

Report No.: FR750948AB

Project No: CB10606015

# **FCC Test Report**

Equipment		AC1200 Dual-Band Outdoor Wireless Access Point
<b>Brand Name</b>		Luxul
Model No.	:	XAP-1440
FCC ID	:	W59XAP1440
Standard		47 CFR FCC Part 15.407
Operating Band	:	5150 MHz - 5250 MHz 5725 MHz - 5850 MHz
Applicant	:	Luxul Wireless 12884 S Frontrunner Blvd, Suite 201, Draper, UT 84020 USA
Function	:	Outdoor;    ☐ Indoor;    ☐ Fixed P2P     Client

The product sample received on May 09, 2017 and completely tested on Jun. 07, 2017. We, SPORTON, 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 test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

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# **Summary of Test Result**

Conformance Test Specifications					
Report Clause Description Ref. Std.					
1.1.2	15.203	Antenna Requirement	Complied		
3.1	15.207	AC Power-line Conducted Emissions	Complied		
3.2	15.407(a)	Emission Bandwidth C			
3.3	15.407(a)	Maximum Conducted Output Power	Complied		
3.4	15.407(a)	Peak Power Spectral Density	Complied		
3.5	15.407(b)	nwanted Emissions Co			
3.6	15.407(g)	Frequency Stability	Complied		

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# **Revision History**

Report No.	Version	Description	Issued Date
FR750948AB	Rev. 01	Initial issue of report	Jun. 21, 2017
FR750948AB	Rev. 02	Changing the applicant address to "12884 S Frontrunner Blvd, Suite 201, Draper, UT 84020 USA" from "12884 S. Frontrunner Dr, Suite 201 Draper, UT 84020 USA"	Jun. 30, 2017

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# 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	802.11n HT20-BF	20	2TX
5.15-5.25GHz	802.11ac VHT20	20	2TX
5.15-5.25GHz	802.11ac VHT20-BF	20	2TX
5.15-5.25GHz	802.11n HT40	40	2TX
5.15-5.25GHz	802.11n HT40-BF	40	2TX
5.15-5.25GHz	802.11ac VHT40	40	2TX
5.15-5.25GHz	802.11ac VHT40-BF	40	2TX
5.15-5.25GHz	802.11ac VHT80	80	2TX
5.15-5.25GHz	802.11ac VHT80-BF	80	2TX
5.725-5.85GHz	802.11a	20	2TX
5.725-5.85GHz	802.11n HT20	20	2TX
5.725-5.85GHz	802.11n HT20-BF	20	2TX
5.725-5.85GHz	802.11ac VHT20	20	2TX
5.725-5.85GHz	802.11ac VHT20-BF	20	2TX
5.725-5.85GHz	802.11n HT40	40	2TX
5.725-5.85GHz	802.11n HT40-BF	40	2TX
5.725-5.85GHz	802.11ac VHT40	40	2TX
5.725-5.85GHz	802.11ac VHT40-BF	40	2TX
5.725-5.85GHz	802.11ac VHT80	80	2TX
5.725-5.85GHz	802.11ac VHT80-BF	80	2TX

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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 Dort	Dort	Dort	Port Brand Vender No. Antenna Type C	Connector	Gain (dBi)		
Ant.	Ant. Port Brand		venuer No.   Antenna Type		Connector	2.4GHz	5GHz
1	1	Nienyi	NYS2817	Dipole Antenna	MHF-I Plug	5.8	4.8
2	2	Nienyi	NYS2817	Dipole Antenna	MHF-I Plug	5.8	4.8

Note: The EUT has two antennas.

#### <For 2.4GHz Band>

### For IEEE 802.11b mode (1TX/1RX)

It fixed Port 2 as transmitting and receiving antenna.

### For IEEE 802.11g/n 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 Band>

#### 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)
802.11a	0.927	0.329
802.11ac VHT20	0.948	0.232
802.11ac VHT20-BF	0.908	0.419
802.11ac VHT40	0.918	0.372
802.11ac VHT40-BF	1	0
802.11ac VHT80	0.813	0.899
802.11ac VHT80-BF	0.916	0.381

### 1.1.4 EUT Operational Condition

EUT Power Type	From PoE				
Beamforming Function	$\boxtimes$	With beamforming for 802.11n/ac in 5GHz		Without beamforming	

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# 1.2 Testing Applied Standards

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

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- 47 CFR FCC Part 15
- ANSI C63.10-2013
- FCC KDB 789033 D02 v01r04
- FCC KDB 644545 D03 v01
- FCC KDB 662911 D01 v02r01

# 1.3 Testing Location Information

	Testing Location						
	HWA YA ADD : No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.						
		TEL	:	886-3-327-3456 FAX : 886-3-318-0055			
$\boxtimes$	JHUBEI	ADD	:	No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C.			
		TEL	:	86-3-656-9065 FAX : 886-3-656-9085			

Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
RF Conducted	TH01-CB	Stim Sung / Brian Sun	20°C / 50%	May 15, 2017~ Jun. 07, 2017
Radiated	03CH01-CB	Joy Luo	22°C / 54%	May 15, 2017~ May 23, 2017
AC Conduction	CO02-CB	Kane Liu	22°C / 61%	May 23, 2017

Test site Designation No. TW0006 with FCC

Test site registered number IC 4086D with Industry Canada.

# 1.4 Measurement Uncertainty

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

Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	3.2 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	3.6 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	3.7 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	3.5 dB	Confidence levels of 95%
Conducted Emission	1.7 dB	Confidence levels of 95%
Output Power Measurement	1.33 dB	Confidence levels of 95%
Power Density Measurement	1.27 dB	Confidence levels of 95%
Bandwidth Measurement	9.74 x10 <sup>-8</sup>	Confidence levels of 95%
Frequency Stability	6.06 x10 <sup>-8</sup>	Confidence levels of 95%

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# 2 Test Configuration of EUT

# 2.1 Test Channel Mode

Mode	Power Setting
802.11a_(6Mbps)_2TX	-
5180MHz	73
5200MHz	73
5240MHz	73
5745MHz	75
5785MHz	77
5825MHz	70
802.11ac VHT20_Nss1,(MCS0)_2TX	-
5180MHz	73
5200MHz	73
5240MHz	73
5745MHz	80
5785MHz	75
5825MHz	80
802.11ac VHT40_Nss1,(MCS0)_2TX	-
5190MHz	64
5230MHz	76
5755MHz	91
5795MHz	86
802.11ac VHT80_Nss1,(MCS0)_2TX	-
5210MHz	58
5775MHz	84
802.11ac VHT20-BF_Nss1,(MCS0)_2TX	-
5180MHz	60
5200MHz	60
5240MHz	60
5745MHz	86
5785MHz	80
5825MHz	62
802.11ac VHT40-BF_Nss1,(MCS0)_2TX	-
5190MHz	63
5230MHz	63
5755MHz	96
5795MHz	90
802.11ac VHT80-BF_Nss1,(MCS0)_2TX	-
5210MHz	62
5775MHz	77

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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.

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

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# 2.2 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests		
Tests Item AC power-line conducted emissions		
Condition AC power-line conducted measurement for line and neutral		
Operating Mode	Operating Mode CTX	
1 EUT with PoE		

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Т	The Worst Case Mode for Following Conformance Tests		
Tests Item	Emission Bandwidth Maximum Conducted Output Power Peak Power Spectral Density Frequency Stability		
Test Condition	Test Condition Conducted measurement at transmit chains		

Th	The Worst Case Mode for Following Conformance Tests			
Tests Item Unwanted Emissions				
Test Condition  Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in El regardless of spatial multiplexing MIMO configuration), the radiated test show be performed with highest antenna gain of each antenna type.				
Operating Mode < 1GHz	CTX			
1	EUT in Y axis with PoE			
Operating Mode > 1GHz	CTX			
1	EUT in Y axis with PoE			

The Worst Case Mode for Following Conformance Tests			
Tests Item Simultaneous Transmission Analysis - Co-location RF Exposure Evaluation			
Operating Mode	Operating Mode CTX		
1	1 WLAN 2.4GHz+WLAN 5GHz		
Refer to Sporton Test Report No.: FA750948 for Co-location RF Exposure Evaluation.			

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# 2.3 EUT Operation during Test

### non-beamforming mode:

The EUT was programmed to be in continuously transmitting mode.

### beamforming mode:

For Conducted Mode:

The EUT was programmed to be in continuously transmitting mode.

For Radiated Mode:

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

The program was executed as follows:

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

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### 2.4 Accessories

	Accessories					
No.	Equipment Name	Brand Name	Model Name	Rating		
1	PoE	PHIHONG	POE29U-560	INPUT: 100-240V~0.8A 50-60Hz OUTPUT: 56V, 0.536A		
	Others					
Power Cable*1: Non-Shielded, 1.8m						
RJ-4	RJ-45 Cable*1: Non-Shielded, 1.0m					

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#### **Support Equipment** 2.5

For Test Site No: CO01-CB

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

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

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

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

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

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

	Support Equipment					
No. Equipment Brand Name Model Name FCC ID						
1	NB	DELL	E4300	DoC		
2	NB	DELL	E4300	DoC		
3	WLAN module	Boardcom	BCM943162ZP	QDS-BRCM1075		

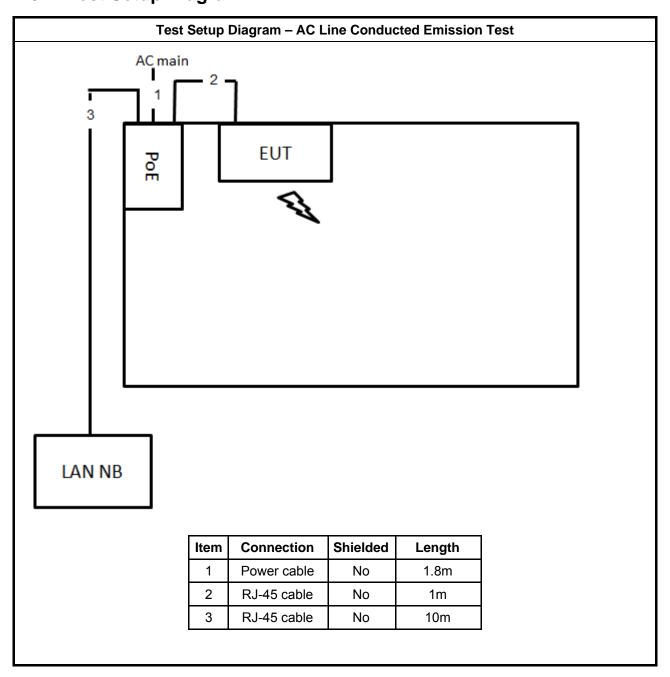
For Test Site No: TH01-CB

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

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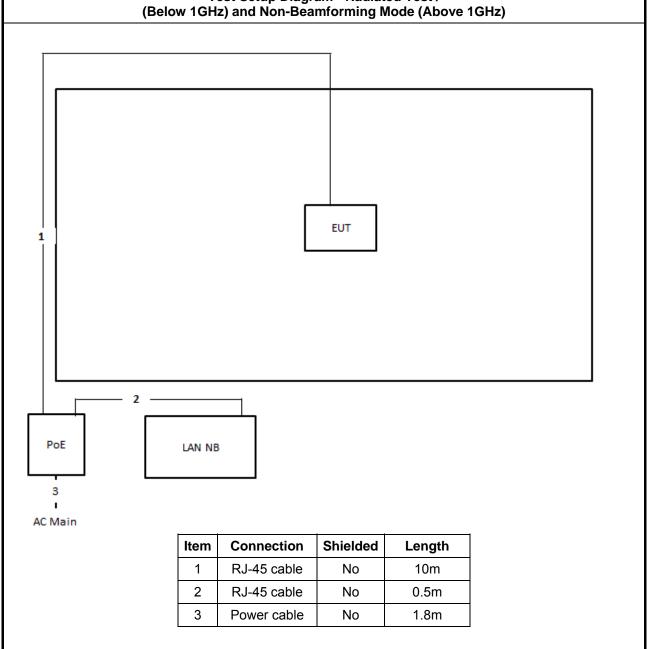
2.6 Test Setup Diagram



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Report No.: FR750948AB Test Setup Diagram - Radiated Test / (Below 1GHz) and Non-Beamforming Mode (Above 1GHz)



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Test Setup Diagram - Radiated Test / Beamforming Mode (Above 1GHz) **EUT** 2 PoE LAN NB Device NB WLAN module 3 AC Main

Item	Connection	Shielded	Length
1	RJ-45 cable	No	10m
2	RJ-45 cable	No	0.5m
3	Power cable	No	1.8m

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# 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

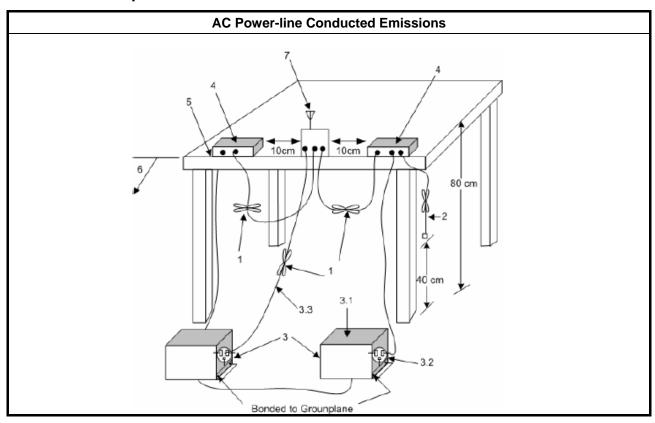
### 3.1.2 Measuring Instruments

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

### 3.1.3 Test Procedures

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

### 3.1.4 Test Setup



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# 3.1.5 Test Result of AC Power-line Conducted Emissions

Refer as Appendix A

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### 3.2 Emission Bandwidth

### 3.2.1 Emission Bandwidth Limit

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

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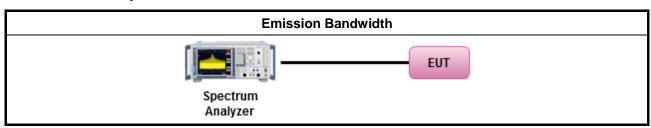
# 3.2.2 Measuring Instruments

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

### 3.2.3 Test Procedures

	Test Method				
•	For the emission bandwidth shall be measured using one of the options below:				
	Refer as FCC KDB 789033, clause C for EBW and clause D for OBW measurement.				
	Refer as ANSI C63.10, clause 6.9.1 for occupied bandwidth testing.				
	$\boxtimes$	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

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# 3.3 Maximum Conducted Output Power

# 3.3.1 Maximum Conducted Output Power Limit

	Maximum Conducted Output Power Limit
UNI	I Devices
$\boxtimes$	For the 5.15-5.25 GHz band:
	Outdoor AP: the maximum conducted output power ( $P_{Out}$ ) shall not exceed the lesser of 1 W. If $G_{TX}$ > 6 dBi, then $P_{Out}$ = 30 – ( $G_{TX}$ – 6). e.i.r.p. at any elevation angle above 30 degrees $\leq$ 125mW [21dBm]
	Indoor AP: the maximum conducted output power ( $P_{Out}$ ) shall not exceed the lesser of 1 W. If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$
	Point-to-point AP: the maximum conducted output power ( $P_{Out}$ ) shall not exceed the lesser of 1 W If $G_{TX} > 23$ dBi, then $P_{Out} = 30 - (G_{TX} - 23)$ .
	■ Mobile or Portable Client: the maximum conducted output power (P <sub>Out</sub> ) shall not exceed the lesser of 250 mW. If G <sub>TX</sub> > 6 dBi, then P <sub>Out</sub> = 24 – (G <sub>TX</sub> – 6).
	For the 5.25-5.35 GHz band, the maximum conducted output power ( $P_{Out}$ ) shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz. If $G_{TX}$ > 6 dBi, then $P_{Out}$ = 24 – ( $G_{TX}$ – 6).
	For the 5.47-5.725 GHz band, the maximum conducted output power ( $P_{Out}$ ) shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 24 - (G_{TX} - 6)$ .
$\boxtimes$	For the 5.725-5.85 GHz band:
	Point-to-multipoint systems (P2M): the maximum conducted output power ( $P_{Out}$ ) shall not exceed the lesser of 1 W. If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$ .
	Point-to-point systems (P2P): the maximum conducted output power (P <sub>Out</sub> ) shall not exceed the lesser of 1 W.
LE-	LAN Devices
	For the 5.15-5.25 GHz band, the maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log B, dBm, whichever power is less. B is the $99\%$ emission bandwidth in MHz.
	For the 5.25-5.35 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz
	For the 5.47-5.6 GHz band and 5.65-5.725 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or $17 + 10 \log B$ , dBm, whichever power is less. B is the 99% emission bandwidth in MHz
	For the 5.725-5.85 GHz band:
	Point-to-multipoint systems (P2M): the maximum conducted output power ( $P_{Out}$ ) shall not exceed the lesser of 1 W. If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$ .
	Point-to-point systems (P2P): the maximum conducted output power (P <sub>Out</sub> ) shall not exceed the lesser of 1 W.
	= maximum conducted output power in dBm, = the maximum transmitting antenna directional gain in dBi.

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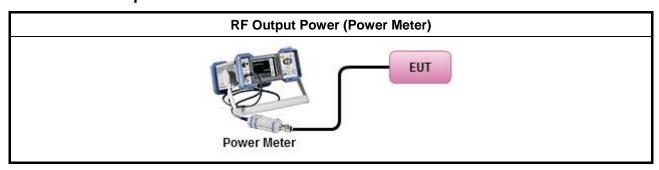
### 3.3.2 Measuring Instruments

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

### 3.3.3 Test Procedures

	Test Method			
•	Maximum Conducted Output Power			
	Average over on/off periods with duty factor			
	Refer as FCC KDB 789033, clause E Method SA-2 (spectral trace averaging).			
	Refer as FCC KDB 789033, clause E Method SA-2 Alt. (RMS detection with slow sweep speed)			
	Wideband RF power meter and average over on/off periods with duty factor			
	Refer as FCC KDB 789033, clause E Method PM-G (using an RF average power meter).			
•	For conducted measurement.			
	If the EUT supports multiple transmit chains using options given below: Refer as FCC KDB 662911, In-band power measurements. Using the measure-and-sum approach, measured all transmit ports individually. Sum the power (in linear power units e.g., mW) of all ports for each individual sample and save them.			
	■ If multiple transmit chains, EIRP calculation could be following as methods:  P <sub>total</sub> = P <sub>1</sub> + P <sub>2</sub> + + P <sub>n</sub> (calculated in linear unit [mW] and transfer to log unit [dBm])  EIRP <sub>total</sub> = P <sub>total</sub> + DG			

# 3.3.4 Test Setup



# 3.3.5 Test Result of Maximum Conducted Output Power

Refer as Appendix C

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# 3.4 Peak Power Spectral Density

# 3.4.1 Peak Power Spectral Density Limit

	Peak Power Spectral Density Limit
UNI	II Devices
$\boxtimes$	For the 5.15-5.25 GHz band:
	<ul> <li>Outdoor AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If G<sub>TX</sub> &gt; 6 dBi, then P<sub>Out</sub> = 17 - (G<sub>TX</sub> - 6).</li> </ul>
	Indoor AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If G <sub>TX</sub> > 6 dBi, then P <sub>Out</sub> = 17 − (G <sub>TX</sub> − 6).
	■ Point-to-point AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If $G_{TX} > 23$ dBi, then $P_{Out} = 17 - (G_{TX} - 23)$ .
	■ Mobile or Portable Client: the peak power spectral density (PPSD) $\leq$ 11 dBm/MHz. If $G_{TX} > 6$ dBi, then PPSD= 11 $-$ ( $G_{TX} - 6$ )
	For the 5.25-5.35 GHz band, the peak power spectral density (PPSD) $\leq$ 11 dBm/MHz. If $G_{TX} >$ 6 dBi, then PPSD= 11 $-$ ( $G_{TX} -$ 6).
	For the 5.47-5.725 GHz band, the peak power spectral density (PPSD) $\leq$ 11 dBm/MHz. If $G_{TX} >$ 6 dBi, then PPSD= 11 – $(G_{TX} - 6)$ .
$\boxtimes$	For the 5.725-5.85 GHz band:
	Point-to-multipoint systems (P2M): the peak power spectral density (PPSD) ≤ 30 dBm/500kHz. If $G_{TX} > 6$ dBi, then PPSD= $30 - (G_{TX} - 6)$ .
	Point-to-point systems (P2P): the peak power spectral density (PPSD) ≤ 30 dBm/500kHz.
LE-	LAN Devices
	For the 5.15-5.25 GHz band, the peak power spectral density (PPSD) $\leq$ 4 dBm/MHz and the e.i.r.p. peak power spectral density (PPSD) $\leq$ 10 dBm/MHz.
	For the 5.25-5.35 GHz band, the peak power spectral density (PPSD) $\leq$ 11 dBm/MHz and the e.i.r.p. peak power spectral density (PPSD) $\leq$ 17 dBm/MHz.
	<ul> <li>e.i.r.p. greater than 200 mW shall comply with the following e.i.r.p. at different elevations, where θ is the angle above the local horizontal plane (of the Earth) as shown below:</li> <li>-13 dBW/MHz for 0° ≤ θ &lt; 8°; -13 - 0.716 (θ-8) dBW/MHz for 8° ≤ θ &lt; 40°</li> <li>-35.9 - 1.22 (θ-40) dBW/MHz for 40° ≤ θ ≤ 45°; -42 dBW/MHz for θ &gt; 45°</li> </ul>
	For the 5.47-5.6 GHz band and 5.65-5.725 GHz band, the peak power spectral density (PPSD) $\leq$ 11 dBm/MHz and the e.i.r.p. peak power spectral density (PPSD) $\leq$ 17 dBm/MHz.
	For the 5.725-5.85 GHz band:
	Point-to-multipoint systems (P2M): the peak power spectral density (PPSD) ≤ 30 dBm/500kHz. If $G_{TX} > 6$ dBi, then PPSD= 30 – ( $G_{TX} - 6$ ).
	<ul> <li>Point-to-point systems (P2P): the peak power spectral density (PPSD) ≤ 30 dBm/500kHz.</li> </ul>
pow	SD = peak power spectral density that he same method as used to determine the conducted output ver shall be used to determine the power spectral density. And power spectral density in dBm/MHz = the maximum transmitting antenna directional gain in dBi.

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# 3.4.2 Measuring Instruments

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

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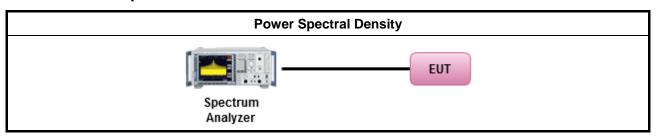
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### 3.4.3 Test Procedures

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

# 3.4.4 Test Setup



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# FCC Test Report

# 3.4.5 Test Result of Peak Power Spectral Density

Refer as Appendix D

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### 3.5 Unwanted Emissions

### 3.5.1 Transmitter Radiated Unwanted Emissions Limit

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

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

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

Un-restricted band emissions above 1GHz Limit		
Operating Band	Limit	
5.15 - 5.25 GHz	e.i.r.p27 dBm [68.2 dBuV/m@3m]	
5.25 - 5.35 GHz	e.i.r.p27 dBm [68.2 dBuV/m@3m]	
5.47 - 5.725 GHz	e.i.r.p27 dBm [68.2 dBuV/m@3m]	
5.725 - 5.85 GHz	All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.	

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

### 3.5.2 Measuring Instruments

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

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#### 3.5.3 Test Procedures

Test	N/I	atk	$h \alpha$
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- Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 m for frequencies above 30 MHz, unless it can be further demonstrated that measurements at a distance of 30 m or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).
- The average emission levels shall be measured in [duty cycle ≥ 98 or duty factor].
- For the transmitter unwanted emissions shall be measured using following options below:
  - Refer as FCC KDB 789033, clause H)2) for unwanted emissions into non-restricted bands.
  - Refer as Clause 11.11 of ANSI C63.10-2013 and/or in Section 11.0 of KDB Publication 558074 for unwanted emissions into non-restricted bands.
  - Refer as FCC KDB 789033, clause H)1) for unwanted emissions into restricted bands.

Refer as FCC KDB 789033, H)6)	Method AD (Trace Averaging)
-------------------------------	-----------------------------

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

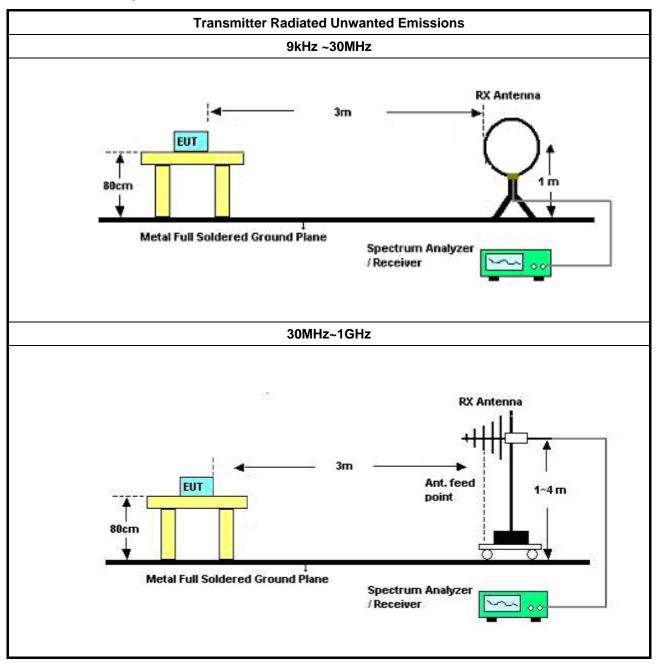
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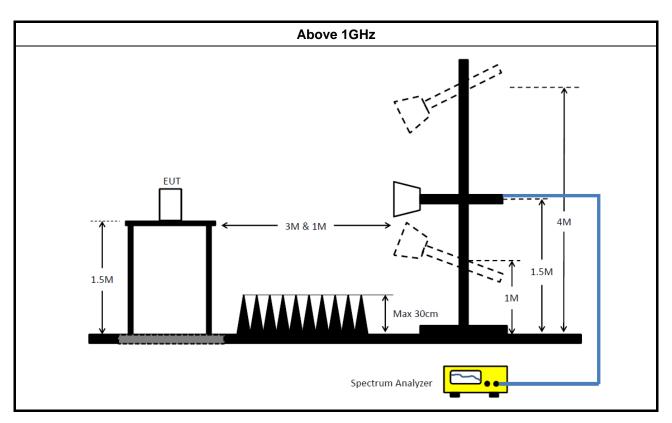


# 3.5.4 Test Setup



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# 3.5.5 Transmitter Unwanted Emissions (Below 30MHz)

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

### 3.5.6 Test Result of Transmitter Unwanted Emissions

Refer as Appendix E

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# 3.6 Frequency Stability

### 3.6.1 Frequency Stability Limit

### **Frequency Stability Limit**

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#### **UNII Devices**

• In-band emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

### **LE-LAN Devices**

N/A

#### IEEE Std. 802.11

■ The transmitter center frequency tolerance shall be ± 20 ppm maximum for the 5 GHz band and ± 25 ppm maximum for the 2.4 GHz band.

### 3.6.2 Measuring Instruments

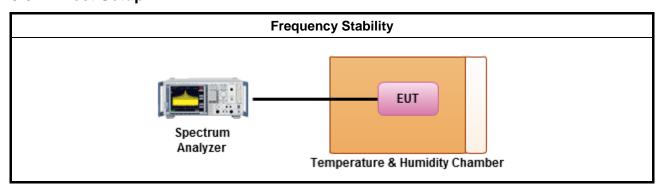
Refer a test equipment and calibration data table in this test report.

### 3.6.3 Test Procedures

#### **Test Method**

- Refer as ANSI C63.10, clause 6.8 for frequency stability tests
  - Frequency stability with respect to ambient temperature
  - Frequency stability when varying supply voltage
  - Extreme temperature is -20°C~50°C.

### 3.6.4 Test Setup



### 3.6.5 Test Result of Frequency Stability

Refer as Appendix F

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4 Test Equipment and Calibration Data

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
LISN	Schwarzbeck	NSLK 8127	8127650	9kHz ~ 30MHz	Nov. 23, 2016	Conduction (CO02-CB)
LISN	Schwarzbeck	NSLK 8127	8127478	9kHz ~ 30MHz	Nov. 15, 2016	Conduction (CO02-CB)
EMI Receiver	Agilent	N9038A	MY52260140	9kHz ~ 8.4GHz	Jan. 16, 2017	Conduction (CO02-CB)
COND Cable	Woken	Cable	01	0.15MHz ~ 30MHz	Nov. 30, 2016	Conduction (CO02-CB)
Software	Audix	E3	6.120210n	-	N.C.R.	Conduction (CO02-CB)
Pulse Limiter	Schwarzbeck	VTSD 9561F	9561-F073	9kHz ~ 30MHz	Sep. 29, 2016	Conduction (CO02-CB)
BILOG ANTENNA with 6dB Attenuator	TESEQ & EMCI	CBL6112D & N-6-06	37880 & AT-N0609	20MHz ~ 2GHz	Aug. 30, 2016	Radiation (03CH01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	Mar. 16, 2016*	Radiation (03CH01-CB)
Horn Antenna	EMCO	3115	00075790	750MHz ~ 18GHz	Nov. 10, 2016	Radiation (03CH01-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Jul. 25, 2016	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8447D	2944A10991	0.1MHz ~ 1.3GHz	Mar. 13, 2017	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Jan. 16, 2017	Radiation (03CH01-CB)
Pre-Amplifier	MITEQ	TTA1840-35-HG	1864479	18GHz ~ 40GHz	Jun. 28, 2016	Radiation (03CH01-CB)
Spectrum Analyzer	R&S	FSP40	100056	9kHz ~ 40GHz	Nov. 22, 2016	Radiation (03CH01-CB)
EMI Test	R&S	ESCS	100355	9kHz ~ 2.75GHz	May 06, 2017	Radiation (03CH01-CB)
RF Cable-low	Woken	Low Cable-16+17	N/A	30 MHz ~ 1 GHz	Oct. 24, 2016	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16	N/A	1 GHz ~ 18 GHz	Oct. 24, 2016	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16+17	N/A	1 GHz ~ 18 GHz	Oct. 24, 2016	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G#1	N/A	18GHz ~ 40 GHz	Oct. 24, 2016	Radiation (03CH01-CB)

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# FCC Test Report

RF Cable-high	Woken	High Cable-40G#2	N/A	18GHz ~ 40 GHz	Oct. 24, 2016	Radiation (03CH01-CB)
Test Software	Audix	E3	6.2009-10-7	N/A	N/A	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSV40	100979	9kHz~40GHz	Dec. 26, 2016	Conducted (TH01-CB)
Temp. and Humidity Chamber	Ten Billion	TTH-C2SP	TBN-1010206	-20~150 degree Mar. 08. 2017		Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-6	1 GHz – 26.5 GHz Oct. 24, 2016		Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-7	1 GHz –26.5 GHz Oct. 24, 2016		Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-8	1 GHz –26.5 GHz	Oct. 24, 2016	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-9	1 GHz –26.5 GHz	1 GHz –26.5 GHz Oct. 24, 2016	
RF Cable-high	Woken	RG402	High Cable-10	1 GHz –26.5 GHz Oct. 24, 2016		Conducted (TH01-CB)
Power Sensor	Agilent	U2021XA	MY53410001	50MHz~18GHz Nov. 22, 2016		Conducted (TH01-CB)

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

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

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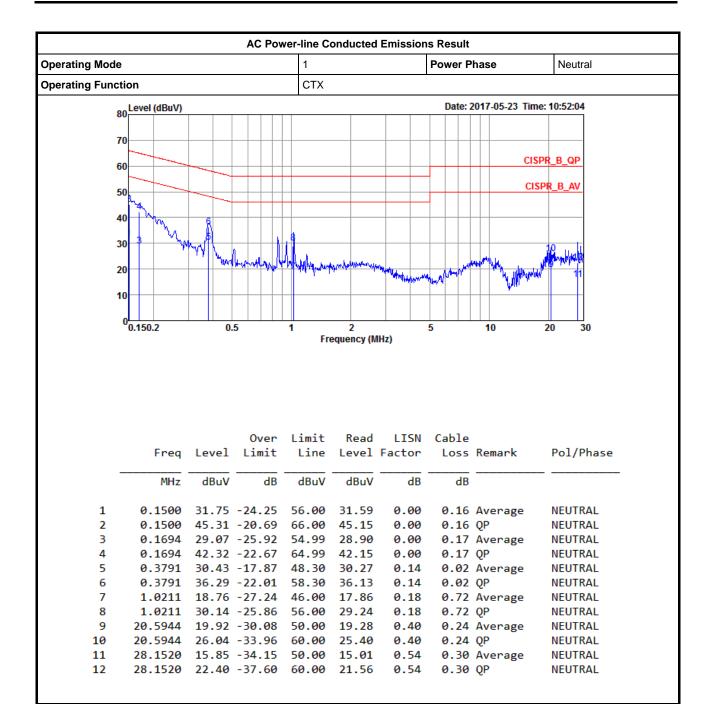
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<sup>&</sup>quot;\*" Calibration Interval of instruments listed above is two years.

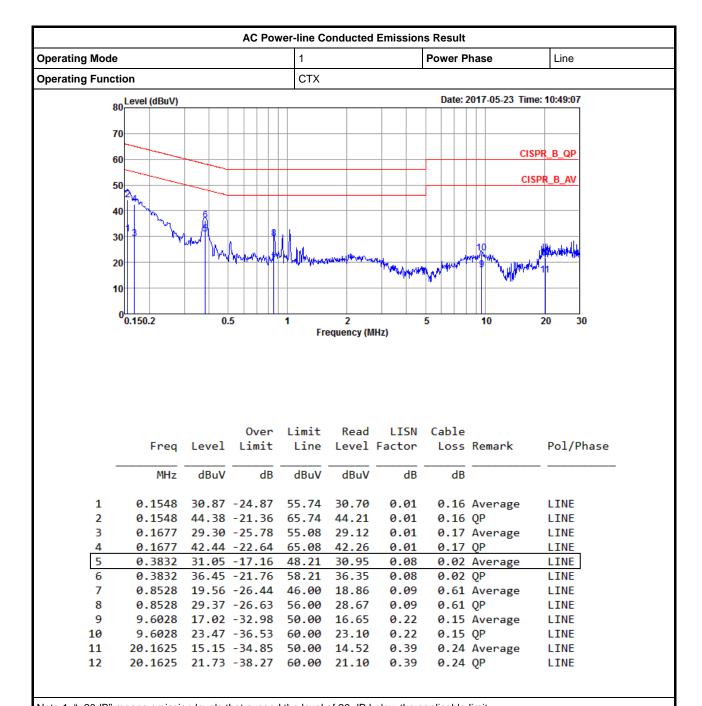
### AC Power-line Conducted Emissions Result



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

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

### AC Power-line Conducted Emissions Result



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

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



Appendix B EBW Result

**Summary** 

Mode	Max-N dB	Max-OBW	ITU-Code	Min-N dB	Min-OBW	
	(Hz)	(Hz)		(Hz)	(Hz)	
802.11a_(6Mbps)_2TX	-	-	-	-	-	
5.15-5.25GHz	21.775M	16.692M	16M7D1D	21.675M	16.617M	
5.725-5.85GHz	16.35M	16.742M	16M7D1D	16.325M	16.617M	
802.11ac VHT20_Nss1,(MCS0)_2TX	-	-	-	-	-	
5.15-5.25GHz	28.125M	17.841M	17M8D1D	21.775M	17.766M	
5.725-5.85GHz	17.6M	17.991M	18M0D1D	17.55M	17.791M	
802.11ac VHT40_Nss1,(MCS0)_2TX	-	-	-	-	-	
5.15-5.25GHz	46.7M	36.382M	36M4D1D	39.65M	36.282M	
5.725-5.85GHz	36.3M	41.779M	41M8D1D	36.3M	36.432M	
802.11ac VHT80_Nss1,(MCS0)_2TX	-	-	-	-	-	
5.15-5.25GHz	82M	75.762M	75M8D1D	81.7M	75.562M	
5.725-5.85GHz	75.7M	76.262M	76M3D1D	75.1M	76.162M	
802.11ac VHT20-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	
5.15-5.25GHz	21.85M	17.816M	17M8D1D	21.575M	17.766M	
5.725-5.85GHz	17.6M	18.366M	18M4D1D	17.55M	17.816M	
802.11ac VHT40-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	
5.15-5.25GHz	40.6M	36.282M	36M3D1D	39.7M	36.232M	
5.725-5.85GHz	36.3M	59.17M	59M2D1D	36.3M	36.682M	
802.11ac VHT80-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	
5.15-5.25GHz	82M	75.662M	75M7D1D	81.7M	75.662M	
5.725-5.85GHz	75.7M	75.862M	75M9D1D	75.1M	75.662M	

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;

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EBW Result Appendix B

#### Result

Mode	Result	Limit	Port 1-N dB	Port 1-OBW	Port 2-N dB	Port 2-OBW
		(Hz)	(Hz)	(Hz)	(Hz)	(Hz)
802.11a_(6Mbps)_2TX	-	-	-	-	-	-
5180MHz	Pass	Inf	21.675M	16.692M	21.675M	16.617M
5200MHz	Pass	Inf	21.775M	16.642M	21.675M	16.617M
5240MHz	Pass	Inf	21.725M	16.667M	21.675M	16.667M
5745MHz	Pass	500k	16.325M	16.642M	16.35M	16.667M
5785MHz	Pass	500k	16.35M	16.667M	16.35M	16.742M
5825MHz	Pass	500k	16.325M	16.617M	16.325M	16.667M
802.11ac VHT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5180MHz	Pass	Inf	23.4M	17.841M	22.5M	17.766M
5200MHz	Pass	Inf	28.125M	17.816M	21.775M	17.791M
5240MHz	Pass	Inf	25M	17.791M	21.875M	17.791M
5745MHz	Pass	500k	17.6M	17.866M	17.55M	17.941M
5785MHz	Pass	500k	17.575M	17.841M	17.55M	17.866M
5825MHz	Pass	500k	17.6M	17.791M	17.6M	17.991M
802.11ac VHT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5190MHz	Pass	Inf	40.5M	36.282M	39.75M	36.332M
5230MHz	Pass	Inf	46.7M	36.382M	39.65M	36.282M
5755MHz	Pass	500k	36.3M	36.782M	36.3M	41.779M
5795MHz	Pass	500k	36.3M	36.432M	36.3M	36.782M
802.11ac VHT80_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5210MHz	Pass	Inf	82M	75.562M	81.7M	75.762M
5775MHz	Pass	500k	75.7M	76.162M	75.1M	76.262M
802.11ac VHT20-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5180MHz	Pass	Inf	21.85M	17.791M	21.65M	17.766M
5200MHz	Pass	Inf	21.85M	17.816M	21.575M	17.766M
5240MHz	Pass	Inf	21.775M	17.791M	21.775M	17.791M
5745MHz	Pass	500k	17.575M	18.016M	17.55M	18.366M
5785MHz	Pass	500k	17.575M	17.891M	17.575M	17.941M
5825MHz	Pass	500k	17.6M	17.816M	17.575M	17.816M
802.11ac VHT40-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5190MHz	Pass	Inf	40.3M	36.232M	39.8M	36.232M
5230MHz	Pass	Inf	40.6M	36.232M	39.7M	36.282M
5755MHz	Pass	500k	36.3M	43.528M	36.3M	59.17M
5795MHz	Pass	500k	36.3M	36.682M	36.3M	39.33M
802.11ac VHT80-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5210MHz	Pass	Inf	82M	75.662M	81.7M	75.662M
<u> </u>	1	<b>-</b>	1	<b>-</b>		1

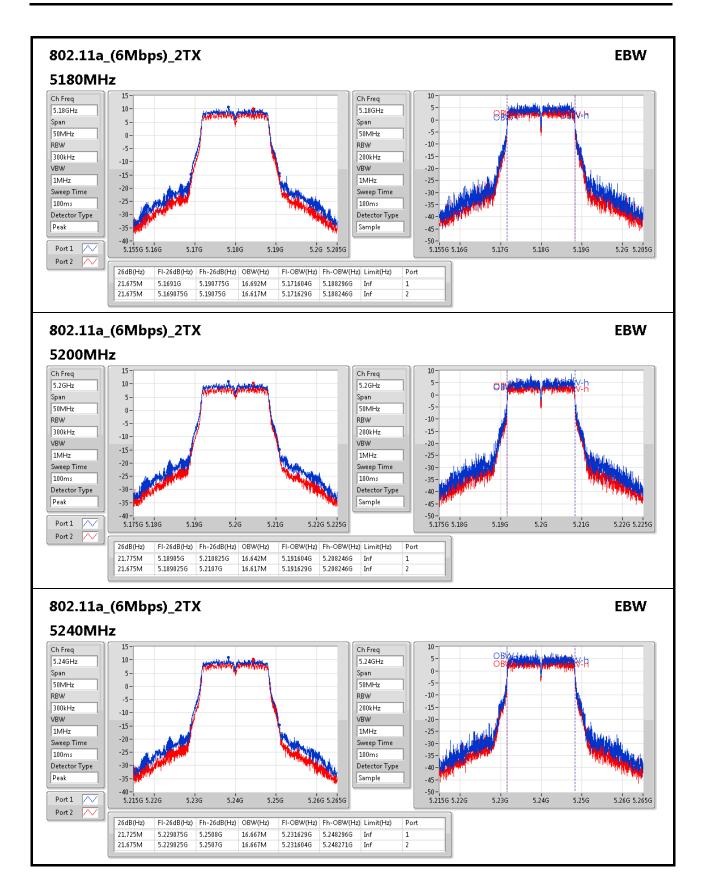
Port X-N dB = Port X 6dB down bandwidth for 5.725-5.85GHz band / 26dB down bandwidth for other band Port X-OBW = Port X 99% occupied bandwidth;

