



FCC RADIO TEST REPORT

FCC ID : Z8H89FT0058
Equipment : Wireless Access Point
Brand Name : Cambium Networks
Model Name : REG-XV3-8
Applicant : Cambium Networks Inc.
3800 Golf Road, Suite 360 Rolling Meadows, IL 60008, USA
Manufacturer : Cambium Networks, Ltd.
Ashburton, TQ13 7UP, UK
Standard : 47 CFR FCC Part 15.407

The product was received on Sep. 23, 2019, and testing was started from Sep. 26, 2019 and completed on Feb. 07, 2020. 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 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: Cliff Chang

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory
No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)



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Appendix A. Test Results of AC Power-line Conducted Emissions**Appendix B. Test Results of Emission Bandwidth****Appendix C. Test Results of Maximum Conducted Output Power****Appendix D. Test Results of Peak Power Spectral Density****Appendix E. Test Results of Unwanted Emissions****Appendix F. Test Photos****Photographs of EUT v01**



History of this test report



Summary of Test Result

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



1 General Description

1.1 Information

1.1.1 RF General Information

<DBS mode>

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

Band	Mode	BWch (MHz)	Nant
5.15-5.25GHz	802.11a	20	8TX
5.15-5.25GHz	802.11n HT20	20	8TX
5.15-5.25GHz	802.11n HT20-BF	20	8TX
5.15-5.25GHz	802.11ac VHT20	20	8TX
5.15-5.25GHz	802.11ac VHT20-BF	20	8TX
5.15-5.25GHz	802.11ax HEW20	20	8TX
5.15-5.25GHz	802.11ax HEW20-BF	20	8TX
5.15-5.25GHz	802.11n HT40	40	8TX
5.15-5.25GHz	802.11n HT40-BF	40	8TX
5.15-5.25GHz	802.11ac VHT40	40	8TX
5.15-5.25GHz	802.11ac VHT40-BF	40	8TX
5.15-5.25GHz	802.11ax HEW40	40	8TX
5.15-5.25GHz	802.11ax HEW40-BF	40	8TX
5.15-5.25GHz	802.11ac VHT80	80	8TX
5.15-5.25GHz	802.11ac VHT80-BF	80	8TX
5.15-5.25GHz	802.11ax HEW80	80	8TX
5.15-5.25GHz	802.11ax HEW80-BF	80	8TX
5.725-5.85GHz	802.11a	20	8TX
5.725-5.85GHz	802.11n HT20	20	8TX
5.725-5.85GHz	802.11n HT20-BF	20	8TX
5.725-5.85GHz	802.11ac VHT20	20	8TX



Band	Mode	BWch (MHz)	Nant
5.725-5.85GHz	802.11ac VHT20-BF	20	8TX
5.725-5.85GHz	802.11ax HEW20	20	8TX
5.725-5.85GHz	802.11ax HEW20-BF	20	8TX
5.725-5.85GHz	802.11n HT40	40	8TX
5.725-5.85GHz	802.11n HT40-BF	40	8TX
5.725-5.85GHz	802.11ac VHT40	40	8TX
5.725-5.85GHz	802.11ac VHT40-BF	40	8TX
5.725-5.85GHz	802.11ax HEW40	40	8TX
5.725-5.85GHz	802.11ax HEW40-BF	40	8TX
5.725-5.85GHz	802.11ac VHT80	80	8TX
5.725-5.85GHz	802.11ac VHT80-BF	80	8TX
5.725-5.85GHz	802.11ax HEW80	80	8TX
5.725-5.85GHz	802.11ax HEW80-BF	80	8TX

Note:

- 11a, HT20 and HT40 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.
- VHT20, VHT40 and VHT80 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM modulation.
- HEW20, HEW40 and HEW80 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.



<SBS mode>

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

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



Band	Mode	BWch (MHz)	Nant
5.725-5.85GHz	802.11ac VHT40-BF	40	4TX
5.725-5.85GHz	802.11ax HEW40	40	4TX
5.725-5.85GHz	802.11ax HEW40-BF	40	4TX
5.725-5.85GHz	802.11ac VHT80	80	4TX
5.725-5.85GHz	802.11ac VHT80-BF	80	4TX
5.725-5.85GHz	802.11ax HEW80	80	4TX
5.725-5.85GHz	802.11ax HEW80-BF	80	4TX

Note:

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

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

Band	Mode	BWch (MHz)	Nant
5.15-5.25GHz	802.11a	20	1TX
5.15-5.25GHz	802.11n HT20	20	1TX
5.15-5.25GHz	802.11ac VHT20	20	1TX
5.15-5.25GHz	802.11n HT40	40	1TX
5.15-5.25GHz	802.11ac VHT40	40	1TX
5.15-5.25GHz	802.11ac VHT80	80	1TX
5.725-5.85GHz	802.11a	20	1TX
5.725-5.85GHz	802.11n HT20	20	1TX
5.725-5.85GHz	802.11ac VHT20	20	1TX
5.725-5.85GHz	802.11n HT40	40	1TX
5.725-5.85GHz	802.11ac VHT40	40	1TX
5.725-5.85GHz	802.11ac VHT80	80	1TX

Note:

- 11a, HT20 and HT40 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.
- VHT20, VHT40 and VHT80 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM 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

For Antenna Gain:

Radio	Ant.	Port		Brand	Model Name	Type	Connector	Antenna Gain (dBi)				Function					
1	1	1		ANGeei	120G0000032 5A	PIFA	I-PEX	5.13				WLAN 2.4GHz (DBS mode)					
	2	2		ANGeei	120G0000032 5A	PIFA	I-PEX	5.13									
	3	3		ANGeei	120G0000032 5A	PIFA	I-PEX	5.13									
	4	4		ANGeei	120G0000032 5A	PIFA	I-PEX	5.13									
2	Ant.	Port		Brand	Model Name	Type	Connector	Antenna Gain (dBi)				Function					
		DBS mode	SBS mode					DBS mode		SBS mode							
								5GHz Band 1	5GHz Band 4	5GHz Band 1	5GHz Band 4						
		5	1	ANGeei	120G0000032 5A	PIFA	I-PEX	6.72	6.70	-	6.70						
	6	2	2	ANGeei	120G0000032 5A	PIFA	I-PEX	6.72	6.70	-	6.70						
	7	3	3	ANGeei	120G0000032 5A	PIFA	I-PEX	6.72	6.70	-	6.70						
	8	4	4	ANGeei	120G0000032 5A	PIFA	I-PEX	6.72	6.70	-	6.70						
3	Ant.	9	5	1	ANGeei	120G0000032 5A	PIFA	I-PEX	6.72	6.70	6.19	-	WLAN 5GHz (DBS mode or SBS mode)				
		10	6	2	ANGeei	120G0000032 5A	PIFA	I-PEX	6.72	6.70	6.19	-					
		11	7	3	ANGeei	120G0000032 5A	PIFA	I-PEX	6.72	6.70	6.19	-					
		12	8	4	ANGeei	120G0000032 5A	PIFA	I-PEX	6.72	6.70	6.19	-					
Radio	Ant.	Port		Brand	Model Name	Type	Connector	Antenna Gain (dBi)				Function					
								2.4GHz	5GHz								
4	13	1		ANGeei	120G0000032 5A	PIFA	I-PEX	5.08		6.27		WLAN 2.4GHz/ 5GHz (Scan Radio)					
Radio	Ant.	Port		Brand	Model Name	Type	Connector	Antenna Gain (dBi)				Function					
5	14	1		WIESON	GT128V007S-001	PIFA	I-PEX	4.90				Bluetooth					



For Composite Gain:

Radio	Ant.	Port	Composite Gain (dBi)		Function
			Beamforming mode		
1	1~4	1~4	9.25		WLAN 2.4GHz (DBS mode)
Radio	Ant.	Port	Composite Gain (dBi)		Function
			5GHz Band 1	5GHz Band 4	
			Beamforming mode	Beamforming mode	
2+3	5~12	1~8	11.66	11.41	WLAN 5GHz (DBS mode)
Radio	Ant.	Port	Composite Gain (dBi)		Function
			Beamforming mode		
2	5~8	1~4	8.79		WLAN 5GHz Band 4 (SBS mode)
3	9~12	1~4	9.58		WLAN 5GHz Band 1 (SBS mode)

Note1: The above information was declared by manufacturer.

Note2: The EUT has fourteen antennas.

Note3: The non-beamforming mode follows $10\log(N)$ and beamforming mode follows composite gain for directional gain.

<DBS mode>

Radio	Ant.	Port	WLAN 2.4GHz function
1	1~4	1~4	IEEE 802.11b/g/n/VHT/ax mode (4TX/4RX): Port 1, Port 2, Port 3 and Port 4 could transmit/receive simultaneously.
Radio	Ant.	Port	WLAN 5GHz Band 1, 4 functions
2	5~8	1~4	IEEE 802.11a/n/ac/ax mode (8TX/8RX): Port 1, Port 2, Port 3, Port 4, Port 5, Port 6, Port 7 and Port 8 could transmit/receive simultaneously.

<SBS mode>

Radio	Ant.	Port	WLAN 5GHz High Band function
2	5~8	1~4	IEEE 802.11a/n/ac/ax mode (4TX/4RX): Port 1, Port 2, Port 3 and Port 4 could transmit/receive simultaneously.
Radio	Ant.	Port	WLAN 5GHz Low Band function
3	9~12	1~4	IEEE 802.11a/n/ac/ax mode (4TX/4RX): Port 1, Port 2, Port 3 and Port 4 could transmit/receive simultaneously.

<Scan Radio>

Radio	Ant.	Port	WLAN 2.4GHz function
4	13	1	IEEE 802.11b/g/n/VHT mode (1TX/1RX): Only Port 1 can be used as transmitting/receiving.
Radio	Ant.	Port	WLAN 5GHz Band 1, 4 functions
4	13	1	IEEE 802.11a/n/ac mode (1TX/1RX): Only Port 1 can be used as transmitting/receiving.

<Bluetooth Radio>

Radio	Ant.	Port	Bluetooth function (1TX/1RX)
5	14	1	Only Port 1 can be used as transmitting/receiving.



1.1.3 Mode Test Duty Cycle

For non-beamforming mode:

<DBS mode>

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
802.11a	0.949	0.23	1.98m	1k
802.11ax HEW20	0.96	0.18	5.448m	300
802.11ax HEW40	0.941	0.26	5.448m	300
802.11ax HEW80	0.959	0.18	5.448m	300

<SBS mode>

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
802.11a	0.942	0.26	1.978m	1k
802.11ax HEW20	0.95	0.22	5.448m	300
802.11ax HEW40	0.951	0.22	5.448m	300
802.11ax HEW80	0.952	0.21	5.448m	300

<Scan Radio>

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
802.11a	0.966	0.15	2.033m	1k
802.11ac VHT20	0.965	0.15	1.893m	1k
802.11ac VHT40	0.932	0.31	932.5u	3k
802.11ac VHT80	0.872	0.59	460u	3k

For beamforming mode:

<DBS mode>

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
802.11ax HEW20-BF	0.89	0.51	1.766m	1k
802.11ax HEW40-BF	0.977	0.1	1.974m	1k
802.11ax HEW80-BF	0.877	0.57	1.945m	1k

<SBS mode>

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
802.11ax HEW20-BF	0.853	0.69	1.764m	1k
802.11ax HEW40-BF	0.874	0.58	1.764m	1k
802.11ax HEW80-BF	0.918	0.37	1.944m	1k

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	<input checked="" type="checkbox"/> With beamforming	<input type="checkbox"/> Without beamforming	
The product has beamforming function for 11n/VHT/11ax in 2.4GHz and 11n/11ac/11ax in 5GHz.			
Function	<input type="checkbox"/> Outdoor P2M	<input checked="" type="checkbox"/> Indoor P2M	
	<input type="checkbox"/> Fixed P2P	<input type="checkbox"/> Client	
Test Software Version	<u>For non-beamforming mode:</u> QSPR <u>For beamforming mode:</u> Telnet		

Note: The above information was declared by manufacturer.



1.2 Applicable Standards

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

- ◆ 47 CFR FCC Part 15
- ◆ ANSI C63.10-2013
- ◆ FCC KDB 789033 D02 v02r01
- ◆ FCC KDB 662911 D01 v02r01
- ◆ FCC KDB 412172 D01 v01r01
- ◆ FCC KDB 414788 D01 v01r01

1.3 Testing Location Information

Testing Location				
<input type="checkbox"/>	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		
<input checked="" type="checkbox"/>	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	Owen Hsu	23.6~24.9°C / 55~58%	Oct. 22, 2019~Feb. 07, 2020
Radiated below 1GHz	03CH05-CB	KJ Huang	23.7~25.5°C / 60~63%	Sep. 26, 2019~Oct. 24, 2019
Radiated above 1GHz	03CH06-CB	Eason Chen	23~24.8°C / 50~55%	Oct. 14, 2019~Jan. 16, 2020
AC Conduction for mode 1~mode 3	CO01-CB	Peter Wu	24~25°C / 60~62%	Dec. 02, 2019
AC Conduction for mode 4~mode 6	CO01-CB	Max Lin	24~25°C / 60~62%	Dec. 02, 2019

Test site Designation No. TW0006 with FCC.

Test site registered number IC 4086D 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
Conducted Emission (150kHz ~ 30MHz)	2.0 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	4.3 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	4.3 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	5.1 dB	Confidence levels of 95%
Conducted Emission	2.4 dB	Confidence levels of 95%
Output Power Measurement	1.5 dB	Confidence levels of 95%
Power Density Measurement	2.4 dB	Confidence levels of 95%
Bandwidth Measurement	2%	Confidence levels of 95%



2 Test Configuration of EUT

2.1 Test Channel Mode

For non-beamforming mode:

<DBS mode>

Mode	Power Setting
802.11a_Nss1,(6Mbps)_8TX	-
5180MHz	11
5200MHz	11
5240MHz	11
5745MHz	17
5785MHz	17
5825MHz	17
802.11ax HEW20_Nss1,(MCS0)_8TX	-
5180MHz	11.5
5200MHz	11.5
5240MHz	11
5745MHz	17
5785MHz	17.5
5825MHz	17.5
802.11ax HEW40_Nss1,(MCS0)_8TX	-
5190MHz	14
5230MHz	14
5755MHz	19
5795MHz	19.5
802.11ax HEW80_Nss1,(MCS0)_8TX	-
5210MHz	14.5
5775MHz	16.5



<SBS mode>

Mode	Power Setting
802.11a_Nss1,(6Mbps)_4TX	-
5180MHz	17.5
5200MHz	17
5240MHz	17
5745MHz	23
5785MHz	23
5825MHz	23
802.11ax HEW20_Nss1,(MCS0)_4TX	-
5180MHz	17
5200MHz	17.5
5240MHz	17.5
5745MHz	23
5785MHz	23
5825MHz	23
802.11ax HEW40_Nss1,(MCS0)_4TX	-
5190MHz	14.5
5230MHz	18
5755MHz	20
5795MHz	21
802.11ax HEW80_Nss1,(MCS0)_4TX	-
5210MHz	14
5775MHz	17.5



<Scan Radio>

Mode	Power Setting
802.11a_Nss1,(6Mbps)_1TX	-
5180MHz	26
5200MHz	32
5240MHz	28.5
5745MHz	32
5785MHz	32
5825MHz	32
802.11ac VHT20_Nss1,(MCS0)_1TX	-
5180MHz	26
5200MHz	32
5240MHz	28
5745MHz	32
5785MHz	32
5825MHz	32
802.11ac VHT40_Nss1,(MCS0)_1TX	-
5190MHz	21
5230MHz	28.5
5755MHz	32
5795MHz	32
802.11ac VHT80_Nss1,(MCS0)_1TX	-
5210MHz	20.5
5775MHz	30.5



For beamforming mode:

<DBS mode>

Mode	Power Setting
802.11ax HEW20-BF_Nss1,(MCS0)_8TX	-
5180MHz	23
5200MHz	23
5240MHz	23
5745MHz	23
5785MHz	23
5825MHz	23
802.11ax HEW40-BF_Nss1,(MCS0)_8TX	-
5190MHz	22
5230MHz	23
5755MHz	19
5795MHz	23
802.11ax HEW80-BF_Nss1,(MCS0)_8TX	-
5210MHz	21
5775MHz	21



<SBS mode>

Mode	Power Setting
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	-
5180MHz	20
5200MHz	25
5240MHz	24
5745MHz	27
5785MHz	27
5825MHz	27
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	-
5190MHz	18
5230MHz	23
5755MHz	24
5795MHz	25
802.11ax HEW80-BF_Nss1,(MCS0)_4TX	-
5210MHz	17
5775MHz	21

Note:

- There are two modes of EUT for 11n/VHT/11ax in 2.4GHz and 11n/11ac/11ax in 5GHz. One is beamforming mode, and the other is non-beamforming mode. Both beamforming mode and non-beamforming mode were selected and recorded in this report.



2.2 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
Tests Item	AC power-line conducted emissions
Condition	AC power-line conducted measurement for line and neutral
Operating Mode	Normal Link
1	Normal Link with Adapter-DBS Mode (2.4GHz) + DBS Mode (5GHz) + Scan Radio (5GHz) + Bluetooth Radio
2	Normal Link with Adapter-DBS Mode (2.4GHz) + SBS Mode (5GHz low band) + SBS Mode (5GHz high band)+ Scan Radio (5GHz) + Bluetooth Radio
Mode 1 has been evaluated to be the worst case among Mode 1~2, thus measurement for Mode 3 will follow this same test mode.	
3	Normal Link with PoE-DBS Mode (2.4GHz) + DBS Mode (5GHz) + Scan Radio (5GHz) + Bluetooth Radio
4	Normal Link with Adapter-DBS Mode (2.4GHz) + DBS Mode (5GHz) + Scan Radio (2.4GHz) + Bluetooth Radio
5	Normal Link with Adapter-DBS Mode (2.4GHz) + SBS Mode (5GHz low band) + SBS Mode (5GHz high band)+ Scan Radio (2.4GHz) + Bluetooth Radio
Mode 5 has been evaluated to be the worst case among Mode 4~5, thus measurement for Mode 6 will follow this same test mode.	
6	Normal Link with PoE- DBS Mode (2.4GHz) + SBS Mode (5GHz low band) + SBS Mode (5GHz high band) + Scan Radio (2.4GHz) + Bluetooth Radio
For operating mode 1 is the worst case and it was record in this test report.	

The Worst Case Mode for Following Conformance Tests	
Tests Item	Emission Bandwidth Maximum Conducted Output Power Peak Power Spectral Density
Test Condition	Conducted measurement at transmit chains
Operating Mode	
1	<u>For non-beamforming mode:</u> DBS mode
2	<u>For non-beamforming mode:</u> SBS mode
3	<u>For non-beamforming mode:</u> Scan Radio
4	<u>For beamforming mode:</u> DBS mode
5	<u>For beamforming mode:</u> SBS mode



The Worst Case Mode for Following Conformance Tests	
Tests Item	Unwanted Emissions
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.
Operating Mode < 1GHz	Normal Link
1	Normal Link with Adapter-DBS Mode (2.4GHz) + DBS Mode (5GHz) + Scan Radio (5GHz) + Bluetooth Radio-EUT in Z axis
2	Normal Link with Adapter-DBS Mode (2.4GHz) + DBS Mode (5GHz) + Scan Radio (5GHz) + Bluetooth Radio-EUT in Y axis
Mode 2 has been evaluated to be the worst case among Mode 1~2, thus measurement for Mode 3 will follow this same test mode.	
3	Normal Link with Adapter-DBS Mode (2.4GHz) + SBS Mode (5GHz low band) + SBS Mode (5GHz high band)+ Scan Radio (5GHz) + Bluetooth Radio-EUT in Y axis
Mode 2 has been evaluated to be the worst case among Mode 1~3, thus measurement for Mode 4 will follow this same test mode.	
4	Normal Link with PoE-DBS Mode (2.4GHz) + DBS Mode (5GHz) + Scan Radio (5GHz) + Bluetooth Radio-EUT in Y axis
5	Normal Link with Adapter-DBS Mode (2.4GHz) + DBS Mode (5GHz) + Scan Radio (5GHz) + Bluetooth Radio-EUT in Y axis
6	Normal Link with Adapter-DBS Mode (2.4GHz) + SBS Mode (5GHz low band) + SBS Mode (5GHz high band)+ Scan Radio (2.4GHz) + Bluetooth Radio -EUT in Y axis
Mode 6 has been evaluated to be the worst case among Mode 5~6, thus measurement for Mode 7 will follow this same test mode.	
7	Normal Link with PoE-DBS Mode (2.4GHz) + SBS Mode (5GHz low band) + SBS Mode (5GHz high band)+ Scan Radio (2.4GHz) + Bluetooth Radio -EUT in Y axis
For operating mode 2 is the worst case and it was record in this test report.	
Operating Mode > 1GHz	CTX
The EUT was performed at Y axis and Z axis position for Unwanted Emissions above 1GHz test	
1. For DBS mode: the worst case was found at Z axis. So the measurement will follow this same test configuration.	
2. For SBS mode and Scan Radio: the worst case was found at Y axis. So the measurement will follow this same test configuration.	
1	For non-beamforming mode: EUT Z axis - DBS mode
2	For non-beamforming mode: EUT Y axis - SBS mode
3	For non-beamforming mode: EUT Y axis - Scan Radio
4	For beamforming mode: EUT Z axis - DBS mode
5	For beamforming mode: EUT Y axis - SBS mode



The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis - Co-location RF Exposure Evaluation
Operating Mode	
1	DBS Mode (2.4GHz) + DBS Mode (5GHz) + Scan Radio (2.4GHz) + Bluetooth Radio
2	DBS Mode (2.4GHz) + DBS Mode (5GHz) + Scan Radio (5GHz) + Bluetooth Radio
3	SBS Mode (5GHz low band) + SBS Mode (5GHz high band) + DBS Mode (2.4GHz) + Scan Radio (2.4GHz) + Bluetooth Radio
4	SBS Mode (5GHz low band) + SBS Mode (5GHz high band) + DBS Mode (2.4GHz) + Scan Radio (5GHz) + Bluetooth Radio

Refer to Sporton Test Report No.: FA912418-02 for Co-location RF Exposure Evaluation.

Note: For EUT + PoE, the PoE is for measurement only, would not be marketed.

Equipment	Brand Name	Model Name	FCC ID
PoE	Cambium	P060V04	N/A

2.3 EUT Operation during Test

For CTX Mode:

For non-beamforming mode:

The EUT was programmed to be in continuously transmitting mode.

For beamforming 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 "Lantest.exe" to link with the remote workstation to transmit and receive packet by Wireless Access Point and transmit duty cycle no less than 98%.

For Normal Link:

During the test, the EUT operation to normal function.

2.4 Accessories

Accessories					
No.	Equipment Name	Brand Name	Model Name	Rating	Remark
1	Adapter	CWT	KPL-040F-VI	INPUT: 100-240V, 50/60Hz, 1.7A OUTPUT: 12V, 3.33A, 40W	With the cable: Non-shielded, 1.3m
No.	Others				
2	Wall-mounted rack*1				
3	Power cable*1: Non-shielded, 2m				



2.5 Support Equipment

For AC Conduction:

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	Flash disk3.0	Transcend	JetFlash-700	N/A
B	5G LAN PC	DELL	T3400	N/A
C	2.4G NB	DELL	E6430	N/A
D	5G NB	DELL	E6430	N/A
E	1G LAN NB	DELL	E6430	N/A
G	Scan Radio NB	DELL	E6430	N/A

For Radiated (below 1GHz):

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	Flash disk3.0	Transcend	JetFlash-700	N/A
B	Notebook	DELL	E4300	N/A
C	Notebook	DELL	E4300	N/A
D	Notebook	DELL	E4300	N/A
E	Notebook	DELL	E4300	N/A
F	PC	DELL	OPTIPLEX 380	N/A

For Radiated (above 1GHz) and RF Conducted:

For non-beamforming mode:

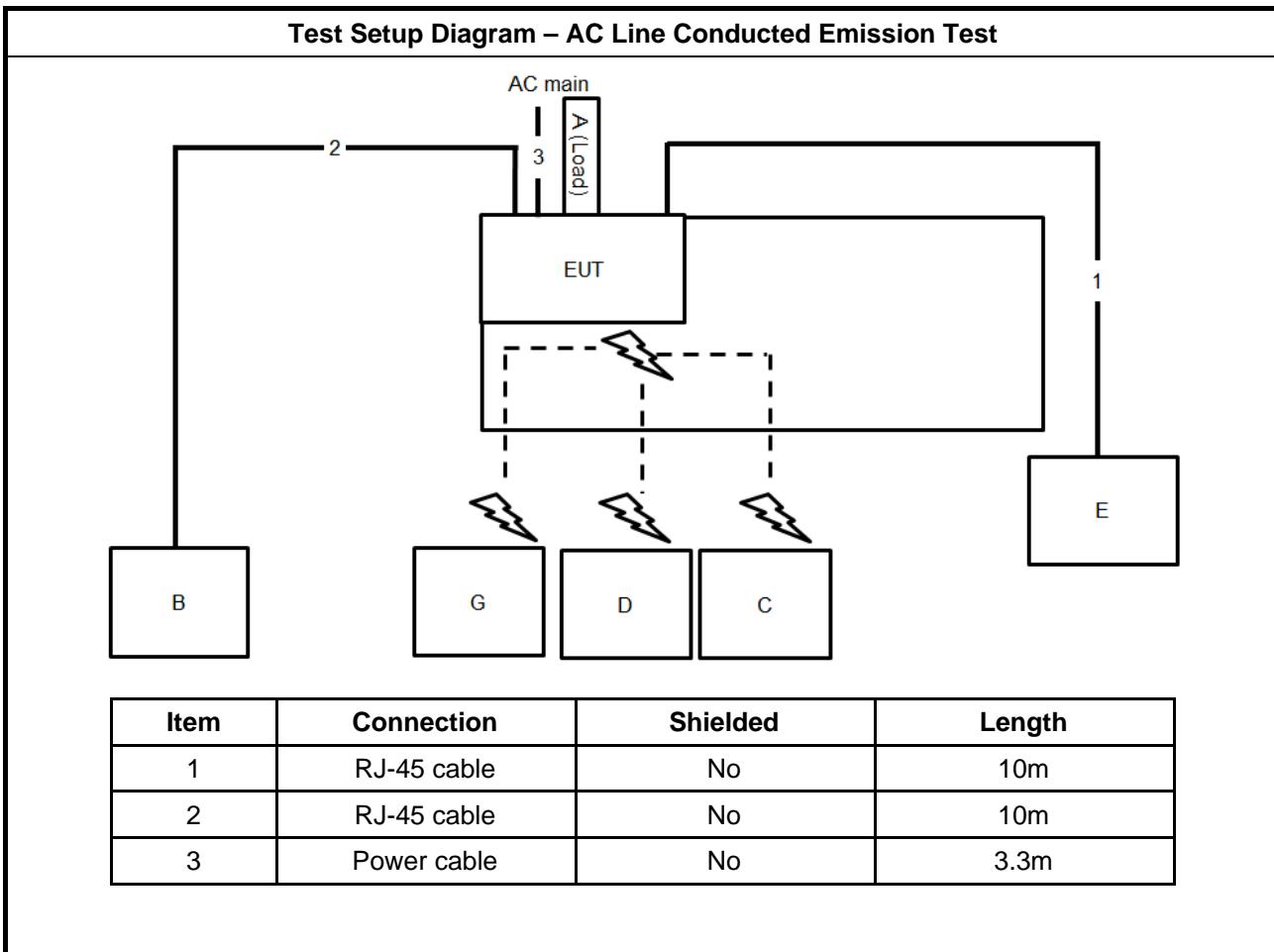
Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	NB	DELL	E4300	N/A

For beamforming mode:

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	NB	DELL	E4300	N/A
B	NB	DELL	E4300	N/A
C	Wireless Access Point (Client)	Cambium Networks	REG-XV3-8	Z8H89FT0058

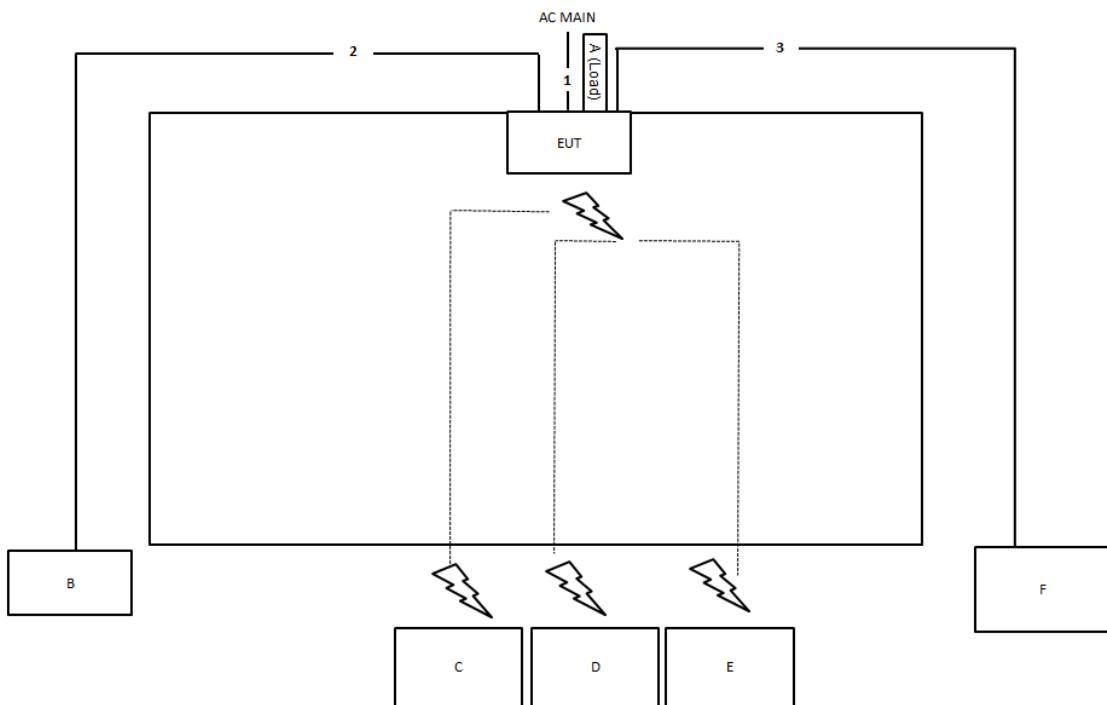


2.6 Test Setup Diagram

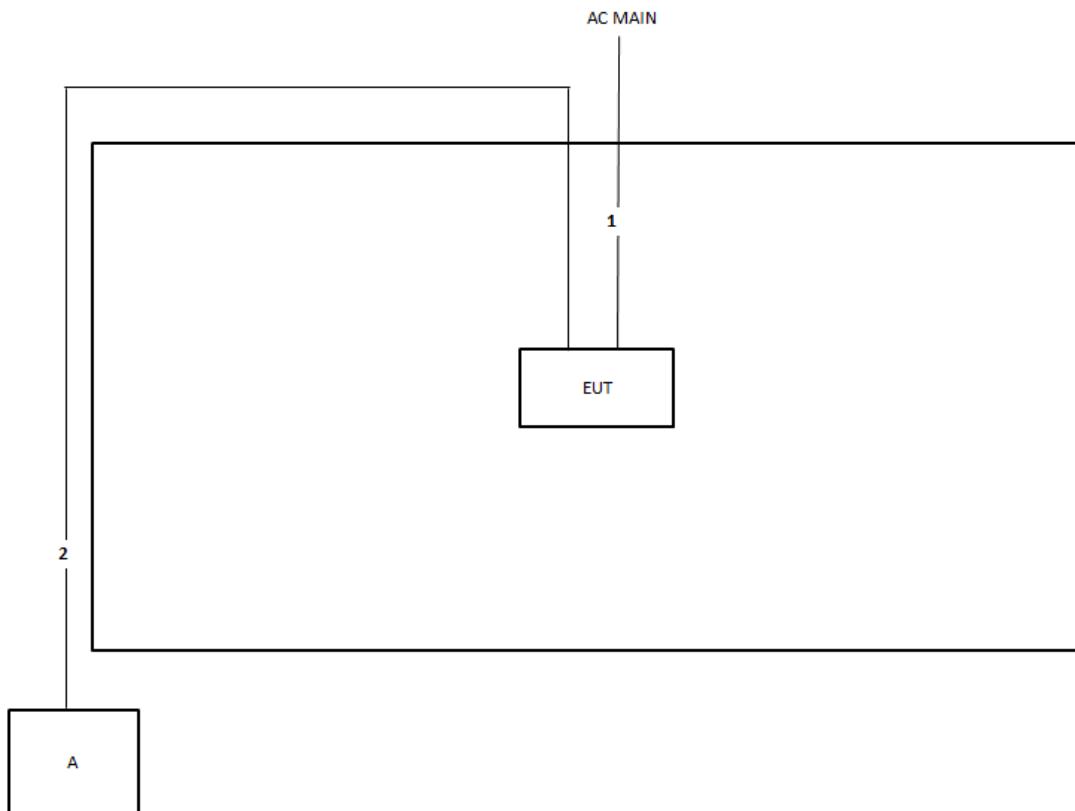




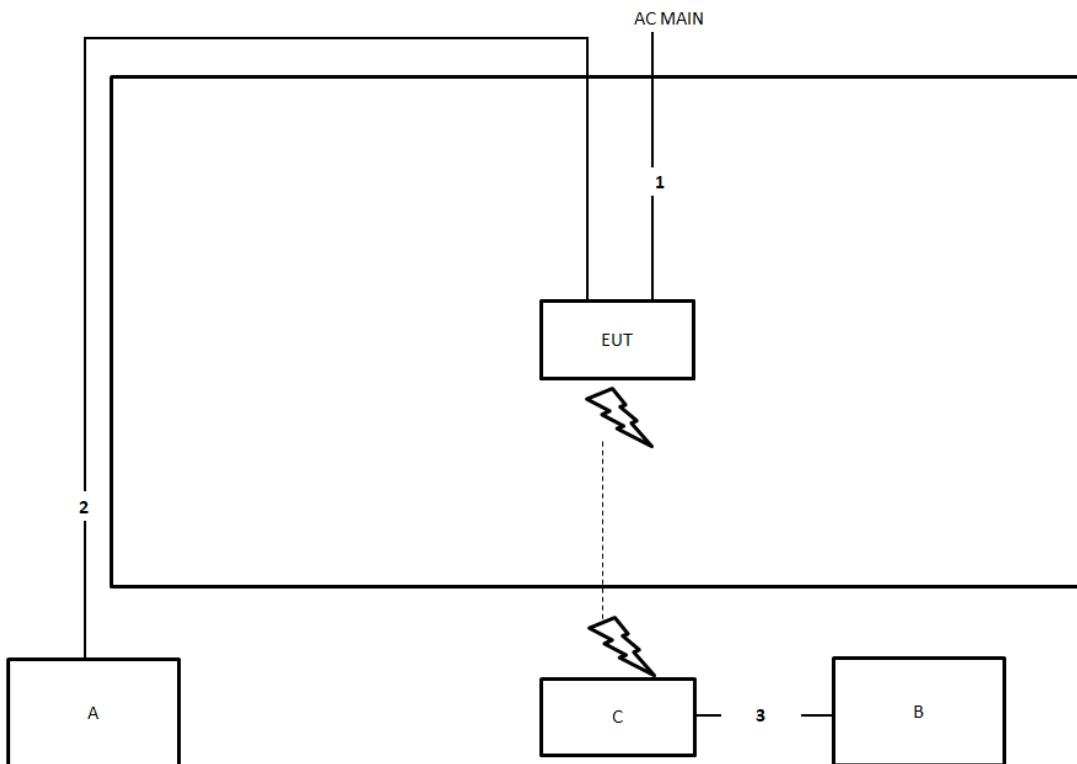
Test Setup Diagram - Radiated Test < 1GHz



Item	Connection	Shielded	Length
1	Power cable	No	3.3m
2	RJ-45 cable	No	10m
3	RJ-45 cable	No	10m

**Test Setup Diagram - Radiated Test > 1GHz**For non-beamforming mode:

Item	Connection	Shielded	Length
1	Power cable	No	3.3m
2	RJ-45 cable	No	10m

**Test Setup Diagram - Radiated Test > 1GHz**For beamforming mode:

Item	Connection	Shielded	Length
1	Power cable	No	3.3m
2	RJ-45 cable	No	10m
3	RJ-45 cable	No	1.5m



3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

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

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

3.1.2 Measuring Instruments

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

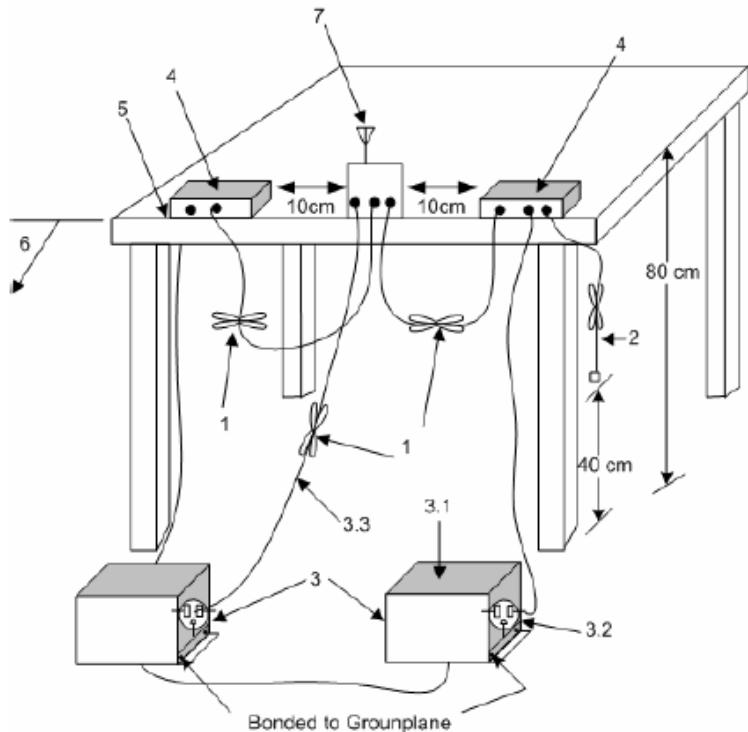
3.1.3 Test Procedures

Test Method
<input checked="" type="checkbox"/> Refer as ANSI C63.10-2013, clause 6.2 for AC power-line conducted emissions.



3.1.4 Test Setup

AC Power-line Conducted Emissions



- 1—Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 cm to 40 cm long.
- 2—The I/O cables that are not connected to an accessory shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- 3—EUT connected to one LISN. Unused LISN measuring port connectors shall be terminated in 50Ω loads. LISN may be placed on top of, or immediately beneath, reference ground plane.
- 3.1—All other equipment powered from additional LISN(s).
- 3.2—A multiple-outlet strip may be used for multiple power cords of non-EUT equipment.
- 3.3—LISN at least 80 cm from nearest part of EUT chassis.
- 4—Non-EUT components of EUT system being tested.
- 5—Rear of EUT, including peripherals, shall all be aligned and flush with edge of tabletop.
- 6—Edge of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded to the ground plane.
- 7—Antenna can be integral or detachable. If detachable, then the antenna shall be attached for this test.

