

Report No. : FR710613AB

Project No: CB10603494

FCC Test Report

Equipment : Whole Home Smart Wi-Fi Router

Brand Name : amped wireless

Model No. : AR1900L/ART19B

FCC ID : ZTT-AR1900L

Standard : 47 CFR FCC Part 15.407

Operating Band : 5150 MHz - 5250 MHz

5725 MHz - 5850 MHz

Applicant : Amped Wireless

13089 Peyton Dr. #C307 Chino Hills, CA 91709 USA

Manufacturer : Amped Wireless

13089 Peyton Dr. #C307 Chino Hills, CA 91709 USA

Function : ☐ Outdoor; ☐ Indoor; ☐ Fixed P2P

Client

The product sample received on Jan. 06, 2017 and completely tested on Mar. 09, 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.

Cliff Chang

SPORTON INTERNATIONAL INC.





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Summary of Test Result

Conformance Test Specifications					
Report Ref. Std. Clause Description					
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	Complied		
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)	Unwanted Emissions	Complied		
3.6	15.407(g)	Frequency Stability	Complied		

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Revision History

Report No.	Version	Description	Issued Date
FR710613AB	Rev. 01	Initial issue of report	Apr. 13, 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	3TX
5.15-5.25GHz	802.11n HT20	20	3TX
5.15-5.25GHz	802.11n HT20-BF	20	3TX
5.15-5.25GHz	802.11ac VHT20	20	3TX
5.15-5.25GHz	802.11ac VHT20-BF	20	3TX
5.15-5.25GHz	802.11n HT40	40	3TX
5.15-5.25GHz	802.11n HT40-BF	40	3TX
5.15-5.25GHz	802.11ac VHT40	40	3TX
5.15-5.25GHz	802.11ac VHT40-BF	40	3TX
5.15-5.25GHz	802.11ac VHT80	80	3TX
5.15-5.25GHz	802.11ac VHT80-BF	80	3TX
5.725-5.85GHz	802.11a	20	3TX
5.725-5.85GHz	802.11n HT20	20	3TX
5.725-5.85GHz	802.11n HT20-BF	20	3TX
5.725-5.85GHz	802.11ac VHT20	20	3TX
5.725-5.85GHz	802.11ac VHT20-BF	20	3TX
5.725-5.85GHz	802.11n HT40	40	3TX
5.725-5.85GHz	802.11n HT40-BF	40	3TX
5.725-5.85GHz	802.11ac VHT40	40	3TX
5.725-5.85GHz	802.11ac VHT40-BF	40	3TX
5.725-5.85GHz	802.11ac VHT80	80	3TX
5.725-5.85GHz	802.11ac VHT80-BF	80	3TX

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Note:

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

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1.1.2 Antenna Information

Ant.	Brand	P/N Antenna Type		Connector	Gain (dBi)			
AIII.	Bialiu	F/N	Antenna Type	Connector -	2.4GHz	5GHz B1	5GHz B4	
1	Airgain	N2420DG-G150U	PIFA Antenna	I-PEX	2.71	3.05	4.20	
2	Airgain	N2425DR-G200U	PIFA Antenna	I-PEX	2.71	3.05	4.20	
3	Airgain	N2420DG-G50U	PIFA Antenna	I-PEX	2.71	3.05	4.20	

Note: The EUT has three antennas.

For IEEE 802.11b/g/n mode (3TX/3RX):

Ant. 1 ~ Ant. 3 connect to port 1~port 3

Ant. 1, Ant. 2 and Ant. 3 could transmit/receive simultaneously.

For IEEE 802.11a/n/ac mode (3TX/3RX):

Ant. 1 ~ Ant. 3 connect to port 1~port 3

Ant. 1, Ant. 2 and Ant. 3 could transmit/receive simultaneously.

1.1.3 Mode Test Duty Cycle

Mode	DC	DCF(dB)
802.11a	0.799	0.975
802.11ac VHT20	0.597	2.24
802.11ac VHT20-BF	0.931	0.311
802.11ac VHT40	0.406	3.915
802.11ac VHT40-BF	0.93	0.315
802.11ac VHT80	0.274	5.622
802.11ac VHT80-BF	0.979	0.092

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1.1.4 EUT Operational Condition

EUT Power Type	From Power Adapter				
Beamforming Function		With beamforming for IEEE802.11n/ac in 5GHz		Without beamforming	

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1.1.5 Table for Multiple Listing

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

Brand Name Model Name		Description		
ampad wireless	AR1900L	All the models are identical, the difference model name for		
amped wireless	ART19B	difference marketing strategy.		

From the above models, model: AR1900L was selected as representative model for the test and its data was recorded in this report.

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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 v01r03
- FCC KDB 644545 D03 v01
- FCC KDB 662911 D01 v02r01
- FCC KDB 412172 D01 v01r01

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				
JHUBEI	ADD	:	No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C.				
	TEL	:	886-3-656-9065 FAX : 886-3-656-9085				

Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
RF Conducted	TH01-CB	Ron Huang &Gino Huang	23°C / 56%	Mar. 07, 2017 ~ Mar. 08, 2017
Radiated	03CH01-CB	Paul Chen & Jeff Wu & Zero Chen & Justin Lin & Jay Luo	22°C / 54%	Jan. 06, 2017 ~ Mar. 09, 2017
AC Conduction	CO01-CB	GN Hou	23°C / 61%	Feb. 22, 2017

Test site Designation No. TW0006 with FCC

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 ⁻⁸	Confidence levels of 95%
Frequency Stability	6.06 x10 ⁻⁸	Confidence levels of 95%

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Test site registered number IC 4086D with Industry Canada.



2 Test Configuration of EUT

2.1 Test Channel Mode

Mode	Power Setting	
802.11a_(6Mbps)_3TX	-	
5180MHz	12	
5200MHz	12	
5240MHz	14	
5745MHz	17	
5785MHz	1A	
5825MHz	19	
802.11ac VHT20_Nss1,(MCS0)_3TX	-	
5180MHz	1E	
5200MHz	1C	
5240MHz	1B	
5745MHz	24	
5785MHz	24	
5825MHz	25	
802.11ac VHT40_Nss1,(MCS0)_3TX	-	
5190MHz	1C	
5230MHz	1F	
5755MHz	22	
5795MHz	22	
802.11ac VHT80_Nss1,(MCS0)_3TX	-	
5210MHz	16	
5775MHz	21	
802.11ac VHT20-BF_Nss1,(MCS0)_3TX	-	
5180MHz	32	
5200MHz	28	
5240MHz	30	
5745MHz	36	
5785MHz	34	
5825MHz	36	
802.11ac VHT40-BF_Nss1,(MCS0)_3TX	-	
5190MHz	26	
5230MHz	35	
5755MHz	37	

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Mode	Power Setting	
5795MHz	39	
802.11ac VHT80-BF_Nss1,(MCS0)_3TX	-	
5210MHz	19	
5775MHz	30	

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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.
- There are two modes of EUT for 802.11n/ac in 5GHz. One is beamforming mode, and the other is non-beamforming mode. Both modes have been tested and recorded in this test 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 Normal Link			

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

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 E regardless of spatial multiplexing MIMO configuration), the radiated test sho be performed with highest antenna gain of each antenna type.				
Operating Mode < 1GHz Normal Link				
1	EUT in Y axis			
2	EUT in Z axis			
For operating mode 1 is the	e worst case and it was record in this test report.			
	CTX			
Operating Mode > 1GHz	The EUT was performed at Y axis and Z axis position for Radiated emission above 1GHz test, and the worst case was found at Z axis. So the measurement will follow this same test configuration.			
1	EUT in Z axis			

The Worst Case Mode for Following Conformance Tests			
Tests Item Simultaneous Transmission Analysis - Radiated Emission Co-location			
Test Condition Radiated measurement			
Operating Mode Normal Link			
1 EUT in Y axis - WLAN 2.4GHz + WLAN 5GHz			
2 EUT in Z axis - WLAN 2.4GHz + WLAN 5GHz			
Refer to Appendix G for Radiated Emission Co-location.			

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The Worst Case Mode for Following Conformance Tests				
Tests Item Simultaneous Transmission Analysis - Co-location RF Exposure Evaluation				
Operating Mode	Operating Mode			
1 WLAN 2.4GHz + WLAN 5GHz				
Refer to Sporton Test Report No.: FA710613 for Co-location RF Exposure Evaluation.				

2.3 EUT Operation during Test

For CTX Mode:

non-beamforming mode:

The EUT was programmed to be in continuously transmitting mode.

beamforming mode:

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 RX device and transmit duty cycle no less 98%.

For Normal Link:

During the test, the EUT operation to normal function.

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2.4 Accessories

Accessories				
Equipment Name	Brand Name	Rating		
Adapter	APD	WA-24Q12FU	INPUT: 100-240V ~ 50-60Hz, 0.7A Max OUTPUT: 12V, 2A	

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2.5 Support Equipment

For Test Site No: CO01-CB

10110	1 01 100t Olto No. 0001 02					
Support Equipment						
No.	No. Equipment Brand Name Model Name FCC ID					
1	NB*4	DELL	E6430	DoC		

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

	Support Equipment					
No.	No. Equipment Brand Name Model Name FCC ID					
1	NB*2	DELL	E6430	DoC		
2	NB*2	Apple	Mac Book	DoC		

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

(For non-beamforming mode)

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

(For beamforming mode)

<u>/1 01 r</u>	(1 or bearing mode)				
Support Equipment					
No. Equipment Brand Name Model Name FCC ID					
1 NB*2 DELL E4300 DoC					
2	RX Device	amped wireless	AR1900L	ZTT-AR1900L	

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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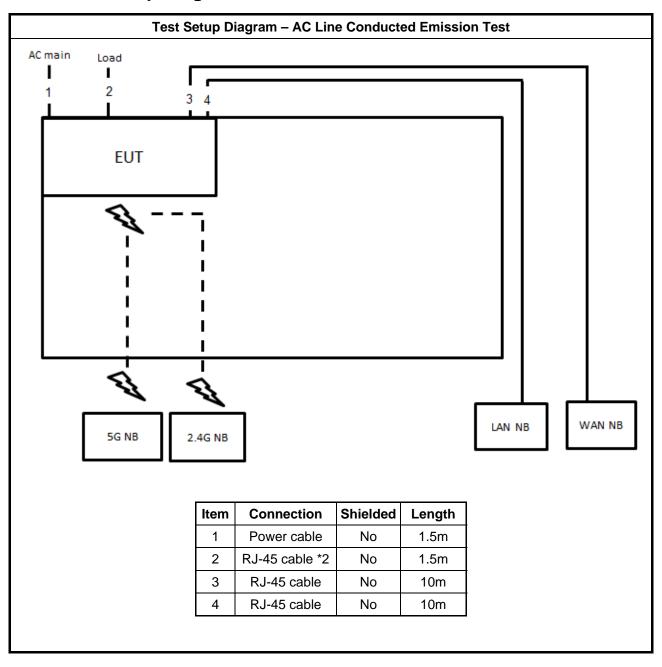
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Test Setup Diagram 2.6



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Test Setup Diagram - Radiated Test < 1GHz AC MAIN Load EUT WANNB LAN NB 2.4G NB 5G NB Connection Shielded Item Length Power cable No 1.5m 1 2 RJ-45 cable No 10m 3 RJ-45 cable No 10m 4 RJ-45 cable*2 No 1.5m

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Test Setup Diagram - Radiated Test > 1GHz / For non-beamforming mode AC MAIN EUT LAN NB Item Connection Shielded Length 1 Power cable No 1.5m

2

RJ-45 cable

No

10m

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Test Setup Diagram - Radiated Test > 1GHz / For beamforming mode AC MAIN EUT Device NB LAN NB RX Device Connection Item **Shielded** Length Power cable No 1.5m 1 2 RJ-45 cable No 10m 3 RJ-45 cable No 1.5m

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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		

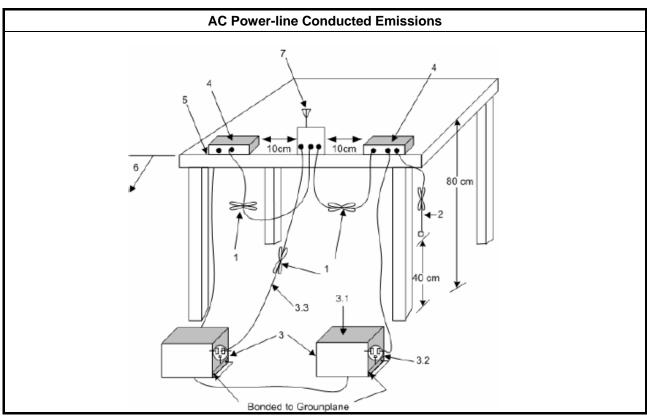
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

	Test Method
\boxtimes	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

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Refer as Appendix A

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3.2 Emission Bandwidth

3.2.1 Emission Bandwidth Limit

	Emission Bandwidth Limit				
UNI	JNII 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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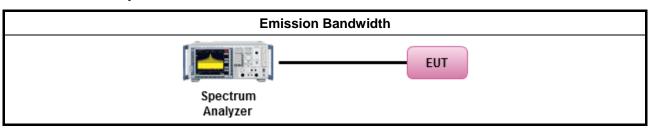
3.2.2 Measuring Instruments

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:				
\boxtimes	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 _{Out}) shall not exceed the lesser of 250 mW. If G _{TX} > 6 dBi, then P _{Out} = 24 - (G _{TX} - 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_{Out}) 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_{Out}) shall not exceed the lesser of 1 W.
	t = maximum conducted output power in dBm, = the maximum transmitting antenna directional gain in dBi.

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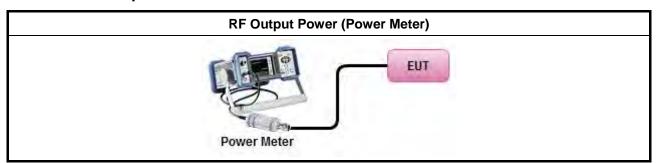
3.3.2 Measuring Instruments

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_{total} = P₁ + P₂ + + P_n (calculated in linear unit [mW] and transfer to log unit [dBm]) EIRP_{total} = P_{total} + 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:
	 Outdoor AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If G_{TX} > 6 dBi, then P_{Out} = 17 - (G_{TX} - 6).
	Indoor AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 17 - (G_{TX} - 6)$.
	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) ≤ 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) \leq 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.
	 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: -13 dBW/MHz for 0° ≤ θ < 8°; -13 - 0.716 (θ-8) dBW/MHz for 8° ≤ θ < 40° -35.9 - 1.22 (θ-40) dBW/MHz for 40° ≤ θ ≤ 45°; -42 dBW/MHz for θ > 45°
	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 – ($G_{TX} - 6$).
	Point-to-point systems (P2P): the peak power spectral density (PPSD) ≤ 30 dBm/500kHz.
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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3.4.3 Test Procedures

		Test Method
•	outp func	k 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	/ 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
		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 $

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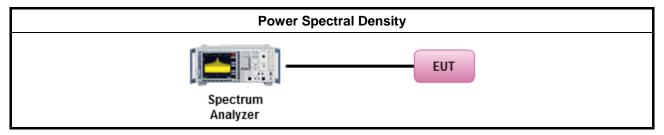
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3.4.4 Test Setup



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).

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3.5.2 Measuring Instruments

has no need to be reported.

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

3.5.3 Test Procedures

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

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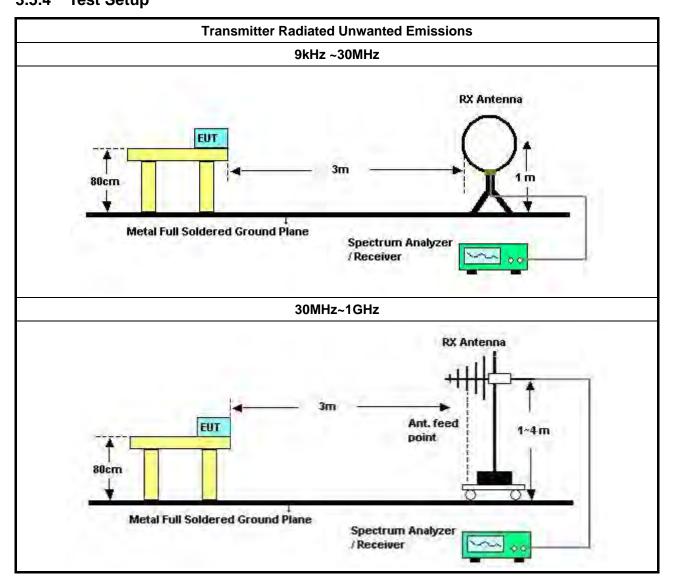
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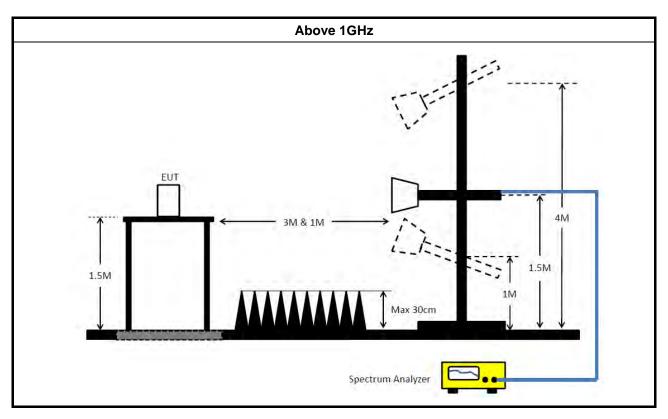
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3.5.4 Test Setup



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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

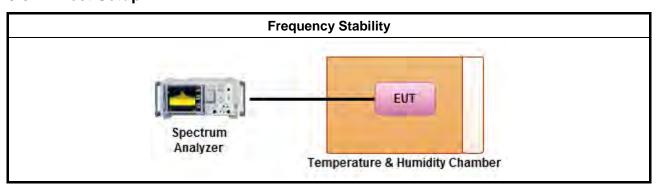
Refer a test equipment and calibration data table in this test report.

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 -30°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
EMI Receiver	Agilent	N9038A	My52260123	9kHz ~ 8.45GHz	Jan. 23, 2017	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz ~ 100MHz	Dec. 14, 2016	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Dec. 21, 2016	Conduction (CO01-CB)
COND Cable	Woken	Cable	01	150kHz ~ 30MHz	May 24, 2016	Conduction (CO01-CB)
Software	Audix	E3	6.120210n	-	N.C.R.	Conduction (CO01-CB)
BILOG ANTENNA with 6dB Attenator	TESEQ & EMCI	CBL6112D & -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. 15, 2016	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Jan. 18, 2016	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. 21, 2016	Radiation (03CH01-CB)
EMI Test	R&S	ESCS	100355	9kHz ~ 2.75GHz	May 16, 2016	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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Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
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-D3SP	TBN-931011	-30~100 degree	Jun. 03, 2016	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	Oct. 24, 2016	Conducted (TH01-CB)
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.

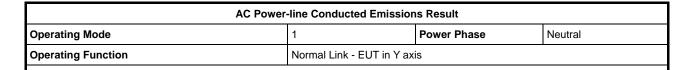
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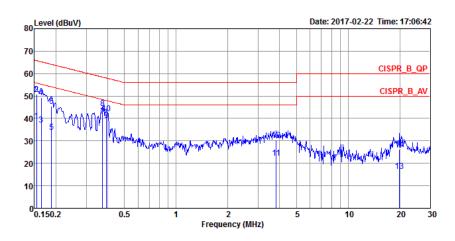
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[&]quot;*" Calibration Interval of instruments listed above is two years.



AC Power-line Conducted Emissions Result





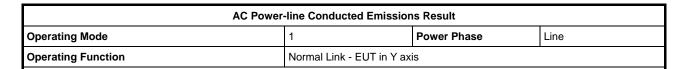
			0ver	Limit	Read	LISN	Cable		
	Freq	Level	Limit	Line	Level	Factor	Loss	Remark	Pol/Phase
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.1541	39.11	-16.67	55.78	29.13	9.94	0.04	Average	NEUTRAL
2	0.1541	50.88	-14.90	65.78	40.90	9.94	0.04	QP	NEUTRAL
3	0.1641	37.08	-18.17	55.25	27.09	9.95	0.04	Average	NEUTRAL
4	0.1641	49.44	-15.81	65.25	39.45	9.95	0.04	QP	NEUTRAL
5	0.1884	33.93	-20.18	54.11	23.91	9.97	0.05	Average	NEUTRAL
_6	0.1884	45.59	-18.52	64.11	35.57	9.97	0.05	QP	NEUTRAL
7	0.3739	41.03	-7.38	48.41	31.03	9.96	0.04	Average	NEUTRAL
8	0.3739	44.59	-13.82	58.41	34.59	9.96	0.04	QP	NEUTRAL
9	0.3942	39.33	-8.65	47.98	29.33	9.96	0.04	Average	NEUTRAL
10	0.3942	42.27	-15.71	57.98	32.27	9.96	0.04	QP	NEUTRAL
11	3.8196	22.43	-23.57	46.00	12.23	10.07	0.13	Average	NEUTRAL
12	3.8196	30.33	-25.67	56.00	20.13	10.07	0.13	QP	NEUTRAL
13	19.9500	16.58	-33.42	50.00	6.04	10.29	0.25	Average	NEUTRAL
14	19.9500	26.20	-33.80	60.00	15.66	10.29	0.25	QP	NEUTRAL

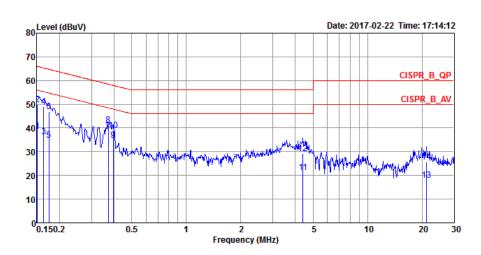
Note 1: ">20dB" means emission levels that exceed the level of 20 dB below the applicable limit. Note 2: "N/F" means Nothing Found emissions (No emissions were detected.)

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AC Power-line Conducted Emissions Result





			0ver	Limit	Read	LISN	Cable		
	Freq	Level	Limit	Line	Level	Factor	Loss	Remark	Pol/Phase
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.1508	38.62	-17.34	55.96	28.63	9.95	0.04	Average	LINE
2	0.1508	49.97	-15.99	65.96	39.98	9.95	0.04	QP	LINE
3	0.1632	36.45	-18.85	55.30	26.47	9.94	0.04	Average	LINE
4	0.1632	48.94	-16.36	65.30	38.96	9.94	0.04	QP	LINE
5	0.1749	34.90	-19.82	54.72	24.91	9.94	0.05	Average	LINE
6	0.1749	47.07	-17.65	64.72	37.08	9.94	0.05	QP	LINE
7	0.3712	38.63	-9.84	48.47	28.70	9.89	0.04	Average	LINE
8	0.3712	41.40	-17.07	58.47	31.47	9.89	0.04	QP	LINE
9	0.3955	34.95	-13.00	47.95	25.02	9.89	0.04	Average	LINE
10	0.3955	38.89	-19.06	57.95	28.96	9.89	0.04	QP	LINE
11	4.4071	21.30	-24.70	46.00	11.21	9.96	0.13	Average	LINE
12	4.4071	29.24	-26.76	56.00	19.15	9.96	0.13	QP	LINE
13	21.1472	18.10	-31.90	50.00	7.61	10.24	0.25	Average	LINE
14	21.1472	25.74	-34.26	60.00	15.25	10.24	0.25	QP	LINE

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.)

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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)_3TX	-	-	-	-	-
5.15-5.25GHz	19.975M	16.442M	16M4D1D	19.6M	16.317M
5.725-5.85GHz	15.45M	16.417M	16M4D1D	14.45M	16.367M
802.11ac VHT20_Nss1,(MCS0)_3TX	-	-	-	-	-
5.15-5.25GHz	20.7M	17.591M	17M6D1D	19.925M	17.516M
5.725-5.85GHz	15.125M	17.616M	17M6D1D	15.05M	17.566M
802.11ac VHT40_Nss1,(MCS0)_3TX	-	-	-	-	-
5.15-5.25GHz	40.75M	36.032M	36M0D1D	40.45M	35.832M
5.725-5.85GHz	35.1M	36.082M	36M1D1D	35.05M	35.832M
802.11ac VHT80_Nss1,(MCS0)_3TX	-	-	-	-	-
5.15-5.25GHz	81.1M	75.362M	75M4D1D	79.9M	74.963M
5.725-5.85GHz	73.8M	74.963M	75M0D1D	70M	74.763M
802.11ac VHT20-BF_Nss1,(MCS0)_3TX	-	-	-	-	-
5.15-5.25GHz	20.625M	17.566M	17M6D1D	20M	17.516M
5.725-5.85GHz	15.125M	17.716M	17M7D1D	15.075M	17.616M
802.11ac VHT40-BF_Nss1,(MCS0)_3TX	-	-	-	-	-
5.15-5.25GHz	40.6M	36.032M	36M0D1D	40.3M	35.832M
5.725-5.85GHz	35.1M	36.332M	36M3D1D	35.05M	36.082M
802.11ac VHT80-BF_Nss1,(MCS0)_3TX				-	-
5.15-5.25GHz	80.9M	75.162M	75M2D1D	79.8M	75.162M
5.725-5.85GHz	75M	74.963M	75M0D1D	65M	74.963M

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	Port 3-N dB	Port 3-OBW
		(Hz)	(Hz)	(Hz)	(Hz)	(Hz)	(Hz)	(Hz)
802.11a_(6Mbps)_3TX	-	-	-	-	-	-	-	-
5180MHz	Pass	Inf	19.75M	16.367M	19.975M	16.317M	19.65M	16.367M
5200MHz	Pass	Inf	19.65M	16.392M	19.925M	16.367M	19.6M	16.442M
5240MHz	Pass	Inf	19.65M	16.392M	19.975M	16.367M	19.725M	16.367M
5745MHz	Pass	500k	14.45M	16.417M	15.125M	16.367M	15.1M	16.367M
5785MHz	Pass	500k	15.075M	16.392M	15.425M	16.367M	15.075M	16.392M
5825MHz	Pass	500k	15.1M	16.392M	15.45M	16.392M	15.025M	16.392M
802.11ac VHT20_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-	-
5180MHz	Pass	Inf	19.975M	17.591M	20.4M	17.541M	20.7M	17.566M
5200MHz	Pass	Inf	19.925M	17.541M	20.325M	17.541M	20.65M	17.516M
5240MHz	Pass	Inf	20.3M	17.566M	20.55M	17.566M	20.65M	17.541M
5745MHz	Pass	500k	15.05M	17.591M	15.1M	17.566M	15.125M	17.566M
5785MHz	Pass	500k	15.1M	17.616M	15.1M	17.566M	15.1M	17.591M
5825MHz	Pass	500k	15.075M	17.591M	15.1M	17.566M	15.1M	17.591M
802.11ac VHT40_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-	-
5190MHz	Pass	Inf	40.55M	35.982M	40.7M	35.932M	40.6M	35.932M
5230MHz	Pass	Inf	40.5M	35.982M	40.75M	36.032M	40.45M	35.832M
5755MHz	Pass	500k	35.1M	36.082M	35.05M	35.932M	35.1M	35.932M
5795MHz	Pass	500k	35.1M	35.832M	35.1M	35.882M	35.1M	35.832M
802.11ac VHT80_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-	-
5210MHz	Pass	Inf	79.9M	75.362M	80M	75.162M	81.1M	74.963M
5775MHz	Pass	500k	73.8M	74.963M	73.8M	74.863M	70M	74.763M
802.11ac VHT20-BF_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-	-
5180MHz	Pass	Inf	20M	17.541M	20.475M	17.566M	20.5M	17.566M
5200MHz	Pass	Inf	20.55M	17.541M	20.475M	17.541M	20.625M	17.516M
5240MHz	Pass	Inf	20M	17.541M	20.375M	17.516M	20.5M	17.516M
5745MHz	Pass	500k	15.075M	17.666M	15.1M	17.666M	15.125M	17.666M
5785MHz	Pass	500k	15.1M	17.666M	15.125M	17.616M	15.125M	17.666M
5825MHz	Pass	500k	15.1M	17.716M	15.125M	17.641M	15.125M	17.641M
802.11ac VHT40-BF_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-	-
5190MHz	Pass	Inf	40.55M	35.982M	40.3M	36.032M	40.35M	35.882M
5230MHz	Pass	Inf	40.5M	35.832M	40.55M	35.932M	40.6M	35.932M
5755MHz	Pass	500k	35.1M	36.132M	35.05M	36.132M	35.05M	36.082M
5795MHz	Pass	500k	35.1M	36.332M	35.1M	36.332M	35.1M	36.282M
802.11ac VHT80-BF_Nss1,(MCS0)_3TX	-	-	-	-	-	-		-
5210MHz	Pass	Inf	79.8M	75.162M	80M	75.162M	80.9M	75.162M
5775MHz	Pass	500k	75M	74.963M	72.5M	74.963M	65M	74.963M
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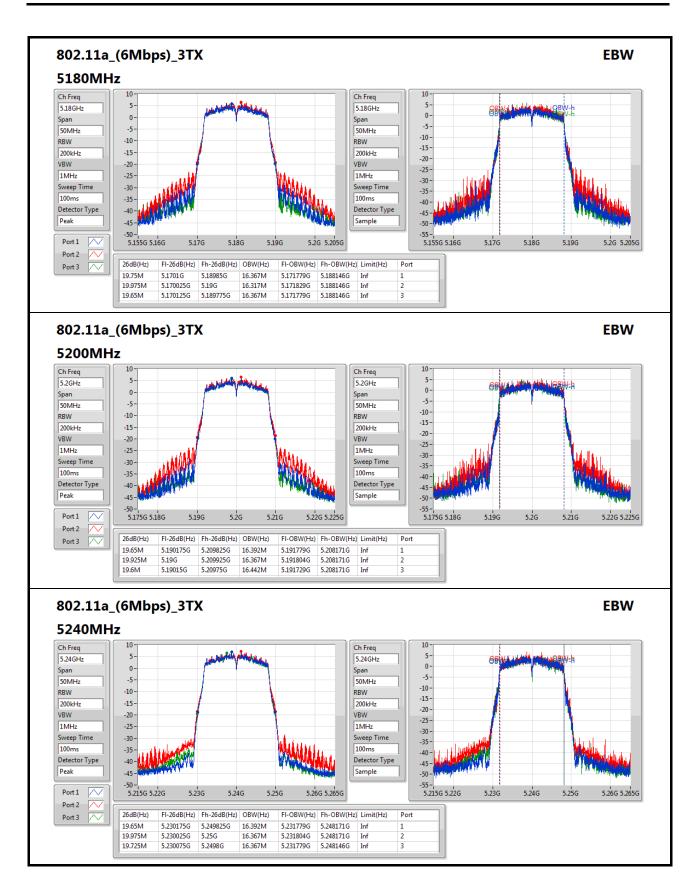
Port X-N dB = Port X 6dB down bandwidth for 5.725-5.85GHz band / 26dB down bandwidth for other band Port X-OBW = Port X 99% occupied bandwidth;

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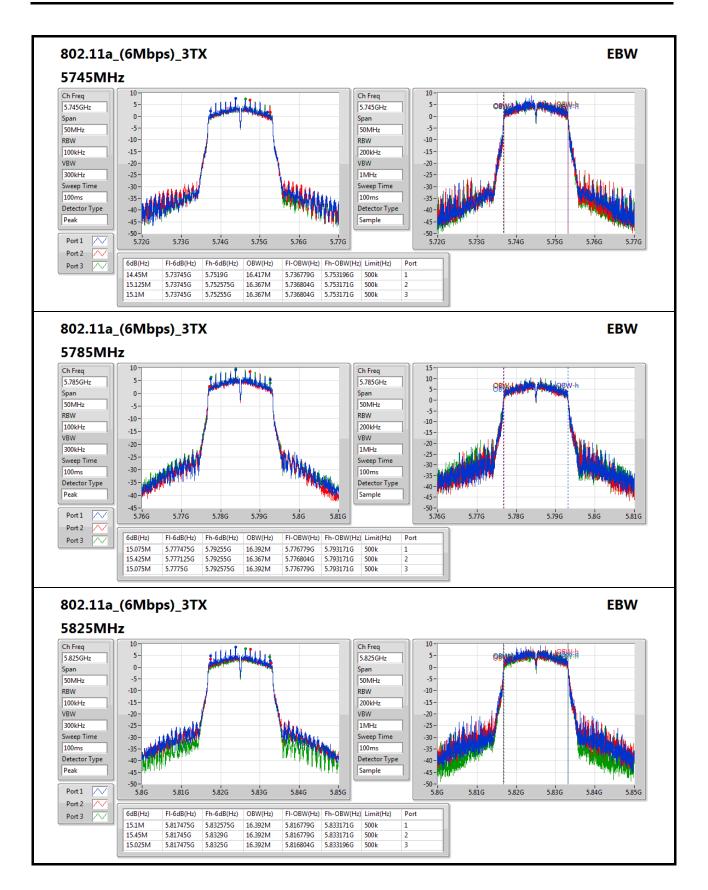


EBW Result



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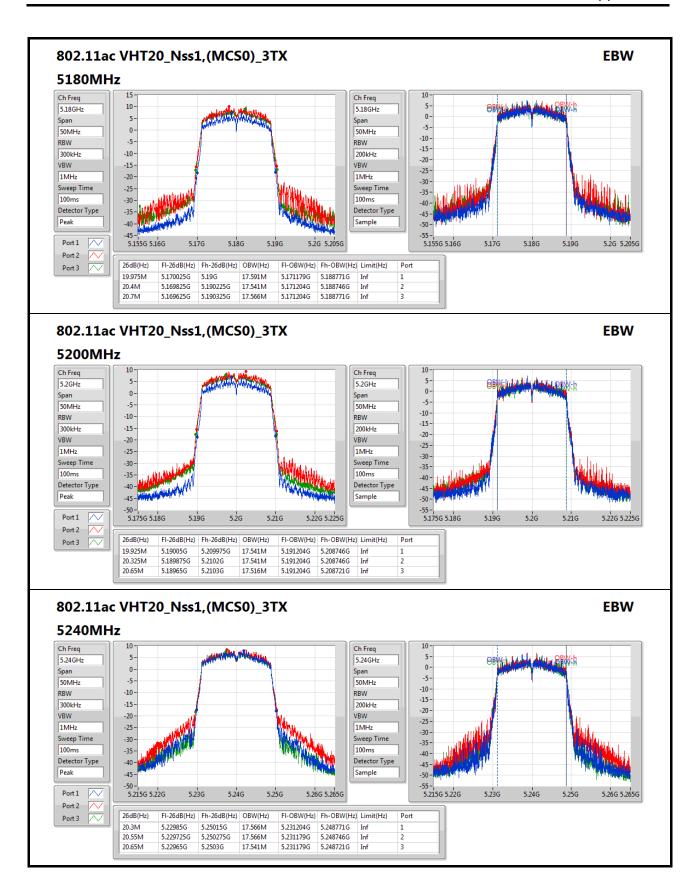




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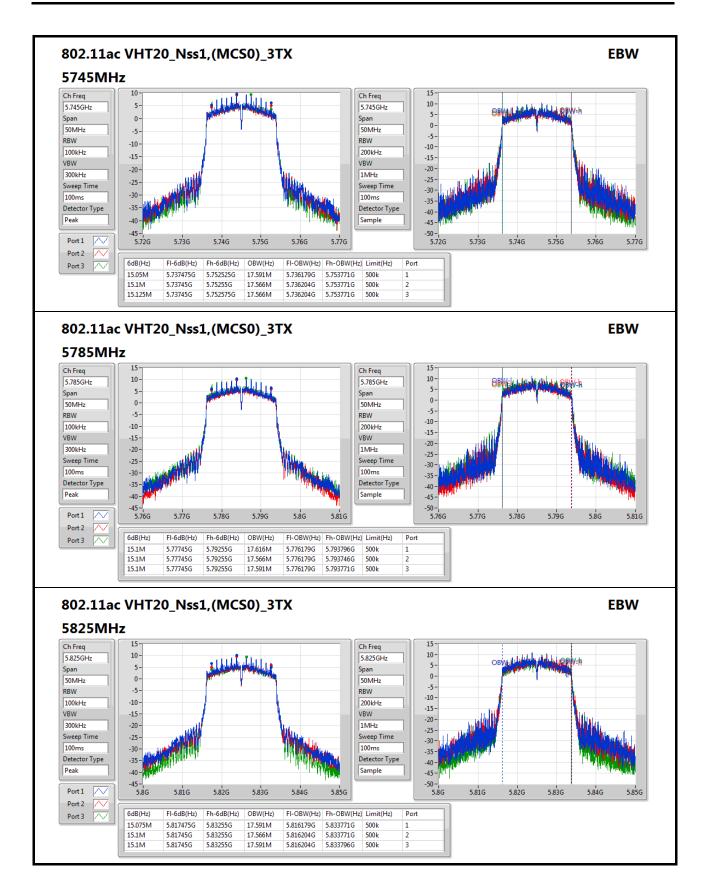


EBW Result

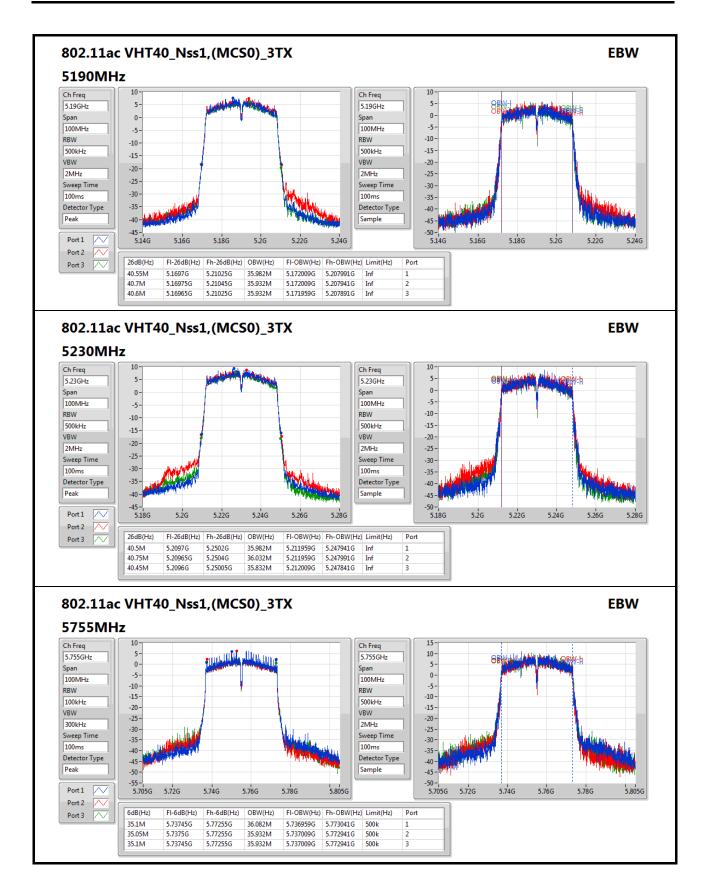










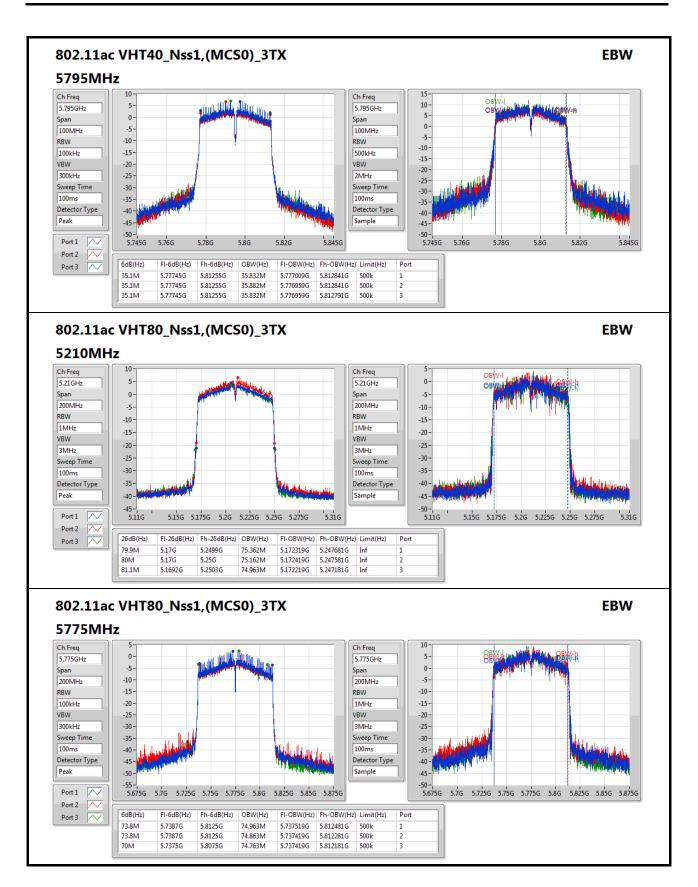


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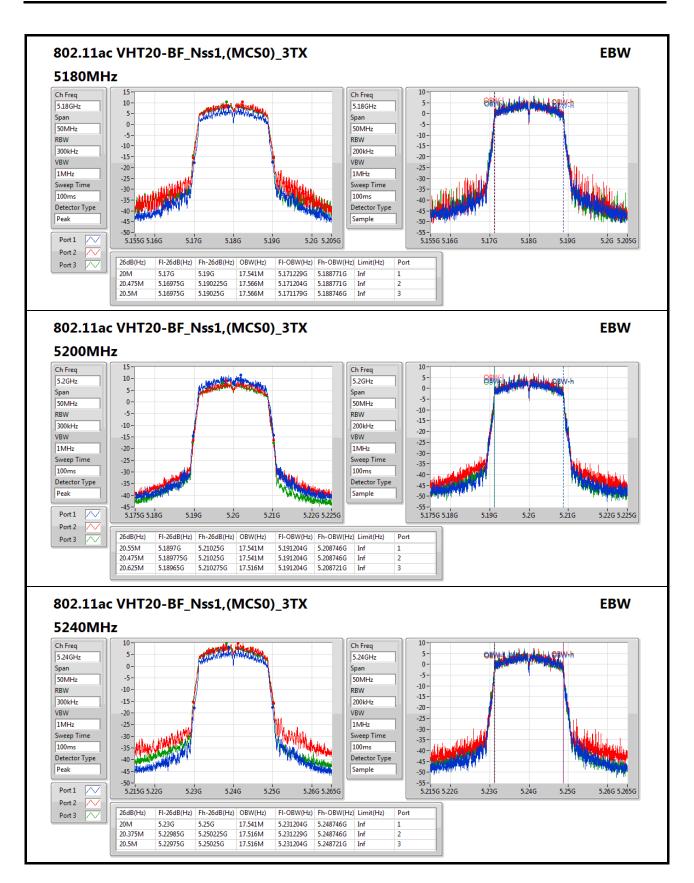


