



# FCC RADIO TEST REPORT

**FCC ID** : W59XAP1610  
**Equipment** : Apex Wave 2 AC3100 Dual-Band Wireless AP  
**Brand Name** : Luxul  
**Model Name** : XAP-1610, XWS-2610  
**Applicant** : Luxul Wireless  
12884 S Frontrunner Blvd Suite 201 Draper Utah  
United States 84020  
**Standard** : 47 CFR FCC Part 15.407

The product was received on Apr. 09, 2018, and testing was started from Apr. 09, 2018 and completed on May 12, 2018. We, SPORTON INTERTIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

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

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

Approved by: Sam Chen

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



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## 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	-

Reviewed by: Cliff Chang

Report Producer: Cindy Peng



# 1 General Description

## 1.1 Information

### 1.1.1 RF General Information

Frequency Range (MHz)	IEEE Std. 802.11	Ch. Frequency (MHz)	Channel Number
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	4TX
5.15-5.25GHz	802.11n HT20	20	4TX
5.15-5.25GHz	802.11n HT20-BF	20	4TX
5.15-5.25GHz	802.11ac VHT20	20	4TX
5.15-5.25GHz	802.11ac VHT20-BF	20	4TX
5.15-5.25GHz	802.11n HT40	40	4TX
5.15-5.25GHz	802.11n HT40-BF	40	4TX
5.15-5.25GHz	802.11ac VHT40	40	4TX
5.15-5.25GHz	802.11ac VHT40-BF	40	4TX
5.15-5.25GHz	802.11ac VHT80	80	4TX
5.15-5.25GHz	802.11ac VHT80-BF	80	4TX
5.725-5.85GHz	802.11a	20	4TX
5.725-5.85GHz	802.11n HT20	20	4TX
5.725-5.85GHz	802.11n HT20-BF	20	4TX
5.725-5.85GHz	802.11ac VHT20	20	4TX
5.725-5.85GHz	802.11ac VHT20-BF	20	4TX
5.725-5.85GHz	802.11n HT40	40	4TX
5.725-5.85GHz	802.11n HT40-BF	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	802.11ac VHT80	80	4TX
5.725-5.85GHz	802.11ac VHT80-BF	80	4TX



## Note:

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

Ant.	Port	Brand	P/N	Antenna Type	Connector	Gain (dBi)	
						2.4GHz	5GHz
1	1	Hong Lin	290-20336	PIFA Antenna	I-PEX	2.76	3.23
2	2	Hong Lin	290-20337	PIFA Antenna	I-PEX	2.75	3.28
3	3	Hong Lin	290-20338	PIFA Antenna	I-PEX	2.33	3.58
4	4	Hong Lin	290-20339	PIFA Antenna	I-PEX	3.50	4.00

Note: The EUT has four antennas.

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

### 1.1.3 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
802.11a	0.952	0.214	2.068m	1k
802.11ac VHT20	0.986	0.061	n/a (DC>=0.98)	n/a (DC>=0.98)
802.11ac VHT20-BF	0.842	0.747	1.946m	1k
802.11ac VHT40	0.971	0.128	953.75u	3k
802.11ac VHT40-BF	0.921	0.357	2.785m	1k
802.11ac VHT80	0.943	0.255	461.25u	3k
802.11ac VHT80-BF	0.806	0.937	3.414m	300

### 1.1.4 EUT Operational Condition

EUT Power Type	From PoE		
Beamforming Function	<input checked="" type="checkbox"/> With beamforming	<input type="checkbox"/> Without beamforming	
The product has beamforming function for 802.11n/ac.			
Function	<input type="checkbox"/> Outdoor P2M	<input checked="" type="checkbox"/> Indoor P2M	
	<input type="checkbox"/> Fixed P2P	<input type="checkbox"/> Client	
Test Software Version	accessMTool_3_0_0_6		



### 1.1.5 Table for Multiple Listing

The EUT has two model names which are identical to each other in all aspects except for the following table:

Model Name	Description
XAP-1610	
XWS-2610	There is nothing different of two models, just for different marketing use.

From the above models, model: XAP-1610 was selected as representative model for the test and its data was recorded in this report.



## 1.2 Testing Applied Standards

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

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

## 1.3 Testing Location Information

Testing Location				
<input type="checkbox"/>	HWA YA	ADD : No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL : 886-3-327-3456	FAX : 886-3-318-0055	
<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	Paul Chen	23°C / 65%	Apr. 11, 2018~May 04, 2018
Radiated	03CH01-CB	Eddie Weng, Jeff Wu, Cola Chang, Stim Sung	23°C / 65%	Apr. 09, 2018~May 09, 2018
AC Conduction	CO01-CB	Ryo Fan, GN Hou	25°C / 58%	Apr. 27, 2018, May 12, 2018

Test site Designation No. TW0006 with FCC

Test site registered number IC 4086D with Industry Canada.

## 1.4 Measurement Uncertainty

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

Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	3.2 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	3.6 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	3.7 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	3.5 dB	Confidence levels of 95%
Conducted Emission	1.7 dB	Confidence levels of 95%
Output Power Measurement	1.33 dB	Confidence levels of 95%
Power Density Measurement	1.27 dB	Confidence levels of 95%
Bandwidth Measurement	$9.74 \times 10^{-8}$	Confidence levels of 95%



## 2 Test Configuration of EUT

### 2.1 Test Channel Mode

Mode	PowerSetting
802.11a_Nss1,(6Mbps)_4TX	-
5180MHz	76
5200MHz	76
5240MHz	76
5745MHz	92
5785MHz	93
5825MHz	93
802.11ac VHT20_Nss1,(MCS0)_4TX	-
5180MHz	77
5200MHz	77
5240MHz	77
5745MHz	93
5785MHz	93
5825MHz	93
802.11ac VHT40_Nss1,(MCS0)_4TX	-
5190MHz	69
5230MHz	88
5755MHz	90
5795MHz	88
802.11ac VHT80_Nss1,(MCS0)_4TX	-
5210MHz	65
5775MHz	78
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	-
5180MHz	76
5200MHz	76
5240MHz	76
5745MHz	79
5785MHz	79
5825MHz	79
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	-
5190MHz	63
5230MHz	77
5755MHz	77
5795MHz	76
802.11ac VHT80-BF_Nss1,(MCS0)_4TX	-
5210MHz	61



Mode	PowerSetting
5775MHz	75

## 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.
- There are two modes of EUT, one is beamforming mode, and the other is non-beamforming mode for 802.11n/ac. All test results were recorded in the report.



## 2.2 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
<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 + PoE 1
2	EUT + PoE 2

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>	Normal Link
1	EUT Z axis + PoE 1 (local EUT / remote PoE)
2	EUT Y axis + PoE 1 (local EUT / remote PoE)
Mode 1 has been evaluated to be the worst case among Mode 1~2, thus measurement for Mode 3 will follow this same test mode.	
3	EUT Z axis + PoE 2 (local EUT / remote PoE)
4	EUT + PoE 1 (local PoE / remote EUT)
5	EUT + PoE 2 (local PoE / remote EUT)
For operating mode 1 is the worst case and it was record in this test report.	
<b>Operating Mode &gt; 1GHz</b>	CTX
1	EUT Z axis
2	EUT Y axis
Mode 1 has been evaluated to be the worst case after evaluating. Consequently, measurement will follow this same test mode.	



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
The EUT was performed at Y axis and Z axis position for Radiated emission above 1GHz test, and the worst case was found at Z axis for 5GHz WLAN. So the measurement will follow this same test configuration.	
1	EUT Z axis - 2.4GHz WLAN + 5GHz WLAN
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	2.4GHz WLAN + 5GHz WLAN
Refer to Sporton Test Report No.: FA841602 for Co-location RF Exposure Evaluation.	



## 2.3 EUT Operation during Test

For CTX Mode:

For non-beamforming mode:

The EUT was programmed to be in continuously transmitting mode.

For beamforming mode:

For Conducted Mode:

The EUT was programmed to be in continuously transmitting mode.

For Radiated Mode:

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

The program was executed as follows:

1. During the test, the EUT operation to normal function.
2. Executed command fixed test channel under Telnet.
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				
No.	Equipment Name	Brand Name	Model Name	Rating
1	PoE 1	PHIHONG	POE29U-560	INPUT: 100-240Vac~0.8A, 50-60Hz OUTPUT: 56Vdc, 0.536A
2	PoE 2	GOSPELL	G0545-560-054-POE1000	INPUT: 100-240Vac~0.75A MAX, 50/60Hz OUTPUT: 56Vdc, 0.54A
No. Equipment Name / Description				
3	Wall-mounted rack*1			
4	Power cable*2: Non-shielded, 1.8m (one is for PoE 1 use and the other is for PoE 2 use)			
5	RJ-45 cable*1: Non-shielded, 1m			



## 2.5 Support Equipment

For Test Site No: CO01-CB

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
1	NB*4	DELL	E6430	N/A

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

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
1	NB*2	DELL	E4300	N/A
2	NB*2	Apple	Mac Book	N/A

For Test Site No: 03CH01-CB (above 1GHz)

For non-beamforming mode:

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

For beamforming mode:

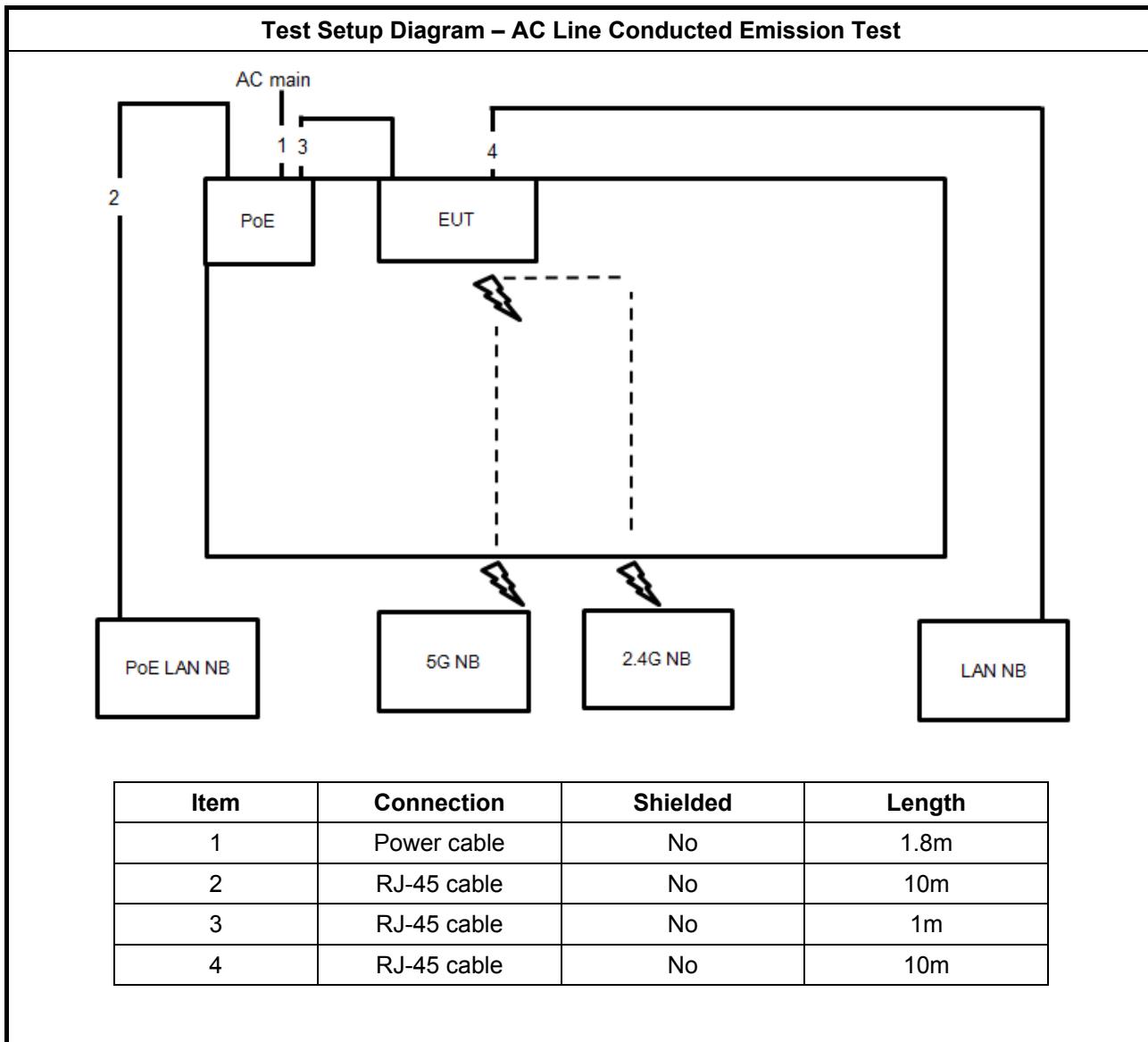
Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
1	NB*2	DELL	E4300	N/A
2	WLAN module (RX Device)	Boardcom	BCM943162ZP	QDS-BRCM1075

For Test Site No: TH01-CB

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

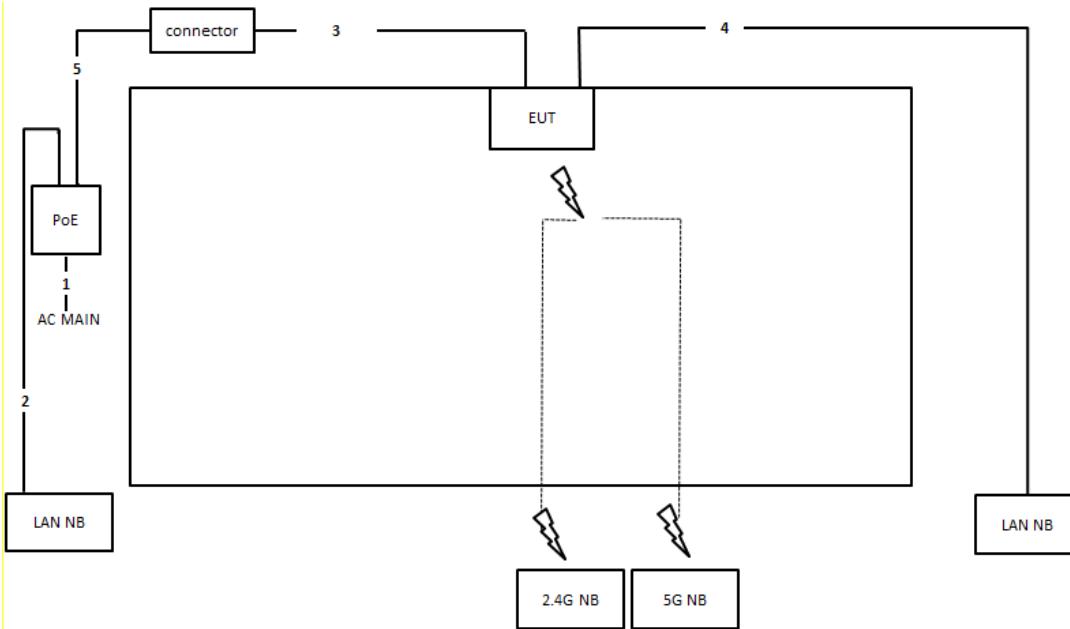


## 2.6 Test Setup Diagram

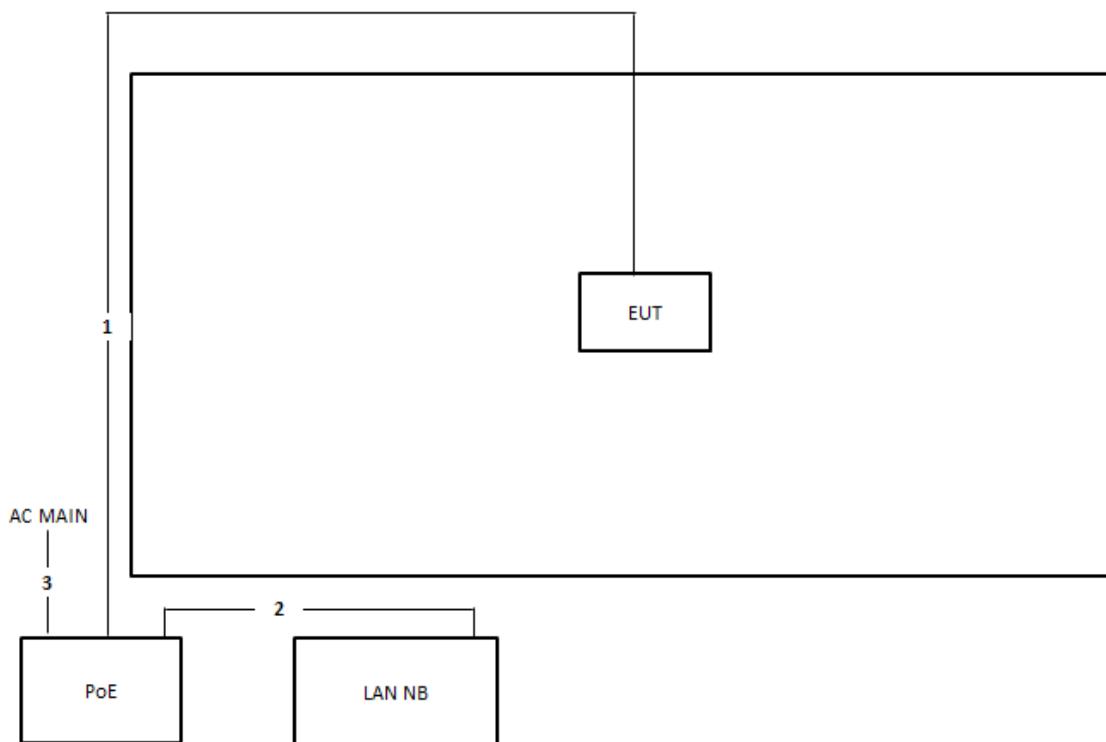




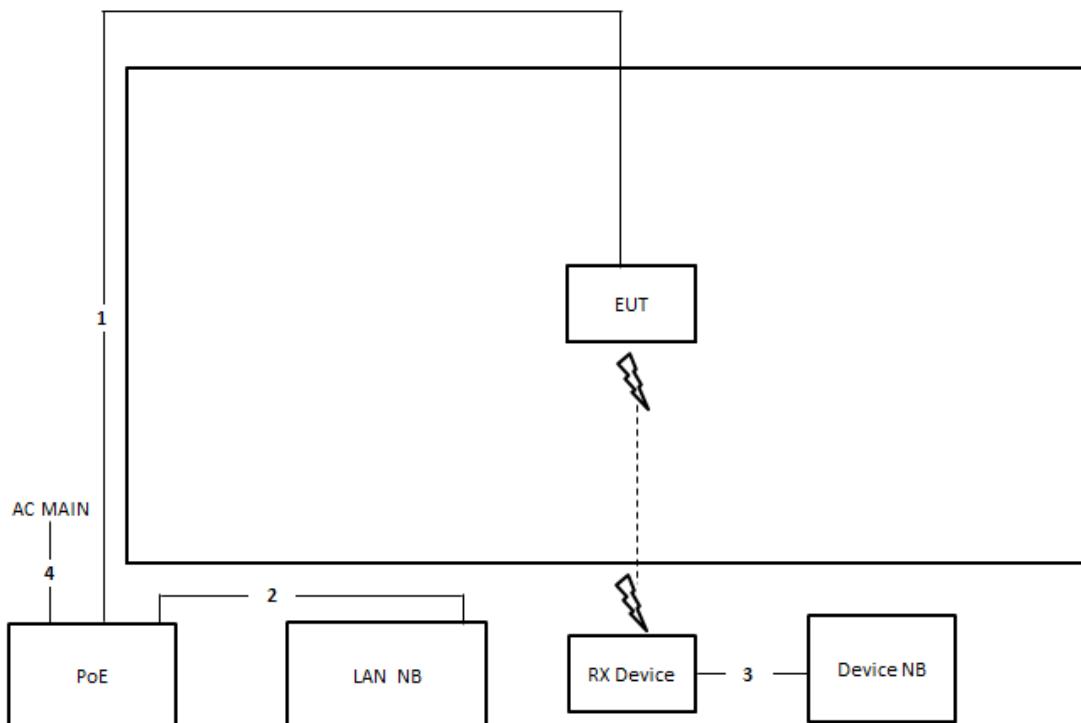
## Test Setup Diagram - Radiated Test &lt; 1GHz



Item	Connection	Shielded	Length
1	Power cable	No	1.8m
2	RJ-45 cable	No	1.5m
3	RJ-45 cable	No	1m
4	RJ-45 cable	No	10m
5	RJ-45 cable	No	10m

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

Item	Connection	Shielded	Length
1	RJ-45 cable	No	10m
2	RJ-45 cable	No	1.5m
3	Power cable	No	1.8m

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

Item	Connection	Shielded	Length
1	RJ-45 cable	No	10m
2	RJ-45 cable	No	1.5m
3	RJ-45 cable	No	1.5m
4	Power cable	No	1.8m



### 3 Transmitter Test Result

#### 3.1 AC Power-line Conducted Emissions

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

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

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

##### 3.1.2 Measuring Instruments

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

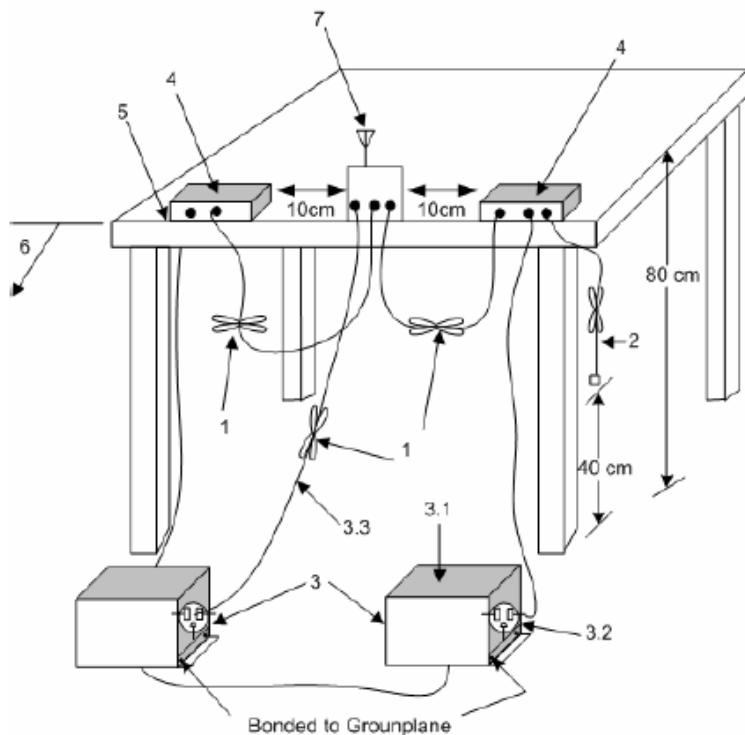
##### 3.1.3 Test Procedures

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



### 3.1.4 Test Setup

#### AC Power-line Conducted Emissions



- 1—Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 cm to 40 cm long.
- 2—The I/O cables that are not connected to an accessory shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- 3—EUT connected to one LISN. Unused LISN measuring port connectors shall be terminated in  $50 \Omega$  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 $\geq 500\text{kHz}$ .

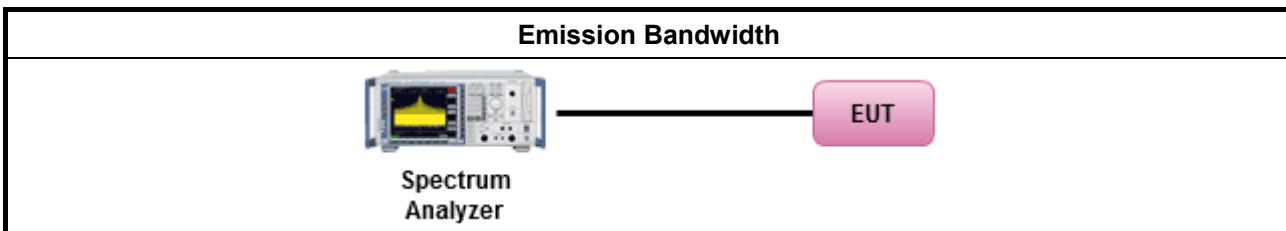
### 3.2.2 Measuring Instruments

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 \text{ dBi}</math>, then <math>P_{Out} = 30 - (G_{TX} - 6)</math>. e.i.r.p. at any elevation angle above 30 degrees <math>\leq 125\text{mW}</math> [21dBm]</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 \text{ dBi}</math>, 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 \text{ dBi}</math>, 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 \text{ dBi}</math>, 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 $11 \text{ dBm} + 10 \log B$ , where B is the 26 dB emission bandwidth in MHz. If $G_{TX} > 6 \text{ dBi}$ , then $P_{Out} = 24 - (G_{TX} - 6)$ .	
<input type="checkbox"/> For the 5.47-5.725 GHz band, the maximum conducted output power ( $P_{Out}$ ) shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$ , where B is the 26 dB emission bandwidth in MHz. If $G_{TX} > 6 \text{ dBi}$ , then $P_{Out} = 24 - (G_{TX} - 6)$ .	
<input checked="" type="checkbox"/> For the 5.725-5.85 GHz band:	<ul style="list-style-type: none"><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 \text{ dBi}</math>, 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 \text{ dBi}</math>, 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><math>P_{Out}</math> = maximum conducted output power in dBm, <math>G_{TX}</math> = the maximum transmitting antenna directional gain in dBi.</b>	



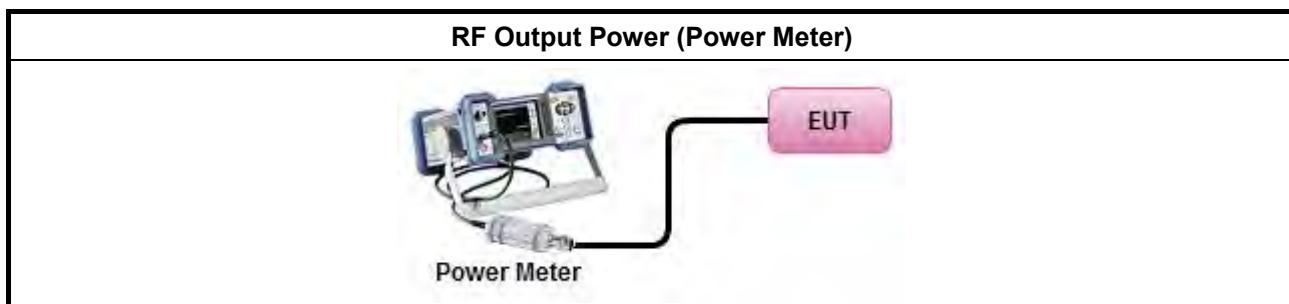
### 3.3.2 Measuring Instruments

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 PPSD= <math>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 PPSD= <math>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 peak power spectral density (PPSD) $\leq 4$ dBm/MHz and 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 and the e.i.r.p. peak power spectral density (PPSD) $\leq 17$ dBm/MHz.	
<input type="checkbox"/> e.i.r.p. greater than 200 mW shall comply with the following e.i.r.p. at different elevations, where $\theta$ is the angle above the local horizontal plane (of the Earth) as shown below: -13 dBW/MHz for $0^\circ \leq \theta < 8^\circ$ ; -13 – 0.716 ( $\theta$ -8) dBW/MHz for $8^\circ \leq \theta < 40^\circ$ -35.9 – 1.22 ( $\theta$ -40) dBW/MHz for $40^\circ \leq \theta \leq 45^\circ$ ; -42 dBW/MHz for $\theta > 45^\circ$	
<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 and the e.i.r.p. peak power spectral density (PPSD) $\leq 17$ dBm/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 peak power spectral density (PPSD) <math>\leq 30</math> dBm/500kHz. If <math>G_{TX} &gt; 6</math> dBi, then PPSD= <math>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 he same method as used to determine the conducted output power shall be used to determine the power spectral density. And power spectral density in dBm/MHz <b>G<sub>TX</sub></b> = the maximum transmitting antenna directional gain in dBi.	



### 3.4.2 Measuring Instruments

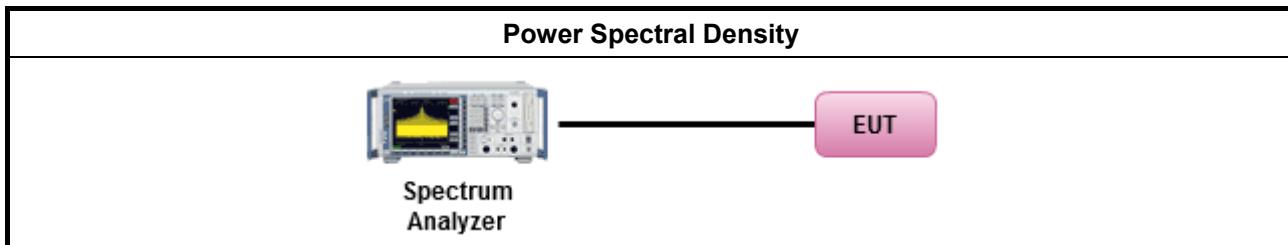
Refer a test equipment and calibration data table in this test report.

### 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 display="block">\text{PPSD}_{\text{total}} = \text{PPSD}_1 + \text{PPSD}_2 + \dots + \text{PPSD}_n</math>(calculated in linear unit [mW] and transfer to log unit [dBm]) <math display="block">\text{EIRP}_{\text{total}} = \text{PPSD}_{\text{total}} + \text{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 Radiated Unwanted Emissions Limit

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

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

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

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

Un-restricted band emissions above 1GHz Limit	
Operating Band	Limit
<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

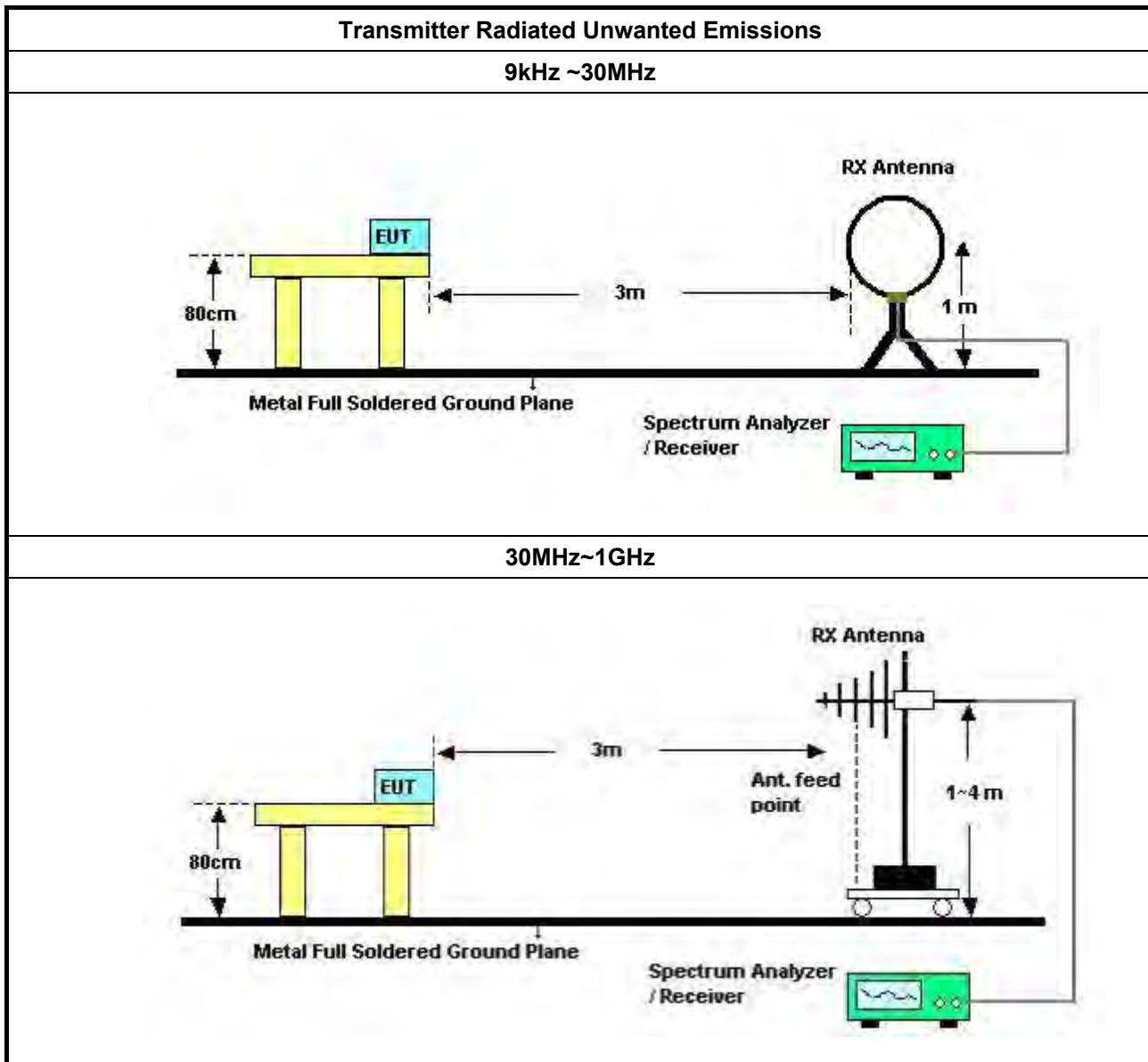
Refer a test equipment and calibration data table in this test report.

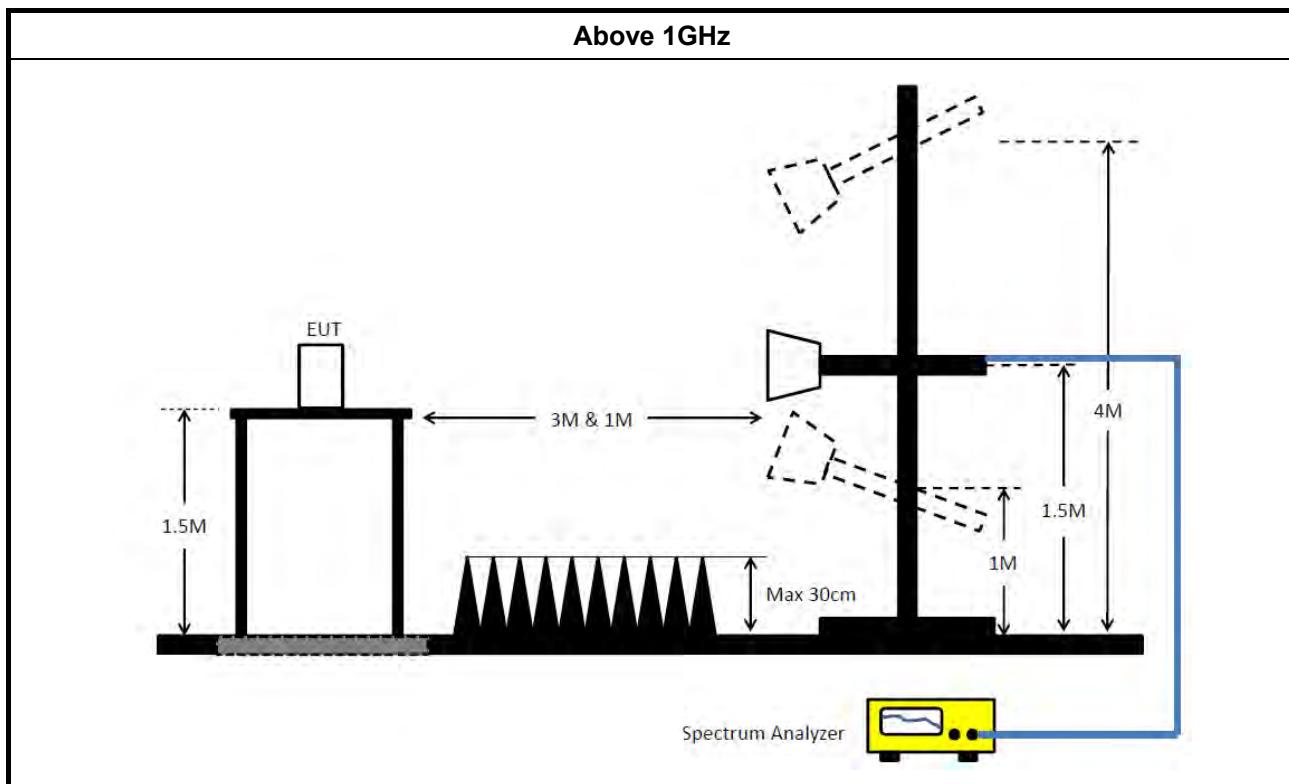
### 3.5.3 Test Procedures

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 H)2) for unwanted emissions into non-restricted bands.
	▪ Refer as FCC KDB 789033, clause H)1) for unwanted emissions into restricted bands.
	<input type="checkbox"/> Refer as FCC KDB 789033, H)6) Method AD (Trace Averaging).
	<input checked="" type="checkbox"/> Refer as FCC KDB 789033, H)6) Method VB (Reduced VBW).
	<input type="checkbox"/> Refer as ANSI C63.10, clause 4.2.3.2.3 (Reduced VBW). $VBW \geq 1/T$ , where T is pulse time.
	<input type="checkbox"/> Refer as ANSI C63.10, clause 4.2.3.2.4 average value of pulsed emissions.
	<input checked="" type="checkbox"/> Refer as FCC KDB 789033, clause H)5) measurement procedure peak limit.
	<input type="checkbox"/> Refer as ANSI C63.10, clause 4.2.3.2.2 measurement procedure peak limit.
▪ For radiated measurement.	
	▪ Refer as ANSI C63.10, clause 6.4 for radiated emissions below 30 MHz and test distance is 3m.
	▪ Refer as ANSI C63.10, clause 6.5 for radiated emissions 30 MHz to 1 GHz and test distance is 3m.
	▪ Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1GHz.
▪ The any unwanted emissions level shall not exceed the fundamental emission level.	
▪ All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.	



## 3.5.4 Test Setup





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

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

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.

### 3.5.6 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. 31, 2018	Jan. 30, 2019	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz ~ 100MHz	Dec. 20, 2017	Dec. 19, 2018	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Dec. 29, 2017	Dec. 28, 2018	Conduction (CO01-CB)
COND Cable	Woken	Cable	01	150kHz ~ 30MHz	May 23, 2017	May 22, 2018	Conduction (CO01-CB)
Software	Audix	E3	6.120210n	-	N.C.R.	N.C.R.	Conduction (CO01-CB)
BILOG ANTENNA with 6dB Attenuator	TESEQ & EMCI	CBL6112D & N-6-06	37880 & AT-N0609	20MHz ~ 2GHz	Aug. 30, 2017	Aug. 29, 2018	Radiation (03CH01-CB)
Horn Antenna	EMCO	3115	00075790	750MHz ~ 18GHz	Nov. 20, 2017	Nov. 19, 2018	Radiation (03CH01-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Jul. 05, 2017	Jul. 04, 2018	Radiation (03CH01-CB)
Pre-Amplifier	EMCI	EMC330N	980332	20MHz ~ 3GHz	May 02, 2017	May 01, 2018	Radiation (03CH01-CB)
Pre-Amplifier	EMCI	EMC330N	980332	20MHz ~ 3GHz	May 02, 2018	May 01, 2019	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Jan. 09, 2018	Jan. 08, 2019	Radiation (03CH01-CB)
Pre-Amplifier	MITEQ	TTA1840-35-HG	1864479	18GHz ~ 40GHz	Jul. 10, 2017	Jul. 09, 2018	Radiation (03CH01-CB)
Spectrum Analyzer	R&S	FSP40	100056	9kHz ~ 40GHz	Nov. 23, 2017	Nov. 22, 2018	Radiation (03CH01-CB)
EMI Test Receiver	R&S	ESR26	101289	9kHz ~ 26GHz	Nov. 02, 2017	Nov. 01, 2018	Radiation (03CH01-CB)
RF Cable-low	Woken	Low Cable-16+17	N/A	30 MHz ~ 1 GHz	Oct. 11, 2017	Oct. 10, 2018	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16	N/A	1 GHz ~ 18 GHz	Oct. 11, 2017	Oct. 10, 2018	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16+17	N/A	1 GHz ~ 18 GHz	Oct. 11, 2017	Oct. 10, 2018	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G#1	N/A	18GHz ~ 40 GHz	Oct. 11, 2017	Oct. 10, 2018	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G#2	N/A	18GHz ~ 40 GHz	Oct. 11, 2017	Oct. 10, 2018	Radiation (03CH01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	Mar. 16, 2018	Mar. 15, 2019	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSV40	100979	9kHz~40GHz	Dec. 21, 2017	Dec. 20, 2018	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-06	1 GHz – 26.5 GHz	Oct. 11, 2017	Oct. 10, 2018	Conducted (TH01-CB)

**FCC RADIO TEST REPORT**

Report No. : FR841602AB

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
RF Cable-high	Woken	RG402	High Cable-07	1 GHz –26.5 GHz	Oct. 11, 2017	Oct. 10, 2018	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-08	1 GHz –26.5 GHz	Oct. 11, 2017	Oct. 10, 2018	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-09	1 GHz –26.5 GHz	Oct. 11, 2017	Oct. 10, 2018	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-10	1 GHz –26.5 GHz	Oct. 11, 2017	Oct. 10, 2018	Conducted (TH01-CB)
Power Sensor	Agilent	U2021XA	MY53410001	50MHz~18GHz	Nov. 20, 2017	Nov. 19, 2018	Conducted (TH01-CB)

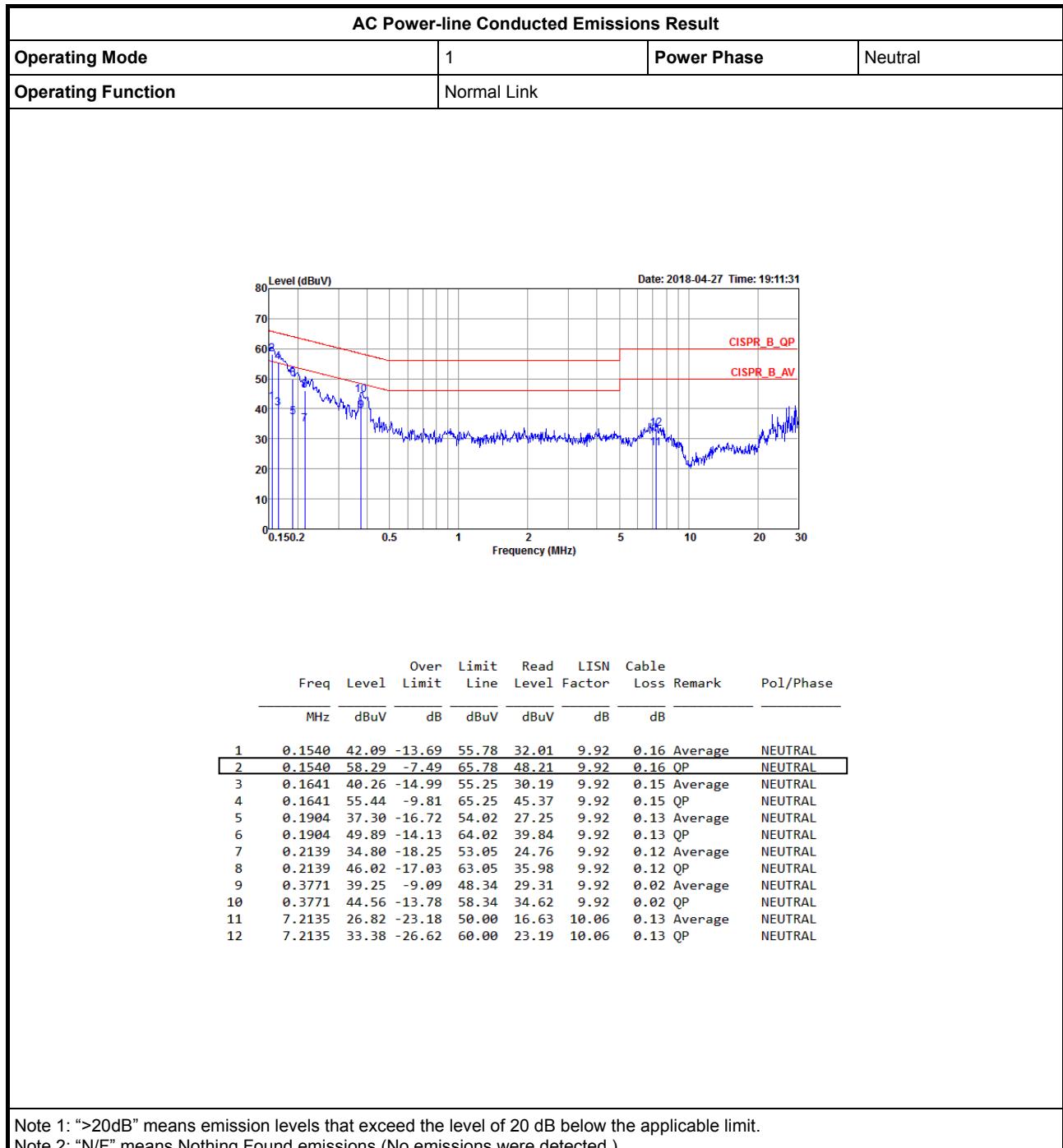
Note: Calibration Interval of instruments listed above is one year.

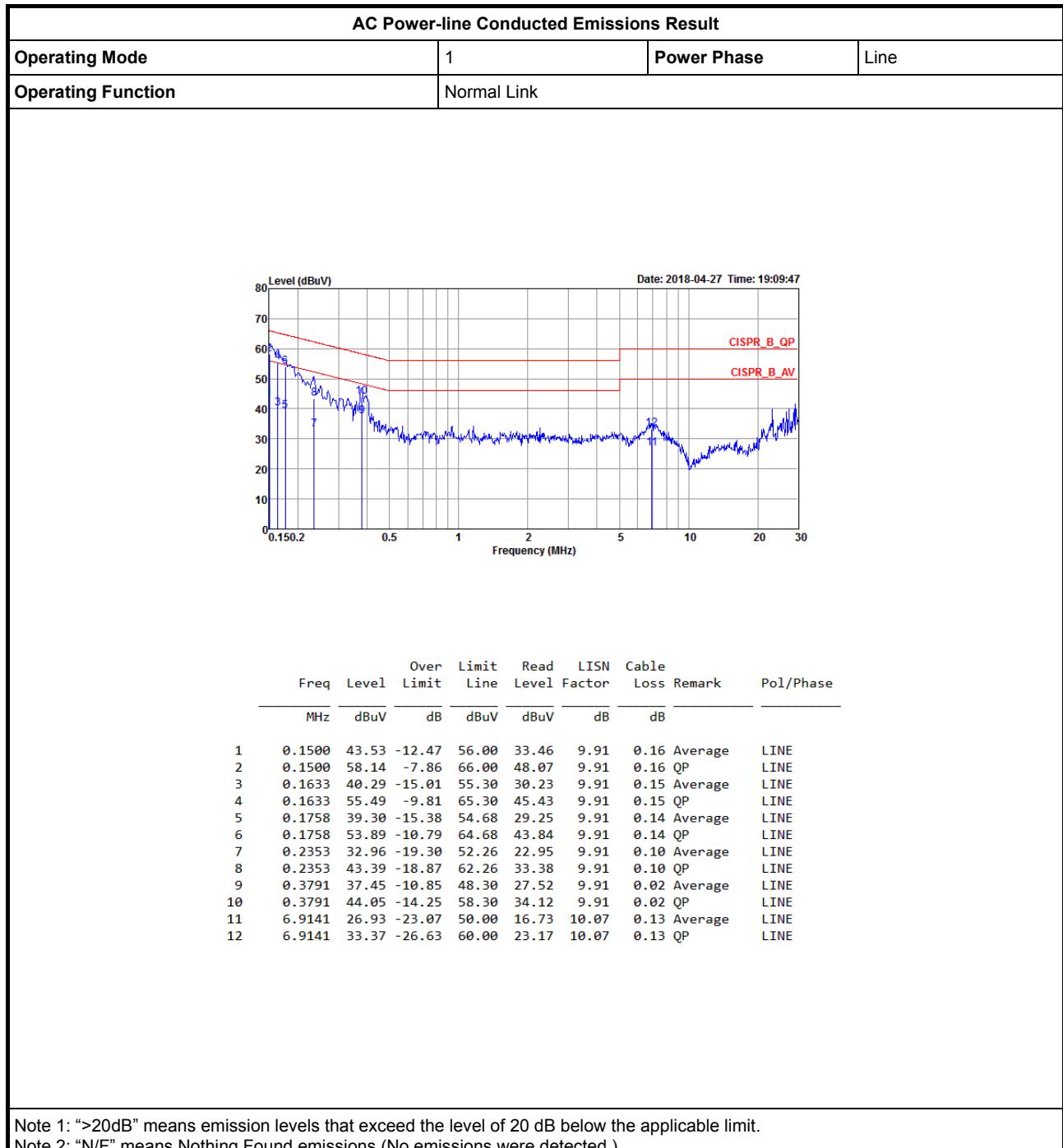
N.C.R. means Non-Calibration required.



## AC Power-line Conducted Emissions Result

Appendix A





Note 1: ">20dB" means emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found emissions (No emissions were detected.)

**Summary**

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.15-5.25GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_4TX	27.375M	16.717M	16M7D1D	21.7M	16.592M
802.11ac VHT20_Nss1,(MCS0)_4TX	35.5M	17.866M	17M9D1D	24.225M	17.791M
802.11ac VHT40_Nss1,(MCS0)_4TX	89.9M	37.381M	37M4D1D	39.85M	36.232M
802.11ac VHT80_Nss1,(MCS0)_4TX	91.6M	75.262M	75M3D1D	80.7M	74.963M
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	34.95M	17.866M	17M9D1D	28.175M	17.766M
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	75.65M	36.382M	36M4D1D	39.75M	36.232M
802.11ac VHT80-BF_Nss1,(MCS0)_4TX	81.5M	75.062M	75M1D1D	80.5M	74.963M
5.725-5.85GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_4TX	16.35M	28.211M	28M2D1D	15.925M	19.815M
802.11ac VHT20_Nss1,(MCS0)_4TX	17.6M	30.285M	30M3D1D	17.3M	21.739M
802.11ac VHT40_Nss1,(MCS0)_4TX	36.35M	54.673M	54M7D1D	35.7M	40.73M
802.11ac VHT80_Nss1,(MCS0)_4TX	76.3M	76.062M	76M1D1D	75.7M	75.962M
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	17.6M	18.041M	18M0D1D	17.525M	17.816M
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	36.35M	36.482M	36M5D1D	35.7M	36.282M
802.11ac VHT80-BF_Nss1,(MCS0)_4TX	76.3M	75.962M	76M0D1D	75.7M	75.862M

**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

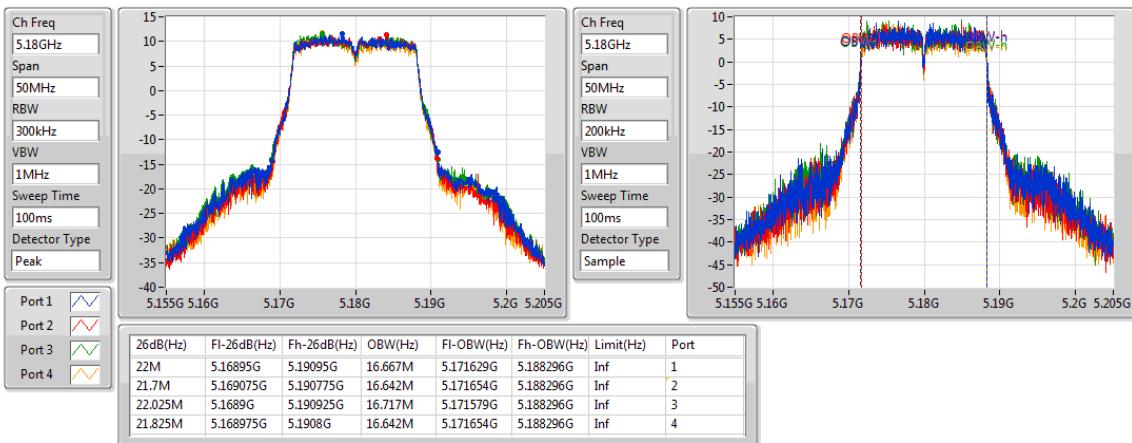
Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW dB (Hz)	Port 2-N dB (Hz)	Port 2-OBW dB (Hz)	Port 3-N dB (Hz)	Port 3-OBW dB (Hz)	Port 4-N dB (Hz)	Port 4-OBW dB (Hz)
802.11a_Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	Inf	22M	16.667M	21.7M	16.642M	22.025M	16.717M	21.825M	16.642M
5200MHz	Pass	Inf	21.95M	16.667M	21.775M	16.692M	22M	16.667M	21.775M	16.617M
5240MHz	Pass	Inf	21.875M	16.642M	21.725M	16.642M	27.375M	16.692M	21.7M	16.592M
5745MHz	Pass	500k	16.325M	20.79M	15.925M	22.514M	16.325M	19.815M	16.3M	21.439M
5785MHz	Pass	500k	16.3M	24.063M	16.325M	25.137M	16.325M	21.314M	16.325M	22.964M
5825MHz	Pass	500k	16.325M	23.313M	16.3M	28.211M	16.3M	25.337M	16.35M	25.362M
802.11ac VHT20_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	Inf	34.875M	17.791M	33.375M	17.816M	34.4M	17.841M	30.35M	17.841M
5200MHz	Pass	Inf	34.875M	17.791M	33.075M	17.816M	35.5M	17.866M	24.225M	17.791M
5240MHz	Pass	Inf	32.625M	17.841M	30.475M	17.816M	31.275M	17.866M	28.825M	17.816M
5745MHz	Pass	500k	17.55M	22.839M	17.55M	24.763M	17.55M	21.739M	17.55M	24.213M
5785MHz	Pass	500k	17.6M	24.088M	17.55M	26.387M	17.55M	22.489M	17.55M	25.162M
5825MHz	Pass	500k	17.575M	23.438M	17.55M	30.285M	17.525M	26.937M	17.3M	28.086M
802.11ac VHT40_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5190MHz	Pass	Inf	46.65M	36.232M	39.85M	36.232M	47.65M	36.282M	47.3M	36.282M
5230MHz	Pass	Inf	83.35M	36.982M	78.7M	36.432M	89.9M	37.381M	77.95M	36.582M
5755MHz	Pass	500k	36.25M	42.829M	36.35M	44.678M	36.3M	54.673M	35.75M	46.277M
5795MHz	Pass	500k	36.35M	41.929M	36.3M	40.73M	36.3M	49.025M	35.7M	42.179M
802.11ac VHT80_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5210MHz	Pass	Inf	91.6M	74.963M	81.1M	75.262M	80.7M	74.963M	80.8M	75.062M
5775MHz	Pass	500k	76.3M	75.962M	75.8M	76.062M	75.7M	75.962M	75.7M	76.062M
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	Inf	34.95M	17.816M	34.15M	17.791M	34.3M	17.866M	28.175M	17.791M
5200MHz	Pass	Inf	32.7M	17.816M	32.725M	17.816M	31.975M	17.841M	29.975M	17.766M
5240MHz	Pass	Inf	34.45M	17.816M	34.7M	17.791M	31.7M	17.816M	30.35M	17.816M
5745MHz	Pass	500k	17.575M	17.841M	17.55M	17.866M	17.55M	17.816M	17.575M	17.866M
5785MHz	Pass	500k	17.6M	17.891M	17.575M	17.891M	17.55M	17.816M	17.525M	17.866M
5825MHz	Pass	500k	17.575M	17.891M	17.6M	18.041M	17.575M	18.016M	17.575M	17.866M
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5190MHz	Pass	Inf	40.2M	36.232M	39.75M	36.282M	41.05M	36.232M	40.15M	36.232M
5230MHz	Pass	Inf	75.65M	36.332M	45.95M	36.332M	71.4M	36.382M	65.15M	36.282M
5755MHz	Pass	500k	36.3M	36.382M	36.35M	36.282M	36.25M	36.482M	35.7M	36.382M
5795MHz	Pass	500k	36.35M	36.432M	36.35M	36.332M	36.3M	36.432M	35.75M	36.382M
802.11ac VHT80-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5210MHz	Pass	Inf	81.5M	75.062M	81.1M	74.963M	80.5M	74.963M	80.8M	75.062M
5775MHz	Pass	500k	76.3M	75.862M	75.9M	75.862M	75.7M	75.962M	75.7M	75.962M

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

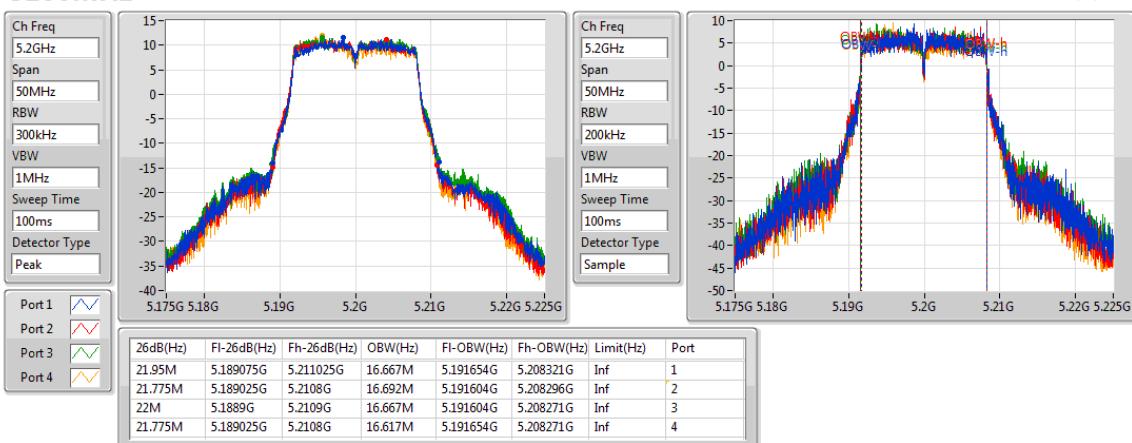
Port X-OBW = Port X 99% occupied bandwidth;

