



# FCC RADIO TEST REPORT

FCC ID : TV7CB5A60  
Equipment : CubeG-5ac60ad  
Brand Name : MikroTik  
Model Name : CubeG-5ac60ad-US  
Applicant : Mikrotikls SIA  
Brivibas gatve 214i, Riga, LV-1039 Latvia  
Manufacturer : MIKROTIKLS SIA  
Brivibas gatve 214i, Riga, LV-1039 Latvia  
Standard : 47 CFR FCC Part 15.407

The product was received on Dec. 03, 2019, and testing was started from Jan. 06, 2020 and completed on Mar. 03, 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: Sam Chen

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



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



## History of this test report



## Summary of Test Result

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

**Declaration of Conformity:**

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

**Comments and Explanations:**

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: Viola Huang



## 1 General Description

### 1.1 Information

#### 1.1.1 RF General Information

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

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

**Note:**

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



### 1.1.2 Antenna Information

#### For WLAN 5GHz:

Ant.	Port	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	1	MikroTik	GubeG-5ac	Onboard PCB antenna	I-PEX	12

Note1: For WLAN function (1TX, 1RX):

Only port 1 can be used as transmitting/receiving functions.

The device connects a additional cable for testing.

The cable loss is 1dB. The measurement gain is 11dBi.

#### For 60GHz:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	Mikrotik	60G-phased-array	Dish Antenna	N/A	30

Note2: For 60GHz function (1TX, 1RX):

The EUT has two antennas. One is WLAN antenna and the other is 60GHz antenna.

Note3: The above information was declared by manufacturer.

### 1.1.3 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
802.11a	0.944	0.25	2.075m	1k
802.11ac VHT20	0.963	0.16	1.941m	1k
802.11ac VHT40	0.895	0.48	957.5u	3k
802.11ac VHT80	0.834	0.79	467.5u	3k

Note:

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

### 1.1.4 EUT Operational Condition

EUT Power Type	From PoE with Power Adapter			
Beamforming Function	<input type="checkbox"/>	With beamforming	<input checked="" type="checkbox"/>	Without beamforming
Function	<input type="checkbox"/>	Outdoor P2M	<input type="checkbox"/>	Indoor P2M
	<input checked="" type="checkbox"/>	Fixed P2P	<input type="checkbox"/>	Client
Test Software Version	WinBox v3.15			

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

The following reference test guidance is not within the scope of accreditation of TAF.

- ♦ 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	TH02-CB	Paul Chen	20.6~21.2°C / 58~60%	Feb. 27, 2020
Radiated	03CH05-CB	KJ Chang	20.3~21.1°C / 57~62%	Jan. 06, 2020~Mar. 03, 2020
AC Conduction	CO01-CB	Peter Wu	22~23°C / 57~58%	Feb. 06, 2020

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)_1TX	-
5180MHz	16
5200MHz	16
5240MHz	16
5745MHz	16
5785MHz	16
5825MHz	16
802.11ac VHT20_Nss1,(MCS0)_1TX	-
5180MHz	16
5200MHz	16
5240MHz	16
5745MHz	16
5785MHz	16
5825MHz	16
802.11ac VHT40_Nss1,(MCS0)_1TX	-
5190MHz	14
5230MHz	16
5755MHz	16
5795MHz	16
802.11ac VHT80_Nss1,(MCS0)_1TX	-
5210MHz	14
5775MHz	16

Note:

- ♦ VHT20/VHT40 covers HT20/HT40, due to same modulation. The power setting for 802.11n HT20 and HT40 are the same or lower than 802.11ac VHT20 and VHT40.



## 2.2 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>	CTX
1	EUT + 60GHz
2	EUT + 5GHz

For operating mode 1 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
1	EUT + 60GHz
2	EUT + 5GHz

For operating mode 2 is the worst case and it was record in this test report.

<b>Operating Mode &gt; 1GHz</b>	CTX
---------------------------------	-----

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 5GHz + 60GHz

Refer to Sporton Test Report No.: FA9D0404 for Co-location RF Exposure Evaluation.

Note: The EUT can only use Y axis position.

## 2.3 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.



## 2.4 Accessories

Accessories			
Equipment Name	Brand Name	Model Name	Rating
Adapter	CULL POWER	SAW30-240-0800U A	INPUT: 100-240V, 50/60Hz 0.8A OUTPUT: 24V, 800mA
PoE	MikroTiK	RBGPOE	INPUT 18-57V

## 2.5 Support Equipment

For AC Conduction:

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	NB	DELL	E6430	N/A
B	Earphone	SHYARO CHI	MIC-04	N/A
C	Mouse	HP	FM100	N/A

For Radiated:

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

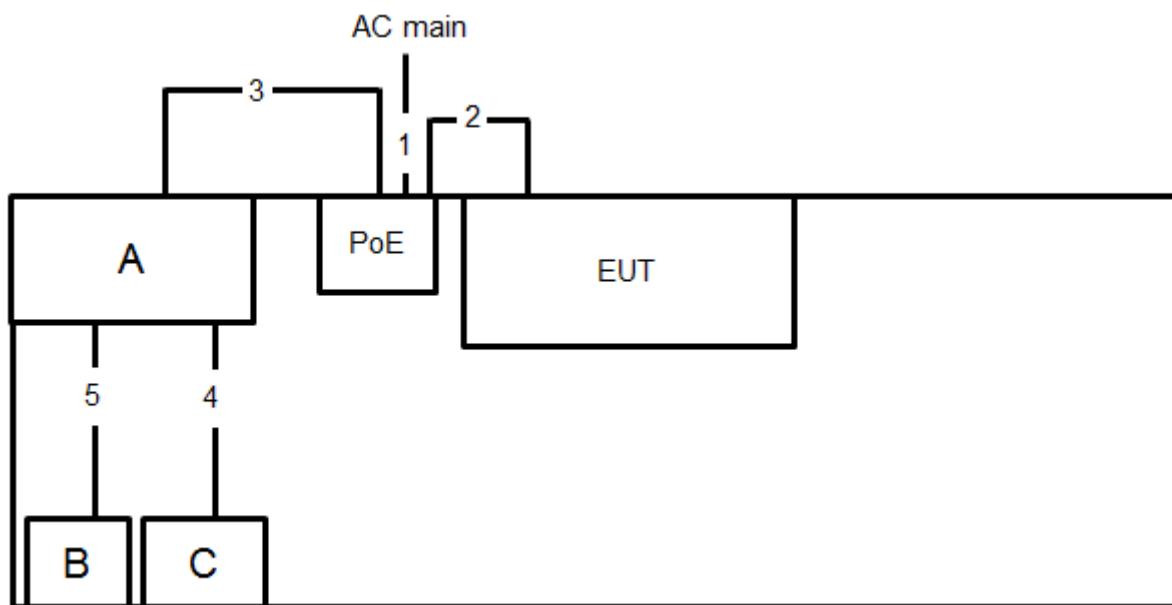
For RF Conducted:

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



## 2.6 Test Setup Diagram

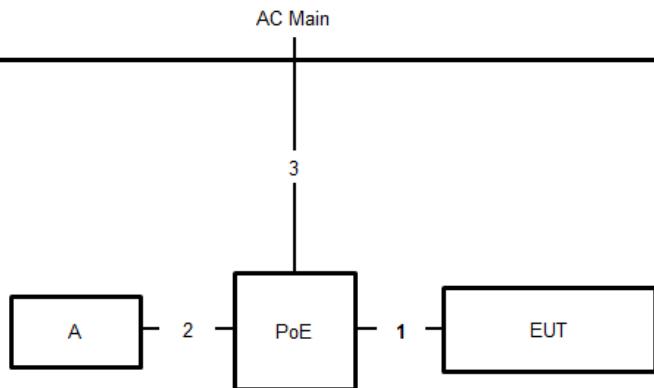
Test Setup Diagram – AC Line Conducted Emission Test



Item	Connection	Shielded	Length
1	Power cable	No	1.5m
2	RJ-45 cable	Yes	1m
3	RJ-45 cable	Yes	0.2m
4	USB cable	Yes	1.8m
5	Audio cable	No	1.8m



## Test Setup Diagram - Radiated Test



Item	Connection	Shielded	Length
1	RJ-45 cable	Yes	1m
2	RJ-45 cable	Yes	0.2m
3	Power 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.

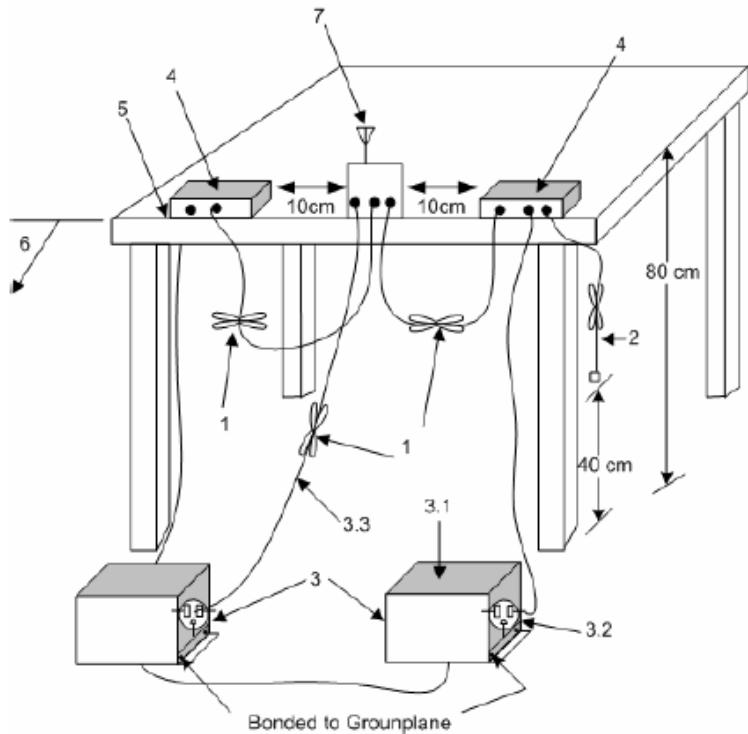
##### 3.1.2 Measuring Instruments

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 $\geq 500\text{kHz}$ .

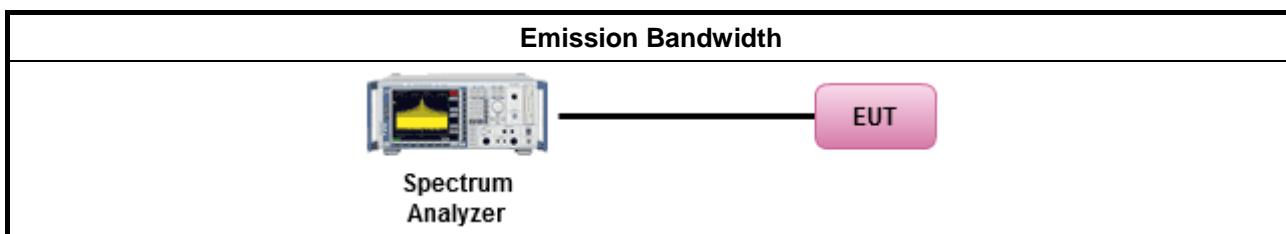
### 3.2.2 Measuring Instruments

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.	



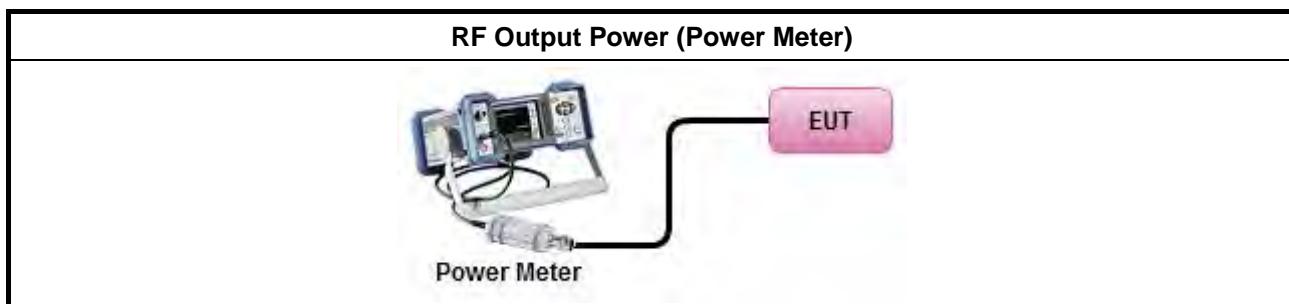
### 3.3.2 Measuring Instruments

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.

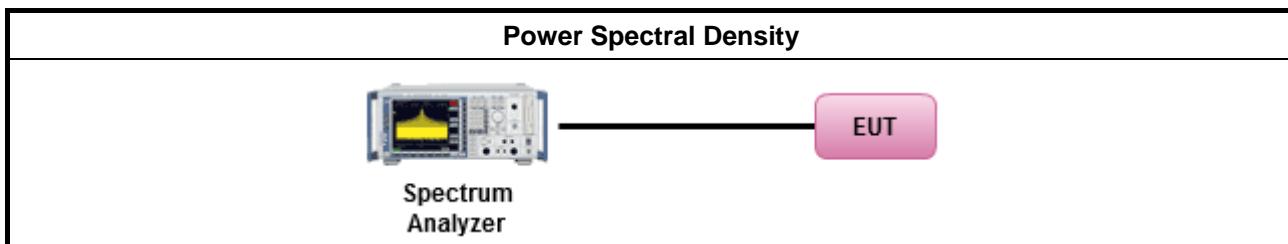


### 3.4.3 Test Procedures

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>	
<ul style="list-style-type: none"><li><input type="checkbox"/> Refer as FCC KDB 789033, F5) power spectral density can be measured using resolution bandwidths &lt; 1 MHz provided that the results are integrated over 1 MHz bandwidth [duty cycle <math>\geq</math> 98% or external video / power trigger]</li></ul>	
<ul style="list-style-type: none"><li><input checked="" type="checkbox"/> Refer as FCC KDB 789033, clause E Method SA-1 (spectral trace averaging).</li></ul>	
<ul style="list-style-type: none"><li><input type="checkbox"/> Refer as FCC KDB 789033, clause E Method SA-1 Alt. (RMS detection with slow sweep speed) duty cycle &lt; 98% and average over on/off periods with duty factor</li></ul>	
<ul style="list-style-type: none"><li><input checked="" type="checkbox"/> Refer as FCC KDB 789033, clause E Method SA-2 (spectral trace averaging).</li></ul>	
<ul style="list-style-type: none"><li><input type="checkbox"/> Refer as FCC KDB 789033, clause E Method SA-2 Alt. (RMS detection with slow sweep speed)</li></ul>	
<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>	
<ul style="list-style-type: none"><li><input 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.</li></ul>	
<ul style="list-style-type: none"><li><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,</li></ul>	
<ul style="list-style-type: none"><li><input type="checkbox"/> Option 3: Measure and add <math>10 \log(N)</math> 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 <math>10 \log(N)</math>. Or each transmit chains shall be add <math>10 \log(N)</math> to compared with the limit.</li></ul>	
<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).



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

### 3.5.2 Measuring Instruments

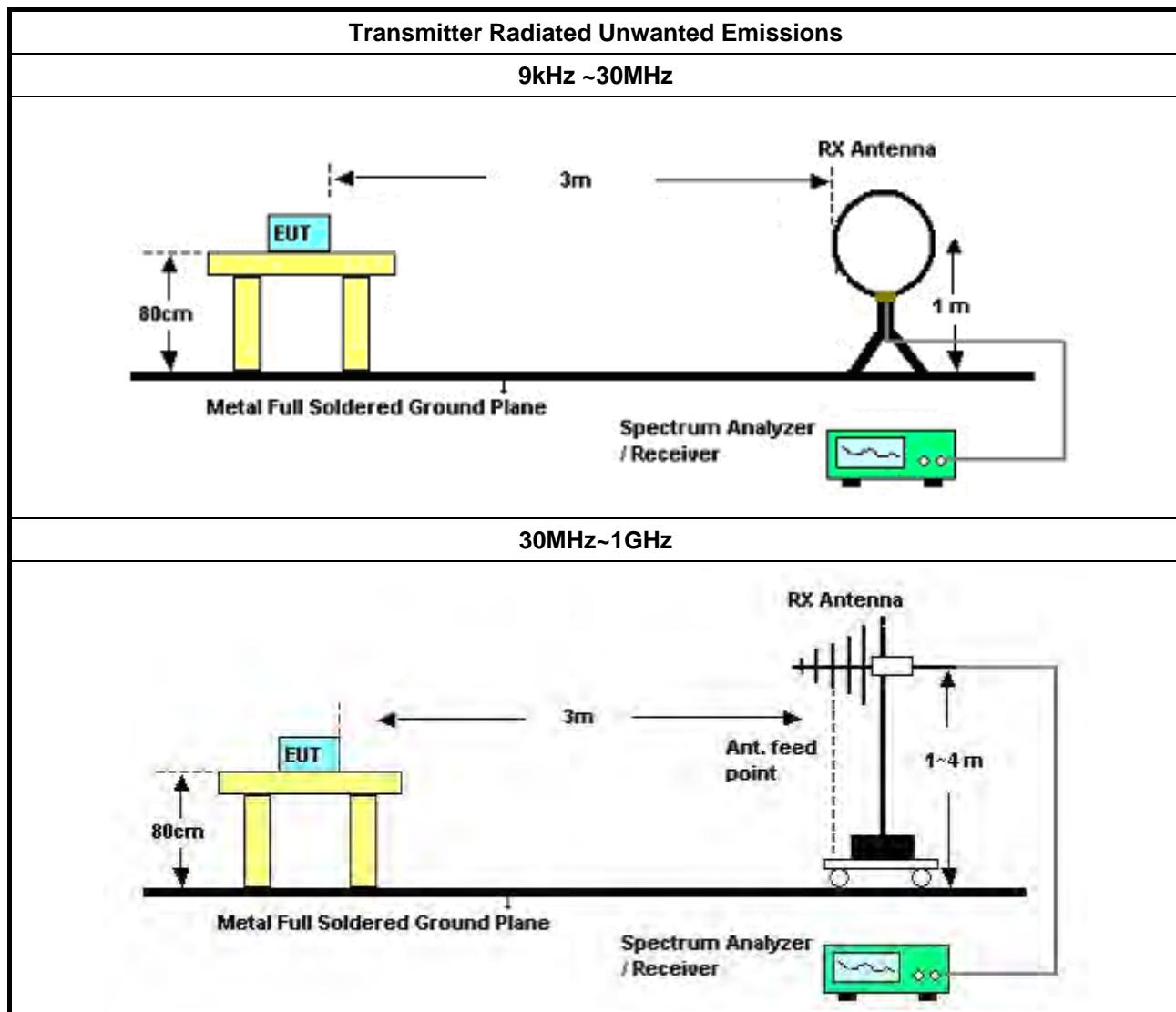
Refer a test equipment and calibration data table in this test report.

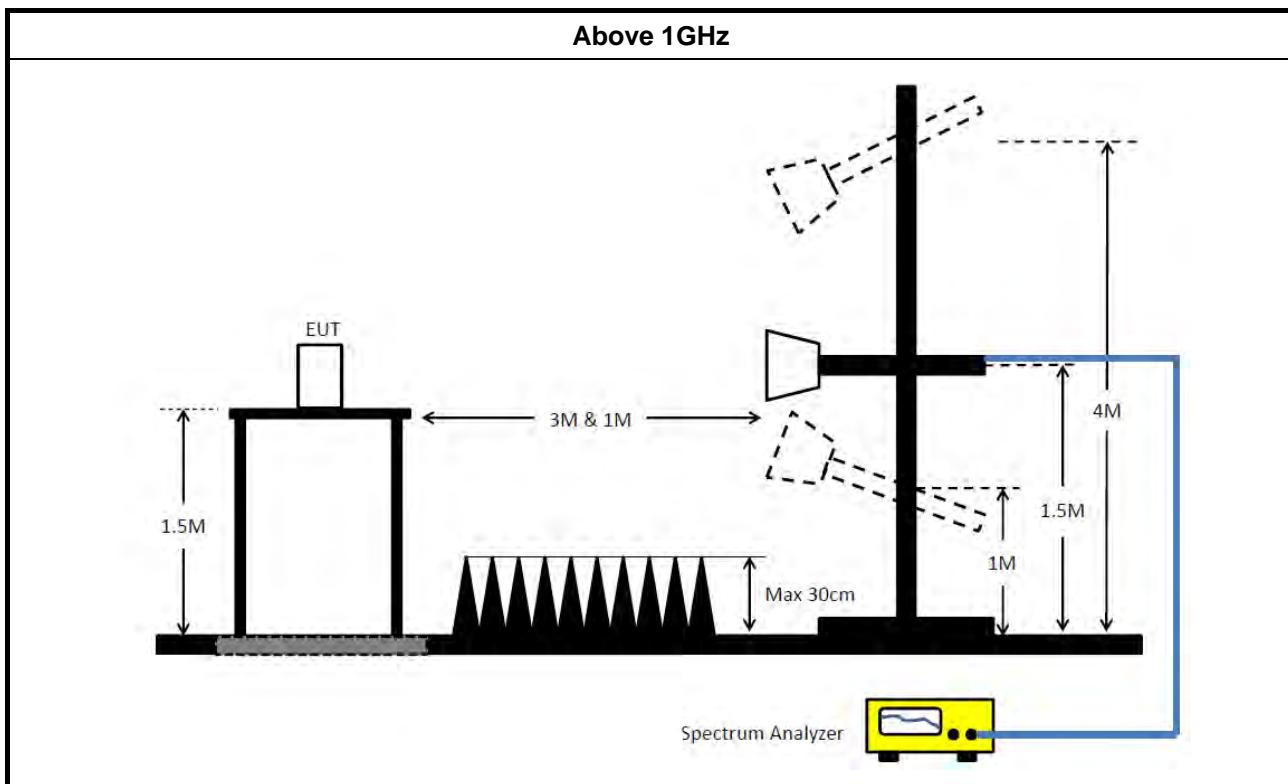
### 3.5.3 Test Procedures

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.	
<input type="checkbox"/> Refer as ANSI C63.10, clause 6.4 for radiated emissions below 30 MHz and test distance is 3m.	
<input type="checkbox"/> Refer as ANSI C63.10, clause 6.5 for radiated emissions 30 MHz to 1 GHz and test distance is 3m.	
<input type="checkbox"/> Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1GHz.	
▪ The any unwanted emissions level shall not exceed the fundamental emission level.	
▪ All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.	



### 3.5.4 Test Setup





### 3.5.5 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

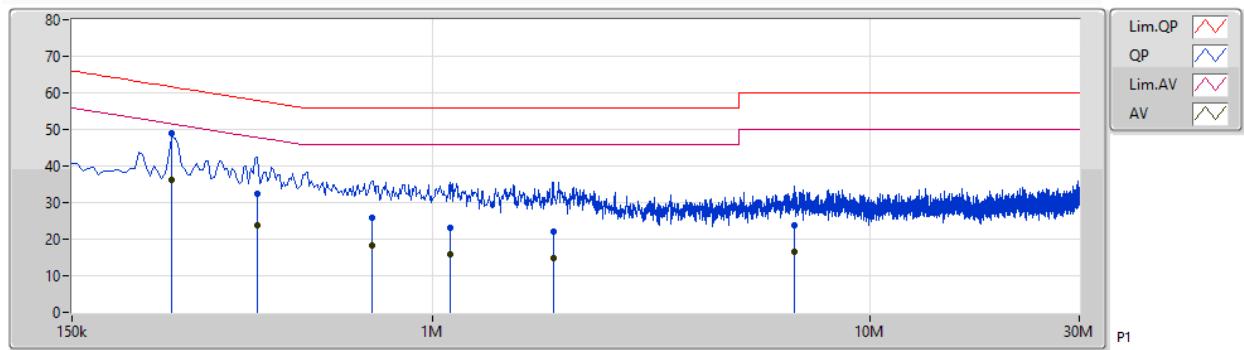
Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
EMI Receiver	Agilent	N9038A	MY54130031	9kHz ~ 8.45GHz	Nov. 08, 2019	Nov. 07, 2020	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-1 6-2	04083	150kHz ~ 100MHz	Dec. 25, 2019	Dec. 24, 2020	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127650	9kHz ~ 30MHz	Nov. 21, 2019	Nov. 20, 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	TESEQ & EMCI	CBL 6112D & N-6-06	35236 & AT-N0610	30MHz ~ 2GHz	Mar. 28, 2019	Mar. 27, 2020	Radiation (03CH05-CB)
Horn Antenna	SCHWARZBECK	BBHA9120D	BBHA 9120D-1291	1GHz-18GHz	Oct. 05, 2019	Oct. 04, 2020	Radiation (03CH05-CB)
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170507	15GHz ~ 40GHz	Jun. 12, 2019	Jun. 11, 2020	Radiation (03CH05-CB)
Pre-Amplifier	EMCI	EMC330N	980331	20MHz ~ 3GHz	May 01, 2019	Apr. 30, 2020	Radiation (03CH05-CB)
Pre-Amplifier	EMCI	EMC12630SE	980287	1GHz – 26.5GHz	Apr. 16, 2019	Apr. 15, 2020	Radiation (03CH05-CB)
Pre-Amplifier	MITEQ	TTA1840-35-HG	1864479	18GHz ~ 40GHz	Jul. 03, 2019	Jul. 02, 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)
RF Cable-high	Woken	RG402	High Cable-28	1GHz-18GHz	Oct. 07, 2019	Oct. 06, 2020	Radiation (03CH05-CB)
RF Cable-high	Woken	RG402	High Cable-04+28	1GHz-18GHz	Oct. 07, 2019	Oct. 06, 2020	Radiation (03CH05-CB)
RF Cable-high	Woken	RG402	High Cable-40G#1	18GHz ~ 40 GHz	Jul. 24, 2019	Jul. 23, 2020	Radiation (03CH05-CB)
RF Cable-high	Woken	RG402	High Cable-40G#2	18GHz ~ 40 GHz	Jul. 24, 2019	Jul. 23, 2020	Radiation (03CH05-CB)
Spectrum analyzer	R&S	FSV40	101027	9kHz~40GHz	Jul. 02, 2019	Jul. 01, 2020	Conducted (TH02-CB)

**FCC RADIO TEST REPORT****Report No. : FR9D0404AA**

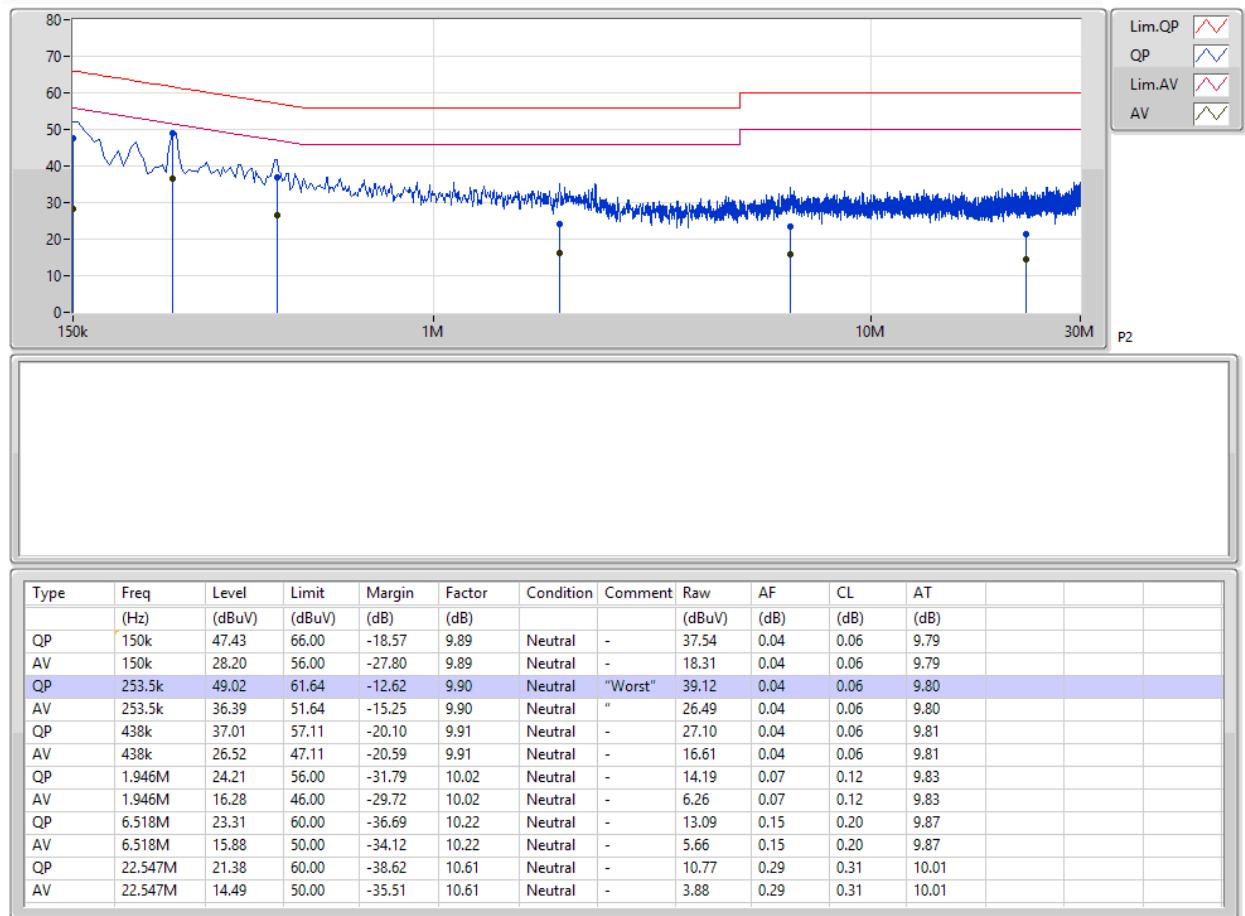
Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
Power Sensor	Anritsu	MA2411B	1126203	300MHz~40GHz	Sep. 11, 2019	Sep. 10, 2020	Conducted (TH02-CB)
Power Meter	Anritsu	ML2495A	1210004	300MHz~40GHz	Sep. 11, 2019	Sep. 10, 2020	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-01	1 GHz – 26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-02	1 GHz – 26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-3	1 GHz – 26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-04	1 GHz – 26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-05	1 GHz – 26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH02-CB)

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

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

**Mode 1**


Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor	Condition	Comment	Raw (dBuV)	AF (dB)	CL (dB)	AT (dB)			
QP	253.5k	49.03	61.64	-12.61	9.92	Line	"Worst"	39.11	0.06	0.06	9.80			
AV	253.5k	36.34	51.64	-15.30	9.92	Line	-	26.42	0.06	0.06	9.80			
QP	397.5k	32.55	57.91	-25.36	9.93	Line	-	22.62	0.06	0.06	9.81			
AV	397.5k	23.77	47.91	-24.14	9.93	Line	-	13.84	0.06	0.06	9.81			
QP	726k	25.95	56.00	-30.05	9.97	Line	-	15.98	0.07	0.08	9.82			
AV	726k	18.44	46.00	-27.56	9.97	Line	-	8.47	0.07	0.08	9.82			
QP	1.095M	23.08	56.00	-32.92	9.98	Line	-	13.10	0.07	0.09	9.82			
AV	1.095M	16.03	46.00	-29.97	9.98	Line	-	6.05	0.07	0.09	9.82			
QP	1.887M	21.94	56.00	-34.06	10.04	Line	-	11.90	0.09	0.12	9.83			
AV	1.887M	14.69	46.00	-31.31	10.04	Line	-	4.65	0.09	0.12	9.83			
QP	6.684M	23.80	60.00	-36.20	10.24	Line	-	13.56	0.17	0.20	9.87			
AV	6.684M	16.44	50.00	-33.56	10.24	Line	-	6.20	0.17	0.20	9.87			

**Mode 1**


**Summary**

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.15-5.25GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_1TX	22.08M	16.642M	16M6D1D	21.75M	16.632M
802.11ac VHT20_Nss1,(MCS0)_1TX	23.01M	17.825M	17M8D1D	22.74M	17.802M
802.11ac VHT40_Nss1,(MCS0)_1TX	45.24M	36.625M	36M6D1D	45.12M	36.585M
802.11ac VHT80_Nss1,(MCS0)_1TX	89.88M	76.417M	76M4D1D	89.88M	76.417M
5.725-5.85GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_1TX	16.35M	16.655M	16M7D1D	16.32M	16.626M
802.11ac VHT20_Nss1,(MCS0)_1TX	17.58M	17.816M	17M8D1D	17.58M	17.803M
802.11ac VHT40_Nss1,(MCS0)_1TX	36.24M	36.663M	36M7D1D	35.7M	36.623M
802.11ac VHT80_Nss1,(MCS0)_1TX	76.32M	76.535M	76M5D1D	76.32M	76.535M

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

**Max-OBW** = Maximum 99% occupied bandwidth;

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

**Min-OBW** = Minimum 99% occupied bandwidth;



## Result

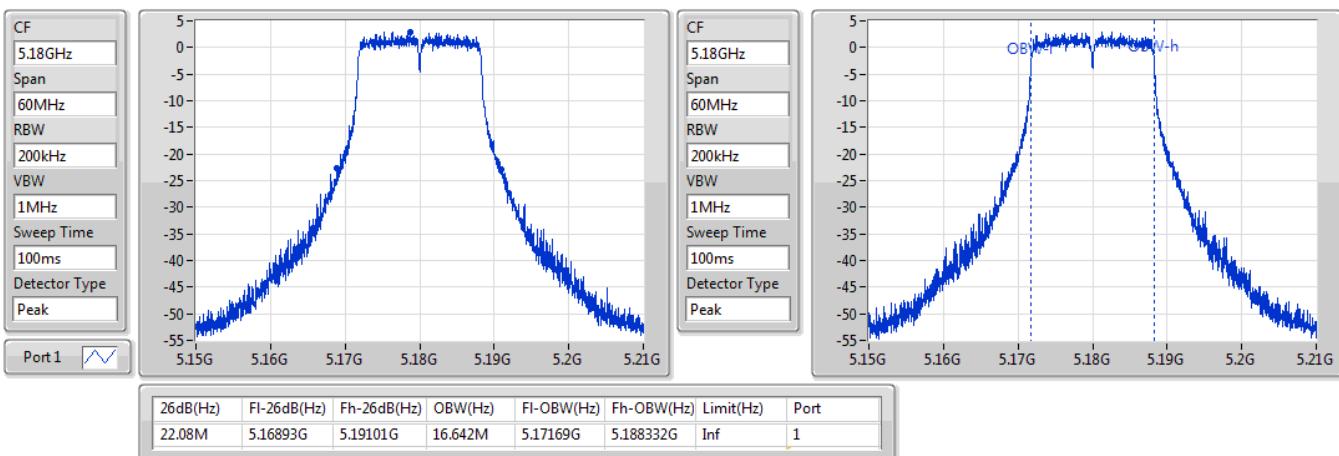
Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
802.11a_Nss1,(6Mbps)_1TX	-	-	-	-
5180MHz	Pass	Inf	22.08M	16.642M
5200MHz	Pass	Inf	21.78M	16.639M
5240MHz	Pass	Inf	21.75M	16.632M
5745MHz	Pass	500k	16.35M	16.631M
5785MHz	Pass	500k	16.32M	16.626M
5825MHz	Pass	500k	16.32M	16.655M
802.11ac VHT20_Nss1,(MCS0)_1TX	-	-	-	-
5180MHz	Pass	Inf	22.92M	17.807M
5200MHz	Pass	Inf	22.74M	17.825M
5240MHz	Pass	Inf	23.01M	17.802M
5745MHz	Pass	500k	17.58M	17.81M
5785MHz	Pass	500k	17.58M	17.816M
5825MHz	Pass	500k	17.58M	17.803M
802.11ac VHT40_Nss1,(MCS0)_1TX	-	-	-	-
5190MHz	Pass	Inf	45.24M	36.585M
5230MHz	Pass	Inf	45.12M	36.625M
5755MHz	Pass	500k	36.24M	36.623M
5795MHz	Pass	500k	35.7M	36.663M
802.11ac VHT80_Nss1,(MCS0)_1TX	-	-	-	-
5210MHz	Pass	Inf	89.88M	76.417M
5775MHz	Pass	500k	76.32M	76.535M

