



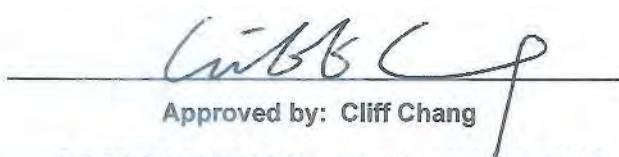
# FCC RADIO TEST REPORT

FCC ID : UXX-S5A950A  
Equipment : Advanced Edge Router with 4x4 dual-band AP  
Brand Name : Cradlepoint  
Model Name : S5A950A  
Applicant : Cradlepoint, Inc.  
1111 West Jefferson Street, Boise, Idaho, United States 83702  
Manufacturer : Cradlepoint, Inc.  
1111 West Jefferson Street, Boise, Idaho, United States 83702  
Standard : 47 CFR FCC Part 15.407

The product was received on Oct. 23, 2019, and testing was started from Nov. 07, 2019 and completed on Jan. 07, 2020. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

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

  
Approved by: Cliff Chang

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



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



## History of this test report



## Summary of Test Result

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

**Declaration of Conformity:**

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

**Comments and Explanations:**

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

Reviewed by: Sam Chen

Report Producer: Sandy Chuang



# 1 General Description

## 1.1 Information

### 1.1.1 RF General Information

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

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



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

## Note:

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



### 1.1.2 Antenna Information

#### <WLAN antenna gain>

Ant.	Port	Brand	P/N	Antenna Type	Connector	Antenna Gain (dBi)		Cable Loss (dB)		True Gain (dBi)	
						2.4G	5G	2.4G	5G	2.4G	5G
1~4	1~4	WNC	08.22100.011	Dipole	RP SMA Plug	2.47	2.47	0.9	1.5	1.57	0.97

#### <WWAN antenna gain>

Ant.	Port	Brand	P/N	Antenna Type	Connector	Gain (dBi)	
						Note 1 (WCDMA) Note 2 (LTE)	
1~4	1~4	Cradlepoint	170760-000	Dipole	SMA Male		

Note 1

Ant.	Port	Band 2		Band 4			Band 5		
		Band 2	1.34	Band 4	0.86	Band 5	-0.57		
1~4	1~4								

Note 2

Ant.	Port	Band 2	Band 4	Band 5	Band 7	Band 12	Band 13	Band 14	Band 17	Band 18
		1.34	0.86	-0.57	2.19	0.57	0.57	0.57	0.57	-0.57
1~4	1~4									

Ant.	Port	Band 19	Band 25	Band 26	Band 30	Band 38	Band 41	Band 66	Band 71
		-0.57	1.34	-0.57	2.67	2.19	2.19	0.86	0.57
1~4	1~4								

Note 2: The above information was declared by manufacturer.

#### For 2.4GHz function:

#### For IEEE 802.11b/g/n/VHT/ax (4TX/4RX):

Port 1, Port 2, Port 3 and Port 4 can be used as transmitting/receiving antenna.

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

#### For 5GHz function:

#### For IEEE 802.11a/n/ac/ax (4TX/4RX):

Port 1, Port 2, Port 3 and Port 4 can be used as transmitting/receiving antenna.

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



### 1.1.3 Table of WWAN module

Module	Brand Name	Model Name	FCC ID	Function	Remark
1	Telit	LM960	RI7LM960	WCDMA Band 2, 4, 5 / LTE Band 2, 4, 5, 7, 12, 13, 14, 17, 18, 19, 25, 26, 30, 38, 41, 66, 71	Internal module (would be marketed)
2	Cradlepoint	MC400-1200M	Contain FCC ID: RI7LM960		External module (would not be marketed)

### 1.1.4 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
802.11a	0.942	0.26	1.98m	1k
802.11ax HEW20	0.961	0.17	5.449m	300
802.11ax HEW20-BF	0.961	0.17	1.961m	1k
802.11ax HEW40	0.955	0.2	5.449m	300
802.11ax HEW40-BF	0.958	0.19	1.961m	1k
802.11ax HEW80	0.958	0.19	5.449m	300
802.11ax HEW80-BF	0.929	0.32	1.98m	1k

#### Note:

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

### 1.1.5 EUT Operational Condition

EUT Power Type	From Power Adapter		
Beamforming Function	<input checked="" type="checkbox"/> With beamforming	<input type="checkbox"/> Without beamforming	
The product has beamforming function for VHT/ax in 2.4GHz and ac/ax in 5GHz.			
Function	<input type="checkbox"/> Outdoor P2M	<input checked="" type="checkbox"/> Indoor P2M	
	<input type="checkbox"/> Fixed P2P	<input type="checkbox"/> Client	
Test Software Version	<For Non-Beamforming Mode> QSPR V5.0-00161 <For Beamforming Mode> Telnet		

Note: The above information was declared by manufacturer.



## 1.2 Applicable Standards

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

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

## 1.3 Testing Location Information

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

Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
RF Conducted	TH01-CB	Owen Hsu	23.7-24.7°C / 57-61%	Nov. 07, 2019~ Nov. 08, 2019
Radiated <Below 1GHz>	03CH05-CB	KJ Chang	18.1-19.1°C / 66-71%	Dec. 09, 2019~ Jan. 02, 2020
Radiated <Radiated Emission Co-location>	03CH01-CB	KJ Chang	20.9-22.2°C / 53-56%	Jan. 07, 2020
Radiated <Above 1GHz>	03CH01-CB	KJ Chang	20.9-22.2°C / 53-56%	Dec. 09, 2019~ Jan. 02, 2020
AC Conduction	CO01-CB	GN Hou	22-24°C / 59-63%	Dec. 05, 2019

Test site Designation No. TW0006 with FCC.

Test site registered number IC 4086D with Industry Canada.

## 1.4 Measurement Uncertainty

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

Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	2.0 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	4.3 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	4.3 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	5.1 dB	Confidence levels of 95%
Conducted Emission	2.4 dB	Confidence levels of 95%
Output Power Measurement	1.5 dB	Confidence levels of 95%
Power Density Measurement	2.4 dB	Confidence levels of 95%
Bandwidth Measurement	2%	Confidence levels of 95%



## 2 Test Configuration of EUT

### 2.1 Test Channel Mode

Mode	Power Setting
802.11a_Nss1,(6Mbps)_4TX	-
5180MHz	18
5200MHz	23
5240MHz	22
5745MHz	23
5785MHz	23
5825MHz	23
802.11ax HEW20_Nss1,(MCS0)_4TX	-
5180MHz	18.5
5200MHz	21.5
5240MHz	22.5
5745MHz	23
5785MHz	23
5825MHz	23
802.11ax HEW40_Nss1,(MCS0)_4TX	-
5190MHz	16
5230MHz	19.5
5755MHz	20.5
5795MHz	21
802.11ax HEW80_Nss1,(MCS0)_4TX	-
5210MHz	16
5775MHz	17.5
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	-
5180MHz	23
5200MHz	24
5240MHz	24
5745MHz	24
5785MHz	24
5825MHz	24
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	-
5190MHz	22
5230MHz	23
5755MHz	22
5795MHz	24
802.11ax HEW80-BF_Nss1,(MCS0)_4TX	-
5210MHz	21



Mode	Power Setting
5775MHz	21

**Note:**

- There are two modes of EUT, one is beamforming mode, and the other is Non-beamforming mode for VHT/ax in 2.4GHz and ac/ax in 5GHz. Beamforming mode and Non-beamforming mode has been test and record in this test report.



## 2.2 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
<b>Tests Item</b>	AC power-line conducted emissions
<b>Condition</b>	AC power-line conducted measurement for line and neutral
<b>Operating Mode</b>	Normal Link
1	EUT + Adapter 1 (Testing internal module - LTE B2)
2	EUT + Adapter 2 (Testing internal module - LTE B2)
Mode 1 has been evaluated to be the worst case among Mode 1~2, thus measurement for Mode 3~5 will follow this same test mode.	
3	EUT + Adapter 1 (Testing internal module - WCDMA B2)
4	EUT + Adapter 1 + External module (Testing external module - LTE B2)
5	EUT + Adapter 1 + External module (Testing external module - WCDMA B2)
For operating mode 4 is the worst case and it was record in this test report.	

The Worst Case Mode for Following Conformance Tests	
<b>Tests Item</b>	Emission Bandwidth Maximum Conducted Output Power Peak Power Spectral Density
<b>Test Condition</b>	Conducted measurement at transmit chains



The Worst Case Mode for Following Conformance Tests	
<b>Tests Item</b>	Unwanted Emissions
<b>Test Condition</b>	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.
<b>Operating Mode &lt; 1GHz</b>	CTX
The EUT can be placed in X-axis, Y-axis and Z-axis. EUT X axis has been evaluated to be the worst case at Emissions in Unwanted Emissions <Above 1GHz>; thus, the measurement will follow this same test configuration.	
1	EUT in X axis + 2.4GHz + Adapter 1
2	EUT in X axis + 2.4GHz + Adapter 2
Mode 2 has been evaluated to be the worst case among Mode 1~2, thus measurement for Mode 3 will follow this same test mod	
3	EUT in X axis + 5GHz + Adapter 2
For operating mode 2 is the worst case and it was record in this test report.	
<b>Operating Mode &gt; 1GHz</b>	CTX
1	EUT in X axis
The EUT can be placed in X-axis, Y-axis and Z-axis. After evaluating, X-axis was the worst case, so the test will follow this same test configuration.	

The Worst Case Mode for Following Conformance Tests	
<b>Tests Item</b>	Simultaneous Transmission Analysis - Radiated Emission Co-location
<b>Test Condition</b>	Radiated measurement
<b>Operating Mode</b>	Normal Link
1	WLAN 2.4GHz + 5GHz

Refer to Appendix F for Radiated Emission Co-location.

The Worst Case Mode for Following Conformance Tests	
<b>Tests Item</b>	Simultaneous Transmission Analysis - Co-location RF Exposure Evaluation
<b>Operating Mode</b>	
1	WLAN 2.4GHz + WLAN 5GHz + external module
2	WLAN 2.4GHz + WLAN 5GHz + internal module

Refer to Sporton Test Report No.: FA902202 for Co-location RF Exposure Evaluation.



## **2.3 EUT Operation during Test**

For CTX Mode:

<non-beamforming mode>

The EUT was programmed to be in continuously transmitting mode.

<beamforming mode>

During the test, the following programs under WIN XP 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 than 98%.

For Normal Link:

During the test, the EUT operation to normal function.



## 2.4 Accessories

Accessories				
Equipment Name	Brand Name	Model Name	Rating	Remark
Adapter 1	FSP	FSP180-AWAN3	Input: 100-240Vac, 2.3A, 50-60Hz Output: 54Vdc, 3.34A	With the cable: Non-shielded, 1.6m
Adapter 2	DELTA	ADP-180AR B	Input: 100-240Vac, 2.6A, 50-60Hz Output: 54Vdc, 3.33A	With the cable: Non-shielded, 1.6m
Battery	maxell	CR2032	DC 3V	-
Other				
Power cable*1: Non-shielded, 0.4m				



## 2.5 Support Equipment

For AC Conduction:

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	Flash disk3.0	Transcend	639205 7755	N/A
B	2.5G WAN NB	DELL	E6430	N/A
C	1G PoE LAN NB	DELL	E6430	N/A
D	1G LAN NB	DELL	E6430	N/A
E	2.4G NB	SAMPO	HT-B 907WL	N/A
F	5G NB	SAMPO	HT-B 907WL	N/A
G	Nu stream	X TRAMUS	NuStreams-600	N/A
H	Nu stream NB	DELL	E6430	N/A
I	GPS antenna	taoglas	AA.162	N/A
J	GPS simulator	WELNAVIGATE	GS-100	N/A
K	Base station	Anritsu	MT8820C	N/A
L	SIM card	N/A	N/A	N/A
M	External module	Cradlepoint	MC400-1200M	Contain FCC ID:RI7LM960

For Radiated (below 1GHz):

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

For Radiated (above 1GHz) and RF Conducted:

<For Non-Beamforming Mode>

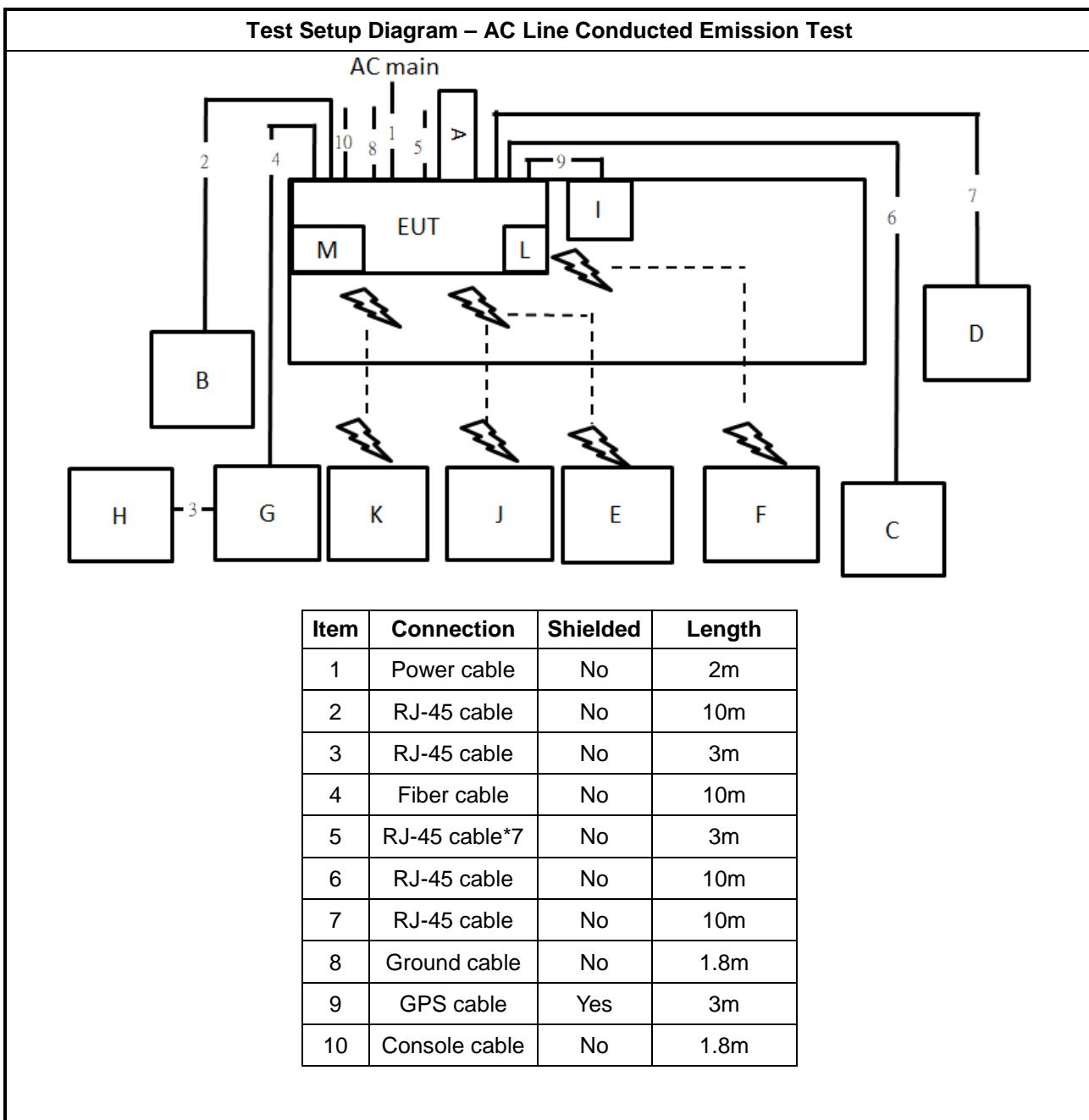
Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	Notebook	DELL	E4300	N/A

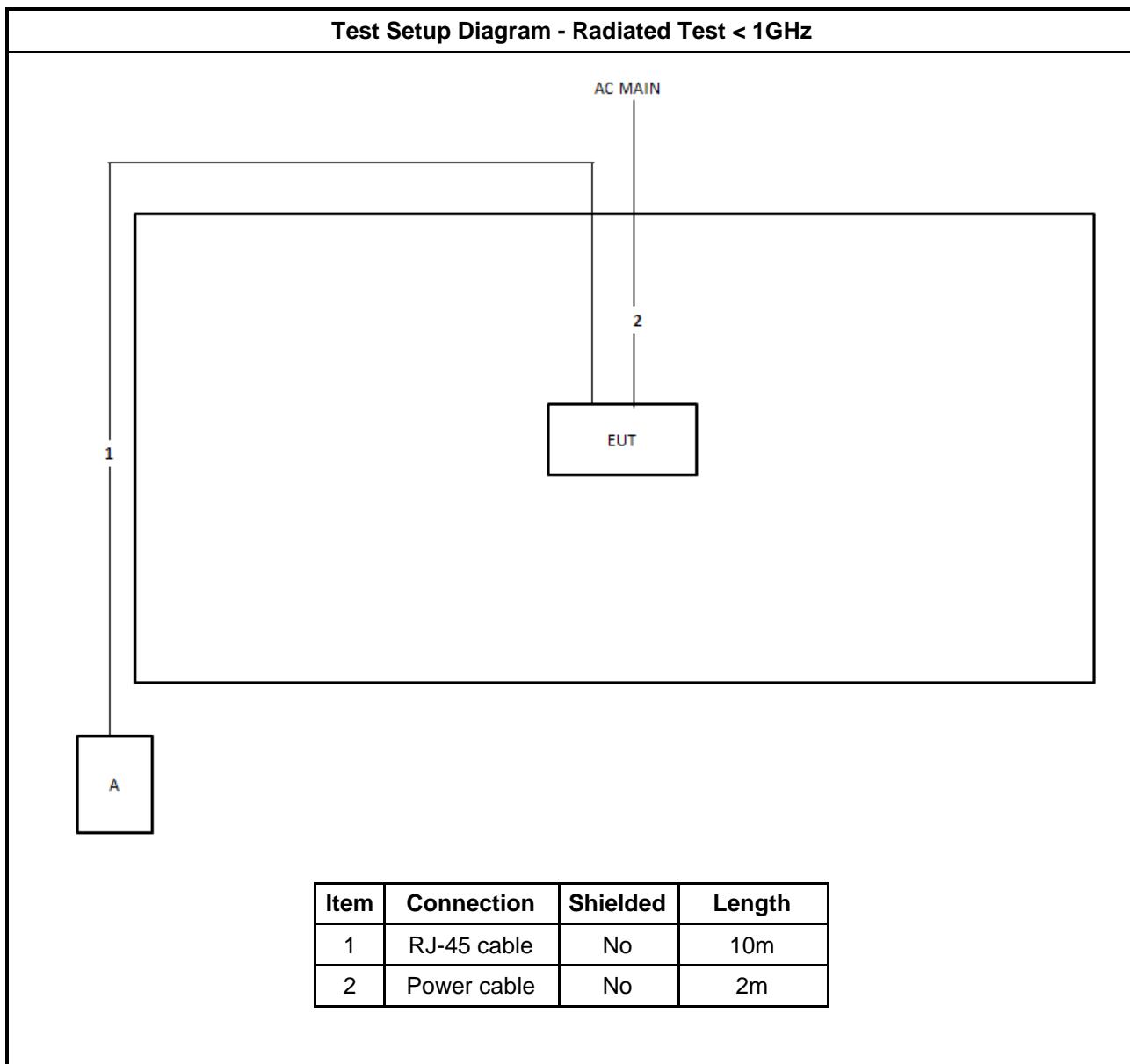
<For Beamforming Mode>

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	Notebook	DELL	E4300	N/A
B	Notebook	DELL	E4300	N/A
C	RX Device	WNC	SEQC-D1 / S5A950A	N/A



## 2.6 Test Setup Diagram

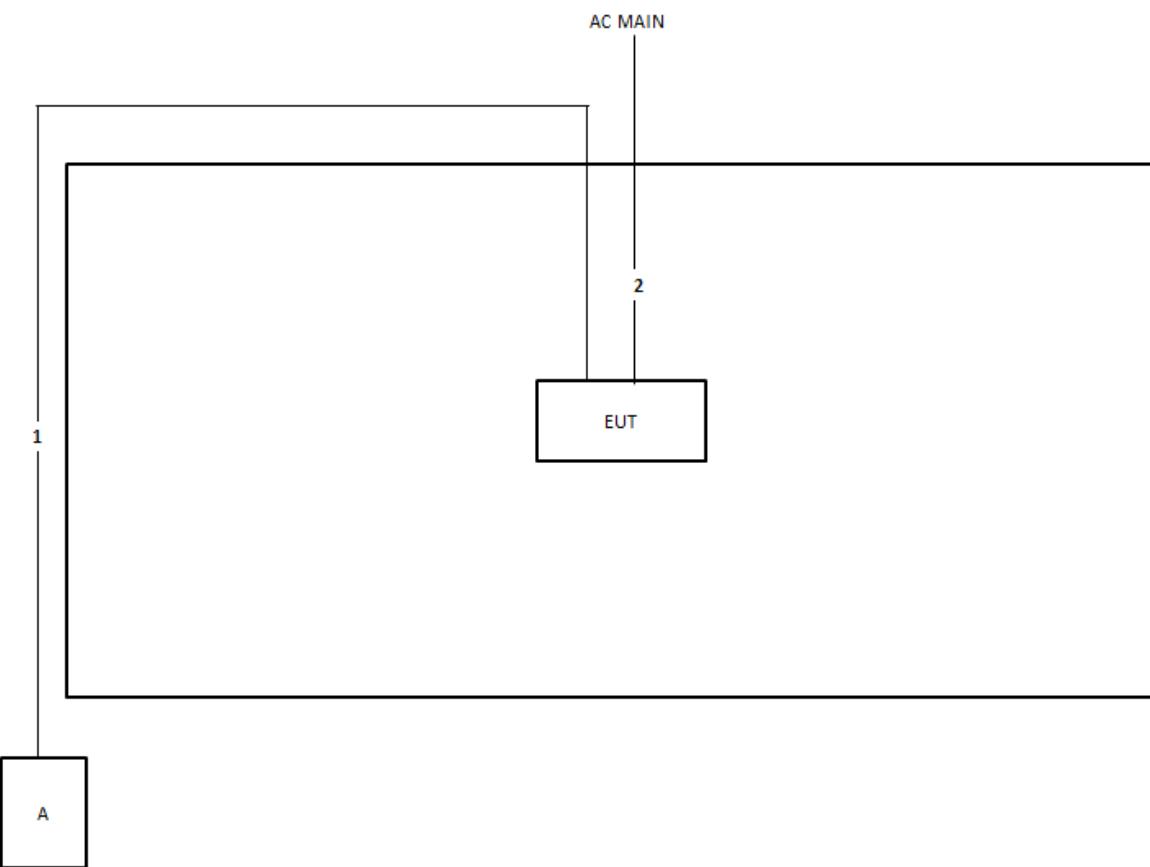






## Test Setup Diagram - Radiated Test &gt; 1GHz

&lt;For Non-Beamforming Mode&gt;

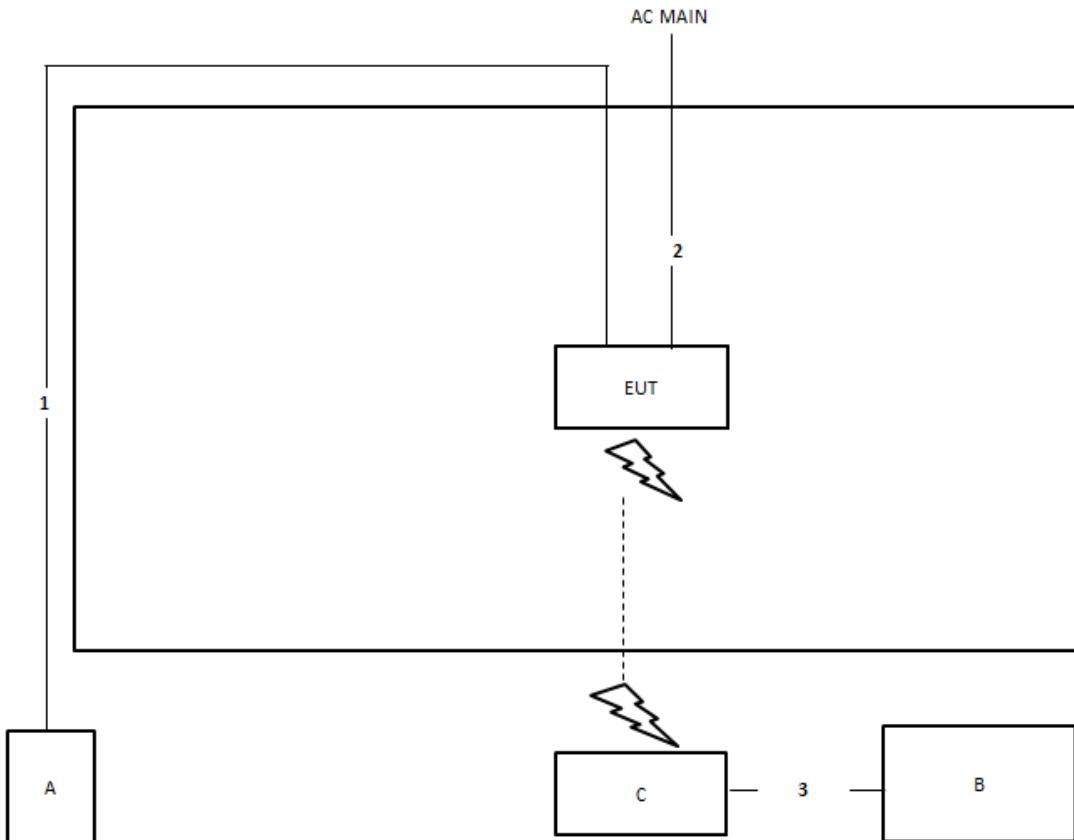


Item	Connection	Shielded	Length
1	RJ-45 cable	No	10m
2	Power cable	No	2m



## Test Setup Diagram - Radiated Test &gt; 1GHz

&lt;For Beamforming Mode&gt;



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



### 3 Transmitter Test Result

#### 3.1 AC Power-line Conducted Emissions

##### 3.1.1 AC Power-line Conducted Emissions Limit

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

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

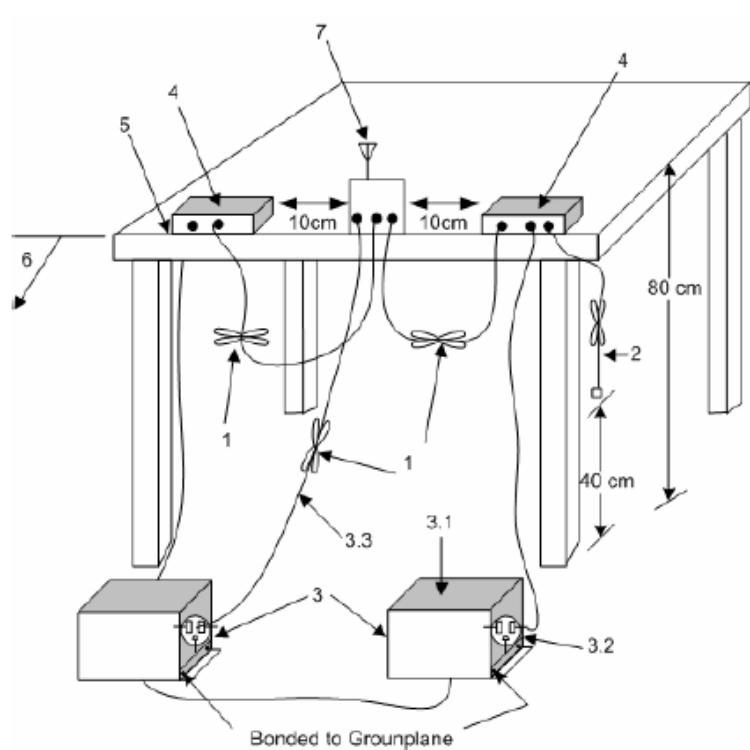
##### 3.1.2 Measuring Instruments

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

##### 3.1.3 Test Procedures

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

### 3.1.4 Test Setup



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

### 3.1.5 Test Result of AC Power-line Conducted Emissions

Refer as Appendix A



## 3.2 Emission Bandwidth

### 3.2.1 Emission Bandwidth Limit

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

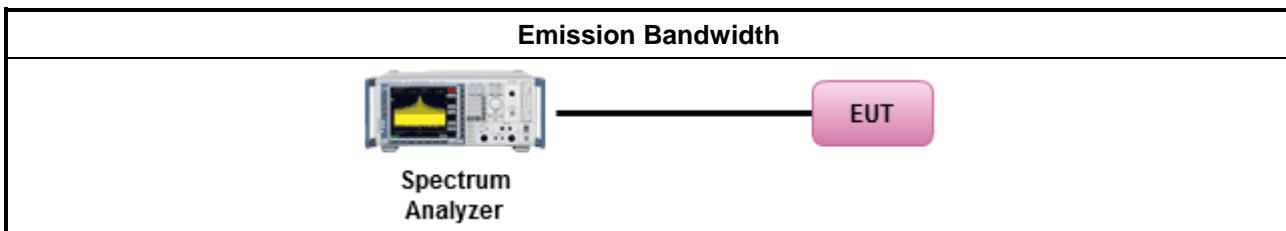
### 3.2.2 Measuring Instruments

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

### 3.2.3 Test Procedures

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

### 3.2.4 Test Setup



### 3.2.5 Test Result of Emission Bandwidth

Refer as Appendix B



### 3.3 Maximum Conducted Output Power

#### 3.3.1 Maximum Conducted Output Power Limit

Maximum Conducted Output Power Limit	
<b>UNII Devices</b>	
<input checked="" type="checkbox"/> For the 5.15-5.25 GHz band:	<ul style="list-style-type: none"><li>Outdoor AP: the maximum conducted output power (<math>P_{Out}</math>) shall not exceed the lesser of 1 W. If <math>G_{TX} &gt; 6</math> dBi, then <math>P_{Out} = 30 - (G_{TX} - 6)</math>. e.i.r.p. at any elevation angle above 30 degrees <math>\leq 125</math> mW [21 dBm]</li><li>Indoor AP: the maximum conducted output power (<math>P_{Out}</math>) shall not exceed the lesser of 1 W. If <math>G_{TX} &gt; 6</math> dBi, then <math>P_{Out} = 30 - (G_{TX} - 6)</math></li><li>Point-to-point AP: the maximum conducted output power (<math>P_{Out}</math>) shall not exceed the lesser of 1 W. If <math>G_{TX} &gt; 23</math> dBi, then <math>P_{Out} = 30 - (G_{TX} - 23)</math>.</li><li>Mobile or Portable Client: the maximum conducted output power (<math>P_{Out}</math>) shall not exceed the lesser of 250 mW. If <math>G_{TX} &gt; 6</math> dBi, then <math>P_{Out} = 24 - (G_{TX} - 6)</math>.</li></ul>
<input type="checkbox"/> For the 5.25-5.35 GHz band, the maximum conducted output power ( $P_{Out}$ ) shall not exceed the lesser of 250 mW or $11$ dBm + $10 \log B$ , where B is the 26 dB emission bandwidth in MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 24 - (G_{TX} - 6)$ .	
<input type="checkbox"/> For the 5.47-5.725 GHz band, the maximum conducted output power ( $P_{Out}$ ) shall not exceed the lesser of 250 mW or $11$ dBm + $10 \log B$ , where B is the 26 dB emission bandwidth in MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 24 - (G_{TX} - 6)$ .	
<input checked="" type="checkbox"/> For the 5.725-5.85 GHz band:	<ul style="list-style-type: none"><li>Point-to-multipoint systems (P2M): the maximum conducted output power (<math>P_{Out}</math>) shall not exceed the lesser of 1 W. If <math>G_{TX} &gt; 6</math> dBi, then <math>P_{Out} = 30 - (G_{TX} - 6)</math>.</li><li>Point-to-point systems (P2P): the maximum conducted output power (<math>P_{Out}</math>) shall not exceed the lesser of 1 W.</li></ul>
<b>LE-LAN Devices</b>	
<input type="checkbox"/> For the 5.15-5.25 GHz band, the maximum e.i.r.p. shall not exceed 200 mW or $10 + 10 \log B$ , dBm, whichever power is less. B is the 99% emission bandwidth in MHz.	
<input type="checkbox"/> For the 5.25-5.35 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or $17 + 10 \log B$ , dBm, whichever power is less. B is the 99% emission bandwidth in MHz	
<input type="checkbox"/> For the 5.47-5.6 GHz band and 5.65-5.725 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or $17 + 10 \log B$ , dBm, whichever power is less. B is the 99% emission bandwidth in MHz	
<input type="checkbox"/> For the 5.725-5.85 GHz band:	<ul style="list-style-type: none"><li>Point-to-multipoint systems (P2M): the maximum conducted output power (<math>P_{Out}</math>) shall not exceed the lesser of 1 W. If <math>G_{TX} &gt; 6</math> dBi, then <math>P_{Out} = 30 - (G_{TX} - 6)</math>.</li><li>Point-to-point systems (P2P): the maximum conducted output power (<math>P_{Out}</math>) shall not exceed the lesser of 1 W.</li></ul>
$P_{Out}$ = maximum conducted output power in dBm, $G_{TX}$ = the maximum transmitting antenna directional gain in dBi.	



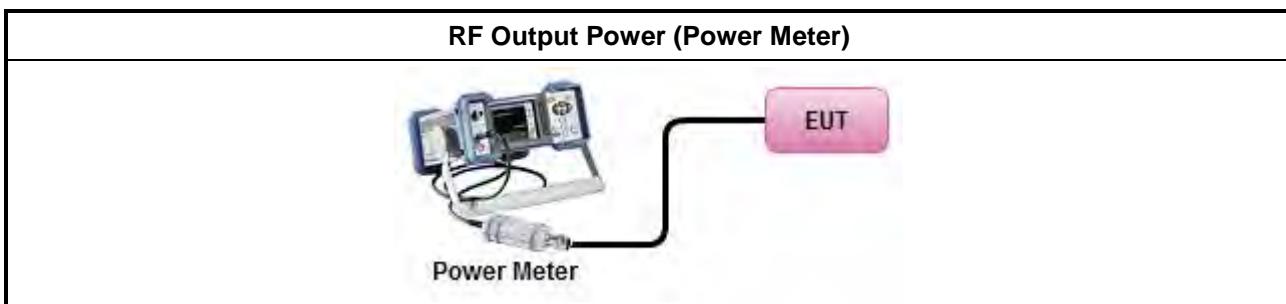
### 3.3.2 Measuring Instruments

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

### 3.3.3 Test Procedures

Test Method	
▪ Maximum Conducted Output Power	
	Average over on/off periods with duty factor
	<input type="checkbox"/> Refer as FCC KDB 789033, clause E Method SA-2 (spectral trace averaging).
	<input type="checkbox"/> Refer as FCC KDB 789033, clause E Method SA-2 Alt. (RMS detection with slow sweep speed)
	Wideband RF power meter and average over on/off periods with duty factor
	<input checked="" type="checkbox"/> Refer as FCC KDB 789033, clause E Method PM-G (using an RF average power meter).
▪ For conducted measurement.	
	<ul style="list-style-type: none"><li>▪ 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.</li><li>▪ If multiple transmit chains, EIRP calculation could be following as methods: <math>P_{total} = P_1 + P_2 + \dots + P_n</math> (calculated in linear unit [mW] and transfer to log unit [dBm]) <math>EIRP_{total} = P_{total} + DG</math></li></ul>

### 3.3.4 Test Setup



### 3.3.5 Test Result of Maximum Conducted Output Power

Refer as Appendix C



## 3.4 Peak Power Spectral Density

### 3.4.1 Peak Power Spectral Density Limit

Peak Power Spectral Density Limit	
<b>UNII Devices</b>	
<input checked="" type="checkbox"/> For the 5.15-5.25 GHz band:	<ul style="list-style-type: none"><li>Outdoor AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If <math>G_{TX} &gt; 6</math> dBi, then <math>P_{Out} = 17 - (G_{TX} - 6)</math>.</li><li>Indoor AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If <math>G_{TX} &gt; 6</math> dBi, then <math>P_{Out} = 17 - (G_{TX} - 6)</math>.</li><li>Point-to-point AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If <math>G_{TX} &gt; 23</math> dBi, then <math>P_{Out} = 17 - (G_{TX} - 23)</math>.</li><li>Mobile or Portable Client: the peak power spectral density (PPSD) <math>\leq 11</math> dBm/MHz. If <math>G_{TX} &gt; 6</math> dBi, then <math>PPSD = 11 - (G_{TX} - 6)</math>.</li></ul>
<input type="checkbox"/> For the 5.25-5.35 GHz band, the peak power spectral density (PPSD) $\leq 11$ dBm/MHz. If $G_{TX} > 6$ dBi, then $PPSD = 11 - (G_{TX} - 6)$ .	
<input type="checkbox"/> For the 5.47-5.725 GHz band, the peak power spectral density (PPSD) $\leq 11$ dBm/MHz. If $G_{TX} > 6$ dBi, then $PPSD = 11 - (G_{TX} - 6)$ .	
<input checked="" type="checkbox"/> For the 5.725-5.85 GHz band:	<ul style="list-style-type: none"><li>Point-to-multipoint systems (P2M): the peak power spectral density (PPSD) <math>\leq 30</math> dBm/500kHz. If <math>G_{TX} &gt; 6</math> dBi, then <math>PPSD = 30 - (G_{TX} - 6)</math>.</li><li>Point-to-point systems (P2P): the peak power spectral density (PPSD) <math>\leq 30</math> dBm/500kHz.</li></ul>
<b>LE-LAN Devices</b>	
<input type="checkbox"/> For the 5.15-5.25 GHz band, the e.i.r.p. peak power spectral density (PPSD) $\leq 10$ dBm/MHz.	
<input type="checkbox"/> For the 5.25-5.35 GHz band, the peak power spectral density (PPSD) $\leq 11$ dBm/MHz.	
<input type="checkbox"/> For the 5.47-5.6 GHz band and 5.65-5.725 GHz band, the peak power spectral density (PPSD) $\leq 11$ dBm/MHz.	<ul style="list-style-type: none"><li>e.i.r.p. greater than 200 mW shall comply with the following e.i.r.p. at different elevations, where <math>\theta</math> is the angle above the local horizontal plane (of the Earth) as shown below: -13 dBW/MHz for <math>0^\circ \leq \theta &lt; 8^\circ</math> ; -13 - 0.716 (<math>\theta</math>-8) dBW/MHz for <math>8^\circ \leq \theta &lt; 40^\circ</math> -35.9 - 1.22 (<math>\theta</math>-40) dBW/MHz for <math>40^\circ \leq \theta \leq 45^\circ</math> ; -42 dBW/MHz for <math>\theta &gt; 45^\circ</math></li></ul>
<input type="checkbox"/> For the 5.725-5.85 GHz band:	<ul style="list-style-type: none"><li>Point-to-multipoint systems (P2M): the peak power spectral density (PPSD) <math>\leq 30</math> dBm/500kHz. If <math>G_{TX} &gt; 6</math> dBi, then <math>PPSD = 30 - (G_{TX} - 6)</math>.</li><li>Point-to-point systems (P2P): the peak power spectral density (PPSD) <math>\leq 30</math> dBm/500kHz.</li></ul>
<b>PPSD</b> = peak power spectral density that the same method as used to determine the conducted output power shall be used to determine the power spectral density. And power spectral density in dBm/MHz <b>G<sub>TX</sub></b> = the maximum transmitting antenna directional gain in dBi.	



### 3.4.2 Measuring Instruments

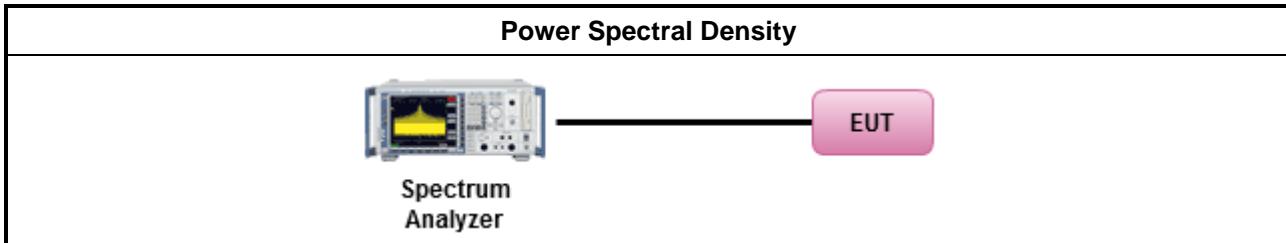
Refer a test equipment and calibration data table in this test report.

### 3.4.3 Test Procedures

Test Method	
<ul style="list-style-type: none"><li>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:</li></ul>	
<input type="checkbox"/> Refer as FCC KDB 789033, F5) power spectral density can be measured using resolution bandwidths < 1 MHz provided that the results are integrated over 1 MHz bandwidth	[duty cycle $\geq$ 98% or external video / power trigger]
<input checked="" type="checkbox"/> Refer as FCC KDB 789033, clause E Method SA-1 (spectral trace averaging).	
<input type="checkbox"/> Refer as FCC KDB 789033, clause E Method SA-1 Alt. (RMS detection with slow sweep speed)	duty cycle < 98% and average over on/off periods with duty factor
<input checked="" type="checkbox"/> Refer as FCC KDB 789033, clause E Method SA-2 (spectral trace averaging).	
<input type="checkbox"/> Refer as FCC KDB 789033, clause E Method SA-2 Alt. (RMS detection with slow sweep speed)	
<ul style="list-style-type: none"><li>For conducted measurement.</li></ul>	
<ul style="list-style-type: none"><li>If the EUT supports multiple transmit chains using options given below:</li></ul>	<input checked="" type="checkbox"/> Option 1: Measure and sum the spectra across the outputs. Refer as FCC KDB 662911, In-band power spectral density (PSD). Sample all transmit ports simultaneously using a spectrum analyzer for each transmit port. Where the trace bin-by-bin of each transmit port summing can be performed. (i.e., in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3, and so on up to the NTX output to obtain the value for the first frequency bin of the summed spectrum.). Add up the amplitude (power) values for the different transmit chains and use this as the new data trace.
	<input type="checkbox"/> Option 2: Measure and sum spectral maxima across the outputs. With this technique, spectra are measured at each output of the device at the required resolution bandwidth. The maximum value (peak) of each spectrum is determined. These maximum values are then summed mathematically in linear power units across the outputs. These operations shall be performed separately over frequency spans that have different out-of-band or spurious emission limits,
	<input type="checkbox"/> Option 3: Measure and add $10 \log(N)$ dB, where N is the number of transmit chains. Refer as FCC KDB 662911, In-band power spectral density (PSD). Performed at each transmit chains and each transmit chains shall be compared with the limit have been reduced with $10 \log(N)$ . Or each transmit chains shall be add $10 \log(N)$ to compared with the limit.
	<ul style="list-style-type: none"><li>If multiple transmit chains, EIRP PPSD calculation could be following as methods: <math>PPSD_{total} = PPSD_1 + PPSD_2 + \dots + PPSD_n</math> (calculated in linear unit [mW] and transfer to log unit [dBm]) <math>EIRP_{total} = PPSD_{total} + DG</math></li></ul>



### 3.4.4 Test Setup



### 3.4.5 Test Result of Peak Power Spectral Density

Refer as Appendix D



## 3.5 Unwanted Emissions

### 3.5.1 Transmitter Unwanted Emissions Limit

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

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

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

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

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

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



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

### 3.5.2 Measuring Instruments

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

### 3.5.3 Test Procedures

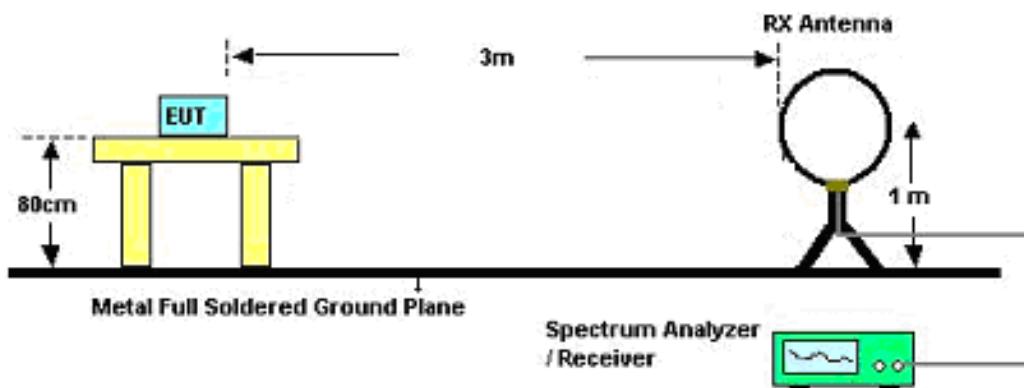
Test Method	
▪ Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 m for frequencies above 30 MHz, unless it can be further demonstrated that measurements at a distance of 30 m or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).	
▪ The average emission levels shall be measured in [duty cycle $\geq$ 98 or duty factor].	
▪ For the transmitter unwanted emissions shall be measured using following options below:	
	▪ Refer as FCC KDB 789033, clause G)2) for unwanted emissions into non-restricted bands.
	▪ Refer as FCC KDB 789033, clause G)1) for unwanted emissions into restricted bands.
	<input type="checkbox"/> Refer as FCC KDB 789033, G)6) Method AD (Trace Averaging).
	<input checked="" type="checkbox"/> Refer as FCC KDB 789033, G)6) Method VB (Reduced VBW).
	<input type="checkbox"/> Refer as ANSI C63.10, clause 11.12.2.5.3 (Reduced VBW). VBW $\geq$ 1/T, where T is pulse time.
	<input type="checkbox"/> Refer as ANSI C63.10, clause 7.5 average value of pulsed emissions.
	<input checked="" type="checkbox"/> Refer as FCC KDB 789033, clause G)5) measurement procedure peak limit.
	<input type="checkbox"/> Refer as ANSI C63.10, clause 4.1.4.2.2 measurement procedure peak limit.
▪ 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.	



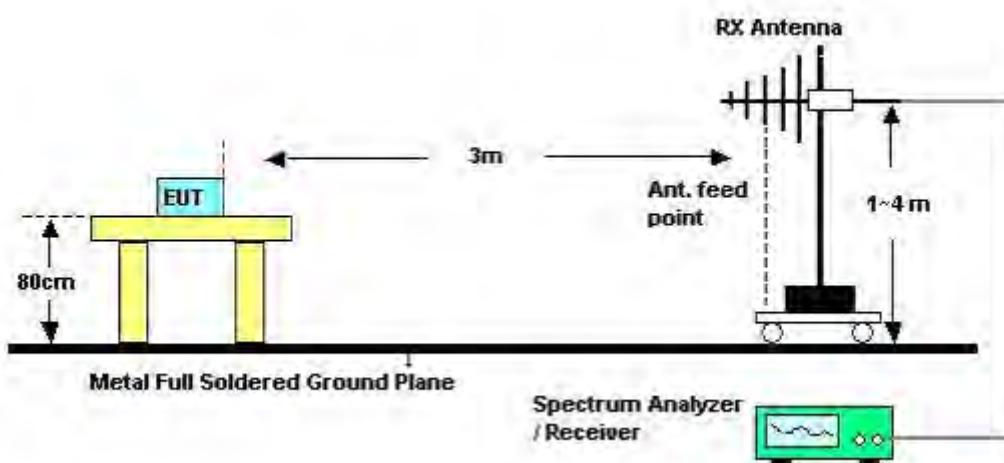
### 3.5.4 Test Setup

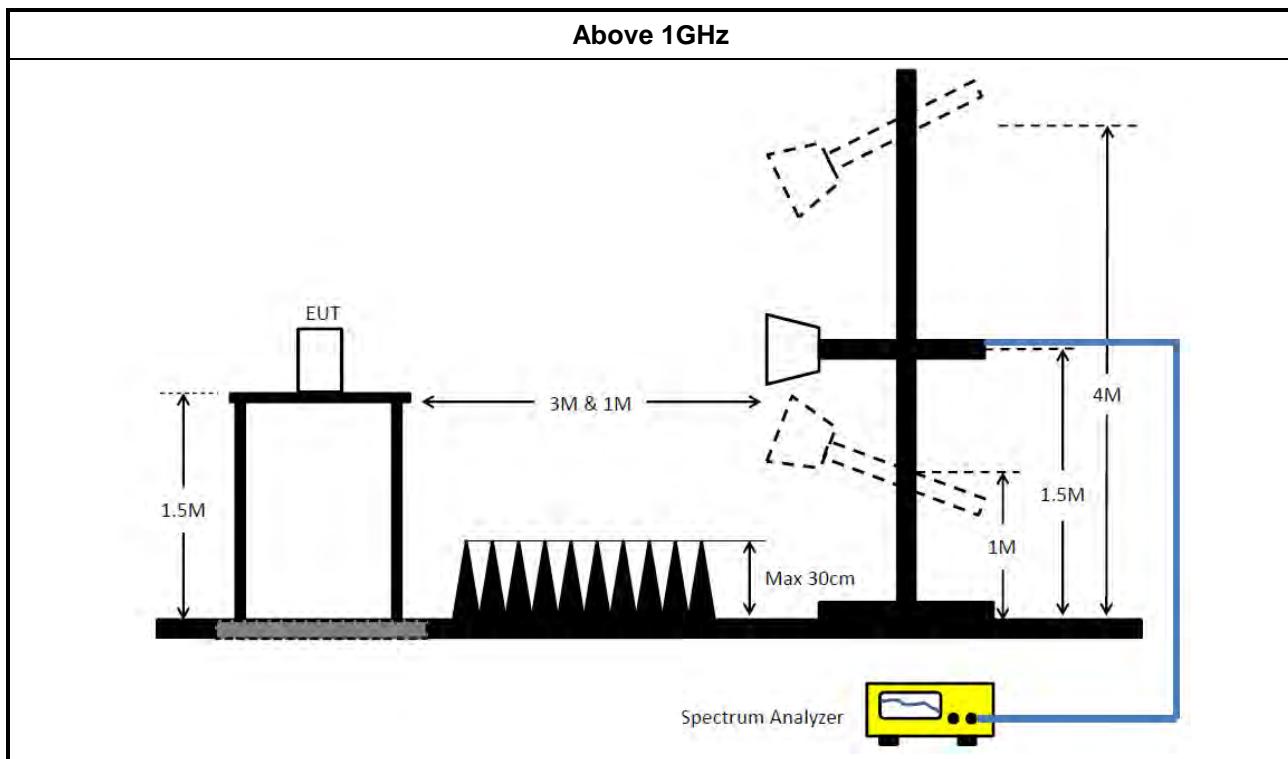
#### Radiated - Emissions in Restricted Frequency Bands

9kHz ~30MHz



30MHz~1GHz





### 3.5.5 Measurement Results Calculation

The measured Level is calculated using:

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

### 3.5.6 Transmitter Unwanted Emissions (Below 30MHz)

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

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

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

### 3.5.7 Test Result of Transmitter Unwanted Emissions

Refer as Appendix E



## 4 Test Equipment and Calibration Data

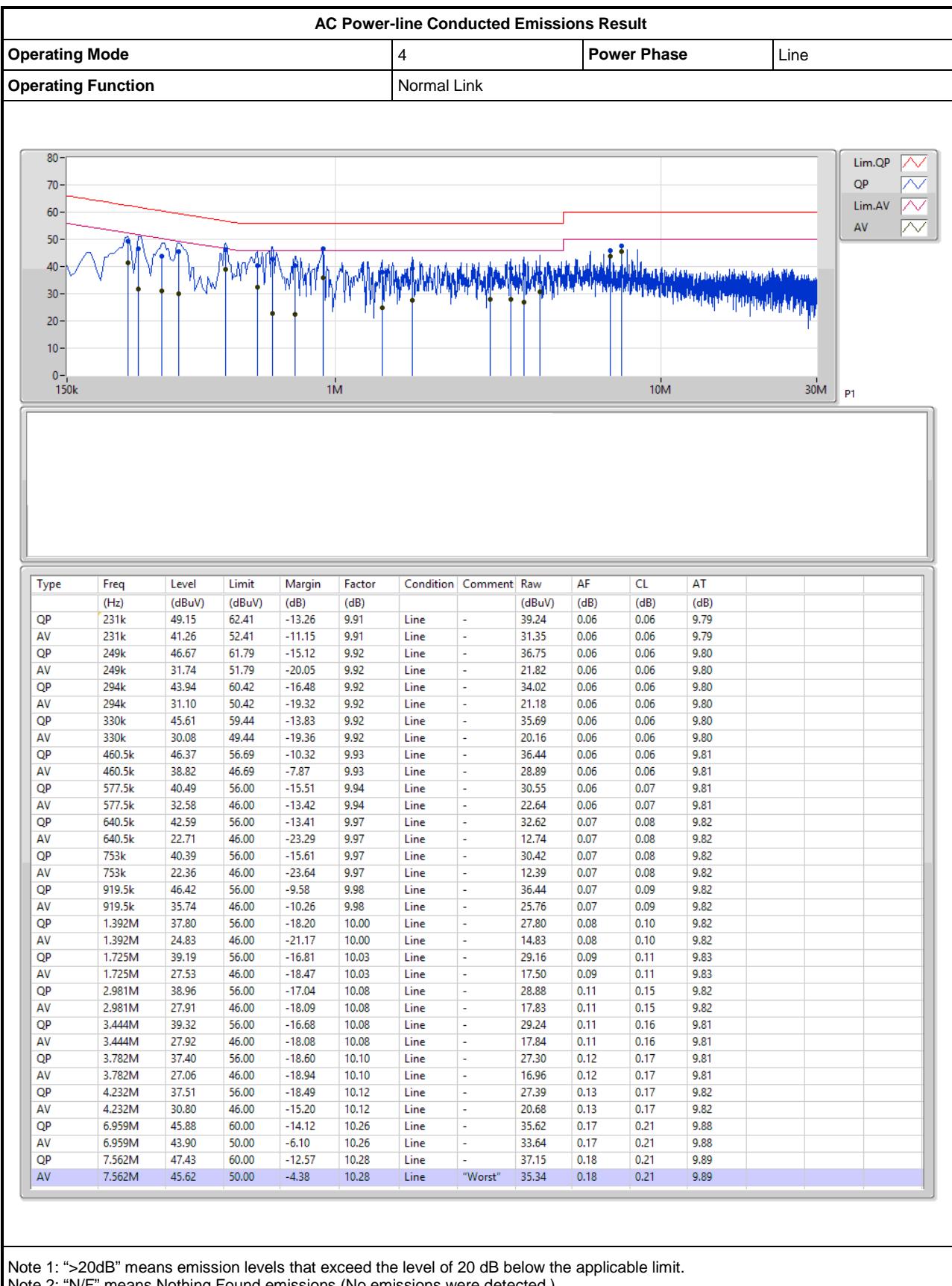
Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
EMI Receiver	Agilent	N9038A	My52260123	9kHz ~ 8.45GHz	Jan. 28, 2019	Jan. 29, 2020	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz ~ 100MHz	Dec. 24, 2018	Dec. 23, 2019	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Jan. 11, 2019	Jan. 10, 2020	Conduction (CO01-CB)
COND Cable	Woken	Cable	Low cable-CO01	9kHz ~ 30MHz	May 21, 2019	May 20, 2020	Conduction (CO01-CB)
Software	Audix	E3	6.120210n	-	N.C.R.	N.C.R.	Conduction (CO01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	Mar. 29, 2019	Mar. 28, 2020	Radiation (03CH05-CB)
Bilog Antenna with 6dB Attenuator	TESE & EMCI	CBL 6112D & N-6-06	35236 & AT-N0610	30MHz ~ 2GHz	Mar. 28, 2019	Mar. 27, 2020	Radiation (03CH05-CB)
Pre-Amplifier	EMCI	EMC330N	980331	20MHz ~ 3GHz	May 01, 2019	Apr. 30, 2020	Radiation (03CH05-CB)
Spectrum Analyzer	R&S	FSP40	100304	9kHz ~ 40GHz	Aug. 15, 2019	Aug. 14, 2020	Radiation (03CH05-CB)
EMI Test Receiver	R&S	ESCS	826547/017	9kHz ~ 2.75GHz	May 15, 2019	May 14, 2020	Radiation (03CH05-CB)
RF Cable-low	Woken	RG402	LOW Cable-04+23	30MHz-1GHz	Oct. 07, 2019	Oct. 06, 2020	Radiation (03CH05-CB)
Horn Antenna	ETS-LINDGREN	3115	00075790	750MHz ~ 18GHz	Nov. 04, 2019	Nov. 03, 2020	Radiation (03CH01-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Jun. 27, 2019	Jun. 26, 2020	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Jan. 08, 2019	Jan. 07, 2020	Radiation (03CH01-CB)
Spectrum Analyzer	R&S	FSP40	100056	9kHz ~ 40GHz	Jan. 31, 2019	Jan. 30, 2020	Radiation (03CH01-CB)
RF Cable-high	Woken	RG402	High Cable-16	1 GHz ~ 18 GHz	Oct. 07, 2019	Oct. 06, 2020	Radiation (03CH01-CB)
RF Cable-high	Woken	RG402	High Cable-16+17	1 GHz ~ 18 GHz	Oct. 07, 2019	Oct. 06, 2020	Radiation (03CH01-CB)
RF Cable-high	Woken	RG402	High Cable-40G#1	18GHz ~ 40 GHz	Jul. 24, 2019	Jul. 23, 2020	Radiation (03CH01-CB)

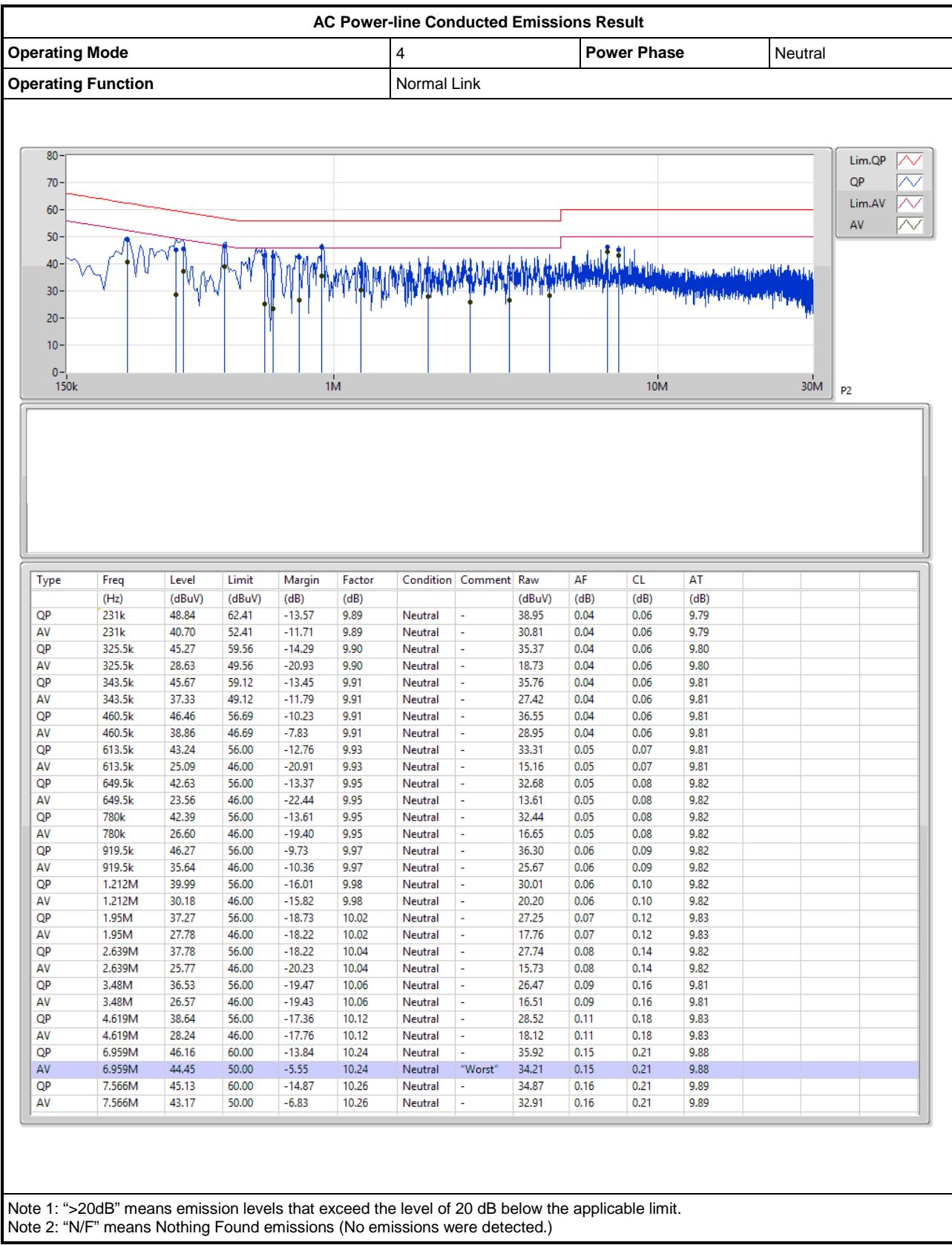
**FCC RADIO TEST REPORT****Report No. : FR902202AB**

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
RF Cable-high	Woken	RG402	High Cable-40G#2	18GHz ~ 40 GHz	Jul. 24, 2019	Jul. 23, 2020	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSV40	100979	9kHz~40GHz	Feb. 25, 2019	Feb. 24, 2020	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-06	1 GHz – 26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-07	1 GHz –26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-08	1 GHz –26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-09	1 GHz –26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-10	1 GHz –26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-28	1 GHz –26.5 GHz	Nov. 19, 2018	Nov. 18, 2019	Conducted (TH01-CB)
Power Sensor	Agilent	E9327A	US40442088	50MHz~18GHz	Jan. 15, 2019	Jan. 14, 2020	Conducted (TH01-CB)
Power Meter	Agilent	E4416A	GB41291199	50MHz~18GHz	Jan. 15, 2019	Jan. 14, 2020	Conducted (TH01-CB)

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

NCR means Non-Calibration required.