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

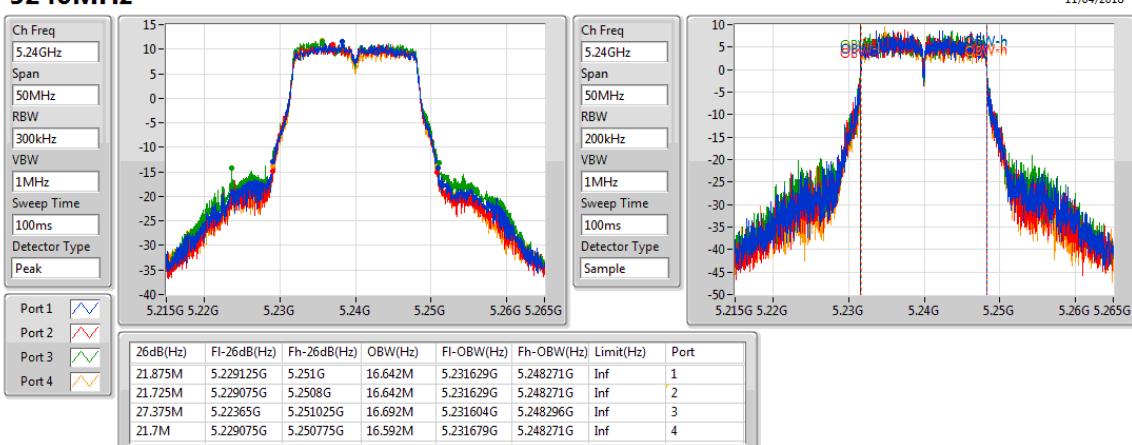
11/04/2018


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

11/04/2018

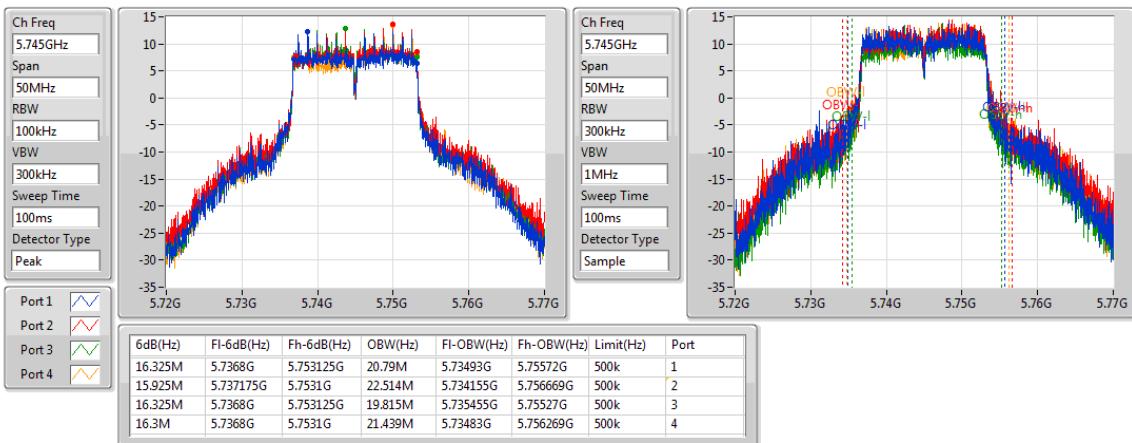

**802.11a\_Nss1,(6Mbps)\_4TX**
**EBW**
**5240MHz**

11/04/2018

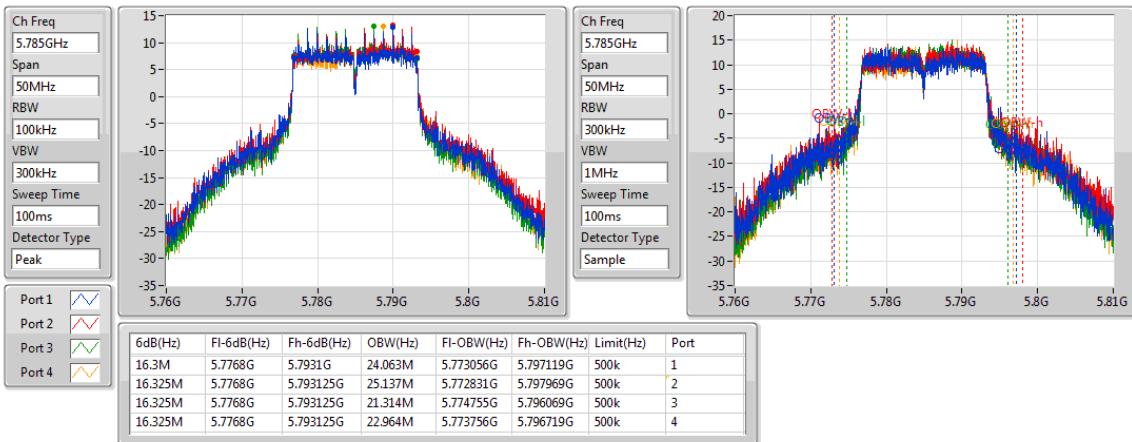


**802.11a\_Nss1,(6Mbps)\_4TX**
**EBW**
**5745MHz**

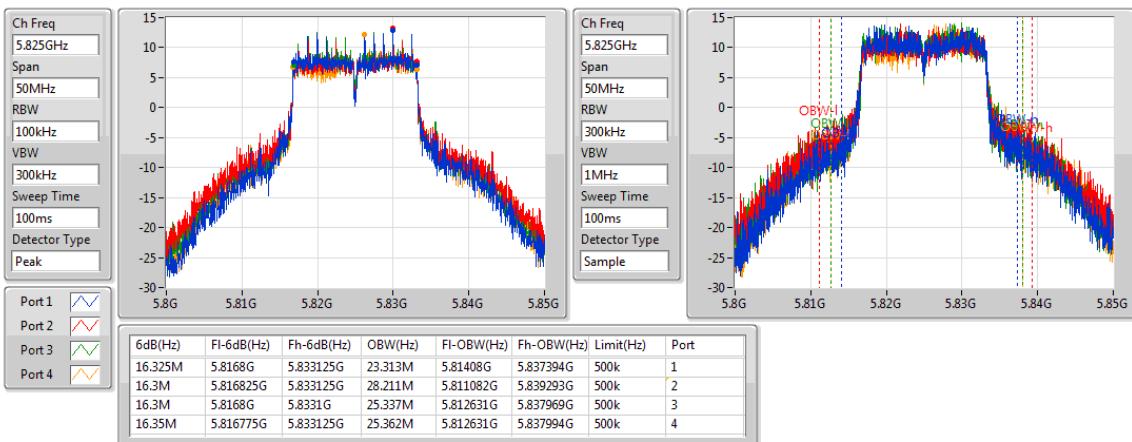
11/04/2018


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

11/04/2018

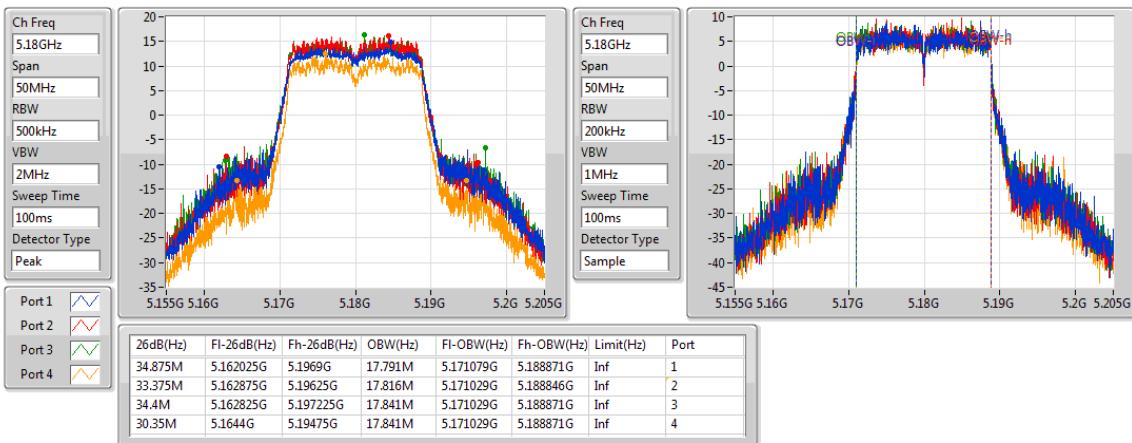

**802.11a\_Nss1,(6Mbps)\_4TX**
**EBW**
**5825MHz**

11/04/2018

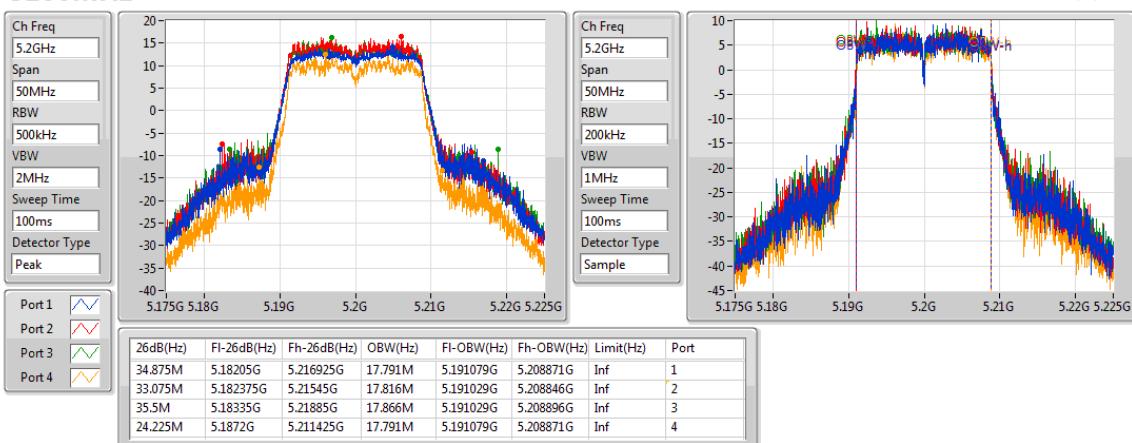


**802.11ac VHT20\_Nss1,(MCS0)\_4TX**
**EBW**
**5180MHz**

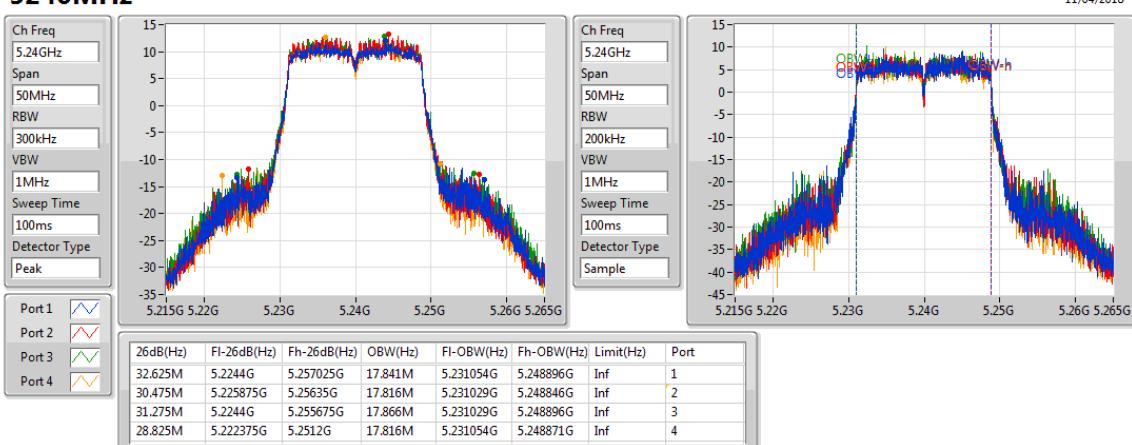
11/04/2018

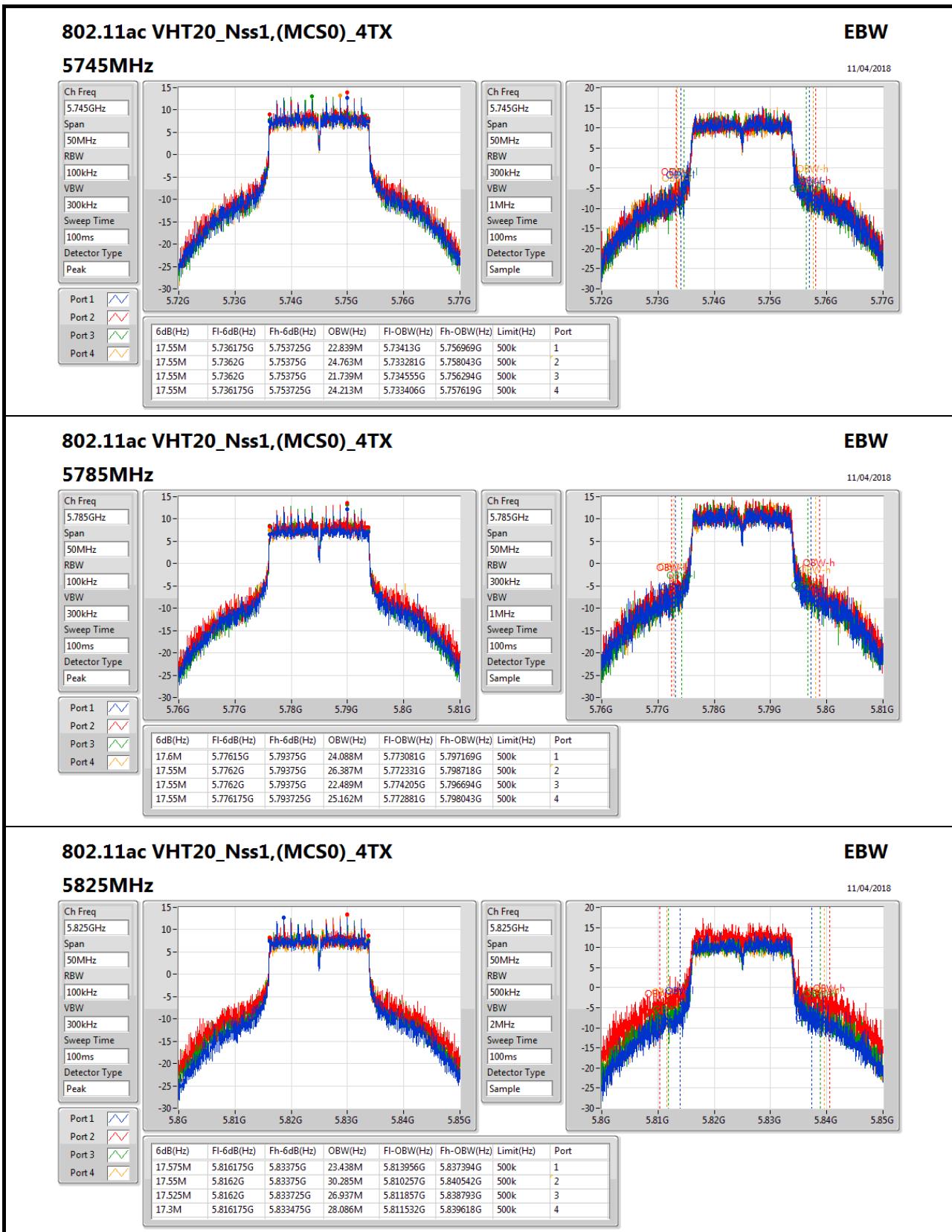

**802.11ac VHT20\_Nss1,(MCS0)\_4TX**
**EBW**
**5200MHz**

11/04/2018


**802.11ac VHT20\_Nss1,(MCS0)\_4TX**
**EBW**
**5240MHz**

11/04/2018





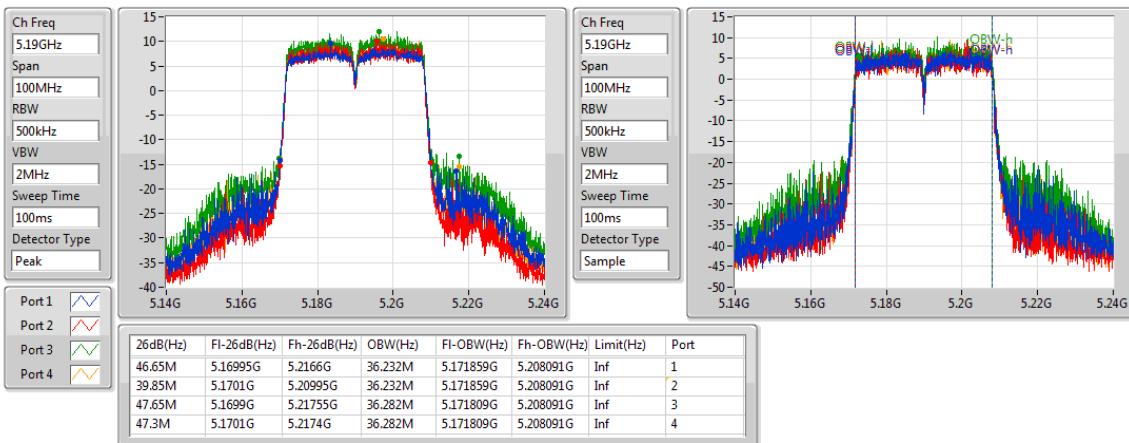


## 802.11ac VHT40\_Nss1,(MCS0)\_4TX

EBW

5190MHz

11/04/2018



## 802.11ac VHT40\_Nss1,(MCS0)\_4TX

EBW

5230MHz

11/04/2018

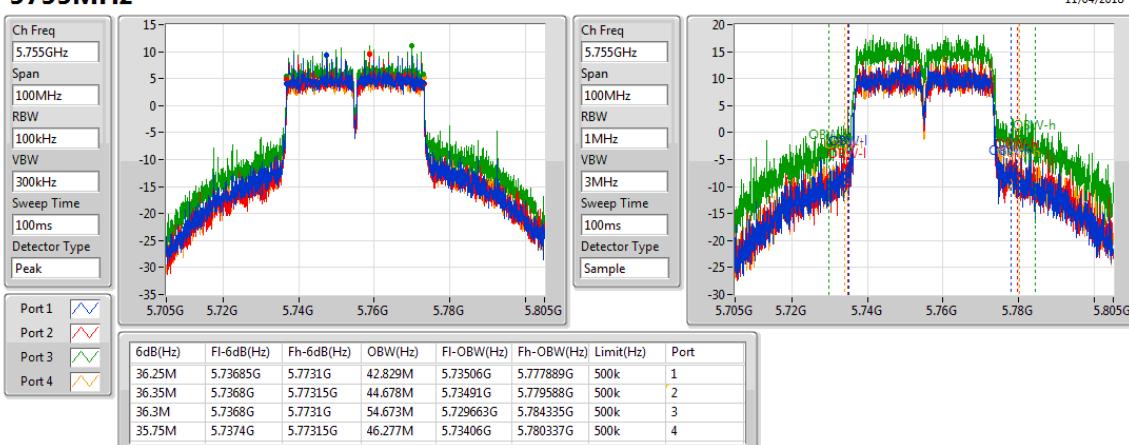


## 802.11ac VHT40\_Nss1,(MCS0)\_4TX

EBW

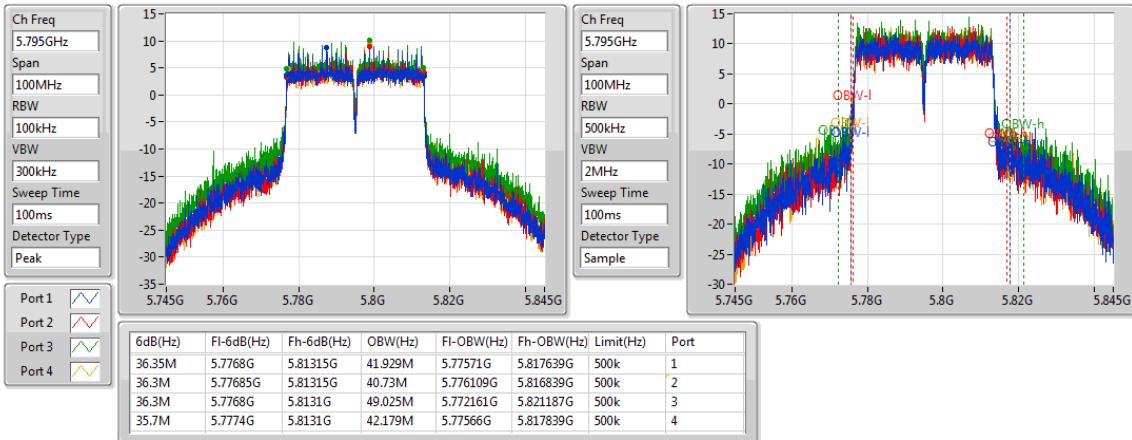
5755MHz

11/04/2018

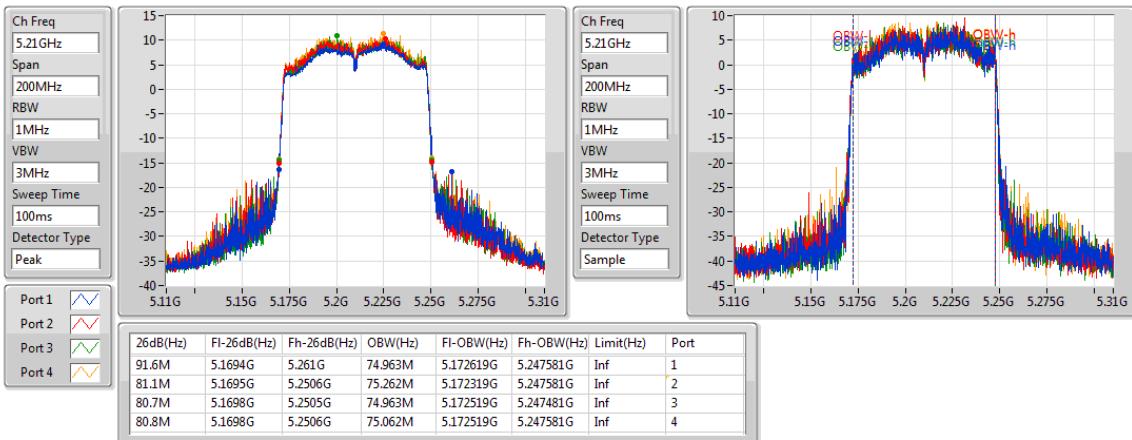


**802.11ac VHT40\_Nss1,(MCS0)\_4TX**
**EBW**
**5795MHz**

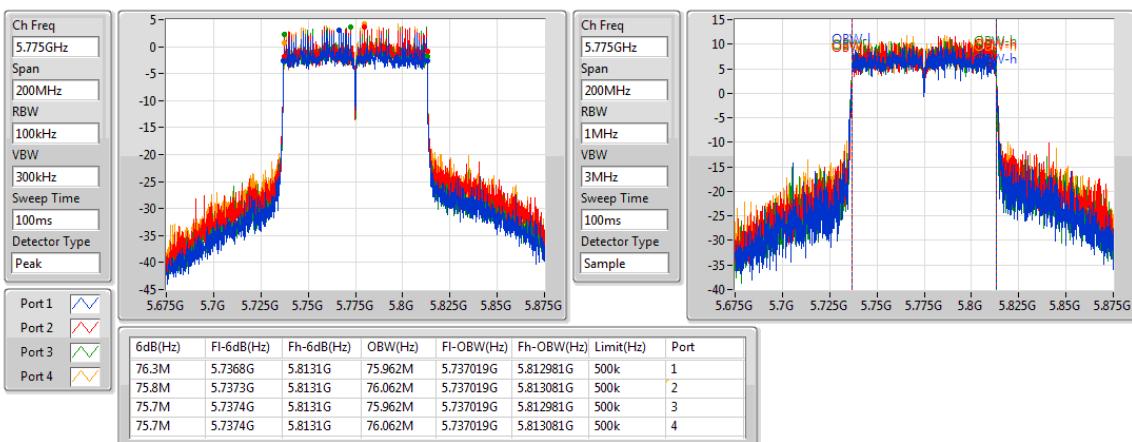
11/04/2018


**802.11ac VHT80\_Nss1,(MCS0)\_4TX**
**EBW**
**5210MHz**

11/04/2018

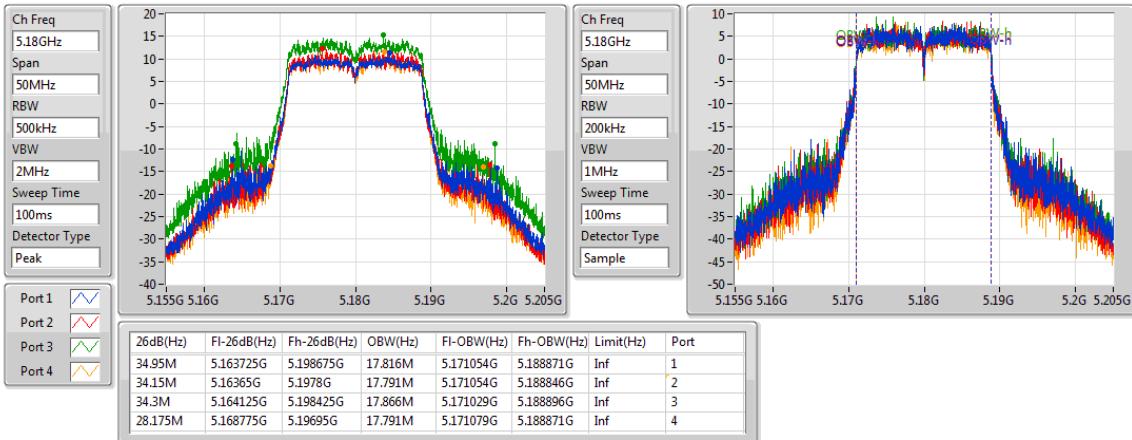

**802.11ac VHT80\_Nss1,(MCS0)\_4TX**
**EBW**
**5775MHz**

11/04/2018

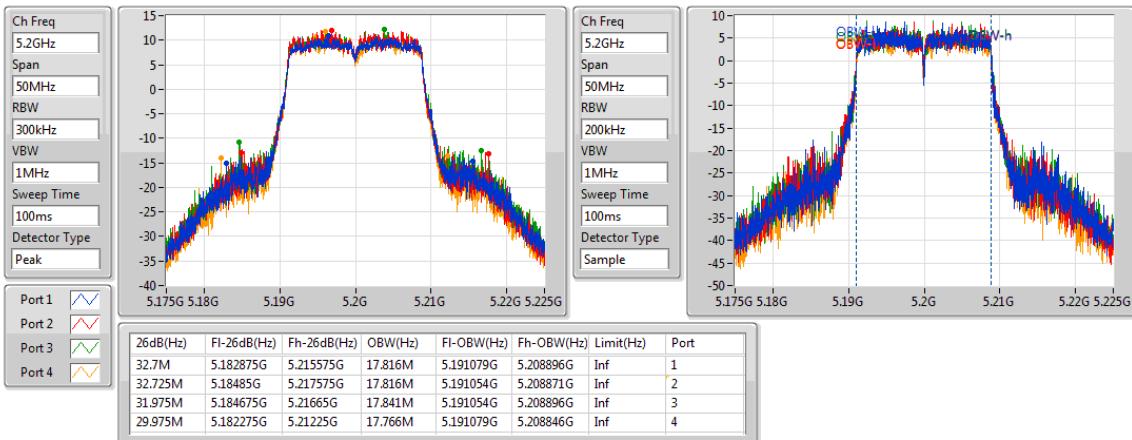


**802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5180MHz**

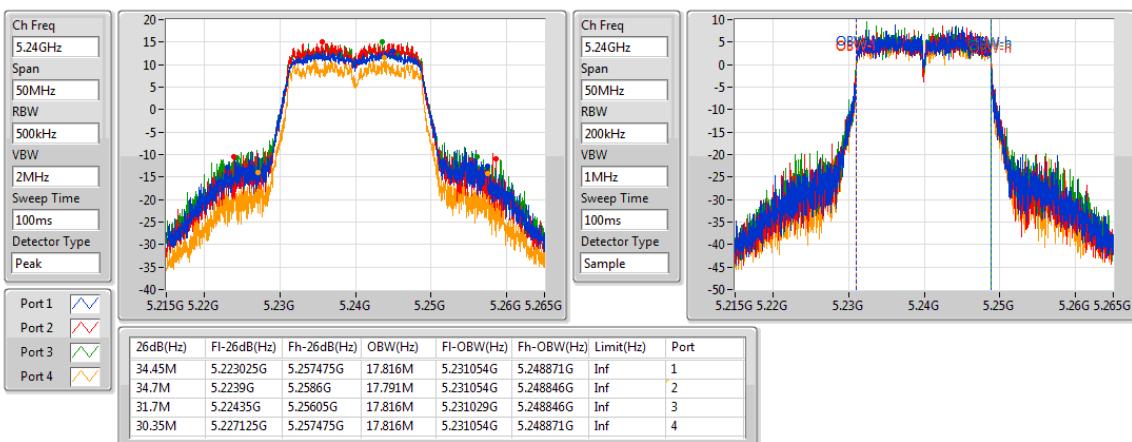
11/04/2018


**802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5200MHz**

11/04/2018

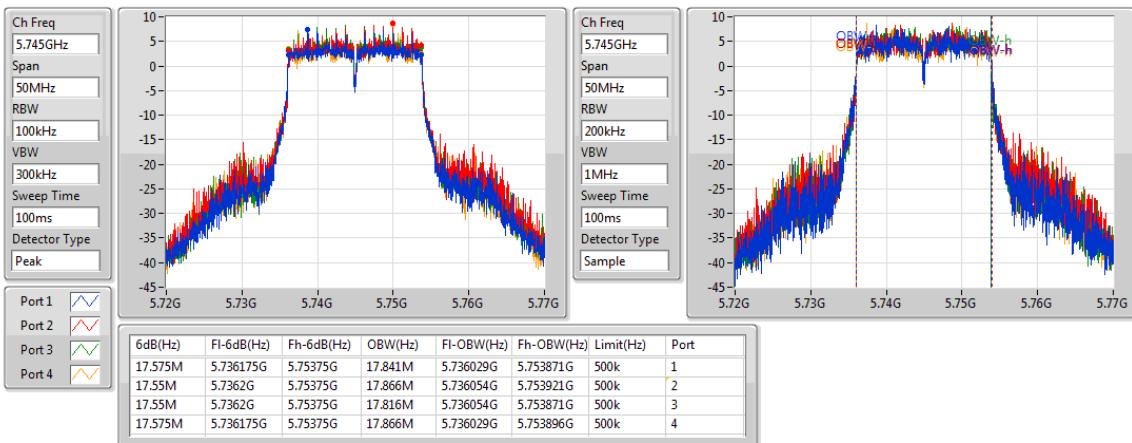

**802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5240MHz**

11/04/2018

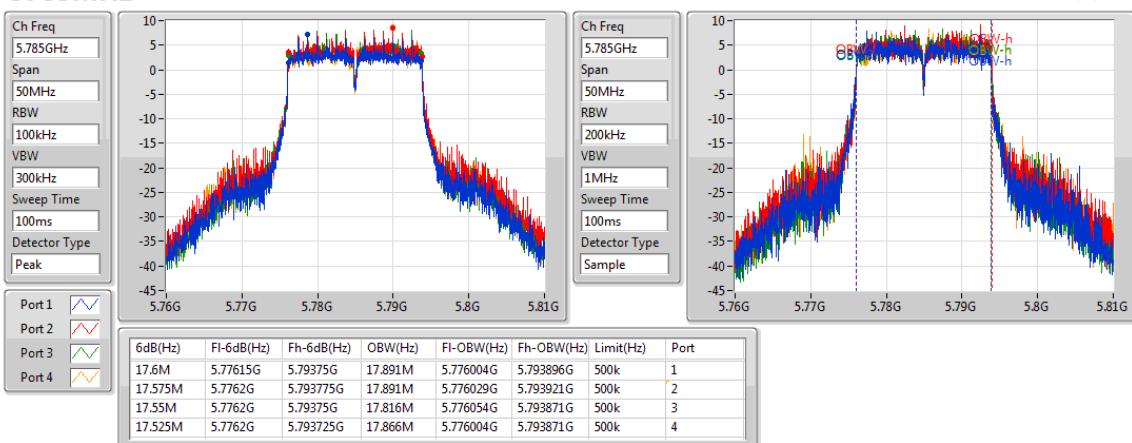


**802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5745MHz**

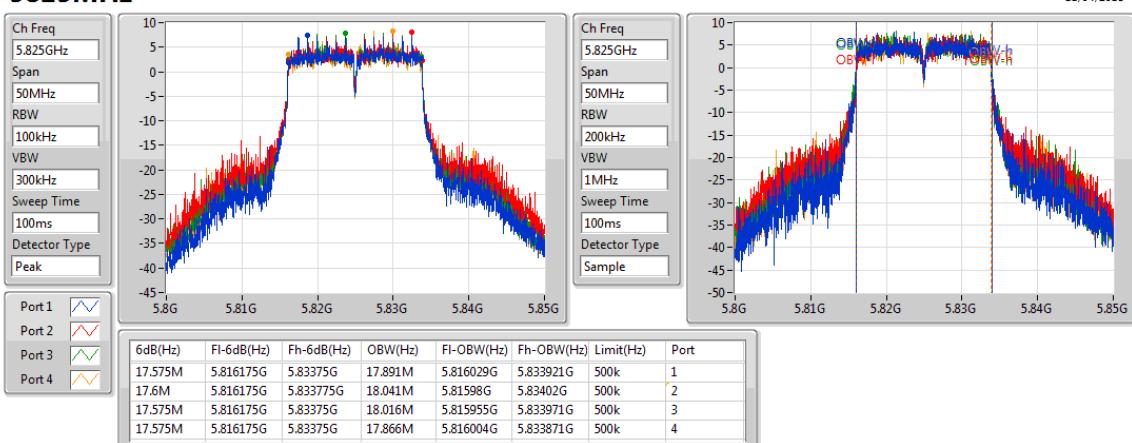
11/04/2018


**802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5785MHz**

11/04/2018

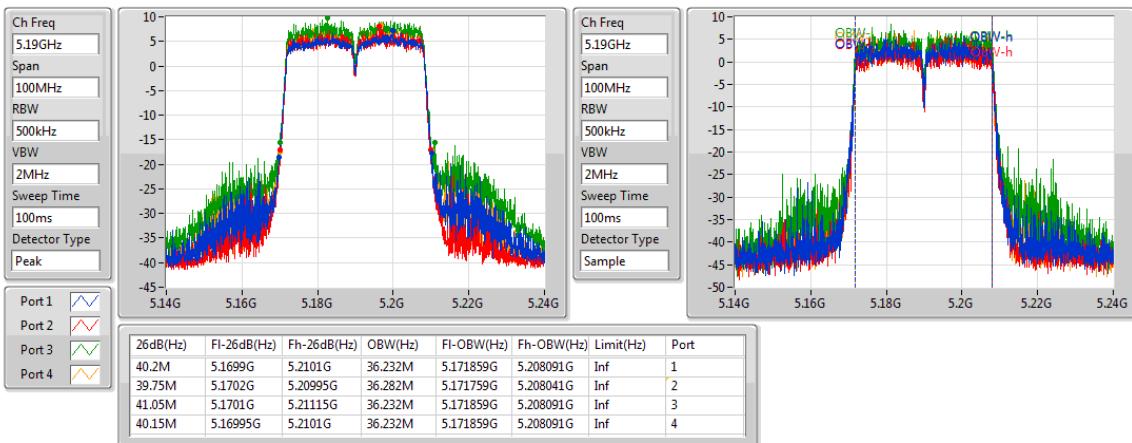

**802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5825MHz**

11/04/2018

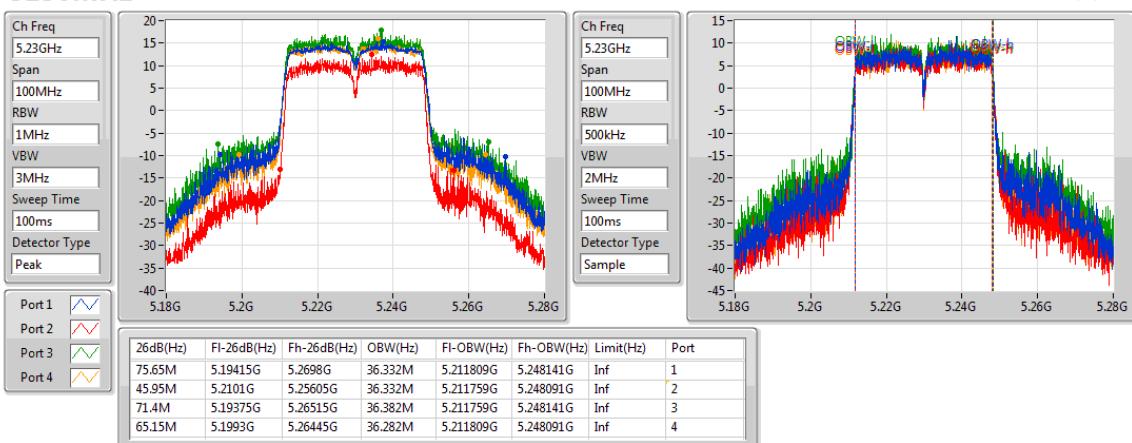


**802.11ac VHT40-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5190MHz**

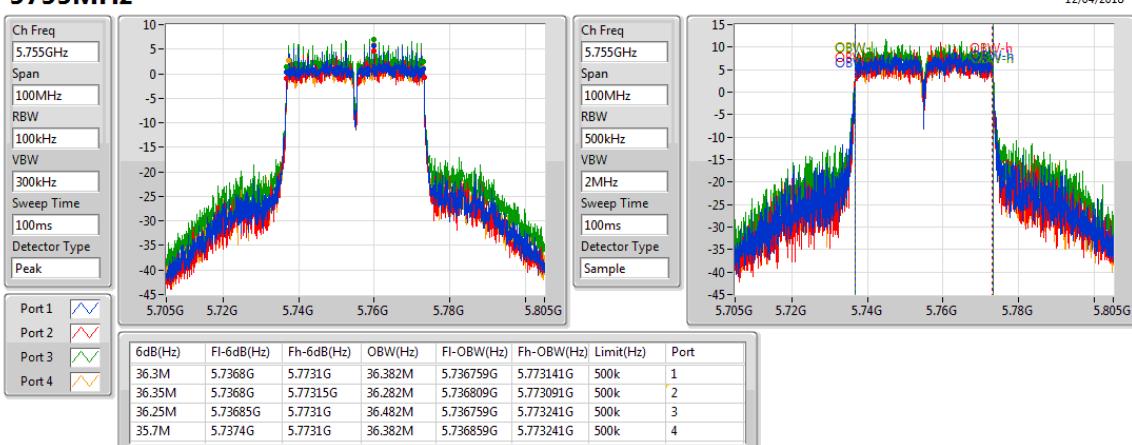
11/04/2018

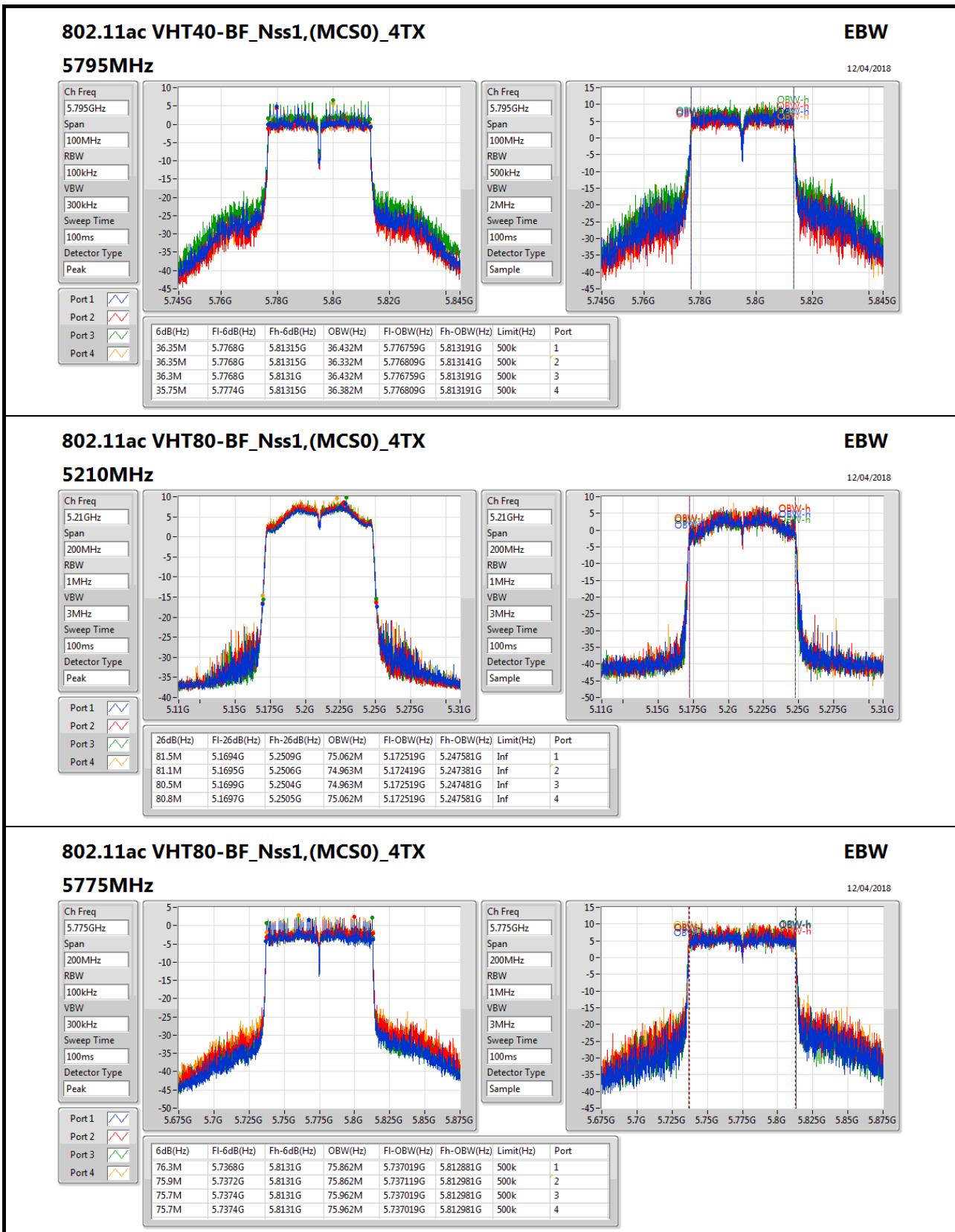

**802.11ac VHT40-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5230MHz**

12/04/2018


**802.11ac VHT40-BF\_Nss1,(MCS0)\_4TX**
**EBW**
**5755MHz**

12/04/2018





**Summary**

Mode	Total Power (dBm)	Total Power (W)
5.15-5.25GHz	-	-
802.11a_Nss1,(6Mbps)_4TX	26.11	0.40832
802.11ac VHT20_Nss1,(MCS0)_4TX	26.49	0.44566
802.11ac VHT40_Nss1,(MCS0)_4TX	29.11	0.81470
802.11ac VHT80_Nss1,(MCS0)_4TX	23.45	0.22131
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	26.19	0.41591
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	26.43	0.43954
802.11ac VHT80-BF_Nss1,(MCS0)_4TX	22.46	0.17620
5.725-5.85GHz	-	-
802.11a_Nss1,(6Mbps)_4TX	29.91	0.97949
802.11ac VHT20_Nss1,(MCS0)_4TX	29.91	0.97949
802.11ac VHT40_Nss1,(MCS0)_4TX	29.93	0.98401
802.11ac VHT80_Nss1,(MCS0)_4TX	26.62	0.45920
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	26.32	0.42855
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	26.42	0.43853
802.11ac VHT80-BF_Nss1,(MCS0)_4TX	25.87	0.38637



## 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	4.00	19.93	20.05	20.27	19.76	26.03	30.00
5200MHz	Pass	4.00	20.09	20.14	20.31	19.81	26.11	30.00
5240MHz	Pass	4.00	20.07	20.16	20.35	19.73	26.10	30.00
5745MHz	Pass	4.00	23.51	23.87	23.98	23.57	29.76	30.00
5785MHz	Pass	4.00	23.62	24.08	24.16	23.67	29.91	30.00
5825MHz	Pass	4.00	23.76	23.64	23.92	23.56	29.74	30.00
802.11ac VHT20_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5180MHz	Pass	4.00	20.36	20.65	20.78	20.01	26.48	30.00
5200MHz	Pass	4.00	20.31	20.71	20.75	19.96	26.46	30.00
5240MHz	Pass	4.00	20.38	20.57	20.82	20.07	26.49	30.00
5745MHz	Pass	4.00	23.86	23.95	24.12	23.63	29.91	30.00
5785MHz	Pass	4.00	23.52	24.03	24.09	23.82	29.89	30.00
5825MHz	Pass	4.00	23.75	23.64	23.91	23.53	29.73	30.00
802.11ac VHT40_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5190MHz	Pass	4.00	18.27	17.41	19.36	18.12	24.37	30.00
5230MHz	Pass	4.00	23.14	22.29	23.85	22.94	29.11	30.00
5755MHz	Pass	4.00	23.55	23.47	24.92	23.51	29.93	30.00
5795MHz	Pass	4.00	22.92	22.78	24.24	22.96	29.29	30.00
802.11ac VHT80_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5210MHz	Pass	4.00	17.14	17.46	17.26	17.84	23.45	30.00
5775MHz	Pass	4.00	20.03	20.77	20.58	20.98	26.62	30.00
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5180MHz	Pass	9.55	20.06	20.29	20.52	19.75	26.18	26.45
5200MHz	Pass	9.55	20.02	20.42	20.47	19.72	26.19	26.45
5240MHz	Pass	9.55	20.04	20.31	20.52	19.74	26.18	26.45
5745MHz	Pass	9.55	20.01	20.19	20.68	20.15	26.29	26.45
5785MHz	Pass	9.55	19.93	20.53	20.59	20.11	26.32	26.45
5825MHz	Pass	9.55	20.07	20.35	20.56	20.04	26.28	26.45
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5190MHz	Pass	9.55	16.42	15.68	17.98	16.65	22.78	26.45
5230MHz	Pass	9.55	20.29	19.54	21.37	20.23	26.43	26.45
5755MHz	Pass	9.55	20.12	19.93	21.42	19.95	26.42	26.45
5795MHz	Pass	9.55	19.85	19.67	21.15	19.89	26.20	26.45
802.11ac VHT80-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5210MHz	Pass	9.55	16.19	16.48	16.33	16.74	22.46	26.45
5775MHz	Pass	9.55	19.24	20.02	19.82	20.25	25.87	26.45

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

**Summary**

Mode	PD (dBm/RBW)
5.15-5.25GHz	-
802.11a_Nss1,(6Mbps)_4TX	13.39
802.11ac VHT20_Nss1,(MCS0)_4TX	13.38
802.11ac VHT40_Nss1,(MCS0)_4TX	13.11
802.11ac VHT80_Nss1,(MCS0)_4TX	5.11
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	13.04
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	10.43
802.11ac VHT80-BF_Nss1,(MCS0)_4TX	4.17
5.725-5.85GHz	-
802.11a_Nss1,(6Mbps)_4TX	15.53
802.11ac VHT20_Nss1,(MCS0)_4TX	15.30
802.11ac VHT40_Nss1,(MCS0)_4TX	12.26
802.11ac VHT80_Nss1,(MCS0)_4TX	6.16
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	11.75
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	8.89
802.11ac VHT80-BF_Nss1,(MCS0)_4TX	5.38

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



## Result

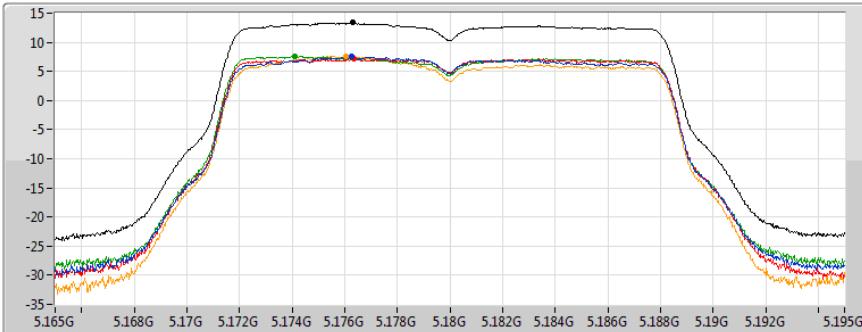
Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	Port 3 (dBm/RBW)	Port 4 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
802.11a_Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-
5180MHz	Pass	9.55	7.59	7.15	7.56	7.60	13.34	13.45
5200MHz	Pass	9.55	7.41	7.23	7.51	7.90	13.39	13.45
5240MHz	Pass	9.55	7.38	7.31	7.75	7.72	13.35	13.45
5745MHz	Pass	9.55	9.23	9.81	9.74	9.68	15.50	26.45
5785MHz	Pass	9.55	9.06	9.81	9.72	9.82	15.53	26.45
5825MHz	Pass	9.55	9.62	9.36	9.62	9.83	15.46	26.45
802.11ac VHT20_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5180MHz	Pass	9.55	7.57	7.55	7.90	7.21	13.30	13.45
5200MHz	Pass	9.55	7.34	7.80	7.63	7.19	13.25	13.45
5240MHz	Pass	9.55	7.52	7.62	8.01	7.19	13.38	13.45
5745MHz	Pass	9.55	9.24	9.57	9.64	9.64	15.30	26.45
5785MHz	Pass	9.55	9.02	9.62	9.55	9.66	15.24	26.45
5825MHz	Pass	9.55	9.39	9.27	9.22	9.52	15.11	26.45
802.11ac VHT40_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5190MHz	Pass	9.55	2.17	1.60	3.61	2.68	8.45	13.45
5230MHz	Pass	9.55	7.09	6.58	8.07	7.33	13.11	13.45
5755MHz	Pass	9.55	6.28	6.06	7.14	6.60	12.26	26.45
5795MHz	Pass	9.55	5.32	5.50	6.55	6.11	11.61	26.45
802.11ac VHT80_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5210MHz	Pass	9.55	-0.91	-0.70	-0.89	-0.00	5.11	13.45
5775MHz	Pass	9.55	0.03	0.67	0.53	1.24	6.16	26.45
802.11ac VHT20-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5180MHz	Pass	9.55	7.30	7.15	7.77	6.94	13.03	13.45
5200MHz	Pass	9.55	7.11	7.43	7.52	7.01	13.04	13.45
5240MHz	Pass	9.55	7.27	7.33	7.57	6.83	13.02	13.45
5745MHz	Pass	9.55	5.46	6.09	6.24	6.05	11.67	26.45
5785MHz	Pass	9.55	5.47	6.40	6.15	6.31	11.75	26.45
5825MHz	Pass	9.55	5.64	5.86	5.89	6.13	11.68	26.45
802.11ac VHT40-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5190MHz	Pass	9.55	0.25	-0.51	2.01	0.75	6.54	13.45
5230MHz	Pass	9.55	4.22	3.48	5.53	4.66	10.43	13.45
5755MHz	Pass	9.55	2.85	2.56	4.10	3.29	8.89	26.45
5795MHz	Pass	9.55	2.34	2.43	3.79	3.20	8.74	26.45
802.11ac VHT80-BF_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5210MHz	Pass	9.55	-1.79	-1.53	-1.84	-1.16	4.17	13.45
5775MHz	Pass	9.55	-0.89	0.08	-0.34	0.52	5.38	26.45

**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**
**5180MHz**

Ch Freq  
5.18GHz  
Span  
30MHz  
RBW  
1MHz  
VBW  
3MHz  
Sweep Time  
20ms  
Detector Type  
RMS


**PSD**

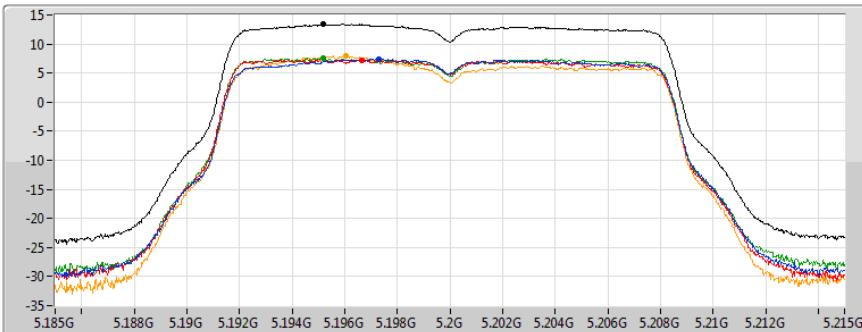
11/04/2018

Sum  
Port 1  
Port 2  
Port 3  
Port 4

Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
13.34	13.34	7.59	7.15	7.56	7.60

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

Ch Freq  
5.2GHz  
Span  
30MHz  
RBW  
1MHz  
VBW  
3MHz  
Sweep Time  
20ms  
Detector Type  
RMS


**PSD**

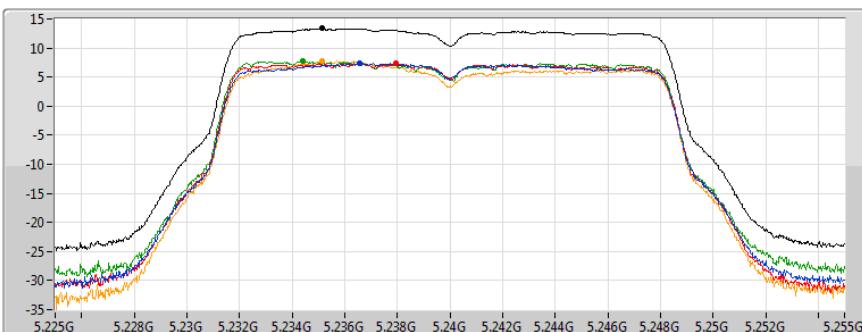
11/04/2018

Sum  
Port 1  
Port 2  
Port 3  
Port 4

Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
13.39	13.39	7.41	7.23	7.51	7.90

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

Ch Freq  
5.24GHz  
Span  
30MHz  
RBW  
1MHz  
VBW  
3MHz  
Sweep Time  
20ms  
Detector Type  
RMS


**PSD**

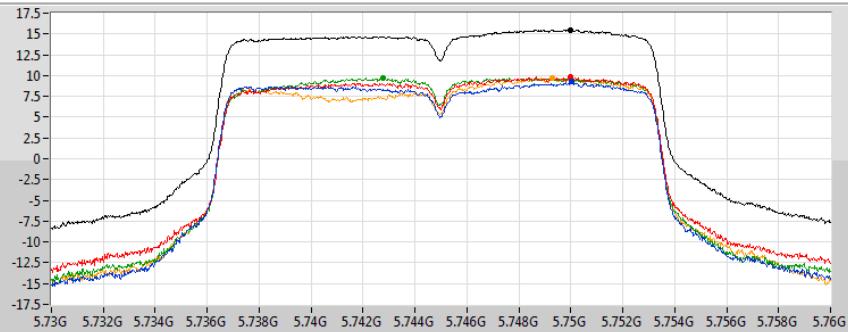
11/04/2018

Sum  
Port 1  
Port 2  
Port 3  
Port 4

Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
13.35	13.35	7.38	7.31	7.75	7.72

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

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


**PSD**

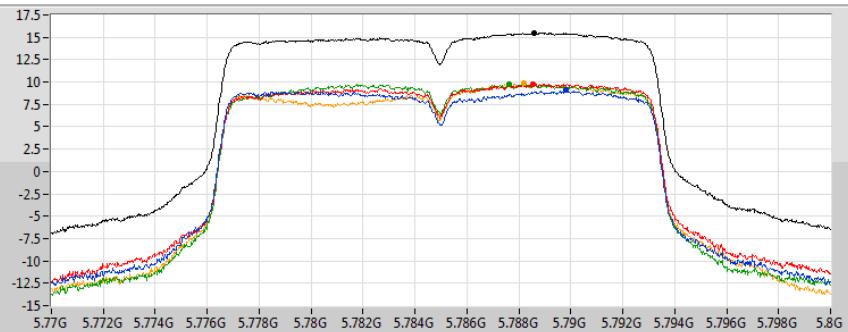
11/04/2018

Sum  
Port 1  
Port 2  
Port 3  
Port 4

Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
15.50	15.50	9.23	9.81	9.74	9.68

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

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


**PSD**

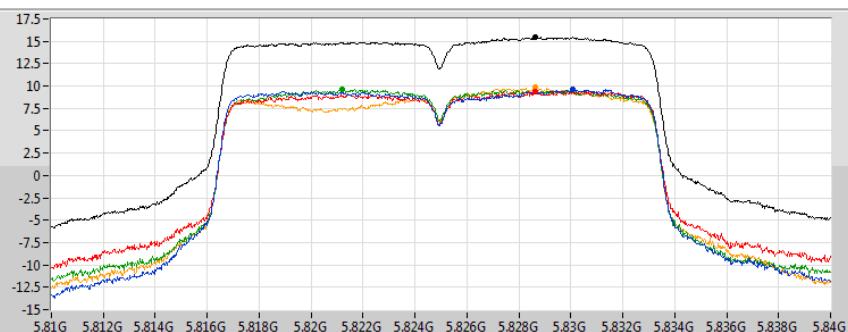
11/04/2018

Sum  
Port 1  
Port 2  
Port 3  
Port 4

Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
15.53	15.53	9.06	9.81	9.72	9.82

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

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


**PSD**

11/04/2018

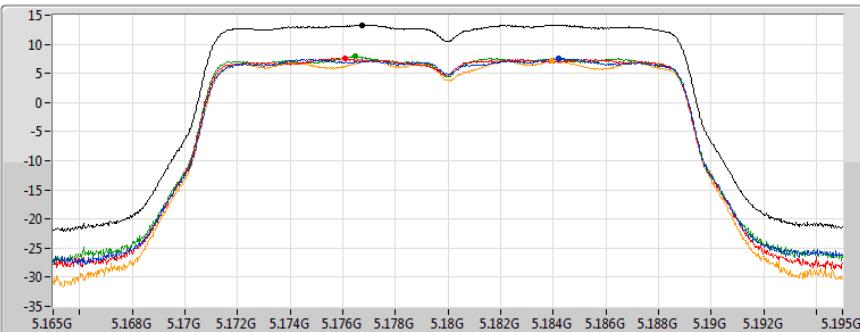
Sum  
Port 1  
Port 2  
Port 3  
Port 4

Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
15.46	15.46	9.62	9.36	9.62	9.83

**802.11ac VHT20\_Nss1,(MCS0)\_4TX****PSD****5180MHz**

11/04/2018

Ch Freq  
5.18GHz  
Span  
30MHz  
RBW  
1MHz  
VBW  
3MHz  
Sweep Time  
20ms  
Detector Type  
RMS



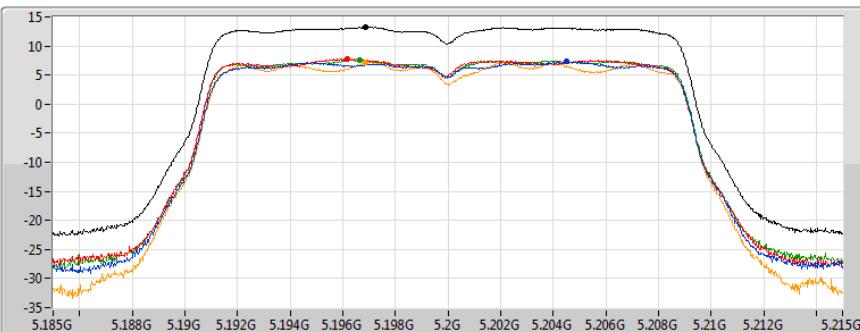
Sum  
Port 1  
Port 2  
Port 3  
Port 4

Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
13.30	13.30	7.57	7.55	7.90	7.21

**802.11ac VHT20\_Nss1,(MCS0)\_4TX****PSD****5200MHz**

11/04/2018

Ch Freq  
5.2GHz  
Span  
30MHz  
RBW  
1MHz  
VBW  
3MHz  
Sweep Time  
20ms  
Detector Type  
RMS



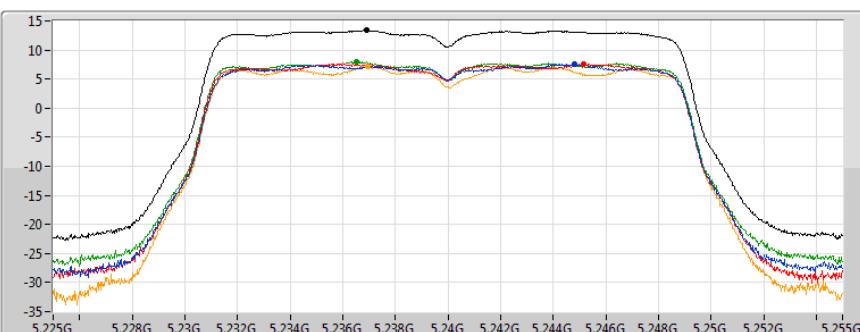
Sum  
Port 1  
Port 2  
Port 3  
Port 4

Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
13.25	13.25	7.34	7.80	7.63	7.19

**802.11ac VHT20\_Nss1,(MCS0)\_4TX****PSD****5240MHz**

11/04/2018

Ch Freq  
5.24GHz  
Span  
30MHz  
RBW  
1MHz  
VBW  
3MHz  
Sweep Time  
20ms  
Detector Type  
RMS



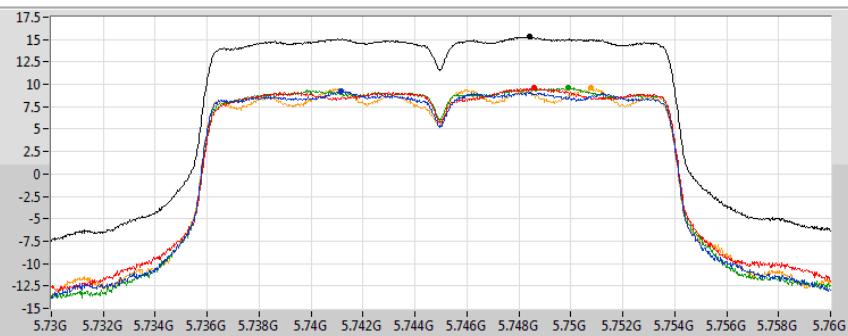
Sum  
Port 1  
Port 2  
Port 3  
Port 4

Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
13.38	13.38	7.52	7.62	8.01	7.19

**802.11ac VHT20\_Nss1,(MCS0)\_4TX****5745MHz****PSD**

11/04/2018

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



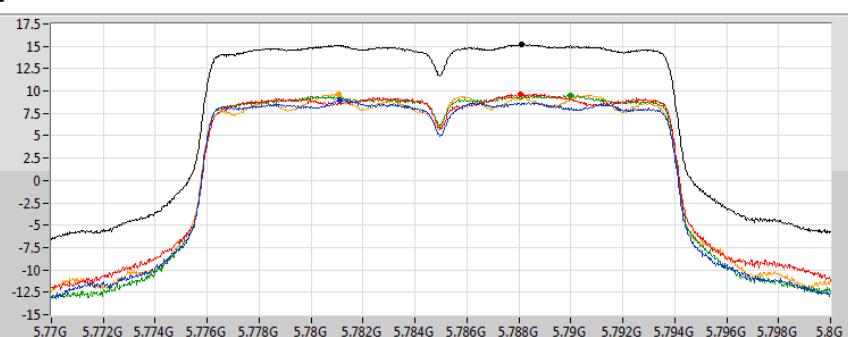
Sum  
Port 1  
Port 2  
Port 3  
Port 4

Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
15.30	15.30	9.24	9.57	9.64	9.64

**802.11ac VHT20\_Nss1,(MCS0)\_4TX****5785MHz****PSD**

11/04/2018

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



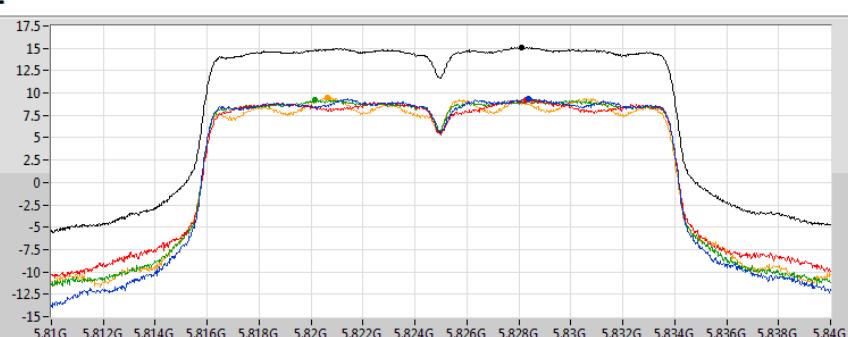
Sum  
Port 1  
Port 2  
Port 3  
Port 4

Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
15.24	15.24	9.02	9.62	9.55	9.66

**802.11ac VHT20\_Nss1,(MCS0)\_4TX****5825MHz****PSD**

11/04/2018

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

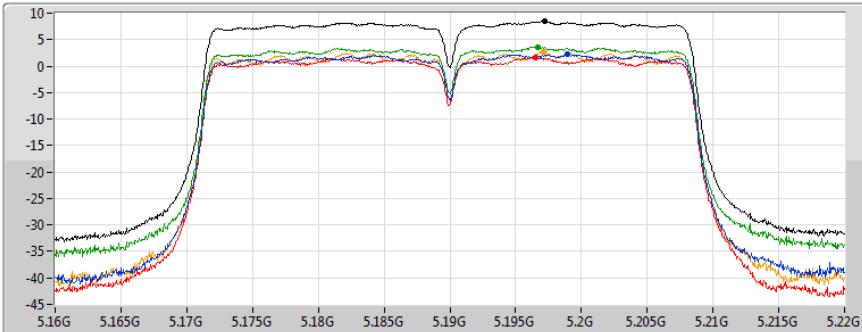


Sum  
Port 1  
Port 2  
Port 3  
Port 4

Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
15.11	15.11	9.39	9.27	9.22	9.52

