FCC RADIO TEST REPORT

FCC ID	:	UDX-60066020
Equipment	:	802.11a/b/g/n/ac Wireless Access Point
Brand Name	:	CISCO
Model Name	:	GR10-HW, GR10-HW-US, GR10-HW-INTL
Applicant	:	Cisco Systems, Inc. 170 West Tasman Drive, San Jose, CA 95134 USA
Manufacturer	:	Cisco Systems, Inc. 170 West Tasman Drive, San Jose, CA 95134 USA
Standard	:	47 CFR FCC Part 15.407

The product was received on May 23, 2017, and testing was started from Jun. 20, 2017 and completed on Jul. 04, 2017. We, SPORTON INTERTIONAL 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 INTERTIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Approved by: Sam Chen

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

Table of Contents

History of this test report

Report No.	Version	Description	Issued Date
FR760620-05AC	01	Initial issue of report	Mar. 30, 2018

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	-
3.6	15.407(g)	Frequency Stability	PASS	-

Reviewed by: Sam Chen

Report Producer: Cindy Peng

1 General Description

1.1 Information

1.1.1 RF General Information

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

Band	Mode	BWch (MHz)	Nant
5.25-5.35GHz	11a	20	2TX
5.25-5.35GHz	HT20	20	2TX
5.25-5.35GHz	VHT20	20	2TX
5.25-5.35GHz	HT40	40	2TX
5.25-5.35GHz	VHT40	40	2TX
5.25-5.35GHz	VHT80	80	2TX
5.47-5.725GHz	11a	20	2TX
5.47-5.725GHz	HT20	20	2TX
5.47-5.725GHz	VHT20	20	2TX
5.47-5.725GHz	HT40	40	2TX
5.47-5.725GHz	VHT40	40	2TX
5.47-5.725GHz	VHT80	80	2TX
5.25-5.35GHz	HT20-BF	20	2TX
5.25-5.35GHz	VHT20-BF	20	2TX
5.25-5.35GHz	HT40-BF	40	2TX
5.25-5.35GHz	VHT40-BF	40	2TX
5.25-5.35GHz	VHT80-BF	80	2TX
5.47-5.725GHz	HT20-BF	20	2TX
5.47-5.725GHz	VHT20-BF	20	2TX
5.47-5.725GHz	HT40-BF	40	2TX
5.47-5.725GHz	VHT40-BF	40	2TX
5.47-5.725GHz	VHT80-BF	80	2TX

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

Ant.	Port	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	
						2.4GHz	5GHz
1	1	WNC	95XKAA15.GDX	PIFA Antenna	I-PEX	5.63	5.31
2	2	WNC	95XKAA15.GDX	PIFA Antenna	I-PEX	3.29	5.08
Composite Gain Un-Correlated (dBi)						3.43	4.26
Composite Gain Correlated (dBi)						5.70	7.27

Note: The EUT has two antennas.

For 2.4GHz function:

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

Port 1 and Port 2 can be used as transmitting/receiving antenna.

Port 1 and Port 2 could transmit/receive simultaneously.

For 5GHz function:

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

Port 1 and Port 2can be used as transmitting/receiving antenna.

Port 1 and Port 2 could transmit/receive simultaneously.

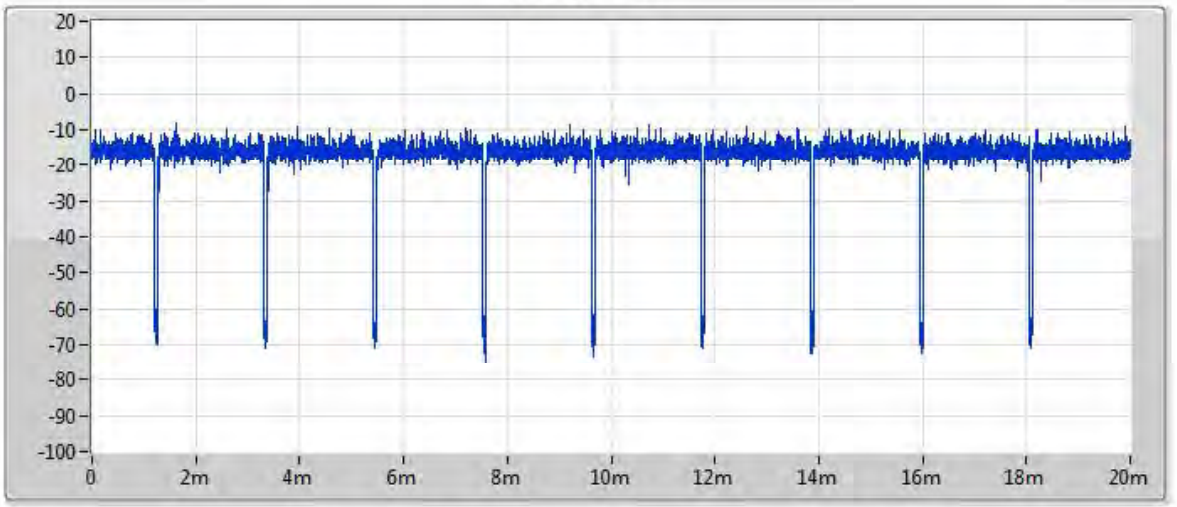
1.1.3 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
11a	0.966	0.15	2.033m	1k
VHT20	0.983	0.074	n/a (DC>=0.98)	n/a (DC>=0.98)
VHT40	0.967	0.146	2.418m	1k
VHT80	0.914	0.391	1.108m	1k
VHT20-BF	0.604	2.19	687.5u	3k
VHT40-BF	0.465	3.325	862.5u	3k
VHT80-BF	0.271	5.67	200u	10k

Note:
The test procedure refers to ANSI C63.10:2013 clause 11.6 b). The ON and OFF times of the transmitted signal is measured by spectrum analyzer and the setting as follows:
1) Set the center frequency of the instrument to the center frequency of the transmission.
2) Set RBW ≥ OBW if possible; otherwise, set RBW to the largest available value.
3) Set VBW ≥ RBW. Set detector = peak or average.
The measured result and plots are recorded in 1.1.3.

Mode
11a

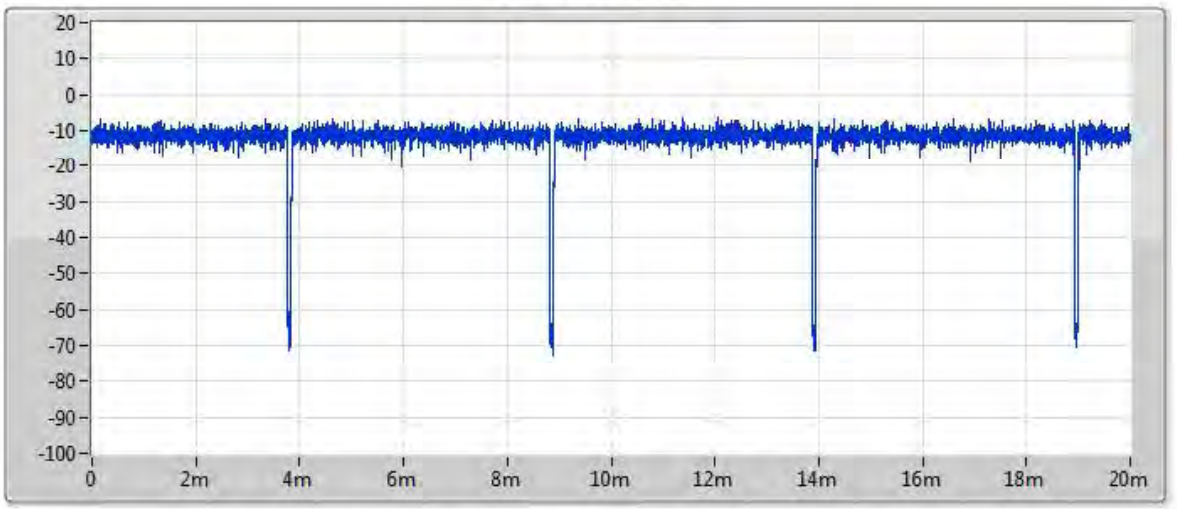
DC;11a;BWch:20



Ch Freq	RBW	VBW	Sweep Time	Total Sample	Sample Time	TX Time	DC
5.18GHz	10MHz	10MHz	20ms	8001	2.5us	19.3225ms	0.966

Mode
VHT20

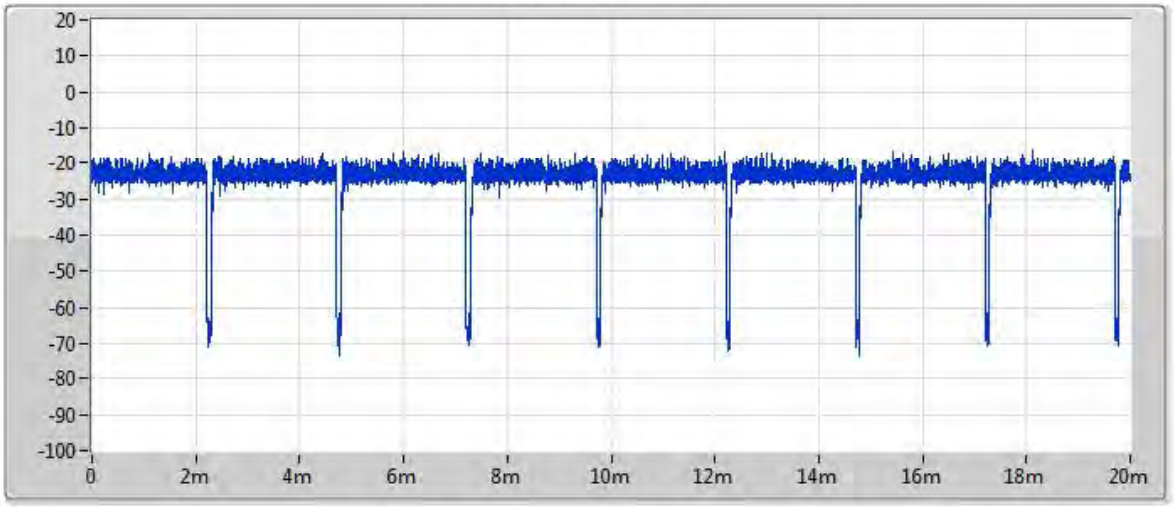
DC;VHT20;BWch:20



Ch Freq	RBW	VBW	Sweep Time	Total Sample	Sample Time	TX Time	DC
5.18GHz	10MHz	10MHz	20ms	8001	2.5us	19.67ms	0.983

Mode
VHT40

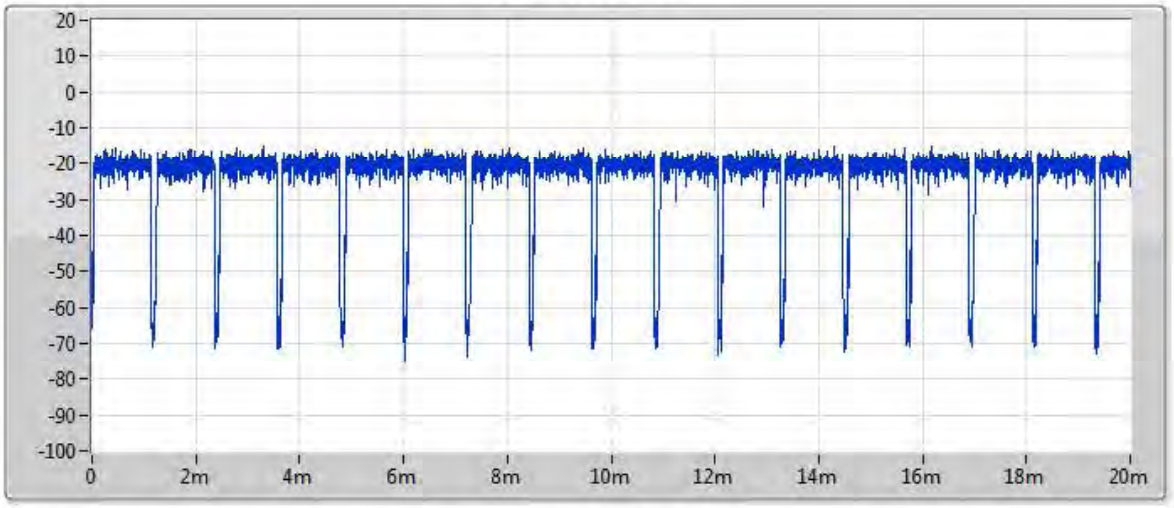
DC;VHT40;BWch:40



Ch Freq	RBW	VBW	Sweep Time	Total Sample	Sample Time	TX Time	DC
5.19GHz	10MHz	10MHz	20ms	8001	2.5us	19.35ms	0.967

Mode
VHT80

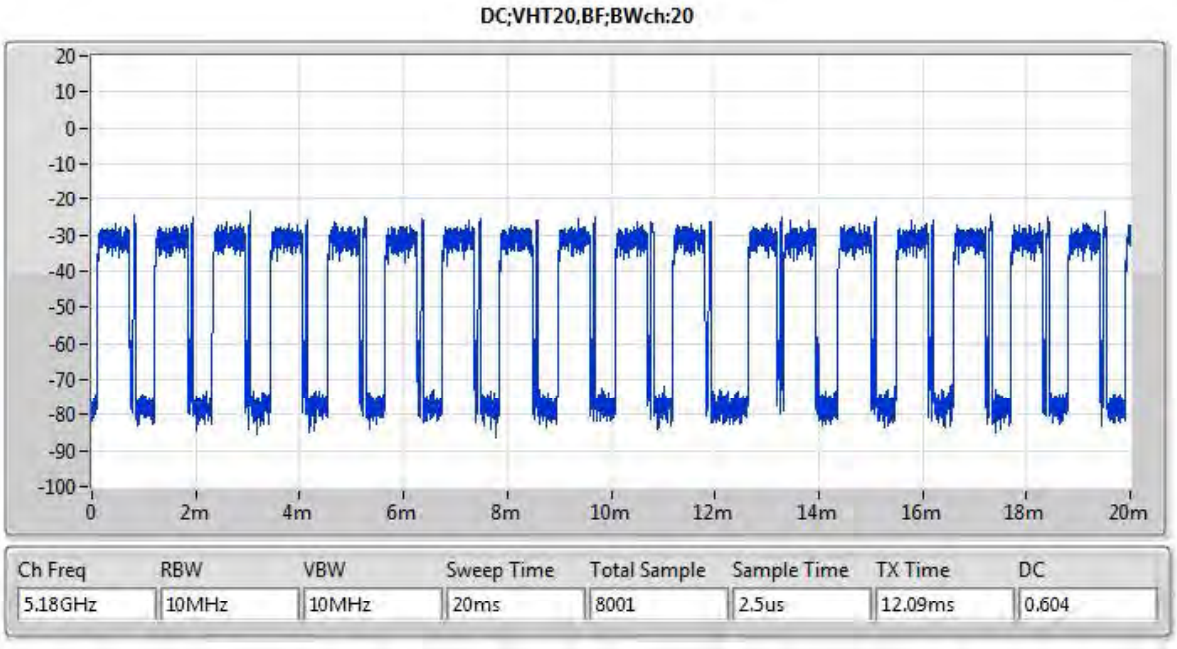
DC;VHT80;BWch:80



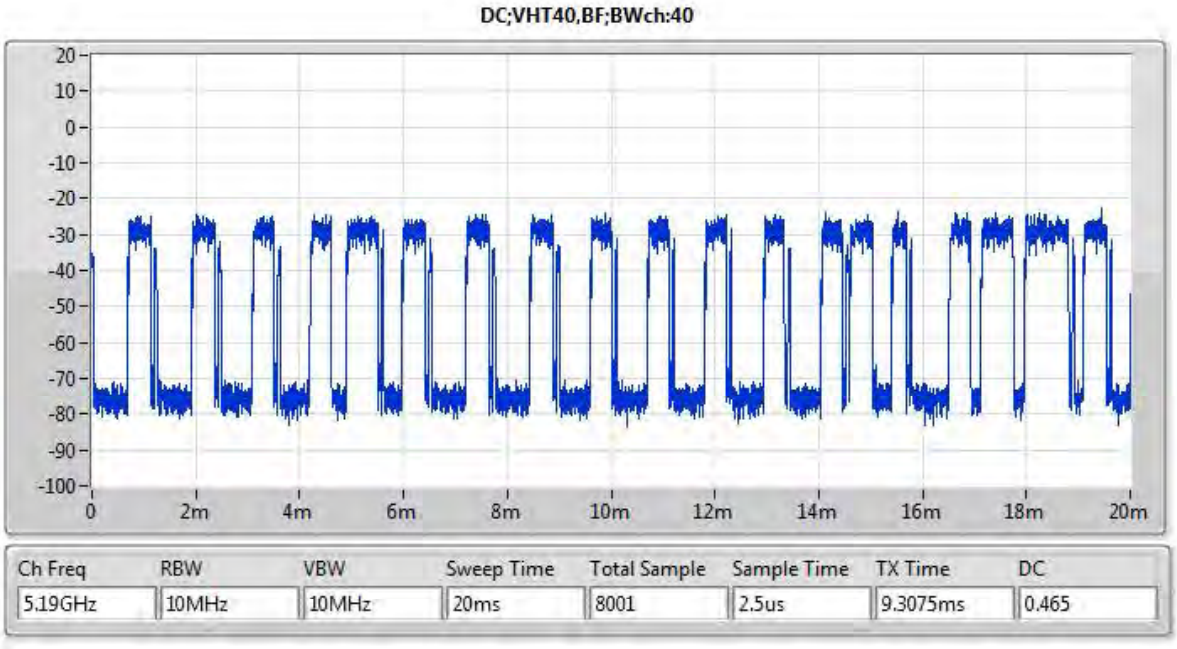
Ch Freq	RBW	VBW	Sweep Time	Total Sample	Sample Time	TX Time	DC
5.19GHz	10MHz	10MHz	20ms	8001	2.5us	18.2825ms	0.914

Mode

Mode
VHT20-BF

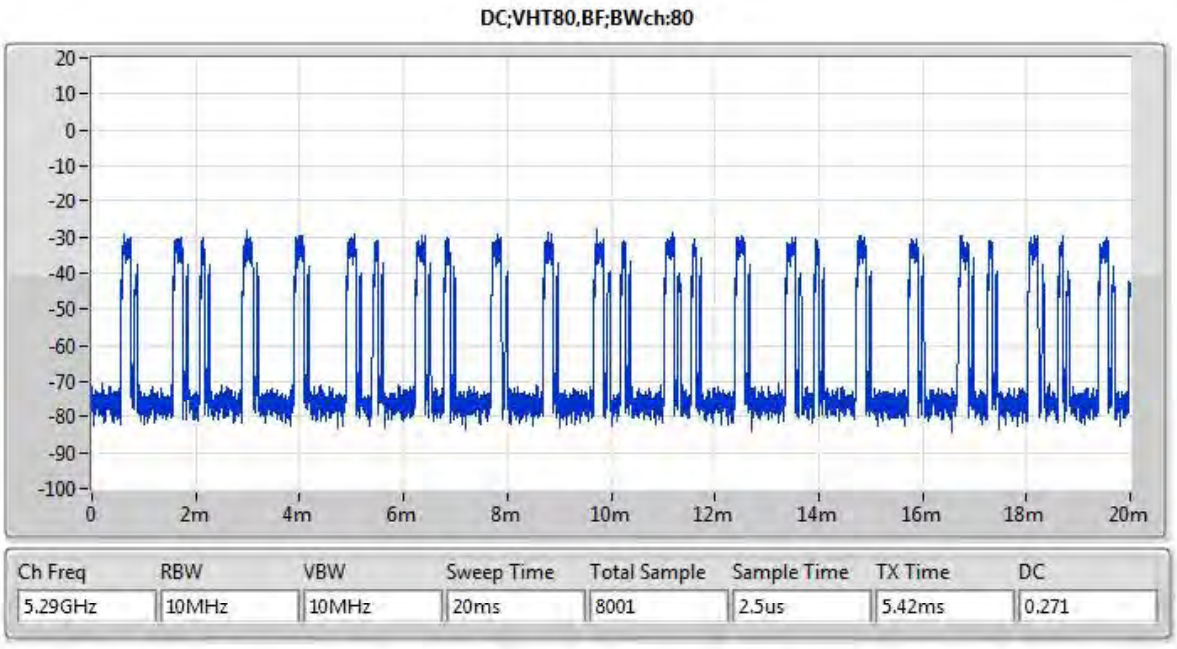


Mode
VHT40-BF



Mode

Mode
VHT80-BF



1.1.4 EUT Operational Condition

EUT Power Type	From Power Adapter or PoE			
Beamforming Function	☒	With beamforming for 802.11n/ac in 2.4GHz/5GHz.	☐	Without beamforming
Weather Band	☒	With 5600~5650MHz	☐	Without 5600~5650MHz

1.1.5 Table for Multiple Listing

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

Model Name	Description
GR10-HW	All the models are identical, the difference model for difference brand served as marketing strategy.
GR10-HW-US	
GR10-HW-INTL	

From the above models, model: GR10-HW was selected as representative model for the test and its data was recorded in this report.

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
- FCC KDB 789033 D02 v02r01
- FCC KDB 662911 D01 v02r01

1.3 Testing Location Information

Testing Location			
☐	HWA YA	ADD :	No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.
		TEL :	886-3-327-3456 FAX : 886-3-318-0055
☒	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	Gino Huang, Gary Chu	23°C / 55%	Jun. 27, 2017 ~ Jun. 30, 2017
Radiated	03CH01-CB	Justin Lin	22°C / 54%	Jun. 20, 2017 ~ Jul. 04, 2017
AC Conduction	CO01-CB	Ryo Fan	23°C / 55%	Jun. 23, 2017

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)	3.2 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	3.6 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	3.7 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	3.5 dB	Confidence levels of 95%
Conducted Emission	1.7 dB	Confidence levels of 95%
Output Power Measurement	1.33 dB	Confidence levels of 95%
Power Density Measurement	1.27 dB	Confidence levels of 95%
Bandwidth Measurement	9.74×10^{-8}	Confidence levels of 95%
Frequency Stability	6.06×10^{-8}	Confidence levels of 95%

2 Test Configuration of EUT

2.1 Test Channel Mode

Mode	Power Setting
11a_Nss1_2TX	-
5260MHz	18
5300MHz	18
5320MHz	18
5500MHz	16.5
5580MHz	18
5700MHz	16.5
5720MHz Straddle 5.47-5.725GHz	18.5
5720MHz Straddle 5.725-5.85GHz	18.5
VHT20_Nss1_2TX	-
5260MHz	18.5
5300MHz	19
5320MHz	19
5500MHz	18.5
5580MHz	18.5
5700MHz	17
5720MHz Straddle 5.47-5.725GHz	18.5
5720MHz Straddle 5.725-5.85GHz	18.5
VHT40_Nss1_2TX	-
5270MHz	20
5310MHz	16.5
5510MHz	17
5550MHz	20
5670MHz	19
5710MHz Straddle 5.47-5.725GHz	20
5710MHz Straddle 5.725-5.85GHz	20
VHT80_Nss1_2TX	-
5290MHz	16
5530MHz	17
5610MHz	20
5690MHz Straddle 5.47-5.725GHz	20
5690MHz Straddle 5.725-5.85GHz	20

Mode	Power Setting
VHT20-BF_Nss1_2TX	-
5260MHz	24
5300MHz	24
5320MHz	19
5500MHz	19
5580MHz	20
5700MHz	20
5720MHz Straddle 5.47-5.725GHz	24
5720MHz Straddle 5.725-5.85GHz	24
VHT40-BF_Nss1_2TX	-
5270MHz	24
5310MHz	17
5510MHz	20
5550MHz	20
5670MHz	20
5710MHz Straddle 5.47-5.725GHz	24
5710MHz Straddle 5.725-5.85GHz	24
VHT80-BF_Nss1_2TX	-
5290MHz	17
5530MHz	20
5610MHz	20
5690MHz Straddle 5.47-5.725GHz	24
5690MHz Straddle 5.725-5.85GHz	24

Note: 1.VHT20/VHT40 covers HT20/HT40, due to same modulation. The power setting for 802.11n HT20 and HT40 are the same or lower than 802.11ac VHT20 and VHT40.
2.There are two modes of EUT, one is beamforming mode, and the other is non-beamforming mode for 802.11n/ac. All test results were recorded in the 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	EUT 1 - Normal Link with Adapter
2	EUT 1 - Normal Link with PoE
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 Frequency Stability
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	Normal Link
1	EUT 1 in Z axis - Normal Link with Adapter
2	EUT 1 in Y axis - Normal Link with Adapter
Mode 2 has been evaluated to be the worst case between Mode 1~2, thus measurement for Mode 3 will follow this same test mode.	
3	EUT 1 in Y axis - Normal Link with PoE
For operating mode 3 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 Radiated emission test, and the worst case was found at Y axis. So the measurement will follow this same test configuration.	
1	EUT 1 in Y axis

The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis - Radiated Emission Co-location
Test Condition	Radiated measurement
Operating Mode	Normal Link
1	WLAN 2.4GHz +WLAN 5GHz
Refer to Appendix A for Radiated Emission Co-location.	

The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis - Co-location RF Exposure Evaluation
Operating Mode	
1	WLAN 2.4GHz +WLAN 5GHz
Refer to Sporton Test Report No.: FA760620-05AB for Co-location RF Exposure Evaluation.	

Note: The PoE is for measurement only, would not be marketed.

PoE information as below:

Power	Brand	Model
PoE	Meraki	POE20U-560(G)

2.3 EUT Operation during Test

For CTX Mode:

non-beamforming mode:

The EUT was programmed to be in continuously transmitting mode.

beamforming mode:

For Conducted Mode:

The EUT was programmed to be in continuously transmitting mode.

For Radiated Mode:

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

The program was executed as follows:

1. During the test, the EUT operation to normal function.
2. Executed command fixed test channel under DOS.
3. Executed "Lantest.exe" to link with the remote workstation to transmit and receive packet by RX Device and transmit duty cycle no less 98%.

For Normal Link:

During the test, the EUT operation to normal function.

2.4 Accessories

Accessories					
No.	**Equipment Name**	**Brand Name**	**PSU Vendor P/N**	**Meraki Model**	**Rating**
1	Adapter	CISCO	KSAS0361200250HU	MA-PWR-30W-US	Input: 100-240V ~ 50/60Hz, 1.0A Output: 12V, 2.5A
Other					
Wall-mounted rack*1					

2.5 Support Equipment

For Test Site No: CO01-CB
For Adapter Mode:

Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
1	NB*3	DELL	E6430	DoC

For PoE Mode:

Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
1	NB*3	DELL	E6430	DoC
2	PoE	Meraki	POE20U-560 (G)	DoC

For Test Site No: 03CH01-CB (below 1GHz)
For Adapter Mode:

Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
1	NB	DELL	E4300	DoC
2	NB	Apple	Mac Book	DoC
3	NB	Apple	Mac Book	DoC

For PoE Mode:

Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
1	NB	DELL	E4300	DoC
2	NB	Apple	Mac Book	DoC
3	NB	Apple	Mac Book	DoC
4	PoE	Meraki	POE20U-560 (G)	DoC

For Test Site No: 03CH01-CB (above 1GHz)
<For Non-Beamforming Mode>

Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
1	NB	DELL	E4300	DoC

<For Beamforming Mode>

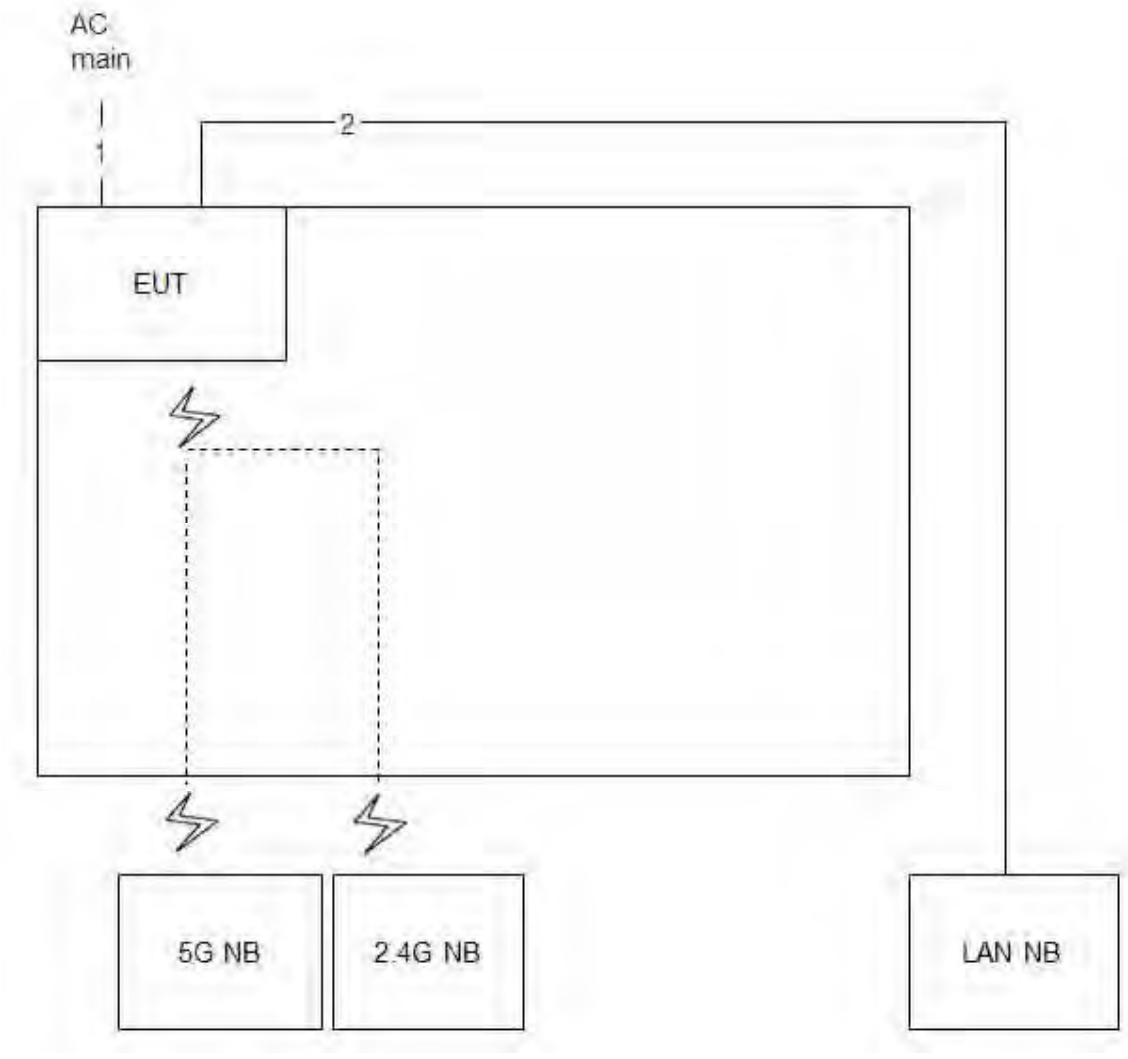
Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
1	NB	DELL	E4300	DoC
2	NB	DELL	E4300	DoC
3	RX Device	CISCO	Maggot	DoC