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

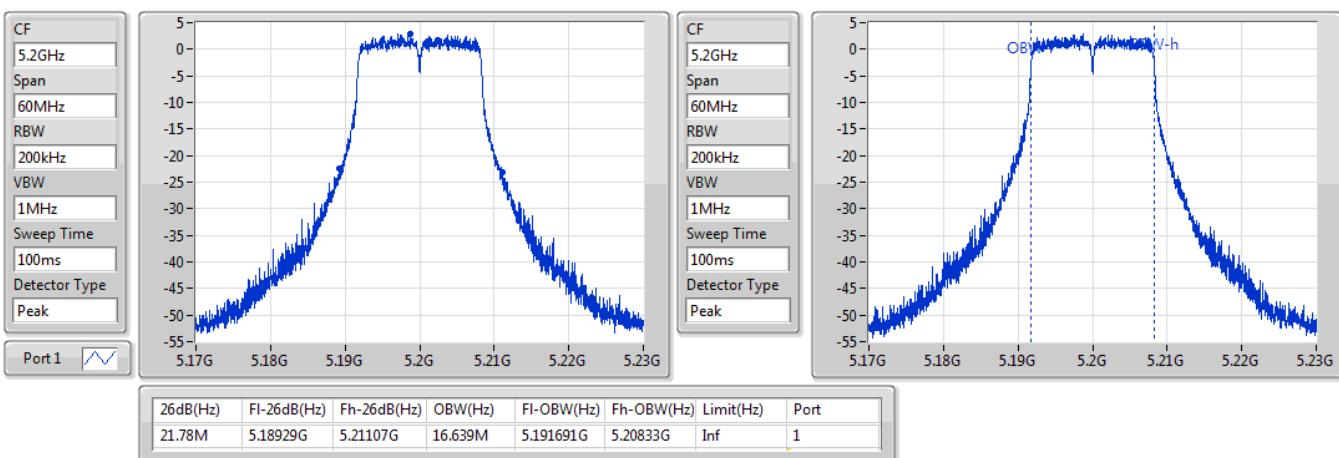
Port X-OBW = Port X 99% occupied bandwidth;

**802.11a\_Nss1,(6Mbps)\_1TX**
**EBW**
**5180MHz**

27/02/2020

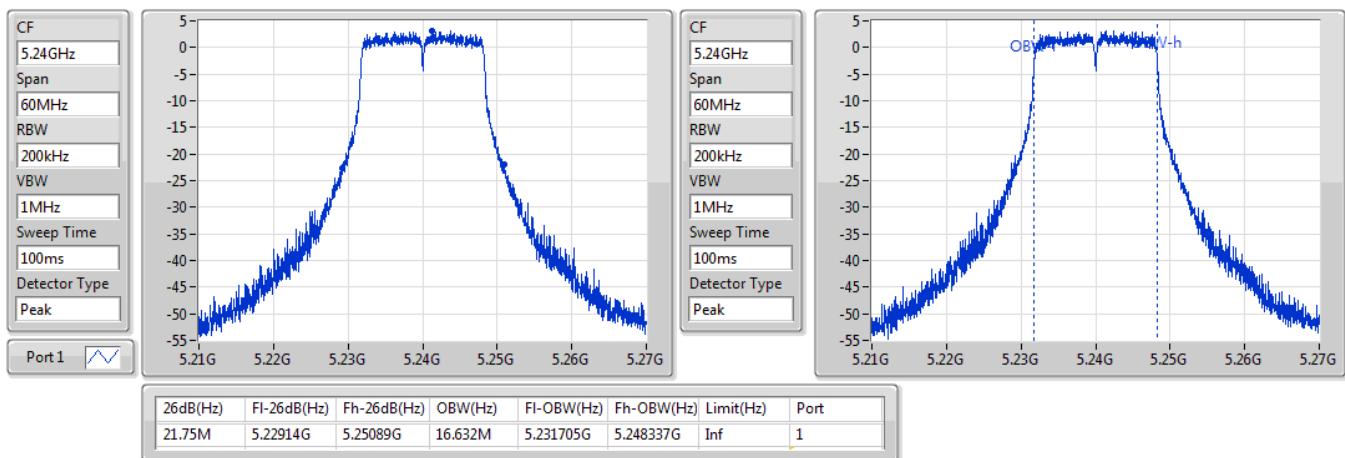

**802.11a\_Nss1,(6Mbps)\_1TX**
**EBW**
**5200MHz**

27/02/2020

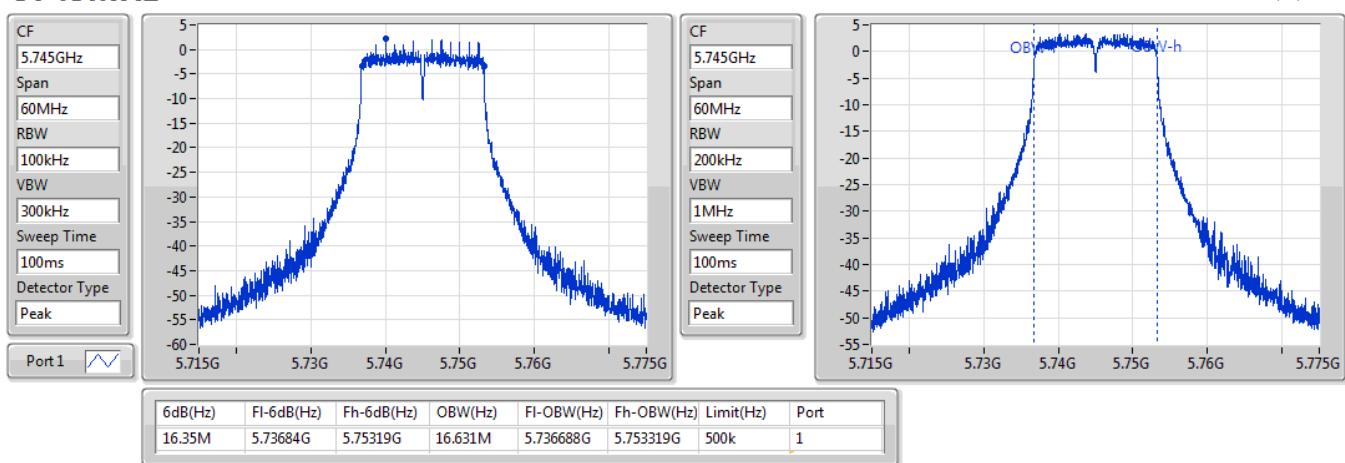


**802.11a\_Nss1,(6Mbps)\_1TX**
**EBW**
**5240MHz**

27/02/2020

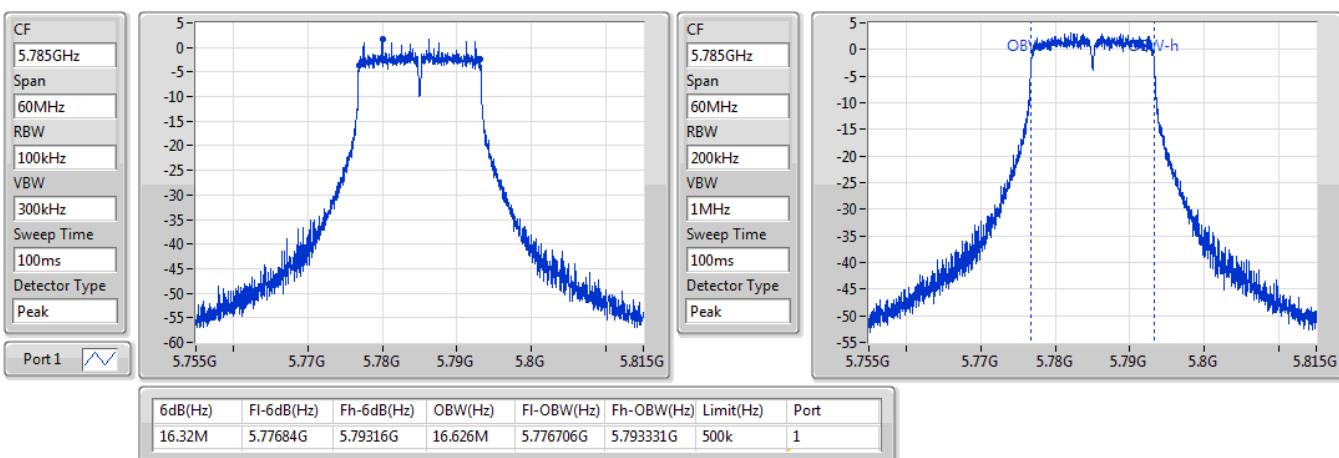

**802.11a\_Nss1,(6Mbps)\_1TX**
**EBW**
**5745MHz**

27/02/2020

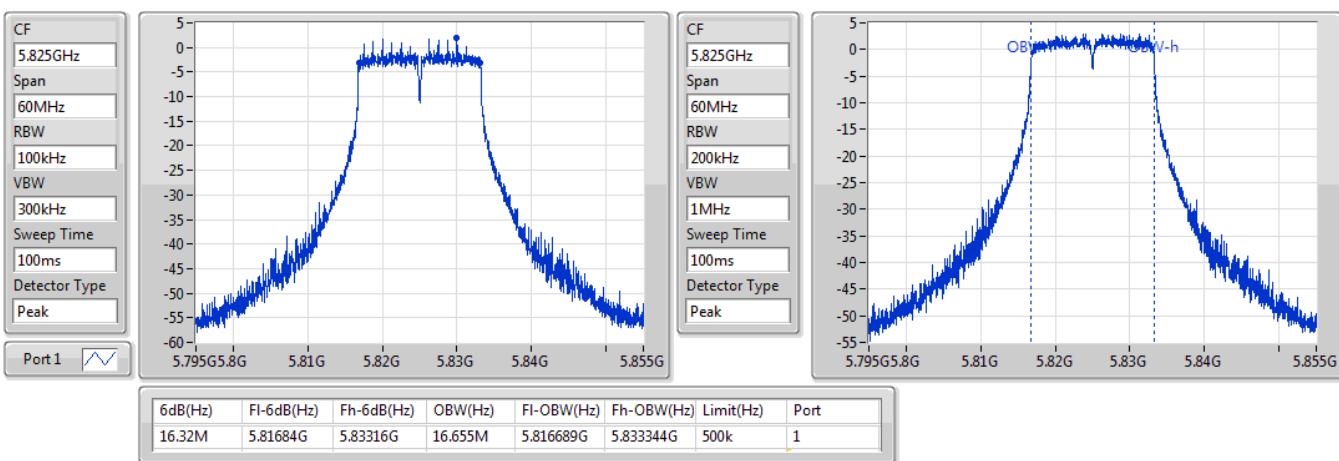


**802.11a\_Nss1,(6Mbps)\_1TX**
**EBW**
**5785MHz**

27/02/2020

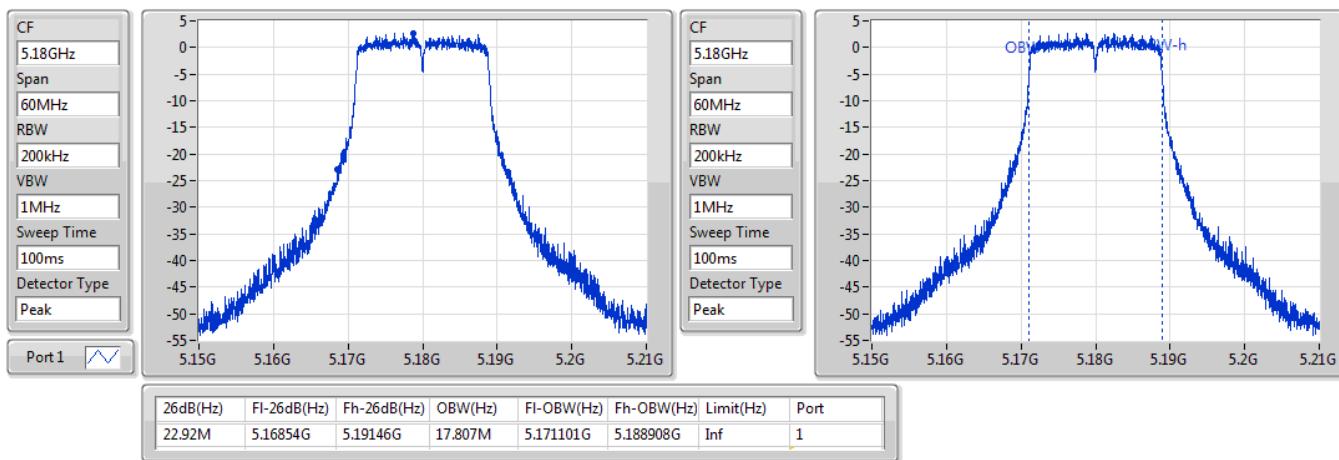

**802.11a\_Nss1,(6Mbps)\_1TX**
**EBW**
**5825MHz**

27/02/2020

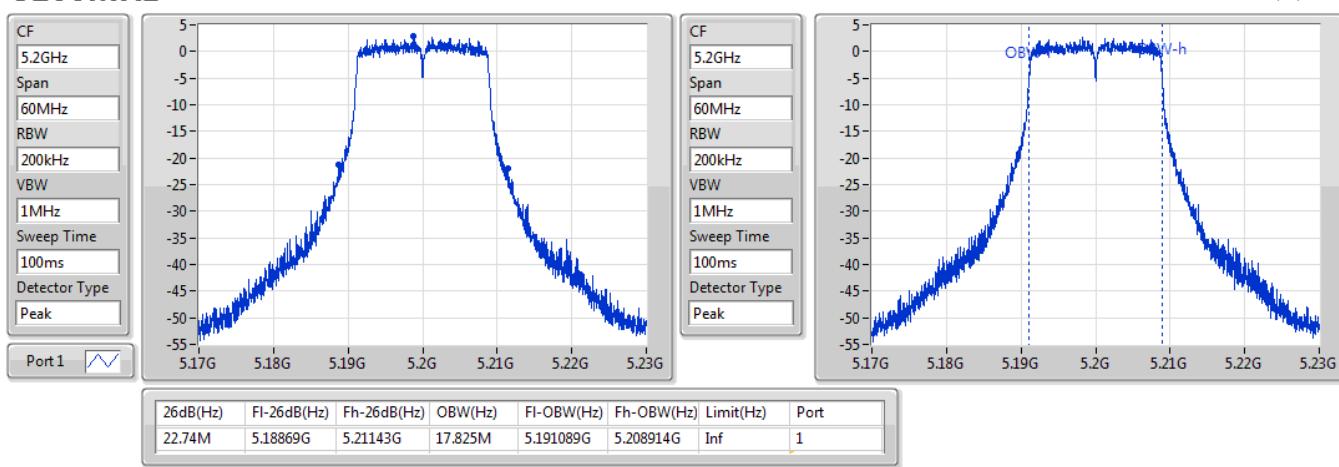


**802.11ac VHT20\_Nss1,(MCS0)\_1TX**
**EBW**
**5180MHz**

27/02/2020

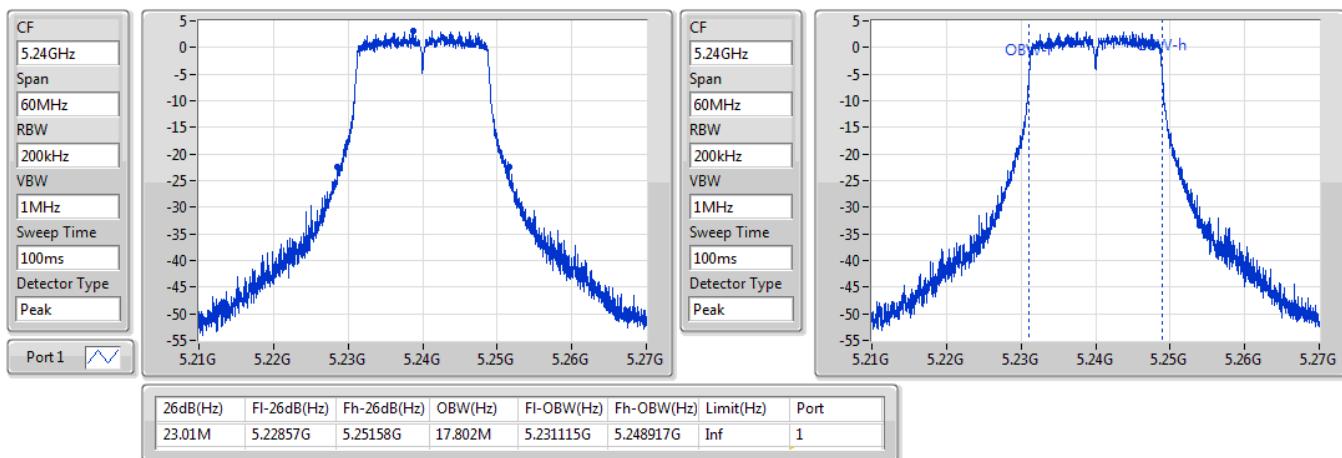

**802.11ac VHT20\_Nss1,(MCS0)\_1TX**
**EBW**
**5200MHz**

27/02/2020

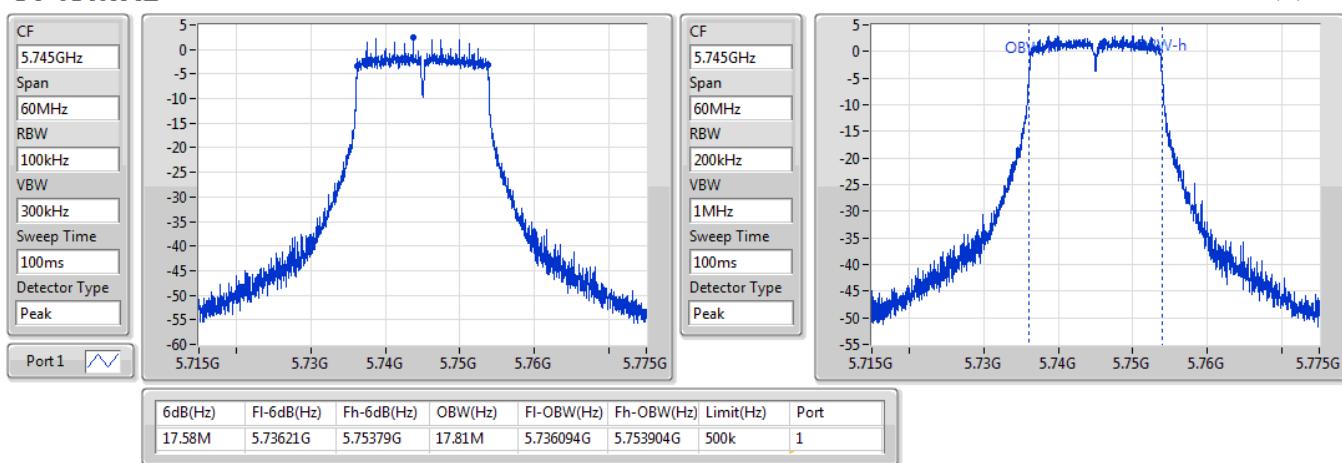


**802.11ac VHT20\_Nss1,(MCS0)\_1TX**
**EBW**
**5240MHz**

27/02/2020

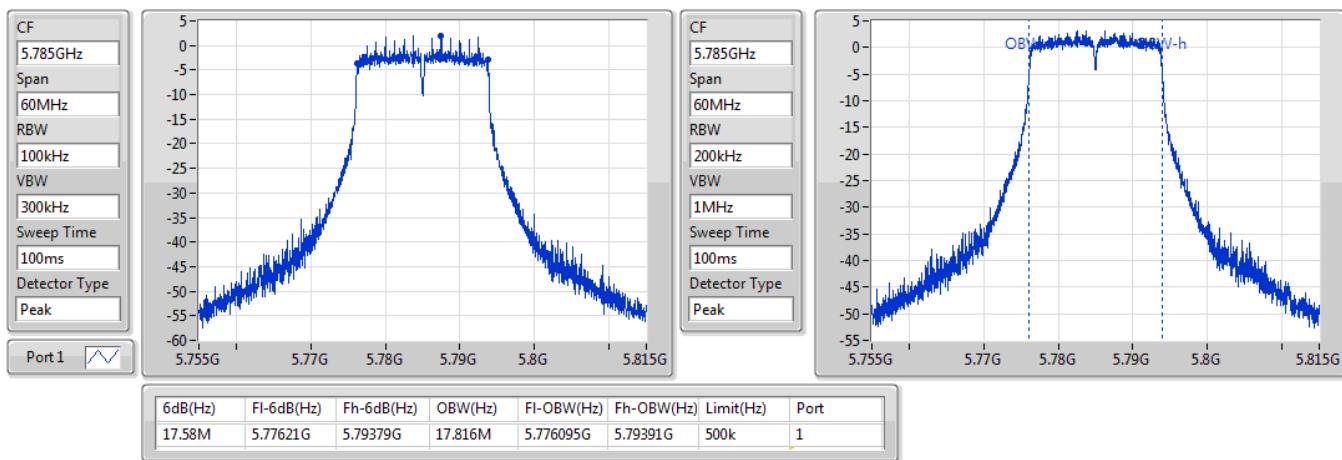

**802.11ac VHT20\_Nss1,(MCS0)\_1TX**
**EBW**
**5745MHz**

27/02/2020

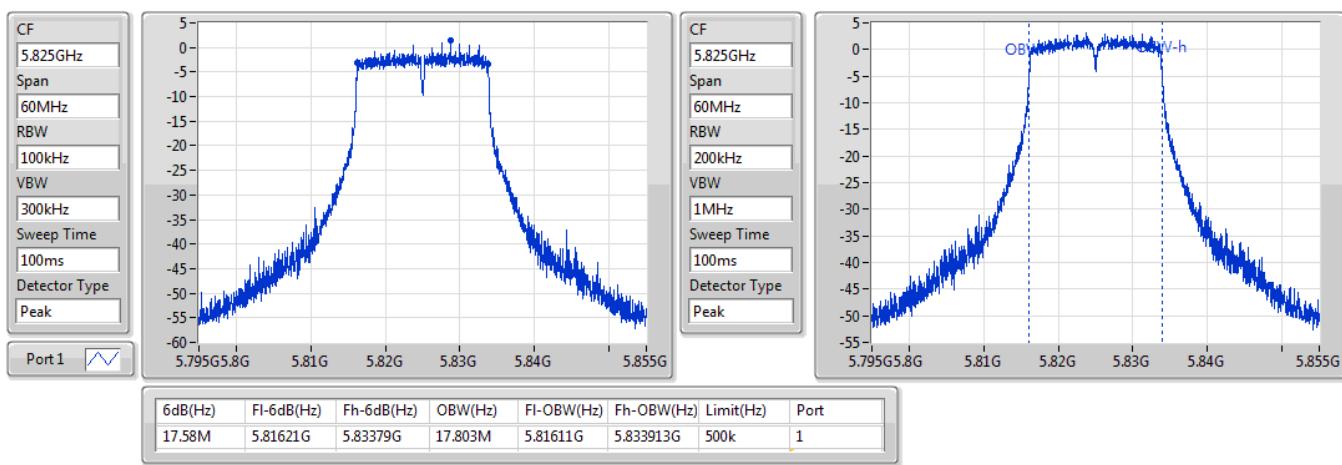


**802.11ac VHT20\_Nss1,(MCS0)\_1TX**
**EBW**
**5785MHz**

27/02/2020

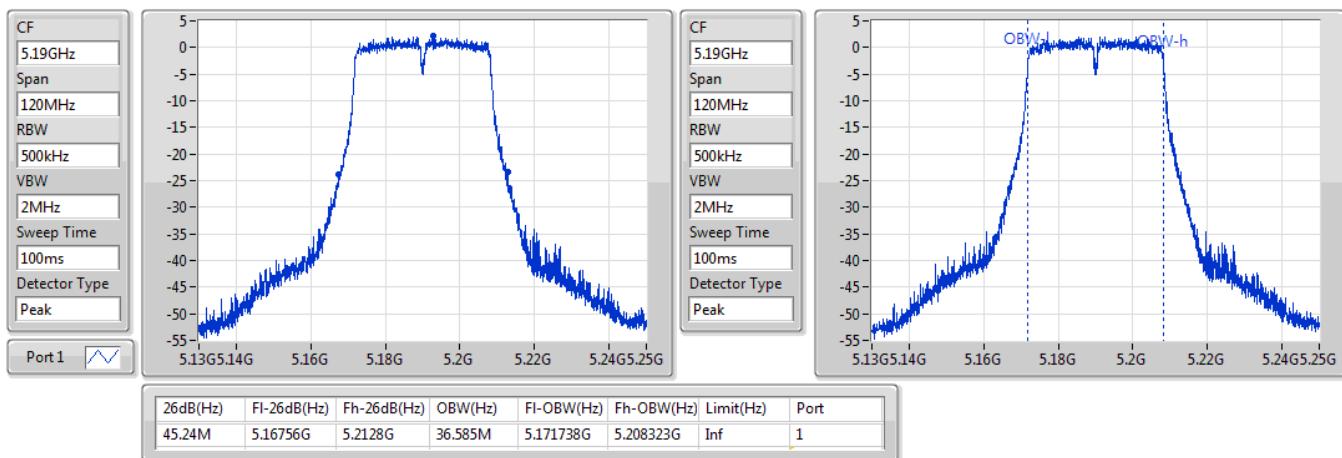

**802.11ac VHT20\_Nss1,(MCS0)\_1TX**
**EBW**
**5825MHz**

27/02/2020

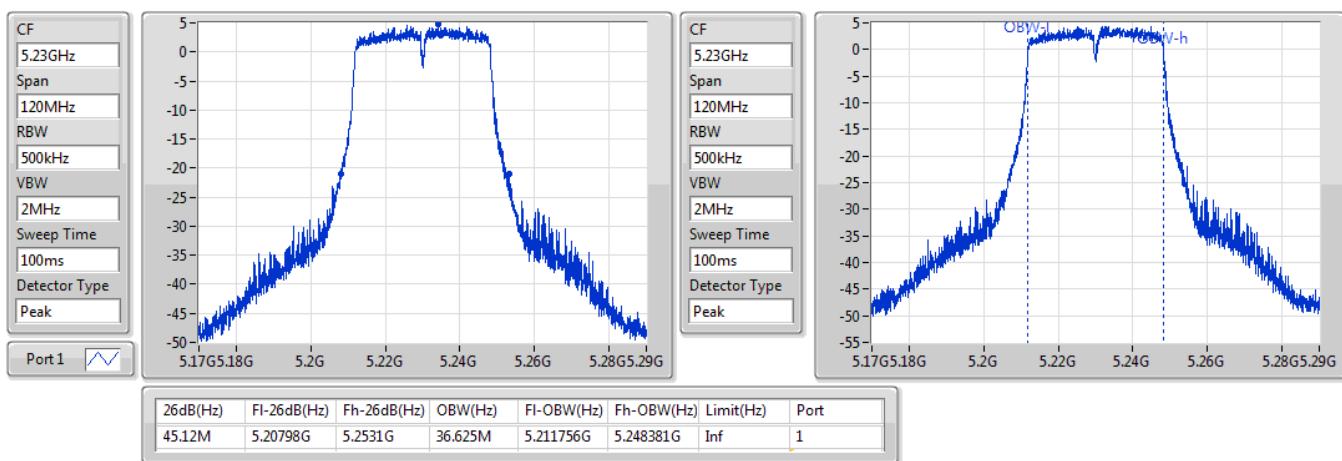


**802.11ac VHT40\_Nss1,(MCS0)\_1TX**
**EBW**
**5190MHz**

27/02/2020

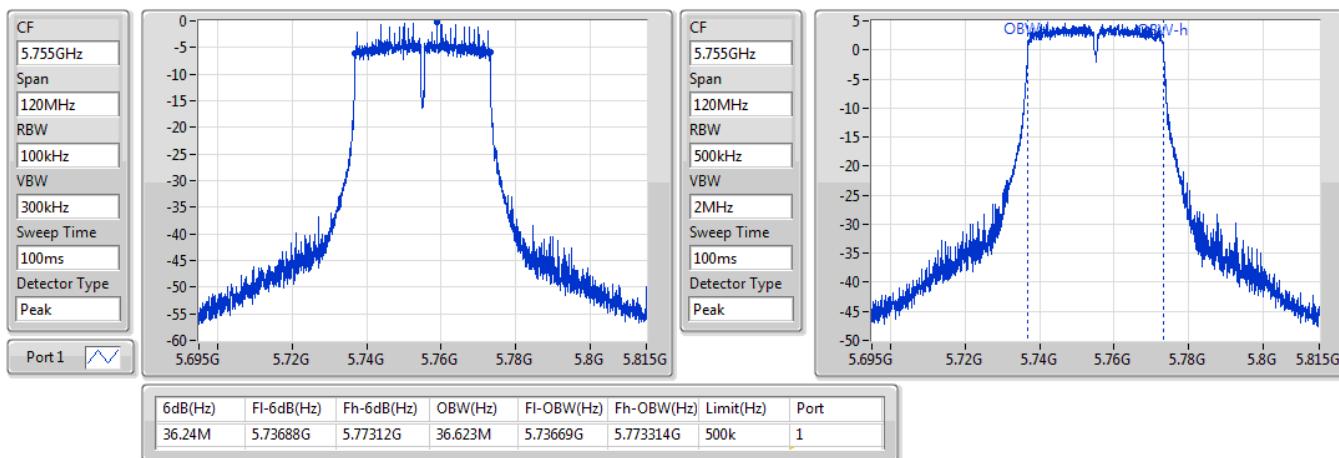

**802.11ac VHT40\_Nss1,(MCS0)\_1TX**
**EBW**
**5230MHz**

27/02/2020

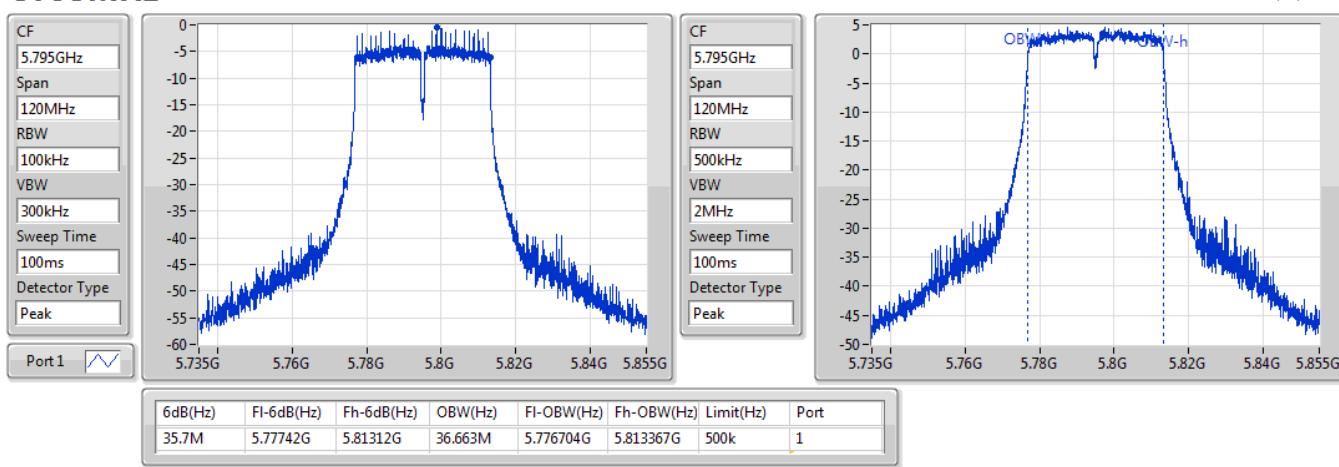


**802.11ac VHT40\_Nss1,(MCS0)\_1TX**
**EBW**
**5755MHz**

27/02/2020

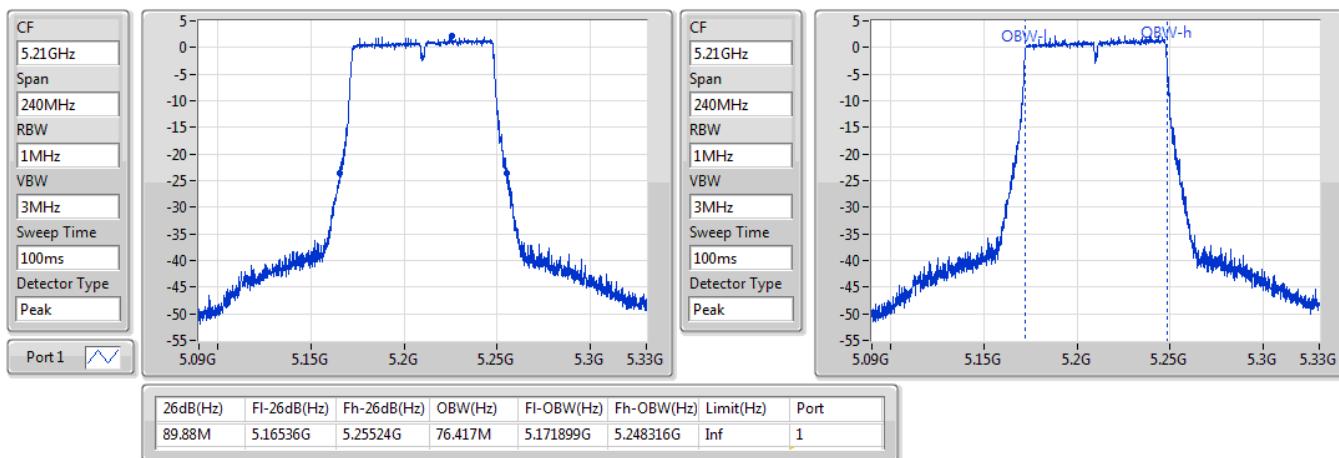

**802.11ac VHT40\_Nss1,(MCS0)\_1TX**
**EBW**
**5795MHz**

27/02/2020

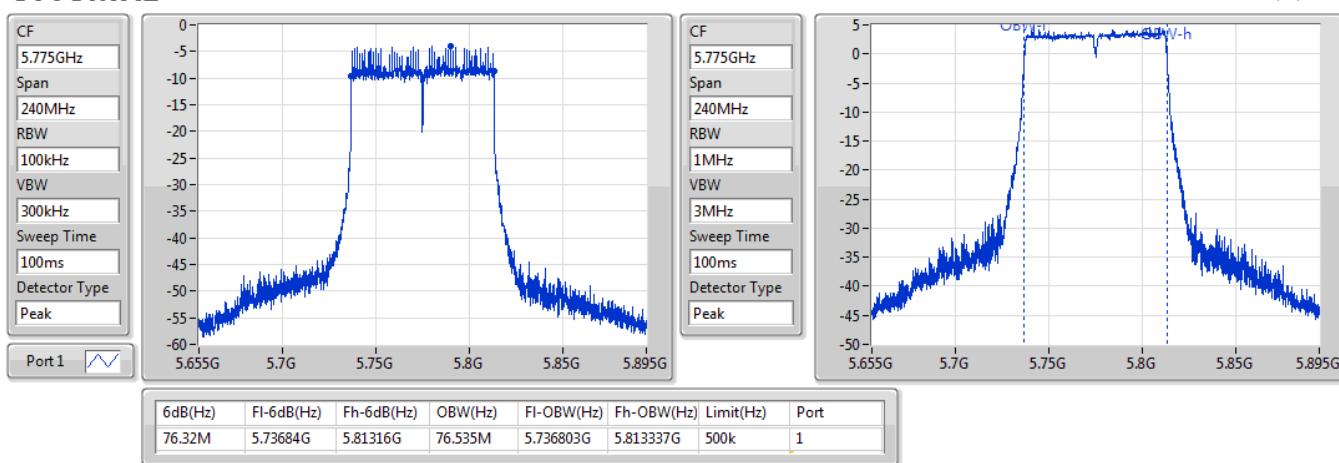


**802.11ac VHT80\_Nss1,(MCS0)\_1TX**
**EBW**
**5210MHz**

27/02/2020


**802.11ac VHT80\_Nss1,(MCS0)\_1TX**
**EBW**
**5775MHz**

27/02/2020



**Summary**

Mode	Total Power (dBm)	Total Power (W)
5.15-5.25GHz	-	-
802.11a_Nss1,(6Mbps)_1TX	14.17	0.02612
802.11ac VHT20_Nss1,(MCS0)_1TX	14.01	0.02518
802.11ac VHT40_Nss1,(MCS0)_1TX	14.25	0.02661
802.11ac VHT80_Nss1,(MCS0)_1TX	11.60	0.01445
5.725-5.85GHz	-	-
802.11a_Nss1,(6Mbps)_1TX	14.13	0.02588
802.11ac VHT20_Nss1,(MCS0)_1TX	14.18	0.02618
802.11ac VHT40_Nss1,(MCS0)_1TX	14.26	0.02667
802.11ac VHT80_Nss1,(MCS0)_1TX	13.71	0.02350