**Summary**

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.15-5.25GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_4TX	42.175M	23.563M	23M6D1D	19.075M	16.367M
802.11ax HEW20_Nss1,(MCS0)_4TX	42.175M	19.99M	20M0D1D	21.425M	18.891M
802.11ax HEW40_Nss1,(MCS0)_4TX	47.95M	37.931M	37M9D1D	40.9M	37.631M
802.11ax HEW80_Nss1,(MCS0)_4TX	82.2M	77.061M	77M1D1D	81.4M	76.962M
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	21.75M	18.96M	19M0D1D	20.575M	18.883M
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	41.3M	37.808M	37M8D1D	39.45M	37.68M
802.11ax HEW80-BF_Nss1,(MCS0)_4TX	81.9M	77.29M	77M3D1D	80.8M	76.884M
5.725-5.85GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_4TX	16.3M	30.585M	30M6D1D	15.375M	24.988M
802.11ax HEW20_Nss1,(MCS0)_4TX	19.1M	29.61M	29M6D1D	15.975M	23.213M
802.11ax HEW40_Nss1,(MCS0)_4TX	38.05M	56.372M	56M4D1D	36.6M	38.281M
802.11ax HEW80_Nss1,(MCS0)_4TX	77.6M	77.561M	77M6D1D	74.1M	76.862M
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	18.9M	19M	19M0D1D	17.3M	18.859M
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	37.7M	37.825M	37M8D1D	33.6M	37.604M
802.11ax HEW80-BF_Nss1,(MCS0)_4TX	74.2M	77.174M	77M2D1D	21.8M	76.915M

**Max-N dB** = Maximum6dB downbandwidth for 5.725-5.85GHz band / Maximum26dB downbandwidth for other band;

**Max-OBW** = Maximum99% occupied bandwidth;

**Min-N dB** = Minimum6dB downbandwidth for 5.725-5.85GHz band / Maximum26dB downbandwidth for other band;

**Min-OBW** = Minimum99% occupied bandwidth;



## Result

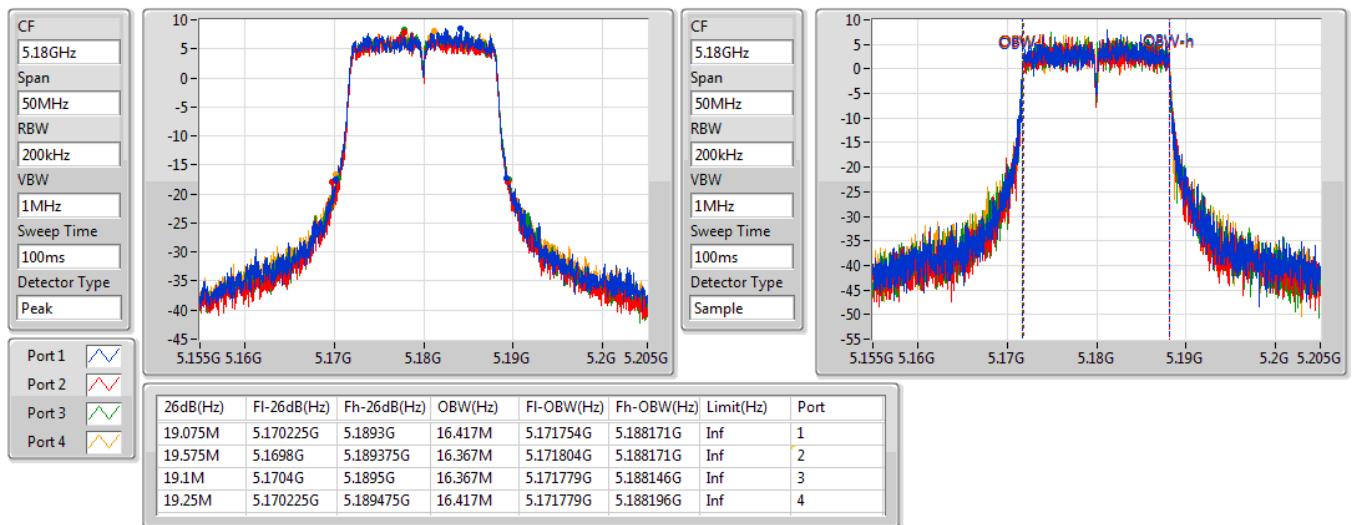
Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)	Port 3-N dB (Hz)	Port 3-OBW (Hz)	Port 4-N dB (Hz)	Port 4-OBW (Hz)
802.11a_Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	Inf	19.075M	16.417M	19.575M	16.367M	19.1M	16.367M	19.25M	16.417M
5200MHz	Pass	Inf	40.575M	21.214M	40.375M	22.039M	41.475M	23.563M	42.175M	22.239M
5240MHz	Pass	Inf	37.475M	17.416M	36.925M	17.016M	36.65M	17.241M	38.925M	18.691M
5745MHz	Pass	500k	16.275M	27.886M	16.275M	26.812M	15.675M	27.736M	16.3M	28.261M
5785MHz	Pass	500k	16.275M	29.16M	15.875M	28.936M	16.3M	28.136M	15.375M	25.262M
5825MHz	Pass	500k	15.925M	28.686M	15.925M	29.135M	16.3M	30.585M	16.25M	24.988M
802.11ax HEW20_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	Inf	21.625M	18.916M	21.425M	18.891M	21.975M	18.941M	21.55M	18.916M
5200MHz	Pass	Inf	34.875M	19.065M	33.7M	19.04M	33.525M	19.09M	38.475M	19.19M
5240MHz	Pass	Inf	42.175M	19.89M	41.15M	19.315M	42.1M	19.765M	41.875M	19.99M
5745MHz	Pass	500k	19.1M	28.036M	15.975M	26.912M	17.525M	27.436M	18.7M	27.761M
5785MHz	Pass	500k	18.575M	28.611M	18.9M	28.936M	18.95M	27.486M	18.475M	23.213M
5825MHz	Pass	500k	17.85M	28.936M	18.45M	28.211M	18.7M	29.61M	18.9M	24.388M
802.11ax HEW40_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5190MHz	Pass	Inf	41.15M	37.731M	40.9M	37.631M	41.1M	37.731M	41.1M	37.681M
5230MHz	Pass	Inf	43.7M	37.831M	46.45M	37.831M	47.95M	37.931M	43.45M	37.681M
5755MHz	Pass	500k	37.9M	38.281M	36.6M	39.88M	38.05M	43.028M	37.8M	38.381M
5795MHz	Pass	500k	37.9M	41.279M	37.85M	52.824M	37.55M	56.372M	37.95M	44.328M
802.11ax HEW80_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5210MHz	Pass	Inf	82.1M	77.061M	81.4M	76.962M	82.2M	77.061M	81.9M	76.962M
5775MHz	Pass	500k	77.5M	77.461M	76M	76.862M	77.6M	77.161M	74.1M	77.561M
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	Inf	21.075M	18.922M	20.575M	18.942M	21.3M	18.913M	21.075M	18.898M
5200MHz	Pass	Inf	21.425M	18.9M	21.475M	18.96M	21.4M	18.914M	21.3M	18.924M
5240MHz	Pass	Inf	21M	18.883M	21.425M	18.895M	21.225M	18.888M	21.75M	18.911M
5745MHz	Pass	500k	18.625M	18.92M	18.9M	18.908M	18.875M	18.929M	18.875M	18.919M
5785MHz	Pass	500k	18.3M	18.903M	18.825M	18.93M	17.3M	18.907M	18.8M	18.893M
5825MHz	Pass	500k	18.275M	18.89M	18.75M	19M	18.1M	18.943M	18.1M	18.859M
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5190MHz	Pass	Inf	39.45M	37.692M	40.85M	37.808M	39.65M	37.753M	40.3M	37.692M
5230MHz	Pass	Inf	41.3M	37.721M	40.8M	37.689M	40.8M	37.68M	40.45M	37.782M
5755MHz	Pass	500k	37.55M	37.719M	37.45M	37.679M	33.8M	37.604M	37.6M	37.664M
5795MHz	Pass	500k	37.7M	37.784M	33.6M	37.825M	37.4M	37.75M	37.65M	37.732M
802.11ax HEW80-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5210MHz	Pass	Inf	80.9M	76.884M	80.8M	77.069M	81M	77.29M	81.9M	77.228M
5775MHz	Pass	500k	73.7M	76.915M	74.2M	77.054M	21.8M	77.174M	32.4M	76.958M

Port X-N dB = Port X6dB downbandwidth for 5.725-5.85GHz band / 26dB downbandwidth for other band

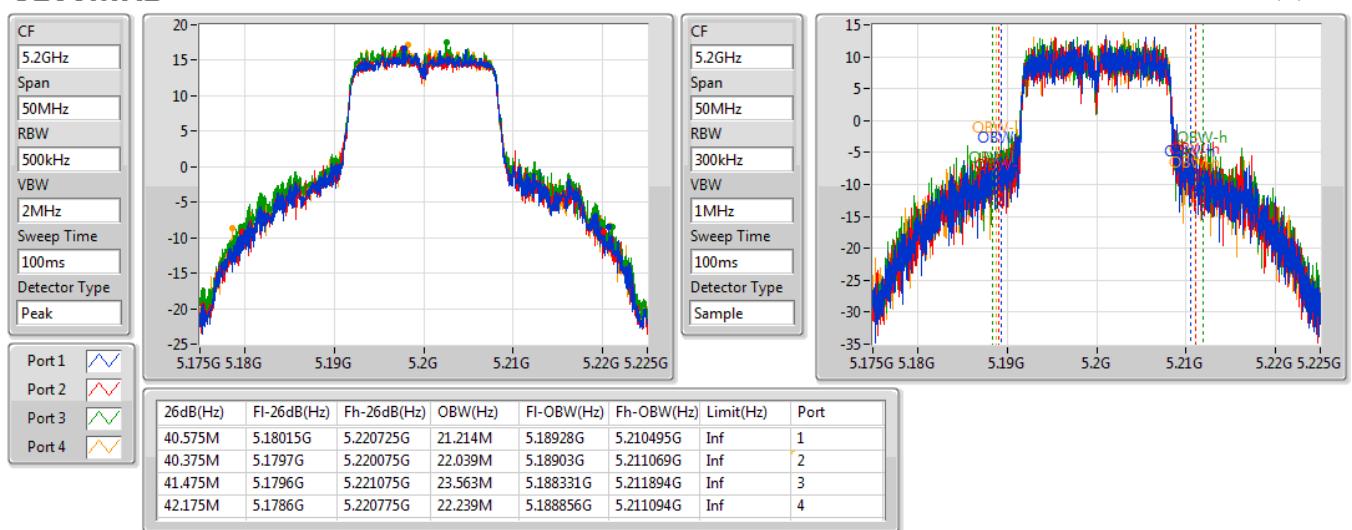
Port X-OBW = Port X99% occupied bandwidth;

**802.11a\_Nss1,(6Mbps)\_4TX**
**EBW**
**5180MHz**

07/11/2019

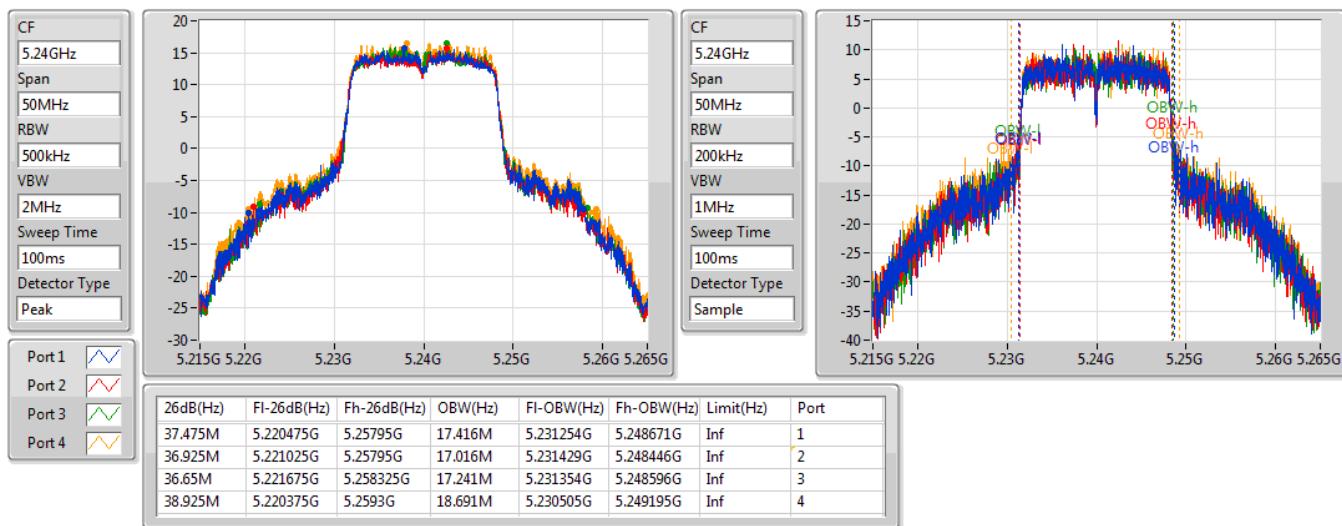

**802.11a\_Nss1,(6Mbps)\_4TX**
**EBW**
**5200MHz**

07/11/2019

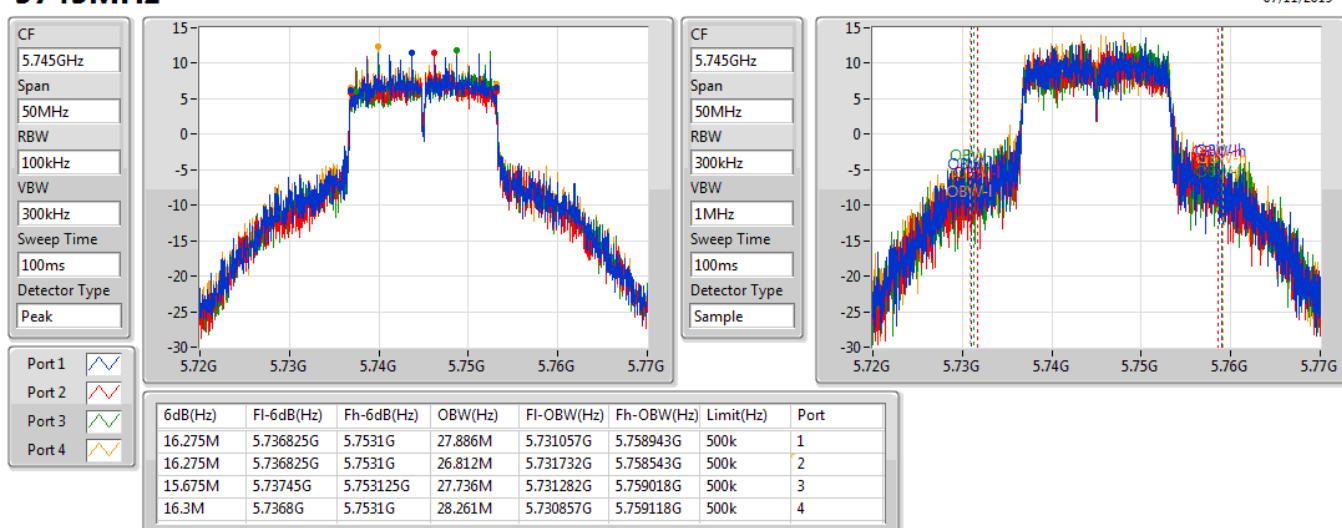


**802.11a\_Nss1,(6Mbps)\_4TX**
**EBW**
**5240MHz**

07/11/2019

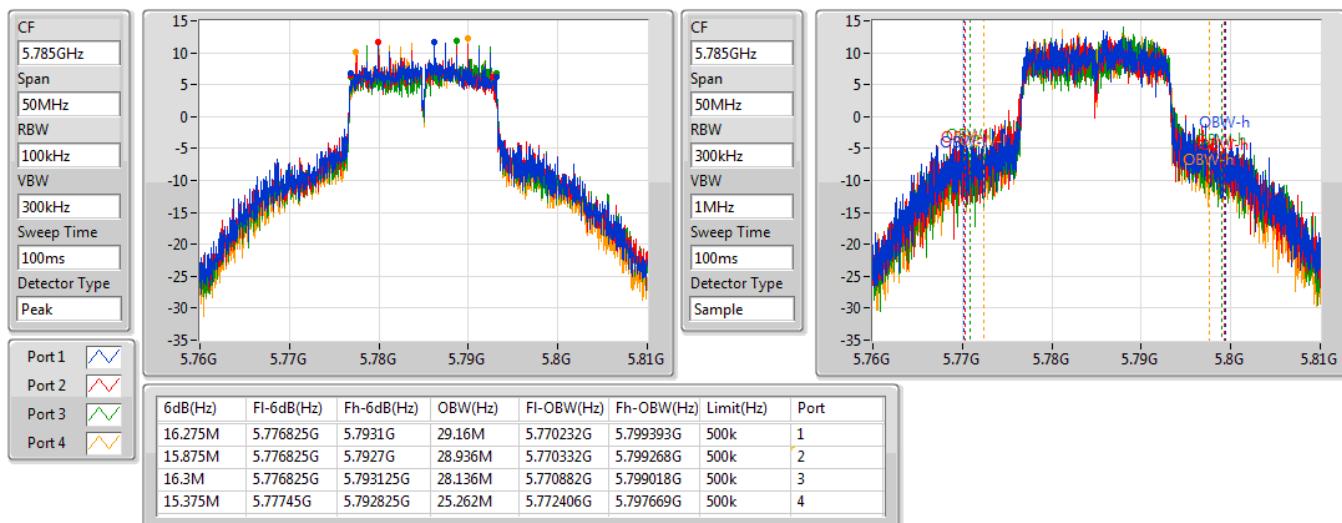

**802.11a\_Nss1,(6Mbps)\_4TX**
**EBW**
**5745MHz**

07/11/2019

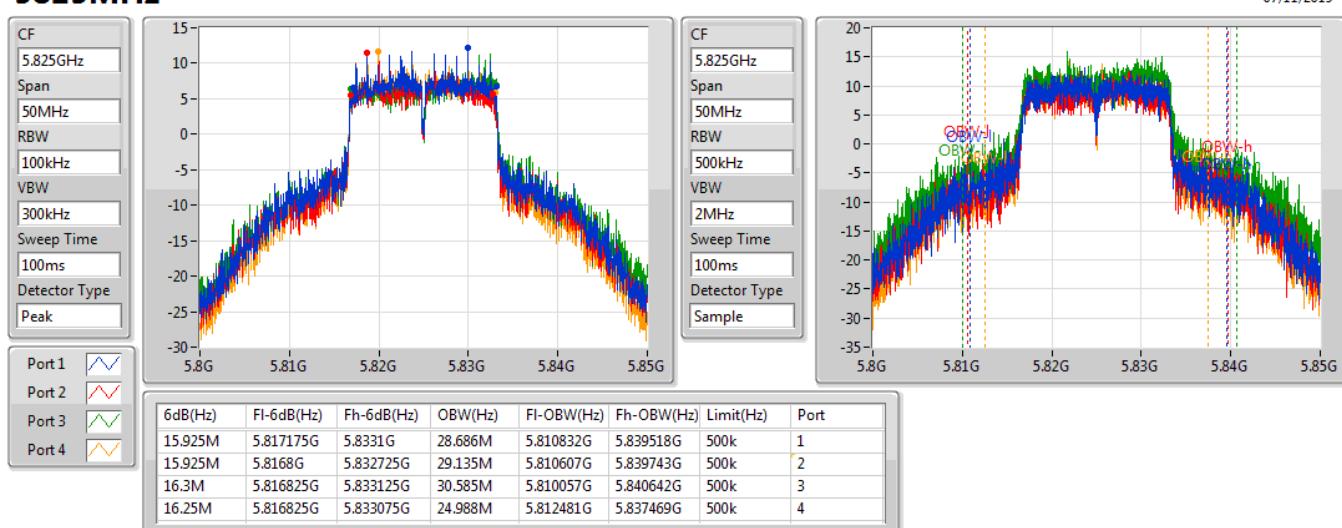


**802.11a\_Nss1,(6Mbps)\_4TX**
**EBW**
**5785MHz**

07/11/2019

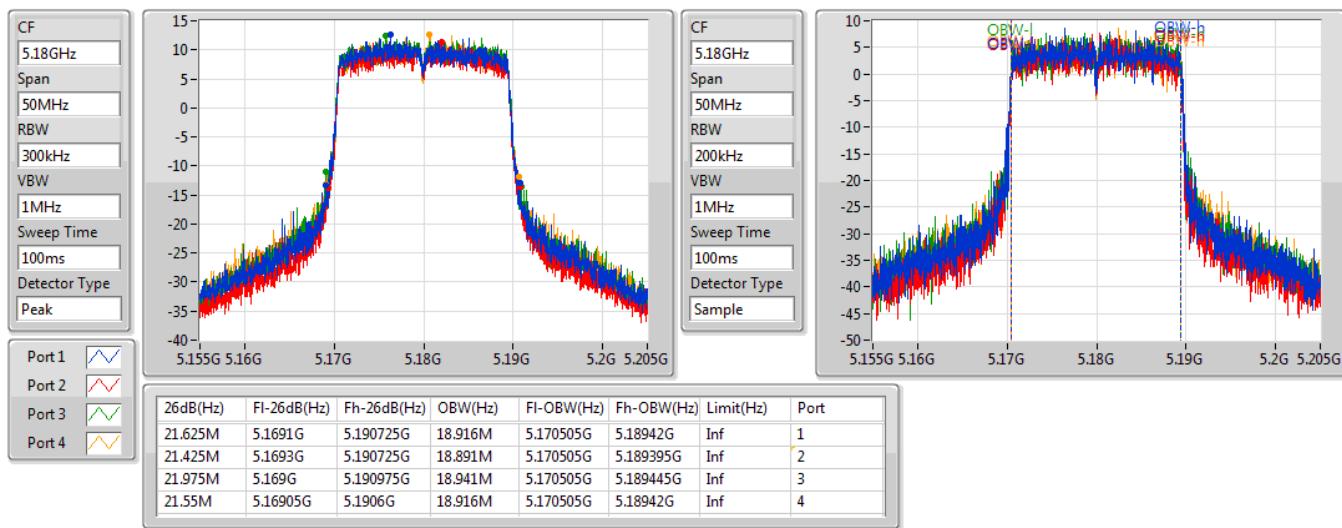

**802.11a\_Nss1,(6Mbps)\_4TX**
**EBW**
**5825MHz**

07/11/2019

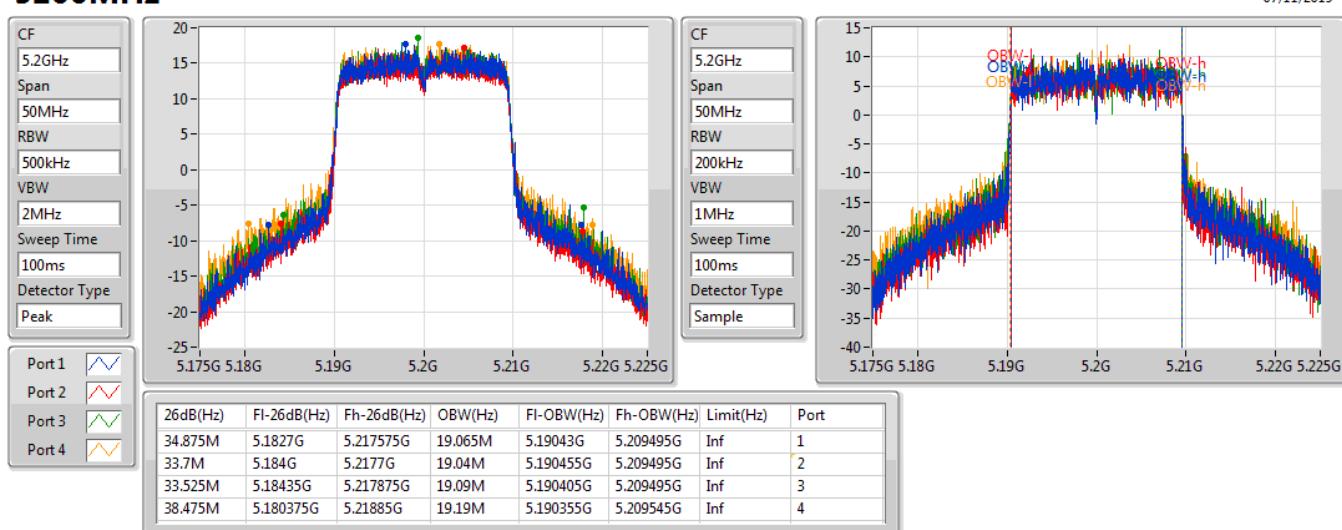


**802.11ax HEW20\_Nss1,(MCS0)\_4TX**
**EBW**
**5180MHz**

07/11/2019

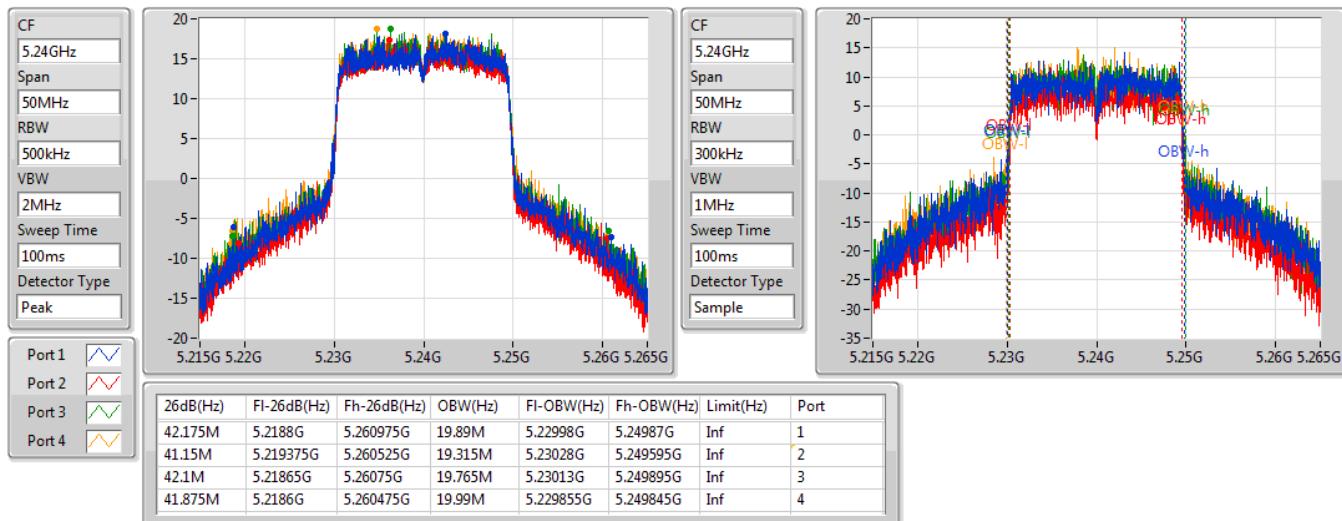

**802.11ax HEW20\_Nss1,(MCS0)\_4TX**
**EBW**
**5200MHz**

07/11/2019

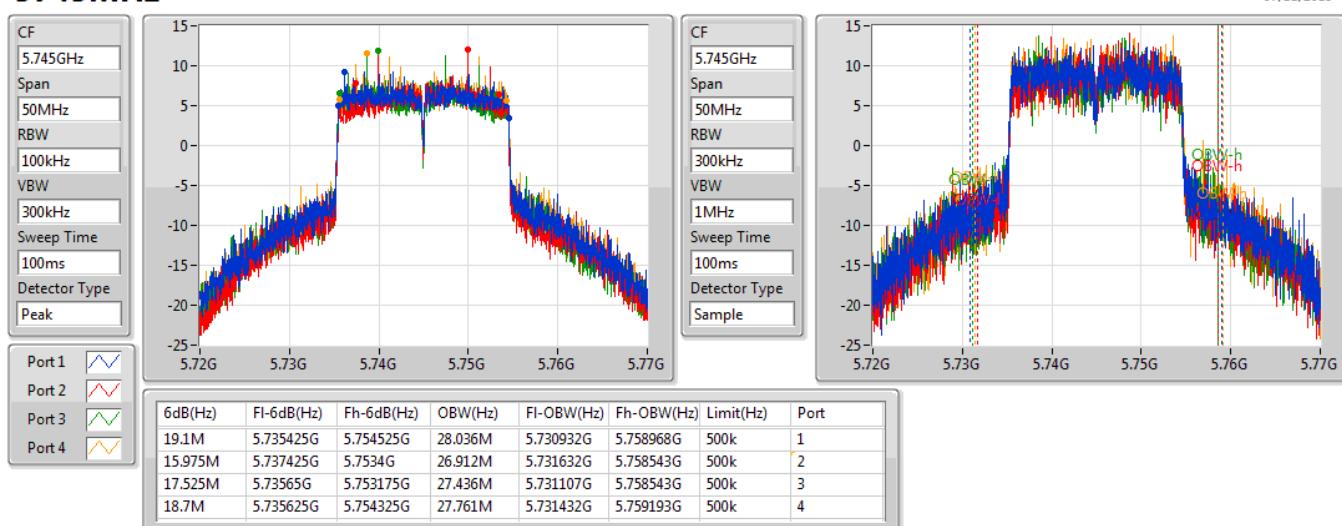


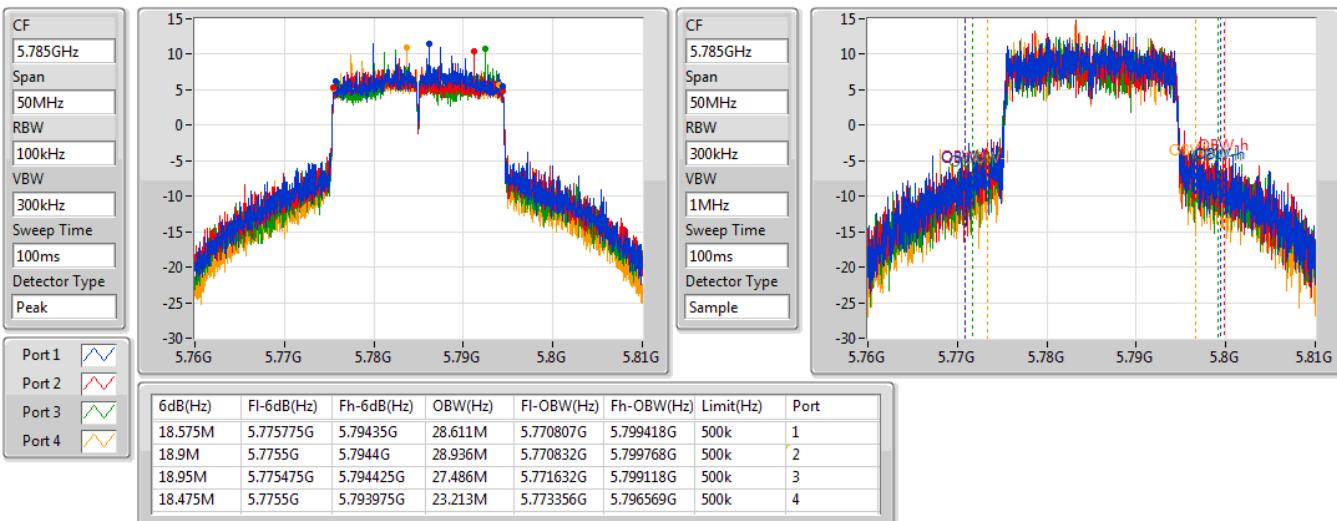
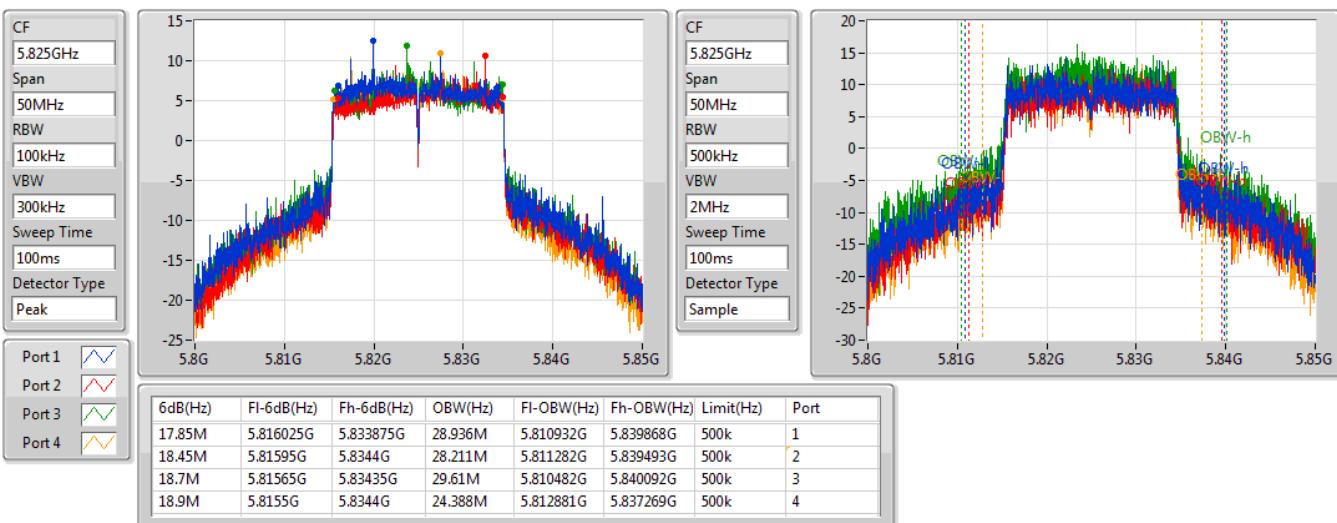
**802.11ax HEW20\_Nss1,(MCS0)\_4TX**
**EBW**
**5240MHz**

07/11/2019


**802.11ax HEW20\_Nss1,(MCS0)\_4TX**
**EBW**
**5745MHz**

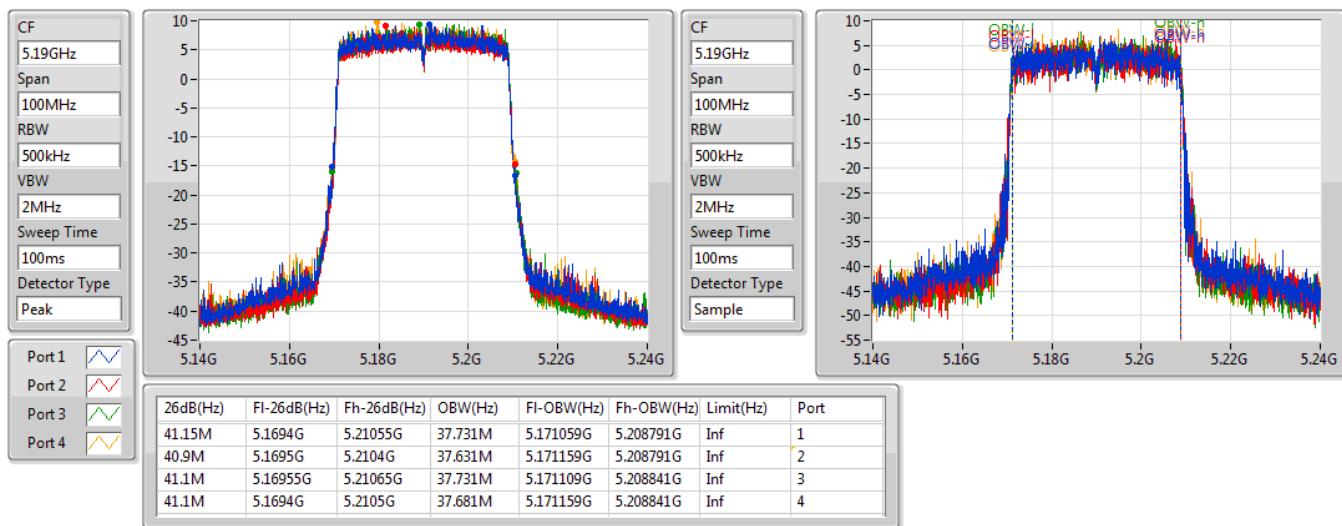
07/11/2019



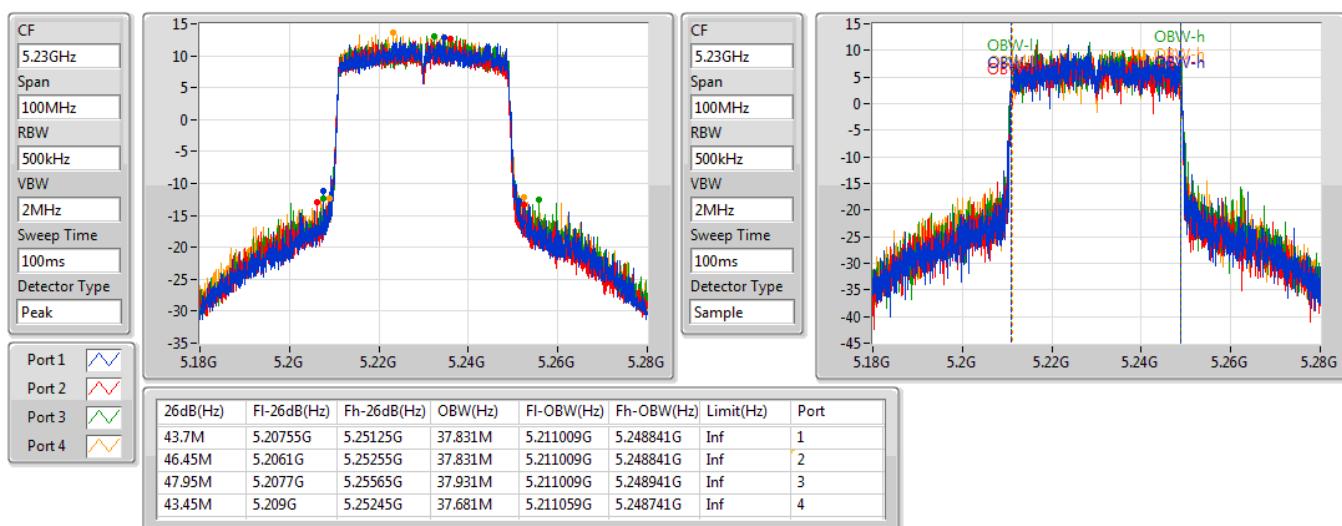
**802.11ax HEW20\_Nss1,(MCS0)\_4TX**
**EBW**
**5785MHz**

