



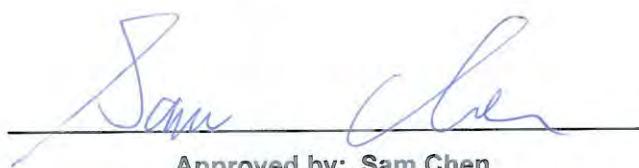
# FCC RADIO TEST REPORT

**FCC ID** : PPQ-O105ER  
**Equipment** : 802.11 a/n/ac + b/g/n Access Point  
**Brand Name** : ARISTA  
**Model Name** : O-105ER  
**Applicant** : LITE-ON TECHNOLOGY CORP.  
Bldg. C, 90, Chien 1 Rd., Chung-Ho, New Taipei City, 23585  
Taiwan  
**Manufacturer(1)** : LITE-ON Technology Corp. Networking Plant  
No. 101, Neihuan N. Rd., Nanzi Processing Export, Nanzi  
Dist., Kaohsiung City 811, Taiwan (R.O.C.)  
**Manufacturer(2)** : Lite-On Network Communication (Dongguan) Limited  
30# QingXi Keji Road, QingXi Town, DongGuan City,  
Guangdong Province, China  
**Standard** : 47 CFR FCC Part 15.407

The product was received on Feb. 17, 2020, and testing was started from Feb. 17, 2020 and completed on Mar. 09, 2020. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

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

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



Approved by: Sam Chen

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



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



## History of this test report



## Summary of Test Result

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

**Declaration of Conformity:**

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

**Comments and Explanations:**

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

Reviewed by: Cliff Chang

Report Producer: Vicky Huang



# 1 General Description

## 1.1 Information

### 1.1.1 RF General Information

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

Band	Mode	BWch (MHz)	Nant
5.15-5.25GHz	802.11a	20	2TX
5.15-5.25GHz	802.11n HT20	20	2TX
5.15-5.25GHz	802.11ac VHT20	20	2TX
5.15-5.25GHz	802.11n HT40	40	2TX
5.15-5.25GHz	802.11ac VHT40	40	2TX
5.15-5.25GHz	802.11ac VHT80	80	2TX
5.725-5.85GHz	802.11a	20	2TX
5.725-5.85GHz	802.11n HT20	20	2TX
5.725-5.85GHz	802.11ac VHT20	20	2TX
5.725-5.85GHz	802.11n HT40	40	2TX
5.725-5.85GHz	802.11ac VHT40	40	2TX
5.725-5.85GHz	802.11ac VHT80	80	2TX

#### Note:

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



### 1.1.2 Antenna Information

Ant.	Port	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	
						2.4GHz	5GHz
1	1	Walsin	RFDPA172500ABLB801	Dipole Antenna	N-type	3.07	4.05
2	2	Walsin	RFDPA172500ABLB801	Dipole Antenna	N-type	3.07	4.05

Note: The above information was declared by manufacturer.

#### For 2.4GHz function:

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

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

Port 1 and Port 2 could transmit/receive simultaneously.

#### For 5GHz function:

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

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

Port 1 and Port 2 could transmit/receive simultaneously.

### 1.1.3 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
802.11a	0.971	0.13	2.065m	1k
802.11ac VHT20	0.985	0.07	n/a (DC $\geq 0.98$ )	n/a (DC $\geq 0.98$ )
802.11ac VHT40	0.971	0.13	2.44m	1k
802.11ac VHT80	0.933	0.3	1.15m	1k

Note:

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

### 1.1.4 EUT Operational Condition

EUT Power Type	From PoE			
Beamforming Function	<input type="checkbox"/>	With beamforming	<input checked="" type="checkbox"/>	Without beamforming
Function	<input type="checkbox"/>	Outdoor P2M	<input checked="" type="checkbox"/>	Indoor P2M
	<input type="checkbox"/>	Fixed P2P	<input type="checkbox"/>	Client
Test Software Version	QRCT V3.0.210.0			

Note: The above information was declared by manufacturer.



## 1.2 Applicable Standards

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

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

## 1.3 Testing Location Information

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

Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
RF Conducted	TH02-CB	Owen Hsu	20.6~21.3°C / 60~62%	Feb. 19, 2020~ Mar. 09, 2020
Radiated (Below 1GHz)	03CH05-CB	Stim Sung	20.3~21°C / 60~61%	Feb. 21, 2020
Radiated (Above 1GHz- Radiated Emission Co-location)	03CH05-CB	Stim Sung	20.3~21°C / 60~61%	Feb. 21, 2020
Radiated (Above 1GHz- Unwanted Emissions)	03CH04-CB	Stim Sung	18.7~19.3°C / 56~59%	Feb. 17, 2020~ Feb. 18, 2020
AC Conduction	CO02-CB	Peter Wu	24~25°C / 54~55%	Feb. 24, 2020

Test site Designation No. TW0006 with FCC

Test site registered number IC 4086D with Industry Canada.

## 1.4 Measurement Uncertainty

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

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



## 2 Test Configuration of EUT

### 2.1 Test Channel Mode

Mode	Power Setting
802.11a_Nss1,(6Mbps)_2TX	-
5180MHz	18.5
5200MHz	24
5240MHz	24.5
5745MHz	25
5785MHz	26.5
5825MHz	26
802.11ac VHT20_Nss1,(MCS0)_2TX	-
5180MHz	19.5
5200MHz	24.5
5240MHz	24.5
5745MHz	25
5785MHz	26.5
5825MHz	25
802.11ac VHT40_Nss1,(MCS0)_2TX	-
5190MHz	17
5230MHz	22
5755MHz	26.5
5795MHz	26.5
802.11ac VHT80_Nss1,(MCS0)_2TX	-
5210MHz	15.5
5775MHz	21

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



## 2.2 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
<b>Tests Item</b>	AC power-line conducted emissions
<b>Condition</b>	AC power-line conducted measurement for line and neutral
<b>Operating Mode</b>	Normal Link
1	EUT + PoE

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 at X-axis + PoE
2	EUT at Y-axis + PoE
3	EUT at Z-axis + PoE

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

<b>Operating Mode &gt; 1GHz</b>	CTX
The EUT was performed at X axis, Y axis and Z axis position, and the worst case was found at Y axis. So the measurement will follow this same test configuration.	
1	EUT at Y-axis + PoE



The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis - Radiated Emission Co-location
Test Condition	Radiated measurement
Operating Mode	Normal Link
The EUT was performed at X axis, Y axis and Z axis position for Radiated emission below 1GHz test, and the worst case was found at Y axis. So the measurement will follow this same test configuration.	
1	EUT at Y-axis-WLAN 2.4GHz+WLAN 5GHz
Refer to Appendix F for Radiated Emission Co-location.	

The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis - Co-location RF Exposure Evaluation
Operating Mode	
1	WLAN 2.4GHz+WLAN 5GHz
Refer to Sporton Test Report No.: FA790613-07 for Co-location RF Exposure Evaluation.	

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

PoE information as below:

Power	Brand	Model
PoE	PHIHONG	POE20U-560(G)
PoE	CARRIER	UBI-POE-48-5G

## 2.3 EUT Operation during Test

For CTX Mode:

The EUT was programmed to be in continuously transmitting mode.

For Normal Link:

During the test, the EUT operation to normal function.



## 2.4 Accessories

N/A

## 2.5 Support Equipment

For AC Conduction:

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	LAN1	DELL	E6430	N/A
B	PoE	PHIHONG	POE20U-560(G)	N/A
C	5G NB	DELL	E6430	N/A
D	2.4G NB	DELL	E6430	N/A
E	LAN2	DELL	E6430	N/A

For Radiated (below 1GHz) and Radiated (co-location above 1GHz):

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	PoE	PHIHONG	POE20U-560(G)	N/A
B	NB	DELL	E4300	N/A
C	NB	DELL	E4300	N/A
D	NB	DELL	E4300	N/A
E	NB	DELL	E4300	N/A

For Radiated (above 1GHz others):

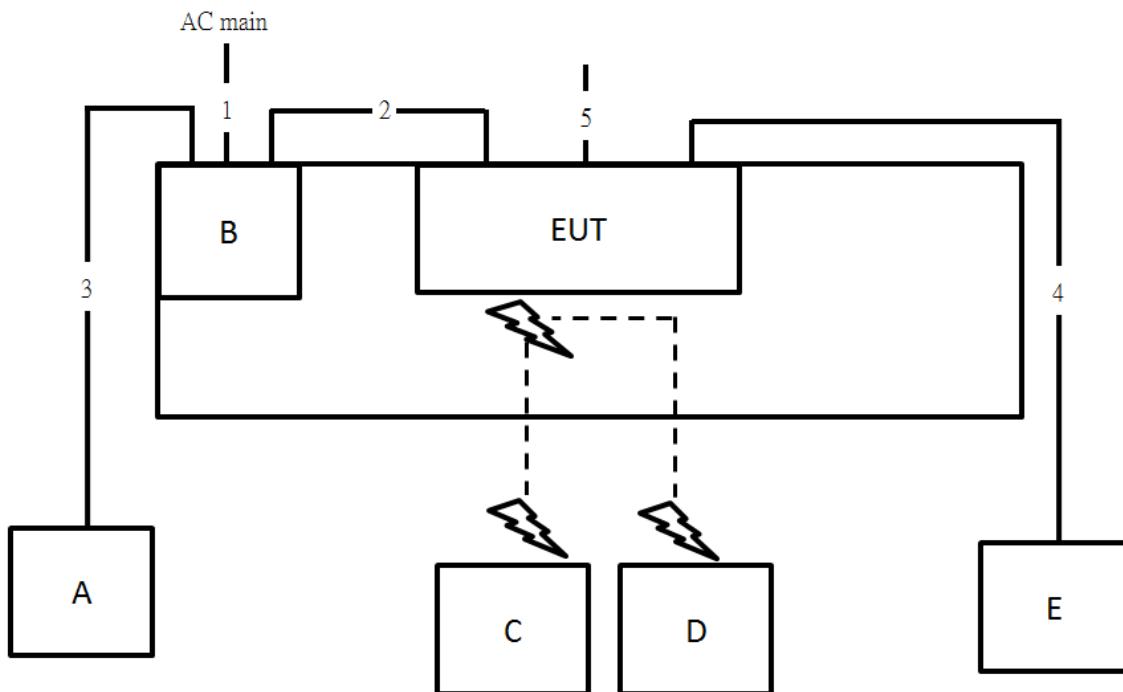
Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	PoE	CARRIER	UBI-POE-48-5G	N/A
B	NB	DELL	E4300	N/A

For RF Conducted:

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	NB	DELL	E4300	N/A
B	PoE	CARRIER	UBI-POE-48-5G	N/A

## 2.6 Test Setup Diagram

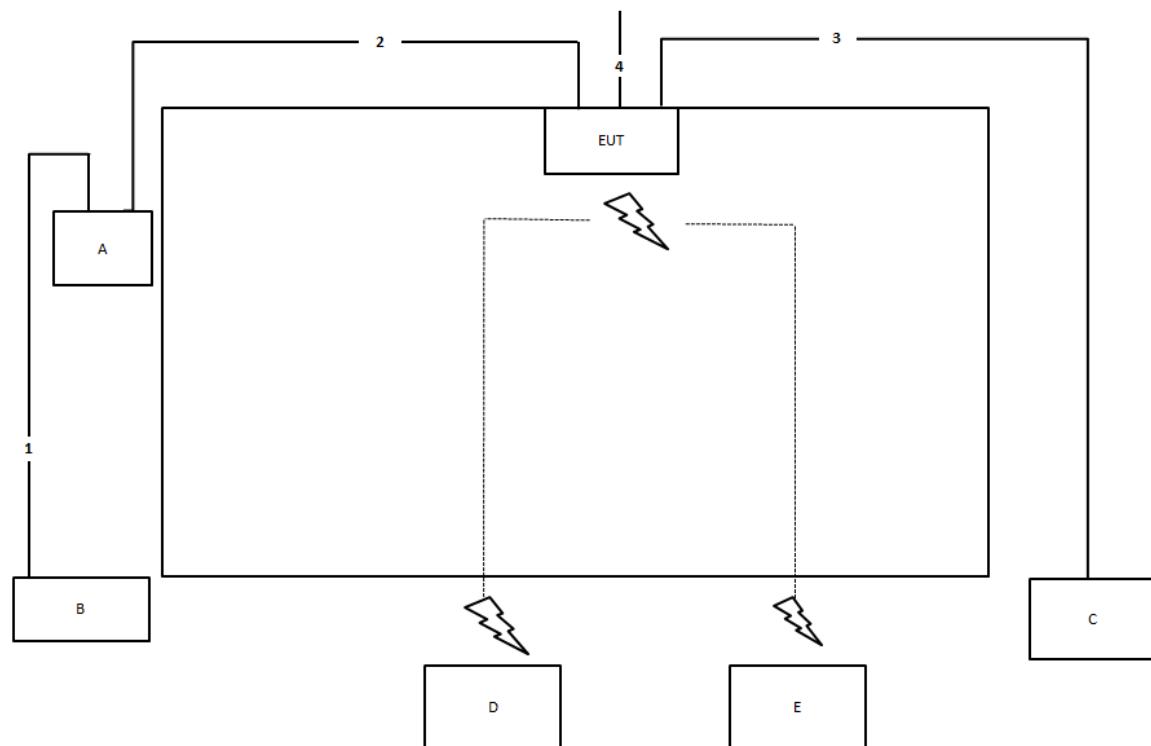
Test Setup Diagram – AC Line Conducted Emission Test



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



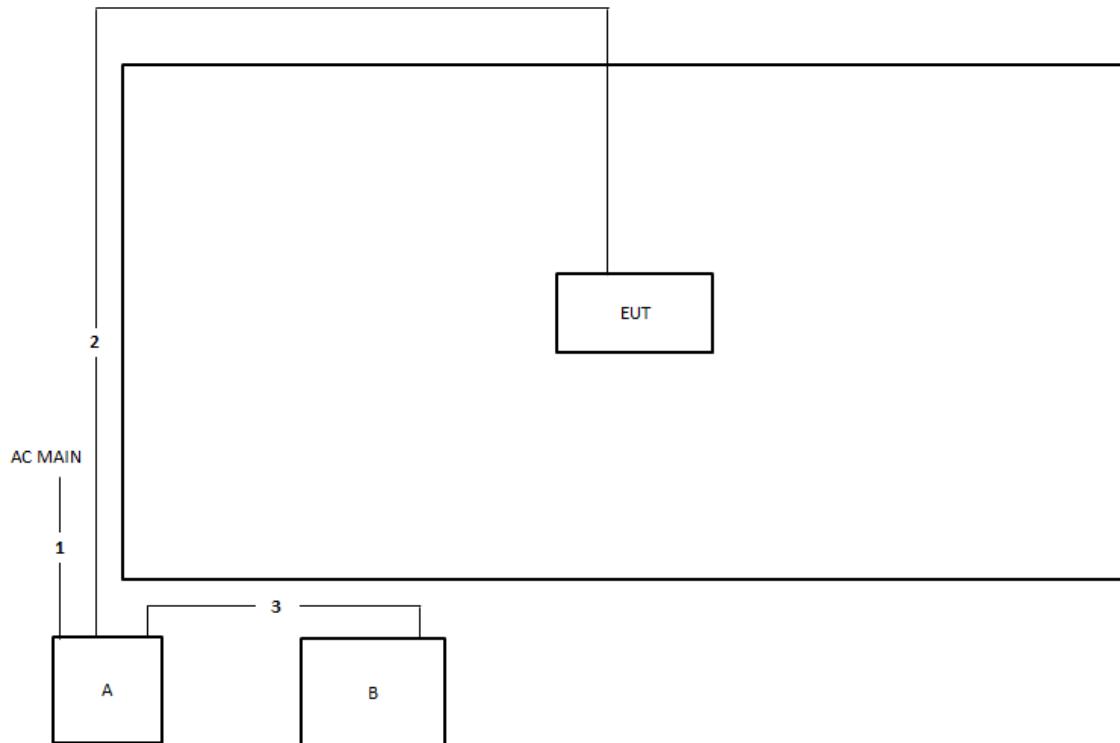
## Test Setup Diagram - Radiated Test &lt; 1GHz



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



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



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



### 3 Transmitter Test Result

#### 3.1 AC Power-line Conducted Emissions

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

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

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

##### 3.1.2 Measuring Instruments

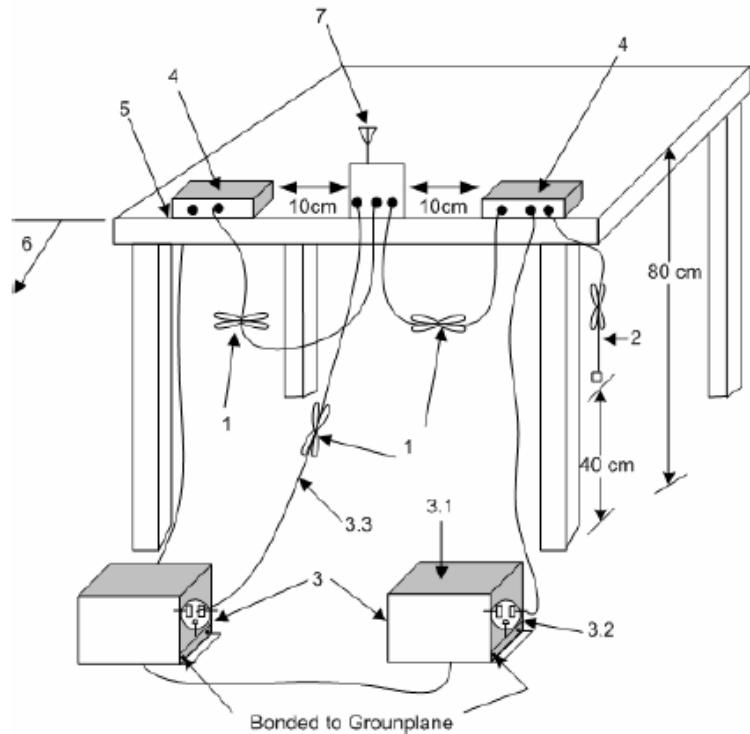
Refer a test equipment and calibration data table in this test report.

##### 3.1.3 Test Procedures

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

### 3.1.4 Test Setup

#### 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 $\geq 500\text{kHz}$ .

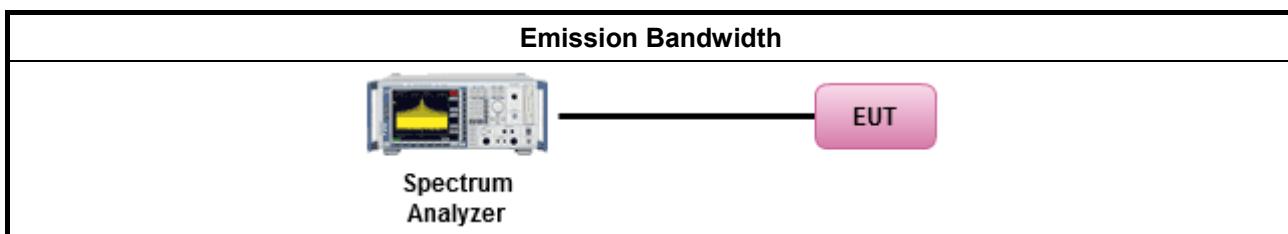
### 3.2.2 Measuring Instruments

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



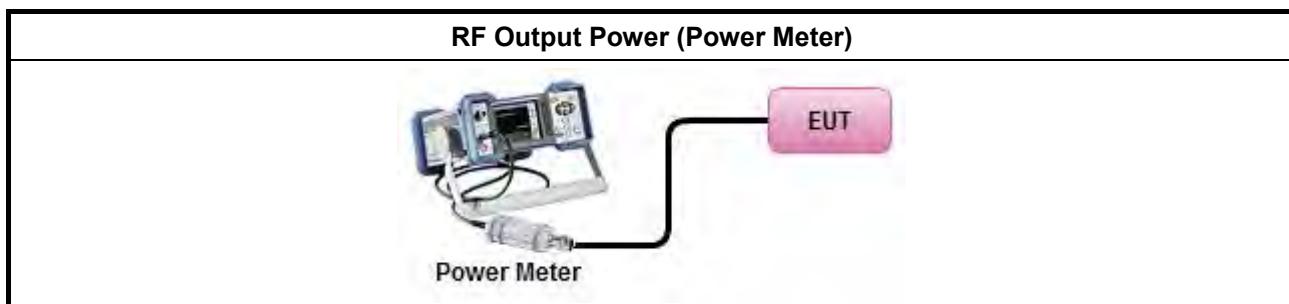
### 3.3.2 Measuring Instruments

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

### 3.3.3 Test Procedures

Test Method	
▪ Maximum Conducted Output Power	
	Average over on/off periods with duty factor
	<input type="checkbox"/> Refer as FCC KDB 789033, clause E Method SA-2 (spectral trace averaging).
	<input type="checkbox"/> Refer as FCC KDB 789033, clause E Method SA-2 Alt. (RMS detection with slow sweep speed)
	Wideband RF power meter and average over on/off periods with duty factor
	<input checked="" type="checkbox"/> Refer as FCC KDB 789033, clause E Method PM-G (using an RF average power meter).
▪ For conducted measurement.	
	<ul style="list-style-type: none"><li>▪ If the EUT supports multiple transmit chains using options given below: Refer as FCC KDB 662911, In-band power measurements. Using the measure-and-sum approach, measured all transmit ports individually. Sum the power (in linear power units e.g., mW) of all ports for each individual sample and save them.</li><li>▪ If multiple transmit chains, EIRP calculation could be following as methods: <math>P_{total} = P_1 + P_2 + \dots + P_n</math> (calculated in linear unit [mW] and transfer to log unit [dBm]) <math>EIRP_{total} = P_{total} + DG</math></li></ul>

### 3.3.4 Test Setup



### 3.3.5 Test Result of Maximum Conducted Output Power

Refer as Appendix C



## 3.4 Peak Power Spectral Density

### 3.4.1 Peak Power Spectral Density Limit

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



### 3.4.2 Measuring Instruments

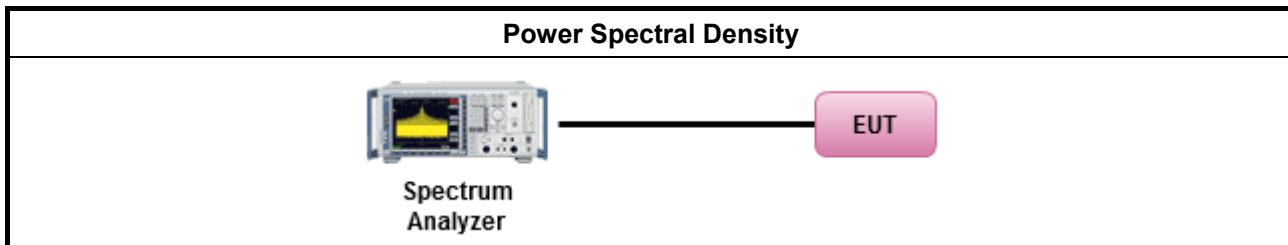
Refer a test equipment and calibration data table in this test report.

### 3.4.3 Test Procedures

Test Method	
<ul style="list-style-type: none"><li>Peak power spectral density procedures that the same method as used to determine the conducted output power shall be used to determine the peak power spectral density and use the peak search function on the spectrum analyzer to find the peak of the spectrum. For the peak power spectral density shall be measured using below options:</li></ul>	
<p><input type="checkbox"/> Refer as FCC KDB 789033, F5) power spectral density can be measured using resolution bandwidths &lt; 1 MHz provided that the results are integrated over 1 MHz bandwidth</p>	
<p>[duty cycle <math>\geq</math> 98% or external video / power trigger]</p>	
<p><input checked="" type="checkbox"/> Refer as FCC KDB 789033, clause E Method SA-1 (spectral trace averaging).</p>	
<p><input type="checkbox"/> Refer as FCC KDB 789033, clause E Method SA-1 Alt. (RMS detection with slow sweep speed)</p>	
<p>duty cycle <math>&lt;</math> 98% and average over on/off periods with duty factor</p>	
<p><input checked="" type="checkbox"/> Refer as FCC KDB 789033, clause E Method SA-2 (spectral trace averaging).</p>	
<p><input type="checkbox"/> Refer as FCC KDB 789033, clause E Method SA-2 Alt. (RMS detection with slow sweep speed)</p>	
<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>	
	<p><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.</p>
	<p><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,</p>
	<p><input type="checkbox"/> Option 3: Measure and add <math>10 \log(N)</math> dB, where N is the number of transmit chains. Refer as FCC KDB 662911, In-band power spectral density (PSD). Performed at each transmit chains and each transmit chains shall be compared with the limit have been reduced with <math>10 \log(N)</math>. Or each transmit chains shall be add <math>10 \log(N)</math> to compared with the limit.</p>
<ul style="list-style-type: none"><li>If multiple transmit chains, EIRP PPSD calculation could be following as methods: <math>PPSD_{total} = PPSD_1 + PPSD_2 + \dots + PPSD_n</math> (calculated in linear unit [mW] and transfer to log unit [dBm]) <math>EIRP_{total} = PPSD_{total} + DG</math></li></ul>	



### 3.4.4 Test Setup



### 3.4.5 Test Result of Peak Power Spectral Density

Refer as Appendix D



## 3.5 Unwanted Emissions

### 3.5.1 Transmitter Unwanted Emissions Limit

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

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

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

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

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

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



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

### 3.5.2 Measuring Instruments

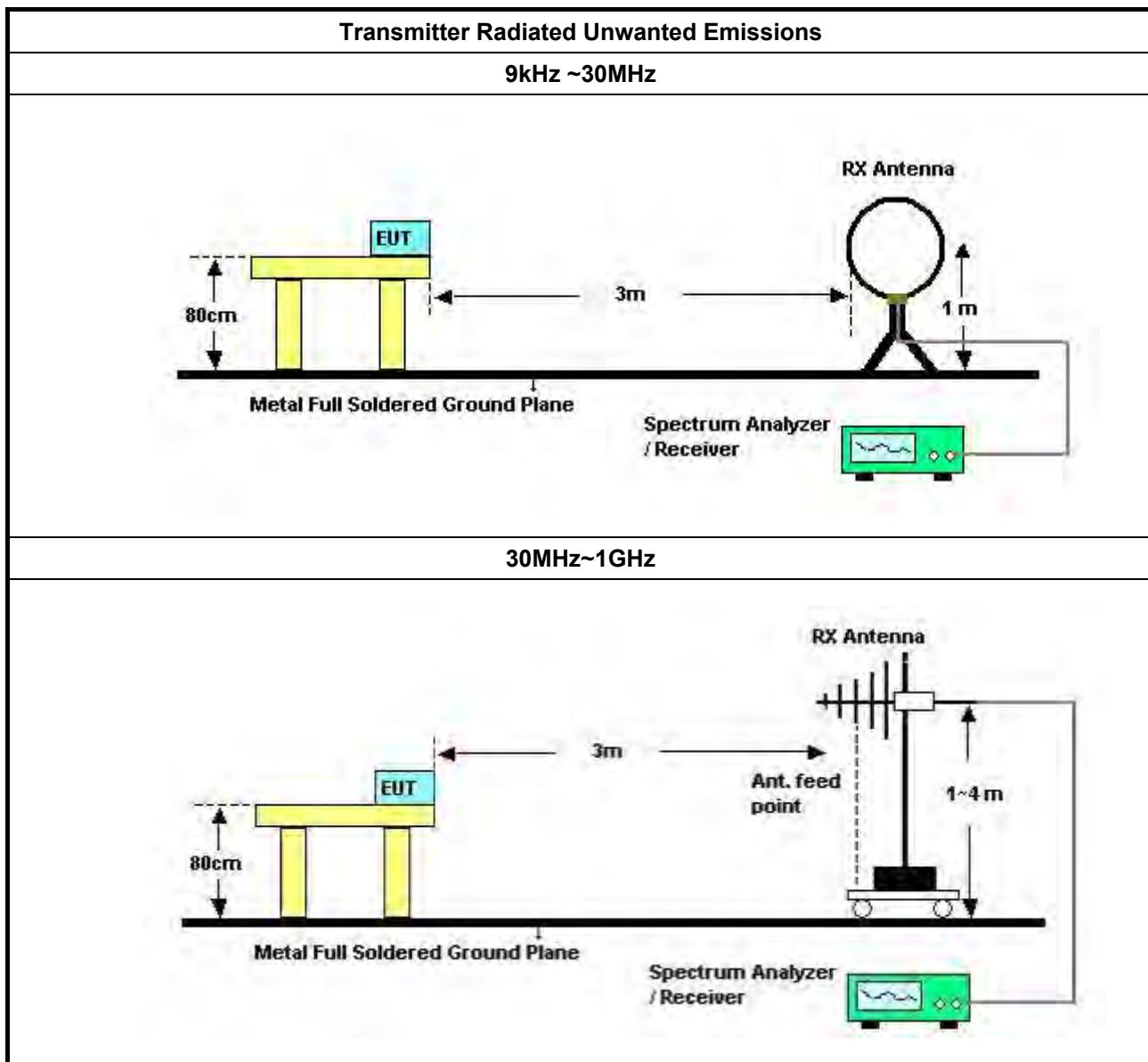
Refer a test equipment and calibration data table in this test report.

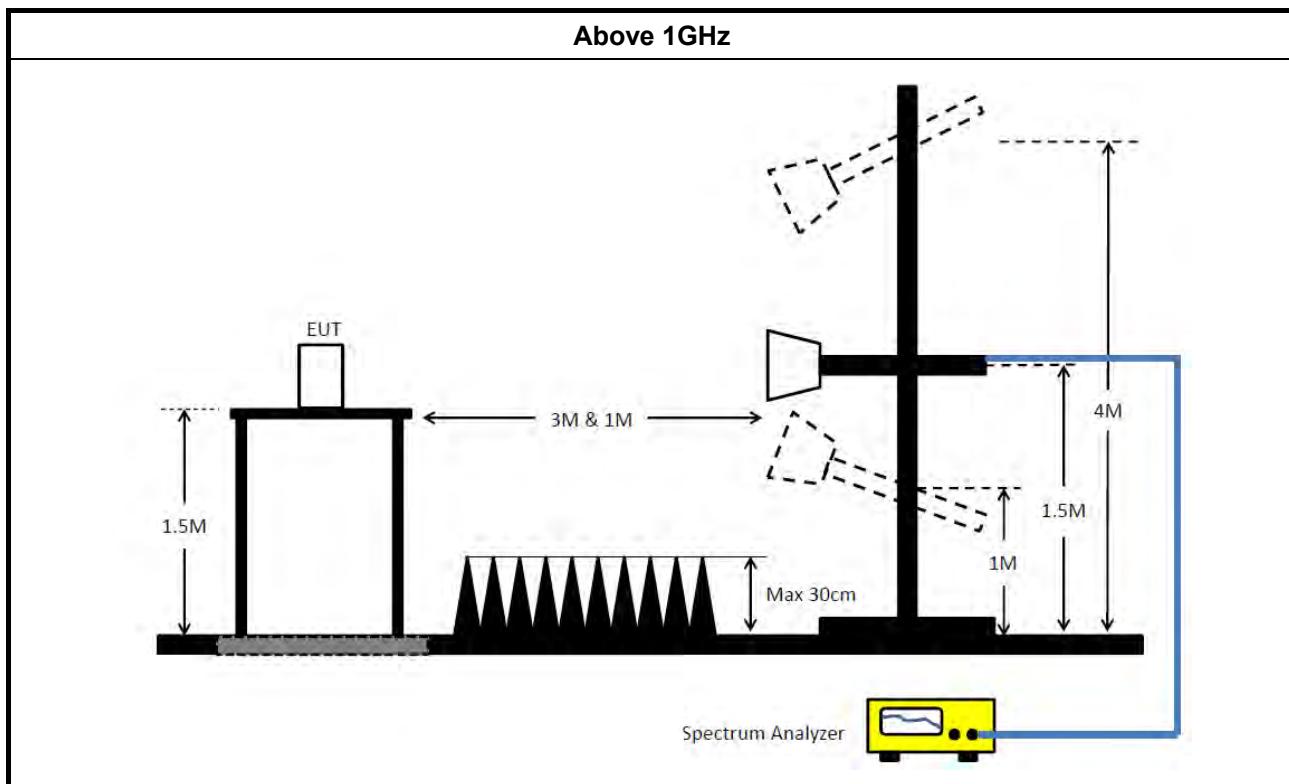
### 3.5.3 Test Procedures

Test Method	
▪ Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 m for frequencies above 30 MHz, unless it can be further demonstrated that measurements at a distance of 30 m or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).	
▪ The average emission levels shall be measured in [duty cycle $\geq$ 98 or duty factor].	
▪ For the transmitter unwanted emissions shall be measured using following options below:	
▪ Refer as FCC KDB 789033, clause G2) for unwanted emissions into non-restricted bands.	
▪ Refer as FCC KDB 789033, clause G1) for unwanted emissions into restricted bands.	
<input type="checkbox"/> Refer as FCC KDB 789033, G)6) Method AD (Trace Averaging).	
<input checked="" type="checkbox"/> Refer as FCC KDB 789033, G)6) Method VB (Reduced VBW).	
<input type="checkbox"/> Refer as ANSI C63.10, clause 11.12.2.5.3 (Reduced VBW). VBW $\geq$ 1/T, where T is pulse time.	
<input type="checkbox"/> Refer as ANSI C63.10, clause 7.5 average value of pulsed emissions.	
<input checked="" type="checkbox"/> Refer as FCC KDB 789033, clause G)5) measurement procedure peak limit.	
<input type="checkbox"/> Refer as ANSI C63.10, clause 4.1.4.2.2 measurement procedure peak limit.	
▪ For radiated measurement.	
<input type="checkbox"/> Refer as ANSI C63.10, clause 6.4 for radiated emissions below 30 MHz and test distance is 3m.	
<input type="checkbox"/> Refer as ANSI C63.10, clause 6.5 for radiated emissions 30 MHz to 1 GHz and test distance is 3m.	
<input type="checkbox"/> Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1GHz.	
▪ The any unwanted emissions level shall not exceed the fundamental emission level.	
▪ All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.	