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EBW Result Appendix B

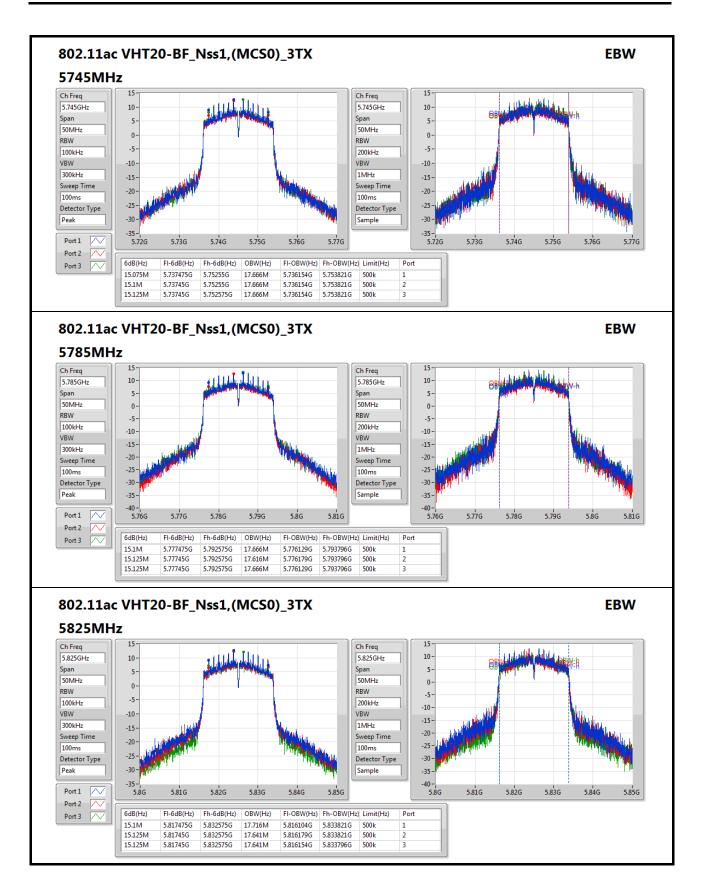






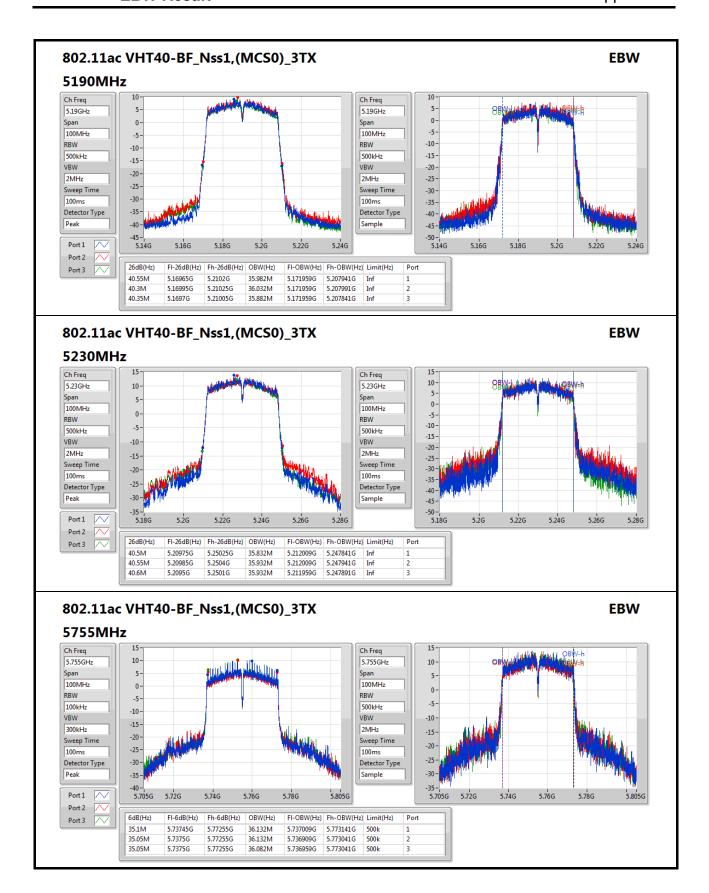
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EBW Result Appendix B

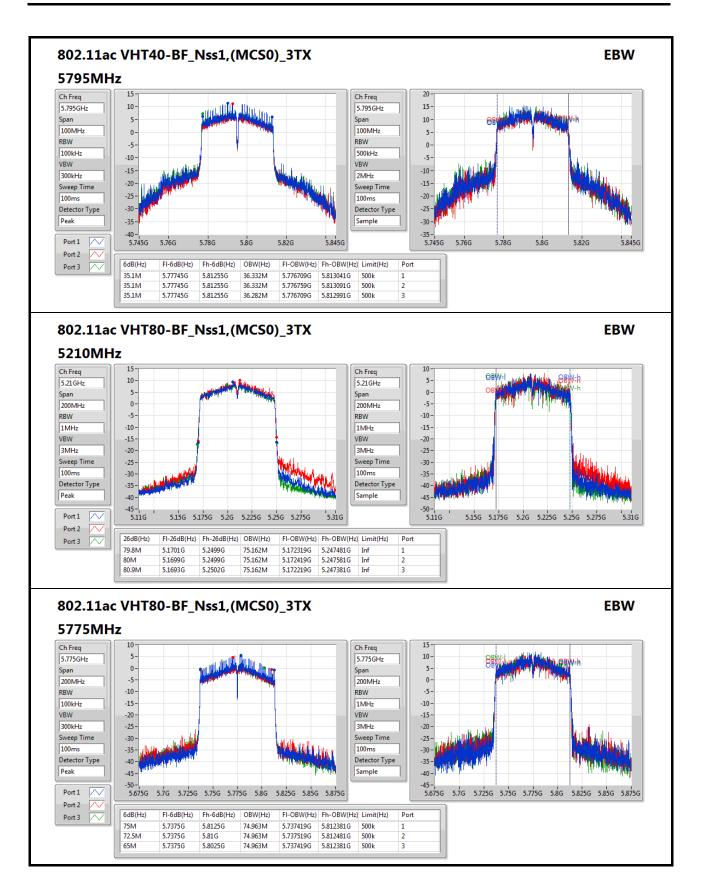


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EBW Result





Power Result Appendix C

Summary

Mode	Total Power	Total Power	EIRP	EIRP
	(dBm)	(W)	(dBm)	(W)
802.11a_(6Mbps)_3TX	-	-	-	-
5.15-5.25GHz	22.01	0.15885	25.06	0.32063
5.725-5.85GHz	24.87	0.30690	29.07	0.80724
802.11ac VHT20_Nss1,(MCS0)_3TX	-	-	-	-
5.15-5.25GHz	22.31	0.17022	25.36	0.34356
5.725-5.85GHz	25.28	0.33729	29.48	0.88716
802.11ac VHT40_Nss1,(MCS0)_3TX	-	-	-	-
5.15-5.25GHz	22.94	0.19679	25.99	0.39719
5.725-5.85GHz	24.79	0.30130	28.99	0.79250
802.11ac VHT80_Nss1,(MCS0)_3TX	-	-	-	-
5.15-5.25GHz	18.14	0.06516	21.19	0.13152
5.725-5.85GHz	23.34	0.21577	27.54	0.56754
802.11ac VHT20-BF_Nss1,(MCS0)_3TX	-	-	-	-
5.15-5.25GHz	22.11	0.16255	29.93	0.98401
5.725-5.85GHz	25.34	0.34198	34.32	2.70396
802.11ac VHT40-BF_Nss1,(MCS0)_3TX	-	-	-	-
5.15-5.25GHz	23.65	0.23174	31.47	1.40281
5.725-5.85GHz	25.55	0.35892	34.52	2.83139
802.11ac VHT80-BF_Nss1,(MCS0)_3TX	-	-	-	-
5.15-5.25GHz	19.92	0.09817	27.75	0.59566
5.725-5.85GHz	21.55	0.14289	30.53	1.12980

SPORTON INTERNATIONAL INC.



Power Result Appendix C

Result

Mode	Result	DG	Port 1	Port 2	Port 3	Total Power	Power Limit	EIRP	EIRP Limit
		(dBi)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)
802.11a_(6Mbps)_3TX	-	-	-	-	-	-	-	-	-
5180MHz	Pass	3.05	16.14	16.02	16.7	21.07	30.00	24.12	36.00
5200MHz	Pass	3.05	16.17	16.12	16.74	21.12	30.00	24.17	36.00
5240MHz	Pass	3.05	17.09	17.16	17.46	22.01	30.00	25.06	36.00
5745MHz	Pass	4.20	18.61	18.41	18.71	23.35	30.00	27.55	36.00
5785MHz	Pass	4.20	20.31	20.03	19.96	24.87	30.00	29.07	36.00
5825MHz	Pass	4.20	19.34	19.58	19.63	24.29	30.00	28.49	36.00
802.11ac VHT20_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-	-	-
5180MHz	Pass	3.05	17.57	17.11	17.90	22.31	30.00	25.36	36.00
5200MHz	Pass	3.05	16.61	16.41	17.15	21.51	30.00	24.56	36.00
5240MHz	Pass	3.05	15.79	15.88	16.56	20.86	30.00	23.91	36.00
5745MHz	Pass	4.20	20.37	20.34	20.33	25.12	30.00	29.32	36.00
5785MHz	Pass	4.20	20.39	20.38	20.37	25.15	30.00	29.35	36.00
5825MHz	Pass	4.20	20.66	20.37	20.48	25.28	30.00	29.48	36.00
802.11ac VHT40_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-	-	-
5190MHz	Pass	3.05	16.98	16.28	16.51	21.37	30.00	24.42	36.00
5230MHz	Pass	3.05	18.27	18.01	18.23	22.94	30.00	25.99	36.00
5755MHz	Pass	4.20	20.02	20.02	19.84	24.73	30.00	28.93	36.00
5795MHz	Pass	4.20	20.08	20.16	19.82	24.79	30.00	28.99	36.00
802.11ac VHT80_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-	-	-
5210MHz	Pass	3.05	13.17	13.39	13.55	18.14	30.00	21.19	36.00
5775MHz	Pass	4.20	18.82	18.08	18.78	23.34	30.00	27.54	36.00
802.11ac VHT20-BF_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-	-	-
5180MHz	Pass	7.82	17.97	17.18	16.77	22.11	28.18	29.93	36.00
5200MHz	Pass	7.82	16.68	15.74	15.39	20.74	28.18	28.56	36.00
5240MHz	Pass	7.82	16.90	16.55	16.43	21.40	28.18	29.22	36.00
5745MHz	Pass	8.97	20.7	21.21	19.67	25.34	27.03	34.32	36.00
5785MHz	Pass	8.97	19.84	20.58	19.13	24.66	27.03	33.63	36.00
5825MHz	Pass	8.97	20.32	21.02	19.52	25.10	27.03	34.07	36.00
802.11ac VHT40-BF_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-	-	-
5190MHz	Pass	7.82	15.02	14.92	14.82	19.69	28.18	27.51	36.00
5230MHz	Pass	7.82	19.01	18.91	18.70	23.65	28.18	31.47	36.00
5755MHz	Pass	8.97	19.34	20.12	19.85	24.55	27.03	33.52	36.00
5795MHz	Pass	8.97	20.58	21.03	20.70	25.55	27.03	34.52	36.00
802.11ac VHT80-BF_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-	-	-
5210MHz	Pass	7.82	15.40	15.30	14.73	19.92	28.18	27.75	36.00
5775MHz	Pass	8.97	16.67	16.56	17.10	21.55	27.03	30.53	36.00

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

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PSD Result Appendix D

Summary

Mode	PD	EIRP PD
	(dBm/RBW)	(dBm/RBW)
802.11a_(6Mbps)_3TX	-	-
5.15-5.25GHz	9.27	17.09
5.725-5.85GHz	11.44	20.41
802.11ac VHT20_Nss1,(MCS0)_3TX	-	-
5.15-5.25GHz	9.58	17.40
5.725-5.85GHz	11.85	20.82
802.11ac VHT40_Nss1,(MCS0)_3TX	-	-
5.15-5.25GHz	7.14	14.96
5.725-5.85GHz	8.97	17.94
802.11ac VHT80_Nss1,(MCS0)_3TX	-	-
5.15-5.25GHz	0.03	7.85
5.725-5.85GHz	4.33	13.30
802.11ac VHT20-BF_Nss1,(MCS0)_3TX	-	-
5.15-5.25GHz	8.89	16.71
5.725-5.85GHz	12.61	21.58
802.11ac VHT40-BF_Nss1,(MCS0)_3TX	-	-
5.15-5.25GHz	7.84	15.66
5.725-5.85GHz	9.57	18.54
802.11ac VHT80-BF_Nss1,(MCS0)_3TX	-	-
5.15-5.25GHz	0.57	8.39
5.725-5.85GHz	1.97	10.94

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

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Appendix D **PSD Result**

Result

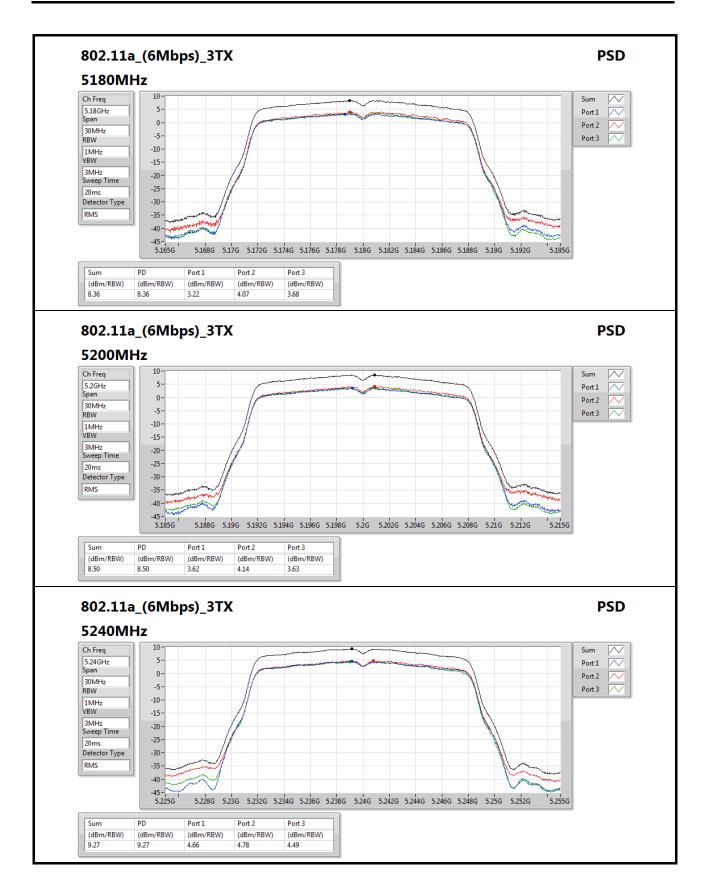
Mode	Result	DG	Port 1	Port 2	Port 3	PD	PD Limit
		(dBi)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
802.11a_(6Mbps)_3TX	-	-	-	-	-	-	-
5180MHz	Pass	7.82	3.22	4.07	3.68	8.36	15.18
5200MHz	Pass	7.82	3.62	4.14	3.63	8.50	15.18
5240MHz	Pass	7.82	4.66	4.78	4.49	9.27	15.18
5745MHz	Pass	8.97	5.62	5.48	5.53	10.23	27.03
5785MHz	Pass	8.97	7.09	6.59	6.88	11.44	27.03
5825MHz	Pass	8.97	6.78	6.28	5.62	10.81	27.03
802.11ac VHT20_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-
5180MHz	Pass	7.82	4.57	5.25	5.01	9.58	15.18
5200MHz	Pass	7.82	3.68	4.53	3.88	8.67	15.18
5240MHz	Pass	7.82	3.47	3.66	3.51	8.06	15.18
5745MHz	Pass	8.97	7.49	6.98	7.36	11.75	27.03
5785MHz	Pass	8.97	7.34	6.98	7.06	11.77	27.03
5825MHz	Pass	8.97	7.43	7.34	6.92	11.85	27.03
802.11ac VHT40_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-
5190MHz	Pass	7.82	0.42	0.55	0.40	5.10	15.18
5230MHz	Pass	7.82	2.03	2.80	2.41	7.14	15.18
5755MHz	Pass	8.97	4.23	4.49	4.68	8.64	27.03
5795MHz	Pass	8.97	4.98	3.86	4.32	8.97	27.03
802.11ac VHT80_Nss1,(MCS0)_3TX	-	1	-	-	1	-	-
5210MHz	Pass	7.82	-5.05	-4.07	-4.81	0.03	15.18
5775MHz	Pass	8.97	-0.38	-0.65	-0.09	4.33	27.03
802.11ac VHT20-BF_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-
5180MHz	Pass	7.82	4.15	4.34	4.10	8.89	15.18
5200MHz	Pass	7.82	2.96	3.61	3.26	7.93	15.18
5240MHz	Pass	7.82	3.34	3.63	3.29	8.11	15.18
5745MHz	Pass	8.97	7.72	7.37	8.12	12.29	27.03
5785MHz	Pass	8.97	8.13	7.56	8.36	12.61	27.03
5825MHz	Pass	8.97	7.44	7.29	6.84	11.87	27.03
802.11ac VHT40-BF_Nss1,(MCS0)_3TX	-	ī	-	-	÷	-	-
5190MHz	Pass	7.82	-1.57	-0.54	-0.97	3.22	15.18
5230MHz	Pass	7.82	2.79	3.35	3.26	7.84	15.18
5755MHz	Pass	8.97	3.66	3.83	3.93	8.40	27.03
5795MHz	Pass	8.97	5.41	4.59	4.92	9.57	27.03
802.11ac VHT80-BF_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-
5210MHz	Pass	7.82	-4.14	-3.42	-4.16	0.57	15.18
5775MHz	Pass	8.97	-2.98	-2.78	-2.56	1.97	27.03

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;

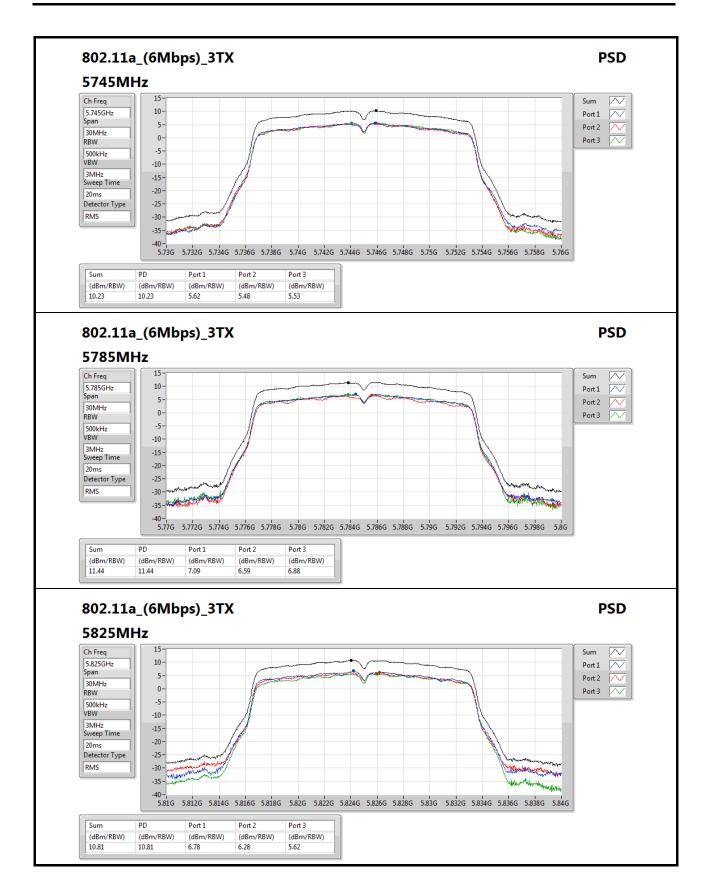
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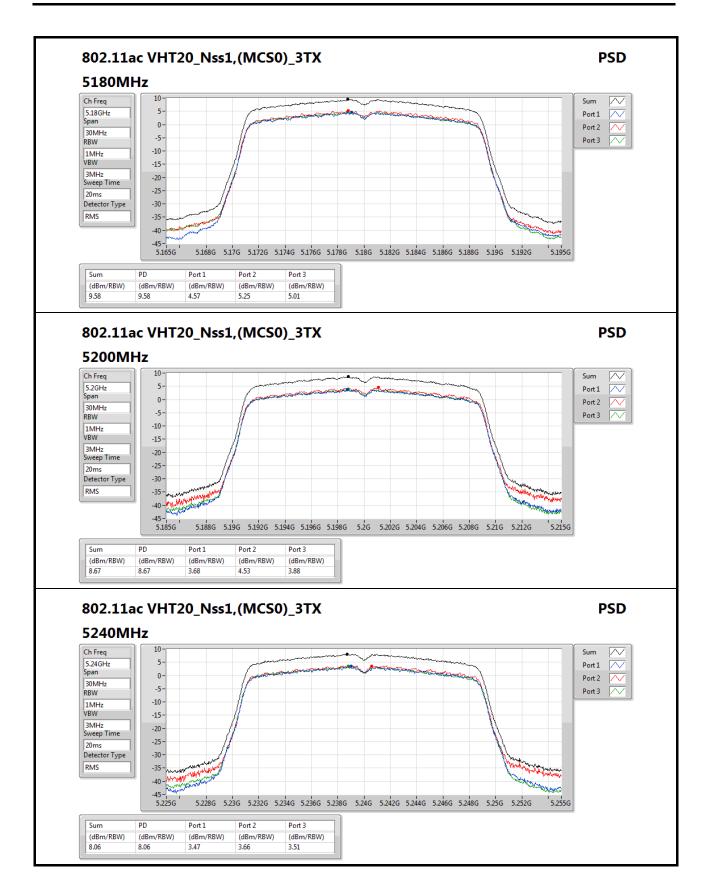






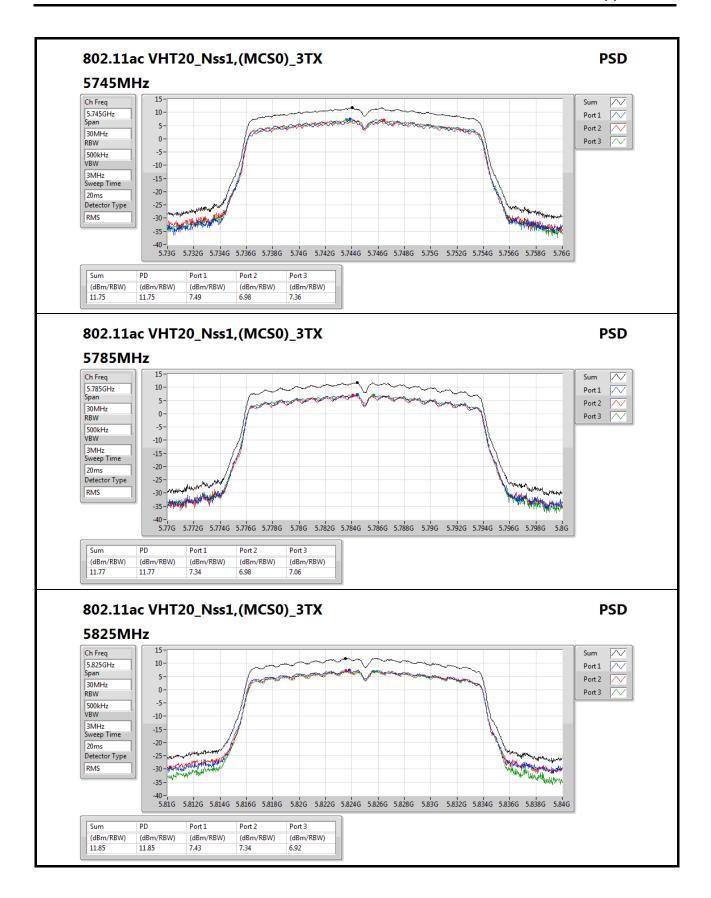




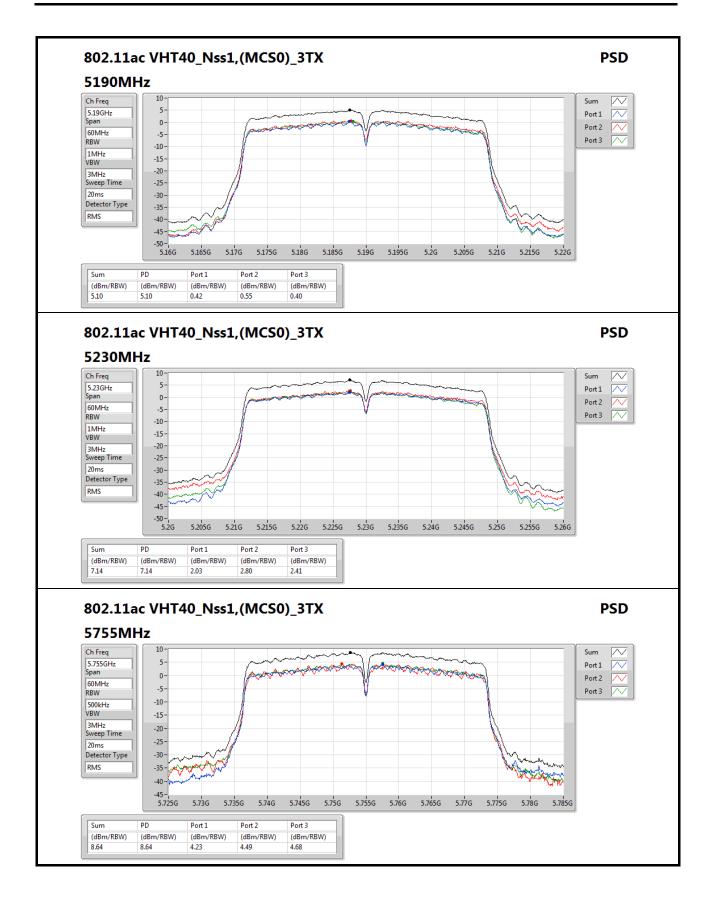


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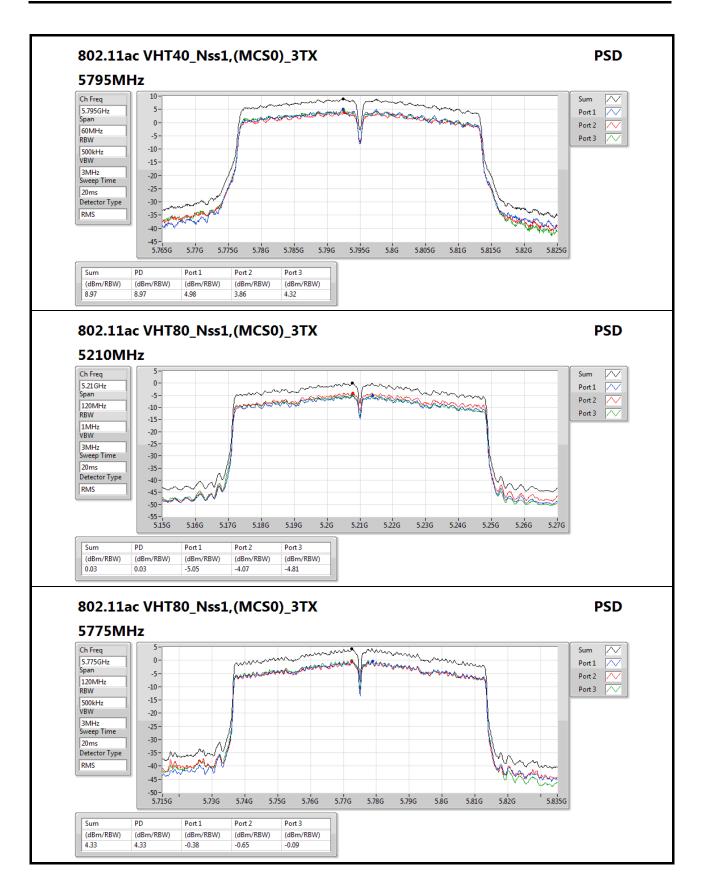






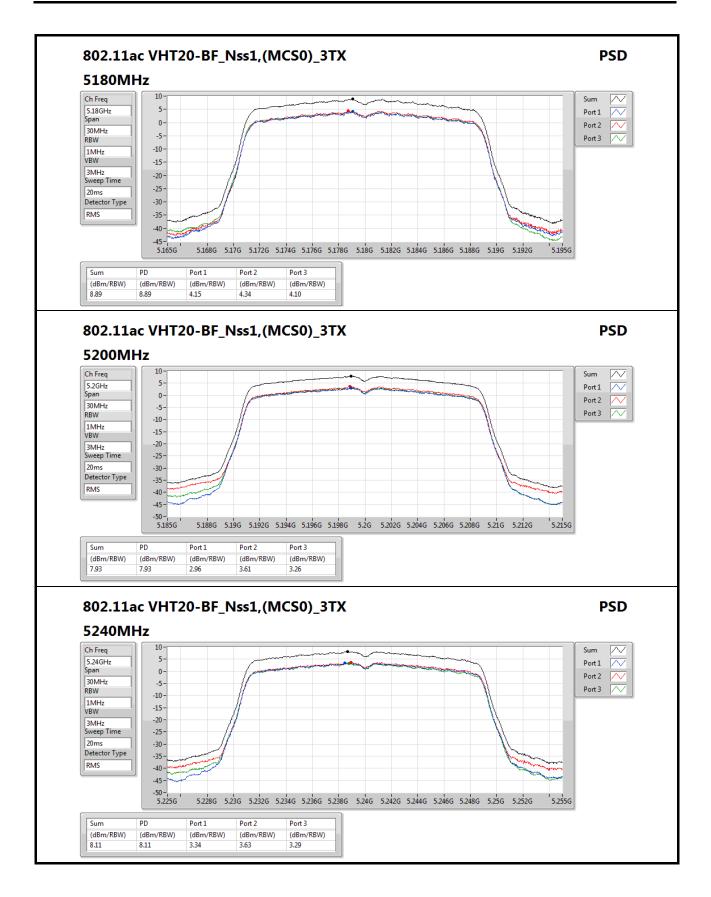
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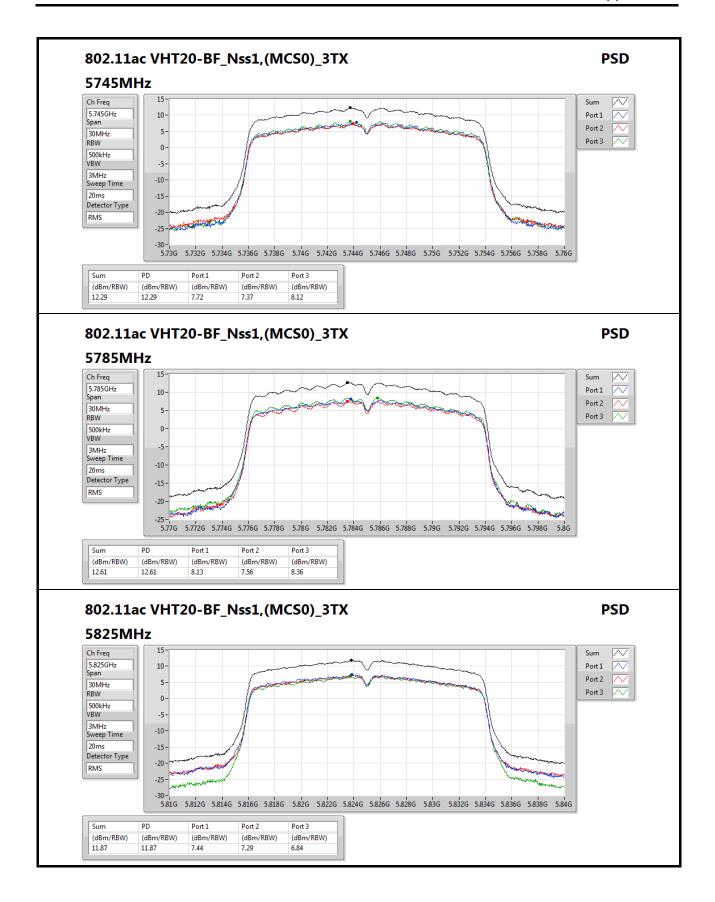
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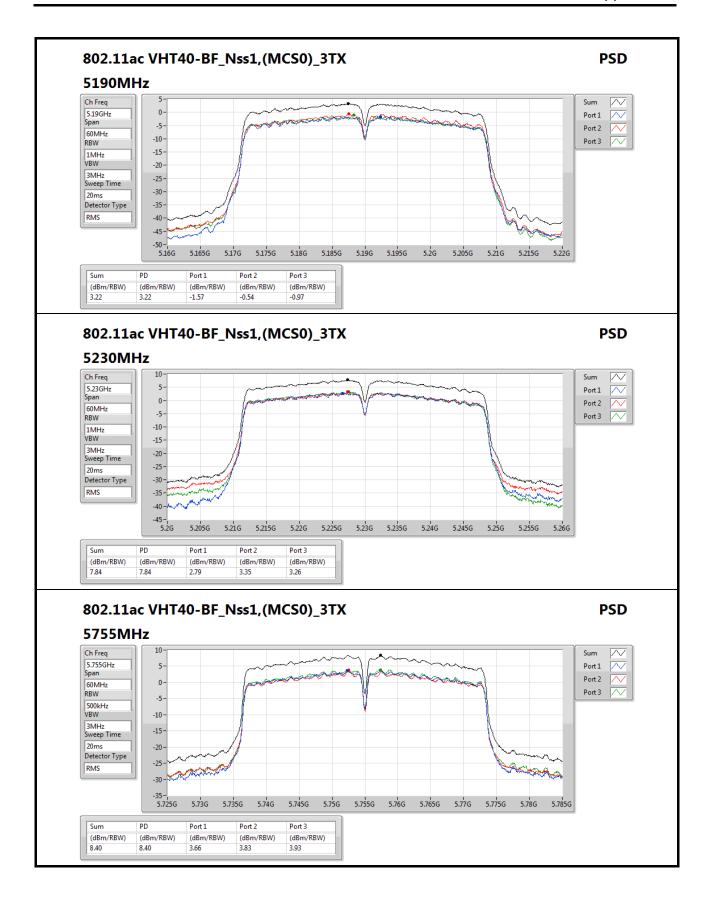


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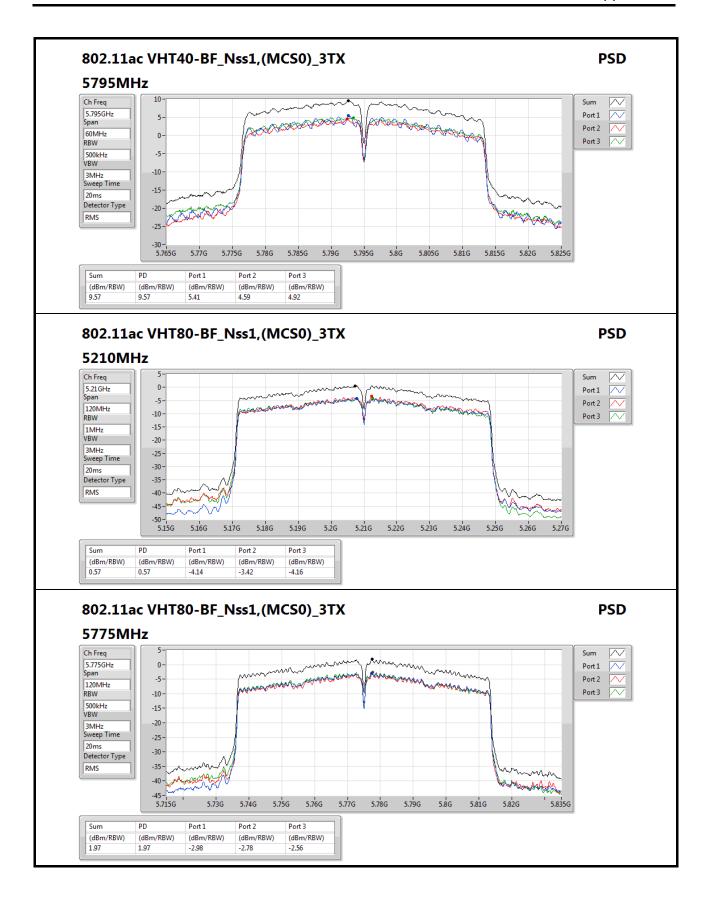


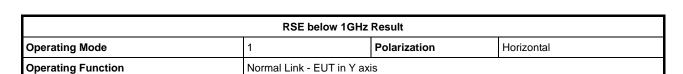


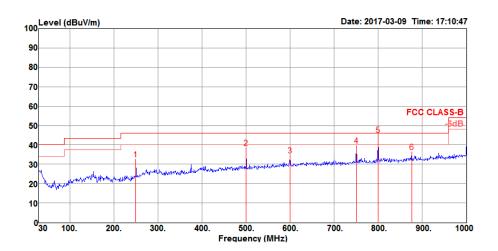
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	Freq	Level	Limit Line	Over Limit				Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	CM	deg		
1	250.19	32.60	46.00	-13.40	44.33	1.50	19.10	32.33	125	4	Peak	HORIZONTAL
2	500.45	38.38	46.00	-7.62	44.47	2.18	24.03	32.30	100	324	Peak	HORIZONTAL
3	600.36	34.66	46.00	-11.34	39.23	2.44	25.40	32.41	150	336	Peak	HORIZONTAL
4	750.71	39.55	46.00	-6.45	42.70	2.73	26.40	32.28	100	42	Peak	HORIZONTAL
5	800.18	45.24	46.00	-0.76	47.60	3.02	26.80	32.18	125	359	QP	HORIZONTAL
6	875.84	36.21	46.00	-9.79	37.57	2.90	27.55	31.81	100	189	Peak	HORIZONTAL

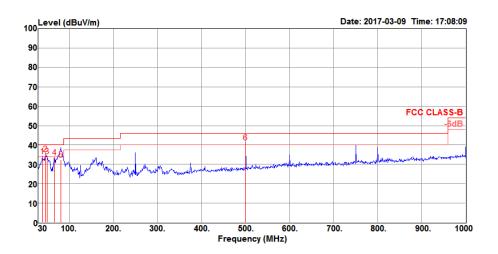
Note 1: ">20dB" means emission levels that exceed the level of 20 dB below the applicable limit.

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

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RSE below 1GHz Result									
Operating Mode	1	Vertical							
Operating Function	Normal Link - EUT in Y axis								



			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	cm	deg		
1	38.73	34.25	40.00	-5.75	45.43	0.59	20.93	32.70	100	162	Peak	VERTICAL
2	45.52	35.49	40.00	-4.51	50.47	0.64	16.88	32.50	100	172	Peak	VERTICAL
3	50.37	34.22	40.00	-5.78	51.07	0.68	14.85	32.38	100	324	Peak	VERTICAL
4	66.86	33.78	40.00	-6.22	52.27	0.78	13.14	32.41	150	102	Peak	VERTICAL
5	80.44	32.60	40.00	-7.40	50.50	0.87	13.66	32.43	113	95	QP	VERTICAL
6	500.45	41.35	46.00	-4.65	47.44	2.18	24.03	32.30	125	8	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.)