**802.11ax HEW20\_Nss1,(MCS0)\_4TX**
**EBW**
**5825MHz**


**802.11ax HEW40\_Nss1,(MCS0)\_4TX**
**EBW**
**5190MHz**

07/11/2019

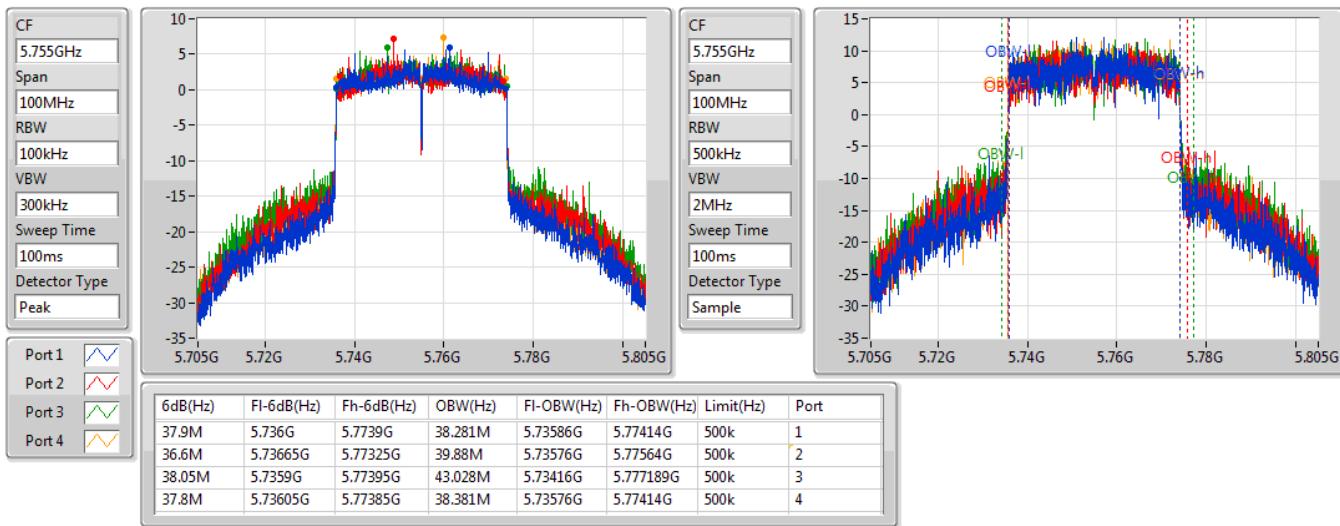

**802.11ax HEW40\_Nss1,(MCS0)\_4TX**
**EBW**
**5230MHz**

07/11/2019

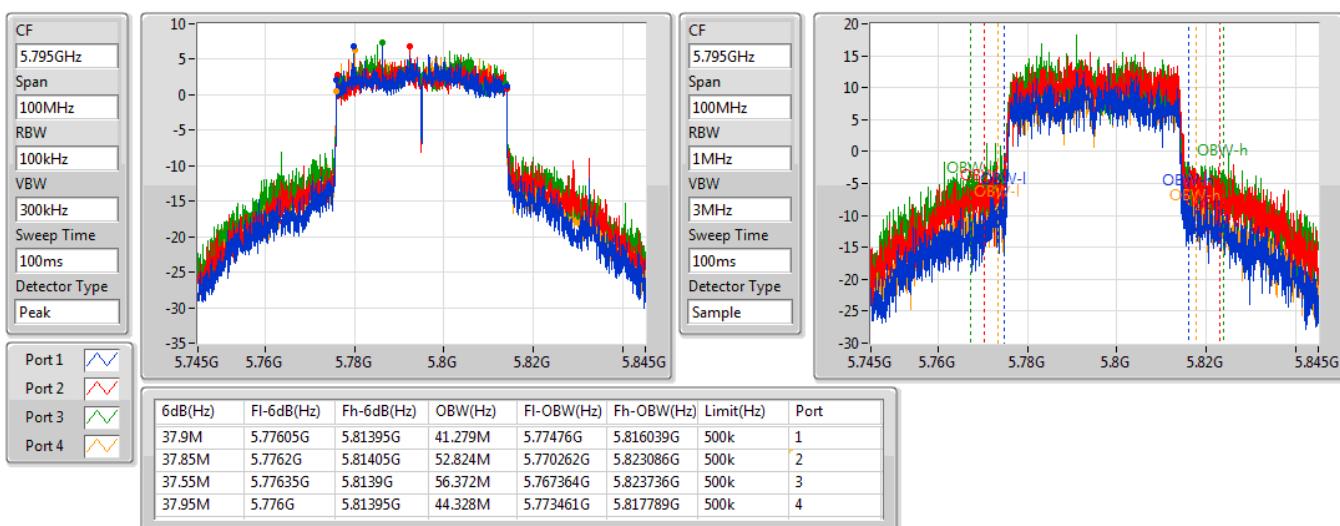


**802.11ax HEW40\_Nss1,(MCS0)\_4TX**
**EBW**
**5755MHz**

07/11/2019

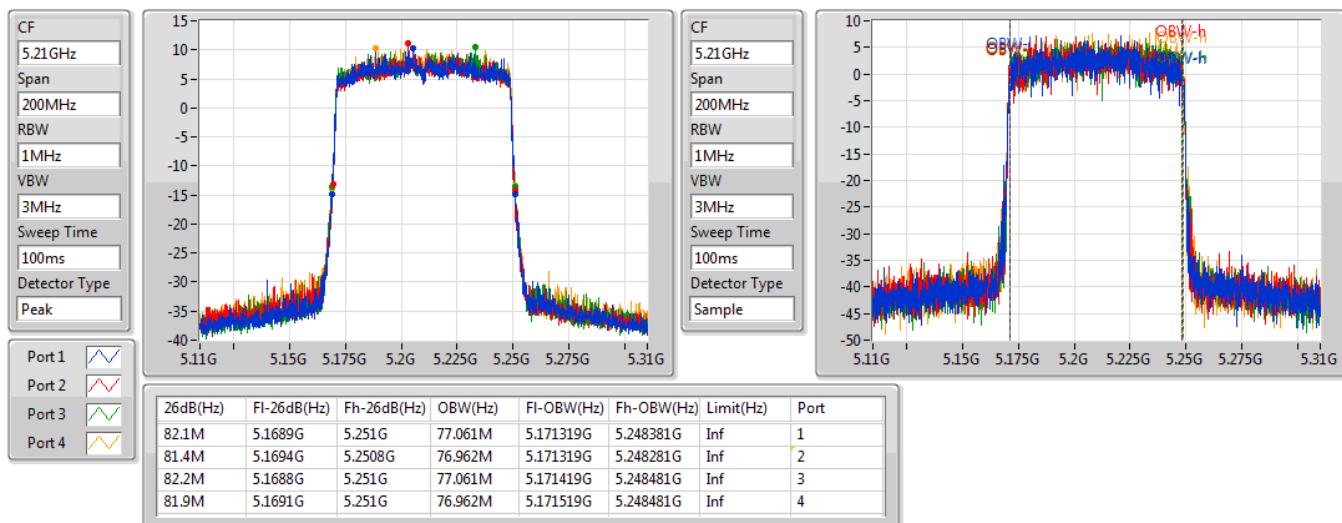

**802.11ax HEW40\_Nss1,(MCS0)\_4TX**
**EBW**
**5795MHz**

07/11/2019

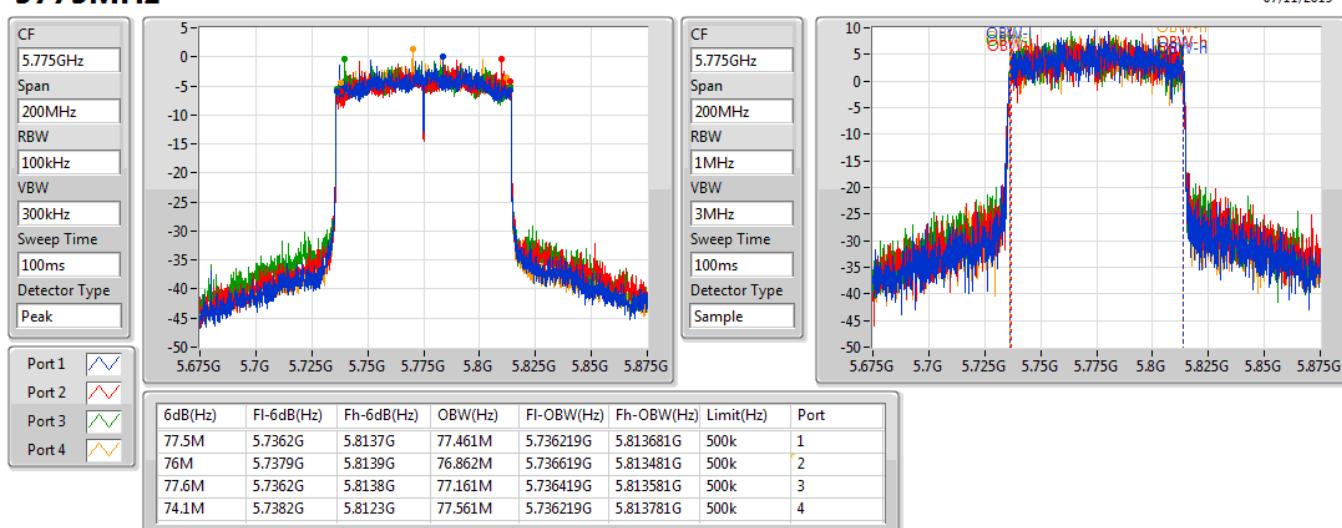


**802.11ax HEW80\_Nss1,(MCS0)\_4TX**
**EBW**
**5210MHz**

07/11/2019

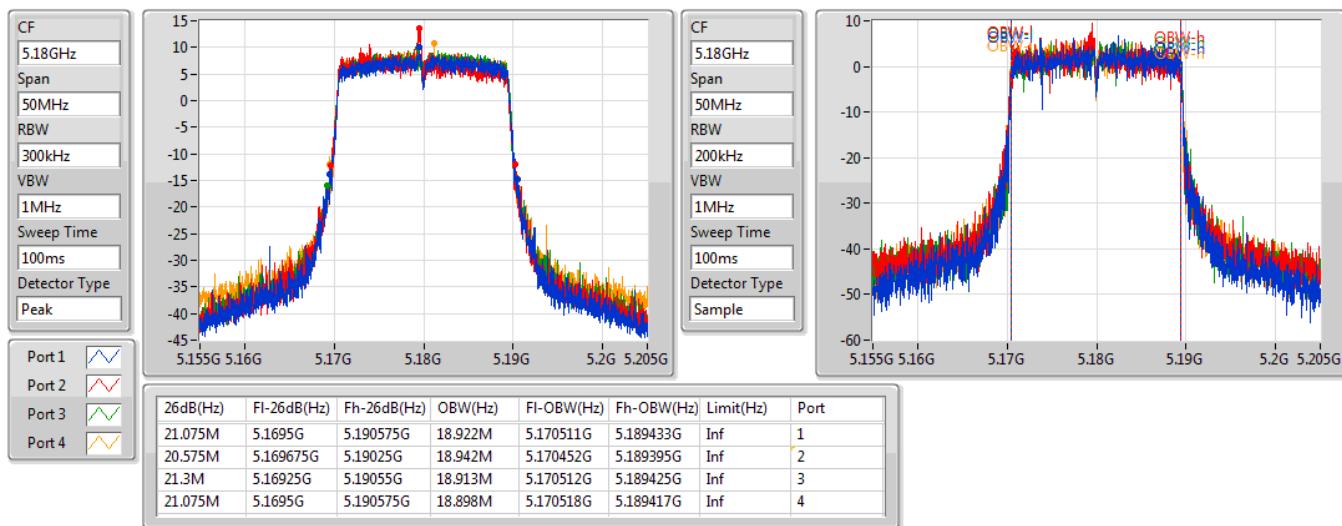

**802.11ax HEW80\_Nss1,(MCS0)\_4TX**
**EBW**
**5775MHz**

07/11/2019

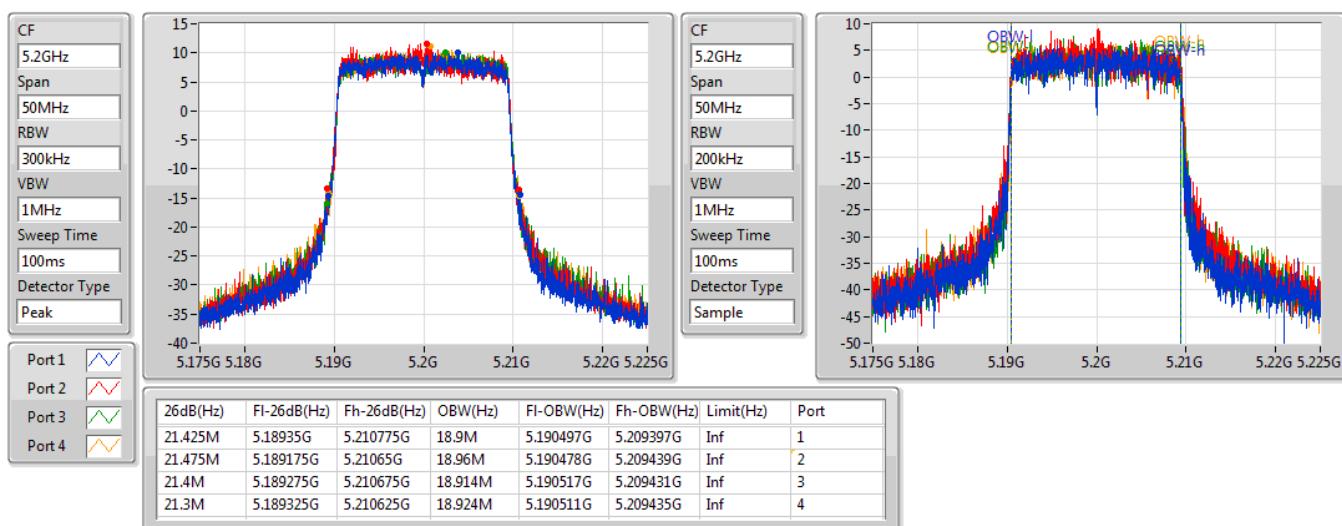


**802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5180MHz**

24/12/2019

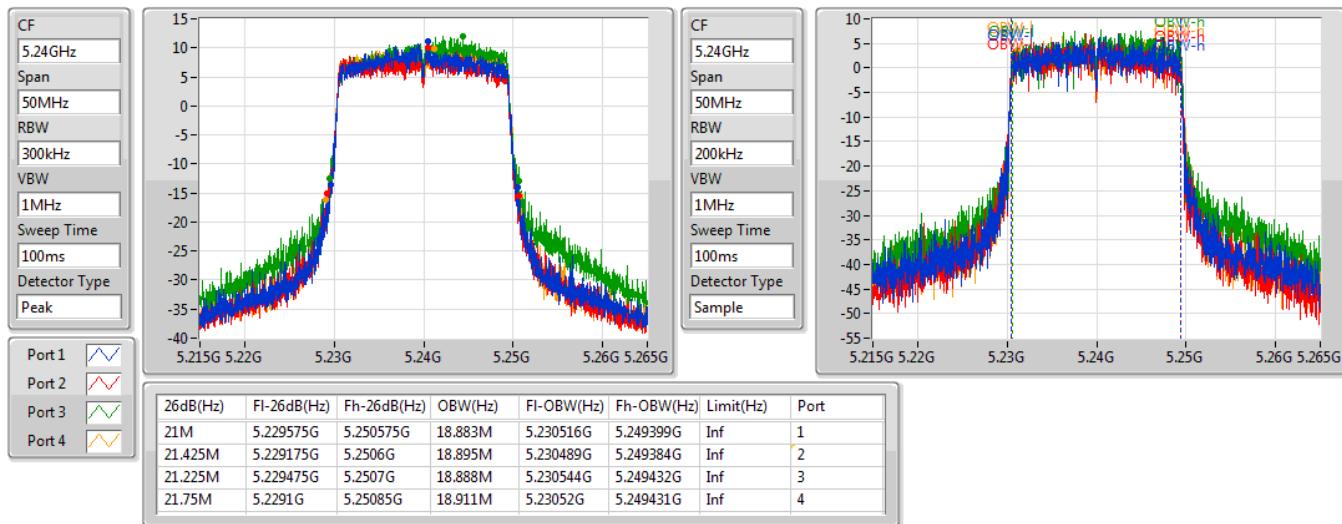

**802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5200MHz**

24/12/2019

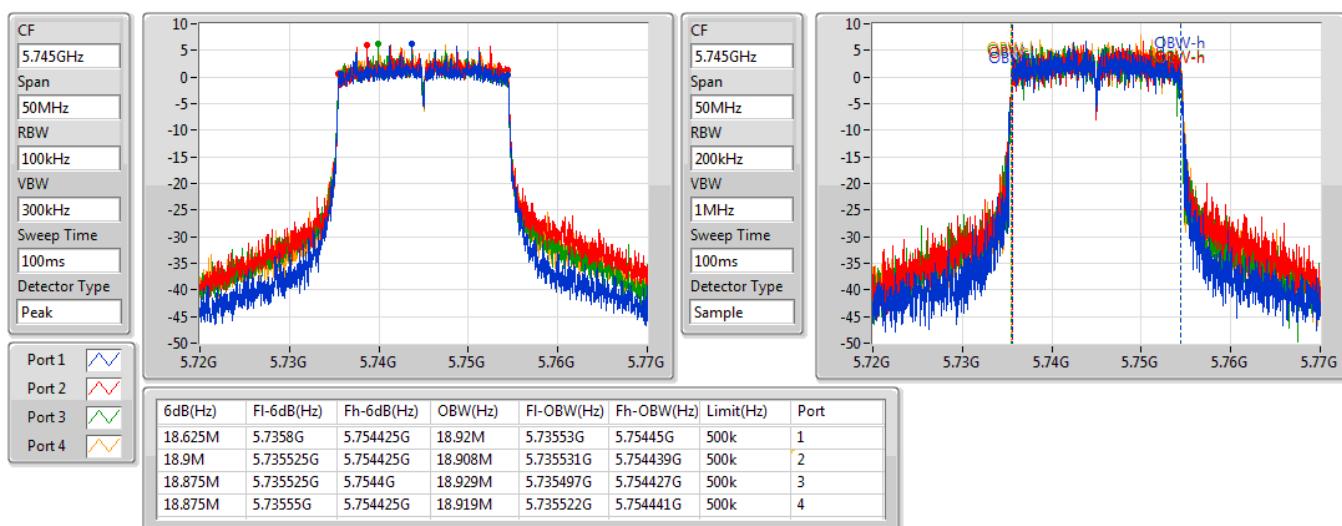


**802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5240MHz**

24/12/2019

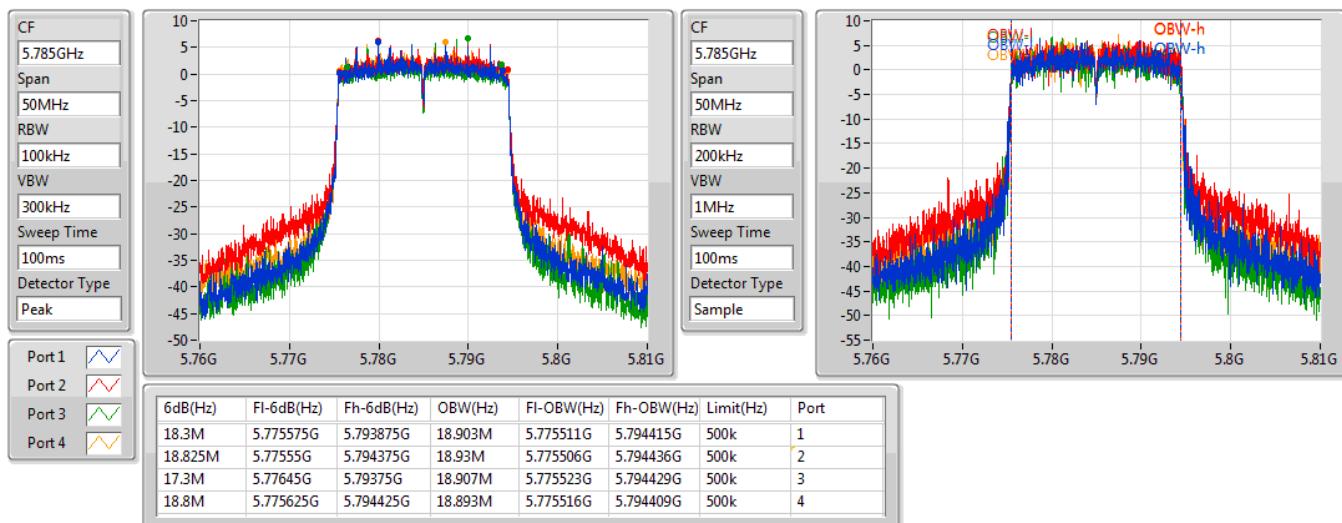

**802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5745MHz**

24/12/2019



**802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5785MHz**

24/12/2019

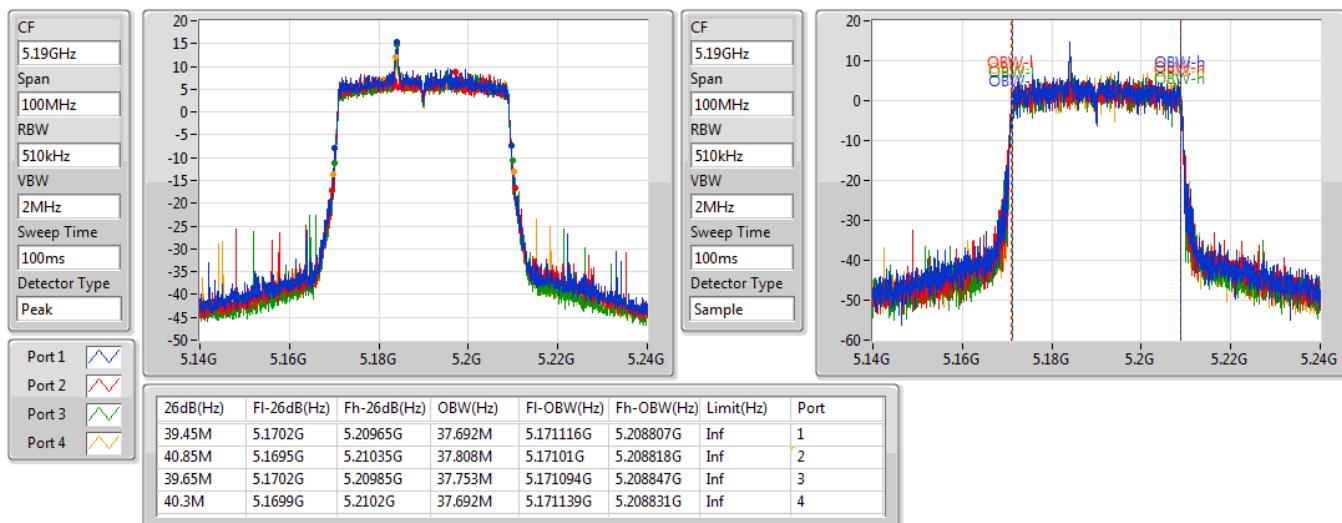

**802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5825MHz**

24/12/2019

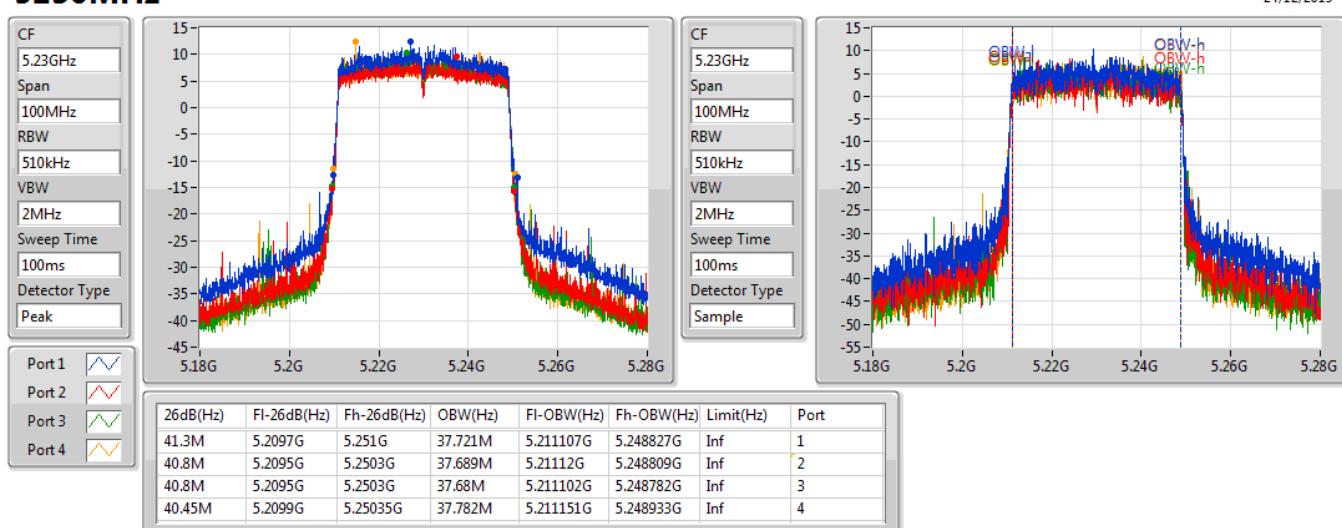


**802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5190MHz**

24/12/2019

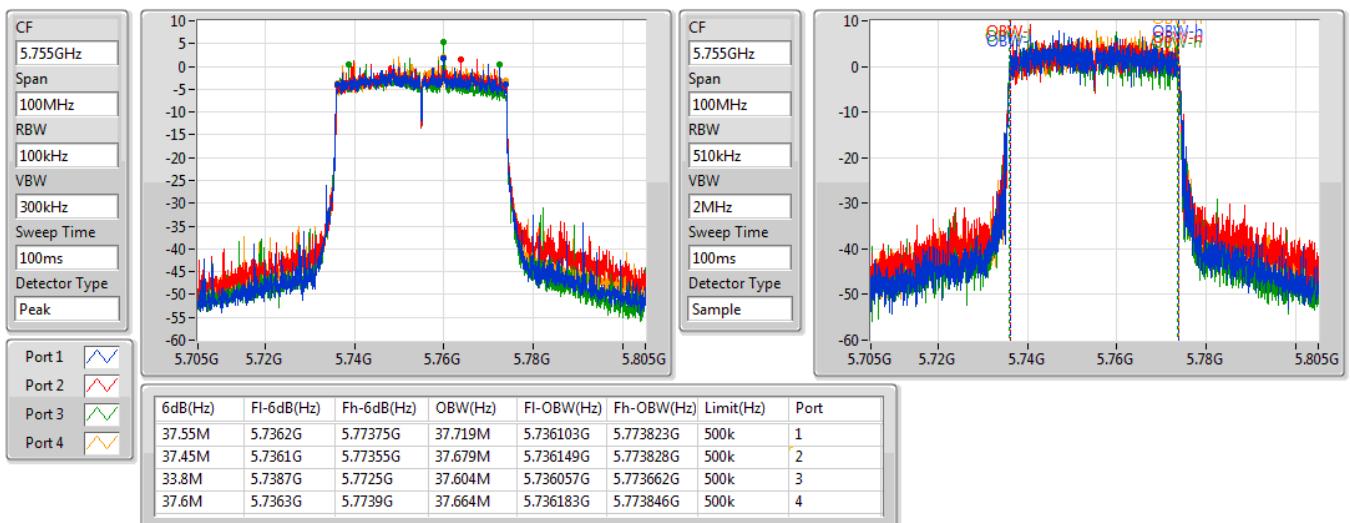

**802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5230MHz**

24/12/2019

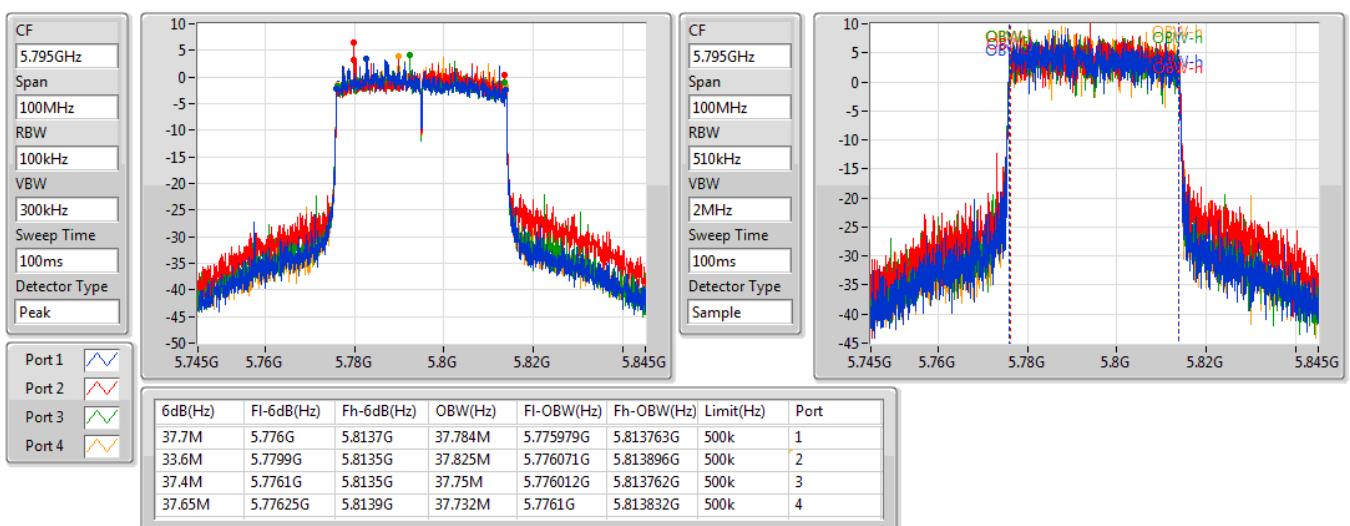


**802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5755MHz**

24/12/2019

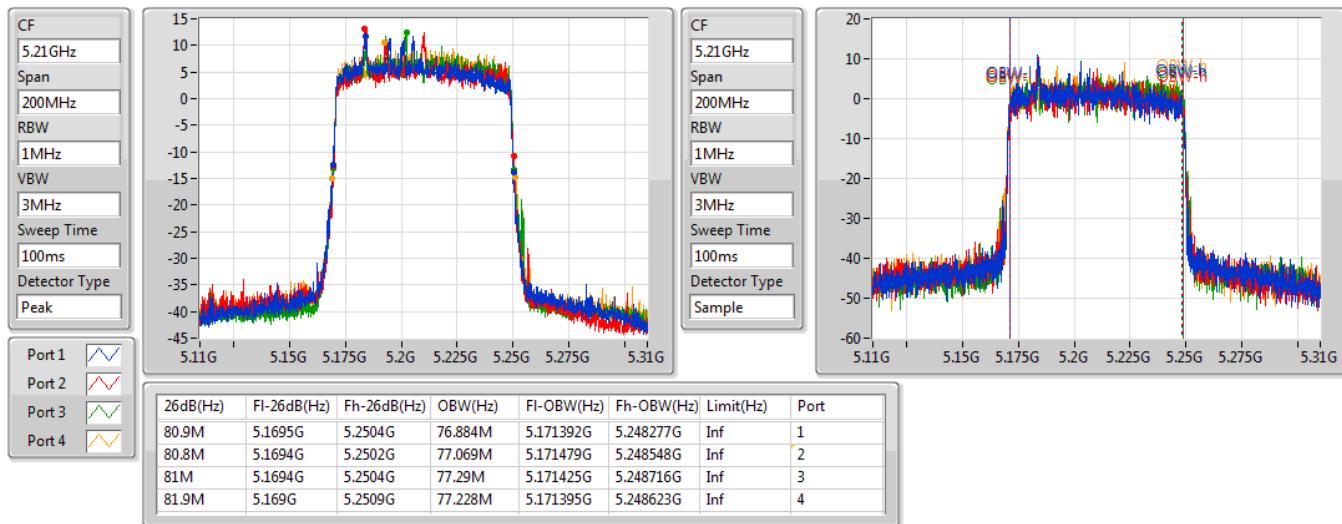

**802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5795MHz**

24/12/2019

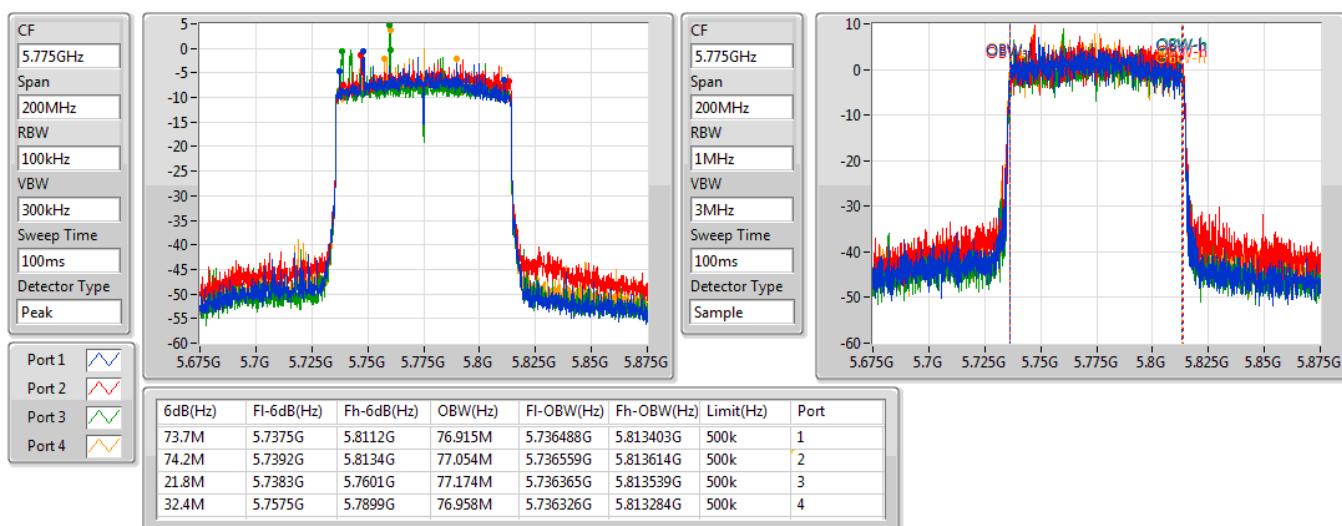


**802.11ax HEW80-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5210MHz**

24/12/2019


**802.11ax HEW80-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5775MHz**

24/12/2019



**Summary**

Mode	Total Power (dBm)	Total Power (W)
5.15-5.25GHz	-	-
802.11a_Nss1,(6Mbps)_4TX	28.63	0.72946
802.11ax HEW20_Nss1,(MCS0)_4TX	28.37	0.68707
802.11ax HEW40_Nss1,(MCS0)_4TX	26.15	0.41210
802.11ax HEW80_Nss1,(MCS0)_4TX	22.56	0.18030
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	24.65	0.29174
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	23.35	0.21627
802.11ax HEW80-BF_Nss1,(MCS0)_4TX	21.80	0.15136
5.725-5.85GHz	-	-
802.11a_Nss1,(6Mbps)_4TX	28.65	0.73282
802.11ax HEW20_Nss1,(MCS0)_4TX	28.47	0.70307
802.11ax HEW40_Nss1,(MCS0)_4TX	27.94	0.62230
802.11ax HEW80_Nss1,(MCS0)_4TX	24.22	0.26424
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	24.39	0.27479
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	24.55	0.28510
802.11ax HEW80-BF_Nss1,(MCS0)_4TX	21.57	0.14355

**Result**

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Port 3 (dBm)	Port 4 (dBm)	Total Power (dBm)	Power Limit (dBm)
802.11a_Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-
5180MHz	Pass	0.97	18.50	18.05	18.46	18.56	24.42	30.00
5200MHz	Pass	0.97	22.58	22.43	22.75	22.69	28.63	30.00
5240MHz	Pass	0.97	21.79	21.58	21.73	22.28	27.87	30.00
5745MHz	Pass	0.97	22.66	22.40	22.38	23.06	28.65	30.00
5785MHz	Pass	0.97	22.64	22.59	22.16	22.58	28.52	30.00
5825MHz	Pass	0.97	22.57	21.72	22.10	22.40	28.23	30.00
802.11ax HEW20_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5180MHz	Pass	0.97	19.19	18.44	19.22	19.16	25.03	30.00
5200MHz	Pass	0.97	21.58	21.18	21.71	21.91	27.62	30.00
5240MHz	Pass	0.97	22.35	22.11	22.32	22.60	28.37	30.00
5745MHz	Pass	0.97	22.56	22.21	22.17	22.83	28.47	30.00
5785MHz	Pass	0.97	22.60	22.27	22.02	22.33	28.33	30.00
5825MHz	Pass	0.97	22.47	21.63	21.78	22.28	28.07	30.00
802.11ax HEW40_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5190MHz	Pass	0.97	16.54	16.12	16.80	16.85	22.61	30.00
5230MHz	Pass	0.97	20.04	19.76	20.14	20.55	26.15	30.00
5755MHz	Pass	0.97	21.10	21.17	21.52	21.63	27.38	30.00
5795MHz	Pass	0.97	21.60	21.63	21.99	22.41	27.94	30.00
802.11ax HEW80_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5210MHz	Pass	0.97	16.31	16.29	16.66	16.86	22.56	30.00
5775MHz	Pass	0.97	18.12	18.08	18.29	18.32	24.22	30.00
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5180MHz	Pass	6.99	16.98	17.01	17.52	17.50	23.28	29.01
5200MHz	Pass	6.99	18.37	18.88	18.57	18.67	24.65	29.01
5240MHz	Pass	6.99	17.79	17.13	18.77	18.49	24.11	29.01
5745MHz	Pass	6.99	17.90	18.41	18.30	18.80	24.38	29.01
5785MHz	Pass	6.99	17.83	18.51	17.27	18.43	24.06	29.01
5825MHz	Pass	6.99	17.67	18.79	18.31	18.62	24.39	29.01
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5190MHz	Pass	6.99	17.18	15.91	16.23	16.26	22.44	29.01
5230MHz	Pass	6.99	16.13	17.38	17.65	17.95	23.35	29.01
5755MHz	Pass	6.99	16.01	16.67	15.98	17.01	22.46	29.01
5795MHz	Pass	6.99	18.29	18.73	18.29	18.77	24.55	29.01
802.11ax HEW80-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5210MHz	Pass	6.99	15.60	15.46	15.85	16.17	21.80	29.01
5775MHz	Pass	6.99	15.48	16.28	14.96	15.38	21.57	29.01

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

**Summary**

Mode	PD (dBm/RBW)
5.15-5.25GHz	-
802.11a_Nss1,(6Mbps)_4TX	15.79
802.11ax HEW20_Nss1,(MCS0)_4TX	14.78
802.11ax HEW40_Nss1,(MCS0)_4TX	9.85
802.11ax HEW80_Nss1,(MCS0)_4TX	3.34
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	10.56
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	9.60
802.11ax HEW80-BF_Nss1,(MCS0)_4TX	6.84
5.725-5.85GHz	-
802.11a_Nss1,(6Mbps)_4TX	14.42
802.11ax HEW20_Nss1,(MCS0)_4TX	13.50
802.11ax HEW40_Nss1,(MCS0)_4TX	10.28
802.11ax HEW80_Nss1,(MCS0)_4TX	3.46
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	8.91
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	6.26
802.11ax HEW80-BF_Nss1,(MCS0)_4TX	4.92

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

**Result**

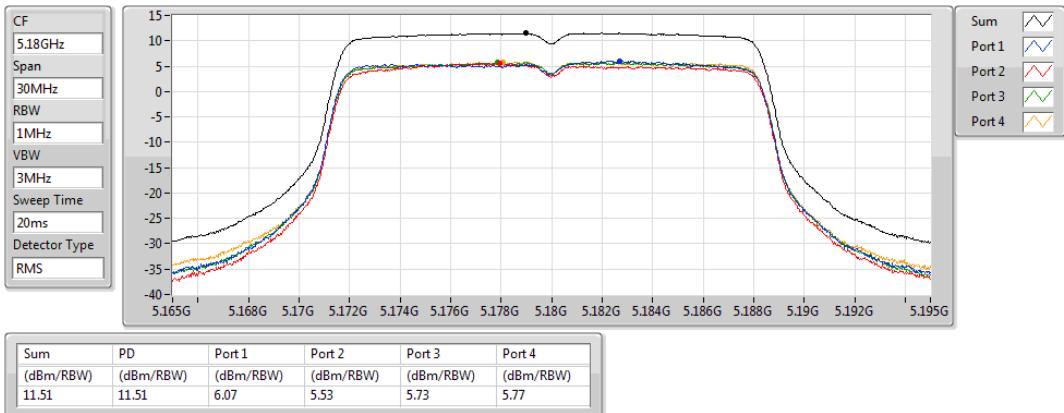
Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	Port 3 (dBm/RBW)	Port 4 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
802.11a_Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-
5180MHz	Pass	6.99	6.07	5.53	5.73	5.77	11.51	16.01
5200MHz	Pass	6.99	9.77	9.63	10.13	9.98	15.79	16.01
5240MHz	Pass	6.99	9.18	8.84	9.27	9.57	15.06	16.01
5745MHz	Pass	6.99	8.40	8.72	8.58	8.74	14.42	29.01
5785MHz	Pass	6.99	8.50	8.46	8.60	8.28	14.18	29.01
5825MHz	Pass	6.99	8.75	8.18	8.48	8.38	14.04	29.01
802.11ax HEW20_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5180MHz	Pass	6.99	6.00	5.00	5.90	5.67	11.61	16.01
5200MHz	Pass	6.99	8.17	7.75	8.35	8.60	14.07	16.01
5240MHz	Pass	6.99	9.07	8.61	9.27	9.11	14.78	16.01
5745MHz	Pass	6.99	7.47	7.71	7.46	7.84	13.50	29.01
5785MHz	Pass	6.99	7.88	7.53	7.43	7.47	13.34	29.01
5825MHz	Pass	6.99	7.69	7.02	8.02	7.35	13.24	29.01
802.11ax HEW40_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5190MHz	Pass	6.99	0.61	-0.19	0.77	0.66	6.27	16.01
5230MHz	Pass	6.99	3.96	3.58	4.26	4.61	9.85	16.01
5755MHz	Pass	6.99	3.78	3.75	4.37	4.25	9.52	29.01
5795MHz	Pass	6.99	4.18	4.28	4.90	4.75	10.28	29.01
802.11ax HEW80_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5210MHz	Pass	6.99	-2.62	-2.73	-2.48	-2.10	3.34	16.01
5775MHz	Pass	6.99	-2.20	-2.33	-1.43	-2.12	3.46	29.01
802.11ax HEW20-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5180MHz	Pass	6.99	3.37	5.67	3.73	3.80	9.93	16.01
5200MHz	Pass	6.99	4.56	5.77	4.80	4.89	10.56	16.01
5240MHz	Pass	6.99	4.34	4.36	5.64	4.51	10.41	16.01
5745MHz	Pass	6.99	2.56	3.19	3.02	3.59	8.91	29.01
5785MHz	Pass	6.99	2.54	3.23	2.03	3.24	8.56	29.01
5825MHz	Pass	6.99	2.64	3.56	2.75	3.65	8.86	29.01
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5190MHz	Pass	6.99	4.59	-0.36	4.99	3.90	9.60	16.01
5230MHz	Pass	6.99	2.48	0.68	1.16	1.19	7.15	16.01
5755MHz	Pass	6.99	-1.45	-0.82	1.29	-0.59	5.42	29.01
5795MHz	Pass	6.99	0.64	1.25	0.10	0.91	6.26	29.01
802.11ax HEW80-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5210MHz	Pass	6.99	2.69	2.77	-0.54	-3.14	6.84	16.01
5775MHz	Pass	6.99	-5.08	-4.83	0.81	1.58	4.92	29.01

**DG** = Directional Gain; **RBW** = 500kHz for 5.725-5.85GHz band / 1MHz for other band;

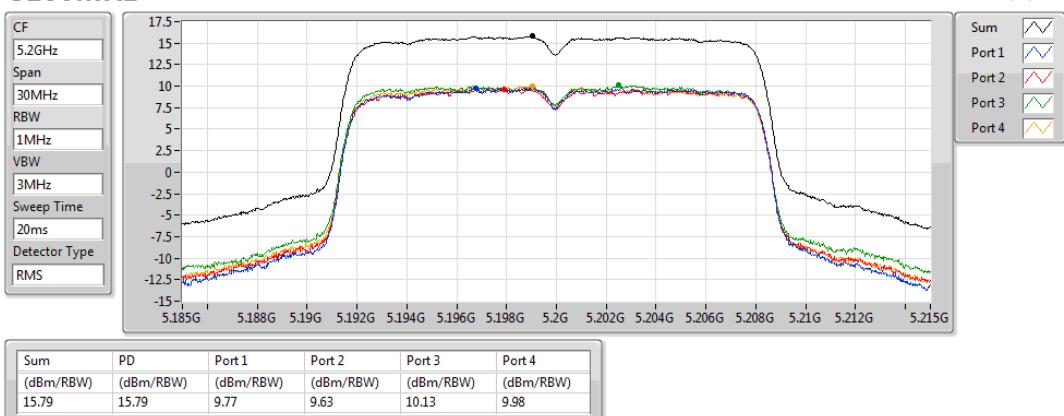
**PD** = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port Xpower density;

**802.11a\_Nss1,(6Mbps)\_4TX**
**PSD**
**5180MHz**

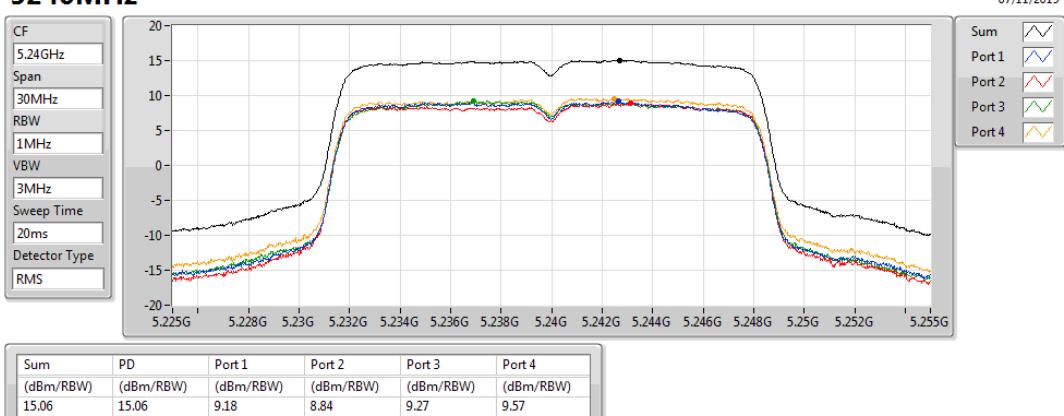
07/11/2019


**802.11a\_Nss1,(6Mbps)\_4TX**
**PSD**
**5200MHz**

07/11/2019

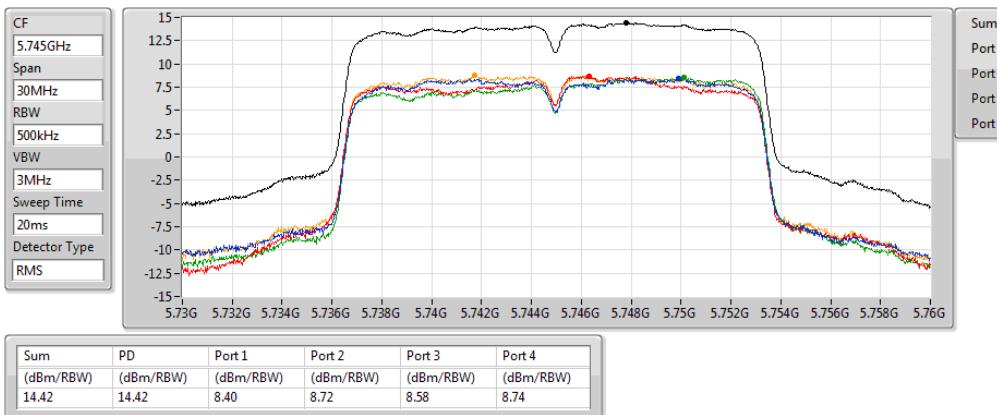

**802.11a\_Nss1,(6Mbps)\_4TX**
**PSD**
**5240MHz**

07/11/2019

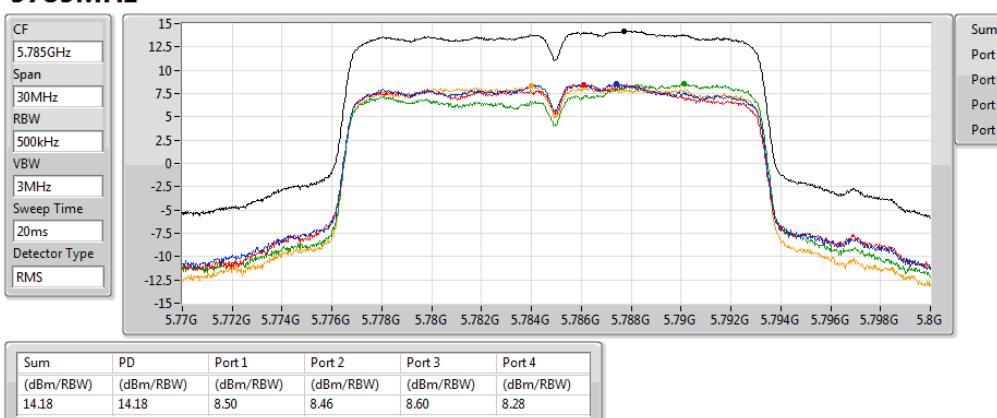


**802.11a\_Nss1,(6Mbps)\_4TX**
**PSD**
**5745MHz**

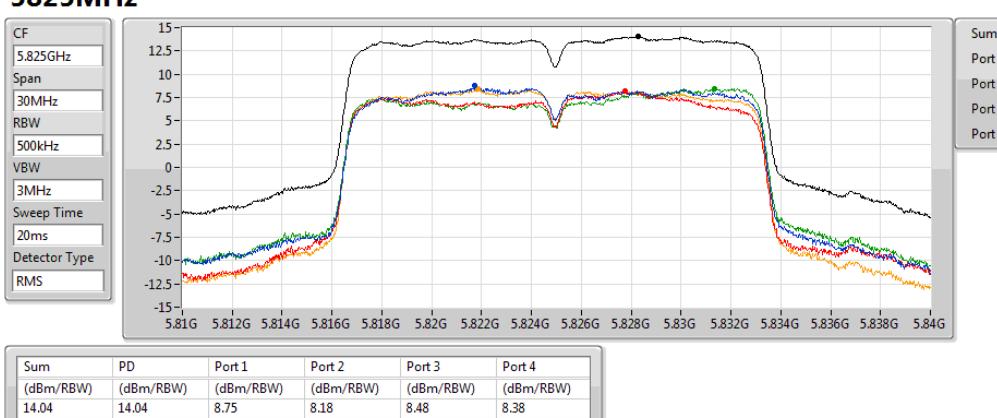
07/11/2019


**802.11a\_Nss1,(6Mbps)\_4TX**
**PSD**
**5785MHz**

07/11/2019

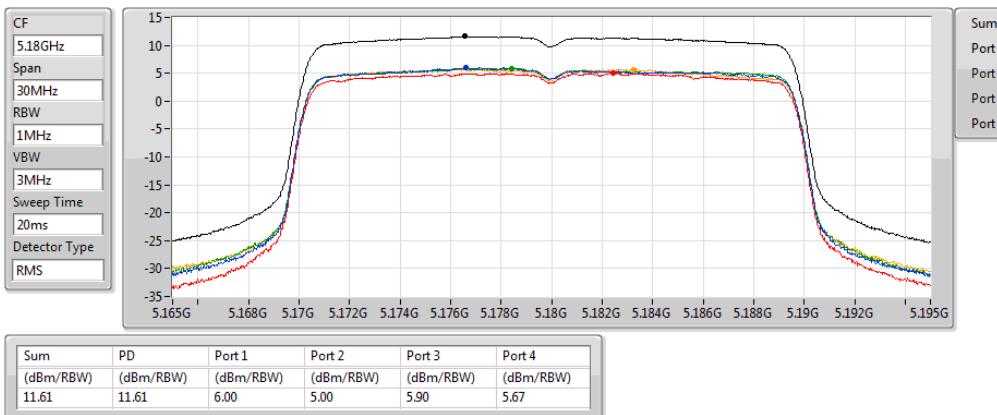

**802.11a\_Nss1,(6Mbps)\_4TX**
**PSD**
**5825MHz**

07/11/2019

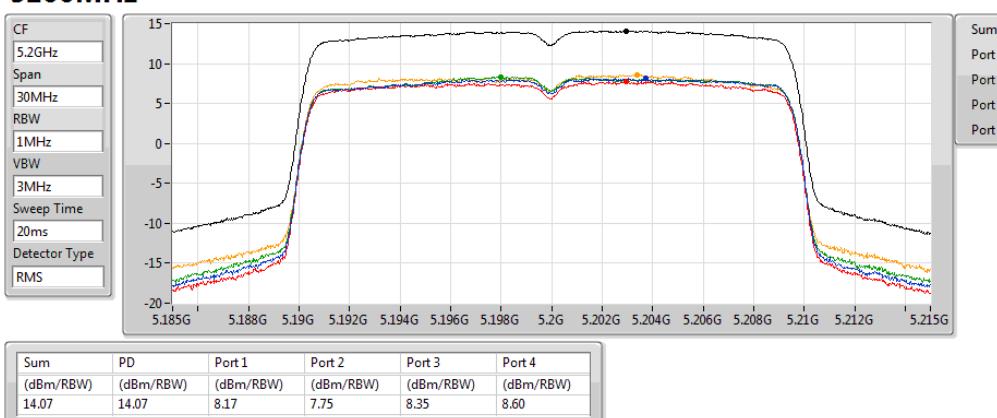


**802.11ax HEW20\_Nss1,(MCS0)\_4TX**
**PSD**
**5180MHz**

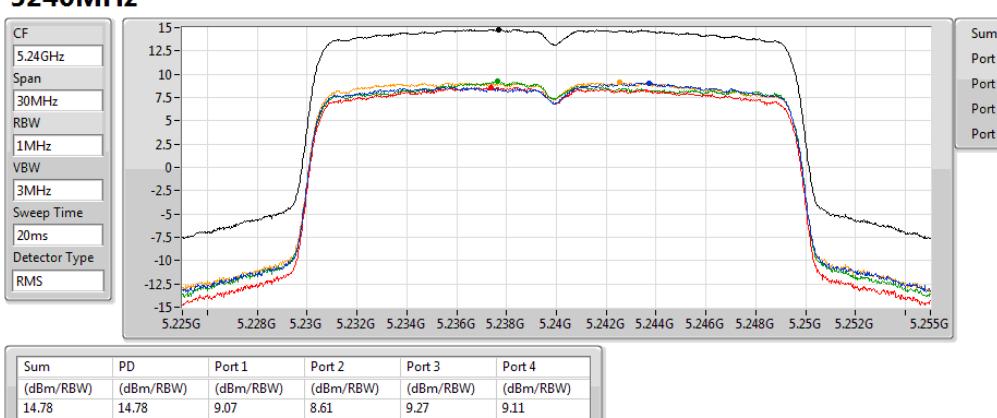
07/11/2019


**802.11ax HEW20\_Nss1,(MCS0)\_4TX**
**PSD**
**5200MHz**

07/11/2019

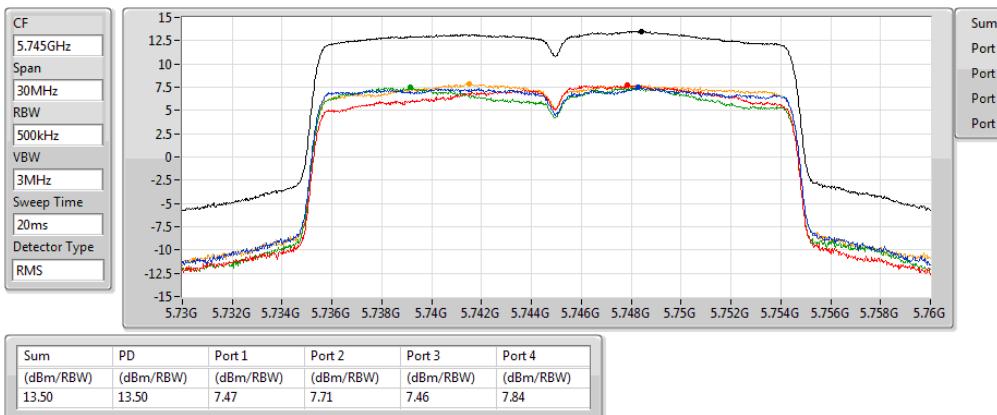

**802.11ax HEW20\_Nss1,(MCS0)\_4TX**
**PSD**
**5240MHz**

07/11/2019

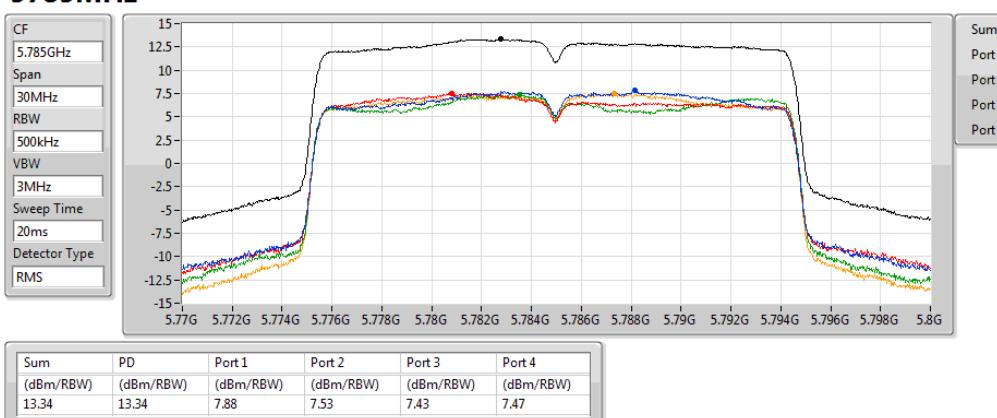


**802.11ax HEW20\_Nss1,(MCS0)\_4TX**
**PSD**
**5745MHz**

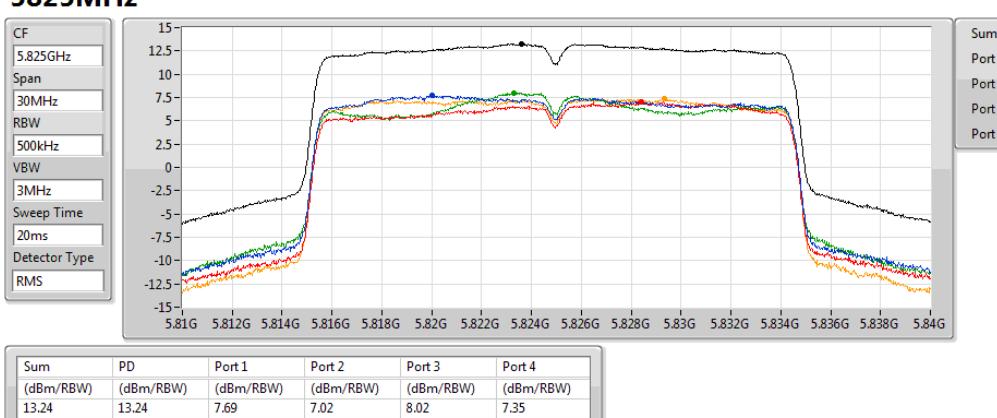
07/11/2019


**802.11ax HEW20\_Nss1,(MCS0)\_4TX**
**PSD**
**5785MHz**

07/11/2019

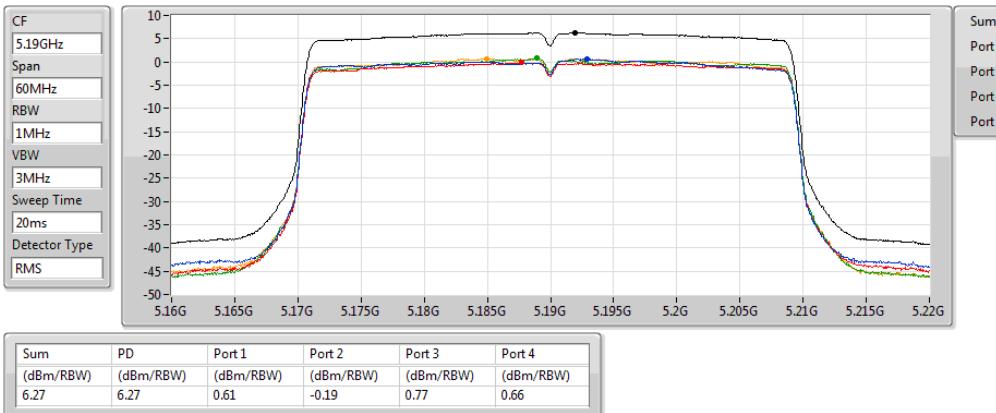

**802.11ax HEW20\_Nss1,(MCS0)\_4TX**
**PSD**
**5825MHz**

07/11/2019

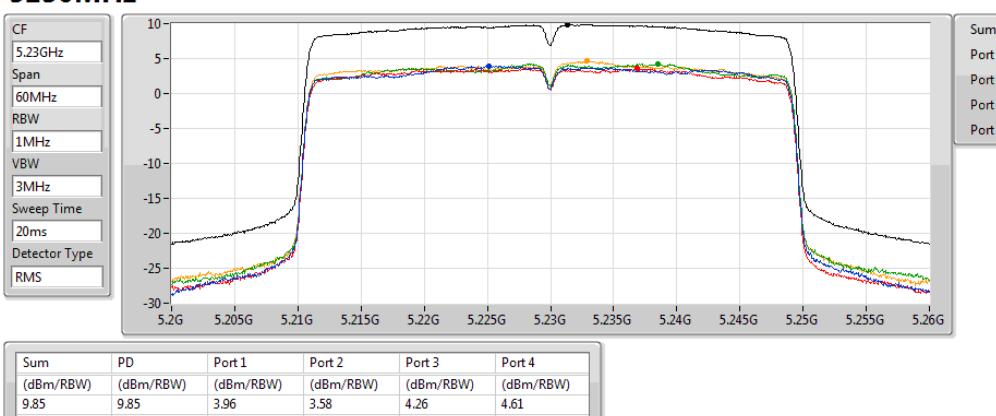


**802.11ax HEW40\_Nss1,(MCS0)\_4TX**
**PSD**
**5190MHz**

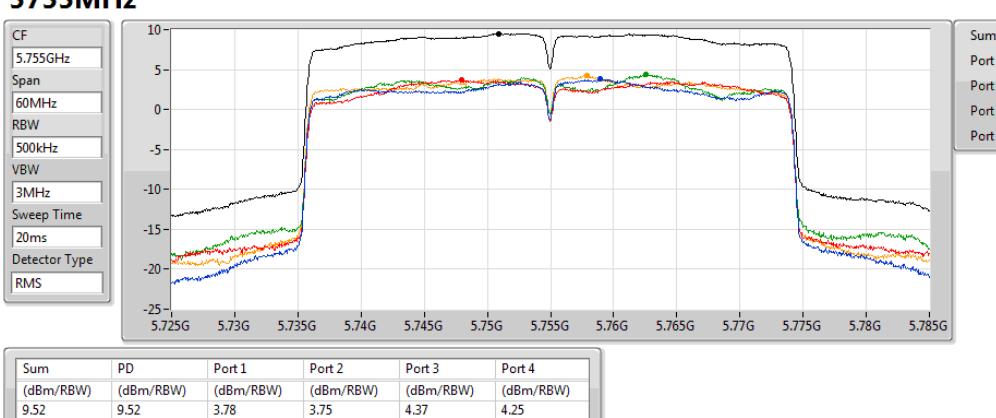
07/11/2019


**802.11ax HEW40\_Nss1,(MCS0)\_4TX**
**PSD**
**5230MHz**

07/11/2019

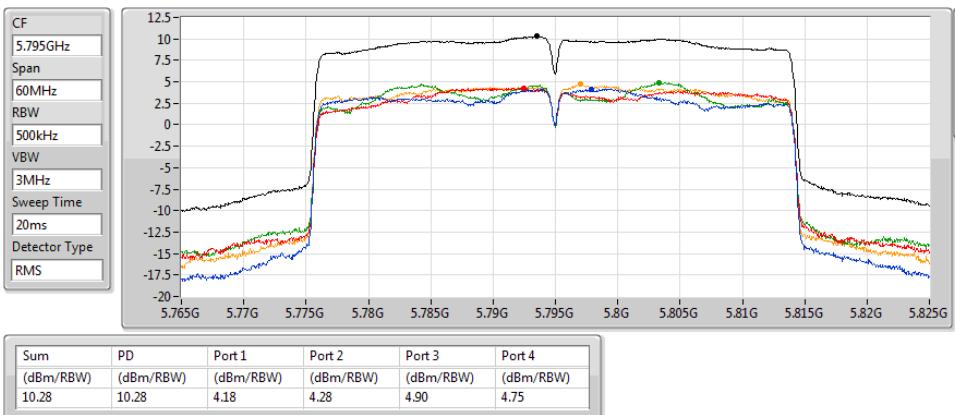

**802.11ax HEW40\_Nss1,(MCS0)\_4TX**
**PSD**
**5755MHz**

07/11/2019

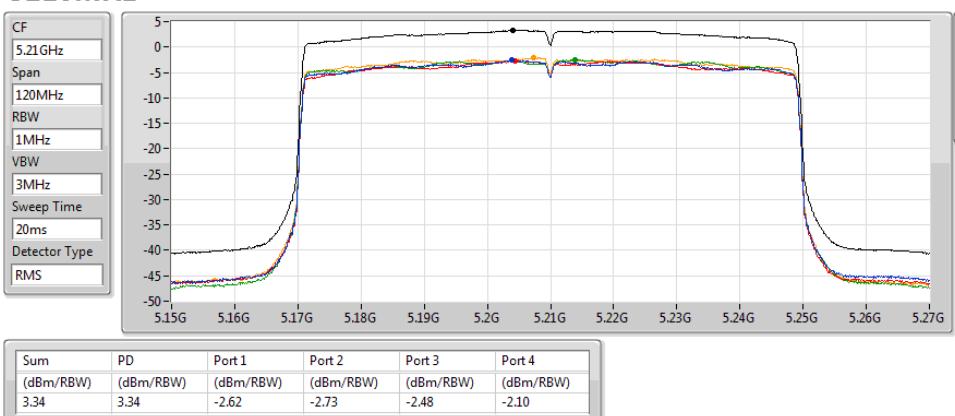


**802.11ax HEW40\_Nss1,(MCS0)\_4TX**
**PSD**
**5795MHz**

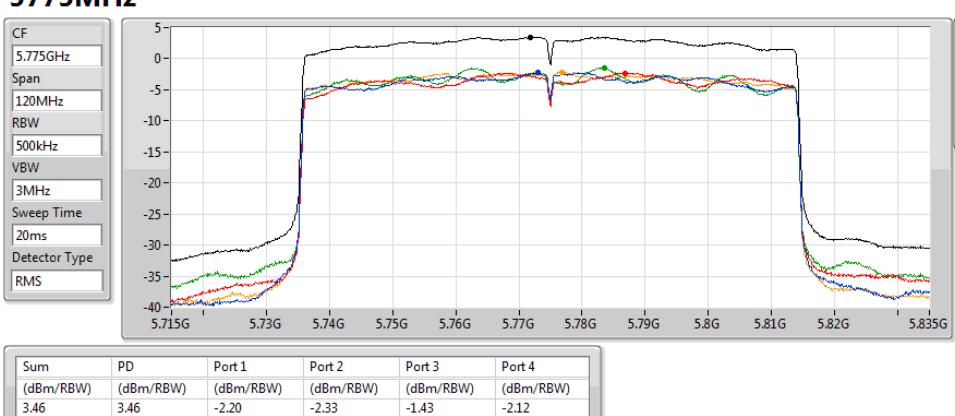
07/11/2019


**PSD**
**802.11ax HEW80\_Nss1,(MCS0)\_4TX**
**5210MHz**

07/11/2019

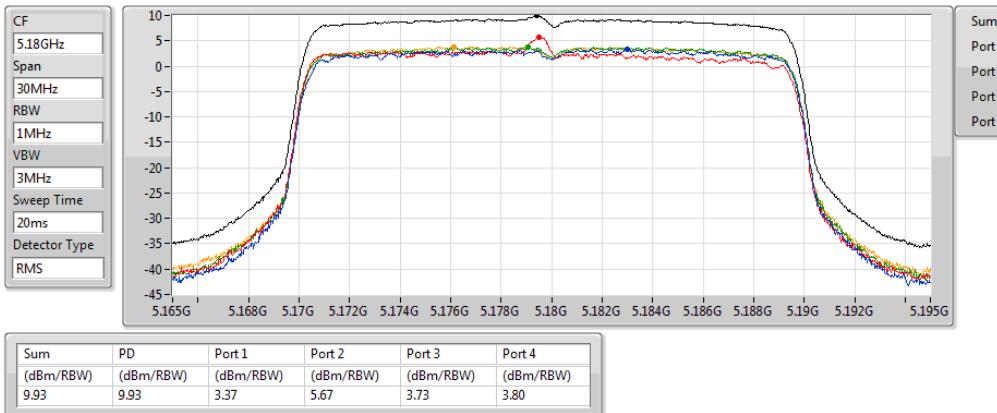

**PSD**
**802.11ax HEW80\_Nss1,(MCS0)\_4TX**
**5775MHz**

07/11/2019

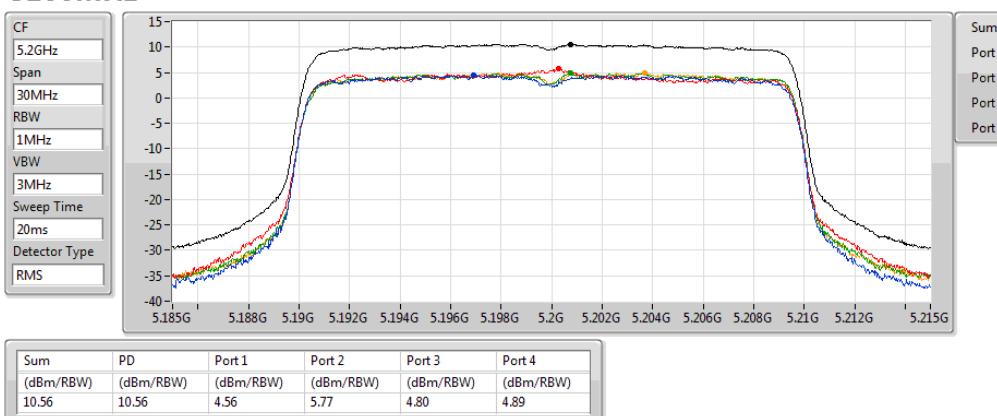


**802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX**
**PSD**
**5180MHz**

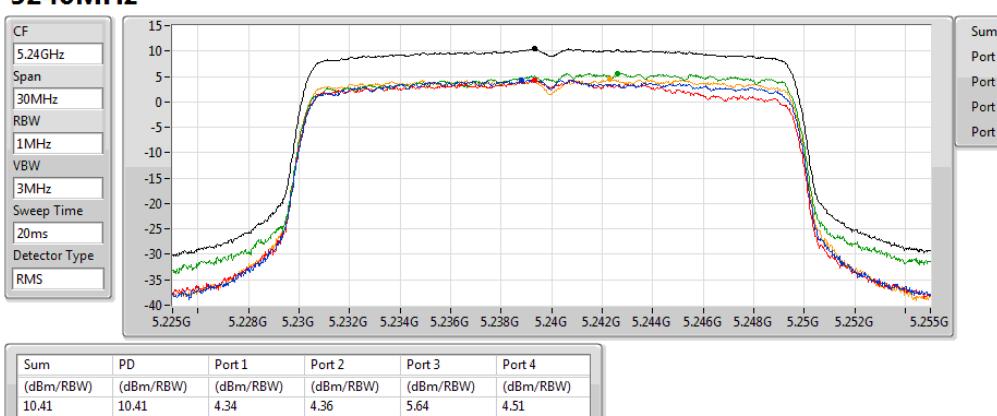
24/12/2019


**802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX**
**PSD**
**5200MHz**

24/12/2019

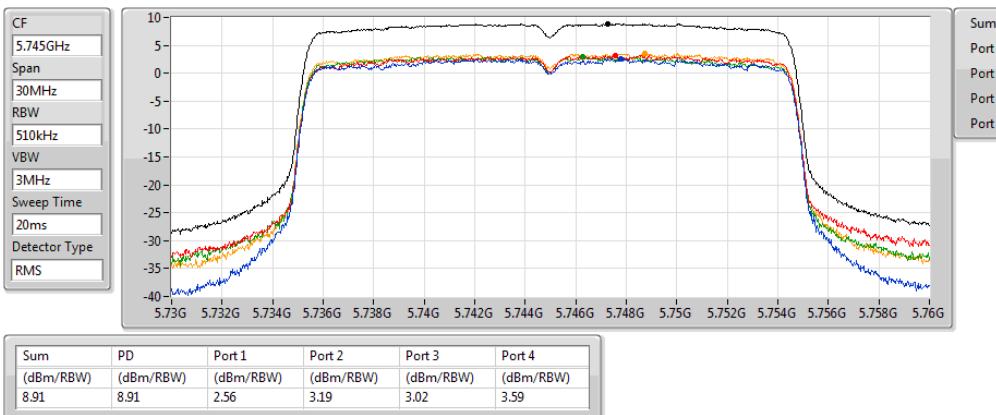

**802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX**
**PSD**
**5240MHz**

24/12/2019

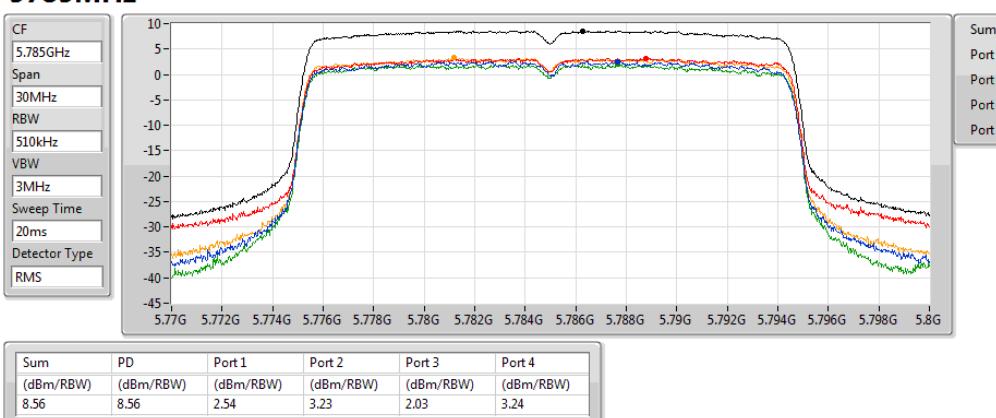


**802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX**
**PSD**
**5745MHz**

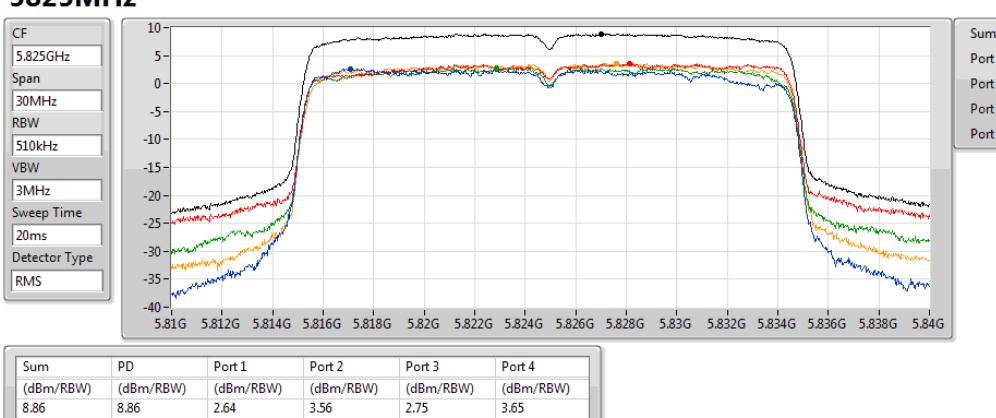
24/12/2019


**802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX**
**PSD**
**5785MHz**

24/12/2019

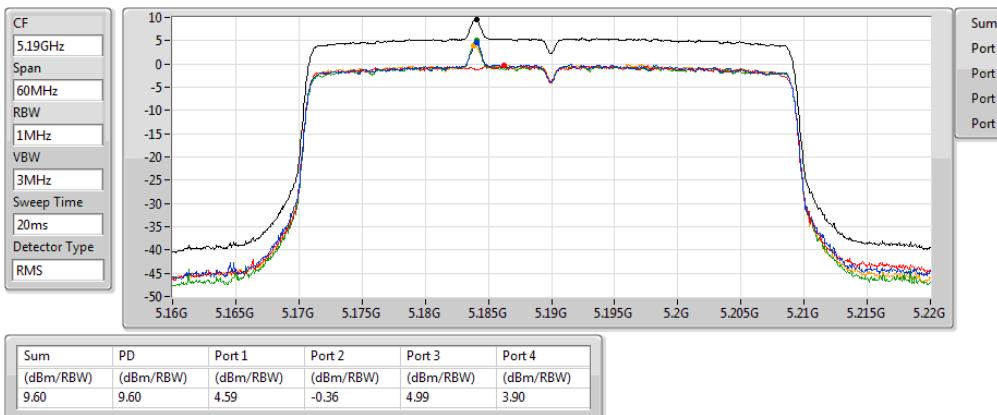

**802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX**
**PSD**
**5825MHz**

24/12/2019

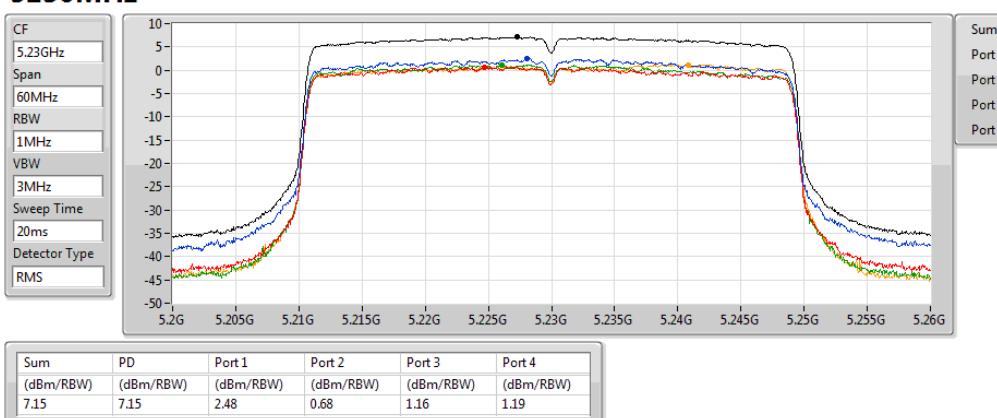


**802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX**
**PSD**
**5190MHz**

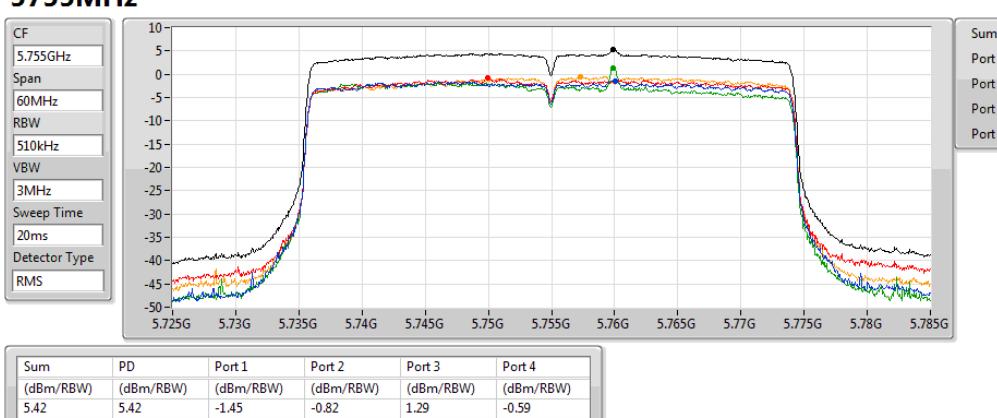
24/12/2019

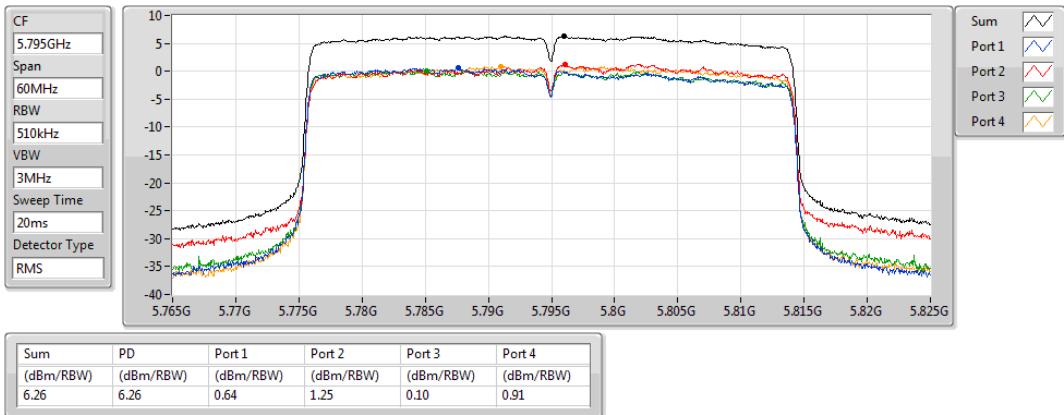
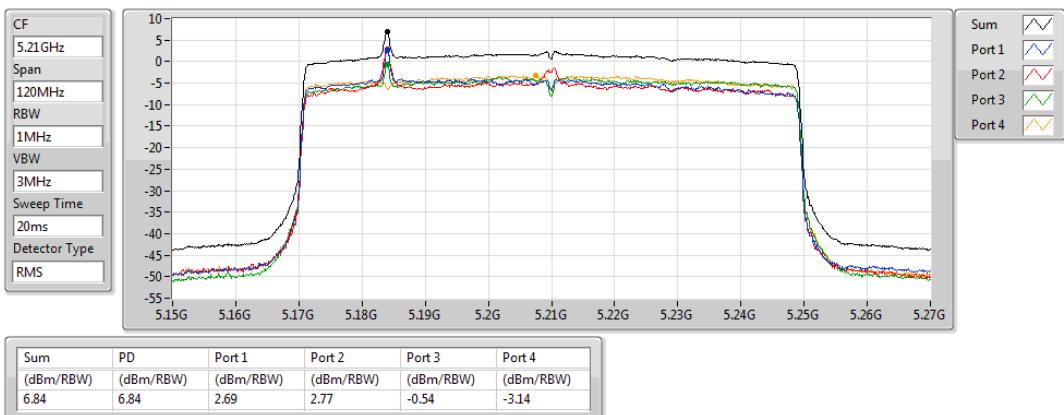
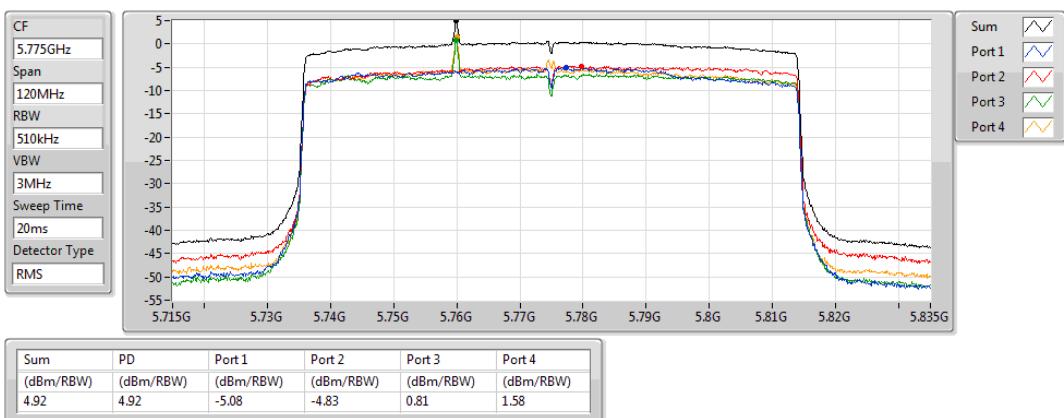

