5580MHz	84	21
5700MHz	49	12.25
5720MHz Straddle 5.47-5.725GHz	76	19
5720MHz Straddle 5.725-5.85GHz	76	19
802.11ax HEW20_Nss1,(MCS0)_1TX	-	-
5260MHz	72	18
5300MHz	71	17.75
5320MHz	61	15.25
5500MHz	53	13.25
5580MHz	82	20.5
5700MHz	40	10
5720MHz Straddle 5.47-5.725GHz	74	18.5
5720MHz Straddle 5.725-5.85GHz	74	18.5
802.11ax HEW40_Nss1,(MCS0)_1TX	-	-
5270MHz	64	16
5310MHz	53	13.25
5510MHz	49	12.25
5550MHz	68	17
5670MHz	54	13.5
5710MHz Straddle 5.47-5.725GHz	76	19
5710MHz Straddle 5.725-5.85GHz	76	19
802.11ax HEW80_Nss1,(MCS0)_1TX	-	-
5290MHz	51	12.75
5530MHz	51	12.75
5610MHz	60	15
5690MHz Straddle 5.47-5.725GHz	70	17.5
5690MHz Straddle 5.725-5.85GHz	70	17.5
802.11ax HEW160_Nss1,(MCS0)_1TX	-	-
5250MHz Straddle 5.15-5.25GHz	48	12
5250MHz Straddle 5.25-5.35GHz	48	12
5570MHz	48	12

**For 2T2S Mode:**

Mode	Power Setting	Power Setting (dBm)
802.11ax HEW20_Nss2,(MCS0)_2TX		-
5260MHz	72	18
5300MHz	70	17.5
5320MHz	54	13.5
5500MHz	49	12.25
5580MHz	77	19.25
5700MHz	43	10.75
5720MHz Straddle 5.47-5.725GHz	75	18.75
5720MHz Straddle 5.725-5.85GHz	75	18.75
802.11ax HEW40_Nss2,(MCS0)_2TX	-	-
5270MHz	64	16
5310MHz	47	11.75
5510MHz	45	11.25
5550MHz	62	15.5
5670MHz	47	11.75
5710MHz Straddle 5.47-5.725GHz	75	18.75
5710MHz Straddle 5.725-5.85GHz	75	18.75
802.11ax HEW80_Nss2,(MCS0)_2TX	-	-
5290MHz	43	10.75
5530MHz	42	10.5
5610MHz	56	14
5690MHz Straddle 5.47-5.725GHz	63	15.75
5690MHz Straddle 5.725-5.85GHz	63	15.75
802.11ax HEW160_Nss2,(MCS0)_2TX	-	-
5250MHz Straddle 5.15-5.25GHz	42	10.5
5250MHz Straddle 5.25-5.35GHz	42	10.5
5570MHz	39	9.75

**For 4T1S Mode:**

Mode	Power Setting	Power Setting (dBm)
802.11a_Nss1,(6Mbps)_4TX	-	-
5260MHz	44	11
5300MHz	44	11
5320MHz	43	10.75
5500MHz	42	10.5
5580MHz	43	10.75
5700MHz	41	10.25
5720MHz Straddle 5.47-5.725GHz	40	10
5720MHz Straddle 5.725-5.85GHz	40	10
802.11ax HEW20_Nss1,(MCS0)_4TX	-	-
5260MHz	44	11
5300MHz	44	11
5320MHz	44	11
5500MHz	43	10.75
5580MHz	43	10.75
5700MHz	29	7.25
5720MHz Straddle 5.47-5.725GHz	42	10.5
5720MHz Straddle 5.725-5.85GHz	42	10.5
802.11ax HEW40_Nss1,(MCS0)_4TX	-	-
5270MHz	55	13.75
5310MHz	37	9.25
5510MHz	36	9
5550MHz	54	13.5
5670MHz	39	9.75
5710MHz Straddle 5.47-5.725GHz	52	13
5710MHz Straddle 5.725-5.85GHz	52	13
802.11ax HEW80_Nss1,(MCS0)_4TX	-	-
5290MHz	32	8
5530MHz	37	9.25
5610MHz	50	12.5
5690MHz Straddle 5.47-5.725GHz	60	15
5690MHz Straddle 5.725-5.85GHz	60	15
802.11ax HEW160_Nss1,(MCS0)_4TX	-	-
5250MHz Straddle 5.15-5.25GHz	26	6.5
5250MHz Straddle 5.25-5.35GHz	26	6.5
5570MHz	26	6.5
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	-	-
5260MHz	43	10.75
5300MHz	43	10.75



Mode	Power Setting	Power Setting (dBm)
5320MHz	43	10.75
5500MHz	39	9.75
5580MHz	42	10.5
5700MHz	30	7.5
5720MHz Straddle 5.47-5.725GHz	40	10
5720MHz Straddle 5.725-5.85GHz	40	10
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	-	-
5270MHz	42	10.5
5310MHz	42	10.5
5510MHz	32	8
5550MHz	41	10.25
5670MHz	38	9.5
5710MHz Straddle 5.47-5.725GHz	40	10
5710MHz Straddle 5.725-5.85GHz	40	10
802.11ax HEW80-BF_Nss1,(MCS0)_4TX	-	-
5290MHz	42	10.5
5530MHz	41	10.25
5610MHz	40	10
5690MHz Straddle 5.47-5.725GHz	40	10
5690MHz Straddle 5.725-5.85GHz	40	10
802.11ax HEW160-BF_Nss1,(MCS0)_4TX	-	-
5250MHz Straddle 5.15-5.25GHz	38	9.5
5250MHz Straddle 5.25-5.35GHz	38	9.5
5570MHz	27	6.75

**For 4T4S Mode:**

Mode	Power Setting	Power Setting (dBm)
802.11ax HEW20_Nss4,(MCS0)_4TX	-	-
5260MHz	66	16.5
5300MHz	66	16.5
5320MHz	52	13
5500MHz	47	11.75
5580MHz	66	16.5
5700MHz	43	10.75
5720MHz Straddle 5.47-5.725GHz	63	15.75
5720MHz Straddle 5.725-5.85GHz	63	15.75
802.11ax HEW40_Nss4,(MCS0)_4TX	-	-
5270MHz	57	14.25
5310MHz	42	10.5
5510MHz	41	10.25
5550MHz	57	14.25
5670MHz	43	10.75
5710MHz Straddle 5.47-5.725GHz	64	16
5710MHz Straddle 5.725-5.85GHz	64	16
802.11ax HEW80_Nss4,(MCS0)_4TX	-	-
5290MHz	40	10
5530MHz	41	10.25
5610MHz	55	13.75
5690MHz Straddle 5.47-5.725GHz	63	15.75
5690MHz Straddle 5.725-5.85GHz	63	15.75
802.11ax HEW160_Nss4,(MCS0)_4TX	-	-
5250MHz Straddle 5.15-5.25GHz	30	7.5
5250MHz Straddle 5.25-5.35GHz	30	7.5
5570MHz	31	7.75

**For Mode 3: (Ant. 11 Panel antenna / 8.7 dBi)****For 1T1S Mode:**

Mode	Power Setting	Power Setting (dBm)
802.11a_Nss1,(6Mbps)_1TX	-	-
5260MHz	69	17.25
5300MHz	70	17.5
5320MHz	68	17
5500MHz	56	14
5580MHz	82	20.5
5700MHz	54	13.5
5720MHz Straddle 5.47-5.725GHz	76	19
5720MHz Straddle 5.725-5.85GHz	76	19
802.11ax HEW20_Nss1,(MCS0)_1TX	-	-
5260MHz	70	17.5
5300MHz	72	18
5320MHz	65	16.25
5500MHz	57	14.25
5580MHz	88	22
5700MHz	41	10.25
5720MHz Straddle 5.47-5.725GHz	74	18.5
5720MHz Straddle 5.725-5.85GHz	74	18.5
802.11ax HEW40_Nss1,(MCS0)_1TX	-	-
5270MHz	67	16.75
5310MHz	58	14.5
5510MHz	52	13
5550MHz	71	17.75
5670MHz	57	14.25
5710MHz Straddle 5.47-5.725GHz	76	19
5710MHz Straddle 5.725-5.85GHz	76	19
802.11ax HEW80_Nss1,(MCS0)_1TX	-	-
5290MHz	56	14
5530MHz	55	13.75
5610MHz	65	16.25
5690MHz Straddle 5.47-5.725GHz	71	17.75
5690MHz Straddle 5.725-5.85GHz	71	17.75
802.11ax HEW160_Nss1,(MCS0)_1TX	-	-
5250MHz Straddle 5.15-5.25GHz	48	12
5250MHz Straddle 5.25-5.35GHz	48	12
5570MHz	49	12.25

**For 2T2S Mode:**

Mode	Power Setting	Power Setting (dBm)
802.11ax HEW20_Nss2,(MCS0)_2TX	-	-
5260MHz	66	16.5
5300MHz	66	16.5
5320MHz	58	14.5
5500MHz	49	12.25
5580MHz	66	16.5
5700MHz	45	11.25
5720MHz Straddle 5.47-5.725GHz	70	17.5
5720MHz Straddle 5.725-5.85GHz	70	17.5
802.11ax HEW40_Nss2,(MCS0)_2TX	-	-
5270MHz	65	16.25
5310MHz	53	13.25
5510MHz	49	12.25
5550MHz	65	16.25
5670MHz	52	13
5710MHz Straddle 5.47-5.725GHz	69	17.25
5710MHz Straddle 5.725-5.85GHz	69	17.25
802.11ax HEW80_Nss2,(MCS0)_2TX	-	-
5290MHz	50	12.5
5530MHz	46	11.5
5610MHz	58	14.5
5690MHz Straddle 5.47-5.725GHz	65	16.25
5690MHz Straddle 5.725-5.85GHz	65	16.25
802.11ax HEW160_Nss2,(MCS0)_2TX	-	-
5250MHz Straddle 5.15-5.25GHz	46	11.5
5250MHz Straddle 5.25-5.35GHz	46	11.5
5570MHz	41	10.25

**For 4T1S Mode:**

Mode	Power Setting	Power Setting (dBm)
802.11a_Nss1,(6Mbps)_4TX	-	-
5260MHz	33	8.25
5300MHz	33	8.25
5320MHz	33	8.25
5500MHz	32	8
5580MHz	33	8.25
5700MHz	31	7.75
5720MHz Straddle 5.47-5.725GHz	30	7.5
5720MHz Straddle 5.725-5.85GHz	30	7.5
802.11ax HEW20_Nss1,(MCS0)_4TX	-	-
5260MHz	34	8.5
5300MHz	34	8.5
5320MHz	34	8.5
5500MHz	33	8.25
5580MHz	33	8.25
5700MHz	31	7.75
5720MHz Straddle 5.47-5.725GHz	31	7.75
5720MHz Straddle 5.725-5.85GHz	31	7.75
802.11ax HEW40_Nss1,(MCS0)_4TX	-	-
5270MHz	45	11.25
5310MHz	44	11
5510MHz	44	11
5550MHz	44	11
5670MHz	42	10.5
5710MHz Straddle 5.47-5.725GHz	42	10.5
5710MHz Straddle 5.725-5.85GHz	42	10.5
802.11ax HEW80_Nss1,(MCS0)_4TX	-	-
5290MHz	47	11.75
5530MHz	42	10.5
5610MHz	51	12.75
5690MHz Straddle 5.47-5.725GHz	53	13.25
5690MHz Straddle 5.725-5.85GHz	53	13.25
802.11ax HEW160_Nss1,(MCS0)_4TX	-	-
5250MHz Straddle 5.15-5.25GHz	37	9.25
5250MHz Straddle 5.25-5.35GHz	37	9.25
5570MHz	35	8.75
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	-	-
5260MHz	33	8.25
5300MHz	33	8.25



Mode	Power Setting	Power Setting (dBm)
5320MHz	32	8
5500MHz	31	7.75
5580MHz	31	7.75
5700MHz	29	7.25
5720MHz Straddle 5.47-5.725GHz	29	7.25
5720MHz Straddle 5.725-5.85GHz	29	7.25
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	-	-
5270MHz	31	7.75
5310MHz	31	7.75
5510MHz	30	7.5
5550MHz	30	7.5
5670MHz	28	7
5710MHz Straddle 5.47-5.725GHz	29	7.25
5710MHz Straddle 5.725-5.85GHz	29	7.25
802.11ax HEW80-BF_Nss1,(MCS0)_4TX	-	-
5290MHz	31	7.75
5530MHz	30	7.5
5610MHz	29	7.25
5690MHz Straddle 5.47-5.725GHz	28	7
5690MHz Straddle 5.725-5.85GHz	28	7
802.11ax HEW160-BF_Nss1,(MCS0)_4TX	-	-
5250MHz Straddle 5.15-5.25GHz	40	10
5250MHz Straddle 5.25-5.35GHz	40	10
5570MHz	25	6.25

**For 4T4S Mode:**

Mode	Power Setting	Power Setting (dBm)
802.11ax HEW20_Nss4,(MCS0)_4TX	-	-
5260MHz	56	14
5300MHz	55	13.75
5320MHz	54	13.5
5500MHz	50	12.5
5580MHz	55	13.75
5700MHz	44	11
5720MHz Straddle 5.47-5.725GHz	52	13
5720MHz Straddle 5.725-5.85GHz	52	13
802.11ax HEW40_Nss4,(MCS0)_4TX	-	-
5270MHz	56	14
5310MHz	45	11.25
5510MHz	46	11.5
5550MHz	55	13.75
5670MHz	49	12.25
5710MHz Straddle 5.47-5.725GHz	53	13.25
5710MHz Straddle 5.725-5.85GHz	53	13.25
802.11ax HEW80_Nss4,(MCS0)_4TX	-	-
5290MHz	48	12
5530MHz	43	10.75
5610MHz	55	13.75
5690MHz Straddle 5.47-5.725GHz	53	13.25
5690MHz Straddle 5.725-5.85GHz	53	13.25
802.11ax HEW160_Nss4,(MCS0)_4TX	-	-
5250MHz Straddle 5.15-5.25GHz	39	9.75
5250MHz Straddle 5.25-5.35GHz	39	9.75
5570MHz	36	9



For Conducted measurement and Band Edge Emission test:

For Outdoor use for 5G Band 1:

For Mode 1: (Ant. 5 Panel antenna / 3 dBi)

For 1T1S Mode:

Mode	Power Setting	Power Setting (dBm)
802.11ax HEW160_Nss1,(MCS0)_1TX	-	-
5250MHz Straddle 5.15-5.25GHz	50	12.5
5250MHz Straddle 5.25-5.35GHz	50	12.5

For 2T2S Mode:

Mode	Power Setting	Power Setting (dBm)
802.11ax HEW160_Nss2,(MCS0)_2TX	-	-
5250MHz Straddle 5.15-5.25GHz	43	10.75
5250MHz Straddle 5.25-5.35GHz	43	10.75

For 4T1S Mode:

Mode	Power Setting	Power Setting (dBm)
802.11ax HEW160_Nss1,(MCS0)_4TX	-	-
5250MHz Straddle 5.15-5.25GHz	43	10.75
5250MHz Straddle 5.25-5.35GHz	43	10.75
802.11ax HEW160-BF_Nss1,(MCS0)_4TX	-	-
5250MHz Straddle 5.15-5.25GHz	22	5.5
5250MHz Straddle 5.25-5.35GHz	22	5.5

For 4T4S Mode:

Mode	Power Setting	Power Setting (dBm)
802.11ax HEW160_Nss4,(MCS0)_4TX	-	-
5250MHz Straddle 5.15-5.25GHz	41	10.25
5250MHz Straddle 5.25-5.35GHz	41	10.25

**For Mode 2: (Ant. 6 Omni antenna / 6 dBi)****For 1T1S Mode:**

Mode	Power Setting	Power Setting (dBm)
802.11ax HEW160_Nss1,(MCS0)_1TX	-	-
5250MHz Straddle 5.15-5.25GHz	48	12
5250MHz Straddle 5.25-5.35GHz	48	12

For 2T2S Mode:

Mode	Power Setting	Power Setting (dBm)
802.11ax HEW160_Nss2,(MCS0)_2TX	-	-
5250MHz Straddle 5.15-5.25GHz	42	10.5
5250MHz Straddle 5.25-5.35GHz	42	10.5

For 4T1S Mode:

Mode	Power Setting	Power Setting (dBm)
802.11ax HEW160_Nss1,(MCS0)_4TX	-	-
5250MHz Straddle 5.15-5.25GHz	26	6.5
5250MHz Straddle 5.25-5.35GHz	26	6.5
802.11ax HEW160-BF_Nss1,(MCS0)_4TX	-	-
5250MHz Straddle 5.15-5.25GHz	38	9.5
5250MHz Straddle 5.25-5.35GHz	38	9.5

For 4T4S Mode:

Mode	Power Setting	Power Setting (dBm)
802.11ax HEW160_Nss4,(MCS0)_4TX	-	-
5250MHz Straddle 5.15-5.25GHz	30	7.5
5250MHz Straddle 5.25-5.35GHz	30	7.5

**For Mode 3: (Ant. 11 Panel antenna / 8.7 dBi)****For 1T1S Mode:**

Mode	Power Setting	Power Setting (dBm)
802.11ax HEW160_Nss1,(MCS0)_1TX	-	-
5250MHz Straddle 5.15-5.25GHz	48	12
5250MHz Straddle 5.25-5.35GHz	48	12

For 2T2S Mode:

Mode	Power Setting	Power Setting (dBm)
802.11ax HEW160_Nss2,(MCS0)_2TX	-	-
5250MHz Straddle 5.15-5.25GHz	46	11.5
5250MHz Straddle 5.25-5.35GHz	46	11.5

For 4T1S Mode:

Mode	Power Setting	Power Setting (dBm)
802.11ax HEW160_Nss1,(MCS0)_4TX	-	-
5250MHz Straddle 5.15-5.25GHz	33	8.25
5250MHz Straddle 5.25-5.35GHz	33	8.25
802.11ax HEW160-BF_Nss1,(MCS0)_4TX	-	-
5250MHz Straddle 5.15-5.25GHz	12	3
5250MHz Straddle 5.25-5.35GHz	12	3

For 4T4S Mode:

Mode	Power Setting	Power Setting (dBm)
802.11ax HEW160_Nss4,(MCS0)_4TX	-	-
5250MHz Straddle 5.15-5.25GHz	36	9
5250MHz Straddle 5.25-5.35GHz	36	9

**For Radiated Emission:****For Indoor/Outdoor use for 5G Band 1~4:****For Mode 1: (Ant. 5 Panel antenna / 3 dBi)****For 4T1S Mode:**

Mode	Power Setting
802.11a_Nss1,(6Mbps)_4TX	-
5260MHz	67
5300MHz	72
5320MHz	75
5500MHz	85
5580MHz	92
5700MHz	82
5720MHz Straddle 5.47-5.725GHz	91
802.11ax HEW20_Nss1,(MCS0)_4TX	-
5260MHz	71
5300MHz	73
5320MHz	76
5500MHz	78
5580MHz	93
5700MHz	84
5720MHz Straddle 5.47-5.725GHz	94
802.11ax HEW40_Nss1,(MCS0)_4TX	-
5270MHz	72
5310MHz	75
5510MHz	98
5550MHz	110
5670MHz	99
5710MHz Straddle 5.47-5.725GHz	87
802.11ax HEW80_Nss1,(MCS0)_4TX	-
5290MHz	75
5530MHz	110
5610MHz	110
5690MHz Straddle 5.47-5.725GHz	110
802.11ax HEW160_Nss1,(MCS0)_4TX	-
5250MHz Straddle 5.25-5.35GHz	77
5570MHz	110

**For Mode 2: (Ant. 6 Omni antenna / 6 dBi)****For 4T1S Mode:**

Mode	Power Setting
802.11a_Nss1,(6Mbps)_4TX	-
5260MHz	72
5300MHz	74
5320MHz	76
5500MHz	77
5580MHz	86
5700MHz	85
5720MHz Straddle 5.47-5.725GHz	76
802.11ax HEW20_Nss1,(MCS0)_4TX	-
5260MHz	72
5300MHz	71
5320MHz	77
5500MHz	80
5580MHz	93
5700MHz	90
5720MHz Straddle 5.47-5.725GHz	81
802.11ax HEW40_Nss1,(MCS0)_4TX	-
5270MHz	64
5310MHz	69
5510MHz	95
5550MHz	100
5670MHz	98
5710MHz Straddle 5.47-5.725GHz	110
802.11ax HEW80_Nss1,(MCS0)_4TX	-
5290MHz	72
5530MHz	110
5610MHz	110
5690MHz Straddle 5.47-5.725GHz	110
802.11ax HEW160_Nss1,(MCS0)_4TX	-
5250MHz Straddle 5.25-5.35GHz	75
5570MHz	110

**For Mode 3: (Ant. 11 Panel antenna / 8.7 dBi)****For 4T1S Mode:**

Mode	Power Setting
802.11a_Nss1,(6Mbps)_4TX	-
5260MHz	69
5300MHz	70
5320MHz	73
5500MHz	84
5580MHz	87
5700MHz	83
5720MHz Straddle 5.47-5.725GHz	80
802.11ax HEW20_Nss1,(MCS0)_4TX	-
5260MHz	70
5300MHz	72
5320MHz	74
5500MHz	80
5580MHz	88
5700MHz	89
5720MHz Straddle 5.47-5.725GHz	85
802.11ax HEW40_Nss1,(MCS0)_4TX	-
5270MHz	67
5310MHz	70
5510MHz	105
5550MHz	110
5670MHz	110
5710MHz Straddle 5.47-5.725GHz	105
802.11ax HEW80_Nss1,(MCS0)_4TX	-
5290MHz	71
5530MHz	110
5610MHz	110
5690MHz Straddle 5.47-5.725GHz	110
802.11ax HEW160_Nss1,(MCS0)_4TX	-
5250MHz Straddle 5.25-5.35GHz	73
5570MHz	110



2.2 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
Tests Item	Emission Bandwidth Maximum Conducted Output Power Peak Power Spectral Density
Test Condition	Conducted measurement at transmit chains
Operating Mode	CTX
There are 13 antennas in the antenna table list, antenna 5、6 and antenna 11 for WLAN-5GHz were selected for EUT respectively to perform the test and recorded in this report.	
1	EUT + Ant. 5 Panel antenna / 3 dBi (Refer to note 1)
2	EUT + Ant. 6 Omni antenna / 6 dBi (Refer to note 1)
3	EUT + Ant. 11 Panel antenna / 8.7 dBi (Refer to note 1)

The Worst Case Mode for Following Conformance Tests	
Tests Item	Unwanted Emissions
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.
Operating Mode > 1GHz	CTX (Refer to note 1)
There are 13 antennas in the antenna table list, antenna 5、6 and antenna 11 for WLAN-5GHz were selected for EUT respectively to perform the test and recorded in this report.	

**For Radio 1:****For Ant. 5 Panel antenna / 3 dBi:****For Radiated Emission**

4T1S Mode: The EUT was performed at X · Y axis and Z axis and the worst case was found at X axis. So the measurement will follow this same test configuration.

For Band Edge Emission

1T1S, 2T2S Mode: The EUT was performed at X · Y axis and Z axis and the worst case was found at X axis. So the measurement will follow this same test configuration.

4T1S, 4T4S Mode: The EUT was performed at X · Y axis and Z axis and the worst case was found at Z axis. So the measurement will follow this same test configuration.

For Ant. 6 Omni antenna / 6 dBi:**For Radiated Emission**

5G Band 2-4T1S Mode: The EUT was performed at X · Y axis and Z axis and the worst case was found at Y axis. So the measurement will follow this same test configuration.

5G Band 3-4T1S Mode: The EUT was performed at X · Y axis and Z axis and the worst case was found at X axis. So the measurement will follow this same test configuration.

For Band Edge Emission

1T1S Mode: The EUT was performed at X · Y axis and Z axis and the worst case was found at Y axis. So the measurement will follow this same test configuration.

2T2S, 4T1S, 4T4S Mode: The EUT was performed at X · Y axis and Z axis and the worst case was found at X axis. So the measurement will follow this same test configuration.

For Ant. 11 Panel antenna / 8.7 dBi:**For Radiated Emission**

5G Band 2-4T1S Mode: The EUT was performed at X · Y axis and Z axis and the worst case was found at Y axis. So the measurement will follow this same test configuration.

5G Band 3-4T1S Mode: The EUT was performed at X · Y axis and Z axis and the worst case was found at X axis. So the measurement will follow this same test configuration.

For Band Edge Emission

1T1S, 2T2S Mode: The EUT was performed at X · Y axis and Z axis and the worst case was found at X axis. So the measurement will follow this same test configuration.

4T1S, 4T4S Mode: The EUT was performed at X · Y axis and Z axis and the worst case was found at Z axis. So the measurement will follow this same test configuration.

**For Radio 2:****For Ant. 5 Panel antenna / 3 dBi:****For Radiated Emission**

4T1S Mode: The EUT was performed at X、Y axis and Z axis and the worst case was found at X axis. So the measurement will follow this same test configuration.

For Band Edge Emission

1T1S, 2T2S, 4T1S, 4T4S Mode: The EUT was performed at X、Y axis and Z axis and the worst case was found at Y axis. So the measurement will follow this same test configuration.

For Ant. 6 Omni antenna / 6 dBi:**For Radiated Emission**

5G Band 2-4T1S Mode: The EUT was performed at X、Y axis and Z axis and the worst case was found at Y axis. So the measurement will follow this same test configuration.

5G Band 3-4T1S Mode: The EUT was performed at X、Y axis and Z axis and the worst case was found at X axis. So the measurement will follow this same test configuration.

For Band Edge Emission

1T1S, 2T2S, 4T1S, 4T4S Mode: The EUT was performed at X、Y axis and Z axis and the worst case was found at Y axis. So the measurement will follow this same test configuration.

For Ant. 11 Panel antenna / 8.7 dBi:**For Radiated Emission**

5G Band 2-4T1S Mode: The EUT was performed at X、Y axis and Z axis and the worst case was found at Y axis. So the measurement will follow this same test configuration.

5G Band 3-4T1S Mode: The EUT was performed at X、Y axis and Z axis and the worst case was found at X axis. So the measurement will follow this same test configuration.