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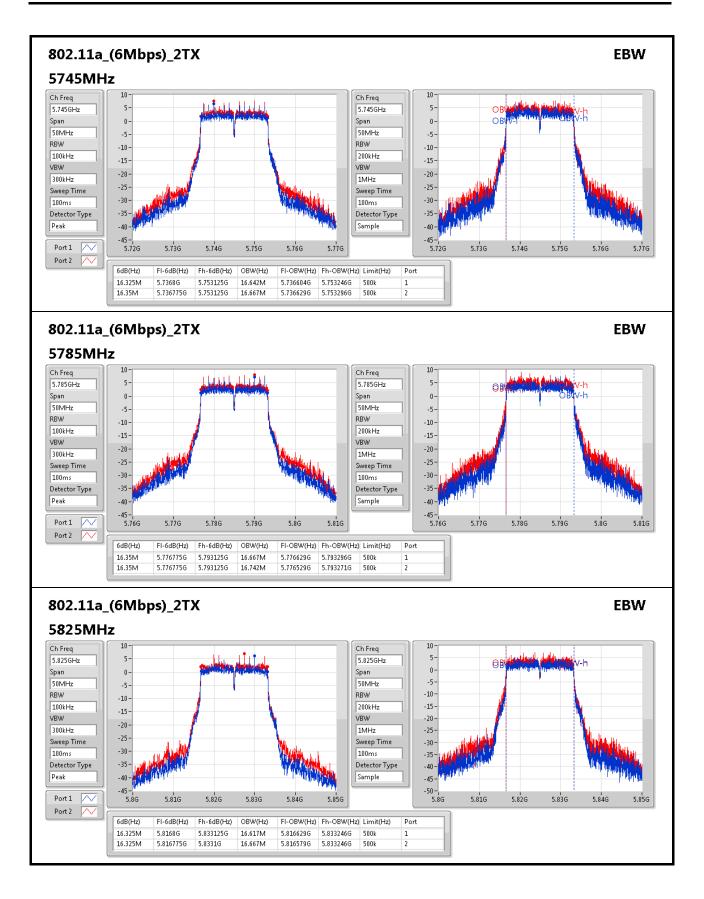
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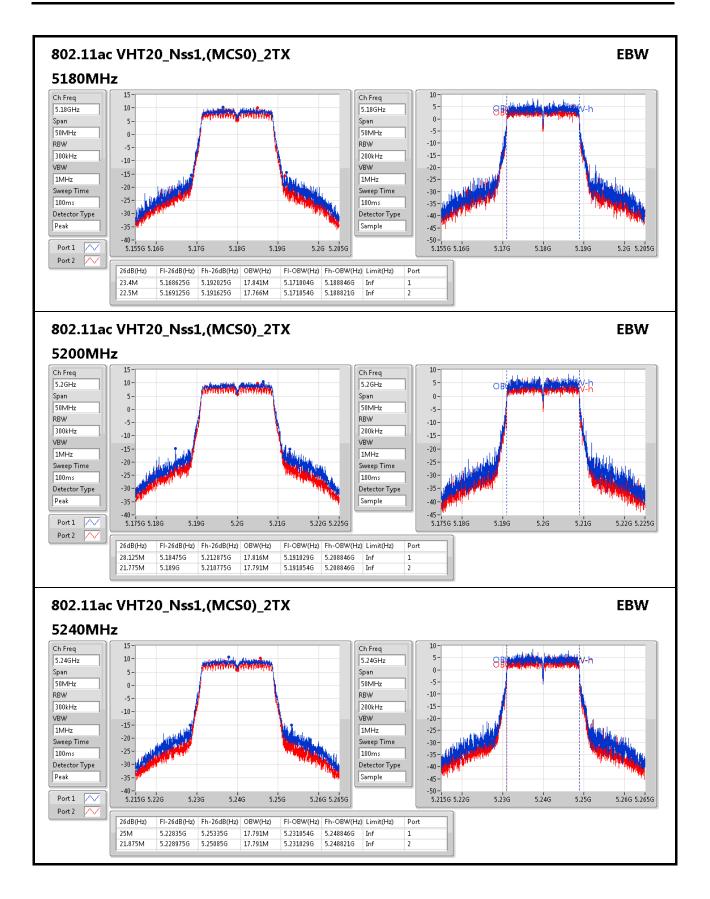




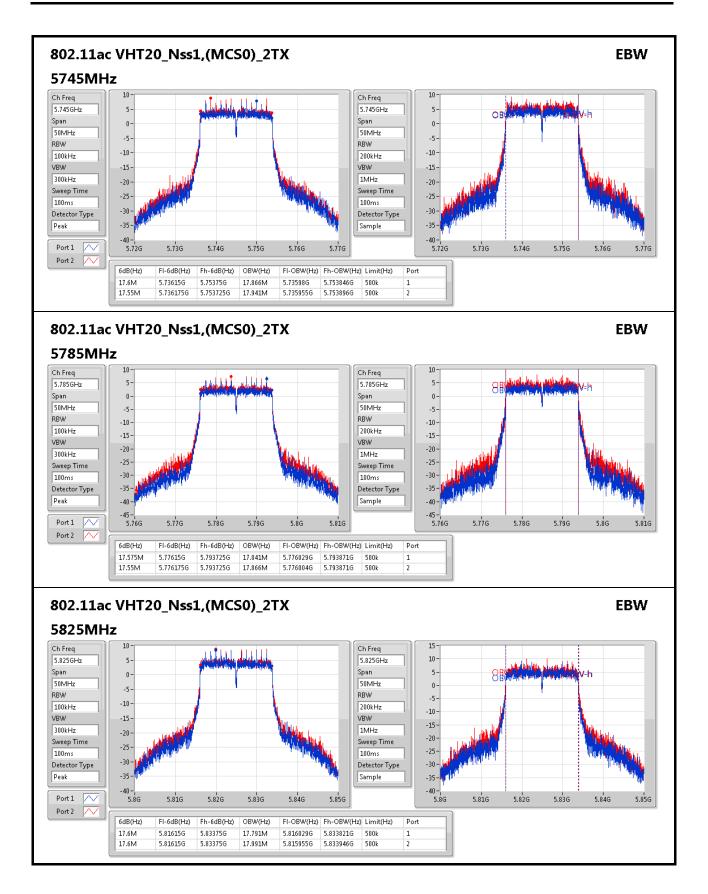


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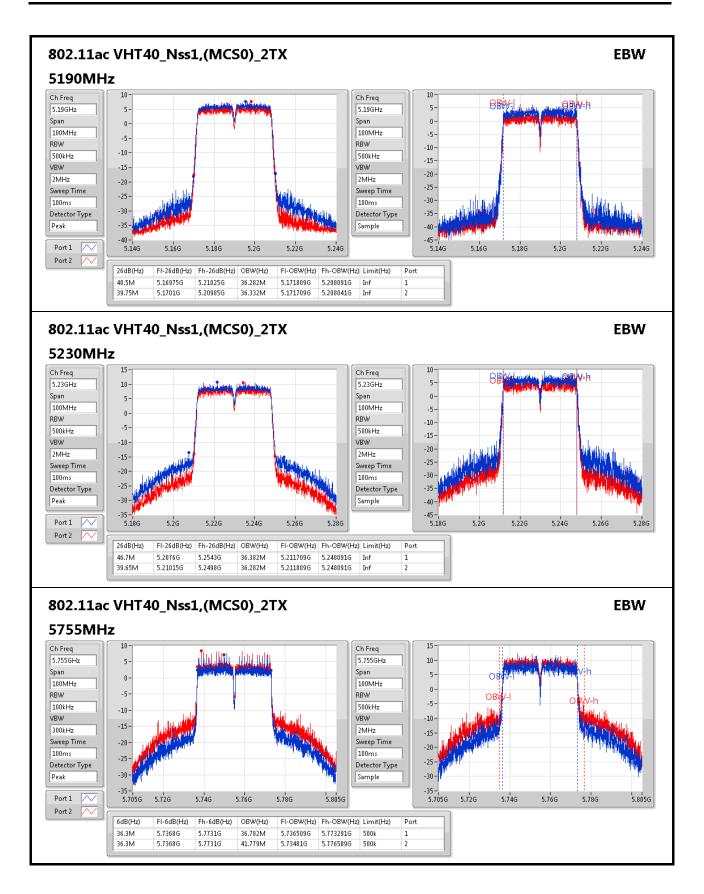


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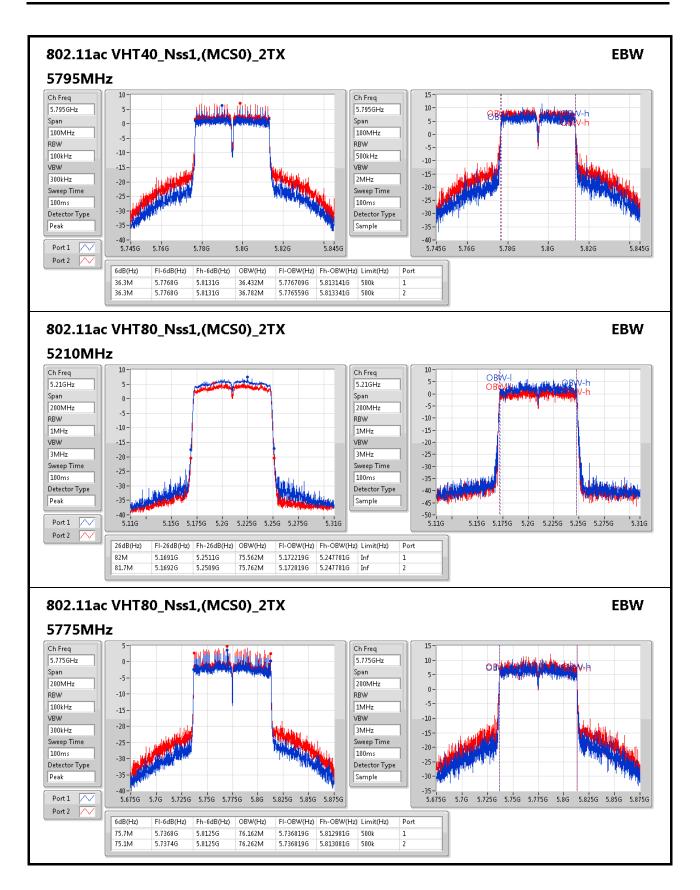
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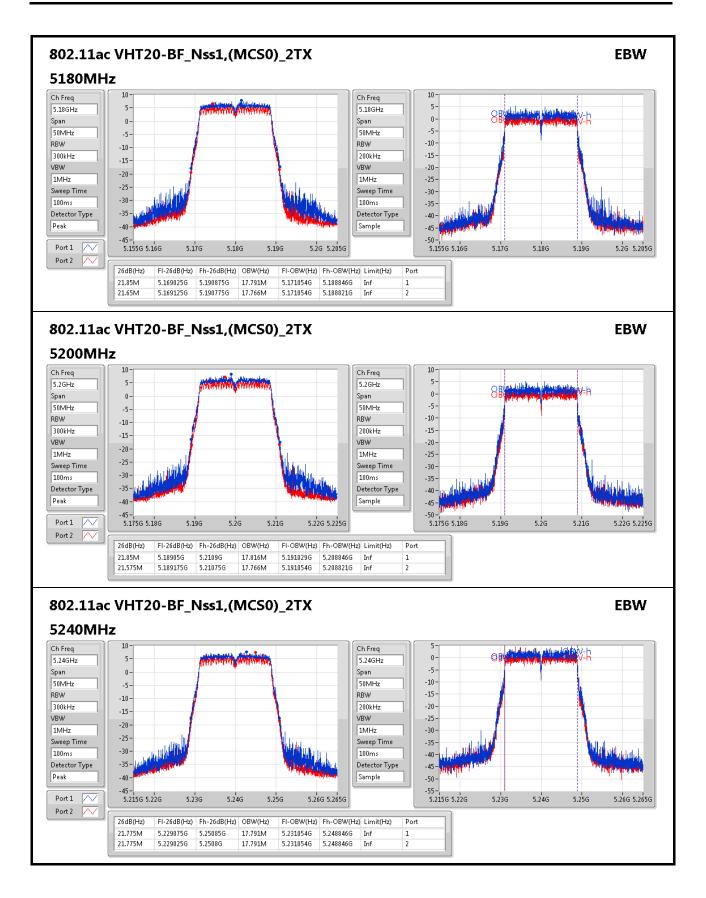


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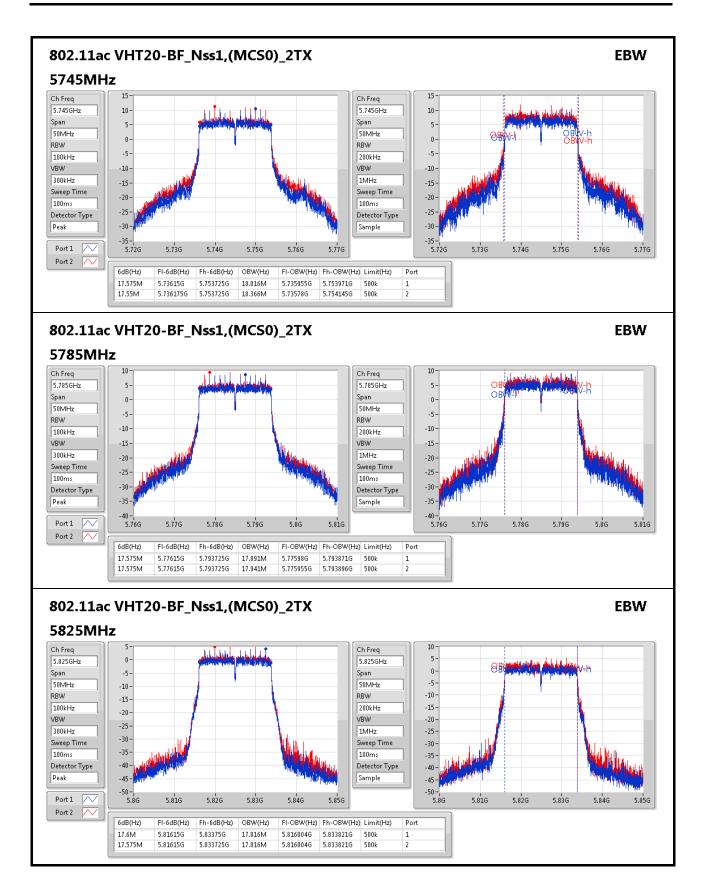






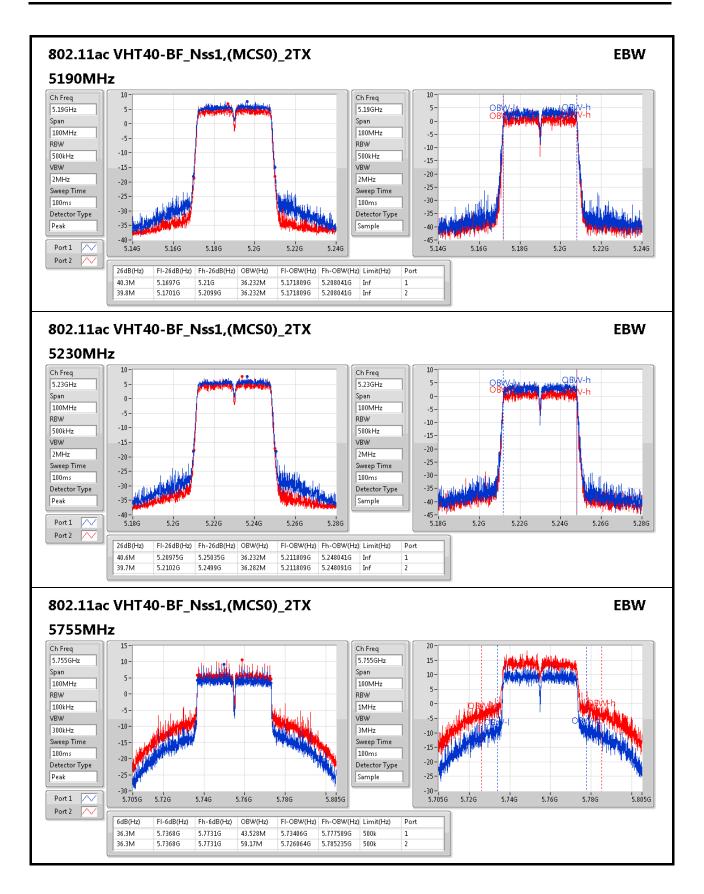






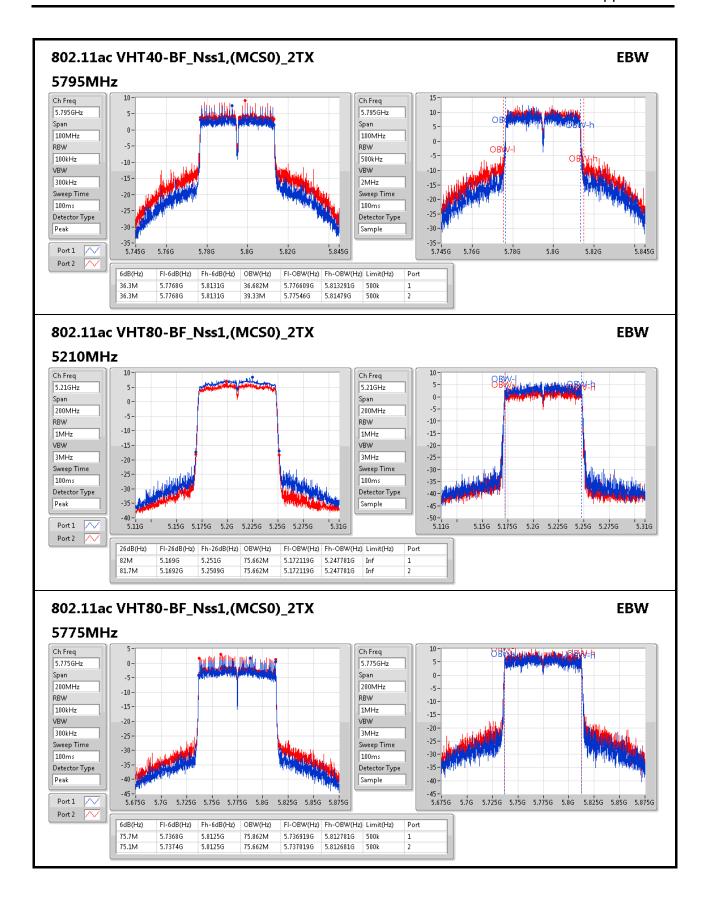
Appendix B





Appendix B

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Power Result Appendix C

**Summary** 

Mode	Total Power	Total Power	EIRP	EIRP
	(dBm)	(W)	(dBm)	(W)
802.11a_(6Mbps)_2TX	-	-	-	-
5.15-5.25GHz	21.38	0.13740	20.99	0.12560
5.725-5.85GHz	22.34	0.17140	27.14	0.51761
802.11ac VHT20_Nss1,(MCS0)_2TX	-	-	-	-
5.15-5.25GHz	21.37	0.13709	20.98	0.12531
5.725-5.85GHz	23.33	0.21528	28.13	0.65013
802.11ac VHT40_Nss1,(MCS0)_2TX	-	-	-	-
5.15-5.25GHz	21.26	0.13366	20.87	0.12218
5.725-5.85GHz	25.17	0.32885	29.97	0.99312
802.11ac VHT80_Nss1,(MCS0)_2TX	-	-	-	-
5.15-5.25GHz	17.23	0.05284	16.84	0.04831
5.725-5.85GHz	23.55	0.22646	28.35	0.68391
802.11ac VHT20-BF_Nss1,(MCS0)_2TX	-	-	-	-
5.15-5.25GHz	18.33	0.06808	20.95	0.12445
5.725-5.85GHz	24.48	0.28054	32.29	1.69434
802.11ac VHT40-BF_Nss1,(MCS0)_2TX	-	-	-	-
5.15-5.25GHz	18.35	0.06839	20.97	0.12503
5.725-5.85GHz	26.25	0.42170	34.06	2.54683
802.11ac VHT80-BF_Nss1,(MCS0)_2TX	-	-	-	-
5.15-5.25GHz	18.35	0.06839	20.97	0.12503
5.725-5.85GHz	21.79	0.15101	29.60	0.91201

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Appendix C **Power Result** 

### Result

Mode	Result	DG	30° Gain	Port 1	Port 2	Total Power	Power Limit	EIRP	EIRP Limit
		(dBi)	Note1	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)
802.11a_(6Mbps)_2TX	-	-	-		-	-	-	-	-
5180MHz	Pass	4.80	-0.39	18.92	17.58	21.31	30.00	20.92	21.00
5200MHz	Pass	4.80	-0.39	19.05	17.45	21.33	30.00	20.94	21.00
5240MHz	Pass	4.80	-0.39	18.96	17.68	21.38	30.00	20.99	21.00
5745MHz	Pass	4.80	-	18.11	19.22	21.71	30.00	26.51	36.00
5785MHz	Pass	4.80	-	18.62	19.94	22.34	30.00	27.14	36.00
5825MHz	Pass	4.80	-	16.34	17.93	20.22	30.00	25.02	36.00
802.11ac VHT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-
5180MHz	Pass	4.80	-0.39	18.82	17.50	21.22	30.00	20.83	21.00
5200MHz	Pass	4.80	-0.39	18.98	17.54	21.33	30.00	20.94	21.00
5240MHz	Pass	4.80	-0.39	18.86	17.80	21.37	30.00	20.98	21.00
5745MHz	Pass	4.80	-	19.61	20.52	23.10	30.00	27.90	36.00
5785MHz	Pass	4.80	-	18.43	19.41	21.96	30.00	26.76	36.00
5825MHz	Pass	4.80	-	19.21	21.2	23.33	30.00	28.13	36.00
802.11ac VHT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-
5190MHz	Pass	4.80	-0.39	16.44	14.31	18.51	30.00	18.12	21.00
5230MHz	Pass	4.80	-0.39	19.16	17.10	21.26	30.00	20.87	21.00
5755MHz	Pass	4.80	-	21.46	22.77	25.17	30.00	29.97	36.00
5795MHz	Pass	4.80	-	20.27	21.44	23.90	30.00	28.70	36.00
802.11ac VHT80_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-
5210MHz	Pass	4.80	-0.39	15.05	13.19	17.23	30.00	16.84	21.00
5775MHz	Pass	4.80		19.92	21.08	23.55	30.00	28.35	36.00
802.11ac VHT20-BF_Nss1,(MCS0)_2TX	-	-		-	-	-	-	-	-
5180MHz	Pass	7.81	2.62	16.02	14.30	18.25	30.00	20.87	21.00
5200MHz	Pass	7.81	2.62	16.14	14.31	18.33	30.00	20.95	21.00
5240MHz	Pass	7.81	2.62	15.76	14.74	18.29	30.00	20.91	21.00
5745MHz	Pass	7.81	-	20.97	21.91	24.48	28.19	32.29	36.00
5785MHz	Pass	7.81	-	19.52	20.30	22.94	28.19	30.75	36.00
5825MHz	Pass	7.81	-	15.33	16.13	18.76	28.19	26.57	36.00
802.11ac VHT40-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-
5190MHz	Pass	7.81	2.62	16.19	14.04	18.26	30.00	20.88	21.00
5230MHz	Pass	7.81	2.62	16.14	14.34	18.35	30.00	20.97	21.00
5755MHz	Pass	7.81	-	22.44	23.91	26.25	28.19	34.06	36.00
5795MHz	Pass	7.81	-	21.14	22.43	24.84	28.19	32.65	36.00
802.11ac VHT80-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-
5210MHz	Pass	7.81	2.62	16.22	14.22	18.35	30.00	20.97	21.00
5775MHz	Pass	7.81	-	18.26	19.25	21.79	28.19	29.60	36.00

**DG** = Directional Gain; **Port X** = Port X output power Note1: The antenna gain at elevation angle higher than 30° from horizon.

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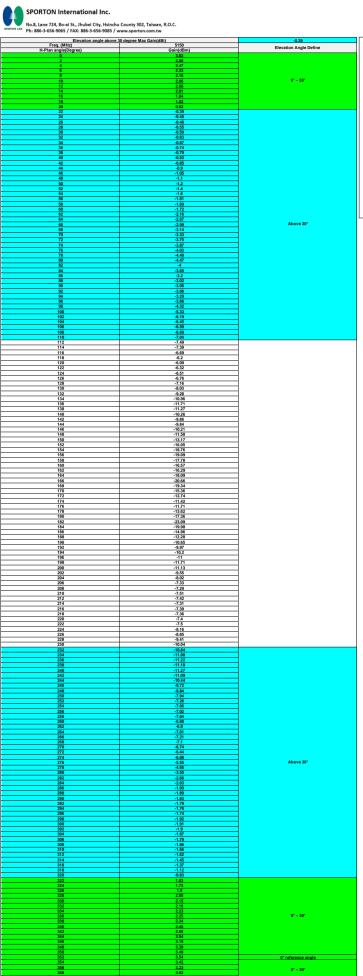


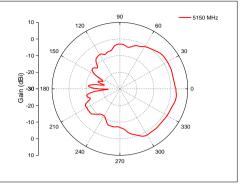
## **Elevation Angle Above 30 Degree Power Table**

Mode Mode	Conducted Setting	Elevation angle above 30 degree Gain	Array Gain	Directional Gain	Port 1	Port 2	Total Power	Power Limit	Elevation angle above 30 degree EIRP	Elevation angle above 30 degree EIRP Limit
		(dBi)	(dBi)	(dBi)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)
802.11a_(6Mbps)_2TX	-	-			-	-	-	-	-	-
5180MHz	73	-0.39	0	-0.39	18.92	17.58	21.31	30.00	20.92	21.00
5200MHz	73	-0.39	0	-0.39	19.05	17.45	21.33	30.00	20.94	21.00
5240MHz	73	-0.39	0	-0.39	18.96	17.68	21.38	30.00	20.99	21.00
802.11ac VHT20_Nss1,(MCS0)_2TX	-	-			-	-	-	-	-	-
5180MHz	73	-0.39	0	-0.39	18.82	17.50	21.22	30.00	20.83	21.00
5200MHz	73	-0.39	0	-0.39	18.98	17.54	21.33	30.00	20.94	21.00
5240MHz	73	-0.39	0	-0.39	18.86	17.80	21.37	30.00	20.98	21.00
802.11ac VHT40_Nss1,(MCS0)_2TX	-	-			-	-	-	-	-	-
5190MHz	64	-0.39	0	-0.39	16.44	14.31	18.51	30.00	18.12	21.00
5230MHz	76	-0.39	0	-0.39	19.16	17.10	21.26	30.00	20.87	21.00
802.11ac VHT80_Nss1,(MCS0)_2TX	-	-			-	-	-	-	-	-
5210MHz	58	-0.39	0	-0.39	15.05	13.19	17.23	30.00	16.84	21.00
802.11ac VHT20-BF_Nss1,(MCS0)_2TX	-	-			-	-	-	-	-	-
5180MHz	60	-0.39	3.01	2.62	16.02	14.30	18.25	28.19	20.87	21.00
5200MHz	60	-0.39	3.01	2.62	16.14	14.31	18.33	28.19	20.95	21.00
5240MHz	60	-0.39	3.01	2.62	15.76	14.74	18.29	28.19	20.91	21.00
802.11ac VHT40-BF_Nss1,(MCS0)_2TX	-	-			-	-	-	-	-	-
5190MHz	63	-0.39	3.01	2.62	16.19	14.04	18.26	28.19	20.88	21.00
5230MHz	63	-0.39	3.01	2.62	16.14	14.34	18.34	28.19	20.97	21.00
802.11ac VHT80-BF_Nss1,(MCS0)_2TX	-	-			-	-	-		-	-
5210MHz	62	-0.39	3.01	2.62	16.22	14.22	18.34	28.19	20.97	21.00

Note : 1. For CDD mode power measurements; array Gain = 0 dB (i.e., no array gain) for NANT ≤ 4. 2. EIRP = Total Power + Directional Gain.

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PSD Result Appendix D

**Summary** 

Mode	PD	EIRP PD
	(dBm/RBW)	(dBm/RBW)
802.11a_(6Mbps)_2TX	-	-
5.15-5.25GHz	8.31	10.93
5.725-5.85GHz	7.21	15.02
802.11ac VHT20_Nss1,(MCS0)_2TX	-	-
5.15-5.25GHz	8.14	10.76
5.725-5.85GHz	8.14	15.95
802.11ac VHT40_Nss1,(MCS0)_2TX	-	-
5.15-5.25GHz	5.19	7.81
5.725-5.85GHz	6.99	14.80
802.11ac VHT80_Nss1,(MCS0)_2TX	-	-
5.15-5.25GHz	-1.75	0.87
5.725-5.85GHz	2.54	10.35
802.11ac VHT20-BF_Nss1,(MCS0)_2TX	-	-
5.15-5.25GHz	5.13	7.75
5.725-5.85GHz	9.80	17.61
802.11ac VHT40-BF_Nss1,(MCS0)_2TX	-	-
5.15-5.25GHz	2.20	4.82
5.725-5.85GHz	8.76	16.57
802.11ac VHT80-BF_Nss1,(MCS0)_2TX	-	-
5.15-5.25GHz	-0.51	2.11
5.725-5.85GHz	1.68	9.49

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

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PSD Result Appendix D

## Result

Mode	Result	DG	Port 1	Port 2	PD	PD Limit	EIRP PD	EIRP PD Limit
		(dBi)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
802.11a_(6Mbps)_2TX	-	-	-	-	-	-	-	-
5180MHz	Pass	2.62	5.76	4.51	8.10	17.00	10.72	Inf
5200MHz	Pass	2.62	5.91	4.51	8.20	17.00	10.82	Inf
5240MHz	Pass	2.62	5.93	4.74	8.31	17.00	10.93	Inf
5745MHz	Pass	7.81	3.08	4.43	6.72	28.19	14.53	Inf
5785MHz	Pass	7.81	3.68	4.84	7.21	28.19	15.02	Inf
5825MHz	Pass	7.81	2.58	3.61	5.90	28.19	13.71	Inf
802.11ac VHT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5180MHz	Pass	2.62	5.74	4.38	8.03	17.00	10.65	Inf
5200MHz	Pass	2.62	5.83	4.33	8.08	17.00	10.70	Inf
5240MHz	Pass	2.62	5.65	4.65	8.14	17.00	10.76	Inf
5745MHz	Pass	7.81	4.24	5.34	7.78	28.19	15.59	Inf
5785MHz	Pass	7.81	3.00	4.23	6.57	28.19	14.38	Inf
5825MHz	Pass	7.81	4.99	5.58	8.14	28.19	15.95	Inf
802.11ac VHT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5190MHz	Pass	2.62	0.41	-1.80	2.46	17.00	5.08	Inf
5230MHz	Pass	2.62	3.00	1.23	5.19	17.00	7.81	Inf
5755MHz	Pass	7.81	3.23	4.67	6.99	28.19	14.80	Inf
5795MHz	Pass	7.81	2.38	3.31	5.86	28.19	13.67	Inf
802.11ac VHT80_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5210MHz	Pass	2.62	-3.81	-5.90	-1.75	17.00	0.87	Inf
5775MHz	Pass	7.81	-0.83	0.01	2.54	28.19	10.35	Inf
802.11ac VHT20-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5180MHz	Pass	2.62	2.78	1.17	5.02	17.00	7.64	Inf
5200MHz	Pass	2.62	2.89	1.30	5.13	17.00	7.75	Inf
5240MHz	Pass	2.62	2.84	1.32	5.09	17.00	7.71	Inf
5745MHz	Pass	7.81	6.33	7.29	9.80	28.19	17.61	Inf
5785MHz	Pass	7.81	4.95	5.86	8.36	28.19	16.17	Inf
5825MHz	Pass	7.81	0.77	1.47	3.96	28.19	11.77	Inf
802.11ac VHT40-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5190MHz	Pass	2.62	0.16	-2.08	2.13	17.00	4.75	Inf
5230MHz	Pass	2.62	0.13	-1.94	2.20	17.00	4.82	Inf
5755MHz	Pass	7.81	5.06	6.35	8.76	28.19	16.57	Inf
5795MHz	Pass	7.81	3.71	4.87	7.29	28.19	15.10	Inf
802.11ac VHT80-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5210MHz	Pass	2.62	-2.50	-4.57	-0.51	17.00	2.11	Inf
5775MHz	Pass	7.81	-1.78	-0.87	1.68	28.19	9.49	Inf

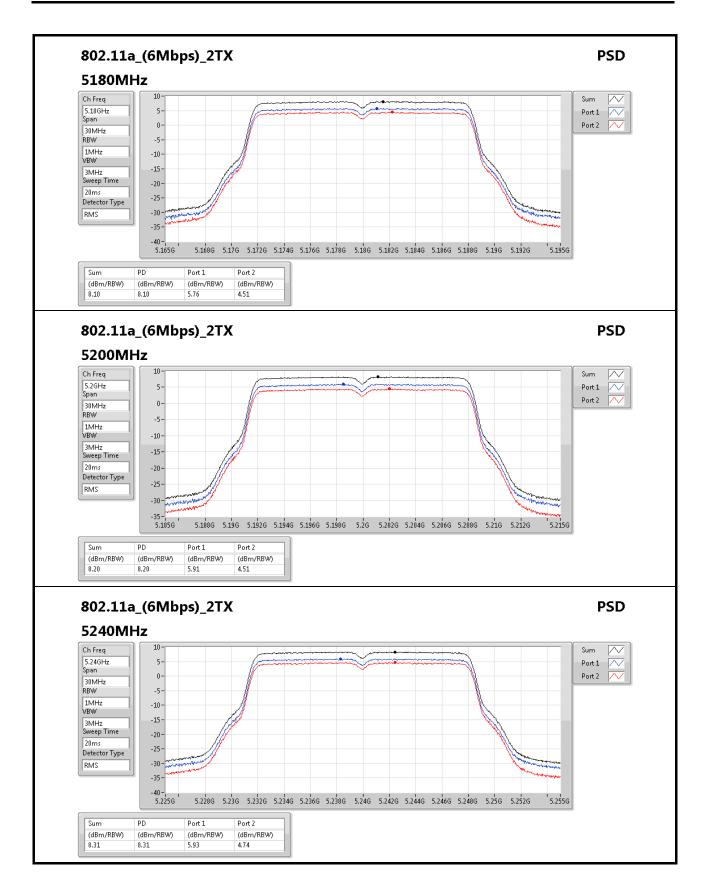
**DG** = Directional Gain; **RBW** = 500kHz for 5.725-5.85GHz band / 1MHz for other band;

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

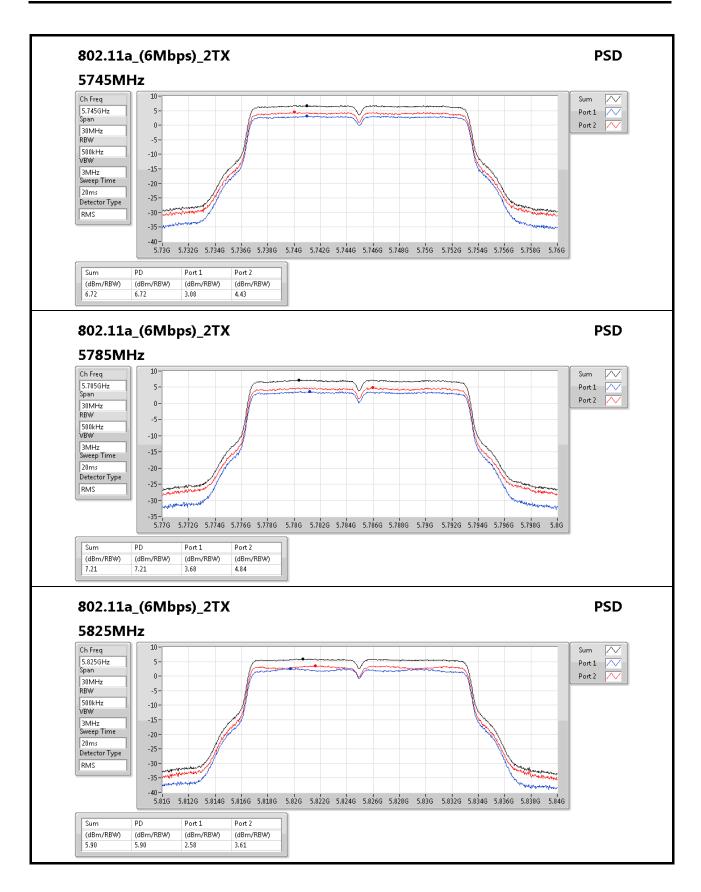
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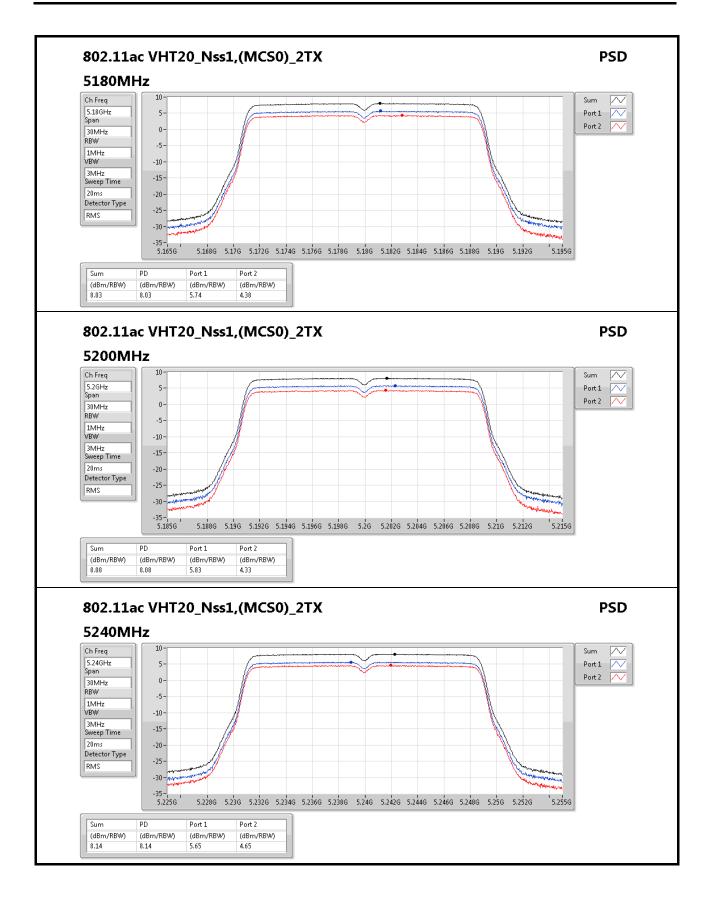






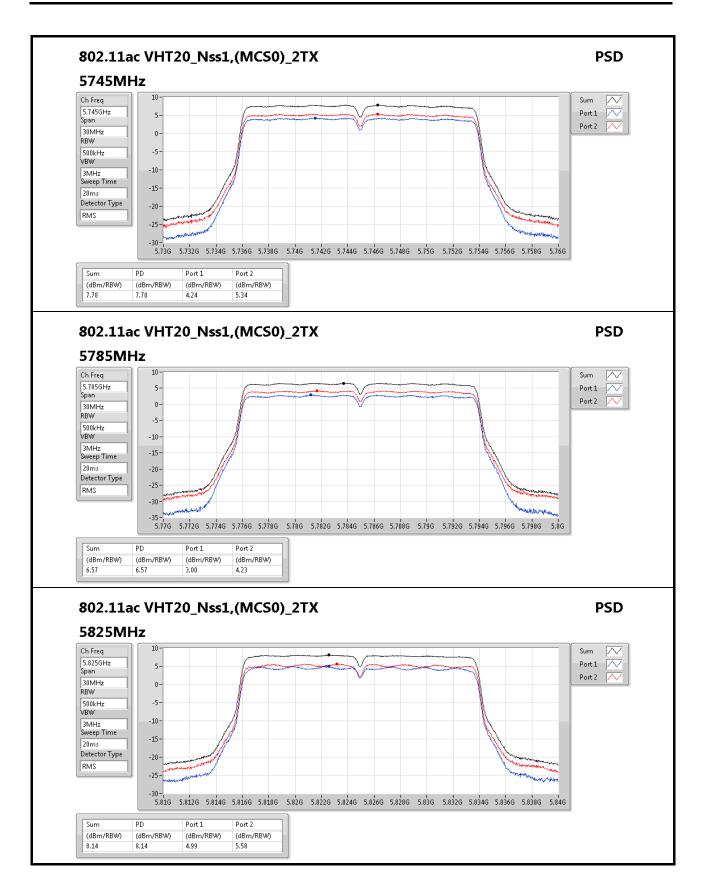
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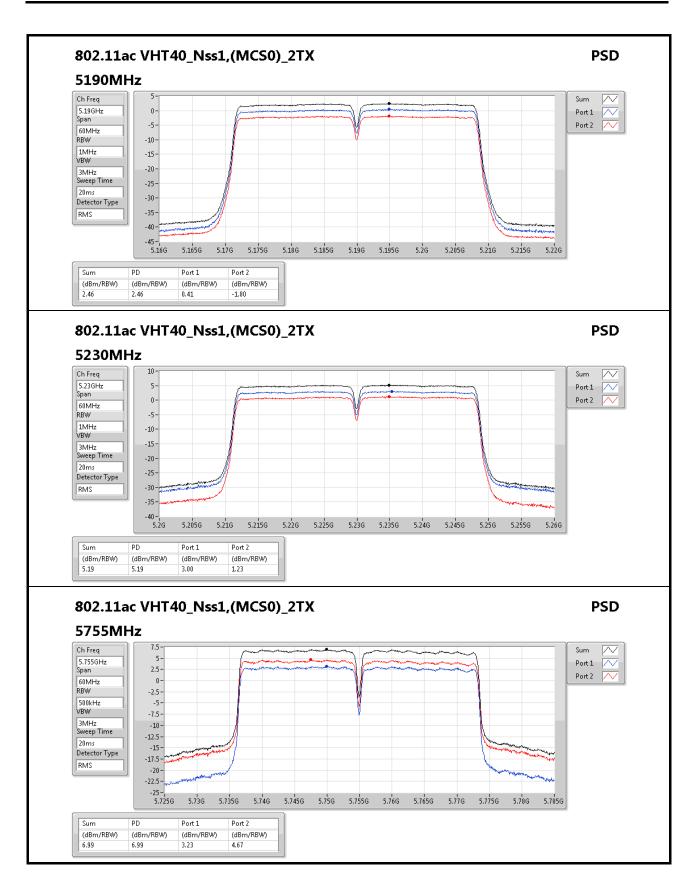
Appendix D