**Result**

Mode	Result	DG (dBi)	Port 1 (dBm)	Total Power (dBm)	Power Limit (dBm)
802.11a_Nss1,(6Mbps)_1TX	-	-	-	-	-
5180MHz	Pass	11.00	13.66	13.66	30.00
5200MHz	Pass	11.00	13.76	13.76	30.00
5240MHz	Pass	11.00	14.17	14.17	30.00
5745MHz	Pass	11.00	14.13	14.13	30.00
5785MHz	Pass	11.00	13.96	13.96	30.00
5825MHz	Pass	11.00	13.96	13.96	30.00
802.11ac VHT20_Nss1,(MCS0)_1TX	-	-	-	-	-
5180MHz	Pass	11.00	13.65	13.65	30.00
5200MHz	Pass	11.00	13.69	13.69	30.00
5240MHz	Pass	11.00	14.01	14.01	30.00
5745MHz	Pass	11.00	14.18	14.18	30.00
5785MHz	Pass	11.00	13.98	13.98	30.00
5825MHz	Pass	11.00	14.01	14.01	30.00
802.11ac VHT40_Nss1,(MCS0)_1TX	-	-	-	-	-
5190MHz	Pass	11.00	11.81	11.81	30.00
5230MHz	Pass	11.00	14.25	14.25	30.00
5755MHz	Pass	11.00	14.26	14.26	30.00
5795MHz	Pass	11.00	14.24	14.24	30.00
802.11ac VHT80_Nss1,(MCS0)_1TX	-	-	-	-	-
5210MHz	Pass	11.00	11.60	11.60	30.00
5775MHz	Pass	11.00	13.71	13.71	30.00

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

**Summary**

Mode	PD (dBm/RBW)
5.15-5.25GHz	-
802.11a_Nss1,(6Mbps)_1TX	1.02
802.11ac VHT20_Nss1,(MCS0)_1TX	0.65
802.11ac VHT40_Nss1,(MCS0)_1TX	-2.01
802.11ac VHT80_Nss1,(MCS0)_1TX	-7.79
5.725-5.85GHz	-
802.11a_Nss1,(6Mbps)_1TX	-0.32
802.11ac VHT20_Nss1,(MCS0)_1TX	-0.64
802.11ac VHT40_Nss1,(MCS0)_1TX	-3.34
802.11ac VHT80_Nss1,(MCS0)_1TX	-7.14

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



## Result

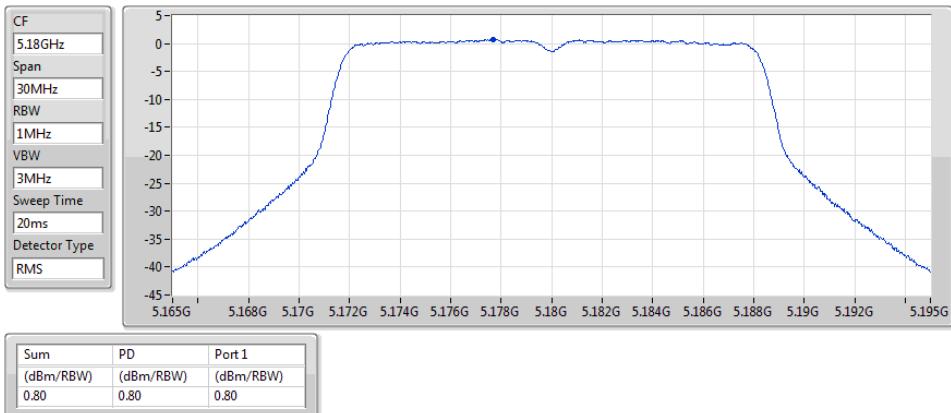
Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
802.11a_Nss1,(6Mbps)_1TX	-	-	-	-	-
5180MHz	Pass	11.00	0.80	0.80	17.00
5200MHz	Pass	11.00	0.75	0.75	17.00
5240MHz	Pass	11.00	1.02	1.02	17.00
5745MHz	Pass	11.00	-0.32	-0.32	30.00
5785MHz	Pass	11.00	-0.58	-0.58	30.00
5825MHz	Pass	11.00	-0.78	-0.78	30.00
802.11ac VHT20_Nss1,(MCS0)_1TX	-	-	-	-	-
5180MHz	Pass	11.00	0.20	0.20	17.00
5200MHz	Pass	11.00	0.20	0.20	17.00
5240MHz	Pass	11.00	0.65	0.65	17.00
5745MHz	Pass	11.00	-0.64	-0.64	30.00
5785MHz	Pass	11.00	-0.92	-0.92	30.00
5825MHz	Pass	11.00	-1.04	-1.04	30.00
802.11ac VHT40_Nss1,(MCS0)_1TX	-	-	-	-	-
5190MHz	Pass	11.00	-4.49	-4.49	17.00
5230MHz	Pass	11.00	-2.01	-2.01	17.00
5755MHz	Pass	11.00	-3.34	-3.34	30.00
5795MHz	Pass	11.00	-3.54	-3.54	30.00
802.11ac VHT80_Nss1,(MCS0)_1TX	-	-	-	-	-
5210MHz	Pass	11.00	-7.79	-7.79	17.00
5775MHz	Pass	11.00	-7.14	-7.14	30.00

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

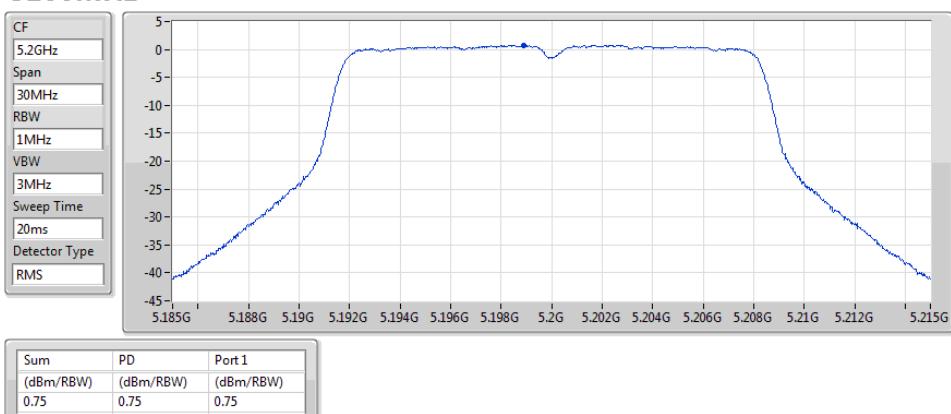
**PD** = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port X power density;

**802.11a\_Nss1,(6Mbps)\_1TX**
**PSD**
**5180MHz**

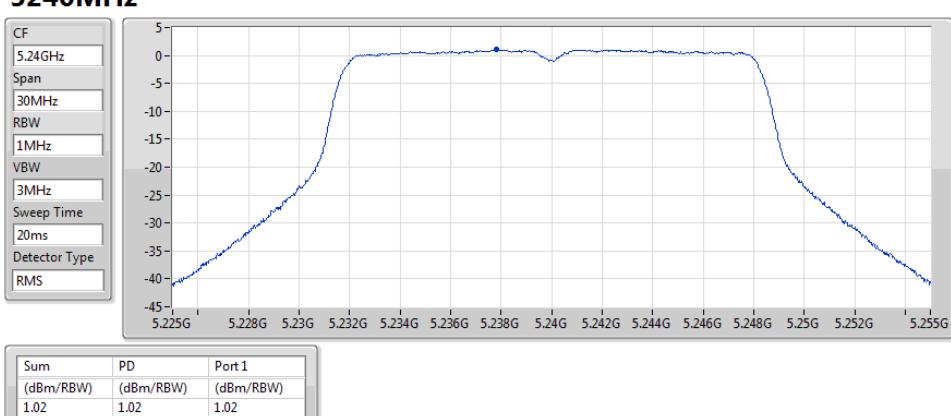
27/02/2020


**802.11a\_Nss1,(6Mbps)\_1TX**
**PSD**
**5200MHz**

27/02/2020


**802.11a\_Nss1,(6Mbps)\_1TX**
**PSD**
**5240MHz**

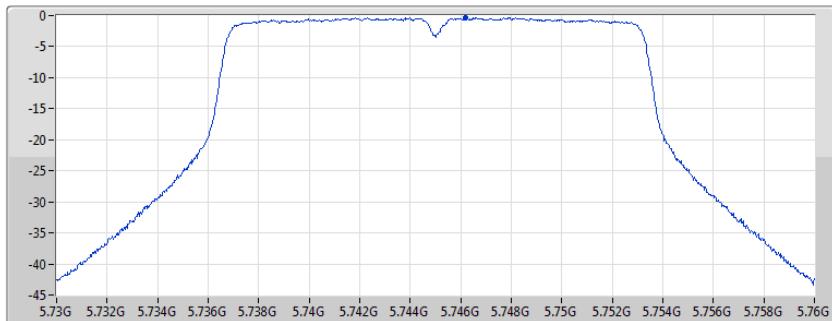
27/02/2020



**802.11a\_Nss1,(6Mbps)\_1TX**
**PSD**
**5745MHz**

27/02/2020

CF
5.745GHz
Span
30MHz
RBW
500kHz
VBW
3MHz
Sweep Time
20ms
Detector Type
RMS

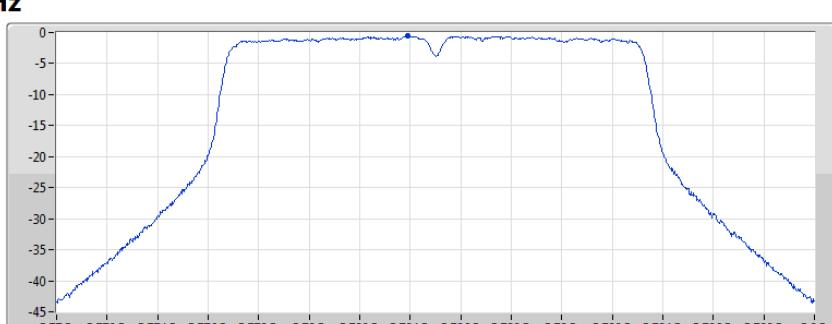


Port 1


**802.11a\_Nss1,(6Mbps)\_1TX**
**PSD**
**5785MHz**

27/02/2020

CF
5.785GHz
Span
30MHz
RBW
500kHz
VBW
3MHz
Sweep Time
20ms
Detector Type
RMS

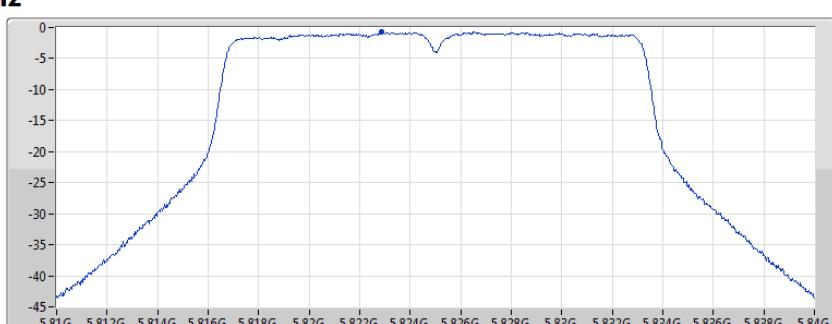


Port 1


**802.11a\_Nss1,(6Mbps)\_1TX**
**PSD**
**5825MHz**

27/02/2020

CF
5.825GHz
Span
30MHz
RBW
500kHz
VBW
3MHz
Sweep Time
20ms
Detector Type
RMS

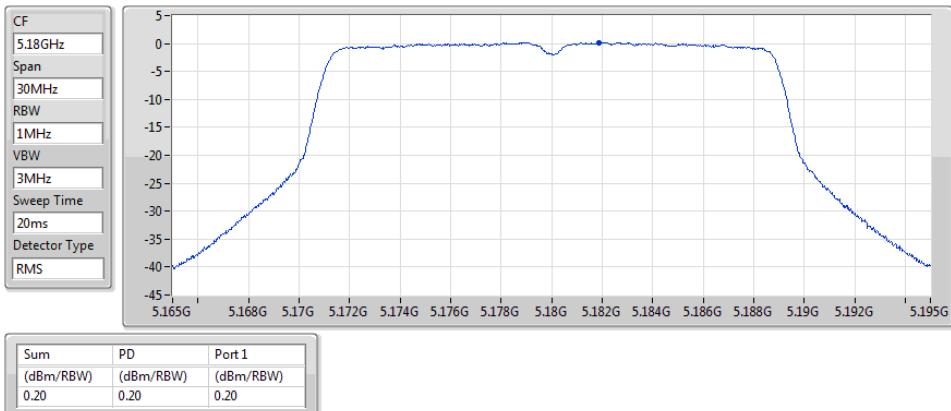


Port 1

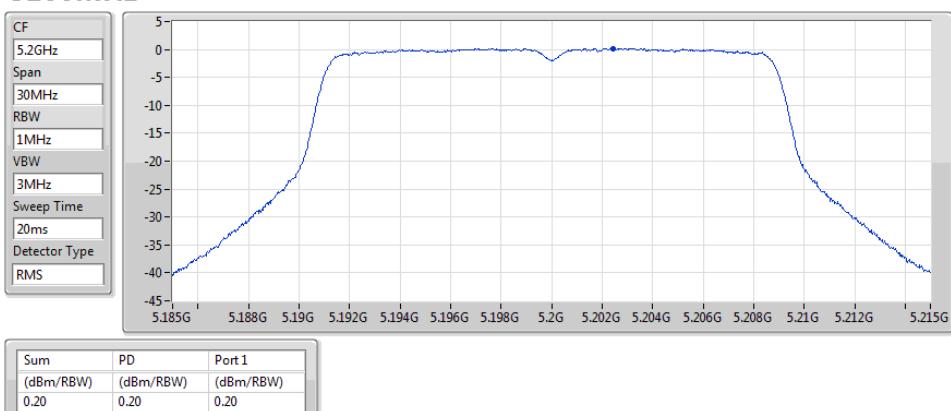


**802.11ac VHT20\_Nss1,(MCS0)\_1TX**
**PSD**
**5180MHz**

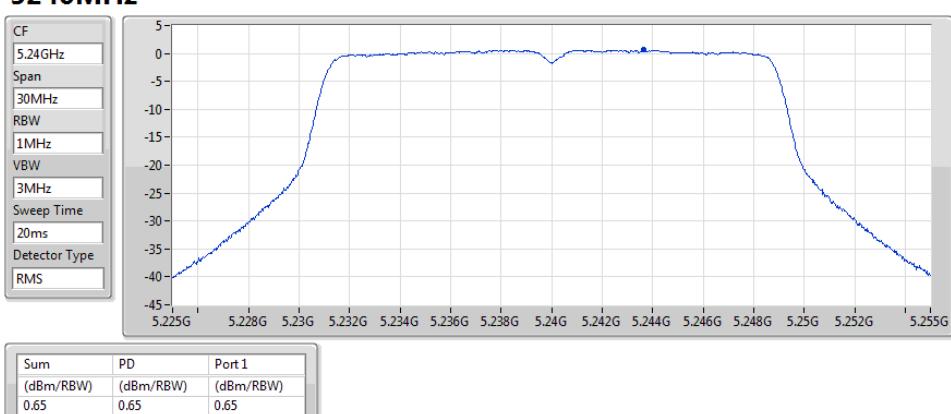
27/02/2020


**802.11ac VHT20\_Nss1,(MCS0)\_1TX**
**PSD**
**5200MHz**

27/02/2020

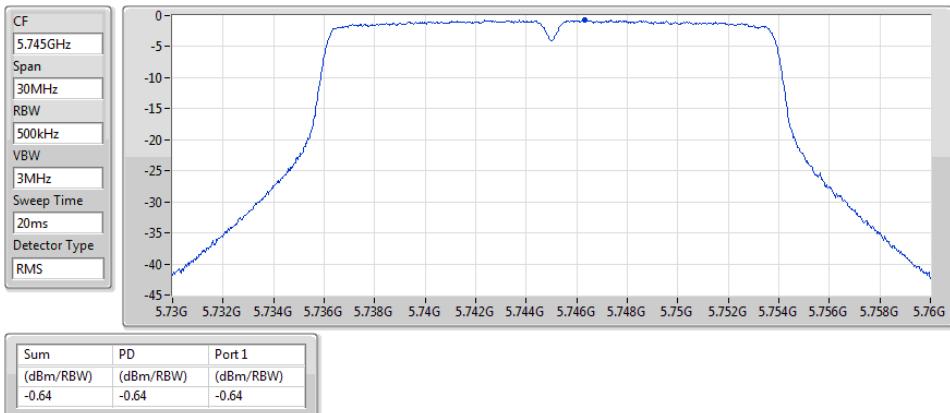

**802.11ac VHT20\_Nss1,(MCS0)\_1TX**
**PSD**
**5240MHz**

27/02/2020

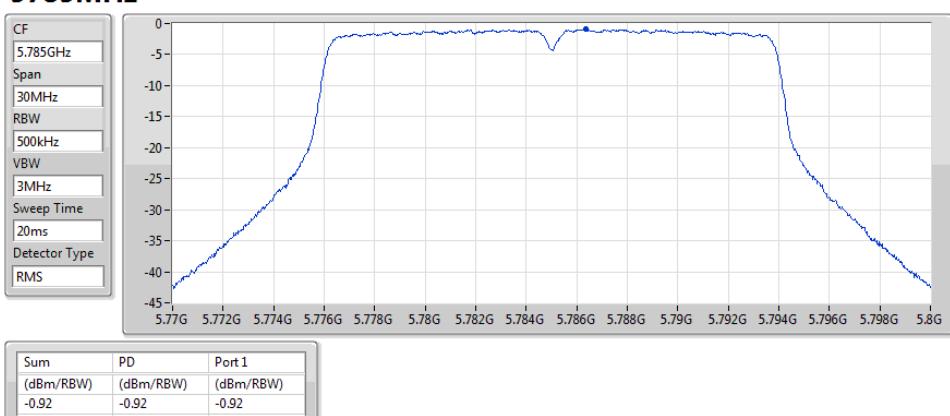


**802.11ac VHT20\_Nss1,(MCS0)\_1TX**
**PSD**
**5745MHz**

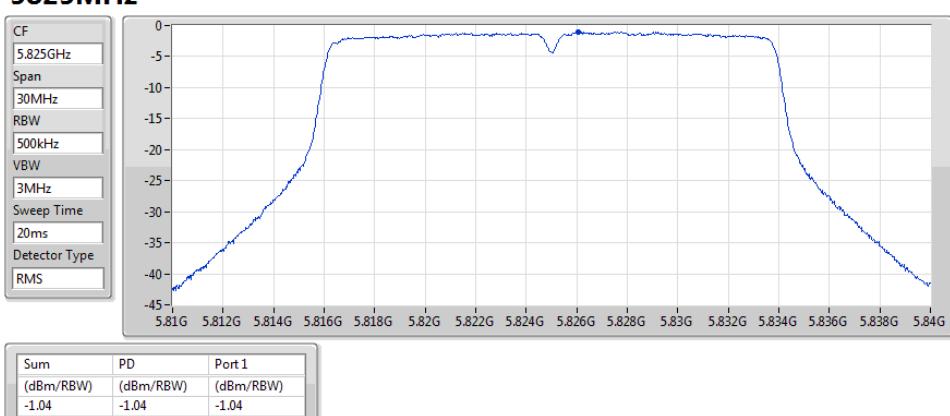
27/02/2020

Port 1 

**802.11ac VHT20\_Nss1,(MCS0)\_1TX**
**PSD**
**5785MHz**

27/02/2020

Port 1 

**802.11ac VHT20\_Nss1,(MCS0)\_1TX**
**PSD**
**5825MHz**

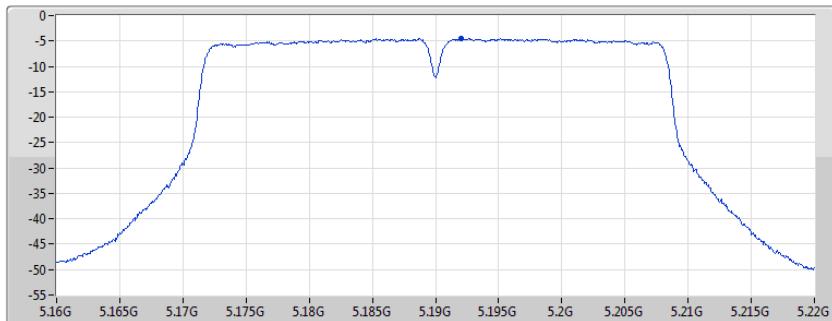
27/02/2020

Port 1 


**802.11ac VHT40\_Nss1,(MCS0)\_1TX**
**PSD**
**5190MHz**

27/02/2020

CF
5.19GHz
Span
60MHz
RBW
1MHz
VBW
3MHz
Sweep Time
20ms
Detector Type
RMS



Port 1

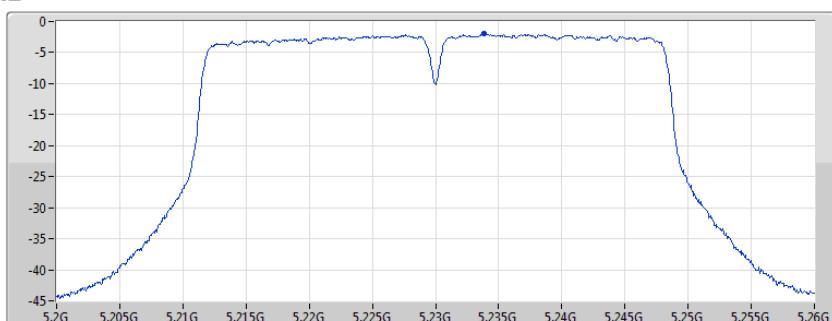


Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-4.49	-4.49	-4.49

**802.11ac VHT40\_Nss1,(MCS0)\_1TX**
**PSD**
**5230MHz**

27/02/2020

CF
5.23GHz
Span
60MHz
RBW
1MHz
VBW
3MHz
Sweep Time
20ms
Detector Type
RMS



Port 1

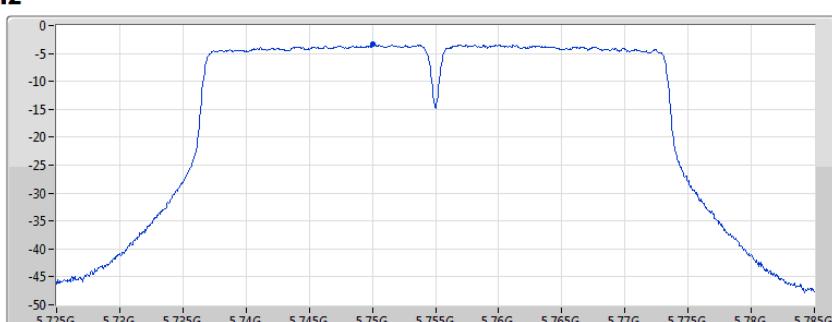


Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-2.01	-2.01	-2.01

**802.11ac VHT40\_Nss1,(MCS0)\_1TX**
**PSD**
**5755MHz**

27/02/2020

CF
5.755GHz
Span
60MHz
RBW
500kHz
VBW
3MHz
Sweep Time
20ms
Detector Type
RMS



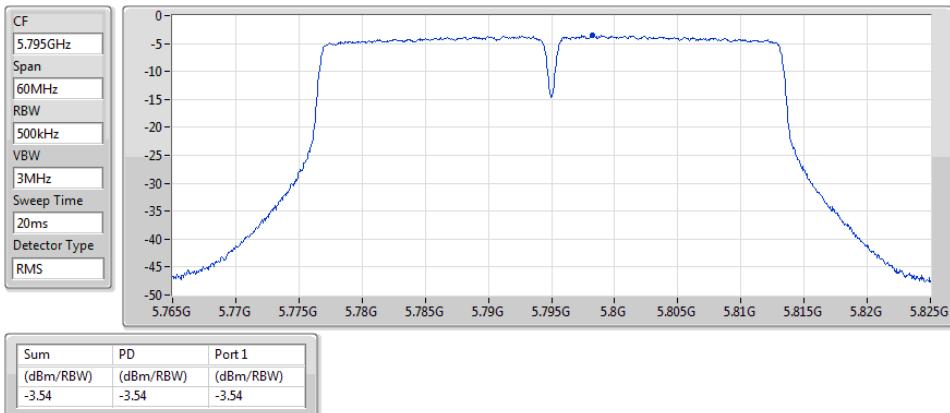
Port 1



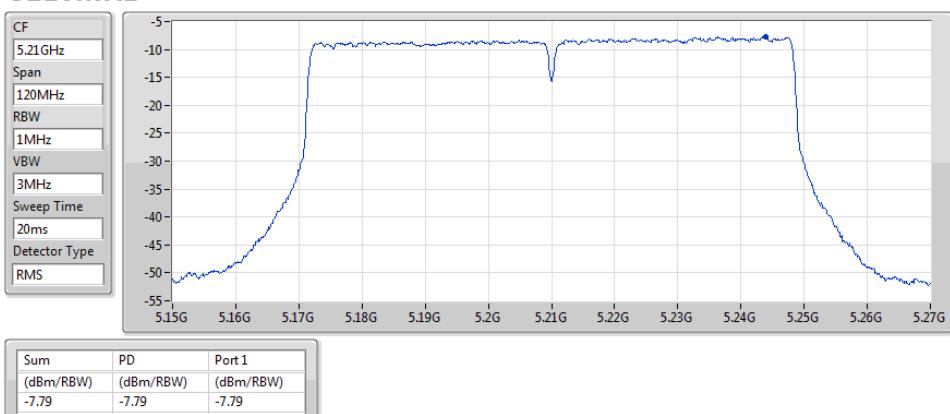
Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-3.34	-3.34	-3.34

**802.11ac VHT40\_Nss1,(MCS0)\_1TX**
**PSD**
**5795MHz**

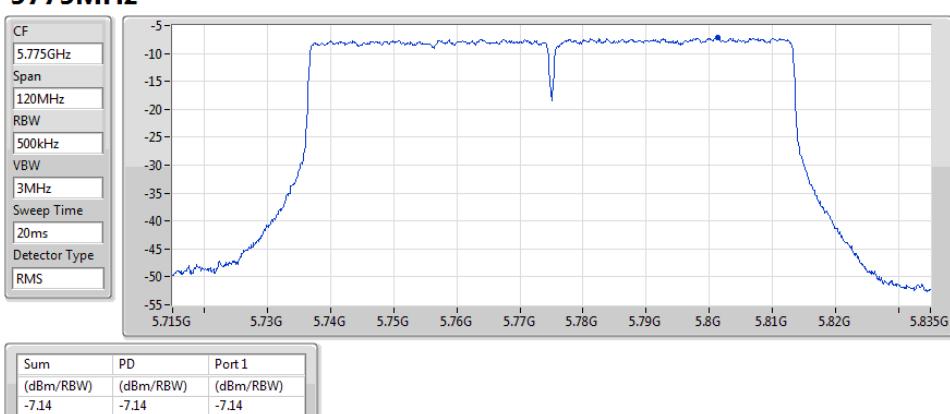
27/02/2020

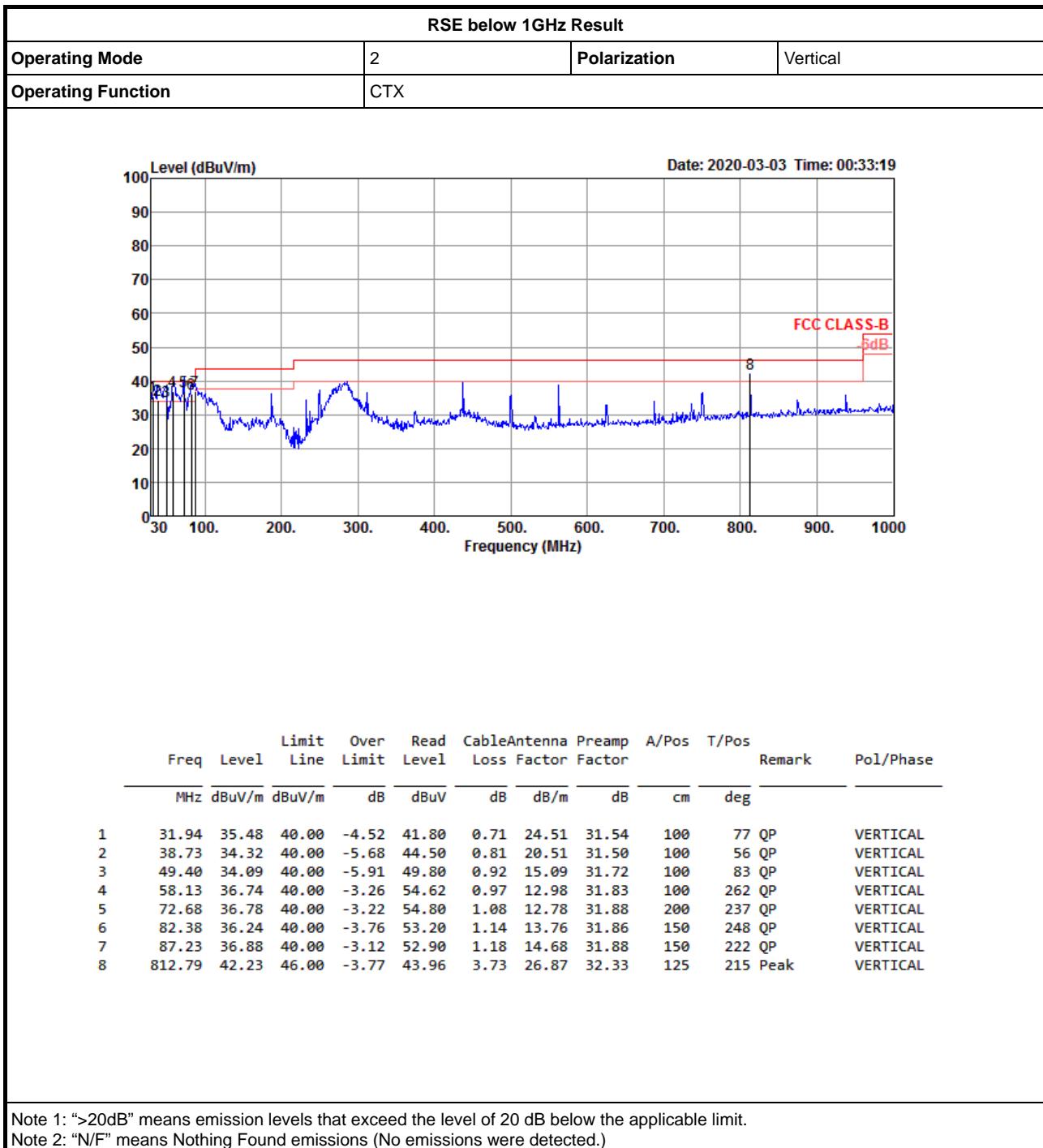

**802.11ac VHT80\_Nss1,(MCS0)\_1TX**
**PSD**
**5210MHz**

27/02/2020


**802.11ac VHT80\_Nss1,(MCS0)\_1TX**
**PSD**
**5775MHz**

27/02/2020







## RSE below 1GHz Result

Appendix E.1

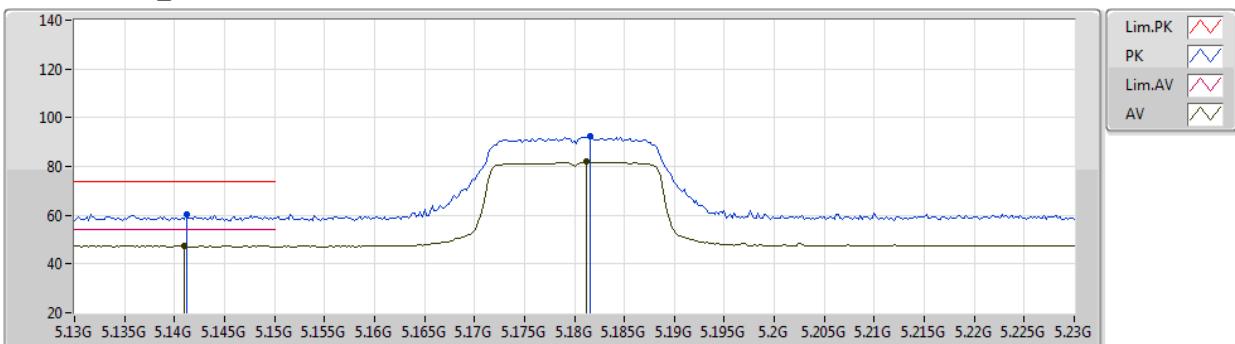
RSE below 1GHz Result																																																																																																																																																										
Operating Mode		2		Polarization			Horizontal																																																																																																																																																			
Operating Function		CTX																																																																																																																																																								
		<p>Date: 2020-03-03 Time: 00:57:42</p> <table><thead><tr><th rowspan="2">Freq</th><th rowspan="2">Level</th><th colspan="2">Limit</th><th rowspan="2">Over</th><th rowspan="2">Read</th><th rowspan="2">Cable</th><th rowspan="2">Antenna</th><th rowspan="2">Preamplifier</th><th rowspan="2">A/Pos</th><th rowspan="2">T/Pos</th><th rowspan="2">Remark</th><th rowspan="2">Pol/Phase</th></tr><tr><th>Line</th><th>Limit</th><th>Level</th><th>dB</th><th>dBuV</th><th>dB</th><th>dB/m</th><th>dB</th><th>cm</th><th>deg</th></tr><tr><th>MHz</th><th>dBuV/m</th><th>dBuV/m</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></tr></thead><tbody><tr><td>1</td><td>58.13</td><td>35.62</td><td>40.00</td><td>-4.38</td><td>53.50</td><td>0.97</td><td>12.98</td><td>31.83</td><td>300</td><td>15</td><td>QP</td><td>HORIZONTAL</td></tr><tr><td>2</td><td>62.98</td><td>36.44</td><td>40.00</td><td>-3.56</td><td>54.70</td><td>1.00</td><td>12.60</td><td>31.86</td><td>300</td><td>232</td><td>QP</td><td>HORIZONTAL</td></tr><tr><td>3</td><td>67.83</td><td>36.54</td><td>40.00</td><td>-3.46</td><td>54.81</td><td>1.01</td><td>12.60</td><td>31.88</td><td>300</td><td>238</td><td>QP</td><td>HORIZONTAL</td></tr><tr><td>4</td><td>72.68</td><td>36.87</td><td>40.00</td><td>-3.13</td><td>54.89</td><td>1.08</td><td>12.78</td><td>31.88</td><td>300</td><td>228</td><td>QP</td><td>HORIZONTAL</td></tr><tr><td>5</td><td>77.53</td><td>36.91</td><td>40.00</td><td>-3.09</td><td>54.51</td><td>1.14</td><td>13.13</td><td>31.87</td><td>200</td><td>199</td><td>QP</td><td>HORIZONTAL</td></tr><tr><td>6</td><td>82.38</td><td>36.24</td><td>40.00</td><td>-3.76</td><td>53.20</td><td>1.14</td><td>13.76</td><td>31.86</td><td>200</td><td>192</td><td>QP</td><td>HORIZONTAL</td></tr><tr><td>7</td><td>250.19</td><td>39.21</td><td>46.00</td><td>-6.79</td><td>50.30</td><td>2.04</td><td>18.90</td><td>32.03</td><td>125</td><td>198</td><td>Peak</td><td>HORIZONTAL</td></tr><tr><td>8</td><td>300.63</td><td>38.71</td><td>46.00</td><td>-7.29</td><td>48.77</td><td>2.22</td><td>19.80</td><td>32.08</td><td>100</td><td>250</td><td>Peak</td><td>HORIZONTAL</td></tr></tbody></table>													Freq	Level	Limit		Over	Read	Cable	Antenna	Preamplifier	A/Pos	T/Pos	Remark	Pol/Phase	Line	Limit	Level	dB	dBuV	dB	dB/m	dB	cm	deg	MHz	dBuV/m	dBuV/m											1	58.13	35.62	40.00	-4.38	53.50	0.97	12.98	31.83	300	15	QP	HORIZONTAL	2	62.98	36.44	40.00	-3.56	54.70	1.00	12.60	31.86	300	232	QP	HORIZONTAL	3	67.83	36.54	40.00	-3.46	54.81	1.01	12.60	31.88	300	238	QP	HORIZONTAL	4	72.68	36.87	40.00	-3.13	54.89	1.08	12.78	31.88	300	228	QP	HORIZONTAL	5	77.53	36.91	40.00	-3.09	54.51	1.14	13.13	31.87	200	199	QP	HORIZONTAL	6	82.38	36.24	40.00	-3.76	53.20	1.14	13.76	31.86	200	192	QP	HORIZONTAL	7	250.19	39.21	46.00	-6.79	50.30	2.04	18.90	32.03	125	198	Peak	HORIZONTAL	8	300.63	38.71	46.00	-7.29	48.77	2.22	19.80	32.08	100	250	Peak	HORIZONTAL
Freq	Level	Limit		Over	Read	Cable	Antenna	Preamplifier	A/Pos	T/Pos	Remark	Pol/Phase																																																																																																																																														
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MHz	dBuV/m	dBuV/m																																																																																																																																																								
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<p>Note 1: "&gt;20dB" means emission levels that exceed the level of 20 dB below the applicable limit.</p> <p>Note 2: "N/F" means Nothing Found emissions (No emissions were detected.)</p>																																																																																																																																																										