3.1.5 Test Result of AC Power-line Conducted Emissions

Refer as Appendix A



3.2 Emission Bandwidth

3.2.1 Emission Bandwidth Limit

Emission Bandwidth Limit	
UNII Devices	
<input checked="" type="checkbox"/>	For the 5.15-5.25 GHz band, N/A
<input type="checkbox"/>	For the 5.25-5.35 GHz band, the maximum conducted output power shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in MHz.
<input type="checkbox"/>	For the 5.47-5.725 GHz band, the maximum conducted output power shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in MHz.
<input checked="" type="checkbox"/>	For the 5.725-5.85 GHz band, 6 dB emission bandwidth $\geq 500\text{kHz}$.
LE-LAN Devices	
<input type="checkbox"/>	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.
<input type="checkbox"/>	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
<input type="checkbox"/>	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
<input type="checkbox"/>	For the 5.725-5.85 GHz band, 6 dB emission bandwidth $\geq 500\text{kHz}$.

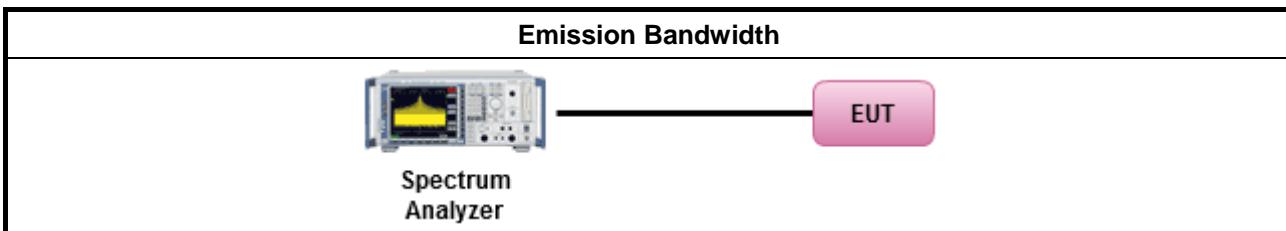
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

Test Method	
▪	For the emission bandwidth shall be measured using one of the options below:
<input checked="" type="checkbox"/>	Refer as FCC KDB 789033, clause C for EBW and clause D for OBW measurement.
<input type="checkbox"/>	Refer as ANSI C63.10, clause 6.9.1 for occupied bandwidth testing.
<input type="checkbox"/>	Refer as IC RSS-Gen, clause 4.6 for bandwidth testing.

3.2.4 Test Setup



3.2.5 Test Result of Emission Bandwidth

Refer as Appendix B



3.3 Maximum Conducted Output Power

3.3.1 Maximum Conducted Output Power Limit

Maximum Conducted Output Power Limit	
UNII Devices	
<input checked="" type="checkbox"/> For the 5.15-5.25 GHz band:	<ul style="list-style-type: none">▪ Outdoor AP: the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If $G_{TX} > 6 \text{ dBi}$, then $P_{Out} = 30 - (G_{TX} - 6)$. e.i.r.p. at any elevation angle above 30 degrees $\leq 125\text{mW}$ [21dBm]▪ Indoor AP: the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If $G_{TX} > 6 \text{ dBi}$, 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 $G_{TX} > 23 \text{ dBi}$, 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 $G_{TX} > 6 \text{ dBi}$, then $P_{Out} = 24 - (G_{TX} - 6)$.
<input type="checkbox"/> For the 5.25-5.35 GHz band, the maximum conducted output power (P_{Out}) shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in MHz. If $G_{TX} > 6 \text{ dBi}$, then $P_{Out} = 24 - (G_{TX} - 6)$.	
<input type="checkbox"/> For the 5.47-5.725 GHz band, the maximum conducted output power (P_{Out}) shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in MHz. If $G_{TX} > 6 \text{ dBi}$, then $P_{Out} = 24 - (G_{TX} - 6)$.	
<input checked="" type="checkbox"/> For the 5.725-5.85 GHz band:	<ul style="list-style-type: none">▪ Point-to-multipoint systems (P2M): the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If $G_{TX} > 6 \text{ dBi}$, 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	
<input type="checkbox"/> 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.	
<input type="checkbox"/> 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	
<input type="checkbox"/> 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	
<input type="checkbox"/> For the 5.725-5.85 GHz band:	<ul style="list-style-type: none">▪ Point-to-multipoint systems (P2M): the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If $G_{TX} > 6 \text{ dBi}$, then $P_{Out} = 30 - (G_{TX} - 6)$.▪ Point-to-point systems (P2P): the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W.
P_{Out} = maximum conducted output power in dBm, G_{TX} = the maximum transmitting antenna directional gain in dBi.	



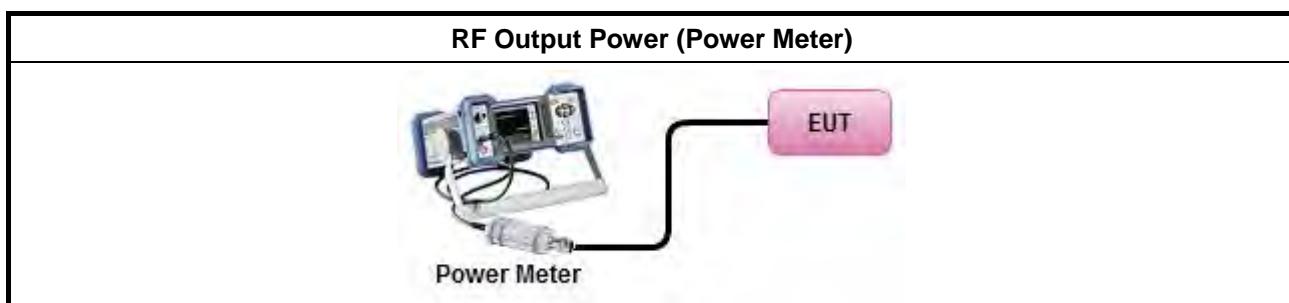
3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

Test Method	
▪ Maximum Conducted Output Power	Average over on/off periods with duty factor <input type="checkbox"/> Refer as FCC KDB 789033, clause E Method SA-2 (spectral trace averaging). <input type="checkbox"/> 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 <input checked="" type="checkbox"/> Refer as FCC KDB 789033, clause E Method PM-G (using an RF average power meter).
▪ For conducted measurement.	<ul style="list-style-type: none">▪ 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]) $EIRP_{total} = P_{total} + DG$

3.3.4 Test Setup



3.3.5 Test Result of Maximum Conducted Output Power

Refer as Appendix C



3.4 Peak Power Spectral Density

3.4.1 Peak Power Spectral Density Limit

Peak Power Spectral Density Limit	
UNII Devices	
<input checked="" type="checkbox"/> For the 5.15-5.25 GHz band:	<ul style="list-style-type: none">▪ 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= $11 - (G_{TX} - 6)$.
<input type="checkbox"/> For the 5.25-5.35 GHz band, the peak power spectral density (PPSD) ≤ 11 dBm/MHz. If $G_{TX} > 6$ dBi, then PPSD= $11 - (G_{TX} - 6)$.	
<input type="checkbox"/> For the 5.47-5.725 GHz band, the peak power spectral density (PPSD) ≤ 11 dBm/MHz. If $G_{TX} > 6$ dBi, then PPSD= $11 - (G_{TX} - 6)$.	
<input checked="" type="checkbox"/> For the 5.725-5.85 GHz band:	<ul style="list-style-type: none">▪ 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	
<input type="checkbox"/> For the 5.15-5.25 GHz band, the e.i.r.p. peak power spectral density (PPSD) ≤ 10 dBm/MHz.	
<input type="checkbox"/> For the 5.25-5.35 GHz band, the peak power spectral density (PPSD) ≤ 11 dBm/MHz.	
<input type="checkbox"/> For the 5.47-5.6 GHz band and 5.65-5.725 GHz band, the peak power spectral density (PPSD) ≤ 11 dBm/MHz.	<ul style="list-style-type: none">▪ 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 $\theta > 45^\circ$
<input type="checkbox"/> For the 5.725-5.85 GHz band:	<ul style="list-style-type: none">▪ Point-to-multipoint systems (P2M): the peak power spectral density (PPSD) ≤ 30 dBm/500kHz. If $G_{TX} > 6$ dBi, then PPSD= $30 - (G_{TX} - 6)$.▪ Point-to-point systems (P2P): the peak power spectral density (PPSD) ≤ 30 dBm/500kHz.
PPSD = peak power spectral density that he same method as used to determine the conducted output power shall be used to determine the power spectral density. And power spectral density in dBm/MHz G_{TX} = the maximum transmitting antenna directional gain in dBi.	

3.4.2 Measuring Instruments

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

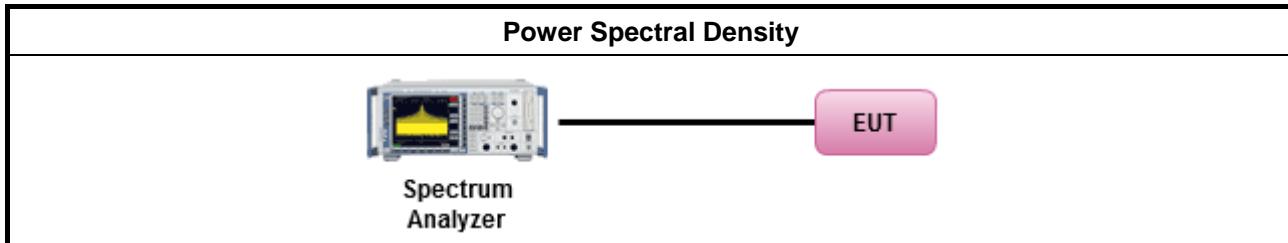


3.4.3 Test Procedures

Test Method	
<ul style="list-style-type: none">▪ 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:	
<p><input type="checkbox"/> Refer as FCC KDB 789033, F5) 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]</p>	
<p><input checked="" type="checkbox"/> Refer as FCC KDB 789033, clause E Method SA-1 (spectral trace averaging).</p>	
<p><input type="checkbox"/> 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</p>	
<p><input checked="" type="checkbox"/> Refer as FCC KDB 789033, clause E Method SA-2 (spectral trace averaging).</p>	
<p><input type="checkbox"/> Refer as FCC KDB 789033, clause E Method SA-2 Alt. (RMS detection with slow sweep speed)</p>	
<ul style="list-style-type: none">▪ For conducted measurement.	
<ul style="list-style-type: none">▪ If the EUT supports multiple transmit chains using options given below:	
<p><input checked="" type="checkbox"/> 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.</p>	
<p><input type="checkbox"/> 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,</p>	
<p><input type="checkbox"/> 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.</p>	
<ul style="list-style-type: none">▪ If multiple transmit chains, EIRP PPSD calculation could be following as methods: $\text{PPSD}_{\text{total}} = \text{PPSD}_1 + \text{PPSD}_2 + \dots + \text{PPSD}_n$(calculated in linear unit [mW] and transfer to log unit [dBm]) $\text{EIRP}_{\text{total}} = \text{PPSD}_{\text{total}} + \text{DG}$	



3.4.4 Test Setup



3.4.5 Test Result of Peak Power Spectral Density

Refer as Appendix D



3.5 Unwanted Emissions

3.5.1 Transmitter Unwanted Emissions Limit

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

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

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

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

Un-restricted band emissions above 1GHz Limit	
Operating Band	Limit
<input checked="" type="checkbox"/> 5.15 - 5.25 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
<input type="checkbox"/> 5.25 - 5.35 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
<input type="checkbox"/> 5.47 - 5.725 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
<input checked="" type="checkbox"/> 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).



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

3.5.2 Measuring Instruments

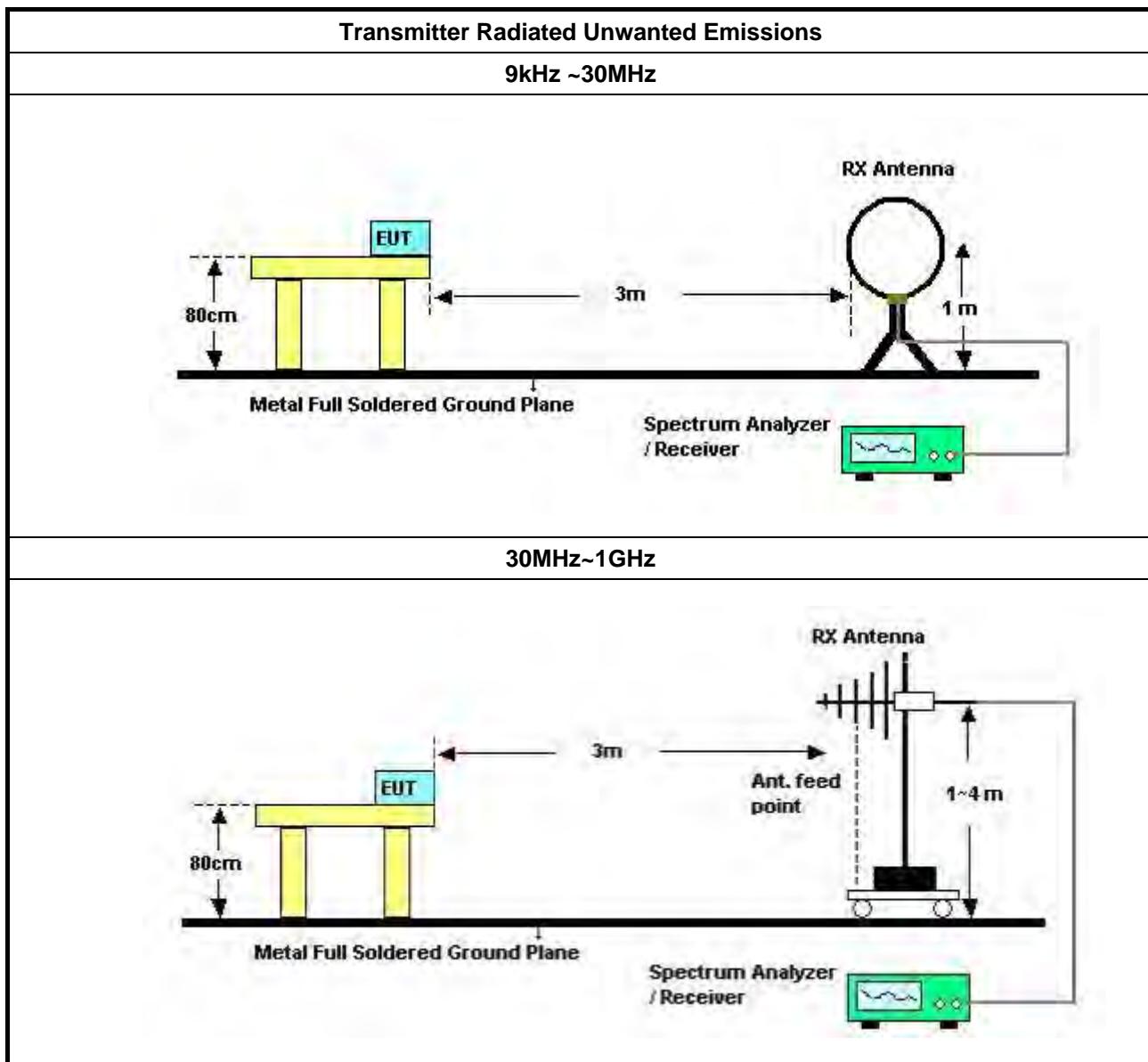
Refer a test equipment and calibration data table in this test report.

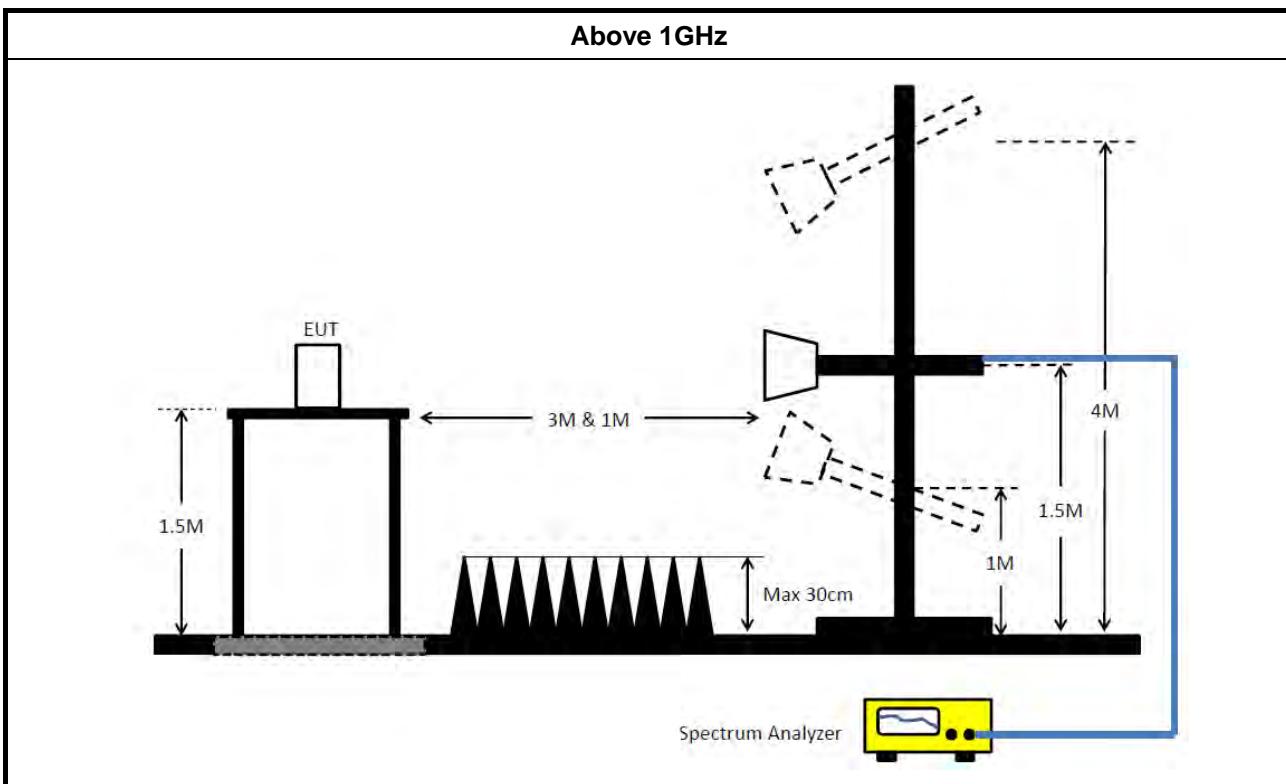
3.5.3 Test Procedures

Test Method
<ul style="list-style-type: none">▪ 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).
<ul style="list-style-type: none">▪ The average emission levels shall be measured in [duty cycle \geq 98 or duty factor].
<ul style="list-style-type: none">▪ For the transmitter unwanted emissions shall be measured using following options below:
<ul style="list-style-type: none">▪ 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.<ul style="list-style-type: none"><input type="checkbox"/> Refer as FCC KDB 789033, G)6) Method AD (Trace Averaging).<input checked="" type="checkbox"/> Refer as FCC KDB 789033, G)6) Method VB (Reduced VBW).<input type="checkbox"/> Refer as ANSI C63.10, clause 11.12.2.5.3 (Reduced VBW). VBW \geq 1/T, where T is pulse time.<input type="checkbox"/> Refer as ANSI C63.10, clause 7.5 average value of pulsed emissions.<input checked="" type="checkbox"/> Refer as FCC KDB 789033, clause G)5) measurement procedure peak limit.<input type="checkbox"/> Refer as ANSI C63.10, clause 4.1.4.2.2 measurement procedure peak limit.
<ul style="list-style-type: none">▪ For radiated measurement.<ul style="list-style-type: none">▪ 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.
<ul style="list-style-type: none">▪ 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.



3.5.4 Test Setup





3.5.5 Measurement Results Calculation

The measured Level is calculated using:

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

3.5.6 Transmitter Unwanted Emissions (Below 30MHz)

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

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

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

3.5.7 Test Result of Transmitter Unwanted Emissions

Refer as Appendix E



4 Test Equipment and Calibration Data

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
EMI Receiver	Agilent	N9038A	My52260123	9kHz ~ 8.45GHz	Jan. 28, 2019	Jan. 29, 2020	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-5 0-16-2	04083	150kHz ~ 100MHz	Dec. 24, 2018	Dec. 23, 2019	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Jan. 11, 2019	Jan. 10, 2020	Conduction (CO01-CB)
COND Cable	Woken	Cable	Low cable-CO01	9kHz ~ 30MHz	May 21, 2019	May 20, 2020	Conduction (CO01-CB)
Software	Audix	E3	6.120210n	-	N.C.R.	N.C.R.	Conduction (CO01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	Mar. 29, 2019	Mar. 28, 2020	Radiation (03CH05-CB)
Bilog Antenna with 6dB Attenuator	TESE & EMC	CBL 6112D & N-6-06	35236 & AT-N0610	30MHz ~ 2GHz	Mar. 28, 2019	Mar. 27, 2020	Radiation (03CH05-CB)
Pre-Amplifier	EMCI	EMC330N	980331	20MHz ~ 3GHz	May 01, 2019	Apr. 30, 2020	Radiation (03CH05-CB)
Spectrum Analyzer	R&S	FSP40	100304	9kHz ~ 40GHz	Aug. 15, 2019	Aug. 14, 2020	Radiation (03CH05-CB)
EMI Test Receiver	R&S	ESCS	826547/017	9kHz ~ 2.75GHz	May 15, 2019	May 14, 2020	Radiation (03CH05-CB)
RF Cable-low	Woken	RG402	LOW Cable-04+23	30MHz~1GHz	Oct. 08, 2018	Oct. 07, 2019	Radiation (03CH05-CB)
RF Cable-low	Woken	RG402	LOW Cable-04+23	30MHz~1GHz	Oct. 07, 2019	Oct. 06, 2020	Radiation (03CH05-CB)
Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-1292	1GHz~18GHz	Jul. 17, 2019	Jul. 16, 2020	Radiation (03CH06-CB)
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170507	15GHz ~ 40GHz	Jun. 12, 2019	Jun. 11, 2020	Radiation (03CH06-CB)
Pre-Amplifier	Agilent	83017A	MY53270064	0.5GHz ~ 26.5GHz	May 08, 2019	May 07, 2020	Radiation (03CH06-CB)
Pre-Amplifier	MITEQ	TTA1840-35-HG	1864479	18GHz ~ 40GHz	Jul. 03, 2019	Jul. 02, 2020	Radiation (03CH06-CB)
Spectrum analyzer	R&S	FSP40	100080	9kHz~40GHz	Oct. 03, 2018	Oct. 02, 2019	Radiation (03CH06-CB)
Spectrum analyzer	R&S	FSP40	100080	9kHz~40GHz	Oct. 21, 2019	Oct. 20, 2020	Radiation (03CH06-CB)
RF Cable-high	HUBER+SUHN ER	RG402	High Cable-05	1GHz~18GHz	Oct. 08, 2018	Oct. 07, 2019	Radiation (03CH06-CB)
RF Cable-high	HUBER+SUHN ER	RG402	High Cable-05	1GHz~18GHz	Oct. 07, 2019	Oct. 06, 2020	Radiation (03CH06-CB)
RF Cable-high	HUBER+SUHN ER	RG402	High Cable-05+24	1GHz~18GHz	Oct. 08, 2018	Oct. 07, 2019	Radiation (03CH06-CB)
RF Cable-high	HUBER+SUHN ER	RG402	High Cable-05+24	1GHz~18GHz	Oct. 07, 2019	Oct. 06, 2020	Radiation (03CH06-CB)

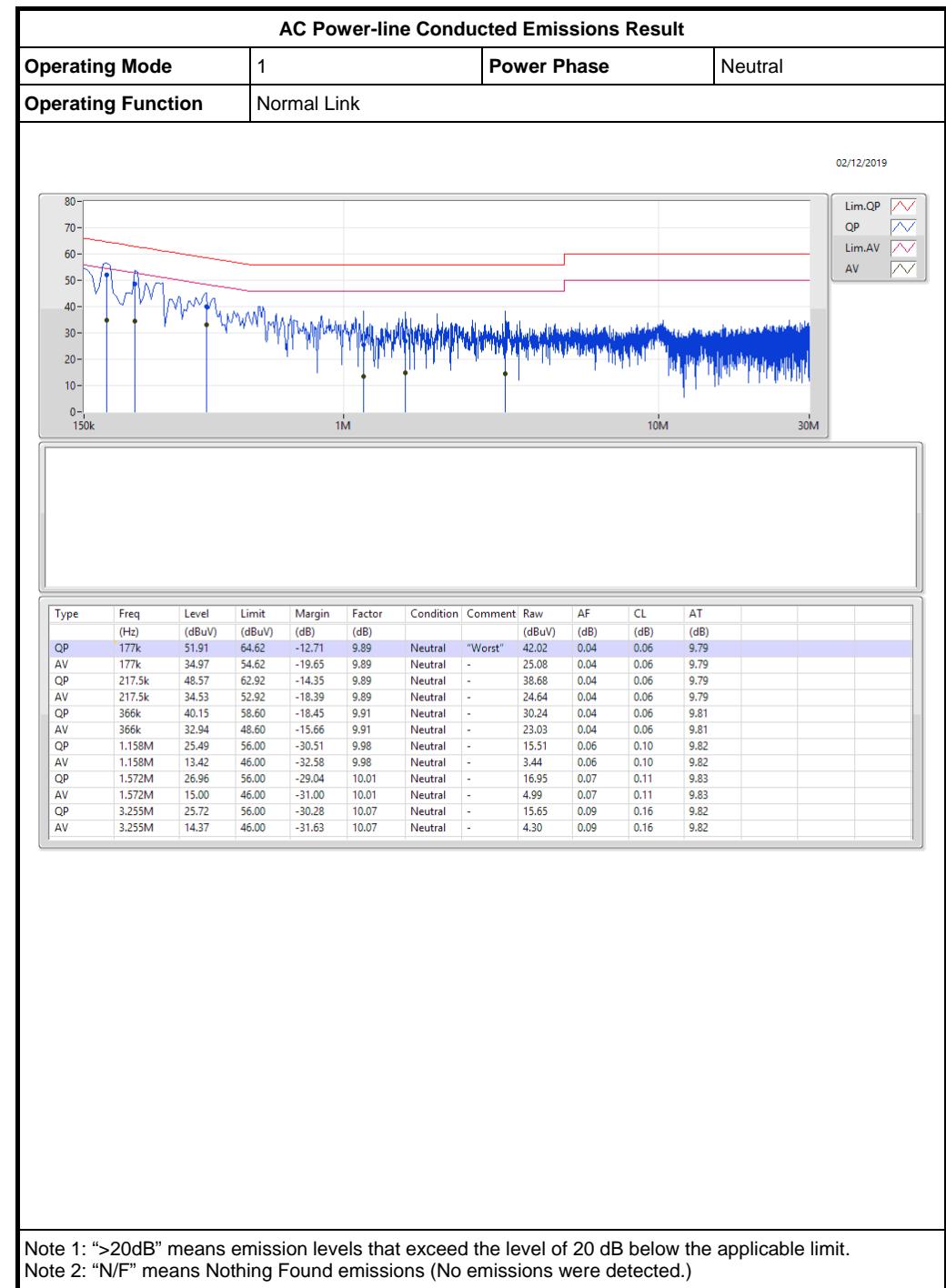
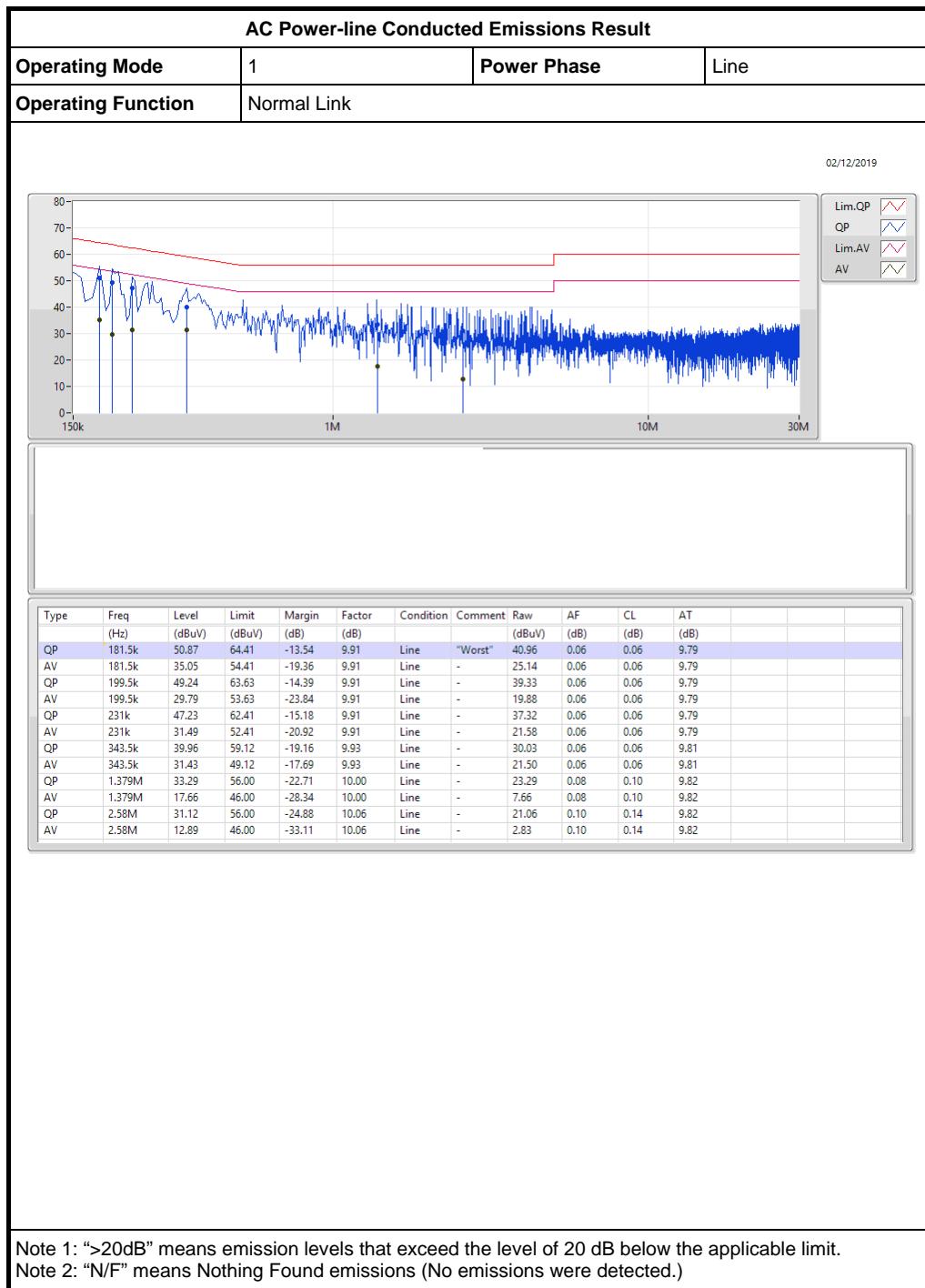
**FCC RADIO TEST REPORT**

Report No. : FR912418-02AB

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
RF Cable-high	Woken	RG402	High Cable-40G#1	18GHz ~ 40 GHz	Jul. 24, 2019	Jul. 23, 2020	Radiation (03CH06-CB)
RF Cable-high	Woken	RG402	High Cable-40G#2	18GHz ~ 40 GHz	Jul. 24, 2019	Jul. 23, 2020	Radiation (03CH06-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. 07, 2019	Oct. 06, 2020	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-07	1 GHz – 26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-08	1 GHz – 26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-09	1 GHz – 26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-10	1 GHz – 26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	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)
RF Cable-high	Woken	RG402	High Cable-28	1 GHz – 26.5 GHz	Nov. 18, 2019	Nov. 17, 2020	Conducted (TH01-CB)
Power Sensor	Anritsu	MA2411B	1126203	300MHz~40GHz	Sep. 11, 2019	Sep. 10, 2020	Conducted (TH01-CB)
Power Meter	Anritsu	ML2495A	1210004	300MHz~40GHz	Sep. 11, 2019	Sep. 10, 2020	Conducted (TH01-CB)

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

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





For non-beamforming mode:

<DBS mode>

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.15-5.25GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_8TX	19.225M	16.417M	16M4D1D	18.55M	16.342M
802.11ax HEW20_Nss1,(MCS0)_8TX	21.6M	18.916M	18M9D1D	20.925M	18.841M
802.11ax HEW40_Nss1,(MCS0)_8TX	41.1M	37.781M	37M8D1D	40.4M	37.581M
802.11ax HEW80_Nss1,(MCS0)_8TX	82.4M	77.261M	77M3D1D	81.8M	76.762M
5.725-5.85GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_8TX	16.325M	17.041M	17M0D1D	12.525M	16.142M
802.11ax HEW20_Nss1,(MCS0)_8TX	18.925M	19.09M	19M1D1D	14.6M	18.741M
802.11ax HEW40_Nss1,(MCS0)_8TX	38.2M	67.916M	67M9D1D	35.1M	37.781M
802.11ax HEW80_Nss1,(MCS0)_8TX	77.8M	77.561M	77M6D1D	59.8M	76.462M

Max-N dB = Maximum 6dB down bandwidth for UNII-3 band / Maximum 26dB down bandwidth for other band; Max-OBW = Maximum 99% occupied bandwidth;

Min-N dB = Minimum 6dB down bandwidth for UNII-3 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)	Port 5-N dB (Hz)	Port 5-OBW (Hz)	Port 6-N dB (Hz)	Port 6-OBW (Hz)	Port 7-N dB (Hz)	Port 7-OBW (Hz)	Port 8-N dB (Hz)	Port 8-OBW (Hz)
802.11a_Nss1,(6Mbps)_8TX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	Inf	18.975M	16.392M	19.175M	16.392M	19M	16.342M	18.875M	16.342M	18.675M	16.367M	19.025M	16.417M	18.7M	16.342M	19.225M	16.417M
5200MHz	Pass	Inf	19.175M	16.367M	19.175M	16.392M	19.025M	16.342M	18.95M	16.342M	18.775M	16.367M	18.8M	16.367M	19M	16.392M	19.15M	16.417M
5240MHz	Pass	Inf	18.925M	16.392M	19.1M	16.417M	19.1M	16.367M	18.9M	16.367M	18.55M	16.392M	19.05M	16.392M	18.9M	16.392M	19.2M	16.417M
5745MHz	Pass	500k	15.9M	16.542M	16.325M	16.892M	15.325M	16.417M	16.325M	16.567M	12.525M	16.217M	15.725M	16.492M	16.075M	16.417M	16.275M	16.442M
5785MHz	Pass	500k	14.15M	16.142M	15.475M	17.041M	15.075M	16.367M	14.375M	16.367M	13.775M	16.292M	15.575M	16.392M	14.425M	16.342M	15.675M	16.392M
5825MHz	Pass	500k	14.125M	16.317M	15.3M	16.542M	14.4M	16.317M	13.825M	16.342M	15M	16.292M	16.025M	16.392M	15.925M	16.392M	15.625M	16.442M
802.11ax HEW20_Nss1,(MCS0)_8TX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	Inf	21.1M	18.866M	21.15M	18.866M	21.2M	18.891M	21.425M	18.891M	21.25M	18.841M	21.225M	18.866M	21.075M	18.916M	21.45M	18.891M
5200MHz	Pass	Inf	21.025M	18.891M	21.2M	18.916M	20.95M	18.891M	21.6M	18.916M	21.05M	18.916M	20.925M	18.891M	21.05M	18.866M	21.3M	18.866M
5240MHz	Pass	Inf	21.125M	18.916M	21.075M	18.866M	21.425M	18.916M	21.1M	18.891M	21.1M	18.866M	21.15M	18.866M	21.275M	18.891M	21.05M	18.916M
5745MHz	Pass	500k	15.3M	18.741M	18.825M	19.015M	16.8M	18.741M	16.35M	18.891M	16.15M	18.741M	15.3M	18.891M	18.575M	18.966M	18.925M	18.991M
5785MHz	Pass	500k	18.925M	19.065M	18.625M	18.941M	18.85M	19.065M	17.45M	18.791M	17.275M	18.766M	15.85M	18.916M	17.525M	18.791M	18.725M	18.941M
5825MHz	Pass	500k	15.6M	19.015M	18.875M	19.09M	15.075M	18.891M	17.75M	18.816M	18.4M	18.766M	14.6M	18.941M	16.55M	18.766M	18.375M	18.891M
802.11ax HEW40_Nss1,(MCS0)_8TX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5190MHz	Pass	Inf	40.85M	37.681M	40.95M	37.731M	40.7M	37.581M	41.05M	37.731M	40.65M	37.731M	40.65M	37.781M	40.5M	37.631M	40.95M	37.681M
5230MHz	Pass	Inf	41.1M	37.731M	40.7M	37.681M	40.4M	37.781M	40.6M	37.781M	40.85M	37.681M	40.75M	37.781M	41.1M	37.731M	40.9M	37.681M
5755MHz	Pass	500k	36.45M	38.181M	38M	54.273M	37.35M	38.231M	37.85M	39.68M	37.85M	38.231M	38.2M	38.481M	35.1M	37.781M	36.65M	37.931M
5795MHz	Pass	500k	35.35M	45.027M	36.8M	67.916M	36.3M	38.781M	37.8M	53.223M	37.95M	38.681M	37.85M	38.881M	35.95M	37.931M	37.2M	38.081M
802.11ax HEW80_Nss1,(MCS0)_8TX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5210MHz	Pass	Inf	82.2M	76.962M	82.2M	77.161M	81.8M	76.962M	82.1M	76.962M	81.8M	76.762M	82.1M	76.762M	82.4M	77.261M	82.4M	77.261M
5775MHz	Pass	500k	75.1M	76.862M	59.8M	77.561M	76.9M	76.862M	71.5M	77.161M	77.8M	77.161M	75.8M	77.461M	71.6M	76.462M	75.3M	77.161M

Port X-N dB = Port X 6dB down bandwidth for UNII-3 band / 26dB down bandwidth for other band; Port X-OBW = Port X 99% occupied bandwidth;