### 3.5.4 Test Setup





### 3.5.5 Measurement Results Calculation

The measured Level is calculated using:

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

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

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

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

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

### 3.5.7 Test Result of Transmitter Unwanted Emissions

Refer as Appendix E



## 4 Test Equipment and Calibration Data

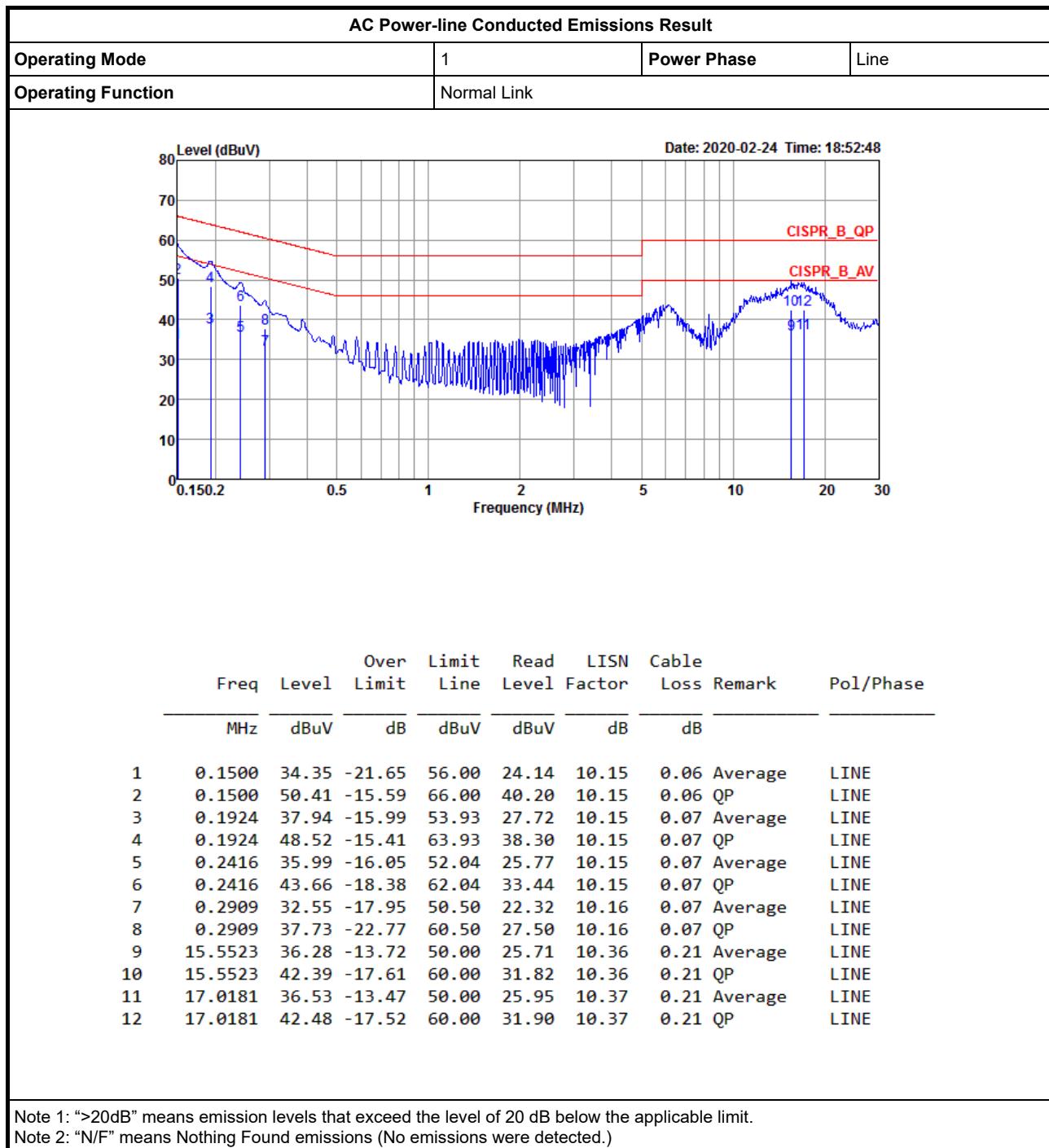
Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
LISN	Schwarzbeck	NSLK 8127	8127650	9kHz ~ 30MHz	Nov. 21, 2019	Nov. 20, 2020	Conduction (CO02-CB)
LISN	Schwarzbeck	NSLK 8127	8127478	9kHz ~ 30MHz	Oct. 30, 2019	Oct. 29, 2020	Conduction (CO02-CB)
EMI Test Receiver	R&S	ESCS	100359	9kHz ~ 2.75GHz	Jul. 26, 2019	Jul. 26, 2020	Conduction (CO02-CB)
COND Cable	Woken	Cable	2	0.15MHz ~ 30MHz	Oct. 21, 2019	Oct. 20, 2020	Conduction (CO02-CB)
Software	Audix	E3	6.120210n	-	N.C.R.	N.C.R.	Conduction (CO02-CB)
Bilog Antenna with 6dB Attenuator	TESEQ & EMCI	CBL 6112D & N-6-06	35236 & AT-N0610	30MHz ~ 2GHz	Mar. 28, 2019	Mar. 27, 2020	Radiation (03CH05-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	Mar. 29, 2019	Mar. 28, 2020	Radiation (03CH05-CB)
Horn Antenna	SCHWARZBECK	BBHA9120D	BBHA 9120D-1291	1GHz~18GHz	Oct. 05, 2019	Oct. 04, 2020	Radiation (03CH05-CB)
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170507	15GHz ~ 40GHz	Jun. 12, 2019	Jun. 11, 2020	Radiation (03CH05-CB)
Pre-Amplifier	EMCI	EMC330N	980331	20MHz ~ 3GHz	May 01, 2019	Apr. 30, 2020	Radiation (03CH05-CB)
Pre-Amplifier	EMCI	EMC12630SE	980287	1GHz – 26.5GHz	Apr. 16, 2019	Apr. 15, 2020	Radiation (03CH05-CB)
Pre-Amplifier	MITEQ	TTA1840-35-HG	1864479	18GHz ~ 40GHz	Jul. 03, 2019	Jul. 02, 2020	Radiation (03CH05-CB)
Spectrum Analyzer	R&S	FSP40	100304	9kHz ~ 40GHz	Aug. 15, 2019	Aug. 14, 2020	Radiation (03CH05-CB)
EMI Test Receiver	R&S	ESCS	826547/017	9kHz ~ 2.75GHz	May 15, 2019	May 14, 2020	Radiation (03CH05-CB)
RF Cable-low	Woken	RG402	LOW Cable-04+23	30MHz~1GHz	Oct. 07, 2019	Oct. 06, 2020	Radiation (03CH05-CB)
RF Cable-high	Woken	RG402	High Cable-28	1GHz~18GHz	Oct. 07, 2019	Oct. 06, 2020	Radiation (03CH05-CB)
RF Cable-high	Woken	RG402	High Cable-04+28	1GHz~18GHz	Oct. 07, 2019	Oct. 06, 2020	Radiation (03CH05-CB)
RF Cable-high	Woken	RG402	High Cable-40G#1	18GHz ~ 40 GHz	Jul. 24, 2019	Jul. 23, 2020	Radiation (03CH05-CB)
RF Cable-high	Woken	RG402	High Cable-40G#2	18GHz ~ 40 GHz	Jul. 24, 2019	Jul. 23, 2020	Radiation (03CH05-CB)
Horn Antenna	ETS • Lindgren	3115	00143147	750MHz~18GHz	Oct. 22, 2019	Oct. 21, 2020	Radiation (03CH04-CB)
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170507	15GHz ~ 40GHz	Jun. 12, 2019	Jun. 11, 2020	Radiation (03CH04-CB)
Pre-Amplifier	Agilent	83017A	MY53270063	0.5GHz ~ 26.5GHz	Mar. 19, 2019	Mar. 18, 2020	Radiation (03CH04-CB)

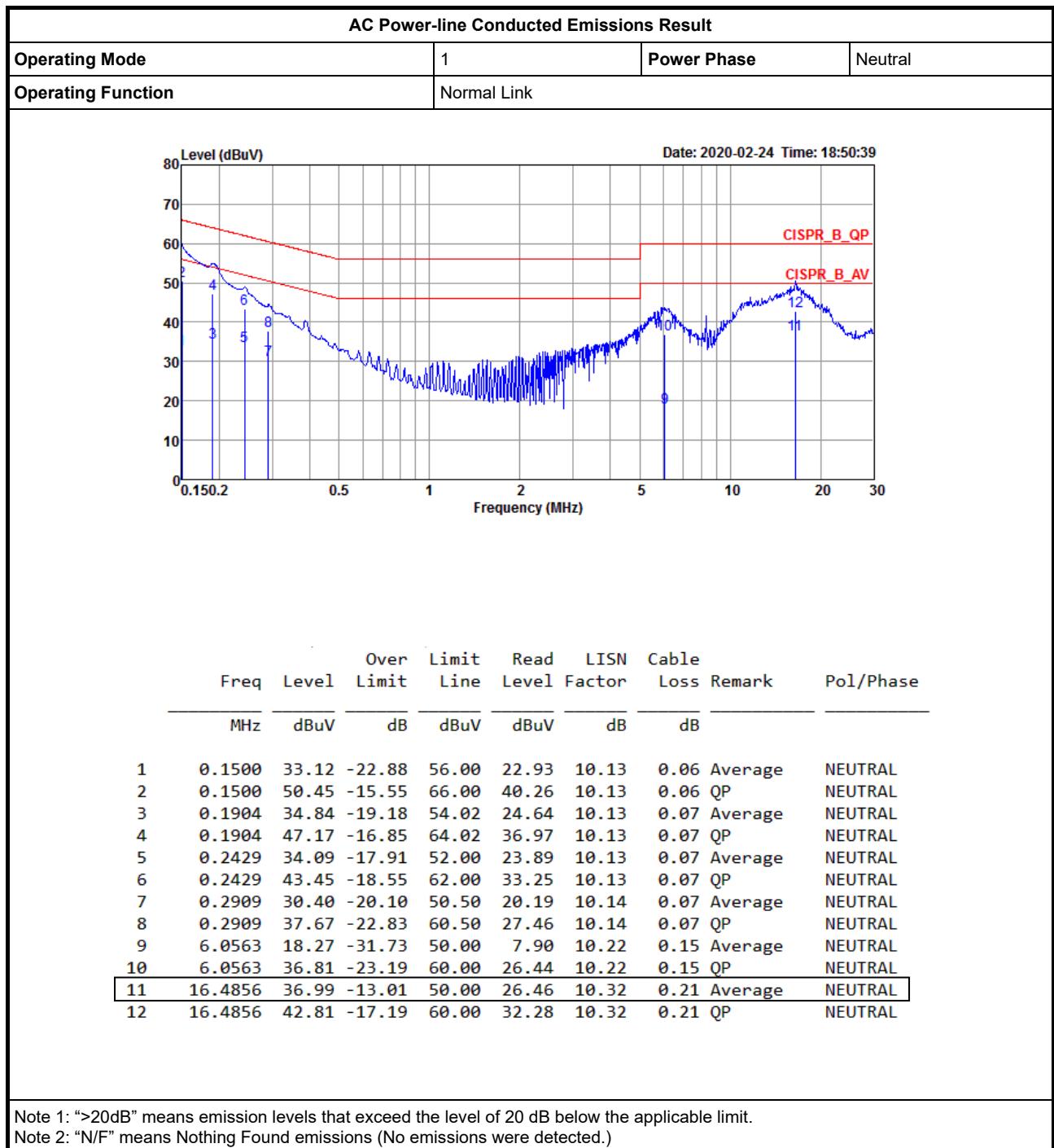
**FCC RADIO TEST REPORT****Report No. : FR790613-07AB**

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
Pre-Amplifier	MITEQ	TTA1840-35-H G	1864479	18GHz ~ 40GHz	Jul. 03, 2019	Jul. 02, 2020	Radiation (03CH04-CB)
Spectrum Analyzer	R&S	FSP40	100142	9kHz~40GHz	Dec. 18, 2019	Dec. 17, 2020	Radiation (03CH04-CB)
RF Cable-high	Woken	RG402	High Cable-21	1GHz - 18GHz	Oct. 07, 2019	Oct. 06, 2020	Radiation (03CH04-CB)
RF Cable-high	Woken	RG402	High Cable-21+22	1GHz - 18GHz	Oct. 07, 2019	Oct. 06, 2020	Radiation (03CH04-CB)
RF Cable-high	Woken	RG402	High Cable-40G#1	18GHz ~ 40 GHz	Jul. 24, 2019	Jul. 23, 2020	Radiation (03CH04-CB)
RF Cable-high	Woken	RG402	High Cable-40G#2	18GHz ~ 40 GHz	Jul. 24, 2019	Jul. 23, 2020	Radiation (03CH04-CB)
Spectrum analyzer	R&S	FSV40	101027	9kHz~40GHz	Jul. 02, 2019	Jul. 01, 2020	Conducted (TH02-CB)
Power Sensor	Anritsu	MA2411B	1126203	300MHz~40GHz	Sep. 11, 2019	Sep. 10, 2020	Conducted (TH02-CB)
Power Meter	Anritsu	ML2495A	1210004	300MHz~40GHz	Sep. 11, 2019	Sep. 10, 2020	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-01	1 GHz–26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-02	1 GHz–26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-3	1 GHz–26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-04	1 GHz–26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-05	1 GHz–26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH02-CB)

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

NCR means Non-Calibration required.





**Summary**

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.15-5.25GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_2TX	35.88M	17.76M	17M8D1D	19.11M	16.47M
802.11ac VHT20_Nss1,(MCS0)_2TX	38.61M	18.99M	19M0D1D	19.83M	17.555M
802.11ac VHT40_Nss1,(MCS0)_2TX	51.66M	36.3M	36M3D1D	40.56M	36.06M
802.11ac VHT80_Nss1,(MCS0)_2TX	83.04M	75.716M	75M7D1D	83.04M	75.624M
5.725-5.85GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_2TX	16.35M	27.565M	27M6D1D	16.32M	16.565M
802.11ac VHT20_Nss1,(MCS0)_2TX	17.58M	23.478M	23M5D1D	17.55M	17.697M
802.11ac VHT40_Nss1,(MCS0)_2TX	35.34M	46.938M	46M9D1D	35.1M	36.802M
802.11ac VHT80_Nss1,(MCS0)_2TX	75.96M	75.685M	75M7D1D	75.84M	75.58M

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

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

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

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



## Result

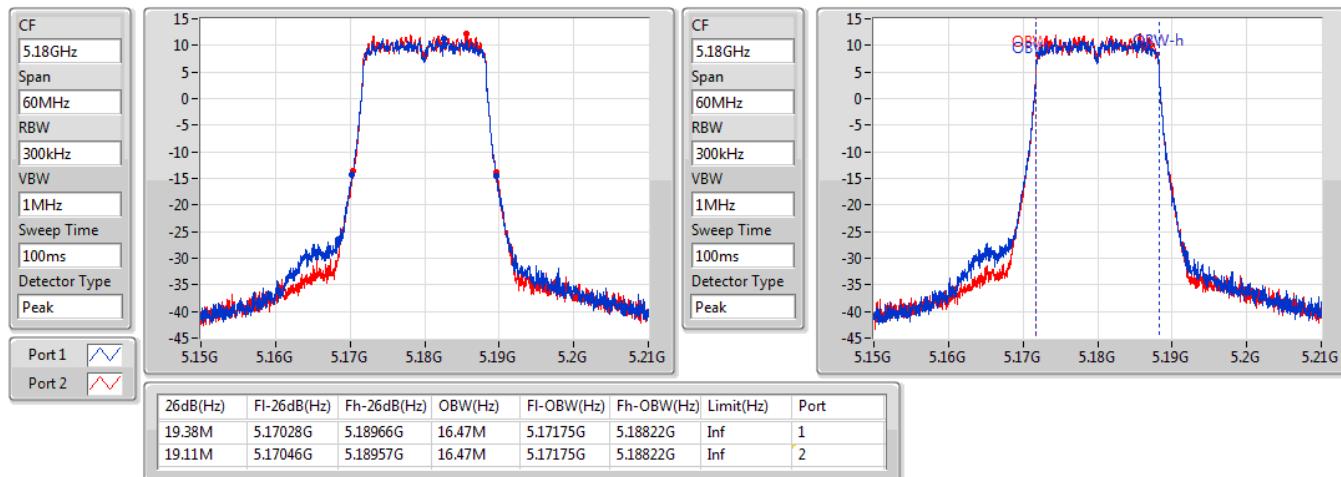
Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)
802.11a_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
5180MHz	Pass	Inf	19.38M	16.47M	19.11M	16.47M
5200MHz	Pass	Inf	29.4M	16.89M	33.09M	16.86M
5240MHz	Pass	Inf	34.74M	17.22M	35.88M	17.76M
5745MHz	Pass	500k	16.35M	16.624M	16.35M	16.565M
5785MHz	Pass	500k	16.32M	17.375M	16.32M	20.799M
5825MHz	Pass	500k	16.32M	25.395M	16.32M	27.565M
802.11ac VHT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5180MHz	Pass	Inf	20.19M	17.64M	20.34M	17.67M
5200MHz	Pass	Inf	19.83M	17.555M	20.01M	17.57M
5240MHz	Pass	Inf	34.8M	18.21M	38.61M	18.99M
5745MHz	Pass	500k	17.58M	17.721M	17.55M	17.697M
5785MHz	Pass	500k	17.55M	18.101M	17.55M	20.399M
5825MHz	Pass	500k	17.55M	19.805M	17.55M	23.478M
802.11ac VHT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5190MHz	Pass	Inf	40.74M	36.12M	40.56M	36.06M
5230MHz	Pass	Inf	41.52M	36.24M	51.66M	36.3M
5755MHz	Pass	500k	35.28M	36.878M	35.1M	36.802M
5795MHz	Pass	500k	35.34M	46.938M	35.1M	43.437M
802.11ac VHT80_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5210MHz	Pass	Inf	83.04M	75.716M	83.04M	75.624M
5775MHz	Pass	500k	75.96M	75.685M	75.84M	75.58M

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

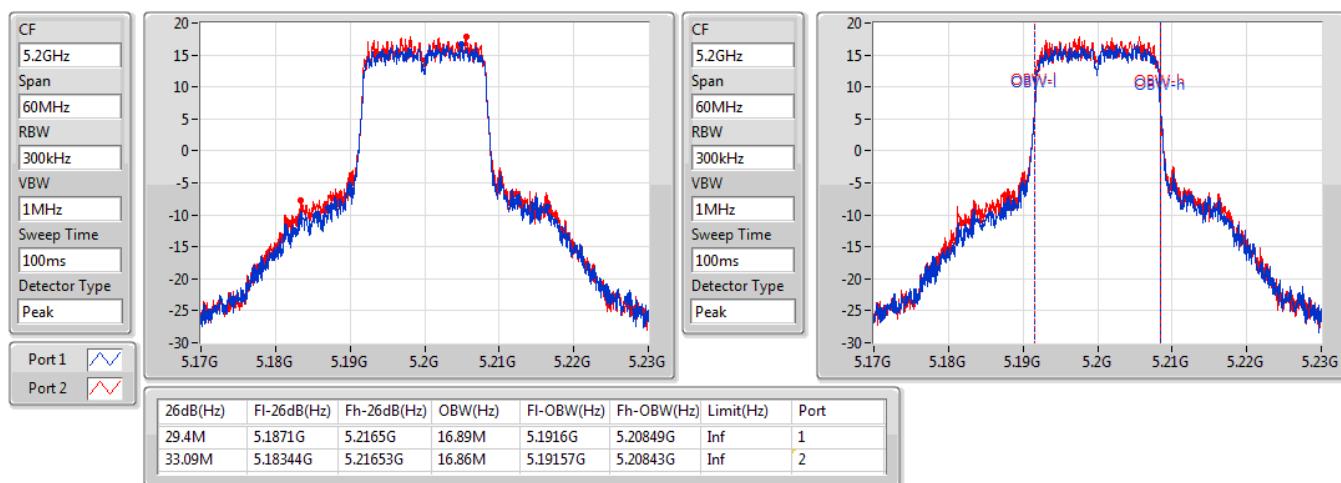
Port X-OBW = Port X 99% occupied bandwidth;