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RSE TX above 1GHz Result

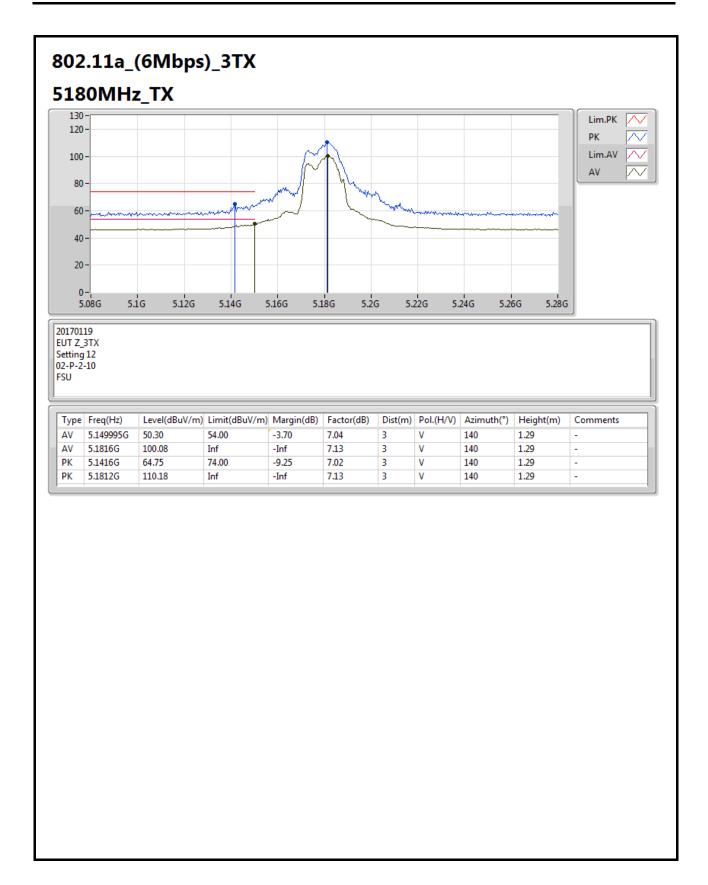
Appendix E.2

Summary

Mode	Result	Туре	Freq	Level	Limit	Margin	Factor	Dist	Pol.	Azimuth	Height	Comments
			(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)	(H/V)	(°)	(m)	
802.11ac VHT80_Nss1,(MCS0)_3TX	-	-	-	-	-	-	-	-	-	+	1	-
5.725-5.85GHz	Pass	PK	5.642G	68.18	68.20	-0.02	8.12	3	Н	318	1.01	-

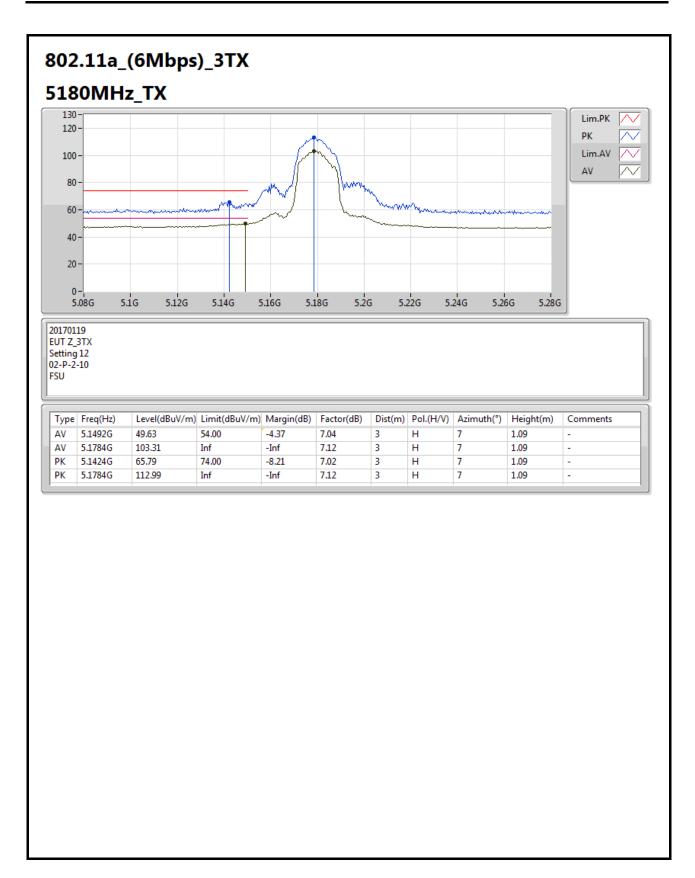
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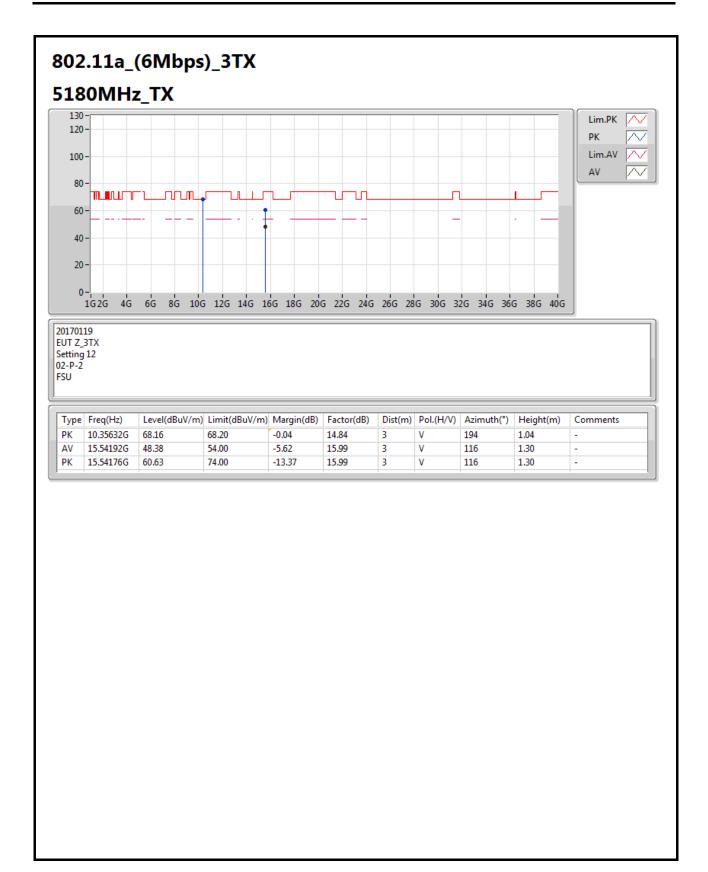


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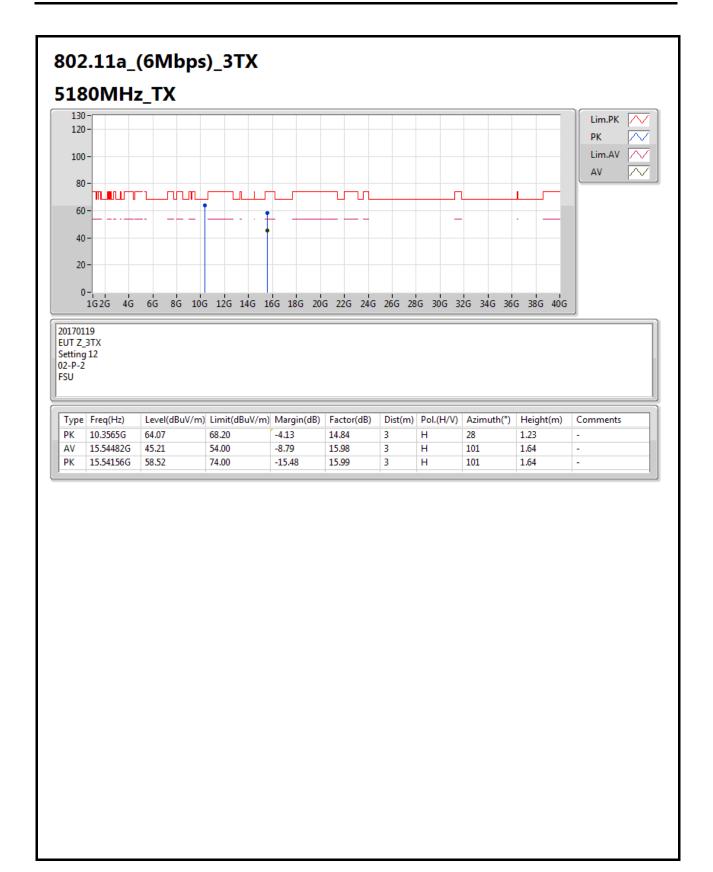






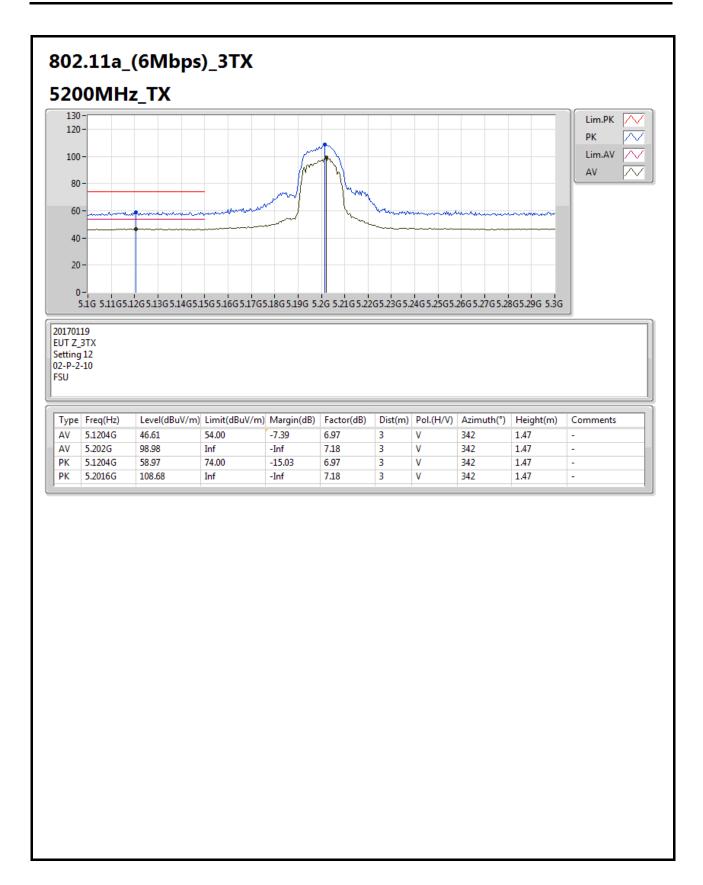
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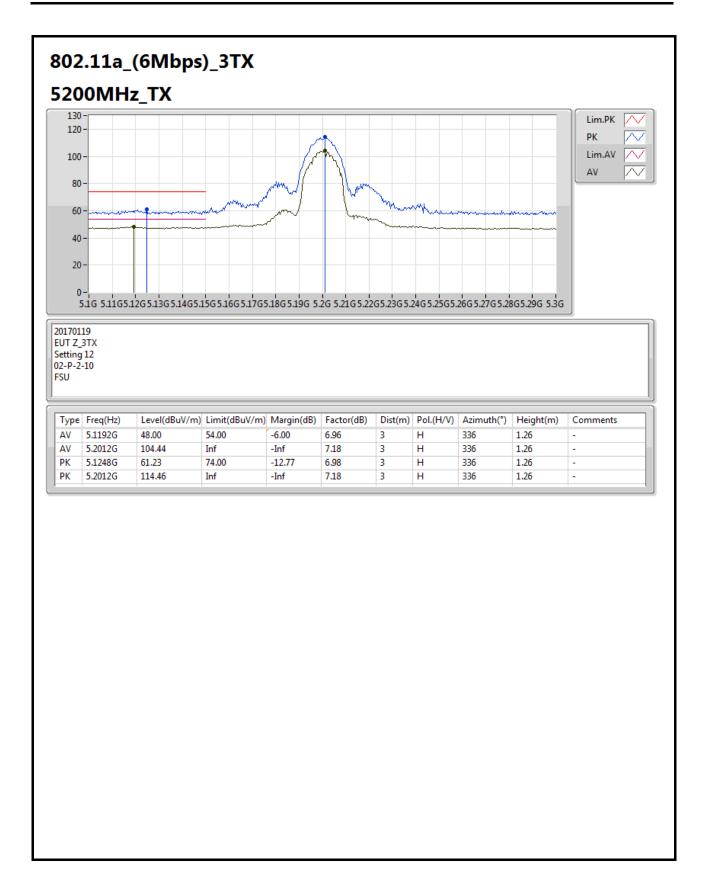
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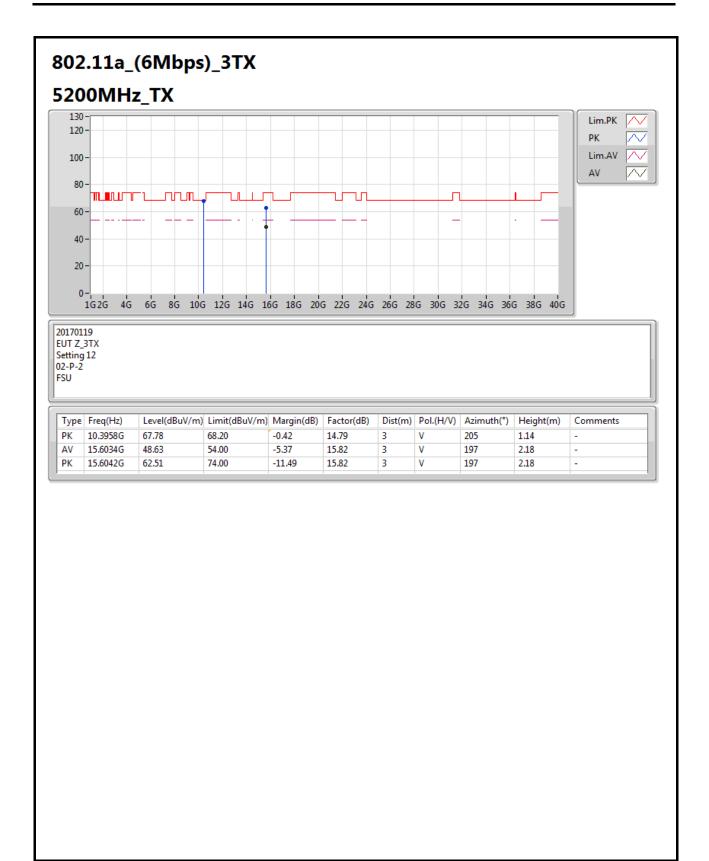


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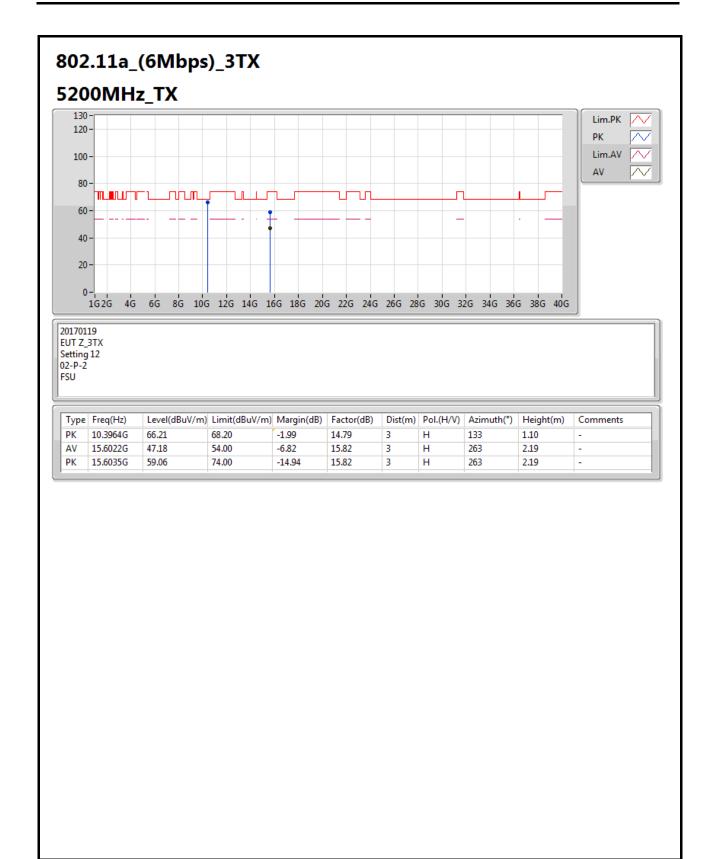






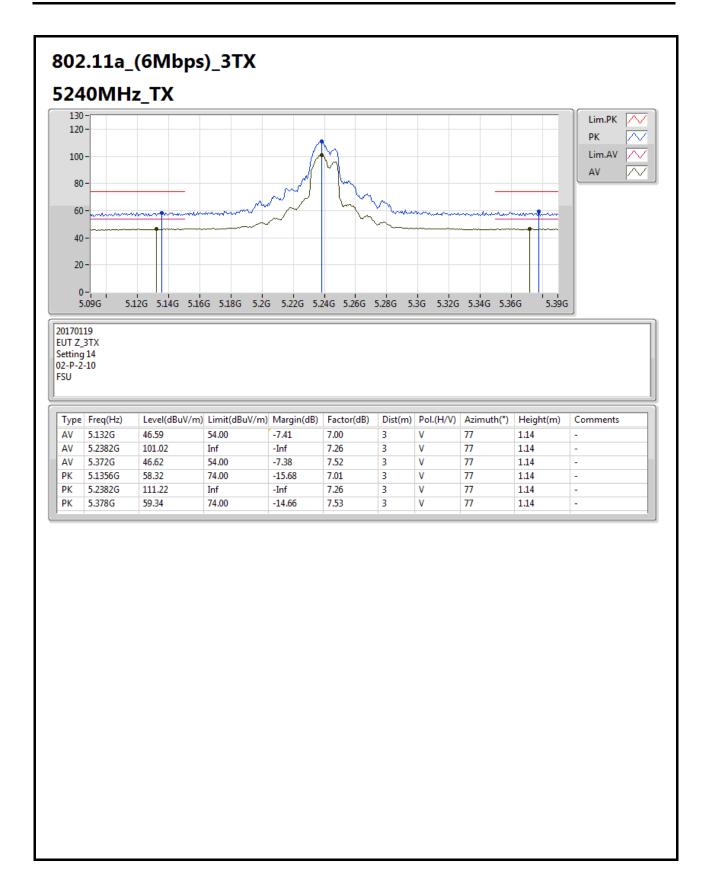
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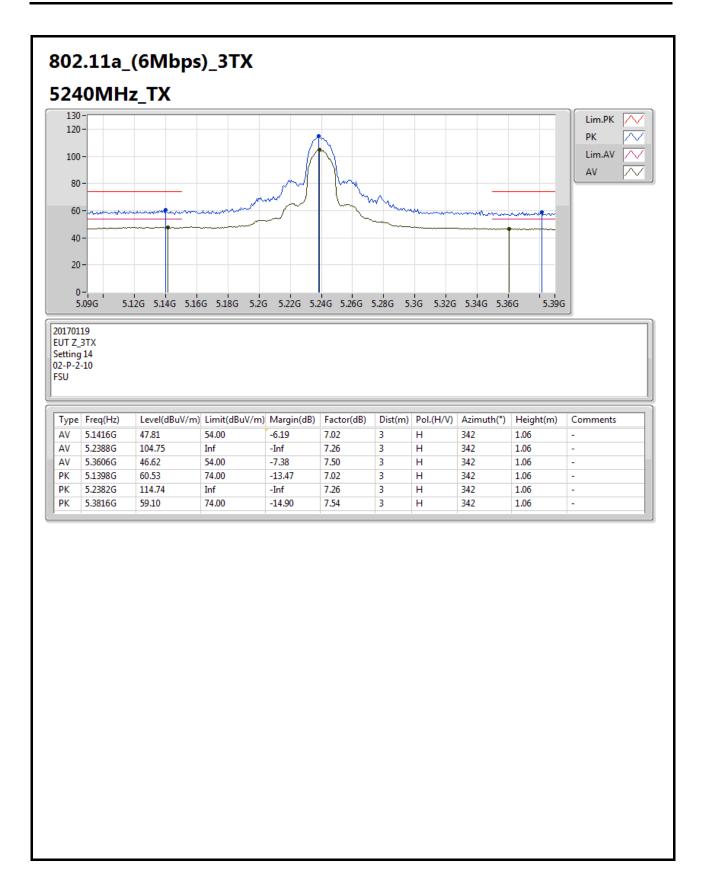
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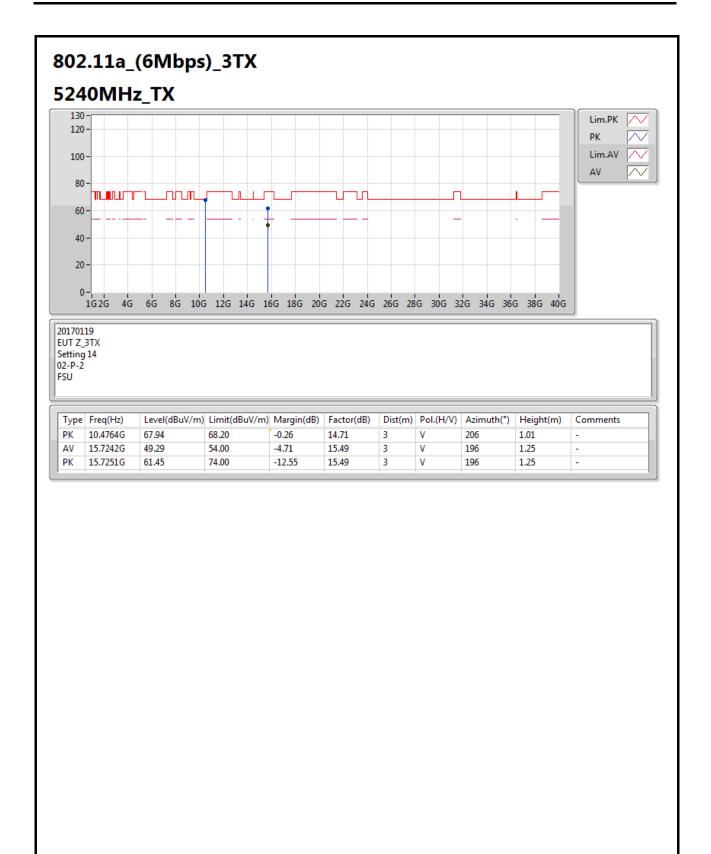


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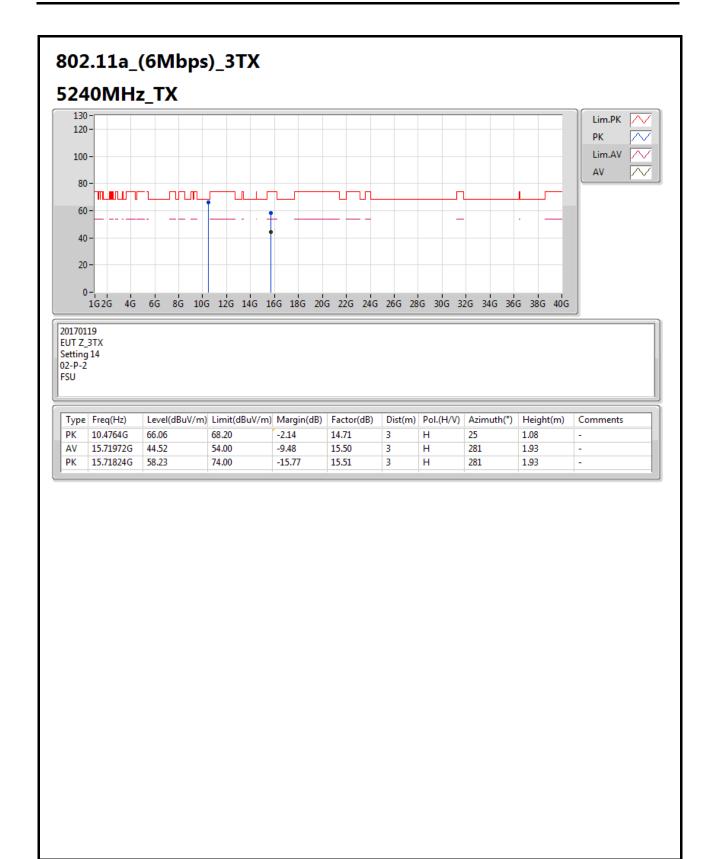






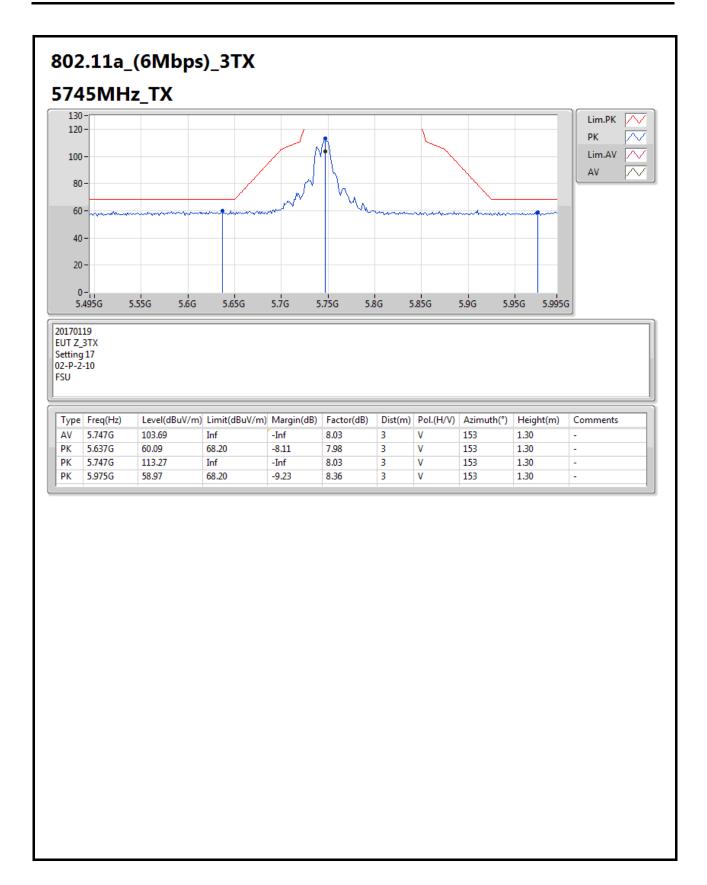






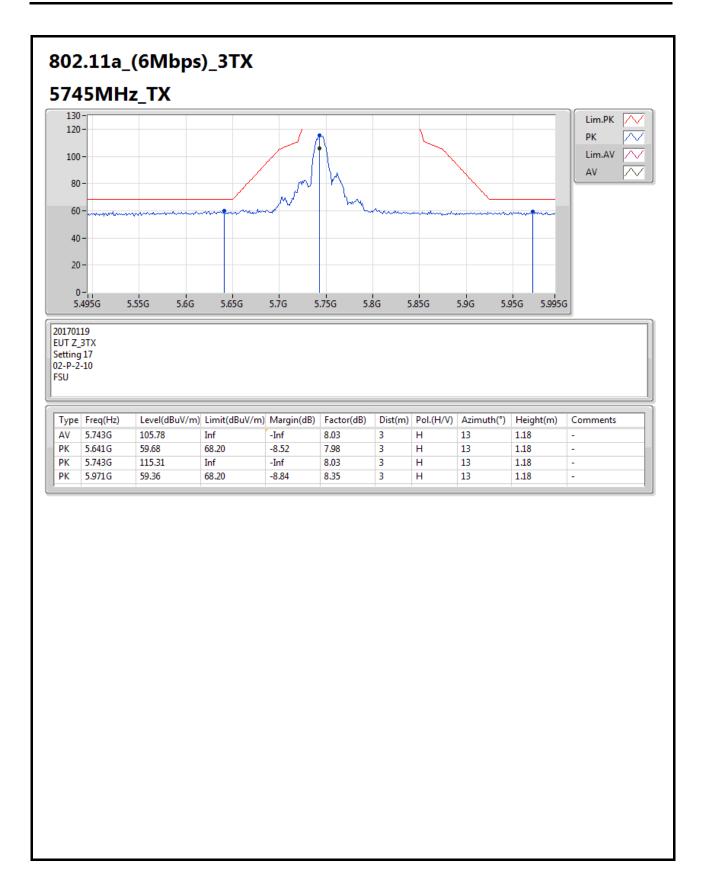
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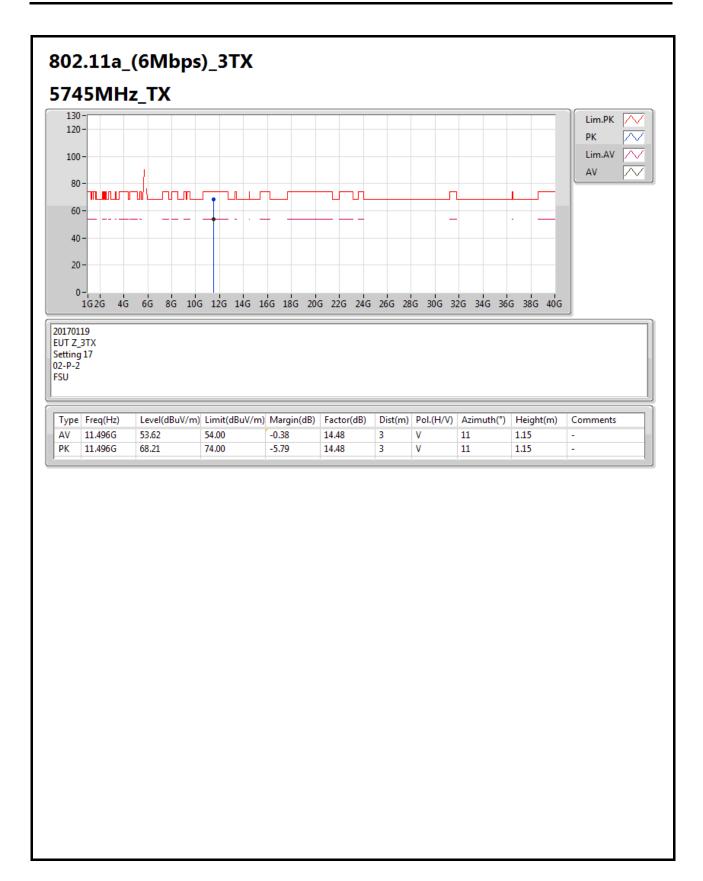
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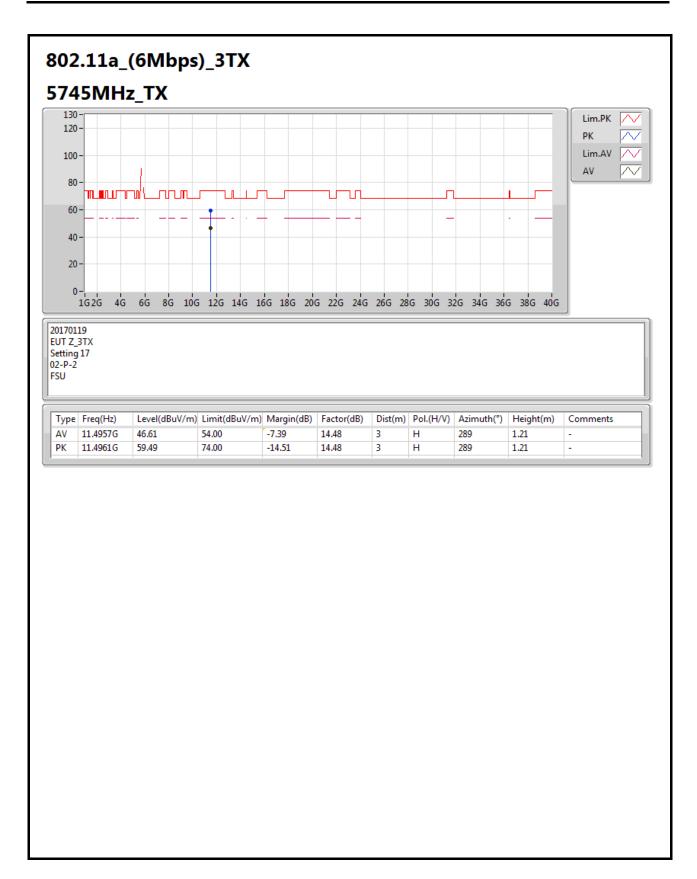
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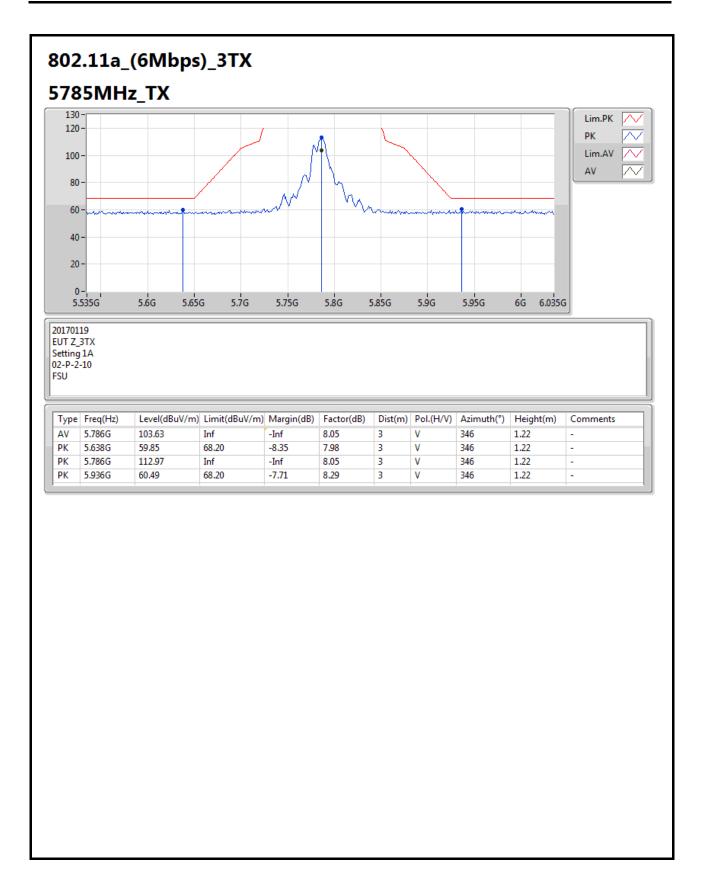


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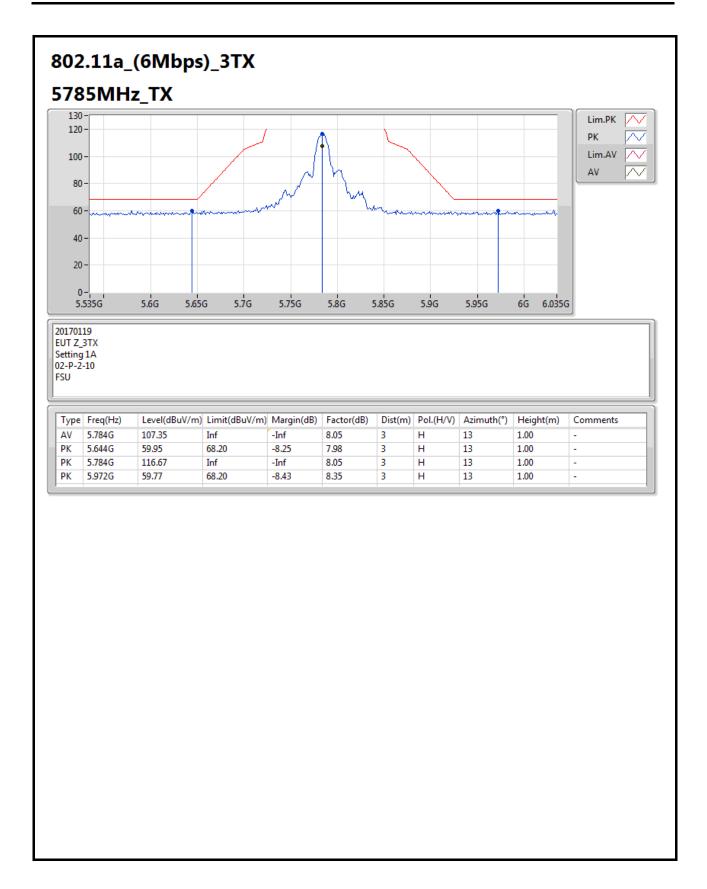




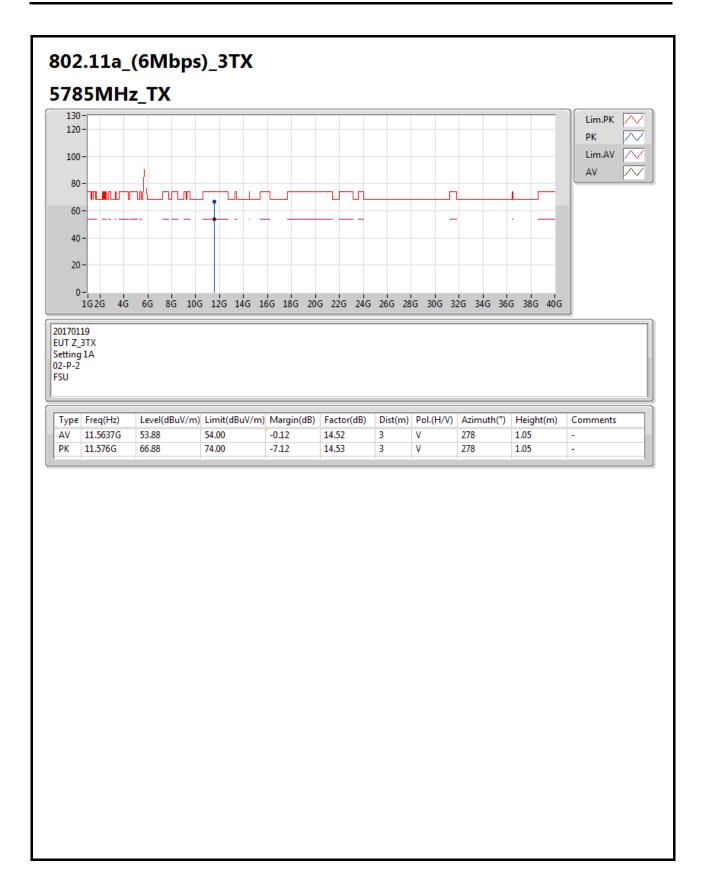






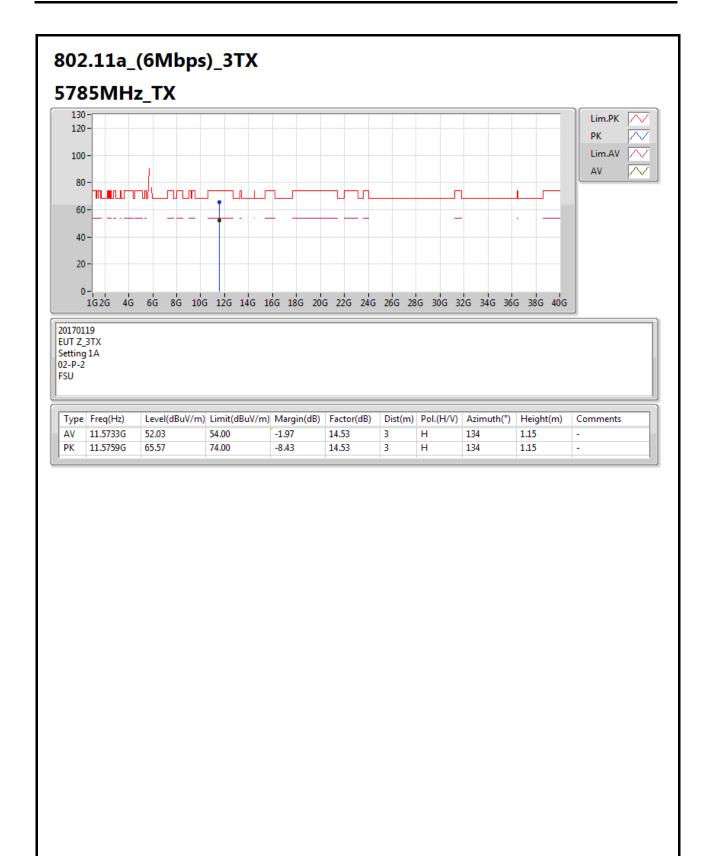




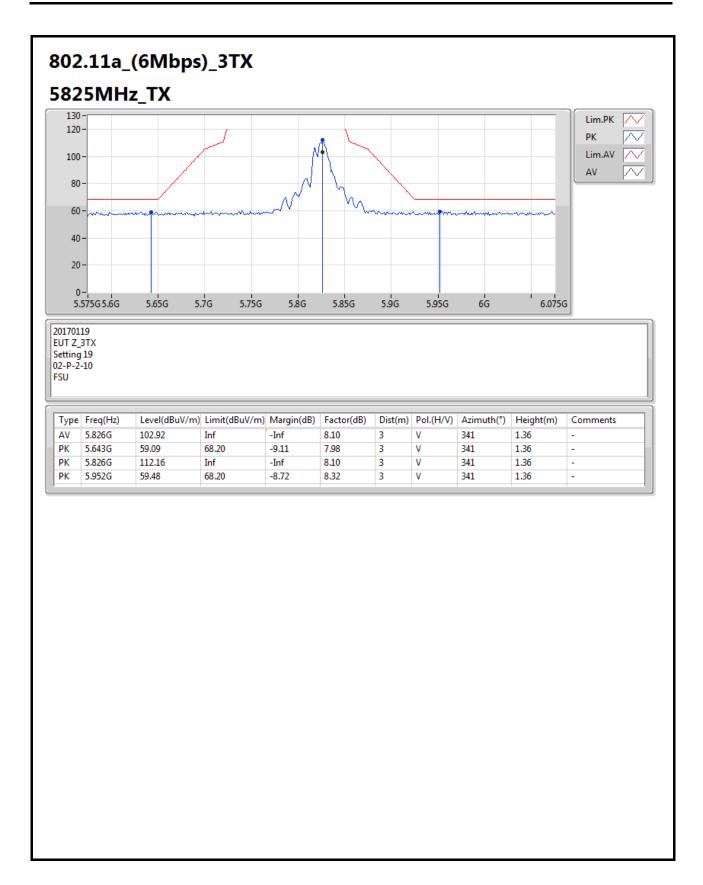


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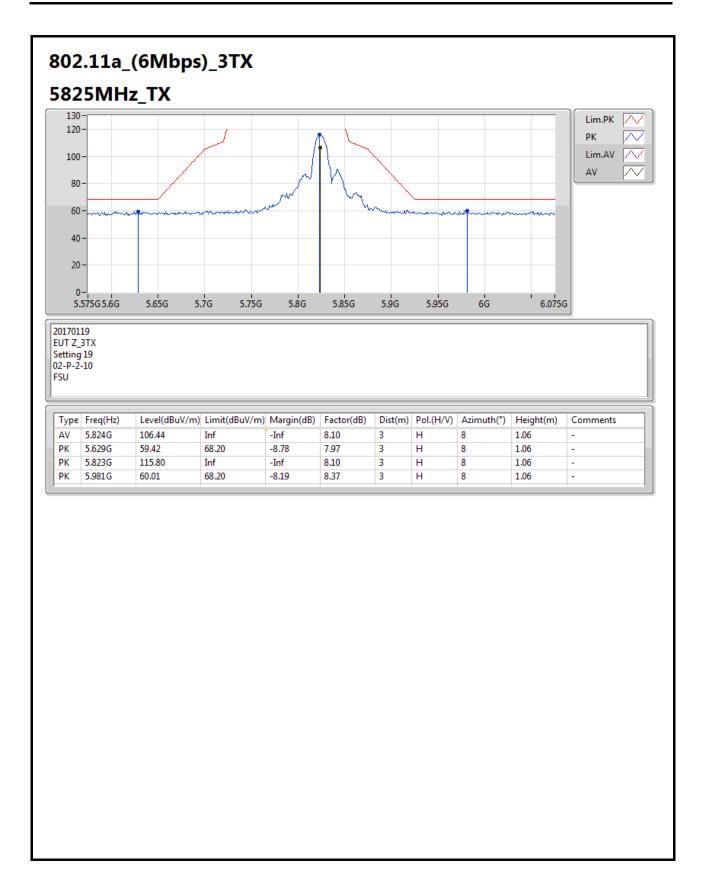




