

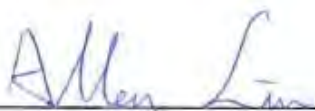
FCC Test Report

FCC ID : PPQ-WN4521L
Equipment : 802.11ac, 2T2R Wireless LAN USB Module
Brand Name : LITE-ON
Model Name : WN4521L
Applicant : Lite-On Technology Corp.
Bldg. C, 90, Chien 1 Road, Chung Ho, New Taipei City
23585, Taiwan, R.O.C
Manufacturer : LITE-ON TECHNOLOGY (Changzhou) CO., LTD
A9 Building, No.88 Yanghu Road, Wujin Hi-Tech
Industrial Development Zone, Changzhou City,
Jiangsu Province 213100 China
Standard : 47 CFR FCC Part 15.407

The product was received on Jun. 26, 2018, and testing was started from Jul. 05, 2018 and completed on Jul. 10, 2018. 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: Allen Lin

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory

No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)

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History of this test report

TEL : 886-3-3273456
FAX : 886-3-3270973
Report Template No.: HE1-D1 Ver2.0
FCC ID: PPQ-WN4521L

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	-

Reviewed by: Sam Tsai

Report Producer: Amber Chiu

1 General Description

1.1 Information

1.1.1 RF General Information

Frequency Range (MHz)	IEEE Std. 802.11	Ch. Frequency (MHz)	Channel Number
5150-5250	a, n (HT20), ac (VHT20)	5180-5240	36-48 [4]
5250-5350		5260-5320	52-64 [4]
5470-5725		5500-5700	100-140 [11]
straddle 5725		5720	144 [1]
5725-5850		5745-5825	149-165 [5]
5150-5250	n (HT40), ac (VHT40)	5190-5230	38-46 [2]
5250-5350		5270-5310	54-62 [2]
5470-5725		5510-5670	102-134 [5]
straddle 5725		5710	142 [1]
5725-5850		5755-5795	151-159 [2]
5150-5250	ac (VHT80)	5210	42 [1]
5250-5350		5290	58 [1]
5470-5725		5530-5610	106-122 [2]
straddle 5725		5690	138 [1]
5725-5850		5775	155 [1]

Band	Mode	BWch (MHz)	Nant
5.15-5.25GHz	802.11a	20	2TX
5.25-5.35GHz	802.11a	20	2TX
5.47-5.725GHz	802.11a	20	2TX
5.725-5.85GHz	802.11a	20	2TX
5.15-5.25GHz	802.11ac VHT20	20	2TX
5.25-5.35GHz	802.11ac VHT20	20	2TX
5.47-5.725GHz	802.11ac VHT20	20	2TX
5.725-5.85GHz	802.11ac VHT20	20	2TX
5.15-5.25GHz	802.11ac VHT40	40	2TX
5.25-5.35GHz	802.11ac VHT40	40	2TX
5.47-5.725GHz	802.11ac VHT40	40	2TX
5.725-5.85GHz	802.11ac VHT40	40	2TX
5.15-5.25GHz	802.11ac VHT80	80	2TX

Band	Mode	BWch (MHz)	Nant
5.25-5.35GHz	802.11ac VHT80	80	2TX
5.47-5.725GHz	802.11ac VHT80	80	2TX
5.725-5.85GHz	802.11ac VHT80	80	2TX

Note:

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

1.1.2 Antenna Information

Ant.	Port	Brand	Model Name	Antenna Type	Connector
1	2	LITEON	WN4521L	Printed Antenna	Murata
2	1	LITEON	WN4521L	Printed Antenna	Murata

Ant.	Port	Gain (dBi)	
		2.4G	5G
1	2	2.5	2.0
2	1	2.4	2.0

For 2.4 GHz function:

For IEEE 802.11b/g/n mode (2TX/2RX)

Ant. 1 (port 2) and Ant. 2 (port 1) could transmit/receive simultaneously.

For 5 GHz function:

For IEEE 802.11a/n/ac mode (2TX/2RX)

Ant. 1 (port 2) and Ant. 2 (port 1) could transmit/receive simultaneously.

1.1.3 EUT Information

Operational Condition			
EUT Power Type	From Host System		
EUT Function	☐ Outdoor	☒ Indoor	
	☐ Fixed P2P	☐ Client	
Beamforming Function	☐ With beamforming	☒ Without beamforming	
Weather Band	☒ With 5600~5650MHz	☐ Without 5600~5650MHz	
Type of EUT			
☒	Stand-alone		
☐	Combined (EUT where the radio part is fully integrated within another device)		
	Combined Equipment - Brand Name / Model No.:		...
☐	Plug-in radio (EUT intended for a variety of host systems)		
	Host System - Brand Name / Model No.:		...
☐	Other:		

1.1.4 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
802.11a	0.998	0.009	n/a (DC $\geq$ 0.98)	n/a (DC $\geq$ 0.98)
802.11ac VHT20	0.997	0.013	n/a (DC $\geq$ 0.98)	n/a (DC $\geq$ 0.98)
802.11ac VHT40	0.999	0.004	n/a (DC $\geq$ 0.98)	n/a (DC $\geq$ 0.98)
802.11ac VHT80	0.981	0.083	n/a (DC $\geq$ 0.98)	n/a (DC $\geq$ 0.98)

1.2 Testing Applied 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
- ♦ KDB 789033 D02 v02r01
- ♦ KDB 662911 D01 v02r01

1.3 Testing Location Information

Testing Location			
☒	HWA YA	ADD : No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)	
		TEL : 886-3-327-3456	FAX : 886-3-327-0973
Test site Designation No. TW1190 with FCC.			
☐	JHUBEI	ADD : No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County, Taiwan (R.O.C.)	
		TEL : 886-3-656-9065	FAX : 886-3-656-9085
Test site Designation No. TW0006 with FCC.			

Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
AC Conduction	TH01-HY	Andy	23.5°C / 65%	05/Jul/2018
RF Conducted	03CH09-HY	Sam	23.2°C / 53.5%	05/Jul/2018
Radiated	CO04-HY	Kevin	21°C / 56%	10/Jul/2018

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)	3.6 dB	Confidence levels of 95%
Radiated Emission (9kHz ~ 30MHz)	3.0 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	4.3 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	3.9 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	3.5 dB	Confidence levels of 95%
Conducted Emission	1.3 dB	Confidence levels of 95%
Temperature	0.7 °C	Confidence levels of 95%
Humidity	4 %	Confidence levels of 95%

2 Test Configuration of EUT

2.1 Test Condition

Condition Item	Abbreviation/Remark	Remark
RF Conducted	Abbreviation	Remark
TnomVnom	Tnom	20°C
-	Vnom	120V

2.2 Test Channel Mode

Test Software Version	REALTEK 11ac 8822BU USB WLAN MP Diagnostic Program 0.0006 00.20180227
------------------------------	--

Mode	PowerSetting
802.11a_Nss1,(6Mbps)_2TX	-
5180MHz	51,52
5200MHz	62,63
5240MHz	62,63
5260MHz	62,63
5300MHz	62,63
5320MHz	49,50
5500MHz	45,46
5580MHz	58,59
5700MHz	49,49
5720MHz Straddle 5.47-5.725GHz	61,61
5720MHz Straddle 5.725-5.85GHz	61,61
5745MHz	63,63
5785MHz	63,63
5825MHz	63,63
802.11ac VHT20_Nss1,(MCS0)_2TX	-
5180MHz	53,54
5200MHz	62,63
5240MHz	62,63
5260MHz	63,63
5300MHz	63,63
5320MHz	63,63



Mode	PowerSetting
5500MHz	44,45
5580MHz	58,59
5700MHz	40,40
5720MHz Straddle 5.47-5.725GHz	61,61
5720MHz Straddle 5.725-5.85GHz	61,61
5745MHz	63,63
5785MHz	63,63
5825MHz	63,63
802.11ac VHT40_Nss1,(MCS0)_2TX	-
5190MHz	34,34
5230MHz	60,60
5270MHz	63,63
5310MHz	36,36
5510MHz	32,32
5550MHz	63,63
5670MHz	41,41
5710MHz Straddle 5.47-5.725GHz	61,61
5710MHz Straddle 5.725-5.85GHz	61,61
5755MHz	63,63
5795MHz	63,63
802.11ac VHT80_Nss1,(MCS0)_2TX	-
5210MHz	37,37
5290MHz	35,36
5530MHz	33,33
5610MHz	50,50
5690MHz Straddle 5.47-5.725GHz	62,62
5690MHz Straddle 5.725-5.85GHz	62,62
5775MHz	63,63

2.3 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	CTX
1	USB mode

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

The Worst Case Mode for Following Conformance Tests			
Tests Item	Unwanted Emissions		
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.		
Operating Mode < 1GHz	CTX		
1	USB mode		
Operating Mode > 1GHz	CTX		
Orthogonal Planes of EUT	X Plane	Y Plane	Z Plane
			
Worst Planes of EUT			V

The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis
Operating Mode	CTX
1	WLAN 2.4GHz
2	WLAN 5GHz
Refer to Sporton Test Report No.: FA862607 for Co-location RF Exposure Evaluation.	

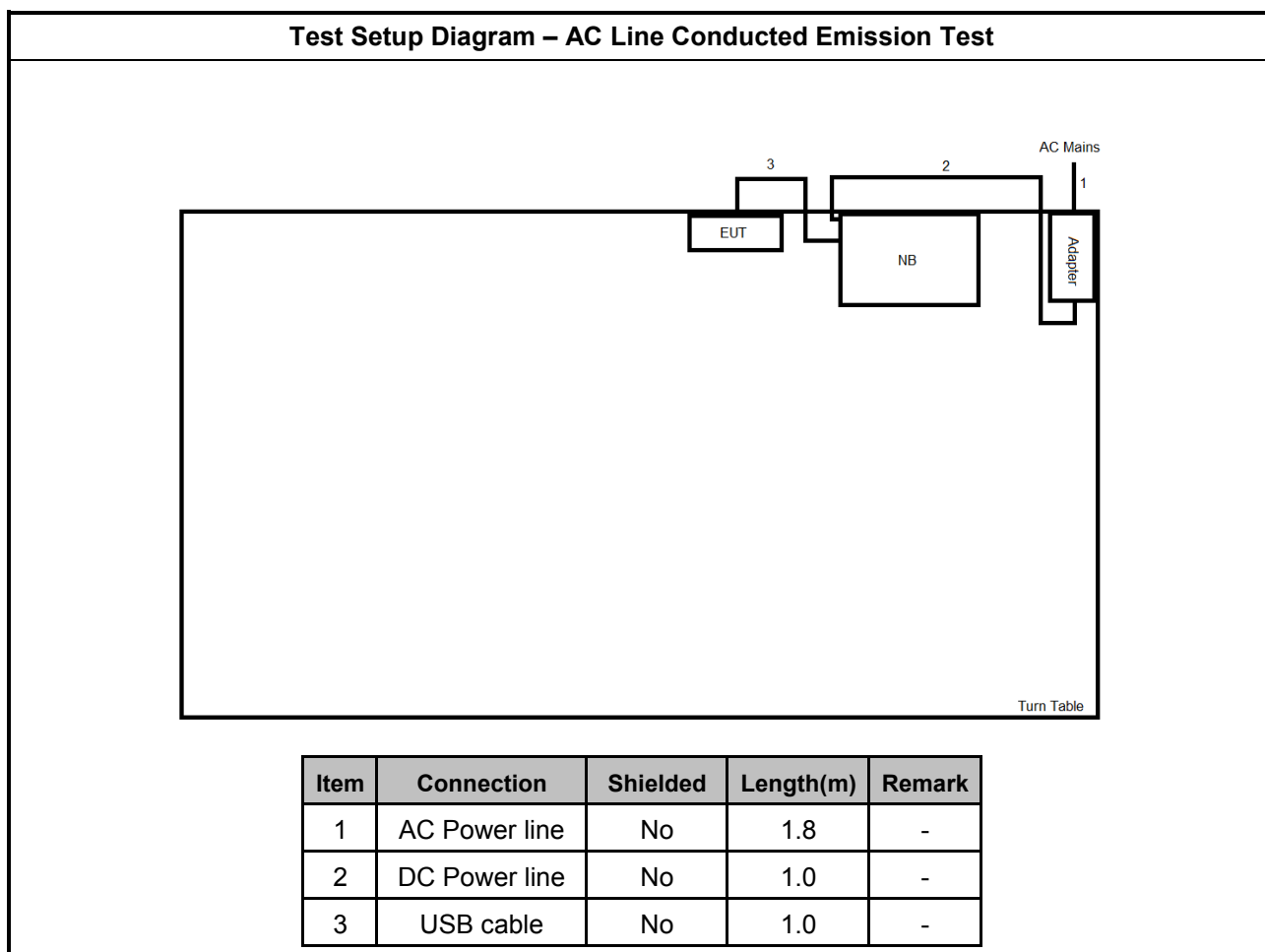
2.4 Support Equipment

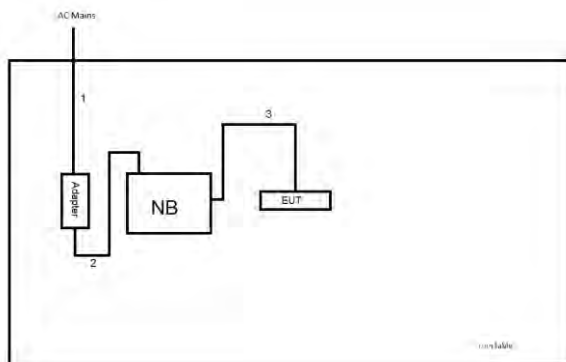
Support Equipment – RF Conducted				
No.	Equipment	Brand Name	Model Name	FCC ID
1	Notebook	DELL	E5410	DOC
2	Adapter for NB	DELL	HA65NM130	DOC
3	DC power supply	G.W	GPS-3030DD	-

Support Equipment – Radiated Emission				
No.	Equipment	Brand Name	Model Name	FCC ID
1	USB 2.0 Flash	-	-	-
2	Mouse(USB)	Dell	MS111-L	DOC
3	iPod	Apple	A1199	T41126
4	Notebook	DELL	E5530	DOC

Support Equipment – AC Conduction				
No.	Equipment	Brand Name	Model Name	FCC ID
1	USB 2.0 Flash	-	-	-
2	Mouse(USB)	Dell	MS111-L	DOC
3	iPod	Apple	A1199	T41126
4	Notebook	DELL	E5530	DOC

2.5 Test Setup Diagram



Test Setup Diagram - Radiated Test < 1GHz


Item	Connection	Shielded	Length(m)	Remark
1	AC Power line	No	1.8	-
2	DC Power line	No	1.0	-
3	USB cable	No	1.0	-

3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

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

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

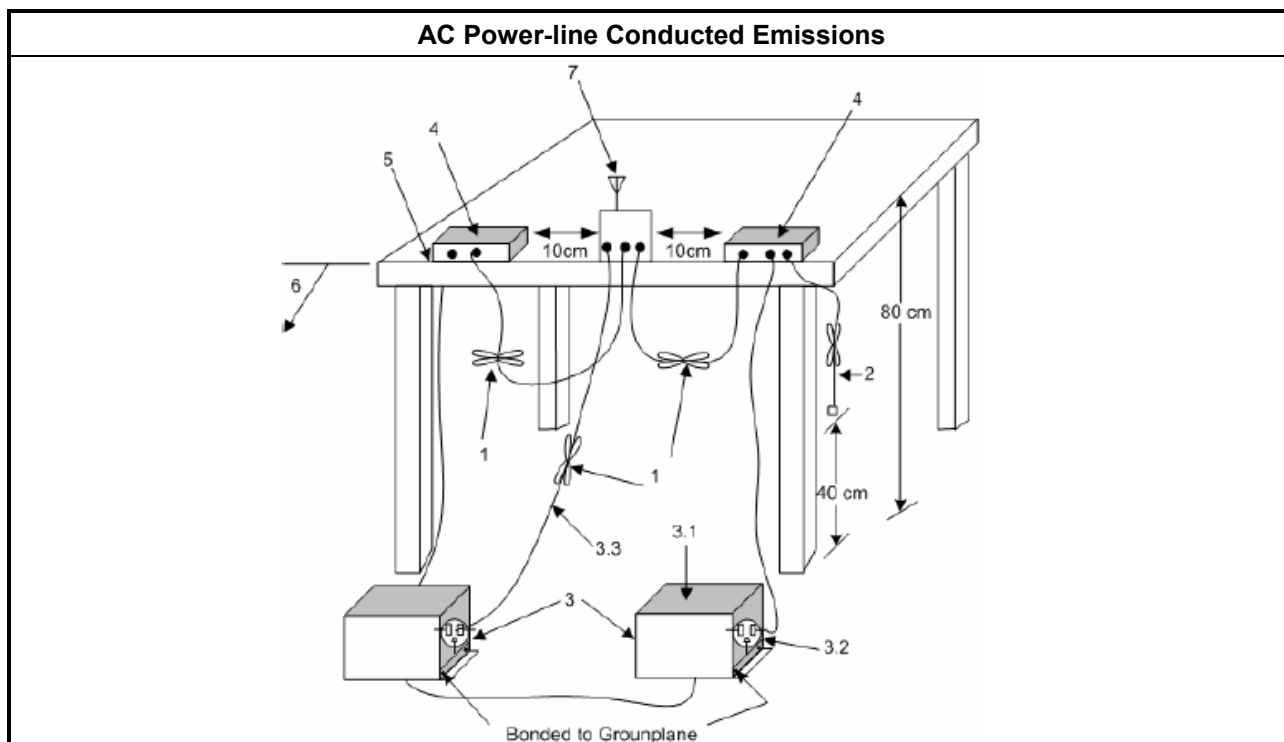
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

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

3.1.4 Test Setup



3.1.5 Test Result of AC Power-line Conducted Emissions

Refer as Appendix A

3.2 Emission Bandwidth

3.2.1 Emission Bandwidth Limit

Emission Bandwidth Limit	
UNII Devices	
☒	For the 5.15-5.25 GHz band, N/A
☒	For the 5.25-5.35 GHz band, the maximum conducted output power shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz.
☒	For the 5.47-5.725 GHz band, the maximum conducted output power shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz.
☒	For the 5.725-5.85 GHz band, 6 dB emission bandwidth $\geq$ 500kHz.

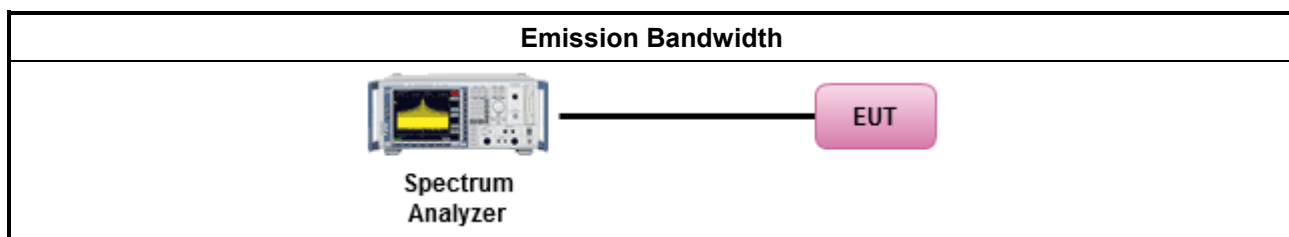
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

Test Method	
For the emission bandwidth shall be measured using one of the options below:	
☒	Refer as KDB 789033, clause C for EBW and clause D for OBW measurement.
☐	Refer as ANSI C63.10, clause 6.9.3 for occupied bandwidth testing.
☐	Refer as IC RSS-Gen, clause 6.7 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	
☒ For the 5.15-5.25 GHz band:	
	- Outdoor AP: the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$. e.i.r.p. at any elevation angle above 30 degrees ≤ 125mW [21dBm] - Indoor AP: the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$ - Point-to-point AP: the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If $G_{TX} > 23$ dBi, then $P_{Out} = 30 - (G_{TX} - 23)$. - Mobile or Portable Client: the maximum conducted output power (P_{Out}) shall not exceed the lesser of 250 mW. If $G_{TX} > 6$ dBi, then $P_{Out} = 24 - (G_{TX} - 6)$.
☒ For the 5.25-5.35 GHz band, the maximum conducted output power (P_{Out}) shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 24 - (G_{TX} - 6)$.	
☒ For the 5.47-5.725 GHz band, the maximum conducted output power (P_{Out}) shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 24 - (G_{TX} - 6)$.	
☒ For the 5.725-5.85 GHz band:	
	- Point-to-multipoint systems (P2M): the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$. - Point-to-point systems (P2P): the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W.
P_{Out} = maximum conducted output power in dBm, G_{TX} = the maximum transmitting antenna directional gain in dBi.	

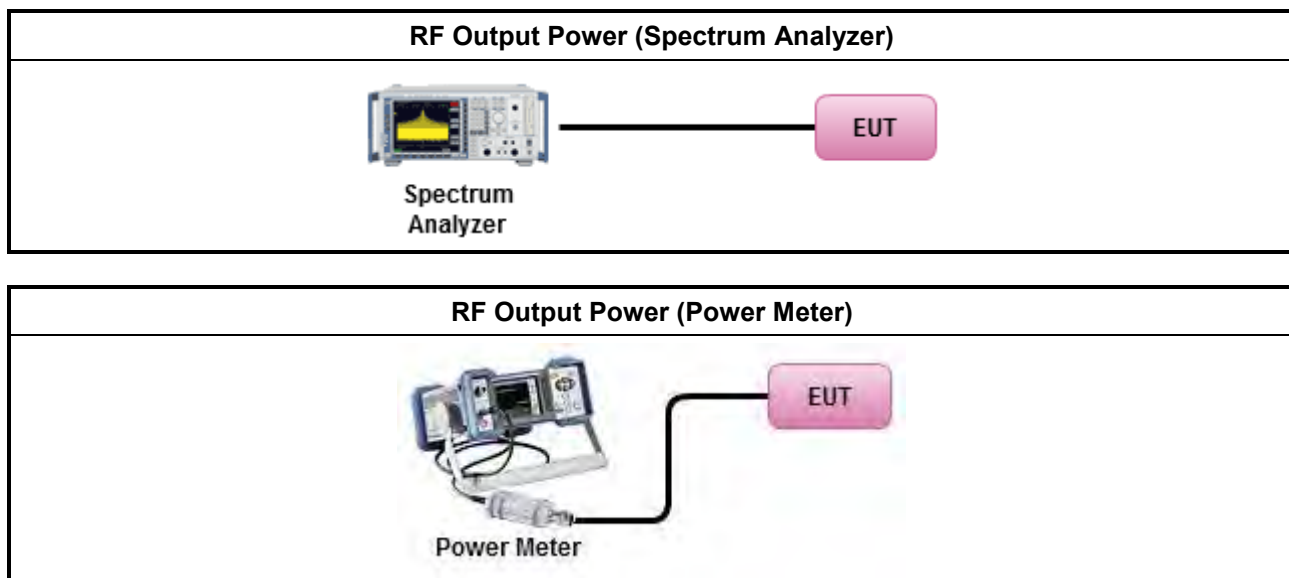
3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

Test Method	
Maximum Conducted Output Power	
	Duty cycle $\geq 98\%$
☒	Refer as KDB 789033, clause E Method SA-2 (spectral trace averaging).
	Duty cycle $< 98\%$
☐	Refer as KDB 789033, clause E Method SA-2 Alt. (RMS detection with slow sweep speed)
	Wideband RF power meter and average over on/off periods with duty factor
☒	Refer as KDB 789033, clause E Method PM (using an RF average power meter).
For conducted measurement.	
	If the EUT supports multiple transmit chains using options given below: Refer as 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	
☒ For the 5.15-5.25 GHz band:	
	Outdoor AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 17 - (G_{TX} - 6)$.
	Indoor AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 17 - (G_{TX} - 6)$.
	Point-to-point AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If $G_{TX} > 23$ dBi, then $P_{Out} = 17 - (G_{TX} - 23)$.
	Mobile or Portable Client: the peak power spectral density (PPSD) ≤ 11 dBm/MHz. If $G_{TX} > 6$ dBi, then $PPSD = 11 - (G_{TX} - 6)$.
☒ For the 5.25-5.35 GHz band, the peak power spectral density (PPSD) ≤ 11 dBm/MHz. If $G_{TX} > 6$ dBi, then $PPSD = 11 - (G_{TX} - 6)$.	
☒ For the 5.47-5.725 GHz band, the peak power spectral density (PPSD) ≤ 11 dBm/MHz. If $G_{TX} > 6$ dBi, then $PPSD = 11 - (G_{TX} - 6)$.	
☒ For the 5.725-5.85 GHz band:	
	Point-to-multipoint systems (P2M): the peak power spectral density (PPSD) ≤ 30 dBm/500kHz. If $G_{TX} > 6$ dBi, then $PPSD = 30 - (G_{TX} - 6)$.
	Point-to-point systems (P2P): the peak power spectral density (PPSD) ≤ 30 dBm/500kHz.
PPSD = peak power spectral density that the same method as used to determine the conducted output power shall be used to determine the power spectral density. And power spectral density in dBm/MHz G_{TX} = the maximum transmitting antenna directional gain in dBi.	

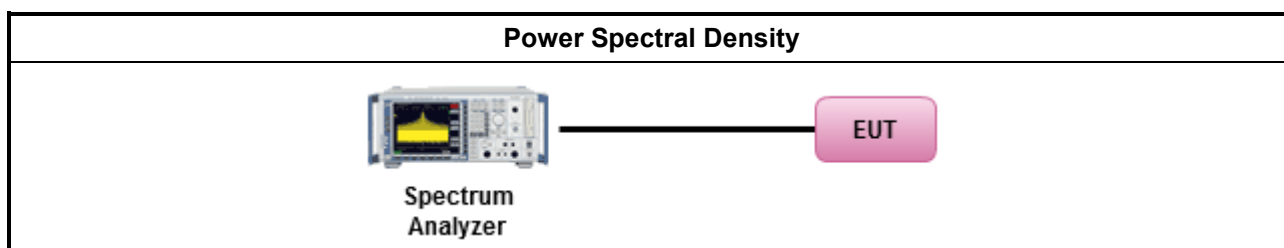
3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

Test Method	
Peak power spectral density procedures that the same method as used to determine the conducted output power shall be used to determine the peak power spectral density and use the peak search function on the spectrum analyzer to find the peak of the spectrum. For the peak power spectral density shall be measured using below options:	
☐ Refer as KDB 789033, F)5) power spectral density can be measured using resolution bandwidths < 1 MHz provided that the results are integrated over 1 MHz bandwidth	
Duty cycle ≥ 98%	
☒ Refer as KDB 789033, clause E Method SA-2 (spectral trace averaging).	
Duty cycle < 98%	
☐ Refer as KDB 789033, clause E Method SA-2 Alt. (RMS detection with slow sweep speed)	
For conducted measurement.	
If the EUT supports multiple transmit chains using options given below:	
☐	Measure and sum the spectra across the outputs. Refer as 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.
☐	If multiple transmit chains, EIRP PPSD calculation could be following as methods: $PPSD_{total} = PPSD_1 + PPSD_2 + \dots + PPSD_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $EIRP_{total} = PPSD_{total} + DG$

3.4.4 Test Setup



3.4.5 Test Result of Peak Power Spectral Density

Refer as Appendix D

3.5 Unwanted Emissions

3.5.1 Transmitter Radiated Unwanted Emissions Limit

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

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

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

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

Un-restricted band emissions above 1GHz Limit	
Operating Band	Limit
5.15 - 5.25 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
5.25 - 5.35 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
5.47 - 5.725 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
5.725 - 5.85 GHz	5.650-5700 GHz: e.i.r.p. -27 ~ 10 dBm [68.2 ~ 105.2 dBuV/m@3m] 5.700-5720 GHz: e.i.r.p. 10 ~ 15.6 dBm [105.2 ~ 110.8 dBuV/m@3m] 5.720-5725 GHz: e.i.r.p. 15.6 ~ 27 dBm [110.8 ~ 122.2 dBuV/m@3m] 5.850-5.855 GHz: e.i.r.p. 27 ~ 15.6 dBm [122.2 ~ 110.8 dBuV/m@3m] 5.855-5.875 GHz: e.i.r.p. 15.6 ~ 10 dBm [110.8 ~ 105.2 dBuV/m@3m] 5.875-5.925 GHz: e.i.r.p. 10 ~ -27 dBm [105.2 ~ 68.2dBuV/m@3m] Other un-restricted band: e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
Note 1: Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).	