For Band Edge Emission

1T1S, 4T1S, 4T4S Mode: The EUT was performed at X、Y axis and Z axis and the worst case was found at Y axis. So the measurement will follow this same test configuration.

2T2S Mode: The EUT was performed at X、Y axis and Z axis and the worst case was found at X axis. So the measurement will follow this same test configuration.

1	(Ant. 5 Panel antenna / 3 dBi)	
	For Radio 1: Harmonic: EUT in X axis Bandedge: EUT in X axis (1T1S, 2T2S) EUT in Z axis (4T1S, 4T4S)	For Radio 2: Harmonic: EUT in X axis Bandedge: EUT in Y axis
2	(Ant. 6 Omni antenna / 6 dBi)	
	For Radio 1: Harmonic: EUT in Y axis (Band 2) EUT in X axis (Band 3) Bandedge: EUT in X axis (2T2S, 4T1S, 4T4S) EUT in Y axis (1T1S)	For Radio 2: Harmonic: EUT in Y axis (Band 2) EUT in X axis (Band 3) Bandedge: EUT in Y axis
3	(Ant. 11 Panel antenna / 8.7 dBi)	
	For Radio 1: Harmonic: EUT in Y axis (Band 2) EUT in X axis (Band 3) Bandedge: EUT in X axis (1T1S, 2T2S) EUT in Z axis (4T1S, 4T4S)	For Radio 2: EUT in Y axis (Band 2) EUT in X axis (Band 3) Bandedge: EUT in X axis (2T2S) EUT in Y axis (1T1S, 4T1S, 4T4S)



The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis - Co-location RF Exposure Evaluation
Operating Mode	
1	WLAN 2.4GHz (Radio 1) + WLAN 5GHz (Radio 2) + Bluetooth (Radio 3)
2	WLAN 5GHz (Radio 1) + WLAN 5GHz (Radio 2) + Bluetooth (Radio 3)
3	WLAN 2.4GHz (Radio 1) + WLAN 5GHz (Radio 2) + Thread (Radio 3)
4	WLAN 5GHz (Radio 1) + WLAN 5GHz (Radio 2) + Thread (Radio 3)
Refer to Sporton Test Report No.: FA801739-04 for Co-location RF Exposure Evaluation.	

Note:

1. Test Mode:

Test Item	Test Mode								
	802.11a		802.11ax HEW20/40/80/160						
	1T1S	4T1S	CDD 1T1S	SDM 2T2S	CDD 4T1S	SDM 4T4S	TxBF 2T2S	TxBF 4T1S	TxBF 4T4S
Maximum Conducted Output Power	V	V	V	V	V	V	-	V	-
Emission Bandwidth	V	V	V	V	V	V	-	V	-
Peak Power Spectral Density	V	V	V	V	V	V	-	V	-
Radiated Emission	Cover by CDD 4T1S Max setting	V	Cover by CDD 4T1S Max setting	Cover by CDD 4T1S Max setting	Max setting	Cover by CDD 4T1S Max setting	-	Cover by CDD 4T1S Max setting	-
Band Edge Emission	V	V	V	V	V	V	-	V	-

2. 802.11ax modulation and bandwidth are similar for 802.11n mode for 20MHz / 40MHz and 802.11ac mode for 20/40/80/160MHz, therefore investigated worst case to representative mode in test report.

3. The Adapter and PoE was for measurement only, would not be marketed.

The detail information as below:

Power	Brand	Model
Adapter	Powertron Electronics Corp	PA1045-120HIB300
PoE	Microsemi	PD-9001GR/AT/AC



2.3 EUT Operation during Test

For CTX Mode:

non-beamforming mode:

The EUT was programmed to be in continuously transmitting mode.

beamforming mode:

For Conducted Mode:

The EUT was programmed to be in continuously transmitting mode.

For Radiated 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. Executed command fixed test channel under Telnet.
3. Executed "Telnet.exe" to link with the remote workstation to transmit and receive packet by WLAN module and transmit duty cycle no less than 98%.

2.4 Accessories

N/A

2.5 Support Equipment

For Radiated test (above 1GHz):

For Non-Beamforming Mode:

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

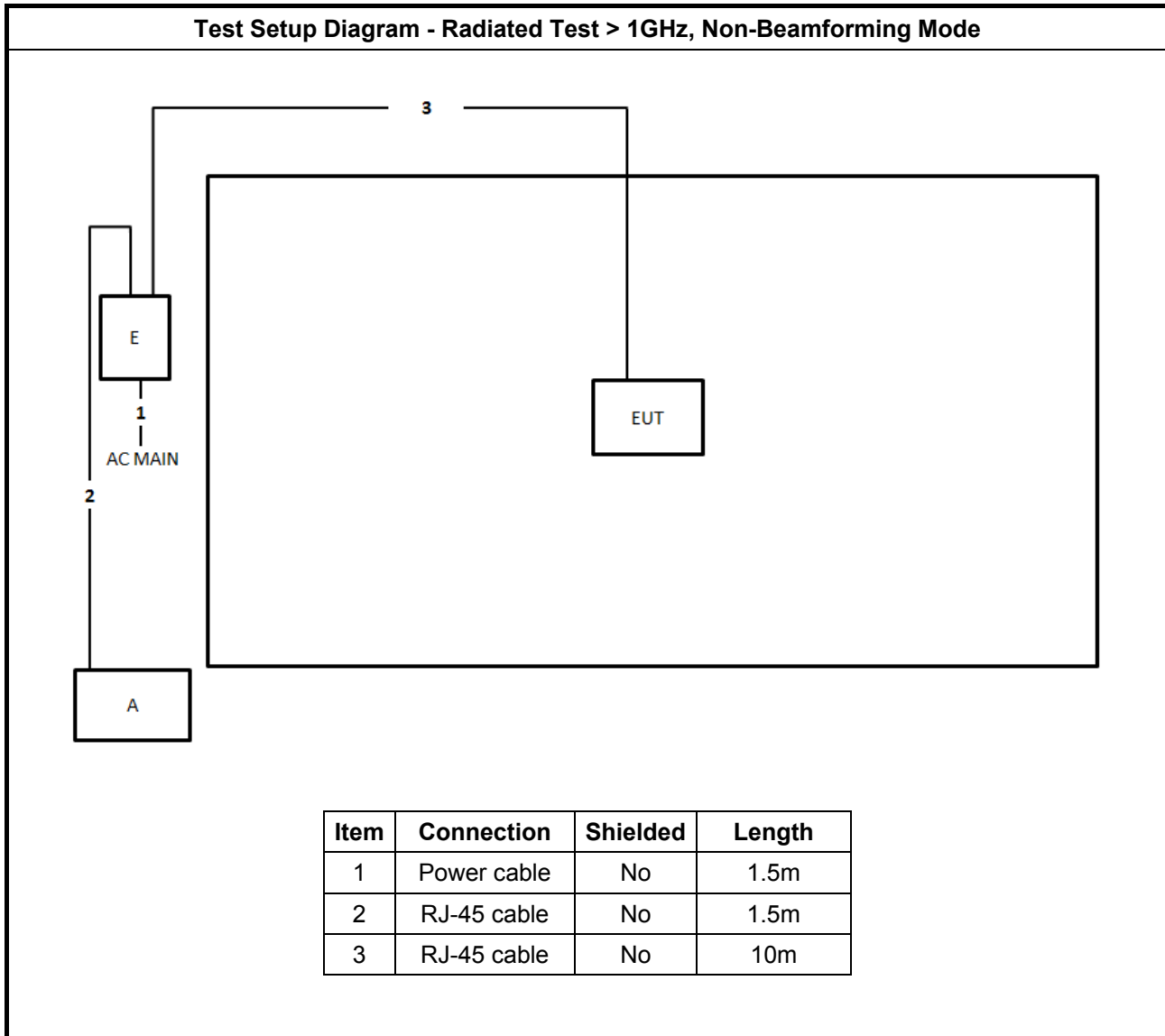
For Beamforming Mode:

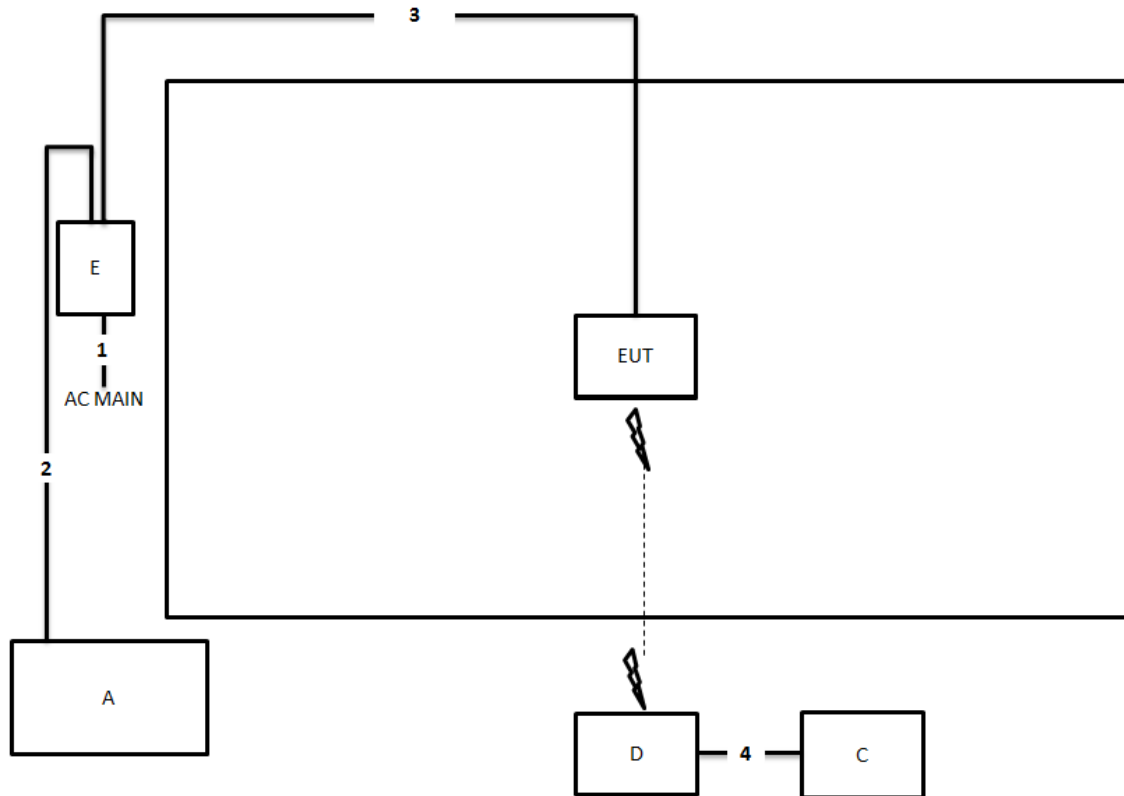
Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	NB	DELL	E4300	N/A
C	NB	DELL	E4300	N/A
D	WLAN module	Boardcom	BCM 943684MCH5	N/A
E	PoE	Microsemi	PD-9001GR/AT/AC	N/A

For Conducted test:

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

2.6 Test Setup Diagram



Test Setup Diagram - Radiated Test > 1GHz, Beamforming Mode


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

3 Transmitter Test Result

3.1 Emission Bandwidth

3.1.1 Emission Bandwidth Limit

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

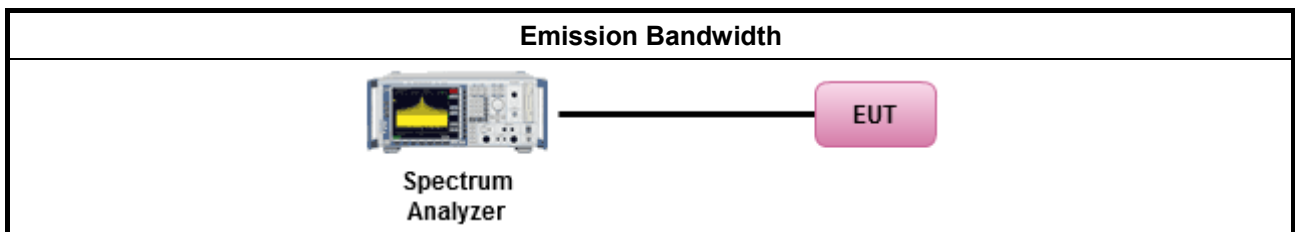
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

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

3.1.4 Test Setup





3.1.5 Test Result of Emission Bandwidth

Refer as Appendix A



3.2 Maximum Conducted Output Power

3.2.1 Maximum Conducted Output Power Limit

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

3.2.2 Measuring Instruments

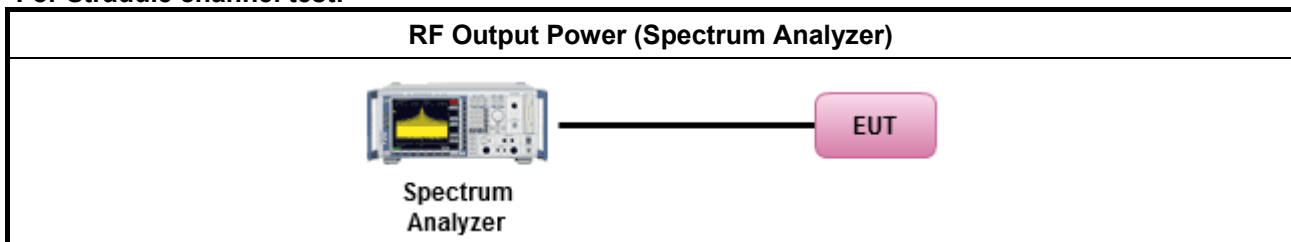
Refer a test equipment and calibration data table in this test report.

3.2.3 Test Procedures

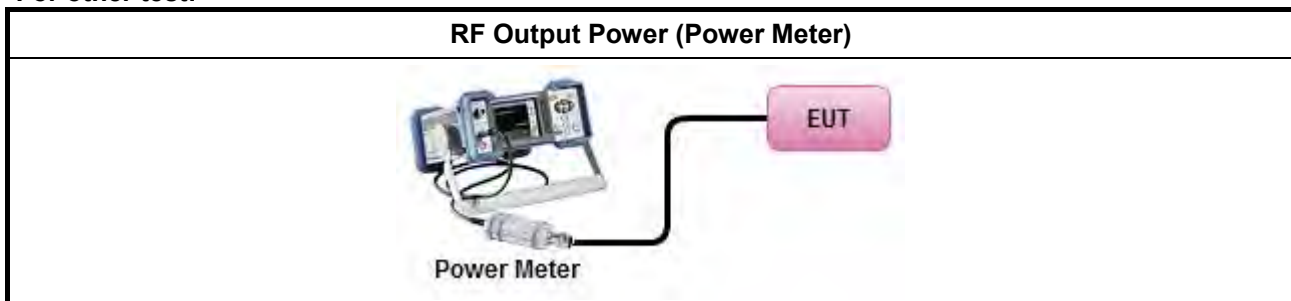
Test Method	
Maximum Conducted Output Power	
	Average over on/off periods with duty factor
☒	Refer as FCC KDB 789033, clause E Method SA-2 (spectral trace averaging).
☐	Refer as FCC KDB 789033, clause E Method SA-2 Alt. (RMS detection with slow sweep speed)
	Wideband RF power meter and average over on/off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

3.2.4 Test Setup

For Straddle channel test:



For other test:



3.2.5 Test Result of Maximum Conducted Output Power

Refer as Appendix B



3.3 Peak Power Spectral Density

3.3.1 Peak Power Spectral Density Limit

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

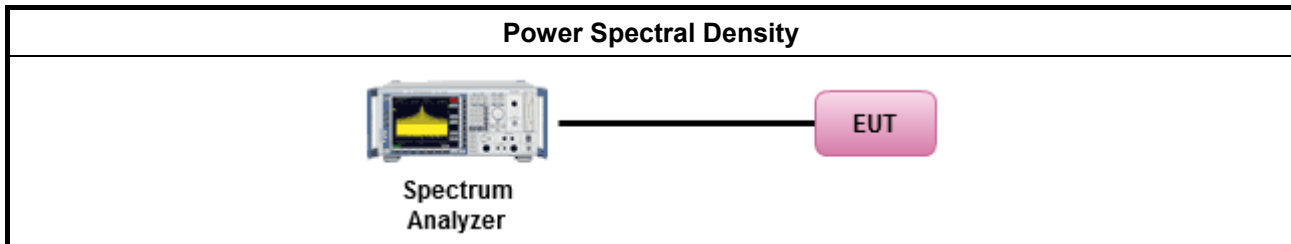
3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

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

3.3.4 Test Setup



3.3.5 Test Result of Peak Power Spectral Density

Refer as Appendix C

3.4 Unwanted Emissions

3.4.1 Transmitter Unwanted Emissions Limit

Unwanted emissions below 1 GHz and restricted band emissions above 1GHz limit			
Frequency Range (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m)	Measure Distance (m)
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300
0.490~1.705	24000/F(kHz)	33.8 - 23	30
1.705~30.0	30	29	30
30~88	100	40	3
88~216	150	43.5	3
216~960	200	46	3
Above 960	500	54	3

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

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

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

Un-restricted band emissions above 1GHz Limit	
Operating Band	Limit
☒ 5.15 - 5.25 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
☒ 5.25 - 5.35 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
☒ 5.47 - 5.725 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
☒ 5.725 - 5.85 GHz	all emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

Note 1: Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of



linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).

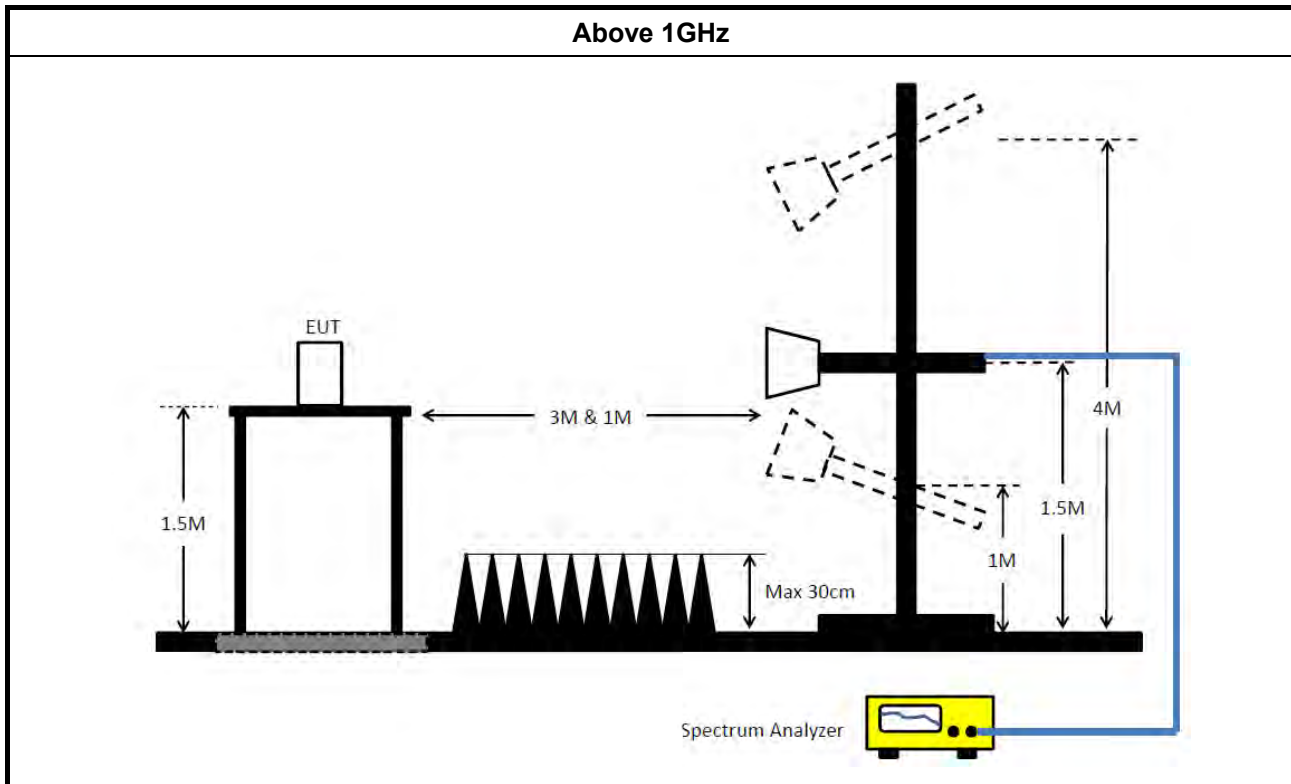
3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

Test Method	
Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 m for frequencies above 30 MHz, unless it can be further demonstrated that measurements at a distance of 30 m or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).	
The average emission levels shall be measured in [duty cycle ≥ 98 or duty factor].	
For the transmitter unwanted emissions shall be measured using following options below:	
	Refer as FCC KDB 789033, clause G)2) for unwanted emissions into non-restricted bands.
	Refer as FCC KDB 789033, clause G)1) for unwanted emissions into restricted bands.
	☐ Refer as FCC KDB 789033, G)6) Method AD (Trace Averaging).
	☒ Refer as FCC KDB 789033, G)6) Method VB (Reduced VBW).
	☐ Refer as ANSI C63.10, clause 11.12.2.5.3 (Reduced VBW). VBW $\geq 1/T$, where T is pulse time.
	☐ Refer as ANSI C63.10, clause 7.5 average value of pulsed emissions.
	☒ Refer as FCC KDB 789033, clause G)5) measurement procedure peak limit.
☐ Refer as ANSI C63.10, clause 4.1.4.2.2 measurement procedure peak limit.	
For radiated measurement.	
	Refer as ANSI C63.10, clause 6.4 for radiated emissions below 30 MHz and test distance is 3m.
	Refer as ANSI C63.10, clause 6.5 for radiated emissions 30 MHz to 1 GHz and test distance is 3m.
	Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1GHz.
The any unwanted emissions level shall not exceed the fundamental emission level.	
All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.	

3.4.4 Test Setup



3.4.5 Test Result of Transmitter Unwanted Emissions

Refer as Appendix D



4 Test Equipment and Calibration Data

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
Horn Antenna	EMCO	3115	00075790	750MHz ~ 18GHz	Nov. 13, 2018	Nov. 12, 2019	Radiation (03CH01-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Jun. 28, 2018	Jun. 27, 2019	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Jan. 08, 2019	Jan. 07, 2020	Radiation (03CH01-CB)
Pre-Amplifier	MITEQ	TTA1840-35-H G	1864479	18GHz~40GHz	Jul. 04, 2018	Jul. 03, 2019	Radiation (03CH01-CB)
Spectrum Analyzer	R&S	FSP40	100056	9kHz~40GHz	Jan. 31, 2019	Jan. 30, 2020	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16	N/A	1 GHz~18 GHz	Oct. 08, 2018	Oct. 07, 2019	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16+17	N/A	1 GHz~18 GHz	Oct. 08, 2018	Oct. 07, 2019	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G#1	N/A	18GHz~40 GHz	Jul. 27, 2018	Jul. 26, 2019	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G#2	N/A	18GHz~40 GHz	Jul. 27, 2018	Jul. 26, 2019	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSV40	100979	9kHz~40GHz	Feb. 25, 2019	Feb. 24, 2020	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-06	1 GHz~26.5 GHz	Oct. 08, 2018	Oct. 07, 2019	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-07	1 GHz~26.5 GHz	Oct. 08, 2018	Oct. 07, 2019	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-08	1 GHz~26.5 GHz	Oct. 08, 2018	Oct. 07, 2019	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-09	1 GHz~26.5 GHz	Oct. 08, 2018	Oct. 07, 2019	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-10	1 GHz~26.5 GHz	Oct. 08, 2018	Oct. 07, 2019	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-28	1 GHz~26.5 GHz	Nov. 19, 2018	Nov. 18, 2019	Conducted (TH01-CB)
Power Sensor	Agilent	U2021XA	MY53410001	50MHz~18GHz	Nov. 05, 2018	Nov. 04, 2019	Conducted (TH01-CB)

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



EBW Result_Radio 1

Appendix A.1

For Radio 1:

For Indoor use for 5G Band 1 and Indoor/Outdoor use for 5G Band 2~4:

Mode 1: (Ant. 5 Panel antenna / 3 dBi)

For Non-beamforming / 1T1S mode

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.15-5.25GHz	-	-	-	-	-
802.11ax HEW160_Nss1,(MCS0)_1TX	81.28M	77.161M	77M2D1D	81.28M	77.161M
5.25-5.35GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_1TX	43.3M	17.991M	18M0D1D	27.35M	16.692M
802.11ax HEW20_Nss1,(MCS0)_1TX	43.85M	19.84M	19M8D1D	25.6M	18.966M
802.11ax HEW40_Nss1,(MCS0)_1TX	79.3M	38.081M	38M1D1D	40.4M	37.531M
802.11ax HEW80_Nss1,(MCS0)_1TX	81.3M	77.261M	77M3D1D	81.3M	77.261M
802.11ax HEW160_Nss1,(MCS0)_1TX	81.28M	77.001M	77M0D1D	81.28M	77.001M
5.47-5.725GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_1TX	43.45M	19.115M	19M1D1D	21.475M	14.828M
802.11ax HEW20_Nss1,(MCS0)_1TX	41M	19.215M	19M2D1D	21.775M	14.723M
802.11ax HEW40_Nss1,(MCS0)_1TX	79.45M	38.181M	38M2D1D	39.95M	34.178M
802.11ax HEW80_Nss1,(MCS0)_1TX	149.2M	77.661M	77M7D1D	81.3M	73.913M
802.11ax HEW160_Nss1,(MCS0)_1TX	164.6M	154.923M	155MD1D	164.6M	154.923M
5.725-5.85GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_1TX	3.16M	11.034M	11M0D1D	3.16M	11.034M
802.11ax HEW20_Nss1,(MCS0)_1TX	4.48M	11.374M	11M4D1D	4.48M	11.374M
802.11ax HEW40_Nss1,(MCS0)_1TX	3.86M	23.408M	23M4D1D	3.86M	23.408M
802.11ax HEW80_Nss1,(MCS0)_1TX	3.78M	35.762M	35M8D1D	3.78M	35.762M

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

Max-OBW = Maximum 99% occupied bandwidth;

