

Report No.: FR622328AB
Project No: CB10607393

FCC Test Report

Equipment : UniCAP

Brand Name : CAPWAVE TECHNOLOGIES

Model No. : UC-12-EXP

FCC ID : 2AFGY-UC12EXP

Standard : 47 CFR FCC Part 15.407

Operating Band : 5150 MHz - 5250 MHz

5725 MHz - 5850 MHz

Applicant : Capwave Technologies Inc.

1501 Ocean Ave, Unit 2601, Asbury Park, NJ 07712, USA

Manufacturer : SmartAnt Telecom Co., Ltd

3F, No.58, Park Avenue II, Science-based Industrial Park,

Hsinchu 30075, Taiwan, R.O.C.

Function : ⊠ Outdoor; ☐ Indoor; ⊠ Fixed P2P

Client

The product sample received on Feb. 23, 2016 and completely tested on Jul. 26, 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 Clause	Ref. Std. Clause	Description	Result		
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
FR622328AB	Rev. 01	Initial issue of report	Sep. 28, 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]

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

Note:

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

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1.1.2 Antenna Information

Ant.	Port	Brand Model Name Antenna Type		Antonna Tyno	Connector	Gain (dBi)	
Ant.	Port	Dianu	Woder Name	Antenna Type	Connector	2.4GHz	5GHz
1	1	SmartAnt	CAP15-220290	Dual Polarization Directional Antenna	MMCX R/A plug	11	12.5
2	2	SmartAnt	CAP15-220290	Dual Polarization	MMCX R/A plug	11	12.5
				Directional Antenna			

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Note: The EUT has two antennas.

<For 2.4GHz Function>

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

Port 1 and Port 2 could transmit/receive simultaneously.

<For 5GHz Function>

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

Port 1 and Port 2 could transmit/receive simultaneously.

1.1.3 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
802.11a	0.942	0.259	1.348m	1k
802.11ac VHT20	0.948	0.232	1.273m	1k
802.11ac VHT40	0.88	0.555	635u	3k
802.11ac VHT80	0.775	1.107	320u	10k

1.1.4 EUT Operational Condition

EUT Power Type		
Beamforming Function	☐ With beamforming	

1.1.5 Table for radio type

Radio type	Support function
Radio 1	2.4GHz and 5GHz
Radio 2	2.4GHz and 5GHz

Note: Radio 1 and Radio 2 are the same module, so 2.4GHz test for Radio 2 and 5GHz test for Radio 1.

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1.2 Testing Applied Standards

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

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

1.3 Testing Location Information

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

Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
RF Conducted	TH01-CB	Gino Huang	23°C / 54%	Mar. 29, 2017~ Jul. 26, 2017
Radiated	03CH01-CB	Justin Lin / Joy Tseng	22°C / 54%	Mar. 22, 2017~ Apr. 26, 2017
AC Conduction	CO01-CB	Rick Yeh	23°C / 57%	Jun. 28, 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

<Point to Point>

Mode	Power Setting
802.11a_(6Mbps)_2TX	-
5180MHz	18
5200MHz	23
5240MHz	25
5745MHz	27
5785MHz	24
5825MHz	24
802.11ac VHT20_Nss1,(MCS0)_2TX	-
5180MHz	19.5
5200MHz	24
5240MHz	25.5
5745MHz	24
5785MHz	23
5825MHz	23
802.11ac VHT40_Nss1,(MCS0)_2TX	-
5190MHz	15.5
5230MHz	21
5755MHz	25.5
5795MHz	25.5
802.11ac VHT80_Nss1,(MCS0)_2TX	-
5210MHz	9
5775MHz	24.5

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<Point to Multi-point >

Mode	Power Setting
802.11a_(6Mbps)_2TX	-
5180MHz	8
5200MHz	8
5240MHz	8
5745MHz	21
5785MHz	20.5
5825MHz	20.5
802.11ac VHT20_Nss1,(MCS0)_2TX	-
5180MHz	8
5200MHz	8
5240MHz	8
5745MHz	21
5785MHz	20.5
5825MHz	20.5
802.11ac VHT40_Nss1,(MCS0)_2TX	-
5190MHz	8.5
5230MHz	8.5
5755MHz	21.5
5795MHz	21
802.11ac VHT80_Nss1,(MCS0)_2TX	-
5210MHz	9
5775MHz	21

Note:

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

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2.2 The Worst Case Measurement Configuration

Th	e 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	
1	EUT - Bridge mode (Radio 1: 5GHz + Radio 2: 5GHz)	
2	EUT - Bridge mode (Radio 1: 2.4GHz + Radio 2: 2.4GHz)	
3	EUT - AP mode (Radio 1: 2.4GHz + Radio 2: 2.4GHz)	
4	EUT - Station mode (Radio 1: 2.4GHz + Radio 2: 2.4GHz)	
5	EUT - AP mode (Radio 1: 5GHz + Radio 2: 5GHz)	
6	EUT - Station mode (Radio 1: 5GHz + Radio 2: 5GHz)	
Mode 2 generated the wor	st test result, so it was recorded in this report.	

Th	The Worst Case Mode for Following Conformance Tests		
Tests Item	Emission Bandwidth Maximum Conducted Output Power Peak Power Spectral Density Frequency Stability Unwanted Emissions		
Operating Mode	CTX - Radio 1		
Test Condition	Conducted measurement at transmit chains		

Th	e 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 EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.
Operating Mode < 1GHz	Normal Link
1	EUT - Bridge mode (Radio 1: 5GHz + Radio 2: 5GHz)
2	EUT - Bridge mode (Radio 1: 2.4GHz + Radio 2: 2.4GHz)
3	EUT - AP mode (Radio 1: 2.4GHz + Radio 2: 2.4GHz)
4	EUT - Station mode (Radio 1: 2.4GHz + Radio 2: 2.4GHz)
5	EUT - AP mode (Radio 1: 5GHz + Radio 2: 5GHz)
6	EUT - Station mode (Radio 1: 5GHz + Radio 2: 5GHz)
For operating mode 1 is th	e worst case and it was record in this test report.
Operating Mode	CTX - Radio 1
Operating Mode > 1GHz	CTX

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Tł	ne Worst Case Mode for Following Conformance Tests
Tests Item	Simultaneous Transmission Analysis - Co-location RF Exposure Evaluation
Operating Mode	
1	2.4GHz(Radio 1) + 5GHz(Radio 1) + 2.4GHz(Radio 2) + 5GHz(Radio 2)
Refer to Sporton Test Rep	ort No.: FA622328 for Co-location RF Exposure Evaluation.

Note 1: The EUT can only use Y axis position.

Note 2: The Conducted measurement will perform point-to-point and Point to Multi-point operation.

Note 3: The PoE was for measurement only, would not be marketed.

The PoE information as below:

Support Unit	Brand	Model Number
PoE	MOTOROLA	AP-PSBIAS-2P3-ATR
PoE	CISCO	MA-INJ-4

2.3 EUT Operation during Test

For CTX Mode:

The EUT was programmed to be in continuously transmitting mode.

For Normal Link:

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During the test, the EUT operation to normal function.

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2.4 Accessories

N/A

2.5 Support Equipment

For Test Site No: CO01-CB

		Support Equ	ipment	
No.	Equipment	Brand Name	Model Name	FCC ID
1	NB*4	DELL	E6430	DoC
2	Device	UniCAP	UC-12-EXP	2AFGY-UC12EXP
3	PoE*2	MOTOROLA	AP-PSBIAS-2P3-ATR	DoC
4	PoE*2	CISCO	MA-INJ-4	DoC

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

		Support Equ	ipment	
No.	Equipment	Brand Name	Model Name	FCC ID
1	NB*4	DELL	E4300	DoC
2	Device	UniCAP	UC-12-EXP	2AFGY-UC12EXP
3	PoE*2	MOTOROLA	AP-PSBIAS-2P3-ATR	DoC
4	PoE*2	CISCO	MA-INJ-4	DoC

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

	Support Equipment			
No.	Equipment	Brand Name	Model Name	FCC ID
1	Notebook	DELL	E4300	DoC
2	PoE	MOTOROLA	AP-PSBIAS-2P3-ATR	DoC

For Test Site No: TH01-CB

	Support Equipment			
No.	o. Equipment Brand Name Model Name FCC ID			
1	Notebook	DELL	E4300	DoC
2	PoE	MOTOROLA	AP-PSBIAS-2P3-ATR	DoC

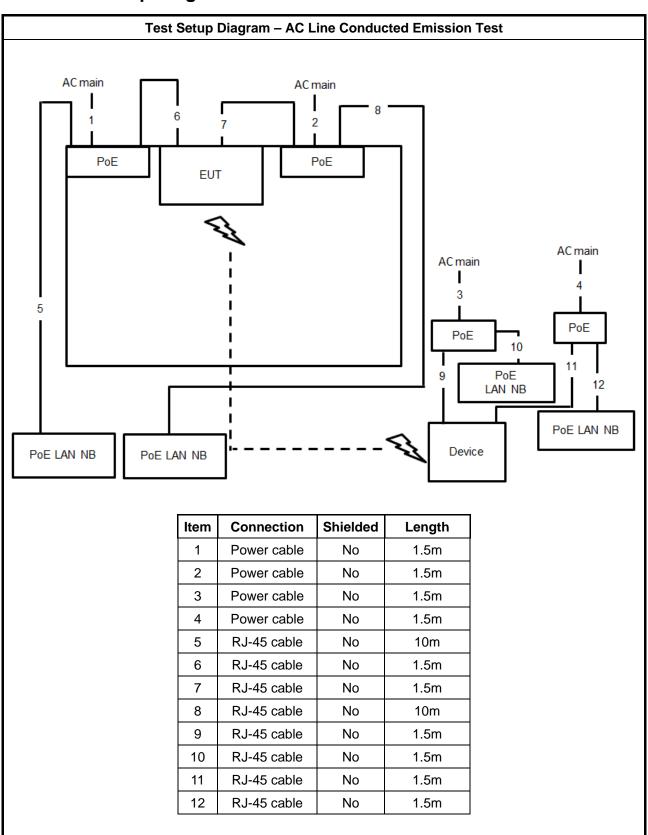
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2.6 Test Setup Diagram



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Test Setup Diagram - Radiated Test < 1GHz EUT AC MAIN PoE Т 10 PoE AC MAIN AC MAIN LAN NB LAN NB ΑP 11 LAN NB PoE LAN NB PoE Item Connection **Shielded** Length Power cable 1.5m 1 No RJ-45 cable 2 10m No RJ-45 cable 3 No 10m 4 RJ-45 cable No 10m RJ-45 cable 5 No 10m 6 RJ-45 cable No 2m 7 RJ-45 cable No 2m 8 RJ-45 cable 2m No RJ-45 cable 9 No 2m 10 Power cable No 1.5m Power cable 11 No 1.5m 12 Power cable No 1.5m

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Test Setup Diagram - Radiated Test > 1GHz EUT AC MAIN PoE LAN NB Item Connection **Shielded** Length 1 RJ-45 cable No 10m 2 RJ-45 cable No 1m 3 Power cable No 1.8m

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Transmitter Test Result 3

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	

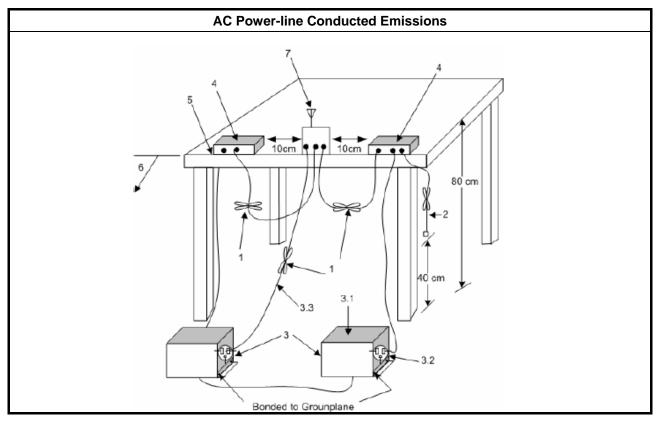
3.1.2 Measuring Instruments

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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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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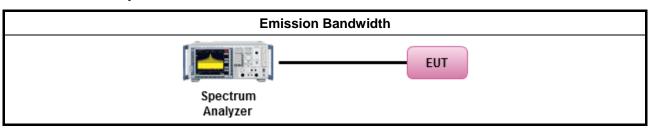
3.2.2 Measuring Instruments

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:								
	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.									
	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.
	= maximum conducted output power in dBm,= the maximum transmitting antenna directional gain in dBi.

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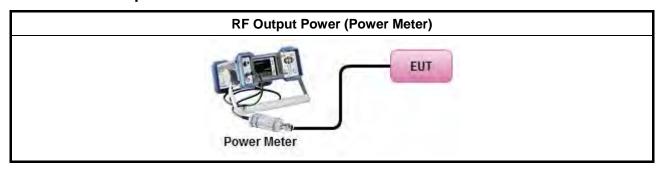
3.3.2 Measuring Instruments

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} = P ₁ + P ₂ + + 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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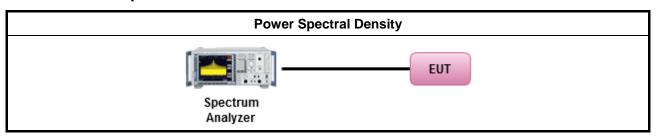
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3.4.3 Test Procedures

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

3.4.4 Test Setup



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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

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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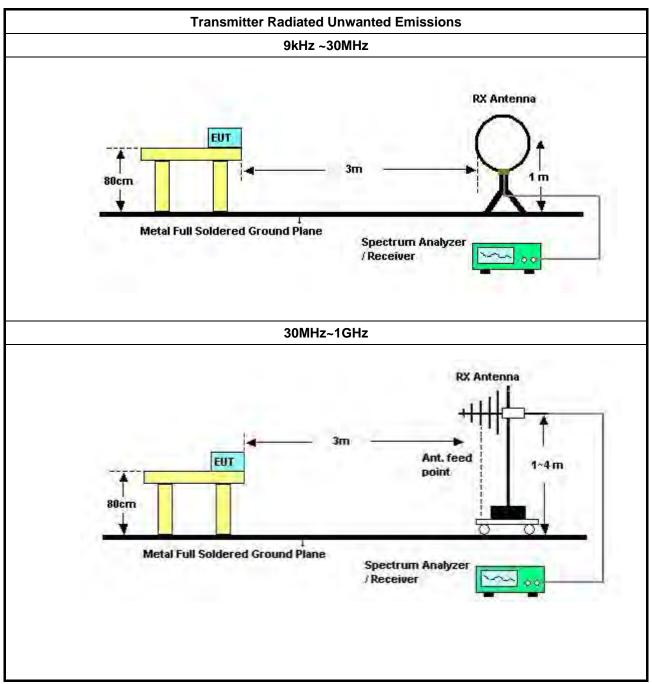
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has no need to be reported.

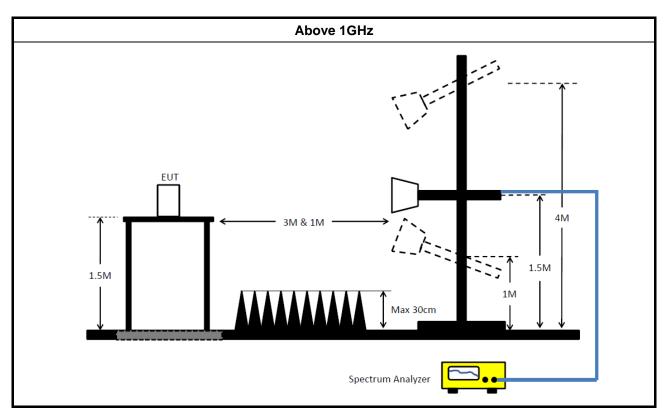


3.5.4 Test Setup



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3.5.5 Transmitter Unwanted Emissions (Below 30MHz)

The definitive verification that the radio spectrum below 30 MHz was investigated down to at least 25 MHz. Due to 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

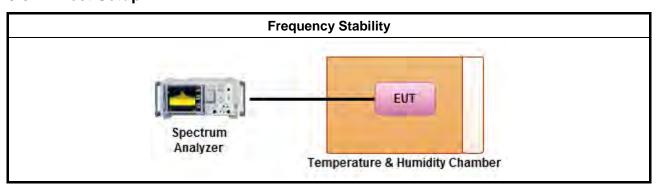
Refer a test equipment and calibration data table in this test report.

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 -40°C~65°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
mstrument				Characteristics		Conduction
EMI Receiver	Agilent	N9038A	My52260123	9kHz ~ 8.45GHz	Jan. 23, 2017	(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 23, 2017	Conduction (CO01-CB)
Software	Audix	E3	6.120210n	-	N.C.R.	Conduction (CO01-CB)
BILOG ANTENNA with 6dB Attenuator	TESEQ & EMCI	CBL6112D & N-6-06	37880 & AT-N0609	20MHz ~ 2GHz	Aug. 30, 2016	Radiation (03CH01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	Mar. 16, 2016*	Radiation (10CH01-CB)
Horn Antenna	EMCO	3115	00075790	750MHz ~ 18GHz	Nov. 10, 2016	Radiation (03CH01-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Jul. 25, 2016	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8447D	2944A10991	0.1MHz ~ 1.3GHz	Mar. 13, 2017	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Jan. 16, 2017	Radiation (03CH01-CB)
Pre-Amplifier	MITEQ	TTA1840-35-HG	1864479	18GHz ~ 40GHz	Jun. 28, 2016	Radiation (03CH01-CB)
Spectrum Analyzer	R&S	FSP40	100056	9kHz ~ 40GHz	Nov. 22, 2016	Radiation (03CH01-CB)
EMI Test	R&S	ESCS	100355	9kHz ~ 2.75GHz	May 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)
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	imidity Gaint Force GTH-408-40-CP-		MAA1410-011	-40~100 degree	Sep. 20, 2016	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-6	1 GHz – 26.5 GHz	Oct. 24, 2016	Conducted (TH01-CB)

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Instrument Manufacturer Model No.		Serial No.	Characteristics	Calibration Date	Remark	
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)

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

NCR means Non-Calibration required.

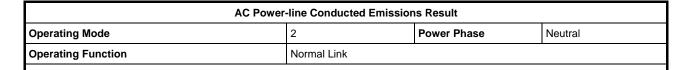
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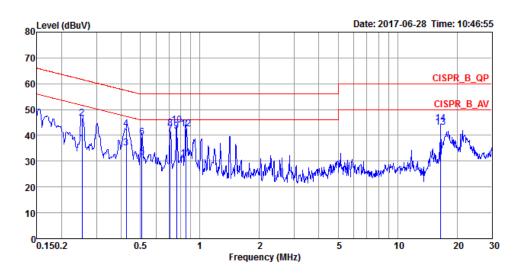
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[&]quot;*" Calibration Interval of instruments listed above is two years.

AC Power-line Conducted Emissions Result

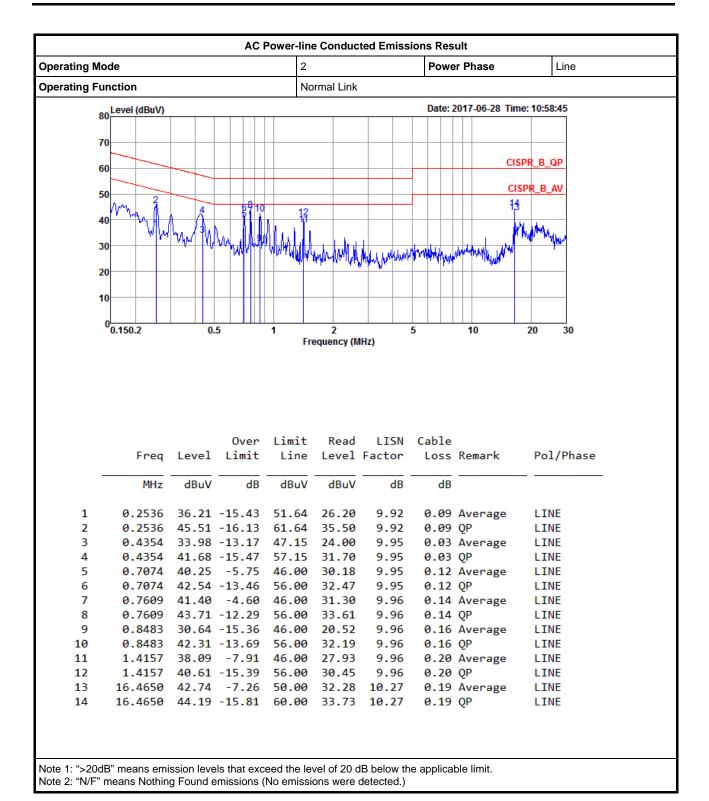




			0ver	Limit	Read	LISN	Cable		
	Freq	Level	Limit	Line	Level	Factor	Loss	Remark	Pol/Phase
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.2539	36.97	-14.66	51.63	26.80	10.08	0.09	Average	NEUTRAL
2	0.2539	46.55	-15.08	61.63	36.38	10.08	0.09	QP	NEUTRAL
3	0.4244	35.13	-12.23	47.36	24.86	10.25	0.02	Average	NEUTRAL
4	0.4244	42.41	-14.95	57.36	32.14	10.25	0.02	QP	NEUTRAL
5	0.5099	31.65	-14.35	46.00	21.37	10.22	0.06	Average	NEUTRAL
6	0.5099	39.36	-16.64	56.00	29.08	10.22	0.06	QP	NEUTRAL
7	0.7080	40.39	-5.61	46.00	30.11	10.16	0.12	Average	NEUTRAL
8	0.7080	42.69	-13.31	56.00	32.41	10.16	0.12	QP	NEUTRAL
9	0.7612	41.76	-4.24	46.00	31.49	10.13	0.14	Average	NEUTRAL
10	0.7612	44.11	-11.89	56.00	33.84	10.13	0.14	QP	NEUTRAL
11	0.8488	30.97	-15.03	46.00	20.71	10.10	0.16	Average	NEUTRAL
12	0.8488	42.38	-13.62	56.00	32.12	10.10	0.16	QP	NEUTRAL
13	16.4654	43.18	-6.82	50.00	32.70	10.29	0.19	Average	NEUTRAL
14	16.4654	44.67	-15.33	60.00	34.19	10.29	0.19	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.)

AC Power-line Conducted Emissions Result



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Appendix B.1 EBW Result

<Point to Point>

Summary

Mode	Max-N dB	Max-OBW	ITU-Code	Min-N dB	Min-OBW	
	(Hz)	(Hz)		(Hz)	(Hz)	
802.11a_(6Mbps)_2TX	-	-	-	-	-	
5.15-5.25GHz	23.575M	16.567M	16M6D1D	21.35M	16.442M	
5.725-5.85GHz	16.325M	16.567M	16M6D1D	16.275M	16.492M	
802.11ac VHT20_Nss1,(MCS0)_2TX	-	-	-	-	-	
5.15-5.25GHz	23.925M	17.766M	17M8D1D	23.15M	17.666M	
5.725-5.85GHz	17.575M	17.716M	17M7D1D	16.9M	17.666M	
802.11ac VHT40_Nss1,(MCS0)_2TX	-	-	-	-	-	
5.15-5.25GHz	44.8M	36.332M	36M3D1D	43.45M	36.232M	
5.725-5.85GHz	35.8M	36.282M	36M3D1D	35.65M	36.182M	
802.11ac VHT80_Nss1,(MCS0)_2TX	-	-	-	-	-	
5.15-5.25GHz	90.3M	75.762M	75M8D1D	90.2M	75.762M	
5.725-5.85GHz	75.4M	75.662M	75M7D1D	70.6M	75.562M	

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.1

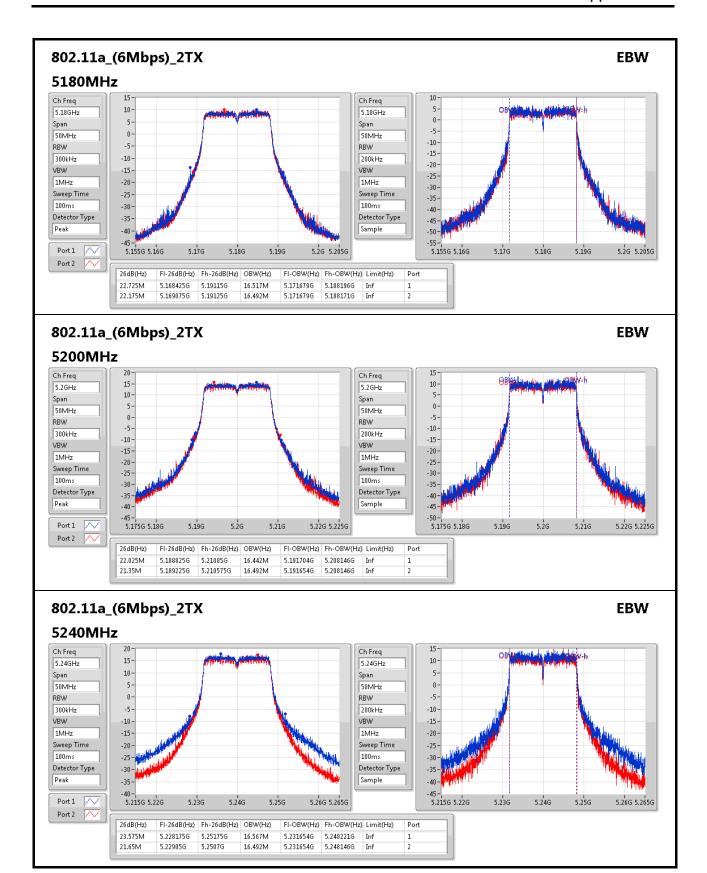
Result

Mode	Result	Limit	Port 1-N dB	Port 1-OBW	Port 2-N dB	Port 2-OBW
		(Hz)	(Hz)	(Hz)	(Hz)	(Hz)
802.11a_(6Mbps)_2TX	-	-	-	-	-	-
5180MHz	Pass	Inf	22.725M	16.517M	22.175M	16.492M
5200MHz	Pass	Inf	22.025M	16.442M	21.35M	16.492M
5240MHz	Pass	Inf	23.575M	16.567M	21.65M	16.492M
5745MHz	Pass	500k	16.275M	16.492M	16.325M	16.567M
5785MHz	Pass	500k	16.325M	16.517M	16.3M	16.542M
5825MHz	Pass	500k	16.3M	16.492M	16.325M	16.517M
802.11ac VHT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5180MHz	Pass	Inf	23.15M	17.666M	23.15M	17.691M
5200MHz	Pass	Inf	23.525M	17.741M	23.275M	17.666M
5240MHz	Pass	Inf	23.925M	17.766M	23.55M	17.691M
5745MHz	Pass	500k	17.575M	17.691M	17.55M	17.716M
5785MHz	Pass	500k	17.575M	17.716M	17.525M	17.716M
5825MHz	Pass	500k	16.9M	17.716M	17.55M	17.666M
802.11ac VHT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5190MHz	Pass	Inf	44.8M	36.282M	44.8M	36.282M
5230MHz	Pass	Inf	43.45M	36.232M	44.75M	36.332M
5755MHz	Pass	500k	35.8M	36.182M	35.65M	36.282M
5795MHz	Pass	500k	35.65M	36.182M	35.65M	36.282M
802.11ac VHT80_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5210MHz	Pass	Inf	90.3M	75.762M	90.2M	75.762M
5775MHz	Pass	500k	70.6M	75.562M	75.4M	75.662M

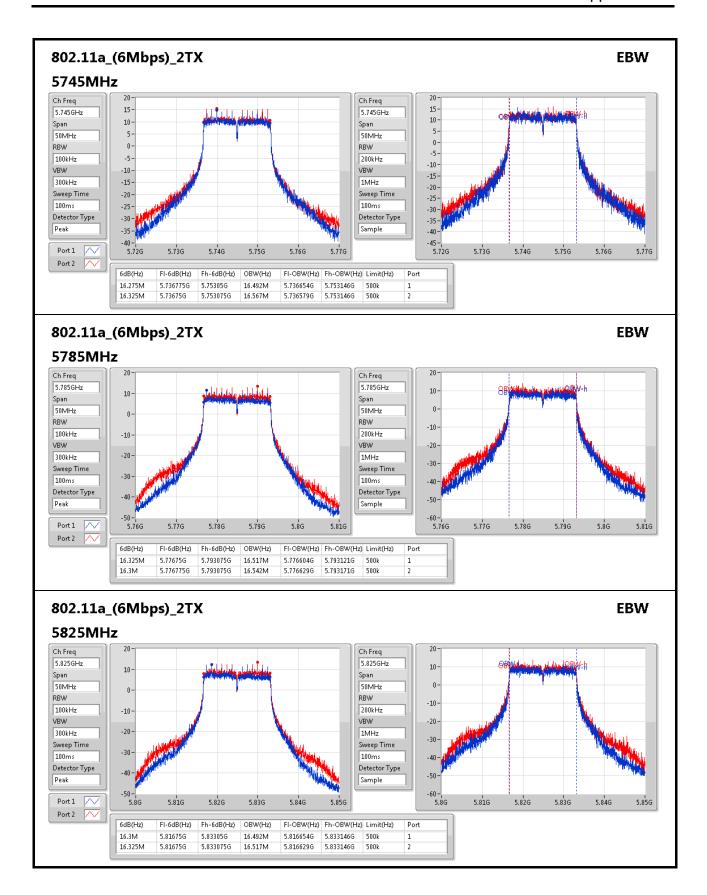
Port X-N dB = Port X 6dB down bandwidth for 5.725-5.85GHz band / 26dB down bandwidth for other band Port X-OBW = Port X 99% occupied bandwidth;

SPORTON INTERNATIONAL INC.