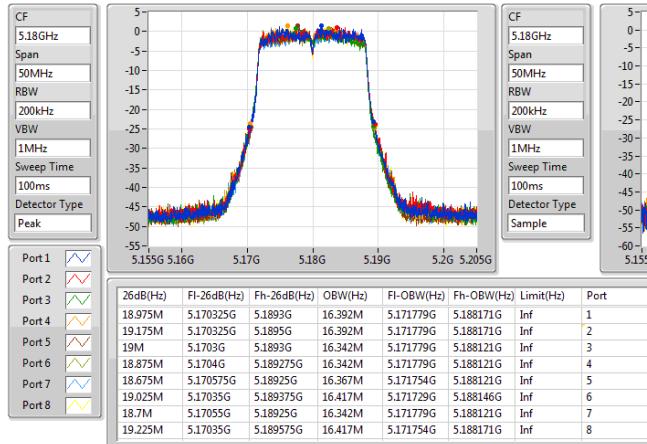


EBW Result

Appendix B.1

802.11a_Nss1,(6Mbps)_8TX

5180MHz

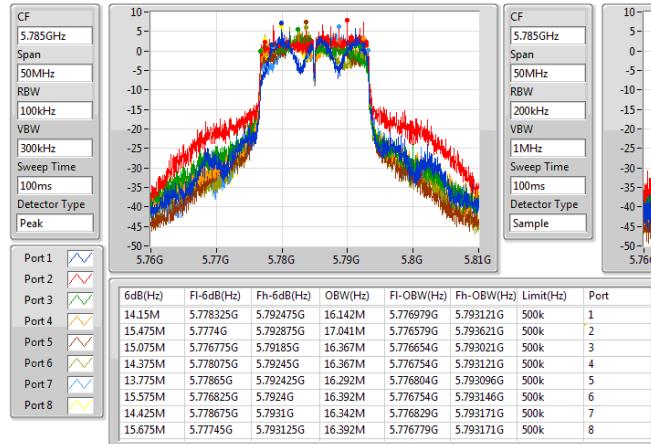


EBW

23/10/2019

802.11a_Nss1,(6Mbps)_8TX

5785MHz

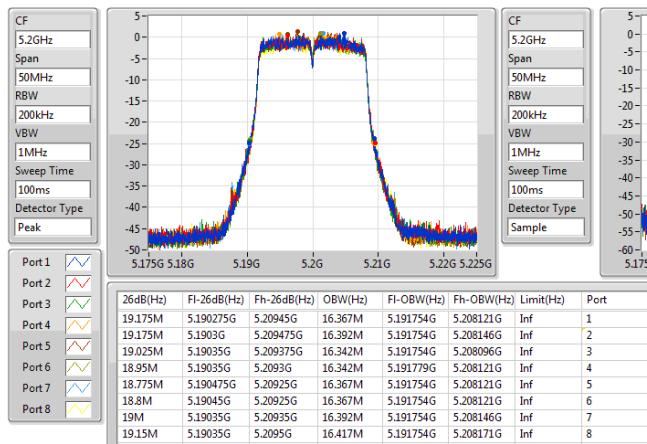


EBW

23/10/2019

802.11a_Nss1,(6Mbps)_8TX

5200MHz

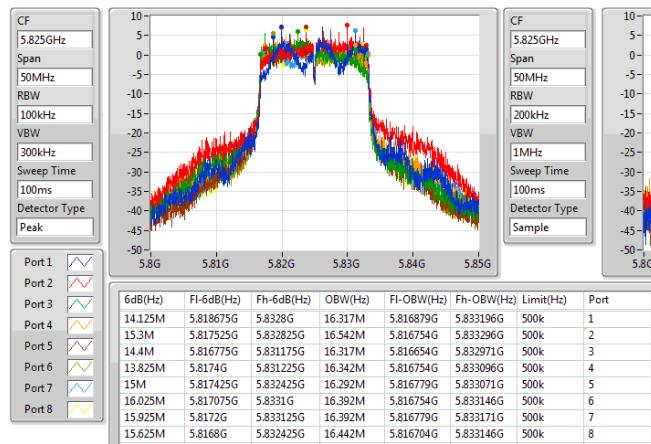


EBW

23/10/2019

802.11a_Nss1,(6Mbps)_8TX

5825MHz

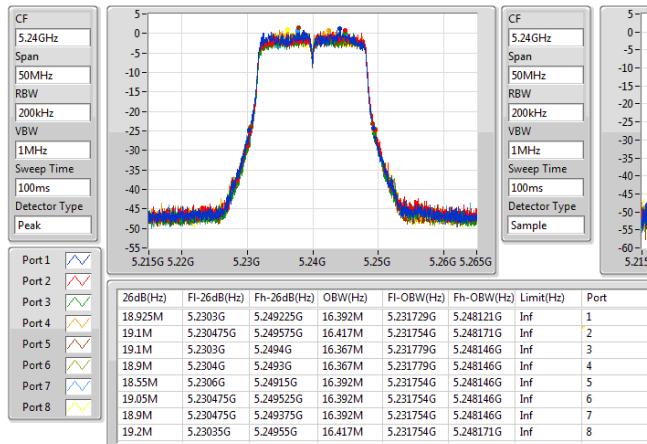


EBW

23/10/2019

802.11a_Nss1,(6Mbps)_8TX

5240MHz

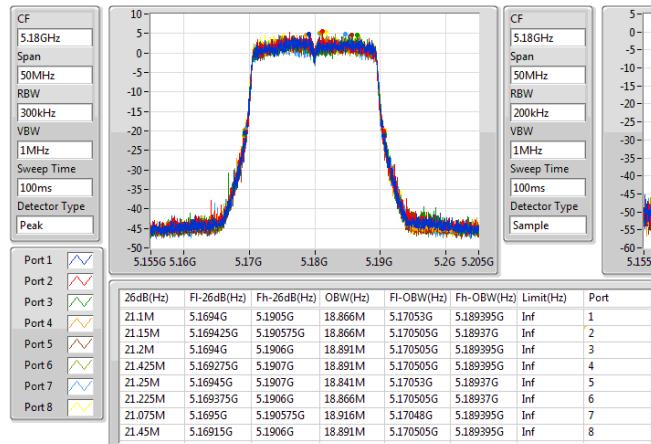


EBW

23/10/2019

802.11ax HEW20_Nss1,(MCS0)_8TX

5180MHz

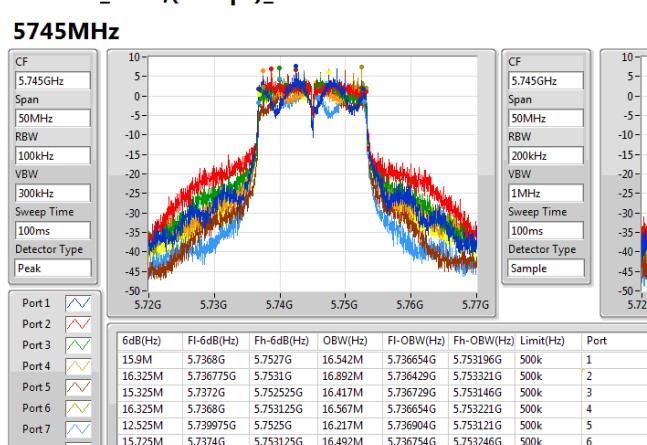


EBW

23/10/2019

802.11a_Nss1,(6Mbps)_8TX

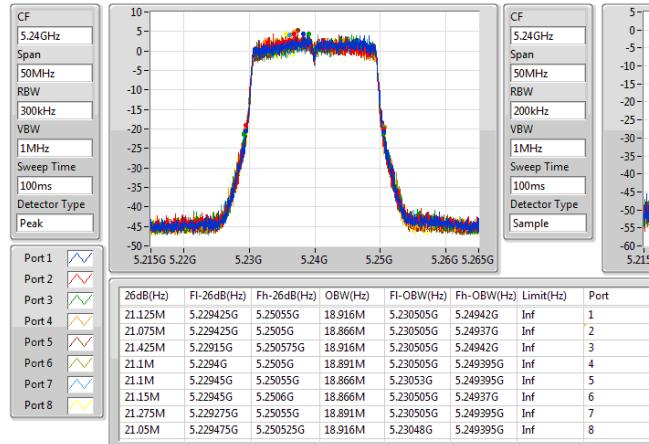
5745MHz





802.11ax HEW20_Nss1,(MCS0)_8TX

5240MHz

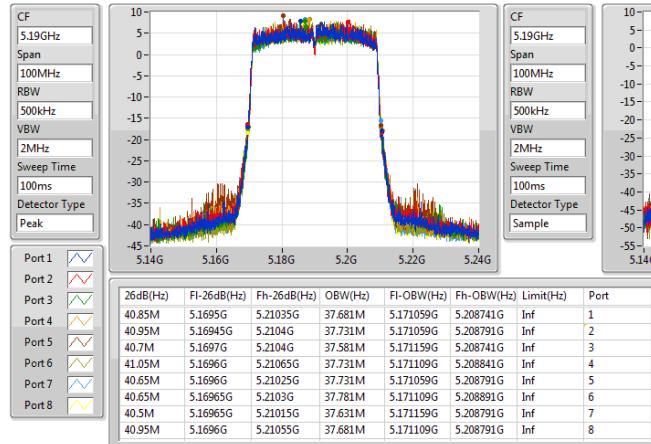


EBW

23/10/2019

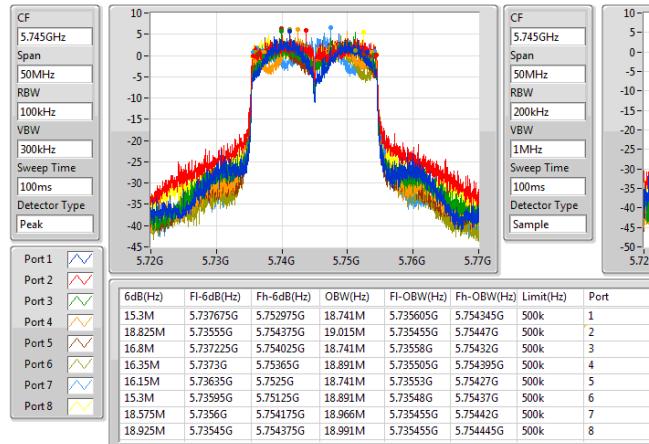
802.11ax HEW40_Nss1,(MCS0)_8TX

5190MHz



802.11ax HEW20_Nss1,(MCS0)_8TX

5745MHz

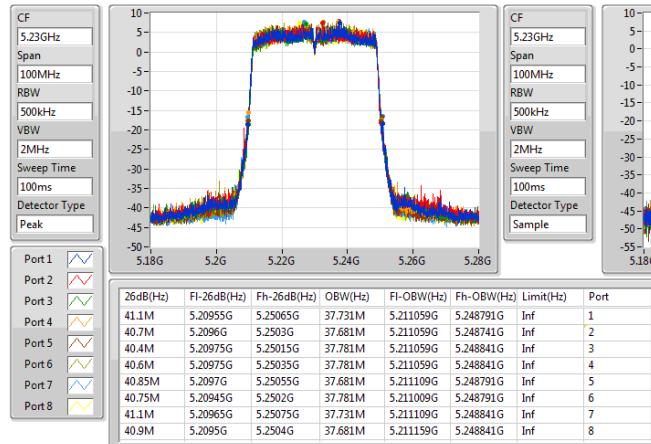


EBW

23/10/2019

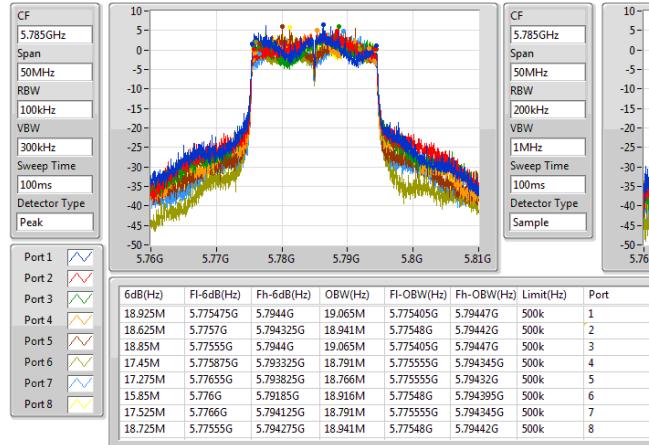
802.11ax HEW40_Nss1,(MCS0)_8TX

5230MHz



802.11ax HEW20_Nss1,(MCS0)_8TX

5785MHz

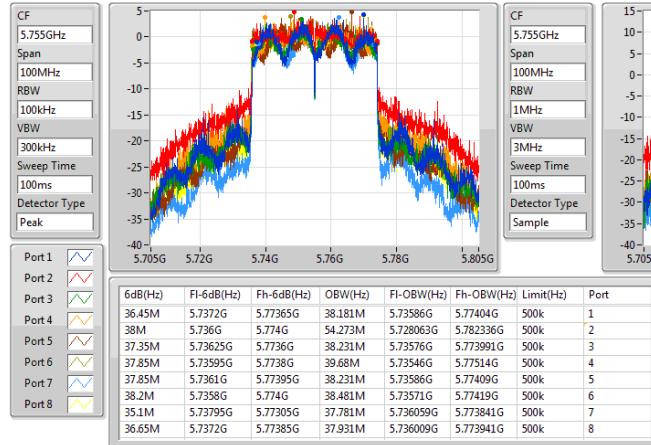


EBW

23/10/2019

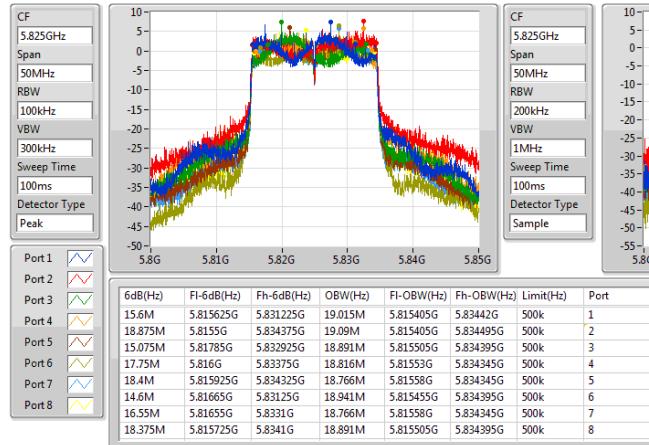
802.11ax HEW40_Nss1,(MCS0)_8TX

5755MHz



802.11ax HEW20_Nss1,(MCS0)_8TX

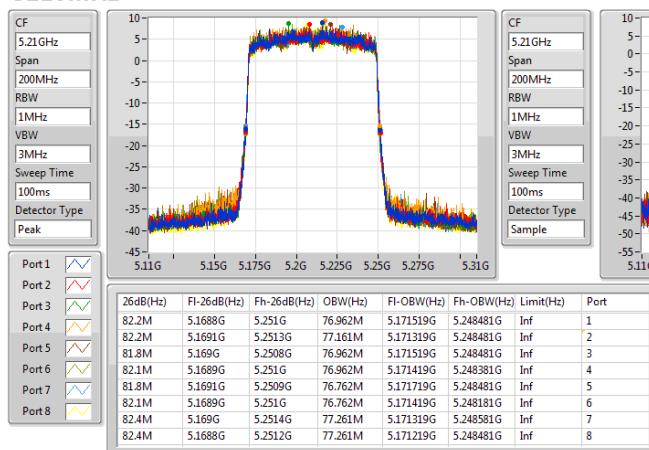
5825MHz





802.11ax HEW80_Nss1,(MCS0)_8TX

5210MHz

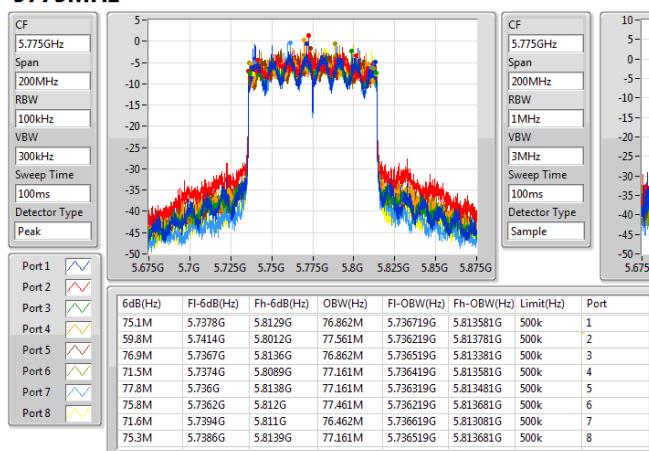


EBW

23/10/2019

802.11ax HEW80_Nss1,(MCS0)_8TX

5775MHz



EBW

23/10/2019



<SBS mode>

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.15-5.25GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_4TX	23.28M	16.492M	16M5D1D	19.47M	16.372M
802.11ax HEW20_Nss1,(MCS0)_4TX	25.23M	18.981M	19M0D1D	21.09M	18.861M
802.11ax HEW40_Nss1,(MCS0)_4TX	68.16M	38.141M	38M1D1D	40.68M	37.661M
802.11ax HEW80_Nss1,(MCS0)_4TX	82.56M	77.121M	77M1D1D	81.6M	76.882M
5.725-5.85GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_4TX	16.35M	34.573M	34M6D1D	15.09M	28.606M
802.11ax HEW20_Nss1,(MCS0)_4TX	19.08M	36.912M	36M9D1D	15.42M	33.103M
802.11ax HEW40_Nss1,(MCS0)_4TX	38.16M	71.784M	71M8D1D	35.4M	38.561M
802.11ax HEW80_Nss1,(MCS0)_4TX	77.52M	77.361M	77M4D1D	75.84M	77.001M

Max-N dB = Maximum 6dB down bandwidth for UNII-3 band / Maximum 26dB down bandwidth for other band; **Max-OBW** = Maximum 99% occupied bandwidth;

Min-N dB = Minimum 6dB down bandwidth for UNII-3 band / Maximum 26dB down bandwidth for other band; **Min-OBW** = Minimum 99% occupied bandwidth;



Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)	Port 3-N dB (Hz)	Port 3-OBW (Hz)	Port 4-N dB (Hz)	Port 4-OBW (Hz)
802.11a_Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	Inf	20.94M	16.432M	20.76M	16.432M	23.28M	16.492M	20.73M	16.402M
5200MHz	Pass	Inf	21.09M	16.402M	20.67M	16.462M	22.02M	16.402M	20.58M	16.402M
5240MHz	Pass	Inf	19.74M	16.402M	19.47M	16.372M	22.26M	16.432M	20.79M	16.402M
5745MHz	Pass	500k	15.69M	31.904M	15.09M	32.834M	15.09M	28.606M	16.29M	31.604M
5785MHz	Pass	500k	15.36M	32.354M	15.39M	32.864M	16.32M	30.525M	15.63M	32.594M
5825MHz	Pass	500k	15.69M	32.084M	16.35M	33.583M	15.99M	34.423M	16.32M	34.573M
802.11ax HEW20_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	Inf	22.32M	18.921M	21.09M	18.861M	24.99M	18.981M	21.18M	18.951M
5200MHz	Pass	Inf	23.28M	18.921M	23.01M	18.951M	22.65M	18.891M	22.23M	18.951M
5240MHz	Pass	Inf	22.35M	18.921M	22.53M	18.921M	25.23M	18.981M	23.28M	18.981M
5745MHz	Pass	500k	15.42M	34.153M	17.73M	34.423M	18.87M	34.273M	18.99M	33.103M
5785MHz	Pass	500k	18.21M	35.532M	19.08M	36.612M	17.85M	33.493M	17.85M	34.423M
5825MHz	Pass	500k	18.54M	35.082M	18.63M	36.912M	18.45M	35.412M	19.02M	35.862M
802.11ax HEW40_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5190MHz	Pass	Inf	40.86M	37.721M	41.34M	37.901M	41.04M	37.721M	40.68M	37.661M
5230MHz	Pass	Inf	63.36M	37.901M	62.46M	37.841M	68.16M	38.141M	64.86M	37.961M
5755MHz	Pass	500k	37.62M	46.957M	37.44M	53.553M	35.4M	38.561M	36.42M	47.796M
5795MHz	Pass	500k	36.12M	67.046M	38.16M	71.784M	35.94M	53.613M	37.68M	68.846M
802.11ax HEW80_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5210MHz	Pass	Inf	82.44M	77.121M	82.56M	77.121M	81.96M	76.882M	81.6M	77.121M
5775MHz	Pass	500k	77.16M	77.001M	77.52M	77.361M	75.84M	77.001M	76.92M	77.001M

Port X-N dB = Port X 6dB down bandwidth for UNII-3 band / 26dB down bandwidth for other band; Port X-OBW = Port X 99% occupied bandwidth;

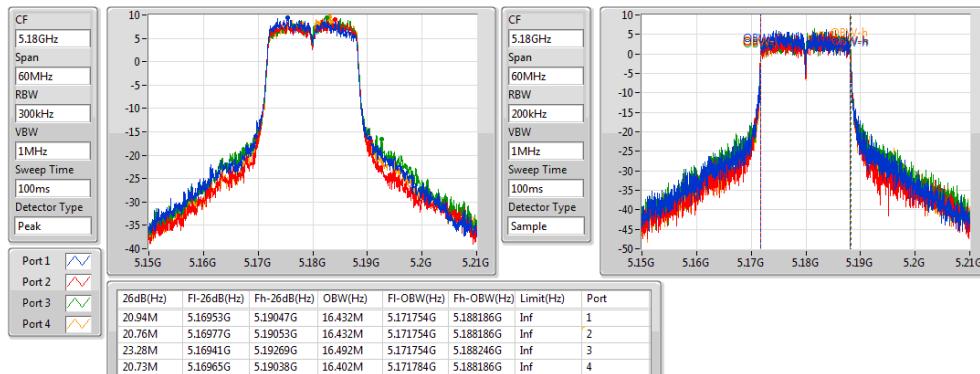


EBW Result

Appendix B.2

802.11a_Nss1,(6Mbps)_4TX

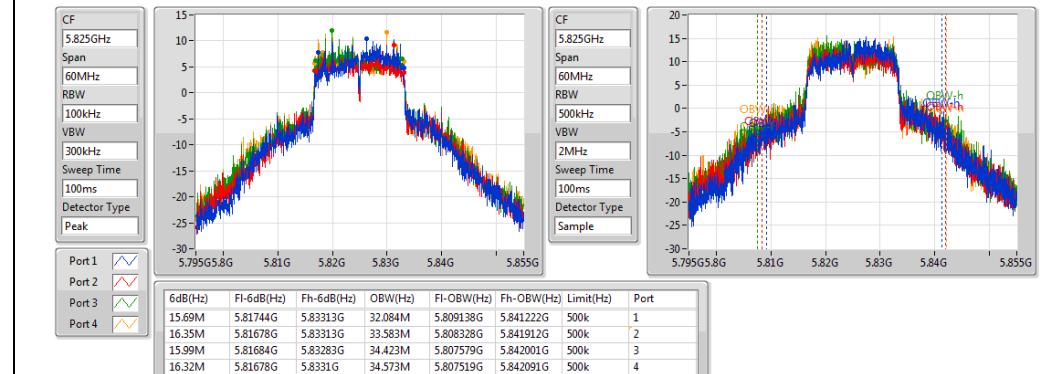
5180MHz



EBW

802.11a_Nss1,(6Mbps)_4TX

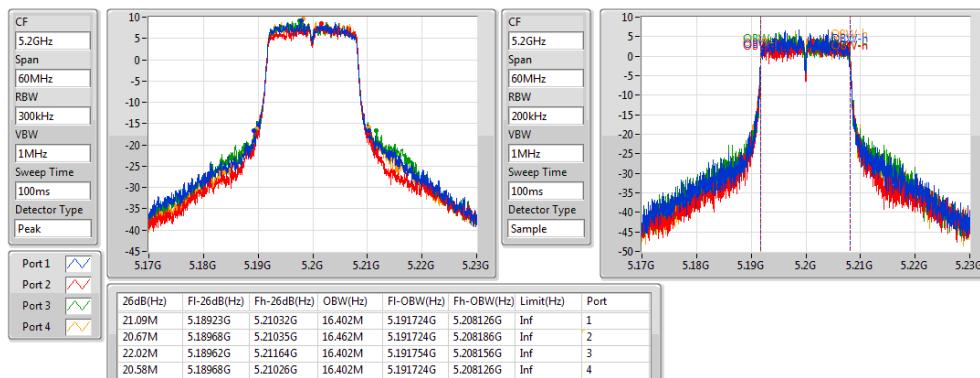
5825MHz



EBW

802.11a_Nss1,(6Mbps)_4TX

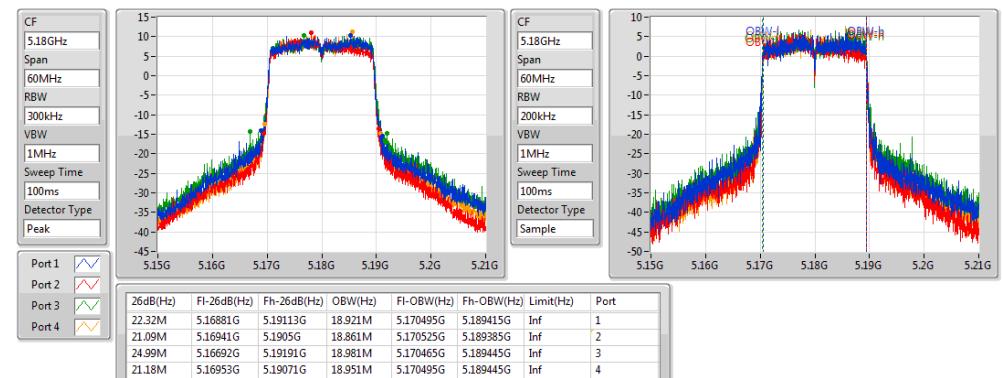
5200MHz



EBW

802.11ax HEW20_Nss1,(MCS0)_4TX

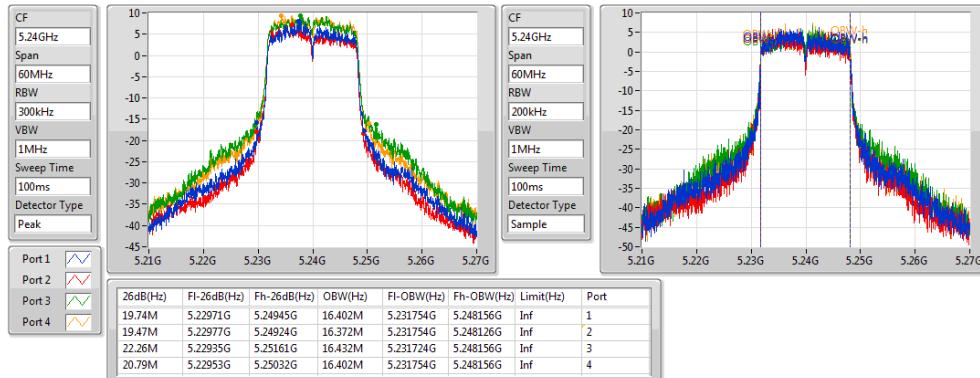
5180MHz



EBW

802.11a_Nss1,(6Mbps)_4TX

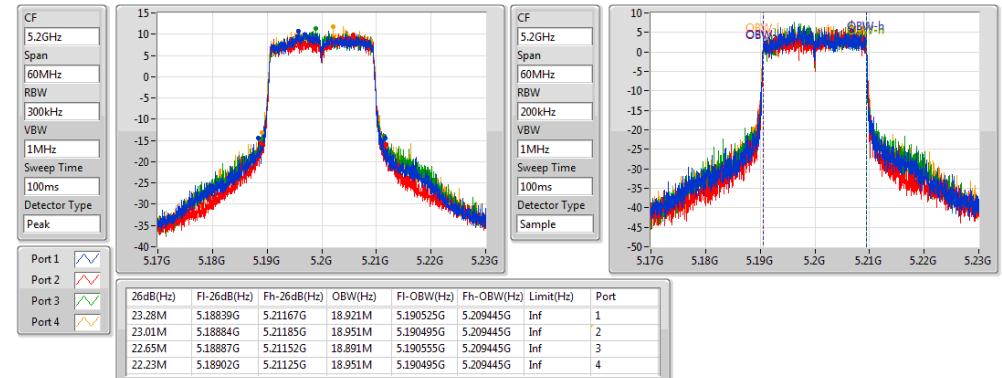
5240MHz



EBW

802.11ax HEW20_Nss1,(MCS0)_4TX

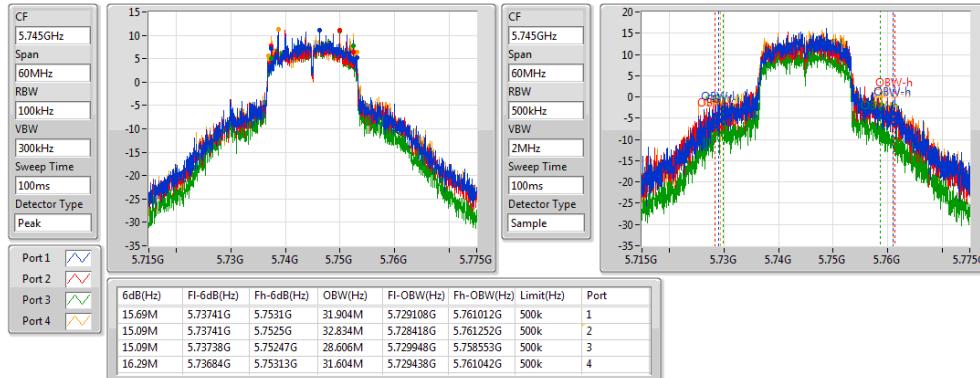
5200MHz



EBW

802.11a_Nss1,(6Mbps)_4TX

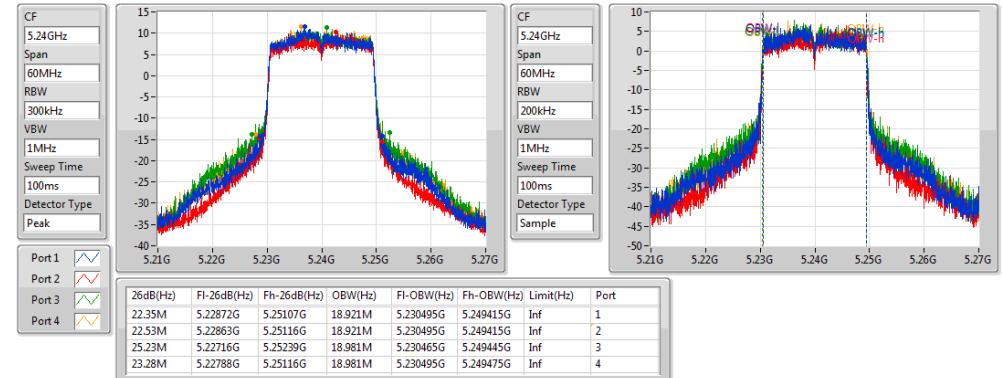
5745MHz



EBW

802.11ax HEW20_Nss1,(MCS0)_4TX

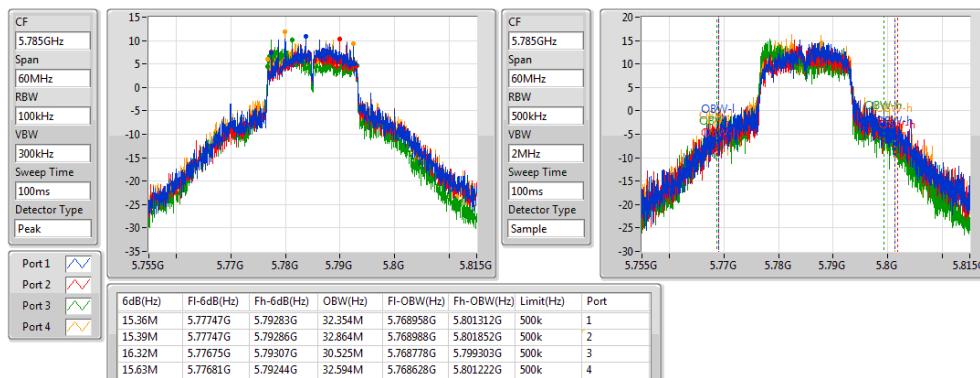
5240MHz



EBW

802.11a_Nss1,(6Mbps)_4TX

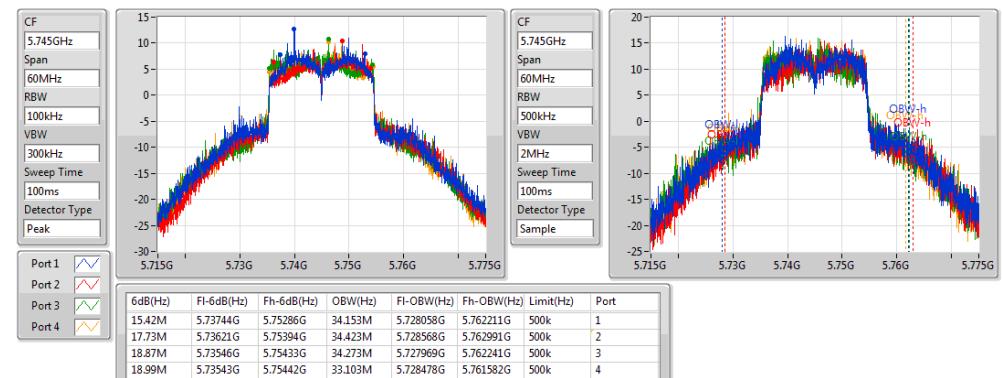
5785MHz



EBW

802.11ax HEW20_Nss1,(MCS0)_4TX

5745MHz



EBW

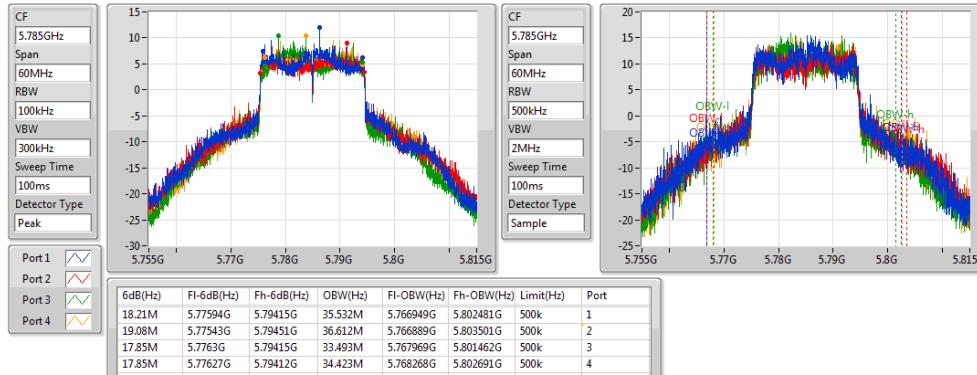


EBW Result

Appendix B.2

802.11ax HEW20_Nss1,(MCS0)_4TX

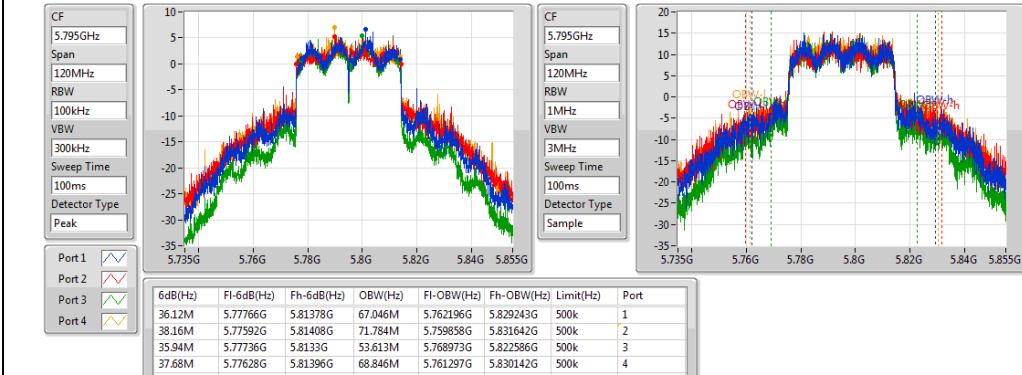
5785MHz



EBW

802.11ax HEW40_Nss1,(MCS0)_4TX

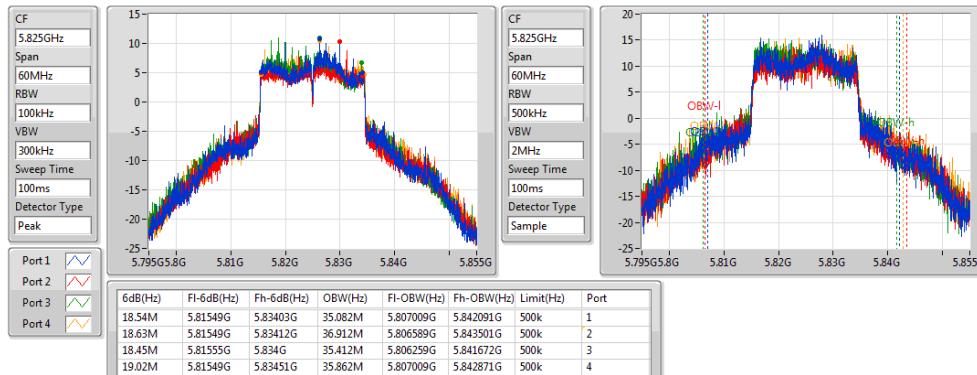
5795MHz



EBW

802.11ax HEW20_Nss1,(MCS0)_4TX

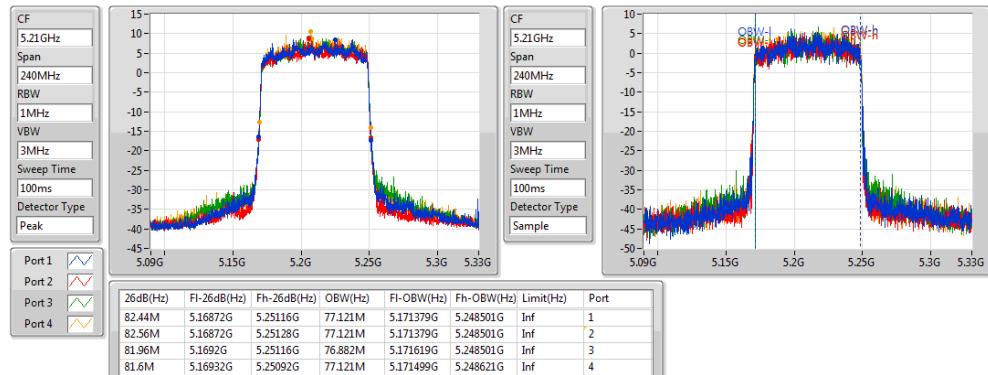
5825MHz



EBW

802.11ax HEW80_Nss1,(MCS0)_4TX

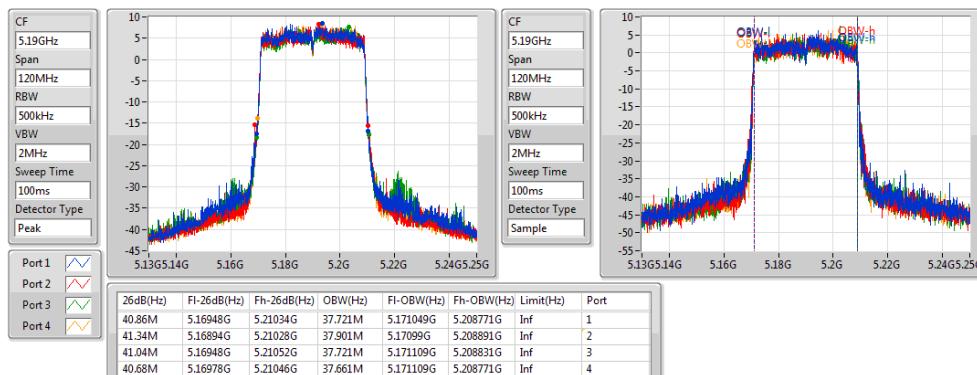
5210MHz



EBW

802.11ax HEW40_Nss1,(MCS0)_4TX

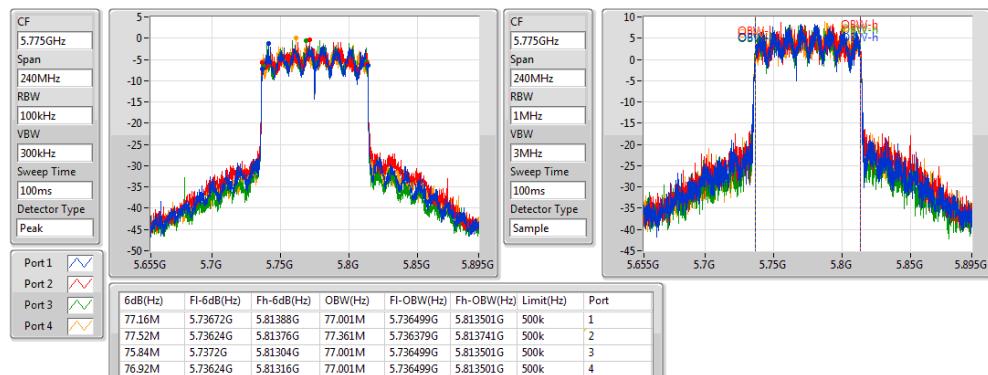
5190MHz



EBW

802.11ax HEW80_Nss1,(MCS0)_4TX

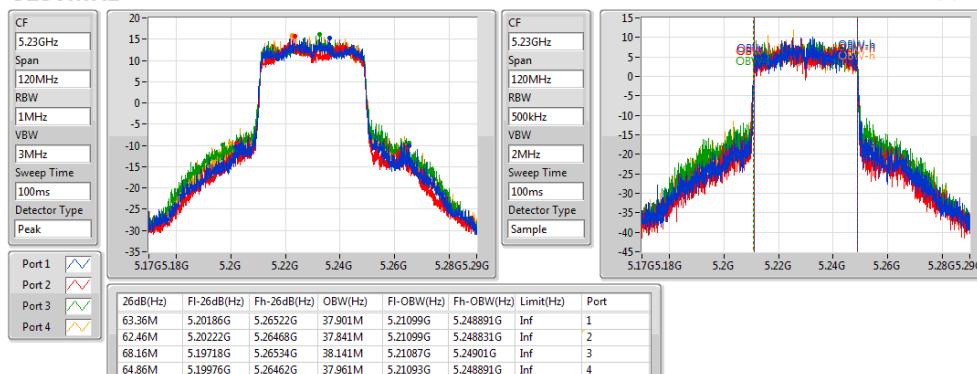
5775MHz



EBW

802.11ax HEW40_Nss1,(MCS0)_4TX

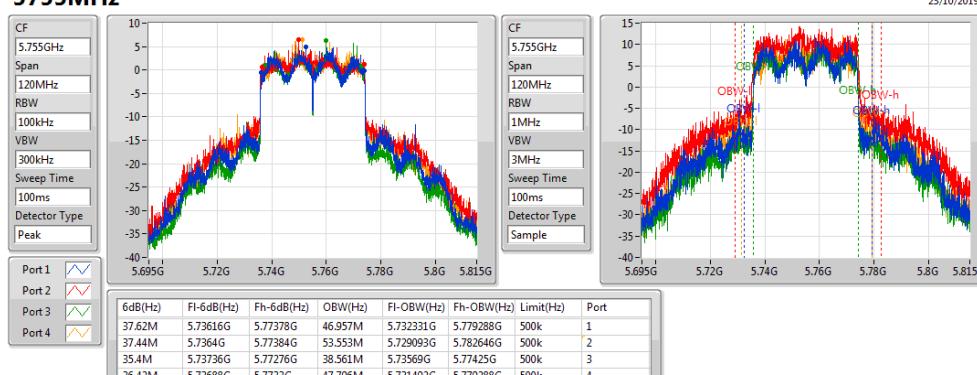
5230MHz



EBW

802.11ax HEW40_Nss1,(MCS0)_4TX

5755MHz



EBW



<Scan Radio> Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.15-5.25GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_1TX	46.05M	26.687M	26M7D1D	30.18M	17.091M
802.11ac VHT20_Nss1,(MCS0)_1TX	49.14M	27.886M	27M9D1D	34.08M	18.291M
802.11ac VHT40_Nss1,(MCS0)_1TX	74.22M	37.841M	37M8D1D	51.3M	36.342M
802.11ac VHT80_Nss1,(MCS0)_1TX	97.68M	75.802M	75M8D1D	97.68M	75.802M
5.725-5.85GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_1TX	16.53M	29.445M	29M4D1D	16.29M	25.217M
802.11ac VHT20_Nss1,(MCS0)_1TX	17.49M	30.915M	30M9D1D	16.89M	26.237M
802.11ac VHT40_Nss1,(MCS0)_1TX	35.94M	51.154M	51M2D1D	35.64M	49.055M
802.11ac VHT80_Nss1,(MCS0)_1TX	70.44M	87.556M	87M6D1D	70.44M	87.556M