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

Min-OBW = Minimum 99% occupied bandwidth;

Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
802.11a_Nss1,(6Mbps)_1TX	-	-	-	-
5260MHz	Pass	Inf	40.825M	16.992M
5300MHz	Pass	Inf	43.3M	17.991M
5320MHz	Pass	Inf	27.35M	16.692M
5500MHz	Pass	Inf	21.525M	16.642M
5580MHz	Pass	Inf	43.45M	19.115M
5700MHz	Pass	Inf	21.475M	16.567M
5720MHz Straddle 5.47-5.725GHz	Pass	Inf	25.05M	14.828M
5720MHz Straddle 5.725-5.85GHz	Pass	500k	3.16M	11.034M
802.11ax HEW20_Nss1,(MCS0)_1TX	-	-	-	-
5260MHz	Pass	Inf	41.225M	19.34M
5300MHz	Pass	Inf	43.85M	19.84M
5320MHz	Pass	Inf	25.6M	18.966M
5500MHz	Pass	Inf	23.05M	18.966M
5580MHz	Pass	Inf	41M	19.215M
5700MHz	Pass	Inf	21.775M	18.966M
5720MHz Straddle 5.47-5.725GHz	Pass	Inf	26.25M	14.723M
5720MHz Straddle 5.725-5.85GHz	Pass	500k	4.48M	11.374M
802.11ax HEW40_Nss1,(MCS0)_1TX	-	-	-	-
5270MHz	Pass	Inf	79.3M	38.081M
5310MHz	Pass	Inf	40.4M	37.531M
5510MHz	Pass	Inf	39.95M	37.531M
5550MHz	Pass	Inf	79.45M	38.181M
5670MHz	Pass	Inf	74.75M	37.681M
5710MHz Straddle 5.47-5.725GHz	Pass	Inf	54.25M	34.178M
5710MHz Straddle 5.725-5.85GHz	Pass	500k	3.86M	23.408M
802.11ax HEW80_Nss1,(MCS0)_1TX	-	-	-	-
5290MHz	Pass	Inf	81.3M	77.261M
5530MHz	Pass	Inf	81.3M	77.161M
5610MHz	Pass	Inf	149.2M	77.661M
5690MHz Straddle 5.47-5.725GHz	Pass	Inf	116.25M	73.913M
5690MHz Straddle 5.725-5.85GHz	Pass	500k	3.78M	35.762M
802.11ax HEW160_Nss1,(MCS0)_1TX	-	-	-	-
5250MHz Straddle 5.15-5.25GHz	Pass	Inf	81.28M	77.161M
5250MHz Straddle 5.25-5.35GHz	Pass	Inf	81.28M	77.001M
5570MHz	Pass	Inf	164.6M	154.923M

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

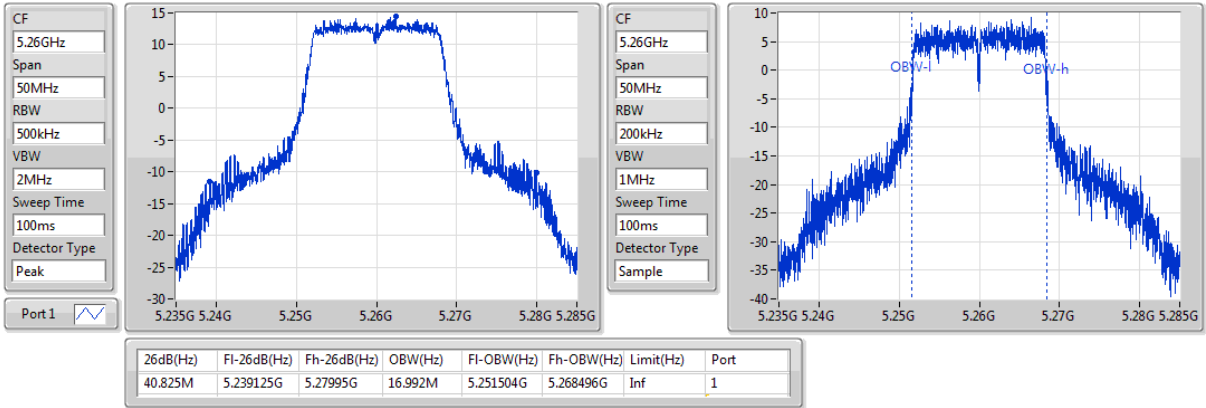
Port X-OBW = Port X 99% occupied bandwidth;