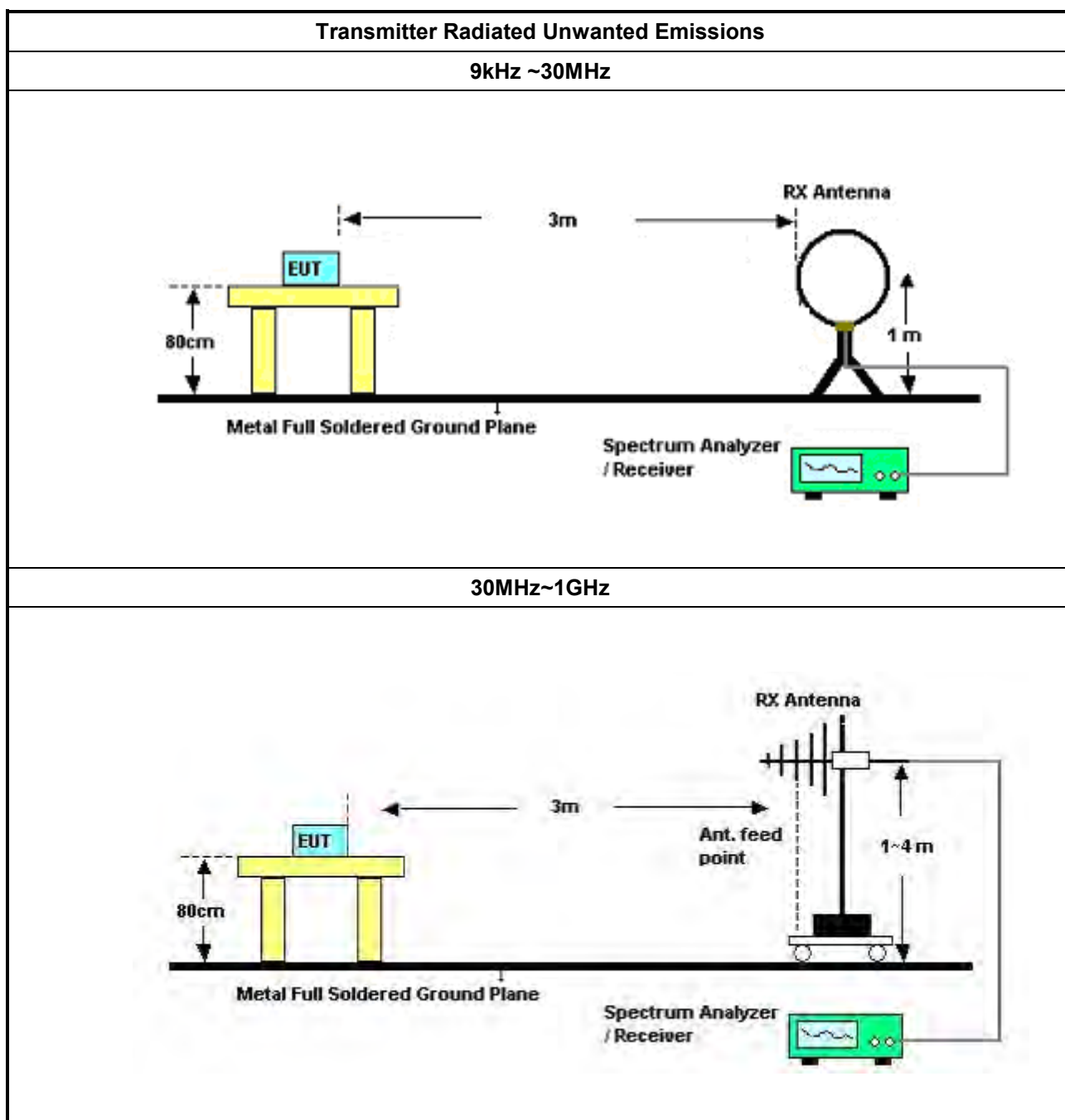
3.5.2 Measuring Instruments

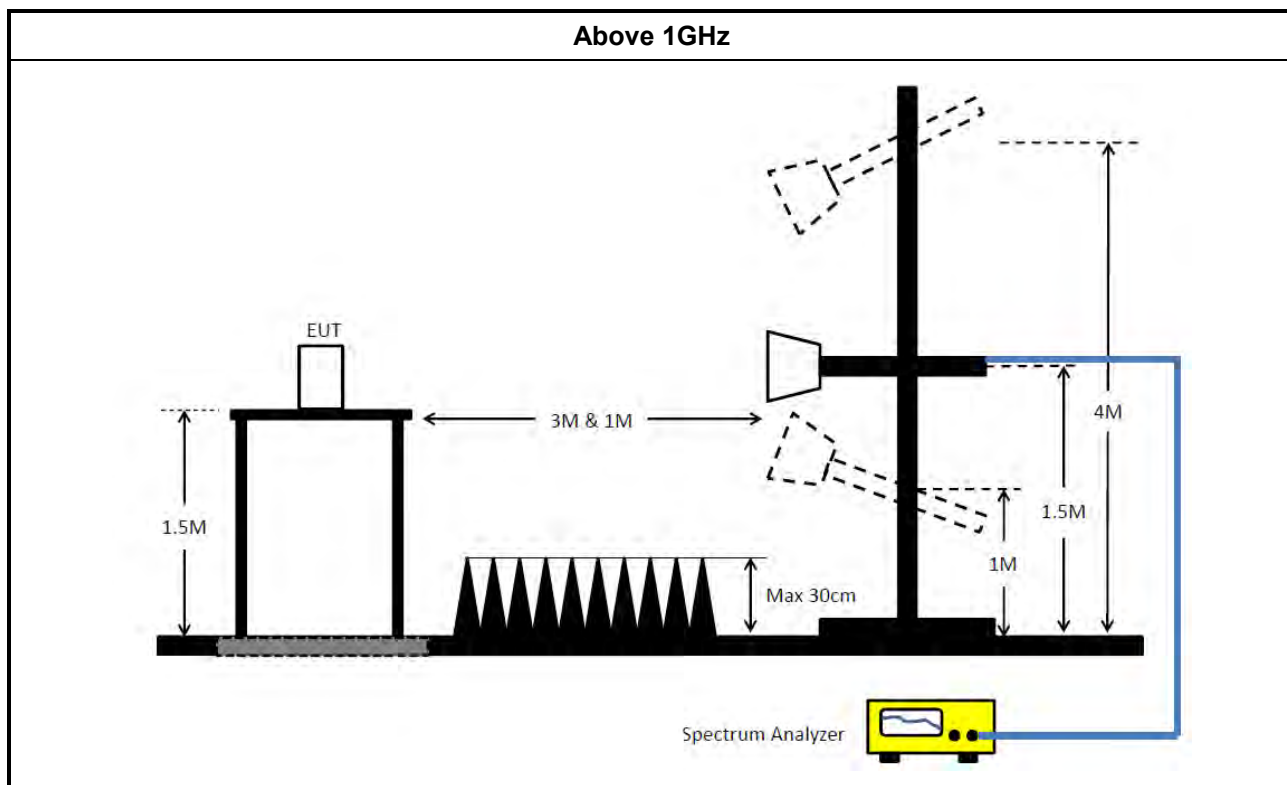
Refer a test equipment and calibration data table in this test report.

3.5.3 Test Procedures

Test Method	
Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 m for frequencies above 30 MHz, unless it can be further demonstrated that measurements at a distance of 30 m or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).	
The average emission levels shall be measured in [duty cycle $\geq$ 98 or duty factor].	
For the transmitter unwanted emissions shall be measured using following options below:	
	Refer as KDB 789033, clause G)2) for unwanted emissions into non-restricted bands.
	Refer as KDB 789033, clause G)1) for unwanted emissions into restricted bands.
	☒ Refer as KDB 789033, G)6) Method VB (ANSI C63.10, clause 4.1.4.2.3), Reduced VBW.
	☒ Refer as KDB 789033, clause G)5) (ANSI C63.10, clause 4.1.4.2.2), measurement procedure peak limit.
For radiated measurement.	
	Refer as ANSI C63.10, clause 6.4 for radiated emissions below 30 MHz and test distance is 3m.
	Refer as ANSI C63.10, clause 6.5 for radiated emissions 30 MHz to 1 GHz and test distance is 3m.
	Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1GHz.
The any unwanted emissions level shall not exceed the fundamental emission level.	
All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.	

3.5.4 Test Setup







3.5.5 Transmitter Unwanted Emissions (Below 30MHz)

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

3.5.6 Test Result of Transmitter Unwanted Emissions

Refer as Appendix E

3.6 Test Equipment and Calibration Data

Instrument for AC Conduction

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
EMC Receiver	R&S	ESR	102051	9KHz ~ 3.6GHz	03/May/2018	02/May/2019
LISN	R&S	ENV216	101295	9kHz ~ 30MHz	17/Nov/2017	16/Nov/2018
RF Cable-CON	HUBER+SUHNER	RG213/U	07611832020001	9kHz ~ 30MHz	06/Oct/2017	05/Oct/2018
AC POWER	APC	AFC-11005G	F310050055	47Hz~63Hz 5~300V	NCR	NCR
Impuls Begrenzer Puls e Limiter	SCHWARZBECK	VTSD 9561-F	9561-F041	9 kHz ~ 30 MHz	12/Oct/2017	11/Oct/2018

NCR : Non-Calibration Require
Instrument for Conducted Test

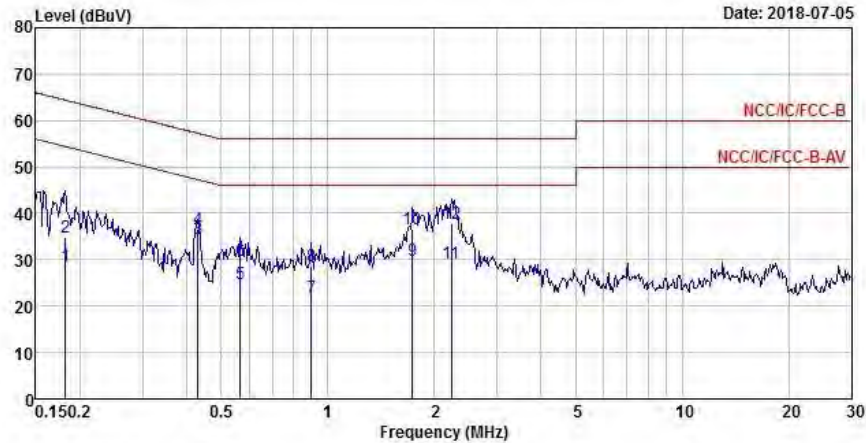
Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Spectrum Analyzer	R&S	FSV 40	101515	9kHz~40GHz	08/Dec/2017	07/Dec/2018
Power Sensor	Anritsu	MA2411B	1339407	300MHz ~ 40GHz	06/Nov/2017	05/Nov/2018
Power Meter	Anritsu	ML2495A	1517010	300MHz ~ 40GHz	06/Nov/2017	05/Nov/2018
RF Cable-0.2m	HUBER+SUHNER	SUCOFLEX_104	MY10710/4	30MHz ~ 26.5GHz	25/Aug/2017	24/Aug/2018
RF Cable-0.2m	HUBER+SUHNER	SUCOFLEX_104	MY10709/4	30MHz ~ 26.5GHz	25/Aug/2017	24/Aug/2018
RF Cable-0.5m	HUBER+SUHNER	SUCOFLEX_104	MY10713/4	30MHz ~ 26.5GHz	25/Aug/2017	24/Aug/2018
RF Cable-1m	HUBER+SUHNER	SUCOFLEX_104	MY37332/4	30MHz ~ 26.5GHz	26/Jan/2018	25/Jan/2019
RF Cable-1m	HUBER+SUHNER	SUCOFLEX_104	MY37333/4	30MHz ~ 26.5GHz	26/Jan/2018	25/Jan/2019
Signal Generator	R&S	SMR40	100116	10MHz ~ 40GHz	27/Jul/2017	26/Jul/2018

Instrument for Radiated Test

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH09-HY	30MHz ~ 1GHz	23/Apr/2018	22/Apr/2019
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH09-HY	1GHz ~ 18GHz	14/Jun/2018	13/Jun/2019
Microwave Preamplifier	Agilent	8449B	3008A02096	1GHz ~ 26.5GHz	10/May/2018	09/May/2019
Amplifier	EMC	EMC9135	980232	9KHz~1GHz	27/Apr/2018	26/Apr/2019
EXA Signal Analyzer	KEYSIGHT	N9010A	MY54200885	10Hz ~ 44GHz	20/Jul/2017	19/Jul/2018
Bilog Antenna & 5dB Attenuator	TESEQ & MTJ	CBL6111D & MTJ6102-05	35418 / 3	30MHz~1GHz	09/Sep/2017	08/Sep/2018
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120 D	BBHA9120 D 1534	1GHz~18GHz	30/Apr/2018	29/Apr/2019
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170614	18GHz~40GHz	09/Feb/2018	08/Feb/2019
Preamplifier	MITEQ	TTA1840-35-HG	1864481	18GHz ~ 40GHz	24/Aug/2017	23/Aug/2018
Loop Antenna	TESEQ	HLA 6120	31244	9k-30MHz	29/Mar/2018	28/Mar/2019
RF Cable-R03m	Jye Bao	RG142	CB031	9kHz ~ 1GHz	1/Feb/2018	31/Jan/2019
RF Cable-high	HUBER+SUHNER	SUCOFLEX104	SN 556626/4 + 556627	1GHz ~ 40GHz	14/Mar/2018	13/Mar/2019

AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Neutral
Operating Function	USB mode		

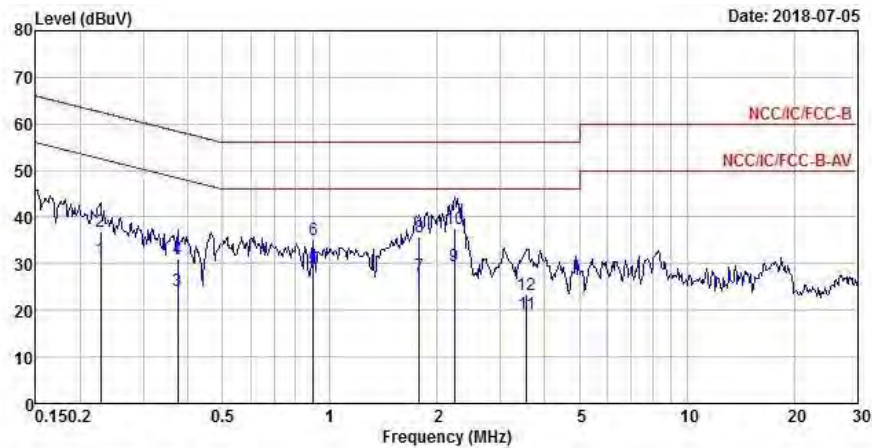


	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.18	28.67	-25.75	54.42	19.04	9.62	0.01	Average
2	0.18	34.91	-29.51	64.42	25.28	9.62	0.01	QP
3 MAX	0.43	34.65	-12.59	47.24	24.95	9.61	0.09	Average
4	0.43	36.56	-20.68	57.24	26.86	9.61	0.09	QP
5	0.57	24.87	-21.13	46.00	15.20	9.61	0.06	Average
6	0.57	29.92	-26.08	56.00	20.25	9.61	0.06	QP
7	0.90	21.84	-24.16	46.00	12.21	9.62	0.01	Average
8	0.90	28.66	-27.34	56.00	19.03	9.62	0.01	QP
9	1.73	29.81	-16.19	46.00	20.18	9.63	0.00	Average
10	1.73	36.56	-19.44	56.00	26.93	9.63	0.00	QP
11	2.24	29.11	-16.89	46.00	19.47	9.63	0.01	Average
12	2.24	37.66	-18.34	56.00	28.02	9.63	0.01	QP

Note 1: ">20dB" means emission levels that exceed the level of 20 dB below the applicable limit.
 Note 2: "N/F" means Nothing Found emissions (No emissions were detected.)

AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Line
Operating Function	USB mode		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.23	31.02	-21.50	52.52	21.38	9.62	0.02	Average
2	0.23	36.81	-25.71	62.52	27.17	9.62	0.02	QP
3	0.38	24.28	-24.11	48.39	14.58	9.61	0.09	Average
4	0.38	30.89	-27.50	58.39	21.19	9.61	0.09	QP
5	0.90	28.85	-17.15	46.00	19.23	9.61	0.01	Average
6	0.90	35.15	-20.85	56.00	25.53	9.61	0.01	QP
7	1.78	27.59	-18.41	46.00	17.97	9.62	0.00	Average
8	1.78	35.68	-20.32	56.00	26.06	9.62	0.00	QP
9 MAX	2.24	29.38	-16.62	46.00	19.75	9.62	0.01	Average
10	2.24	37.58	-18.42	56.00	27.95	9.62	0.01	QP
11	3.57	19.32	-26.68	46.00	9.62	9.63	0.07	Average
12	3.57	23.29	-32.71	56.00	13.59	9.63	0.07	QP

Note 1: ">20dB" means emission levels that exceed the level of 20 dB below the applicable limit.
 Note 2: "N/F" means Nothing Found emissions (No emissions were detected.)

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.15-5.25GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_2TX	40.05M	19.765M	19M8D1D	38.65M	17.416M
802.11ac_VHT20_Nss1,(MCS0)_2TX	44.725M	19.865M	19M9D1D	25.95M	17.666M
802.11ac_VHT40_Nss1,(MCS0)_2TX	87.55M	37.131M	37M1D1D	44M	36.282M
802.11ac_VHT80_Nss1,(MCS0)_2TX	87.5M	75.862M	75M9D1D	83.6M	75.862M
5.25-5.35GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_2TX	38.775M	18.666M	18M7D1D	20.575M	16.467M
802.11ac_VHT20_Nss1,(MCS0)_2TX	43.65M	18.791M	18M8D1D	43.1M	17.866M
802.11ac_VHT40_Nss1,(MCS0)_2TX	89.5M	38.331M	38M3D1D	43.2M	36.232M
802.11ac_VHT80_Nss1,(MCS0)_2TX	86M	75.862M	75M9D1D	83.6M	75.762M
5.47-5.725GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_2TX	39.075M	18.516M	18M5D1D	20M	14.678M
802.11ac_VHT20_Nss1,(MCS0)_2TX	43M	19.165M	19M2D1D	21.375M	14.858M
802.11ac_VHT40_Nss1,(MCS0)_2TX	88.95M	38.481M	38M5D1D	43.6M	34.458M
802.11ac_VHT80_Nss1,(MCS0)_2TX	128.2M	76.162M	76M2D1D	83.2M	73.613M
5.725-5.85GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_2TX	16.525M	19.165M	19M2D1D	3.2M	11.694M
802.11ac_VHT20_Nss1,(MCS0)_2TX	17.7M	19.69M	19M7D1D	3.82M	10.795M
802.11ac_VHT40_Nss1,(MCS0)_2TX	36.55M	40.73M	40M7D1D	3.28M	24.548M
802.11ac_VHT80_Nss1,(MCS0)_2TX	76.4M	82.259M	82M3D1D	3.2M	36.682M

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

Max-OBW = Maximum 99% occupied bandwidth;

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

Min-OBW = Minimum 99% occupied bandwidth;

Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)
802.11a_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
5180MHz_TnomVnom	Pass	Inf	40.05M	18.366M	40.05M	19.765M
5200MHz_TnomVnom	Pass	Inf	39.05M	18.666M	38.975M	19.265M
5240MHz_TnomVnom	Pass	Inf	38.65M	17.416M	39.175M	18.666M
5260MHz_TnomVnom	Pass	Inf	38.75M	17.416M	38.775M	18.666M
5300MHz_TnomVnom	Pass	Inf	38.45M	17.941M	38.575M	18.641M
5320MHz_TnomVnom	Pass	Inf	20.575M	16.467M	22.95M	16.542M
5500MHz_TnomVnom	Pass	Inf	20M	16.467M	24.175M	16.592M
5580MHz_TnomVnom	Pass	Inf	38.775M	16.992M	39.075M	18.516M
5700MHz_TnomVnom	Pass	Inf	25.325M	16.542M	26.125M	16.567M
5720MHz Straddle 5.47-5.725GHz_TnomVnom	Pass	Inf	24.03M	14.888M	23.22M	14.678M
5720MHz Straddle 5.725-5.85GHz_TnomVnom	Pass	500k	3.22M	11.974M	3.2M	11.694M
5745MHz_TnomVnom	Pass	500k	16.45M	19.165M	16.525M	17.866M
5785MHz_TnomVnom	Pass	500k	16.475M	17.491M	16.525M	17.416M
5825MHz_TnomVnom	Pass	500k	16.45M	17.041M	16.525M	17.141M
802.11ac_VHT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5180MHz_TnomVnom	Pass	Inf	25.95M	17.666M	29.8M	17.741M
5200MHz_TnomVnom	Pass	Inf	43.425M	18.691M	44.725M	19.865M
5240MHz_TnomVnom	Pass	Inf	43.15M	18.166M	43.225M	19.39M
5260MHz_TnomVnom	Pass	Inf	43.5M	18.391M	43.65M	18.791M
5300MHz_TnomVnom	Pass	Inf	43.425M	18.066M	43.425M	18.266M
5320MHz_TnomVnom	Pass	Inf	43.1M	17.866M	43.175M	18.166M
5500MHz_TnomVnom	Pass	Inf	21.375M	17.616M	26.125M	17.716M
5580MHz_TnomVnom	Pass	Inf	42.325M	17.916M	43M	19.165M
5700MHz_TnomVnom	Pass	Inf	21.55M	17.616M	21.9M	17.666M
5720MHz Straddle 5.47-5.725GHz_TnomVnom	Pass	Inf	26.265M	14.903M	25.29M	14.858M
5720MHz Straddle 5.725-5.85GHz_TnomVnom	Pass	500k	3.82M	11.314M	3.82M	10.795M
5745MHz_TnomVnom	Pass	500k	17.7M	19.69M	17.7M	18.591M
5785MHz_TnomVnom	Pass	500k	17.675M	18.216M	17.7M	18.216M
5825MHz_TnomVnom	Pass	500k	17.7M	17.966M	17.7M	18.016M
802.11ac_VHT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5190MHz_TnomVnom	Pass	Inf	44M	36.282M	44M	36.282M
5230MHz_TnomVnom	Pass	Inf	87.55M	37.131M	87.1M	36.832M
5270MHz_TnomVnom	Pass	Inf	89.1M	38.331M	89.5M	38.281M
5310MHz_TnomVnom	Pass	Inf	43.2M	36.232M	43.7M	36.282M
5510MHz_TnomVnom	Pass	Inf	43.6M	36.282M	55.55M	36.432M
5550MHz_TnomVnom	Pass	Inf	87.6M	37.881M	88.95M	38.481M
5670MHz_TnomVnom	Pass	Inf	73.7M	36.482M	70.05M	36.482M
5710MHz Straddle 5.47-5.725GHz_TnomVnom	Pass	Inf	56.91M	34.458M	56.945M	34.633M
5710MHz Straddle 5.725-5.85GHz_TnomVnom	Pass	500k	3.28M	25.167M	3.28M	24.548M
5755MHz_TnomVnom	Pass	500k	36.4M	40.73M	36.55M	37.931M
5795MHz_TnomVnom	Pass	500k	36.5M	38.331M	36.45M	37.181M
802.11ac_VHT80_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5210MHz_TnomVnom	Pass	Inf	87.5M	75.862M	83.6M	75.862M

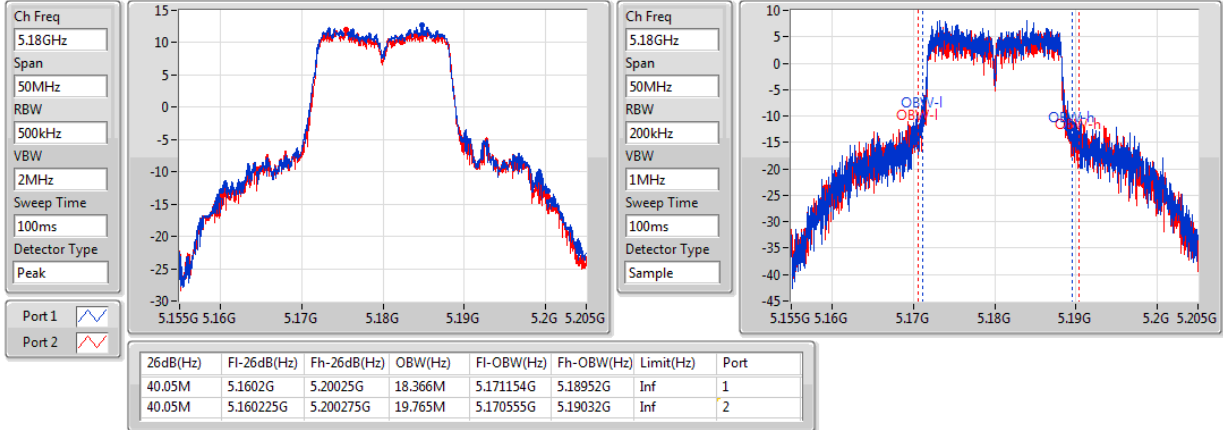
Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)
5290MHz_TnomVnom	Pass	Inf	83.6M	75.762M	86M	75.862M
5530MHz_TnomVnom	Pass	Inf	83.2M	75.862M	107.2M	75.862M
5610MHz_TnomVnom	Pass	Inf	121.6M	76.062M	128.2M	76.162M
5690MHz Straddle 5.47-5.725GHz_TnomVnom	Pass	Inf	118.05M	73.763M	117.75M	73.613M
5690MHz Straddle 5.725-5.85GHz_TnomVnom	Pass	500k	3.2M	37.081M	3.2M	36.682M
5775MHz_TnomVnom	Pass	500k	76.4M	82.259M	76.4M	76.962M

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

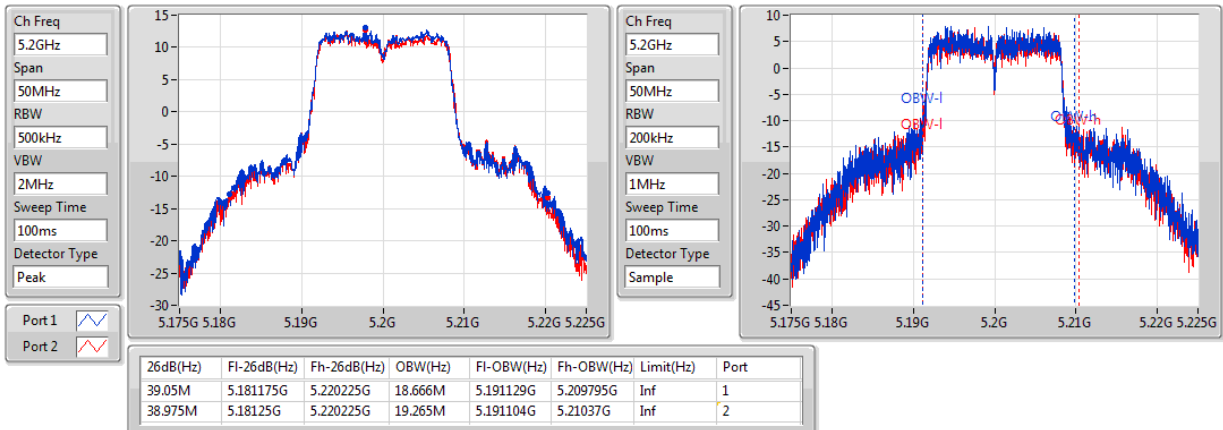
Port X-OBW = Port X 99% occupied bandwidth;