For Test Site No: TH01-CB

Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
1	NB	DELL	E4300	DoC

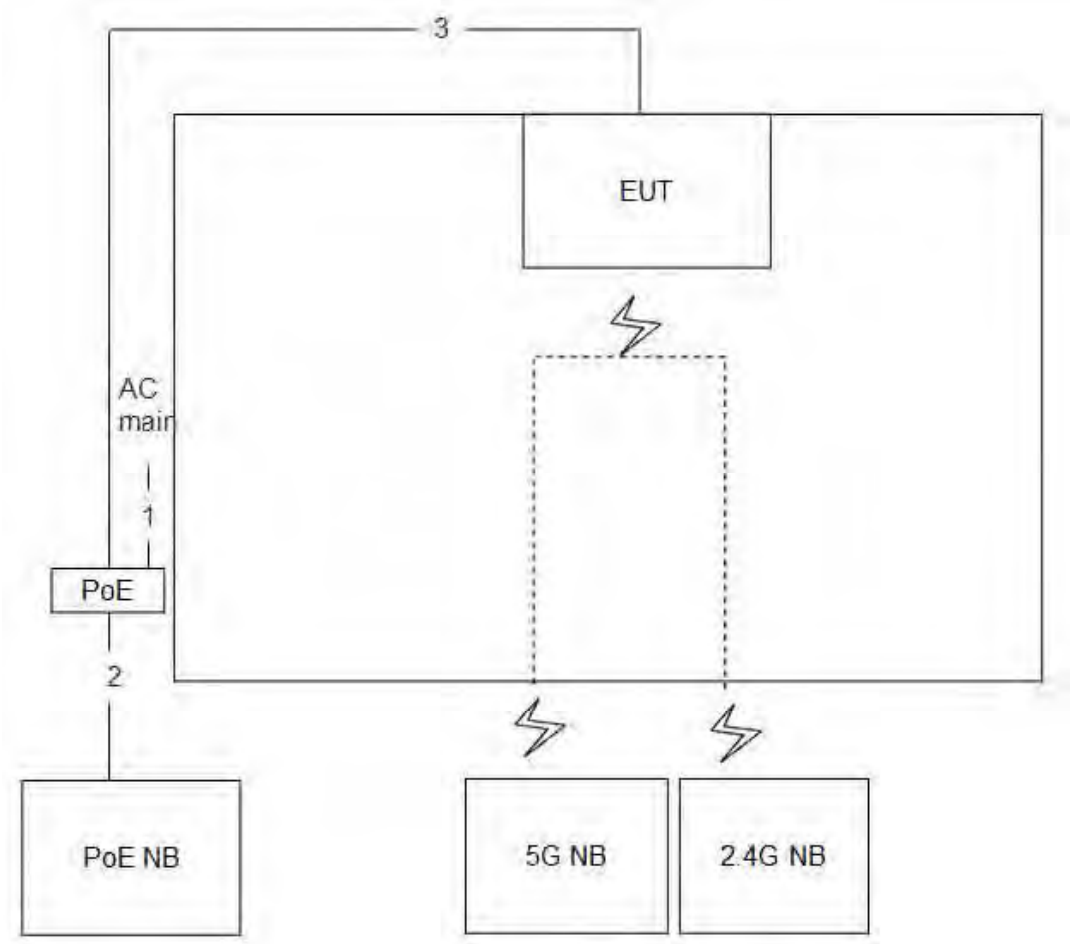
2.6 Test Setup Diagram

Test Setup Diagram – AC Line Conducted Emission Test



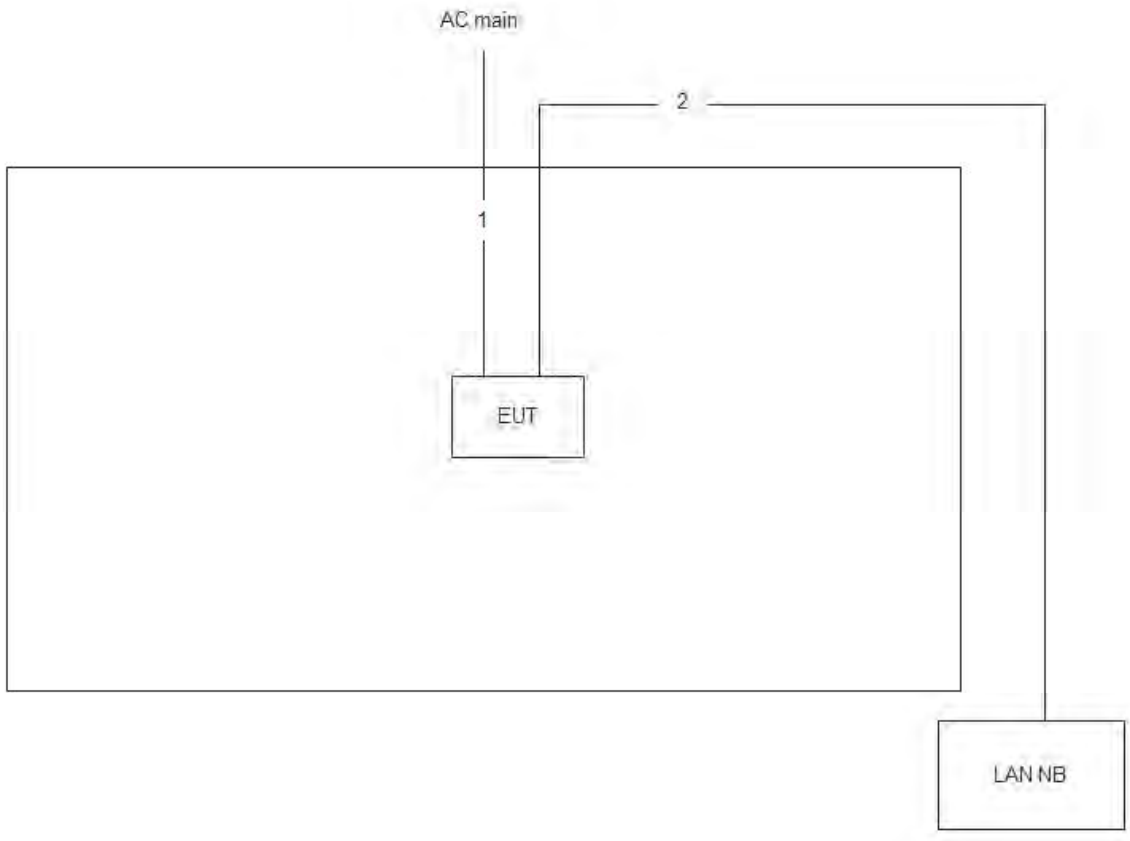
Item	Connection	Shielded	Length
1	Power cable	No	1.5m
2	RJ-45 cable	No	10m

Test Setup Diagram - Radiated Test < 1GHz



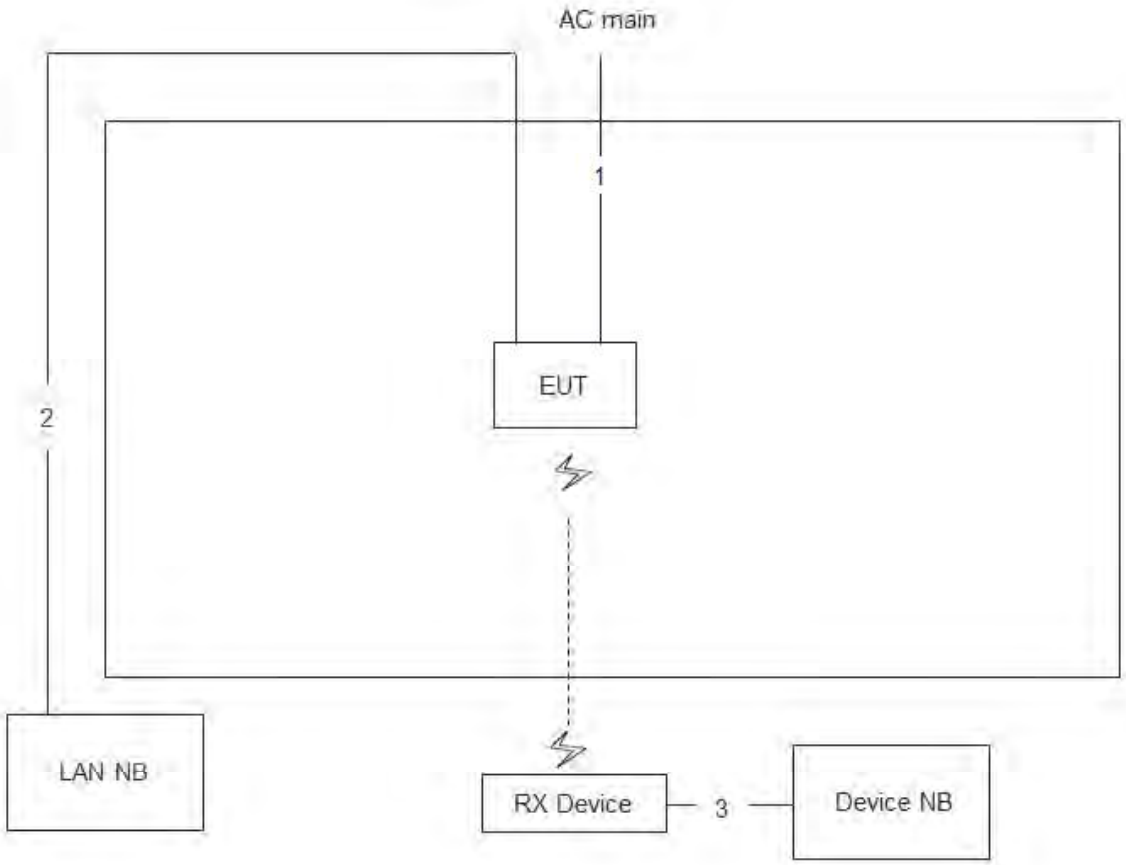
Item	Connection	Shielded	Length
1	Power cable	No	1.8m
2	RJ-45 cable	No	1m
3	RJ-45 cable	No	10m

Test Setup Diagram - Radiated Test > 1GHz / Non-Beamforming Mode



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

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



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

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

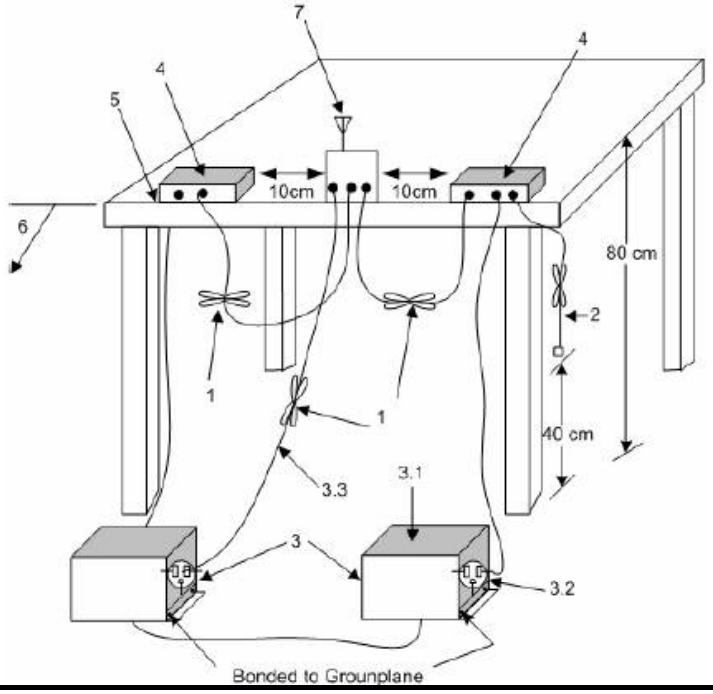
Refer a test equipment and calibration data table in this test report.

3.1.3 Test Procedures

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

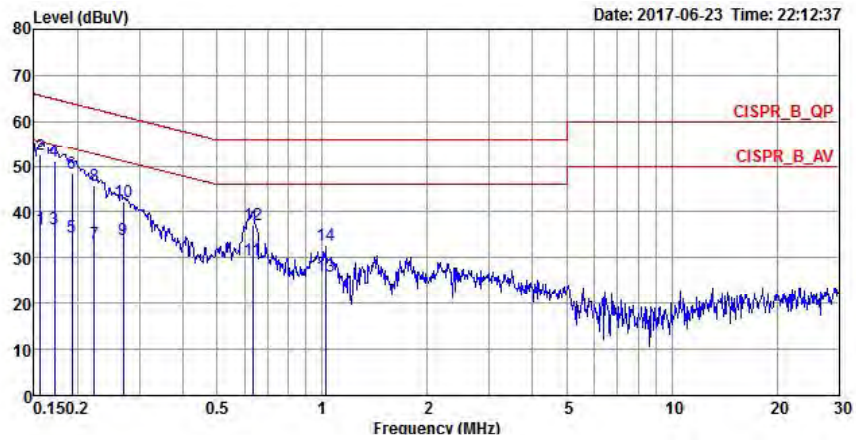
3.1.4 Test Setup

AC Power-line Conducted Emissions



3.1.5 Test Result of AC Power-line Conducted Emissions

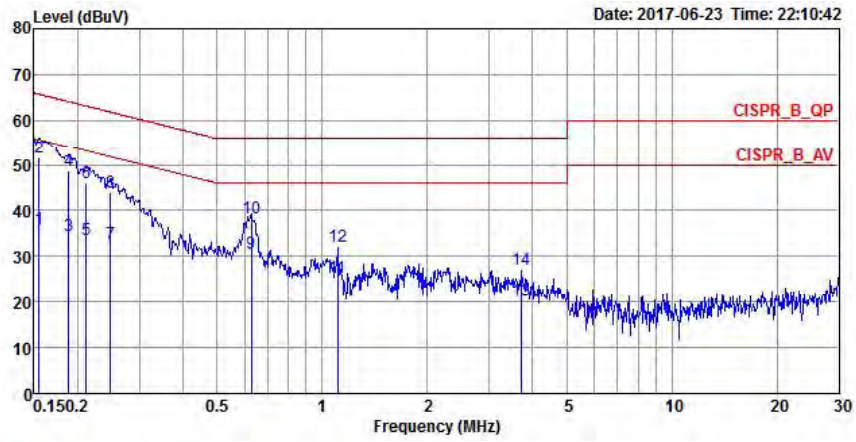
AC Power-line Conducted Emissions Result			
Operating Mode	1	**Power Phase**	Neutral
Operating Function	Normal Link		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark	Pol/Phase
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.1565	36.28	-19.37	55.65	26.29	9.95	0.04	Average	NEUTRAL
2	0.1565	52.64	-13.01	65.65	42.65	9.95	0.04	QP	NEUTRAL
3	0.1712	36.35	-18.55	54.90	26.35	9.96	0.04	Average	NEUTRAL
4	0.1712	51.07	-13.83	64.90	41.07	9.96	0.04	QP	NEUTRAL
5	0.1924	34.49	-19.44	53.93	24.46	9.98	0.05	Average	NEUTRAL
6	0.1924	48.41	-15.52	63.93	38.38	9.98	0.05	QP	NEUTRAL
7	0.2232	33.06	-19.64	52.70	23.03	9.98	0.05	Average	NEUTRAL
8	0.2232	45.83	-16.87	62.70	35.80	9.98	0.05	QP	NEUTRAL
9	0.2701	33.97	-17.15	51.12	23.95	9.97	0.05	Average	NEUTRAL
10	0.2701	42.34	-18.78	61.12	32.32	9.97	0.05	QP	NEUTRAL
11	0.6338	29.61	-16.39	46.00	19.59	9.97	0.05	Average	NEUTRAL
12	0.6338	37.17	-18.83	56.00	27.15	9.97	0.05	QP	NEUTRAL
13	1.0211	26.02	-19.98	46.00	15.97	9.99	0.06	Average	NEUTRAL
14	1.0211	32.85	-23.15	56.00	22.80	9.99	0.06	QP	NEUTRAL

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	Normal Link		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark	Pol/Phase
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.1548	35.96	-19.78	55.74	25.97	9.95	0.04	Average	LINE
2	0.1548	51.65	-14.09	65.74	41.66	9.95	0.04	QP	LINE
3	0.1884	34.57	-19.54	54.11	24.59	9.93	0.05	Average	LINE
4	0.1884	48.82	-15.29	64.11	38.84	9.93	0.05	QP	LINE
5	0.2117	33.77	-19.37	53.14	23.79	9.93	0.05	Average	LINE
6	0.2117	46.09	-17.05	63.14	36.11	9.93	0.05	QP	LINE
7	0.2481	32.63	-19.19	51.82	22.66	9.92	0.05	Average	LINE
8	0.2481	43.89	-17.93	61.82	33.92	9.92	0.05	QP	LINE
9	0.6271	30.66	-15.34	46.00	20.68	9.93	0.05	Average	LINE
10	0.6271	38.42	-17.58	56.00	28.44	9.93	0.05	QP	LINE
11	1.1056	25.29	-20.71	46.00	15.25	9.98	0.06	Average	LINE
12	1.1056	32.26	-23.74	56.00	22.22	9.98	0.06	QP	LINE
13	3.7198	20.50	-25.50	46.00	10.42	9.96	0.12	Average	LINE
14	3.7198	27.15	-28.85	56.00	17.07	9.96	0.12	QP	LINE

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.)

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 ≥ 500kHz.
LE-LAN Devices	
☐	For the band 5.15-5.25 GHz, the maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz.
☐	For the 5.25-5.35 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz
☐	For the 5.47-5.6 GHz band and 5.65-5.725 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz
☐	For the 5.725-5.85 GHz band, 6 dB emission bandwidth ≥ 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 FCC KDB 789033, clause C for EBW and clause D for OBW measurement.
	☐	Refer as ANSI C63.10, clause 6.9.1 for occupied bandwidth testing.
	☒	Refer as IC RSS-Gen, clause 4.6 for bandwidth testing.

3.2.4 Test Setup

Emission Bandwidth


3.2.5 Test Result of Emission Bandwidth

<For Non-Beamforming Mode>

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
11a_Nss1_2TX	-	-	-	-	-
5.25-5.35GHz	30.725M	16.542M	16M5D1D	20.4M	16.442M
5.47-5.725GHz	20.175M	16.442M	16M4D1D	14.835M	13.238M
5.725-5.85GHz	3.14M	3.918M	3M92D1D	3.12M	3.578M
VHT20_Nss1_2TX	-	-	-	-	-
5.25-5.35GHz	38.15M	17.941M	17M9D1D	21.85M	17.666M
5.47-5.725GHz	24.325M	17.666M	17M7D1D	15.3M	13.808M
5.725-5.85GHz	3.78M	4.098M	4M10D1D	3.76M	4.078M
VHT40_Nss1_2TX	-	-	-	-	-
5.25-5.35GHz	94.15M	45.977M	46M0D1D	39.6M	35.982M
5.47-5.725GHz	80.25M	36.432M	36M4D1D	39.5M	33.023M
5.725-5.85GHz	3.14M	23.108M	23M1D1D	3.14M	21.189M
VHT80_Nss1_2TX	-	-	-	-	-
5.25-5.35GHz	83.9M	75.662M	75M7D1D	83.2M	75.662M
5.47-5.725GHz	157.5M	76.162M	76M2D1D	83.2M	72.714M
5.725-5.85GHz	3.14M	34.603M	34M6D1D	3.12M	31.424M

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;

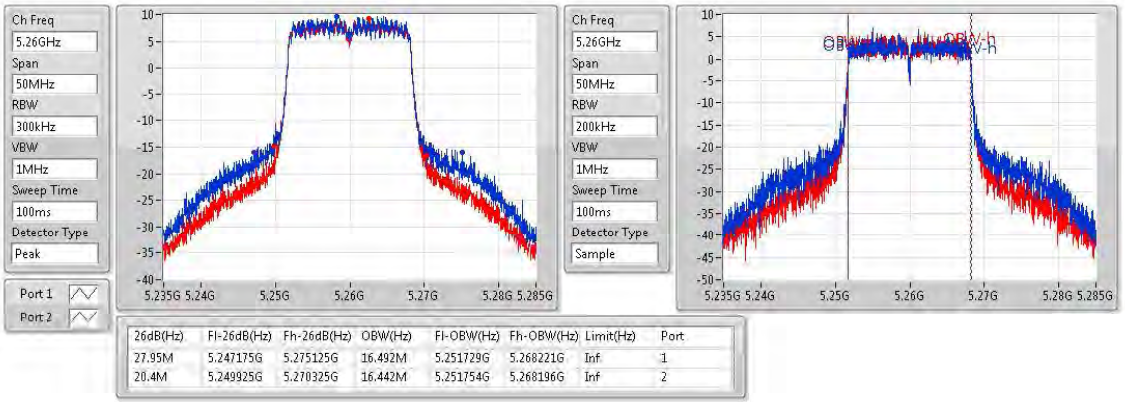
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)
11a_Nss1_2TX	-	-	-	-	-	-
5260MHz	Pass	Inf	27.95M	16.492M	20.4M	16.442M
5300MHz	Pass	Inf	27.575M	16.517M	22.475M	16.467M
5320MHz	Pass	Inf	30.725M	16.542M	23.775M	16.442M
5500MHz	Pass	Inf	19.175M	16.417M	19.225M	16.442M
5580MHz	Pass	Inf	20.175M	16.417M	19.825M	16.417M
5700MHz	Pass	Inf	19M	16.392M	19.05M	16.417M
5720MHz Straddle 5.47-5.725GHz	Pass	Inf	17.535M	13.238M	14.835M	13.238M
5720MHz Straddle 5.725-5.85GHz	Pass	500k	3.14M	3.918M	3.12M	3.578M
VHT20_Nss1_2TX	-	-	-	-	-	-
5260MHz	Pass	Inf	33.15M	17.741M	21.85M	17.691M
5300MHz	Pass	Inf	37.8M	17.866M	29.225M	17.691M
5320MHz	Pass	Inf	38.15M	17.941M	27.5M	17.666M
5500MHz	Pass	Inf	24.325M	17.666M	20.75M	17.616M
5580MHz	Pass	Inf	21.1M	17.641M	20.775M	17.616M
5700MHz	Pass	Inf	20.325M	17.616M	20.575M	17.616M
5720MHz Straddle 5.47-5.725GHz	Pass	Inf	16.29M	13.823M	15.3M	13.808M
5720MHz Straddle 5.725-5.85GHz	Pass	500k	3.76M	4.098M	3.78M	4.078M
VHT40_Nss1_2TX	-	-	-	-	-	-
5270MHz	Pass	Inf	94.15M	45.977M	83.1M	36.532M
5310MHz	Pass	Inf	41.2M	36.132M	39.6M	35.982M
5510MHz	Pass	Inf	39.8M	36.032M	39.5M	35.882M
5550MHz	Pass	Inf	80.25M	36.432M	69.4M	36.132M
5670MHz	Pass	Inf	61.35M	36.232M	55M	36.032M
5710MHz Straddle 5.47-5.725GHz	Pass	Inf	55.405M	33.198M	54.88M	33.023M
5710MHz Straddle 5.725-5.85GHz	Pass	500k	3.14M	23.108M	3.14M	21.189M
VHT80_Nss1_2TX	-	-	-	-	-	-
5290MHz	Pass	Inf	83.2M	75.662M	83.9M	75.662M
5530MHz	Pass	Inf	83.2M	75.762M	84M	75.562M
5610MHz	Pass	Inf	157.5M	76.162M	125.5M	75.962M
5690MHz Straddle 5.47-5.725GHz	Pass	Inf	103.2M	72.714M	88.95M	72.714M
5690MHz Straddle 5.725-5.85GHz	Pass	500k	3.12M	34.603M	3.14M	31.424M

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;

11a_Nss1_2TX **EBW**

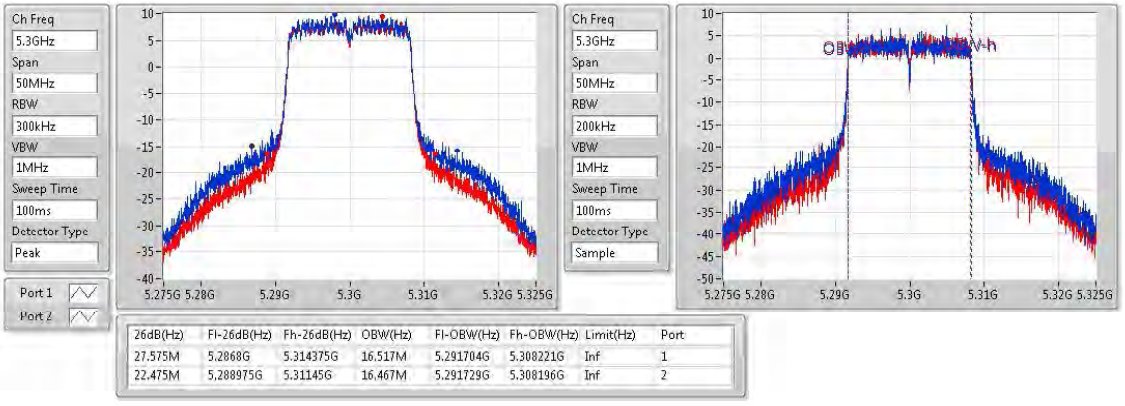
5260MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
27.95M	5.247175G	5.275125G	16.492M	5.251729G	5.268221G	Inf	1
20.4M	5.249925G	5.270325G	16.442M	5.251754G	5.268196G	Inf	2

11a_Nss1_2TX **EBW**

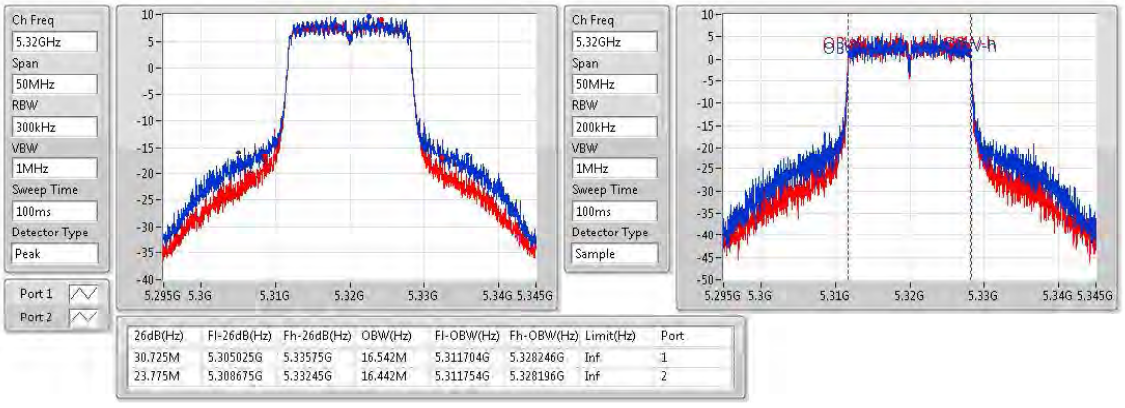
5300MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
27.575M	5.2868G	5.314375G	16.517M	5.291704G	5.308221G	Inf	1
22.475M	5.288975G	5.31145G	16.467M	5.291729G	5.308196G	Inf	2

11a_Nss1_2TX **EBW**

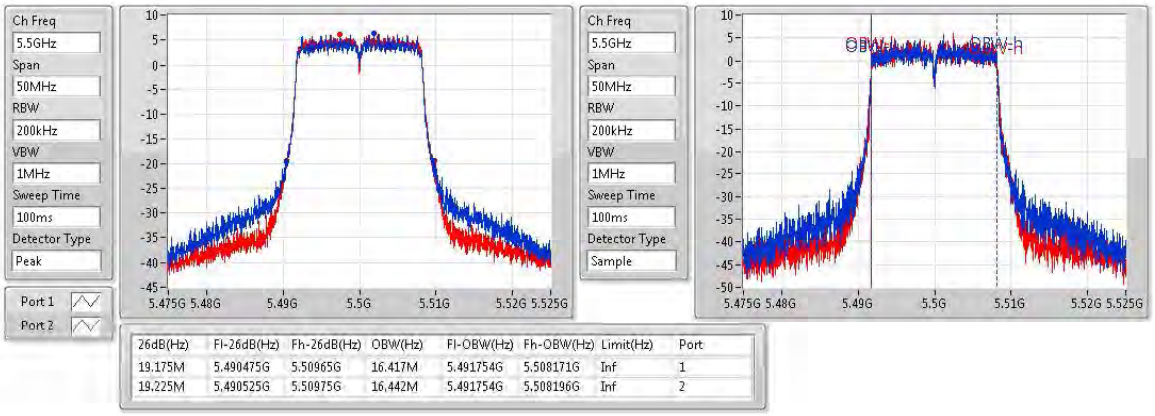
5320MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
30.725M	5.305025G	5.33575G	16.542M	5.311704G	5.328246G	Inf	1
23.775M	5.308675G	5.33245G	16.442M	5.311754G	5.328196G	Inf	2

11a_Nss1_2TX **EBW**

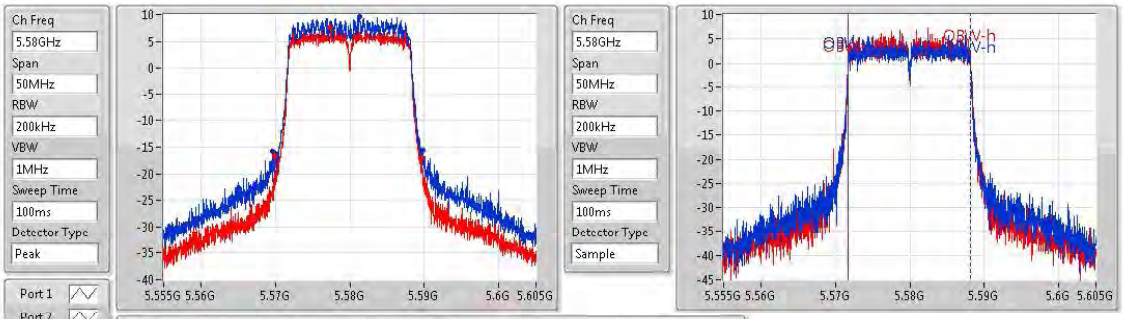
5500MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
19.175M	5.490475G	5.50965G	16.417M	5.491754G	5.508171G	Inf	1
19.225M	5.490525G	5.50975G	16.442M	5.491754G	5.508196G	Inf	2

11a_Nss1_2TX **EBW**

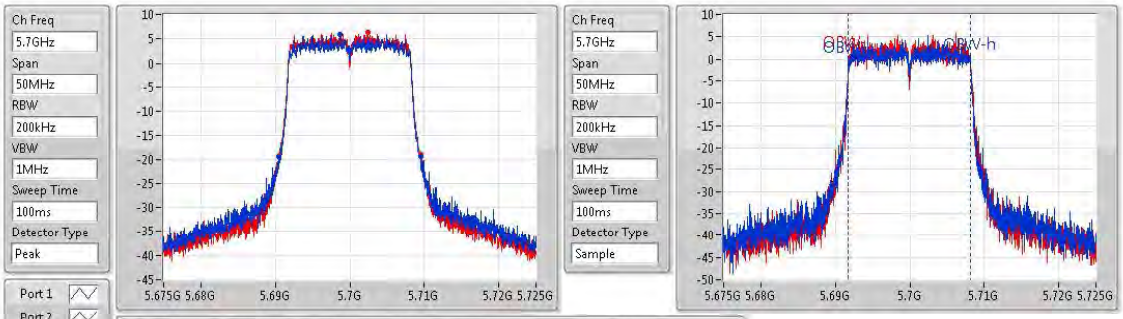
5580MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
20.175M	5.569675G	5.58985G	16.417M	5.571754G	5.588171G	Inf	1
19.825M	5.5699G	5.589725G	16.417M	5.571754G	5.588171G	Inf	2