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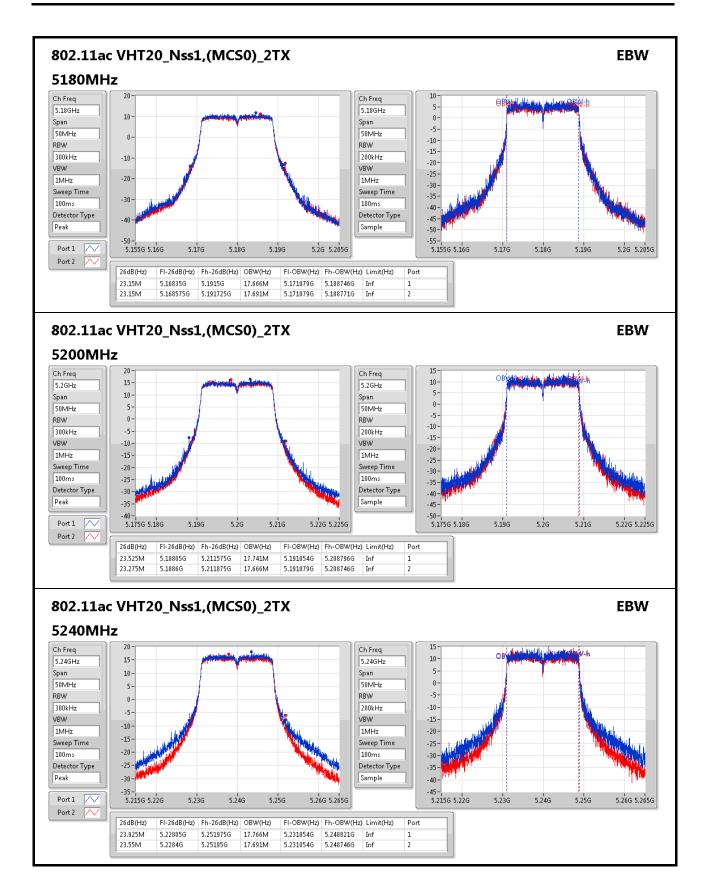


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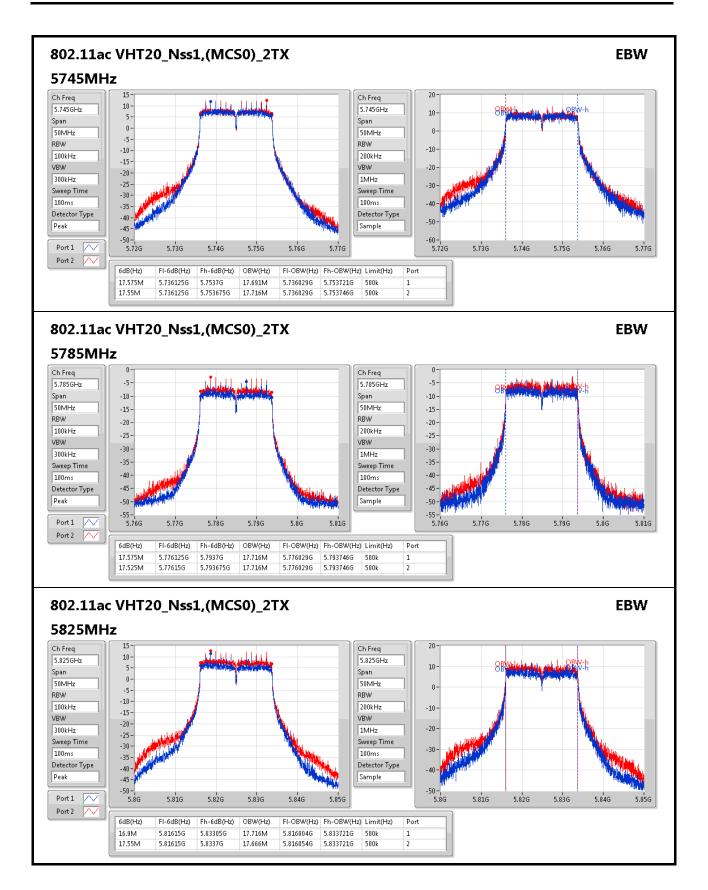


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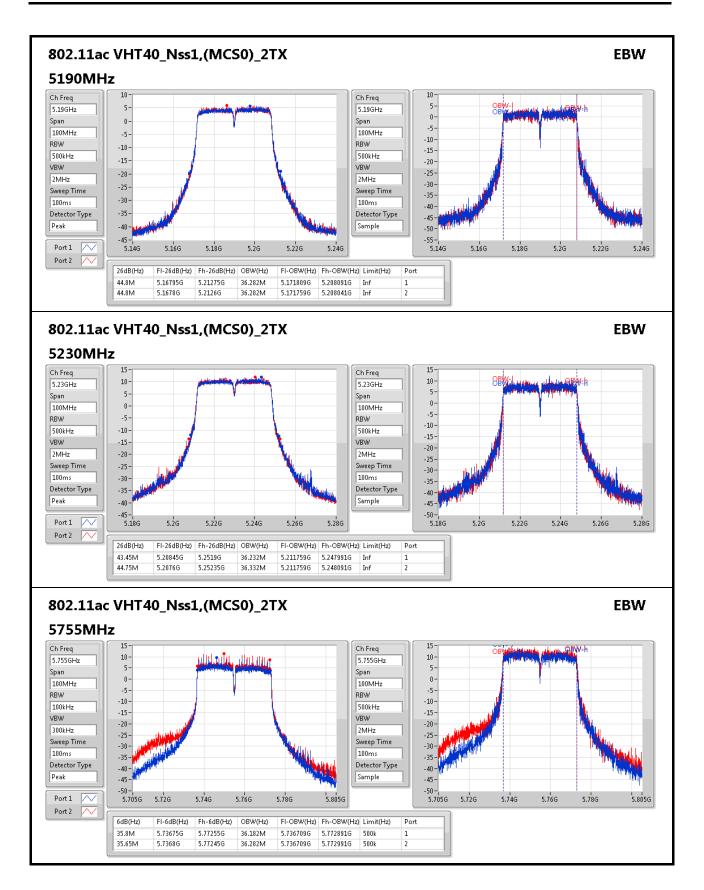




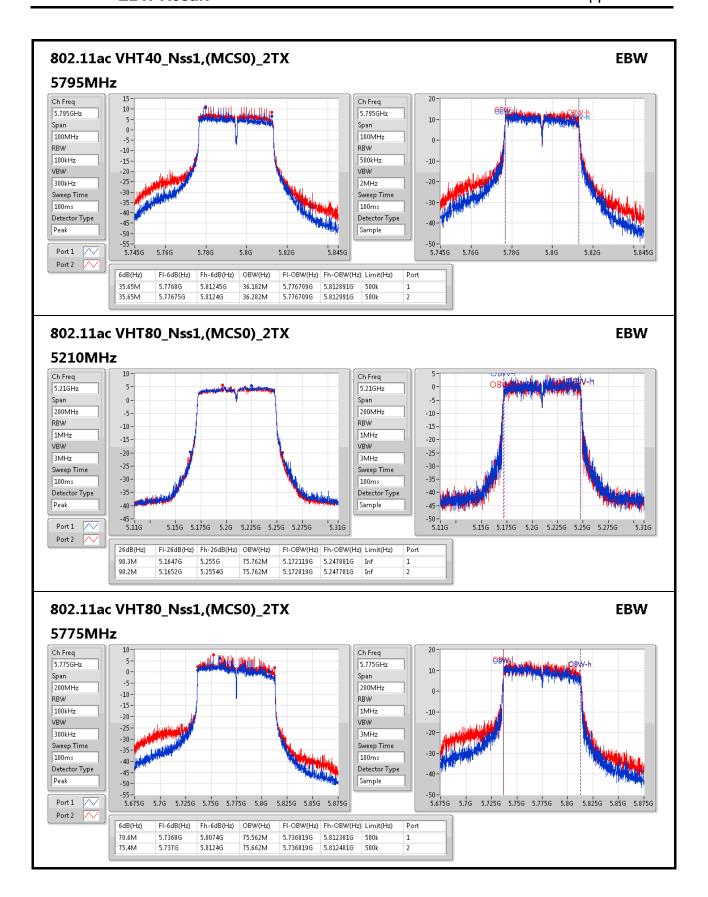


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Appendix B.2 EBW Result

<Point to Multi-point>

Summary

Mode	Max-N dB	Max-OBW	ITU-Code	Min-N dB	Min-OBW
	(Hz)	(Hz)		(Hz)	(Hz)
802.11a_(6Mbps)_2TX	-	-	-	-	-
5.15-5.25GHz	22.375M	16.542M	16M5D1D	21.65M	16.492M
5.725-5.85GHz	16.35M	16.542M	16M5D1D	16.3M	16.467M
802.11ac VHT20_Nss1,(MCS0)_2TX	-	-	-	-	-
5.15-5.25GHz	23.7M	17.741M	17M7D1D	22.4M	17.666M
5.725-5.85GHz	17.575M	17.716M	17M7D1D	16.925M	17.666M
802.11ac VHT40_Nss1,(MCS0)_2TX	-	-	-	-	-
5.15-5.25GHz	45.35M	36.332M	36M3D1D	43.8M	36.182M
5.725-5.85GHz	35.8M	36.332M	36M3D1D	35.45M	36.232M
802.11ac VHT80_Nss1,(MCS0)_2TX	-	-	-	-	-
5.15-5.25GHz	90.3M	75.762M	75M8D1D	90.2M	75.762M
5.725-5.85GHz	73.2M	75.662M	75M7D1D	73.2M	75.662M

Max-N dB = Maximum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;
Max-OBW = Maximum 99% occupied bandwidth;
Min-N dB = Minimum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;

Min-OBW = Minimum 99% occupied bandwidth;

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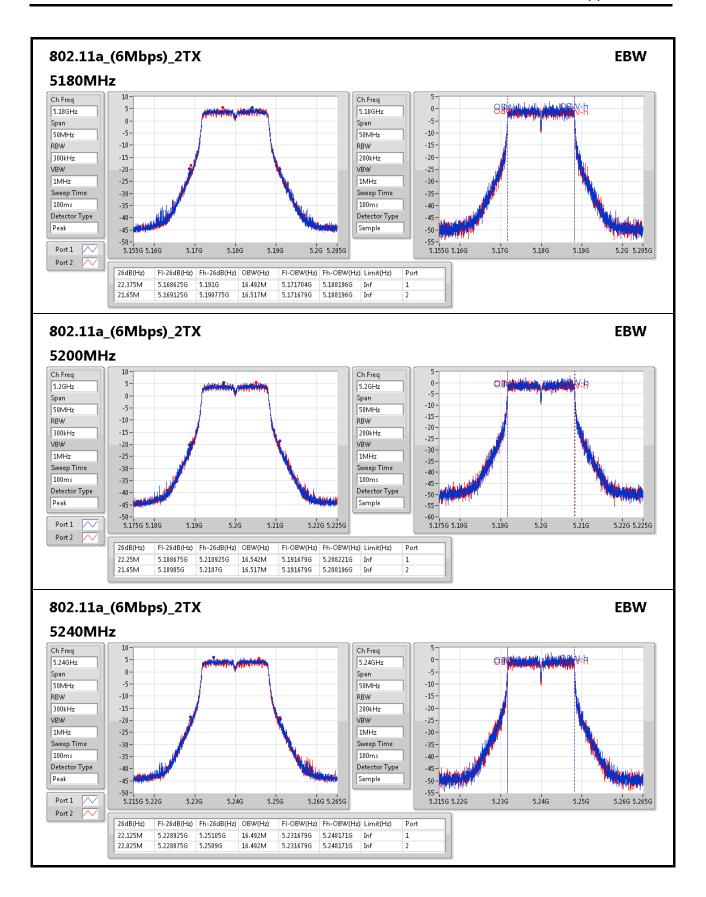
EBW Result Appendix B.2

Result

Mode	Result	Limit	Port 1-N dB	Port 1-OBW	Port 2-N dB	Port 2-OBW
		(Hz)	(Hz)	(Hz)	(Hz)	(Hz)
802.11a_(6Mbps)_2TX	-	-	-	-	-	-
5180MHz	Pass	Inf	22.375M	16.492M	21.65M	16.517M
5200MHz	Pass	Inf	22.25M	16.542M	21.65M	16.517M
5240MHz	Pass	Inf	22.125M	16.492M	22.025M	16.492M
5745MHz	Pass	500k	16.35M	16.517M	16.3M	16.492M
5785MHz	Pass	500k	16.3M	16.542M	16.325M	16.492M
5825MHz	Pass	500k	16.325M	16.492M	16.325M	16.467M
802.11ac VHT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5180MHz	Pass	Inf	22.4M	17.666M	22.925M	17.691M
5200MHz	Pass	Inf	23.7M	17.741M	23.4M	17.691M
5240MHz	Pass	Inf	22.975M	17.691M	22.85M	17.691M
5745MHz	Pass	500k	17.575M	17.691M	16.925M	17.691M
5785MHz	Pass	500k	17.175M	17.691M	17.55M	17.716M
5825MHz	Pass	500k	17.125M	17.666M	17.15M	17.691M
802.11ac VHT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5190MHz	Pass	Inf	44.05M	36.332M	43.8M	36.332M
5230MHz	Pass	Inf	45.35M	36.232M	44.85M	36.182M
5755MHz	Pass	500k	35.8M	36.332M	35.45M	36.282M
5795MHz	Pass	500k	35.7M	36.232M	35.7M	36.232M
802.11ac VHT80_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5210MHz	Pass	Inf	90.3M	75.762M	90.2M	75.762M
5775MHz	Pass	500k	73.2M	75.662M	73.2M	75.662M

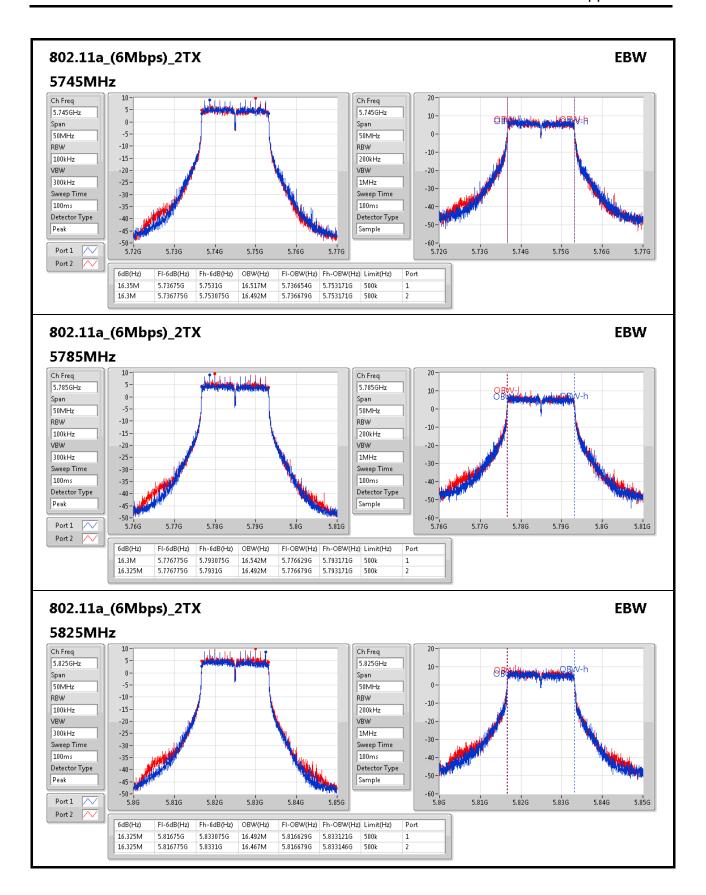
Port X-N dB = Port X 6dB down bandwidth for 5.725-5.85GHz band / 26dB down bandwidth for other band Port X-OBW = Port X 99% occupied bandwidth;

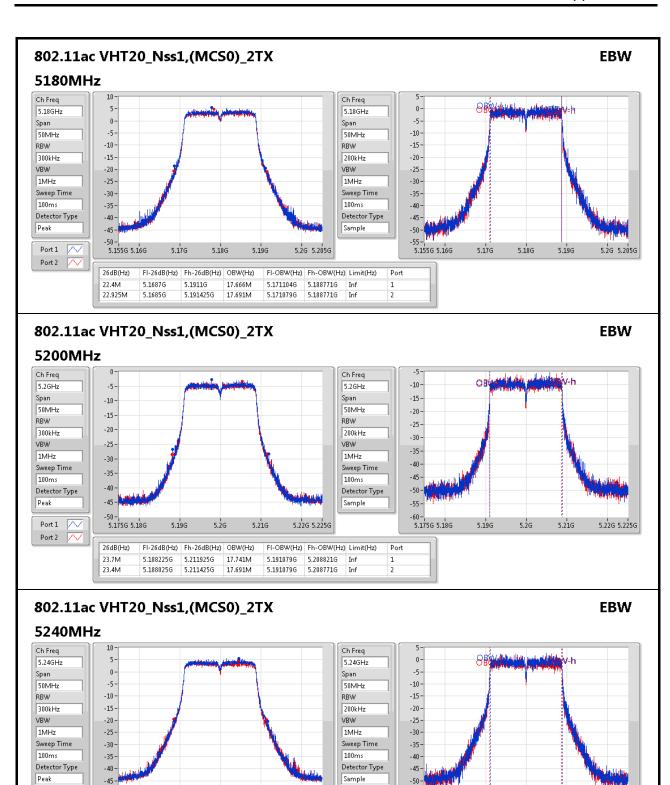
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-50 -5.215G 5.22G

26dB(Hz)

22.975M

22.85M

5.23G

5.2287G

5.22845G

FI-26dB(Hz) Fh-26dB(Hz) OBW(Hz)

5.251675G

5.2513G

5.25G

5.24G

17.691M

17.691M

5.26G 5.265G

5.231104G 5.248796G

5.231079G

FI-OBW(Hz) Fh-OBW(Hz) Limit(Hz)

5.248771G

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Port 1

Port 2

-55 -5.215G 5.22G

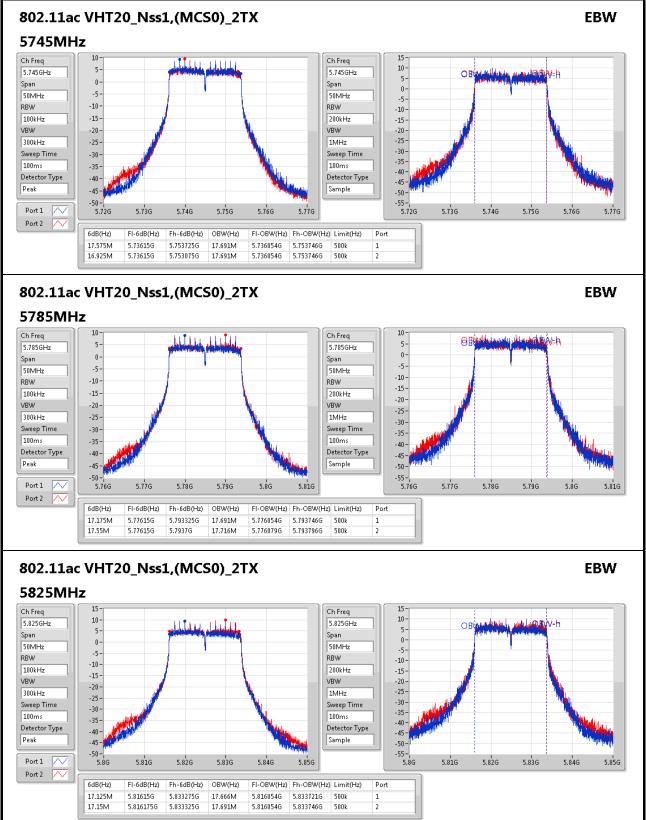
5.23G

5.24G

5.25G

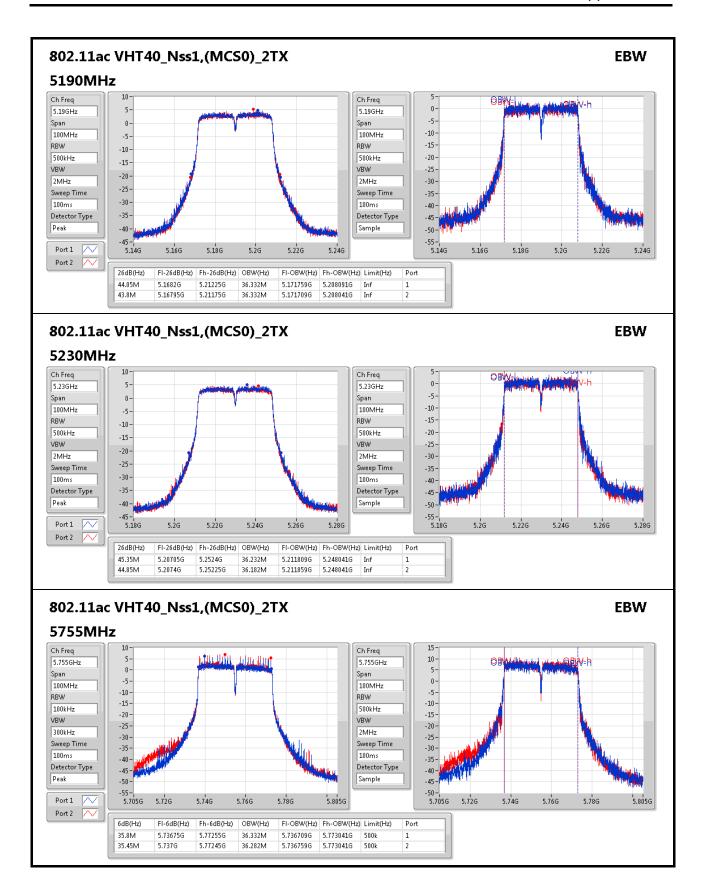
5.26G 5.265G

EBW Result Appendix B.2

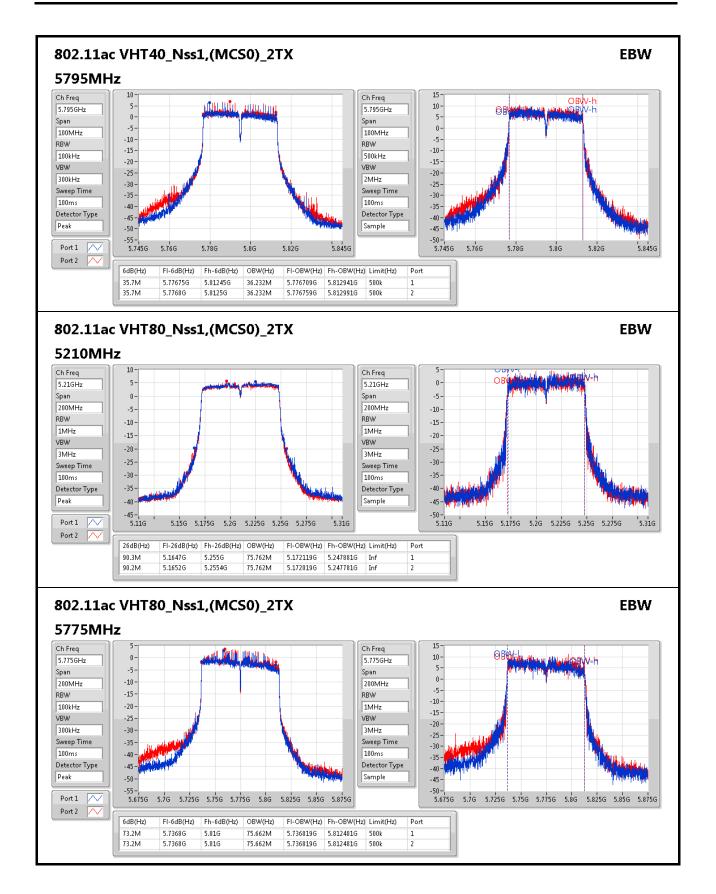


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<Point to Point>

Summary

Mode	Total Power	Total Power	EIRP	EIRP
	(dBm)	(W)	(dBm)	(W)
802.11a_(6Mbps)_2TX	-	-	-	-
5.15-5.25GHz	29.14	0.82035	41.64	14.58814
5.725-5.85GHz	29.52	0.89536	42.02	15.92209
802.11ac VHT20_Nss1,(MCS0)_2TX	-	-	-	-
5.15-5.25GHz	29.31	0.85310	41.81	15.17050
5.725-5.85GHz	26.63	0.46026	39.13	8.18465
802.11ac VHT40_Nss1,(MCS0)_2TX	-	-	-	-
5.15-5.25GHz	24.11	0.25763	36.61	4.58142
5.725-5.85GHz	27.75	0.59566	40.25	10.59254
802.11ac VHT80_Nss1,(MCS0)_2TX	-	-	-	-
5.15-5.25GHz	11.03	0.01268	23.53	0.22542
5.725-5.85GHz	26.80	0.47863	39.30	8.51138

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Result

Mode	Result	DG	Port 1	Port 2	Total Power	Power Limit
		(dBi)	(dBm)	(dBm)	(dBm)	(dBm)
802.11a_(6Mbps)_2TX	-	-	-	-	-	-
5180MHz	Pass	12.50	18.91	18.61	21.77	30.00
5200MHz	Pass	12.50	24.65	24.14	27.41	30.00
5240MHz	Pass	12.50	26.58	25.64	29.14	30.00
5745MHz	Pass	12.50	26.22	26.79	29.52	30.00
5785MHz	Pass	12.50	22.72	24.23	26.55	30.00
5825MHz	Pass	12.50	22.95	24.33	26.70	30.00
802.11ac VHT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5180MHz	Pass	12.50	20.71	20.19	23.47	30.00
5200MHz	Pass	12.50	25.41	25.07	28.26	30.00
5240MHz	Pass	12.50	26.63	25.95	29.31	30.00
5745MHz	Pass	12.50	23.48	23.76	26.63	30.00
5785MHz	Pass	12.50	21.68	23.25	25.55	30.00
5825MHz	Pass	12.50	21.85	23.57	25.81	30.00
802.11ac VHT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5190MHz	Pass	12.50	15.45	15.35	18.41	30.00
5230MHz	Pass	12.50	21.09	21.10	24.11	30.00
5755MHz	Pass	12.50	24.27	25.16	27.75	30.00
5795MHz	Pass	12.50	23.85	25.28	27.64	30.00
802.11ac VHT80_Nss1,(MCS0)_2TX	-	-	-	•	-	-
5210MHz	Pass	12.50	8.13	7.90	11.03	30.00
5775MHz	Pass	12.50	23.14	24.36	26.80	30.00

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



<Point to Multi-point>

Summary

Mode	Total Power	Total Power	EIRP	EIRP
	(dBm)	(W)	(dBm)	(W)
802.11a_(6Mbps)_2TX	-	-	-	-
5.15-5.25GHz	10.94	0.01242	20.87	0.12218
5.725-5.85GHz	23.36	0.21677	35.86	3.85478
802.11ac VHT20_Nss1,(MCS0)_2TX	-	-	-	-
5.15-5.25GHz	10.96	0.01247	20.89	0.12274
5.725-5.85GHz	23.41	0.21928	35.91	3.89942
802.11ac VHT40_Nss1,(MCS0)_2TX	-	-	-	-
5.15-5.25GHz	10.90	0.01230	20.83	0.12106
5.725-5.85GHz	23.23	0.21038	35.73	3.74111
802.11ac VHT80_Nss1,(MCS0)_2TX	-	-	-	-
5.15-5.25GHz	11.03	0.01268	20.96	0.12474
5.725-5.85GHz	23.13	0.20559	35.63	3.65595

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Result

Mode	Result	DG	Port 1	Port 2	Total Power	Power Limit	EIRP	EIRP Limit
		(dBi)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)
802.11a_(6Mbps)_2TX	-	-	-	-	-	-	-	-
5180MHz	Pass	12.50	8.02	7.84	10.94	23.50	20.87	36.00
5200MHz	Pass	12.50	7.94	7.81	10.89	23.50	20.82	36.00
5240MHz	Pass	12.50	7.92	7.75	10.85	23.50	20.78	36.00
5745MHz	Pass	12.50	20.36	20.33	23.36	23.50	35.86	36.00
5785MHz	Pass	12.50	20.16	20.45	23.32	23.50	35.82	36.00
5825MHz	Pass	12.50	19.88	20.73	23.34	23.50	35.84	36.00
802.11ac VHT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5180MHz	Pass	12.50	8.03	7.86	10.96	23.50	20.89	36.00
5200MHz	Pass	12.50	7.97	7.85	10.92	23.50	20.85	36.00
5240MHz	Pass	12.50	7.84	7.77	10.82	23.50	20.75	36.00
5745MHz	Pass	12.50	20.39	20.41	23.41	23.50	35.91	36.00
5785MHz	Pass	12.50	20.31	20.11	23.22	23.50	35.72	36.00
5825MHz	Pass	12.50	19.95	20.51	23.25	23.50	35.75	36.00
802.11ac VHT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5190MHz	Pass	12.50	7.93	7.85	10.90	23.50	20.83	36.00
5230MHz	Pass	12.50	7.87	7.73	10.81	23.50	20.74	36.00
5755MHz	Pass	12.50	19.70	20.62	23.19	23.50	35.69	36.00
5795MHz	Pass	12.50	19.93	20.50	23.23	23.50	35.73	36.00
802.11ac VHT80_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5210MHz	Pass	12.50	8.13	7.90	11.03	23.50	20.96	36.00
5775MHz	Pass	12.50	20.09	20.15	23.13	23.50	35.63	36.00

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

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Elevation Elevation Angle Above 30 Degree Power Table

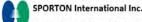
<Point to Multi-point>

Elevation Angle Above 30 Degree Power Table

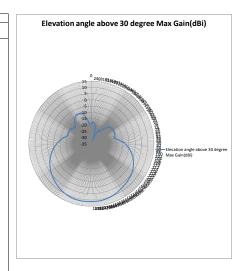
Mode	Conducted Setting	Elevation angle above 30 degree Gain	Array Gain	Directional Gain	Port 1	Port 2	Total Power	Power Limit	Elevation angle above 30 degree EIRP	Elevation angle above 30 degree EIRP Limit
		(dBi)	(dBi)	(dBi)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)
802.11a_(6Mbps)_2TX	=	=	-	=	-	-	-	-	-	-
5180MHz	8	9.93	0	12.50	8.02	7.84	10.94	23.5	20.87	21.00
5200MHz	8	9.93	0	12.50	7.94	7.81	10.89	23.5	20.82	21.00
5240MHz	8	9.93	0	12.50	7.92	7.75	10.85	23.5	20.78	21.00
802.11ac VHT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-		-
5180MHz	8	9.93	0	12.50	8.03	7.86	10.96	23.5	20.89	21.00
5200MHz	8	9.93	0	12.50	7.97	7.85	10.92	23.5	20.85	21.00
5240MHz	8	9.93	0	12.50	7.84	7.77	10.82	23.5	20.75	21.00
802.11ac VHT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-		-
5190MHz	8.5	9.93	0	12.50	7.93	7.85	10.90	23.5	20.83	21.00
5230MHz	8.5	9.93	0	12.50	7.87	7.73	10.81	23.5	20.74	21.00
802.11ac VHT80_Nss1,(MCS0)_2TX	-	-	ı	-	1	-	-	-	-	-
5210MHz	9	9.93	0	12.50	8.13	7.90	11.03	23.5	20.96	21.00

Note:

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



Floration or -1-	9085 / www.sporton.com.tw above 30 degree Max Gain(dBi)
Freq. (MHz)	5150
H-Plan angle(Degree)	Gain(dBm)
0	-19.0408
1 2	-18.9108 -17.9728
3	-18.6438
5	-18.1598 -17.8128
7	-17.8048 -17.8688
8	-18.1678 -18.2308
10	-19.4438
11	-19.6968
12	-20.0478
13	-20.4638
14	-21.6308
15	-23.2738
16	-25.9418
17	-27.4998
18	-26.6198
19	-28.9218
20	-29.5828
21	-32.6108
22	-29.6328
23	-27.6828
24	-28.2478
25	-25.5538
26	-25.6878
27	-23.3488
28	-24.3888
29	-22.9618
30	-23.9918
31	-22.8278
32	-22.5328
33	-21.9028
34	-23.3578
35	-21.4618
36	-21.2068
37	-20.6168
38	-20.1538
39	-20.4028
40	-19.7408
41	-18.8238
42	-18.2128
43	-17.7378
44	-17.4518
45	-16.5888
46	-16.3418
47	-15.6658
48	-15.8458
49	-15.4428
50	-14.6478
51	-14.9358
52	-14.8628
53	-14.9088
54	-14.9838
55	-14.4828
56	-14.1738
57	-14.4808
58	-14.0148
59	-13.9748
60	-14.3758
61	-14.4528
62	-14.9758
63	-14.6678
64	-14.3378
65	-14.6018
66	-14.6588
67	-14.3748
68	-14.6868
69	-14.6278
70	-15.1468
71	-15.2438
72	-15.3948
73	-15.7708
74	-16.2448
75	-15.9288
76	-16.1408
77	-15.4038
78	-15.8358
79	-15.2118
80	-14.4718
81	-14.0528
82	-13.1178
83	-13.0358
84	-12.2908
85	-11.5388
86	-10.9428
87	-10.2168
88	-9.5528
89	-8.7468
90	-8.3218
91	-7.9238
92	-7.1158
93	-6.8558
94	-6.5818
95	-5.9288
96	-5.6128
97	-4.9158
98	-4.5418
99	-4.1598
100	-3.5928
101	-3.2138
102	-2.7578
103	-2.3478
104	-2.0078
105	-1.5718
106	-1.2888
107	-0.6068
108	-0.4128
109	-0.1378
110	0.3712
111	0.5882
112	1.0412
113	1.3212
114	1.6562
115	1.9892
116	2.2702
117	2.5382
118	2.7832 3.0892
119 120	3.3282