802.11a_Nss1,(6Mbps)_2TX
EBW
5180MHz

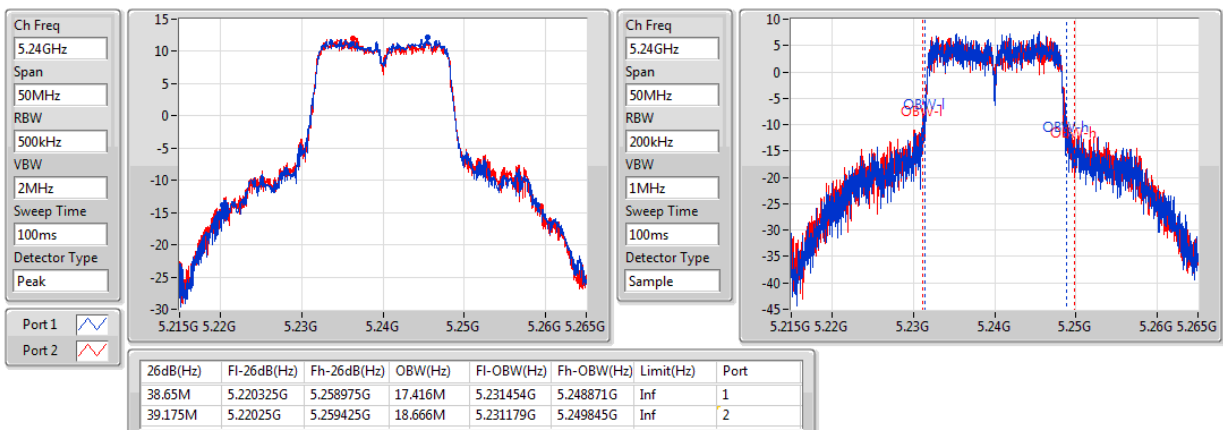
05/07/2018


802.11a_Nss1,(6Mbps)_2TX
EBW
5200MHz

05/07/2018

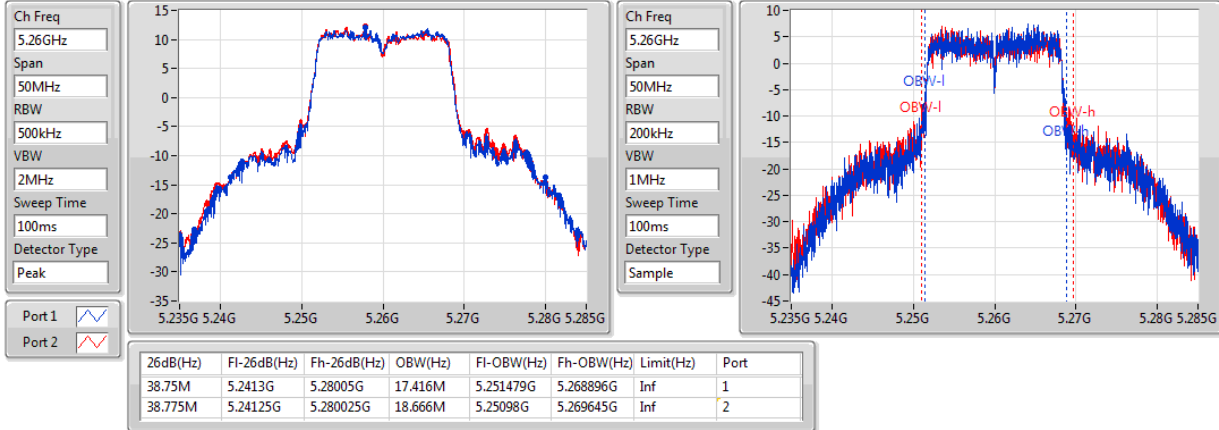

802.11a_Nss1,(6Mbps)_2TX
EBW
5240MHz

05/07/2018

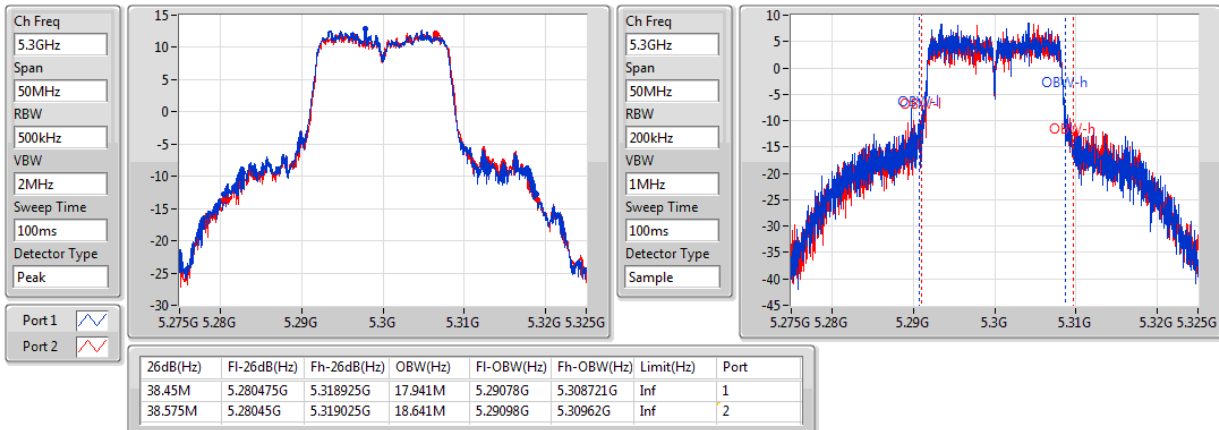


802.11a_Nss1,(6Mbps)_2TX
EBW
5260MHz

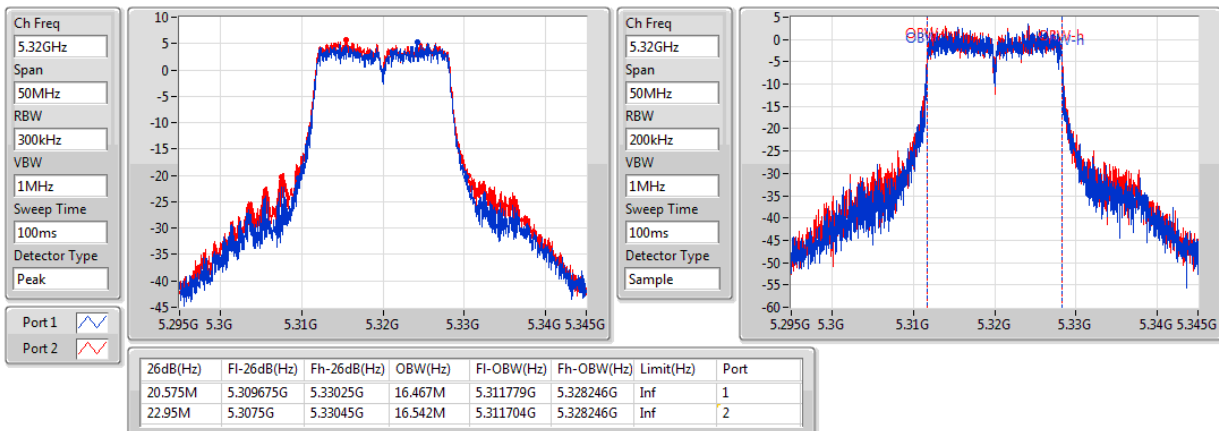
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802.11a_Nss1,(6Mbps)_2TX
EBW
5300MHz

05/07/2018

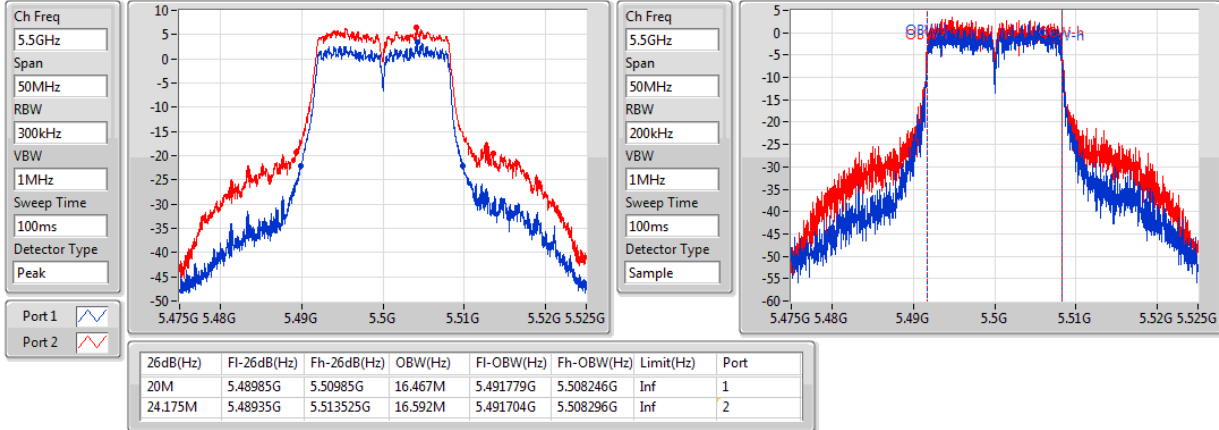

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EBW
5320MHz

05/07/2018

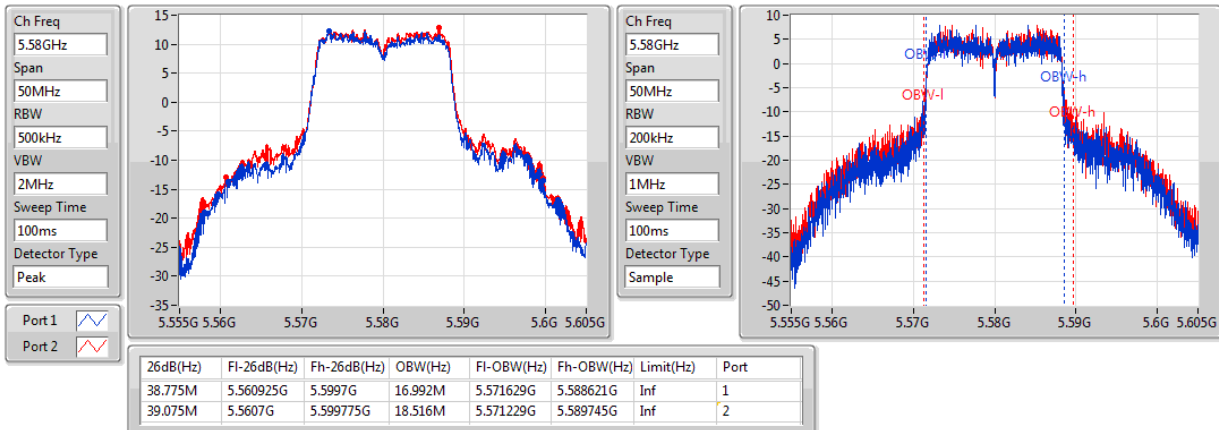


802.11a_Nss1,(6Mbps)_2TX
EBW
5500MHz

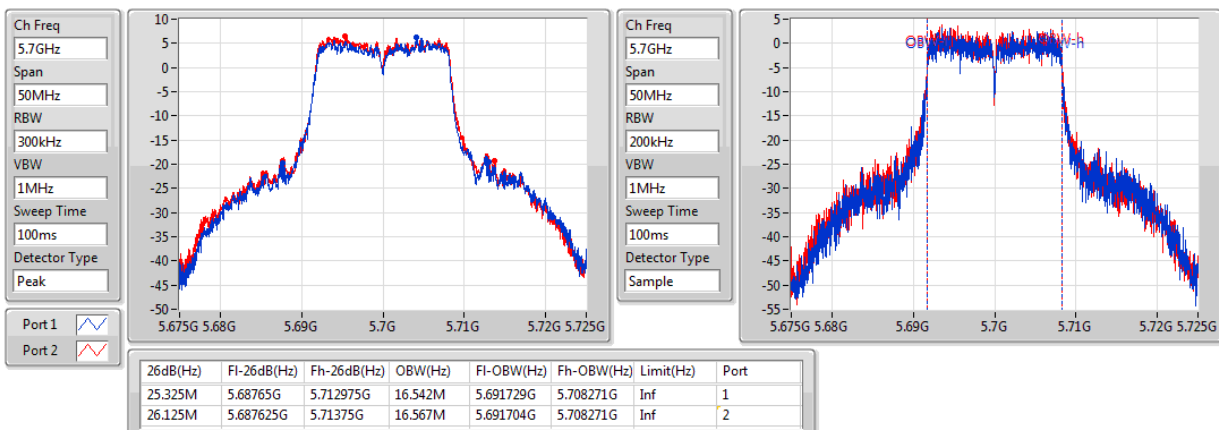
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802.11a_Nss1,(6Mbps)_2TX
EBW
5580MHz