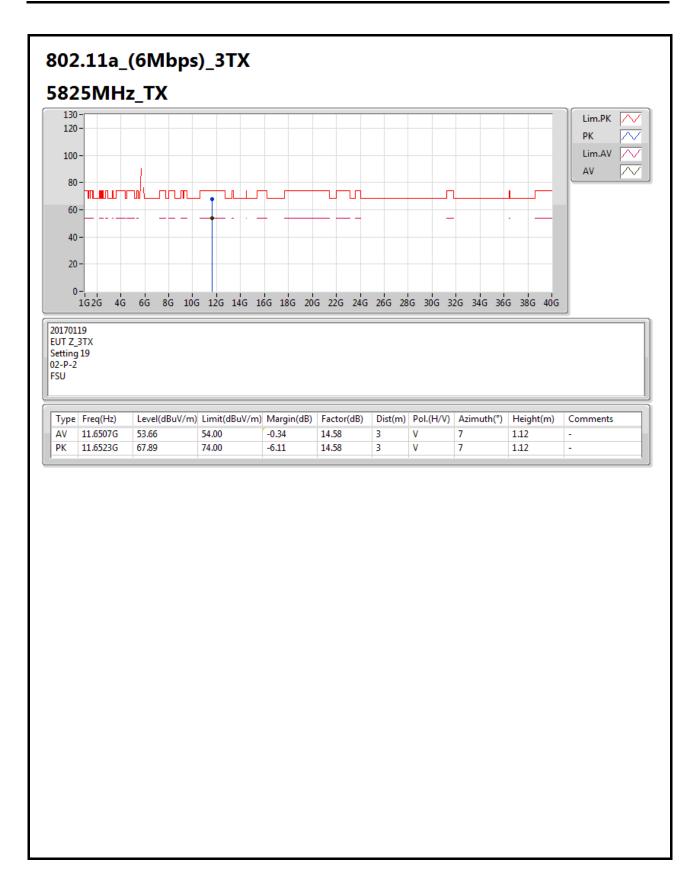






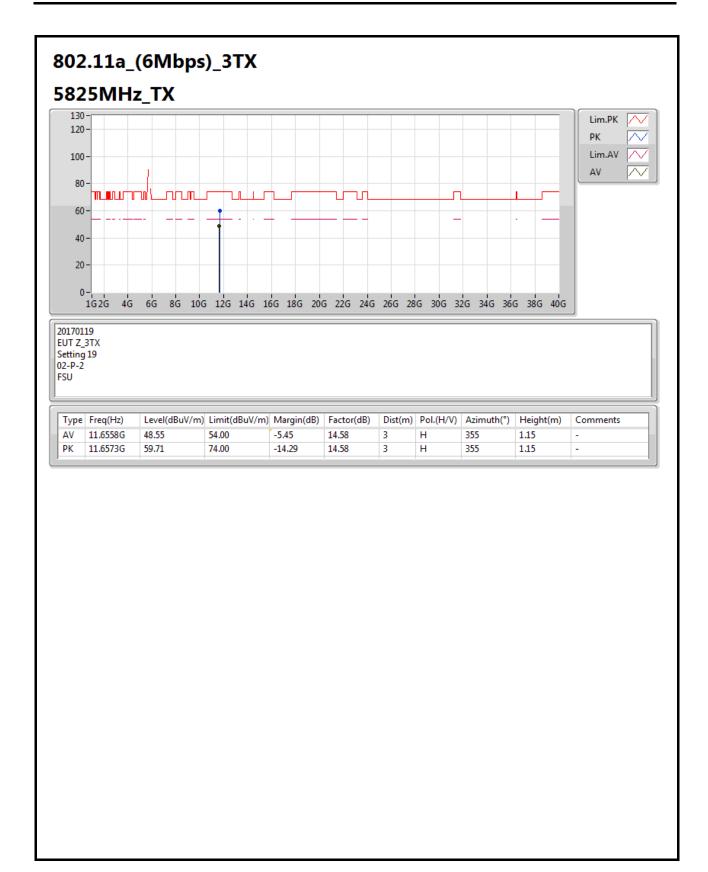




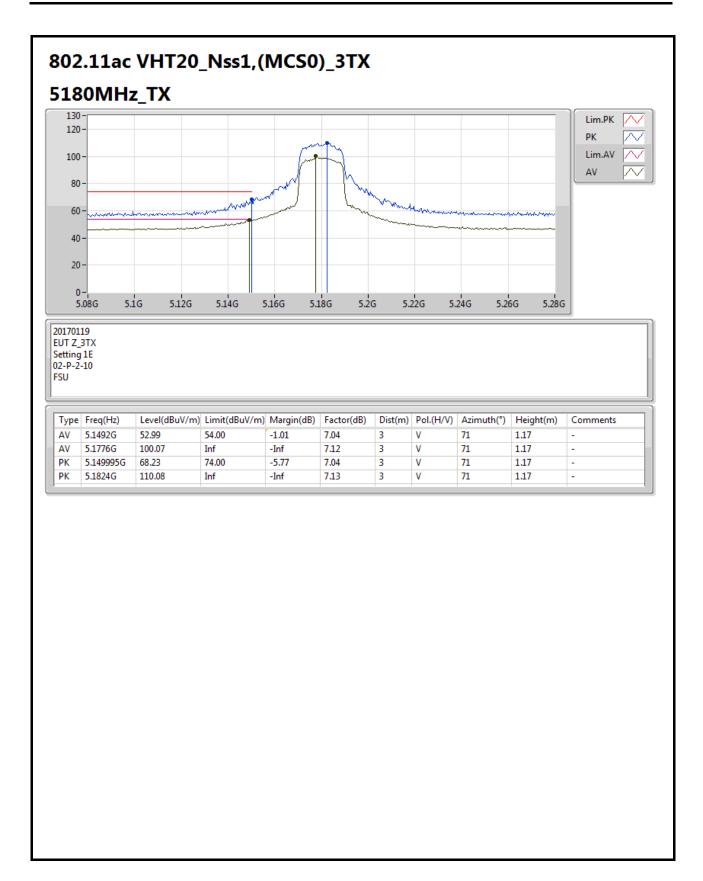


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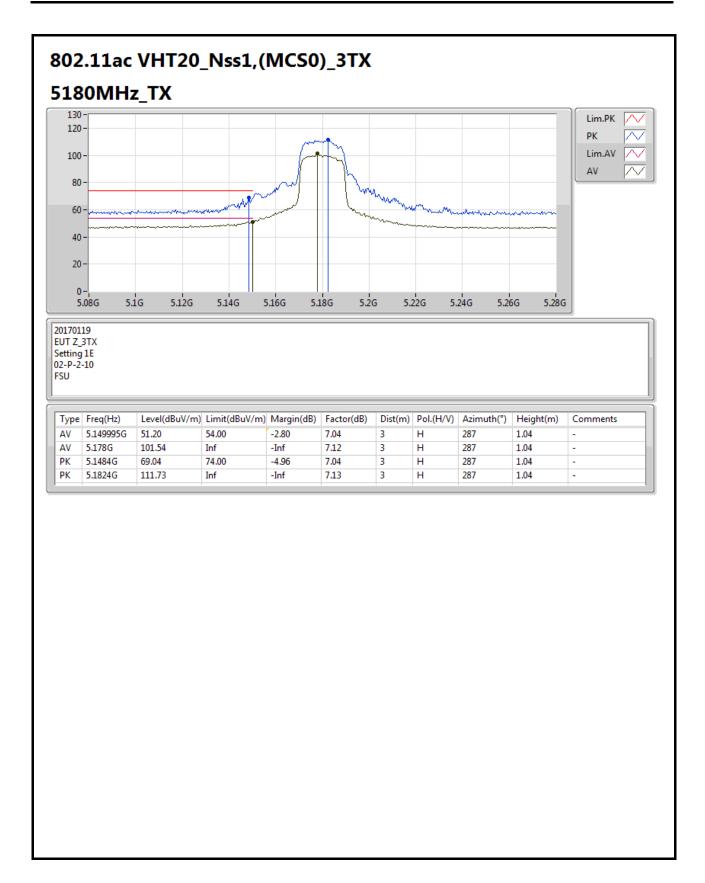




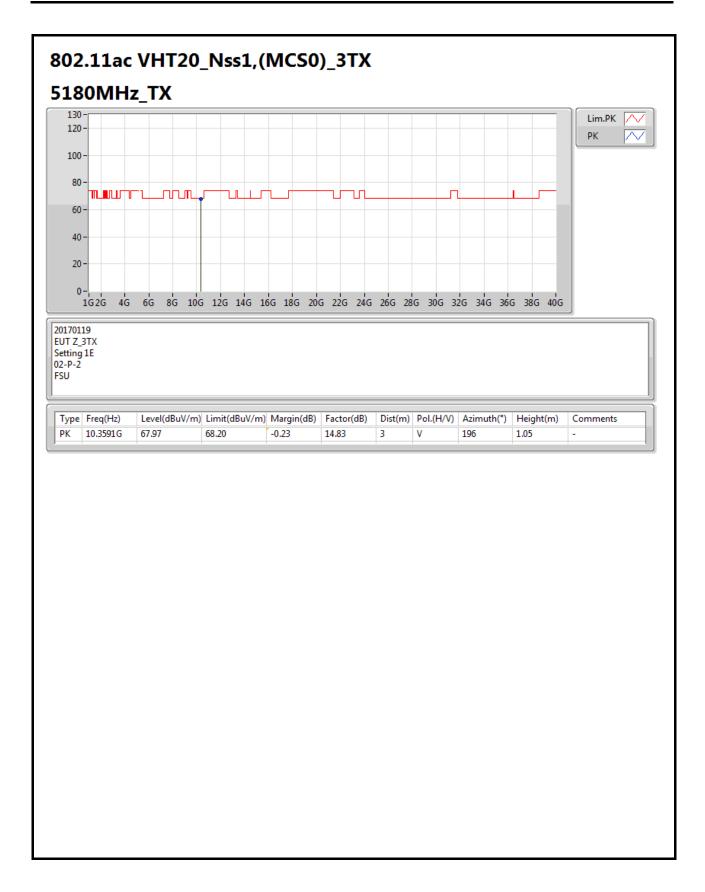


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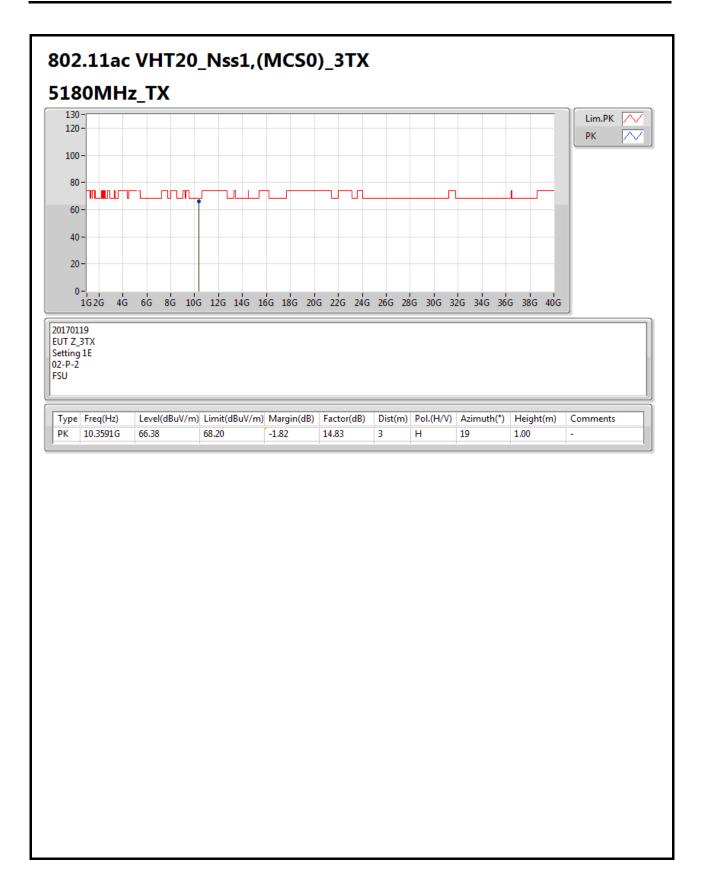






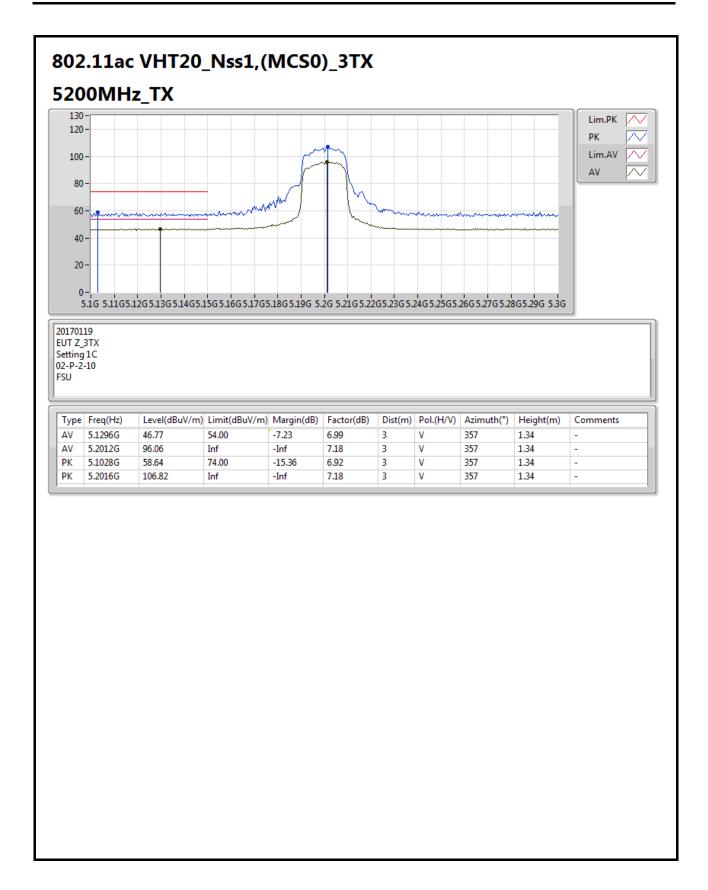
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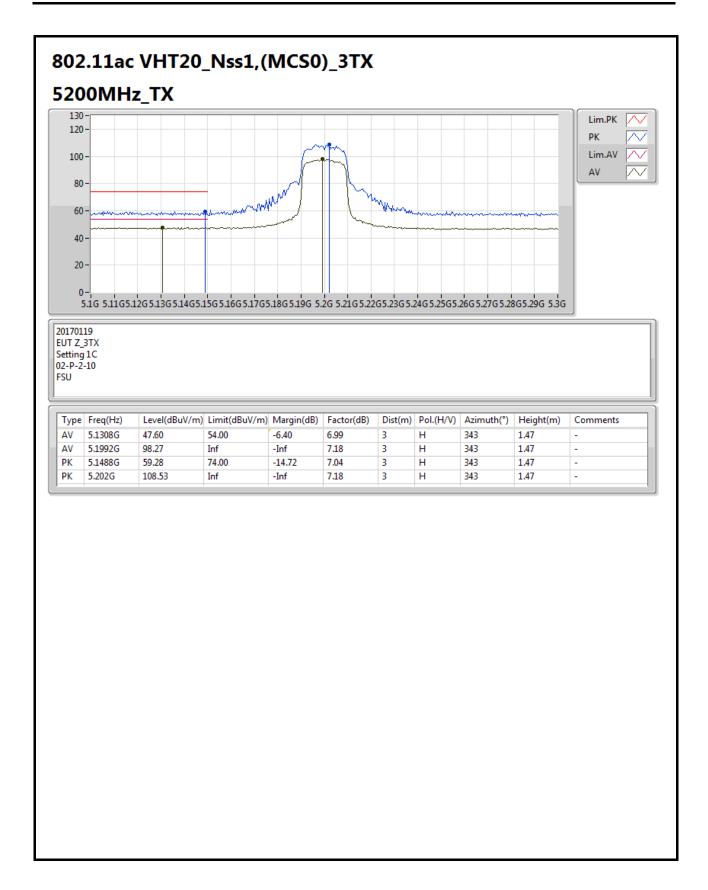


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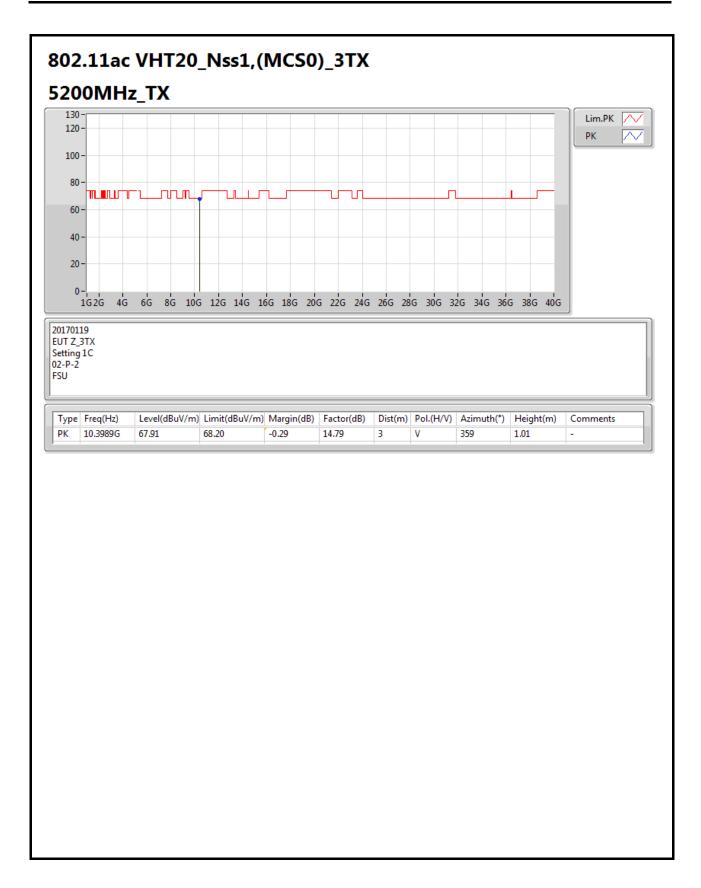




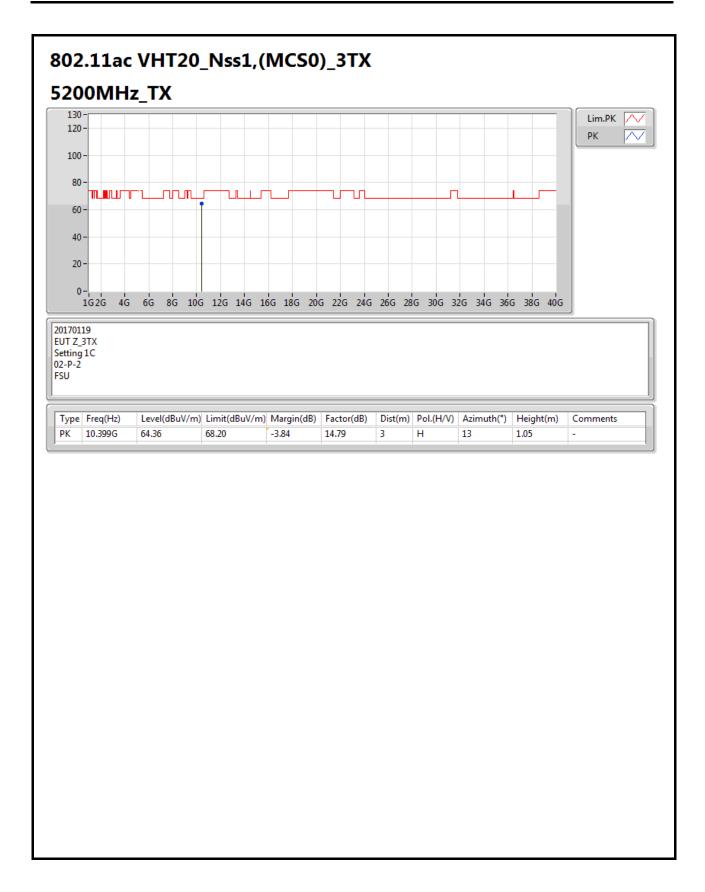




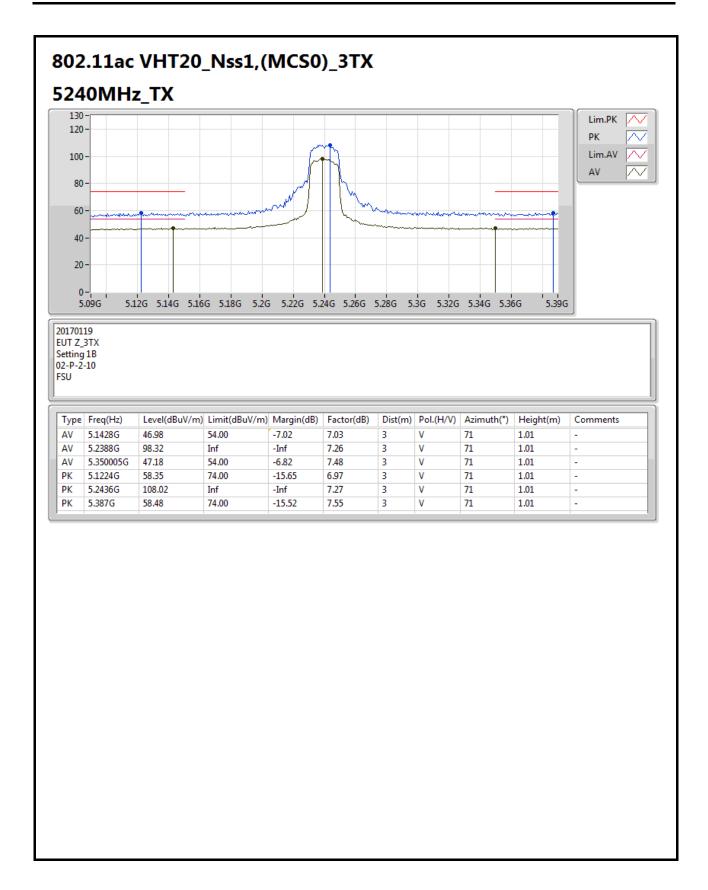




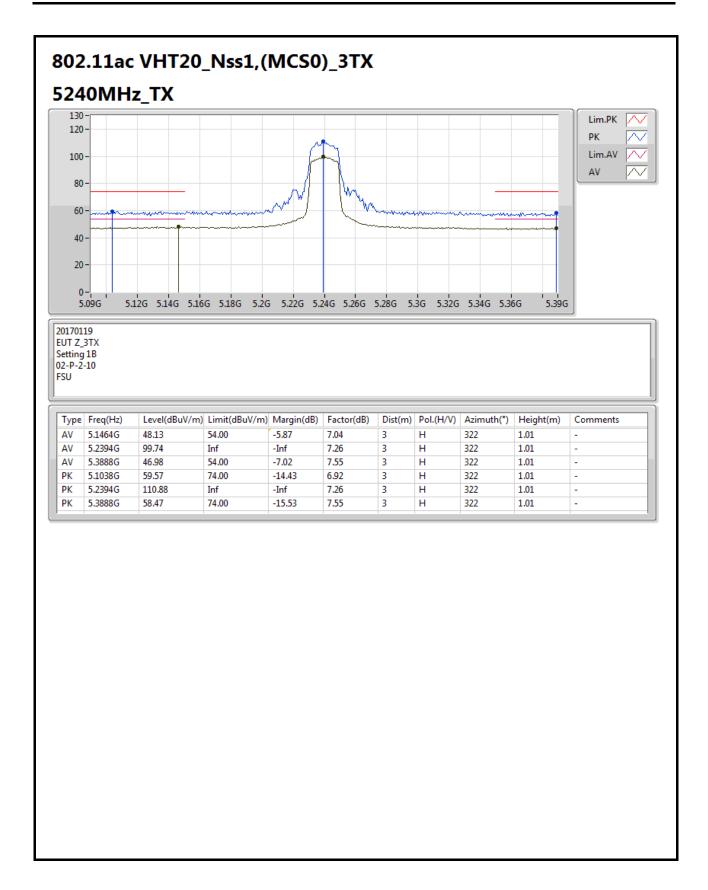




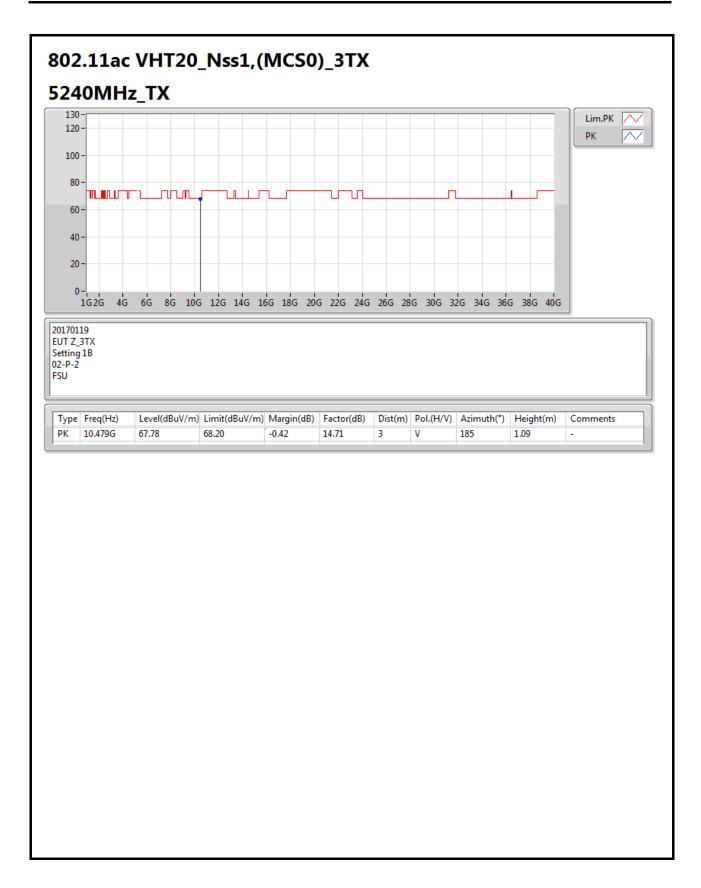




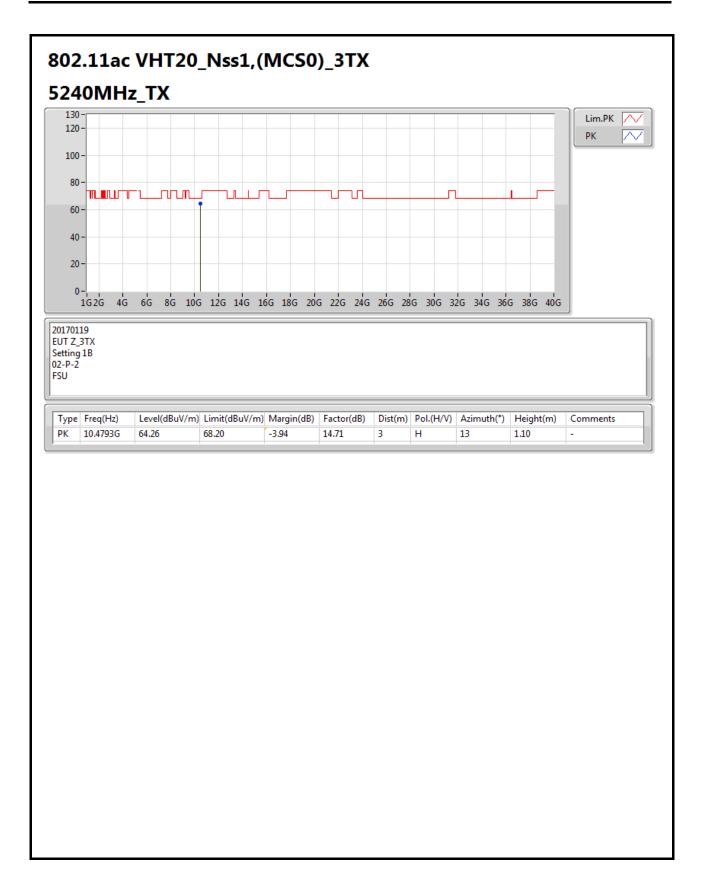




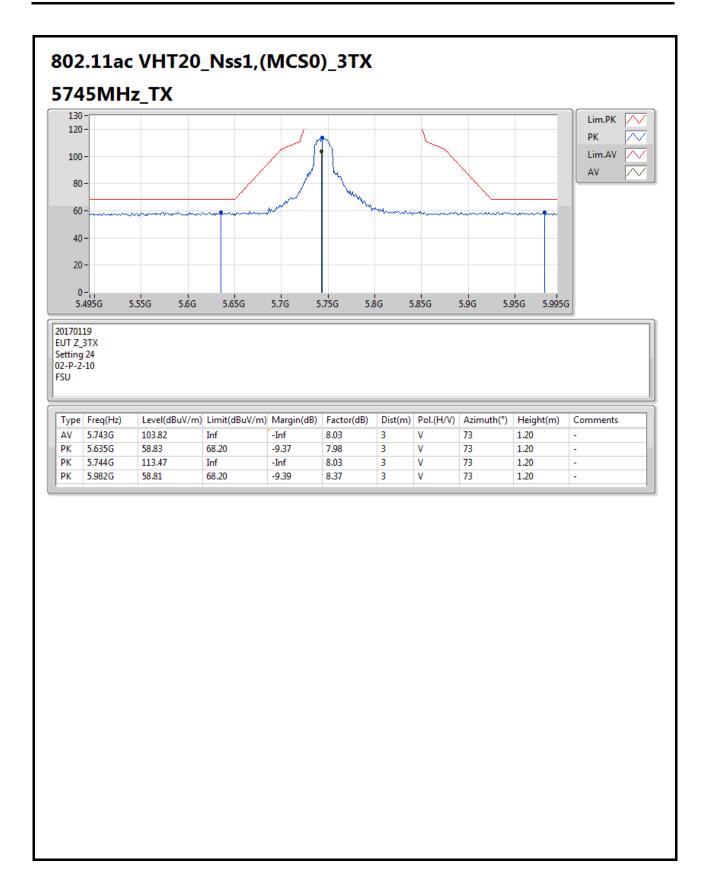






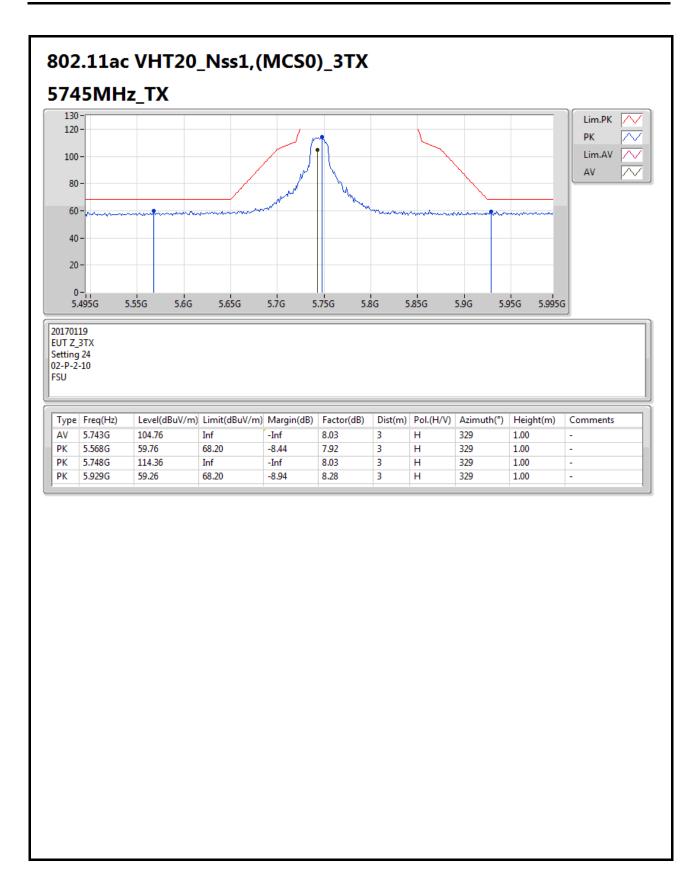




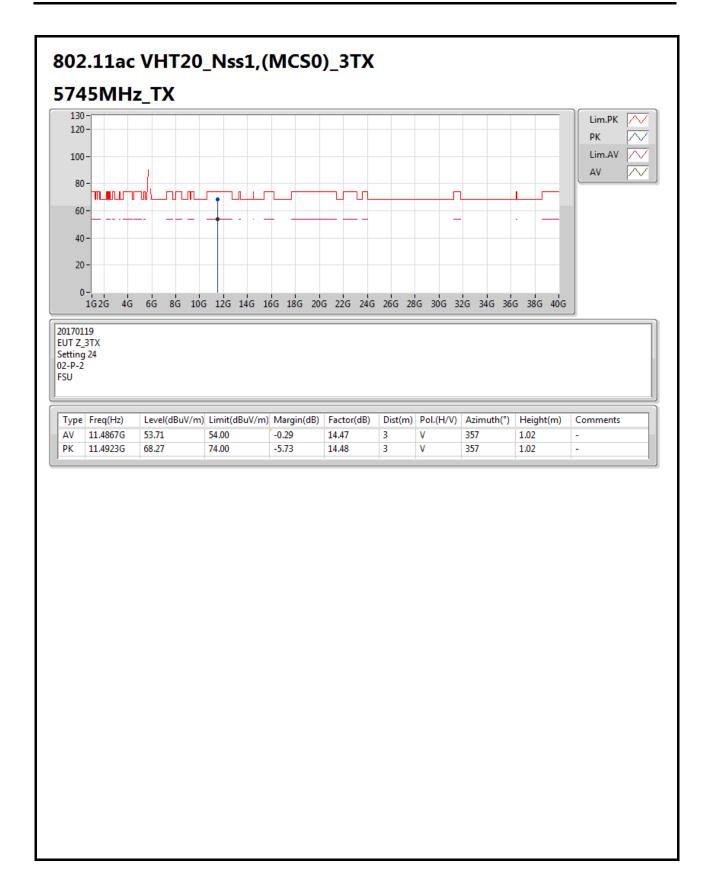


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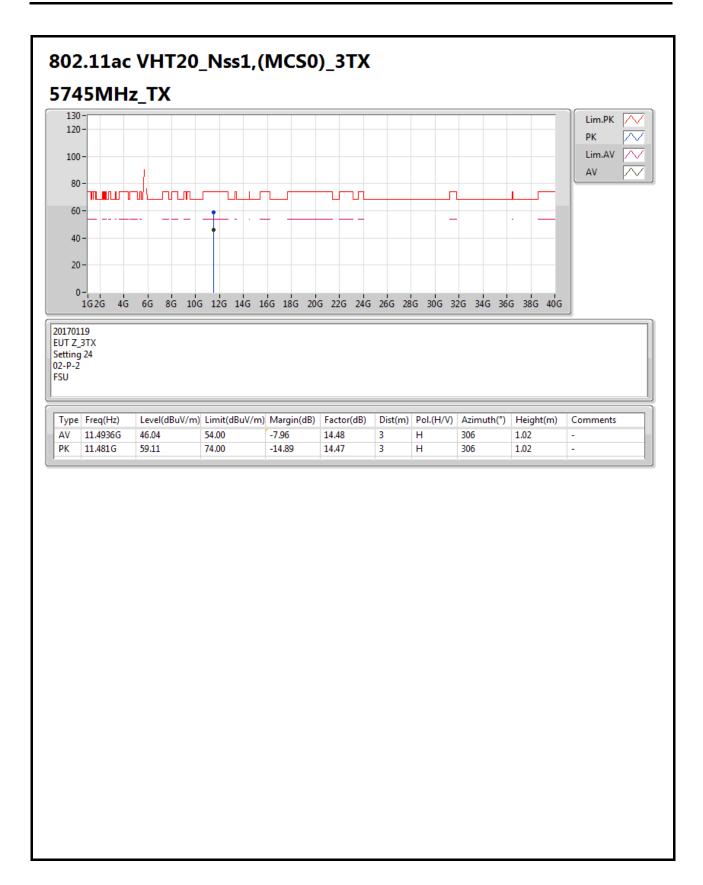




