



FCC RADIO TEST REPORT

FCC ID

: 2AHKM-HIVE2200

Equipment

: 2x2 DBCC WiFi Extender

Brand Name

: hitron

Model Name

: HIXE12AWR

Applicant

: Hitron Technologies Inc.

No. 1-8, Li-Hsin 1st Rd. Hsinchu Science Park,

Hsinchu 30078, Taiwan

Manufacturer

: Hitron Technologies Inc.

No. 1-8, Li-Hsin 1st Rd. Hsinchu Science Park,

Hsinchu 30078, Taiwan

Standard

: 47 CFR FCC Part 15.247

The product was received on Jul. 25, 2018, and testing was started from Oct. 05, 2018 and completed on Oct. 31, 2018. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

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

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

Approved by: Sam Chen

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory

No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)

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Appendix H. Test Photos

Photographs of EUT v01

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History of this test report

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Report No.	Version	Description	Issued Date
FR862827AA	01	Initial issue of report	Nov. 12, 2018

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Summary of Test Result

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Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
1.1.2	15.203	Antenna Requirement	PASS	-
3.1	15.207	AC Power-line Conducted Emissions	PASS	-
3.2	15.247(a)	DTS Bandwidth	PASS	-
3.3	15.247(b)	Maximum Conducted Output Power	PASS	-
3.4	15.247(e)	Power Spectral Density	PASS	-
3.5	15.247(d)	Emissions in Non-restricted Frequency Bands	PASS	-
3.6	15.247(d)	Emissions in Restricted Frequency Bands	PASS	-

Reviewed by: Sam Chen Report Producer: Viola Huang

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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
2400-2483.5	b, g, n (HT20)	2412-2462	1-11 [11]
2400-2483.5	n (HT40)	2422-2452	3-9 [7]

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Band	Mode	BWch (MHz)	Nant
2.4-2.4835GHz	802.11b	20	2TX
2.4-2.4835GHz	802.11g	20	2TX
2.4-2.4835GHz	802.11n HT20	20	2TX
2.4-2.4835GHz	802.11n HT40	40	2TX

Note:

- 11b mode uses a combination of DSSS-DBPSK, DQPSK, CCK modulation.
- 11g, HT20 and HT40 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM 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	P/N	Antenna Type	Connector	Gain (dBi)
1	1	Ethertronics	XE1v2	-	PCB Antenna	I-PEX	
2	2	Ethertronics	XE1v2	-	PCB Antenna	I-PEX	Note
3	1	PSA	-	RFECA3216060A1T	CERAMIC Antenna	N/A	

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Note 1:

Ant.	Port		Gain (dBi)						
71116	1 011	WLAN 2.4G WLAN 5G Band 1 WLAN 5G Band 4		BT					
1	1	4.4	4.8	5.5	-				
2	2	3.1	3.8	3.8	-				
3	1	-	-	-	2.09				

Note 2: The EUT has three antennas.

<For 2.4GHz Band>

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

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

Port 1 and Port 2 could transmit/receive simultaneously.

<For 5GHz Band>

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

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

Port 1 and Port 2 could transmit/receive simultaneously.

<For Bluetooth>

For BT function (1TX/1RX)

Only Port 1 can be used as transmitting/receiving antenna.

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1.1.3 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
802.11b	0.997	0.013	n/a (DC>=0.98)	n/a (DC>=0.98)
802.11g	0.963	0.164	2.018m	1k
802.11n HT20	0.961	0.173	1.881m	1k
802.11n HT40	0.944	0.25	921.875u	3k

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

1.1.4 EUT Operational Condition

EUT Power Type	Inte	Internal power supply			
Beamforming Function		☐ With beamforming ☐ Without beamforming			
Function	\boxtimes	Point-to-multipoint		Point-to-point	
Test Software Version	artg	artgui (ART2-GUI v2.3)			

1.1.5 Table for EUT support type

Function	support type
AP Router	Master
Extender	Master + Slave
Mesh	Master + Slave

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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 558074 D01 v05
- FCC KDB 662911 D01 v02r01

1.3 Testing Location Information

	Testing Location				
	HWA YA ADD : No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)				
		TEL	:	886-3-327-3456 FAX : 886-3-327-0973	
\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	Paul Chen	25°C / 65%	Oct. 16, 2018~Oct. 22, 2018
Radiated below 1GHz	03CH01-CB	Welson Chen	22°C / 54%	Oct. 31, 2018
Radiated above 1GHz	03CH01-CB	Welson Chen	22°C / 54%	Oct. 12, 2018~Oct. 15, 2018
AC Conduction	CO01-CB	GN Hou	23°C / 59%	Oct. 31, 2018

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%

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Test site registered number IC 4086D with Industry Canada.

2 Test Configuration of EUT

2.1 Test Channel Mode

Mode	PowerSetting
802.11b_Nss1,(1Mbps)_2TX	-
2412MHz	20.5
2417MHz	21.5
2422MHz	23.5
2427MHz	24
2432MHz	
2437MHz	24
2442MHz	24
2447MHz	23
2452MHz	22.5
2457MHz	20
2462MHz	18
802.11g_Nss1,(6Mbps)_2TX	-
2412MHz	14
2417MHz	17.5
2422MHz	19
2427MHz	21
2432MHz	21.5
2437MHz	22
2442MHz	22
2447MHz	20
2452MHz	19
2457MHz	17
2462MHz	13.5
802.11n HT20_Nss1,(MCS0)_2TX	-
2412MHz	14
2417MHz	17
2422MHz	19
2427MHz	20.5
2432MHz	21
2437MHz	23

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Mode	PowerSetting
2442MHz	21
2447MHz	19.5
2452MHz	18
2457MHz	16.5
2462MHz	12.5
802.11n HT40_Nss1,(MCS0)_2TX	-
2422MHz	10.5
2427MHz	11.5
2432MHz	13
2437MHz	15
2442MHz	13
2447MHz	11
2452MHz	10

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2.2 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests			
Tests Item	Tests Item AC power-line conducted emissions		
Condition AC power-line conducted measurement for line and neutral			
Operating Mode Normal Link			
1	AP Router mode		

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The Worst Case Mode for Following Conformance Tests		
Tests Item	DTS Bandwidth Maximum Conducted Output Power Power Spectral Density Emissions in Non-restricted Frequency Bands	
Test Condition	Conducted measurement at transmit chains	

The Worst Case Mode for Following Conformance Tests				
Tests Item	Emissions in Restricted Frequency Bands			
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	AP Router mode - EUT in Z axis			
2	AP Router mode - EUT in Y axis			
For operating mode 1 is th	e worst case and it was record in this test report.			
	CTX			
Operating Mode > 1GHz	The EUT was performed at Y axis and Z axis position for Radiated emission test, and the worst case was found at Y axis. So the measurement will follow this same test configuration.			
1	EUT in Y axis			

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

The Worst Case Mode for Following Conformance Tests			
Tests Item Simultaneous Transmission Analysis - Co-location RF Exposure Evaluation			
Operating Mode			
1 WLAN 2.4GHz + WLAN 5GHz			
Refer to Sporton Test Report No.: FA862827 for Co-location RF Exposure Evaluation.			

Note1: The EUT supports AP Router · Extender and Mesh mode, only AP Router mode was tested and recorded in this test report for customer's request.

Note2: All the specification of test configurations and test modes were based on customer's request. For normal link mode, the bluetooth function doesn't work.

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2.3 EUT Operation during Test

For CTX Mode:

The EUT was programmed to be in continuously transmitting mode.

For Normal Link:

During the test, the EUT operation to normal function.

2.4 Accessories

N/A

2.5 Support Equipment

For Test Site No: CO01-CB

Support Equipment					
No.	No. Equipment Brand Name Model Name FCC ID				
1	NB*3	DELL	E6430	N/A	

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

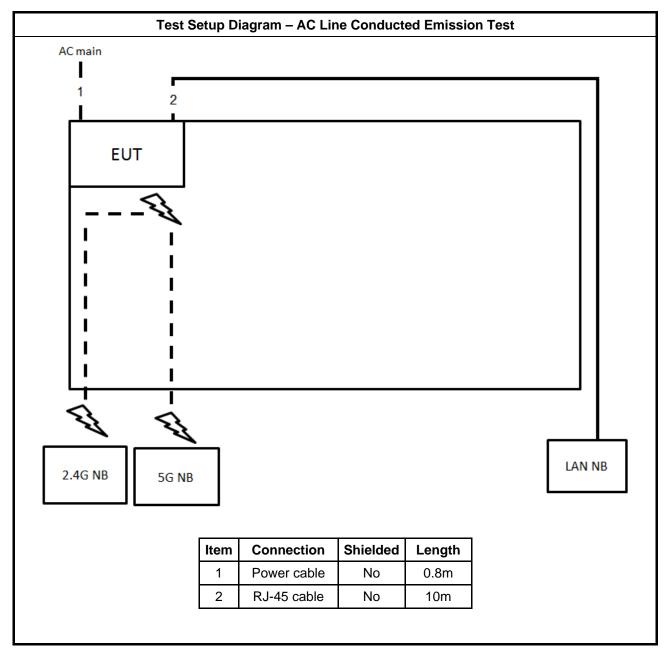
	Support Equipment				
No.	No. Equipment Brand Name Model Name FCC ID				
1	NB*3	DELL	E4300	N/A	

For Test Site No: 03CH01-CB (above 1GHz) and TH01-CB

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

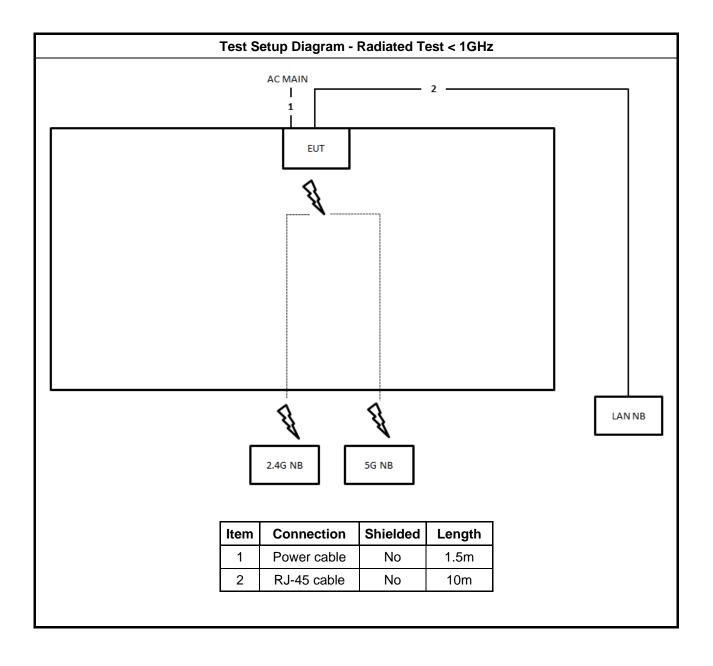
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2.6 Test Setup Diagram

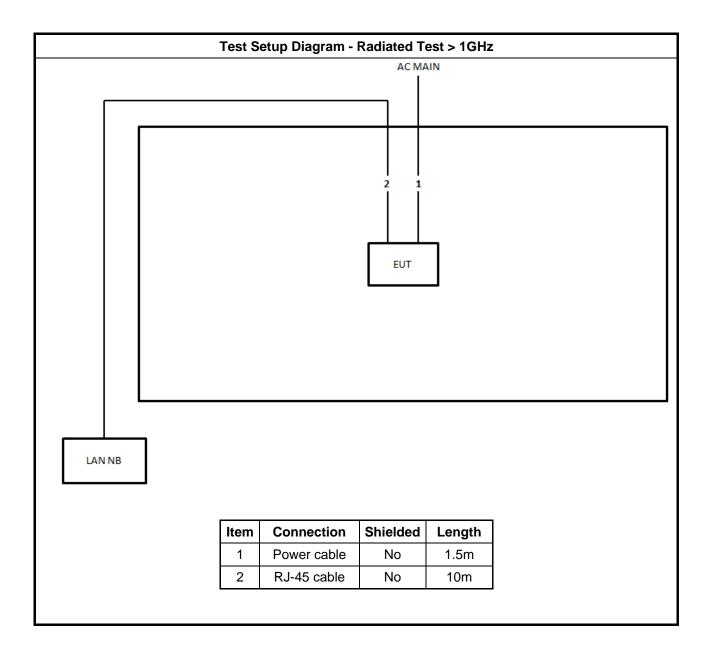


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3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

AC Power-line Conducted Emissions Limit							
Frequency Emission (MHz) Quasi-Peak Average							
0.15-0.5 66 - 56 * 56 - 46 *							
0.5-5	56	46					
5-30 60 50							
Note 1: * Decreases with the logarithm of the frequency.							

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3.1.2 Measuring Instruments

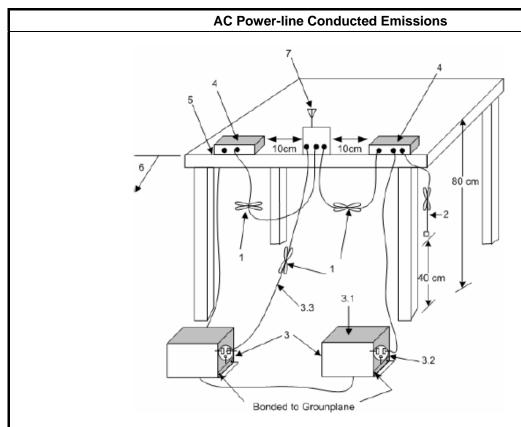
Refer a test equipment and calibration data table in this test report.

3.1.3 Test Procedures

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

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3.1.4 Test Setup



1—Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 cm to 40 cm long.

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- 2—The I/O cables that are not connected to an accessory shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- 3—EUT connected to one LISN. Unused LISN measuring port connectors shall be terminated in 50 Ω loads. LISN may be placed on top of, or immediately beneath, reference ground plane.
- 3.1—All other equipment powered from additional LISN(s).
- 3.2—A multiple-outlet strip may be used for multiple power cords of non-EUT equipment.
- 3.3—LISN at least 80 cm from nearest part of EUT chassis.
- 4—Non-EUT components of EUT system being tested.
- 5—Rear of EUT, including peripherals, shall all be aligned and flush with edge of tabletop.
- 6—Edge of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded to the ground plane.
- 7—Antenna can be integral or detachable. If detachable, then the antenna shall be attached for this test.

3.1.5 Test Result of AC Power-line Conducted Emissions

Refer as Appendix A

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3.2 DTS Bandwidth

3.2.1 6dB Bandwidth Limit

6dB Bandwidth Limit				
Systems using digital modulation techniques:				
■ 6 dB bandwidth ≥ 500 kHz.				

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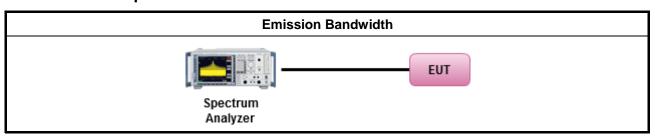
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

	Test Method							
•	For the emission bandwidth shall be measured using one of the options below:							
	\boxtimes	Refer as FCC KDB 558074, clause 8.2 & C63.10 clause 11.8.1 Option 1 for 6 dB bandwidth measurement.						
		Refer as FCC KDB 558074, clause 8.2 & C63.10 clause 11.8.2 Option 2 for 6 dB bandwidth measurement.						
		Refer as ANSI C63.10, clause 6.9.1 for occupied 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

- If G_{TX} ≤ 6 dBi, then P_{Out} ≤ 30 dBm (1 W)
- Point-to-multipoint systems (P2M): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 (G_{TX} 6)$ dBm
- Point-to-point systems (P2P): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 (G_{TX} 6)/3$ dBm
- Smart antenna system (SAS):
 - Single beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 (G_{TX} 6)/3$ dBm
 - Overlap beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 (G_{TX} 6)/3$ dBm
 - Aggregate power on all beams: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 (G_{TX} 6)/3 + 8$ dB dBm

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 \mathbf{P}_{Out} = maximum peak conducted output power or maximum conducted output power in dBm, \mathbf{G}_{TX} = the maximum transmitting antenna directional gain in dBi.

3.3.2 Measuring Instruments

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

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3.3.3 Test Procedures

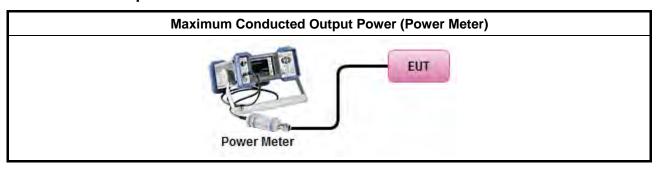
		Test Method
•	Max	imum Peak Conducted Output Power
		Refer as FCC KDB 558074, clause 8.3.1.1 & C63.10 clause 11.9.1.1 (RBW ≥ EBW method).
		Refer as FCC KDB 558074, clause 8.3.1.3 & C63.10 clause 11.9.1.3 (peak power meter).
•	Max	imum Conducted Output Power
	[duty	cycle ≥ 98% or external video / power trigger]
		Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.2 Method AVGSA-1.
		Refer as FCC KDB 558074, clause $8.3.2.2$ & C63.10 clause $11.9.2.2.3$ Method AVGSA-1A. (alternative)
	duty	cycle < 98% and average over on/off periods with duty factor
		Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.4 Method AVGSA-2.
		Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.5 Method AVGSA-2A (alternative)
		Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.6 Method AVGSA-3
		Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.7 Method AVGSA-3A (alternative)
	Mea	surement using a power meter (PM)
	\boxtimes	Refer as FCC KDB 558074, clause $8.3.2.3$ & C63.10 clause $11.9.2.3.1$ Method AVGPM (using an RF average power meter).
		Refer as FCC KDB 558074, clause $8.3.2.3 \& C63.10$ clause $11.9.2.3.2$ Method AVGPM-G (using an gate 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} = $P_{total} + DG$

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3.3.4 Test Setup



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3.3.5 Test Result of Maximum Conducted Output Power

Refer as Appendix C

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3.4 Power Spectral Density

3.4.1 Power Spectral Density Limit

Power Spectral Density Limit ■ Power Spectral Density (PSD) ≤ 8 dBm/3kHz

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3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

		Test Method						
•	outp the c cond of th	k power spectral density procedures that the same method as used to determine the conducted out power. If maximum peak conducted output power was measured to demonstrate compliance to output power limit, then the peak PSD procedure below (Method PKPSD) shall be used. If maximum ducted output power was measured to demonstrate compliance to the output power limit, then one he average PSD procedures shall be used, as applicable based on the following criteria (the peak procedure is also an acceptable option).						
	Refer as FCC KDB 558074, clause 8.4 & C63.10 clause 11.10.2 Method PKPSD.							
	[dut	y cycle ≥ 98% or external video / power trigger]						
		Refer as FCC KDB 558074, clause 8.4 & C63.10 clause 11.10.3 Method AVGPSD-1.						
		Refer as FCC KDB 558074, clause 8.4 & C63.10 clause 11.10.5 Method AVGPSD-2.						
		Refer as FCC KDB 558074, clause 8.4 & C63.10 clause 11.10.7 Method AVGPSD-3.						
	duty	cycle < 98% and average over on/off periods with duty factor						
	Refer as FCC KDB 558074, clause 8.4 & C63.10 clause 11.10.4 Method AVGPSD-1A. (alternative).							
Refer as FCC KDB 558074, clause 8.4 & C63.10 clause 11.10.6 Method AVGPSD-2A. (alternative)								
		Refer as FCC KDB 558074, clause 8.4 & C63.10 clause 11.10.6 Method AVGPSD-3A. (alternative)						
•	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,						

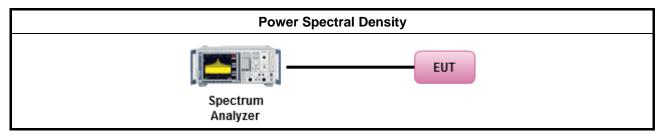
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Option 3: Measure and add 10 log(N) dB, where N is the number of transmit chains. Refer as FCC KDB 662911, In-band power spectral density (PSD). Performed at each transmit chains and each transmit chains shall be compared with the limit have been reduced with 10 log(N). Or each transmit chains shall be add 10 log(N) to compared with the limit.

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3.4.4 Test Setup



3.4.5 Test Result of Power Spectral Density

Refer as Appendix D

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3.5 Emissions in Non-restricted Frequency Bands

3.5.1 Emissions in Non-restricted Frequency Bands Limit

Un-restricted Band Emissions Limit					
RF output power procedure Limit (dB)					
Peak output power procedure	20				
Average output power procedure	30				

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- Note 1: If the peak output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the peak conducted output power measured within any 100 kHz outside the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum measured in-band peak PSD level.
- Note 2: If the average output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the power in any 100 kHz outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum measured in-band average PSD level.

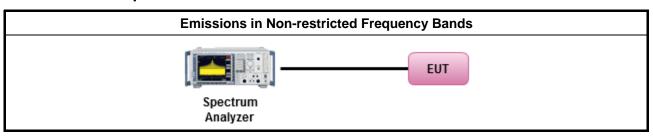
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

Test Method	
 Refer as FCC KDB 558074, clause 8.5 for unwanted emissions into non-restricted bands. 	

3.5.4 Test Setup



3.5.5 Test Result of Emissions in Non-restricted Frequency Bands

Refer as Appendix E

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3.6 Emissions in Restricted Frequency Bands

3.6.1 Emissions in Restricted Frequency Bands Limit

Restricted Band Emissions 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				

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

3.6.2 Measuring Instruments

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

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3.6.3 Test Procedures

		Test Method						
•	The	average emission levels shall be measured in [duty cycle ≥ 98 or duty factor].						
•	 Refer as ANSI C63.10, clause 6.9.2.2 band-edge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band. 							
•	For the transmitter unwanted emissions shall be measured using following options below:							
	Refer as FCC KDB 558074, clause 8.6 for unwanted emissions into restricted bands.							
		Refer as FCC KDB 558074, clause 8.6 & C63.10 clause 11.12.2.5.1(trace averaging for duty cycle ≥98%).						
		Refer as FCC KDB 558074, clause 8.6 & C63.10 clause 11.12.2.5.2(trace averaging + duty factor).						
		Refer as FCC KDB 558074, clause 8.6 & C63.10 clause 11.12.2.5.3(Reduced VBW≥1/T).						
		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 558074, clause 8.6 & C63.10 clause 11.12.2.4 measurement procedure peak limit.						
•	For	the transmitter band-edge emissions shall be measured using following options below:						
 Refer as FCC KDB 558074 clause 8.7 & c63.10 clause 11.13.1, When the performing average radiated measurements, emissions within 2 MHz of the authorized band edge measured using the marker-delta method described below. 								
	•	Refer as FCC KDB 558074, clause 8.7 (ANSI C63.10, clause 6.10.6) for marker-delta method for band-edge measurements.						
	•	Refer as FCC KDB 558074, clause 8.7 for narrower resolution bandwidth (100kHz) using the band power and summing the spectral levels (i.e., 1 MHz).						
	•	For conducted unwanted emissions into restricted bands (absolute emission limits). Devices with multiple transmit chains using options given below: (1) Measure and sum the spectra across the outputs or (2) Measure and add 10 log(N) dB						
	•	For FCC KDB 662911 The methodology described here may overestimate array gain, thereby resulting in apparent failures to satisfy the out-of-band limits even if the device is actually compliant. In such cases, compliance may be demonstrated by performing radiated tests around the frequencies at which the apparent failures occurred.						