**802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX**
**PSD**
**5230MHz**

24/12/2019


**802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX**
**PSD**
**5755MHz**

24/12/2019

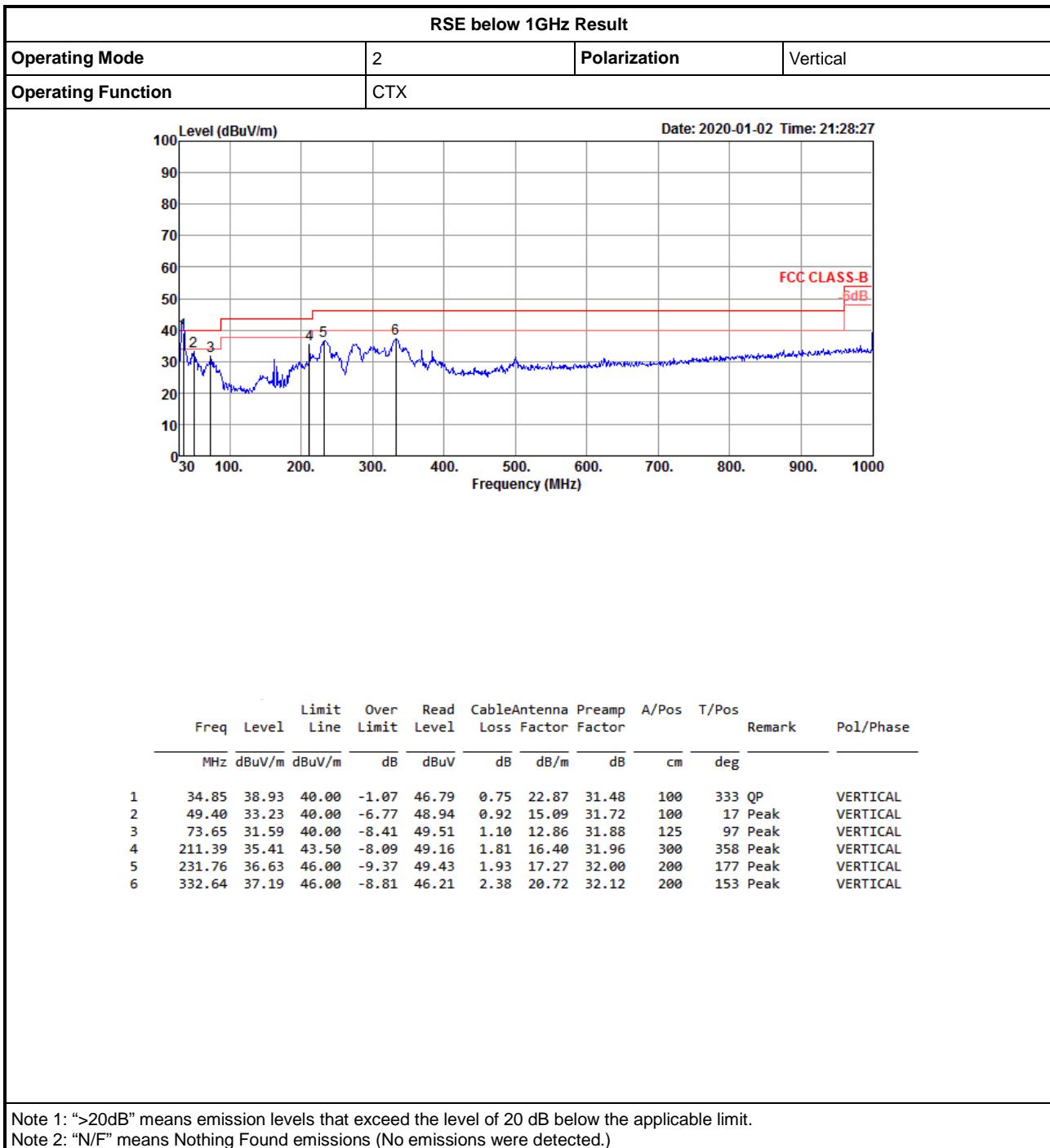


**802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX**
**5795MHz**

**802.11ax HEW80-BF\_Nss1,(MCS0)\_4TX**
**5210MHz**

**802.11ax HEW80-BF\_Nss1,(MCS0)\_4TX**
**5775MHz**




## RSE below 1GHz Result

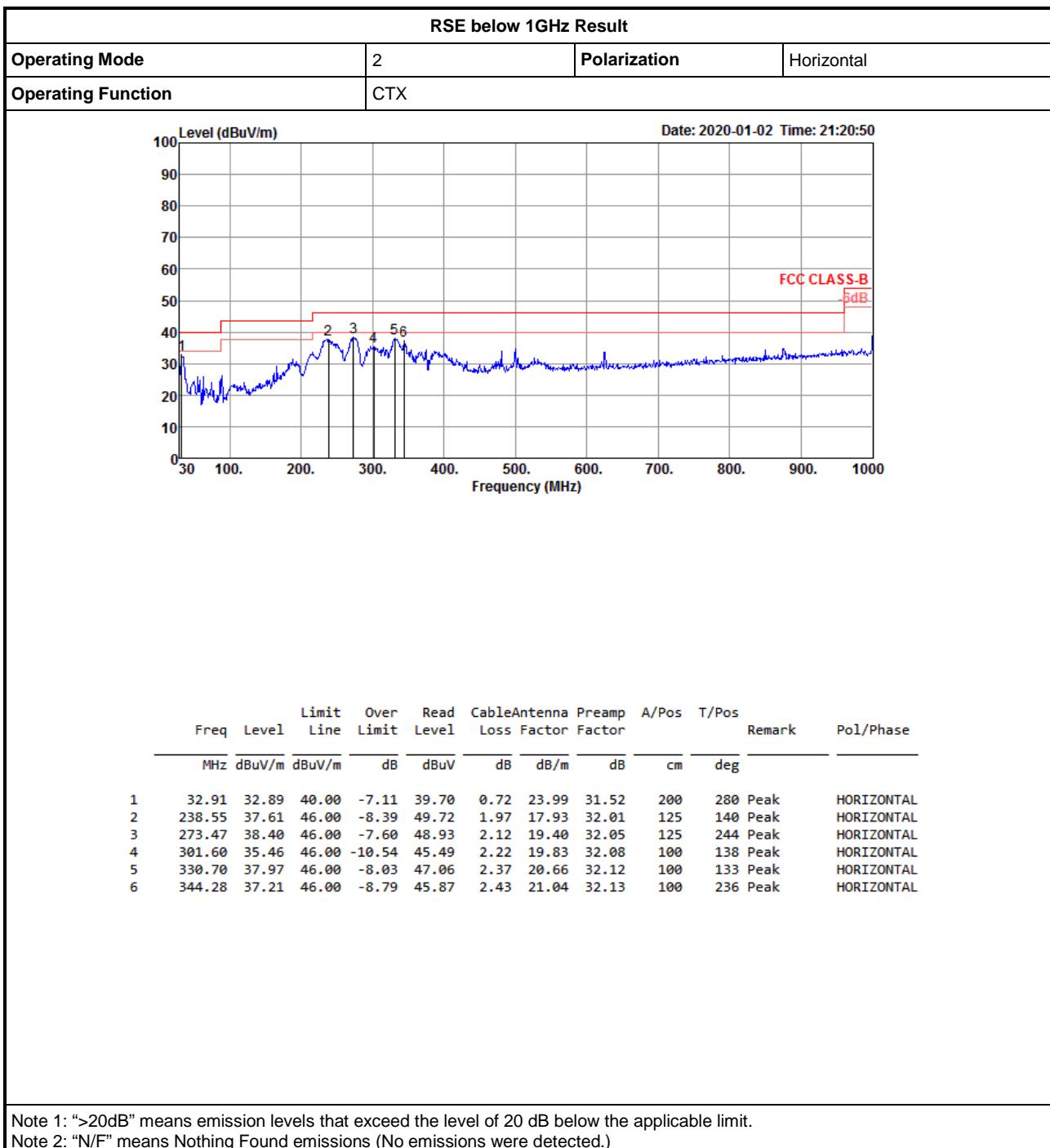
Appendix E.1





## RSE below 1GHz Result

## Appendix E.1



**<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
5.15-5.25GHz	-	-	-	-	-	-	-	-	-	-	-	-
802.11ax HEW80_Nss1,(MCS0)_4TX	Pass	AV	5.131G	53.92	54.00	-0.08	4.24	3	Horizontal	60	1.63	-

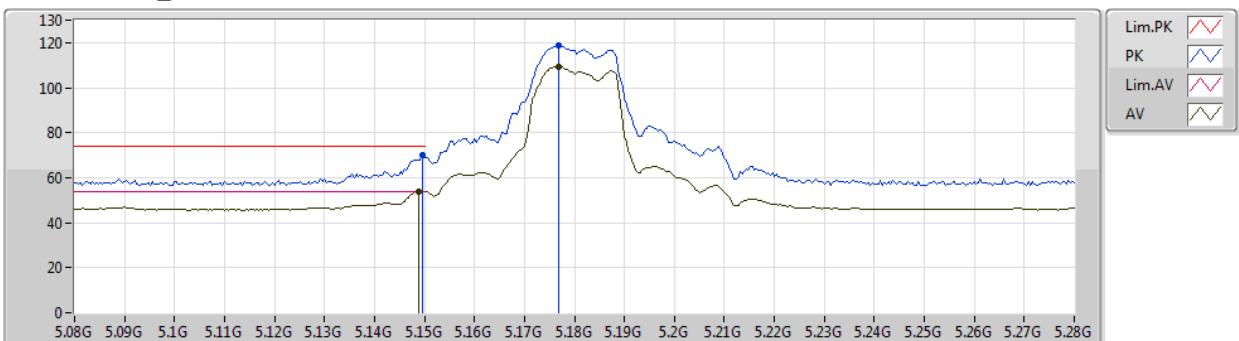
**802.11a\_Nss1,(6Mbps)\_4TX**

24/10/2019

**5180MHz\_TX**


**802.11a\_Nss1,(6Mbps)\_4TX**

24/10/2019

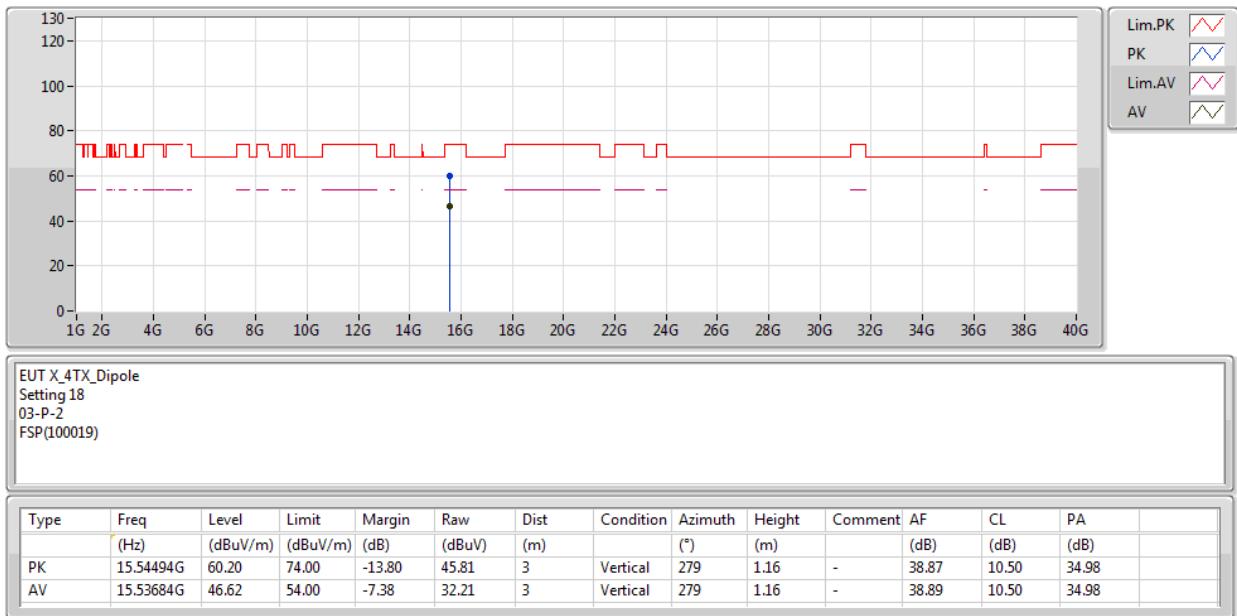
**5180MHz\_TX**


EUT X\_4TX\_Dipole  
 Setting 18  
 01-J-5-10  
 FSP(100019)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (*)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)	
PK	5.1496G	70.03	74.00	-3.97	65.78	3	Horizontal	58	1.83	-	33.05	5.65	34.45	
AV	5.1488G	53.83	54.00	-0.17	49.58	3	Horizontal	58	1.83	-	33.05	5.65	34.45	
PK	5.1768G	118.80	Inf	-Inf	114.54	3	Horizontal	58	1.83	-	33.08	5.64	34.46	
AV	5.1768G	109.37	Inf	-Inf	105.11	3	Horizontal	58	1.83	-	33.08	5.64	34.46	

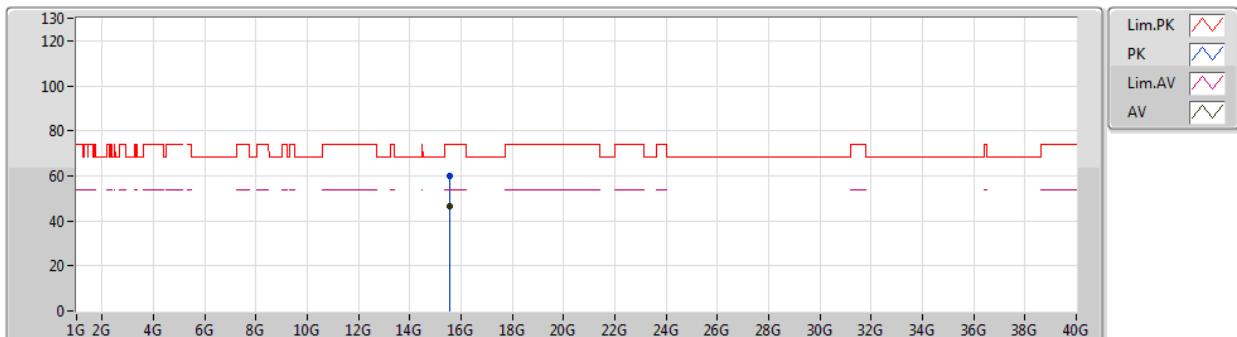
**802.11a\_Nss1,(6Mbps)\_4TX**

24/10/2019

**5180MHz\_TX**


**802.11a\_Nss1,(6Mbps)\_4TX**

24/10/2019

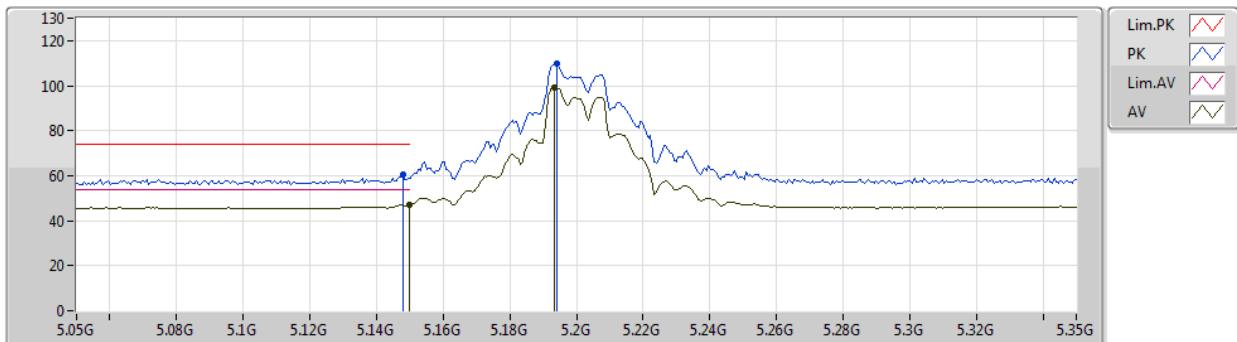
**5180MHz\_TX**


EUT X\_4TX\_Dipole  
 Setting 18  
 03-P-2  
 FSP(100019)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment (dB)	AF (dB)	CL (dB)	PA (dB)	
PK	15.53744G	59.69	74.00	-14.31	45.28	3	Horizontal	139	2.20	-	38.89	10.50	34.98	
AV	15.54024G	46.56	54.00	-7.44	32.16	3	Horizontal	139	2.20	-	38.88	10.50	34.98	

**802.11a\_Nss1,(6Mbps)\_4TX**

24/10/2019

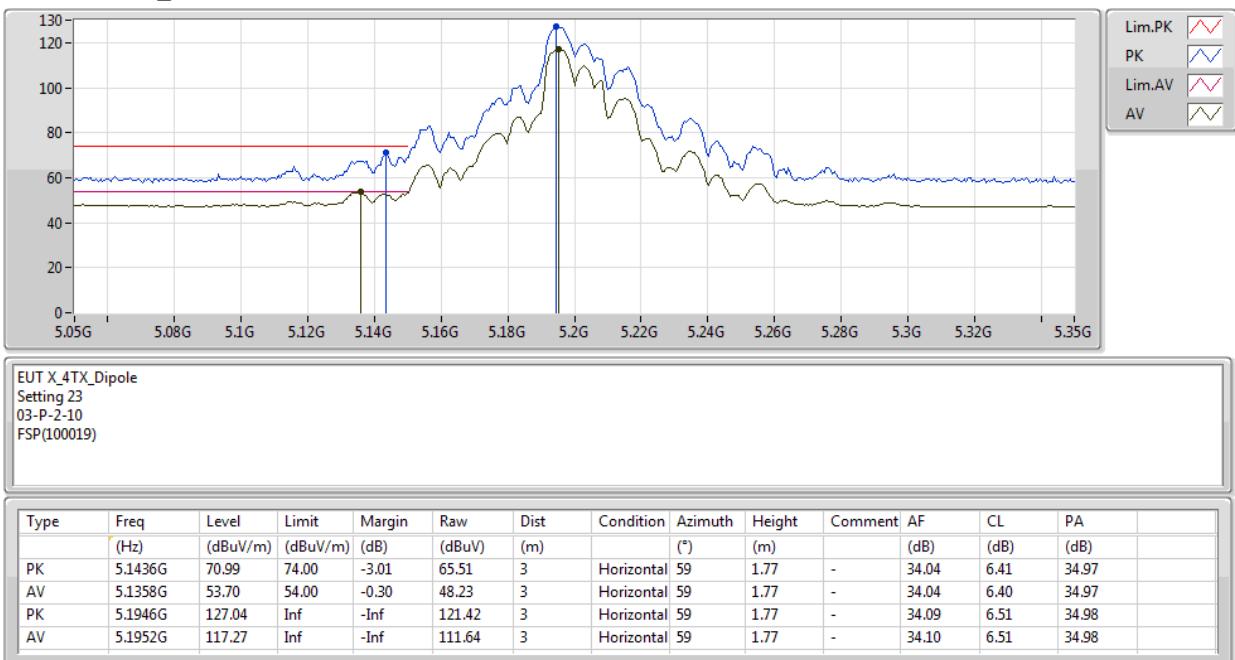
**5200MHz\_TX**


EUT\_X\_4TX\_Dipole  
Setting 23  
03-P-2-10  
FSP(100019)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment (dB)	AF (dB)	CL (dB)	PA (dB)
PK	5.1478G	60.26	74.00	-13.74	54.76	3	Vertical	104	1.33	-	34.05	6.42	34.97
AV	5.15G	46.90	54.00	-7.10	41.40	3	Vertical	104	1.33	-	34.05	6.42	34.97
PK	5.194G	109.77	Inf	-Inf	104.15	3	Vertical	104	1.33	-	34.09	6.51	34.98
AV	5.1934G	99.26	Inf	-Inf	93.64	3	Vertical	104	1.33	-	34.09	6.51	34.98

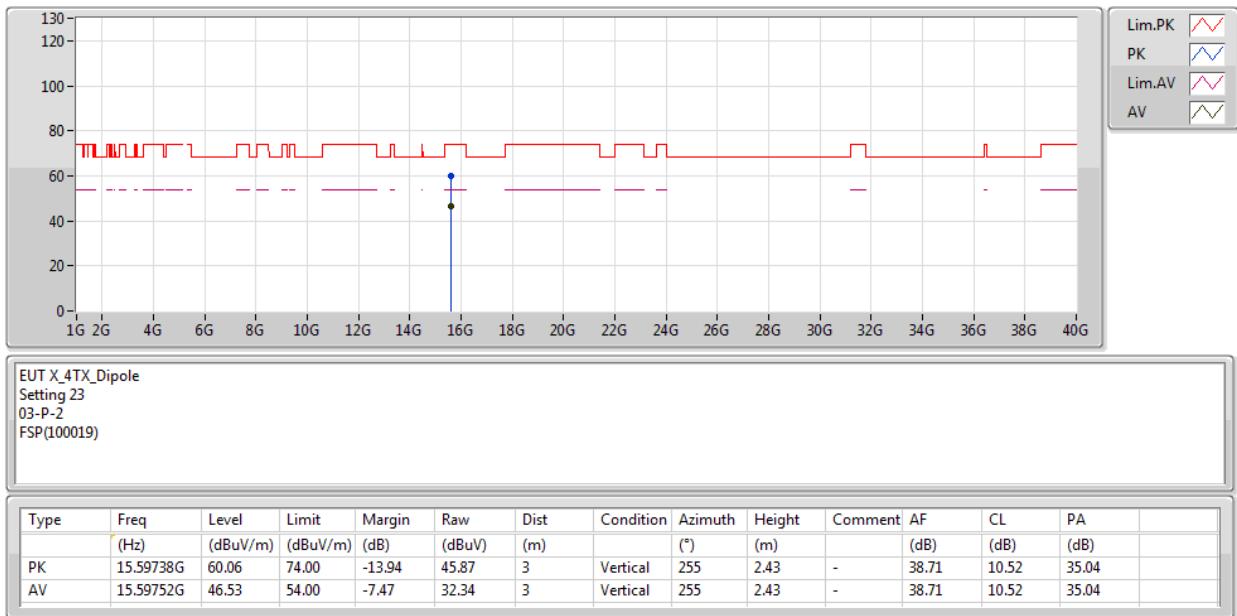
**802.11a\_Nss1,(6Mbps)\_4TX**

24/10/2019

**5200MHz\_TX**


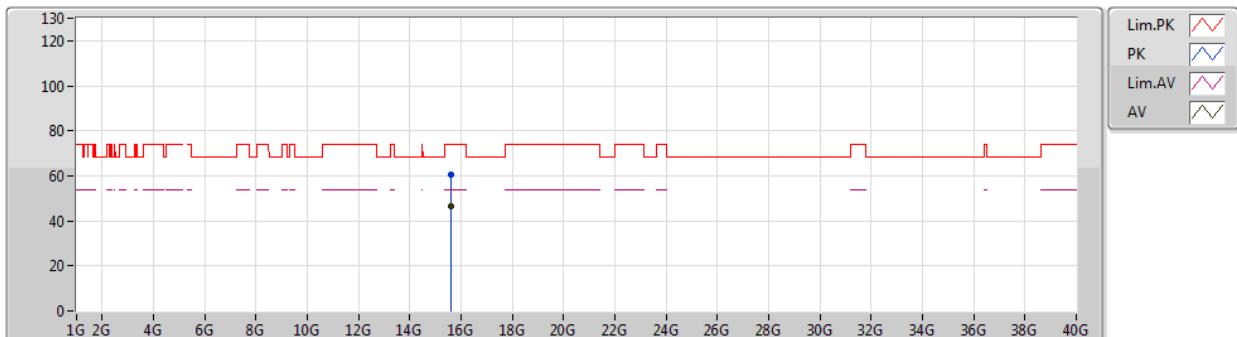
**802.11a\_Nss1,(6Mbps)\_4TX**

24/10/2019

**5200MHz\_TX**


**802.11a\_Nss1,(6Mbps)\_4TX**

24/10/2019

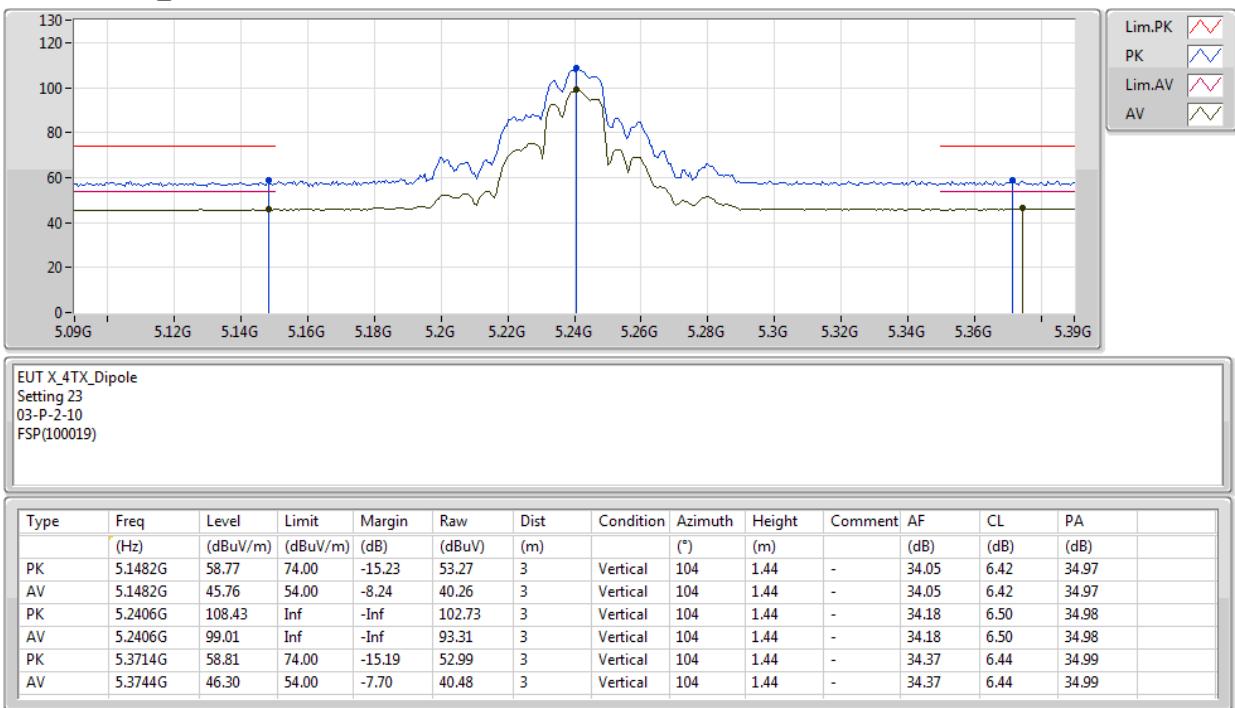
**5200MHz\_TX**


EUT X\_4TX\_Dipole  
 Setting 23  
 03-P-2  
 FSP(100019)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment (dB)	AF (dB)	CL (dB)	PA (dB)
PK	15.599G	60.25	74.00	-13.75	46.07	3	Horizontal	320	1.97	-	38.70	10.52	35.04
AV	15.5985G	46.53	54.00	-7.47	32.35	3	Horizontal	320	1.97	-	38.70	10.52	35.04

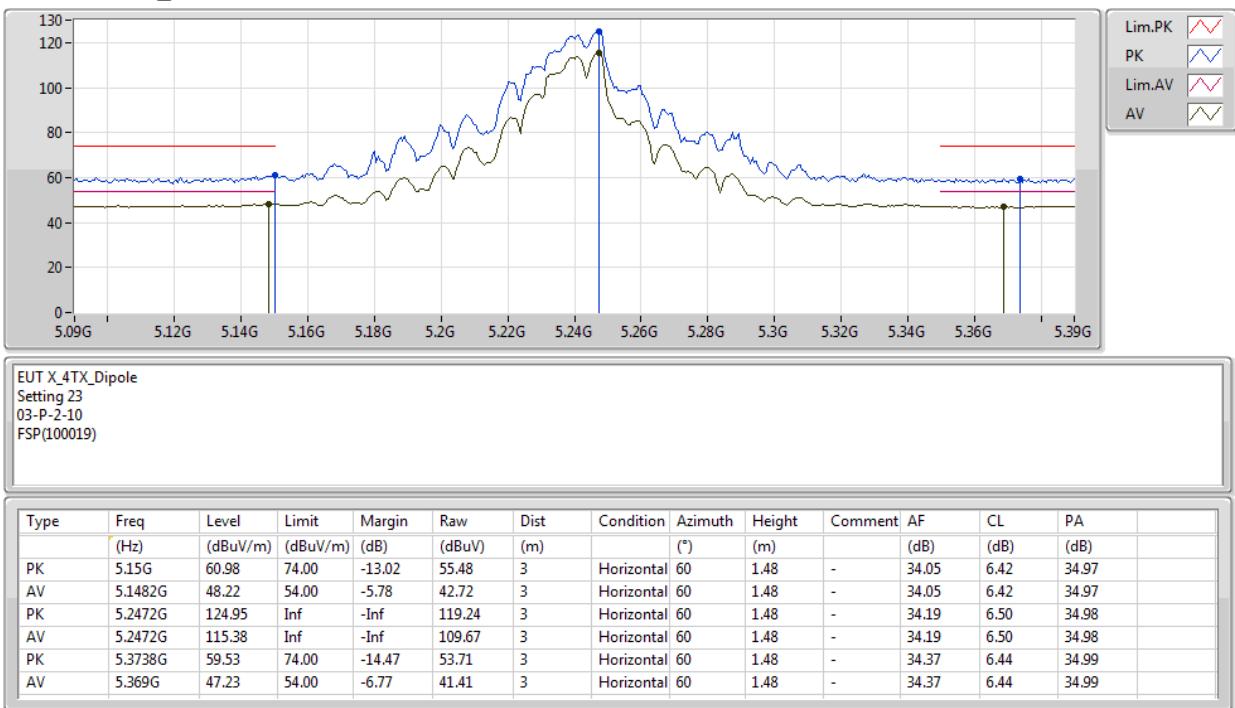
**802.11a\_Nss1,(6Mbps)\_4TX**

24/10/2019

**5240MHz\_TX**


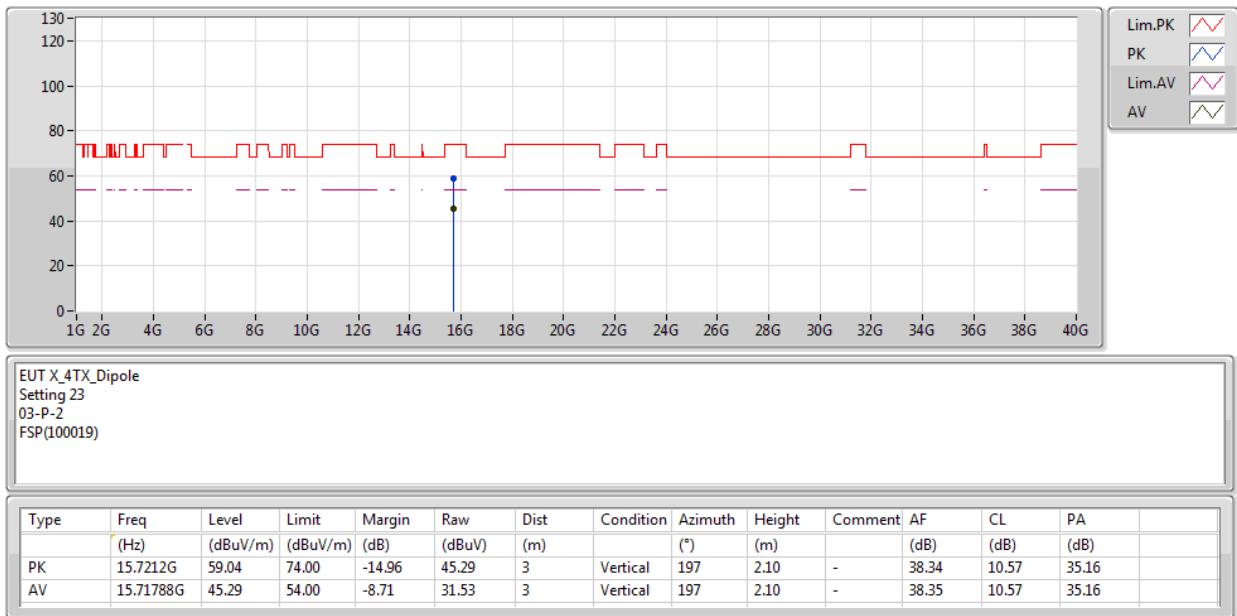
**802.11a\_Nss1,(6Mbps)\_4TX**

24/10/2019

**5240MHz\_TX**


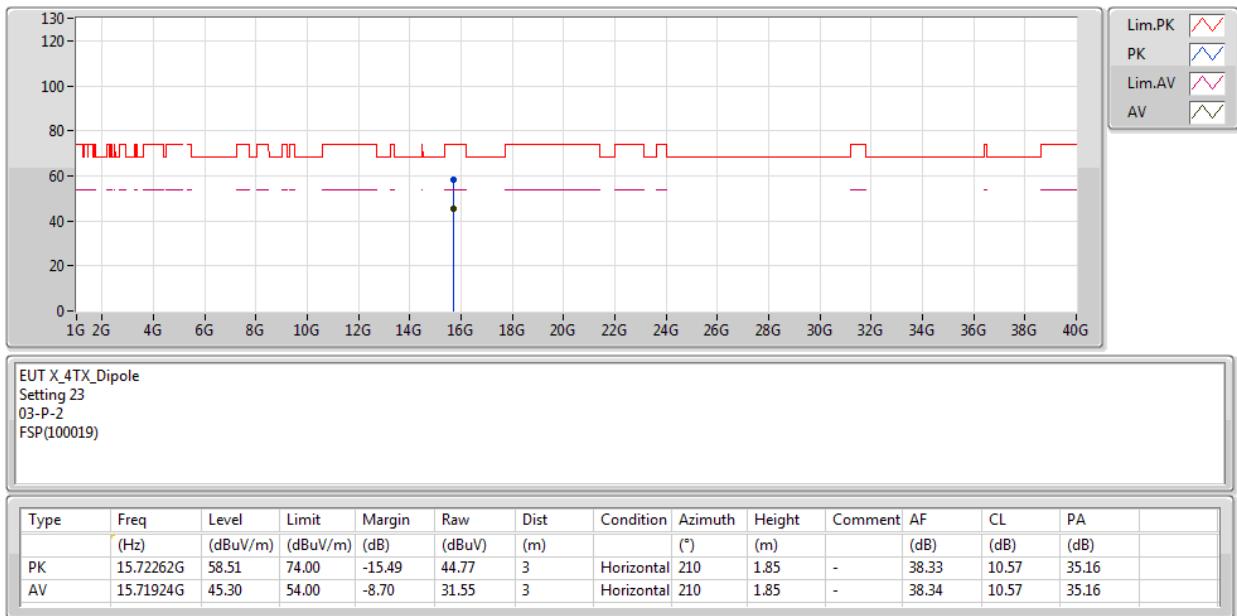
**802.11a\_Nss1,(6Mbps)\_4TX**

24/10/2019

**5240MHz\_TX**


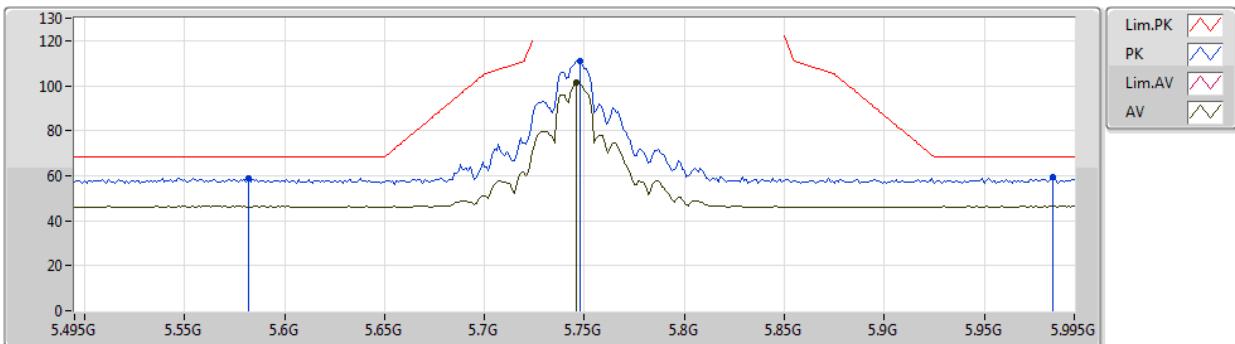
**802.11a\_Nss1,(6Mbps)\_4TX**

24/10/2019

**5240MHz\_TX**


**802.11a\_Nss1,(6Mbps)\_4TX**

24/10/2019

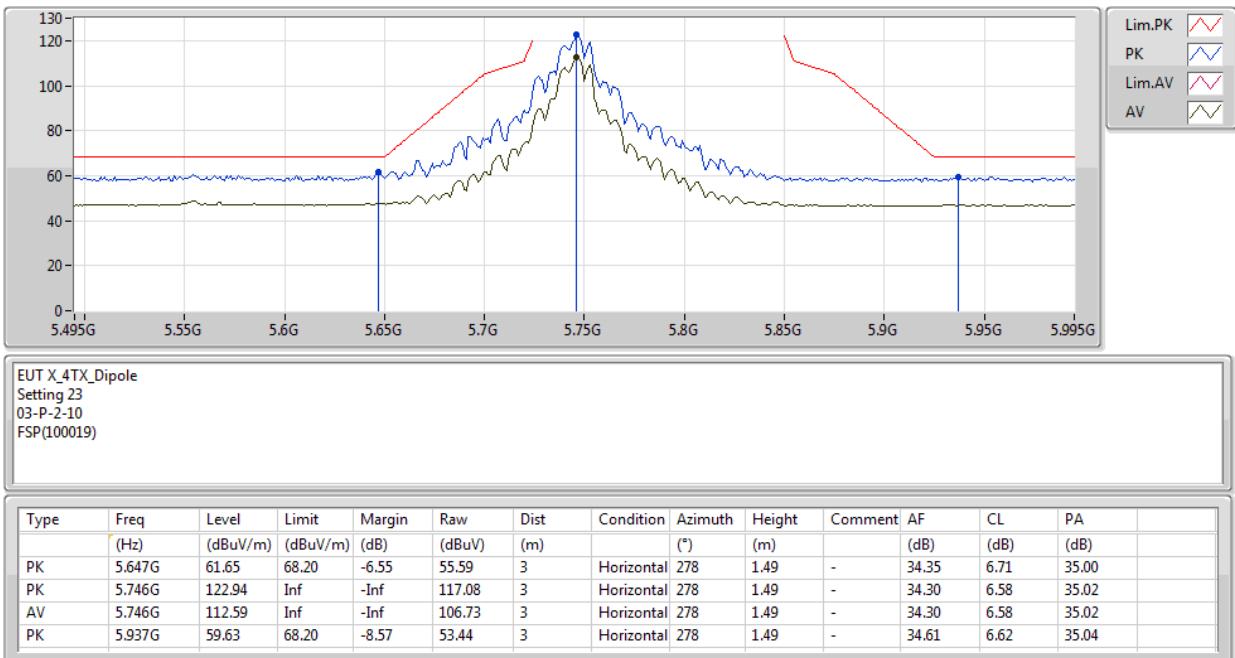
**5745MHz\_TX**


EUT\_X\_4TX\_Dipole  
 Setting 23  
 03-P-2-10  
 FSP(100019)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (*)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)	
PK	5.582G	59.00	68.20	-9.20	52.84	3	Vertical	69	1.42	-	34.42	6.74	35.00	
PK	5.748G	110.92	Inf	-Inf	105.06	3	Vertical	69	1.42	-	34.30	6.58	35.02	
AV	5.746G	101.68	Inf	-Inf	95.82	3	Vertical	69	1.42	-	34.30	6.58	35.02	
PK	5.984G	59.15	68.20	-9.05	52.79	3	Vertical	69	1.42	-	34.75	6.66	35.05	

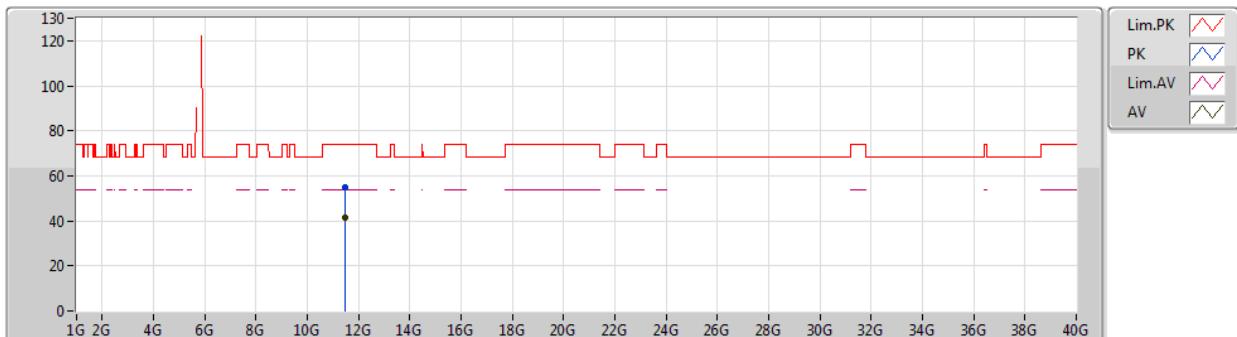
**802.11a\_Nss1,(6Mbps)\_4TX**

24/10/2019

**5745MHz\_TX**


**802.11a\_Nss1,(6Mbps)\_4TX**

24/10/2019

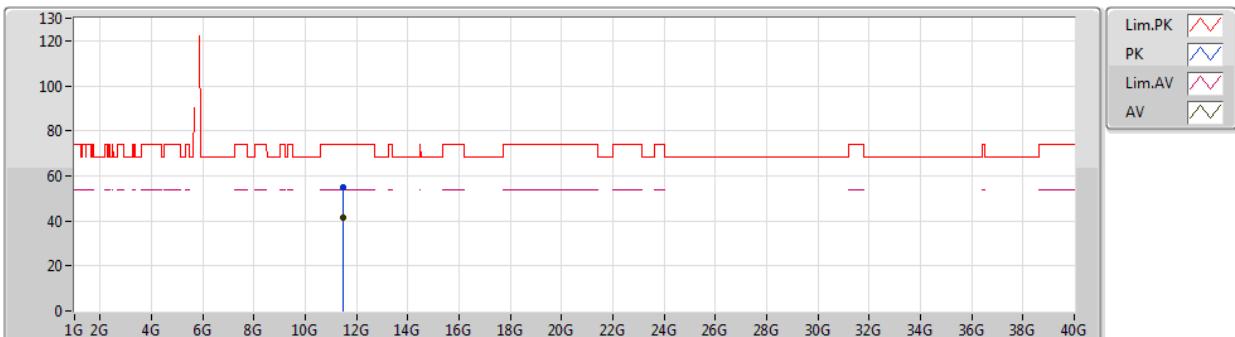
**5745MHz\_TX**


EUT X\_4TX\_Dipole  
 Setting 23  
 03-P-2  
 FSP(100019)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment (dB)	AF (dB)	CL (dB)	PA (dB)
PK	11.49052G	54.98	74.00	-19.02	41.98	3	Vertical	72	1.32	-	38.84	8.94	34.78
AV	11.48756G	41.25	54.00	-12.75	28.25	3	Vertical	72	1.32	-	38.84	8.94	34.78

**802.11a\_Nss1,(6Mbps)\_4TX**

24/10/2019

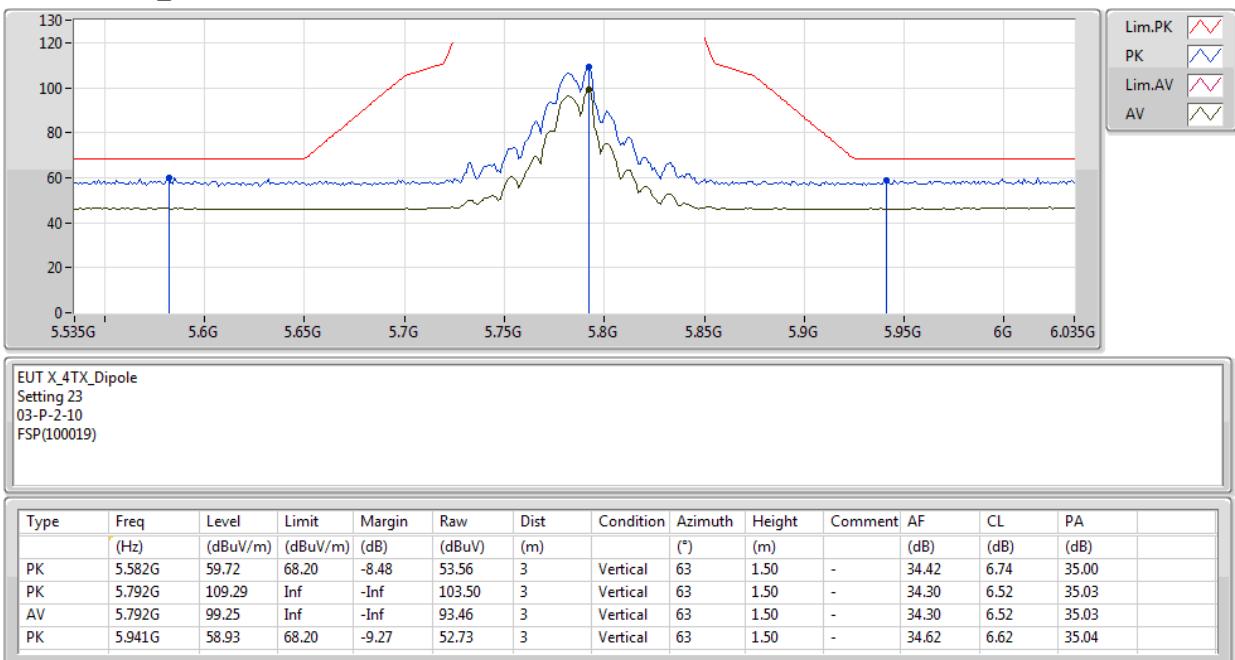
**5745MHz\_TX**


EUT X\_4TX\_Dipole  
 Setting 23  
 03-P-2  
 FSP(100019)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment (dB)	AF (dB)	CL (dB)	PA (dB)
PK	11.493966G	54.93	74.00	-19.07	41.92	3	Horizontal	158	1.48	-	38.85	8.94	34.78
AV	11.489866G	41.57	54.00	-12.43	28.57	3	Horizontal	158	1.48	-	38.84	8.94	34.78

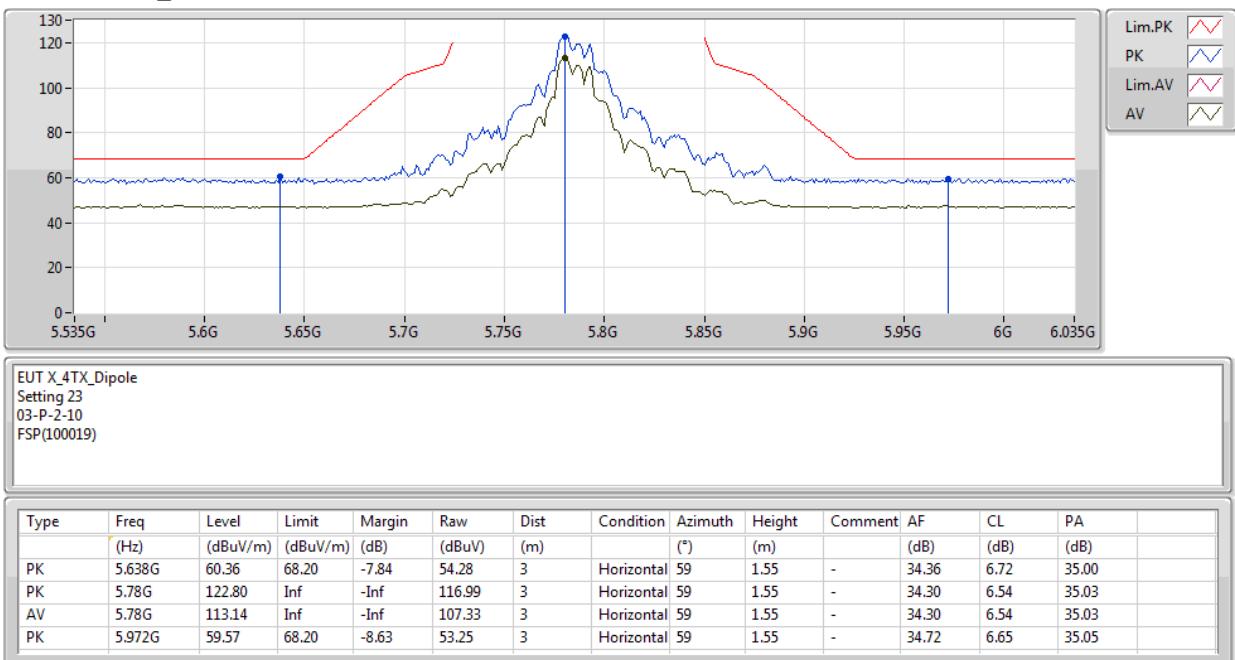
**802.11a\_Nss1,(6Mbps)\_4TX**

24/10/2019

**5785MHz\_TX**


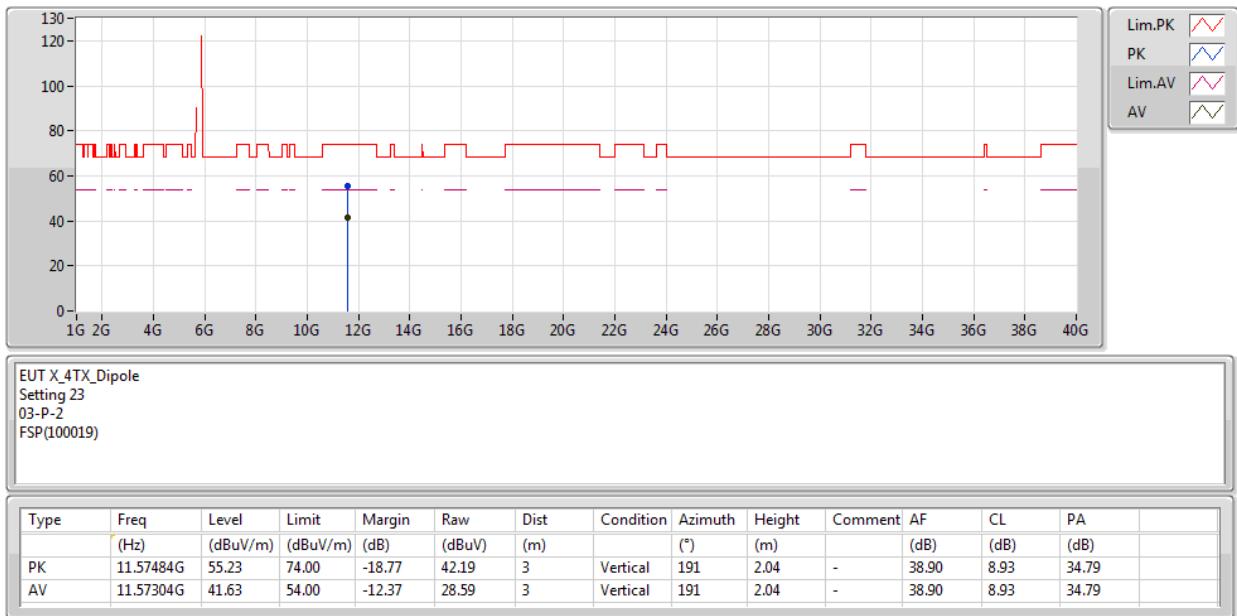
**802.11a\_Nss1,(6Mbps)\_4TX**

24/10/2019

**5785MHz\_TX**


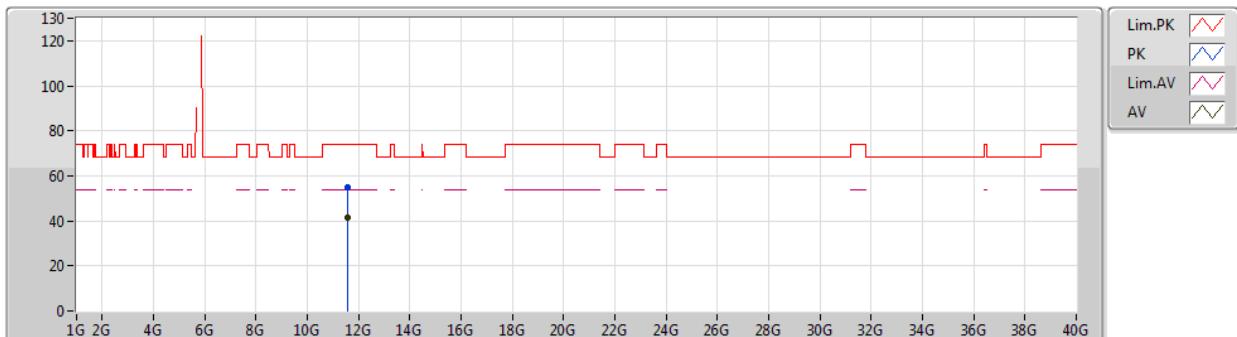
**802.11a\_Nss1,(6Mbps)\_4TX**

24/10/2019

**5785MHz\_TX**


**802.11a\_Nss1,(6Mbps)\_4TX**

24/10/2019

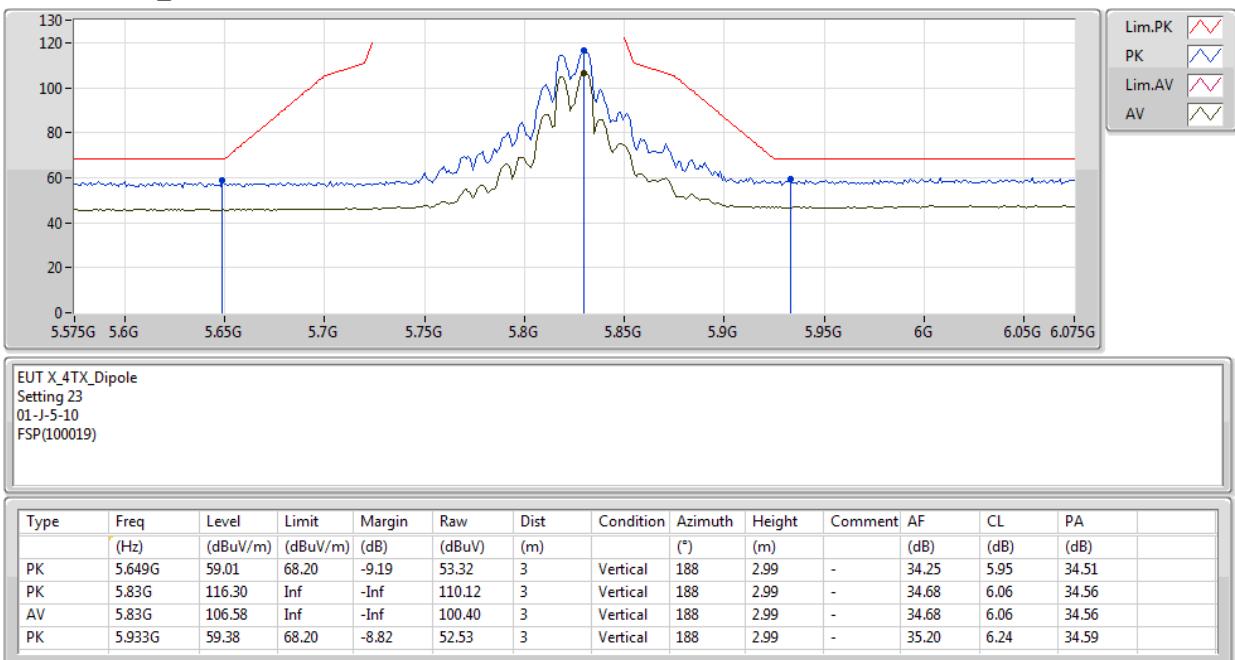
**5785MHz\_TX**


EUT X\_4TX\_Dipole  
 Setting 23  
 03-P-2  
 FSP(100019)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (*)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	11.56778G	55.08	74.00	-18.92	42.04	3	Horizontal	259	1.29	-	38.90	8.93	34.79
AV	11.56576G	41.58	54.00	-12.42	28.54	3	Horizontal	259	1.29	-	38.90	8.93	34.79