05/07/2018

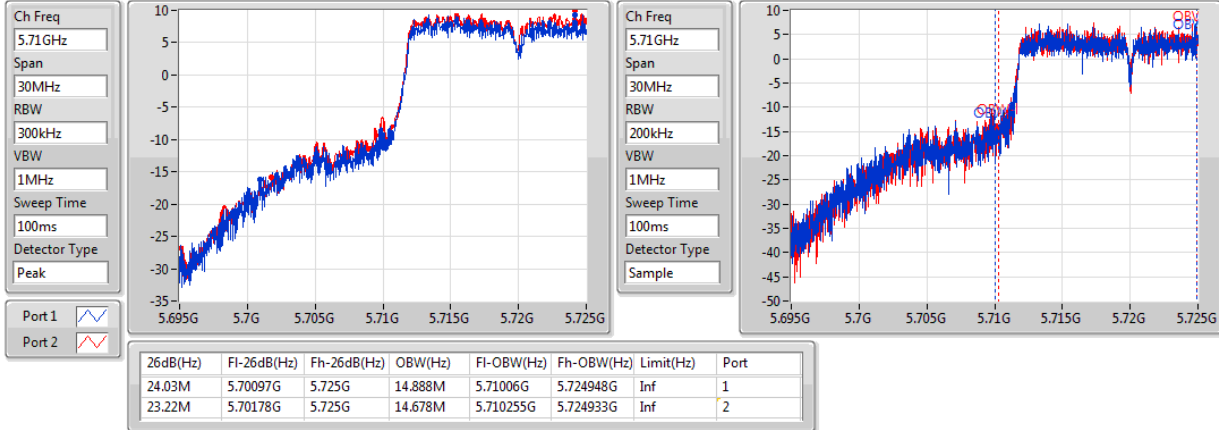

802.11a_Nss1,(6Mbps)_2TX
EBW
5700MHz

05/07/2018

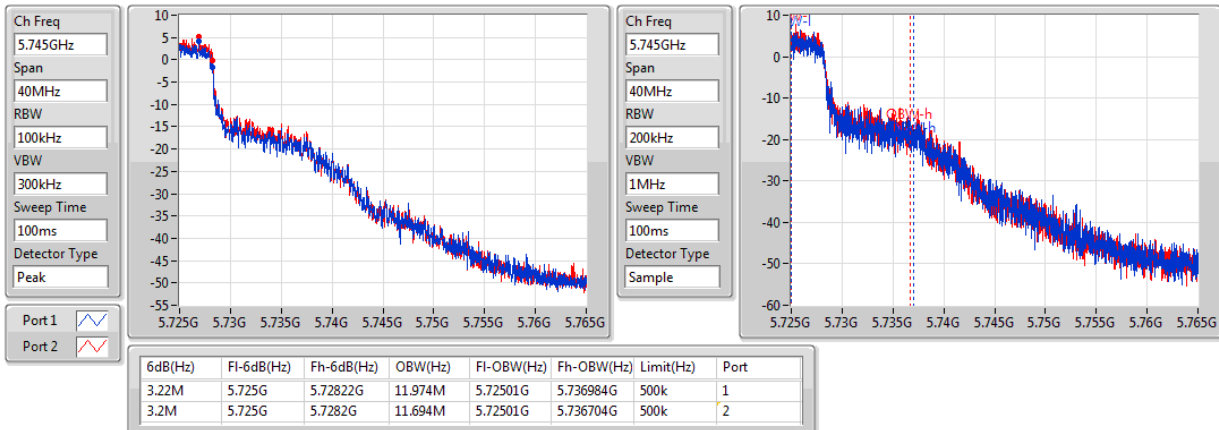


802.11a_Nss1,(6Mbps)_2TX
EBW
5720MHz Straddle 5.47-5.725GHz

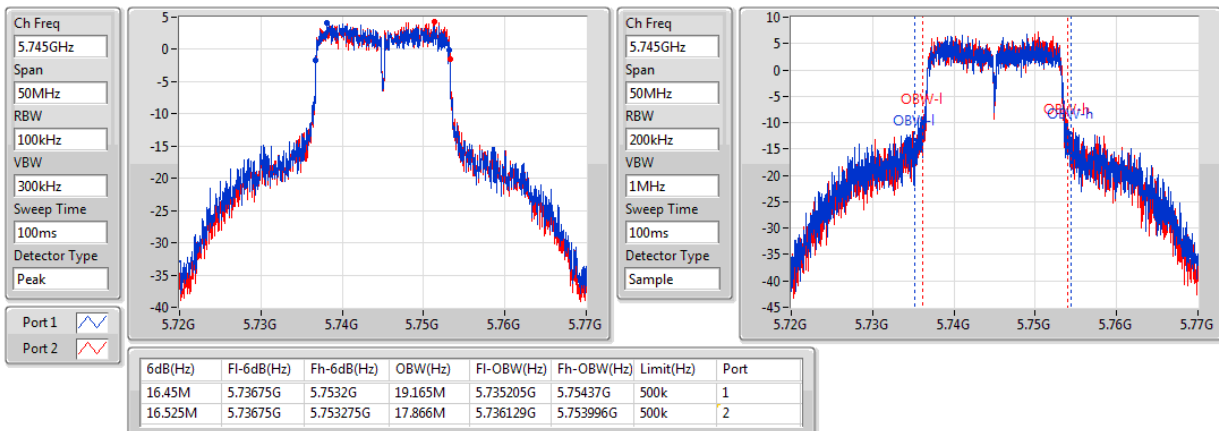
05/07/2018


802.11a_Nss1,(6Mbps)_2TX
EBW
5720MHz Straddle 5.725-5.85GHz

05/07/2018

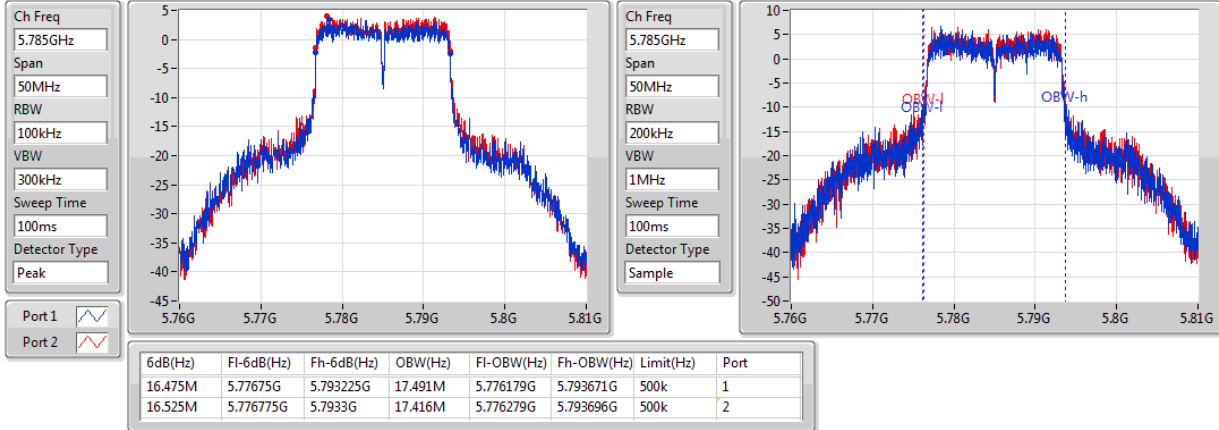

802.11a_Nss1,(6Mbps)_2TX
EBW
5745MHz

05/07/2018

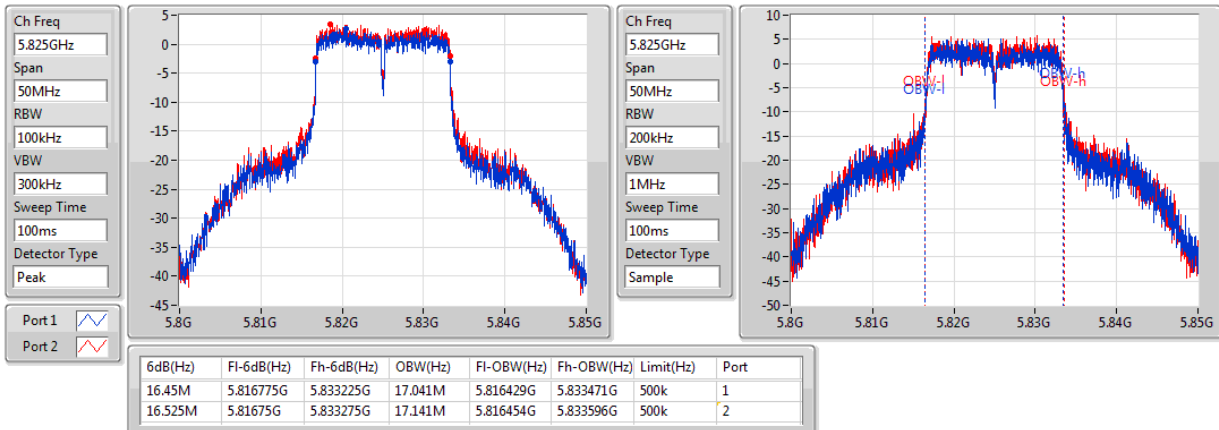


802.11a_Nss1,(6Mbps)_2TX
EBW
5785MHz

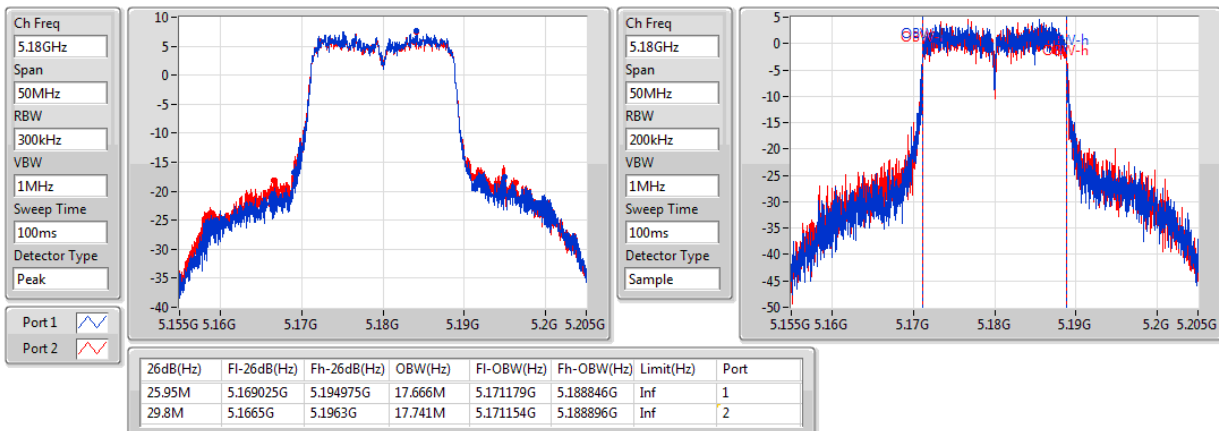
05/07/2018


802.11a_Nss1,(6Mbps)_2TX
EBW
5825MHz

05/07/2018

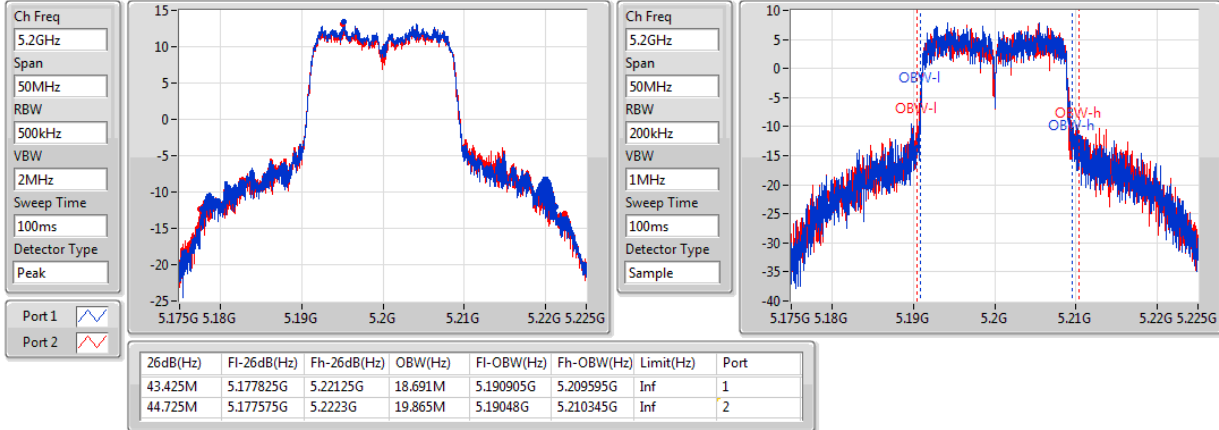

802.11ac VHT20_Nss1,(MCS0)_2TX
EBW
5180MHz

05/07/2018

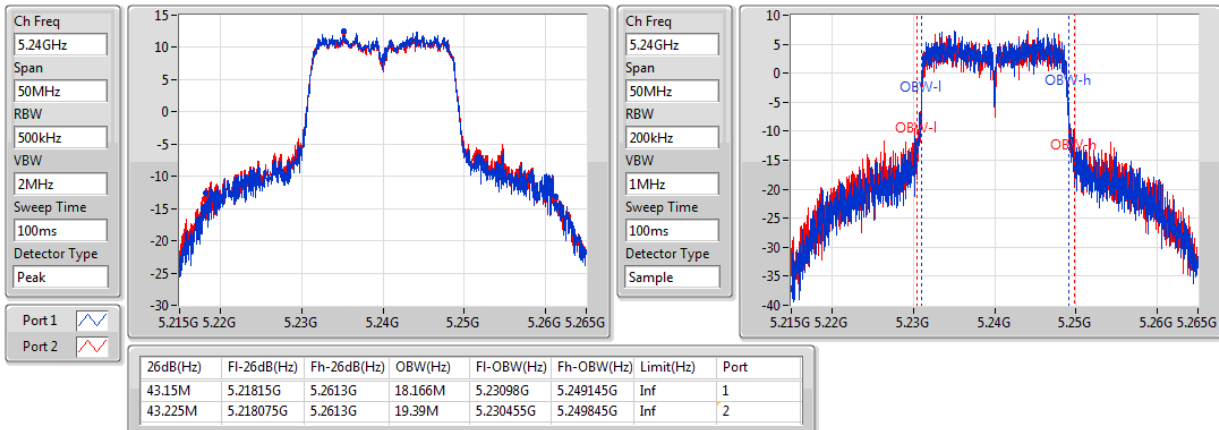


802.11ac VHT20_Nss1,(MCS0)_2TX
EBW
5200MHz

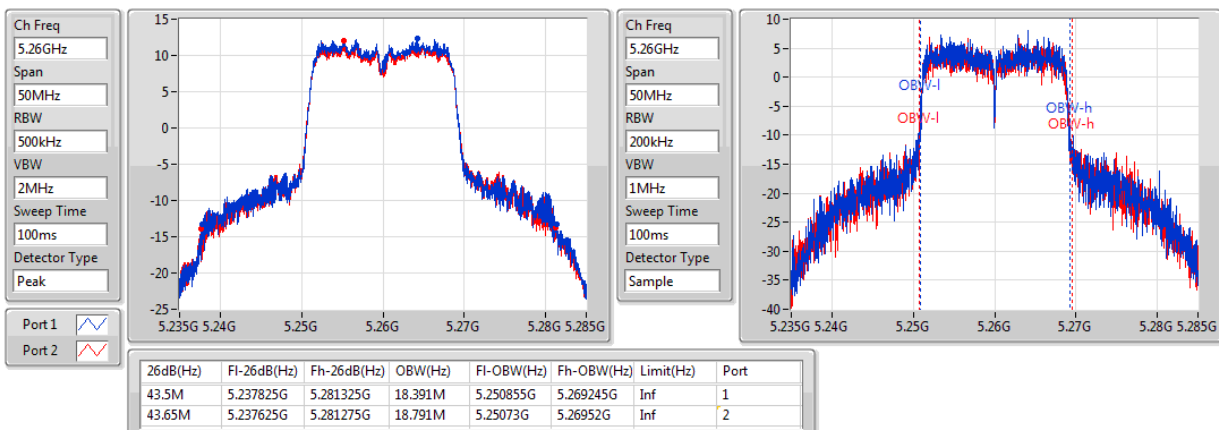
05/07/2018


802.11ac VHT20_Nss1,(MCS0)_2TX
EBW
5240MHz

05/07/2018

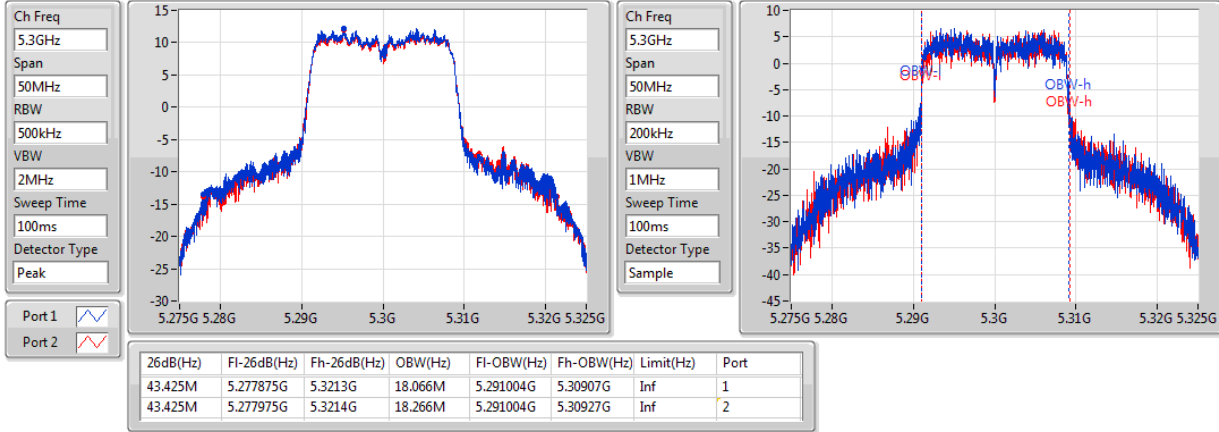

802.11ac VHT20_Nss1,(MCS0)_2TX
EBW
5260MHz

05/07/2018

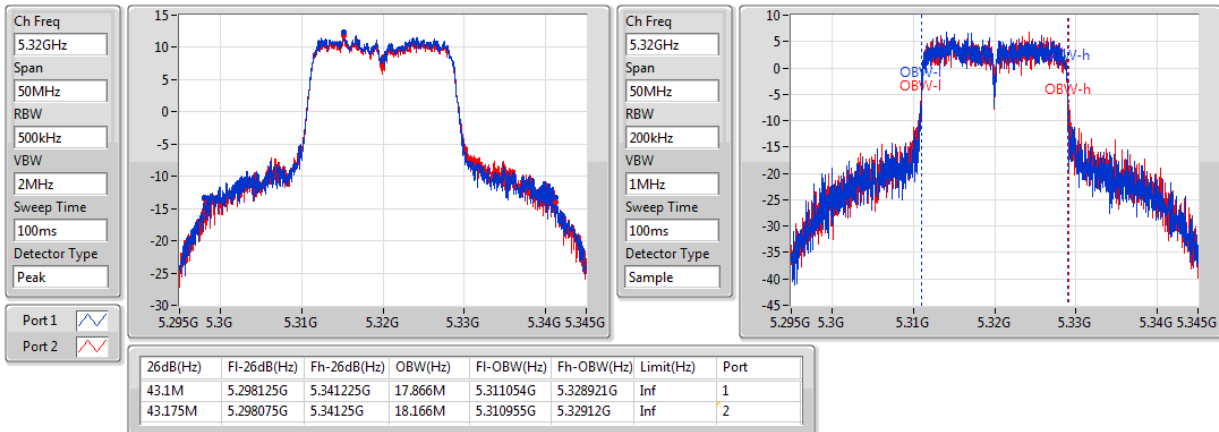


802.11ac VHT20_Nss1,(MCS0)_2TX
EBW
5300MHz

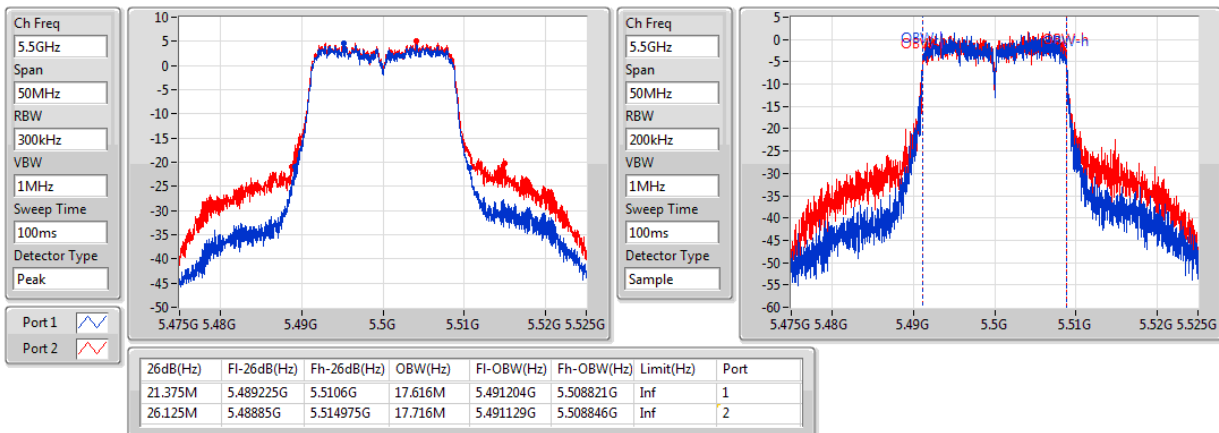
05/07/2018


802.11ac VHT20_Nss1,(MCS0)_2TX
EBW
5320MHz

05/07/2018

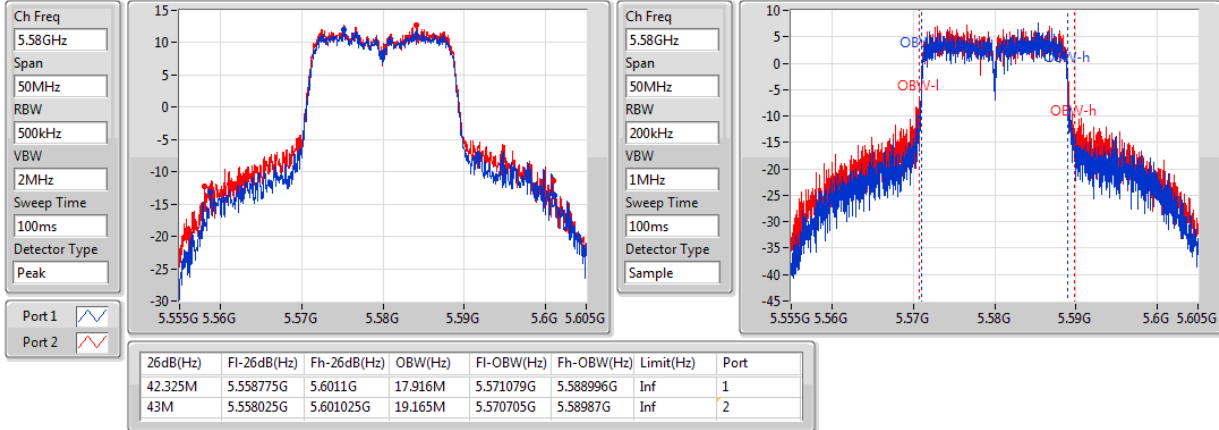

802.11ac VHT20_Nss1,(MCS0)_2TX
EBW
5500MHz

05/07/2018

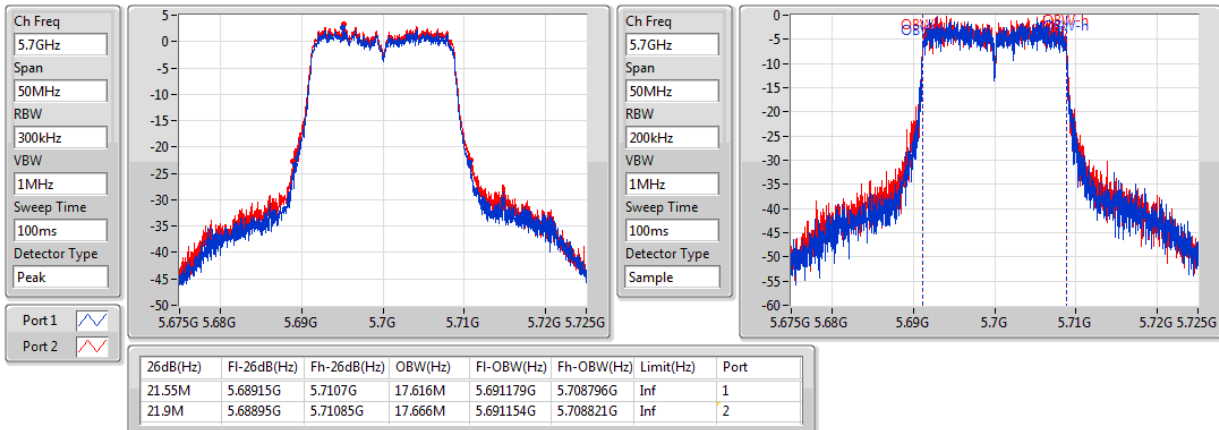


802.11ac VHT20_Nss1,(MCS0)_2TX
EBW
5580MHz

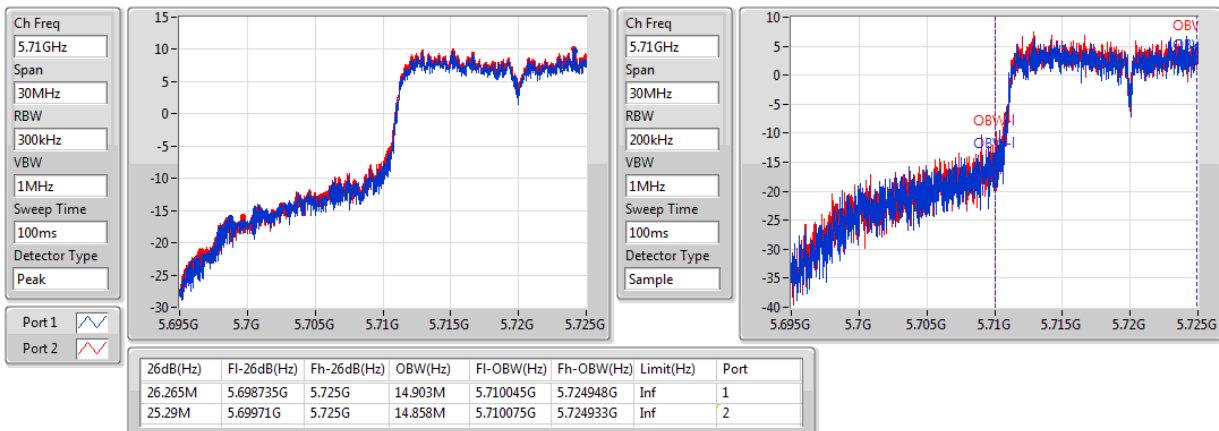
05/07/2018


802.11ac VHT20_Nss1,(MCS0)_2TX
EBW
5700MHz

05/07/2018

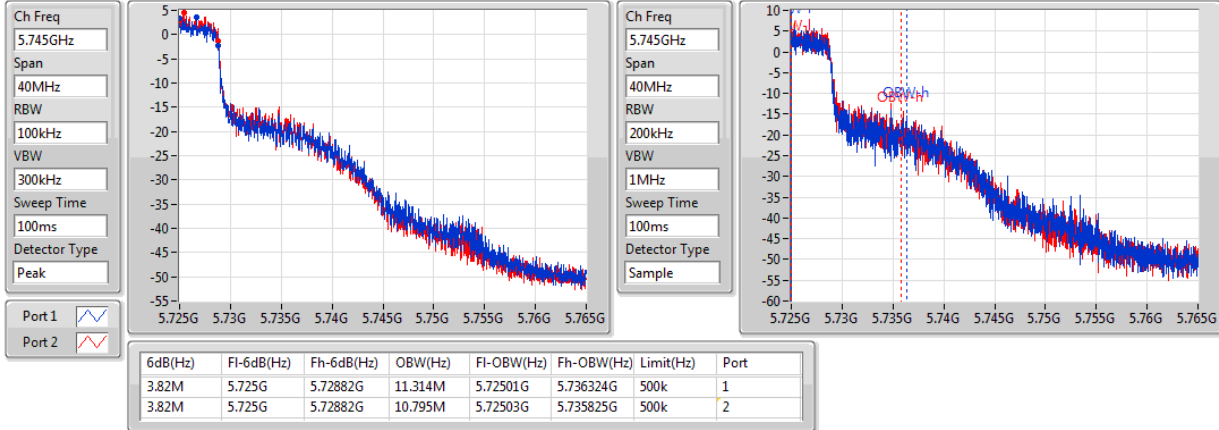

802.11ac VHT20_Nss1,(MCS0)_2TX
EBW
5720MHz Straddle 5.47-5.725GHz

05/07/2018

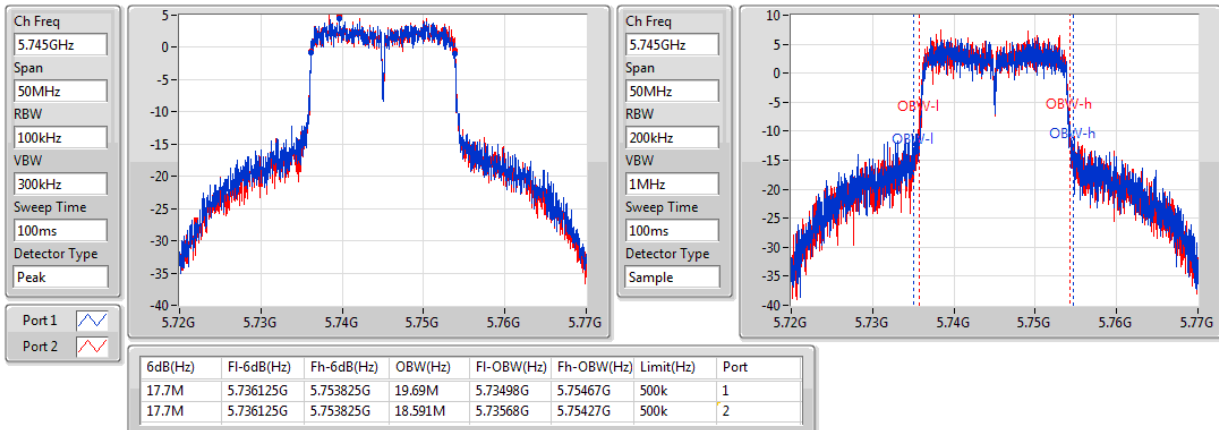


802.11ac VHT20_Nss1,(MCS0)_2TX
EBW
5720MHz Straddle 5.725-5.85GHz

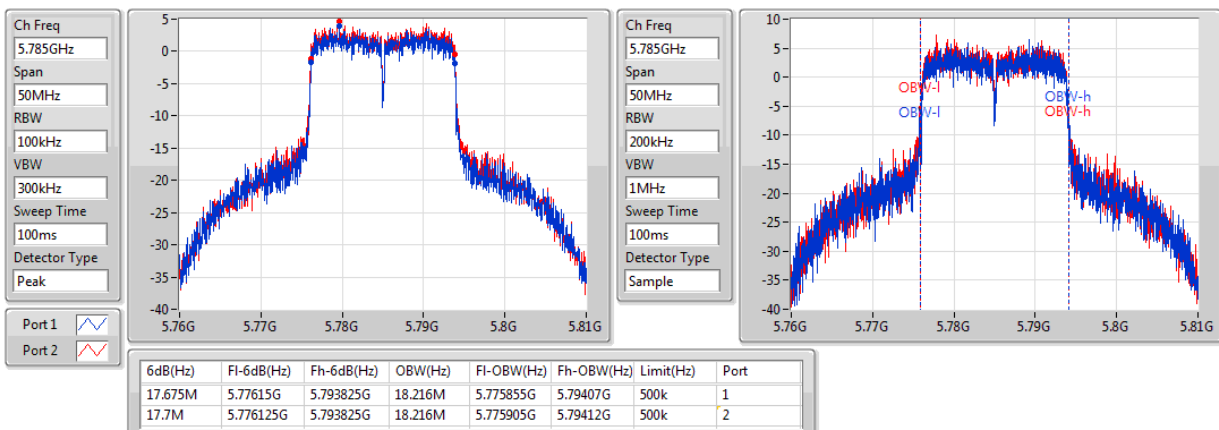
05/07/2018


802.11ac VHT20_Nss1,(MCS0)_2TX
EBW
5745MHz

05/07/2018


802.11ac VHT20_Nss1,(MCS0)_2TX
EBW
5785MHz

05/07/2018



802.11ac VHT20_Nss1,(MCS0)_2TX
EBW
5825MHz

05/07/2018

Ch Freq
5.825GHz

Span
50MHz

RBW
100kHz

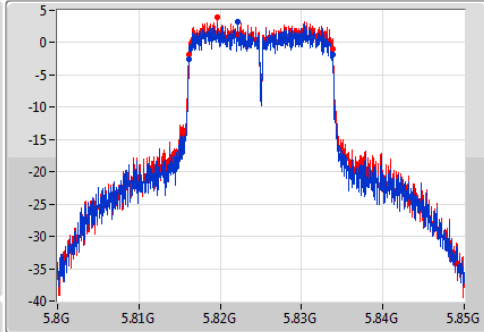
VBW
300kHz

Sweep Time
100ms

Detector Type
Peak

Port 1 

Port 2 



Ch Freq
5.825GHz

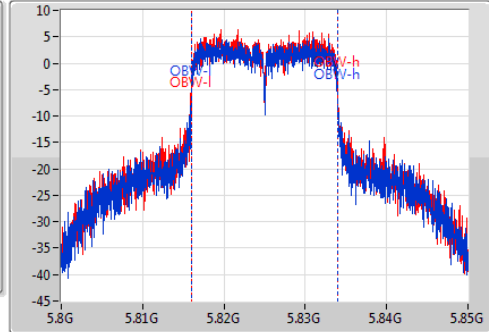
Span
50MHz

RBW
200kHz

VBW
1MHz

Sweep Time
100ms

Detector Type
Sample



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
17.7M	5.816125G	5.833825G	17.966M	5.81598G	5.833946G	500k	1
17.7M	5.816125G	5.833825G	18.016M	5.816004G	5.83402G	500k	2

802.11ac VHT40_Nss1,(MCS0)_2TX
EBW
5190MHz

05/07/2018

Ch Freq
5.19GHz

Span
100MHz

RBW
500kHz

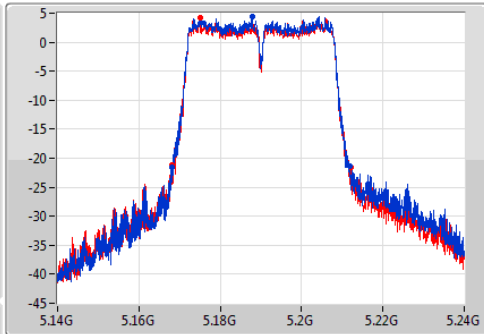
VBW
2MHz

Sweep Time
100ms

Detector Type
Peak

Port 1 

Port 2 



Ch Freq
5.19GHz

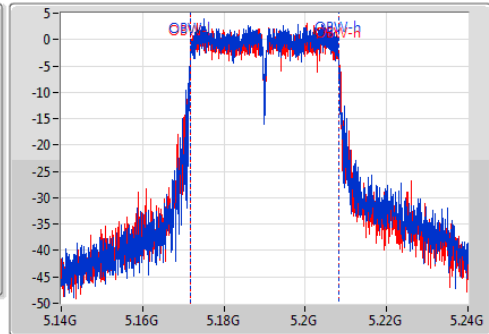
Span
100MHz

RBW
500kHz

VBW
2MHz

Sweep Time
100ms

Detector Type
Sample



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
44M	5.168G	5.212G	36.282M	5.171859G	5.208141G	Inf	1
44M	5.16815G	5.21215G	36.282M	5.171859G	5.208141G	Inf	2

802.11ac VHT40_Nss1,(MCS0)_2TX
EBW
5230MHz

05/07/2018

Ch Freq
5.23GHz

Span
100MHz

RBW
1MHz

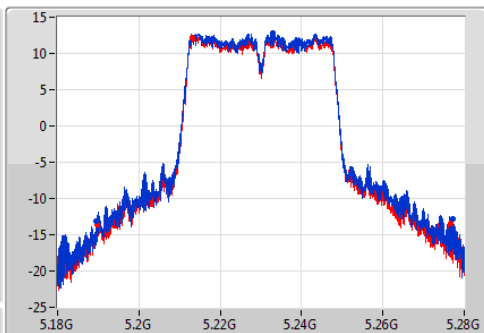
VBW
3MHz

Sweep Time
100ms

Detector Type
Peak

Port 1 

Port 2 



Ch Freq
5.23GHz

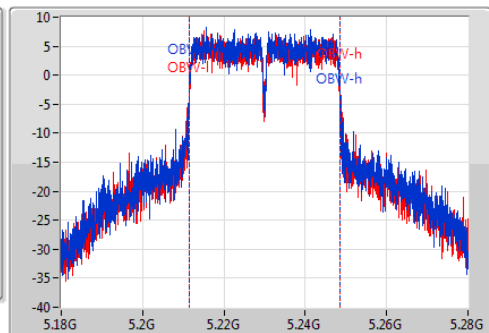
Span
100MHz

RBW
500kHz

VBW
2MHz

Sweep Time
100ms

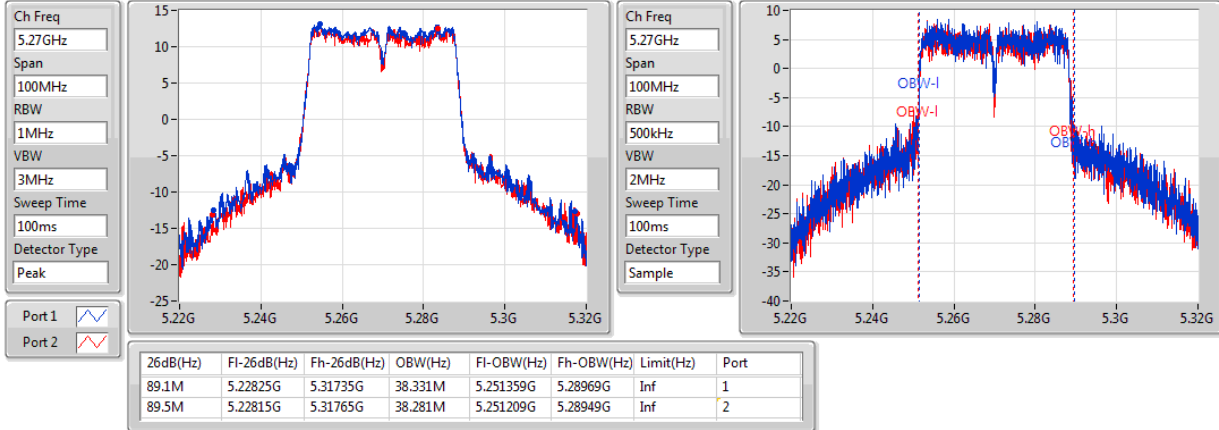
Detector Type
Sample



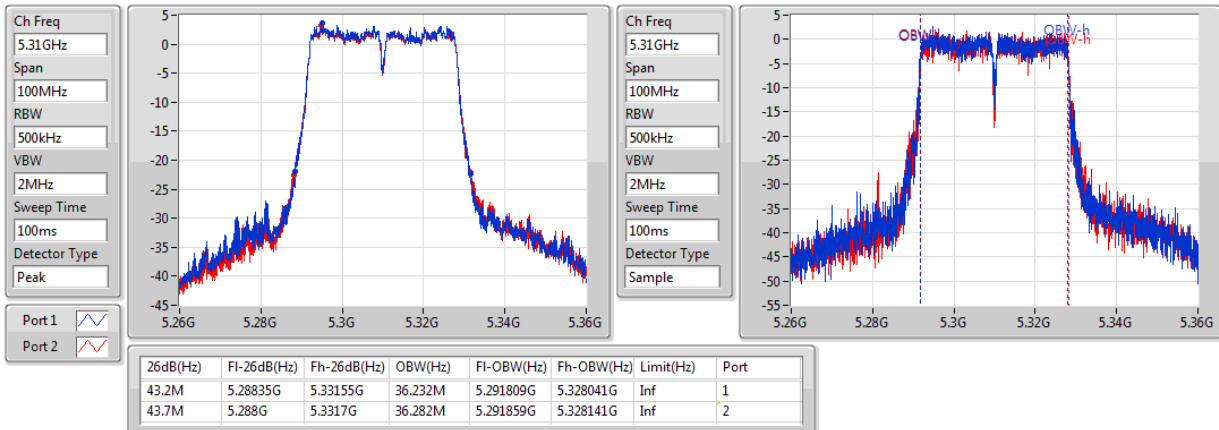
26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
87.55M	5.18955G	5.2771G	37.131M	5.211459G	5.248591G	Inf	1
87.1M	5.18965G	5.27675G	36.832M	5.211609G	5.248441G	Inf	2