Max-N dB = Maximum 6dB down bandwidth for UNII-3 band / Maximum 26dB down bandwidth for other band; **Max-OBW** = Maximum 99% occupied bandwidth;

Min-N dB = Minimum 6dB down bandwidth for UNII-3 band / Maximum 26dB down bandwidth for other band; **Min-OBW** = Minimum 99% occupied bandwidth;



Result

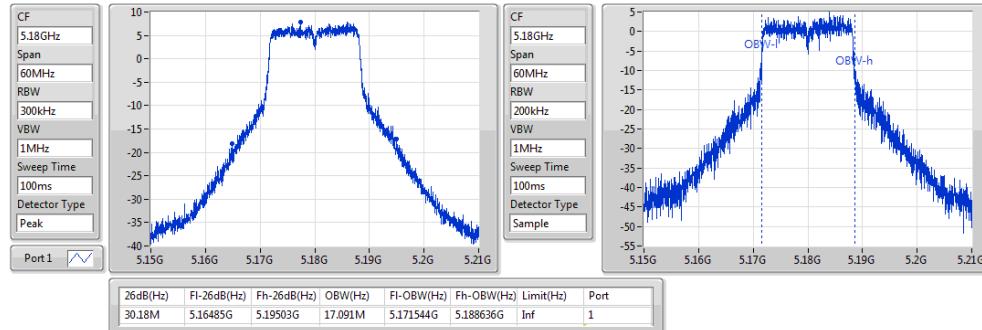
Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
802.11a_Nss1,(6Mbps)_1TX	-	-	-	-
5180MHz	Pass	Inf	30.18M	17.091M
5200MHz	Pass	Inf	46.05M	26.687M
5240MHz	Pass	Inf	37.86M	19.07M
5745MHz	Pass	500k	16.53M	25.907M
5785MHz	Pass	500k	16.29M	25.217M
5825MHz	Pass	500k	16.29M	29.445M
802.11ac VHT20_Nss1,(MCS0)_1TX	-	-	-	-
5180MHz	Pass	Inf	34.08M	18.291M
5200MHz	Pass	Inf	49.14M	27.886M
5240MHz	Pass	Inf	40.59M	19.55M
5745MHz	Pass	500k	16.89M	26.867M
5785MHz	Pass	500k	17.16M	26.237M
5825MHz	Pass	500k	17.49M	30.915M
802.11ac VHT40_Nss1,(MCS0)_1TX	-	-	-	-
5190MHz	Pass	Inf	51.3M	36.342M
5230MHz	Pass	Inf	74.22M	37.841M
5755MHz	Pass	500k	35.94M	51.154M
5795MHz	Pass	500k	35.64M	49.055M
802.11ac VHT80_Nss1,(MCS0)_1TX	-	-	-	-
5210MHz	Pass	Inf	97.68M	75.802M
5775MHz	Pass	500k	70.44M	87.556M

Port X-N dB = Port X 6dB down bandwidth for UNII-3 band / 26dB down bandwidth for other band; Port X-OBW = Port X 99% occupied bandwidth;



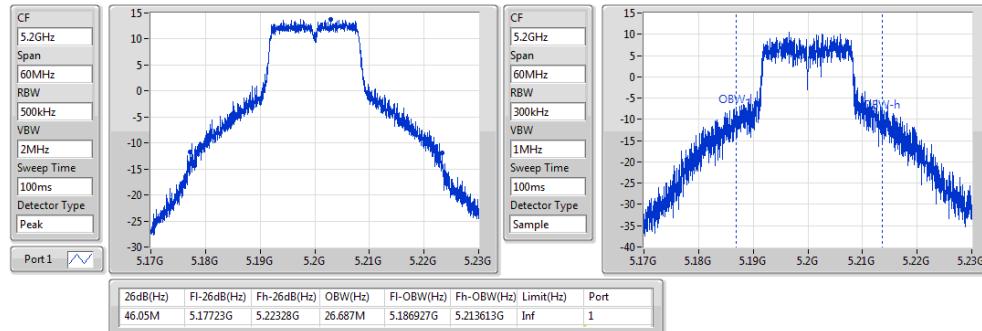
802.11a_Nss1,(6Mbps)_1TX

5180MHz



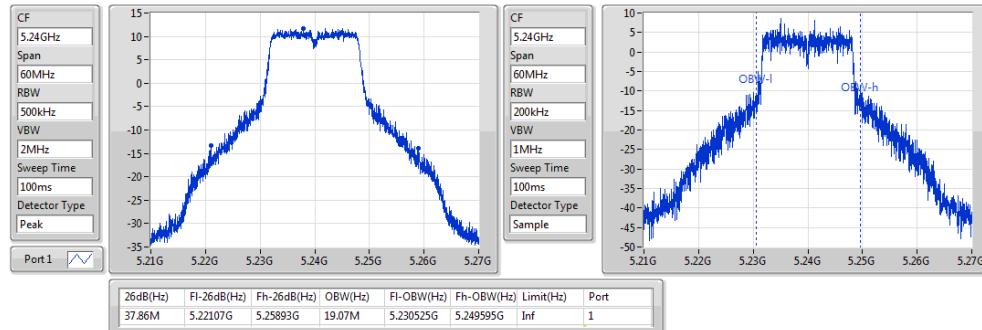
802.11a_Nss1,(6Mbps)_1TX

5200MHz



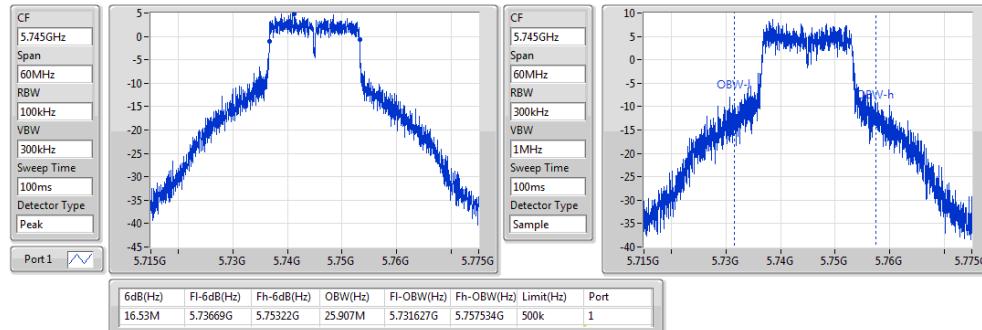
802.11a_Nss1,(6Mbps)_1TX

5240MHz



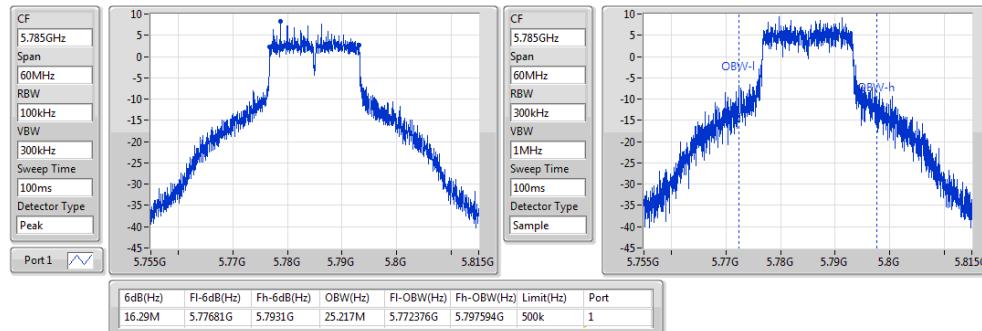
802.11a_Nss1,(6Mbps)_1TX

5745MHz



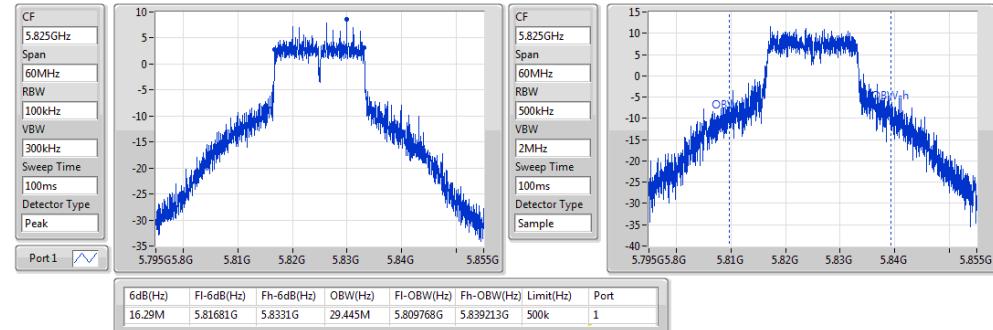
802.11a_Nss1,(6Mbps)_1TX

5785MHz



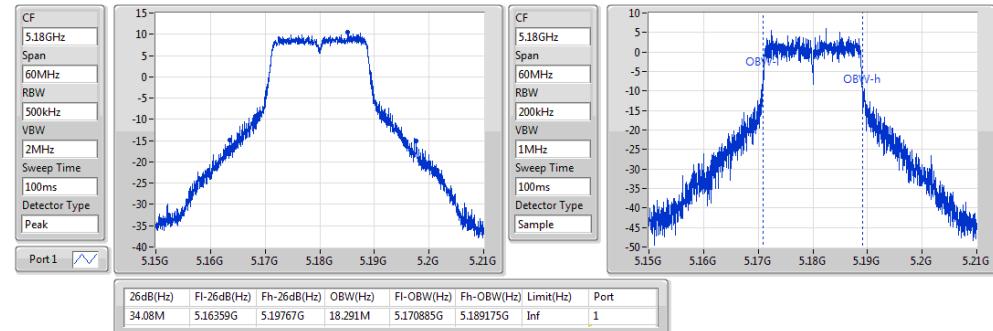
802.11a_Nss1,(6Mbps)_1TX

5825MHz



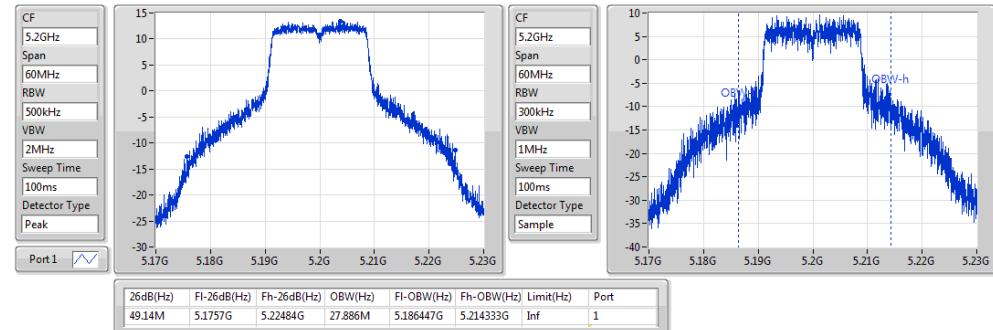
802.11ac VHT20_Nss1,(MCS0)_1TX

5180MHz



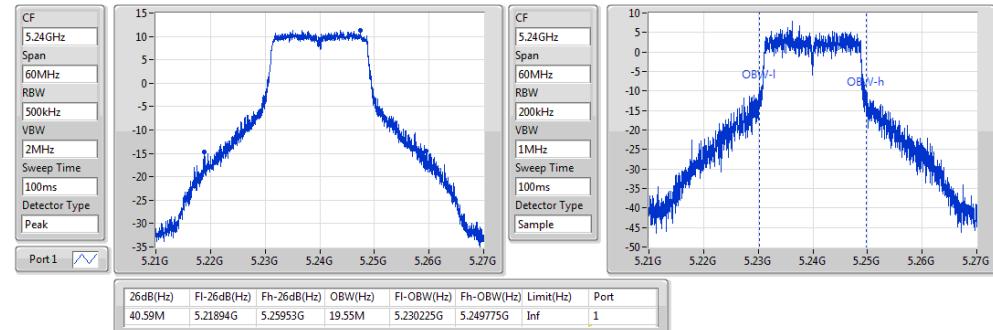
802.11ac VHT20_Nss1,(MCS0)_1TX

5200MHz



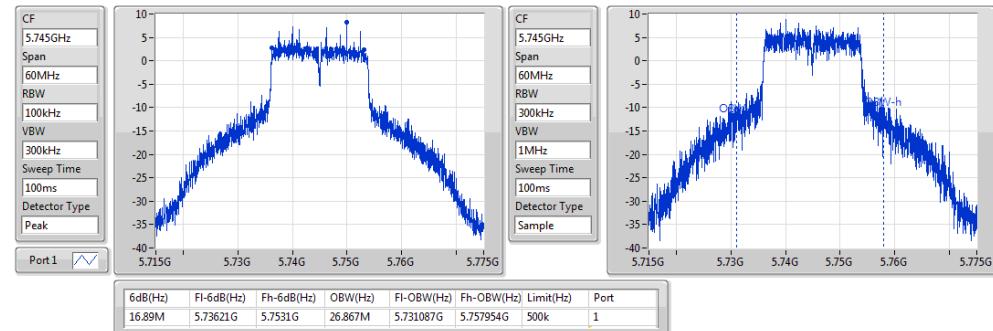
802.11ac VHT20_Nss1,(MCS0)_1TX

5240MHz



802.11ac VHT20_Nss1,(MCS0)_1TX

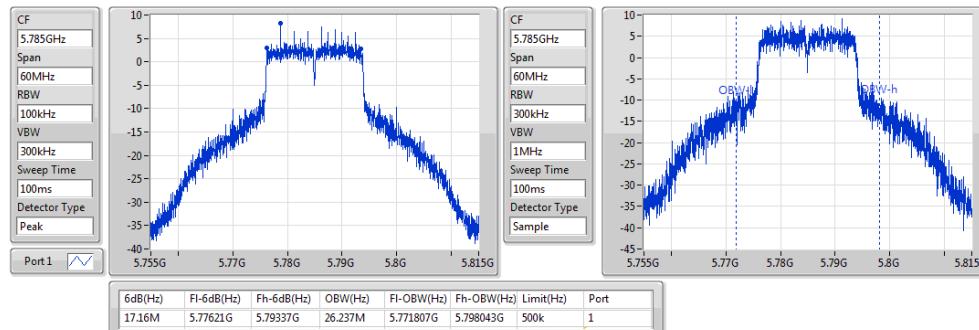
5745MHz





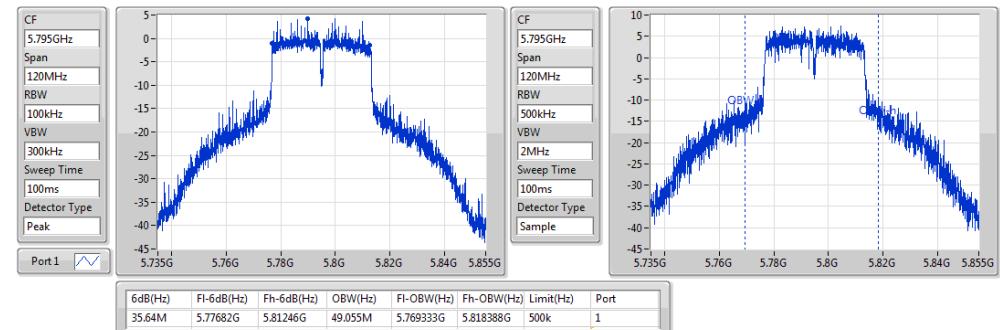
802.11ac VHT20_Nss1,(MCS0)_1TX

5785MHz



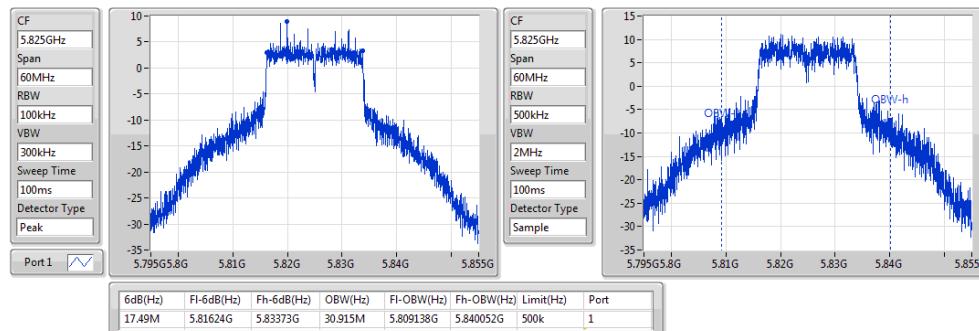
802.11ac VHT40_Nss1,(MCS0)_1TX

5795MHz



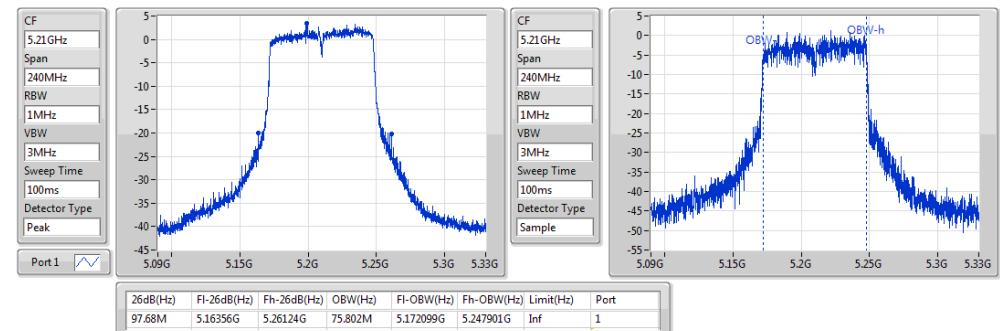
802.11ac VHT20_Nss1,(MCS0)_1TX

5825MHz



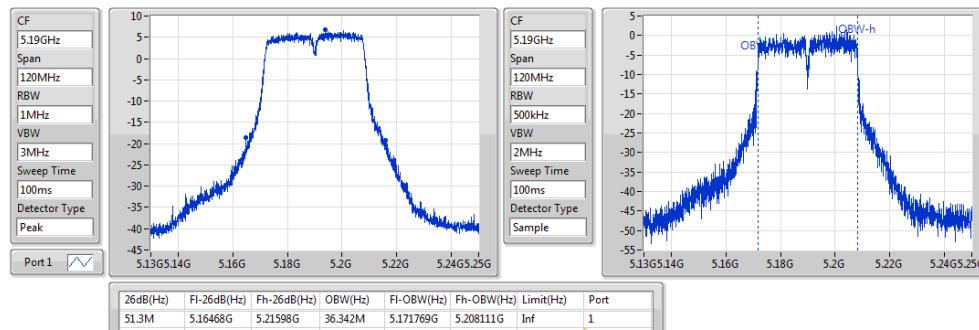
802.11ac VHT80_Nss1,(MCS0)_1TX

5210MHz



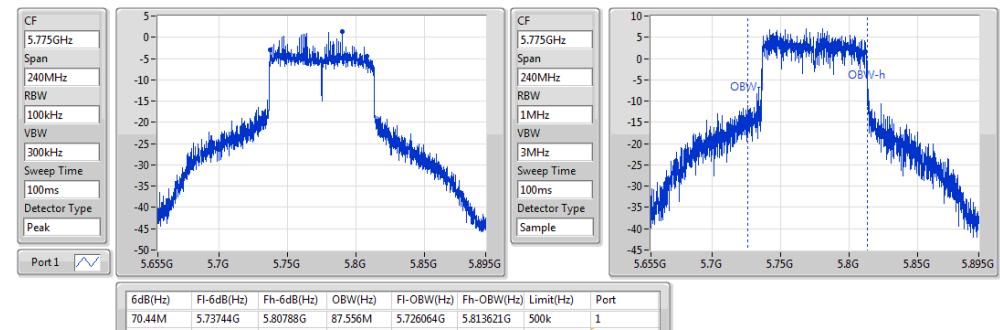
802.11ac VHT40_Nss1,(MCS0)_1TX

5190MHz



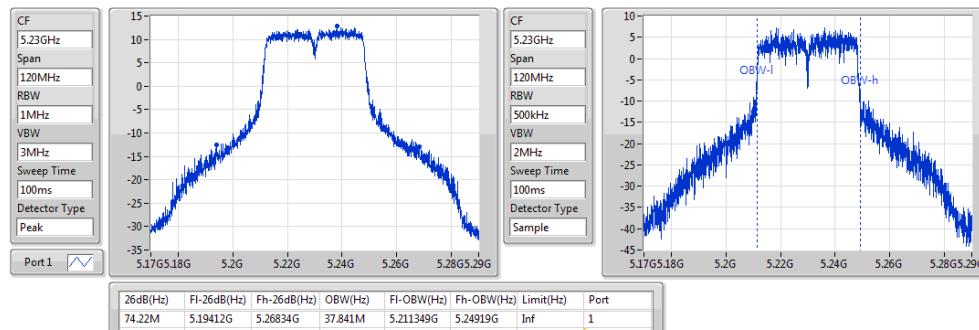
802.11ac VHT80_Nss1,(MCS0)_1TX

5775MHz



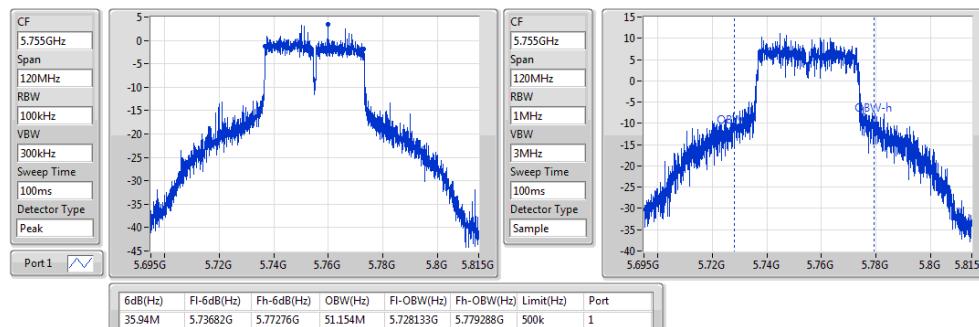
802.11ac VHT40_Nss1,(MCS0)_1TX

5230MHz



802.11ac VHT40_Nss1,(MCS0)_1TX

5755MHz





For beamforming mode:

<DBS mode>

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.15-5.25GHz	-	-	-	-	-
802.11ax HEW20-BF_Nss1,(MCS0)_8TX	22.05M	18.981M	19M0D1D	20.88M	18.801M
802.11ax HEW40-BF_Nss1,(MCS0)_8TX	42.3M	38.081M	38M1D1D	40.5M	37.481M
802.11ax HEW80-BF_Nss1,(MCS0)_8TX	81.6M	77.241M	77M2D1D	80.88M	76.642M
5.725-5.85GHz	-	-	-	-	-
802.11ax HEW20-BF_Nss1,(MCS0)_8TX	19.02M	19.01M	19M0D1D	13.8M	18.561M
802.11ax HEW40-BF_Nss1,(MCS0)_8TX	37.74M	38.201M	38M2D1D	30.06M	37.481M
802.11ax HEW80-BF_Nss1,(MCS0)_8TX	76.8M	77.361M	77M4D1D	62.52M	76.522M

Max-N dB = Maximum 6dB down bandwidth for UNII-3 band / Maximum 26dB down bandwidth for other band; **Max-OBW** = Maximum 99% occupied bandwidth;

Min-N dB = Minimum 6dB down bandwidth for UNII-3 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)	Port 5-N dB (Hz)	Port 5-OBW (Hz)	Port 6-N dB (Hz)	Port 6-OBW (Hz)	Port 7-N dB (Hz)	Port 7-OBW (Hz)	Port 8-N dB (Hz)	Port 8-OBW (Hz)
802.11ax HEW20-BF_Nss1,(MCS0)_8TX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	Inf	21.66M	18.921M	21.57M	18.891M	21.36M	18.891M	21.36M	18.891M	21.75M	18.921M	21.03M	18.891M	22.05M	18.951M	21.21M	18.801M
5200MHz	Pass	Inf	21.57M	18.921M	20.88M	18.861M	21.3M	18.921M	21.24M	18.891M	21.24M	18.861M	21.75M	18.891M	21.6M	18.891M	22.02M	18.981M
5240MHz	Pass	Inf	21.39M	18.891M	21.75M	18.951M	21.42M	18.891M	21.51M	18.921M	21.09M	18.891M	21.63M	18.921M	21.48M	18.861M	21.03M	18.831M
5745MHz	Pass	500k	18.99M	19.01M	15.42M	18.861M	18.9M	19.01M	17.67M	18.771M	15.51M	18.591M	17.04M	18.681M	16.23M	18.591M	18.78M	18.891M
5785MHz	Pass	500k	16.38M	18.741M	17.91M	18.951M	16.44M	18.741M	18.45M	18.921M	18.9M	19.01M	18.3M	18.831M	13.8M	18.591M	18.48M	18.831M
5825MHz	Pass	500k	17.58M	18.951M	17.25M	18.801M	15.24M	18.771M	19.02M	18.891M	19.02M	18.981M	18.48M	18.831M	15M	18.561M	18.72M	18.831M
802.11ax HEW40-BF_Nss1,(MCS0)_8TX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5190MHz	Pass	Inf	41.7M	37.721M	40.92M	38.081M	41.58M	37.601M	40.86M	37.721M	40.98M	37.841M	41.16M	37.661M	40.68M	37.841M	40.5M	37.481M
5230MHz	Pass	Inf	41.22M	37.661M	41.04M	37.781M	40.86M	37.661M	42.3M	37.781M	40.68M	37.841M	41.52M	37.721M	40.8M	37.961M	40.74M	37.481M
5755MHz	Pass	500k	34.8M	37.541M	36.78M	37.781M	36.6M	37.541M	34.38M	37.661M	37.14M	37.901M	33.84M	37.901M	33.84M	37.601M	37.74M	37.721M
5795MHz	Pass	500k	35.64M	37.541M	37.44M	37.841M	36.78M	37.481M	30.06M	37.781M	37.74M	37.781M	37.68M	37.841M	36.9M	38.201M	37.5M	37.661M
802.11ax HEW80-BF_Nss1,(MCS0)_8TX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5210MHz	Pass	Inf	81.48M	77.241M	81.6M	77.001M	81.24M	76.762M	81.12M	77.001M	81.36M	77.241M	81M	76.882M	81.12M	77.241M	80.88M	76.642M
5775MHz	Pass	500k	75M	76.642M	70.08M	77.241M	72.96M	76.522M	62.52M	77.001M	71.88M	77.361M	76.8M	77.001M	76.2M	77.121M	74.4M	77.121M

Port X-N dB = Port X 6dB down bandwidth for UNII-3 band / 26dB down bandwidth for other band; Port X-OBW = Port X 99% occupied bandwidth;