**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	-	-	-	-	-	-	-	-	-	-	-
802.11ac VHT80_Nss1,(MCS0)_1TX	Pass	AV	5.149G	53.56	54.00	-0.44	3	Horizontal	0	1.98	-

**802.11a\_Nss1,(6Mbps)\_1TX**

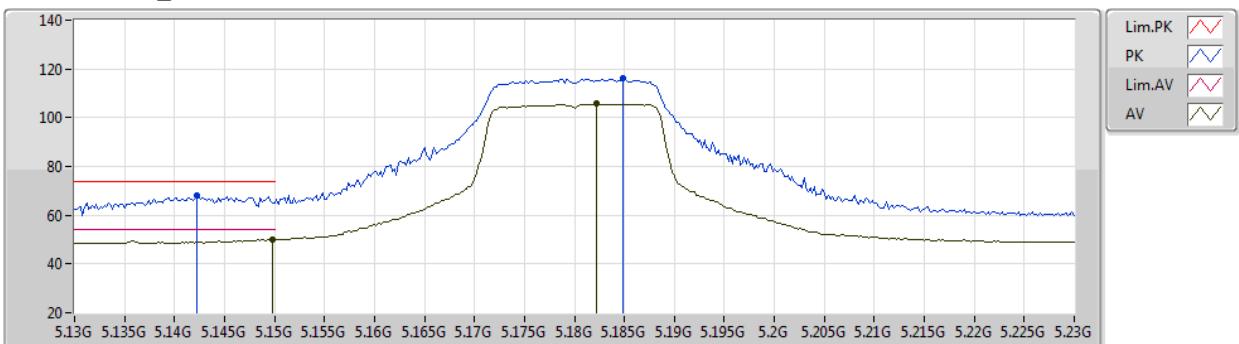
06/01/2020

**5180MHz\_TX**

 EUT Y\_1TX  
 Setting 16  
 02-A-E-2-10

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	5.1412G	60.59	74.00	-13.41	51.46	3	Vertical	1	2.02	-	33.54	5.97	30.38	
AV	5.141G	47.45	54.00	-6.55	38.32	3	Vertical	1	2.02	-	33.54	5.97	30.38	
PK	5.1816G	92.34	Inf	-Inf	83.16	3	Vertical	1	2.02	-	33.58	5.99	30.39	
AV	5.1812G	82.06	Inf	-Inf	72.88	3	Vertical	1	2.02	-	33.58	5.99	30.39	

**802.11a\_Nss1,(6Mbps)\_1TX**

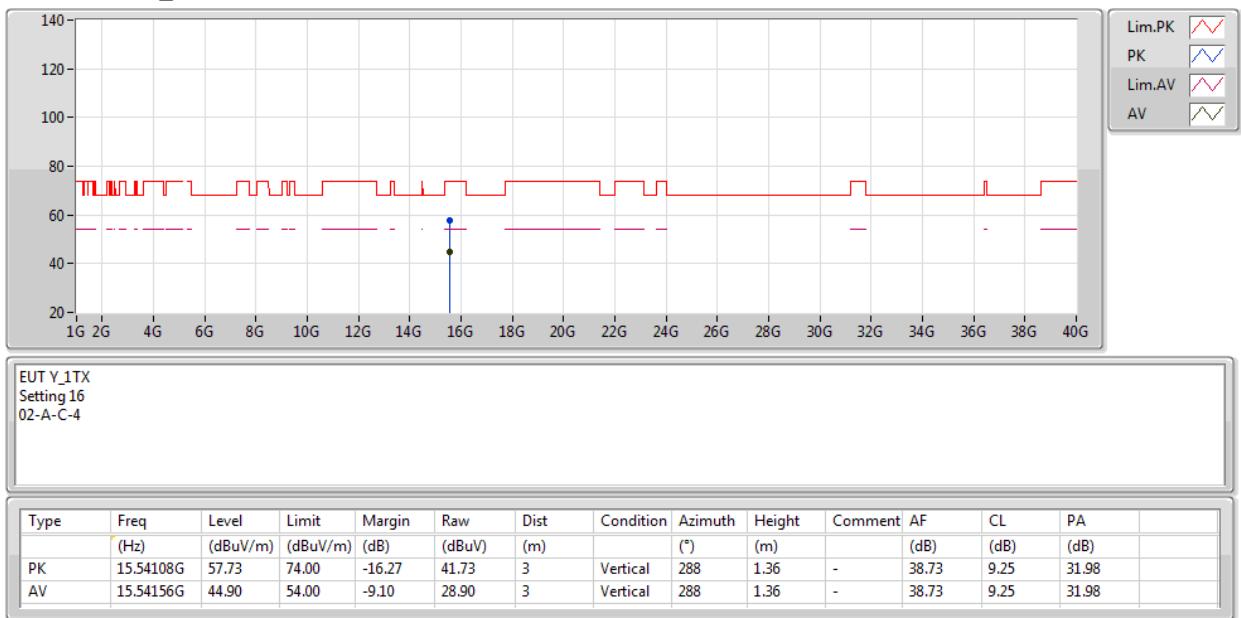
06/01/2020

**5180MHz\_TX**

 EUT Y\_1TX  
 Setting 16  
 02-A-E-2-10

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	5.1422G	68.26	74.00	-5.74	59.13	3	Horizontal	1	1.94	-	33.54	5.97	30.38	
AV	5.1498G	50.02	54.00	-3.98	40.88	3	Horizontal	1	1.94	-	33.55	5.97	30.38	
PK	5.1848G	116.19	Inf	-Inf	107.02	3	Horizontal	1	1.94	-	33.58	5.99	30.40	
AV	5.1822G	105.68	Inf	-Inf	96.50	3	Horizontal	1	1.94	-	33.58	5.99	30.39	

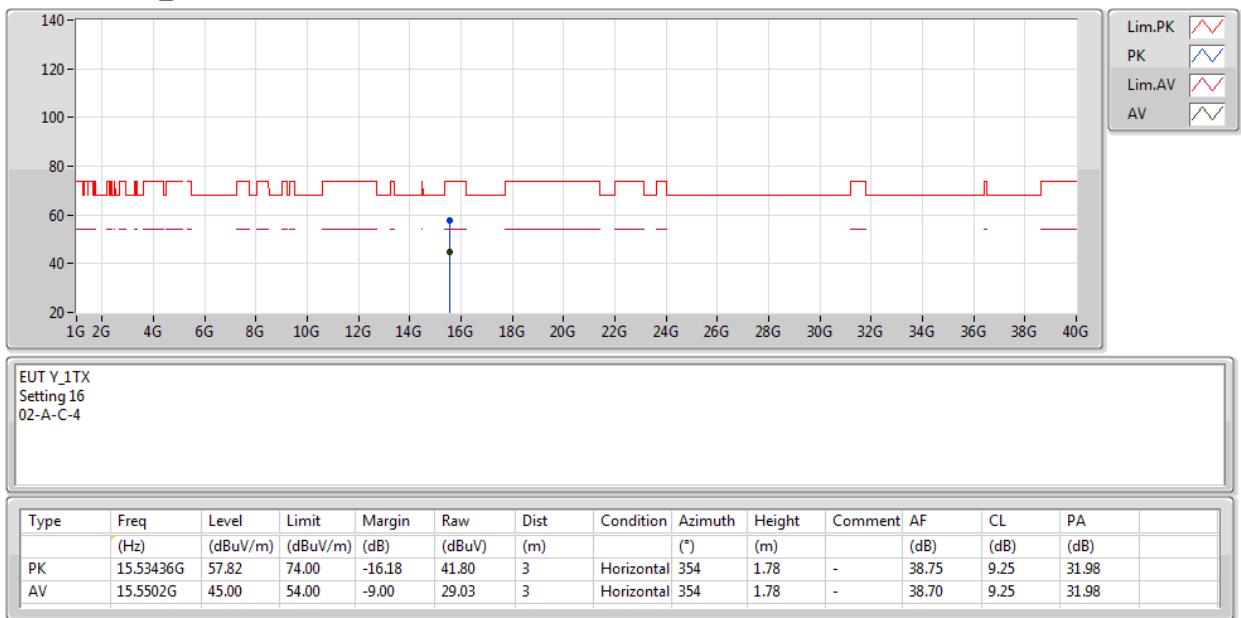
**802.11a\_Nss1,(6Mbps)\_1TX**

06/01/2020

**5180MHz\_TX**


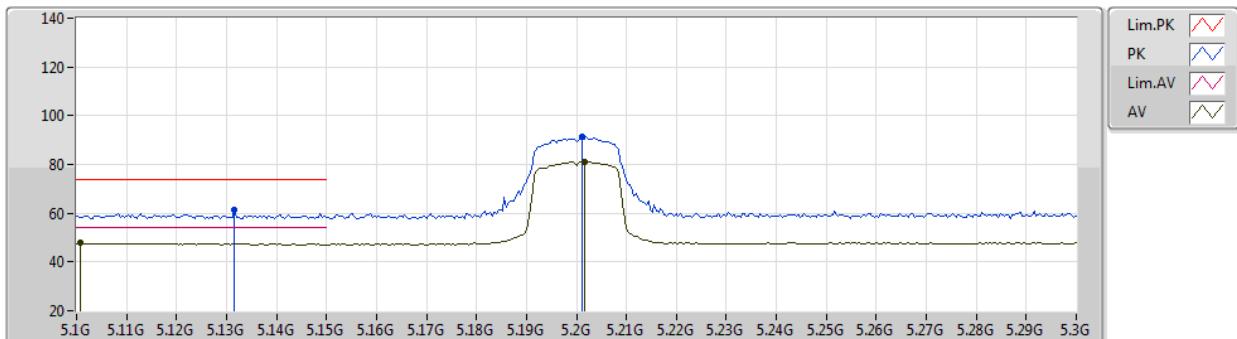
**802.11a\_Nss1,(6Mbps)\_1TX**

06/01/2020

**5180MHz\_TX**


**802.11a\_Nss1,(6Mbps)\_1TX**

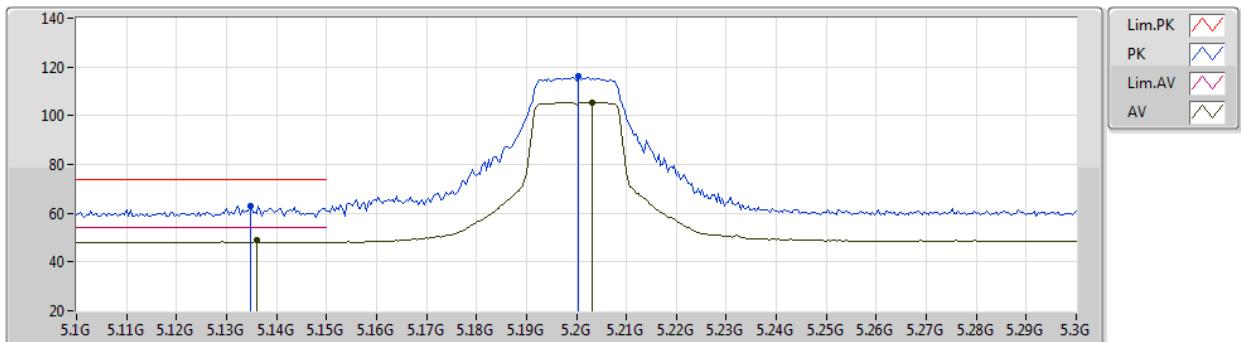
06/01/2020

**5200MHz\_TX**

 EUT Y\_1TX  
 Setting 16  
 02-A-E-2-10

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	5.1316G	61.26	74.00	-12.74	52.14	3	Vertical	1	2.01	-	33.53	5.97	30.38	
AV	5.1008G	47.80	54.00	-6.20	38.72	3	Vertical	1	2.01	-	33.50	5.95	30.37	
PK	5.2012G	91.52	Inf	-Inf	82.32	3	Vertical	1	2.01	-	33.60	6.00	30.40	
AV	5.2016G	81.03	Inf	-Inf	71.83	3	Vertical	1	2.01	-	33.60	6.00	30.40	

**802.11a\_Nss1,(6Mbps)\_1TX**

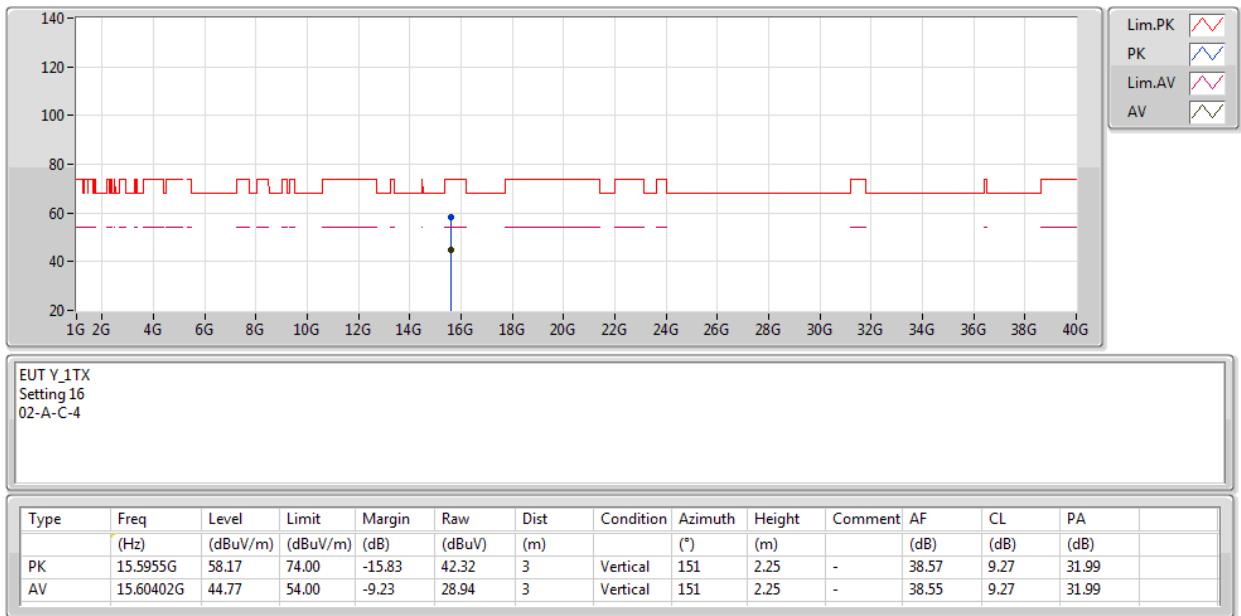
06/01/2020

**5200MHz\_TX**

 EUT Y\_1TX  
 Setting 16  
 02-A-E-2-10

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	5.1348G	63.02	74.00	-10.98	53.90	3	Horizontal	1	2.01	-	33.53	5.97	30.38	
AV	5.136G	48.79	54.00	-5.21	39.66	3	Horizontal	1	2.01	-	33.54	5.97	30.38	
PK	5.2004G	116.01	Inf	-Inf	106.81	3	Horizontal	1	2.01	-	33.60	6.00	30.40	
AV	5.2032G	105.56	Inf	-Inf	96.35	3	Horizontal	1	2.01	-	33.61	6.00	30.40	

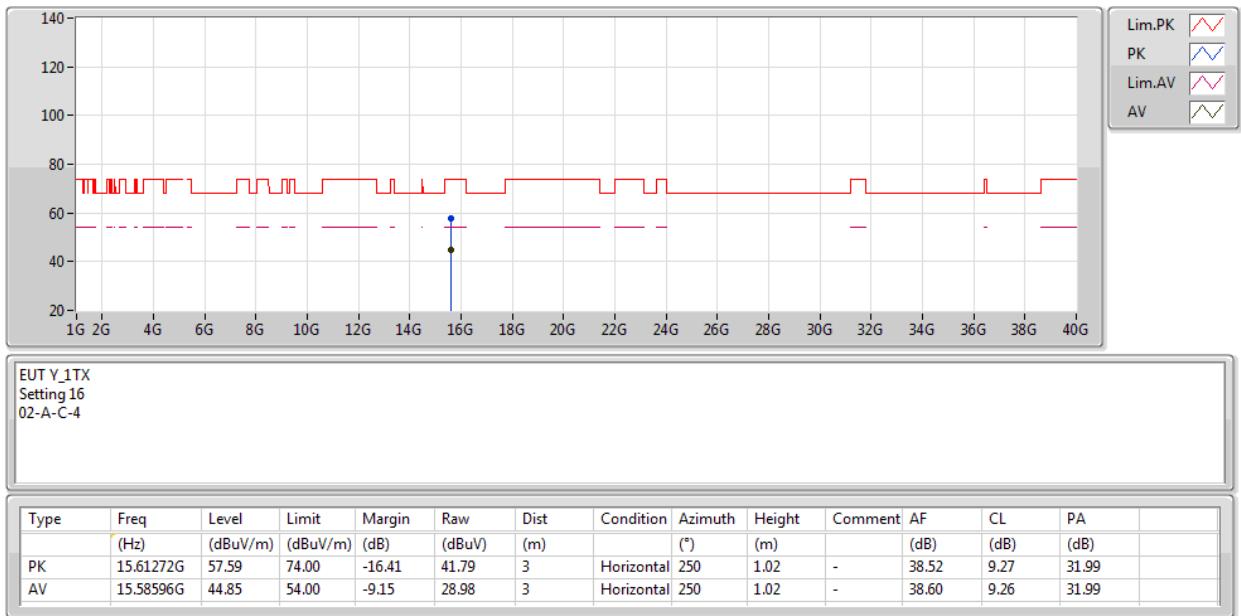
**802.11a\_Nss1,(6Mbps)\_1TX**

06/01/2020

**5200MHz\_TX**


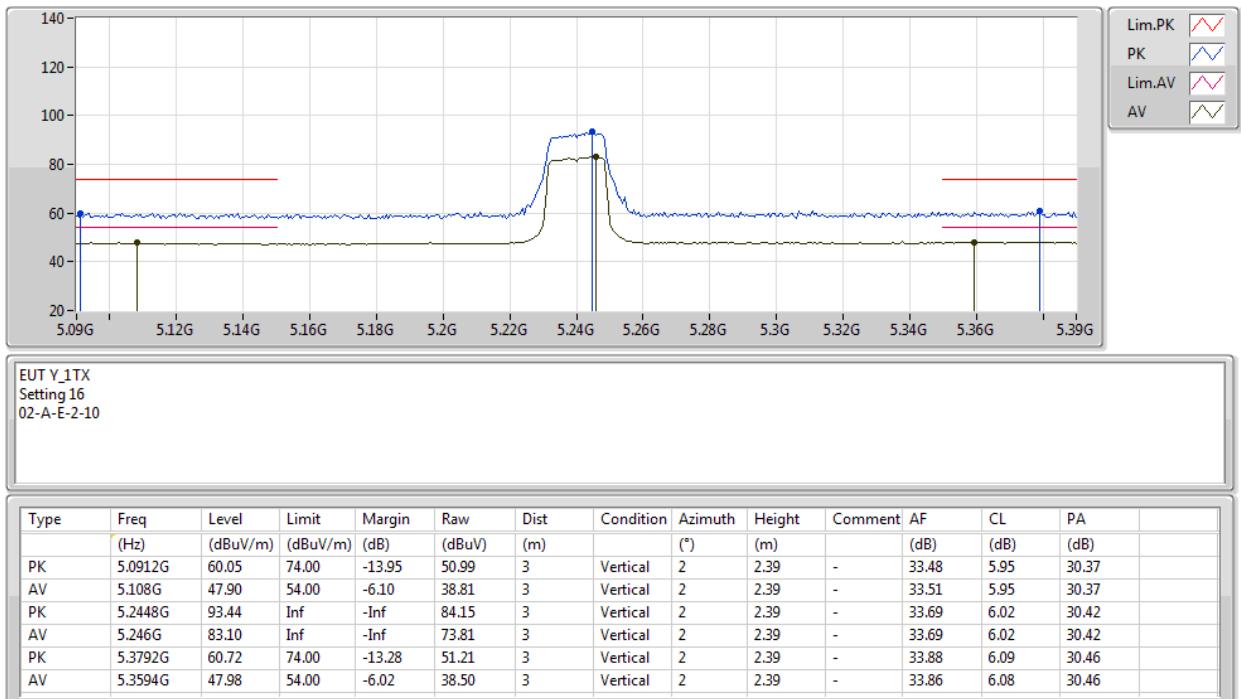
**802.11a\_Nss1,(6Mbps)\_1TX**

06/01/2020

**5200MHz\_TX**


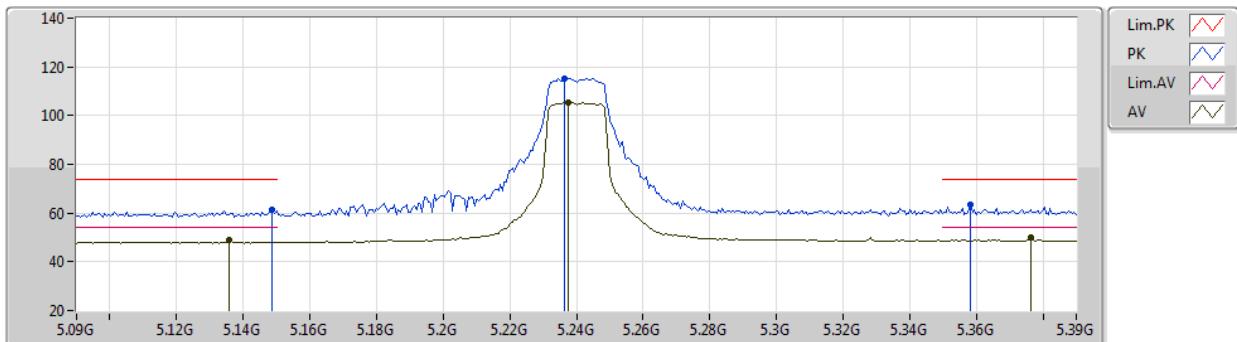
**802.11a\_Nss1,(6Mbps)\_1TX**

06/01/2020

**5240MHz\_TX**


**802.11a\_Nss1,(6Mbps)\_1TX**

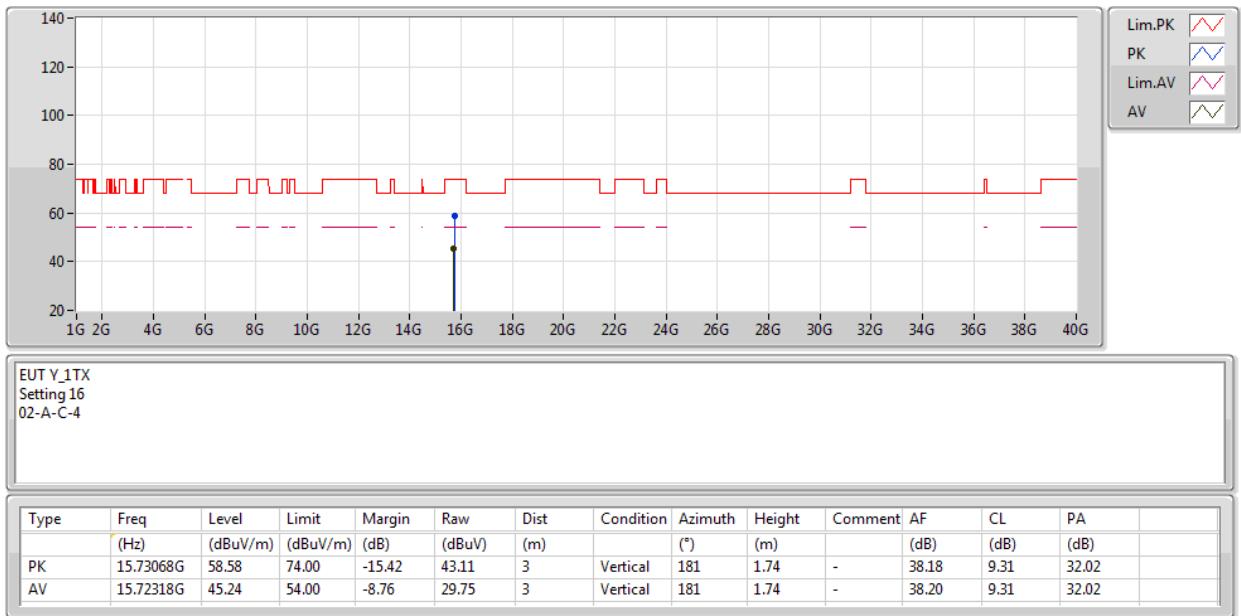
06/01/2020

**5240MHz\_TX**

 EUT Y\_1TX  
 Setting 16  
 02-A-E-2-10

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	5.1488G	61.53	74.00	-12.47	52.39	3	Horizontal	1	1.96	-	33.55	5.97	30.38	
AV	5.1356G	48.81	54.00	-5.19	39.68	3	Horizontal	1	1.96	-	33.54	5.97	30.38	
PK	5.2364G	115.42	Inf	-Inf	106.14	3	Horizontal	1	1.96	-	33.67	6.02	30.41	
AV	5.2376G	105.24	Inf	-Inf	95.96	3	Horizontal	1	1.96	-	33.68	6.02	30.42	
PK	5.3582G	63.44	74.00	-10.56	53.96	3	Horizontal	1	1.96	-	33.86	6.08	30.46	
AV	5.3762G	49.90	54.00	-4.10	40.39	3	Horizontal	1	1.96	-	33.88	6.09	30.46	