802.11a_Nss1,(6Mbps)_1TX

EBW

5260MHz

06/03/2019

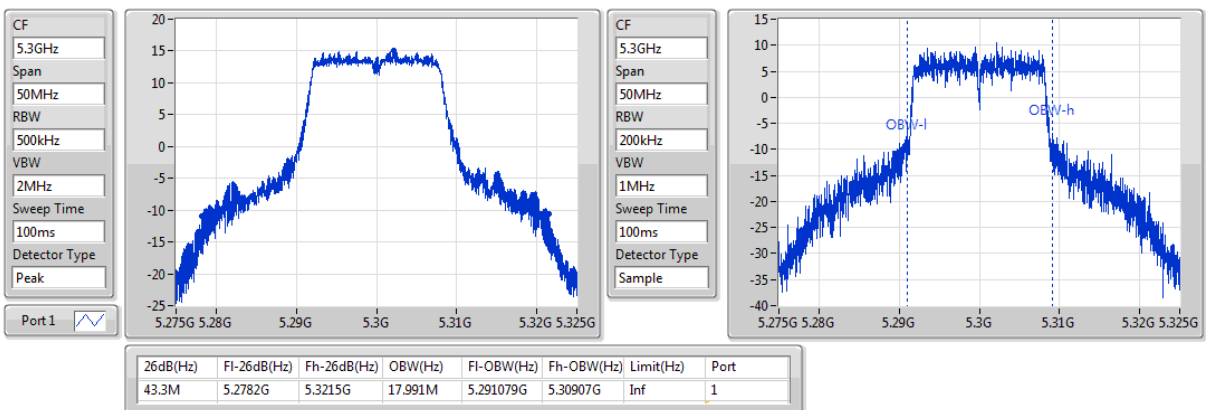


802.11a_Nss1,(6Mbps)_1TX

EBW

5300MHz

06/03/2019

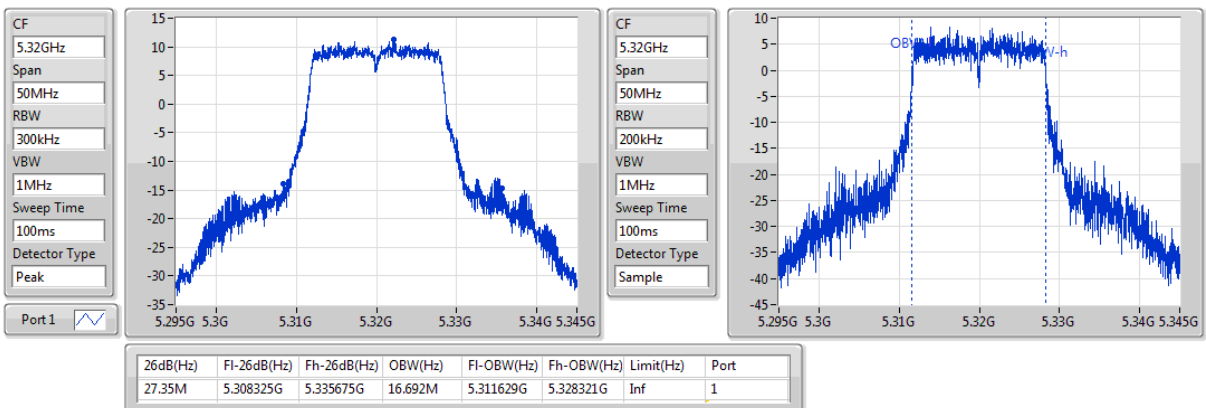


802.11a_Nss1,(6Mbps)_1TX

EBW

5320MHz

06/03/2019

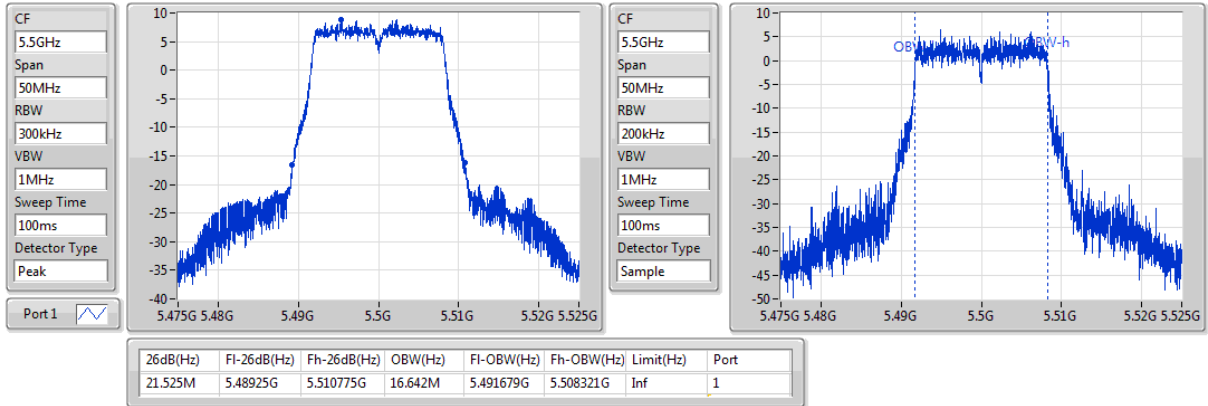


802.11a_Nss1,(6Mbps)_1TX

EBW

5500MHz

06/03/2019

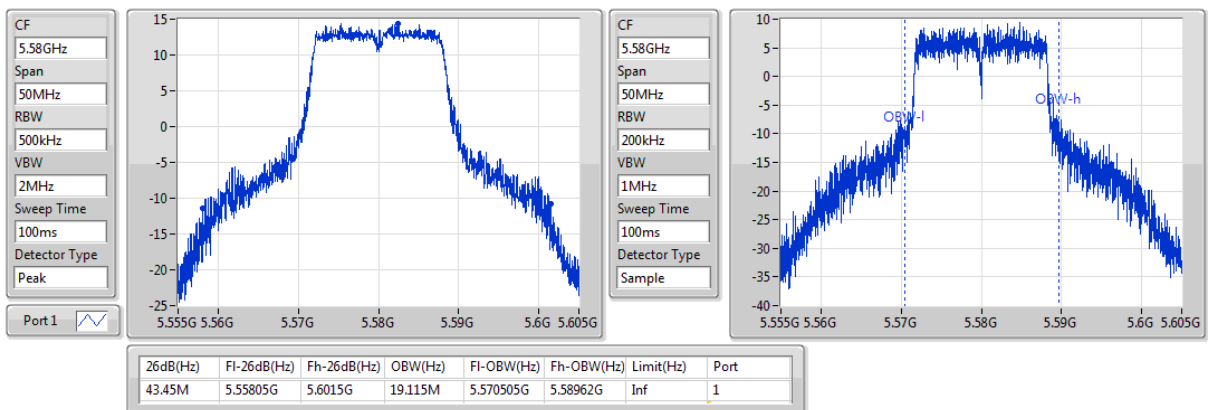


802.11a_Nss1,(6Mbps)_1TX

EBW

5580MHz

06/03/2019

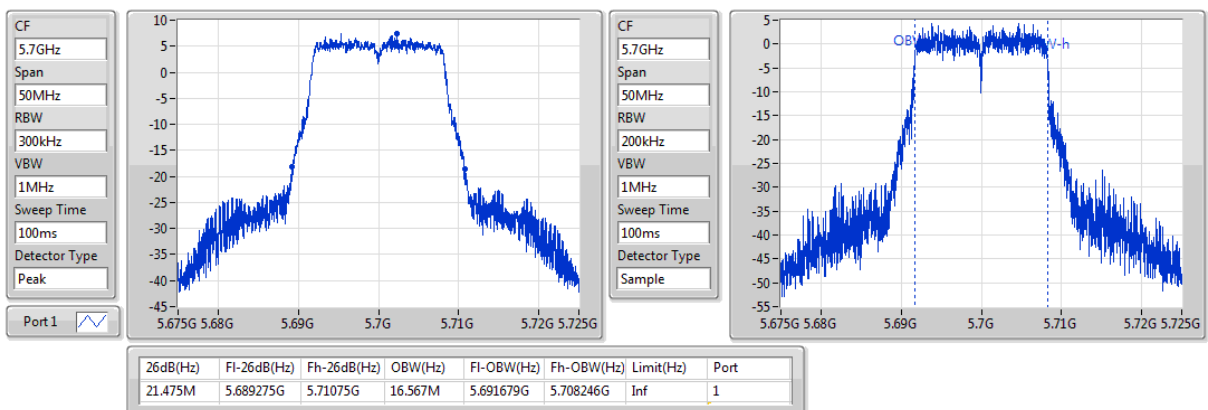


802.11a_Nss1,(6Mbps)_1TX

EBW

5700MHz

06/03/2019

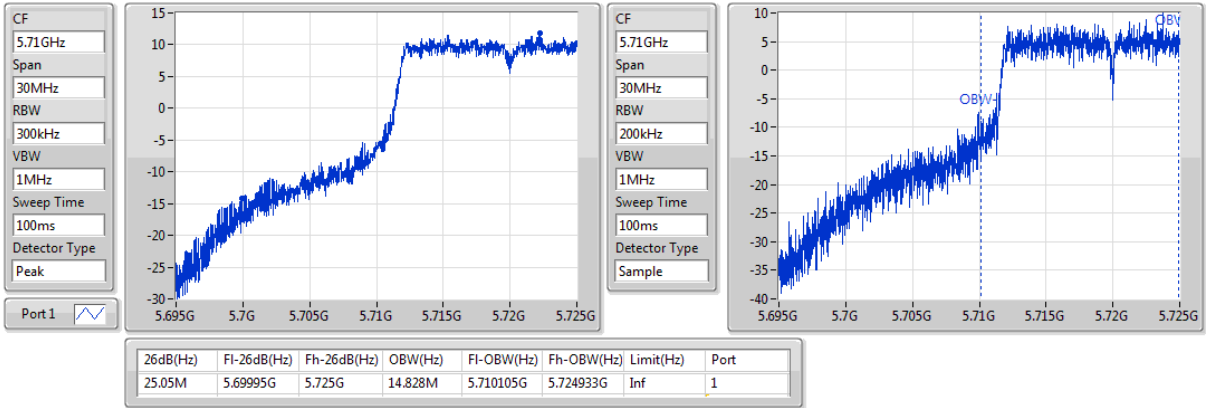


802.11a_Nss1,(6Mbps)_1TX

EBW

5720MHz Straddle 5.47-5.725GHz

06/03/2019

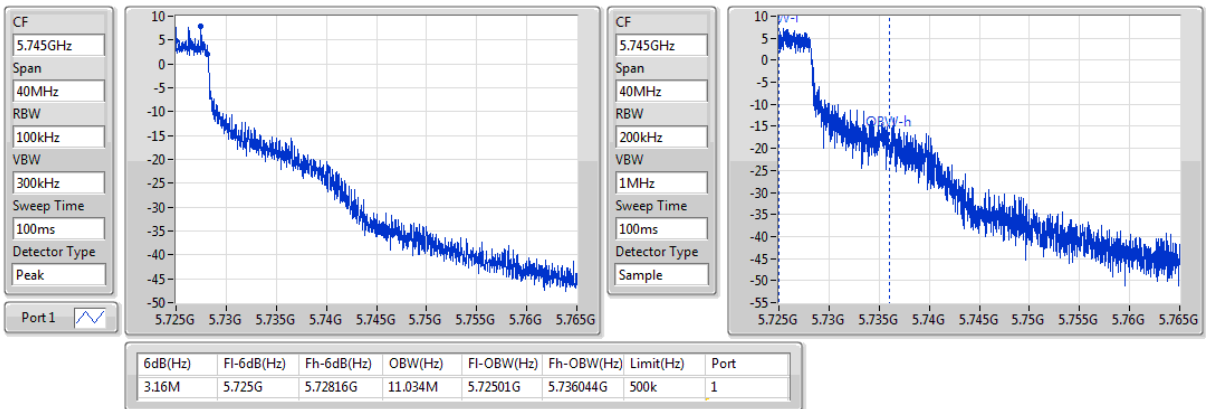


802.11a_Nss1,(6Mbps)_1TX

EBW

5720MHz Straddle 5.725-5.85GHz

06/03/2019

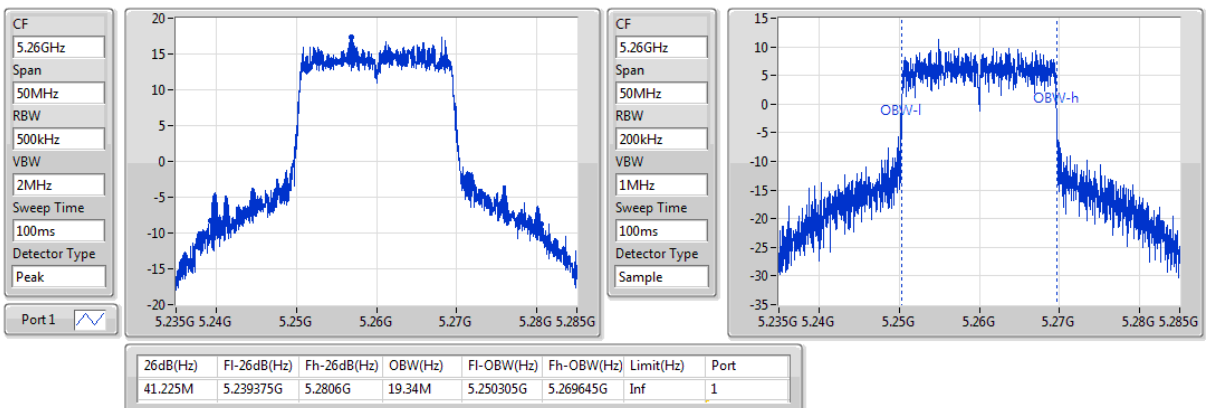


802.11ax HEW20_Nss1,(MCS0)_1TX

EBW

5260MHz

06/03/2019

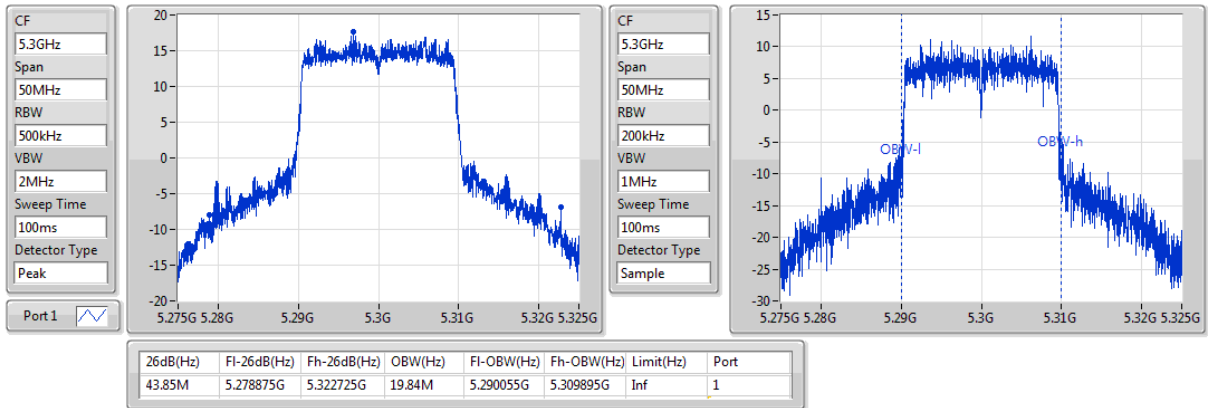


802.11ax HEW20_Nss1,(MCS0)_1TX

EBW

5300MHz

06/03/2019

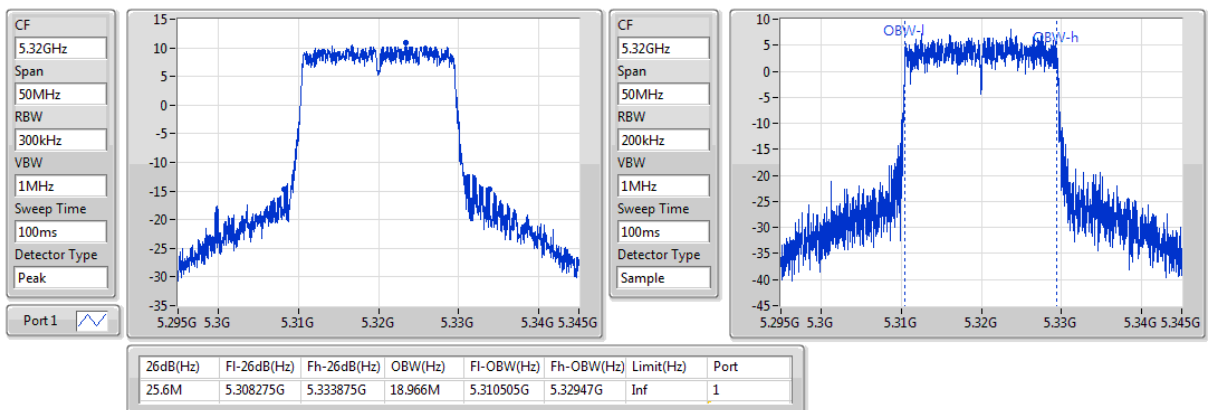


802.11ax HEW20_Nss1,(MCS0)_1TX

EBW

5320MHz

06/03/2019

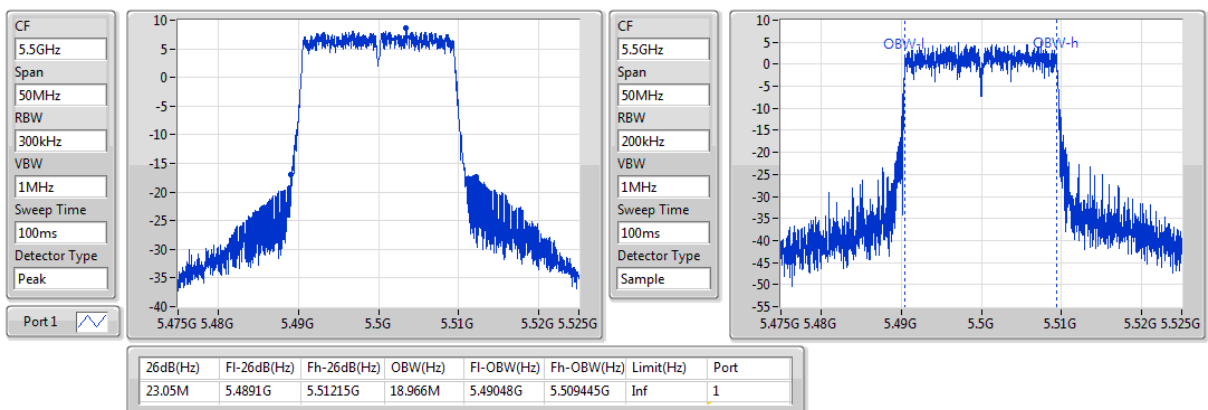


802.11ax HEW20_Nss1,(MCS0)_1TX

EBW

5500MHz

06/03/2019

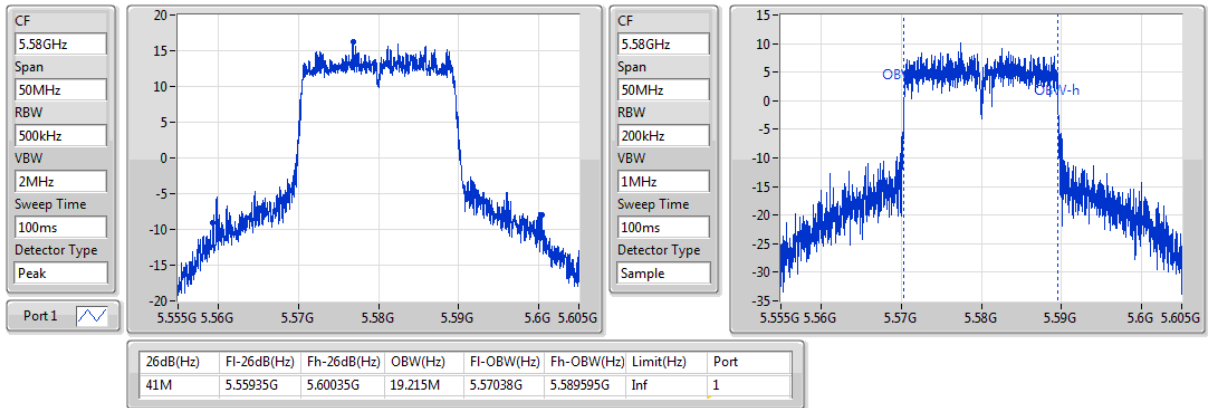


802.11ax HEW20_Nss1,(MCS0)_1TX

EBW

5580MHz

06/03/2019

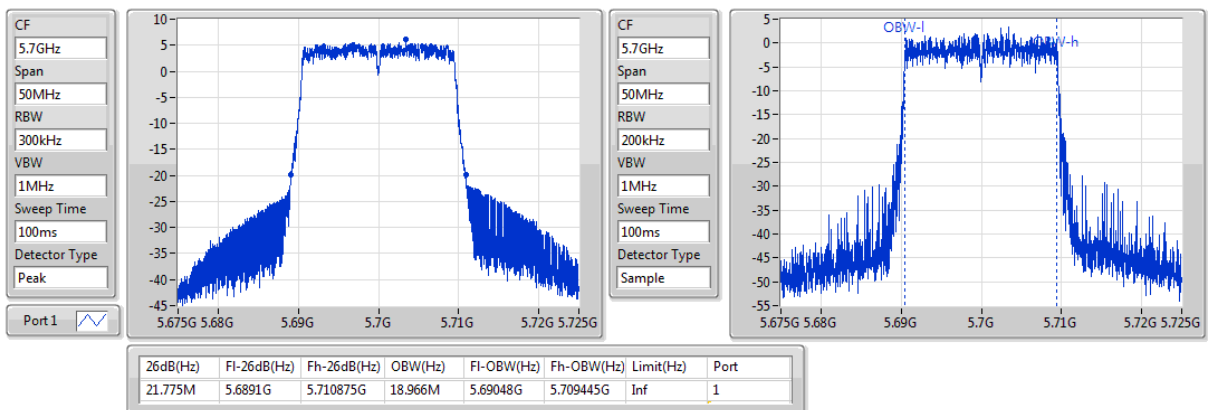


802.11ax HEW20_Nss1,(MCS0)_1TX

EBW

5700MHz

06/03/2019

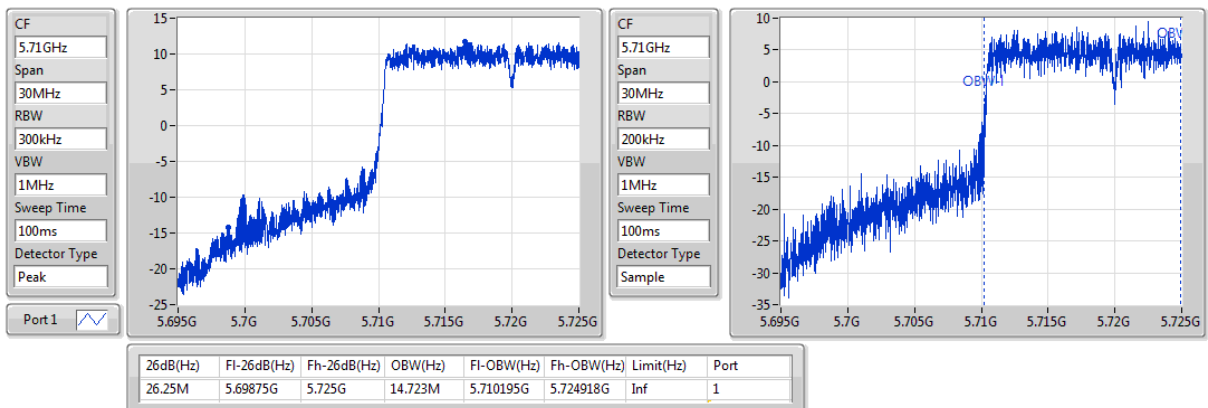


802.11ax HEW20_Nss1,(MCS0)_1TX

EBW

5720MHz Straddle 5.47-5.725GHz

06/03/2019

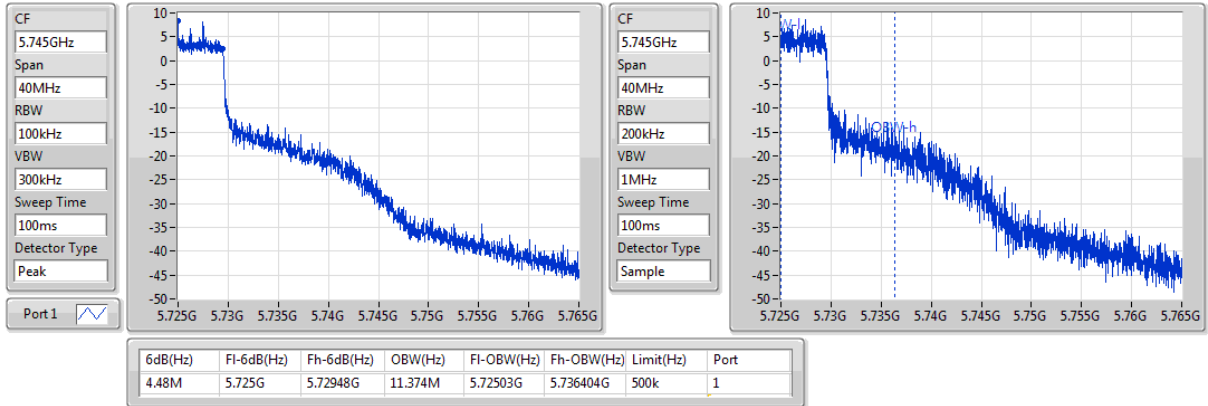


802.11ax HEW20_Nss1,(MCS0)_1TX

EBW

5720MHz Straddle 5.725-5.85GHz

06/03/2019

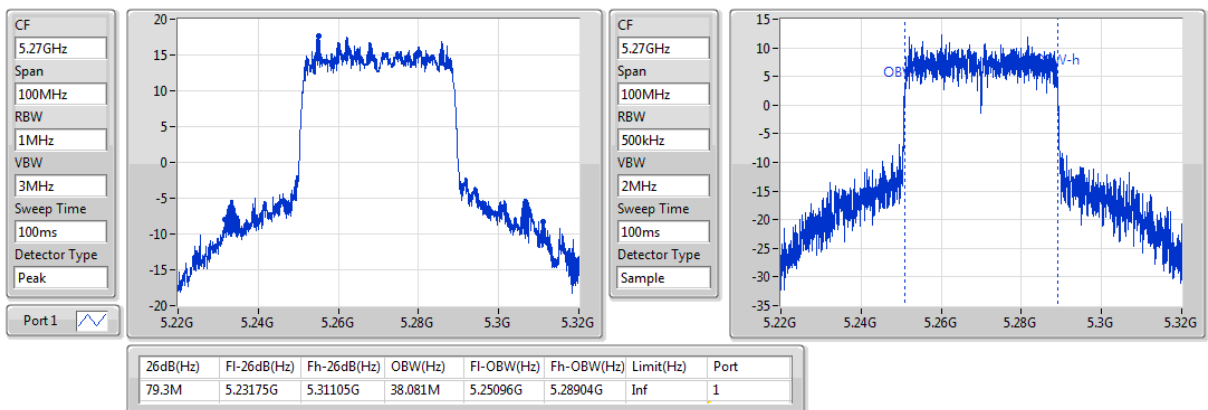


802.11ax HEW40_Nss1,(MCS0)_1TX

EBW

5270MHz

06/03/2019

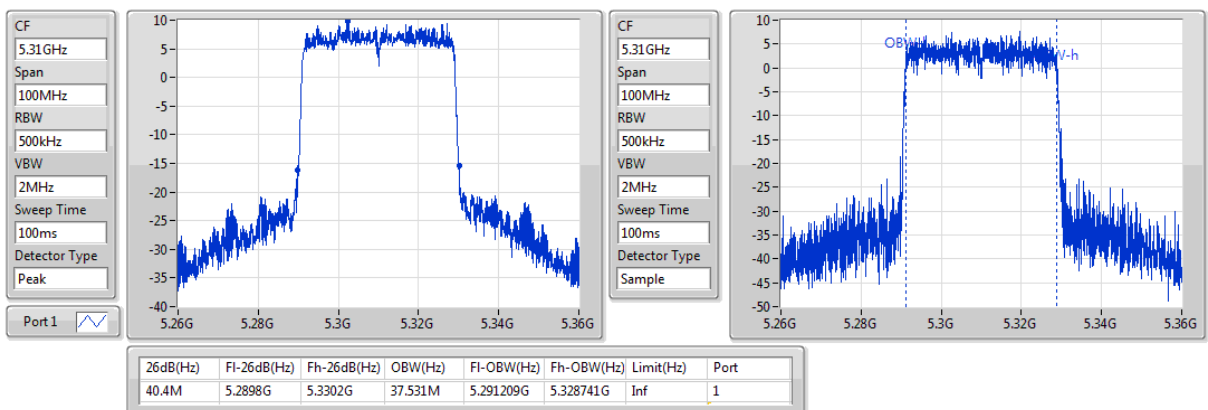


802.11ax HEW40_Nss1,(MCS0)_1TX

EBW

5310MHz

06/03/2019

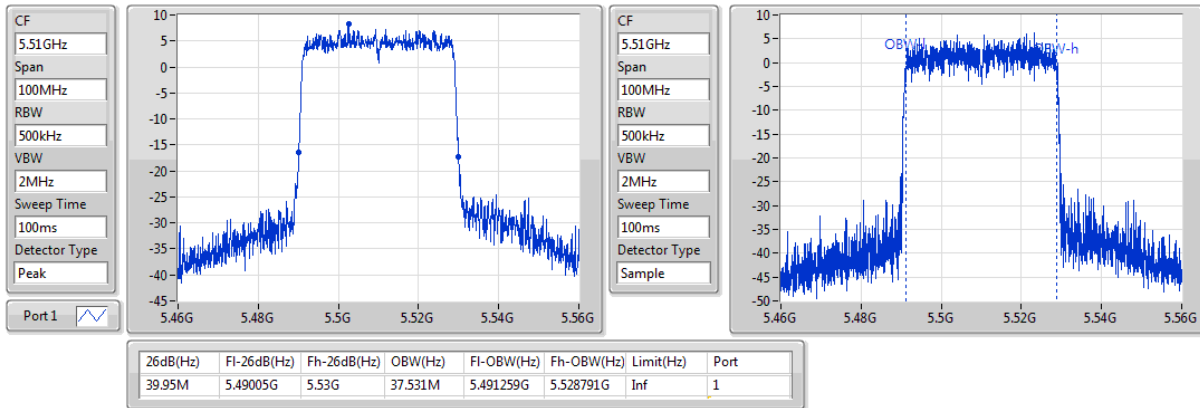


802.11ax HEW40_Nss1,(MCS0)_1TX

EBW

5510MHz

06/03/2019

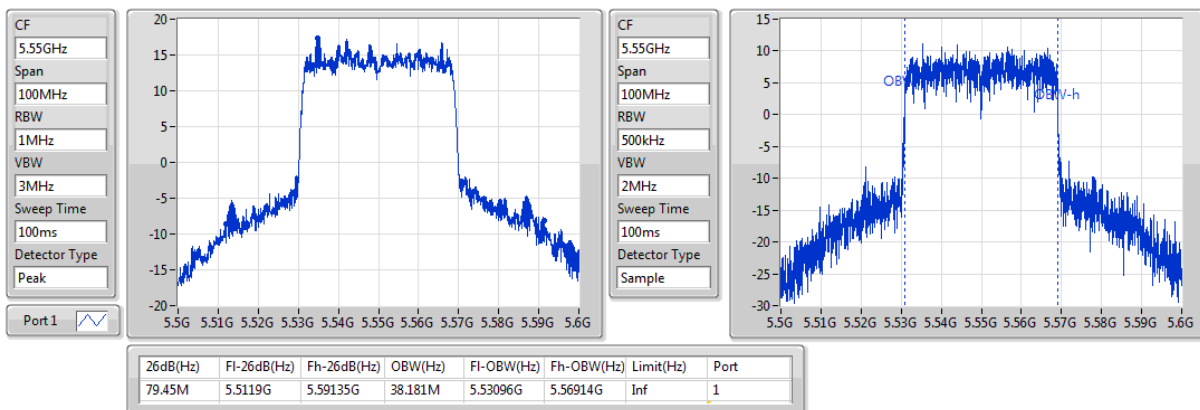


802.11ax HEW40_Nss1,(MCS0)_1TX

EBW

5550MHz

06/03/2019

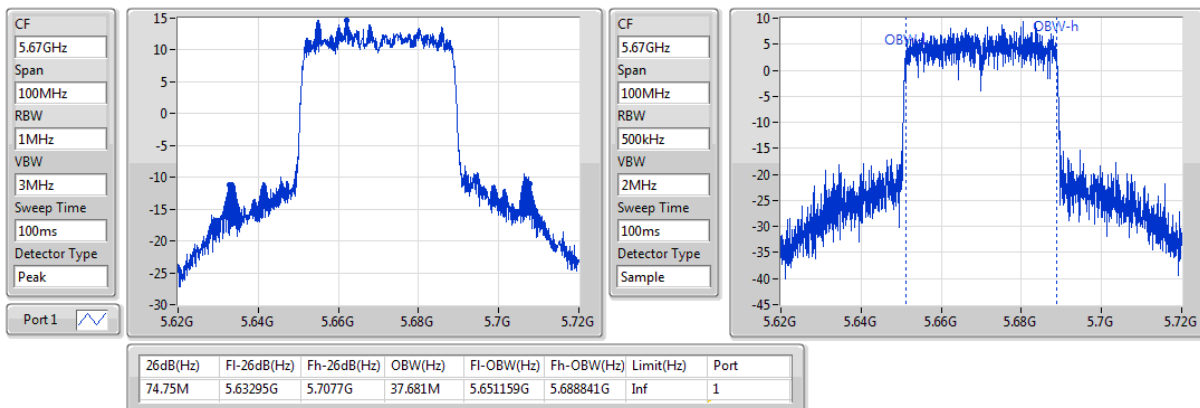


802.11ax HEW40_Nss1,(MCS0)_1TX

EBW

5670MHz

06/03/2019

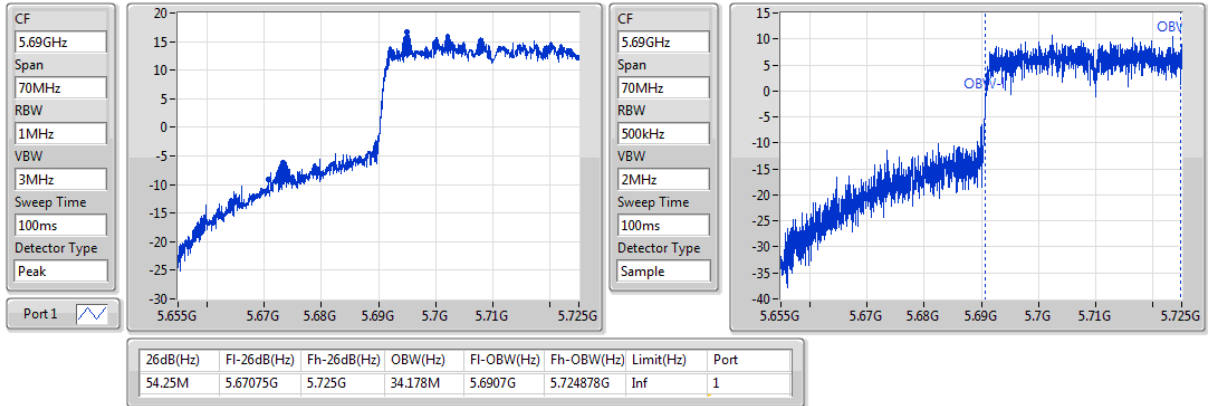


802.11ax HEW40_Nss1,(MCS0)_1TX

EBW

5710MHz Straddle 5.47-5.725GHz

06/03/2019

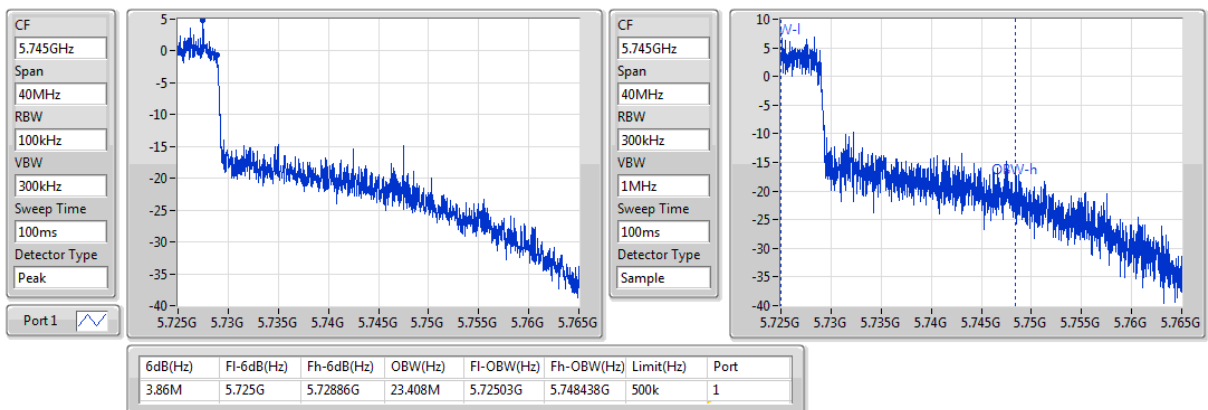


802.11ax HEW40_Nss1,(MCS0)_1TX

EBW

5710MHz Straddle 5.725-5.85GHz

06/03/2019

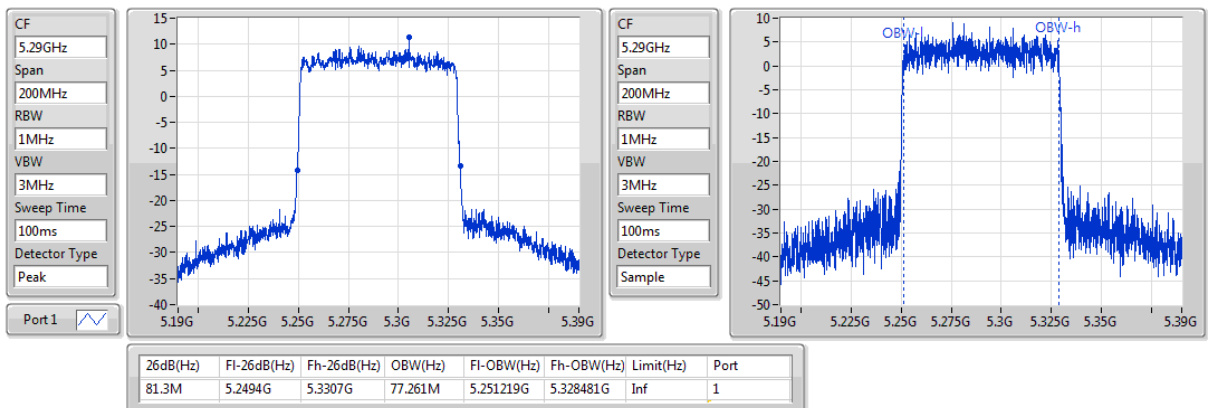


802.11ax HEW80_Nss1,(MCS0)_1TX

EBW

5290MHz

06/03/2019

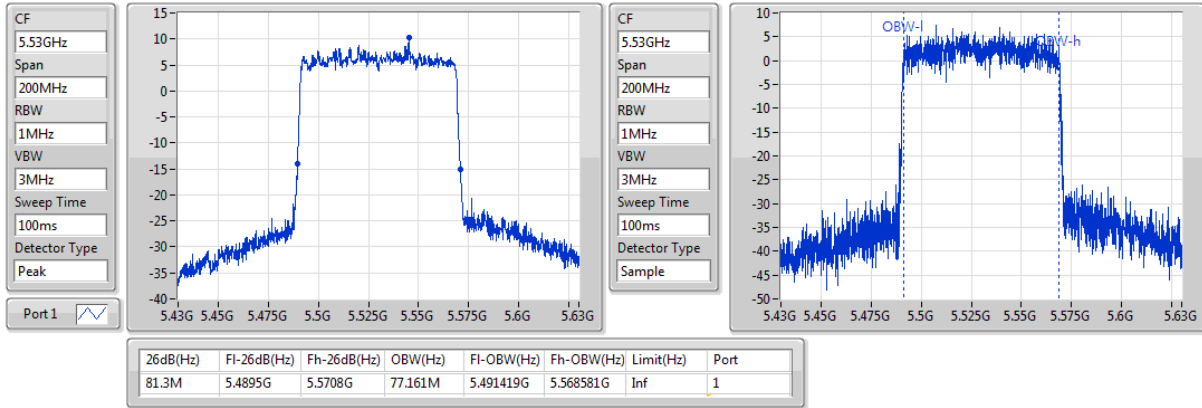


802.11ax HEW80_Nss1,(MCS0)_1TX

EBW

5530MHz

06/03/2019

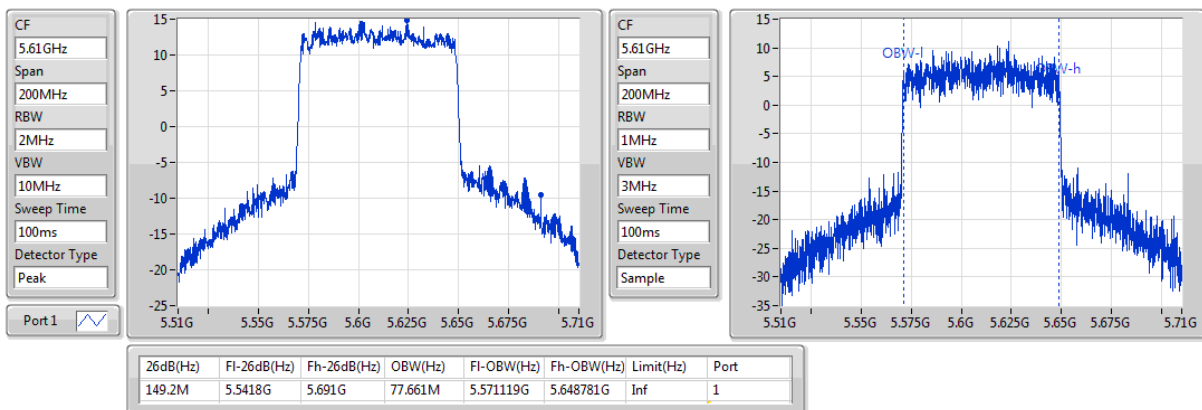


802.11ax HEW80_Nss1,(MCS0)_1TX

EBW

5610MHz

06/03/2019

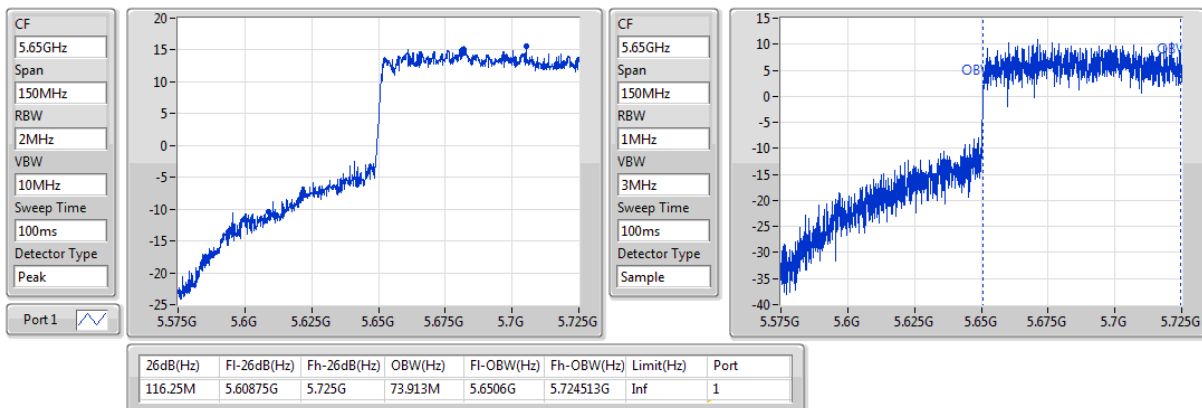


802.11ax HEW80_Nss1,(MCS0)_1TX

EBW

5690MHz Straddle 5.47-5.725GHz

06/03/2019

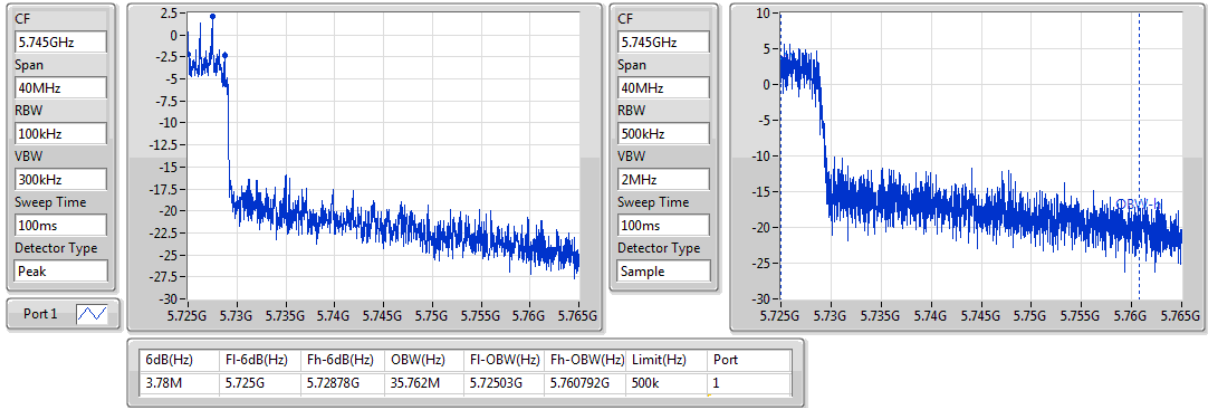


802.11ax HEW80_Nss1,(MCS0)_1TX

EBW

5690MHz Straddle 5.725-5.85GHz

06/03/2019

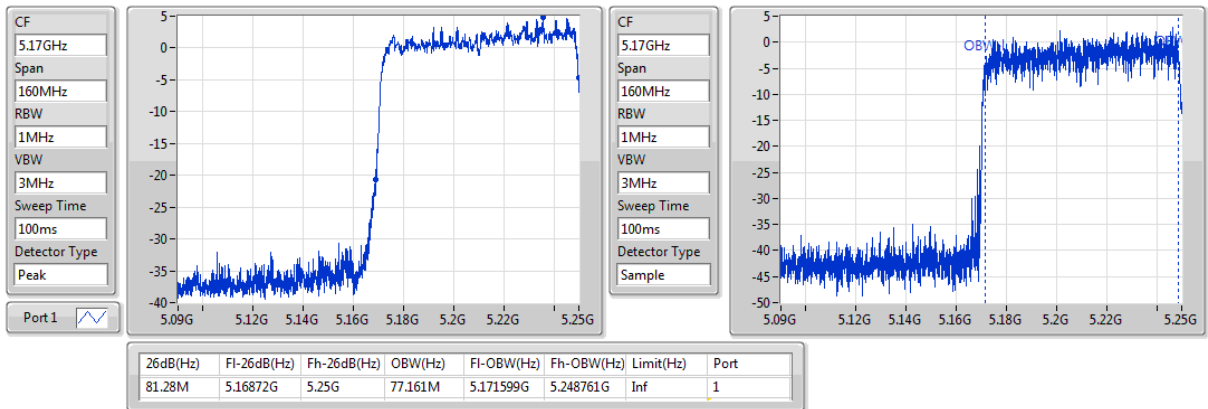


802.11ax HEW160_Nss1,(MCS0)_1TX

EBW

5250MHz Straddle 5.15-5.25GHz

06/03/2019