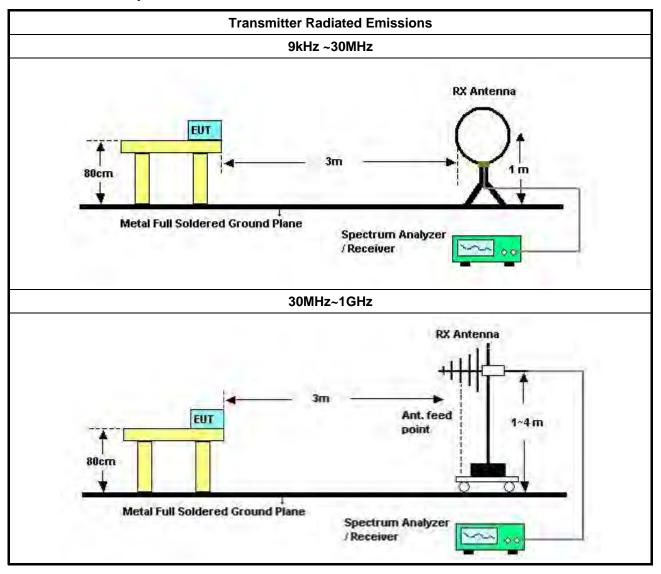
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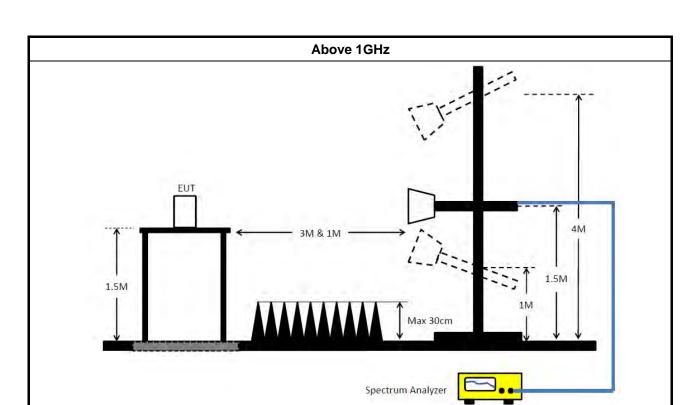
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3.6.4 Test Setup



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3.6.5 Transmitter Radiated Unwanted Emissions (Below 30MHz)

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

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

3.6.6 Test Result of Transmitter Radiated Unwanted Emissions

Refer as Appendix F

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4 Test Equipment and Calibration Data

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration	Calibration	Remark
instrument	Manuracturer	woder no.	Seriai No.	Characteristics	Date	Due Date	Remark
EMI Receiver	Agilent	N9038A	My52260123	9kHz ~ 8.45GHz	Jan. 31, 2018	Jan. 30, 2019	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16 -2	04083	150kHz~100MHz	Dec. 20, 2017	Dec. 19, 2018	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Dec. 29, 2017	Dec. 28, 2018	Conduction (CO01-CB)
COND Cable	Woken	Cable	Low cable-CO01	150kHz ~ 30MHz	May 22, 2018	May 21, 2019	Conduction (CO01-CB)
Software	Audix	E3	6.120210n	-	N.C.R.	N.C.R.	Conduction (CO01-CB)
BILOG ANTENNA with 6dB Attenuator	TESEQ & EMCI	CBL6112D & N-6-06	37880 & AT-N0609	20MHz ~ 2GHz	Aug. 27, 2018	Aug. 26, 2019	Radiation (03CH01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	Mar. 16, 2018	Mar. 15, 2019	Radiation (03CH01-CB)
Horn Antenna	EMCO	3115	00075790	750MHz ~ 18GHz	Nov. 20, 2017	Nov. 19, 2018	Radiation (03CH01-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Jun. 28, 2018	Jun. 27, 2019	Radiation (03CH01-CB)
Pre-Amplifier	EMCI	EMC330N	980332	20MHz ~ 3GHz	May 02, 2018	May 01, 2019	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Jan. 09, 2018	Jan. 08, 2019	Radiation (03CH01-CB)
Pre-Amplifier	MITEQ	TTA1840-35-HG	1864479	18GHz ~ 40GHz	Jul. 04, 2018	Jul. 03, 2019	Radiation (03CH01-CB)
Spectrum Analyzer	R&S	FSP40	100056	9kHz ~ 40GHz	Nov. 23, 2017	Nov. 22, 2018	Radiation (03CH01-CB)
EMI Test	R&S	ESCS	100354	9kHz ~ 2.75GHz	Dec. 08, 2017	Dec. 07, 2018	Radiation (03CH01-CB)
RF Cable-low	Woken	Low Cable-16+17	N/A	30 MHz ~ 1 GHz	Oct. 08, 2018	Oct. 07, 2019	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16	N/A	1 GHz ~ 18 GHz	Oct. 08, 2018	Oct. 07, 2019	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16+17	N/A	1 GHz ~ 18 GHz	Oct. 08, 2018	Oct. 07, 2019	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G#1	N/A	18GHz ~ 40 GHz	Jul. 27, 2018	Jul. 26, 2019	Radiation (03CH01-CB)

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Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
RF Cable-high	Woken	High Cable-40G#2	N/A	18GHz ~ 40 GHz	Jul. 27, 2018	Jul. 26, 2019	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSV40	100979	9kHz~40GHz	Dec. 21, 2017	Dec. 20, 2018	Conducted (TH01-CB)
RF Cable-high	Woken	ken RG402 High Cable-	High Cable-06	1 GHz – 26.5 GHz	Oct. 08, 2018 Oct. 07, 2019	Conducted (TH01-CB)	
RF Cable-high	Woken	RG402	High Cable-07	1 GHz –26.5 GHz	Oct. 08, 2018	Oct. 07, 2019	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-08	1 GHz –26.5 GHz	Oct. 08, 2018	Oct. 07, 2019	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-09	1 GHz –26.5 GHz	Oct. 08, 2018	Oct. 07, 2019	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-10	1 GHz –26.5 GHz	Oct. 08, 2018	Oct. 07, 2019	Conducted (TH01-CB)
Power Sensor	Agilent	U2021XA	MY53410001	50MHz~18GHz	Nov. 20, 2017	Nov. 19, 2018	Conducted (TH01-CB)

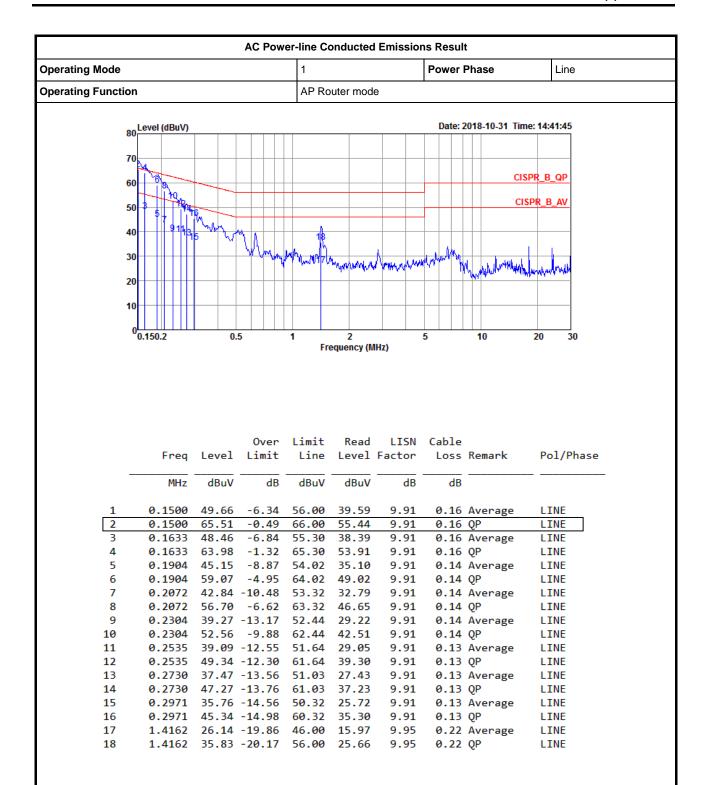
Note: Calibration Interval of instruments listed above is one year.

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

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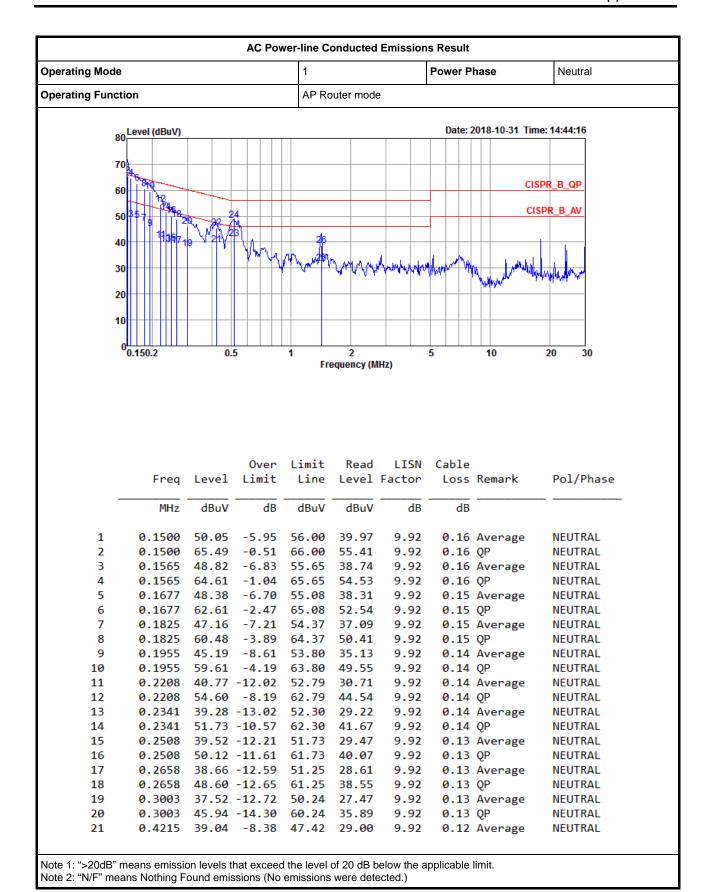




Note 1: ">20dB" means emission levels that exceed the level of 20 dB below the applicable limit.

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







AC Power-line Conducted Emissions Result

AP Router mode Over Limit Read LISN Cable	Operating Mode)			1	1			hase	Neutral
Freq Level Limit Line Level Factor Loss Remark Pol/Phase MHz dBuV dB dBuV dBuV dB dB 22 0.4215 45.34 -12.08 57.42 35.30 9.92 0.12 QP NEUTRAL 23 0.5182 41.22 -4.78 46.00 31.16 9.92 0.14 Average NEUTRAL 24 0.5182 48.39 -7.61 56.00 38.33 9.92 0.14 Peak NEUTRAL 25 1.4182 31.92 -14.08 46.00 21.75 9.95 0.22 Average NEUTRAL	<u> </u>				AP Ro	uter mod				
Freq Level Limit Line Level Factor Loss Remark Pol/Phase MHz dBuV dB dBuV dBuV dB dB 22 0.4215 45.34 -12.08 57.42 35.30 9.92 0.12 QP NEUTRAL 23 0.5182 41.22 -4.78 46.00 31.16 9.92 0.14 Average NEUTRAL 24 0.5182 48.39 -7.61 56.00 38.33 9.92 0.14 Peak NEUTRAL 25 1.4182 31.92 -14.08 46.00 21.75 9.95 0.22 Average NEUTRAL					I					
Freq Level Limit Line Level Factor Loss Remark Pol/Phase MHz dBuV dB dBuV dBuV dB dB 22 0.4215 45.34 -12.08 57.42 35.30 9.92 0.12 QP NEUTRAL 23 0.5182 41.22 -4.78 46.00 31.16 9.92 0.14 Average NEUTRAL 24 0.5182 48.39 -7.61 56.00 38.33 9.92 0.14 Peak NEUTRAL 25 1.4182 31.92 -14.08 46.00 21.75 9.95 0.22 Average NEUTRAL				0ver	Limit	Read	LTSN	Cable		
22		Freq	Level						Remark	Pol/Phase
23	-	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
24 0.5182 48.39 -7.61 56.00 38.33 9.92 0.14 Peak NEUTRAL 25 1.4182 31.92 -14.08 46.00 21.75 9.95 0.22 Average NEUTRAL	22	0.4215	45.34	-12.08	57.42	35.30	9.92	0.12	QP	NEUTRAL
25 1.4182 31.92 -14.08 46.00 21.75 9.95 0.22 Average NEUTRAL	23	0.5182	41.22	-4.78	46.00	31.16	9.92	0.14	Average	NEUTRAL
	24	0.5182	48.39	-7.61	56.00	38.33	9.92	0.14	Peak	NEUTRAL
26 1.4182 38.65 -17.35 56.00 28.48 9.95 0.22 QP NEUTRAL	25	1.4182	31.92	-14.08	46.00	21.75	9.95	0.22	Average	NEUTRAL
	26	1.4182	38.65	-17.35	56.00	28.48	9.95	0.22	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.)



EBW Result Appendix B

Summary

Mode	Max-N dB	Max-OBW	ITU-Code	Min-N dB	Min-OBW
	(Hz)	(Hz)		(Hz)	(Hz)
2.4-2.4835GHz	-	-	-	-	-
802.11b_Nss1,(1Mbps)_2TX	8.55M	16.842M	16M8G1D	7.025M	14.018M
802.11g_Nss1,(6Mbps)_2TX	16M	25.087M	25M1D1D	13.775M	16.267M
802.11n HT20_Nss1,(MCS0)_2TX	16.25M	27.736M	27M7D1D	15M	17.466M
802.11n HT40_Nss1,(MCS0)_2TX	31.25M	36.382M	36M4D1D	26.3M	35.732M

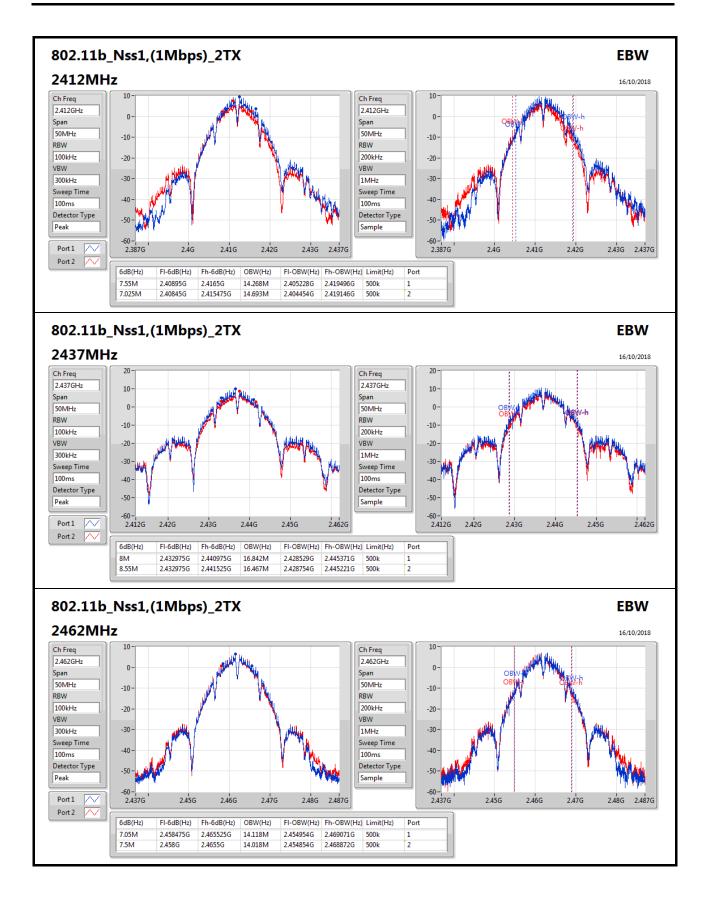
Max-N dB = Maximum 6dB down bandwidth; **Max-OBW** = Maximum 99% occupied bandwidth; **Min-N dB** = Minimum 6dB down bandwidth; **Min-OBW** = Minimum 99% occupied bandwidth;

Result

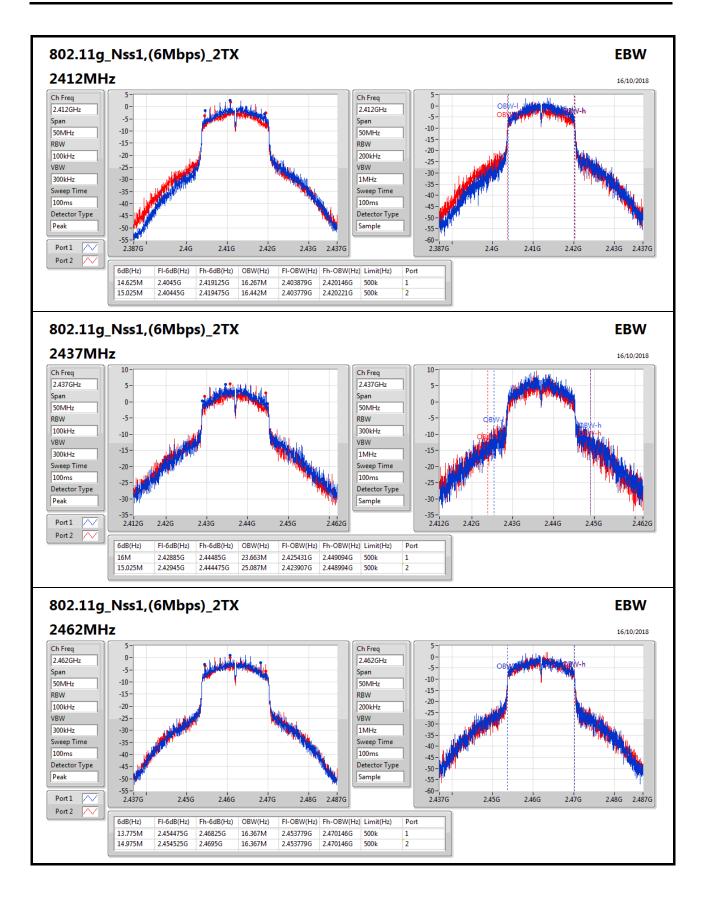
Mode	Result	Limit	Port 1-N dB	Port 1-OBW	Port 2-N dB	Port 2-OBW
		(Hz)	(Hz)	(Hz)	(Hz)	(Hz)
802.11b_Nss1,(1Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	7.55M	14.268M	7.025M	14.693M
2437MHz	Pass	500k	8M	16.842M	8.55M	16.467M
2462MHz	Pass	500k	7.05M	14.118M	7.5M	14.018M
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	14.625M	16.267M	15.025M	16.442M
2437MHz	Pass	500k	16M	23.663M	15.025M	25.087M
2462MHz	Pass	500k	13.775M	16.367M	14.975M	16.367M
802.11n HT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	15.075M	17.466M	15.025M	17.516M
2437MHz	Pass	500k	15.05M	26.512M	16.25M	27.736M
2462MHz	Pass	500k	15.2M	17.466M	15M	17.491M
802.11n HT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2422MHz	Pass	500k	27.45M	35.732M	28.8M	35.782M
2437MHz	Pass	500k	26.3M	36.132M	31.25M	36.382M
2452MHz	Pass	500k	27.45M	35.832M	30M	35.932M

Port X-N dB = Port X 6dB down bandwidth; Port X-OBW = Port X 99% occupied bandwidth;

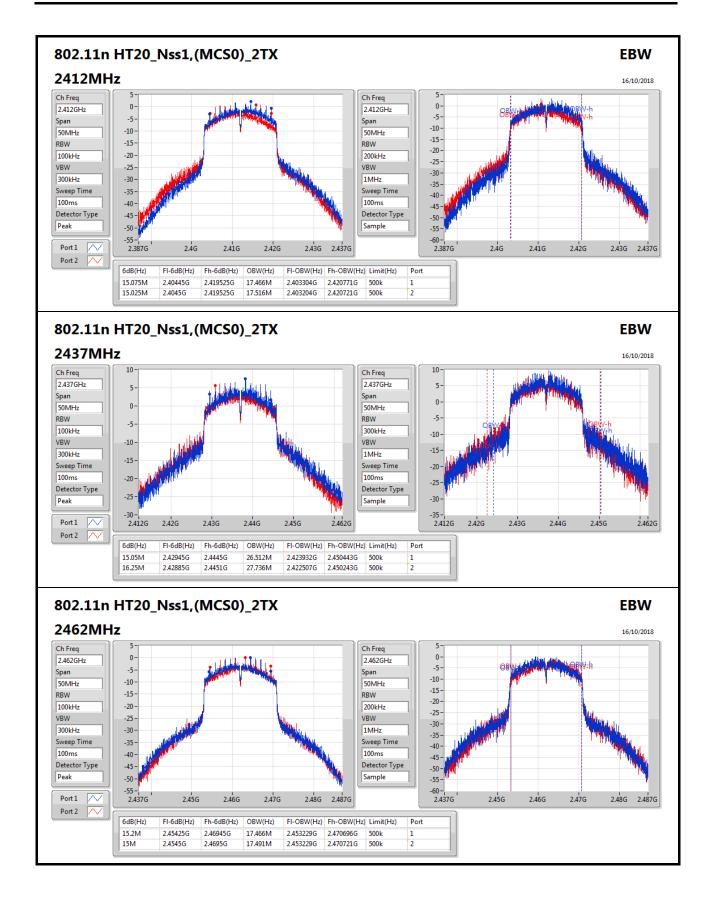






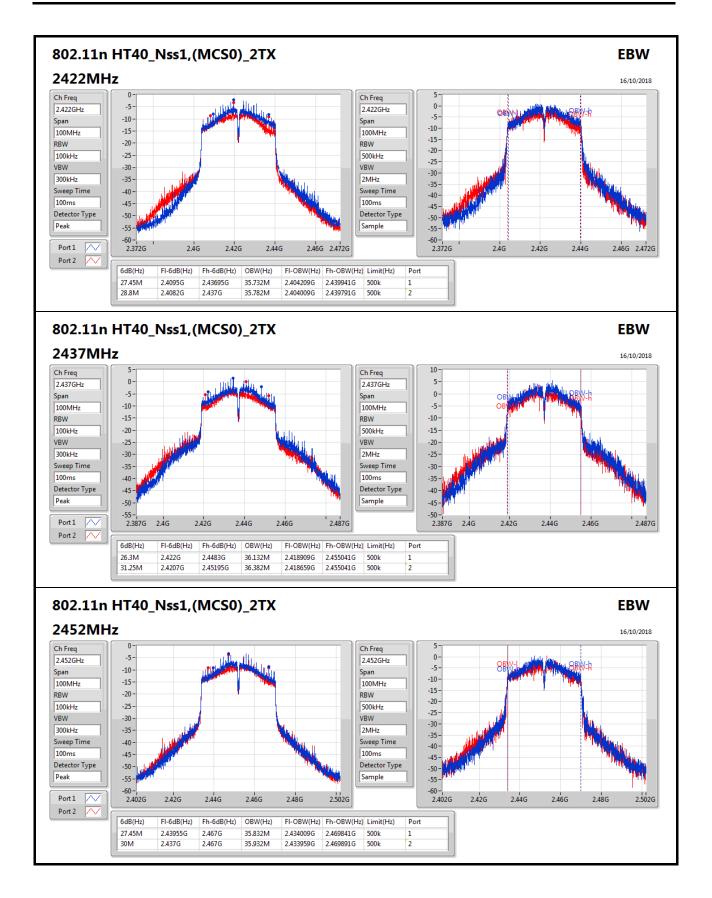






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AV Power Result Appendix C

Summary

Mode	Total Power	Total Power
	(dBm)	(W)
2.4-2.4835GHz	-	-
802.11b_Nss1,(1Mbps)_2TX	22.81	0.19099
802.11g_Nss1,(6Mbps)_2TX	22.00	0.15849
802.11n HT20_Nss1,(MCS0)_2TX	22.57	0.18072
802.11n HT40_Nss1,(MCS0)_2TX	17.64	0.05808

Result

Mode	Result	DG	Port 1	Port 2	Total Power	Power Limit
		(dBi)	(dBm)	(dBm)	(dBm)	(dBm)
802.11b_Nss1,(1Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	4.40	18.89	17.12	21.10	30.00
2417MHz	Pass	4.40	19.76	17.67	21.85	30.00
2422MHz	Pass	4.40	20.31	18.70	22.59	30.00
2427MHz	Pass	4.40	20.14	19.30	22.75	30.00
2437MHz	Pass	4.40	20.19	19.37	22.81	30.00
2442MHz	Pass	4.40	20.25	19.30	22.81	30.00
2447MHz	Pass	4.40	19.63	18.86	22.27	30.00
2452MHz	Pass	4.40	19.12	18.52	21.84	30.00
2457MHz	Pass	4.40	17.79	17.47	20.64	30.00
2462MHz	Pass	4.40	16.19	15.94	19.08	30.00
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	=	-
2412MHz	Pass	4.40	14.03	13.14	16.62	30.00
2417MHz	Pass	4.40	16.90	15.40	19.22	30.00
2422MHz	Pass	4.40	17.01	15.85	19.48	30.00
2427MHz	Pass	4.40	18.77	17.83	21.34	30.00
2432MHz	Pass	4.40	19.25	18.33	21.82	30.00
2437MHz	Pass	4.40	19.37	18.58	22.00	30.00
2442MHz	Pass	4.40	19.31	18.07	21.74	30.00
2447MHz	Pass	4.40	18.26	17.68	20.99	30.00
2452MHz	Pass	4.40	17.44	16.90	20.19	30.00
2457MHz	Pass	4.40	15.69	15.68	18.70	30.00
2462MHz	Pass	4.40	12.91	13.19	16.06	30.00
802.11n HT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	4.40	13.59	12.79	16.22	30.00
2417MHz	Pass	4.40	16.40	14.67	18.63	30.00
2422MHz	Pass	4.40	17.94	16.29	20.20	30.00
2427MHz	Pass	4.40	18.68	17.39	21.09	30.00
2432MHz	Pass	4.40	18.99	18.09	21.57	30.00
2437MHz	Pass	4.40	19.70	19.42	22.57	30.00
2442MHz	Pass	4.40	18.72	17.98	21.38	30.00
2447MHz	Pass	4.40	17.79	17.20	20.52	30.00
2452MHz	Pass	4.40	16.49	16.25	19.38	30.00
2457MHz	Pass	4.40	15.18	15.12	18.16	30.00
2462MHz	Pass	4.40	12.24	12.27	15.27	30.00
802.11n HT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-



AV Power Result Appendix C

Mode	Result	DG	Port 1	Port 2	Total Power	Power Limit
		(dBi)	(dBm)	(dBm)	(dBm)	(dBm)
2422MHz	Pass	4.40	11.76	10.69	14.27	30.00
2427MHz	Pass	4.40	12.26	11.44	14.88	30.00
2432MHz	Pass	4.40	13.52	12.95	16.25	30.00
2437MHz	Pass	4.40	14.96	14.27	17.64	30.00
2442MHz	Pass	4.40	13.17	12.85	16.02	30.00
2447MHz	Pass	4.40	11.36	11.24	14.31	30.00
2452MHz	Pass	4.40	10.48	10.36	13.43	30.00

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



PSD Result Appendix D

Summary

Mode	PD
	(dBm/RBW)
2.4-2.4835GHz	-
802.11b_Nss1,(1Mbps)_2TX	-3.02
802.11g_Nss1,(6Mbps)_2TX	-5.00
802.11n HT20_Nss1,(MCS0)_2TX	-4.78
802.11n HT40_Nss1,(MCS0)_2TX	-12.07

RBW=3kHz.