**802.11a\_Nss1,(6Mbps)\_2TX**
**EBW**
**5180MHz**

09/03/2020

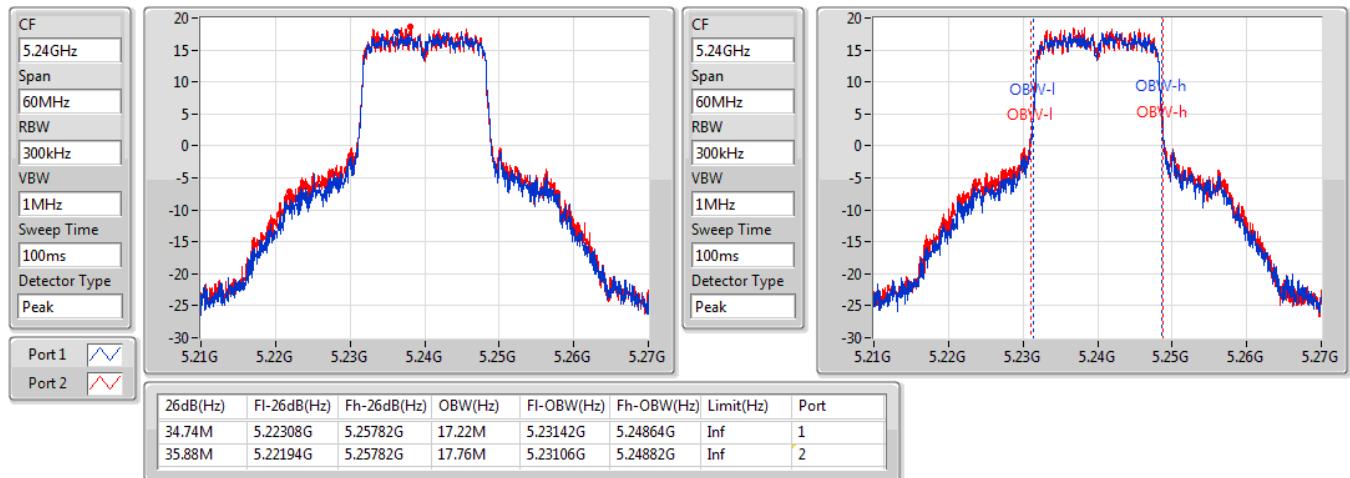

**802.11a\_Nss1,(6Mbps)\_2TX**
**EBW**
**5200MHz**

09/03/2020

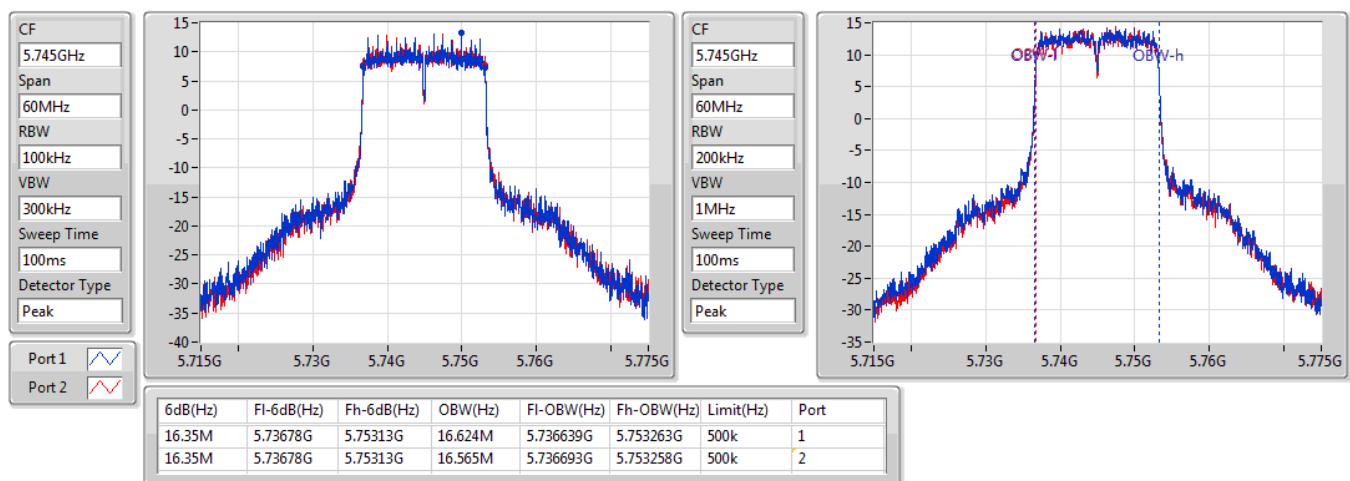


**802.11a\_Nss1,(6Mbps)\_2TX**
**EBW**
**5240MHz**

09/03/2020

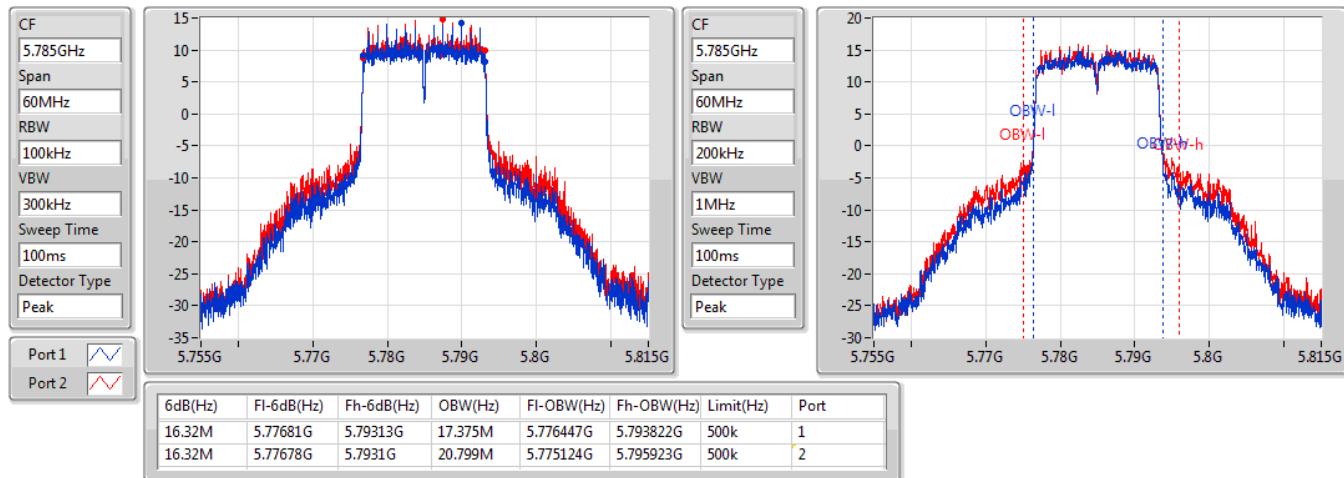

**802.11a\_Nss1,(6Mbps)\_2TX**
**EBW**
**5745MHz**

20/02/2020

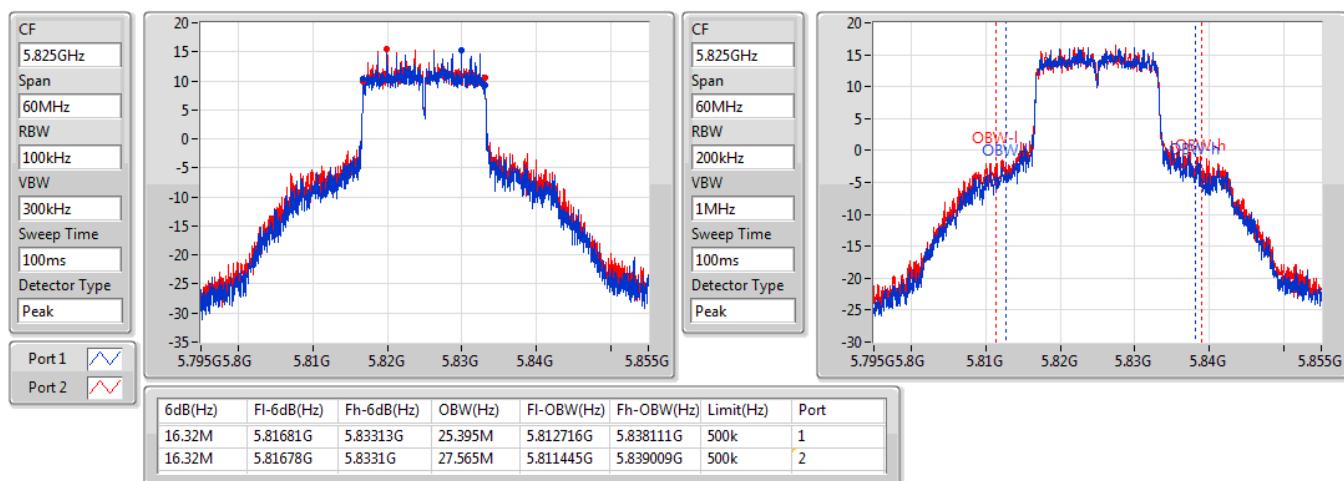


**802.11a\_Nss1,(6Mbps)\_2TX**
**EBW**
**5785MHz**

20/02/2020

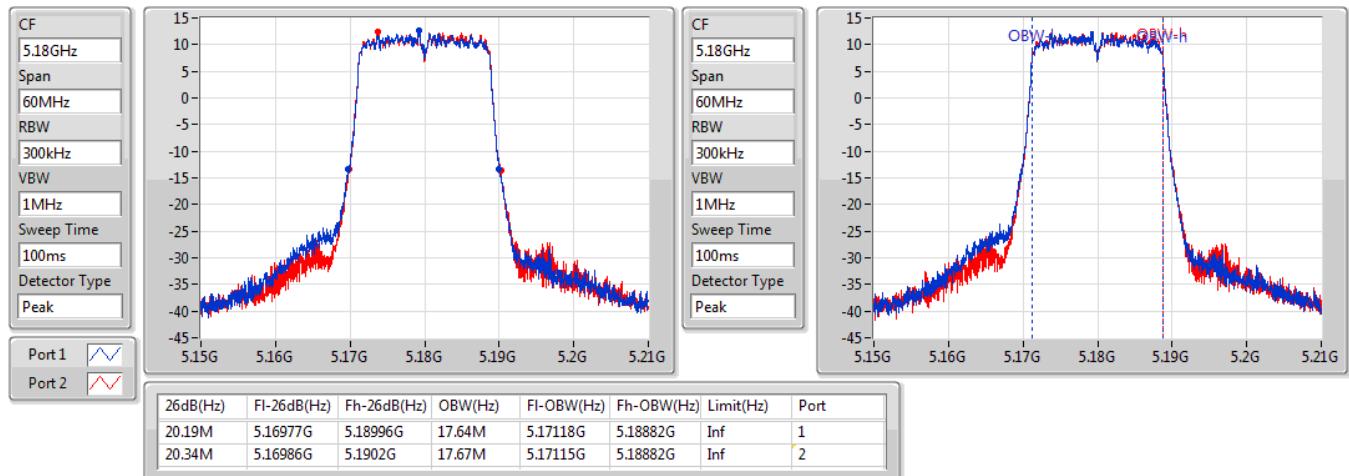

**802.11a\_Nss1,(6Mbps)\_2TX**
**EBW**
**5825MHz**

20/02/2020

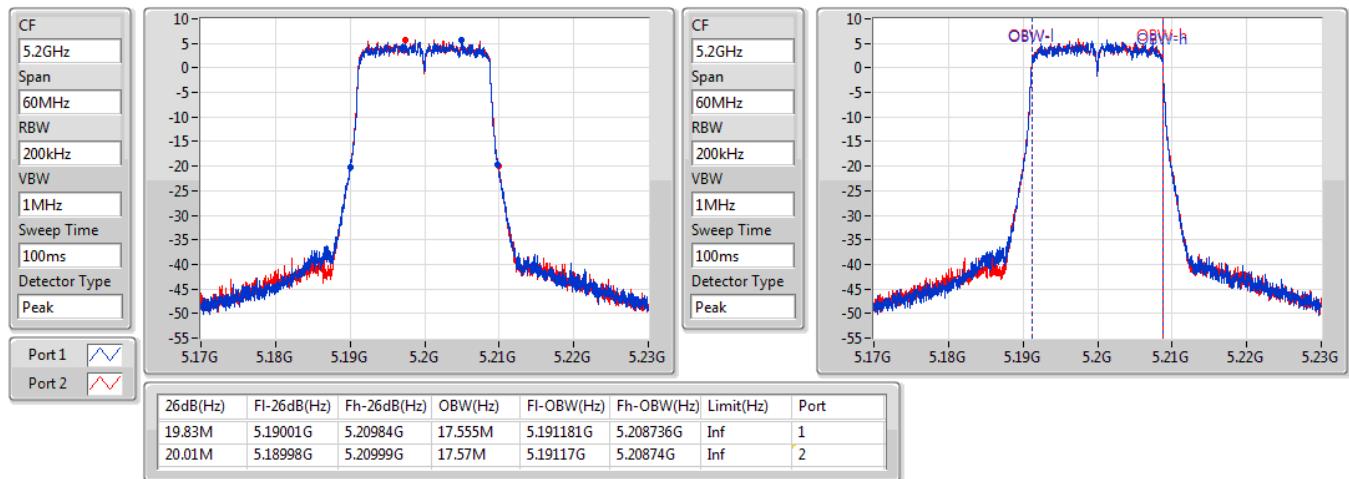


**802.11ac VHT20\_Nss1,(MCS0)\_2TX**
**EBW**
**5180MHz**

09/03/2020

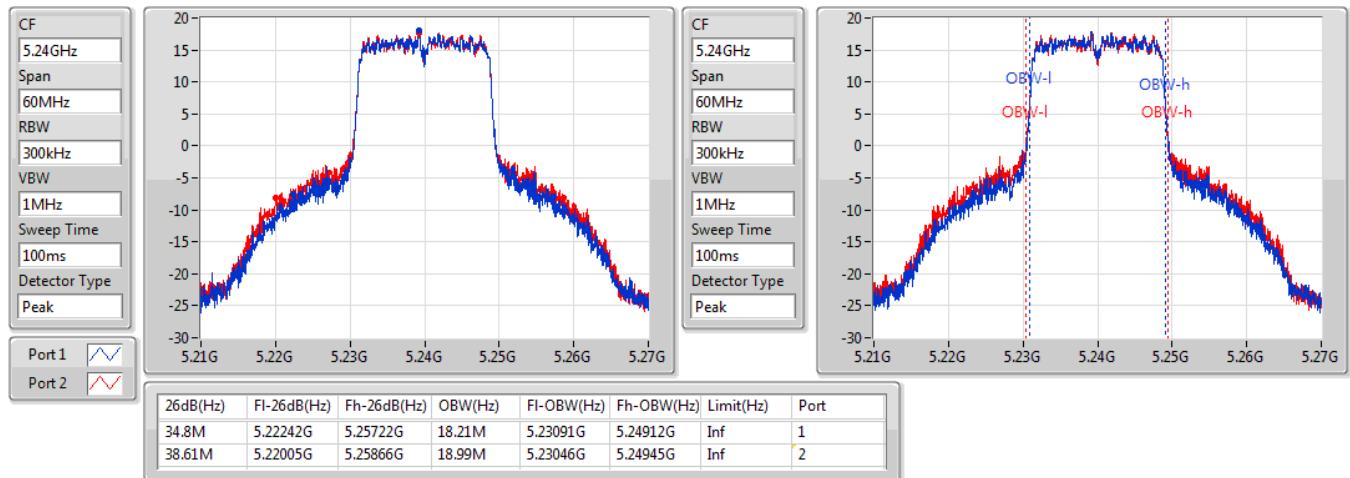

**802.11ac VHT20\_Nss1,(MCS0)\_2TX**
**EBW**
**5200MHz**

20/02/2020

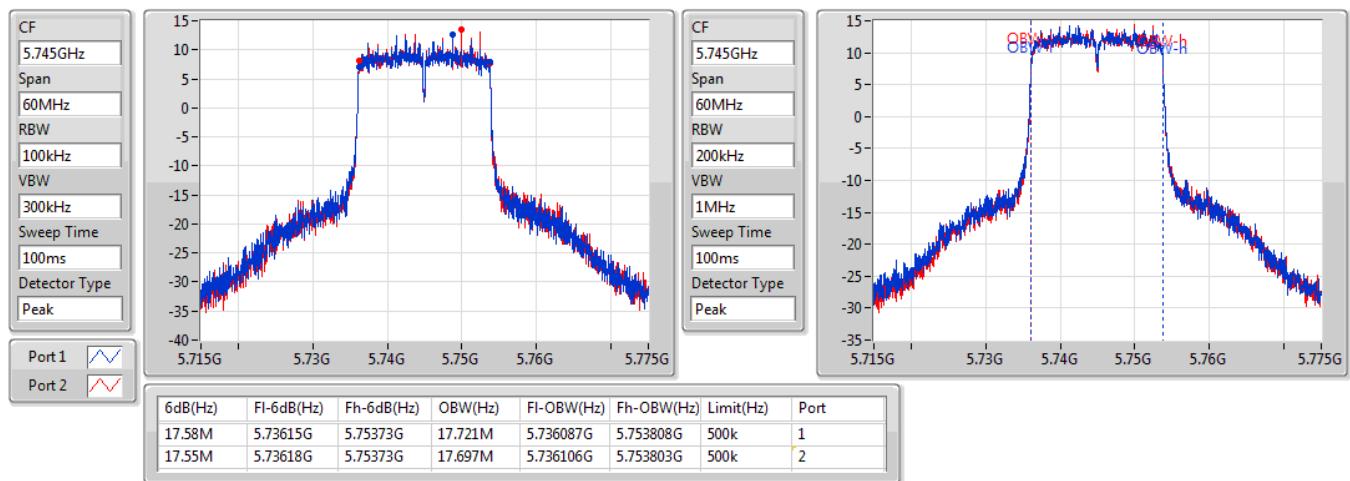


**802.11ac VHT20\_Nss1,(MCS0)\_2TX**
**EBW**
**5240MHz**

09/03/2020

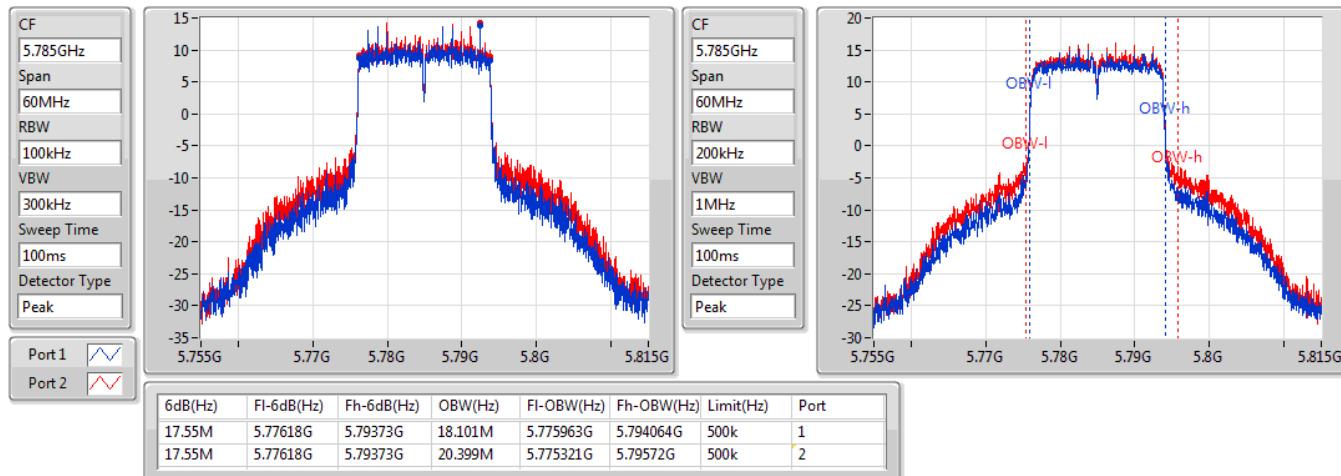

**802.11ac VHT20\_Nss1,(MCS0)\_2TX**
**EBW**
**5745MHz**

20/02/2020

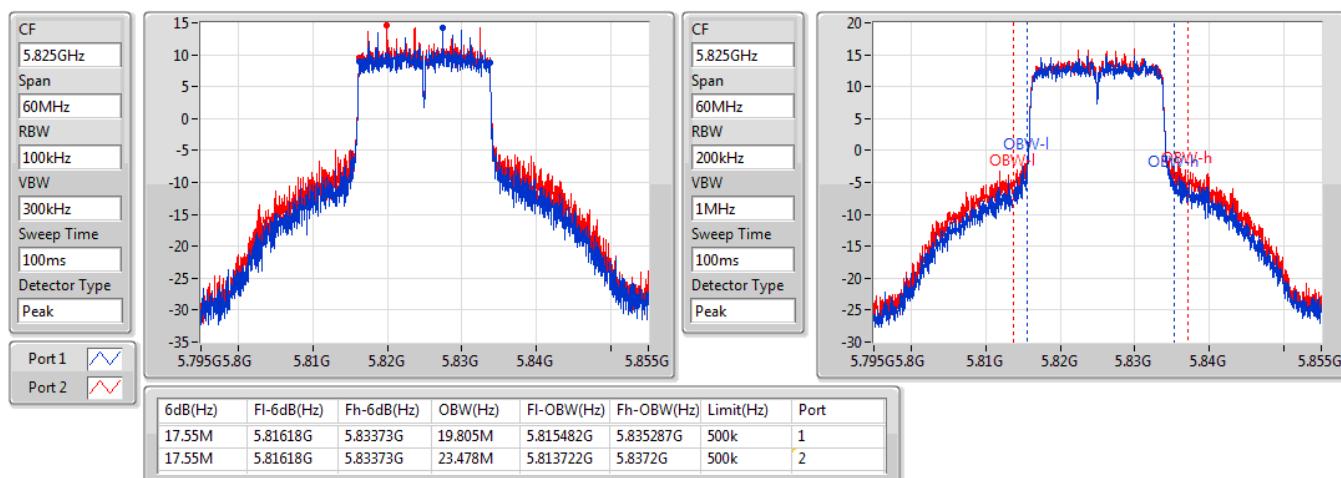


**802.11ac VHT20\_Nss1,(MCS0)\_2TX**
**EBW**
**5785MHz**

20/02/2020

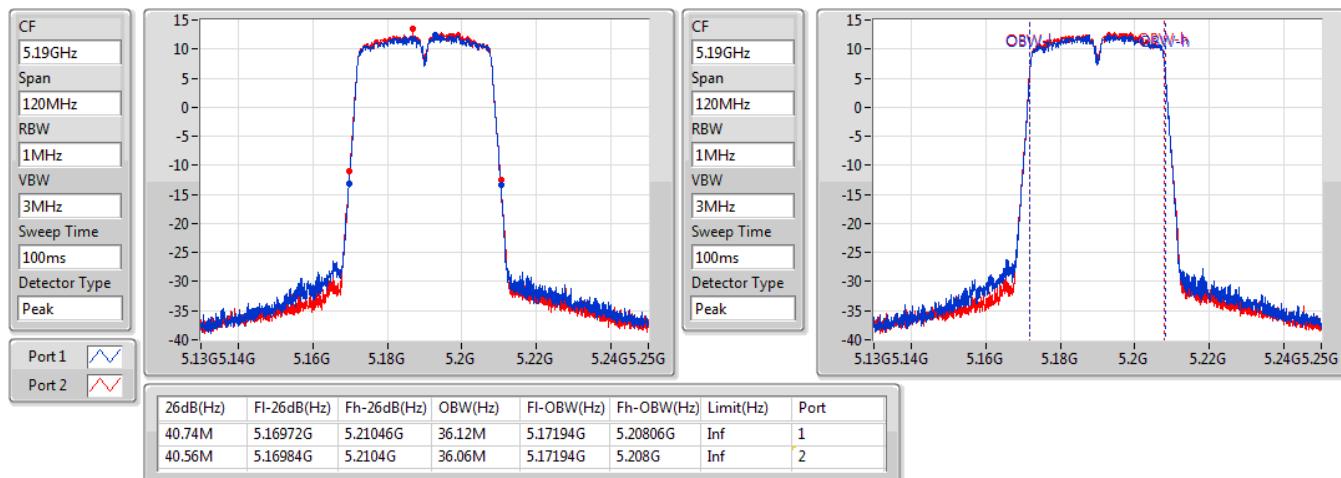

**802.11ac VHT20\_Nss1,(MCS0)\_2TX**
**EBW**
**5825MHz**

20/02/2020

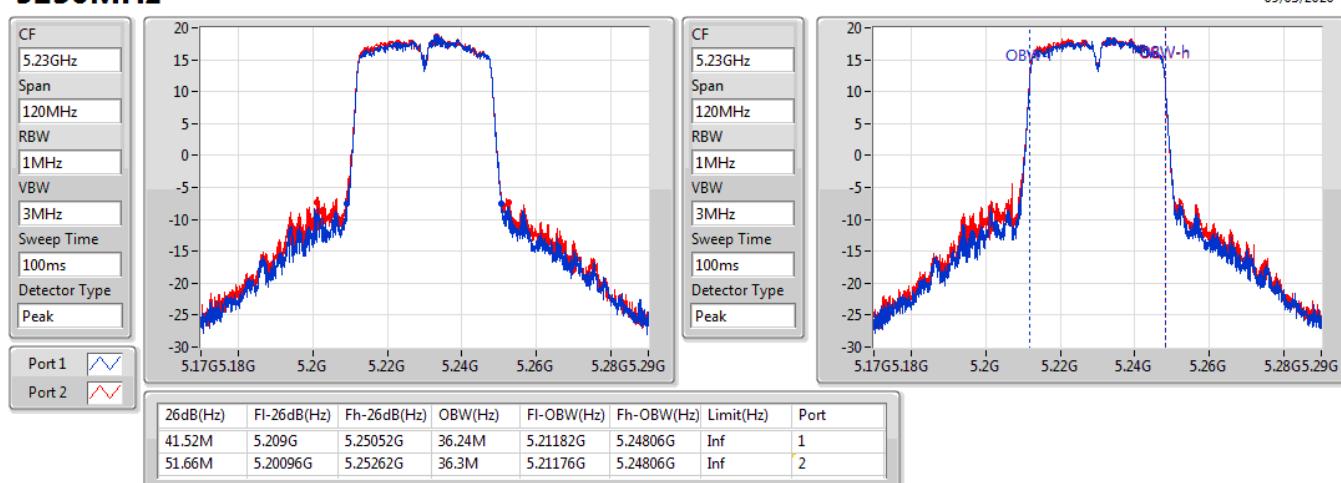


**802.11ac VHT40\_Nss1,(MCS0)\_2TX**
**EBW**
**5190MHz**

09/03/2020

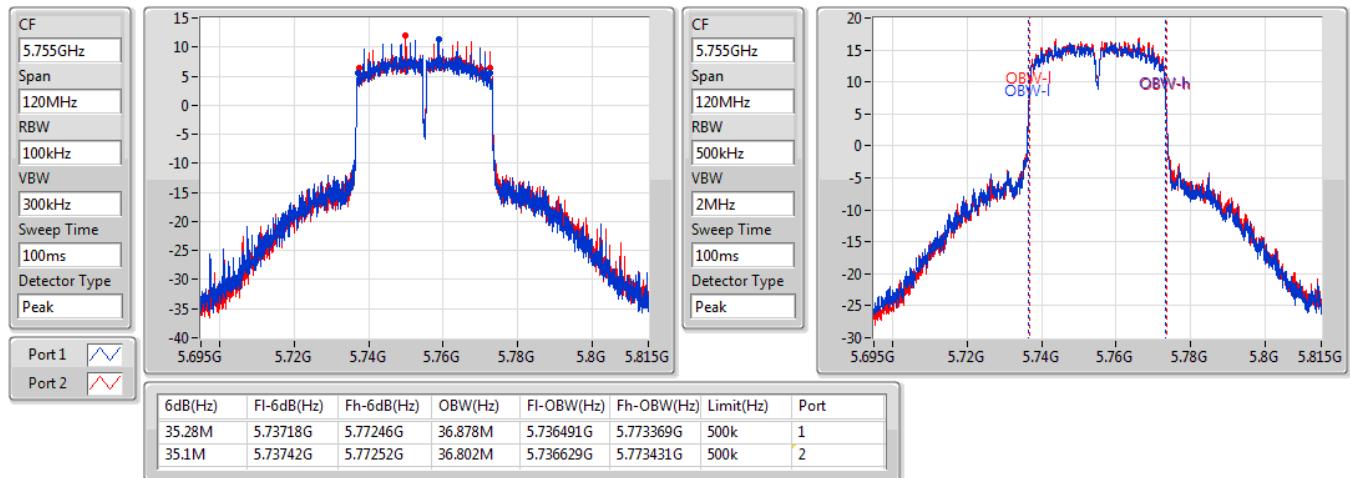

**802.11ac VHT40\_Nss1,(MCS0)\_2TX**
**EBW**
**5230MHz**

09/03/2020

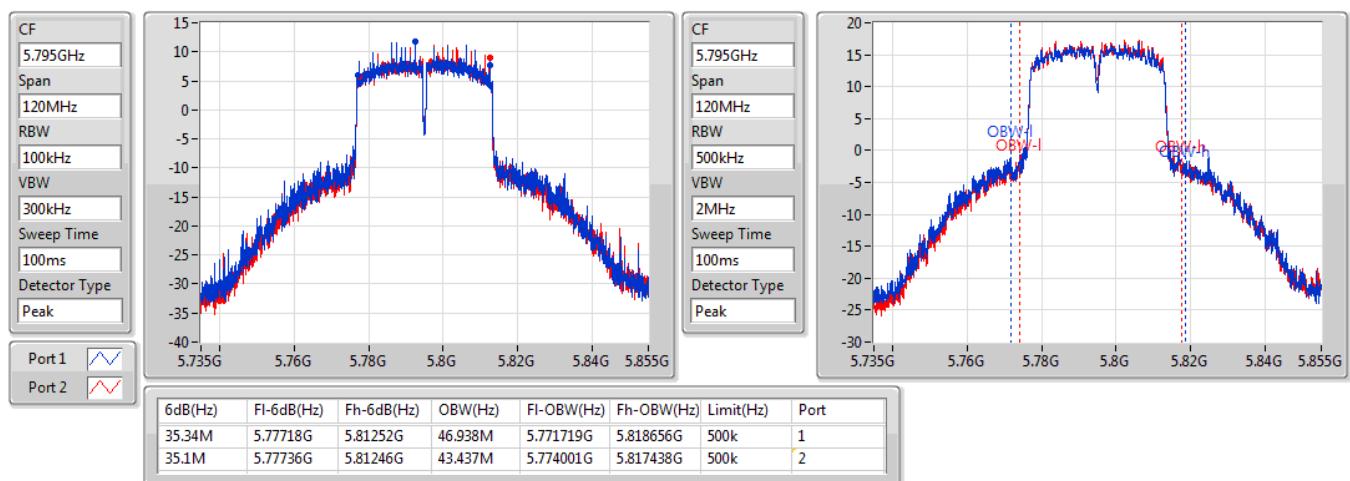


**802.11ac VHT40\_Nss1,(MCS0)\_2TX**
**EBW**
**5755MHz**

20/02/2020

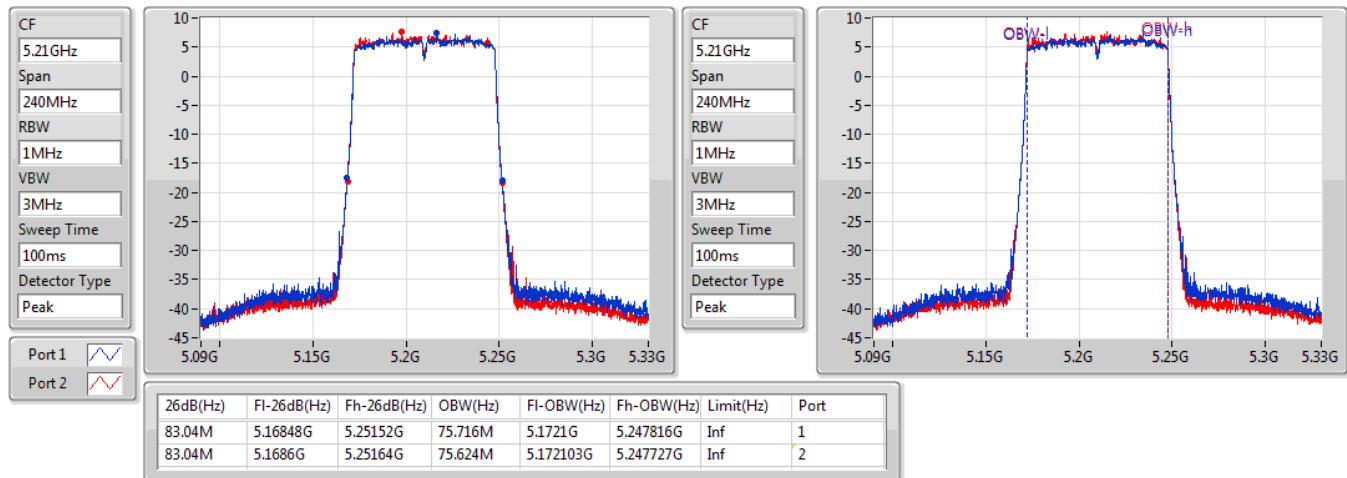

**802.11ac VHT40\_Nss1,(MCS0)\_2TX**
**EBW**
**5795MHz**

20/02/2020

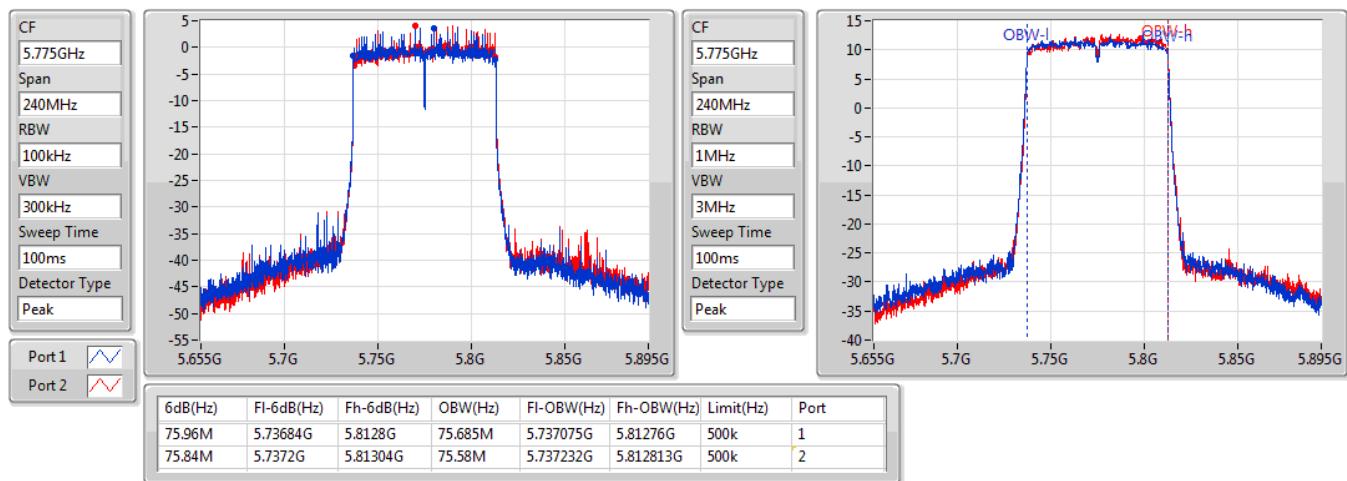


**802.11ac VHT80\_Nss1,(MCS0)\_2TX**
**EBW**
**5210MHz**

20/02/2020


**802.11ac VHT80\_Nss1,(MCS0)\_2TX**
**EBW**
**5775MHz**

20/02/2020



**Summary**

Mode	Total Power (dBm)	Total Power (W)	EIRP (dBm)	EIRP (W)
5.15-5.25GHz	-	-	-	-
802.11a_Nss1,(6Mbps)_2TX	28.47	0.70307	32.52	1.78649
802.11ac VHT20_Nss1,(MCS0)_2TX	28.50	0.70795	32.55	1.79887
802.11ac VHT40_Nss1,(MCS0)_2TX	26.34	0.43053	30.39	1.09396
802.11ac VHT80_Nss1,(MCS0)_2TX	19.41	0.08730	23.46	0.22182
5.725-5.85GHz	-	-	-	-
802.11a_Nss1,(6Mbps)_2TX	29.56	0.90365	33.61	2.29615
802.11ac VHT20_Nss1,(MCS0)_2TX	28.84	0.76560	32.89	1.94536
802.11ac VHT40_Nss1,(MCS0)_2TX	29.29	0.84918	33.34	2.15774
802.11ac VHT80_Nss1,(MCS0)_2TX	24.38	0.27416	28.43	0.69663

**Result**

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
802.11a_Nss1,(6Mbps)_2TX	-	-	-	-	-	-	-	-
5180MHz	Pass	4.05	19.28	19.41	22.36	30.00	26.41	36.00
5200MHz	Pass	4.05	24.39	24.85	27.64	30.00	31.69	36.00
5240MHz	Pass	4.05	25.47	25.44	28.47	30.00	32.52	36.00
5745MHz	Pass	4.05	24.81	24.87	27.85	30.00	31.90	36.00
5785MHz	Pass	4.05	25.34	26.15	28.77	30.00	32.82	36.00
5825MHz	Pass	4.05	26.48	26.61	29.56	30.00	33.61	36.00
802.11ac VHT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5180MHz	Pass	4.05	20.33	20.37	23.36	30.00	27.41	36.00
5200MHz	Pass	4.05	24.86	25.32	28.11	30.00	32.16	36.00
5240MHz	Pass	4.05	25.42	25.55	28.50	30.00	32.55	36.00
5745MHz	Pass	4.05	24.76	24.89	27.84	30.00	31.89	36.00
5785MHz	Pass	4.05	25.21	26.04	28.66	30.00	32.71	36.00
5825MHz	Pass	4.05	25.55	26.10	28.84	30.00	32.89	36.00
802.11ac VHT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5190MHz	Pass	4.05	17.69	18.13	20.93	30.00	24.98	36.00
5230MHz	Pass	4.05	23.15	23.51	26.34	30.00	30.39	36.00
5755MHz	Pass	4.05	25.58	25.75	28.68	30.00	32.73	36.00
5795MHz	Pass	4.05	26.22	26.34	29.29	30.00	33.34	36.00
802.11ac VHT80_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5210MHz	Pass	4.05	16.33	16.46	19.41	30.00	23.46	36.00
5775MHz	Pass	4.05	21.27	21.47	24.38	30.00	28.43	36.00

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

**Summary**

Mode	PD (dBm/RBW)
5.15-5.25GHz	-
802.11a_Nss1,(6Mbps)_2TX	15.48
802.11ac VHT20_Nss1,(MCS0)_2TX	15.26
802.11ac VHT40_Nss1,(MCS0)_2TX	10.60
802.11ac VHT80_Nss1,(MCS0)_2TX	0.09
5.725-5.85GHz	-
802.11a_Nss1,(6Mbps)_2TX	13.52
802.11ac VHT20_Nss1,(MCS0)_2TX	13.44
802.11ac VHT40_Nss1,(MCS0)_2TX	11.27
802.11ac VHT80_Nss1,(MCS0)_2TX	3.74

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

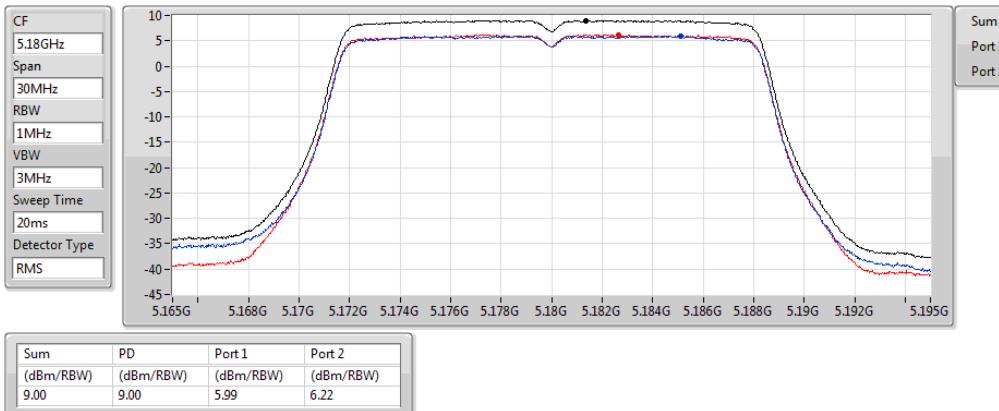
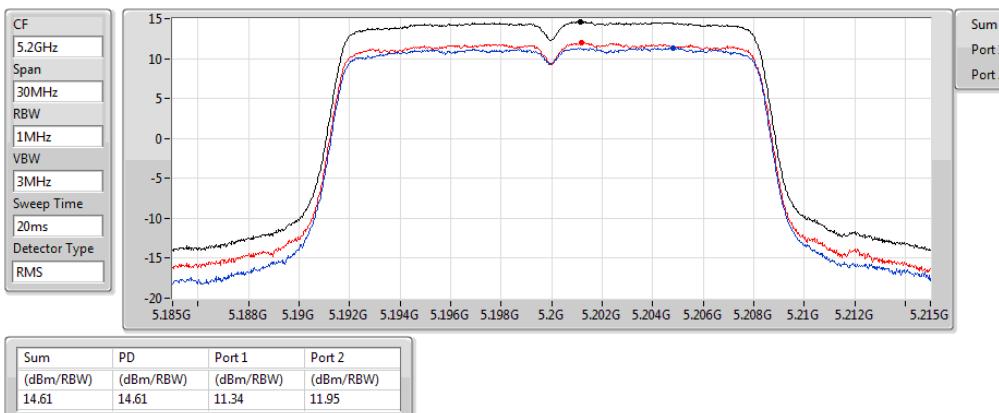
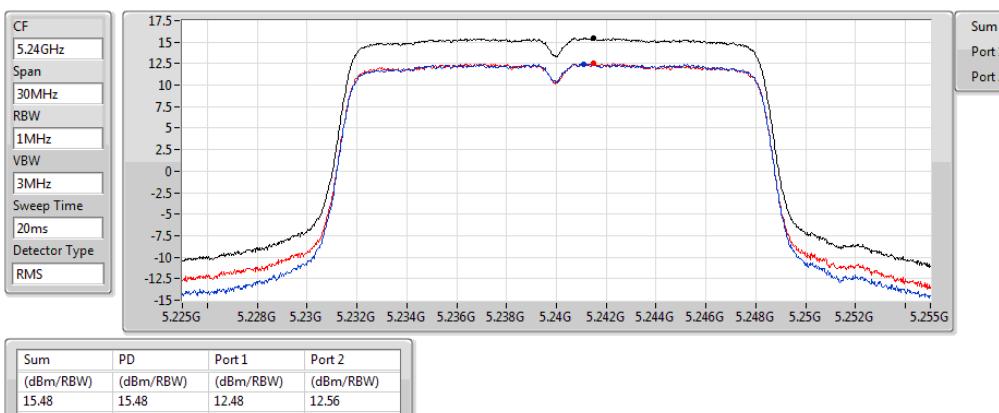


## Result

Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
802.11a_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
5180MHz	Pass	7.06	5.99	6.22	9.00	15.94
5200MHz	Pass	7.06	11.34	11.95	14.61	15.94
5240MHz	Pass	7.06	12.48	12.56	15.48	15.94
5745MHz	Pass	7.06	9.24	9.36	12.27	28.94
5785MHz	Pass	7.06	9.88	10.41	13.09	28.94
5825MHz	Pass	7.06	10.53	10.56	13.52	28.94
802.11ac VHT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5180MHz	Pass	7.06	7.00	7.15	9.97	15.94
5200MHz	Pass	7.06	3.21	3.15	6.16	15.94
5240MHz	Pass	7.06	12.28	12.30	15.26	15.94
5745MHz	Pass	7.06	9.56	9.66	12.52	28.94
5785MHz	Pass	7.06	10.13	10.80	13.44	28.94
5825MHz	Pass	7.06	10.28	10.62	13.44	28.94
802.11ac VHT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5190MHz	Pass	7.06	1.81	2.22	4.92	15.94
5230MHz	Pass	7.06	7.57	7.64	10.60	15.94
5755MHz	Pass	7.06	7.86	7.99	10.88	28.94
5795MHz	Pass	7.06	8.31	8.40	11.27	28.94
802.11ac VHT80_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5210MHz	Pass	7.06	-2.83	-2.85	0.09	15.94
5775MHz	Pass	7.06	0.72	0.92	3.74	28.94

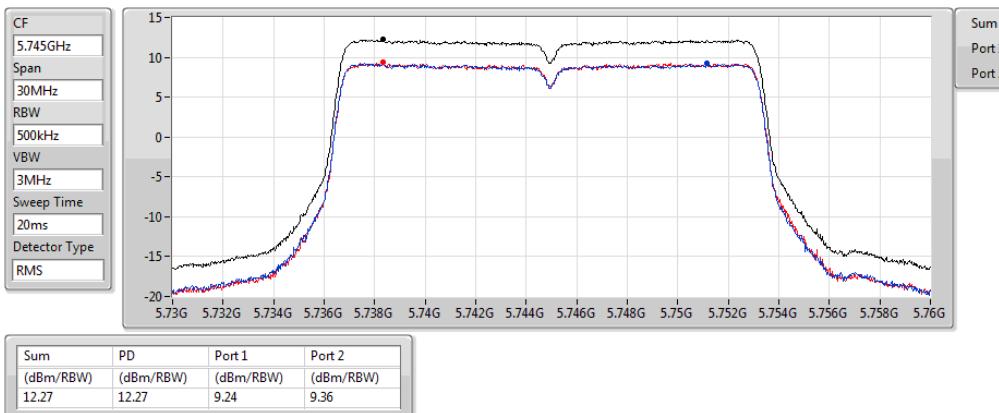
**DG** = Directional Gain; **RBW** = 500 kHz for 5.725-5.85GHz band / 1MHz for other band;

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

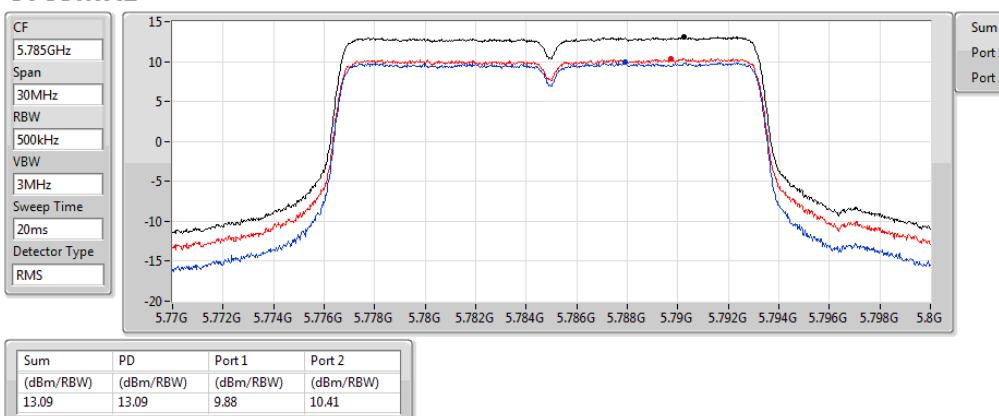
**802.11a\_Nss1,(6Mbps)\_2TX**
**5180MHz**

**PSD**
**802.11a\_Nss1,(6Mbps)\_2TX**
**5200MHz**

**PSD**
**802.11a\_Nss1,(6Mbps)\_2TX**
**5240MHz**

**PSD**

**802.11a\_Nss1,(6Mbps)\_2TX**
**PSD**
**5745MHz**

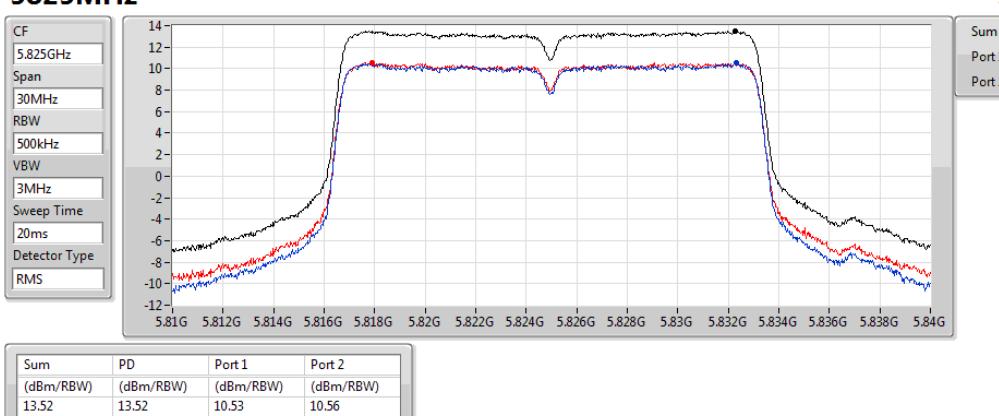
20/02/2020


**802.11a\_Nss1,(6Mbps)\_2TX**
**PSD**
**5785MHz**

20/02/2020

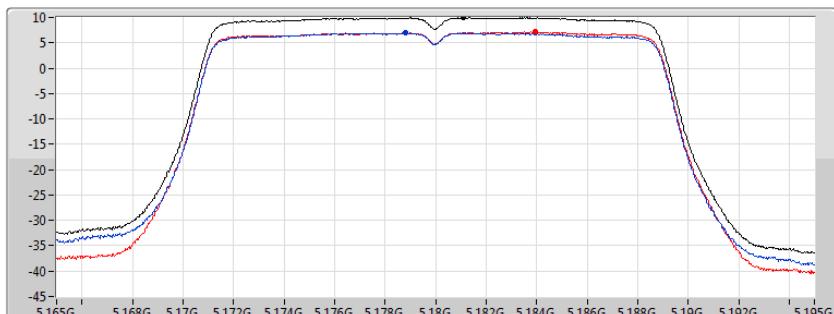

**802.11a\_Nss1,(6Mbps)\_2TX**
**PSD**
**5825MHz**

20/02/2020



**802.11ac VHT20\_Nss1,(MCS0)\_2TX**
**PSD**
**5180MHz**

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



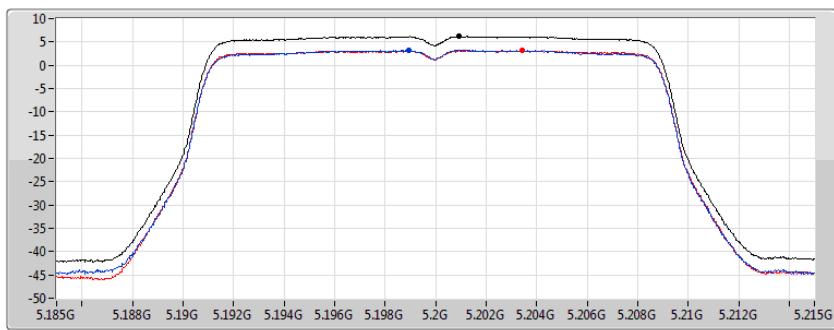
09/03/2020

Sum	✓
Port 1	✓
Port 2	✓

Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
9.97	9.97	7.00	7.15

**802.11ac VHT20\_Nss1,(MCS0)\_2TX**
**PSD**
**5200MHz**

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



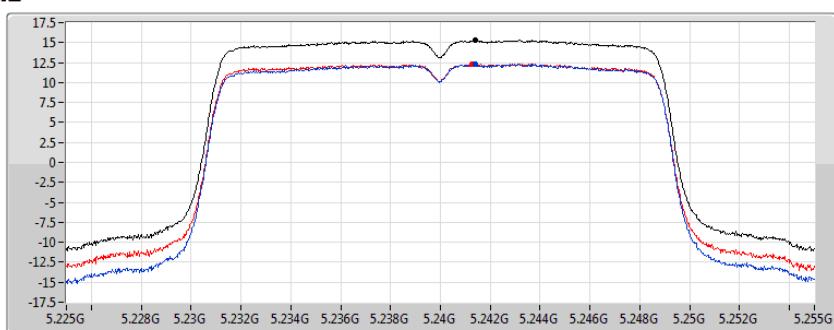
20/02/2020

Sum	✓
Port 1	✓
Port 2	✓

Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
6.16	6.16	3.21	3.15

**802.11ac VHT20\_Nss1,(MCS0)\_2TX**
**PSD**
**5240MHz**

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



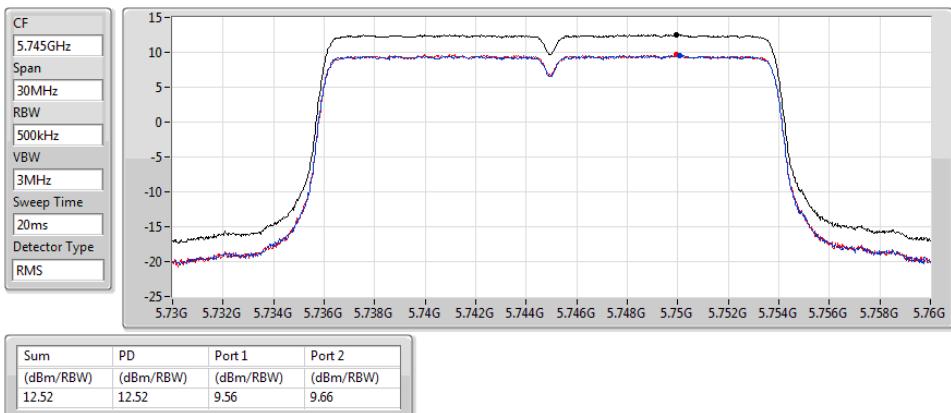
09/03/2020

Sum	✓
Port 1	✓
Port 2	✓

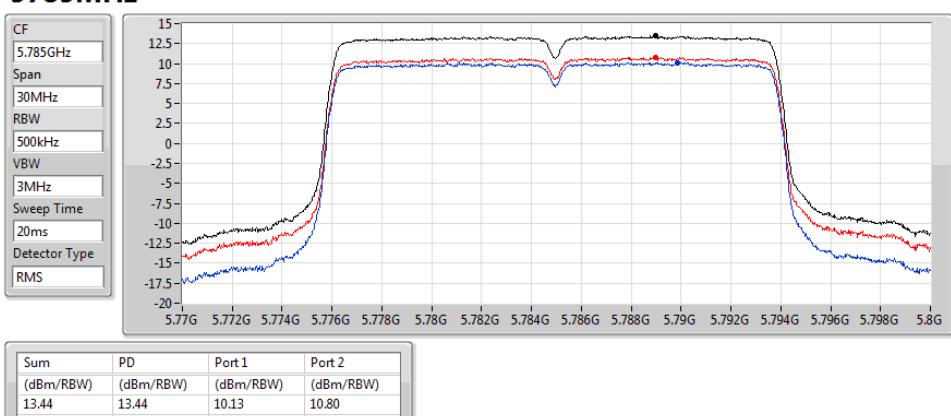
Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
15.26	15.26	12.28	12.30