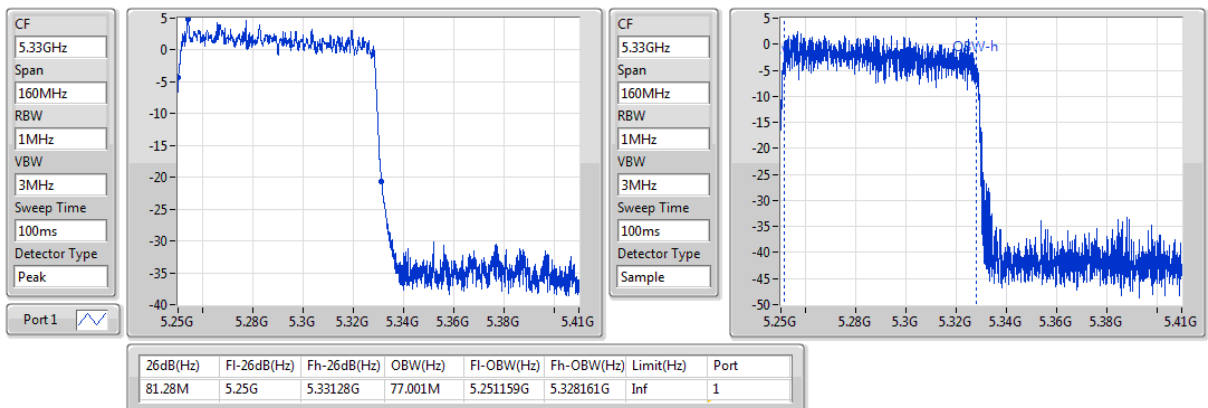


802.11ax HEW160_Nss1,(MCS0)_1TX

EBW

5250MHz Straddle 5.25-5.35GHz

06/03/2019

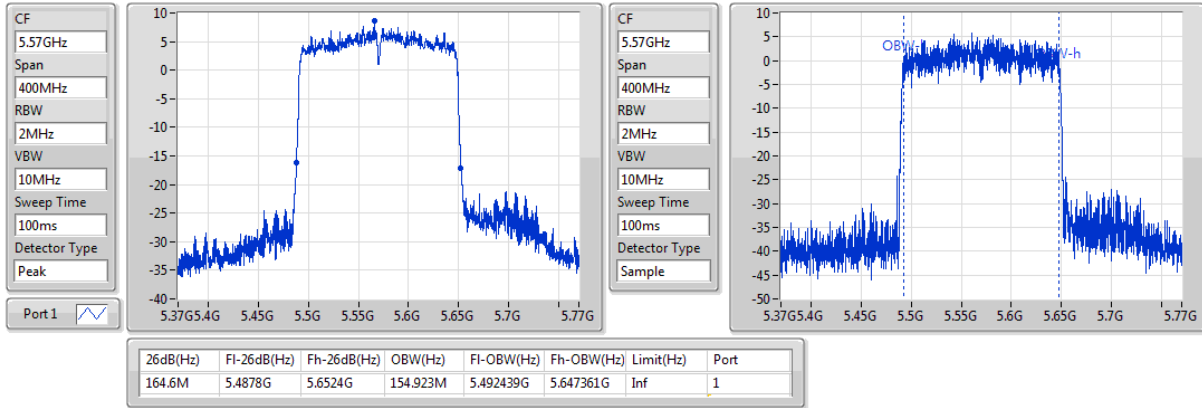


802.11ax HEW160_Nss1,(MCS0)_1TX

EBW

5570MHz

06/03/2019



**For Non-beamforming / 2T2S mode
Summary**

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.15-5.25GHz	-	-	-	-	-
802.11ax HEW160_Nss2,(MCS0)_2TX	81.84M	77.161M	77M2D1D	81.04M	77.081M
5.25-5.35GHz	-	-	-	-	-
802.11ax HEW20_Nss2,(MCS0)_2TX	42.725M	19.09M	19M1D1D	21.825M	18.916M
802.11ax HEW40_Nss2,(MCS0)_2TX	76.4M	37.681M	37M7D1D	40M	37.631M
802.11ax HEW80_Nss2,(MCS0)_2TX	81.5M	77.061M	77M1D1D	81.1M	76.862M
802.11ax HEW160_Nss2,(MCS0)_2TX	81.28M	77.081M	77M1D1D	80.64M	77.001M
5.47-5.725GHz	-	-	-	-	-
802.11ax HEW20_Nss2,(MCS0)_2TX	42.7M	19.24M	19M2D1D	21.4M	14.648M
802.11ax HEW40_Nss2,(MCS0)_2TX	80.75M	37.931M	37M9D1D	39.95M	34.143M
802.11ax HEW80_Nss2,(MCS0)_2TX	112.725M	77.361M	77M4D1D	81.7M	73.388M
802.11ax HEW160_Nss2,(MCS0)_2TX	165M	155.522M	156MD1D	164M	155.322M
5.725-5.85GHz	-	-	-	-	-
802.11ax HEW20_Nss2,(MCS0)_2TX	4.5M	11.154M	11M2D1D	4.4M	10.595M
802.11ax HEW40_Nss2,(MCS0)_2TX	3.86M	24.688M	24M7D1D	3.8M	24.588M
802.11ax HEW80_Nss2,(MCS0)_2TX	3.7M	33.123M	33M1D1D	3.14M	32.544M

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

Max-OBW = Maximum 99% occupied bandwidth;

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

Min-OBW = Minimum 99% occupied bandwidth;



EBW Result_Radio 1

Appendix A.2

Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)
802.11ax HEW20_Nss2,(MCS0)_2TX	-	-	-	-	-	-
5260MHz	Pass	Inf	34.5M	19.065M	42.725M	19.09M
5300MHz	Pass	Inf	39.45M	19.09M	41.7M	19.09M
5320MHz	Pass	Inf	21.825M	18.966M	22.275M	18.916M
5500MHz	Pass	Inf	21.875M	18.966M	21.525M	18.966M
5580MHz	Pass	Inf	39.95M	19.19M	42.7M	19.24M
5700MHz	Pass	Inf	22.025M	18.916M	21.4M	18.941M
5720MHz Straddle 5.47-5.725GHz	Pass	Inf	23.745M	14.648M	26.805M	14.648M
5720MHz Straddle 5.725-5.85GHz	Pass	500k	4.5M	10.595M	4.4M	11.154M
802.11ax HEW40_Nss2,(MCS0)_2TX	-	-	-	-	-	-
5270MHz	Pass	Inf	60.9M	37.681M	76.4M	37.631M
5310MHz	Pass	Inf	40M	37.681M	40.05M	37.631M
5510MHz	Pass	Inf	39.95M	37.531M	40.05M	37.631M
5550MHz	Pass	Inf	69.25M	37.931M	80.75M	37.881M
5670MHz	Pass	Inf	40.05M	37.481M	40.05M	37.531M
5710MHz Straddle 5.47-5.725GHz	Pass	Inf	55.86M	34.143M	55.16M	34.283M
5710MHz Straddle 5.725-5.85GHz	Pass	500k	3.86M	24.688M	3.8M	24.588M
802.11ax HEW80_Nss2,(MCS0)_2TX	-	-	-	-	-	-
5290MHz	Pass	Inf	81.5M	77.061M	81.1M	76.862M
5530MHz	Pass	Inf	82M	76.962M	81.7M	76.862M
5610MHz	Pass	Inf	83.3M	77.361M	97.4M	77.161M
5690MHz Straddle 5.47-5.725GHz	Pass	Inf	104.7M	73.388M	112.725M	73.463M
5690MHz Straddle 5.725-5.85GHz	Pass	500k	3.7M	32.544M	3.14M	33.123M
802.11ax HEW160_Nss2,(MCS0)_2TX	-	-	-	-	-	-
5250MHz Straddle 5.15-5.25GHz	Pass	Inf	81.04M	77.161M	81.84M	77.081M
5250MHz Straddle 5.25-5.35GHz	Pass	Inf	81.28M	77.001M	80.64M	77.081M
5570MHz	Pass	Inf	165M	155.522M	164M	155.322M

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

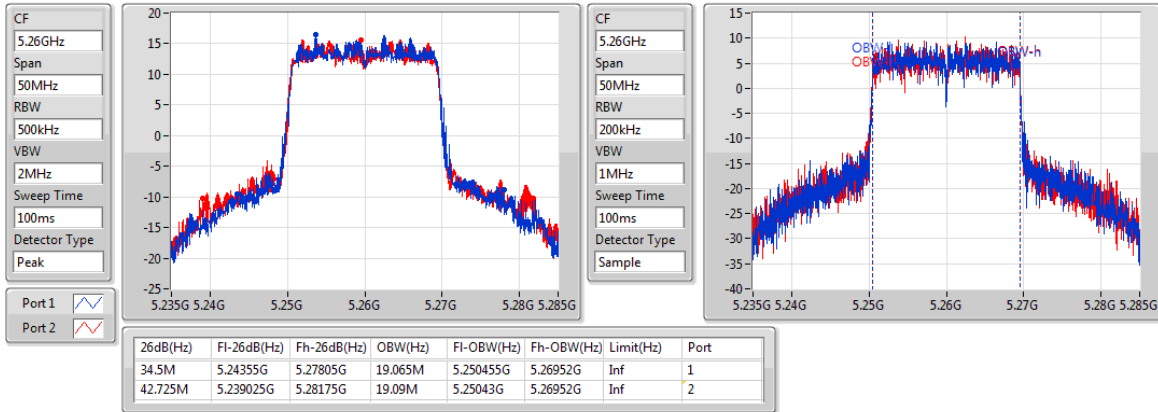
Port X-OBW = Port X 99% occupied bandwidth;