802.11ac VHT40_Nss1,(MCS0)_2TX
EBW
5270MHz

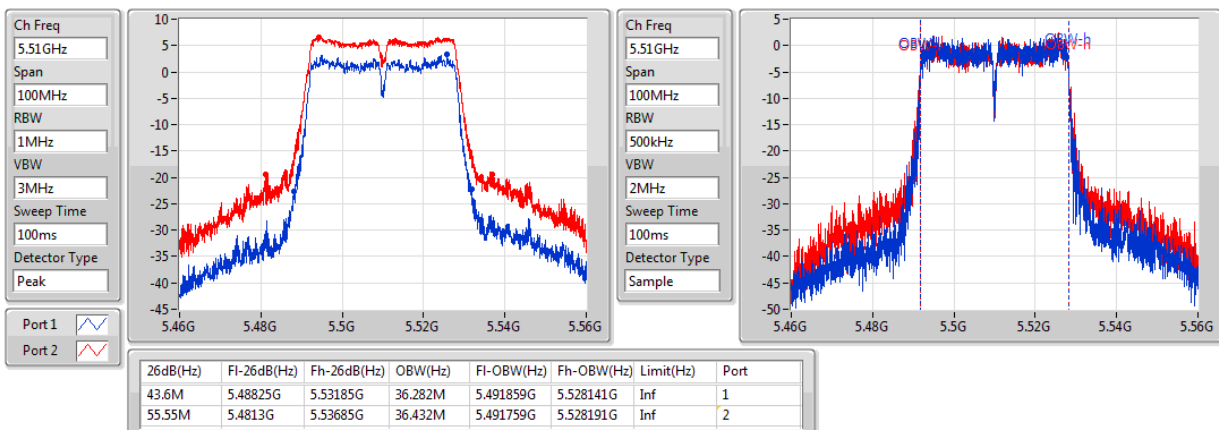
05/07/2018


802.11ac VHT40_Nss1,(MCS0)_2TX
EBW
5310MHz

05/07/2018

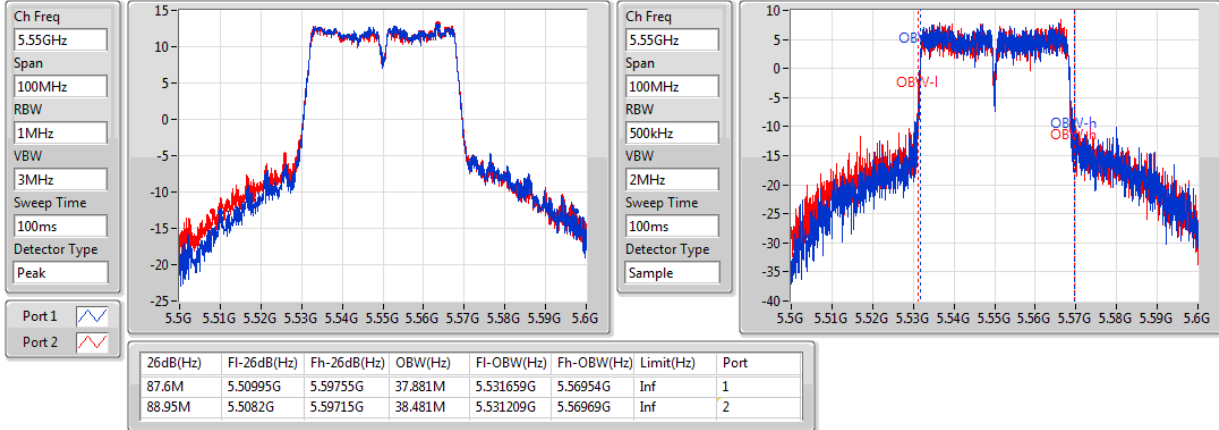

802.11ac VHT40_Nss1,(MCS0)_2TX
EBW
5510MHz

05/07/2018

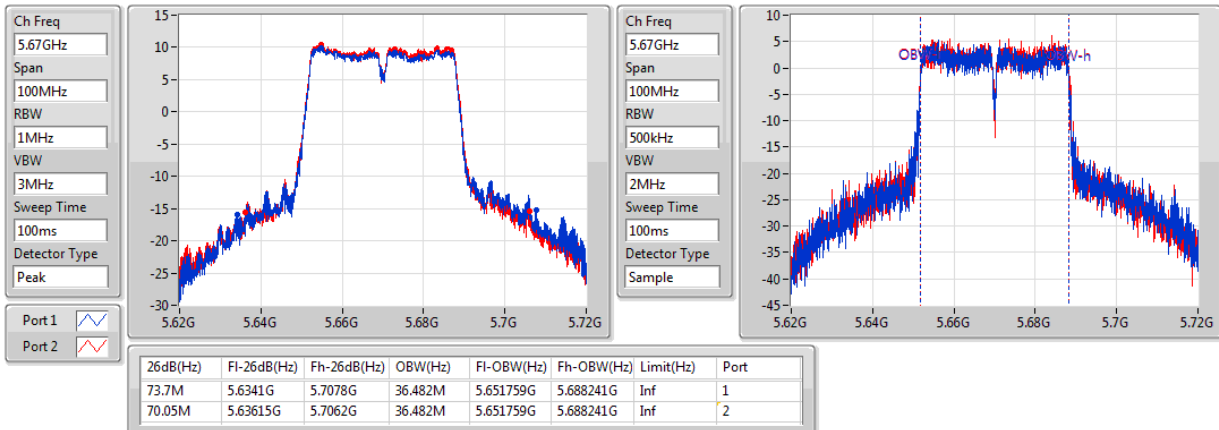


802.11ac VHT40_Nss1,(MCS0)_2TX
EBW
5550MHz

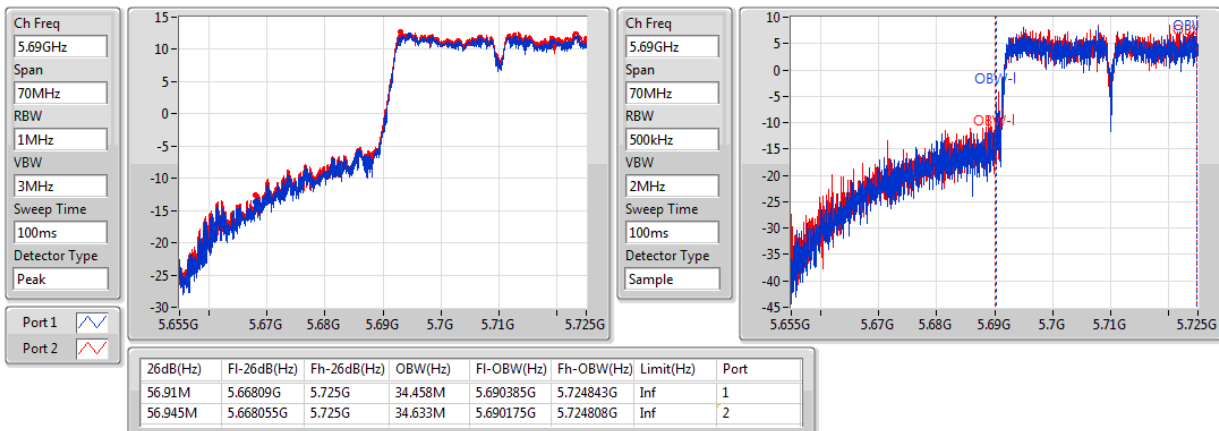
05/07/2018


802.11ac VHT40_Nss1,(MCS0)_2TX
EBW
5670MHz

05/07/2018

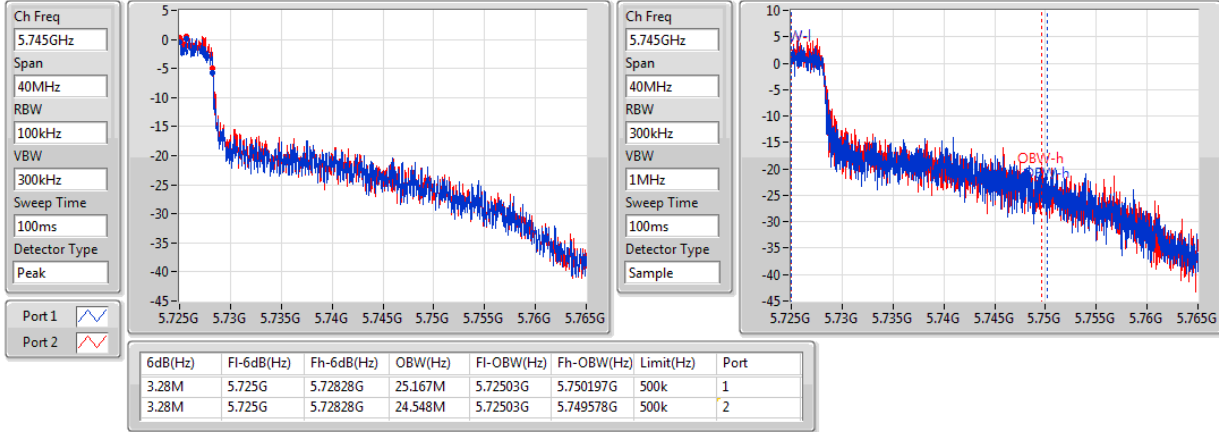

802.11ac VHT40_Nss1,(MCS0)_2TX
EBW
5710MHz Straddle 5.47-5.725GHz

05/07/2018

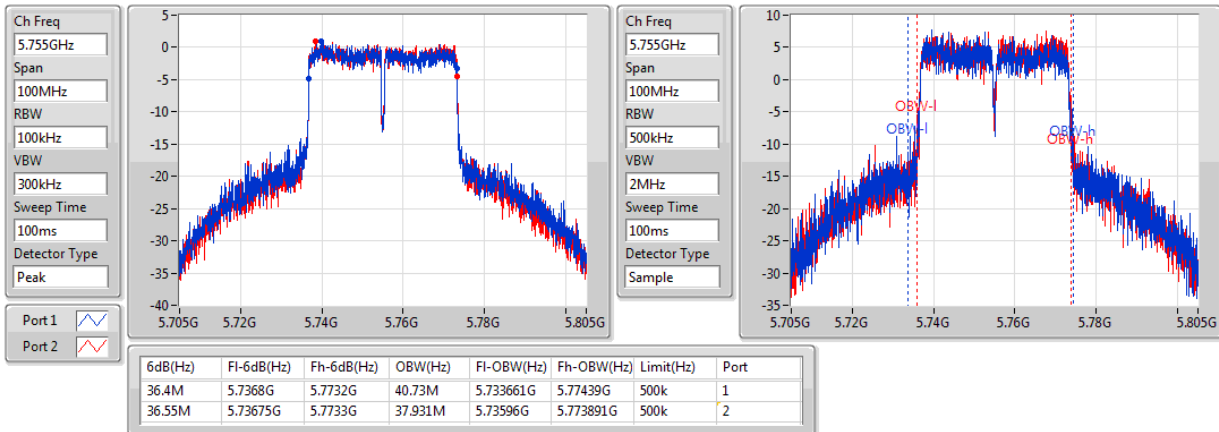


802.11ac VHT40_Nss1,(MCS0)_2TX
EBW
5710MHz Straddle 5.725-5.85GHz

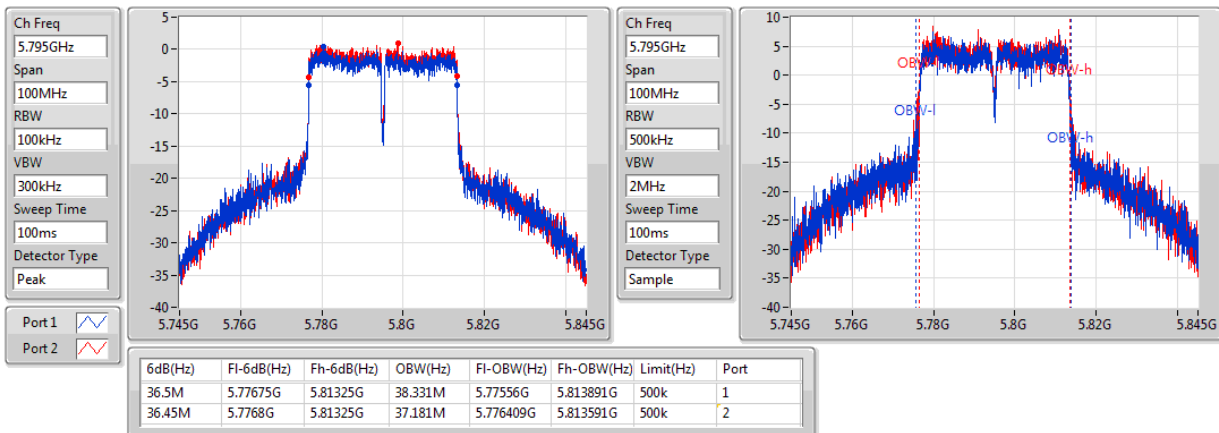
05/07/2018


802.11ac VHT40_Nss1,(MCS0)_2TX
EBW
5755MHz

05/07/2018

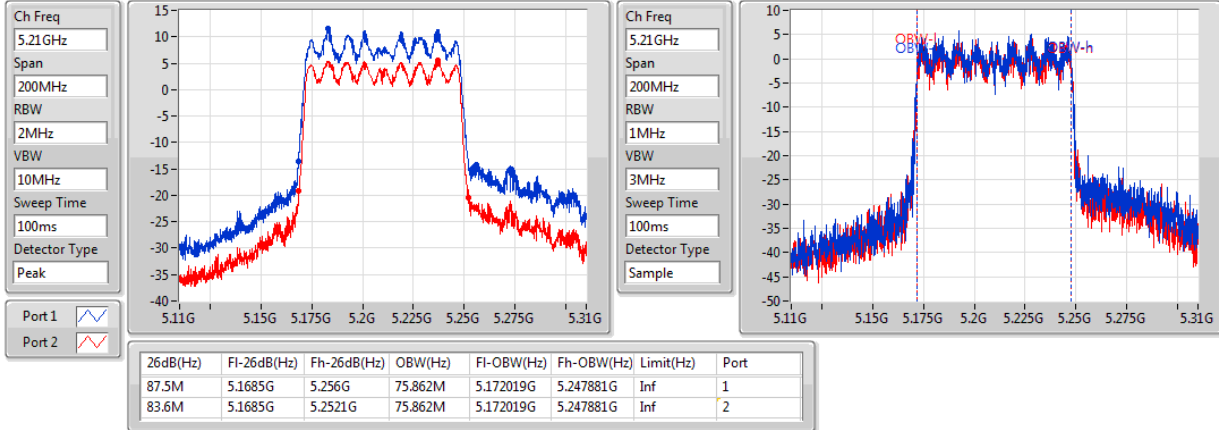

802.11ac VHT40_Nss1,(MCS0)_2TX
EBW
5795MHz

05/07/2018

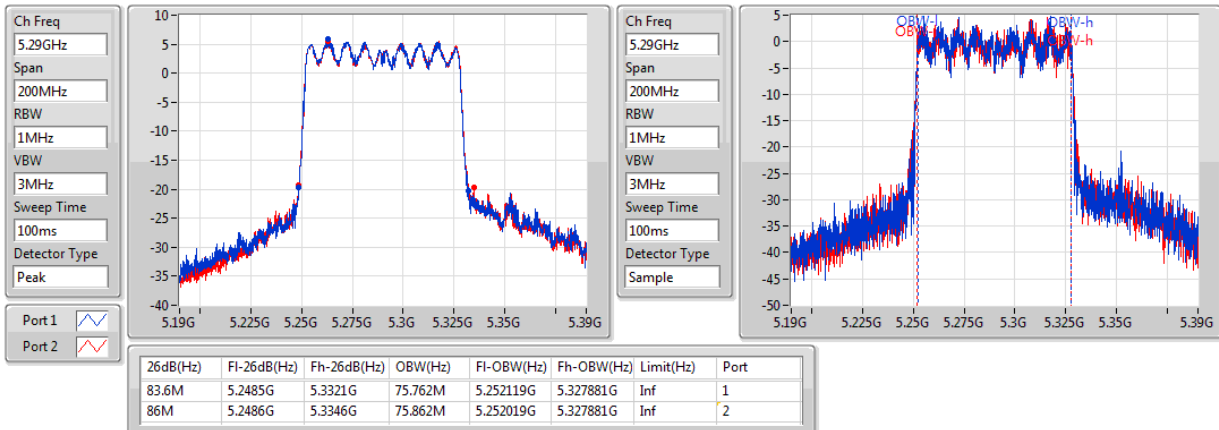


802.11ac VHT80_Nss1,(MCS0)_2TX
EBW
5210MHz

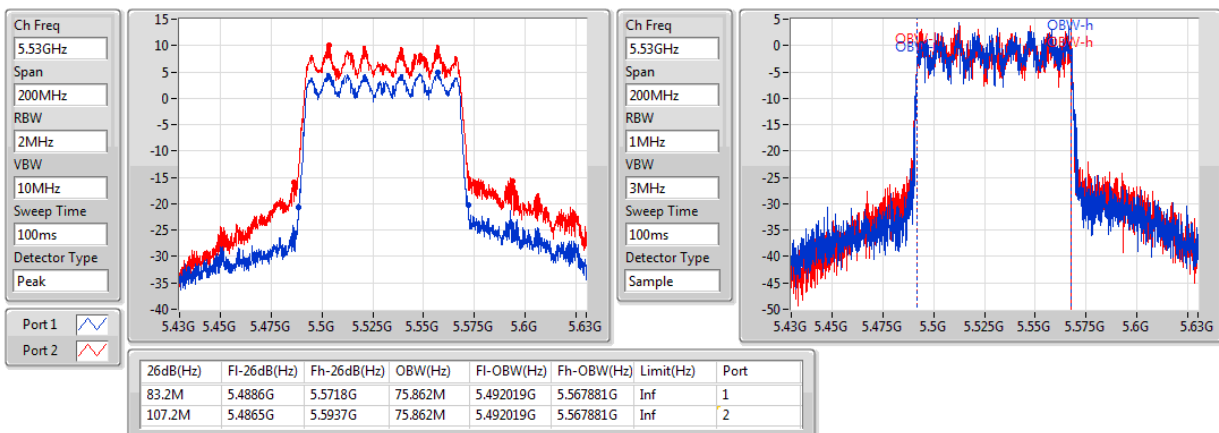
05/07/2018


802.11ac VHT80_Nss1,(MCS0)_2TX
EBW
5290MHz

05/07/2018

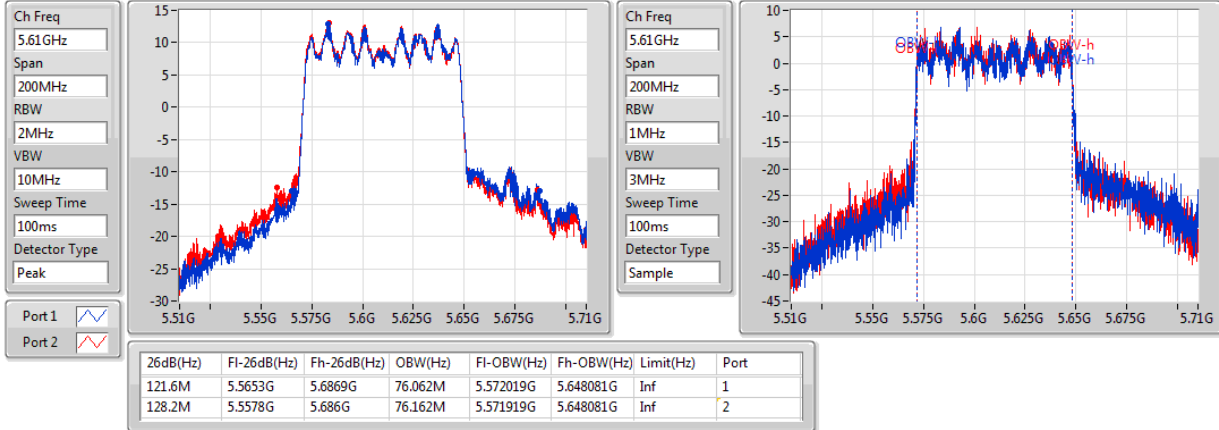

802.11ac VHT80_Nss1,(MCS0)_2TX
EBW
5530MHz

05/07/2018

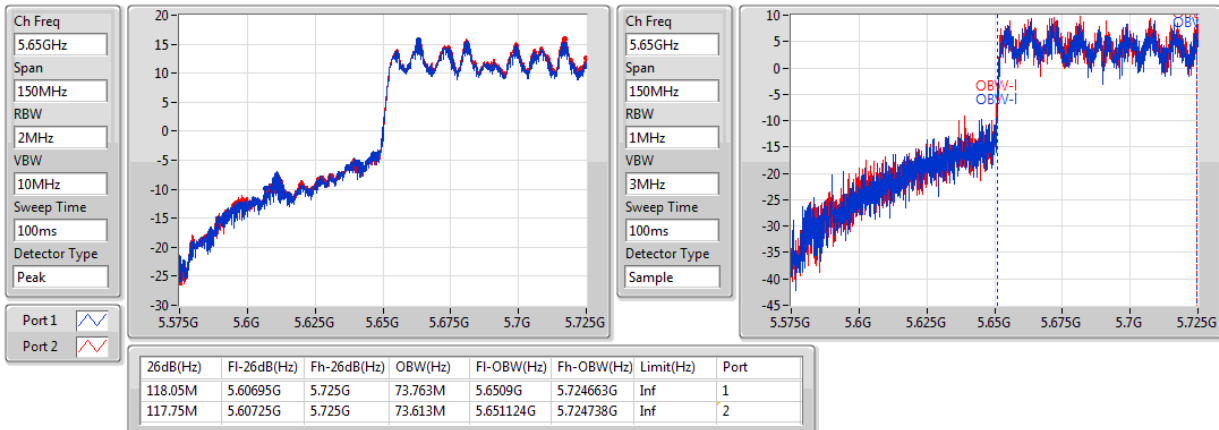


802.11ac VHT80_Nss1,(MCS0)_2TX
EBW
5610MHz

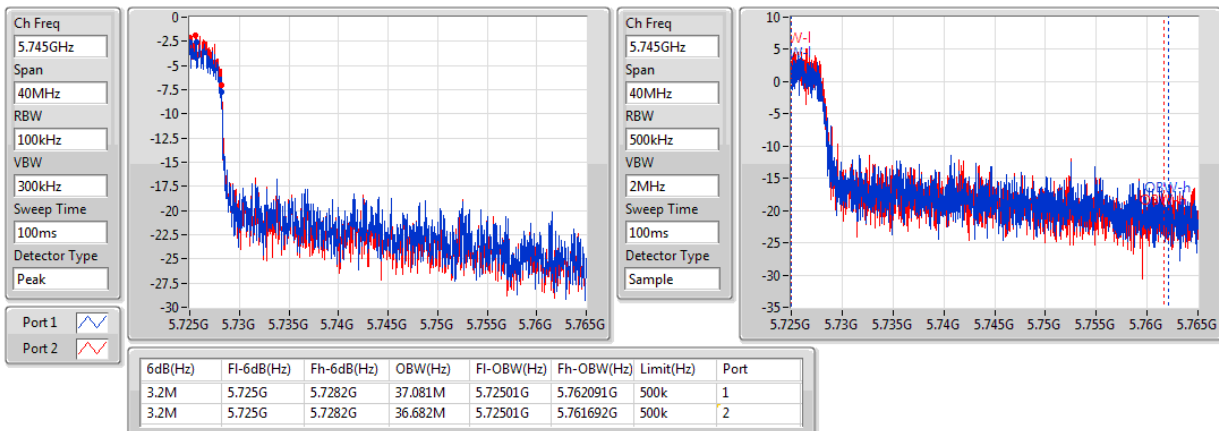
05/07/2018


802.11ac VHT80_Nss1,(MCS0)_2TX
EBW
5690MHz Straddle 5.47-5.725GHz

05/07/2018


802.11ac VHT80_Nss1,(MCS0)_2TX
EBW
5690MHz Straddle 5.725-5.85GHz

05/07/2018

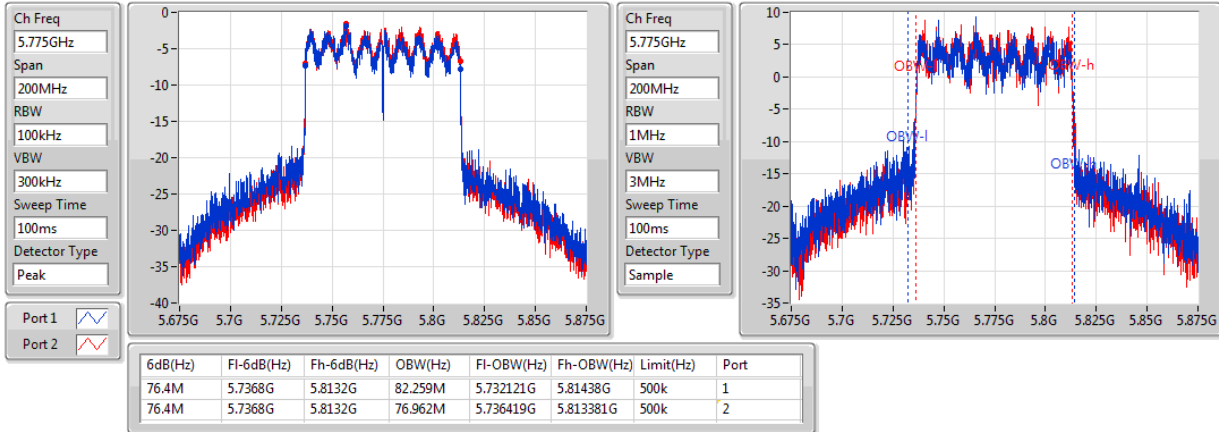


802.11ac VHT80_Nss1,(MCS0)_2TX

EBW

5775MHz

05/07/2018



Summary

Mode	Total Power (dBm)	Total Power (W)	EIRP (dBm)	EIRP (W)
5.15-5.25GHz	-	-	-	-
802.11a_Nss1,(6Mbps)_2TX	22.67	0.18493	24.67	0.29309
802.11ac VHT20_Nss1,(MCS0)_2TX	23.00	0.19953	25.00	0.31623
802.11ac VHT40_Nss1,(MCS0)_2TX	21.58	0.14388	23.58	0.22803
802.11ac VHT80_Nss1,(MCS0)_2TX	17.42	0.05521	19.42	0.08750
5.25-5.35GHz	-	-	-	-
802.11a_Nss1,(6Mbps)_2TX	22.85	0.19275	24.85	0.30549
802.11ac VHT20_Nss1,(MCS0)_2TX	22.23	0.16711	24.23	0.26485
802.11ac VHT40_Nss1,(MCS0)_2TX	22.47	0.17660	24.47	0.27990
802.11ac VHT80_Nss1,(MCS0)_2TX	17.13	0.05164	19.13	0.08185
5.47-5.725GHz	-	-	-	-
802.11a_Nss1,(6Mbps)_2TX	21.86	0.15346	23.86	0.24322
802.11ac VHT20_Nss1,(MCS0)_2TX	21.95	0.15668	23.95	0.24831
802.11ac VHT40_Nss1,(MCS0)_2TX	22.00	0.15849	24.00	0.25119
802.11ac VHT80_Nss1,(MCS0)_2TX	21.50	0.14125	23.50	0.22387
5.725-5.85GHz	-	-	-	-
802.11a_Nss1,(6Mbps)_2TX	21.70	0.14791	23.70	0.23442
802.11ac VHT20_Nss1,(MCS0)_2TX	21.98	0.15776	23.98	0.25003
802.11ac VHT40_Nss1,(MCS0)_2TX	21.63	0.14555	23.63	0.23067
802.11ac VHT80_Nss1,(MCS0)_2TX	21.31	0.13521	23.31	0.21429

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
802.11a_Nss1,(6Mbps)_2TX	-	-	-	-	-	-	-	-
5180MHz_TnomVnom	Pass	2.00	19.95	19.35	22.67	24.00	24.67	30.00
5200MHz_TnomVnom	Pass	2.00	19.68	19.21	22.46	24.00	24.46	30.00
5240MHz_TnomVnom	Pass	2.00	19.45	19.23	22.35	24.00	24.35	30.00
5260MHz_TnomVnom	Pass	2.00	20.09	19.57	22.85	24.00	24.85	30.00
5300MHz_TnomVnom	Pass	2.00	19.63	19.62	22.64	24.00	24.64	30.00
5320MHz_TnomVnom	Pass	2.00	14.73	15.01	17.88	24.00	19.88	30.00
5500MHz_TnomVnom	Pass	2.00	14.06	14.52	17.31	24.00	19.31	30.00
5580MHz_TnomVnom	Pass	2.00	18.53	19.14	21.86	24.00	23.86	30.00
5700MHz_TnomVnom	Pass	2.00	14.98	15.53	18.27	24.00	20.27	30.00
5720MHz Straddle 5.47-5.725GHz_TnomVnom	Pass	2.00	17.26	17.83	20.56	24.00	22.56	30.00
5720MHz Straddle 5.725-5.85GHz_TnomVnom	Pass	2.00	11.07	11.96	14.55	30.00	16.55	36.00
5745MHz_TnomVnom	Pass	2.00	18.60	18.78	21.70	30.00	23.70	36.00
5785MHz_TnomVnom	Pass	2.00	18.11	18.74	21.45	30.00	23.45	36.00
5825MHz_TnomVnom	Pass	2.00	17.53	18.23	20.90	30.00	22.90	36.00
802.11ac VHT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5180MHz_TnomVnom	Pass	2.00	16.81	16.47	19.65	24.00	21.65	30.00
5200MHz_TnomVnom	Pass	2.00	20.12	19.85	23.00	24.00	25.00	30.00
5240MHz_TnomVnom	Pass	2.00	19.66	19.43	22.56	24.00	24.56	30.00
5260MHz_TnomVnom	Pass	2.00	19.47	18.95	22.23	24.00	24.23	30.00
5300MHz_TnomVnom	Pass	2.00	19.26	18.96	22.12	24.00	24.12	30.00
5320MHz_TnomVnom	Pass	2.00	19.09	18.76	21.94	24.00	23.94	30.00
5500MHz_TnomVnom	Pass	2.00	13.80	14.14	16.98	24.00	18.98	30.00
5580MHz_TnomVnom	Pass	2.00	18.58	19.27	21.95	24.00	23.95	30.00
5700MHz_TnomVnom	Pass	2.00	11.87	12.42	15.16	24.00	17.16	30.00
5720MHz Straddle 5.47-5.725GHz_TnomVnom	Pass	2.00	16.90	17.65	20.30	24.00	22.30	30.00
5720MHz Straddle 5.725-5.85GHz_TnomVnom	Pass	2.00	11.31	12.15	14.76	30.00	16.76	36.00
5745MHz_TnomVnom	Pass	2.00	18.88	19.01	21.96	30.00	23.96	36.00
5785MHz_TnomVnom	Pass	2.00	18.71	19.21	21.98	30.00	23.98	36.00
5825MHz_TnomVnom	Pass	2.00	17.78	18.39	21.11	30.00	23.11	36.00
802.11ac VHT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5190MHz_TnomVnom	Pass	2.00	14.39	13.87	17.15	24.00	19.15	30.00
5230MHz_TnomVnom	Pass	2.00	18.77	18.36	21.58	24.00	23.58	30.00
5270MHz_TnomVnom	Pass	2.00	19.69	19.21	22.47	24.00	24.47	30.00
5310MHz_TnomVnom	Pass	2.00	14.56	14.40	17.49	24.00	19.49	30.00
5510MHz_TnomVnom	Pass	2.00	13.07	13.09	16.09	24.00	18.09	30.00
5550MHz_TnomVnom	Pass	2.00	18.88	19.10	22.00	24.00	24.00	30.00
5670MHz_TnomVnom	Pass	2.00	14.78	15.23	18.02	24.00	20.02	30.00
5710MHz Straddle 5.47-5.725GHz_TnomVnom	Pass	2.00	17.79	18.33	21.08	24.00	23.08	30.00
5710MHz Straddle 5.725-5.85GHz_TnomVnom	Pass	2.00	8.12	8.82	11.49	30.00	13.49	36.00
5755MHz_TnomVnom	Pass	2.00	18.45	18.79	21.63	30.00	23.63	36.00
5795MHz_TnomVnom	Pass	2.00	18.21	18.82	21.54	30.00	23.54	36.00
802.11ac VHT80_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5210MHz_TnomVnom	Pass	2.00	14.71	14.09	17.42	24.00	19.42	30.00



Power Result

Appendix C

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
5290MHz_TnomVnom	Pass	2.00	14.12	14.11	17.13	24.00	19.13	30.00
5530MHz_TnomVnom	Pass	2.00	13.34	13.29	16.33	24.00	18.33	30.00
5610MHz_TnomVnom	Pass	2.00	16.18	16.40	19.30	24.00	21.30	30.00
5690MHz Straddle 5.47-5.725GHz_TnomVnom	Pass	2.00	18.28	18.69	21.50	24.00	23.50	30.00
5690MHz Straddle 5.725-5.85GHz_TnomVnom	Pass	2.00	5.35	6.08	8.74	30.00	10.74	36.00
5775MHz_TnomVnom	Pass	2.00	18.09	18.50	21.31	30.00	23.31	36.00

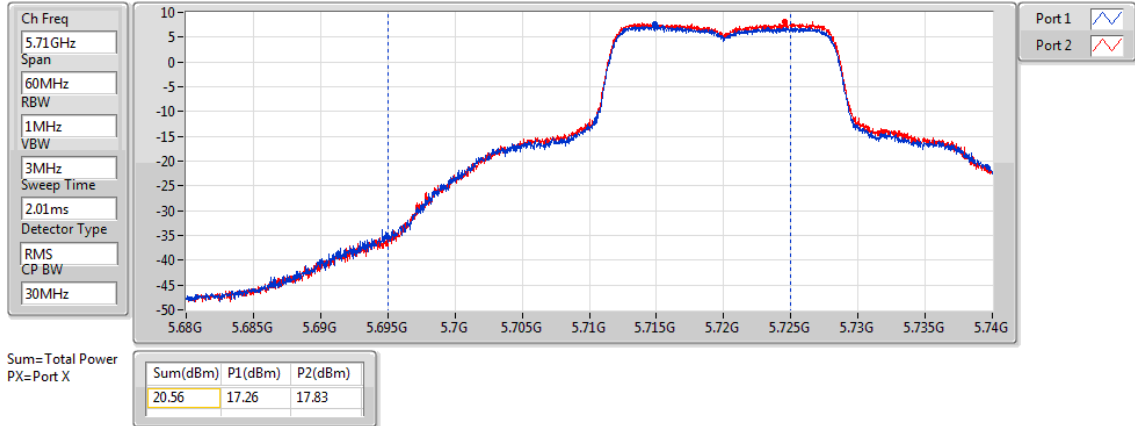
DG = Directional Gain; **Port X** = Port X output power