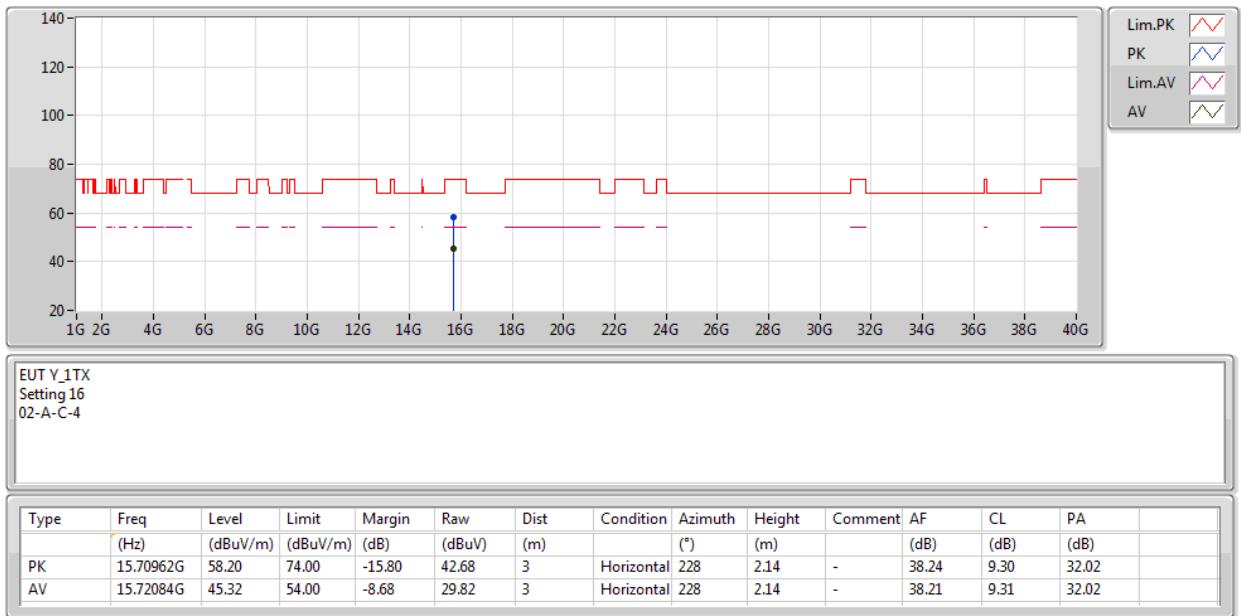
**802.11a\_Nss1,(6Mbps)\_1TX**

06/01/2020

**5240MHz\_TX**


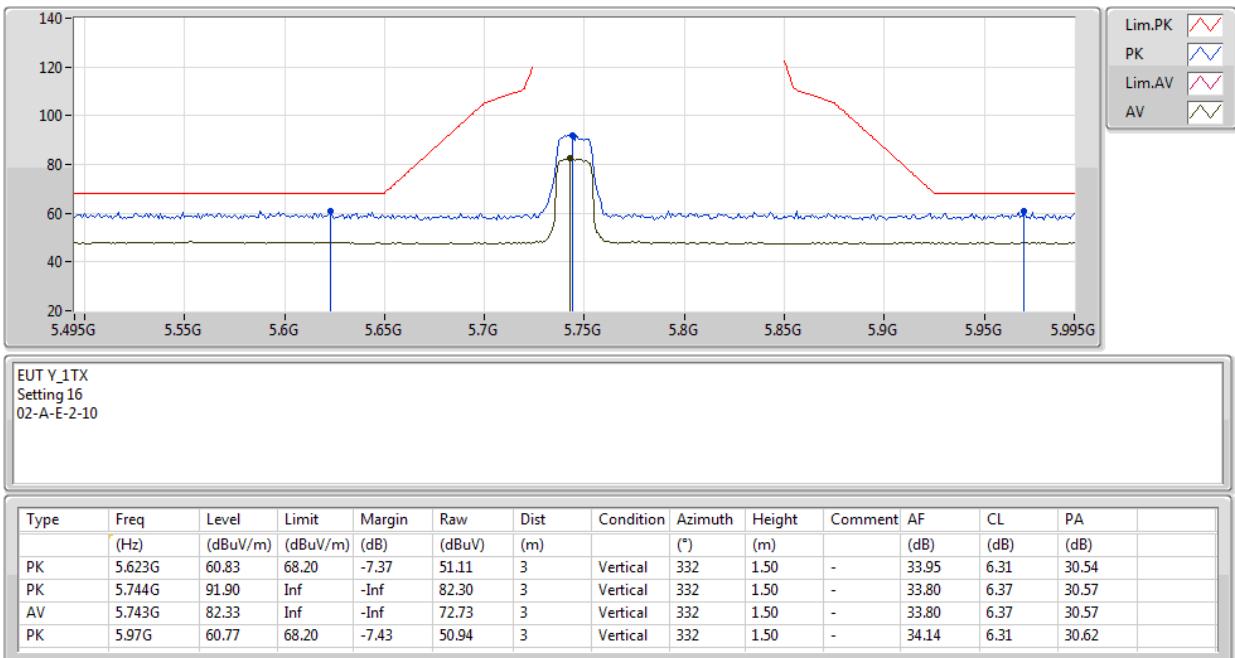
**802.11a\_Nss1,(6Mbps)\_1TX**

06/01/2020

**5240MHz\_TX**


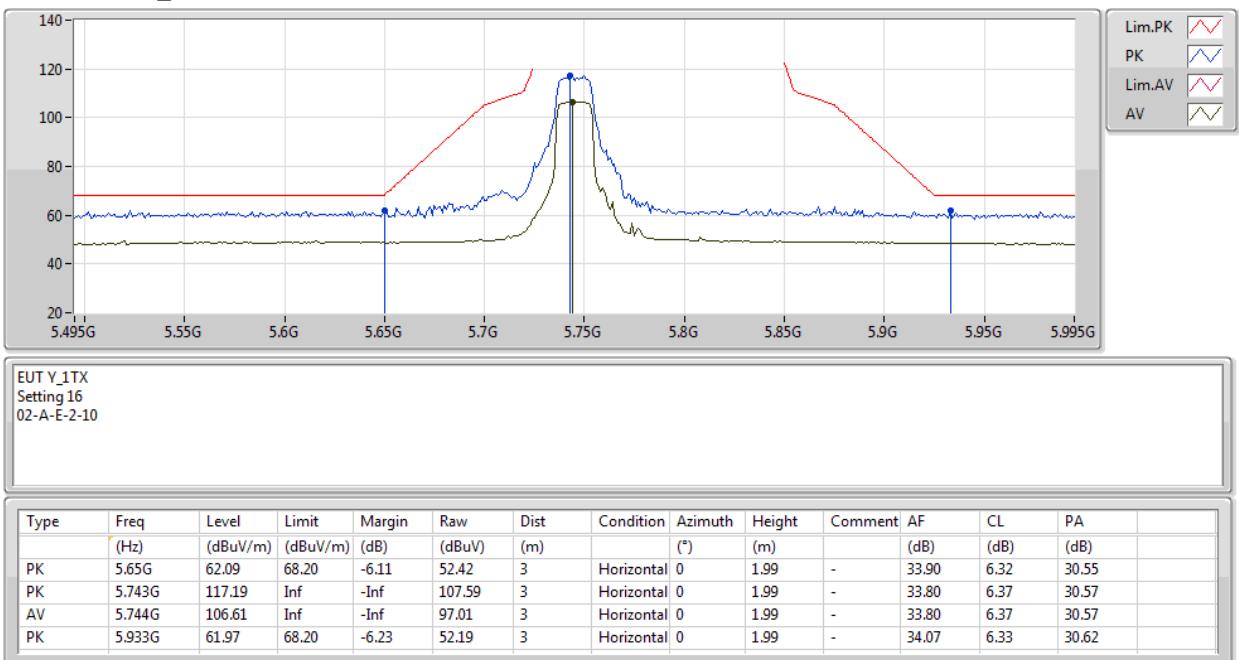
**802.11a\_Nss1,(6Mbps)\_1TX**

06/01/2020

**5745MHz\_TX**


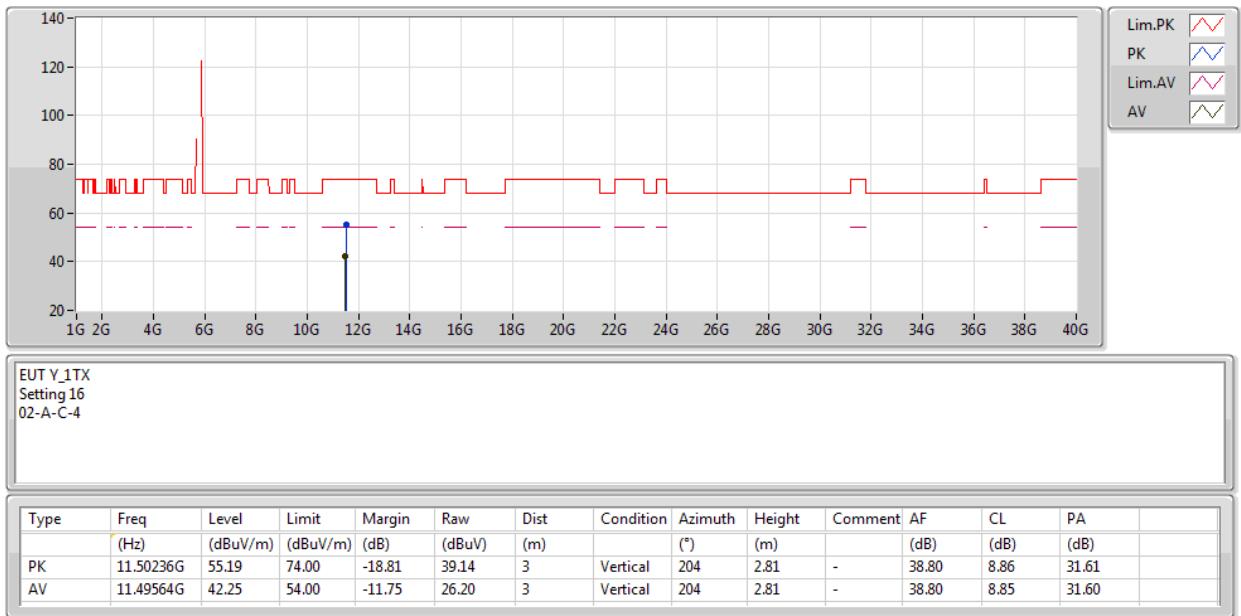
**802.11a\_Nss1,(6Mbps)\_1TX**

06/01/2020

**5745MHz\_TX**


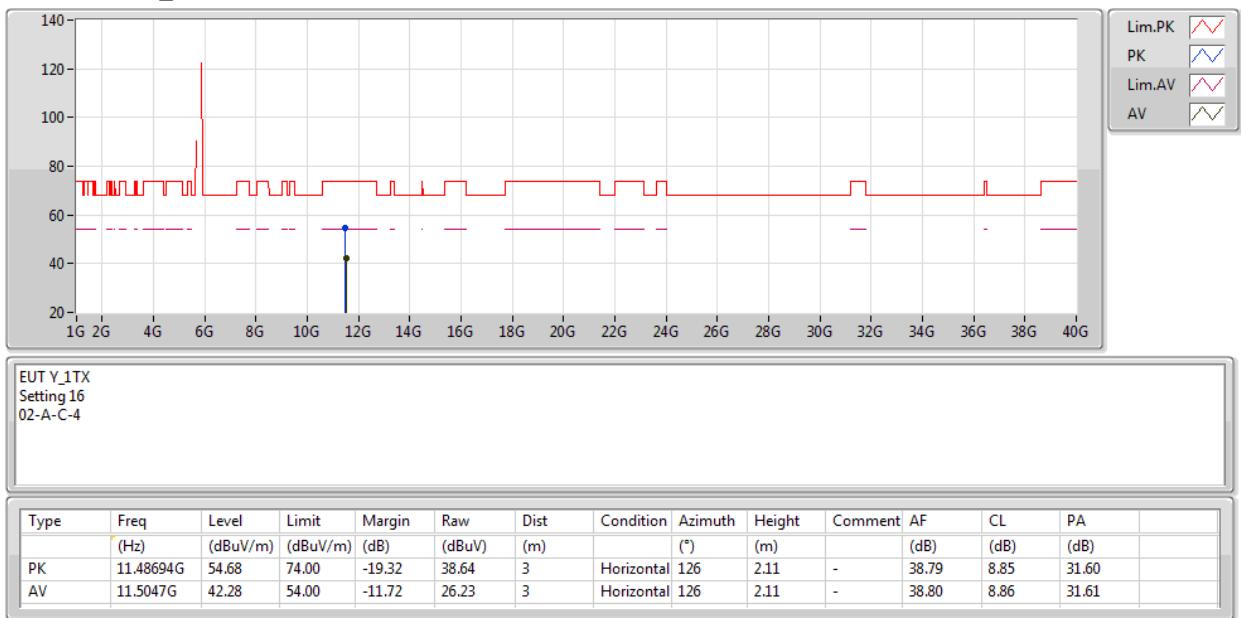
**802.11a\_Nss1,(6Mbps)\_1TX**

06/01/2020

**5745MHz\_TX**


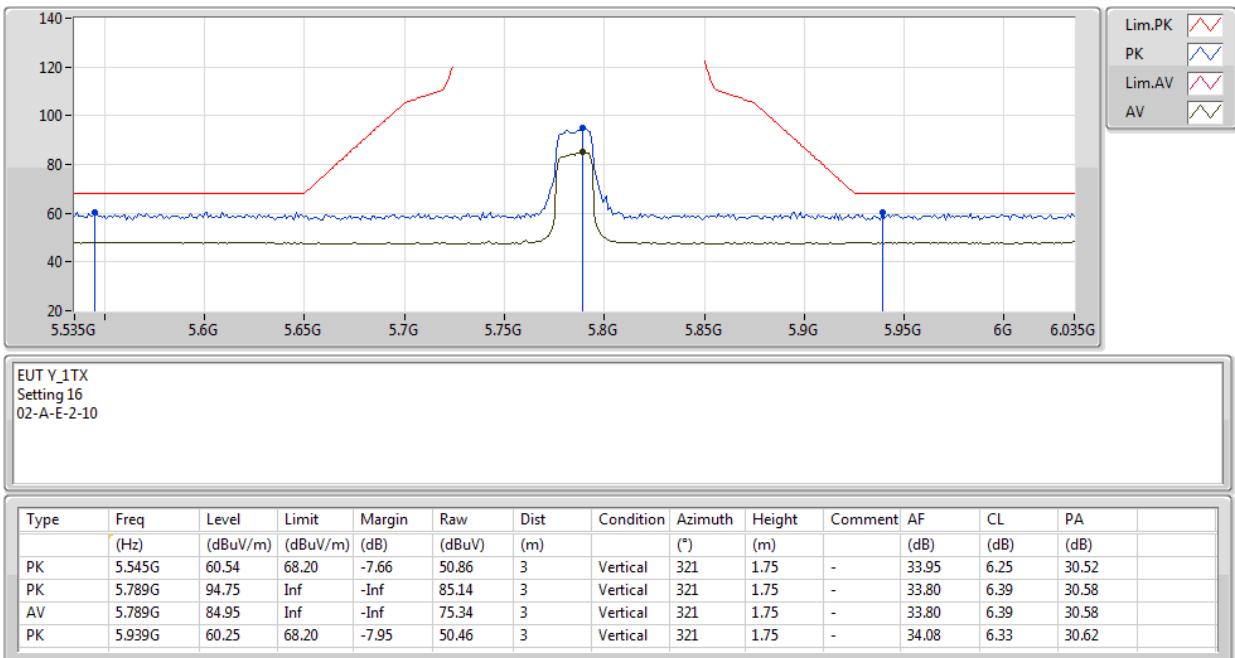
**802.11a\_Nss1,(6Mbps)\_1TX**

06/01/2020

**5745MHz\_TX**


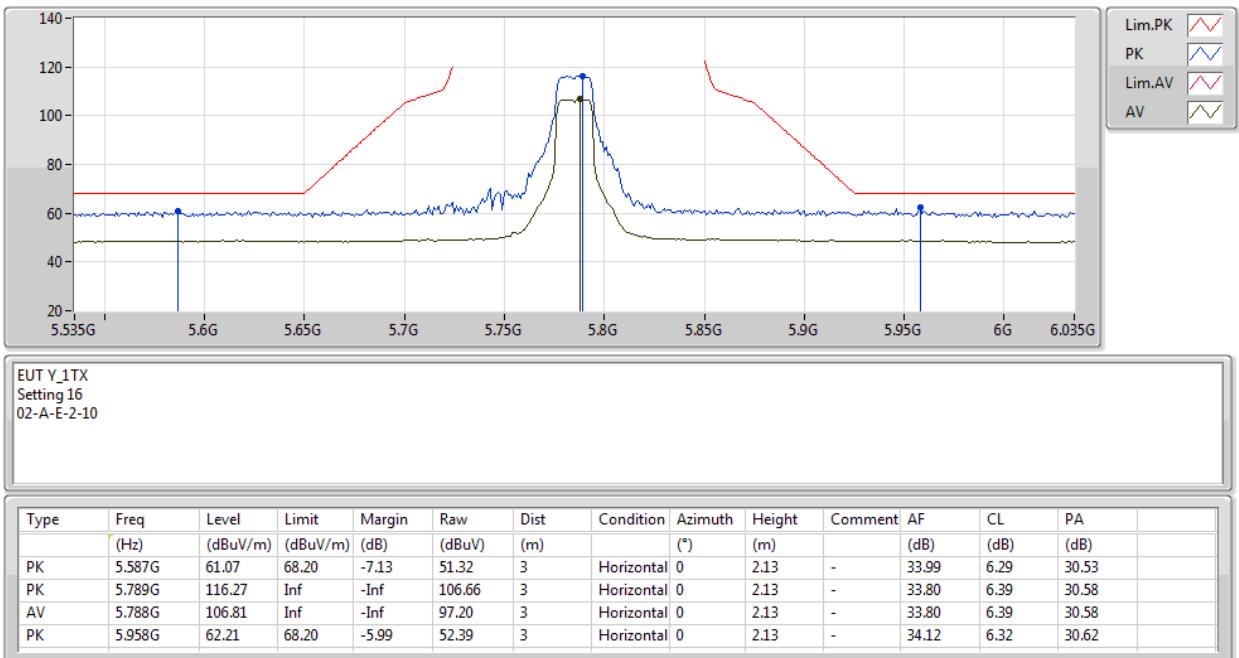
**802.11a\_Nss1,(6Mbps)\_1TX**

06/01/2020

**5785MHz\_TX**


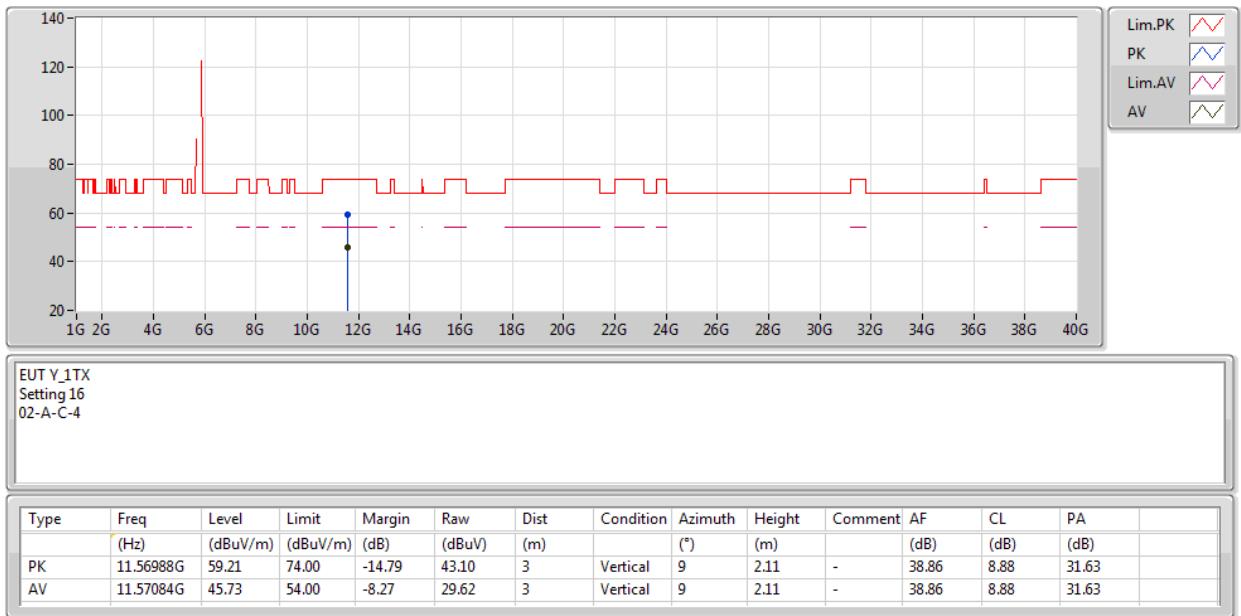
**802.11a\_Nss1,(6Mbps)\_1TX**

06/01/2020

**5785MHz\_TX**


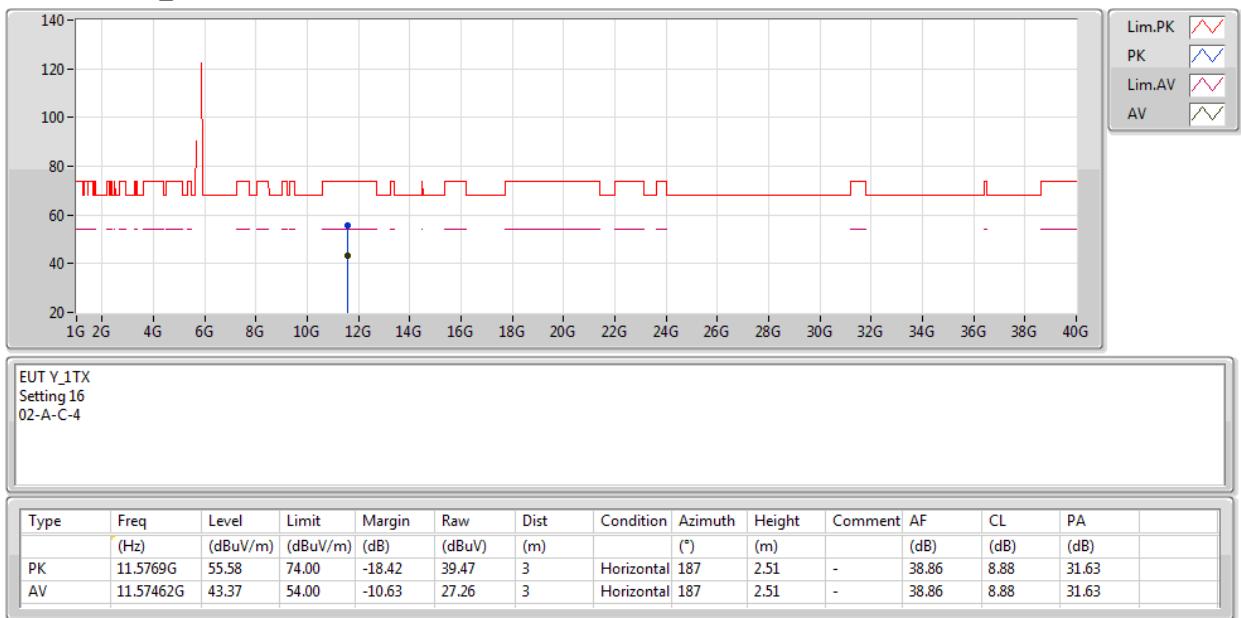
**802.11a\_Nss1,(6Mbps)\_1TX**

06/01/2020

**5785MHz\_TX**


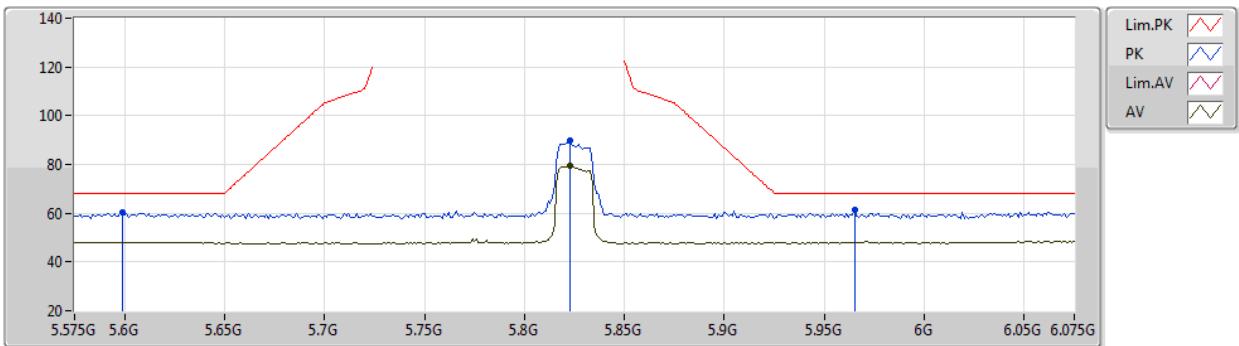
**802.11a\_Nss1,(6Mbps)\_1TX**

06/01/2020

**5785MHz\_TX**


**802.11a\_Nss1,(6Mbps)\_1TX**

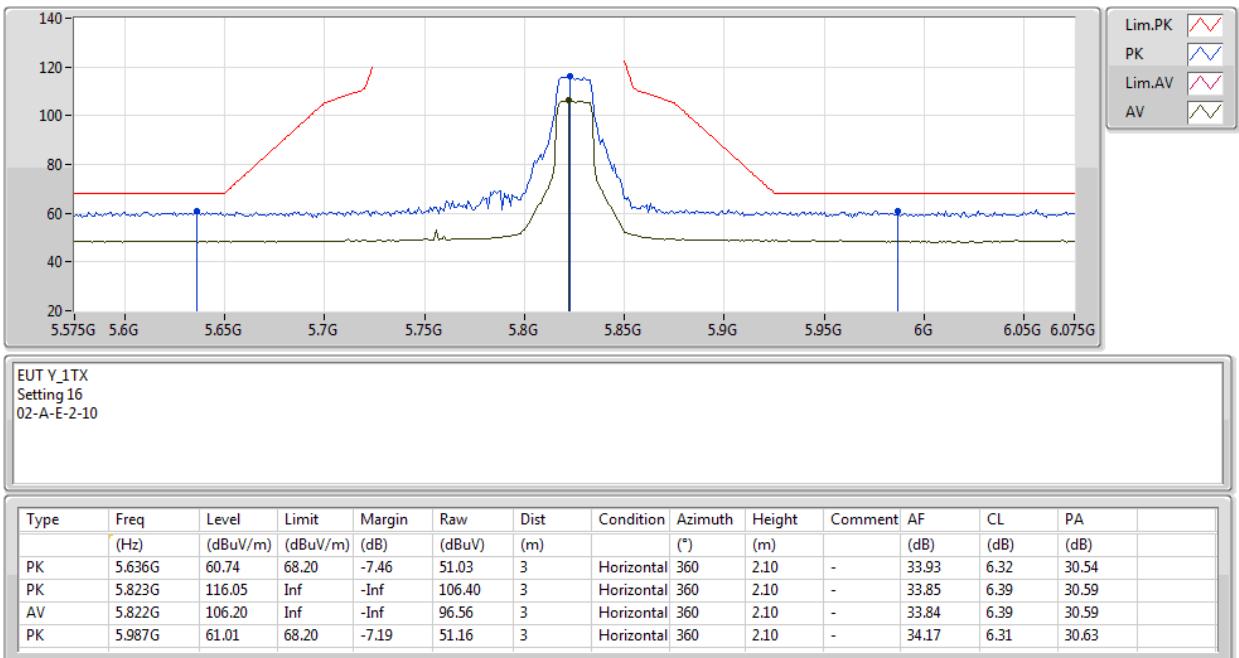
06/01/2020

**5825MHz\_TX**

 EUT Y\_1TX  
 Setting 16  
 02-A-E-2-10

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	5.599G	60.58	68.20	-7.62	50.81	3	Vertical	360	2.10	-	34.00	6.30	30.53	
PK	5.823G	89.68	Inf	-Inf	80.03	3	Vertical	360	2.10	-	33.85	6.39	30.59	
AV	5.823G	79.29	Inf	-Inf	69.64	3	Vertical	360	2.10	-	33.85	6.39	30.59	
PK	5.965G	61.33	68.20	-6.87	51.50	3	Vertical	360	2.10	-	34.13	6.32	30.62	

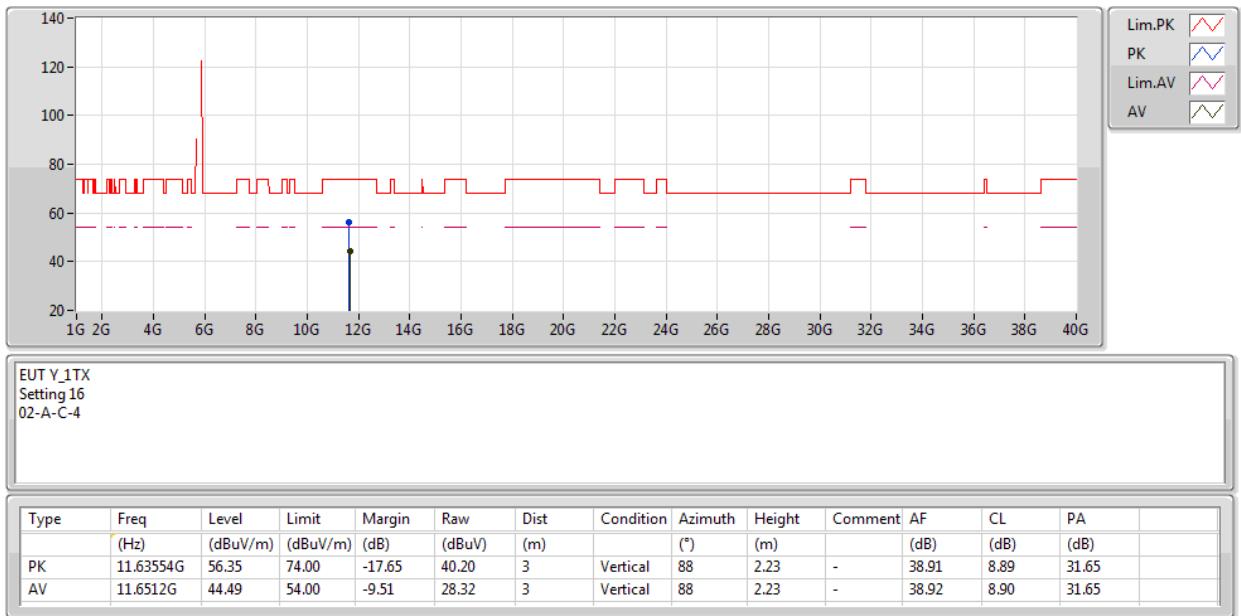
**802.11a\_Nss1,(6Mbps)\_1TX**

06/01/2020

**5825MHz\_TX**


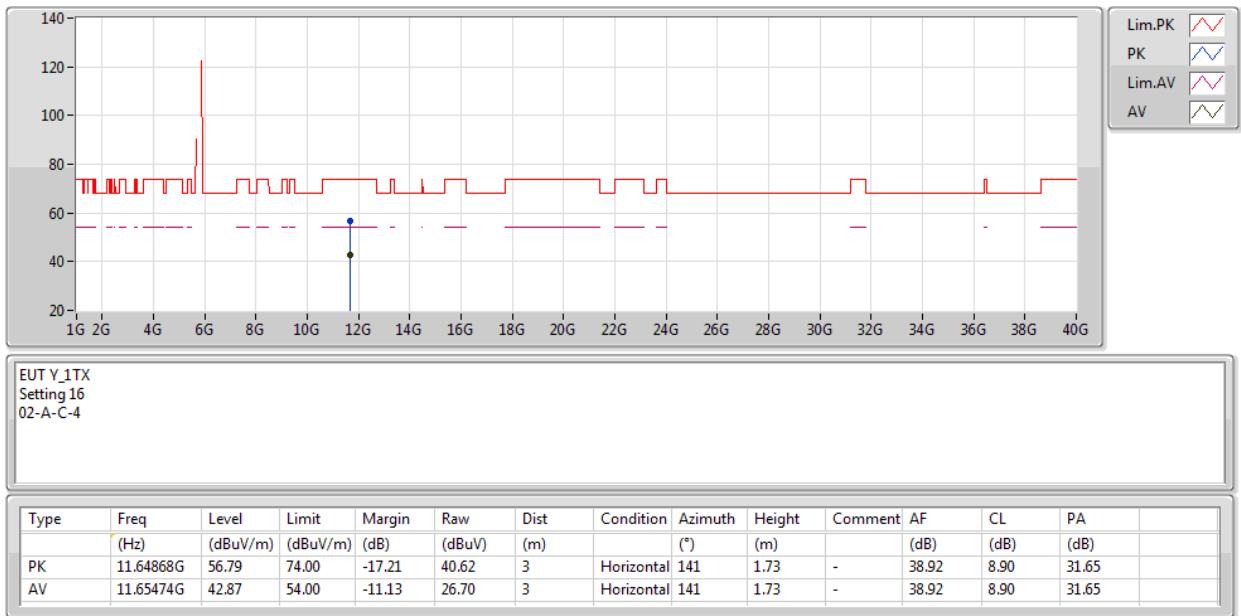
**802.11a\_Nss1,(6Mbps)\_1TX**

06/01/2020

**5825MHz\_TX**


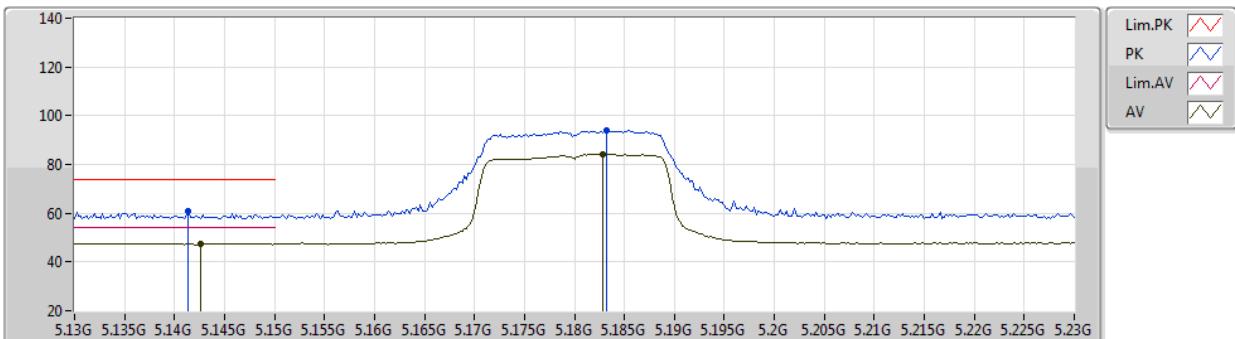
**802.11a\_Nss1,(6Mbps)\_1TX**

06/01/2020

**5825MHz\_TX**


**802.11ac VHT20\_Nss1,(MCS0)\_1TX**

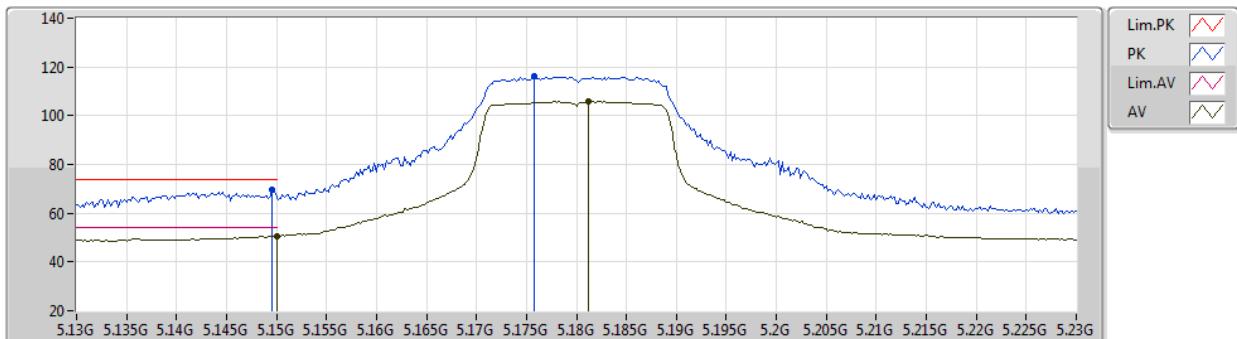
06/01/2020

**5180MHz\_TX**

 EUT Y\_1TX  
 Setting 16  
 02-A-E-2-10

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	5.1414G	60.63	74.00	-13.37	51.50	3	Vertical	6	2.31	-	33.54	5.97	30.38	
AV	5.1426G	47.60	54.00	-6.40	38.47	3	Vertical	6	2.31	-	33.54	5.97	30.38	
PK	5.1832G	93.79	Inf	-Inf	84.61	3	Vertical	6	2.31	-	33.58	5.99	30.39	
AV	5.1828G	84.08	Inf	-Inf	74.90	3	Vertical	6	2.31	-	33.58	5.99	30.39	

**802.11ac VHT20\_Nss1,(MCS0)\_1TX**

06/01/2020

**5180MHz\_TX**

 EUT Y\_1TX  
 Setting 16  
 02-A-E-2-10

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	5.1496G	69.44	74.00	-4.56	60.30	3	Horizontal	0	1.80	-	33.55	5.97	30.38	
AV	5.15G	50.68	54.00	-3.32	41.54	3	Horizontal	0	1.80	-	33.55	5.97	30.38	
PK	5.1758G	115.97	Inf	-Inf	106.79	3	Horizontal	0	1.80	-	33.58	5.99	30.39	
AV	5.1812G	105.72	Inf	-Inf	96.54	3	Horizontal	0	1.80	-	33.58	5.99	30.39	