802.11ax HEW20_Nss2,(MCS0)_2TX

EBW

5260MHz

06/03/2019

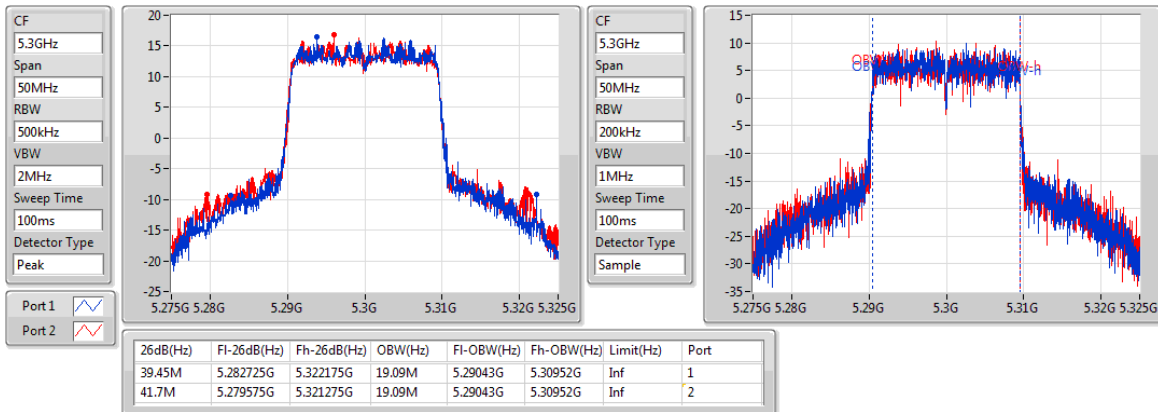


802.11ax HEW20_Nss2,(MCS0)_2TX

EBW

5300MHz

06/03/2019

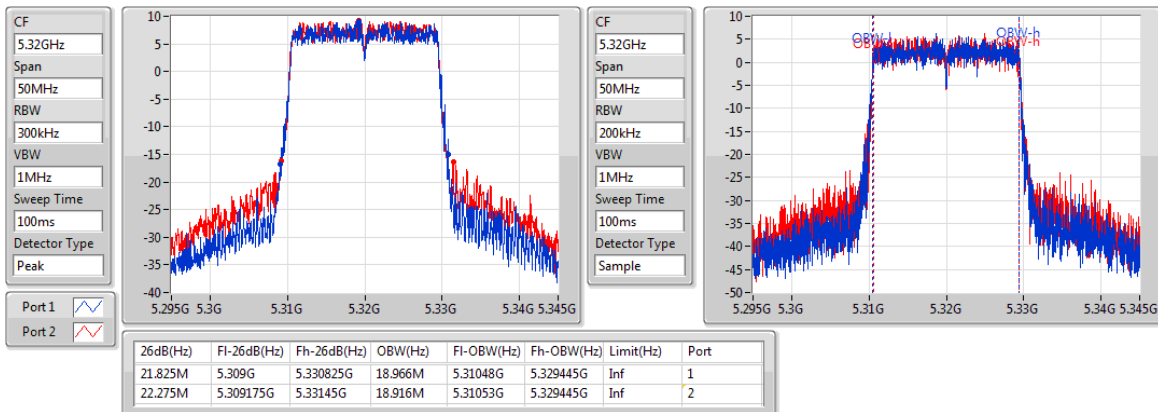


802.11ax HEW20_Nss2,(MCS0)_2TX

EBW

5320MHz

06/03/2019

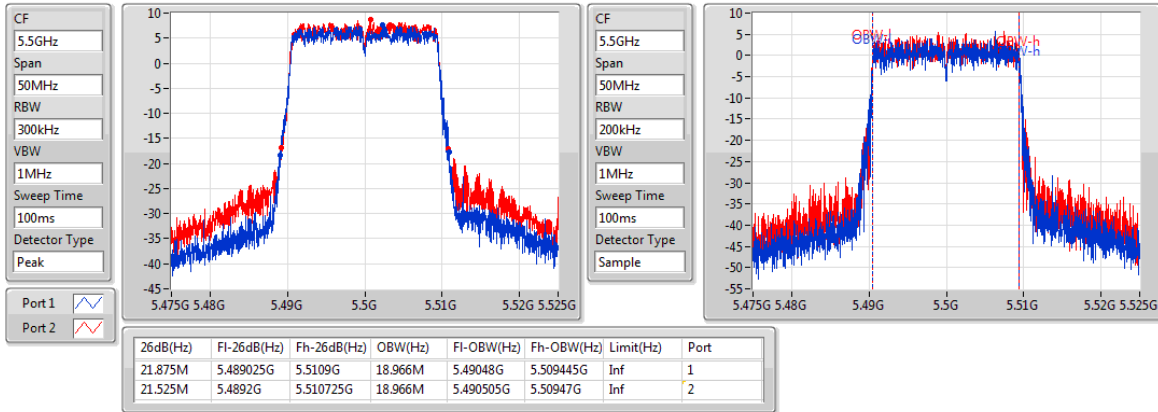


802.11ax HEW20_Nss2,(MCS0)_2TX

EBW

5500MHz

06/03/2019

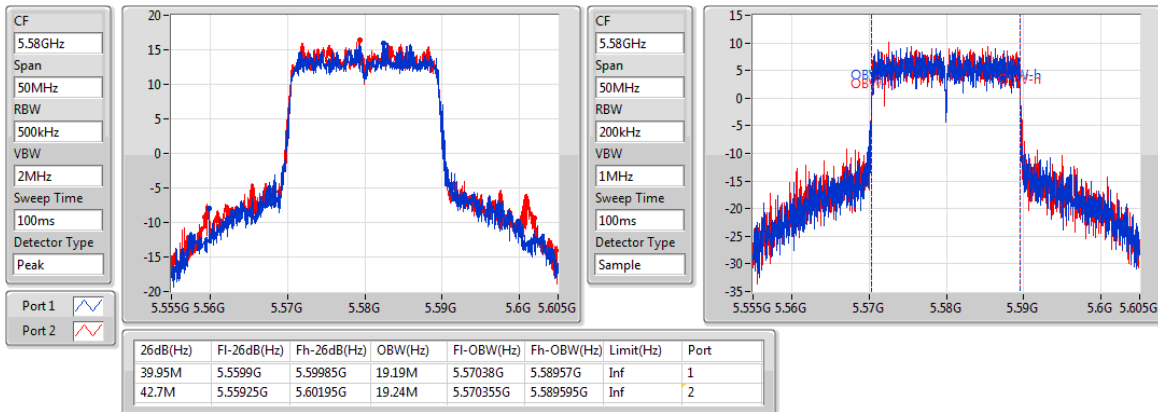


802.11ax HEW20_Nss2,(MCS0)_2TX

EBW

5580MHz

06/03/2019

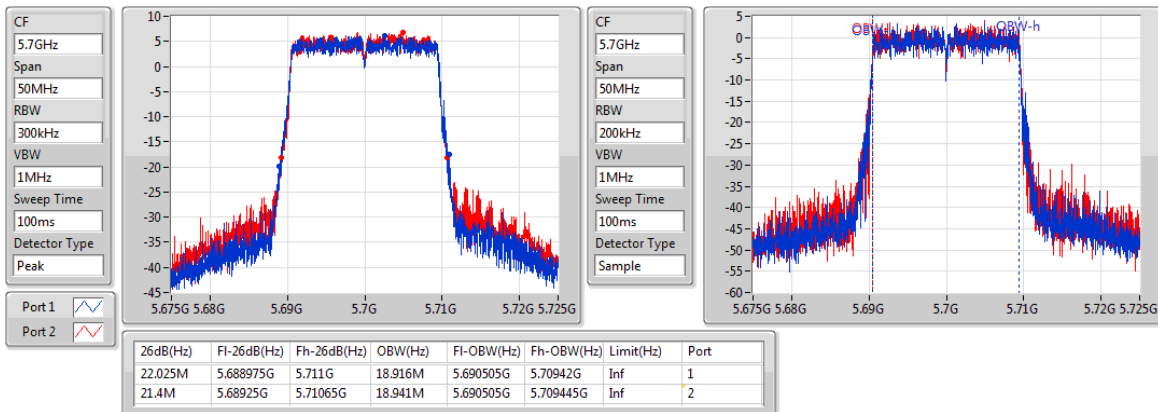


802.11ax HEW20_Nss2,(MCS0)_2TX

EBW

5700MHz

06/03/2019

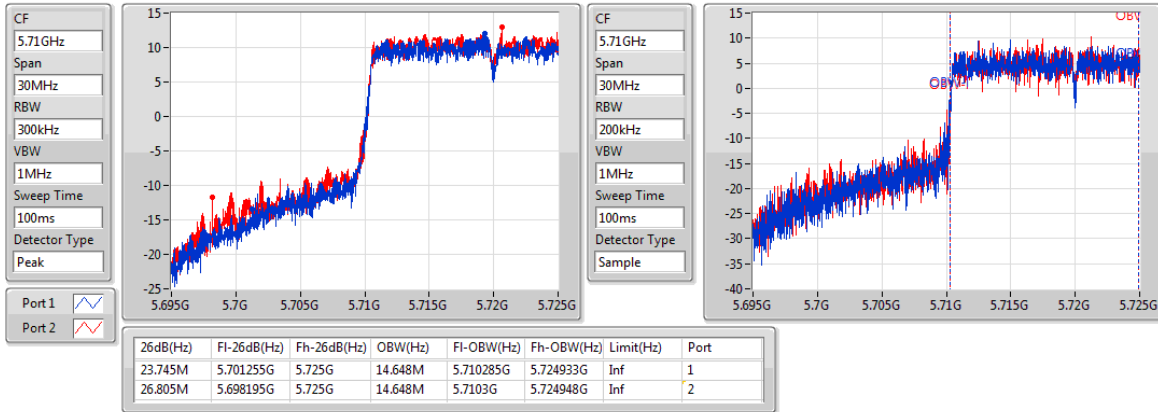


802.11ax HEW20_Nss2,(MCS0)_2TX

EBW

5720MHz Straddle 5.47-5.725GHz

06/03/2019

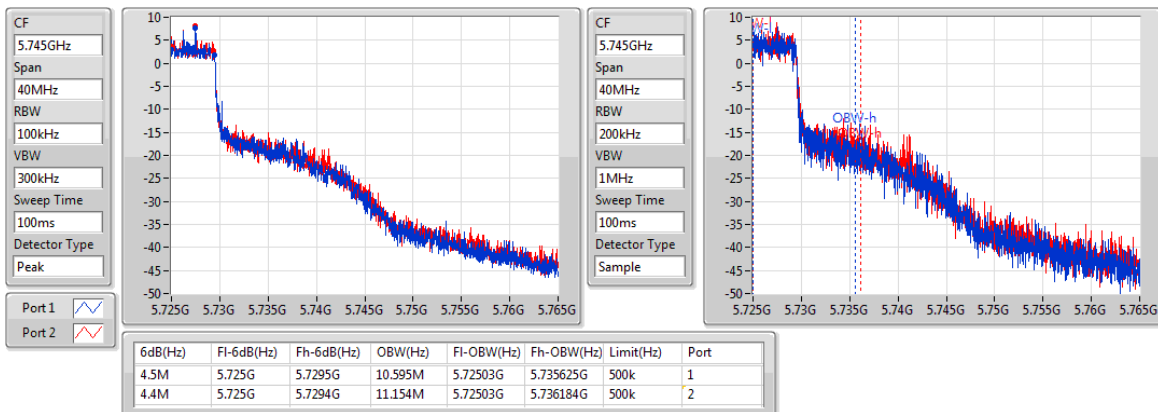


802.11ax HEW20_Nss2,(MCS0)_2TX

EBW

5720MHz Straddle 5.725-5.85GHz

06/03/2019

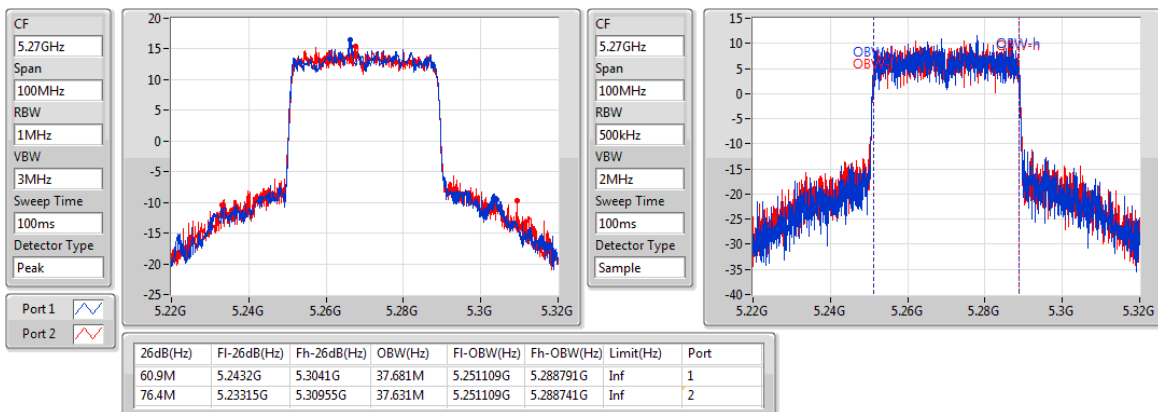


802.11ax HEW40_Nss2,(MCS0)_2TX

EBW

5270MHz

06/03/2019

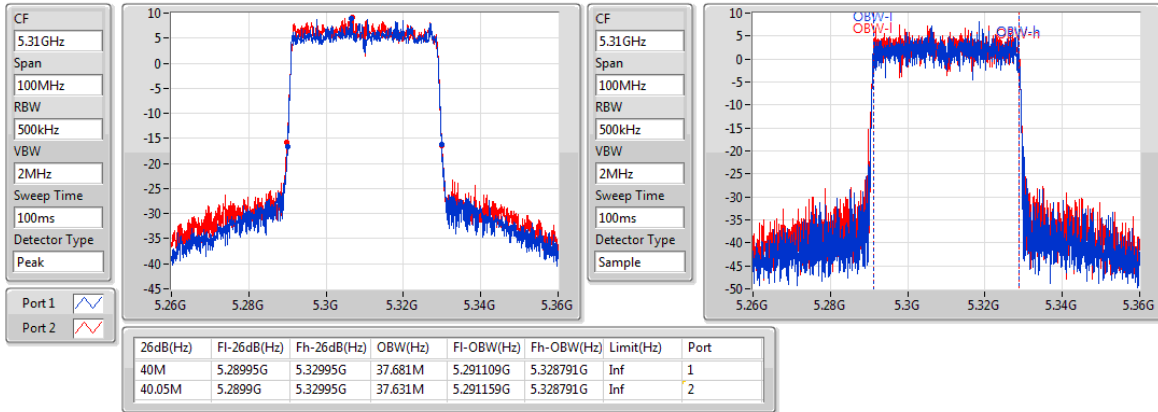


802.11ax HEW40_Nss2,(MCS0)_2TX

EBW

5310MHz

06/03/2019

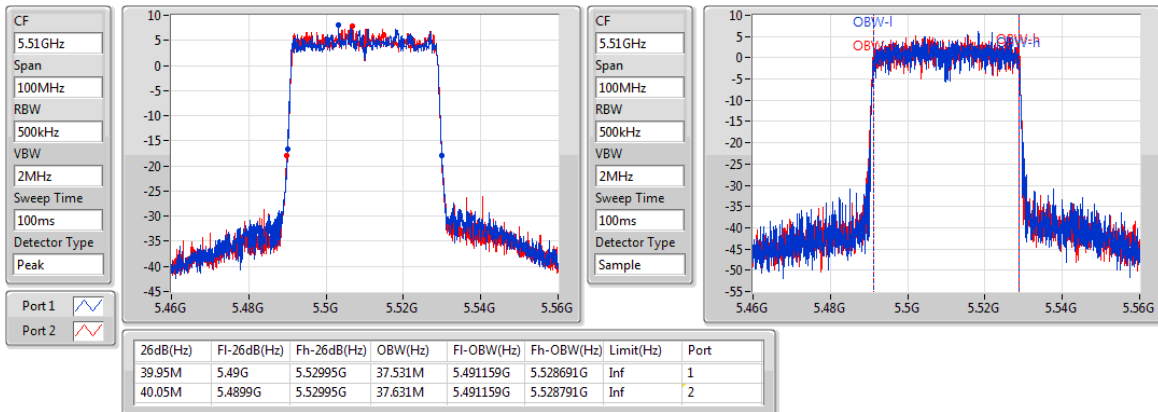


802.11ax HEW40_Nss2,(MCS0)_2TX

EBW

5510MHz

06/03/2019

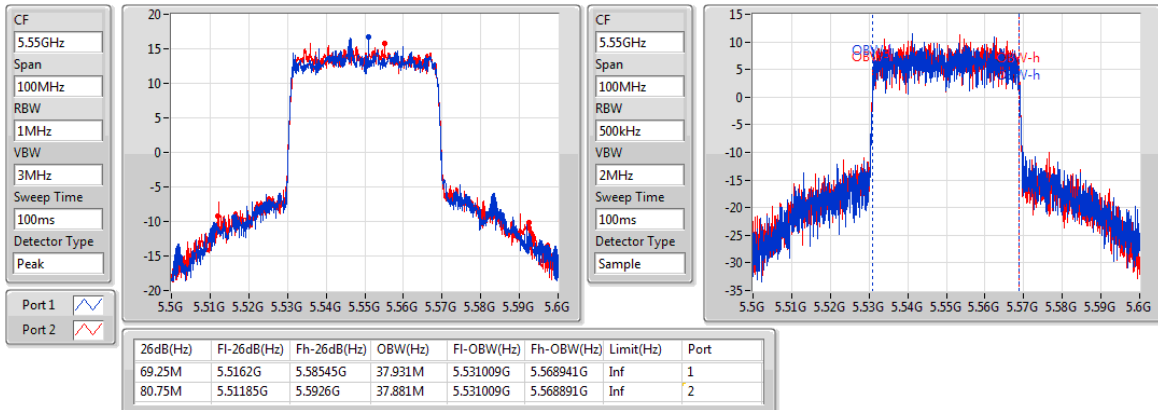


802.11ax HEW40_Nss2,(MCS0)_2TX

EBW

5550MHz

06/03/2019

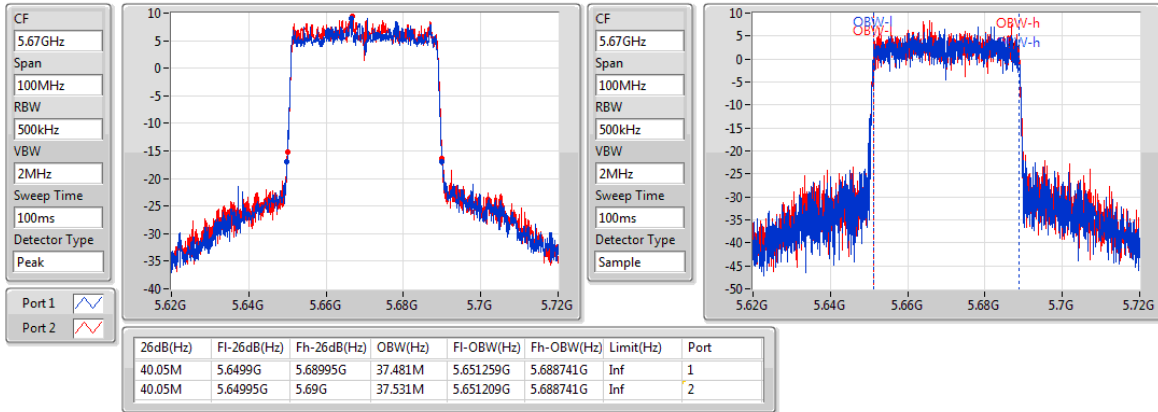


802.11ax HEW40_Nss2,(MCS0)_2TX

EBW

5670MHz

06/03/2019

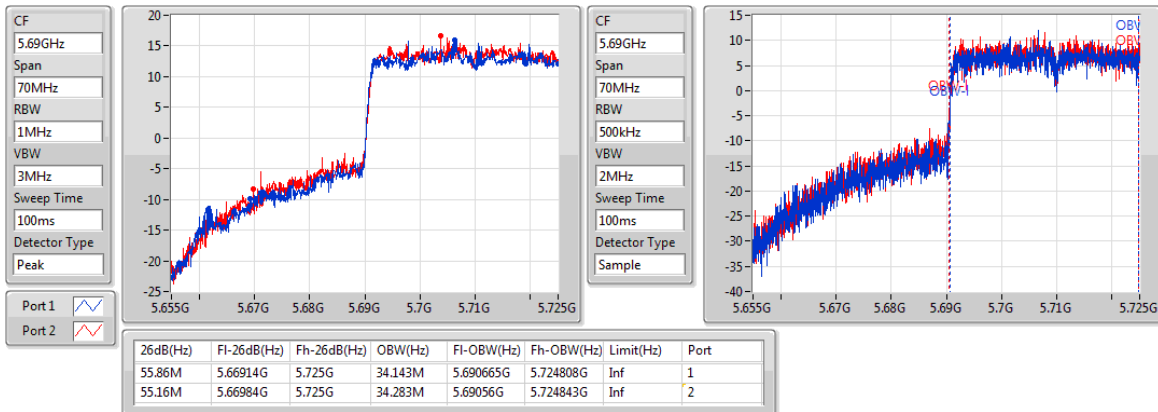


802.11ax HEW40_Nss2,(MCS0)_2TX

EBW

5710MHz Straddle 5.47-5.725GHz

06/03/2019

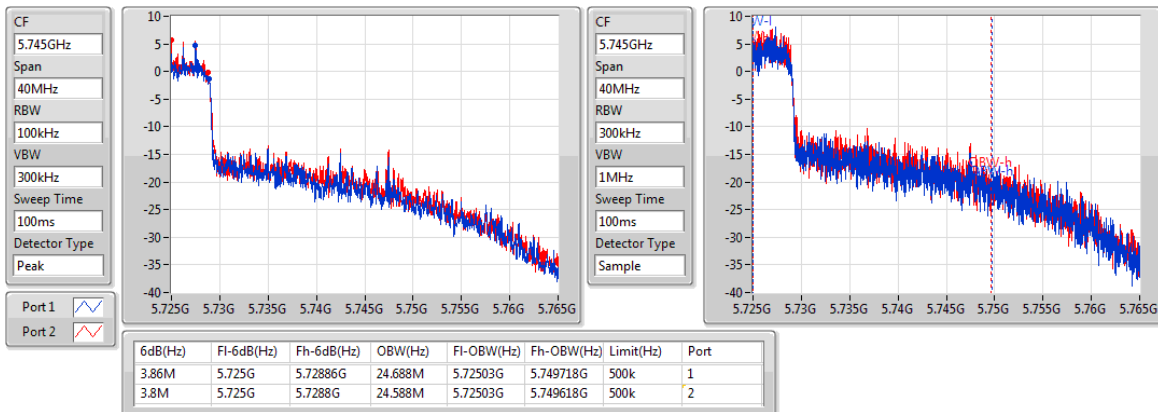


802.11ax HEW40_Nss2,(MCS0)_2TX

EBW

5710MHz Straddle 5.725-5.85GHz

06/03/2019

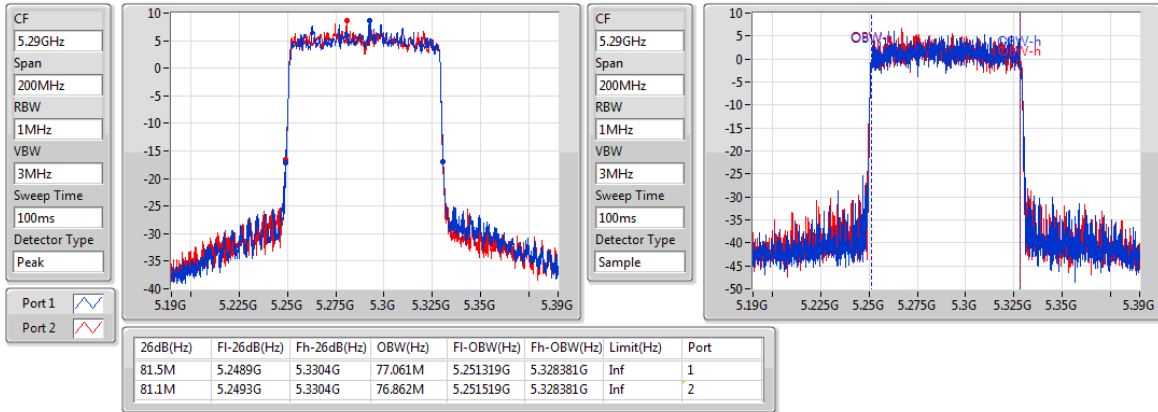


802.11ax HEW80_Nss2,(MCS0)_2TX

EBW

5290MHz

06/03/2019

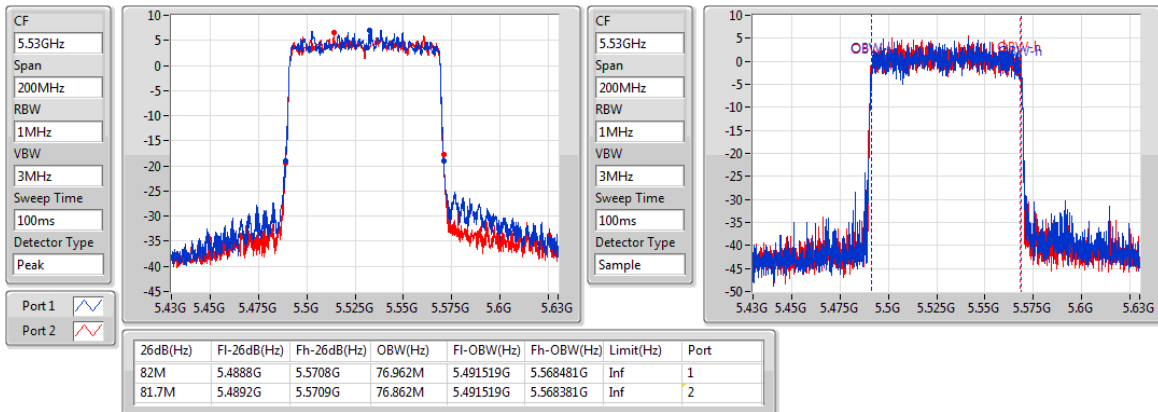


802.11ax HEW80_Nss2,(MCS0)_2TX

EBW

5530MHz

06/03/2019

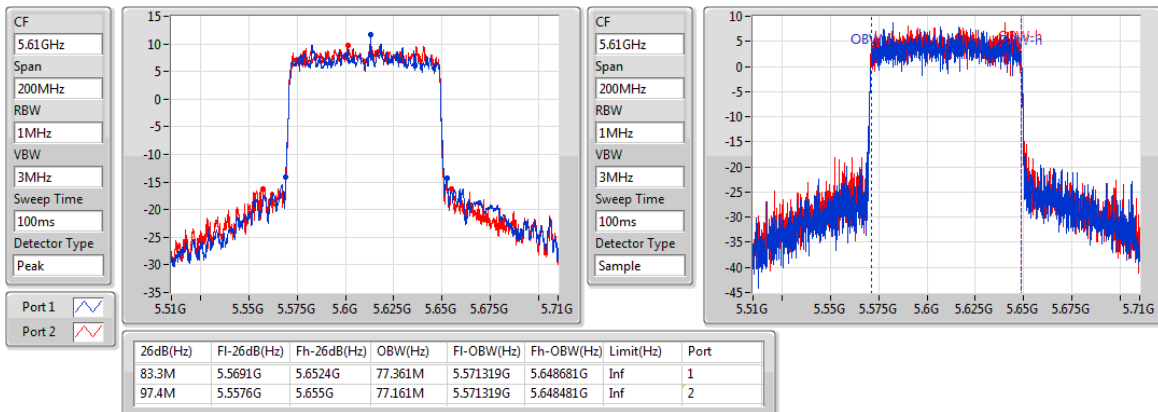


802.11ax HEW80_Nss2,(MCS0)_2TX

EBW

5610MHz

06/03/2019

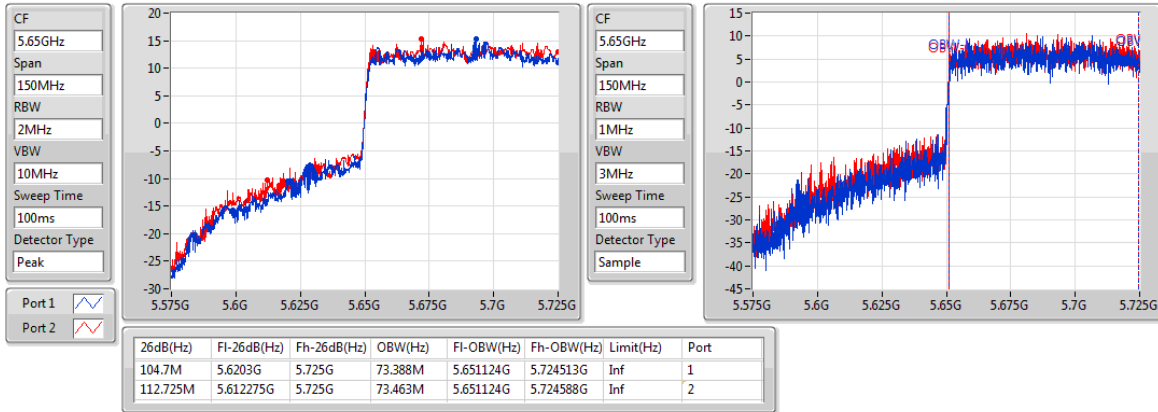


802.11ax HEW80_Nss2,(MCS0)_2TX

EBW

5690MHz Straddle 5.47-5.725GHz

06/03/2019

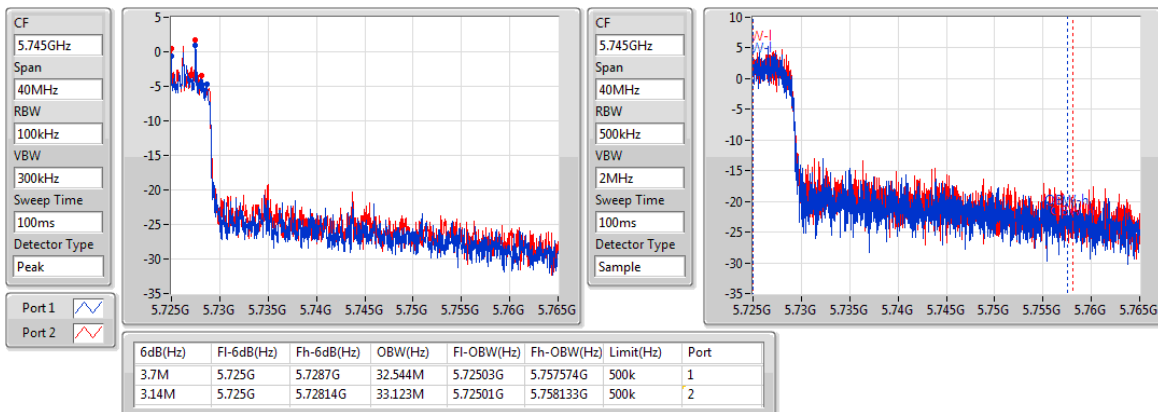


802.11ax HEW80_Nss2,(MCS0)_2TX

EBW

5690MHz Straddle 5.725-5.85GHz

06/03/2019

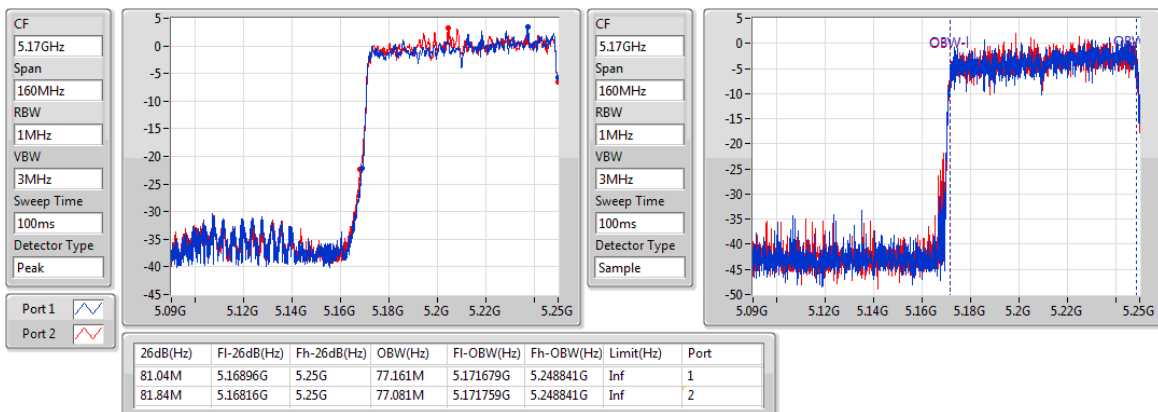


802.11ax HEW160_Nss2,(MCS0)_2TX

EBW

5250MHz Straddle 5.15-5.25GHz

06/03/2019

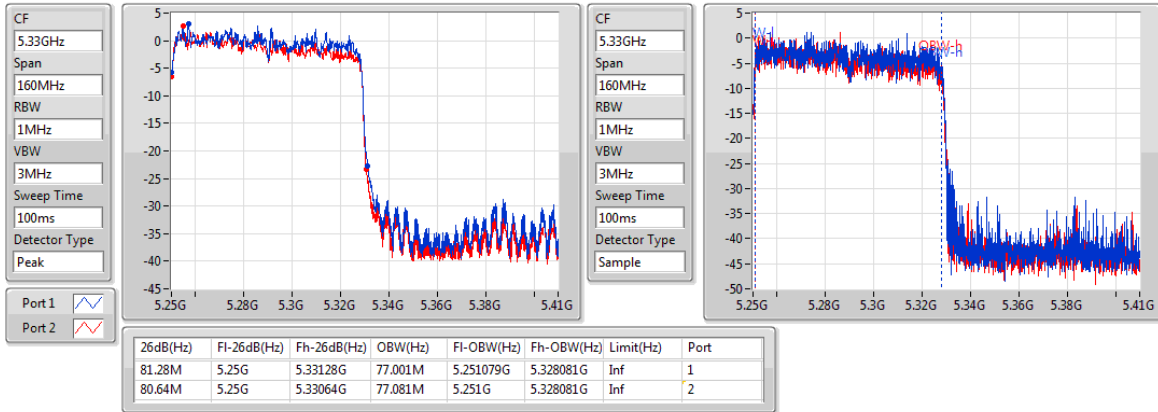


802.11ax HEW160_Nss2,(MCS0)_2TX

EBW

5250MHz Straddle 5.25-5.35GHz

06/03/2019

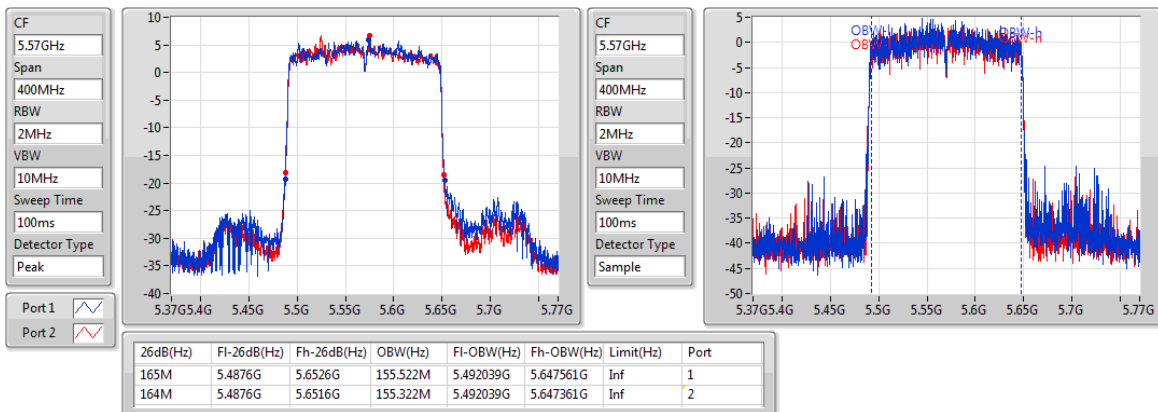


802.11ax HEW160_Nss2,(MCS0)_2TX

EBW

5570MHz

06/03/2019



**For Non-beamforming / 4T1S mode
Summary**

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.15-5.25GHz	-	-	-	-	-
802.11ax HEW160_Nss1,(MCS0)_4TX	81.04M	77.241M	77M2D1D	80.8M	77.001M
5.25-5.35GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_4TX	21.7M	16.642M	16M6D1D	21.5M	16.517M
802.11ax HEW20_Nss1,(MCS0)_4TX	21.9M	18.991M	19M0D1D	21.425M	18.941M
802.11ax HEW40_Nss1,(MCS0)_4TX	43.9M	37.681M	37M7D1D	39.9M	37.531M
802.11ax HEW80_Nss1,(MCS0)_4TX	81.4M	77.161M	77M2D1D	81M	76.962M
802.11ax HEW160_Nss1,(MCS0)_4TX	81.44M	77.081M	77M1D1D	80.8M	76.842M
5.47-5.725GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_4TX	21.8M	16.617M	16M6D1D	15.63M	13.313M
802.11ax HEW20_Nss1,(MCS0)_4TX	23.25M	18.991M	19M0D1D	15.675M	14.468M
802.11ax HEW40_Nss1,(MCS0)_4TX	53.655M	37.631M	37M6D1D	40M	33.723M
802.11ax HEW80_Nss1,(MCS0)_4TX	82.8M	77.361M	77M4D1D	75.45M	73.238M
802.11ax HEW160_Nss1,(MCS0)_4TX	164.4M	155.322M	155MD1D	163.8M	155.122M
5.725-5.85GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_4TX	3.14M	3.938M	3M94D1D	3.14M	3.838M
802.11ax HEW20_Nss1,(MCS0)_4TX	4.52M	4.538M	4M54D1D	4.46M	4.518M
802.11ax HEW40_Nss1,(MCS0)_4TX	3.98M	18.151M	18M2D1D	3.7M	12.194M
802.11ax HEW80_Nss1,(MCS0)_4TX	3.78M	28.466M	28M5D1D	3.34M	24.328M

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

Max-OBW = Maximum 99% occupied bandwidth;

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

Min-OBW = Minimum 99% occupied bandwidth;

Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)	Port 3-N dB (Hz)	Port 3-OBW (Hz)	Port 4-N dB (Hz)	Port 4-OBW (Hz)
802.11a_Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-	-	-
5260MHz	Pass	Inf	21.55M	16.592M	21.6M	16.567M	21.625M	16.567M	21.525M	16.542M
5300MHz	Pass	Inf	21.55M	16.617M	21.65M	16.642M	21.7M	16.567M	21.5M	16.517M
5320MHz	Pass	Inf	21.6M	16.567M	21.6M	16.567M	21.65M	16.592M	21.55M	16.567M
5500MHz	Pass	Inf	21.525M	16.592M	21.625M	16.592M	21.75M	16.617M	21.575M	16.567M
5580MHz	Pass	Inf	21.475M	16.592M	21.65M	16.617M	21.675M	16.567M	21.55M	16.567M
5700MHz	Pass	Inf	21.55M	16.592M	21.8M	16.592M	21.675M	16.567M	21.4M	16.542M
5720MHz Straddle 5.47-5.725GHz	Pass	Inf	15.63M	13.313M	15.69M	13.313M	15.69M	13.328M	15.63M	13.313M
5720MHz Straddle 5.725-5.85GHz	Pass	500k	3.14M	3.898M	3.14M	3.878M	3.14M	3.938M	3.14M	3.838M
802.11ax HEW20_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5260MHz	Pass	Inf	21.75M	18.966M	21.625M	18.991M	21.9M	18.991M	21.425M	18.991M
5300MHz	Pass	Inf	21.75M	18.966M	21.625M	18.941M	21.8M	18.941M	21.475M	18.941M
5320MHz	Pass	Inf	21.65M	18.966M	21.7M	18.941M	21.85M	18.991M	21.475M	18.966M
5500MHz	Pass	Inf	21.75M	18.991M	21.6M	18.991M	21.8M	18.966M	21.375M	18.941M
5580MHz	Pass	Inf	21.725M	18.916M	21.55M	18.966M	23.25M	18.991M	21.65M	18.991M
5700MHz	Pass	Inf	21.775M	18.941M	21.725M	18.966M	21.875M	18.966M	21.35M	18.966M
5720MHz Straddle 5.47-5.725GHz	Pass	Inf	15.795M	14.468M	15.81M	14.468M	15.795M	14.468M	15.675M	14.483M
5720MHz Straddle 5.725-5.85GHz	Pass	500k	4.46M	4.518M	4.52M	4.538M	4.5M	4.538M	4.5M	4.518M
802.11ax HEW40_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5270MHz	Pass	Inf	40.7M	37.681M	40.3M	37.631M	43.9M	37.581M	40.15M	37.631M
5310MHz	Pass	Inf	40M	37.531M	39.9M	37.531M	40M	37.531M	40.25M	37.531M
5510MHz	Pass	Inf	40.05M	37.581M	40.15M	37.581M	40M	37.531M	40.15M	37.631M
5550MHz	Pass	Inf	40M	37.581M	40.1M	37.531M	40.1M	37.581M	43.6M	37.581M
5670MHz	Pass	Inf	40.15M	37.481M	40.1M	37.531M	40.25M	37.581M	40.1M	37.481M
5710MHz Straddle 5.47-5.725GHz	Pass	Inf	53.48M	33.723M	53.655M	33.758M	53.585M	33.863M	53.515M	33.793M
5710MHz Straddle 5.725-5.85GHz	Pass	500k	3.98M	12.194M	3.76M	15.592M	3.7M	18.151M	3.74M	15.152M
802.11ax HEW80_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5290MHz	Pass	Inf	81.2M	76.962M	81.4M	76.962M	81M	77.161M	81.1M	76.962M
5530MHz	Pass	Inf	81.5M	77.061M	81.1M	77.061M	81.1M	76.962M	80.9M	77.161M
5610MHz	Pass	Inf	81.5M	77.261M	81M	77.361M	81.4M	77.261M	81M	77.061M
5690MHz Straddle 5.47-5.725GHz	Pass	Inf	75.675M	73.313M	75.45M	73.388M	77.55M	73.238M	82.8M	73.238M
5690MHz Straddle 5.725-5.85GHz	Pass	500k	3.78M	24.328M	3.68M	27.126M	3.72M	28.466M	3.34M	26.527M
802.11ax HEW160_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5250MHz Straddle 5.15-5.25GHz	Pass	Inf	80.96M	77.241M	80.88M	77.001M	80.8M	77.161M	81.04M	77.161M
5250MHz Straddle 5.25-5.35GHz	Pass	Inf	81.28M	76.922M	80.8M	77.081M	80.96M	77.001M	81.44M	76.842M
5570MHz	Pass	Inf	164.4M	155.122M	164.4M	155.122M	163.8M	155.322M	164M	155.322M