11a_Nss1_2TX **EBW**

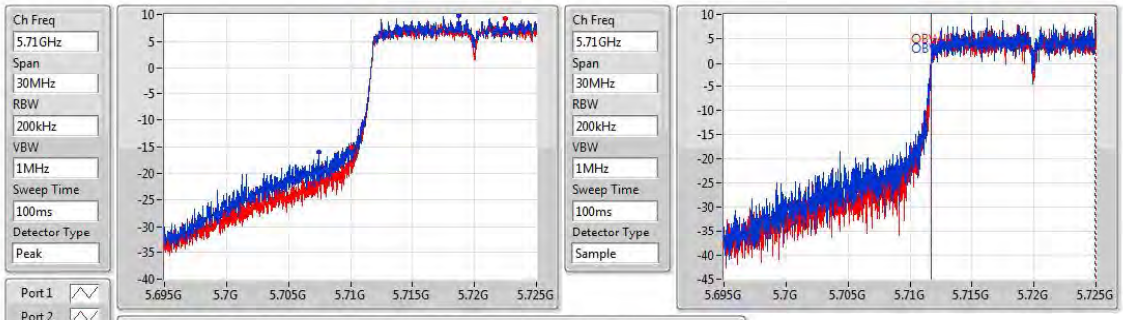
5700MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
19M	5.6905G	5.7095G	16.392M	5.691779G	5.708171G	Inf	1
19.05M	5.69045G	5.7095G	16.417M	5.691779G	5.708196G	Inf	2

802.11a_(6Mbps)_2TX **EBW**

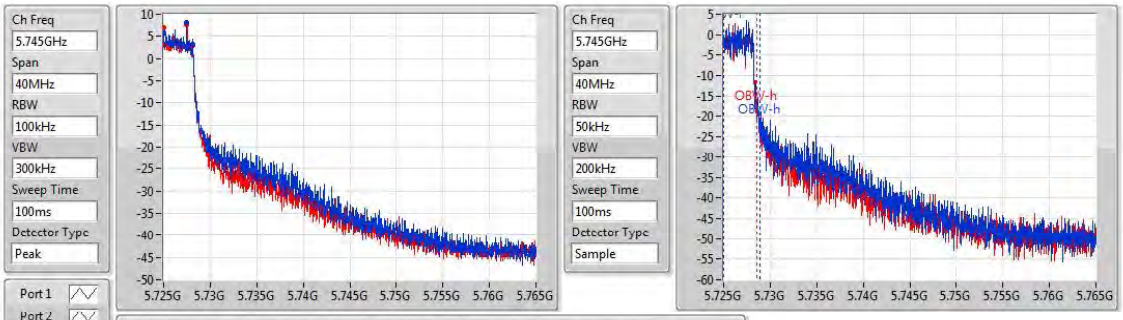
5720MHz Straddle 5.47-5.725GHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
17.535M	5.707465G	5.725G	13.238M	5.711709G	5.724948G	Inf	1
14.835M	5.710165G	5.725G	13.238M	5.711724G	5.724963G	Inf	2

802.11a_(6Mbps)_2TX **EBW**

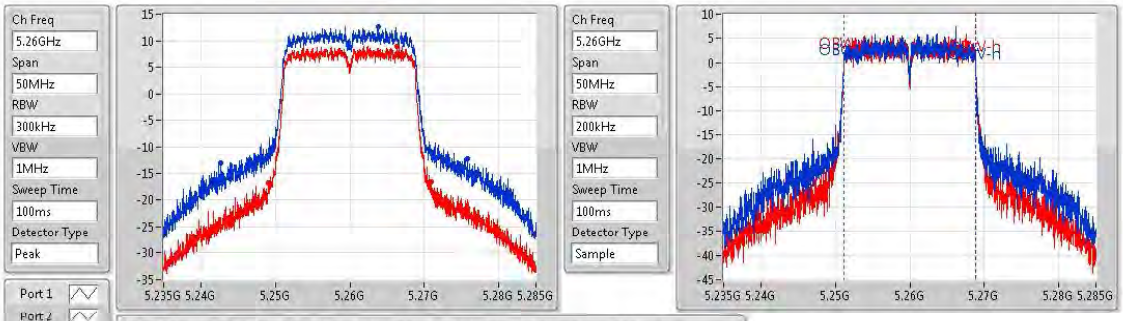
5720MHz Straddle 5.725-5.85GHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
3.14M	5.725G	5.72814G	3.918M	5.72501G	5.728928G	500k	1
3.12M	5.725G	5.72812G	3.578M	5.72501G	5.728588G	500k	2

VHT20_Nss1_2TX **EBW**

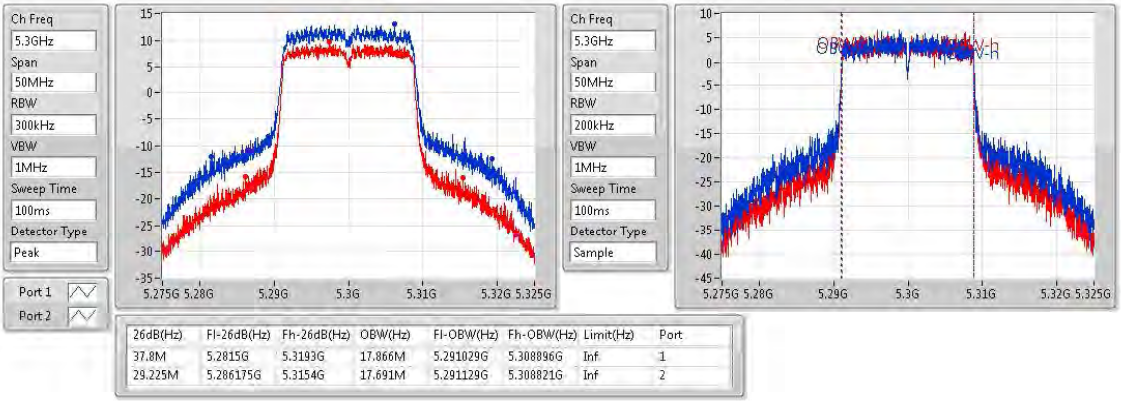
5260MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
33.15M	5.24265G	5.2758G	17.741M	5.251104G	5.268846G	Inf	1
21.85M	5.2491G	5.27095G	17.691M	5.251129G	5.268821G	Inf	2

VHT20_Nss1_2TX **EBW**

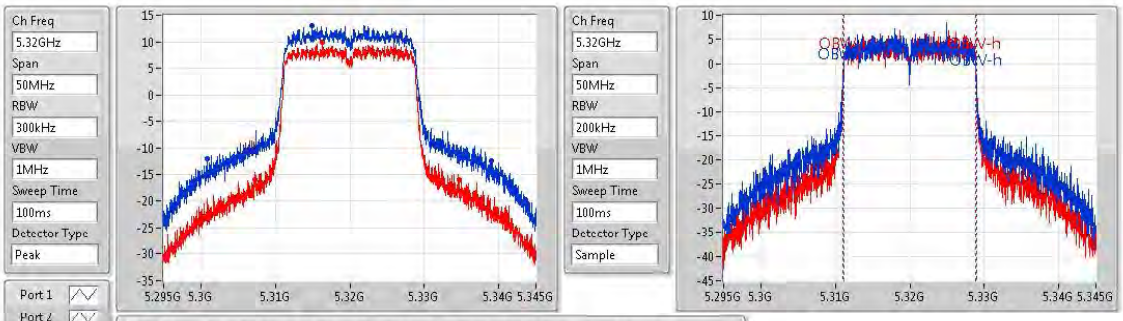
5300MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
37.8M	5.2815G	5.3193G	17.866M	5.291029G	5.308896G	Inf	1
29.225M	5.286175G	5.3154G	17.691M	5.291129G	5.308821G	Inf	2

VHT20_Nss1_2TX **EBW**

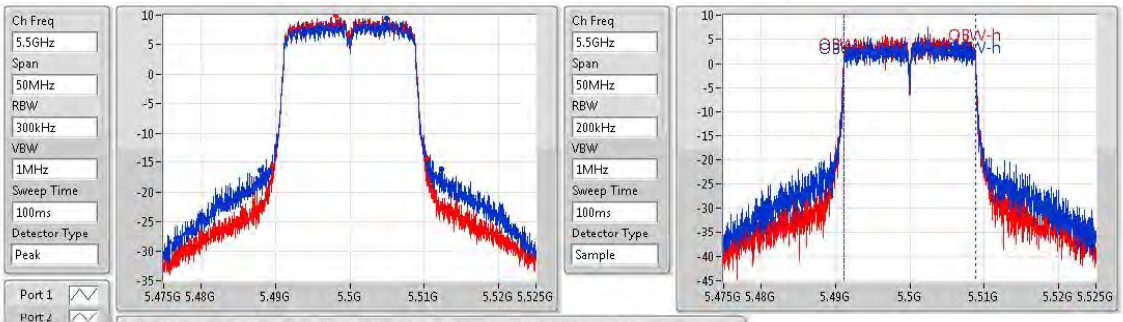
5320MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
38.15M	5.300825G	5.338975G	17.941M	5.311004G	5.328946G	Inf	1
27.5M	5.3072G	5.3347G	17.666M	5.311154G	5.328821G	Inf	2

VHT20_Nss1_2TX **EBW**

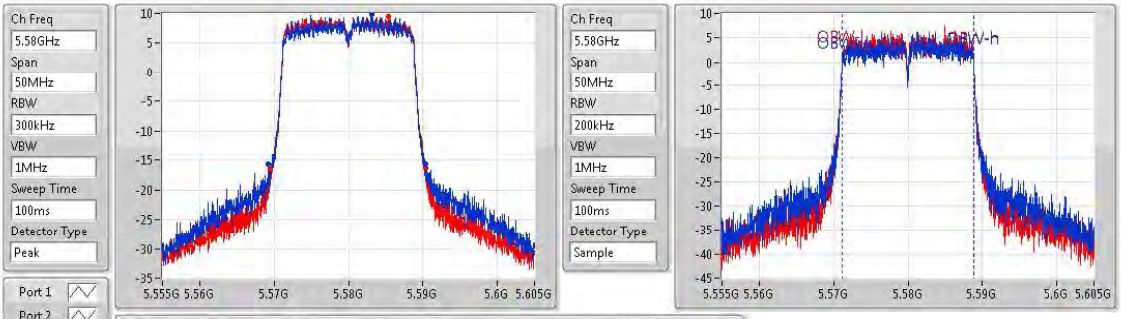
5500MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
24.325M	5.487975G	5.5123G	17.666M	5.491154G	5.508821G	Inf	1
20.75M	5.489575G	5.510325G	17.616M	5.491179G	5.508796G	Inf	2

VHT20_Nss1_2TX **EBW**

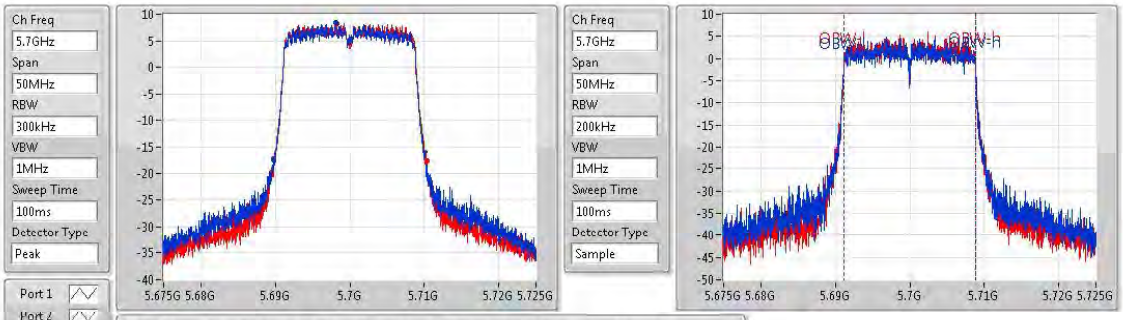
5580MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
21.1M	5.56925G	5.59035G	17.641M	5.571154G	5.588796G	Inf	1
20.775M	5.56955G	5.590325G	17.616M	5.571179G	5.588796G	Inf	2

VHT20_Nss1_2TX **EBW**

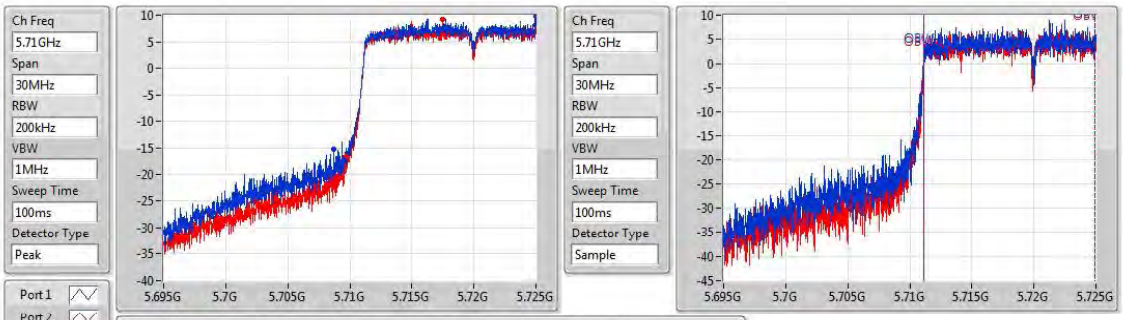
5700MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
20.325M	5.6898G	5.710125G	17.616M	5.691179G	5.708796G	Inf	1
20.575M	5.689825G	5.7104G	17.616M	5.691179G	5.708796G	Inf	2

802.11ac VHT20_Nss1,(MCS0)_2TX **EBW**

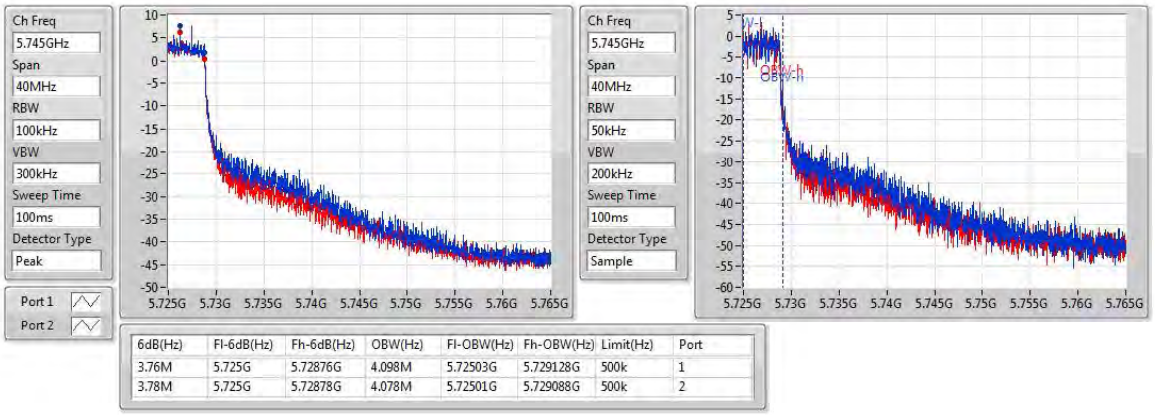
5720MHz Straddle 5.47-5.725GHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
16.29M	5.70871G	5.725G	13.823M	5.711124G	5.724948G	Inf	1
15.3M	5.7097G	5.725G	13.808M	5.711124G	5.724933G	Inf	2

802.11ac VHT20_Nss1,(MCS0)_2TX **EBW**

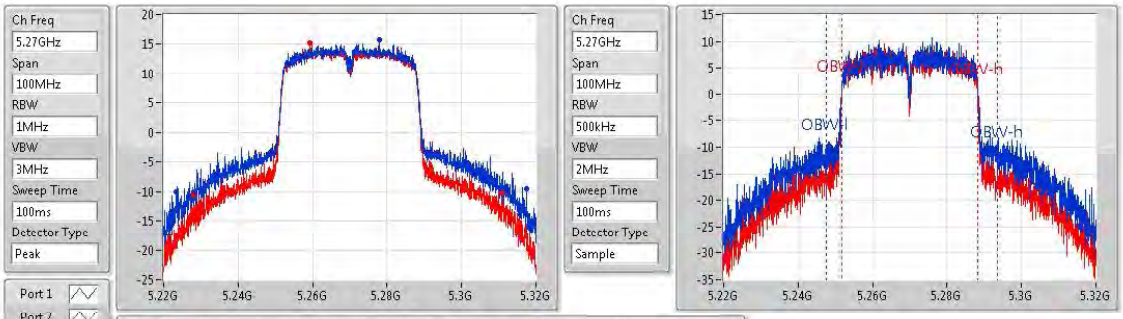
5720MHz Straddle 5.725-5.85GHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
3.76M	5.725G	5.72876G	4.098M	5.72503G	5.729128G	500k	1
3.78M	5.725G	5.72878G	4.078M	5.72501G	5.729088G	500k	2

VHT40_Nss1_2TX **EBW**

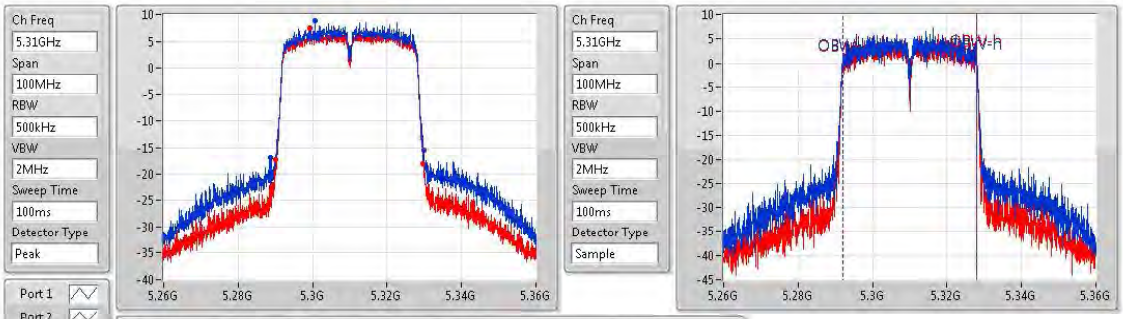
5270MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
94.15M	5.2233G	5.31745G	45.977M	5.247611G	5.293588G	Inf	1
83.1M	5.22795G	5.31105G	36.532M	5.251709G	5.288241G	Inf	2

VHT40_Nss1_2TX **EBW**

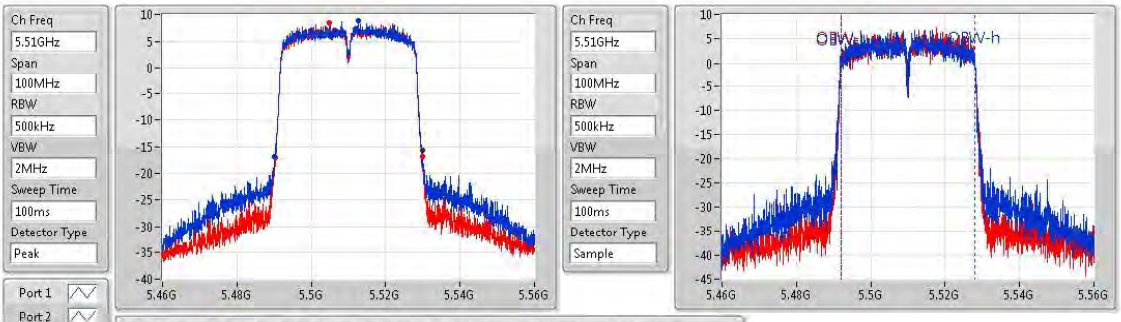
5310MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
41.2M	5.2887G	5.3299G	36.132M	5.291909G	5.328041G	Inf	1
39.6M	5.29015G	5.32975G	35.982M	5.292009G	5.327991G	Inf	2

VHT40_Nss1_2TX **EBW**

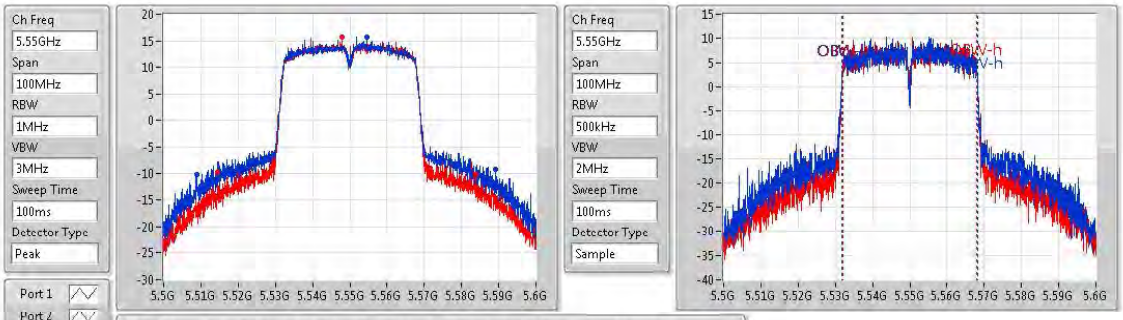
5510MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
39.8M	5.4902G	5.53G	36.032M	5.491959G	5.527991G	Inf	1
39.5M	5.49035G	5.52985G	35.882M	5.492059G	5.527941G	Inf	2

VHT40_Nss1_2TX **EBW**

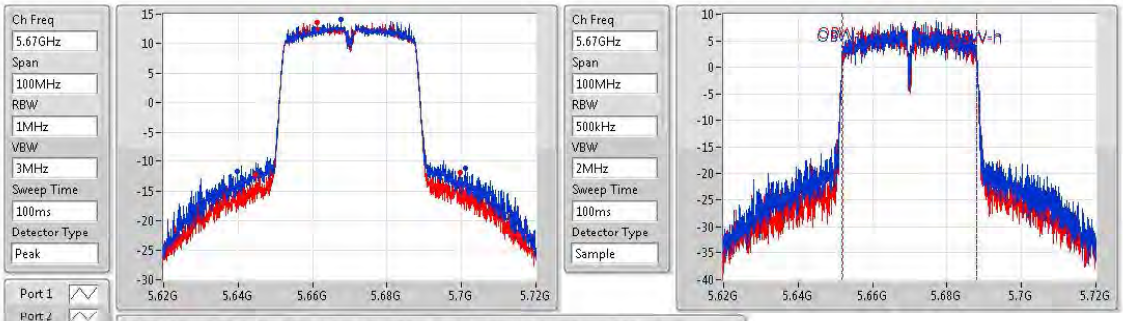
5550MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
80.25M	5.50885G	5.5891G	36.432M	5.531759G	5.568191G	Inf	1
69.4M	5.51445G	5.58385G	36.132M	5.531909G	5.568041G	Inf	2

VHT40_Nss1_2TX **EBW**

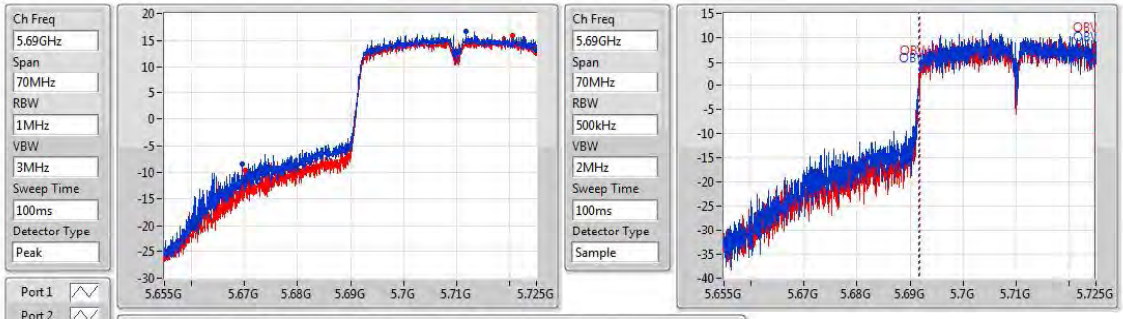
5670MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
61.35M	5.63975G	5.7011G	36.232M	5.651859G	5.688091G	Inf	1
55M	5.64475G	5.69975G	36.032M	5.651959G	5.687991G	Inf	2

802.11ac VHT40_Nss1,(MCS0)_2TX **EBW**

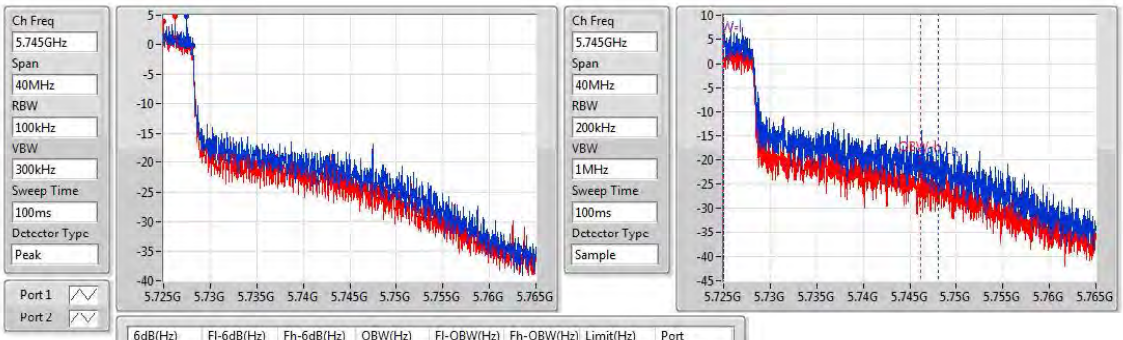
5710MHz Straddle 5.47-5.725GHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
55.405M	5.669595G	5.725G	33.198M	5.691644G	5.724843G	Inf	1
54.88M	5.67012G	5.725G	33.023M	5.691819G	5.724843G	Inf	2

802.11ac VHT40_Nss1,(MCS0)_2TX **EBW**

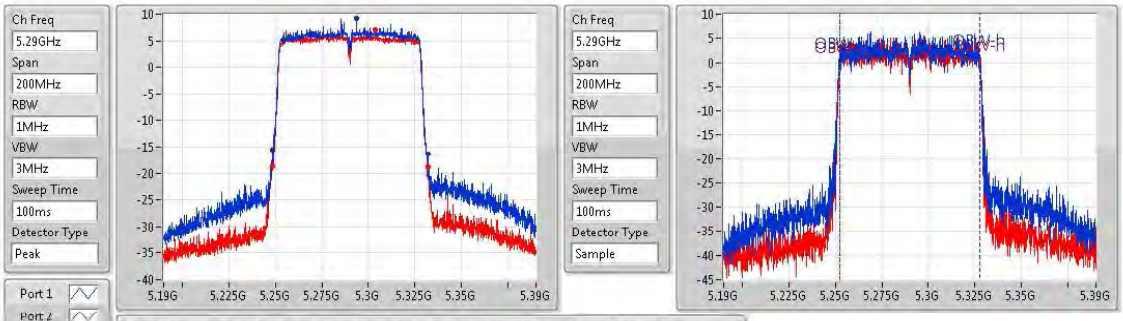
5710MHz Straddle 5.725-5.85GHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
3.14M	5.725G	5.72814G	23.108M	5.72501G	5.748118G	500k	1
3.14M	5.725G	5.72814G	21.189M	5.72501G	5.746199G	500k	2

VHT80_Nss1_2TX **EBW**

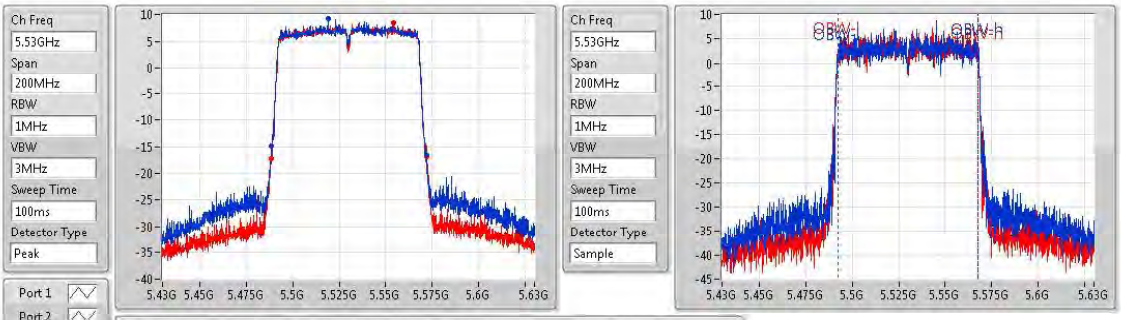
5290MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
83.2M	5.2486G	5.3318G	75.662M	5.252119G	5.327781G	Inf	1
83.9M	5.2483G	5.3322G	75.662M	5.252119G	5.327781G	Inf	2

VHT80_Nss1_2TX **EBW**

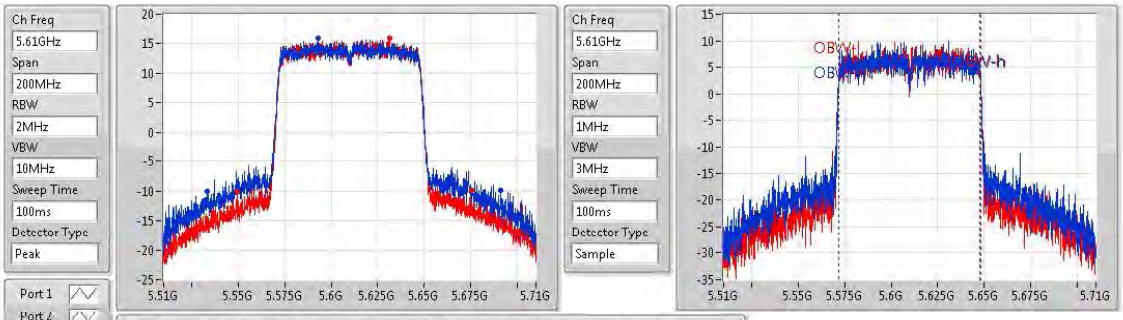
5530MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
83.2M	5.4887G	5.5719G	75.762M	5.492119G	5.567881G	Inf	1
84M	5.4883G	5.5723G	75.562M	5.492219G	5.567781G	Inf	2

VHT80_Nss1_2TX **EBW**

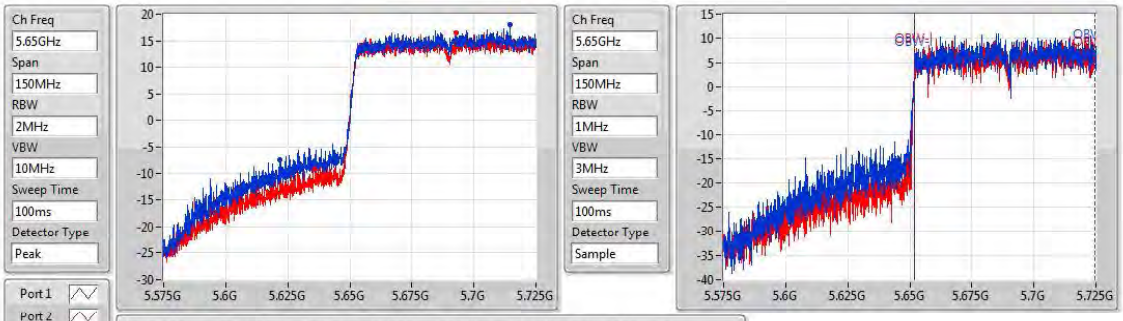
5610MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
157.5M	5.5336G	5.6911G	76.162M	5.571819G	5.647981G	Inf	1
125.5M	5.5498G	5.6753G	75.962M	5.571919G	5.647881G	Inf	2