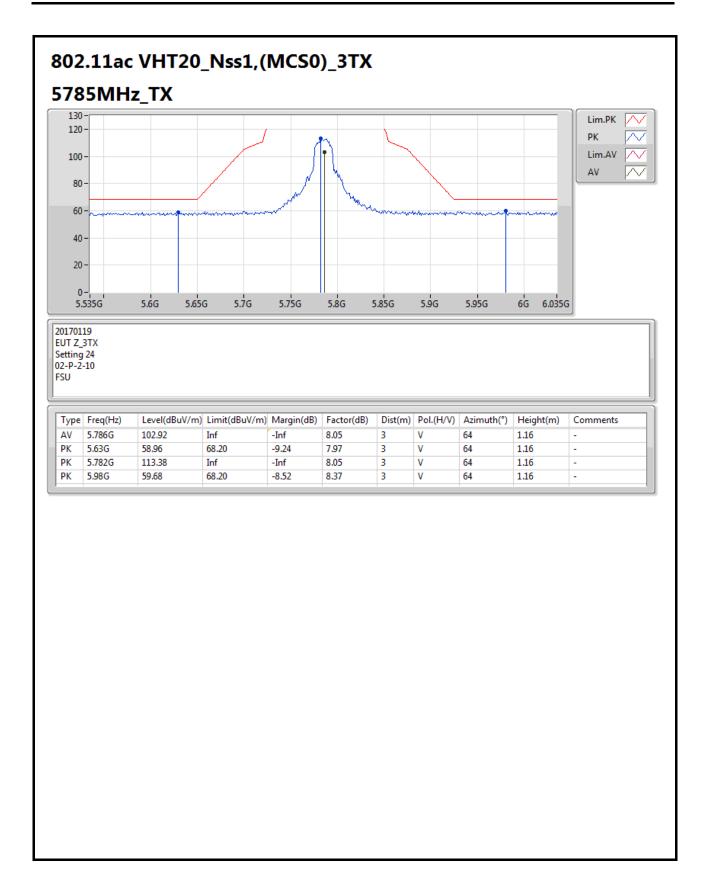




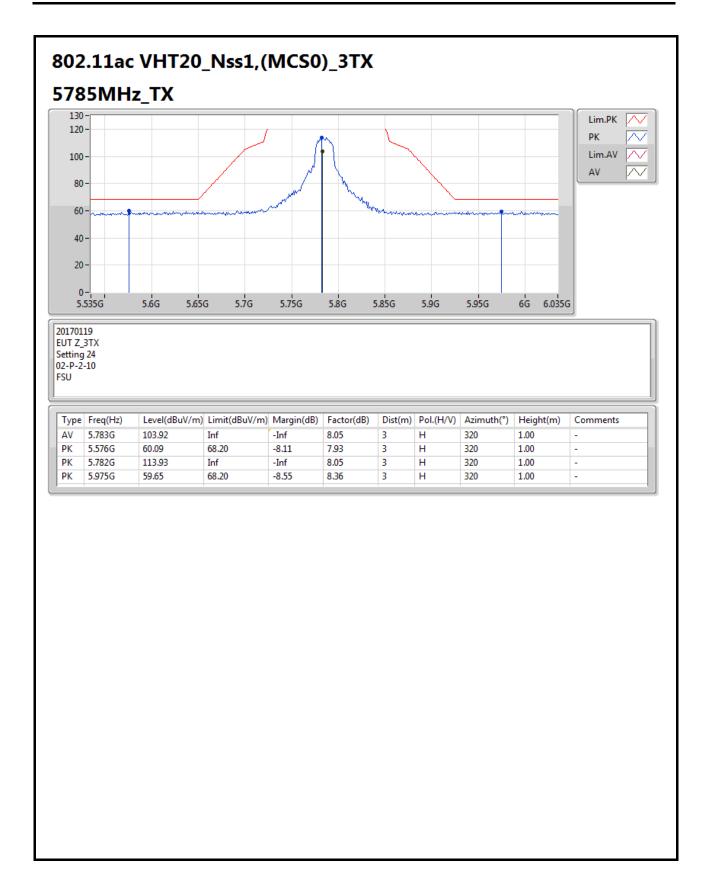




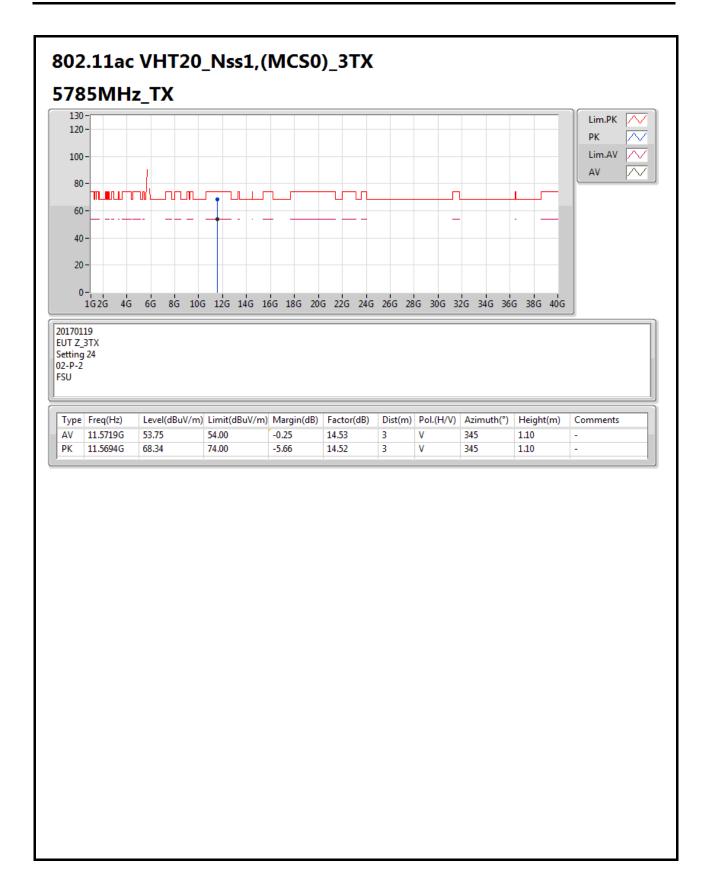




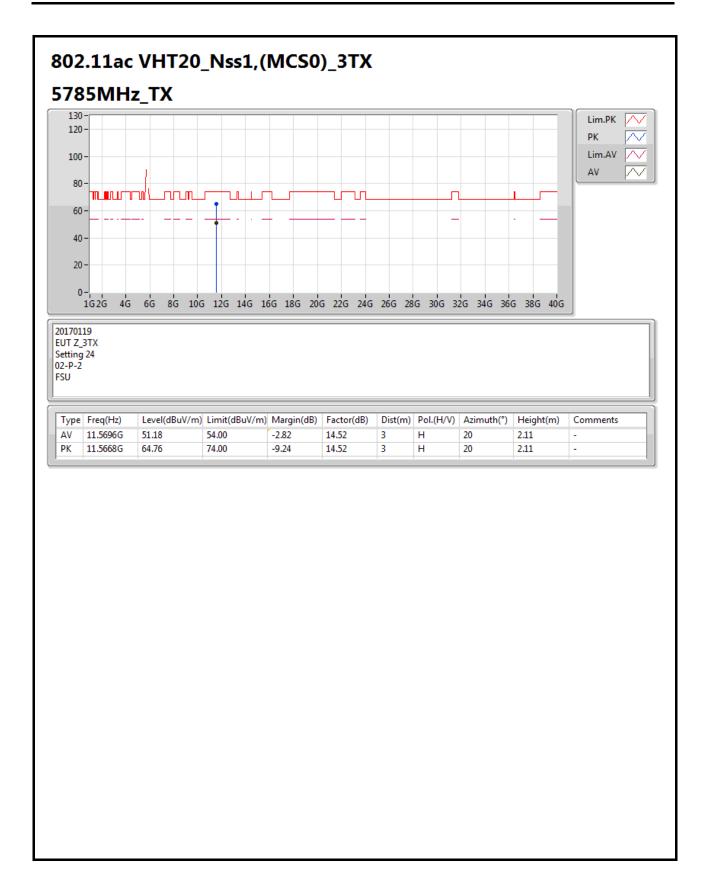




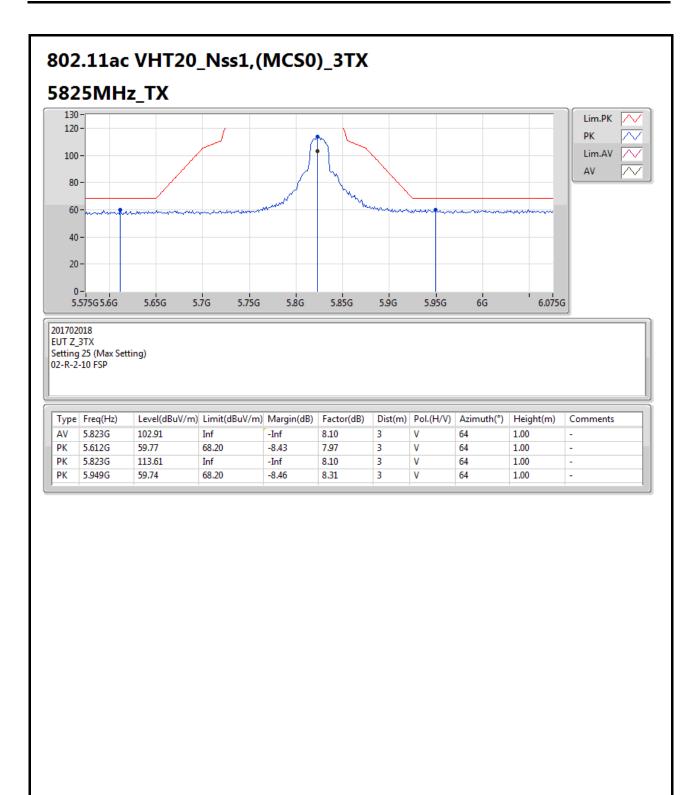




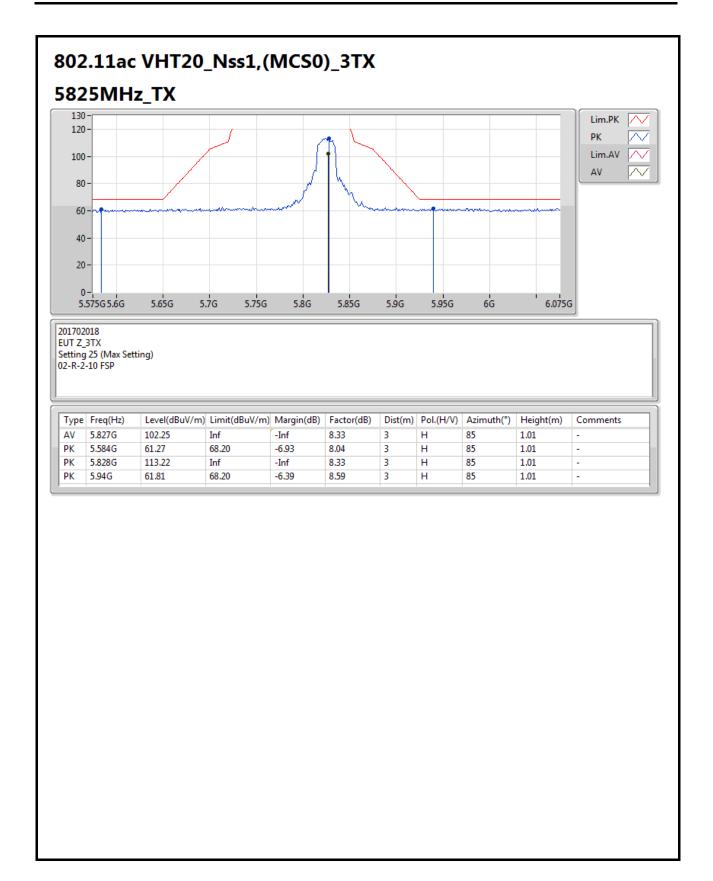




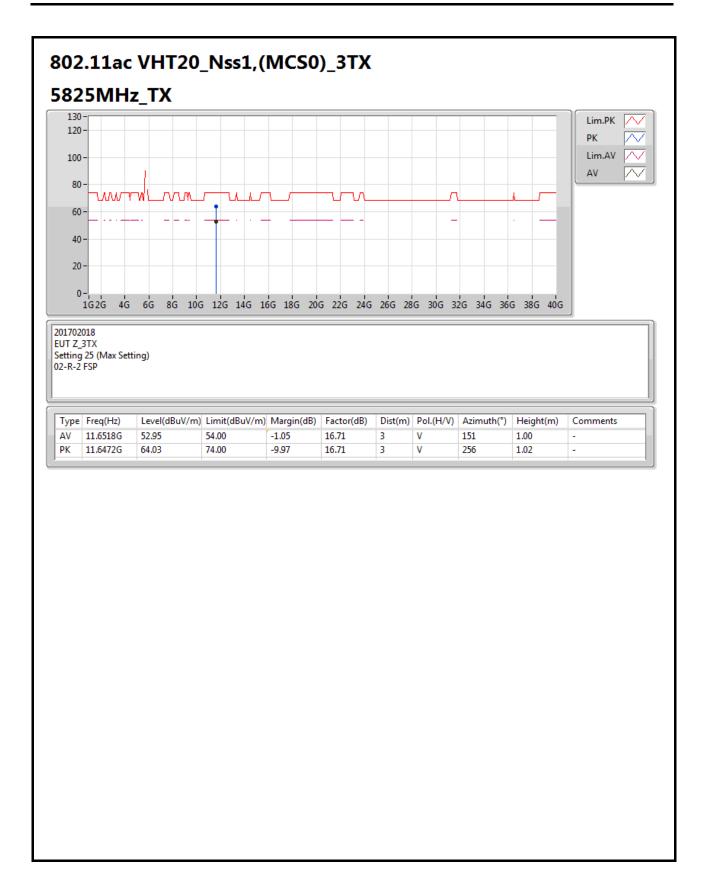




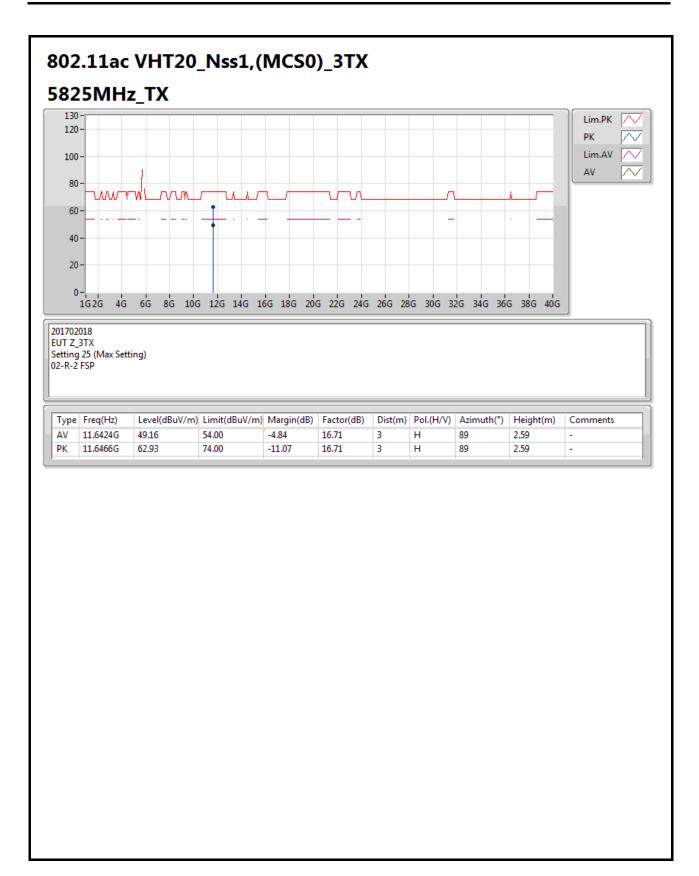




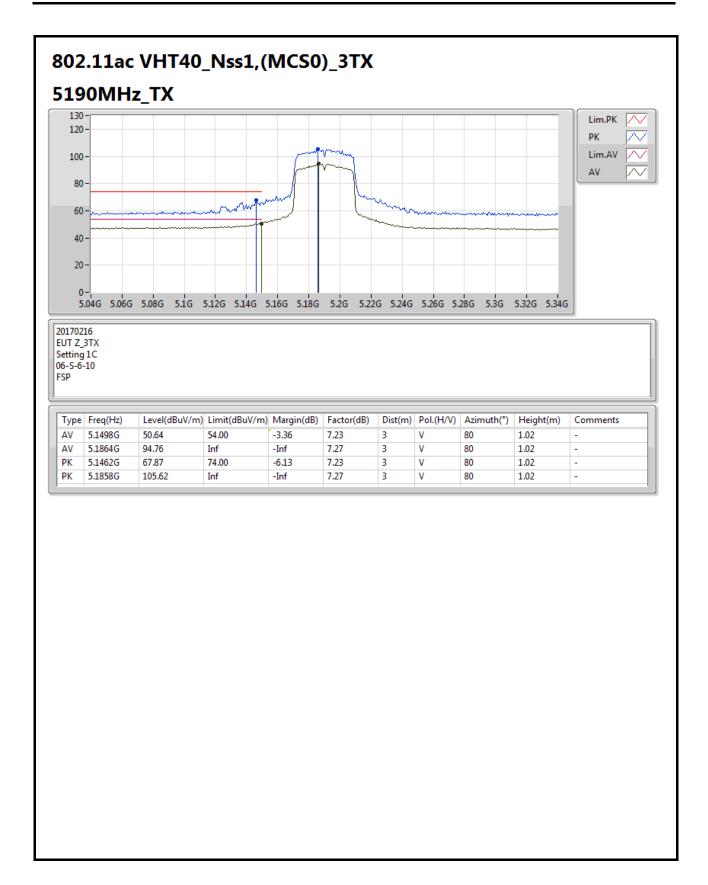






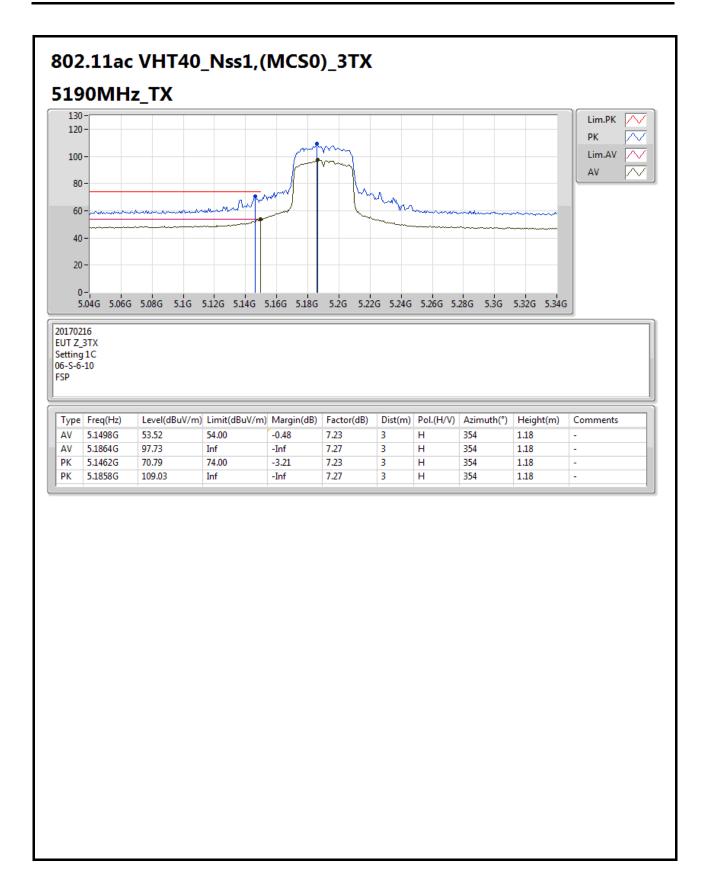




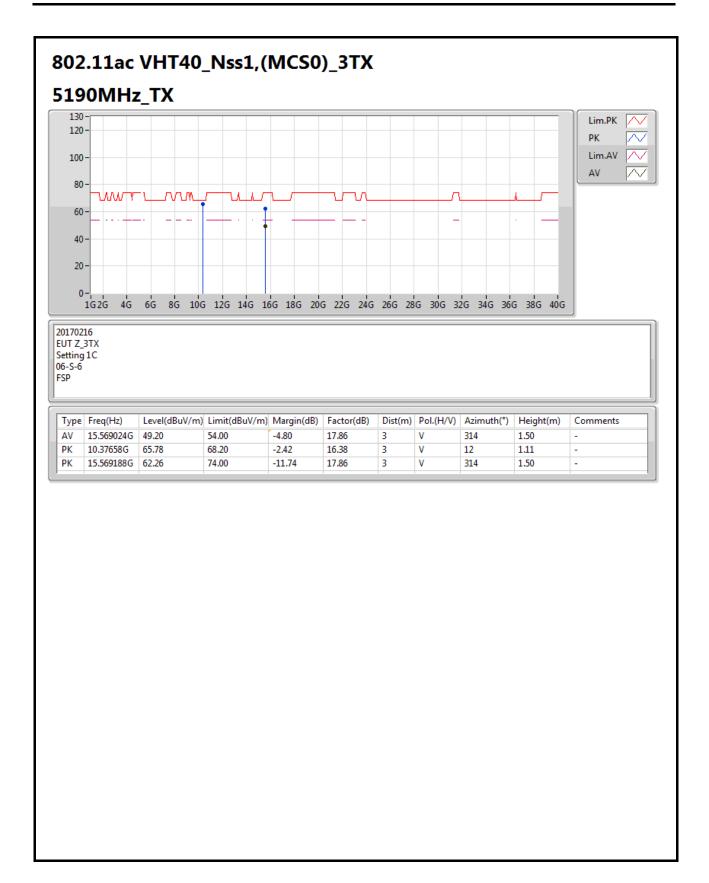


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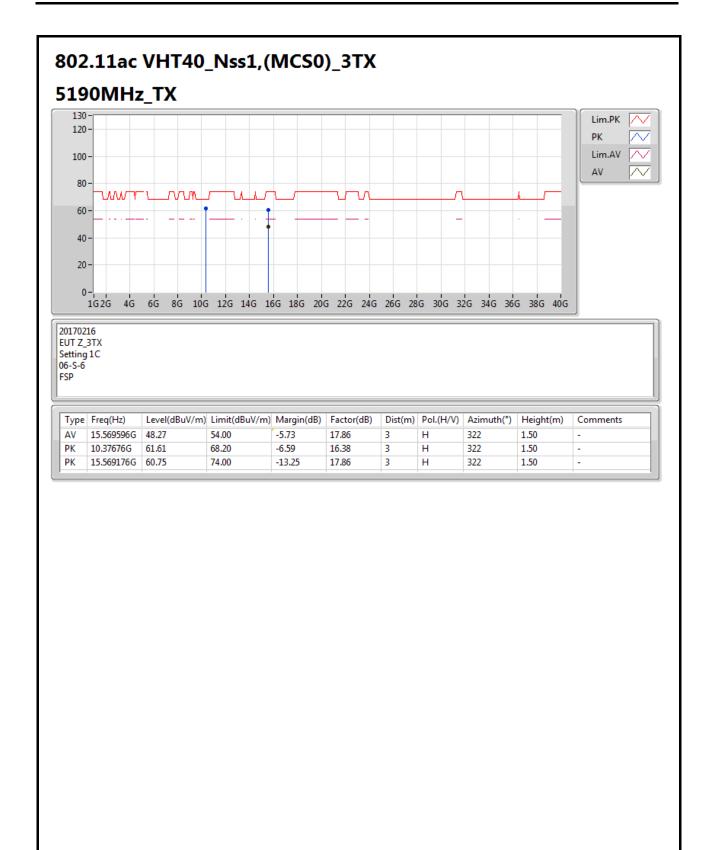




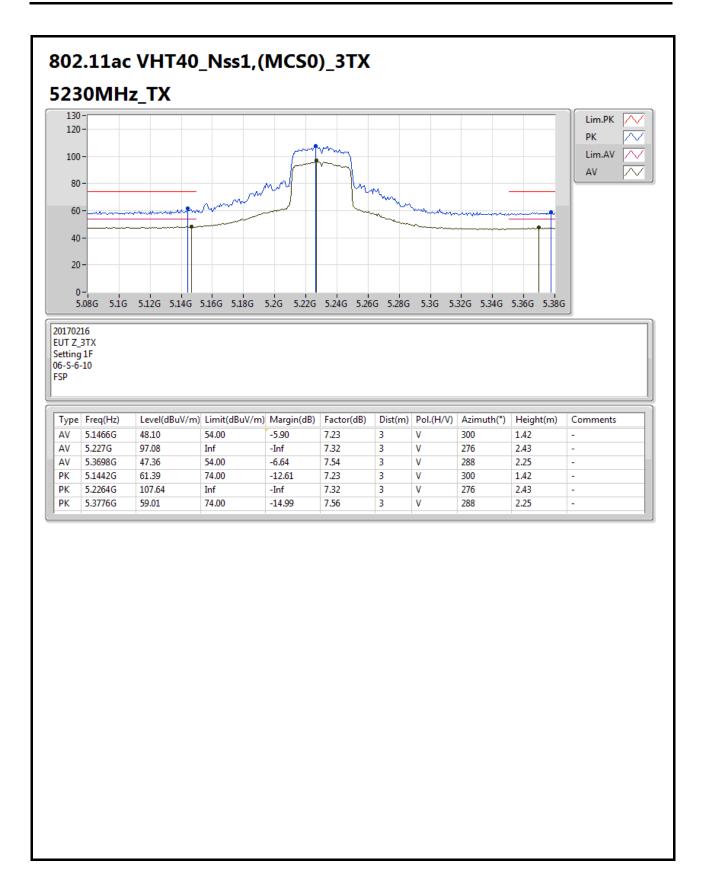




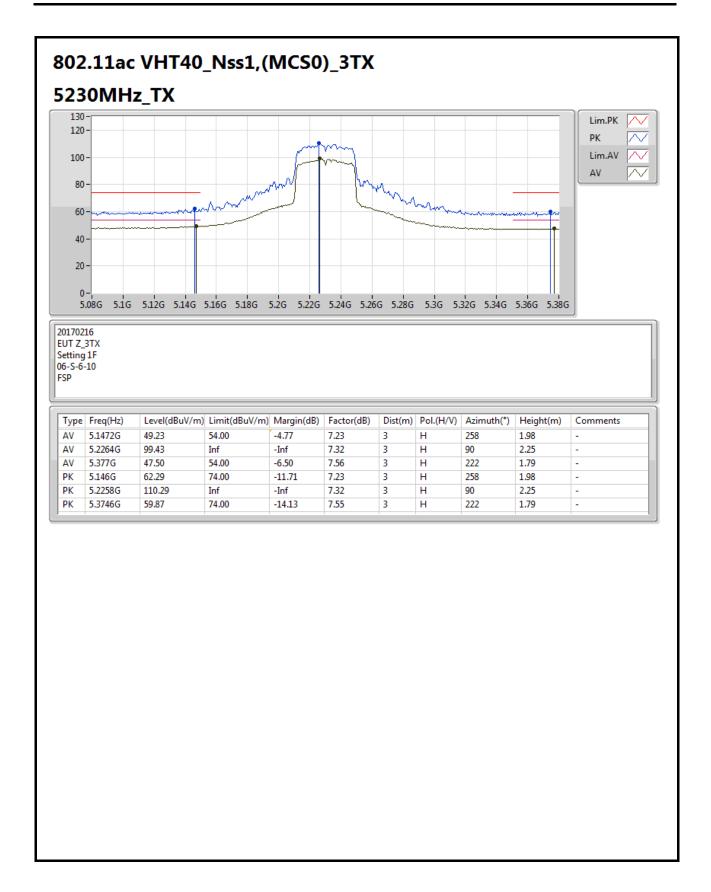




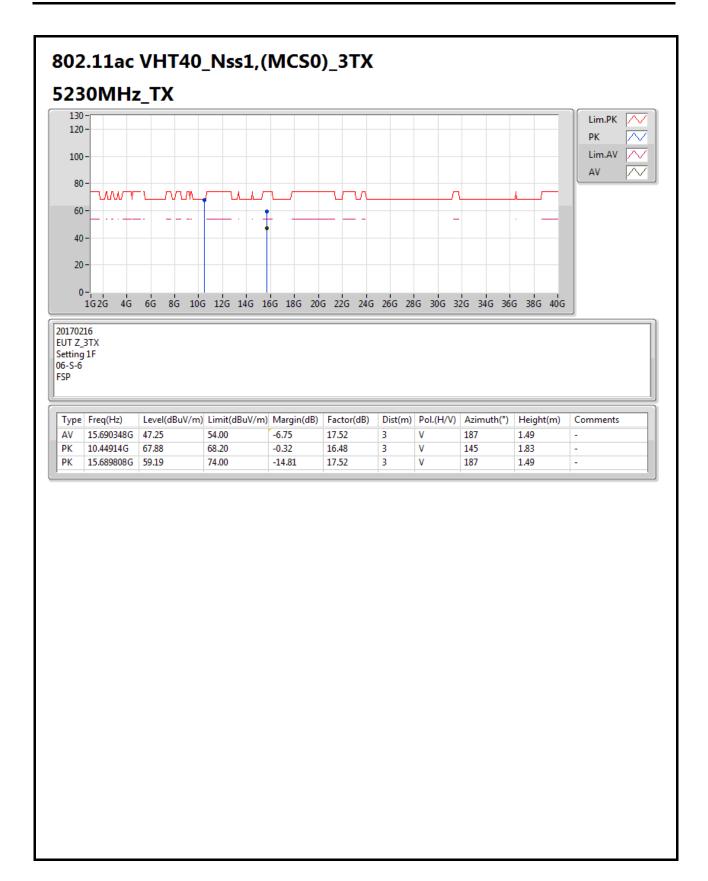




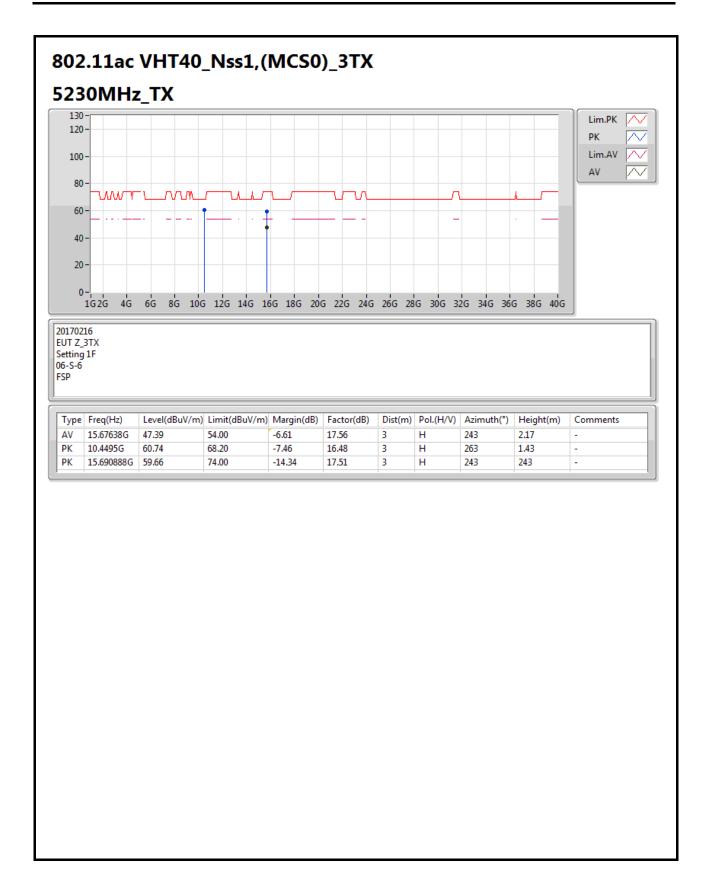




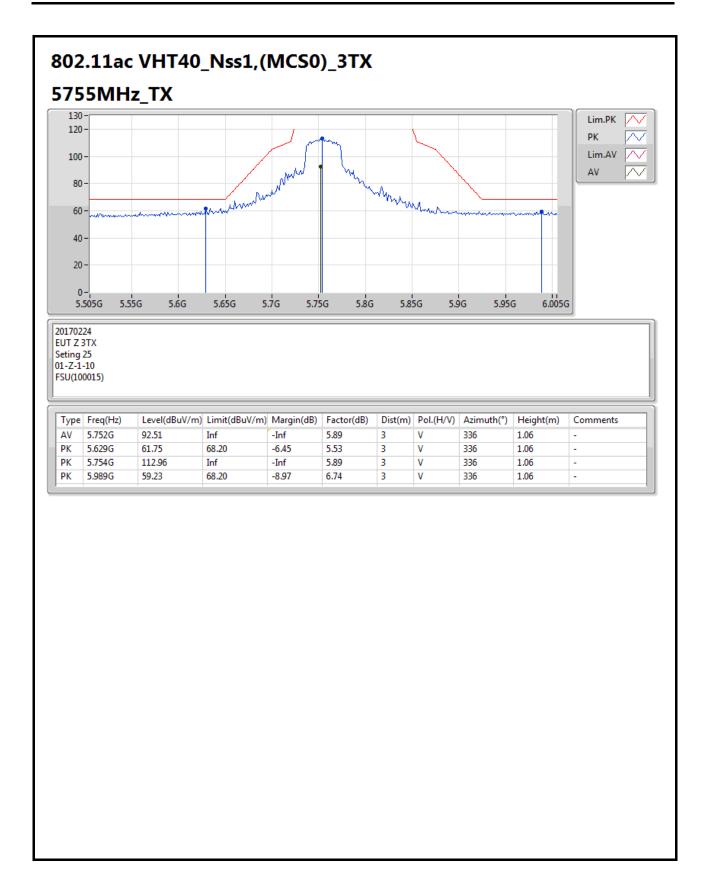




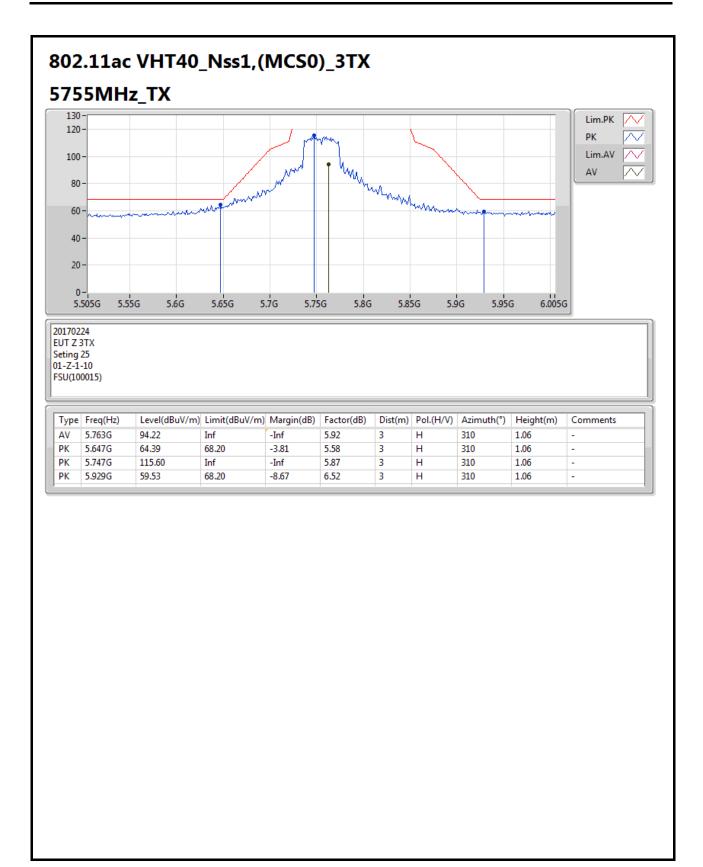




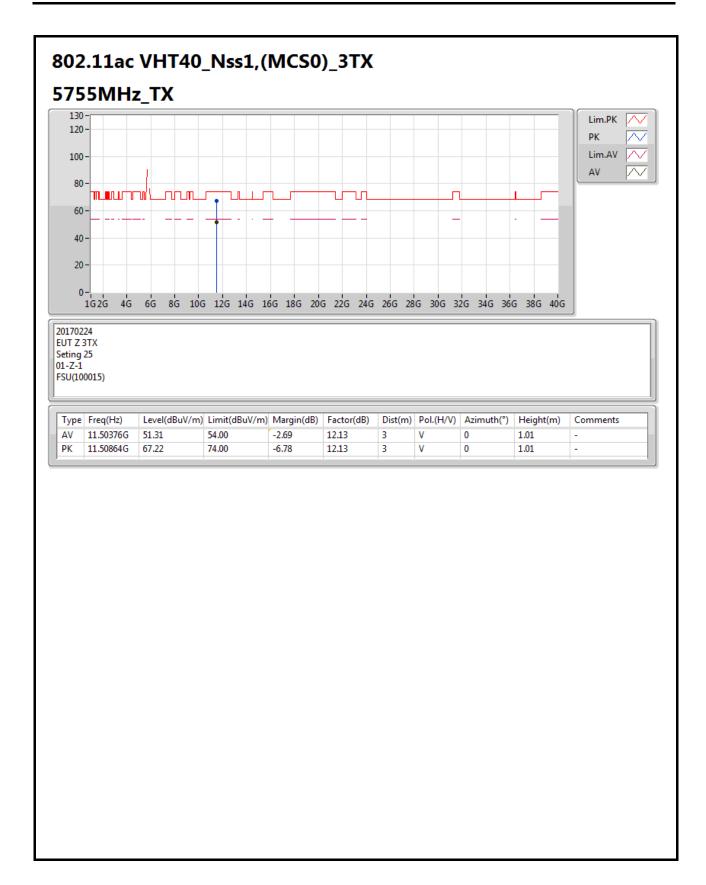




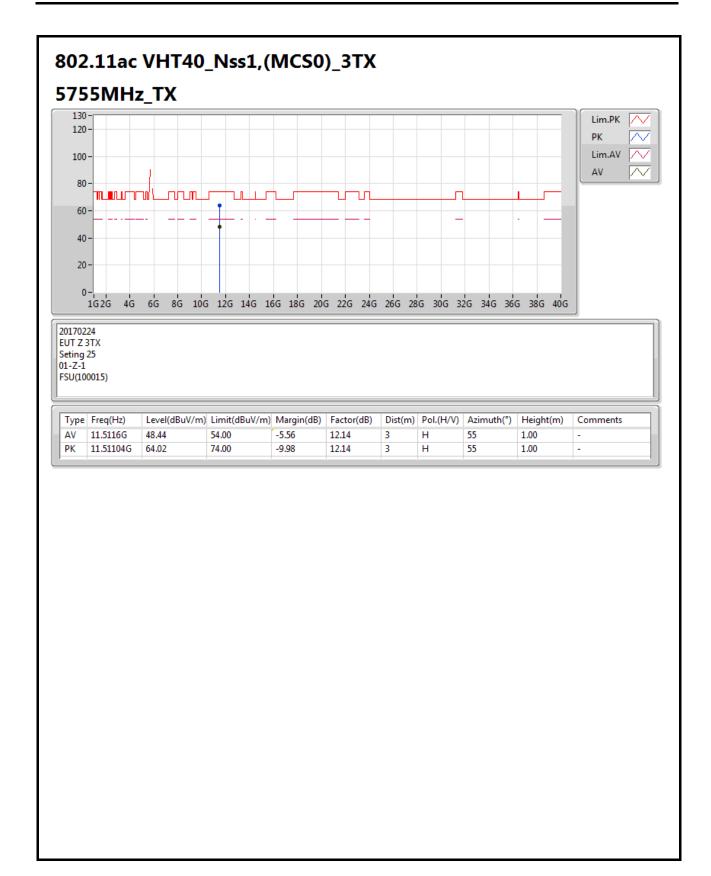




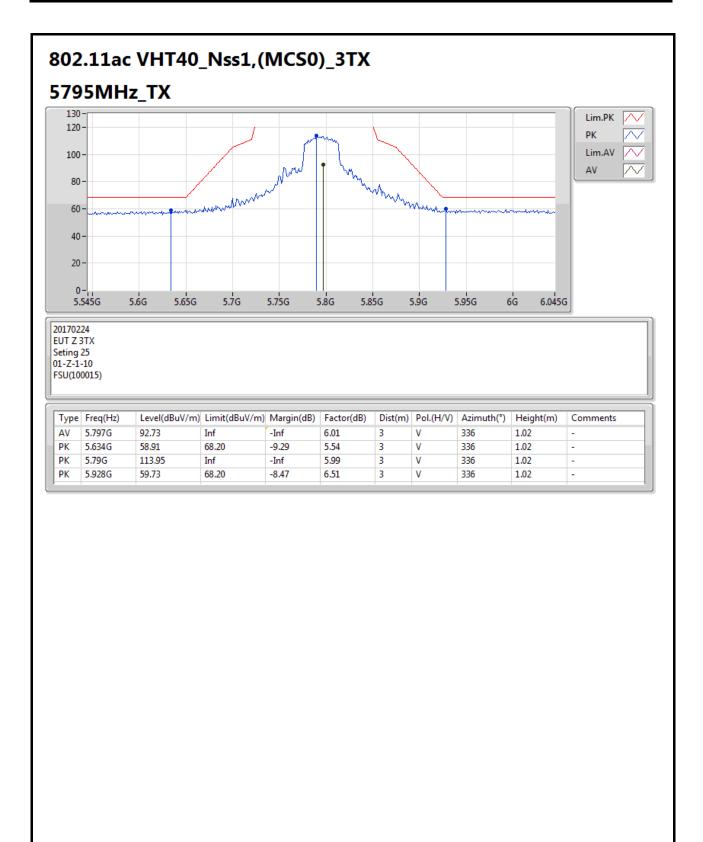




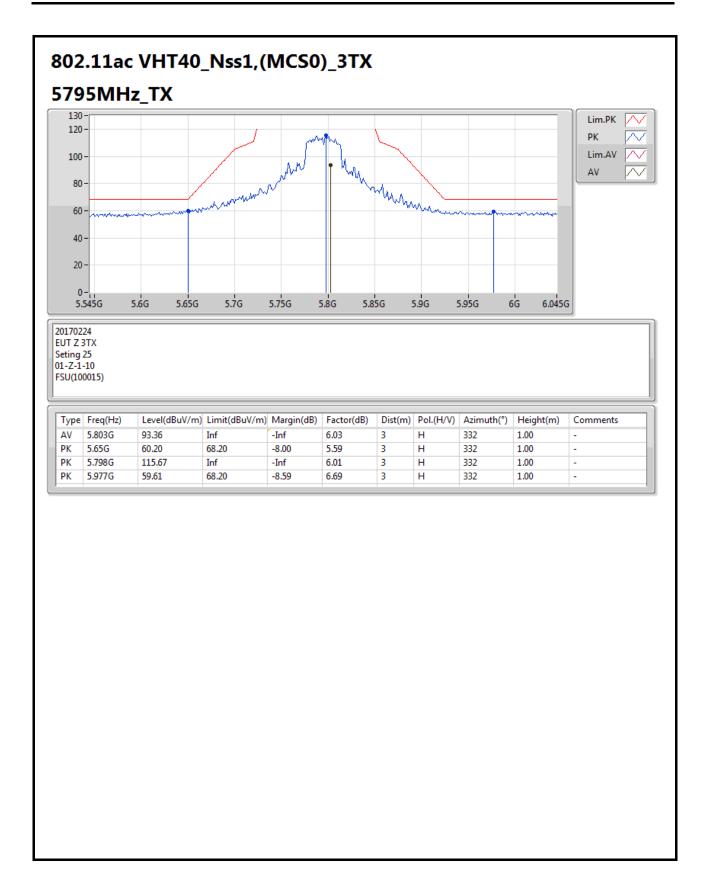






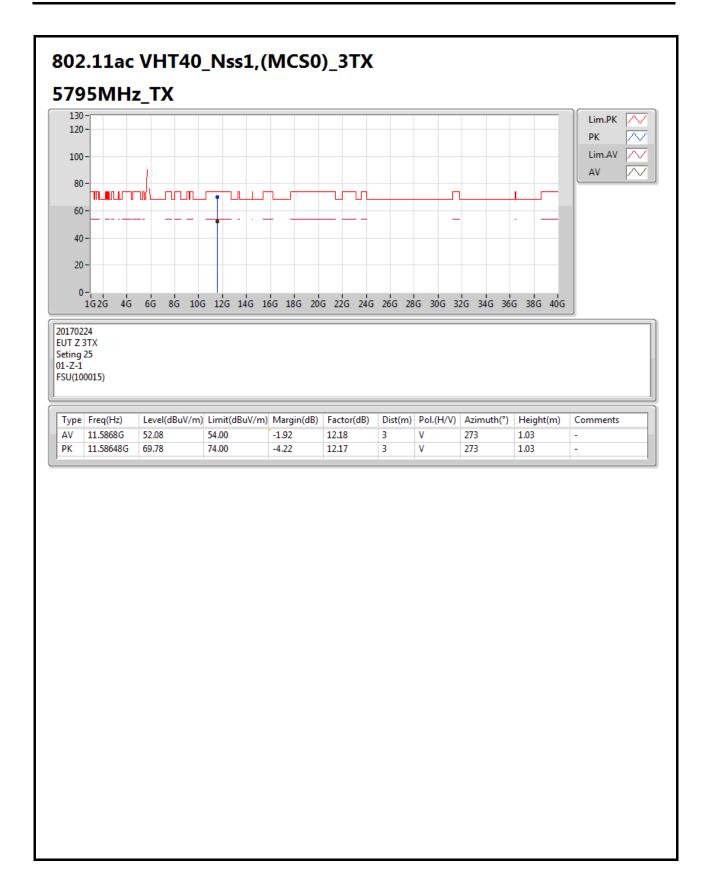






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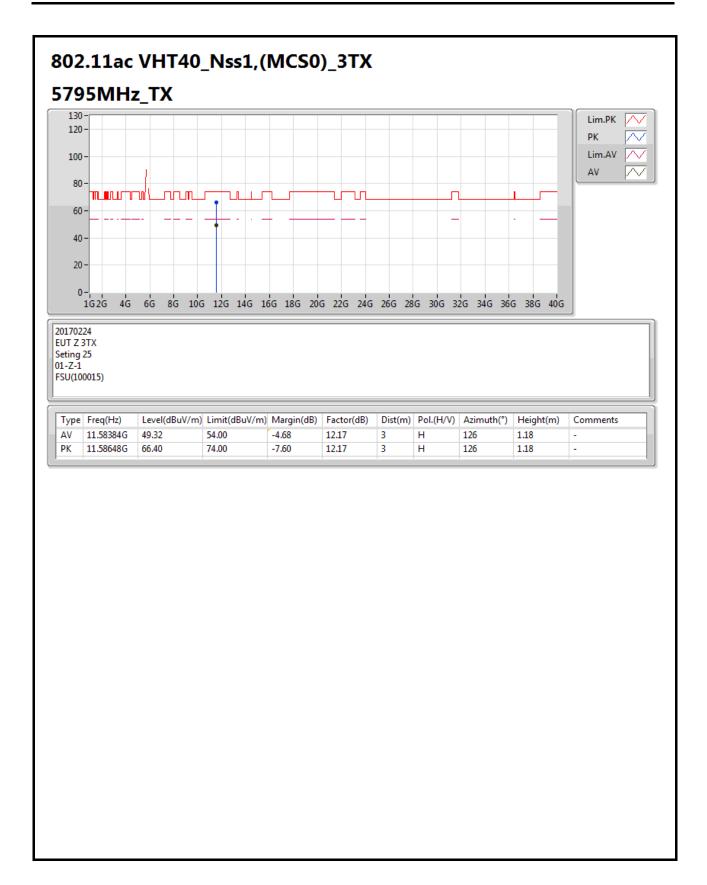