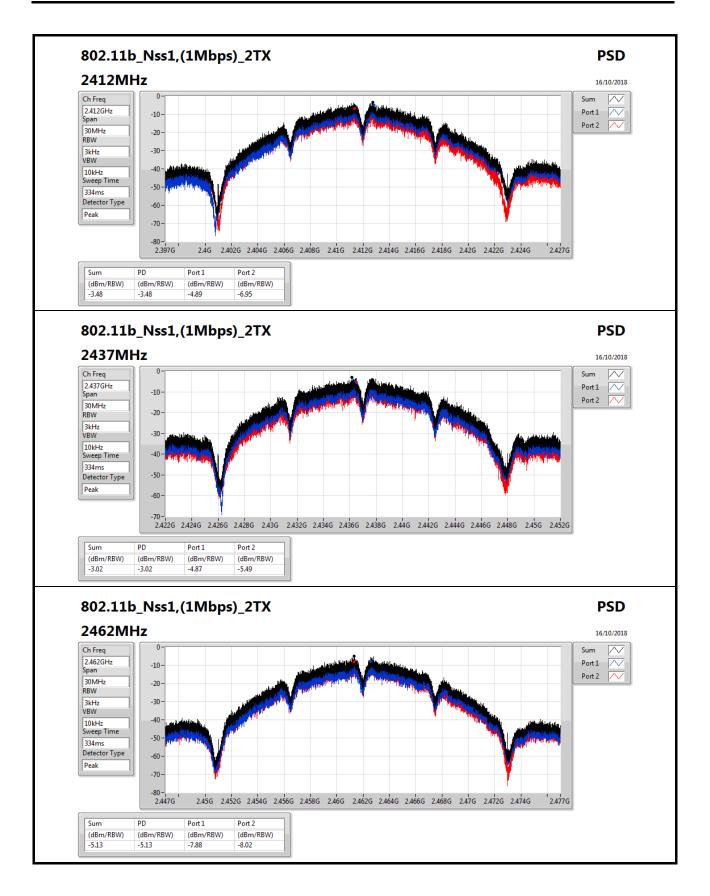
Result

Mode	Result	DG	Port 1	Port 2	PD	PD Limit
		(dBi)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
802.11b_Nss1,(1Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	6.78	-4.89	-6.95	-3.48	7.22
2437MHz	Pass	6.78	-4.87	-5.49	-3.02	7.22
2462MHz	Pass	6.78	-7.88	-8.02	-5.13	7.22
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	6.78	-10.90	-12.58	-10.13	7.22
2437MHz	Pass	6.78	-5.99	-8.42	-5.00	7.22
2462MHz	Pass	6.78	-13.35	-13.23	-11.22	7.22
802.11n HT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	6.78	-11.79	-13.22	-10.25	7.22
2437MHz	Pass	6.78	-6.37	-7.46	-4.78	7.22
2462MHz	Pass	6.78	-14.17	-14.58	-12.51	7.22
802.11n HT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2422MHz	Pass	6.78	-15.12	-16.97	-14.51	7.22
2437MHz	Pass	6.78	-13.13	-14.74	-12.07	7.22
2452MHz	Pass	6.78	-17.70	-17.95	-15.94	7.22

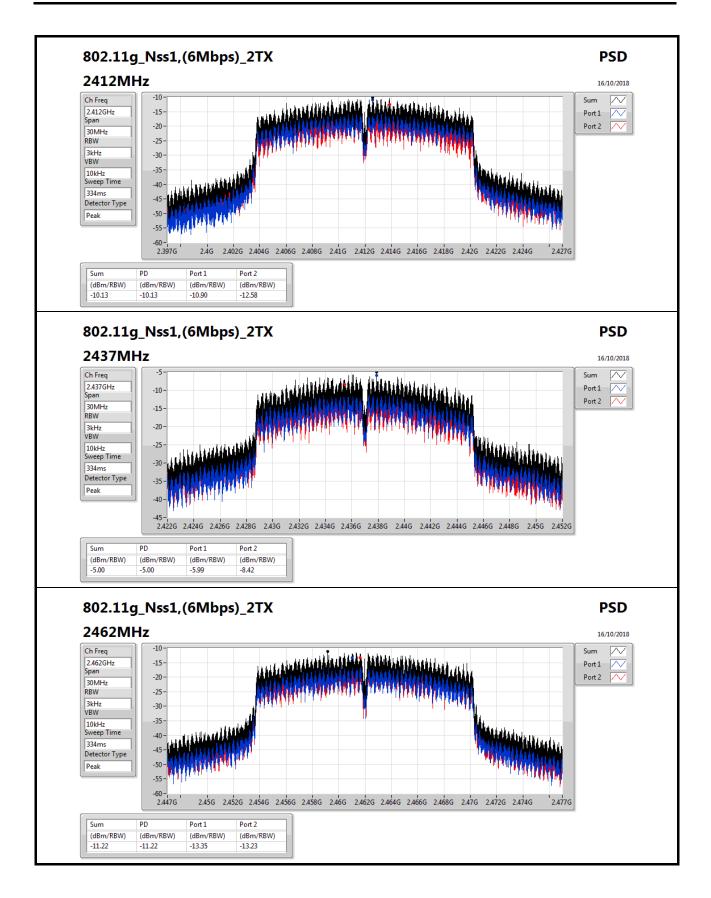
DG = Directional Gain; RBW=3kHz;
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; Port X = Port Xpower density;

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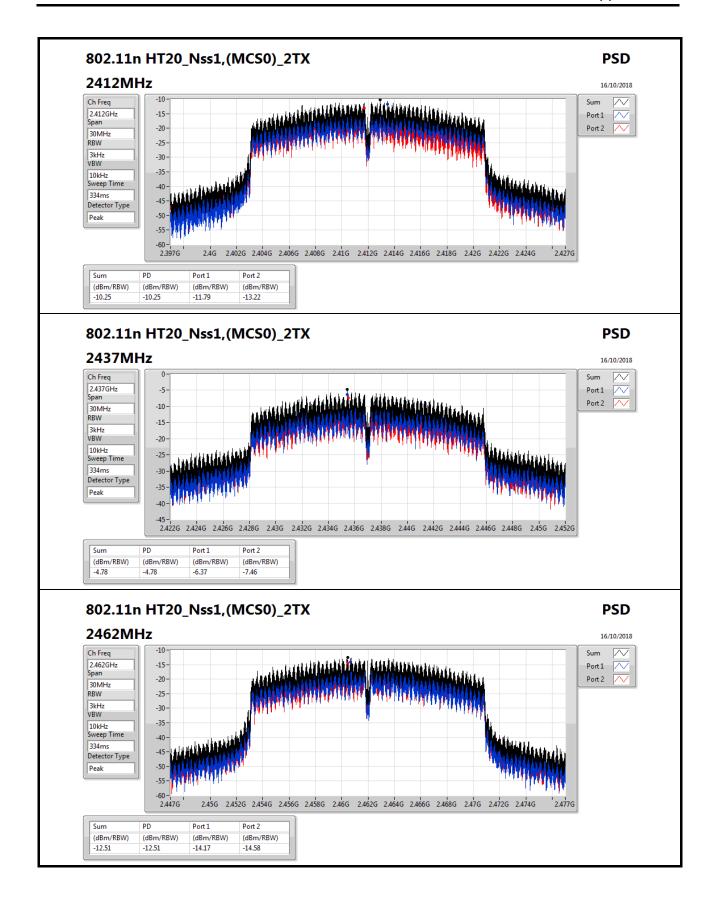




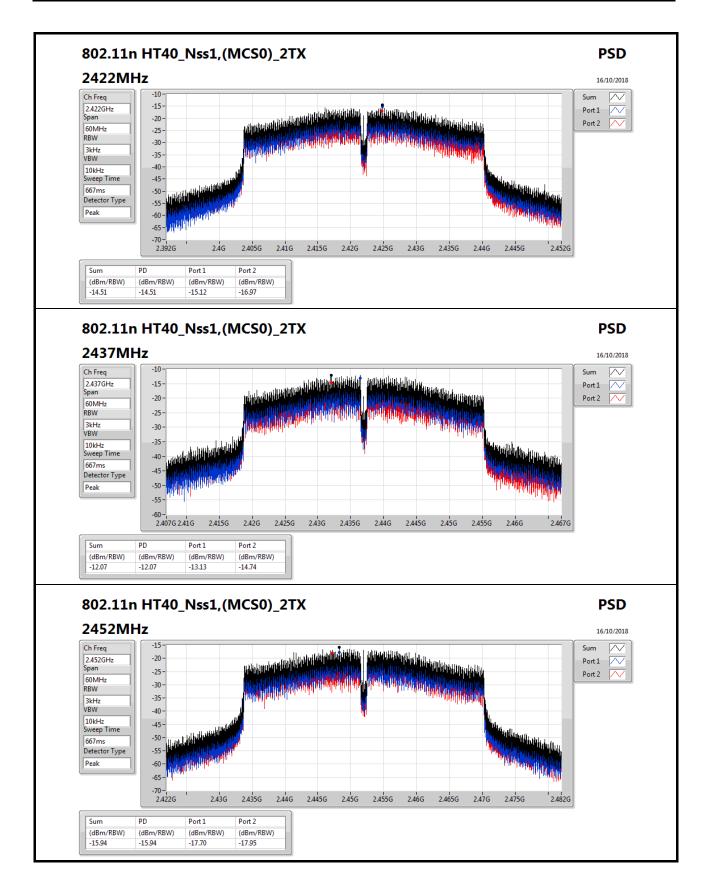












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CSE Non-restricted Band Result

Appendix E

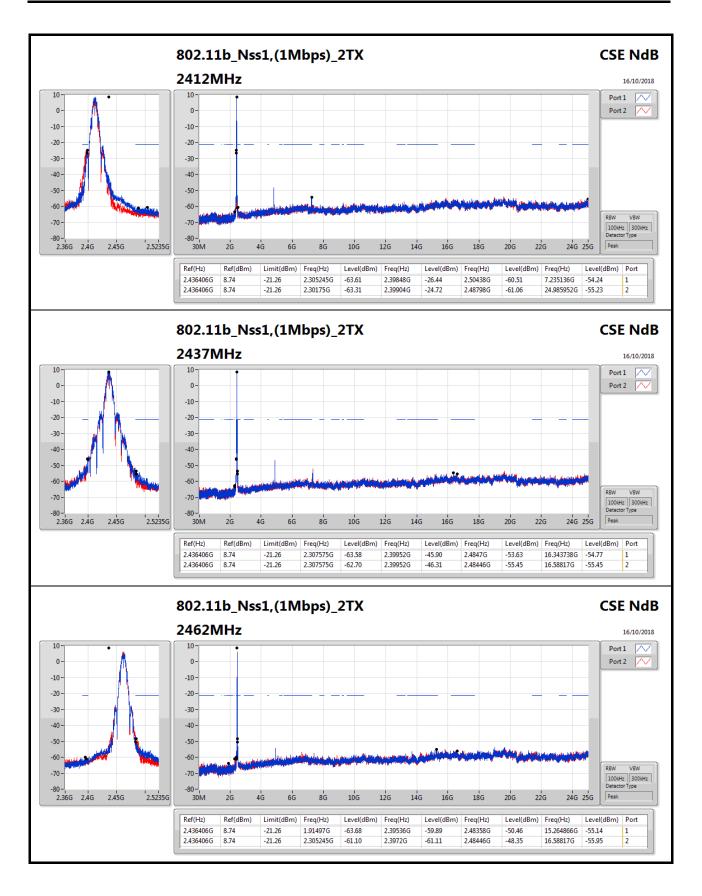
Summary

Mode	Result	Ref	Ref	Limit	Freq	Level	Freq	Level	Freq	Level	Freq	Level	Port
		(Hz)	(dBm)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-
802.11b_Nss1,(1Mbps)_2TX	Pass	2.436406G	8.74	-21.26	2.30175G	-63.31	2.39904G	-24.72	2.48798G	-61.06	24.985952G	-55.23	2
802.11g_Nss1,(6Mbps)_2TX P		2.438243G	7.33	-22.67	2.30641G	-60.77	2.3992G	-25.79	2.51414G	-61.67	16.874745G	-54.98	2
802.11n HT20_Nss1,(MCS0)_2TX P		2.435738G	6.57	-23.43	2.30874G	-61.49	2.39928G	-24.95	2.5003G	-60.31	24.749949G	-55.34	2
802.11n HT40_Nss1,(MCS0)_2TX	Pass	2.442084G	1.20	-28.80	2.307405G	-61.98	2.3992G	-31.67	2.48414G	-42.21	16.510589G	-55.42	2

Result

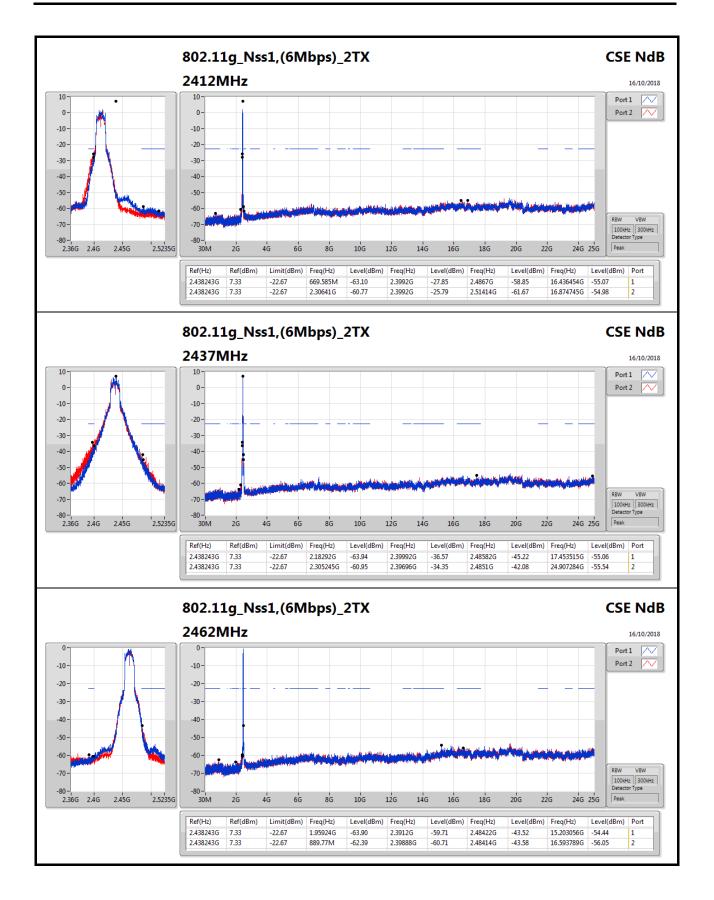
Mode	Result	Ref	Ref	Limit	Freq	Level	Freq	Level	Freq	Level	Freq	Level	Port
		(Hz)	(dBm)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	
802.11b_Nss1,(1Mbps)_2TX	-	-	-		-	-	-	-	-	-	-	-	-
2412MHz	Pass	2.436406G	8.74	-21.26	2.305245G	-63.61	2.39848G	-26.44	2.50438G	-60.51	7.235136G	-54.24	1
2412MHz	Pass	2.436406G	8.74	-21.26	2.30175G	-63.31	2.39904G	-24.72	2.48798G	-61.06	24.985952G	-55.23	2
2437MHz	Pass	2.436406G	8.74	-21.26	2.307575G	-63.58	2.39952G	-45.90	2.4847G	-53.63	16.343738G	-54.77	1
2437MHz	Pass	2.436406G	8.74	-21.26	2.307575G	-62.70	2.39952G	-46.31	2.48446G	-55.45	16.58817G	-55.45	2
2462MHz	Pass	2.436406G	8.74	-21.26	1.91497G	-63.68	2.39536G	-59.89	2.48358G	-50.46	15.264866G	-55.14	1
2462MHz	Pass	2.436406G	8.74	-21.26	2.305245G	-61.10	2.3972G	-61.11	2.48446G	-48.35	16.58817G	-55.95	2
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	2.438243G	7.33	-22.67	669.585M	-63.10	2.3992G	-27.85	2.4867G	-58.85	16.436454G	-55.07	1
2412MHz	Pass	2.438243G	7.33	-22.67	2.30641G	-60.77	2.3992G	-25.79	2.51414G	-61.67	16.874745G	-54.98	2
2437MHz	Pass	2.438243G	7.33	-22.67	2.18292G	-63.94	2.39992G	-36.57	2.48582G	-45.22	17.453515G	-55.06	1
2437MHz	Pass	2.438243G	7.33	-22.67	2.305245G	-60.95	2.39696G	-34.35	2.4851G	-42.08	24.907284G	-55.54	2
2462MHz	Pass	2.438243G	7.33	-22.67	1.95924G	-63.90	2.3912G	-59.71	2.48422G	-43.52	15.203056G	-54.44	1
2462MHz	Pass	2.438243G	7.33	-22.67	889.77M	-62.39	2.39888G	-60.71	2.48414G	-43.58	16.593789G	-56.05	2
802.11n HT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-	-	-		-
2412MHz	Pass	2.435738G	6.57	-23.43	747.64M	-63.03	2.39928G	-28.07	2.49686G	-57.90	24.946618G	-55.19	1
2412MHz	Pass	2.435738G	6.57	-23.43	2.30874G	-61.49	2.39928G	-24.95	2.5003G	-60.31	24.749949G	-55.34	2
2437MHz	Pass	2.435738G	6.57	-23.43	924.72M	-63.22	2.39928G	-32.57	2.48382G	-36.00	21.634144G	-55.35	1
2437MHz	Pass	2.435738G	6.57	-23.43	2.309905G	-62.16	2.39896G	-30.67	2.48406G	-39.45	16.967461G	-54.37	2
2462MHz	Pass	2.435738G	6.57	-23.43	767.445M	-63.35	2.3984G	-59.77	2.48358G	-43.02	17.574326G	-54.92	1
2462MHz	Pass	2.435738G	6.57	-23.43	2.307575G	-63.44	2.39744G	-58.64	2.48406G	-41.72	16.245403G	-55.76	2
802.11n HT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-	-	-	-	-
2422MHz	Pass	2.442084G	1.20	-28.80	760.51M	-63.50	2.3992G	-35.50	2.48846G	-57.39	16.415234G	-55.25	1
2422MHz	Pass	2.442084G	1.20	-28.80	2.30855G	-62.43	2.39952G	-32.24	2.49006G	-60.15	16.353534G	-56.18	2
2437MHz	Pass	2.442084G	1.20	-28.80	725.015M	-63.02	2.39952G	-34.52	2.4851G	-42.25	24.792462G	-55.98	1
2437MHz	Pass	2.442084G	1.20	-28.80	2.307405G	-61.98	2.3992G	-31.67	2.48414G	-42.21	16.510589G	-55.42	2
2452MHz	Pass	2.442084G	1.20	-28.80	1.87574G	-63.34	2.39968G	-56.83	2.48446G	-39.96	24.918668G	-55.40	1
2452MHz	Pass	2.442084G	1.20	-28.80	2.305115G	-63.38	2.39872G	-56.94	2.48942G	-41.76	16.911642G	-54.77	2



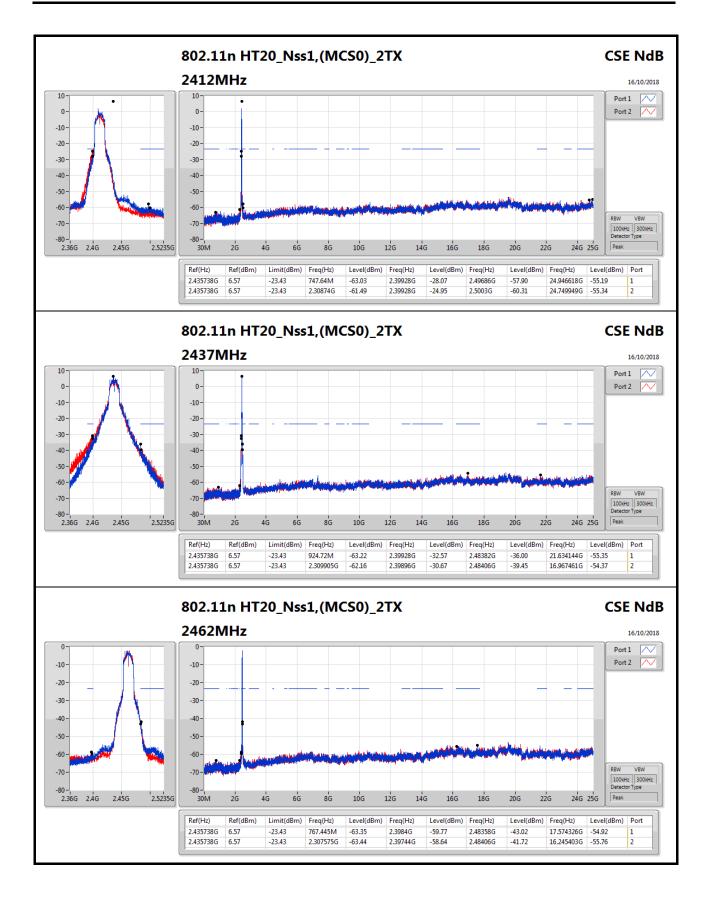


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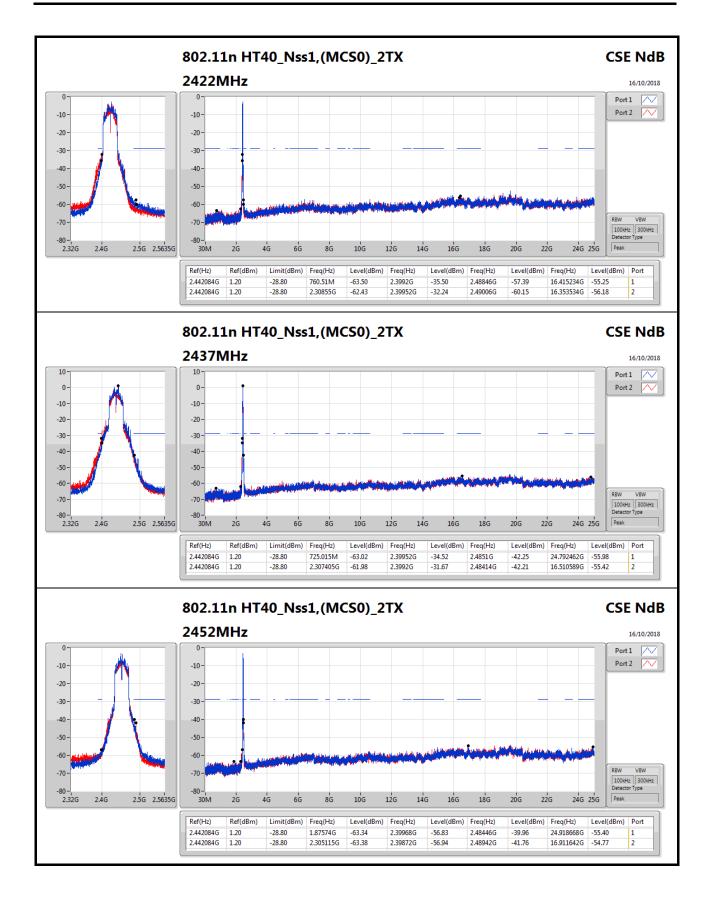