**802.11ac VHT40\_Nss1,(MCS0)\_4TX**
**5190MHz**

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


**PSD**

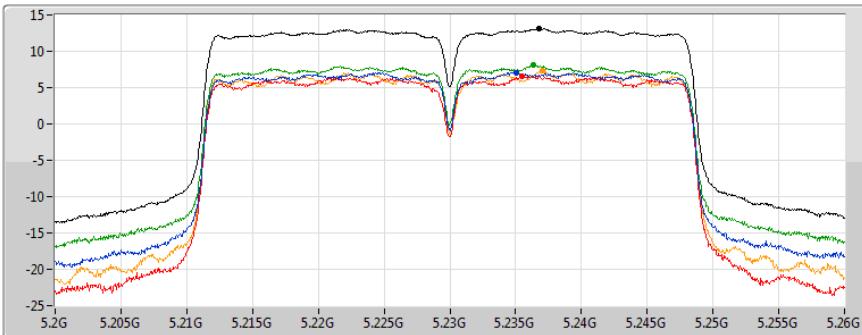
11/04/2018

Sum  
Port 1  
Port 2  
Port 3  
Port 4

Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
8.45	8.45	2.17	1.60	3.61	2.68

**802.11ac VHT40\_Nss1,(MCS0)\_4TX**
**5230MHz**

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


**PSD**

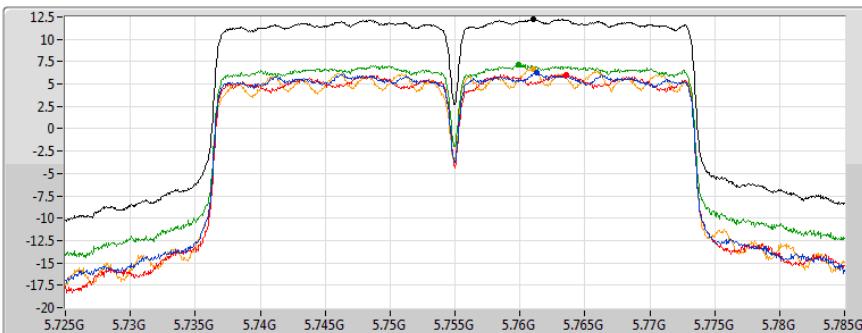
11/04/2018

Sum  
Port 1  
Port 2  
Port 3  
Port 4

Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
13.11	13.11	7.09	6.58	8.07	7.33

**802.11ac VHT40\_Nss1,(MCS0)\_4TX**
**5755MHz**

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


**PSD**

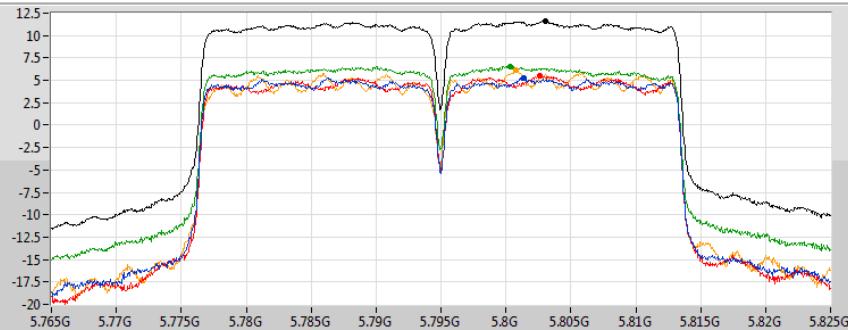
11/04/2018

Sum  
Port 1  
Port 2  
Port 3  
Port 4

Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
12.26	12.26	6.28	6.06	7.14	6.60

**802.11ac VHT40\_Nss1,(MCS0)\_4TX**
**5795MHz**

Ch Freq  
5.795GHz  
Span  
60MHz  
RBW  
500kHz  
VBW  
3MHz  
Sweep Time  
20ms  
Detector Type  
RMS


**PSD**

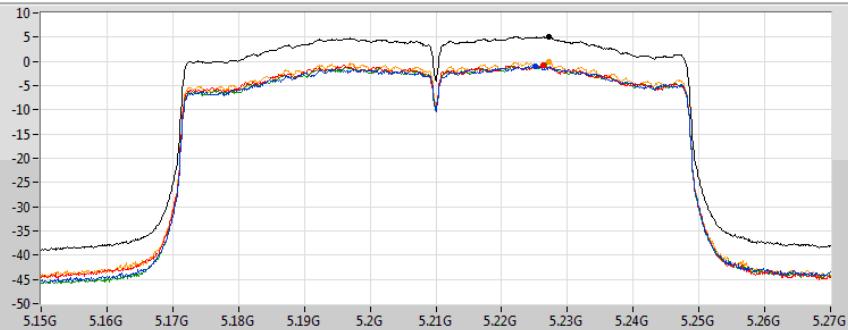
11/04/2018

Sum  
Port 1  
Port 2  
Port 3  
Port 4

Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
11.61	11.61	5.32	5.50	6.55	6.11

**802.11ac VHT80\_Nss1,(MCS0)\_4TX**
**5210MHz**

Ch Freq  
5.21GHz  
Span  
120MHz  
RBW  
1MHz  
VBW  
3MHz  
Sweep Time  
20ms  
Detector Type  
RMS


**PSD**

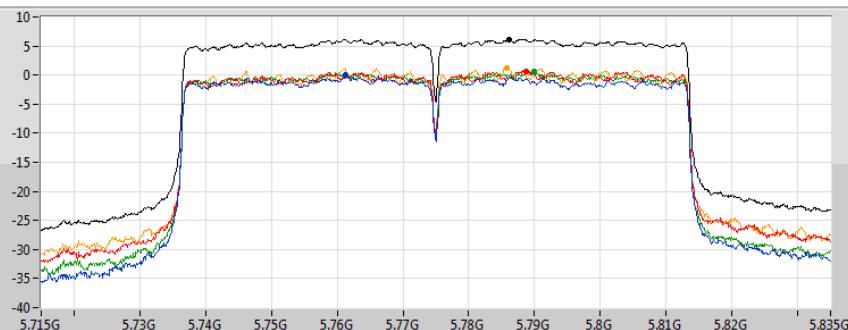
11/04/2018

Sum  
Port 1  
Port 2  
Port 3  
Port 4

Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
5.11	5.11	-0.91	-0.70	-0.89	-0.00

**802.11ac VHT80\_Nss1,(MCS0)\_4TX**
**5775MHz**

Ch Freq  
5.775GHz  
Span  
120MHz  
RBW  
500kHz  
VBW  
3MHz  
Sweep Time  
20ms  
Detector Type  
RMS


**PSD**

11/04/2018

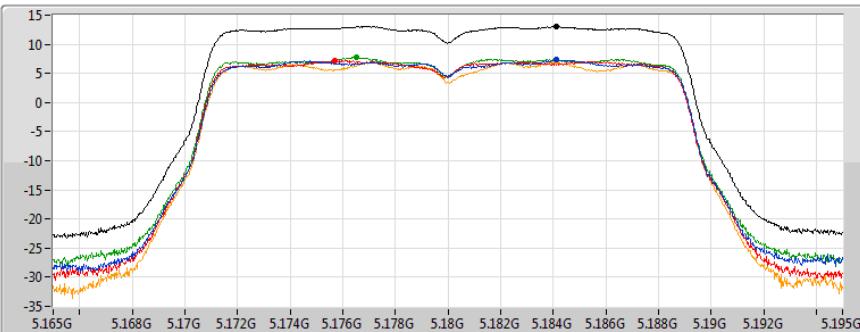
Sum  
Port 1  
Port 2  
Port 3  
Port 4

Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
6.16	6.16	0.03	0.67	0.53	1.24

**802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX**
**PSD**
**5180MHz**

11/04/2018

Ch Freq
5.18GHz
Span
30MHz
RBW
1MHz
VBW
3MHz
Sweep Time
20ms
Detector Type
RMS



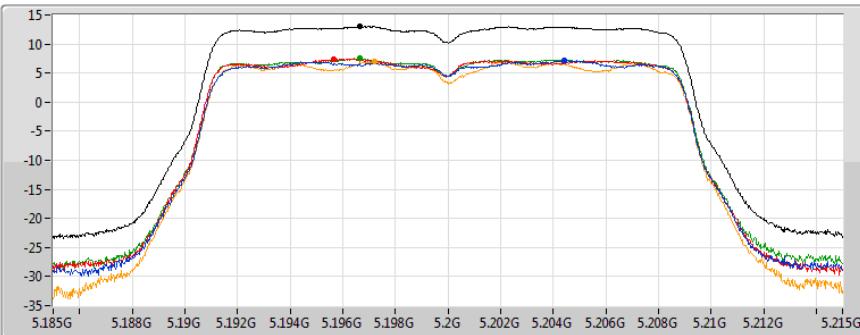
Sum	/\
Port 1	/\
Port 2	/\
Port 3	/\
Port 4	/\

Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
13.03	13.03	7.30	7.15	7.77	6.94

**802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX**
**PSD**
**5200MHz**

11/04/2018

Ch Freq
5.2GHz
Span
30MHz
RBW
1MHz
VBW
3MHz
Sweep Time
20ms
Detector Type
RMS



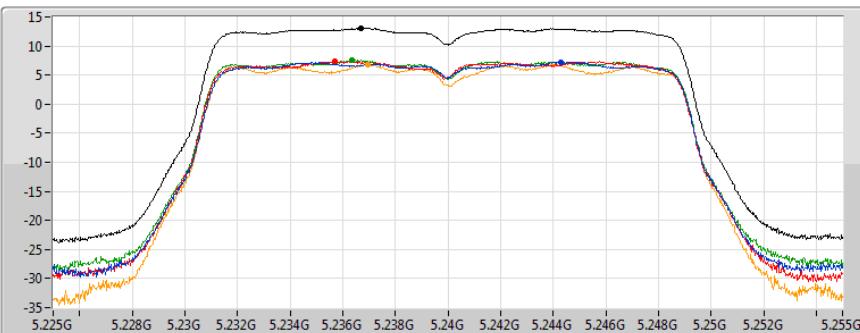
Sum	/\
Port 1	/\
Port 2	/\
Port 3	/\
Port 4	/\

Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
13.04	13.04	7.11	7.43	7.52	7.01

**802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX**
**PSD**
**5240MHz**

11/04/2018

Ch Freq
5.24GHz
Span
30MHz
RBW
1MHz
VBW
3MHz
Sweep Time
20ms
Detector Type
RMS



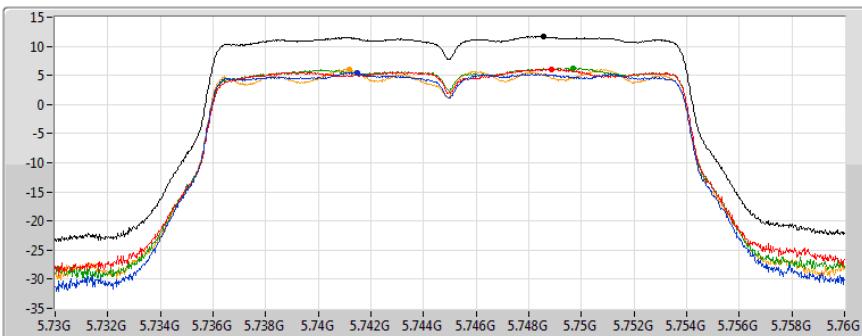
Sum	/\
Port 1	/\
Port 2	/\
Port 3	/\
Port 4	/\

Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
13.02	13.02	7.27	7.33	7.57	6.83

**802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX**
**5745MHz**
**PSD**

11/04/2018

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



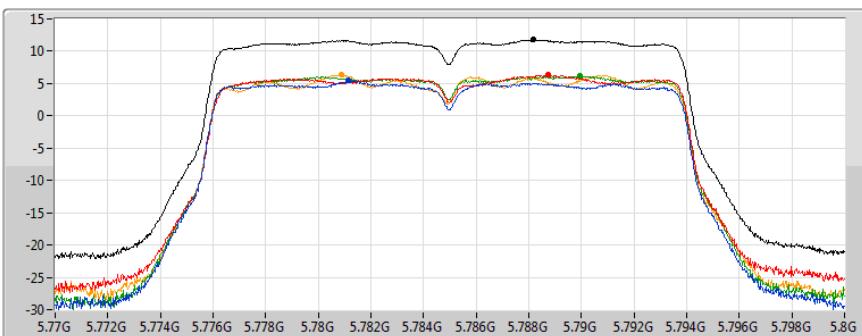
Sum  
Port 1  
Port 2  
Port 3  
Port 4

Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
11.67	11.67	5.46	6.09	6.24	6.05

**802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX**
**5785MHz**
**PSD**

11/04/2018

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



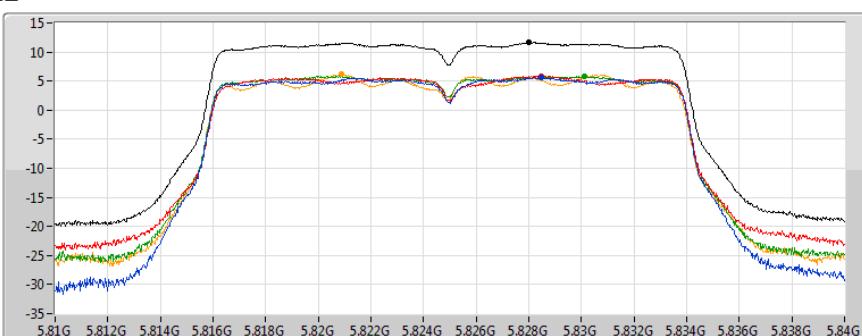
Sum  
Port 1  
Port 2  
Port 3  
Port 4

Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
11.75	11.75	5.47	6.40	6.15	6.31

**802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX**
**5825MHz**
**PSD**

11/04/2018

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

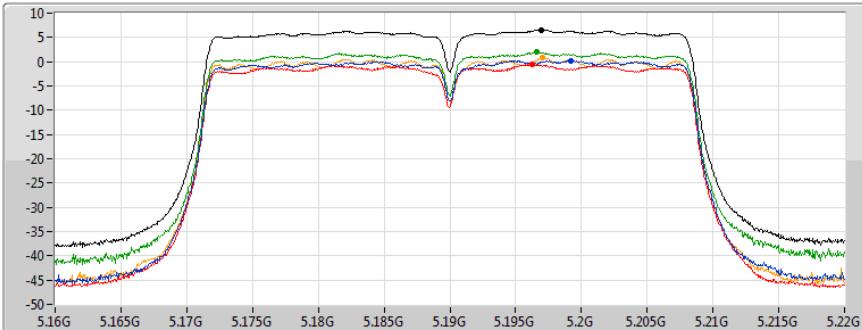


Sum  
Port 1  
Port 2  
Port 3  
Port 4

Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
11.68	11.68	5.64	5.86	5.89	6.13

**802.11ac VHT40-BF\_Nss1,(MCS0)\_4TX**
**5190MHz**

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


**PSD**

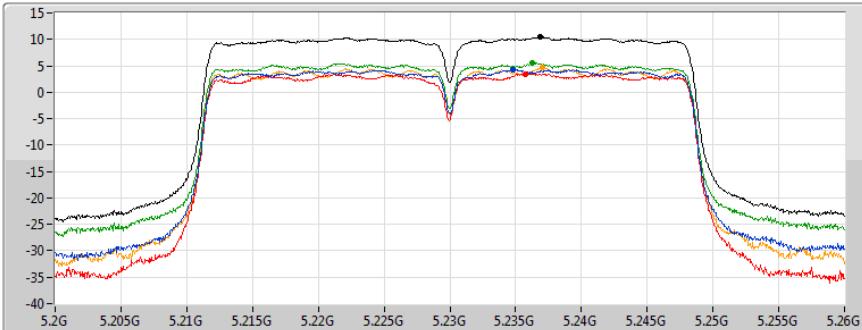
11/04/2018

Sum  
Port 1  
Port 2  
Port 3  
Port 4

Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
6.54	6.54	0.25	-0.51	2.01	0.75

**802.11ac VHT40-BF\_Nss1,(MCS0)\_4TX**
**5230MHz**

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


**PSD**

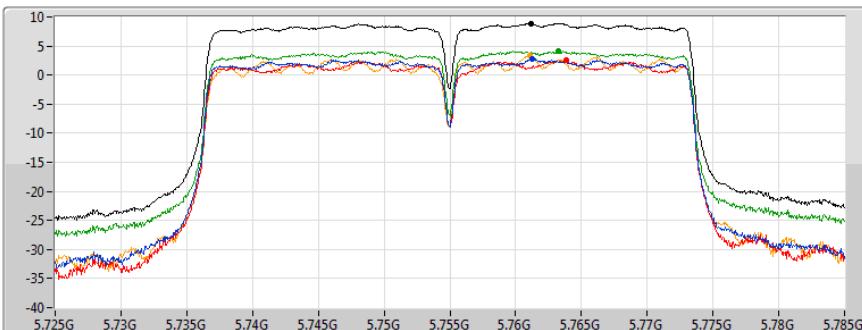
12/04/2018

Sum  
Port 1  
Port 2  
Port 3  
Port 4

Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
10.43	10.43	4.22	3.48	5.53	4.66

**802.11ac VHT40-BF\_Nss1,(MCS0)\_4TX**
**5755MHz**

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


**PSD**

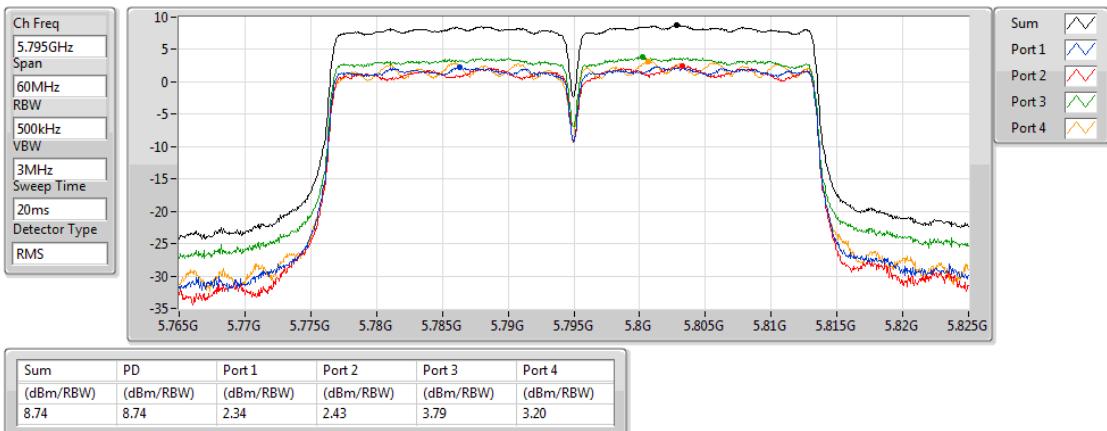
12/04/2018

Sum  
Port 1  
Port 2  
Port 3  
Port 4

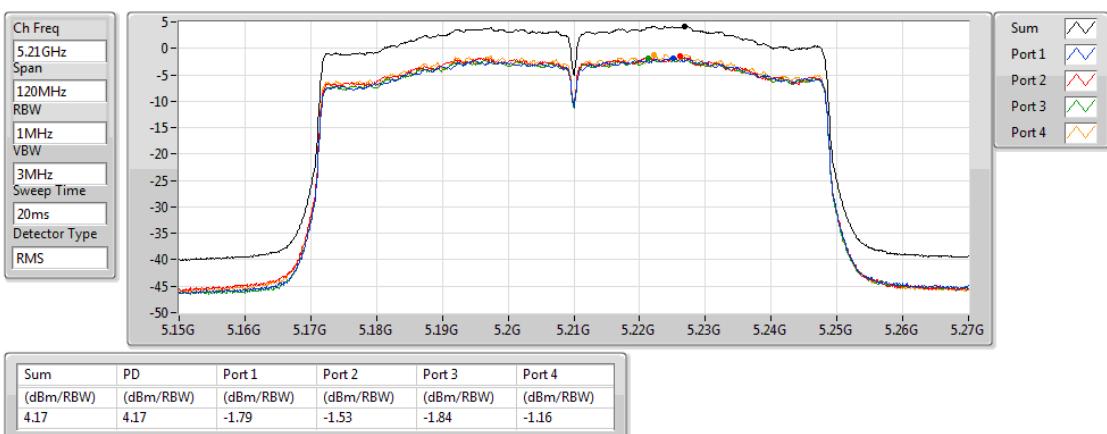
Sum	PD	Port 1	Port 2	Port 3	Port 4
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
8.89	8.89	2.85	2.56	4.10	3.29

**802.11ac VHT40-BF\_Nss1,(MCS0)\_4TX**
**5795MHz**
**PSD**

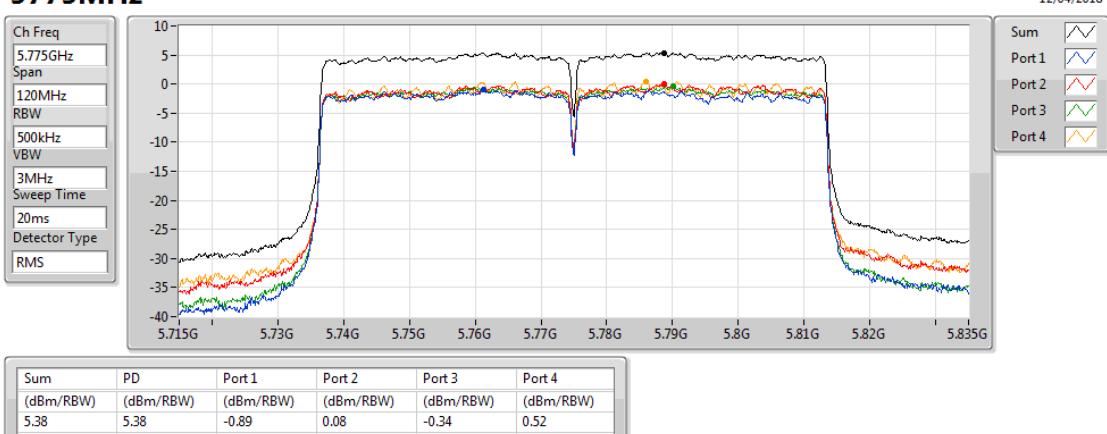
12/04/2018


**802.11ac VHT80-BF\_Nss1,(MCS0)\_4TX**
**5210MHz**
**PSD**

12/04/2018


**802.11ac VHT80-BF\_Nss1,(MCS0)\_4TX**
**5775MHz**
**PSD**

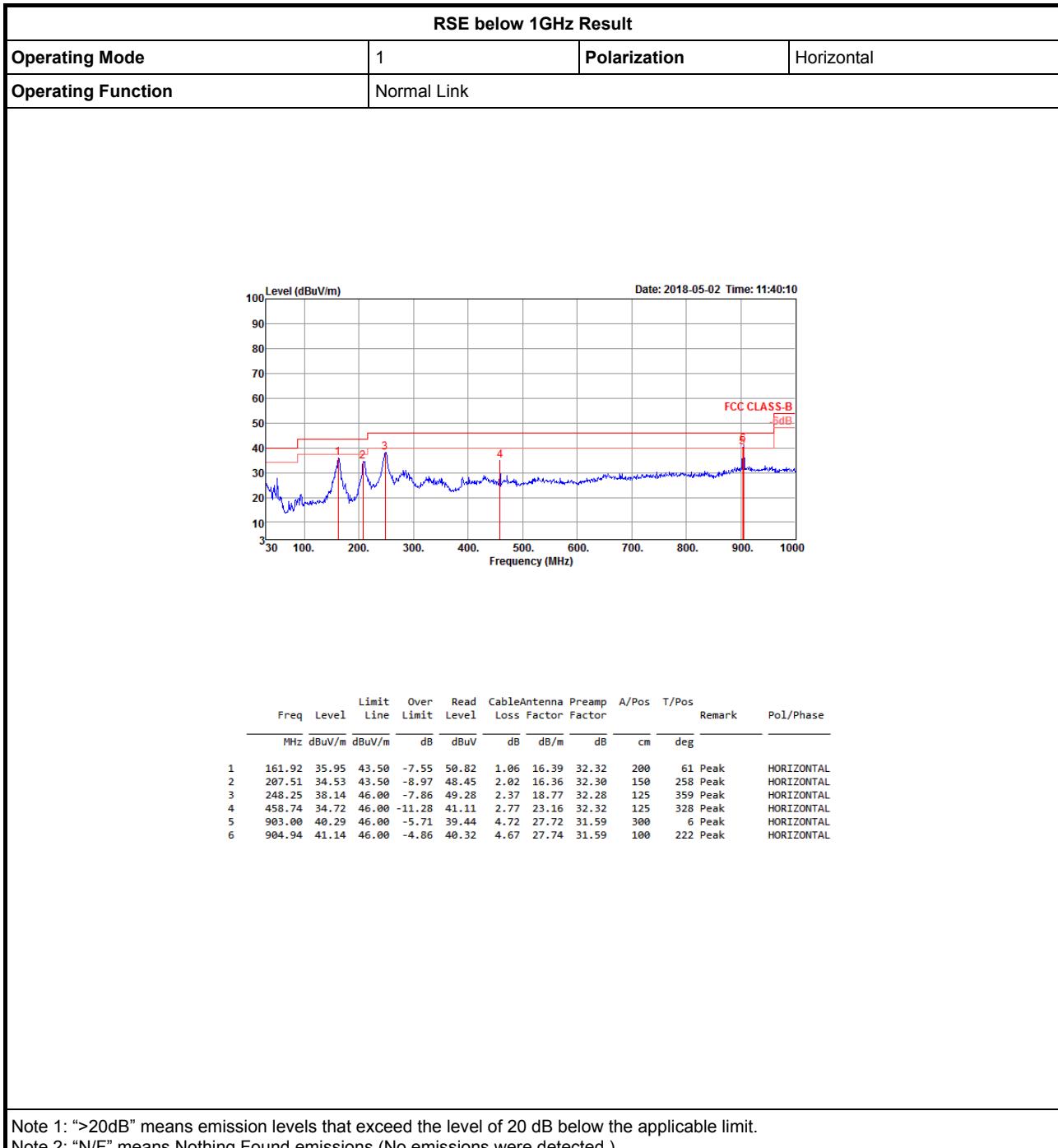
12/04/2018





## RSE below 1GHz Result

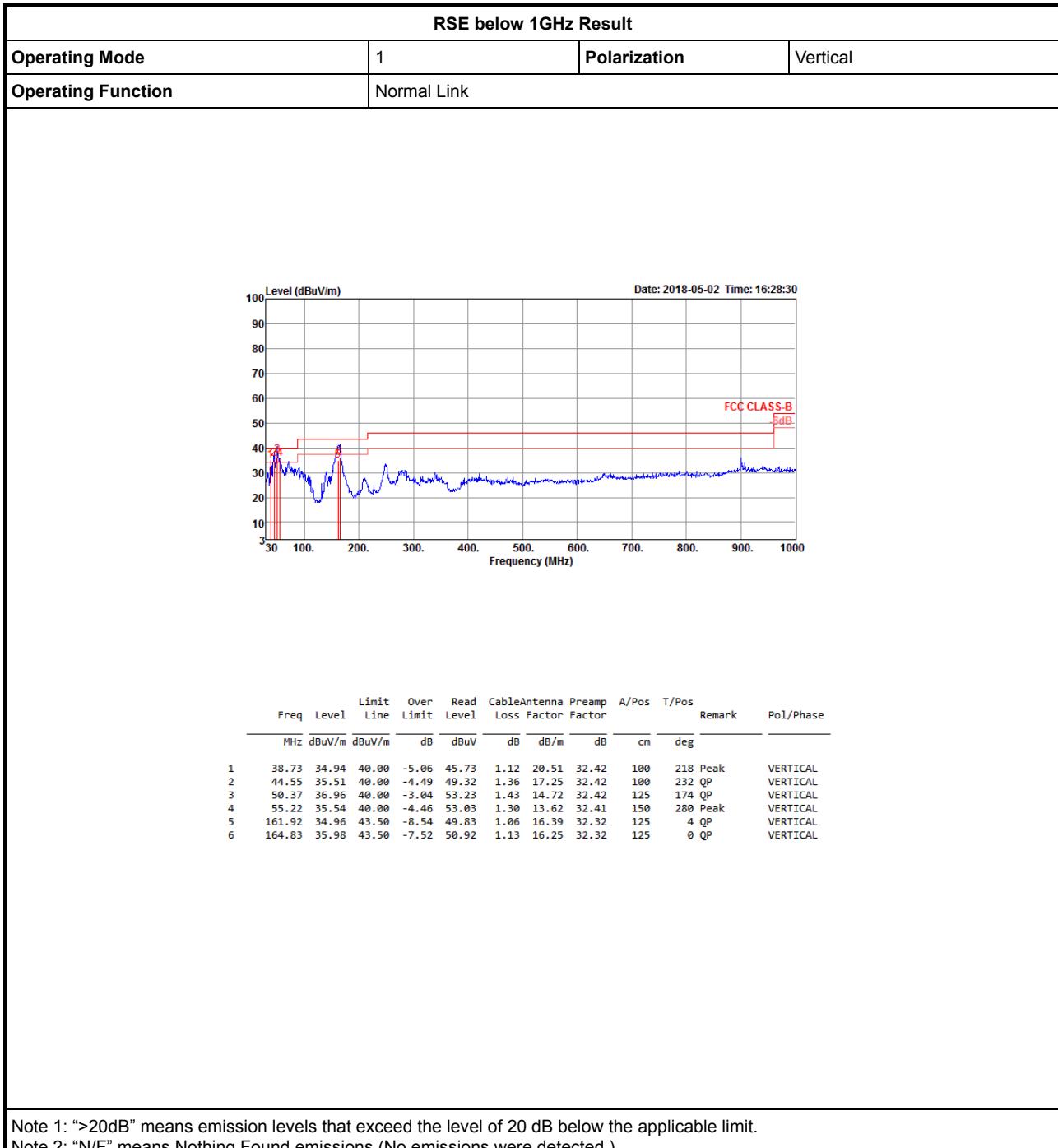
Appendix E.1





## RSE below 1GHz Result

Appendix E.1



Note 1: ">20dB" means emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found emissions (No emissions were detected.)

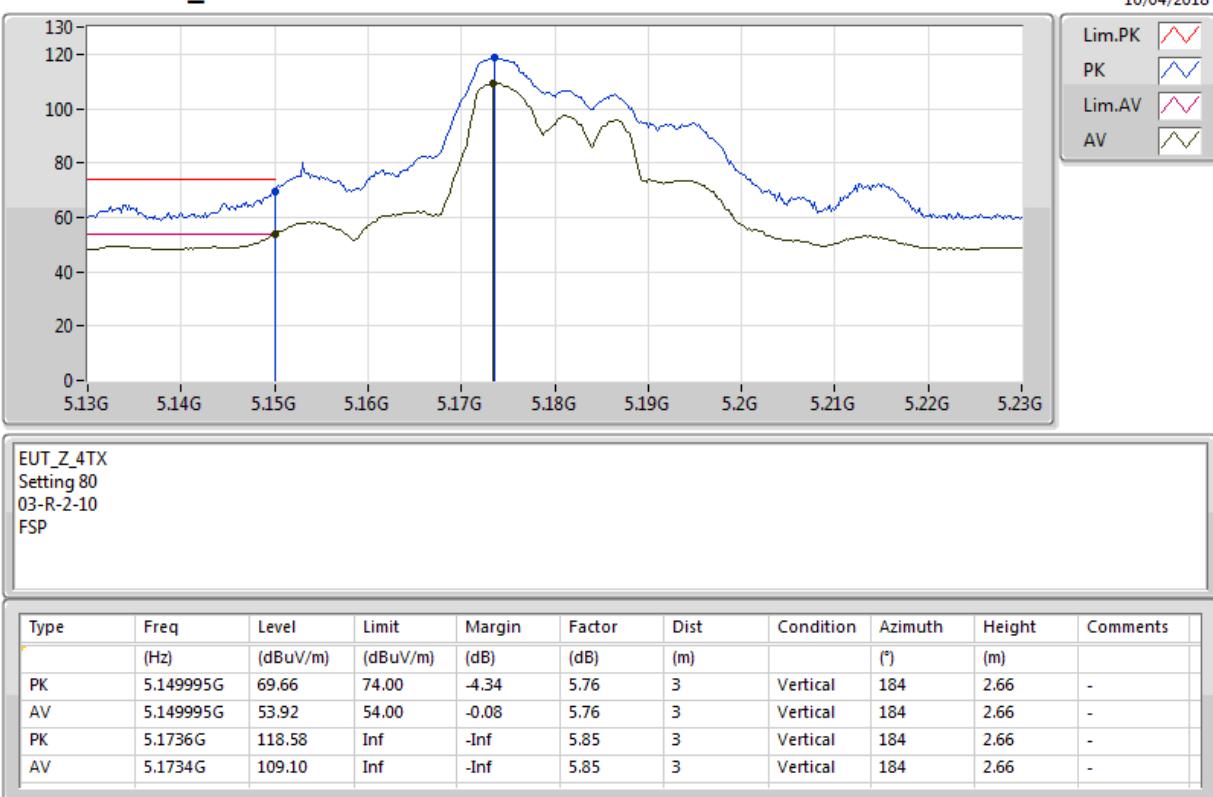


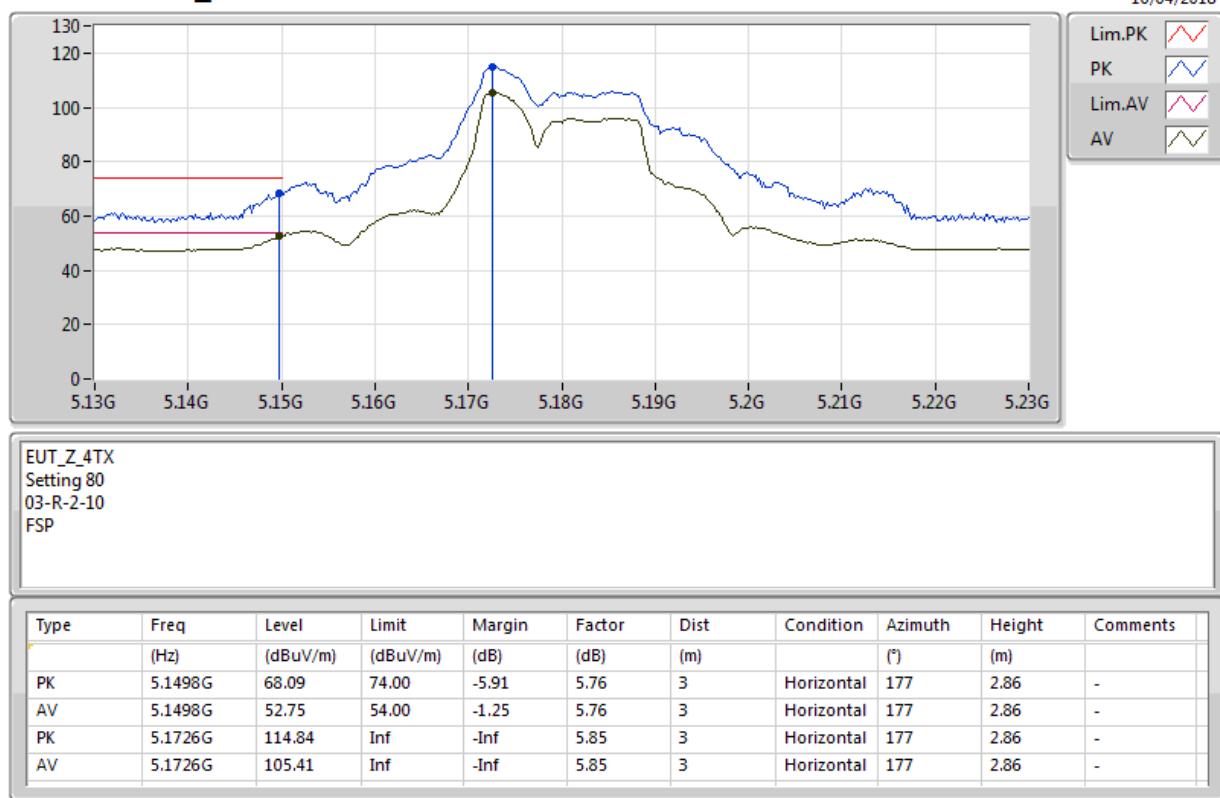
## RSE TX above 1GHz Result

Appendix E.2

### 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	-	-	-	-	-	-	-	-	-	-	-	-
802.11ac VHT40_Nss1_(MCS0)_4TX	Pass	PK	5.1468G	73.97	74.00	-0.03	5.74	3	Vertical	180	2.57	-

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

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

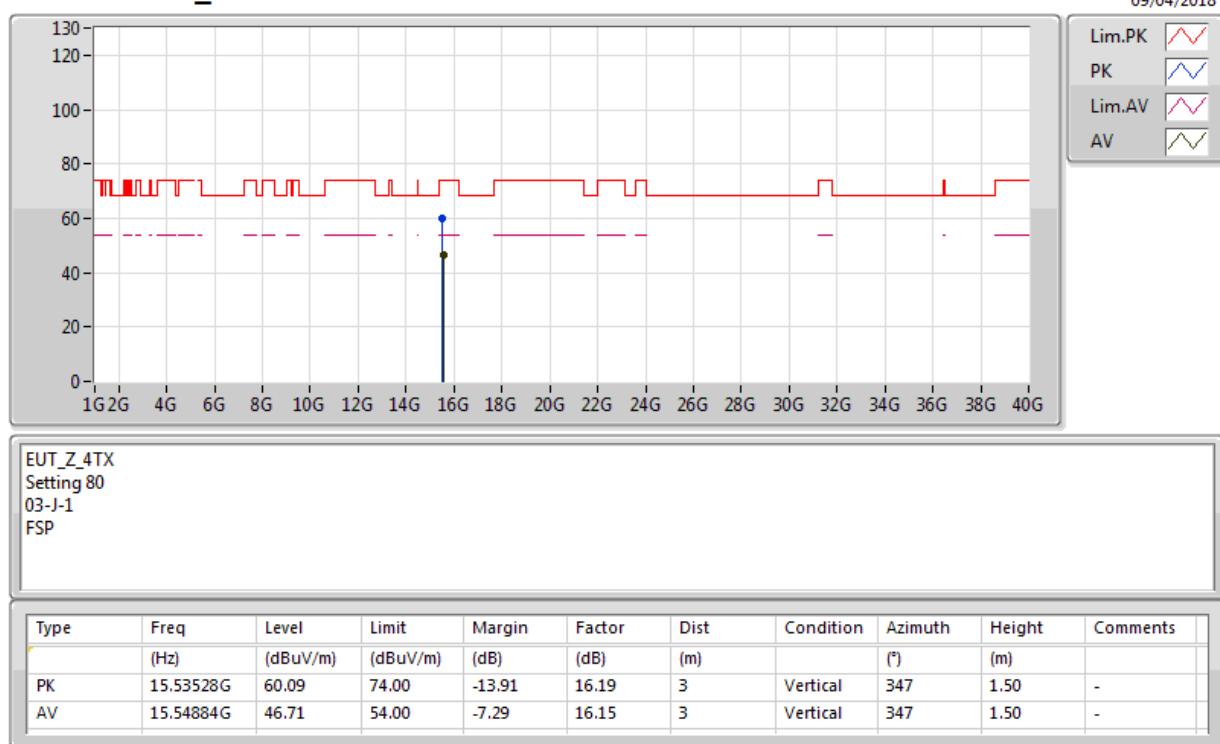


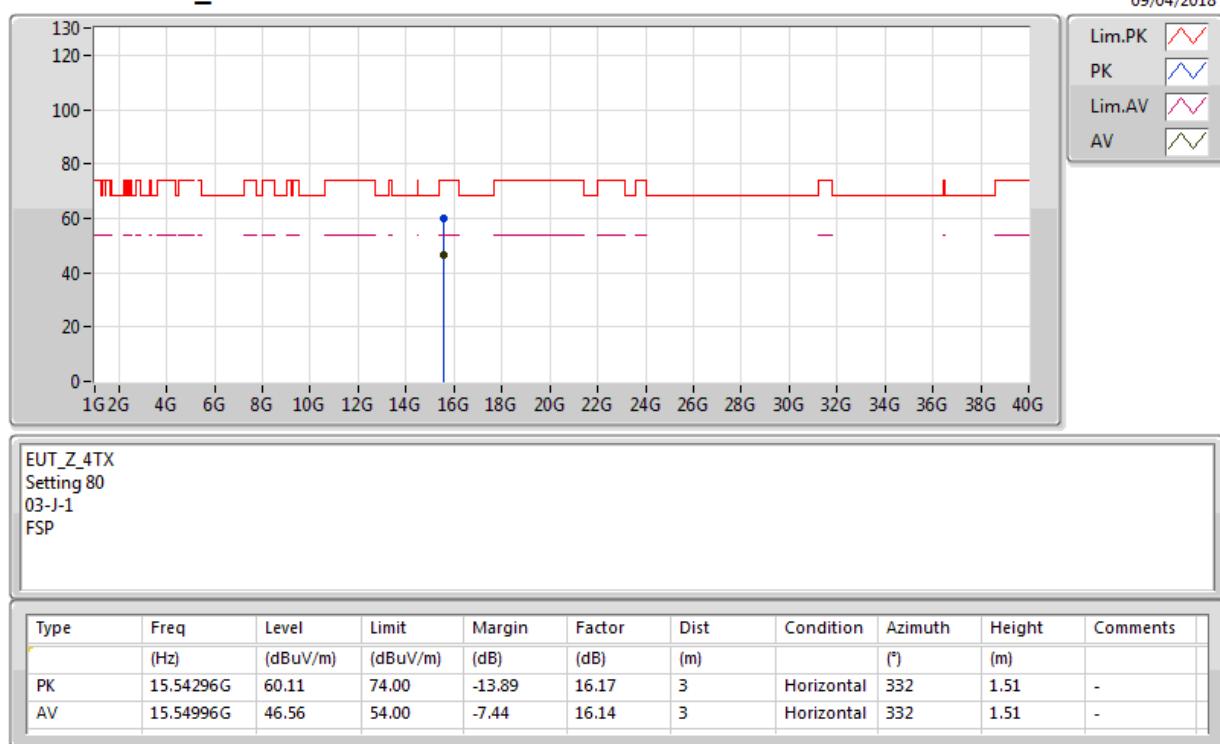
## RSE TX above 1GHz Result

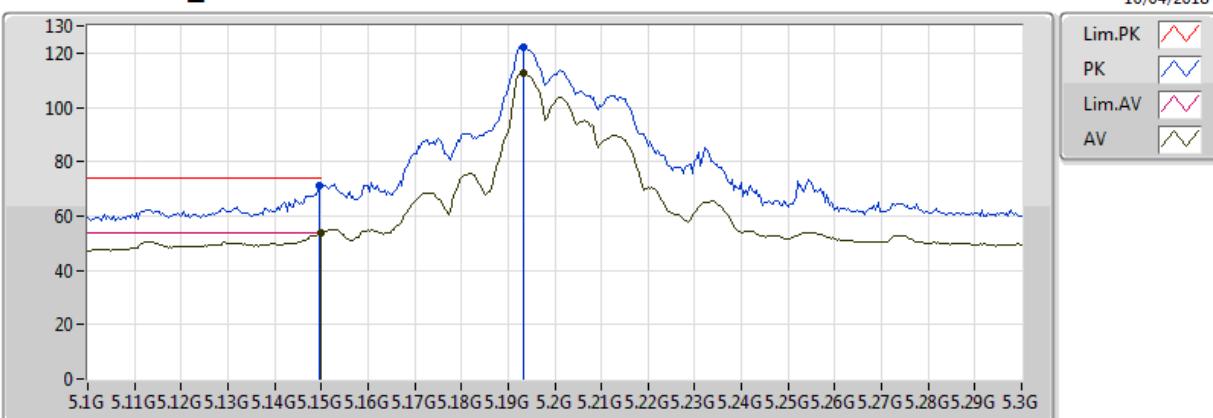
Appendix E.2

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

#### 5180MHz\_TX

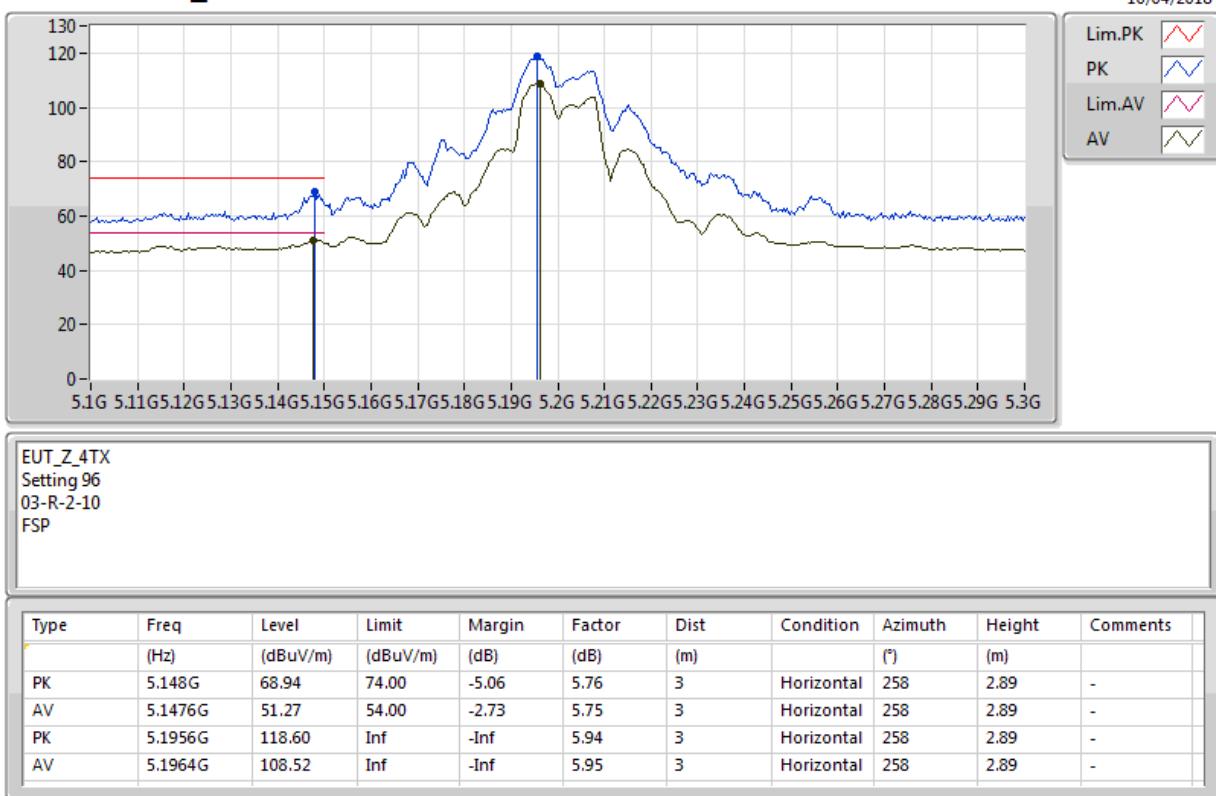


**802.11a\_Nss1,(6Mbps)\_4TX**
**5180MHz\_TX**


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

EUT\_Z\_4TX  
Setting 96  
03-R-2-10  
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	5.1496G	71.15	74.00	-2.85	5.76	3	Vertical	186	2.51	-
AV	5.149995G	53.91	54.00	-0.09	5.76	3	Vertical	186	2.51	-
PK	5.1932G	122.28	Inf	-Inf	5.93	3	Vertical	186	2.51	-
AV	5.1932G	112.59	Inf	-Inf	5.93	3	Vertical	186	2.51	-

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

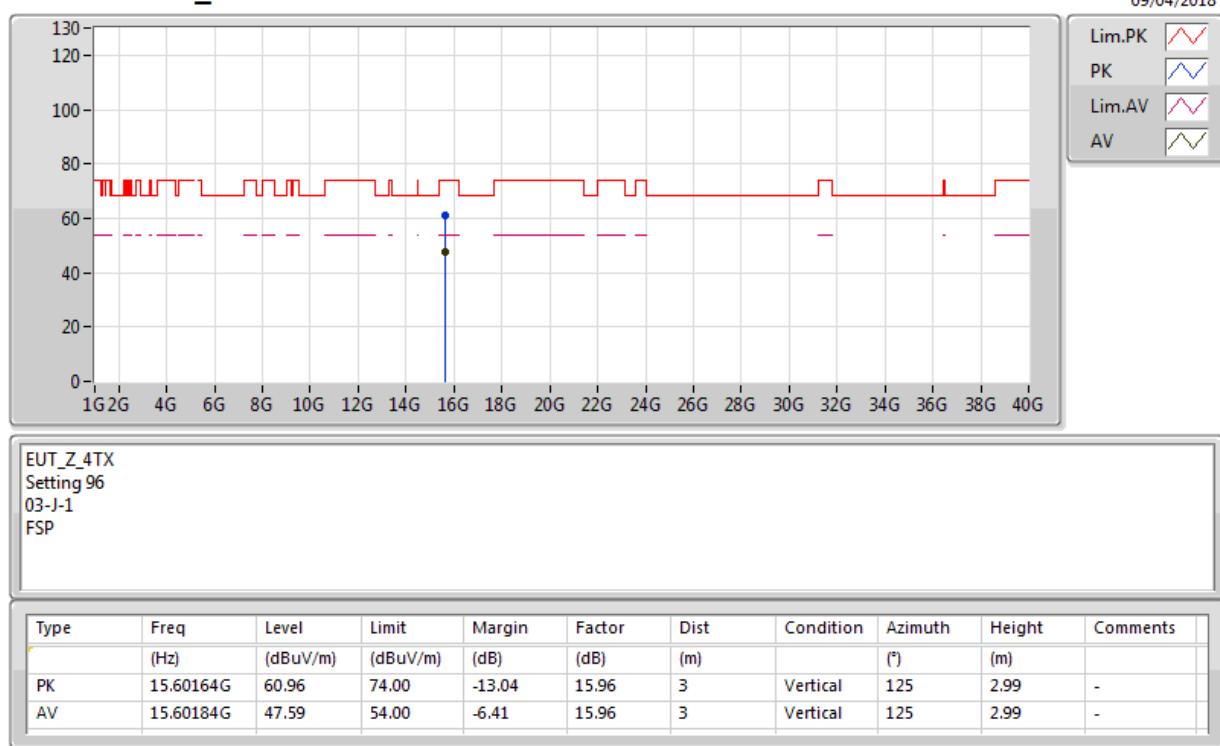


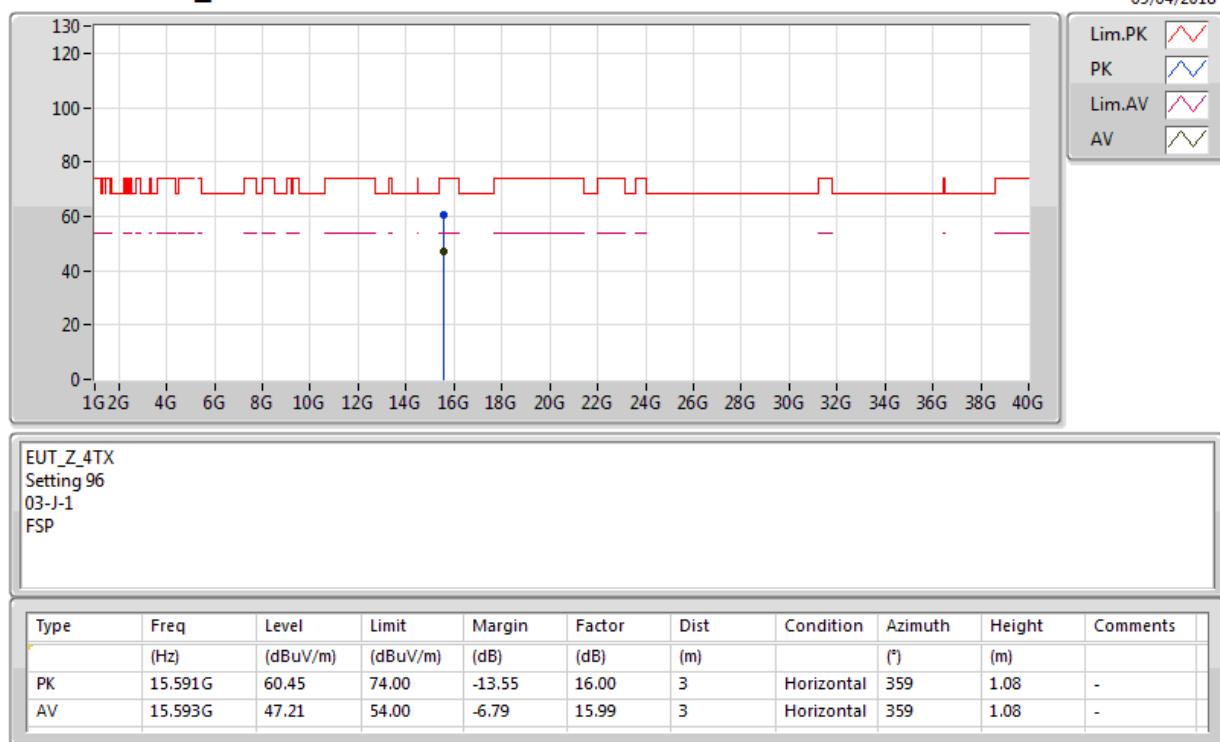
## RSE TX above 1GHz Result

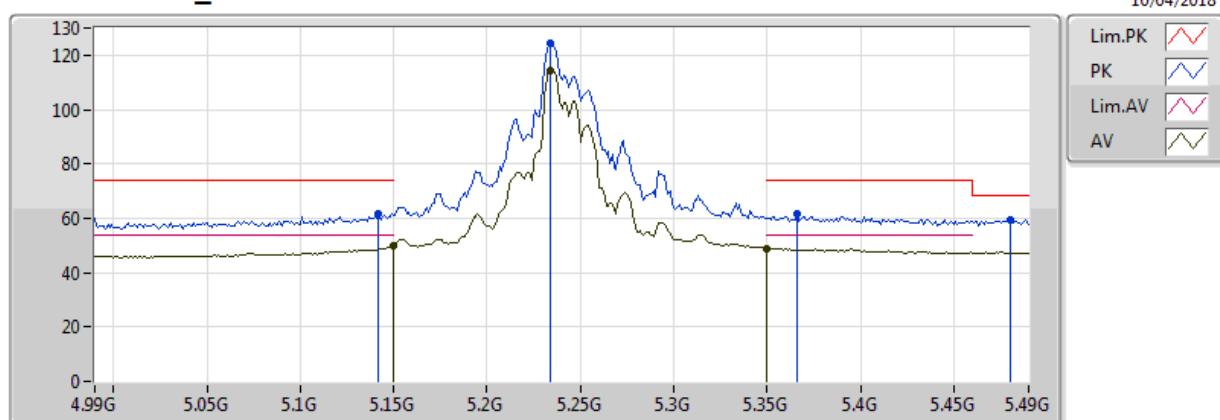
Appendix E.2

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

#### 5200MHz\_TX

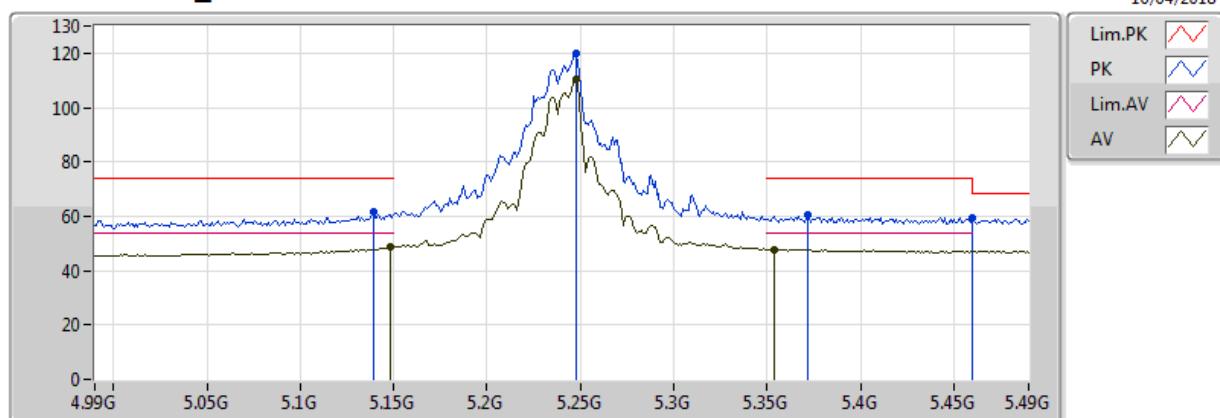


**802.11a\_Nss1,(6Mbps)\_4TX**
**5200MHz\_TX**


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

EUT\_Z\_4TX  
Setting 100  
03-R-2-10  
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	5.142G	61.69	74.00	-12.31	5.73	3	Vertical	181	2.37	-
AV	5.149995G	49.68	54.00	-4.32	5.76	3	Vertical	181	2.37	-
PK	5.234G	124.48	Inf	-Inf	6.02	3	Vertical	181	2.37	-
AV	5.234G	114.37	Inf	-Inf	6.02	3	Vertical	181	2.37	-
PK	5.366G	61.64	74.00	-12.36	6.24	3	Vertical	181	2.37	-
AV	5.350005G	48.84	54.00	-5.16	6.20	3	Vertical	181	2.37	-
PK	5.48G	59.34	68.20	-8.86	6.40	3	Vertical	181	2.37	-

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

EUT\_Z\_4TX  
Setting 100  
03-R-2-10  
FSP

Type	Freq (Hz)	Level (dBm)	Limit (dBm)	Margin (dB)	Factor	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	5.139G	61.45	74.00	-12.55	5.71	3	Horizontal	281	2.50	-
AV	5.148G	48.49	54.00	-5.51	5.76	3	Horizontal	281	2.50	-
PK	5.248G	119.68	Inf	-Inf	6.04	3	Horizontal	281	2.50	-
AV	5.248G	110.11	Inf	-Inf	6.04	3	Horizontal	281	2.50	-
PK	5.372G	60.51	74.00	-13.49	6.25	3	Horizontal	281	2.50	-
AV	5.354G	47.84	54.00	-6.16	6.21	3	Horizontal	281	2.50	-
PK	5.460005G	59.14	68.20	-9.06	6.38	3	Horizontal	281	2.50	-