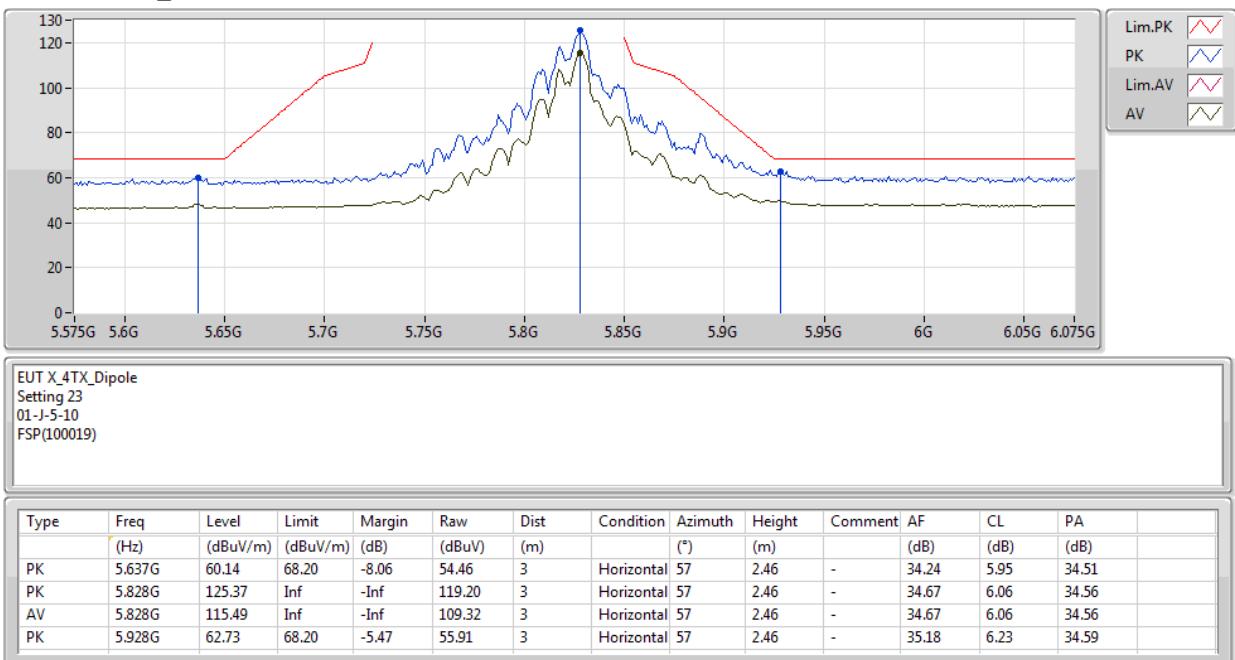
**802.11a\_Nss1,(6Mbps)\_4TX**

24/10/2019

**5825MHz\_TX**


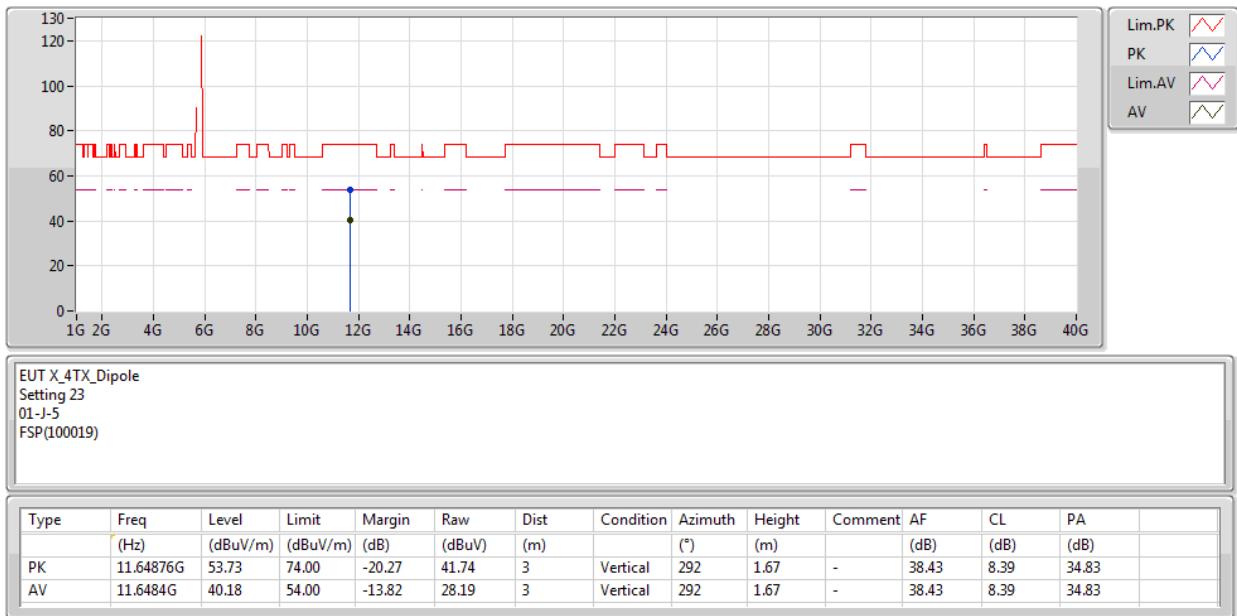
**802.11a\_Nss1,(6Mbps)\_4TX**

24/10/2019

**5825MHz\_TX**


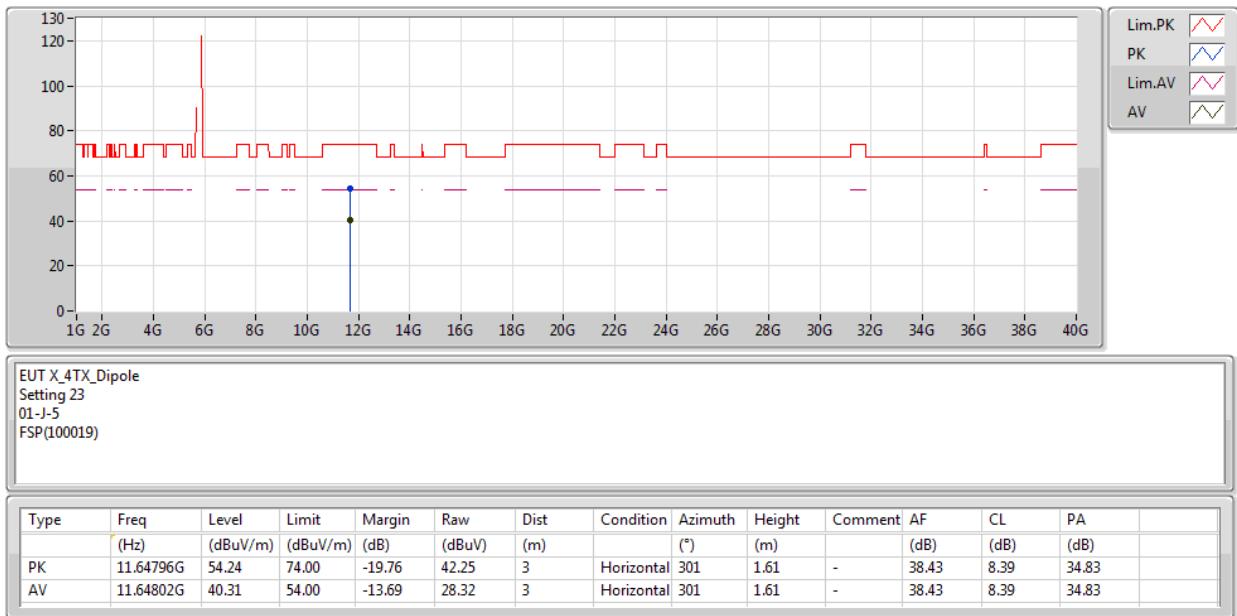
**802.11a\_Nss1,(6Mbps)\_4TX**

24/10/2019

**5825MHz\_TX**


**802.11a\_Nss1,(6Mbps)\_4TX**

24/10/2019

**5825MHz\_TX**


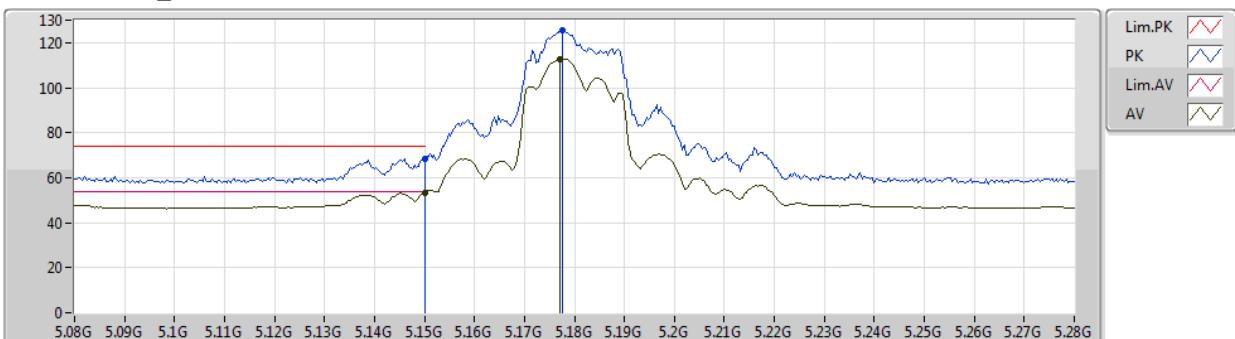
**802.11ax HEW20\_Nss1,(MCS0)\_4TX**

24/10/2019

**5180MHz\_TX**


**802.11ax HEW20\_Nss1,(MCS0)\_4TX**

24/10/2019

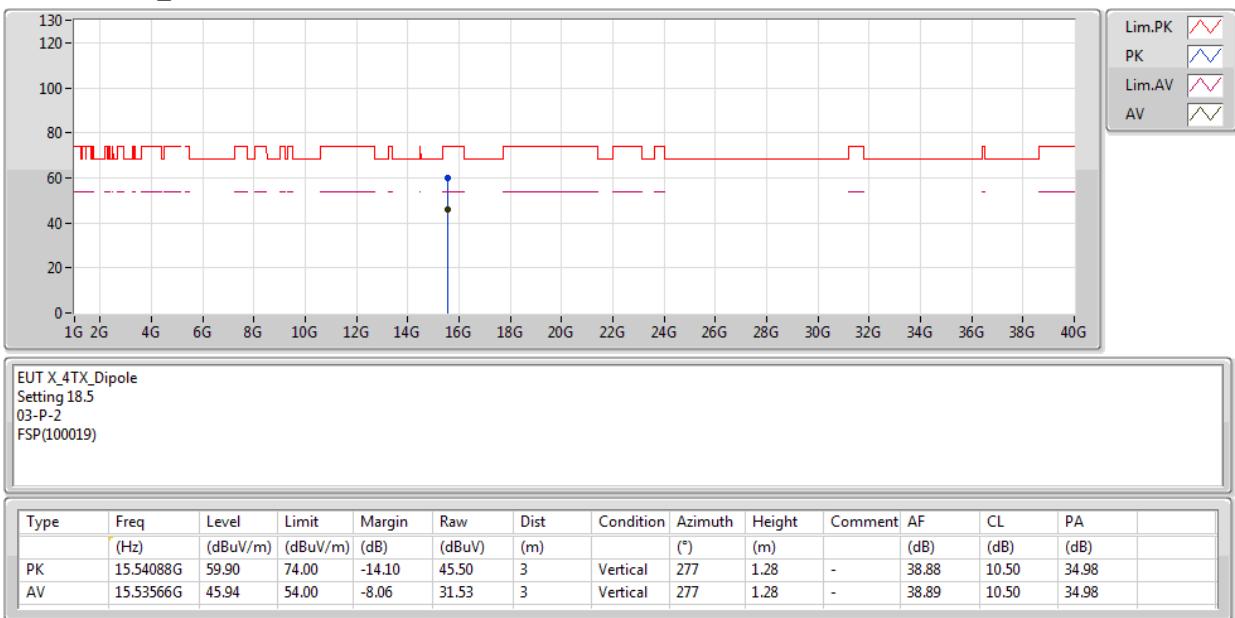
**5180MHz\_TX**


EUT X\_4TX\_Dipole  
 Setting 18.5  
 03-P-2-10  
 FSP(100019)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (*)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)	
PK	5.15G	68.22	74.00	-5.78	62.72	3	Horizontal	58	1.50	-	34.05	6.42	34.97	
AV	5.15G	53.45	54.00	-0.55	47.95	3	Horizontal	58	1.50	-	34.05	6.42	34.97	
PK	5.1776G	125.65	Inf	-Inf	120.07	3	Horizontal	58	1.50	-	34.08	6.48	34.98	
AV	5.1772G	112.68	Inf	-Inf	107.10	3	Horizontal	58	1.50	-	34.08	6.48	34.98	

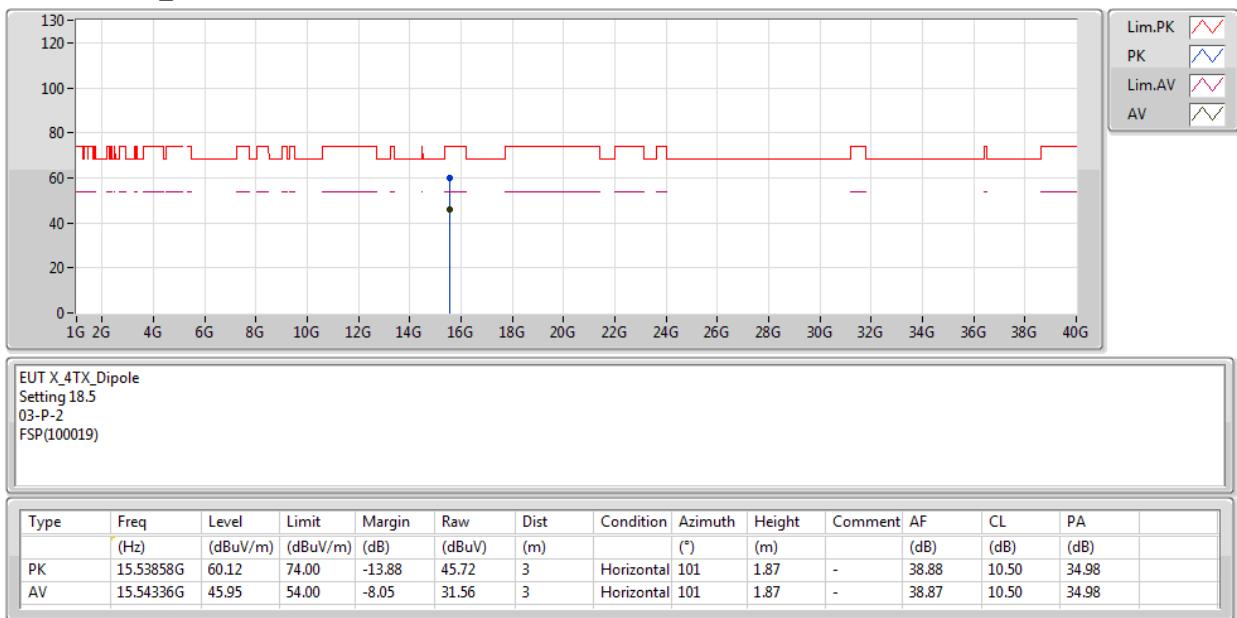
**802.11ax HEW20\_Nss1,(MCS0)\_4TX**

24/10/2019

**5180MHz\_TX**


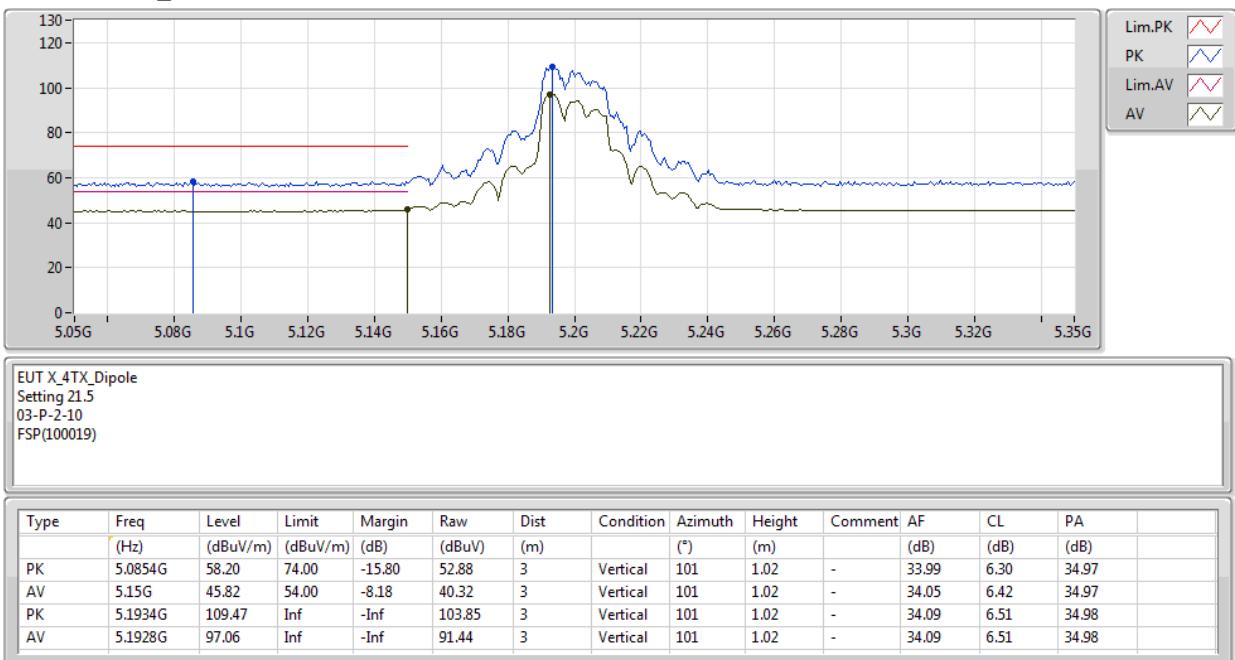
**802.11ax HEW20\_Nss1,(MCS0)\_4TX**

24/10/2019

**5180MHz\_TX**


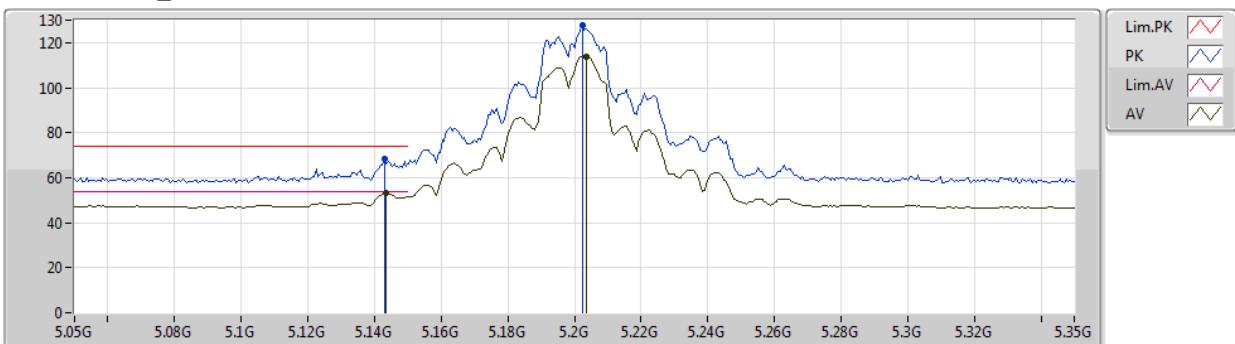
**802.11ax HEW20\_Nss1,(MCS0)\_4TX**

24/10/2019

**5200MHz\_TX**


**802.11ax HEW20\_Nss1,(MCS0)\_4TX**

24/10/2019

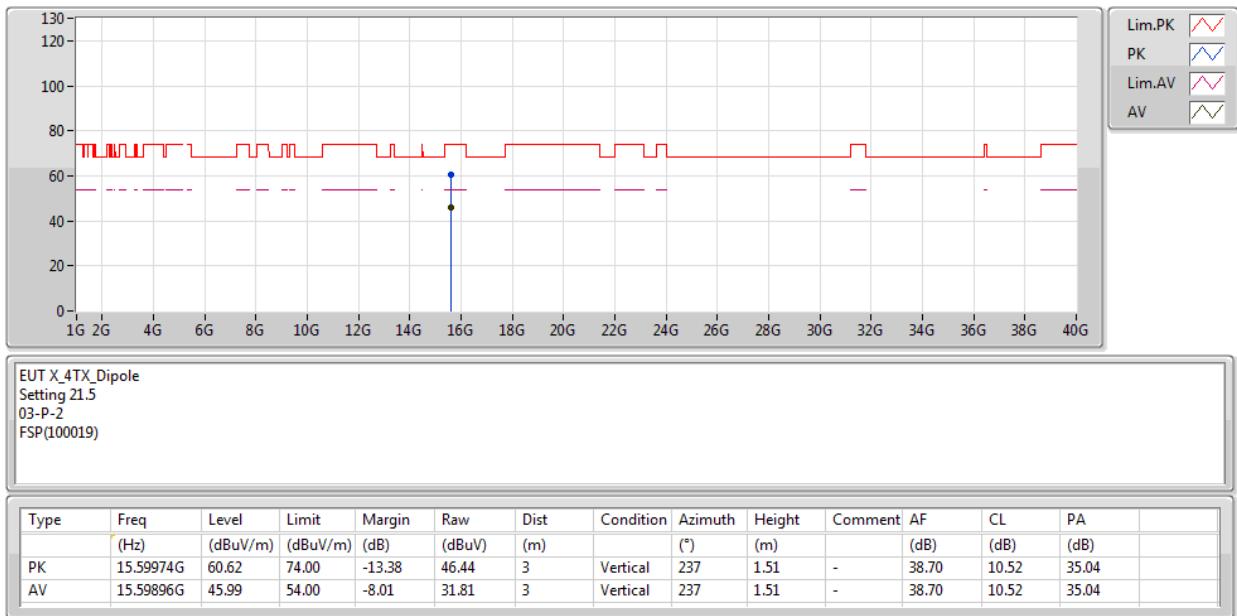
**5200MHz\_TX**


EUT X\_4TX\_Dipole  
Setting 21.5  
03-P-2-10  
FSP(100019)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)	
PK	5.143G	68.12	74.00	-5.88	62.64	3	Horizontal	60	1.90	-	34.04	6.41	34.97	
AV	5.1436G	53.16	54.00	-0.84	47.68	3	Horizontal	60	1.90	-	34.04	6.41	34.97	
PK	5.2024G	127.48	Inf	-Inf	121.84	3	Horizontal	60	1.90	-	34.10	6.52	34.98	
AV	5.2036G	113.98	Inf	-Inf	108.33	3	Horizontal	60	1.90	-	34.11	6.52	34.98	

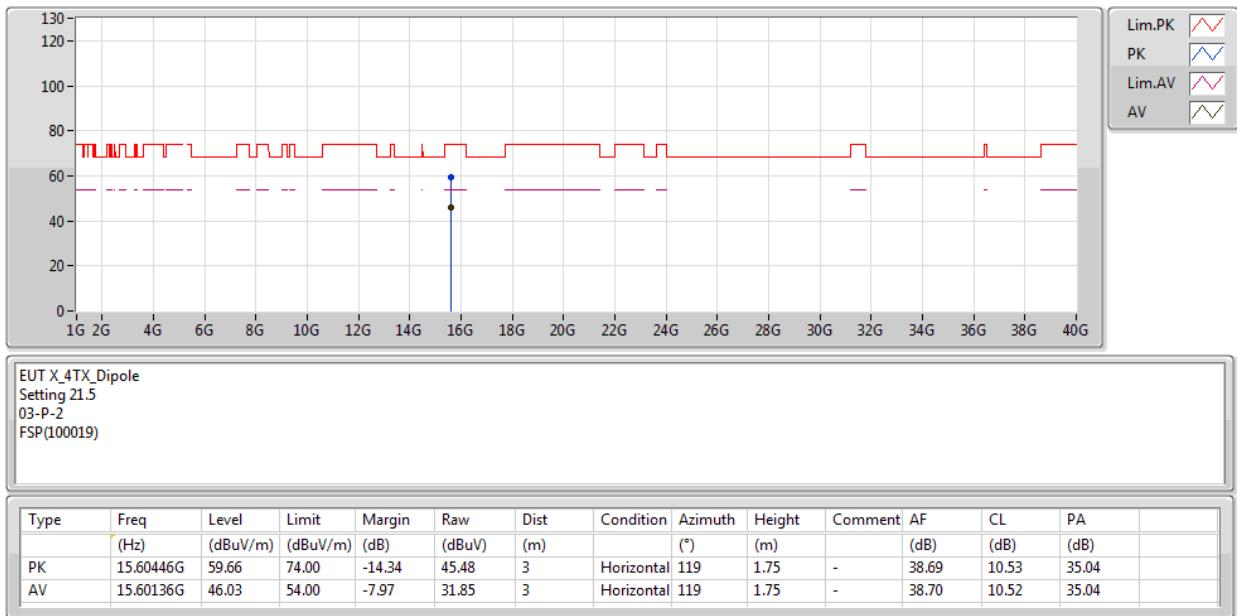
**802.11ax HEW20\_Nss1,(MCS0)\_4TX**

24/10/2019

**5200MHz\_TX**


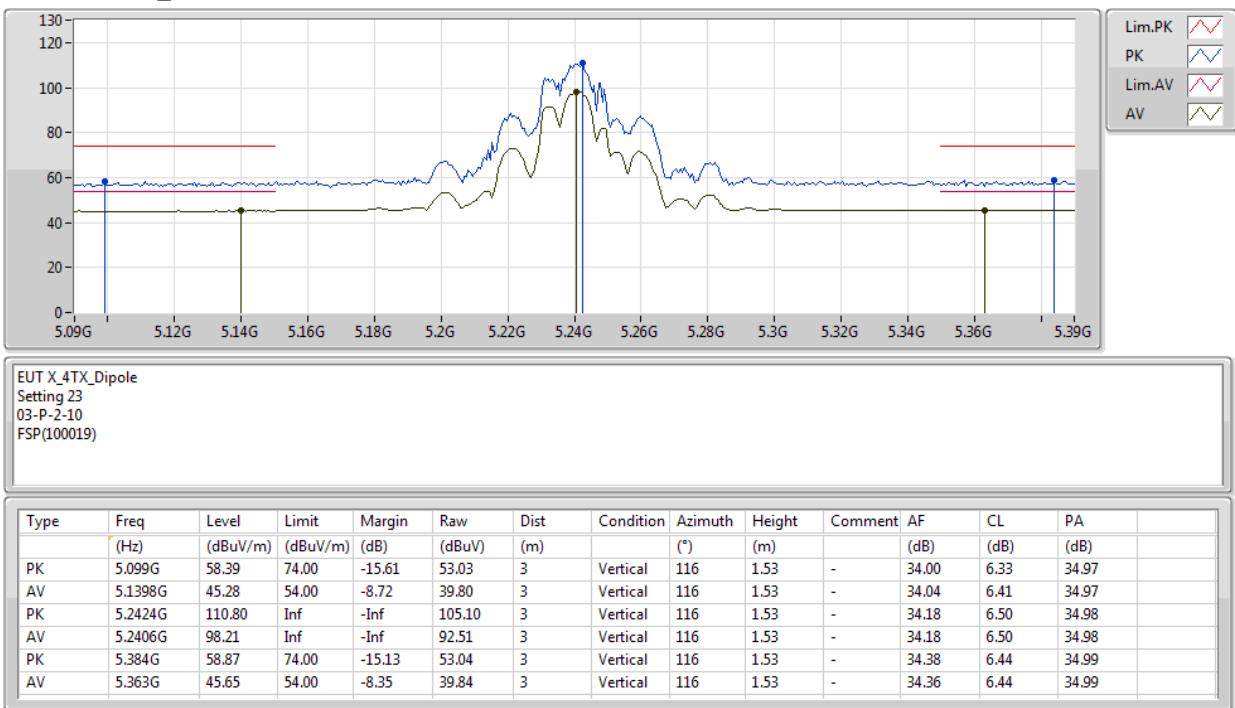
**802.11ax HEW20\_Nss1,(MCS0)\_4TX**

24/10/2019

**5200MHz\_TX**


**802.11ax HEW20\_Nss1,(MCS0)\_4TX**

24/10/2019

**5240MHz\_TX**


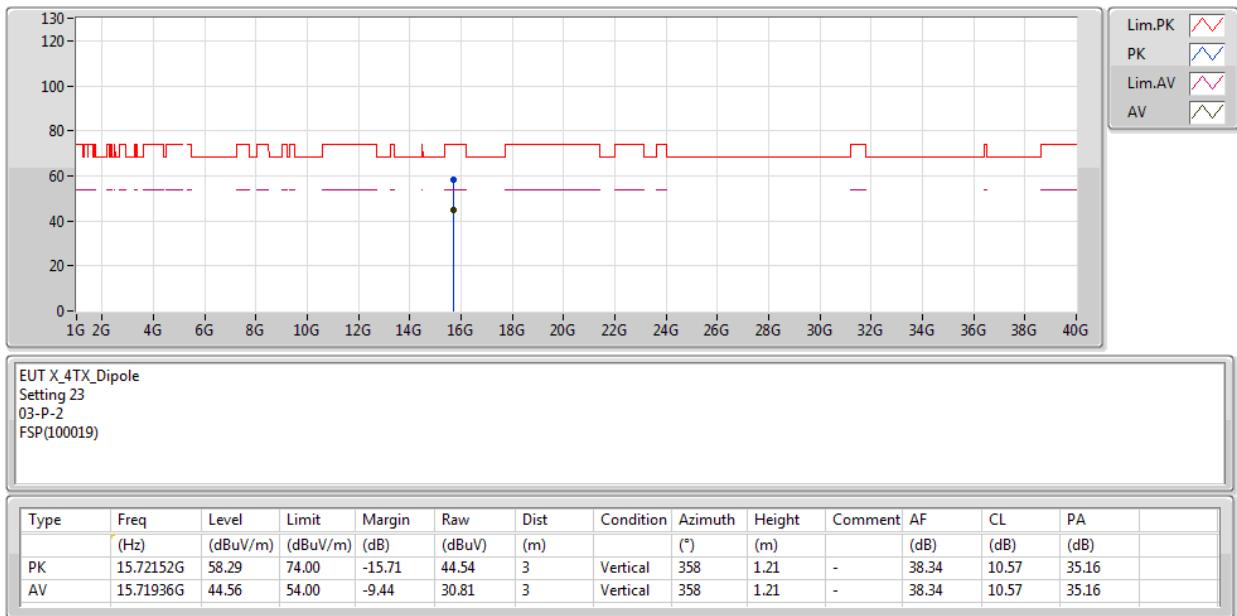
**802.11ax HEW20\_Nss1,(MCS0)\_4TX**

24/10/2019

**5240MHz\_TX**

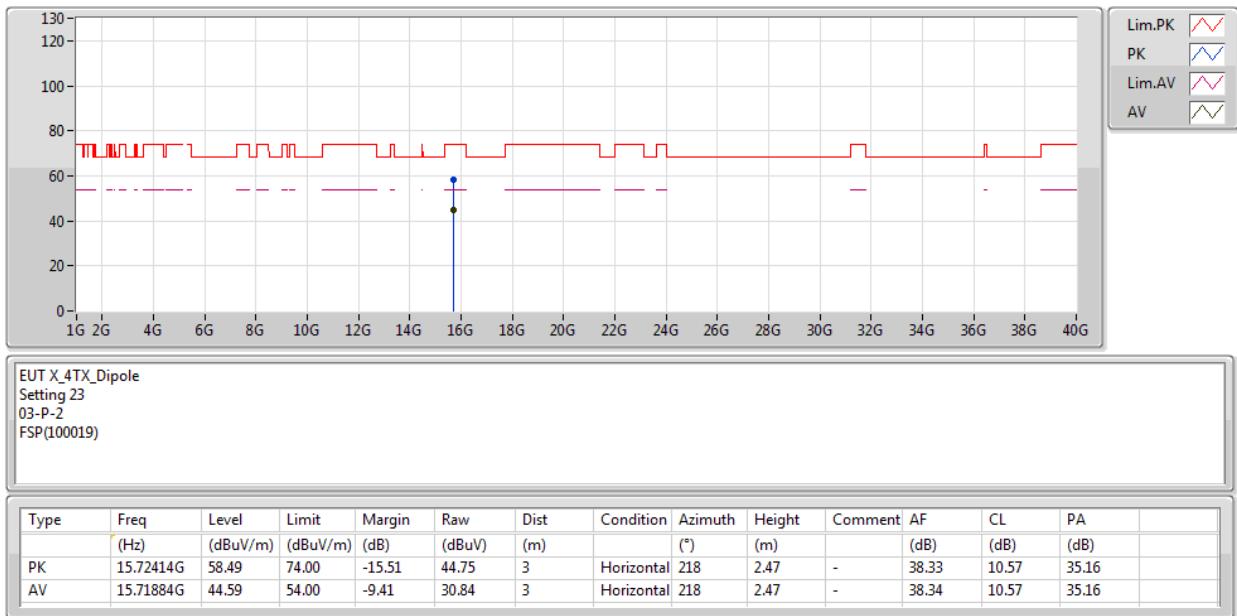

**802.11ax HEW20\_Nss1,(MCS0)\_4TX**

24/10/2019

**5240MHz\_TX**


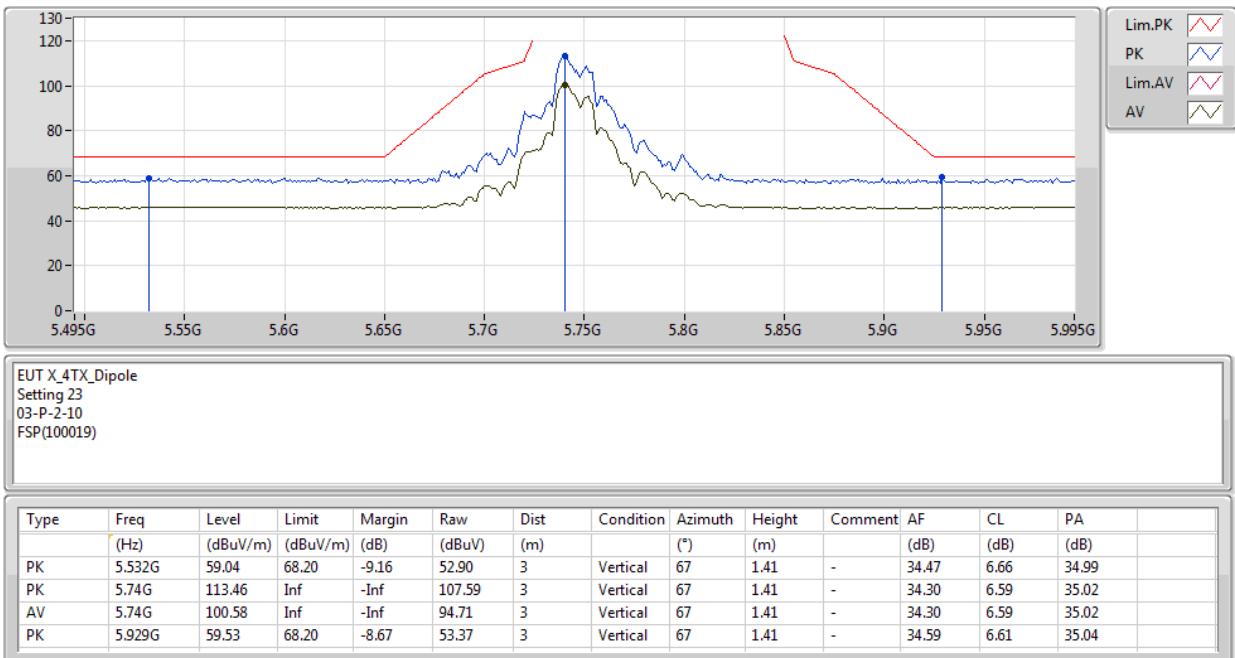
**802.11ax HEW20\_Nss1,(MCS0)\_4TX**

24/10/2019

**5240MHz\_TX**


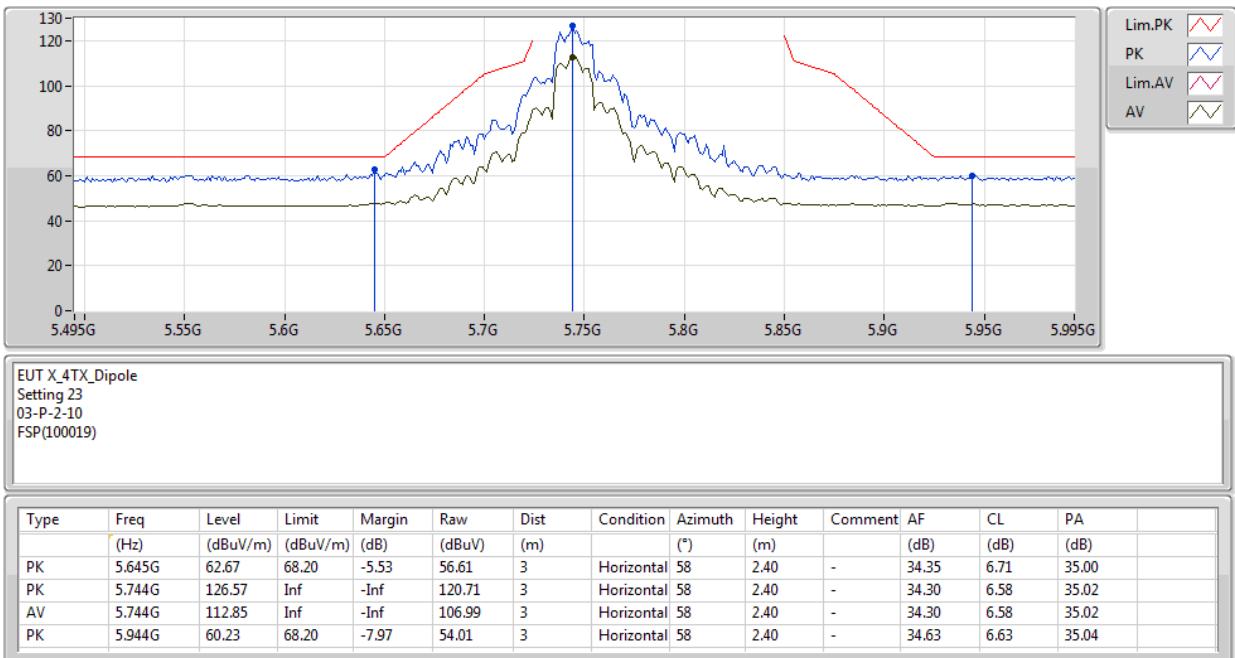
**802.11ax HEW20\_Nss1,(MCS0)\_4TX**

24/10/2019

**5745MHz\_TX**


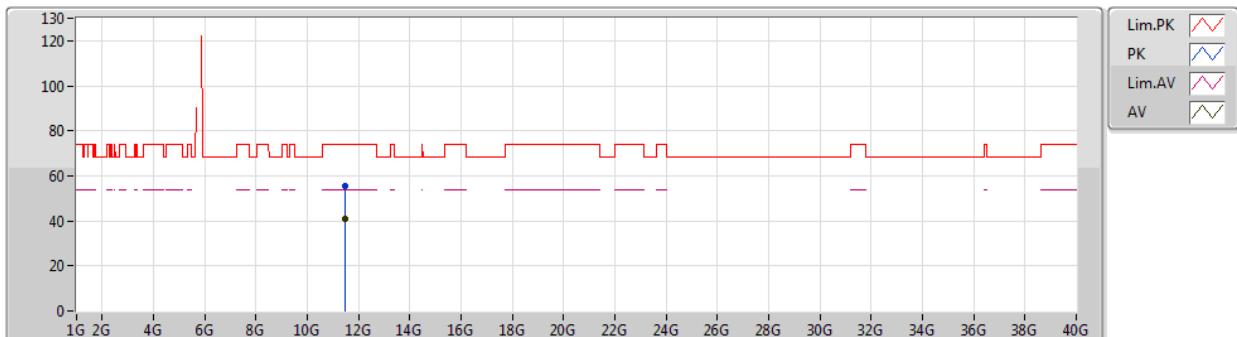
**802.11ax HEW20\_Nss1,(MCS0)\_4TX**

24/10/2019

**5745MHz\_TX**


**802.11ax HEW20\_Nss1,(MCS0)\_4TX**

24/10/2019

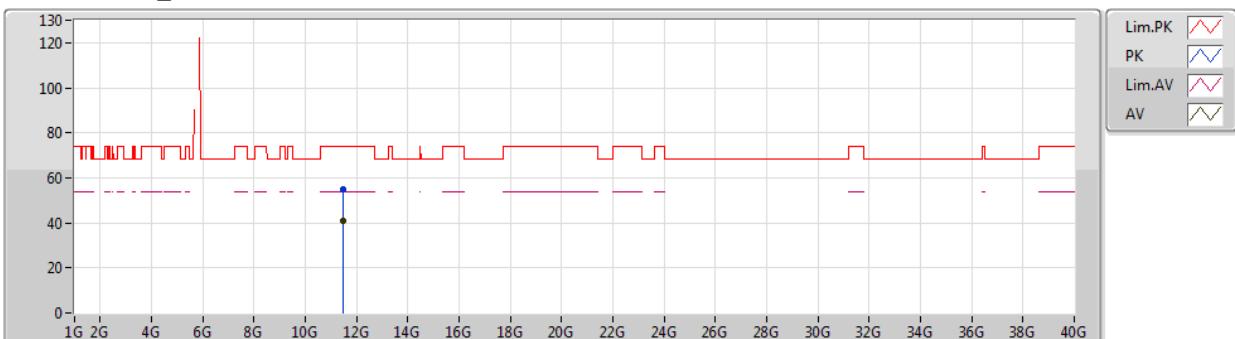
**5745MHz\_TX**


EUT X\_4TX\_Dipole  
 Setting 23  
 03-P-2  
 FSP(100019)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	11.495G	55.45	74.00	-18.55	42.44	3	Vertical	48	2.26	-	38.85	8.94	34.78
AV	11.48944G	40.81	54.00	-13.19	27.81	3	Vertical	48	2.26	-	38.84	8.94	34.78

**802.11ax HEW20\_Nss1,(MCS0)\_4TX**

24/10/2019

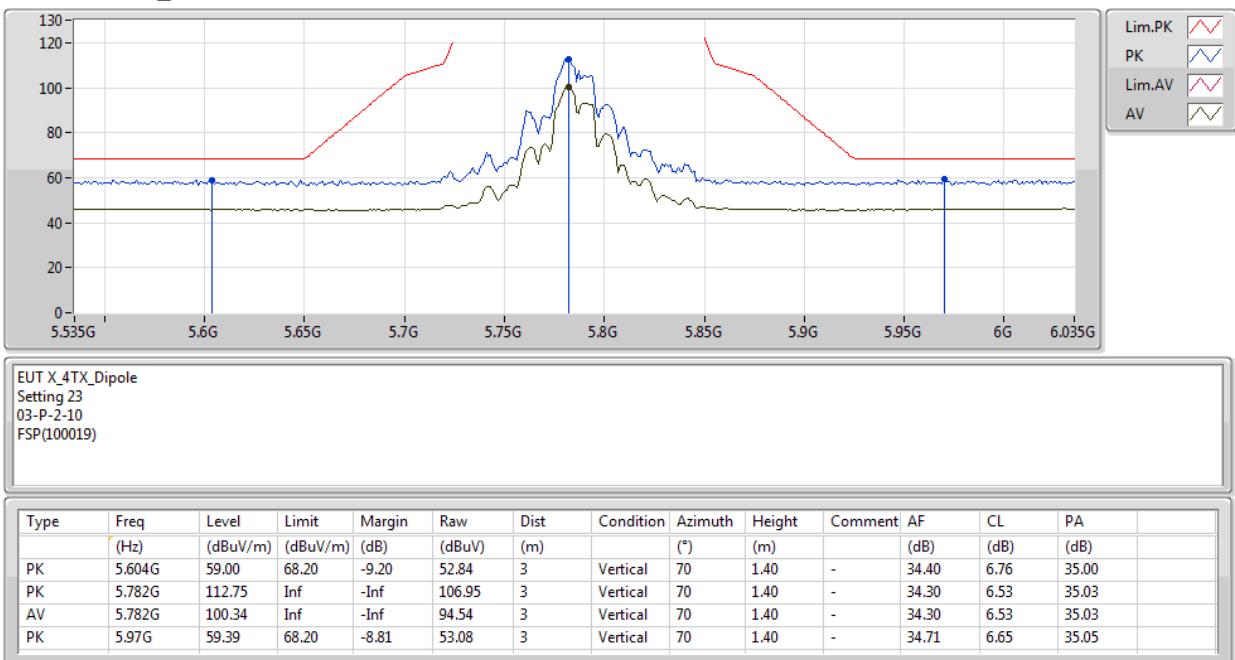
**5745MHz\_TX**


EUT X\_4TX\_Dipole  
 Setting 23  
 03-P-2  
 FSP(100019)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (*)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	11.49486G	55.18	74.00	-18.82	42.17	3	Horizontal	181	2.08	-	38.85	8.94	34.78
AV	11.48848G	40.76	54.00	-13.24	27.76	3	Horizontal	181	2.08	-	38.84	8.94	34.78

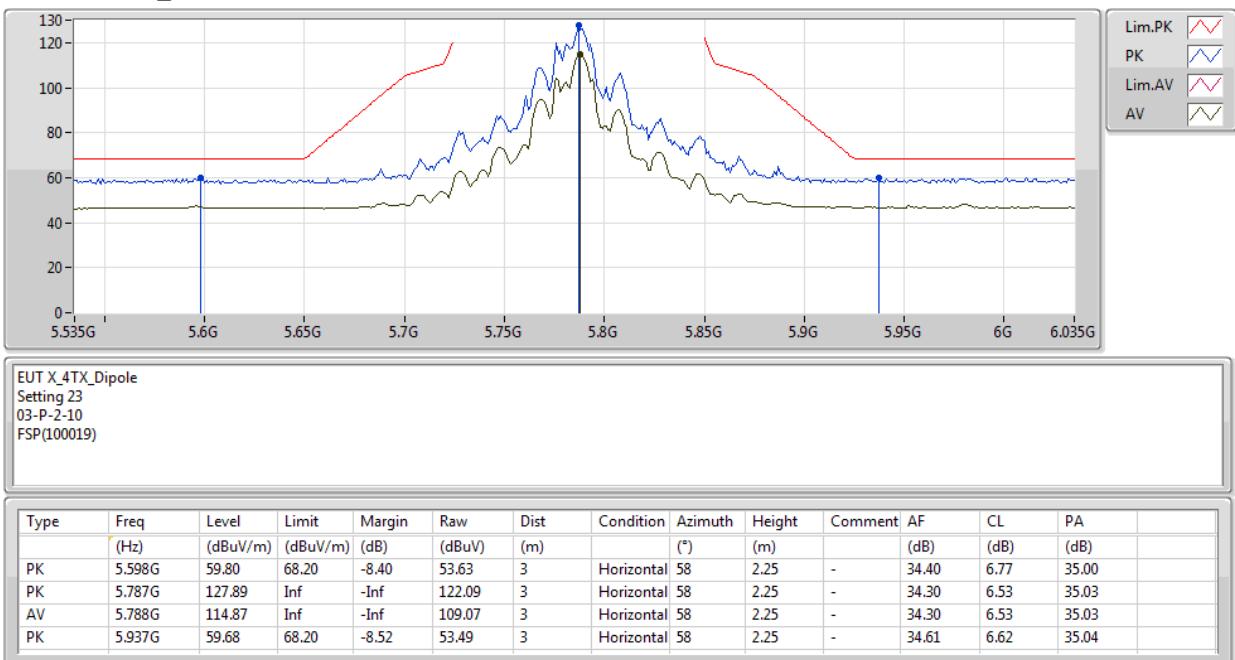
**802.11ax HEW20\_Nss1,(MCS0)\_4TX**

24/10/2019

**5785MHz\_TX**


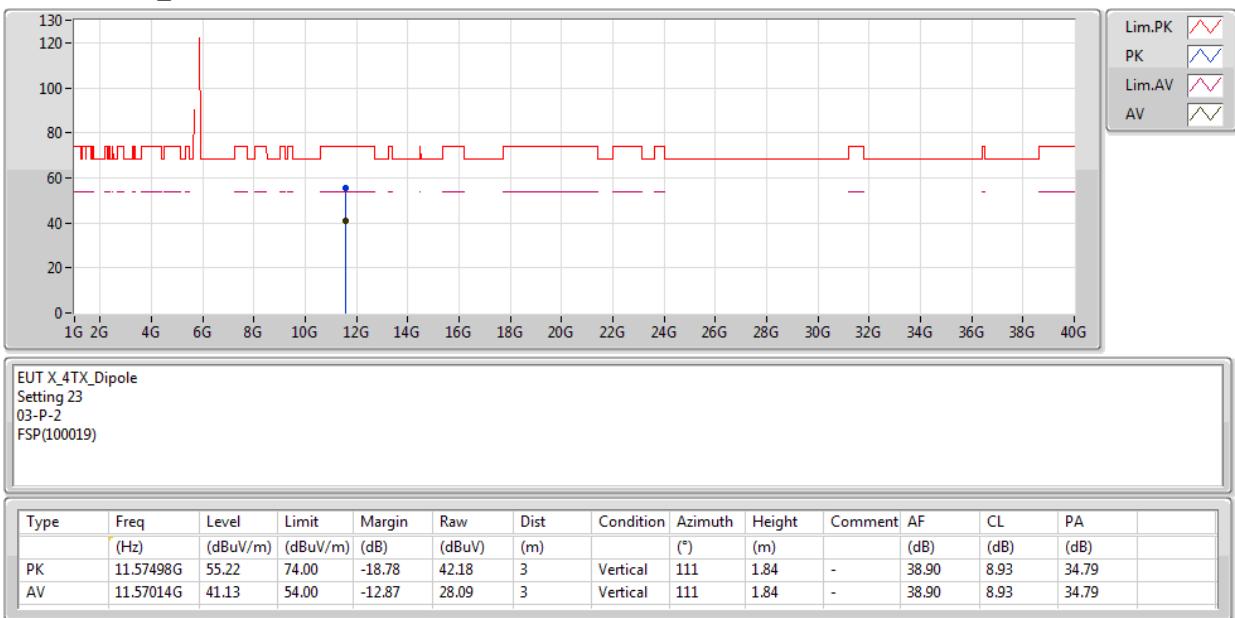
**802.11ax HEW20\_Nss1,(MCS0)\_4TX**

24/10/2019

**5785MHz\_TX**


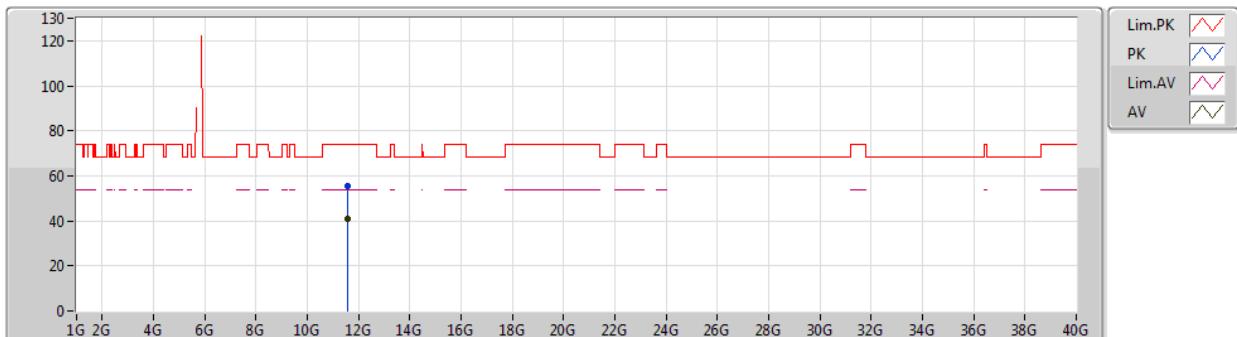
**802.11ax HEW20\_Nss1,(MCS0)\_4TX**

24/10/2019

**5785MHz\_TX**


**802.11ax HEW20\_Nss1,(MCS0)\_4TX**

24/10/2019

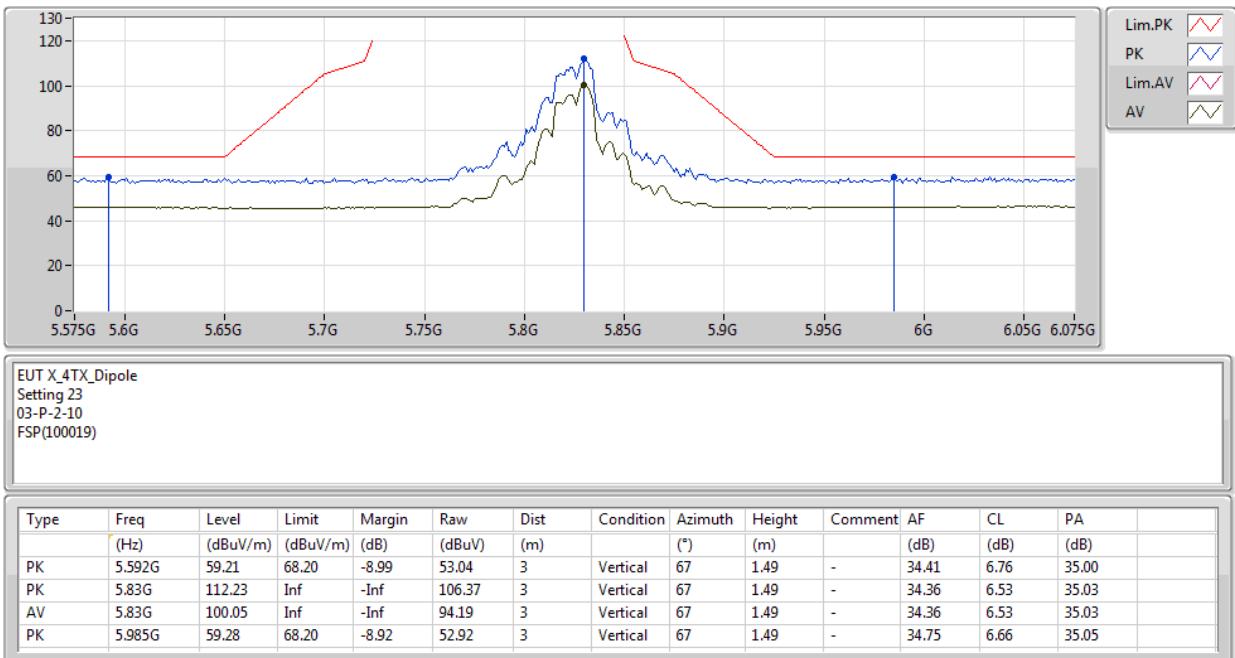
**5785MHz\_TX**


EUT X\_4TX\_Dipole  
 Setting 23  
 03-P-2  
 FSP(100019)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment (dB)	AF (dB)	CL (dB)	PA (dB)
PK	11.57458G	55.54	74.00	-18.46	42.50	3	Horizontal	238	1.98	-	38.90	8.93	34.79
AV	11.56844G	41.11	54.00	-12.89	28.07	3	Horizontal	238	1.98	-	38.90	8.93	34.79

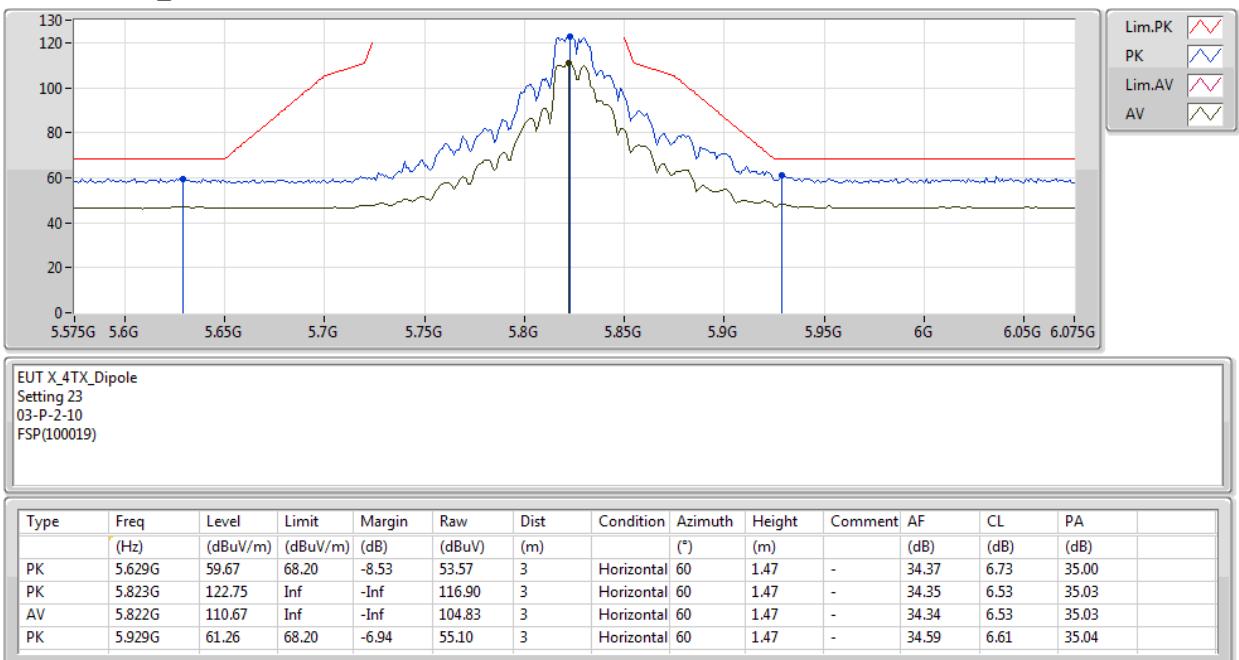
**802.11ax HEW20\_Nss1,(MCS0)\_4TX**

24/10/2019

**5825MHz\_TX**


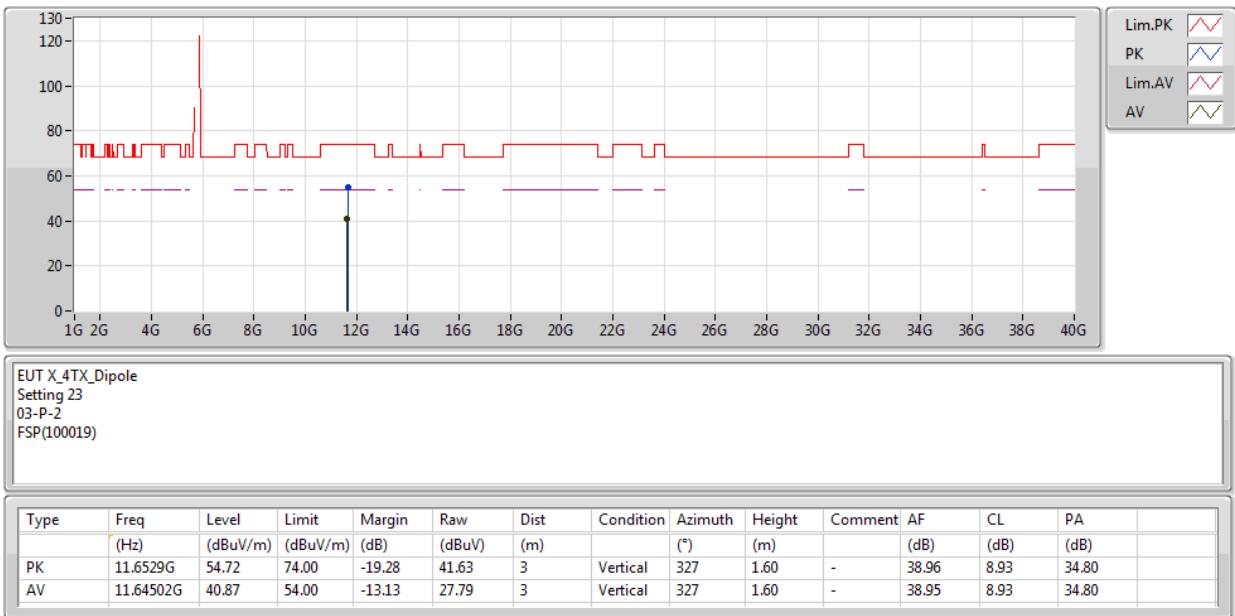
**802.11ax HEW20\_Nss1,(MCS0)\_4TX**

24/10/2019

**5825MHz\_TX**


**802.11ax HEW20\_Nss1,(MCS0)\_4TX**

24/10/2019

**5825MHz\_TX**


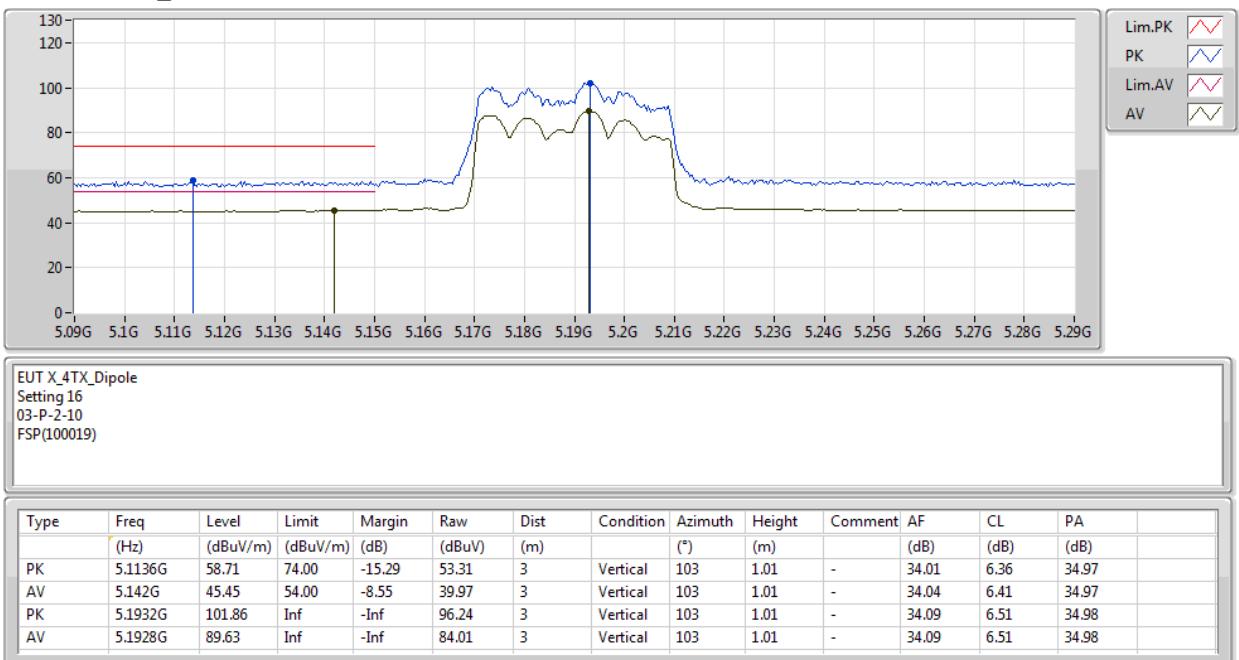
**802.11ax HEW20\_Nss1,(MCS0)\_4TX**

24/10/2019

**5825MHz\_TX**

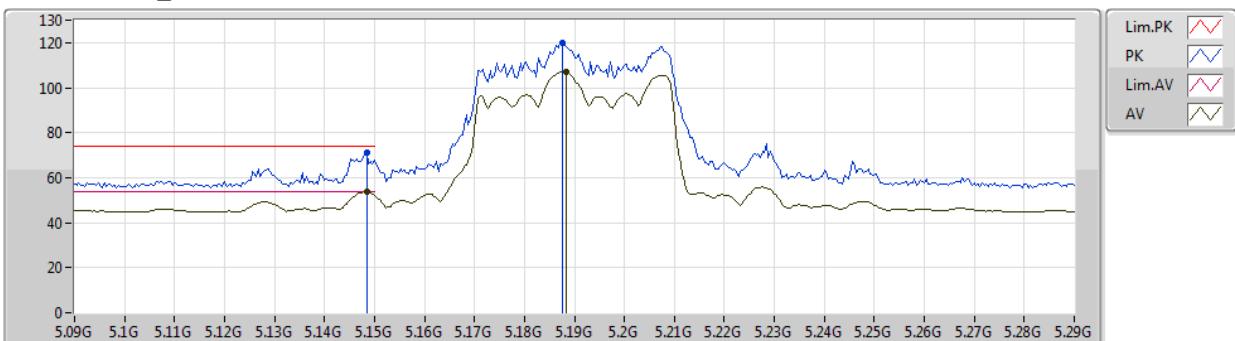

**802.11ax HEW40\_Nss1,(MCS0)\_4TX**

24/10/2019

**5190MHz\_TX**


**802.11ax HEW40\_Nss1,(MCS0)\_4TX**

24/10/2019

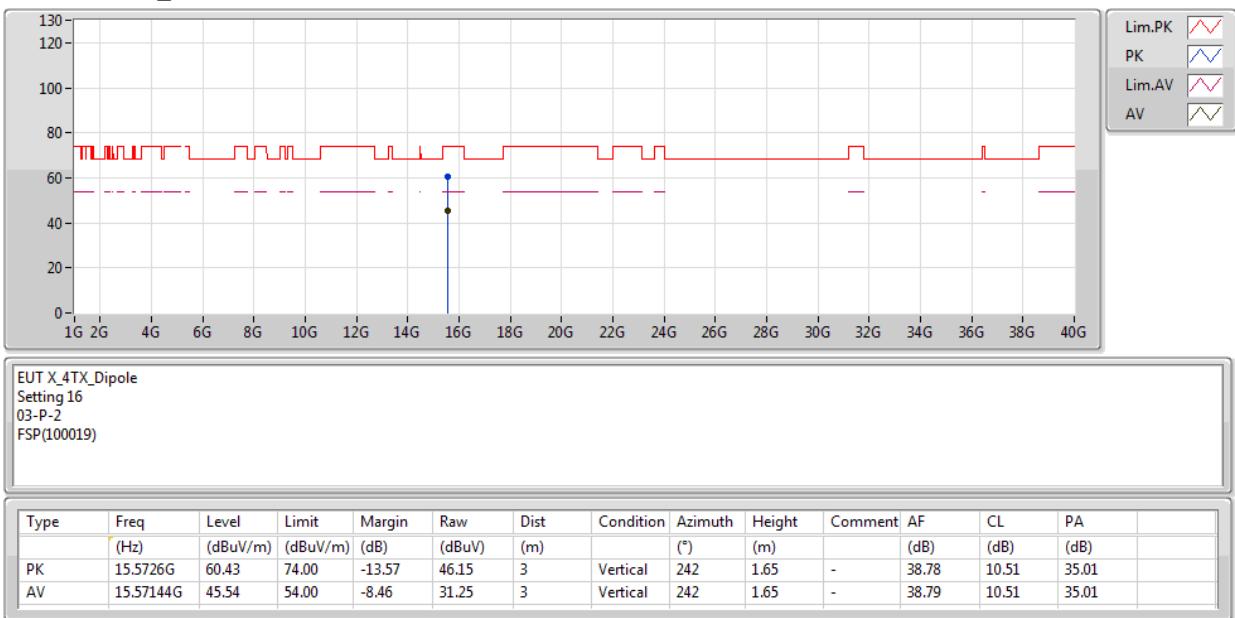
**5190MHz\_TX**


EUT X\_4TX\_Dipole  
 Setting 16  
 01-J-5-10  
 FSP(100019)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (*)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)	
PK	5.1484G	70.91	74.00	-3.09	66.66	3	Horizontal	59	1.42	-	33.05	5.65	34.45	
AV	5.1484G	53.90	54.00	-0.10	49.65	3	Horizontal	59	1.42	-	33.05	5.65	34.45	
PK	5.1876G	119.85	Inf	-Inf	115.59	3	Horizontal	59	1.42	-	33.09	5.63	34.46	
AV	5.1884G	107.05	Inf	-Inf	102.79	3	Horizontal	59	1.42	-	33.09	5.63	34.46	