**802.11ac VHT20\_Nss1,(MCS0)\_2TX**
**PSD**
**5745MHz**

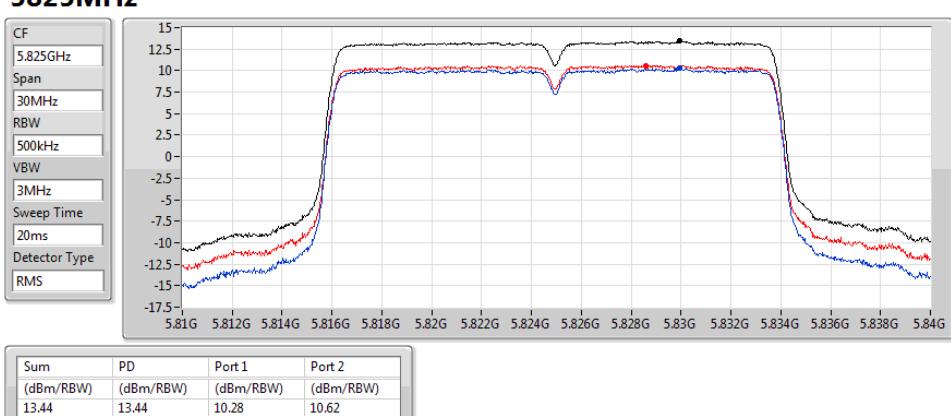
20/02/2020


**802.11ac VHT20\_Nss1,(MCS0)\_2TX**
**PSD**
**5785MHz**

20/02/2020

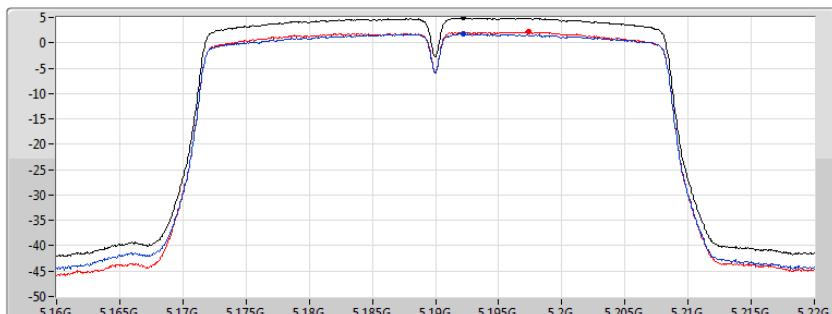

**802.11ac VHT20\_Nss1,(MCS0)\_2TX**
**PSD**
**5825MHz**

20/02/2020



**802.11ac VHT40\_Nss1,(MCS0)\_2TX**
**PSD**
**5190MHz**

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



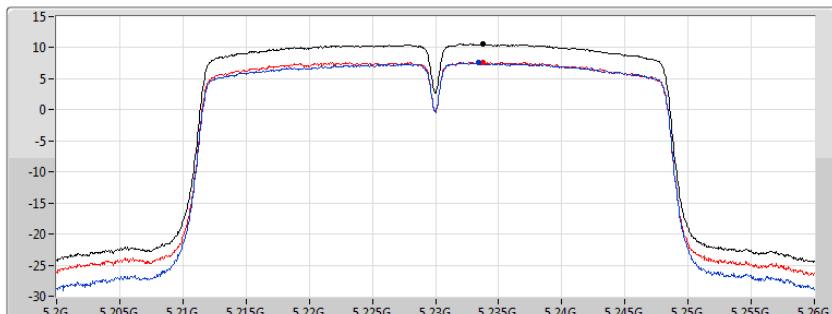
09/03/2020

Sum	<input checked="" type="checkbox"/>
Port 1	<input type="checkbox"/>
Port 2	<input type="checkbox"/>

Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
4.92	4.92	1.81	2.22

**802.11ac VHT40\_Nss1,(MCS0)\_2TX**
**PSD**
**5230MHz**

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



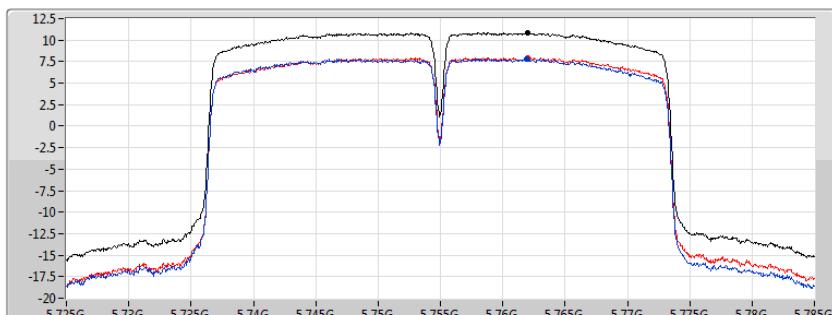
09/03/2020

Sum	<input checked="" type="checkbox"/>
Port 1	<input type="checkbox"/>
Port 2	<input type="checkbox"/>

Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
10.60	10.60	7.57	7.64

**802.11ac VHT40\_Nss1,(MCS0)\_2TX**
**PSD**
**5755MHz**

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



20/02/2020

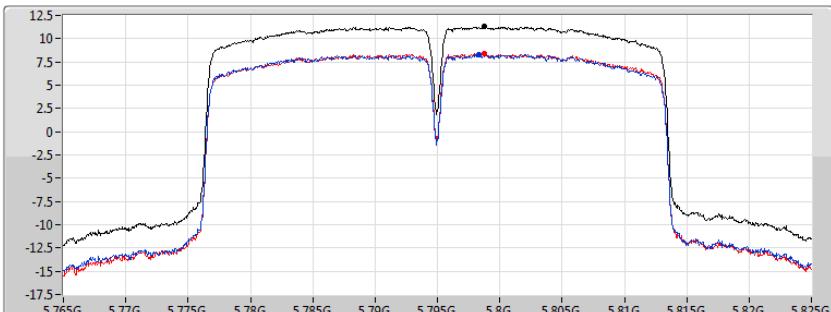
Sum	<input checked="" type="checkbox"/>
Port 1	<input type="checkbox"/>
Port 2	<input type="checkbox"/>

Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
10.88	10.88	7.86	7.99

**802.11ac VHT40\_Nss1,(MCS0)\_2TX**
**PSD**
**5795MHz**

20/02/2020

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



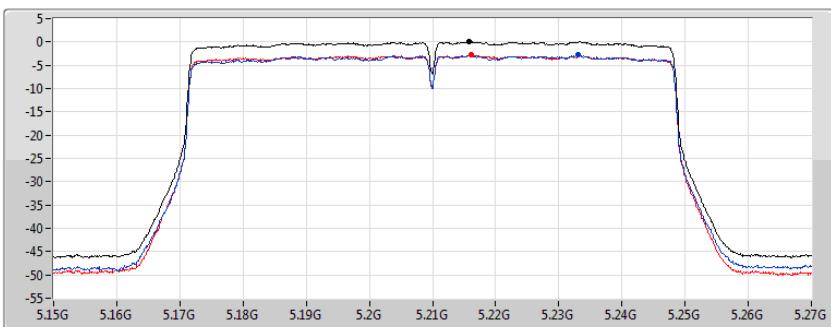
Sum	<input checked="" type="checkbox"/>
Port 1	<input type="checkbox"/>
Port 2	<input type="checkbox"/>

Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
11.27	11.27	8.31	8.40

**802.11ac VHT80\_Nss1,(MCS0)\_2TX**
**PSD**
**5210MHz**

20/02/2020

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



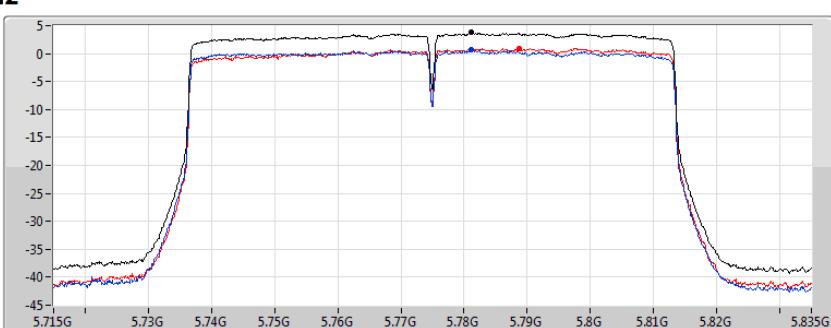
Sum	<input checked="" type="checkbox"/>
Port 1	<input type="checkbox"/>
Port 2	<input type="checkbox"/>

Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
0.09	0.09	-2.83	-2.85

**802.11ac VHT80\_Nss1,(MCS0)\_2TX**
**PSD**
**5775MHz**

20/02/2020

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



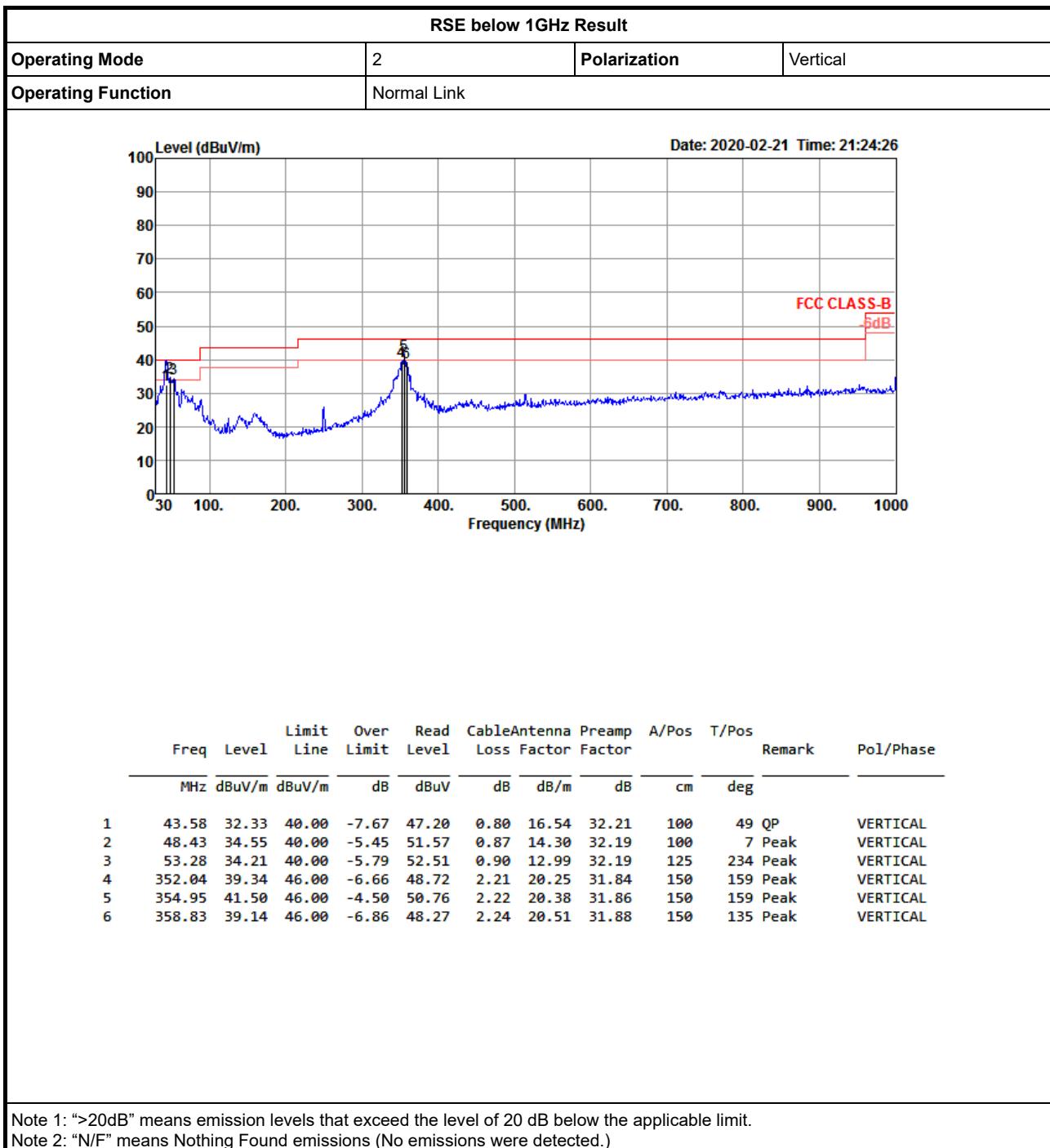
Sum	<input checked="" type="checkbox"/>
Port 1	<input type="checkbox"/>
Port 2	<input type="checkbox"/>

Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
3.74	3.74	0.72	0.92



## RSE below 1GHz Result

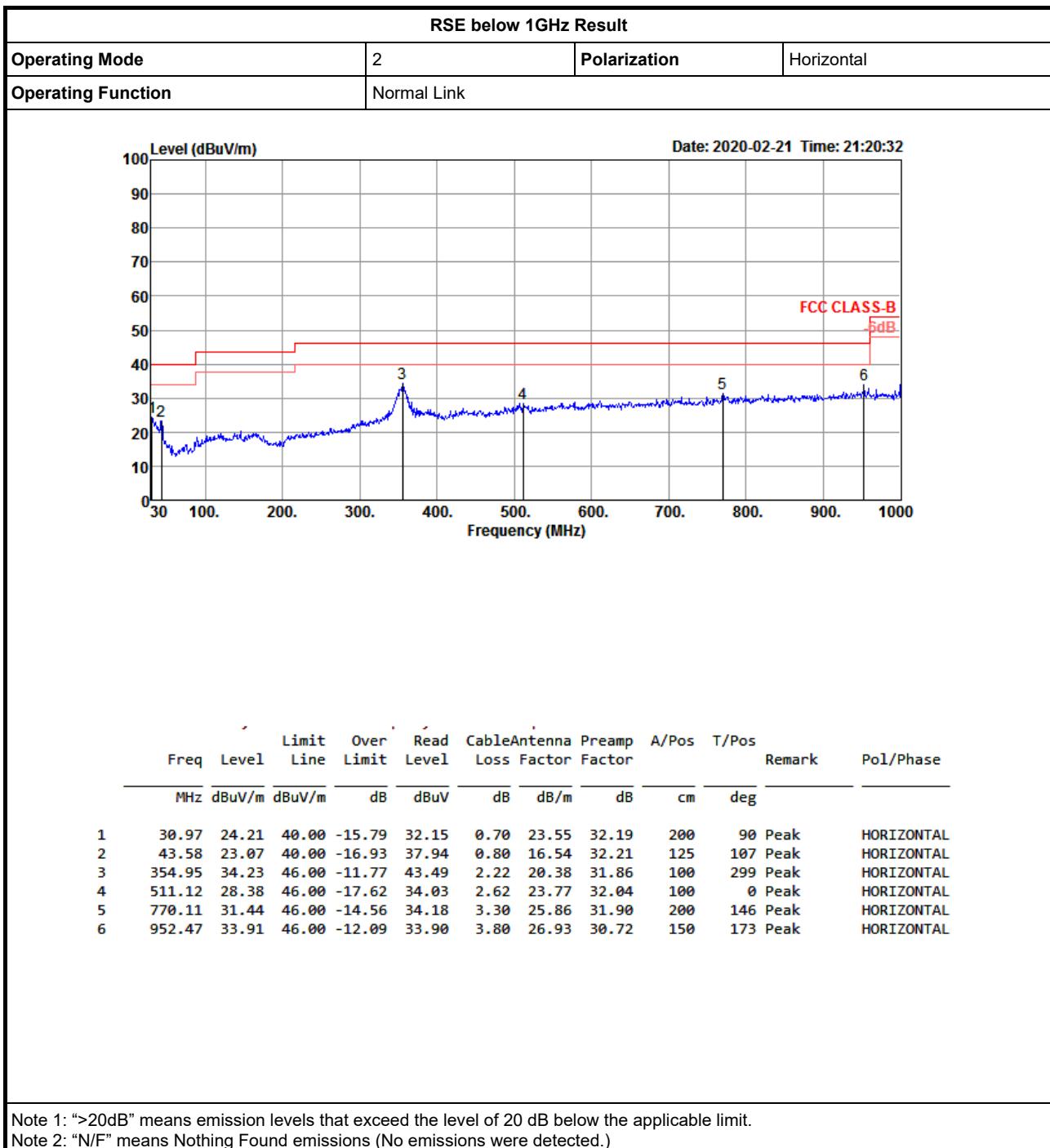
Appendix E.1





## RSE below 1GHz Result

Appendix E.1

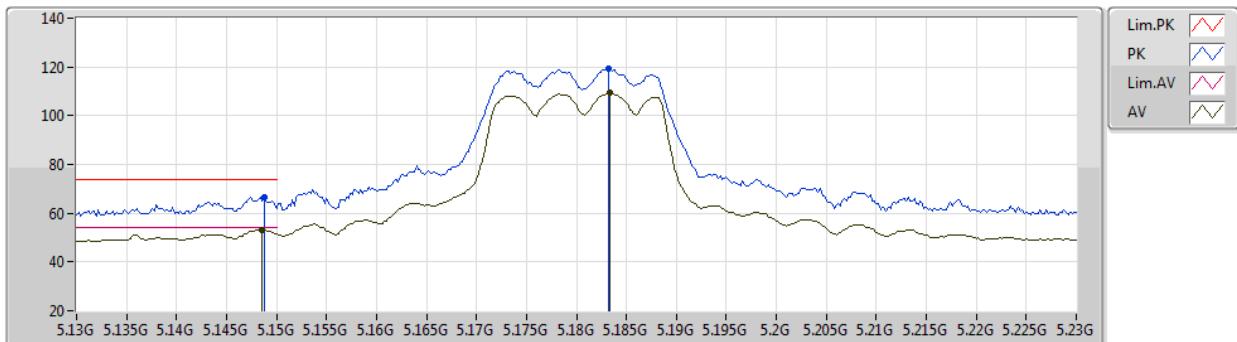


**Summary**

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
5.725-5.85GHz	-	-	-	-	-	-	-	-	-	-	-
802.11a_Nss1,(6Mbps)_2TX	Pass	PK	17.47292G	68.11	68.20	-0.09	3	Horizontal	1	1.66	-

**802.11a\_Nss1,(6Mbps)\_2TX**

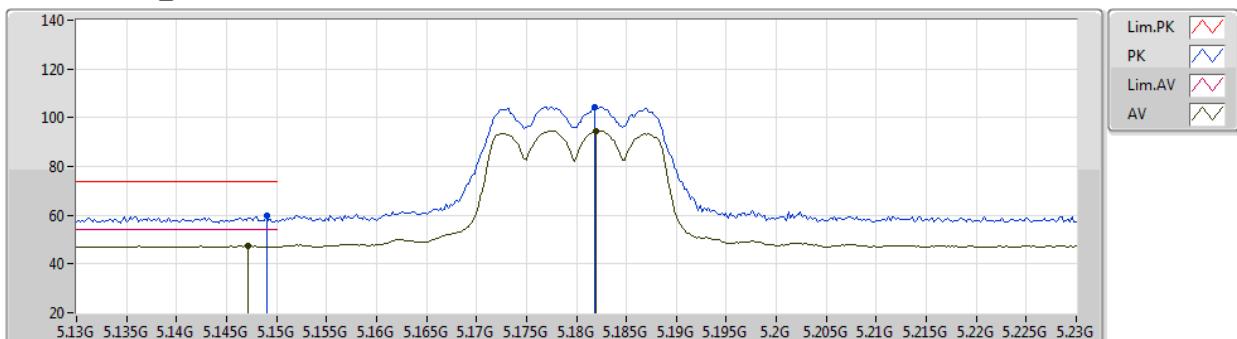
18/02/2020

**5180MHz\_TX**

 EUT Y\_2TX  
 Setting 18.5  
 02-D-L-3-10

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (*)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)	
PK	5.1488G	66.66	74.00	-7.34	57.52	3	Vertical	222	2.14	-	33.55	5.97	30.38	
AV	5.1486G	53.21	54.00	-0.79	44.07	3	Vertical	222	2.14	-	33.55	5.97	30.38	
PK	5.1832G	119.13	Inf	-Inf	109.95	3	Vertical	222	2.14	-	33.58	5.99	30.39	
AV	5.1834G	109.24	Inf	-Inf	100.07	3	Vertical	222	2.14	-	33.58	5.99	30.40	

**802.11a\_Nss1,(6Mbps)\_2TX**

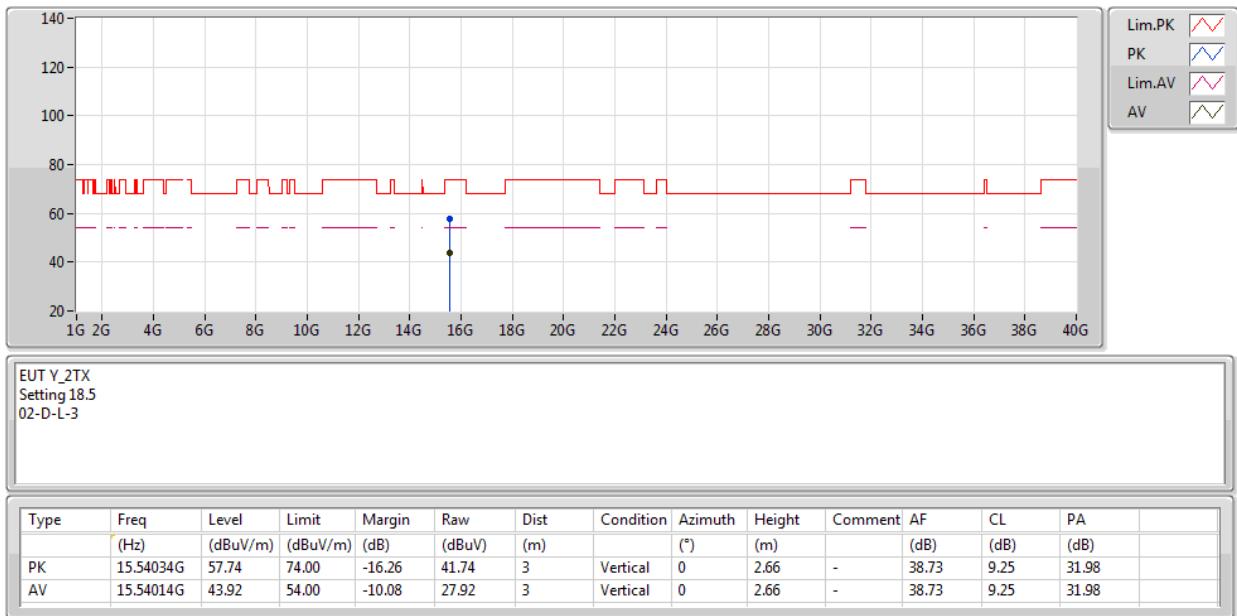
18/02/2020

**5180MHz\_TX**

 EUT Y\_2TX  
 Setting 18.5  
 02-D-L-3-10

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)	
PK	5.149G	59.63	74.00	-14.37	50.49	3	Horizontal	86	2.37	-	33.55	5.97	30.38	
AV	5.1472G	47.46	54.00	-6.54	38.32	3	Horizontal	86	2.37	-	33.55	5.97	30.38	
PK	5.1818G	104.49	Inf	-Inf	95.31	3	Horizontal	86	2.37	-	33.58	5.99	30.39	
AV	5.182G	94.58	Inf	-Inf	85.40	3	Horizontal	86	2.37	-	33.58	5.99	30.39	

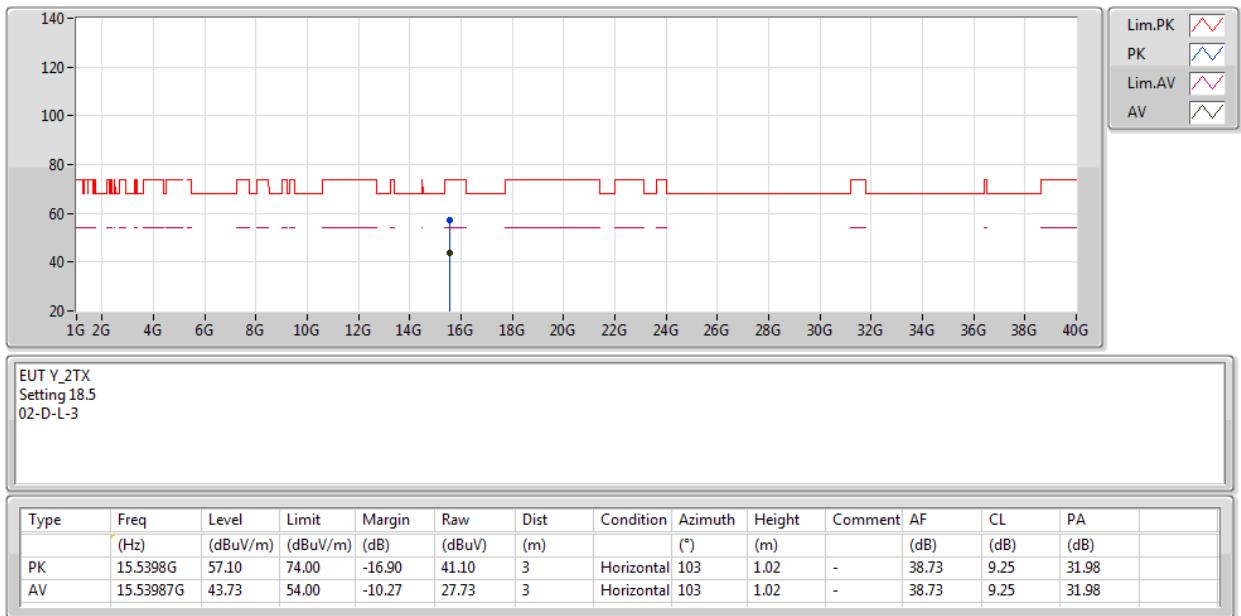
**802.11a\_Nss1,(6Mbps)\_2TX**

18/02/2020

**5180MHz\_TX**


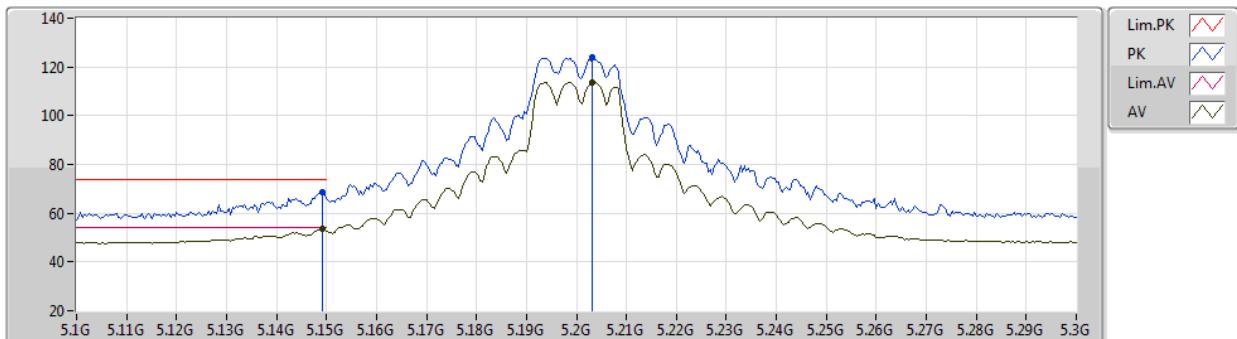
**802.11a\_Nss1,(6Mbps)\_2TX**

18/02/2020

**5180MHz\_TX**


**802.11a\_Nss1,(6Mbps)\_2TX**

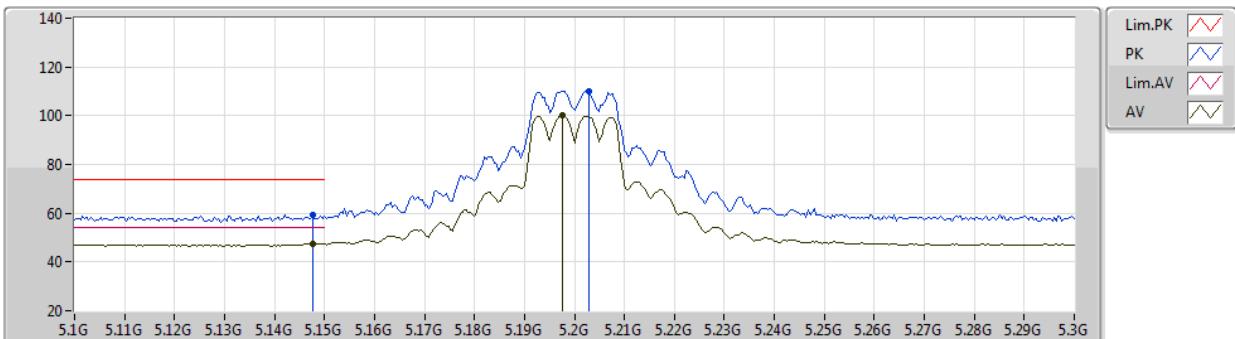
18/02/2020

**5200MHz\_TX**

 EUT Y\_2TX  
 Setting 24  
 02-D-L-3-10

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition (*)	Azimuth (°)	Height (m)	Comment (dB)	AF (dB)	CL (dB)	PA (dB)	
PK	5.1492G	68.81	74.00	-5.19	59.67	3	Vertical	222	2.40	-	33.55	5.97	30.38	
AV	5.1492G	53.65	54.00	-0.35	44.51	3	Vertical	222	2.40	-	33.55	5.97	30.38	
PK	5.2032G	123.74	Inf	-Inf	114.53	3	Vertical	222	2.40	-	33.61	6.00	30.40	
AV	5.2032G	113.87	Inf	-Inf	104.66	3	Vertical	222	2.40	-	33.61	6.00	30.40	

**802.11a\_Nss1,(6Mbps)\_2TX**

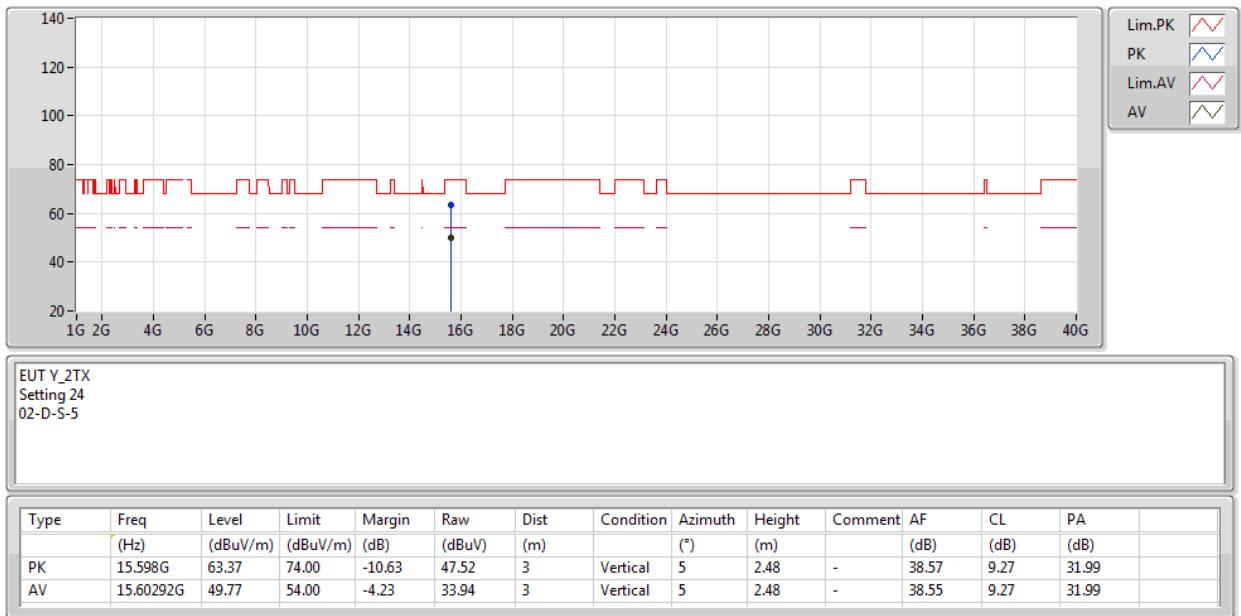
18/02/2020

**5200MHz\_TX**

 EUT Y\_2TX  
 Setting 24  
 02-D-L-3-10

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition (*)	Azimuth (°)	Height (m)	Comment (dB)	AF (dB)	CL (dB)	PA (dB)	
PK	5.1476G	59.52	74.00	-14.48	50.38	3	Horizontal	90	2.11	-	33.55	5.97	30.38	
AV	5.1476G	47.65	54.00	-6.35	38.51	3	Horizontal	90	2.11	-	33.55	5.97	30.38	
PK	5.2028G	109.98	Inf	-Inf	100.77	3	Horizontal	90	2.11	-	33.61	6.00	30.40	
AV	5.1976G	100.14	Inf	-Inf	90.94	3	Horizontal	90	2.11	-	33.60	6.00	30.40	