802.11ac VHT80_Nss1,(MCS0)_2TX **EBW**

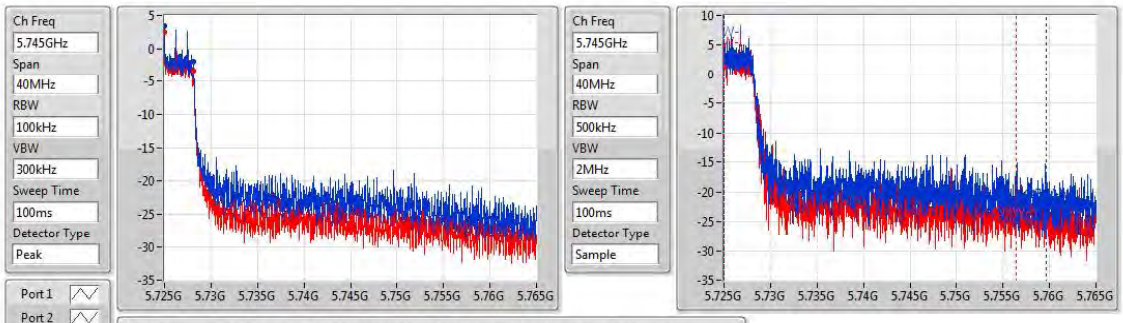
5690MHz Straddle 5.47-5.725GHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
103.2M	5.6218G	5.725G	72.714M	5.651949G	5.724663G	Inf	1
88.95M	5.63605G	5.725G	72.714M	5.651949G	5.724663G	Inf	2

802.11ac VHT80_Nss1,(MCS0)_2TX **EBW**

5690MHz Straddle 5.725-5.85GHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
3.12M	5.725G	5.72812G	34.603M	5.72503G	5.759633G	500k	1
3.14M	5.725G	5.72814G	31.424M	5.72501G	5.756434G	500k	2

<For Beamforming Mode>

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
VHT20-BF_Nss1_2TX	-	-	-	-	-
5.25-5.35GHz	39.975M	18.016M	18M0D1D	22.125M	17.691M
5.47-5.725GHz	25.725M	17.741M	17M7D1D	16.485M	13.838M
5.725-5.85GHz	3.84M	4.458M	4M46D1D	3.78M	4.378M
VHT40-BF_Nss1_2TX	-	-	-	-	-
5.25-5.35GHz	74.1M	36.632M	36M6D1D	42.4M	36.232M
5.47-5.725GHz	45.15M	36.382M	36M4D1D	36.61M	33.058M
5.725-5.85GHz	3.18M	7.436M	7M44D1D	3.14M	4.518M
VHT80-BF_Nss1_2TX	-	-	-	-	-
5.25-5.35GHz	82.9M	75.762M	75M8D1D	80.5M	75.662M
5.47-5.725GHz	90.675M	75.862M	75M9D1D	78.525M	72.714M
5.725-5.85GHz	3.14M	11.134M	11M1D1D	2.76M	5.277M

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;

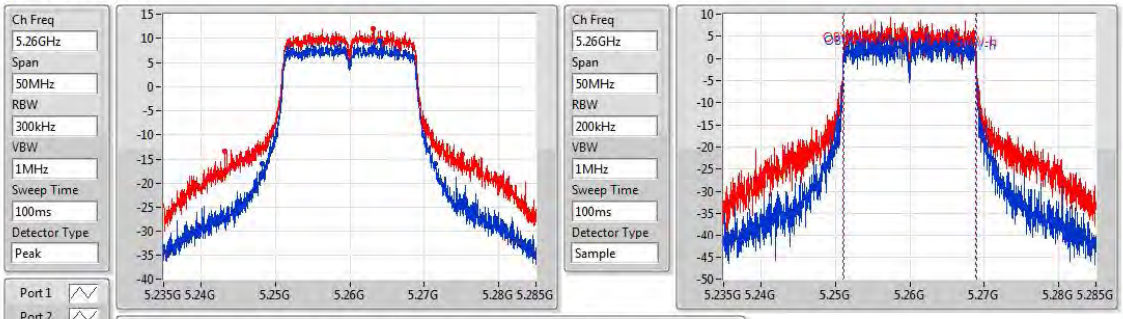
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)
VHT20-BF_Nss1_2TX	-	-	-	-	-	-
5260MHz	Pass	Inf	23.25M	17.716M	31.875M	17.841M
5300MHz	Pass	Inf	24M	17.741M	39.975M	18.016M
5320MHz	Pass	Inf	22.125M	17.691M	32.35M	17.791M
5500MHz	Pass	Inf	23.075M	17.666M	24.5M	17.691M
5580MHz	Pass	Inf	22.525M	17.666M	23.275M	17.741M
5700MHz	Pass	Inf	24.6M	17.741M	25.725M	17.716M
5720MHz Straddle 5.47-5.725GHz	Pass	Inf	16.65M	13.838M	16.485M	13.853M
5720MHz Straddle 5.725-5.85GHz	Pass	500k	3.84M	4.378M	3.78M	4.458M
VHT40-BF_Nss1_2TX	-	-	-	-	-	-
5270MHz	Pass	Inf	44.4M	36.332M	74.1M	36.632M
5310MHz	Pass	Inf	44.1M	36.232M	42.4M	36.332M
5510MHz	Pass	Inf	44.45M	36.232M	42.2M	36.382M
5550MHz	Pass	Inf	45.15M	36.332M	42.55M	36.332M
5670MHz	Pass	Inf	44.9M	36.282M	43.55M	36.332M
5710MHz Straddle 5.47-5.725GHz	Pass	Inf	36.61M	33.093M	36.61M	33.058M
5710MHz Straddle 5.725-5.85GHz	Pass	500k	3.18M	4.518M	3.14M	7.436M
VHT80-BF_Nss1_2TX	-	-	-	-	-	-
5290MHz	Pass	Inf	80.5M	75.762M	82.9M	75.662M
5530MHz	Pass	Inf	82.8M	75.362M	87M	75.862M
5610MHz	Pass	Inf	83.2M	75.762M	89.6M	75.762M
5690MHz Straddle 5.47-5.725GHz	Pass	Inf	78.525M	72.714M	90.675M	72.714M
5690MHz Straddle 5.725-5.85GHz	Pass	500k	2.76M	5.277M	3.14M	11.134M

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;

VHT20-BF_Nss1_2TX **EBW**

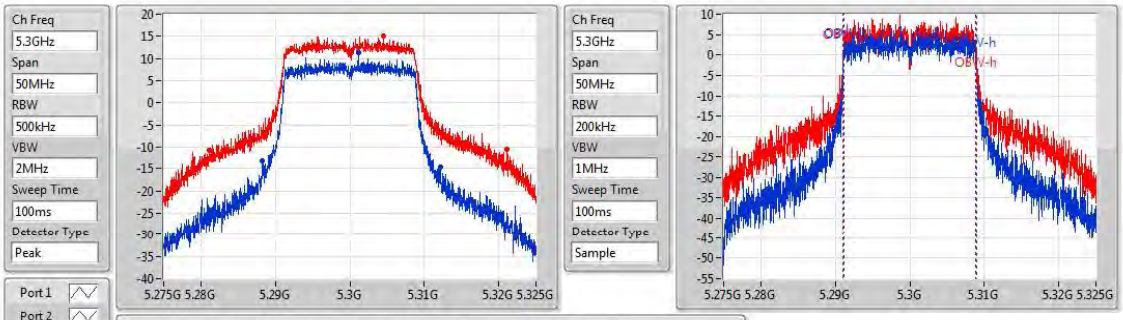
5260MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
23.25M	5.2483G	5.27155G	17.716M	5.251129G	5.268846G	Inf	1
31.875M	5.243175G	5.27505G	17.841M	5.251079G	5.268921G	Inf	2

VHT20-BF_Nss1_2TX **EBW**

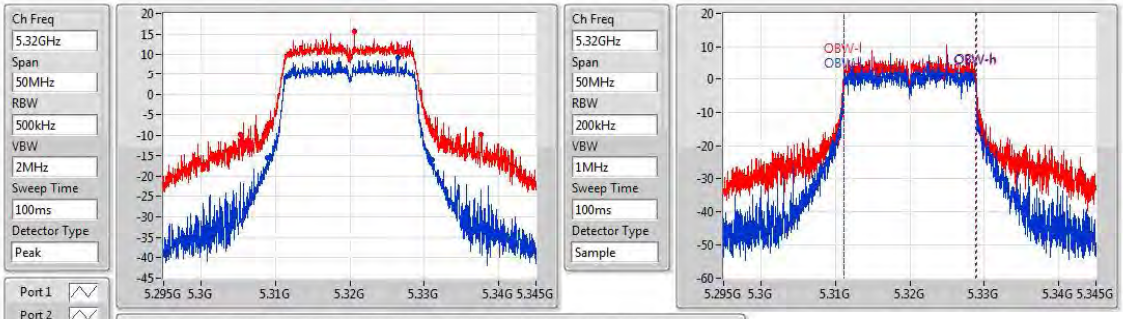
5300MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
24M	5.288225G	5.312225G	17.741M	5.291129G	5.308871G	Inf	1
39.975M	5.2811G	5.321075G	18.016M	5.291029G	5.309045G	Inf	2

VHT20-BF_Nss1_2TX **EBW**

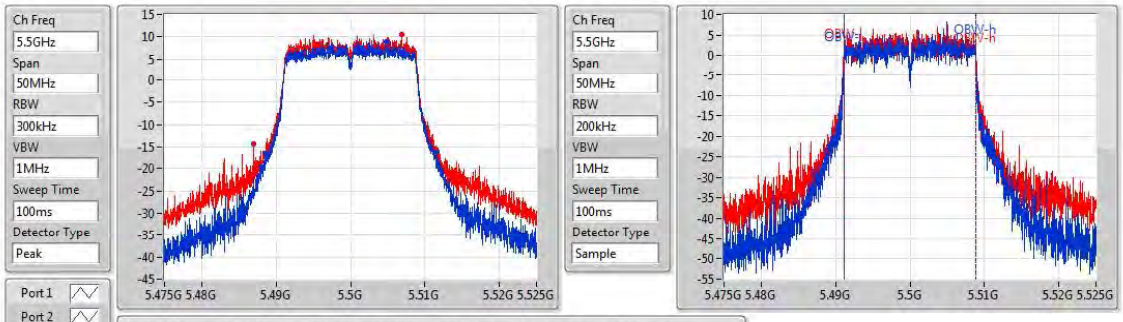
5320MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
22.125M	5.3089G	5.331025G	17.691M	5.311154G	5.328846G	Inf	1
32.35M	5.3053G	5.33765G	17.791M	5.311129G	5.328921G	Inf	2

VHT20-BF_Nss1_2TX **EBW**

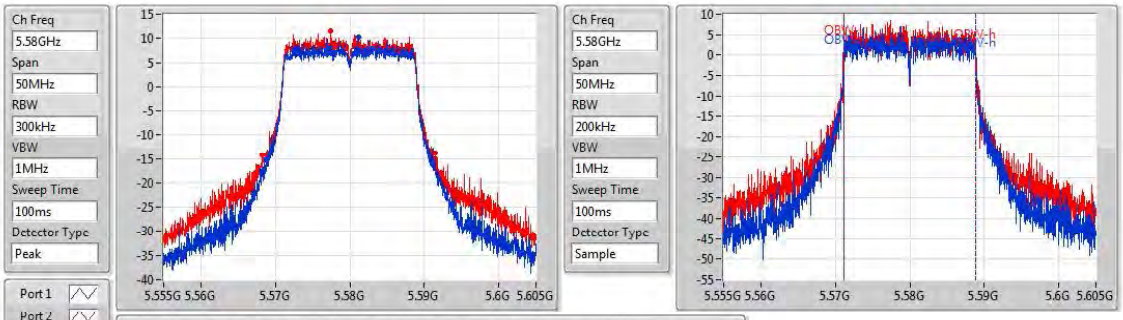
5500MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
23.075M	5.488575G	5.51165G	17.666M	5.491154G	5.508821G	Inf	1
24.5M	5.486975G	5.511475G	17.691M	5.491154G	5.508846G	Inf	2

VHT20-BF_Nss1_2TX **EBW**

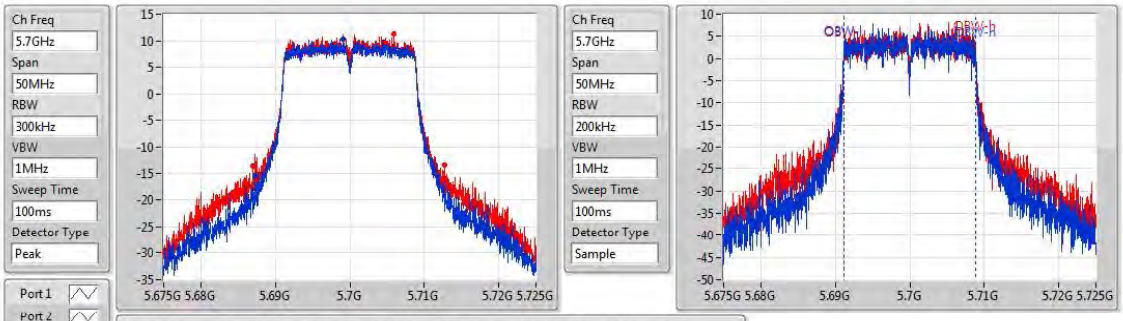
5580MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
22.525M	5.568725G	5.59125G	17.666M	5.571154G	5.588821G	Inf	1
23.275M	5.56825G	5.591525G	17.741M	5.571104G	5.588846G	Inf	2

VHT20-BF_Nss1_2TX **EBW**

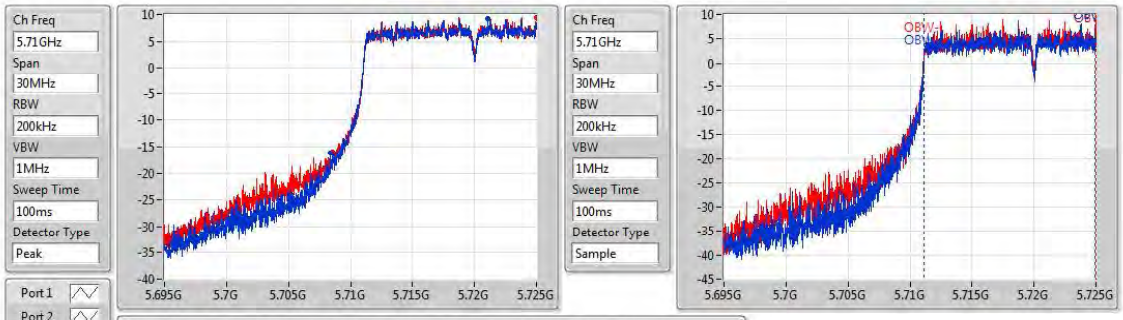
5700MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
24.6M	5.687275G	5.711875G	17.741M	5.691129G	5.708871G	Inf	1
25.725M	5.687G	5.712725G	17.716M	5.691129G	5.708846G	Inf	2

VHT20-BF_Nss1_2TX **EBW**

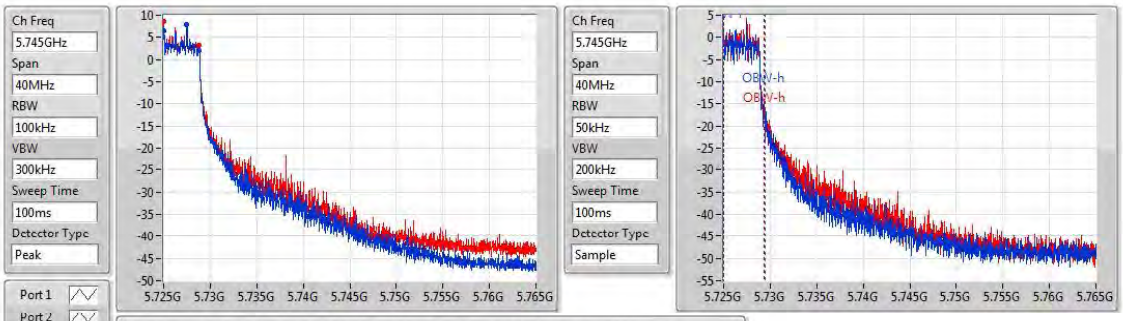
5720MHz Straddle 5.47-5.725GHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
16.65M	5.70835G	5.725G	13.838M	5.711094G	5.724933G	Inf	1
16.485M	5.708515G	5.725G	13.853M	5.711109G	5.724963G	Inf	2

VHT20-BF_Nss1_2TX **EBW**

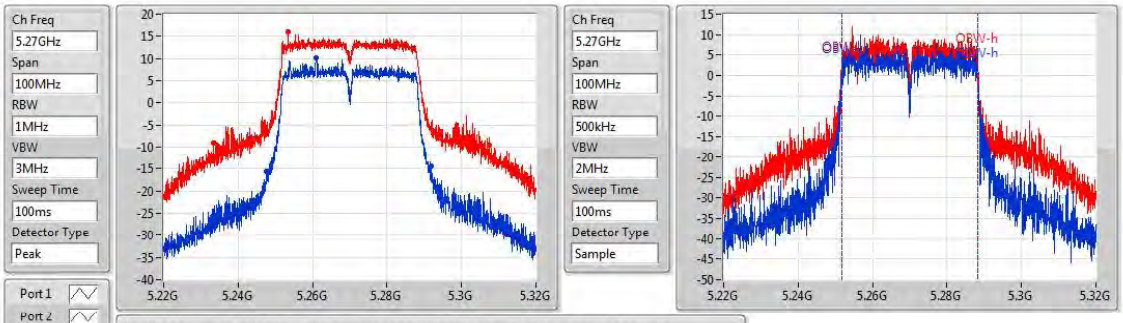
5720MHz Straddle 5.725-5.85GHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
3.84M	5.725G	5.72884G	4.378M	5.72501G	5.729388G	500k	1
3.78M	5.725G	5.72878G	4.458M	5.72501G	5.729468G	500k	2

VHT40-BF_Nss1_2TX **EBW**

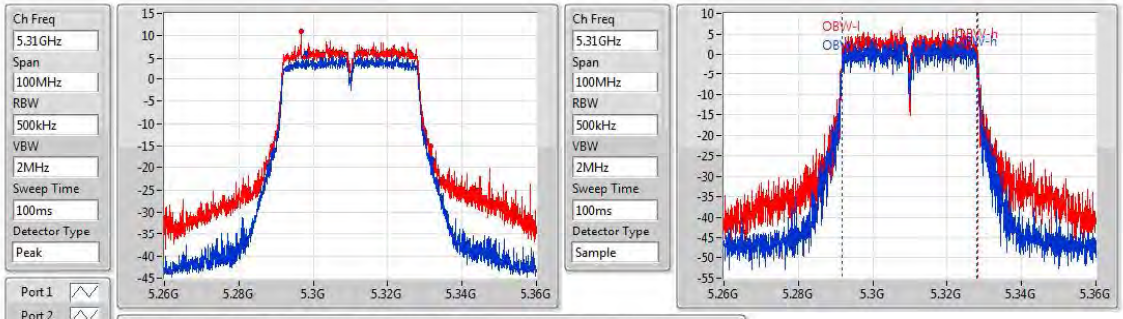
5270MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
44.4M	5.2476G	5.292G	36.332M	5.251809G	5.288141G	Inf	1
74.1M	5.23335G	5.30745G	36.632M	5.251709G	5.288341G	Inf	2

VHT40-BF_Nss1_2TX **EBW**

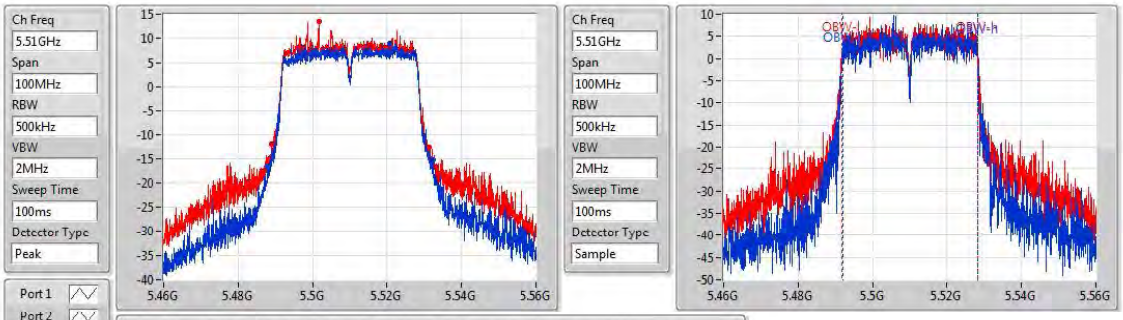
5310MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
44.1M	5.2881G	5.3322G	36.232M	5.291859G	5.328091G	Inf	1
42.4M	5.2891G	5.3315G	36.332M	5.291809G	5.328141G	Inf	2

VHT40-BF_Nss1_2TX **EBW**

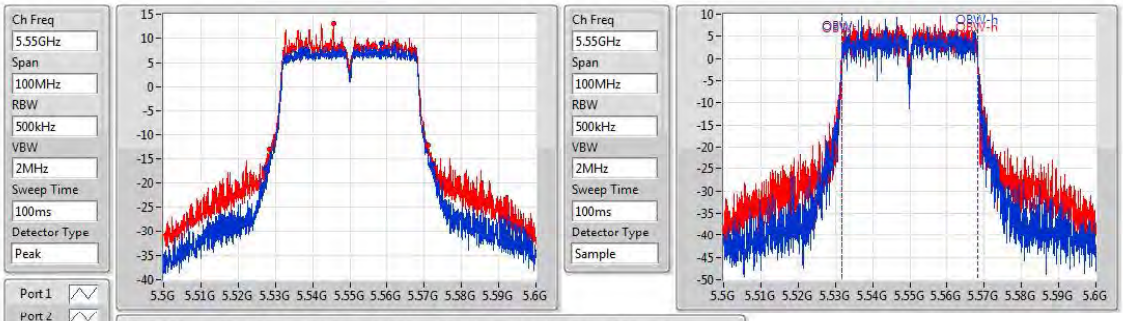
5510MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
44.45M	5.4879G	5.53235G	36.232M	5.491909G	5.528141G	Inf	1
42.2M	5.489G	5.5312G	36.382M	5.491809G	5.528191G	Inf	2

VHT40-BF_Nss1_2TX **EBW**

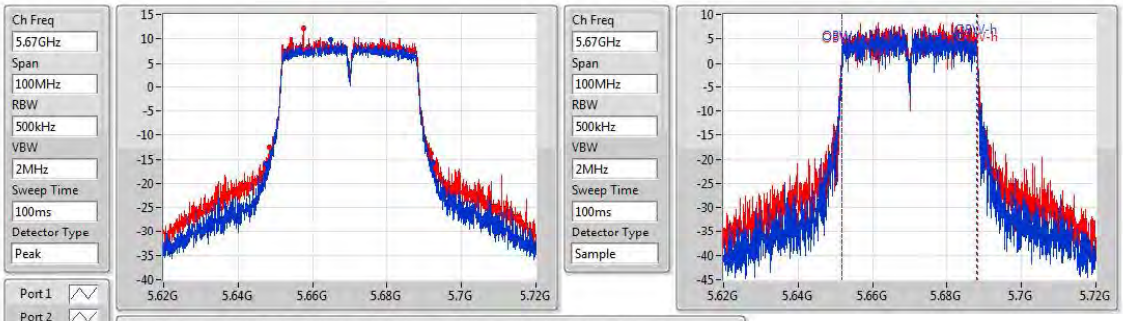
5550MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
45.15M	5.52735G	5.5725G	36.332M	5.531809G	5.568141G	Inf	1
42.55M	5.5284G	5.57095G	36.332M	5.531859G	5.568191G	Inf	2

VHT40-BF_Nss1_2TX **EBW**

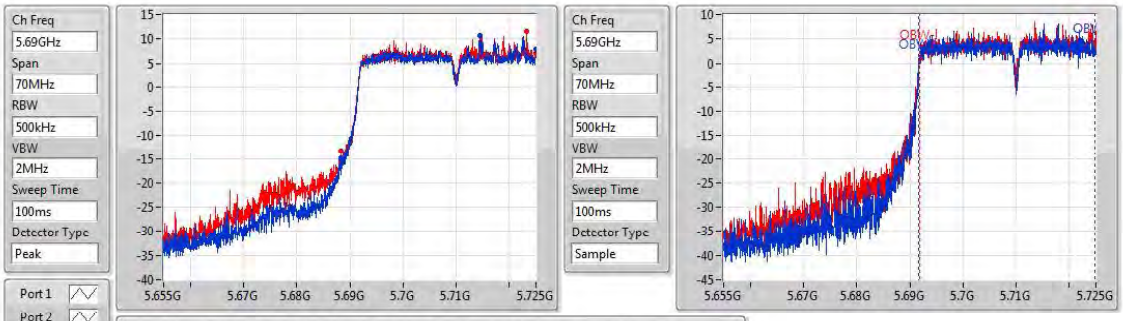
5670MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
44.9M	5.6475G	5.6924G	36.282M	5.651809G	5.688091G	Inf	1
43.55M	5.64845G	5.692G	36.332M	5.651809G	5.688141G	Inf	2

VHT40-BF_Nss1_2TX **EBW**

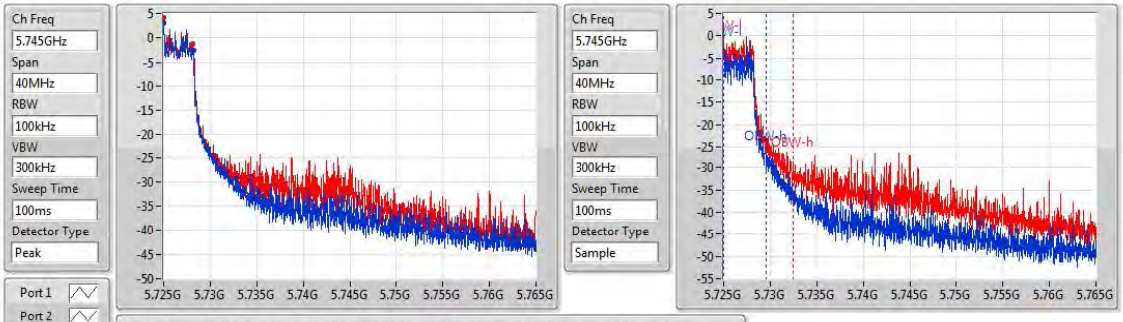
5710MHz Straddle 5.47-5.725GHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
36.61M	5.68839G	5.725G	33.093M	5.691714G	5.724808G	Inf	1
36.61M	5.68839G	5.725G	33.058M	5.691784G	5.724843G	Inf	2

VHT40-BF_Nss1_2TX **EBW**

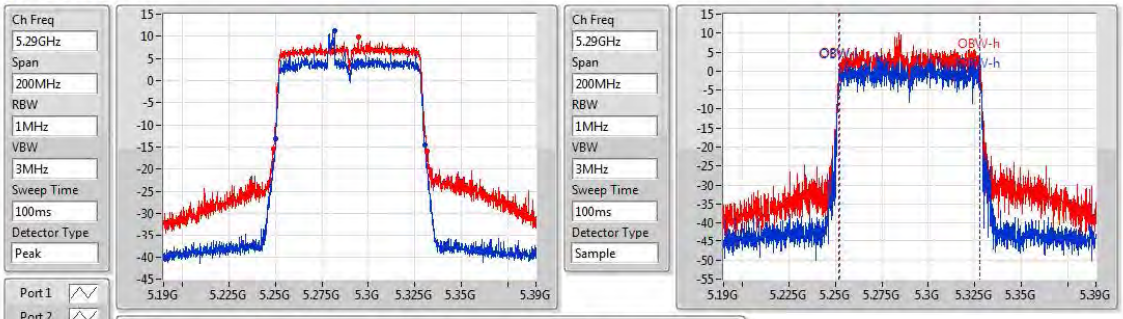
5710MHz Straddle 5.725-5.85GHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
3.18M	5.725G	5.72818G	4.518M	5.72501G	5.729528G	500k	1
3.14M	5.725G	5.72814G	7.436M	5.72501G	5.732446G	500k	2

VHT80-BF_Nss1_2TX **EBW**

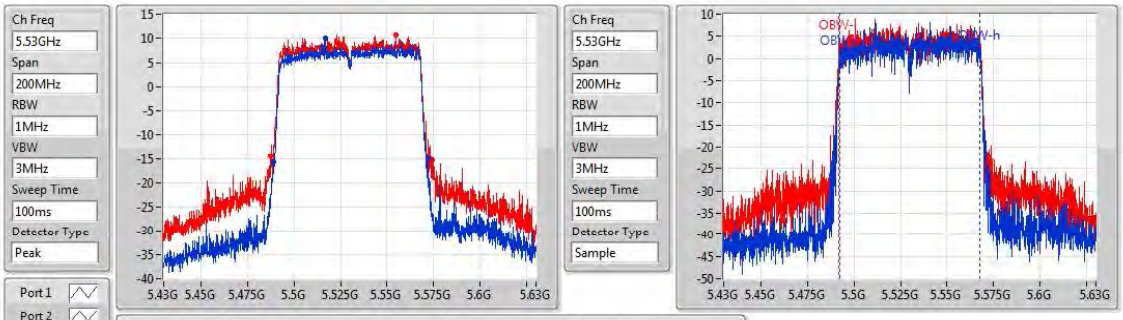
5290MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
80.5M	5.2501G	5.3306G	75.762M	5.252019G	5.327781G	Inf	1
82.9M	5.2488G	5.3317G	75.662M	5.252219G	5.327881G	Inf	2

VHT80-BF_Nss1_2TX **EBW**

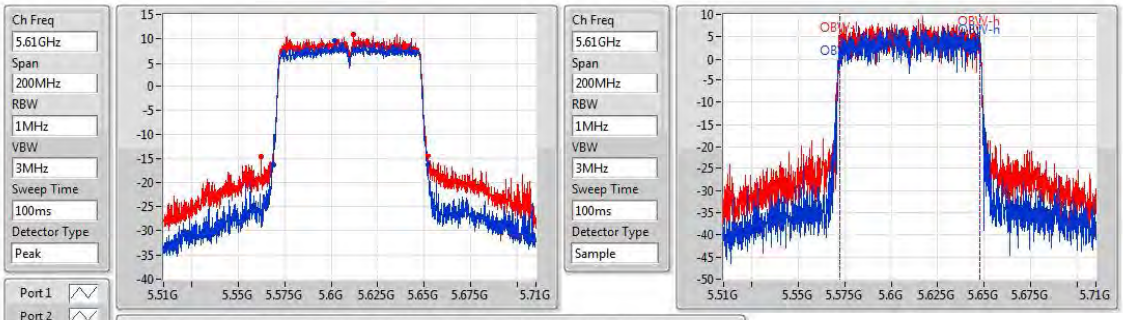
5530MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
82.8M	5.4892G	5.572G	75.362M	5.492419G	5.567781G	Inf	1
87M	5.4873G	5.5743G	75.862M	5.492019G	5.567881G	Inf	2

VHT80-BF_Nss1_2TX **EBW**

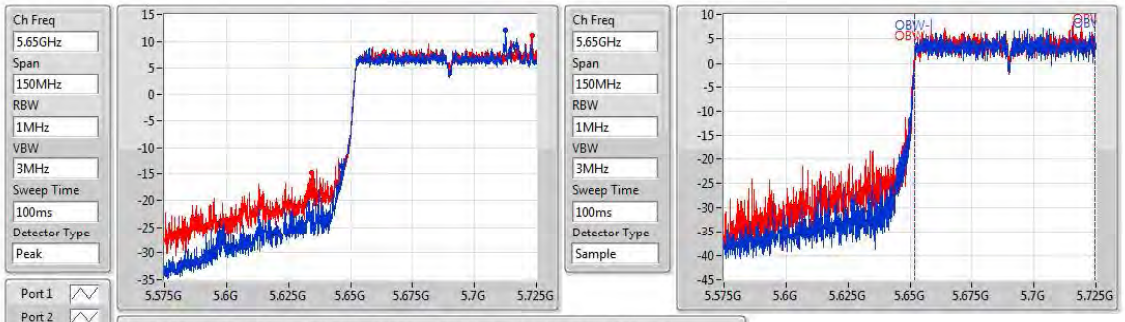
5610MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
83.2M	5.5688G	5.652G	75.762M	5.572119G	5.647881G	Inf	1
89.6M	5.5625G	5.6521G	75.762M	5.572119G	5.647881G	Inf	2

VHT80-BF_Nss1_2TX **EBW**

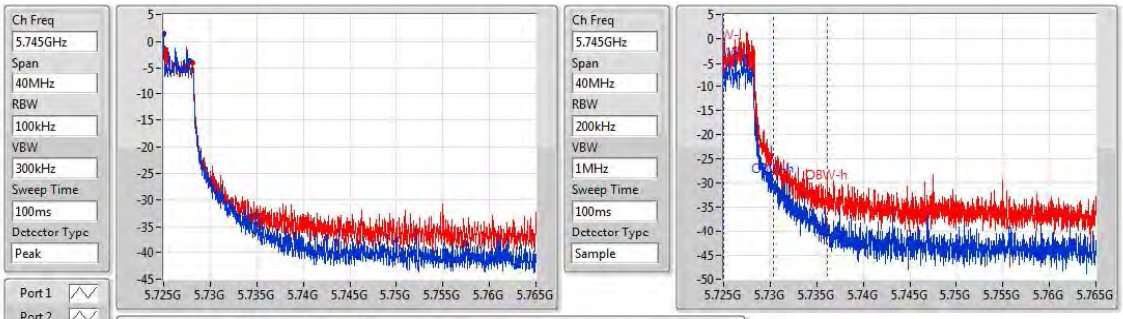
5690MHz Straddle 5.47-5.725GHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
78.525M	5.646475G	5.725G	72.714M	5.651949G	5.724663G	Inf	1
90.675M	5.634325G	5.725G	72.714M	5.651874G	5.724588G	Inf	2

VHT80-BF_Nss1_2TX **EBW**

5690MHz Straddle 5.725-5.85GHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
2.76M	5.725G	5.72776G	5.277M	5.72503G	5.730307G	500k	1
3.14M	5.725G	5.72814G	11.134M	5.72501G	5.736144G	500k	2

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 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz. If G_{TX} > 6 dBi, then P_{Out} = 24 – (G_{TX} – 6).
☒ For the 5.47-5.725 GHz band, the maximum conducted output power (P_{Out}) shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz. If G_{TX} > 6 dBi, then P_{Out} = 24 – (G_{TX} – 6).
☒ For the 5.725-5.85 GHz band:
▪ Point-to-multipoint systems (P2M): the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If G_{TX} > 6 dBi, then P_{Out} = 30 – (G_{TX} – 6).
▪ Point-to-point systems (P2P): the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W.
LE-LAN Devices
☐ For the 5.15-5.25 GHz band, the maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz.
☐ For the 5.25-5.35 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz
☐ For the 5.47-5.6 GHz band and 5.65-5.725 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz
☐ For the 5.725-5.85 GHz band:
▪ Point-to-multipoint systems (P2M): the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If G_{TX} > 6 dBi, then P_{Out} = 30 – (G_{TX} – 6).
▪ Point-to-point systems (P2P): the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W.
P_{Out} = maximum conducted output power in dBm, **G_{TX}** = the maximum transmitting antenna directional gain in dBi.