802.11a_Nss1,(6Mbps)_2TX

AV Power

5720MHz Straddle 5.47-5.725GHz

05/07/2018

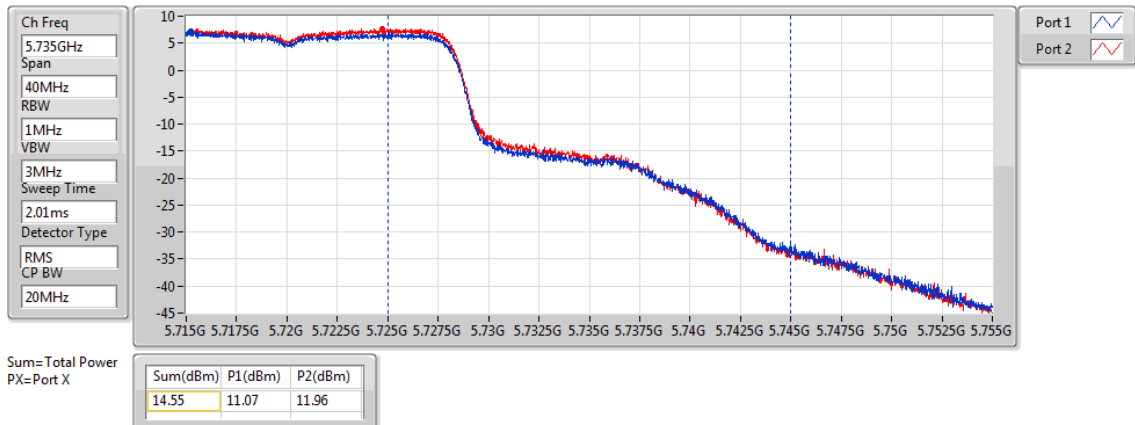


802.11a_Nss1,(6Mbps)_2TX

AV Power

5720MHz Straddle 5.725-5.85GHz

05/07/2018

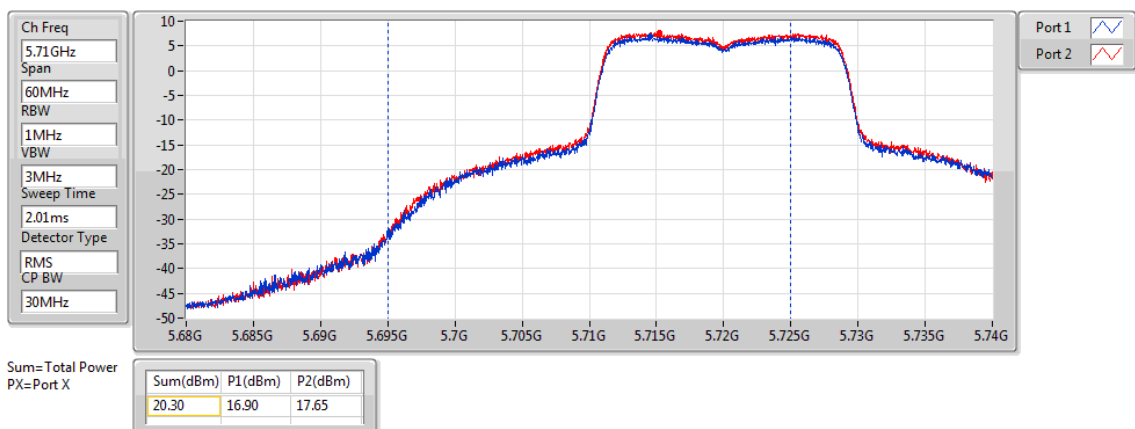


802.11ac VHT20_Nss1,(MCS0)_2TX

AV Power

5720MHz Straddle 5.47-5.725GHz

05/07/2018

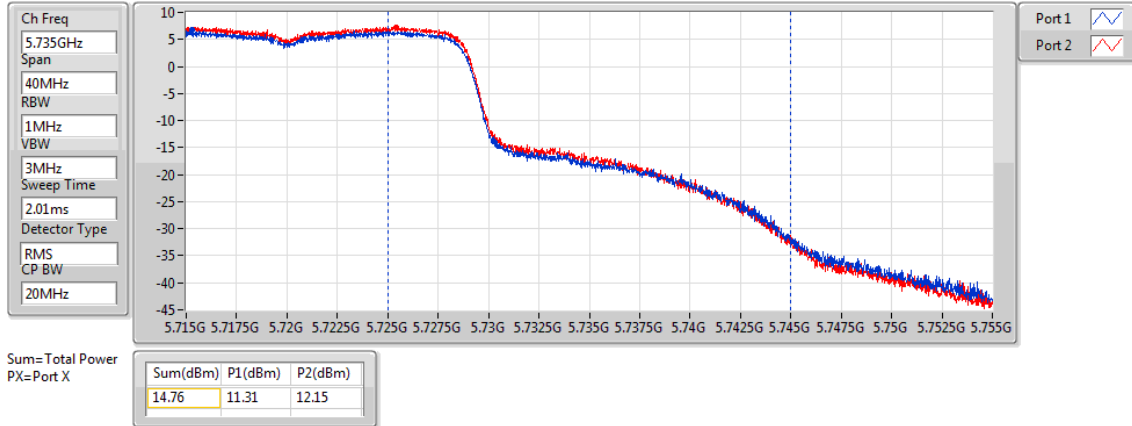


802.11ac VHT20_Nss1,(MCS0)_2TX

AV Power

5720MHz Straddle 5.725-5.85GHz

05/07/2018

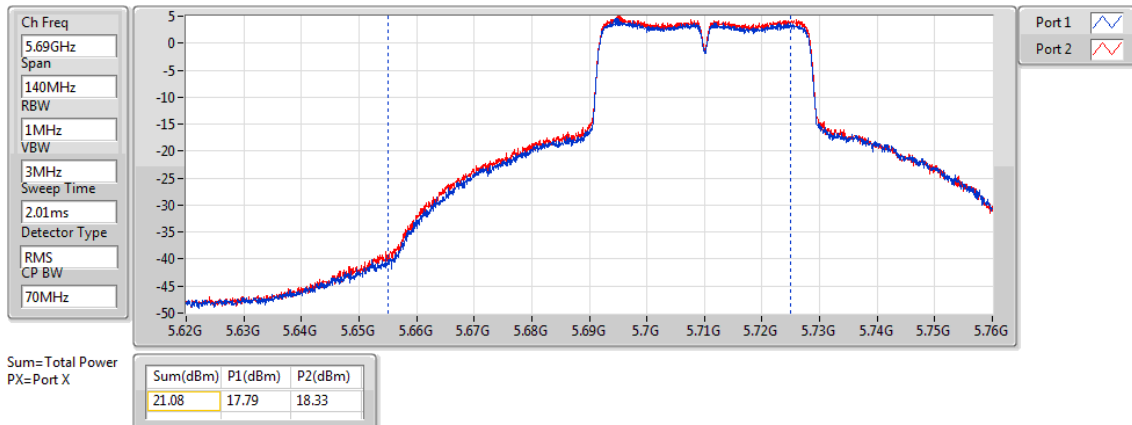


802.11ac VHT40_Nss1,(MCS0)_2TX

AV Power

5710MHz Straddle 5.47-5.725GHz

05/07/2018

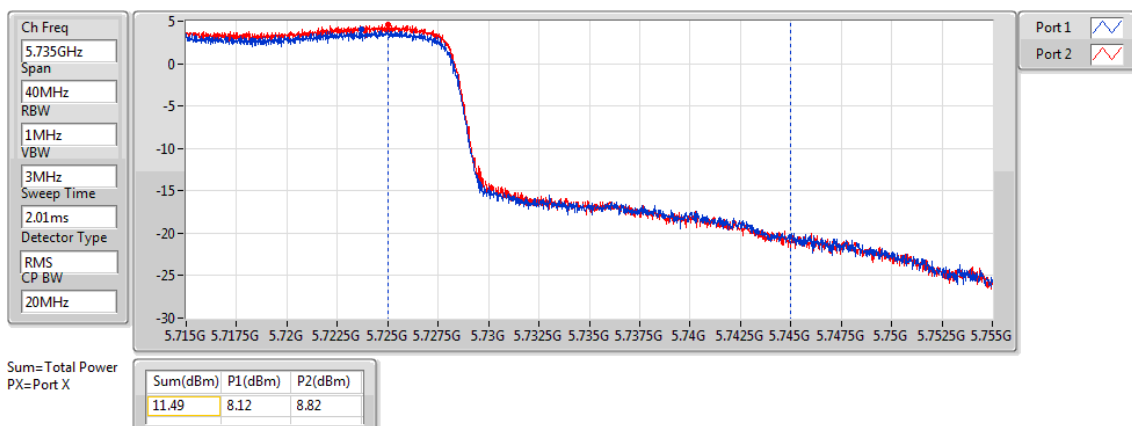


802.11ac VHT40_Nss1,(MCS0)_2TX

AV Power

5710MHz Straddle 5.725-5.85GHz

05/07/2018

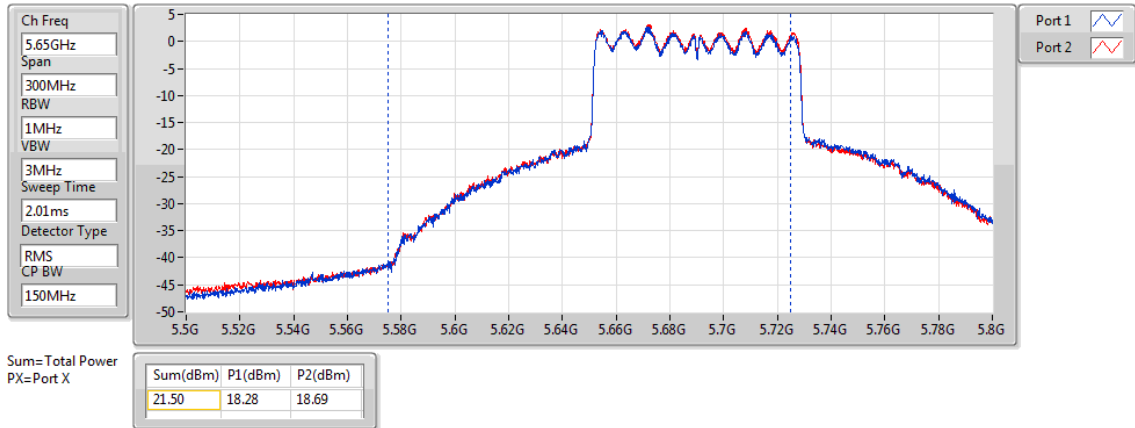


802.11ac VHT80_Nss1,(MCS0)_2TX

AV Power

5690MHz Straddle 5.47-5.725GHz

05/07/2018

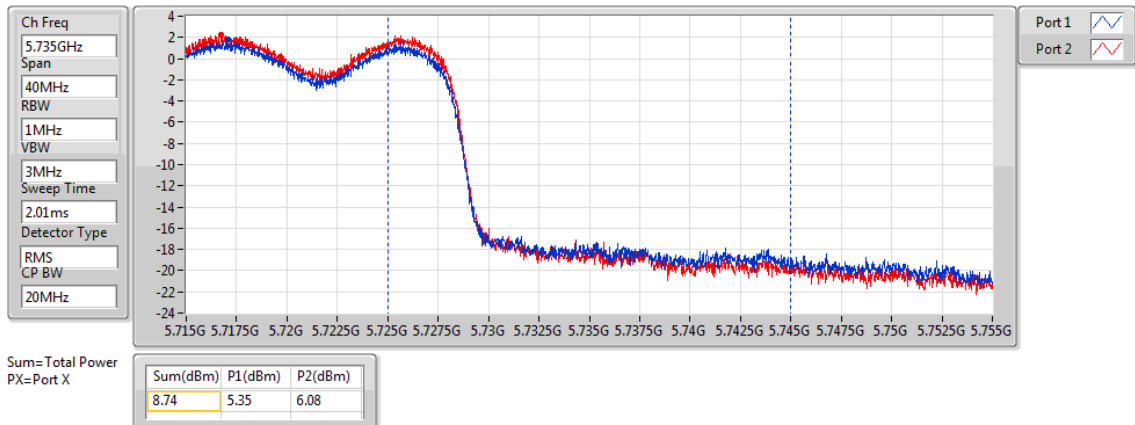


802.11ac VHT80_Nss1,(MCS0)_2TX

AV Power

5690MHz Straddle 5.725-5.85GHz

05/07/2018



Summary

Mode	PD (dBm/RBW)	EIRP PD (dBm/RBW)
5.15-5.25GHz	-	-
802.11a_Nss1,(6Mbps)_2TX	10.36	15.37
802.11ac VHT20_Nss1,(MCS0)_2TX	10.00	15.01
802.11ac VHT40_Nss1,(MCS0)_2TX	5.81	10.82
802.11ac VHT80_Nss1,(MCS0)_2TX	-0.57	4.44
5.25-5.35GHz	-	-
802.11a_Nss1,(6Mbps)_2TX	9.78	14.79
802.11ac VHT20_Nss1,(MCS0)_2TX	9.14	14.15
802.11ac VHT40_Nss1,(MCS0)_2TX	6.13	11.14
802.11ac VHT80_Nss1,(MCS0)_2TX	-0.68	4.33
5.47-5.725GHz	-	-
802.11a_Nss1,(6Mbps)_2TX	9.29	14.30
802.11ac VHT20_Nss1,(MCS0)_2TX	9.28	14.29
802.11ac VHT40_Nss1,(MCS0)_2TX	6.09	11.10
802.11ac VHT80_Nss1,(MCS0)_2TX	3.84	8.85
5.725-5.85GHz	-	-
802.11a_Nss1,(6Mbps)_2TX	7.62	12.63
802.11ac VHT20_Nss1,(MCS0)_2TX	7.42	12.43
802.11ac VHT40_Nss1,(MCS0)_2TX	4.37	9.38
802.11ac VHT80_Nss1,(MCS0)_2TX	1.51	6.52

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

Result

Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)	EIRP PD (dBm/RBW)	EIRP PD Limit (dBm/RBW)
802.11a_Nss1,(6Mbps)_2TX	-	-	-	-	-	-	-	-
5180MHz_TnomVnom	Pass	5.01	7.54	7.12	10.14	11.00	15.15	17.00
5200MHz_TnomVnom	Pass	5.01	7.68	7.24	10.36	11.00	15.37	17.00
5240MHz_TnomVnom	Pass	5.01	7.05	6.96	9.80	11.00	14.81	17.00
5260MHz_TnomVnom	Pass	5.01	7.17	6.57	9.70	11.00	14.71	17.00
5300MHz_TnomVnom	Pass	5.01	7.10	6.83	9.78	11.00	14.79	17.00
5320MHz_TnomVnom	Pass	5.01	2.06	2.33	4.96	11.00	9.97	17.00
5500MHz_TnomVnom	Pass	5.01	1.73	2.30	4.81	11.00	9.82	17.00
5580MHz_TnomVnom	Pass	5.01	6.28	6.82	9.29	11.00	14.30	17.00
5700MHz_TnomVnom	Pass	5.01	2.38	3.52	5.63	11.00	10.64	17.00
5720MHz Straddle 5.47-5.725GHz_TnomVnom	Pass	5.01	5.75	6.33	8.77	11.00	13.78	17.00
5720MHz Straddle 5.725-5.85GHz_TnomVnom	Pass	5.01	4.16	5.02	7.62	30.00	12.63	36.00
5745MHz_TnomVnom	Pass	5.01	4.76	4.60	7.61	30.00	12.62	36.00
5785MHz_TnomVnom	Pass	5.01	3.77	4.46	7.09	30.00	12.10	36.00
5825MHz_TnomVnom	Pass	5.01	3.26	4.00	6.57	30.00	11.58	36.00
802.11ac VHT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5180MHz_TnomVnom	Pass	5.01	4.01	3.61	6.78	11.00	11.79	17.00
5200MHz_TnomVnom	Pass	5.01	7.26	6.84	10.00	11.00	15.01	17.00
5240MHz_TnomVnom	Pass	5.01	6.66	6.39	9.50	11.00	14.51	17.00
5260MHz_TnomVnom	Pass	5.01	6.61	6.09	9.14	11.00	14.15	17.00
5300MHz_TnomVnom	Pass	5.01	6.38	6.06	8.95	11.00	13.96	17.00
5320MHz_TnomVnom	Pass	5.01	6.14	6.00	9.08	11.00	14.09	17.00
5500MHz_TnomVnom	Pass	5.01	0.95	1.59	4.04	11.00	9.05	17.00
5580MHz_TnomVnom	Pass	5.01	6.16	6.74	9.28	11.00	14.29	17.00
5700MHz_TnomVnom	Pass	5.01	-1.12	-0.37	2.10	11.00	7.11	17.00
5720MHz Straddle 5.47-5.725GHz_TnomVnom	Pass	5.01	5.47	6.23	8.58	11.00	13.59	17.00
5720MHz Straddle 5.725-5.85GHz_TnomVnom	Pass	5.01	3.78	4.41	6.90	30.00	11.91	36.00
5745MHz_TnomVnom	Pass	5.01	4.33	4.75	7.42	30.00	12.43	36.00
5785MHz_TnomVnom	Pass	5.01	3.72	4.69	7.09	30.00	12.10	36.00
5825MHz_TnomVnom	Pass	5.01	3.40	3.98	6.48	30.00	11.49	36.00
802.11ac VHT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5190MHz_TnomVnom	Pass	5.01	-1.26	-1.60	1.45	11.00	6.46	17.00
5230MHz_TnomVnom	Pass	5.01	3.10	2.92	5.81	11.00	10.82	17.00
5270MHz_TnomVnom	Pass	5.01	3.45	3.17	6.13	11.00	11.14	17.00
5310MHz_TnomVnom	Pass	5.01	-2.23	-2.47	0.47	11.00	5.48	17.00
5510MHz_TnomVnom	Pass	5.01	-2.36	-2.53	0.40	11.00	5.41	17.00
5550MHz_TnomVnom	Pass	5.01	3.05	3.47	6.09	11.00	11.10	17.00
5670MHz_TnomVnom	Pass	5.01	1.04	1.32	3.86	11.00	8.87	17.00
5710MHz Straddle 5.47-5.725GHz_TnomVnom	Pass	5.01	2.42	3.16	5.65	11.00	10.66	17.00
5710MHz Straddle 5.725-5.85GHz_TnomVnom	Pass	5.01	0.69	1.14	3.74	30.00	8.75	36.00
5755MHz_TnomVnom	Pass	5.01	1.35	1.63	4.37	30.00	9.38	36.00
5795MHz_TnomVnom	Pass	5.01	0.69	1.26	3.86	30.00	8.87	36.00
802.11ac VHT80_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5210MHz_TnomVnom	Pass	5.01	-3.10	-3.88	-0.57	11.00	4.44	17.00

Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)	EIRP PD (dBm/RBW)	EIRP PD Limit (dBm/RBW)
5290MHz_TnomVnom	Pass	5.01	-3.49	-3.76	-0.68	11.00	4.33	17.00
5530MHz_TnomVnom	Pass	5.01	-4.62	-4.67	-1.71	11.00	3.30	17.00
5610MHz_TnomVnom	Pass	5.01	-2.08	-1.72	0.97	11.00	5.98	17.00
5690MHz Straddle 5.47-5.725GHz_TnomVnom	Pass	5.01	0.89	1.25	3.84	11.00	8.85	17.00
5690MHz Straddle 5.725-5.85GHz_TnomVnom	Pass	5.01	-1.66	-0.90	1.50	30.00	6.51	36.00
5775MHz_TnomVnom	Pass	5.01	-1.31	-0.94	1.51	30.00	6.52	36.00

DG = Directional Gain; **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 Xpower density;

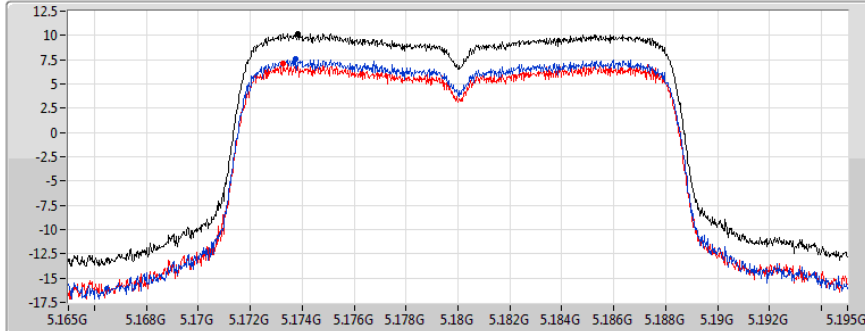
802.11a_Nss1,(6Mbps)_2TX

PSD

5180MHz

05/07/2018

Ch Freq
5.18GHz
Span
30MHz
RBW
1MHz
VBW
3MHz
Sweep Time
1.01ms
Detector Type
RMS



Sum ☒
Port 1 ☒
Port 2 ☒

Sum	PD	Port 1	Port 2
(dBm/Hz)	(dBm/Hz)	(dBm/Hz)	(dBm/Hz)
10.14	10.14	7.54	7.12

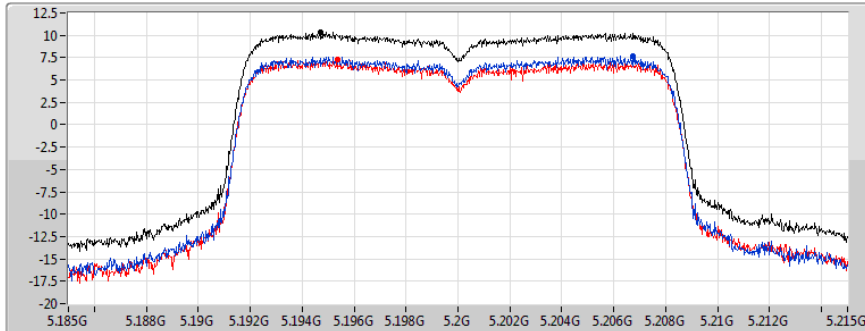
802.11a_Nss1,(6Mbps)_2TX

PSD

5200MHz

05/07/2018

Ch Freq
5.2GHz
Span
30MHz
RBW
1MHz
VBW
3MHz
Sweep Time
1.01ms
Detector Type
RMS



Sum ☒
Port 1 ☒
Port 2 ☒

Sum	PD	Port 1	Port 2
(dBm/Hz)	(dBm/Hz)	(dBm/Hz)	(dBm/Hz)
10.36	10.36	7.68	7.24

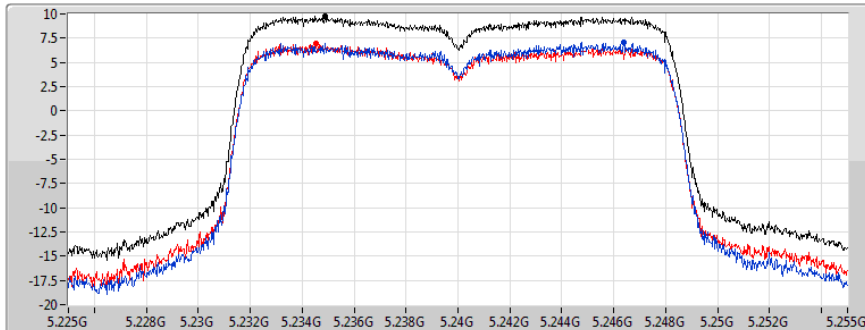
802.11a_Nss1,(6Mbps)_2TX

PSD

5240MHz

05/07/2018

Ch Freq
5.24GHz
Span
30MHz
RBW
1MHz
VBW
3MHz
Sweep Time
1.01ms
Detector Type
RMS



Sum ☒
Port 1 ☒
Port 2 ☒

Sum	PD	Port 1	Port 2
(dBm/Hz)	(dBm/Hz)	(dBm/Hz)	(dBm/Hz)
9.80	9.80	7.05	6.96

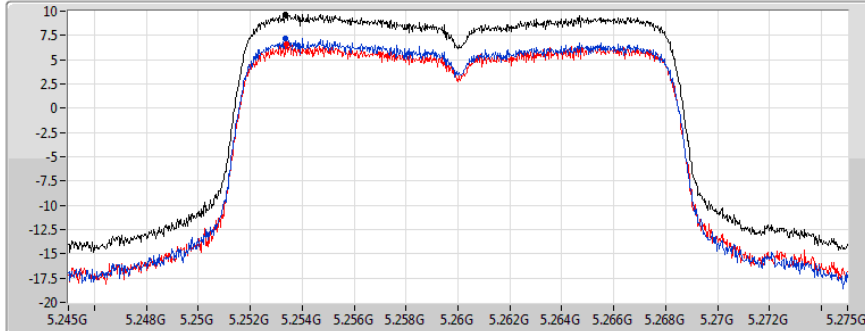
802.11a_Nss1,(6Mbps)_2TX

PSD

5260MHz

05/07/2018

Ch Freq
5.26GHz
Span
30MHz
RBW
1MHz
VBW
3MHz
Sweep Time
1.01ms
Detector Type
RMS



Sum ☒
Port 1 ☒
Port 2 ☒

Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
9.70	9.70	7.17	6.57

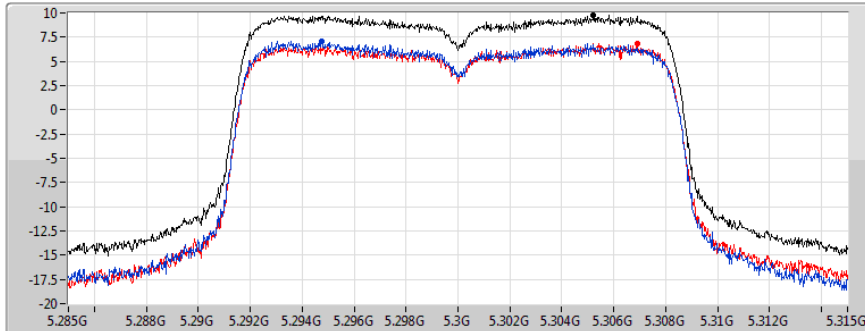
802.11a_Nss1,(6Mbps)_2TX

PSD

5300MHz

05/07/2018

Ch Freq
5.3GHz
Span
30MHz
RBW
1MHz
VBW
3MHz
Sweep Time
1.01ms
Detector Type
RMS



Sum ☒
Port 1 ☒
Port 2 ☒

Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
9.78	9.78	7.10	6.83

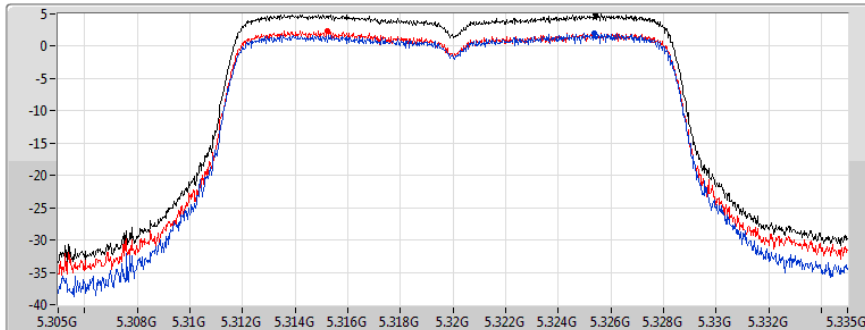
802.11a_Nss1,(6Mbps)_2TX

PSD

5320MHz

05/07/2018

Ch Freq
5.32GHz
Span
30MHz
RBW
1MHz
VBW
3MHz
Sweep Time
1.01ms
Detector Type
RMS



Sum ☒
Port 1 ☒
Port 2 ☒

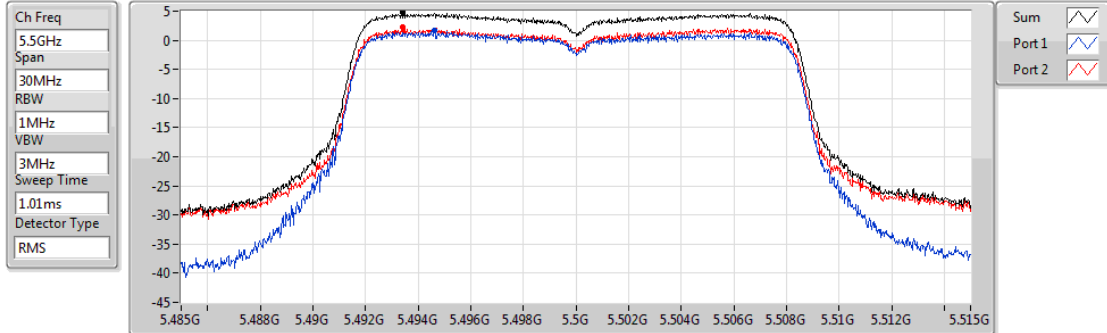
Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
4.96	4.96	2.06	2.33

802.11a_Nss1,(6Mbps)_2TX

PSD

5500MHz

05/07/2018



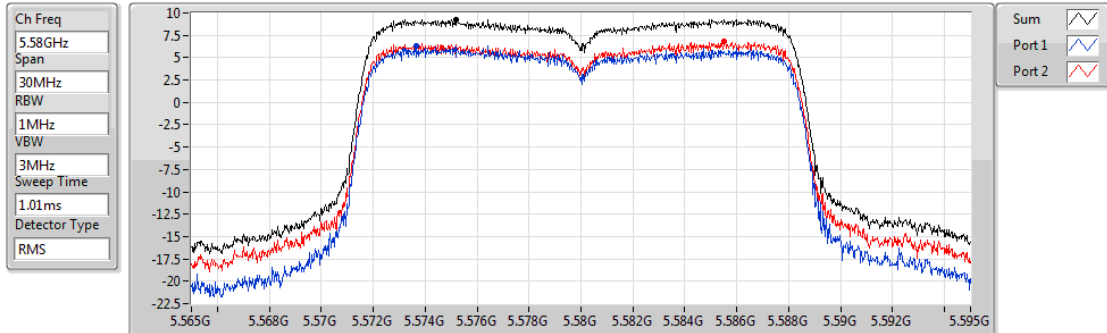
Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
4.81	4.81	1.73	2.30

802.11a_Nss1,(6Mbps)_2TX

PSD

5580MHz

05/07/2018



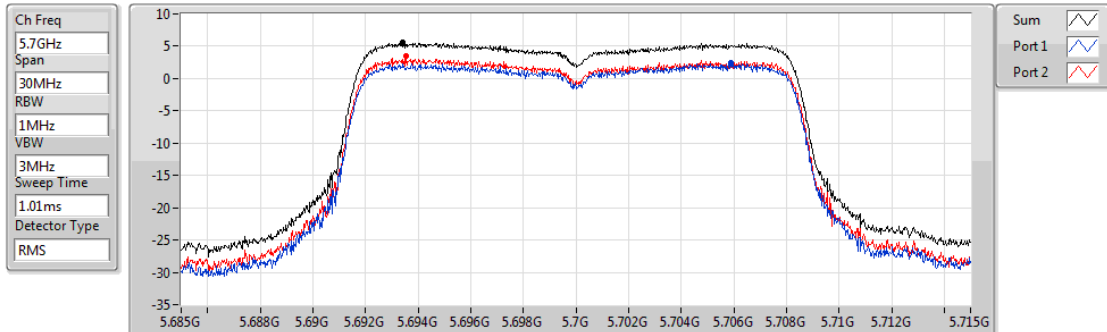
Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
9.29	9.29	6.28	6.82