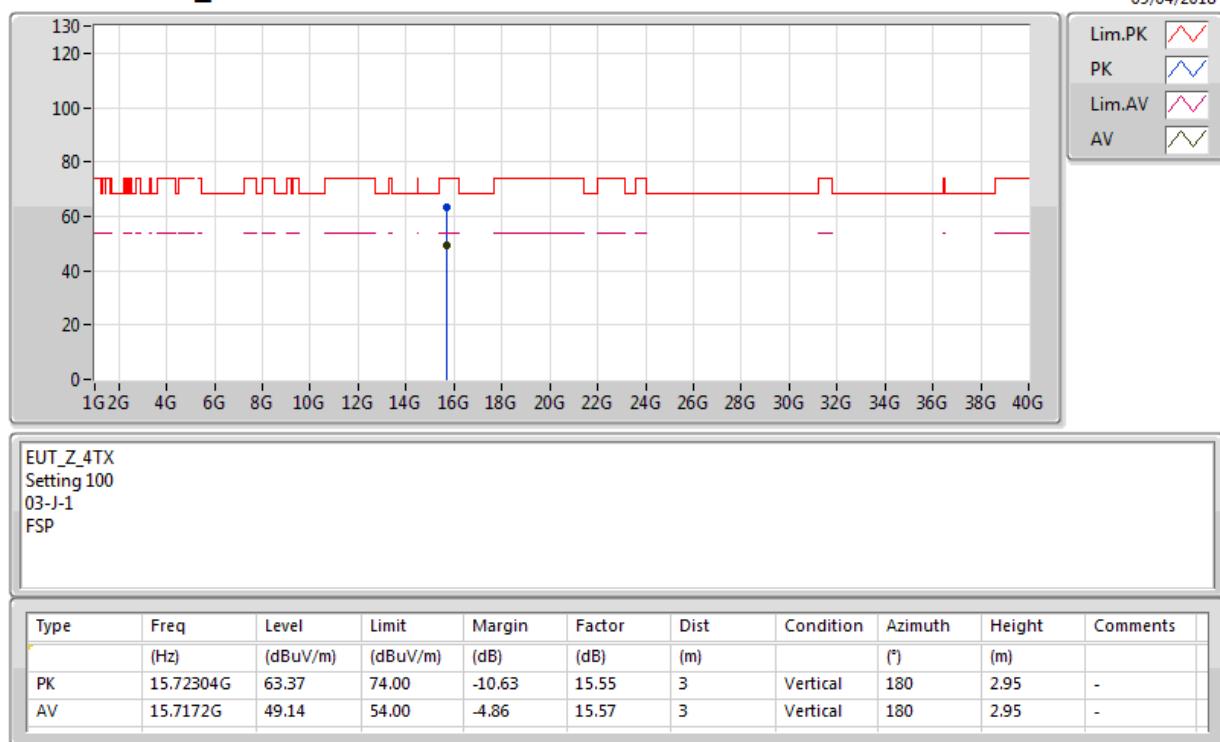


## RSE TX above 1GHz Result

Appendix E.2

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

#### 5240MHz\_TX



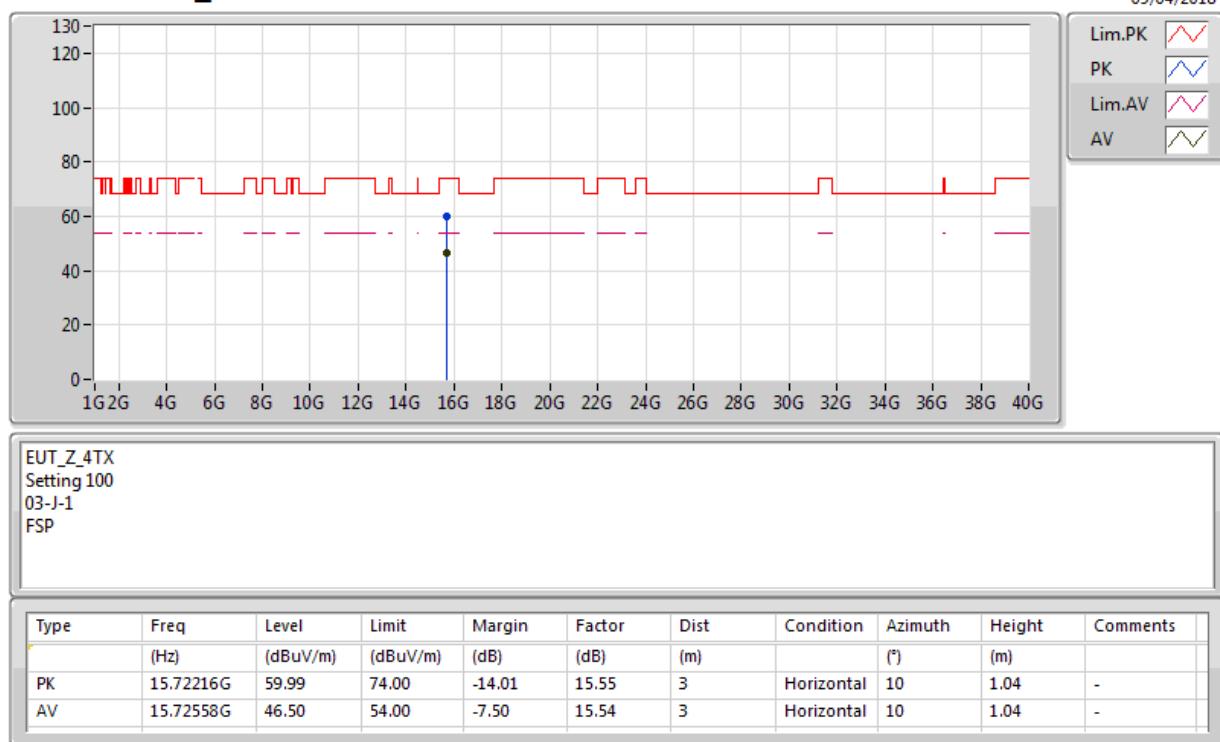


## RSE TX above 1GHz Result

Appendix E.2

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

#### 5240MHz\_TX



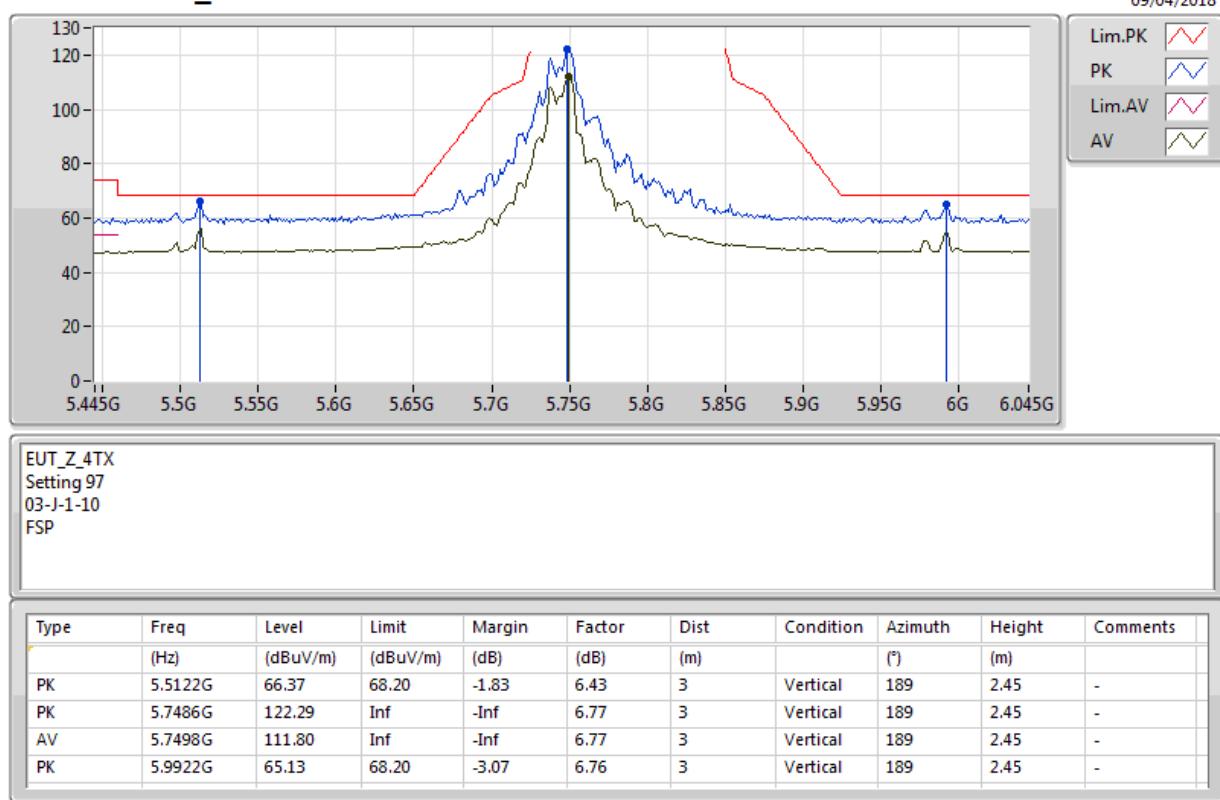


## RSE TX above 1GHz Result

Appendix E.2

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

#### 5745MHz\_TX



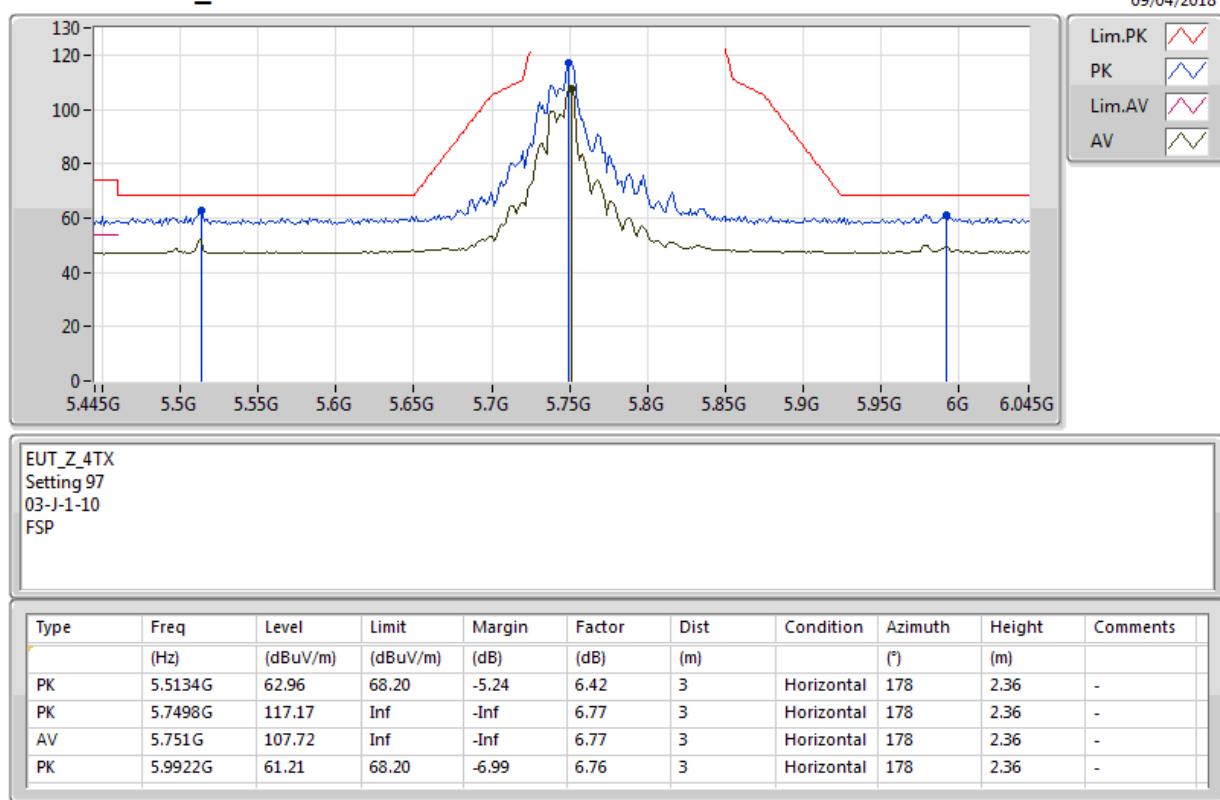


## RSE TX above 1GHz Result

Appendix E.2

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

#### 5745MHz\_TX



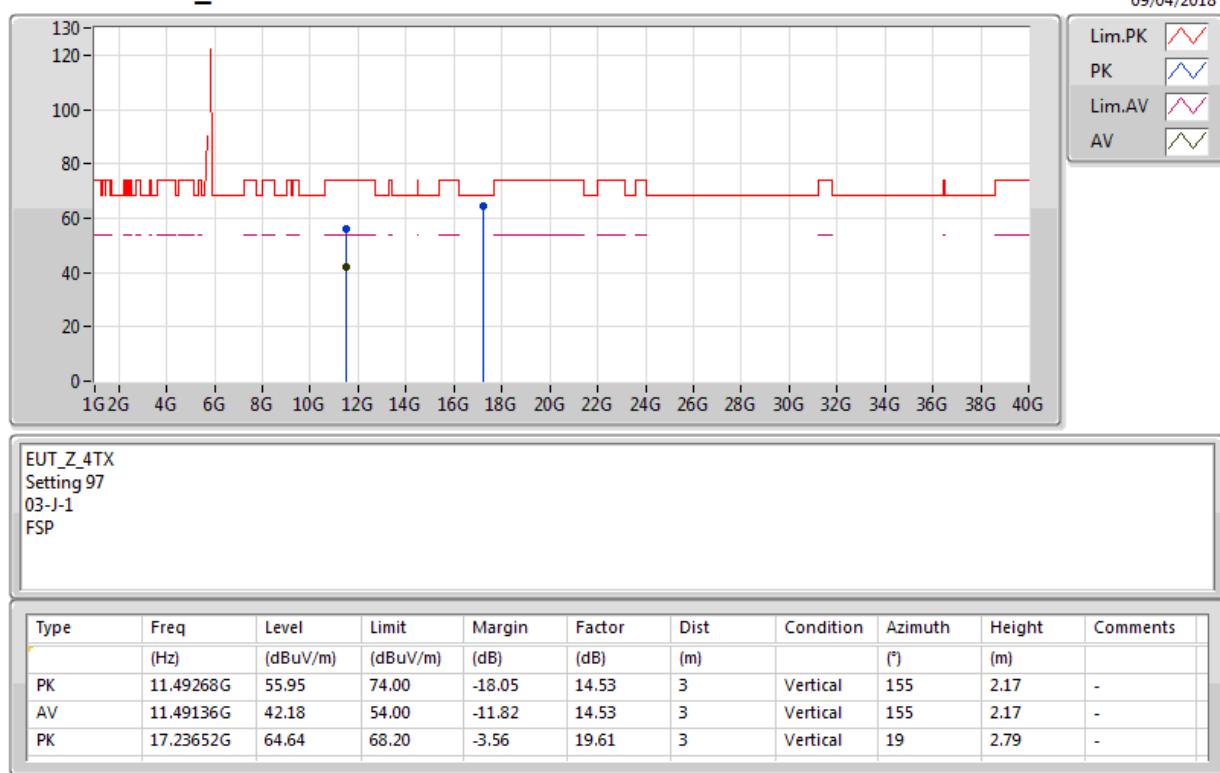


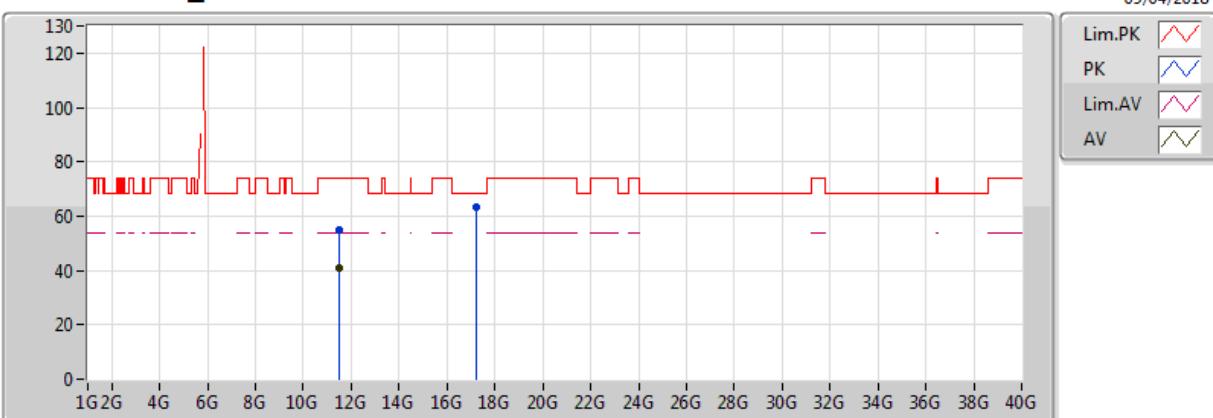
## RSE TX above 1GHz Result

Appendix E.2

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

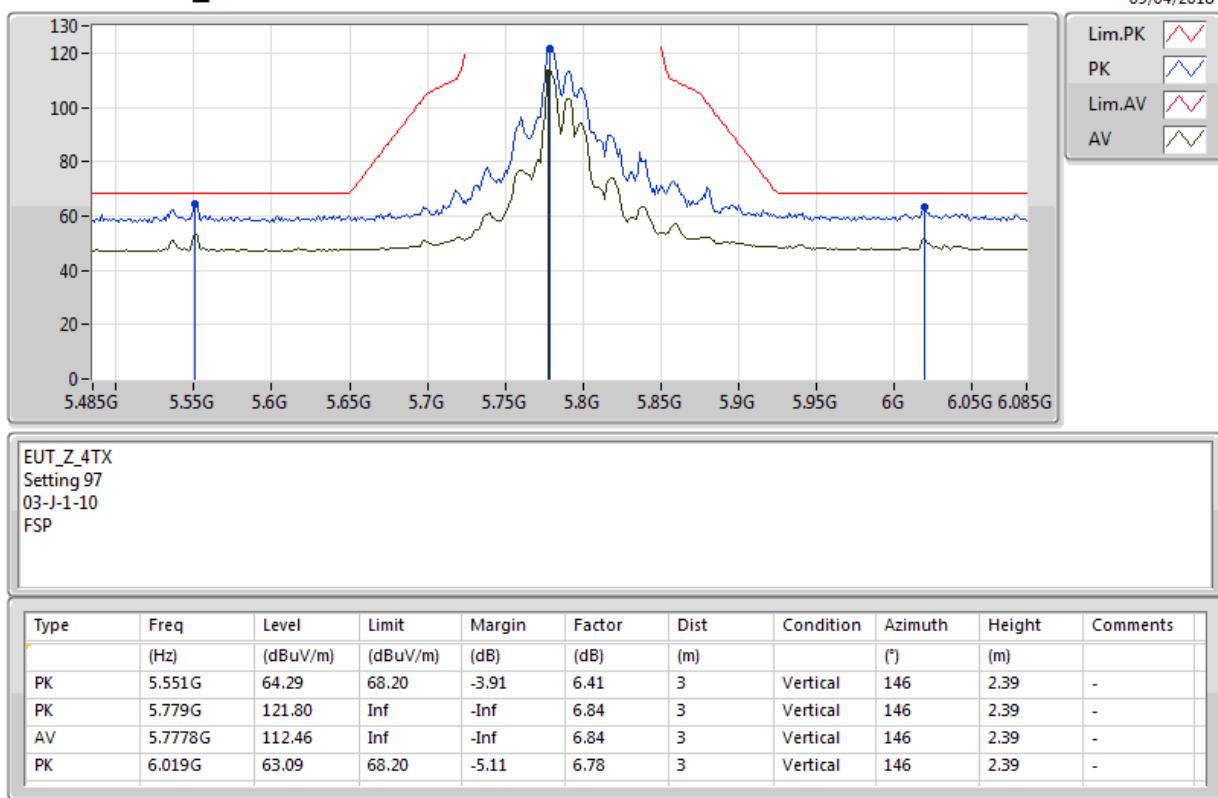
#### 5745MHz\_TX

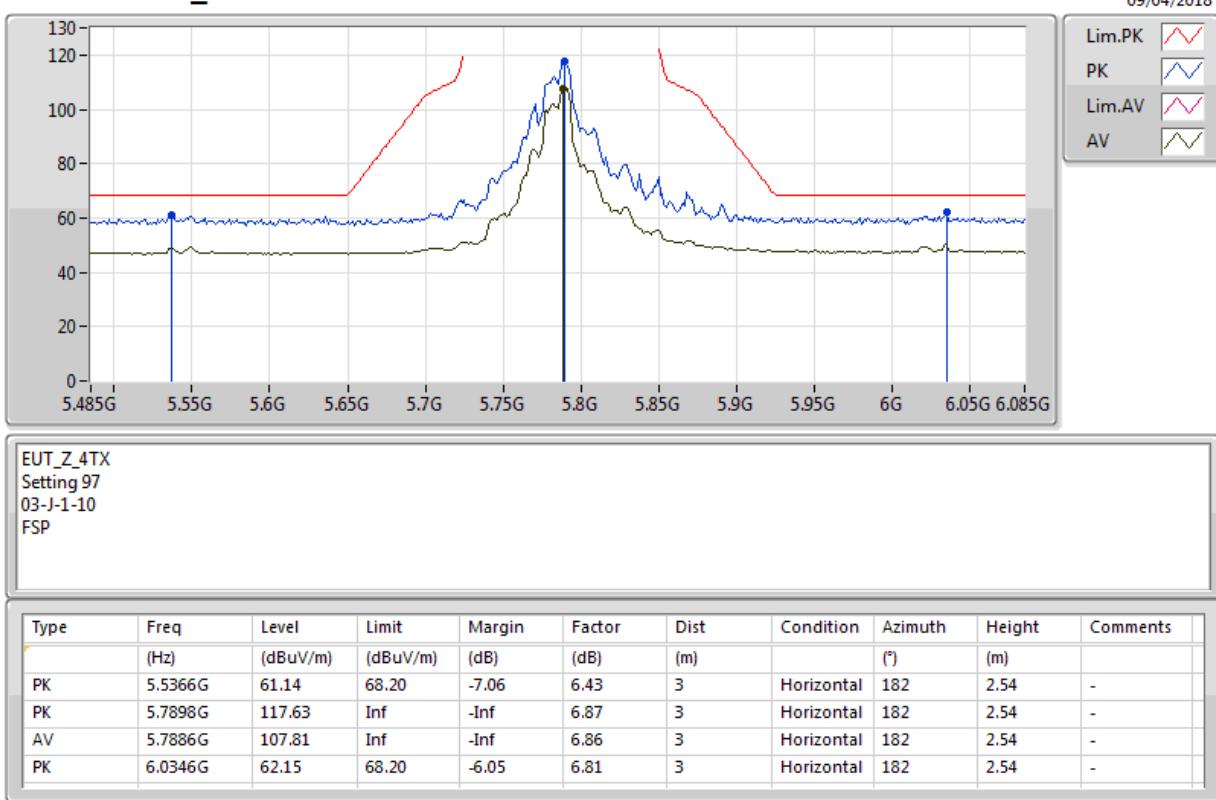


**802.11a\_Nss1,(6Mbps)\_4TX****5745MHz\_TX**

EUT\_Z\_4TX  
Setting 97  
03-J-1  
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	11.48132G	55.15	74.00	-18.85	14.51	3	Horizontal	349	1.50	-
AV	11.49864G	41.15	54.00	-12.85	14.53	3	Horizontal	349	1.50	-
PK	17.23784G	63.48	68.20	-4.72	19.62	3	Horizontal	276	1.50	-

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

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

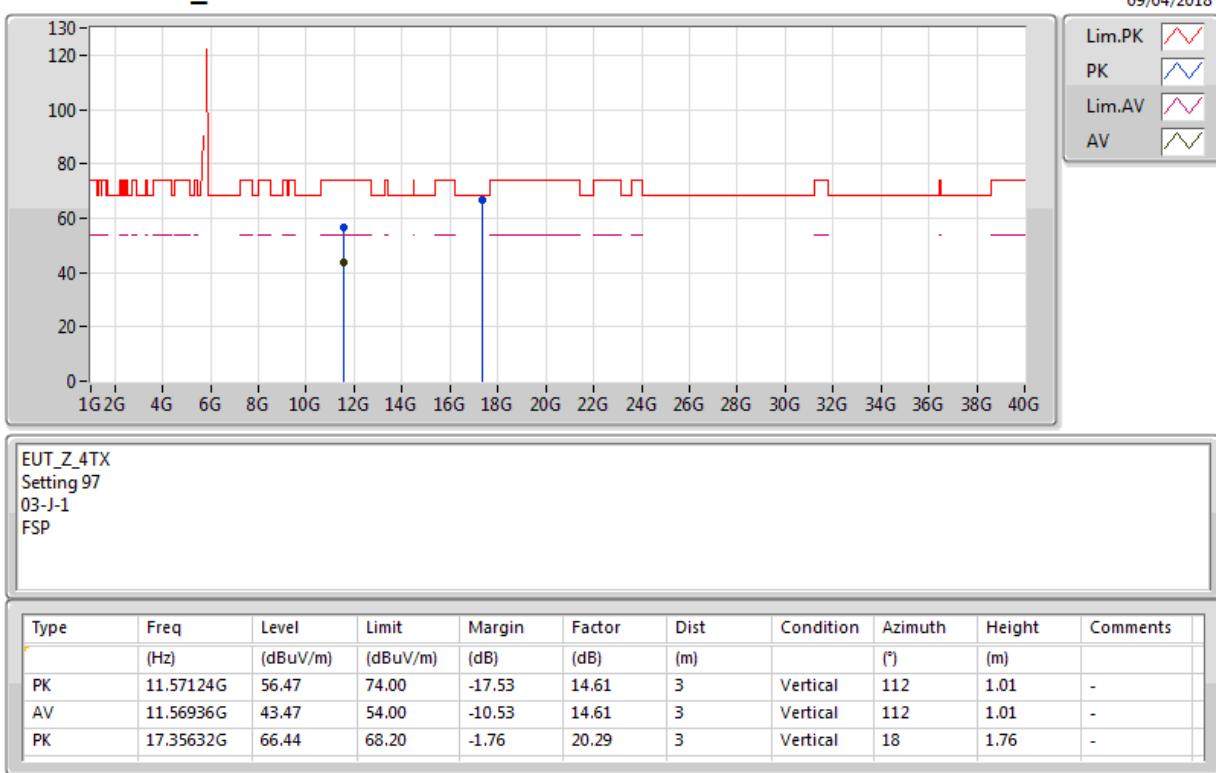


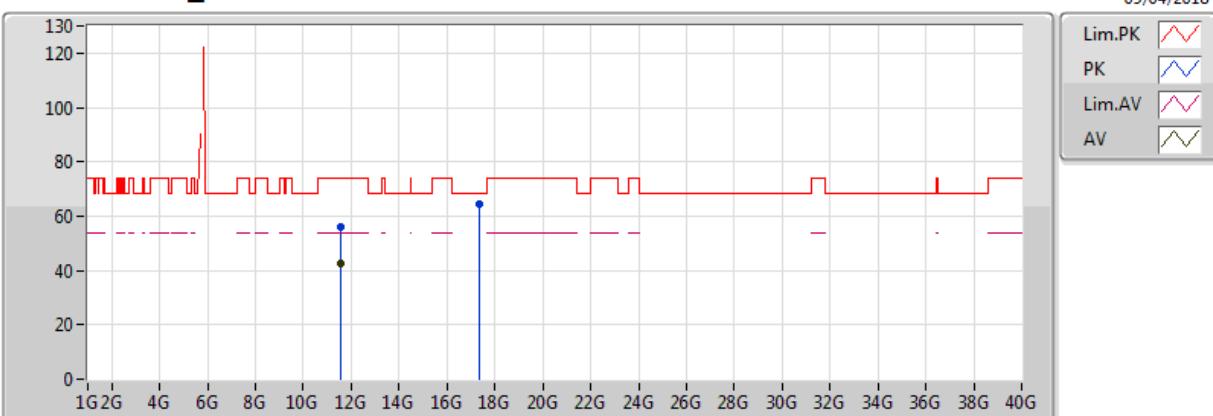
## RSE TX above 1GHz Result

Appendix E.2

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

#### 5785MHz\_TX



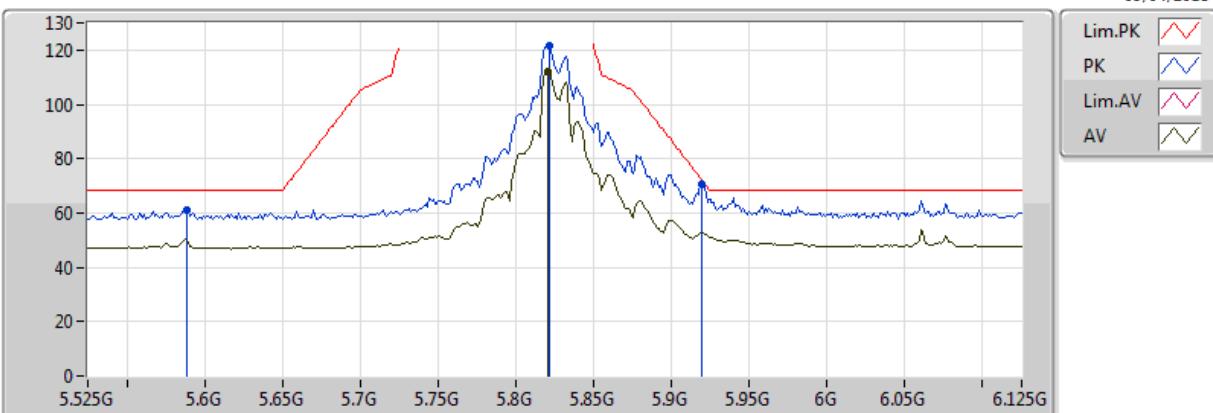
**802.11a\_Nss1,(6Mbps)\_4TX****5785MHz\_TX**

EUT\_Z\_4TX  
Setting 97  
03-J-1  
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	11.5678G	55.76	74.00	-18.24	14.61	3	Horizontal	235	1.02	-
AV	11.5696G	42.58	54.00	-11.42	14.61	3	Horizontal	235	1.02	-
PK	17.34812G	64.27	68.20	-3.93	20.25	3	Horizontal	274	2.93	-

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

09/04/2018

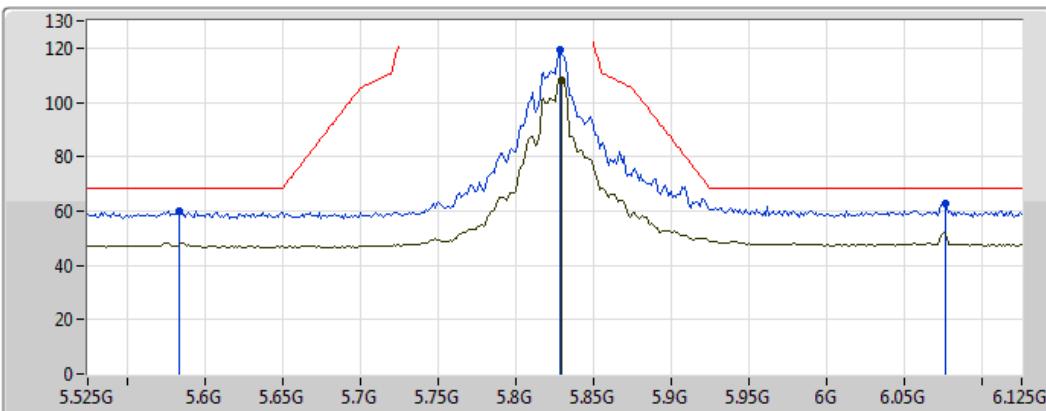


EUT\_Z\_4TX  
Setting 97  
03-J-1-10  
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	5.5886G	61.10	68.20	-7.10	6.40	3	Vertical	140	2.37	-
PK	5.8214G	121.86	Inf	-Inf	6.88	3	Vertical	140	2.37	-
AV	5.8202G	112.26	Inf	-Inf	6.88	3	Vertical	140	2.37	-
PK	5.9198G	70.54	72.05	-1.51	6.80	3	Vertical	140	2.37	-

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

09/04/2018



EUT\_Z\_4TX  
Setting 97  
03-J-1-10  
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	5.5838G	60.04	68.20	-8.16	6.41	3	Horizontal	183	2.41	-
PK	5.8286G	119.23	Inf	-Inf	6.87	3	Horizontal	183	2.41	-
AV	5.8298G	108.30	Inf	-Inf	6.87	3	Horizontal	183	2.41	-
PK	6.0758G	62.79	68.20	-5.41	6.87	3	Horizontal	183	2.41	-

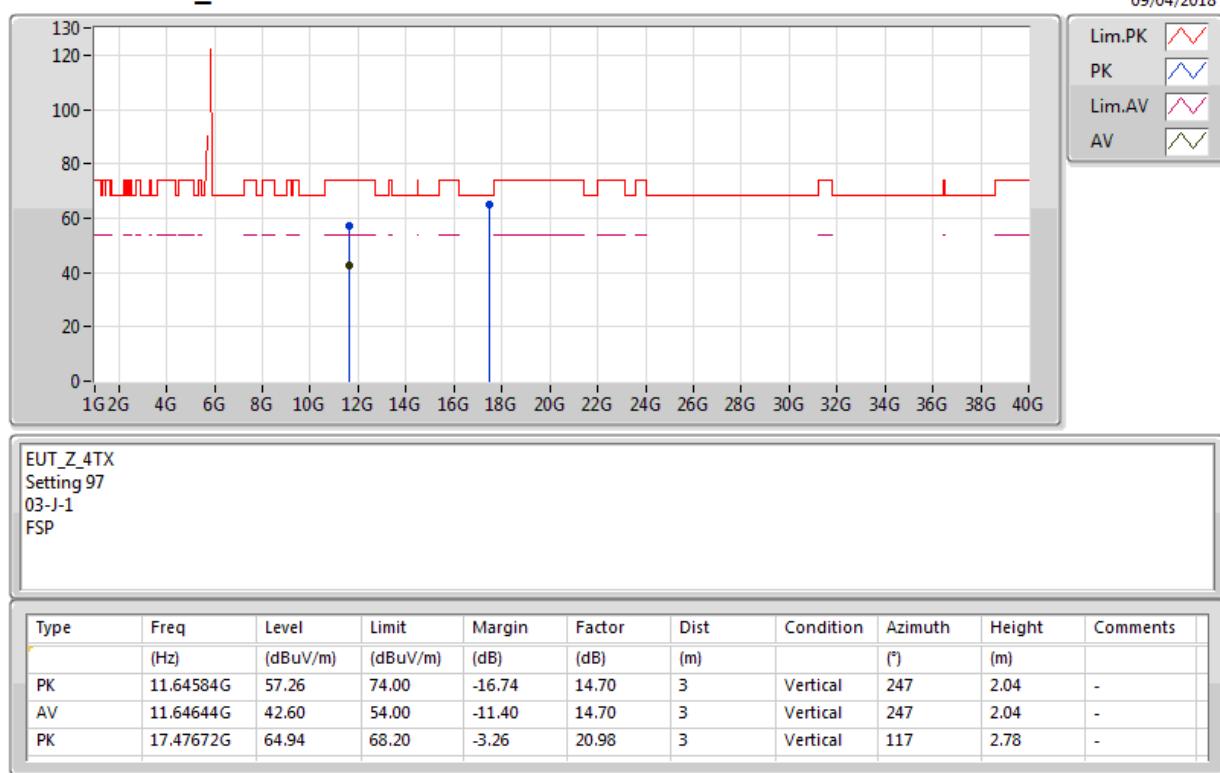


## RSE TX above 1GHz Result

Appendix E.2

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

#### 5825MHz\_TX



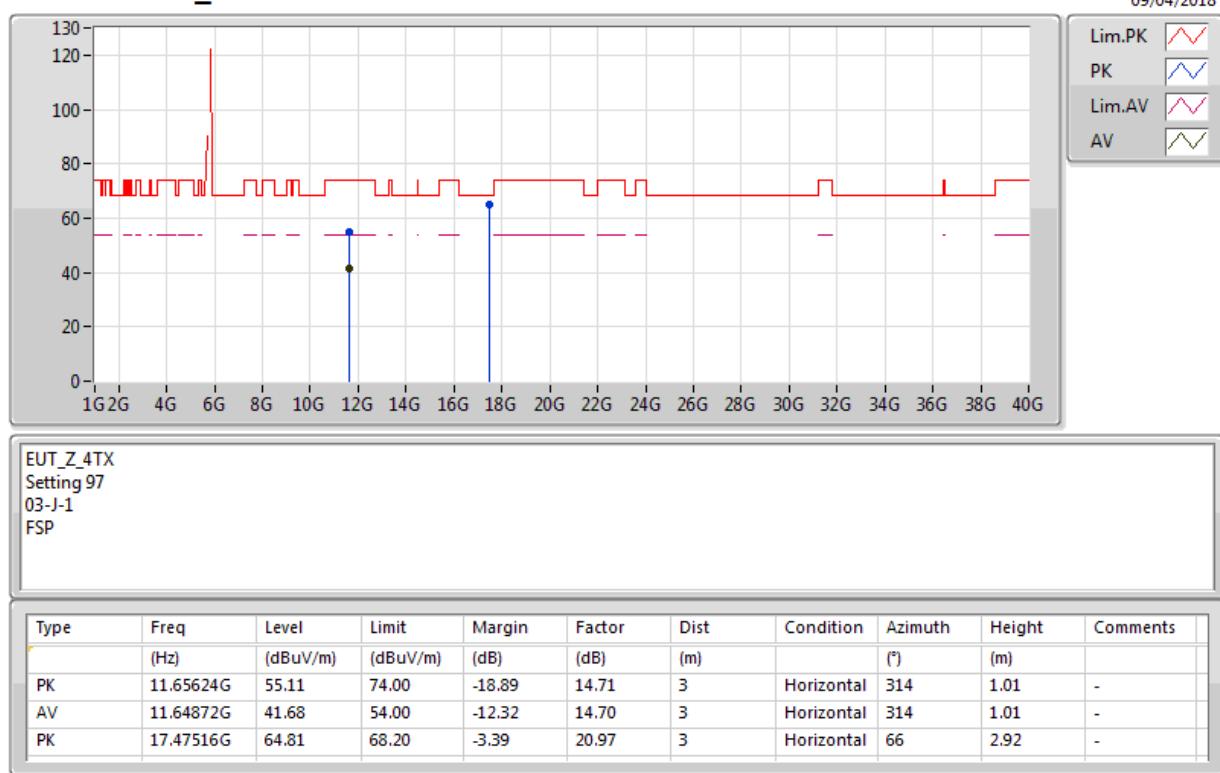


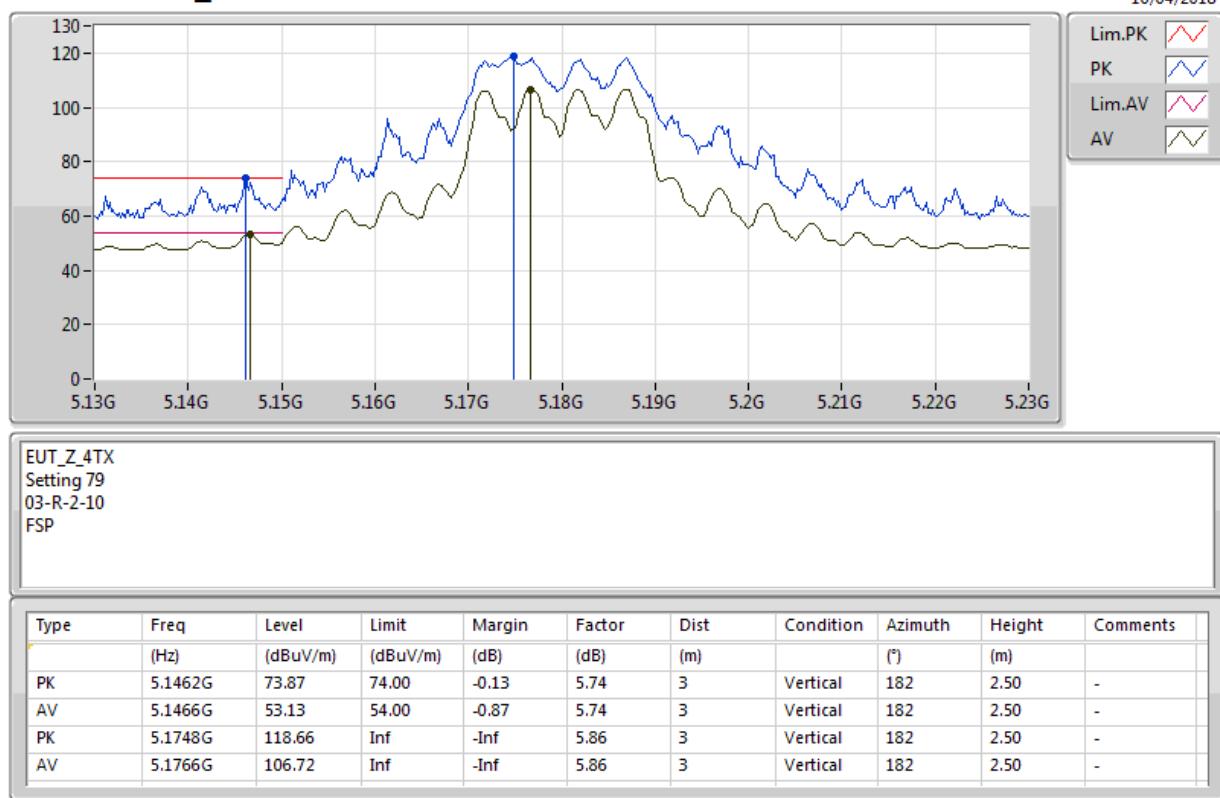
## RSE TX above 1GHz Result

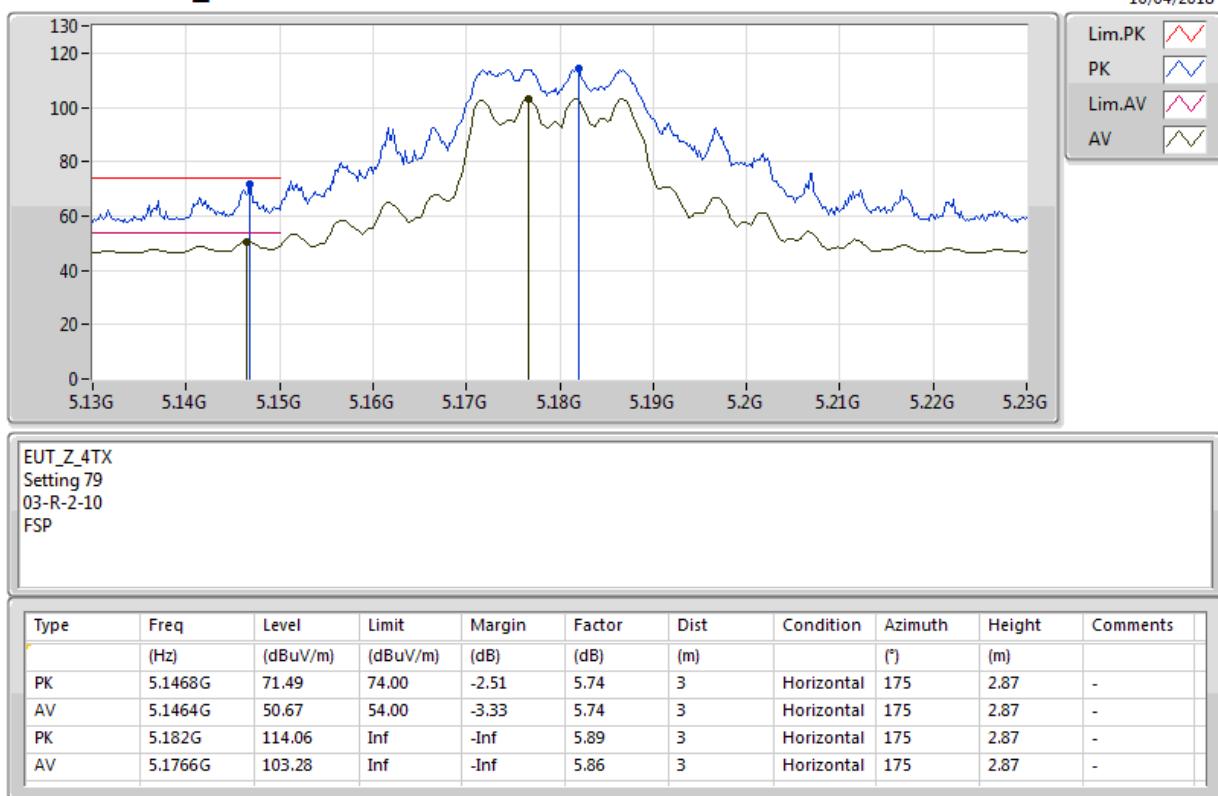
Appendix E.2

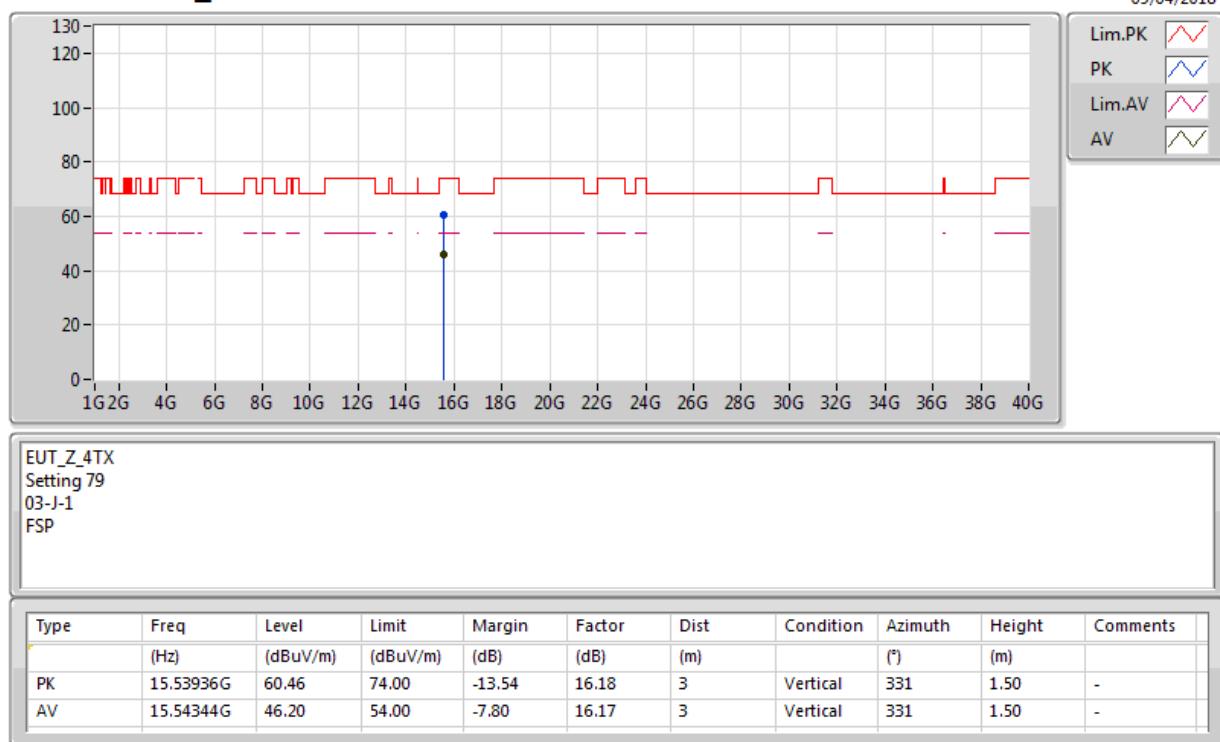
### 802.11a\_Nss1,(6Mbps)\_4TX

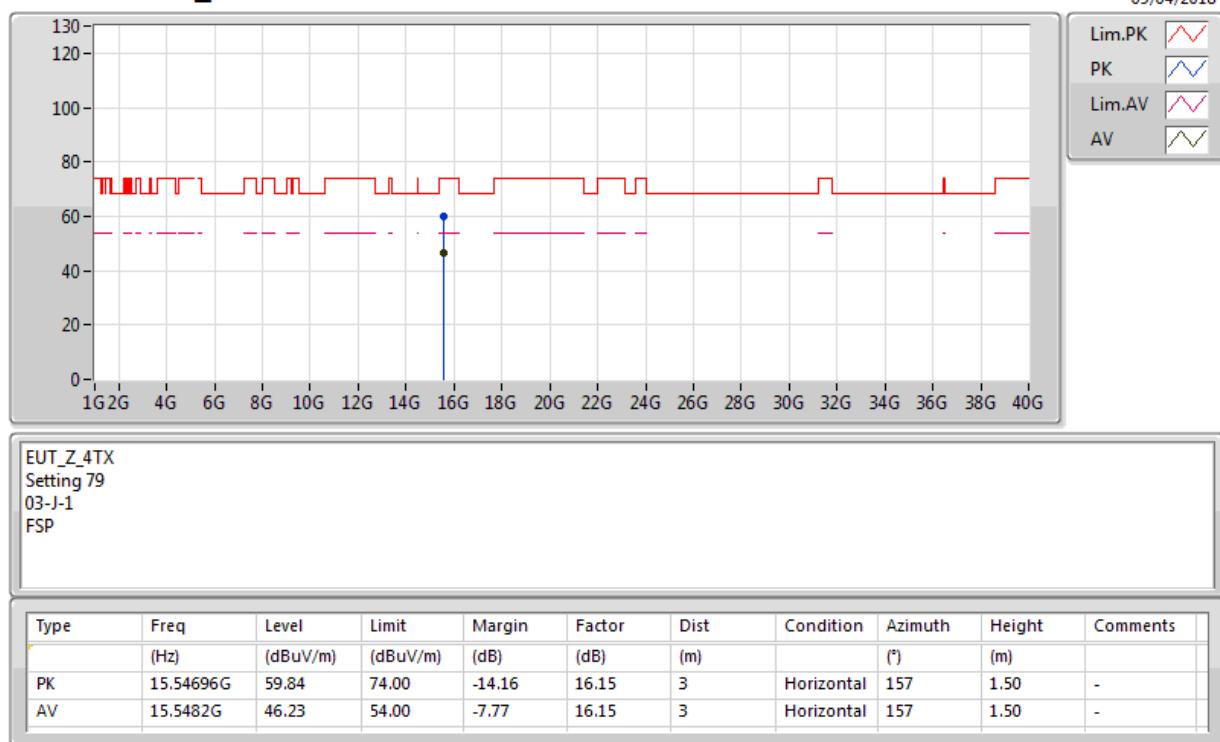
#### 5825MHz\_TX

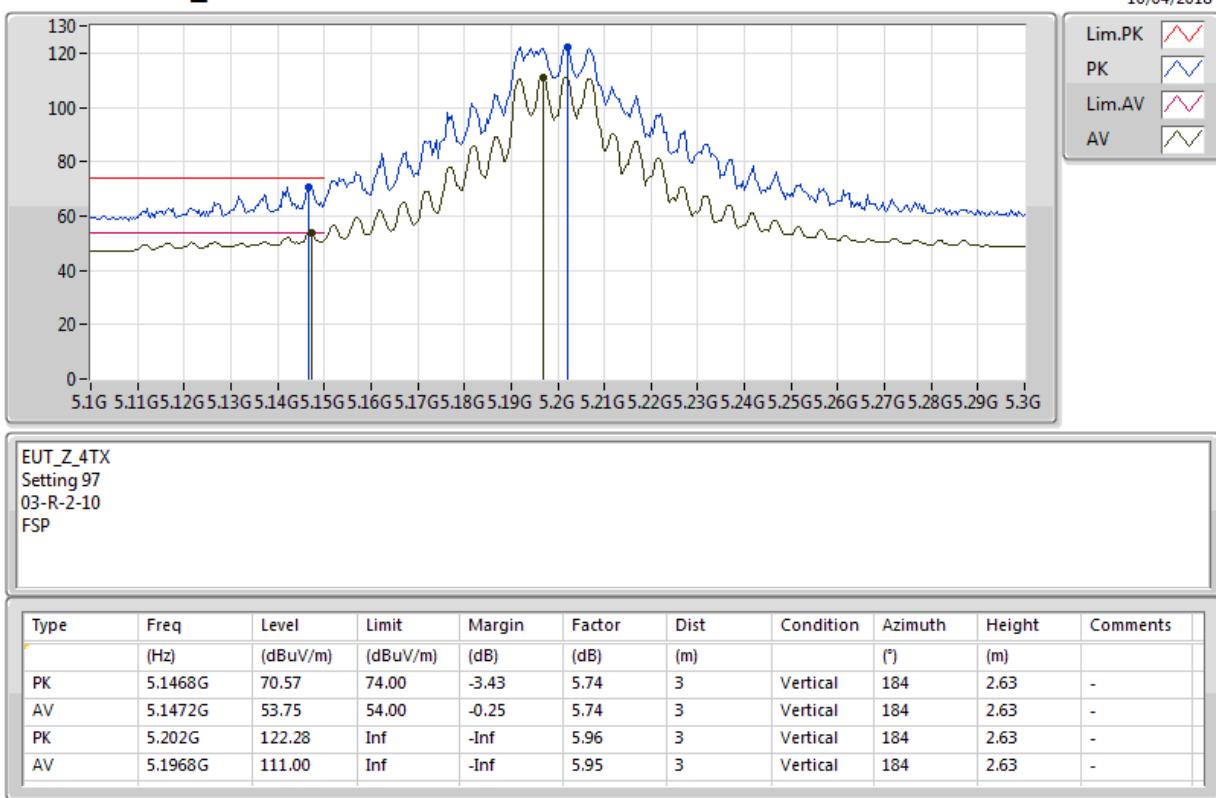


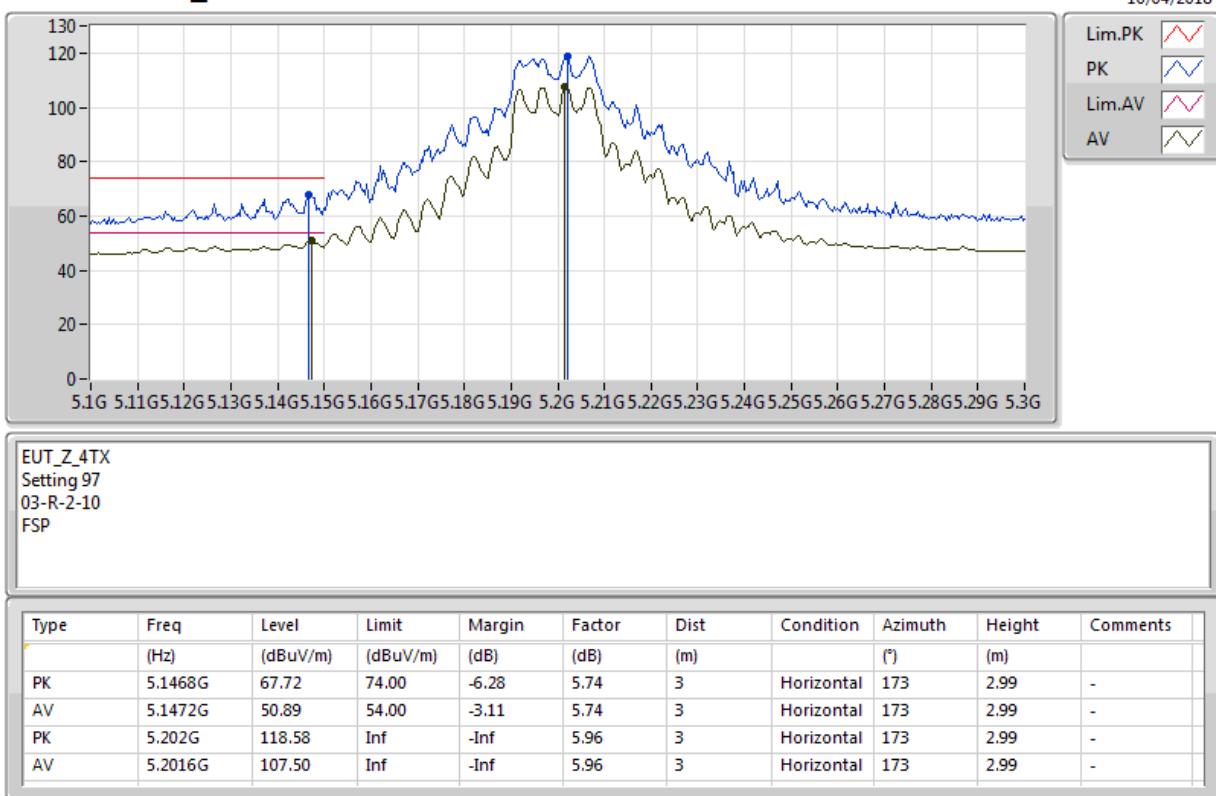
**802.11ac VHT20\_Nss1,(MCS0)\_4TX****5180MHz\_TX**

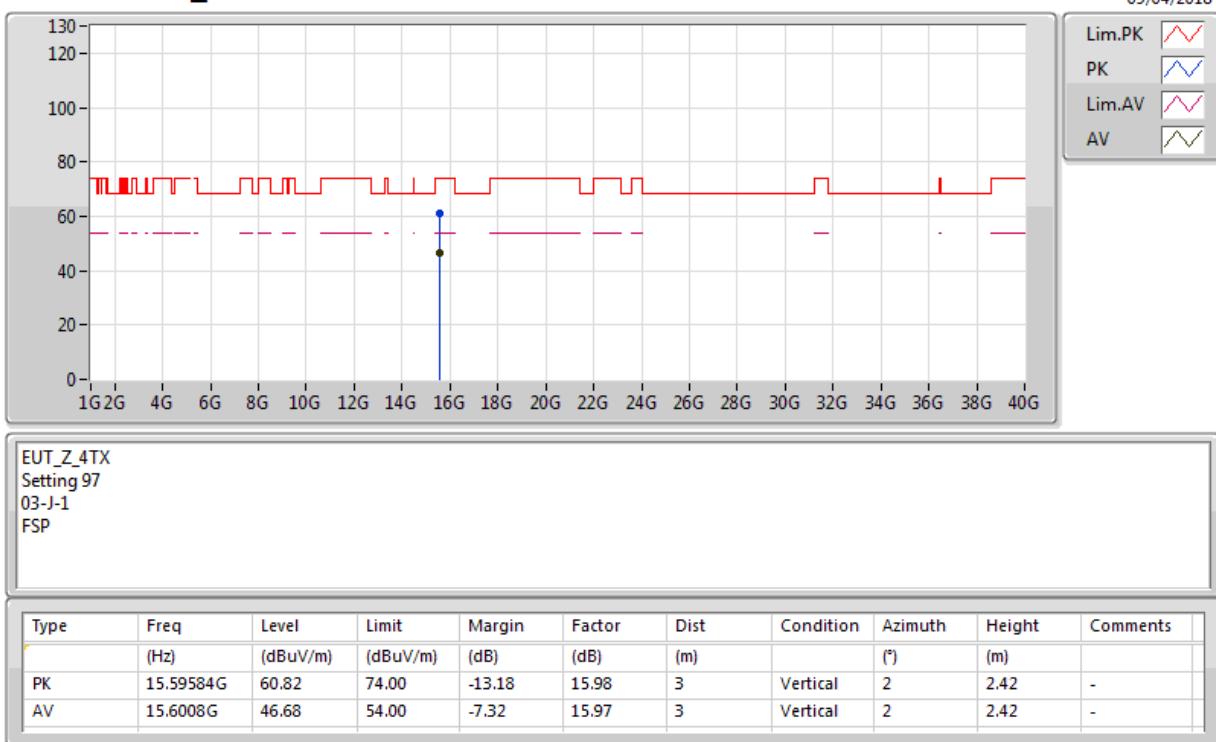
**802.11ac VHT20\_Nss1,(MCS0)\_4TX****5180MHz\_TX**

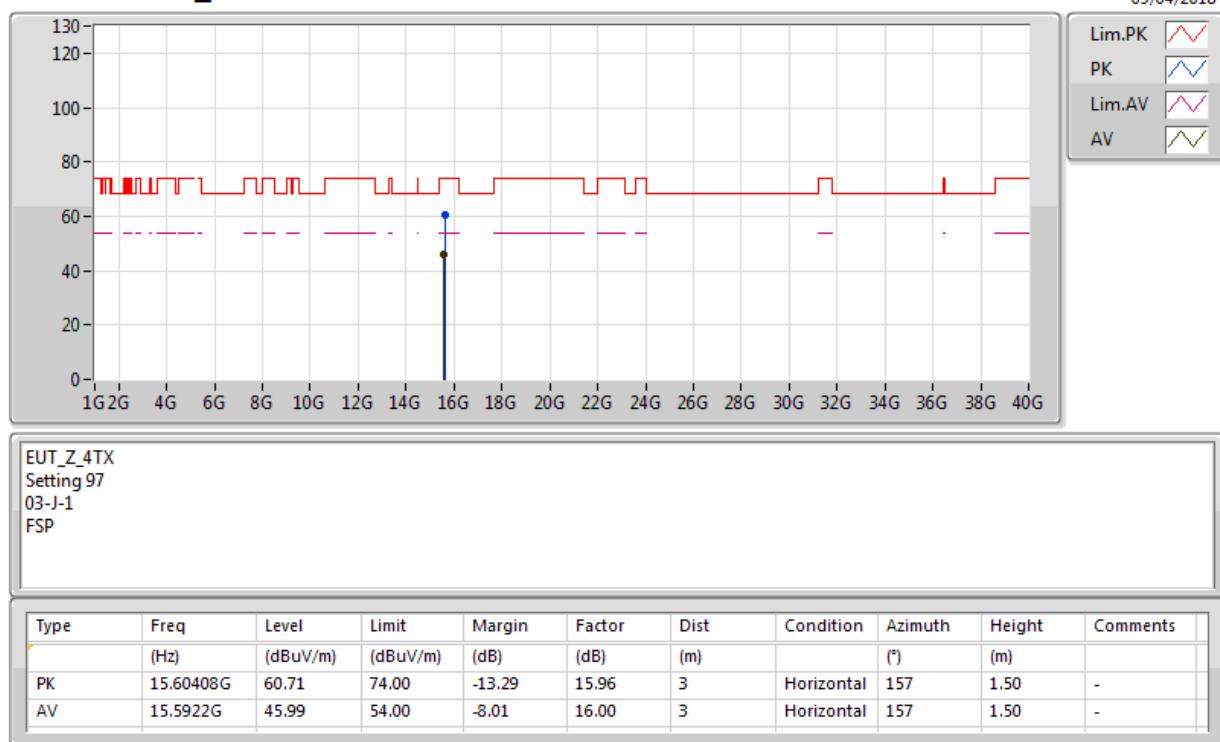
**802.11ac VHT20\_Nss1,(MCS0)\_4TX****5180MHz\_TX**

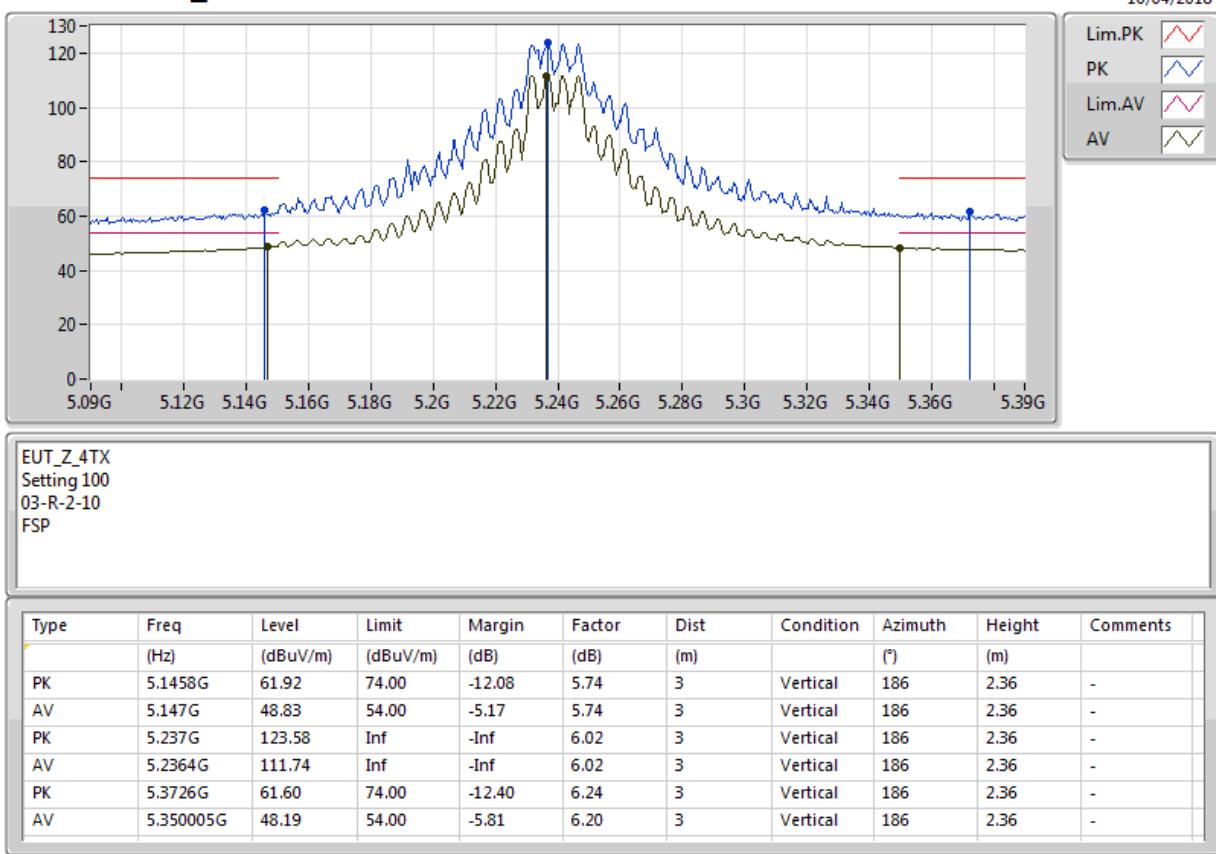
**802.11ac VHT20\_Nss1,(MCS0)\_4TX**
**5180MHz\_TX**