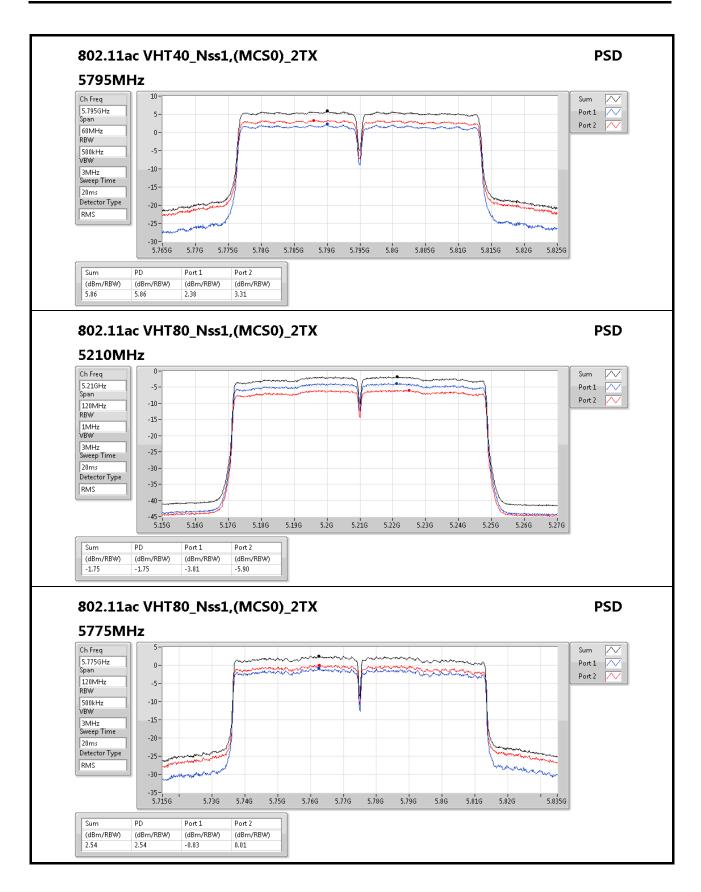
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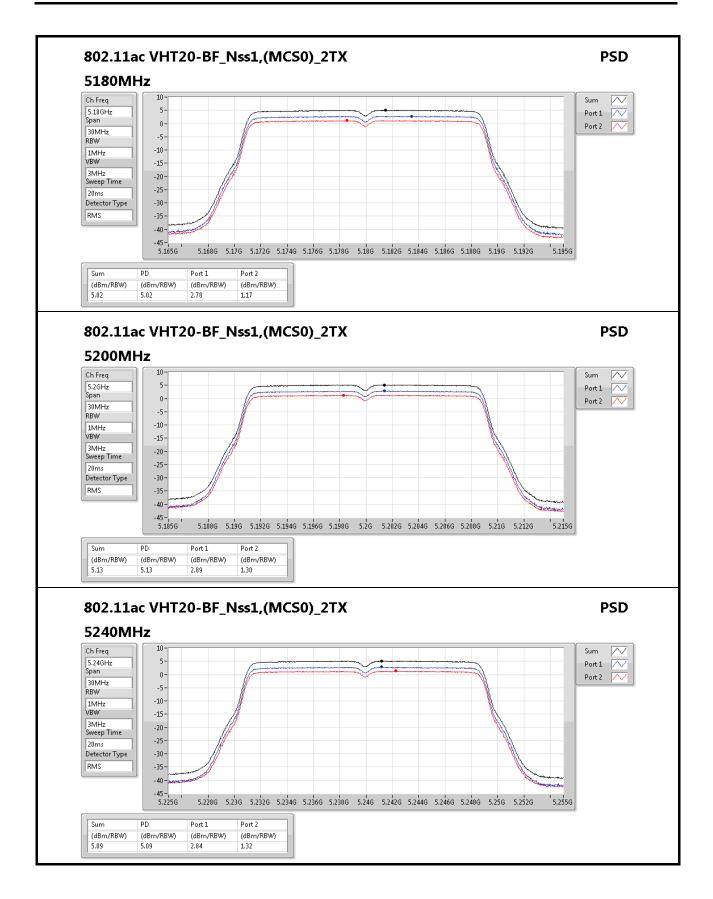
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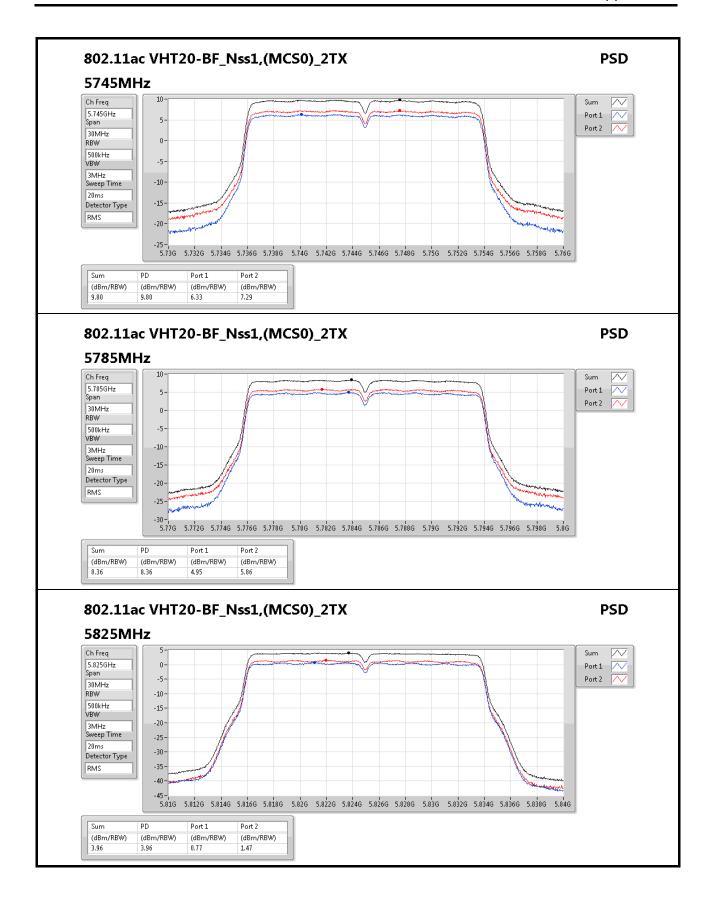
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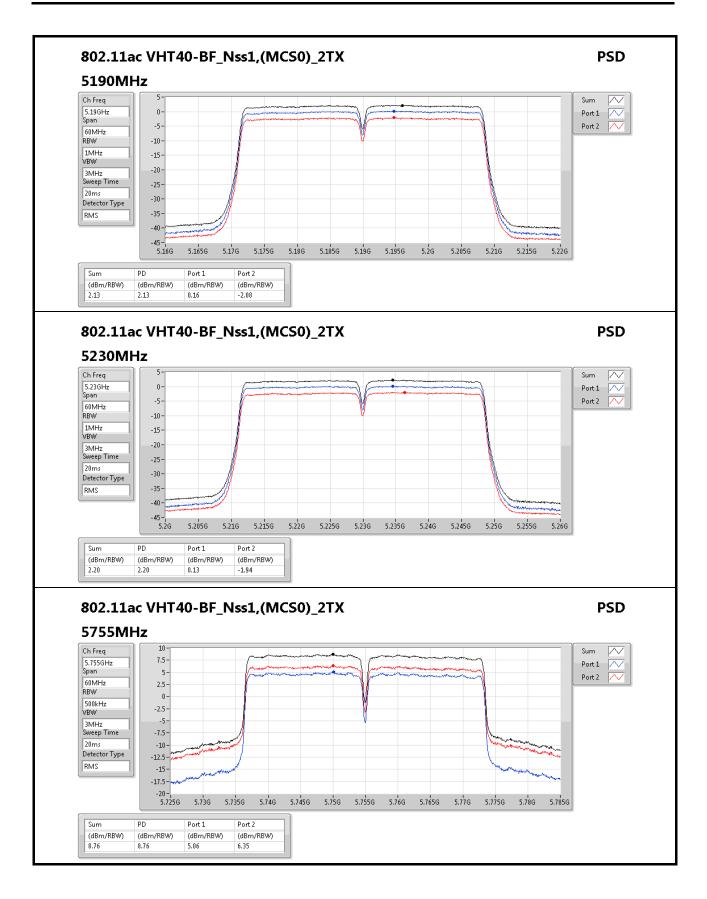


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**PSD Result** 



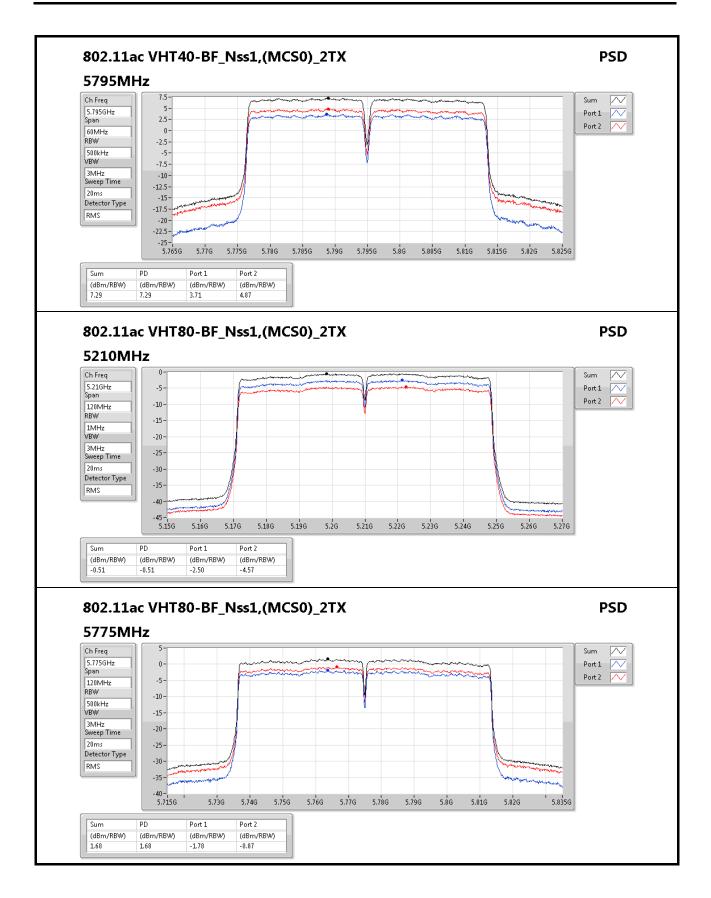


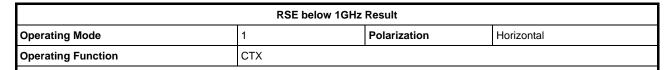


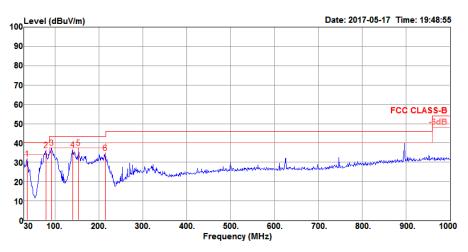
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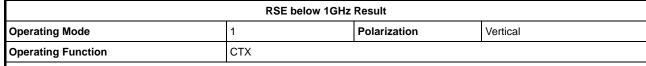


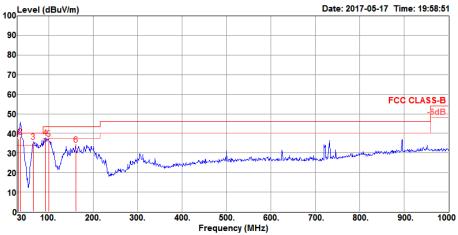


			Limit	0ver	Read	CableA	ntenna	Preamp	A/Pos	T/Pos		
	Freq	Level	Line	Limit	Level	Loss	Factor	Factor			Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg		
1	36.79	31.76	40.00	-8.24	41.98	0.58	21.63	32.43	125	100	Peak	HORIZONTAL
2	79.47	36.34	40.00	-3.66	54.51	0.86	13.36	32.39	200	61	Peak	HORIZONTAL
3	92.08	37.37	43.50	-6.13	53.20	0.91	15.64	32.38	200	215	Peak	HORIZONTAL
4	140.58	36.54	43.50	-6.96	50.11	1.12	17.66	32.35	200	181	Peak	HORIZONTAL
5	154.16	37.41	43.50	-6.09	51.85	1.18	16.72	32.34	125	171	Peak	HORIZONTAL
6	214.30	34.79	43.50	-8.71	49.29	1.40	16.40	32.30	200	78	Peak	HORIZONTAL

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







	Freq	Level	Limit Line	Over Limit				Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	30.97	37.31	40.00	-2.69	44.22	0.51	25.01	32.43	100	231	QP	VERTICAL
2	36.79	38.39	40.00	-1.61	48.61	0.58	21.63	32.43	100	341	QP	VERTICAL
3	64.92	35.59	40.00	-4.41	54.58	0.77	12.65	32.41	200	80	Peak	VERTICAL
4	92.08	37.86	43.50	-5.64	53.69	0.91	15.64	32.38	125	152	Peak	VERTICAL
5	99.84	37.27	43.50	-6.23	51.57	0.98	17.10	32.38	150	111	Peak	VERTICAL
6	160.95	34.19	43.50	-9.31	48.87	1.21	16.44	32.33	100	360	Peak	VERTICAL

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



# RSE TX above 1GHz Result

Appendix E.2

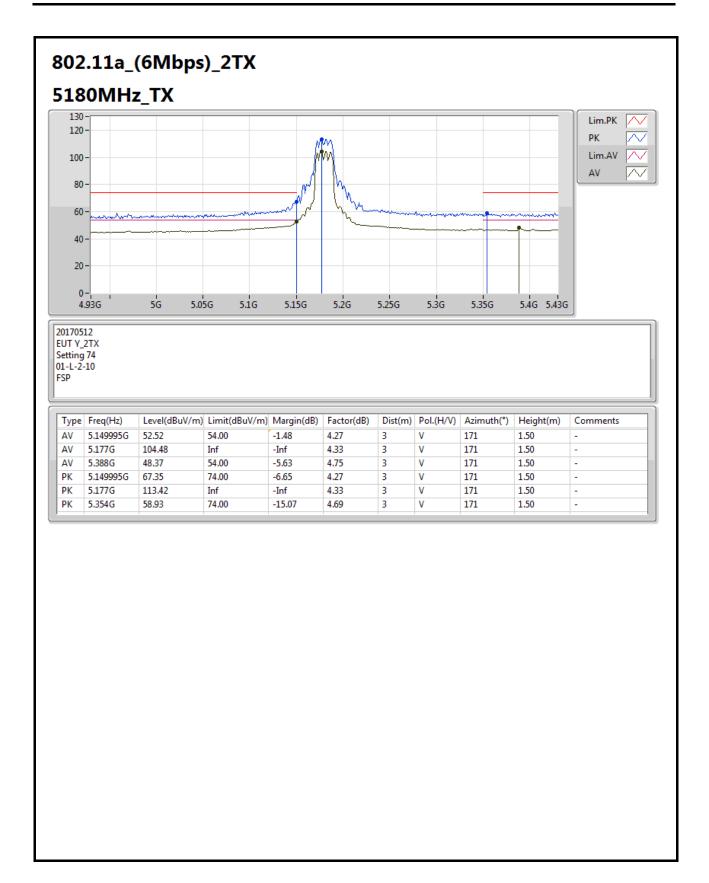
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**Summary** 

Mode	Result	Туре	Freq	Level (dBuV/m)	Limit (dBuV/m)	Margin	Factor	Dist	Pol.	Azimuth	Height	Comments
802.11ac VHT40-BF_Nss1,(MCS0)_2TX			(Hz)	(dBuv/m)	(dBuv/m)	(dB)	(dB)	(m)	(H/V)	()	(m)	
	-	-	-	-	-	-	-	-	-	-	-	-
5.15-5.25GHz	Pass	AV	5.148G	53.97	54.00	-0.03	4.77	3	V	354	1.49	-

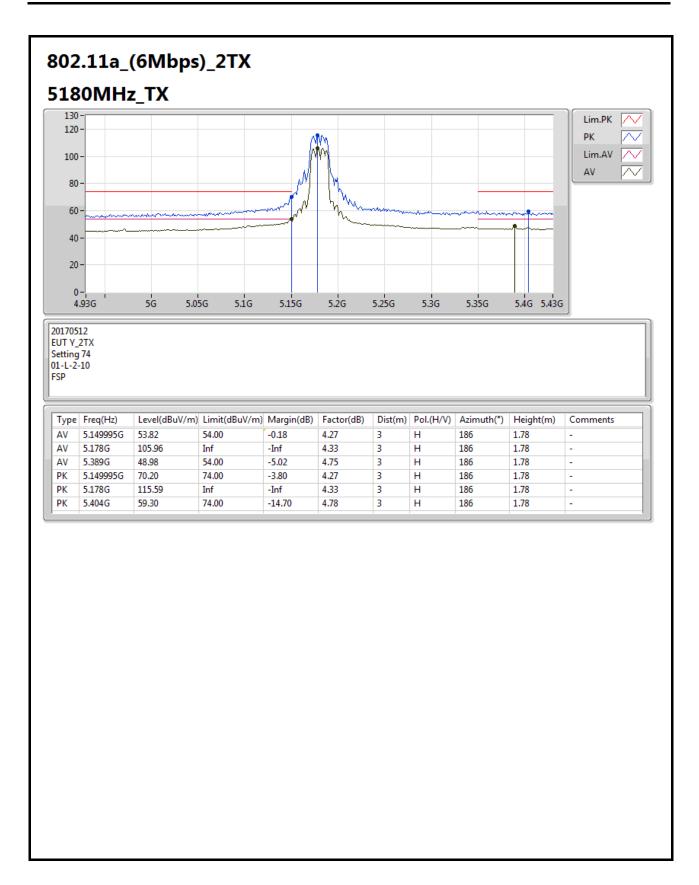
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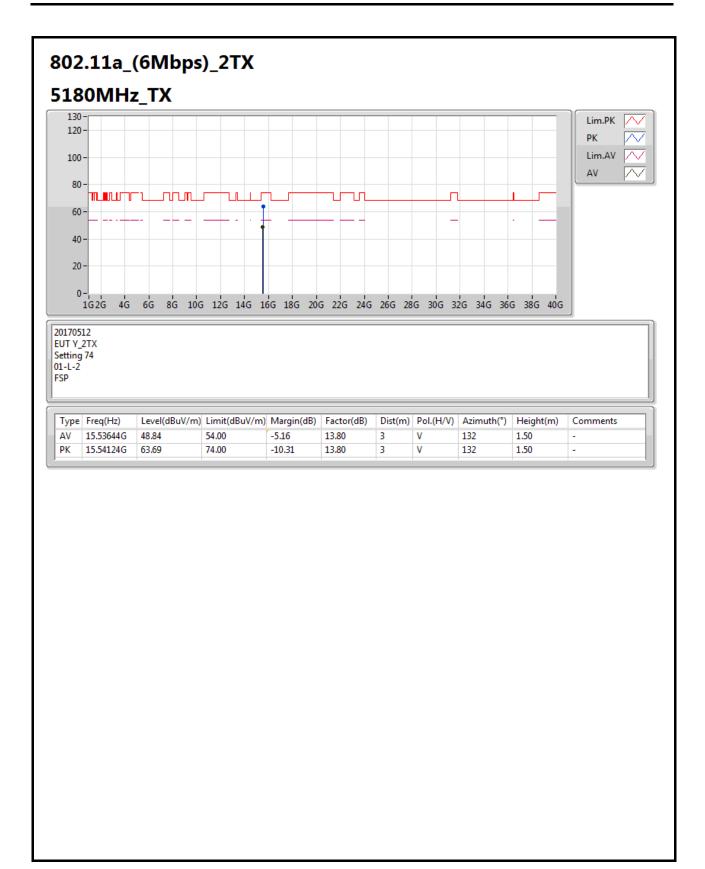


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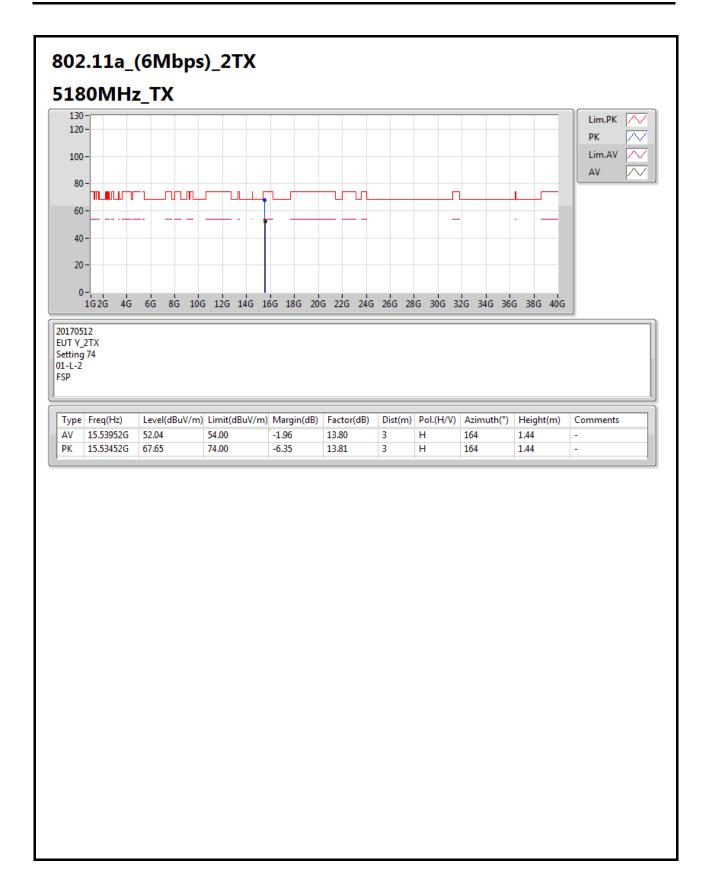






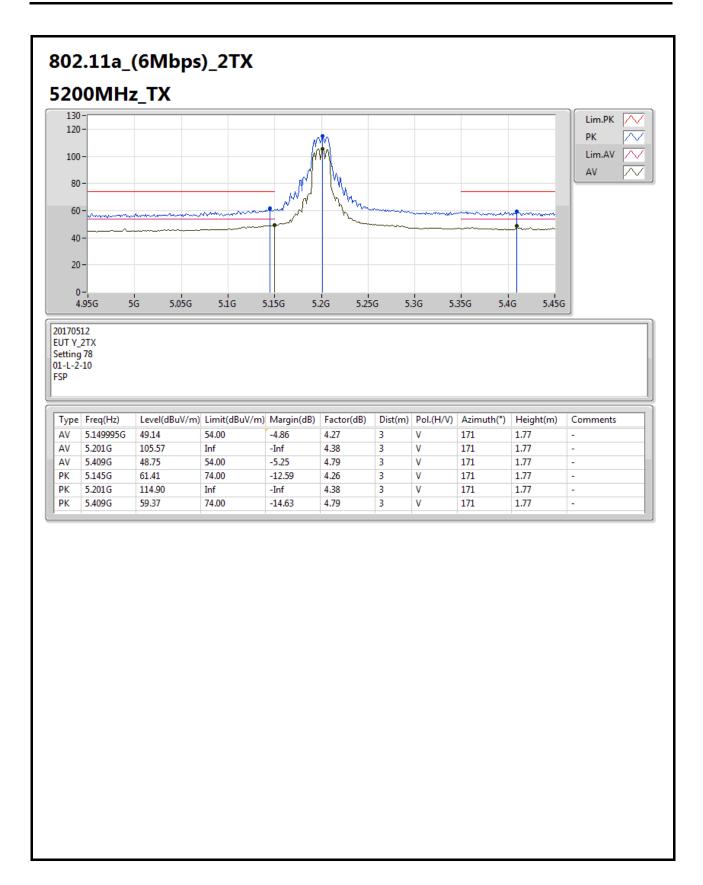






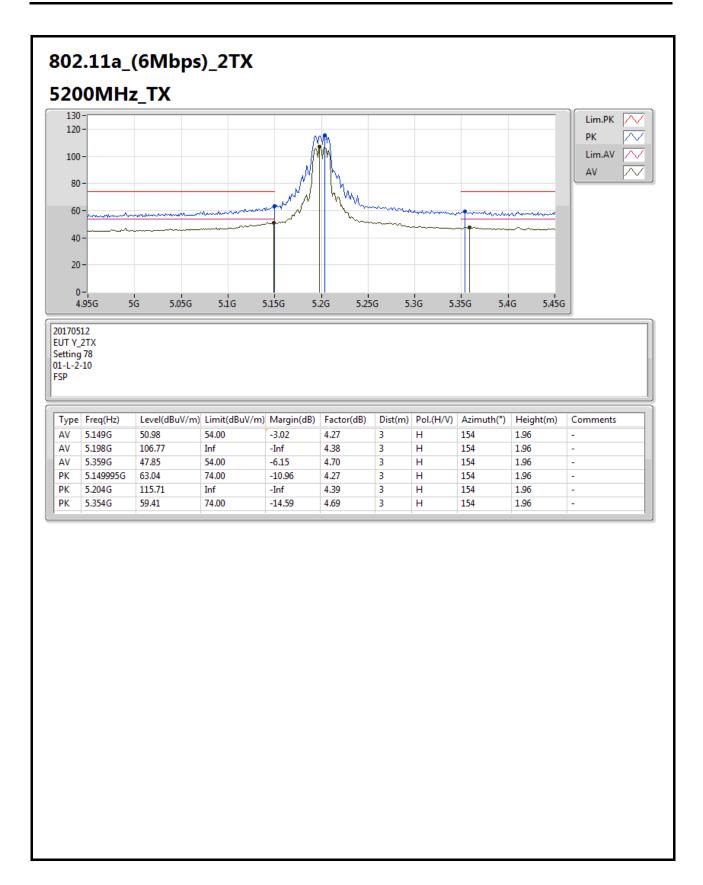
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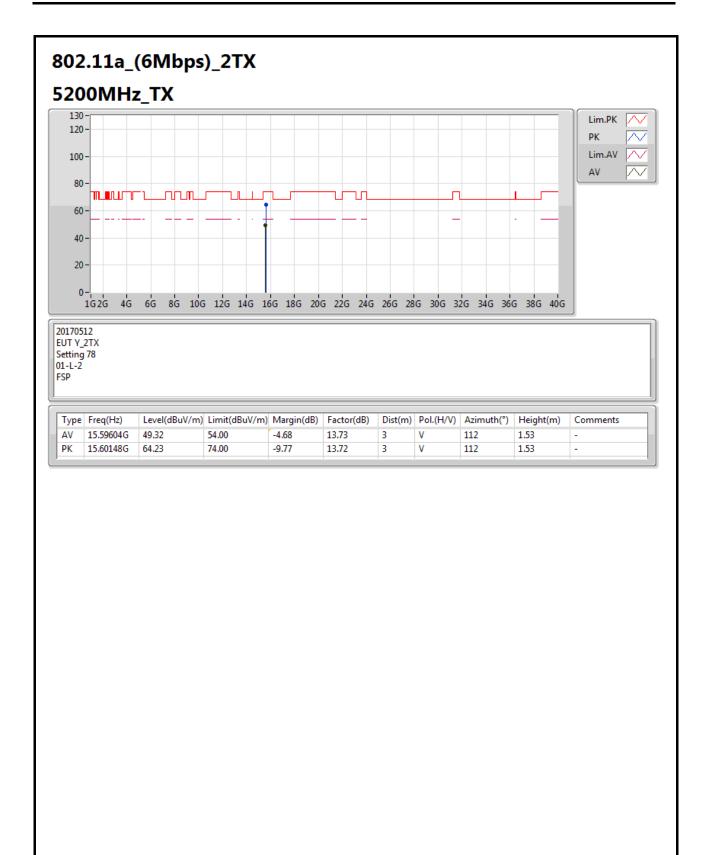
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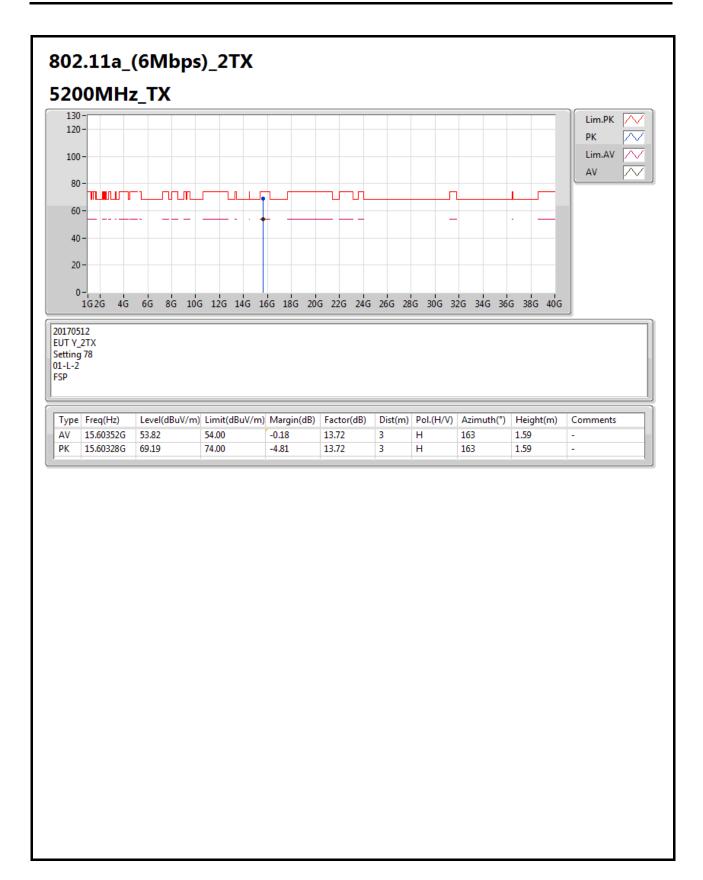


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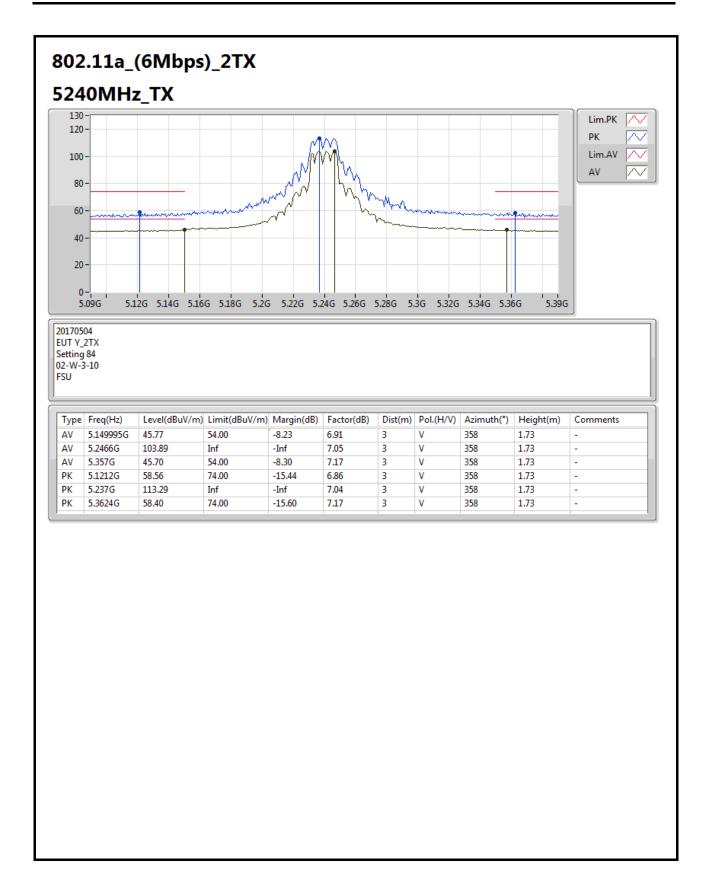






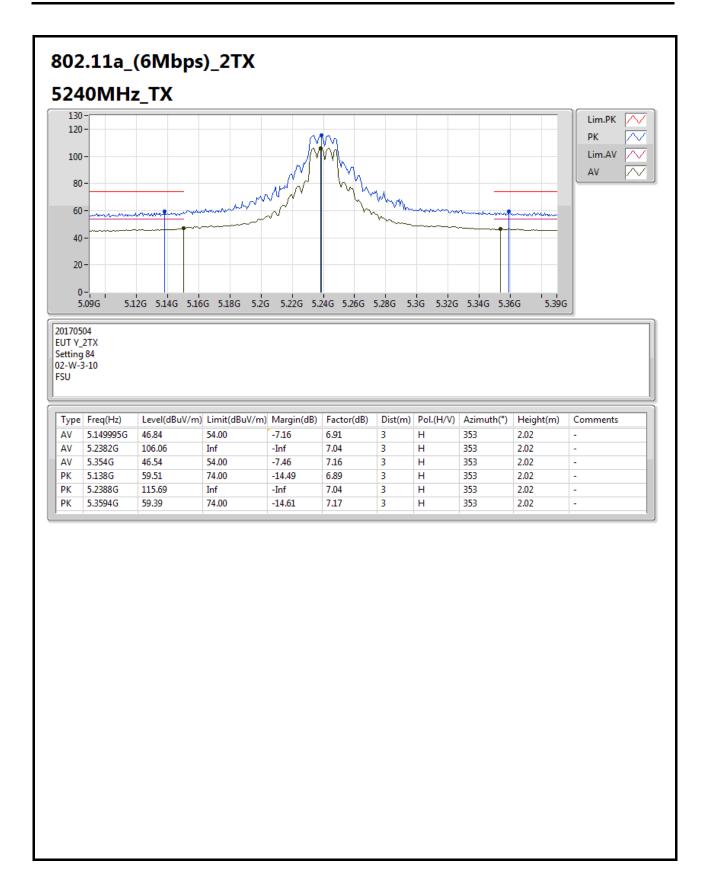




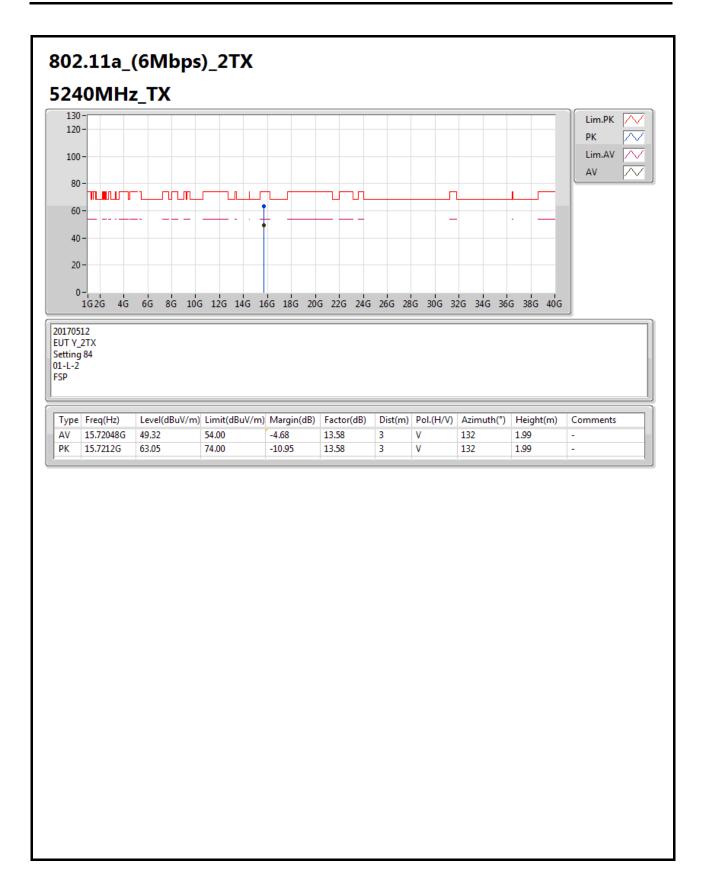


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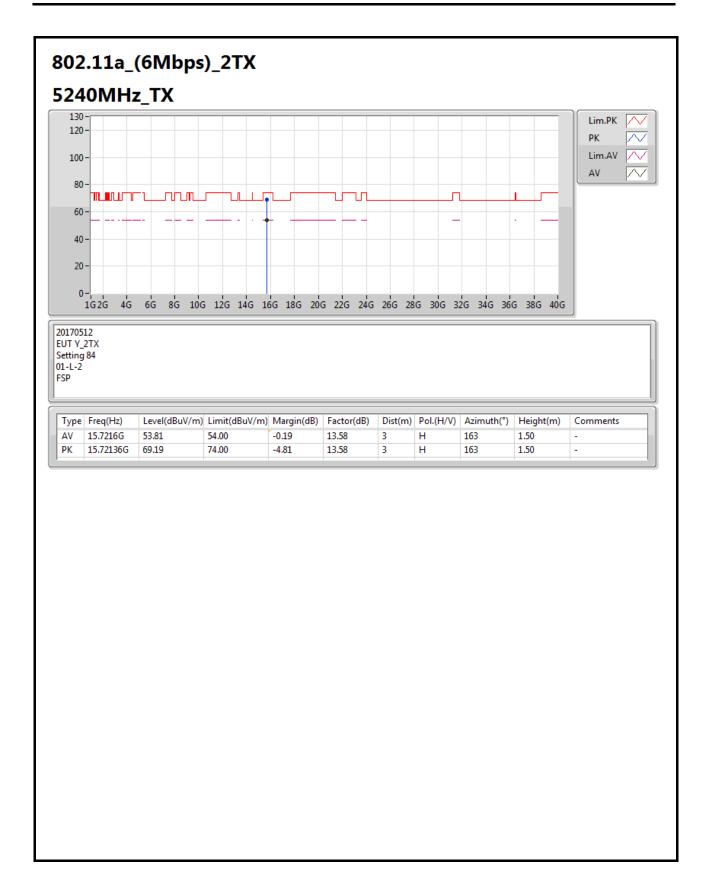