9.9352 Elevation Angle Define

124 125	4.2862 4.5172	
126 127	4.7272 4.9782	
128 129	5.1802 5.3752	
130 131 132	5.4982 5.7242 5.8162	
132 133 134	6.0292 6.1502	
135 136	6.3122 6.4622	
137 138	6.5792 6.7772	
139 140	6.8422 6.9932	
141 142	7.0922 7.3122	
143 144	7.4442 7.5882	
145 146 147	7.7232 7.8662 7.9932	
148 149	8.1872 8.3232	
150 151	8.4662 8.6402	
152 153	8.8472 9.0012	
154 155	9.1742 9.2892	
156 157	9.4462 9.5932	
158 159 160	9.7742 9.9352	
161 162	10.0682 10.1922 10.2992	
163 164	10.4002 10.5222	
165 166	10.5962 10.7102	
167 168	10.7752 10.8092	
169 170	10.8732 10.9822	
171 172	11.0582 11.0662	
173 174	11.0942 11.1132	0° ~ 30°
175 176	11.1502 11.1572	
177 178 179	11.1962 11.2662 11.2272	
180 181	11.2522 11.2272	
182 183	11.2312 11.2702	
184 185	11.2982 11.3022	
186 187	11.2862 11.3092	
188 189	11.3282 11.3802	
190 191 192	11.3912 11.3442 11.3672	0° reference angle
193 194	11.3392 11.3162	
195 196	11.2922 11.2842	
197 198	11.2392 11.1742	
199 200	11.1262 11.0242	
201	10.9592 10.8802	
203 204 205	10.7812 10.7112 10.5752	
206		0° ~ 30°
2017	10.4402 10.3392	
207 208 209	10.3392 10.2102	
208 209 210	10.3392 10.2102 10.0712 9.9092	
208 209	10.3392 10.2102 10.0712	
208 209 210 211 212 213 214 215	10.3392 10.2102 10.0712 9.9092 9.7622 9.5912 9.4362 9.2782 9.2782	
208 209 210 211 212 213 214 215 216 217	10.3392 10.2102 10.0712 9.9092 9.7622 9.5912 9.4362 9.2782 9.0612 8.8642 8.6622	
208 209 210 211 211 212 213 214 215 216 217 218	10.3392 10.2102 10.0712 9.9092 9.7622 9.5912 9.4362 9.2782 9.0612 8.8642 8.8642 8.8622 8.4742 8.3142	
208 209 210 211 211 212 213 214 215 216 217 218 219 220 221	10.3392 10.2102 10.0712 9.9092 9.7622 9.5912 9.4362 9.2782 9.0612 8.8642 8.8642 8.8742 8.3142 8.3142 8.0722 7.8922	
208 209 210 211 211 212 213 214 215 216 217 218 219 220 221 222 223	10.3392 10.2102 10.0712 9.9092 9.7622 9.5912 9.4362 9.2782 9.0612 8.8642 8.6622 8.4742 8.3142 8.3142 8.0722 7.8922 7.6432 7.4502	
208 209 210 211 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225	10.3392 10.2102 10.0712 9.9092 9.7622 9.5912 9.4362 9.2782 9.0612 8.8642 8.6622 8.4742 8.8742 8.0722 7.8922 7.6432 7.4502 7.2142 7.0322	
208 209 210 211 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227	10.3392 10.2102 10.0712 9.9092 9.7622 9.5912 9.4362 9.2782 9.9782 9.0612 8.8642 8.6622 8.4742 8.3142 8.0722 7.8922 7.6432 7.4502 7.2142 7.0322 6.7672 6.5262	
208 209 210 211 211 212 213 213 214 215 216 217 218 219 220 221 222 223 224 225 226	10.3392 10.2102 10.0712 9.9092 9.7622 9.7622 9.5912 9.4362 9.2782 9.0612 8.8642 8.8642 8.8742 8.3142 8.0722 7.8922 7.6432 7.4502 7.2142 7.0322 6.7672	
208 209 210 211 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 231	10.3392 10.2102 10.0712 9.9092 9.7622 9.5912 9.4362 9.2782 9.9612 8.8642 8.6622 8.4742 8.3142 8.0722 7.8922 7.6432 7.4502 7.2142 7.0322 6.7672 6.5262 6.2812 6.0672 5.8202 5.6112 5.3652	
208 209 210 211 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 229 230 231 231 232 233 234	10.3392 10.2102 10.0712 9.9092 9.7622 9.7622 9.5912 9.4362 9.2782 9.0612 8.8642 8.8642 8.8642 8.8742 8.3742 8.3742 7.4922 7.8922 7.4502 7.2142 7.0322 6.7672 6.5262 6.2812 6.0672 5.8202 5.8112 5.3652 5.1072 4.8782	
208 209 210 211 211 212 213 214 215 216 217 218 219 220 221 221 222 223 224 225 226 227 228 228 229 230 231 231 232 233 234 235 236	10.3392 10.2102 10.2712 9.9092 9.7622 9.5912 9.5912 9.4362 9.2782 9.0612 8.8642 8.8642 8.8642 8.8742 8.3142 8.0722 7.8922 7.4502 7.2142 7.0322 6.7672 6.5262 6.2812 6.0672 5.8202 5.6112 5.3652 5.1072 4.8782 4.8782 4.6522 4.3932	
208 209 210 211 211 212 213 213 214 215 216 217 218 219 220 221 222 223 223 224 225 226 227 228 229 230 231 231 232 231 232 233 234 235 234 235 236 237 238	10.3392 10.2102 10.2712 9.9092 9.7622 9.5912 9.4362 9.2782 9.0612 8.8642 8.8642 8.8742 8.3142 8.0722 7.8922 7.4502 7.2442 7.322 6.7672 6.5262 6.2812 6.0672 5.8202 5.6112 5.3652 5.1072 4.8782 4.8782 4.3932 4.1712 3.7912	
208 209 210 211 211 212 213 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 241 225 226 227 228 229 230 231 231 232 233 234 235 236 237 238 239 240	10.3392 10.2102 10.27102 10.0712 9.9092 9.7622 9.5912 9.4362 9.2782 9.0612 8.8642 8.6622 8.4742 8.3142 8.0722 7.8922 7.8922 7.8922 7.6432 7.7502 6.7672 6.5262 6.2812 6.0672 5.8202 5.8112 5.3652 5.1072 4.8782 4.8782 4.4712 3.7912 3.7062 3.3672	
208 209 210 211 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 225 226 227 228 228 229 230 231 231 232 231 232 231 232 233 234 235 236 237 236	10.3392 10.2102 10.0712 9.9092 9.7622 9.7622 9.5912 9.4362 9.2782 9.0612 8.8642 8.8642 8.6622 8.4742 8.3142 8.0722 7.8922 7.8922 7.4502 7.2142 7.0322 6.7672 6.5262 6.2812 6.0672 5.8202 5.8112 5.3652 5.1072 4.8782 4.8782 4.4522 4.3932 4.1712 3.7912 3.7962	
208 209 210 211 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 224 225 226 227 228 229 230 231 241 242 235 236 237 238 236 237 238 239 240 241 241 242 243	10.3392 10.2102 10.2712 9.9092 9.7622 9.5912 9.4362 9.2782 9.9612 8.8642 8.8642 8.8742 8.3142 8.3142 8.3722 7.8922 7.8922 7.8922 7.6432 7.74502 7.2142 7.0322 6.7672 6.5262 6.2812 6.0672 5.8122 5.8612 5.8112 5.3652 5.1072 4.8782 4.8782 4.4712 3.7912 3.7962 3.3672 3.1622 2.8422 2.8052 2.2662 1.9902	
208 209 210 211 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 231 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 245 246 247	10.3392 10.2102 10.0712 9.9092 9.7622 9.7622 9.5912 9.4362 9.2782 9.0612 8.8642 8.8642 8.8642 8.8742 8.3742 8.3742 7.8922 7.8432 7.4502 7.2142 7.0322 6.7672 6.5262 6.2812 6.0672 5.8202 5.8112 5.3652 5.1072 4.8782 4.8782 4.8782 4.9332 4.1712 3.7912 3.7062 3.3672 3.1262 2.8422 2.6652 2.2662 1.9902	
208 209 210 211 211 212 213 214 215 216 217 218 219 220 221 221 222 223 224 225 226 227 228 229 230 231 231 232 238 234 235 236 237 238 238 239 240 241 242 243 244 245 245 246 247	10.3392 10.2102 10.0712 9.9092 9.7622 9.7622 9.5912 9.4362 9.2782 9.0612 8.8642 8.8642 8.6622 8.4742 8.3142 8.0722 7.8922 7.8922 7.6432 7.4502 7.2142 7.0322 6.7672 6.5282 6.2612 6.0672 5.8102 5.8112 5.3652 5.1072 4.8782 4.8782 4.4712 3.7912 3.7062 3.3672 3.1262 2.8422 2.8052 2.2662 1.9902 1.7272 1.4092 1.2012 0.8682	
208 209 210 211 211 212 213 214 215 216 217 218 219 220 221 222 223 223 224 225 226 227 228 229 230 231 241 227 228 229 230 231 231 232 233 234 235 235 236 237 238 238 239 240 241 242 243 244 242 245 246 247 248 249 250 251	10.3392 10.2102 10.0712 9.9092 9.7622 9.7622 9.5912 9.4362 9.2782 9.0612 8.8642 8.8642 8.8642 8.8742 8.3142 8.0722 7.8922 7.4502 7.2142 7.0322 6.7672 6.5262 6.2812 6.0672 5.8202 5.6112 5.3652 5.1072 4.8782 4.8782 4.9832 4.1712 3.7962 3.3762 3.3672 3.1262 2.8422 2.8652 2.2662 1.9902 1.7272 1.4092 1.7272 1.4092 1.7772 1.4092 1.7772 1.4092 1.7772 1.4092 1.7772 1.4092 1.7772 1.4092 1.7772 1.4092 1.7772 1.4092 1.7772 1.4092 1.7772 1.4092 1.7772 1.4092 1.77772 1.4092 1.77772 1.4092 1.77772 1.4092 1.77772 1.4092 1.77772 1.4092 1.77772 1.4092 1.77772 1.4092 1.2012 0.8682 0.4862 0.1882	
208 209 210 211 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 227 228 229 229 221 227 228 229 230 241 227 228 239 230 231 231 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 245 246 247 248 248	10.3392 10.2102 10.2712 9.9092 9.7622 9.5912 9.4362 9.2782 9.9612 8.8642 8.8642 8.8642 8.8742 8.3142 8.3142 8.3722 7.8922 7.8922 7.8922 7.6432 7.74502 7.2142 7.0322 6.7672 6.5262 6.2812 6.0672 5.812 5.8062 5.8112 5.3652 5.1072 4.8782 4.8782 4.8782 4.1712 3.7912 3.7062 3.3672 3.1626 2.8422 2.8052 2.8652 2.2662 1.9902 1.7272 1.4092 1.9092 1.7272 1.4092 1.9092 1.7272 1.4092 1.9092 1.7272 1.4092 1.9092 1.7272 1.4092 1.9092 1.7272 1.4092 1.9092	

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260 261	-2.9668 -3.2738
262	-3.5478
263	-4.0338
264	-4.4398
265 266	-4.7378 -5.2498
266	-5.2496 -5.5478
268	-5.9628
269	-6.4338
270	-7.0368
271	-7.0848
272 273	-7.6148 -8.1058
274	-8.4978
275	-8.6478
276	-9.2078
277	-9.4818
278 279	-9.8848 -10.4548
280	-10.4546
281	-11.1338
282	-11.7578
283	-11.9558
284 285	-12.2898 -13.2428
286	-13.2426 -13.4168
287	-14.0508
288	-14.4468
289	-14.5678
290	-14.6468
291 292	-15.2528 -15.0318
293	-15.0578
294	-15.2018
295	-14.4428
296	-14.3478
297	-14.8398 -14.5728
298 299	-14.5728 -14.6618
300	-14.9758
301	-15.0138
302	-14.5258
303	-14.6748
304 305	-14.8788 -15.0078
305	-15.0078 -15.0958
307	-15.5058
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309	-14.8198
310 311	-15.4148 -15.8448
311	-15.8448 -15.8578
313	-16.3568
314	-15.9788
315	-16.2318
316	-17.1808 45.4769
317 318	-15.4768 -16.6928
319	-16.6926 -15.9208
320	-15.7768
321	-15.4188
322	-14.3508
323	-14.2178 12.2659
324 325	-13.2658 -12.4428
325	-12.4426
327	-11.5158
328	-11.3498
329	-10.8488
330	-10.3848
331 332	-10.1358
JJ2	RFAK P-
333	-9.8438 -9.5388
333 334	
334 335	-9.5388 -8.9688 -8.8838
334 335 336	-9.5388 -8.9688 -8.8838 -9.2618
334 335 336 337	-9.5388 -9.9688 -8.8838 -9.2618 -8.9198
334 335 336 337 338	-9.5388 -9.9688 -8.8838 -9.2618 -8.9198 -8.8328
334 335 336 337	-9.5388 -8.9688 -8.8838 -9.2618 -8.9198 -8.8328 -9.1038
334 335 336 337 338 339 340	-9.5388 -0.9688 -0.8833 -9.2618 -0.8198 -0.8328 -0.1038 -0.708 -0.92708 -0.9928
334 335 336 337 338 339 340 341	-9.5388 -8.8688 -8.8638 -9.2618 -9.2618 -8.9198 -8.8328 -9.1038 -9.2708 -8.9928
334 335 336 337 338 339 340 341 342	-9.5388 -8.9688 -8.8838 -9.2618 -9.2618 -8.9198 -8.8328 -9.1038 -9.2708 -8.9928 -9.4078 -9.3248
334 335 336 337 338 339 340 341 342 342	-9.5388 -8.9688 -8.8838 -9.2618 -8.9198 -8.8328 -9.1038 -9.2708 -8.9928 -9.4078 -9.3248 -9.7728
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334 335 336 337 338 339 340 341 342 343 344 345 345	-9.5388 -8.9688 -8.8838 -9.2618 -9.2618 -8.9198 -8.6328 -9.1038 -9.2708 -8.9928 -9.4078 -9.3248 -9.7728 -10.0458 -10.5188
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334 335 336 337 338 339 340 341 342 343 344 345 346 347 348	-9.5388 -8.8688 -8.8638 -9.2618 -9.9188 -8.8328 -9.1038 -9.2708 -9.2708 -9.928 -9.4078 -9.3248 -9.7728 -10.0458 -10.1588 -11.1018 -11.8068
334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350	-9.5388 -8.9688 -8.8638 -9.2618 -9.2618 -9.3198 -9.328 -9.1038 -9.2708 -9.928 -9.4078 -9.3248 -9.7728 -10.0458 -11.0198 -11.8068 -11.2408
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334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351	-9.5388 -8.9688 -8.8638 -9.2618 -9.2618 -9.198 -8.8328 -9.1038 -9.2708 -9.9278 -9.9278 -9.1038 -9.7728 -10.0458 -11.0198 -11.8068 -12.5408 -13.4148 -14.2508
334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351	-9.5388 -8.9688 -8.8338 -9.2618 -9.3618 -8.9198 -8.8328 -9.1038 -9.2708 -9.2708 -9.3928 -9.4078 -9.3248 -9.7728 -1.0.458 -11.0.188 -11.0.988 -11.8068 -12.5408 -13.4148 -14.2508 -15.3938 -16.0868
334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352	-9.5388 -8.9688 -8.8638 -8.8638 -9.2618 -9.9188 -8.8328 -9.1038 -9.2708 -9.2708 -9.2708 -9.2728 -9.1038 -9.11.018 -11.1018 -11.1018 -11.2508 -11.4148 -14.2508 -15.3938 -16.0868 -17.7768
334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351	-9.5388 -8.9688 -8.8688 -8.8688 -8.8688 -9.2618 -9.2618 -9.3198 -8.8328 -9.1038 -9.2708 -9.3248 -9.4772 -9.3248 -9.7728 -11.00458 -11.0198 -11.8068 -11.25408 -13.4148 -14.2508 -15.3938 -16.0868
334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357	-9.5388 -8.9688 -8.8688 -8.8688 -8.8688 -9.2618 -9.2618 -9.9198 -8.8328 -9.1038 -9.2708 -9.928 -9.4078 -9.3248 -9.7728 -10.0458 -11.0198 -11.8068 -11.25408 -13.4148 -14.2508 -15.3938 -16.0868 -17.7768 -17.7648 -18.7108
334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 356	-9.5388 -8.9688 -8.8638 -8.8638 -9.2618 -9.92618 -9.9198 -9.32708 -9.92708 -9.928 -9.4078 -9.3248 -9.7728 -10.0459 -11.05188 -11.0198 -11.8068 -12.5408 -13.4148 -14.2508 -15.3938 -16.0868 -17.7768 -17.7768 -17.7768 -18.7108 -18.7109 -19.4258 -19.2398
334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357	-9.5388 -8.9688 -8.8688 -8.8688 -8.8688 -9.2618 -9.2618 -9.9198 -8.8328 -9.1038 -9.2708 -9.928 -9.4073 -9.3248 -9.7728 -10.0458 -10.5188 -11.1098 -11.8068 -12.5408 -13.4148 -14.2508 -15.3938 -16.0868 -17.7768 -17.7648 -18.7708

Above 30°



PSD Result Appendix D.1

<Point to Point>

Summary

Mode	PD	EIRP PD
	(dBm/RBW)	(dBm/RBW)
802.11a_(6Mbps)_2TX	-	-
5.15-5.25GHz	16.03	31.54
5.725-5.85GHz	15.04	30.55
802.11ac VHT20_Nss1,(MCS0)_2TX	-	-
5.15-5.25GHz	15.92	31.43
5.725-5.85GHz	11.91	27.42
802.11ac VHT40_Nss1,(MCS0)_2TX	-	-
5.15-5.25GHz	7.87	23.38
5.725-5.85GHz	10.53	26.04
802.11ac VHT80_Nss1,(MCS0)_2TX	-	-
5.15-5.25GHz	-7.44	8.07
5.725-5.85GHz	7.25	22.76

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

SPORTON INTERNATIONAL INC.



Appendix D.1 **PSD Result**

Result

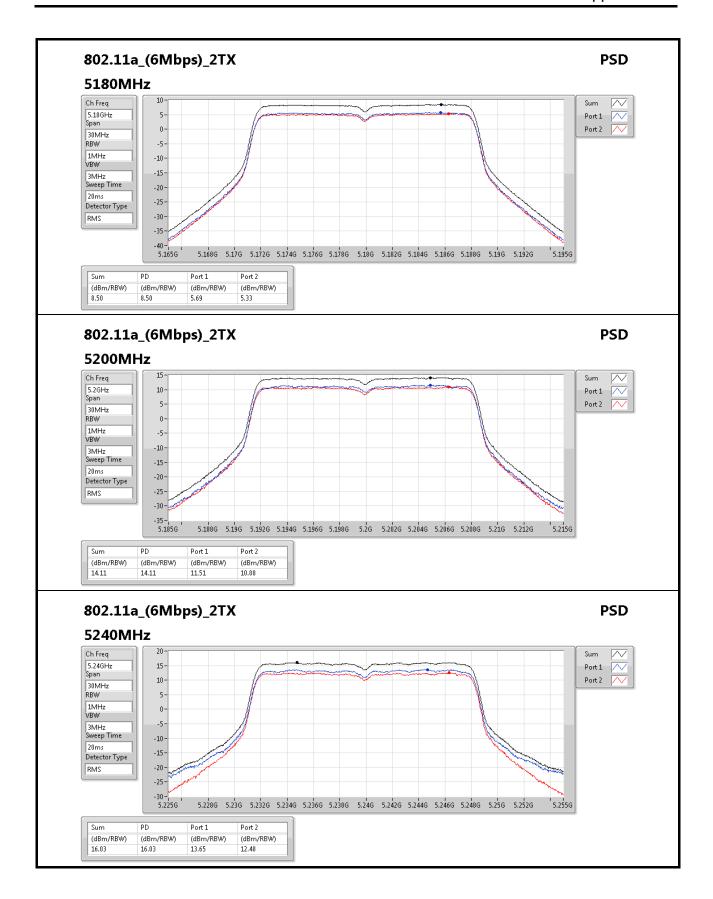
Mode	Result	DG	Port 1	Port 2	PD	PD Limit
		(dBi)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
802.11a_(6Mbps)_2TX	-	-	-	-	-	-
5180MHz	Pass	15.51	5.69	5.33	8.50	17.00
5200MHz	Pass	15.51	11.51	10.88	14.11	17.00
5240MHz	Pass	15.51	13.65	12.48	16.03	17.00
5745MHz	Pass	15.51	11.97	12.39	15.04	30.00
5785MHz	Pass	15.51	8.50	10.20	12.29	30.00
5825MHz	Pass	15.51	8.70	9.89	12.34	30.00
802.11ac VHT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5180MHz	Pass	15.51	7.21	6.76	9.92	17.00
5200MHz	Pass	15.51	12.00	11.72	14.81	17.00
5240MHz	Pass	15.51	13.34	12.84	15.92	17.00
5745MHz	Pass	15.51	8.76	9.08	11.91	30.00
5785MHz	Pass	15.51	7.36	8.84	11.12	30.00
5825MHz	Pass	15.51	7.63	9.28	11.47	30.00
802.11ac VHT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5190MHz	Pass	15.51	-0.79	-0.69	2.16	17.00
5230MHz	Pass	15.51	5.17	4.94	7.87	17.00
5755MHz	Pass	15.51	7.28	7.82	10.46	30.00
5795MHz	Pass	15.51	6.93	8.31	10.53	30.00
802.11ac VHT80_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5210MHz	Pass	15.51	-10.32	-10.52	-7.44	17.00
5775MHz	Pass	15.51	3.80	4.91	7.25	30.00

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;

SPORTON INTERNATIONAL INC.

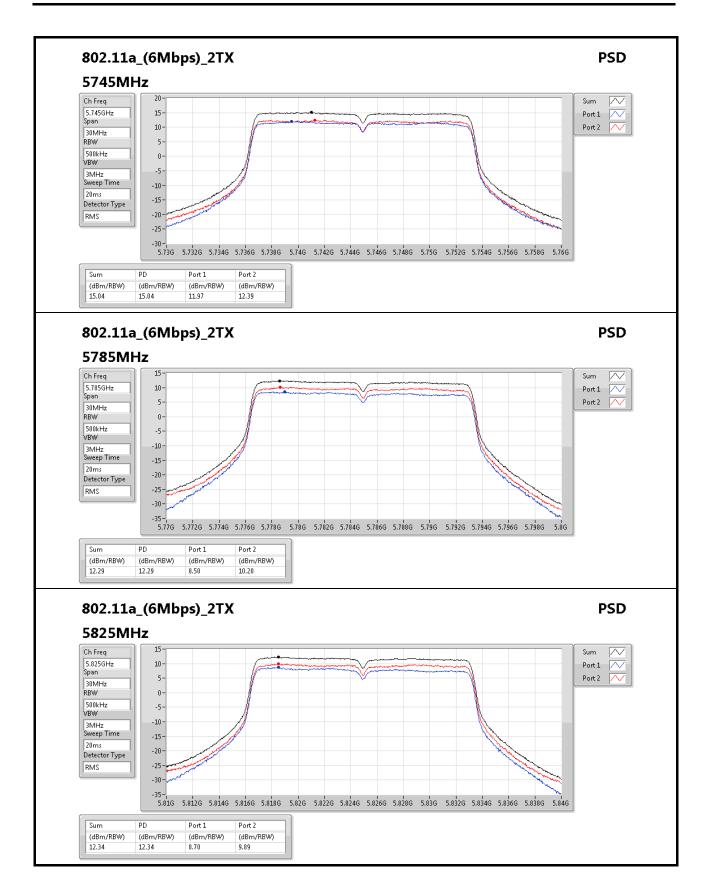
TEL: 886-3-327-3456 FAX: 886-3-327-0973 Page No. : 2 of 8



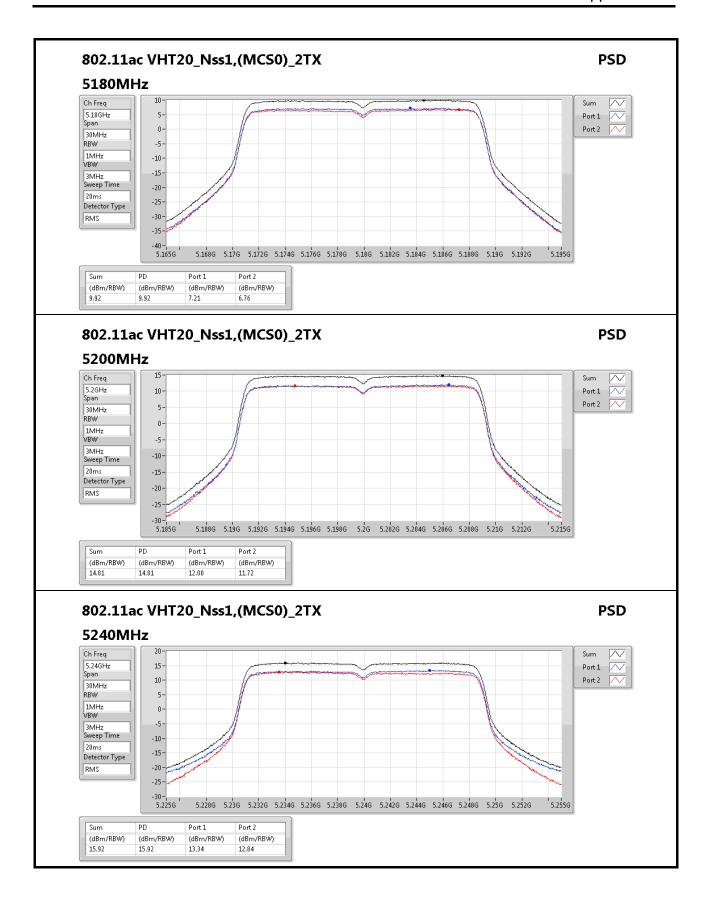


SPORTON INTERNATIONAL INC.

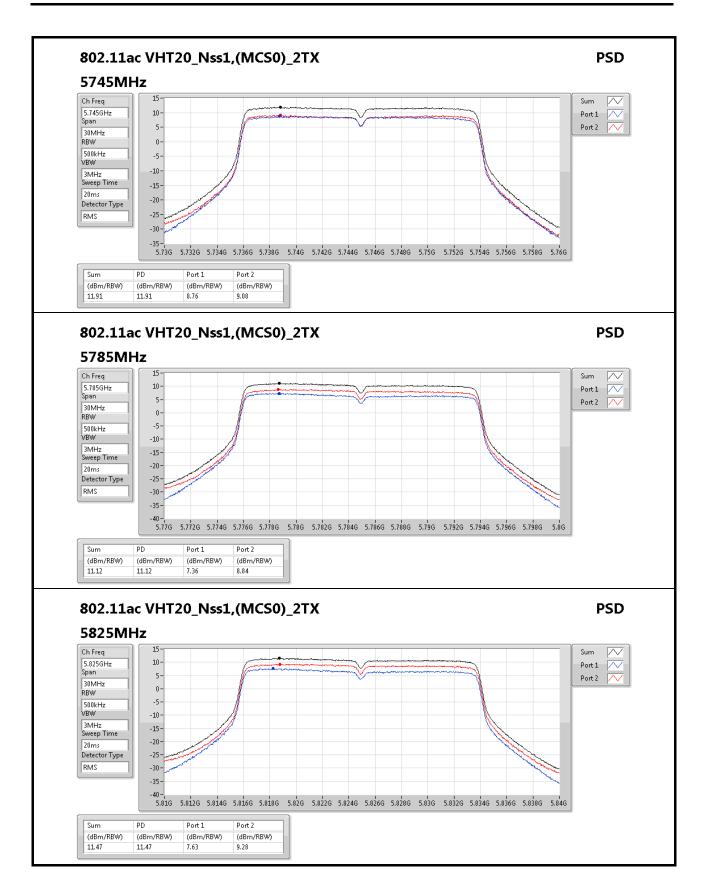




Page No. : 5 of 8

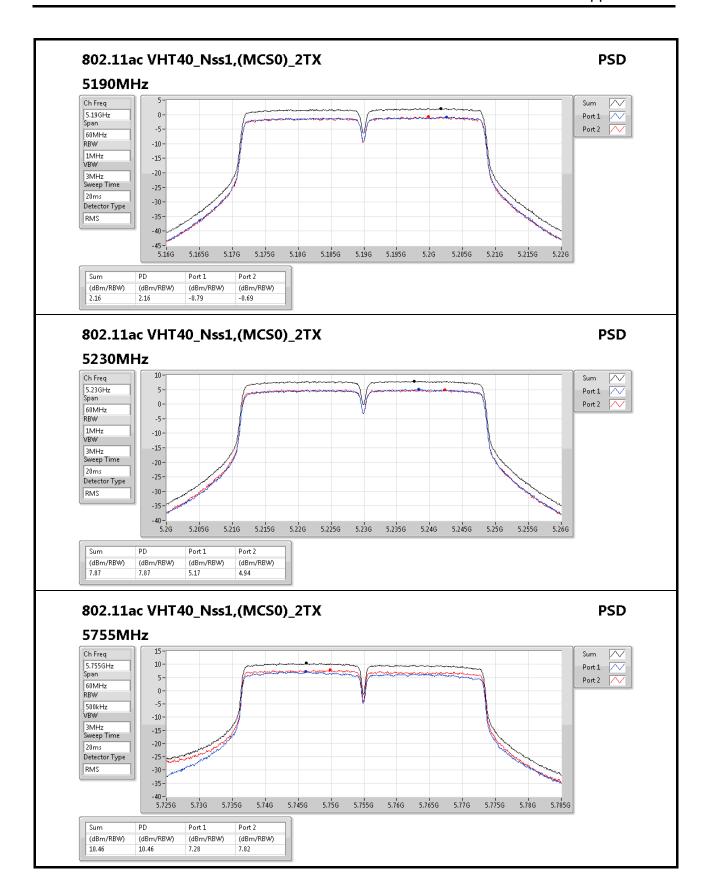






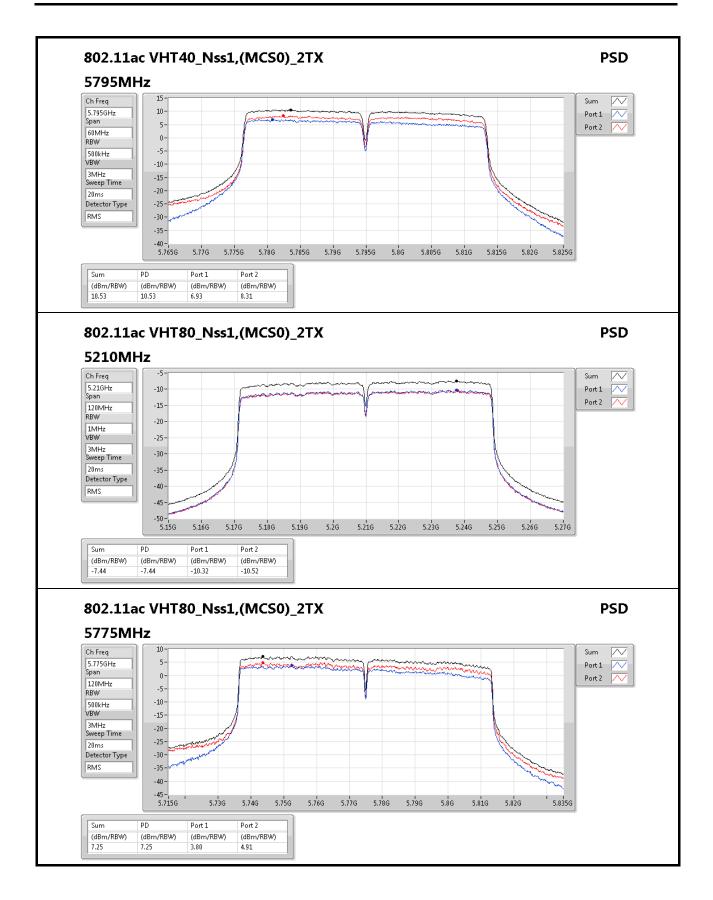
Page No. : 7 of 8





Appendix D.1





SPORTON INTERNATIONAL INC.



PSD Result Appendix D.2

<Point to Multi-point>

Summary

Mode	PD	EIRP PD		
	(dBm/RBW)	(dBm/RBW)		
802.11a_(6Mbps)_2TX	-	-		
5.15-5.25GHz	-1.81	13.70		
5.725-5.85GHz	9.61	25.12		
802.11ac VHT20_Nss1,(MCS0)_2TX	-	-		
5.15-5.25GHz	-2.18	13.33		
5.725-5.85GHz	9.19	24.70		
802.11ac VHT40_Nss1,(MCS0)_2TX	-	-		
5.15-5.25GHz	-4.84	10.67		
5.725-5.85GHz	6.55	22.06		
802.11ac VHT80_Nss1,(MCS0)_2TX	-	-		
5.15-5.25GHz	-7.44	8.07		
5.725-5.85GHz	3.46	18.97		

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

SPORTON INTERNATIONAL INC.