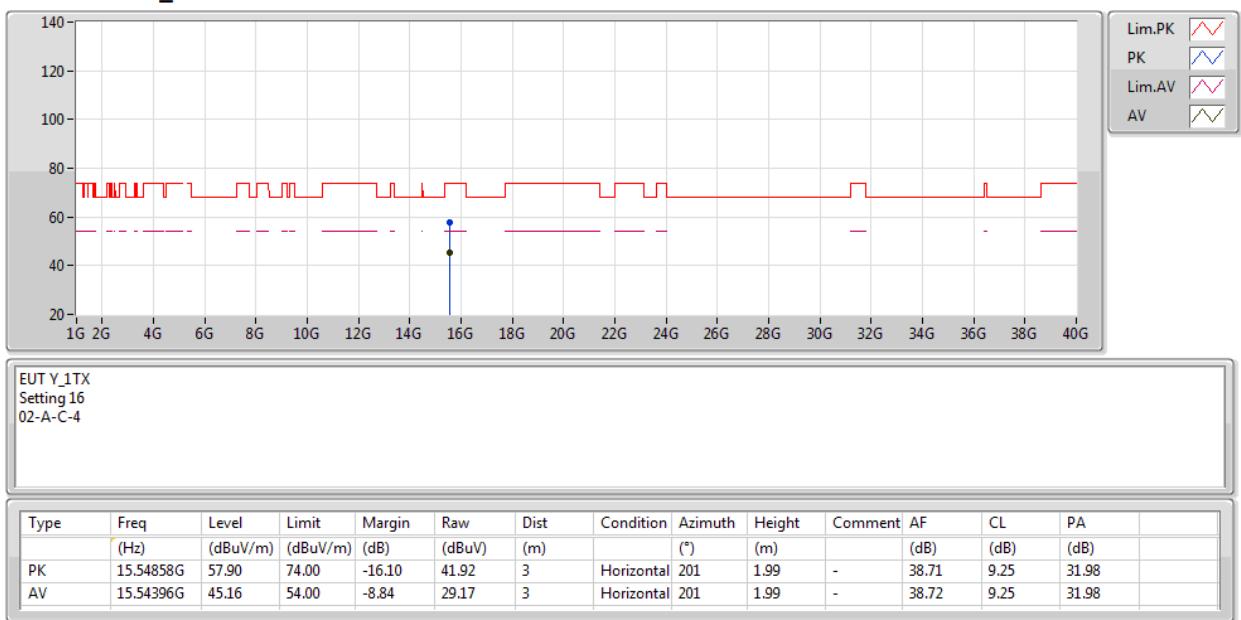
**802.11ac VHT20\_Nss1,(MCS0)\_1TX**

06/01/2020

**5180MHz\_TX**

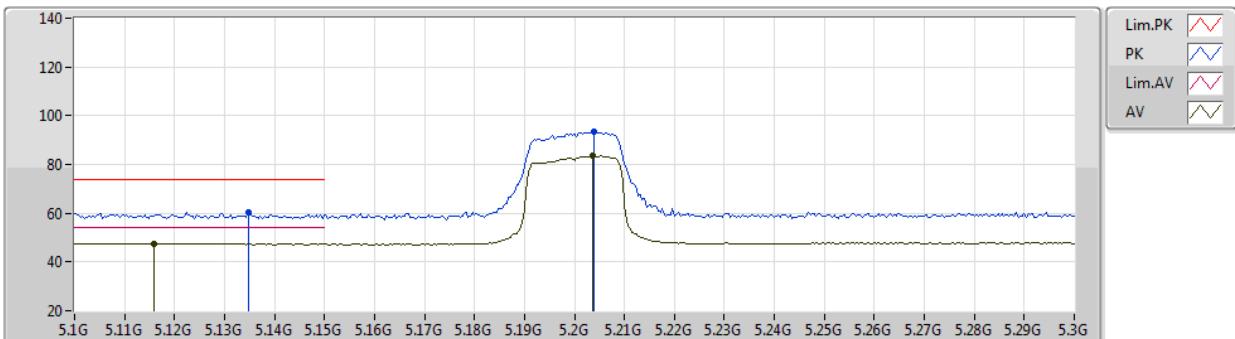

**802.11ac VHT20\_Nss1,(MCS0)\_1TX**

06/01/2020

**5180MHz\_TX**


**802.11ac VHT20\_Nss1,(MCS0)\_1TX**

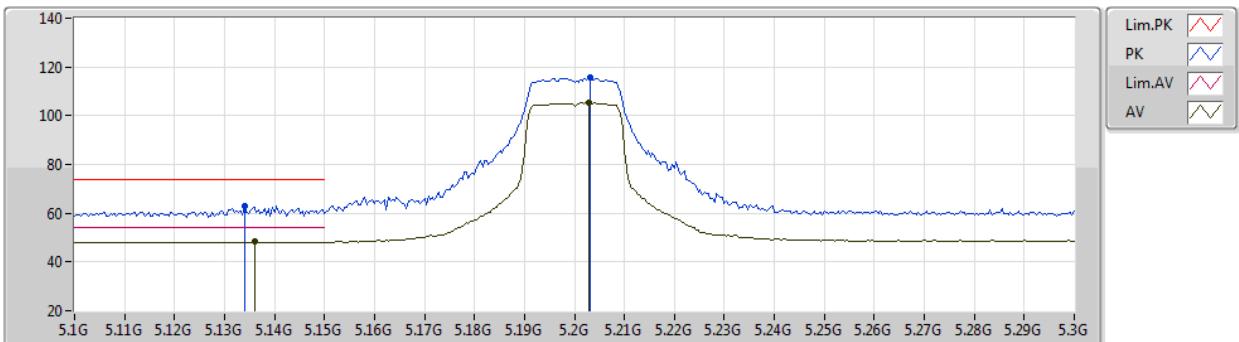
06/01/2020

**5200MHz\_TX**

 EUT Y\_1TX  
 Setting 16  
 02-A-E-2-10

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	5.1348G	60.60	74.00	-13.40	51.48	3	Vertical	14	2.42	-	33.53	5.97	30.38	
AV	5.116G	47.65	54.00	-6.35	38.54	3	Vertical	14	2.42	-	33.52	5.96	30.37	
PK	5.204G	93.22	Inf	-Inf	84.01	3	Vertical	14	2.42	-	33.61	6.00	30.40	
AV	5.2036G	83.52	Inf	-Inf	74.31	3	Vertical	14	2.42	-	33.61	6.00	30.40	

**802.11ac VHT20\_Nss1,(MCS0)\_1TX**

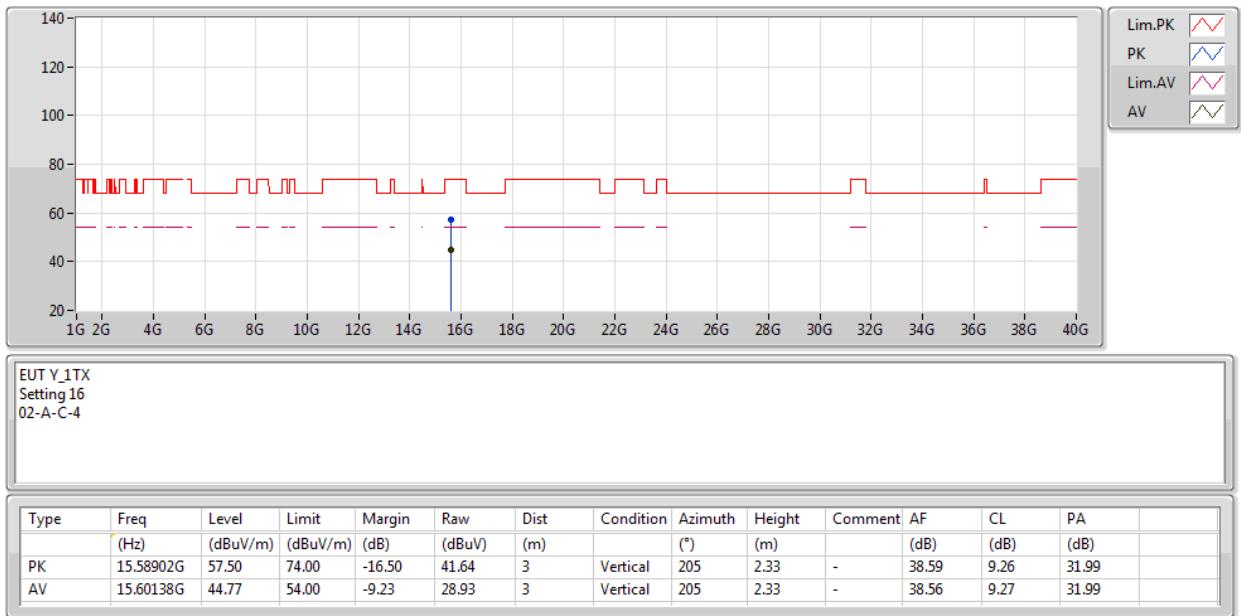
06/01/2020

**5200MHz\_TX**

 EUT Y\_1TX  
 Setting 16  
 02-A-E-2-10

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	5.134G	62.96	74.00	-11.04	53.84	3	Horizontal	0	2.02	-	33.53	5.97	30.38	
AV	5.136G	48.47	54.00	-5.53	39.34	3	Horizontal	0	2.02	-	33.54	5.97	30.38	
PK	5.2032G	115.66	Inf	-Inf	106.45	3	Horizontal	0	2.02	-	33.61	6.00	30.40	
AV	5.2028G	105.17	Inf	-Inf	95.96	3	Horizontal	0	2.02	-	33.61	6.00	30.40	

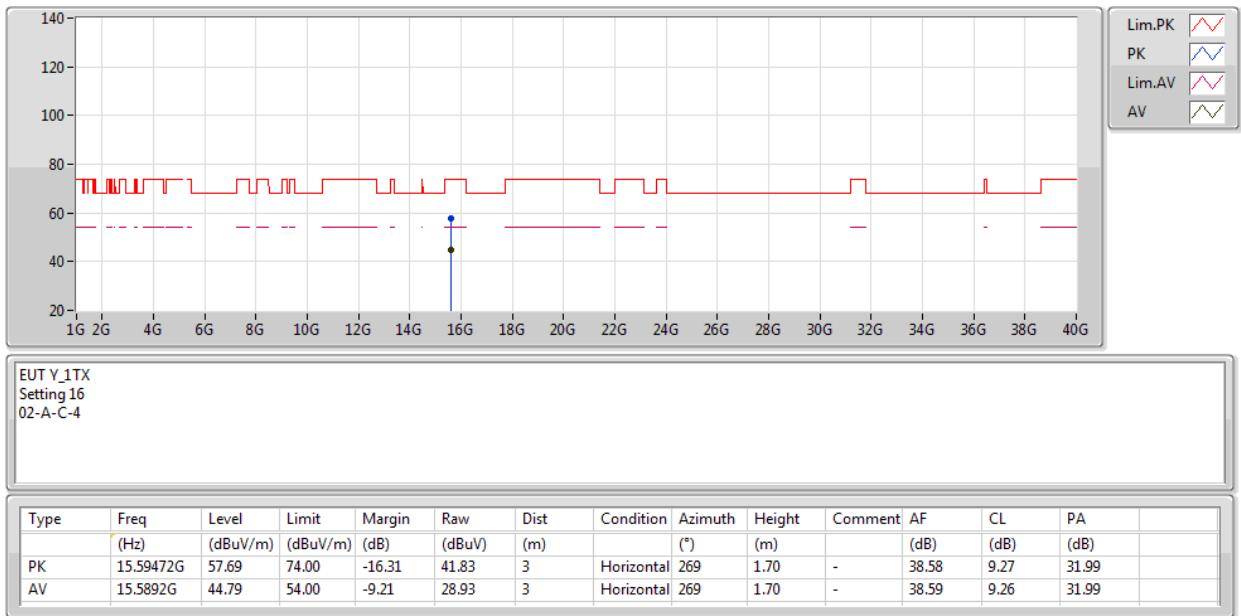
**802.11ac VHT20\_Nss1,(MCS0)\_1TX**

06/01/2020

**5200MHz\_TX**


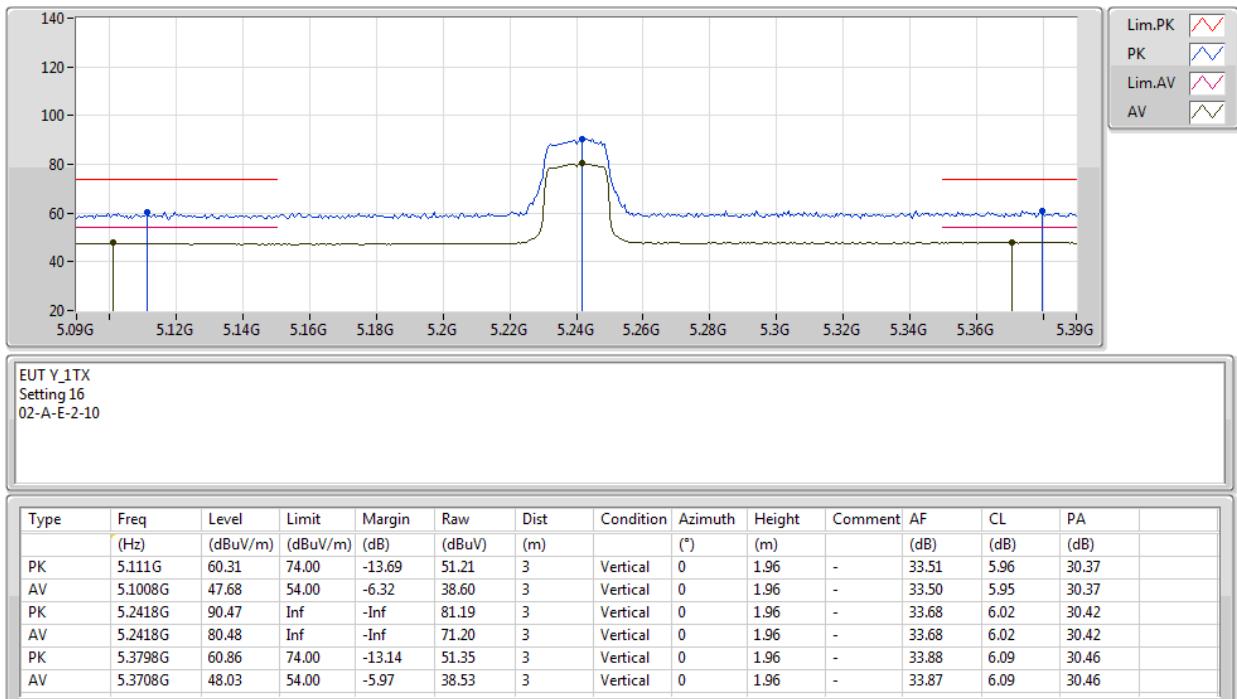
**802.11ac VHT20\_Nss1,(MCS0)\_1TX**

06/01/2020

**5200MHz\_TX**


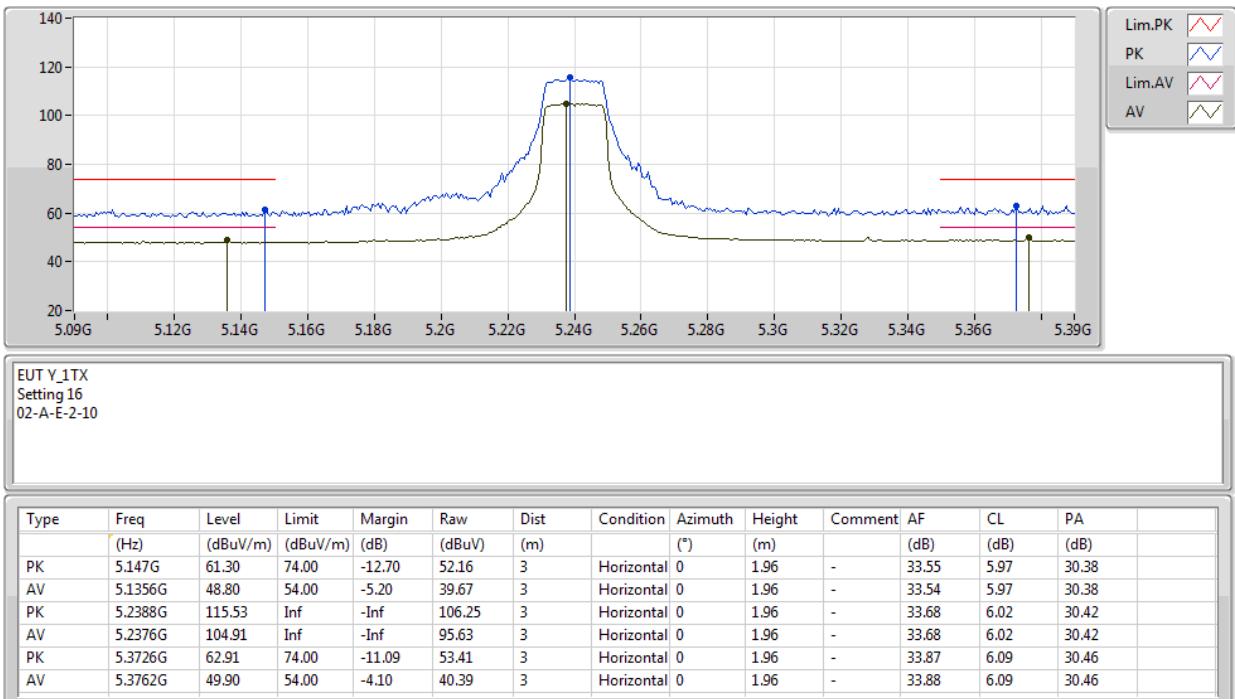
**802.11ac VHT20\_Nss1,(MCS0)\_1TX**

06/01/2020

**5240MHz\_TX**


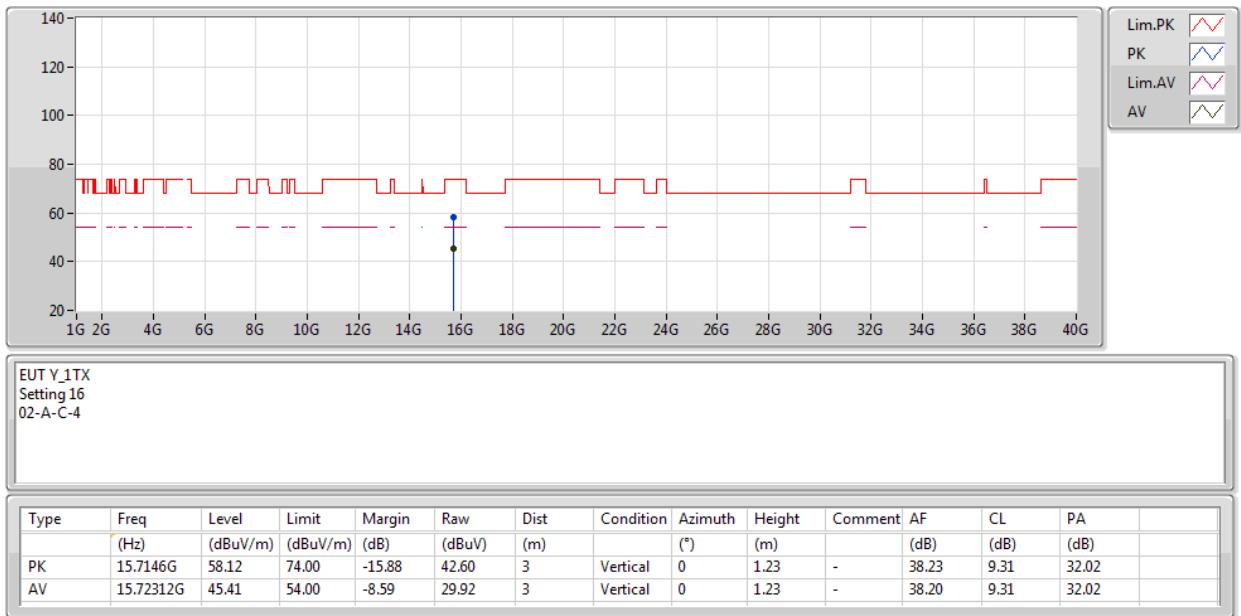
**802.11ac VHT20\_Nss1,(MCS0)\_1TX**

06/01/2020

**5240MHz\_TX**


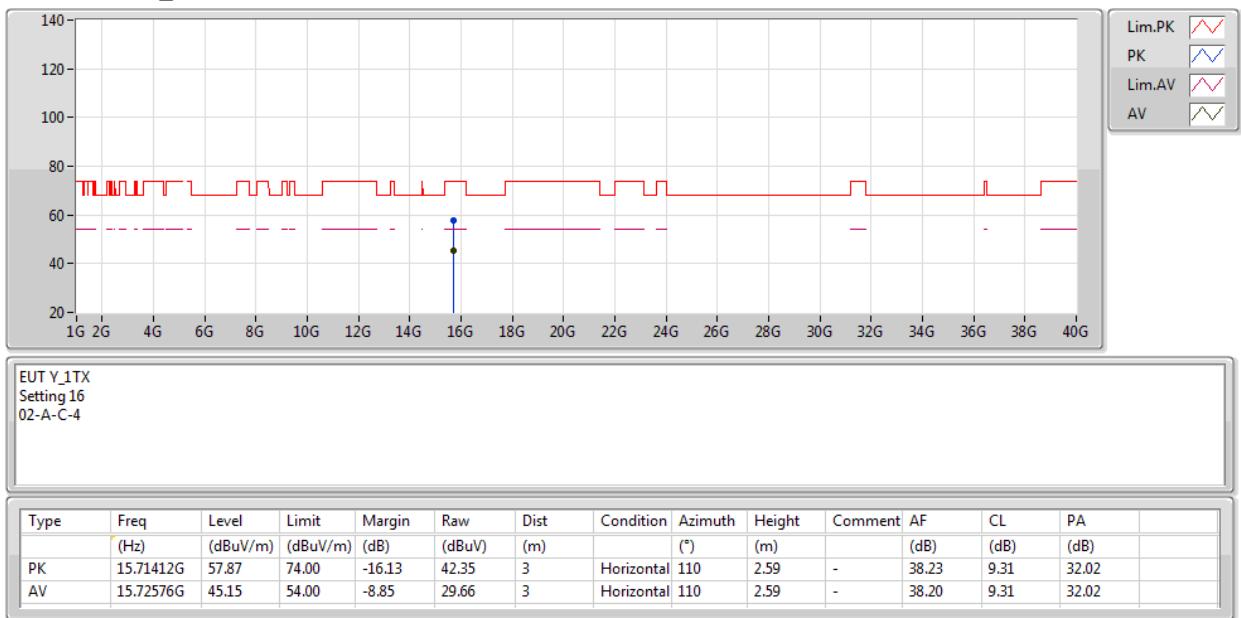
**802.11ac VHT20\_Nss1,(MCS0)\_1TX**

06/01/2020

**5240MHz\_TX**


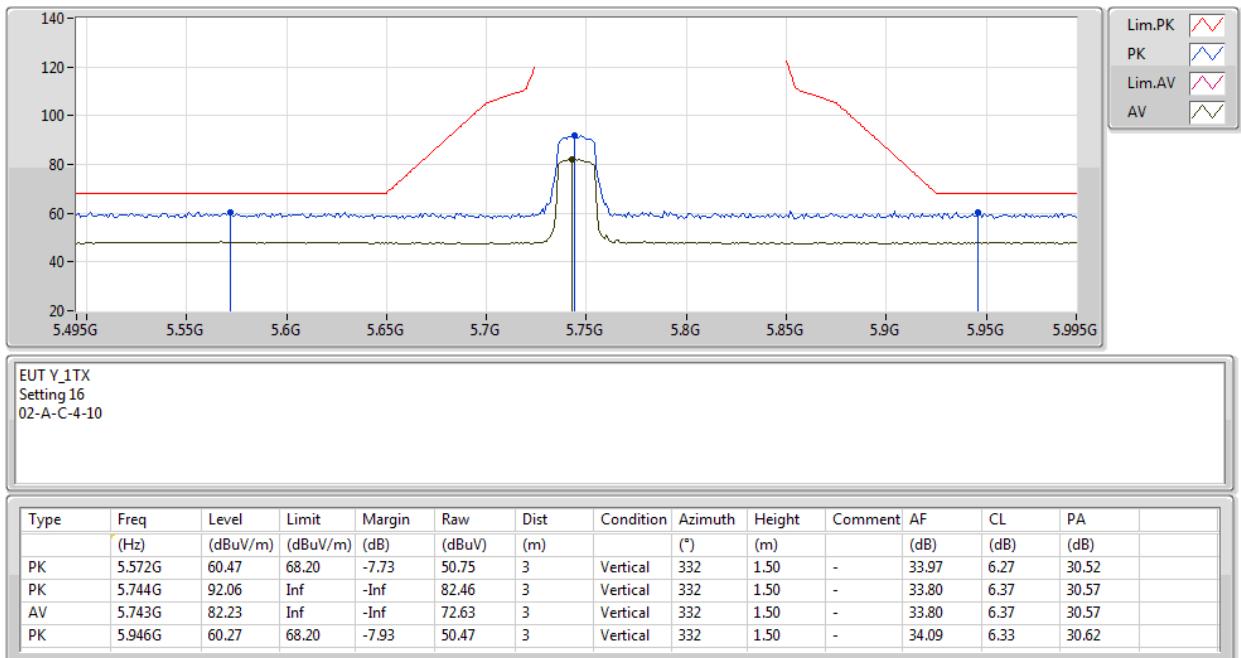
**802.11ac VHT20\_Nss1,(MCS0)\_1TX**

06/01/2020

**5240MHz\_TX**


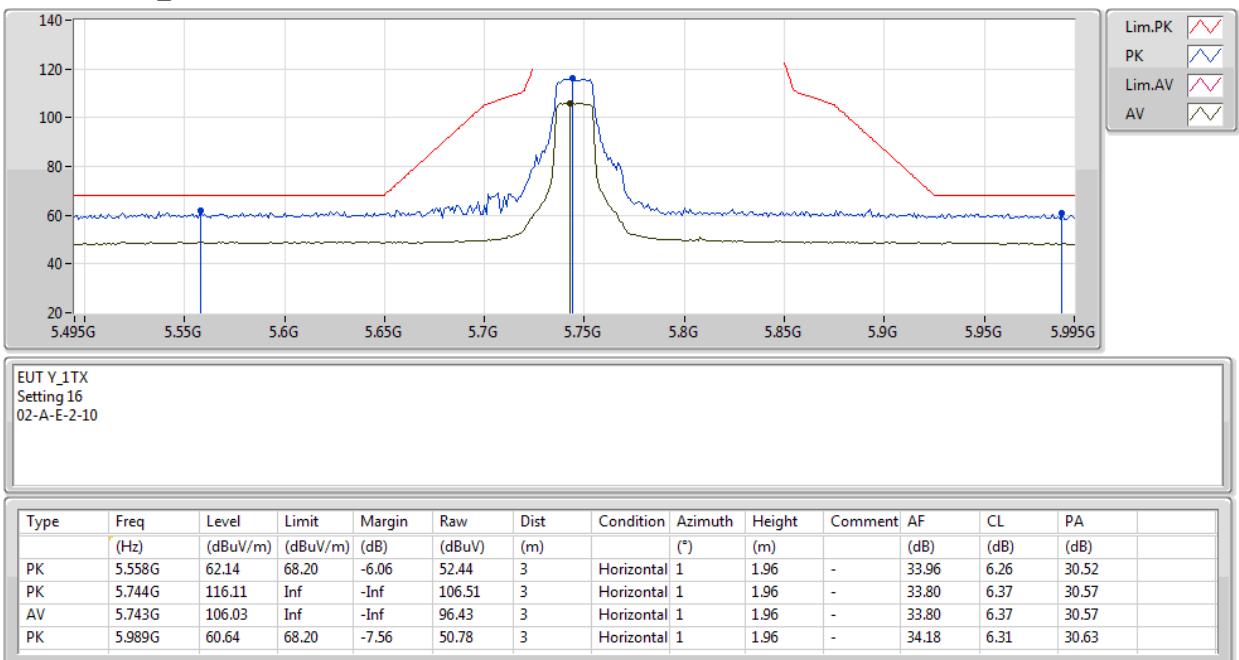
**802.11ac VHT20\_Nss1,(MCS0)\_1TX**

06/01/2020

**5745MHz\_TX**


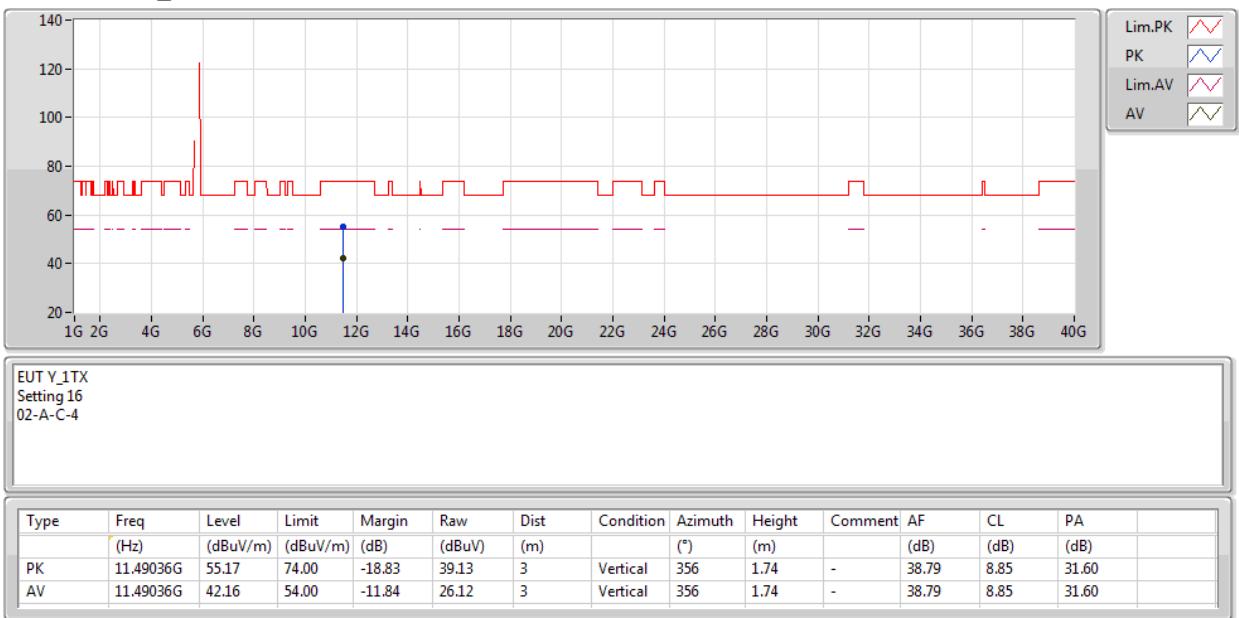
**802.11ac VHT20\_Nss1,(MCS0)\_1TX**

06/01/2020

**5745MHz\_TX**


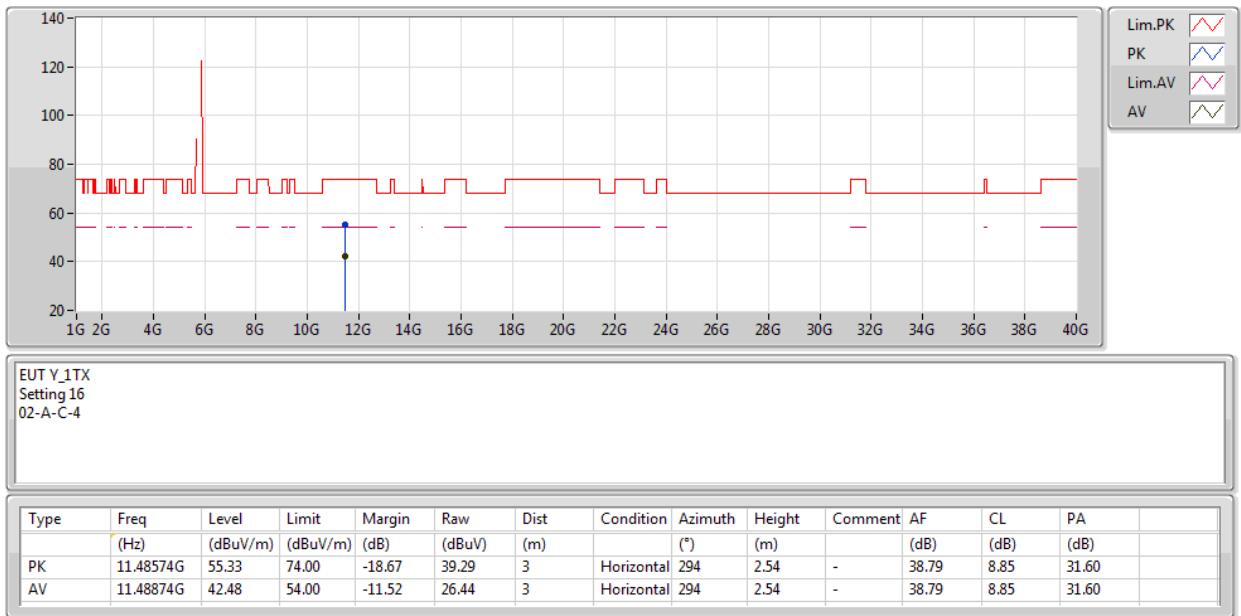
**802.11ac VHT20\_Nss1,(MCS0)\_1TX**

06/01/2020

**5745MHz\_TX**


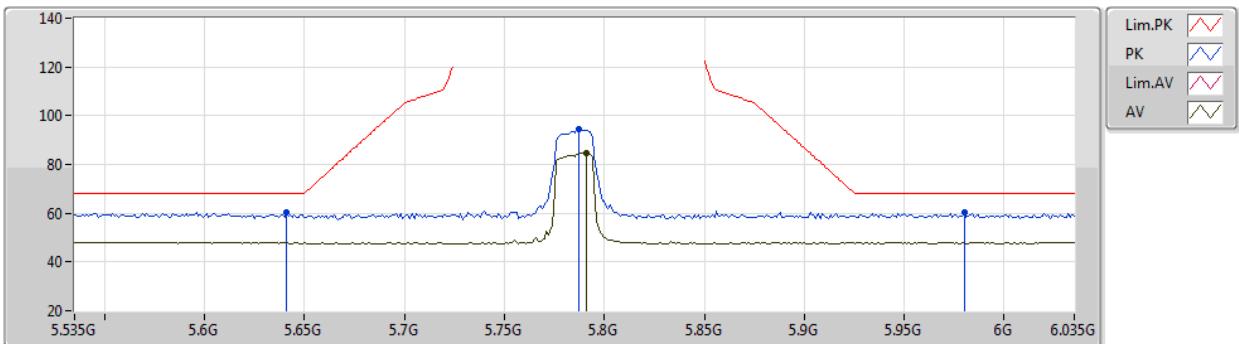
**802.11ac VHT20\_Nss1,(MCS0)\_1TX**

06/01/2020

**5745MHz\_TX**


**802.11ac VHT20\_Nss1,(MCS0)\_1TX**

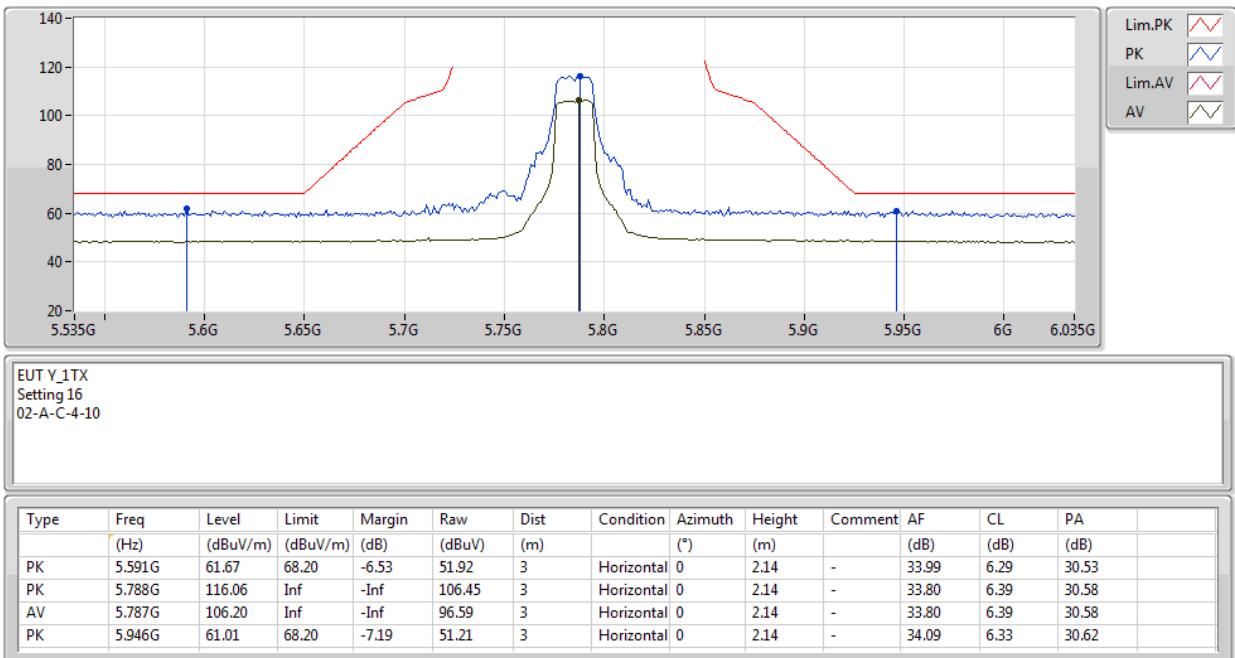
06/01/2020

**5785MHz\_TX**

 EUT Y\_1TX  
 Setting 16  
 02-A-C-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	5.641G	60.54	68.20	-7.66	50.84	3	Vertical	315	1.76	-	33.92	6.32	30.54	
PK	5.787G	94.28	Inf	-Inf	84.67	3	Vertical	315	1.76	-	33.80	6.39	30.58	
AV	5.791G	84.71	Inf	-Inf	75.09	3	Vertical	315	1.76	-	33.80	6.40	30.58	
PK	5.98G	60.39	68.20	-7.81	50.55	3	Vertical	315	1.76	-	34.16	6.31	30.63	