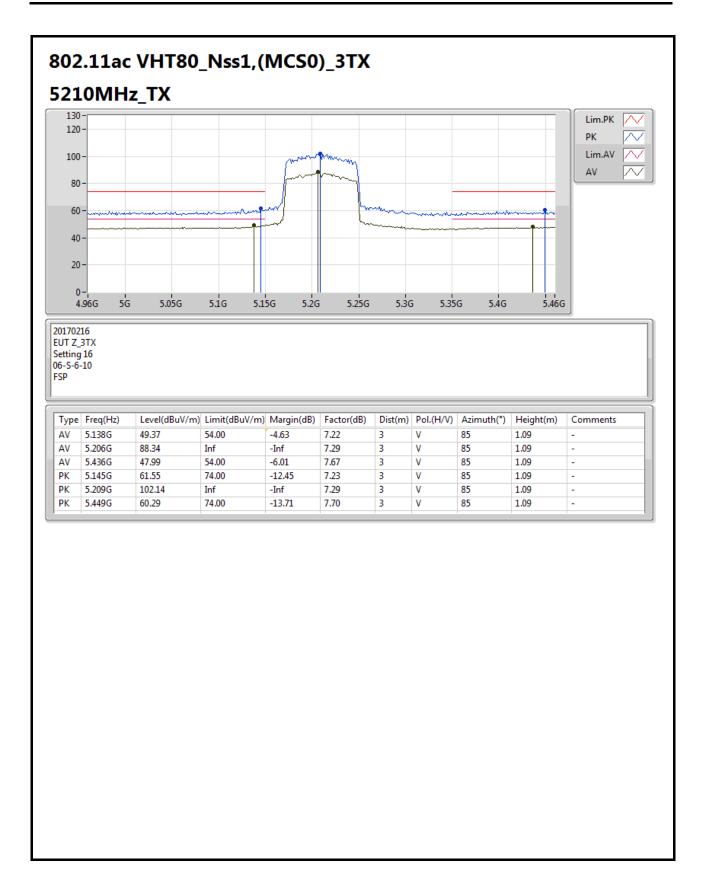
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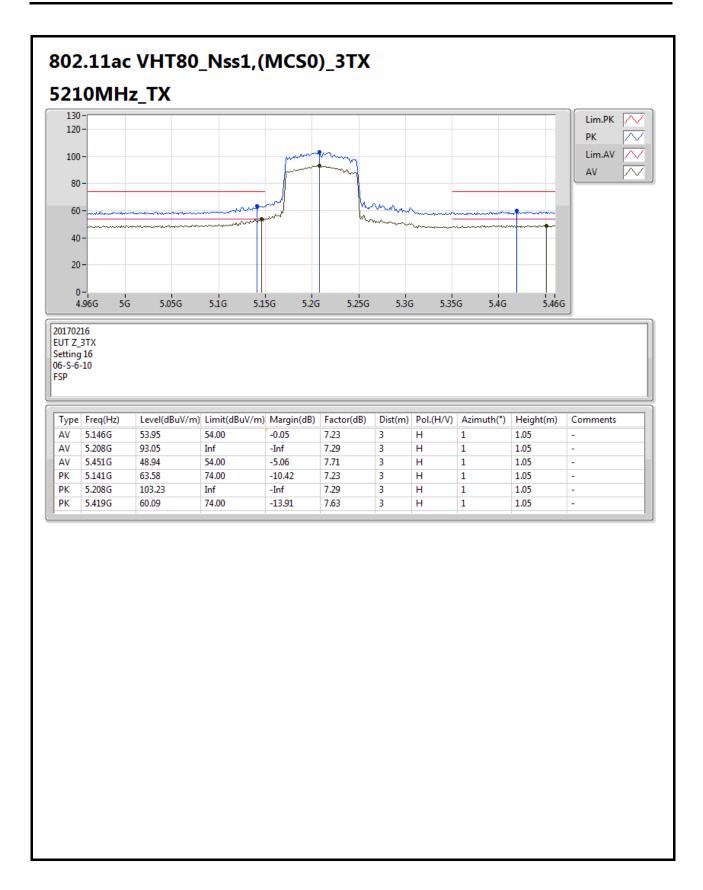




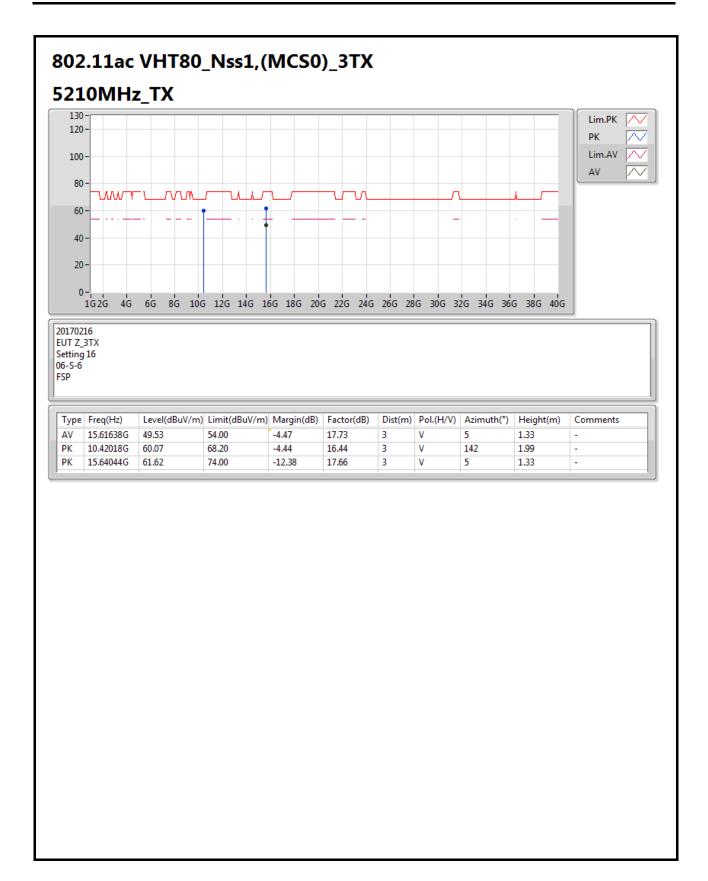




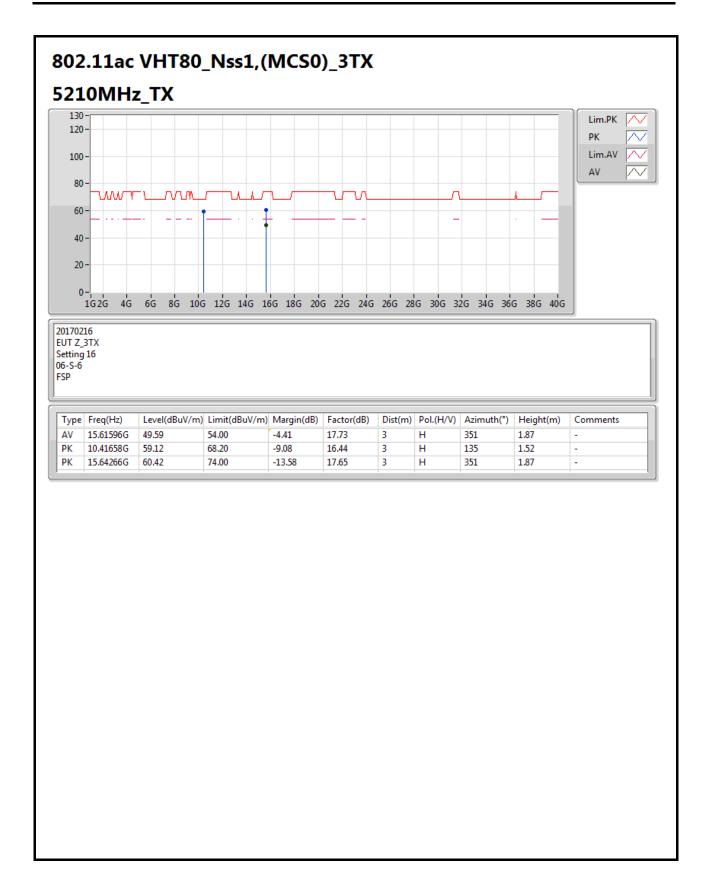








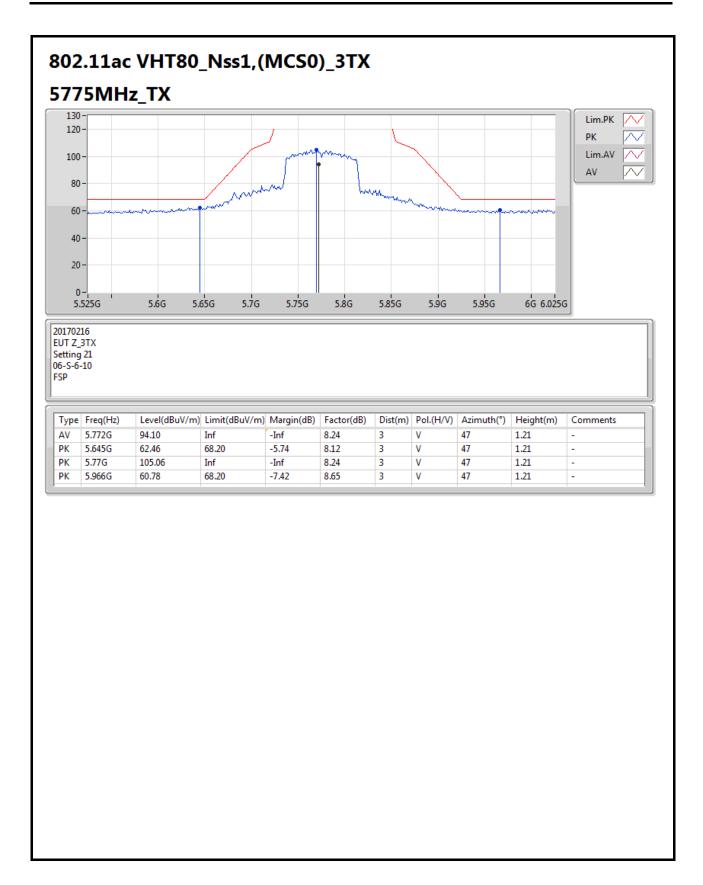




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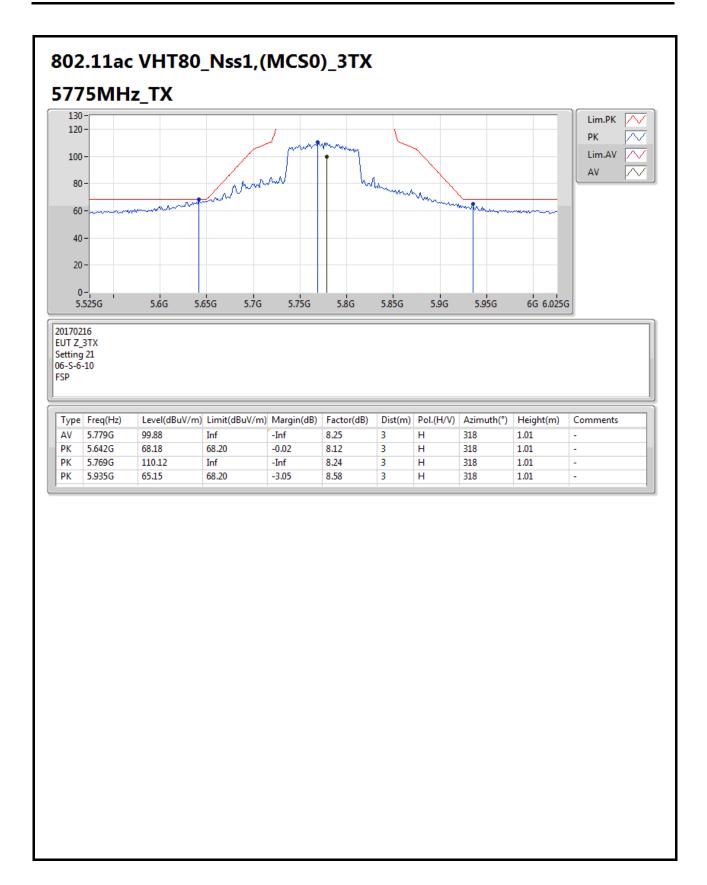
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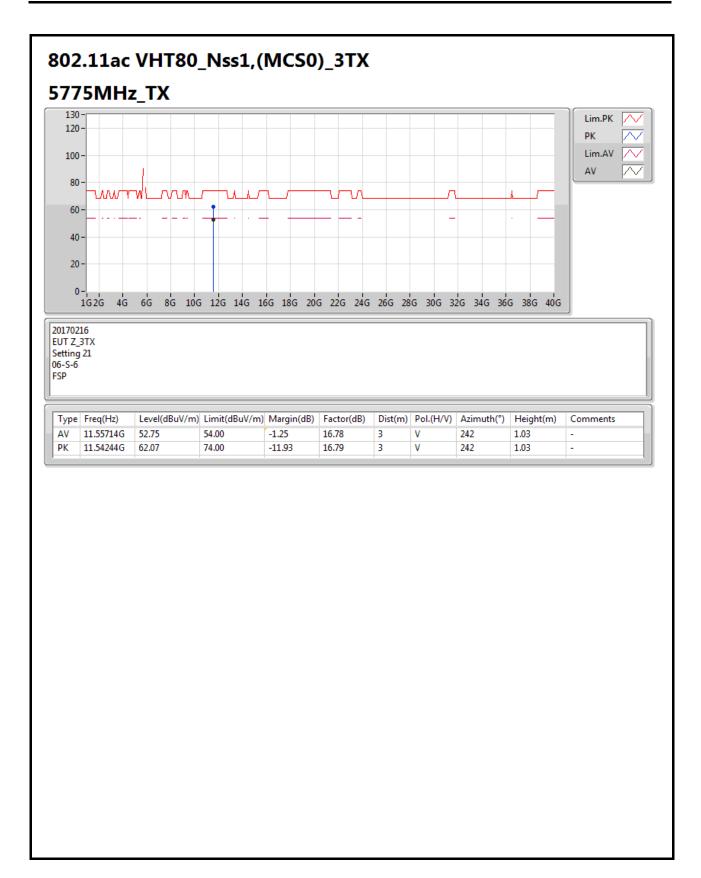


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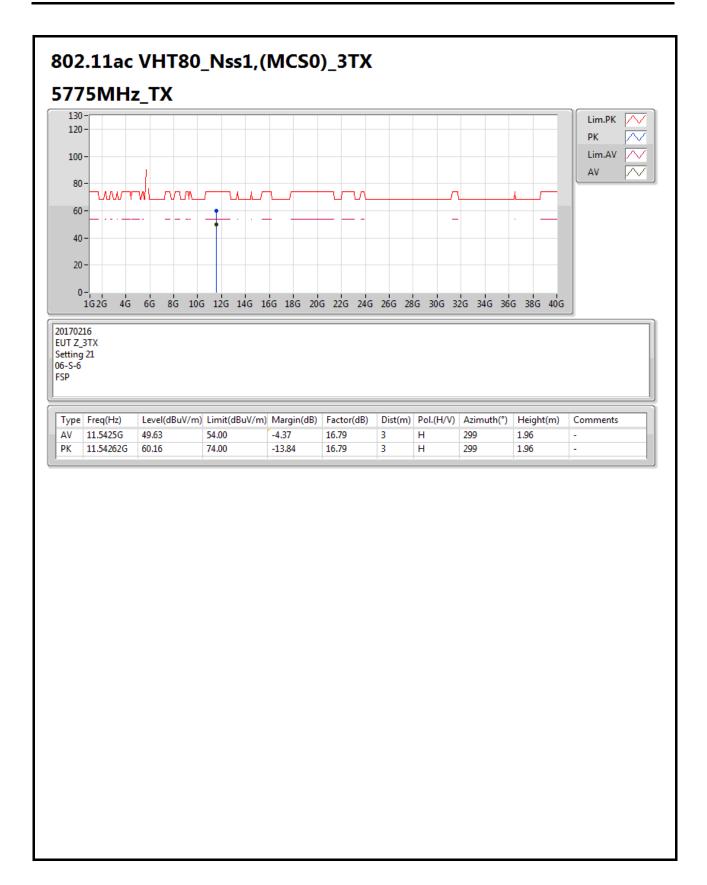






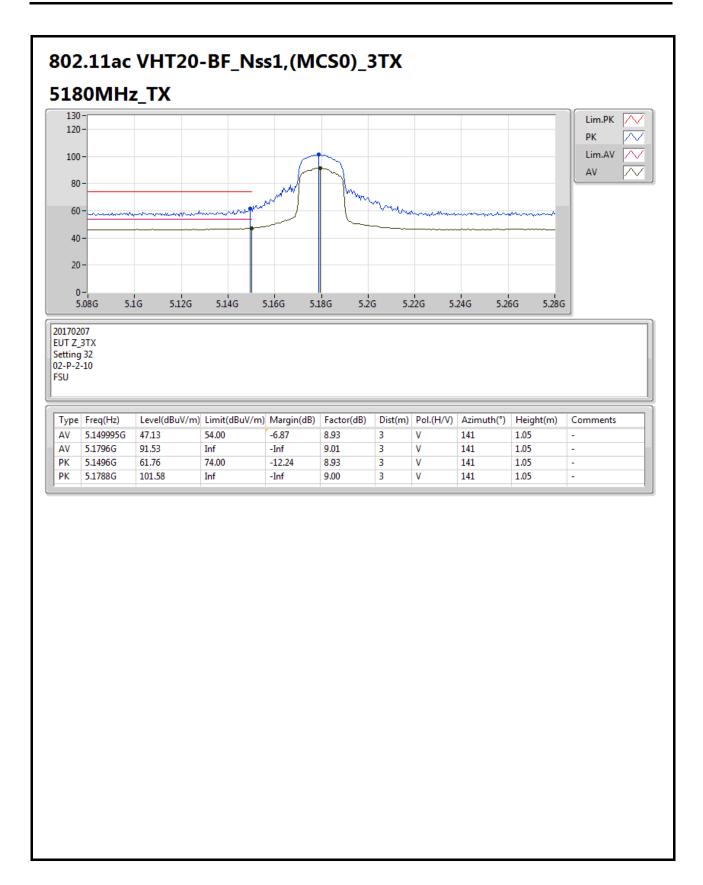






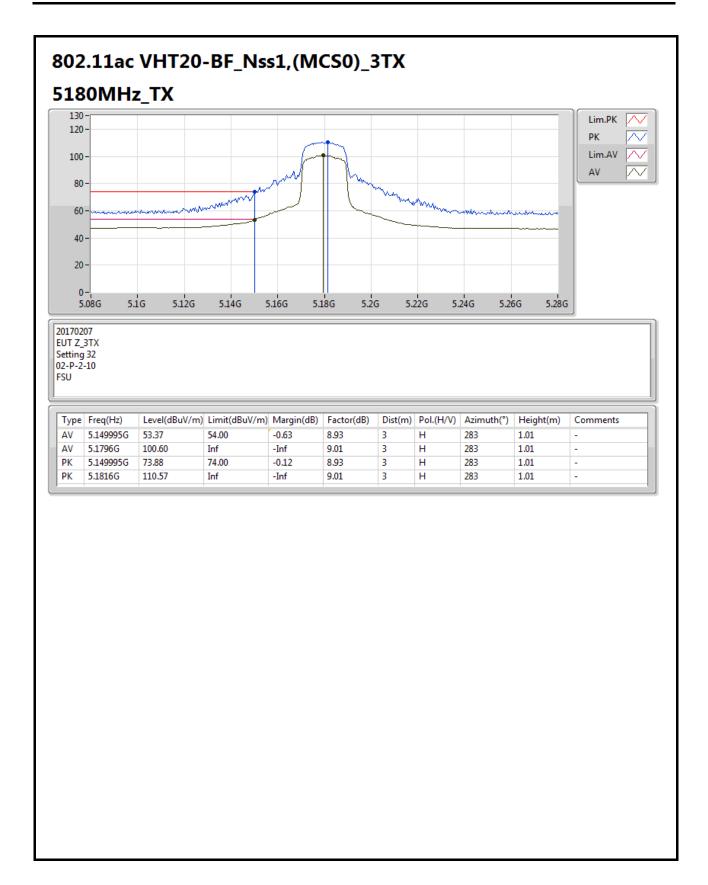
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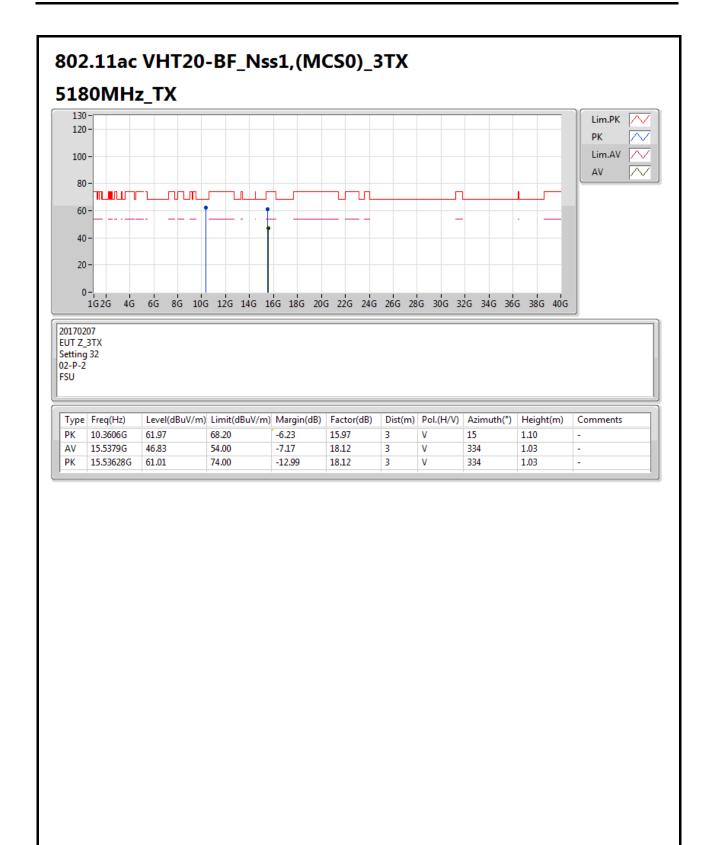


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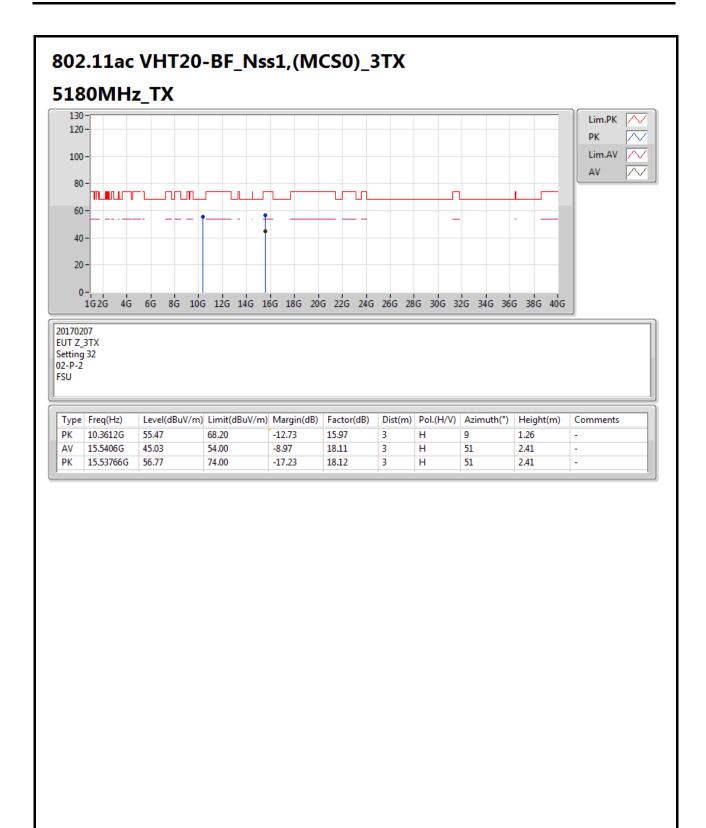






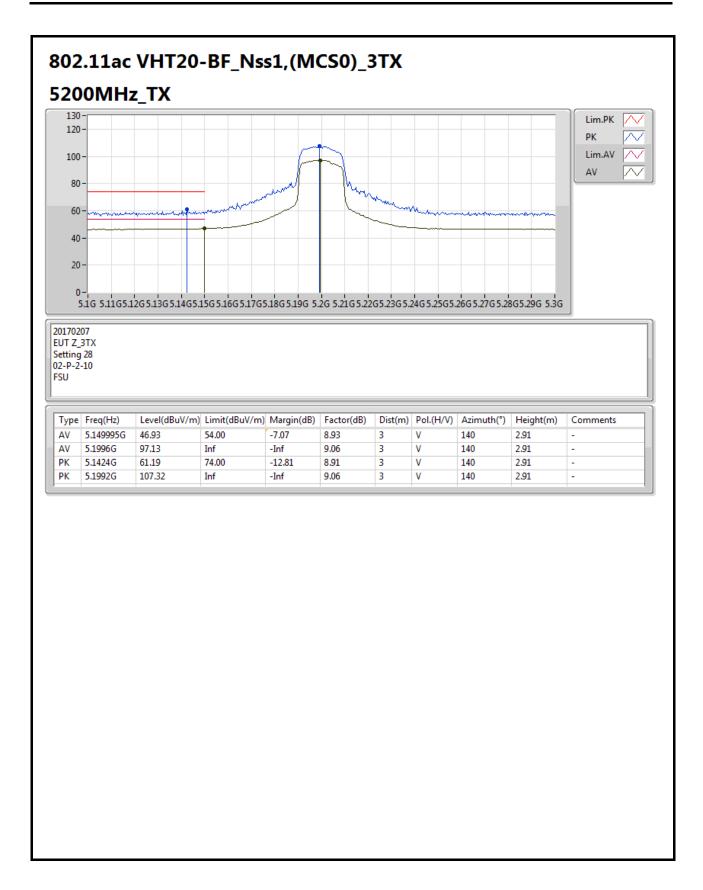




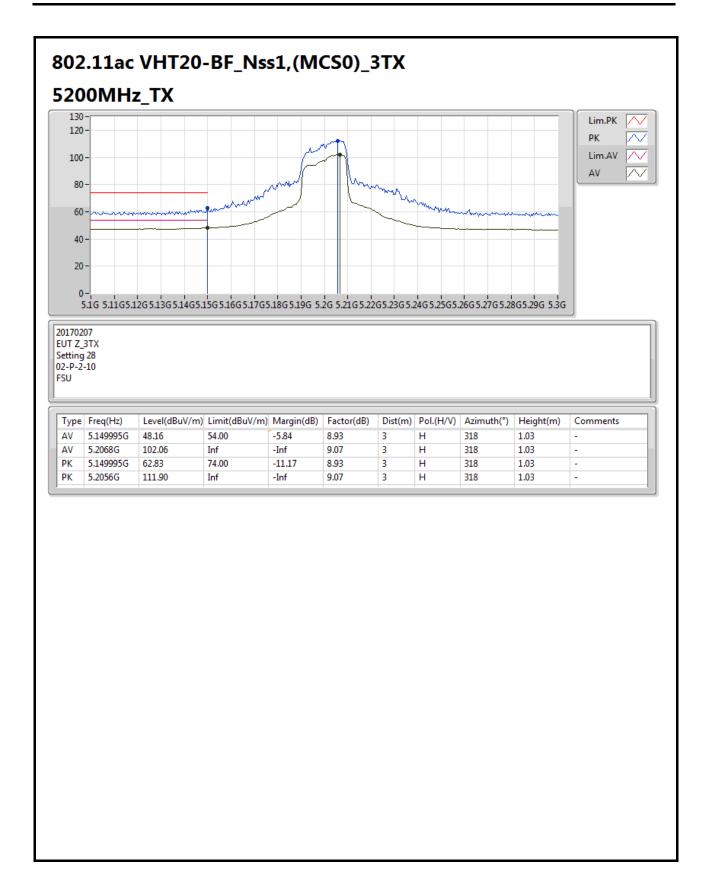


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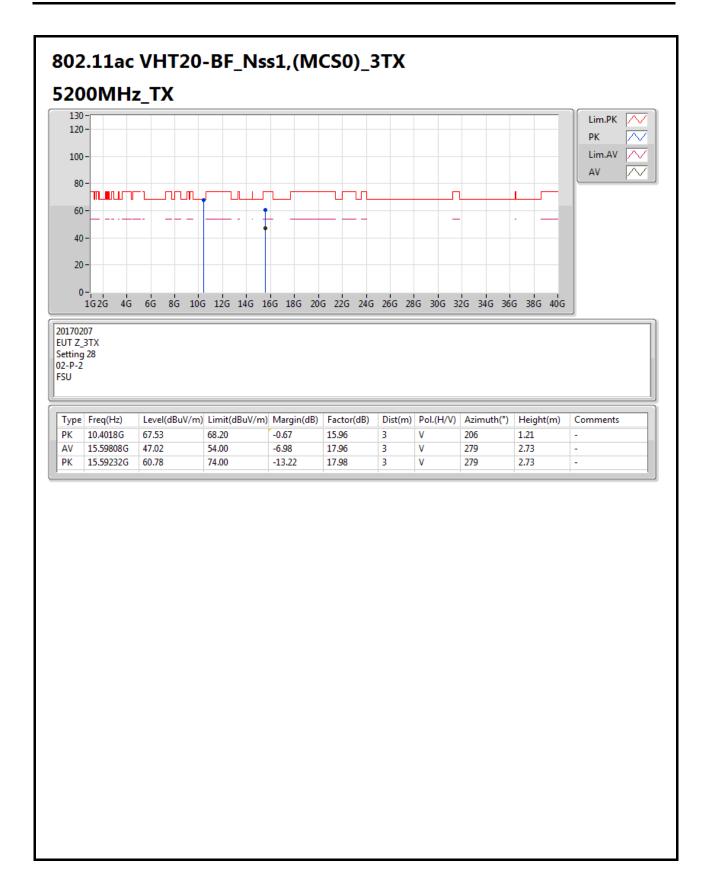




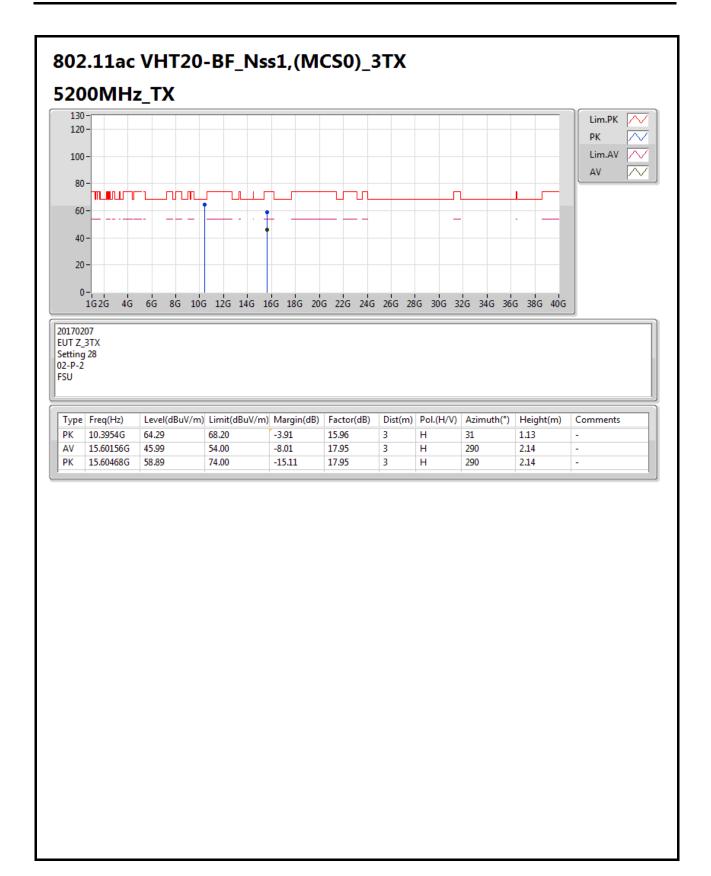
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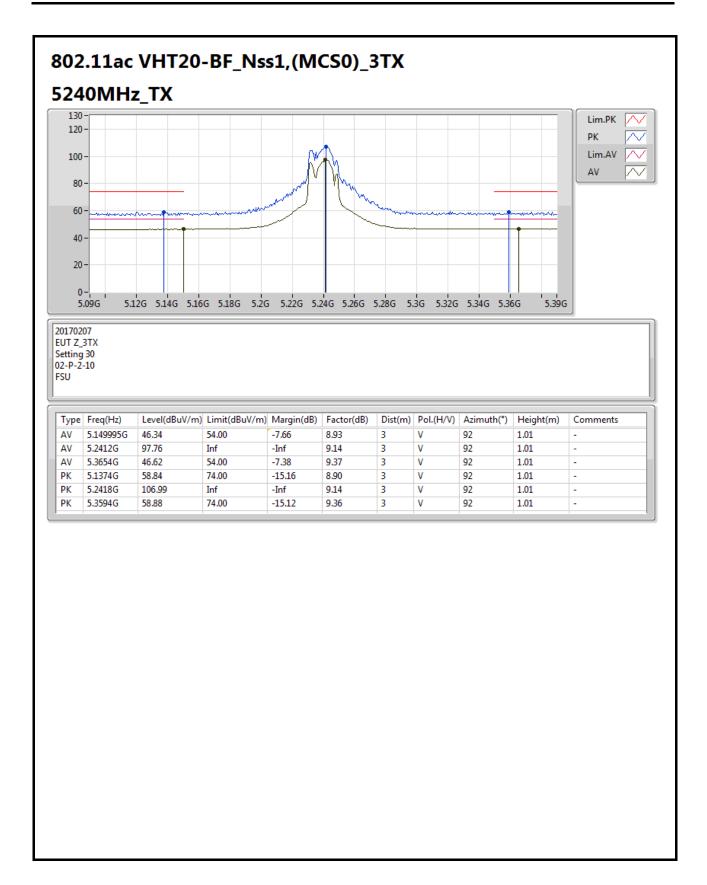