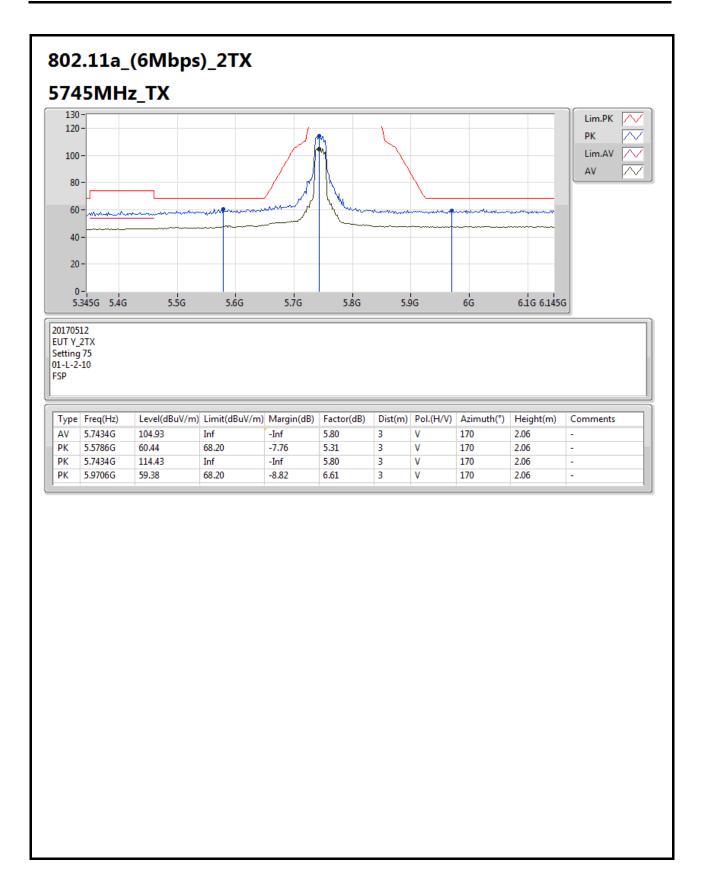






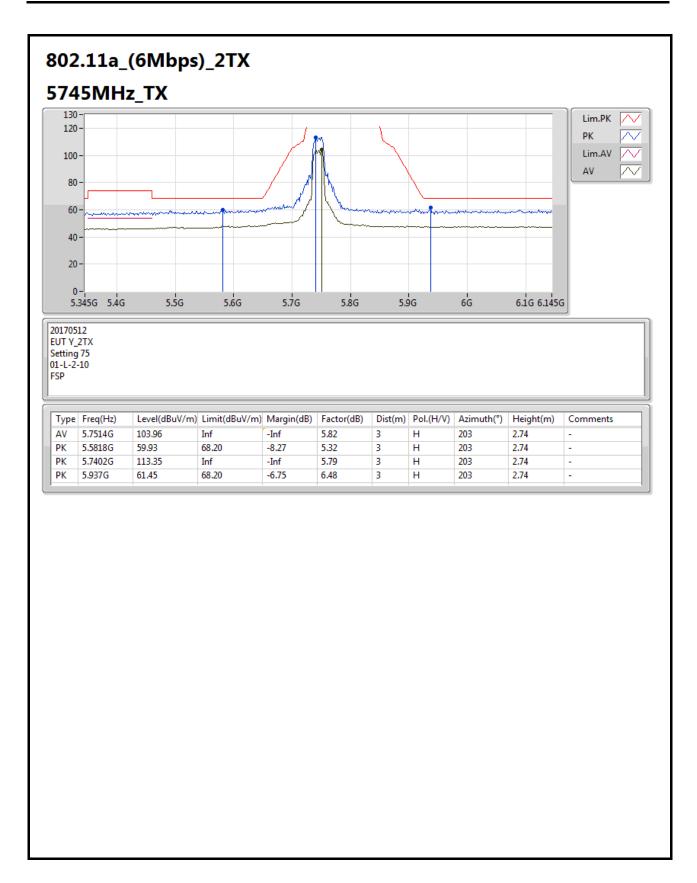
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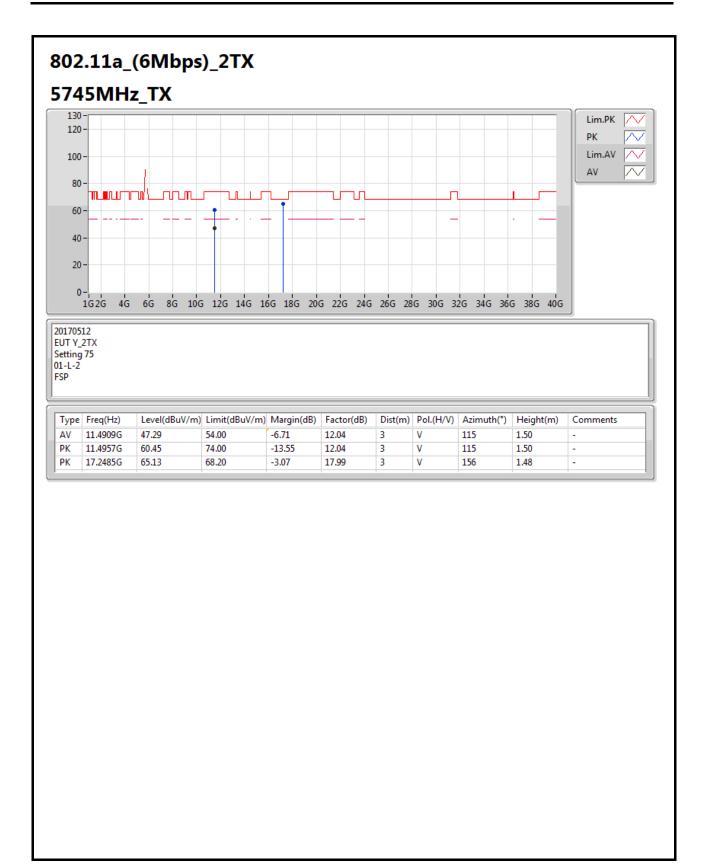


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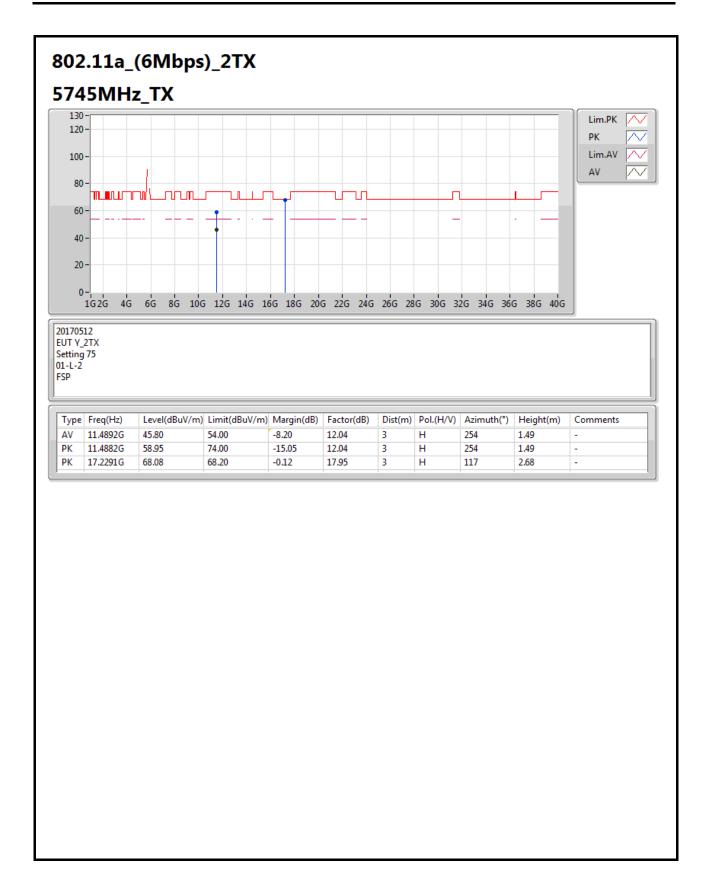






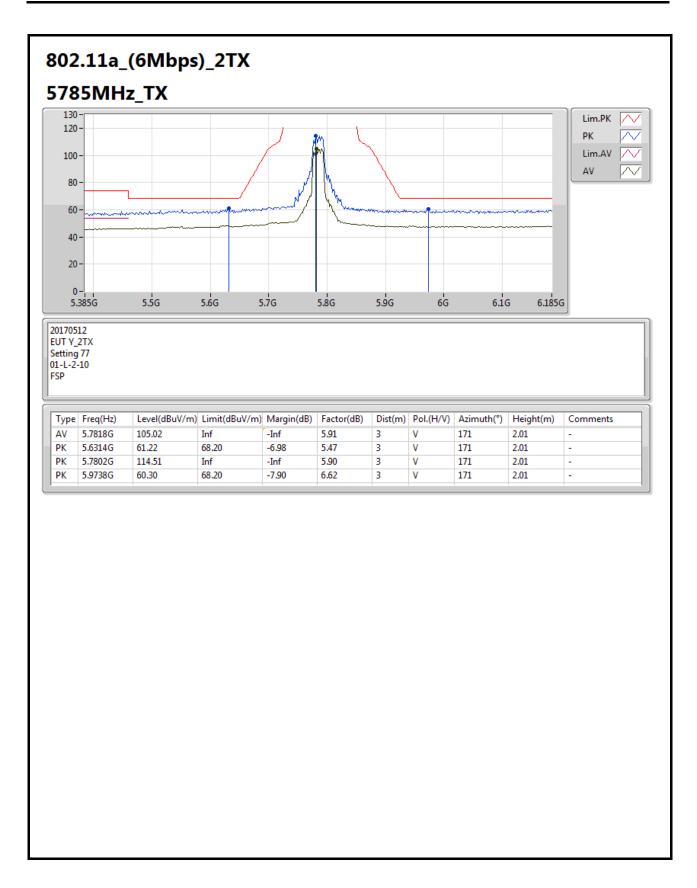






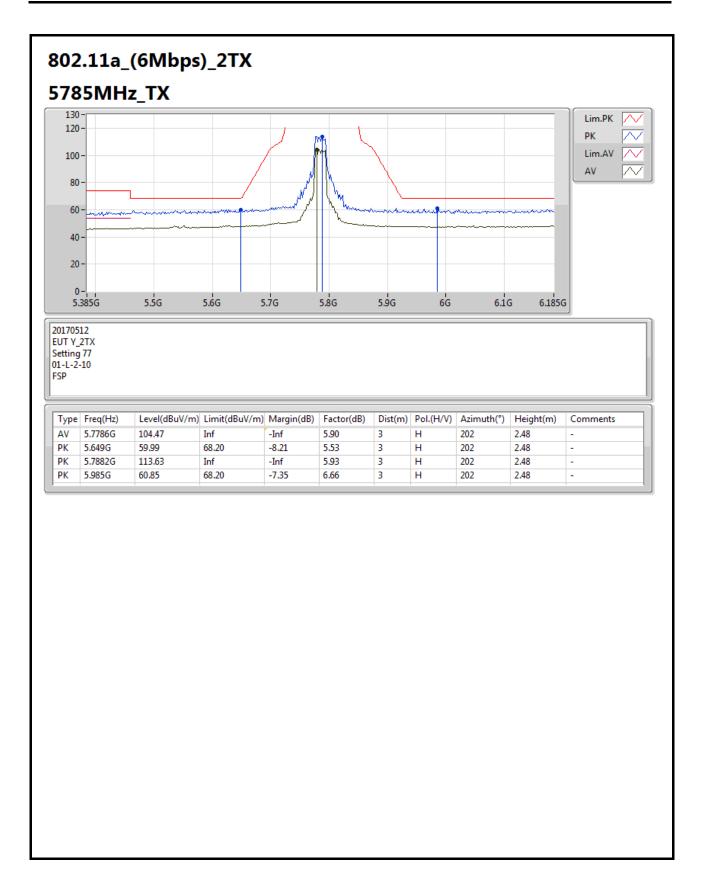
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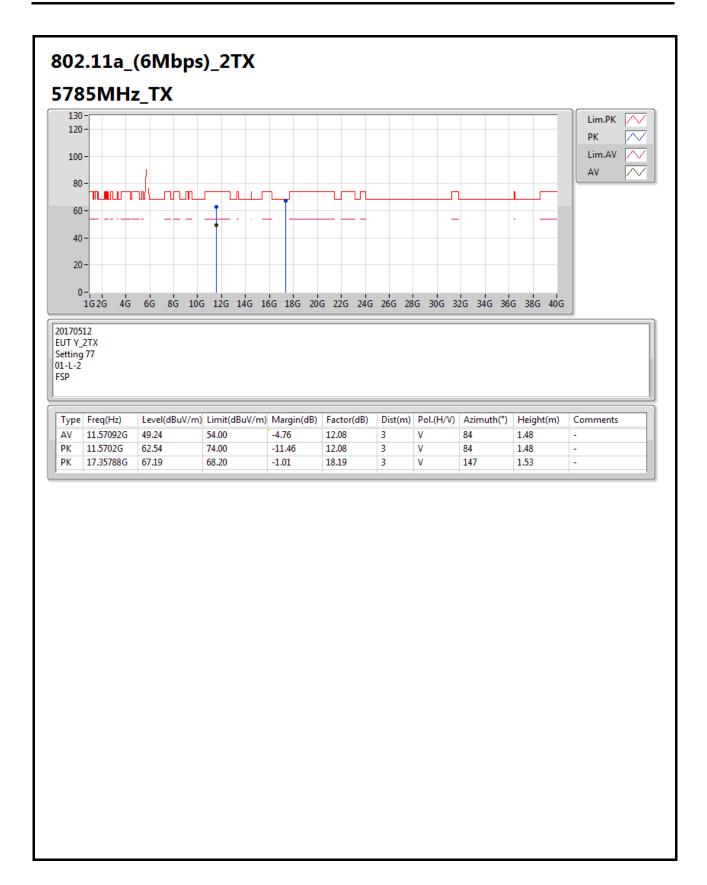


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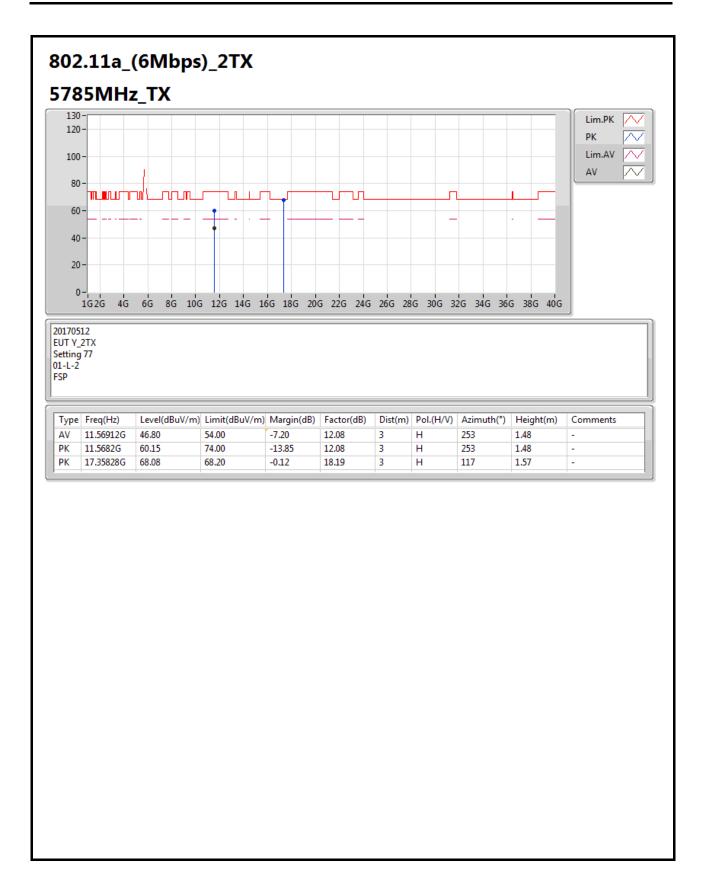




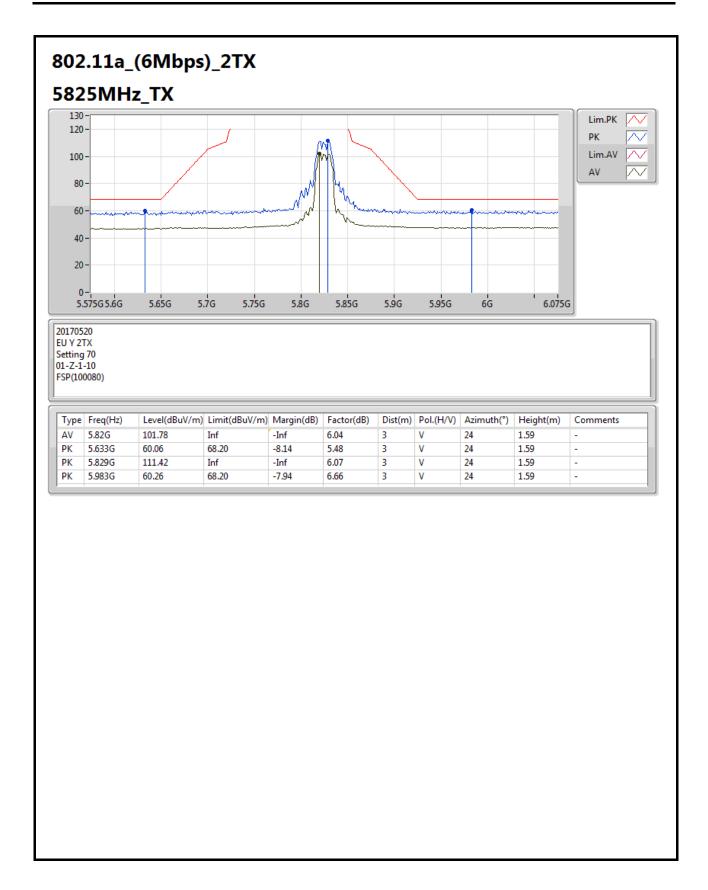


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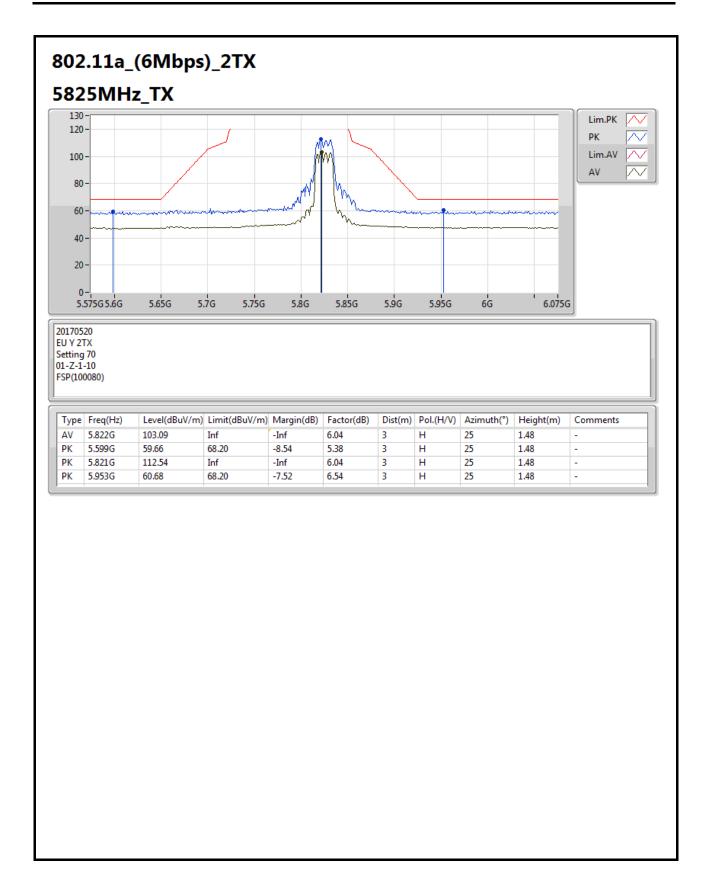






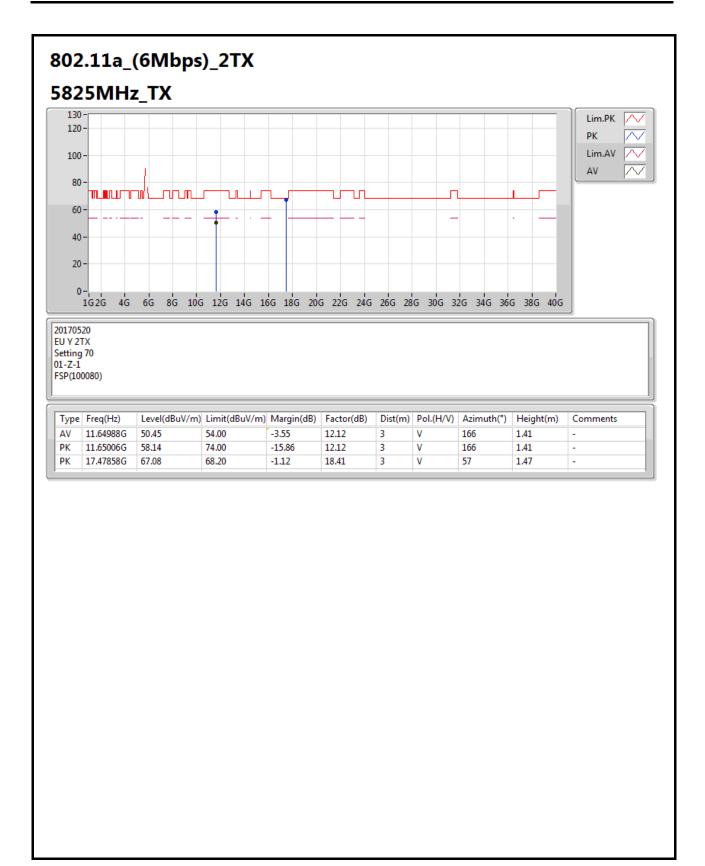




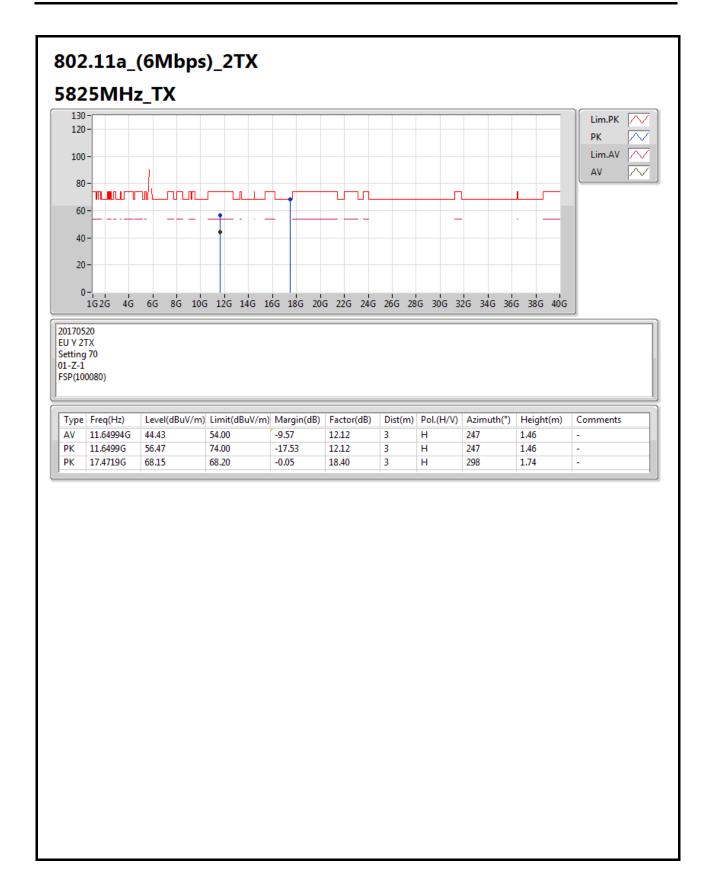


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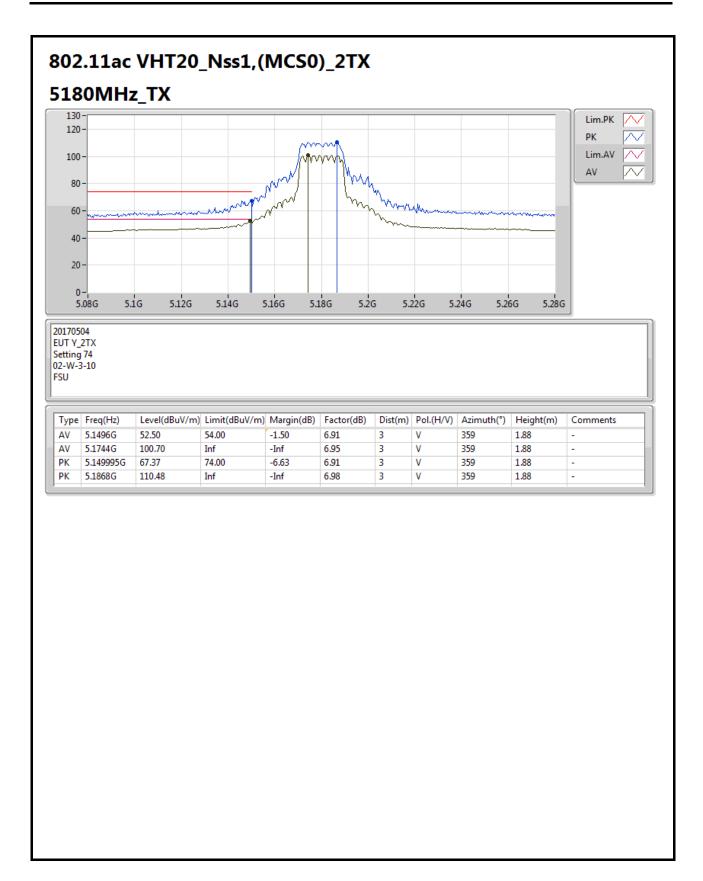




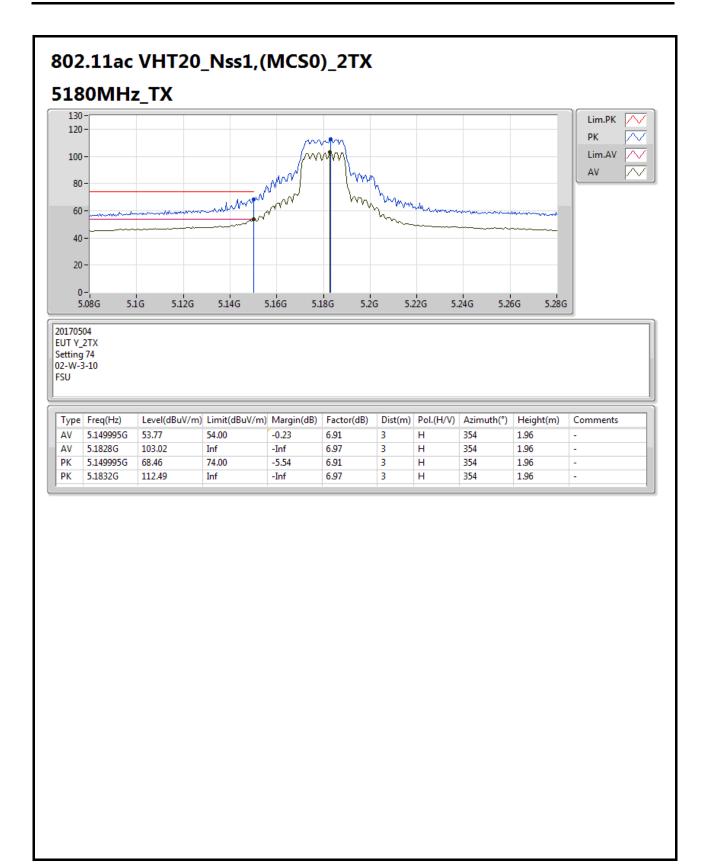
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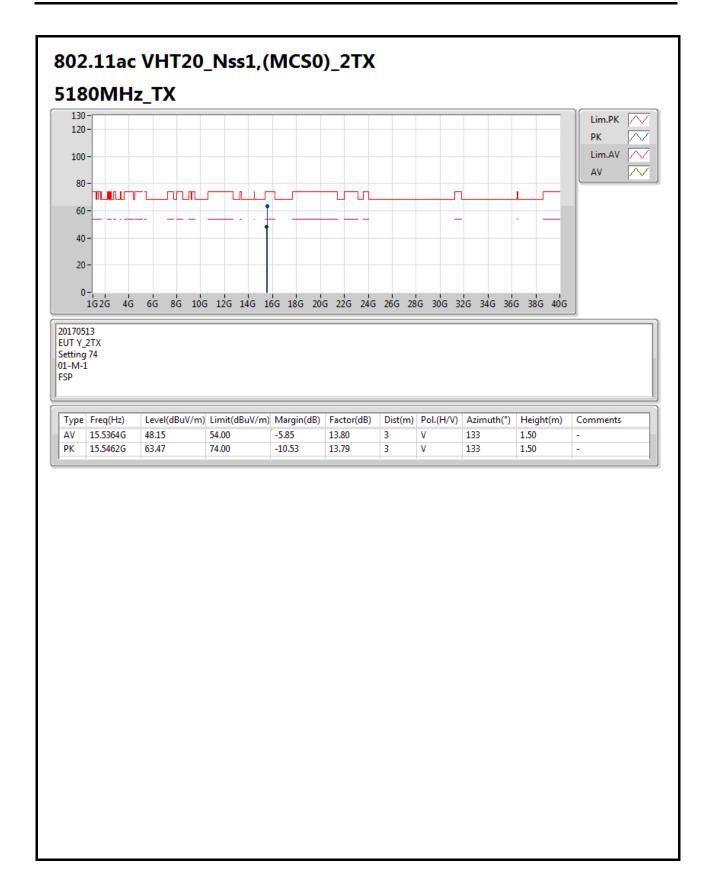






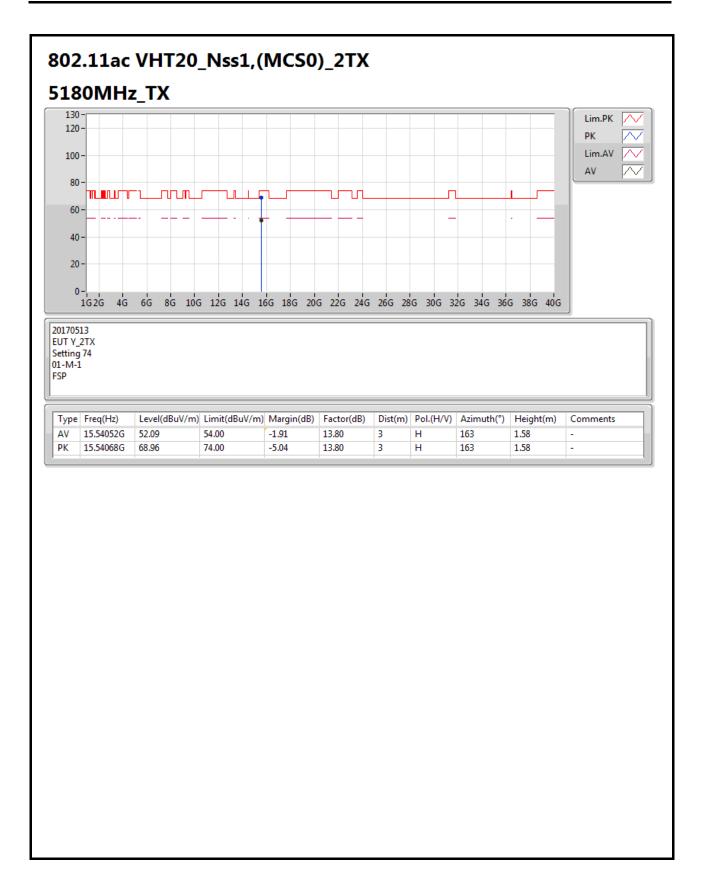






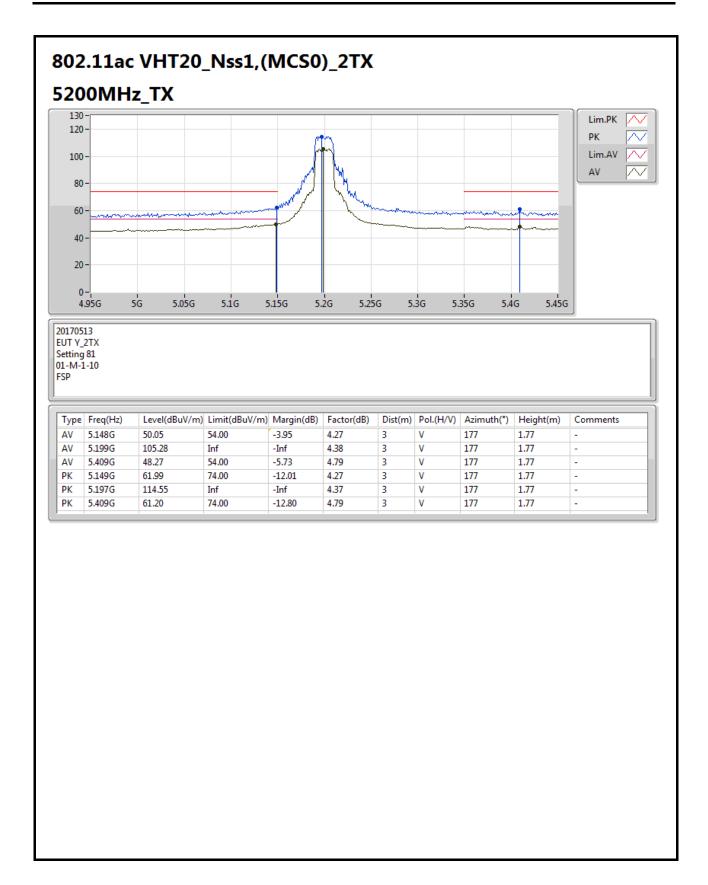
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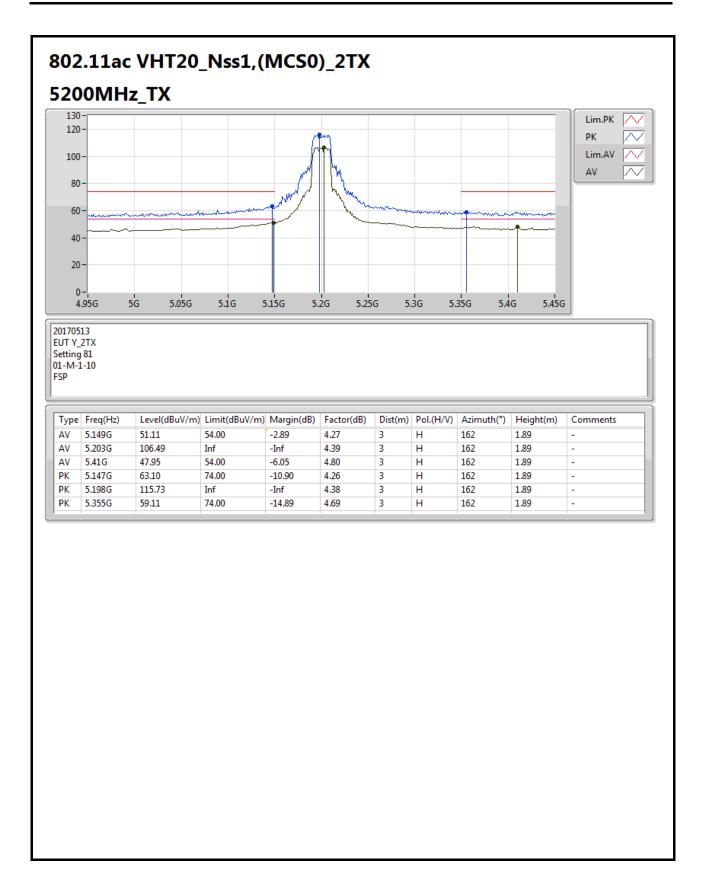
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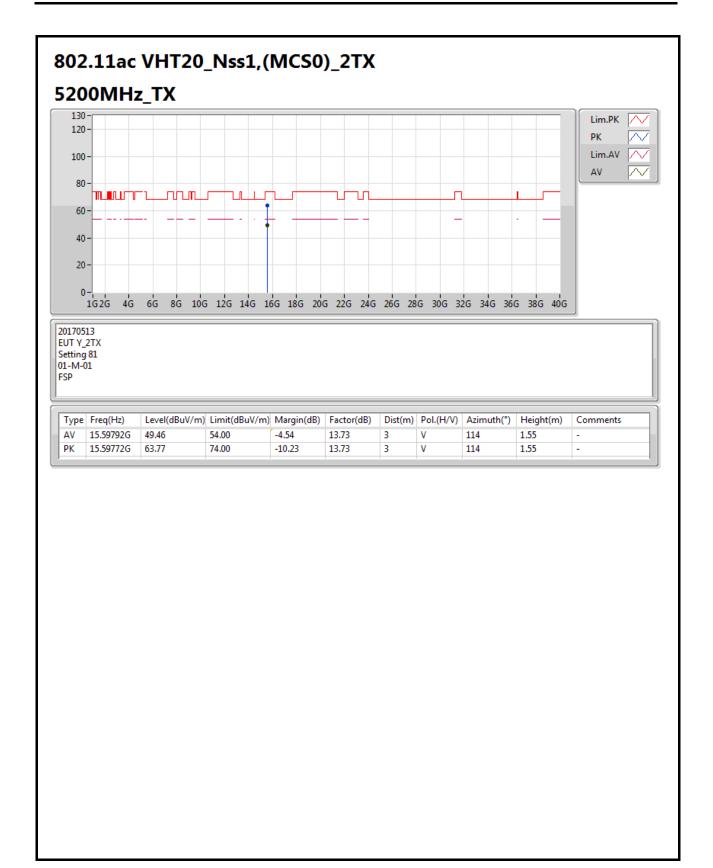
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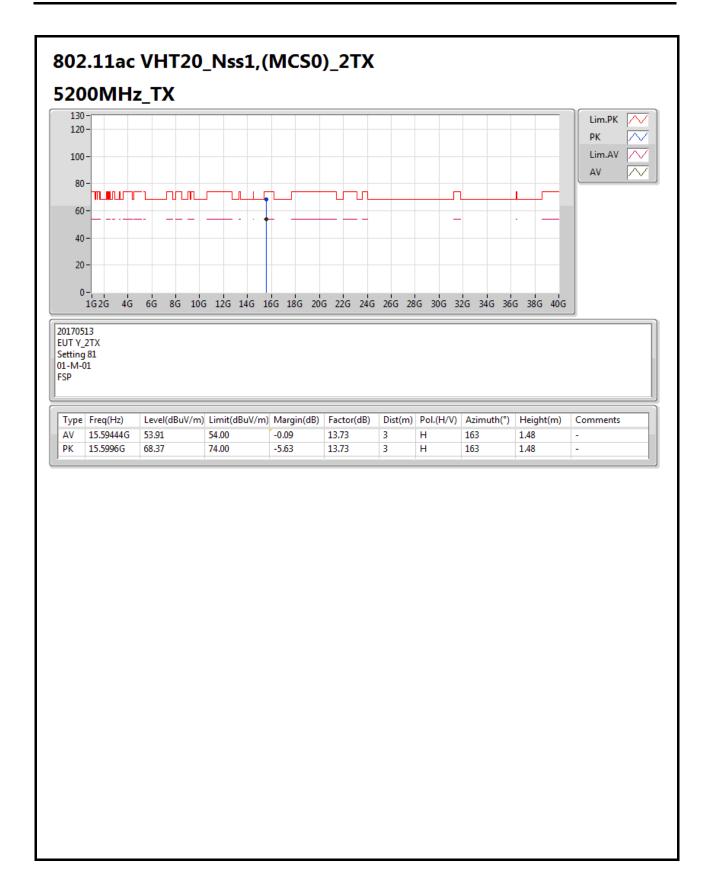
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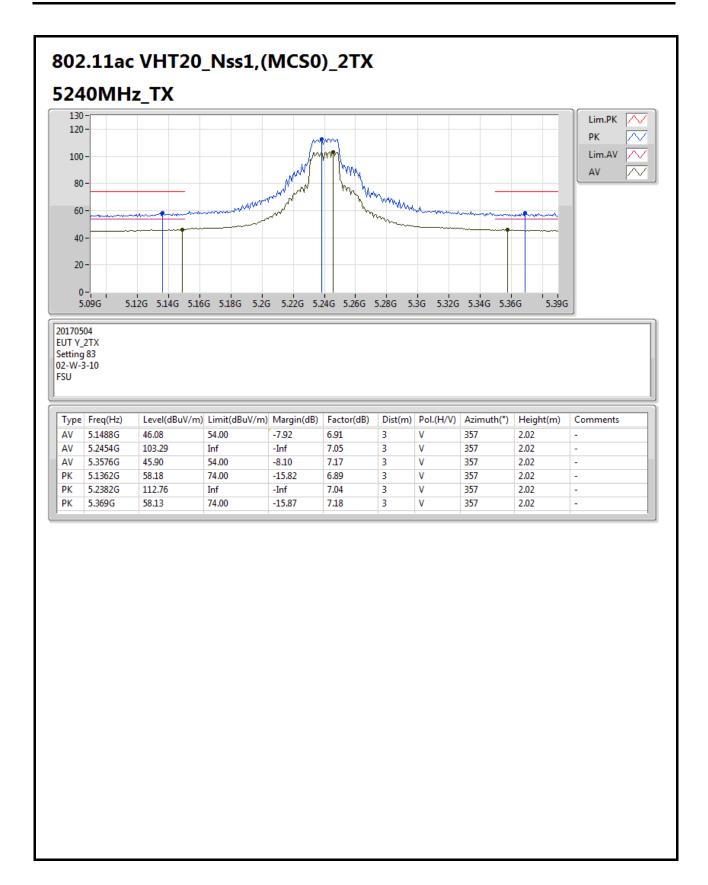
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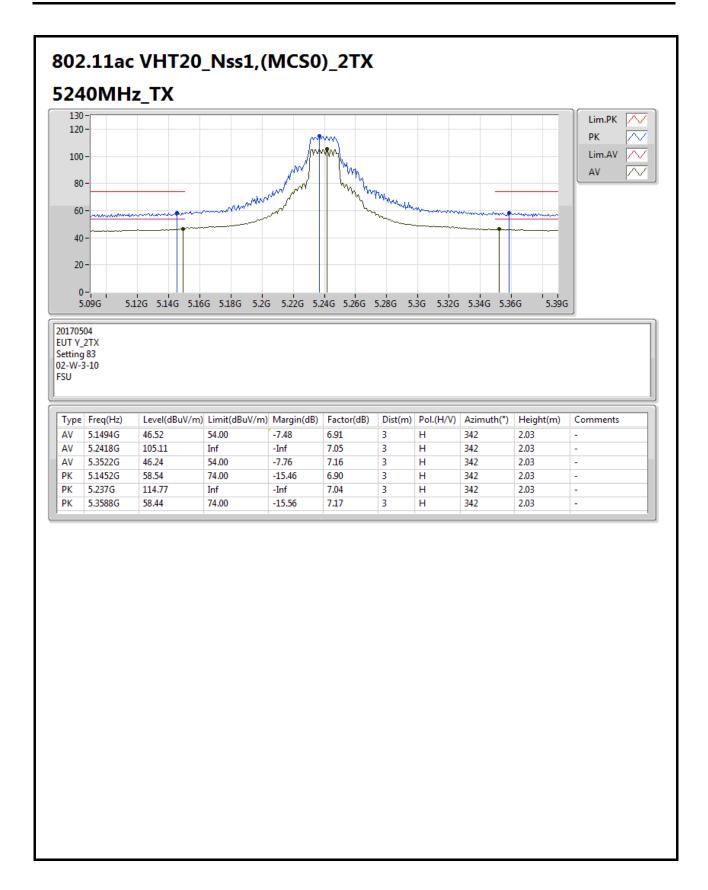