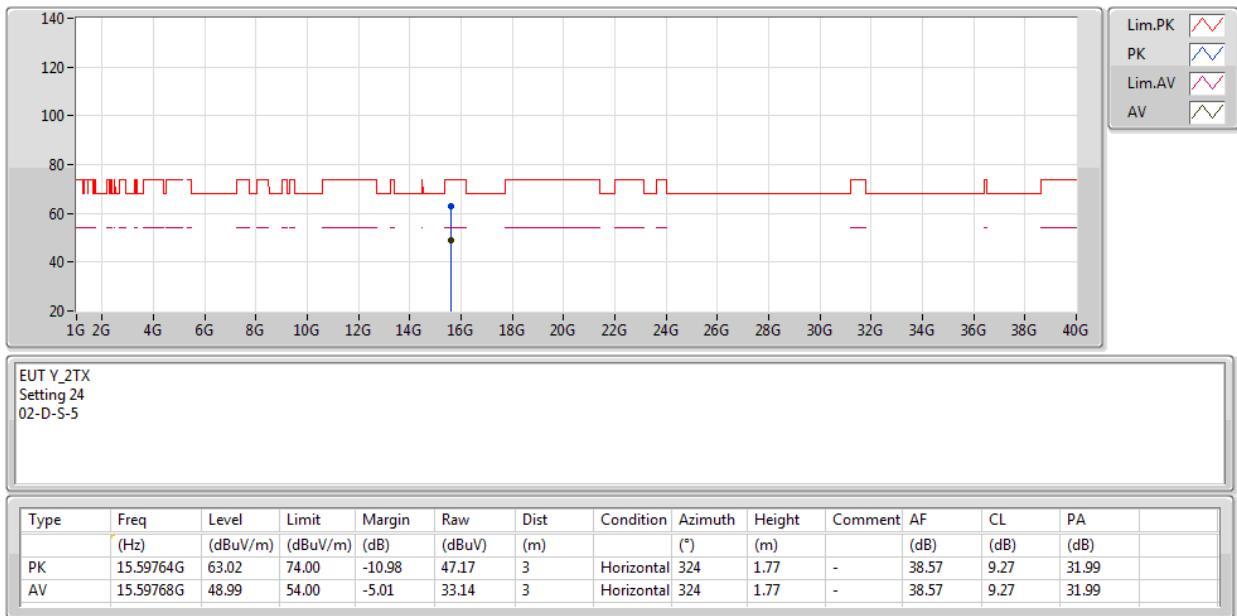
**802.11a\_Nss1,(6Mbps)\_2TX**

18/02/2020

**5200MHz\_TX**


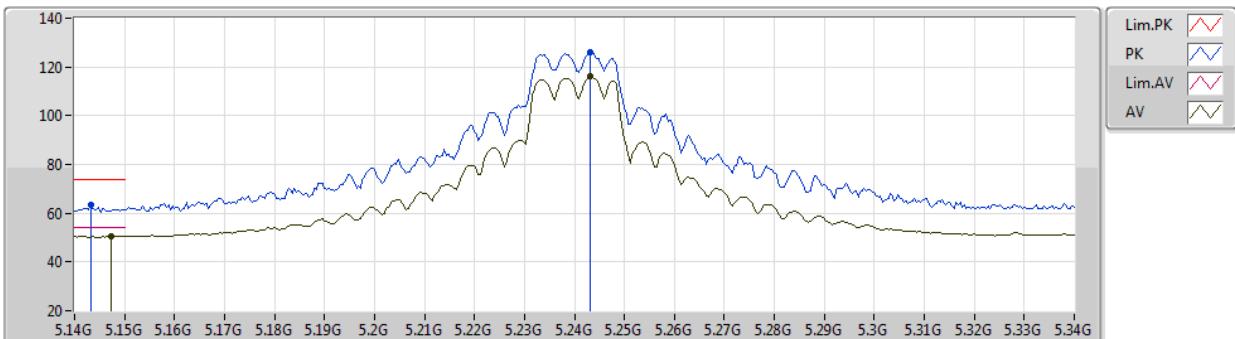
**802.11a\_Nss1,(6Mbps)\_2TX**

18/02/2020

**5200MHz\_TX**


**802.11a\_Nss1,(6Mbps)\_2TX**

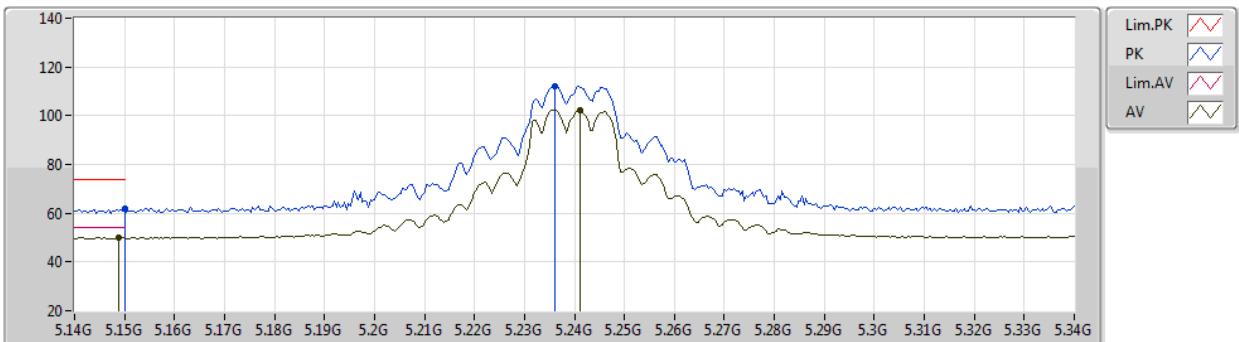
18/02/2020

**5240MHz\_TX**

 EUT Y\_2TX  
 Setting 24.5  
 02-D-L-3-13

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (*)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)	
PK	5.1432G	63.19	74.00	-10.81	54.06	3	Vertical	223	2.29	-	33.54	5.97	30.38	
AV	5.1472G	50.64	54.00	-3.36	41.50	3	Vertical	223	2.29	-	33.55	5.97	30.38	
PK	5.2432G	126.00	Inf	-Inf	116.71	3	Vertical	223	2.29	-	33.69	6.02	30.42	
AV	5.2432G	116.00	Inf	-Inf	106.71	3	Vertical	223	2.29	-	33.69	6.02	30.42	

**802.11a\_Nss1,(6Mbps)\_2TX**

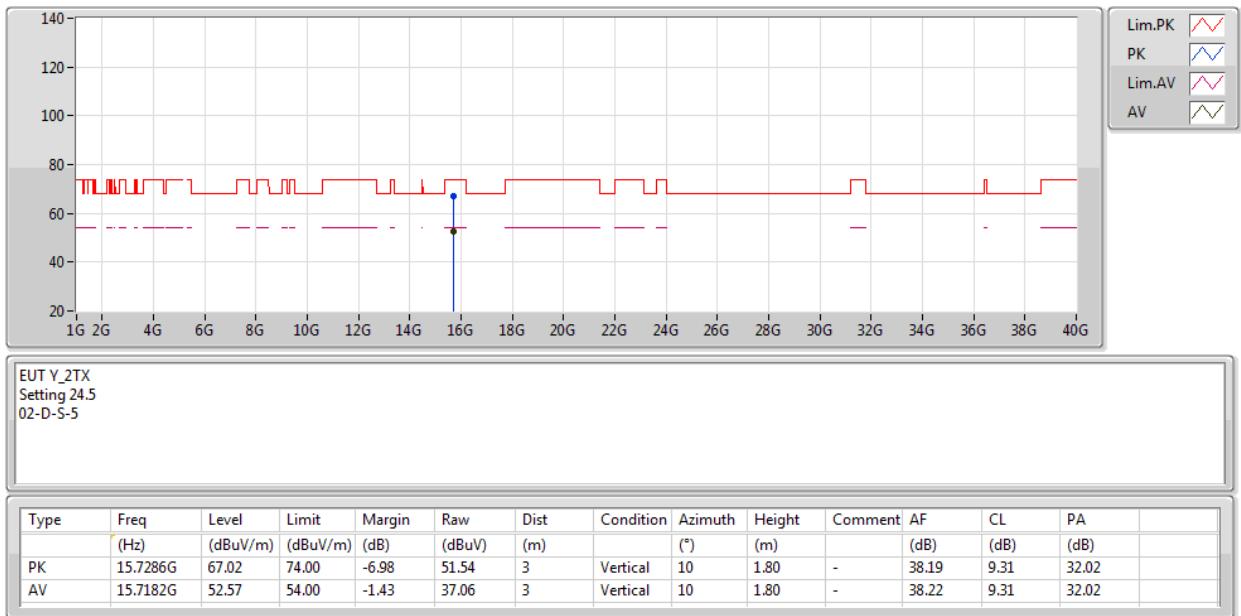
18/02/2020

**5240MHz\_TX**

 EUT Y\_2TX  
 Setting 24.5  
 02-D-L-3-13

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)	
PK	5.15G	61.86	74.00	-12.14	52.72	3	Horizontal	287	2.97	-	33.55	5.97	30.38	
AV	5.1488G	50.00	54.00	-4.00	40.86	3	Horizontal	287	2.97	-	33.55	5.97	30.38	
PK	5.236G	112.04	Inf	-Inf	102.76	3	Horizontal	287	2.97	-	33.67	6.02	30.41	
AV	5.2412G	102.49	Inf	-Inf	93.21	3	Horizontal	287	2.97	-	33.68	6.02	30.42	

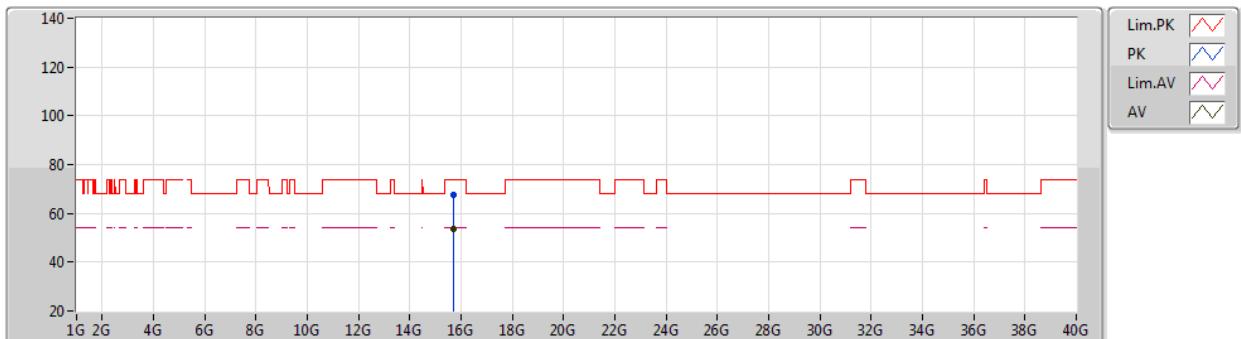
**802.11a\_Nss1,(6Mbps)\_2TX**

18/02/2020

**5240MHz\_TX**


**802.11a\_Nss1,(6Mbps)\_2TX**

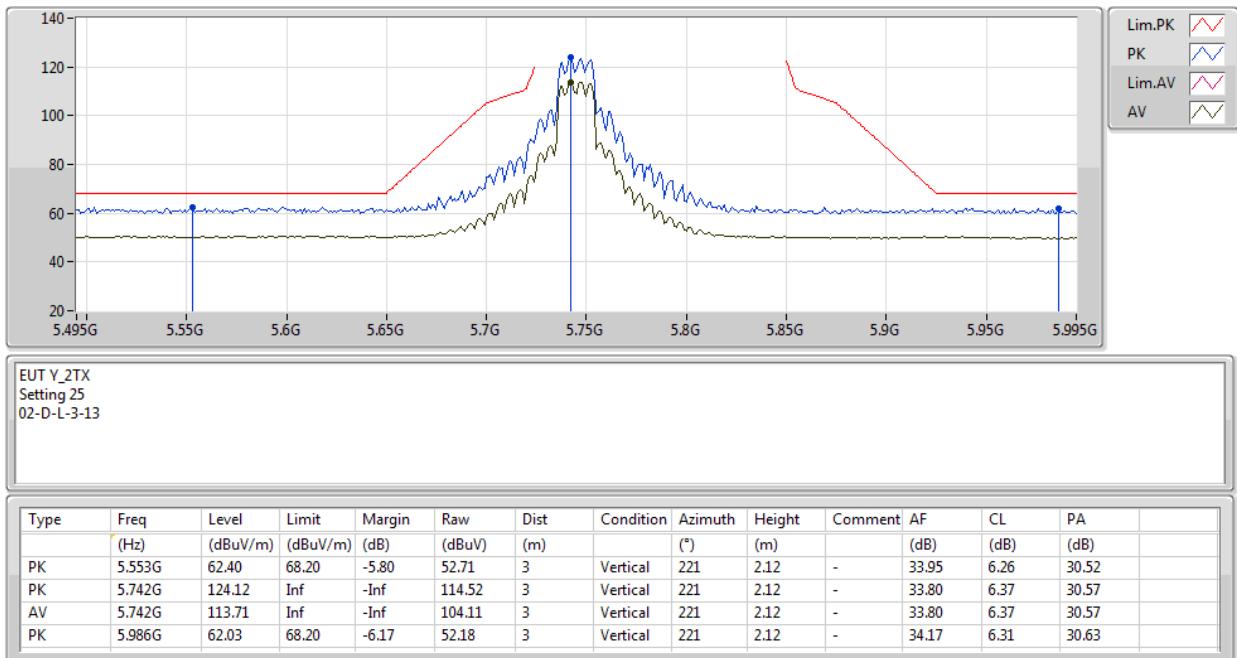
18/02/2020

**5240MHz\_TX**

 EUT Y\_2TX  
 Setting 24.5  
 02-D-S-5

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (*)	Height (m)	Comment (dB)	AF (dB)	CL (dB)	PA (dB)	
PK	15.7182G	67.75	74.00	-6.25	52.24	3	Horizontal	323	2.20	-	38.22	9.31	32.02	
AV	15.71836G	53.78	54.00	-0.22	38.27	3	Horizontal	323	2.20	-	38.22	9.31	32.02	

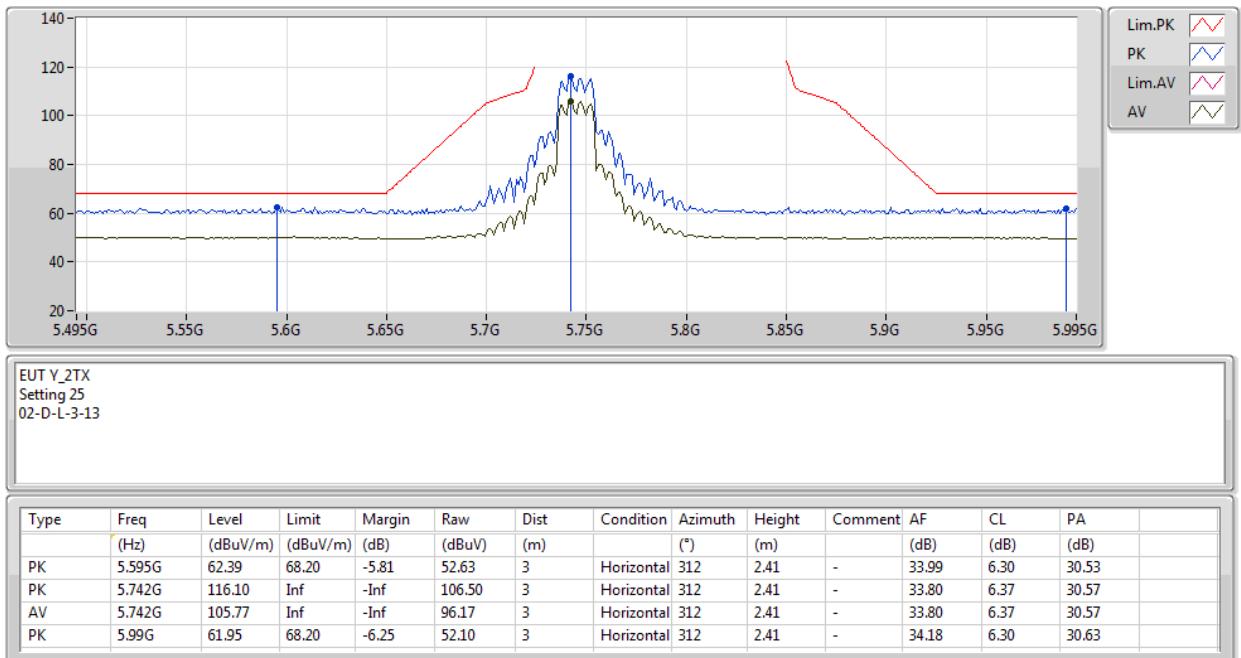
**802.11a\_Nss1,(6Mbps)\_2TX**

18/02/2020

**5745MHz\_TX**


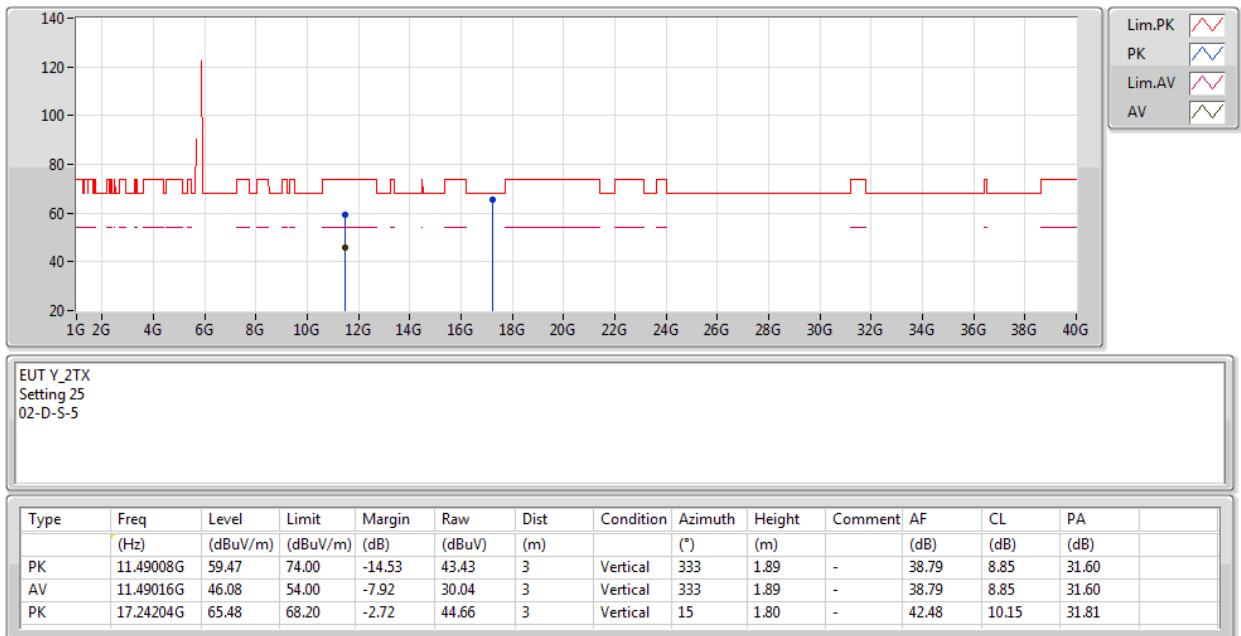
**802.11a\_Nss1,(6Mbps)\_2TX**

18/02/2020

**5745MHz\_TX**


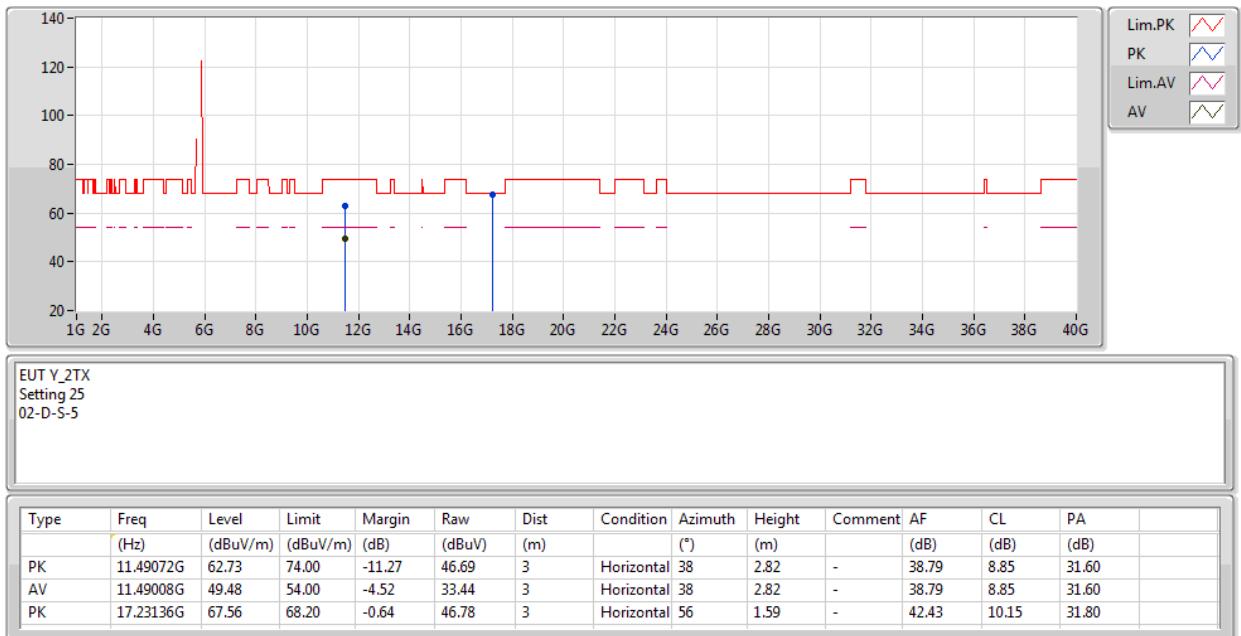
**802.11a\_Nss1,(6Mbps)\_2TX**

18/02/2020

**5745MHz\_TX**


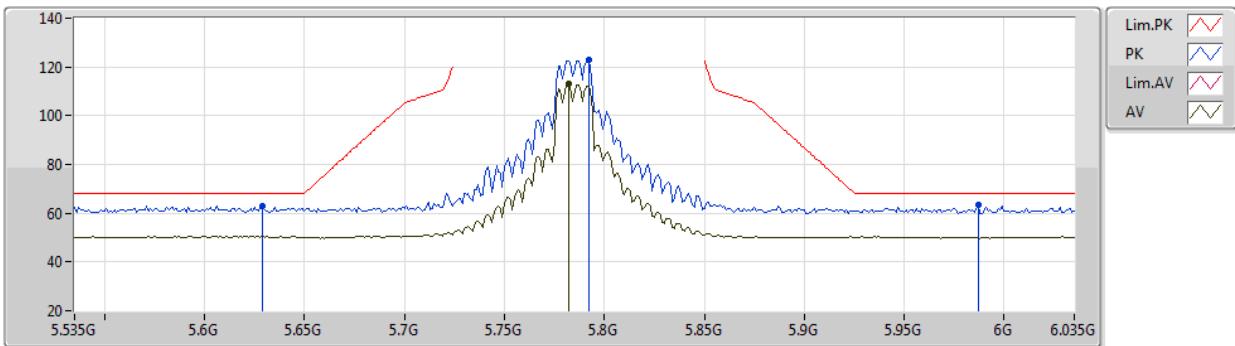
**802.11a\_Nss1,(6Mbps)\_2TX**

18/02/2020

**5745MHz\_TX**


**802.11a\_Nss1,(6Mbps)\_2TX**

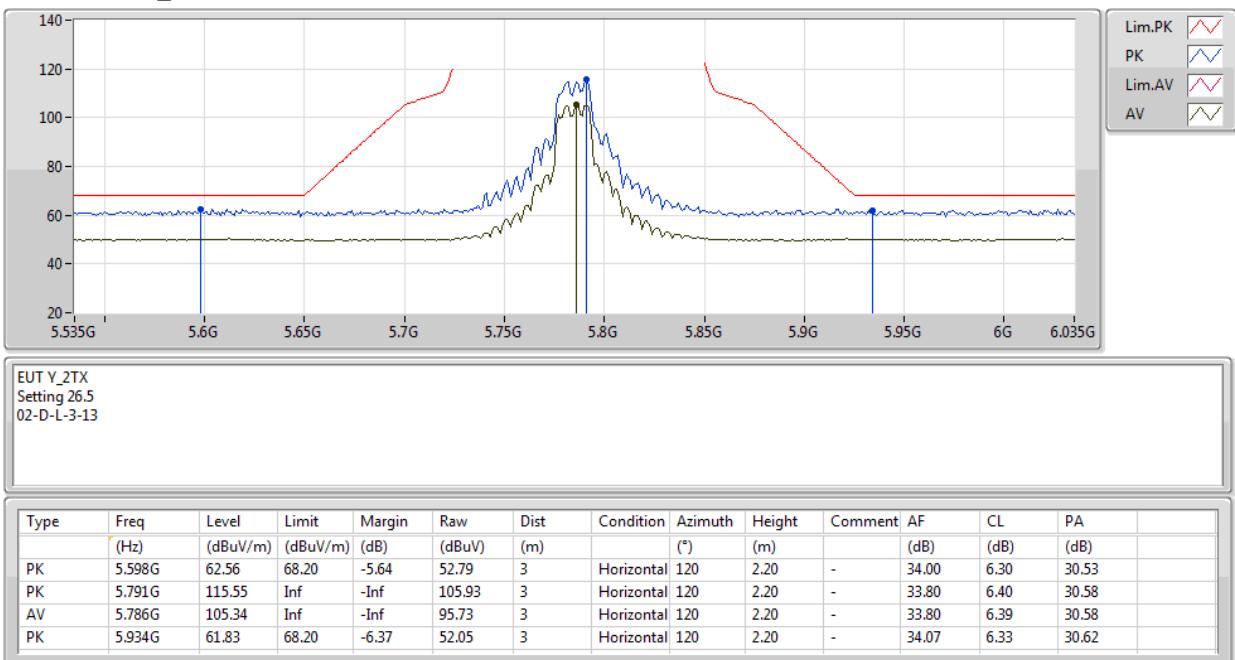
18/02/2020

**5785MHz\_TX**

 EUT Y\_2TX  
 Setting 26.5  
 02-D-L-3-13

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (*)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)	
PK	5.629G	62.98	68.20	-5.22	53.27	3	Vertical	223	2.10	-	33.94	6.31	30.54	
PK	5.792G	122.72	Inf	-Inf	113.10	3	Vertical	223	2.10	-	33.80	6.40	30.58	
AV	5.782G	112.94	Inf	-Inf	103.33	3	Vertical	223	2.10	-	33.80	6.39	30.58	
PK	5.987G	63.32	68.20	-4.88	53.47	3	Vertical	223	2.10	-	34.17	6.31	30.63	