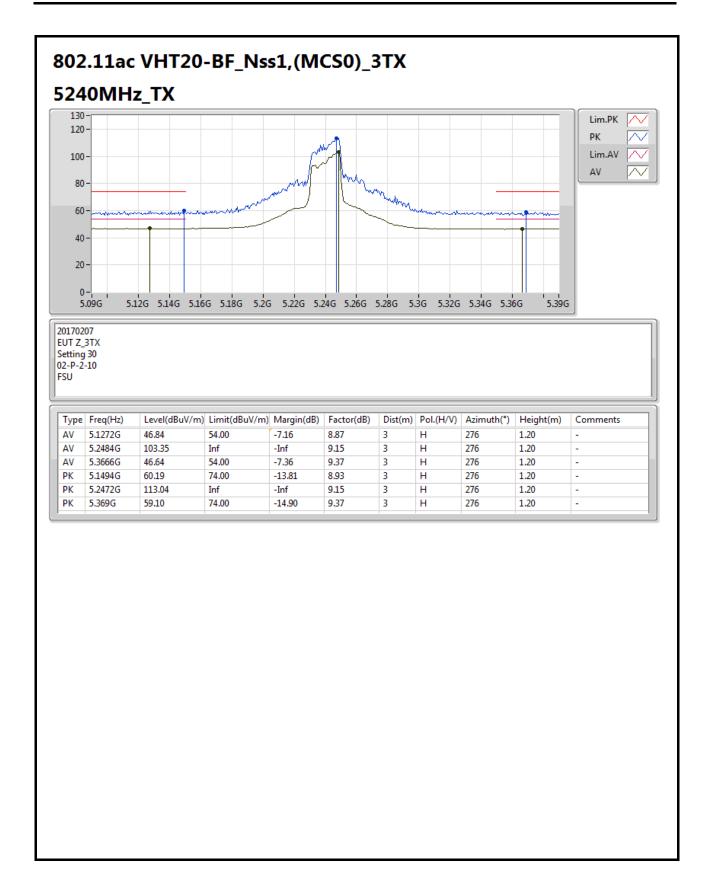




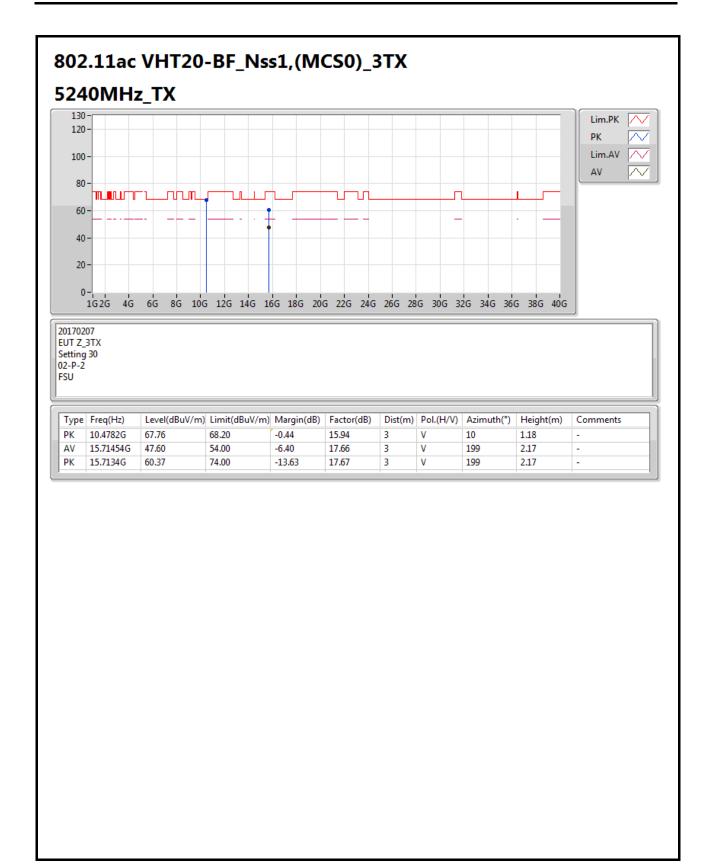




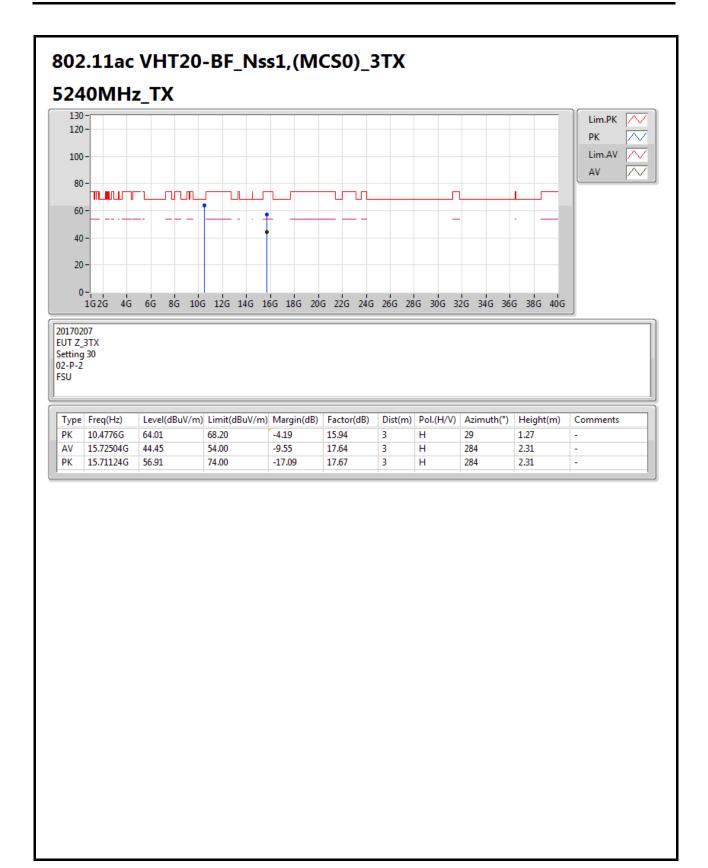




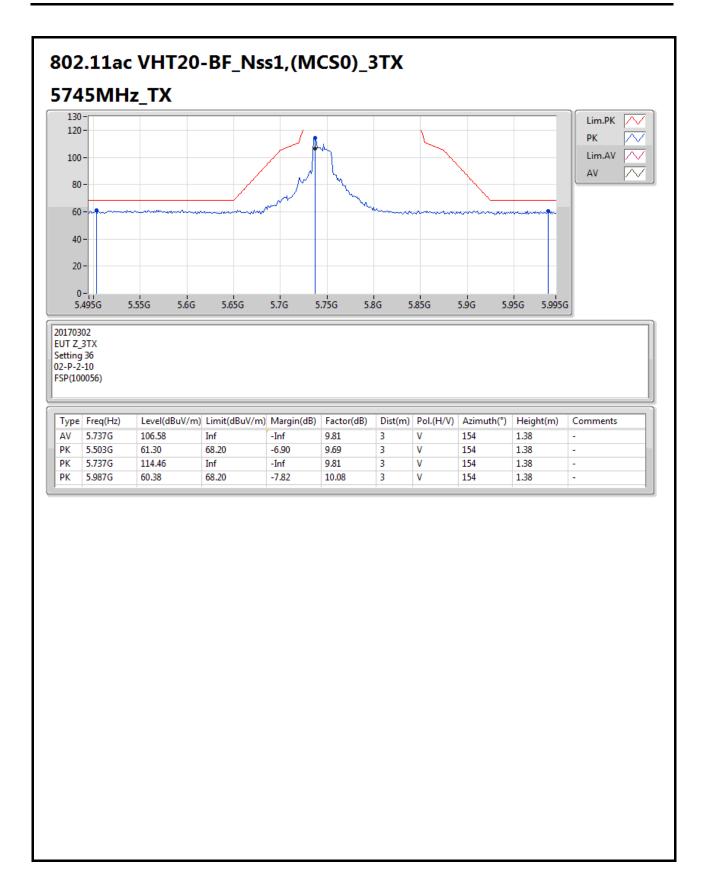




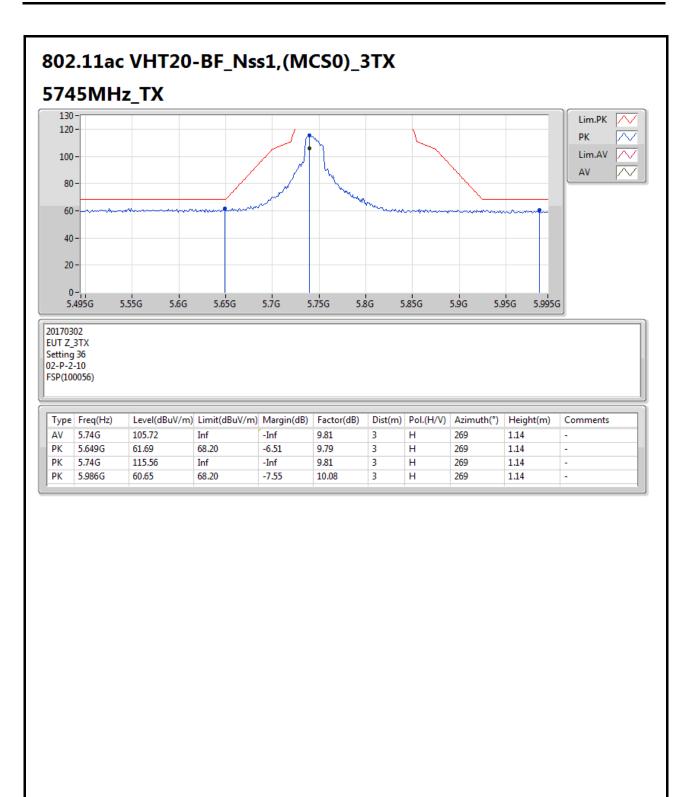




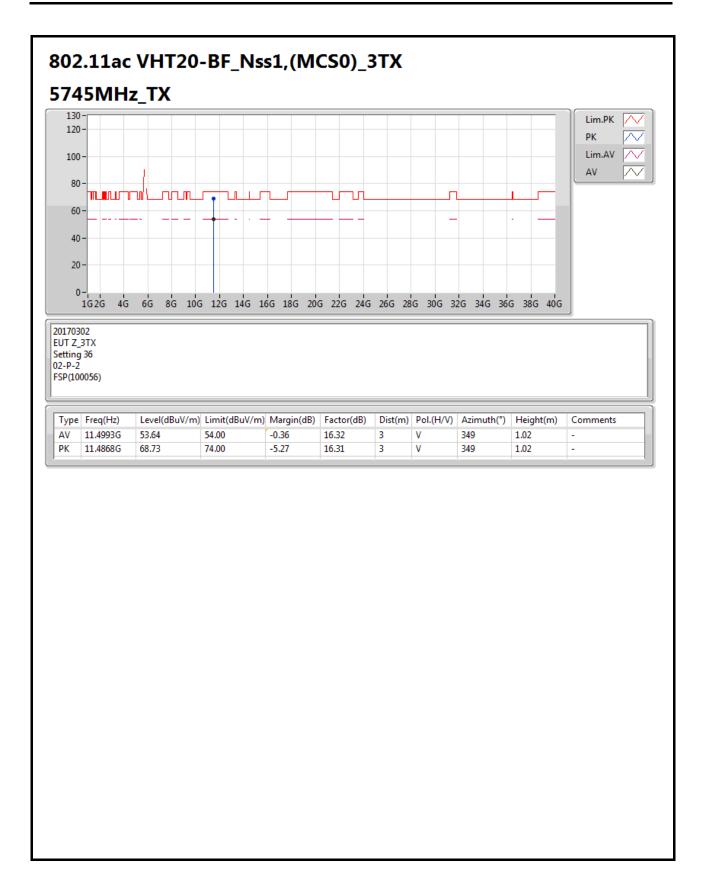




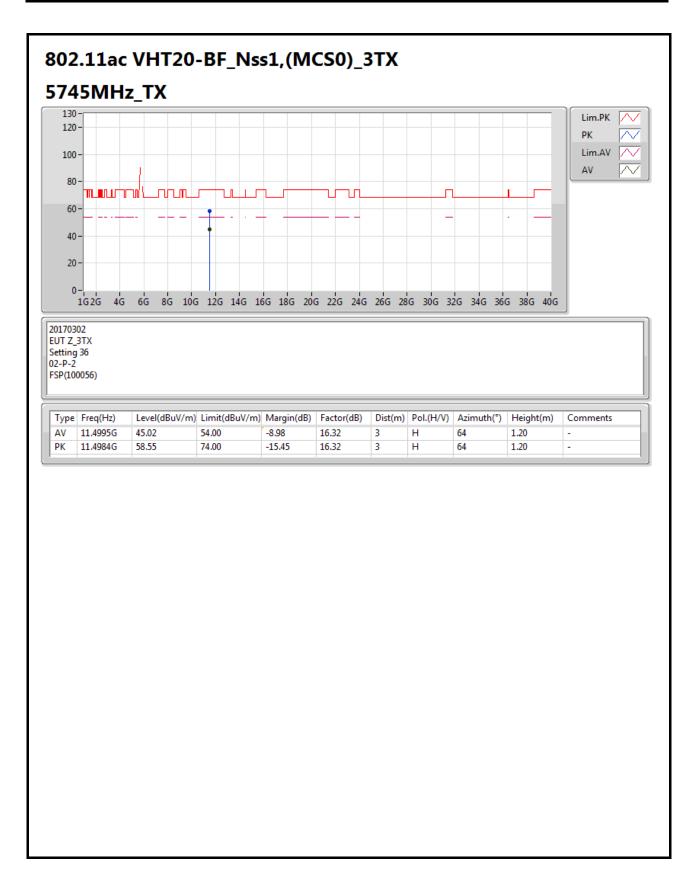




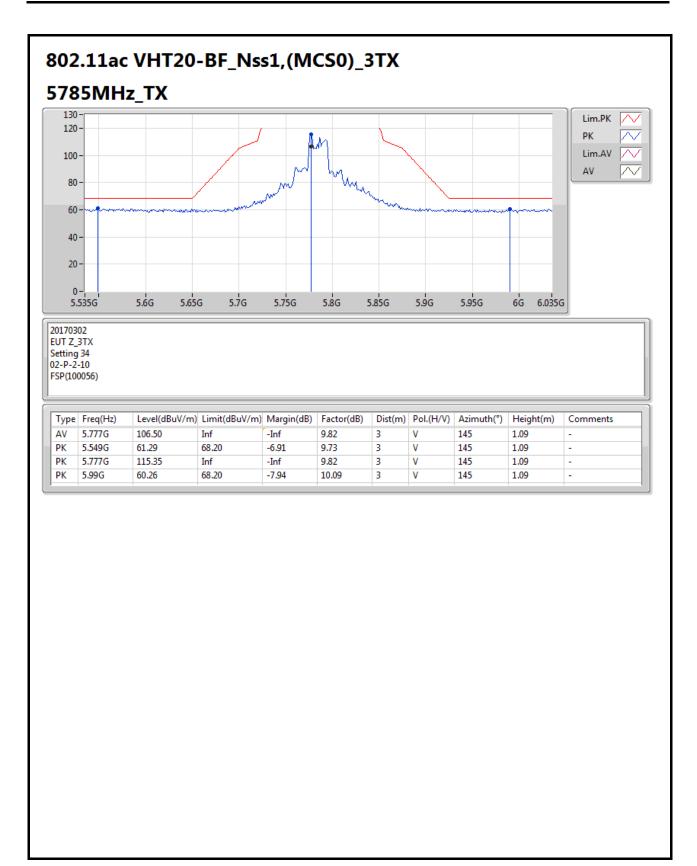






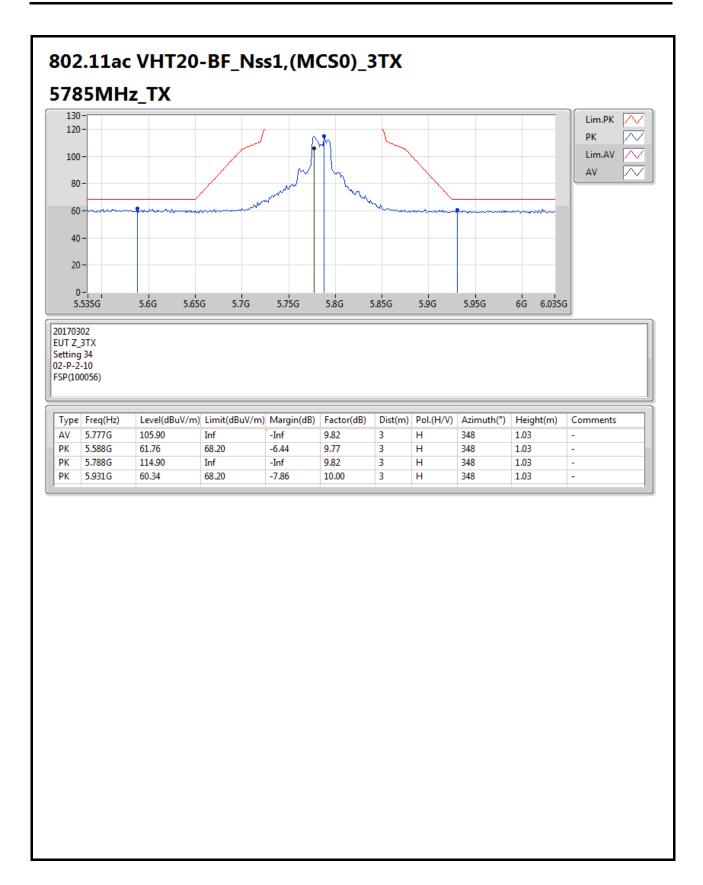




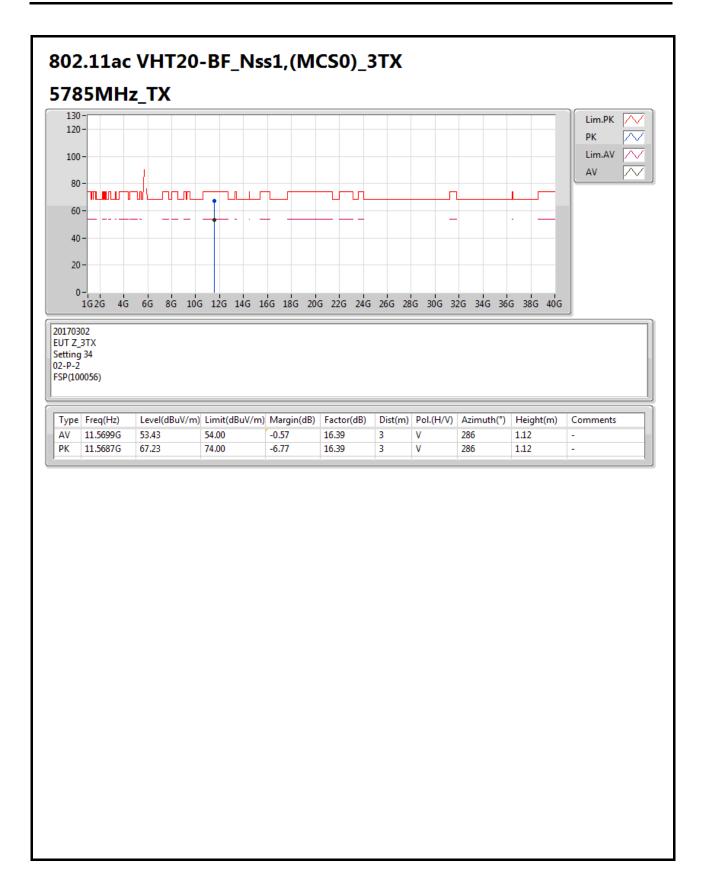


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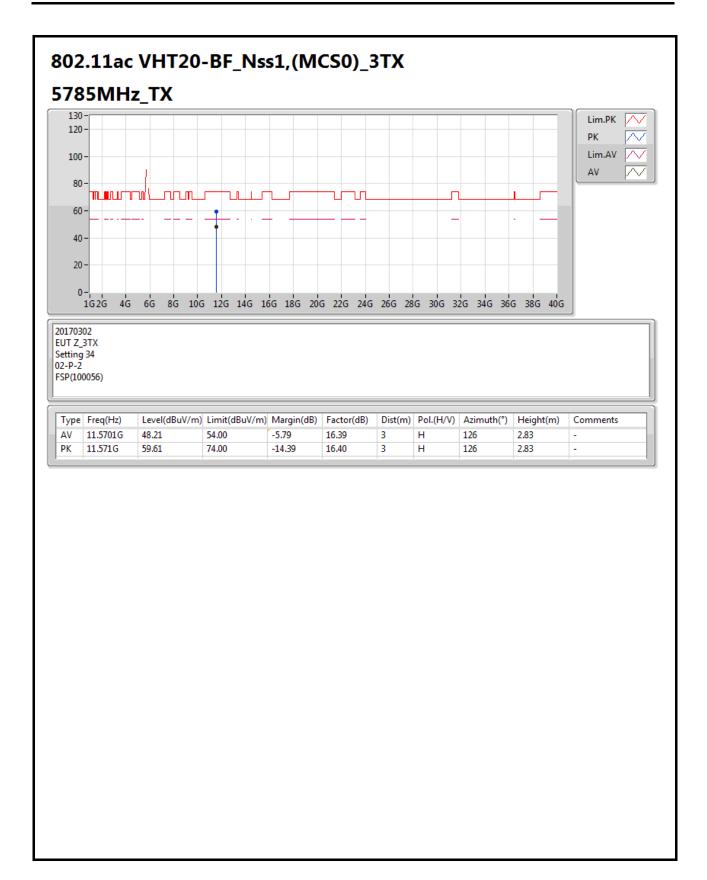




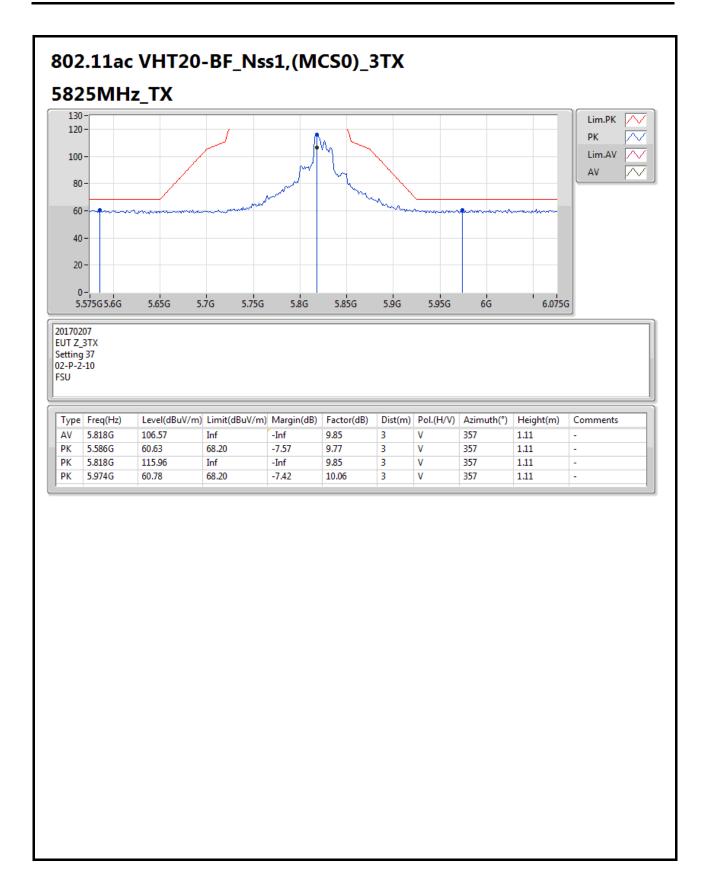




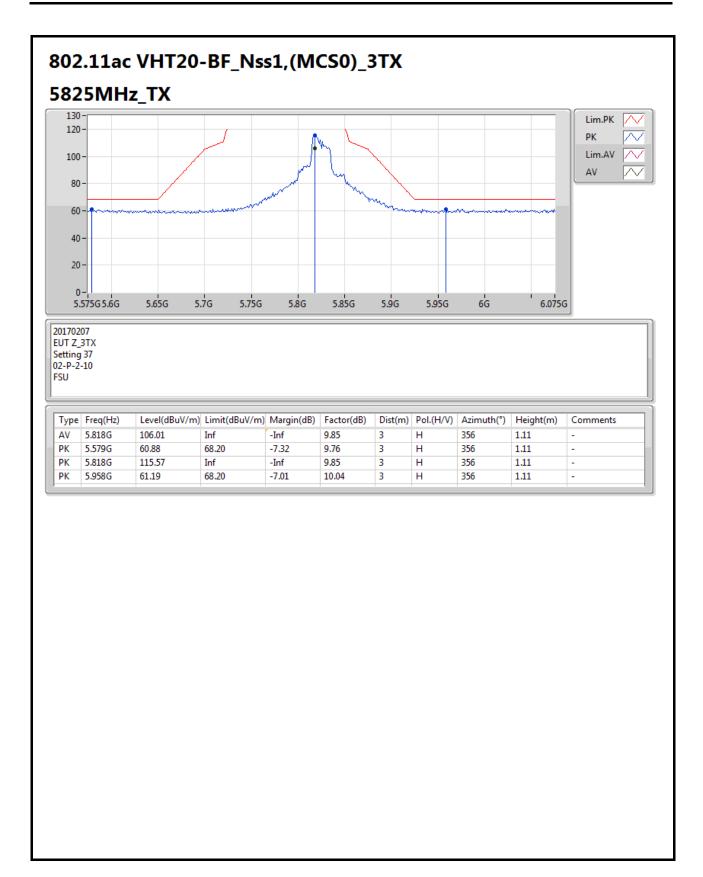




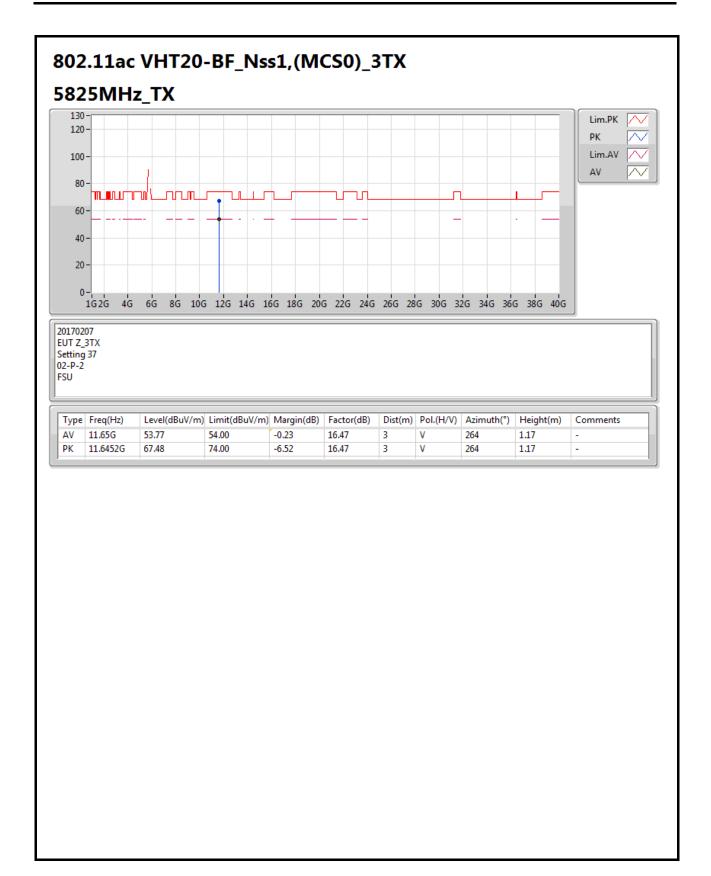




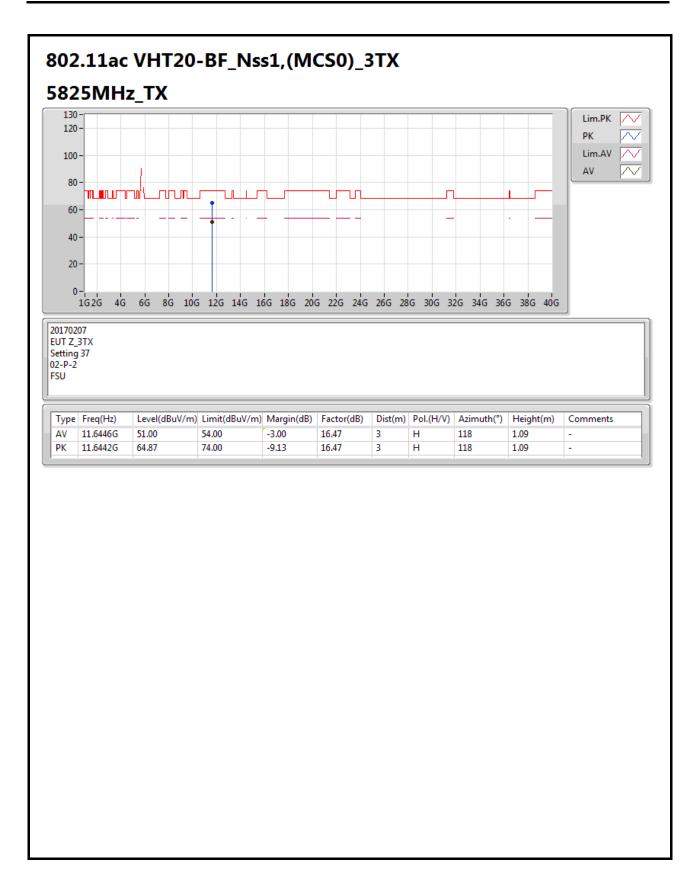




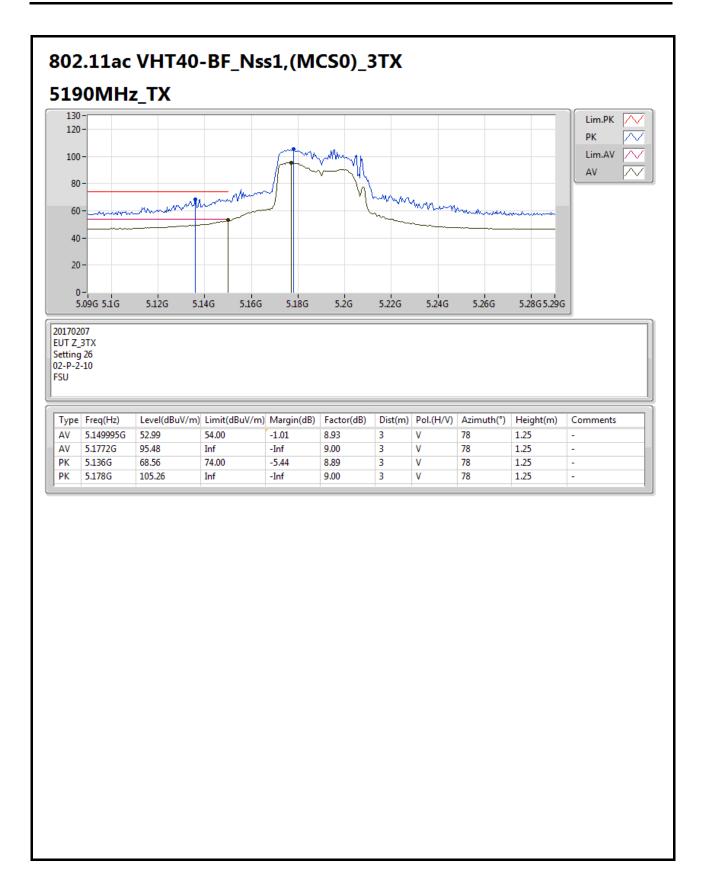






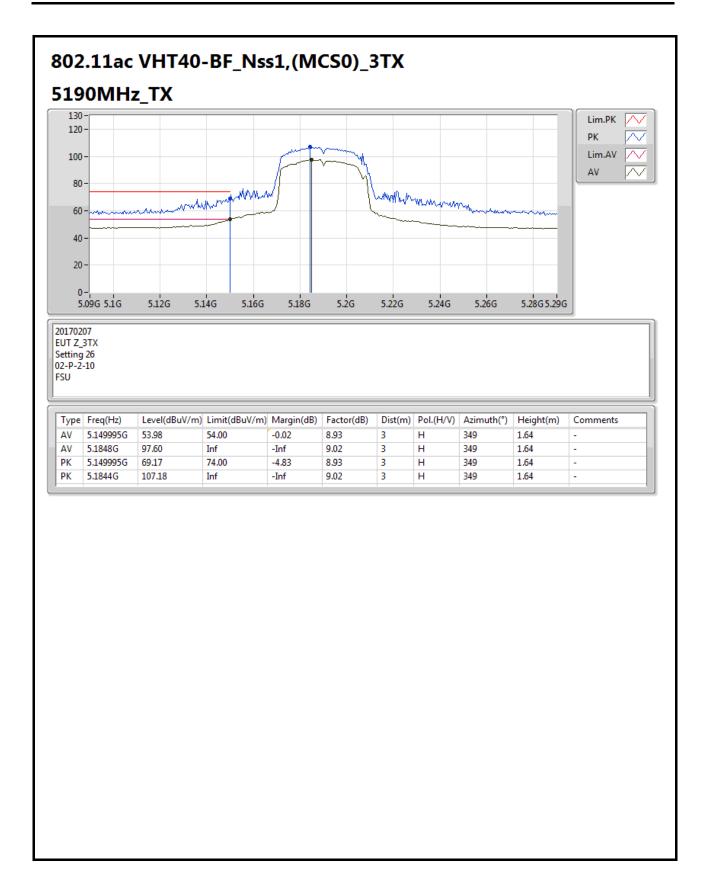




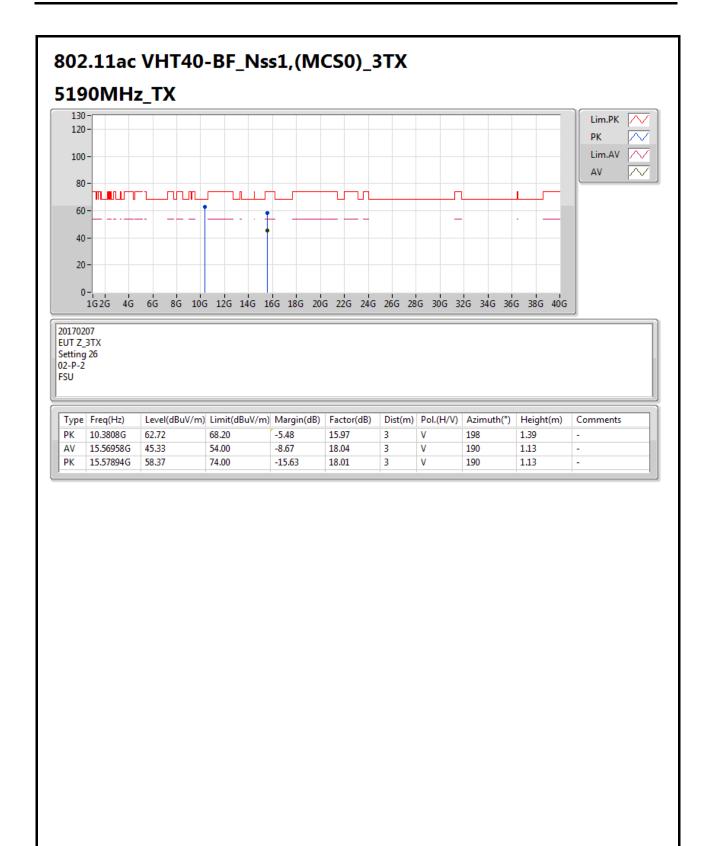


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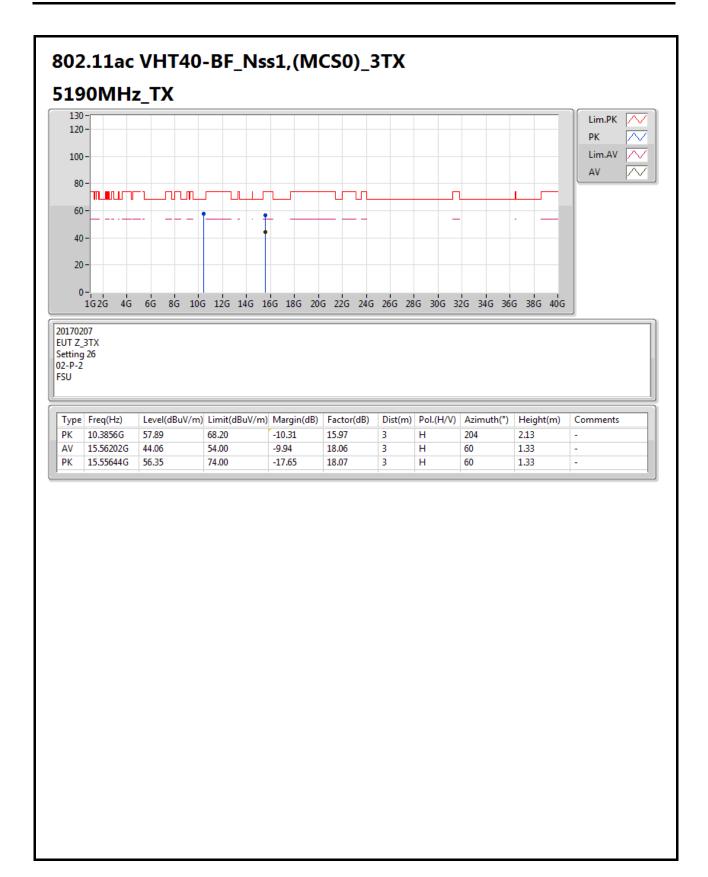




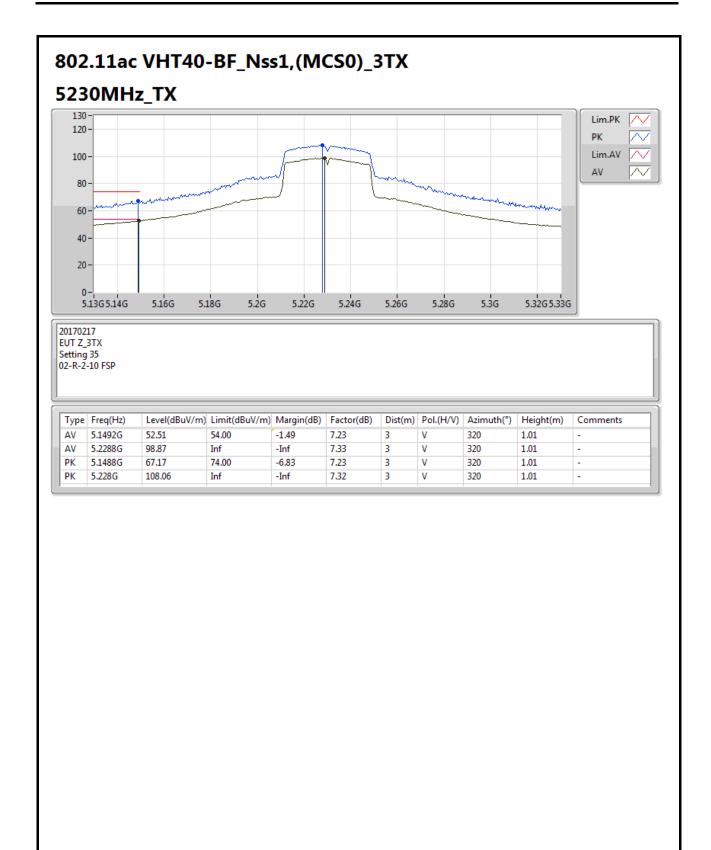


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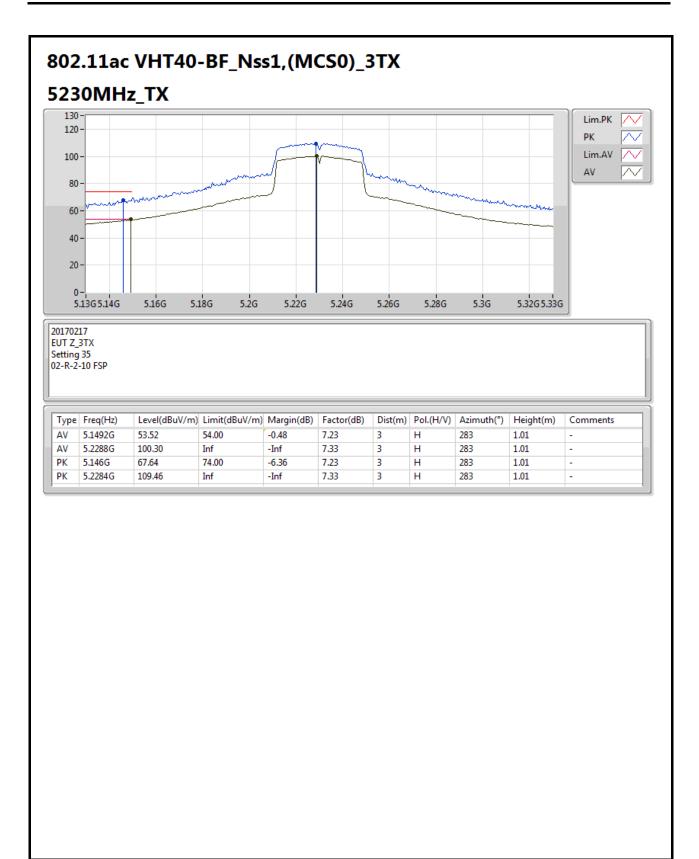






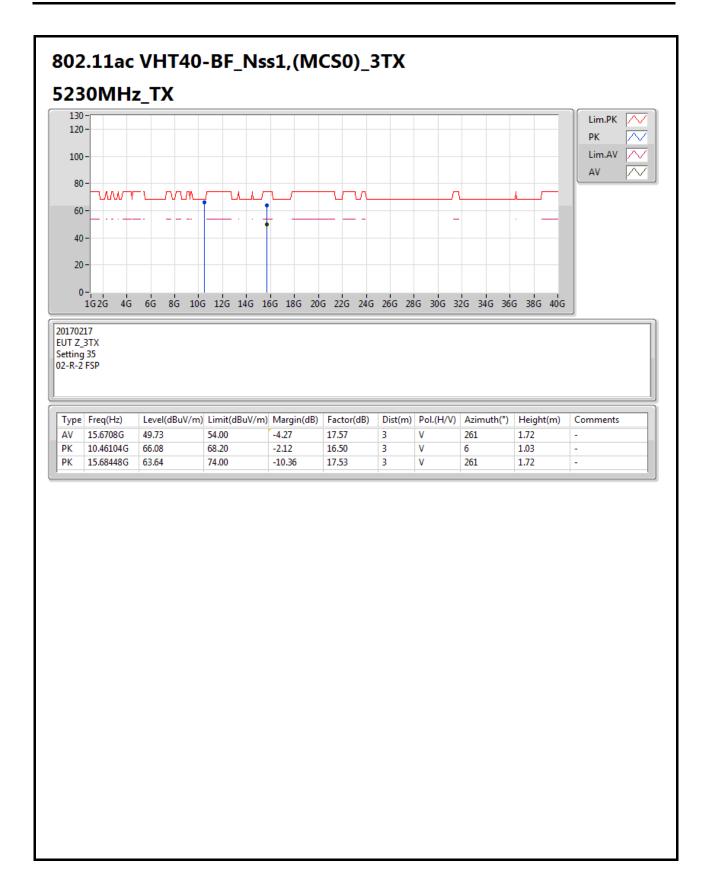
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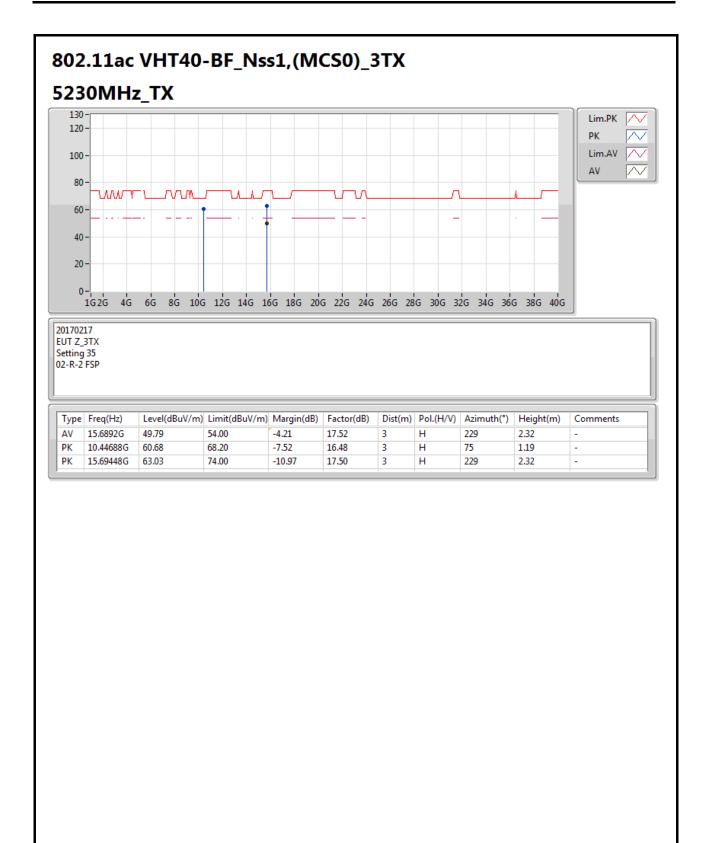


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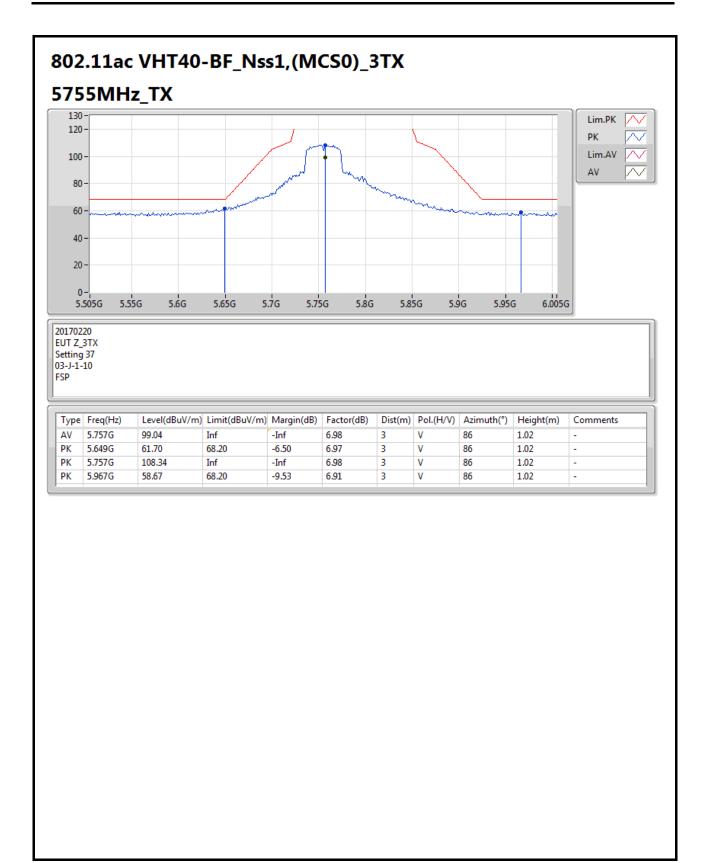