3.3.2 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
	☒ Refer as FCC KDB 789033, clause E Method SA-2 (spectral trace averaging).
	☐ Refer as FCC KDB 789033, clause E Method SA-2 Alt. (RMS detection with slow sweep speed)
	Wideband RF power meter and average over on/off periods with duty factor
	☒ Refer as FCC KDB 789033, clause E Method PM-G (using an RF average power meter).
▪ For conducted measurement.	
	▪ If the EUT supports multiple transmit chains using options given below: Refer as FCC KDB 662911, In-band power measurements. Using the measure-and-sum approach, measured all transmit ports individually. Sum the power (in linear power units e.g., mW) of all ports for each individual sample and save them.
	▪ If multiple transmit chains, EIRP calculation could be following as methods: $P_{total} = P_1 + P_2 + \ldots + P_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $EIRP_{total} = P_{total} + DG$

3.3.4 Test Setup

For Straddle channel test:

RF Output Power (Spectrum Analyzer)


For other test:

RF Output Power (Power Meter)


3.3.5 Test Result of Maximum Conducted Output Power

<For Non-Beamforming Mode>
Summary

Mode	Total Power (dBm)	Total Power (W)	EIRP (dBm)	EIRP (W)
11a_Nss1_2TX	-	-	-	-
5.25-5.35GHz	21.10	0.12882	26.41	0.43752
5.47-5.725GHz	21.74	0.14928	27.05	0.50699
5.725-5.85GHz	15.52	0.03565	20.83	0.12106
VHT20_Nss1_2TX	-	-	-	-
5.25-5.35GHz	21.92	0.15560	27.23	0.52845
5.47-5.725GHz	21.63	0.14555	26.94	0.49431
5.725-5.85GHz	15.75	0.03758	21.06	0.12764
VHT40_Nss1_2TX	-	-	-	-
5.25-5.35GHz	23.63	0.23067	28.94	0.78343
5.47-5.725GHz	23.97	0.24946	29.28	0.84723
5.725-5.85GHz	12.95	0.01972	18.26	0.06699
VHT80_Nss1_2TX	-	-	-	-
5.25-5.35GHz	19.35	0.08610	24.66	0.29242
5.47-5.725GHz	23.59	0.22856	28.90	0.77625
5.725-5.85GHz	9.93	0.00984	15.24	0.03342

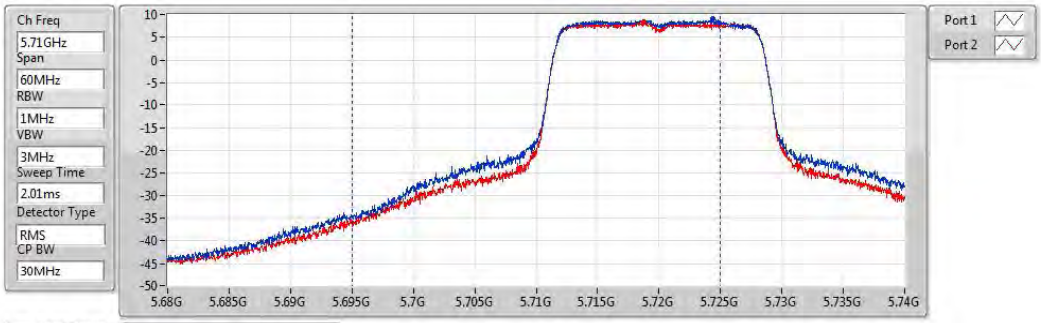
Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Total Power (dBm)	Power Limit (dBm)
11a_Nss1_2TX	-	-	-	-	-	-
5260MHz	Pass	5.31	18.14	18.03	21.10	23.98
5300MHz	Pass	5.31	18.00	18.06	21.04	23.98
5320MHz	Pass	5.31	18.03	18.03	21.04	23.98
5500MHz	Pass	5.31	16.93	16.79	19.87	23.83
5580MHz	Pass	5.31	17.82	18.36	21.11	23.97
5700MHz	Pass	5.31	16.55	17.17	19.88	23.79
5720MHz Straddle 5.47-5.725GHz	Pass	5.31	18.99	18.45	21.74	22.71
5720MHz Straddle 5.725-5.85GHz	Pass	5.31	12.67	12.35	15.52	30.00
VHT20_Nss1_2TX	-	-	-	-	-	-
5260MHz	Pass	5.31	18.55	18.26	21.42	23.98
5300MHz	Pass	5.31	19.03	18.79	21.92	23.98
5320MHz	Pass	5.31	19.03	18.79	21.92	23.98
5500MHz	Pass	5.31	18.32	18.9	21.63	23.98
5580MHz	Pass	5.31	18.19	18.81	21.52	23.98
5700MHz	Pass	5.31	17.16	17.43	20.31	23.98
5720MHz Straddle 5.47-5.725GHz	Pass	5.31	18.82	18.28	21.57	22.85
5720MHz Straddle 5.725-5.85GHz	Pass	5.31	12.86	12.62	15.75	30.00
VHT40_Nss1_2TX	-	-	-	-	-	-
5270MHz	Pass	5.31	20.84	20.39	23.63	23.98
5310MHz	Pass	5.31	17.35	16.71	20.05	23.98
5510MHz	Pass	5.31	17.41	17.58	20.51	23.98
5550MHz	Pass	5.31	20.56	20.54	23.56	23.98
5670MHz	Pass	5.31	19.28	19.32	22.31	23.98
5710MHz Straddle 5.47-5.725GHz	Pass	5.31	21.16	20.76	23.97	23.98
5710MHz Straddle 5.725-5.85GHz	Pass	5.31	10.31	9.54	12.95	30.00
VHT80_Nss1_2TX	-	-	-	-	-	-
5290MHz	Pass	5.31	16.65	16.01	19.35	23.98
5530MHz	Pass	5.31	17.24	17.28	20.27	23.98
5610MHz	Pass	5.31	20.1	20.11	23.12	23.98
5690MHz Straddle 5.47-5.725GHz	Pass	5.31	20.85	20.3	23.59	23.98
5690MHz Straddle 5.725-5.85GHz	Pass	5.31	7.36	6.42	9.93	30.00

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

802.11a_(6Mbps)_2TX **AV Power**

5720MHz Straddle 5.47-5.725GHz

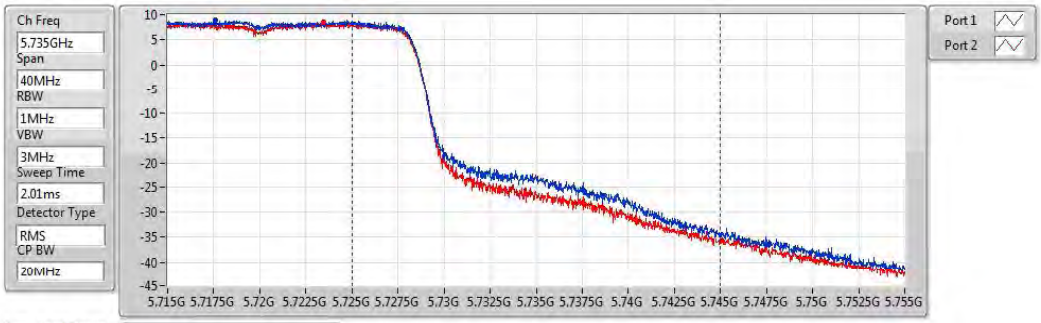


Sum=Total Power
PX=Port X

Sum(dBm)	P1(dBm)	P2(dBm)
21.74	18.99	18.45

802.11a_(6Mbps)_2TX **AV Power**

5720MHz Straddle 5.725-5.85GHz

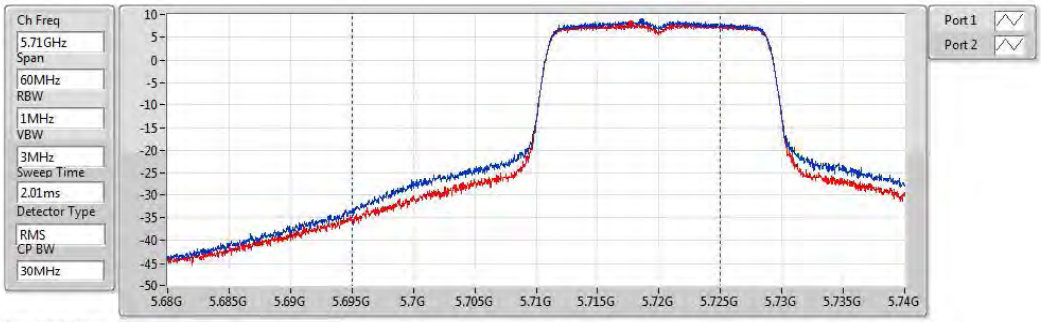


Sum=Total Power
PX=Port X

Sum(dBm)	P1(dBm)	P2(dBm)
15.52	12.67	12.35

802.11ac VHT20_Nss1,(MCS0)_2TX **AV Power**

5720MHz Straddle 5.47-5.725GHz

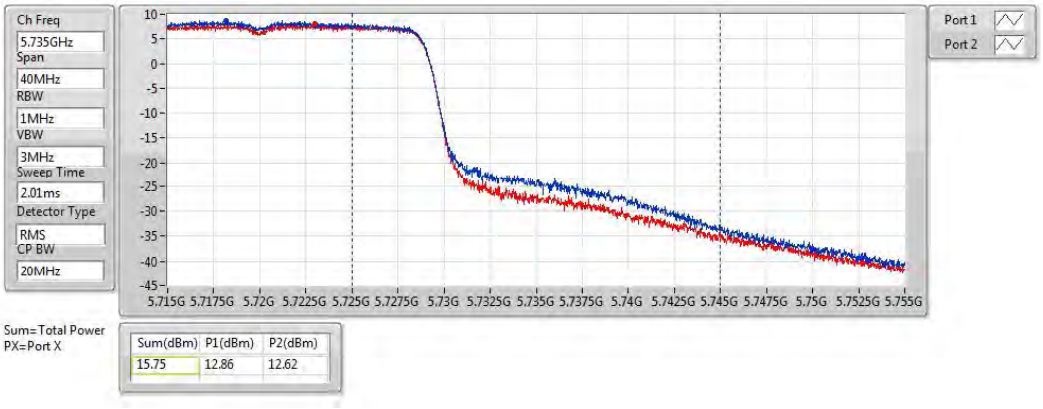


Sum=Total Power
PX=Port X

Sum(dBm)	P1(dBm)	P2(dBm)
21.57	18.82	18.28

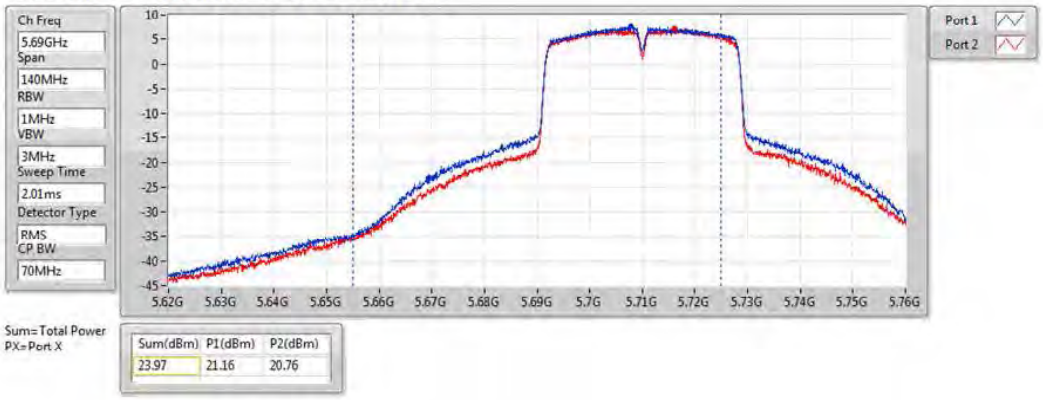
802.11ac VHT20_Nss1,(MCS0)_2TX **AV Power**

5720MHz Straddle 5.725-5.85GHz



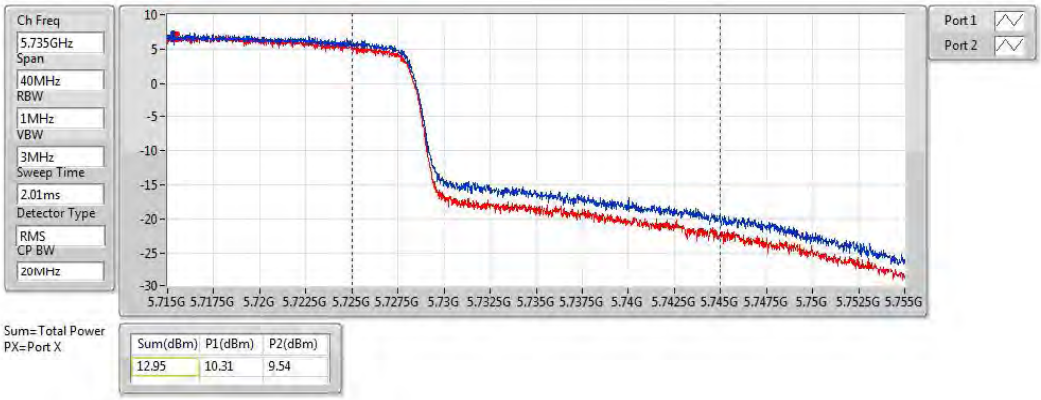
802.11ac VHT40_Nss1,(MCS0)_2TX **AV Power**

5710MHz Straddle 5.47-5.725GHz



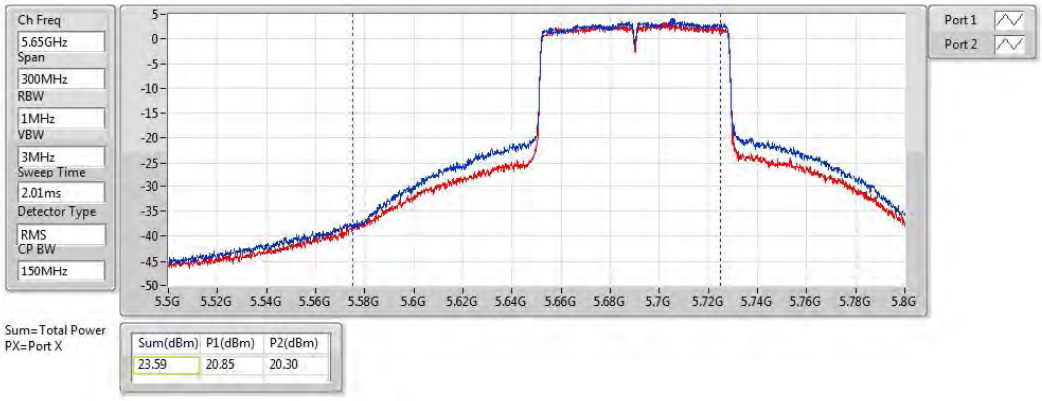
802.11ac VHT40_Nss1,(MCS0)_2TX **AV Power**

5710MHz Straddle 5.725-5.85GHz



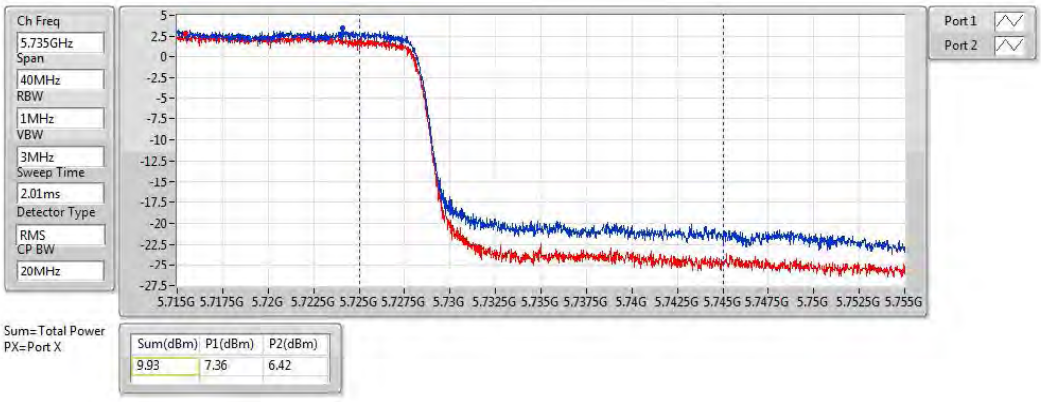
802.11ac VHT80_Nss1,(MCS0)_2TX **AV Power**

5690MHz Straddle 5.47-5.725GHz



802.11ac VHT80_Nss1,(MCS0)_2TX **AV Power**

5690MHz Straddle 5.725-5.85GHz



<For Beamforming Mode>
Summary

Mode	Total Power (dBm)	Total Power (W)	EIRP (dBm)	EIRP (W)
VHT20-BF_Nss1_2TX	-	-	-	-
5.25-5.35GHz	21.83	0.15241	29.10	0.81283
5.47-5.725GHz	21.45	0.13964	28.72	0.74473
5.725-5.85GHz	15.36	0.03436	22.63	0.18323
VHT40-BF_Nss1_2TX	-	-	-	-
5.25-5.35GHz	21.33	0.13583	28.60	0.72444
5.47-5.725GHz	21.45	0.13964	28.72	0.74473
5.725-5.85GHz	11.27	0.01340	18.54	0.07145
VHT80-BF_Nss1_2TX	-	-	-	-
5.25-5.35GHz	17.74	0.05943	25.01	0.31696
5.47-5.725GHz	22.33	0.17100	29.60	0.91201
5.725-5.85GHz	10.21	0.01050	17.48	0.05598

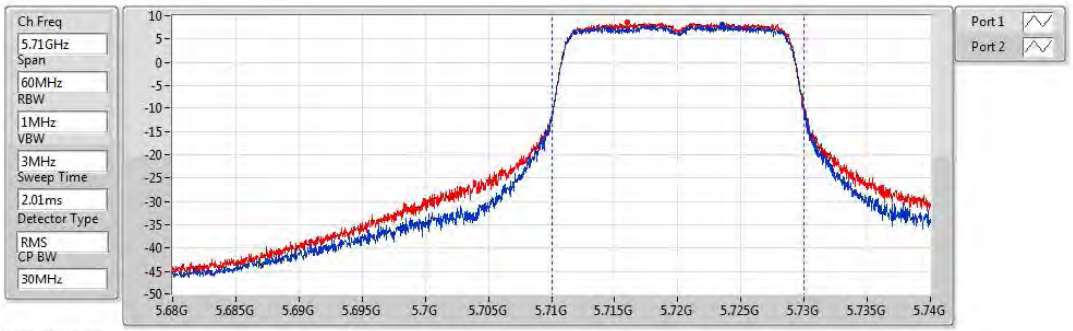
Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Total Power (dBm)	Power Limit (dBm)
VHT20-BF_Nss1_2TX	-	-	-	-	-	-
5260MHz	Pass	7.27	18.89	18.75	21.83	22.71
5300MHz	Pass	7.27	18.61	18.73	21.68	22.71
5320MHz	Pass	7.27	17.03	17.18	20.12	22.71
5500MHz	Pass	7.27	16.66	16.74	19.71	22.71
5580MHz	Pass	7.27	17.45	17.32	20.40	22.71
5700MHz	Pass	7.27	17.98	18.07	21.04	22.71
5720MHz Straddle 5.47-5.725GHz	Pass	7.27	18.16	18.70	21.45	21.90
5720MHz Straddle 5.725-5.85GHz	Pass	7.27	11.96	12.70	15.36	28.73
VHT40-BF_Nss1_2TX	-	-	-	-	-	-
5270MHz	Pass	7.27	18.17	18.47	21.33	22.71
5310MHz	Pass	7.27	14.80	14.91	17.87	22.71
5510MHz	Pass	7.27	17.41	17.64	20.54	22.71
5550MHz	Pass	7.27	17.21	17.42	20.33	22.71
5670MHz	Pass	7.27	17.28	17.45	20.38	22.71
5710MHz Straddle 5.47-5.725GHz	Pass	7.27	18.33	18.54	21.45	22.71
5710MHz Straddle 5.725-5.85GHz	Pass	7.27	8.07	8.45	11.27	28.73
VHT80-BF_Nss1_2TX	-	-	-	-	-	-
5290MHz	Pass	7.27	14.69	14.76	17.74	22.71
5530MHz	Pass	7.27	17.22	17.48	20.36	22.71
5610MHz	Pass	7.27	17.20	17.38	20.30	22.71
5690MHz Straddle 5.47-5.725GHz	Pass	7.27	19.48	19.15	22.33	22.71
5690MHz Straddle 5.725-5.85GHz	Pass	7.27	6.95	7.43	10.21	28.73

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

VHT20-BF_Nss1_2TX **AV Power**

5720MHz Straddle 5.47-5.725GHz

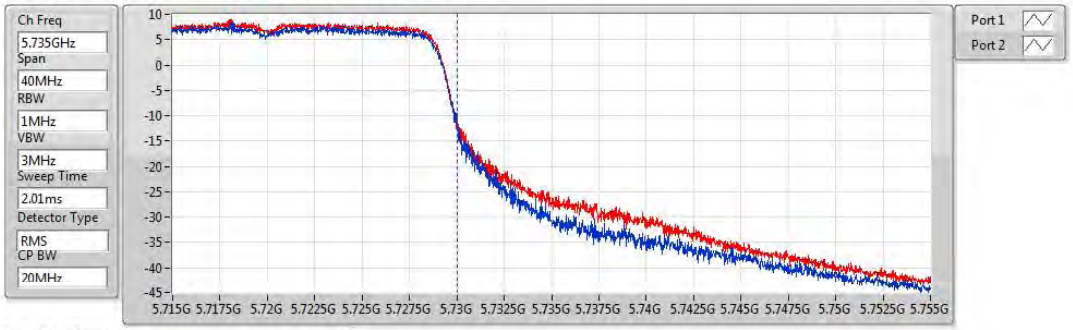


Sum=Total Power
PX=Port X

Sum(dBm)	P1(dBm)	P2(dBm)
21.45	18.16	18.70

VHT20-BF_Nss1_2TX **AV Power**

5720MHz Straddle 5.725-5.85GHz

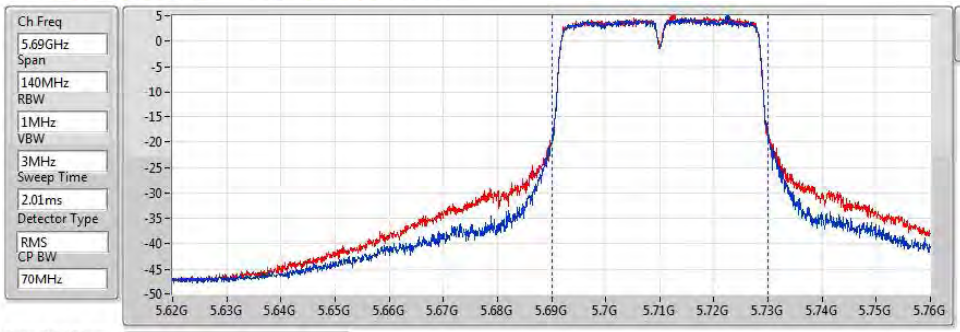


Sum=Total Power
PX=Port X

Sum(dBm)	P1(dBm)	P2(dBm)
15.36	11.96	12.70

VHT40-BF_Nss1_2TX **AV Power**

5710MHz Straddle 5.47-5.725GHz

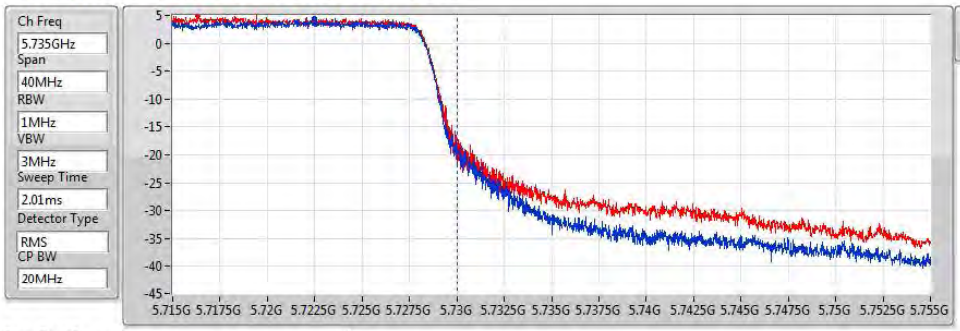


Sum=Total Power
PX=Port X

Sum(dBm)	P1(dBm)	P2(dBm)
21.45	18.33	18.54

VHT40-BF_Nss1_2TX **AV Power**

5710MHz Straddle 5.725-5.85GHz

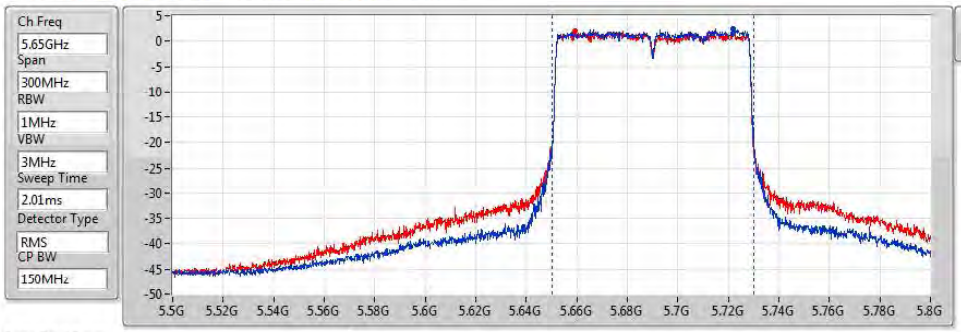


Sum=Total Power
PX=Port X

Sum(dBm)	P1(dBm)	P2(dBm)
11.28	8.07	8.45

VHT80-BF_Nss1_2TX **AV Power**

5690MHz Straddle 5.47-5.725GHz

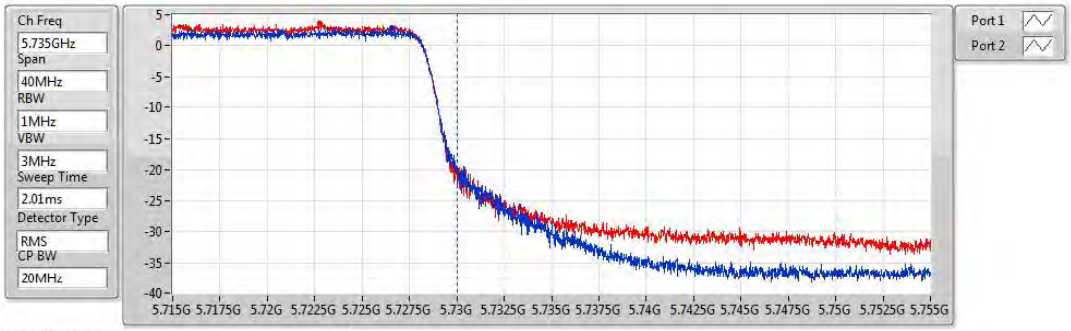


Sum=Total Power
PX=Port X

Sum(dBm)	P1(dBm)	P2(dBm)
22.33	19.48	19.15

VHT80-BF_Nss1_2TX **AV Power**

5690MHz Straddle 5.725-5.85GHz



Sum=Total Power
PX=Port X

Sum(dBm)	P1(dBm)	P2(dBm)
10.21	6.95	7.43

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.
LE-LAN Devices	
☐	For the 5.15-5.25 GHz band, the peak power spectral density (PPSD) ≤ 4 dBm/MHz and the e.i.r.p. peak power spectral density (PPSD) ≤ 10 dBm/MHz.
☐	For the 5.25-5.35 GHz band, the peak power spectral density (PPSD) ≤ 11 dBm/MHz and the e.i.r.p. peak power spectral density (PPSD) ≤ 17 dBm/MHz.
	▪ e.i.r.p. greater than 200 mW shall comply with the following e.i.r.p. at different elevations, where θ is the angle above the local horizontal plane (of the Earth) as shown below: -13 dBW/MHz for 0° ≤ θ < 8° ; -13 − 0.716 (θ-8) dBW/MHz for 8° ≤ θ < 40° -35.9 − 1.22 (θ-40) dBW/MHz for 40° ≤ θ ≤ 45° ; -42 dBW/MHz for θ > 45°
☐	For the 5.47-5.6 GHz band and 5.65-5.725 GHz band, the peak power spectral density (PPSD) ≤ 11 dBm/MHz and the e.i.r.p. peak power spectral density (PPSD) ≤ 17 dBm/MHz.
☐	For the 5.725-5.85 GHz band:
	▪ Point-to-multipoint systems (P2M): the peak power spectral density (PPSD) ≤ 30 dBm/500kHz. If G_{TX} > 6 dBi, then PPSD= 30 – (G_{TX} – 6).
	▪ Point-to-point systems (P2P): the peak power spectral density (PPSD) ≤ 30 dBm/500kHz.
PPSD = peak power spectral density that he same method as used to determine the conducted output power shall be used to determine the power spectral density. And power spectral density in dBm/MHz **G_{TX}** = the maximum transmitting antenna directional gain in dBi.	