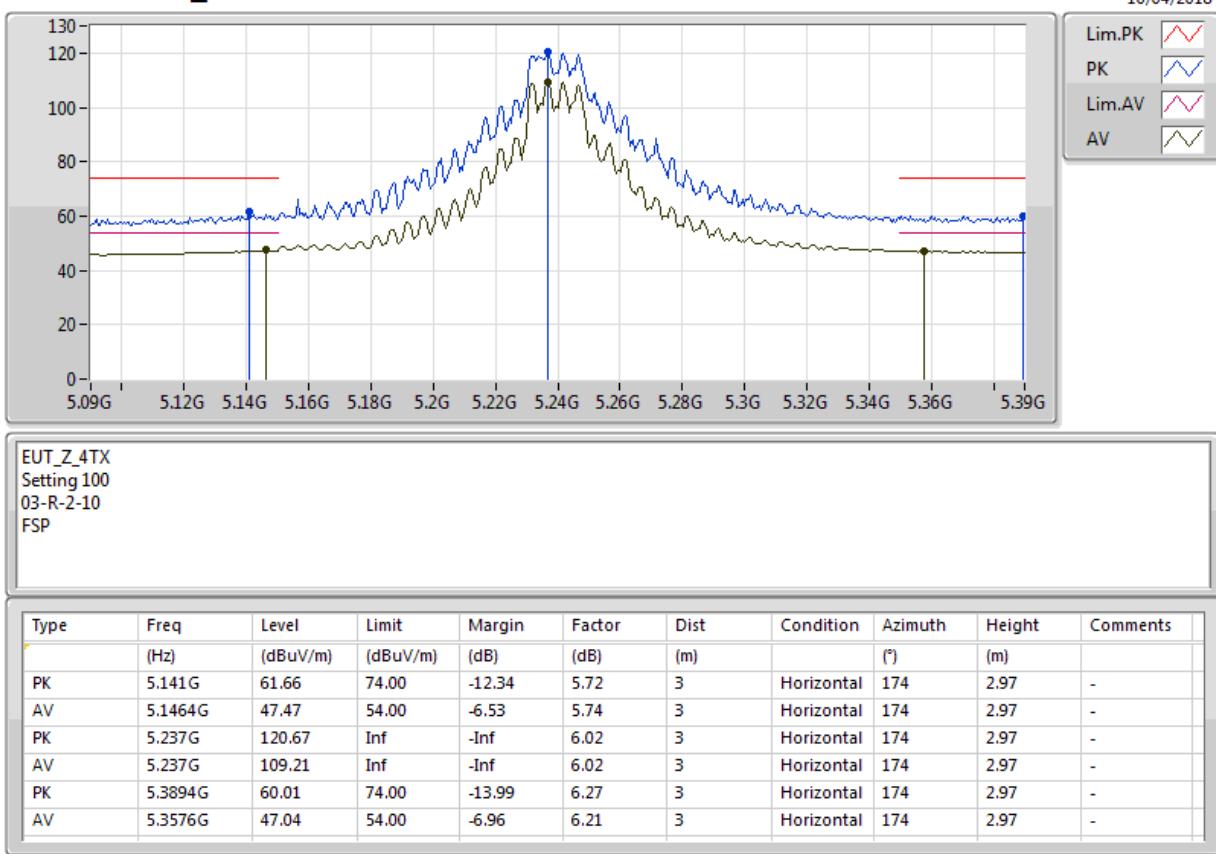
**802.11ac VHT20\_Nss1,(MCS0)\_4TX****5200MHz\_TX**

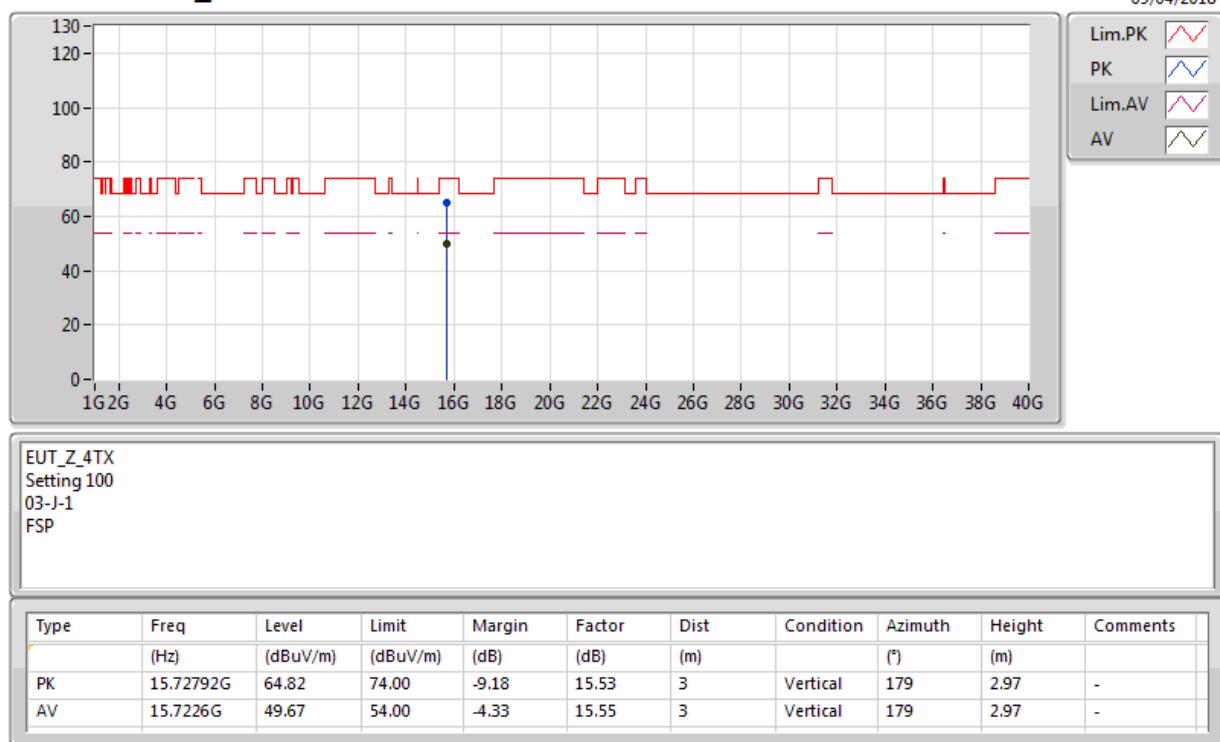
**802.11ac VHT20\_Nss1,(MCS0)\_4TX****5200MHz\_TX**

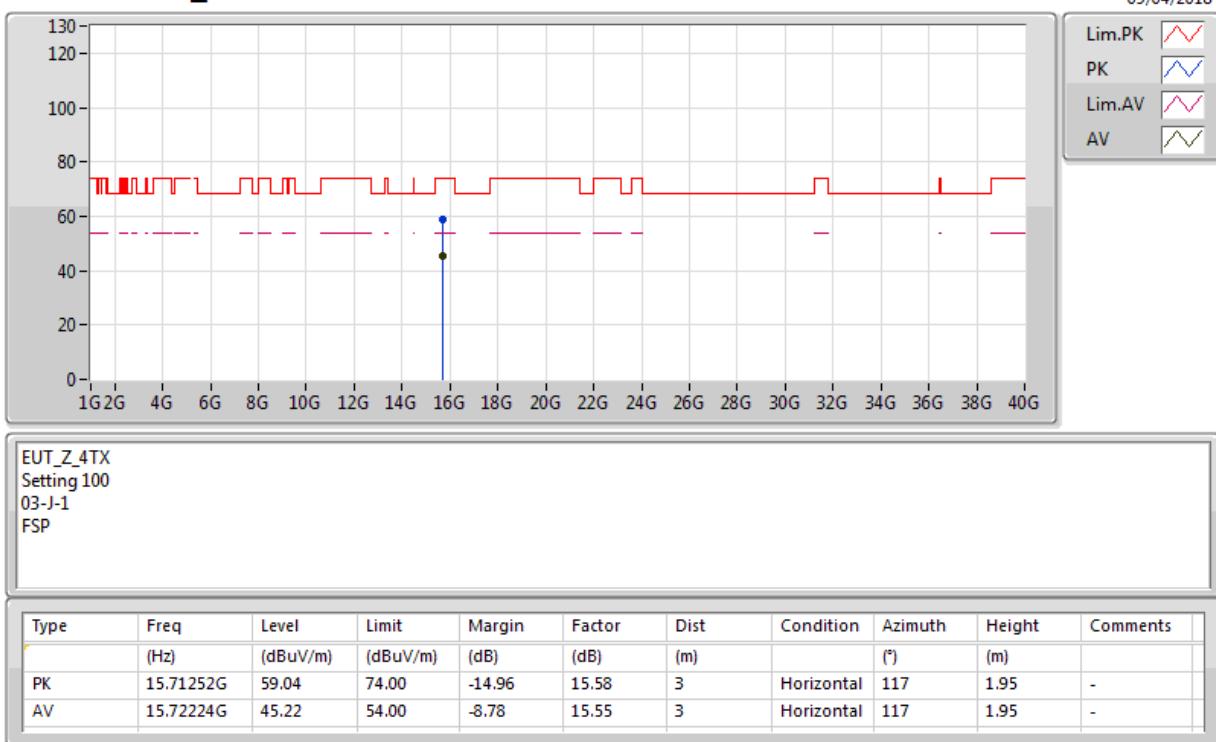
**802.11ac VHT20\_Nss1,(MCS0)\_4TX****5200MHz\_TX**

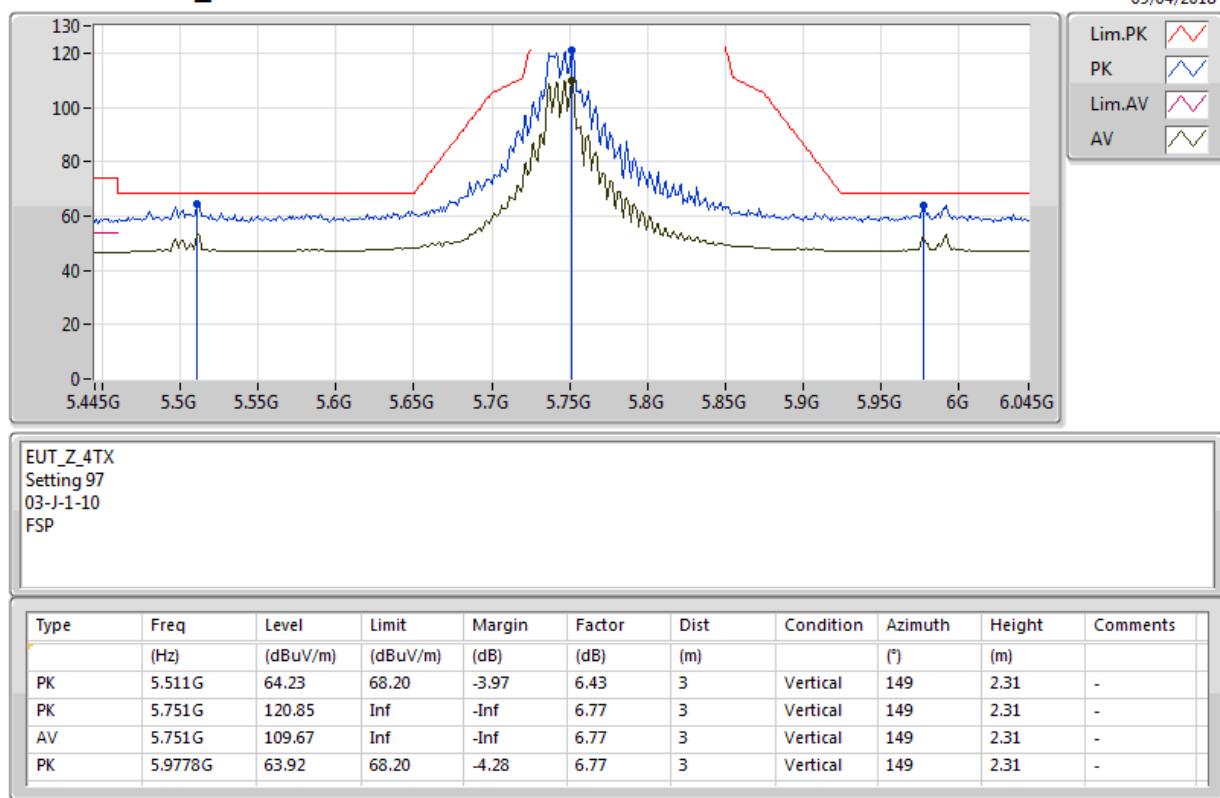
**802.11ac VHT20\_Nss1,(MCS0)\_4TX****5200MHz\_TX**

**802.11ac VHT20\_Nss1,(MCS0)\_4TX****5240MHz\_TX**

**802.11ac VHT20\_Nss1,(MCS0)\_4TX****5240MHz\_TX**

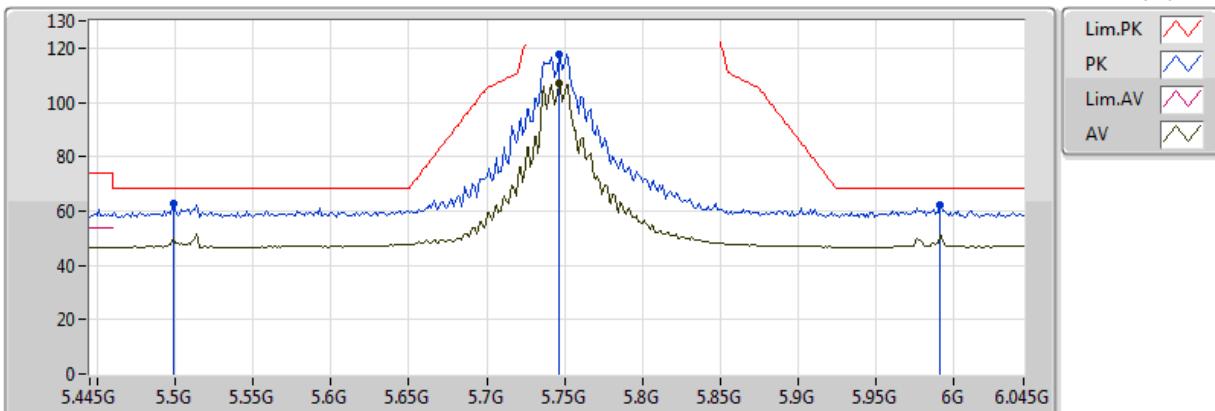
**802.11ac VHT20\_Nss1,(MCS0)\_4TX****5240MHz\_TX**

**802.11ac VHT20\_Nss1,(MCS0)\_4TX****5240MHz\_TX**

**802.11ac VHT20\_Nss1,(MCS0)\_4TX**
**5745MHz\_TX**


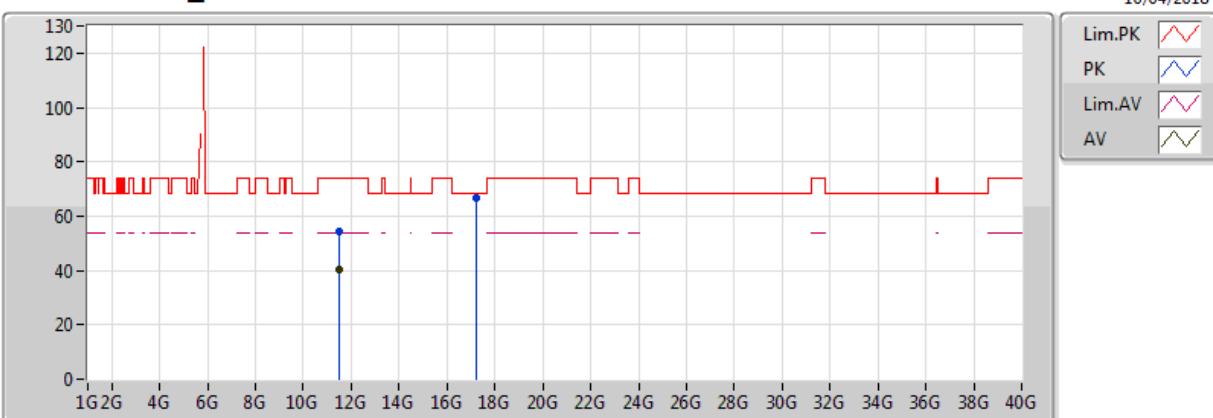
**802.11ac VHT20\_Nss1,(MCS0)\_4TX**
**5745MHz\_TX**

09/04/2018

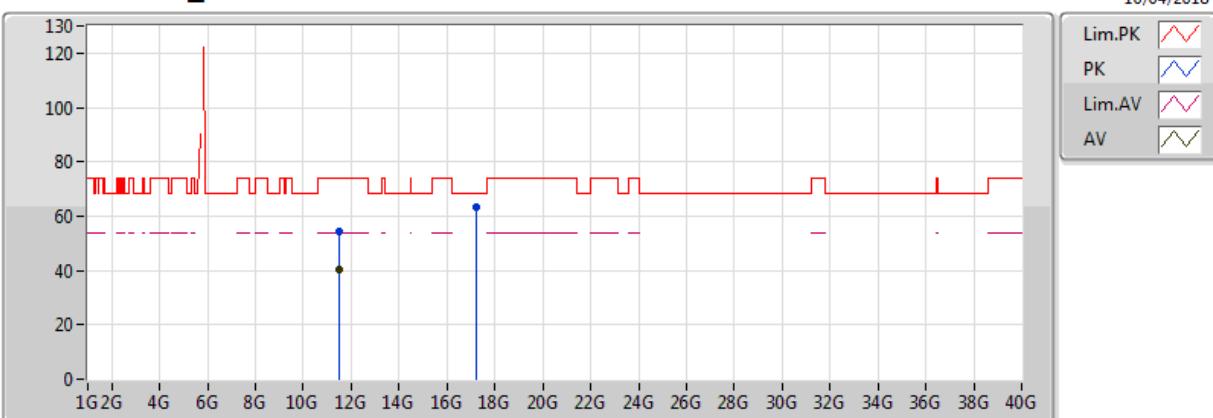


EUT\_Z\_4TX  
Setting 97  
03-J-1-10  
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	5.499G	62.55	68.20	-5.65	6.43	3	Horizontal	261	2.44	-
PK	5.7462G	117.68	Inf	-Inf	6.76	3	Horizontal	261	2.44	-
AV	5.7462G	106.83	Inf	-Inf	6.76	3	Horizontal	261	2.44	-
PK	5.991G	62.15	68.20	-6.05	6.76	3	Horizontal	261	2.44	-

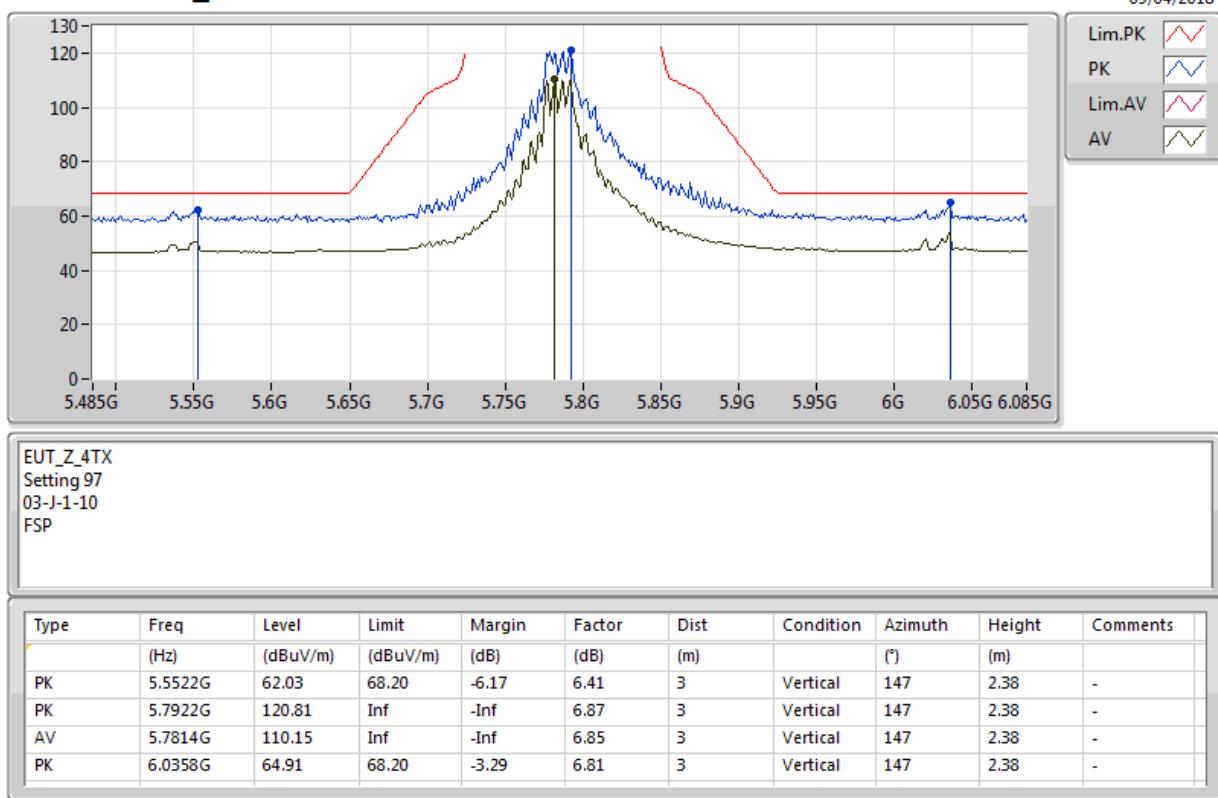
**802.11ac VHT20\_Nss1,(MCS0)\_4TX****5745MHz\_TX**

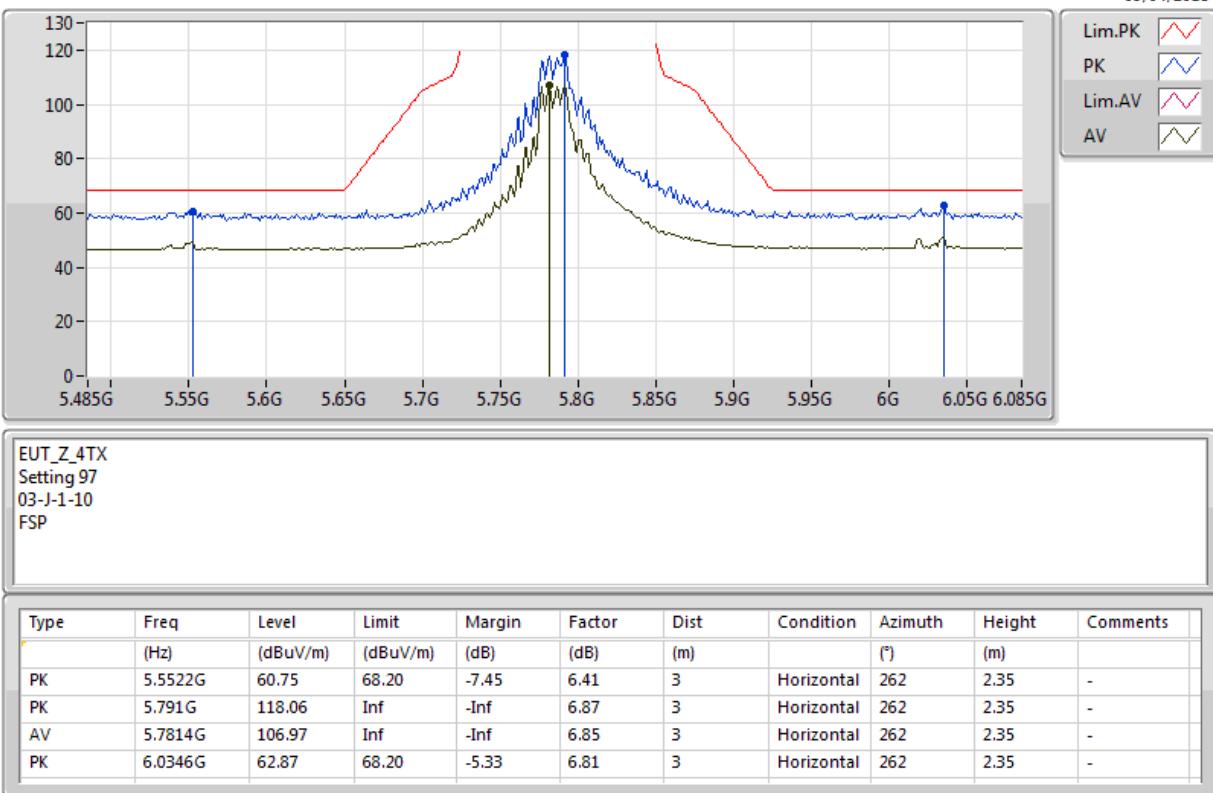
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	11.48784G	54.09	74.00	-19.91	14.52	3	Vertical	323	2.07	-
AV	11.49176G	40.39	54.00	-13.61	14.53	3	Vertical	323	2.07	-
PK	17.2346G	66.64	68.20	-1.56	19.60	3	Vertical	12	1.02	-

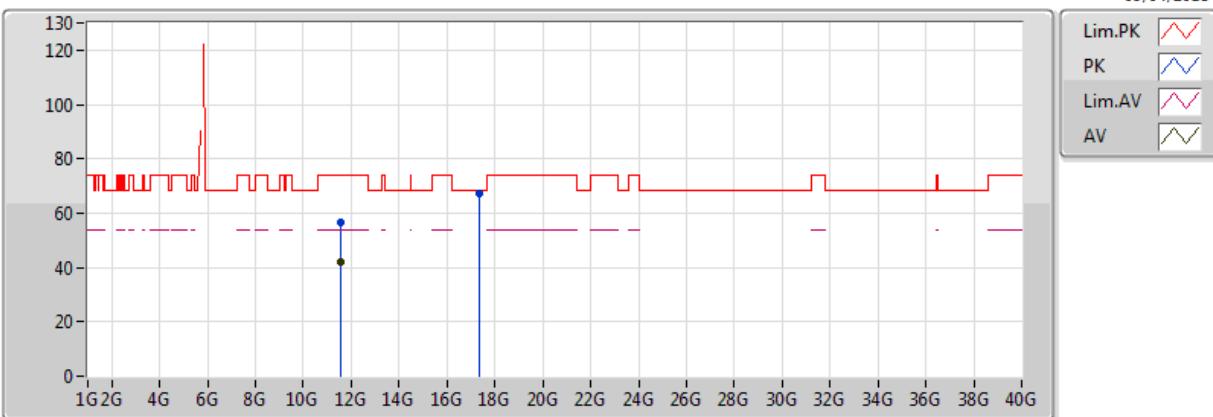
**802.11ac VHT20\_Nss1,(MCS0)\_4TX**
**5745MHz\_TX**


EUT\_Z\_4TX  
Setting 97  
03-J-1  
FSP

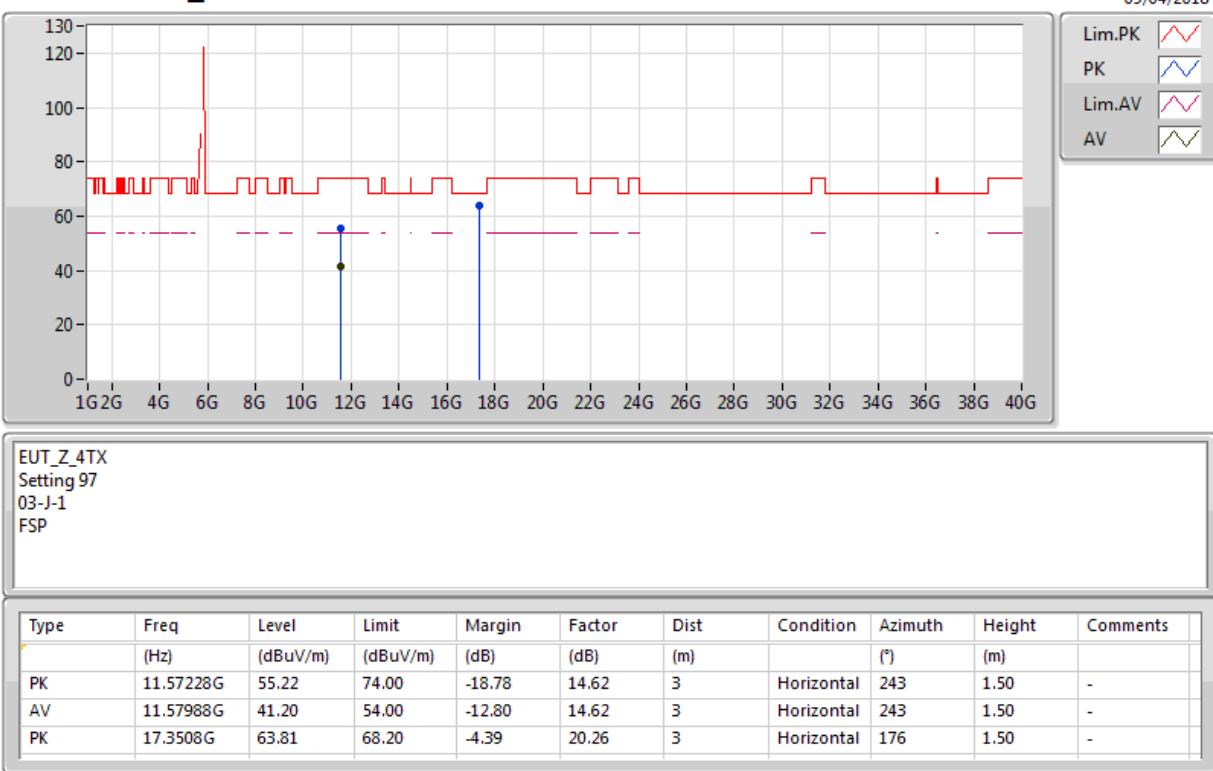
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	11.49304G	54.57	74.00	-19.43	14.53	3	Horizontal	83	1.45	-
AV	11.48492G	40.15	54.00	-13.85	14.52	3	Horizontal	83	1.45	-
PK	17.24292G	63.48	68.20	-4.72	19.65	3	Horizontal	333	1.72	-

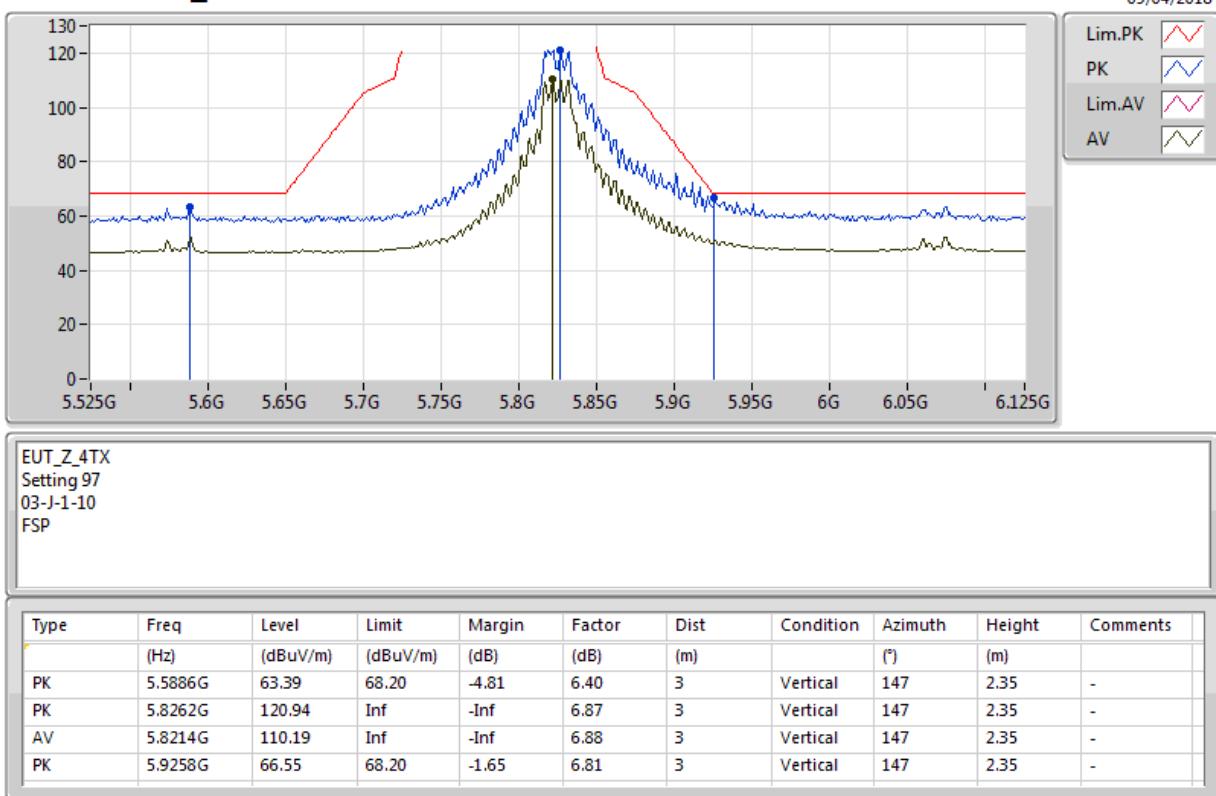
**802.11ac VHT20\_Nss1,(MCS0)\_4TX****5785MHz\_TX**

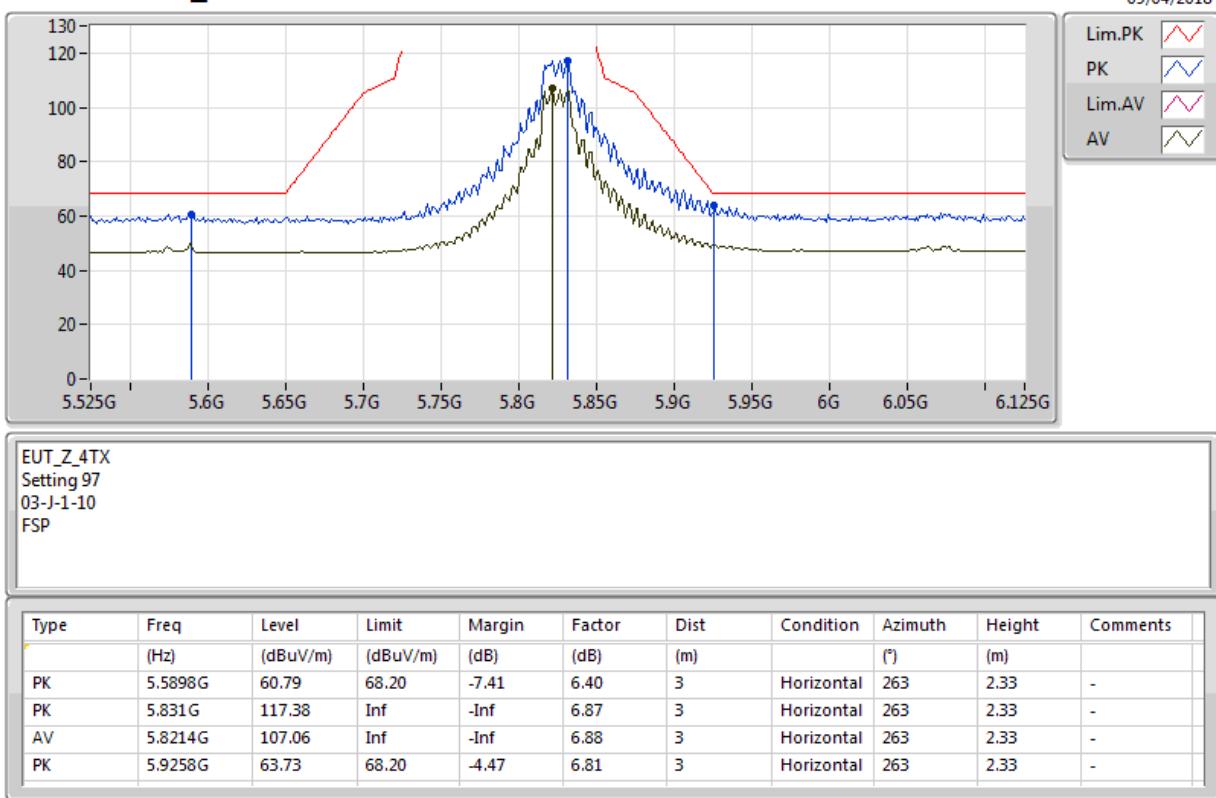
**802.11ac VHT20\_Nss1,(MCS0)\_4TX****5785MHz\_TX**

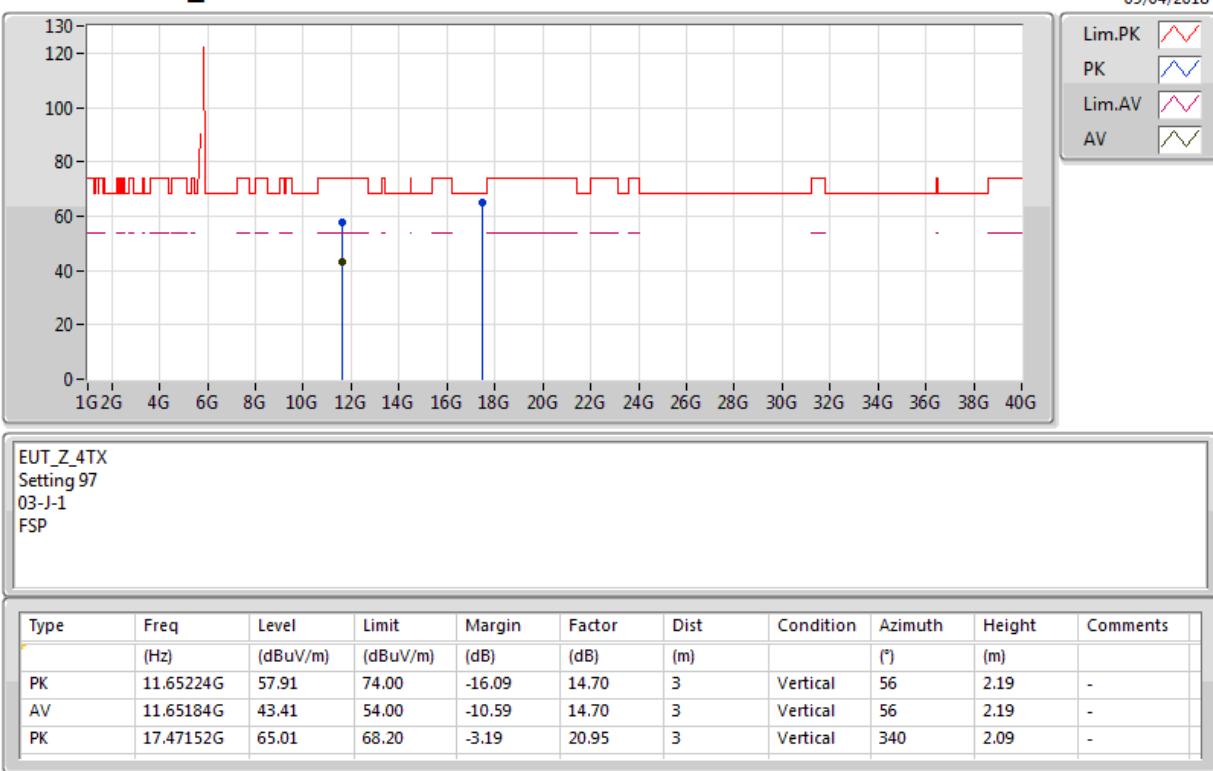
**802.11ac VHT20\_Nss1,(MCS0)\_4TX****5785MHz\_TX**

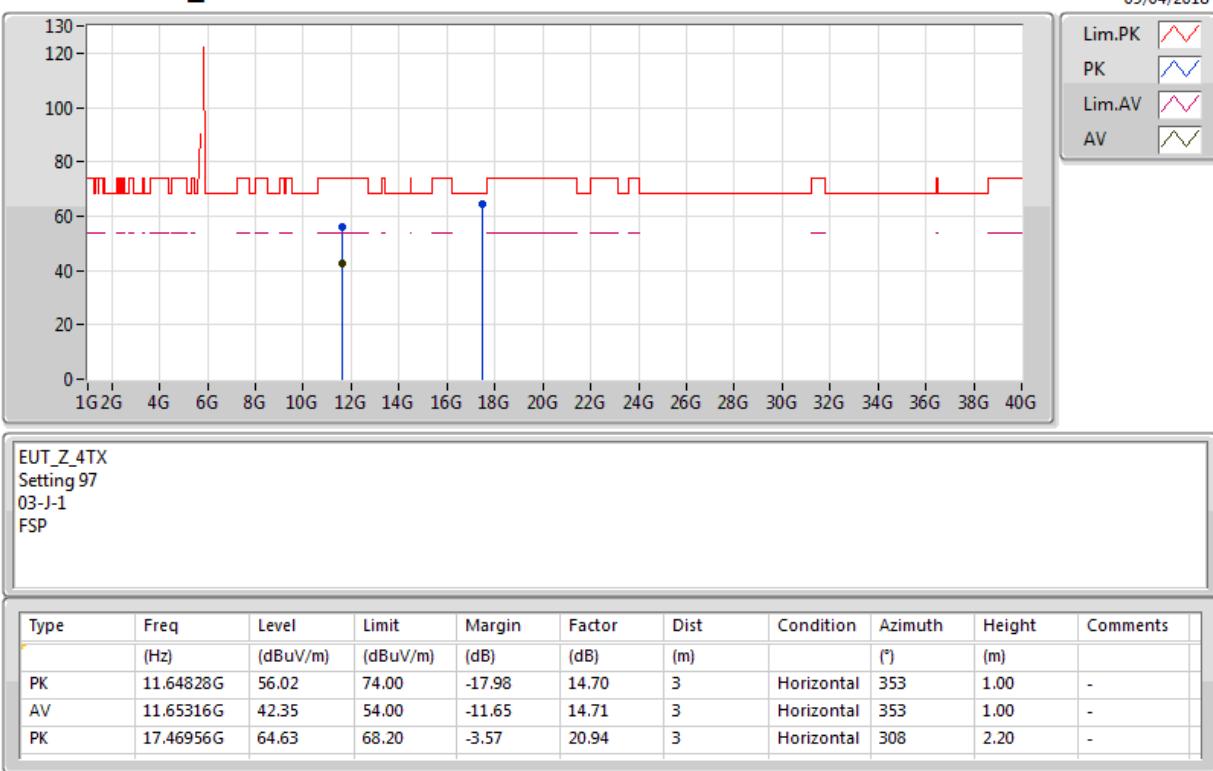
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	11.56424G	56.70	74.00	-17.30	14.61	3	Vertical	114	1.03	-
AV	11.57036G	42.24	54.00	-11.76	14.61	3	Vertical	114	1.03	-
PK	17.35632G	67.11	68.20	-1.09	20.29	3	Vertical	38	2.71	-

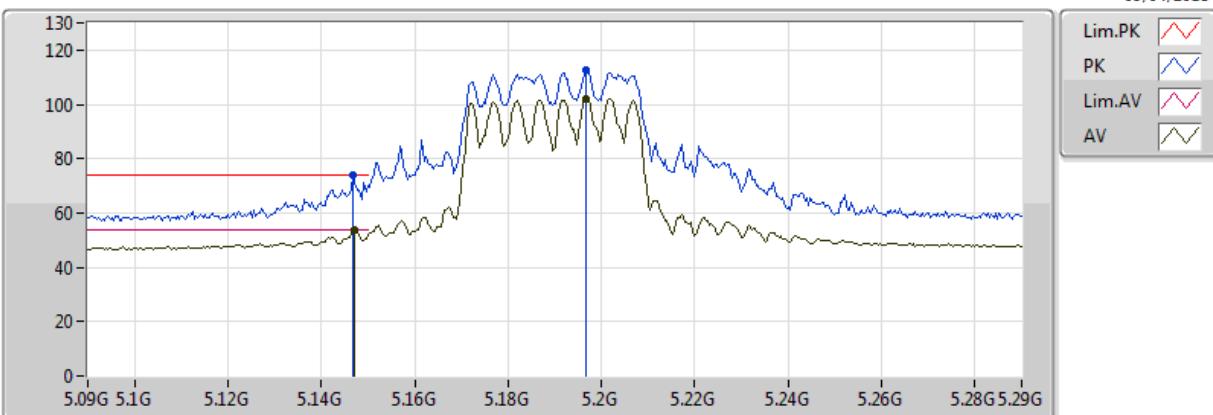
**802.11ac VHT20\_Nss1,(MCS0)\_4TX****5785MHz\_TX**

**802.11ac VHT20\_Nss1,(MCS0)\_4TX**
**5825MHz\_TX**


**802.11ac VHT20\_Nss1,(MCS0)\_4TX****5825MHz\_TX**

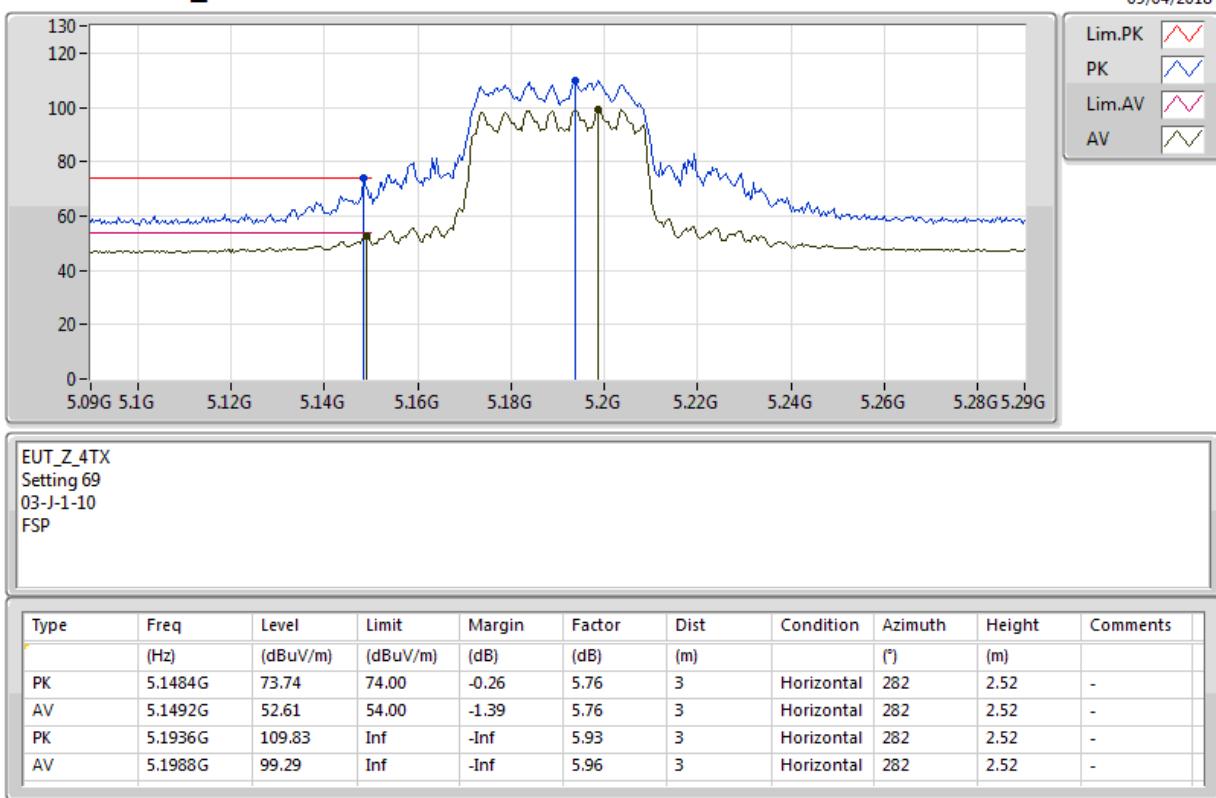
**802.11ac VHT20\_Nss1,(MCS0)\_4TX****5825MHz\_TX**

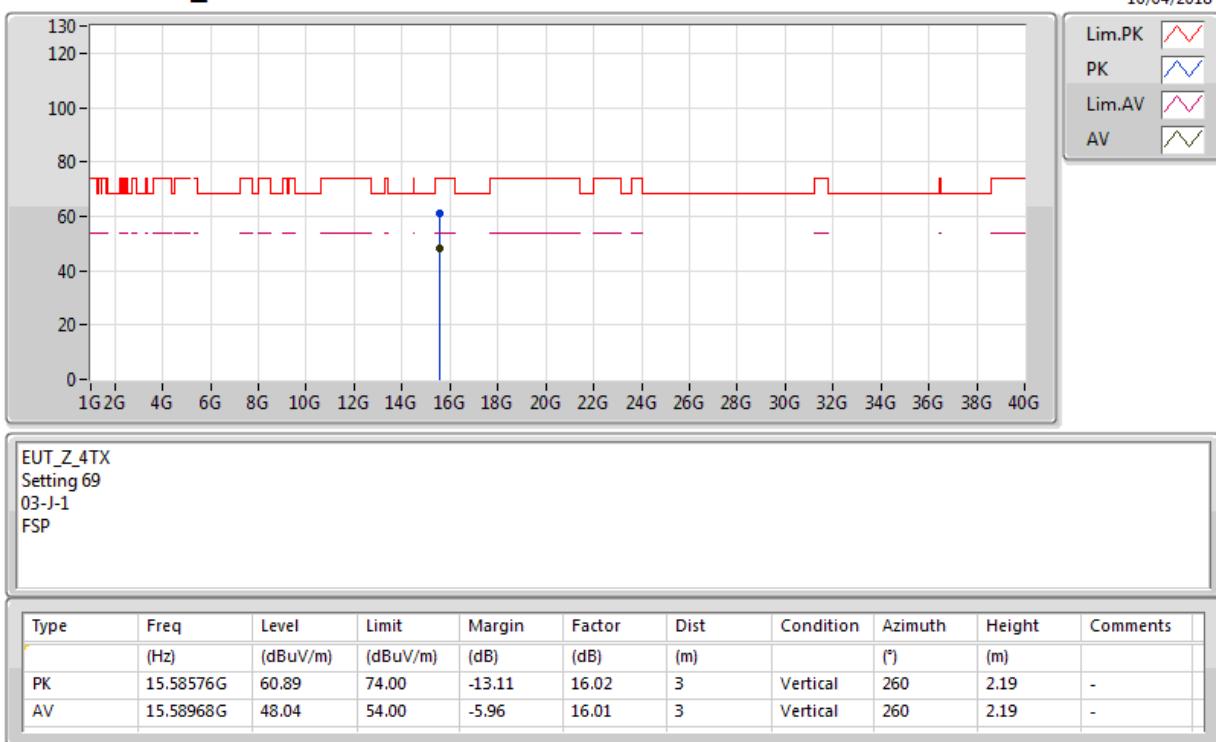
**802.11ac VHT20\_Nss1,(MCS0)\_4TX****5825MHz\_TX**

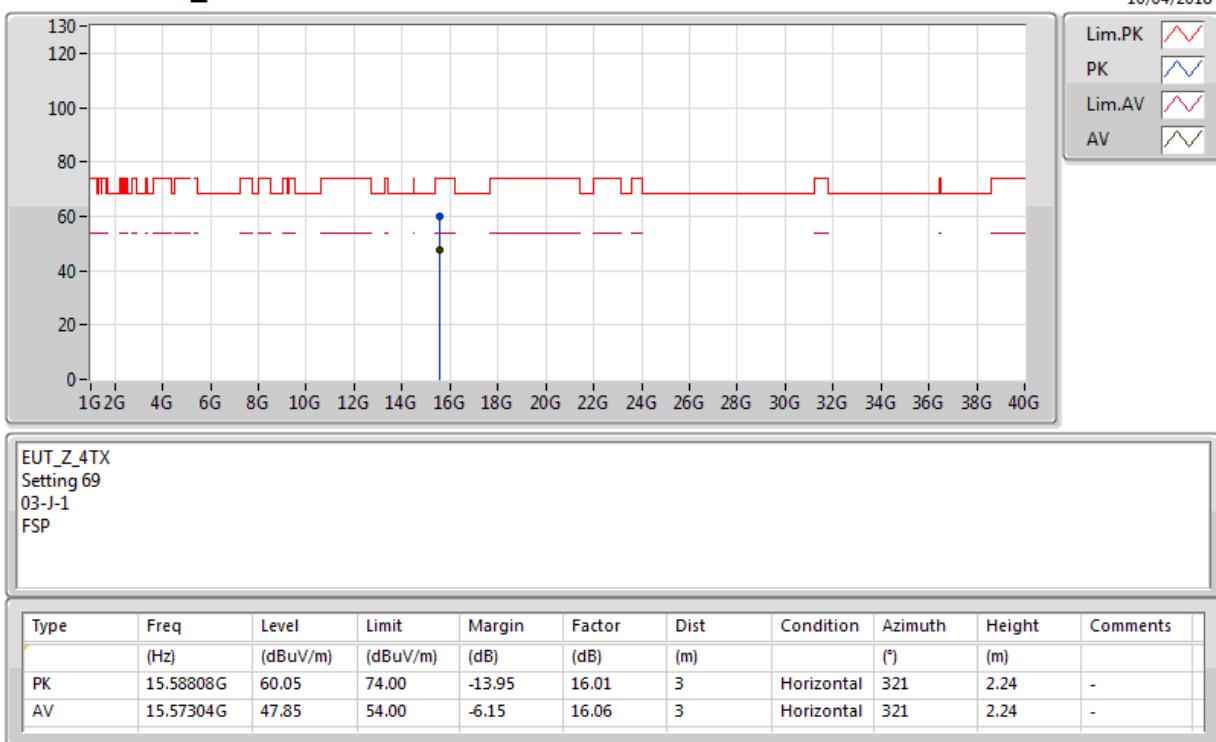
**802.11ac VHT40\_Nss1,(MCS0)\_4TX****5190MHz\_TX**

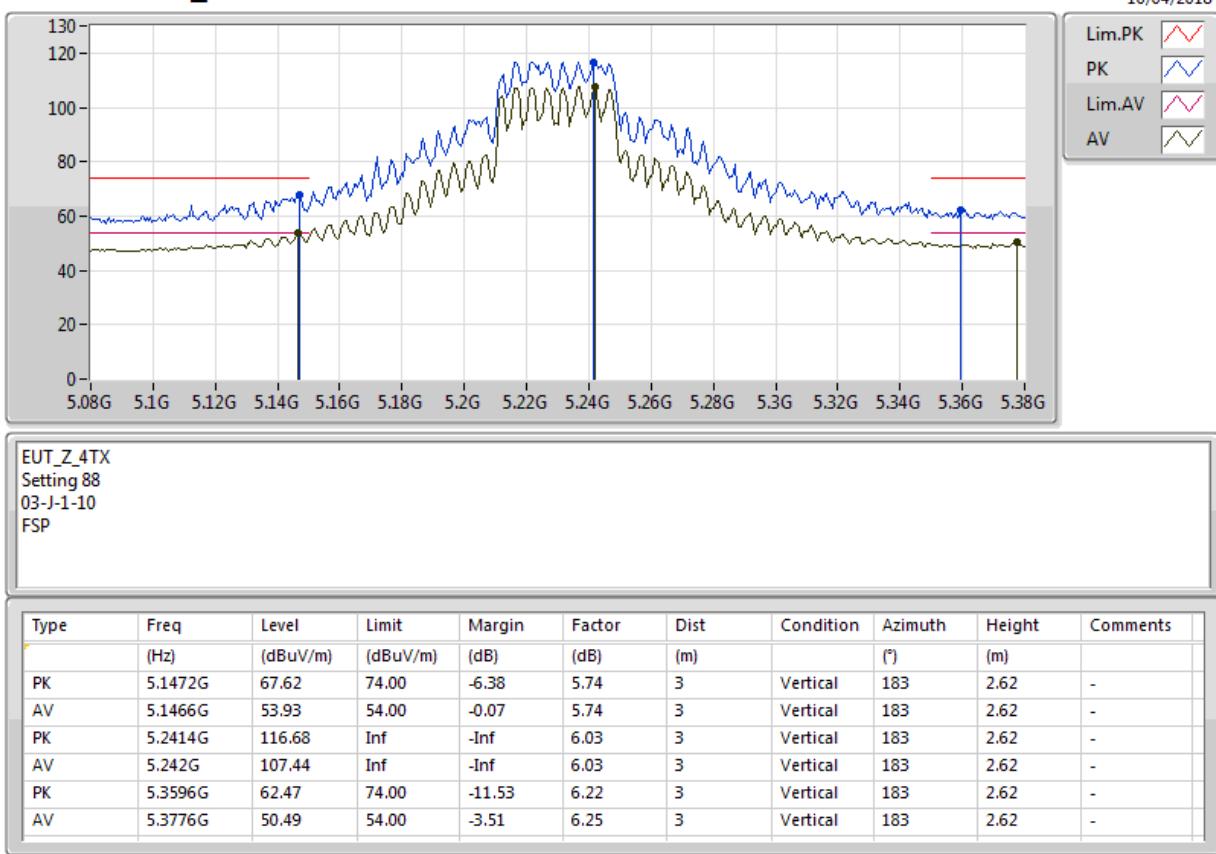
EUT\_Z\_4TX  
Setting 69  
03-J-1-10  
FSP

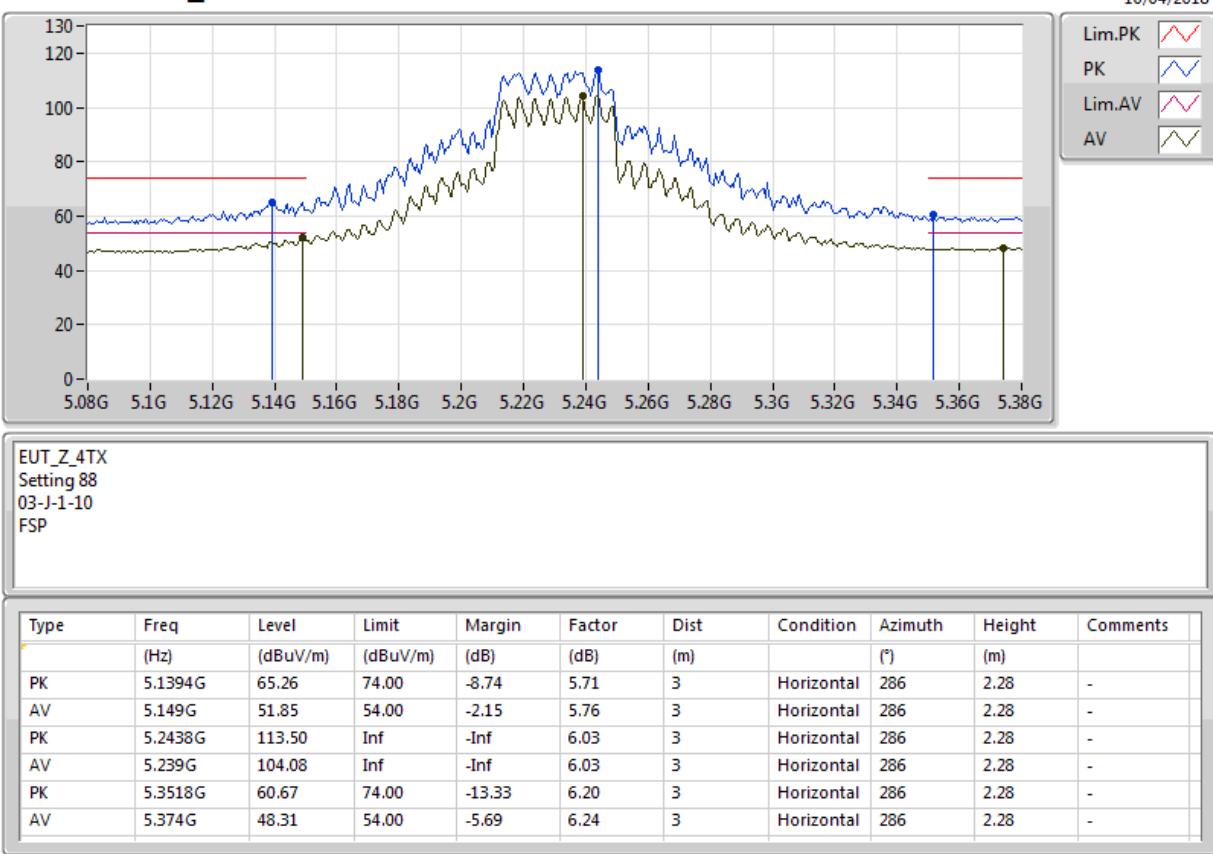
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	5.1468G	73.97	74.00	-0.03	5.74	3	Vertical	180	2.57	-
AV	5.1472G	53.73	54.00	-0.27	5.74	3	Vertical	180	2.57	-
PK	5.1968G	112.76	Inf	-Inf	5.95	3	Vertical	180	2.57	-
AV	5.1968G	102.14	Inf	-Inf	5.95	3	Vertical	180	2.57	-