802.11a_Nss1,(6Mbps)_2TX

PSD

5700MHz

05/07/2018



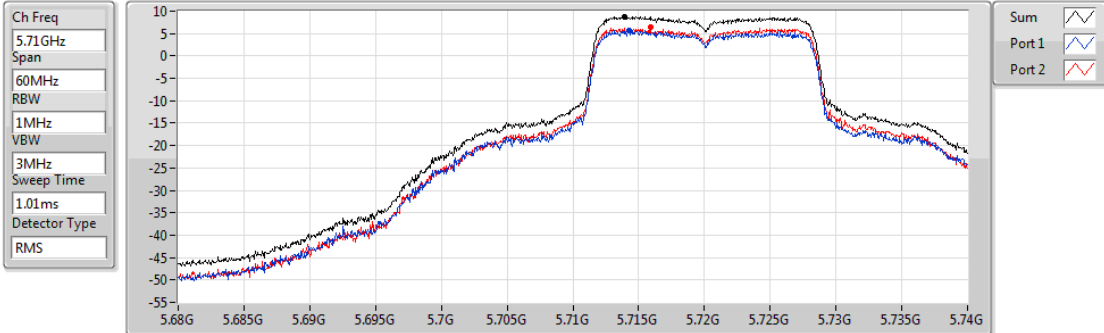
Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
5.63	5.63	2.38	3.52

802.11a_Nss1,(6Mbps)_2TX

5720MHz Straddle 5.47-5.725GHz

PSD

05/07/2018



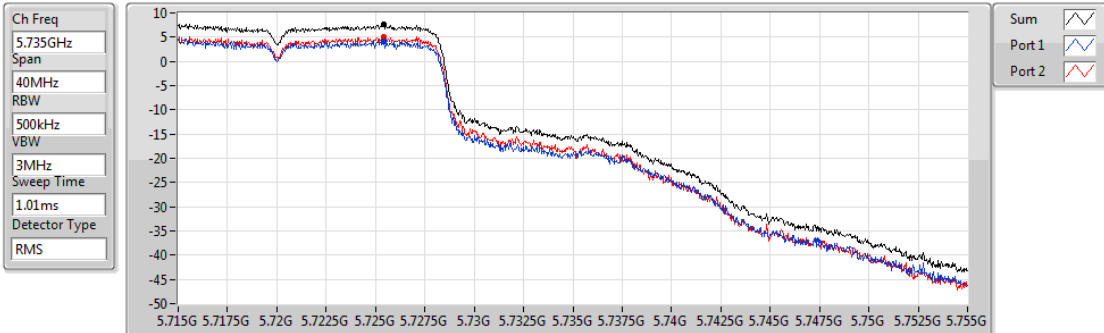
Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
8.77	8.77	5.75	6.33

802.11a_Nss1,(6Mbps)_2TX

5720MHz Straddle 5.725-5.85GHz

PSD

05/07/2018



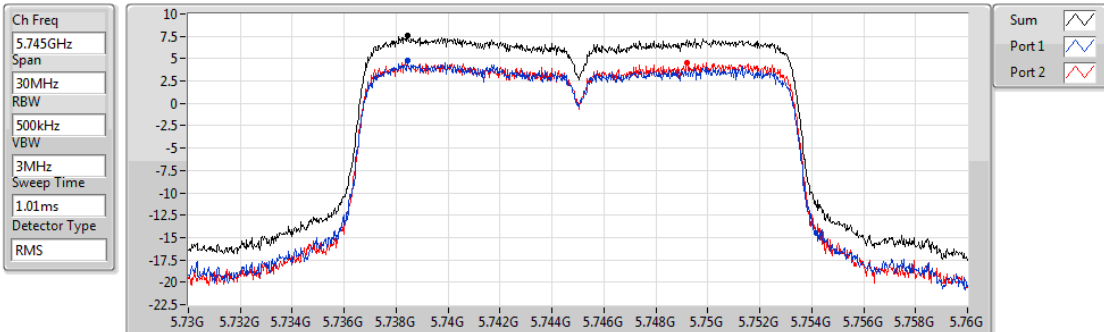
Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
7.62	7.62	4.16	5.02

802.11a_Nss1,(6Mbps)_2TX

5745MHz

PSD

05/07/2018



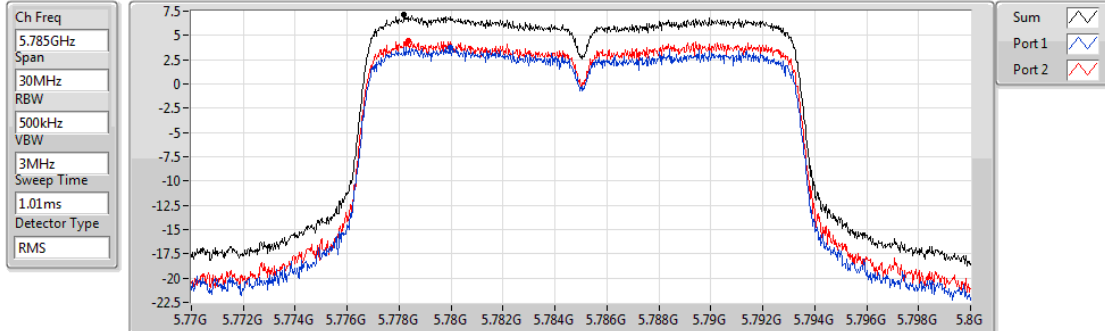
Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
7.61	7.61	4.76	4.60

802.11a_Nss1,(6Mbps)_2TX

PSD

5785MHz

05/07/2018



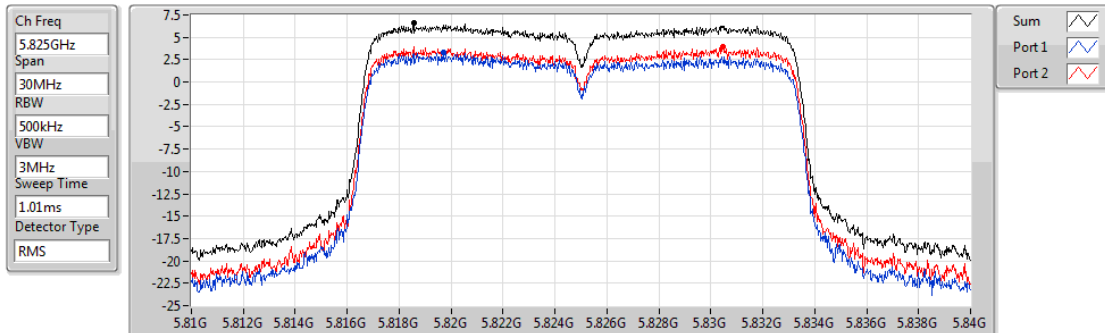
Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
7.09	7.09	3.77	4.46

802.11a_Nss1,(6Mbps)_2TX

PSD

5825MHz

05/07/2018



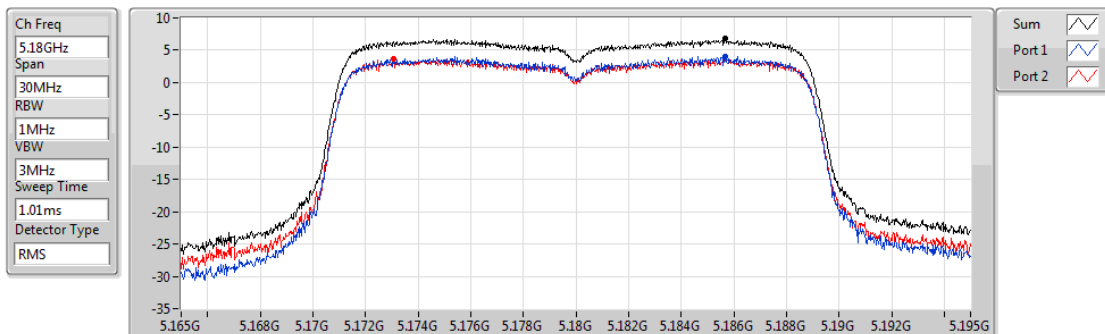
Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
6.57	6.57	3.26	4.00

802.11ac VHT20_Nss1,(MCS0)_2TX

PSD

5180MHz

05/07/2018



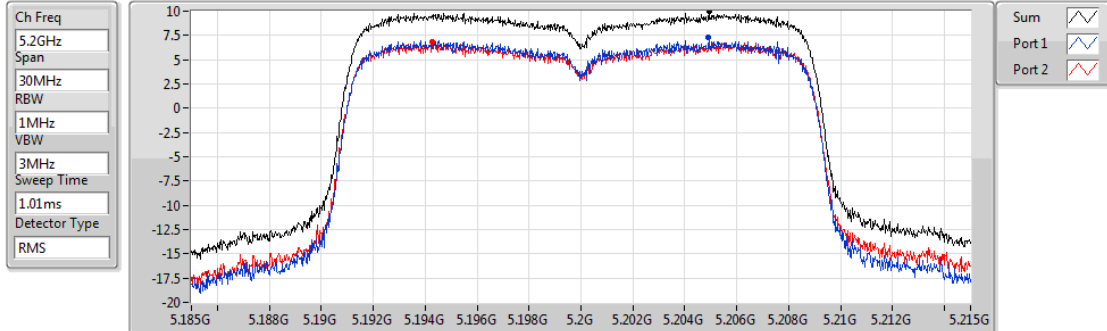
Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
6.78	6.78	4.01	3.61

802.11ac VHT20_Nss1,(MCS0)_2TX

PSD

5200MHz

05/07/2018



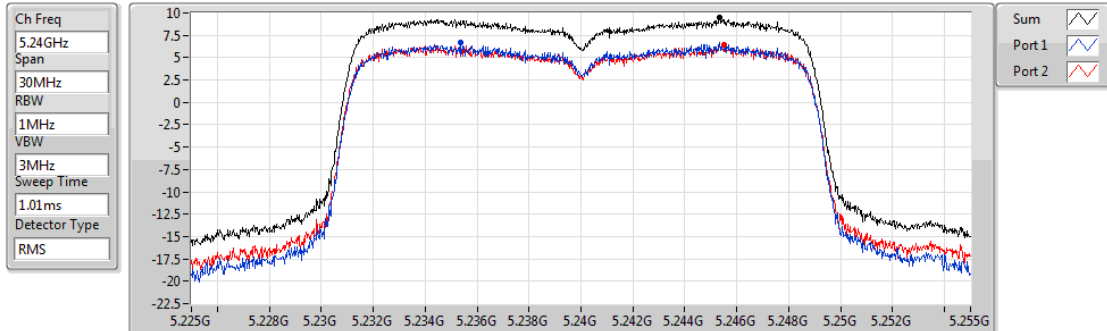
Sum	PD	Port 1	Port 2
(dBm/100kHz)	(dBm/100kHz)	(dBm/100kHz)	(dBm/100kHz)
10.00	10.00	7.26	6.84

802.11ac VHT20_Nss1,(MCS0)_2TX

PSD

5240MHz

05/07/2018



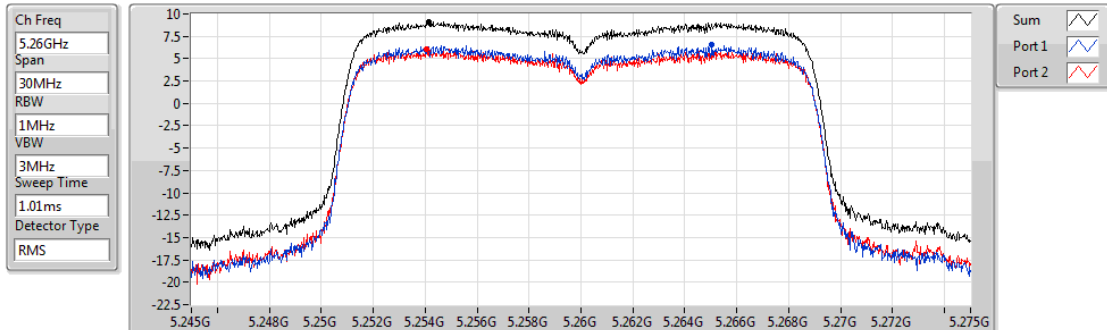
Sum	PD	Port 1	Port 2
(dBm/100kHz)	(dBm/100kHz)	(dBm/100kHz)	(dBm/100kHz)
9.50	9.50	6.66	6.39

802.11ac VHT20_Nss1,(MCS0)_2TX

PSD

5260MHz

05/07/2018



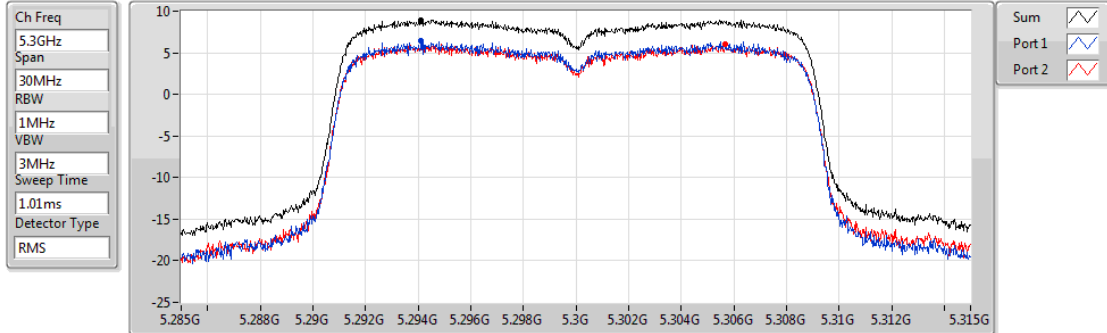
Sum	PD	Port 1	Port 2
(dBm/100kHz)	(dBm/100kHz)	(dBm/100kHz)	(dBm/100kHz)
9.14	9.14	6.61	6.09

802.11ac VHT20_Nss1,(MCS0)_2TX

PSD

5300MHz

05/07/2018



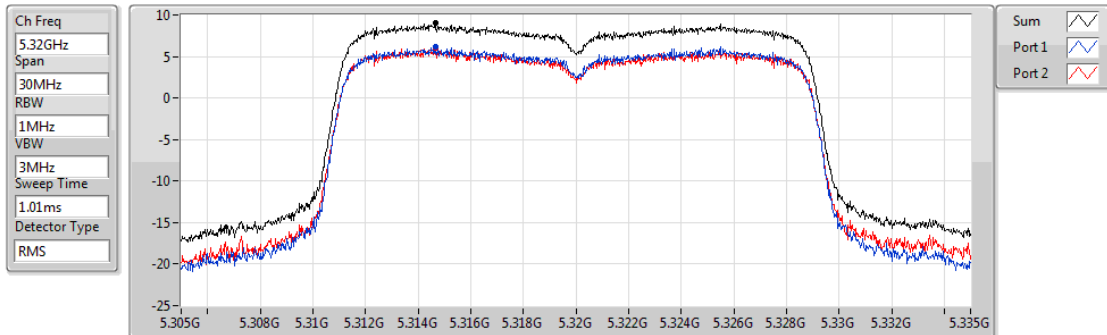
Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
8.95	8.95	6.38	6.06

802.11ac VHT20_Nss1,(MCS0)_2TX

PSD

5320MHz

05/07/2018



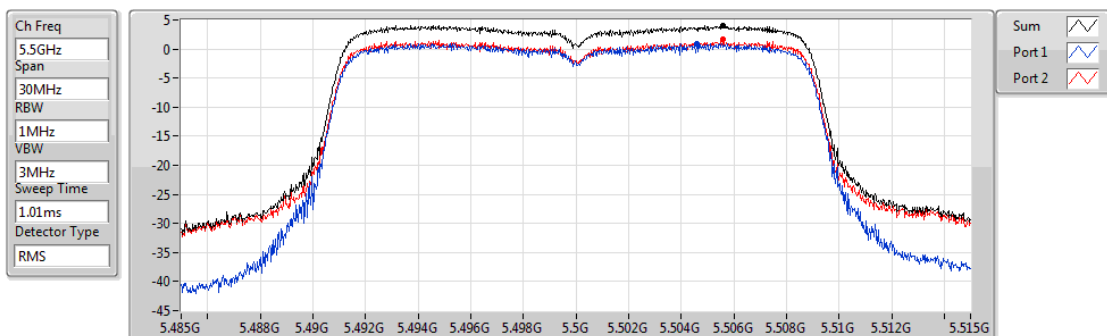
Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
9.08	9.08	6.14	6.00

802.11ac VHT20_Nss1,(MCS0)_2TX

PSD

5500MHz

05/07/2018



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
4.04	4.04	0.95	1.59

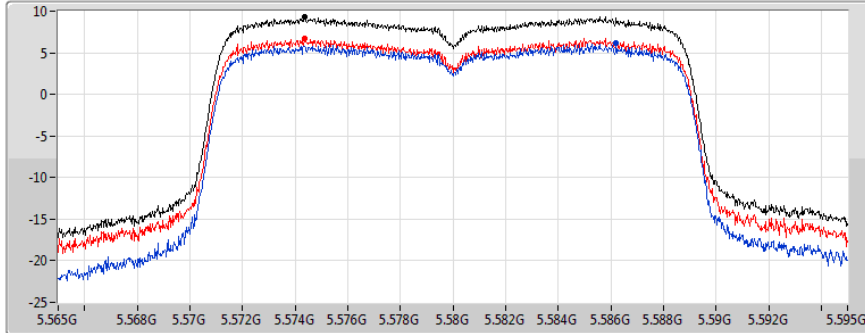
802.11ac VHT20_Nss1,(MCS0)_2TX

5580MHz

PSD

05/07/2018

Ch Freq
5.58GHz
Span
30MHz
RBW
1MHz
VBW
3MHz
Sweep Time
1.01ms
Detector Type
RMS



Sum ☒
Port 1 ☒
Port 2 ☒

Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
9.28	9.28	6.16	6.74

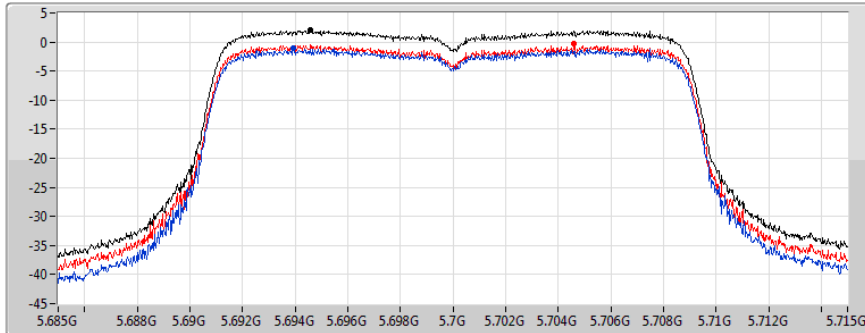
802.11ac VHT20_Nss1,(MCS0)_2TX

5700MHz

PSD

05/07/2018

Ch Freq
5.7GHz
Span
30MHz
RBW
1MHz
VBW
3MHz
Sweep Time
1.01ms
Detector Type
RMS



Sum ☒
Port 1 ☒
Port 2 ☒

Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
2.10	2.10	-1.12	-0.37

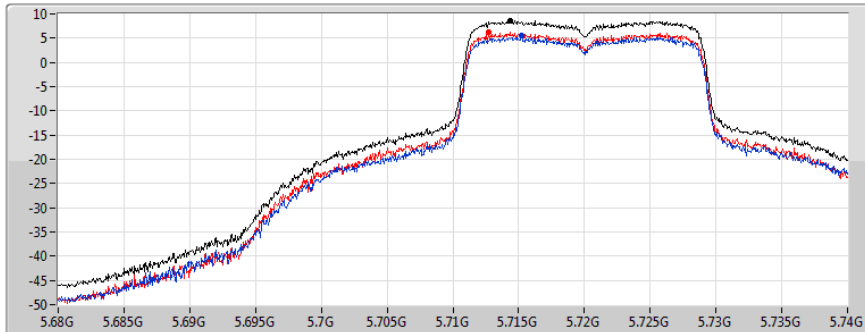
802.11ac VHT20_Nss1,(MCS0)_2TX

5720MHz Straddle 5.47-5.725GHz

PSD

05/07/2018

Ch Freq
5.71GHz
Span
60MHz
RBW
1MHz
VBW
3MHz
Sweep Time
1.01ms
Detector Type
RMS



Sum ☒
Port 1 ☒
Port 2 ☒

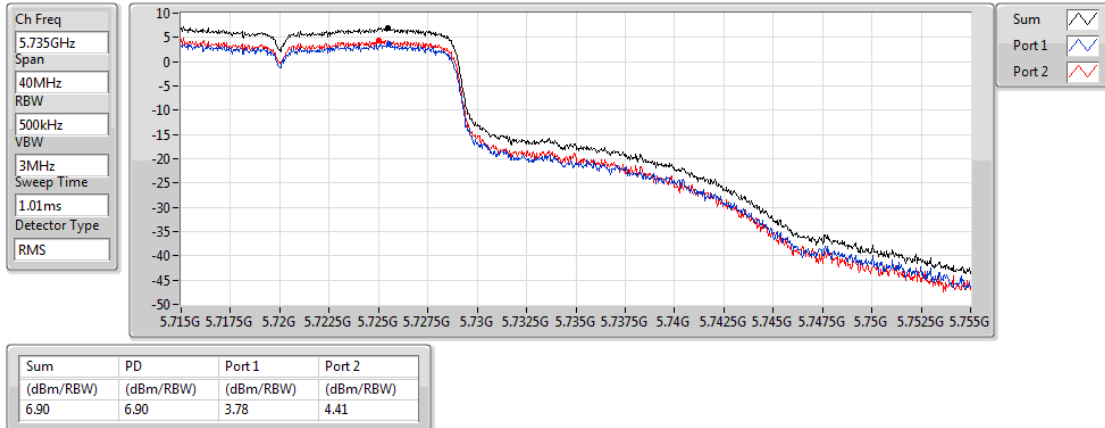
Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
8.58	8.58	5.47	6.23

802.11ac VHT20_Nss1,(MCS0)_2TX

5720MHz Straddle 5.725-5.85GHz

PSD

05/07/2018

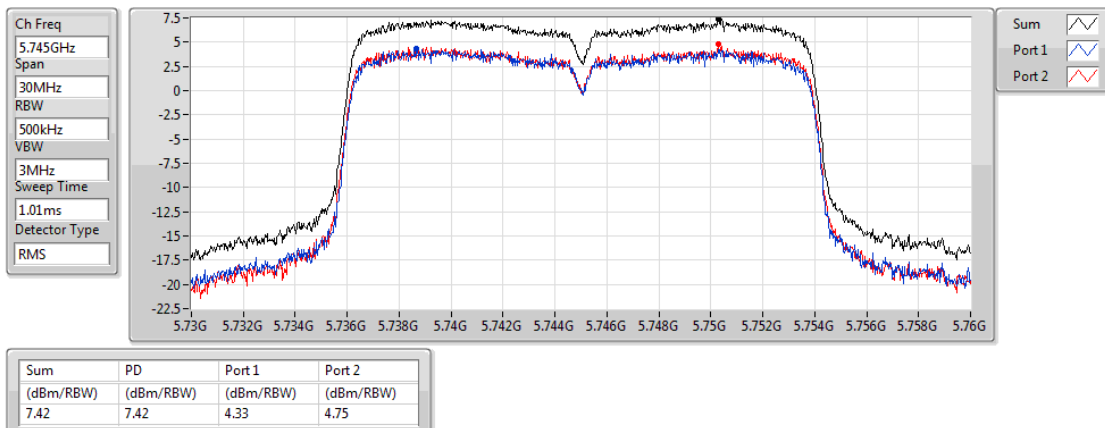


802.11ac VHT20_Nss1,(MCS0)_2TX

5745MHz

PSD

05/07/2018

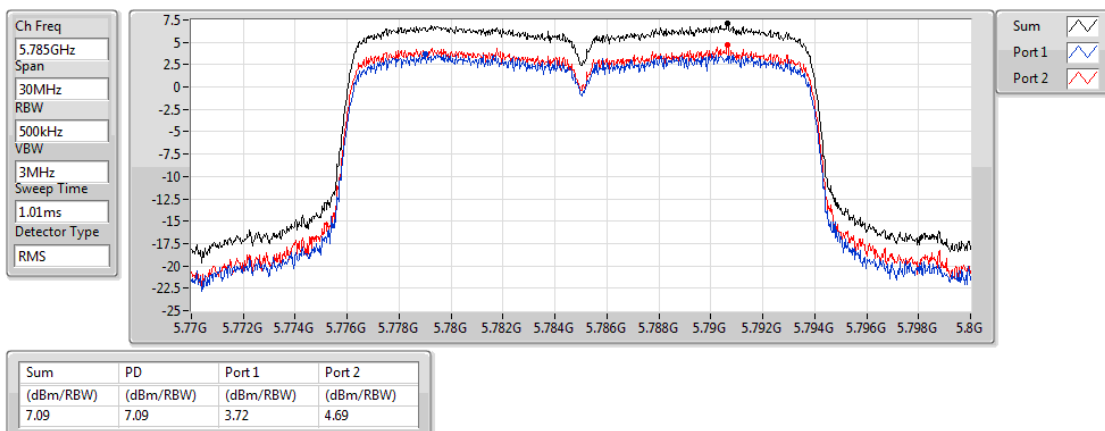


802.11ac VHT20_Nss1,(MCS0)_2TX

5785MHz

PSD

05/07/2018



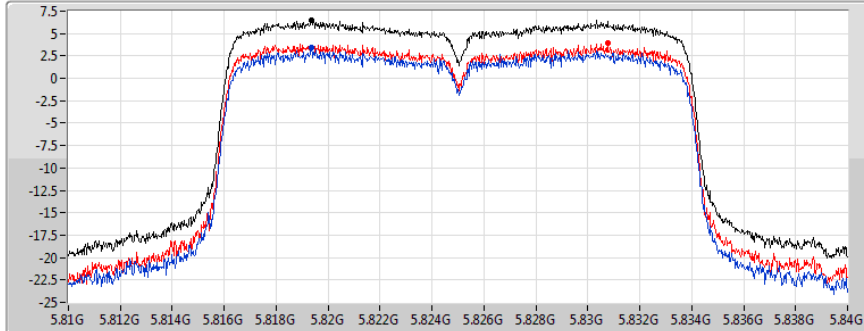
802.11ac VHT20_Nss1,(MCS0)_2TX

PSD

5825MHz

05/07/2018

Ch Freq
5.825GHz
Span
30MHz
RBW
500kHz
VBW
3MHz
Sweep Time
1.01ms
Detector Type
RMS



Sum ☒
Port 1 ☒
Port 2 ☒

Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
6.48	6.48	3.40	3.98

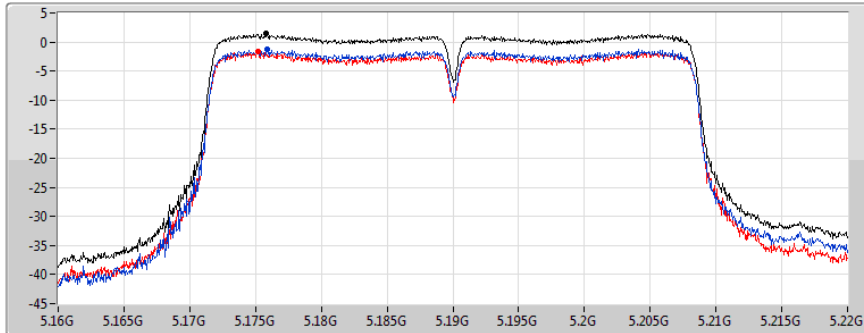
802.11ac VHT40_Nss1,(MCS0)_2TX

PSD

5190MHz

05/07/2018

Ch Freq
5.19GHz
Span
60MHz
RBW
1MHz
VBW
3MHz
Sweep Time
1.01ms
Detector Type
RMS



Sum ☒
Port 1 ☒
Port 2 ☒

Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
1.45	1.45	-1.26	-1.60

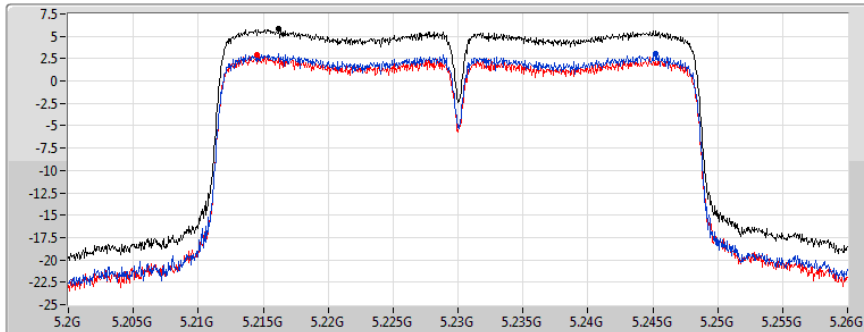
802.11ac VHT40_Nss1,(MCS0)_2TX

PSD

5230MHz

05/07/2018

Ch Freq
5.23GHz
Span
60MHz
RBW
1MHz
VBW
3MHz
Sweep Time
1.01ms
Detector Type
RMS



Sum ☒
Port 1 ☒
Port 2 ☒

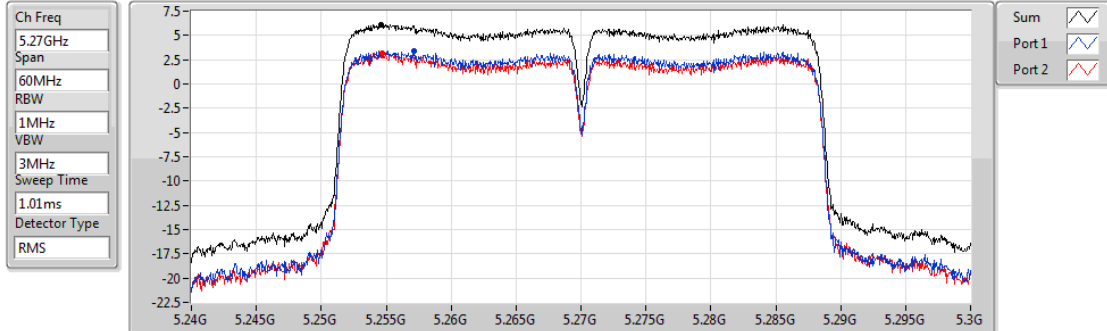
Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
5.81	5.81	3.10	2.92