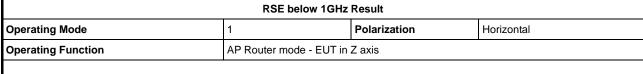


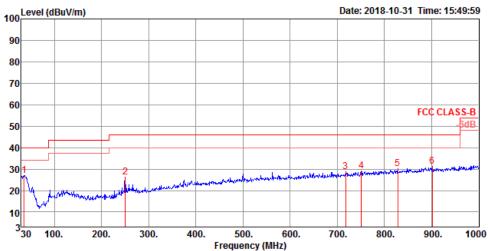










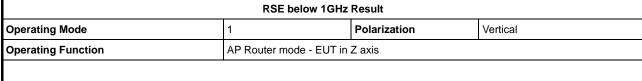


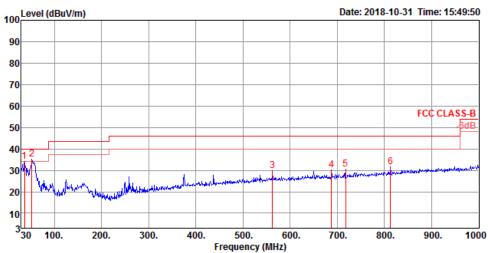
	Freq	Level						Preamp Factor	-	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	Cm	deg		
1	35.82	26.99	40.00	-13.01	35.59	0.74	22.25	31.59	150	69	Peak	HORIZONTAL
2	250.19	26.15	46.00	-19.85	37.32	1.91	18.90	31.98	300	252	Peak	HORIZONTAL
3	717.73	28.61	46.00	-17.39	32.08	3.23	25.81	32.51	200	125	Peak	HORIZONTAL
4	750.71	29.09	46.00	-16.91	32.11	3.31	26.20	32.53	200	242	Peak	HORIZONTAL
5	828.31	30.24	46.00	-15.76	32.19	3.49	27.03	32.47	300	295	Peak	HORIZONTAL
6	901.06	31.14	46.00	-14.86	32.26	3.65	27.70	32.47	125	93	Peak	HORIZONTAL

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

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







	Freq	Level		Over Limit						T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	36.79	34.20	40.00	-5.80	43.36	0.75	21.69	31.60	100	251	Peak	VERTICAL
2	52.31	35.26	40.00	-4.74	51.90	0.88	14.25	31.77	150	43	Peak	VERTICAL
3	562.53	29.82	46.00	-16.18	34.66	2.86	24.67	32.37	150	334	Peak	VERTICAL
4	687.66	30.15	46.00	-15.85	33.90	3.16	25.58	32.49	100	254	Peak	VERTICAL
5	717.73	30.55	46.00	-15.45	34.02	3.23	25.81	32.51	100	98	Peak	VERTICAL
6	812.79	31.49	46.00	-14.51	33.64	3.46	26.87	32.48	100	48	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 F.2

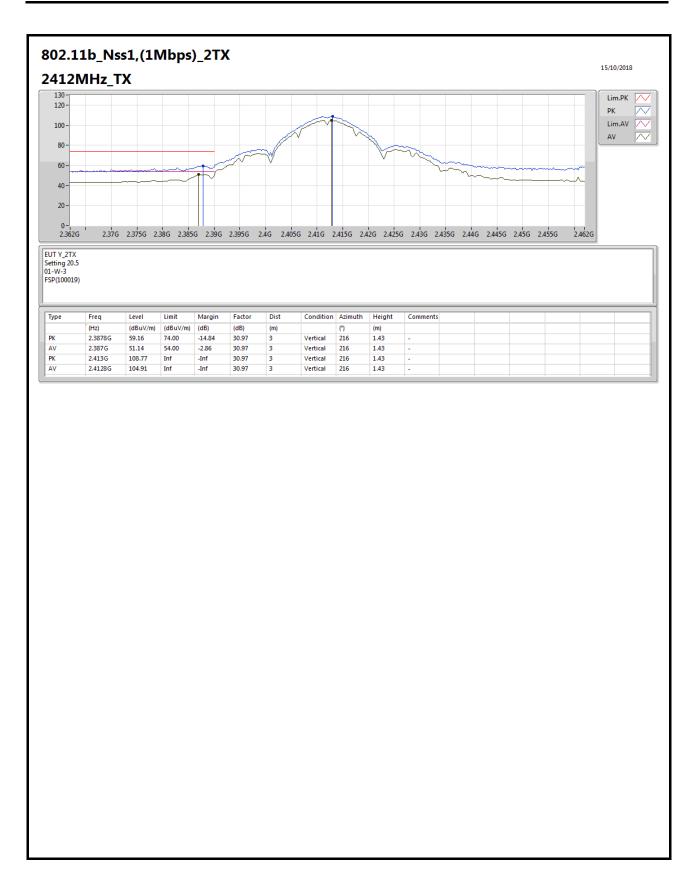
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Summary

<u> </u>												
Mode	Result	Туре	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-
802.11g_Nss1,(6Mbps)_2TX	Pass	AV	2.39G	53.98	54.00	-0.02	31.50	3	Horizontal	277	2.91	-

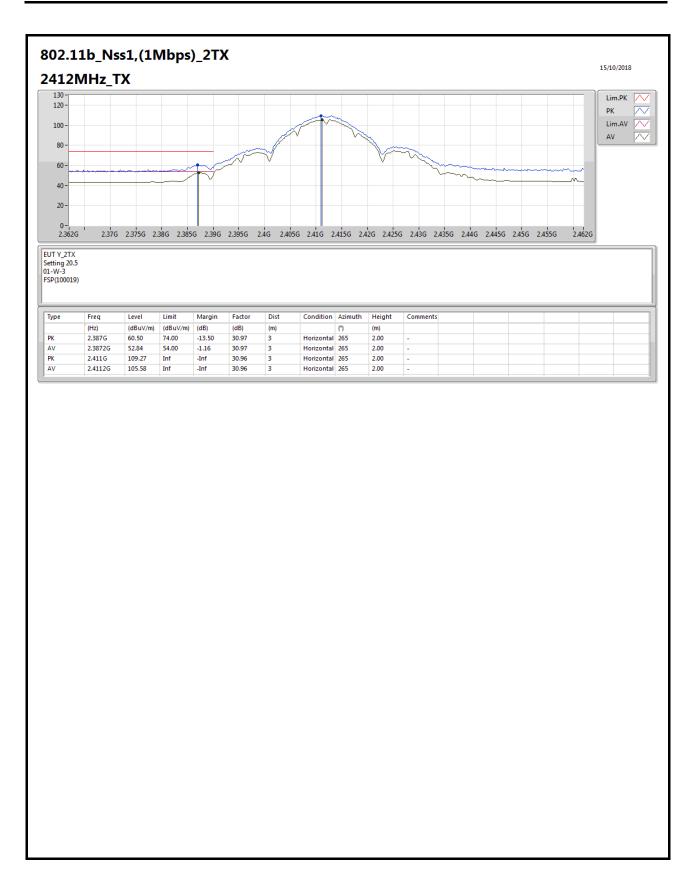
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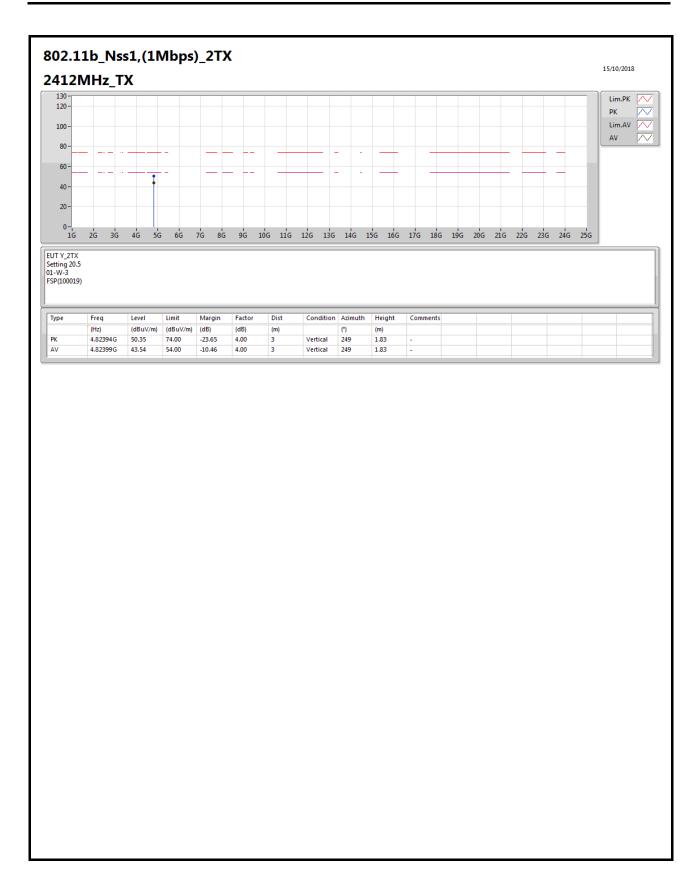
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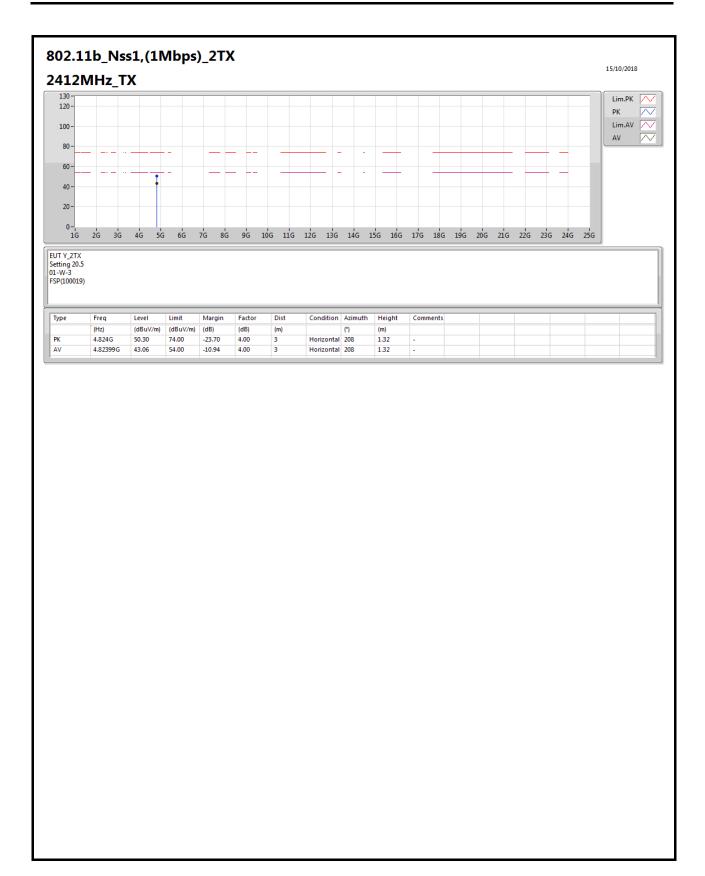
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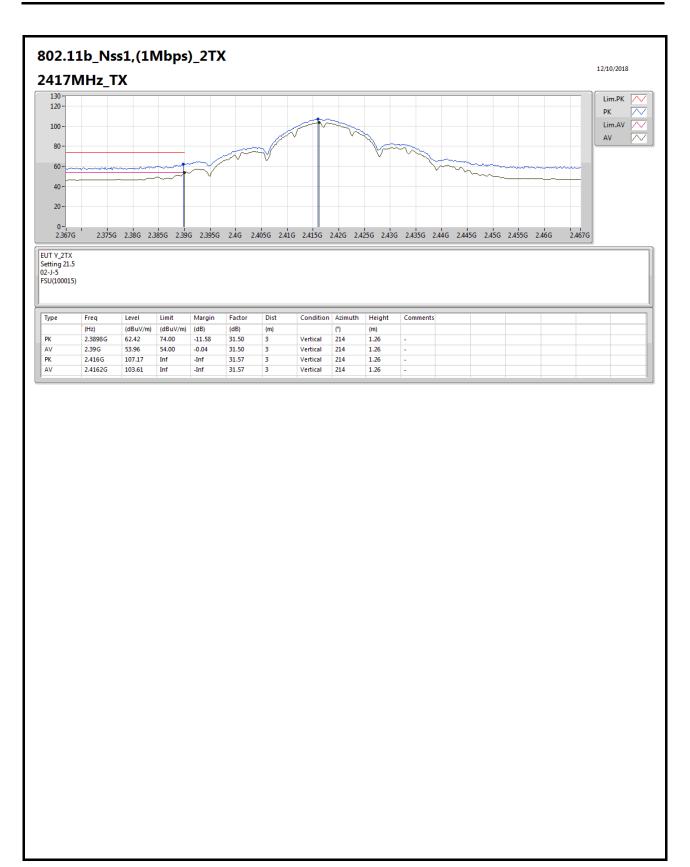
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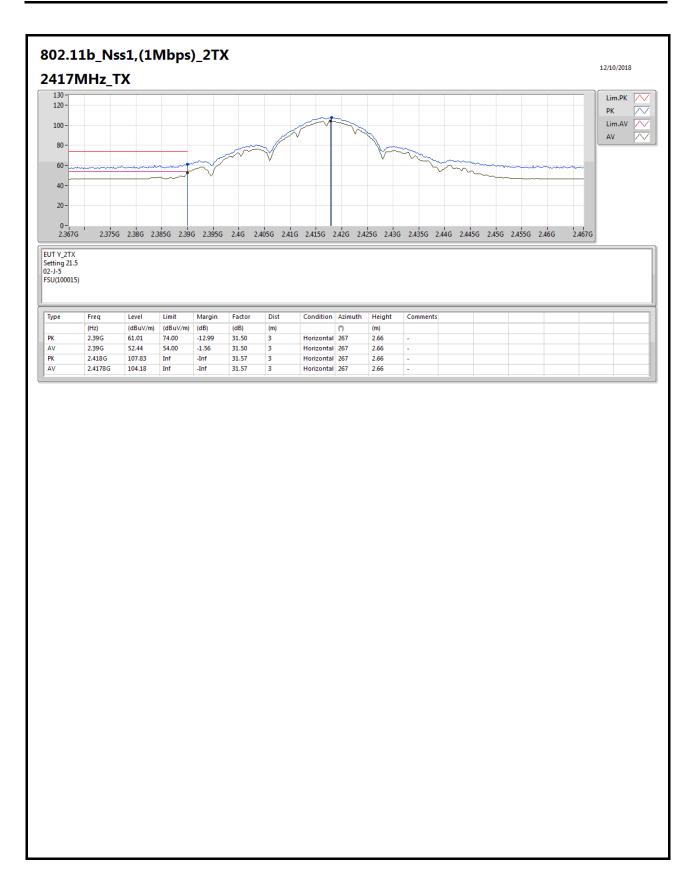
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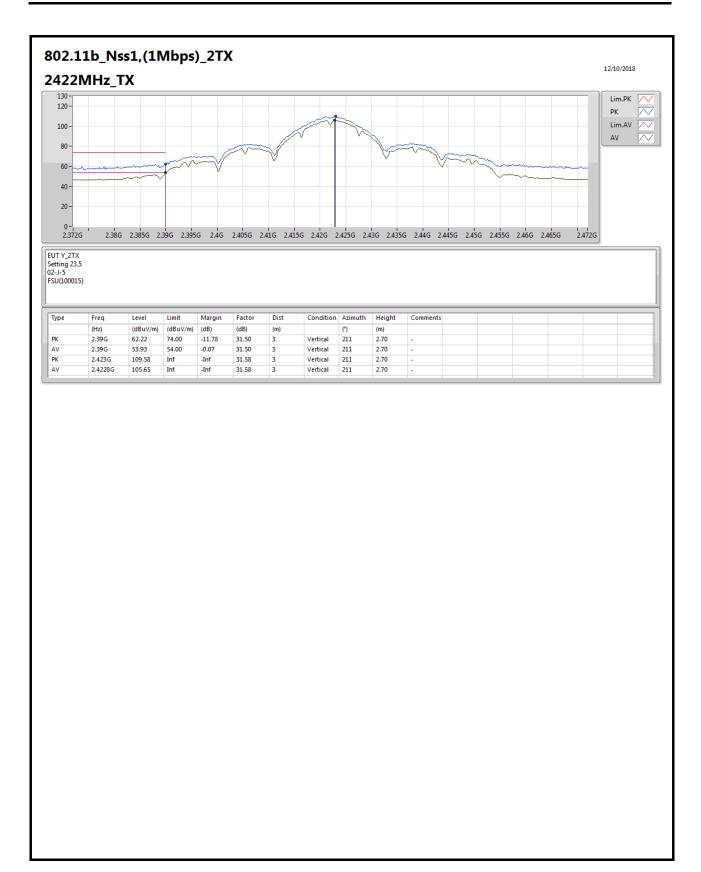
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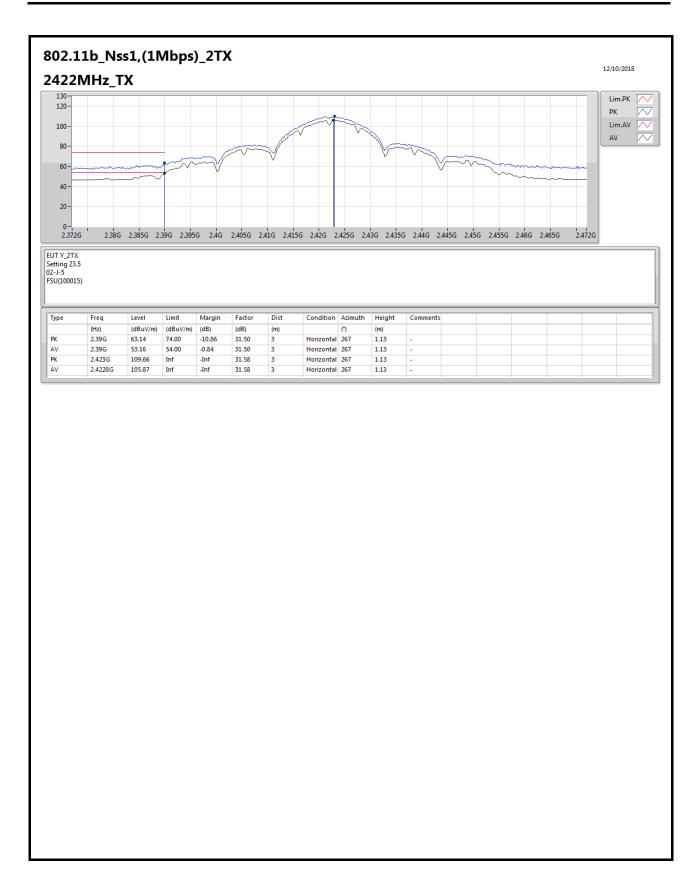
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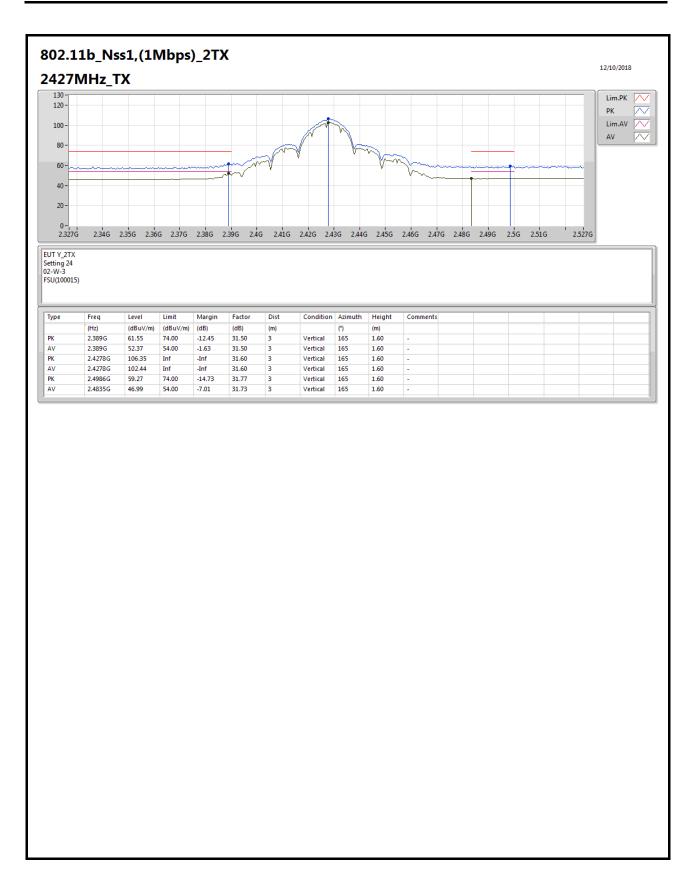
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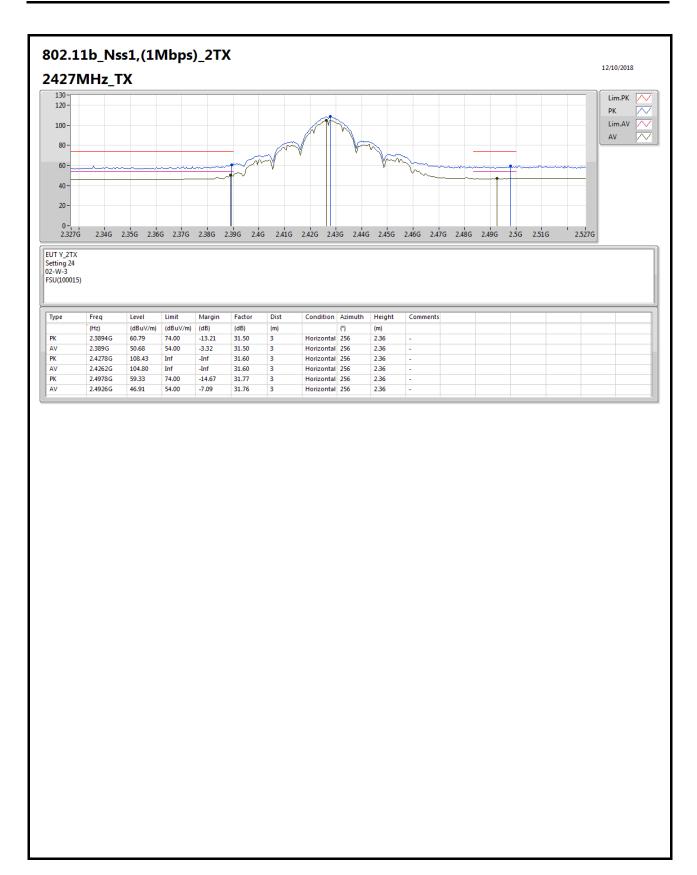
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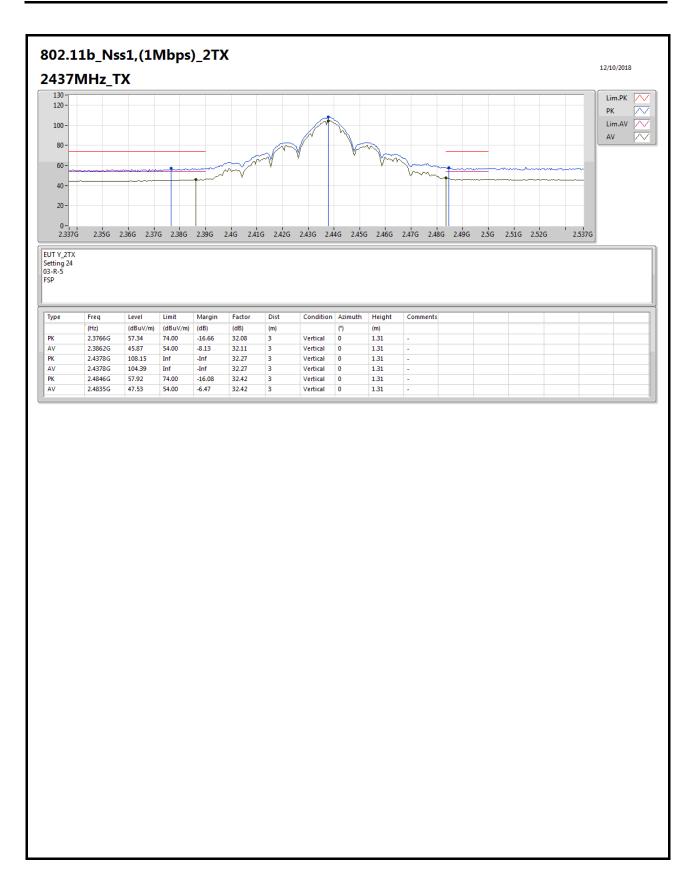
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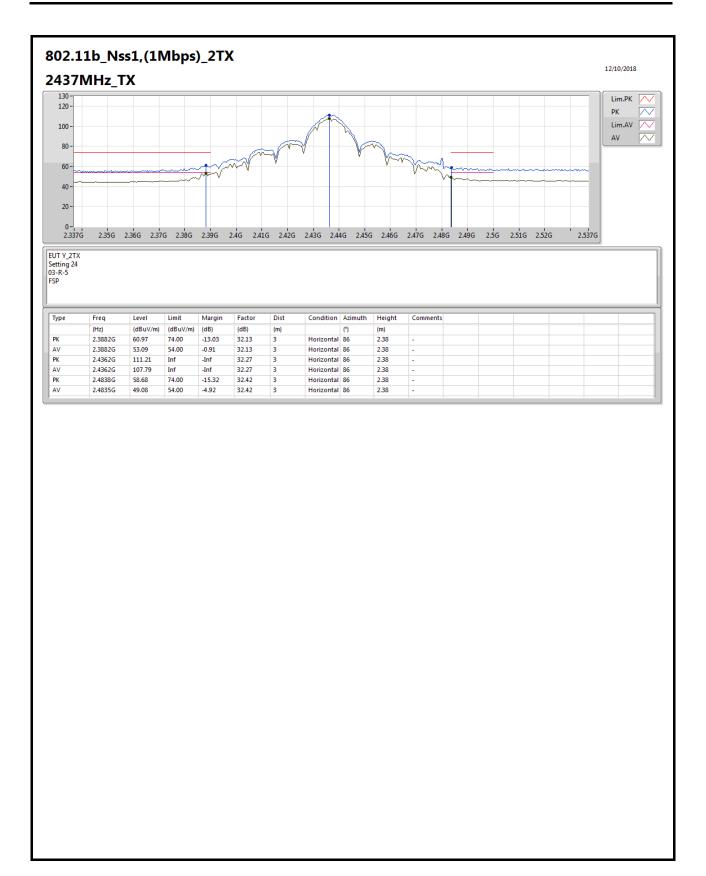
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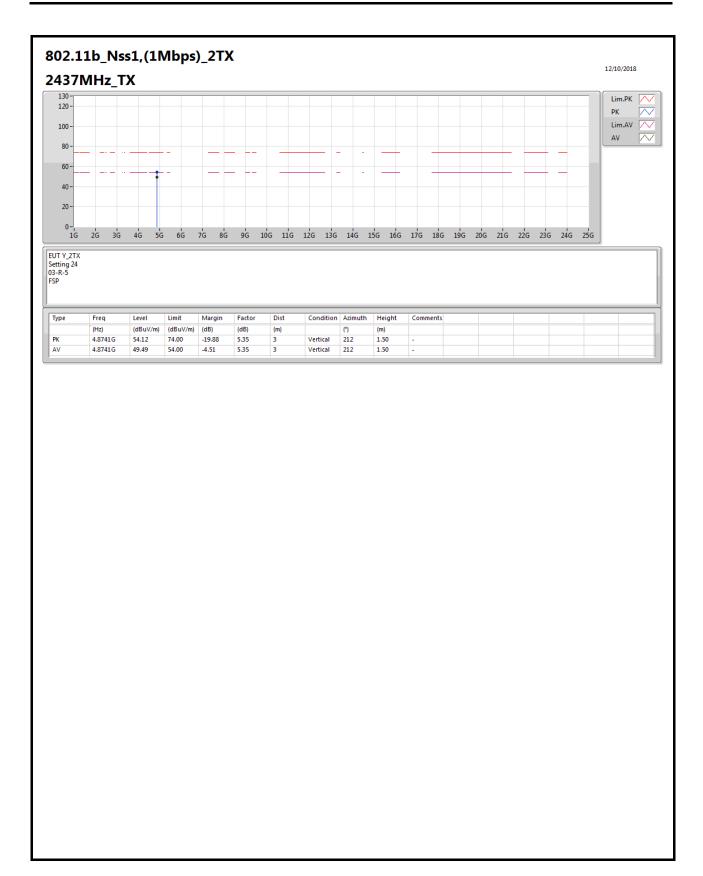
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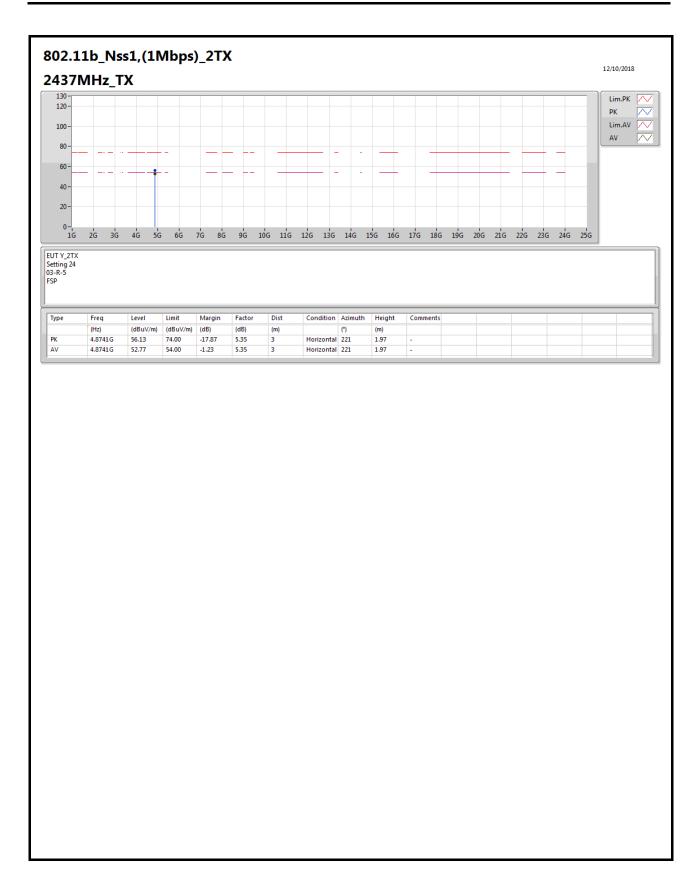
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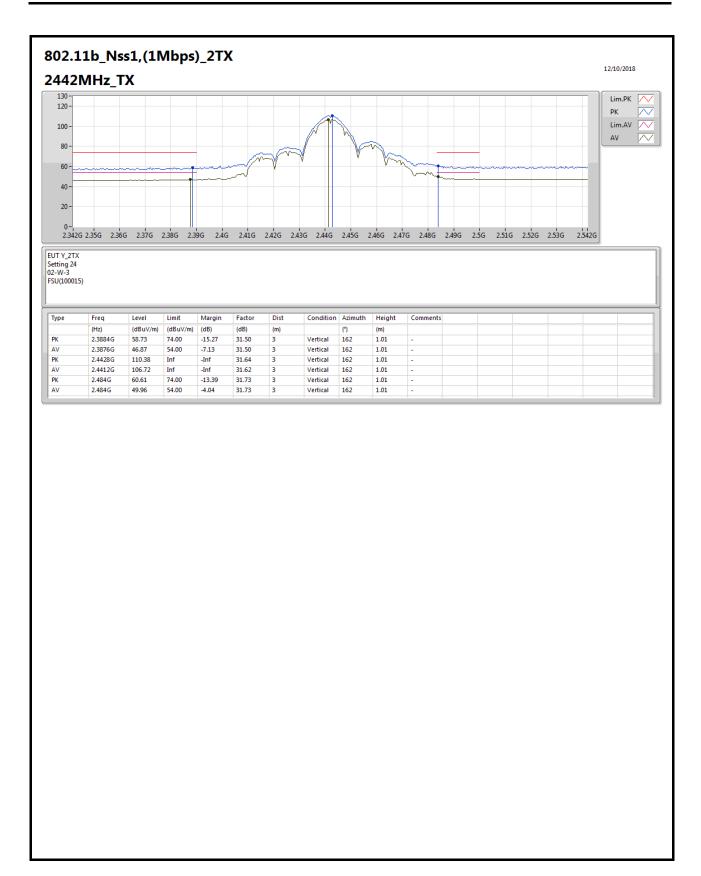
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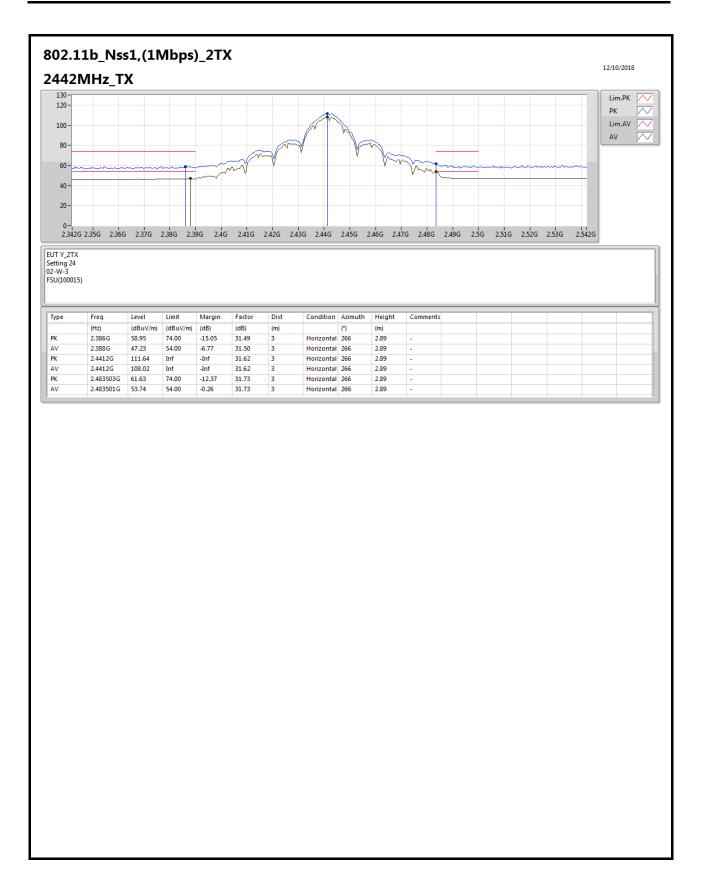
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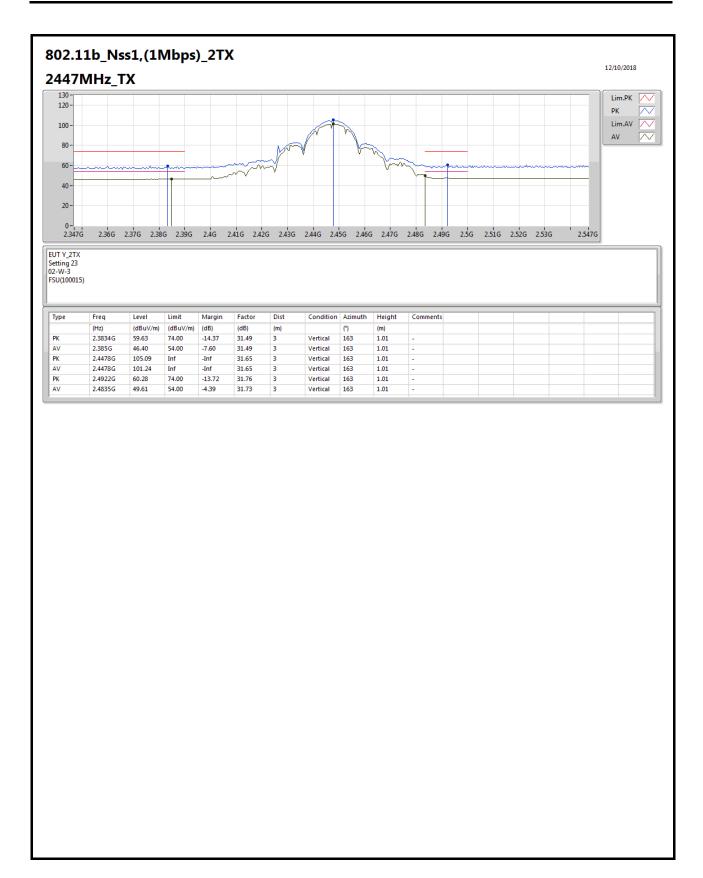