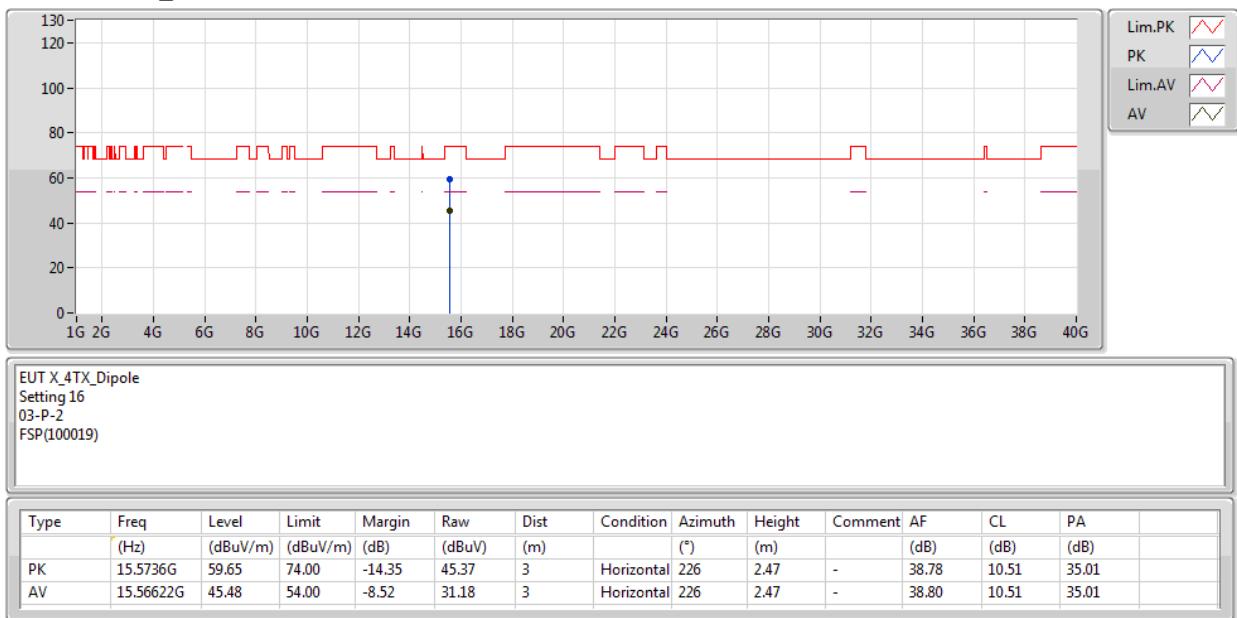
**802.11ax HEW40\_Nss1,(MCS0)\_4TX**

24/10/2019

**5190MHz\_TX**


**802.11ax HEW40\_Nss1,(MCS0)\_4TX**

24/10/2019

**5190MHz\_TX**


**802.11ax HEW40\_Nss1,(MCS0)\_4TX**

24/10/2019

**5230MHz\_TX**

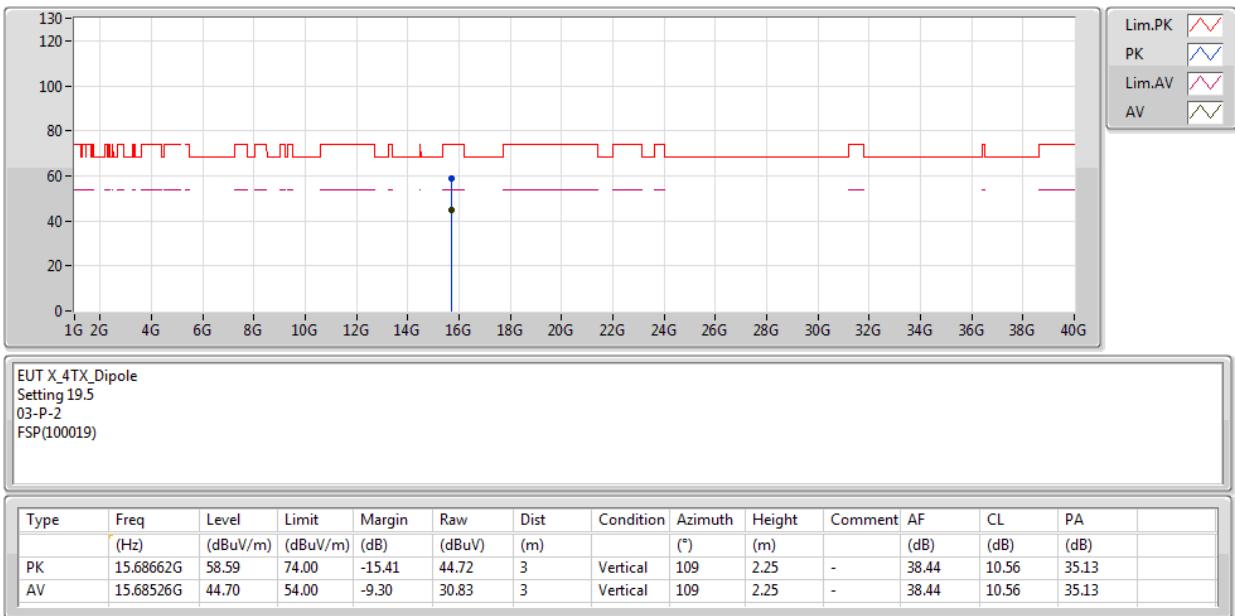

**802.11ax HEW40\_Nss1,(MCS0)\_4TX**

24/10/2019

**5230MHz\_TX**

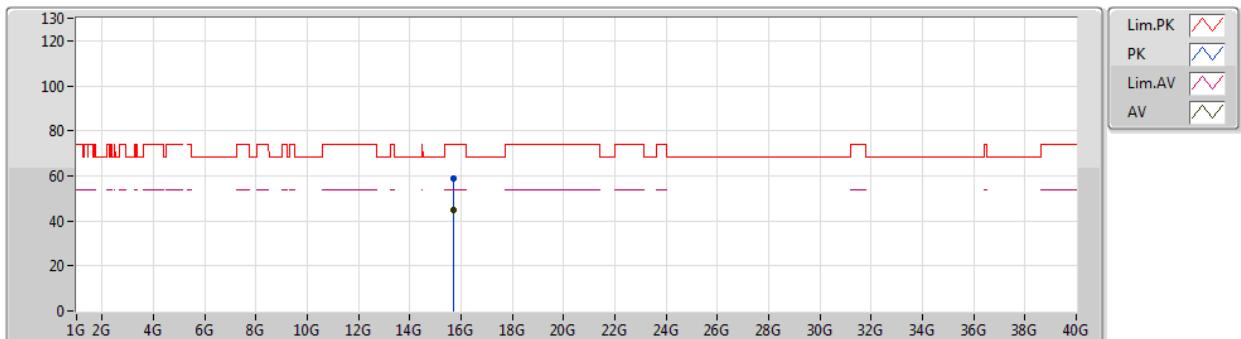

**802.11ax HEW40\_Nss1,(MCS0)\_4TX**

24/10/2019

**5230MHz\_TX**


**802.11ax HEW40\_Nss1,(MCS0)\_4TX**

24/10/2019

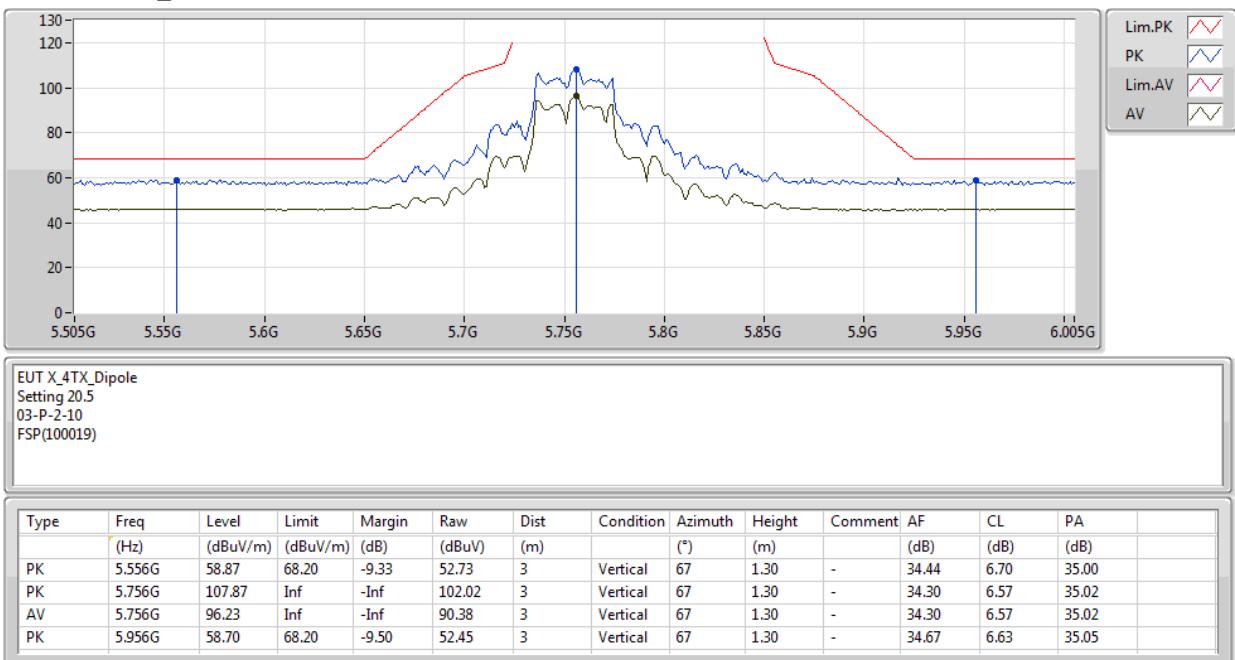
**5230MHz\_TX**


EUT X\_4TX\_Dipole  
Setting 19.5  
03-P-2  
FSP(100019)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (*)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	15.69402G	58.62	74.00	-15.38	44.77	3	Horizontal	168	1.99	-	38.42	10.56	35.13
AV	15.68518G	44.76	54.00	-9.24	30.89	3	Horizontal	168	1.99	-	38.44	10.56	35.13

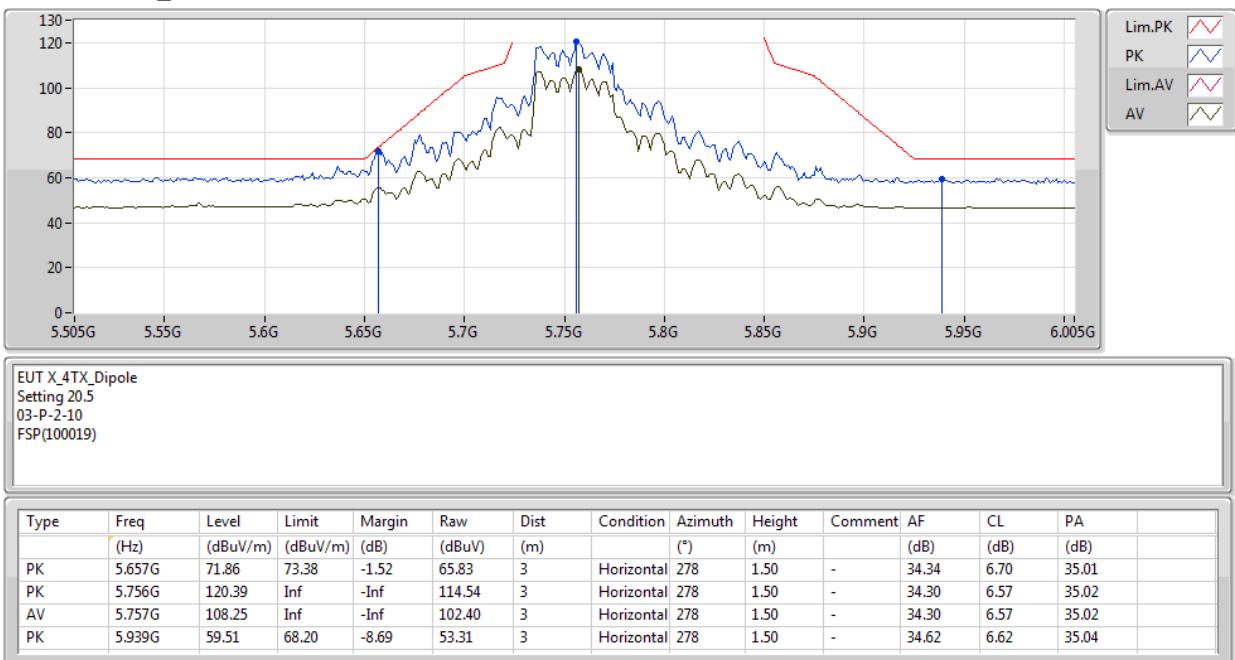
**802.11ax HEW40\_Nss1,(MCS0)\_4TX**

24/10/2019

**5755MHz\_TX**


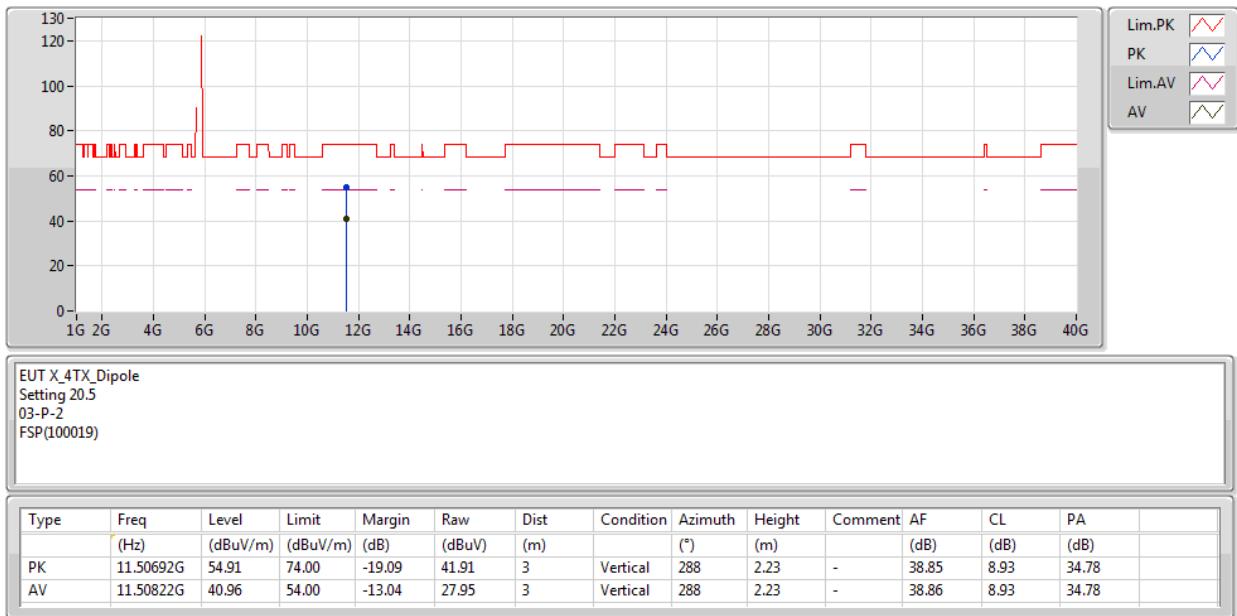
**802.11ax HEW40\_Nss1,(MCS0)\_4TX**

24/10/2019

**5755MHz\_TX**


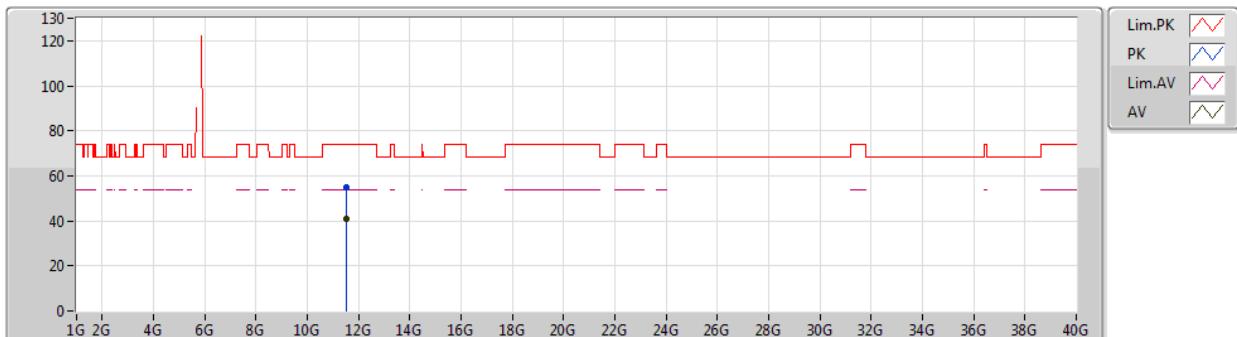
**802.11ax HEW40\_Nss1,(MCS0)\_4TX**

24/10/2019

**5755MHz\_TX**


**802.11ax HEW40\_Nss1,(MCS0)\_4TX**

24/10/2019

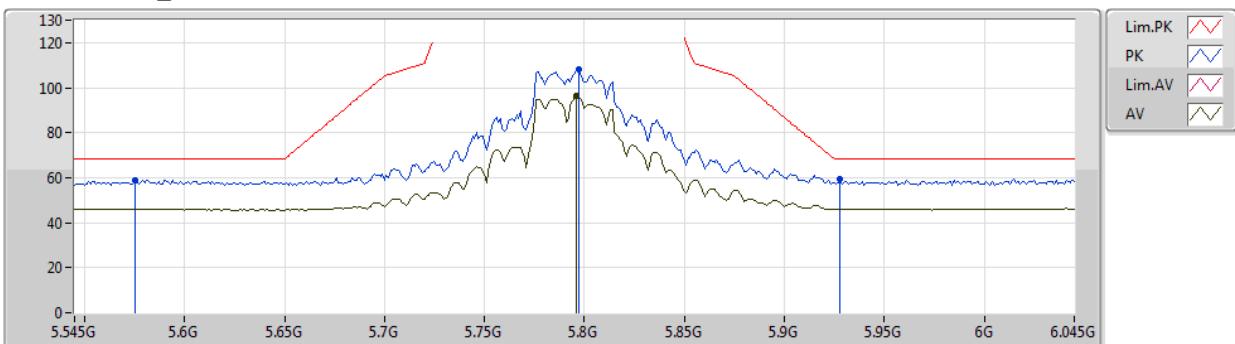
**5755MHz\_TX**


EUT X\_4TX\_Dipole  
 Setting 20.5  
 03-P-2  
 FSP(100019)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment (dB)	AF (dB)	CL (dB)	PA (dB)
PK	11.5086G	54.80	74.00	-19.20	41.79	3	Horizontal	120	2.30	-	38.86	8.93	34.78
AV	11.50512G	40.95	54.00	-13.05	27.95	3	Horizontal	120	2.30	-	38.85	8.93	34.78

**802.11ax HEW40\_Nss1,(MCS0)\_4TX**

24/10/2019

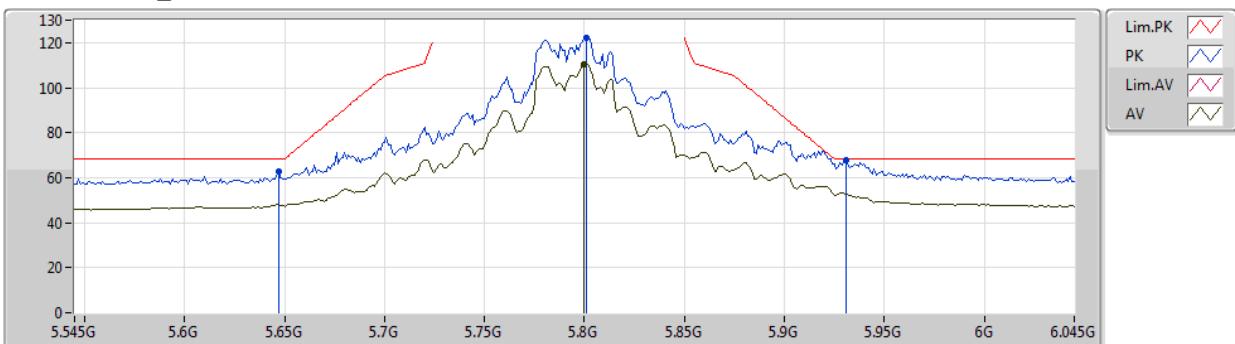
**5795MHz\_TX**


EUT\_X\_4TX\_Dipole  
 Setting 21  
 03-P-2-10  
 FSP(100019)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)	
PK	5.575G	59.05	68.20	-9.15	52.90	3	Vertical	69	1.43	-	34.42	6.73	35.00	
PK	5.797G	108.07	Inf	-Inf	102.29	3	Vertical	69	1.43	-	34.30	6.51	35.03	
AV	5.796G	96.64	Inf	-Inf	90.85	3	Vertical	69	1.43	-	34.30	6.52	35.03	
PK	5.928G	59.54	68.20	-8.66	53.39	3	Vertical	69	1.43	-	34.58	6.61	35.04	

**802.11ax HEW40\_Nss1,(MCS0)\_4TX**

24/10/2019

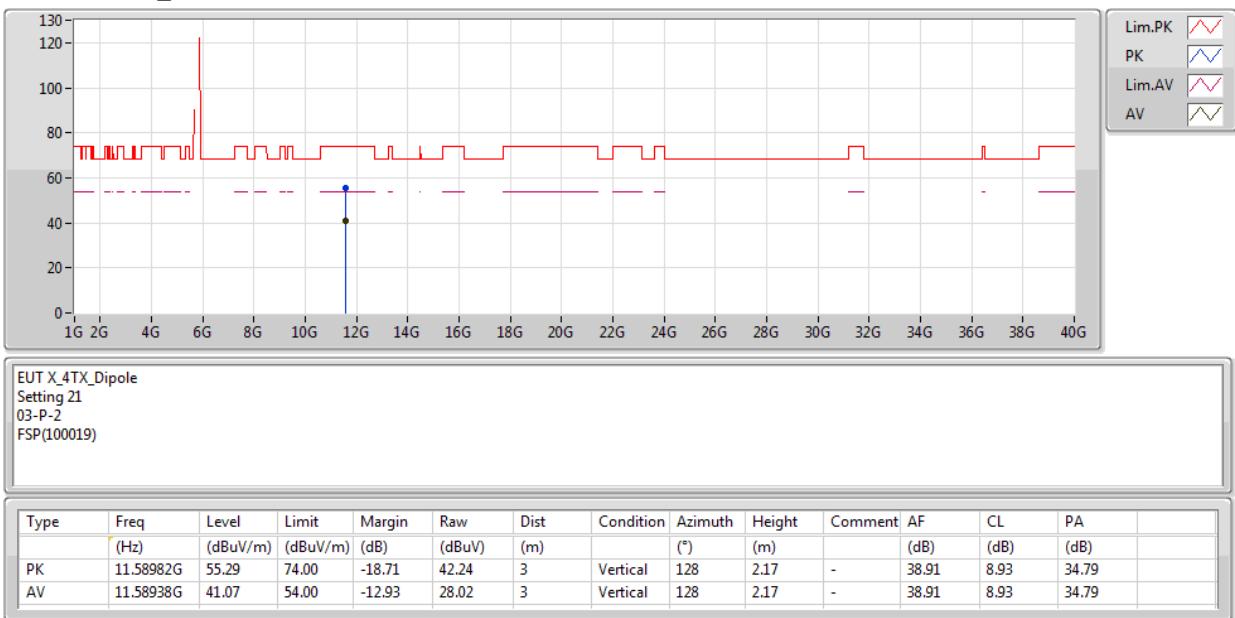
**5795MHz\_TX**


EUT X\_4TX\_Dipole  
 Setting 21  
 01-J-5-10  
 FSP(100019)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)	
PK	5.647G	62.48	68.20	-5.72	56.79	3	Horizontal	58	2.19	-	34.25	5.95	34.51	
PK	5.801G	122.31	Inf	-Inf	116.34	3	Horizontal	58	2.19	-	34.51	6.01	34.55	
AV	5.8G	110.43	Inf	-Inf	104.47	3	Horizontal	58	2.19	-	34.50	6.01	34.55	
PK	5.931G	67.90	68.20	-0.30	61.07	3	Horizontal	58	2.19	-	35.19	6.23	34.59	

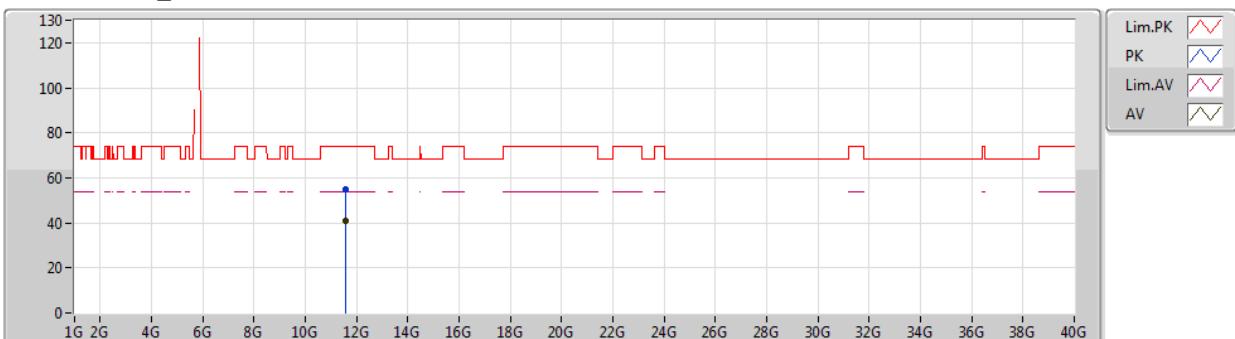
**802.11ax HEW40\_Nss1,(MCS0)\_4TX**

24/10/2019

**5795MHz\_TX**


**802.11ax HEW40\_Nss1,(MCS0)\_4TX**

24/10/2019

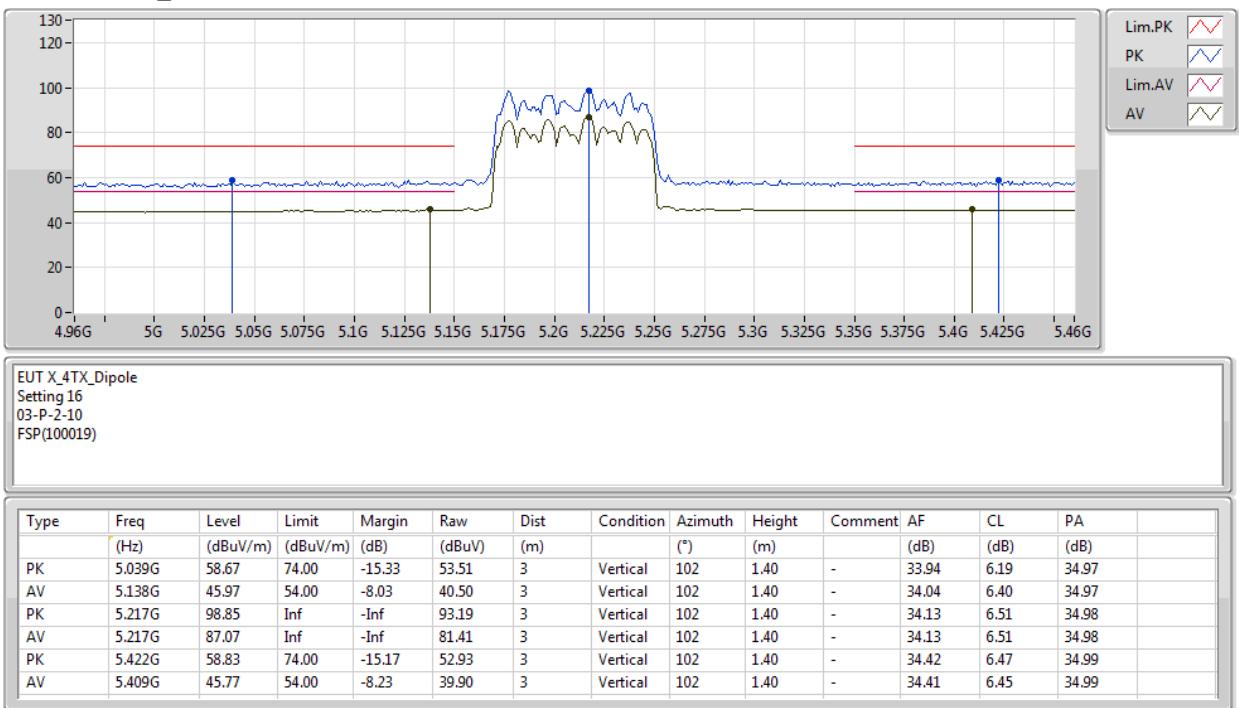
**5795MHz\_TX**


EUT X\_4TX\_Dipole  
 Setting 21  
 03-P-2  
 FSP(100019)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (*)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	11.59294G	55.17	74.00	-18.83	42.11	3	Horizontal	235	1.42	-	38.92	8.93	34.79
AV	11.58606G	41.06	54.00	-12.94	28.01	3	Horizontal	235	1.42	-	38.91	8.93	34.79

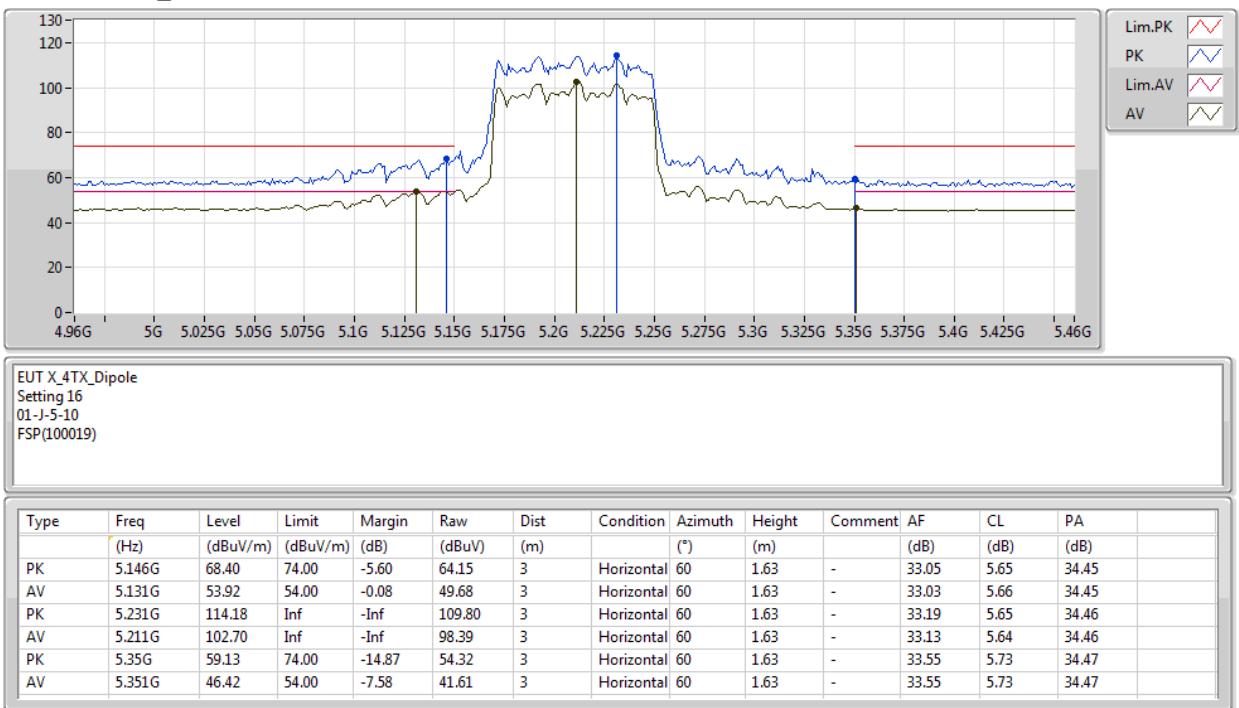
**802.11ax HEW80\_Nss1,(MCS0)\_4TX**

24/10/2019

**5210MHz\_TX**


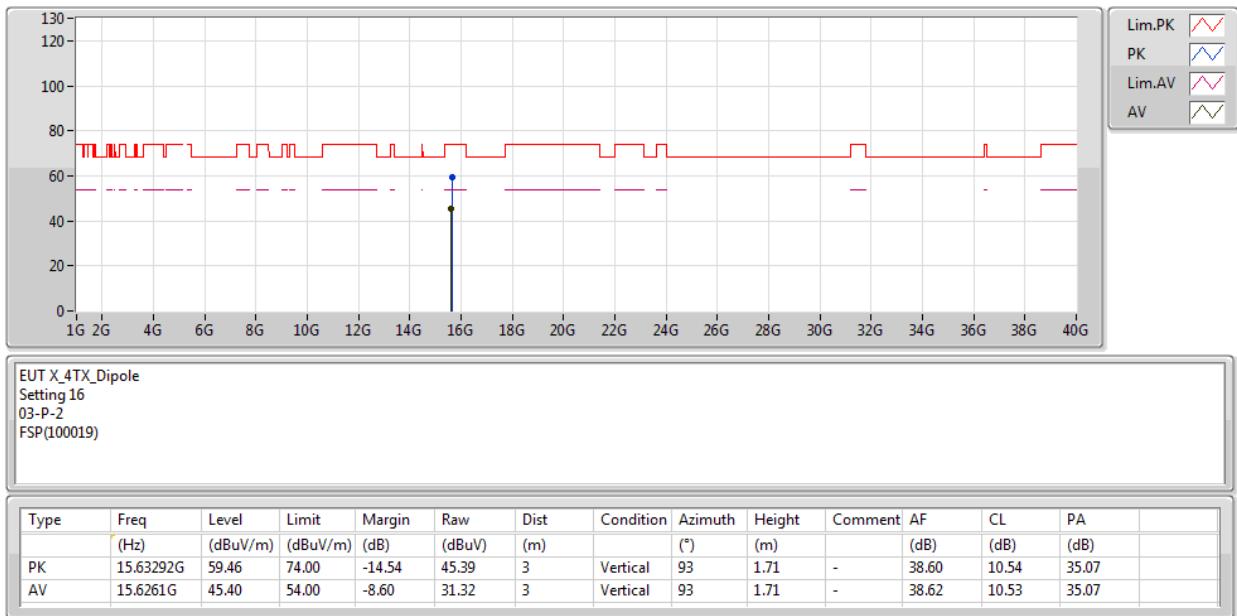
**802.11ax HEW80\_Nss1,(MCS0)\_4TX**

24/10/2019

**5210MHz\_TX**


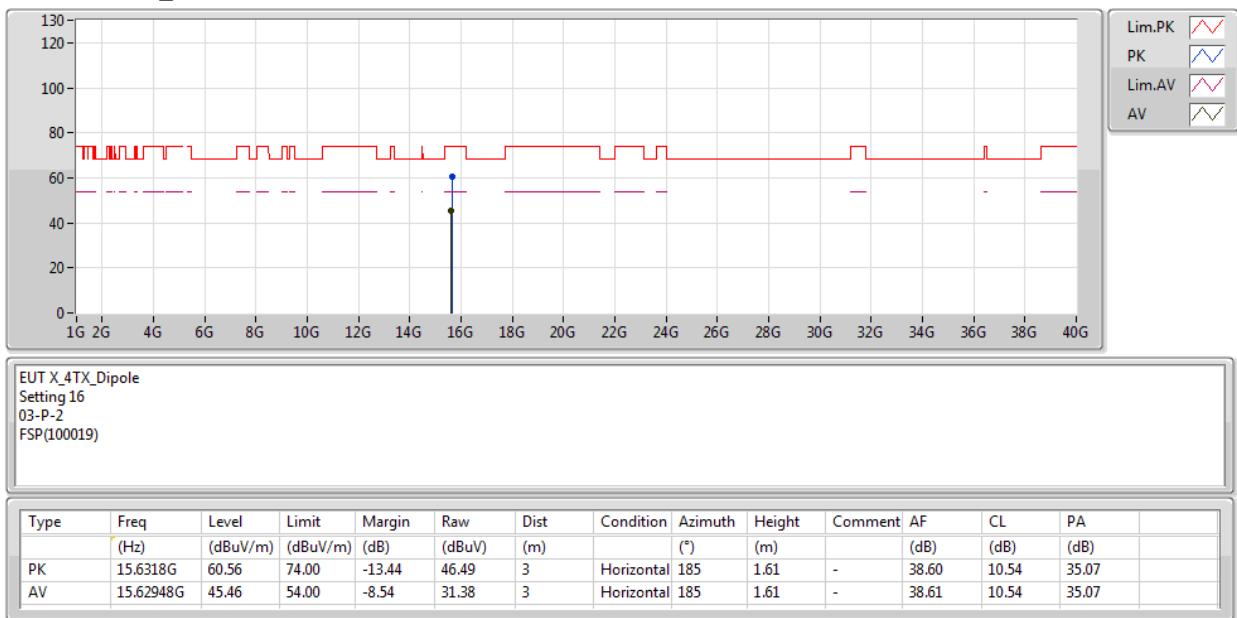
**802.11ax HEW80\_Nss1,(MCS0)\_4TX**

24/10/2019

**5210MHz\_TX**


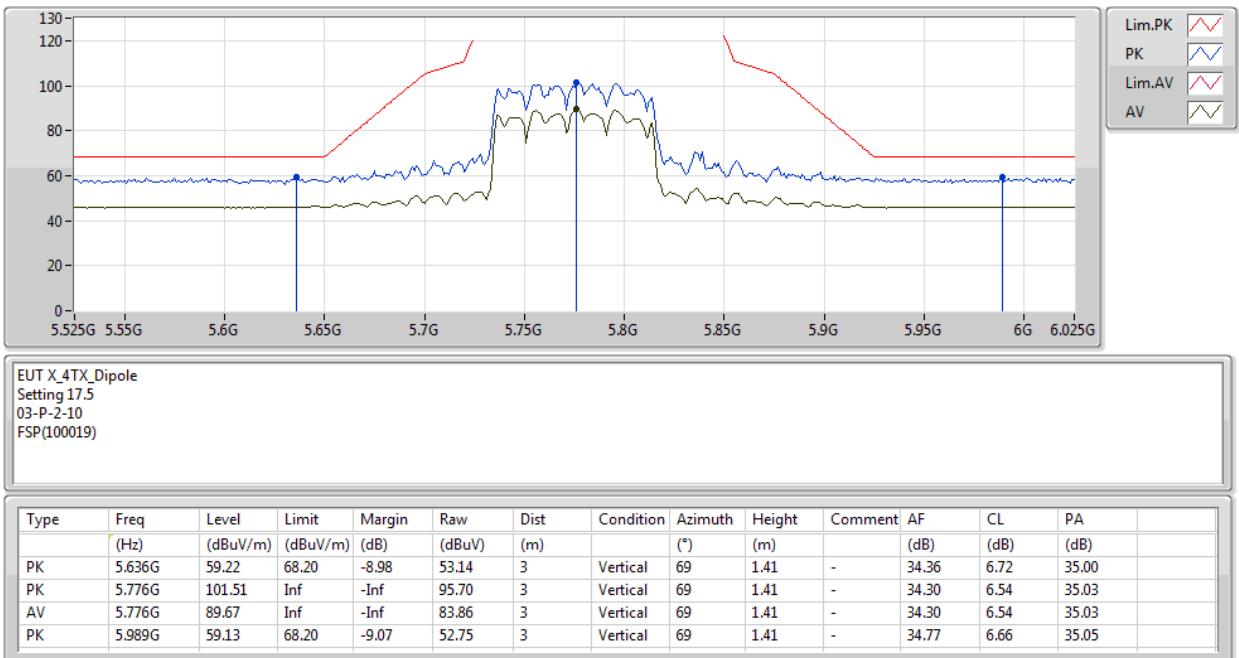
**802.11ax HEW80\_Nss1,(MCS0)\_4TX**

24/10/2019

**5210MHz\_TX**


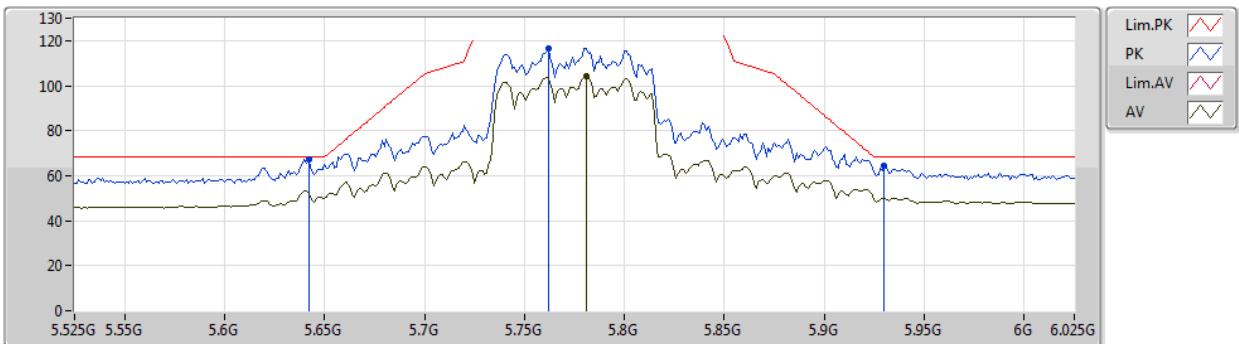
**802.11ax HEW80\_Nss1,(MCS0)\_4TX**

24/10/2019

**5775MHz\_TX**


**802.11ax HEW80\_Nss1,(MCS0)\_4TX**

24/10/2019

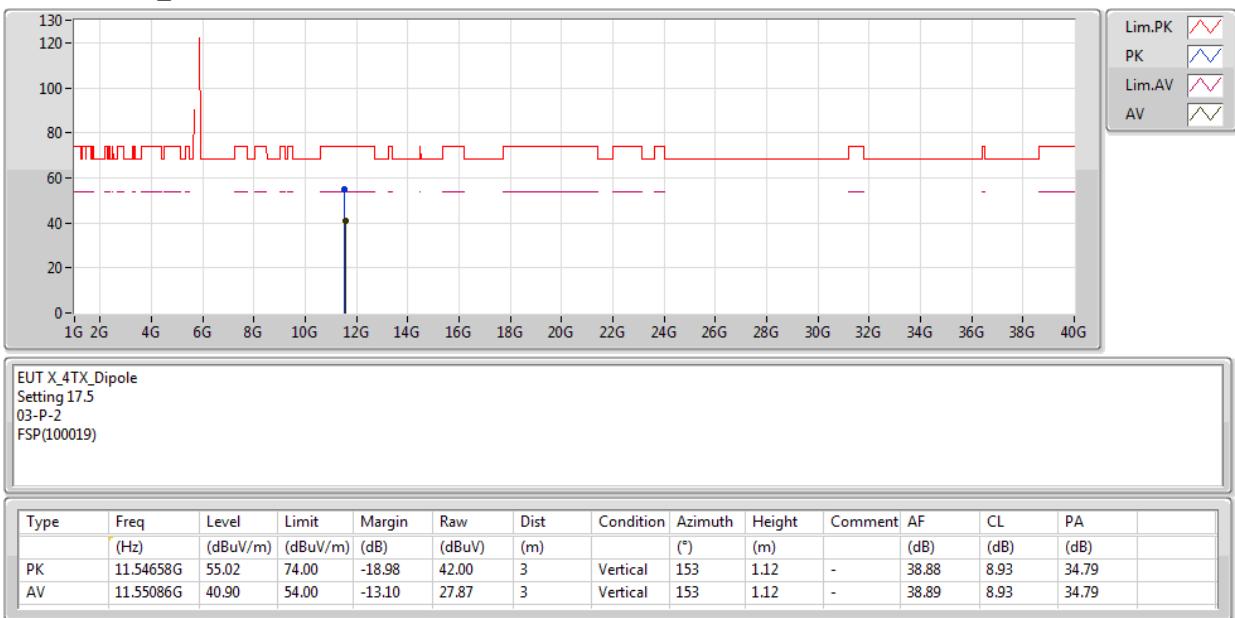
**5775MHz\_TX**


EUT X\_4TX\_Dipole  
 Setting 17.5  
 01-J-5-10  
 FSP(100019)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (*)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)	
PK	5.642G	67.03	68.20	-1.17	61.35	3	Horizontal	59	2.33	-	34.24	5.95	34.51	
PK	5.762G	116.76	Inf	-Inf	110.89	3	Horizontal	59	2.33	-	34.42	5.99	34.54	
AV	5.781G	103.99	Inf	-Inf	98.08	3	Horizontal	59	2.33	-	34.46	6.00	34.55	
PK	5.93G	64.65	68.20	-3.55	57.82	3	Horizontal	59	2.33	-	35.19	6.23	34.59	

**802.11ax HEW80\_Nss1,(MCS0)\_4TX**

24/10/2019

**5775MHz\_TX**


**802.11ax HEW80\_Nss1,(MCS0)\_4TX**

24/10/2019

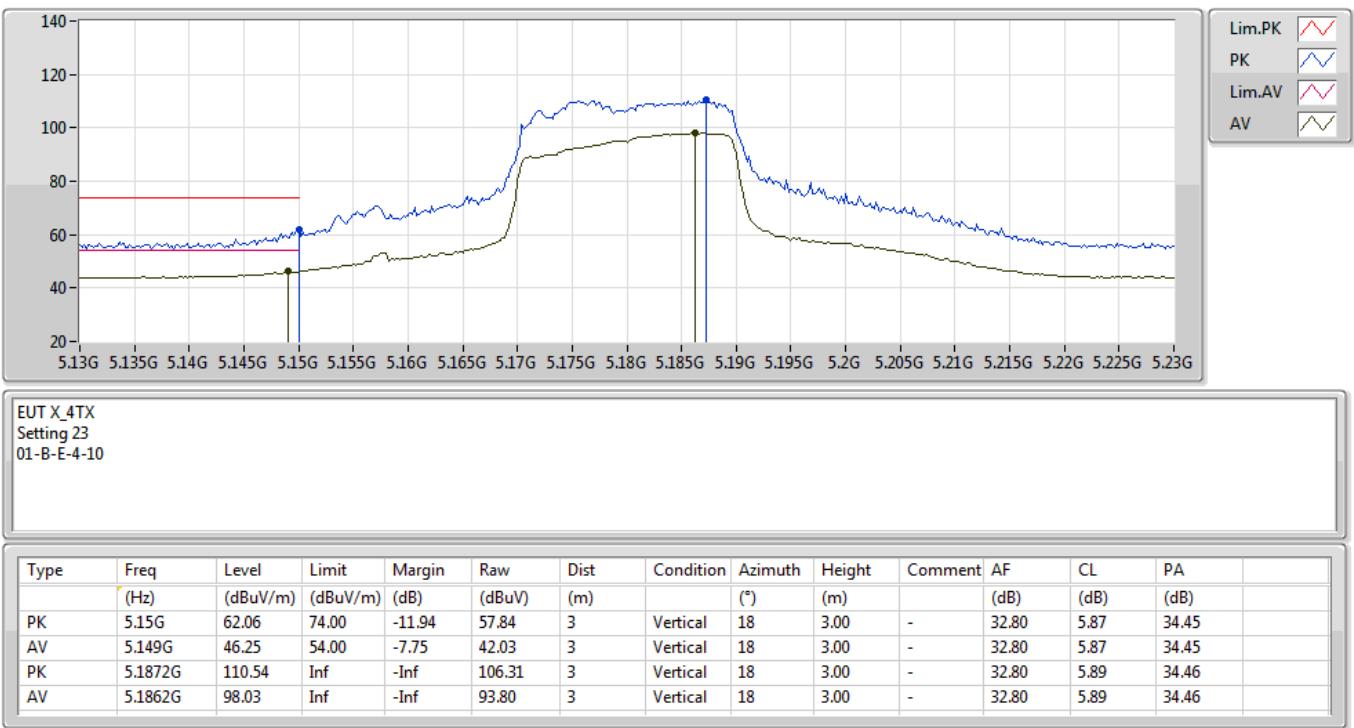
**5775MHz\_TX**


**<beamforming mode>****Summary**

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
5.15-5.25GHz	-	-	-	-	-	-	-	-	-	-	-
802.11ax HEW40-BF_Nss1,(MCS0)_4TX	Pass	PK	5.1464G	73.83	74.00	-0.17	3	Horizontal	289	1.80	-

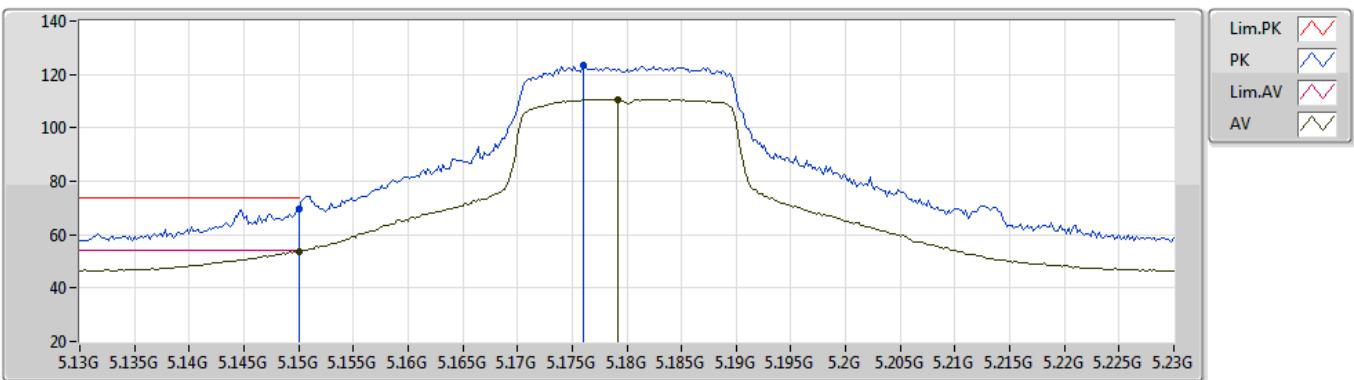
**802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX**

11/12/2019

**5180MHz\_TX**


**802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX**

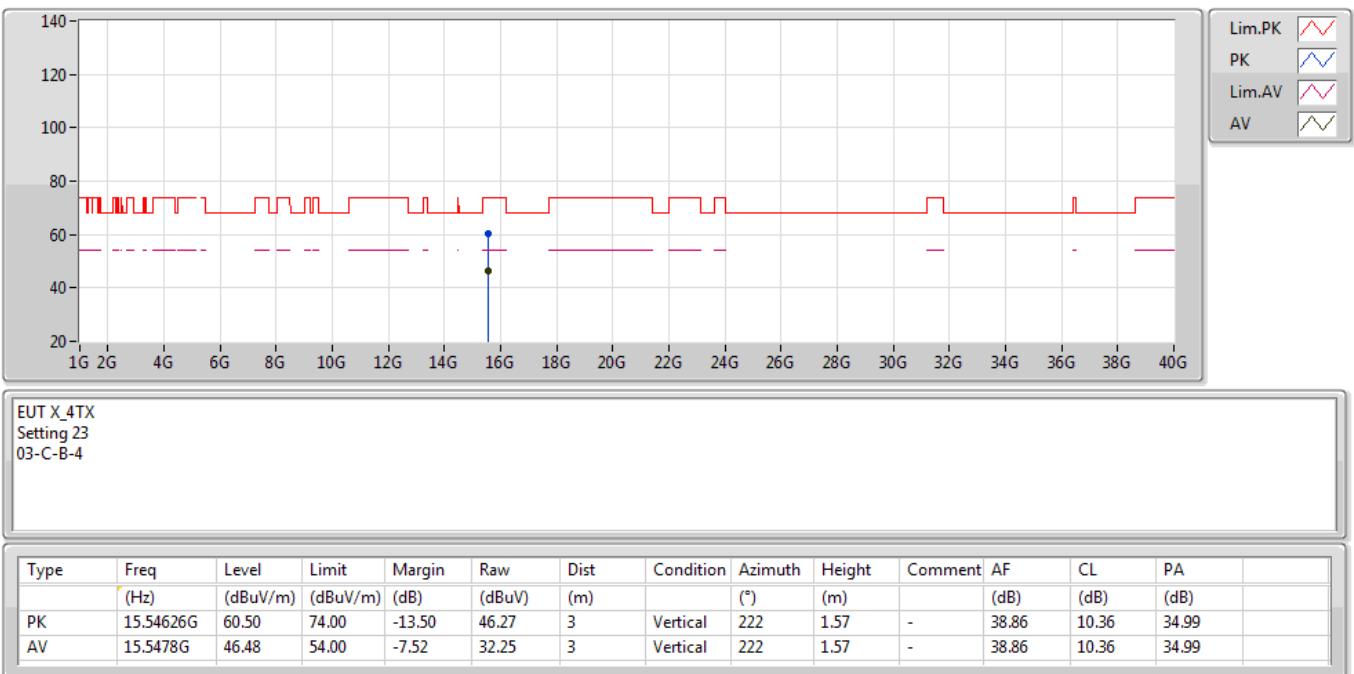
11/12/2019

**5180MHz\_TX**

 EUT X\_4TX  
 Setting 23  
 01-B-E-4-10

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	5.15G	69.90	74.00	-4.10	65.68	3	Horizontal	91	1.38	-	32.80	5.87	34.45
AV	5.15G	53.49	54.00	-0.51	49.27	3	Horizontal	91	1.38	-	32.80	5.87	34.45
PK	5.176G	123.41	Inf	-Inf	119.18	3	Horizontal	91	1.38	-	32.80	5.89	34.46
AV	5.1792G	110.67	Inf	-Inf	106.44	3	Horizontal	91	1.38	-	32.80	5.89	34.46

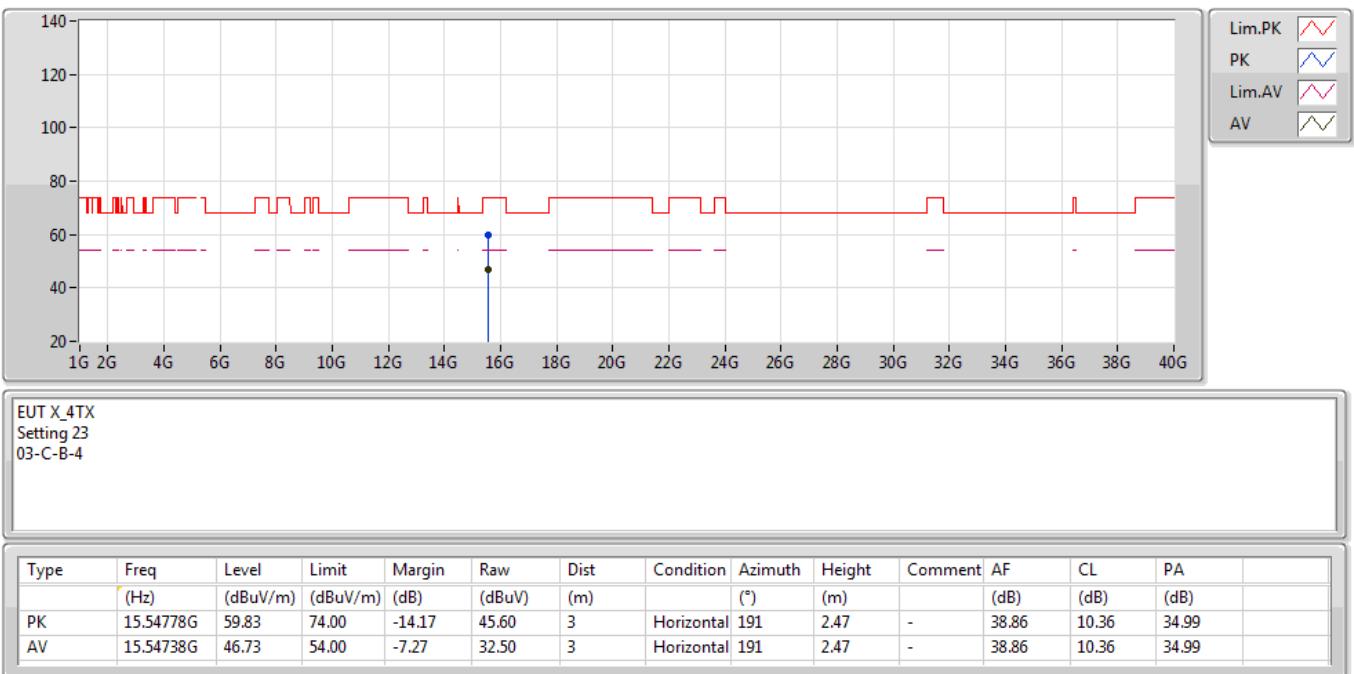
**802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX**

11/12/2019

**5180MHz\_TX**


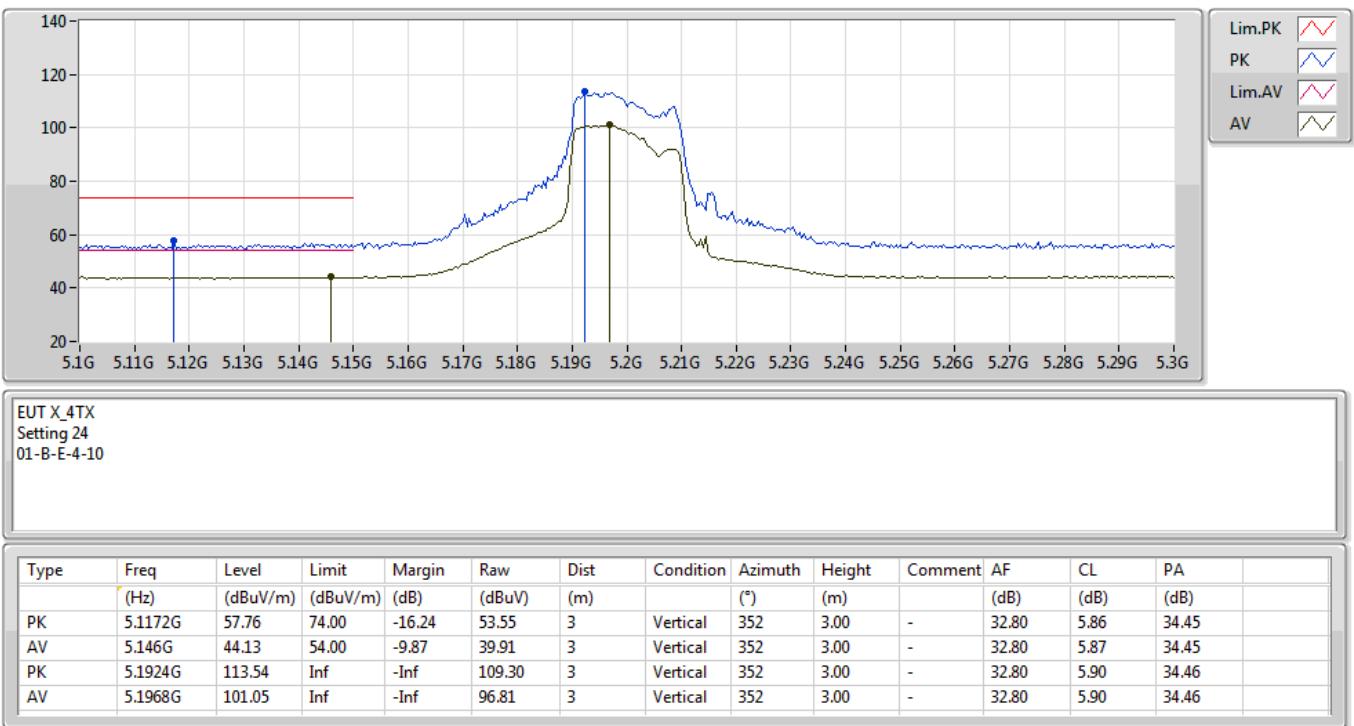
**802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX**

11/12/2019

**5180MHz\_TX**


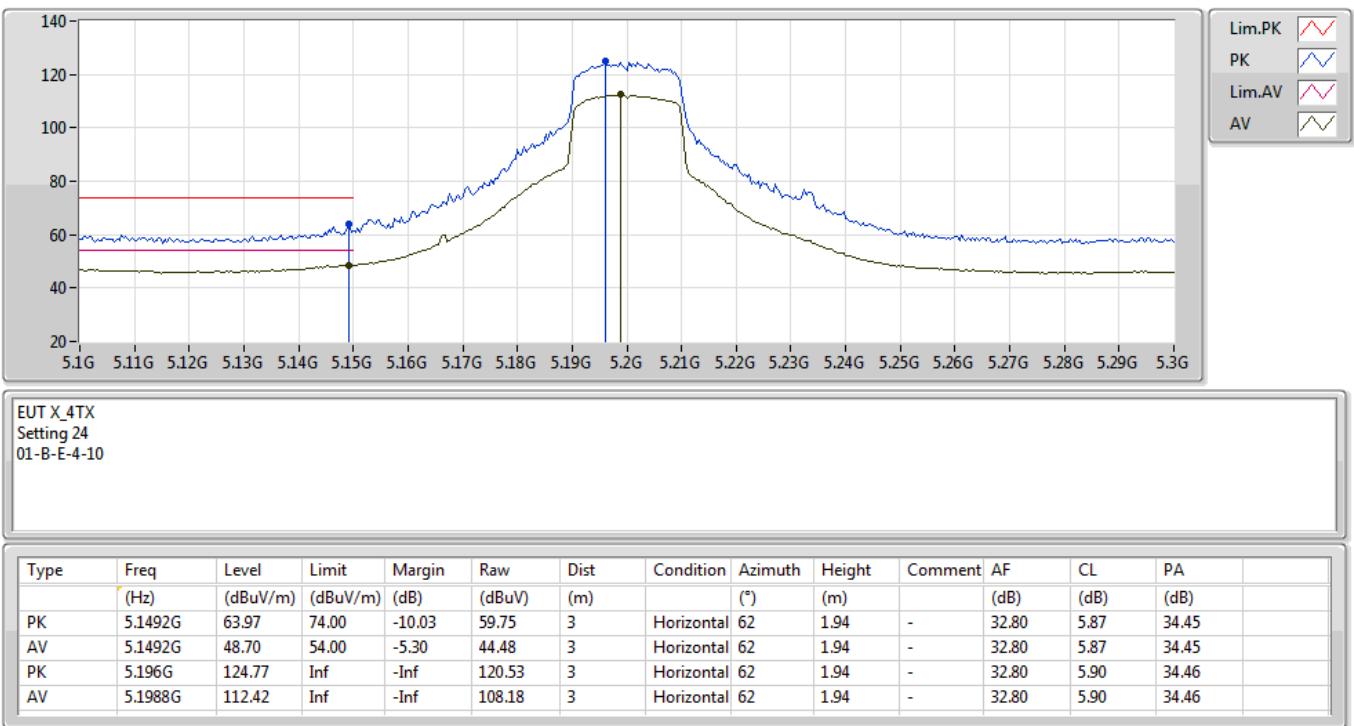
**802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX**