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

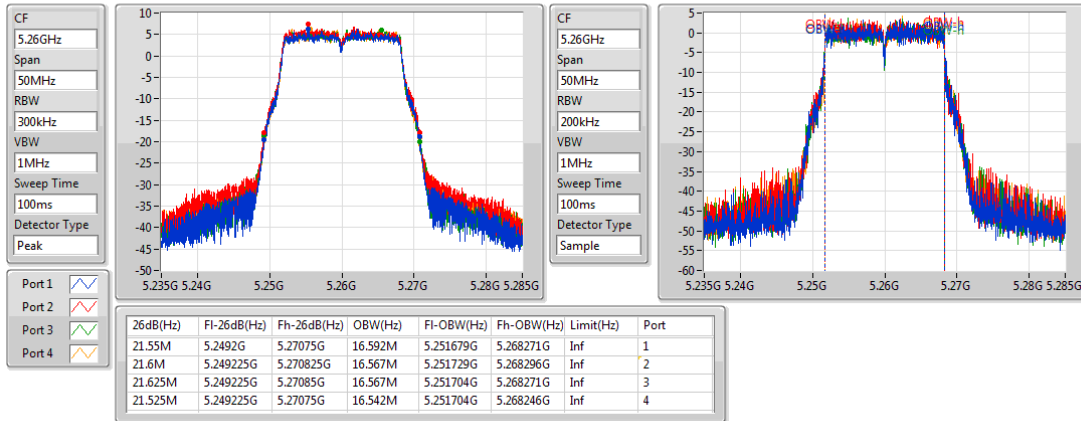
Port X-OBW = Port X 99% occupied bandwidth;