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

3.4.4 Test Setup

Power Spectral Density


3.4.5 Test Result of Peak Power Spectral Density

<For Non-Beamforming Mode>
Summary

Mode	PD (dBm/RBW)	EIRP PD (dBm/RBW)
11a_Nss1_2TX	-	-
5.25-5.35GHz	9.33	16.60
5.47-5.725GHz	9.66	16.93
5.725-5.85GHz	8.01	15.28
VHT20_Nss1_2TX	-	-
5.25-5.35GHz	9.71	16.98
5.47-5.725GHz	9.53	16.80
5.725-5.85GHz	7.42	14.69
VHT40_Nss1_2TX	-	-
5.25-5.35GHz	8.52	15.79
5.47-5.725GHz	8.72	15.99
5.725-5.85GHz	5.51	12.78
VHT80_Nss1_2TX	-	-
5.25-5.35GHz	1.1	8.37
5.47-5.725GHz	5.08	12.35
5.725-5.85GHz	2.43	9.70

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

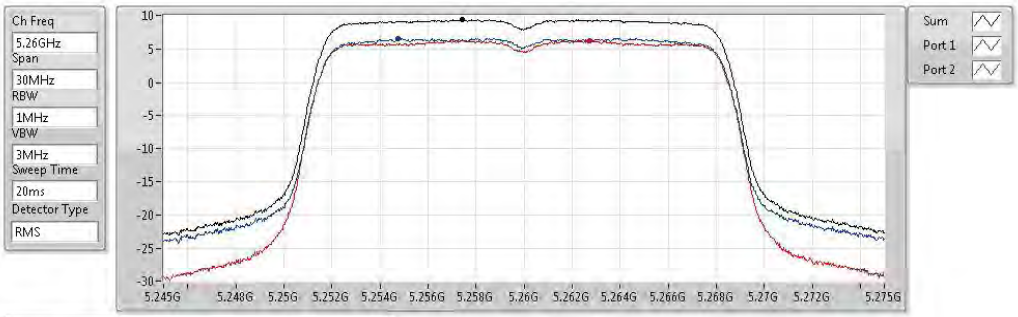
Result

Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
11a_Nss1_2TX	-	-	-	-	-	-
5260MHz	Pass	7.27	6.6	6.28	9.33	9.73
5300MHz	Pass	7.27	6.51	6.14	9.27	9.73
5320MHz	Pass	7.27	6.16	6.23	9.15	9.73
5500MHz	Pass	7.27	4.86	5.4	8.06	9.73
5580MHz	Pass	7.27	6.12	6.67	9.32	9.73
5700MHz	Pass	7.27	4.82	5.28	7.97	9.73
5720MHz Straddle 5.47-5.725GHz	Pass	7.27	7.02	6.55	9.66	9.73
5720MHz Straddle 5.725-5.85GHz	Pass	7.27	5.32	4.73	8.01	28.73
VHT20_Nss1_2TX	-	-	-	-	-	-
5260MHz	Pass	7.27	6.45	6.05	9.26	9.73
5300MHz	Pass	7.27	6.84	6.51	9.67	9.73
5320MHz	Pass	7.27	6.88	6.58	9.71	9.73
5500MHz	Pass	7.27	6.37	6.73	9.53	9.73
5580MHz	Pass	7.27	6.42	6.7	9.50	9.73
5700MHz	Pass	7.27	5.11	5.26	8.17	9.73
5720MHz Straddle 5.47-5.725GHz	Pass	7.27	6.72	6.14	9.40	9.73
5720MHz Straddle 5.725-5.85GHz	Pass	7.27	4.62	4.37	7.42	28.73
VHT40_Nss1_2TX	-	-	-	-	-	-
5270MHz	Pass	7.27	5.7	5.47	8.52	9.73
5310MHz	Pass	7.27	2.53	1.83	5.13	9.73
5510MHz	Pass	7.27	2.91	2.83	5.80	9.73
5550MHz	Pass	7.27	5.88	5.74	8.72	9.73
5670MHz	Pass	7.27	4.67	4.43	7.54	9.73
5710MHz Straddle 5.47-5.725GHz	Pass	7.27	5.76	5.15	8.40	9.73
5710MHz Straddle 5.725-5.85GHz	Pass	7.27	2.86	2.31	5.51	28.73
VHT80_Nss1_2TX	-	-	-	-	-	-
5290MHz	Pass	7.27	-1.47	-2.16	1.10	9.73
5530MHz	Pass	7.27	-0.51	-0.5	2.36	9.73
5610MHz	Pass	7.27	2.15	2.16	5.08	9.73
5690MHz Straddle 5.47-5.725GHz	Pass	7.27	1.86	1.09	4.38	9.73
5690MHz Straddle 5.725-5.85GHz	Pass	7.27	-0.08	-0.93	2.43	28.73

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 X power density;

11a_Nss1_2TX **PSD**

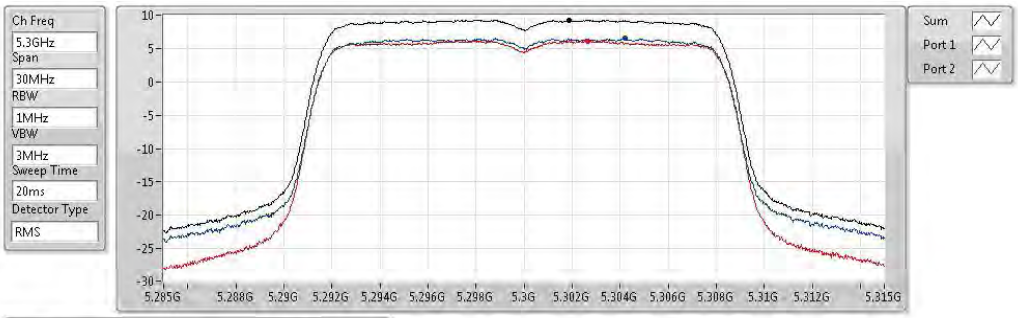
5260MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
9.33	9.33	6.60	6.28

11a_Nss1_2TX **PSD**

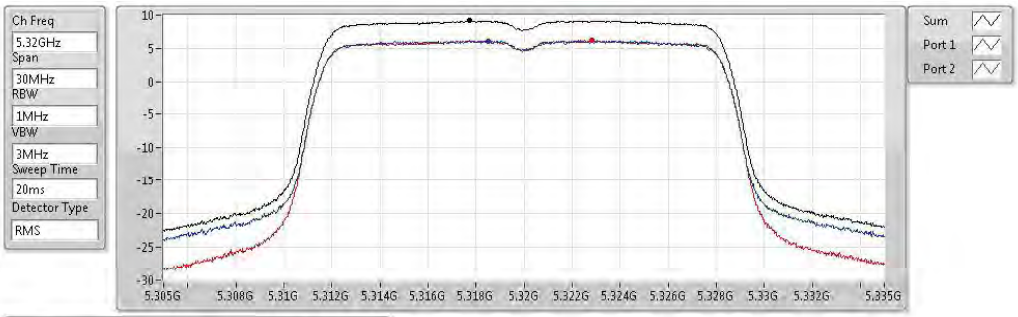
5300MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
9.27	9.27	6.51	6.14

11a_Nss1_2TX **PSD**

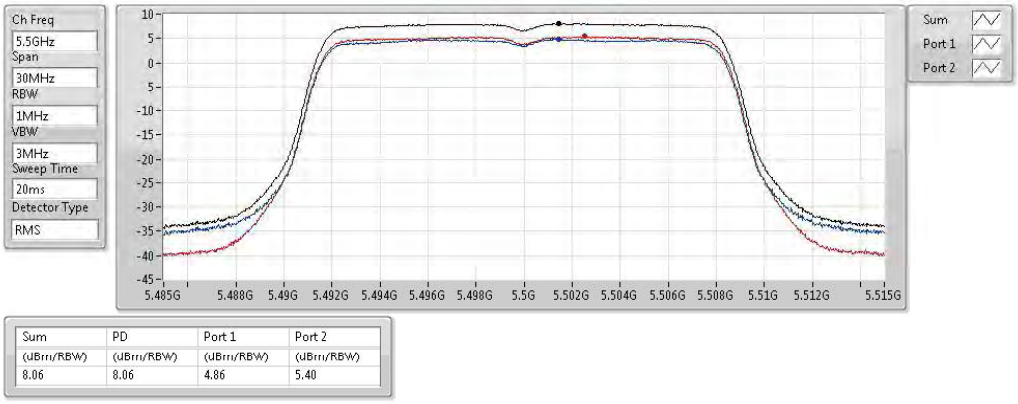
5320MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
9.15	9.15	6.16	6.23

11a_Nss1_2TX **PSD**

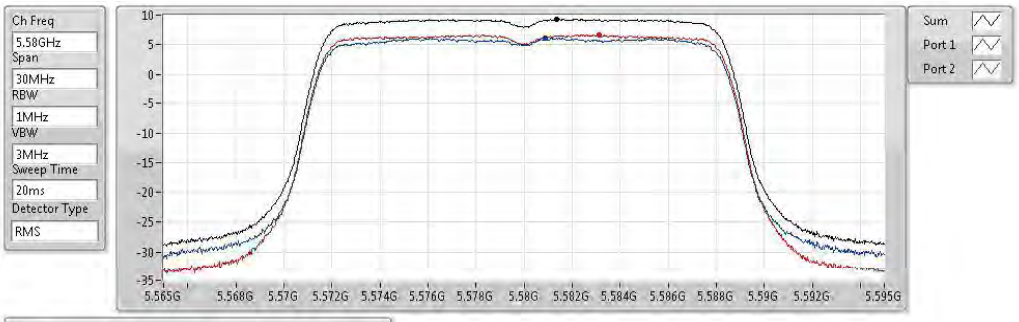
5500MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
8.06	8.06	4.86	5.40

11a_Nss1_2TX **PSD**

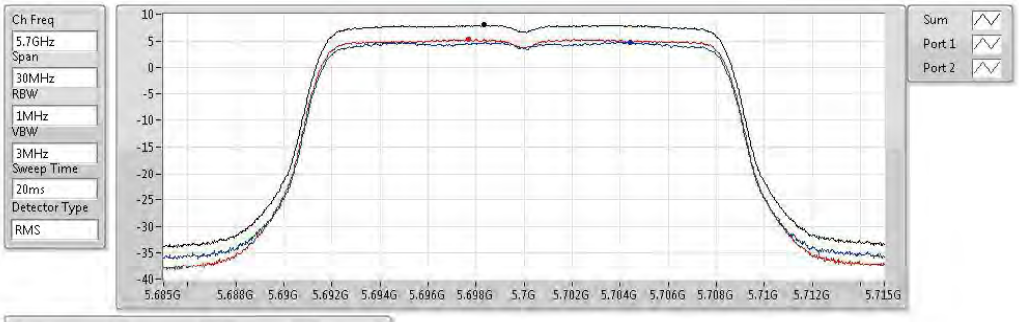
5580MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
9.32	9.32	6.12	6.67

11a_Nss1_2TX **PSD**

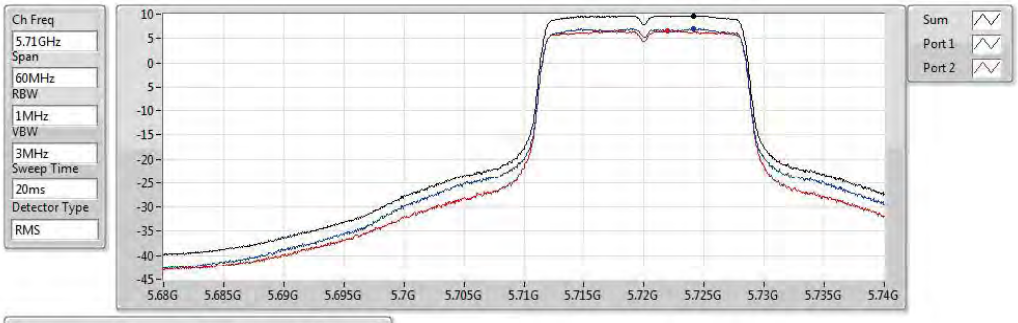
5700MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
7.97	7.97	4.82	5.28

802.11a_(6Mbps)_2TX **PSD**

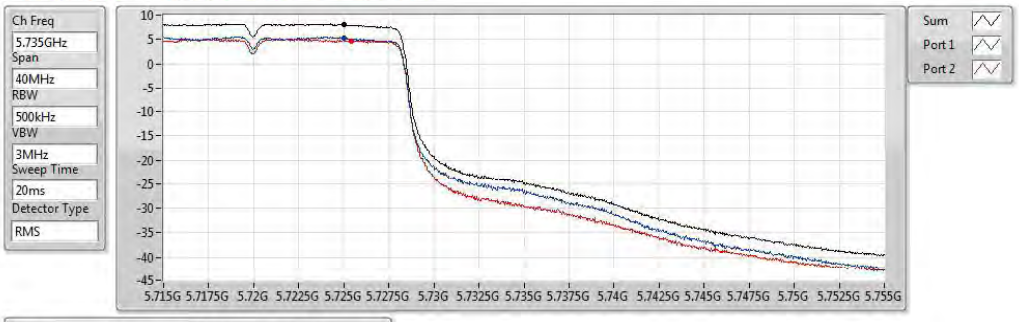
5720MHz Straddle 5.47-5.725GHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
9.66	9.66	7.02	6.55

802.11a_(6Mbps)_2TX **PSD**

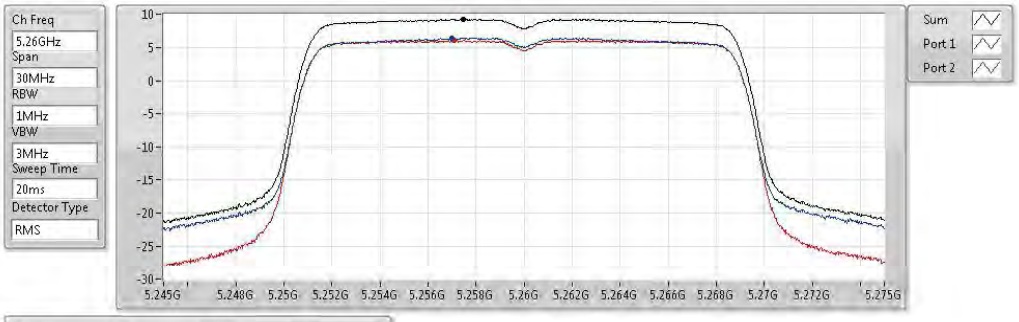
5720MHz Straddle 5.725-5.85GHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
8.01	8.01	5.32	4.73

VHT20_Nss1_2TX **PSD**

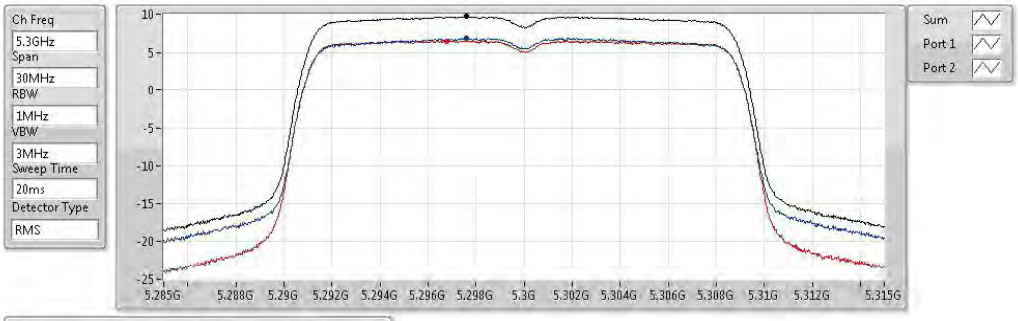
5260MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
9.26	9.26	6.45	6.05

VHT20_Nss1_2TX **PSD**

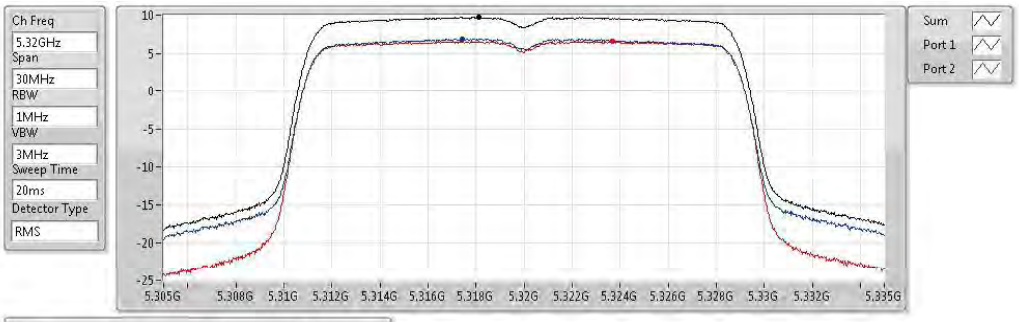
5300MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
9.67	9.67	6.84	6.51

VHT20_Nss1_2TX **PSD**

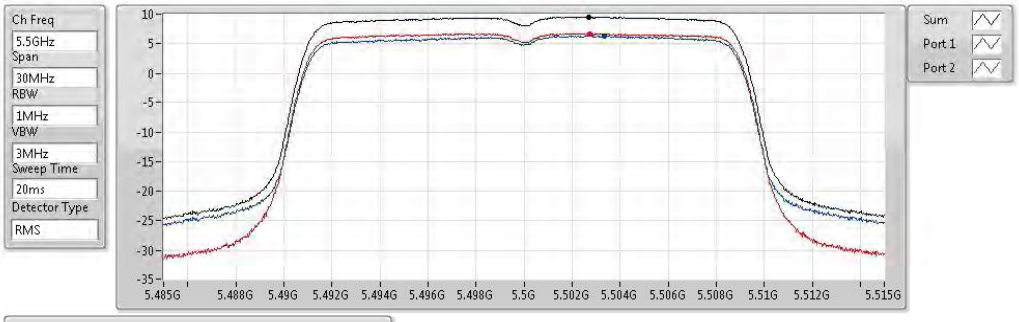
5320MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
9.71	9.71	6.88	6.58

VHT20_Nss1_2TX **PSD**

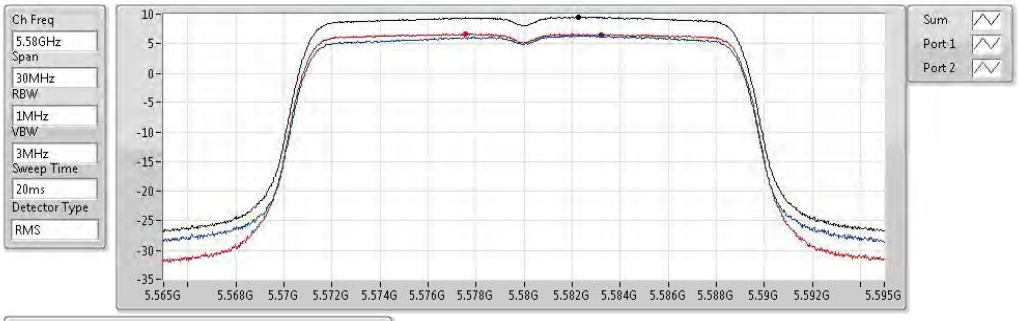
5500MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
9.53	9.53	6.37	6.73

VHT20_Nss1_2TX **PSD**

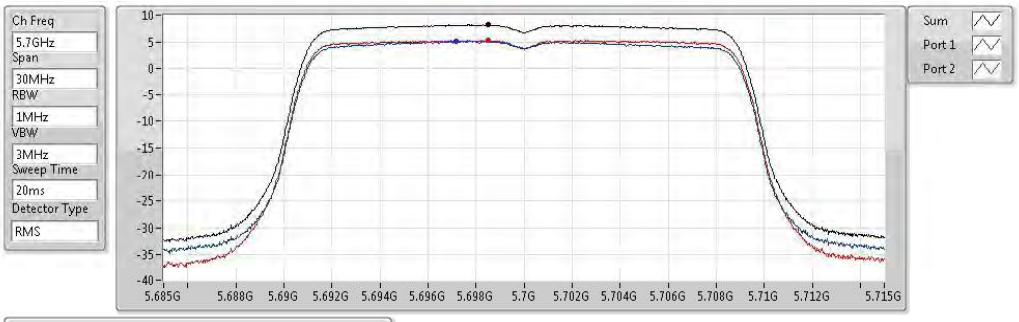
5580MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
9.50	9.50	6.42	6.70

VHT20_Nss1_2TX **PSD**

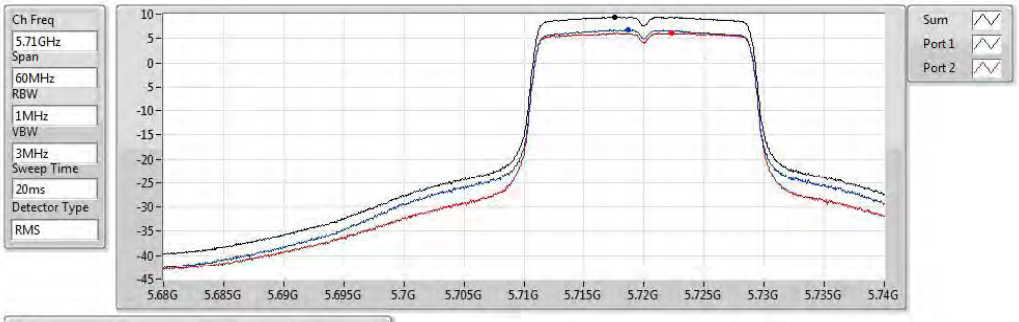
5700MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
8.17	8.17	5.11	5.26

802.11ac VHT20_Nss1,(MCS0)_2TX **PSD**

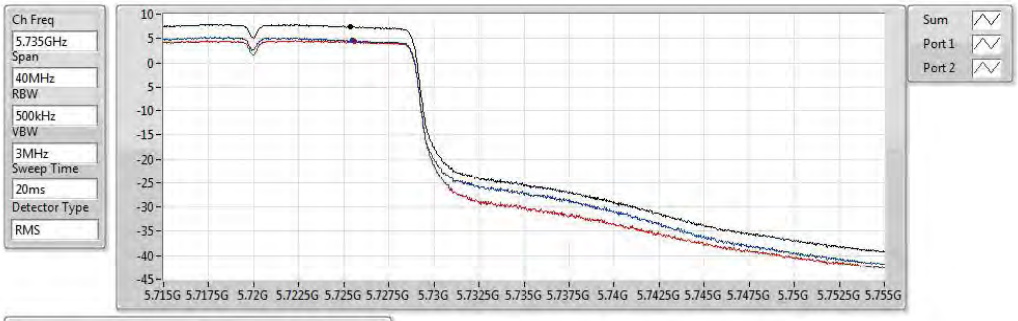
5720MHz Straddle 5.47-5.725GHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
9.40	9.40	6.72	6.14

802.11ac VHT20_Nss1,(MCS0)_2TX **PSD**

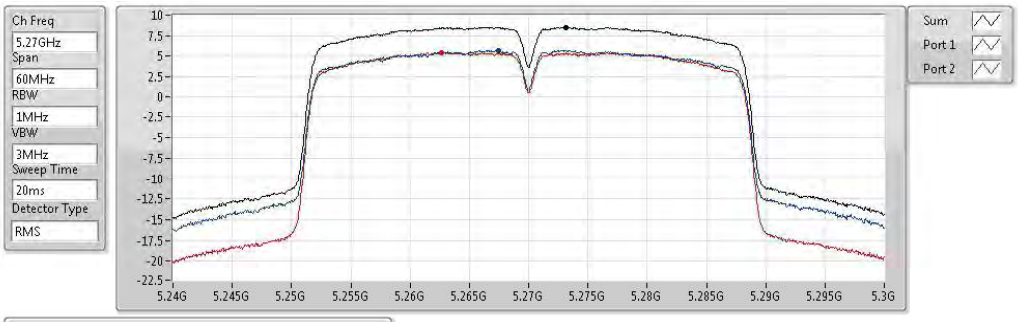
5720MHz Straddle 5.725-5.85GHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
7.42	7.42	4.62	4.37

VHT40_Nss1_2TX **PSD**

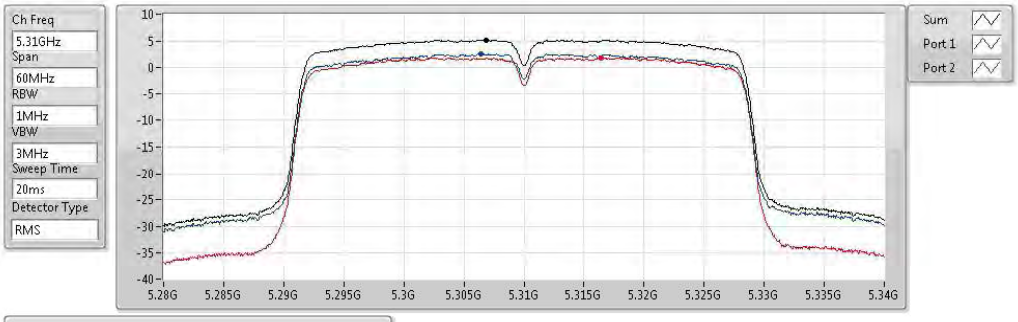
5270MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
8.52	8.52	5.70	5.47

VHT40_Nss1_2TX **PSD**

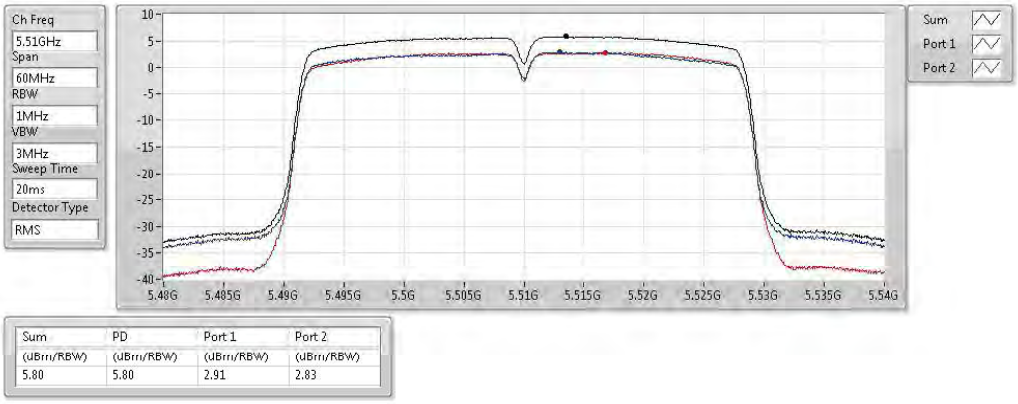
5310MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
5.13	5.13	2.53	1.83

VHT40_Nss1_2TX **PSD**

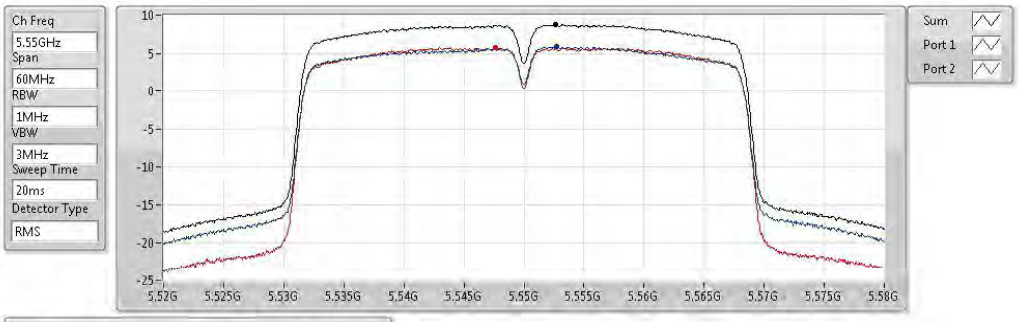
5510MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
5.80	5.80	2.91	2.83

VHT40_Nss1_2TX **PSD**

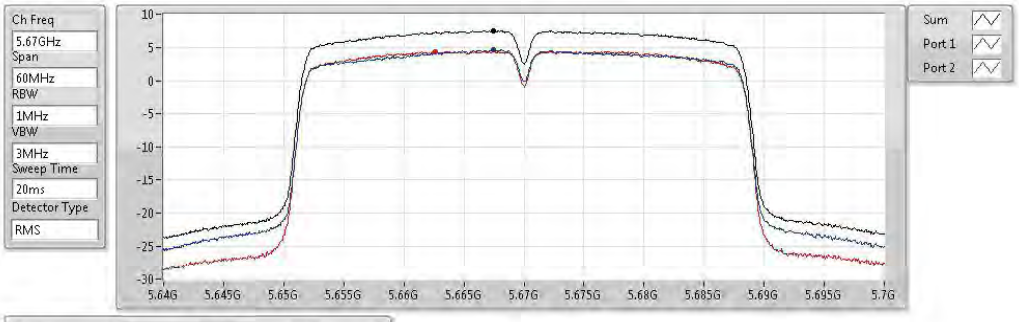
5550MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
8.72	8.72	5.88	5.74

VHT40_Nss1_2TX **PSD**

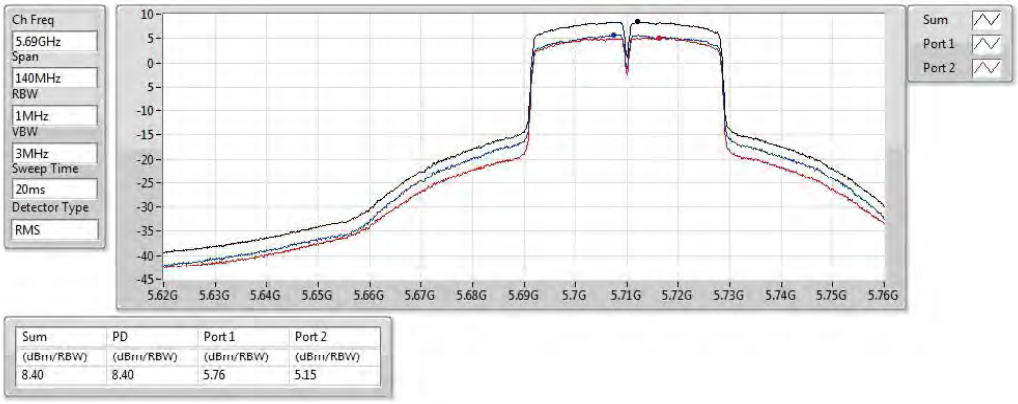
5670MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
7.54	7.54	4.67	4.43