11/12/2019

**5200MHz\_TX**


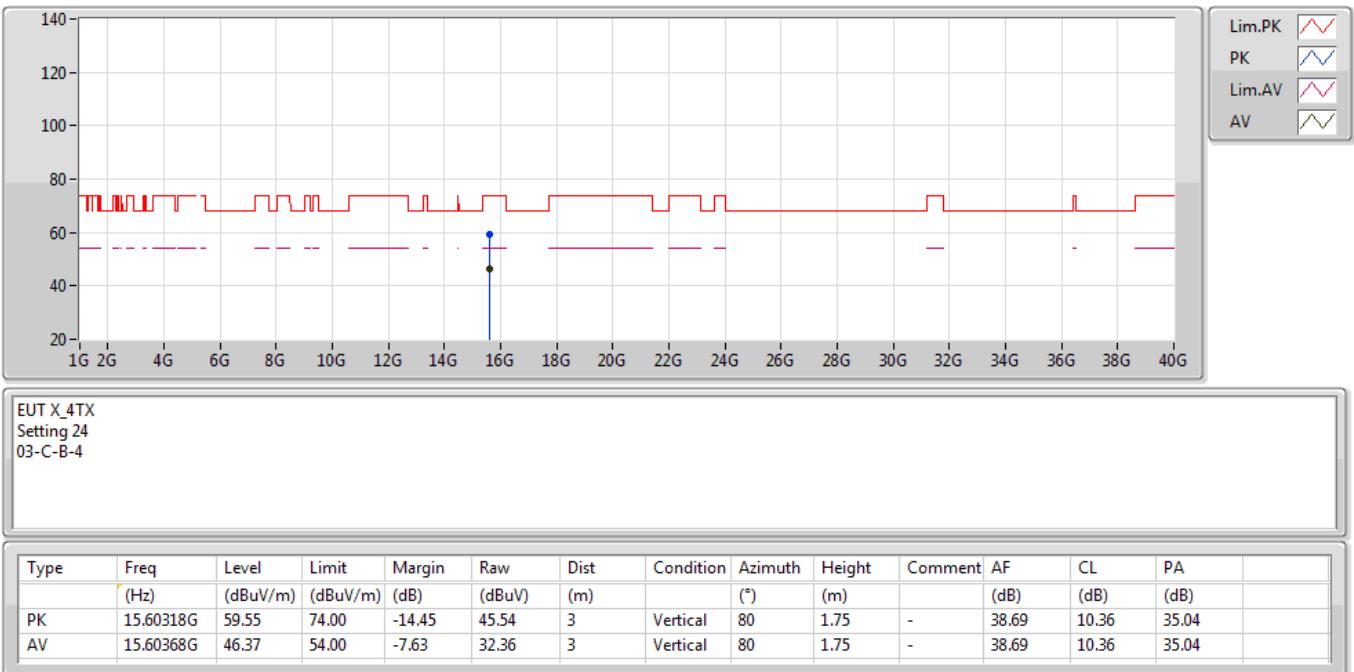
**802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX**

11/12/2019

**5200MHz\_TX**


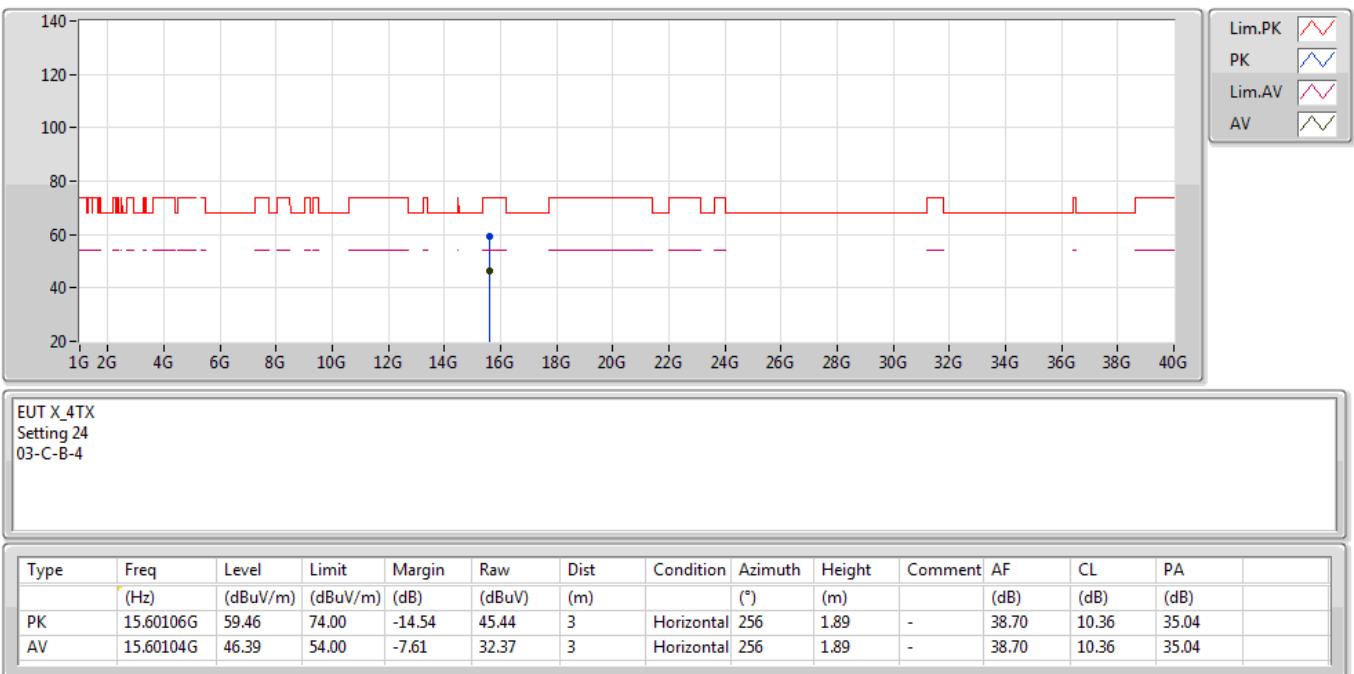
**802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX**

11/12/2019

**5200MHz\_TX**


**802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX**

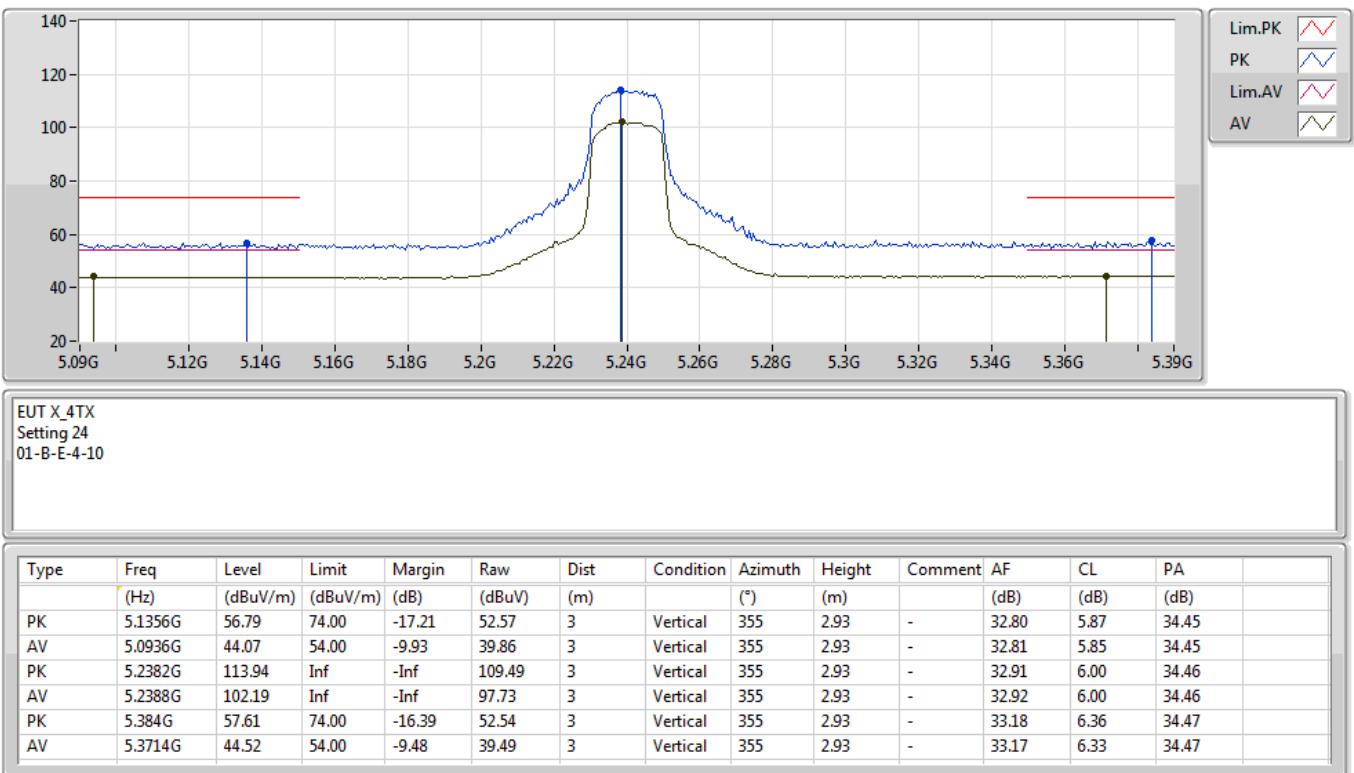
11/12/2019

**5200MHz\_TX**


## 802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX

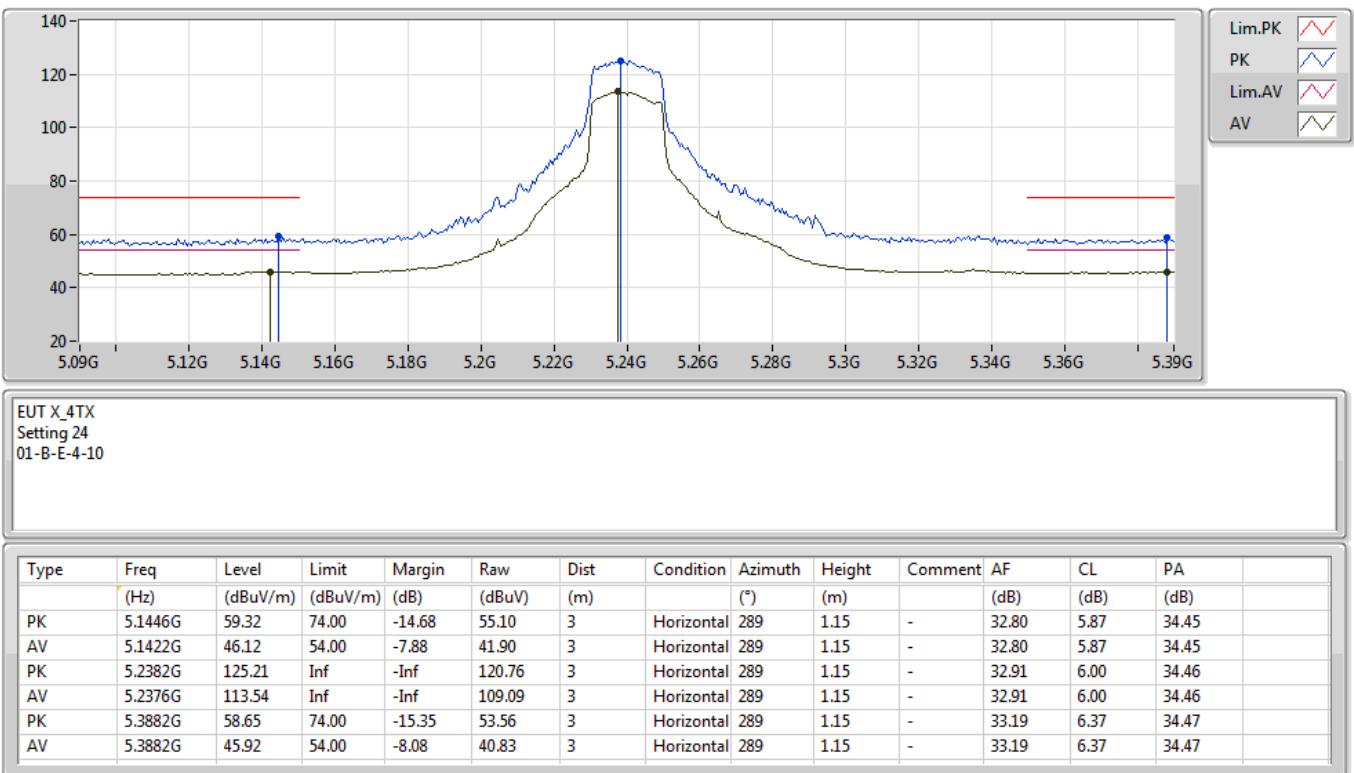
11/12/2019

## 5240MHz\_TX



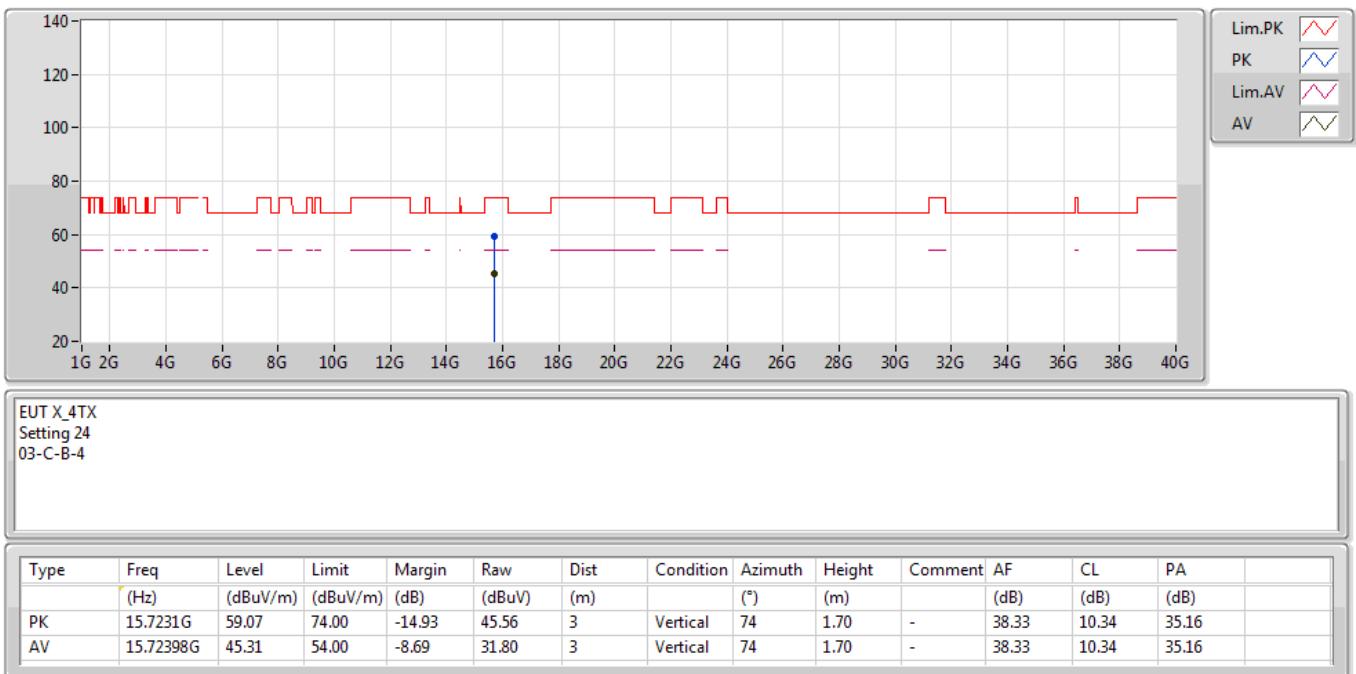
**802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX**

11/12/2019

**5240MHz\_TX**


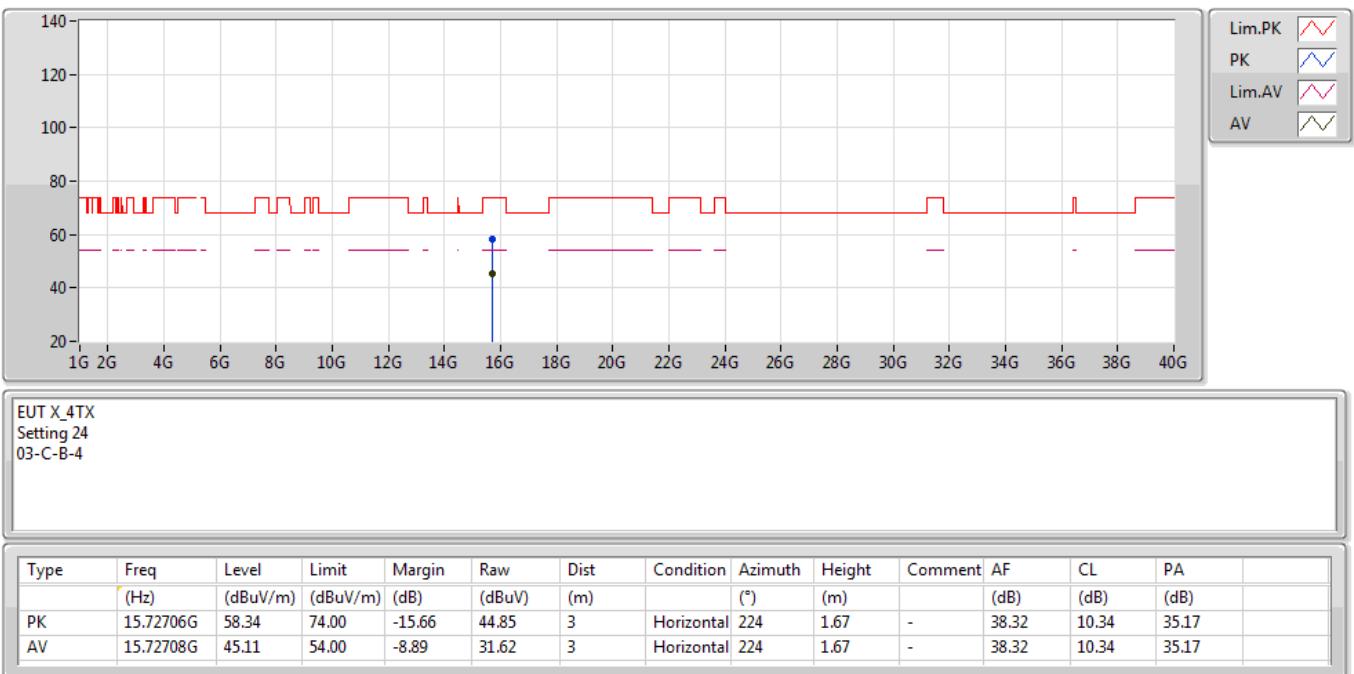
**802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX**

11/12/2019

**5240MHz\_TX**


**802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX**

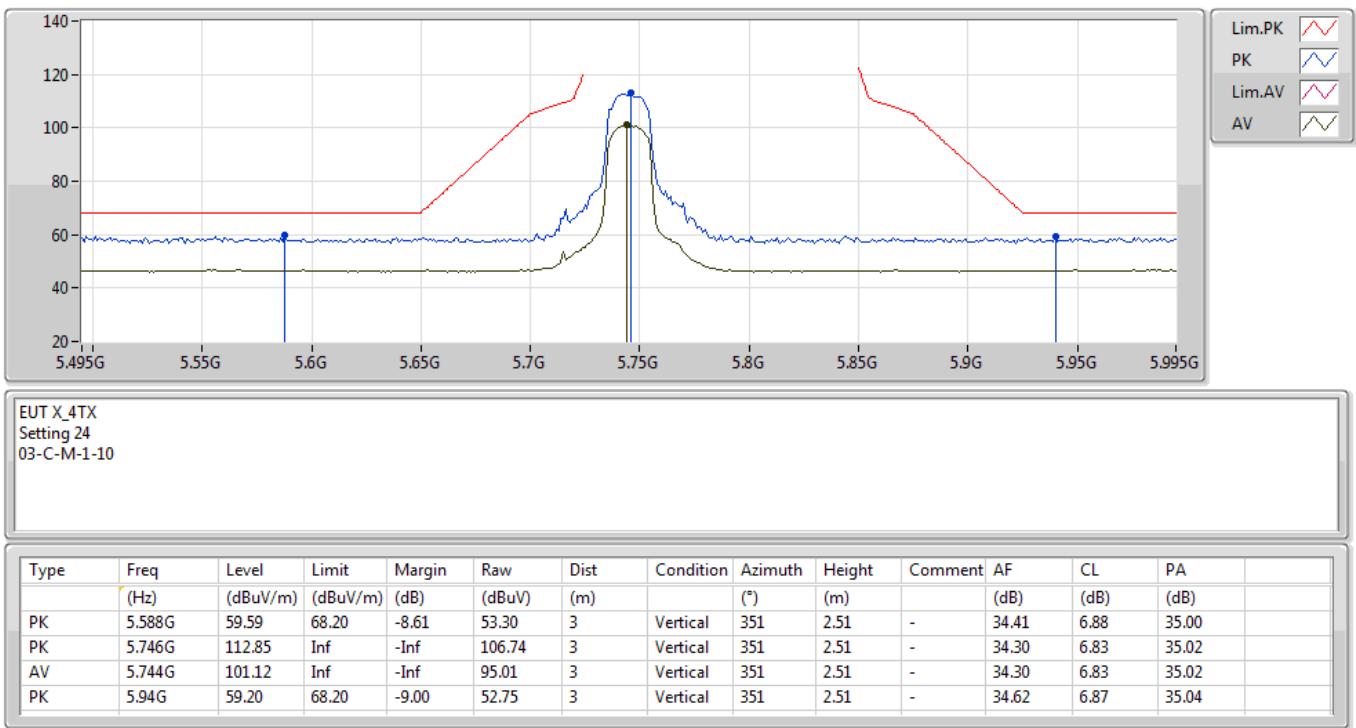
11/12/2019

**5240MHz\_TX**


## 802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX

11/12/2019

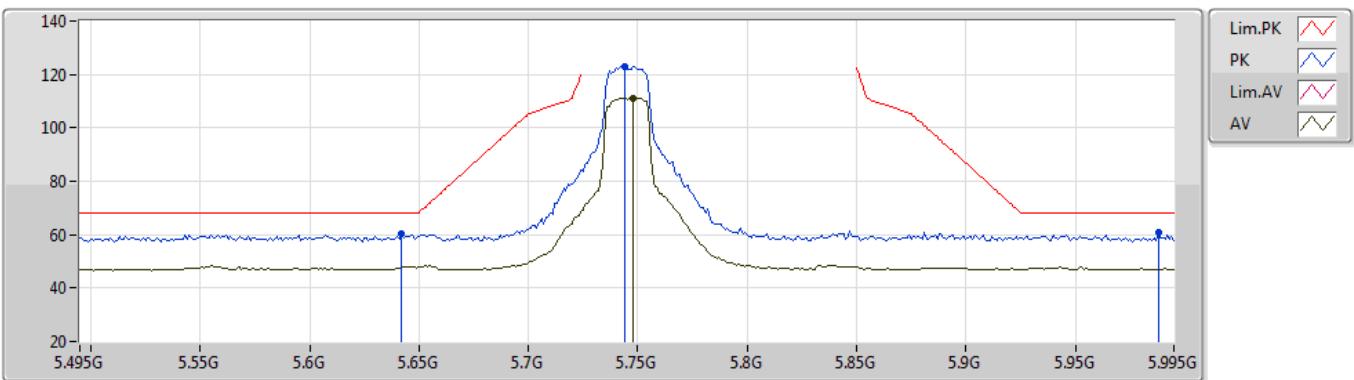
## 5745MHz\_TX



## 802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX

11/12/2019

## 5745MHz\_TX

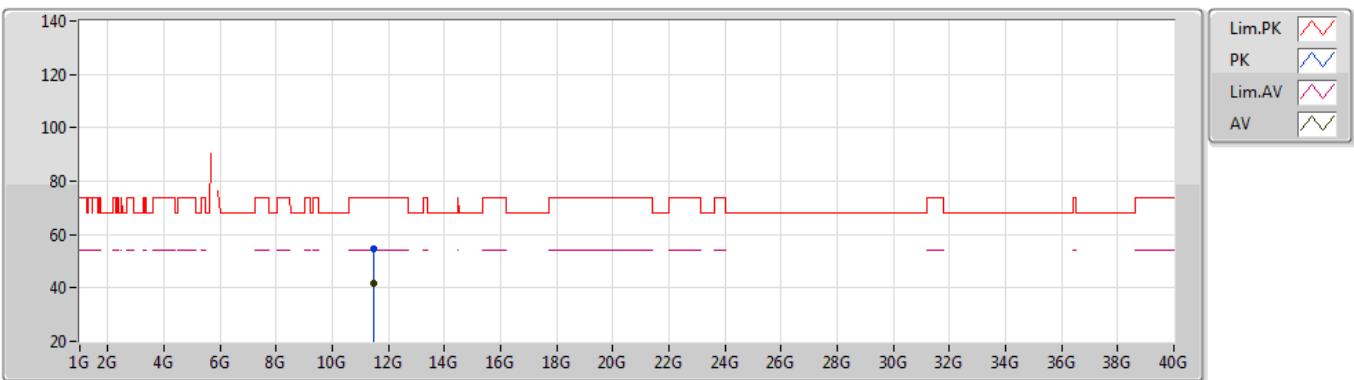


EUT X\_4TX  
Setting 24  
03-C-M-1-10

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	5.642G	60.26	68.20	-7.94	54.02	3	Horizontal	279	1.40	-	34.36	6.88	35.00
PK	5.744G	123.03	Inf	-Inf	116.92	3	Horizontal	279	1.40	-	34.30	6.83	35.02
AV	5.748G	111.22	Inf	-Inf	105.11	3	Horizontal	279	1.40	-	34.30	6.83	35.02
PK	5.988G	60.79	68.20	-7.41	54.19	3	Horizontal	279	1.40	-	34.76	6.89	35.05

**802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX**

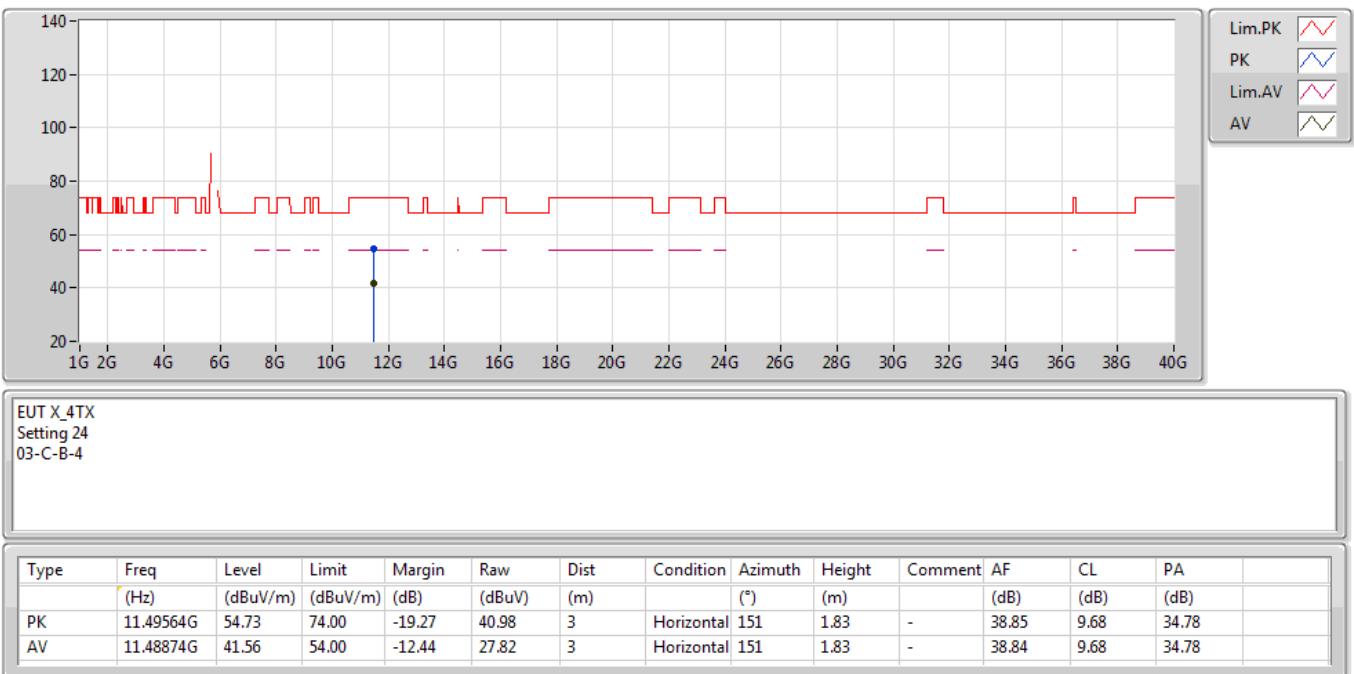
11/12/2019

**5745MHz\_TX**

 EUT X\_4TX  
 Setting 24  
 03-C-B-4

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	11.48542G	54.58	74.00	-19.42	40.84	3	Vertical	284	1.48	-	38.84	9.68	34.78
AV	11.4858G	41.48	54.00	-12.52	27.74	3	Vertical	284	1.48	-	38.84	9.68	34.78

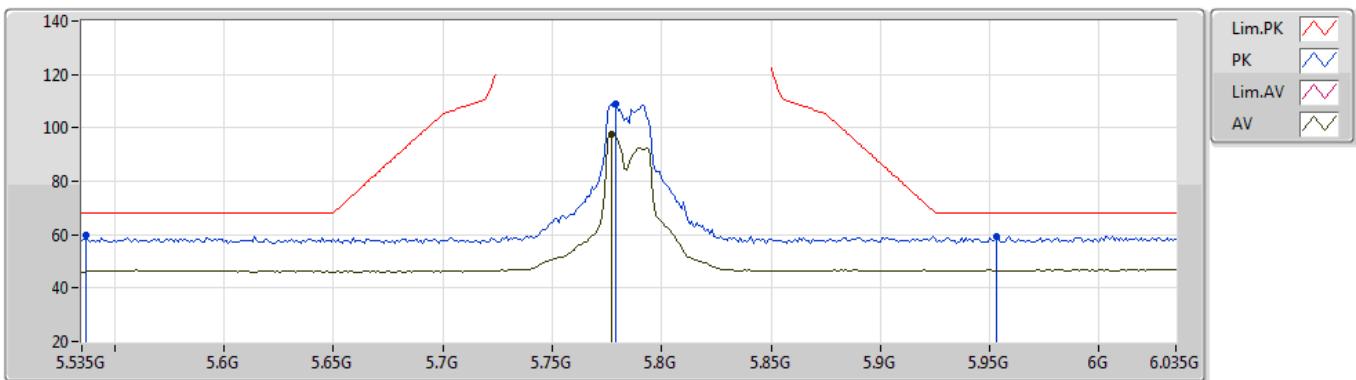
**802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX**

11/12/2019

**5745MHz\_TX**


**802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX**

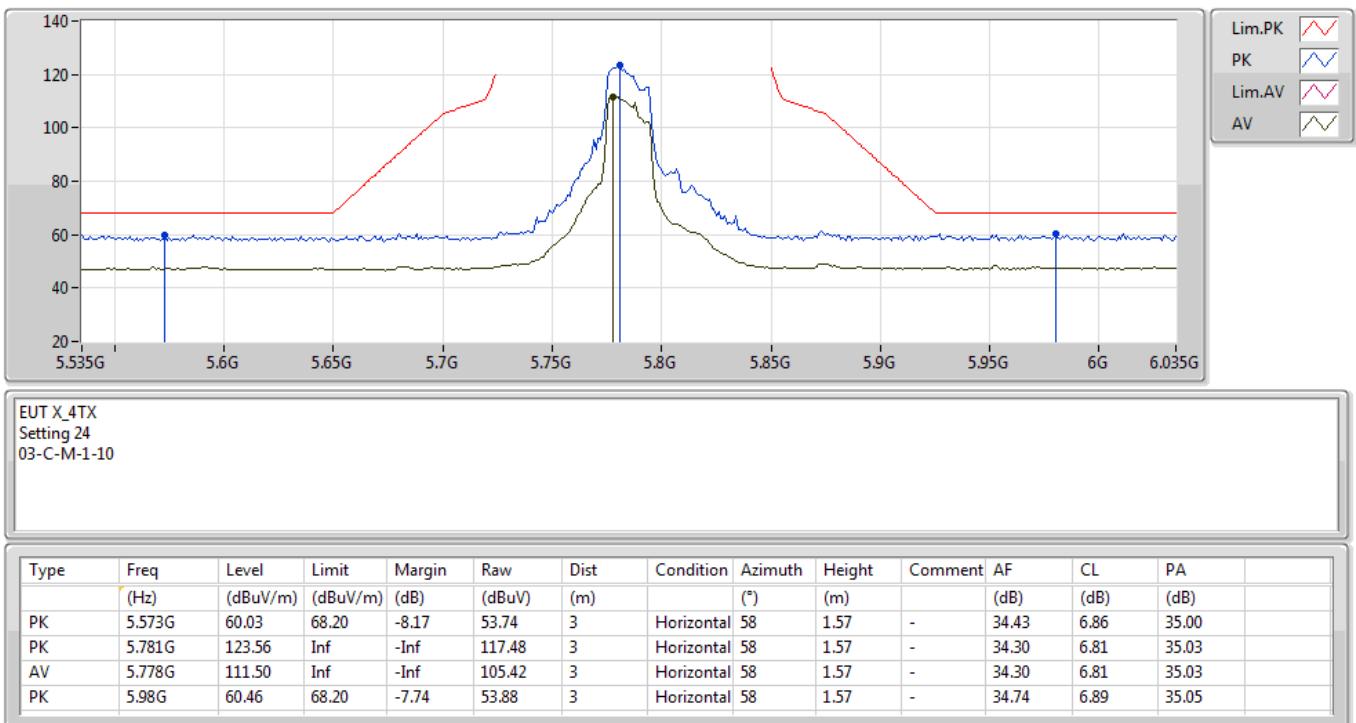
11/12/2019

**5785MHz\_TX**

 EUT X\_4TX  
 Setting 24  
 03-C-M-1-10

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	5.537G	59.83	68.20	-8.37	53.55	3	Vertical	175	2.68	-	34.46	6.81	34.99
PK	5.779G	109.16	Inf	-Inf	103.08	3	Vertical	175	2.68	-	34.30	6.81	35.03
AV	5.777G	97.83	Inf	-Inf	91.75	3	Vertical	175	2.68	-	34.30	6.81	35.03
PK	5.953G	59.32	68.20	-8.88	52.83	3	Vertical	175	2.68	-	34.66	6.88	35.05

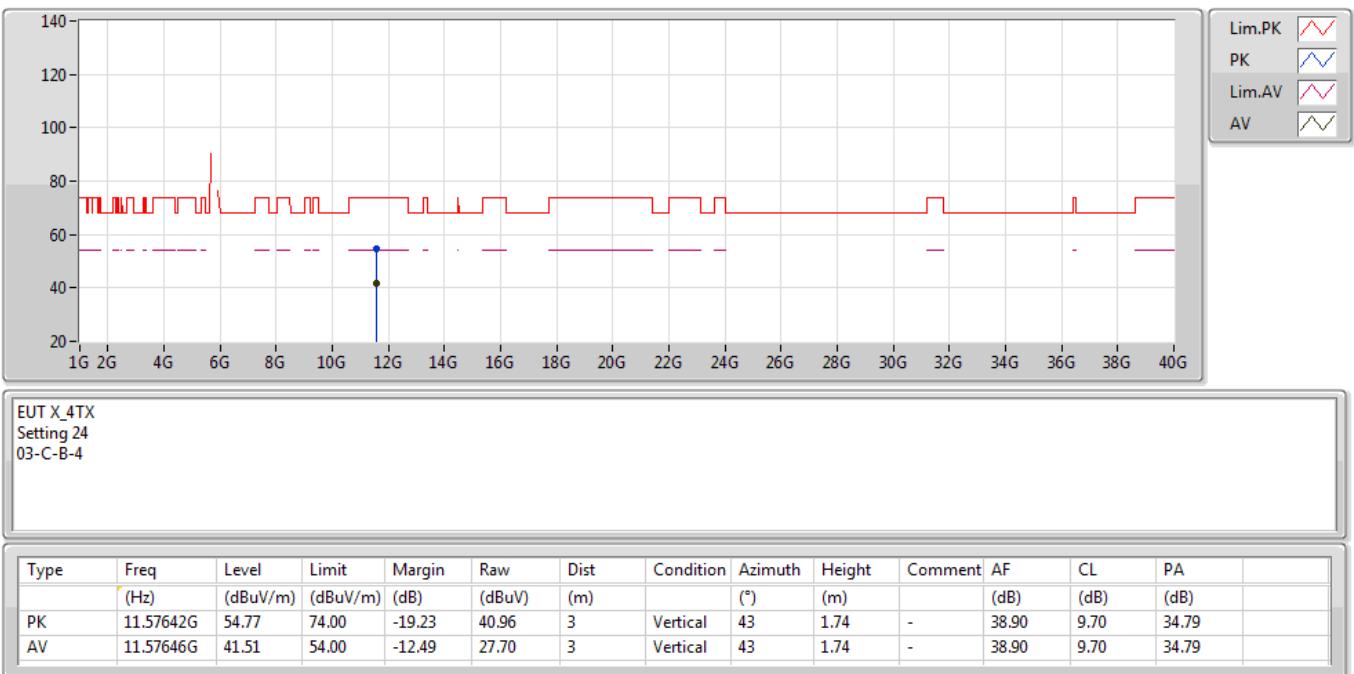
**802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX**

11/12/2019

**5785MHz\_TX**


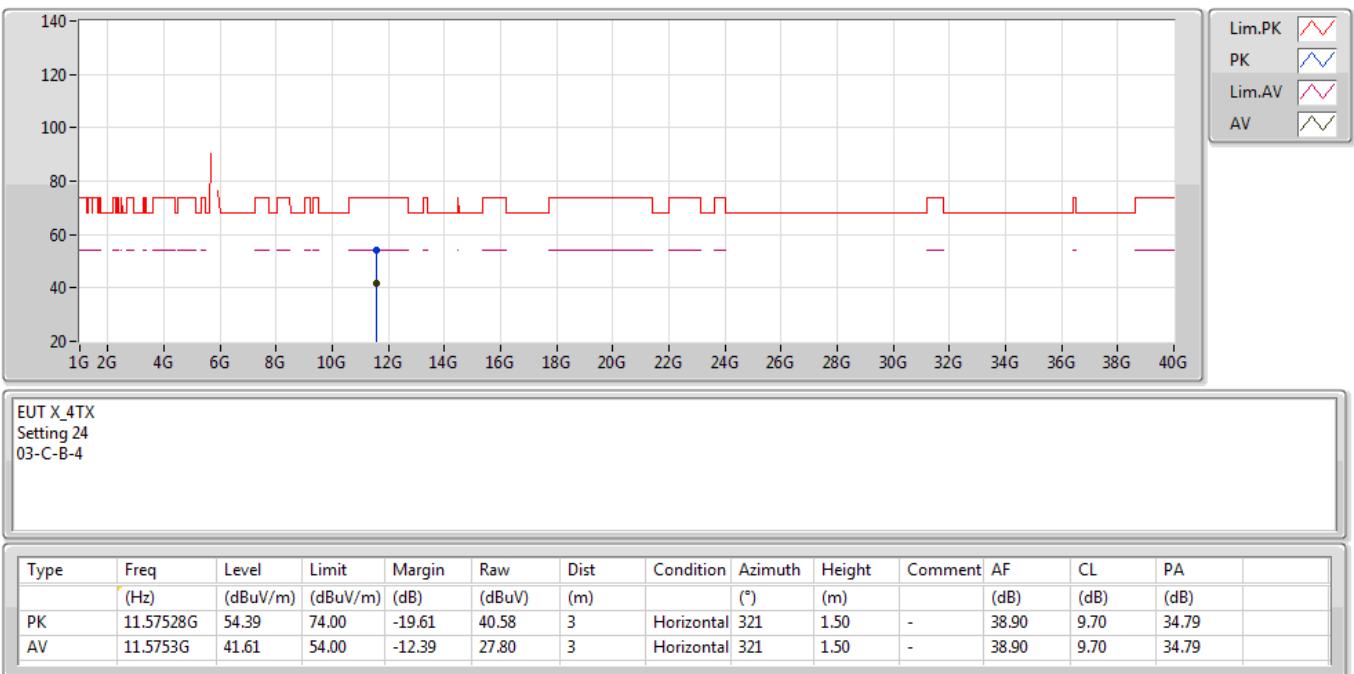
**802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX**

11/12/2019

**5785MHz\_TX**


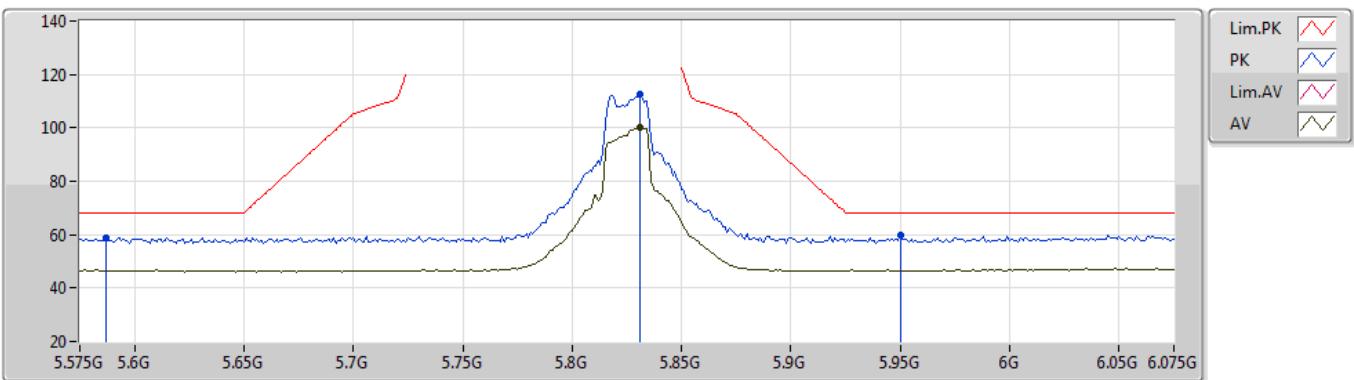
**802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX**

11/12/2019

**5785MHz\_TX**


**802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX**

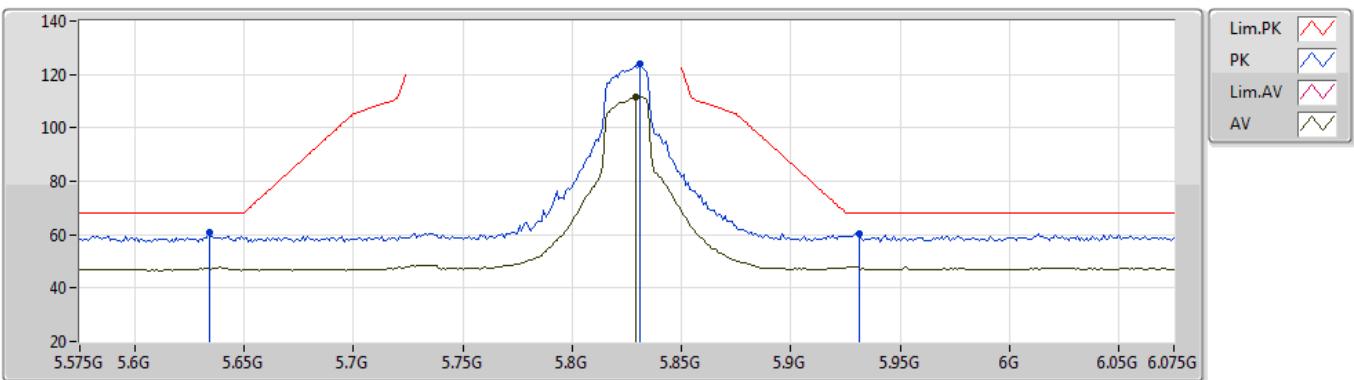
11/12/2019

**5825MHz\_TX**

 EUT X\_4TX  
 Setting 24  
 03-C-M-1-10

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	5.587G	58.78	68.20	-9.42	52.49	3	Vertical	20	2.64	-	34.41	6.88	35.00
PK	5.831G	112.77	Inf	-Inf	106.62	3	Vertical	20	2.64	-	34.36	6.82	35.03
AV	5.831G	100.06	Inf	-Inf	93.91	3	Vertical	20	2.64	-	34.36	6.82	35.03
PK	5.95G	59.72	68.20	-8.48	53.25	3	Vertical	20	2.64	-	34.65	6.87	35.05

**802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX**

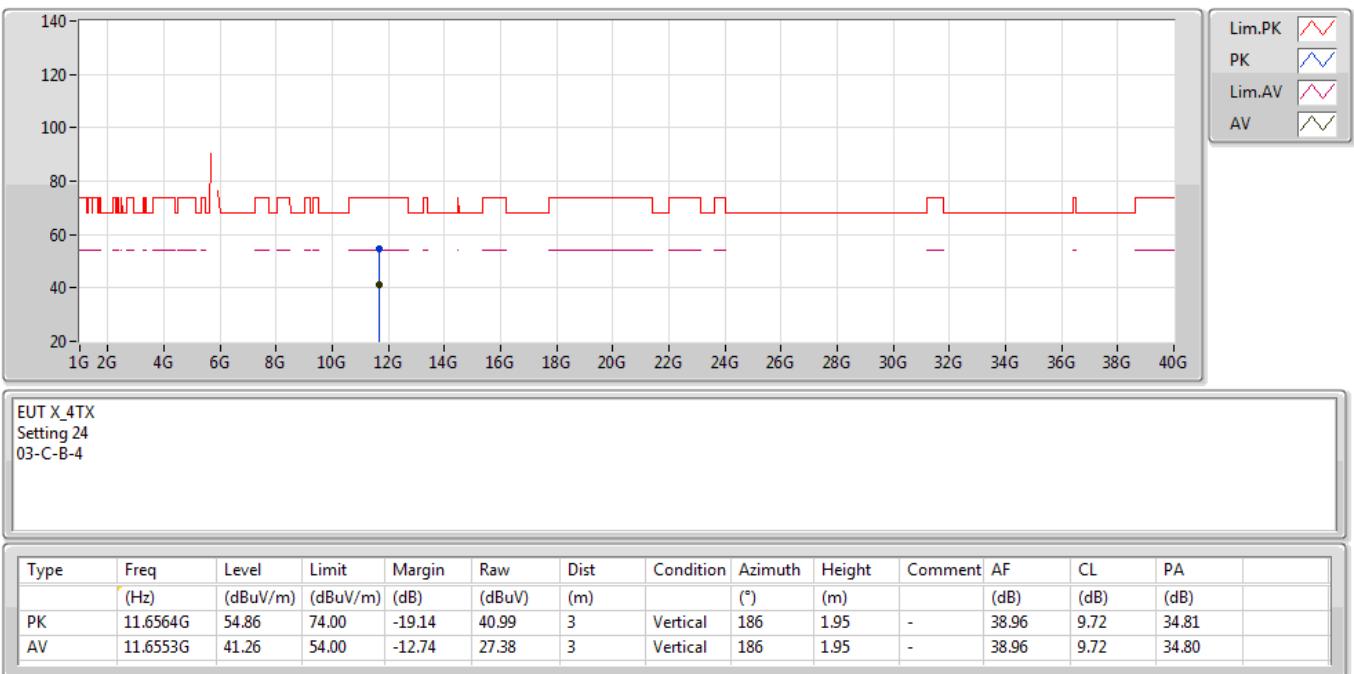
11/12/2019

**5825MHz\_TX**

 EUT X\_4TX  
 Setting 24  
 03-C-M-1-10

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (*)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	5.634G	60.95	68.20	-7.25	54.70	3	Horizontal	277	1.16	-	34.37	6.88	35.00
PK	5.831G	123.79	Inf	-Inf	117.64	3	Horizontal	277	1.16	-	34.36	6.82	35.03
AV	5.829G	111.72	Inf	-Inf	105.58	3	Horizontal	277	1.16	-	34.36	6.81	35.03
PK	5.931G	60.29	68.20	-7.91	53.87	3	Horizontal	277	1.16	-	34.59	6.87	35.04

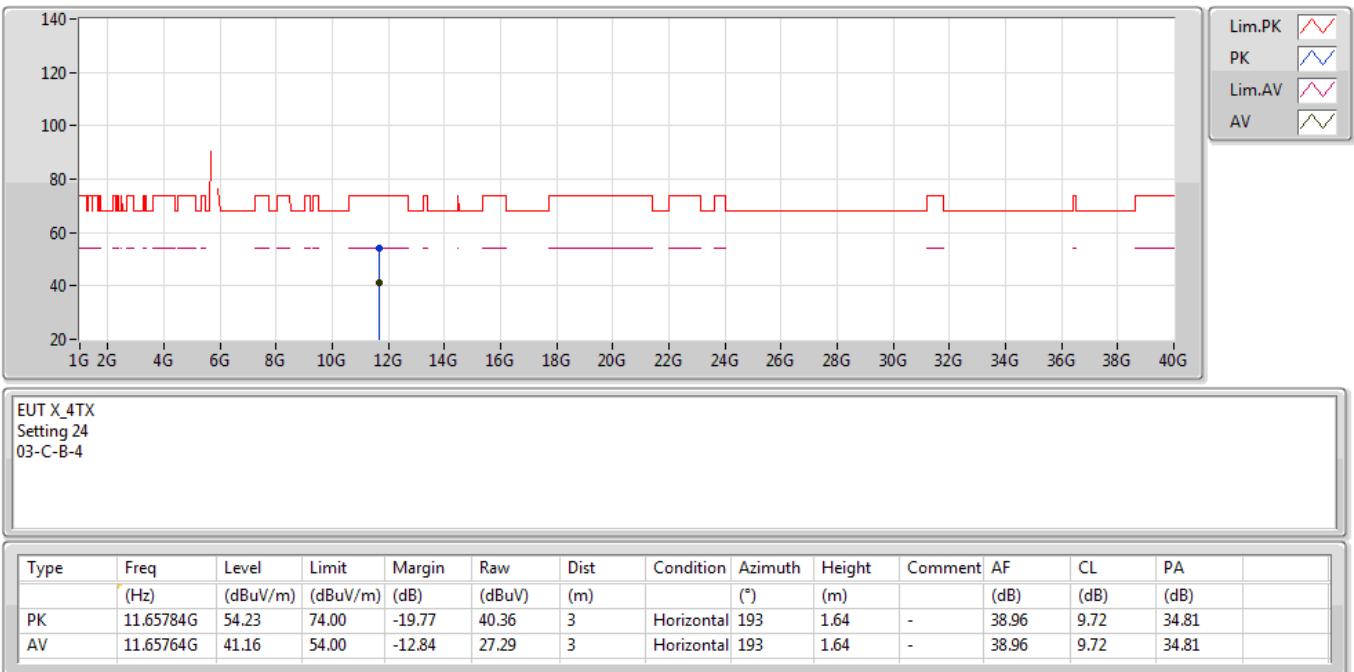
**802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX**

11/12/2019

**5825MHz\_TX**


**802.11ax HEW20-BF\_Nss1,(MCS0)\_4TX**

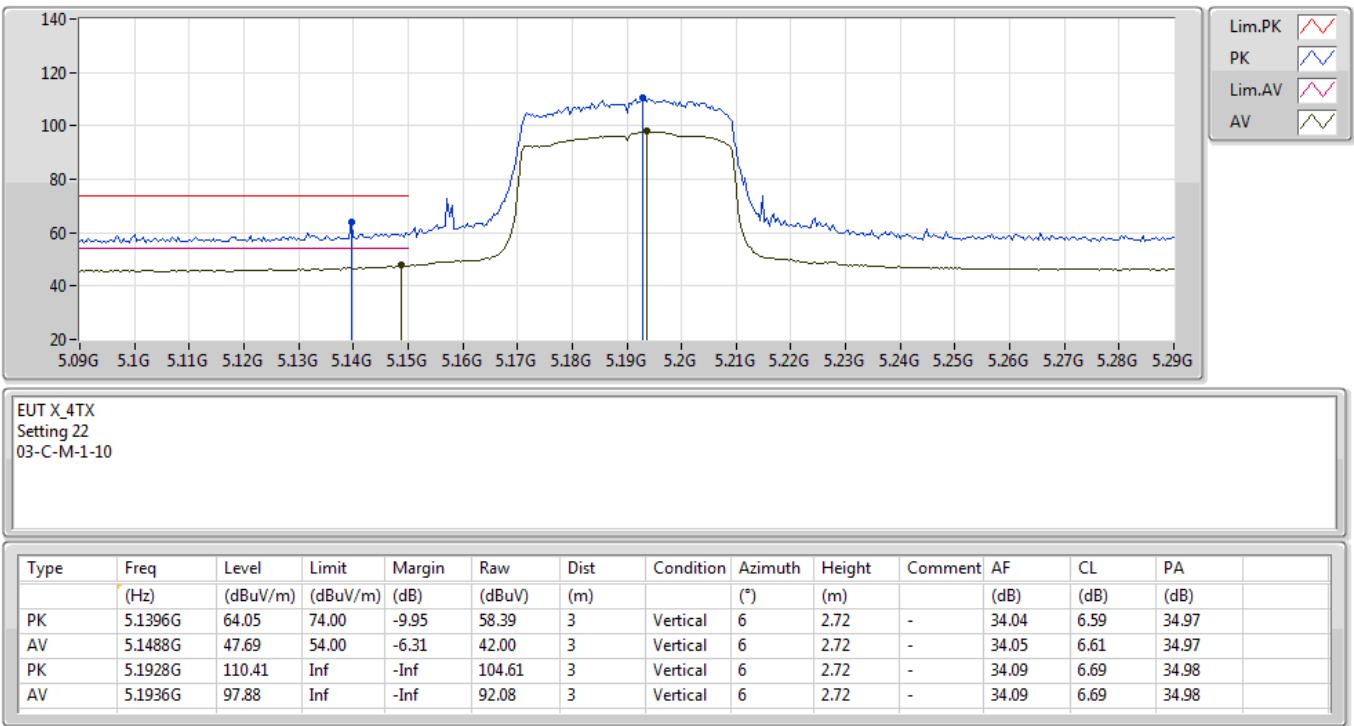
11/12/2019

**5825MHz\_TX**


## 802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX

11/12/2019

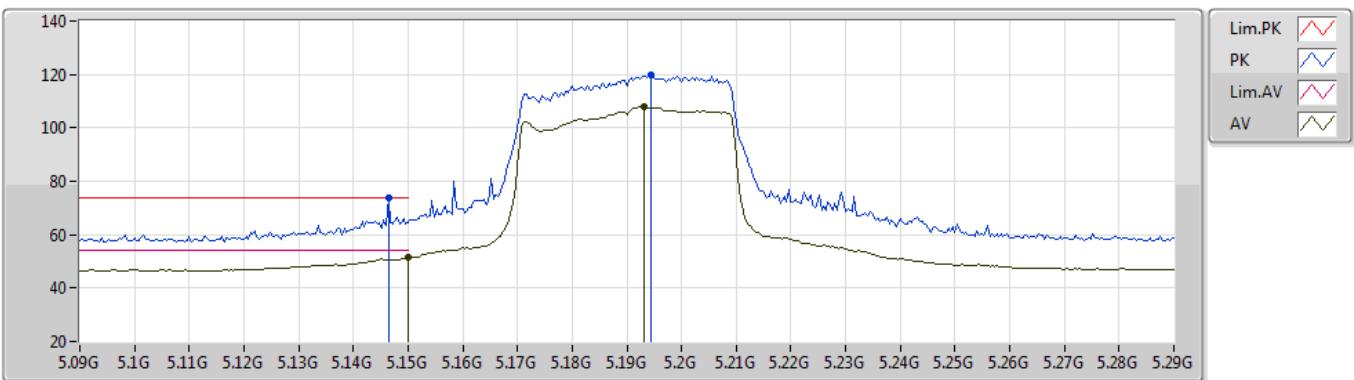
## 5190MHz\_TX



## 802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX

11/12/2019

## 5190MHz\_TX



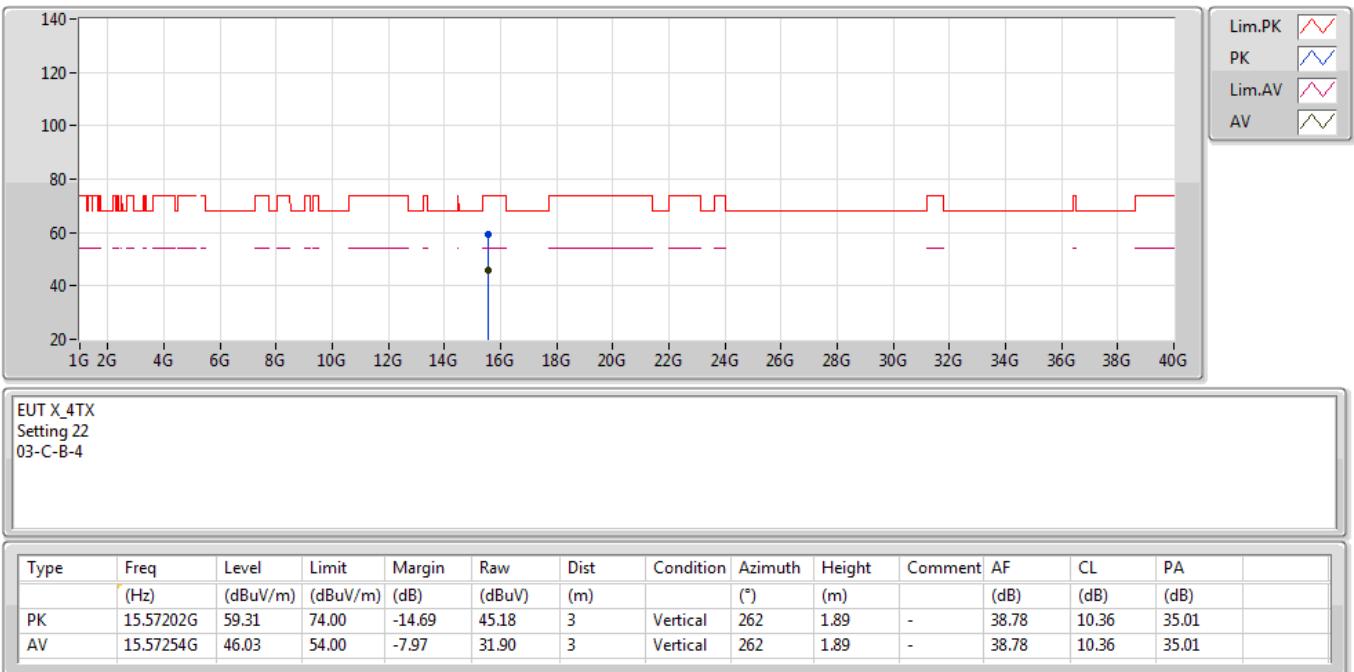
EUT X\_4TX  
 Setting 22  
 03-C-M-1-10

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (*)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	5.1464G	73.83	74.00	-0.17	68.15	3	Horizontal	289	1.80	-	34.05	6.60	34.97
AV	5.15G	51.43	54.00	-2.57	45.74	3	Horizontal	289	1.80	-	34.05	6.61	34.97
PK	5.1944G	119.96	Inf	-Inf	114.16	3	Horizontal	289	1.80	-	34.09	6.69	34.98
AV	5.1932G	107.70	Inf	-Inf	101.90	3	Horizontal	289	1.80	-	34.09	6.69	34.98