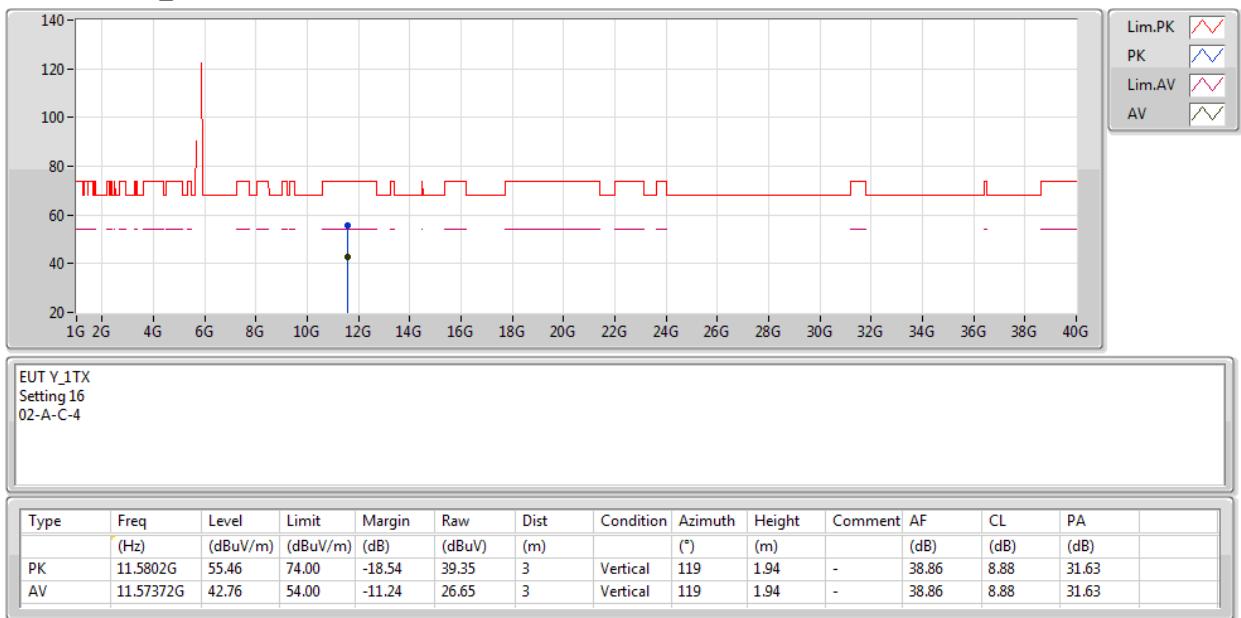
**802.11ac VHT20\_Nss1,(MCS0)\_1TX**

06/01/2020

**5785MHz\_TX**


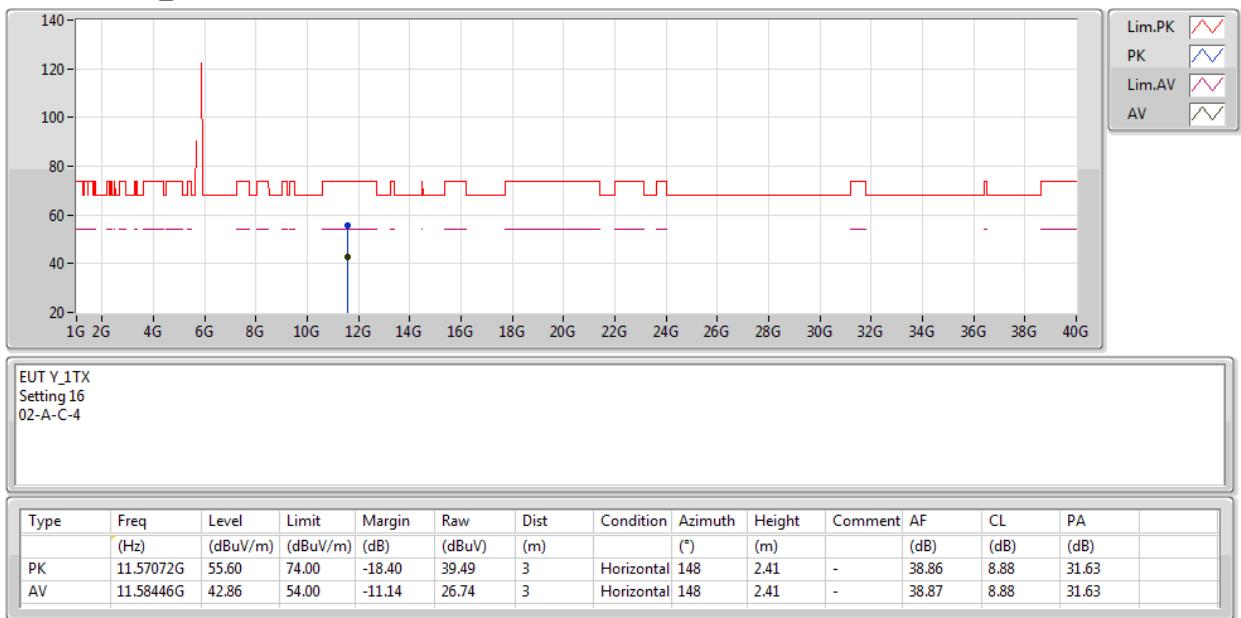
**802.11ac VHT20\_Nss1,(MCS0)\_1TX**

06/01/2020

**5785MHz\_TX**


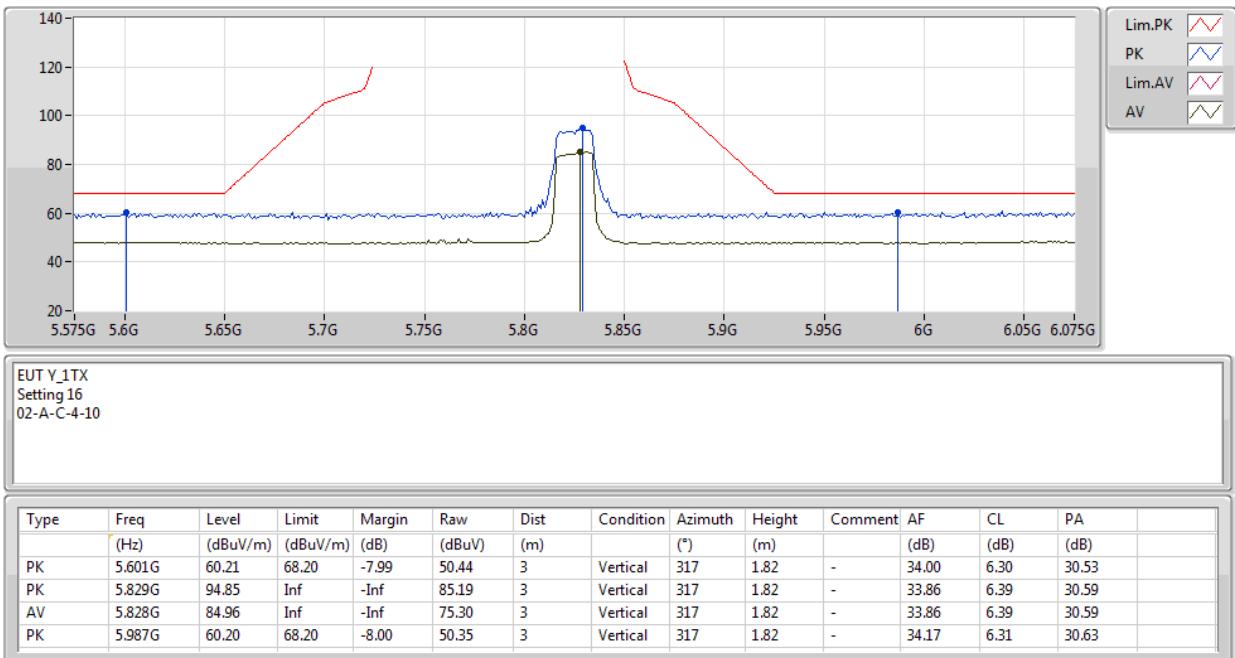
**802.11ac VHT20\_Nss1,(MCS0)\_1TX**

06/01/2020

**5785MHz\_TX**


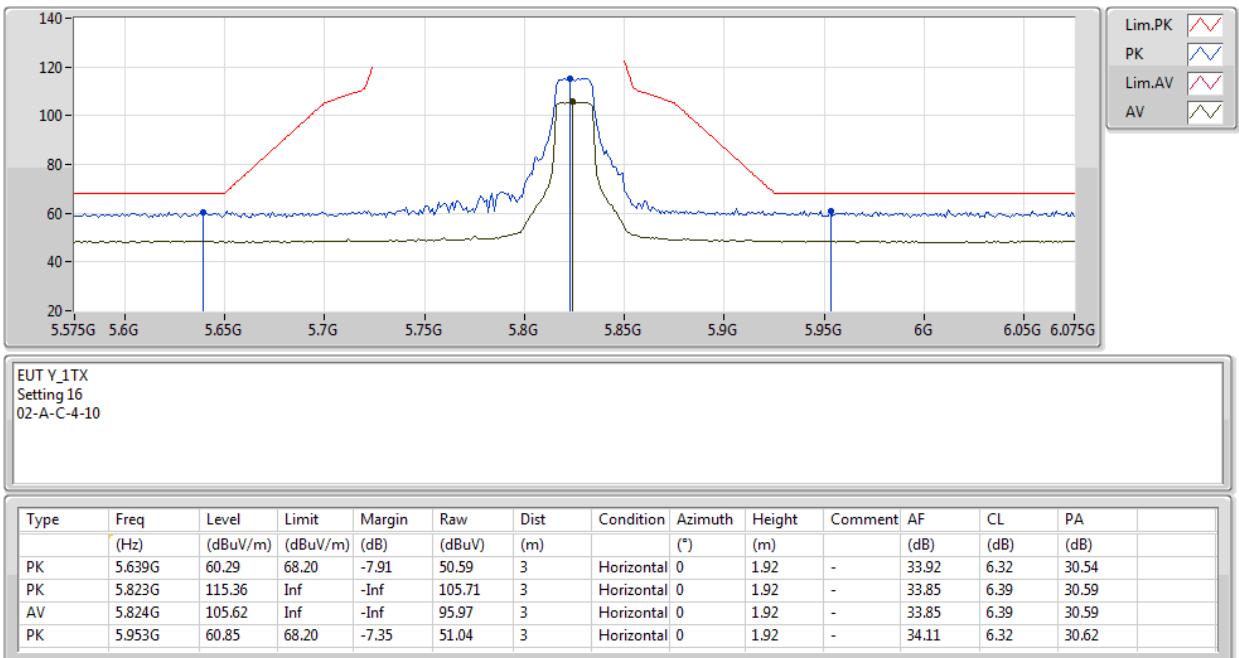
**802.11ac VHT20\_Nss1,(MCS0)\_1TX**

06/01/2020

**5825MHz\_TX**


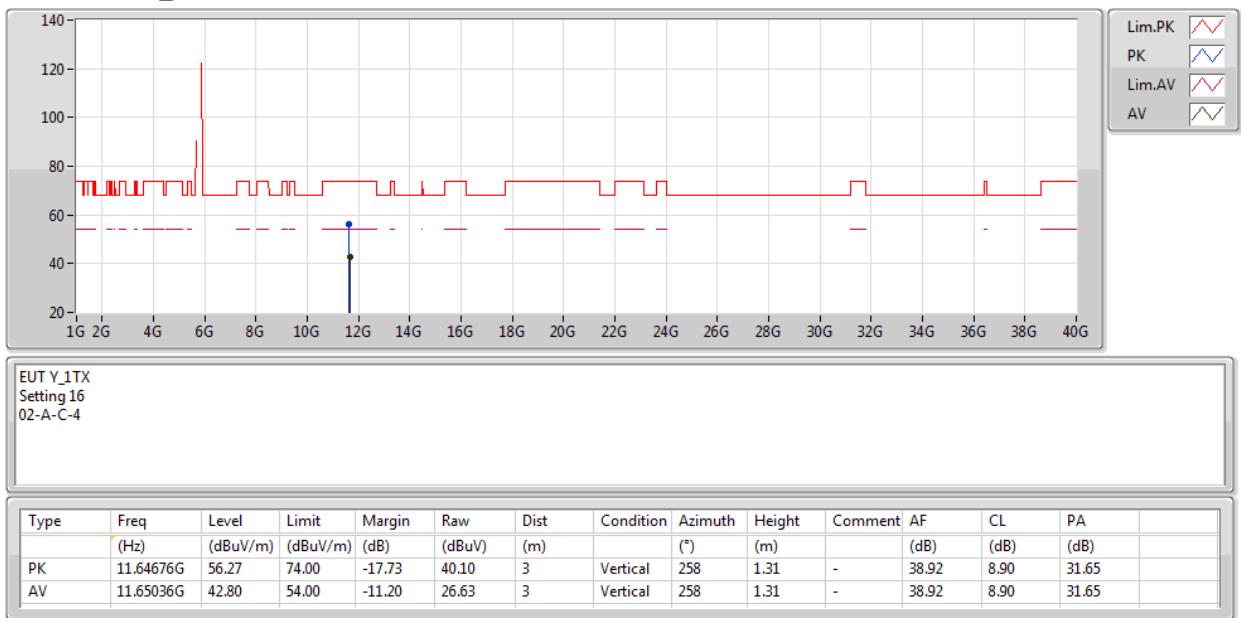
**802.11ac VHT20\_Nss1,(MCS0)\_1TX**

06/01/2020

**5825MHz\_TX**


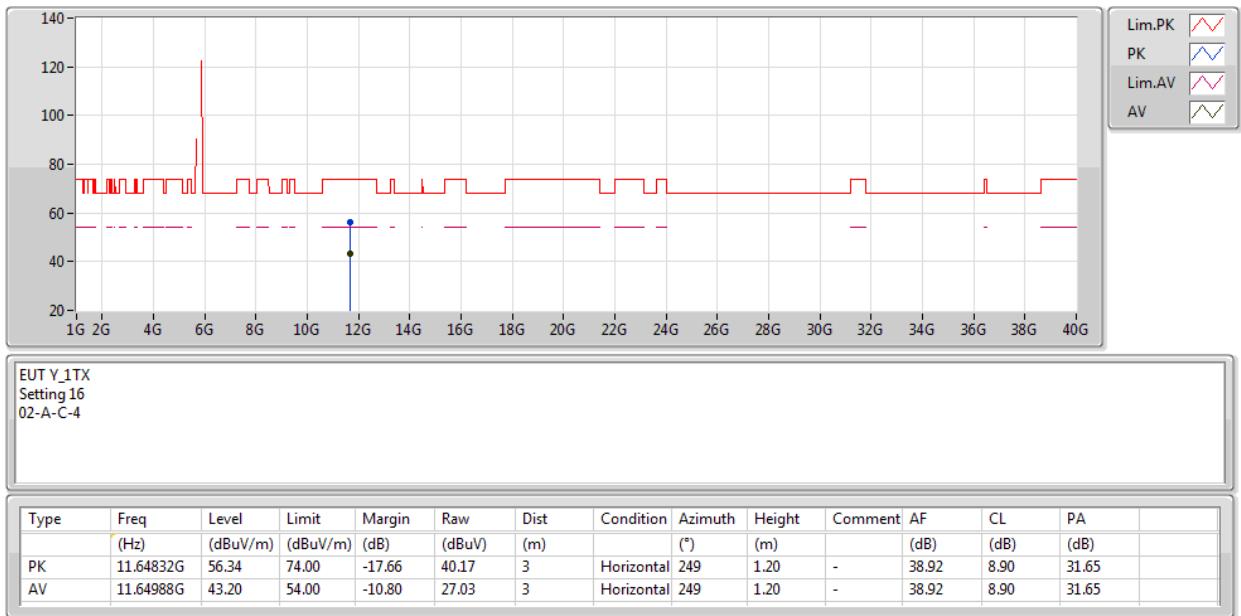
**802.11ac VHT20\_Nss1,(MCS0)\_1TX**

06/01/2020

**5825MHz\_TX**


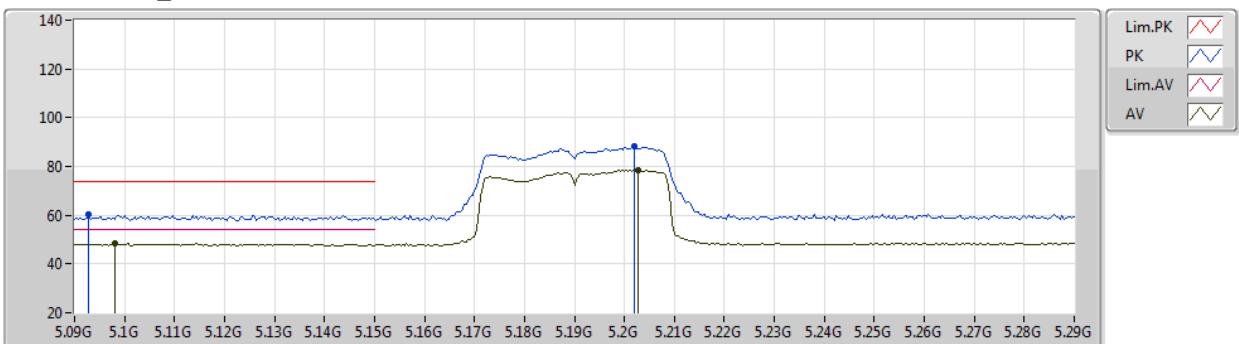
**802.11ac VHT20\_Nss1,(MCS0)\_1TX**

06/01/2020

**5825MHz\_TX**


**802.11ac VHT40\_Nss1,(MCS0)\_1TX**

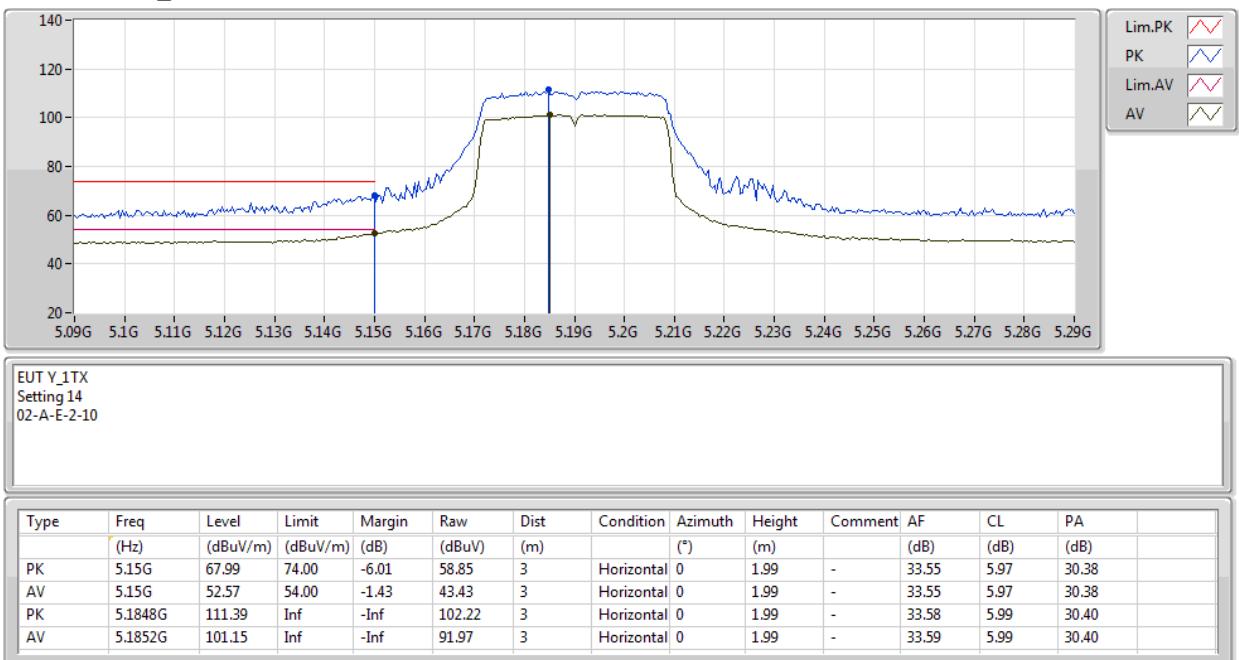
06/01/2020

**5190MHz\_TX**

 EUT Y\_1TX  
 Setting 14  
 02-A-E-2-10

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	5.0928G	60.32	74.00	-13.68	51.25	3	Vertical	12	2.41	-	33.49	5.95	30.37	
AV	5.098G	48.38	54.00	-5.62	39.30	3	Vertical	12	2.41	-	33.50	5.95	30.37	
PK	5.202G	88.37	Inf	-Inf	79.17	3	Vertical	12	2.41	-	33.60	6.00	30.40	
AV	5.2028G	78.49	Inf	-Inf	69.28	3	Vertical	12	2.41	-	33.61	6.00	30.40	