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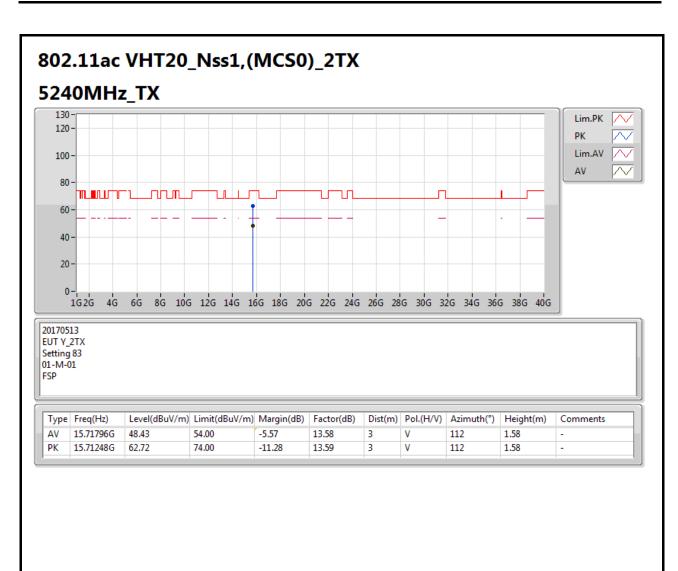




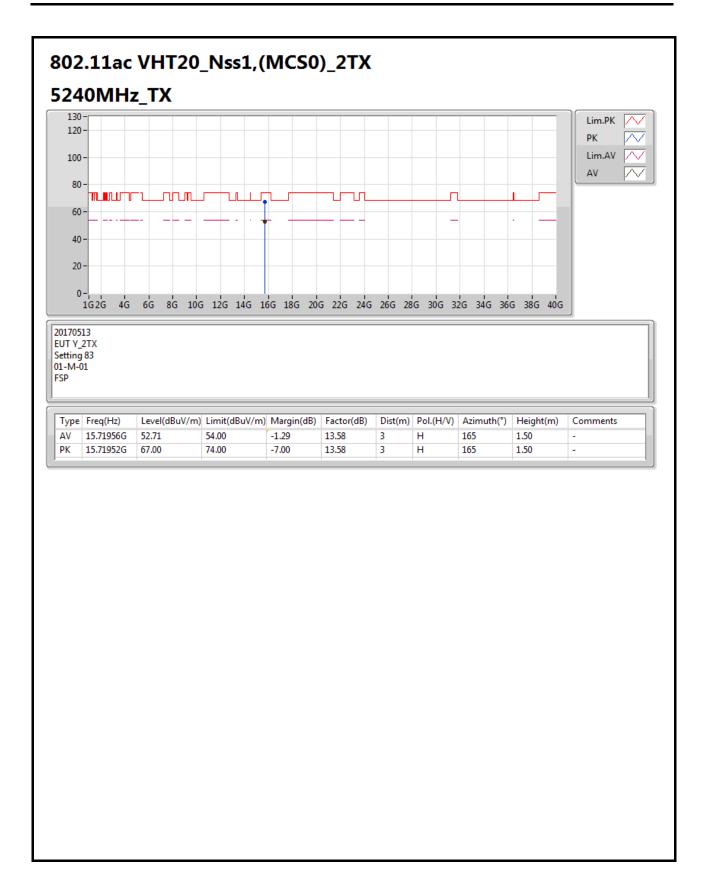




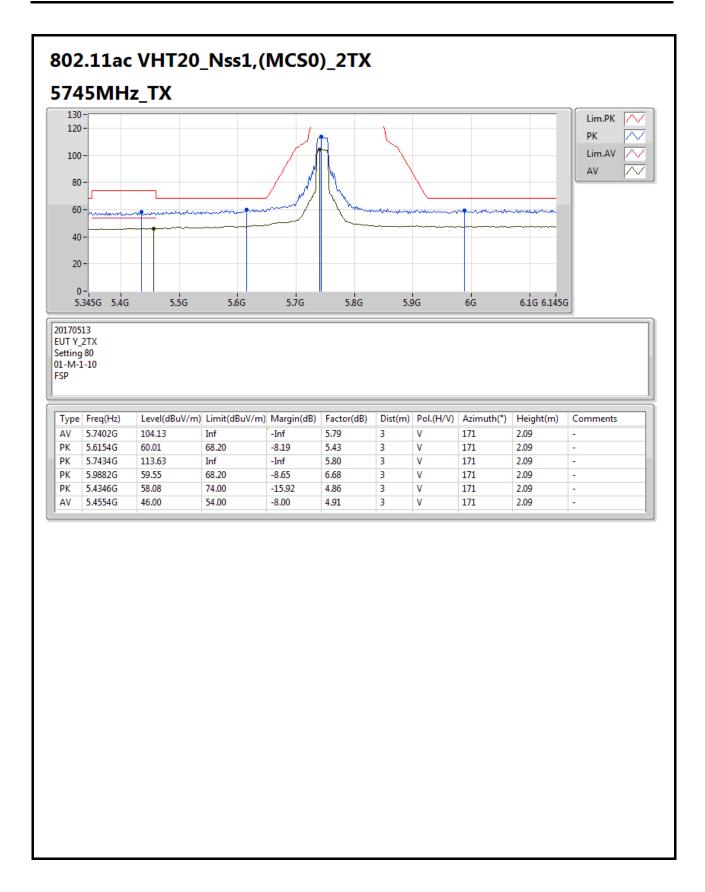




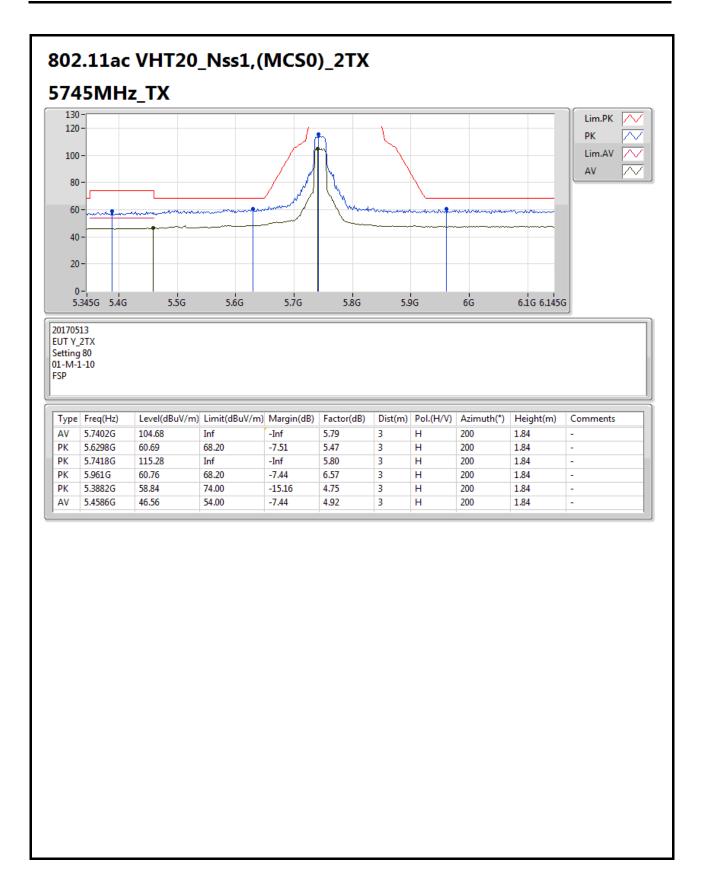




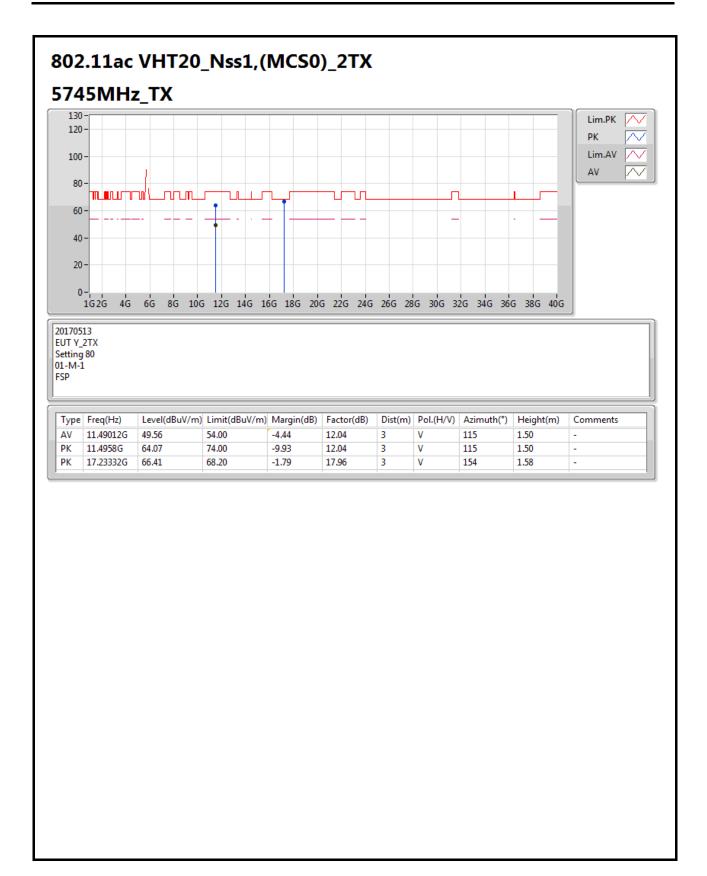




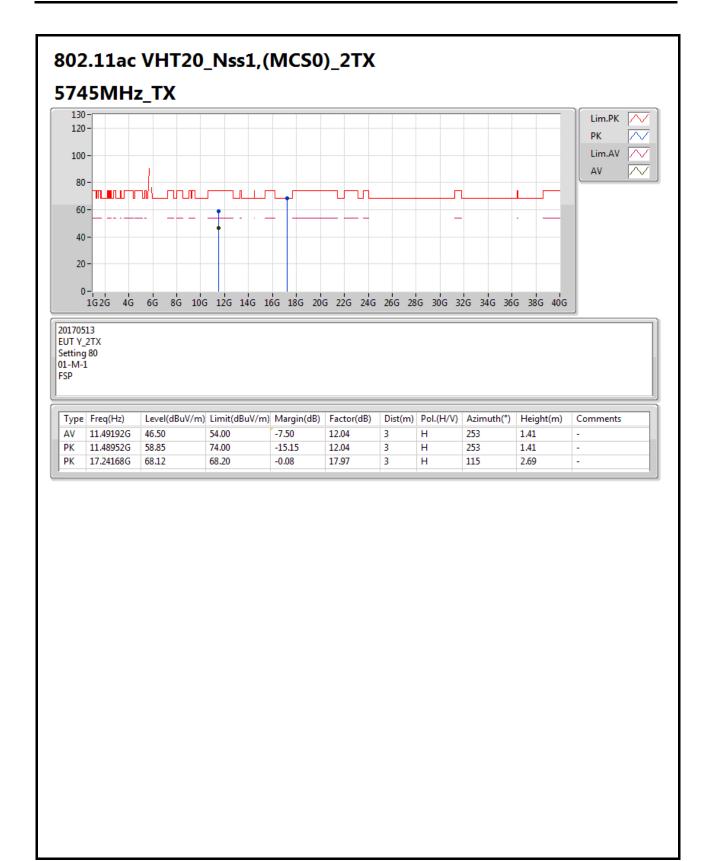






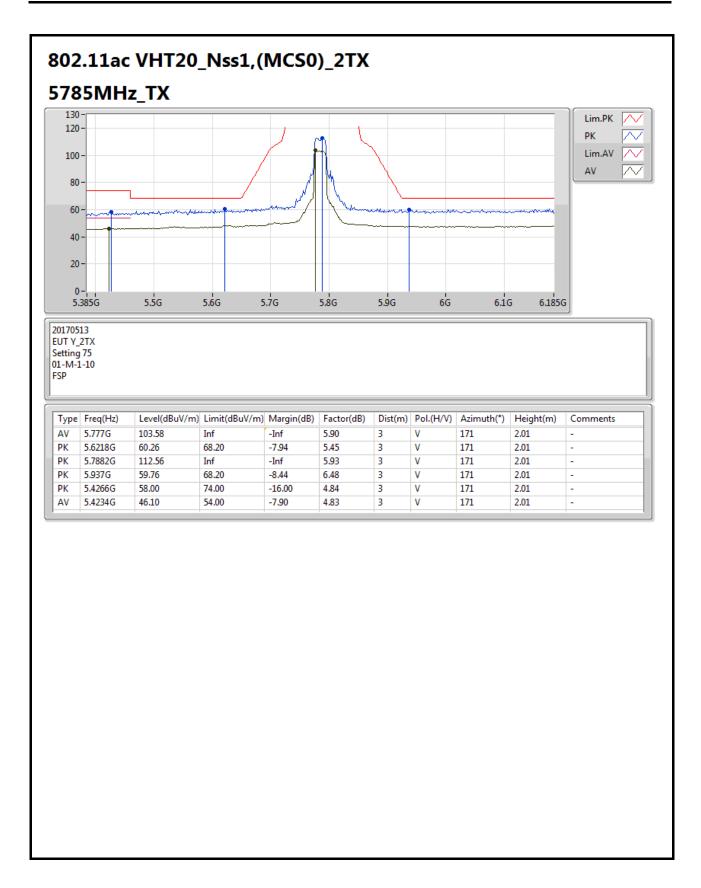






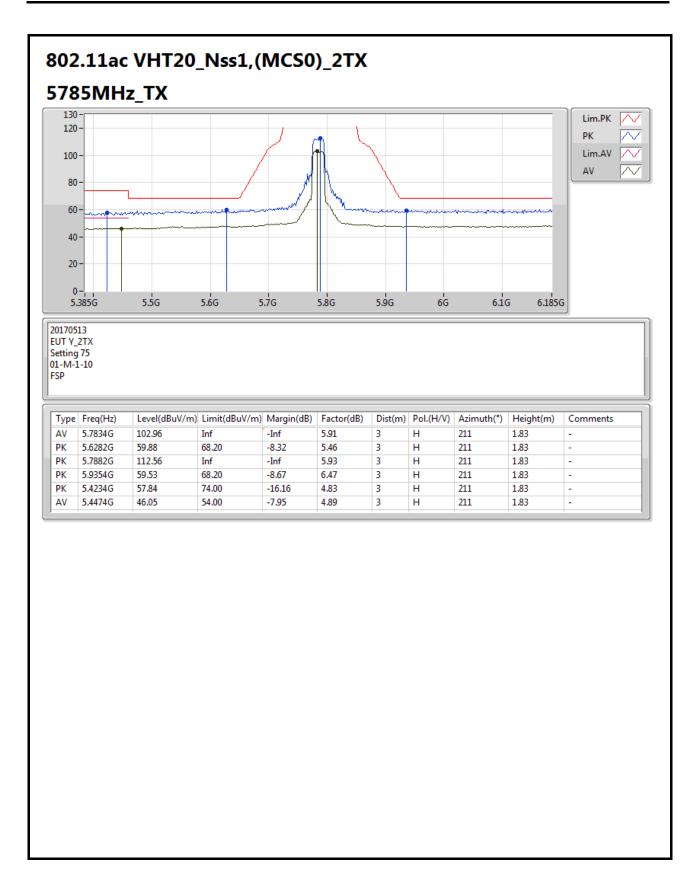
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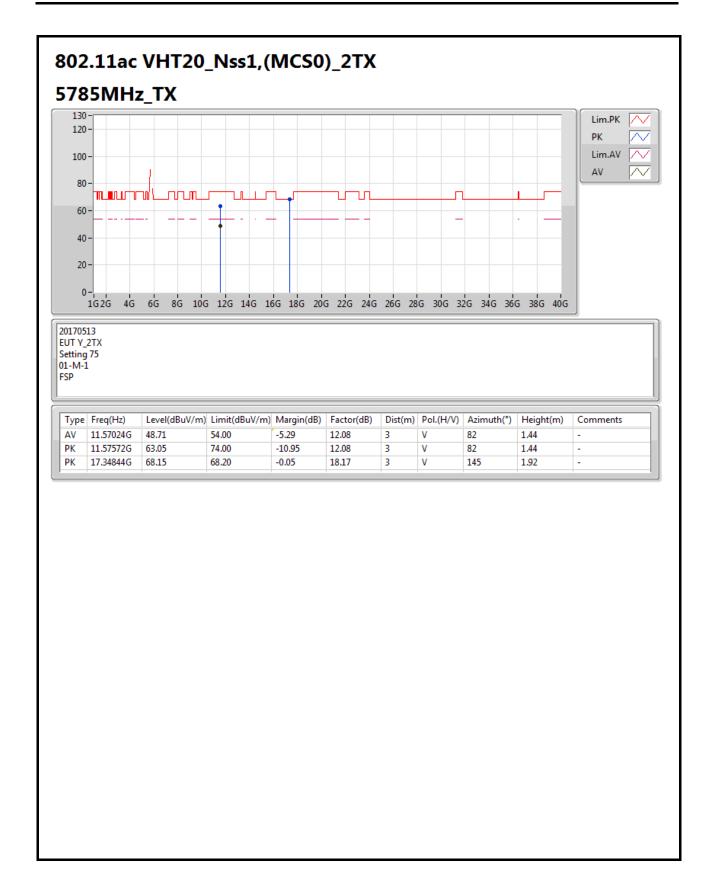


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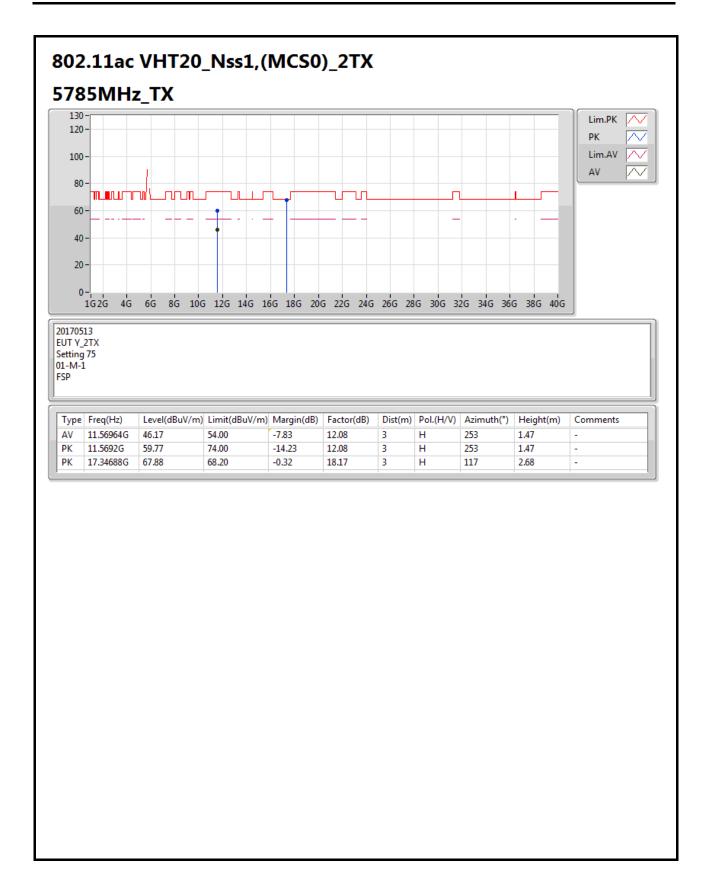




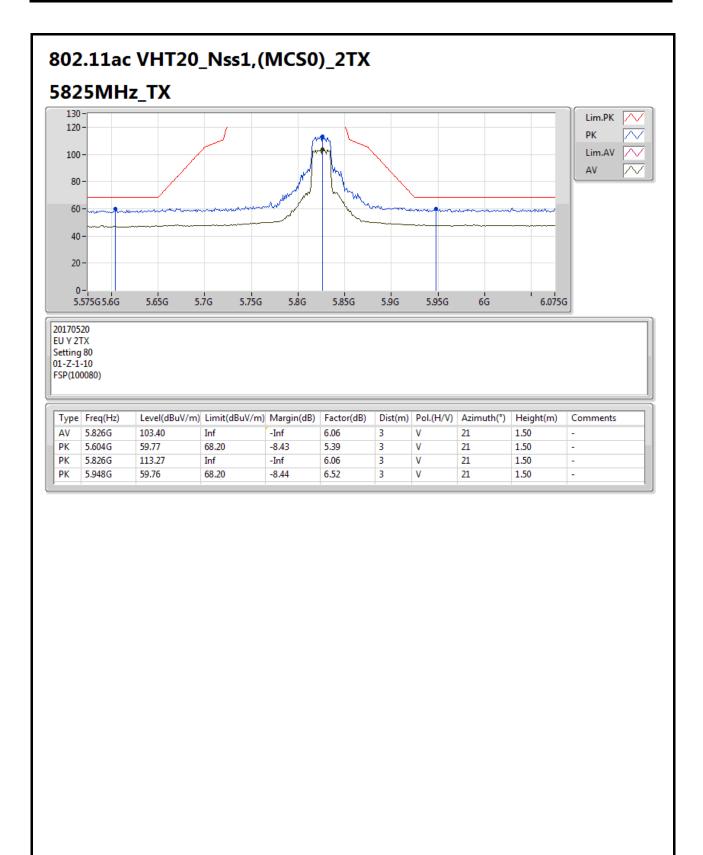


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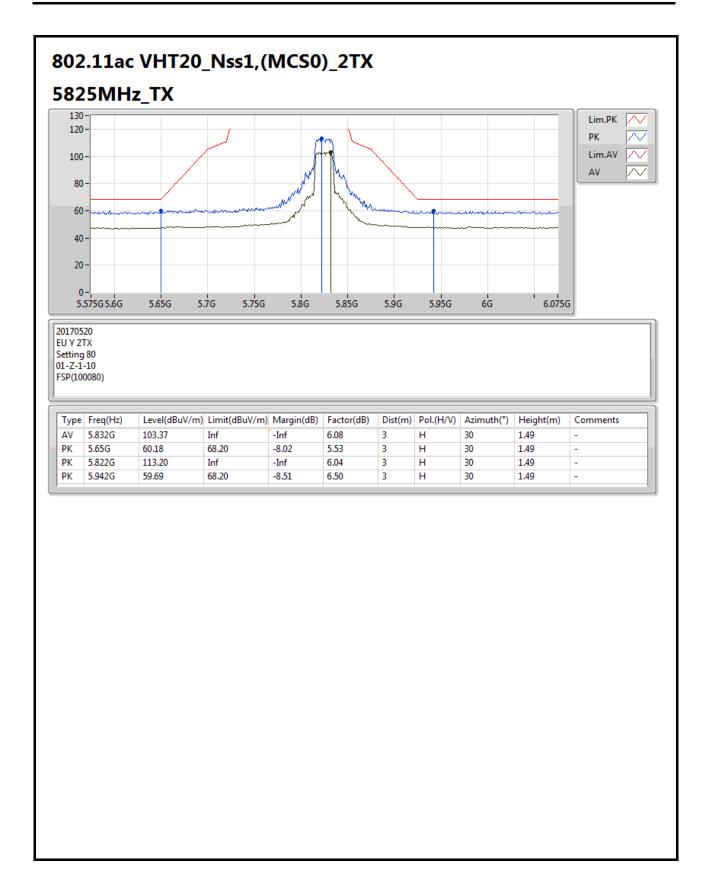






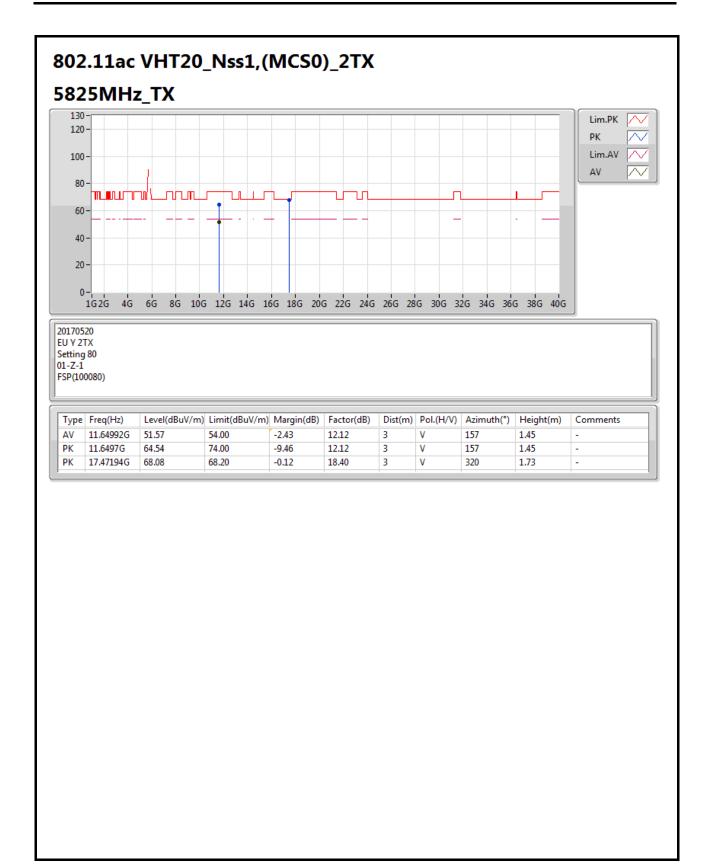




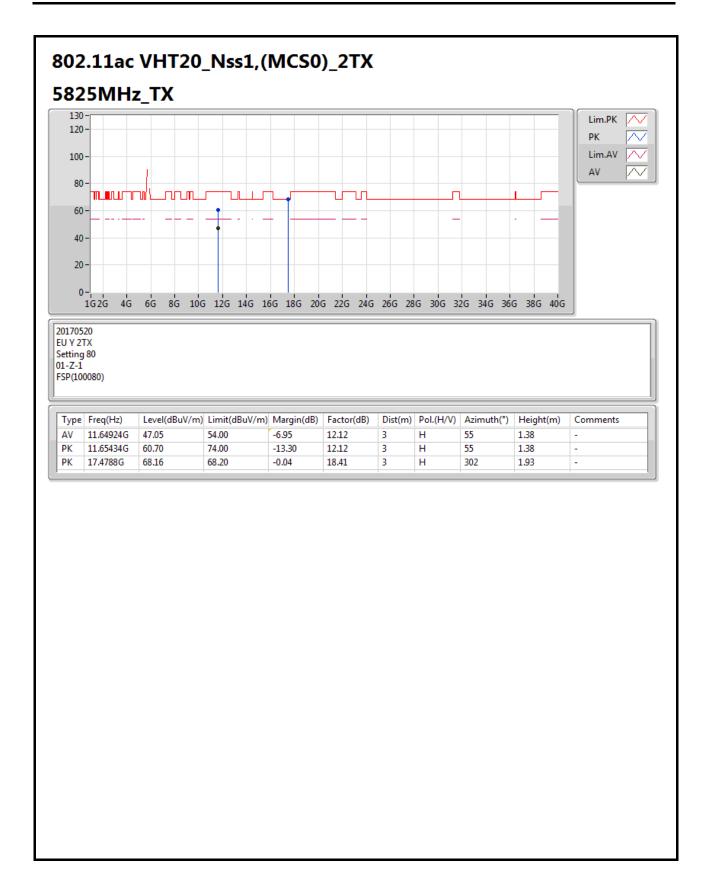


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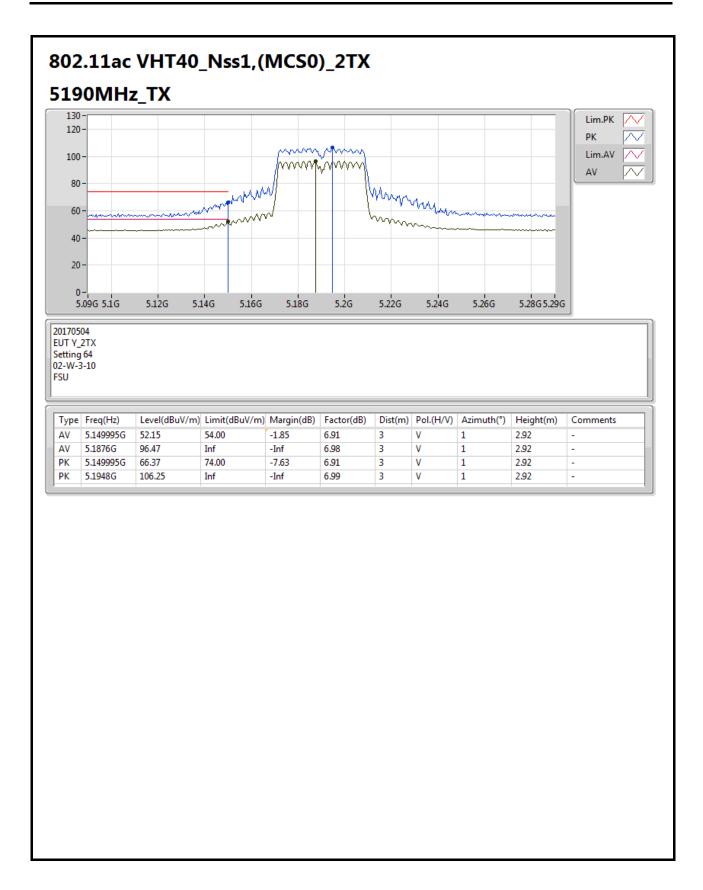






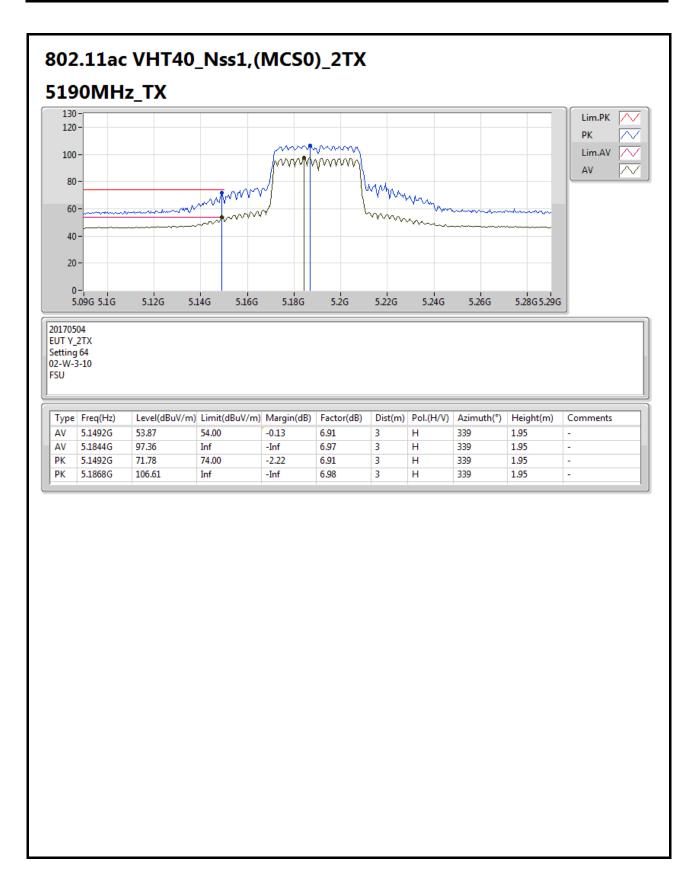




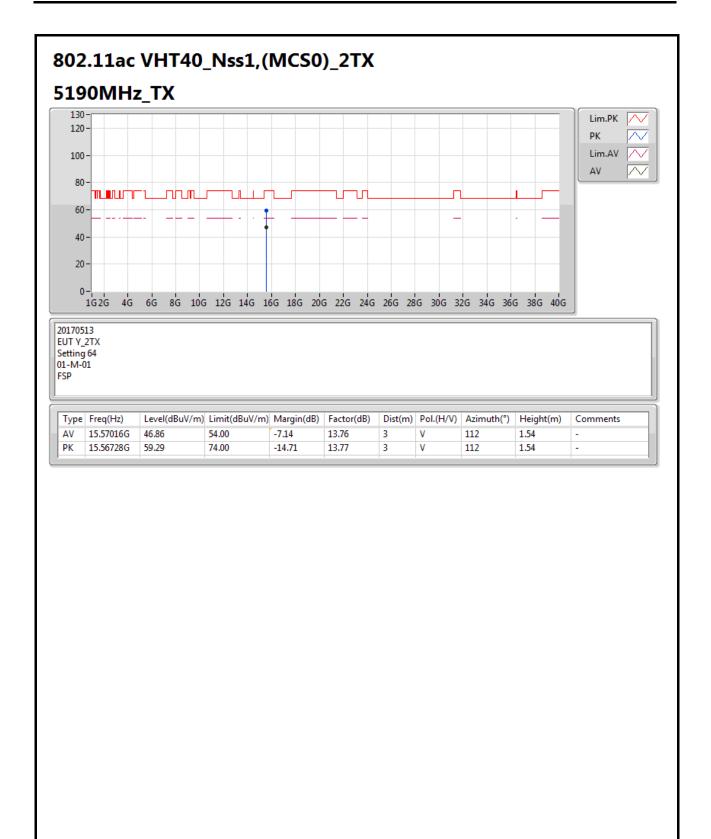


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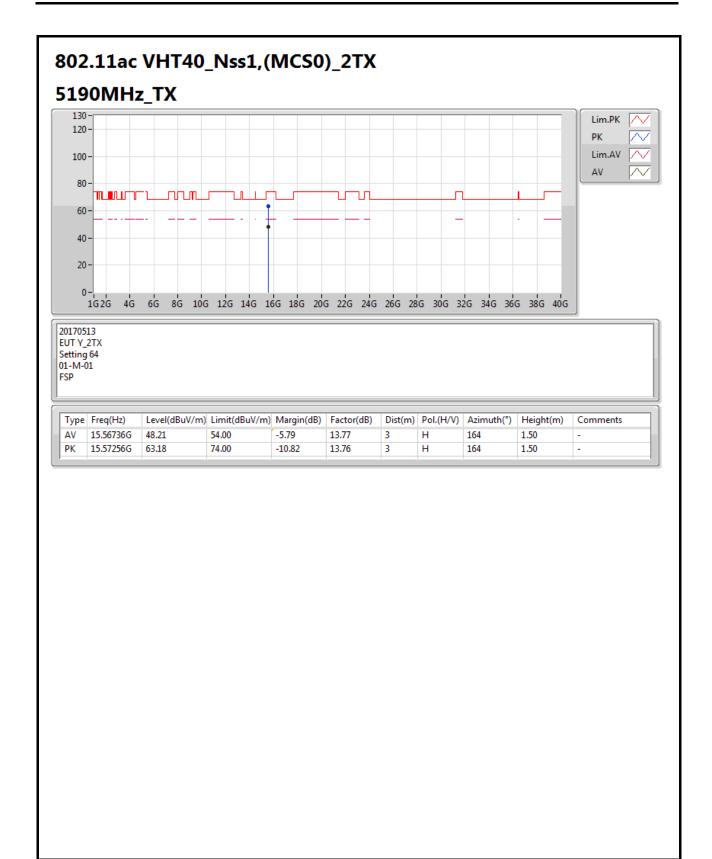






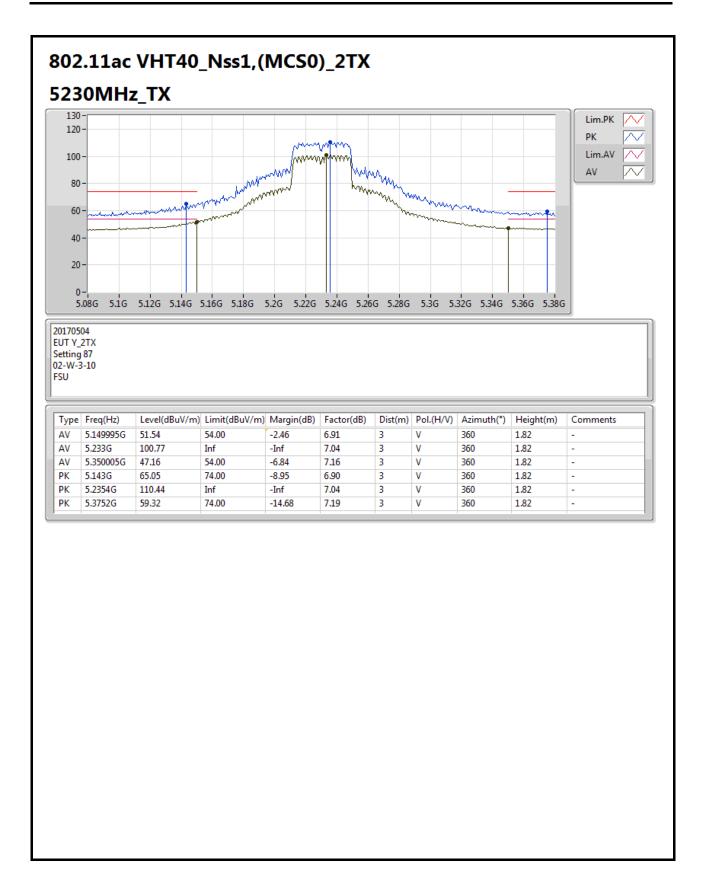






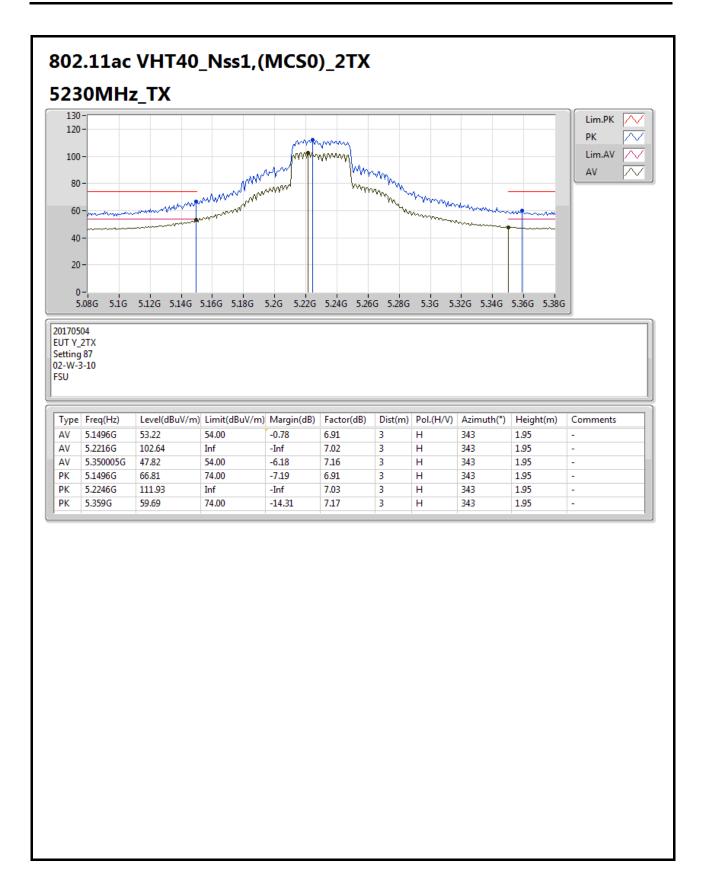
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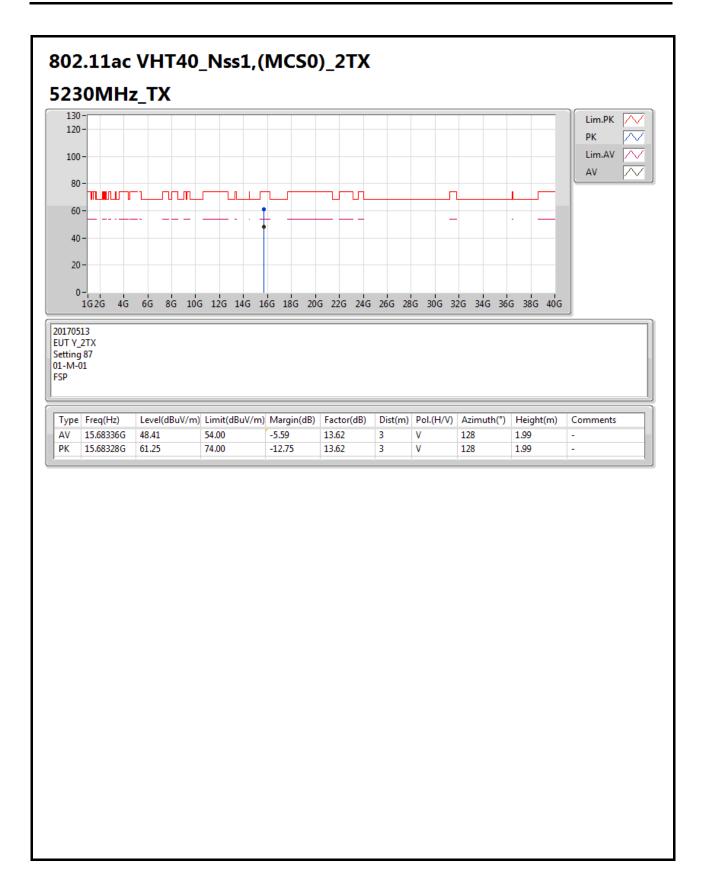