802.11ac VHT40_Nss1,(MCS0)_2TX **PSD**

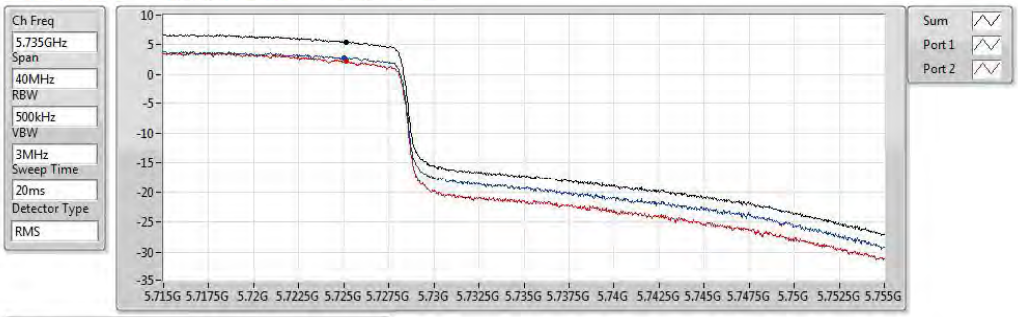
5710MHz Straddle 5.47-5.725GHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
8.40	8.40	5.76	5.15

802.11ac VHT40_Nss1,(MCS0)_2TX **PSD**

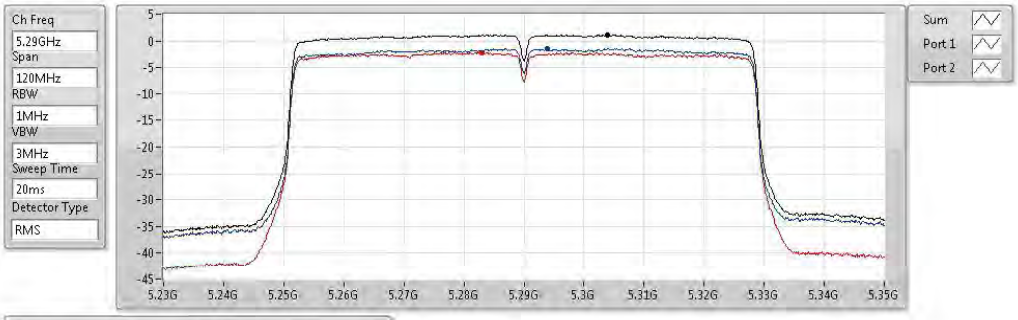
5710MHz Straddle 5.725-5.85GHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
5.51	5.51	2.86	2.31

VHT80_Nss1_2TX **PSD**

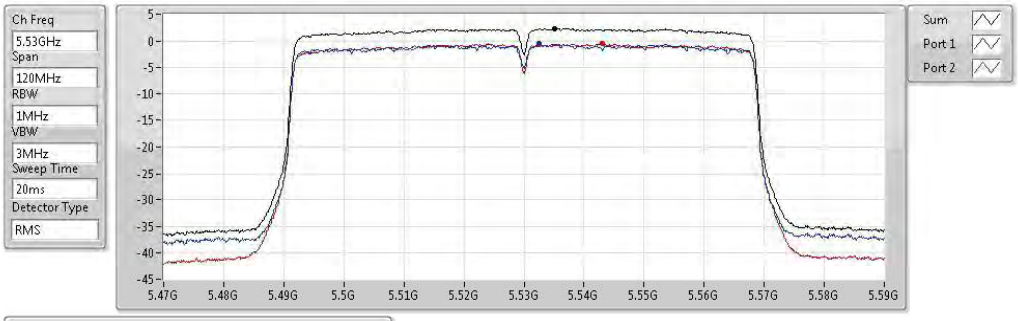
5290MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
1.10	1.10	-1.47	-2.16

VHT80_Nss1_2TX **PSD**

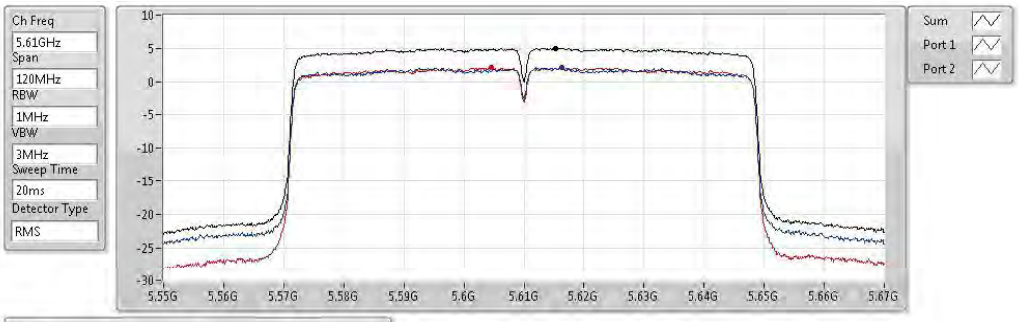
5530MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
2.36	2.36	-0.51	-0.50

VHT80_Nss1_2TX **PSD**

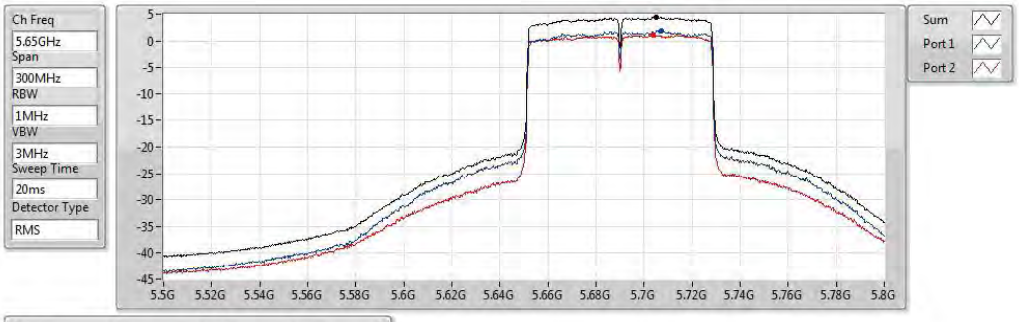
5610MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
5.08	5.08	2.15	2.16

802.11ac VHT80_Nss1,(MCS0)_2TX **PSD**

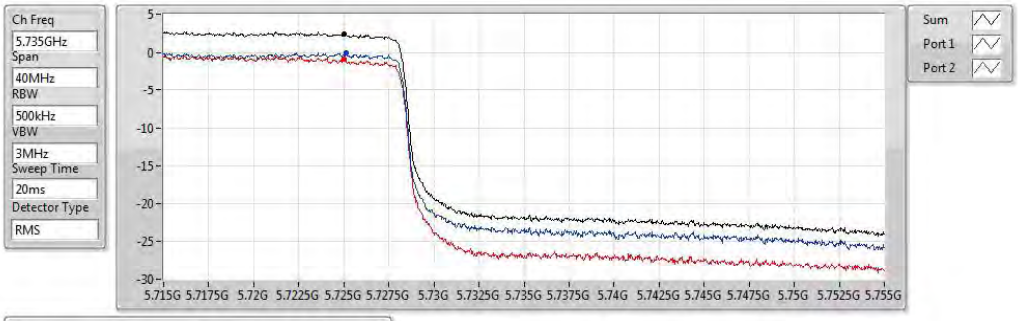
5690MHz Straddle 5.47-5.725GHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
4.38	4.38	1.86	1.09

802.11ac VHT80_Nss1,(MCS0)_2TX PSD

5690MHz Straddle 5.725-5.85GHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
2.43	2.43	-0.08	-0.93

<For Beamforming Mode>
Summary

Mode	PD (dBm/RBW)	EIRP PD (dBm/RBW)
VHT20-BF_Nss1_2TX	-	-
5.25-5.35GHz	8.46	15.73
5.47-5.725GHz	8.09	15.36
5.725-5.85GHz	7.26	14.53
VHT40-BF_Nss1_2TX	-	-
5.25-5.35GHz	5.67	12.94
5.47-5.725GHz	6.87	14.14
5.725-5.85GHz	3.76	11.03
VHT80-BF_Nss1_2TX	-	-
5.25-5.35GHz	-1.46	5.81
5.47-5.725GHz	5.15	12.42
5.725-5.85GHz	2.44	9.71

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

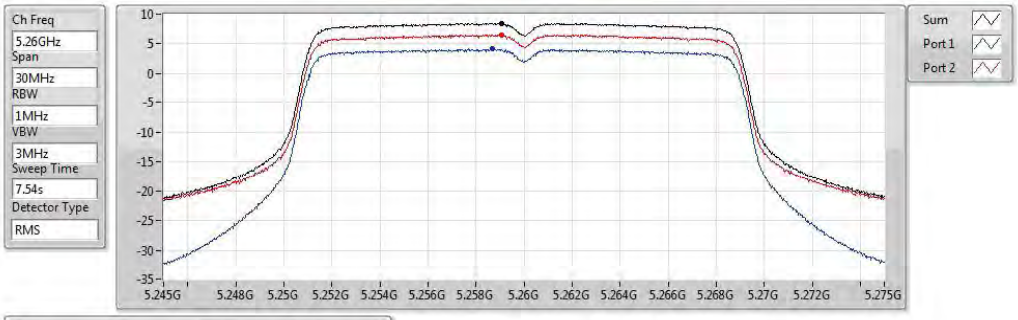
Result

Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
VHT20-BF_Nss1_2TX	-	-	-	-	-	-
5260MHz	Pass	7.27	4.18	6.57	8.46	9.73
5300MHz	Pass	7.27	3.91	6.19	8.06	9.73
5320MHz	Pass	7.27	2.88	5.31	7.19	9.73
5500MHz	Pass	7.27	2.37	3.50	5.93	9.73
5580MHz	Pass	7.27	3.82	4.40	7.05	9.73
5700MHz	Pass	7.27	4.10	4.60	7.16	9.73
5720MHz Straddle 5.47-5.725GHz	Pass	7.27	4.70	5.64	8.09	9.73
5720MHz Straddle 5.725-5.85GHz	Pass	7.27	4.11	4.52	7.26	28.73
VHT40-BF_Nss1_2TX	-	-	-	-	-	-
5270MHz	Pass	7.27	1.28	3.97	5.67	9.73
5310MHz	Pass	7.27	-3.63	0.47	1.68	9.73
5510MHz	Pass	7.27	0.26	2.46	4.29	9.73
5550MHz	Pass	7.27	1.15	1.40	4.22	9.73
5670MHz	Pass	7.27	1.12	1.58	4.29	9.73
5710MHz Straddle 5.47-5.725GHz	Pass	7.27	3.28	4.40	6.87	9.73
5710MHz Straddle 5.725-5.85GHz	Pass	7.27	0.73	0.76	3.76	28.73
VHT80-BF_Nss1_2TX	-	-	-	-	-	-
5290MHz	Pass	7.27	-5.64	-3.08	-1.46	9.73
5530MHz	Pass	7.27	-4.87	0.74	1.57	9.73
5610MHz	Pass	7.27	-1.59	-0.77	1.40	9.73
5690MHz Straddle 5.47-5.725GHz	Pass	7.27	2.14	2.31	5.15	9.73
5690MHz Straddle 5.725-5.85GHz	Pass	7.27	-0.82	-0.12	2.44	28.73

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 X power density;

VHT20-BF_Nss1_2TX **PSD**

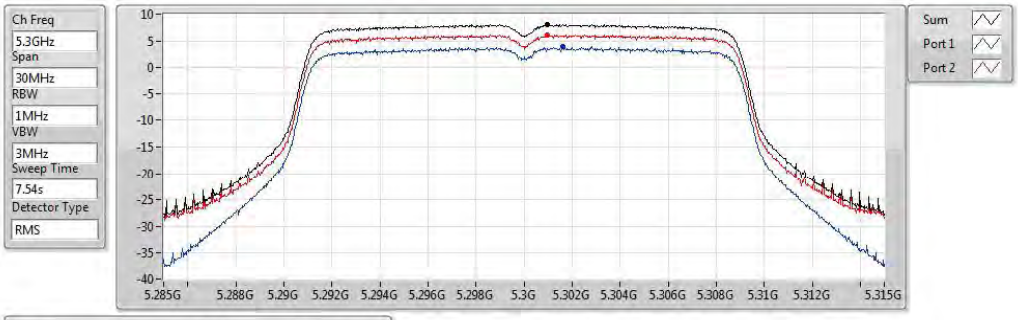
5260MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
8.46	8.46	4.18	6.57

VHT20-BF_Nss1_2TX **PSD**

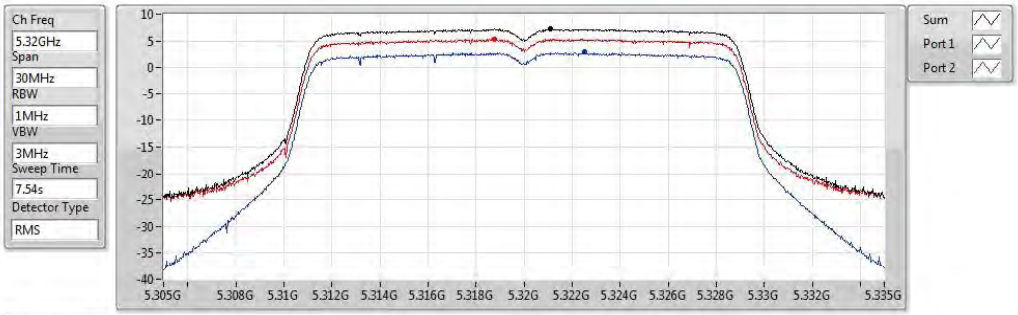
5300MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
8.06	8.06	3.91	6.19

VHT20-BF_Nss1_2TX **PSD**

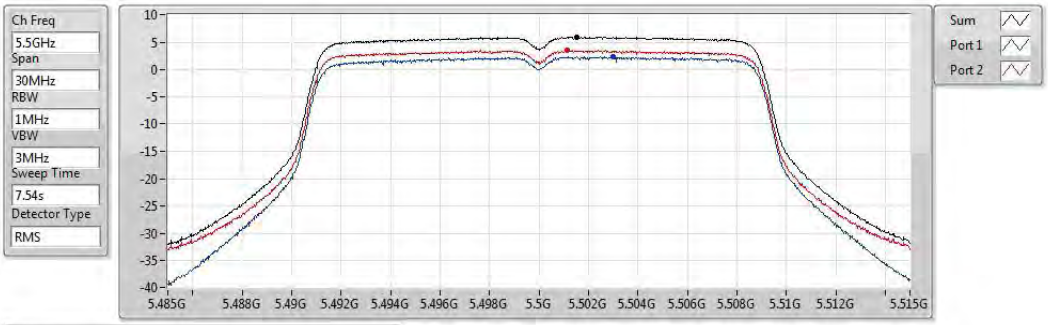
5320MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
7.19	7.19	2.88	5.31

VHT20-BF_Nss1_2TX **PSD**

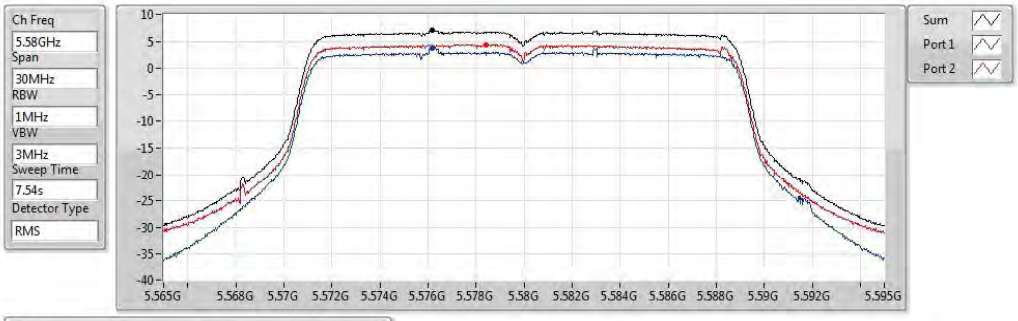
5500MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
5.93	5.93	2.37	3.50

VHT20-BF_Nss1_2TX **PSD**

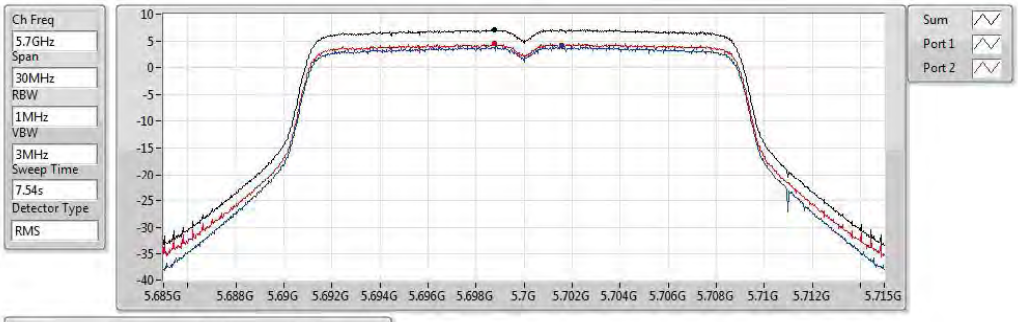
5580MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
7.05	7.05	3.82	4.40

VHT20-BF_Nss1_2TX **PSD**

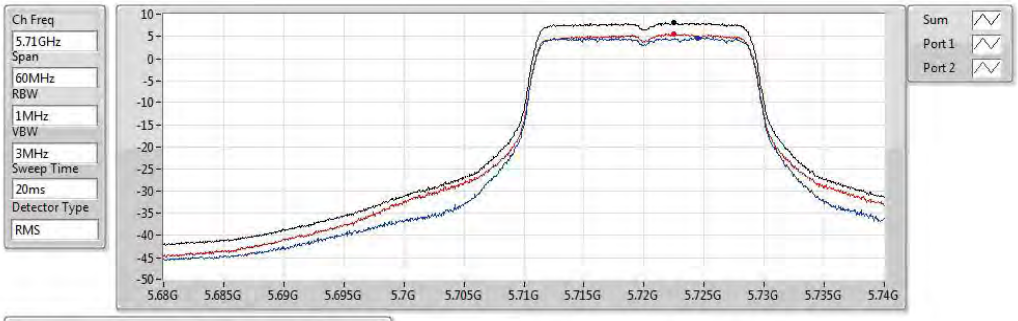
5700MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
7.16	7.16	4.10	4.60

VHT20-BF_Nss1_2TX **PSD**

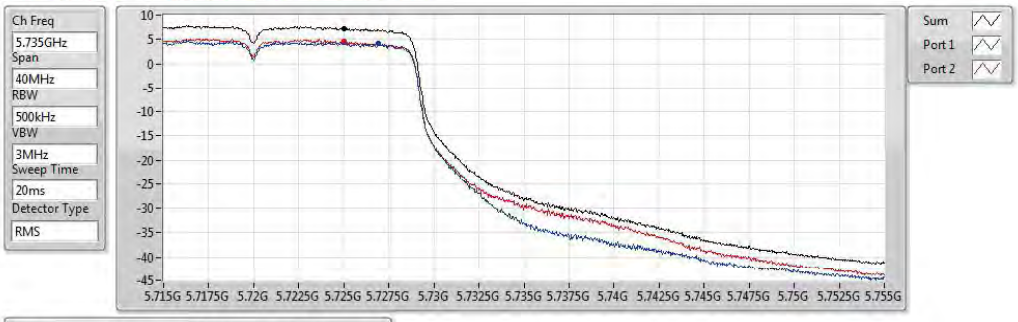
5720MHz Straddle 5.47-5.725GHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
8.09	8.09	4.70	5.64

VHT20-BF_Nss1_2TX **PSD**

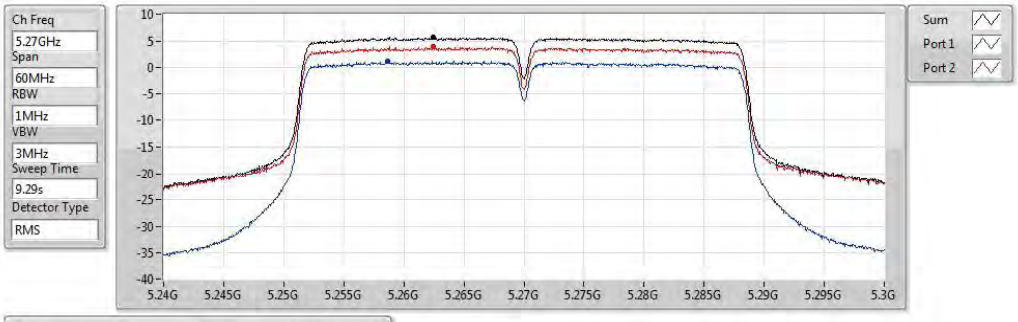
5720MHz Straddle 5.725-5.85GHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
7.26	7.26	4.11	4.52

VHT40-BF_Nss1_2TX **PSD**

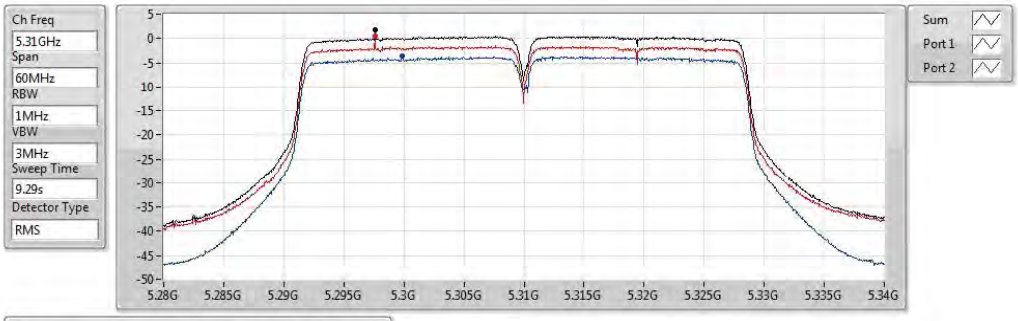
5270MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
5.67	5.67	1.28	3.97

VHT40-BF_Nss1_2TX **PSD**

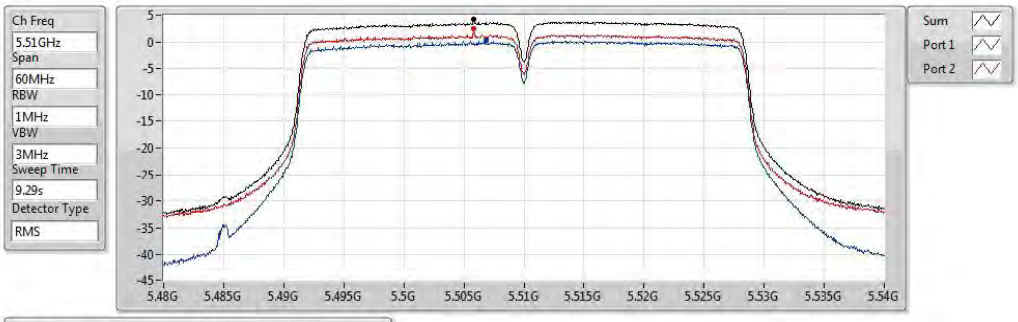
5310MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
1.68	1.68	-3.63	0.47

VHT40-BF_Nss1_2TX **PSD**

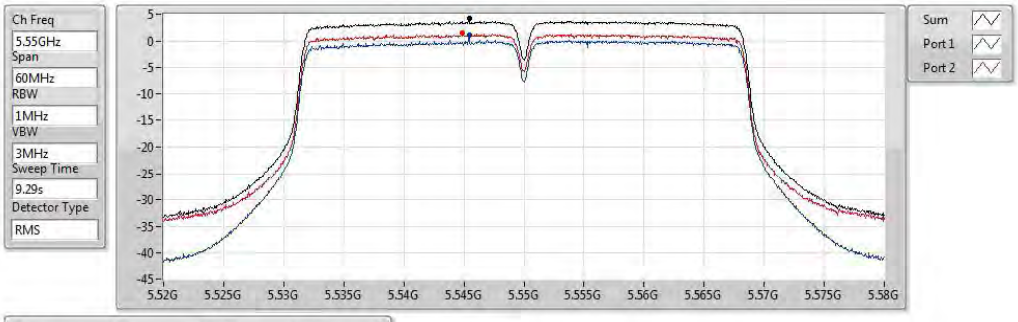
5510MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
4.29	4.29	0.26	2.46

VHT40-BF_Nss1_2TX **PSD**

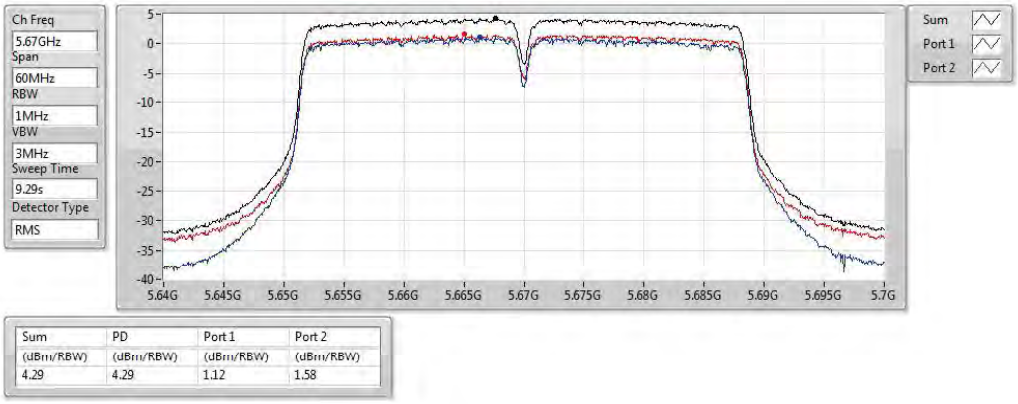
5550MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
4.22	4.22	1.15	1.40

VHT40-BF_Nss1_2TX **PSD**

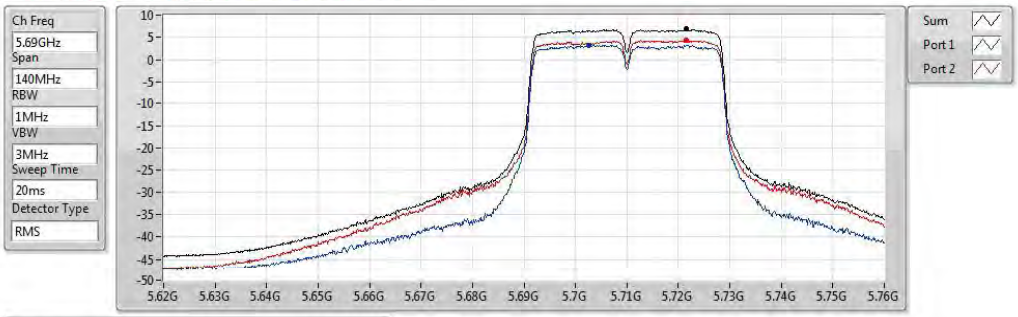
5670MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
4.29	4.29	1.12	1.58

VHT40-BF_Nss1_2TX **PSD**

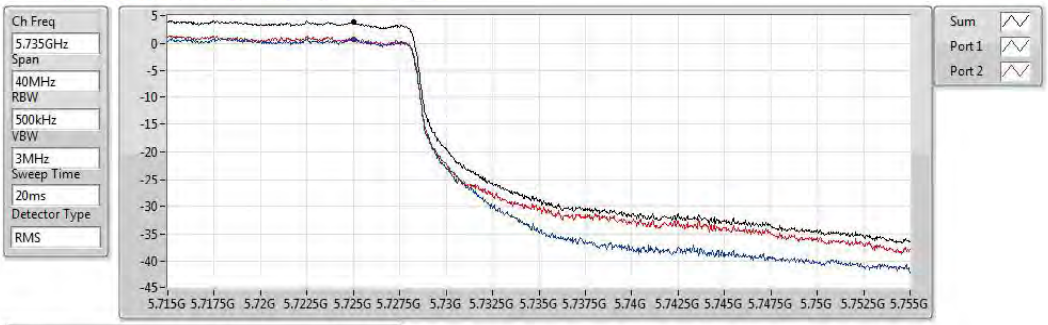
5710MHz Straddle 5.47-5.725GHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
6.87	6.87	3.28	4.40

VHT40-BF_Nss1_2TX **PSD**

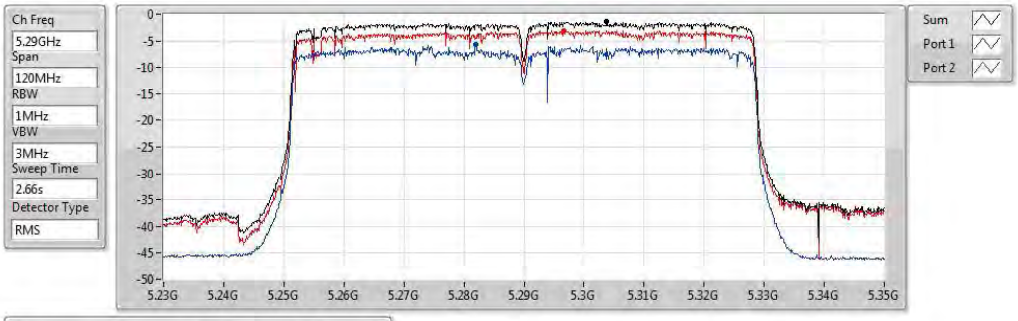
5710MHz Straddle 5.725-5.85GHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
3.76	3.76	0.73	0.76

VHT80-BF_Nss1_2TX **PSD**

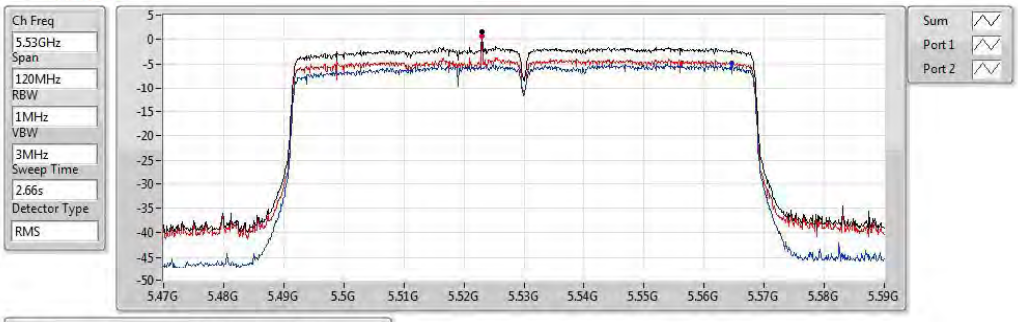
5290MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-1.46	-1.46	-5.64	-3.08

VHT80-BF_Nss1_2TX **PSD**

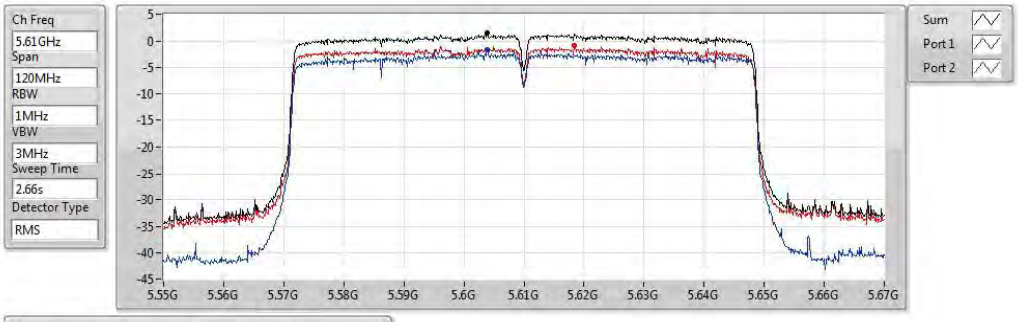
5530MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
1.57	1.57	-4.87	0.74

VHT80-BF_Nss1_2TX **PSD**

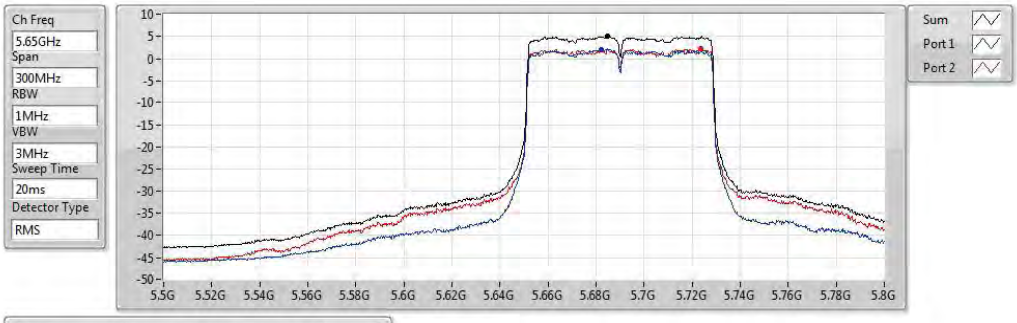
5610MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
1.40	1.40	-1.59	-0.77

VHT80-BF_Nss1_2TX **PSD**

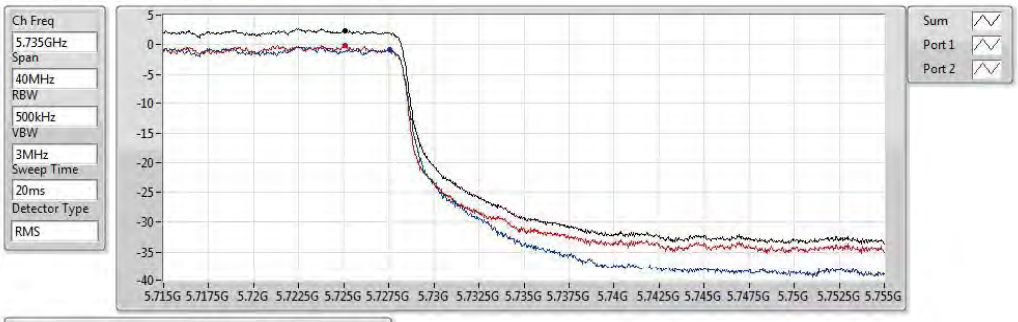
5690MHz Straddle 5.47-5.725GHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
5.15	5.15	2.14	2.31

VHT80-BF_Nss1_2TX **PSD**

5690MHz Straddle 5.725-5.85GHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
2.44	2.44	-0.82	-0.12

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.			