Appendix D.2 **PSD Result**

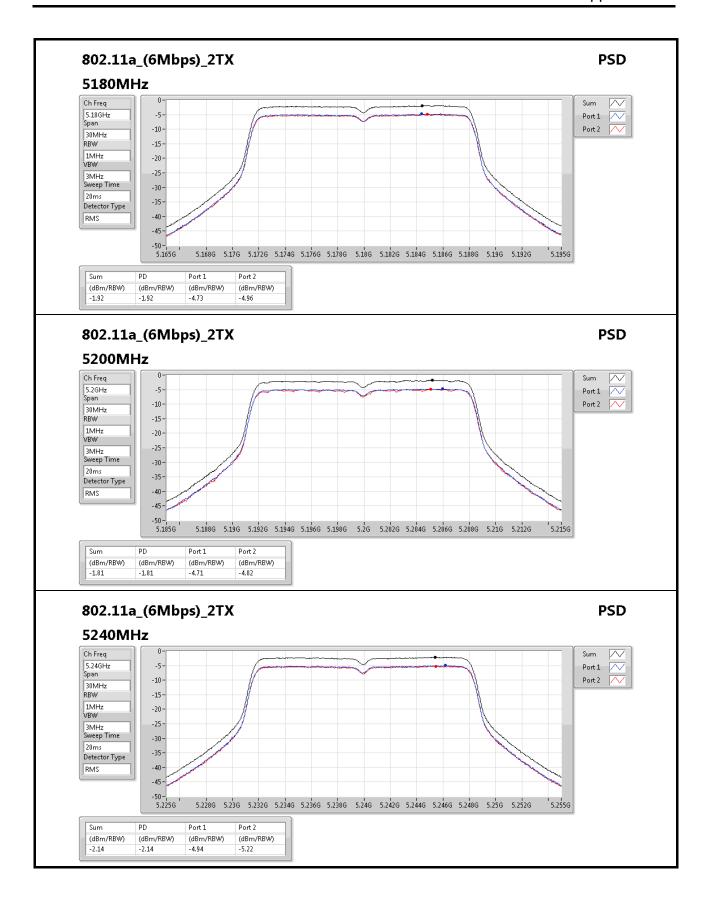
Result

Mode	Result	DG	Port 1	Port 2	PD	PD Limit
		(dBi)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
802.11a_(6Mbps)_2TX	-	-	-	-	-	-
5180MHz	Pass	15.51	-4.73	-4.96	-1.92	7.49
5200MHz	Pass	15.51	-4.71	-4.82	-1.81	7.49
5240MHz	Pass	15.51	-4.94	-5.22	-2.14	7.49
5745MHz	Pass	15.51	6.68	6.61	9.61	20.49
5785MHz	Pass	15.51	5.93	6.43	9.15	20.49
5825MHz	Pass	15.51	6.15	6.73	9.41	20.49
802.11ac VHT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5180MHz	Pass	15.51	-5.13	-5.36	-2.27	7.49
5200MHz	Pass	15.51	-5.03	-5.31	-2.18	7.49
5240MHz	Pass	15.51	-5.37	-5.52	-2.50	7.49
5745MHz	Pass	15.51	6.31	6.20	9.19	20.49
5785MHz	Pass	15.51	5.32	5.41	8.33	20.49
5825MHz	Pass	15.51	6.02	6.28	9.05	20.49
802.11ac VHT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5190MHz	Pass	15.51	-7.69	-7.93	-4.84	7.49
5230MHz	Pass	15.51	-7.95	-8.08	-5.08	7.49
5755MHz	Pass	15.51	3.26	3.93	6.55	20.49
5795MHz	Pass	15.51	3.16	3.58	6.39	20.49
802.11ac VHT80_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5210MHz	Pass	15.51	-10.32	-10.52	-7.44	7.49
5775MHz	Pass	15.51	0.57	0.77	3.46	20.49

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;

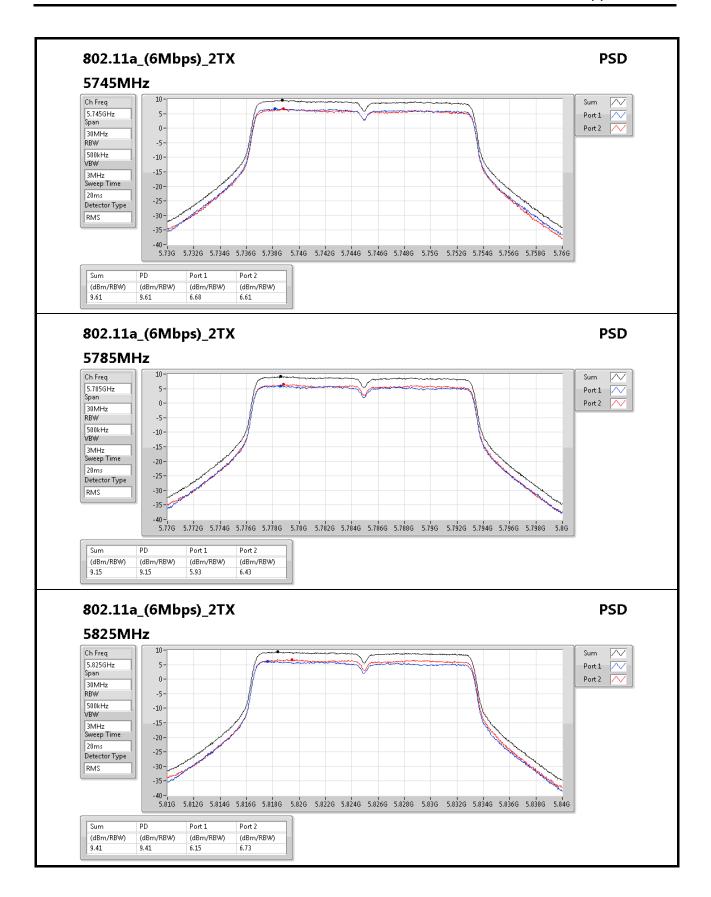
SPORTON INTERNATIONAL INC.

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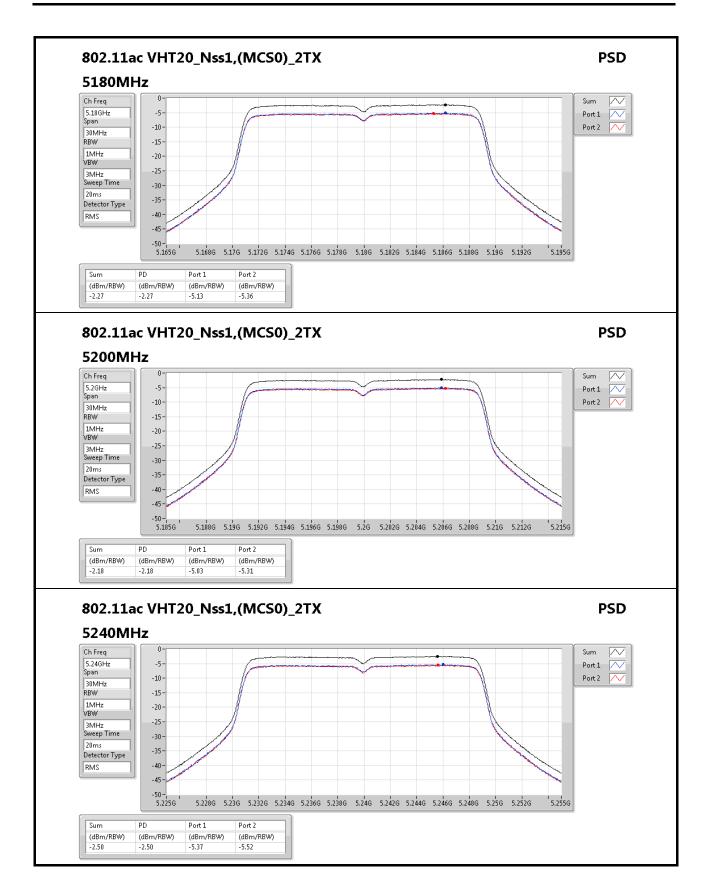
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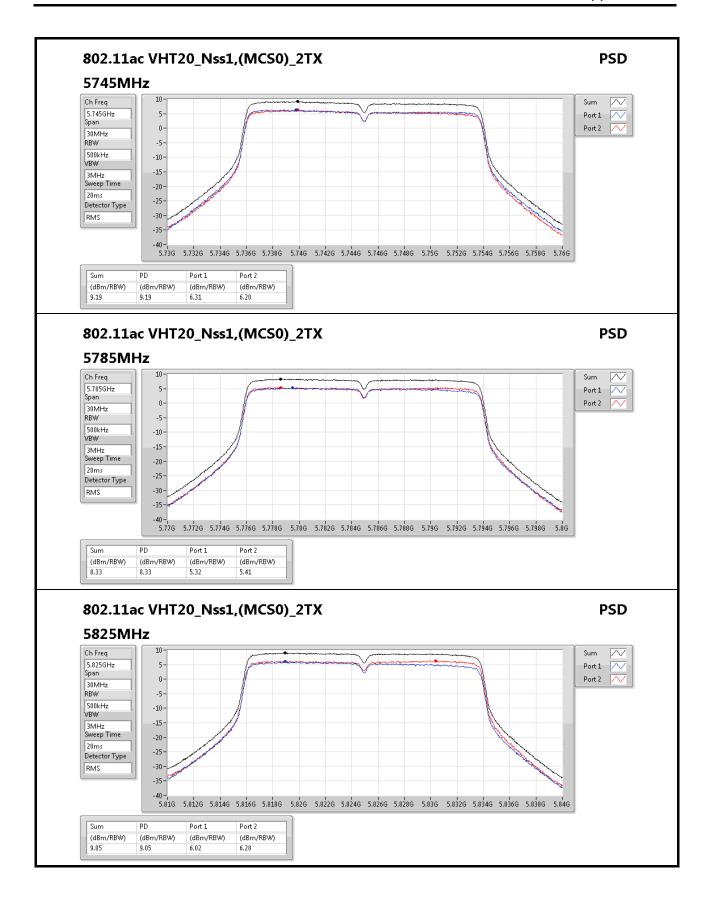
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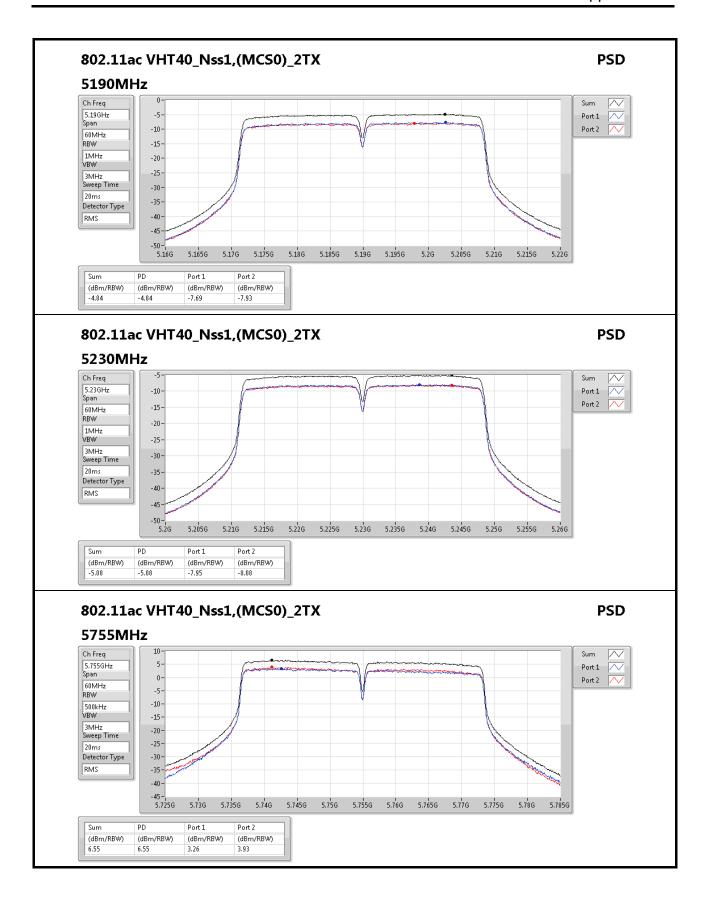
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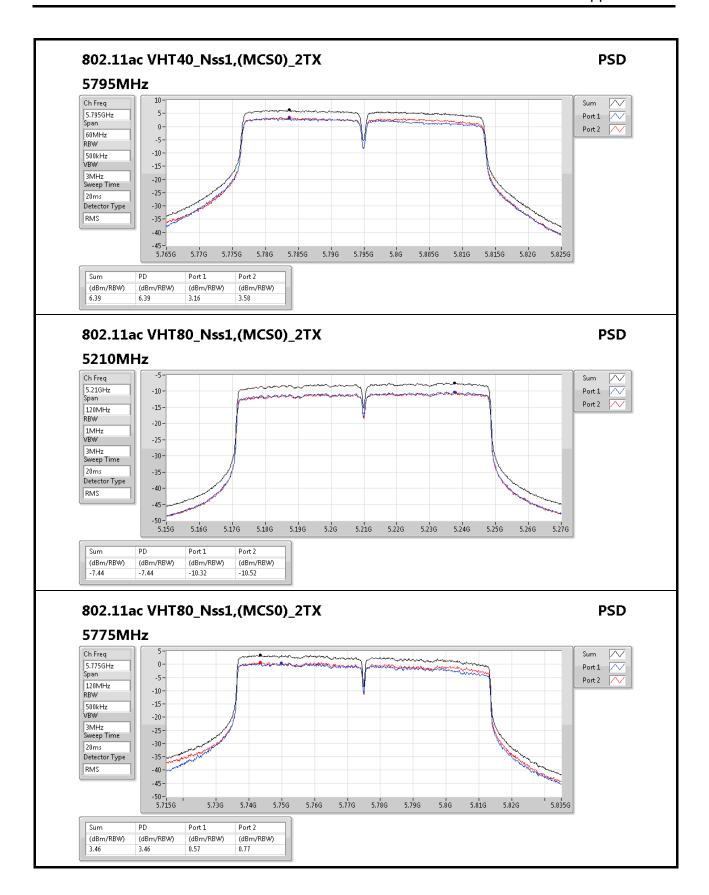
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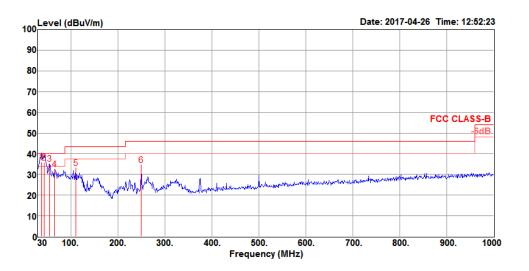
SPORTON INTERNATIONAL INC.

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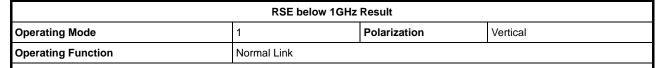
RSE below 1GHz Result									
Operating Mode	1 Polarization Horizontal								
Operating Function	Normal Link								

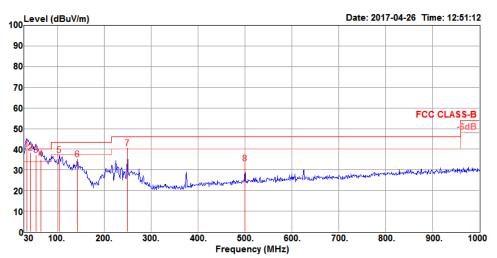


	Freq	Level	Limit Line	Over Limit				Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	CM	deg		
1	37.76	36.12	40.00	-3.88	46.95	0.58	21.02	32.43	100	104	QP	HORIZONTAL
2	42.61	35.63	40.00	-4.37	49.12	0.61	18.32	32.42	100	189	QP	HORIZONTAL
3	55.22	35.01	40.00	-4.99	53.02	0.73	13.67	32.41	100	19	Peak	HORIZONTAL
4	65.89	32.54	40.00	-7.46	51.53	0.77	12.64	32.40	100	358	Peak	HORIZONTAL
5	110.51	33.00	43.50	-10.50	46.13	1.02	18.22	32.37	100	196	Peak	HORIZONTAL
6	250.19	34.45	46.00	-11.55	46.44	1.50	18.80	32.29	100	360	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.)







			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	35.82	39.89	40.00	-0.11	49.58	0.57	22.17	32.43	100	159	QP	VERTICAL
2	42.61	38.39	40.00	-1.61	51.88	0.61	18.32	32.42	100	263	QP	VERTICAL
3	55.22	37.11	40.00	-2.89	55.12	0.73	13.67	32.41	150	257	QP	VERTICAL
4	64.92	35.14	40.00	-4.86	54.13	0.77	12.65	32.41	125	170	QP	VERTICAL
5	103.72	37.11	43.50	-6.39	50.97	0.99	17.53	32.38	100	66	Peak	VERTICAL
6	143.49	34.97	43.50	-8.53	48.75	1.14	17.42	32.34	100	9	Peak	VERTICAL
7	250.19	40.34	46.00	-5.66	52.33	1.50	18.80	32.29	100	3	Peak	VERTICAL
8	500.45	33.09	46.00	-12.91	39.42	2.18	23.82	32.33	100	128	Peak	VERTICAL

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



RSE TX above 1GHz Result

Appendix E.2

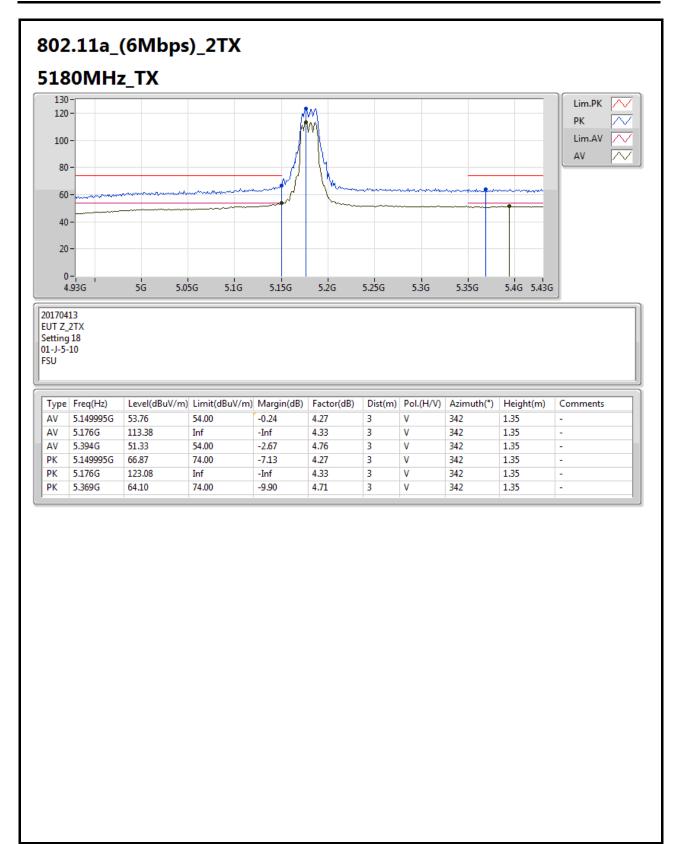
Summary

Mode	Result	Туре	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Pol. (H/V)	Azimuth	Height (m)	Comments
802.11ac VHT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-	-	-	-
5.725-5.85GHz	Pass	PK	5.55G	68.17	68.20	-0.03	5.20	3	V	333	1.27	-

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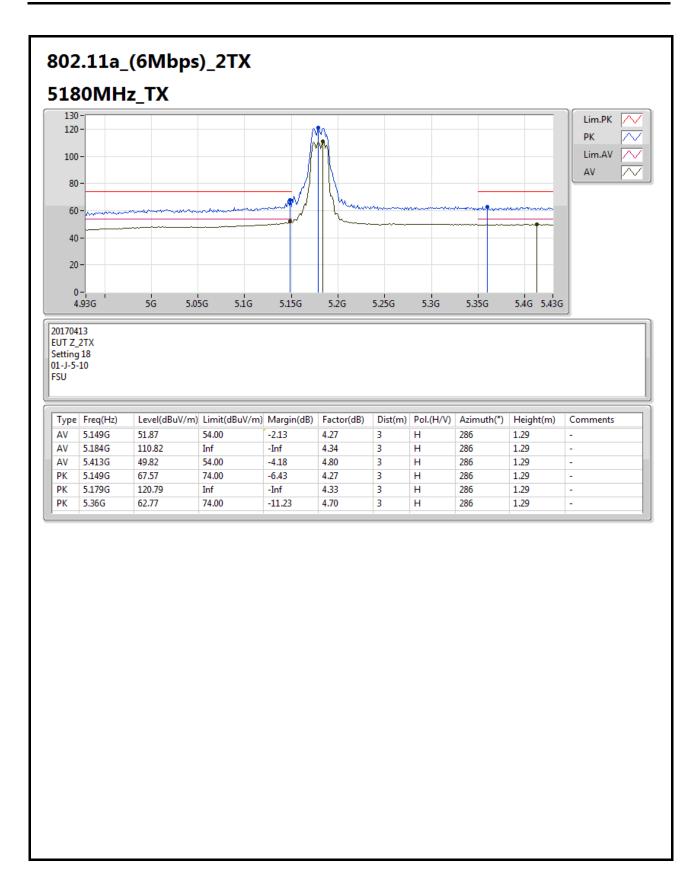
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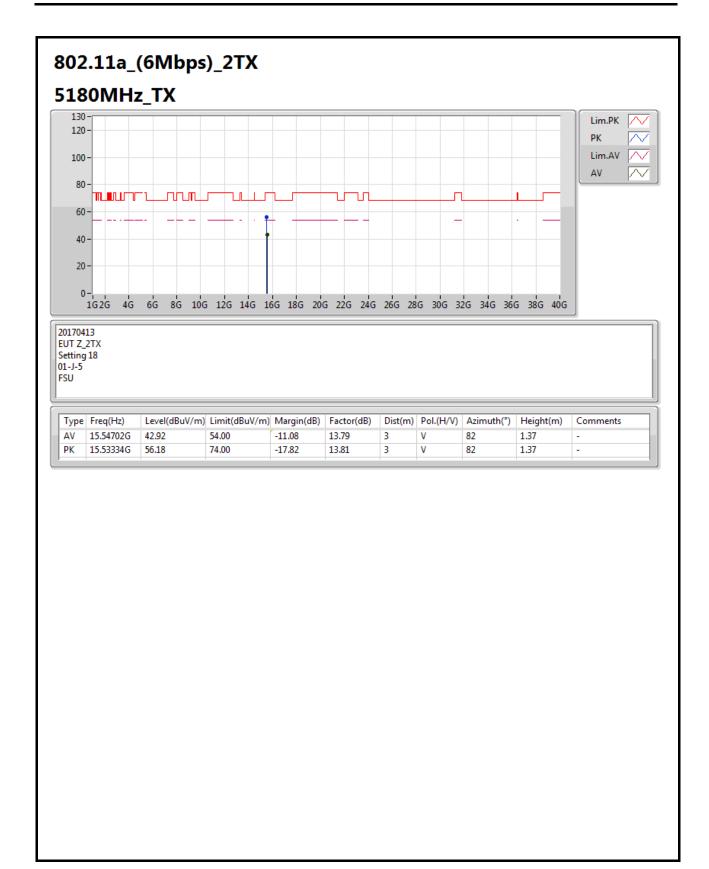
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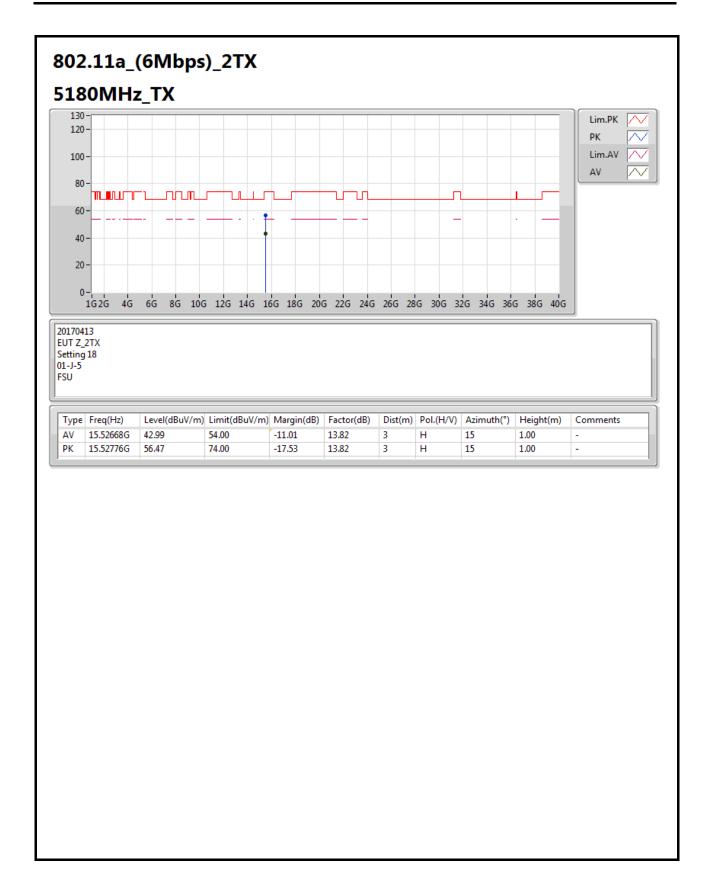
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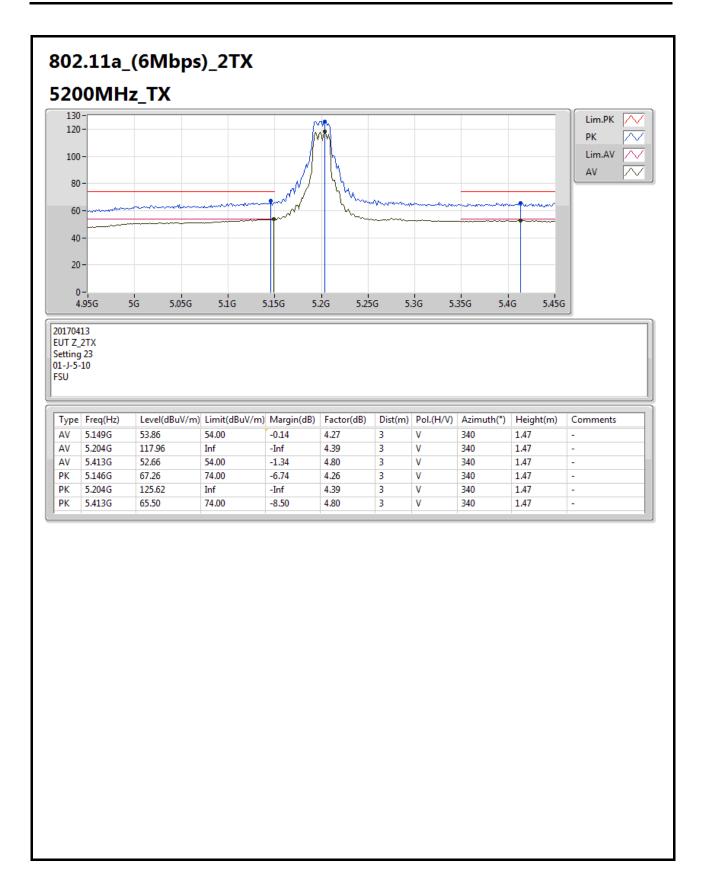
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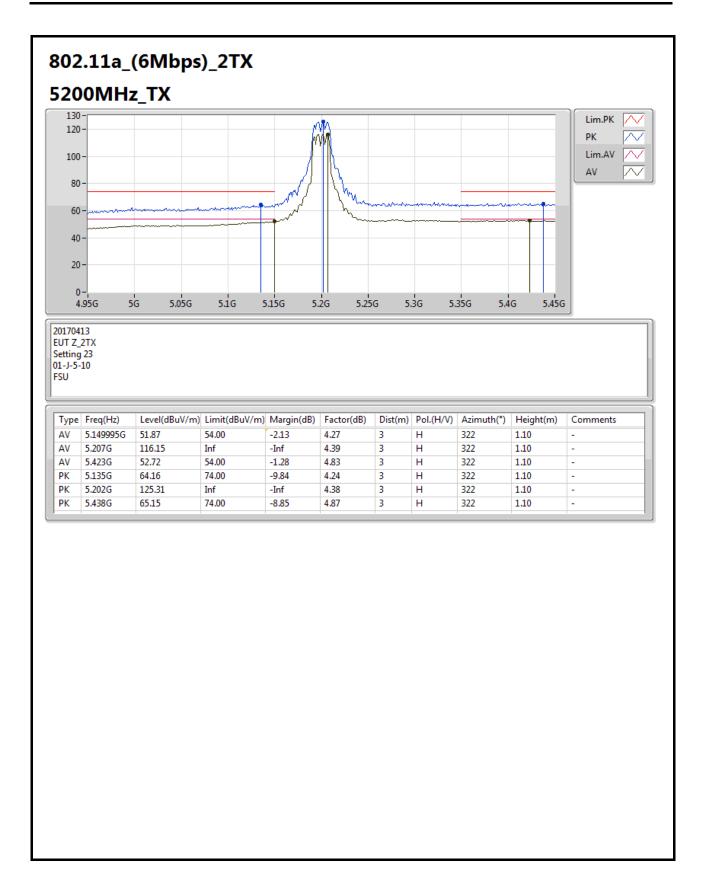


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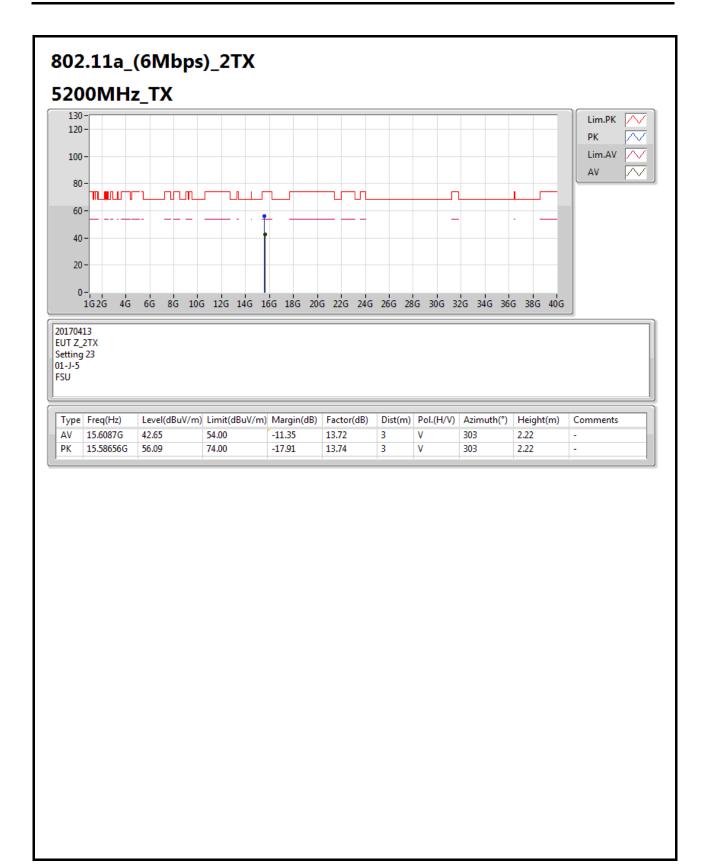




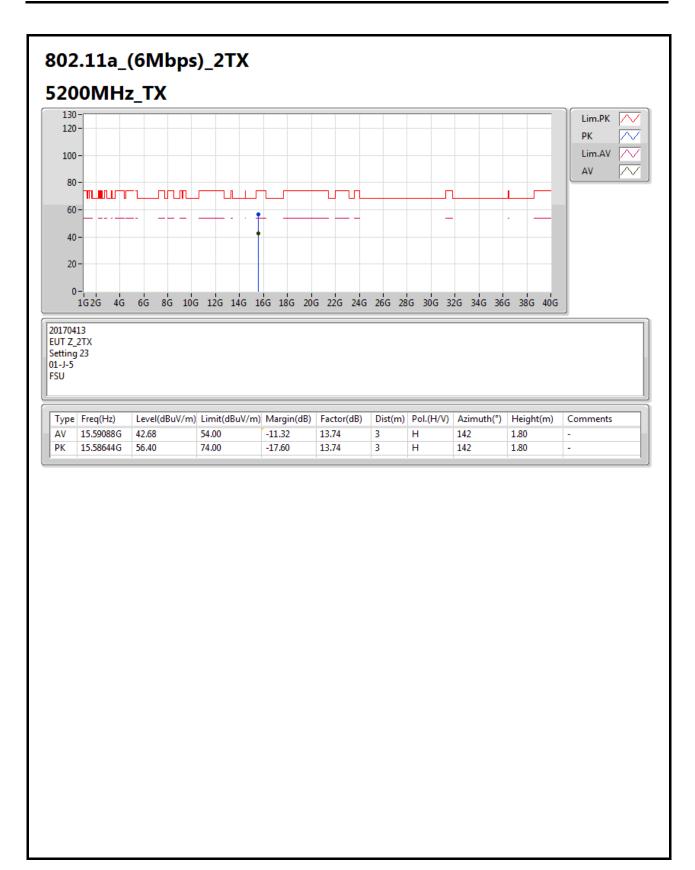






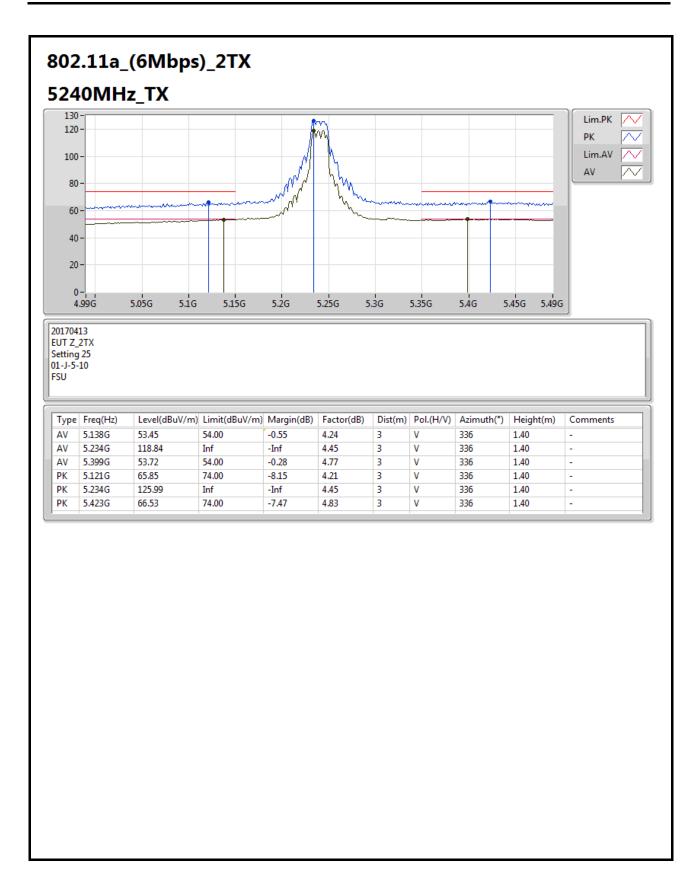




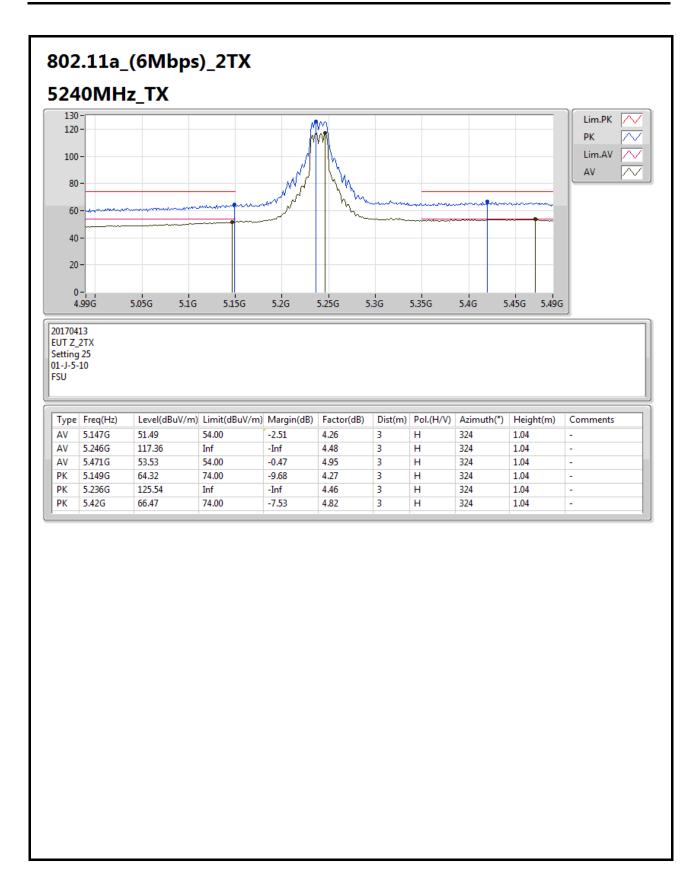


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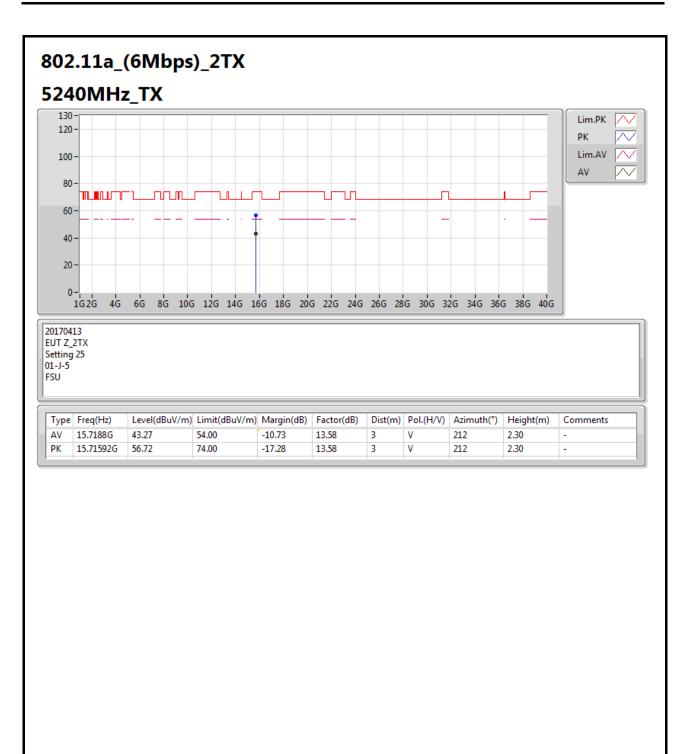