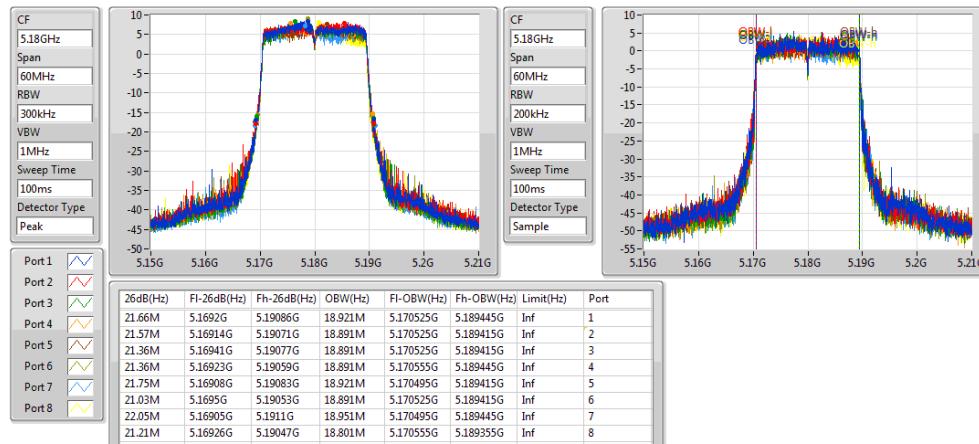


EBW Result

Appendix B.4

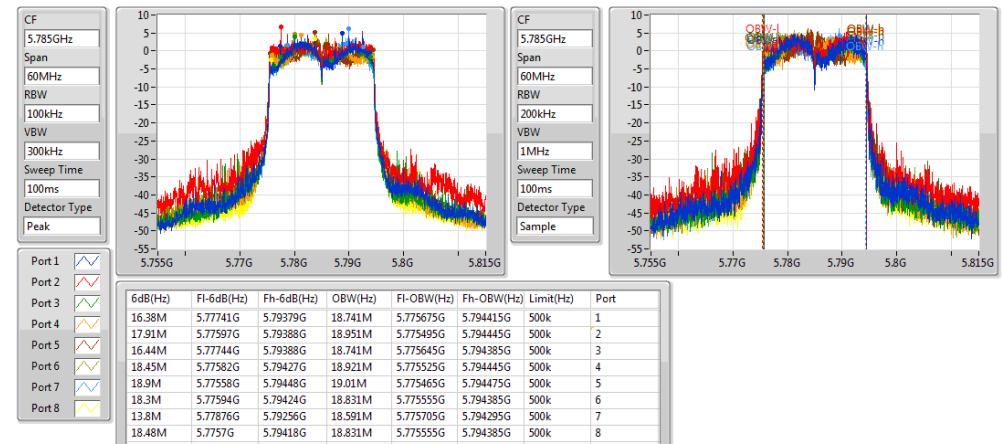
802.11ax HEW20-BF_Nss1,(MCS0)_8TX

5180MHz



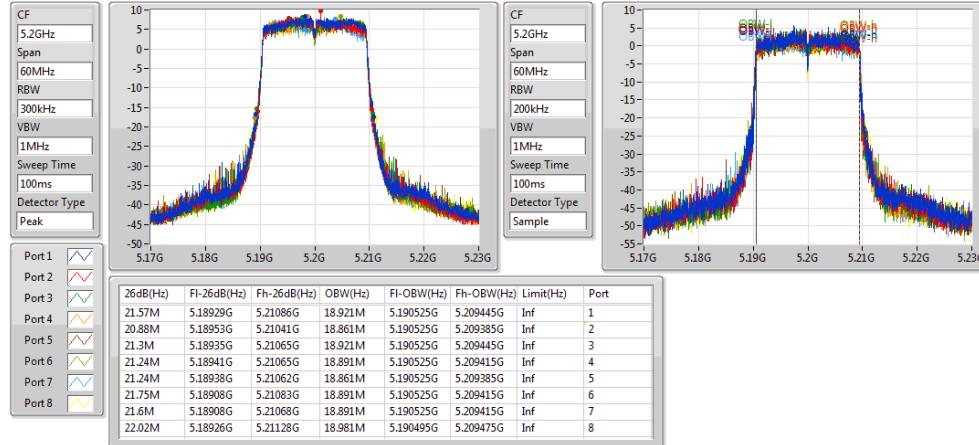
802.11ax HEW20-BF_Nss1,(MCS0)_8TX

5785MHz



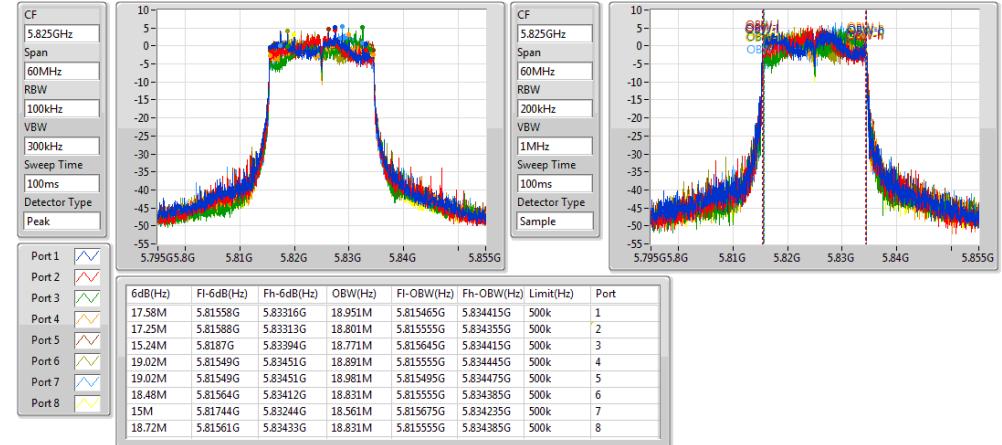
802.11ax HEW20-BF_Nss1,(MCS0)_8TX

5200MHz



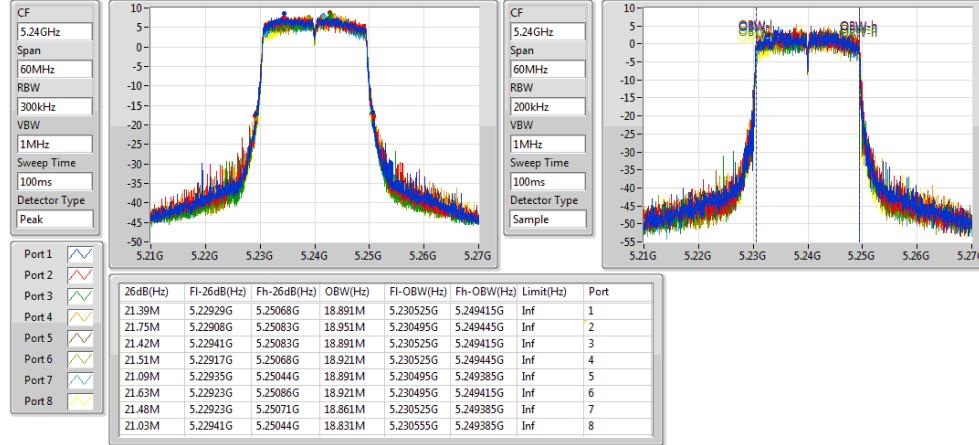
802.11ax HEW20-BF_Nss1,(MCS0)_8TX

5825MHz



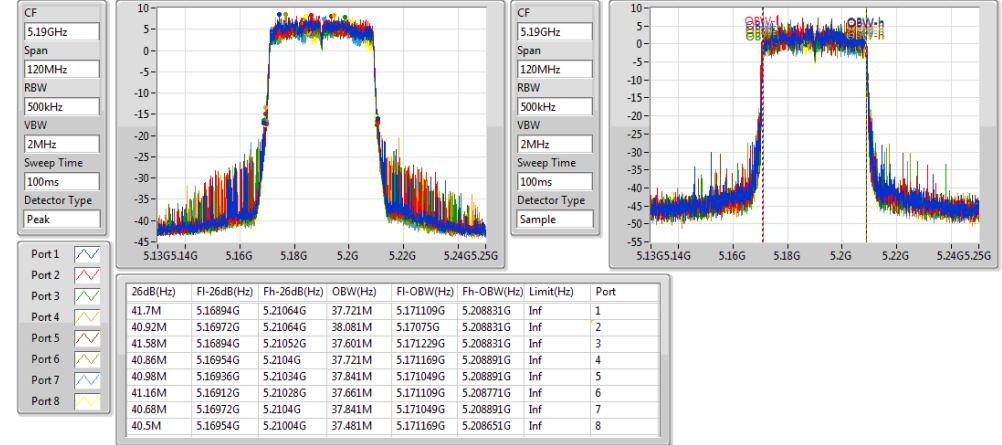
802.11ax HEW20-BF_Nss1,(MCS0)_8TX

5240MHz



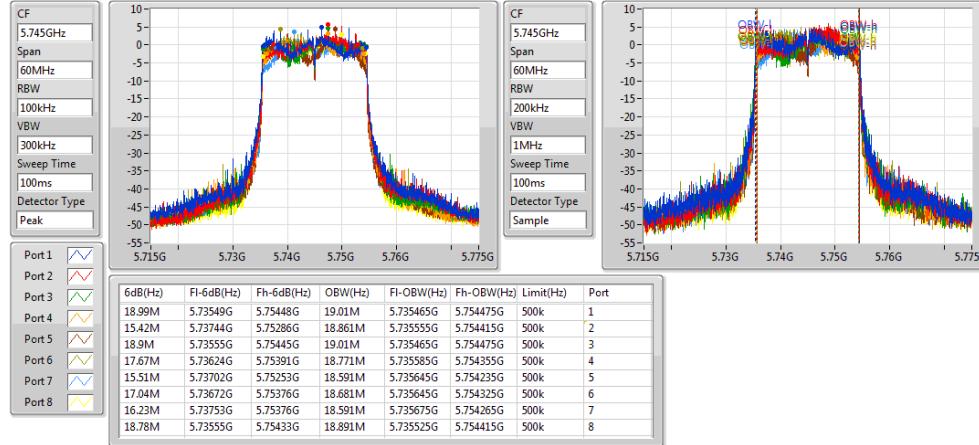
802.11ax HEW40-BF_Nss1,(MCS0)_8TX

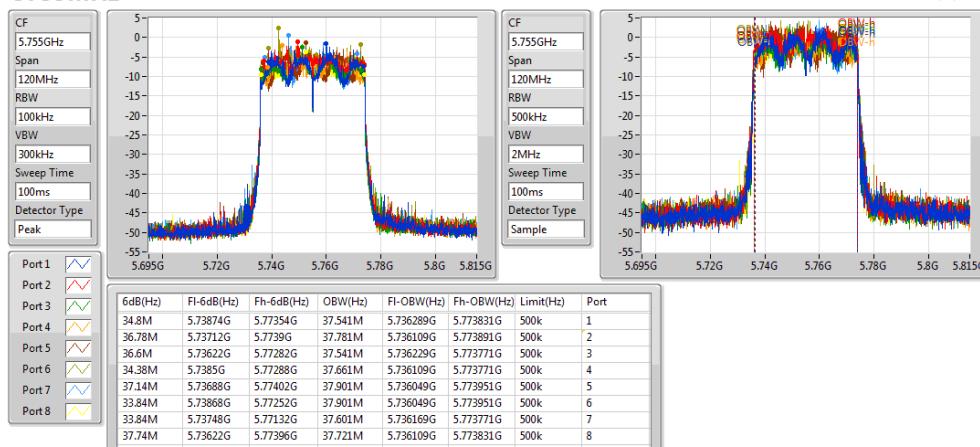
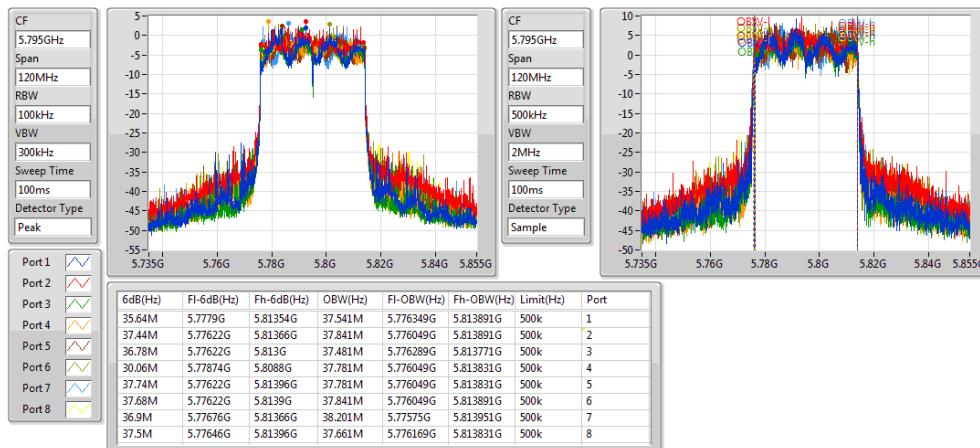
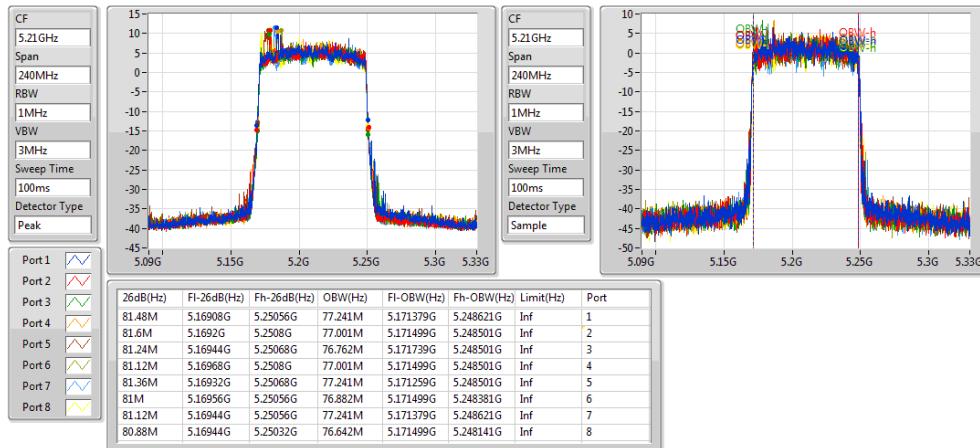
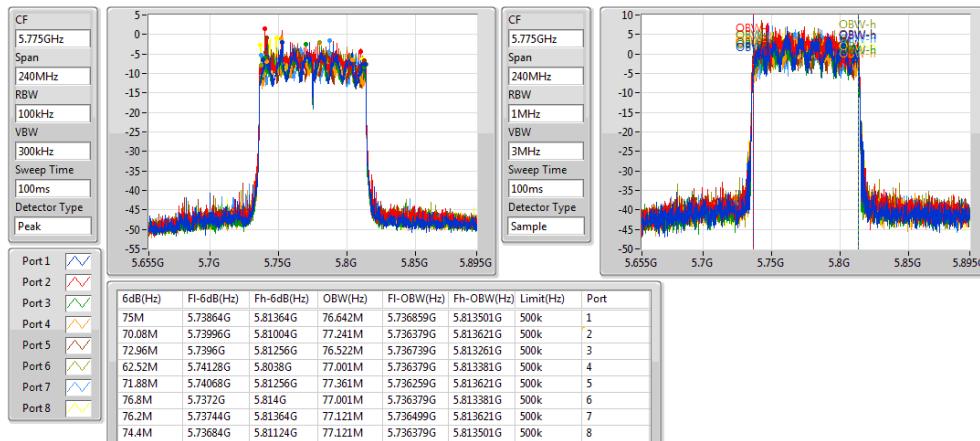
5190MHz



802.11ax HEW20-BF_Nss1,(MCS0)_8TX

5745MHz



802.11ax HEW40-BF_Nss1,(MCS0)_8TX
5755MHz

802.11ax HEW40-BF_Nss1,(MCS0)_8TX
5795MHz

802.11ax HEW80-BF_Nss1,(MCS0)_8TX
5210MHz

802.11ax HEW80-BF_Nss1,(MCS0)_8TX
5775MHz




<SBS mode>

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.15-5.25GHz	-	-	-	-	-
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	44.94M	23.148M	23M1D1D	21.09M	18.771M
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	76.32M	38.081M	38M1D1D	40.92M	37.541M
802.11ax HEW80-BF_Nss1,(MCS0)_4TX	82.32M	77.121M	77M1D1D	80.88M	76.642M
5.725-5.85GHz	-	-	-	-	-
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	18.69M	38.351M	38M4D1D	16.53M	27.526M
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	37.8M	71.424M	71M4D1D	32.52M	38.141M
802.11ax HEW80-BF_Nss1,(MCS0)_4TX	77.28M	77.361M	77M4D1D	67.2M	76.642M

Max-N dB = Maximum 6dB down bandwidth for UNII-3 band / Maximum 26dB down bandwidth for other band; **Max-OBW** = Maximum 99% occupied bandwidth;

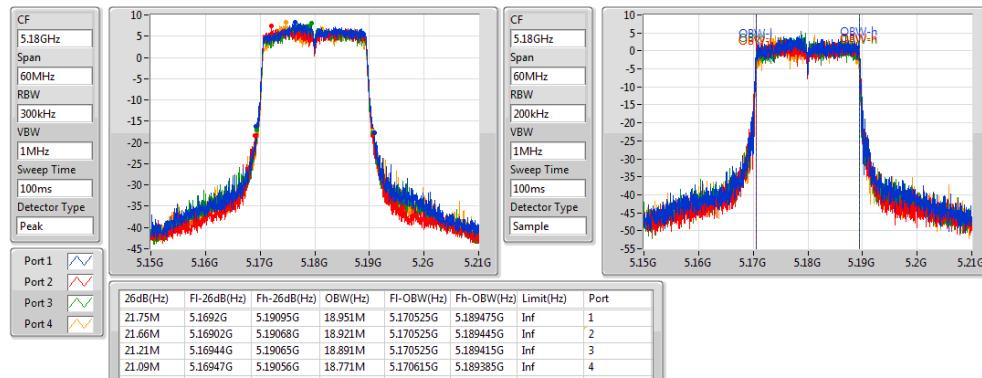
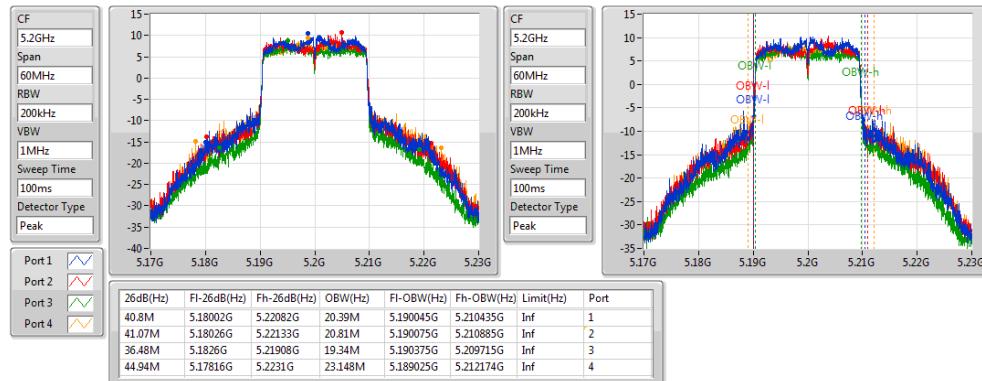
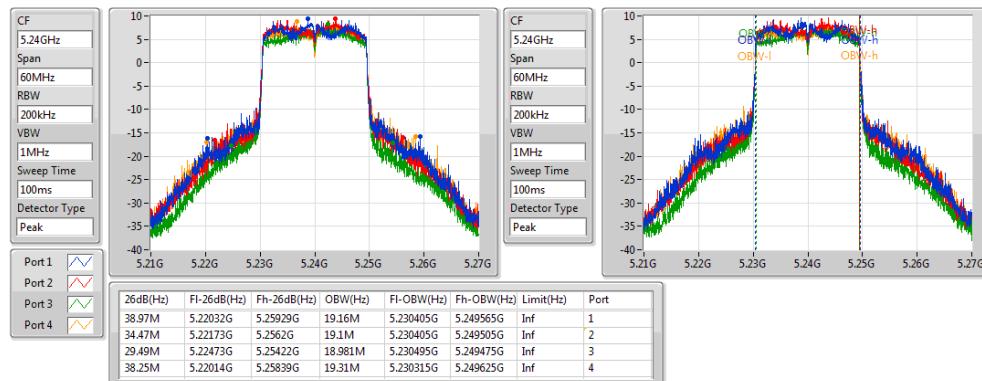
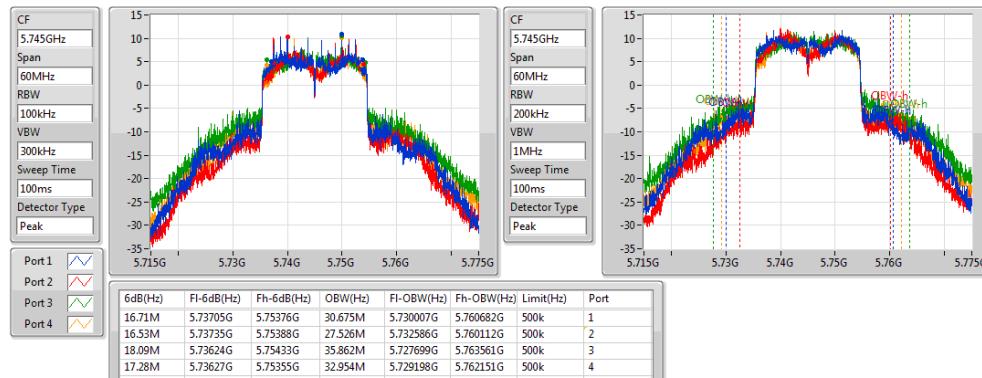
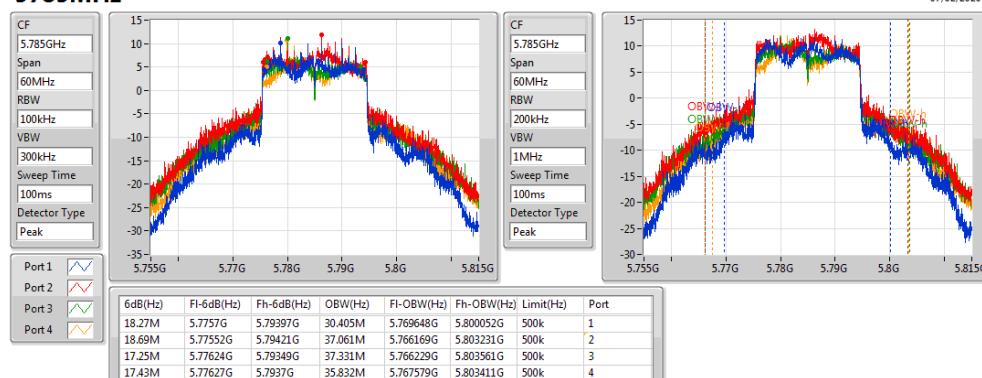
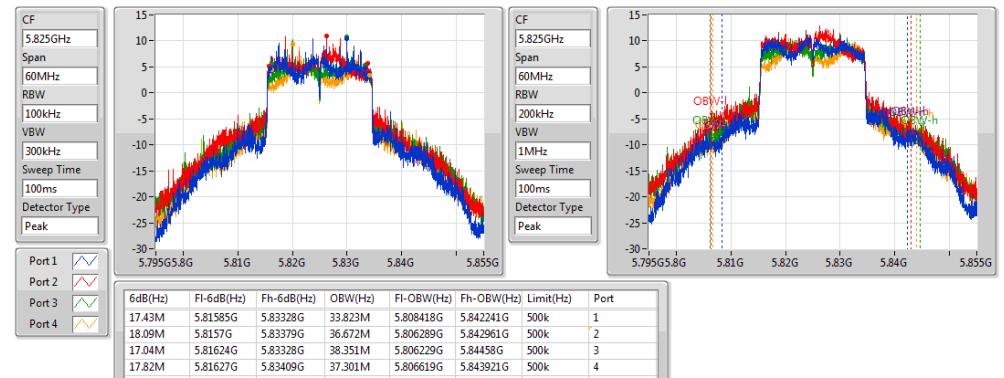
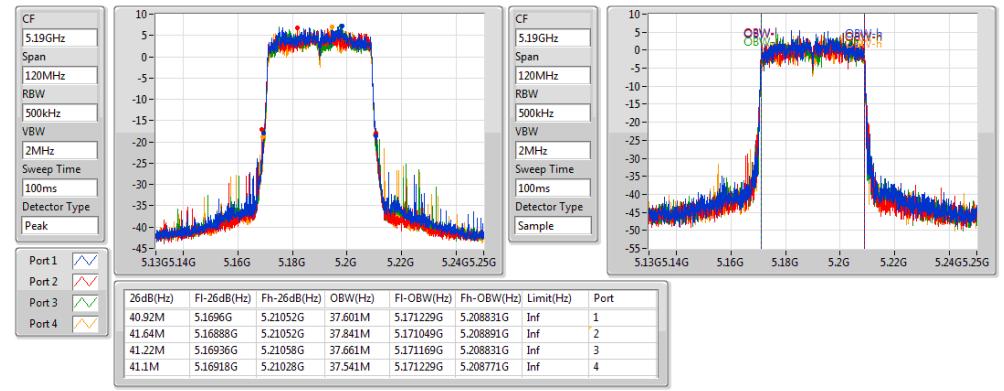
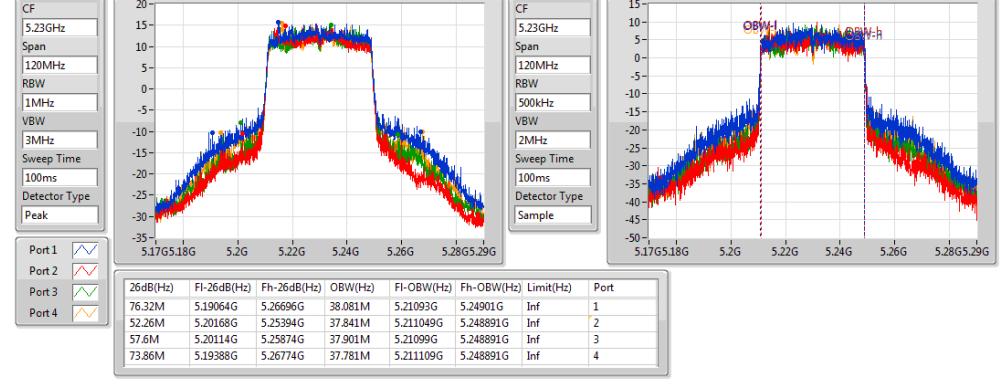
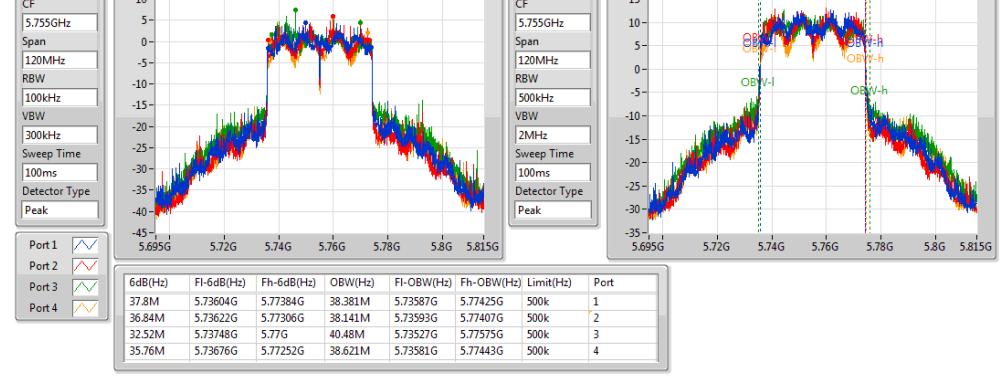
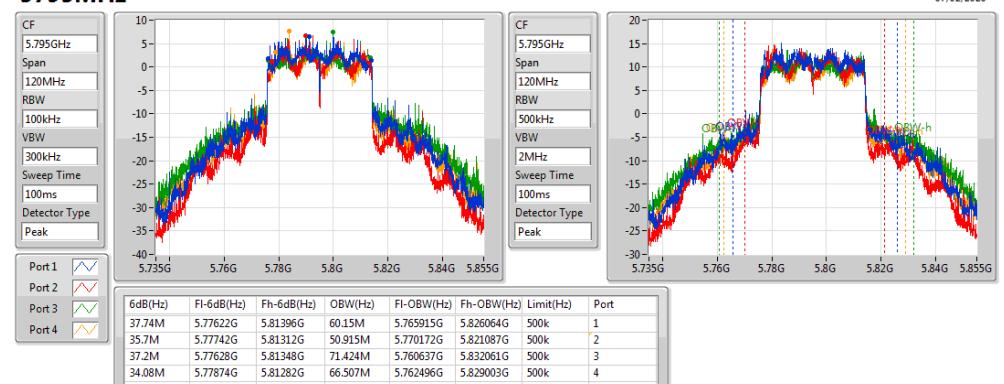
Min-N dB = Minimum 6dB down bandwidth for UNII-3 band / Maximum 26dB down bandwidth for other band; **Min-OBW** = Minimum 99% occupied bandwidth;

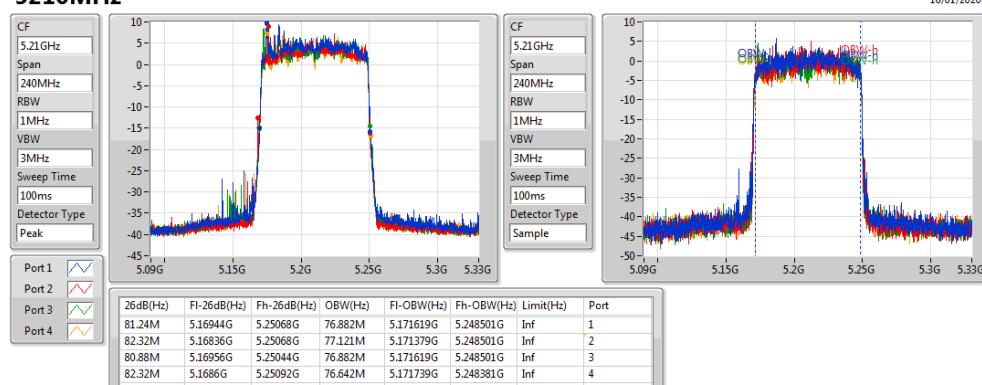
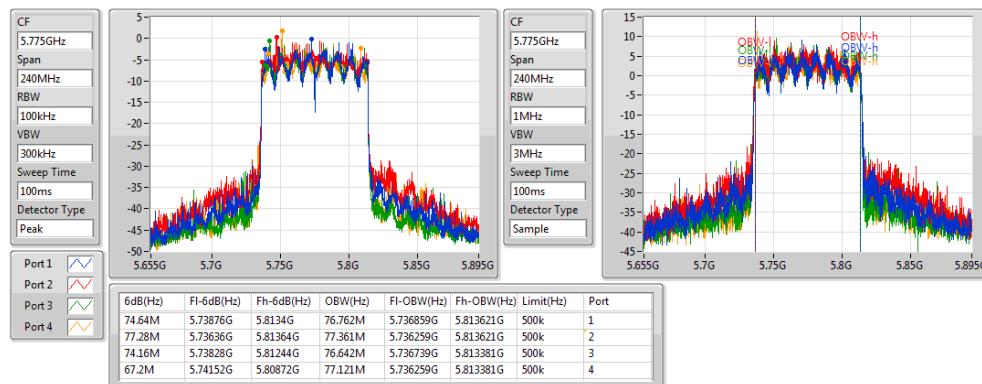


Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)	Port 3-N dB (Hz)	Port 3-OBW (Hz)	Port 4-N dB (Hz)	Port 4-OBW (Hz)
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	Inf	21.75M	18.951M	21.66M	18.921M	21.21M	18.891M	21.09M	18.771M
5200MHz	Pass	Inf	40.8M	20.39M	41.07M	20.81M	36.48M	19.34M	44.94M	23.148M
5240MHz	Pass	Inf	38.97M	19.16M	34.47M	19.1M	29.49M	18.981M	38.25M	19.31M
5745MHz	Pass	500k	16.71M	30.675M	16.53M	27.526M	18.09M	35.862M	17.28M	32.954M
5785MHz	Pass	500k	18.27M	30.405M	18.69M	37.061M	17.25M	37.331M	17.43M	35.832M
5825MHz	Pass	500k	17.43M	33.823M	18.09M	36.672M	17.04M	38.351M	17.82M	37.301M
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5190MHz	Pass	Inf	40.92M	37.601M	41.64M	37.841M	41.22M	37.661M	41.1M	37.541M
5230MHz	Pass	Inf	76.32M	38.081M	52.26M	37.841M	57.6M	37.901M	73.86M	37.781M
5755MHz	Pass	500k	37.8M	38.381M	36.84M	38.141M	32.52M	40.48M	35.76M	38.621M
5795MHz	Pass	500k	37.74M	60.15M	35.7M	50.915M	37.2M	71.424M	34.08M	66.507M
802.11ax HEW80-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5210MHz	Pass	Inf	81.24M	76.882M	82.32M	77.121M	80.88M	76.882M	82.32M	76.642M
5775MHz	Pass	500k	74.64M	76.762M	77.28M	77.361M	74.16M	76.642M	67.2M	77.121M

Port X-N dB = Port X 6dB down bandwidth for UNII-3 band / 26dB down bandwidth for other band; Port X-OBW = Port X 99% occupied bandwidth;

802.11ax HEW20-BF_Nss1,(MCS0)_4TX
5180MHz

802.11ax HEW20-BF_Nss1,(MCS0)_4TX
5200MHz

802.11ax HEW20-BF_Nss1,(MCS0)_4TX
5240MHz

802.11ax HEW20-BF_Nss1,(MCS0)_4TX
5745MHz

802.11ax HEW20-BF_Nss1,(MCS0)_4TX
5785MHz

802.11ax HEW20-BF_Nss1,(MCS0)_4TX
5825MHz

802.11ax HEW40-BF_Nss1,(MCS0)_4TX
5190MHz

802.11ax HEW40-BF_Nss1,(MCS0)_4TX
5230MHz

802.11ax HEW40-BF_Nss1,(MCS0)_4TX
5755MHz

802.11ax HEW40-BF_Nss1,(MCS0)_4TX
5795MHz


802.11ax HEW80-BF_Nss1,(MCS0)_4TX
5210MHz

802.11ax HEW80-BF_Nss1,(MCS0)_4TX
5775MHz




For non-beamforming mode:

<DBS mode>

Summary

Mode	Total Power (dBm)	Total Power (W)
5.15-5.25GHz	-	-
802.11a_Nss1,(6Mbps)_8TX	20.00	0.10000
802.11ax HEW20_Nss1,(MCS0)_8TX	20.78	0.11967
802.11ax HEW40_Nss1,(MCS0)_8TX	23.31	0.21429
802.11ax HEW80_Nss1,(MCS0)_8TX	23.78	0.23878
5.725-5.85GHz	-	-
802.11a_Nss1,(6Mbps)_8TX	26.17	0.41400
802.11ax HEW20_Nss1,(MCS0)_8TX	26.18	0.41495
802.11ax HEW40_Nss1,(MCS0)_8TX	28.69	0.73961
802.11ax HEW80_Nss1,(MCS0)_8TX	25.13	0.32584



Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Port 3 (dBm)	Port 4 (dBm)	Port 5 (dBm)	Port 6 (dBm)	Port 7 (dBm)	Port 8 (dBm)	Total Power (dBm)	Power Limit (dBm)
802.11a_Nss1,(6Mbps)_8TX	-	-	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	9.72	10.98	11.14	10.51	11.18	10.73	10.83	10.33	10.94	19.87	26.28
5200MHz	Pass	9.72	10.49	11.00	11.01	11.30	11.23	10.89	10.99	10.80	20.00	26.28
5240MHz	Pass	9.72	11.11	11.03	10.58	11.19	10.79	11.24	10.61	10.94	19.97	26.28
5745MHz	Pass	9.70	16.98	18.06	17.51	16.98	16.54	17.57	16.32	16.86	26.17	26.30
5785MHz	Pass	9.70	16.54	18.21	16.90	16.96	17.02	16.95	16.96	17.19	26.15	26.30
5825MHz	Pass	9.70	16.68	17.68	16.85	17.11	17.00	16.85	17.26	16.72	26.06	26.30
802.11ax HEW20_Nss1,(MCS0)_8TX	-	-	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	9.72	11.68	11.85	11.49	11.85	11.45	11.89	11.35	11.96	20.73	26.28
5200MHz	Pass	9.72	11.78	11.70	11.24	12.04	11.55	12.01	11.62	11.99	20.78	26.28
5240MHz	Pass	9.72	11.29	11.27	11.12	11.51	11.17	11.32	10.87	10.77	20.20	26.28
5745MHz	Pass	9.70	16.64	17.62	16.63	16.45	16.91	16.61	16.82	17.57	25.96	26.30
5785MHz	Pass	9.70	17.37	17.58	16.98	17.33	17.35	16.29	16.89	17.24	26.18	26.30
5825MHz	Pass	9.70	17.34	17.88	16.98	17.41	17.14	16.26	16.95	16.90	26.16	26.30
802.11ax HEW40_Nss1,(MCS0)_8TX	-	-	-	-	-	-	-	-	-	-	-	-
5190MHz	Pass	6.72	14.12	14.04	13.95	14.59	14.27	14.21	14.01	14.07	23.19	29.28
5230MHz	Pass	6.72	14.17	14.37	14.03	14.51	14.21	14.59	14.23	14.06	23.31	29.28
5755MHz	Pass	6.70	18.80	19.87	18.46	19.23	19.18	19.40	18.27	18.67	28.04	29.30
5795MHz	Pass	6.70	19.05	20.88	19.12	20.37	19.64	19.61	19.02	19.21	28.69	29.30
802.11ax HEW80_Nss1,(MCS0)_8TX	-	-	-	-	-	-	-	-	-	-	-	-
5210MHz	Pass	6.72	14.79	14.60	14.60	15.20	14.62	15.04	14.68	14.40	23.78	29.28
5775MHz	Pass	6.70	15.91	15.05	15.83	16.45	16.80	16.68	15.79	16.05	25.13	29.30

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

<SBS mode>

Summary

Mode	Total Power (dBm)	Total Power (W)
5.15-5.25GHz	-	-
802.11a_Nss1,(6Mbps)_4TX	23.33	0.21528
802.11ax HEW20_Nss1,(MCS0)_4TX	23.53	0.22542
802.11ax HEW40_Nss1,(MCS0)_4TX	24.36	0.27290
802.11ax HEW80_Nss1,(MCS0)_4TX	20.60	0.11482
5.725-5.85GHz	-	-
802.11a_Nss1,(6Mbps)_4TX	27.42	0.55208
802.11ax HEW20_Nss1,(MCS0)_4TX	27.39	0.54828
802.11ax HEW40_Nss1,(MCS0)_4TX	26.79	0.47753
802.11ax HEW80_Nss1,(MCS0)_4TX	22.89	0.19454



Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Port 3 (dBm)	Port 4 (dBm)	Total Power (dBm)	Power Limit (dBm)
802.11a_Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-
5180MHz	Pass	6.19	17.45	17.09	17.26	17.42	23.33	29.81
5200MHz	Pass	6.19	16.92	16.43	16.92	16.84	22.80	29.81
5240MHz	Pass	6.19	17.11	16.45	17.09	17.20	22.99	29.81
5745MHz	Pass	6.70	21.58	21.15	21.12	21.72	27.42	29.30
5785MHz	Pass	6.70	21.45	20.83	20.86	19.90	26.82	29.30
5825MHz	Pass	6.70	21.05	19.97	21.33	21.31	26.97	29.30
802.11ax HEW20_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5180MHz	Pass	6.19	17.08	16.67	17.02	17.01	22.97	29.81
5200MHz	Pass	6.19	17.40	16.94	17.42	17.77	23.41	29.81
5240MHz	Pass	6.19	17.69	16.91	17.60	17.79	23.53	29.81
5745MHz	Pass	6.70	21.58	20.93	21.36	21.59	27.39	29.30
5785MHz	Pass	6.70	21.25	20.66	21.30	20.55	26.97	29.30
5825MHz	Pass	6.70	21.13	20.32	21.37	21.27	27.06	29.30
802.11ax HEW40_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5190MHz	Pass	6.19	14.96	14.67	14.59	14.95	20.82	29.81
5230MHz	Pass	6.19	18.42	17.72	18.59	18.58	24.36	29.81
5755MHz	Pass	6.70	19.73	19.99	19.47	20.36	25.92	29.30
5795MHz	Pass	6.70	20.90	20.63	20.16	21.31	26.79	29.30
802.11ax HEW80_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5210MHz	Pass	6.19	14.50	14.08	14.63	15.07	20.60	29.81
5775MHz	Pass	6.70	17.03	16.45	16.71	17.26	22.89	29.30

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

**<Scan Radio>
Summary**

Mode	Total Power (dBm)	Total Power (W)
5.15-5.25GHz	-	-
802.11a_Nss1,(6Mbps)_1TX	19.92	0.09817
802.11ac VHT20_Nss1,(MCS0)_1TX	19.96	0.09908
802.11ac VHT40_Nss1,(MCS0)_1TX	17.93	0.06209
802.11ac VHT80_Nss1,(MCS0)_1TX	11.38	0.01374
5.725-5.85GHz	-	-
802.11a_Nss1,(6Mbps)_1TX	19.32	0.08551
802.11ac VHT20_Nss1,(MCS0)_1TX	19.22	0.08356
802.11ac VHT40_Nss1,(MCS0)_1TX	18.40	0.06918
802.11ac VHT80_Nss1,(MCS0)_1TX	17.46	0.05572



Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Total Power (dBm)	Power Limit (dBm)
802.11a_Nss1,(6Mbps)_1TX	-	-	-	-	-
5180MHz	Pass	6.27	16.43	16.43	29.73
5200MHz	Pass	6.27	19.92	19.92	29.73
5240MHz	Pass	6.27	18.09	18.09	29.73
5745MHz	Pass	6.27	18.74	18.74	29.73
5785MHz	Pass	6.27	18.77	18.77	29.73
5825MHz	Pass	6.27	19.32	19.32	29.73
802.11ac VHT20_Nss1,(MCS0)_1TX	-	-	-	-	-
5180MHz	Pass	6.27	16.50	16.50	29.73
5200MHz	Pass	6.27	19.96	19.96	29.73
5240MHz	Pass	6.27	17.94	17.94	29.73
5745MHz	Pass	6.27	18.63	18.63	29.73
5785MHz	Pass	6.27	18.7	18.70	29.73
5825MHz	Pass	6.27	19.22	19.22	29.73
802.11ac VHT40_Nss1,(MCS0)_1TX	-	-	-	-	-
5190MHz	Pass	6.27	12.14	12.14	29.73
5230MHz	Pass	6.27	17.93	17.93	29.73
5755MHz	Pass	6.27	17.96	17.96	29.73
5795MHz	Pass	6.27	18.4	18.40	29.73
802.11ac VHT80_Nss1,(MCS0)_1TX	-	-	-	-	-
5210MHz	Pass	6.27	11.38	11.38	29.73
5775MHz	Pass	6.27	17.46	17.46	29.73

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



For beamforming mode:

<DBS mode>

Summary

Mode	Total Power (dBm)	Total Power (W)
5.15-5.25GHz	-	-
802.11ax HEW20-BF_Nss1,(MCS0)_8TX	24.26	0.26669
802.11ax HEW40-BF_Nss1,(MCS0)_8TX	24.29	0.26853
802.11ax HEW80-BF_Nss1,(MCS0)_8TX	22.72	0.18707
5.725-5.85GHz	-	-
802.11ax HEW20-BF_Nss1,(MCS0)_8TX	24.14	0.25942
802.11ax HEW40-BF_Nss1,(MCS0)_8TX	24.54	0.28445
802.11ax HEW80-BF_Nss1,(MCS0)_8TX	22.95	0.19724



Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Port 3 (dBm)	Port 4 (dBm)	Port 5 (dBm)	Port 6 (dBm)	Port 7 (dBm)	Port 8 (dBm)	Total Power (dBm)	Power Limit (dBm)
802.11ax HEW20-BF_Nss1,(MCS0)_8TX	-	-	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	11.66	15.60	15.72	15.28	15.40	15.12	14.98	14.55	14.35	24.18	24.34
5200MHz	Pass	11.66	15.73	15.65	14.91	15.18	15.04	15.40	14.57	15.23	24.26	24.34
5240MHz	Pass	11.66	15.39	15.50	14.95	15.49	15.04	14.84	14.74	14.72	24.13	24.34
5745MHz	Pass	11.41	15.24	15.34	14.77	14.50	14.35	15.17	14.69	14.11	23.82	24.59
5785MHz	Pass	11.41	14.95	15.42	14.68	14.84	15.42	15.82	15.06	14.51	24.14	24.59
5825MHz	Pass	11.41	14.99	15.14	14.66	14.58	15.04	15.25	14.63	14.73	23.92	24.59
802.11ax HEW40-BF_Nss1,(MCS0)_8TX	-	-	-	-	-	-	-	-	-	-	-	-
5190MHz	Pass	11.66	14.55	14.56	14.41	14.59	13.69	14.49	13.82	13.60	23.26	24.34
5230MHz	Pass	11.66	15.41	15.35	15.25	15.46	14.84	15.54	15.06	15.12	24.29	24.34
5755MHz	Pass	11.41	11.03	12.19	10.05	10.72	11.45	12.67	10.49	10.01	20.20	24.59
5795MHz	Pass	11.41	15.05	16.41	14.58	14.70	15.41	16.15	15.61	15.84	24.54	24.59
802.11ax HEW80-BF_Nss1,(MCS0)_8TX	-	-	-	-	-	-	-	-	-	-	-	-
5210MHz	Pass	11.66	13.71	14.15	13.58	13.67	14.06	13.82	13.04	13.37	22.72	24.34
5775MHz	Pass	11.41	13.32	14.57	13.20	13.29	13.76	14.57	14.28	14.11	22.95	24.59