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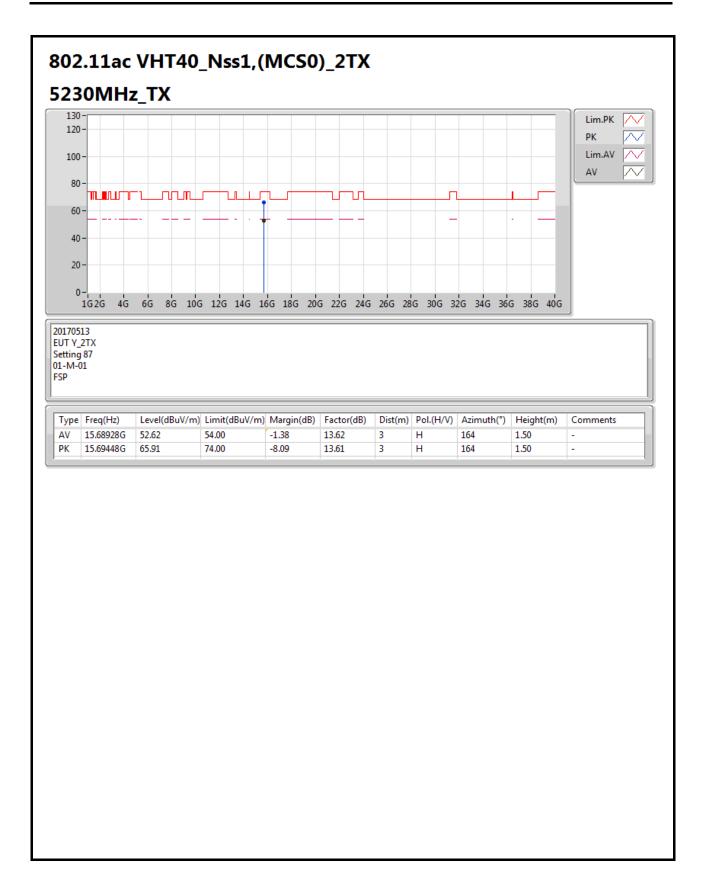








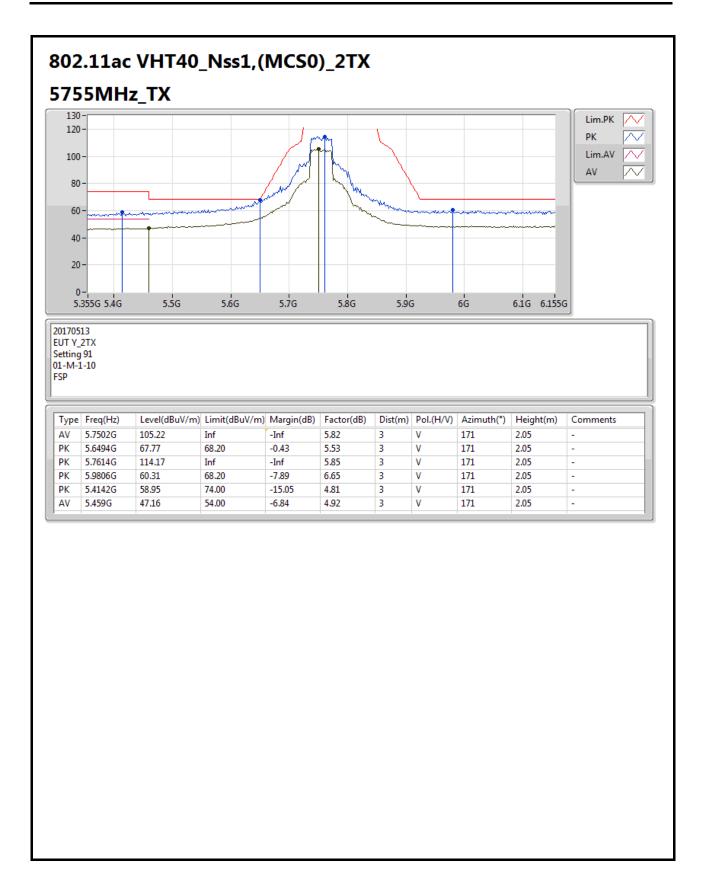




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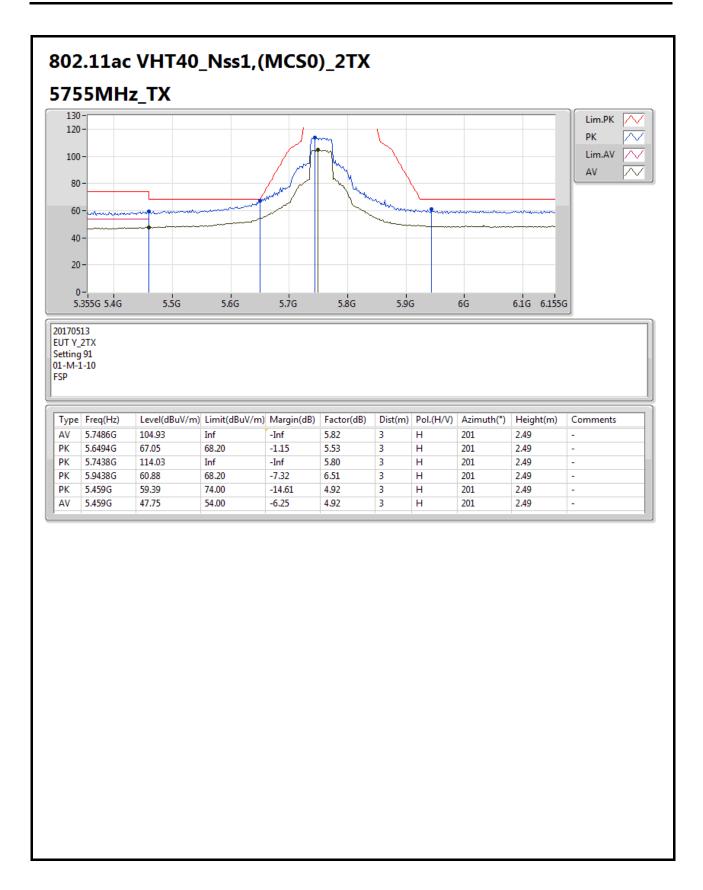
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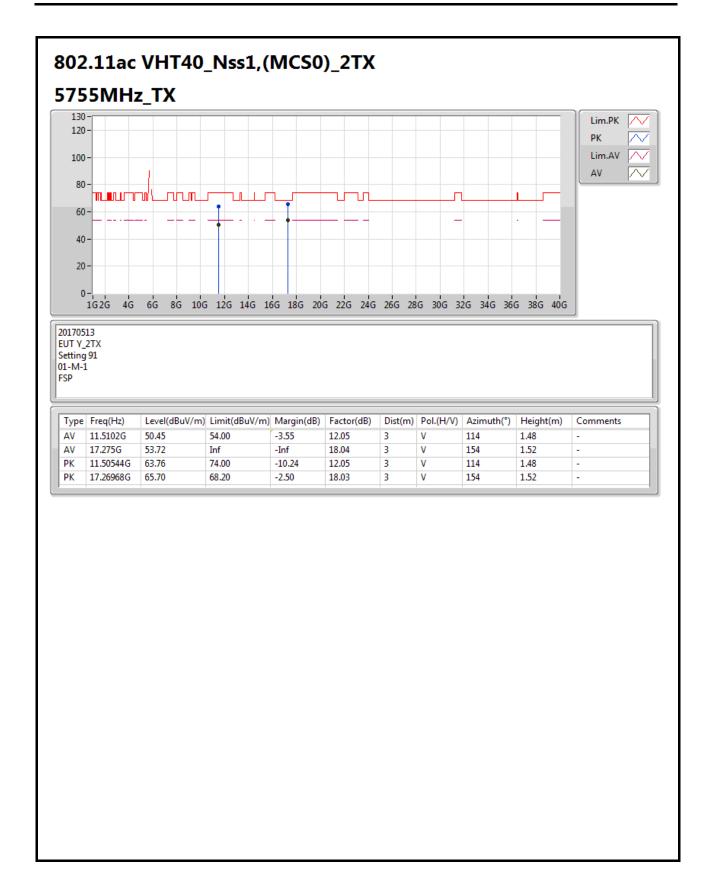


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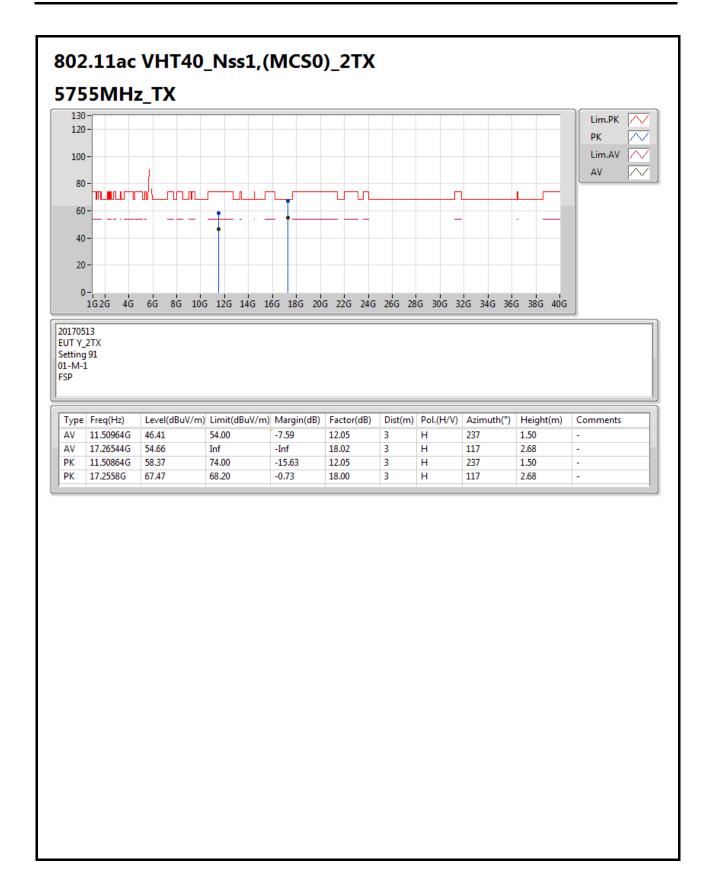






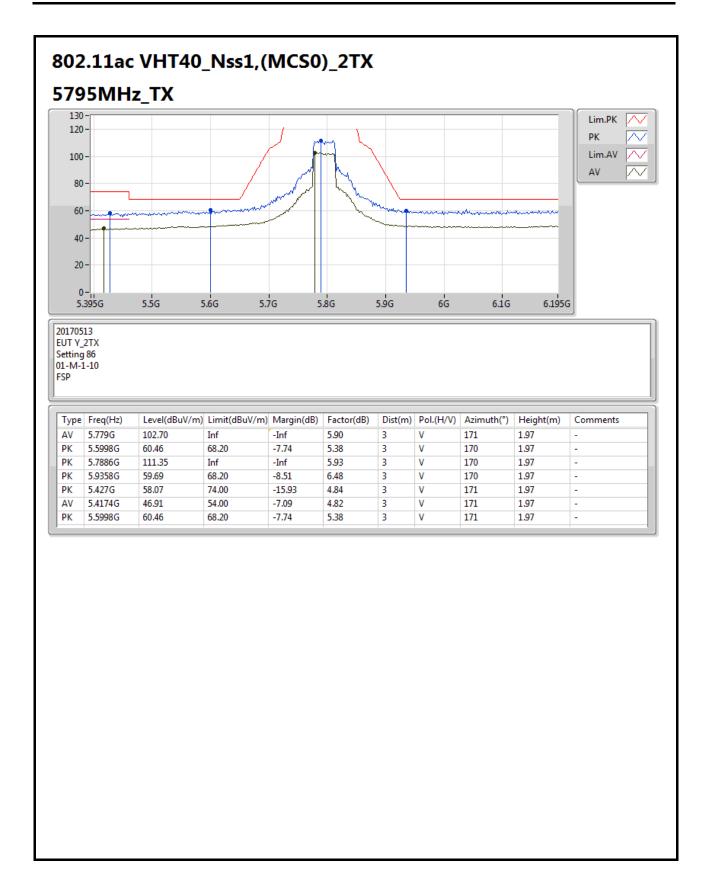
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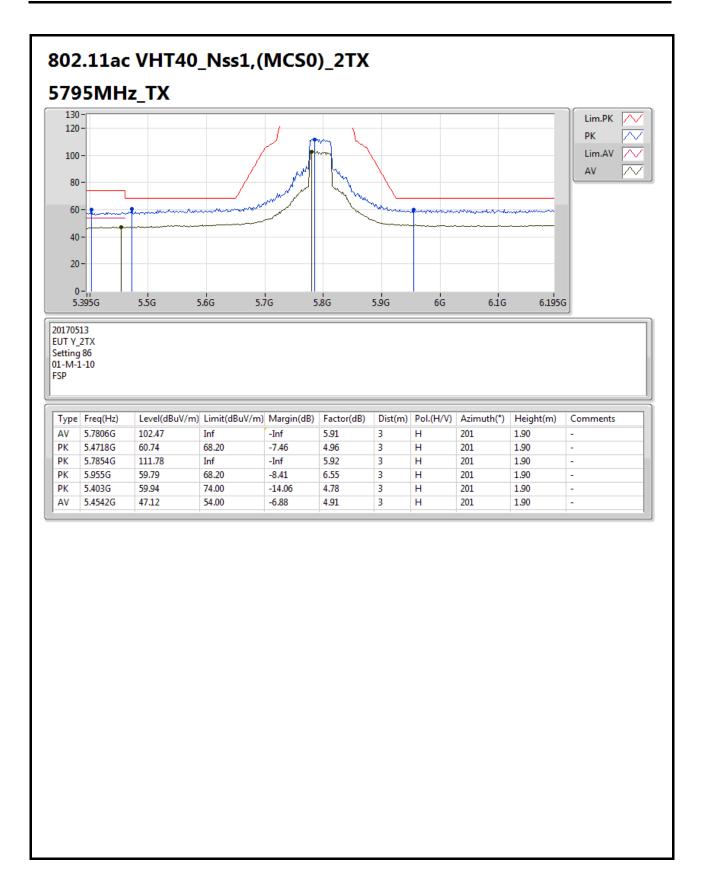


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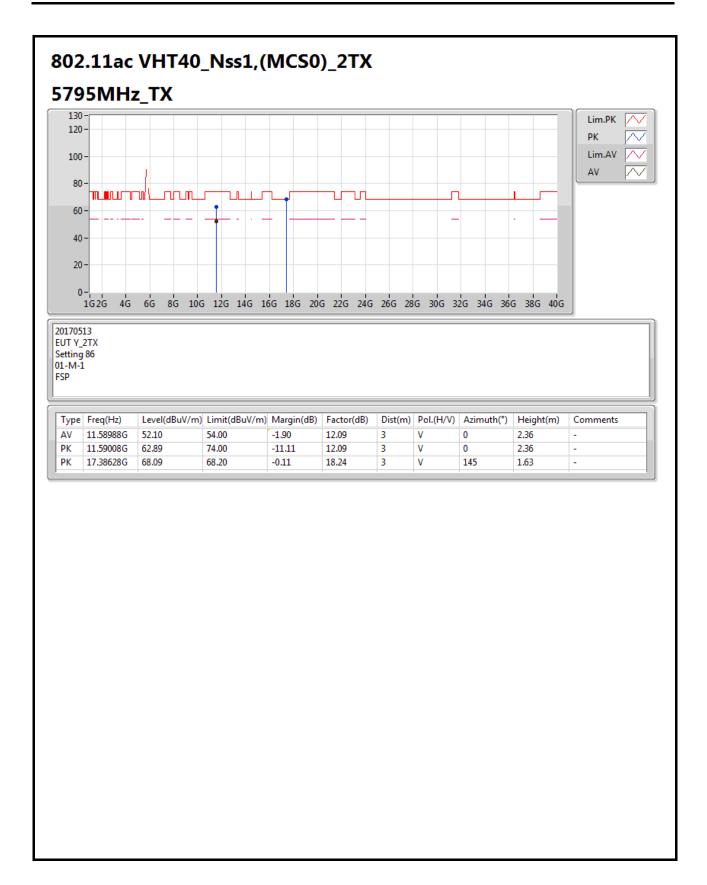




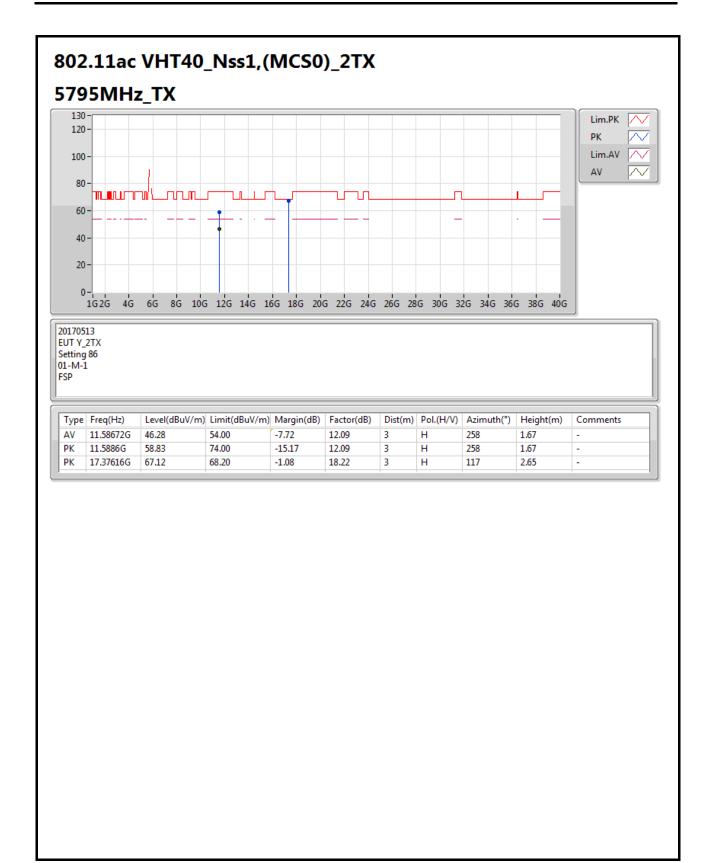






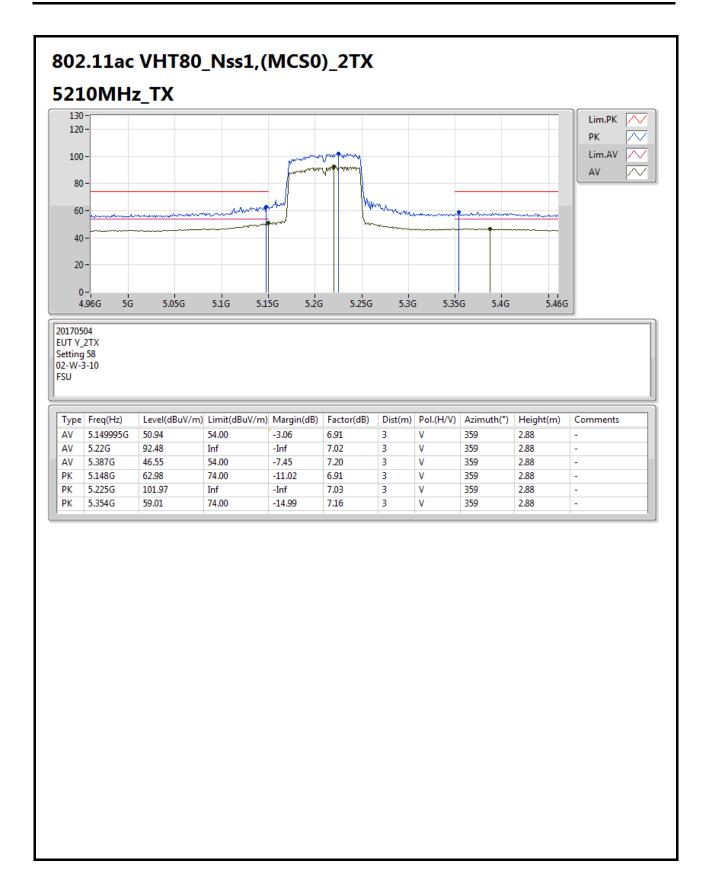




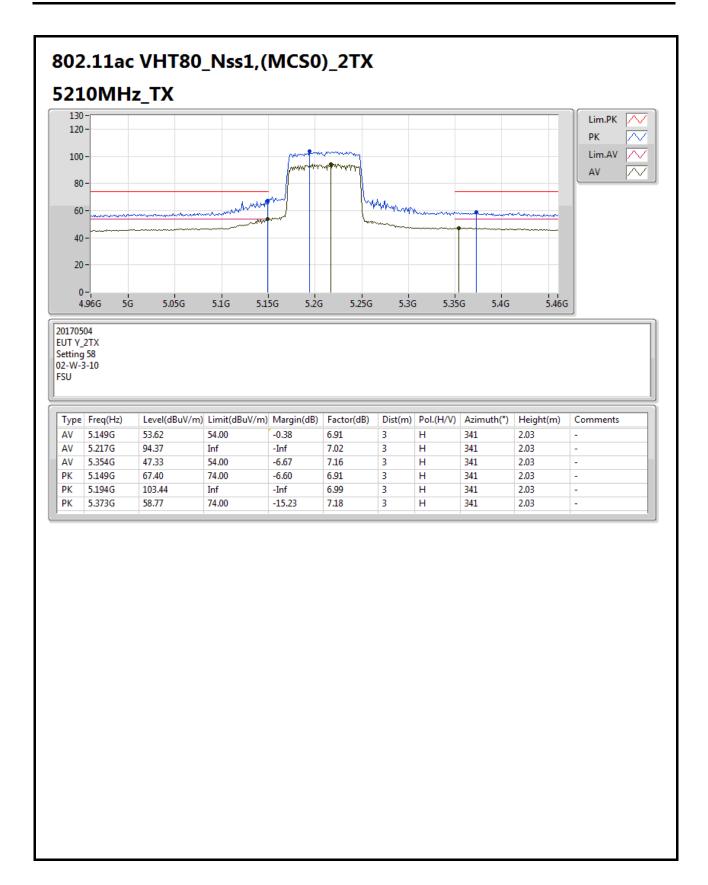


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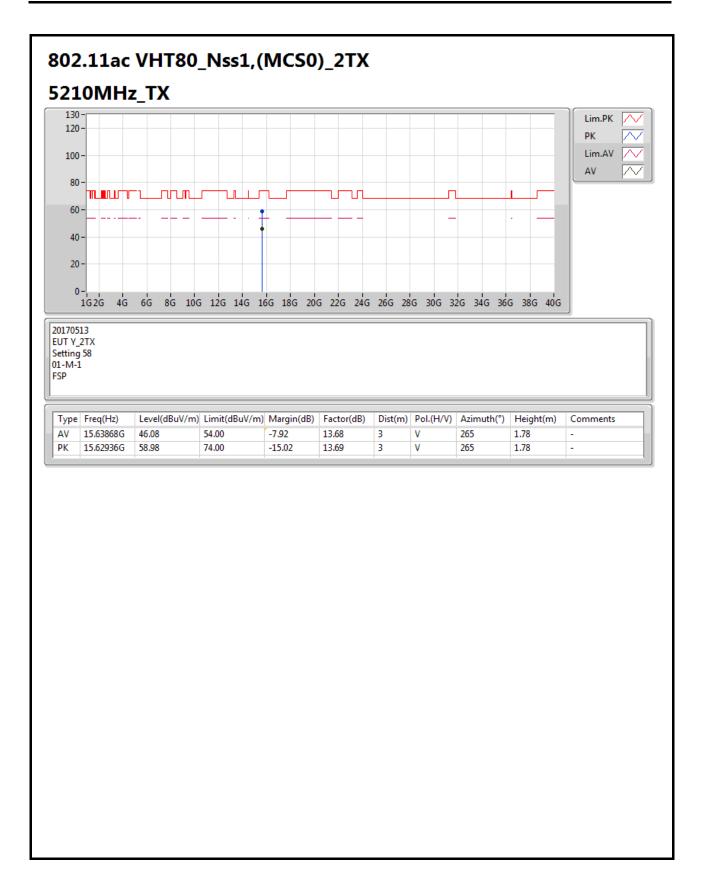




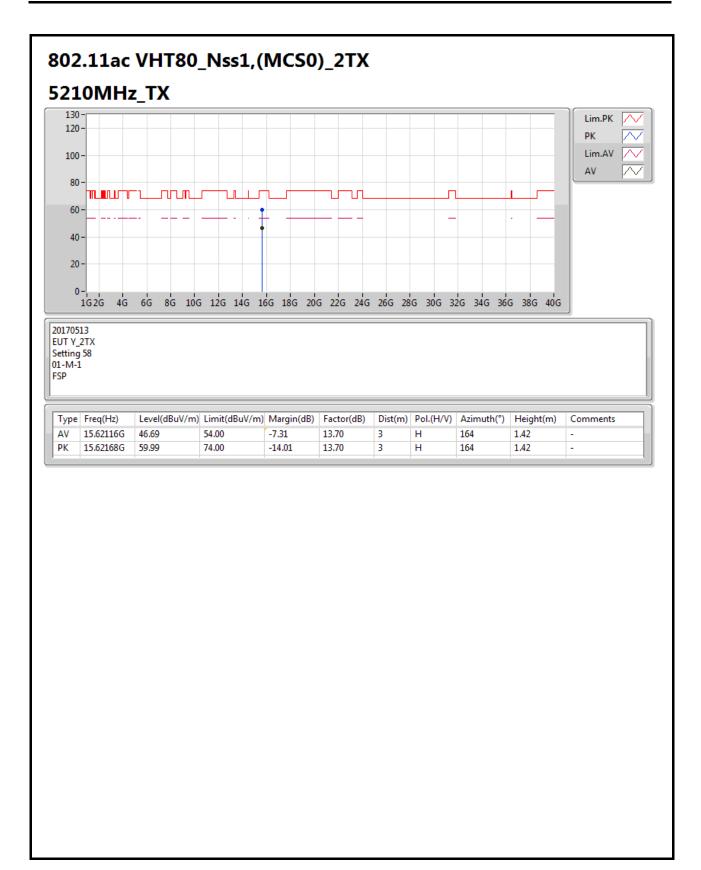






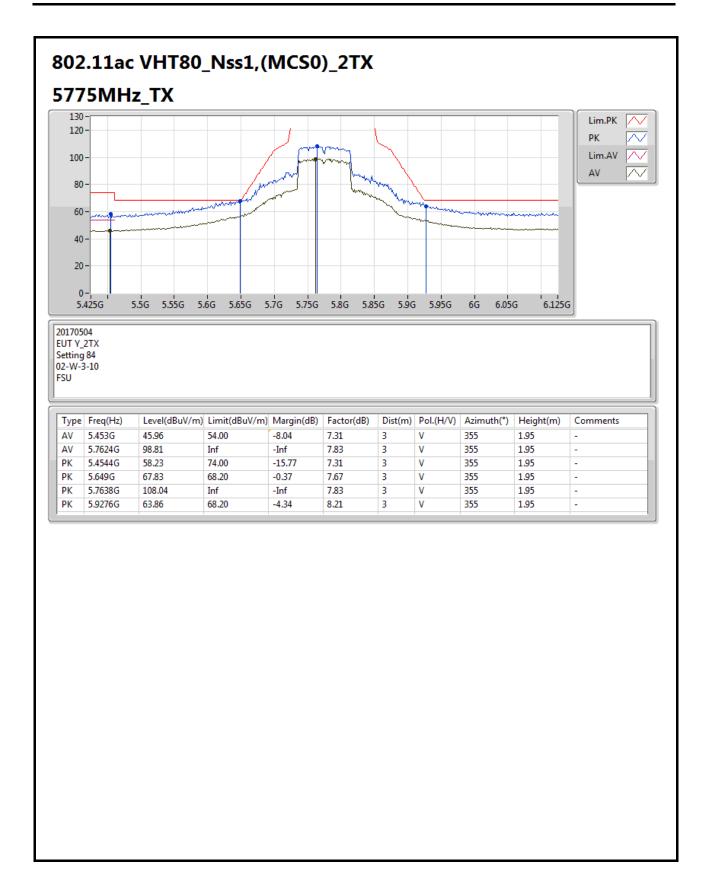




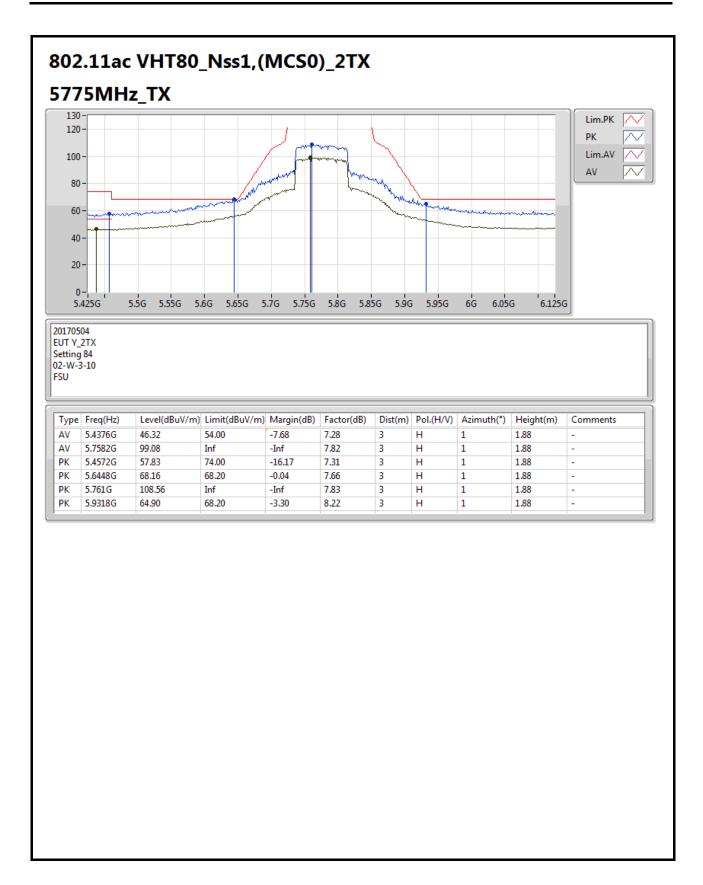


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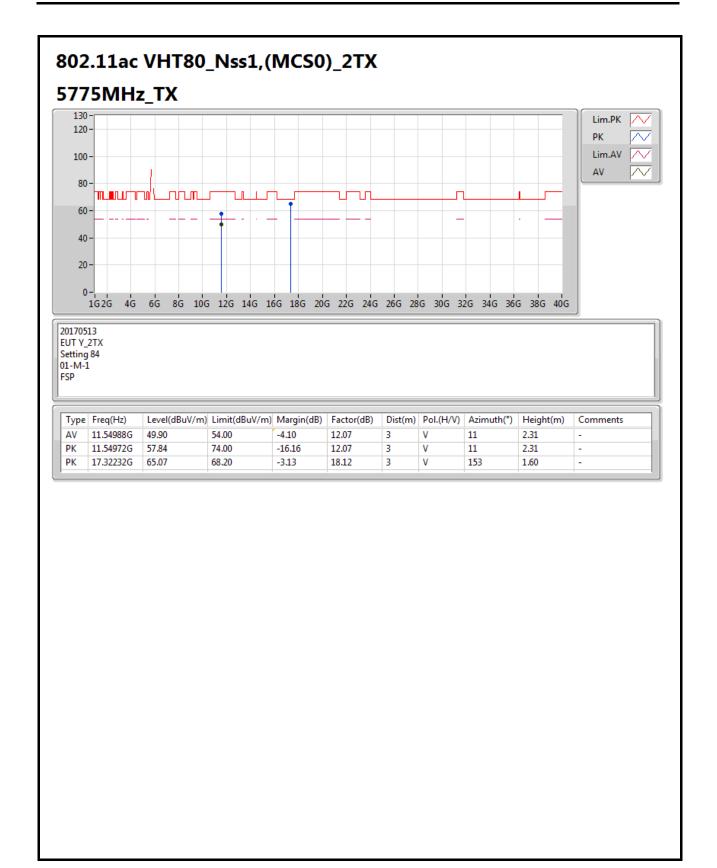






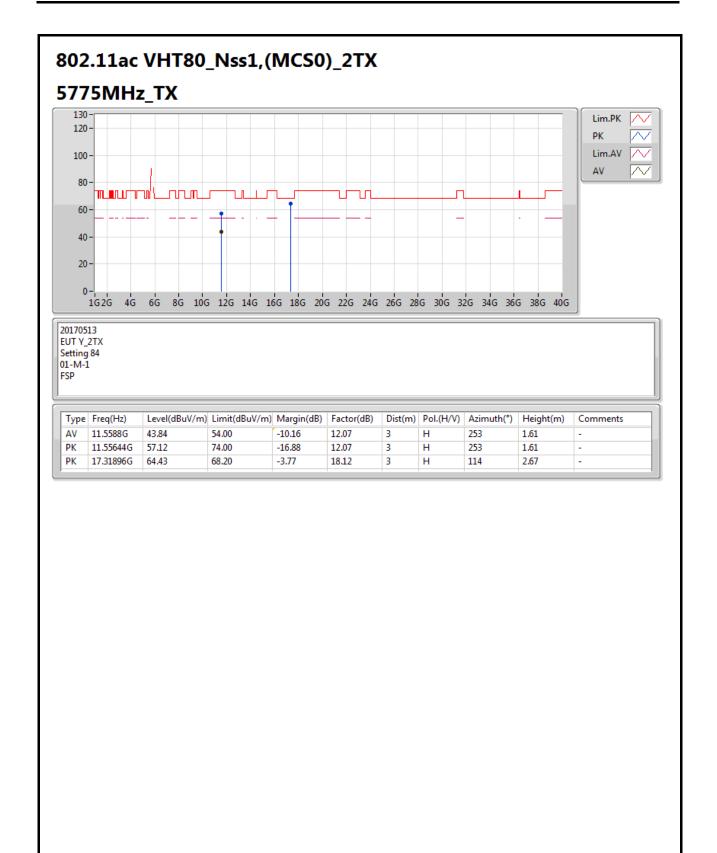






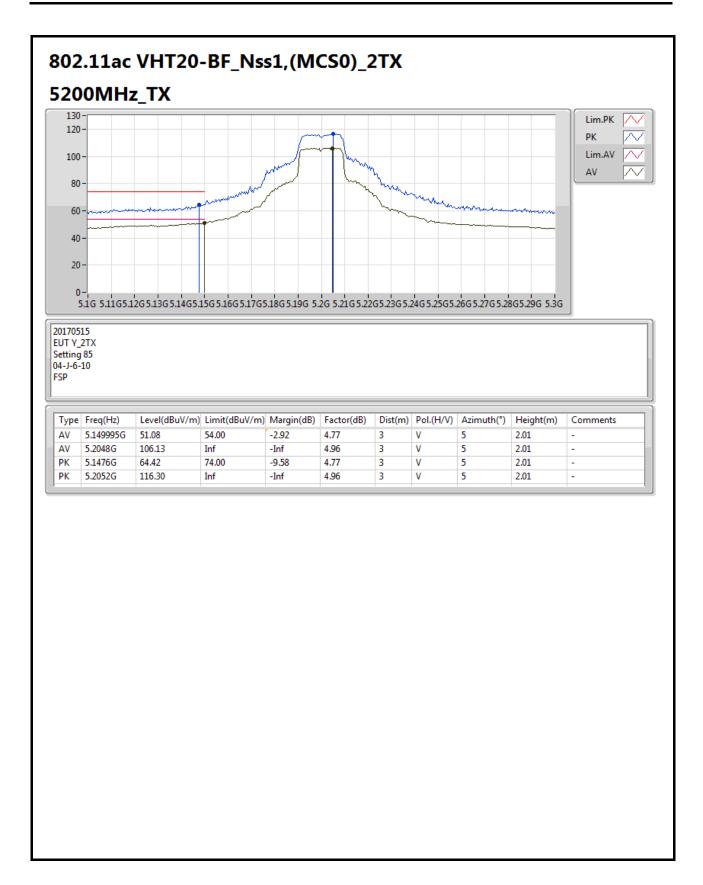
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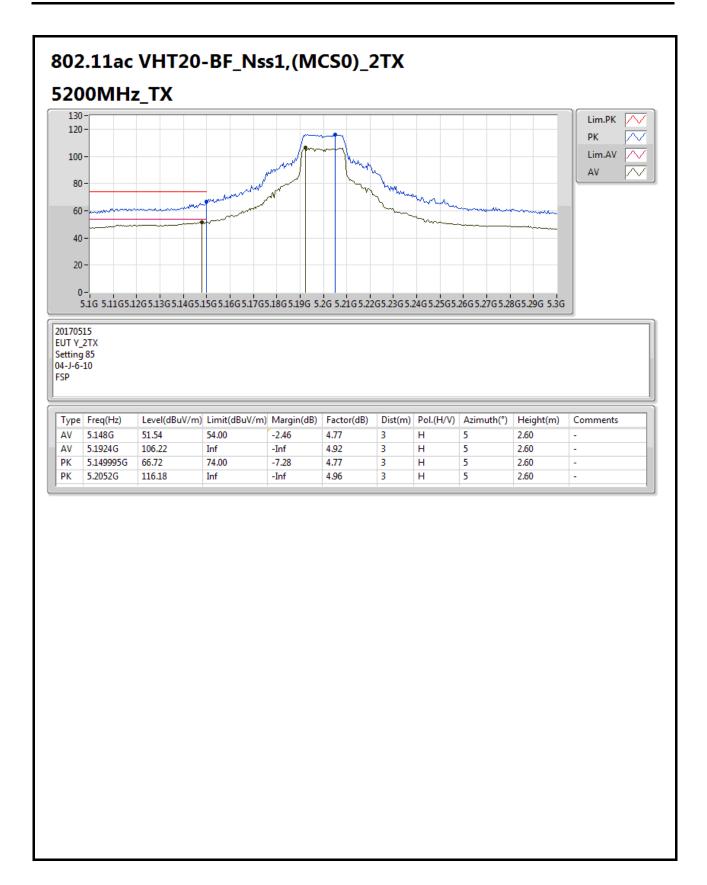


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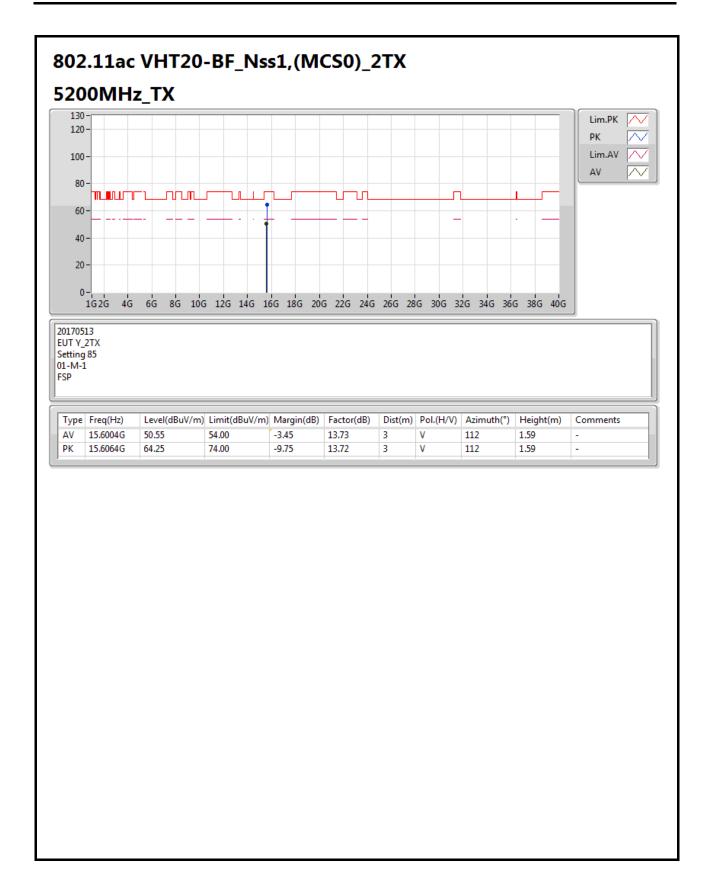