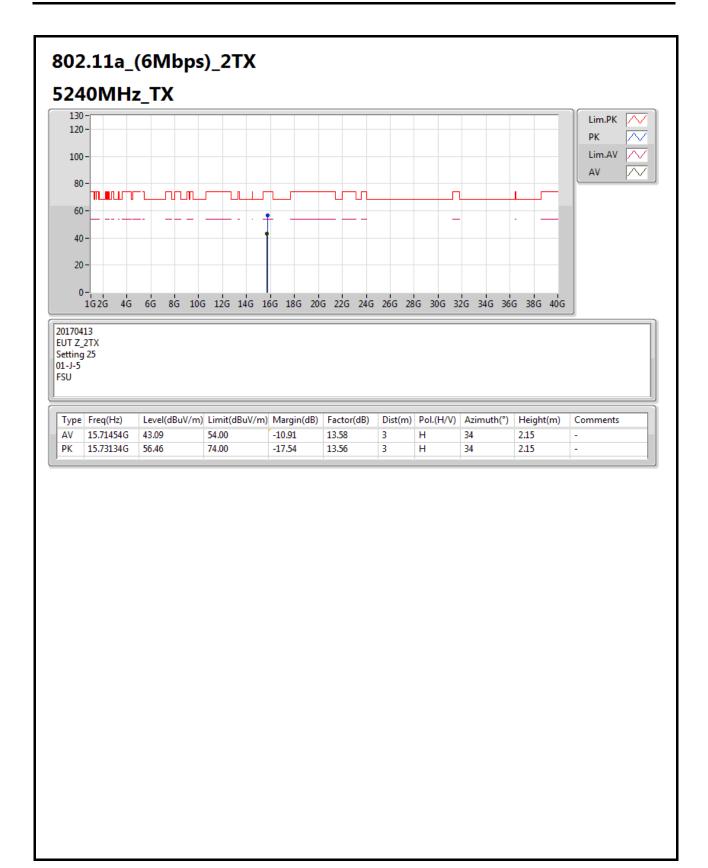




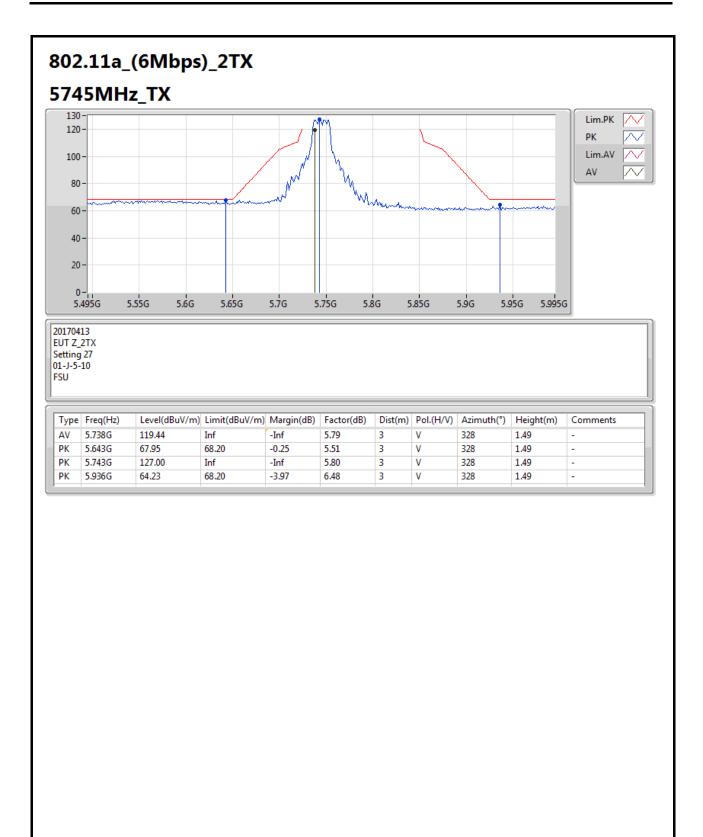




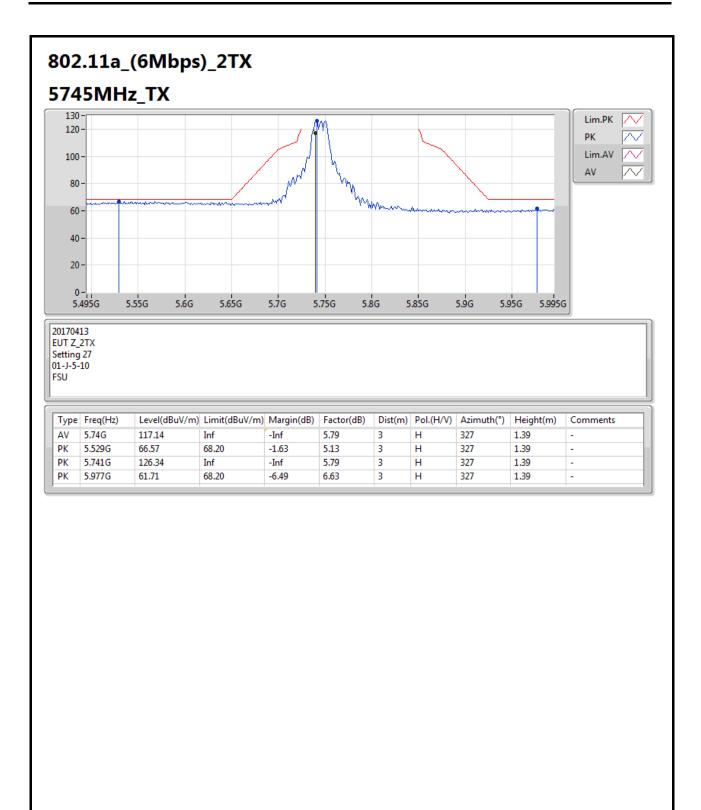




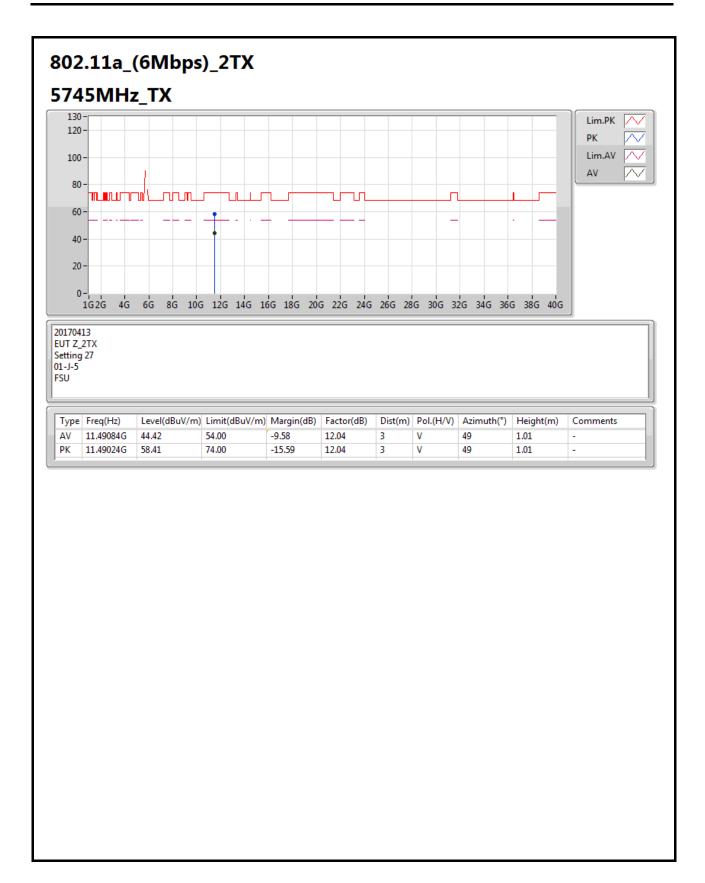






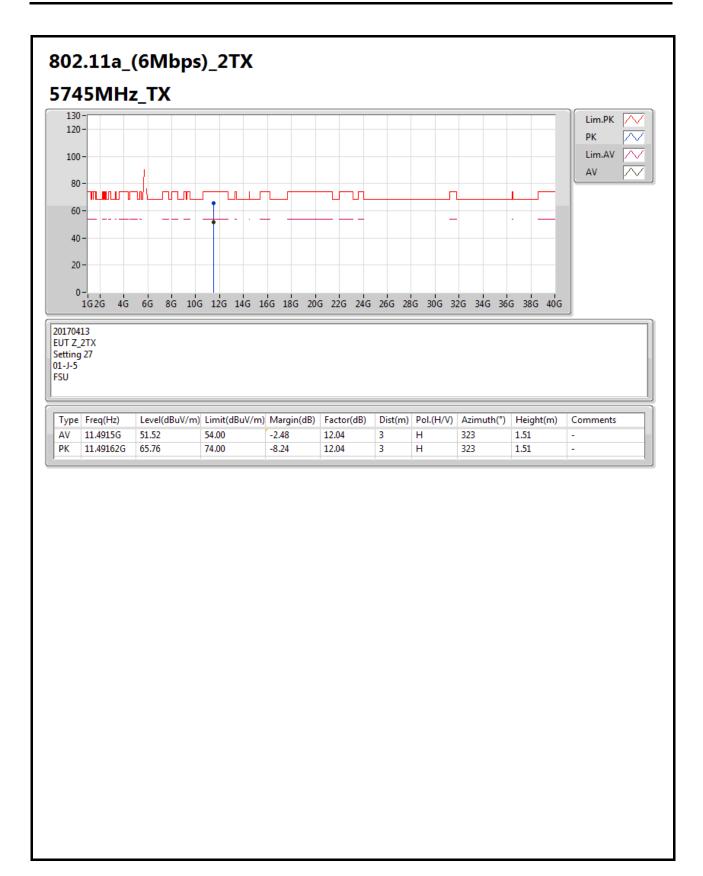




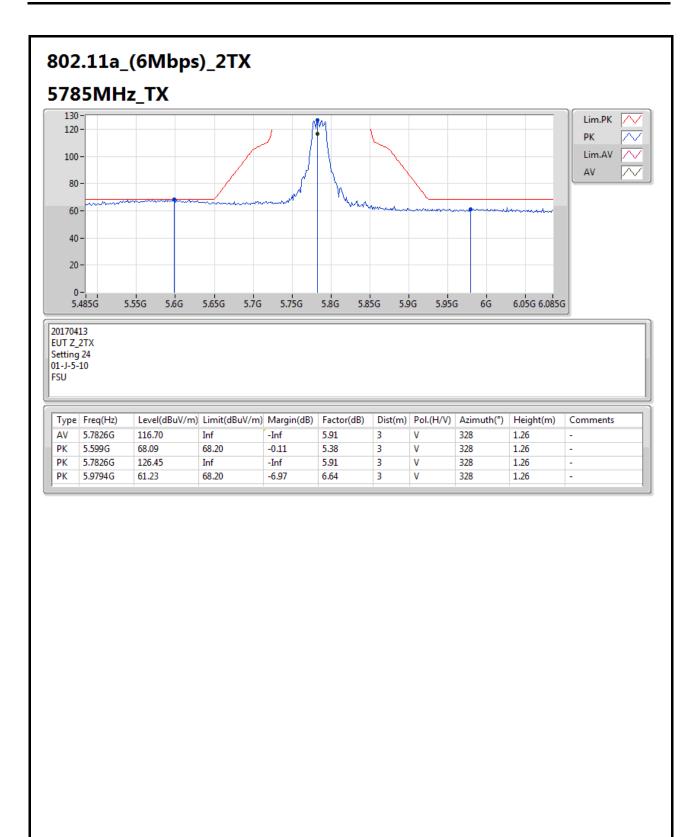


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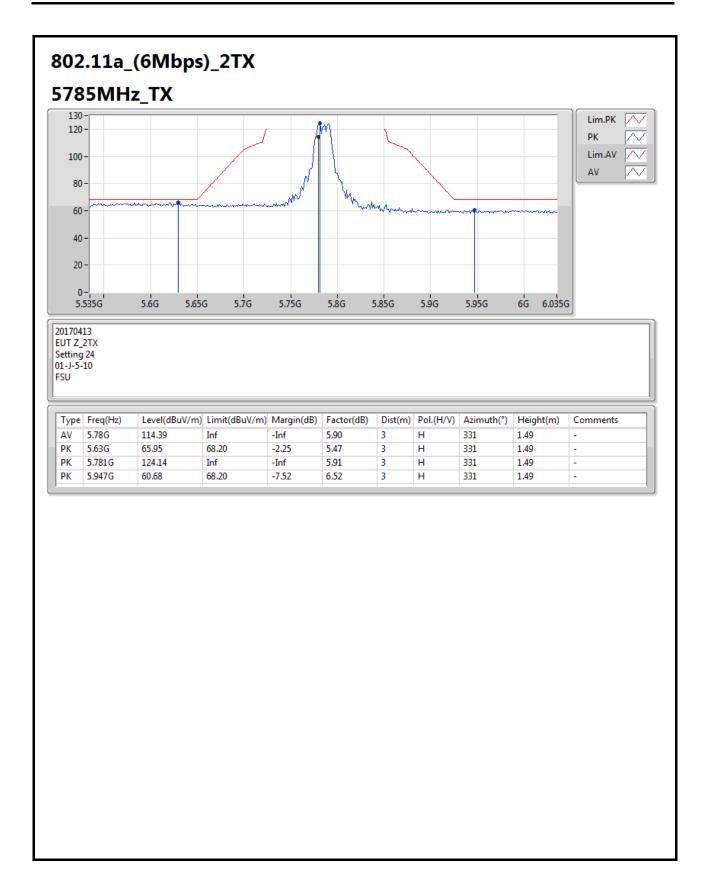






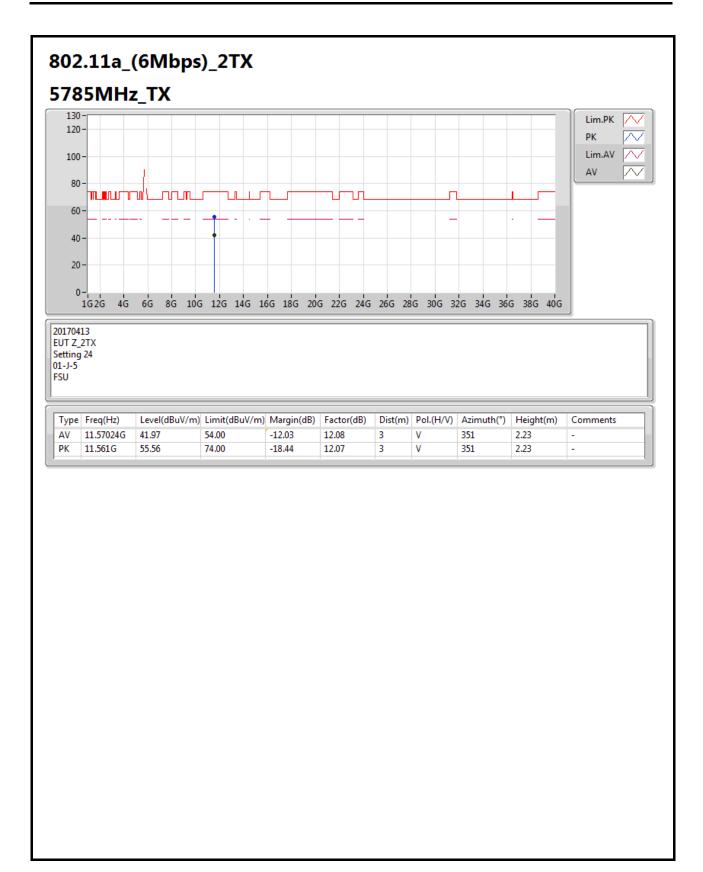






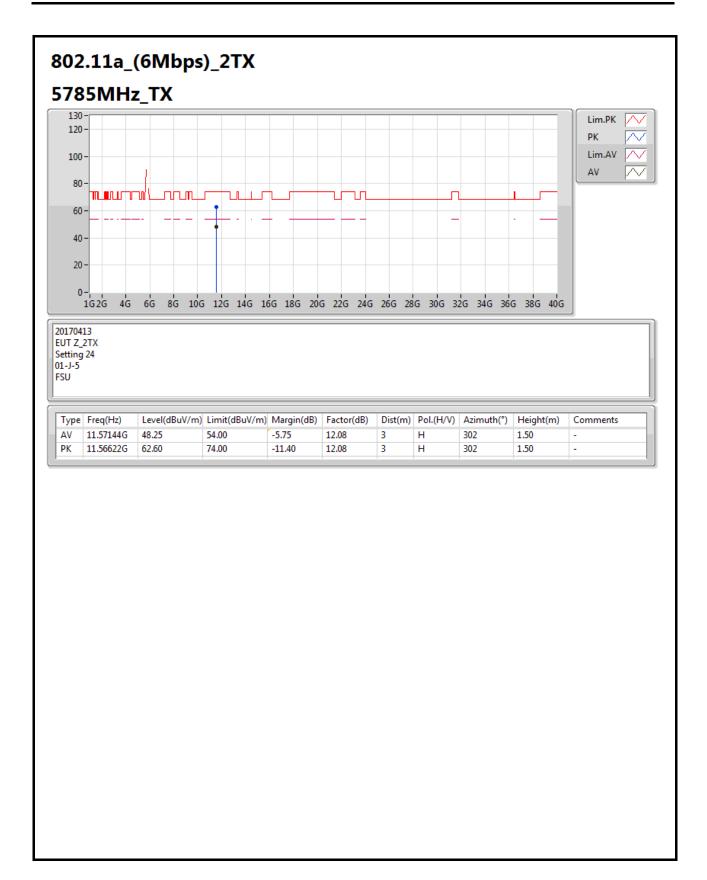
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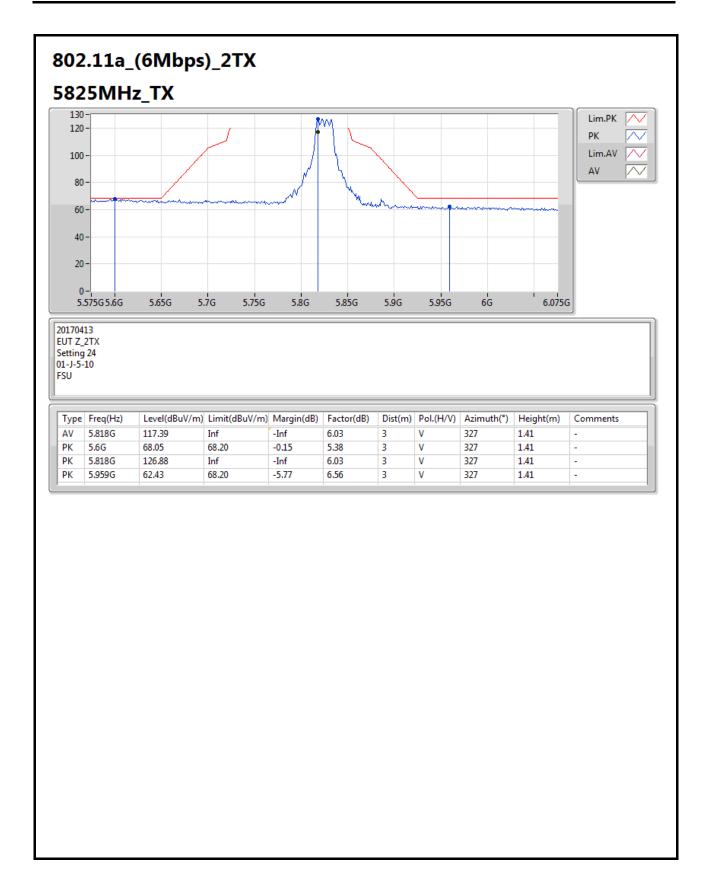
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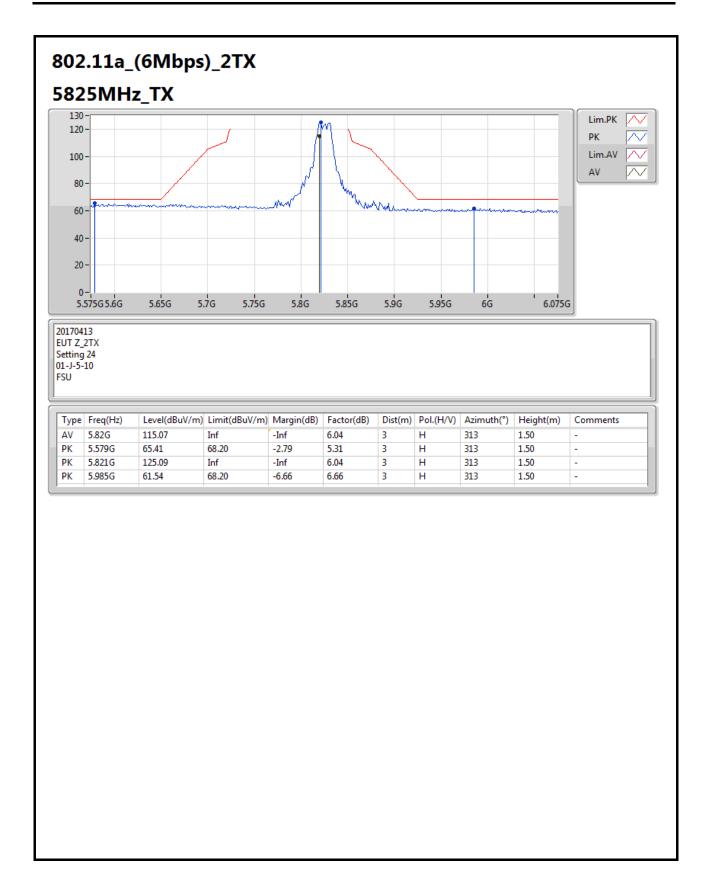


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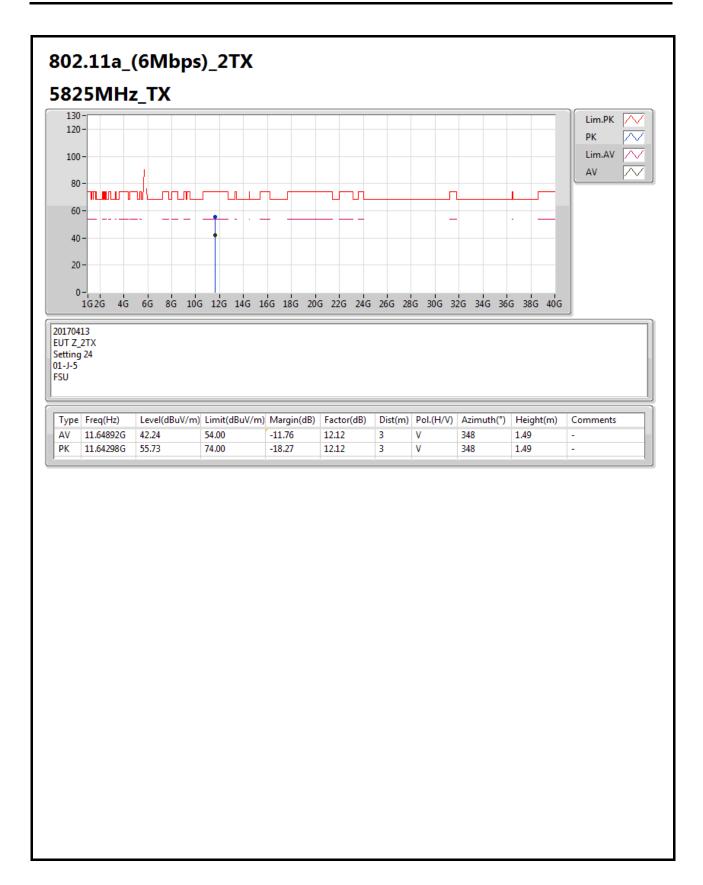






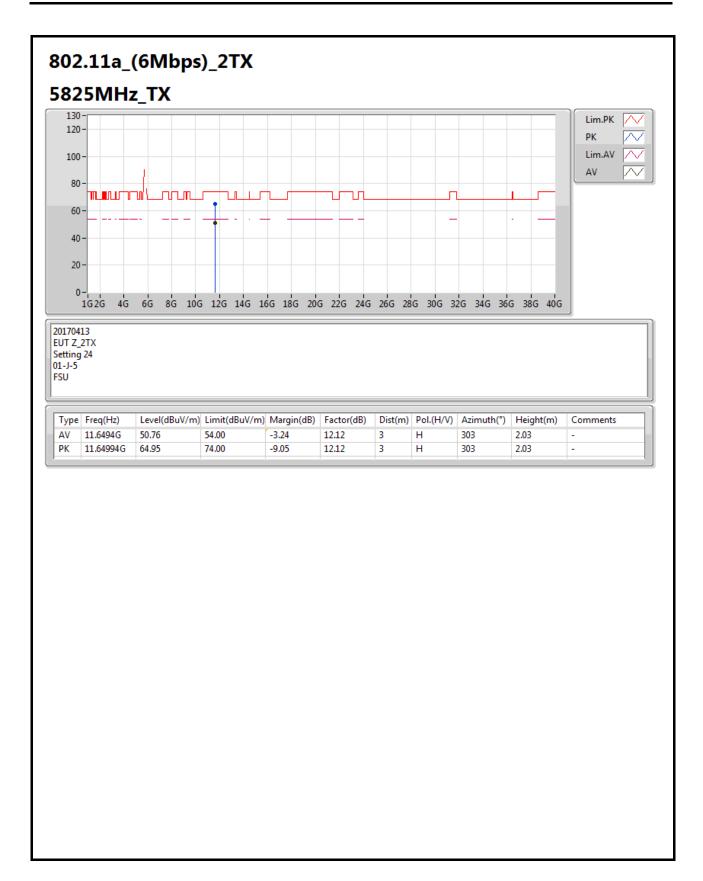






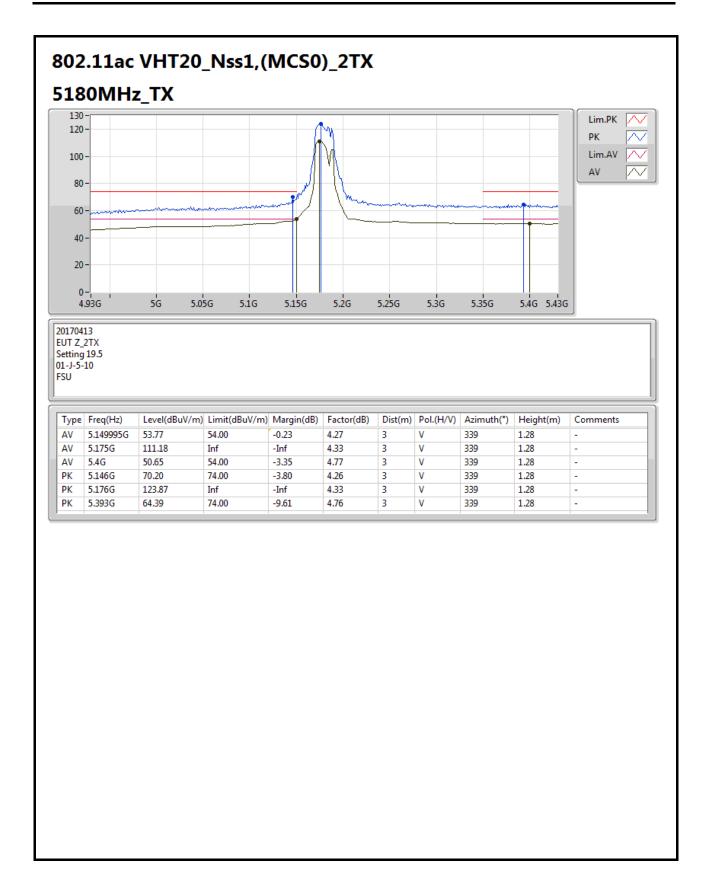
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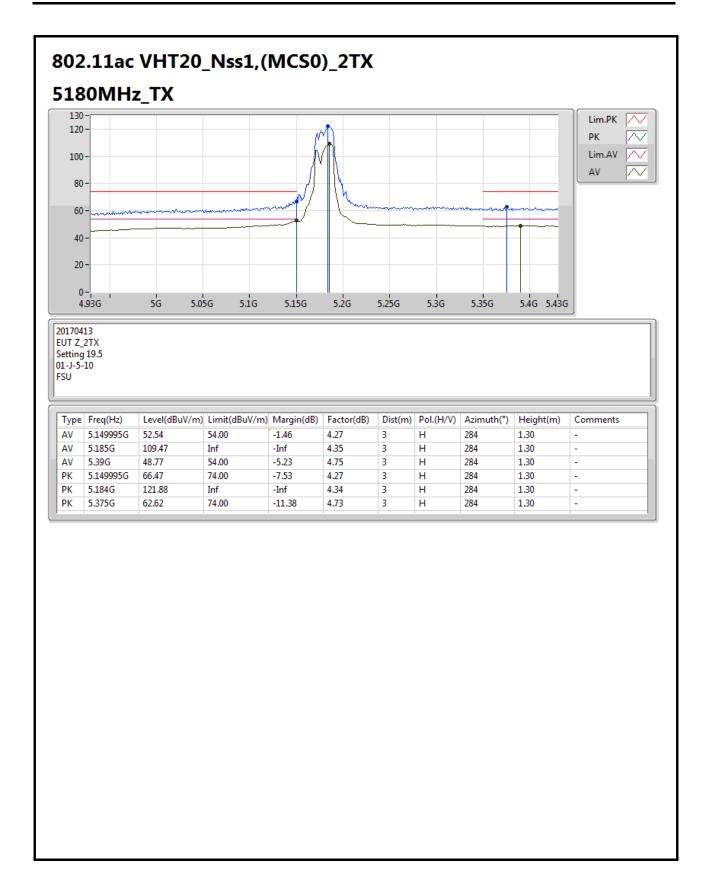
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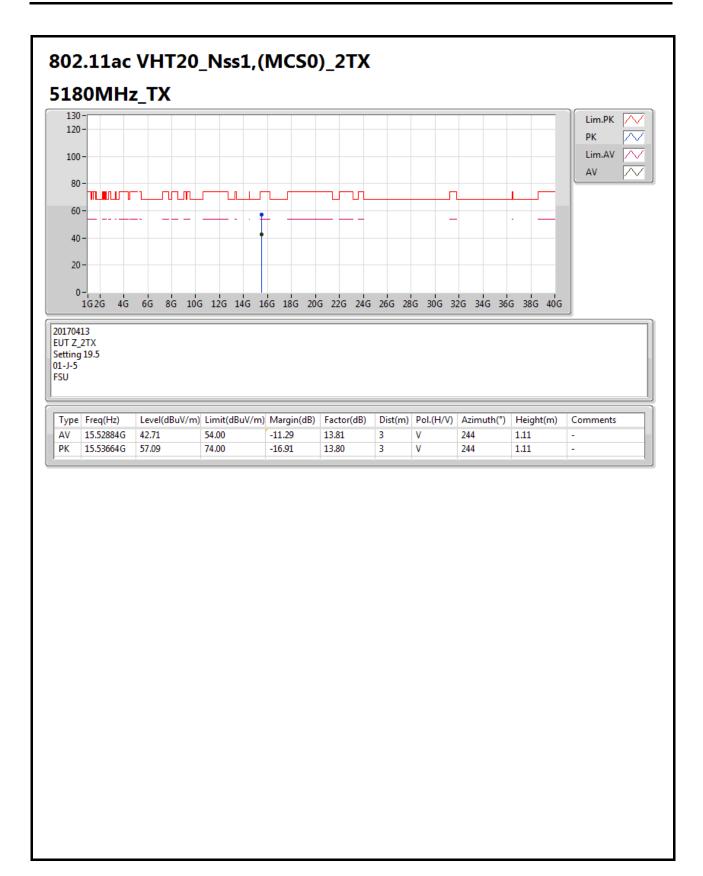