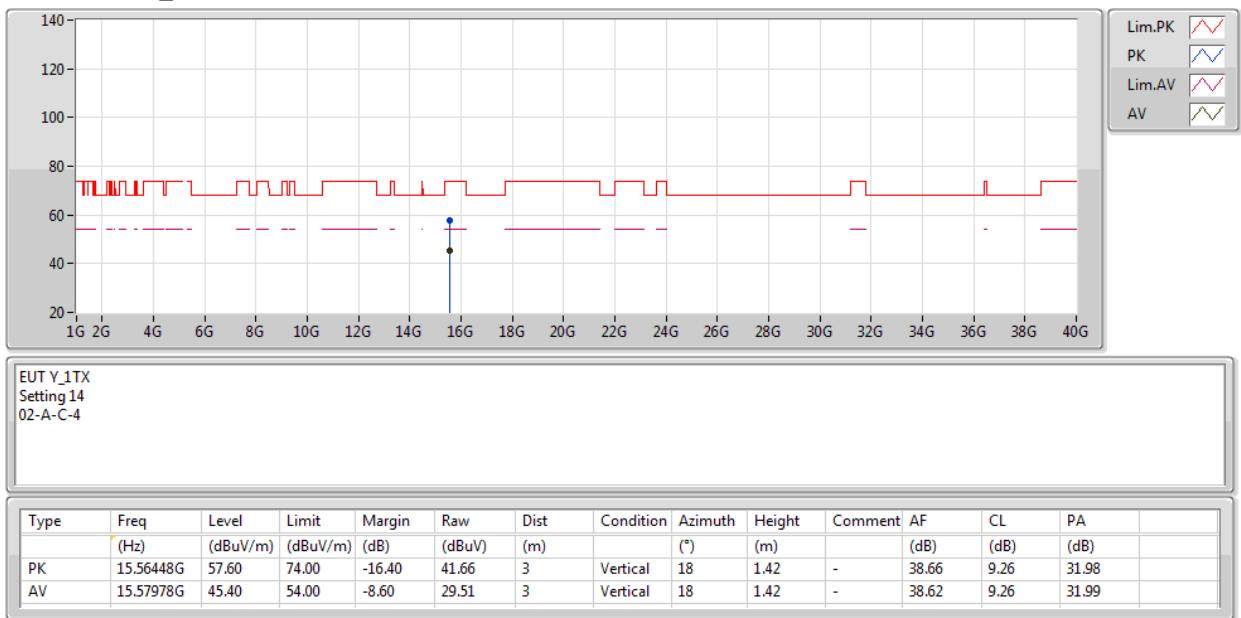
**802.11ac VHT40\_Nss1,(MCS0)\_1TX**

06/01/2020

**5190MHz\_TX**


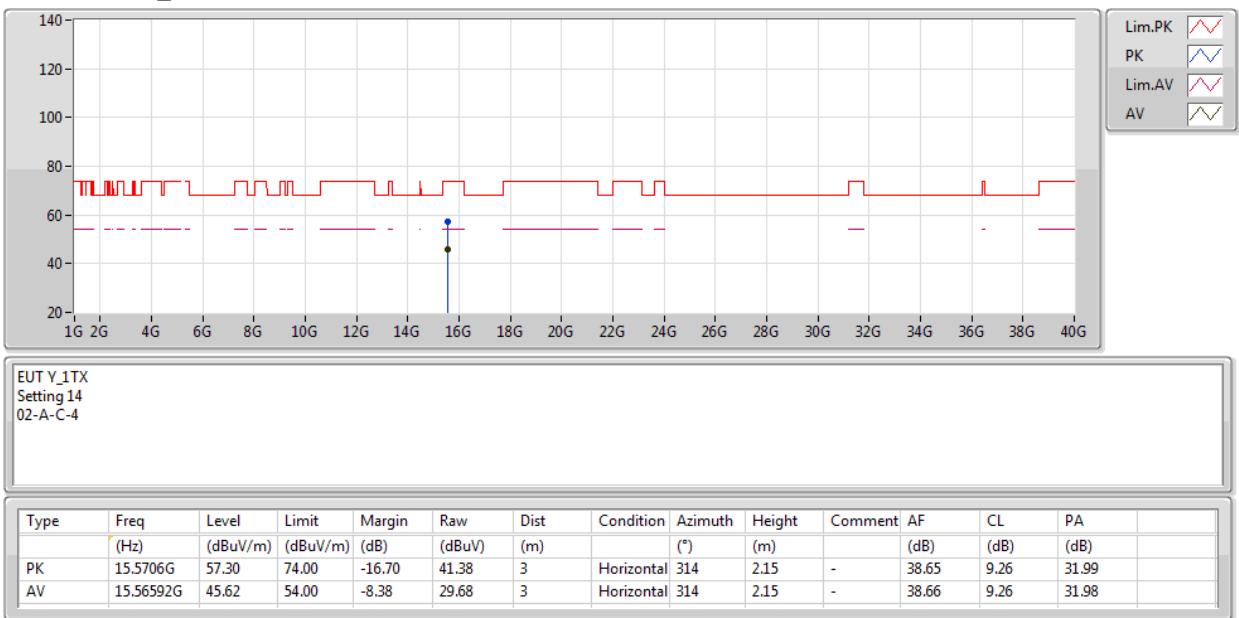
**802.11ac VHT40\_Nss1,(MCS0)\_1TX**

06/01/2020

**5190MHz\_TX**


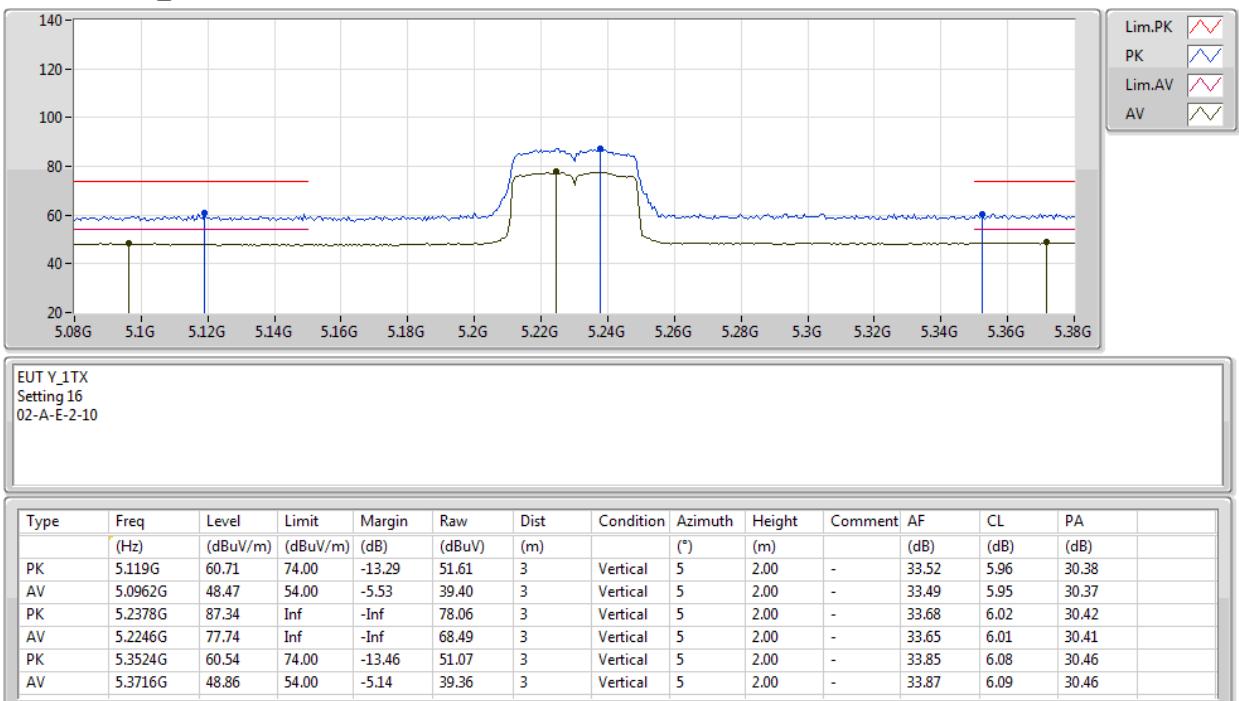
**802.11ac VHT40\_Nss1,(MCS0)\_1TX**

06/01/2020

**5190MHz\_TX**


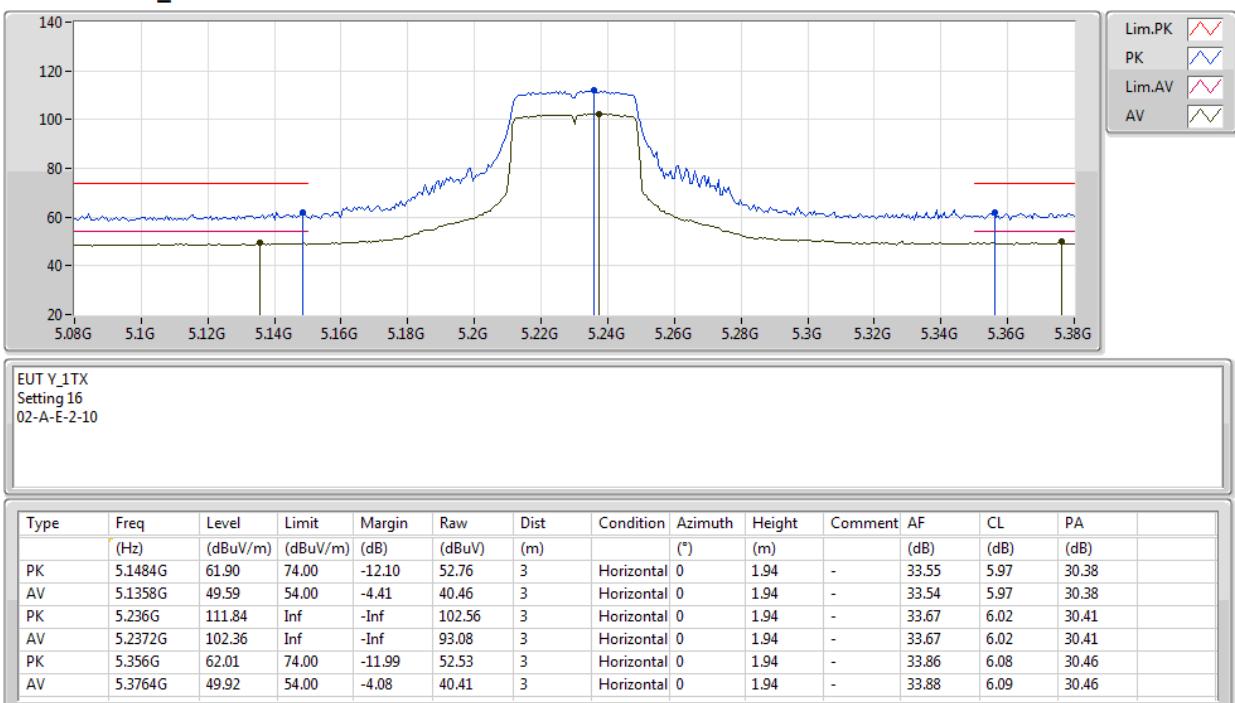
**802.11ac VHT40\_Nss1,(MCS0)\_1TX**

06/01/2020

**5230MHz\_TX**


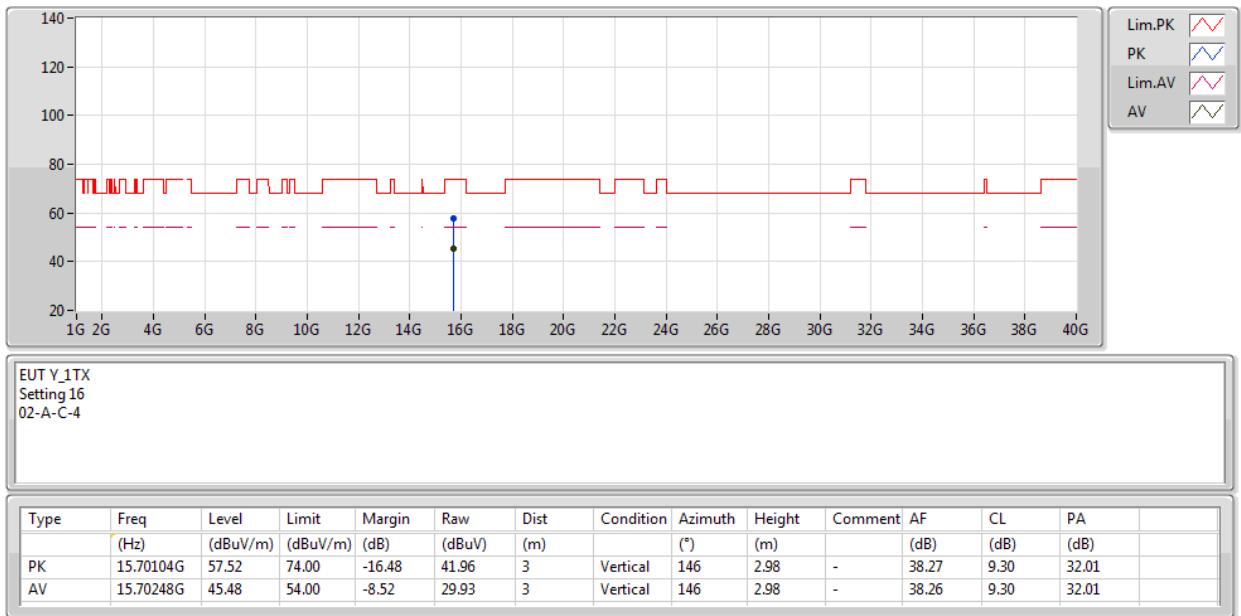
**802.11ac VHT40\_Nss1,(MCS0)\_1TX**

06/01/2020

**5230MHz\_TX**


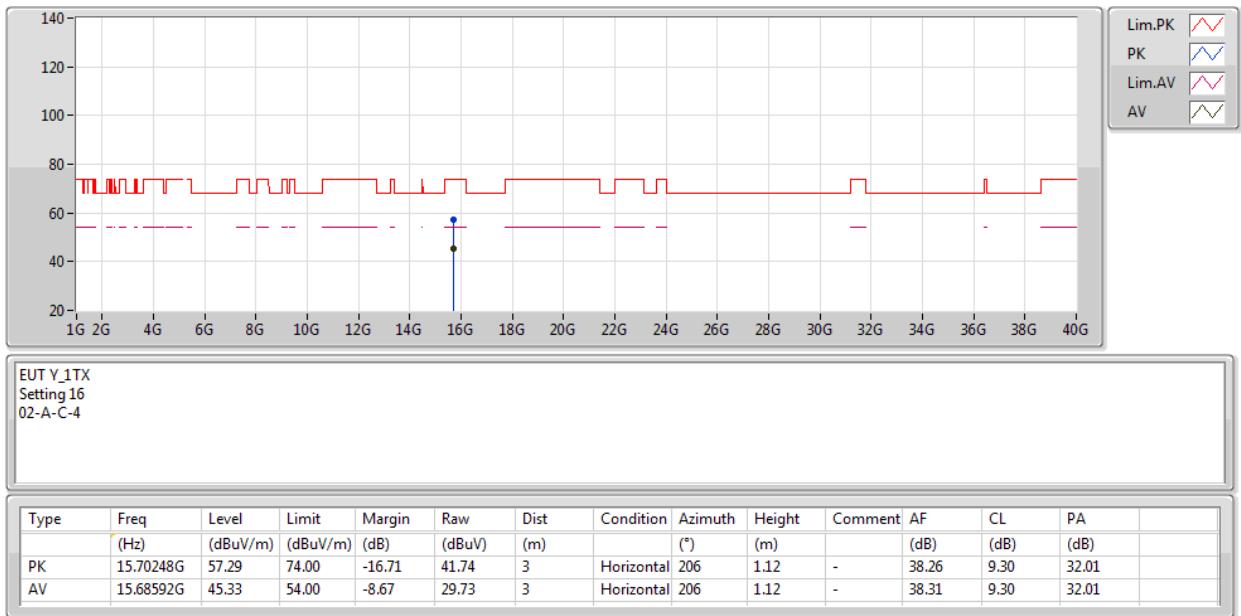
**802.11ac VHT40\_Nss1,(MCS0)\_1TX**

06/01/2020

**5230MHz\_TX**


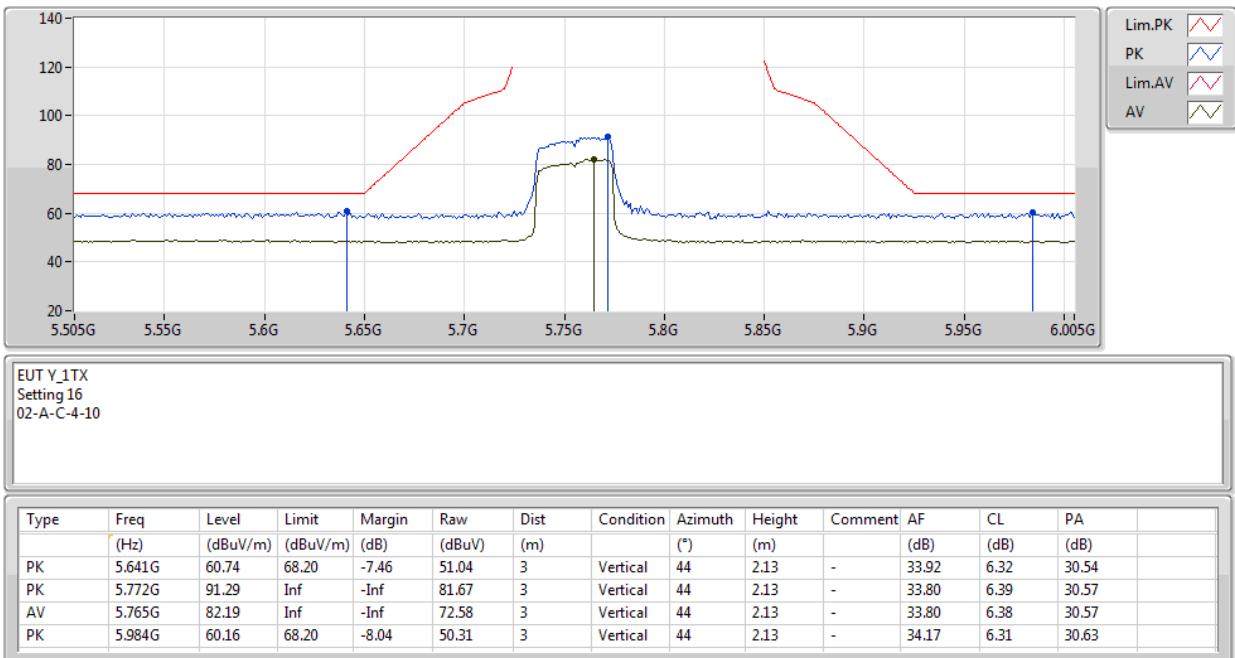
**802.11ac VHT40\_Nss1,(MCS0)\_1TX**

06/01/2020

**5230MHz\_TX**


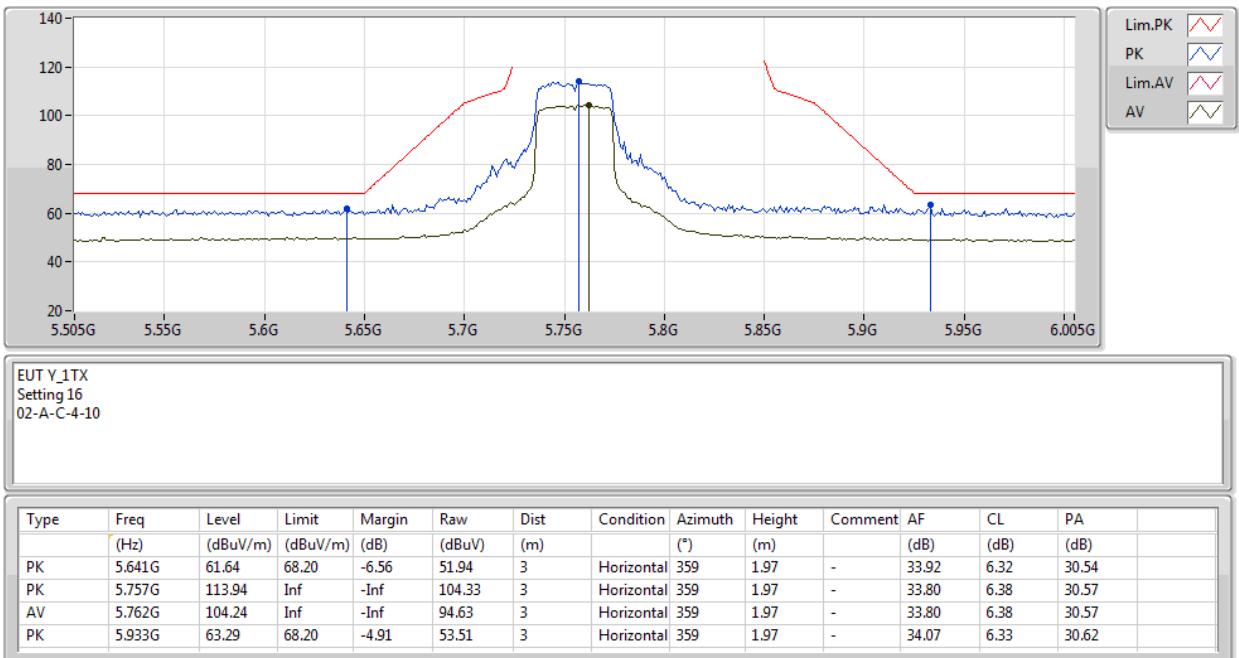
**802.11ac VHT40\_Nss1,(MCS0)\_1TX**

06/01/2020

**5755MHz\_TX**


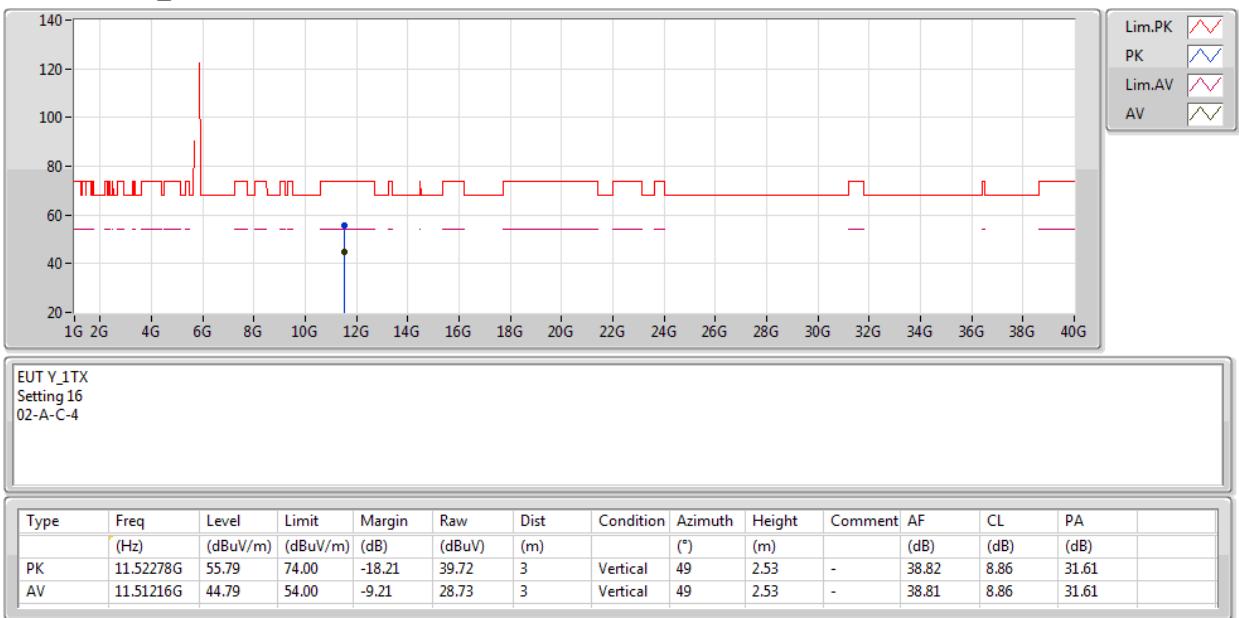
**802.11ac VHT40\_Nss1,(MCS0)\_1TX**

06/01/2020

**5755MHz\_TX**


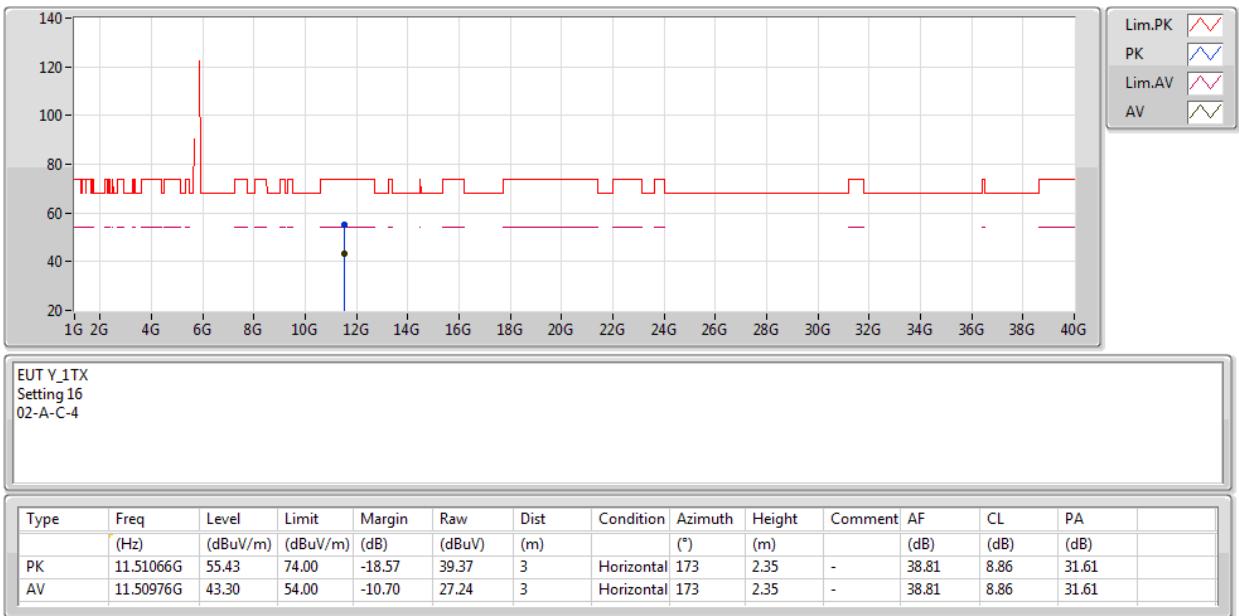
**802.11ac VHT40\_Nss1,(MCS0)\_1TX**

06/01/2020

**5755MHz\_TX**


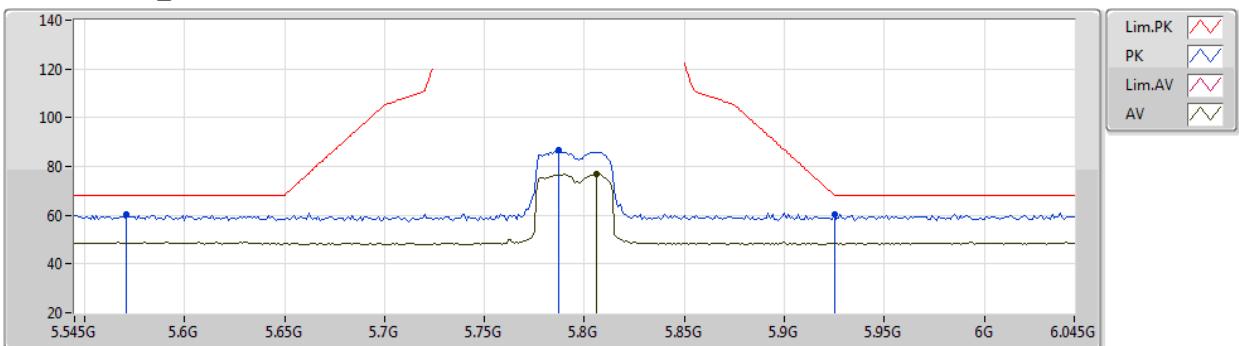
**802.11ac VHT40\_Nss1,(MCS0)\_1TX**

06/01/2020

**5755MHz\_TX**


**802.11ac VHT40\_Nss1,(MCS0)\_1TX**

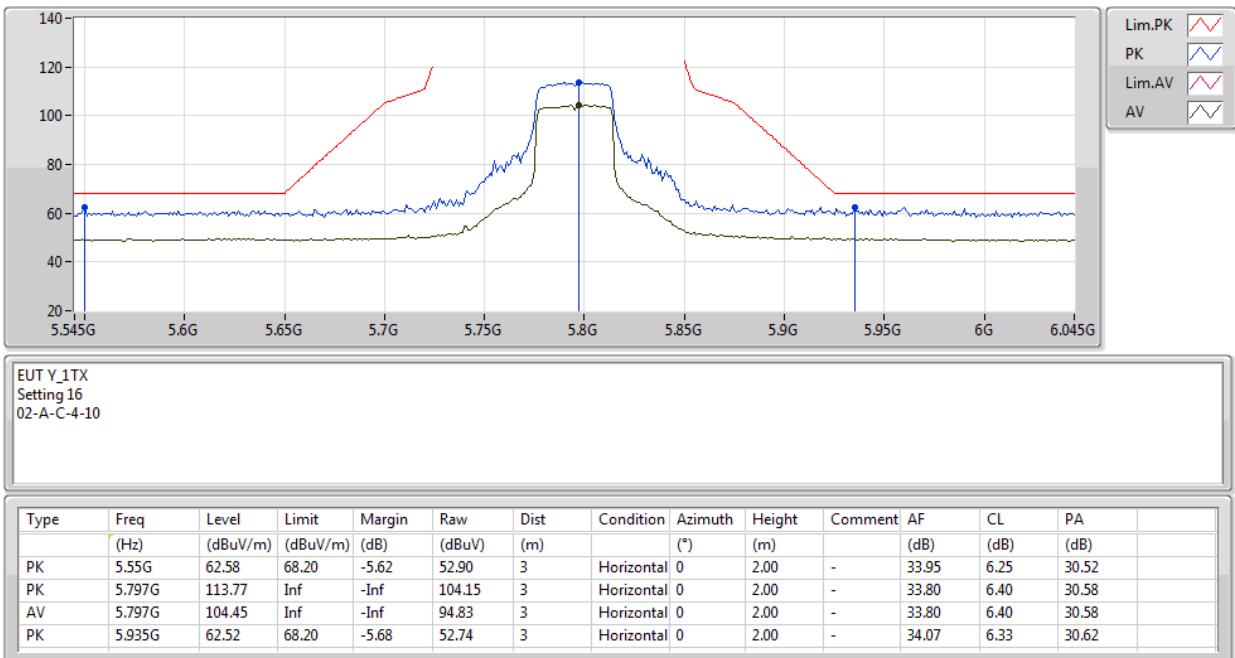
06/01/2020

**5795MHz\_TX**

 EUT Y\_1TX  
 Setting 16  
 02-A-C-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	5.571G	60.10	68.20	-8.10	50.38	3	Vertical	0	2.00	-	33.97	6.27	30.52	
PK	5.787G	86.73	Inf	-Inf	77.12	3	Vertical	0	2.00	-	33.80	6.39	30.58	
AV	5.806G	76.96	Inf	-Inf	67.33	3	Vertical	0	2.00	-	33.81	6.40	30.58	
PK	5.925G	60.42	68.20	-7.78	50.64	3	Vertical	0	2.00	-	34.05	6.34	30.61	

**802.11ac VHT40\_Nss1,(MCS0)\_1TX**

06/01/2020

**5795MHz\_TX**


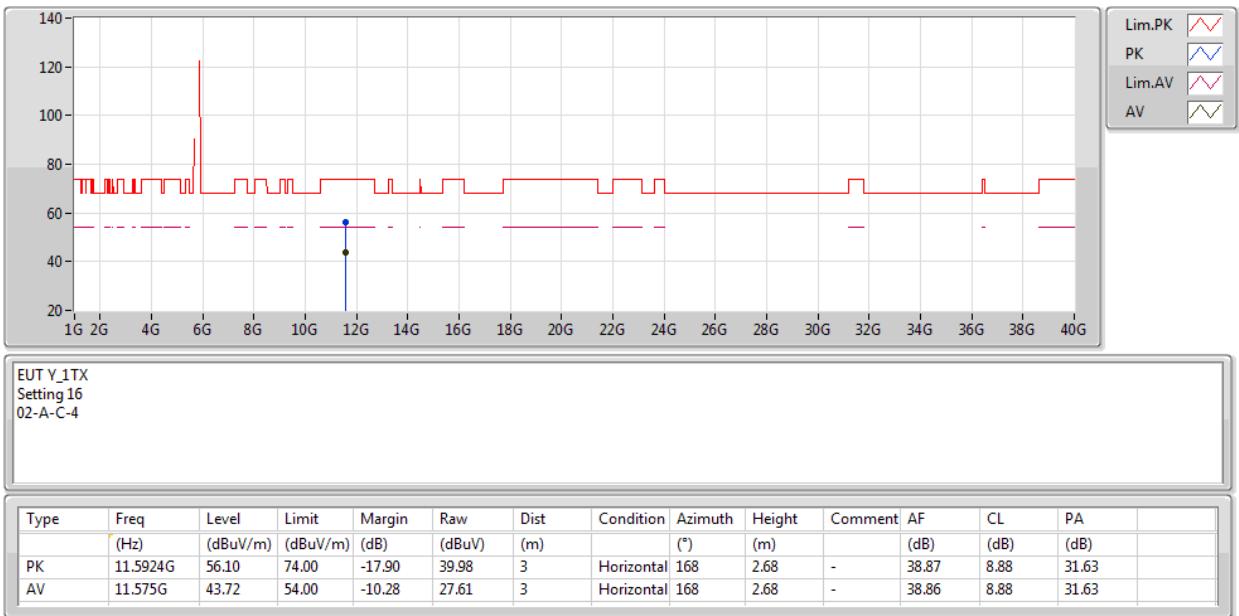
**802.11ac VHT40\_Nss1,(MCS0)\_1TX**

06/01/2020

**5795MHz\_TX**


**802.11ac VHT40\_Nss1,(MCS0)\_1TX**

06/01/2020

**5795MHz\_TX**


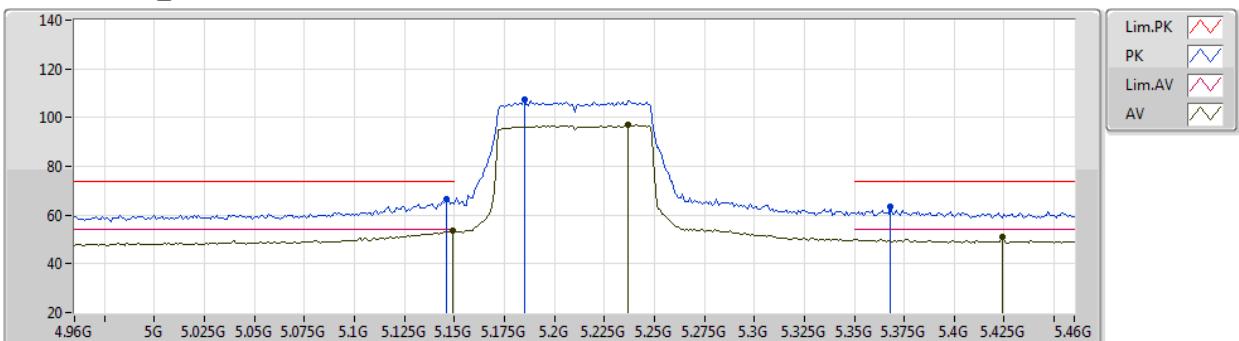
**802.11ac VHT80\_Nss1,(MCS0)\_1TX**

06/01/2020

**5210MHz\_TX**


**802.11ac VHT80\_Nss1,(MCS0)\_1TX**

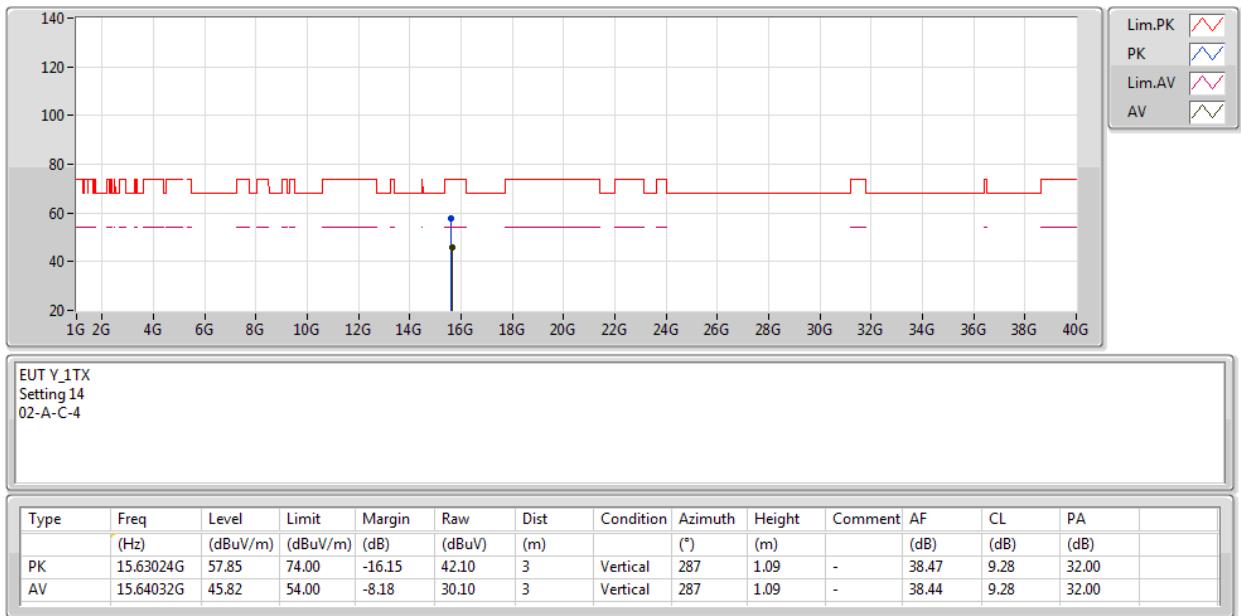
06/01/2020

**5210MHz\_TX**

 EUT Y\_1TX  
 Setting 14  
 02-A-E-2-10

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	5.146G	66.69	74.00	-7.31	57.55	3	Horizontal	0	1.98	-	33.55	5.97	30.38	
AV	5.149G	53.56	54.00	-0.44	44.42	3	Horizontal	0	1.98	-	33.55	5.97	30.38	
PK	5.185G	107.33	Inf	-Inf	98.15	3	Horizontal	0	1.98	-	33.59	5.99	30.40	
AV	5.237G	97.04	Inf	-Inf	87.76	3	Horizontal	0	1.98	-	33.67	6.02	30.41	
PK	5.368G	63.29	74.00	-10.71	53.80	3	Horizontal	0	1.98	-	33.87	6.08	30.46	
AV	5.424G	50.87	54.00	-3.13	41.32	3	Horizontal	0	1.98	-	33.90	6.13	30.48	

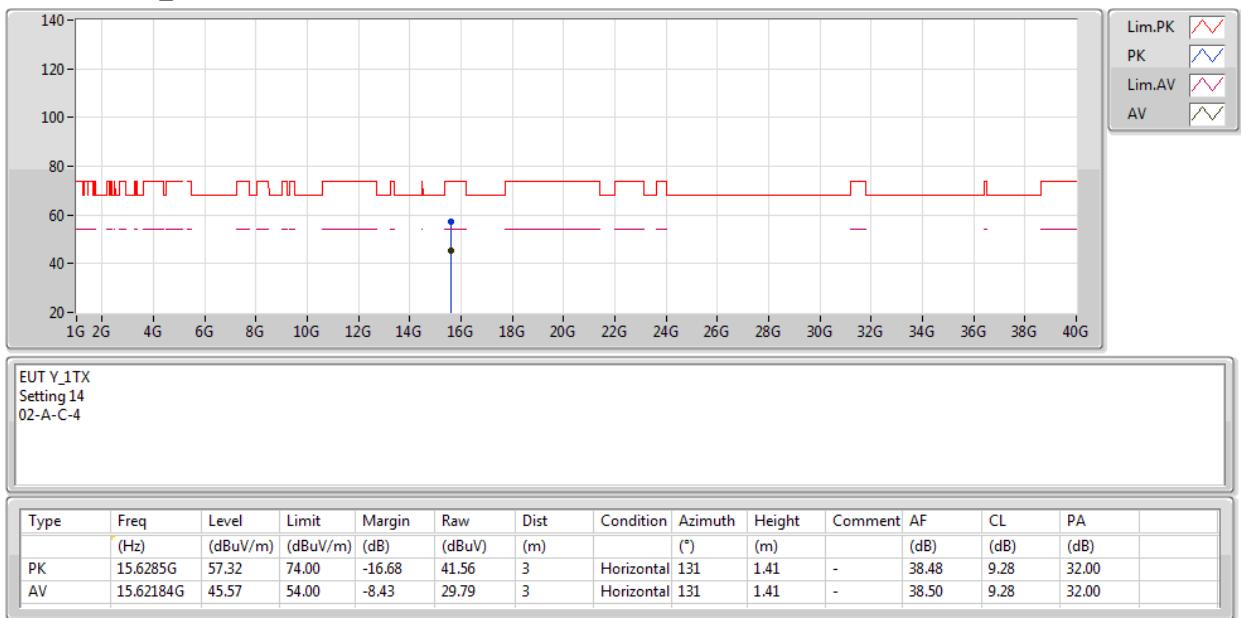
**802.11ac VHT80\_Nss1,(MCS0)\_1TX**

06/01/2020

**5210MHz\_TX**


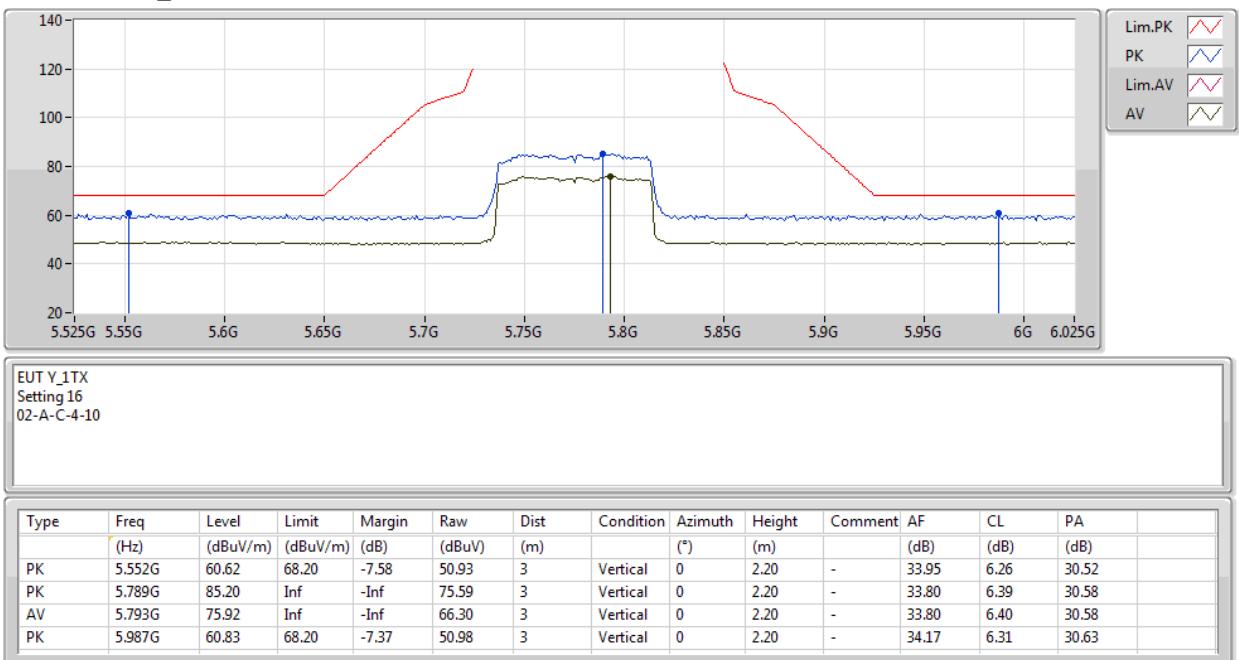
**802.11ac VHT80\_Nss1,(MCS0)\_1TX**

06/01/2020

**5210MHz\_TX**


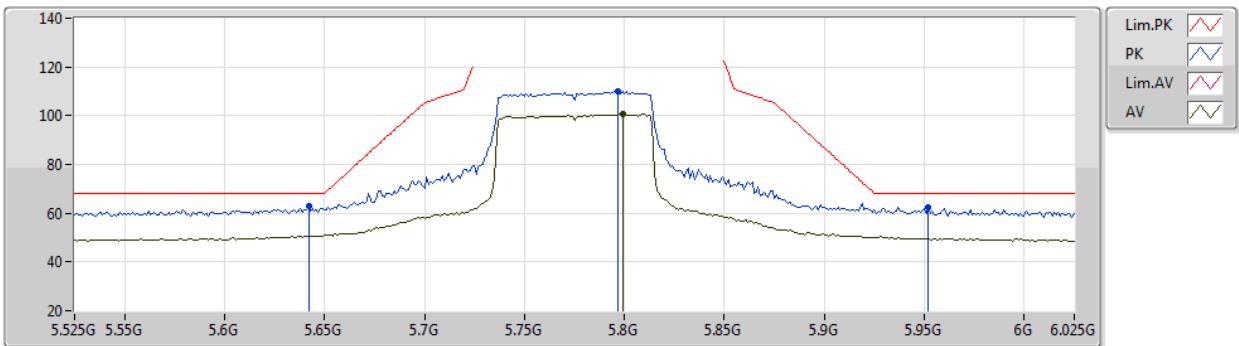
**802.11ac VHT80\_Nss1,(MCS0)\_1TX**

06/01/2020

**5775MHz\_TX**


**802.11ac VHT80\_Nss1,(MCS0)\_1TX**

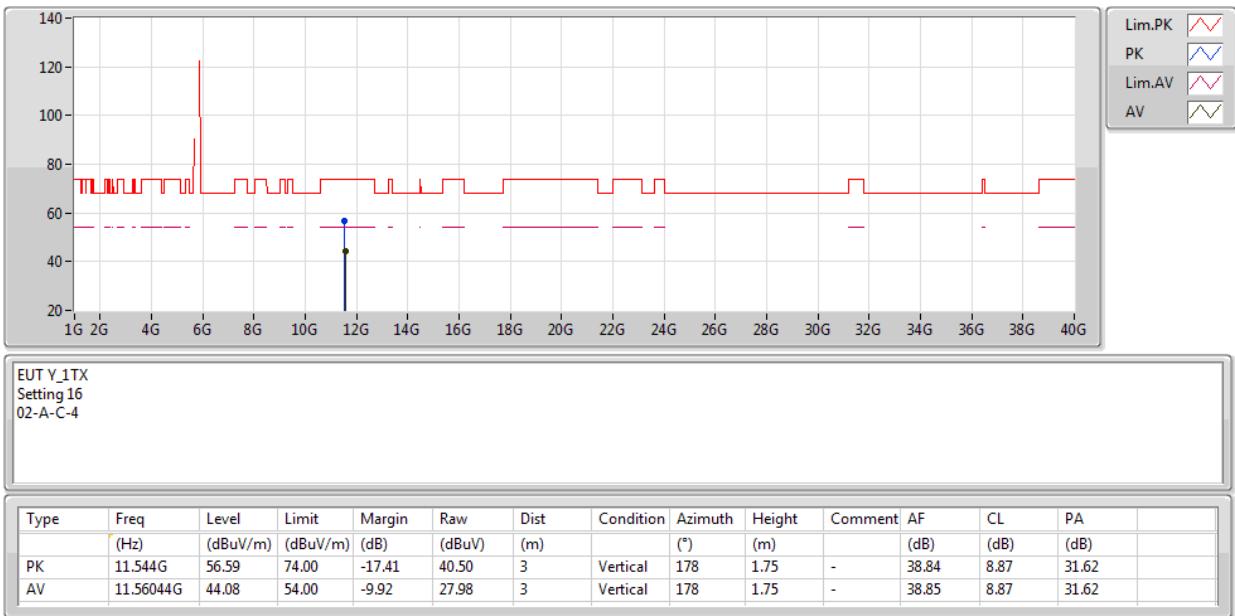
06/01/2020

**5775MHz\_TX**

 EUT Y\_1TX  
 Setting 16  
 02-A-C-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	5.642G	62.83	68.20	-5.37	53.13	3	Horizontal	0	2.20	-	33.92	6.32	30.54	
PK	5.797G	110.11	Inf	-Inf	100.49	3	Horizontal	0	2.20	-	33.80	6.40	30.58	
AV	5.799G	100.57	Inf	-Inf	90.95	3	Horizontal	0	2.20	-	33.80	6.40	30.58	
PK	5.952G	62.42	68.20	-5.78	52.62	3	Horizontal	0	2.20	-	34.10	6.32	30.62	

**802.11ac VHT80\_Nss1,(MCS0)\_1TX**

06/01/2020

**5775MHz\_TX**


**802.11ac VHT80\_Nss1,(MCS0)\_1TX**

06/01/2020

**5775MHz\_TX**