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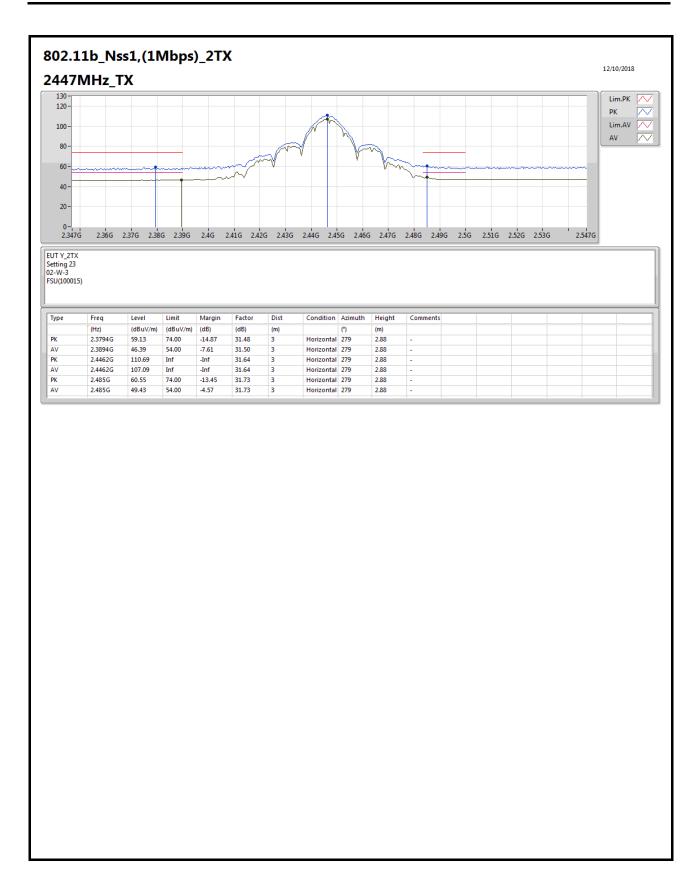






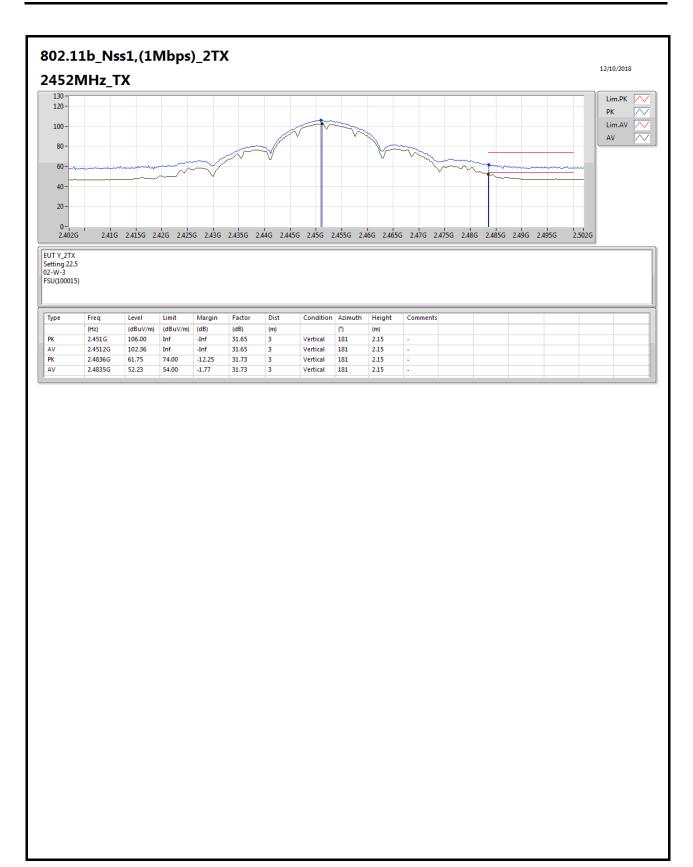
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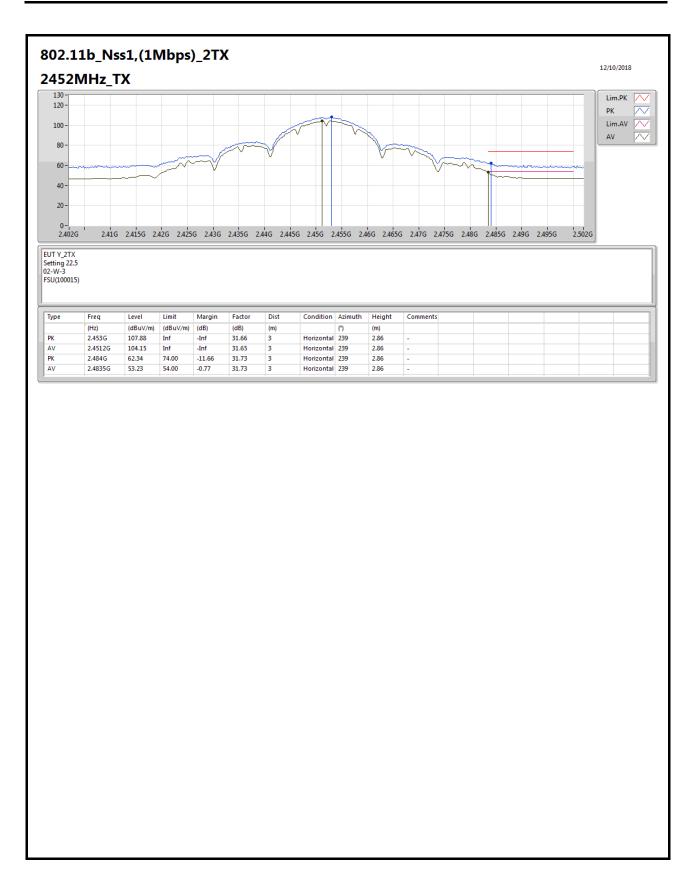
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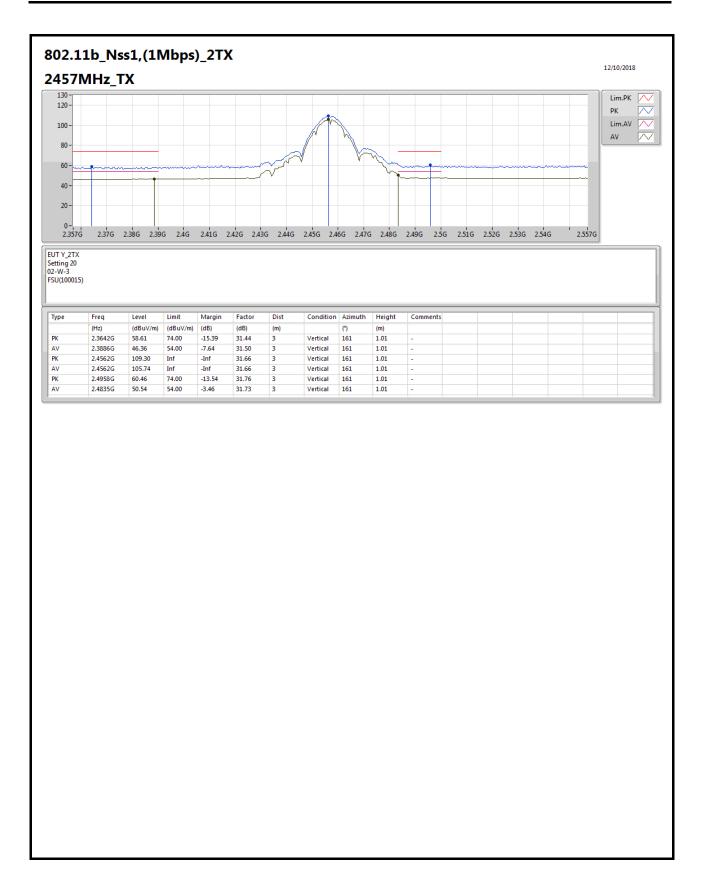


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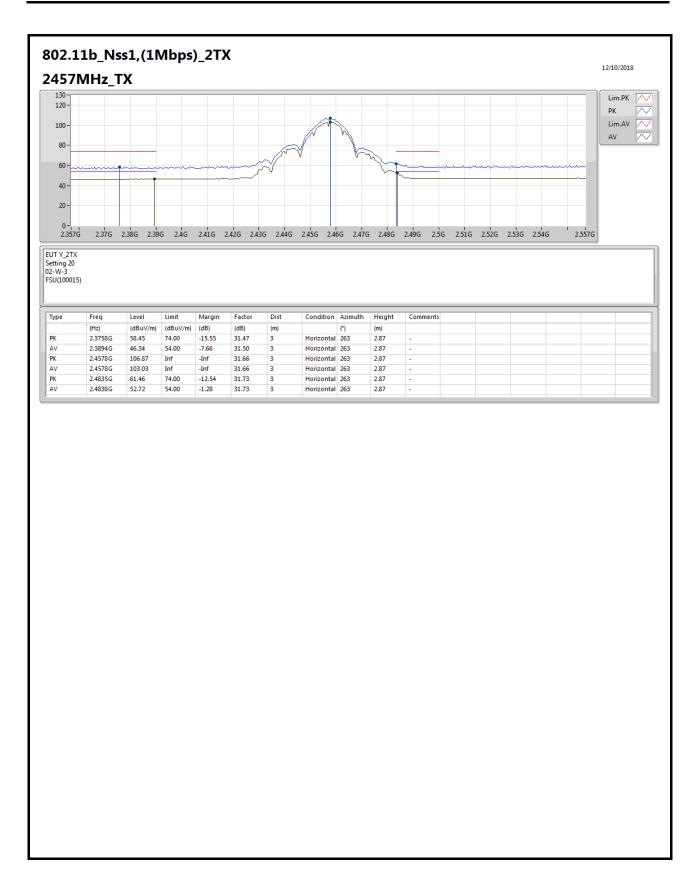