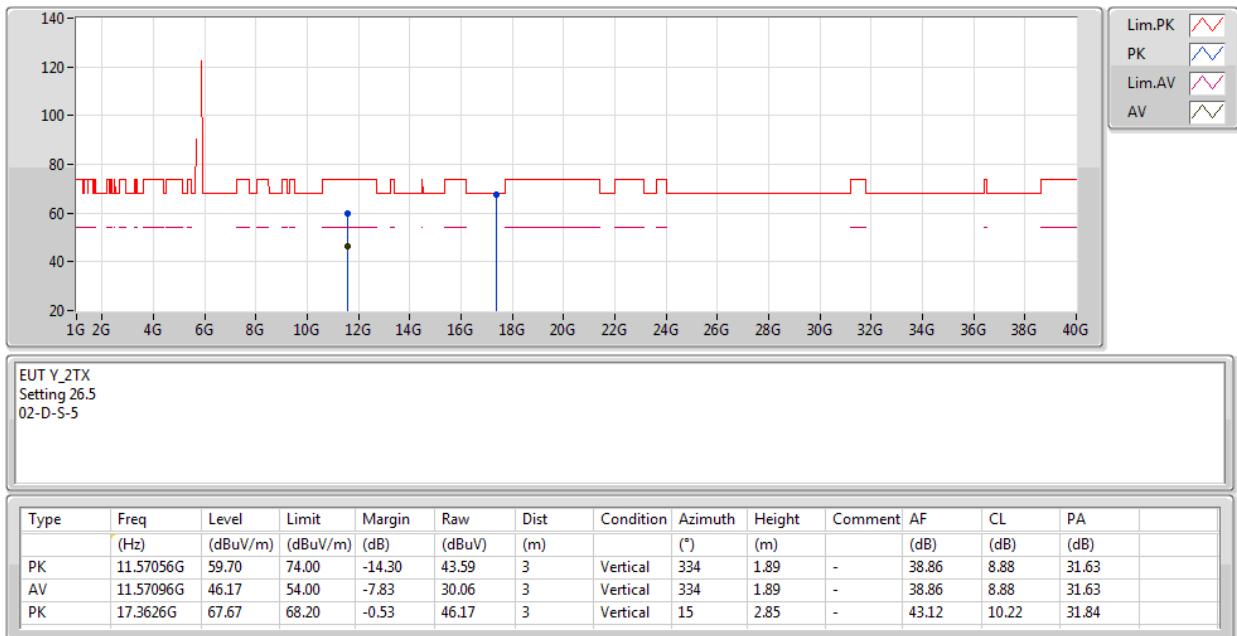
**802.11a\_Nss1,(6Mbps)\_2TX**

18/02/2020

**5785MHz\_TX**


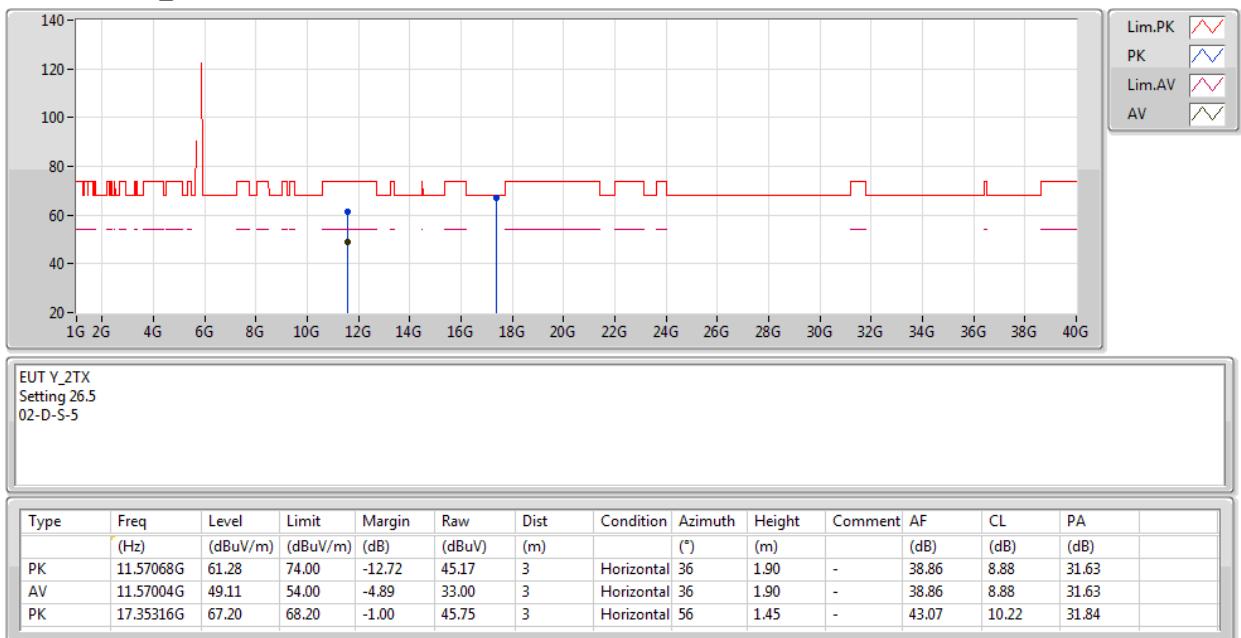
**802.11a\_Nss1,(6Mbps)\_2TX**

18/02/2020

**5785MHz\_TX**


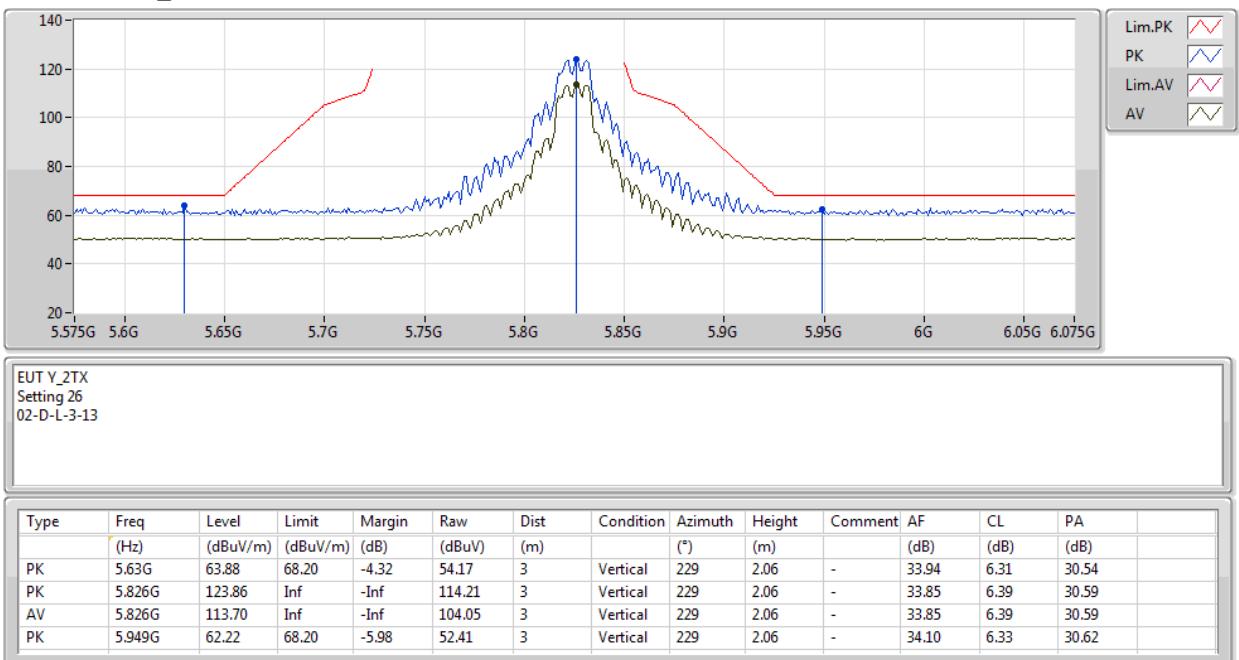
**802.11a\_Nss1,(6Mbps)\_2TX**

18/02/2020

**5785MHz\_TX**


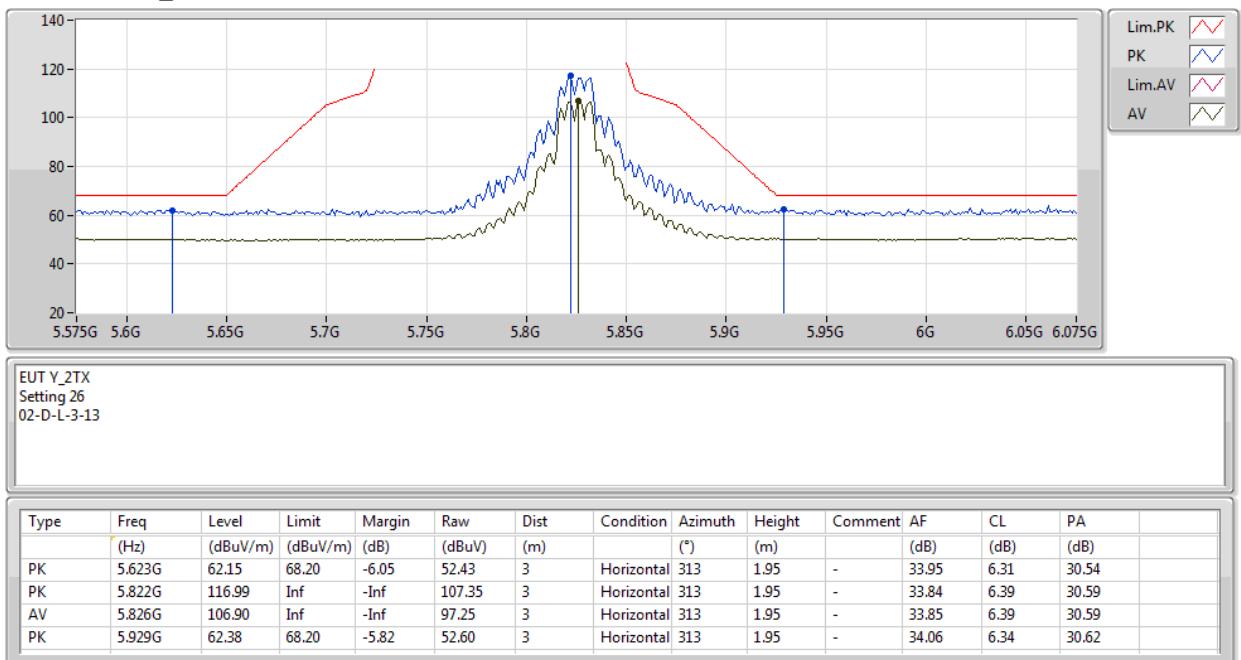
**802.11a\_Nss1,(6Mbps)\_2TX**

18/02/2020

**5825MHz\_TX**


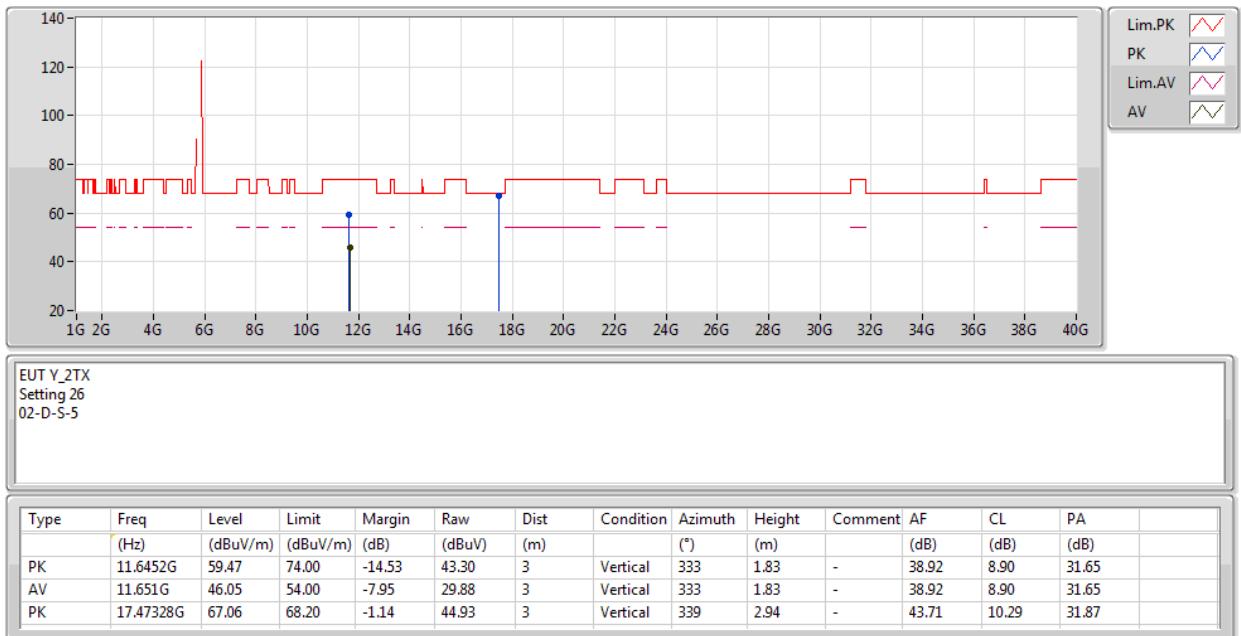
**802.11a\_Nss1,(6Mbps)\_2TX**

18/02/2020

**5825MHz\_TX**


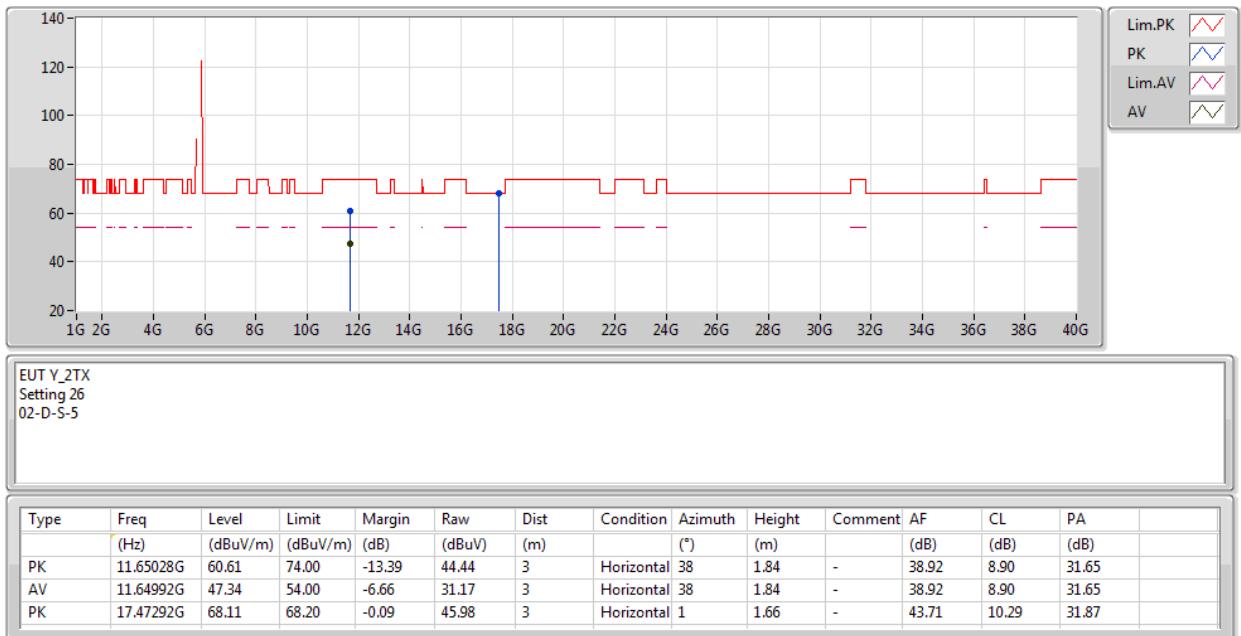
**802.11a\_Nss1,(6Mbps)\_2TX**

18/02/2020

**5825MHz\_TX**


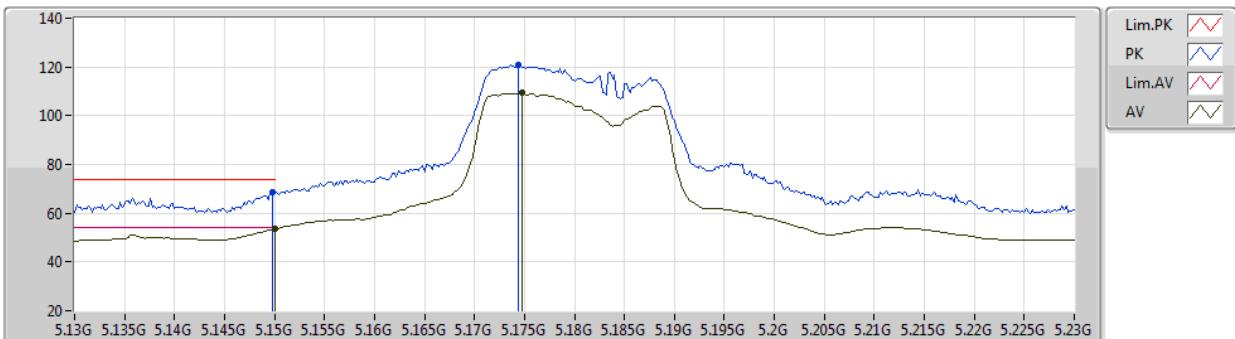
**802.11a\_Nss1,(6Mbps)\_2TX**

18/02/2020

**5825MHz\_TX**


**802.11ac VHT20\_Nss1,(MCS0)\_2TX**

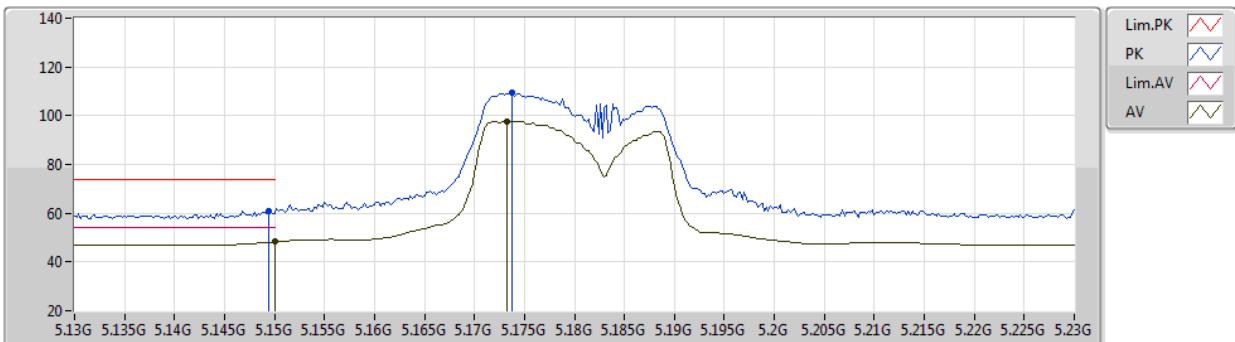
18/02/2020

**5180MHz\_TX**

 EUT Y\_2TX  
 Setting 19.5  
 02-D-L-3-10

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (*)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)	
PK	5.1498G	68.71	74.00	-5.29	59.57	3	Vertical	220	2.17	-	33.55	5.97	30.38	
AV	5.15G	53.56	54.00	-0.44	44.42	3	Vertical	220	2.17	-	33.55	5.97	30.38	
PK	5.1744G	120.80	Inf	-Inf	111.63	3	Vertical	220	2.17	-	33.57	5.99	30.39	
AV	5.1748G	109.24	Inf	-Inf	100.07	3	Vertical	220	2.17	-	33.57	5.99	30.39	

**802.11ac VHT20\_Nss1,(MCS0)\_2TX**

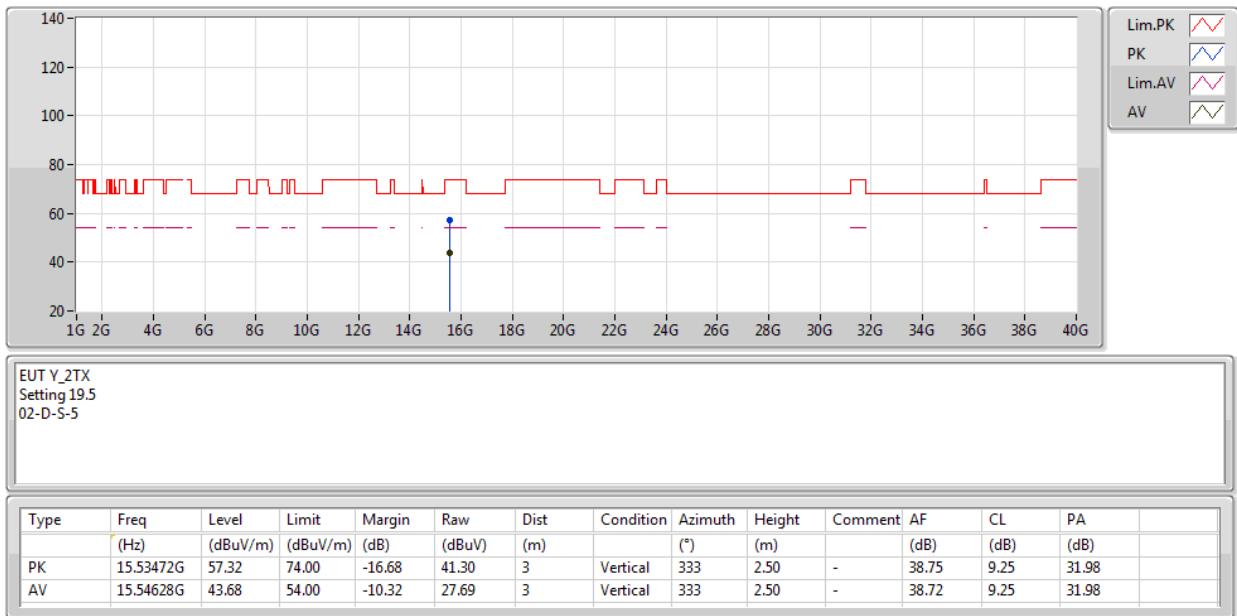
18/02/2020

**5180MHz\_TX**

 EUT Y\_2TX  
 Setting 19.5  
 02-D-L-3-10

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (*)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)	
PK	5.1494G	61.03	74.00	-12.97	51.89	3	Horizontal	135	2.63	-	33.55	5.97	30.38	
AV	5.15G	48.19	54.00	-5.81	39.05	3	Horizontal	135	2.63	-	33.55	5.97	30.38	
PK	5.1738G	109.42	Inf	-Inf	100.25	3	Horizontal	135	2.63	-	33.57	5.99	30.39	
AV	5.1732G	97.83	Inf	-Inf	88.66	3	Horizontal	135	2.63	-	33.57	5.99	30.39	

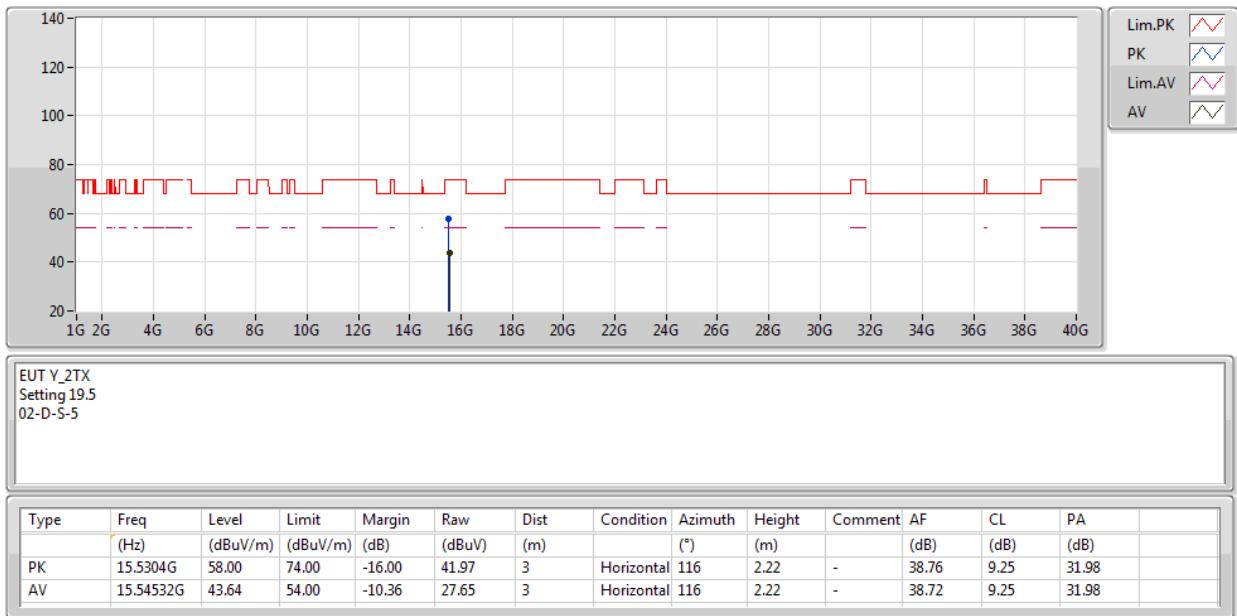
**802.11ac VHT20\_Nss1,(MCS0)\_2TX**

18/02/2020

**5180MHz\_TX**


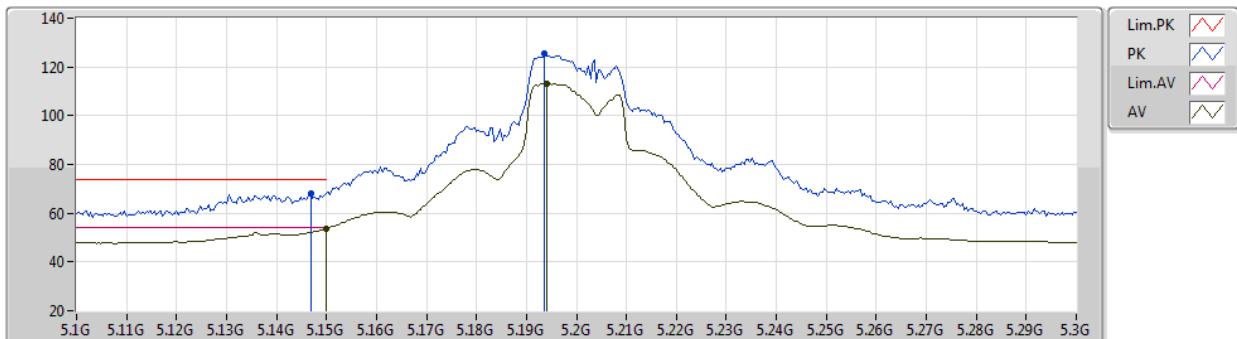
**802.11ac VHT20\_Nss1,(MCS0)\_2TX**

18/02/2020

**5180MHz\_TX**


**802.11ac VHT20\_Nss1,(MCS0)\_2TX**

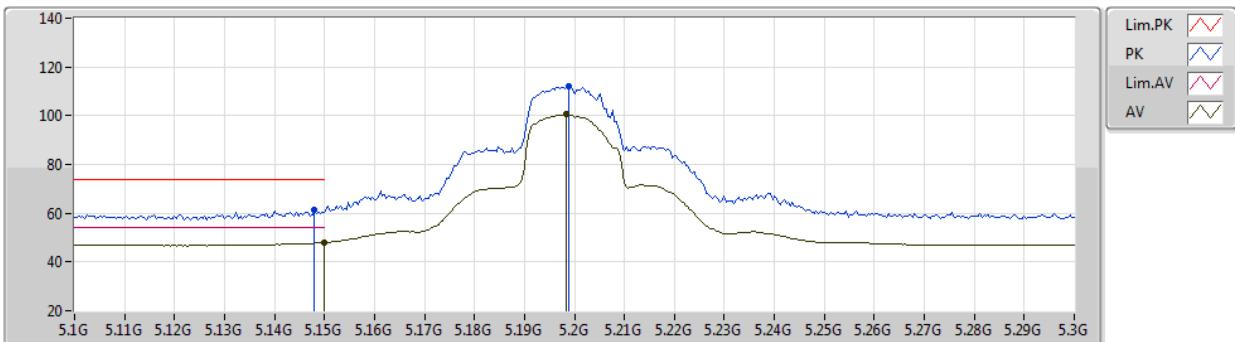
18/02/2020

**5200MHz\_TX**

 EUT Y\_2TX  
 Setting 24.5  
 02-D-L-3-10

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (*)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)	
PK	5.1468G	68.29	74.00	-5.71	59.15	3	Vertical	221	2.42	-	33.55	5.97	30.38	
AV	5.15G	53.64	54.00	-0.36	44.50	3	Vertical	221	2.42	-	33.55	5.97	30.38	
PK	5.1936G	125.33	Inf	-Inf	116.14	3	Vertical	221	2.42	-	33.59	6.00	30.40	
AV	5.194G	113.31	Inf	-Inf	104.12	3	Vertical	221	2.42	-	33.59	6.00	30.40	

**802.11ac VHT20\_Nss1,(MCS0)\_2TX**

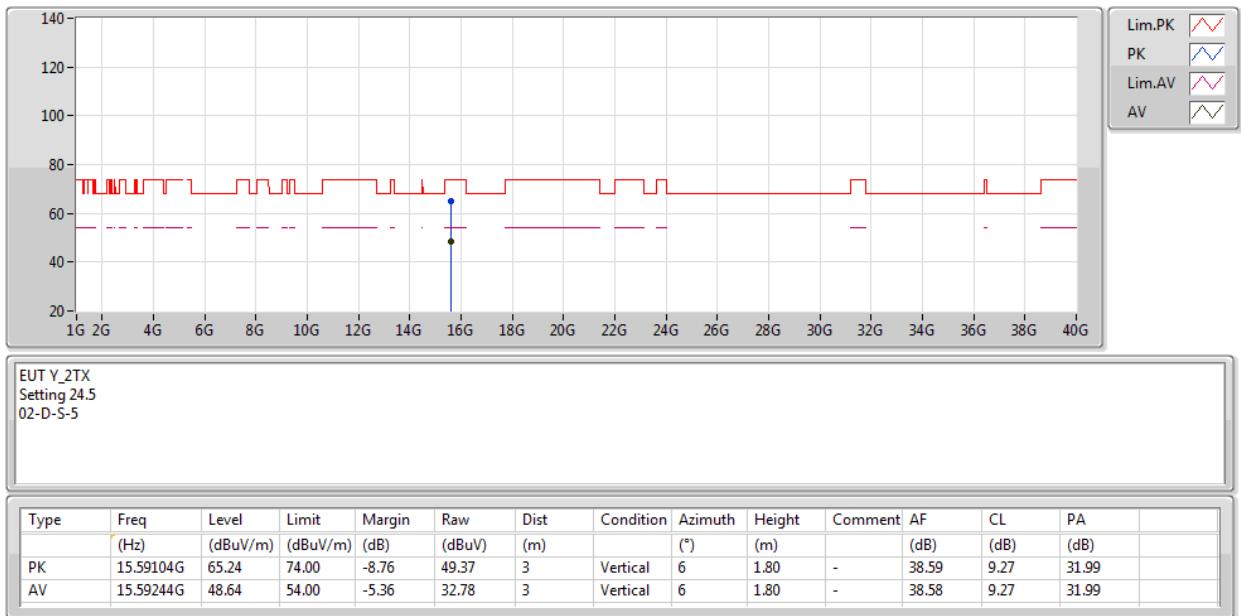
18/02/2020

**5200MHz\_TX**

 EUT Y\_2TX  
 Setting 24.5  
 02-D-L-3-10

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (*)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)	
PK	5.148G	61.39	74.00	-12.61	52.25	3	Horizontal	273	2.08	-	33.55	5.97	30.38	
AV	5.15G	48.01	54.00	-5.99	38.87	3	Horizontal	273	2.08	-	33.55	5.97	30.38	
PK	5.1988G	111.90	Inf	-Inf	102.70	3	Horizontal	273	2.08	-	33.60	6.00	30.40	
AV	5.1984G	100.51	Inf	-Inf	91.31	3	Horizontal	273	2.08	-	33.60	6.00	30.40	

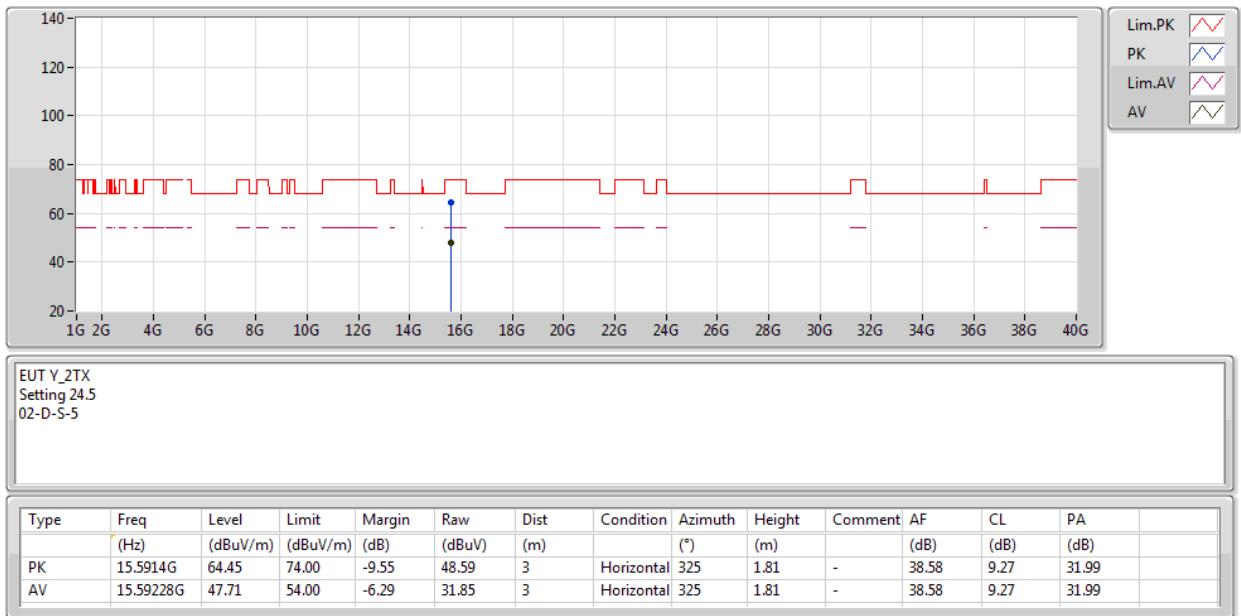
**802.11ac VHT20\_Nss1,(MCS0)\_2TX**

18/02/2020

**5200MHz\_TX**


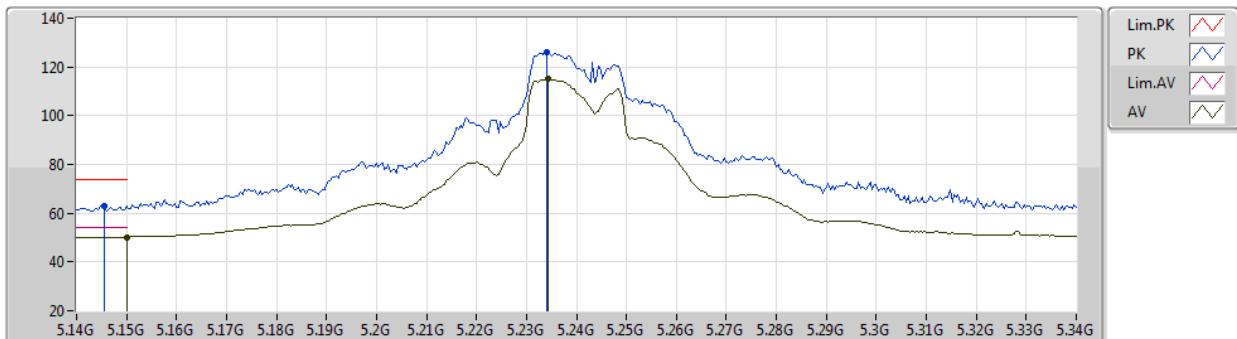
**802.11ac VHT20\_Nss1,(MCS0)\_2TX**

18/02/2020

**5200MHz\_TX**


**802.11ac VHT20\_Nss1,(MCS0)\_2TX**

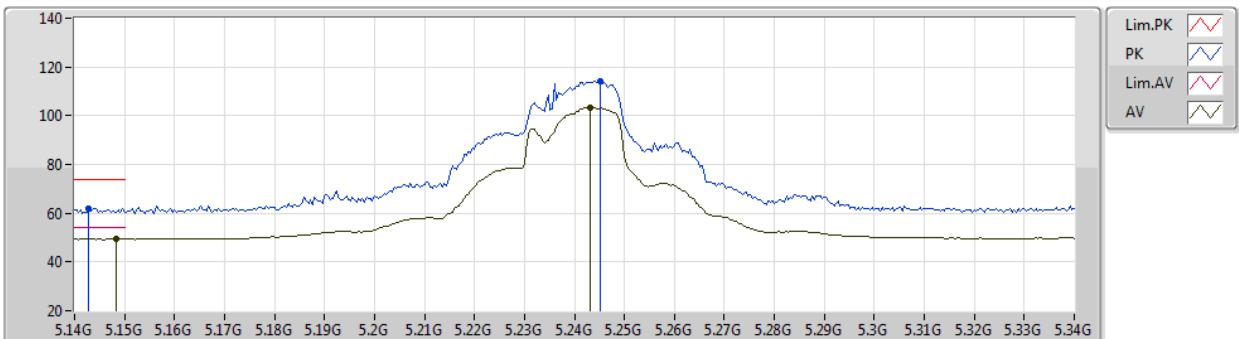
18/02/2020

**5240MHz\_TX**

 EUT Y\_2TX  
 Setting 25  
 02-D-L-3-13

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)	
PK	5.1456G	63.02	74.00	-10.98	53.88	3	Vertical	222	2.23	-	33.55	5.97	30.38	
AV	5.15G	50.21	54.00	-3.79	41.07	3	Vertical	222	2.23	-	33.55	5.97	30.38	
PK	5.234G	126.11	Inf	-Inf	116.83	3	Vertical	222	2.23	-	33.67	6.02	30.41	
AV	5.2344G	114.96	Inf	-Inf	105.68	3	Vertical	222	2.23	-	33.67	6.02	30.41	

**802.11ac VHT20\_Nss1,(MCS0)\_2TX**

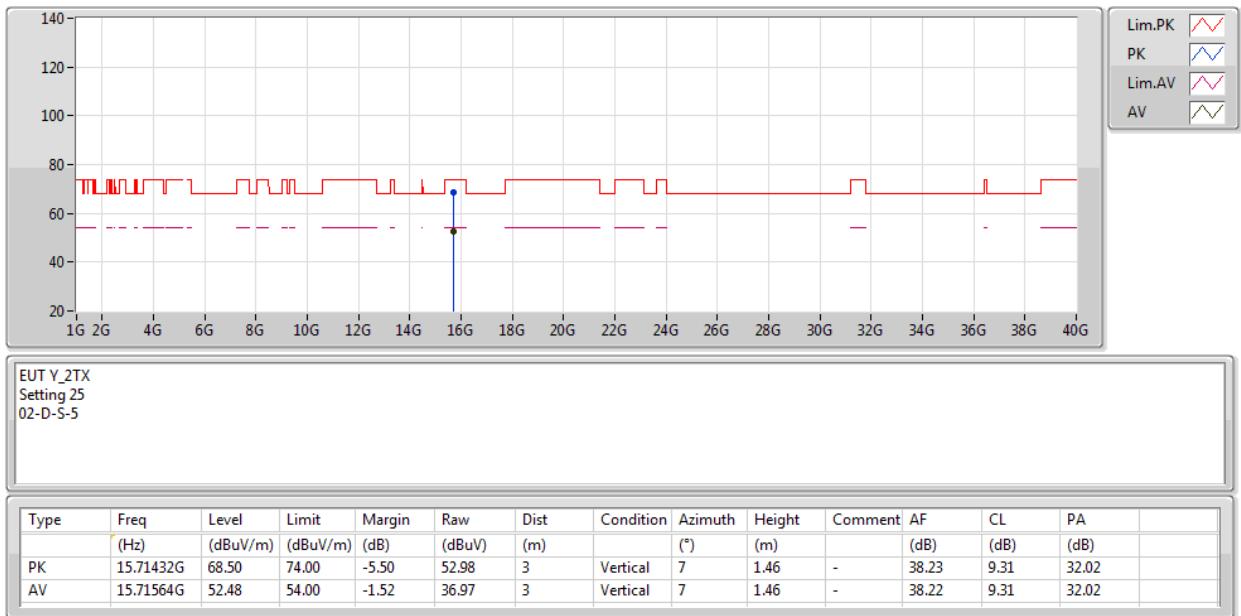
18/02/2020

**5240MHz\_TX**

 EUT Y\_2TX  
 Setting 25  
 02-D-L-3-13

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment (dB)	AF (dB)	CL (dB)	PA (dB)	
PK	5.1428G	61.93	74.00	-12.07	52.80	3	Horizontal	290	2.82	-	33.54	5.97	30.38	
AV	5.1484G	49.42	54.00	-4.58	40.28	3	Horizontal	290	2.82	-	33.55	5.97	30.38	
PK	5.2452G	114.38	Inf	-Inf	105.09	3	Horizontal	290	2.82	-	33.69	6.02	30.42	
AV	5.2432G	103.47	Inf	-Inf	94.18	3	Horizontal	290	2.82	-	33.69	6.02	30.42	

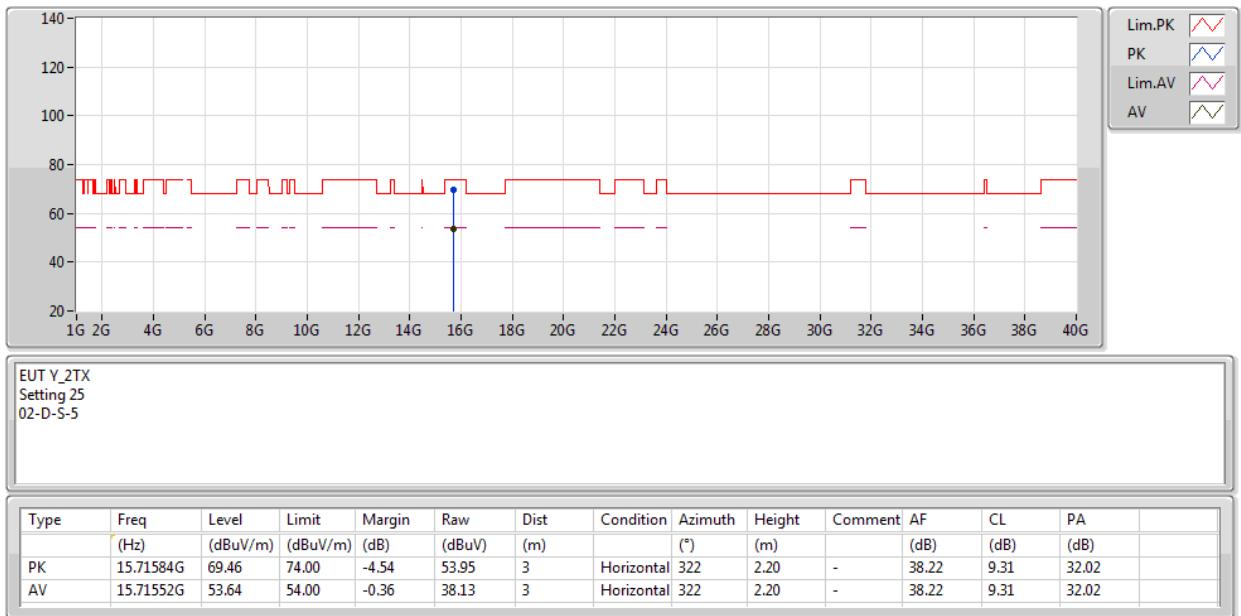
**802.11ac VHT20\_Nss1,(MCS0)\_2TX**

18/02/2020

**5240MHz\_TX**


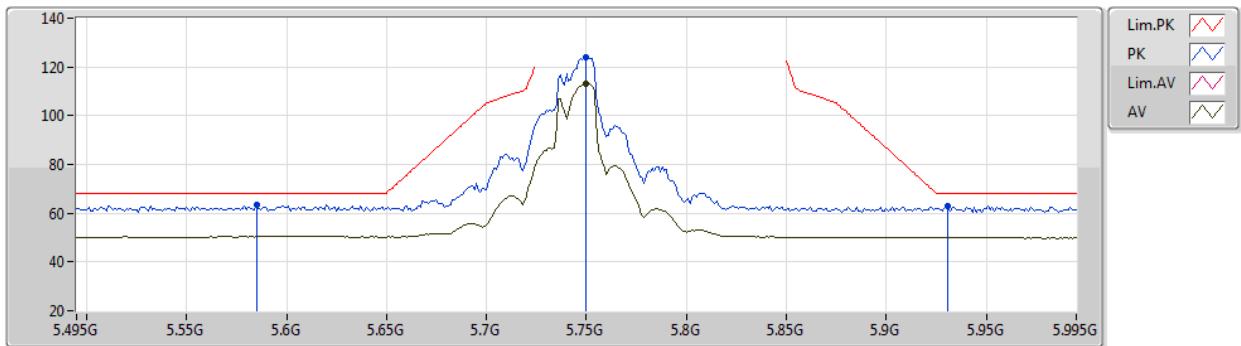
**802.11ac VHT20\_Nss1,(MCS0)\_2TX**

18/02/2020

**5240MHz\_TX**


**802.11ac VHT20\_Nss1,(MCS0)\_2TX**

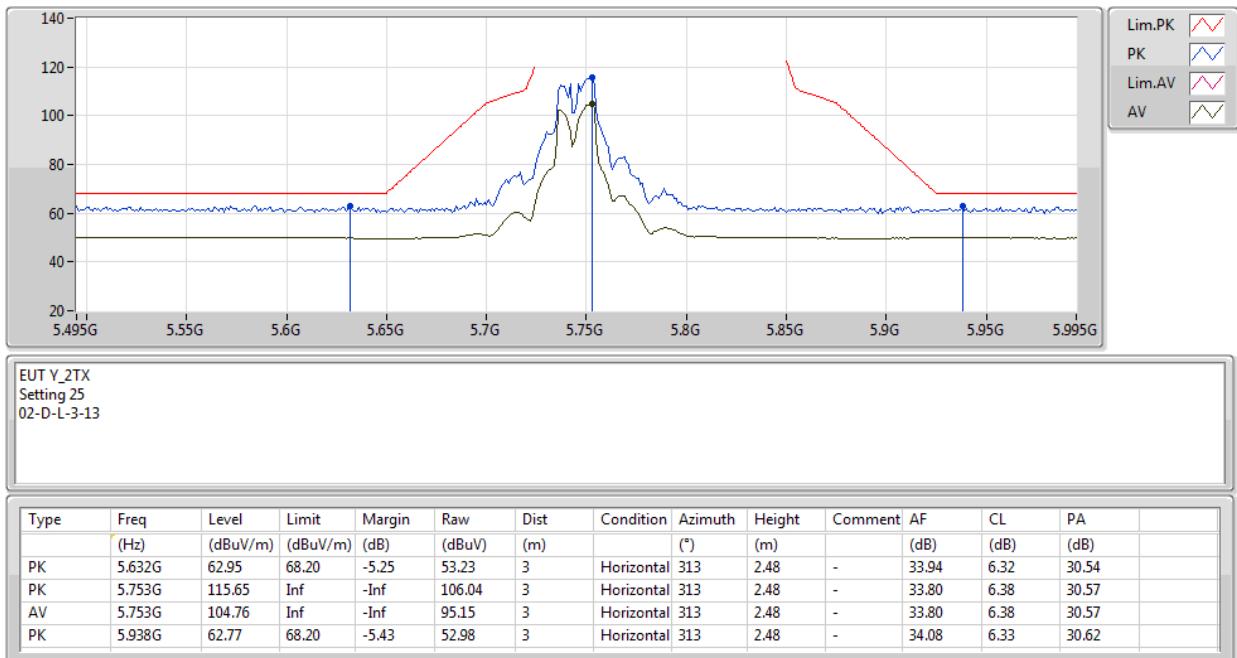
18/02/2020

**5745MHz\_TX**

 EUT Y\_2TX  
 Setting 25  
 02-D-L-3-13

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (*)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)	
PK	5.585G	63.41	68.20	-4.79	53.67	3	Vertical	228	2.02	-	33.98	6.29	30.53	
PK	5.75G	124.03	Inf	-Inf	114.43	3	Vertical	228	2.02	-	33.80	6.37	30.57	
AV	5.75G	113.22	Inf	-Inf	103.62	3	Vertical	228	2.02	-	33.80	6.37	30.57	
PK	5.931G	63.00	68.20	-5.20	53.23	3	Vertical	228	2.02	-	34.06	6.33	30.62	