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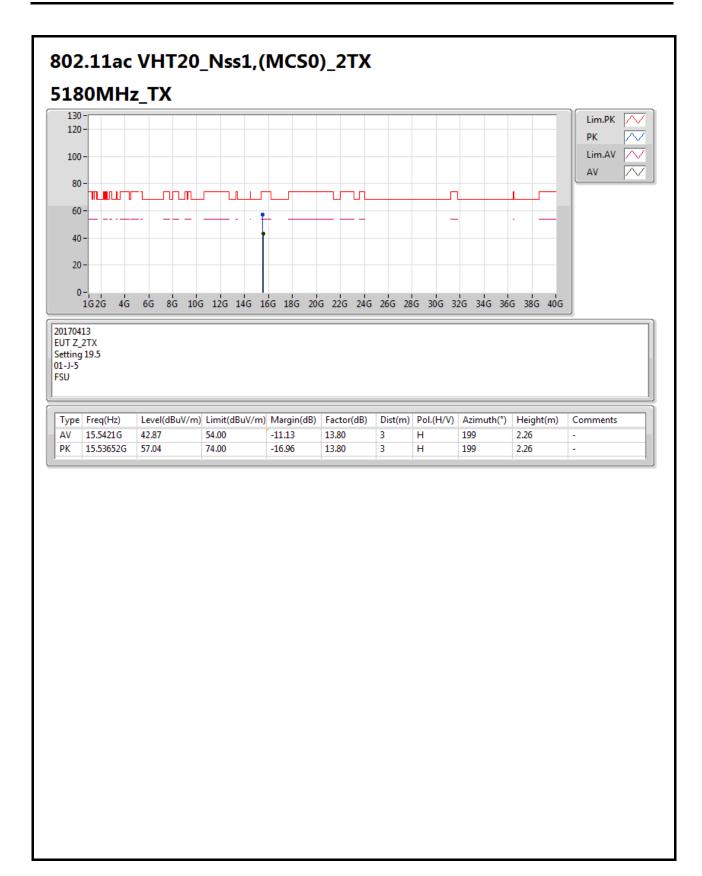






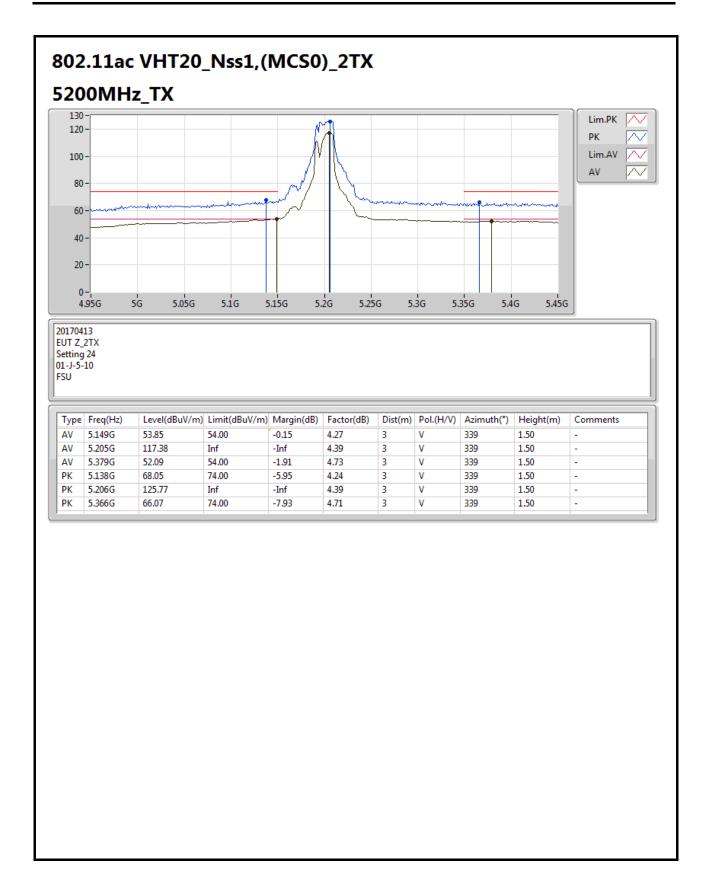






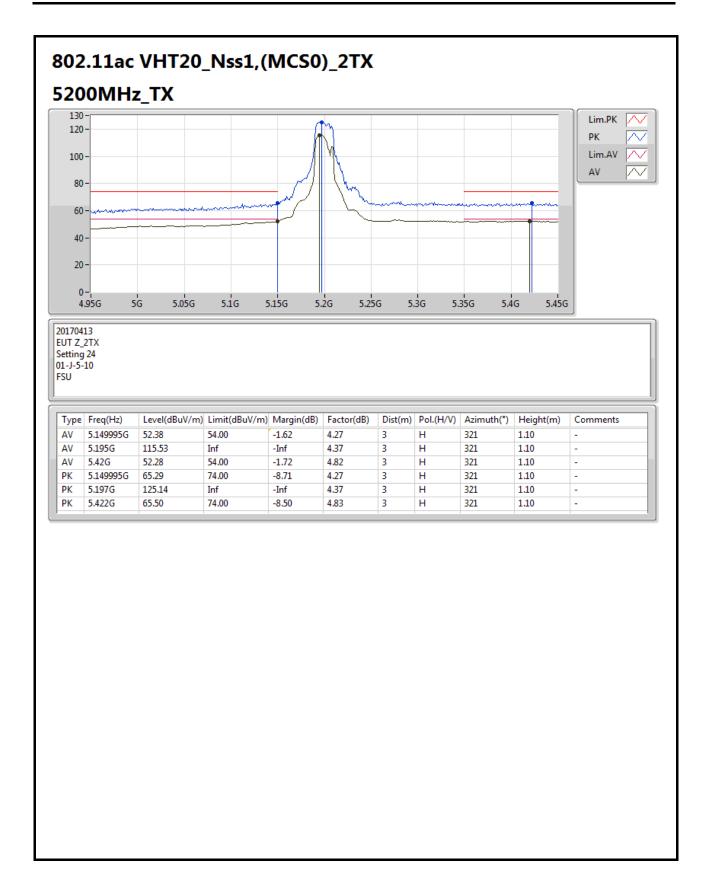
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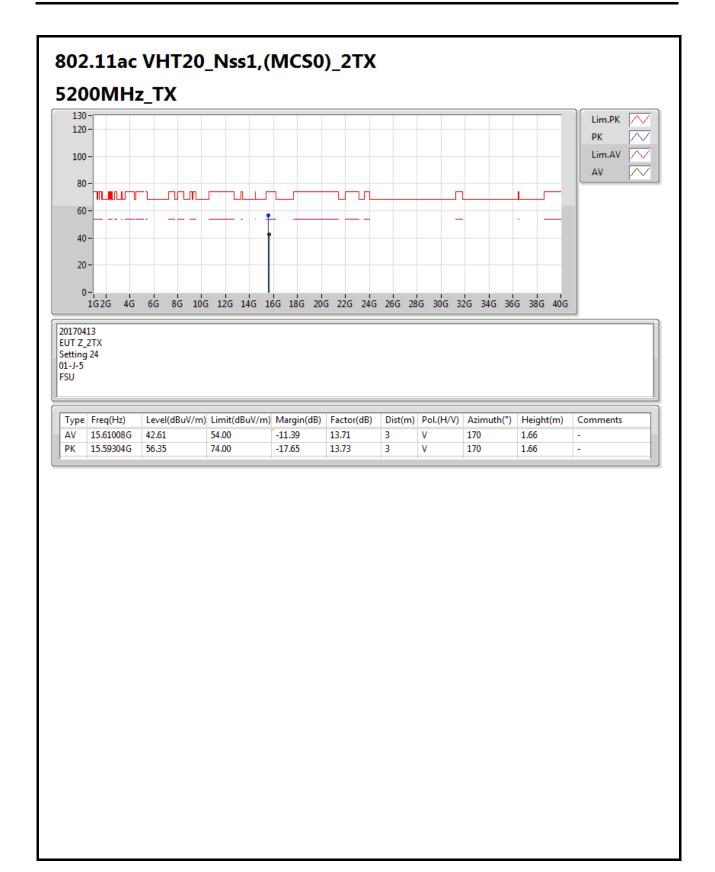


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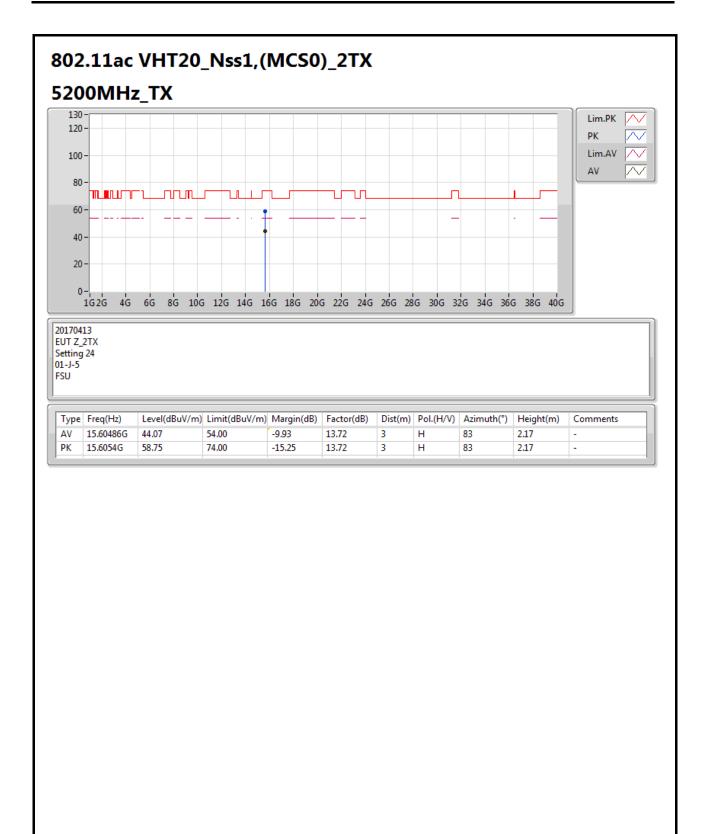






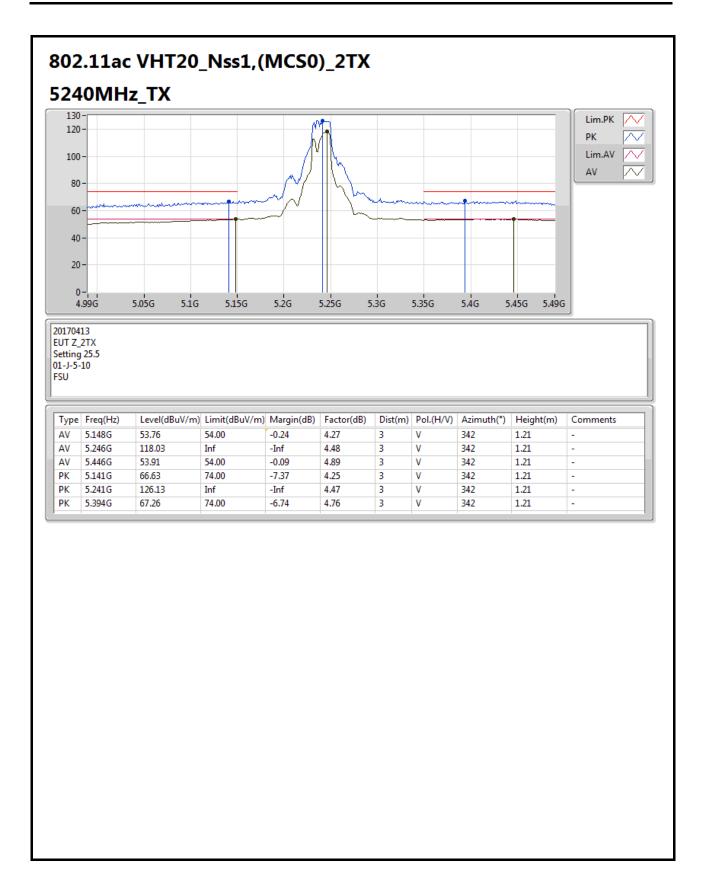






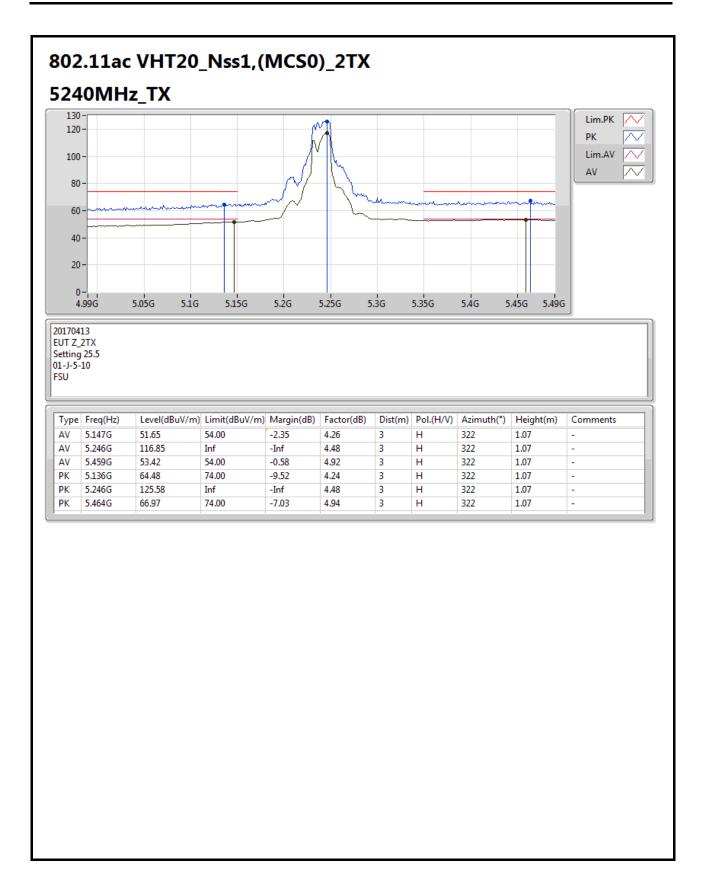
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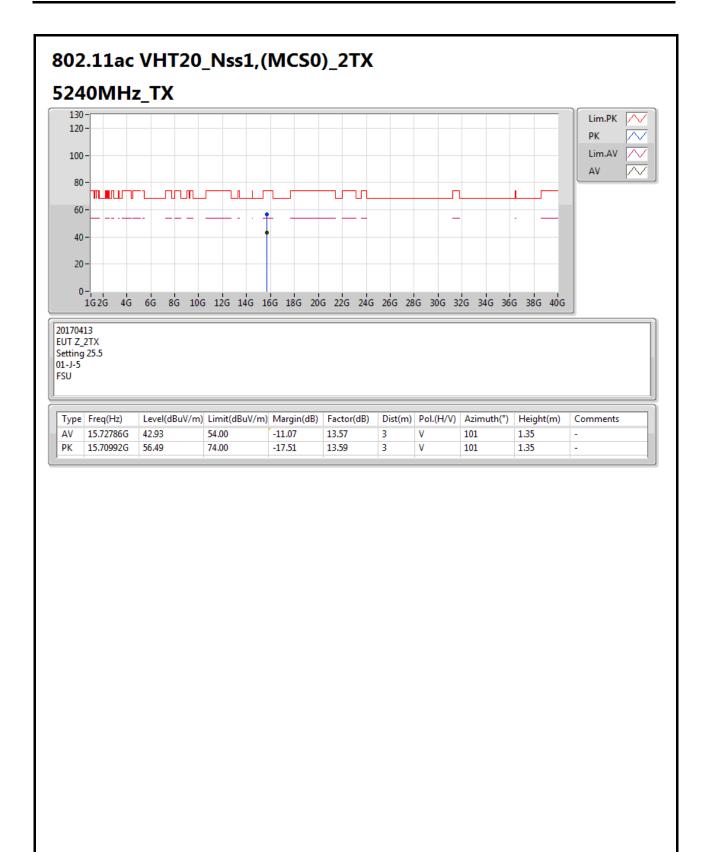


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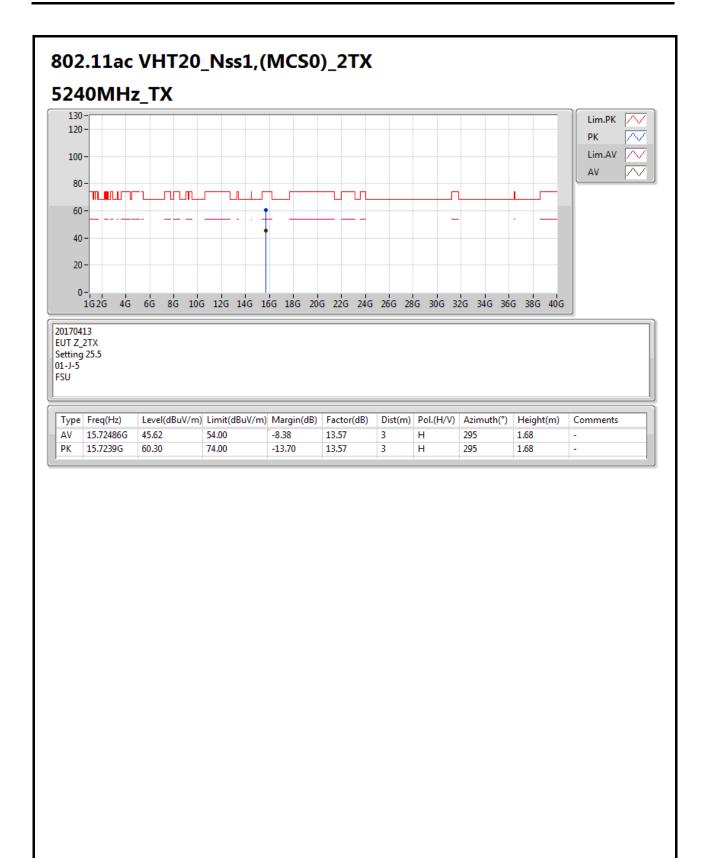