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



<SBS mode>

Summary

Mode	Total Power (dBm)	Total Power (W)
5.15-5.25GHz	-	-
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	25.69	0.37068
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	24.23	0.26485
802.11ax HEW80-BF_Nss1,(MCS0)_4TX	18.50	0.07079
5.725-5.85GHz	-	-
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	27.02	0.50350
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	25.38	0.34514
802.11ax HEW80-BF_Nss1,(MCS0)_4TX	21.65	0.14622



Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Port 3 (dBm)	Port 4 (dBm)	Total Power (dBm)	Power Limit (dBm)
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5180MHz	Pass	9.58	15.42	14.92	14.71	14.86	21.01	26.42
5200MHz	Pass	9.58	20.32	20.17	18.50	19.44	25.69	26.42
5240MHz	Pass	9.58	19.23	19.70	18.28	18.82	25.06	26.42
5745MHz	Pass	8.79	21.06	21.04	21.24	20.62	27.02	27.21
5785MHz	Pass	8.79	21.33	20.84	20.05	20.78	26.79	27.21
5825MHz	Pass	8.79	20.60	20.92	20.66	19.90	26.56	27.21
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5190MHz	Pass	9.58	13.87	13.28	13.33	13.09	19.42	26.42
5230MHz	Pass	9.58	18.83	17.78	18.09	18.07	24.23	26.42
5755MHz	Pass	8.79	19.05	18.78	19.15	18.26	24.84	27.21
5795MHz	Pass	8.79	19.48	19.17	19.60	19.16	25.38	27.21
802.11ax HEW80-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5210MHz	Pass	9.58	12.91	12.48	12.13	12.35	18.50	26.42
5775MHz	Pass	8.79	15.70	16.01	15.75	15.01	21.65	27.21

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



For non-beamforming mode:

<DBS mode>

Summary

Mode	PD (dBm/RBW)
5.15-5.25GHz	-
802.11a_Nss1,(6Mbps)_8TX	7.23
802.11ax HEW20_Nss1,(MCS0)_8TX	7.23
802.11ax HEW40_Nss1,(MCS0)_8TX	7.14
802.11ax HEW80_Nss1,(MCS0)_8TX	4.56
5.725-5.85GHz	-
802.11a_Nss1,(6Mbps)_8TX	12.33
802.11ax HEW20_Nss1,(MCS0)_8TX	11.61
802.11ax HEW40_Nss1,(MCS0)_8TX	11.21
802.11ax HEW80_Nss1,(MCS0)_8TX	4.83

RBW = 500 kHz for 5.725-5.85GHz band / 1MHz for other band;



Result

Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	Port 3 (dBm/RBW)	Port 4 (dBm/RBW)	Port 5 (dBm/RBW)	Port 6 (dBm/RBW)	Port 7 (dBm/RBW)	Port 8 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
802.11a_Nss1,(6Mbps)_8TX	-	-	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	15.75	-1.62	-1.48	-1.69	-1.32	-1.50	-1.86	-1.97	-1.45	7.14	7.25
5200MHz	Pass	15.75	-1.56	-2.10	-1.54	-1.34	-0.99	-1.48	-1.53	-1.58	7.23	7.25
5240MHz	Pass	15.75	-1.31	-1.62	-2.32	-1.33	-1.47	-1.15	-1.81	-1.22	7.03	7.25
5745MHz	Pass	15.73	4.94	4.35	4.10	3.74	4.71	3.93	3.75	3.51	12.33	20.27
5785MHz	Pass	15.73	4.01	4.21	3.40	3.72	4.25	4.51	4.83	3.85	12.00	20.27
5825MHz	Pass	15.73	4.11	4.19	3.72	4.21	4.36	4.10	4.39	3.79	11.86	20.27
802.11ax HEW20_Nss1,(MCS0)_8TX	-	-	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	15.75	-1.66	-1.22	-1.75	-1.17	-1.56	-1.28	-1.58	-1.51	7.20	7.25
5200MHz	Pass	15.75	-1.47	-1.54	-1.91	-0.96	-1.59	-1.09	-1.39	-1.41	7.23	7.25
5240MHz	Pass	15.75	-1.93	-1.75	-2.21	-1.55	-1.65	-1.57	-2.58	-2.34	6.89	7.25
5745MHz	Pass	15.73	3.73	3.23	3.00	3.57	3.70	3.41	4.09	3.45	11.46	20.27
5785MHz	Pass	15.73	4.18	4.48	3.71	4.00	3.71	3.65	3.33	3.18	11.61	20.27
5825MHz	Pass	15.73	4.30	3.68	4.31	3.50	3.53	3.83	3.18	3.14	11.32	20.27
802.11ax HEW40_Nss1,(MCS0)_8TX	-	-	-	-	-	-	-	-	-	-	-	-
5190MHz	Pass	15.75	-1.60	-2.01	-1.88	-1.30	-1.41	-1.45	-1.83	-2.17	6.91	7.25
5230MHz	Pass	15.75	-1.69	-1.35	-1.81	-1.09	-1.53	-1.44	-1.36	-1.91	7.14	7.25
5755MHz	Pass	15.73	2.77	3.01	2.09	2.66	3.03	2.71	2.66	1.86	10.80	20.27
5795MHz	Pass	15.73	2.97	3.99	2.08	3.65	3.21	2.52	3.09	2.17	11.21	20.27
802.11ax HEW80_Nss1,(MCS0)_8TX	-	-	-	-	-	-	-	-	-	-	-	-
5210MHz	Pass	15.75	-4.04	-3.96	-4.44	-3.66	-4.14	-3.80	-3.84	-4.58	4.56	7.25
5775MHz	Pass	15.73	-3.08	-2.98	-3.70	-3.04	-2.82	-3.22	-2.69	-4.11	4.83	20.27

DG = Directional Gain; For UNII-1, UNII-2A and UNII-2C, **RBW** = 500kHz for 5.725-5.85GHz band / 1MHz for other band;

PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port X power density;

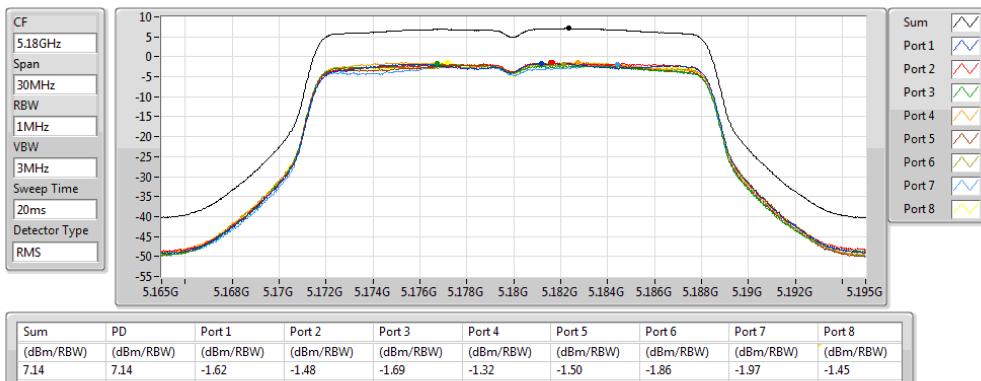


PSD Result

Appendix D.1

802.11a_Nss1,(6Mbps)_8TX

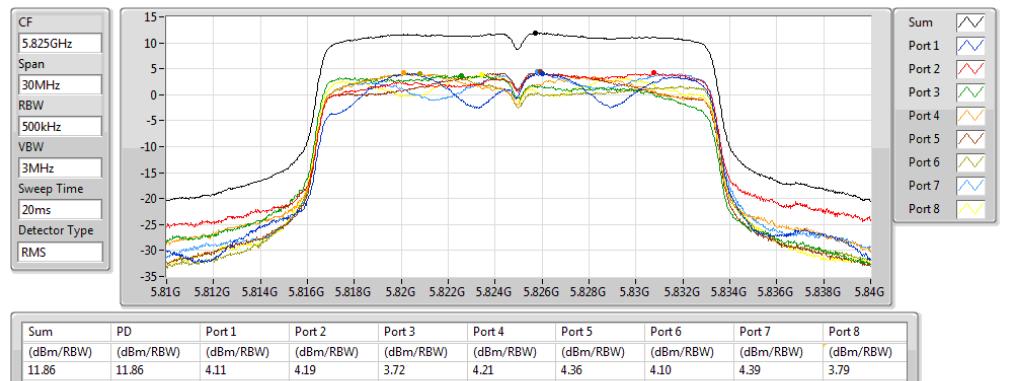
5180MHz



PSD

802.11a_Nss1,(6Mbps)_8TX

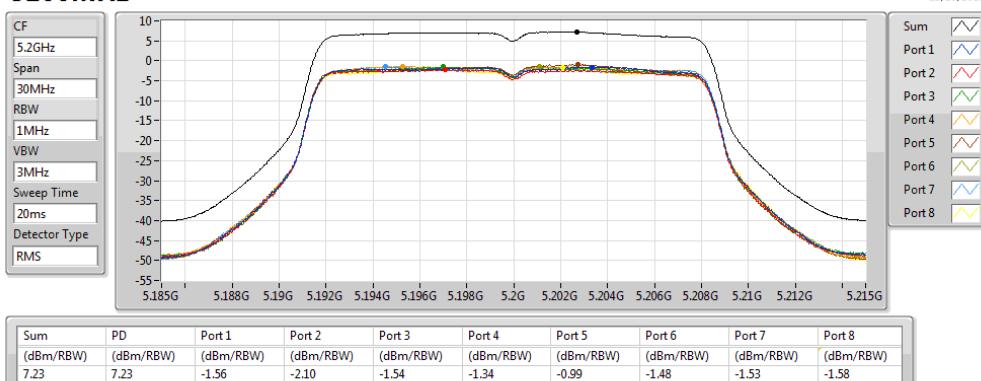
5825MHz



PSD

802.11a_Nss1,(6Mbps)_8TX

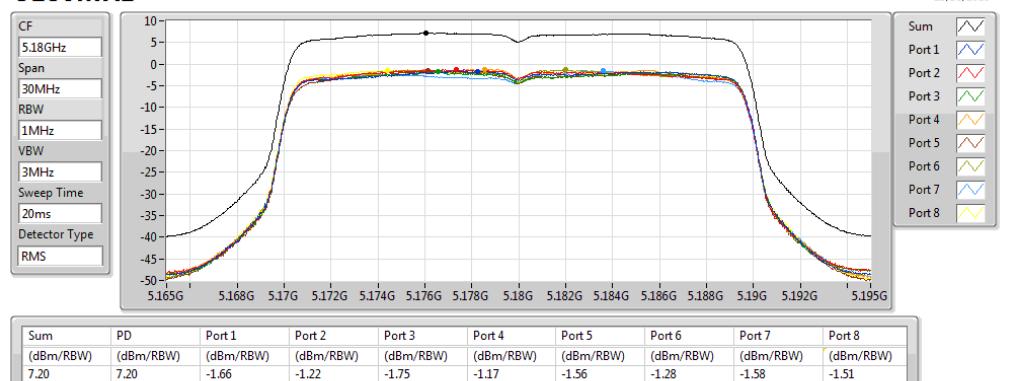
5200MHz



PSD

802.11ax HEW20_Nss1,(MCS0)_8TX

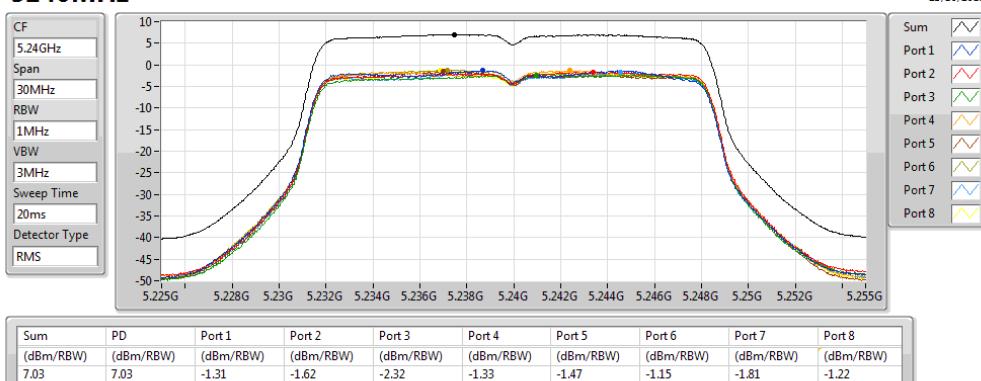
5180MHz



PSD

802.11a_Nss1,(6Mbps)_8TX

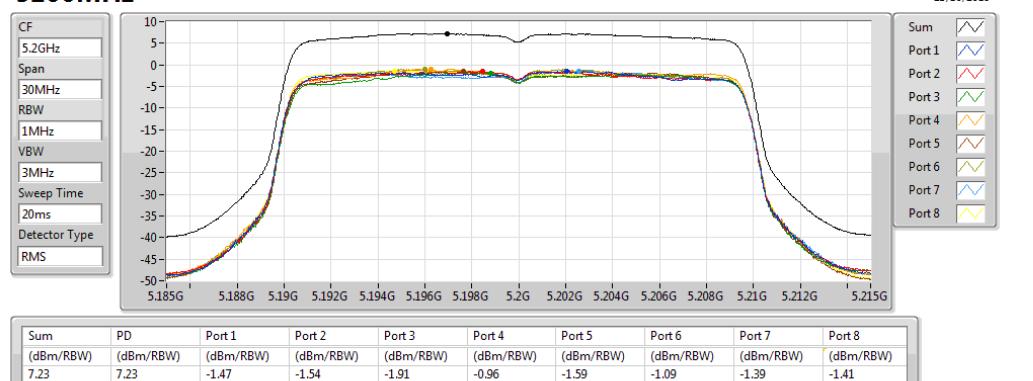
5240MHz



PSD

802.11ax HEW20_Nss1,(MCS0)_8TX

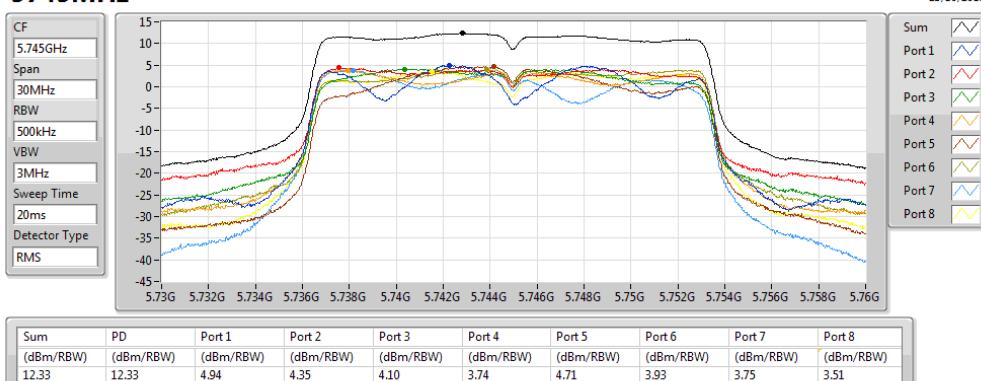
5200MHz



PSD

802.11a_Nss1,(6Mbps)_8TX

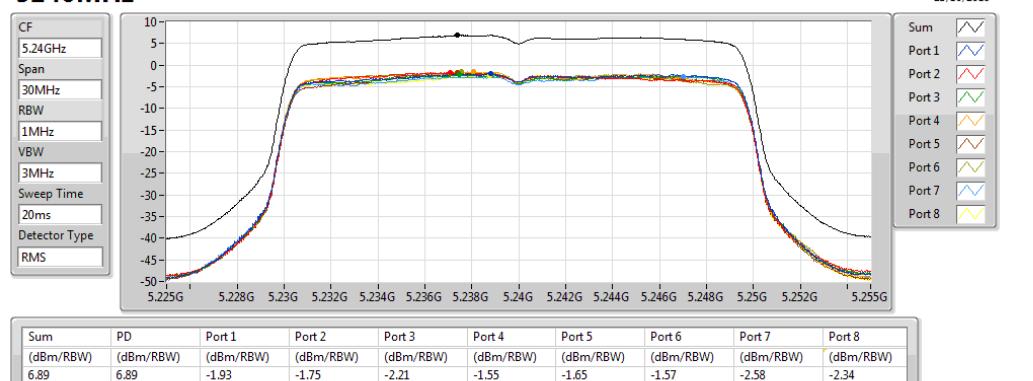
5745MHz



PSD

802.11ax HEW20_Nss1,(MCS0)_8TX

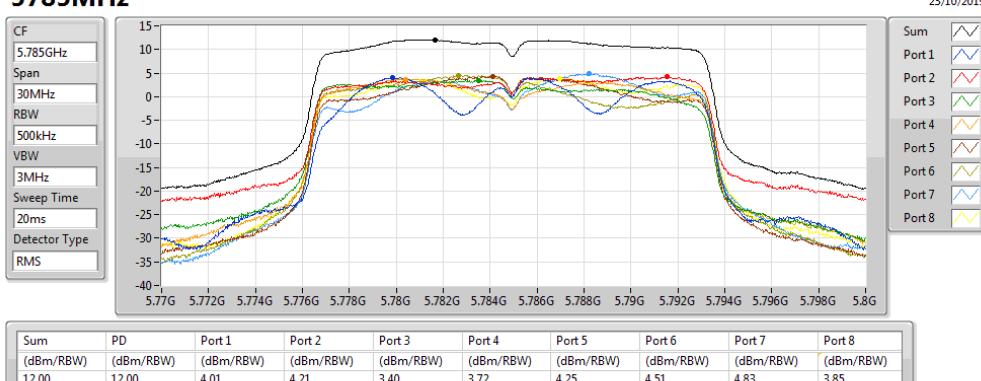
5240MHz



PSD

802.11a_Nss1,(6Mbps)_8TX

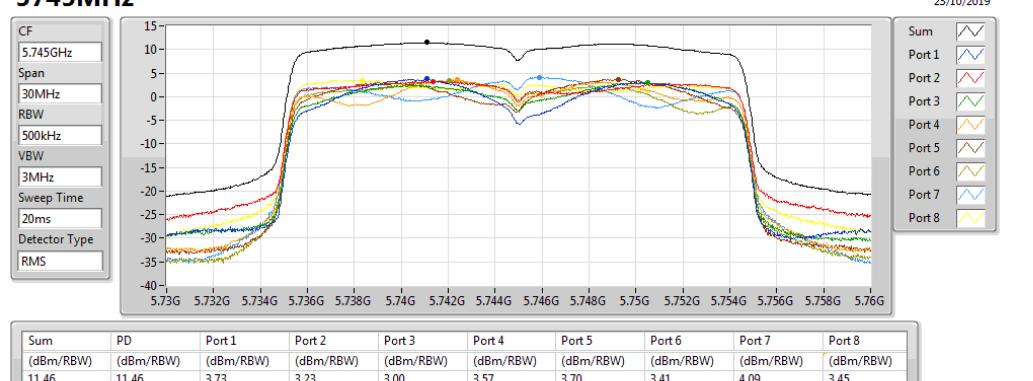
5785MHz



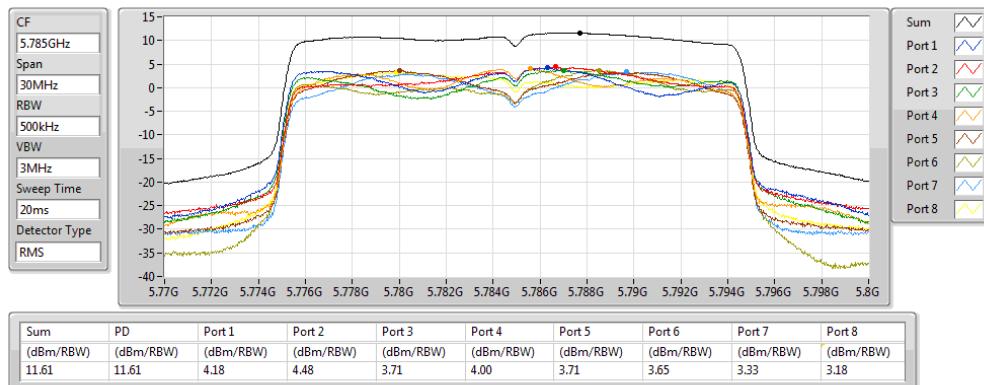
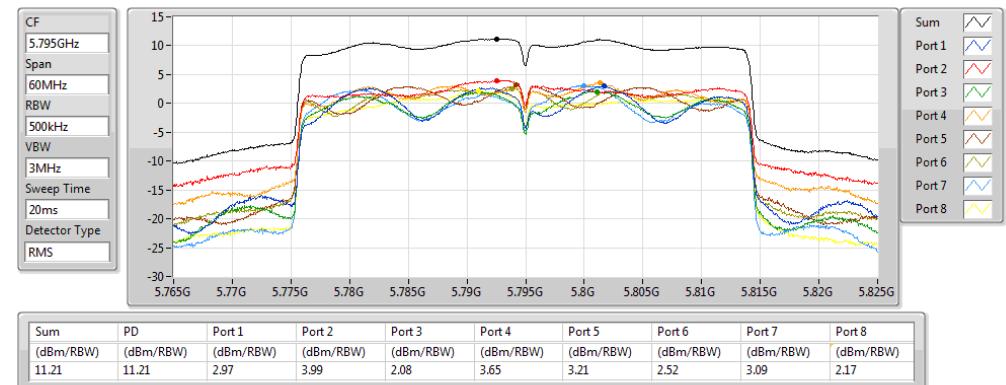
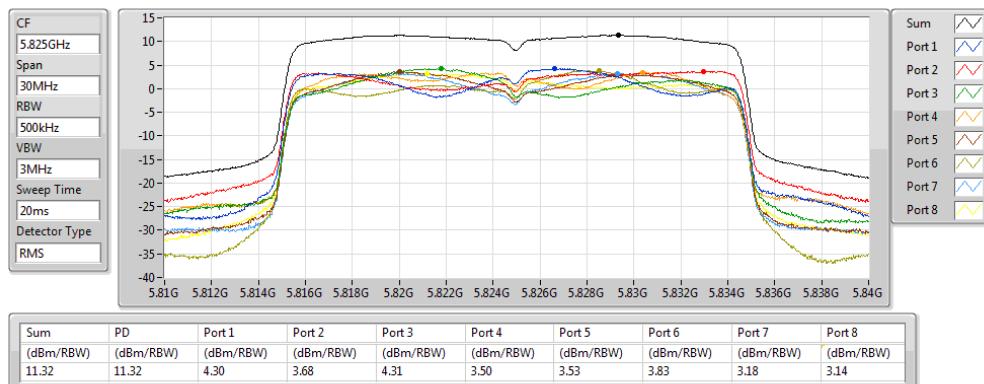
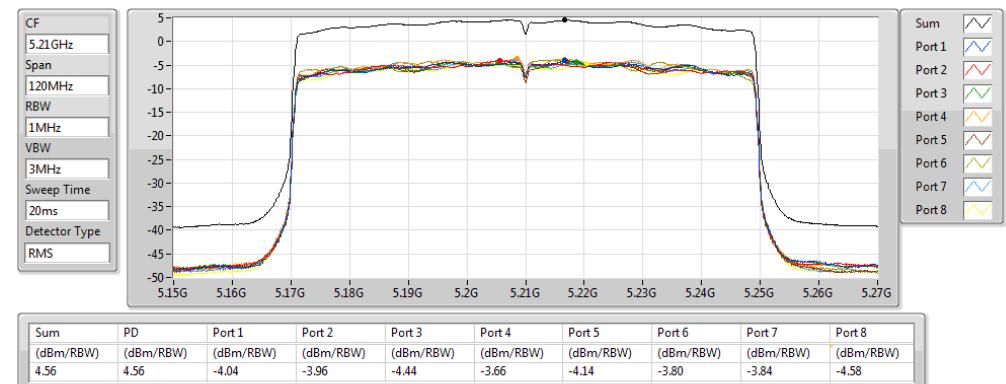
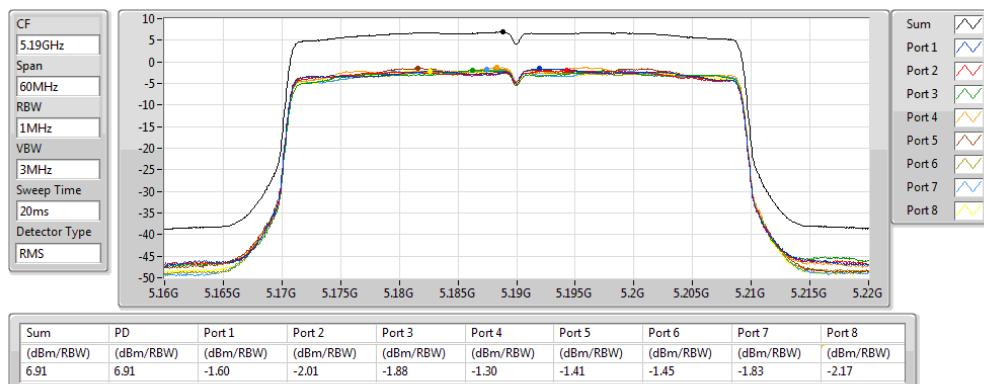
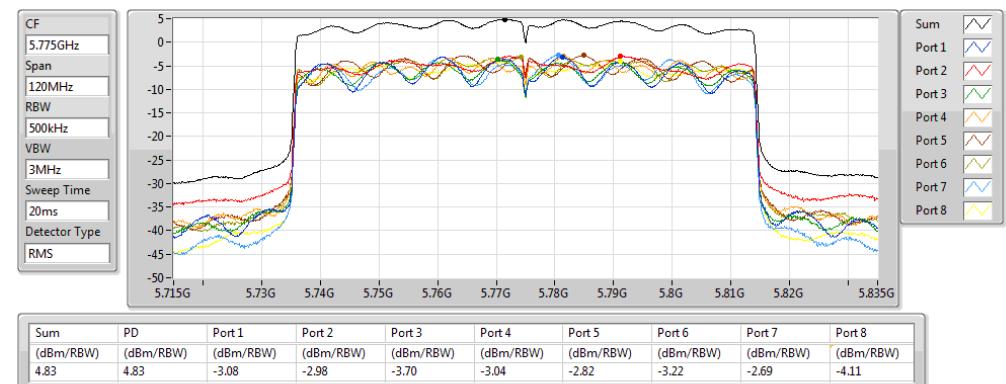
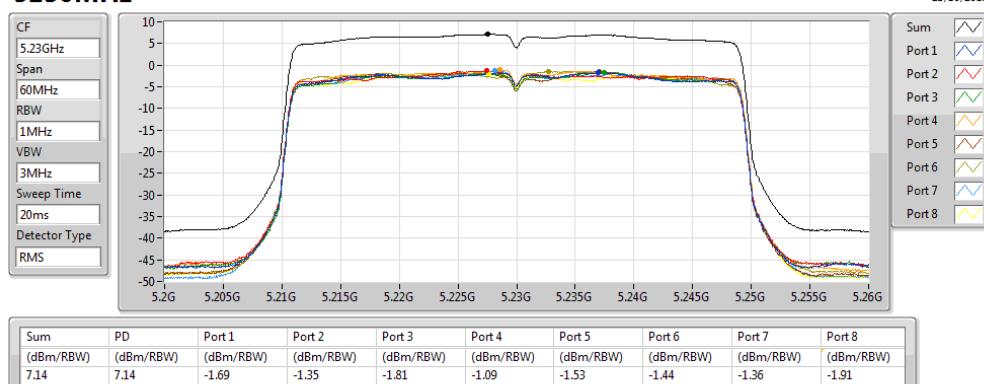
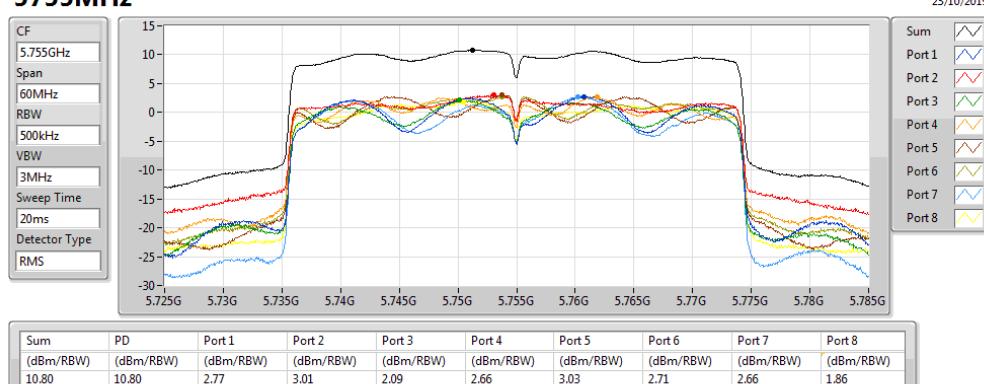
PSD

802.11ax HEW20_Nss1,(MCS0)_8TX

5745MHz



PSD

802.11ax HEW20_Nss1,(MCS0)_8TX
5785MHz

802.11ax HEW40_Nss1,(MCS0)_8TX
5795MHz

802.11ax HEW20_Nss1,(MCS0)_8TX
5825MHz

802.11ax HEW80_Nss1,(MCS0)_8TX
5210MHz

802.11ax HEW40_Nss1,(MCS0)_8TX
5190MHz

802.11ax HEW80_Nss1,(MCS0)_8TX
5775MHz

802.11ax HEW40_Nss1,(MCS0)_8TX
5230MHz

802.11ax HEW40_Nss1,(MCS0)_8TX
5755MHz




<SBS mode>

Summary

Mode	PD (dBm/RBW)
5.15-5.25GHz	-
802.11a_Nss1,(6Mbps)_4TX	10.74
802.11ax HEW20_Nss1,(MCS0)_4TX	10.55
802.11ax HEW40_Nss1,(MCS0)_4TX	8.54
802.11ax HEW80_Nss1,(MCS0)_4TX	1.97
5.725-5.85GHz	-
802.11a_Nss1,(6Mbps)_4TX	13.88
802.11ax HEW20_Nss1,(MCS0)_4TX	13.12
802.11ax HEW40_Nss1,(MCS0)_4TX	9.71
802.11ax HEW80_Nss1,(MCS0)_4TX	3.33

RBW = 500 kHz for 5.725-5.85GHz band / 1MHz for other band;

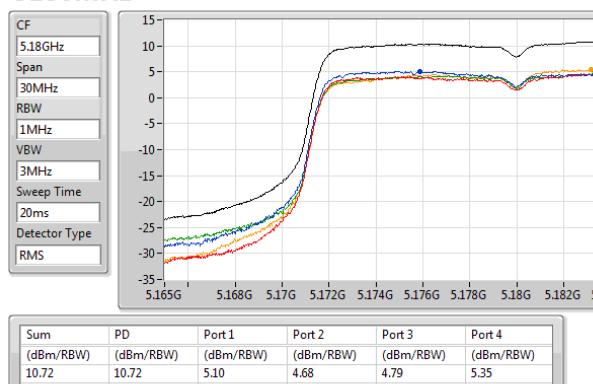


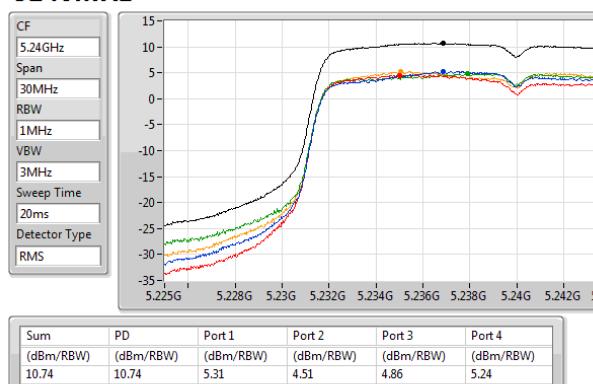
Result

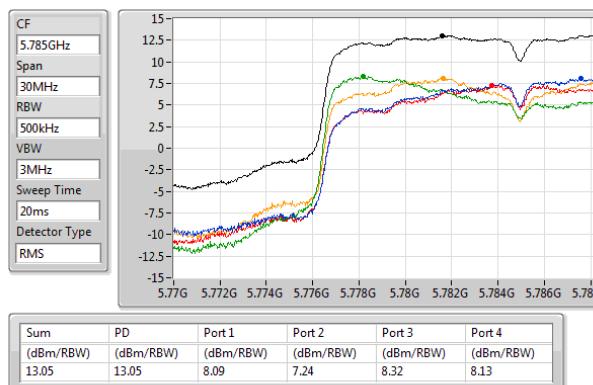
Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	Port 3 (dBm/RBW)	Port 4 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
802.11a_Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-
5180MHz	Pass	12.21	5.10	4.68	4.79	5.35	10.72	10.79
5200MHz	Pass	12.21	4.57	4.33	4.69	4.75	10.31	10.79
5240MHz	Pass	12.21	5.31	4.51	4.86	5.24	10.74	10.79
5745MHz	Pass	12.72	8.28	7.67	7.76	8.54	13.88	23.28
5785MHz	Pass	12.72	8.09	7.24	8.32	8.13	13.05	23.28
5825MHz	Pass	12.72	8.13	6.42	7.77	7.76	12.88	23.28
802.11ax HEW20_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5180MHz	Pass	12.21	4.13	4.13	4.09	4.30	9.98	10.79
5200MHz	Pass	12.21	5.00	4.39	5.01	5.02	10.47	10.79
5240MHz	Pass	12.21	5.31	4.11	5.26	4.89	10.55	10.79
5745MHz	Pass	12.72	7.65	6.37	7.27	7.73	13.12	23.28
5785MHz	Pass	12.72	7.45	5.80	7.91	7.16	12.14	23.28
5825MHz	Pass	12.72	7.46	5.87	7.06	7.46	12.82	23.28
802.11ax HEW40_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5190MHz	Pass	12.21	-0.43	-0.74	-0.94	-0.49	5.20	10.79
5230MHz	Pass	12.21	3.15	2.41	2.92	3.30	8.54	10.79
5755MHz	Pass	12.72	3.41	3.03	2.80	3.74	8.88	23.28
5795MHz	Pass	12.72	4.33	3.95	3.64	4.56	9.71	23.28
802.11ax HEW80_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5210MHz	Pass	12.21	-3.61	-4.27	-3.45	-3.27	1.97	10.79
5775MHz	Pass	12.72	-1.82	-2.75	-2.41	-1.91	3.33	23.28

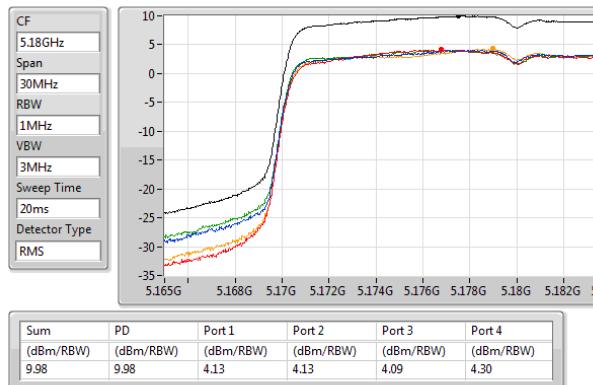
DG = Directional Gain; For UNII-1, UNII-2A and UNII-2C, **RBW** = 500kHz for 5.725-5.85GHz band / 1MHz for other band;

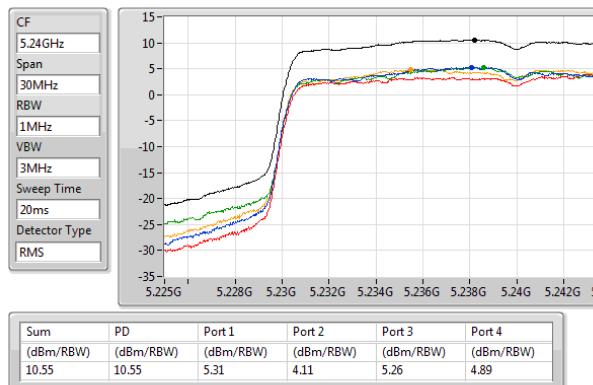
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port X power density;

802.11a_Nss1,(6Mbps)_4TX
5180MHz

PSD
802.11a_Nss1,(6Mbps)_4TX
5200MHz

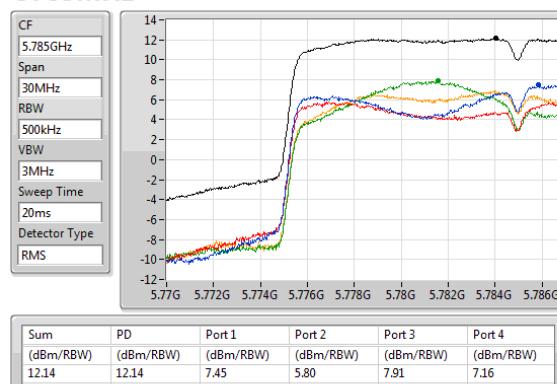
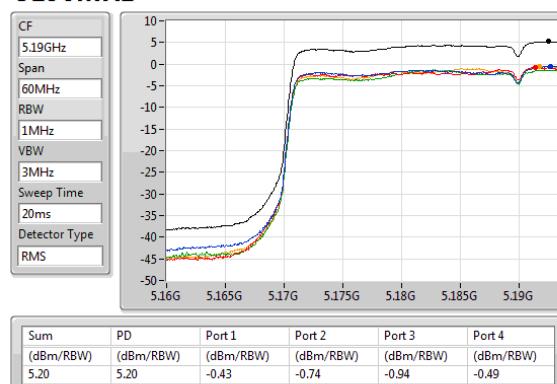
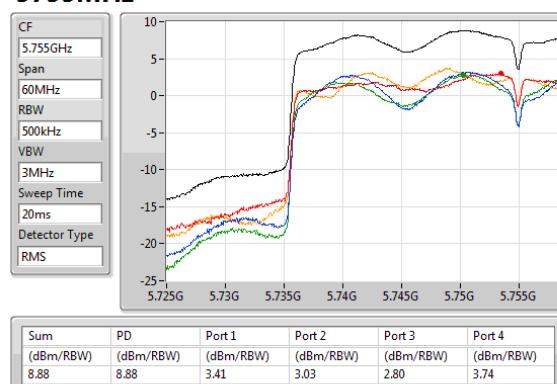
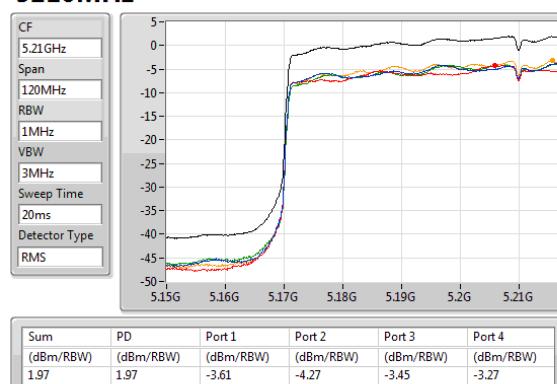
PSD
802.11a_Nss1,(6Mbps)_4TX
5240MHz