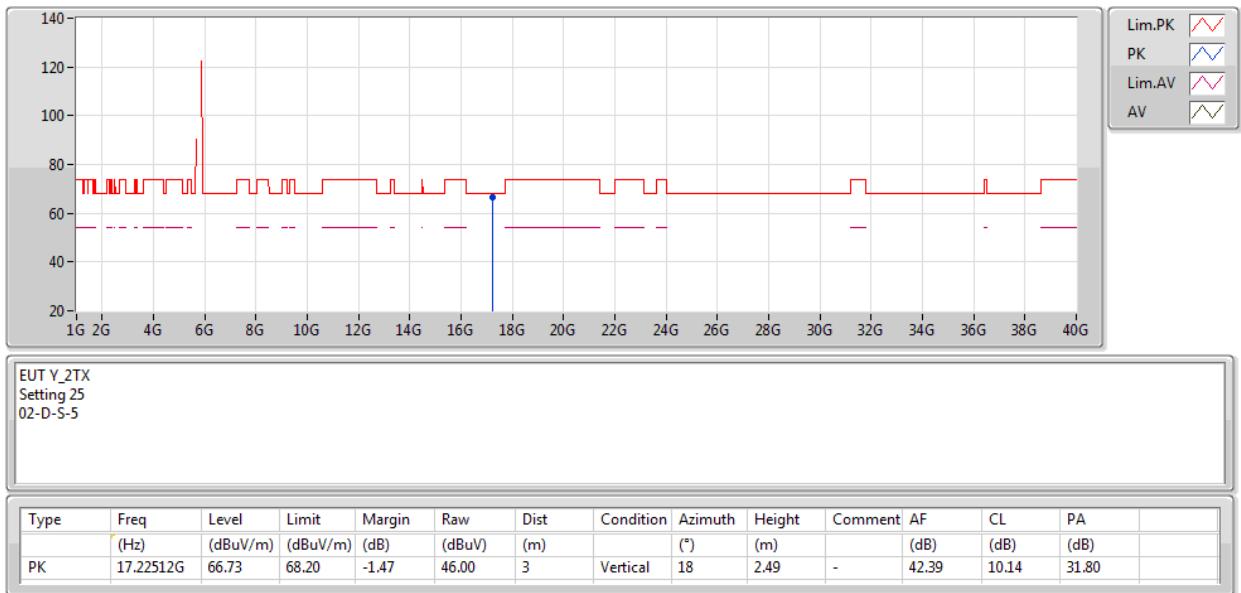
**802.11ac VHT20\_Nss1,(MCS0)\_2TX**

18/02/2020

**5745MHz\_TX**


**802.11ac VHT20\_Nss1,(MCS0)\_2TX**

18/02/2020

**5745MHz\_TX**


**802.11ac VHT20\_Nss1,(MCS0)\_2TX**

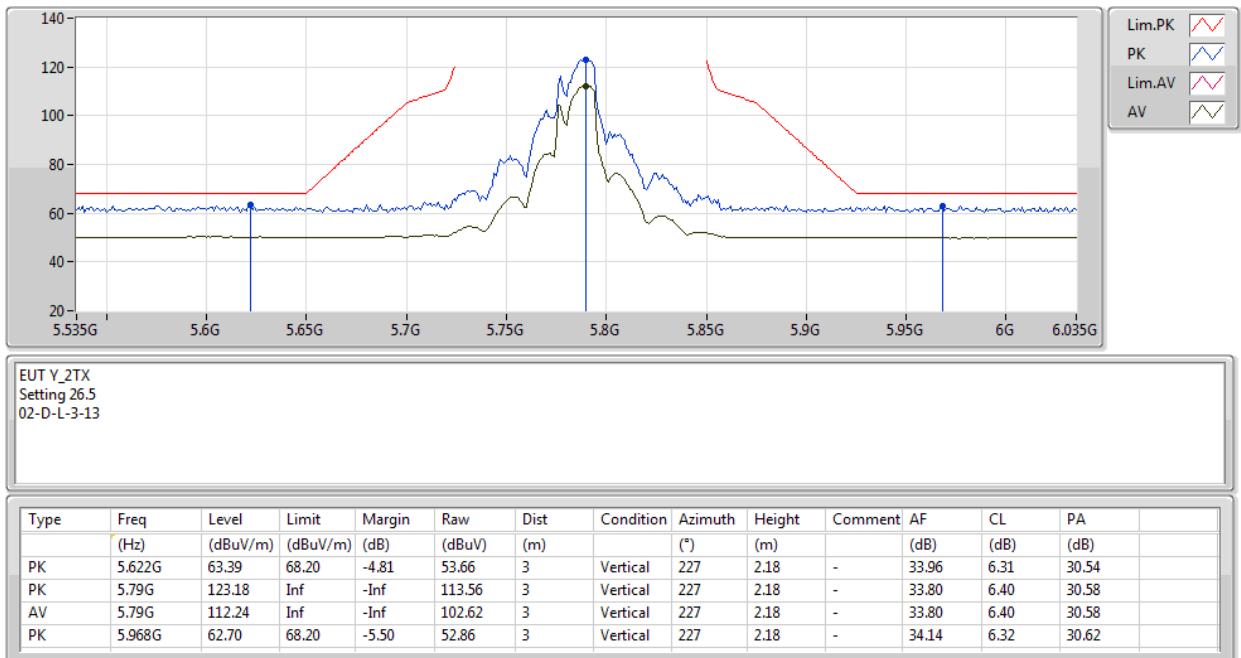
18/02/2020

**5745MHz\_TX**



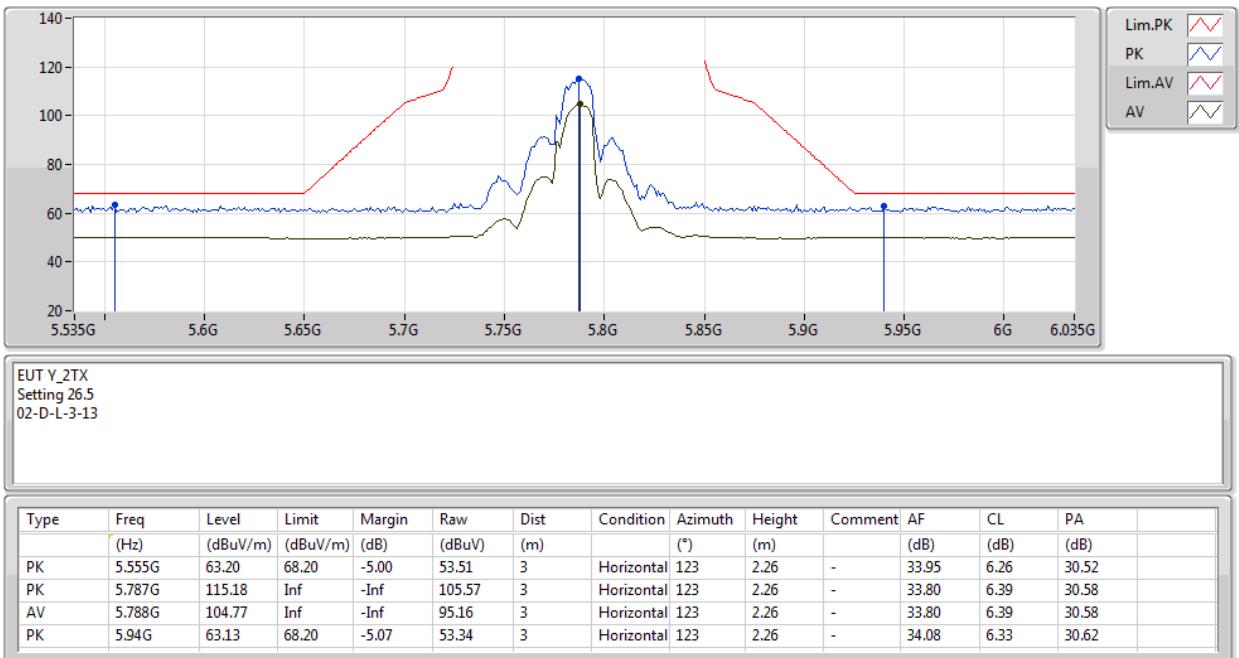
**802.11ac VHT20\_Nss1,(MCS0)\_2TX**

18/02/2020

**5785MHz\_TX**


**802.11ac VHT20\_Nss1,(MCS0)\_2TX**

18/02/2020

**5785MHz\_TX**


**802.11ac VHT20\_Nss1,(MCS0)\_2TX**

18/02/2020

**5785MHz\_TX**



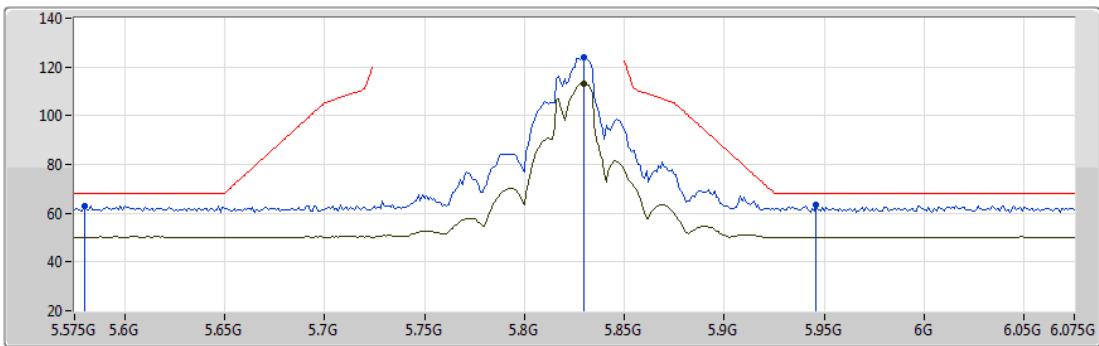
**802.11ac VHT20\_Nss1,(MCS0)\_2TX**

18/02/2020

**5785MHz\_TX**


**802.11ac VHT20\_Nss1,(MCS0)\_2TX**

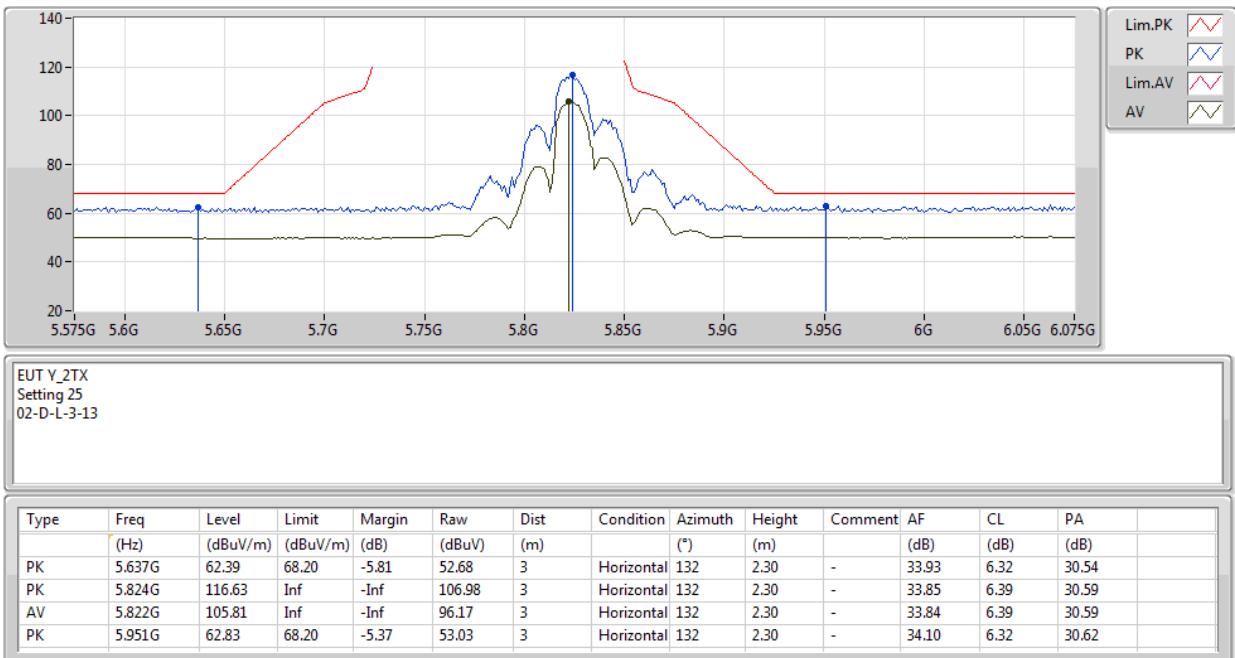
18/02/2020

**5825MHz\_TX**

 EUT Y\_2TX  
 Setting 25  
 02-D-L-3-13

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (*)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)	
PK	5.58G	62.99	68.20	-5.21	53.26	3	Vertical	226	2.07	-	33.98	6.28	30.53	
PK	5.83G	123.78	Inf	-Inf	114.12	3	Vertical	226	2.07	-	33.86	6.39	30.59	
AV	5.83G	112.92	Inf	-Inf	103.26	3	Vertical	226	2.07	-	33.86	6.39	30.59	
PK	5.946G	63.23	68.20	-4.97	53.43	3	Vertical	226	2.07	-	34.09	6.33	30.62	

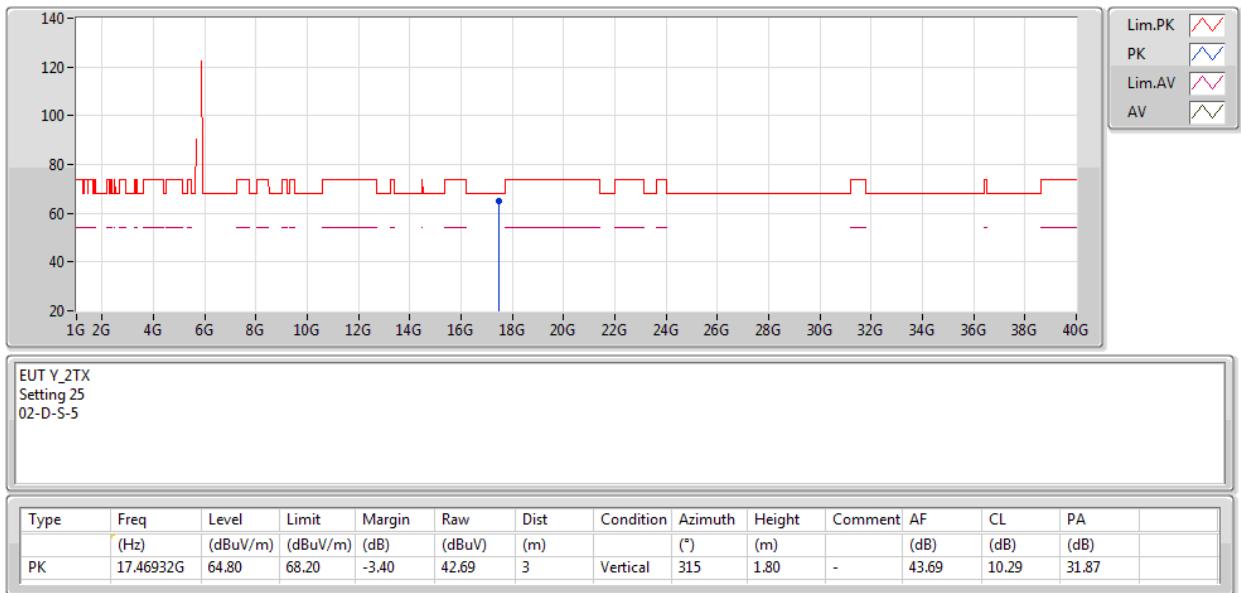
**802.11ac VHT20\_Nss1,(MCS0)\_2TX**

18/02/2020

**5825MHz\_TX**


**802.11ac VHT20\_Nss1,(MCS0)\_2TX**

18/02/2020

**5825MHz\_TX**


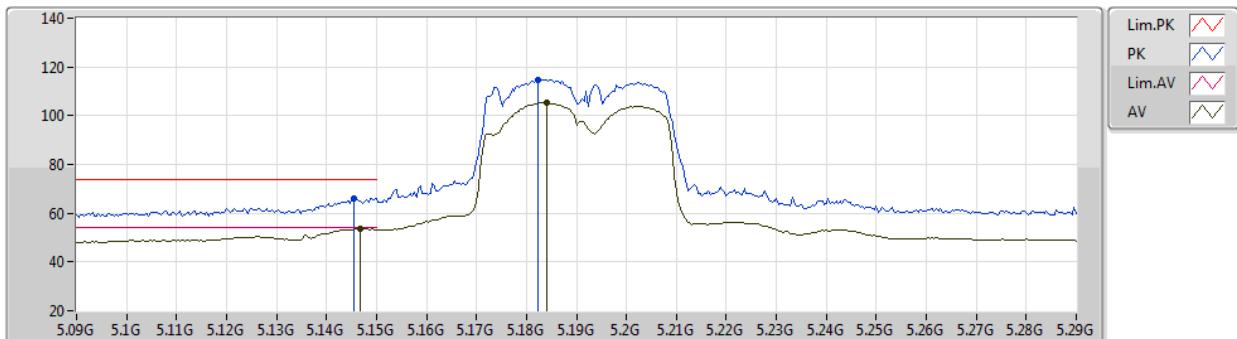
**802.11ac VHT20\_Nss1,(MCS0)\_2TX**

18/02/2020

**5825MHz\_TX**


**802.11ac VHT40\_Nss1,(MCS0)\_2TX**

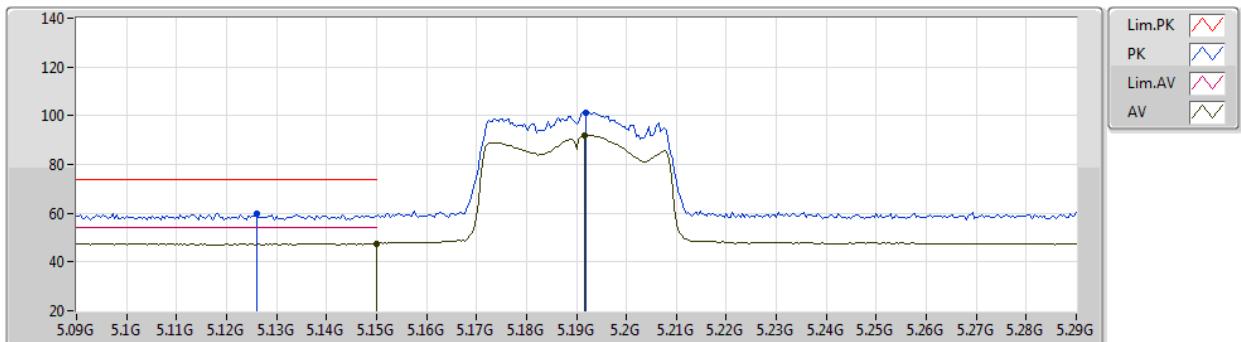
18/02/2020

**5190MHz\_TX**

 EUT Y\_2TX  
 Setting 17  
 02-D-L-3-10

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition (*)	Azimuth (°)	Height (m)	Comment (dB)	AF (dB)	CL (dB)	PA (dB)
PK	5.1456G	66.16	74.00	-7.84	57.02	3	Vertical	222	2.34	-	33.55	5.97	30.38
AV	5.1468G	53.67	54.00	-0.33	44.53	3	Vertical	222	2.34	-	33.55	5.97	30.38
PK	5.1824G	114.89	Inf	-Inf	105.71	3	Vertical	222	2.34	-	33.58	5.99	30.39
AV	5.184G	105.33	Inf	-Inf	96.16	3	Vertical	222	2.34	-	33.58	5.99	30.40

**802.11ac VHT40\_Nss1,(MCS0)\_2TX**

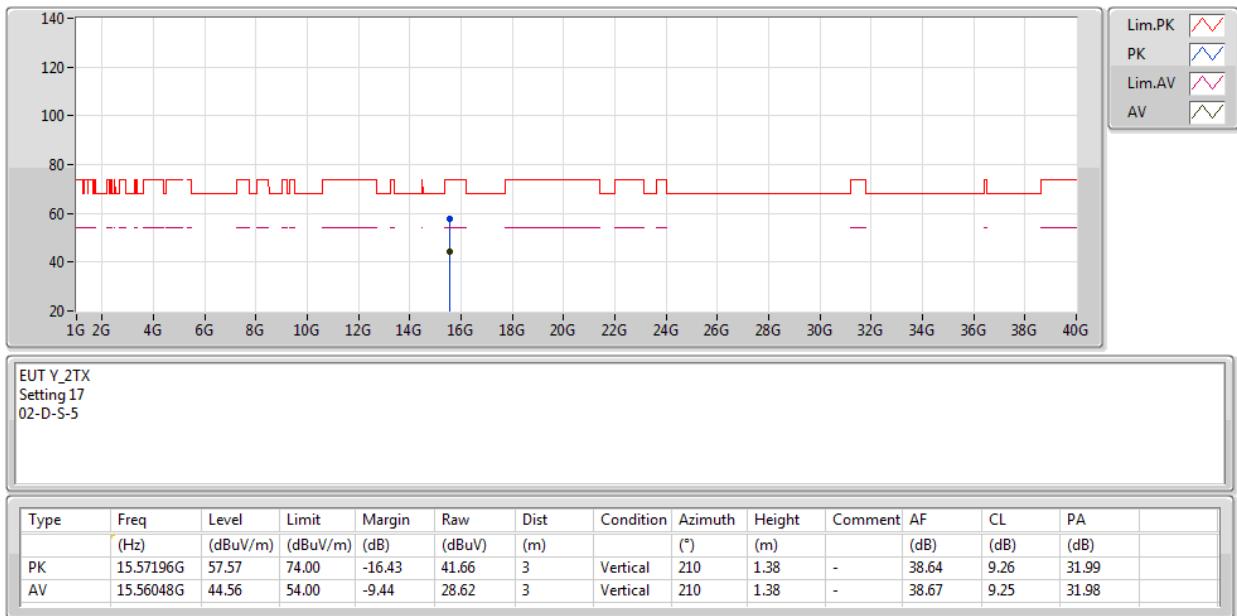
18/02/2020

**5190MHz\_TX**

 EUT Y\_2TX  
 Setting 17  
 02-D-L-3-10

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (*)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)	
PK	5.126G	59.99	74.00	-14.01	50.88	3	Horizontal	272	2.86	-	33.53	5.96	30.38	
AV	5.15G	47.58	54.00	-6.42	38.44	3	Horizontal	272	2.86	-	33.55	5.97	30.38	
PK	5.192G	101.25	Inf	-Inf	92.06	3	Horizontal	272	2.86	-	33.59	6.00	30.40	
AV	5.1916G	92.06	Inf	-Inf	82.87	3	Horizontal	272	2.86	-	33.59	6.00	30.40	

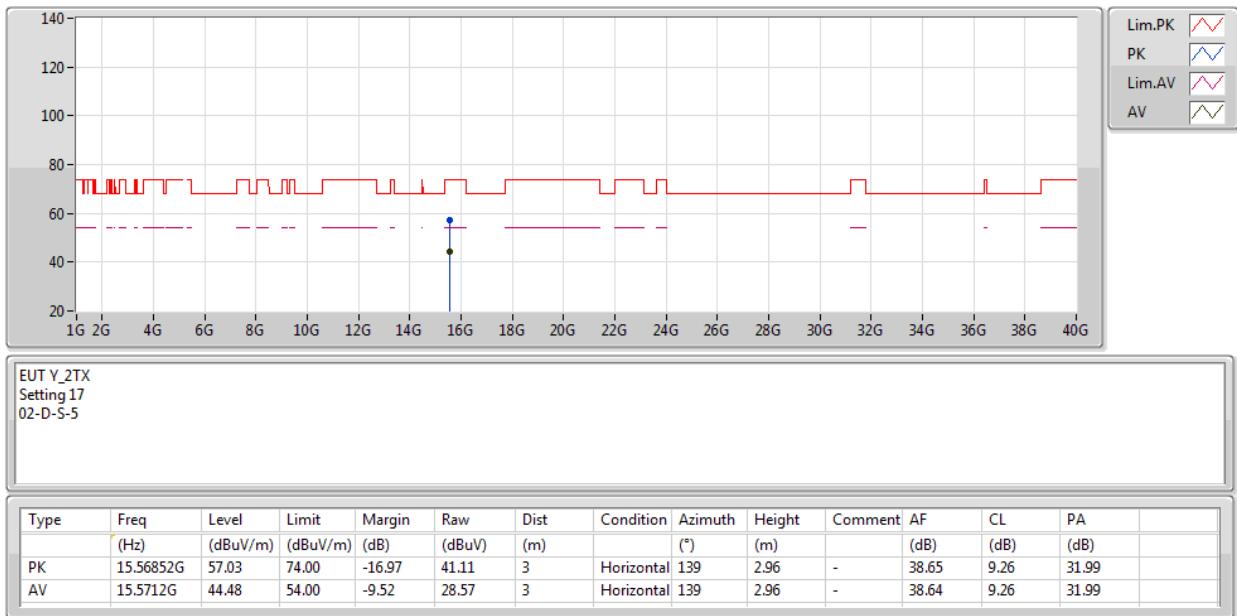
**802.11ac VHT40\_Nss1,(MCS0)\_2TX**

18/02/2020

**5190MHz\_TX**


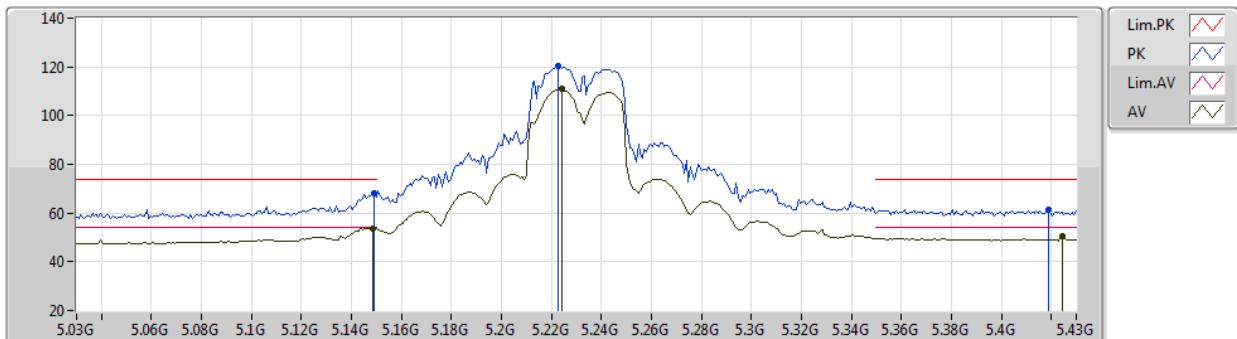
**802.11ac VHT40\_Nss1,(MCS0)\_2TX**

18/02/2020

**5190MHz\_TX**


**802.11ac VHT40\_Nss1,(MCS0)\_2TX**

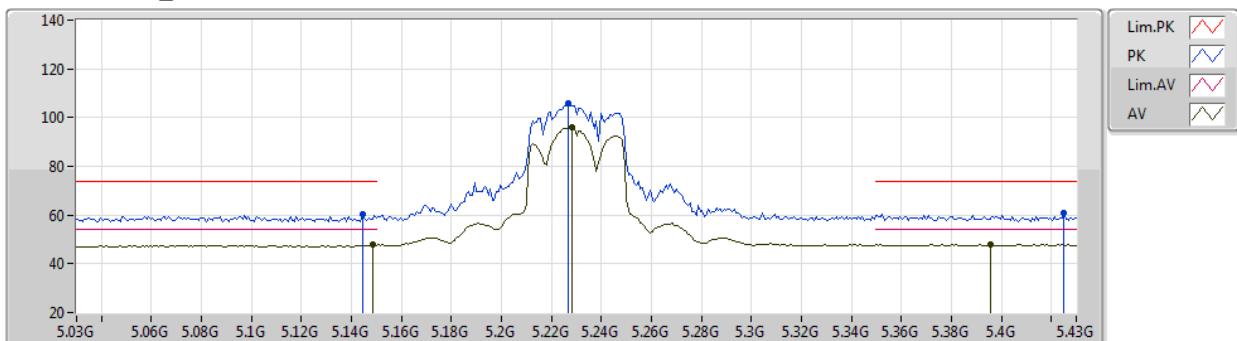
18/02/2020

**5230MHz\_TX**

 EUT Y\_2TX  
 Setting 22  
 02-D-L-3-10

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment (dB)	AF (dB)	CL (dB)	PA (dB)	
PK	5.1492G	68.21	74.00	-5.79	59.07	3	Vertical	223	2.04	-	33.55	5.97	30.38	
AV	5.1484G	53.80	54.00	-0.20	44.66	3	Vertical	223	2.04	-	33.55	5.97	30.38	
PK	5.2228G	120.35	Inf	-Inf	111.10	3	Vertical	223	2.04	-	33.65	6.01	30.41	
AV	5.2244G	110.84	Inf	-Inf	101.59	3	Vertical	223	2.04	-	33.65	6.01	30.41	
PK	5.4188G	61.54	74.00	-12.46	52.00	3	Vertical	223	2.04	-	33.90	6.12	30.48	
AV	5.4244G	50.62	54.00	-3.38	41.07	3	Vertical	223	2.04	-	33.90	6.13	30.48	

**802.11ac VHT40\_Nss1,(MCS0)\_2TX**

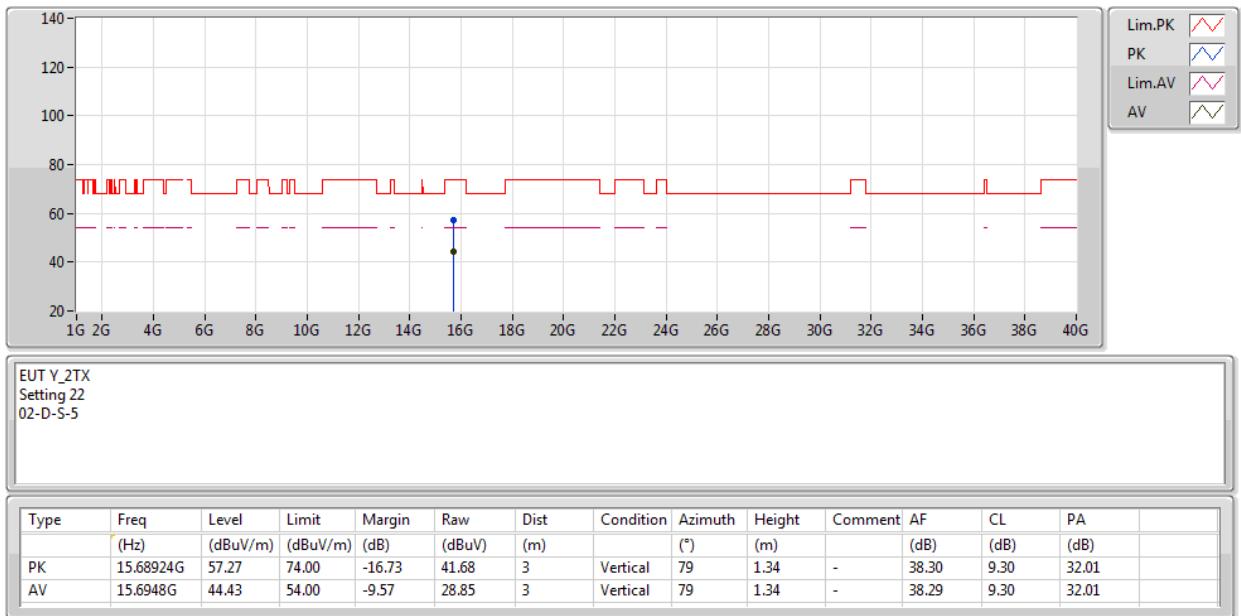
18/02/2020

**5230MHz\_TX**

 EUT Y\_2TX  
 Setting 22  
 02-D-L-3-10

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)	
PK	5.1444G	60.26	74.00	-13.74	51.13	3	Horizontal	161	1.68	-	33.54	5.97	30.38	
AV	5.1484G	47.79	54.00	-6.21	38.65	3	Horizontal	161	1.68	-	33.55	5.97	30.38	
PK	5.2268G	105.73	Inf	-Inf	96.48	3	Horizontal	161	1.68	-	33.65	6.01	30.41	
AV	5.2284G	95.99	Inf	-Inf	86.73	3	Horizontal	161	1.68	-	33.66	6.01	30.41	
PK	5.4252G	60.77	74.00	-13.23	51.22	3	Horizontal	161	1.68	-	33.90	6.13	30.48	
AV	5.3956G	47.98	54.00	-6.02	38.45	3	Horizontal	161	1.68	-	33.90	6.10	30.47	