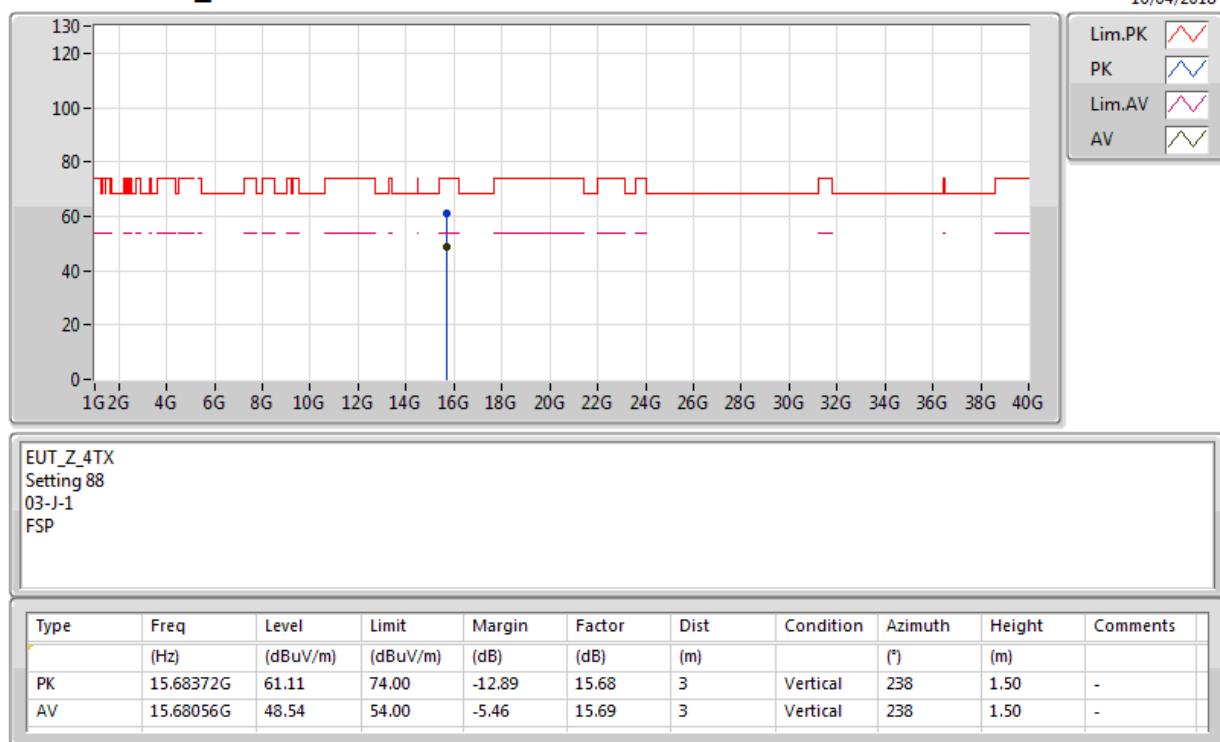
**802.11ac VHT40\_Nss1,(MCS0)\_4TX****5190MHz\_TX**

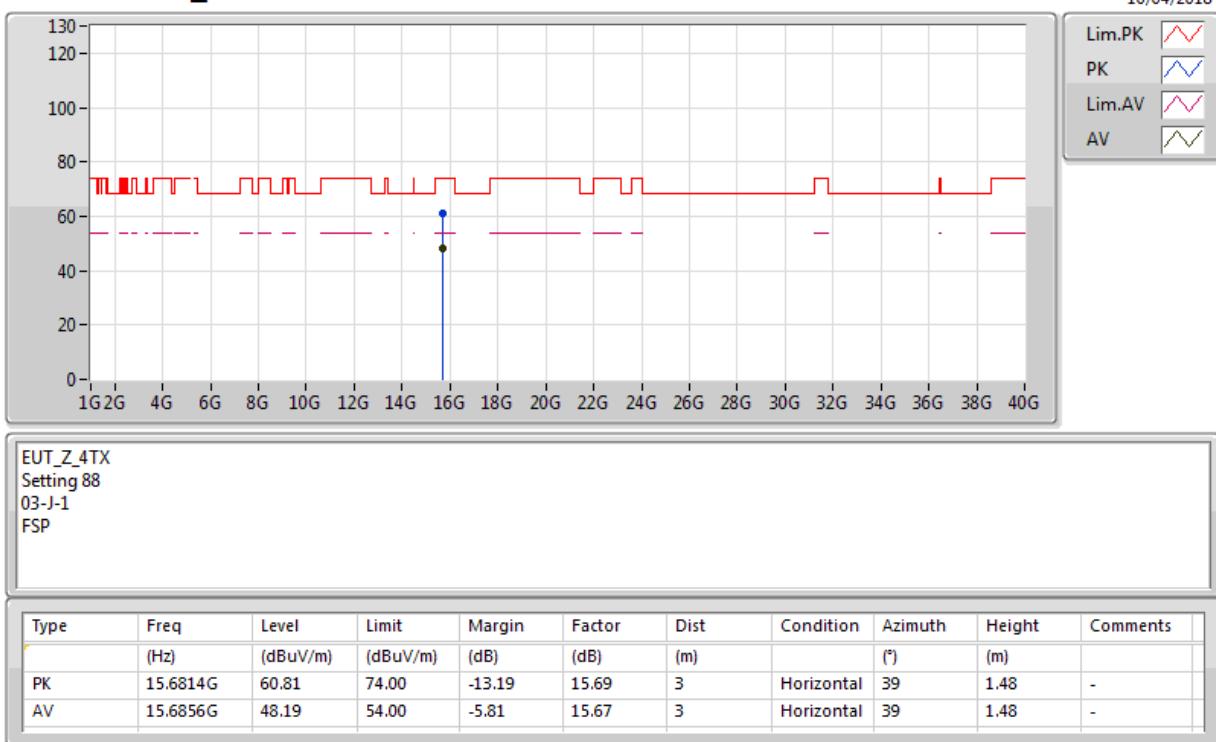
**802.11ac VHT40\_Nss1,(MCS0)\_4TX****5190MHz\_TX**

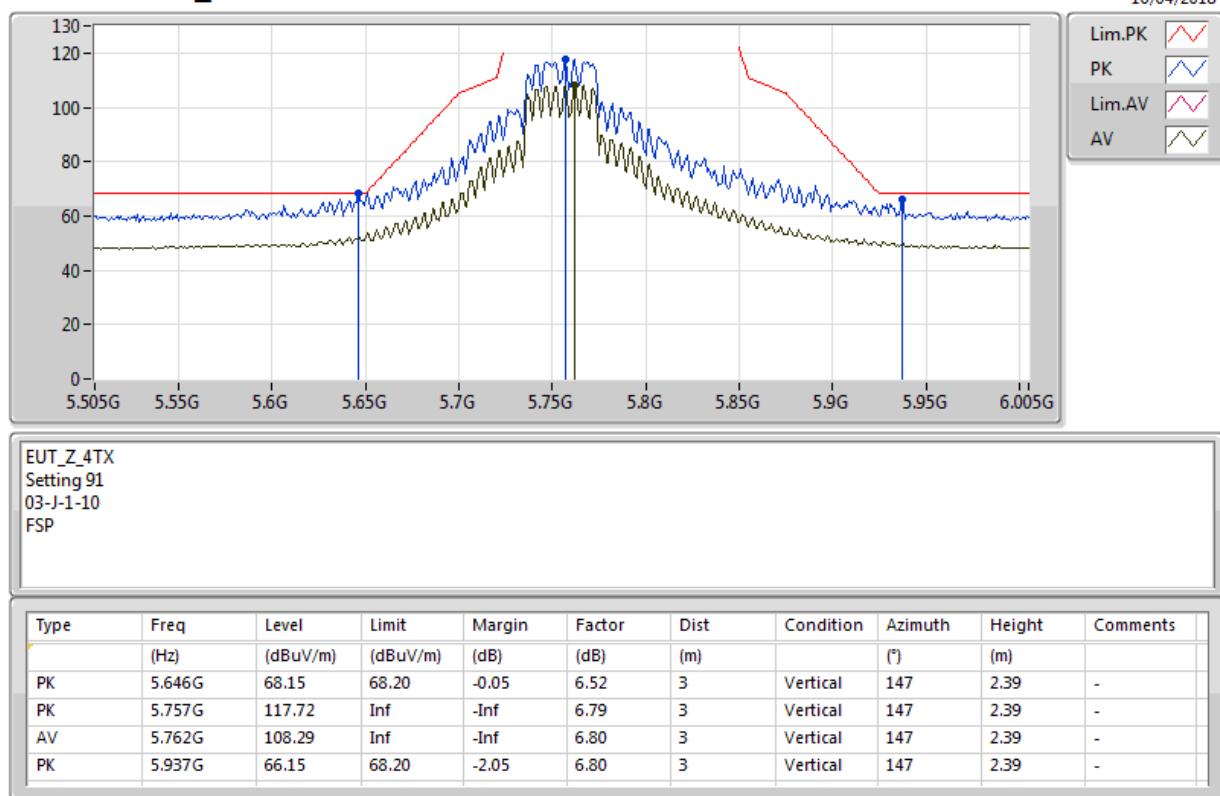
**802.11ac VHT40\_Nss1,(MCS0)\_4TX****5190MHz\_TX**

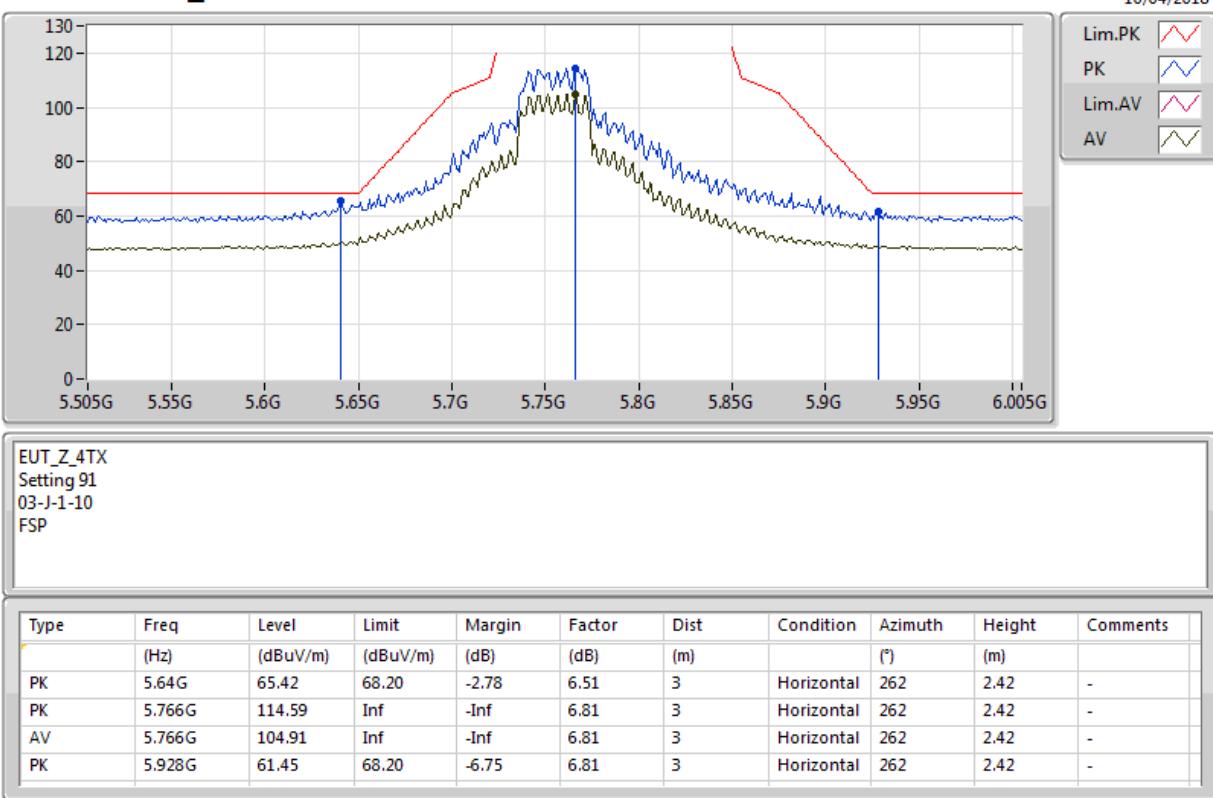
**802.11ac VHT40\_Nss1,(MCS0)\_4TX****5230MHz\_TX**

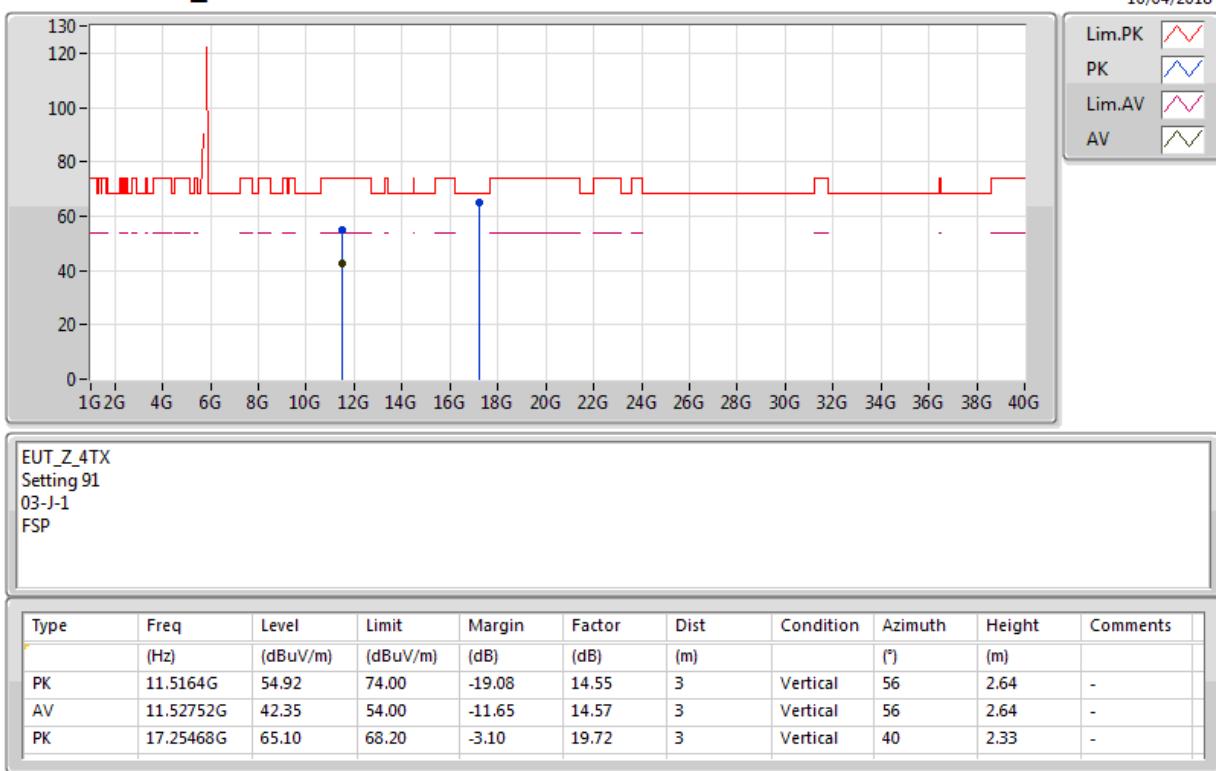
**802.11ac VHT40\_Nss1,(MCS0)\_4TX****5230MHz\_TX**

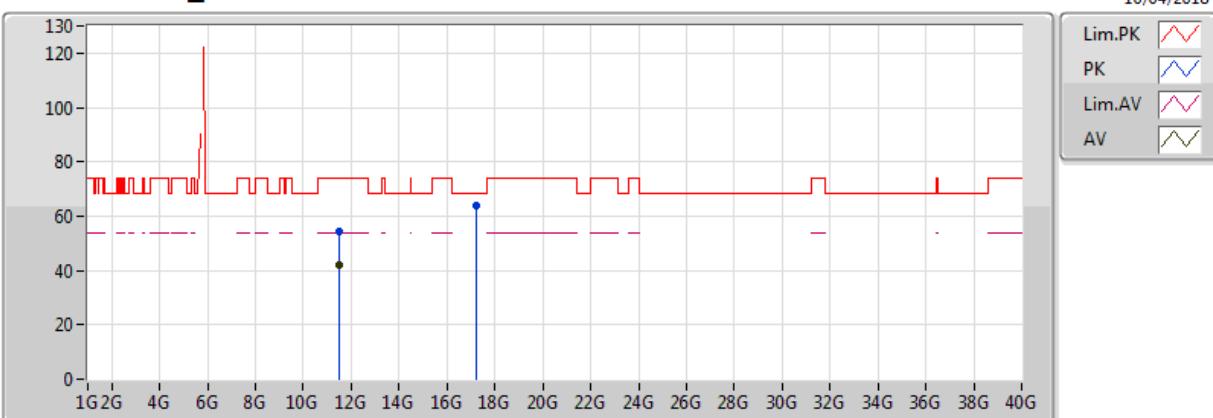
**802.11ac VHT40\_Nss1,(MCS0)\_4TX****5230MHz\_TX**

**802.11ac VHT40\_Nss1,(MCS0)\_4TX****5230MHz\_TX**

**802.11ac VHT40\_Nss1,(MCS0)\_4TX****5755MHz\_TX**

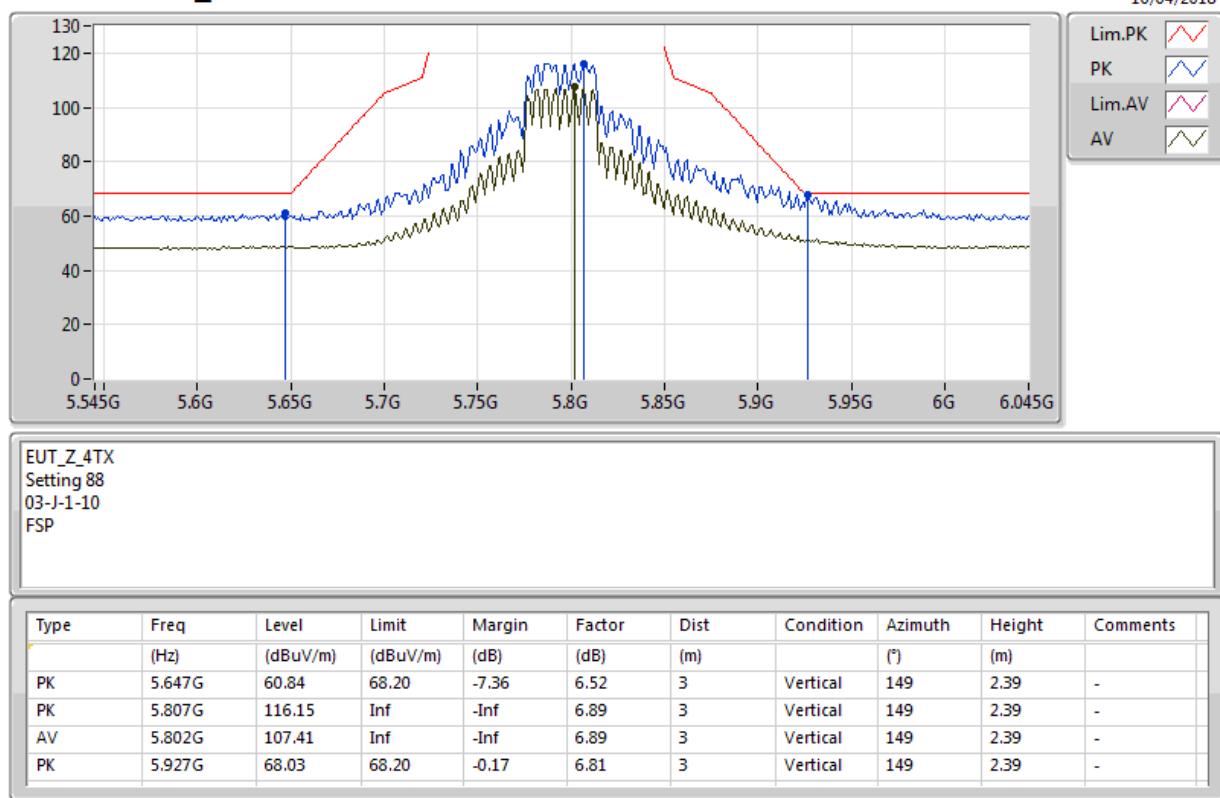
**802.11ac VHT40\_Nss1,(MCS0)\_4TX****5755MHz\_TX**

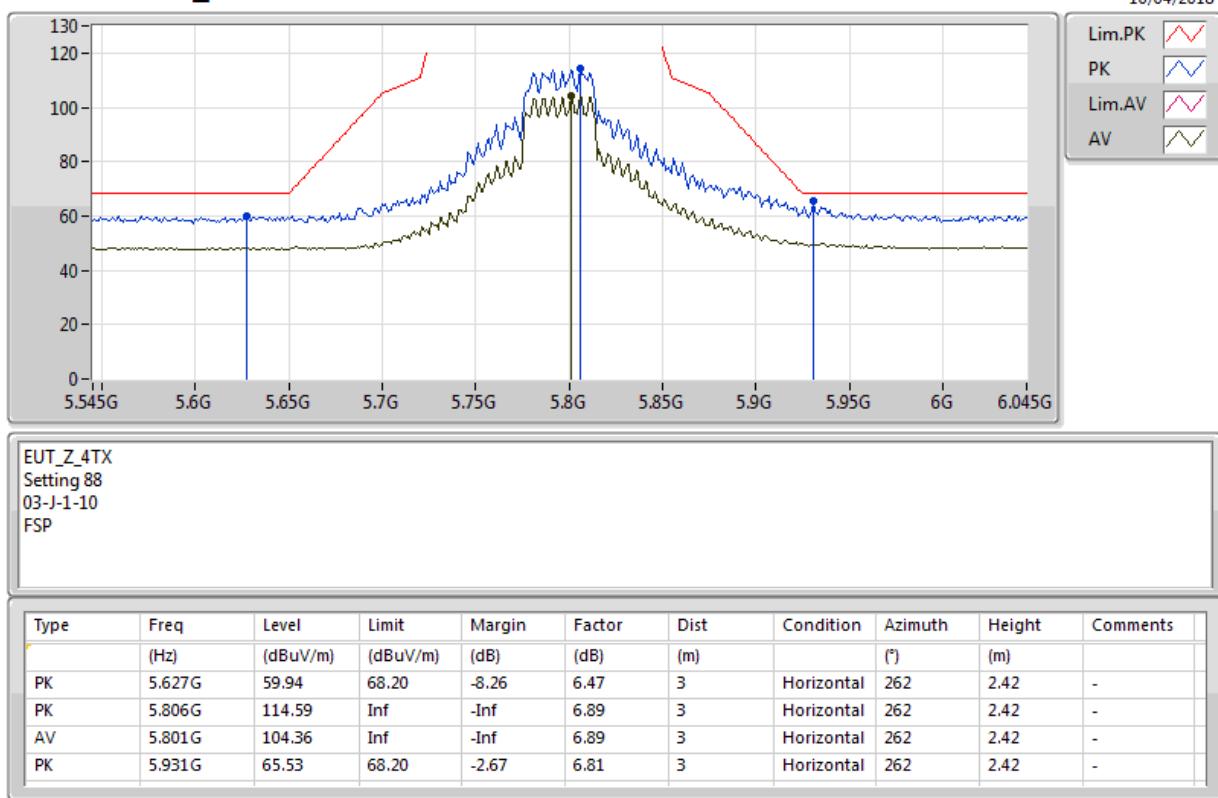
**802.11ac VHT40\_Nss1,(MCS0)\_4TX****5755MHz\_TX**

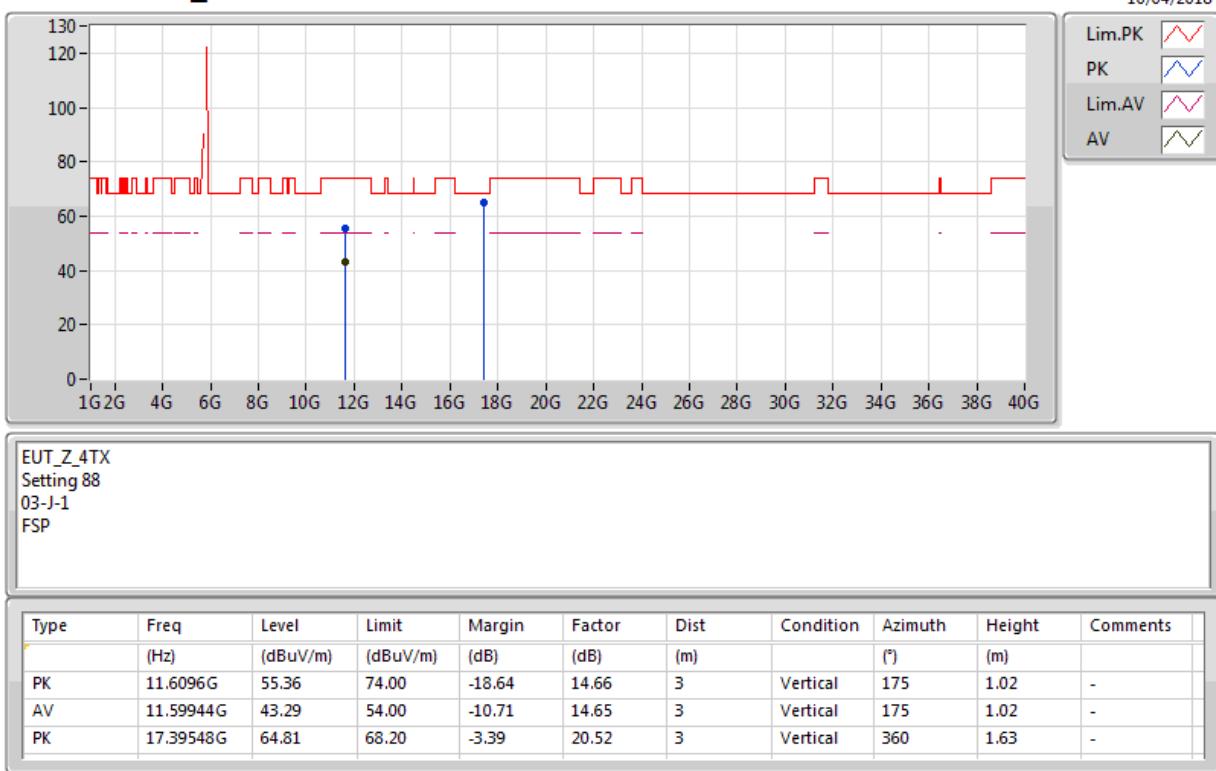
**802.11ac VHT40\_Nss1,(MCS0)\_4TX**
**5755MHz\_TX**


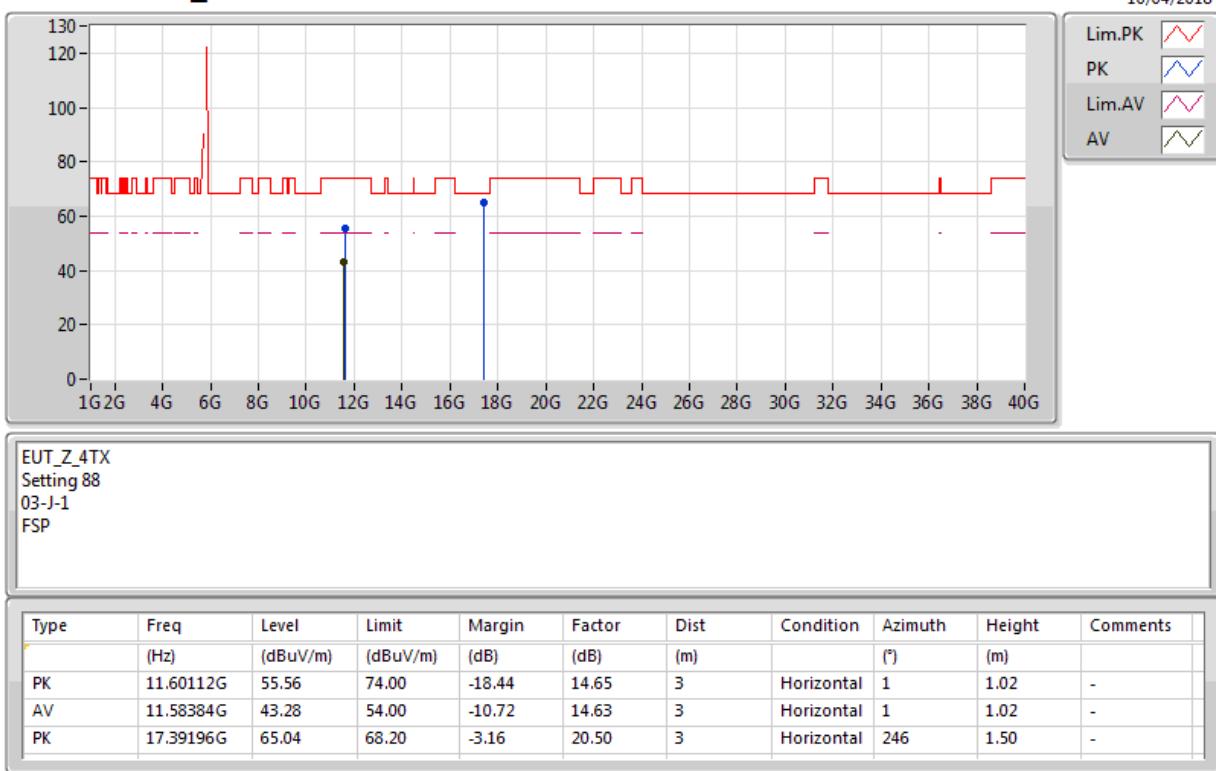
EUT\_Z\_4TX  
Setting 91  
03-J-1  
FSP

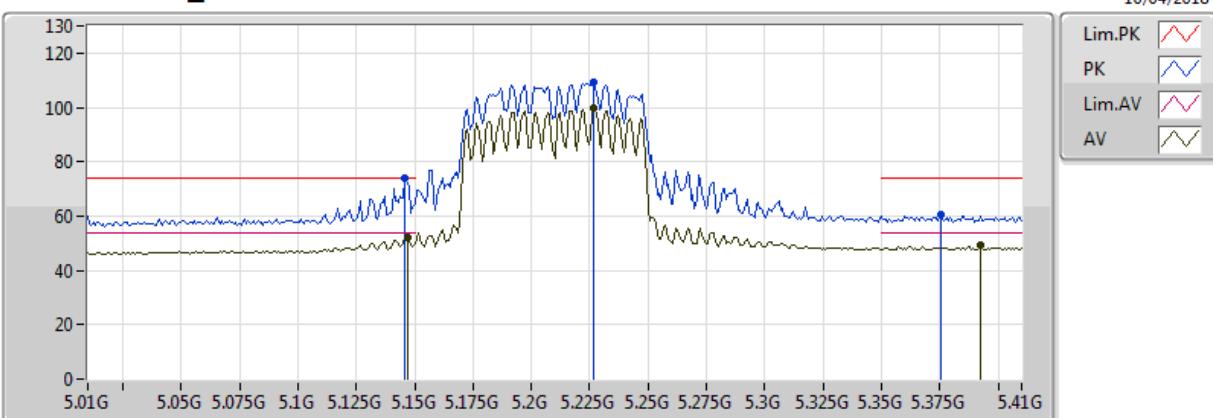
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	11.5188G	54.49	74.00	-19.51	14.56	3	Horizontal	11	1.50	-
AV	11.52296G	42.30	54.00	-11.70	14.56	3	Horizontal	11	1.50	-
PK	17.25164G	64.10	68.20	-4.10	19.70	3	Horizontal	322	2.98	-

**802.11ac VHT40\_Nss1,(MCS0)\_4TX**
**5795MHz\_TX**


**802.11ac VHT40\_Nss1,(MCS0)\_4TX**
**5795MHz\_TX**


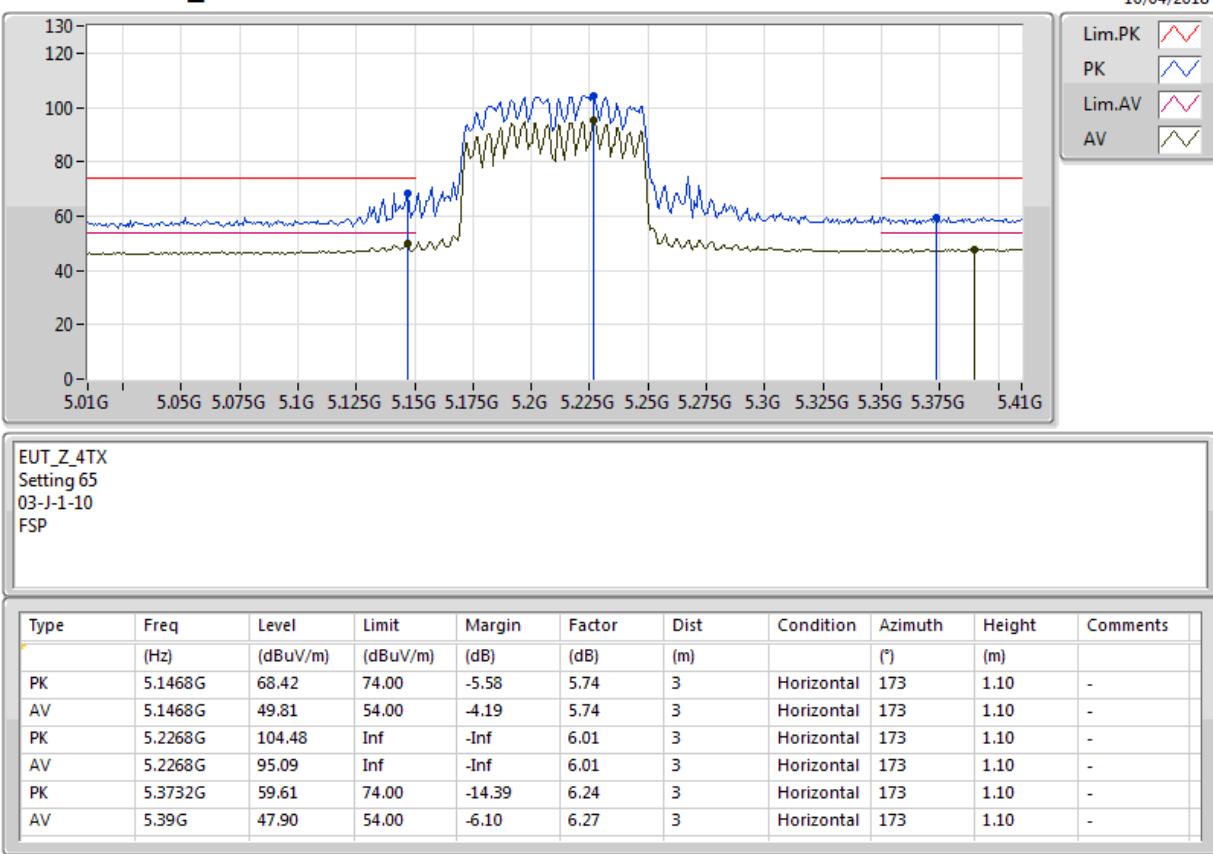
**802.11ac VHT40\_Nss1,(MCS0)\_4TX****5795MHz\_TX**

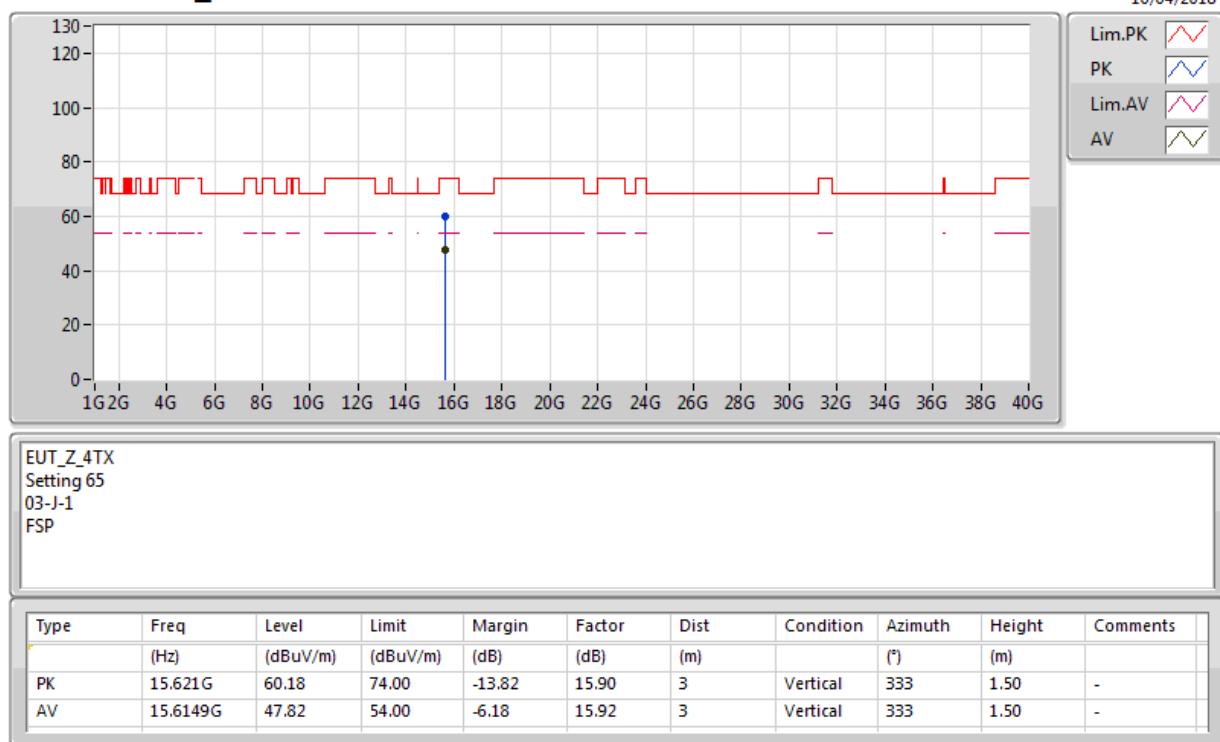
**802.11ac VHT40\_Nss1,(MCS0)\_4TX****5795MHz\_TX**

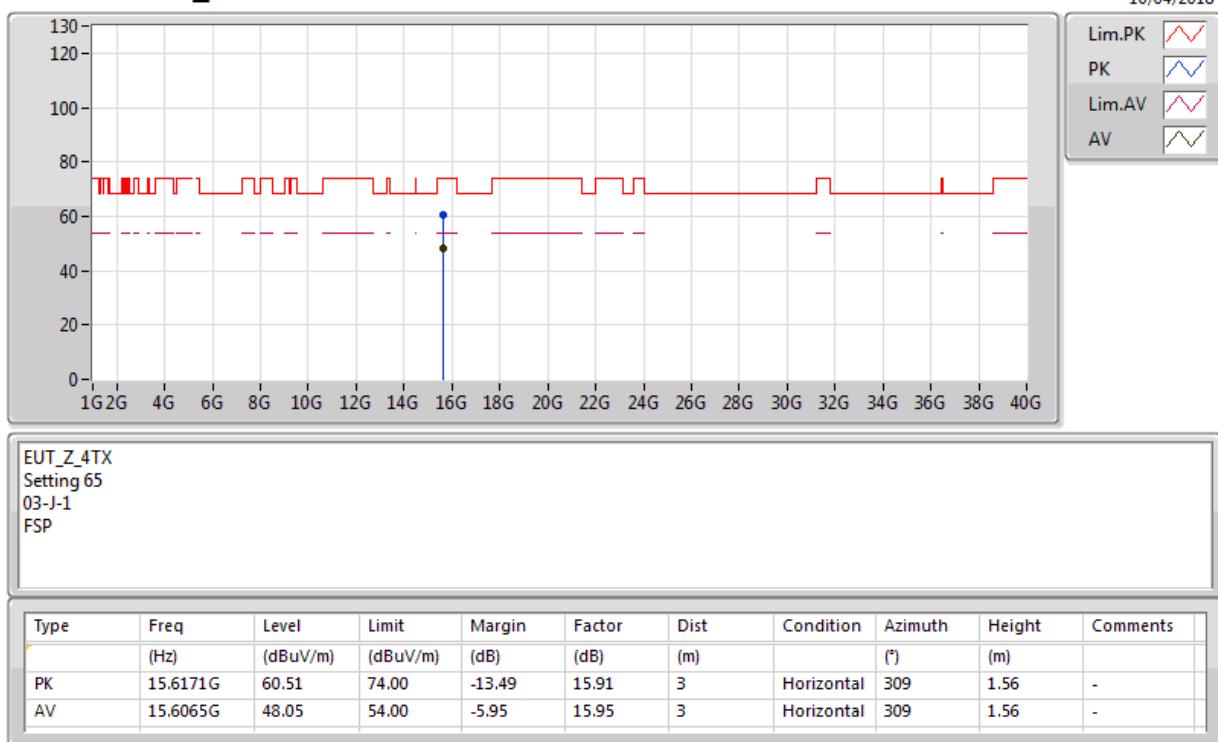
**802.11ac VHT80\_Nss1,(MCS0)\_4TX****5210MHz\_TX**

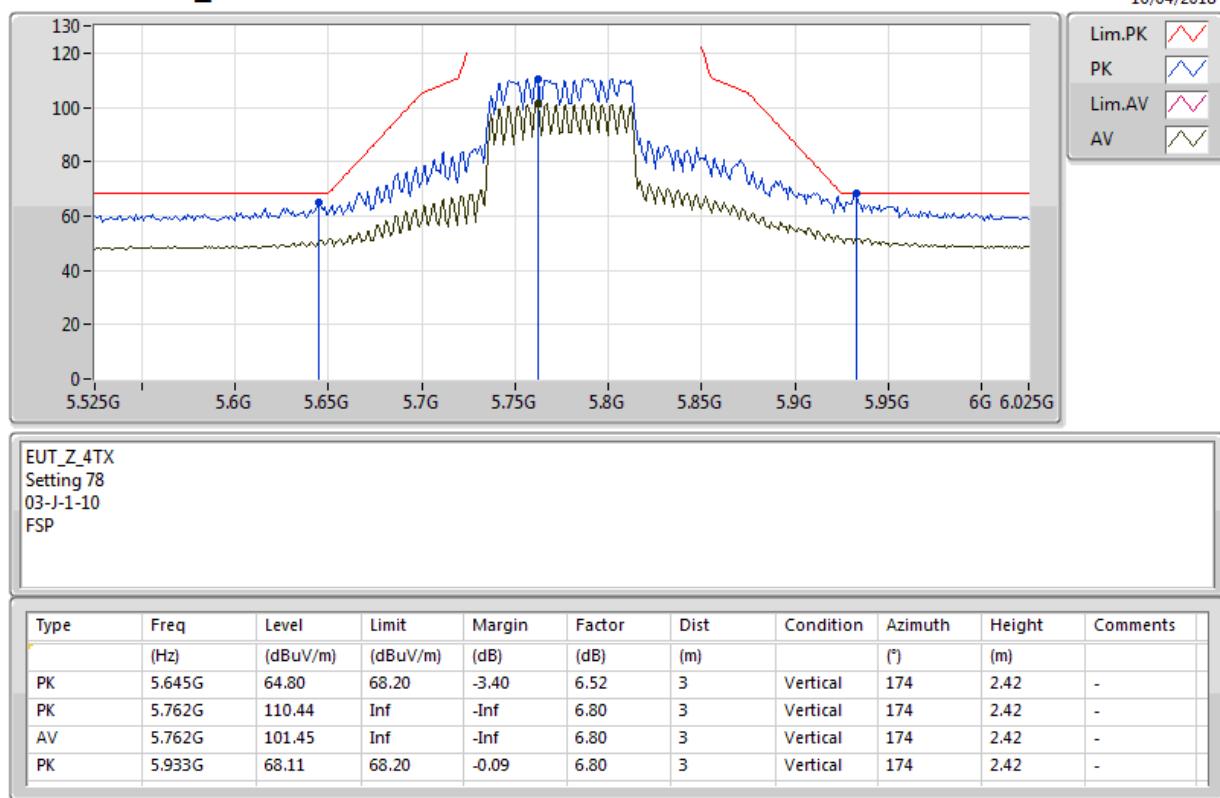
EUT\_Z\_4TX  
Setting 65  
03-J-1-10  
FSP

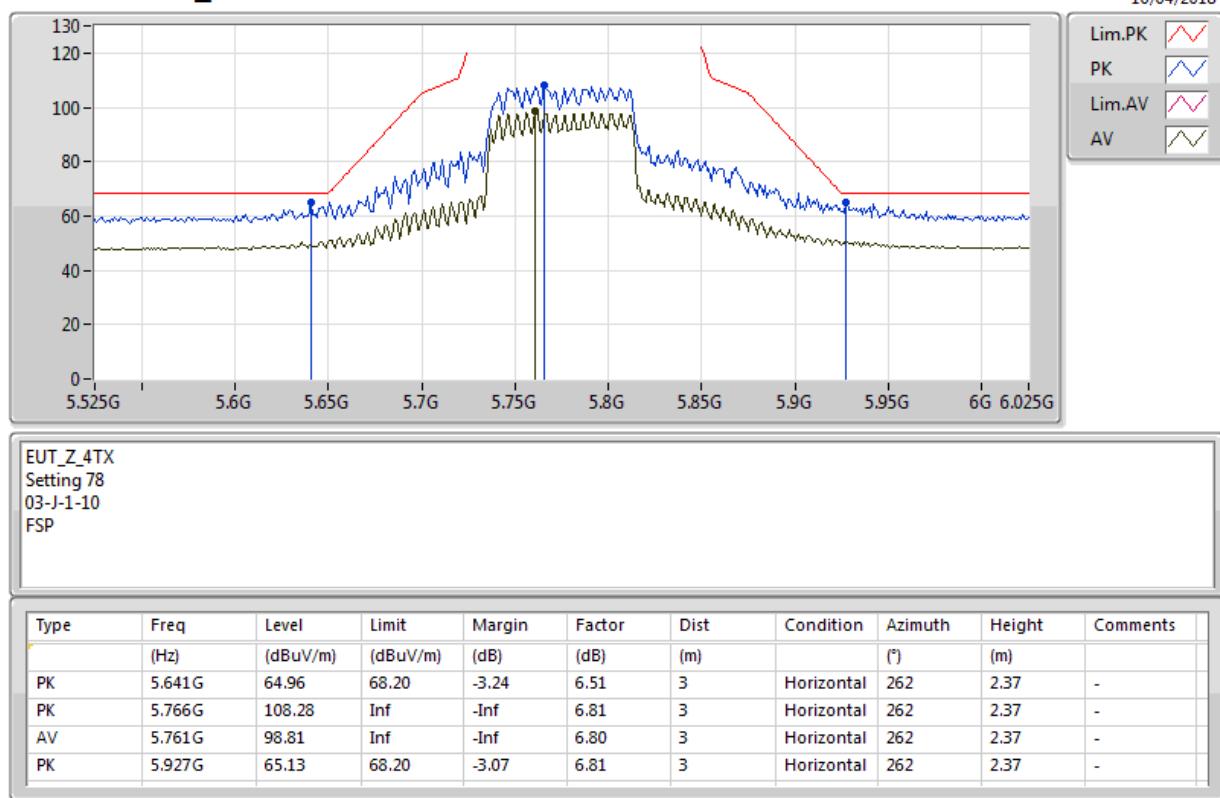
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	5.146G	73.79	74.00	-0.21	5.74	3	Vertical	181	2.53	-
AV	5.1468G	52.37	54.00	-1.63	5.74	3	Vertical	181	2.53	-
PK	5.2268G	109.02	Inf	-Inf	6.01	3	Vertical	181	2.53	-
AV	5.2268G	99.81	Inf	-Inf	6.01	3	Vertical	181	2.53	-
PK	5.3756G	60.38	74.00	-13.62	6.25	3	Vertical	181	2.53	-
AV	5.3924G	49.04	54.00	-4.96	6.28	3	Vertical	181	2.53	-

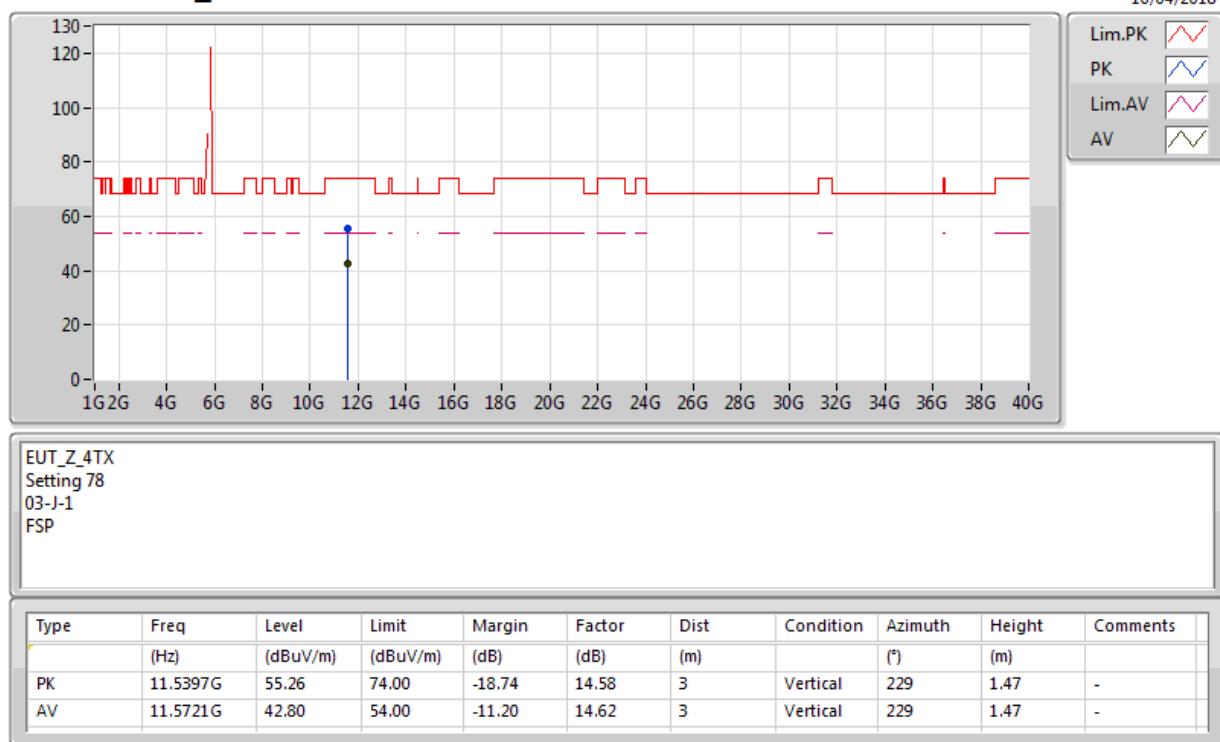
**802.11ac VHT80\_Nss1,(MCS0)\_4TX****5210MHz\_TX**

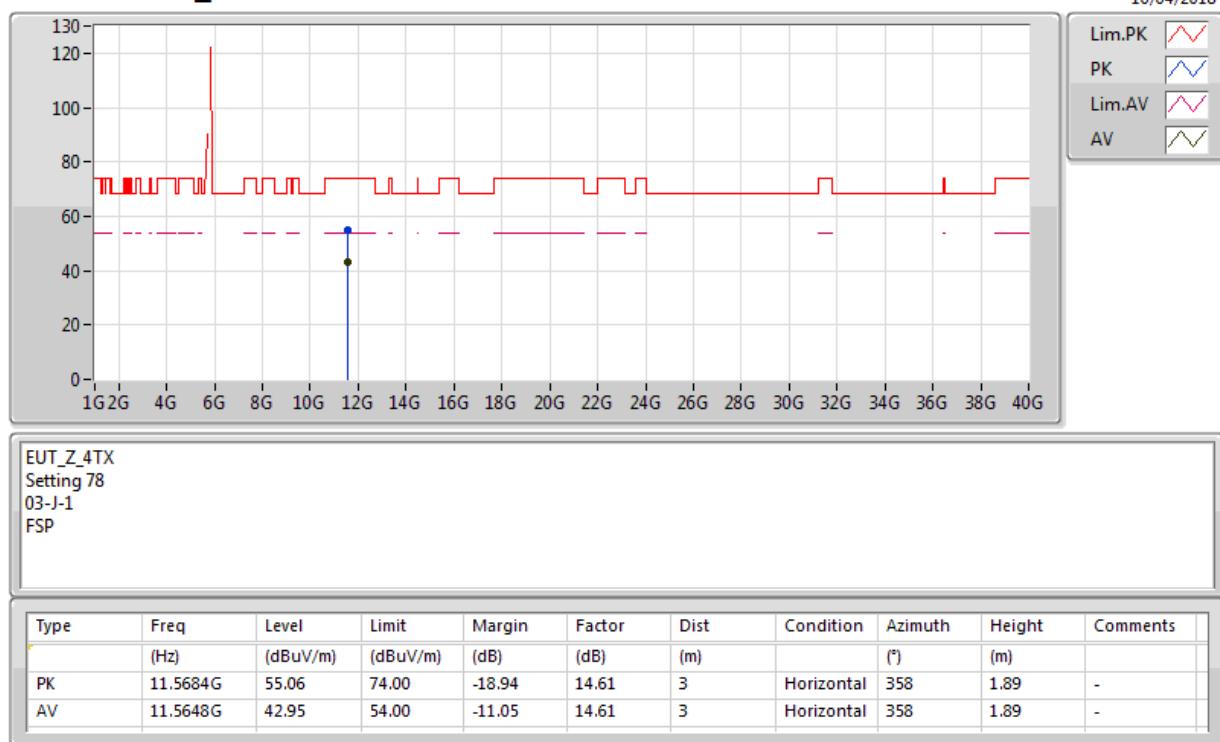
**802.11ac VHT80\_Nss1,(MCS0)\_4TX****5210MHz\_TX**

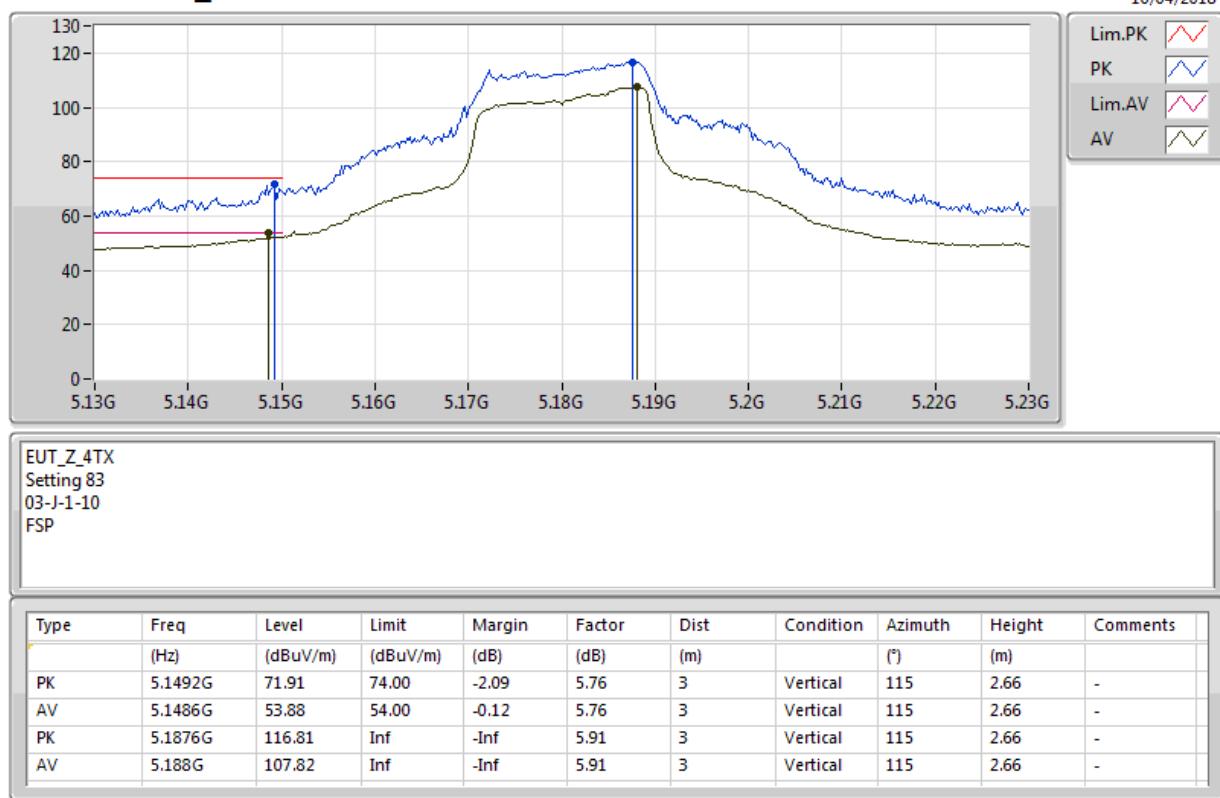
**802.11ac VHT80\_Nss1,(MCS0)\_4TX****5210MHz\_TX**

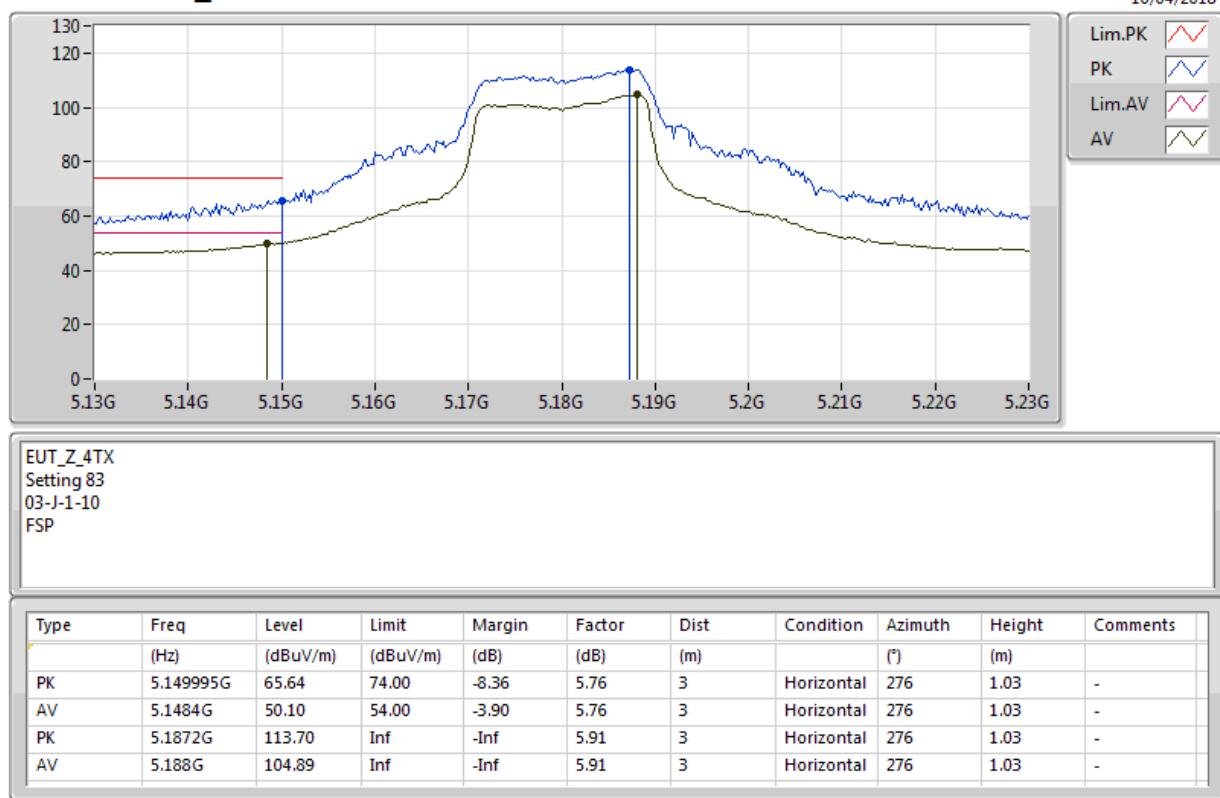
**802.11ac VHT80\_Nss1,(MCS0)\_4TX****5775MHz\_TX**

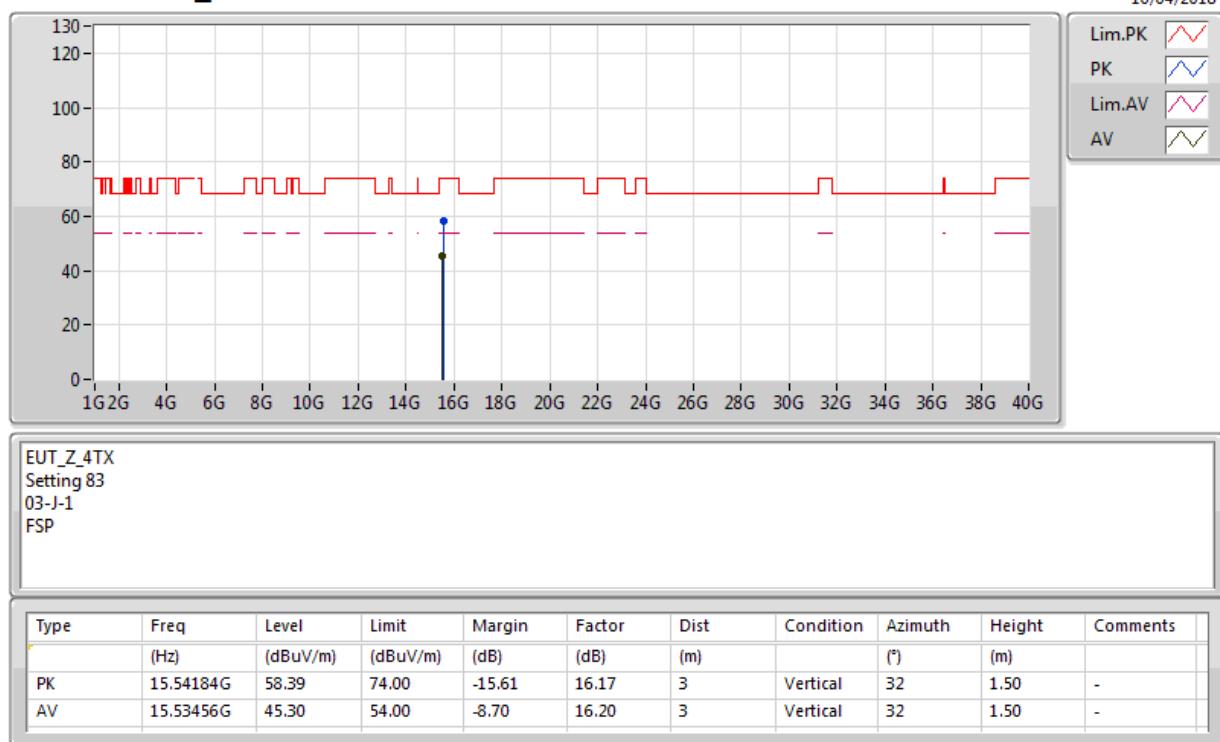
**802.11ac VHT80\_Nss1,(MCS0)\_4TX**
**5775MHz\_TX**