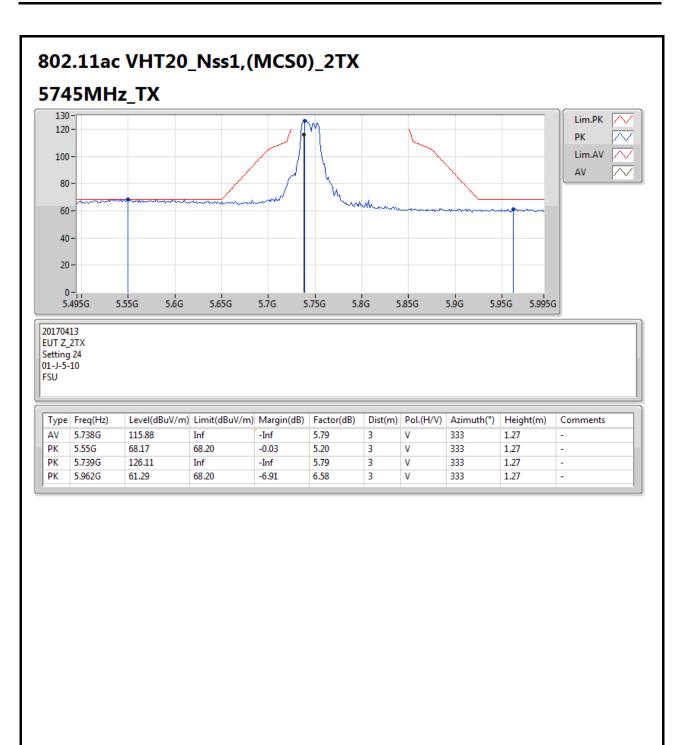




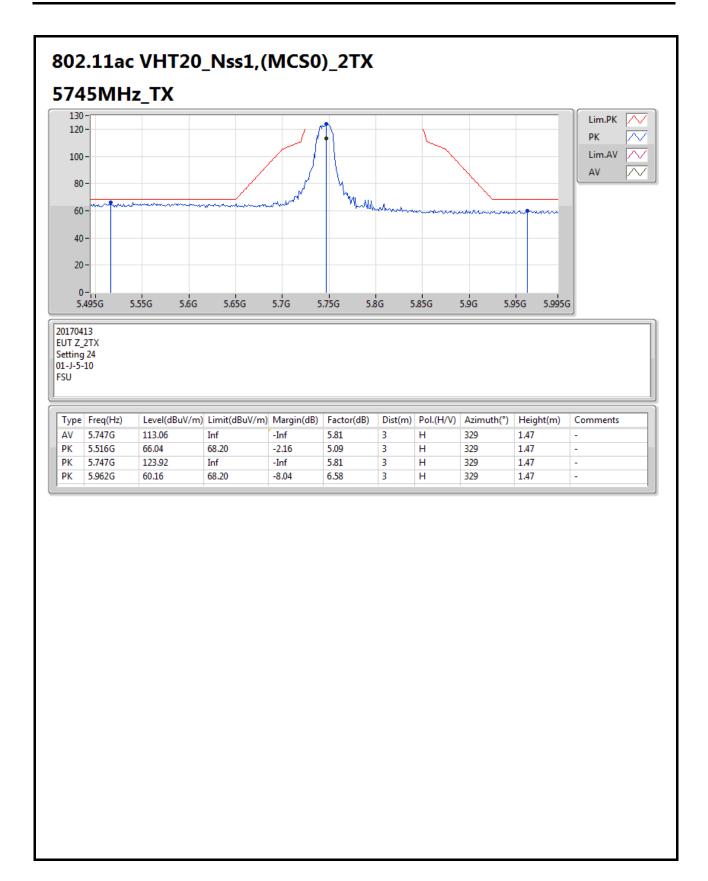




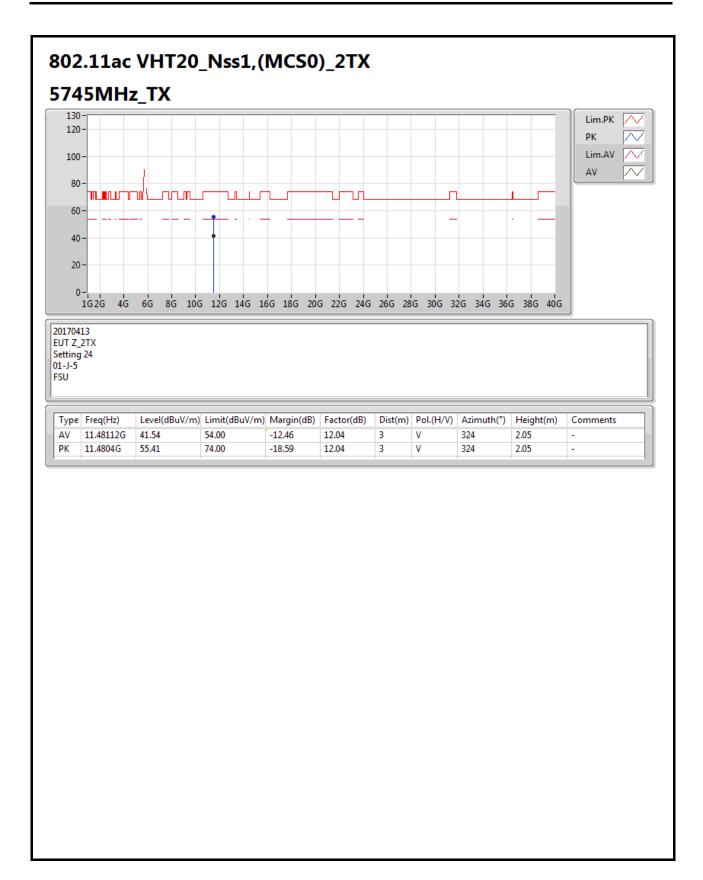




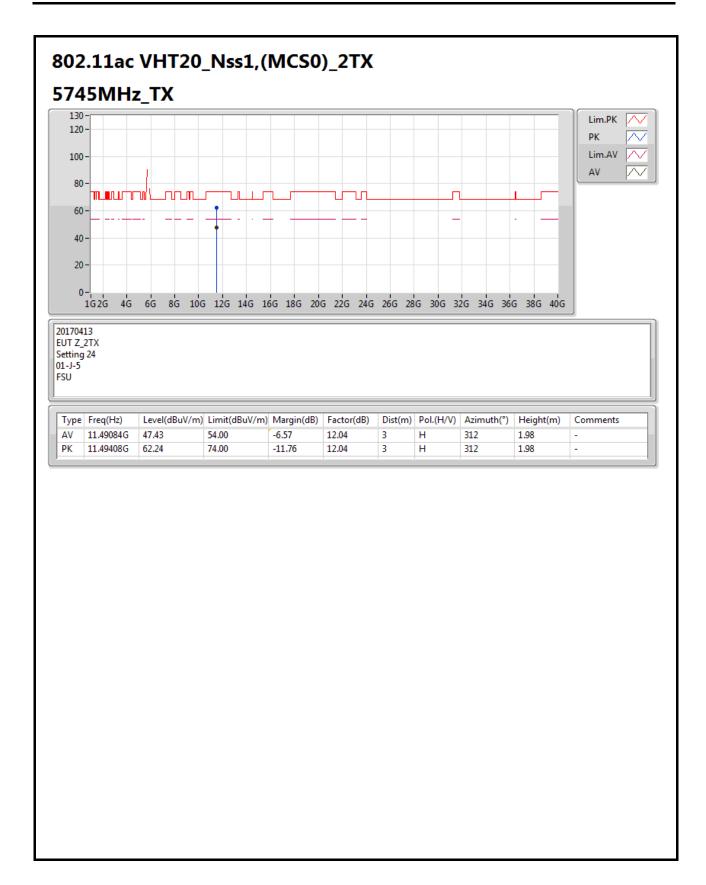




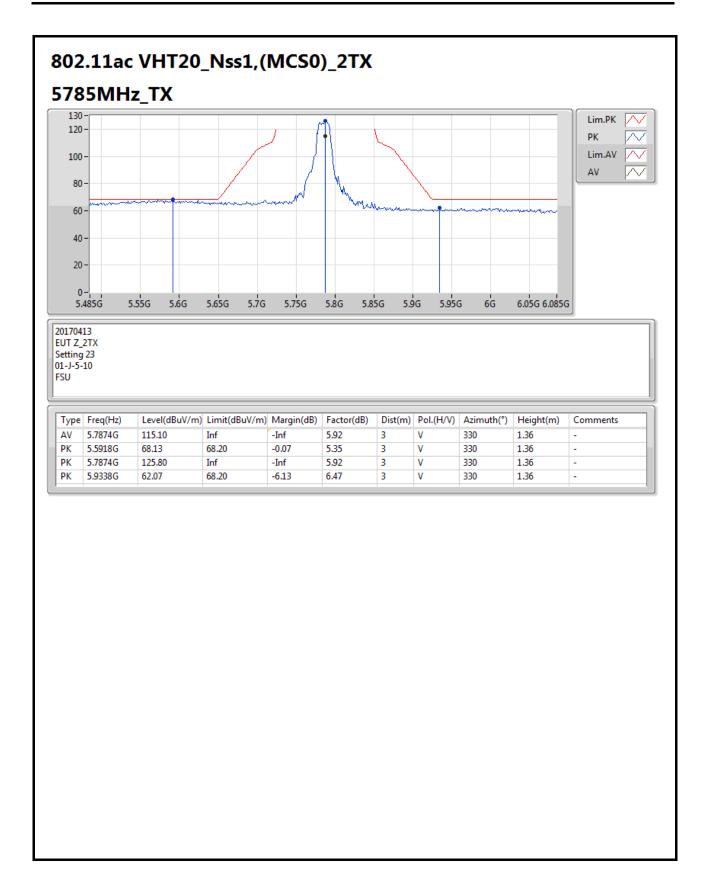




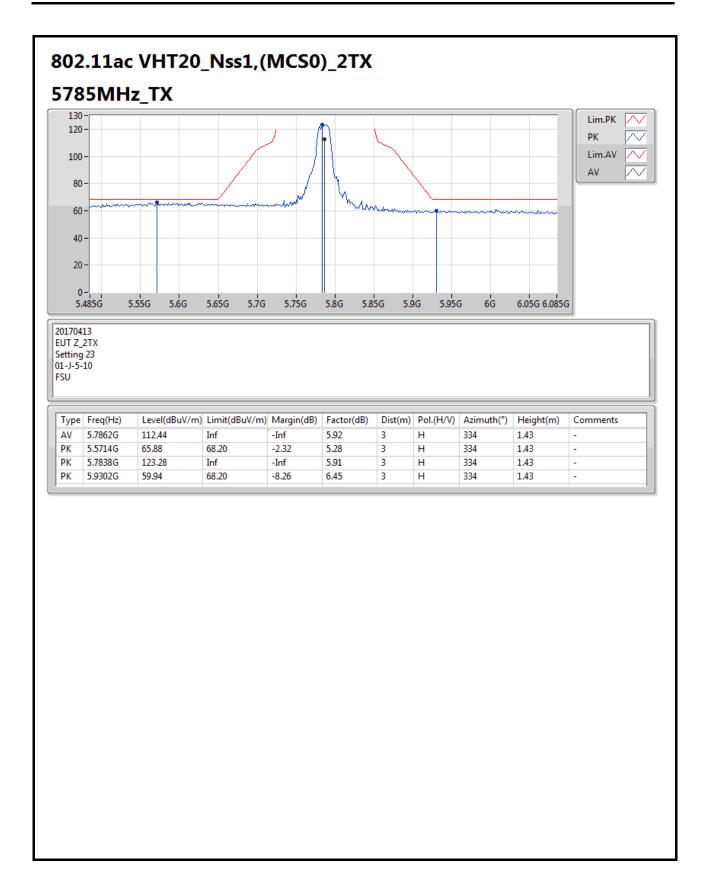




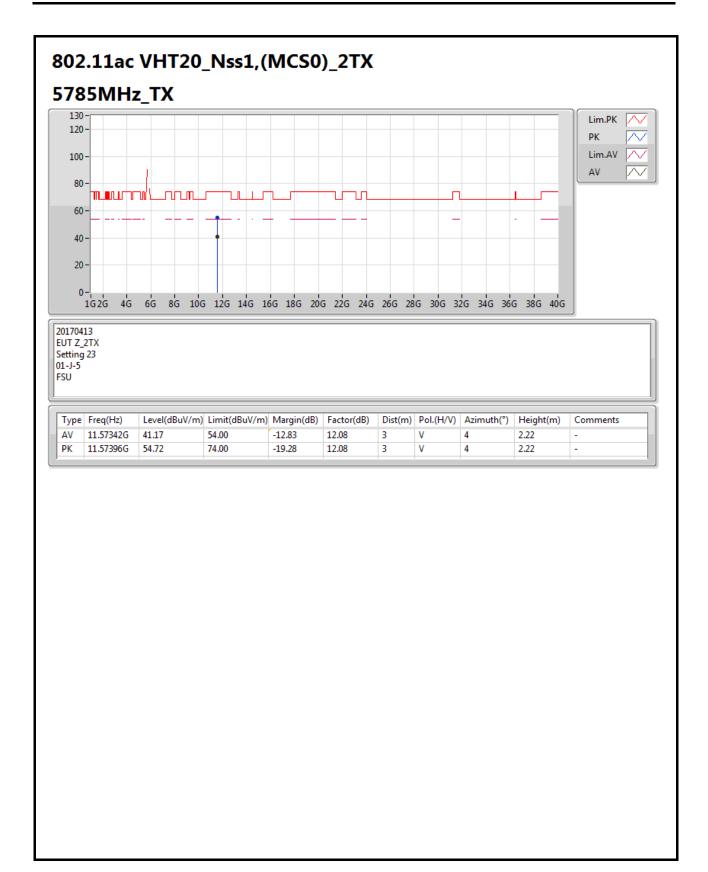






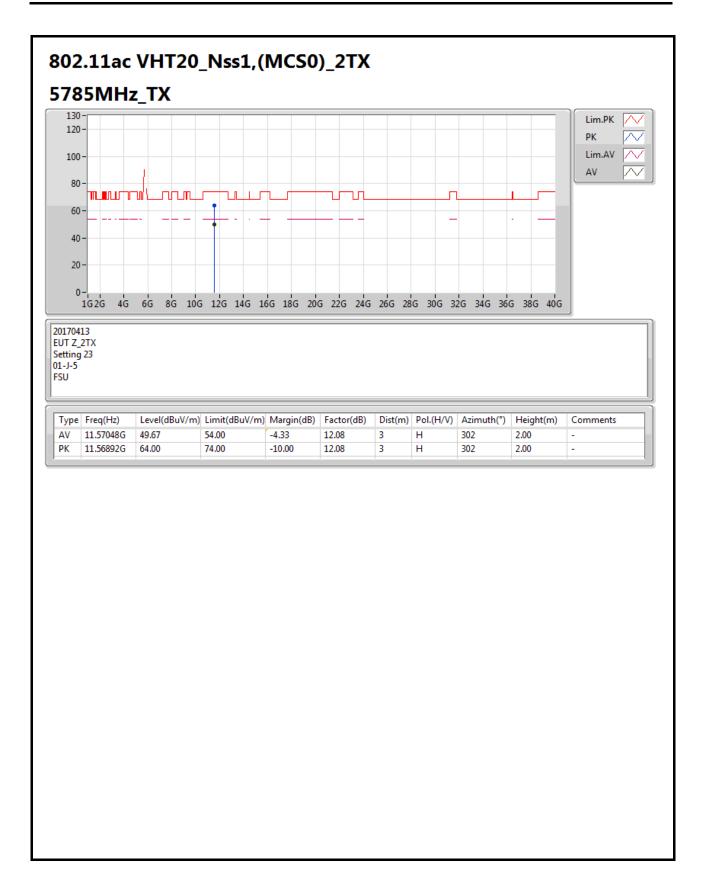




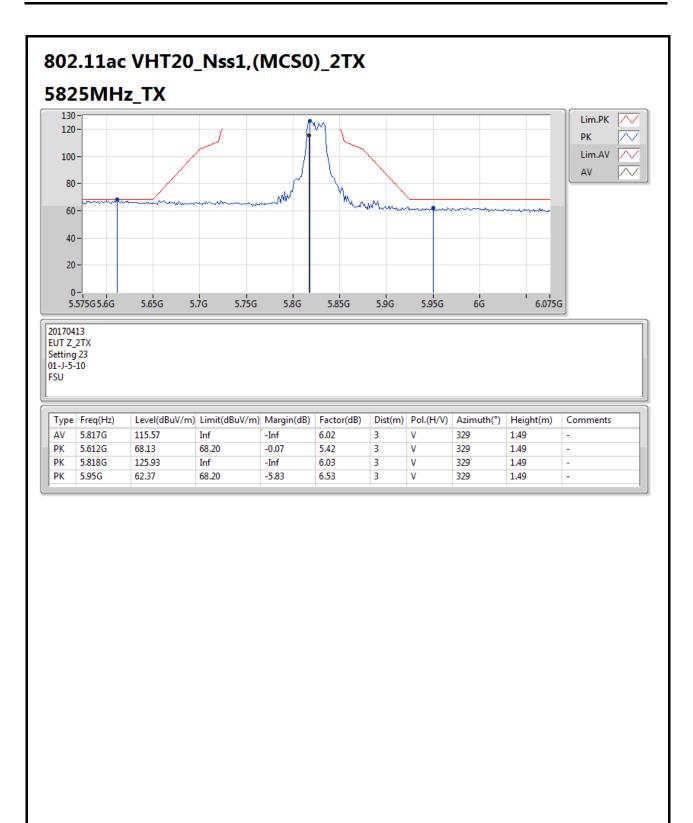


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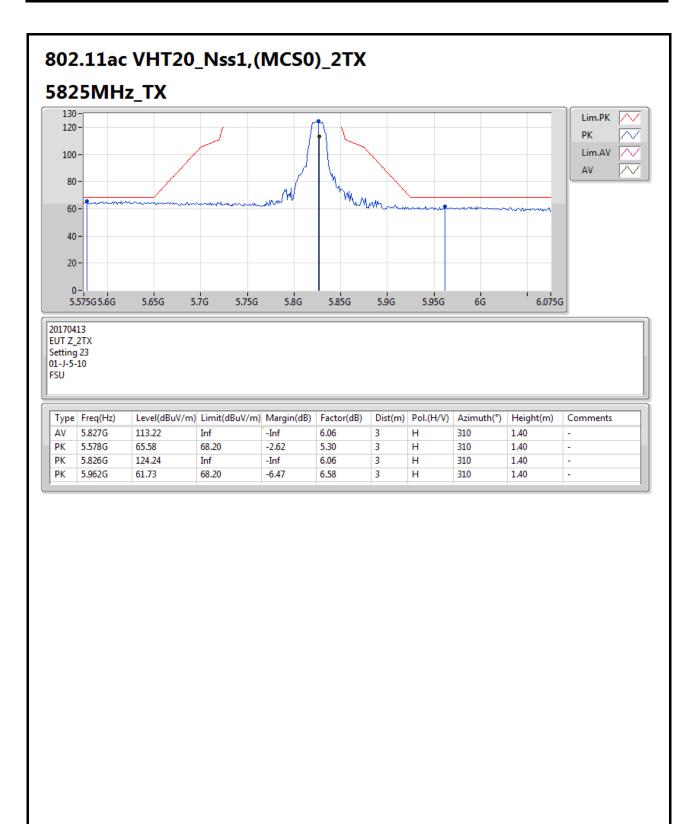




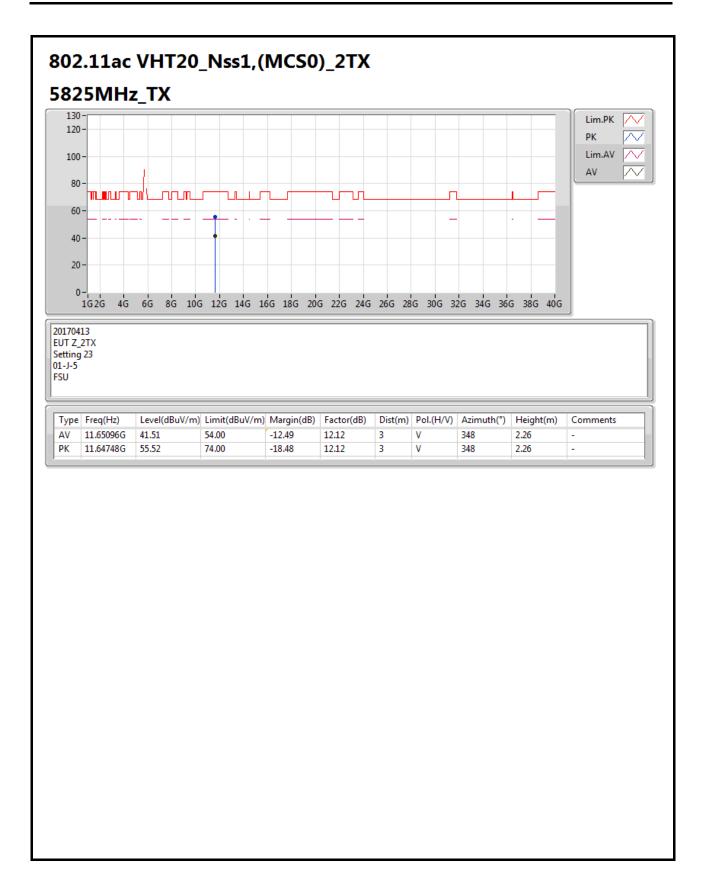


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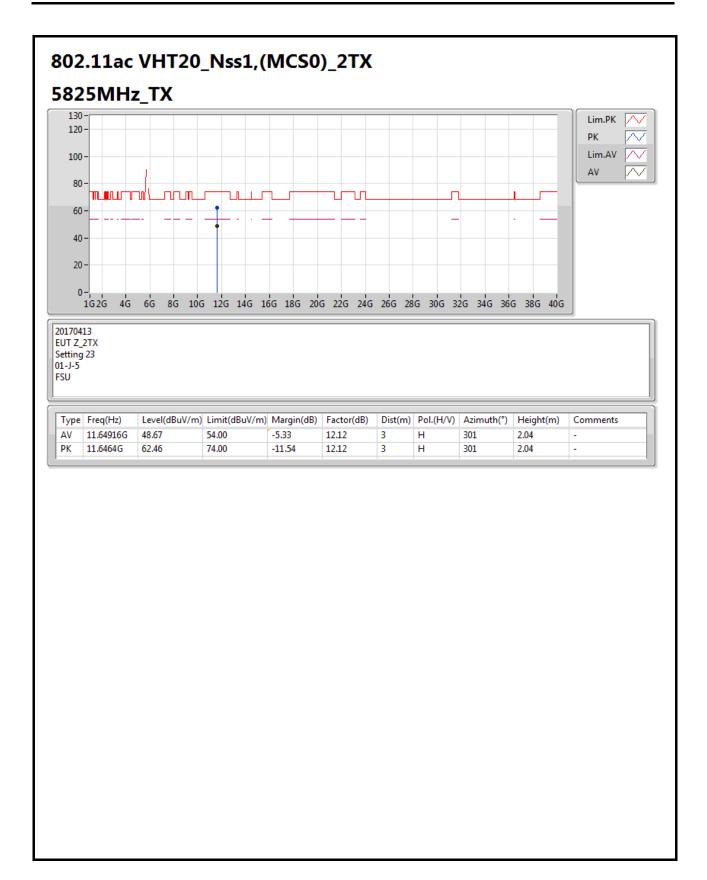






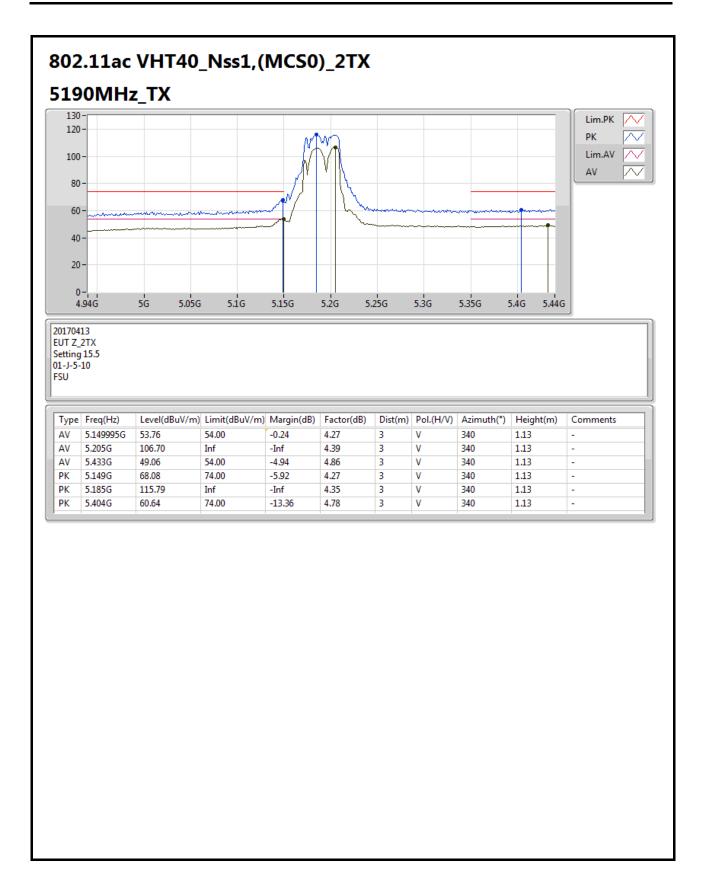






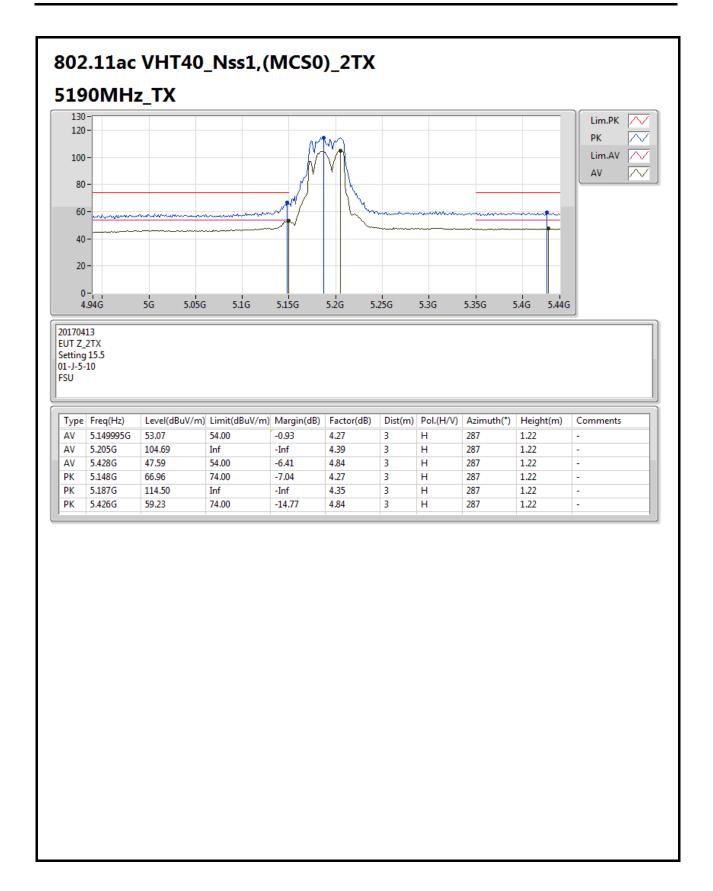
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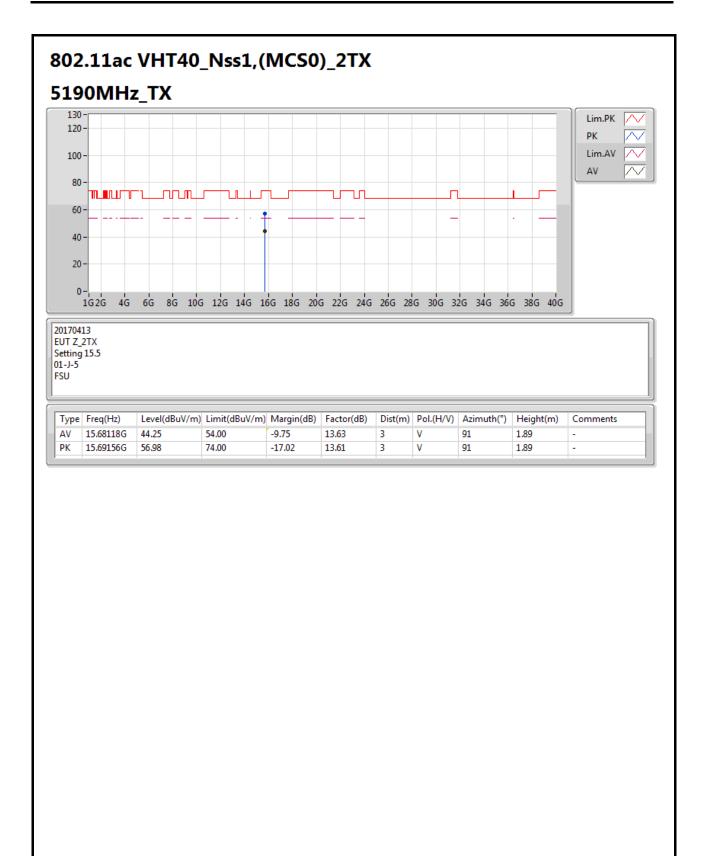
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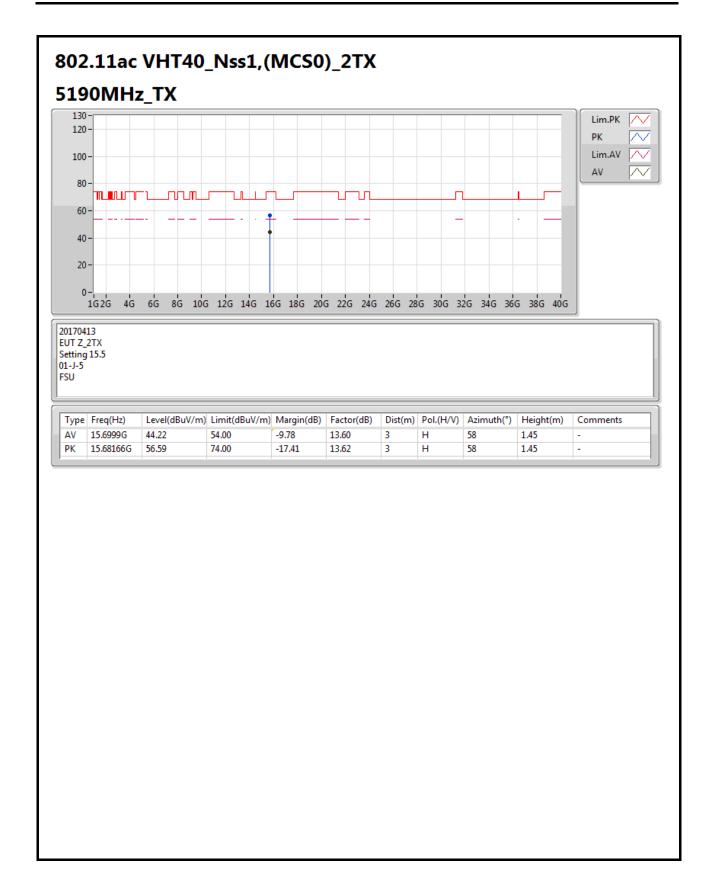
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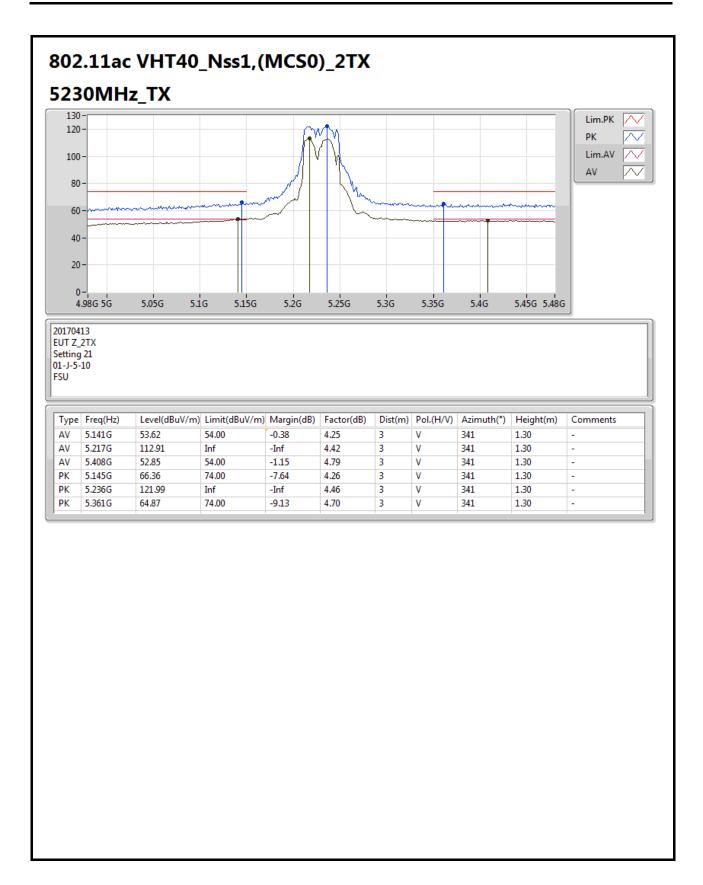


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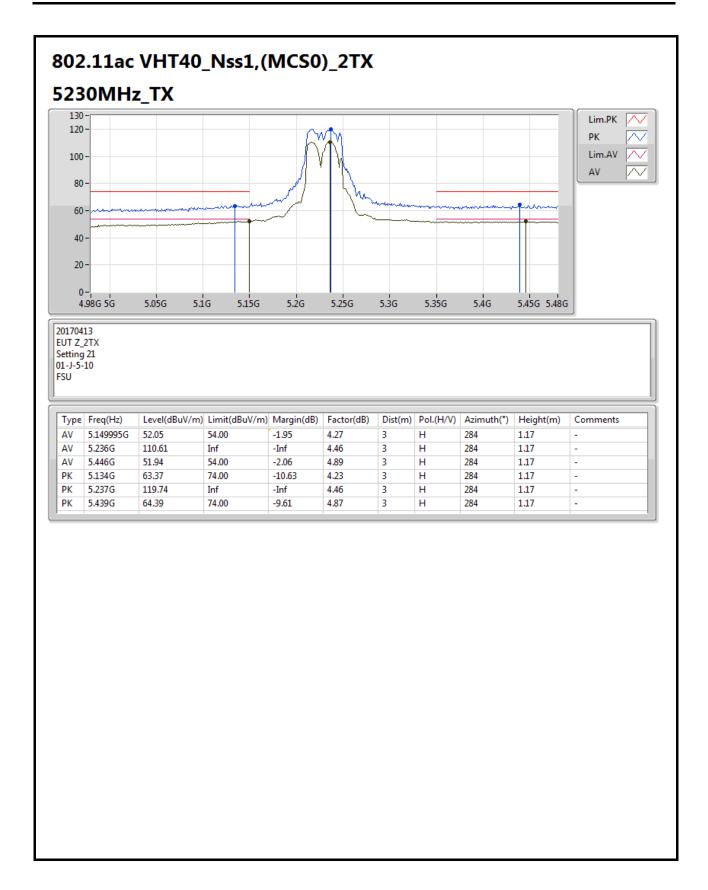






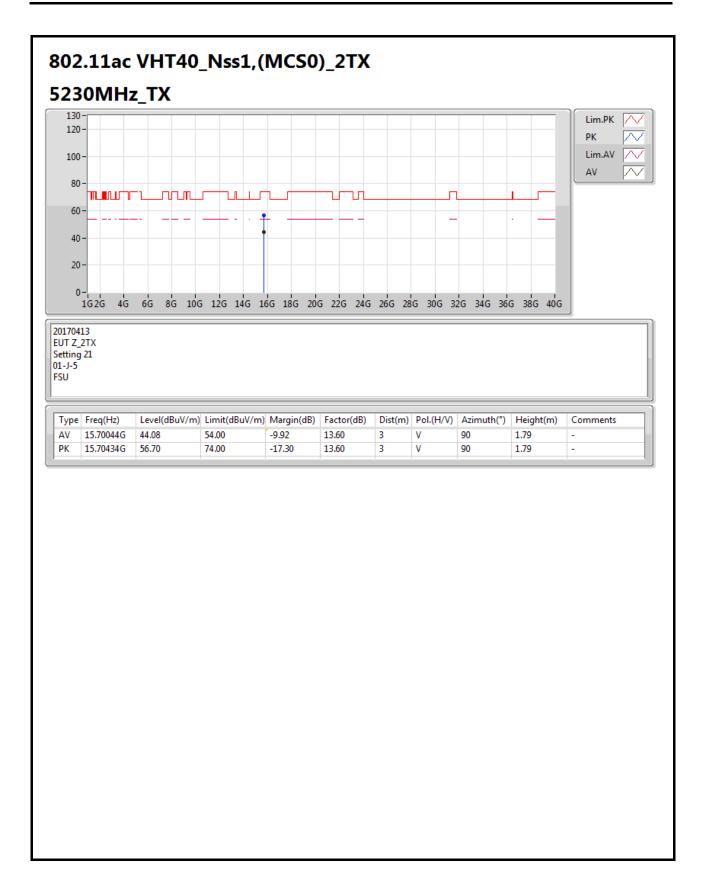
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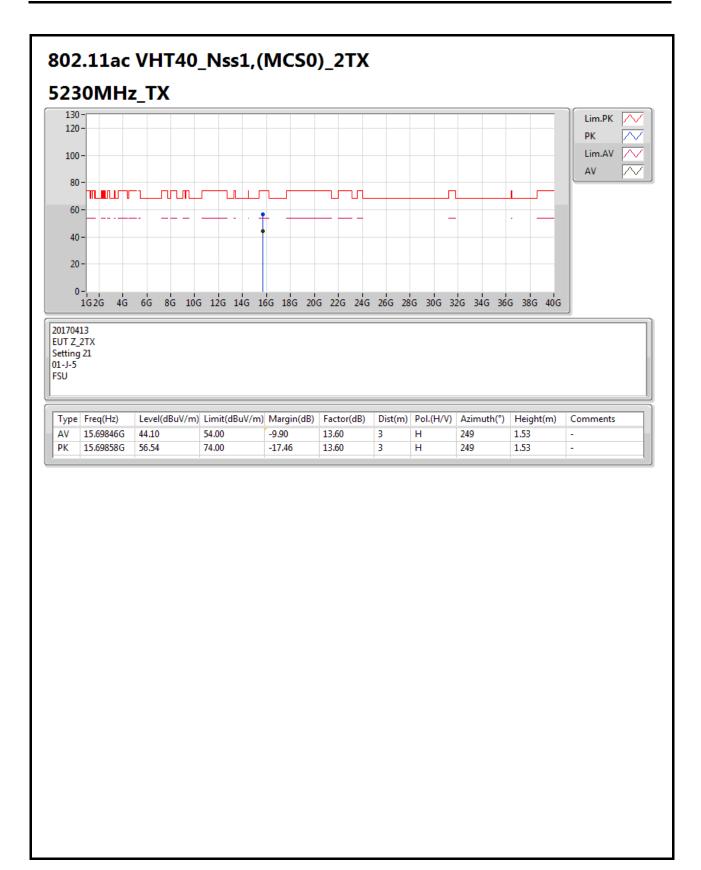


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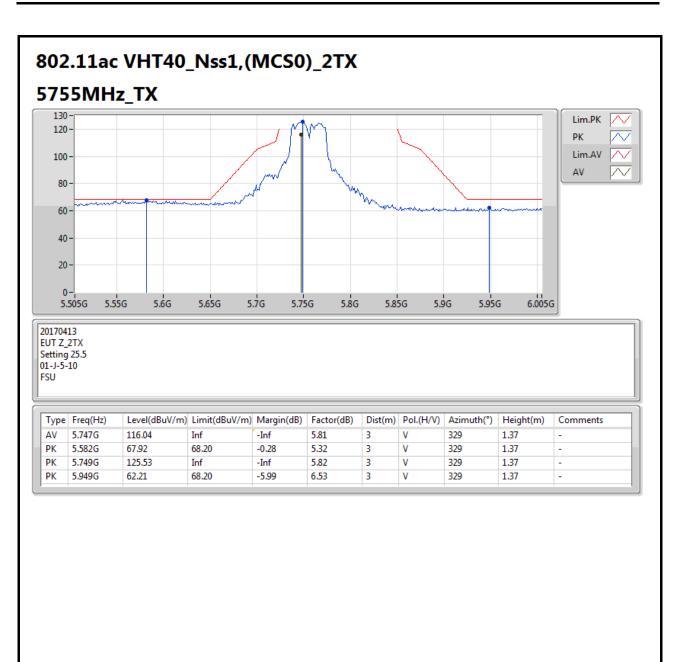