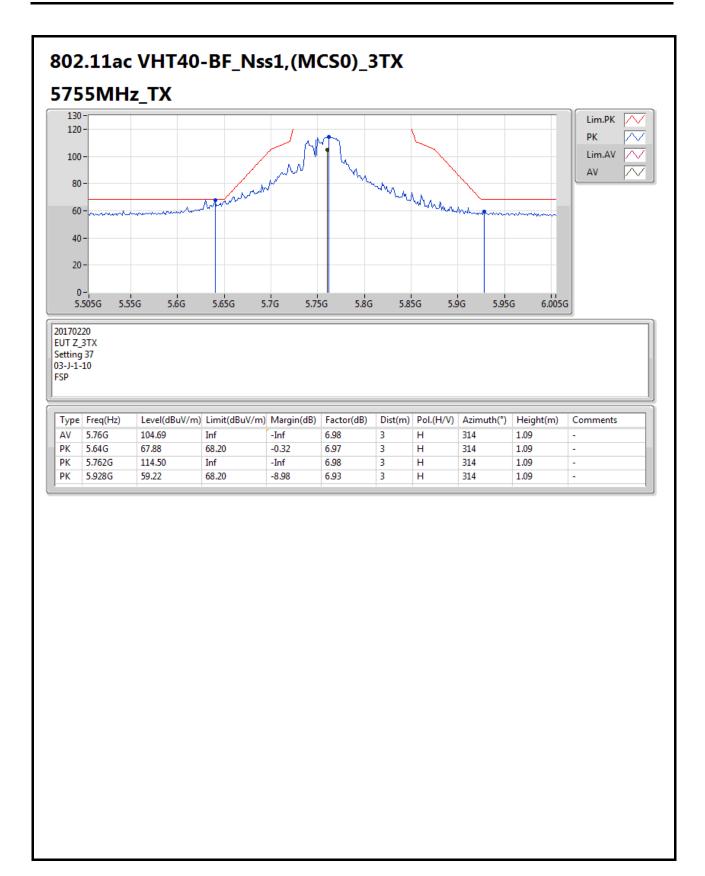




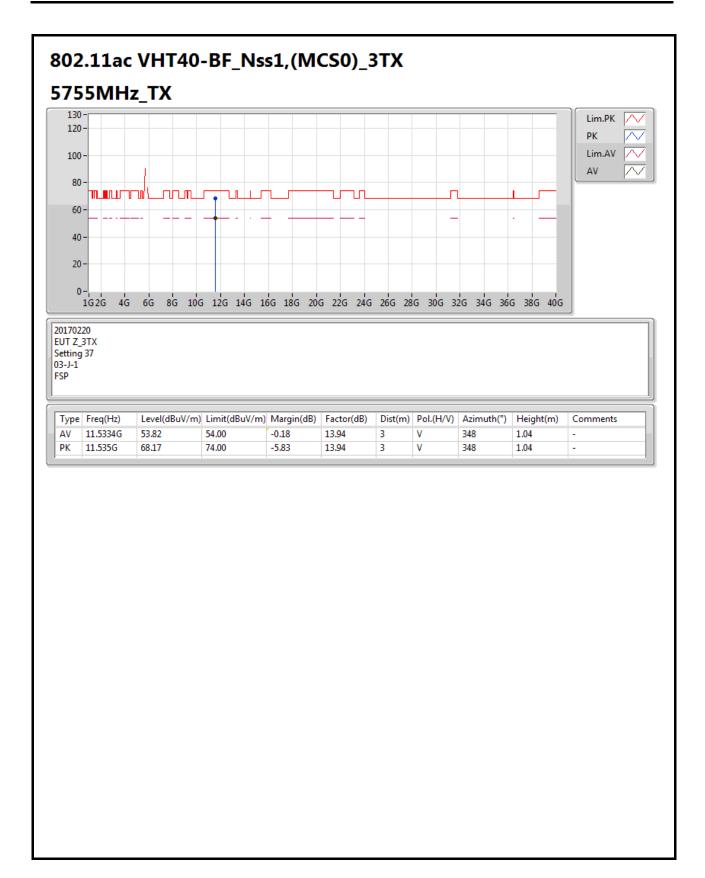




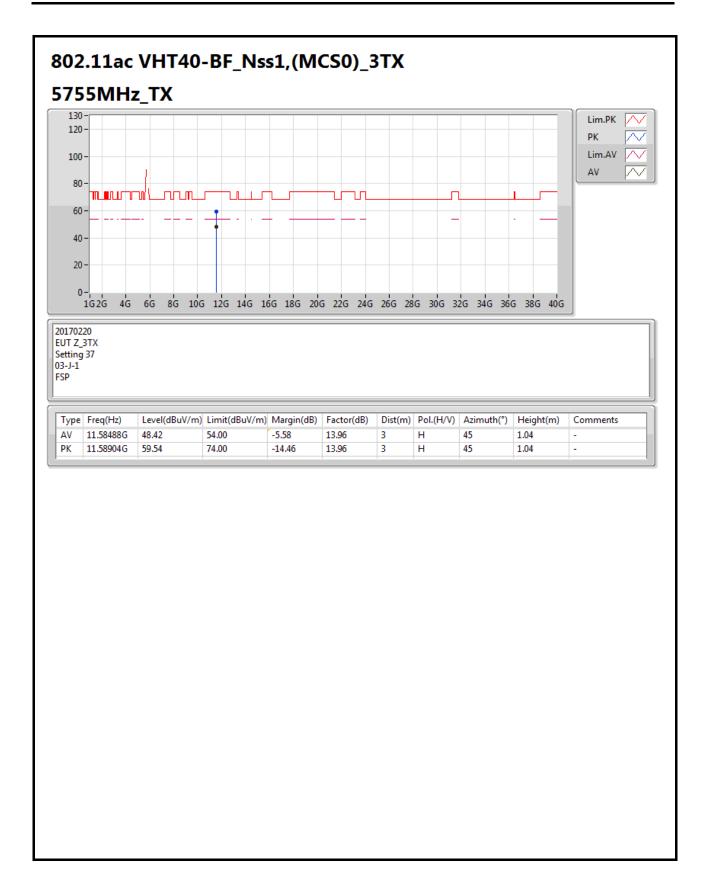








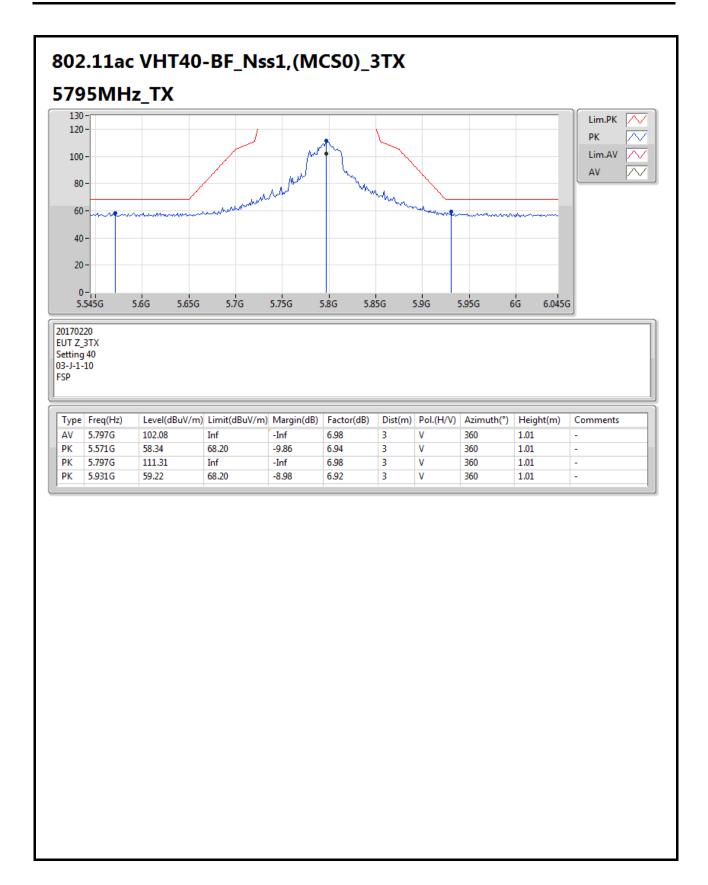




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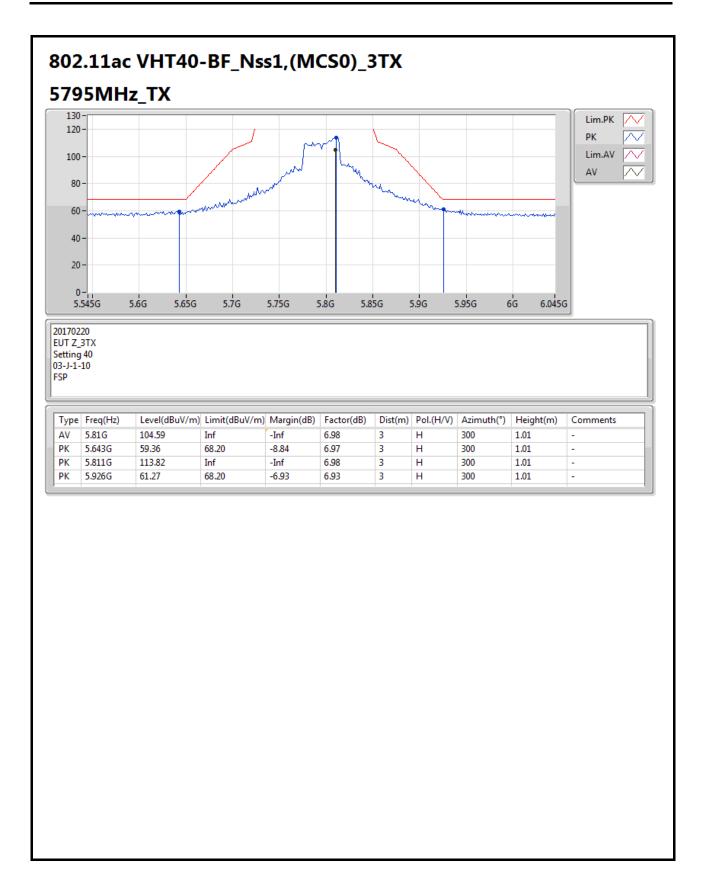
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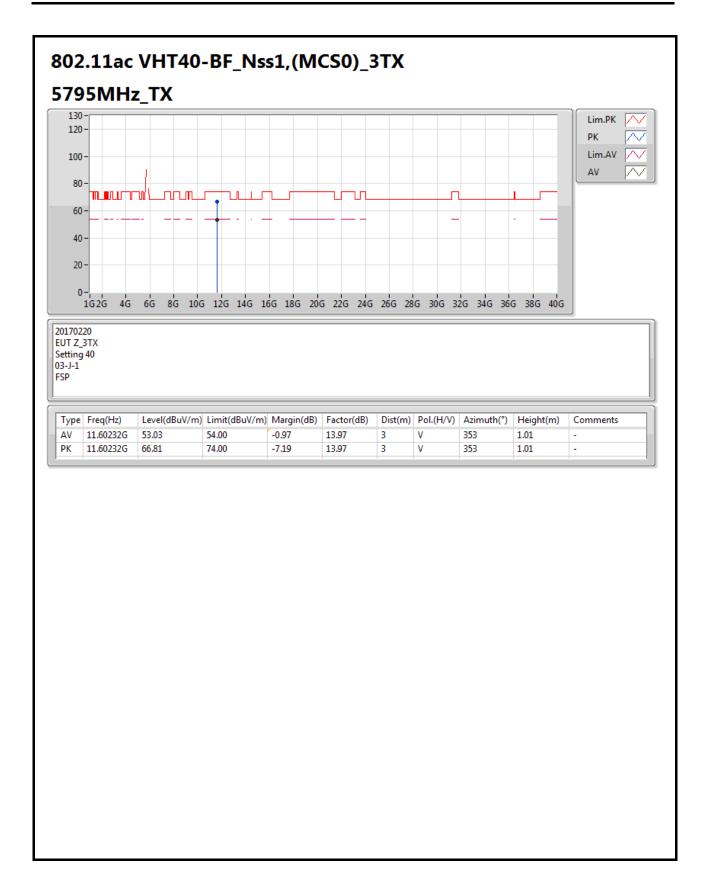


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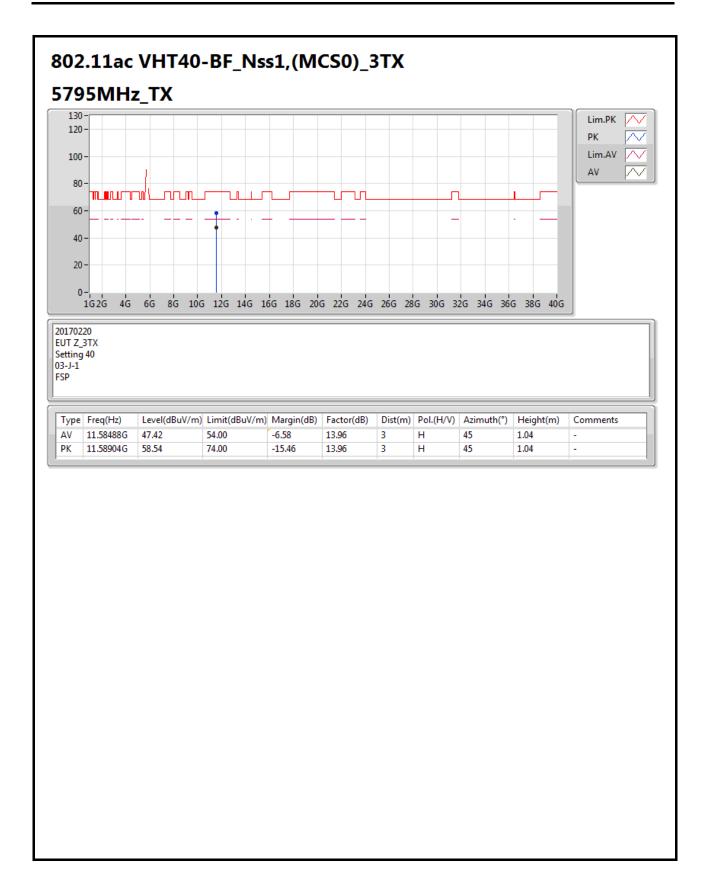






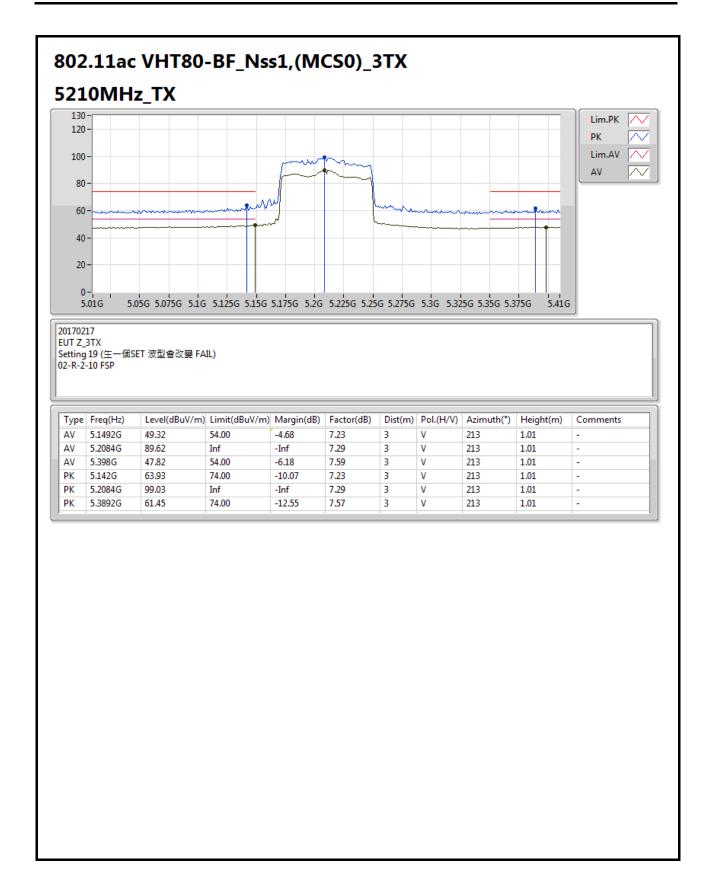
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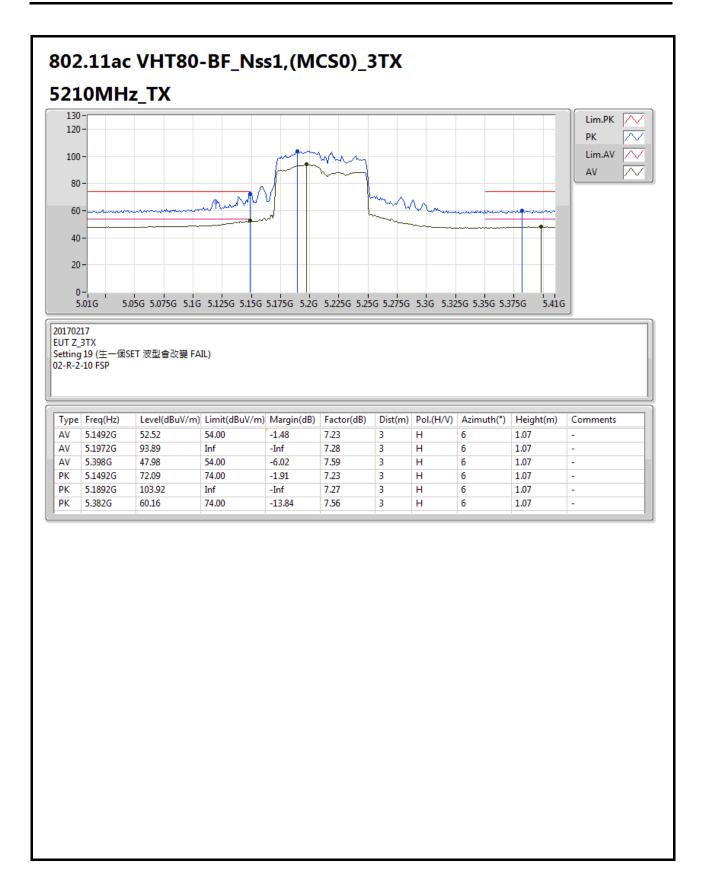
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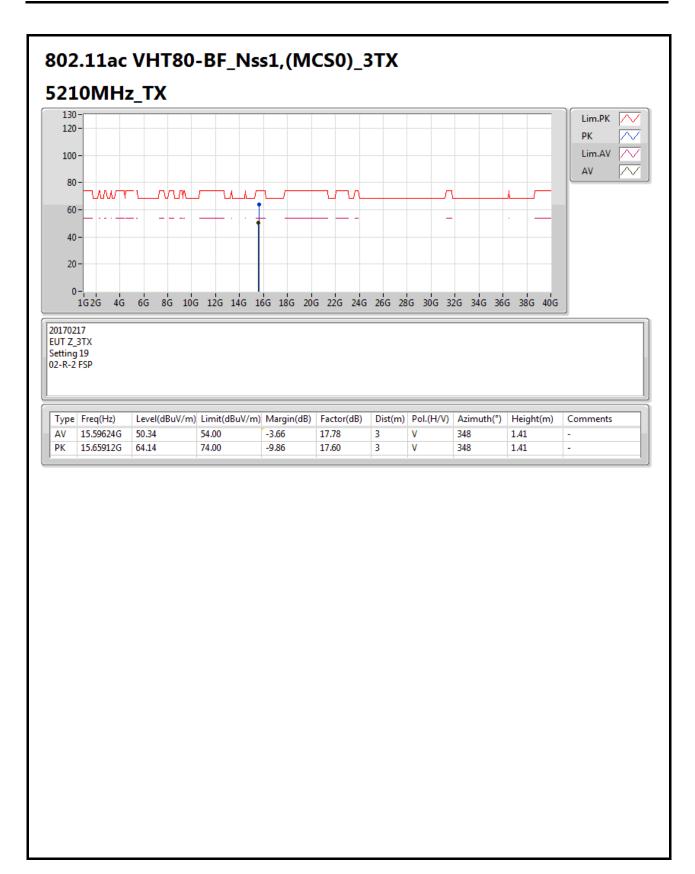
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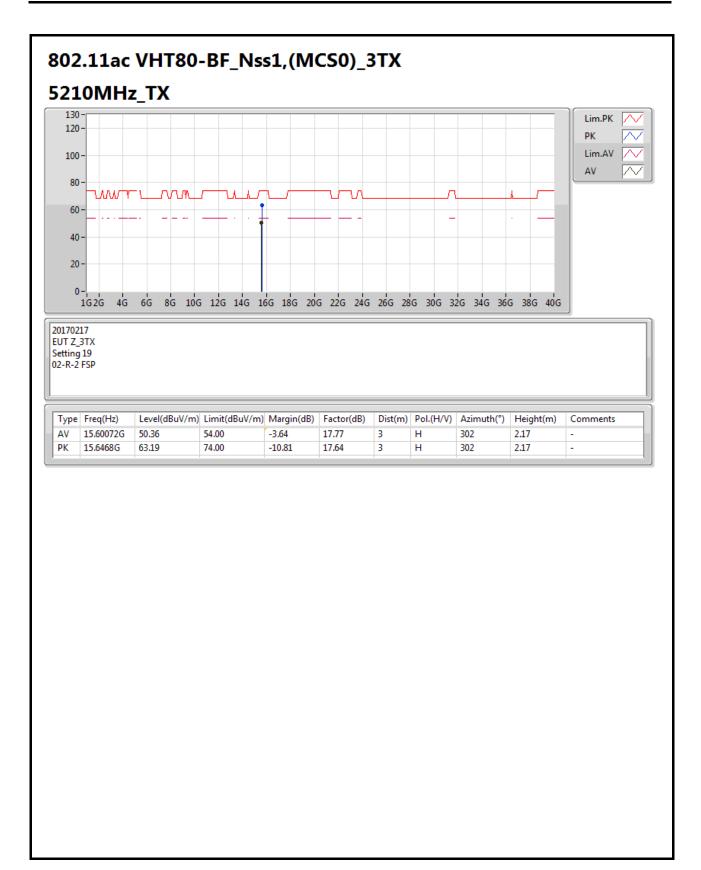
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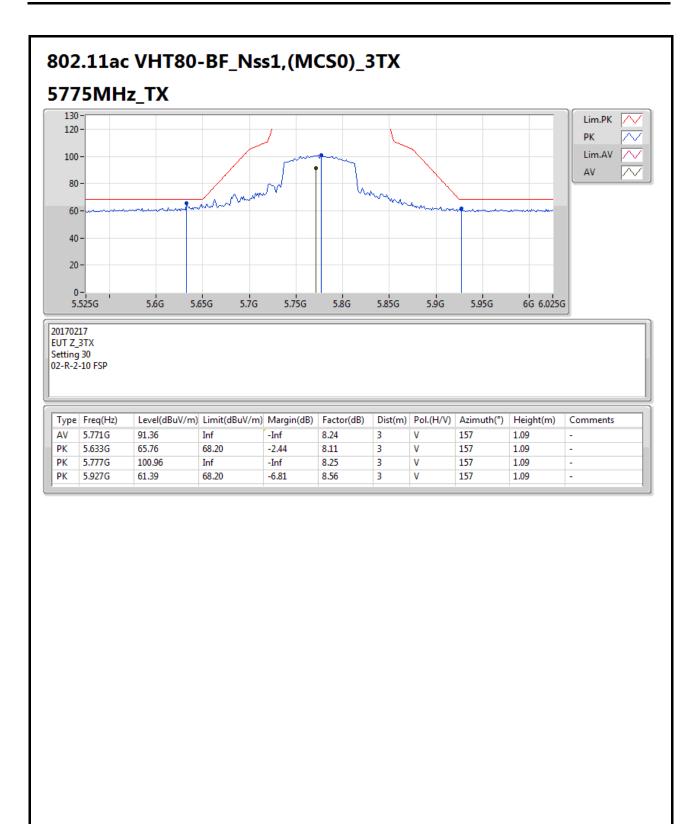


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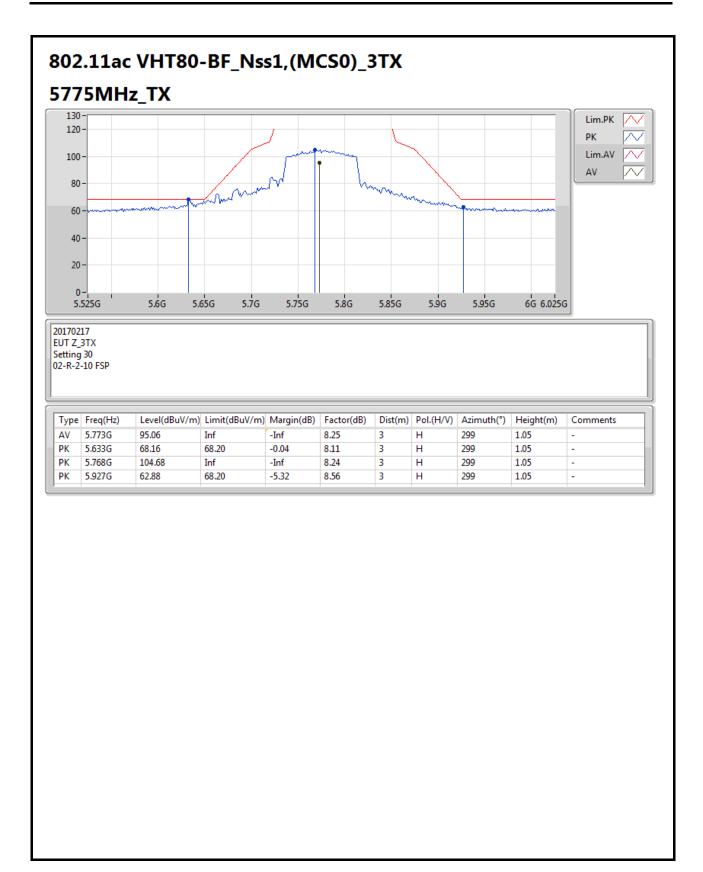






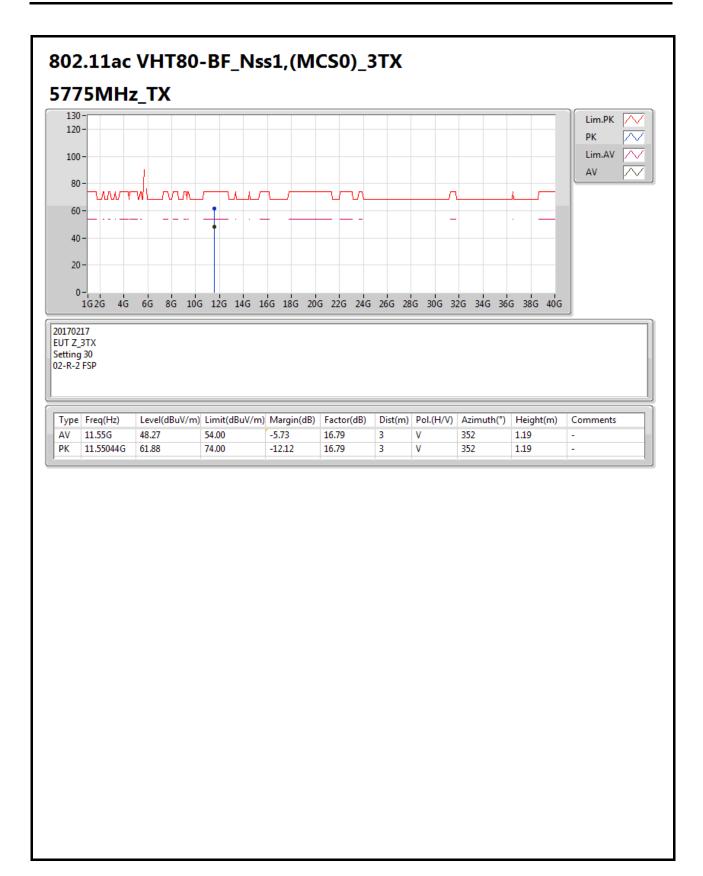
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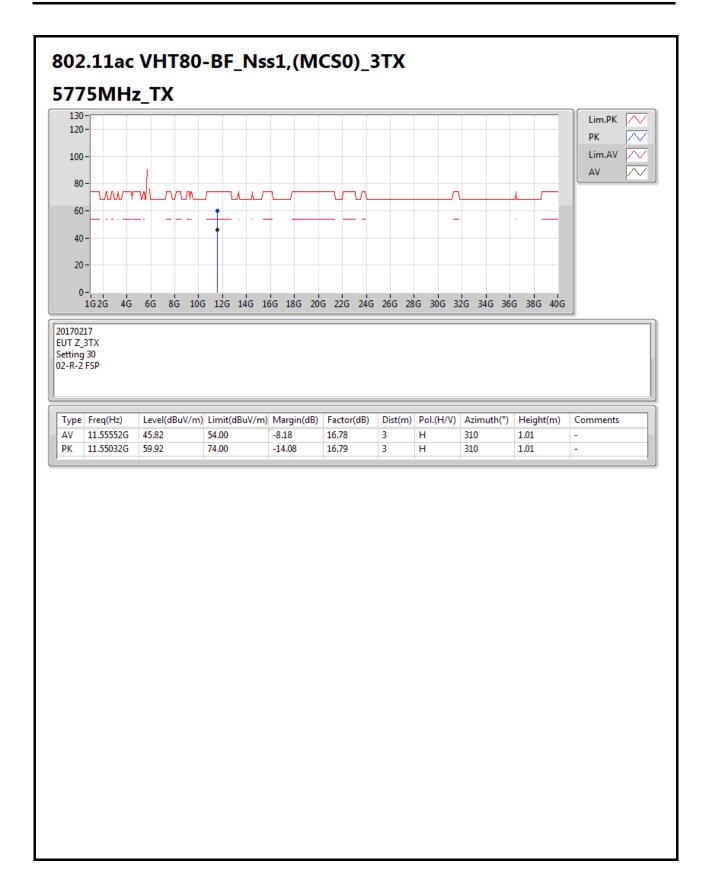


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FS Result Appendix F

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

Voltage	Measurement Frequency (MHz)			
()()	5200 MHz			
(V)	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5200.0031	5200.0026	5200.0019	5200.0011
110.00	5200.0026	5200.0025	5200.0019	5200.0015
93.50	5200.0022	5200.0013	5200.0008	5200.0005
Max. Deviation (MHz)	0.0031	0.0026	0.0019	0.0015
Max. Deviation (ppm)	0.60	0.50	0.37	0.29
Result		Pass		

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz) 5200 MHz			
(°C)				
(℃)	0 Minute	2 Minute	5 Minute	10 Minute
-30	5199.9956	5199.9949	5199.9942	5199.9937
-20	5199.9965	5199.9959	5199.9953	5199.9951
-10	5199.9977	5199.9970	5199.9966	5199.9963
0	5199.9993	5199.9988	5199.9981	5199.9975
10	5200.0012	5200.0003	5199.9999	5199.9995
20	5200.0026	5200.0016	5200.0009	5200.0003
30	5200.0091	5200.0087	5200.0081	5200.0074
40	5200.0099	5200.0097	5200.0096	5200.0094
50	5200.0107	5200.0104	5200.0095	5200.0086
Max. Deviation (MHz)	0.0107	0.0104	0.0096	0.0094
Max. Deviation (ppm)	2.06	2.00	1.85	1.81
Result		Pa	ass	

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
0.0	5785 MHz			
(V)	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5785.0030	5785.0025	5785.0019	5785.0015
110.00	5785.0026	5785.0024	5785.0019	5785.0010
93.50	5785.0019	5785.0010	5785.0006	5784.9997
Max. Deviation (MHz)	0.0030	0.0025	0.0019	0.0015
Max. Deviation (ppm)	0.52	0.43	0.33	0.26
Result	Pass			

Temperature vs. Frequency Stability

Temperature		Measurement F	requency (MHz)	
(°C)	5785 MHz			
(°C)	0 Minute	2 Minute	5 Minute	10 Minute
-30	5784.9995	5784.9991	5784.9990	5784.9984
-20	5785.0001	5785.0000	5784.9997	5784.9991
-10	5785.0005	5785.0003	5785.0002	5784.9997
0	5785.0010	5785.0004	5784.9995	5784.9992
10	5785.0018	5785.0017	5785.0007	5785.0000
20	5785.0026	5785.0016	5785.0015	5785.0011
30	5785.0091	5785.0082	5785.0076	5785.0073
40	5785.0107	5785.0101	5785.0094	5785.0085
50	5785.0105	5785.0100	5785.0090	5785.0080
Max. Deviation (MHz)	0.0107	0.0101	0.0094	0.0085
Max. Deviation (ppm)	1.85	1.75	1.62	1.47
Result	Pass			

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FS Result Appendix F

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

Voltage	Measurement Frequency (MHz)			
0.0	5190 MHz			
(V)	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5190.0034	5190.0026	5190.0020	5190.0017
110.00	5190.0026	5190.0018	5190.0009	5190.0005
93.50	5190.0025	5190.0021	5190.0014	5190.0013
Max. Deviation (MHz)	0.0034	0.0026	0.0020	0.0017
Max. Deviation (ppm)	0.66	0.50	0.39	0.33
Result		Pa	ass	

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz) 5190 MHz			
(°C)				
(℃)	0 Minute	2 Minute	5 Minute	10 Minute
-30	5189.9960	5189.9959	5189.9953	5189.9947
-20	5189.9975	5189.9970	5189.9960	5189.9954
-10	5189.9979	5189.9971	5189.9963	5189.9959
0	5189.9997	5189.9993	5189.9987	5189.9985
10	5190.0009	5190.0007	5189.9998	5189.9989
20	5190.0026	5190.0023	5190.0015	5190.0011
30	5190.0091	5190.0086	5190.0080	5190.0079
40	5190.0106	5190.0098	5190.0092	5190.0087
50	5190.0042	5190.0038	5190.0030	5190.0024
Max. Deviation (MHz)	0.0106	0.0098	0.0092	0.0087
Max. Deviation (ppm)	2.04	1.89	1.77	1.68
Result		Pa	ISS	

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5755 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5755.0032	5755.0024	5755.0017	5755.0016
110.00	5755.0026	5755.0017	5755.0011	5755.0001
93.50	5755.0019	5755.0017	5755.0008	5755.0002
Max. Deviation (MHz)	0.0032	0.0024	0.0017	0.0016
Max. Deviation (ppm)	0.56	0.42	0.30	0.28
Result	Pass			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)				
(°C)		5755 MHz			
(℃)	0 Minute	2 Minute	5 Minute	10 Minute	
-30	5754.9958	5754.9948	5754.9941	5754.9938	
-20	5754.9973	5754.9972	5754.9968	5754.9960	
-10	5754.9987	5754.9979	5754.9969	5754.9966	
0	5754.9995	5754.9994	5754.9988	5754.9983	
10	5755.0006	5755.0001	5754.9999	5754.9994	
20	5755.0026	5755.0023	5755.0021	5755.0020	
30	5755.0091	5755.0084	5755.0078	5755.0072	
40	5755.0110	5755.0104	5755.0103	5755.0099	
50	5755.0031	5755.0025	5755.0015	5755.0011	
Max. Deviation (MHz)	0.0110	0.0104	0.0103	0.0099	
Max. Deviation (ppm)	1.91	1.81	1.79	1.72	
Result		P	ass	•	

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FS Result Appendix F

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

Voltage	Measurement Frequency (MHz)					
0.0	5210 MHz					
(V)	0 Minute	2 Minute	5 Minute	10 Minute		
126.50	5210.0028	5210.0021	5210.0015	5210.0011		
110.00	5210.0026	5210.0019	5210.0012	5210.0006		
93.50	5210.0024	5210.0016	5210.0009	5210.0006		
Max. Deviation (MHz)	0.0028	0.0021	0.0015	0.0011		
Max. Deviation (ppm)	0.54	0.40	0.29	0.21		
Result		Pa	ass	Pass		

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)				
(°C)		5210 MHz			
(℃)	0 Minute	2 Minute	5 Minute	10 Minute	
-30	5209.9984	5209.9978	5209.9974	5209.9971	
-20	5209.9988	5209.9986	5209.9982	5209.9979	
-10	5209.9999	5209.9989	5209.9981	5209.9972	
0	5210.0000	5209.9998	5209.9993	5209.9988	
10	5210.0007	5209.9999	5209.9989	5209.9981	
20	5210.0026	5210.0018	5210.0009	5210.0002	
30	5210.0091	5210.0081	5210.0071	5210.0066	
40	5210.0108	5210.0098	5210.0093	5210.0083	
50	5210.0044	5210.0039	5210.0035	5210.0025	
Max. Deviation (MHz)	0.0108	0.0098	0.0093	0.0083	
Max. Deviation (ppm)	2.07	1.88	1.79	1.59	
Result		Pa	iss		

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
00	5775 MHz			
(V)	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5775.0033	5775.0032	5775.0025	5775.0017
110.00	5775.0026	5775.0019	5775.0013	5775.0004
93.50	5775.0021	5775.0012	5775.0008	5775.0000
Max. Deviation (MHz)	0.0033	0.0032	0.0025	0.0017
Max. Deviation (ppm)	0.57	0.55	0.43	0.29
Result		Pass		

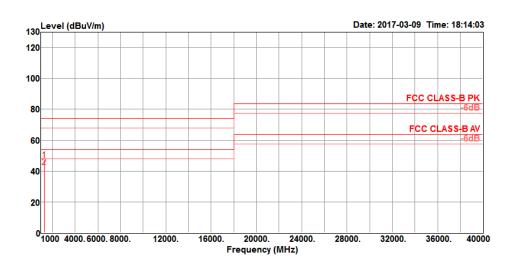
Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz) 5775 MHz			
(°C)				
(℃)	0 Minute	2 Minute	5 Minute	10 Minute
-30	5774.9995	5774.9987	5774.9981	5774.9974
-20	5774.9997	5774.9991	5774.9983	5774.9980
-10	5774.9998	5774.9995	5774.9987	5774.9982
0	5775.0003	5774.9997	5774.9995	5774.9991
10	5775.0009	5775.0002	5774.9992	5774.9985
20	5775.0026	5775.0017	5775.0013	5775.0007
30	5775.0091	5775.0086	5775.0078	5775.0068
40	5775.0095	5775.0090	5775.0088	5775.0080
50	5775.0028	5775.0018	5775.0011	5775.0008
Max. Deviation (MHz)	0.0095	0.0090	0.0088	0.0080
Max. Deviation (ppm)	1.65	1.56	1.52	1.39
Result		Pa	ass	

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RSE Co-location Result									
Operating Mode	1	Polarization	Horizontal						
Operating Function	CTX - EUT in Y axis - WLAN 2.4GHz + WLAN 5GHz								

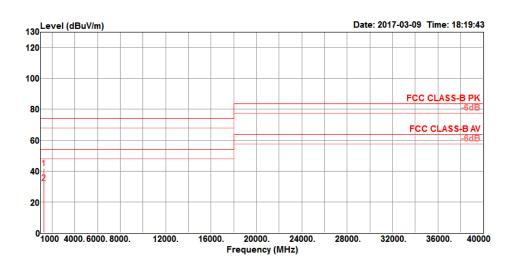


	Freq	Level		Over Limit					A/Pos	•	Remark	Pol/Phase
-	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	CM	deg		
1	1249.96	47.38	74.00	-26.62	54.09	4.30	24.99	36.00	112	189	Peak	HORIZONTAL
2	1250.10	42.48	54.00	-11.52	49.19	4.30	24.99	36.00	112	189	Average	HORIZONTAL

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RSE Co-location Result									
Operating Mode	1	Polarization	Vertical						
Operating Function	EUT in Y axis - WLAN 2.4GHz + WLAN 5GHz								

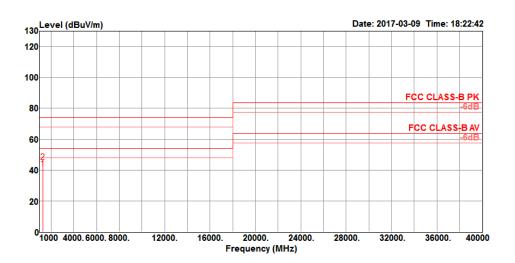


	Freq	Level		Over Limit						1/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1 2	1249.80 1249.98										Peak Average	VERTICAL VERTICAL

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RSE Co-location Result									
Operating Mode	2	Polarization	Horizontal						
Operating Function	CTX - EUT in Z axis - WLAN 2.4GHz + WLAN 5GHz								

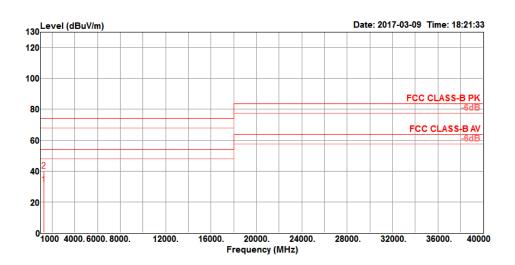


	Freq	Level						Factor	A/Pos	1/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1 2	1251.10 1251.11										Average Peak	HORIZONTAL HORIZONTAL

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RSE Co-location Result									
Operating Mode	2	Polarization	Vertical						
Operating Function	EUT in Z axis - WLAN 2.4GHz + WLAN 5GHz								



	Freq	Level		Over Limit					-	1/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1 2	1250.01 1250.01									221 221	Average Peak	VERTICAL VERTICAL

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