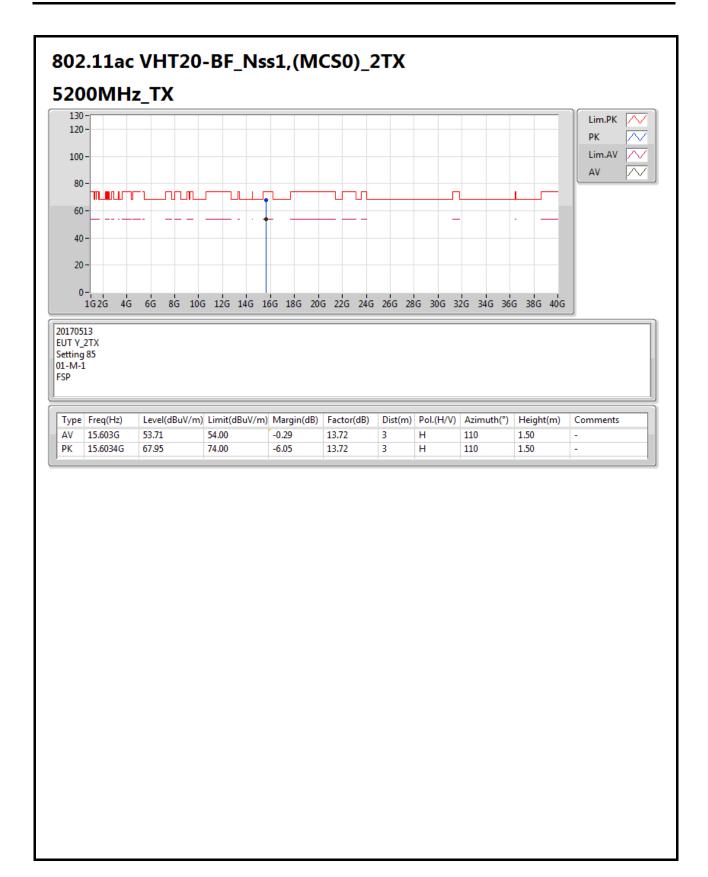


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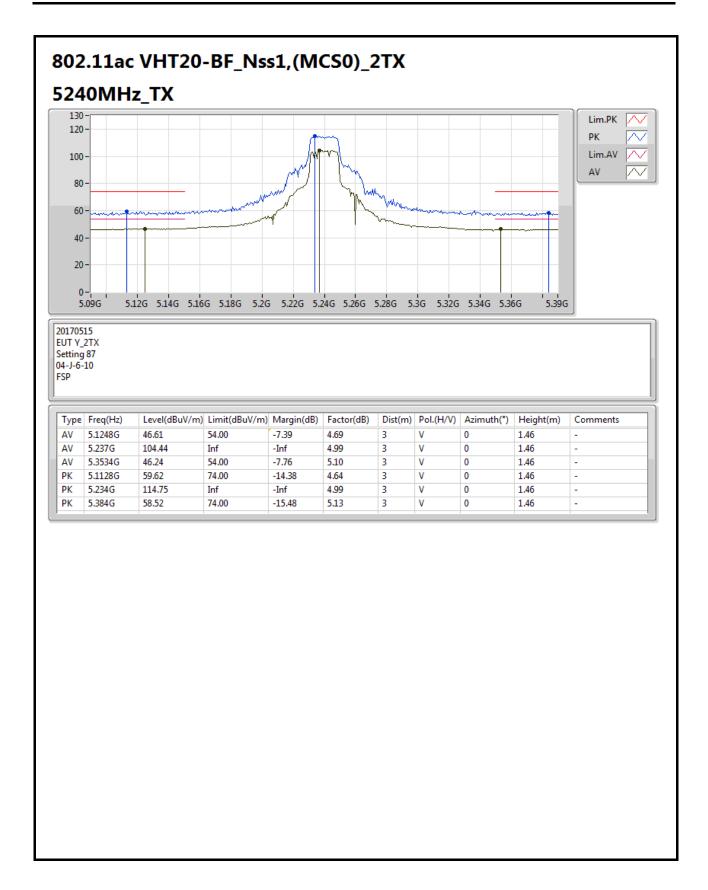




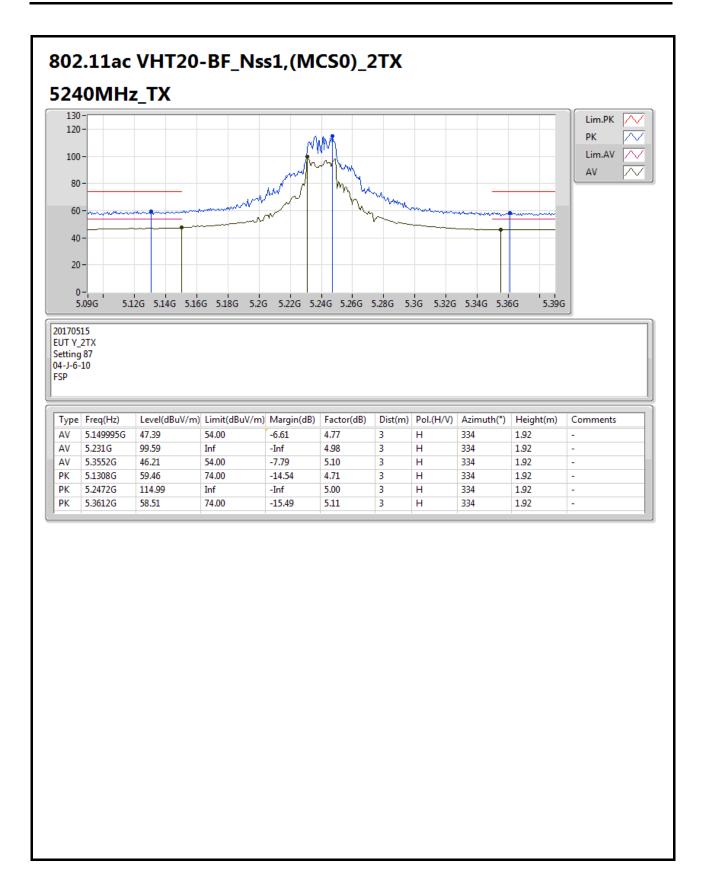


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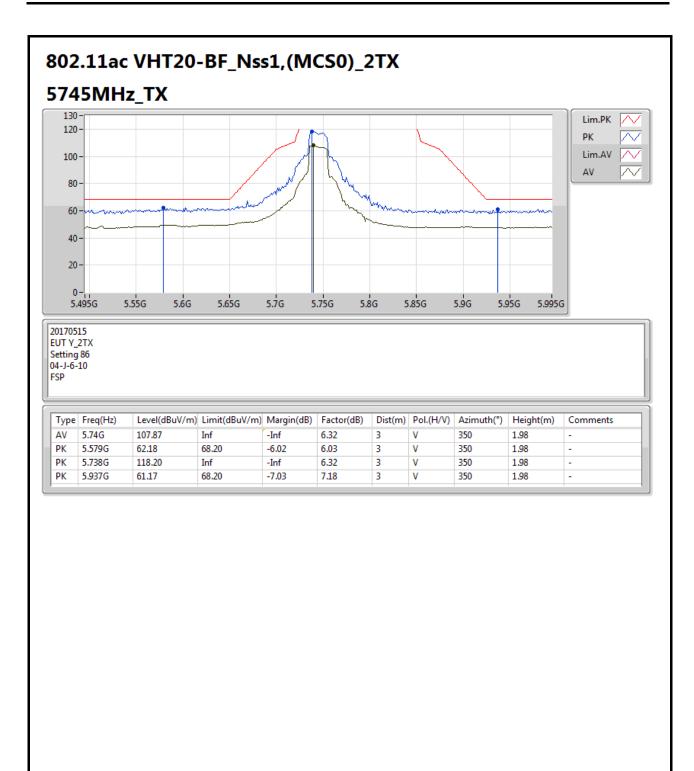






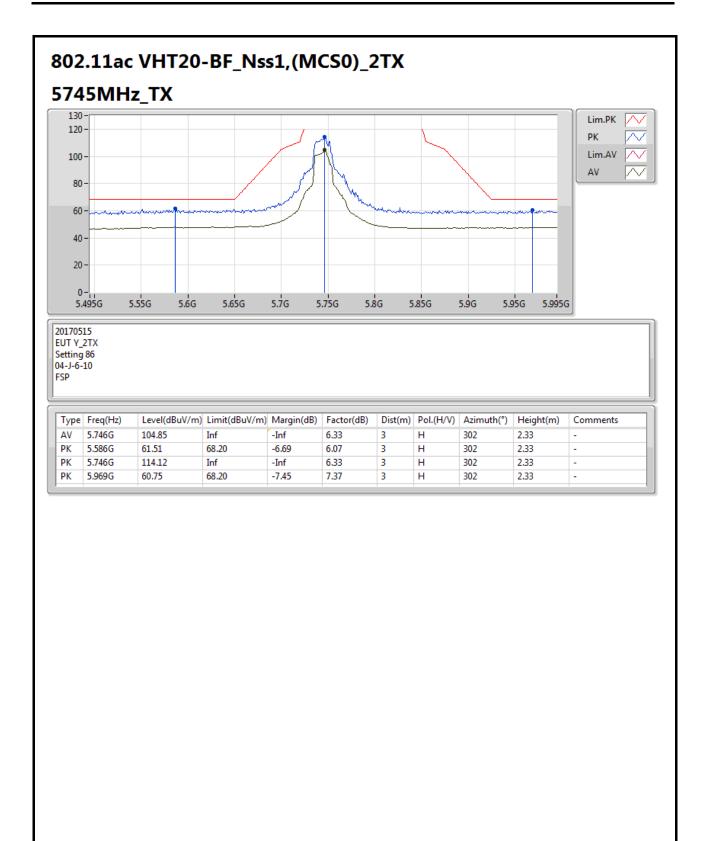




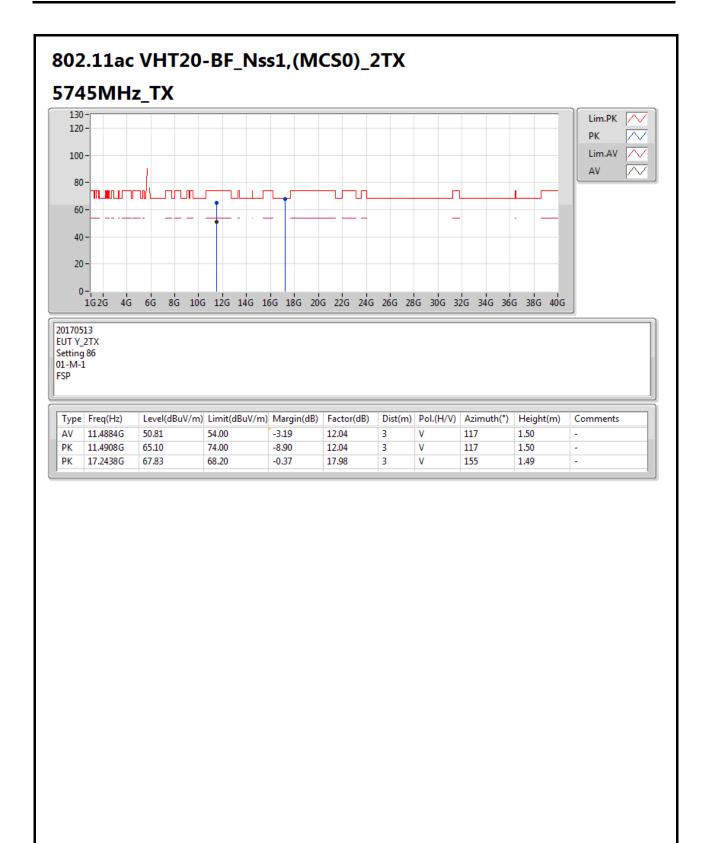


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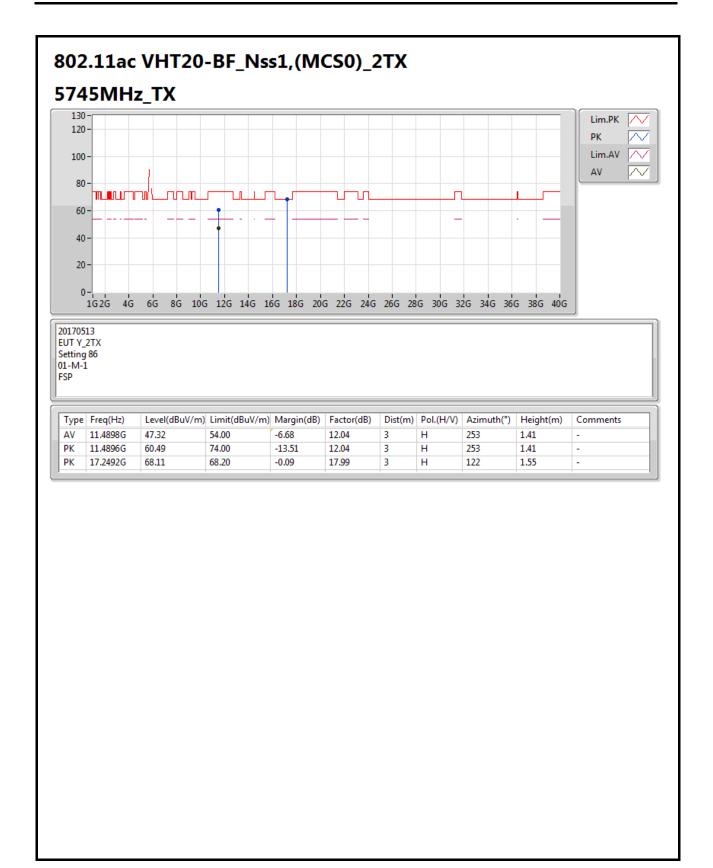






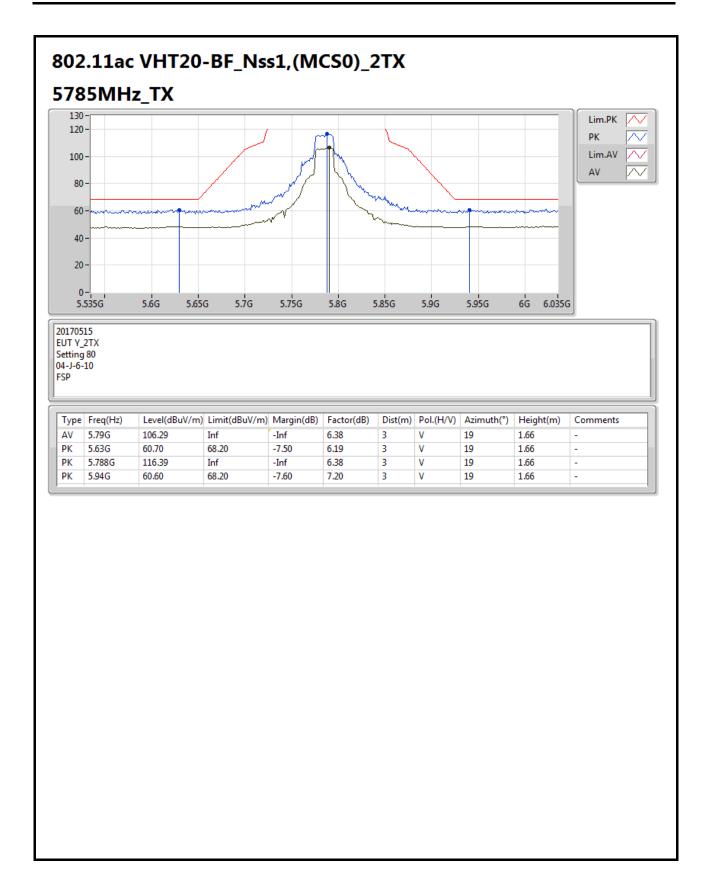




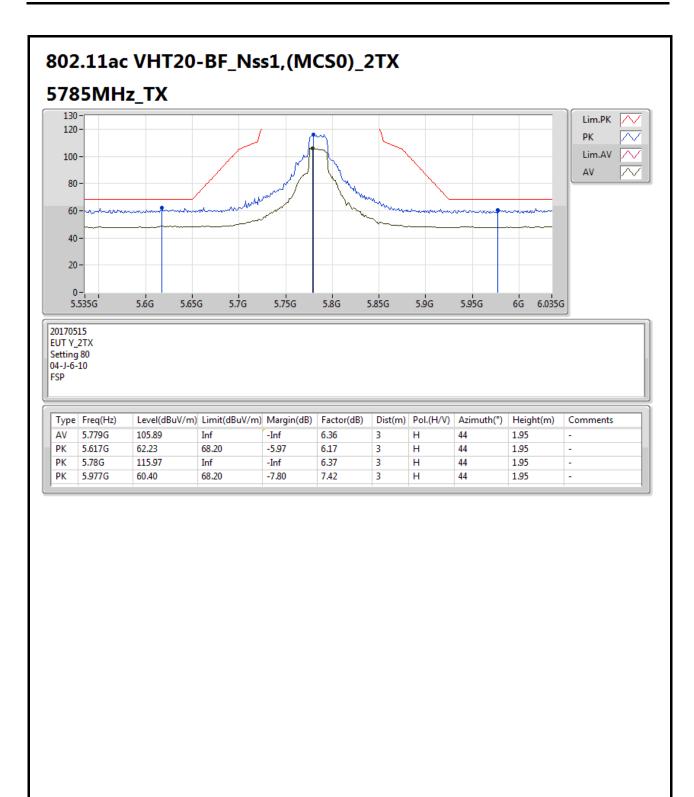


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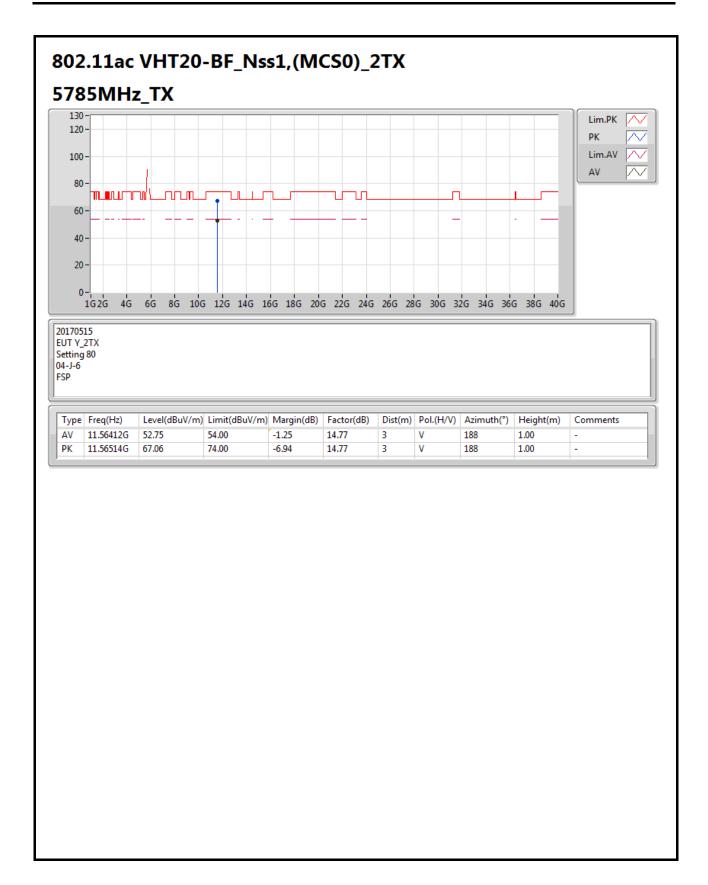






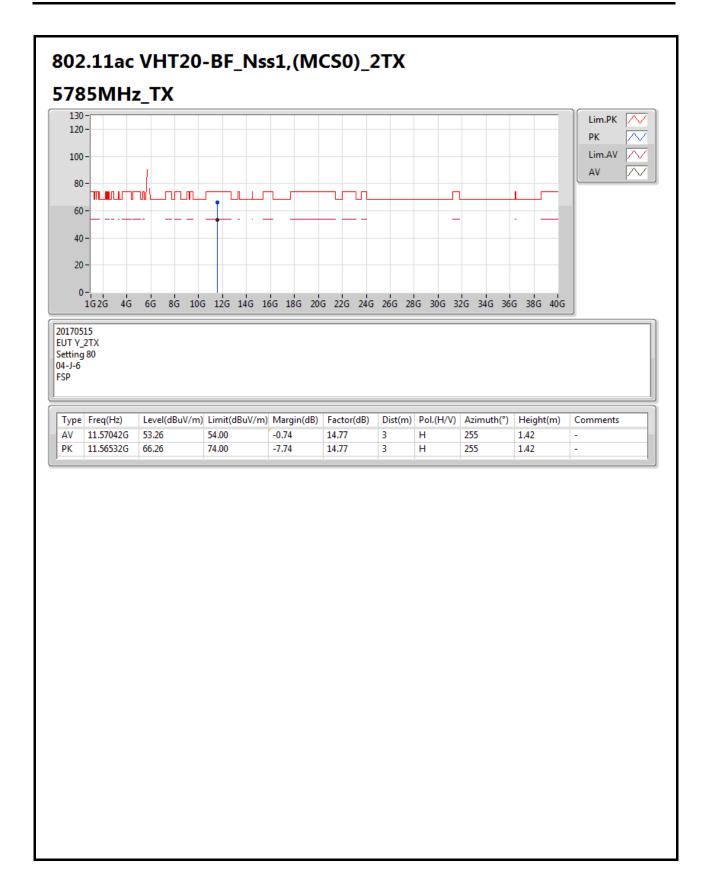






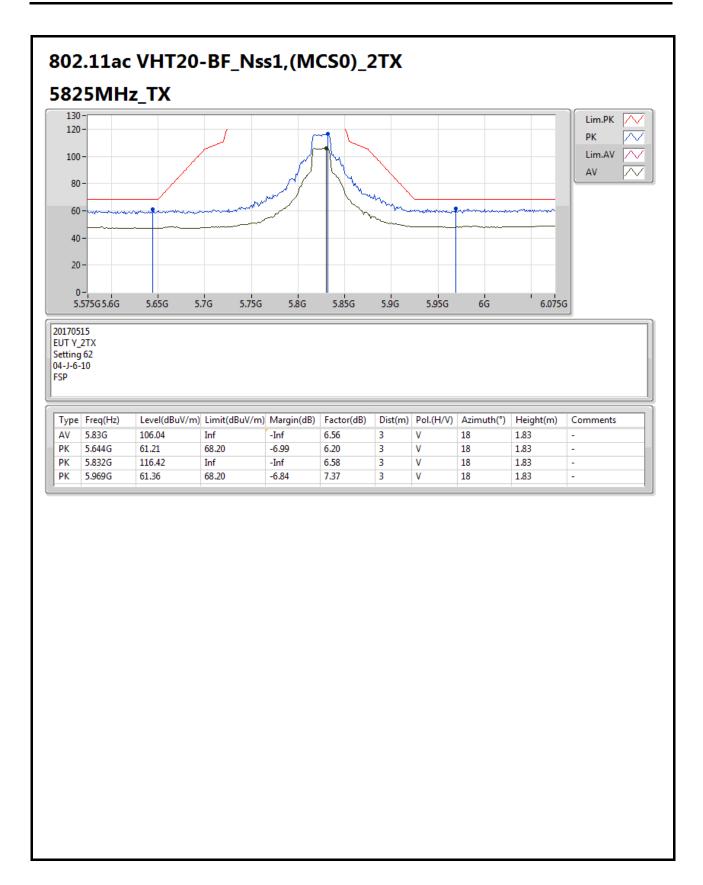
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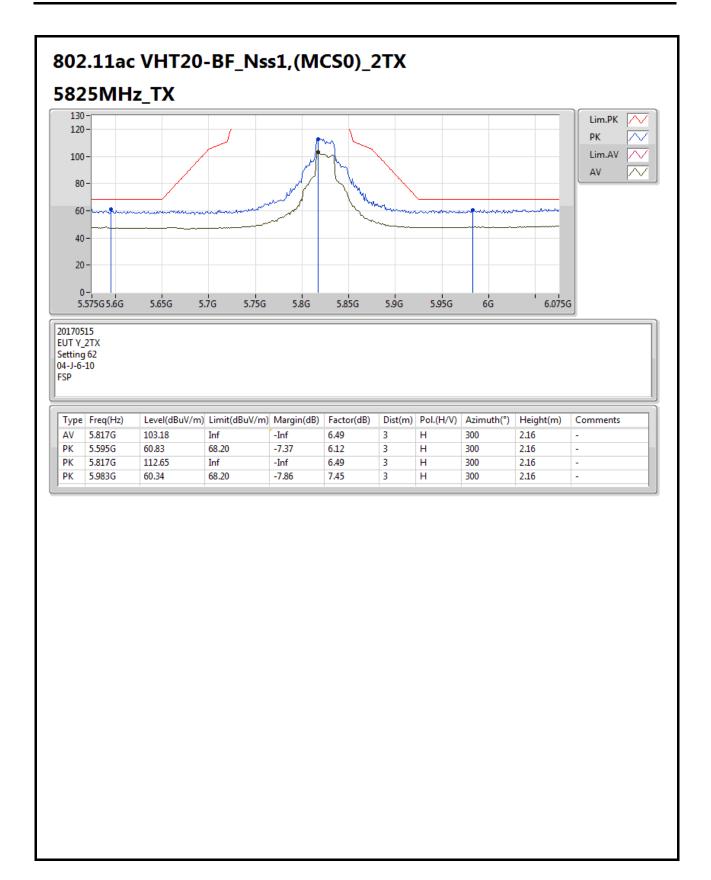
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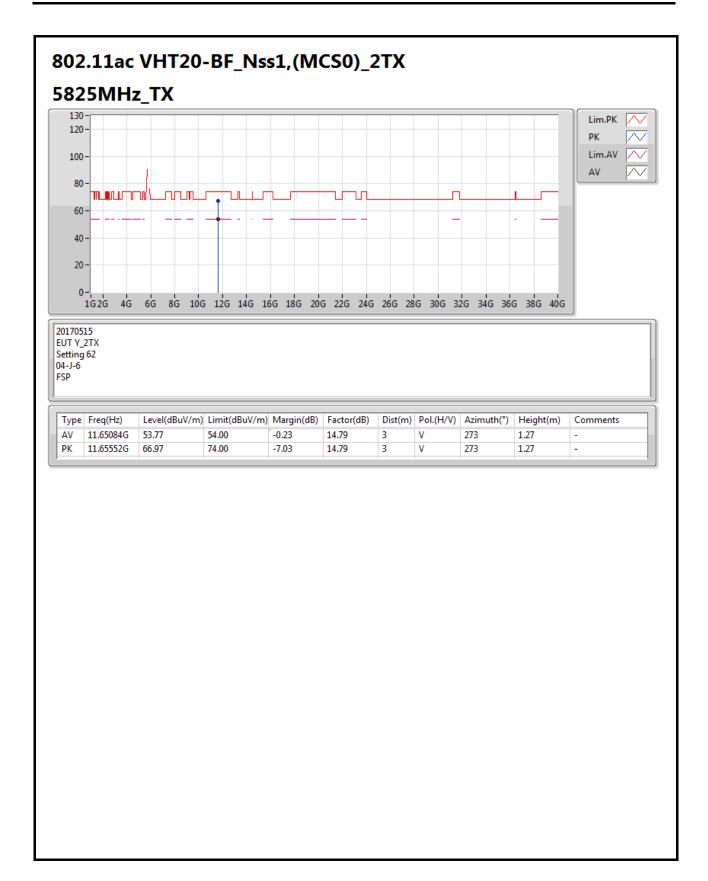


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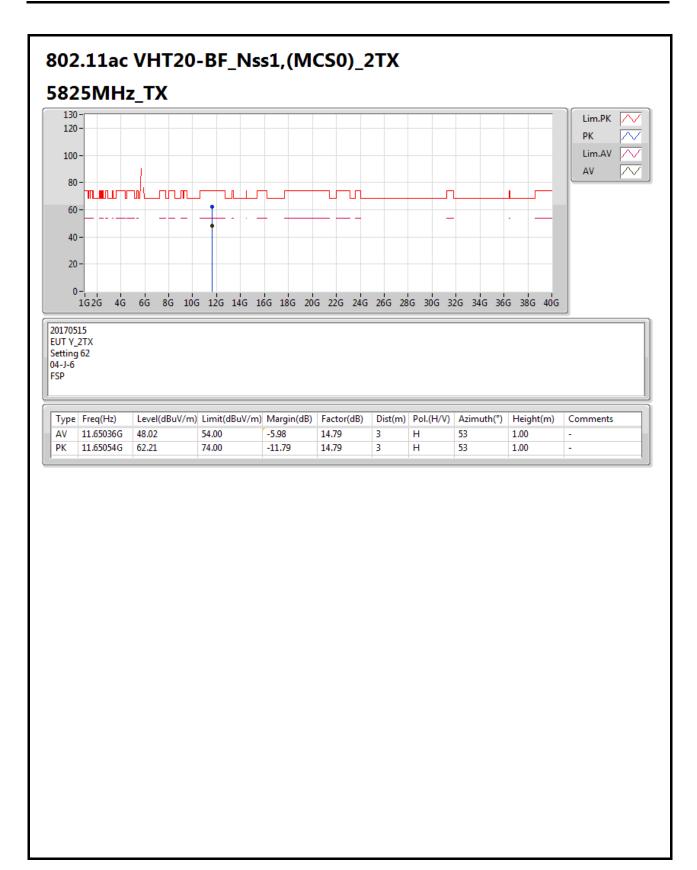






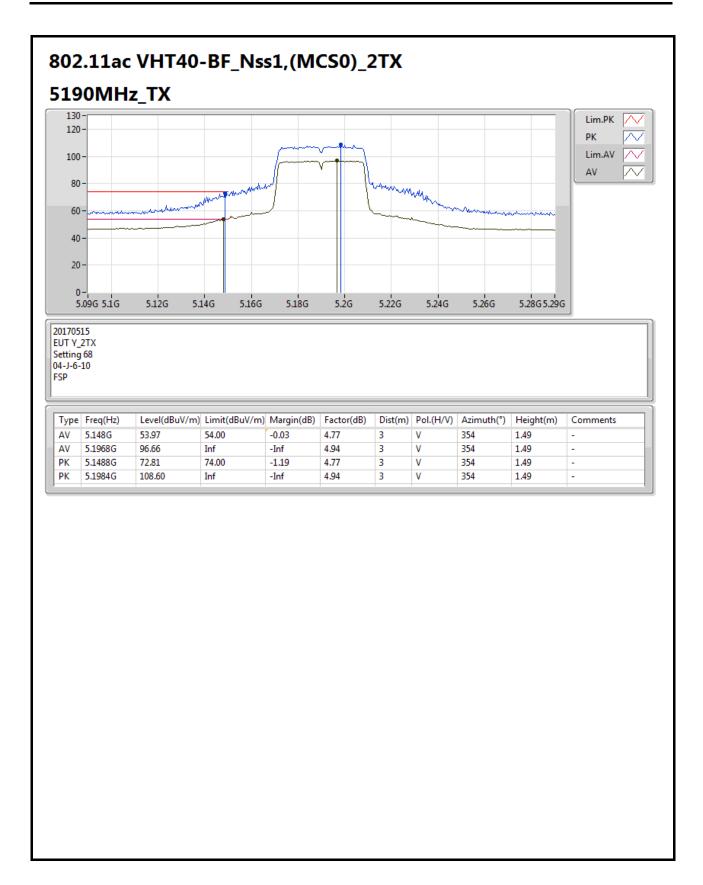
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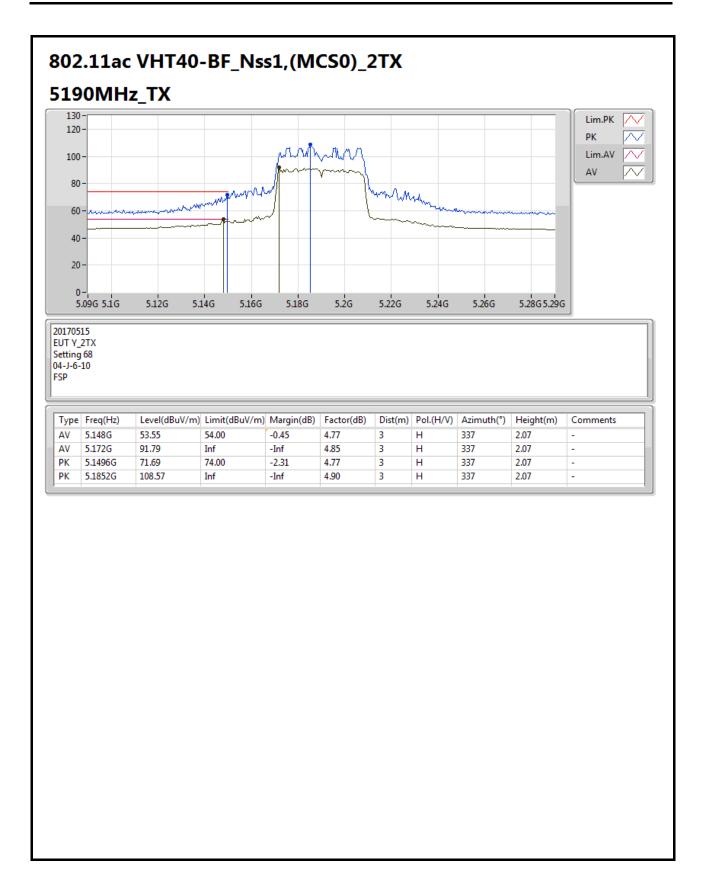
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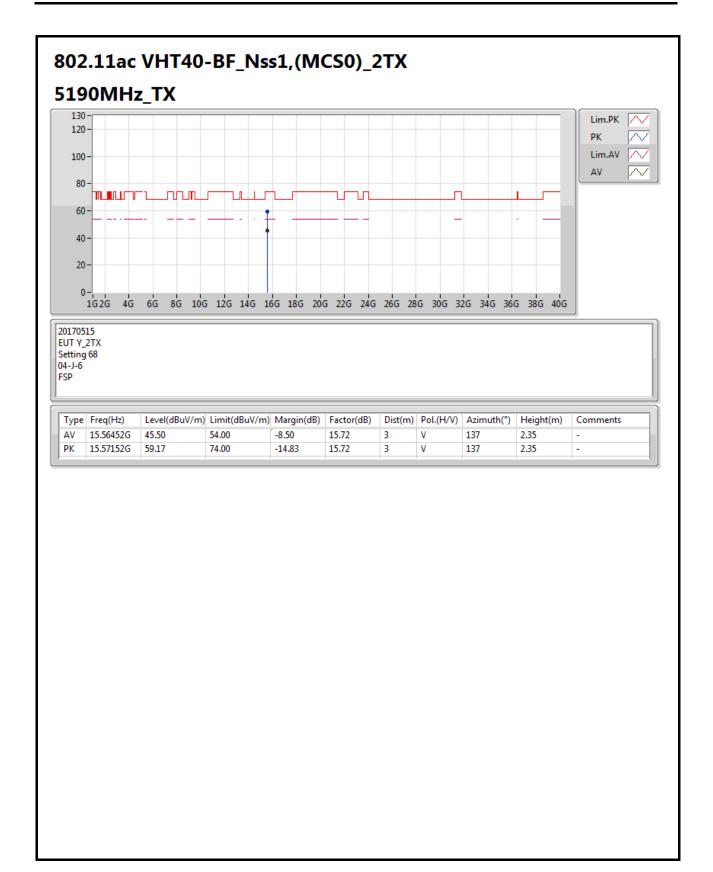


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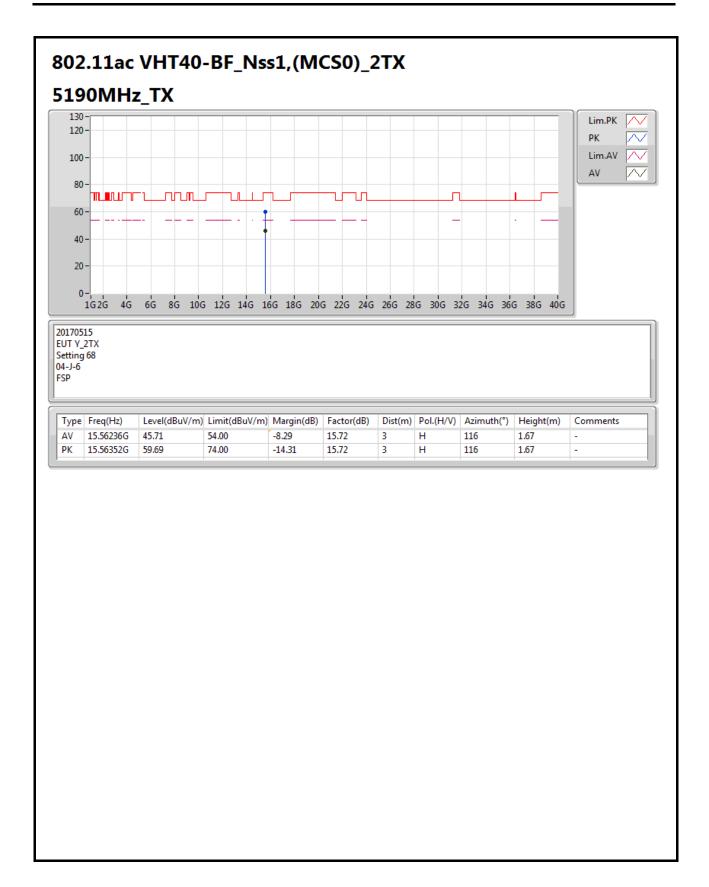








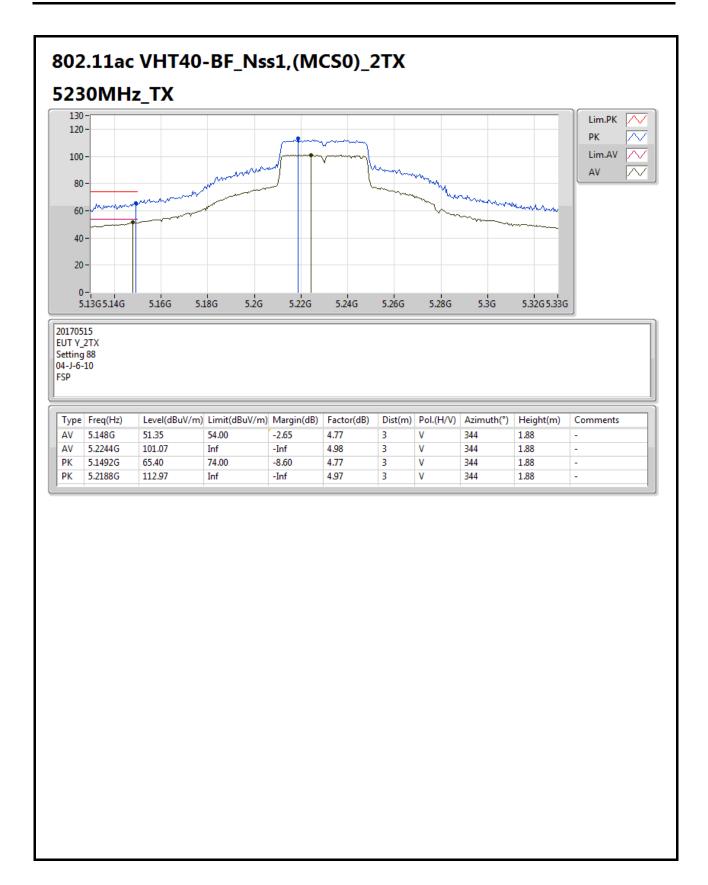




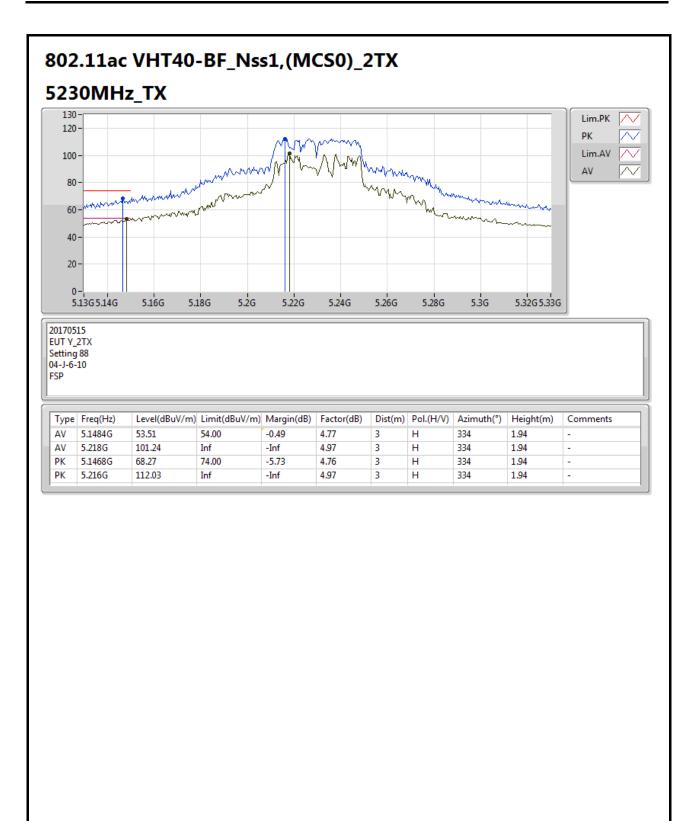
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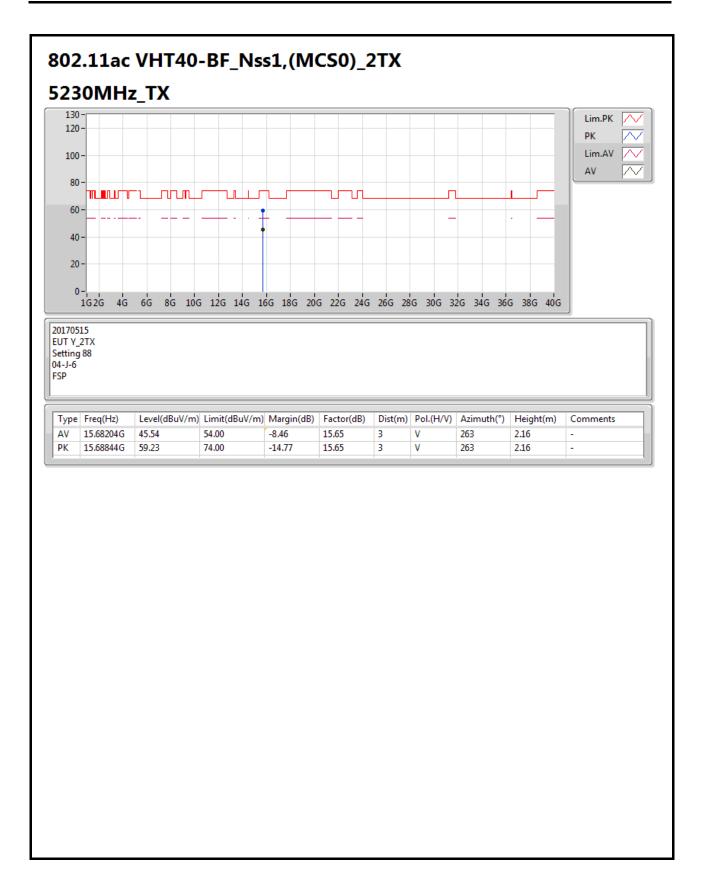