**802.11ac VHT80\_Nss1,(MCS0)\_4TX****5775MHz\_TX**

**802.11ac VHT80\_Nss1,(MCS0)\_4TX**
**5775MHz\_TX**


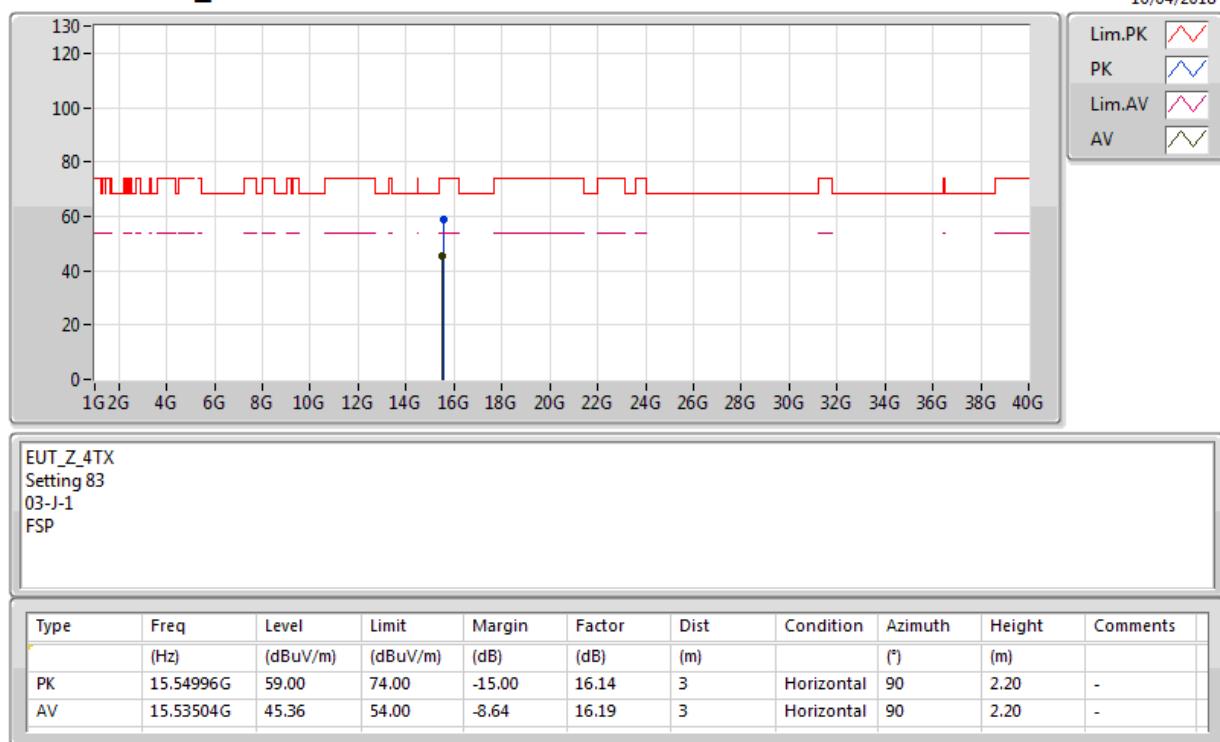
**802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX****5180MHz\_TX**

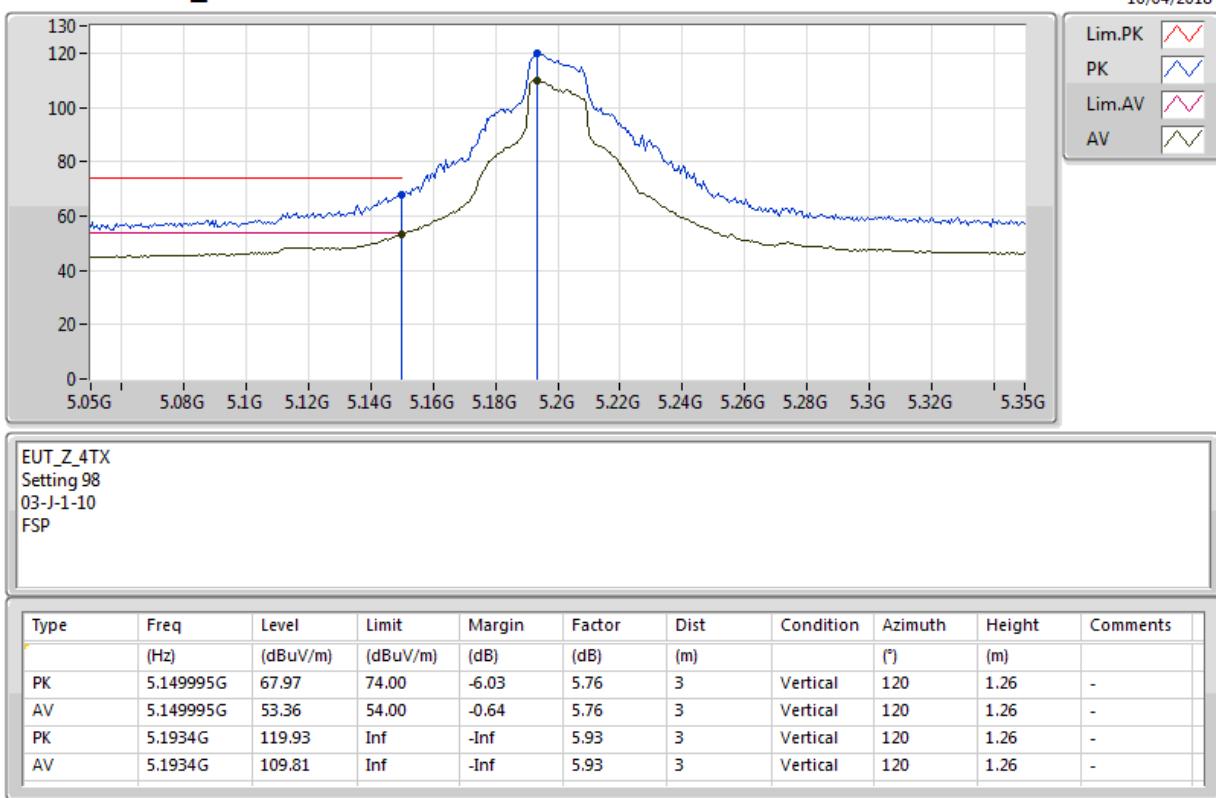
**802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX****5180MHz\_TX**

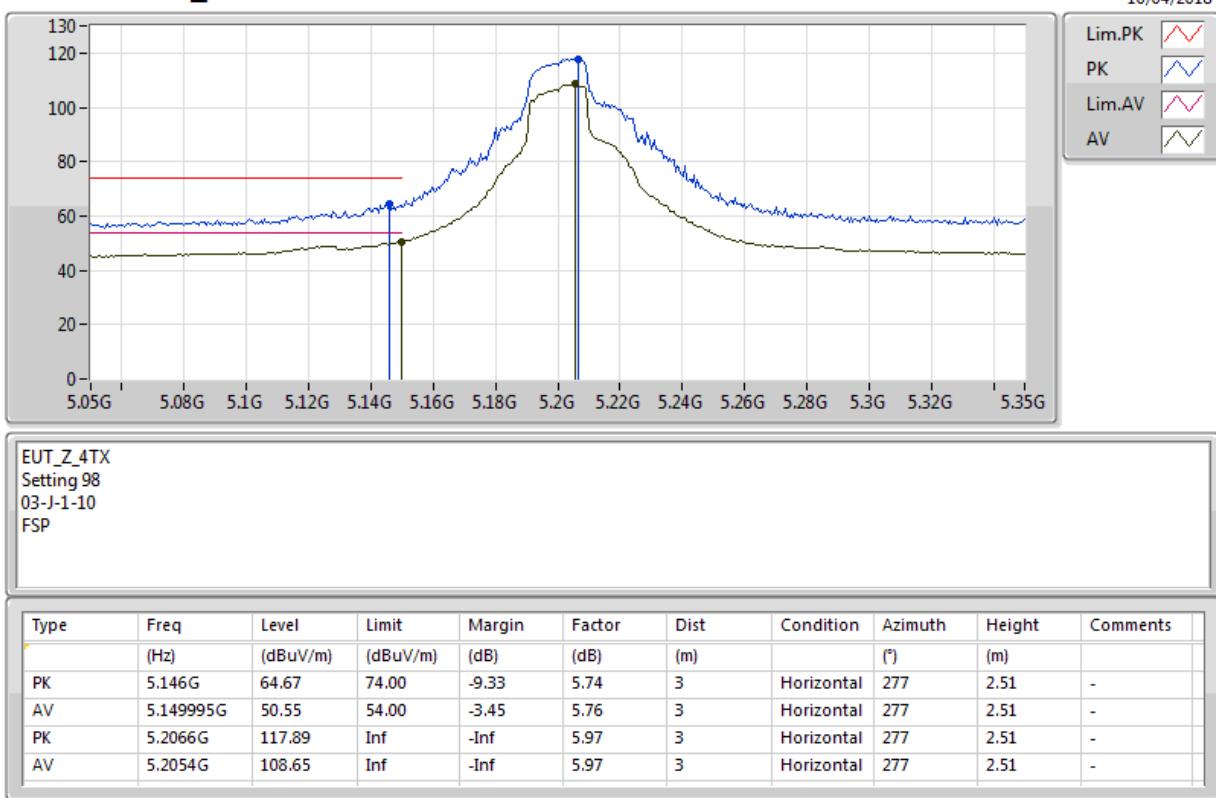
**802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX****5180MHz\_TX**

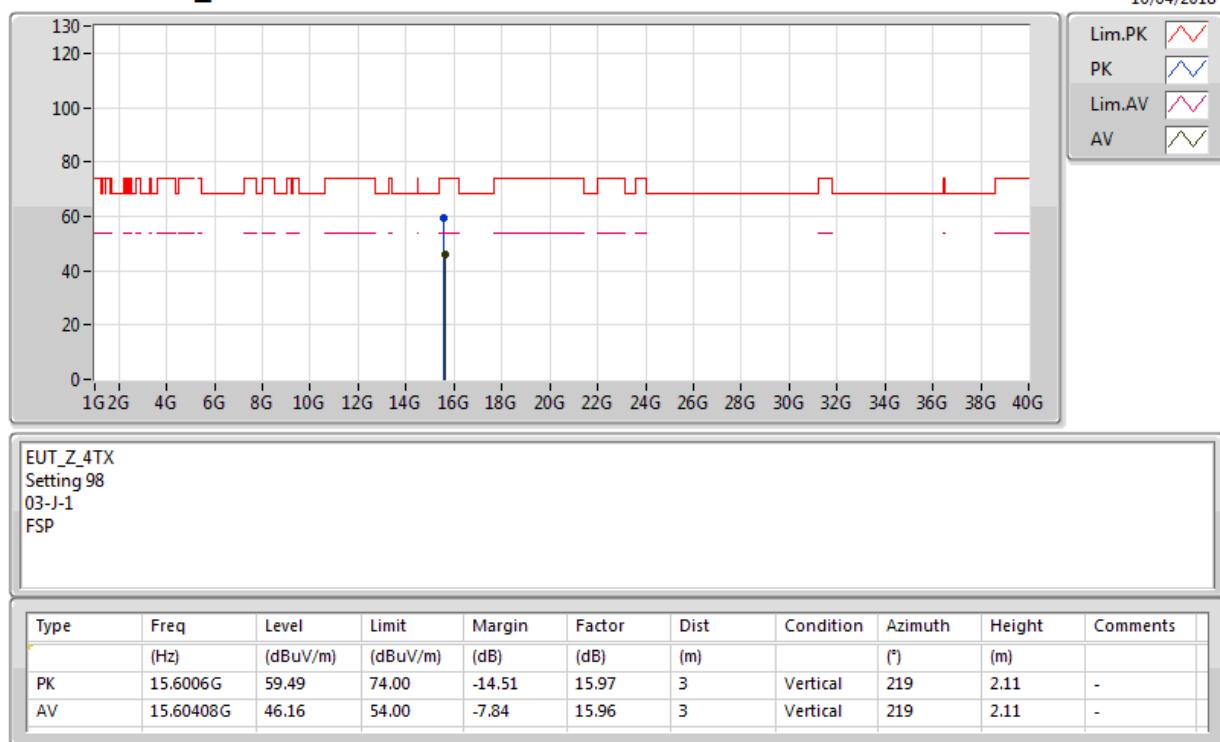
### **802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX**

#### **5180MHz\_TX**



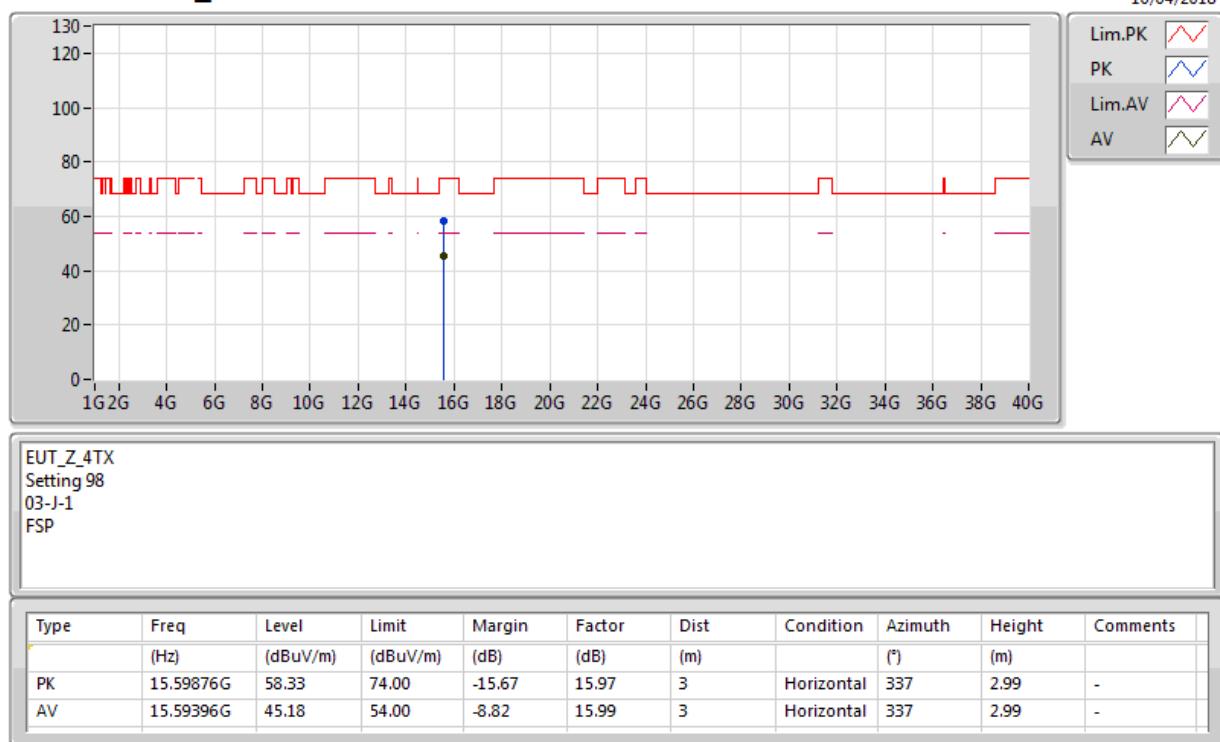
**802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX****5200MHz\_TX**

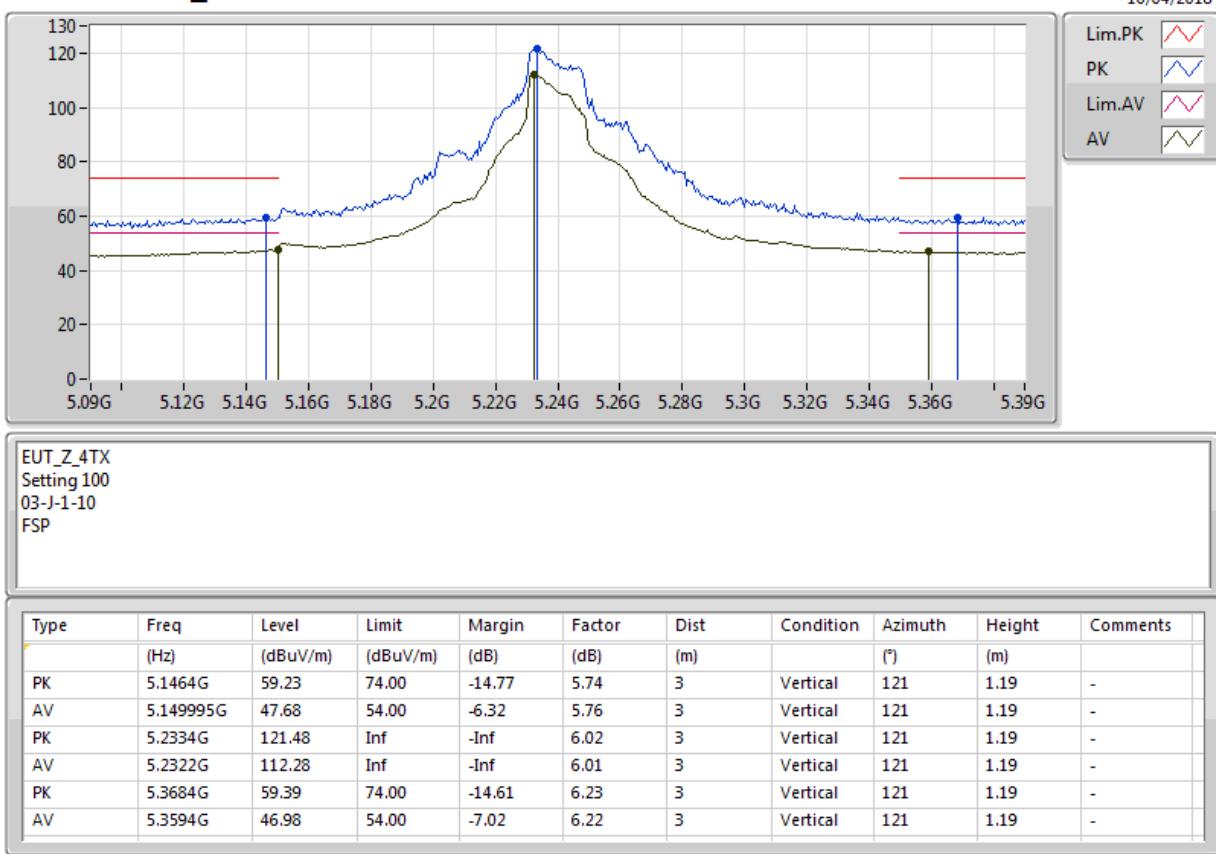
**802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX****5200MHz\_TX**

**802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX****5200MHz\_TX**

### **802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX**

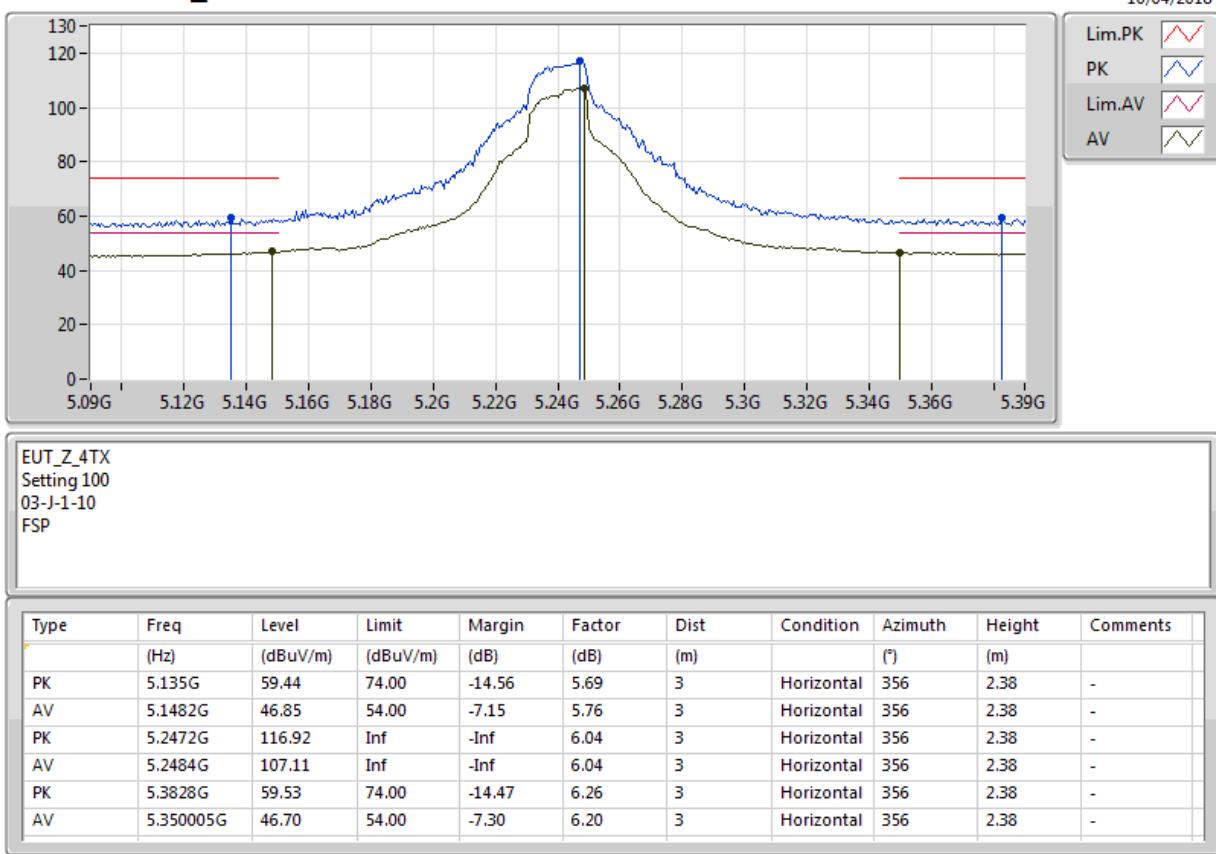
#### **5200MHz\_TX**

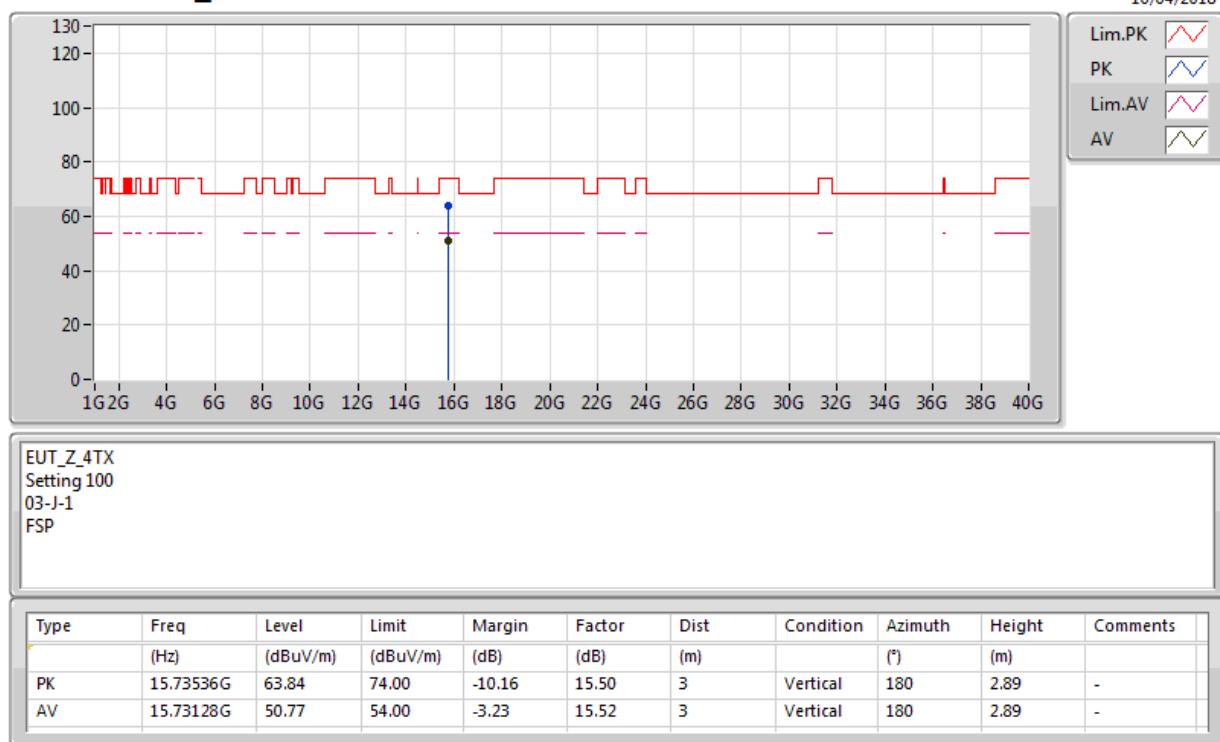


**802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX****5240MHz\_TX**

## **802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX**

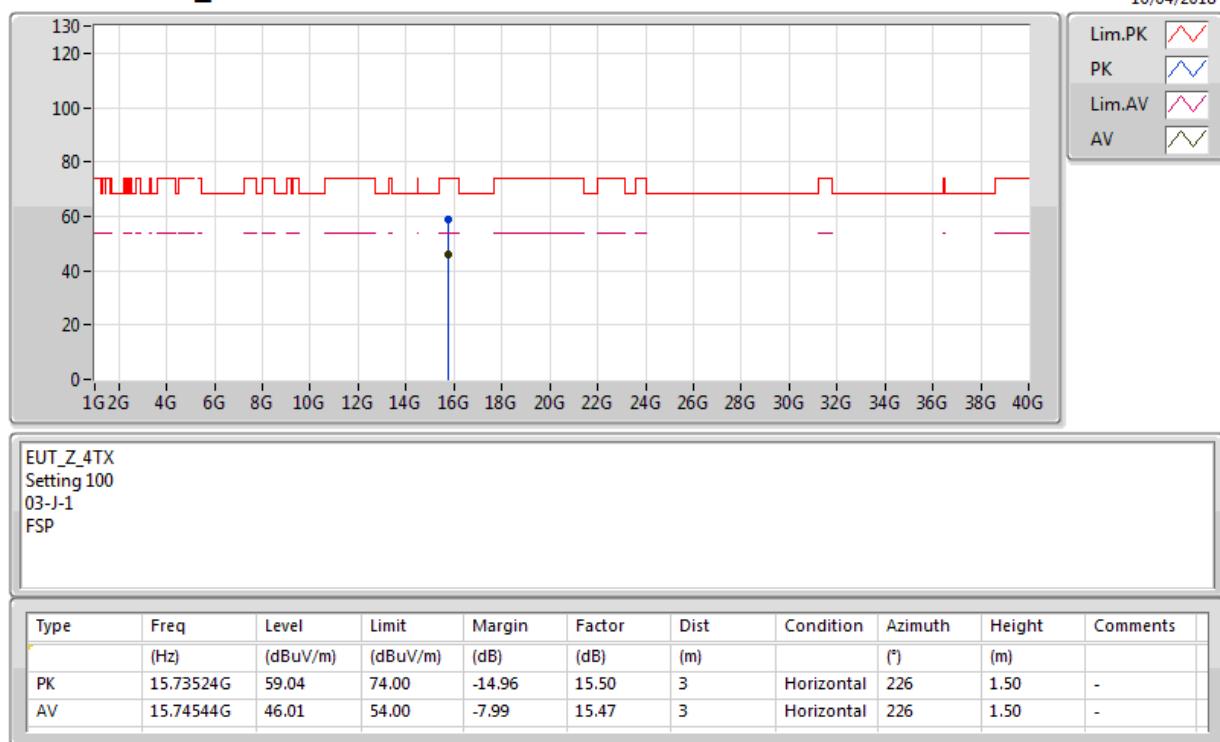
### **5240MHz\_TX**

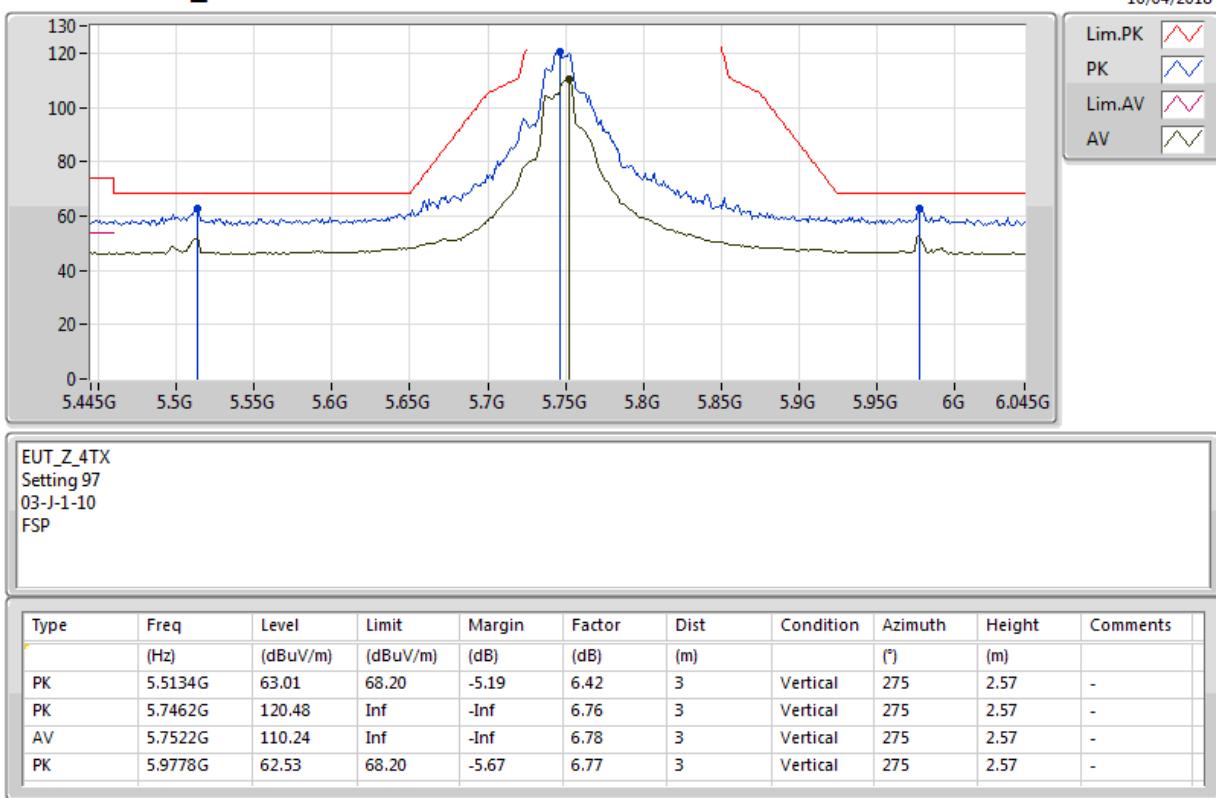


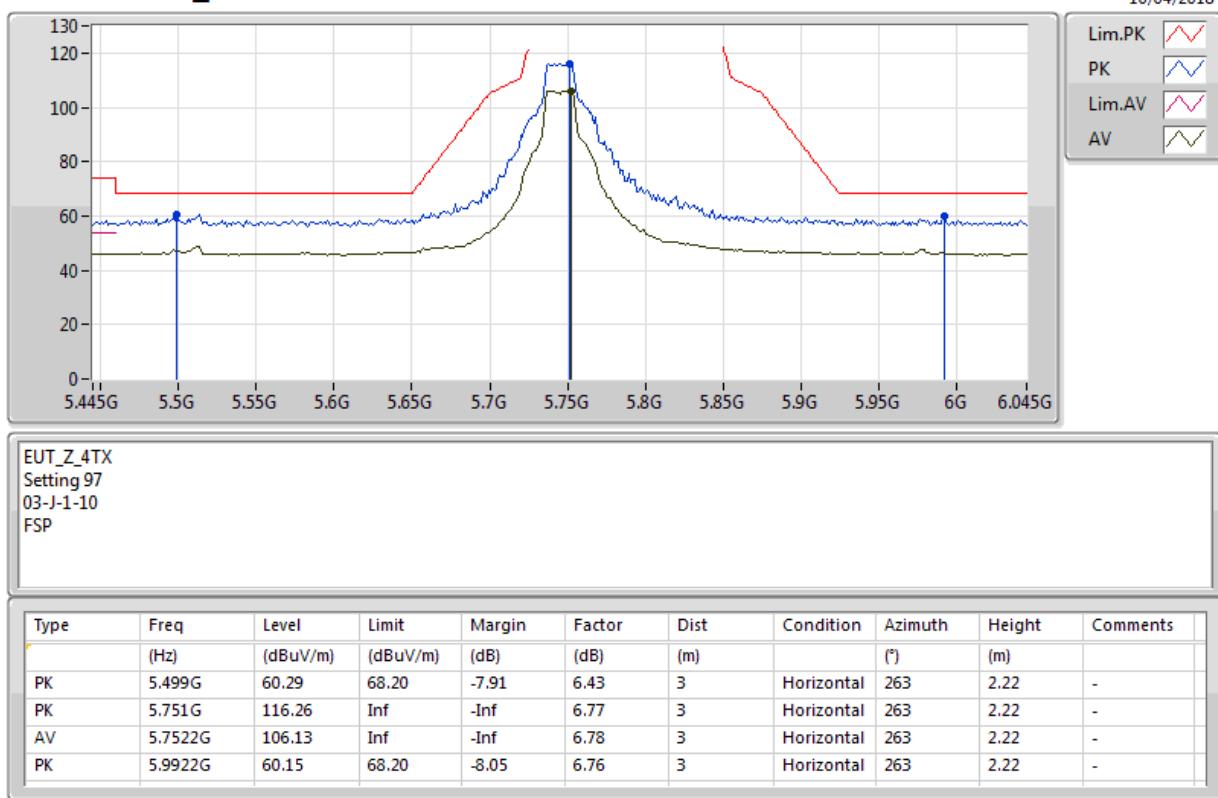
**802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX****5240MHz\_TX**

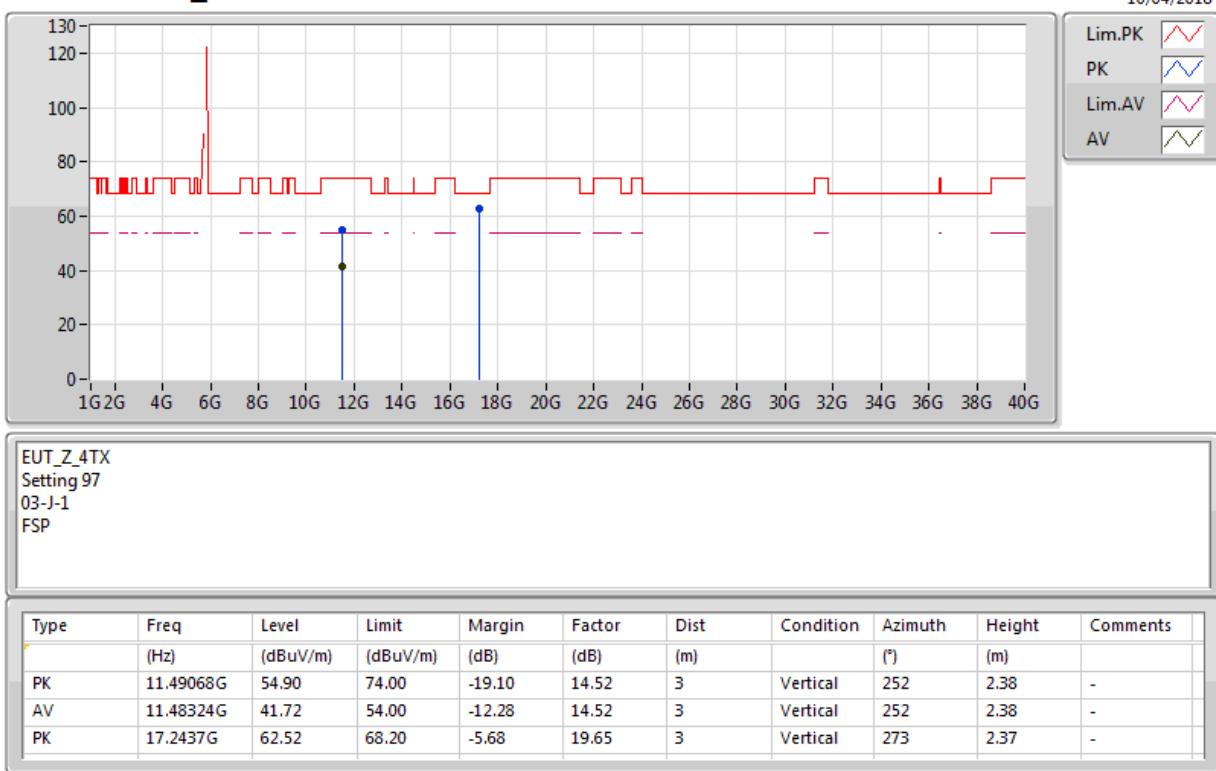
### **802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX**

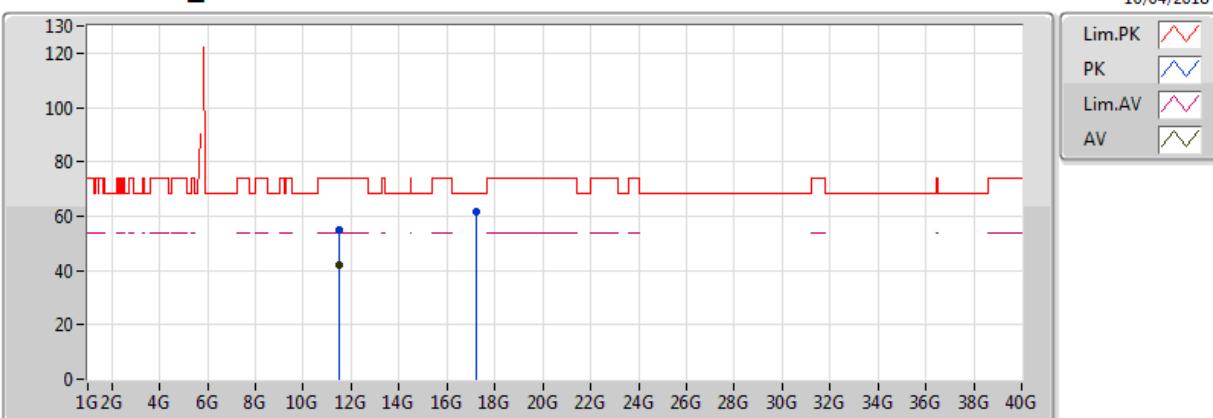
#### **5240MHz\_TX**



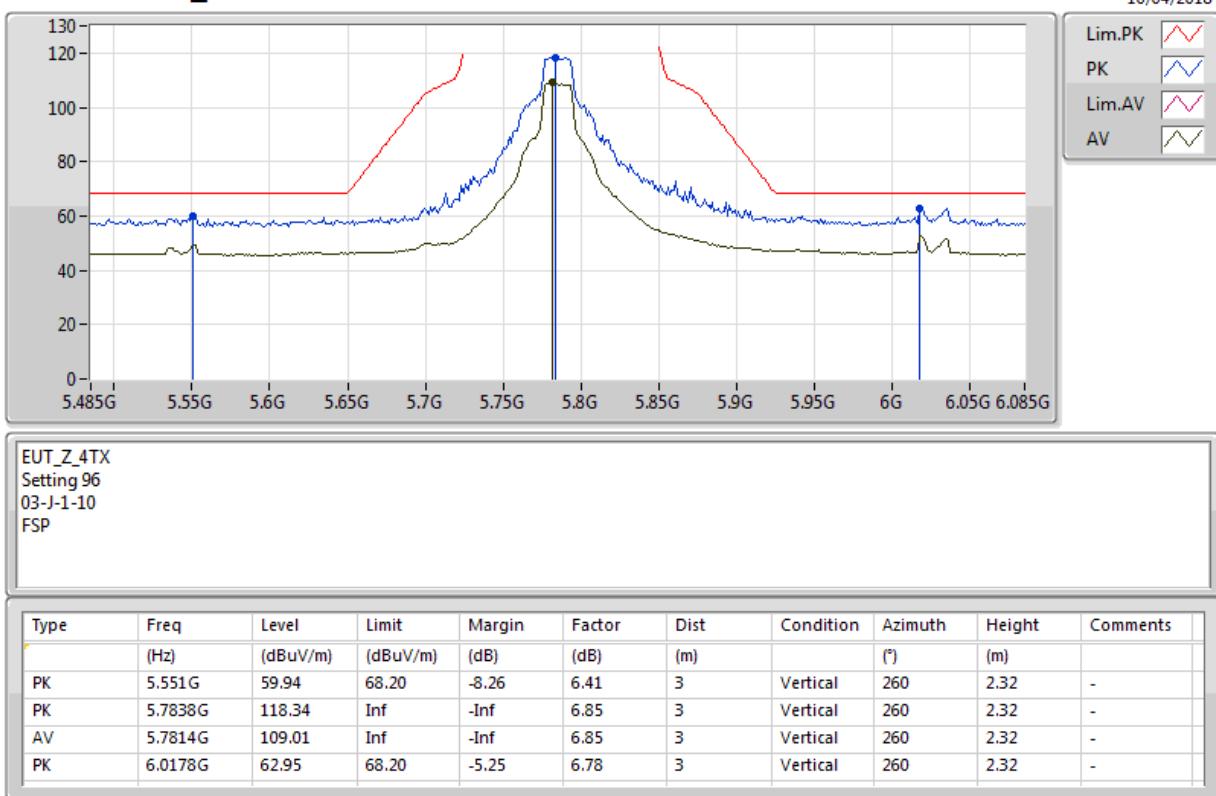
**802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX****5745MHz\_TX**

**802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX****5745MHz\_TX**

**802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX****5745MHz\_TX**

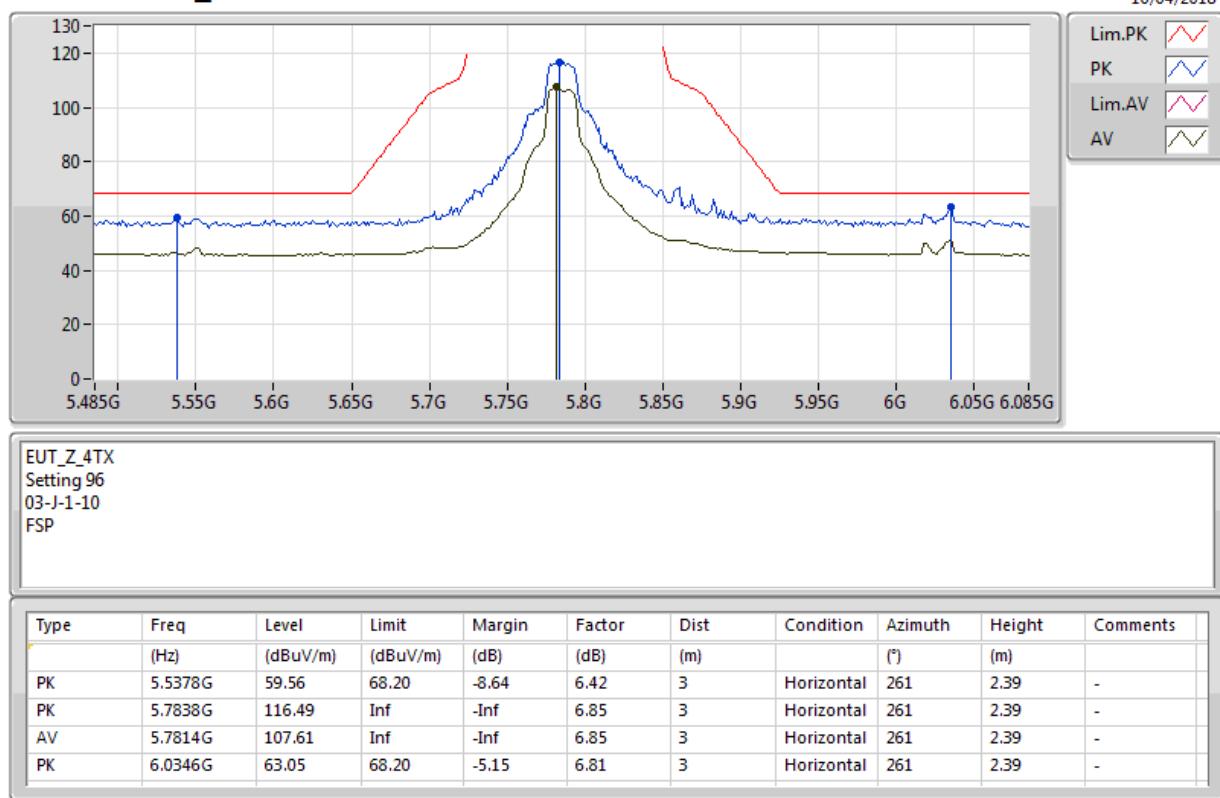
**802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX****5745MHz\_TX**

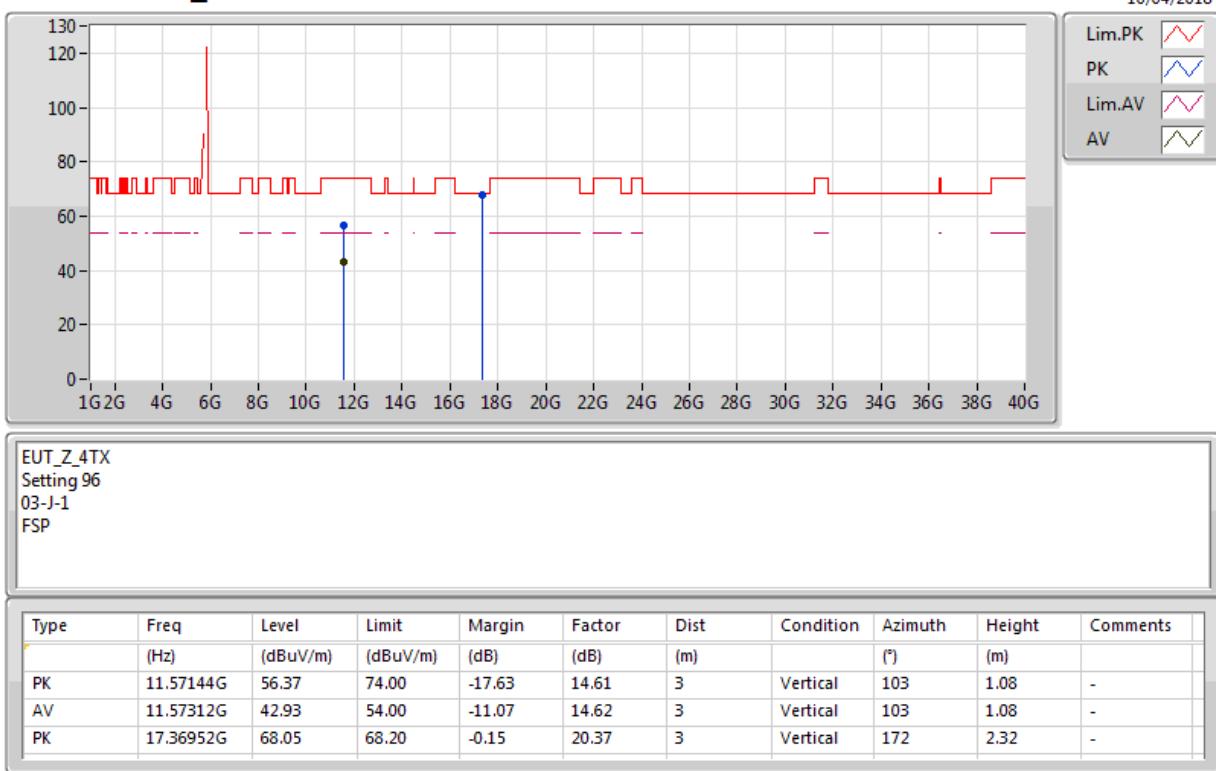
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	11.4719G	54.71	74.00	-19.29	14.50	3	Horizontal	140	2.15	-
AV	11.5065G	41.76	54.00	-12.24	14.54	3	Horizontal	140	2.15	-
PK	17.24868G	61.78	68.20	-6.42	19.68	3	Horizontal	360	1.28	-

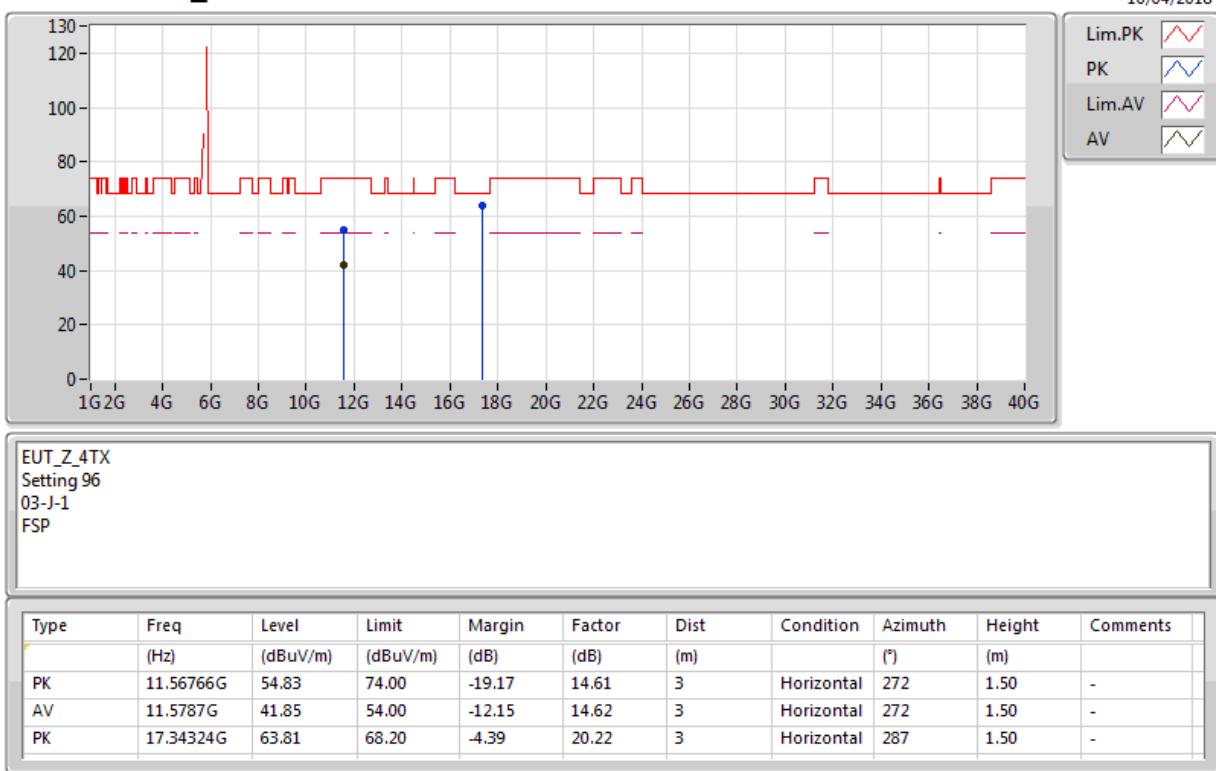
**802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX****5785MHz\_TX**

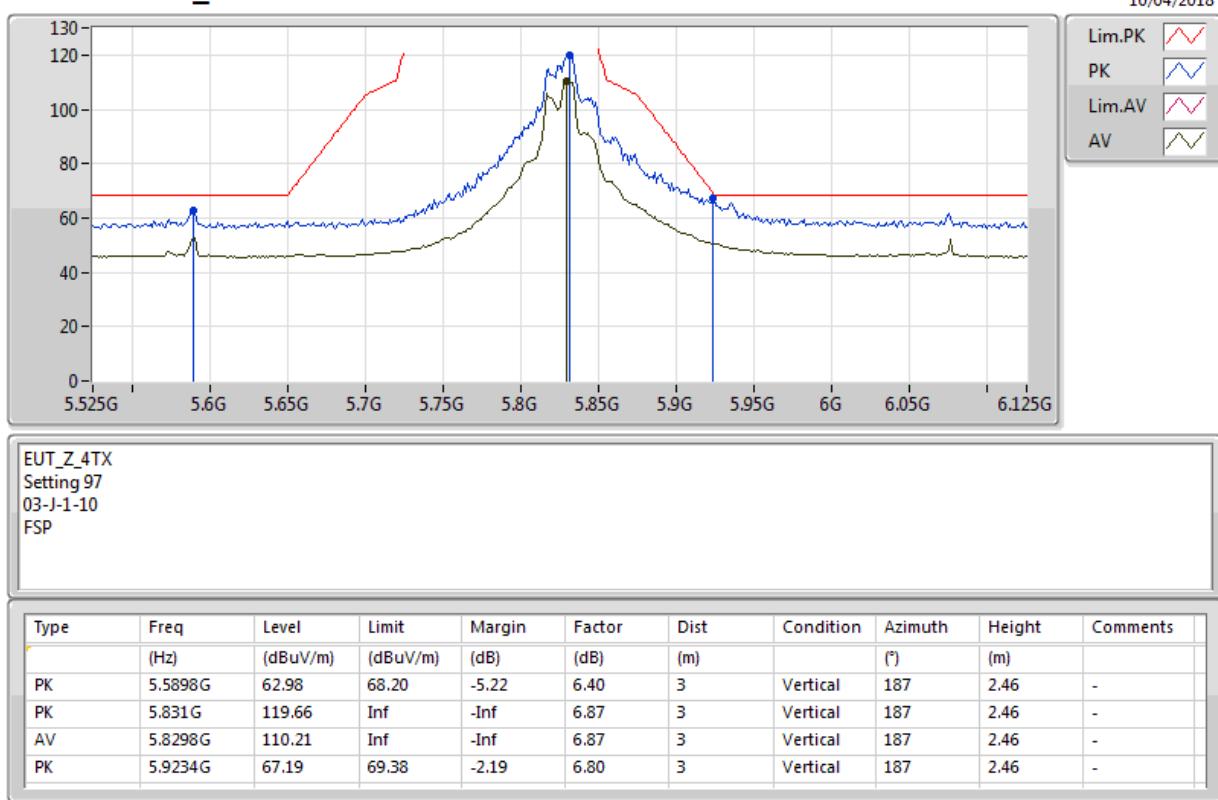
## **802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX**

### **5785MHz\_TX**



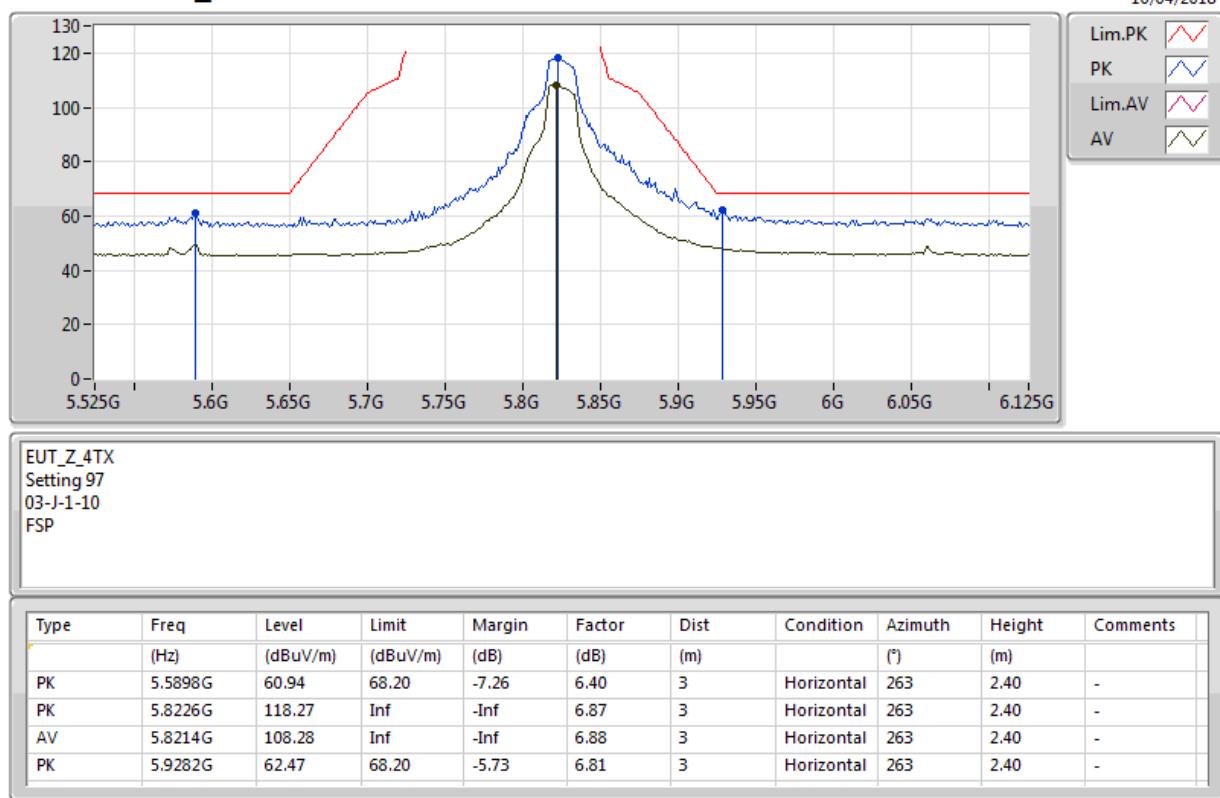
**802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX****5785MHz\_TX**

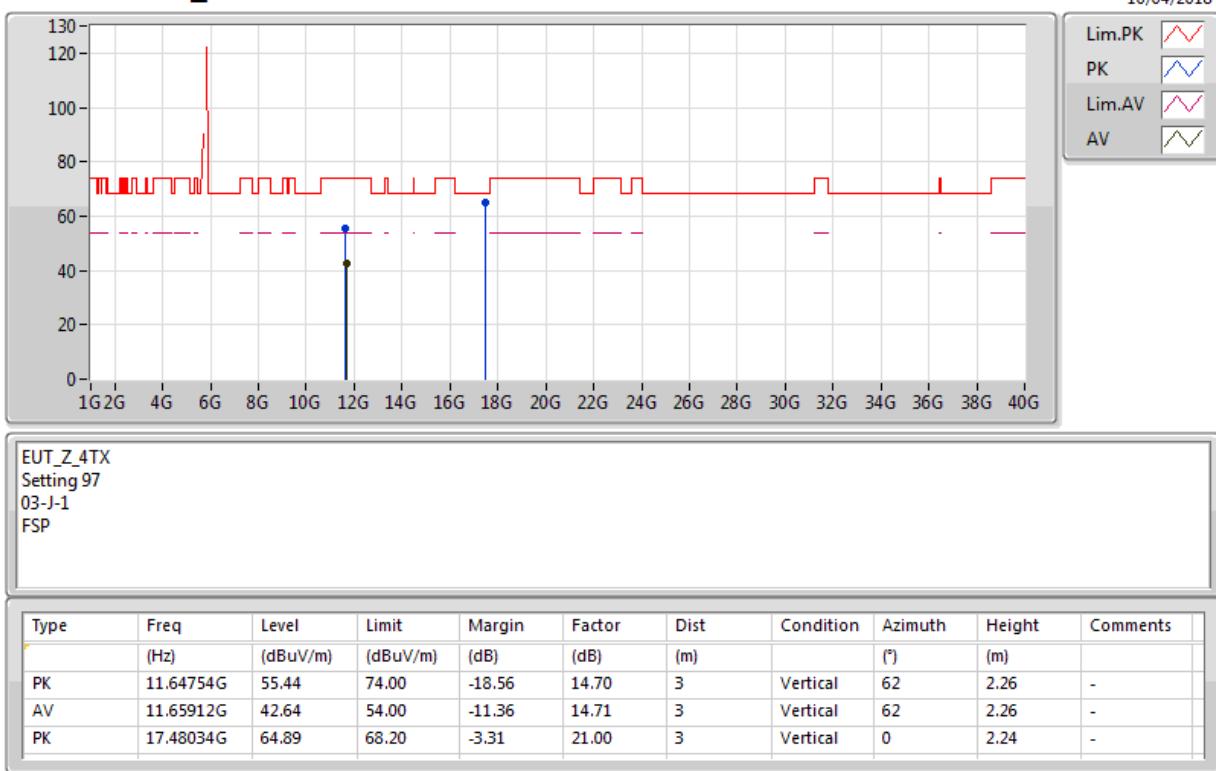
**802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX****5785MHz\_TX**