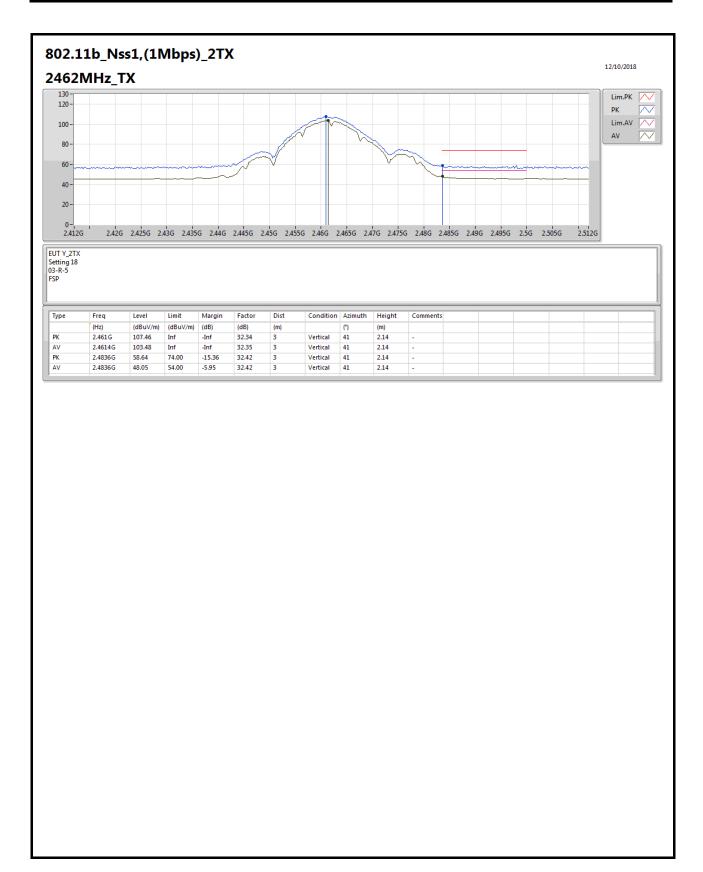
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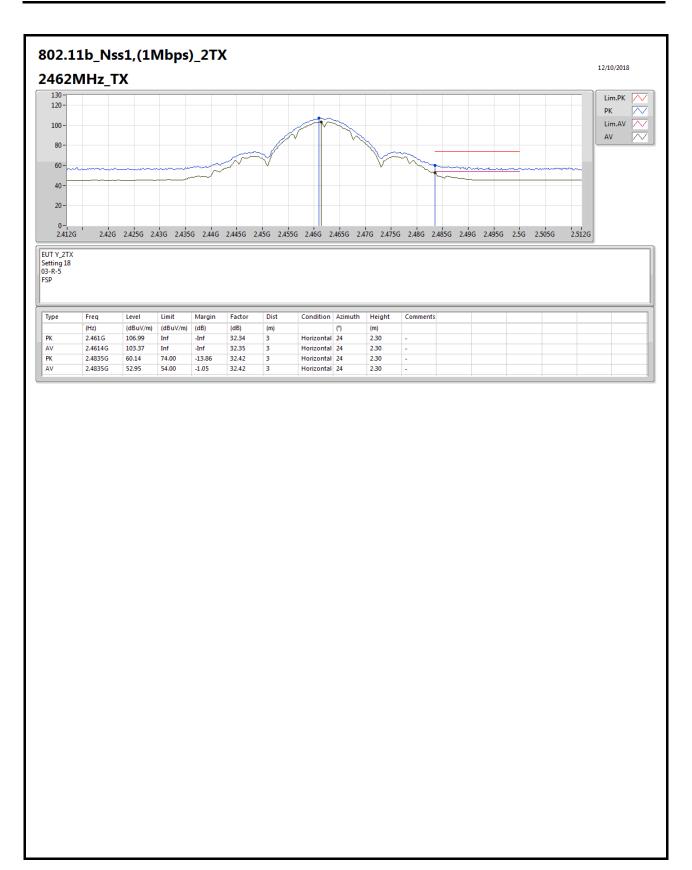
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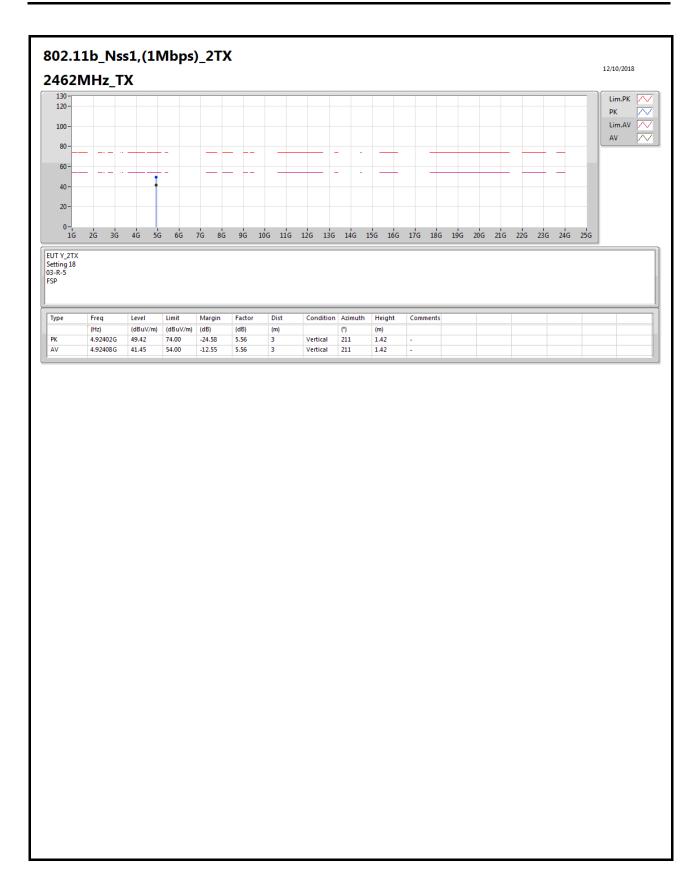
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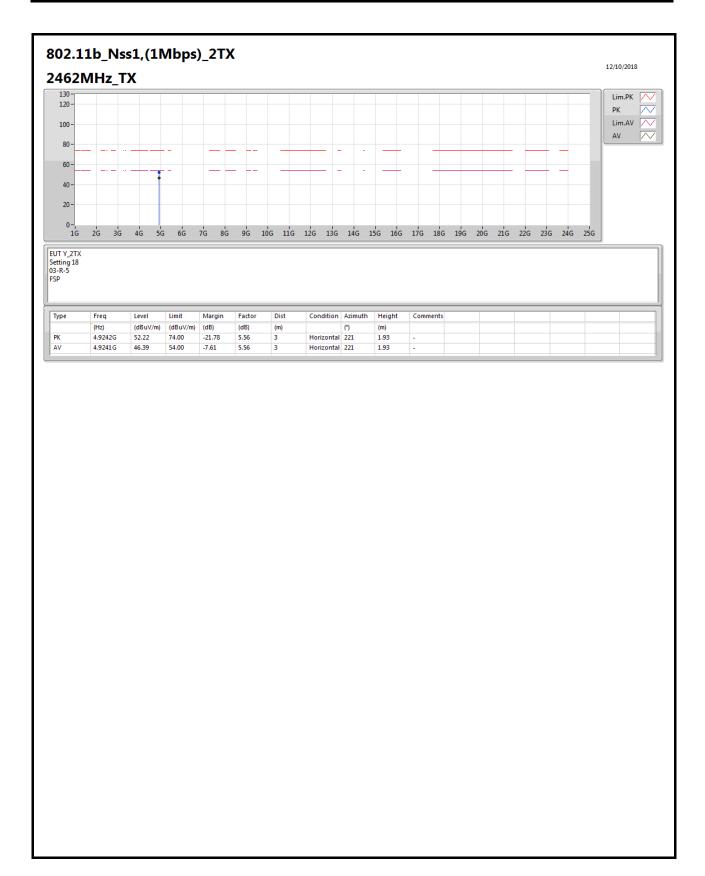
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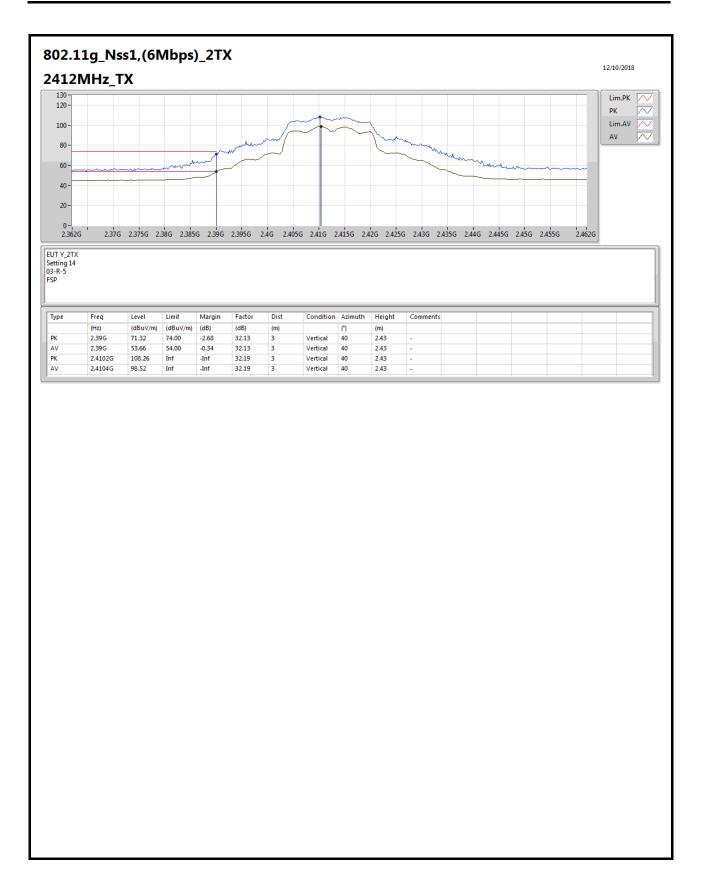
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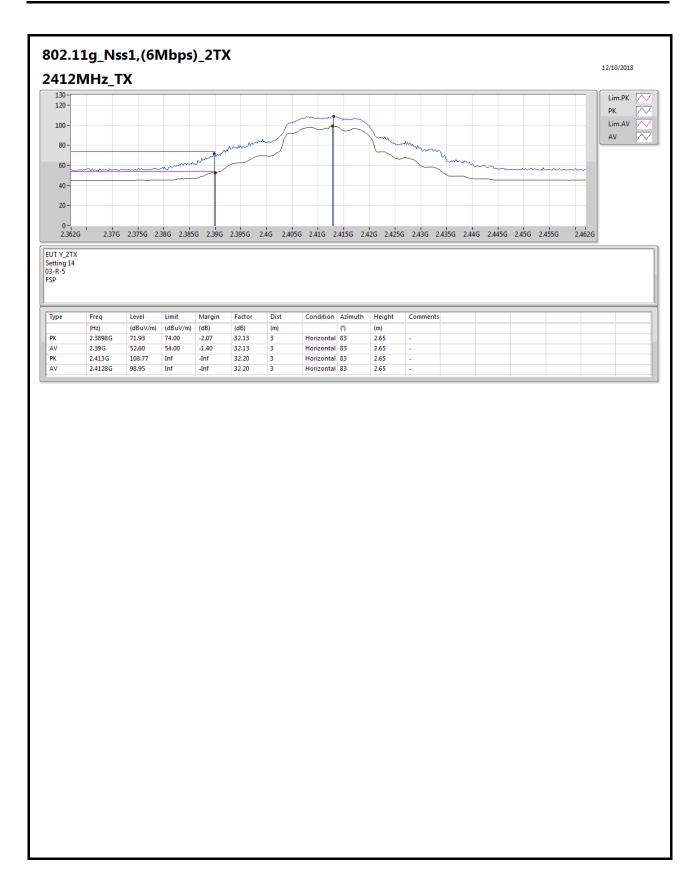
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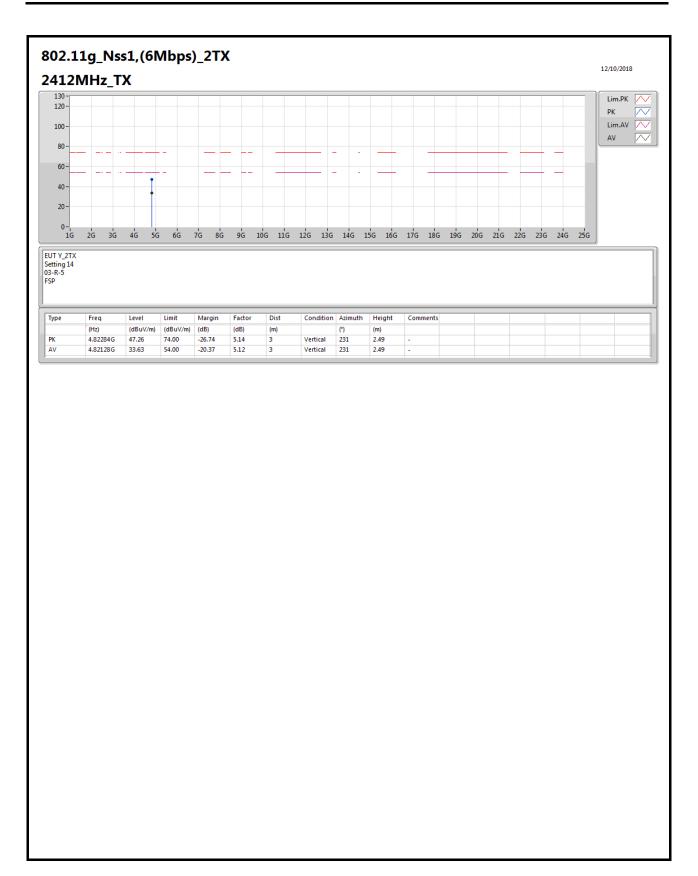
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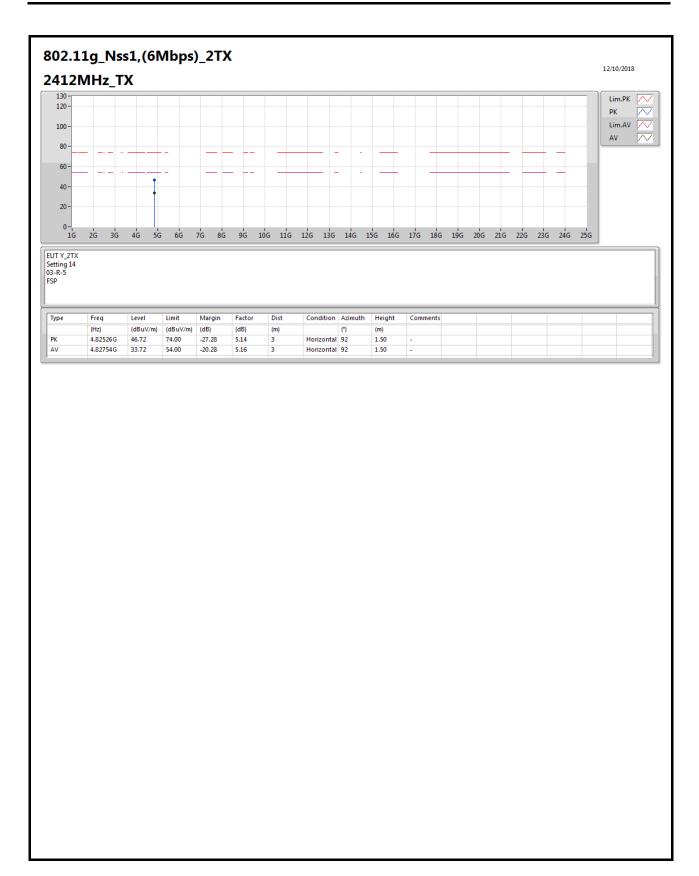
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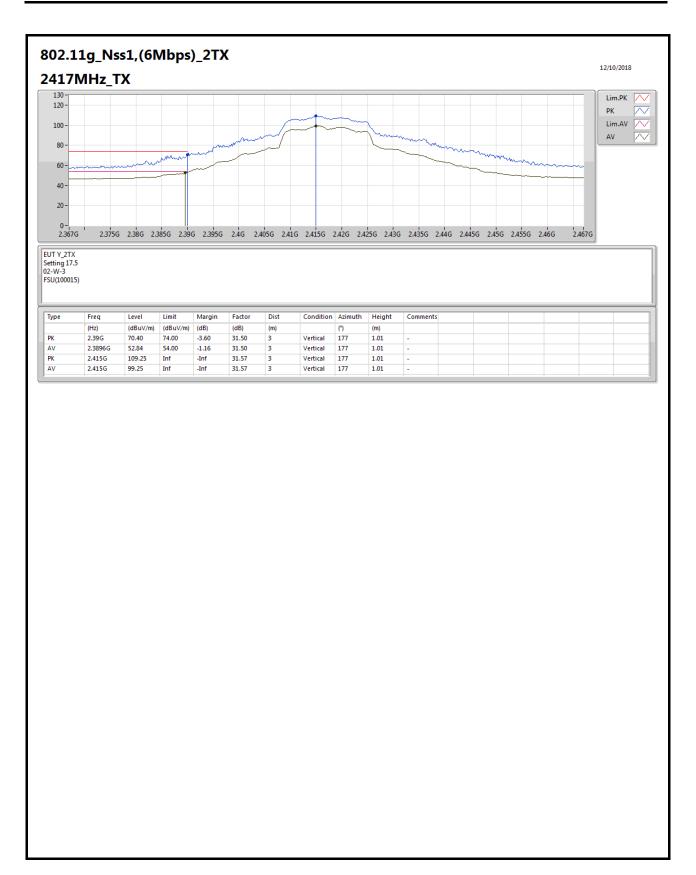
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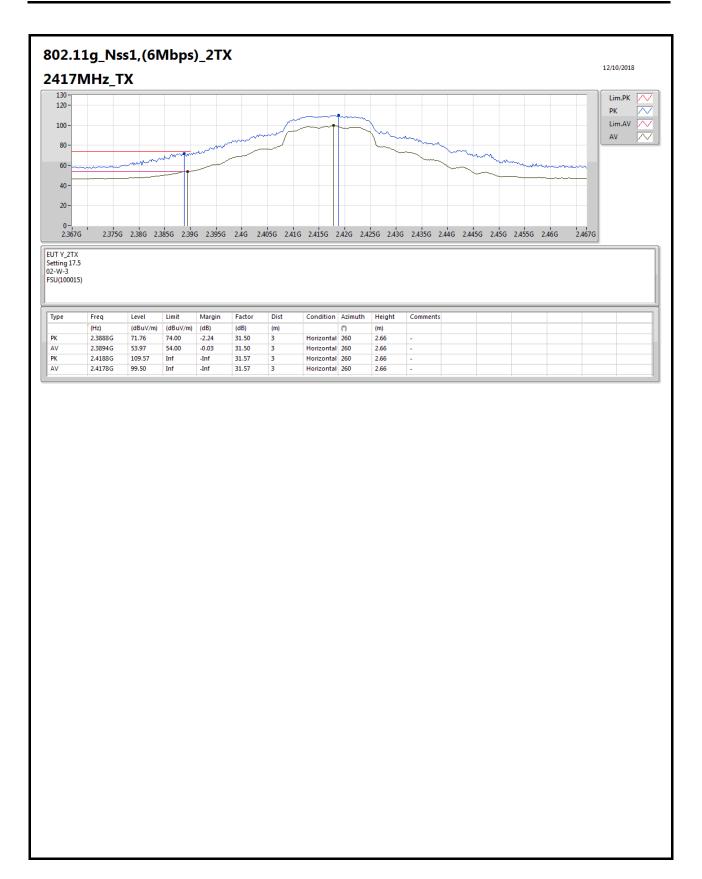
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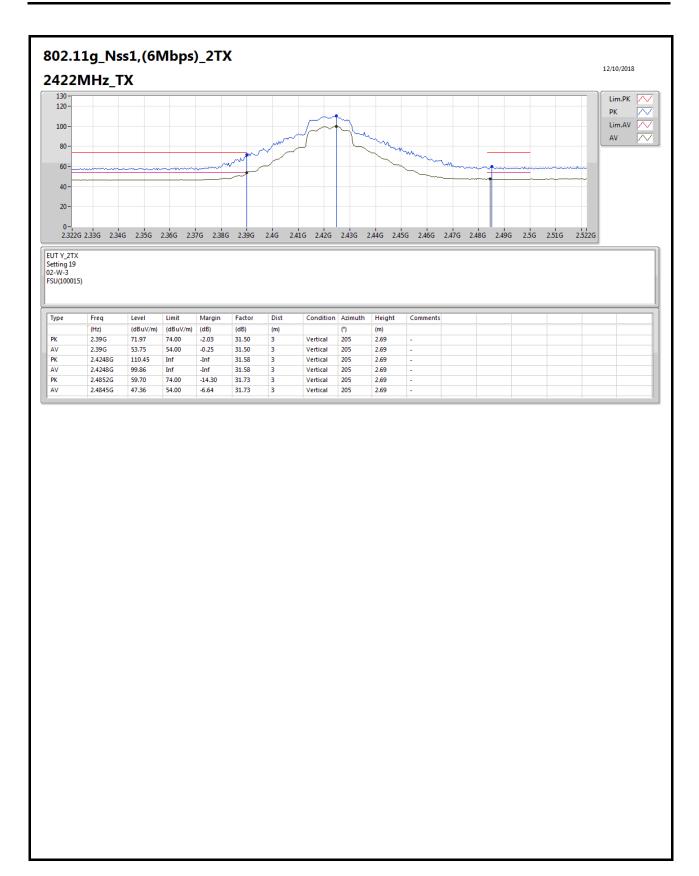
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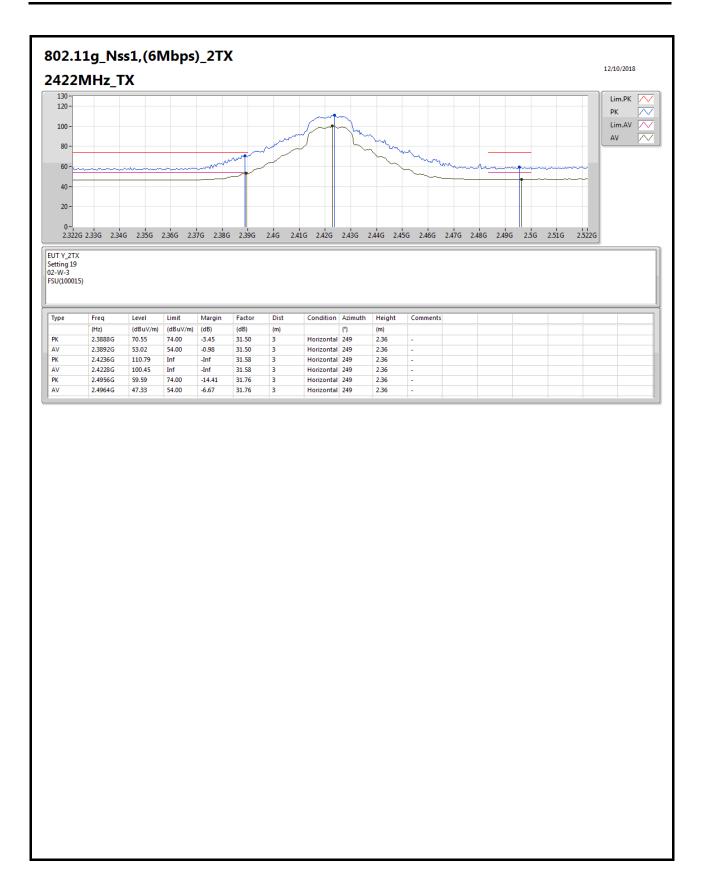
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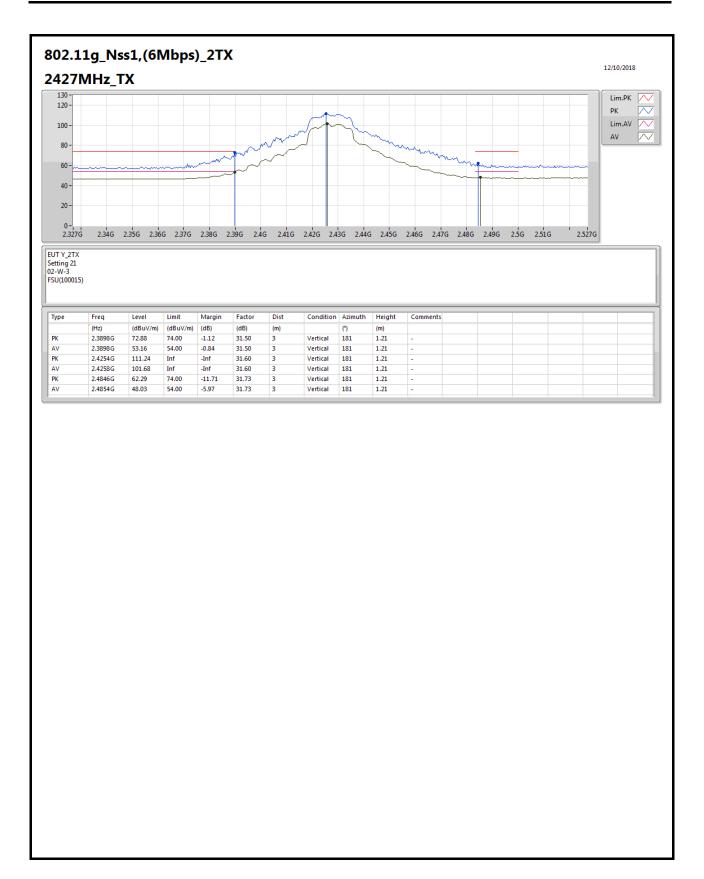
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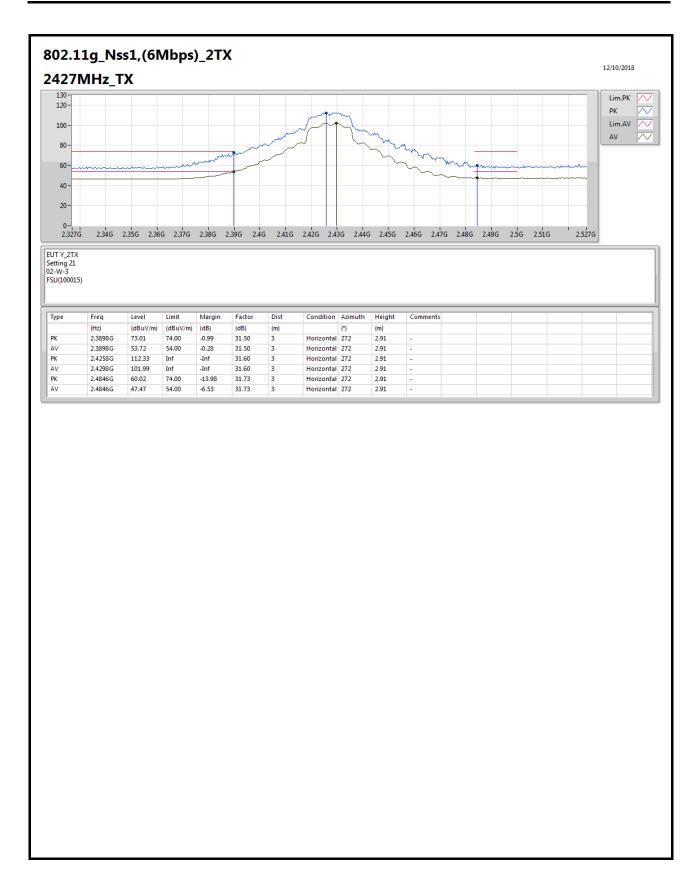
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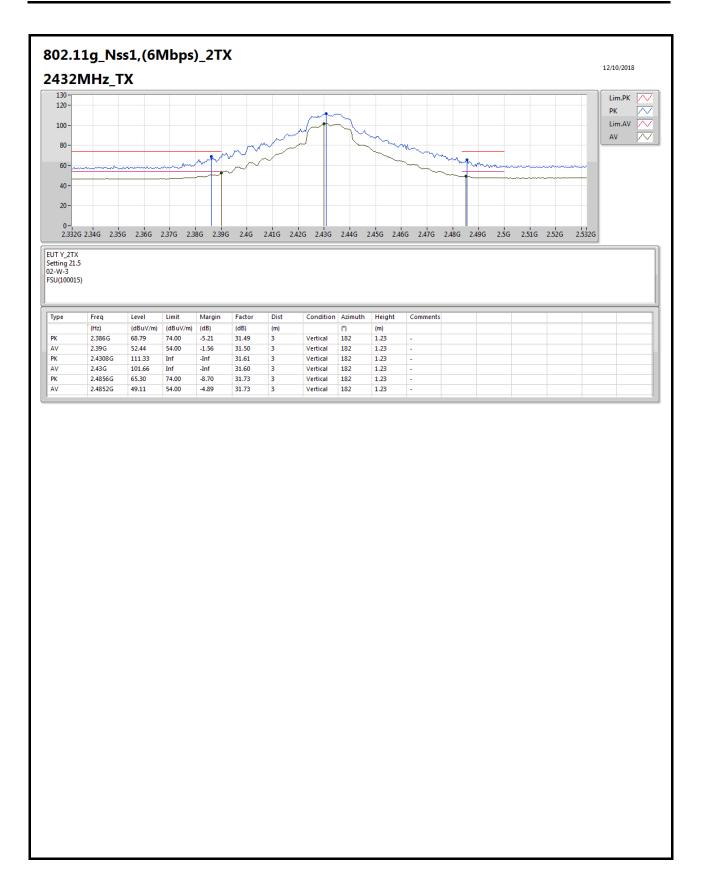
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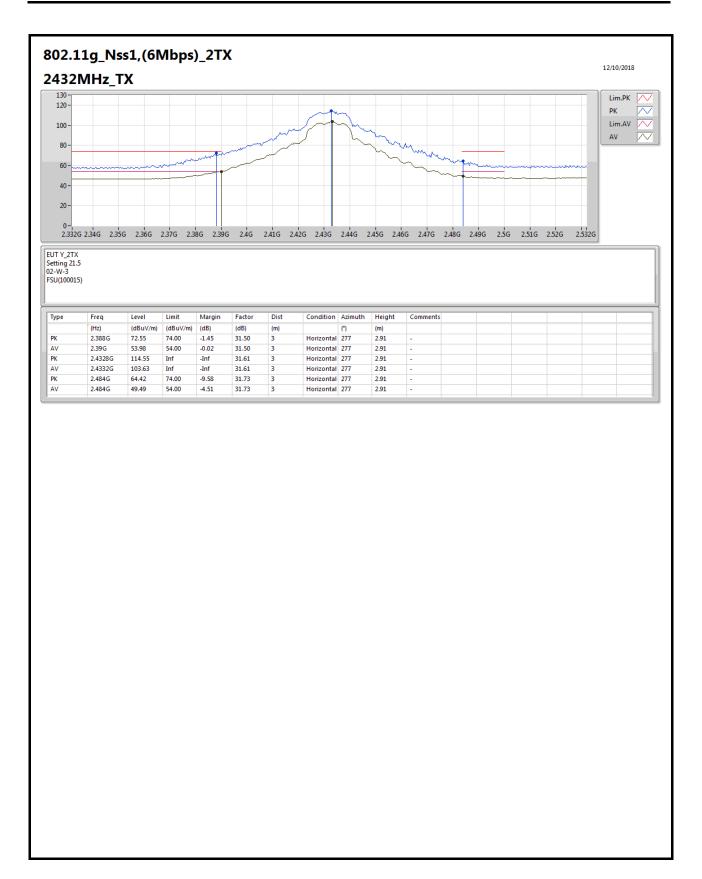
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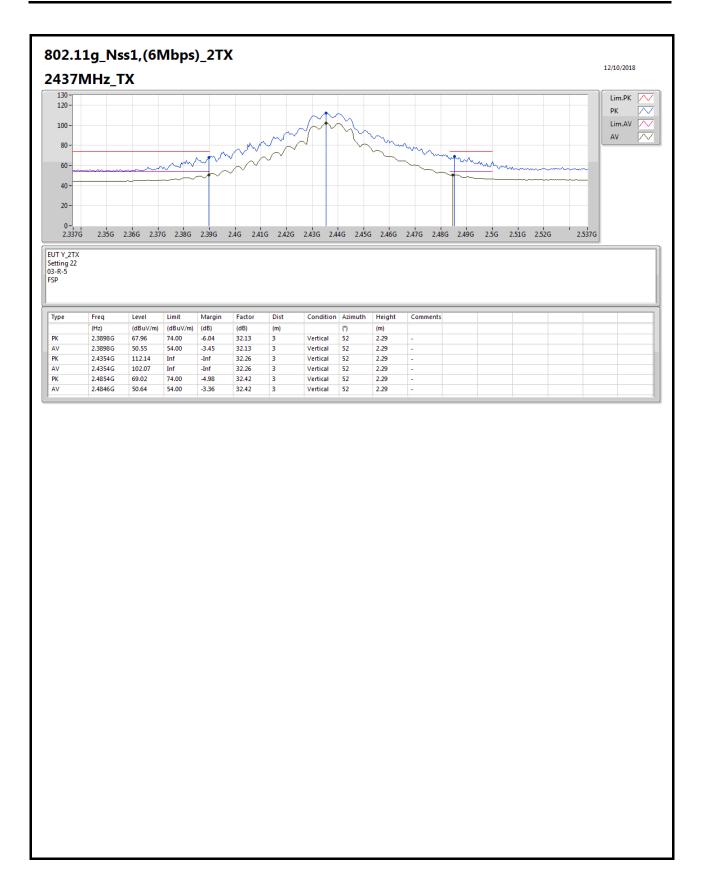