PSD
802.11a_Nss1,(6Mbps)_4TX
5745MHz

PSD
802.11a_Nss1,(6Mbps)_4TX
5785MHz

PSD
802.11a_Nss1,(6Mbps)_4TX
5825MHz

PSD
802.11ax HEW20_Nss1,(MCS0)_4TX
5180MHz

PSD
802.11ax HEW20_Nss1,(MCS0)_4TX
5200MHz

PSD
802.11ax HEW20_Nss1,(MCS0)_4TX
5240MHz

PSD
802.11ax HEW20_Nss1,(MCS0)_4TX
5745MHz

PSD

802.11ax HEW20_Nss1,(MCS0)_4TX
5785MHz

802.11ax HEW40_Nss1,(MCS0)_4TX
5190MHz

802.11ax HEW40_Nss1,(MCS0)_4TX
5755MHz

802.11ax HEW80_Nss1,(MCS0)_4TX
5210MHz


**<Scan Radio>
Summary**

Mode	PD (dBm/RBW)
5.15-5.25GHz	-
802.11a_Nss1,(6Mbps)_1TX	6.76
802.11ac VHT20_Nss1,(MCS0)_1TX	6.56
802.11ac VHT40_Nss1,(MCS0)_1TX	1.81
802.11ac VHT80_Nss1,(MCS0)_1TX	-7.50
5.725-5.85GHz	-
802.11a_Nss1,(6Mbps)_1TX	4.1
802.11ac VHT20_Nss1,(MCS0)_1TX	3.94
802.11ac VHT40_Nss1,(MCS0)_1TX	0.6
802.11ac VHT80_Nss1,(MCS0)_1TX	-3.04

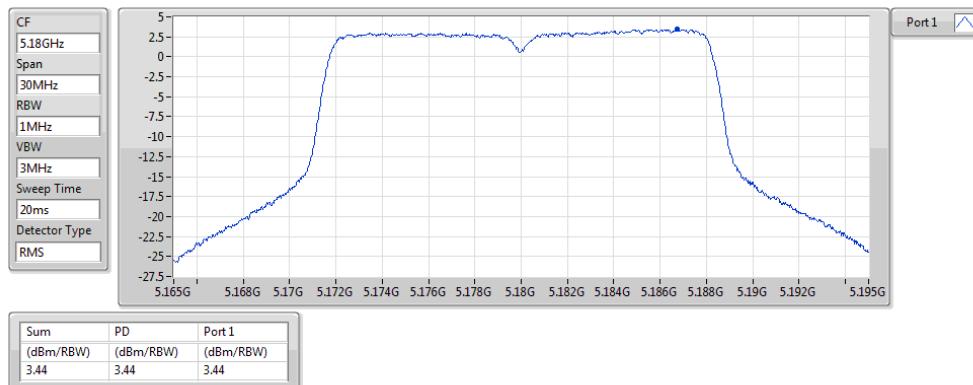
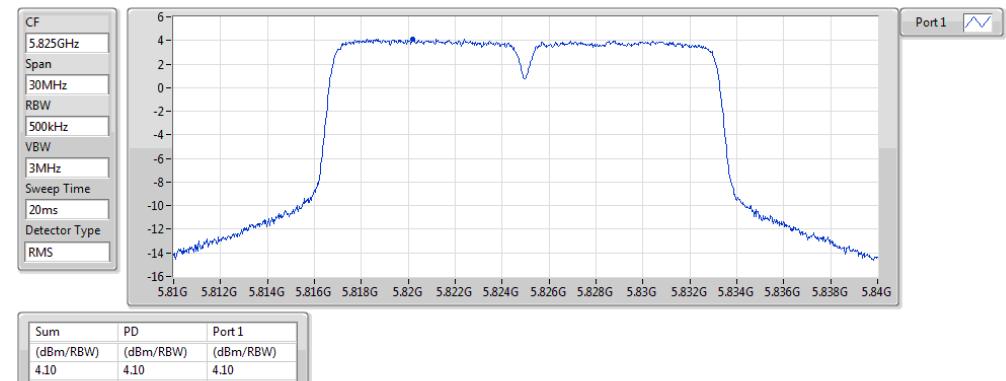
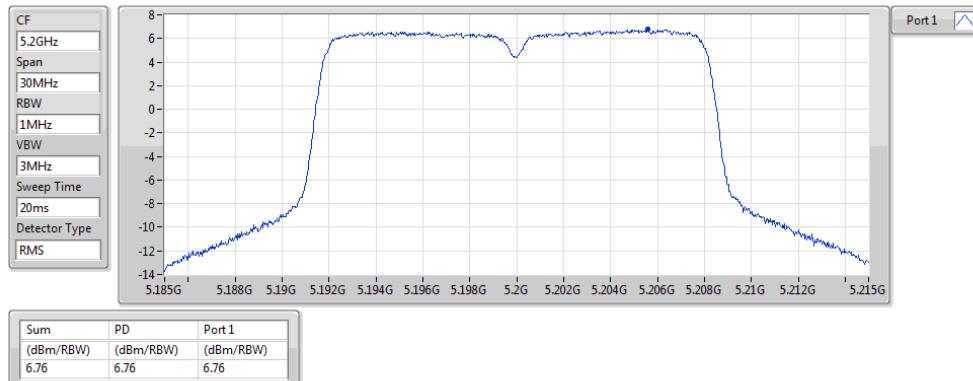
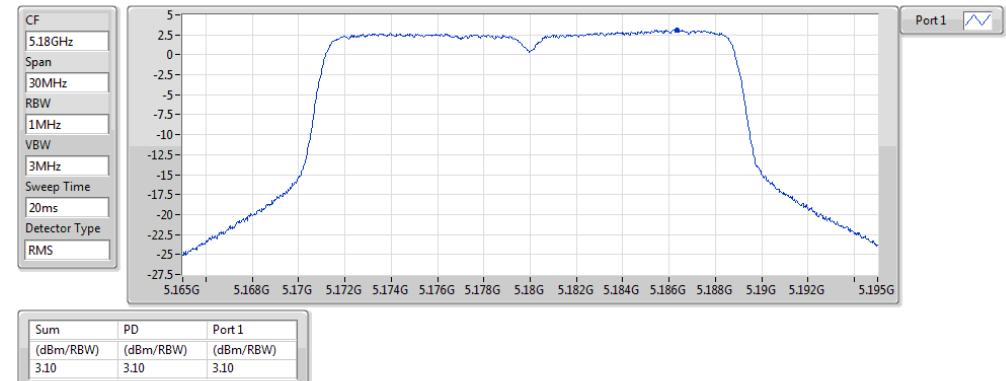
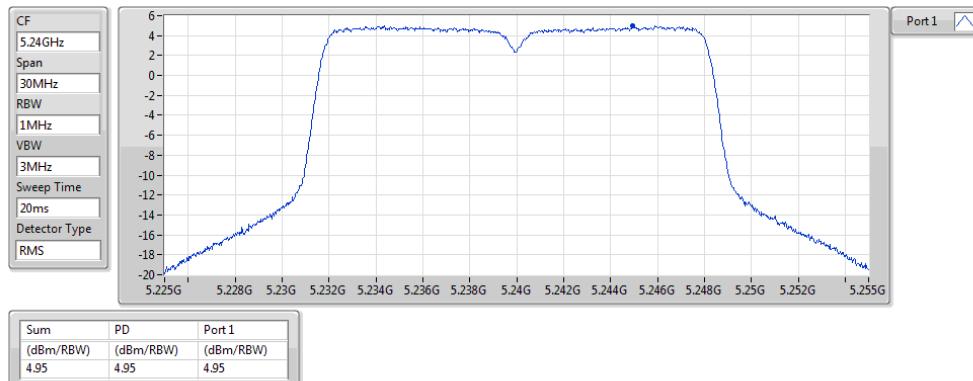
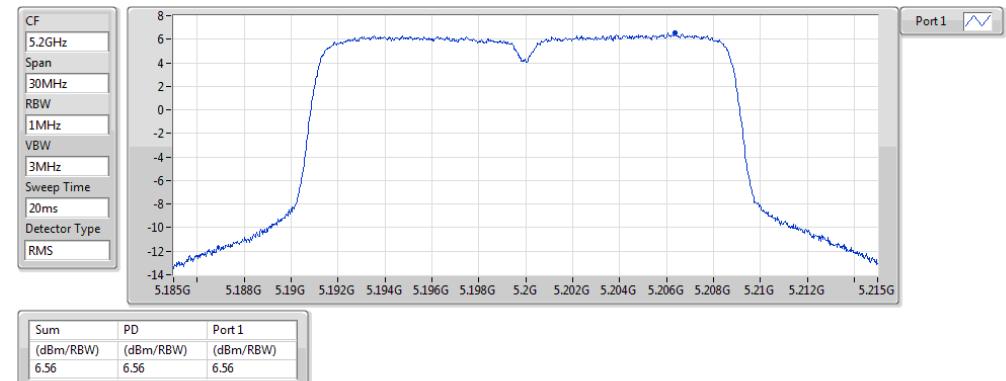
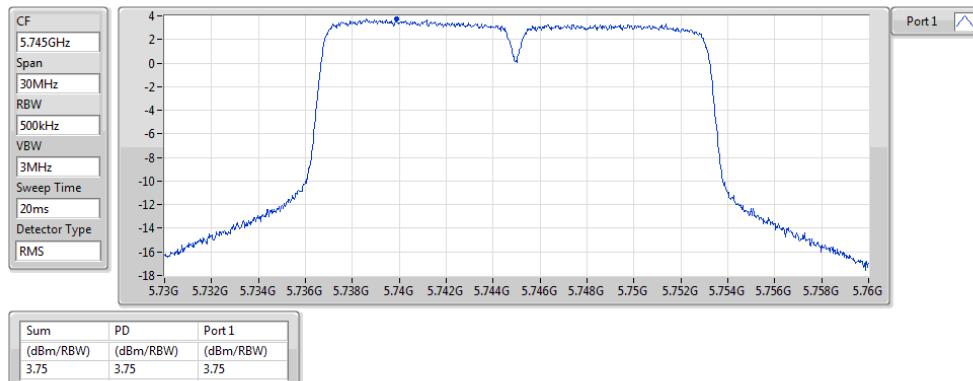
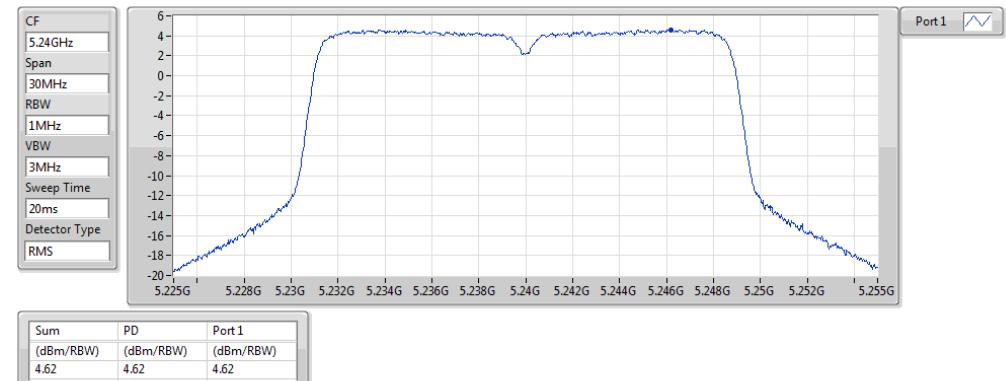
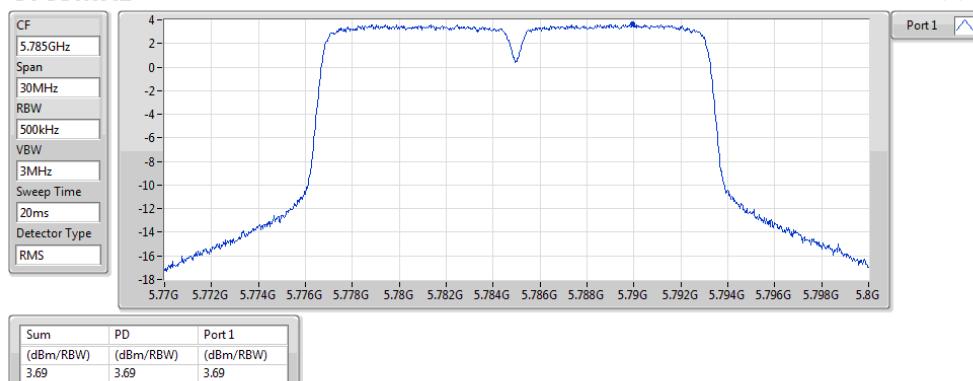
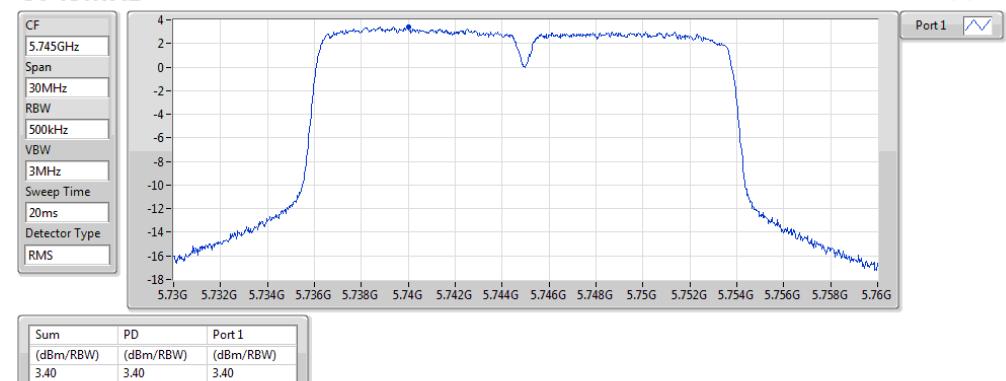
RBW = 500 kHz for 5.725-5.85GHz band / 1MHz for other band;



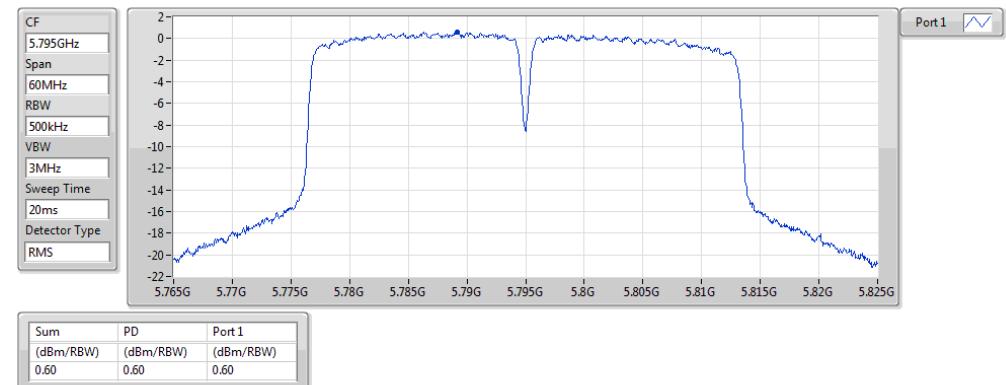
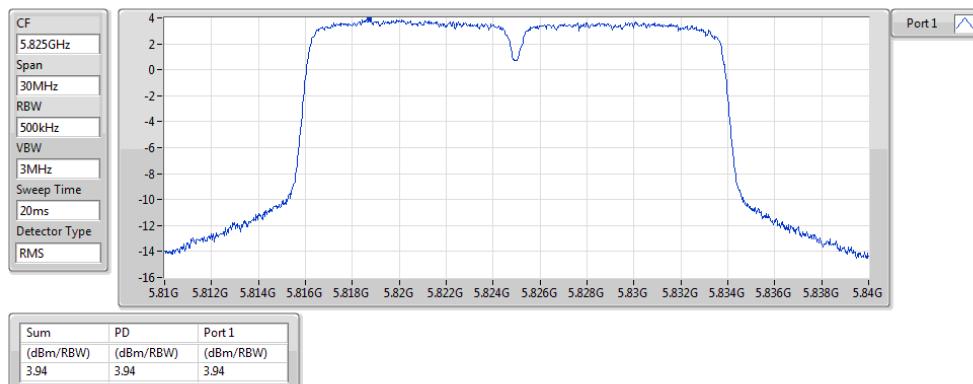
Result

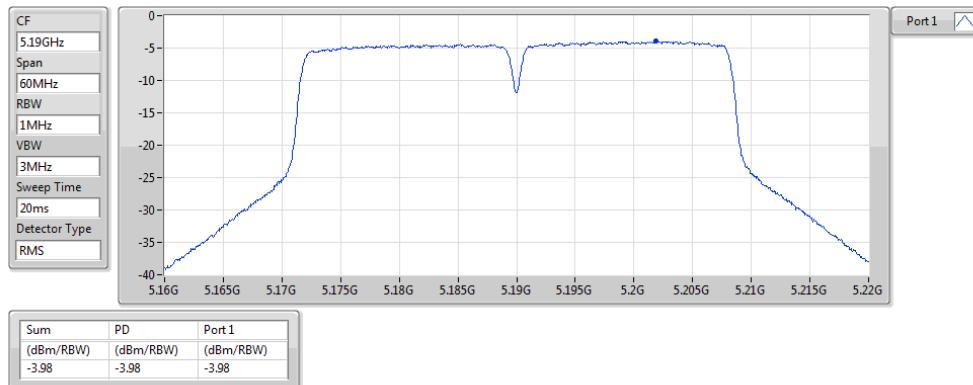
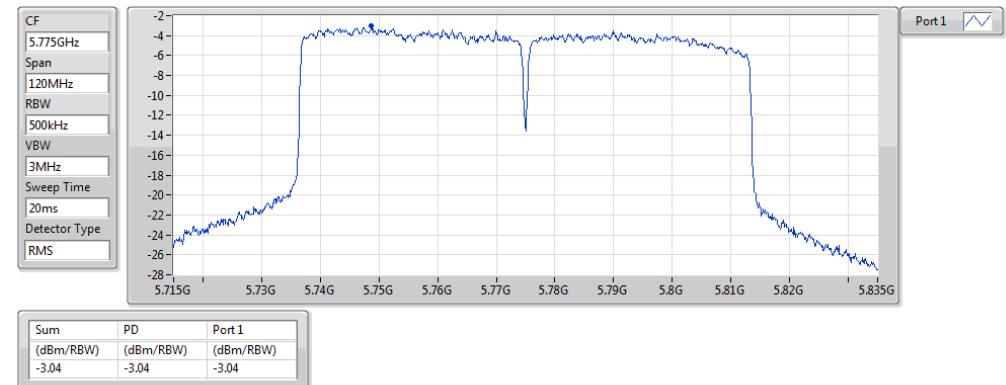
Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
802.11a_Nss1,(6Mbps)_1TX	-	-	-	-	-
5180MHz	Pass	6.27	3.44	3.44	16.73
5200MHz	Pass	6.27	6.76	6.76	16.73
5240MHz	Pass	6.27	4.95	4.95	16.73
5745MHz	Pass	6.27	3.75	3.75	29.73
5785MHz	Pass	6.27	3.69	3.69	29.73
5825MHz	Pass	6.27	4.1	4.10	29.73
802.11ac VHT20_Nss1,(MCS0)_1TX	-	-	-	-	-
5180MHz	Pass	6.27	3.10	3.10	16.73
5200MHz	Pass	6.27	6.56	6.56	16.73
5240MHz	Pass	6.27	4.62	4.62	16.73
5745MHz	Pass	6.27	3.4	3.40	29.73
5785MHz	Pass	6.27	3.51	3.51	29.73
5825MHz	Pass	6.27	3.94	3.94	29.73
802.11ac VHT40_Nss1,(MCS0)_1TX	-	-	-	-	-
5190MHz	Pass	6.27	-3.98	-3.98	16.73
5230MHz	Pass	6.27	1.81	1.81	16.73
5755MHz	Pass	6.27	0.21	0.21	29.73
5795MHz	Pass	6.27	0.6	0.60	29.73
802.11ac VHT80_Nss1,(MCS0)_1TX	-	-	-	-	-
5210MHz	Pass	6.27	-7.50	-7.50	16.73
5775MHz	Pass	6.27	-3.04	-3.04	29.73

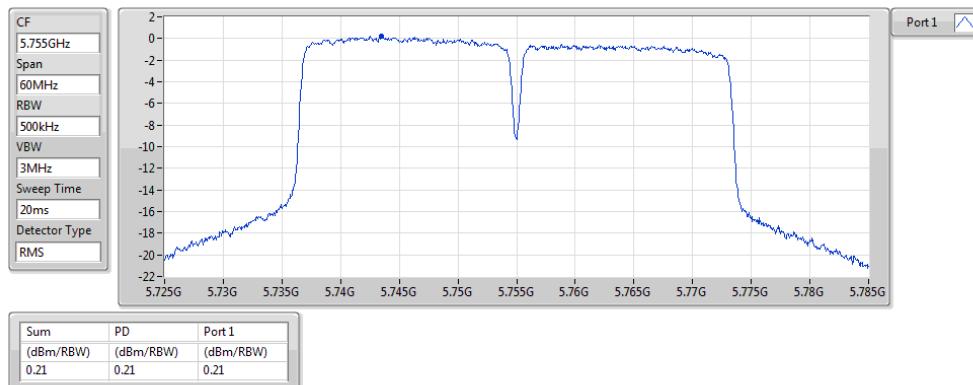
DG = Directional Gain; For UNII-1, UNII-2A and UNII-2C, **RBW** = 500kHz for 5.725-5.85GHz band / 1MHz for other band;
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port X power density;

802.11a_Nss1,(6Mbps)_1TX
5180MHz

802.11a_Nss1,(6Mbps)_1TX
5825MHz

802.11a_Nss1,(6Mbps)_1TX
5200MHz

802.11ac VHT20_Nss1,(MCS0)_1TX
5180MHz

802.11a_Nss1,(6Mbps)_1TX
5240MHz

802.11ac VHT20_Nss1,(MCS0)_1TX
5200MHz

802.11a_Nss1,(6Mbps)_1TX
5745MHz

802.11ac VHT20_Nss1,(MCS0)_1TX
5240MHz

802.11a_Nss1,(6Mbps)_1TX
5785MHz

802.11ac VHT20_Nss1,(MCS0)_1TX
5745MHz


802.11ac VHT20_Nss1,(MCS0)_1TX
5785MHz

802.11ac VHT40_Nss1,(MCS0)_1TX
5795MHz

802.11ac VHT20_Nss1,(MCS0)_1TX
5825MHz

802.11ac VHT80_Nss1,(MCS0)_1TX
5210MHz

802.11ac VHT40_Nss1,(MCS0)_1TX
5190MHz

802.11ac VHT80_Nss1,(MCS0)_1TX
5775MHz

802.11ac VHT40_Nss1,(MCS0)_1TX
5230MHz

802.11ac VHT40_Nss1,(MCS0)_1TX
5755MHz




For beamforming mode:

<DBS mode>

Summary

Mode	PD (dBm/RBW)
5.15-5.25GHz	-
802.11ax HEW20-BF_Nss1,(MCS0)_8TX	11.32
802.11ax HEW40-BF_Nss1,(MCS0)_8TX	7.99
802.11ax HEW80-BF_Nss1,(MCS0)_8TX	4.01
5.725-5.85GHz	-
802.11ax HEW20-BF_Nss1,(MCS0)_8TX	10.31
802.11ax HEW40-BF_Nss1,(MCS0)_8TX	7.21
802.11ax HEW80-BF_Nss1,(MCS0)_8TX	3.27

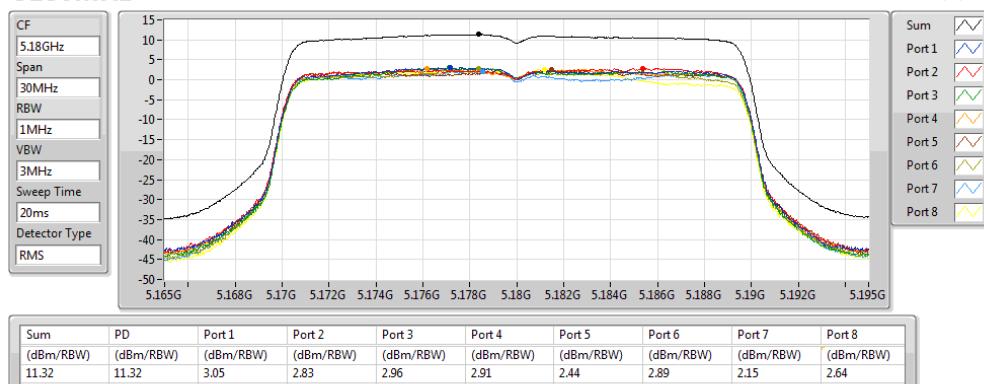
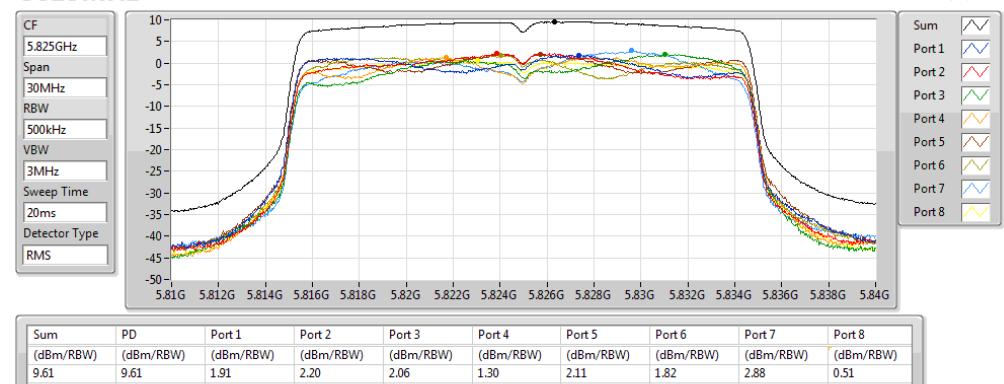
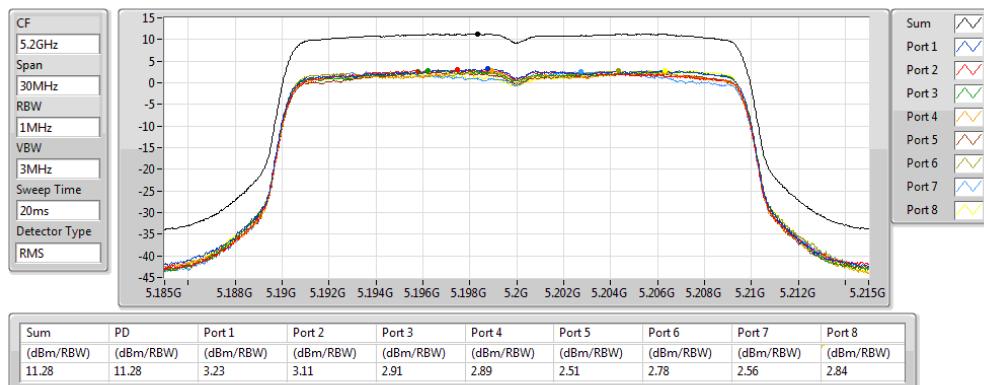
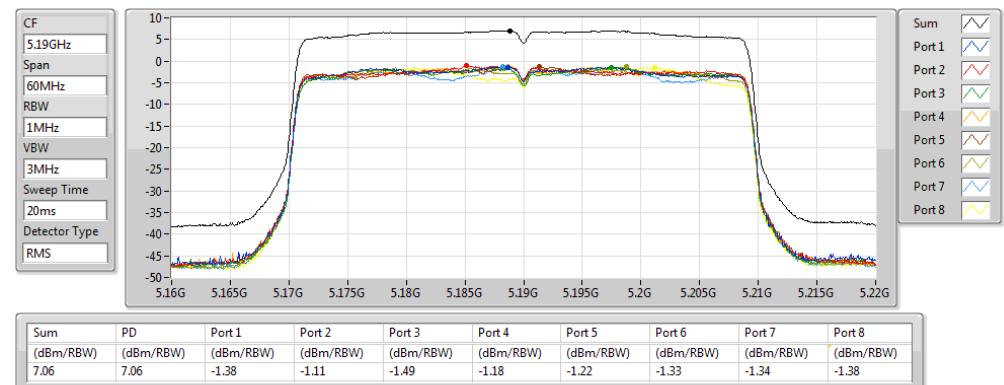
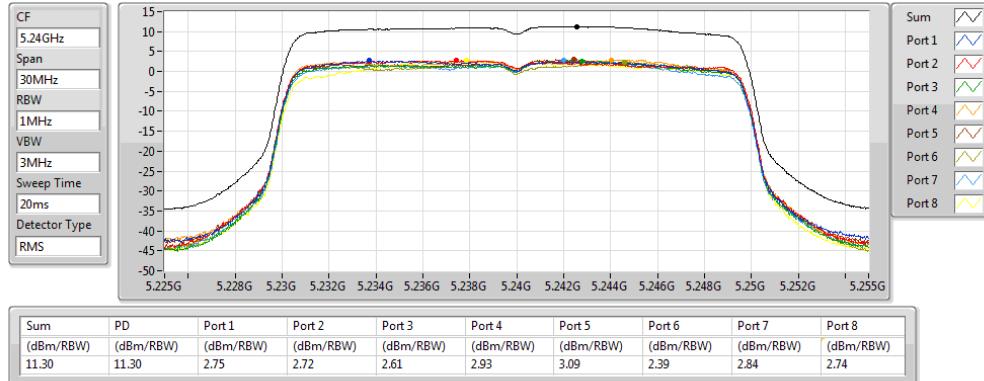
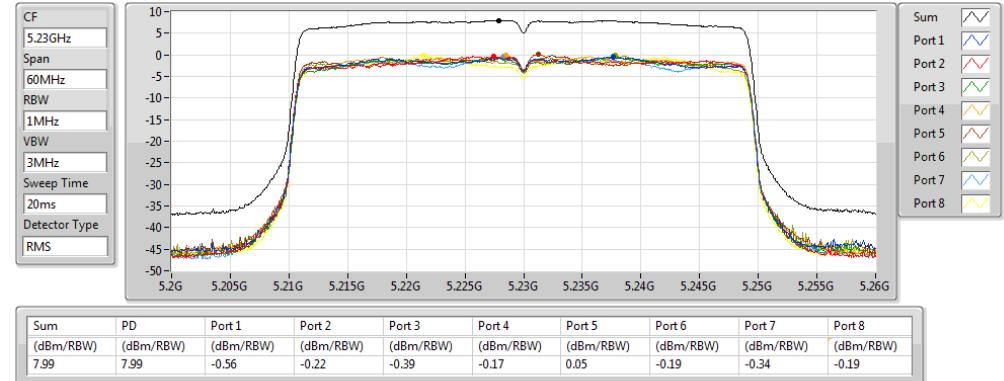
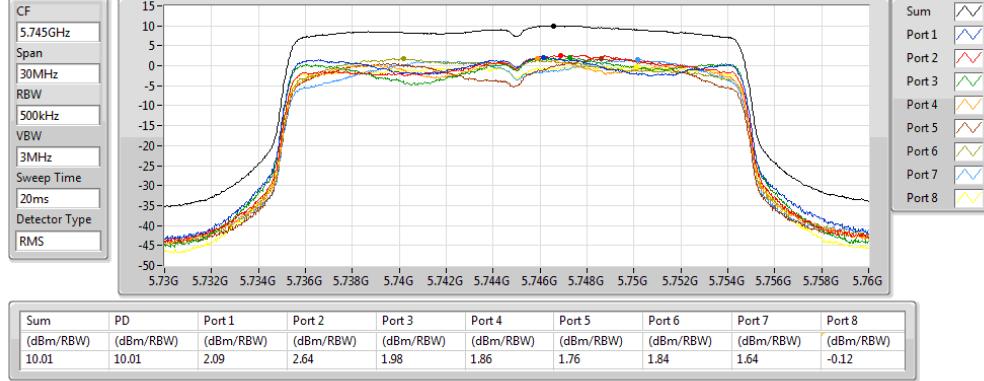
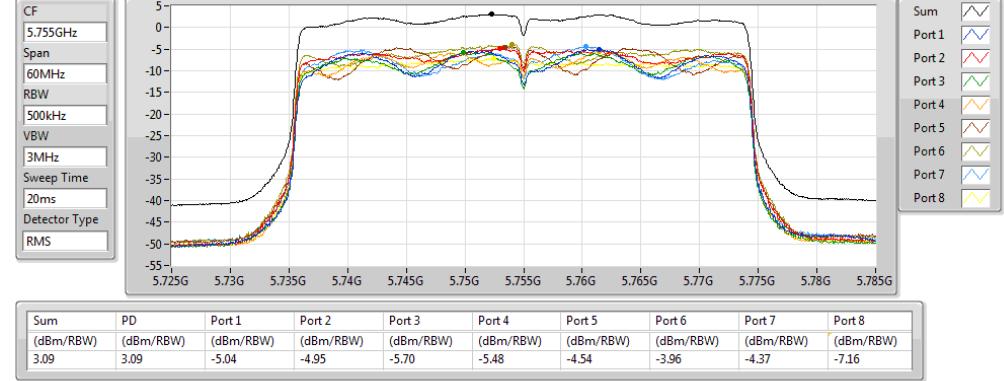
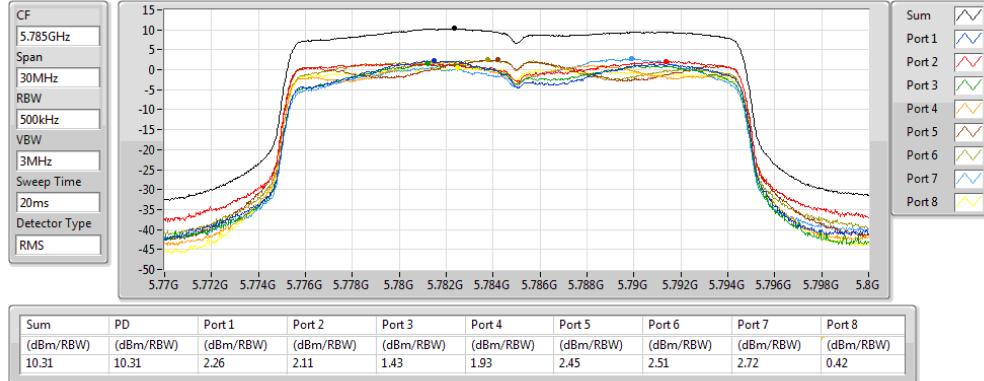
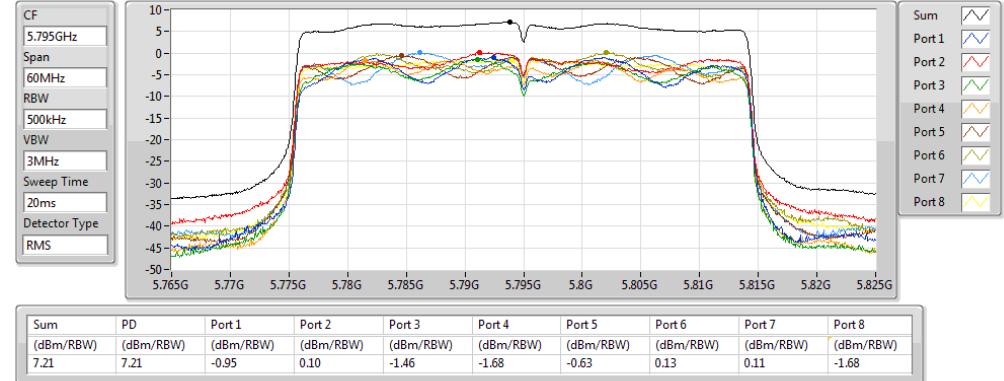
RBW = 500 kHz for 5.725-5.85GHz band / 1MHz for other band;

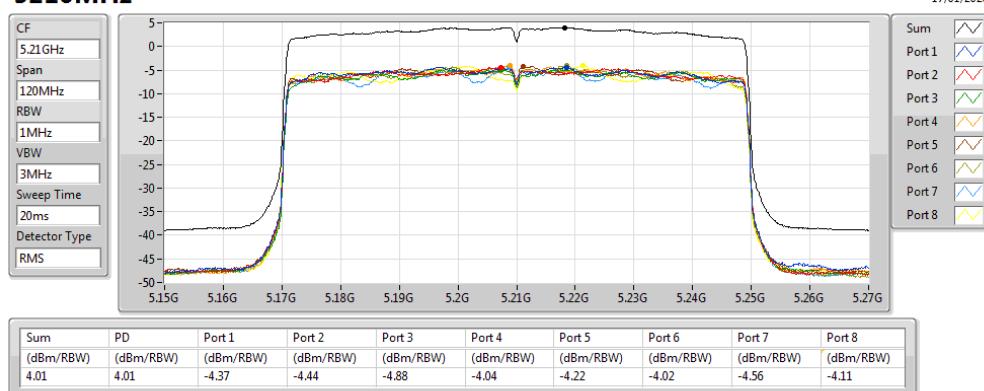
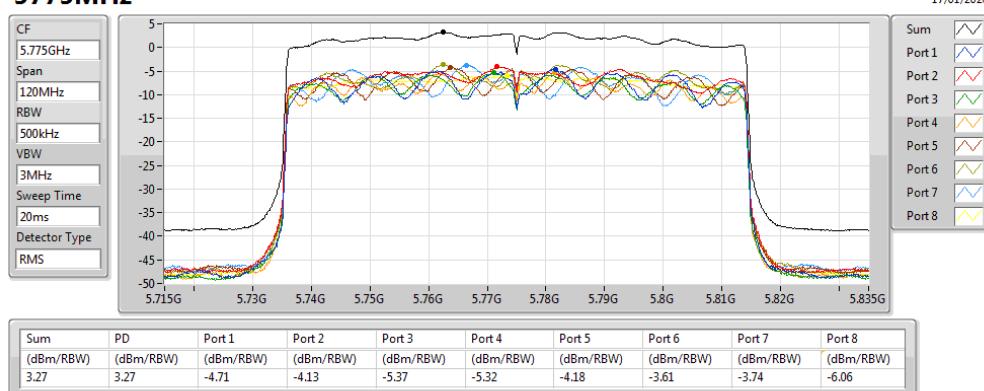