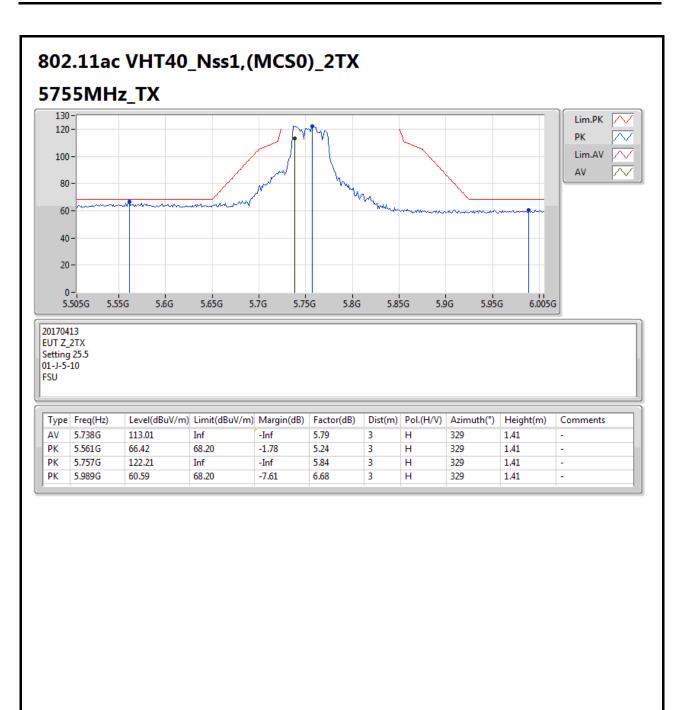




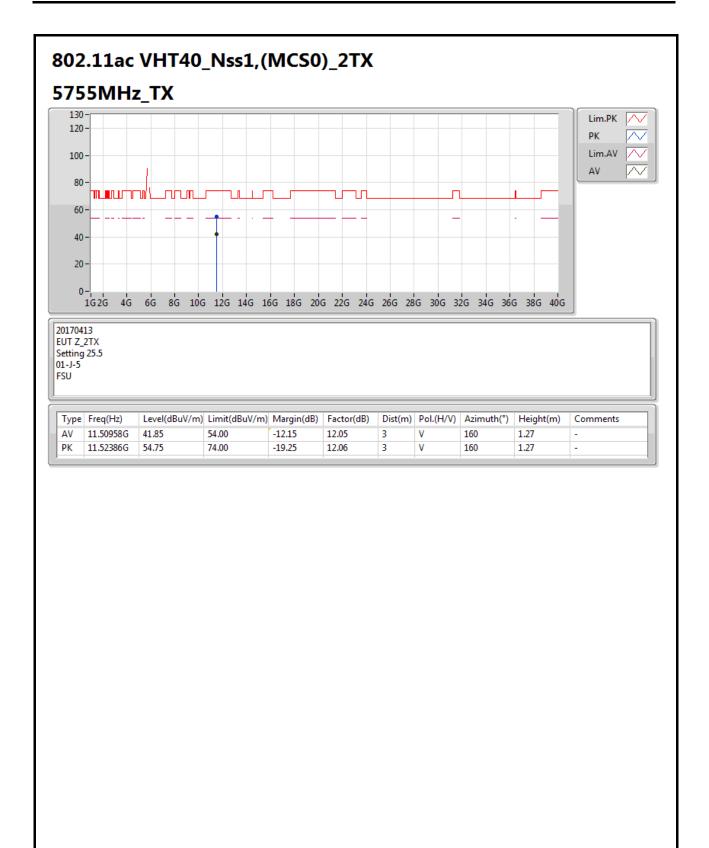




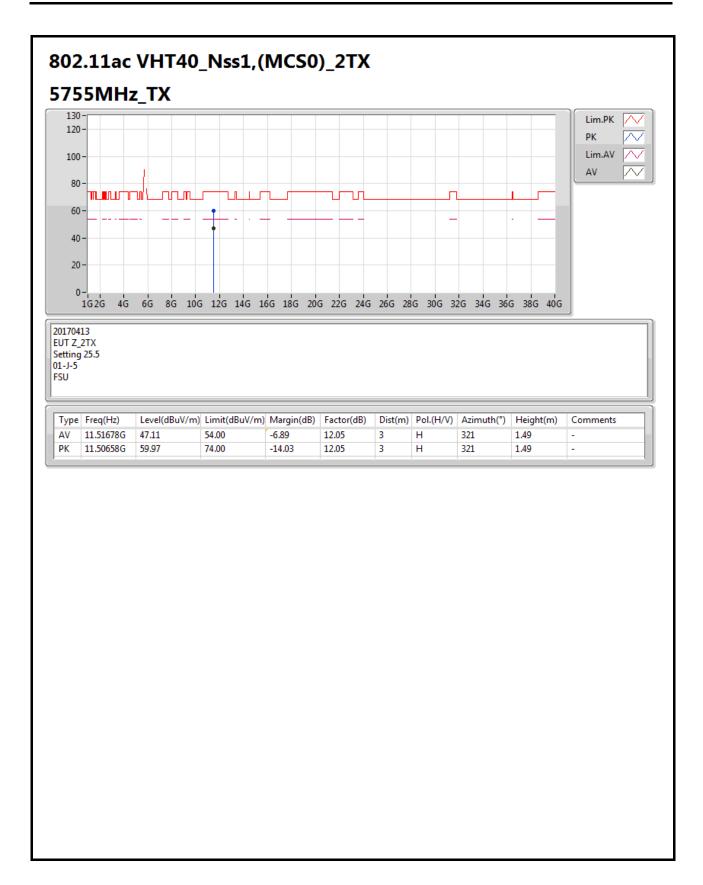




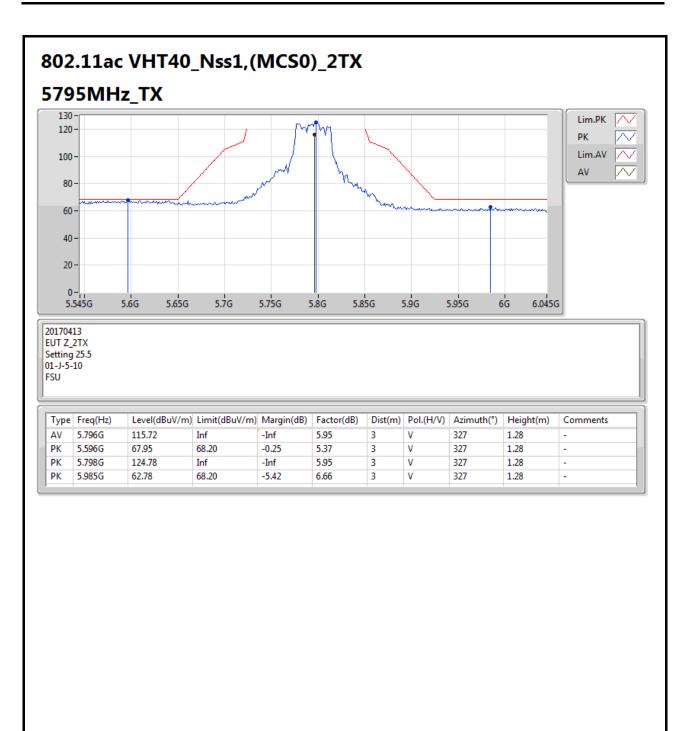




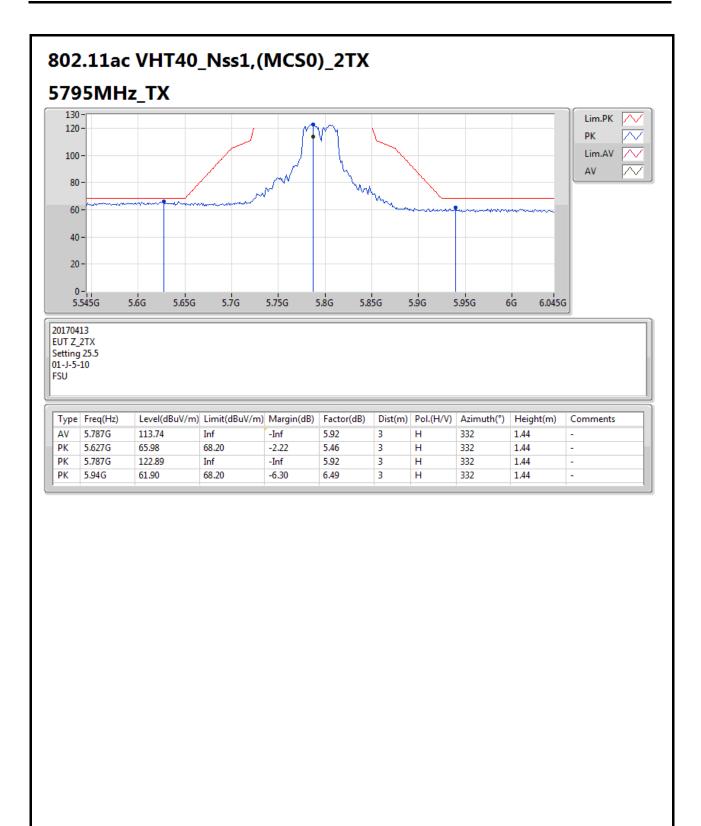




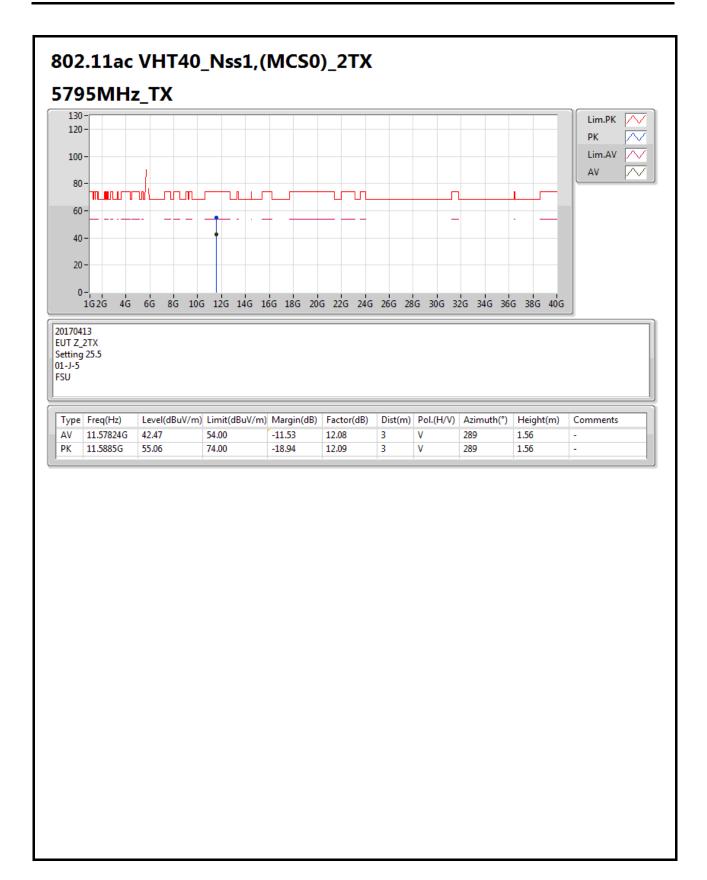






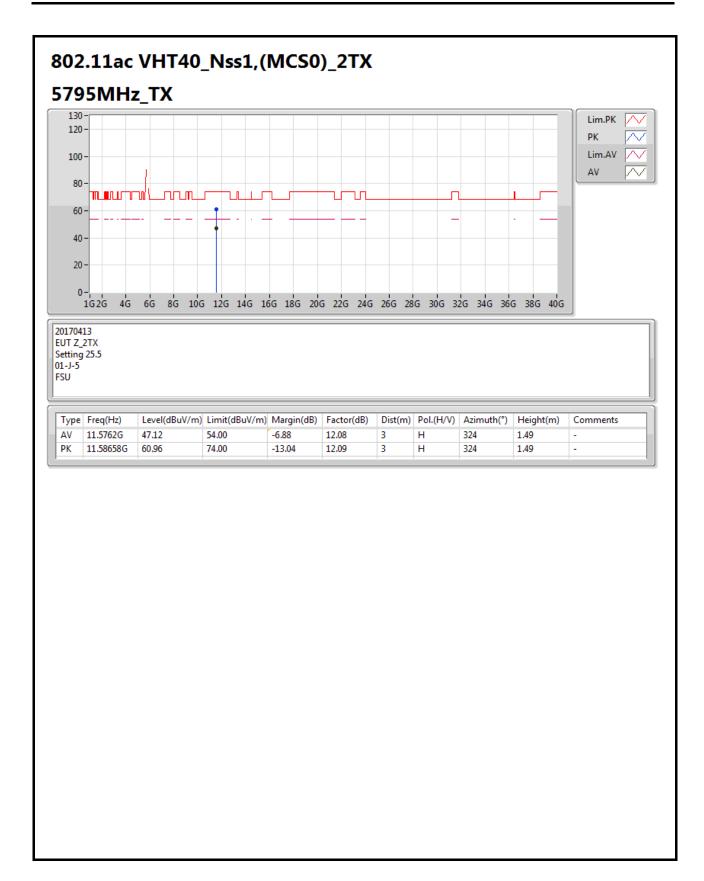




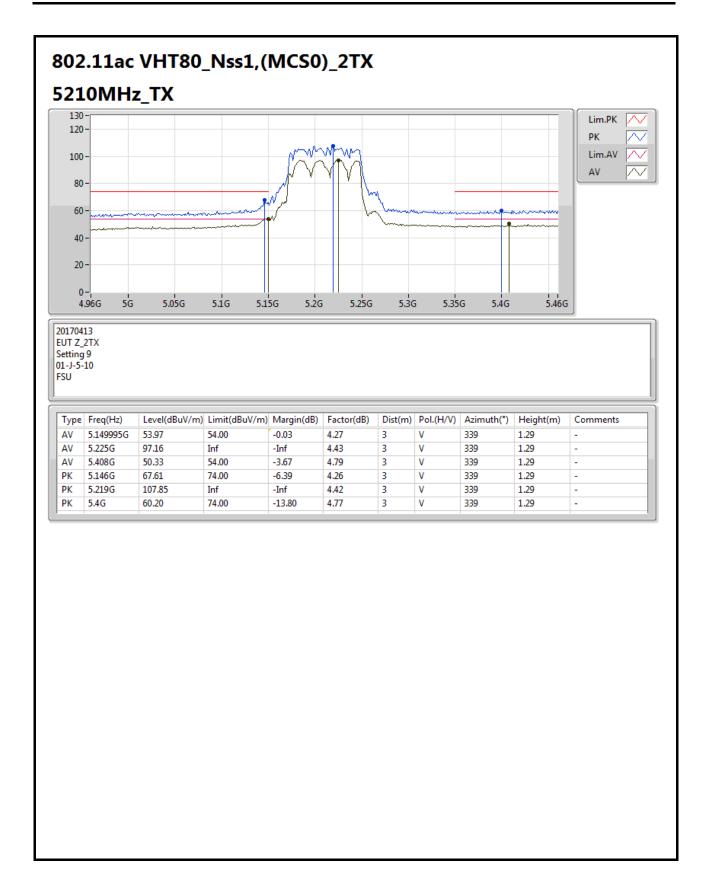


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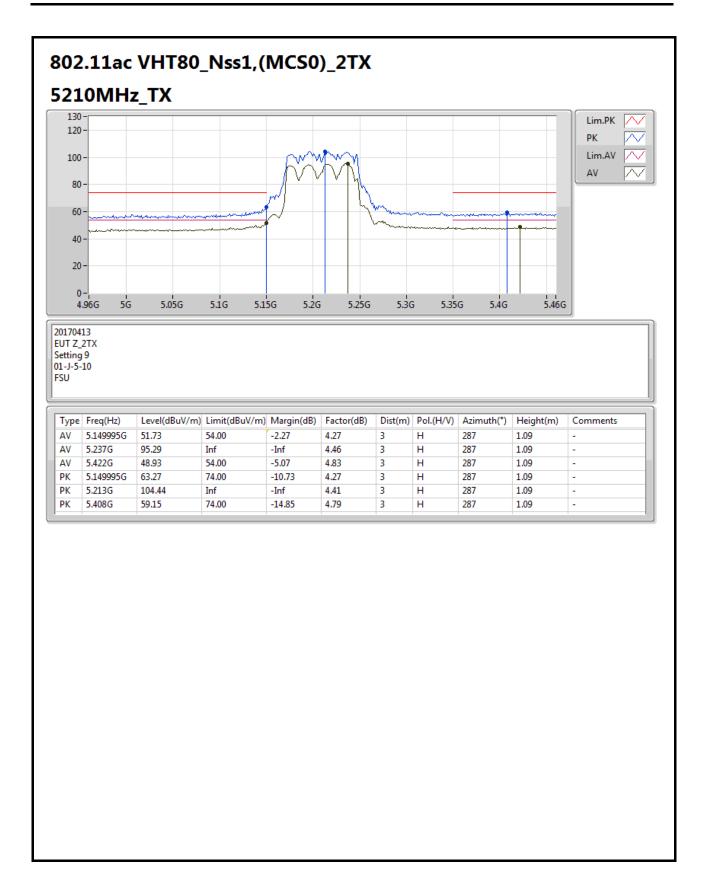




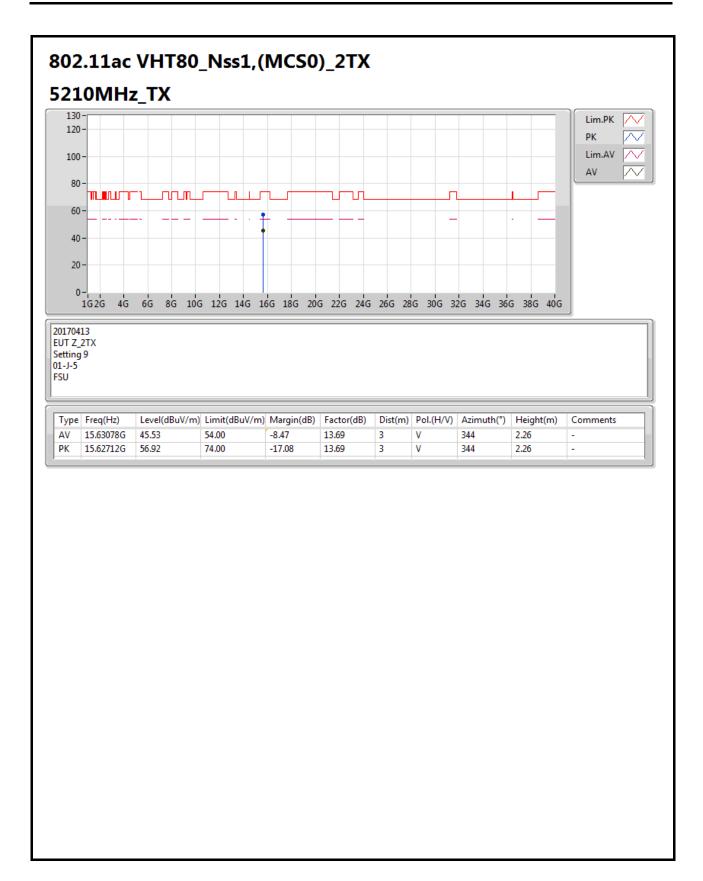






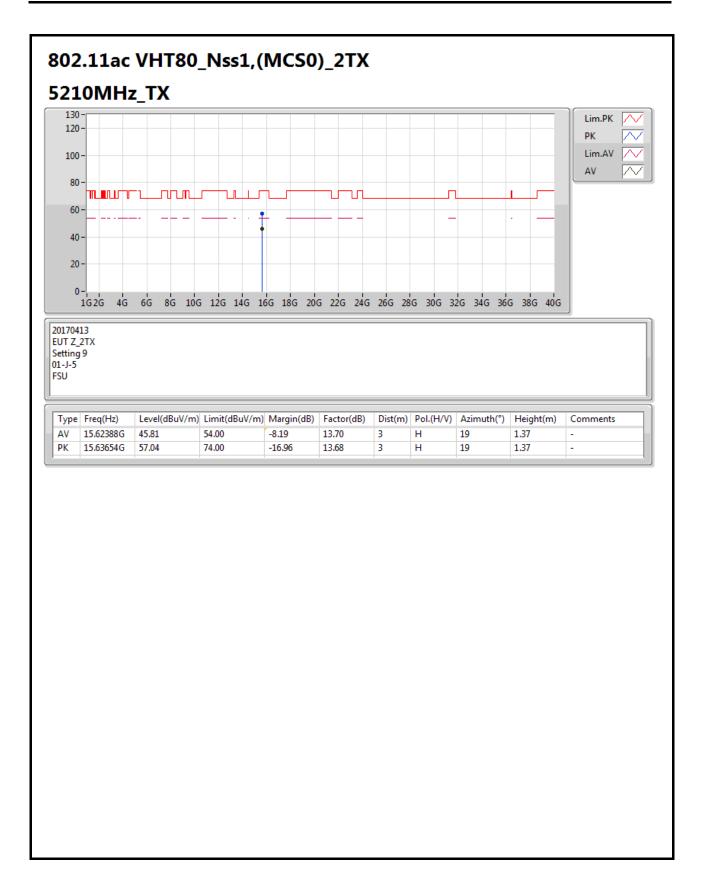




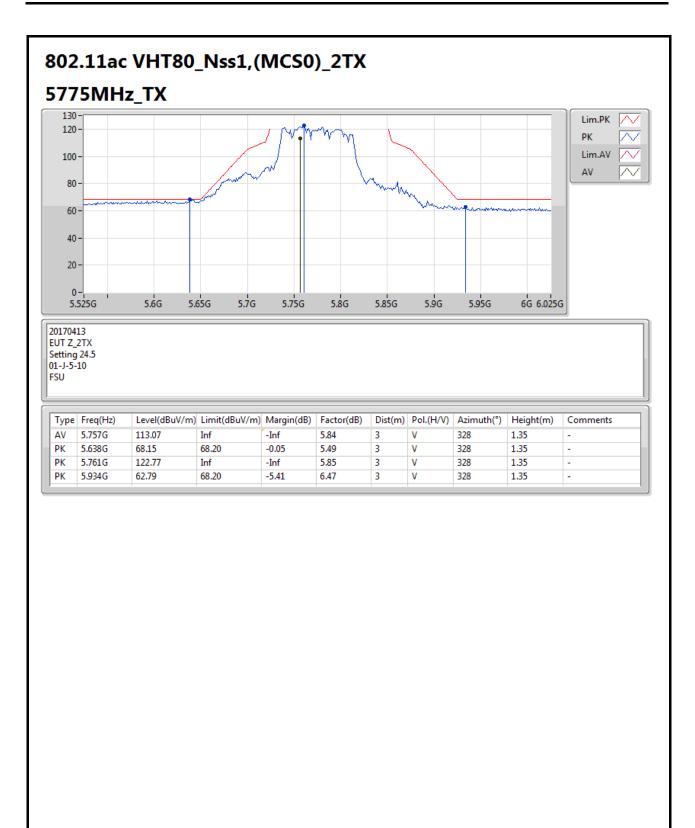


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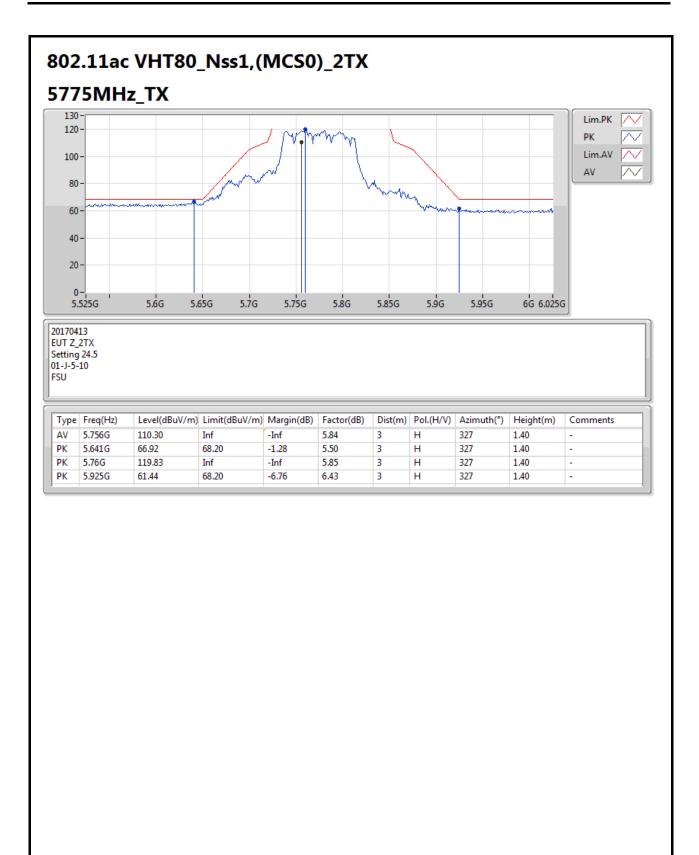




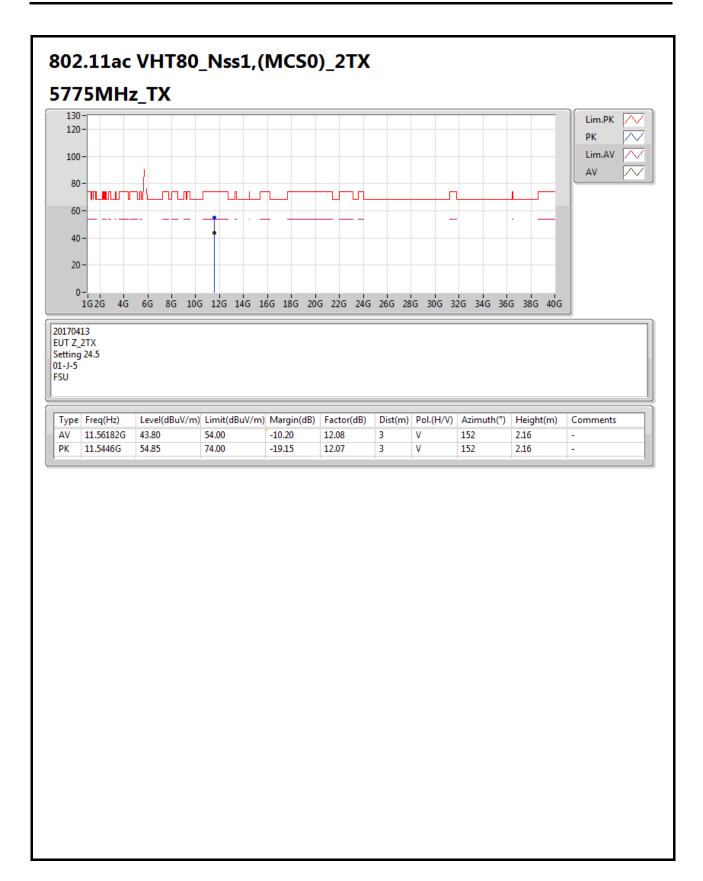


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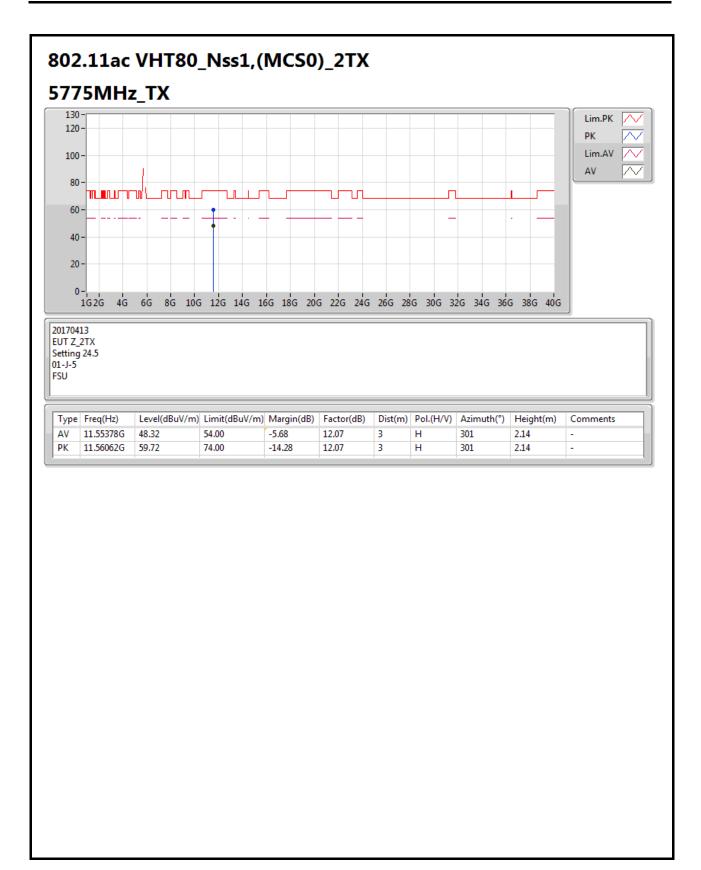














Mode: 20 MHz / Port 2 Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
()()	5200 MHz			
(V)	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5199.9797	5199.9788	5199.9783	5199.9774
110.00	5199.9793	5199.9788	5199.9781	5199.9774
93.50	5199.9786	5199.9784	5199.9776	5199.9775
Max. Deviation (MHz)	0.0214	0.0216	0.0224	0.0226
Max. Deviation (ppm)	4.12	4.15	4.31	4.35
Result		Pa	ass	

Temperature vs. Frequency Stability

Temperature		Measurement F	requency (MHz)		
(°C)	5200 MHz				
(℃)	0 Minute	2 Minute	5 Minute	10 Minute	
-40	5199.9846	5199.9845	5199.9842	5199.9839	
-30	5199.9840	5199.9830	5199.9828	5199.9822	
-20	5199.9837	5199.9831	5199.9830	5199.9820	
-10	5199.9833	5199.9832	5199.9825	5199.9822	
0	5199.9820	5199.9815	5199.9812	5199.9810	
10	5199.9807	5199.9800	5199.9797	5199.9793	
20	5199.9793	5199.9784	5199.9778	5199.9771	
30	5199.9784	5199.9774	5199.9767	5199.9760	
40	5199.9765	5199.9760	5199.9755	5199.9753	
50	5199.9754	5199.9747	5199.9742	5199.9738	
60	5199.9756	5199.9754	5199.9745	5199.9739	
65	5199.9758	5199.9756	5199.9748	5199.9740	
Max. Deviation (MHz)	0.0244	0.0246	0.0255	0.0261	
Max. Deviation (ppm)	4.69	4.73	4.90	5.02	
Result		Pa	ass		

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Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)				
0.0	5785 MHz				
(V)	0 Minute	2 Minute	5 Minute	10 Minute	
126.50	5784.9796	5784.9787	5784.9777	5784.9768	
110.00	5784.9793	5784.9789	5784.9784	5784.9776	
93.50	5784.9790	5784.9782	5784.9775	5784.9769	
Max. Deviation (MHz)	0.0210	0.0218	0.0225	0.0232	
Max. Deviation (ppm)	3.63	3.77	3.89	4.01	
Result		Pass			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5785 MHz			
(℃)	0 Minute	2 Minute	5 Minute	10 Minute
-40	5784.9830	5784.9821	5784.9814	5784.9807
-30	5784.9827	5784.9825	5784.9823	5784.9814
-20	5784.9826	5784.9823	5784.9815	5784.9809
-10	5784.9820	5784.9814	5784.9809	5784.9803
0	5784.9819	5784.9811	5784.9803	5784.9798
10	5784.9811	5784.9803	5784.9802	5784.9793
20	5784.9793	5784.9786	5784.9785	5784.9777
30	5784.9784	5784.9775	5784.9773	5784.9764
40	5784.9778	5784.9772	5784.9765	5784.9755
50	5784.9769	5784.9759	5784.9751	5784.9746
60	5784.9763	5784.9755	5784.9745	5784.9742
65	5784.9754	5784.9748	5784.9746	5784.9741
Max. Deviation (MHz)	0.0246	0.0252	0.0255	0.0259
Max. Deviation (ppm)	4.25	4.36	4.41	4.48
Result		Pa	ass	

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

Voltage	Measurement Frequency (MHz)				
44	5190 MHz				
(V)	0 Minute	2 Minute	5 Minute	10 Minute	
126.50	5189.9801	5189.9793	5189.9785	5189.9779	
110.00	5189.9793	5189.9783	5189.9775	5189.9773	
93.50	5189.9783	5189.9779	5189.9778	5189.9769	
Max. Deviation (MHz)	0.0217	0.0221	0.0225	0.0231	
Max. Deviation (ppm)	4.18	4.26	4.34	4.45	
Result		Pa	ass		

Temperature vs. Frequency Stability

Temperature		Measurement F	requency (MHz)	
(%)	5190 MHz			
(℃)	0 Minute	2 Minute	5 Minute	10 Minute
-40	5189.9855	5189.9848	5189.9842	5189.9836
-30	5189.9838	5189.9834	5189.9832	5189.9827
-20	5189.9835	5189.9827	5189.9818	5189.9814
-10	5189.9832	5189.9826	5189.9820	5189.9812
0	5189.9823	5189.9817	5189.9807	5189.9803
10	5189.9805	5189.9799	5189.9793	5189.9786
20	5189.9793	5189.9789	5189.9779	5189.9773
30	5189.9784	5189.9776	5189.9775	5189.9765
40	5189.9775	5189.9772	5189.9765	5189.9756
50	5189.9772	5189.9769	5189.9767	5189.9762
60	5189.9768	5189.9762	5189.9755	5189.9753
65	5189.9749	5189.9747	5189.9743	5189.9733
Max. Deviation (MHz)	0.0251	0.0253	0.0257	0.0267
Max. Deviation (ppm)	4.84	4.87	4.95	5.14
Result		Pa	iss	

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Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
00	5755 MHz			
(V)	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5754.9799	5754.9797	5754.9794	5754.9789
110.00	5754.9793	5754.9786	5754.9784	5754.9777
93.50	5754.9792	5754.9789	5754.9781	5754.9774
Max. Deviation (MHz)	0.0208	0.0214	0.0219	0.0226
Max. Deviation (ppm)	3.61	3.72	3.81	3.93
Result		Pa	ass	

Temperature vs. Frequency Stability

Temperature		Measurement F	requency (MHz)	
(°C)	5755 MHz			
(℃)	0 Minute	2 Minute	5 Minute	10 Minute
-40	5754.9853	5754.9847	5754.9844	5754.9843
-30	5754.9840	5754.9831	5754.9823	5754.9819
-20	5754.9828	5754.9821	5754.9811	5754.9803
-10	5754.9816	5754.9812	5754.9810	5754.9807
0	5754.9805	5754.9796	5754.9791	5754.9789
10	5754.9798	5754.9797	5754.9796	5754.9794
20	5754.9793	5754.9786	5754.9785	5754.9779
30	5754.9784	5754.9779	5754.9777	5754.9769
40	5754.9774	5754.9764	5754.9760	5754.9753
50	5754.9765	5754.9761	5754.9754	5754.9753
60	5754.9760	5754.9755	5754.9753	5754.9752
65	5754.9751	5754.9744	5754.9736	5754.9728
Max. Deviation (MHz)	0.0249	0.0256	0.0264	0.0272
Max. Deviation (ppm)	4.33	4.45	4.59	4.73
Result		Pa	iss	

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

Voltage	Measurement Frequency (MHz)				
0.0	5210 MHz				
(V)	0 Minute	2 Minute	5 Minute	10 Minute	
126.50	5209.9794	5209.9784	5209.9774	5209.9766	
110.00	5209.9793	5209.9785	5209.9782	5209.9776	
93.50	5209.9792	5209.9790	5209.9783	5209.9777	
Max. Deviation (MHz)	0.0208	0.0216	0.0226	0.0234	
Max. Deviation (ppm)	3.99	4.15	4.34	4.49	
Result		Pass			

Temperature vs. Frequency Stability

Temperature		Measurement F	requency (MHz)	
(°C)	5210 MHz			
(°C)	0 Minute	2 Minute	5 Minute	10 Minute
-40	5209.9839	5209.9838	5209.9830	5209.9828
-30	5209.9836	5209.9827	5209.9826	5209.9823
-20	5209.9833	5209.9830	5209.9821	5209.9819
-10	5209.9819	5209.9811	5209.9786	5209.9801
0	5209.9805	5209.9796	5209.9789	5209.9788
10	5209.9800	5209.9797	5209.9793	5209.9785
20	5209.9793	5209.9786	5209.9781	5209.9775
30	5209.9784	5209.9774	5209.9771	5209.9770
40	5209.9774	5209.9772	5209.9765	5209.9761
50	5209.9755	5209.9748	5209.9744	5209.9736
60	5209.9751	5209.9745	5209.9738	5209.9729
65	5209.9735	5209.9731	5209.9724	5209.9716
Max. Deviation (MHz)	0.0265	0.0269	0.0276	0.0284
Max. Deviation (ppm)	5.09	5.16	5.30	5.45
Result		Pa	ass	

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Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
() ()	5775 MHz			
(V)	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5774.9799	5774.9795	5774.9789	5774.9784
110.00	5774.9793	5774.9790	5774.9780	5774.9770
93.50	5774.9784	5774.9774	5774.9764	5774.9754
Max. Deviation (MHz)	0.0216	0.0226	0.0236	0.0246
Max. Deviation (ppm)	3.74	3.91	4.09	4.26
Result		Pa	ass	

Temperature vs. Frequency Stability

Temperature		Measurement F	requency (MHz)	
(°C)	5775 MHz			
(°C)	0 Minute	2 Minute	5 Minute	10 Minute
-40	5774.9848	5774.9844	5774.9839	5774.9832
-30	5774.9836	5774.9829	5774.9824	5774.9823
-20	5774.9816	5774.9809	5774.9801	5774.9796
-10	5774.9815	5774.9806	5774.9804	5774.9795
0	5774.9809	5774.9799	5774.9795	5774.9793
10	5774.9794	5774.9793	5774.9789	5774.9781
20	5774.9793	5774.9790	5774.9786	5774.9784
30	5774.9784	5774.9779	5774.9769	5774.9759
40	5774.9765	5774.9757	5774.9750	5774.9748
50	5774.9751	5774.9744	5774.9736	5774.9734
60	5774.9737	5774.9735	5774.9729	5774.9724
65	5774.9733	5774.9727	5774.9718	5774.9715
Max. Deviation (MHz)	0.0267	0.0273	0.0282	0.0285
Max. Deviation (ppm)	4.62	4.73	4.88	4.94
Result	Pass			

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