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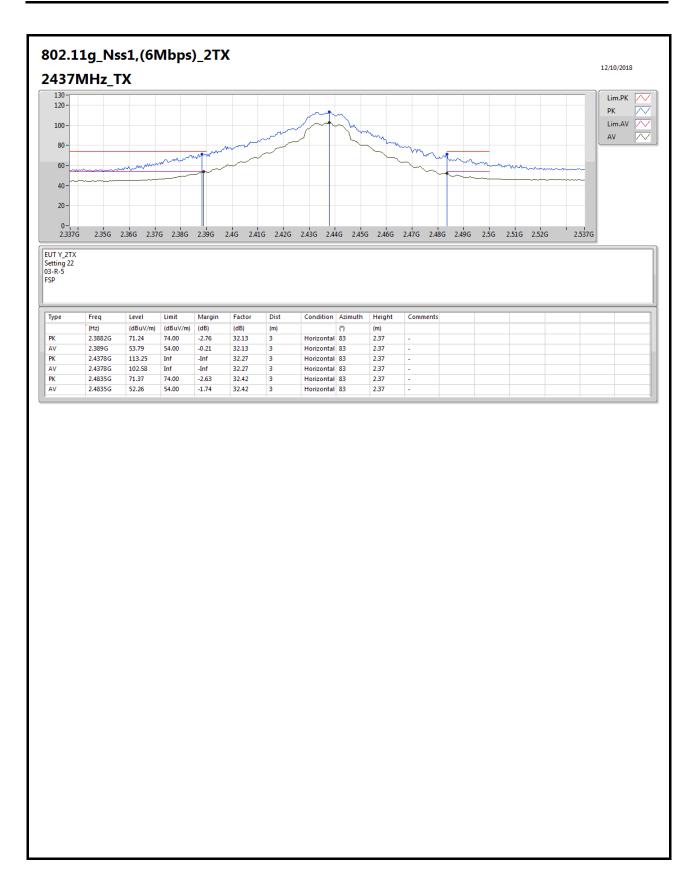