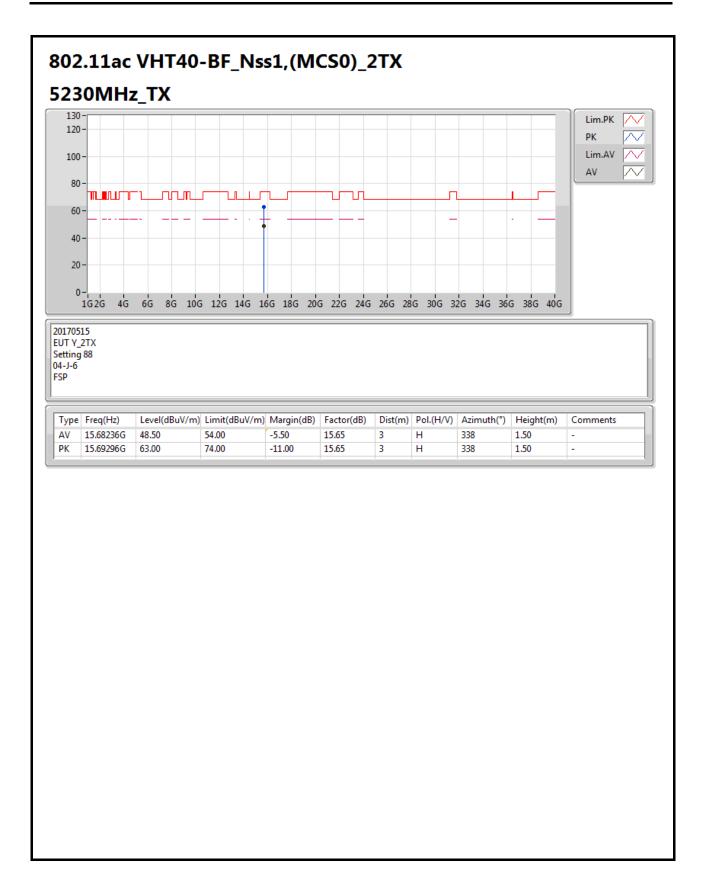






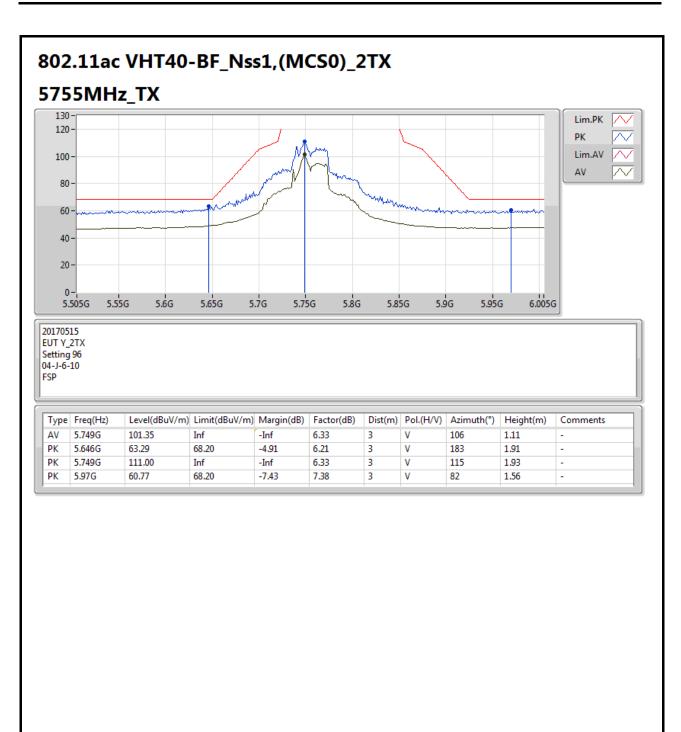
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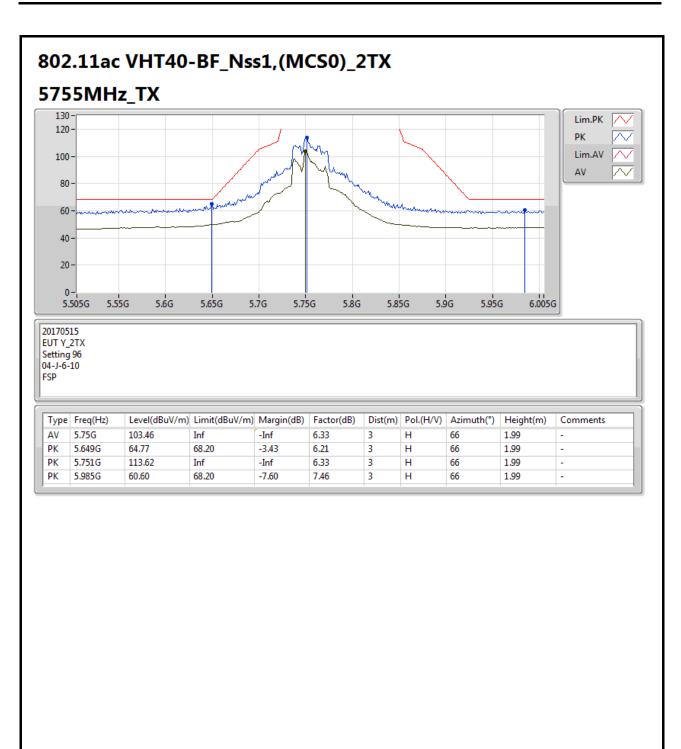


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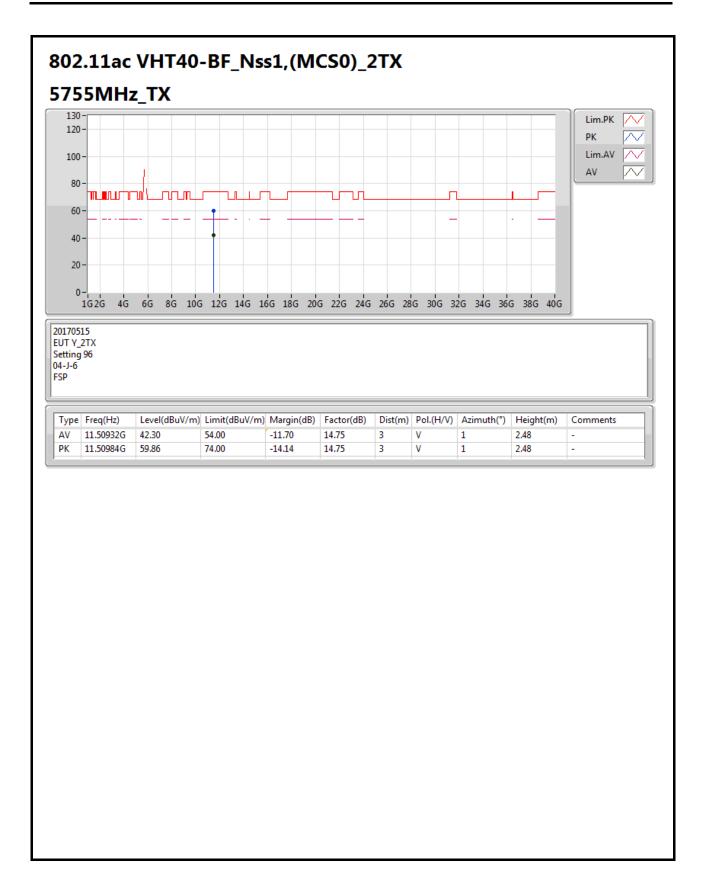




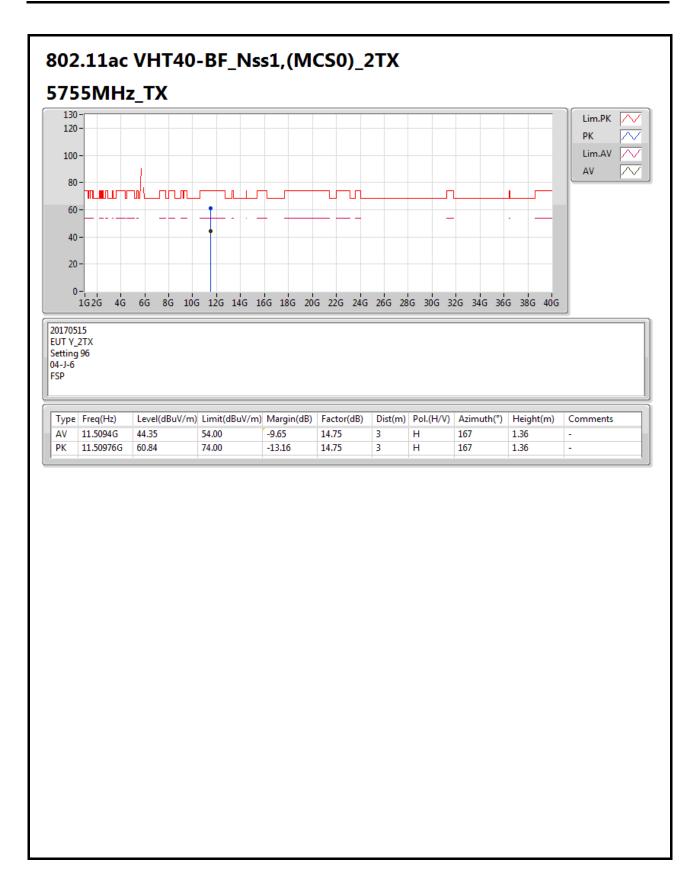


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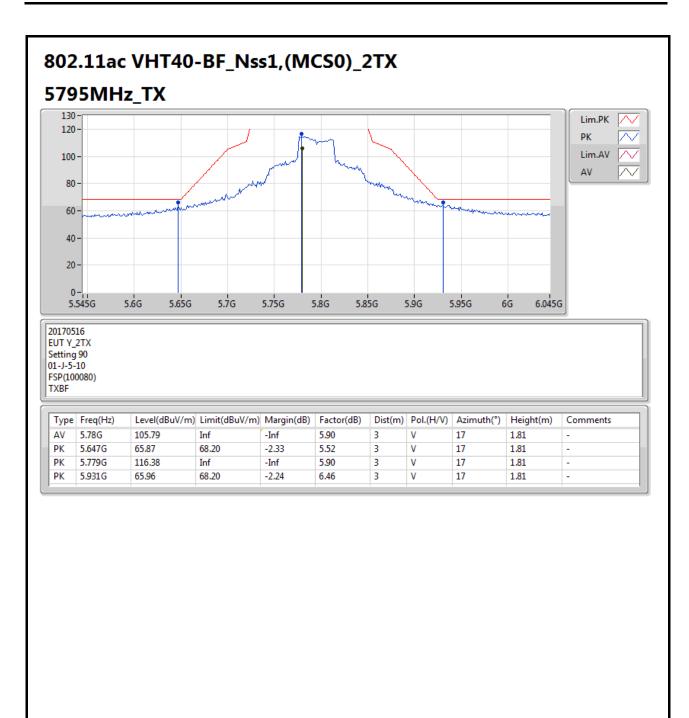




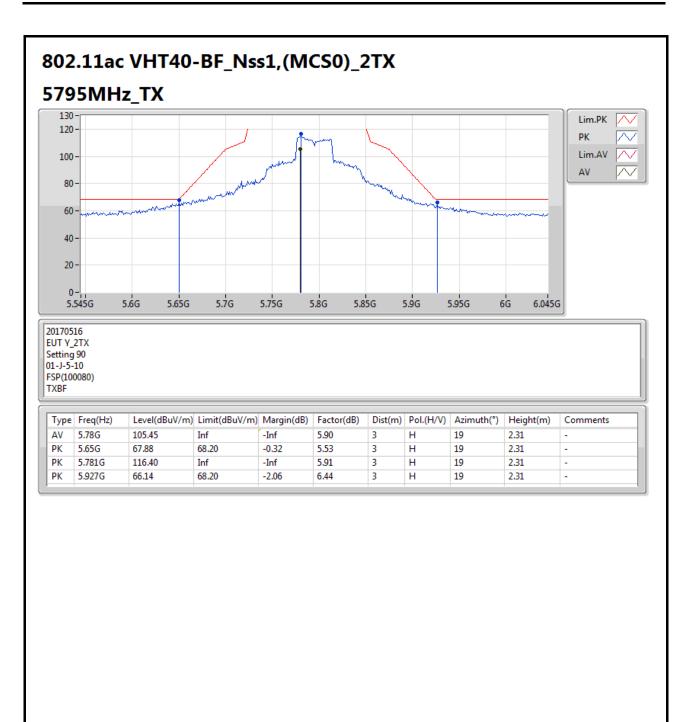






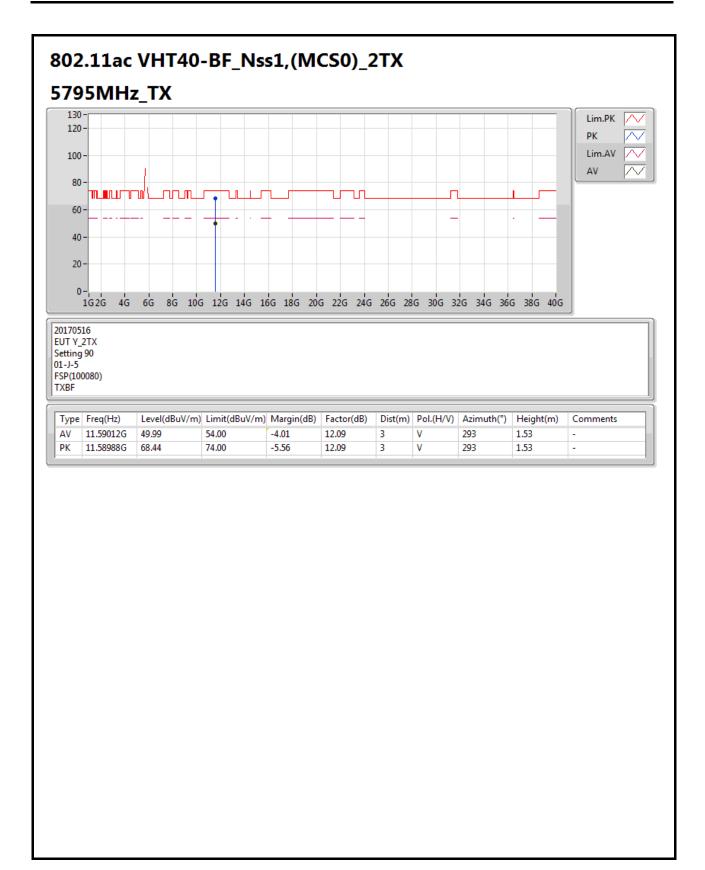






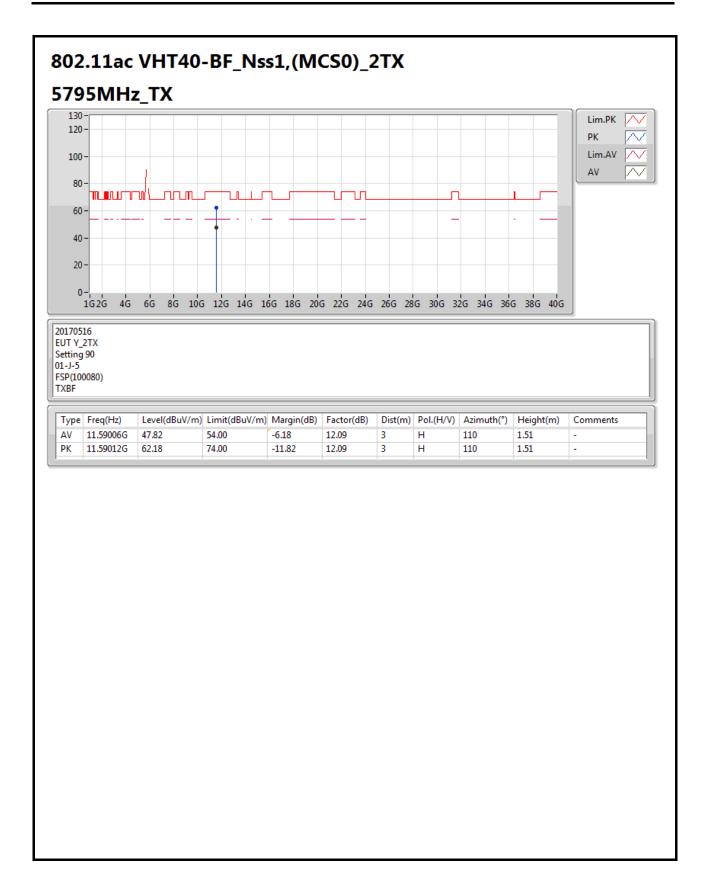
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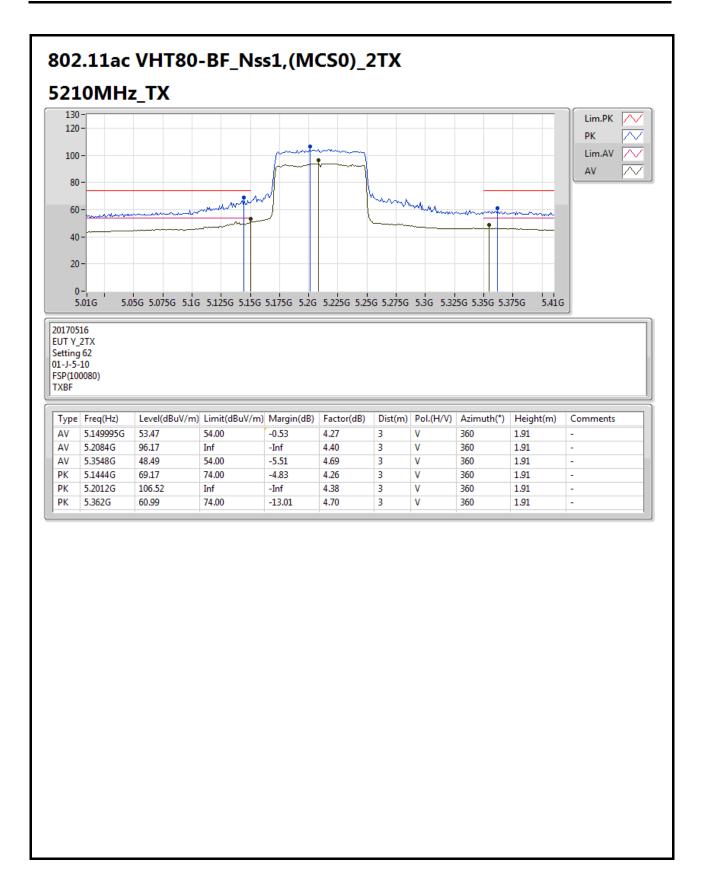
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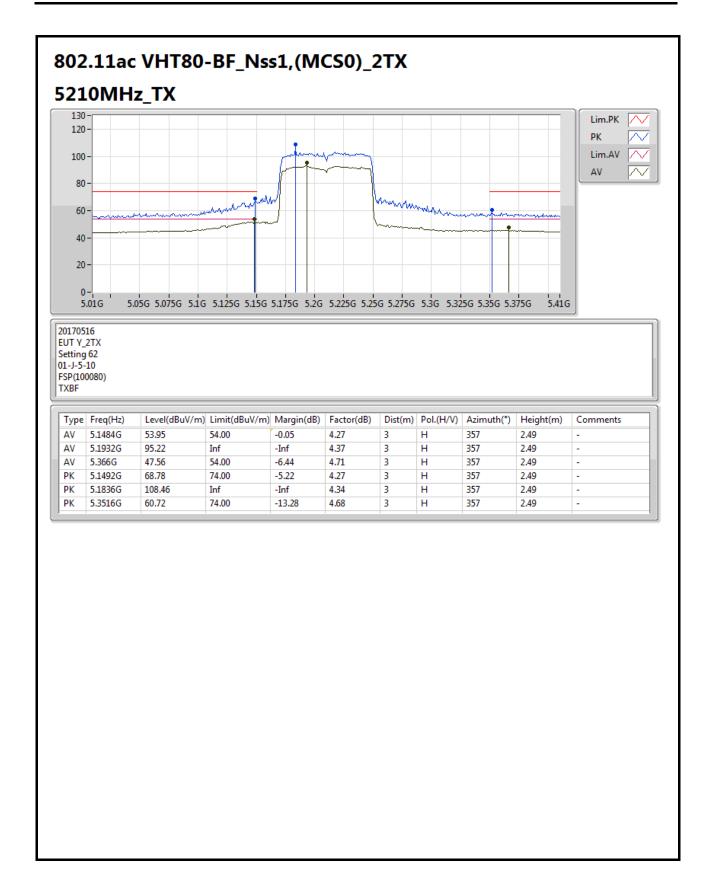
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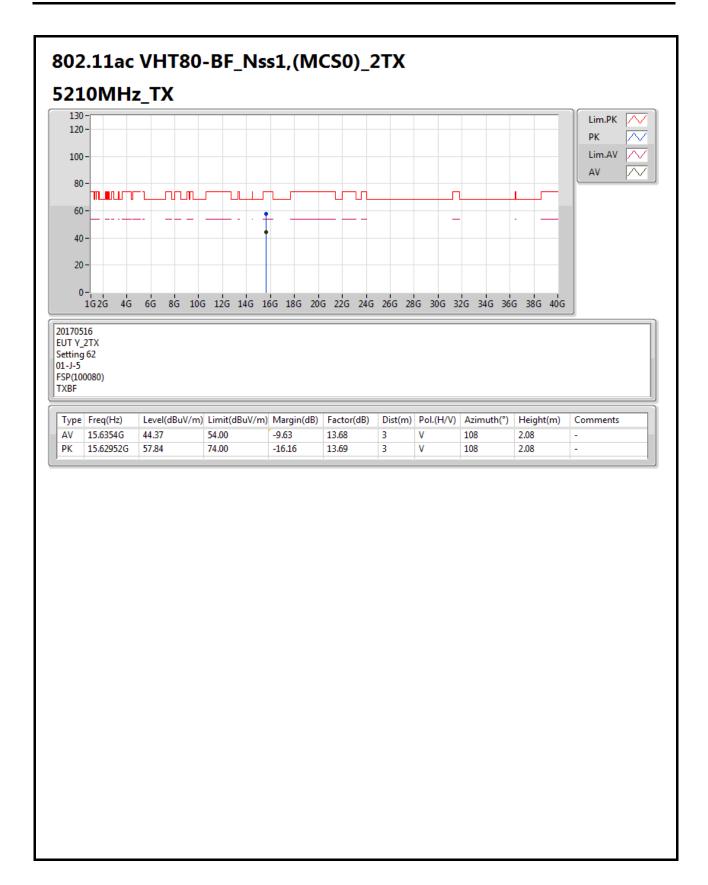


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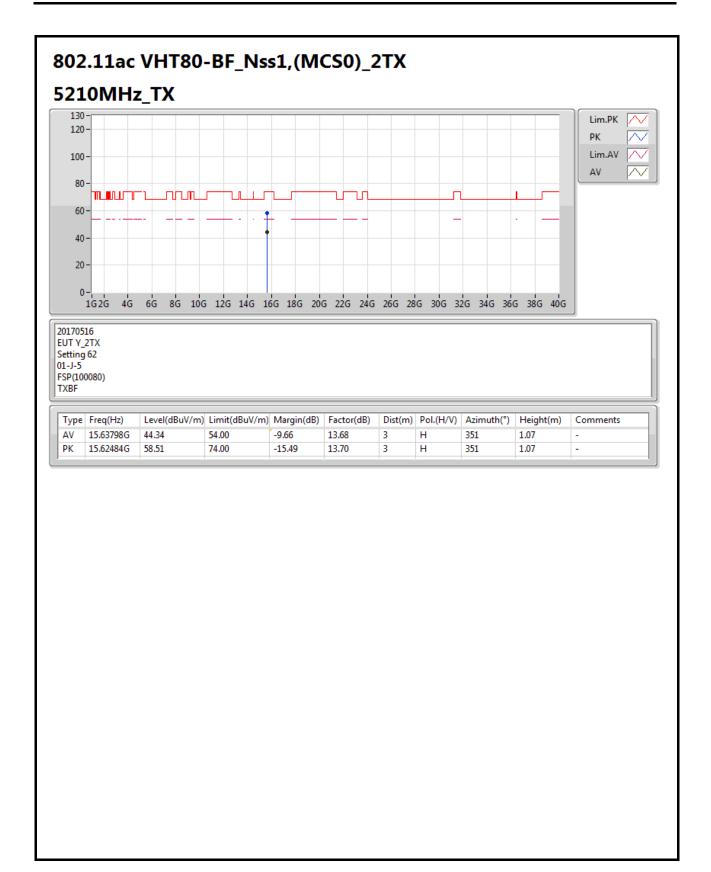






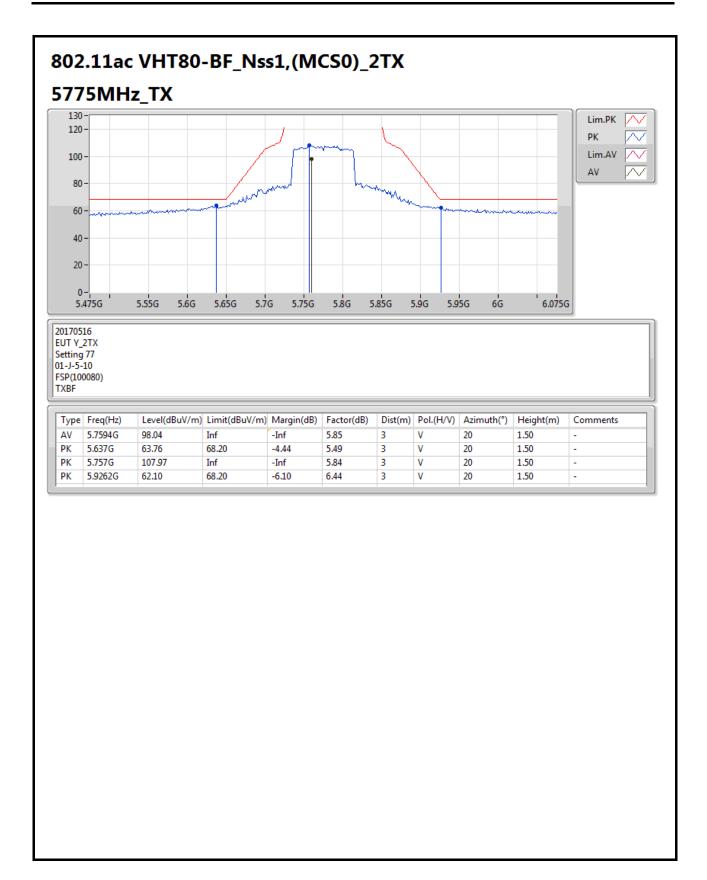
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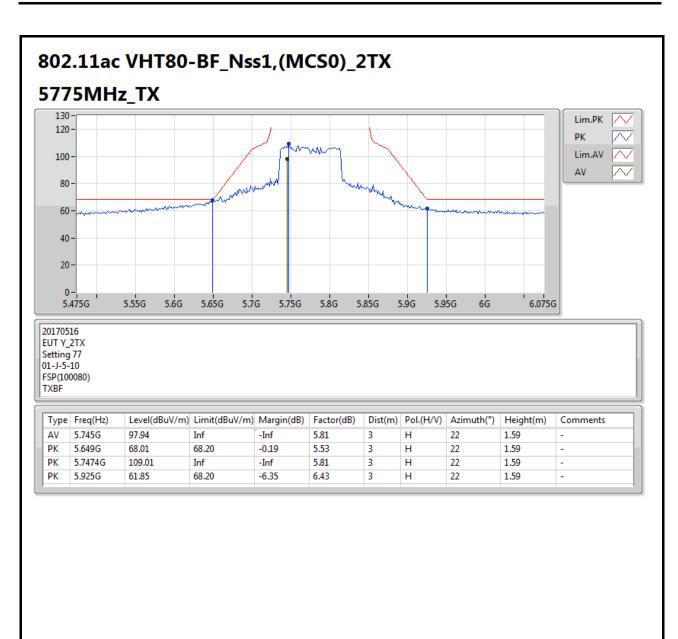


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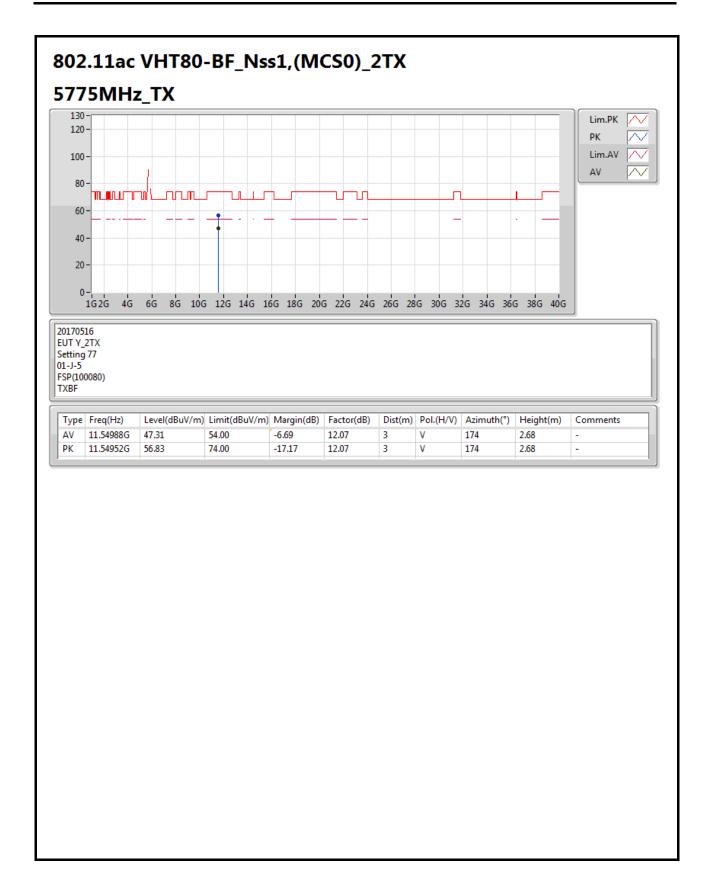




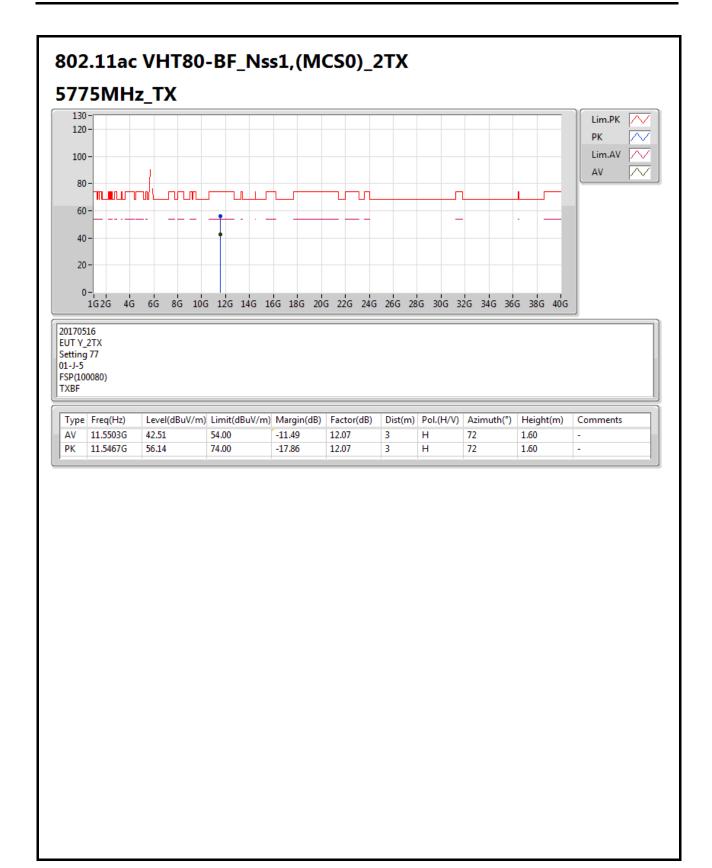














**FS Result** Appendix F

Mode: 20 MHz / Port 2 Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
00	5200 MHz			
(V)	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5199.9874	5199.9868	5199.9865	5199.9859
110.00	5199.9873	5199.9866	5199.9857	5199.9855
93.50	5199.9865	5199.9864	5199.9855	5199.9850
Max. Deviation (MHz)	0.0135	0.0136	0.0145	0.0150
Max. Deviation (ppm)	2.60	2.62	2.79	2.88
Result		Pa	ass	

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz) 5200 MHz			
(°C)				
(℃)	0 Minute	2 Minute	5 Minute	10 Minute
-20	5199.9831	5199.9824	5199.9819	5199.9813
-10	5199.9844	5199.9838	5199.9830	5199.9823
0	5199.9862	5199.9857	5199.9848	5199.9845
10	5199.9869	5199.9863	5199.9858	5199.9857
20	5199.9873	5199.9869	5199.9868	5199.9860
30	5199.9879	5199.9873	5199.9863	5199.9860
40	5199.9886	5199.9885	5199.9876	5199.9874
50	5199.9889	5199.9882	5199.9874	5199.9871
Max. Deviation (MHz)	0.0171	0.0179	0.0184	0.0189
Max. Deviation (ppm)	3.29	3.44	3.54	3.63
Result		Pa	ass	

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz) 5785 MHz			
44				
(V)	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5784.9881	5784.9872	5784.9863	5784.9859
110.00	5784.9873	5784.9869	5784.9863	5784.9856
93.50	5784.9868	5784.9858	5784.9849	5784.9846
Max. Deviation (MHz)	0.0132	0.0142	0.0151	0.0154
Max. Deviation (ppm)	2.28	2.45	2.61	2.66
Result	Pass			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5785 MHz			
(℃)	0 Minute	2 Minute	5 Minute	10 Minute
-20	5784.9836	5784.9833	5784.9828	5784.9826
-10	5784.9848	5784.9839	5784.9833	5784.9826
0	5784.9864	5784.9854	5784.9847	5784.9837
10	5784.9865	5784.9855	5784.9846	5784.9840
20	5784.9873	5784.9870	5784.9867	5784.9860
30	5784.9879	5784.9872	5784.9869	5784.9865
40	5784.9891	5784.9882	5784.9877	5784.9873
50	5784.9884	5784.9883	5784.9879	5784.9870
Max. Deviation (MHz)	0.0174	0.0184	0.0194	0.0204
Max. Deviation (ppm)	3.01	3.18	3.35	3.53
Result		Pa	iss	

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**FS Result** Appendix F

Mode: 40 MHz / Port 2 Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)				
0.0	5190 MHz				
(V)	0 Minute	2 Minute	5 Minute	10 Minute	
126.50	5189.9879	5189.9869	5189.9865	5189.9857	
110.00	5189.9873	5189.9872	5189.9863	5189.9858	
93.50	5189.9865	5189.9861	5189.9852	5189.9844	
Max. Deviation (MHz)	0.0135	0.0139	0.0148	0.0156	
Max. Deviation (ppm)	2.60	2.68	2.85	3.01	
Result		Pa	ass		

Temperature vs. Frequency Stability

Temperature		Measurement F	requency (MHz)	
(℃)	5190 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
-20	5189.9839	5189.9836	5189.9831	5189.9821
-10	5189.9851	5189.9845	5189.9836	5189.9828
0	5189.9864	5189.9860	5189.9859	5189.9853
10	5189.9870	5189.9867	5189.9865	5189.9864
20	5189.9873	5189.9872	5189.9866	5189.9859
30	5189.9879	5189.9870	5189.9863	5189.9858
40	5189.9880	5189.9870	5189.9860	5189.9858
50	5189.9888	5189.9881	5189.9877	5189.9875
Max. Deviation (MHz)	0.0164	0.0166	0.0174	0.0184
Max. Deviation (ppm)	3.16	3.20	3.35	3.55
Result		Pä	ass	

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz) 5755 MHz			
44				
(V)	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5754.9878	5754.9877	5754.9873	5754.9864
110.00	5754.9873	5754.9871	5754.9863	5754.9861
93.50	5754.9872	5754.9864	5754.9858	5754.9848
Max. Deviation (MHz)	0.0128	0.0136	0.0142	0.0152
Max. Deviation (ppm)	2.22	2.36	2.47	2.64
Result		Pa	ass	

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz) 5755 MHz			
(°C)				
(℃)	0 Minute	2 Minute	5 Minute	10 Minute
-20	5754.9836	5754.9833	5754.9827	5754.9820
-10	5754.9840	5754.9834	5754.9832	5754.9827
0	5754.9842	5754.9840	5754.9830	5754.9829
10	5754.9860	5754.9854	5754.9849	5754.9841
20	5754.9873	5754.9870	5754.9866	5754.9858
30	5754.9879	5754.9876	5754.9867	5754.9861
40	5754.9890	5754.9884	5754.9882	5754.9878
50	5754.9890	5754.9888	5754.9885	5754.9878
Max. Deviation (MHz)	0.0172	0.0182	0.0187	0.0192
Max. Deviation (ppm)	2.99	3.16	3.25	3.34
Result		Pa	ass	

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**FS Result** Appendix F

Mode: 80 MHz / Port 2 Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)				
0.0	5210 MHz				
(V)	0 Minute	2 Minute	5 Minute	10 Minute	
126.50	5209.9876	5209.9874	5209.9864	5209.9854	
110.00	5209.9873	5209.9863	5209.9854	5209.9850	
93.50	5209.9869	5209.9863	5209.9858	5209.9856	
Max. Deviation (MHz)	0.0131	0.0137	0.0146	0.0150	
Max. Deviation (ppm)	2.51	2.63	2.80	2.88	
Result		Pa	ass		

Temperature vs. Frequency Stability

Temperature		requency (MHz)		
(°C)	5210 MHz			
(℃)	0 Minute	2 Minute	5 Minute	10 Minute
-20	5209.9851	5209.9847	5209.9846	5209.9836
-10	5209.9856	5209.9854	5209.9844	5209.9841
0	5209.9865	5209.9863	5209.9861	5209.9854
10	5209.9872	5209.9869	5209.9867	5209.9858
20	5209.9873	5209.9866	5209.9859	5209.9849
30	5209.9879	5209.9874	5209.9869	5209.9860
40	5209.9886	5209.9883	5209.9876	5209.9873
50	5209.9888	5209.9879	5209.9878	5209.9869
Max. Deviation (MHz)	0.0165	0.0173	0.0181	0.0191
Max. Deviation (ppm)	3.17	3.32	3.47	3.67
Result		Pa	ass	•

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)				
ΛΛ	5775 MHz				
(V)	0 Minute	2 Minute	5 Minute	10 Minute	
126.50	5774.9881	5774.9876	5774.9872	5774.9864	
110.00	5774.9873	5774.9867	5774.9858	5774.9855	
93.50	5774.9868	5774.9861	5774.9857	5774.9854	
Max. Deviation (MHz)	0.0132	0.0139	0.0143	0.0146	
Max. Deviation (ppm)	2.29	2.41	2.48	2.53	
Result		Pa	ass		

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz) 5775 MHz			
(°C)				
(℃)	0 Minute	2 Minute	5 Minute	10 Minute
-20	5774.9833	5774.9823	5774.9815	5774.9811
-10	5774.9853	5774.9852	5774.9850	5774.9842
0	5774.9854	5774.9846	5774.9843	5774.9835
10	5774.9860	5774.9859	5774.9853	5774.9844
20	5774.9873	5774.9870	5774.9863	5774.9855
30	5774.9879	5774.9877	5774.9873	5774.9863
40	5774.9885	5774.9882	5774.9873	5774.9867
50	5774.9887	5774.9884	5774.9881	5774.9875
Max. Deviation (MHz)	0.0187	0.0191	0.0201	0.0206
Max. Deviation (ppm)	3.24	3.31	3.48	3.57
Result		Pa	ass	

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