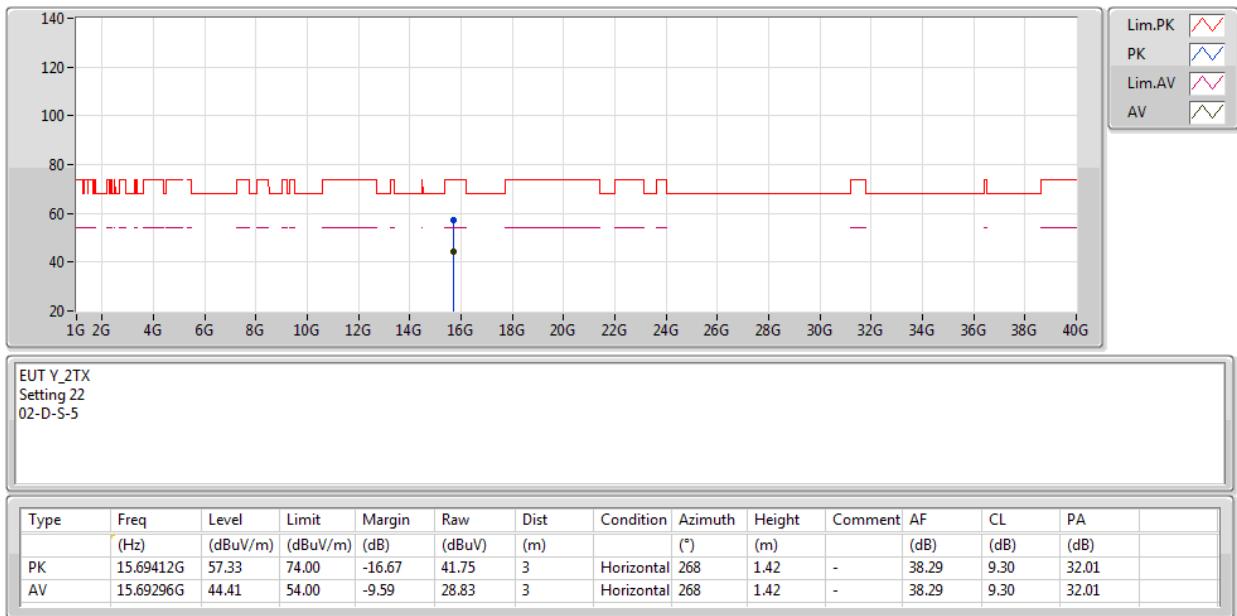
**802.11ac VHT40\_Nss1,(MCS0)\_2TX**

18/02/2020

**5230MHz\_TX**


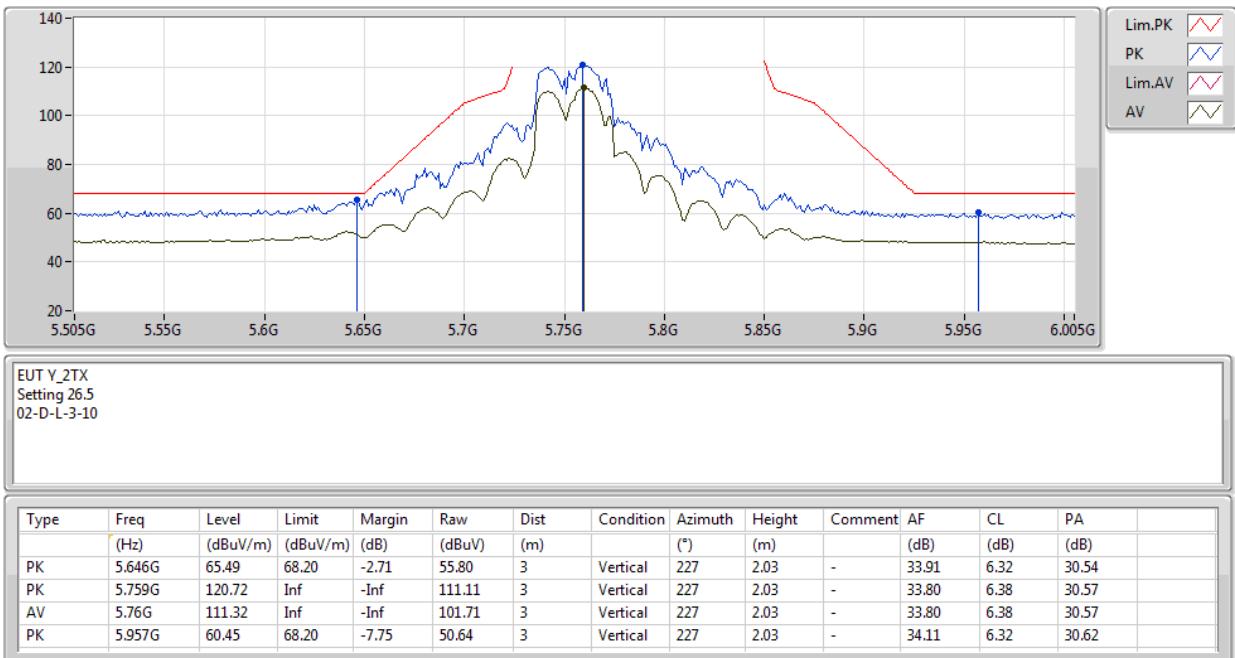
**802.11ac VHT40\_Nss1,(MCS0)\_2TX**

18/02/2020

**5230MHz\_TX**


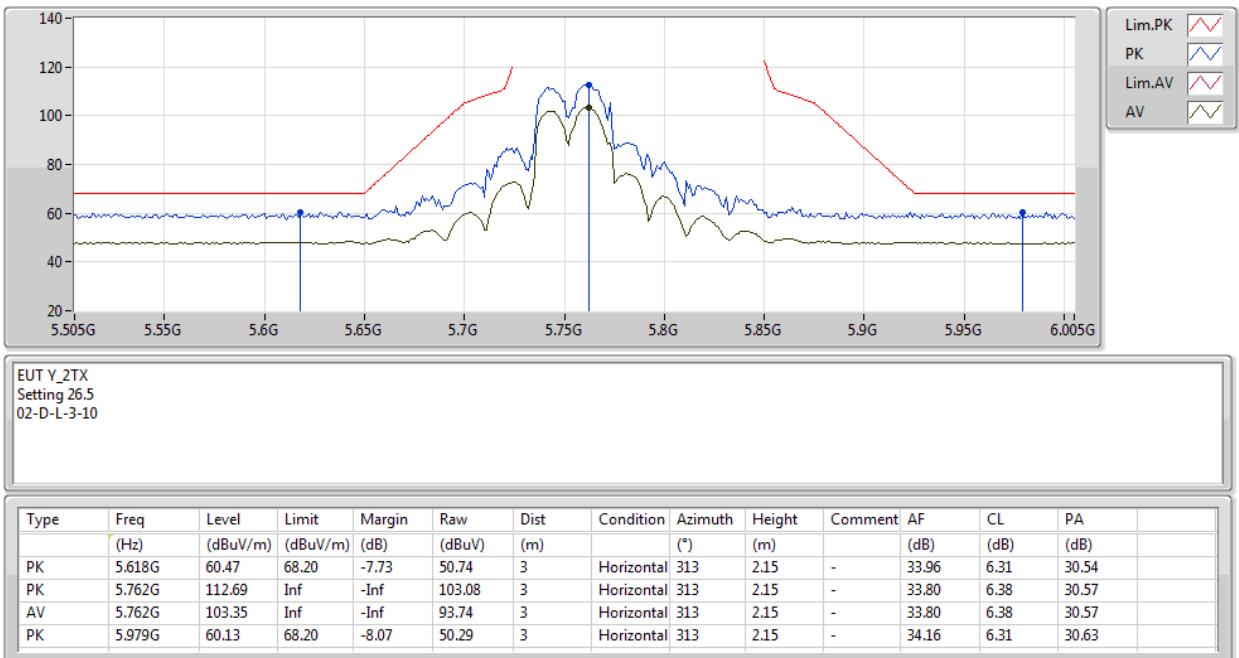
**802.11ac VHT40\_Nss1,(MCS0)\_2TX**

18/02/2020

**5755MHz\_TX**


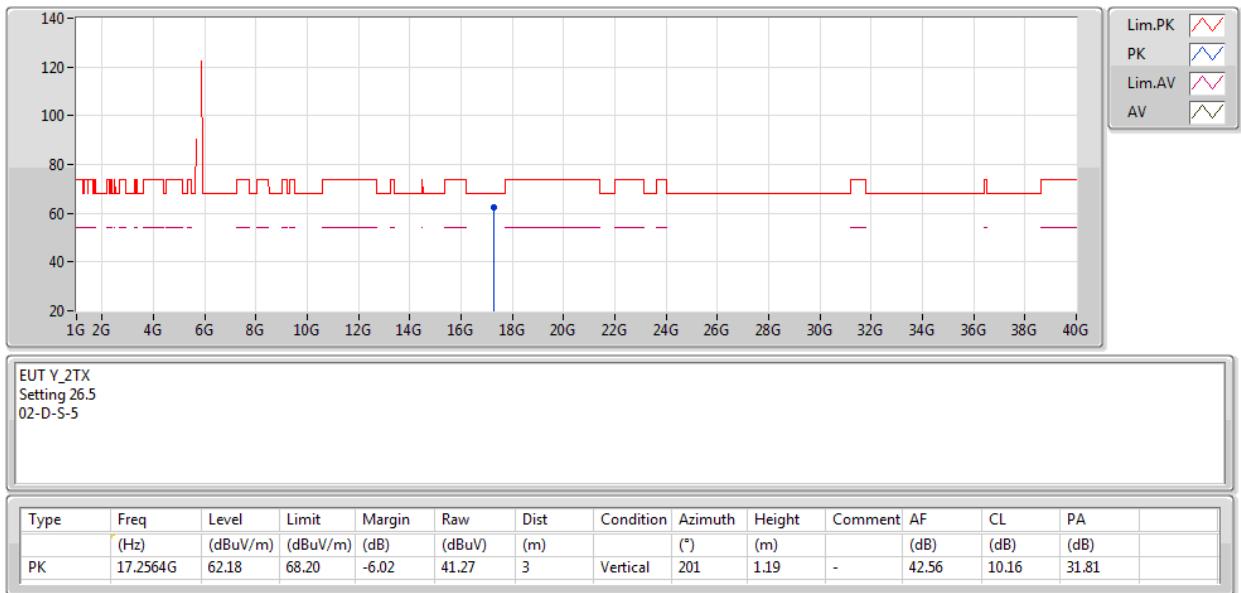
**802.11ac VHT40\_Nss1,(MCS0)\_2TX**

18/02/2020

**5755MHz\_TX**


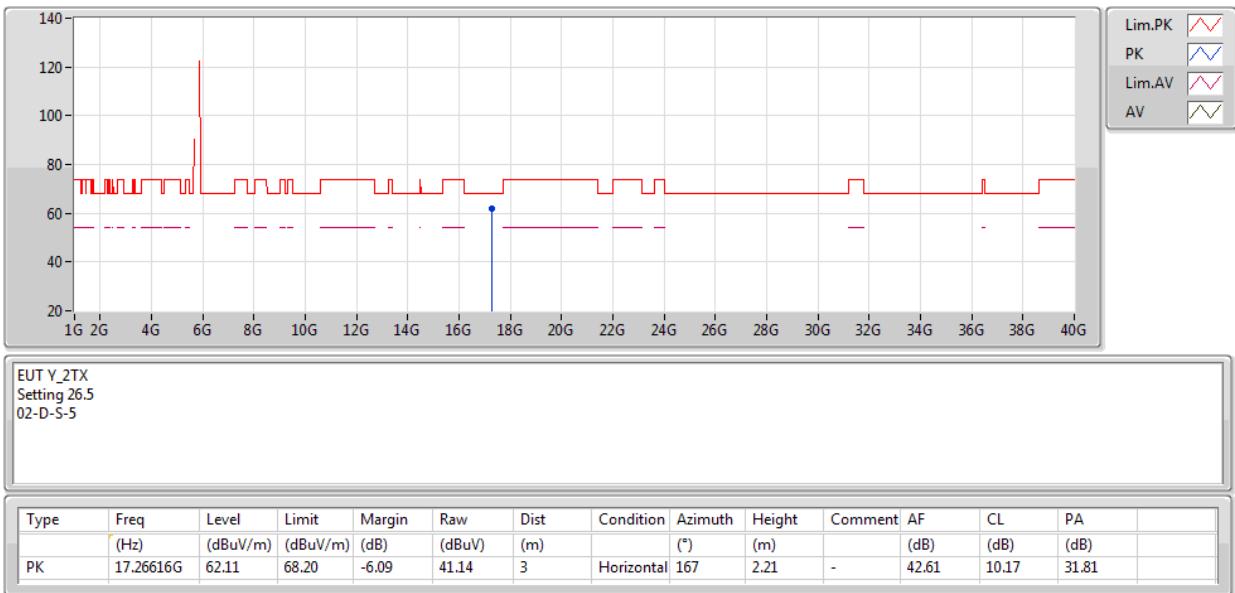
**802.11ac VHT40\_Nss1,(MCS0)\_2TX**

18/02/2020

**5755MHz\_TX**


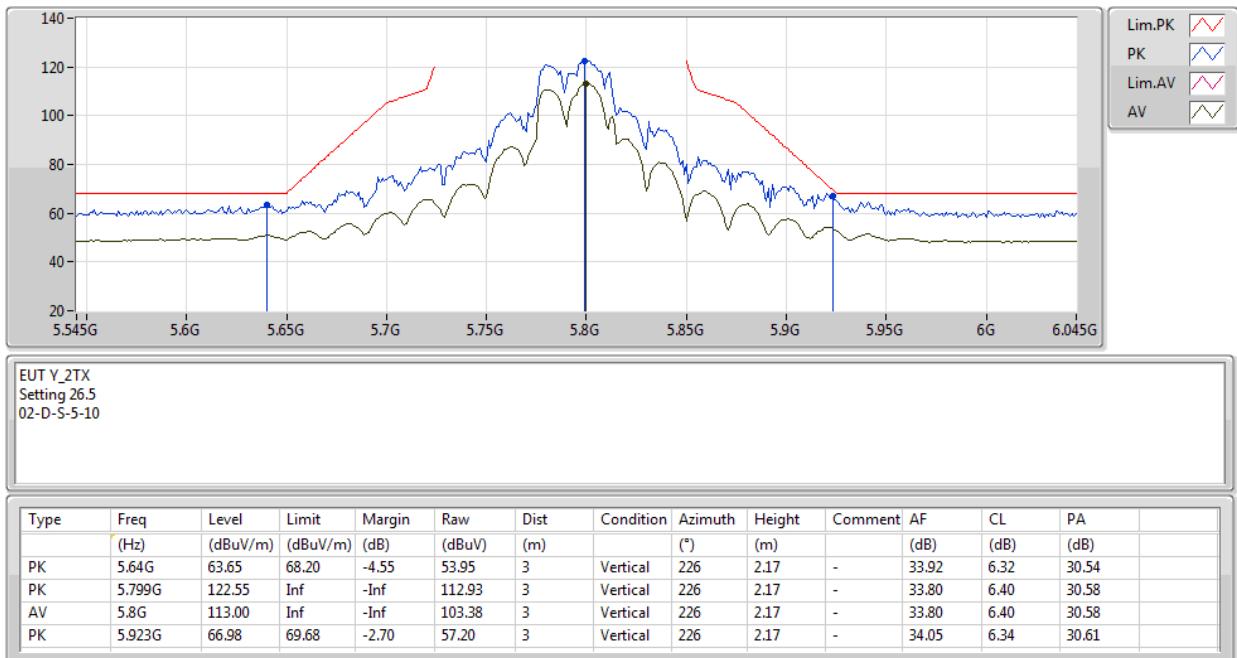
**802.11ac VHT40\_Nss1,(MCS0)\_2TX**

18/02/2020

**5755MHz\_TX**


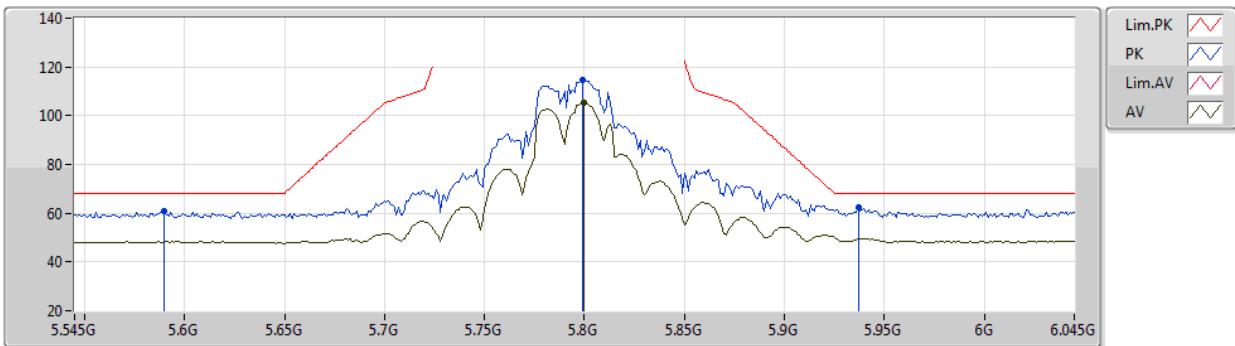
**802.11ac VHT40\_Nss1,(MCS0)\_2TX**

18/02/2020

**5795MHz\_TX**


**802.11ac VHT40\_Nss1,(MCS0)\_2TX**

18/02/2020

**5795MHz\_TX**

 EUT Y\_2TX  
 Setting 26.5  
 02-D-S-5-10

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (*)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)	
PK	5.59G	60.69	68.20	-7.51	50.94	3	Horizontal	311	2.04	-	33.99	6.29	30.53	
PK	5.799G	114.68	Inf	-Inf	105.06	3	Horizontal	311	2.04	-	33.80	6.40	30.58	
AV	5.8G	105.24	Inf	-Inf	95.62	3	Horizontal	311	2.04	-	33.80	6.40	30.58	
PK	5.937G	62.32	68.20	-5.88	52.54	3	Horizontal	311	2.04	-	34.07	6.33	30.62	

**802.11ac VHT40\_Nss1,(MCS0)\_2TX**

18/02/2020

**5795MHz\_TX**

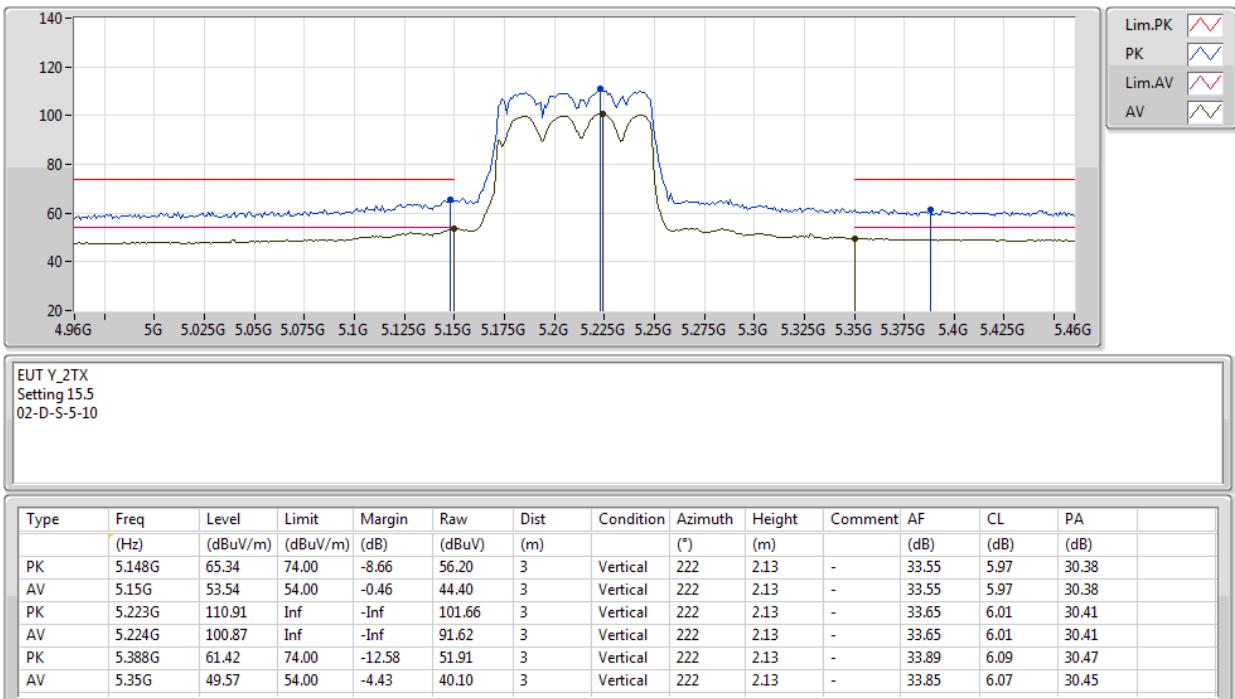

**802.11ac VHT40\_Nss1,(MCS0)\_2TX**

18/02/2020

**5795MHz\_TX**

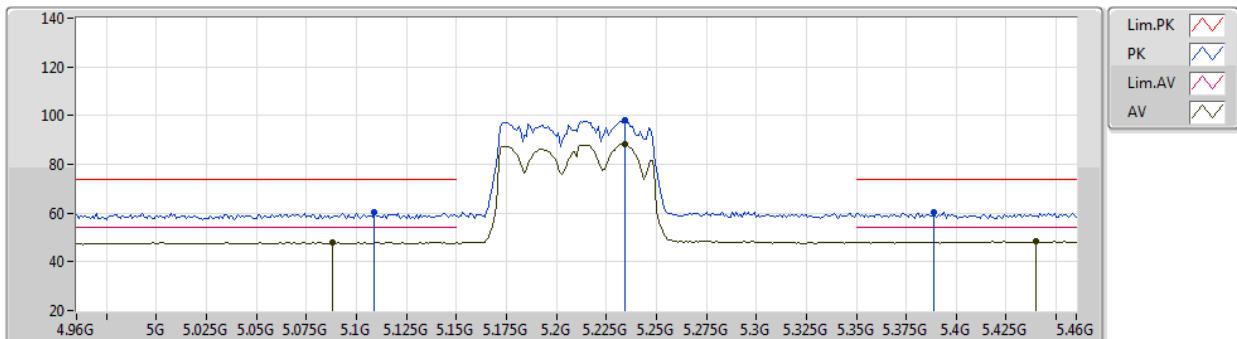

**802.11ac VHT80\_Nss1,(MCS0)\_2TX**

18/02/2020

**5210MHz\_TX**


**802.11ac VHT80\_Nss1,(MCS0)\_2TX**

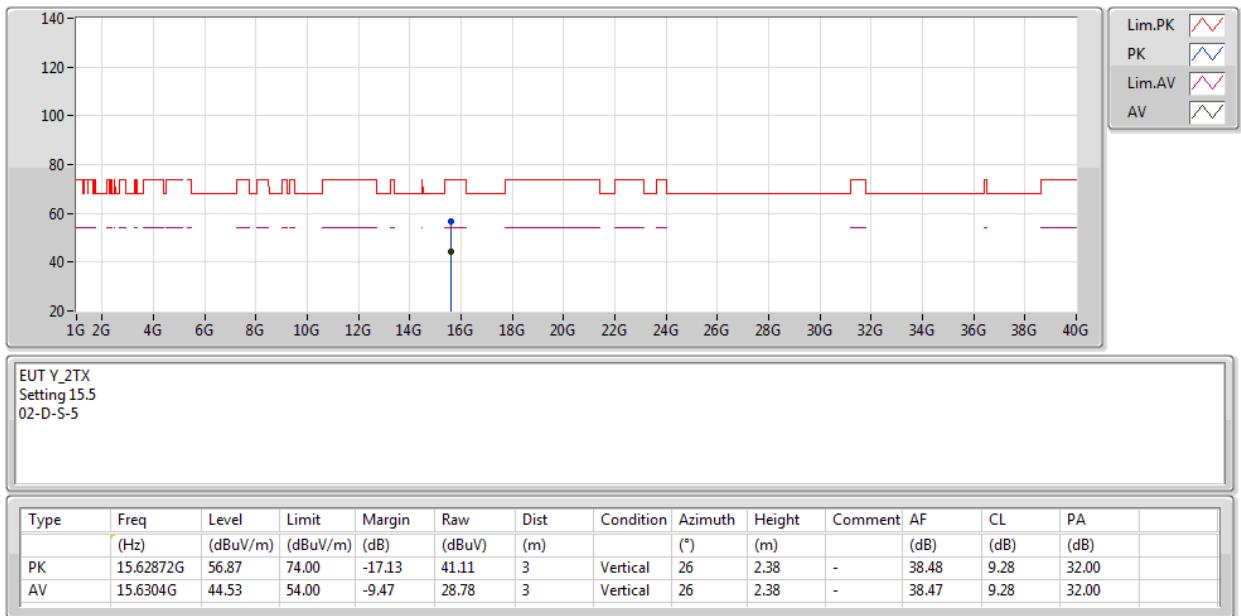
18/02/2020

**5210MHz\_TX**

 EUT Y\_2TX  
 Setting 15.5  
 02-D-S-5-10

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)	
PK	5.109G	60.23	74.00	-13.77	51.14	3	Horizontal	288	2.75	-	33.51	5.95	30.37	
AV	5.088G	47.93	54.00	-6.07	38.88	3	Horizontal	288	2.75	-	33.48	5.94	30.37	
PK	5.234G	98.10	Inf	-Inf	88.82	3	Horizontal	288	2.75	-	33.67	6.02	30.41	
AV	5.234G	88.38	Inf	-Inf	79.10	3	Horizontal	288	2.75	-	33.67	6.02	30.41	
PK	5.389G	60.23	74.00	-13.77	50.72	3	Horizontal	288	2.75	-	33.89	6.09	30.47	
AV	5.44G	48.31	54.00	-5.69	38.76	3	Horizontal	288	2.75	-	33.90	6.14	30.49	

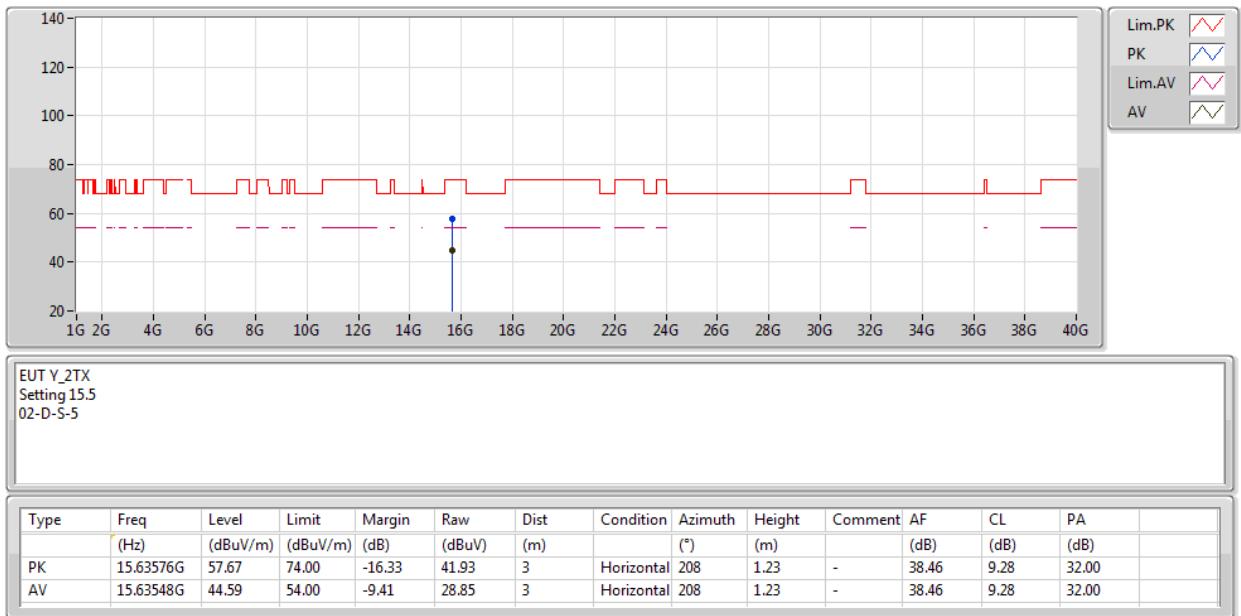
**802.11ac VHT80\_Nss1,(MCS0)\_2TX**

18/02/2020

**5210MHz\_TX**


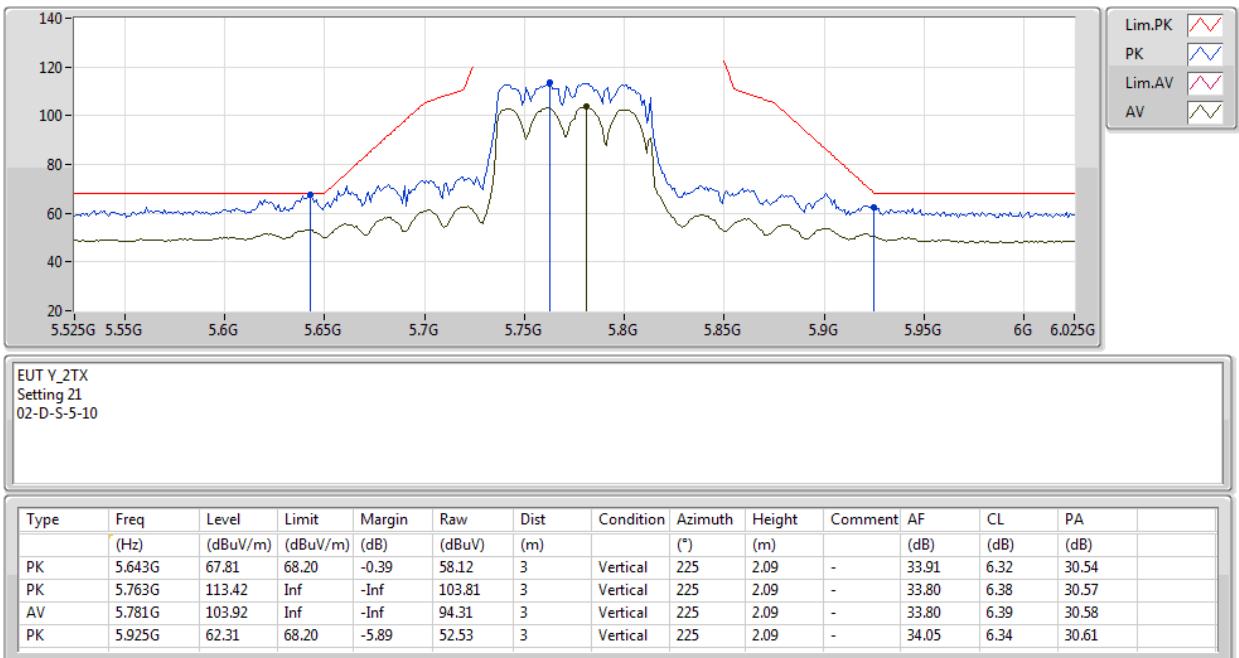
**802.11ac VHT80\_Nss1,(MCS0)\_2TX**

18/02/2020

**5210MHz\_TX**


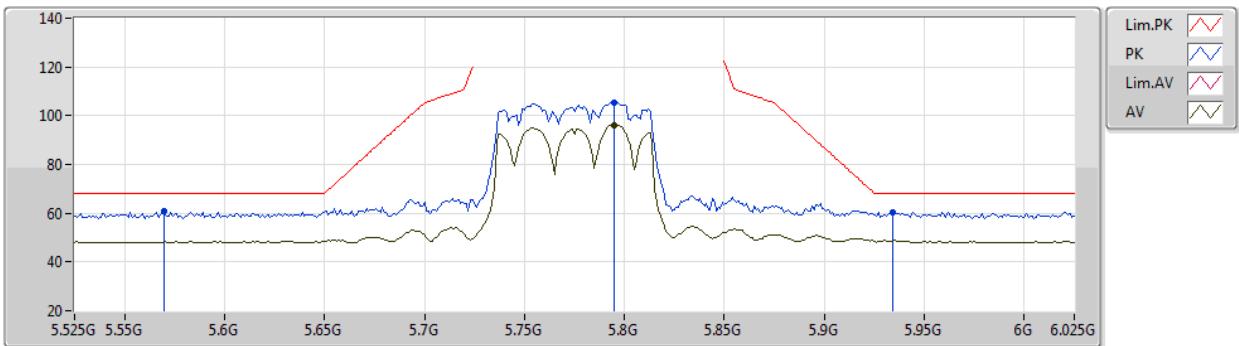
**802.11ac VHT80\_Nss1,(MCS0)\_2TX**

18/02/2020

**5775MHz\_TX**


**802.11ac VHT80\_Nss1,(MCS0)\_2TX**

18/02/2020

**5775MHz\_TX**

 EUT Y\_2TX  
 Setting 21  
 02-D-S-5-10

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (*)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)	
PK	5.57G	60.86	68.20	-7.34	51.14	3	Horizontal	128	2.15	-	33.97	6.27	30.52	
PK	5.795G	105.59	Inf	-Inf	95.97	3	Horizontal	128	2.15	-	33.80	6.40	30.58	
AV	5.795G	96.17	Inf	-Inf	86.55	3	Horizontal	128	2.15	-	33.80	6.40	30.58	
PK	5.934G	60.39	68.20	-7.81	50.61	3	Horizontal	128	2.15	-	34.07	6.33	30.62	

**802.11ac VHT80\_Nss1,(MCS0)\_2TX**

18/02/2020

**5775MHz\_TX**


**802.11ac VHT80\_Nss1,(MCS0)\_2TX**

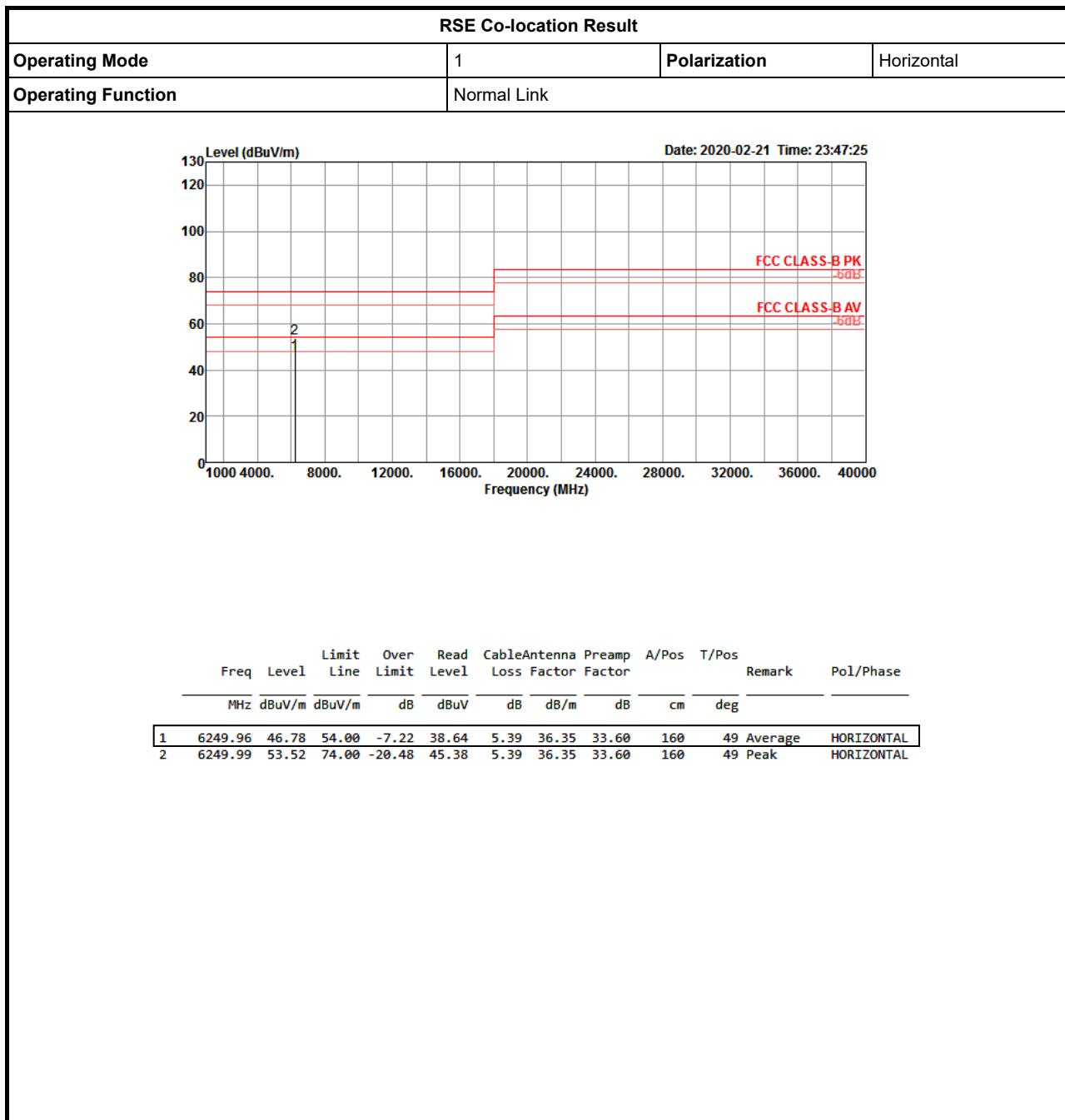
18/02/2020

**5775MHz\_TX**




## RSE Co-location Result

Appendix F





## RSE Co-location Result

Appendix F