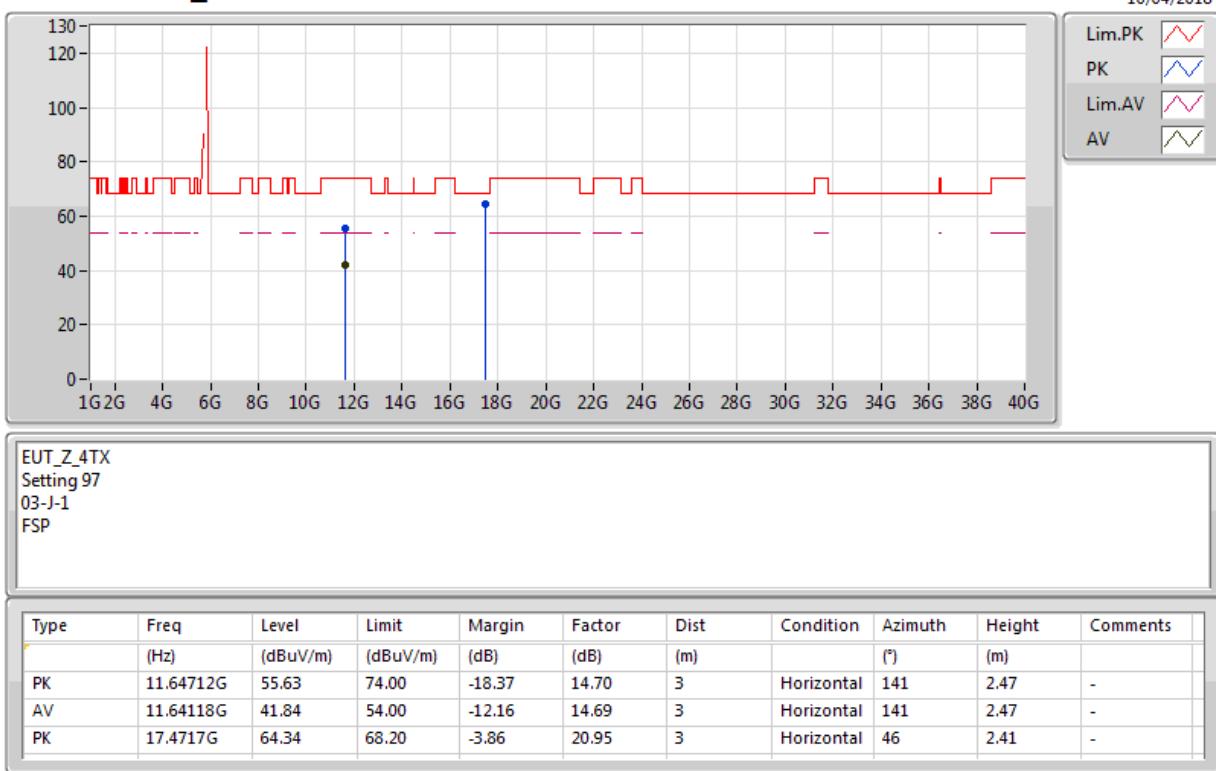
**802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX****5825MHz\_TX**

## **802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX**

### **5825MHz\_TX**

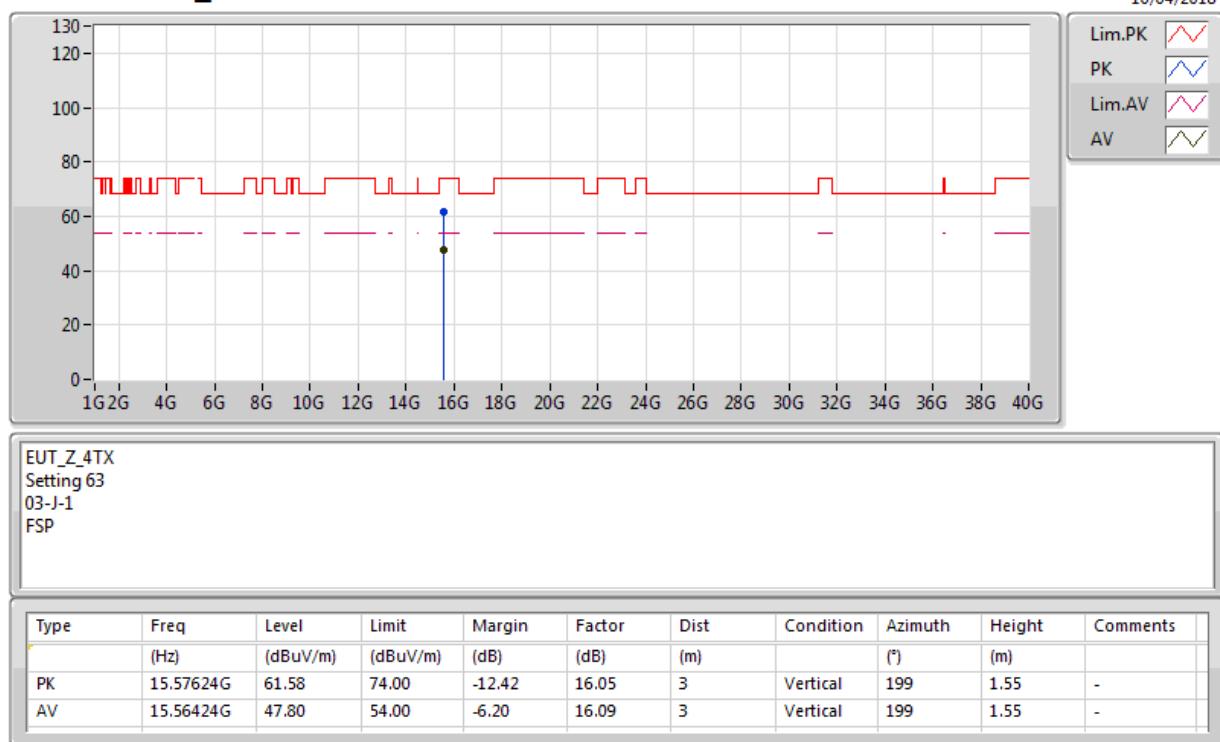


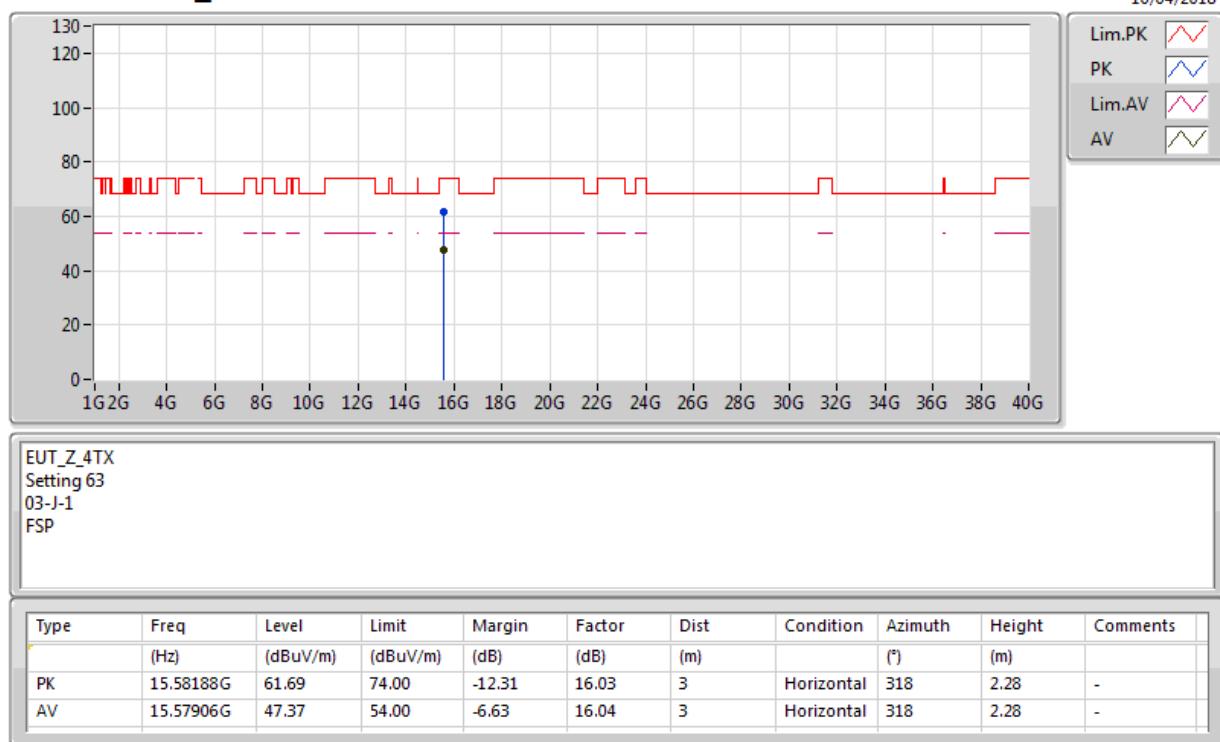
**802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX****5825MHz\_TX**

**802.11ac VHT20-BF\_Nss1,(MCS0)\_4TX****5825MHz\_TX**

**802.11ac VHT40-BF\_Nss1,(MCS0)\_4TX****5190MHz\_TX**

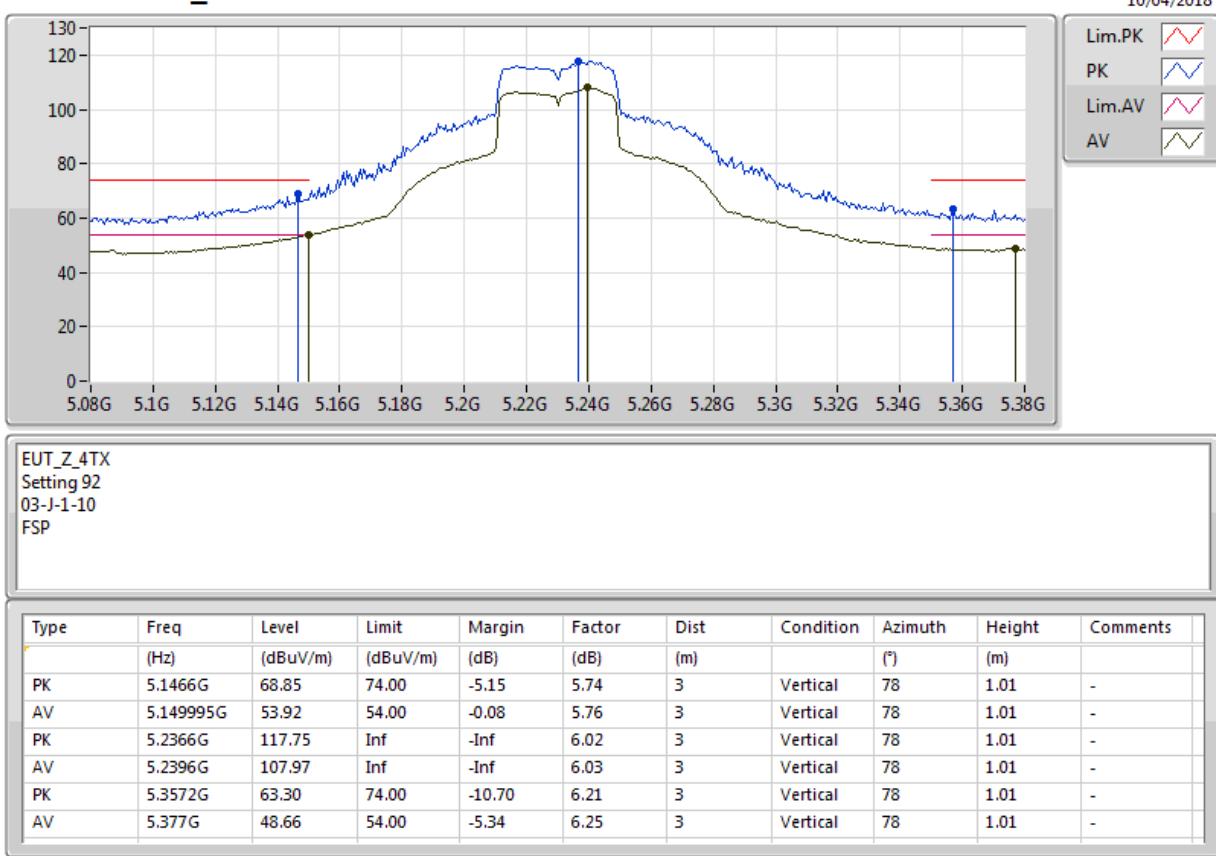
**802.11ac VHT40-BF\_Nss1,(MCS0)\_4TX****5190MHz\_TX**

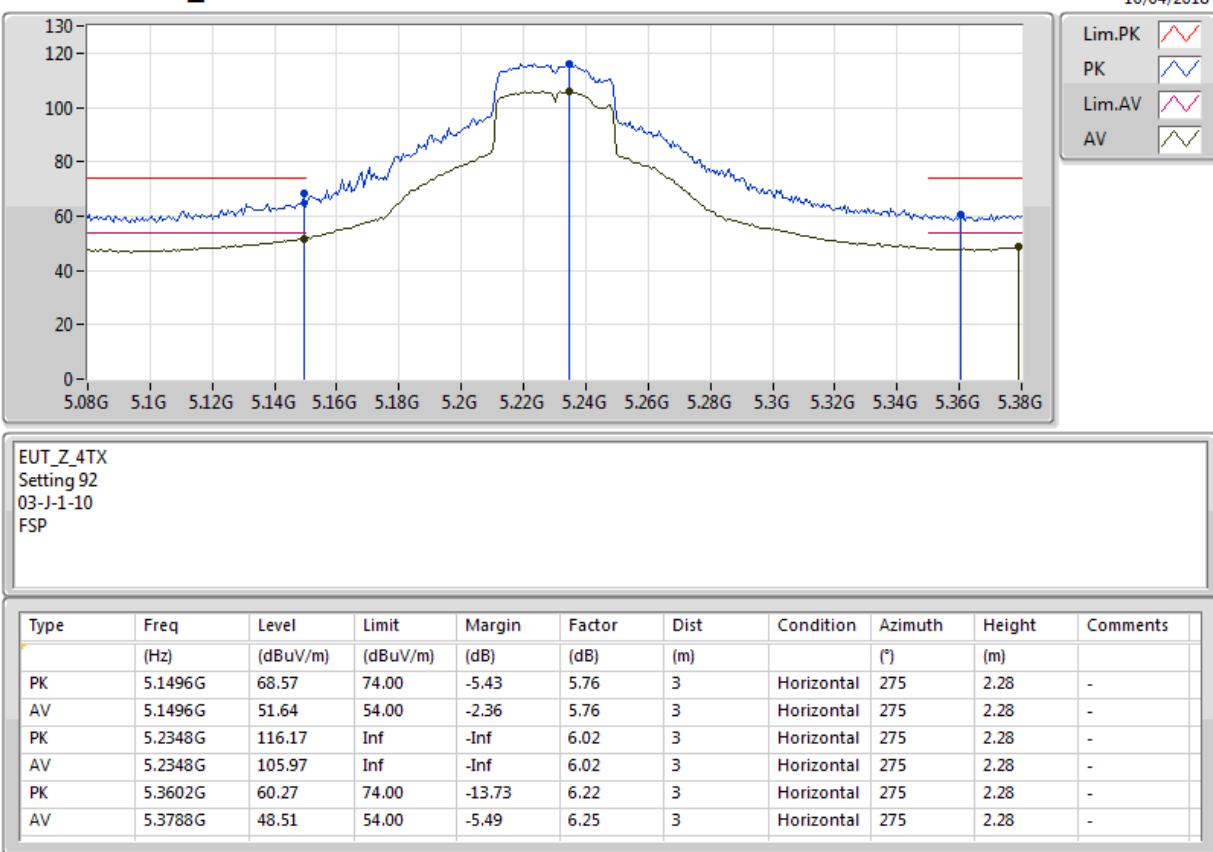
**802.11ac VHT40-BF\_Nss1,(MCS0)\_4TX**
**5190MHz\_TX**


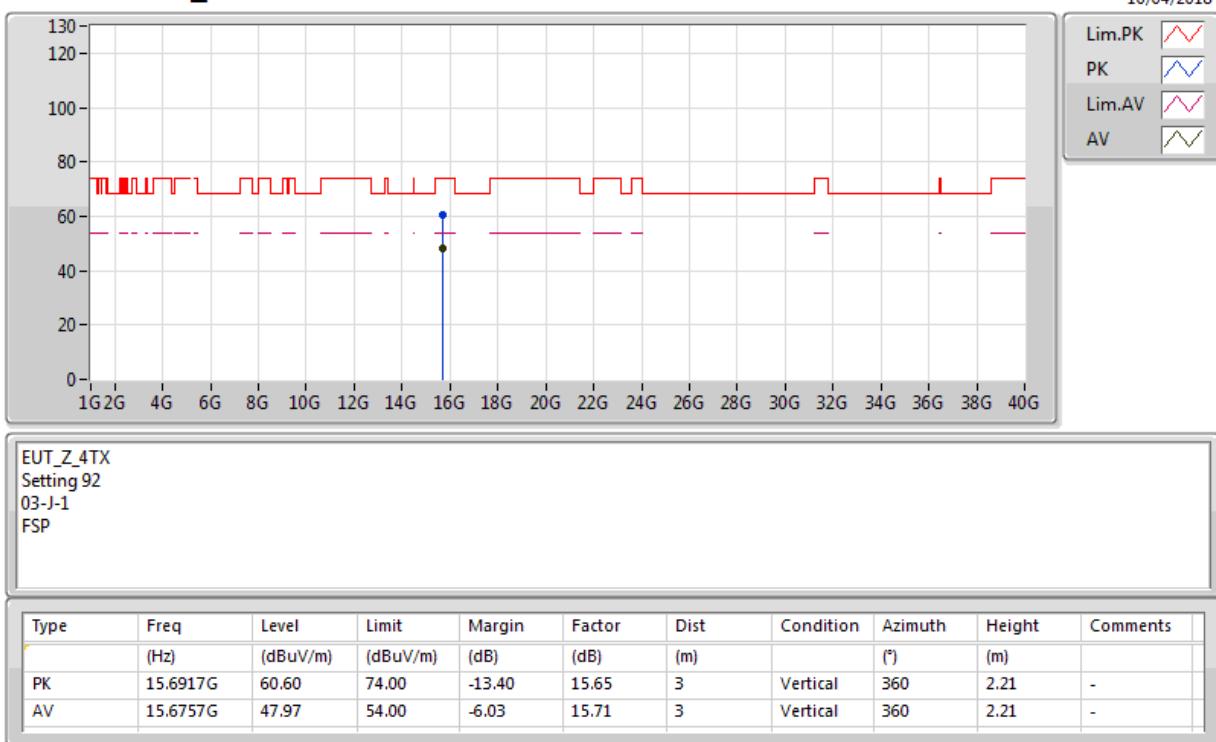
**802.11ac VHT40-BF\_Nss1,(MCS0)\_4TX**
**5190MHz\_TX**


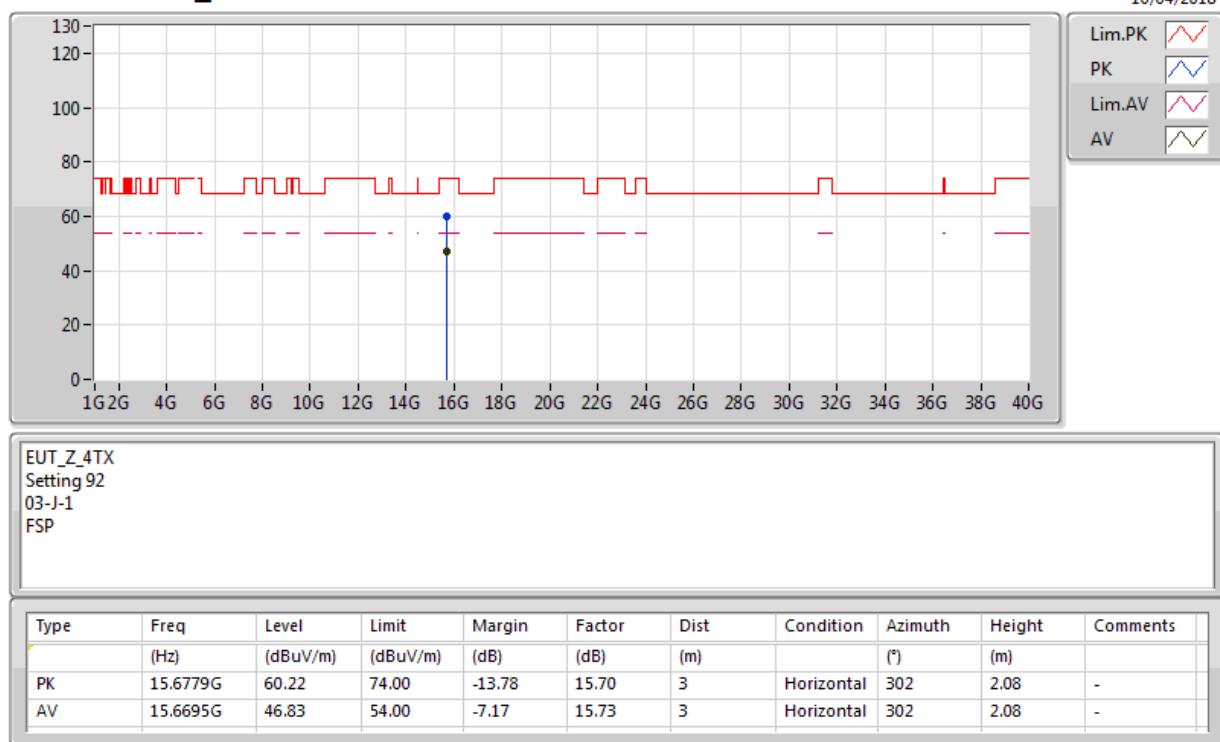
## **802.11ac VHT40-BF\_Nss1,(MCS0)\_4TX**

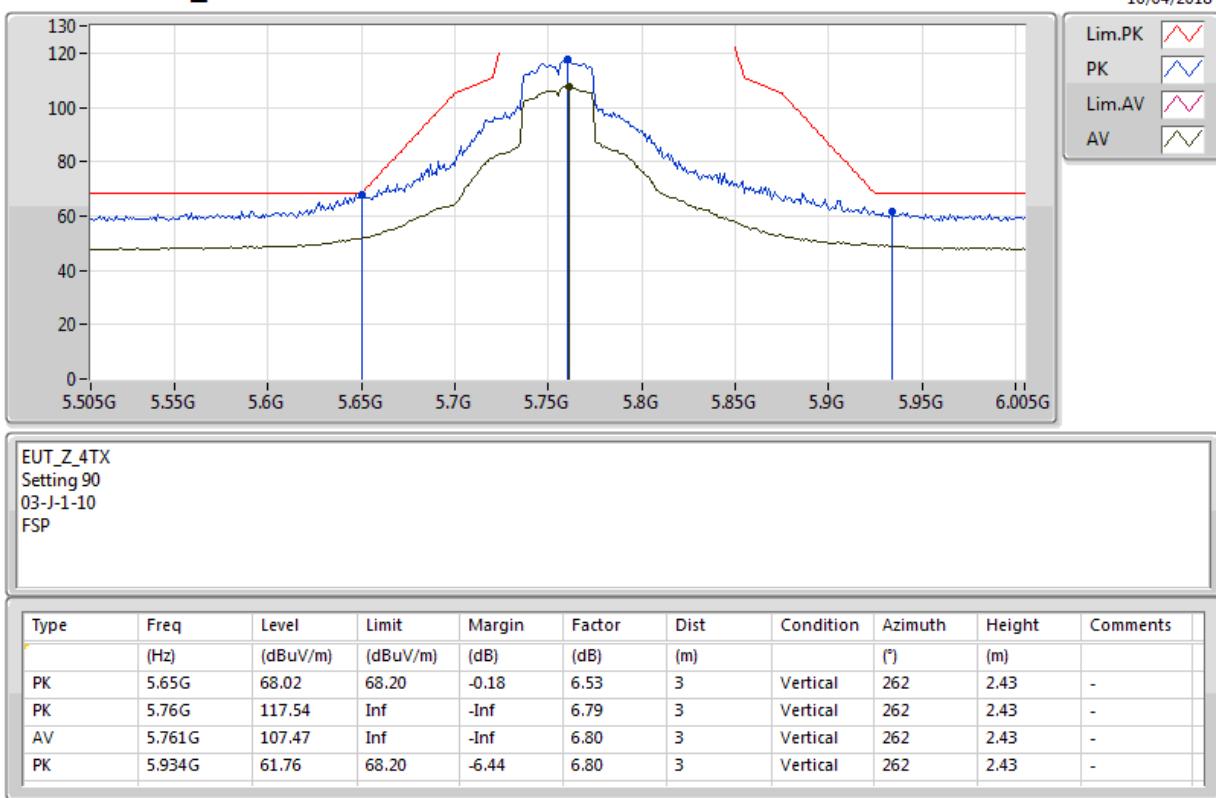
### **5230MHz\_TX**



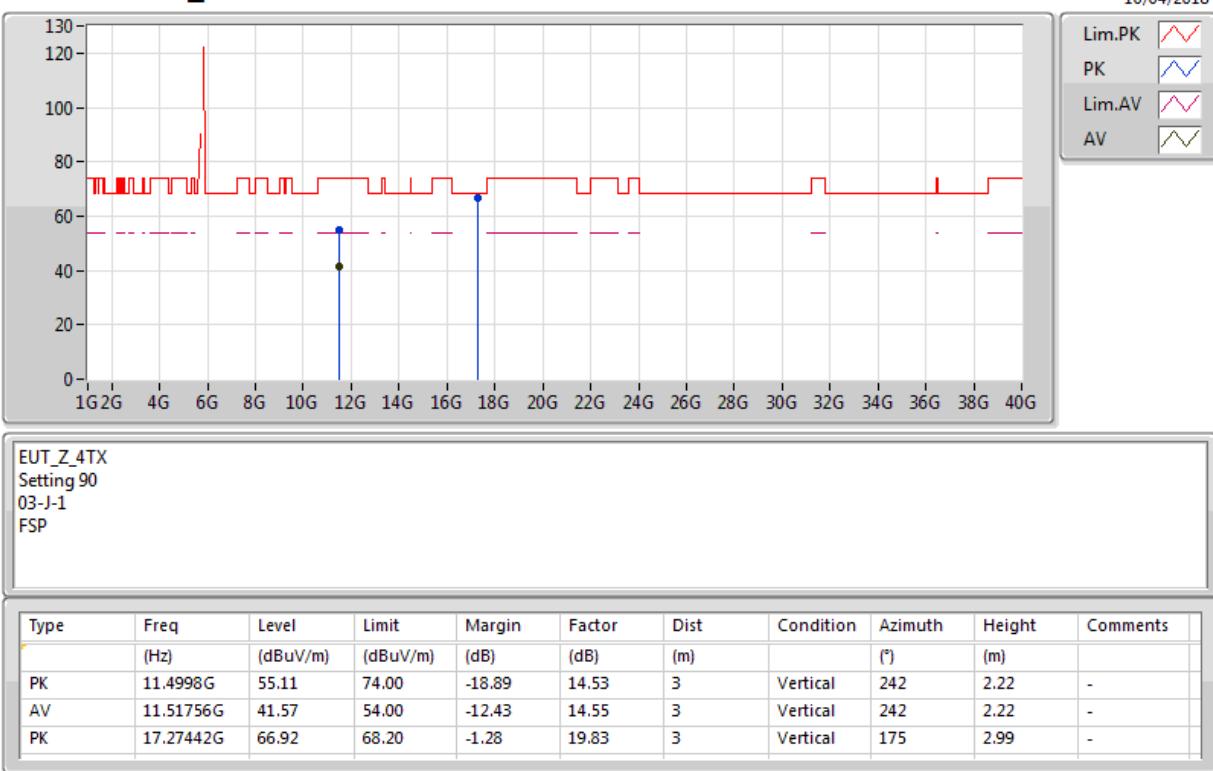
**802.11ac VHT40-BF\_Nss1,(MCS0)\_4TX****5230MHz\_TX**

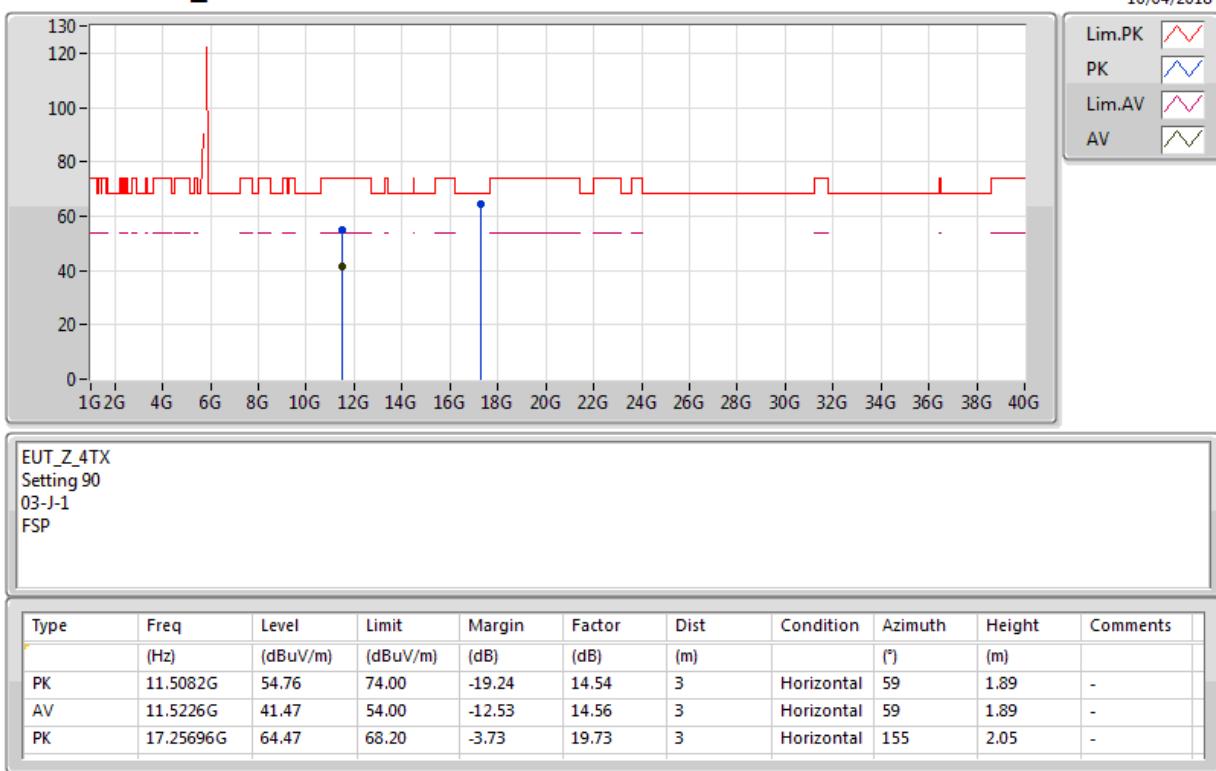
**802.11ac VHT40-BF\_Nss1,(MCS0)\_4TX****5230MHz\_TX**

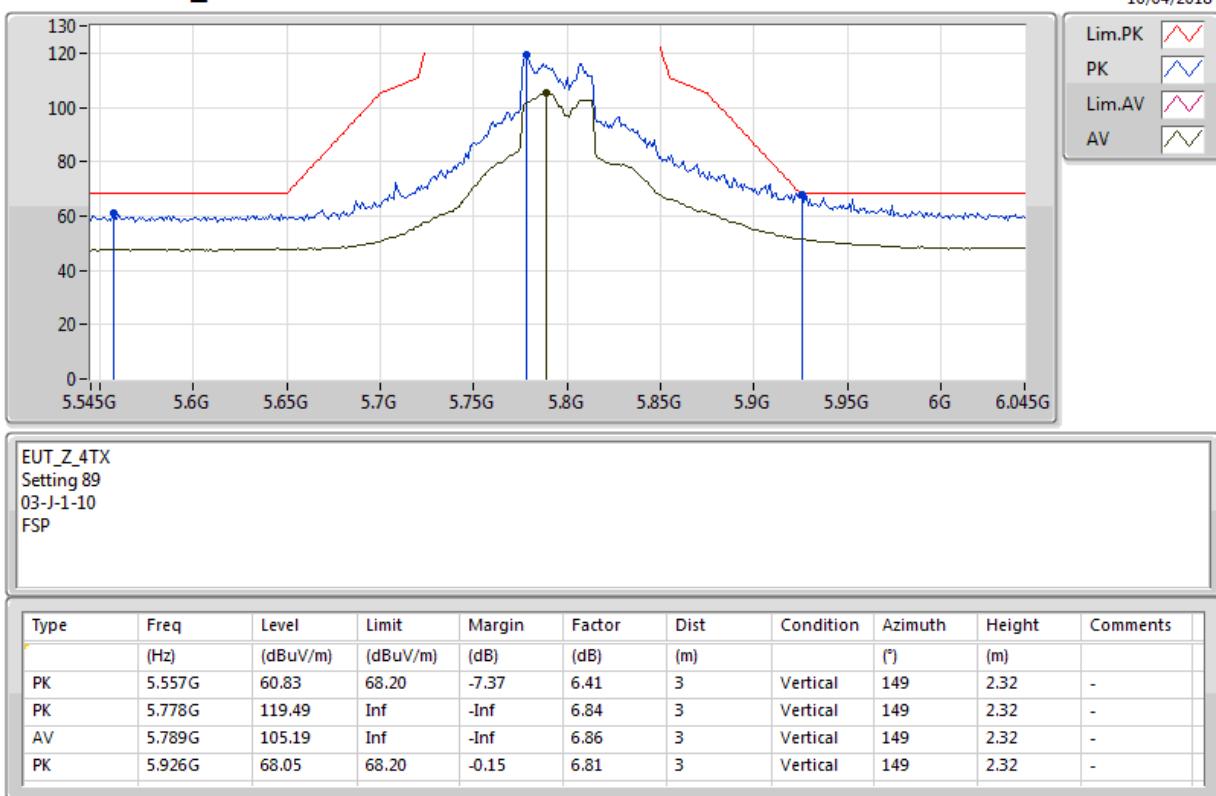
**802.11ac VHT40-BF\_Nss1,(MCS0)\_4TX****5230MHz\_TX**

**802.11ac VHT40-BF\_Nss1,(MCS0)\_4TX****5755MHz\_TX**

**802.11ac VHT40-BF\_Nss1,(MCS0)\_4TX****5755MHz\_TX**

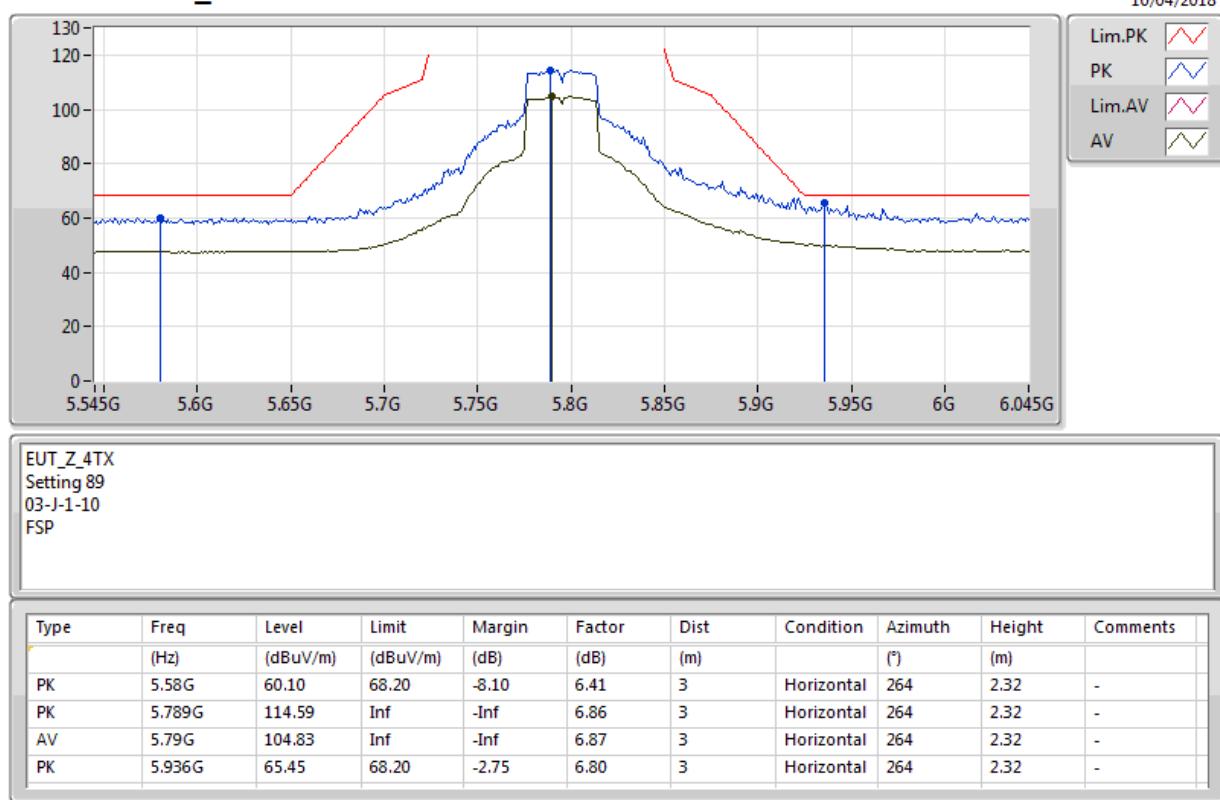
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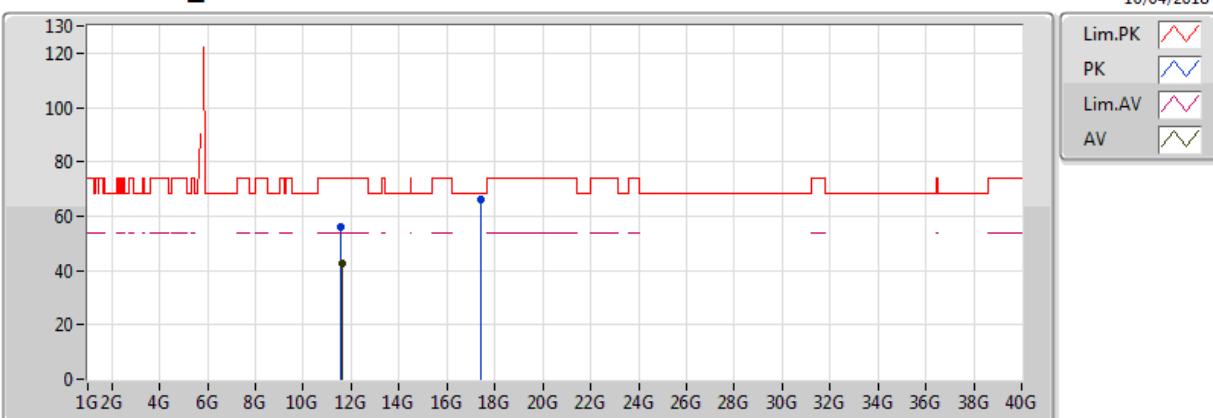
**802.11ac VHT40-BF\_Nss1,(MCS0)\_4TX****5755MHz\_TX**

**802.11ac VHT40-BF\_Nss1,(MCS0)\_4TX****5795MHz\_TX**

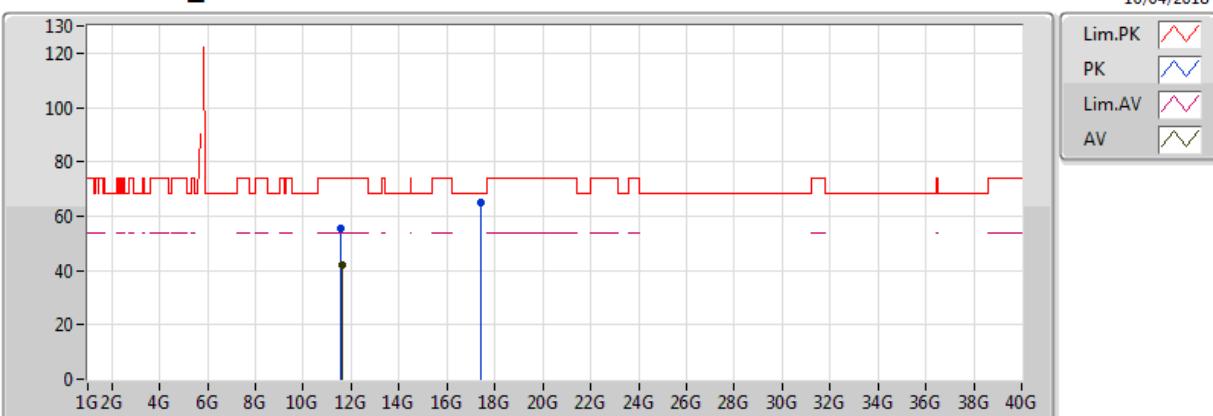
## **802.11ac VHT40-BF\_Nss1,(MCS0)\_4TX**

### **5795MHz\_TX**

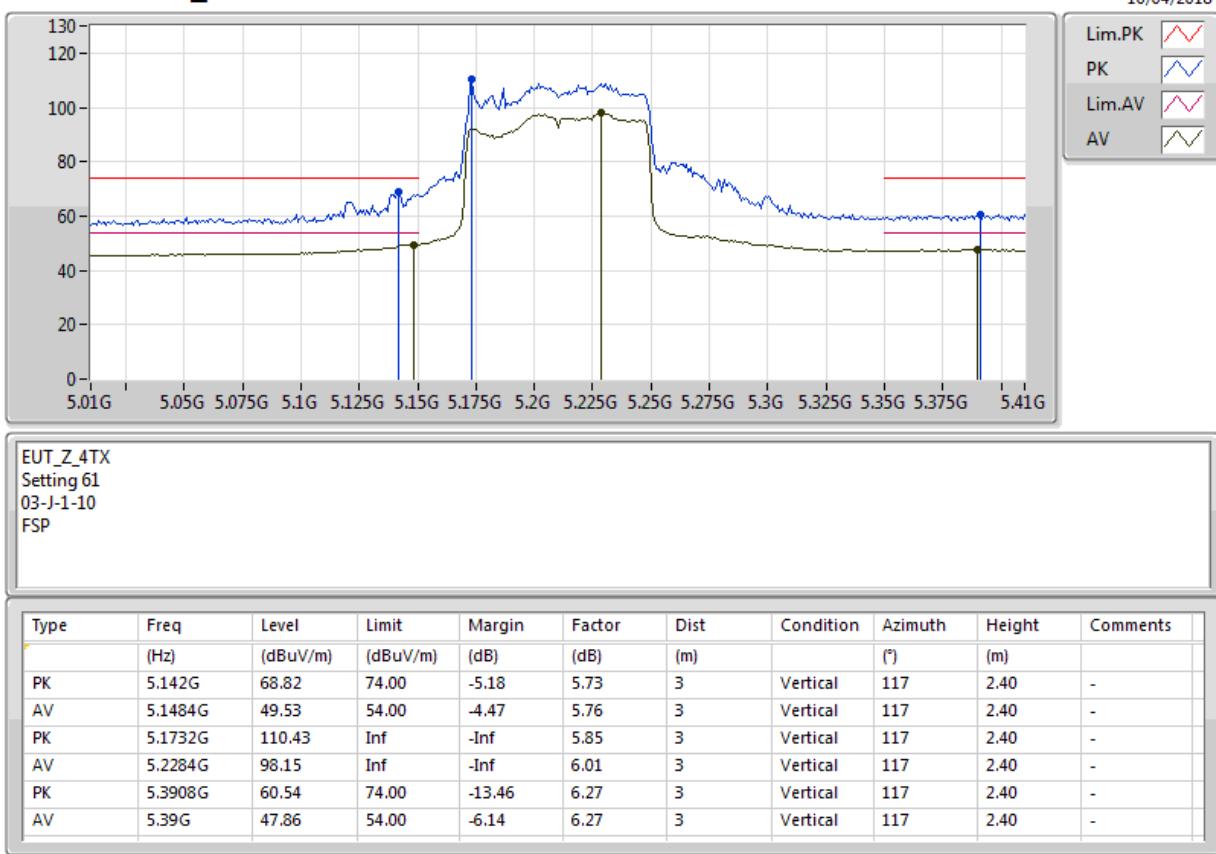


**802.11ac VHT40-BF\_Nss1,(MCS0)\_4TX****5795MHz\_TX**

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	11.58456G	55.85	74.00	-18.15	14.63	3	Vertical	136	1.31	-
AV	11.59968G	42.38	54.00	-11.62	14.65	3	Vertical	136	1.31	-
PK	17.38708G	66.04	68.20	-2.16	20.47	3	Vertical	151	2.95	-

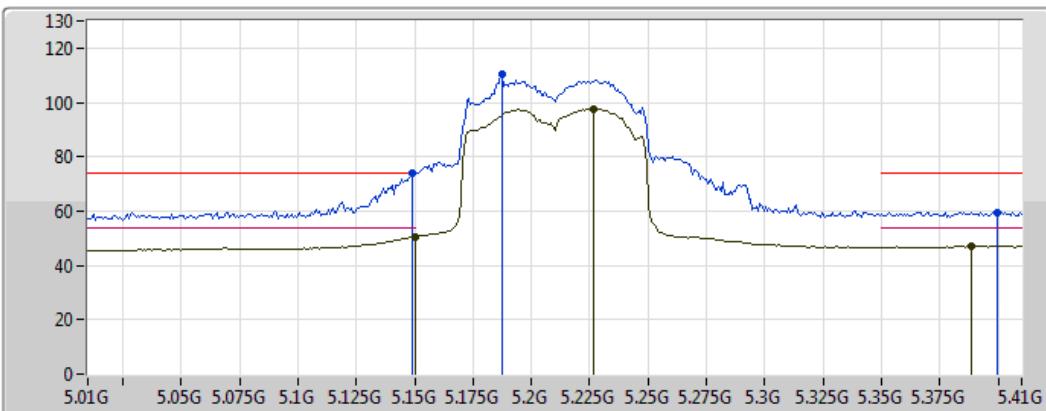
**802.11ac VHT40-BF\_Nss1,(MCS0)\_4TX****5795MHz\_TX**

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	11.57G	55.49	74.00	-18.51	14.61	3	Horizontal	242	1.96	-
AV	11.60776G	42.08	54.00	-11.92	14.65	3	Horizontal	242	1.96	-
PK	17.3862G	65.11	68.20	-3.09	20.46	3	Horizontal	287	2.39	-

**802.11ac VHT80-BF\_Nss1,(MCS0)\_4TX****5210MHz\_TX**

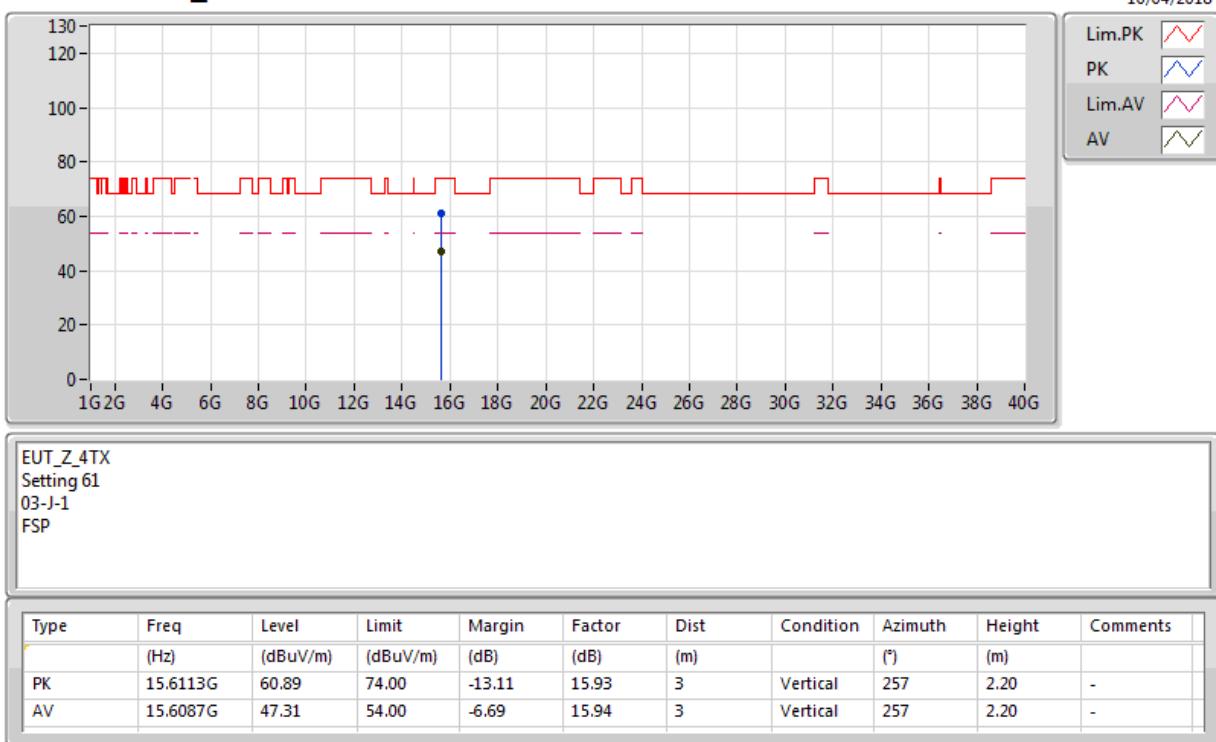
**802.11ac VHT80-BF\_Nss1,(MCS0)\_4TX****5210MHz\_TX**

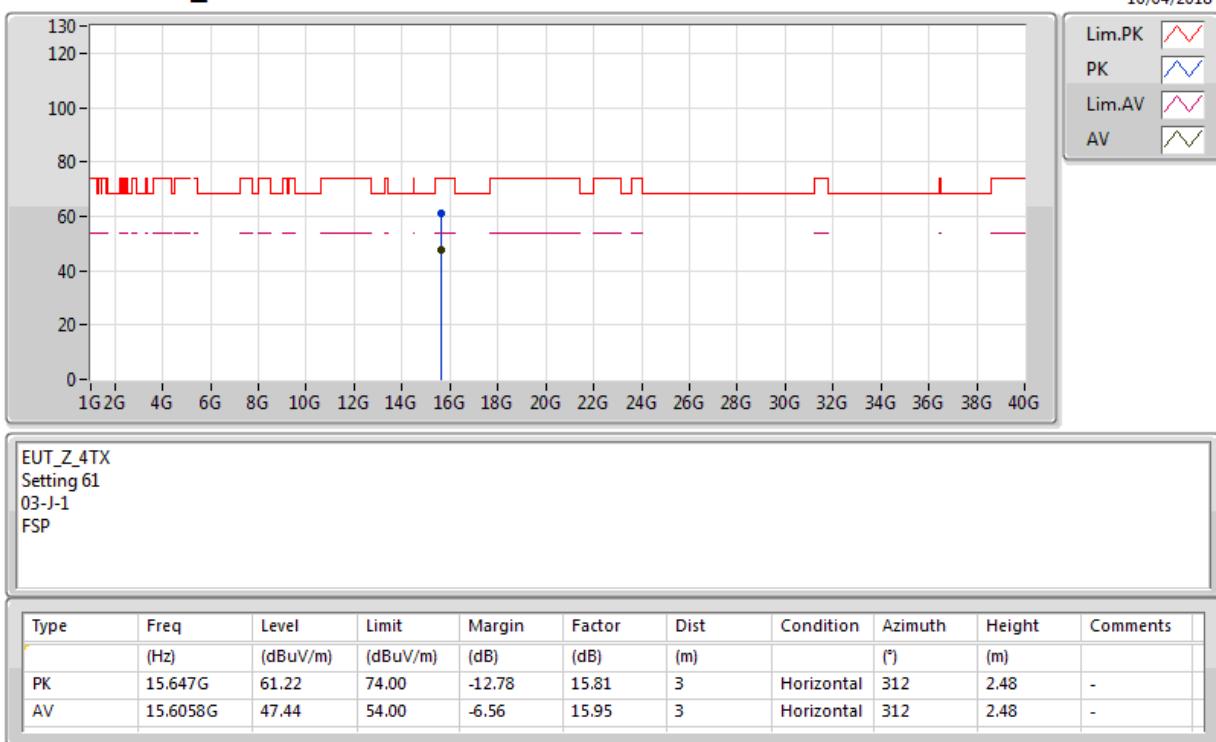
10/04/2018



EUT\_Z\_4TX  
Setting 61  
03-J-1-10  
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	5.1492G	73.78	74.00	-0.22	5.76	3	Horizontal	277	2.36	-
AV	5.149995G	50.65	54.00	-3.35	5.76	3	Horizontal	277	2.36	-
PK	5.1876G	110.33	Inf	-Inf	5.91	3	Horizontal	277	2.36	-
AV	5.2268G	97.75	Inf	-Inf	6.01	3	Horizontal	277	2.36	-
PK	5.3996G	59.60	74.00	-14.40	6.29	3	Horizontal	277	2.36	-
AV	5.3884G	47.12	54.00	-6.88	6.27	3	Horizontal	277	2.36	-

**802.11ac VHT80-BF\_Nss1,(MCS0)\_4TX****5210MHz\_TX**

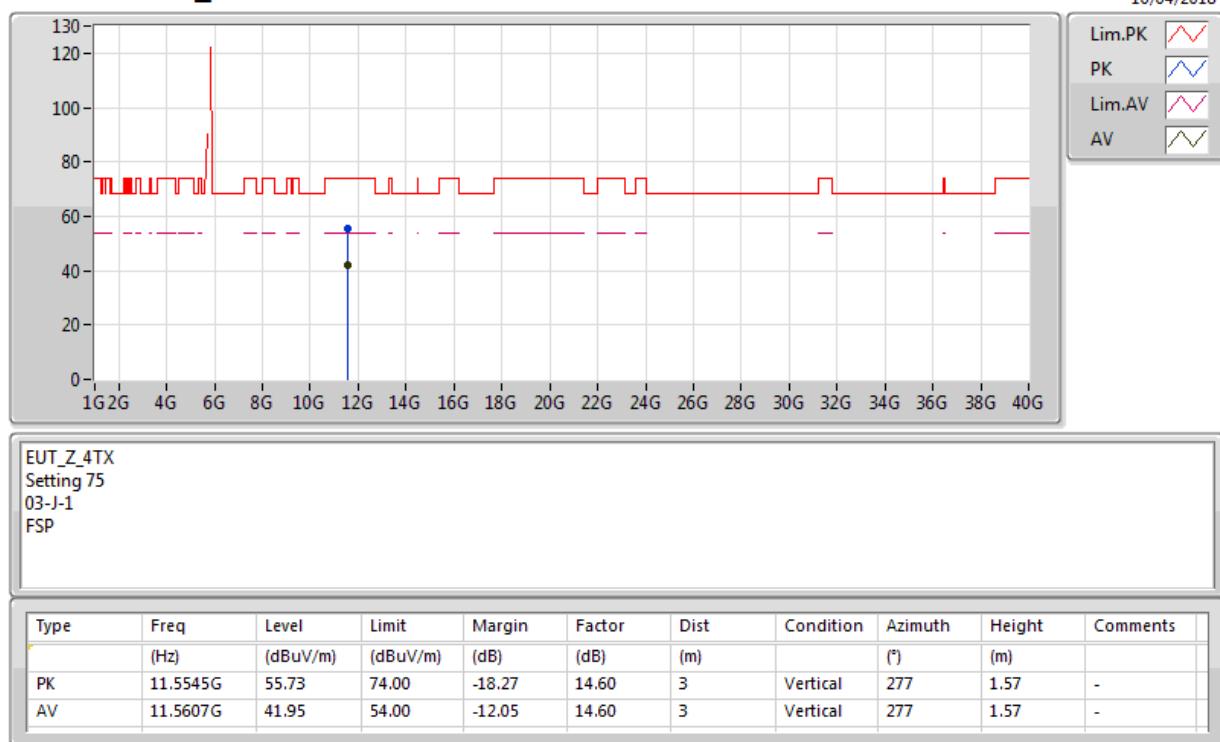
**802.11ac VHT80-BF\_Nss1,(MCS0)\_4TX****5210MHz\_TX**

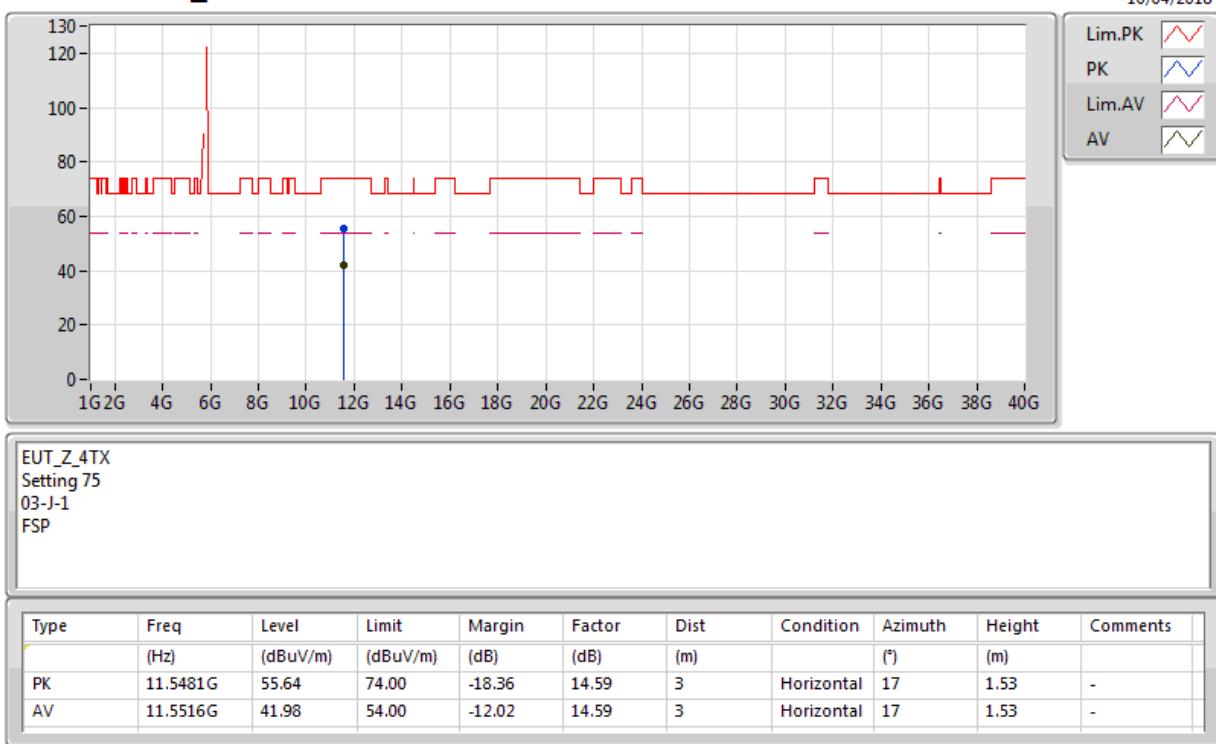
**802.11ac VHT80-BF\_Nss1,(MCS0)\_4TX****5775MHz\_TX**

## **802.11ac VHT80-BF\_Nss1,(MCS0)\_4TX**

### **5775MHz\_TX**



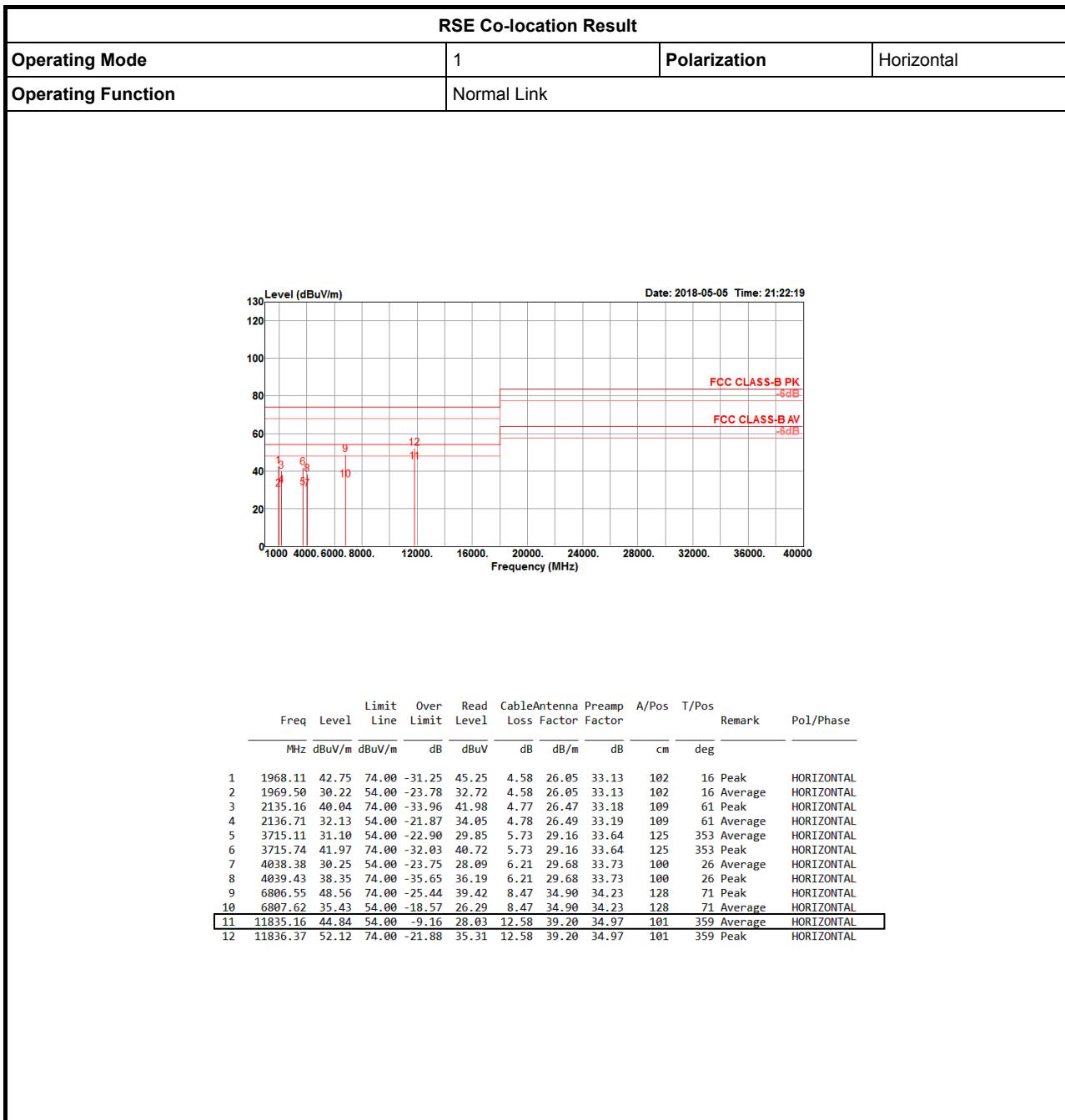
**802.11ac VHT80-BF\_Nss1,(MCS0)\_4TX**
**5775MHz\_TX**


**802.11ac VHT80-BF\_Nss1,(MCS0)\_4TX****5775MHz\_TX**



## RSE Co-location Result

Appendix F





## RSE Co-location Result

Appendix F