Un-restricted band emissions above 1GHz Limit	
Operating Band	**Limit**
5.15 - 5.25 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
5.25 - 5.35 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
5.47 - 5.725 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
5.725 - 5.85 GHz	all emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.
Note 1: Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).	

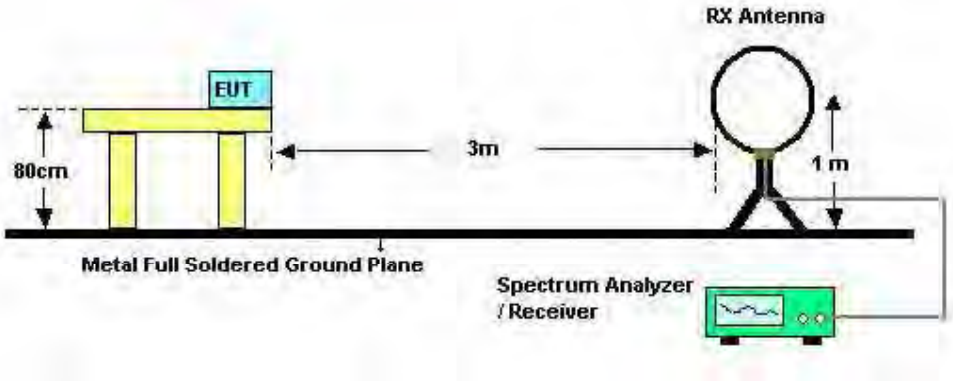
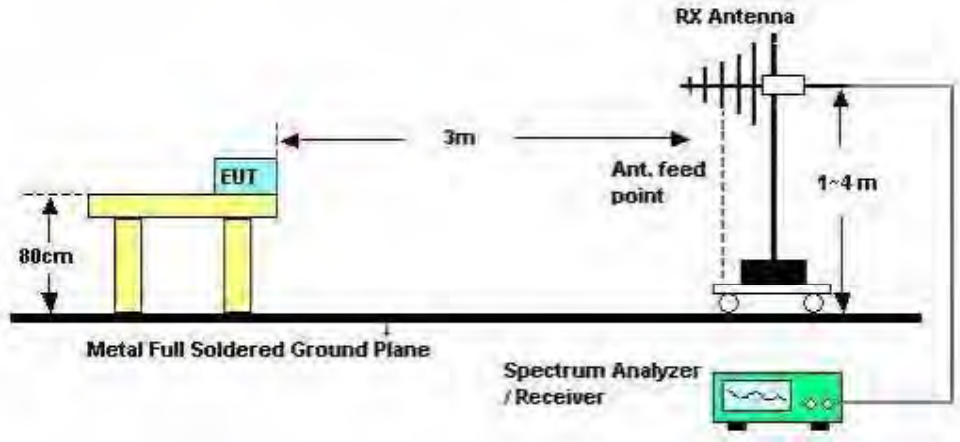
3.5.2 Measuring Instruments

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

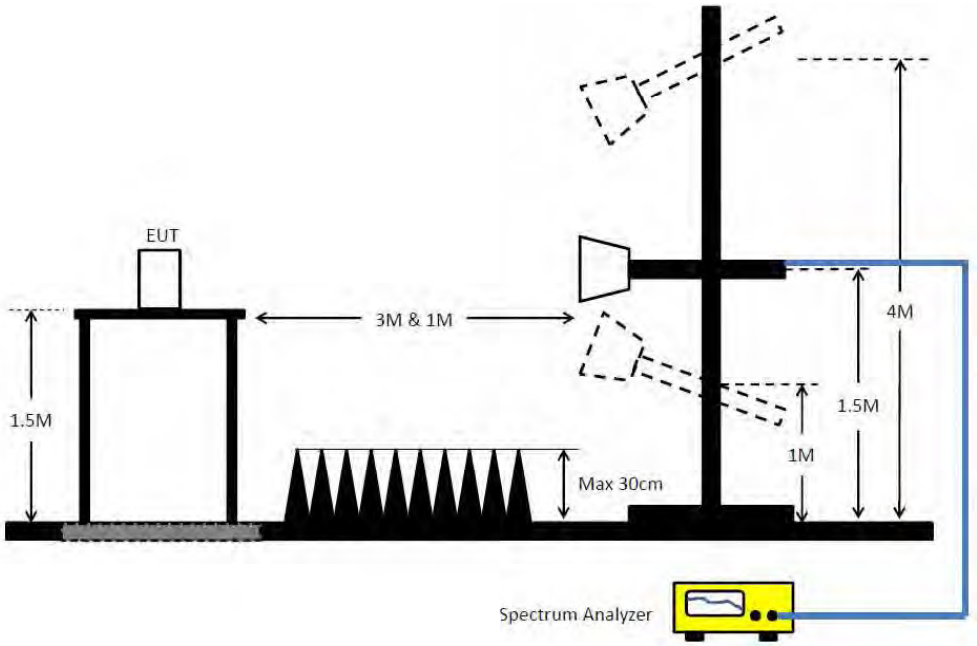
3.5.3 Test Procedures

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 ≥ 98 or duty factor].		
▪ For the transmitter unwanted emissions shall be measured using following options below:		
	▪ Refer as FCC KDB 789033, clause H)2) for unwanted emissions into non-restricted bands.	
	▪ Refer as FCC KDB 789033, clause H)1) for unwanted emissions into restricted bands.	
		☐ Refer as FCC KDB 789033, H)6) Method AD (Trace Averaging).
		☒ Refer as FCC KDB 789033, H)6) Method VB (Reduced VBW).
		☐ Refer as ANSI C63.10, clause 4.2.3.2.3 (Reduced VBW). VBW ≥ 1/T, where T is pulse time.
		☐ Refer as ANSI C63.10, clause 4.2.3.2.4 average value of pulsed emissions.
		☒ Refer as FCC KDB 789033, clause H)5) measurement procedure peak limit.
		☐ Refer as ANSI C63.10, clause 4.2.3.2.2 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

Transmitter Radiated Unwanted Emissions
9kHz ~30MHz

30MHz~1GHz


Above 1GHz

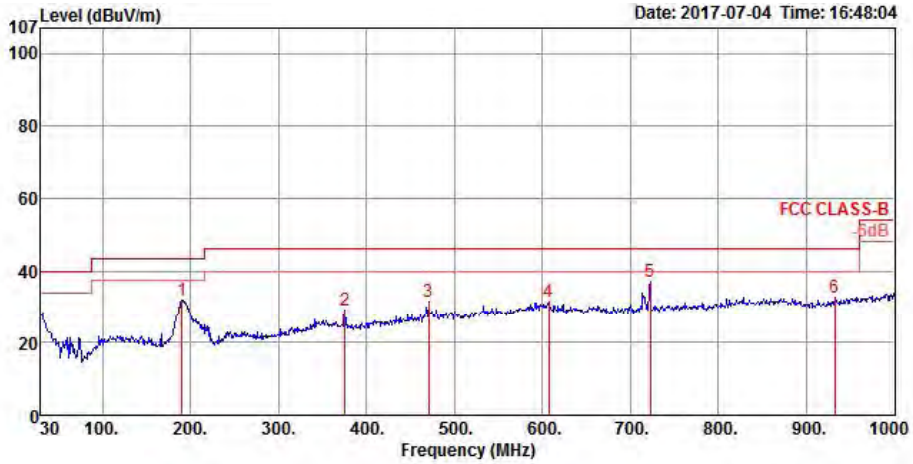


3.5.5 Transmitter Unwanted Emissions (Below 30MHz)

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

3.5.6 Test Result of Transmitter Unwanted Emissions

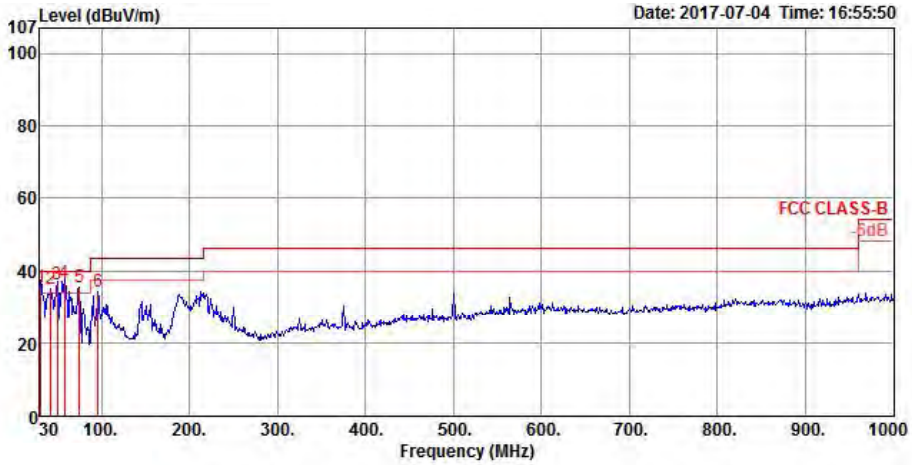
RSE below 1GHz Result			
Operating Mode	3	**Polarization**	Horizontal
Operating Function	Normal Link		



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	190.05	32.09	43.50	-11.41	48.33	1.10	15.15	32.49	100	0	Peak	HORIZONTAL
2	375.32	29.40	46.00	-16.60	39.59	1.50	20.76	32.45	100	0	Peak	HORIZONTAL
3	470.38	31.72	46.00	-14.28	39.49	1.70	23.01	32.48	100	0	Peak	HORIZONTAL
4	607.15	31.49	46.00	-14.51	37.27	1.94	24.84	32.56	100	0	Peak	HORIZONTAL
5	722.58	37.02	46.00	-8.98	41.97	2.13	25.38	32.46	100	0	Peak	HORIZONTAL
6	932.10	32.59	46.00	-13.41	35.02	2.42	26.68	31.53	100	0	Peak	HORIZONTAL

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.)

RSE below 1GHz Result			
Operating Mode	3	**Polarization**	Vertical
Operating Function	Normal Link		



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	30.97	35.52	40.00	-4.48	43.70	0.53	23.82	32.53	102	188	QP	VERTICAL
2	42.61	35.19	40.00	-4.81	49.94	0.57	17.19	32.51	300	360	Peak	VERTICAL
3	49.40	36.40	40.00	-3.60	54.20	0.61	14.09	32.50	113	156	QP	VERTICAL
4	58.13	36.82	40.00	-3.18	56.20	0.61	12.52	32.51	127	214	QP	VERTICAL
5	74.62	35.59	40.00	-4.41	55.21	0.75	12.16	32.53	300	360	Peak	VERTICAL
6	95.96	34.48	43.50	-9.02	49.96	0.87	16.21	32.56	300	360	Peak	VERTICAL

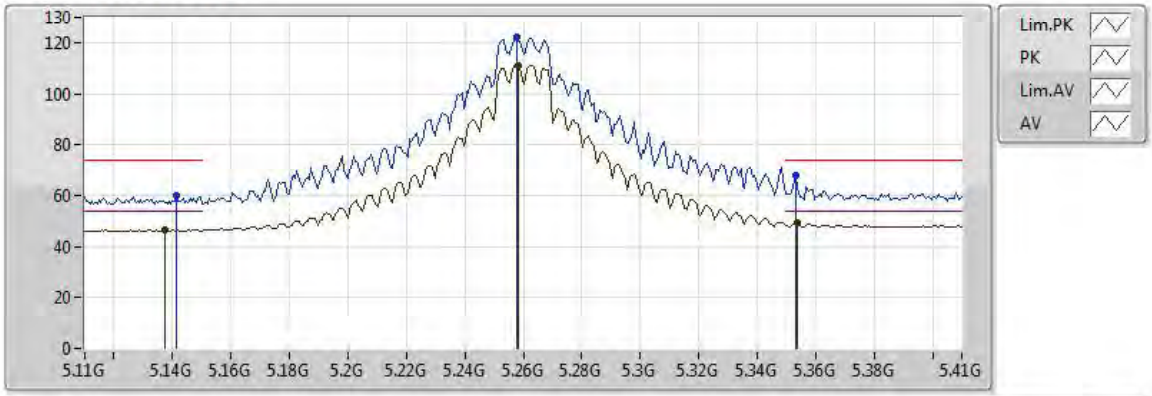
Note 1: “>20dB” means emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found emissions (No emissions were detected.)

RSE Above 1GHz Result
<For Non-Beamforming Mode>
Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
VHT40_Nss1_2TX	-	-	-	-	-	-	-	-	-	-	-	-
5.25-5.35GHz	Pass	AV	5.3502G	53.99	54.00	-0.01	5.65	3	Vertical	43	1.11	-

11a_Nss1_2TX

5260MHz_TX

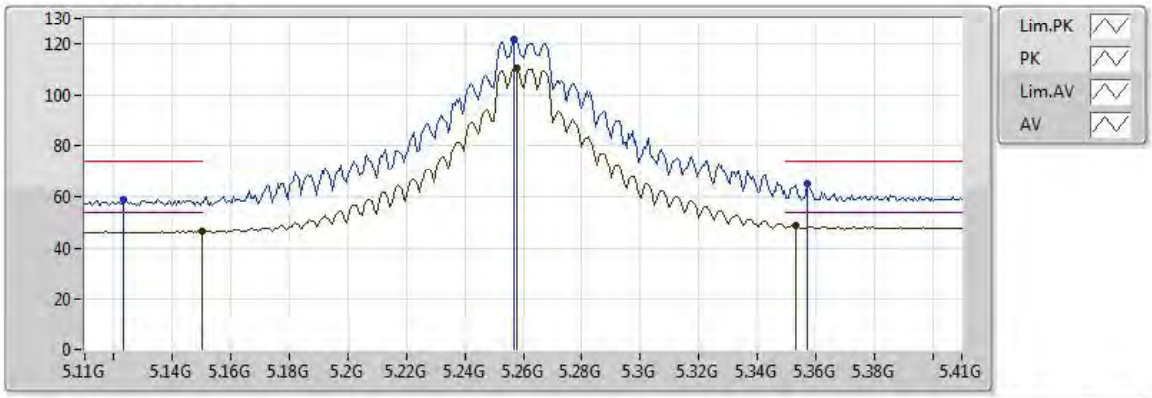


20170621
EUT Y_2TX
Setting 24
01-M-0
FSP(100056)

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)
AV	5.1376G	46.45	54.00	-7.55	4.24	3	Vertical	230	1.50
AV	5.2582G	111.12	Inf	-Inf	4.50	3	Vertical	230	1.50
AV	5.3536G	49.09	54.00	-4.91	4.69	3	Vertical	230	1.50
PK	5.1412G	59.71	74.00	-14.29	4.25	3	Vertical	230	1.50
PK	5.2576G	122.08	Inf	-Inf	4.50	3	Vertical	230	1.50
PK	5.353G	67.64	74.00	-6.36	4.69	3	Vertical	230	1.50

11a_Nss1_2TX

5260MHz_TX

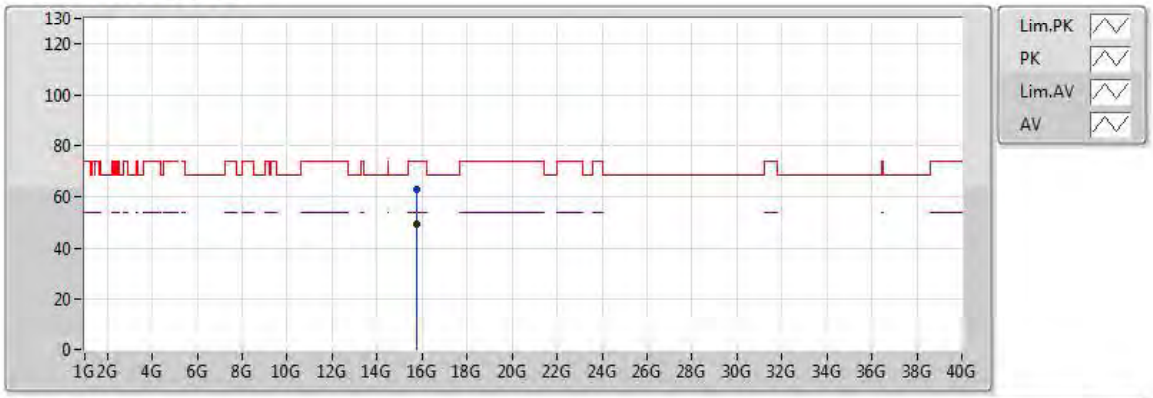


20170621
EUT Y_2TX
Setting 24
01-M-0
FSP(100056)

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)
AV	5.149995G	46.45	54.00	-7.55	4.27	3	Horizontal	208	1.92
AV	5.2576G	110.27	Inf	-Inf	4.50	3	Horizontal	208	1.92
AV	5.353G	48.64	54.00	-5.36	4.69	3	Horizontal	208	1.92
PK	5.1232G	58.72	74.00	-15.28	4.21	3	Horizontal	208	1.92
PK	5.257G	121.34	Inf	-Inf	4.50	3	Horizontal	208	1.92
PK	5.3572G	64.99	74.00	-9.01	4.69	3	Horizontal	208	1.92

11a_Nss1_2TX

5260MHz_TX

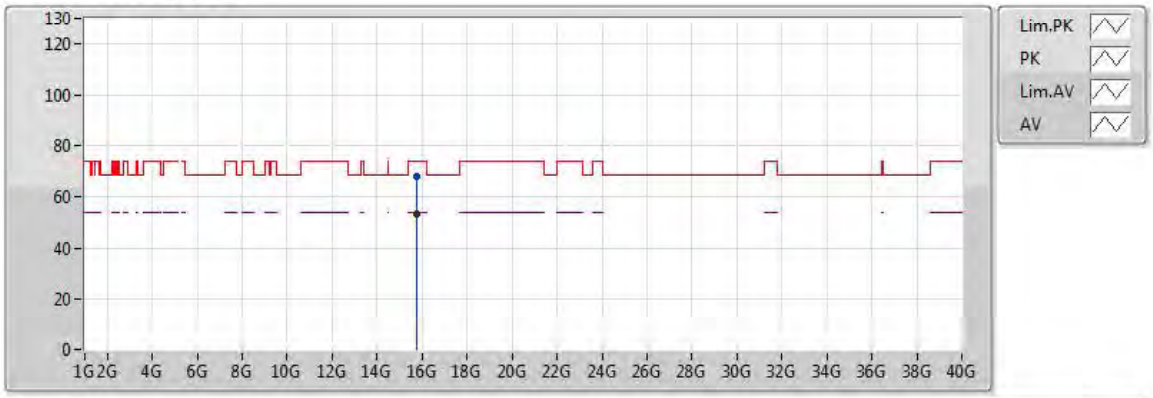


20170622
EUT Y_2TX
Setting 24
04-R-2
FSP(100056)

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height					
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)					
AV	15.77983G	49.25	54.00	-4.75	17.99	3	Vertical	196	1.50					
PK	15.78028G	63.00	74.00	-11.00	17.99	3	Vertical	196	1.50	-	45.00	39.47	13.06	34.53

11a_Nss1_2TX

5260MHz_TX

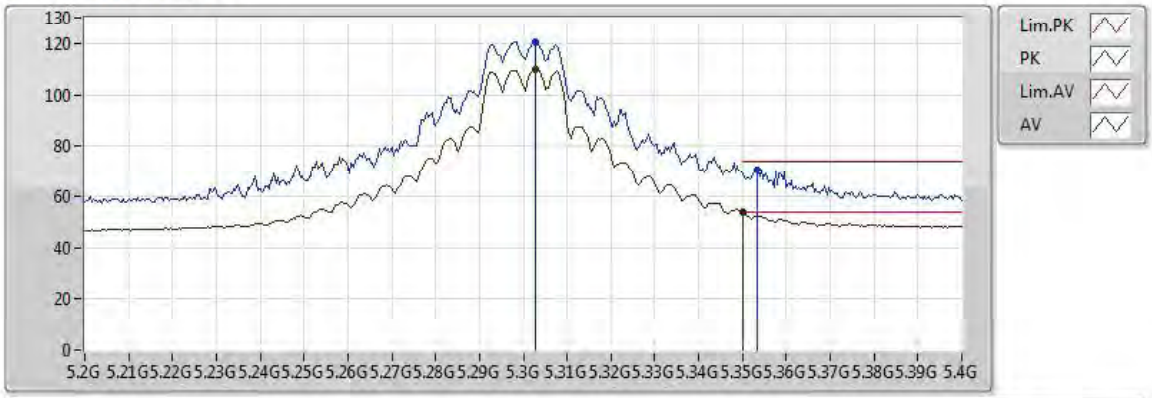


20170622
EUT Y_2TX
Setting 24
04-R-2
FSP(100056)

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height					
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)					
AV	15.7792G	53.34	54.00	-0.66	17.99	3	Horizontal	192	1.29					
PK	15.7737G	67.69	74.00	-6.31	17.99	3	Horizontal	192	1.29	-	49.71	39.46	13.05	34.53

11a_Nss1_2TX

5300MHz_TX

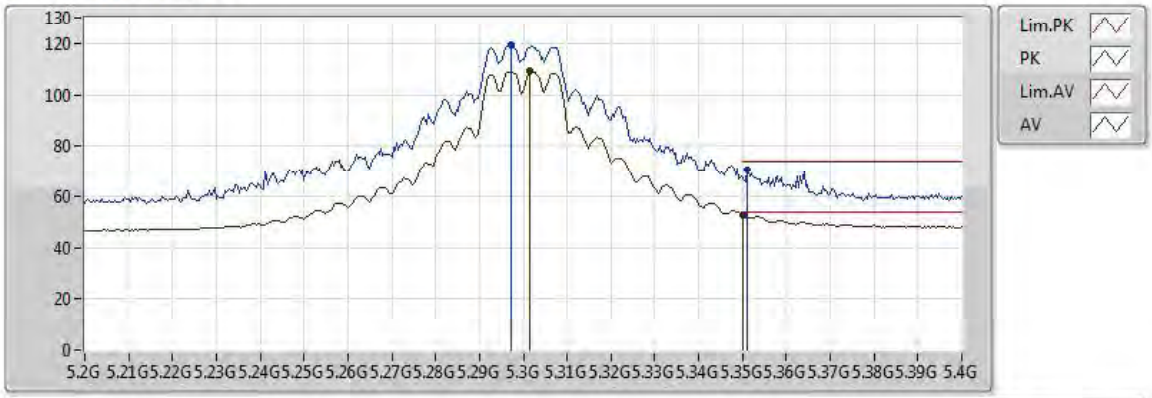


20170621
EUT Y_2TX
Setting
01-M-0
FSP(100056)

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height					
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)					
AV	5.3028G	109.98	Inf	-Inf	4.60	3	Vertical	230	1.44					
AV	5.350005G	53.97	54.00	-0.03	4.68	3	Vertical	230	1.44					
PK	5.3028G	120.43	Inf	-Inf	4.60	3	Vertical	230	1.44					
PK	5.3532G	70.80	74.00	-3.20	4.69	3	Vertical	230	1.44	-	66.11	33.64	5.53	34.48

11a_Nss1_2TX

5300MHz_TX

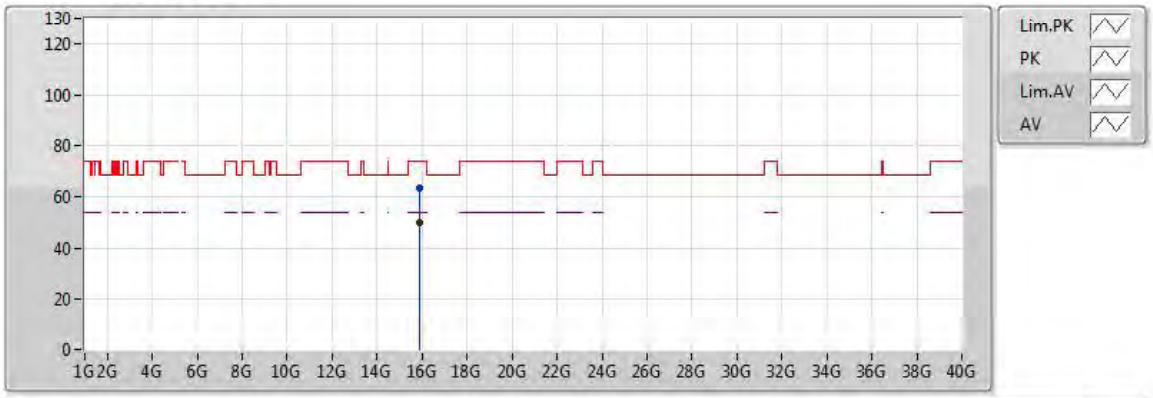


20170621
EUT Y_2TX
Setting 21
01-M-0
FSP(100056)

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height					
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)					
AV	5.3016G	109.10	Inf	-Inf	4.59	3	Horizontal	205	1.87					
AV	5.350005G	52.48	54.00	-1.52	4.68	3	Horizontal	205	1.87					
PK	5.2972G	119.44	Inf	-Inf	4.58	3	Horizontal	205	1.87					
PK	5.3512G	70.41	74.00	-3.59	4.68	3	Horizontal	205	1.87	-	65.73	33.63	5.53	34.48

11a_Nss1_2TX

5300MHz_TX

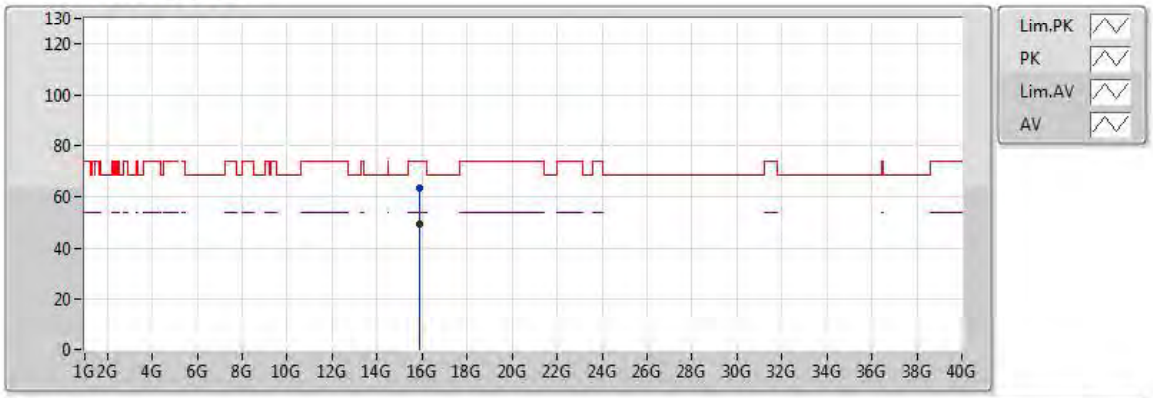


20170621
EUT Y_2TX
Setting 21
01-M-0
FSP(100056)

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height					
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)					
AV	15.902G	49.60	54.00	-4.40	18.09	3	Vertical	166	1.50					
PK	15.89994G	63.33	74.00	-10.67	18.09	3	Vertical	166	1.50	-	45.24	39.54	13.09	34.54

11a_Nss1_2TX

5300MHz_TX

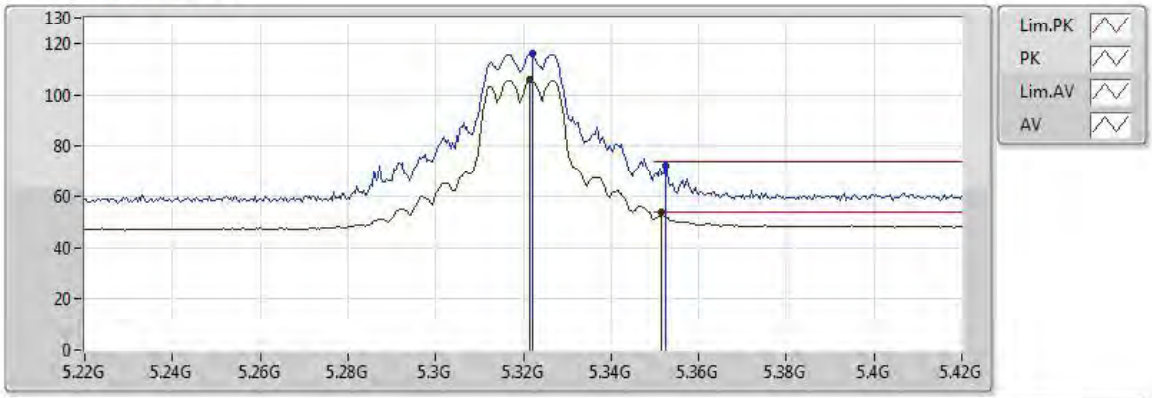


20170621
EUT Y_2TX
Setting 21
01-M-0
FSP(100056)

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(*)	(m)
AV	15.8982G	49.53	54.00	-4.47	18.09	3	Horizontal	196	1.50
PK	15.89895G	63.13	74.00	-10.87	18.09	3	Horizontal	196	1.50

11a_Nss1_2TX

5320MHz_TX



20170621
EUT Y_2TX
Setting 18
01-M-0
FSP(100056)

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height					
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)					
AV	5.3216G	105.65	Inf	-Inf	4.63	3	Vertical	207	1.50					
AV	5.3516G	53.90	54.00	-0.10	4.68	3	Vertical	207	1.50					
PK	5.322G	115.86	Inf	-Inf	4.63	3	Vertical	207	1.50					
PK	5.3524G	72.12	74.00	-1.88	4.68	3	Vertical	207	1.50	-	67.44	33.63	5.53	34.48