802.11a_Nss1,(6Mbps)_4TX

EBW

5260MHz

06/03/2019

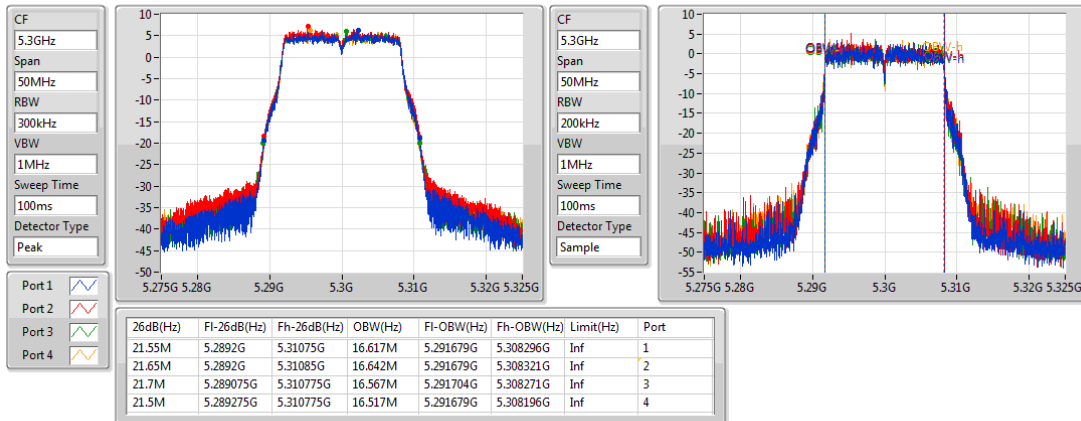


802.11a_Nss1,(6Mbps)_4TX

EBW

5300MHz

06/03/2019

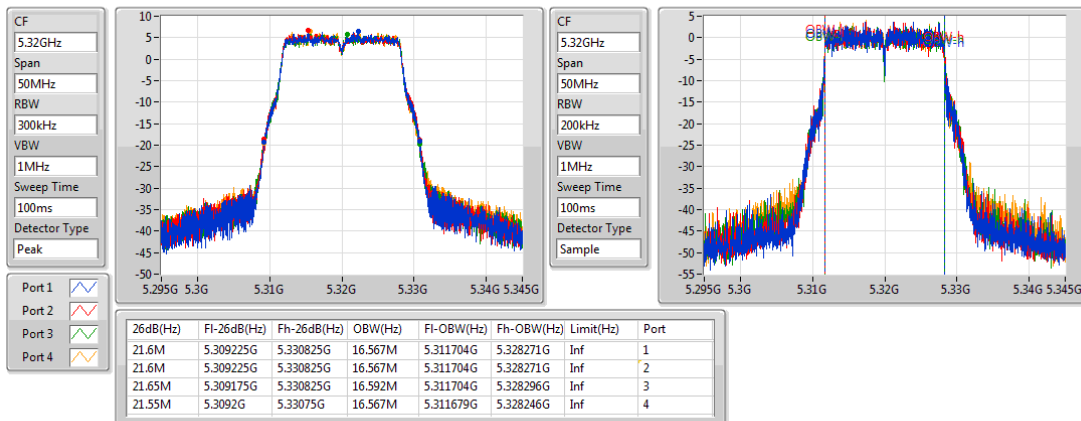


802.11a_Nss1,(6Mbps)_4TX

EBW

5320MHz

06/03/2019

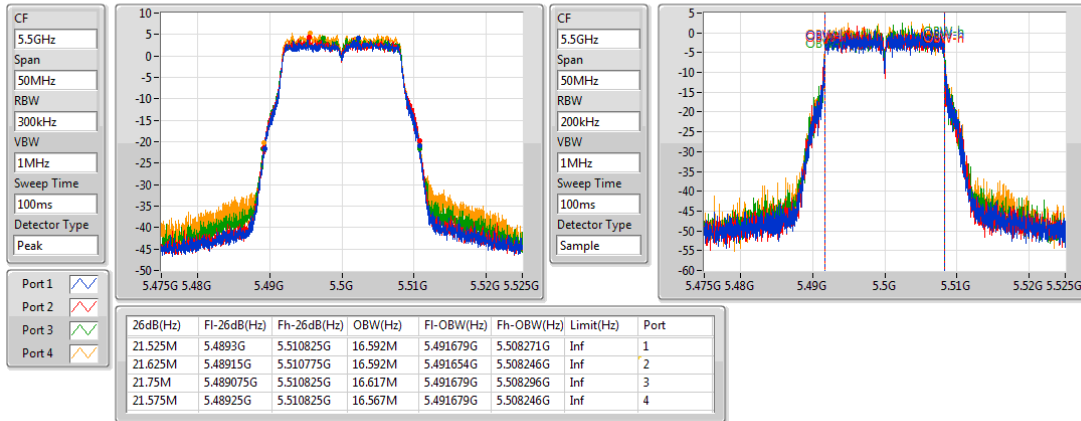


802.11a_Nss1,(6Mbps)_4TX

EBW

5500MHz

06/03/2019

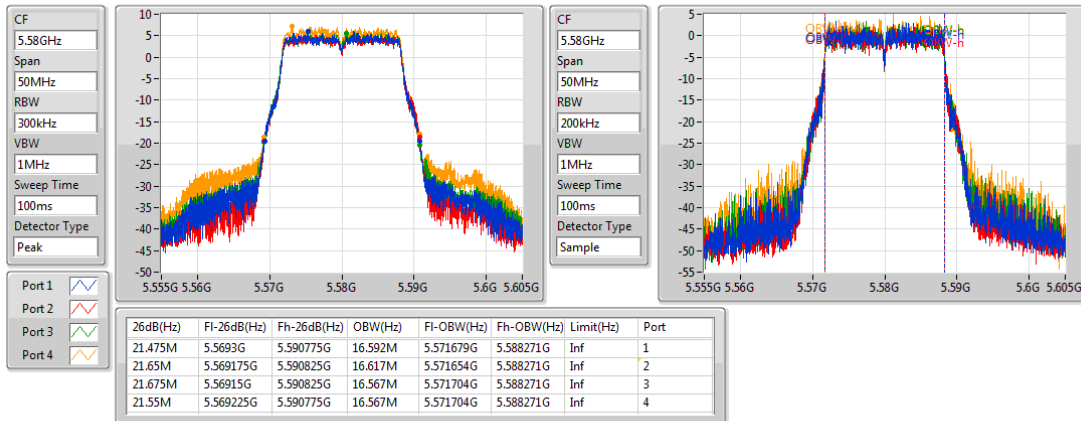


802.11a_Nss1,(6Mbps)_4TX

EBW

5580MHz

06/03/2019

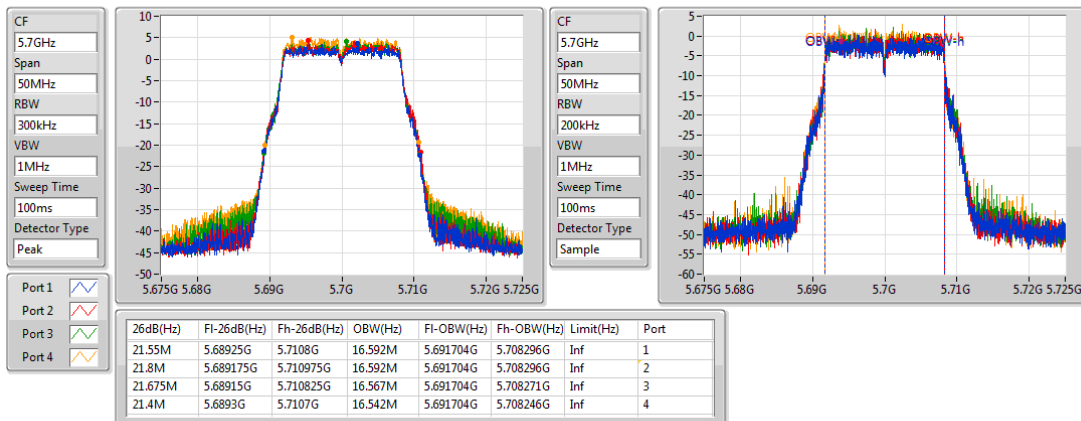


802.11a_Nss1,(6Mbps)_4TX

EBW

5700MHz

06/03/2019

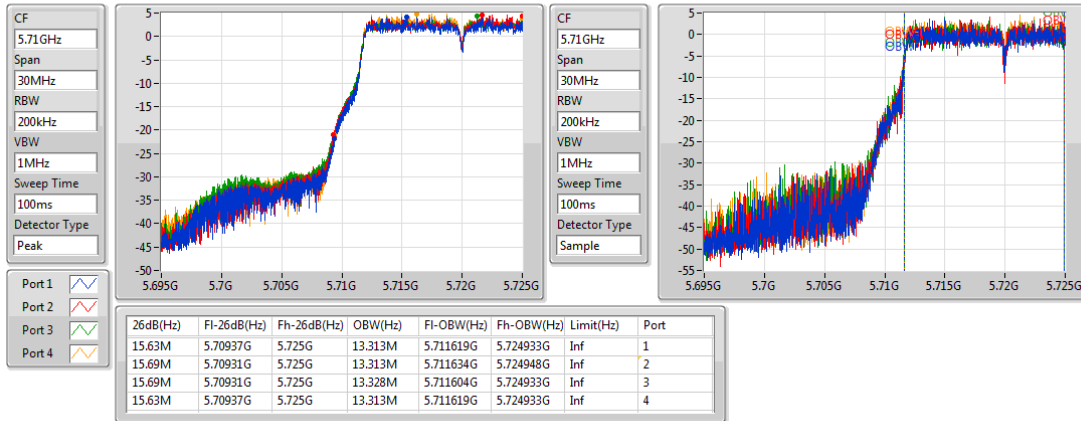


802.11a_Nss1,(6Mbps)_4TX

EBW

5720MHz Straddle 5.47-5.725GHz

07/03/2019

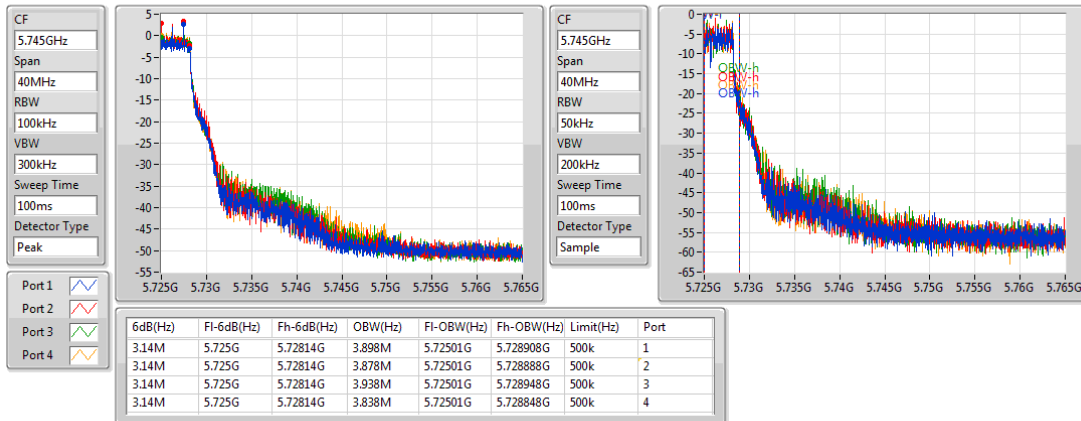


802.11a_Nss1,(6Mbps)_4TX

EBW

5720MHz Straddle 5.725-5.85GHz

07/03/2019

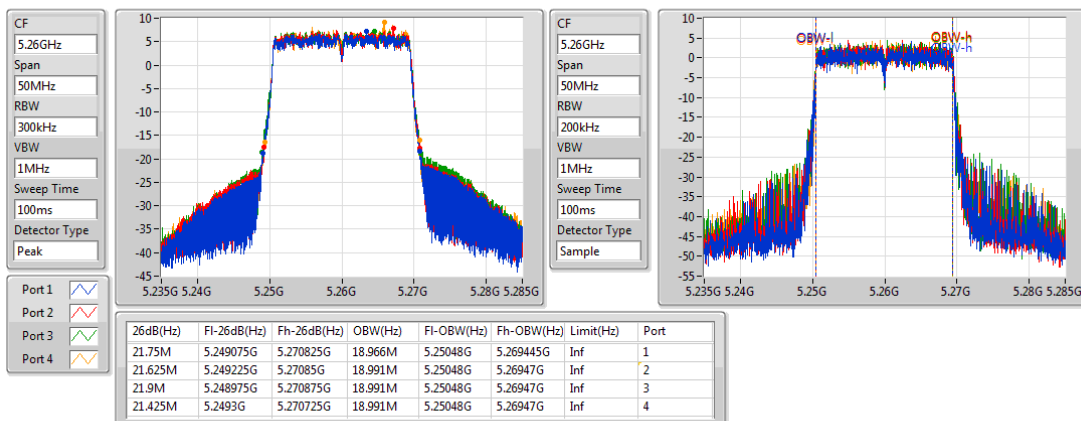


802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

5260MHz

06/03/2019

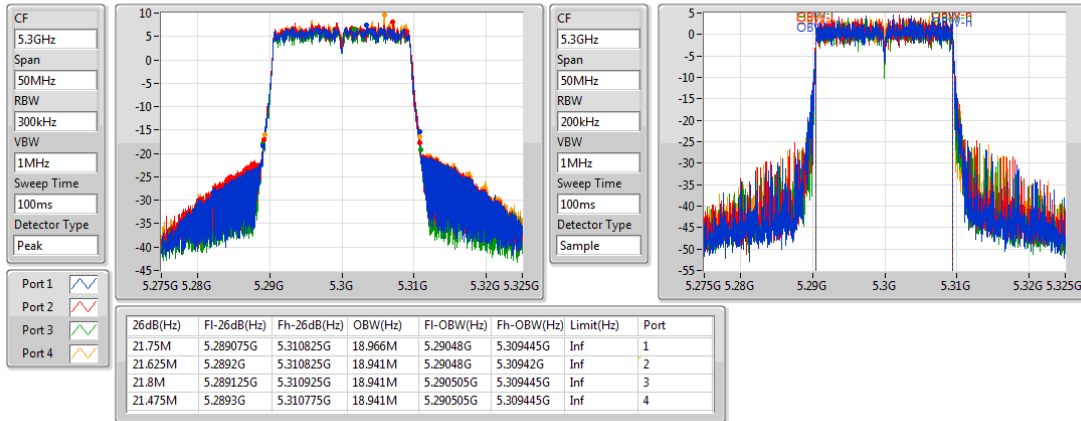


802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

5300MHz

06/03/2019

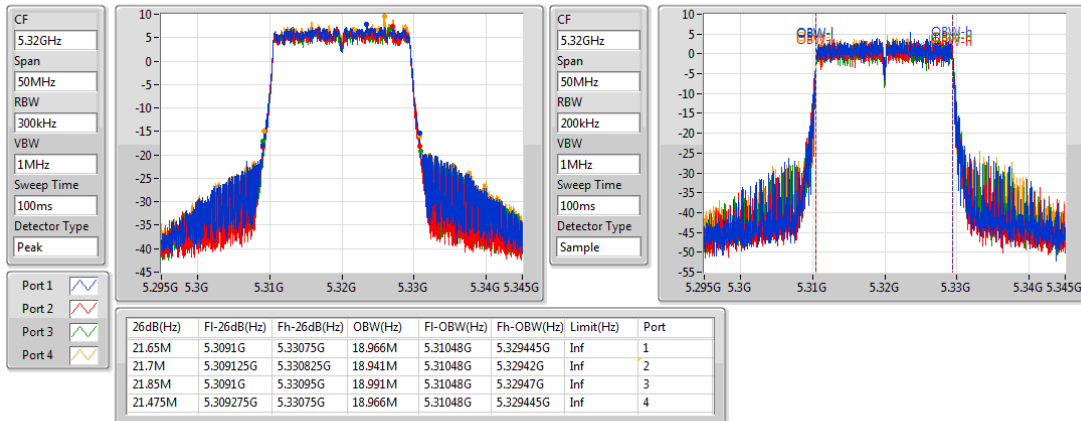


802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

5320MHz

07/03/2019

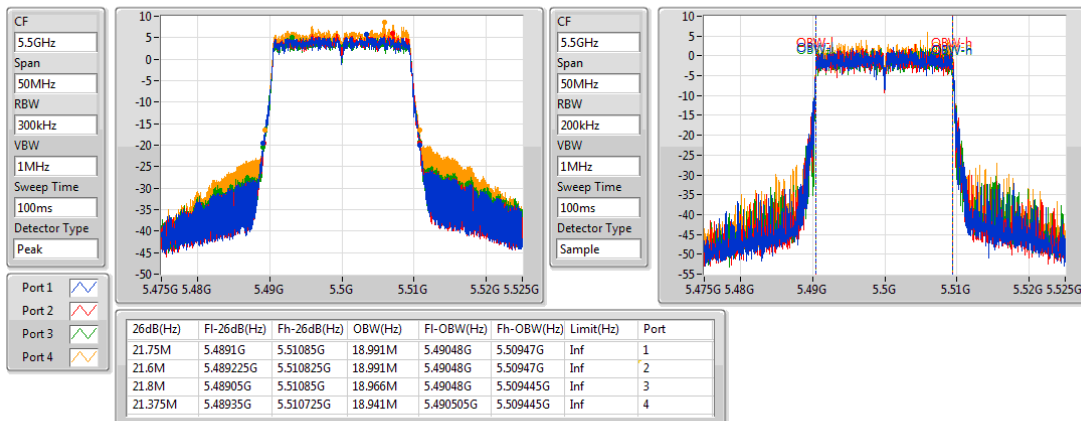


802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

5500MHz

07/03/2019

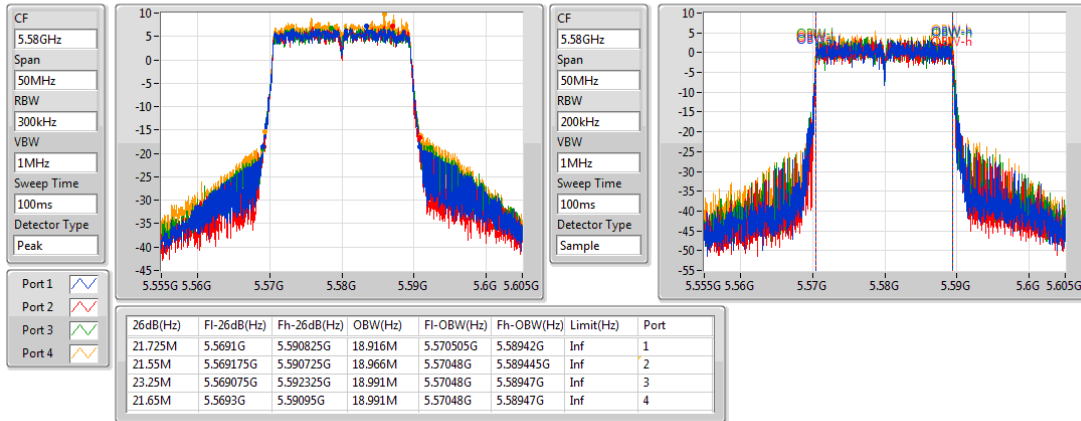


802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

5580MHz

07/03/2019

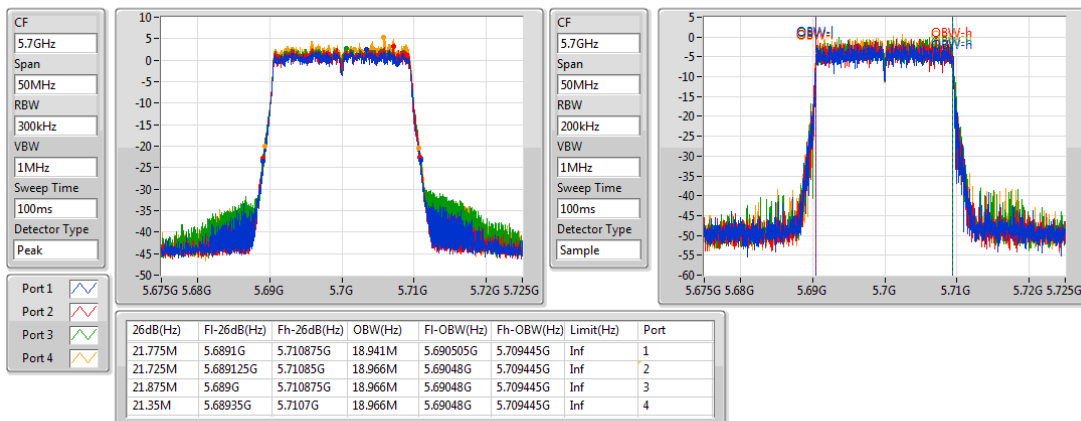


802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

5700MHz

07/03/2019

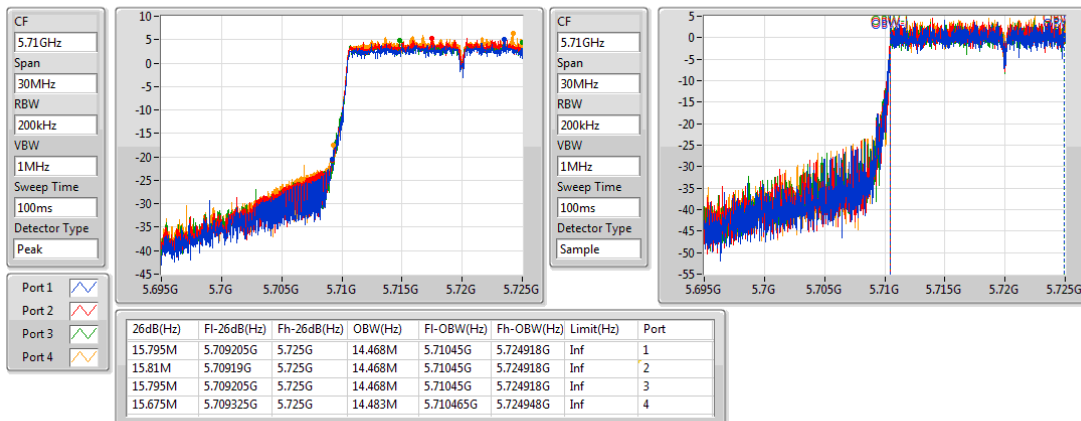


802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

5720MHz Straddle 5.47-5.725GHz

07/03/2019

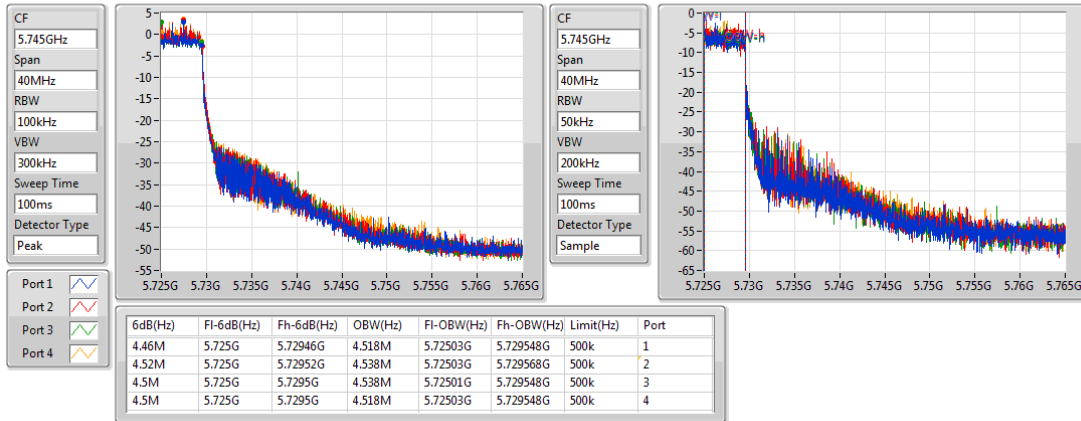


802.11ax HEW20_Nss1,(MCS0)_4TX

EBW

5720MHz Straddle 5.725-5.85GHz

07/03/2019

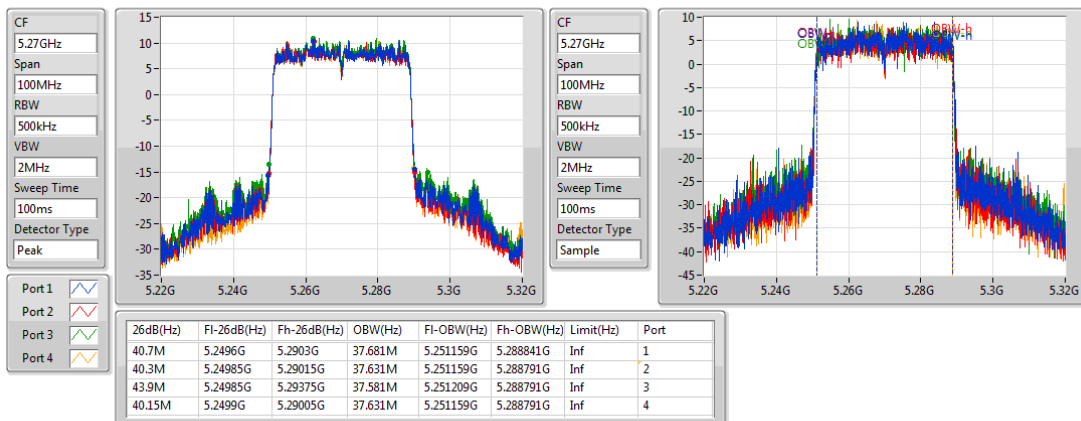


802.11ax HEW40_Nss1,(MCS0)_4TX

EBW

5270MHz

07/03/2019

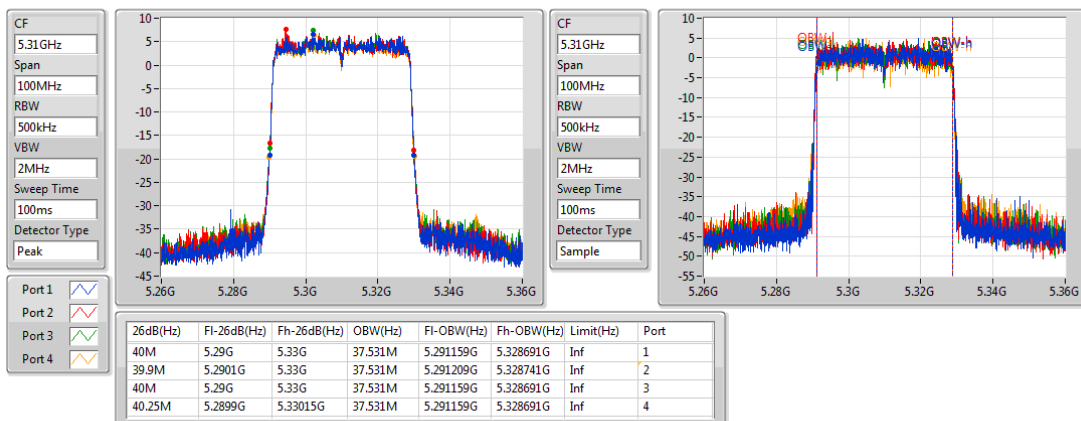


802.11ax HEW40_Nss1,(MCS0)_4TX

EBW

5310MHz

07/03/2019

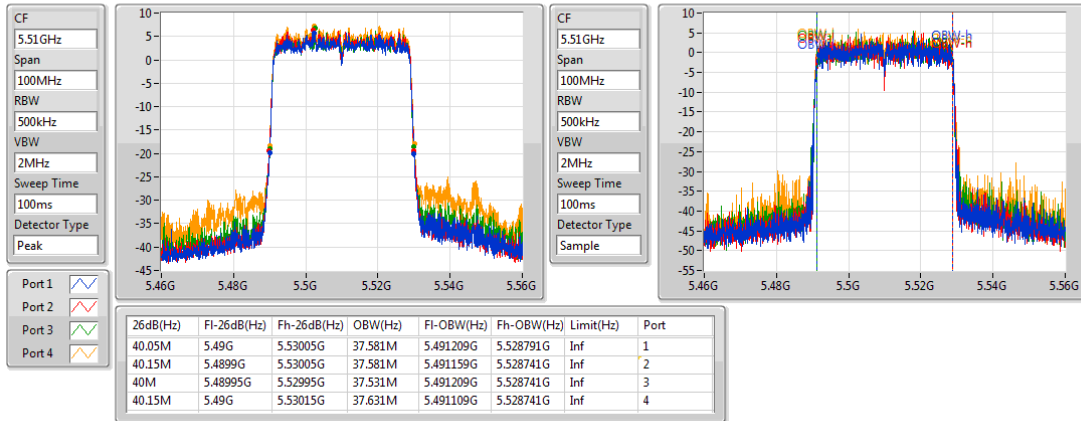


802.11ax HEW40_Nss1,(MCS0)_4TX

EBW

5510MHz

07/03/2019

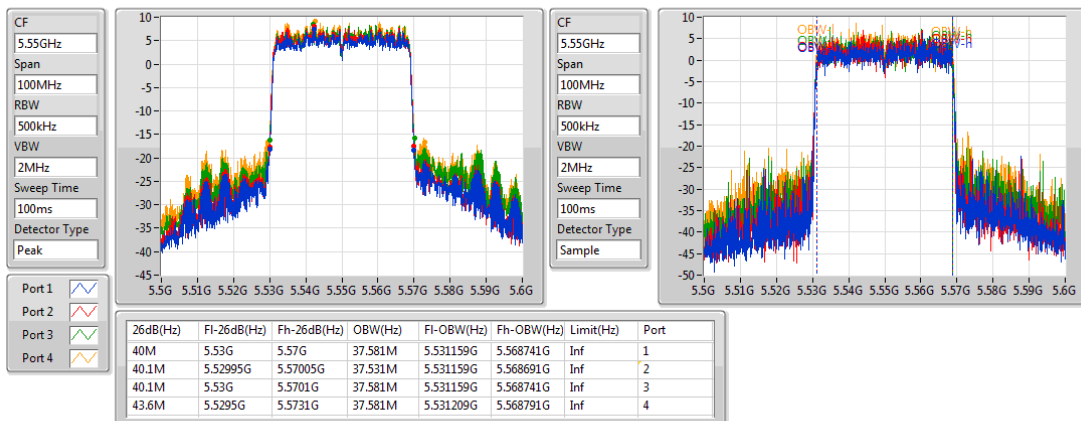


802.11ax HEW40_Nss1,(MCS0)_4TX

EBW

5550MHz

29/04/2019

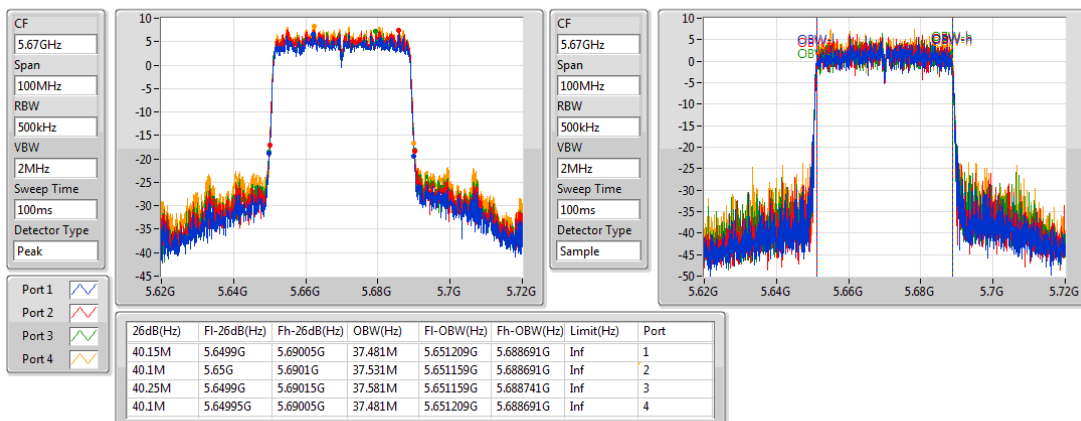


802.11ax HEW40_Nss1,(MCS0)_4TX

EBW

5670MHz

07/03/2019

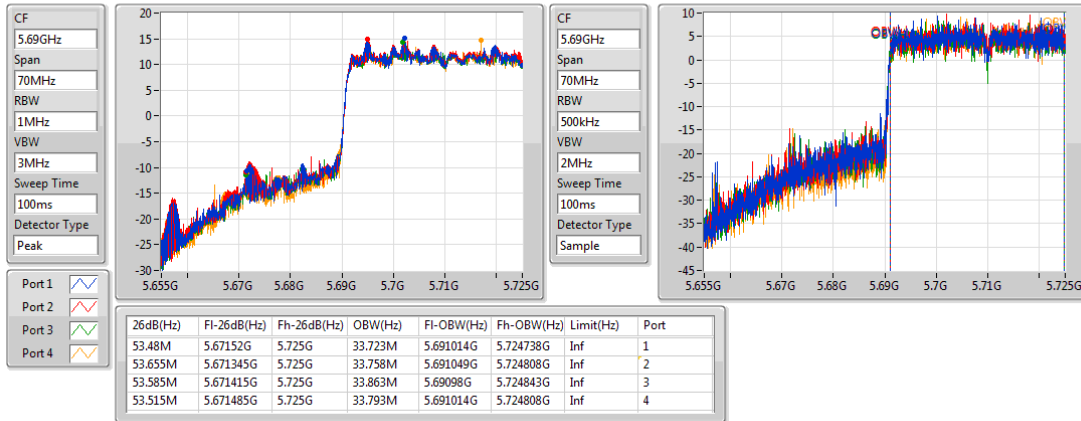


802.11ax HEW40_Nss1,(MCS0)_4TX

EBW

5710MHz Straddle 5.47-5.725GHz

29/04/2019

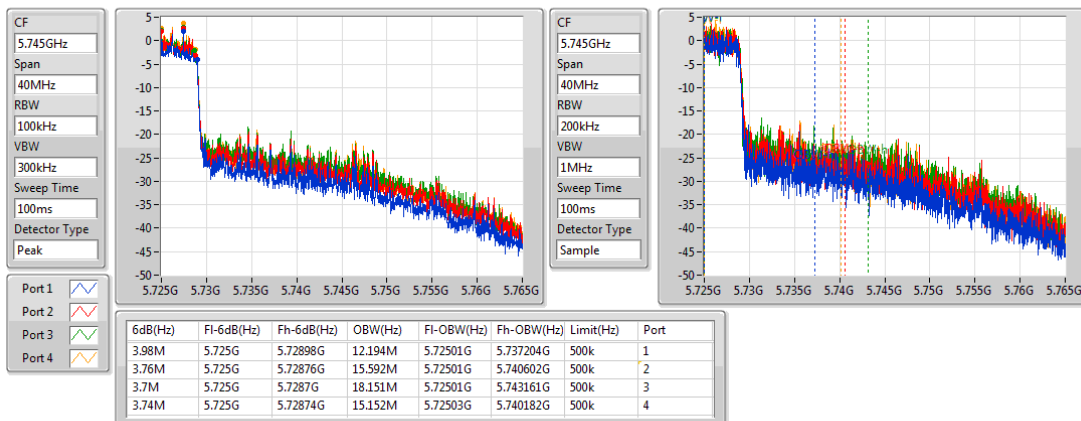


802.11ax HEW40_Nss1,(MCS0)_4TX

EBW

5710MHz Straddle 5.725-5.85GHz

07/03/2019

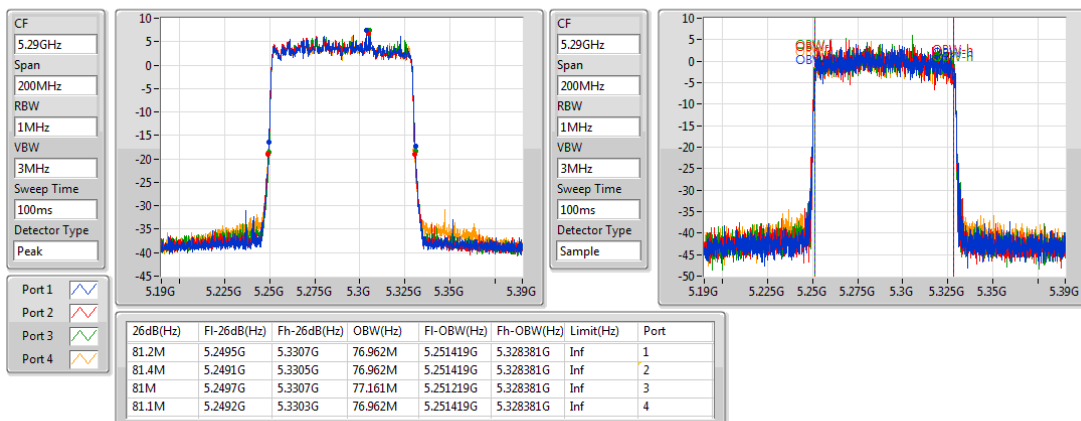


802.11ax HEW80_Nss1,(MCS0)_4TX

EBW

5290MHz

07/03/2019

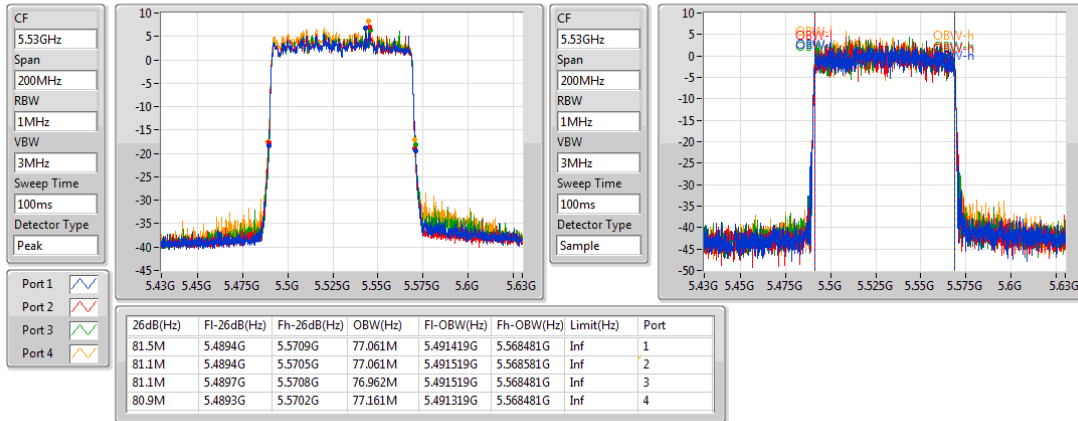


802.11ax HEW80_Nss1,(MCS0)_4TX

EBW

5530MHz

07/03/2019

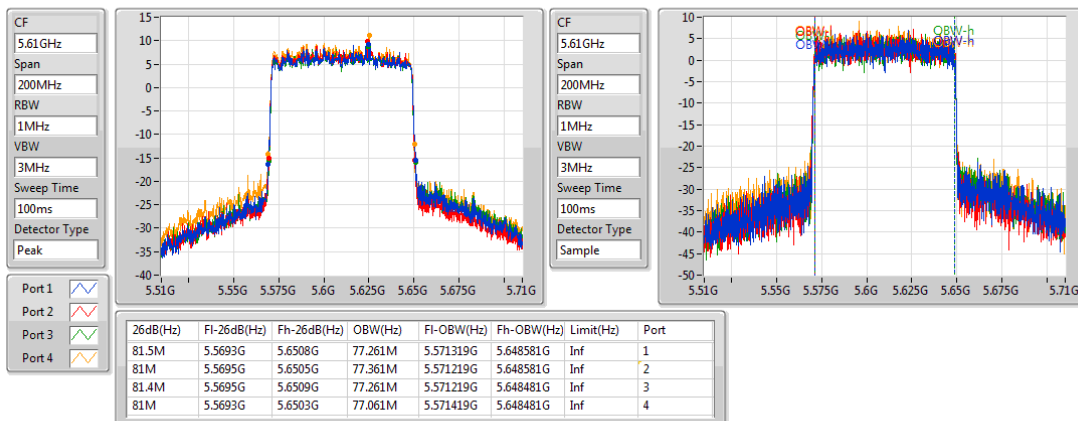


802.11ax HEW80_Nss1,(MCS0)_4TX

EBW

5610MHz

07/03/2019

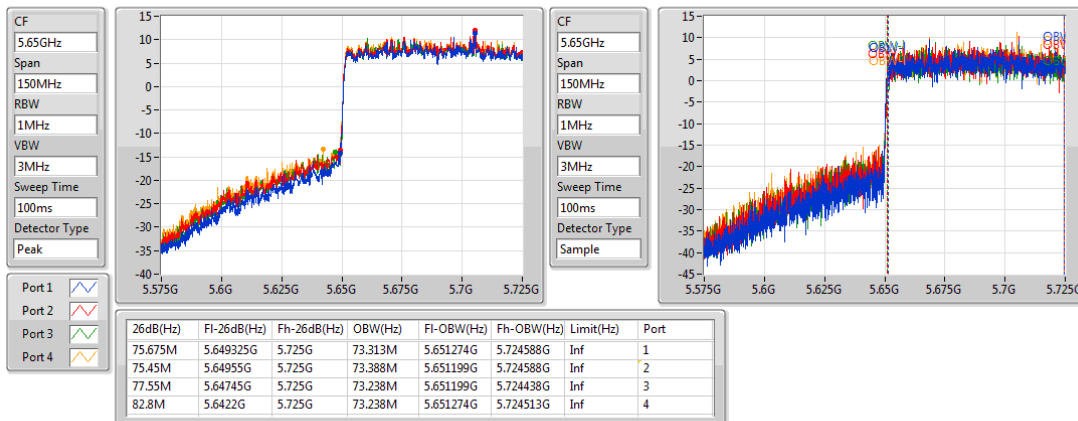


802.11ax HEW80_Nss1,(MCS0)_4TX

EBW

5690MHz Straddle 5.47-5.725GHz

07/03/2019

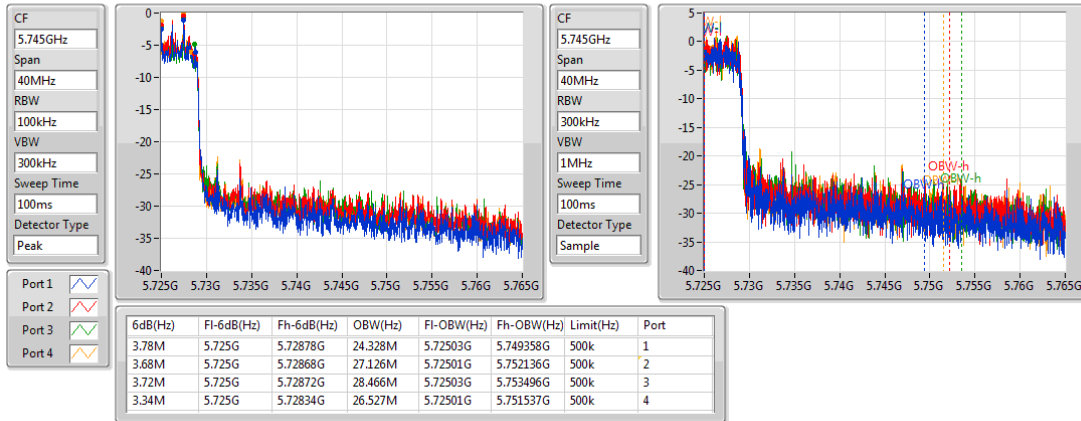


802.11ax HEW80_Nss1,(MCS0)_4TX

EBW

5690MHz Straddle 5.725-5.85GHz

07/03/2019

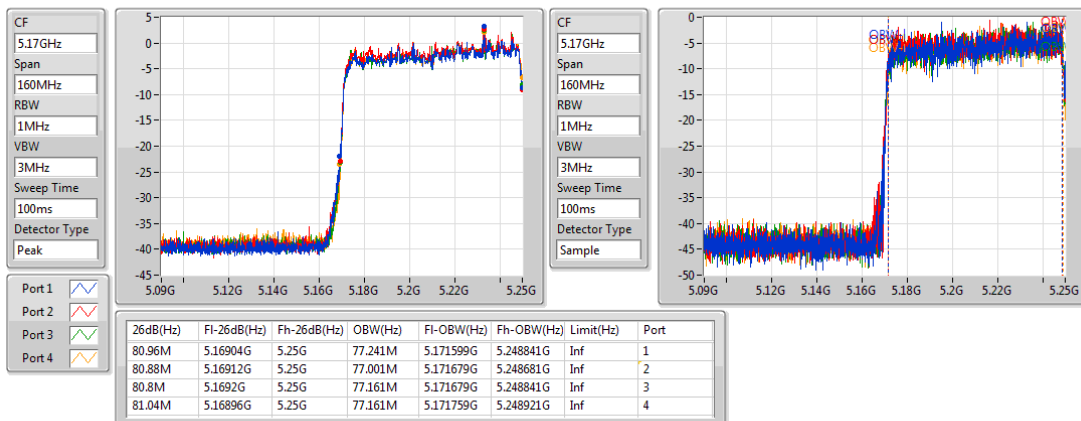


802.11ax HEW160_Nss1,(MCS0)_4TX

EBW

5250MHz Straddle 5.15-5.25GHz

07/03/2019

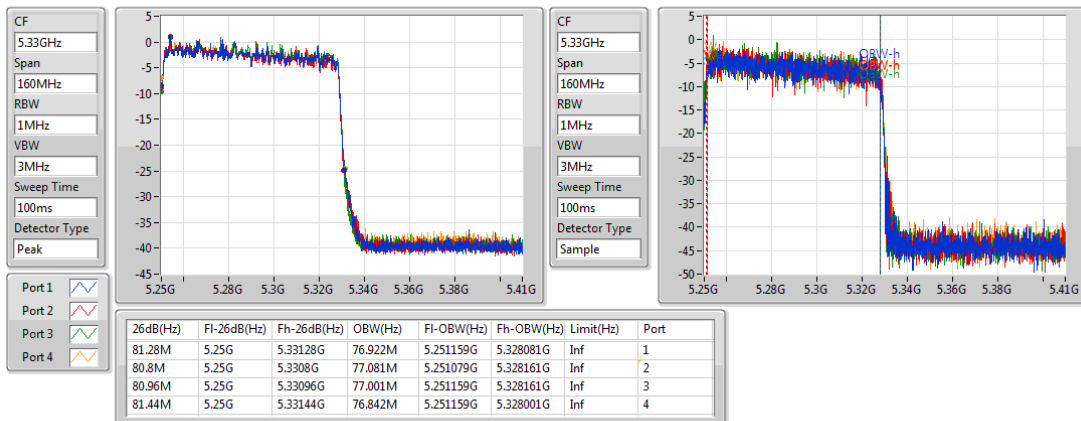


802.11ax HEW160_Nss1,(MCS0)_4TX

EBW

5250MHz Straddle 5.25-5.35GHz

07/03/2019

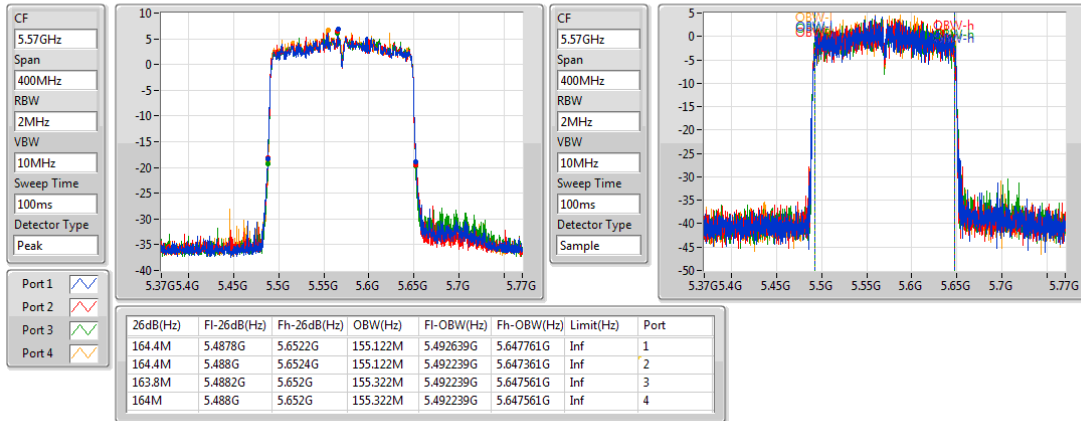


802.11ax HEW160_Nss1,(MCS0)_4TX

EBW

5570MHz

07/03/2019



**For Beamforming / 4T1S mode
Summary**

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.15-5.25GHz	-	-	-	-	-
802.11ax HEW160-BF_Nss1,(MCS0)_4TX	81.2M	77.241M	77M2D1D	80.56M	77.001M
5.25-5.35GHz	-	-	-	-	-
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	21.825M	19.015M	19M0D1D	21.2M	18.916M
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	40.1M	37.581M	37M6D1D	39.85M	37.481M
802.11ax HEW80-BF_Nss1,(MCS0)_4TX	81.5M	77.161M	77M2D1D	80.9M	76.962M
802.11ax HEW160-BF_Nss1,(MCS0)_4TX	81.52M	77.161M	77M2D1D	80.64M	77.001M
5.47-5.725GHz	-	-	-	-	-
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	23.3M	18.991M	19M0D1D	15.615M	14.468M
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	40.2M	37.731M	37M7D1D	34.93M	33.653M
802.11ax HEW80-BF_Nss1,(MCS0)_4TX	81.5M	77.261M	77M3D1D	75.3M	72.864M
802.11ax HEW160-BF_Nss1,(MCS0)_4TX	164.8M	155.522M	156MD1D	163.2M	155.122M
5.725-5.85GHz	-	-	-	-	-
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	4.52M	4.558M	4M56D1D	4.48M	4.538M
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	3.92M	4.078M	4M08D1D	3.76M	4.018M
802.11ax HEW80-BF_Nss1,(MCS0)_4TX	3.88M	4.098M	4M10D1D	3.3M	4.038M

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

Max-OBW = Maximum 99% occupied bandwidth;

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

Min-OBW = Minimum 99% occupied bandwidth;