## 802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX

11/12/2019

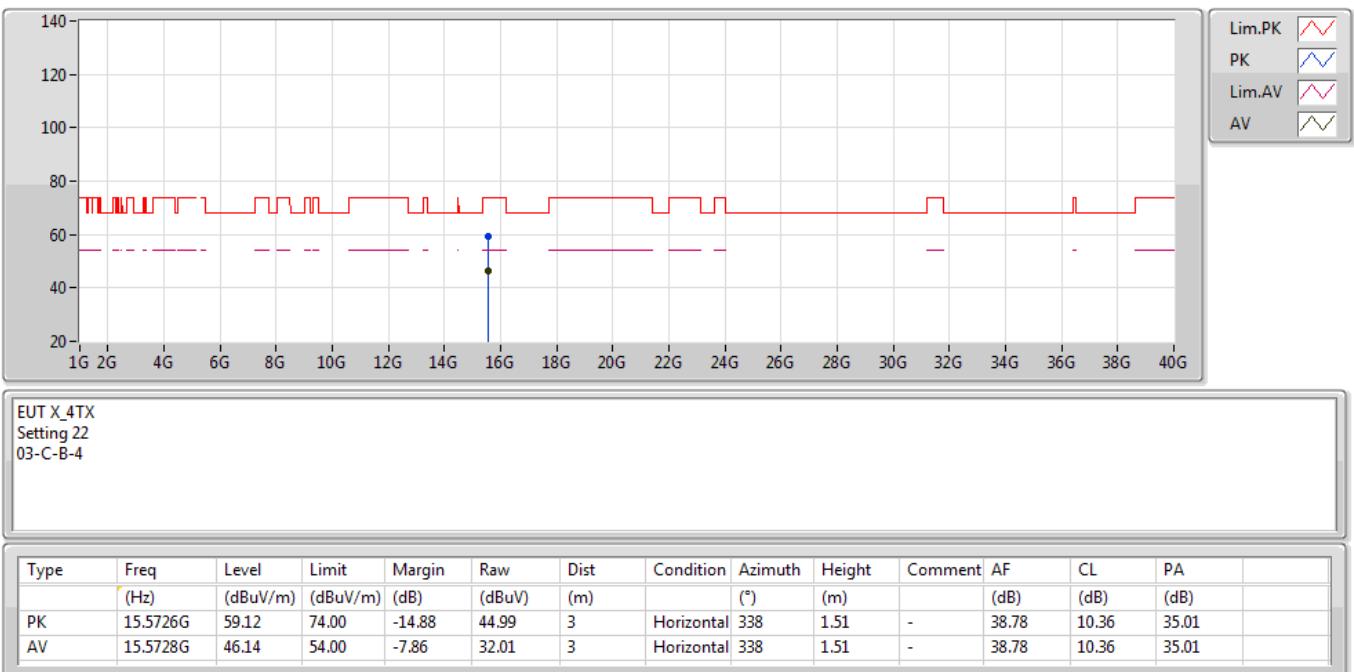
## 5190MHz\_TX



## 802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX

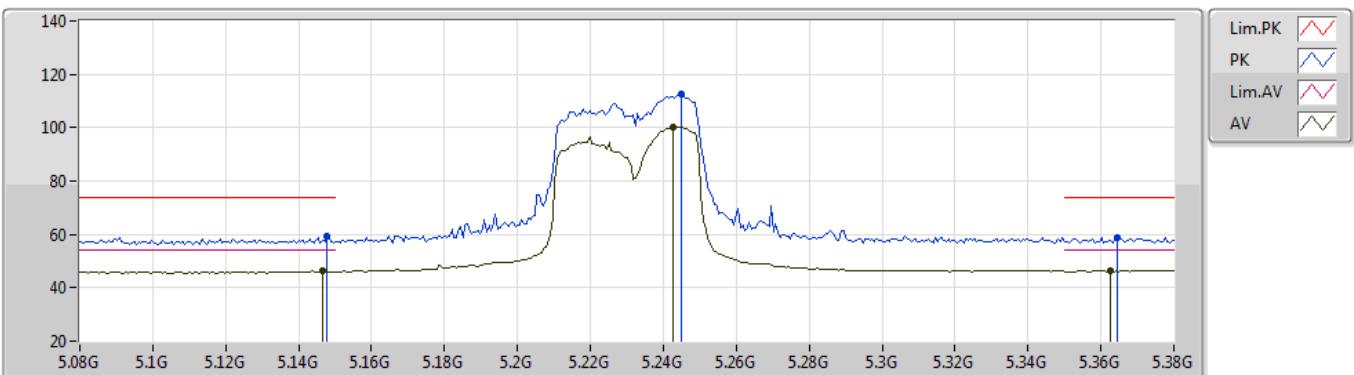
11/12/2019

## 5190MHz\_TX



**802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX**

11/12/2019

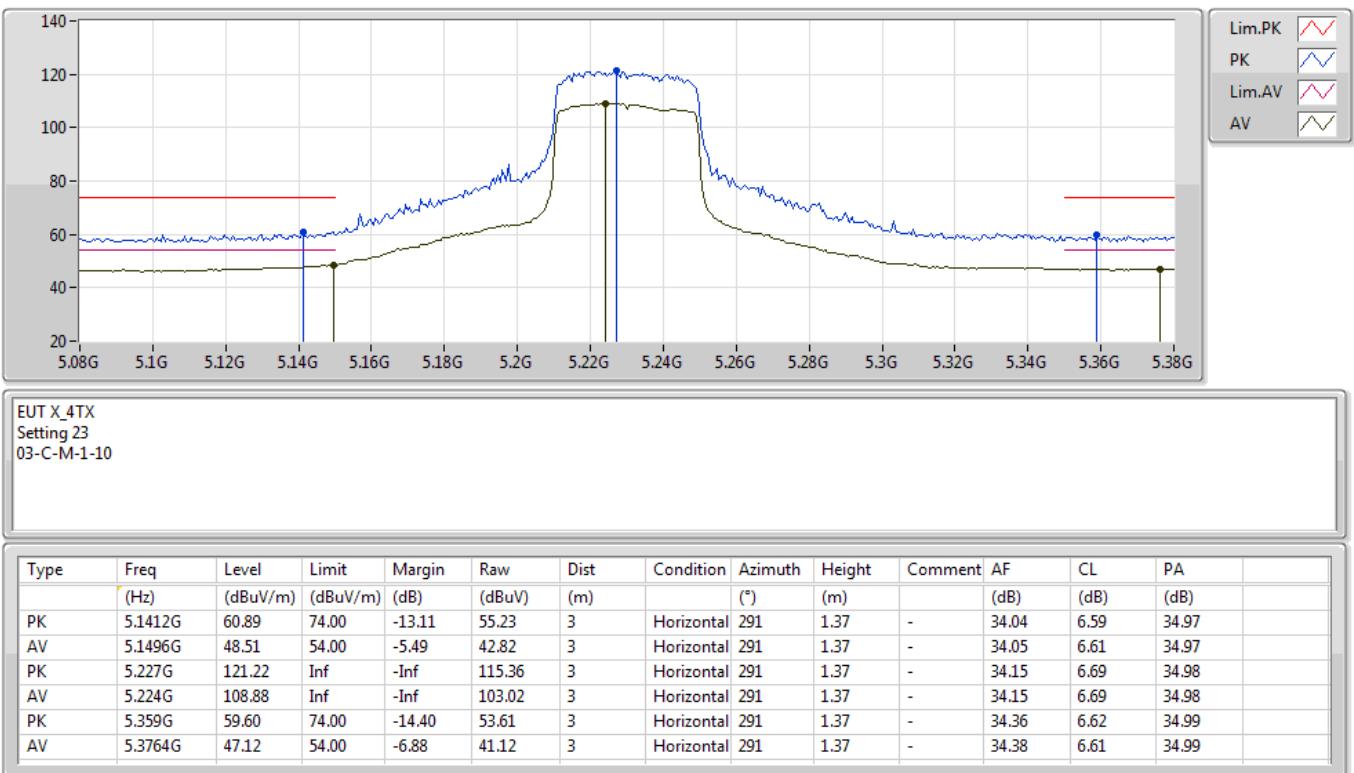
**5230MHz\_TX**

 EUT X\_4TX  
 Setting 23  
 03-C-M-1-10

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	5.1478G	59.56	74.00	-14.44	53.87	3	Vertical	17	2.95	-	34.05	6.61	34.97
AV	5.1466G	46.22	54.00	-7.78	40.54	3	Vertical	17	2.95	-	34.05	6.60	34.97
PK	5.245G	112.67	Inf	-Inf	106.78	3	Vertical	17	2.95	-	34.19	6.68	34.98
AV	5.2426G	100.32	Inf	-Inf	94.43	3	Vertical	17	2.95	-	34.19	6.68	34.98
PK	5.3644G	59.01	74.00	-14.99	53.02	3	Vertical	17	2.95	-	34.36	6.62	34.99
AV	5.3626G	46.44	54.00	-7.56	40.45	3	Vertical	17	2.95	-	34.36	6.62	34.99

## 802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX

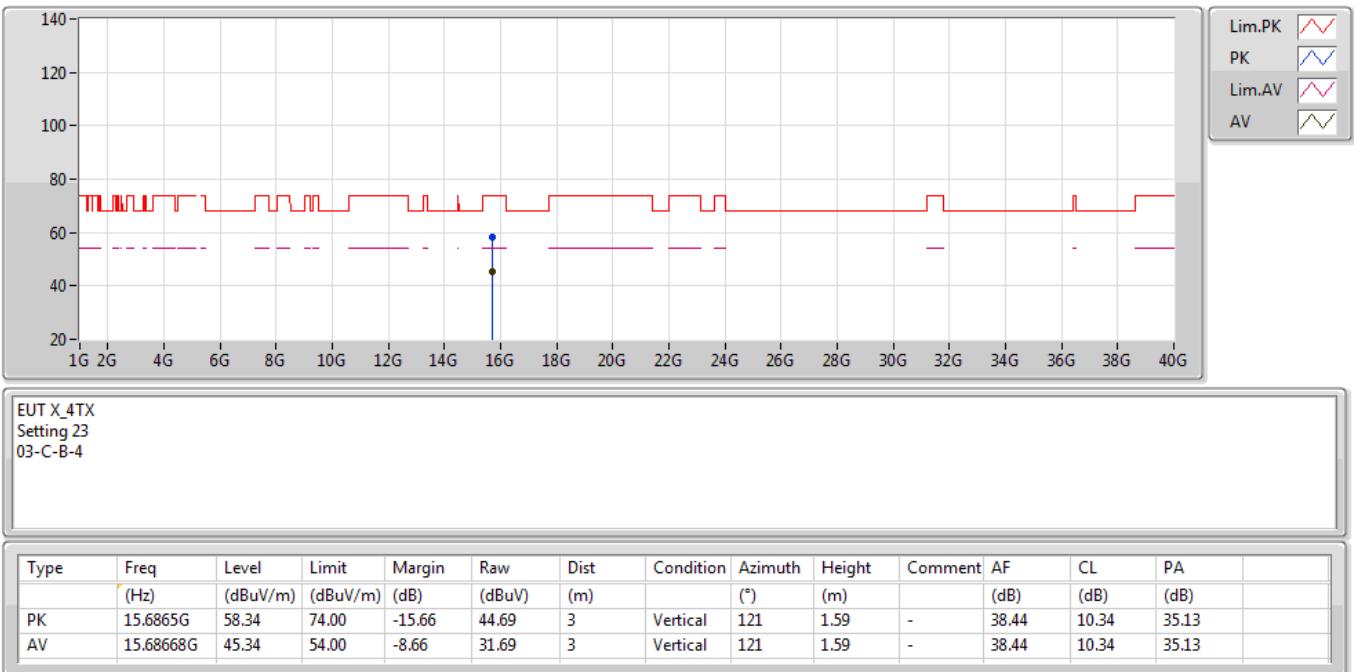
11/12/2019

## 5230MHz\_TX



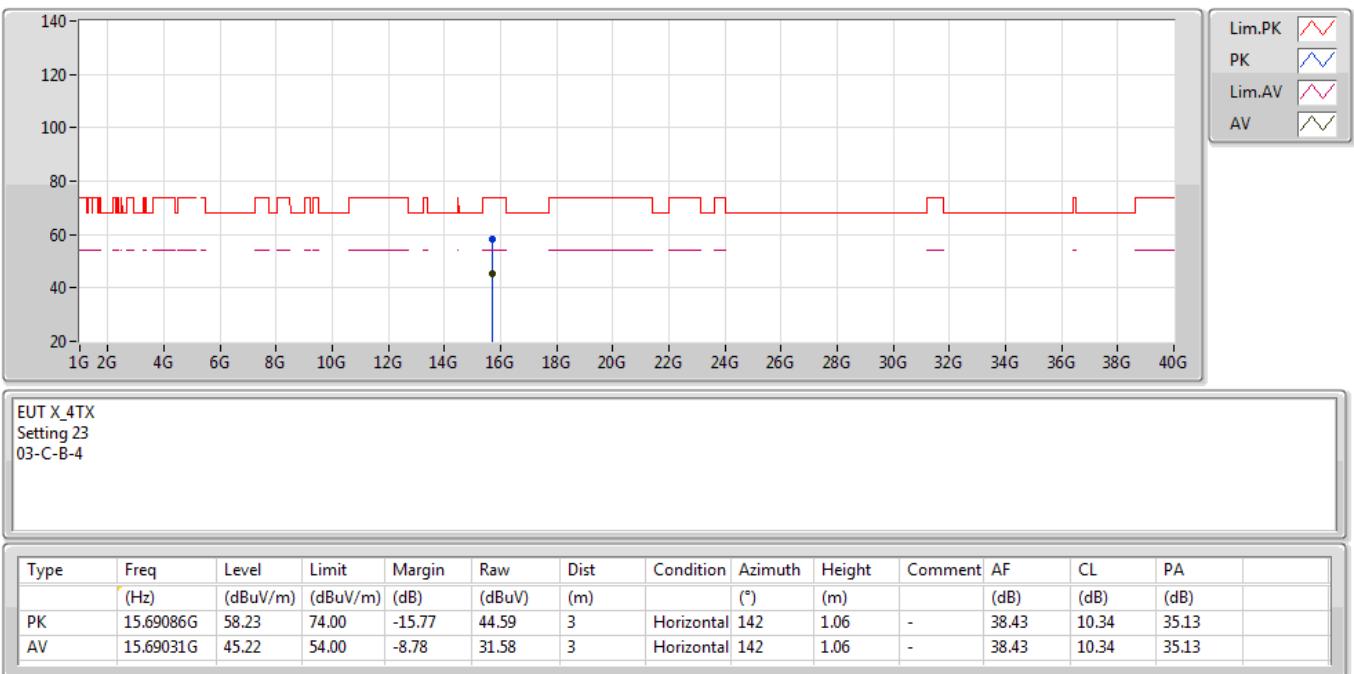
**802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX**

11/12/2019

**5230MHz\_TX**


**802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX**

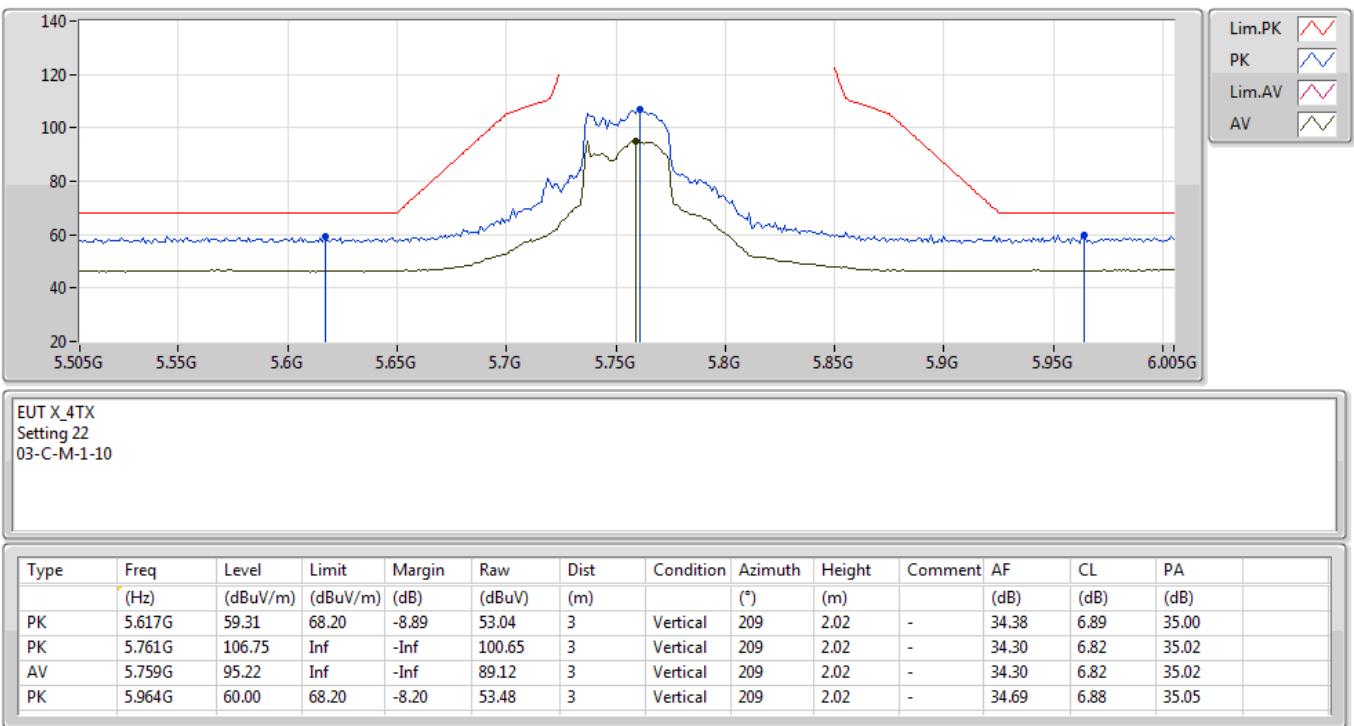
11/12/2019

**5230MHz\_TX**


## 802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX

11/12/2019

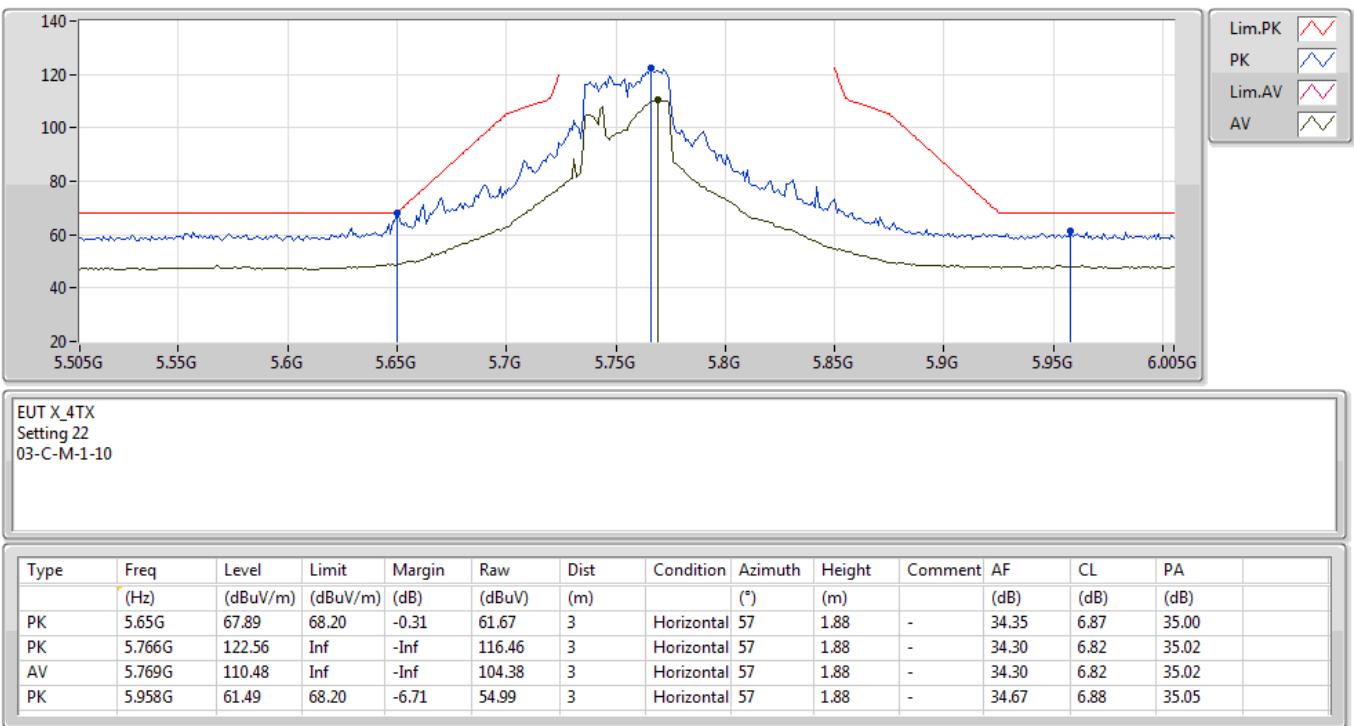
## 5755MHz\_TX



## 802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX

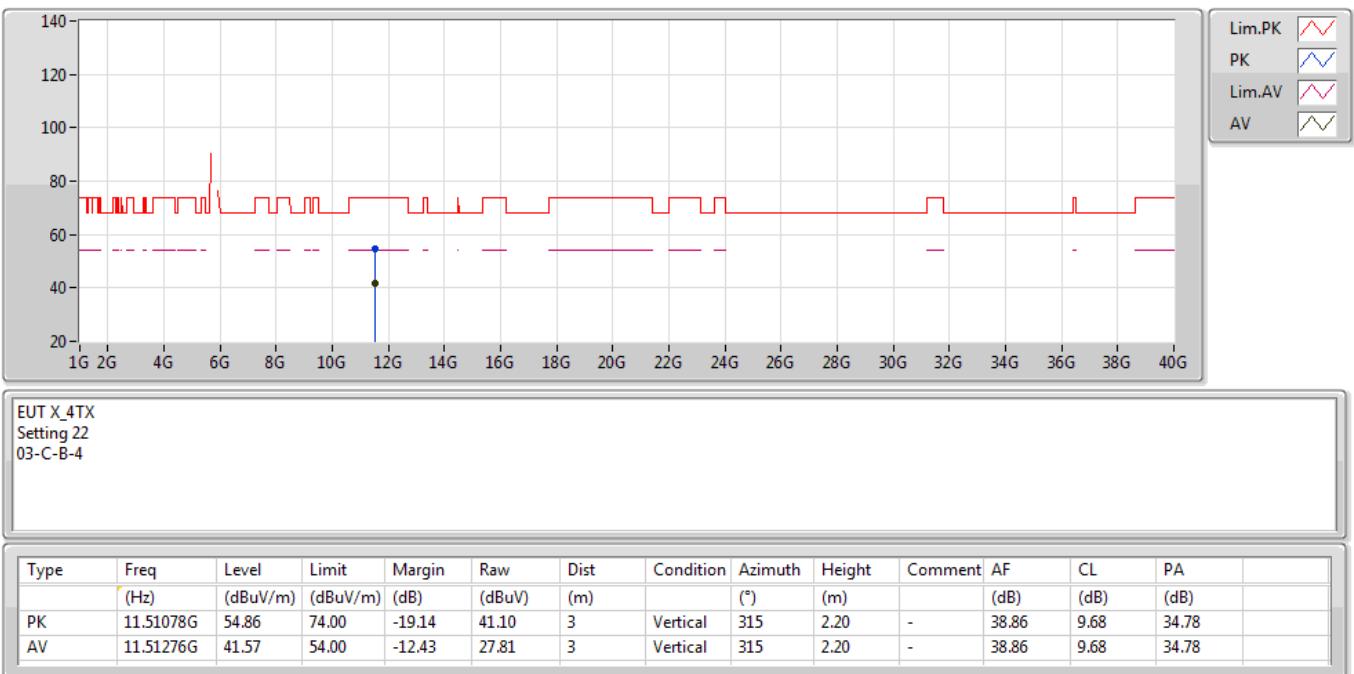
11/12/2019

## 5755MHz\_TX



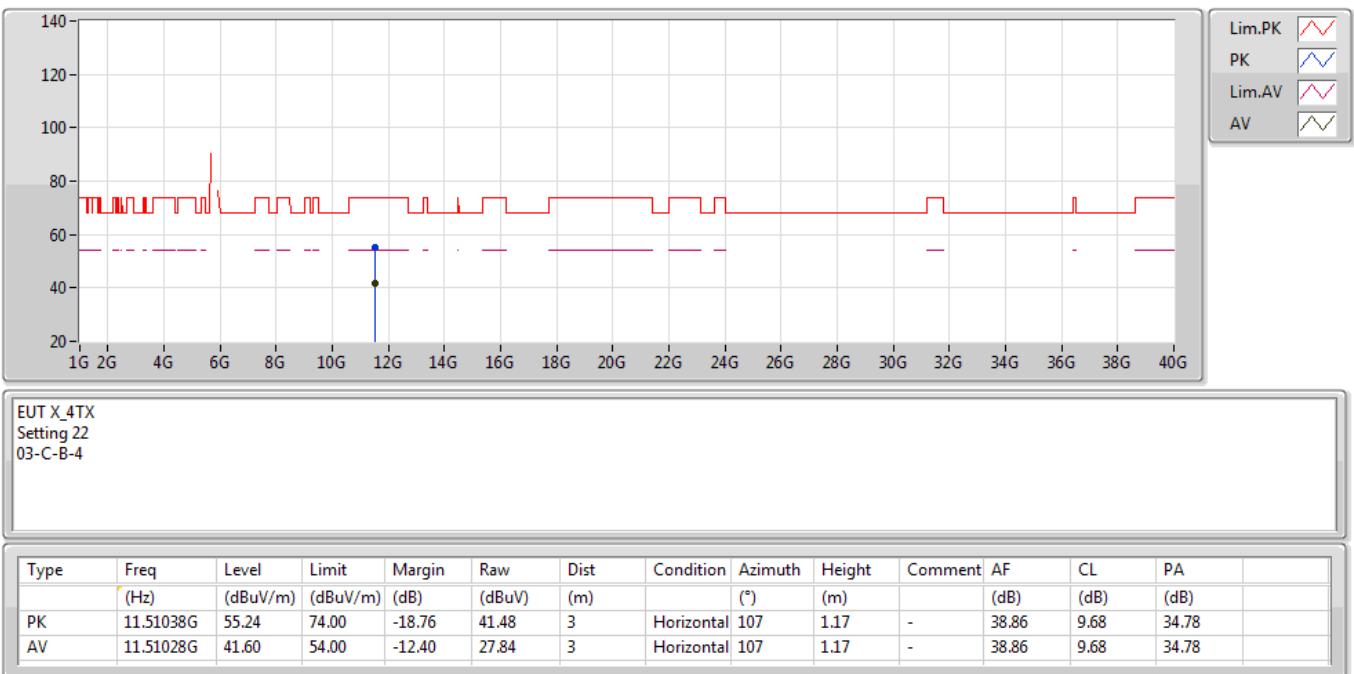
**802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX**

11/12/2019

**5755MHz\_TX**


**802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX**

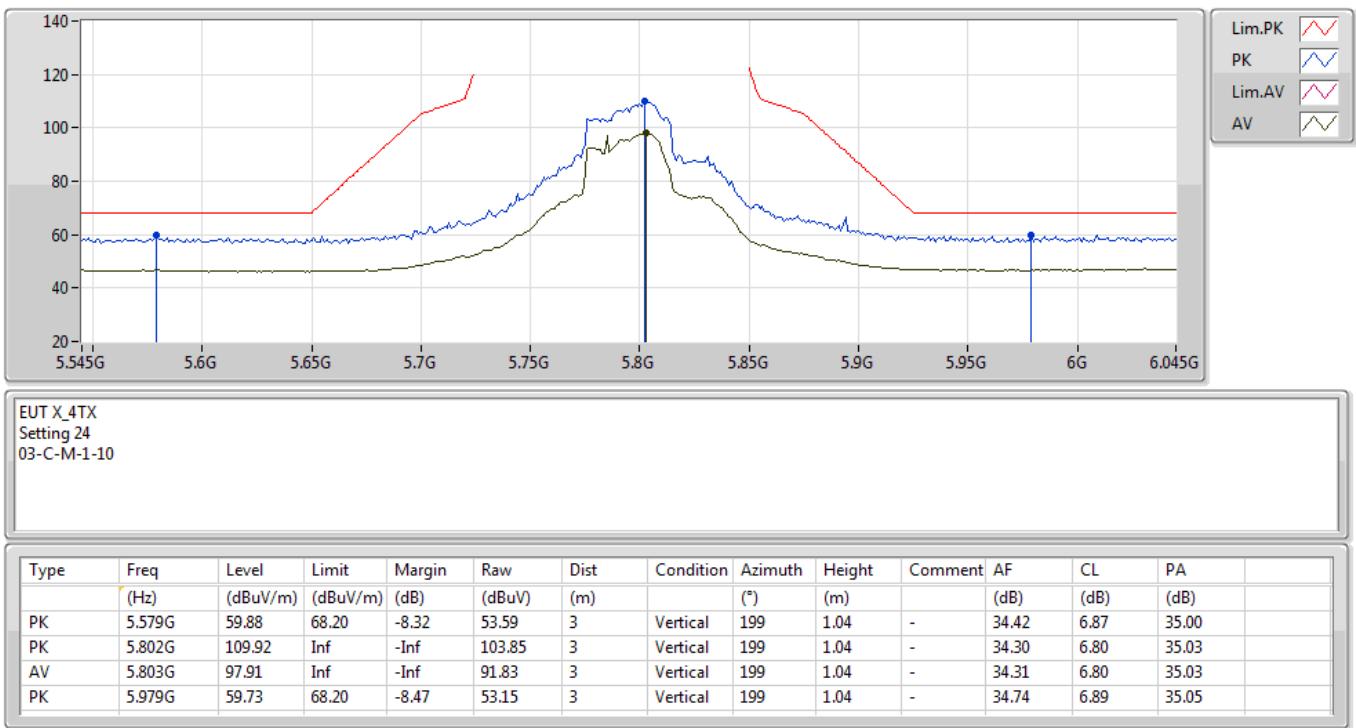
11/12/2019

**5755MHz\_TX**


## 802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX

11/12/2019

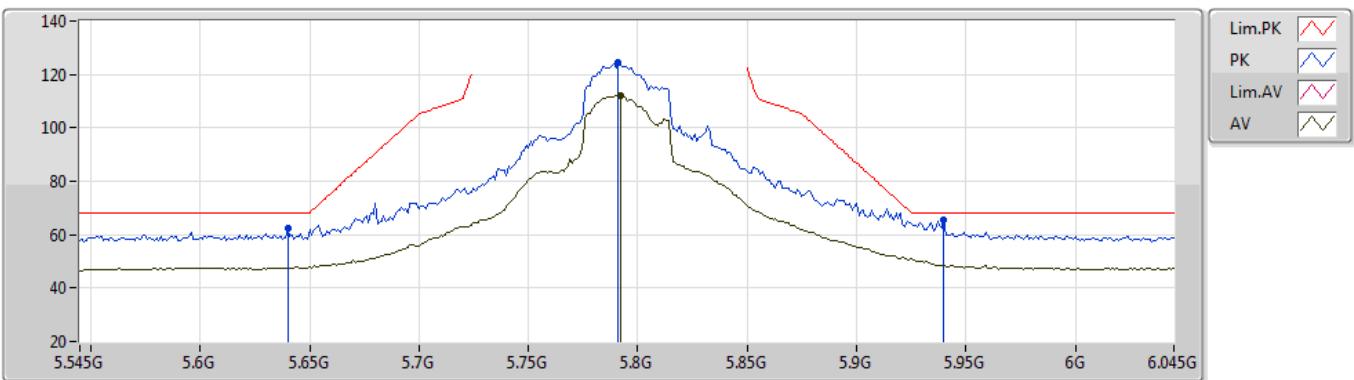
## 5795MHz\_TX



## 802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX

11/12/2019

## 5795MHz\_TX

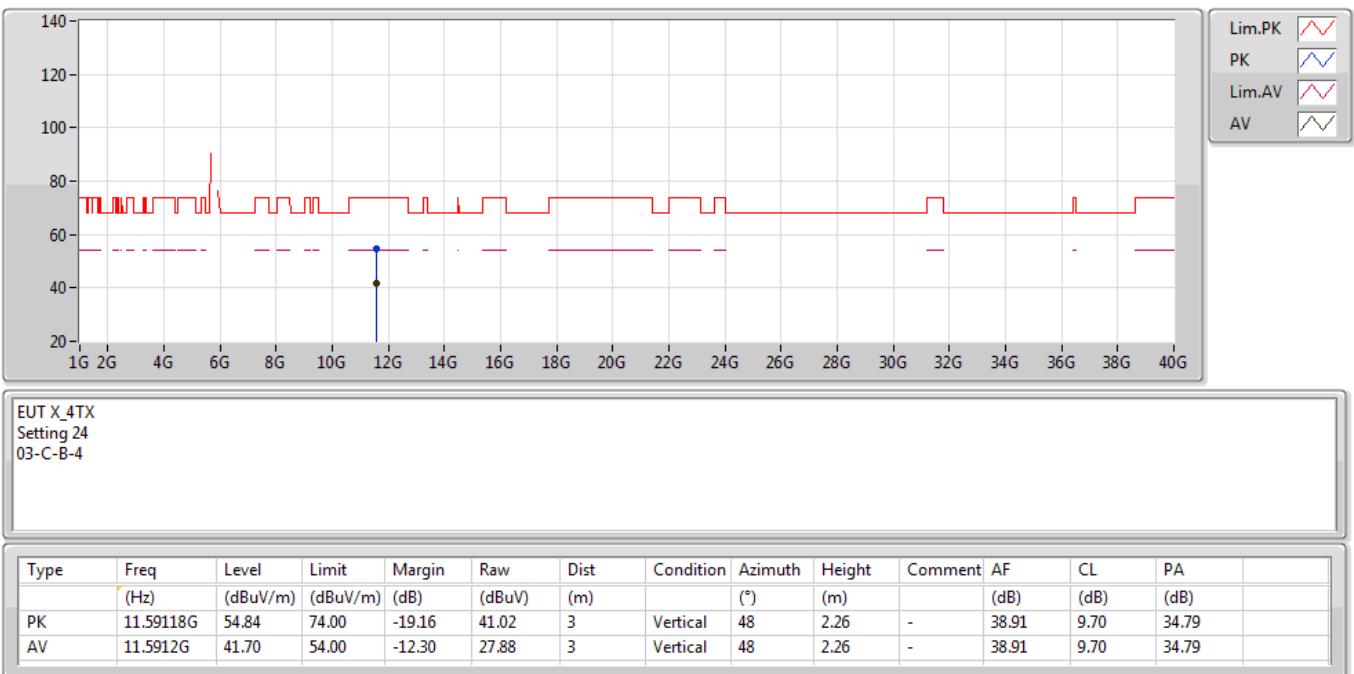


EUT X\_4TX  
 Setting 24  
 03-C-M-1-10

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (*)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	5.64G	62.36	68.20	-5.84	56.12	3	Horizontal	313	1.24	-	34.36	6.88	35.00
PK	5.791G	124.33	Inf	-Inf	118.26	3	Horizontal	313	1.24	-	34.30	6.80	35.03
AV	5.792G	112.08	Inf	-Inf	106.01	3	Horizontal	313	1.24	-	34.30	6.80	35.03
PK	5.94G	65.29	68.20	-2.91	58.84	3	Horizontal	313	1.24	-	34.62	6.87	35.04

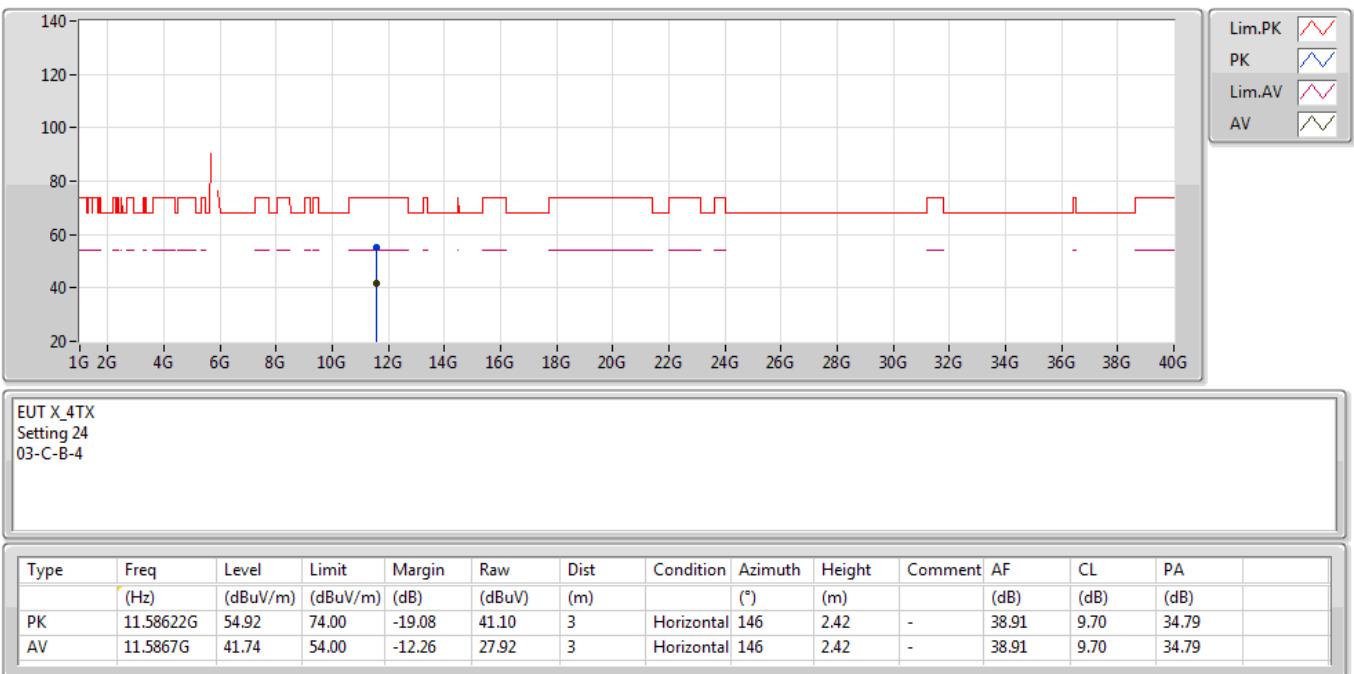
**802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX**

11/12/2019

**5795MHz\_TX**


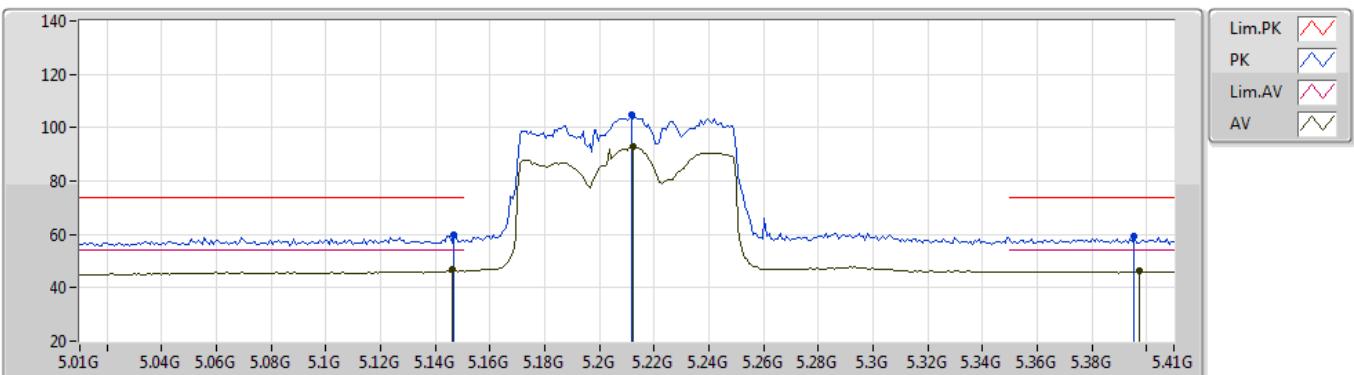
**802.11ax HEW40-BF\_Nss1,(MCS0)\_4TX**

11/12/2019

**5795MHz\_TX**


**802.11ax HEW80-BF\_Nss1,(MCS0)\_4TX**

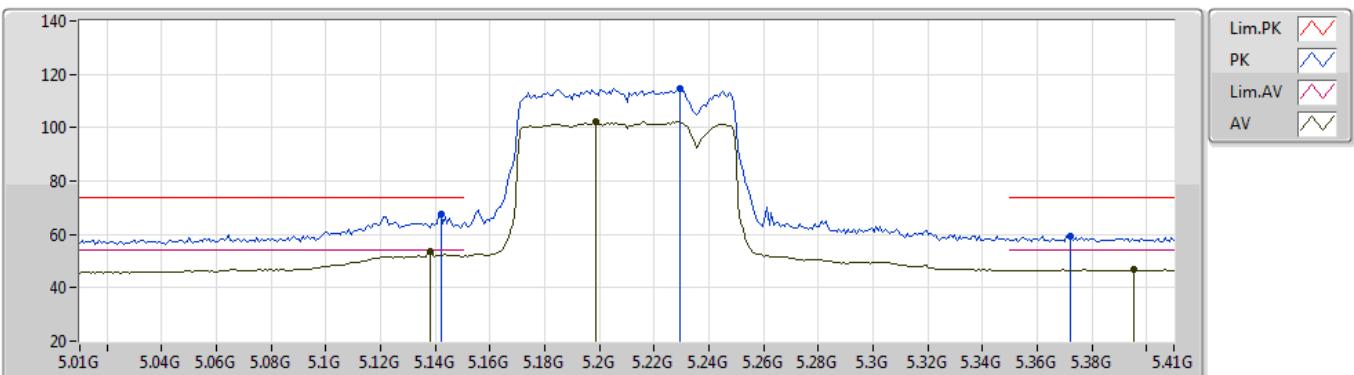
11/12/2019

**5210MHz\_TX**

 EUT X\_4TX  
 Setting 21  
 03-C-B-4-10

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	5.1468G	59.74	74.00	-14.26	54.06	3	Vertical	353	2.88	-	34.05	6.60	34.97
AV	5.146G	46.69	54.00	-7.31	41.01	3	Vertical	353	2.88	-	34.05	6.60	34.97
PK	5.2116G	104.69	Inf	-Inf	98.86	3	Vertical	353	2.88	-	34.12	6.69	34.98
AV	5.2124G	92.94	Inf	-Inf	87.11	3	Vertical	353	2.88	-	34.12	6.69	34.98
PK	5.3956G	59.27	74.00	-14.73	53.26	3	Vertical	353	2.88	-	34.40	6.60	34.99
AV	5.3972G	46.17	54.00	-7.83	40.16	3	Vertical	353	2.88	-	34.40	6.60	34.99

**802.11ax HEW80-BF\_Nss1,(MCS0)\_4TX**

11/12/2019

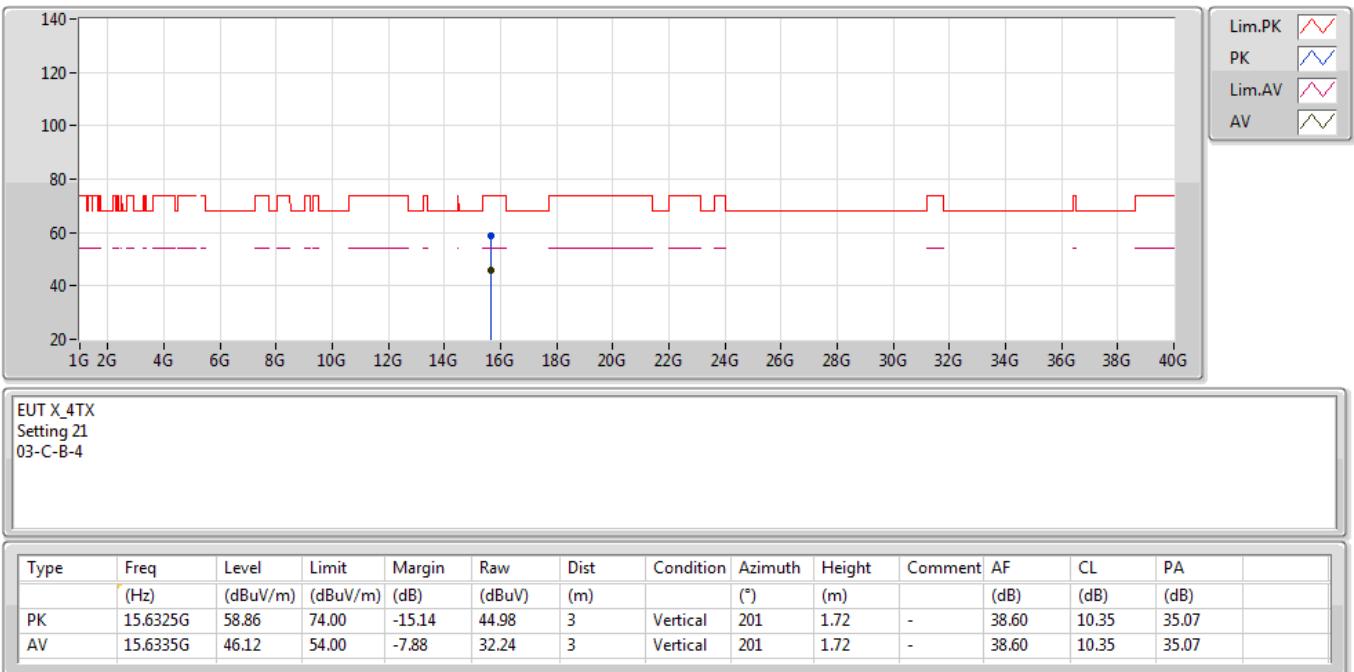
**5210MHz\_TX**

 EUT X\_4TX  
 Setting 21  
 03-C-B-4-10

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	5.142G	67.64	74.00	-6.36	61.97	3	Horizontal	290	1.33	-	34.04	6.60	34.97
AV	5.138G	53.83	54.00	-0.17	48.17	3	Horizontal	290	1.33	-	34.04	6.59	34.97
PK	5.2292G	114.73	Inf	-Inf	108.86	3	Horizontal	290	1.33	-	34.16	6.69	34.98
AV	5.1988G	102.46	Inf	-Inf	96.64	3	Horizontal	290	1.33	-	34.10	6.70	34.98
PK	5.3724G	59.33	74.00	-14.67	53.34	3	Horizontal	290	1.33	-	34.37	6.61	34.99
AV	5.3956G	46.76	54.00	-7.24	40.75	3	Horizontal	290	1.33	-	34.40	6.60	34.99

## 802.11ax HEW80-BF\_Nss1,(MCS0)\_4TX

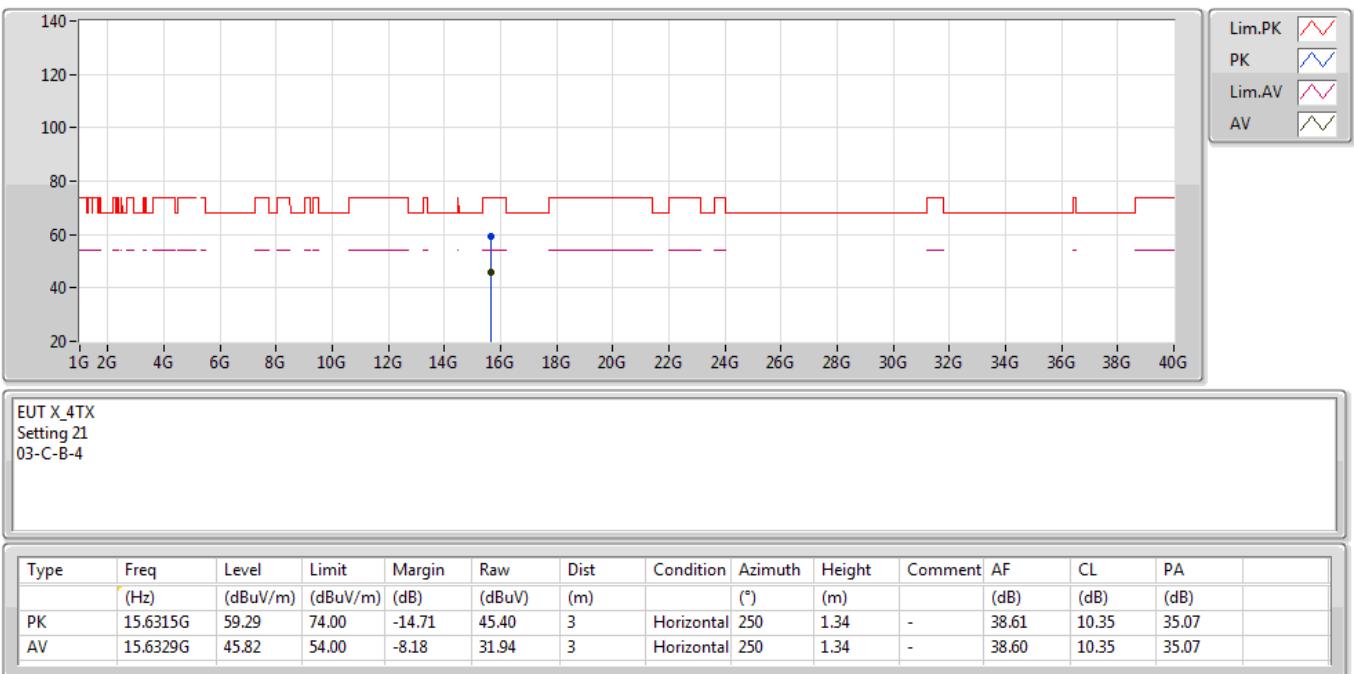
11/12/2019

## 5210MHz\_TX



**802.11ax HEW80-BF\_Nss1,(MCS0)\_4TX**

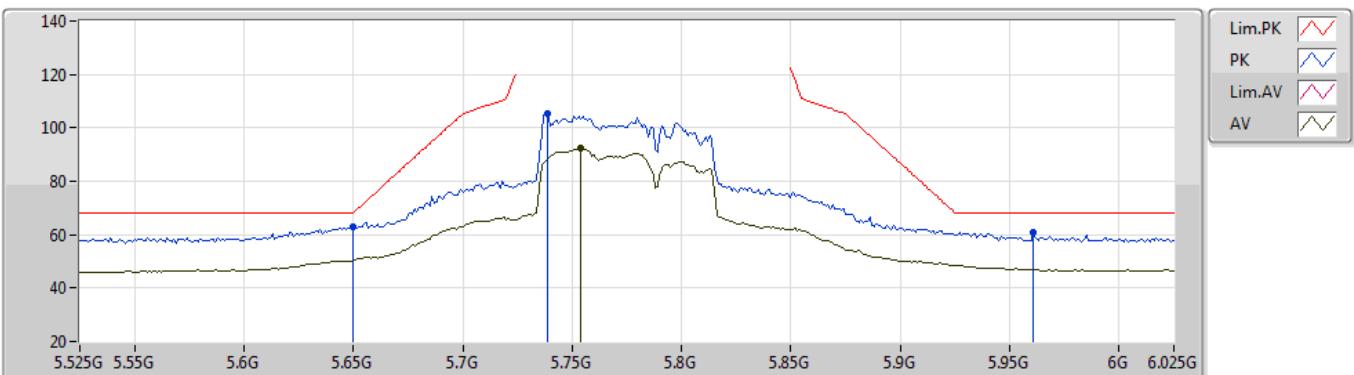
11/12/2019

**5210MHz\_TX**


## 802.11ax HEW80-BF\_Nss1,(MCS0)\_4TX

11/12/2019

## 5775MHz\_TX

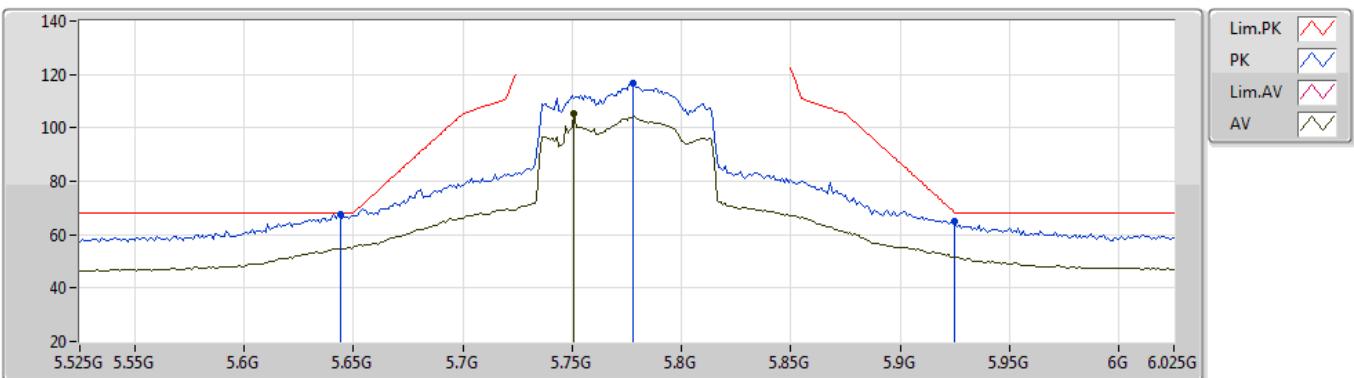


EUT X\_4TX  
 Setting 21  
 03-C-B-4-10

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	5.65G	62.98	68.20	-5.22	56.76	3	Vertical	172	2.49	-	34.35	6.87	35.00
PK	5.739G	105.39	Inf	-Inf	99.28	3	Vertical	172	2.49	-	34.30	6.83	35.02
AV	5.754G	92.29	Inf	-Inf	86.19	3	Vertical	172	2.49	-	34.30	6.82	35.02
PK	5.961G	60.93	68.20	-7.27	54.42	3	Vertical	172	2.49	-	34.68	6.88	35.05

**802.11ax HEW80-BF\_Nss1,(MCS0)\_4TX**

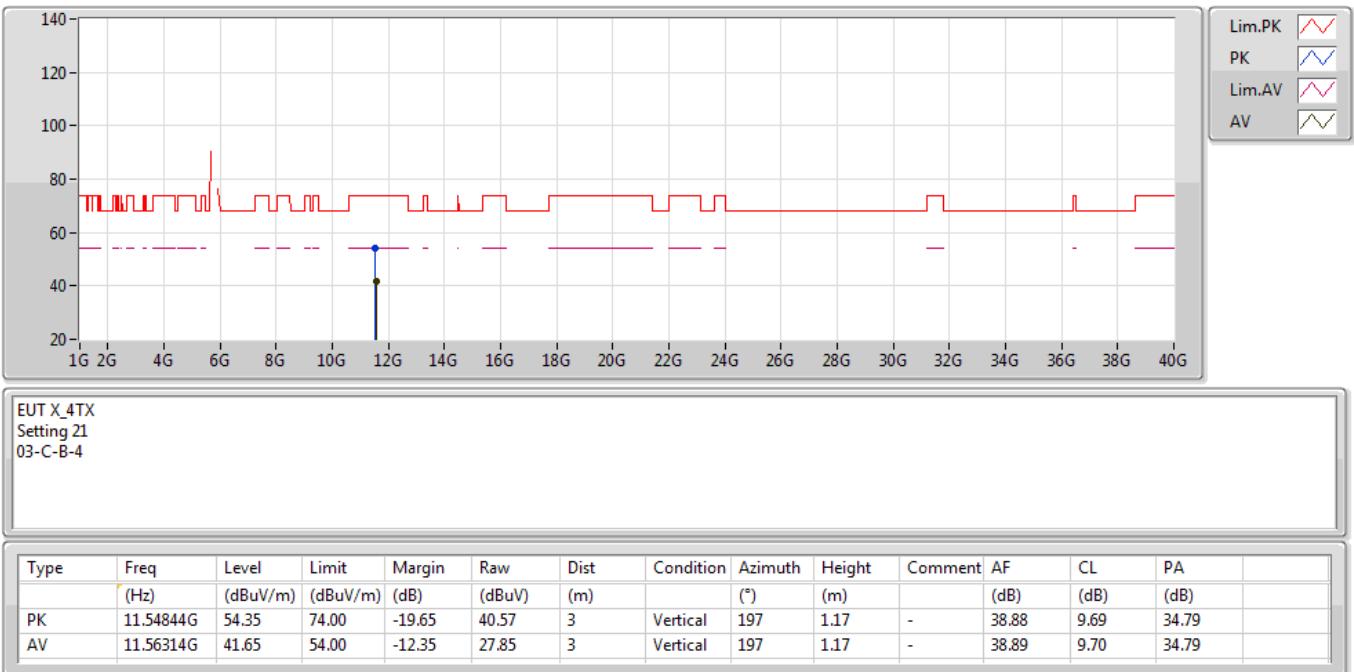
11/12/2019

**5775MHz\_TX**

 EUT X\_4TX  
 Setting 21  
 03-C-B-4-10

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (*)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	5.644G	67.64	68.20	-0.56	61.40	3	Horizontal	54	2.26	-	34.36	6.88	35.00
PK	5.778G	116.52	Inf	-Inf	110.44	3	Horizontal	54	2.26	-	34.30	6.81	35.03
AV	5.751G	105.23	Inf	-Inf	99.13	3	Horizontal	54	2.26	-	34.30	6.82	35.02
PK	5.925G	65.11	68.20	-3.09	58.71	3	Horizontal	54	2.26	-	34.58	6.86	35.04

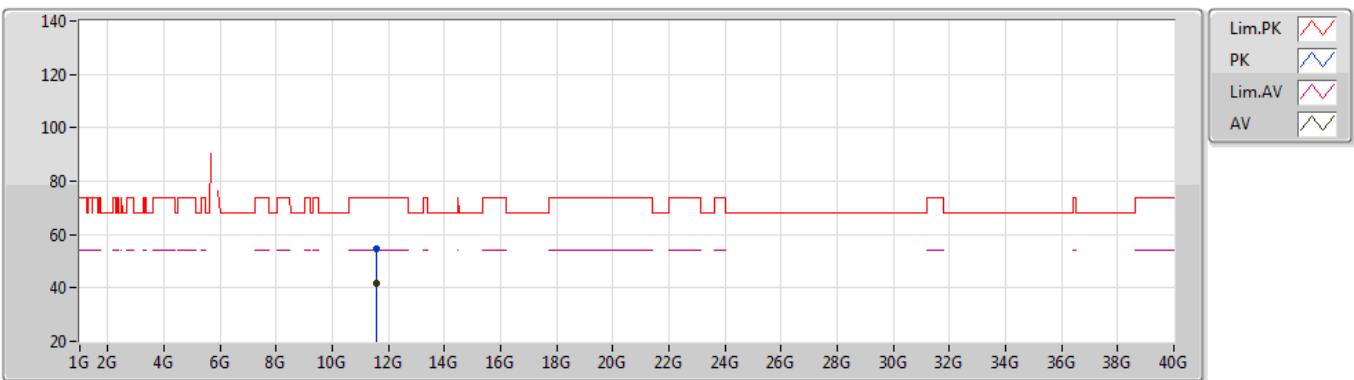
**802.11ax HEW80-BF\_Nss1,(MCS0)\_4TX**

11/12/2019

**5775MHz\_TX**


**802.11ax HEW80-BF\_Nss1,(MCS0)\_4TX**

11/12/2019

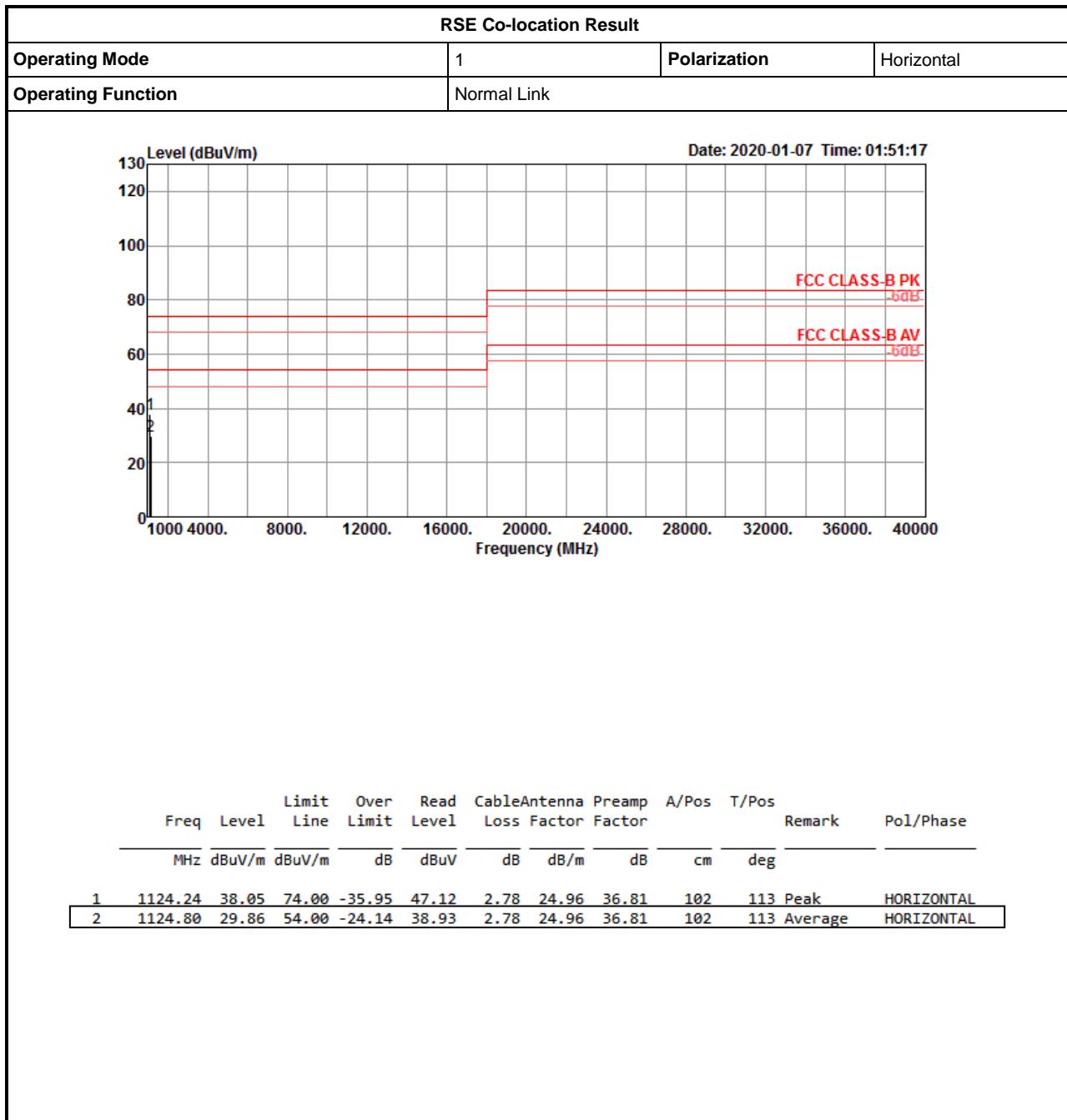
**5775MHz\_TX**

 EUT X\_4TX  
 Setting 21  
 03-C-B-4

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	11.5584G	54.51	74.00	-19.49	40.72	3	Horizontal	255	2.31	-	38.89	9.69	34.79
AV	11.55528G	41.54	54.00	-12.46	27.75	3	Horizontal	255	2.31	-	38.89	9.69	34.79



## RSE Co-location Result

Appendix F





## RSE Co-location Result

Appendix F