Result

Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	Port 3 (dBm/RBW)	Port 4 (dBm/RBW)	Port 5 (dBm/RBW)	Port 6 (dBm/RBW)	Port 7 (dBm/RBW)	Port 8 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
802.11ax HEW20-BF_Nss1,(MCS0)_8TX	-	-	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	11.66	3.05	2.83	2.96	2.91	2.44	2.89	2.15	2.64	11.32	11.34
5200MHz	Pass	11.66	3.23	3.11	2.91	2.89	2.51	2.78	2.56	2.84	11.28	11.34
5240MHz	Pass	11.66	2.75	2.72	2.61	2.93	3.09	2.39	2.84	2.74	11.30	11.34
5745MHz	Pass	11.41	2.09	2.64	1.98	1.86	1.76	1.84	1.64	-0.12	10.01	24.59
5785MHz	Pass	11.41	2.26	2.11	1.43	1.93	2.45	2.51	2.72	0.42	10.31	24.59
5825MHz	Pass	11.41	1.91	2.20	2.06	1.30	2.11	1.82	2.88	0.51	9.61	24.59
802.11ax HEW40-BF_Nss1,(MCS0)_8TX	-	-	-	-	-	-	-	-	-	-	-	-
5190MHz	Pass	11.66	-1.38	-1.11	-1.49	-1.18	-1.22	-1.33	-1.34	-1.38	7.06	11.34
5230MHz	Pass	11.66	-0.56	-0.22	-0.39	-0.17	0.05	-0.19	-0.34	-0.19	7.99	11.34
5755MHz	Pass	11.41	-5.04	-4.95	-5.70	-5.48	-4.54	-3.96	-4.37	-7.16	3.09	24.59
5795MHz	Pass	11.41	-0.95	0.10	-1.46	-1.68	-0.63	0.13	0.11	-1.68	7.21	24.59
802.11ax HEW80-BF_Nss1,(MCS0)_8TX	-	-	-	-	-	-	-	-	-	-	-	-
5210MHz	Pass	11.66	-4.37	-4.44	-4.88	-4.04	-4.22	-4.02	-4.56	-4.11	4.01	11.34
5775MHz	Pass	11.41	-4.71	-4.13	-5.37	-5.32	-4.18	-3.61	-3.74	-6.06	3.27	24.59

DG = Directional Gain; For UNII-1, UNII-2A and UNII-2C, **RBW** = 500kHz for 5.725-5.85GHz band / 1MHz for other band;
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port X power density;

802.11ax HEW20-BF_Nss1,(MCS0)_8TX
5180MHz

802.11ax HEW20-BF_Nss1,(MCS0)_8TX
5825MHz

802.11ax HEW20-BF_Nss1,(MCS0)_8TX
5200MHz

802.11ax HEW40-BF_Nss1,(MCS0)_8TX
5190MHz

802.11ax HEW20-BF_Nss1,(MCS0)_8TX
5240MHz

802.11ax HEW40-BF_Nss1,(MCS0)_8TX
5230MHz

802.11ax HEW20-BF_Nss1,(MCS0)_8TX
5745MHz

802.11ax HEW40-BF_Nss1,(MCS0)_8TX
5755MHz

802.11ax HEW20-BF_Nss1,(MCS0)_8TX
5785MHz

802.11ax HEW40-BF_Nss1,(MCS0)_8TX
5795MHz


802.11ax HEW80-BF_Nss1,(MCS0)_8TX
5210MHz

802.11ax HEW80-BF_Nss1,(MCS0)_8TX
5775MHz




<SBS mode>

Summary

Mode	PD (dBm/RBW)
5.15-5.25GHz	-
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	11.65
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	7.97
802.11ax HEW80-BF_Nss1,(MCS0)_4TX	-0.75
5.725-5.85GHz	-
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	12.02
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	9.41
802.11ax HEW80-BF_Nss1,(MCS0)_4TX	1.86

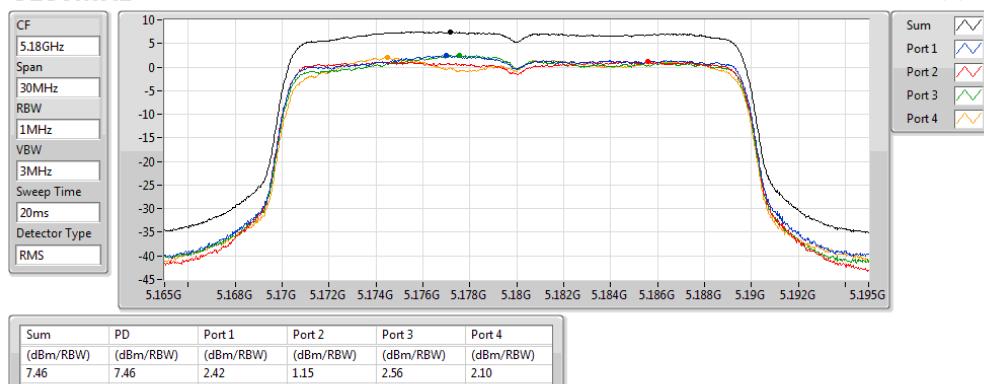
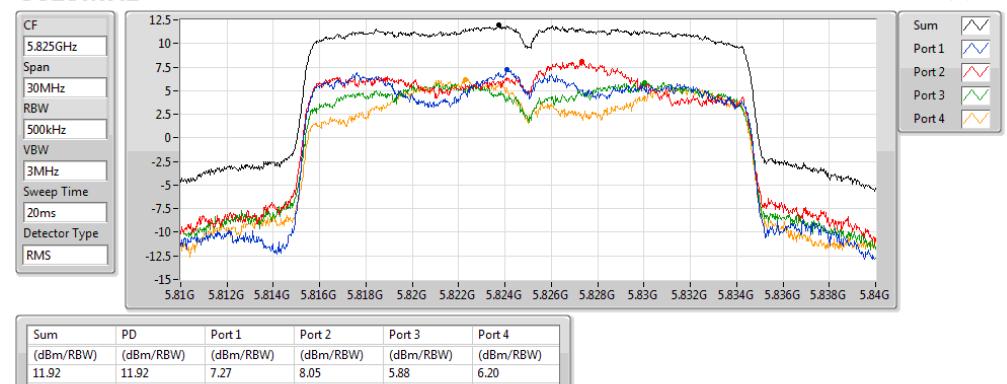
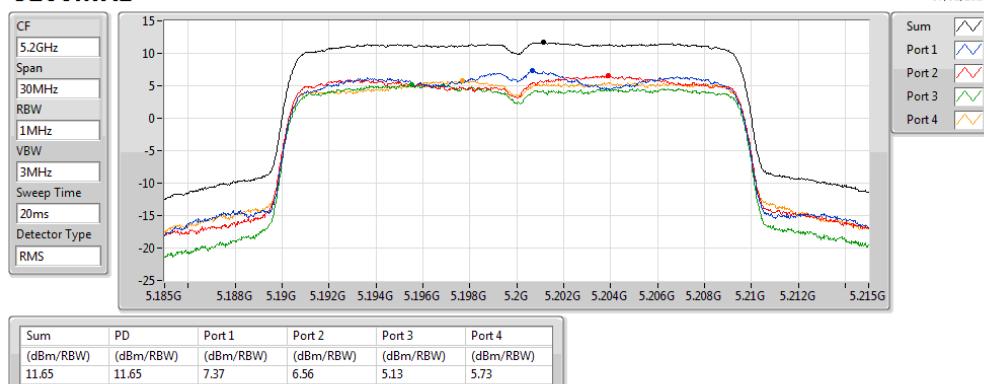
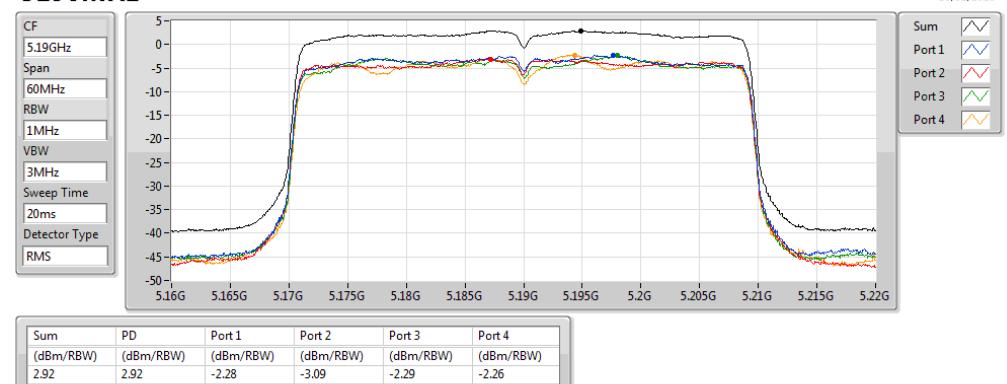
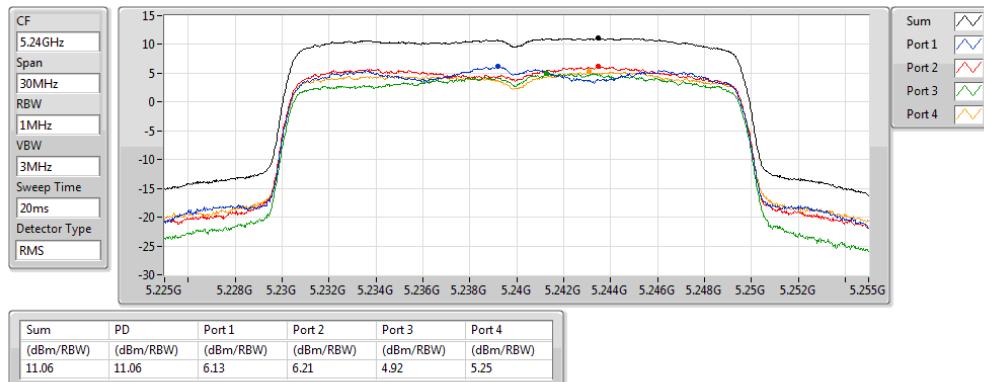
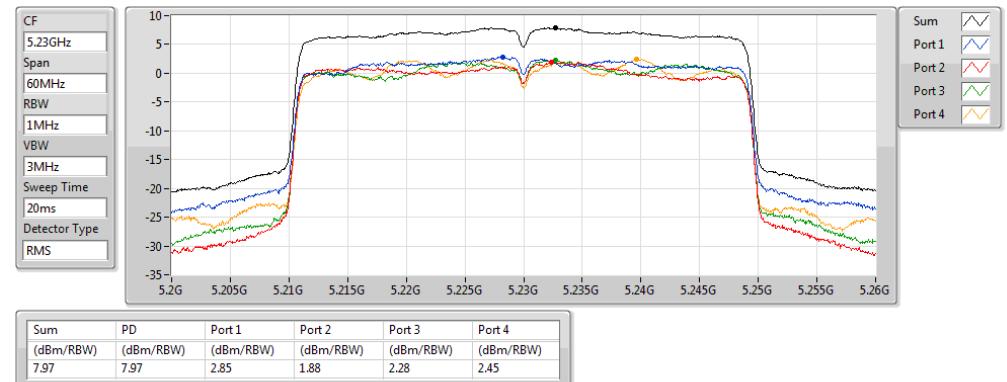
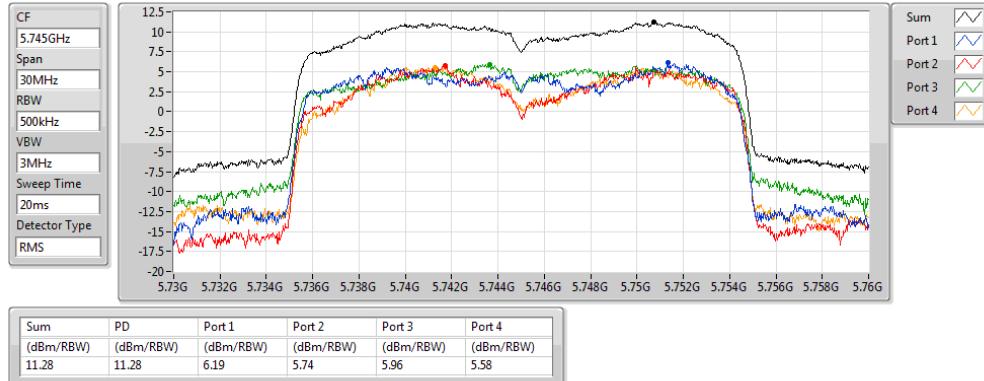
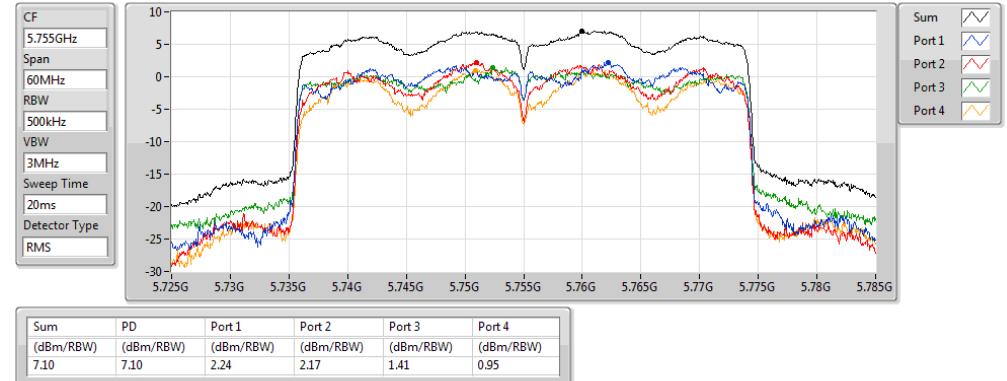
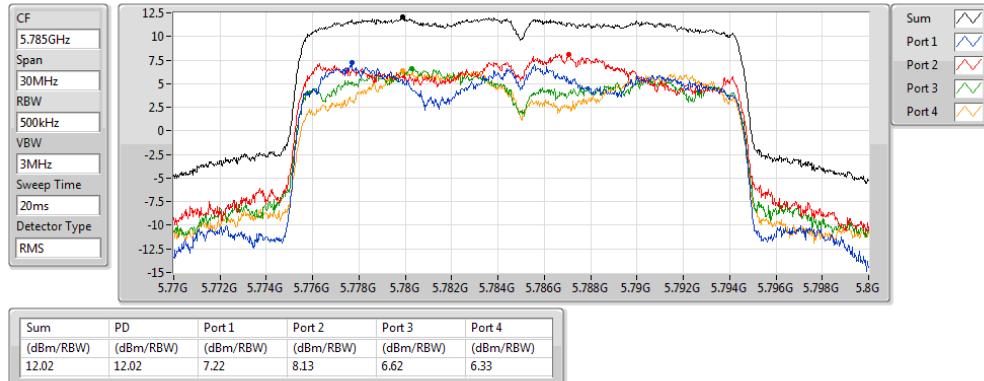
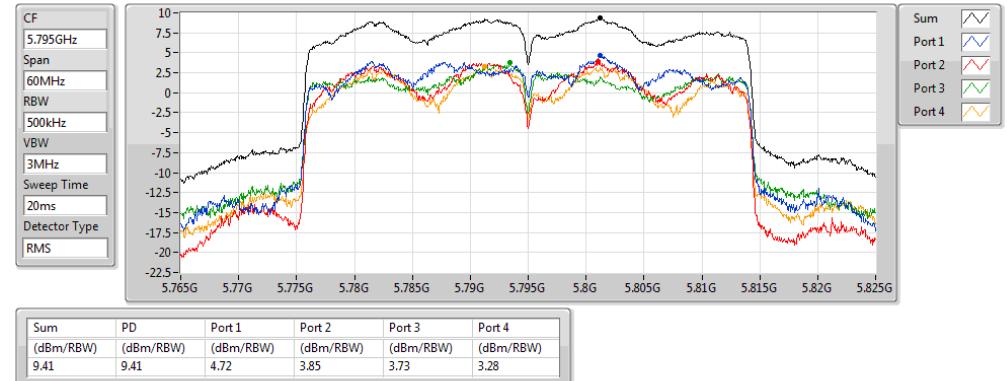
RBW = 500 kHz for 5.725-5.85GHz band / 1MHz for other band;

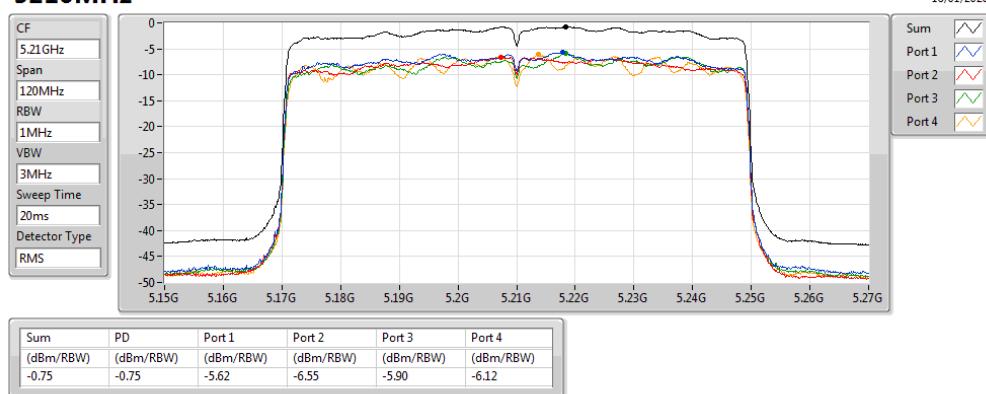
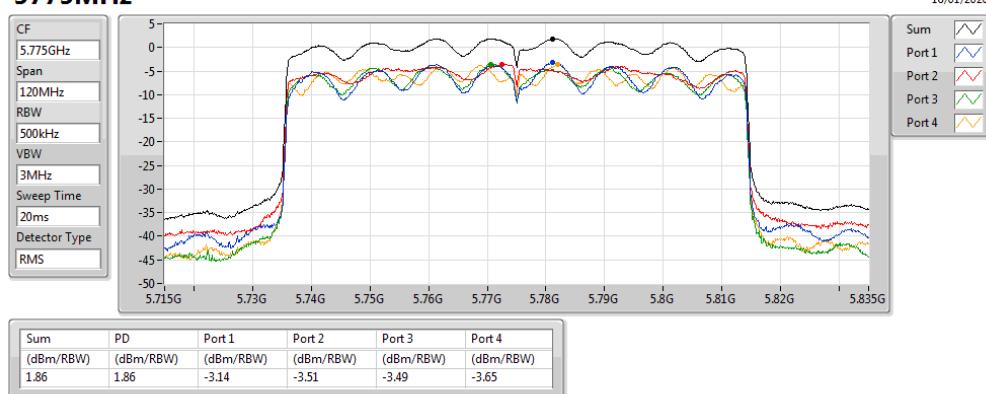


Result

Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	Port 3 (dBm/RBW)	Port 4 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5180MHz	Pass	9.58	2.42	1.15	2.56	2.10	7.46	13.42
5200MHz	Pass	9.58	7.37	6.56	5.13	5.73	11.65	13.42
5240MHz	Pass	9.58	6.13	6.21	4.92	5.25	11.06	13.42
5745MHz	Pass	8.79	6.19	5.74	5.96	5.58	11.28	27.21
5785MHz	Pass	8.79	7.22	8.13	6.62	6.33	12.02	27.21
5825MHz	Pass	8.79	7.27	8.05	5.88	6.20	11.92	27.21
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5190MHz	Pass	9.58	-2.28	-3.09	-2.29	-2.26	2.92	13.42
5230MHz	Pass	9.58	2.85	1.88	2.28	2.45	7.97	13.42
5755MHz	Pass	8.79	2.24	2.17	1.41	0.95	7.10	27.21
5795MHz	Pass	8.79	4.72	3.85	3.73	3.28	9.41	27.21
802.11ax HEW80-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5210MHz	Pass	9.58	-5.62	-6.55	-5.90	-6.12	-0.75	13.42
5775MHz	Pass	8.79	-3.14	-3.51	-3.49	-3.65	1.86	27.21

DG = Directional Gain; For UNII-1, UNII-2A and UNII-2C, **RBW** = 500kHz for 5.725-5.85GHz band / 1MHz for other band;
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port X power density;

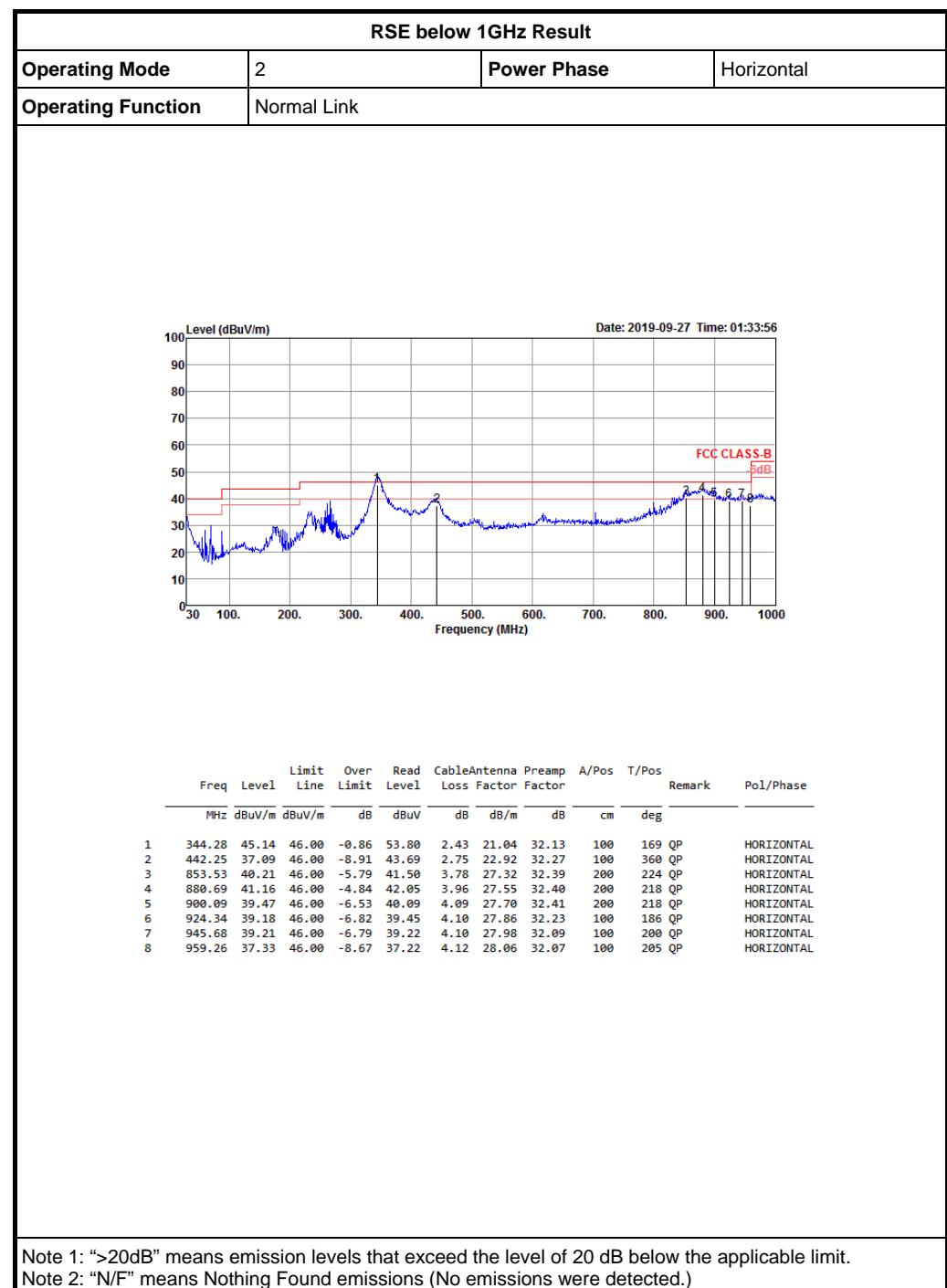
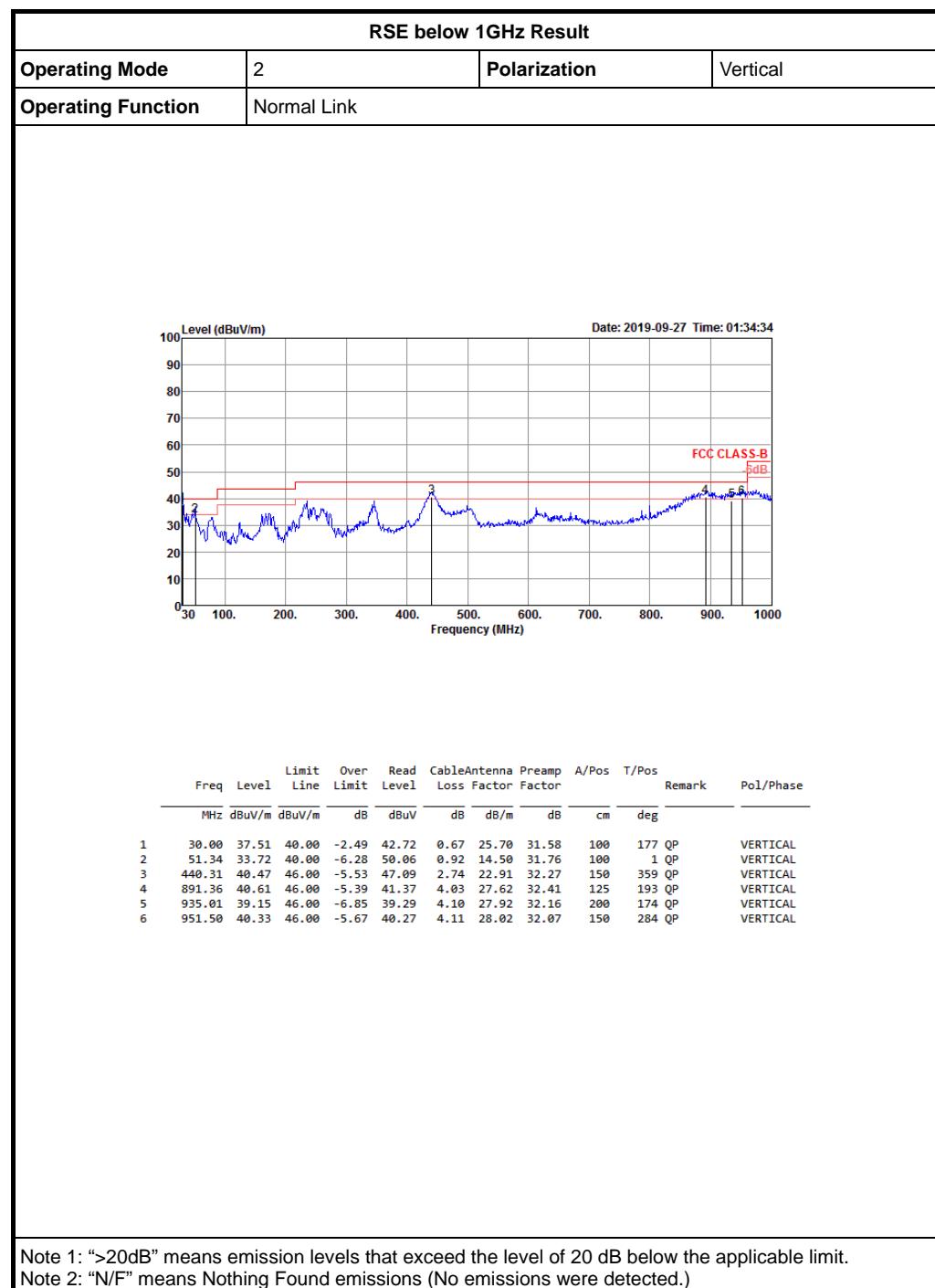
802.11ax HEW20-BF_Nss1,(MCS0)_4TX
5180MHz

802.11ax HEW20-BF_Nss1,(MCS0)_4TX
5825MHz

802.11ax HEW20-BF_Nss1,(MCS0)_4TX
5200MHz

802.11ax HEW40-BF_Nss1,(MCS0)_4TX
5190MHz

802.11ax HEW20-BF_Nss1,(MCS0)_4TX
5240MHz

802.11ax HEW40-BF_Nss1,(MCS0)_4TX
5230MHz

802.11ax HEW20-BF_Nss1,(MCS0)_4TX
5745MHz

802.11ax HEW40-BF_Nss1,(MCS0)_4TX
5755MHz

802.11ax HEW20-BF_Nss1,(MCS0)_4TX
5785MHz

802.11ax HEW40-BF_Nss1,(MCS0)_4TX
5795MHz


802.11ax HEW80-BF_Nss1,(MCS0)_4TX
5210MHz

802.11ax HEW80-BF_Nss1,(MCS0)_4TX
5775MHz




RSE below 1GHz Result

Appendix E.1



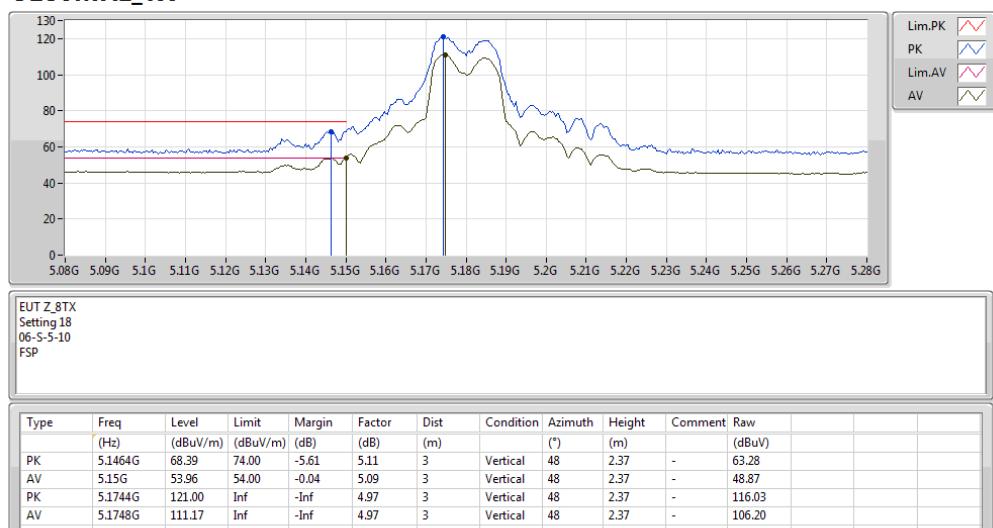
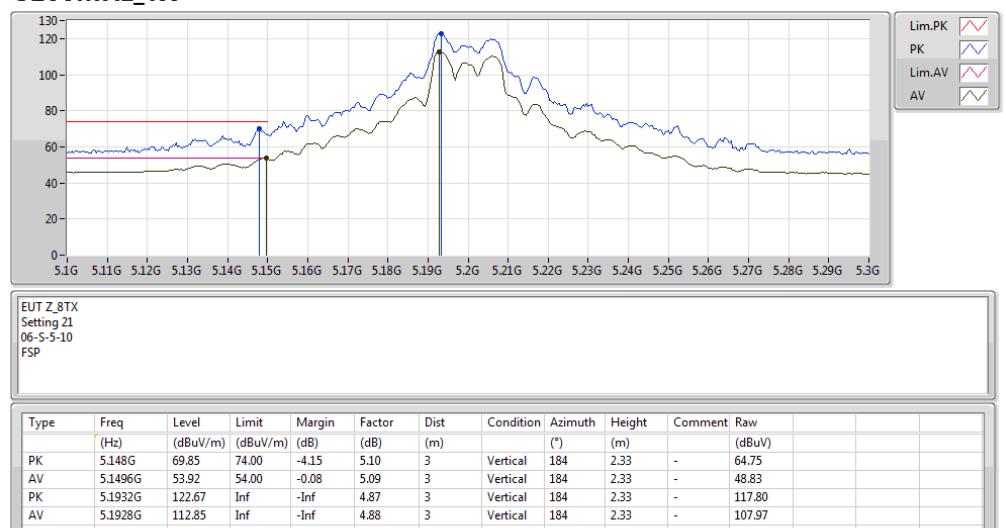


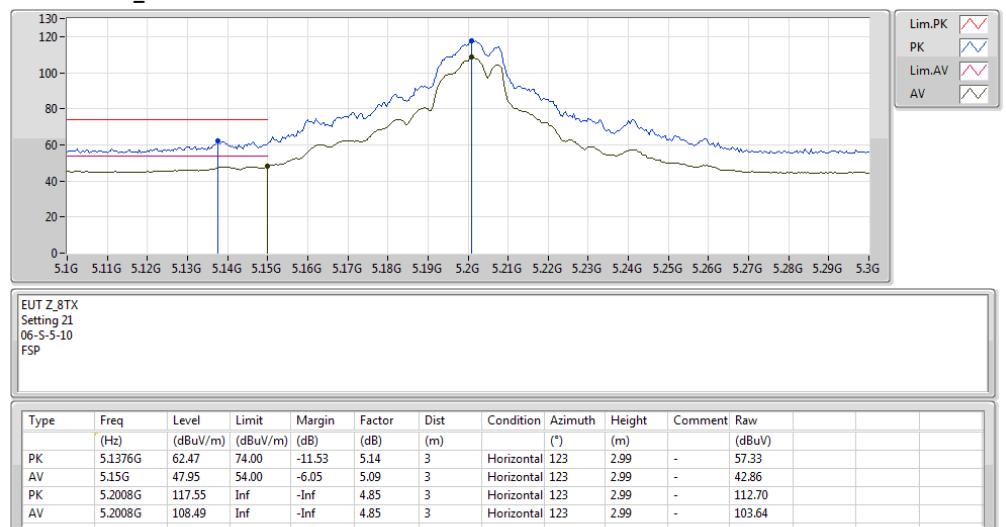
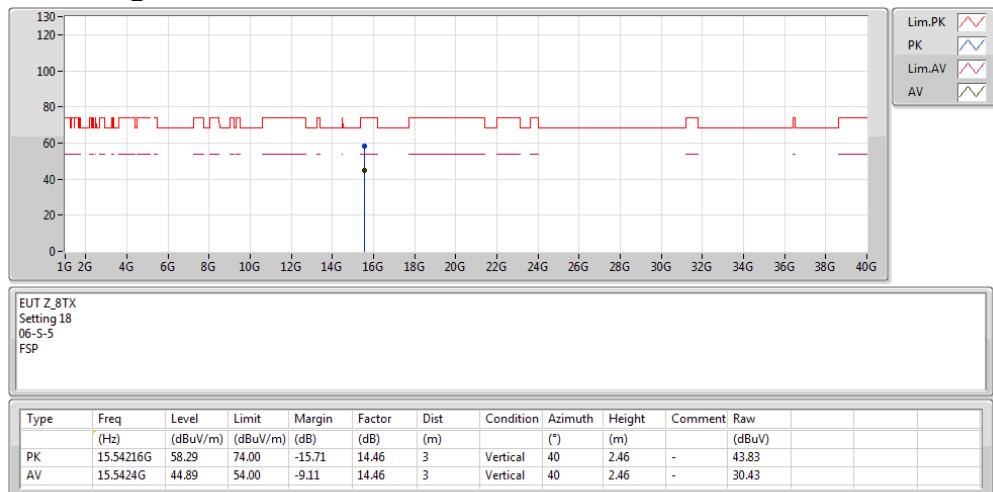
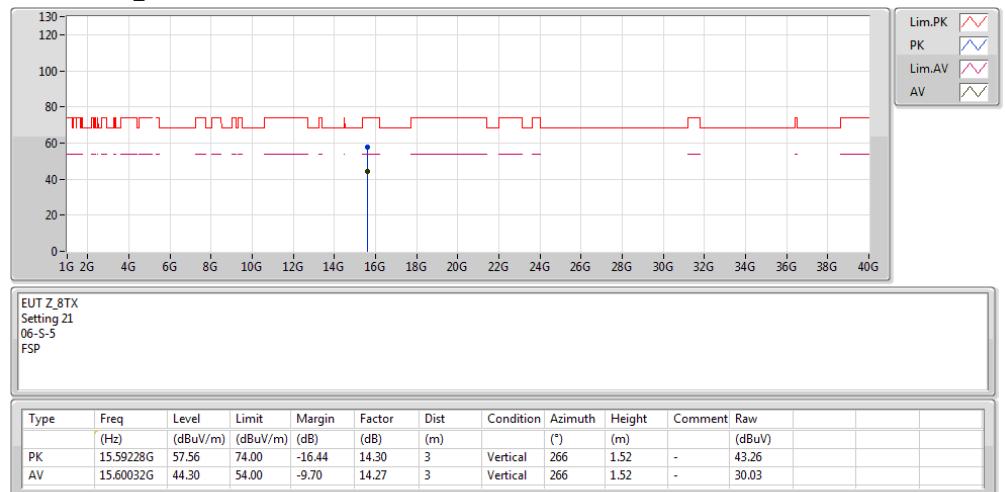
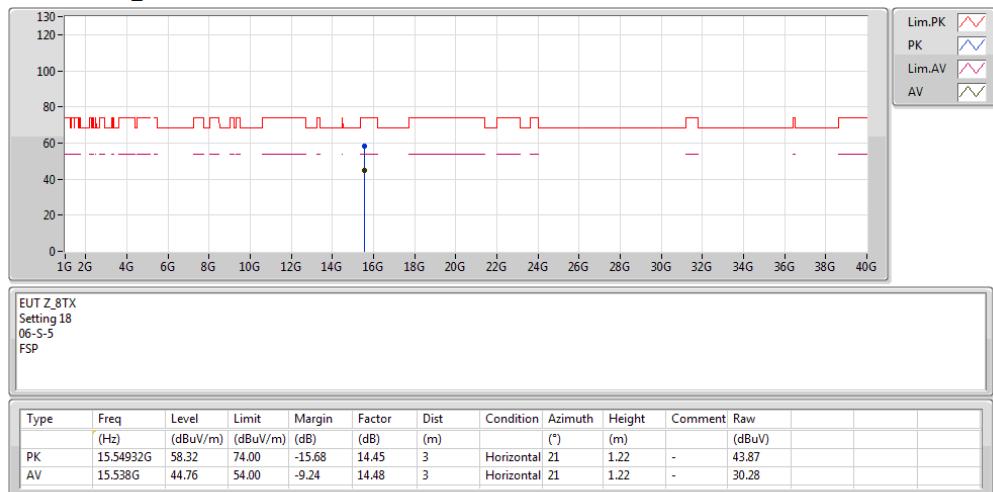
For non-beamforming mode:

<DBS mode>

Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
5.15-5.25GHz	-	-	-	-	-	-	-	-	-	-	-	-
802.11a_Nss1,(6Mbps)_8TX	Pass	AV	5.15G	53.96	54.00	-0.04	5.09	3	Vertical	48	2.37	-

802.11a_Nss1,(6Mbps)_8TX
5180MHz_TX

802.11a_Nss1,(6Mbps)_8TX
5200MHz_TX

802.11a_Nss1,(6Mbps)_8TX
5180MHz_TX

802.11a_Nss1,(6Mbps)_8TX
5200MHz_TX

802.11a_Nss1,(6Mbps)_8TX
5180MHz_TX

802.11a_Nss1,(6Mbps)_8TX
5200MHz_TX

802.11a_Nss1,(6Mbps)_8TX
5180MHz_TX

802.11a_Nss1,(6Mbps)_8TX
5200MHz_TX