802.11ac VHT40_Nss1,(MCS0)_2TX

PSD

5270MHz

05/07/2018



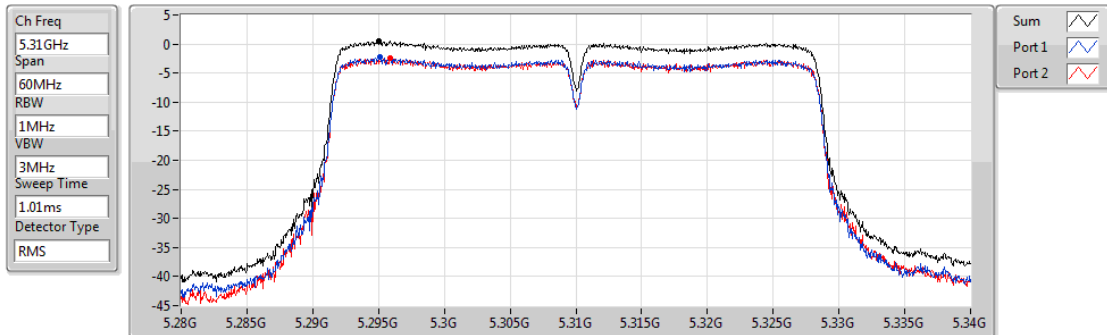
Sum	PD	Port 1	Port 2
(dBm/Hz)	(dBm/Hz)	(dBm/Hz)	(dBm/Hz)
6.13	6.13	3.45	3.17

802.11ac VHT40_Nss1,(MCS0)_2TX

PSD

5310MHz

05/07/2018



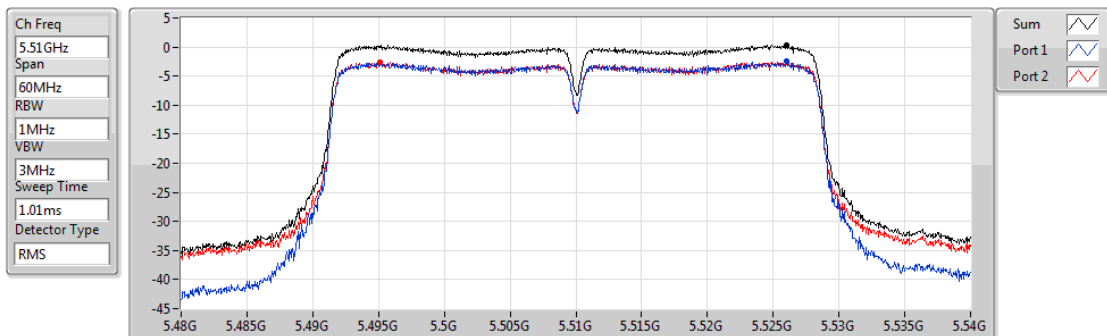
Sum	PD	Port 1	Port 2
(dBm/Hz)	(dBm/Hz)	(dBm/Hz)	(dBm/Hz)
0.47	0.47	-2.23	-2.47

802.11ac VHT40_Nss1,(MCS0)_2TX

PSD

5510MHz

05/07/2018



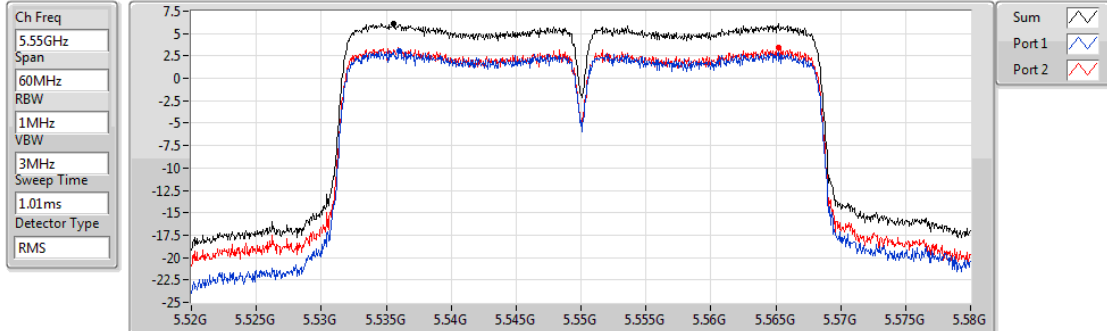
Sum	PD	Port 1	Port 2
(dBm/Hz)	(dBm/Hz)	(dBm/Hz)	(dBm/Hz)
0.40	0.40	-2.36	-2.53

802.11ac VHT40_Nss1,(MCS0)_2TX

PSD

5550MHz

05/07/2018



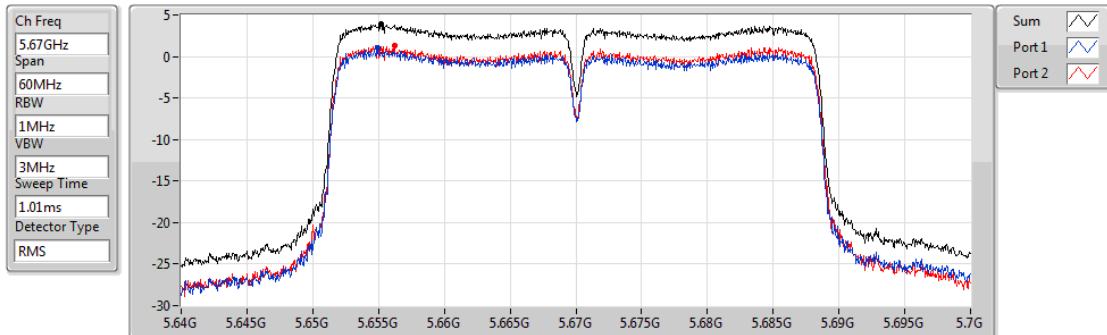
Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
6.09	6.09	3.05	3.47

802.11ac VHT40_Nss1,(MCS0)_2TX

PSD

5670MHz

05/07/2018



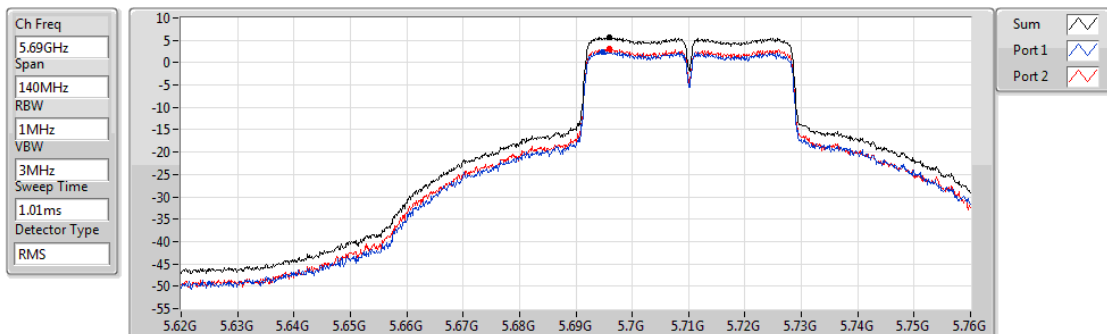
Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
3.86	3.86	1.04	1.32

802.11ac VHT40_Nss1,(MCS0)_2TX

PSD

5710MHz Straddle 5.47-5.725GHz

05/07/2018



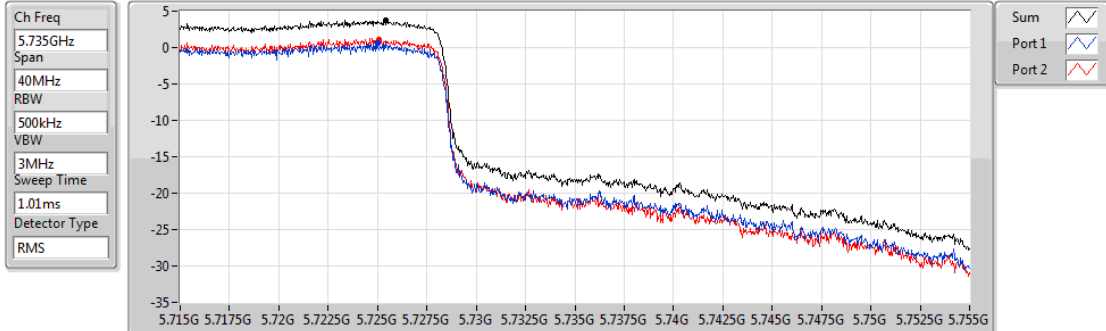
Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
5.65	5.65	2.42	3.16

802.11ac VHT40_Nss1,(MCS0)_2TX

5710MHz Straddle 5.725-5.85GHz

PSD

05/07/2018



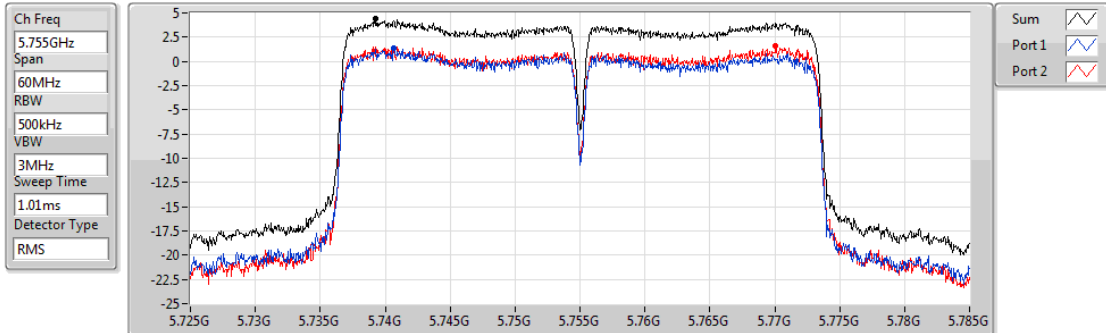
Sum	PD	Port 1	Port 2
(dBm/Hz)	(dBm/Hz)	(dBm/Hz)	(dBm/Hz)
3.74	3.74	0.69	1.14

802.11ac VHT40_Nss1,(MCS0)_2TX

5755MHz

PSD

05/07/2018



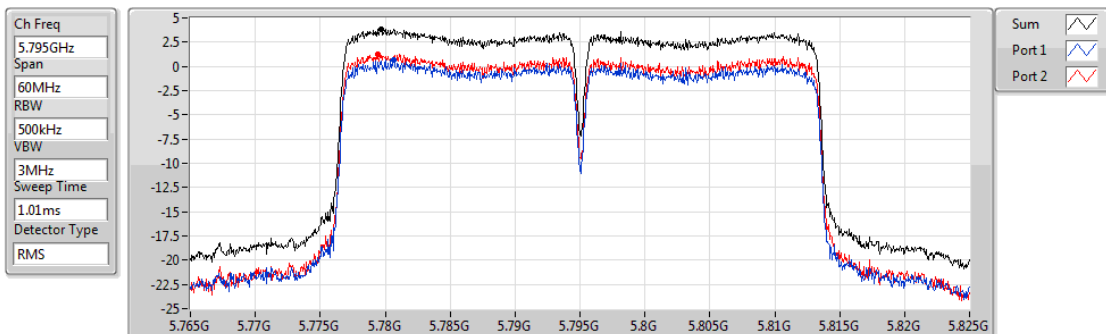
Sum	PD	Port 1	Port 2
(dBm/Hz)	(dBm/Hz)	(dBm/Hz)	(dBm/Hz)
4.37	4.37	1.35	1.63

802.11ac VHT40_Nss1,(MCS0)_2TX

5795MHz

PSD

05/07/2018



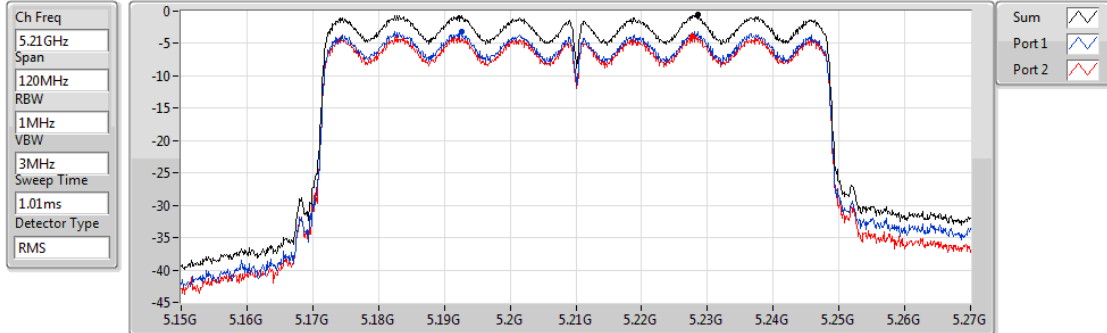
Sum	PD	Port 1	Port 2
(dBm/Hz)	(dBm/Hz)	(dBm/Hz)	(dBm/Hz)
3.86	3.86	0.69	1.26

802.11ac VHT80_Nss1,(MCS0)_2TX

PSD

5210MHz

05/07/2018



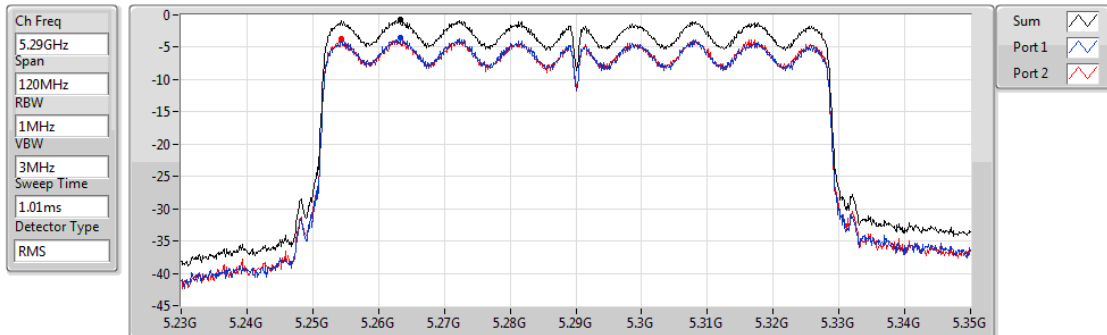
Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-0.57	-0.57	-3.10	-3.88

802.11ac VHT80_Nss1,(MCS0)_2TX

PSD

5290MHz

05/07/2018



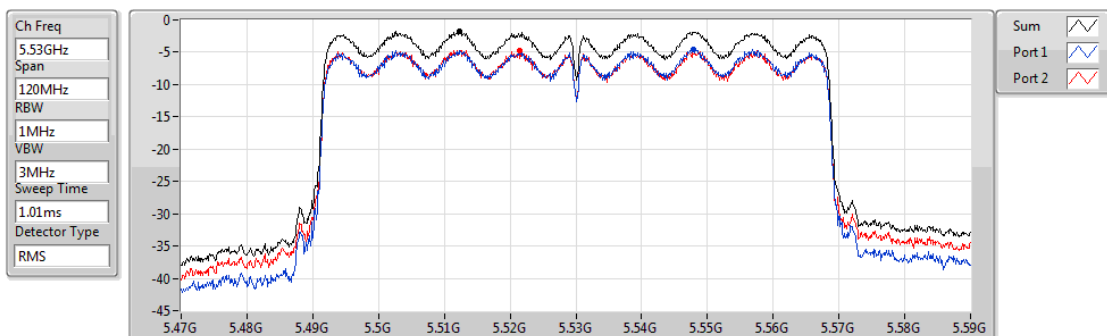
Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-0.68	-0.68	-3.49	-3.76

802.11ac VHT80_Nss1,(MCS0)_2TX

PSD

5530MHz

05/07/2018



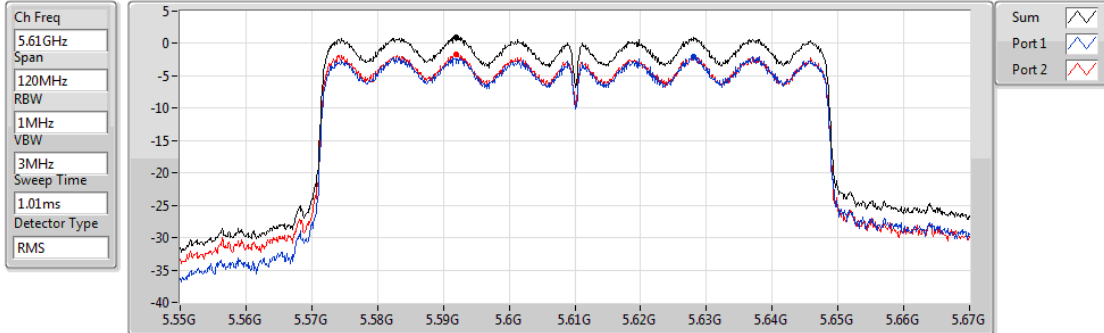
Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-1.71	-1.71	-4.62	-4.67

802.11ac VHT80_Nss1,(MCS0)_2TX

PSD

5610MHz

05/07/2018



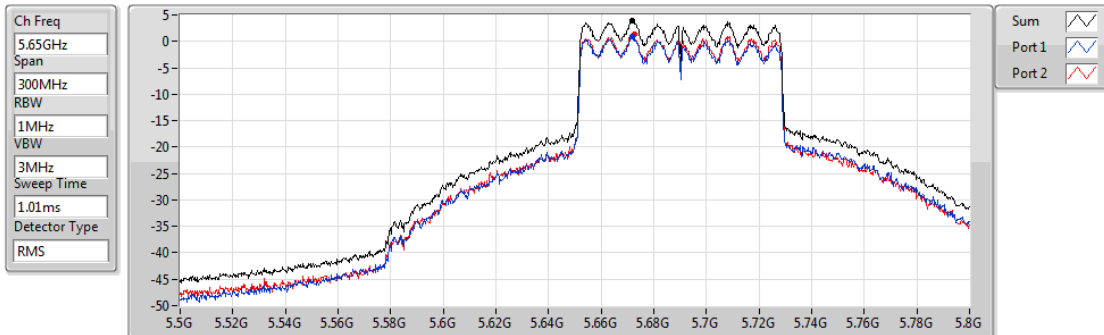
Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
0.97	0.97	-2.08	-1.72

802.11ac VHT80_Nss1,(MCS0)_2TX

PSD

5690MHz Straddle 5.47-5.725GHz

05/07/2018



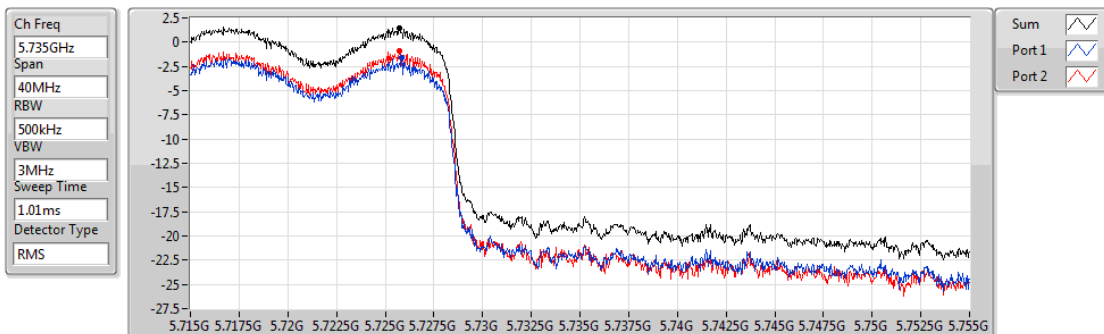
Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
3.84	3.84	0.89	1.25

802.11ac VHT80_Nss1,(MCS0)_2TX

PSD

5690MHz Straddle 5.725-5.85GHz

05/07/2018



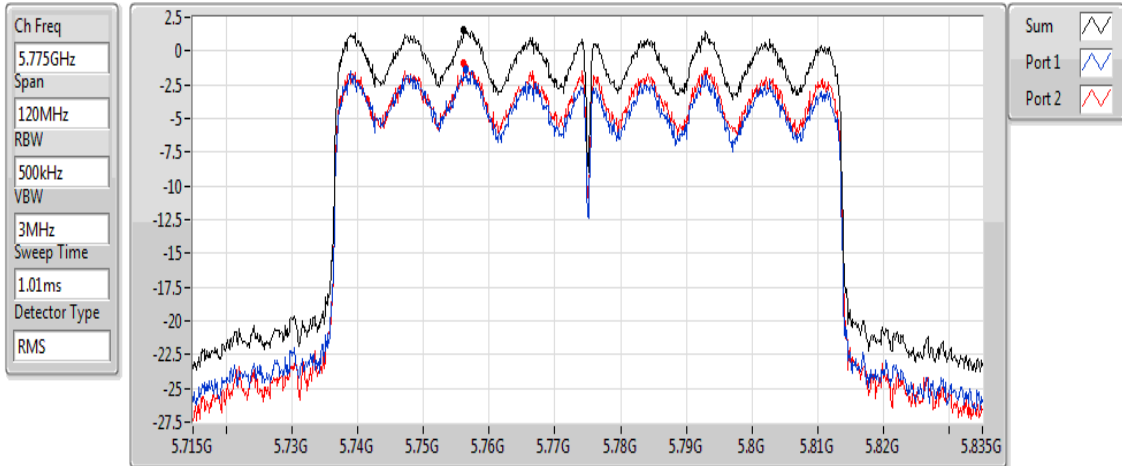
Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
1.50	1.50	-1.66	-0.90

802.11ac VHT80_Nss1,(MCS0)_2TX

PSD

5775MHz

05/07/2018



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
1.51	1.51	-1.31	-0.94

**Summary**

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
5.725-5.85GHz	-	-	-	-	-	-	-	-	-	-	-	-
802.11ac VHT80_Nss1,(MCS0)_2TX	Pass	PK	198.78M	34.88	43.50	-8.62	-21.08	3	Horizontal	0	1.00	-

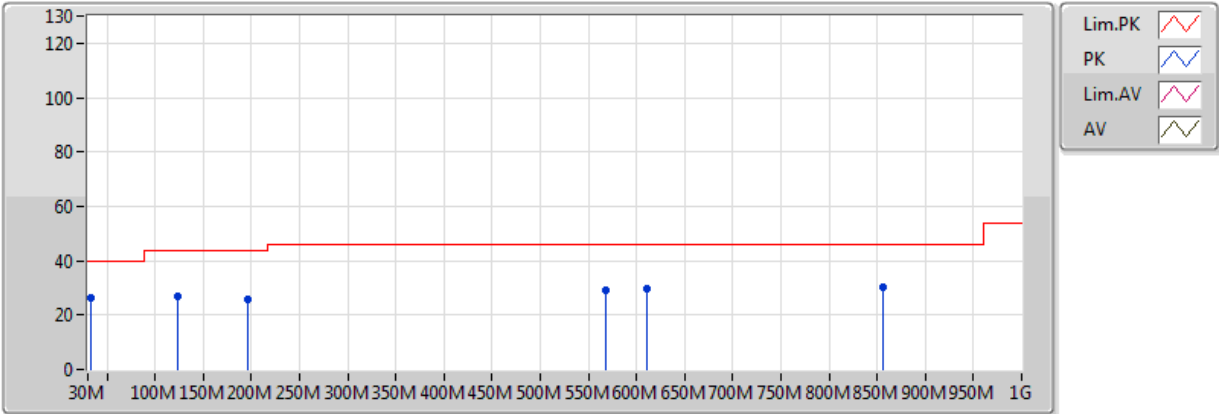
Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
802.11ac VHT80_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-	-	-	-
5775MHz	Pass	PK	33.88M	26.31	40.00	-13.69	-15.32	3	Vertical	360	1.00	-
5775MHz	Pass	PK	123.12M	27.09	43.50	-16.41	-19.24	3	Vertical	360	1.00	-
5775MHz	Pass	PK	196.84M	25.61	43.50	-17.89	-21.15	3	Vertical	360	1.00	-
5775MHz	Pass	PK	567.38M	29.03	46.00	-16.97	-10.55	3	Vertical	360	1.00	-
5775MHz	Pass	PK	610.06M	29.45	46.00	-16.55	-10.59	3	Vertical	360	1.00	-
5775MHz	Pass	PK	856.44M	30.35	46.00	-15.65	-7.01	3	Vertical	360	1.00	-
5775MHz	Pass	PK	99.84M	27.34	43.50	-16.16	-21.09	3	Horizontal	0	1.00	-
5775MHz	Pass	PK	198.78M	34.88	43.50	-8.62	-21.08	3	Horizontal	0	1.00	-
5775MHz	Pass	PK	293.84M	31.73	46.00	-14.27	-16.80	3	Horizontal	0	1.00	-
5775MHz	Pass	PK	507.24M	32.87	46.00	-13.13	-12.11	3	Horizontal	0	1.00	-
5775MHz	Pass	PK	631.4M	28.13	46.00	-17.87	-10.06	3	Horizontal	0	1.00	-
5775MHz	Pass	PK	720.64M	28.46	46.00	-17.54	-9.24	3	Horizontal	0	1.00	-

802.11ac VHT80_Nss1,(MCS0)_2TX

5775MHz_USB

05/07/2018

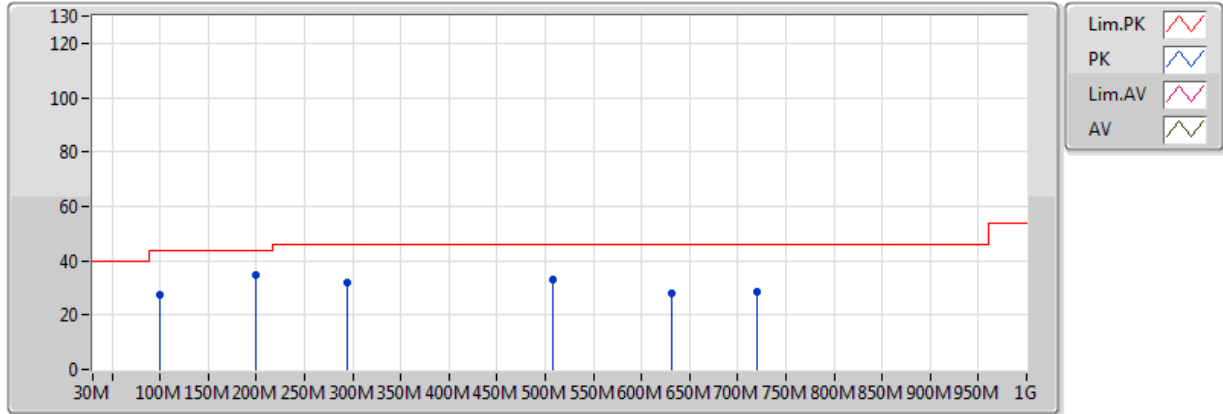


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	33.88M	26.31	40.00	-13.69	-15.32	3	Vertical	360	1.00	-
PK	123.12M	27.09	43.50	-16.41	-19.24	3	Vertical	360	1.00	-
PK	196.84M	25.61	43.50	-17.89	-21.15	3	Vertical	360	1.00	-
PK	567.38M	29.03	46.00	-16.97	-10.55	3	Vertical	360	1.00	-
PK	610.06M	29.45	46.00	-16.55	-10.59	3	Vertical	360	1.00	-
PK	856.44M	30.35	46.00	-15.65	-7.01	3	Vertical	360	1.00	-

802.11ac VHT80_Nss1,(MCS0)_2TX

5775MHz_USB

05/07/2018



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	99.84M	27.34	43.50	-16.16	-21.09	3	Horizontal	0	1.00	-
PK	198.78M	34.88	43.50	-8.62	-21.08	3	Horizontal	0	1.00	-
PK	293.84M	31.73	46.00	-14.27	-16.80	3	Horizontal	0	1.00	-
PK	507.24M	32.87	46.00	-13.13	-12.11	3	Horizontal	0	1.00	-
PK	631.4M	28.13	46.00	-17.87	-10.06	3	Horizontal	0	1.00	-
PK	720.64M	28.46	46.00	-17.54	-9.24	3	Horizontal	0	1.00	-