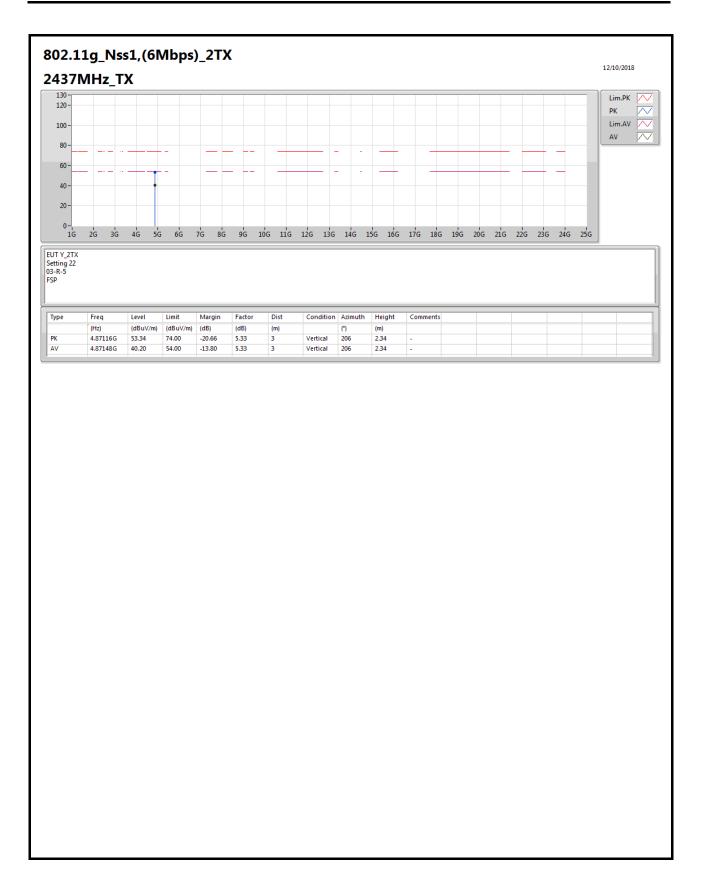
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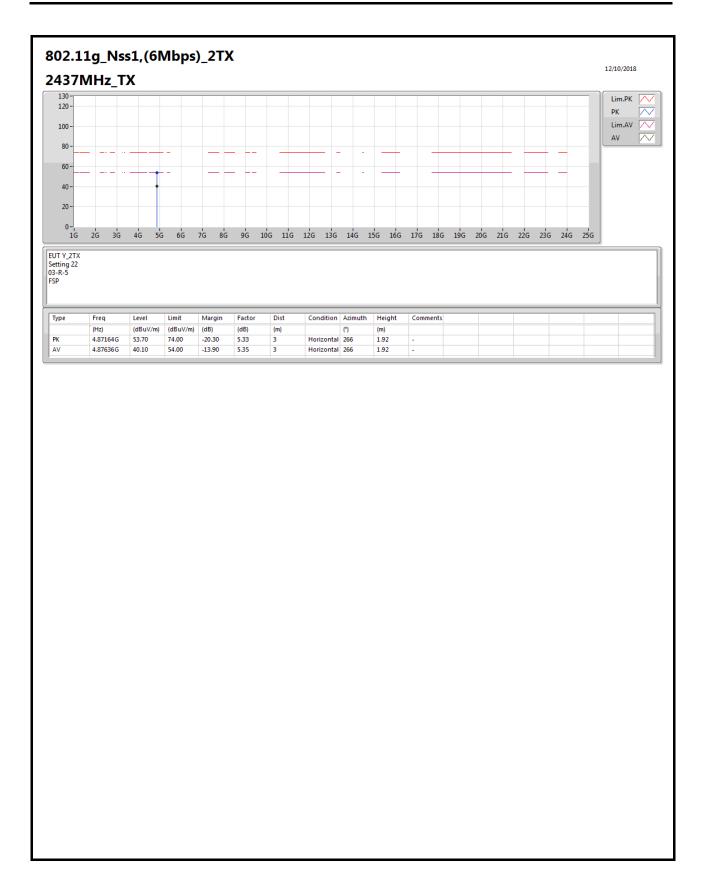
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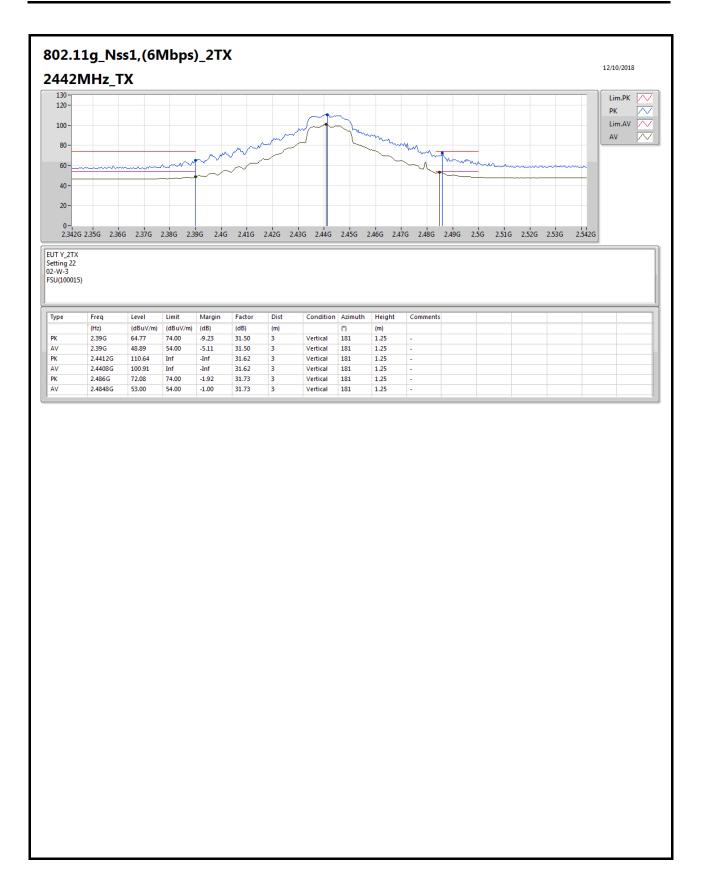
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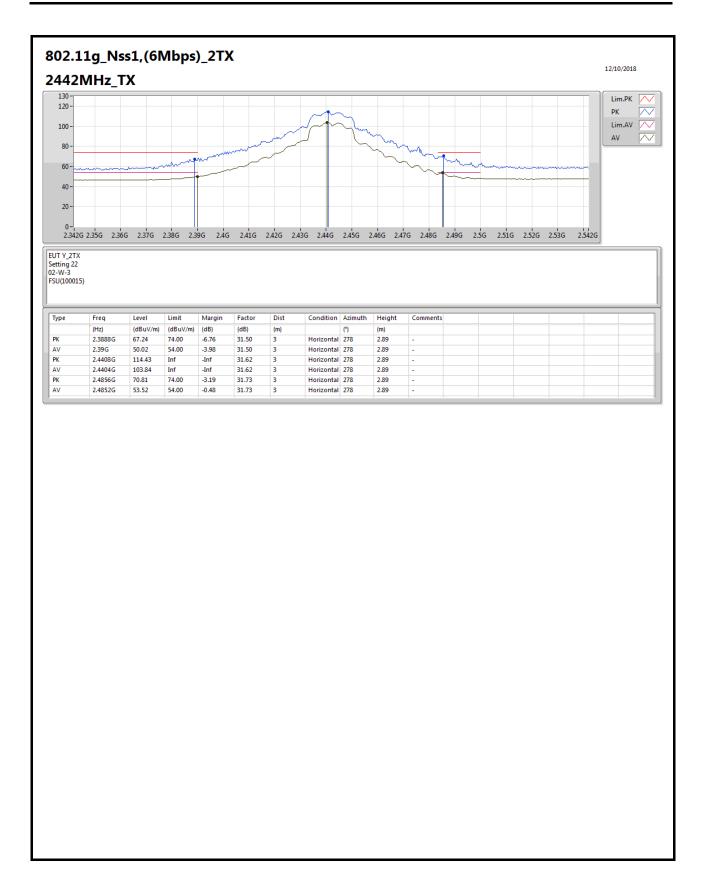
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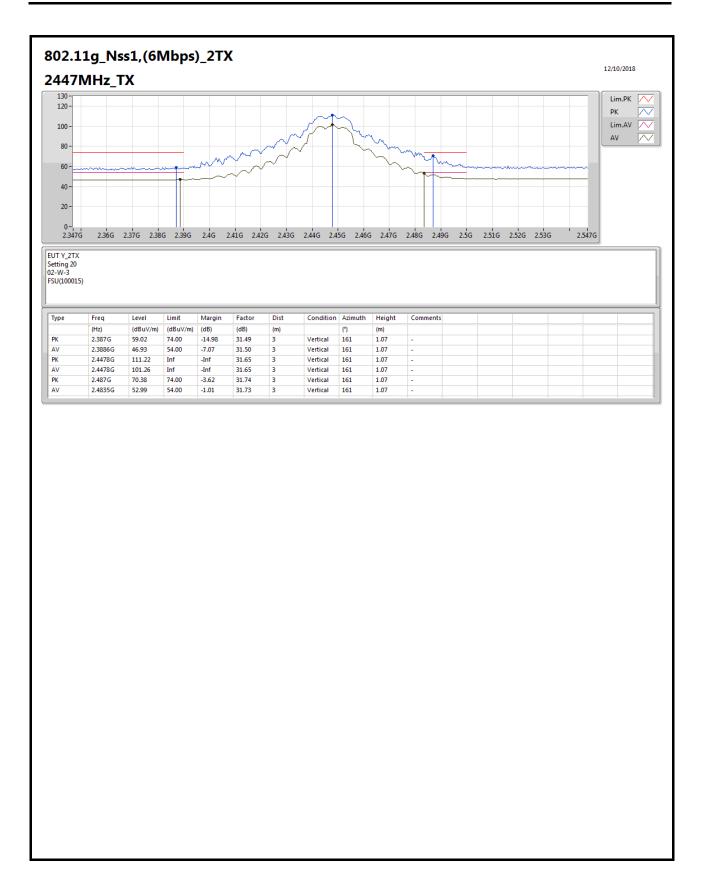
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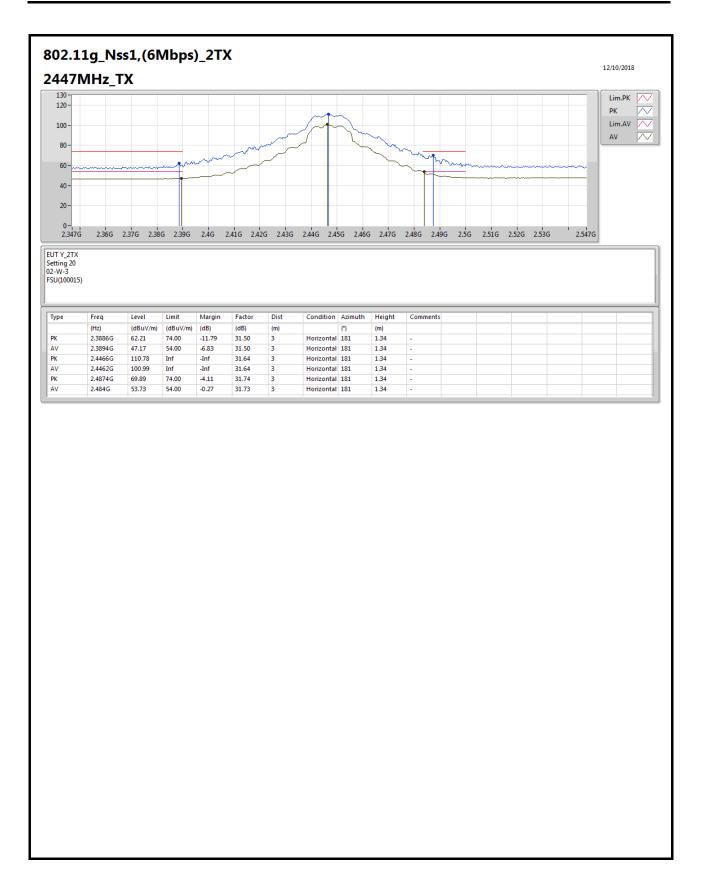
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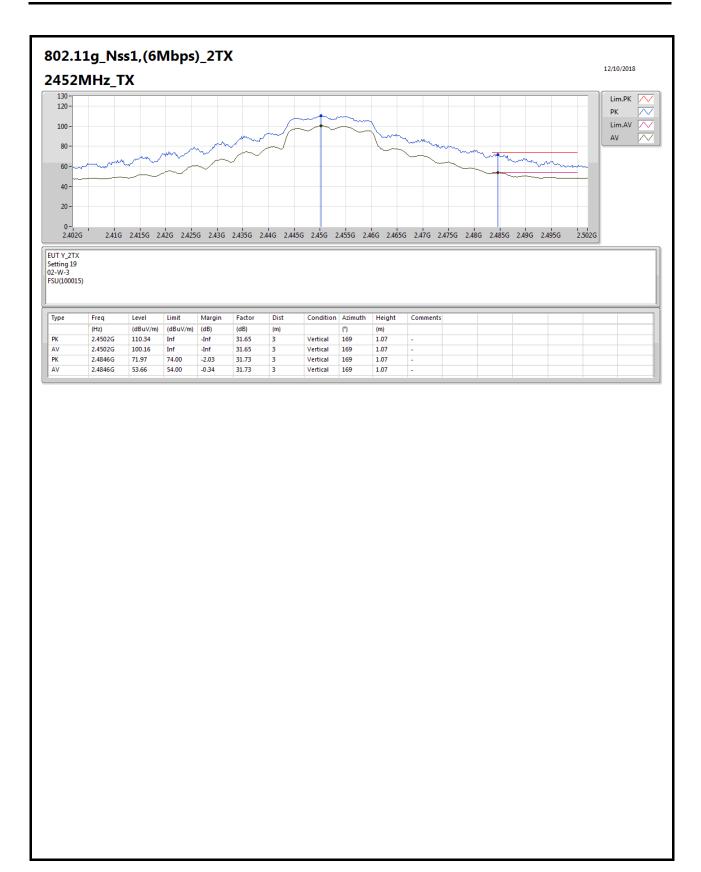
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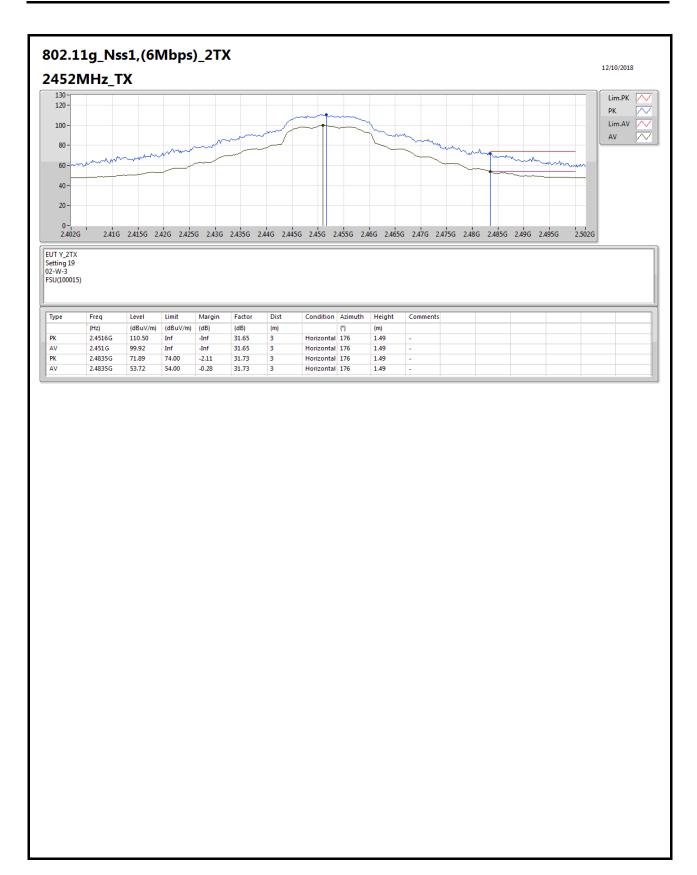
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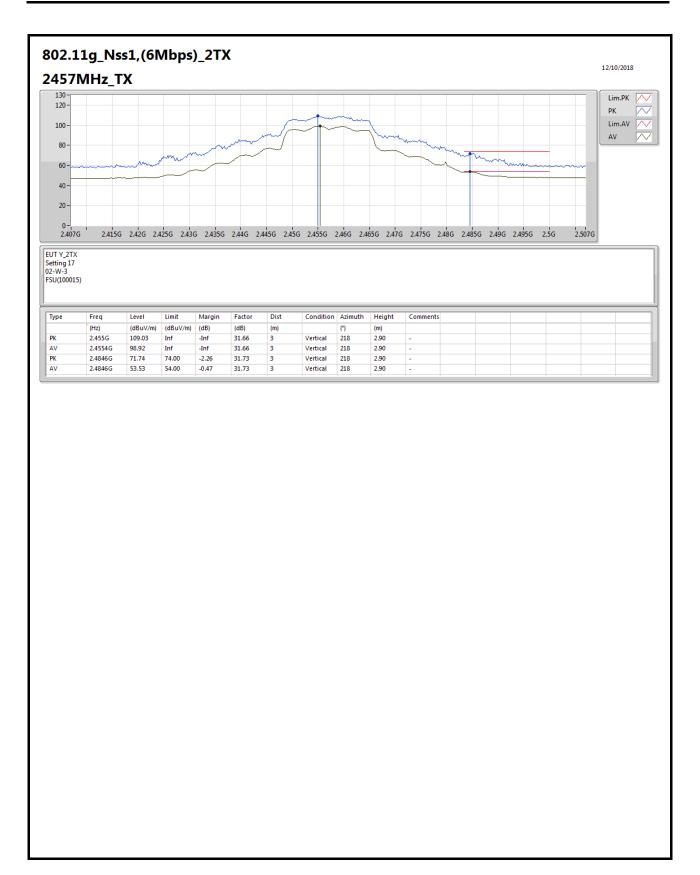
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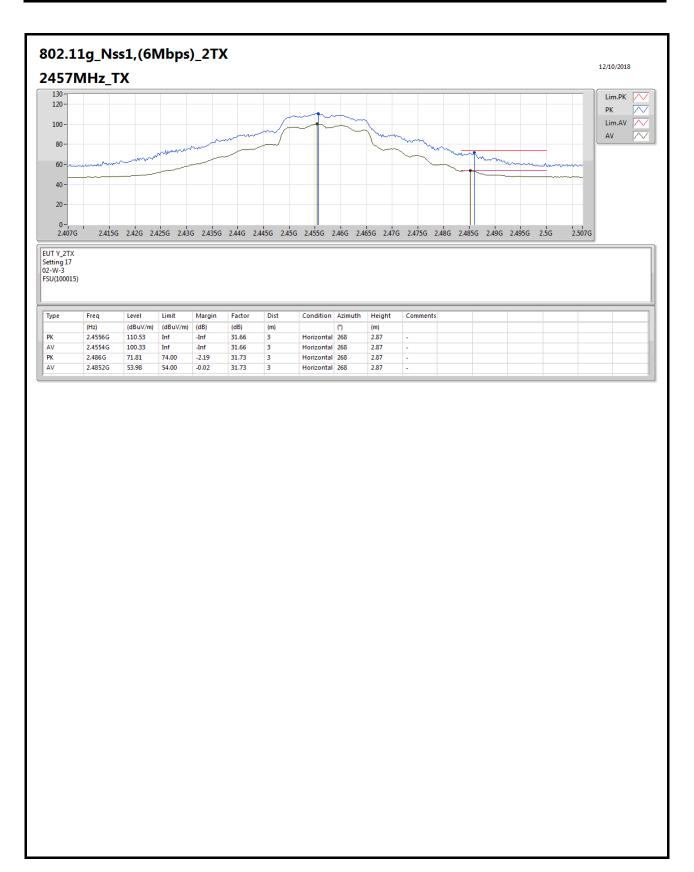
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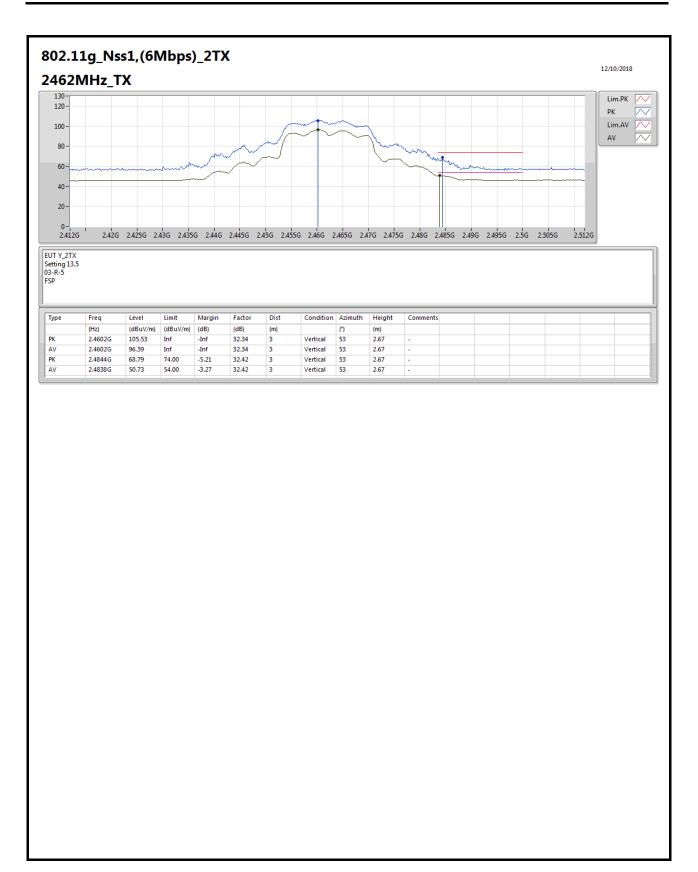
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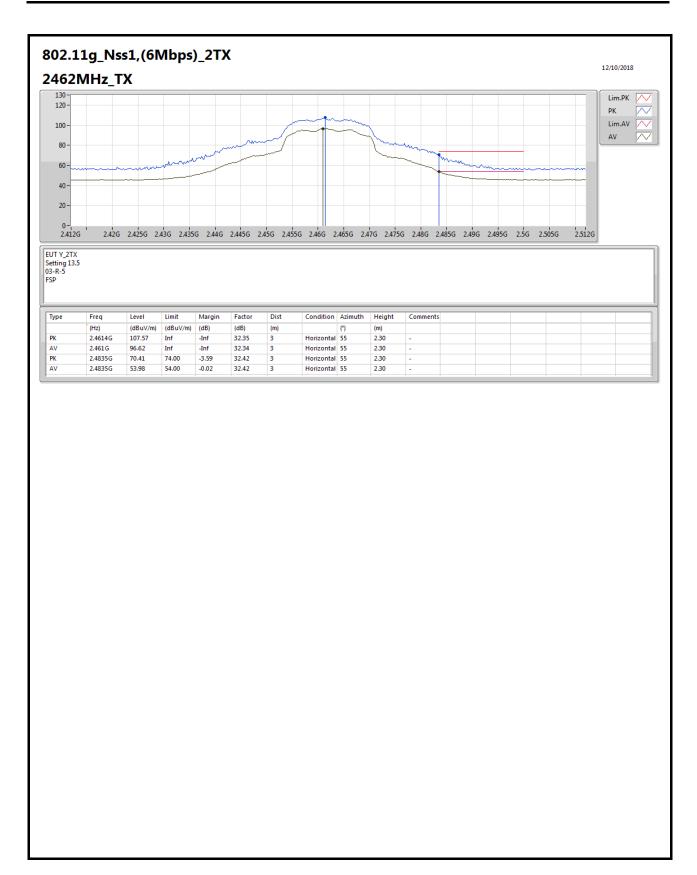
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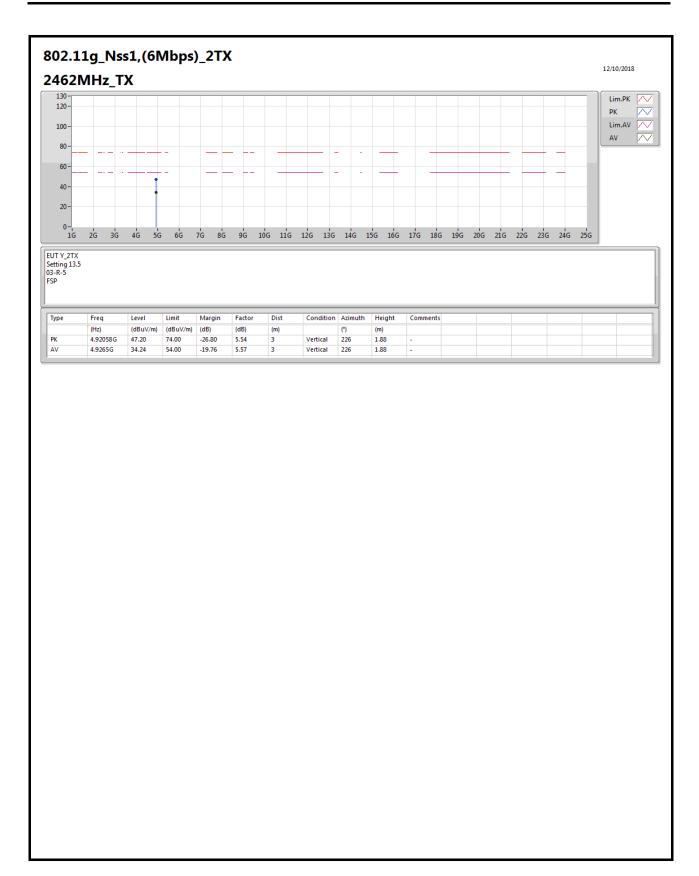
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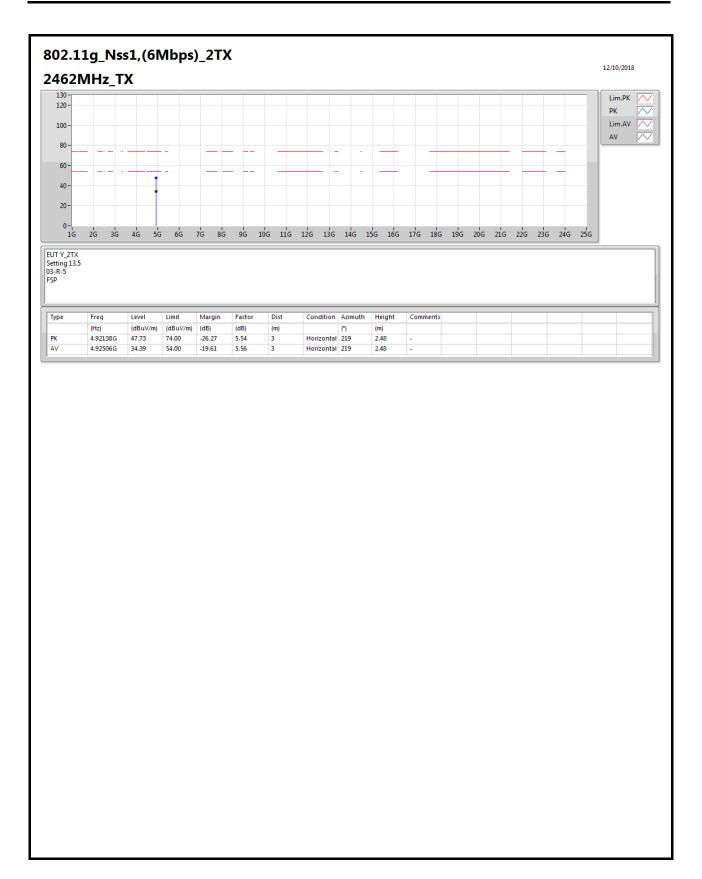
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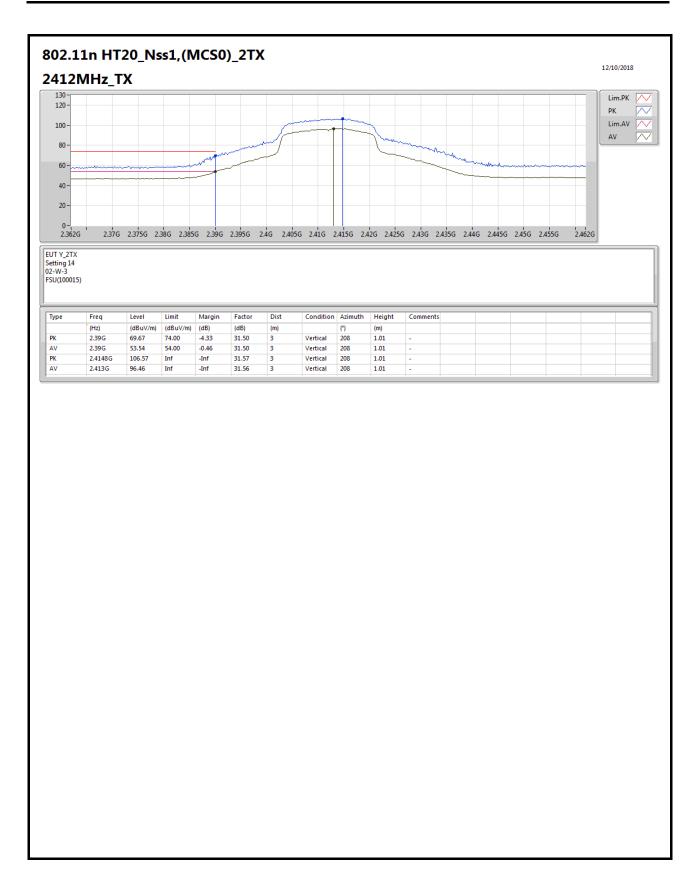
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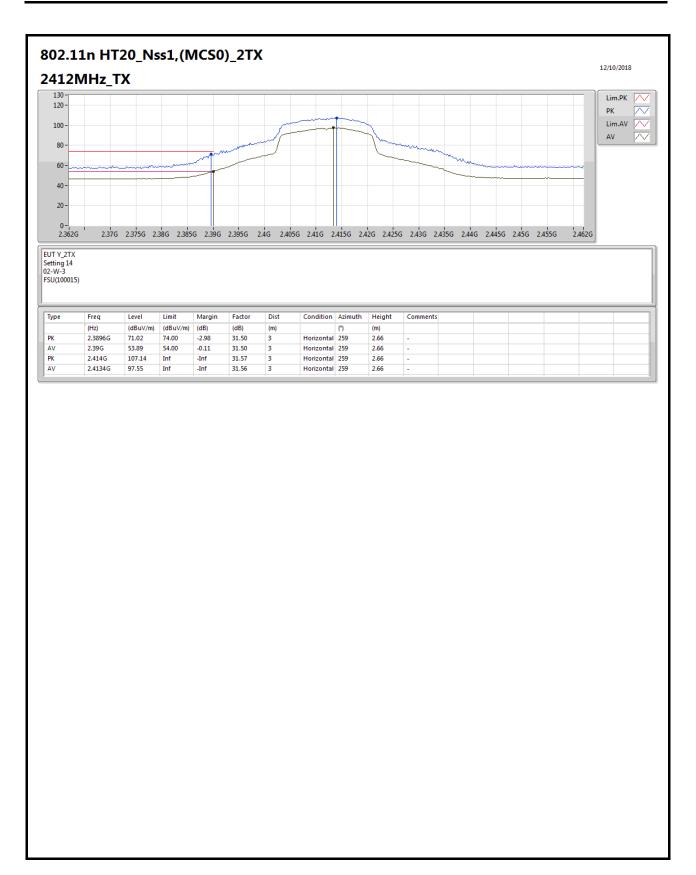
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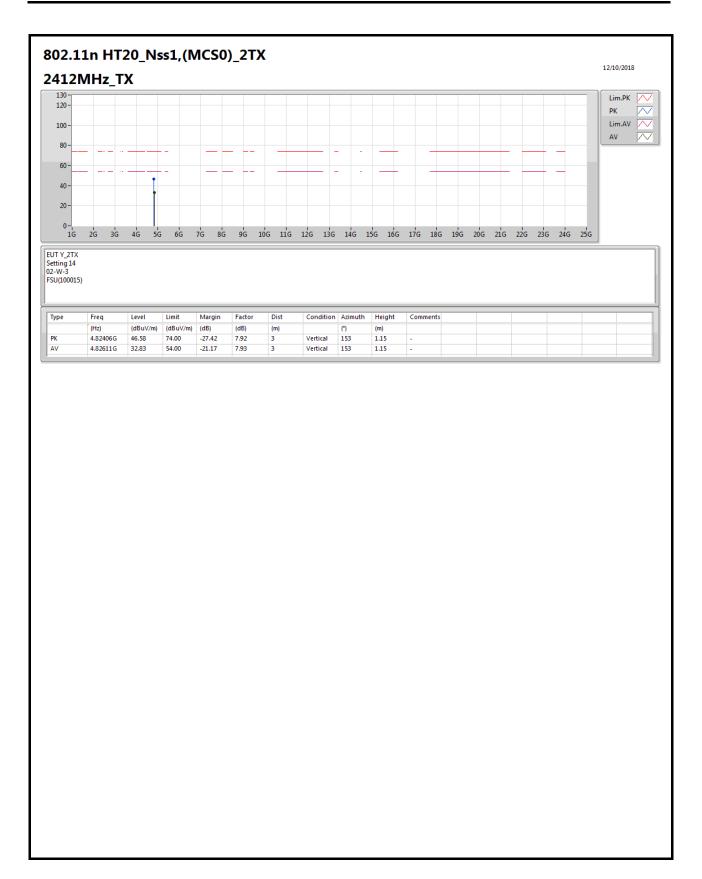
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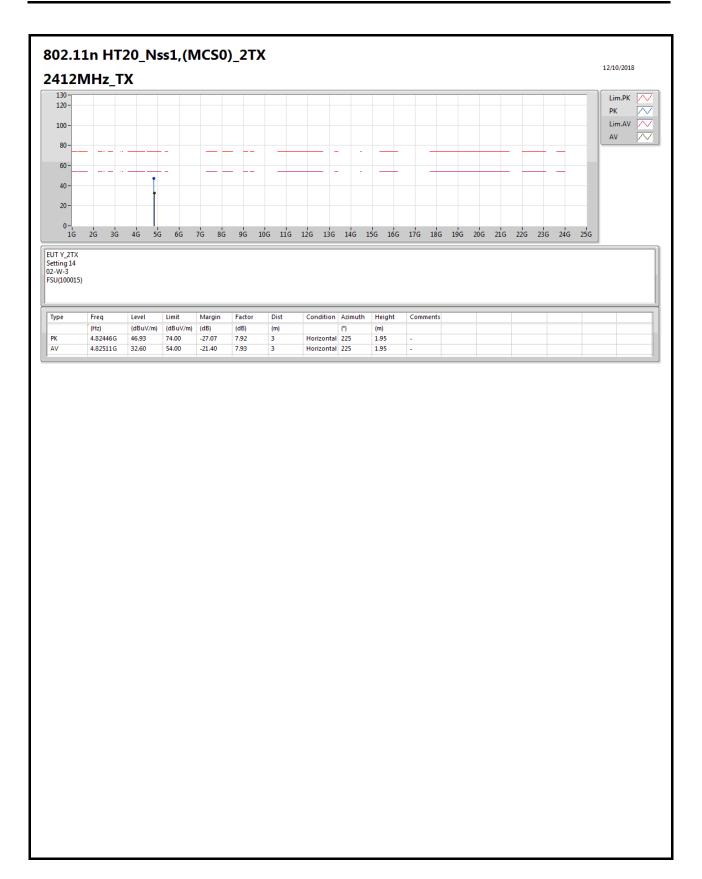
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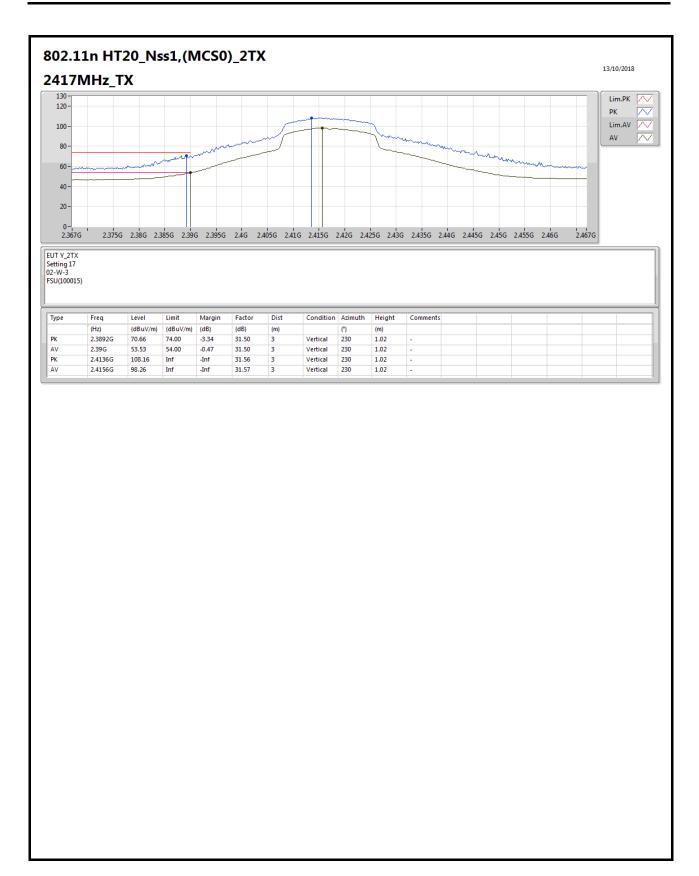
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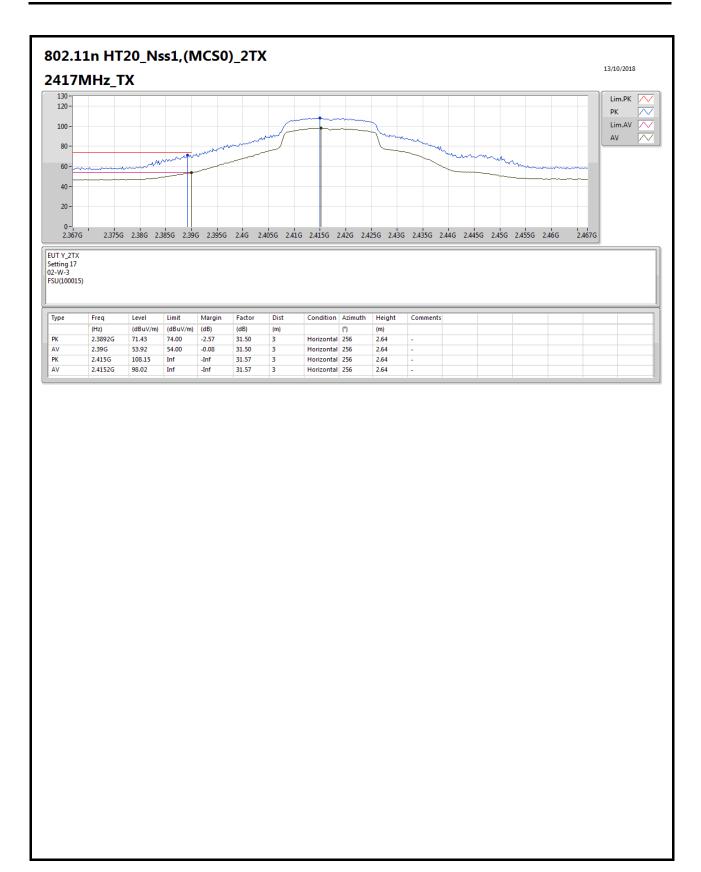
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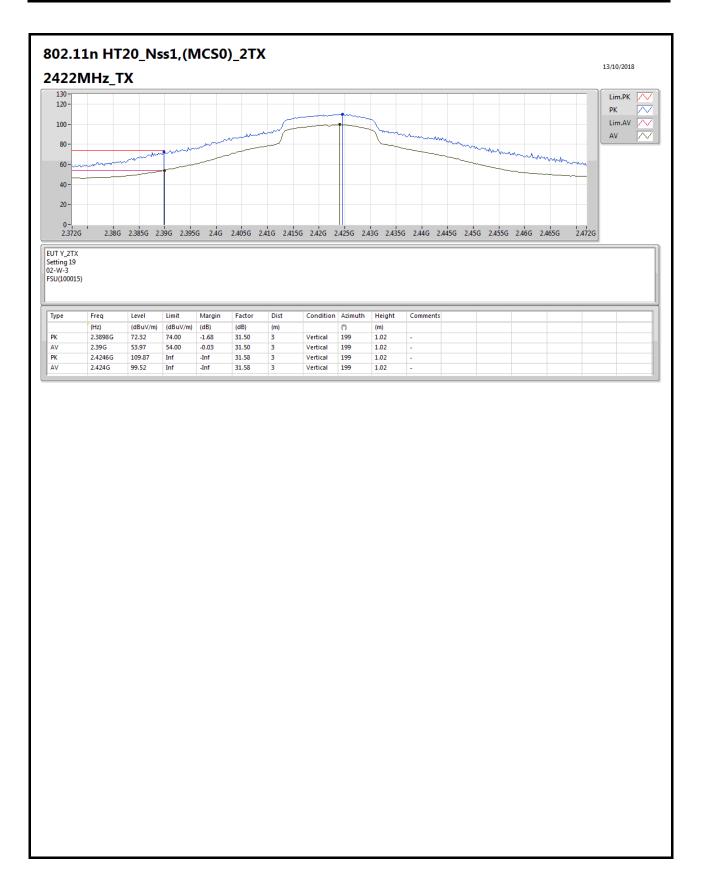
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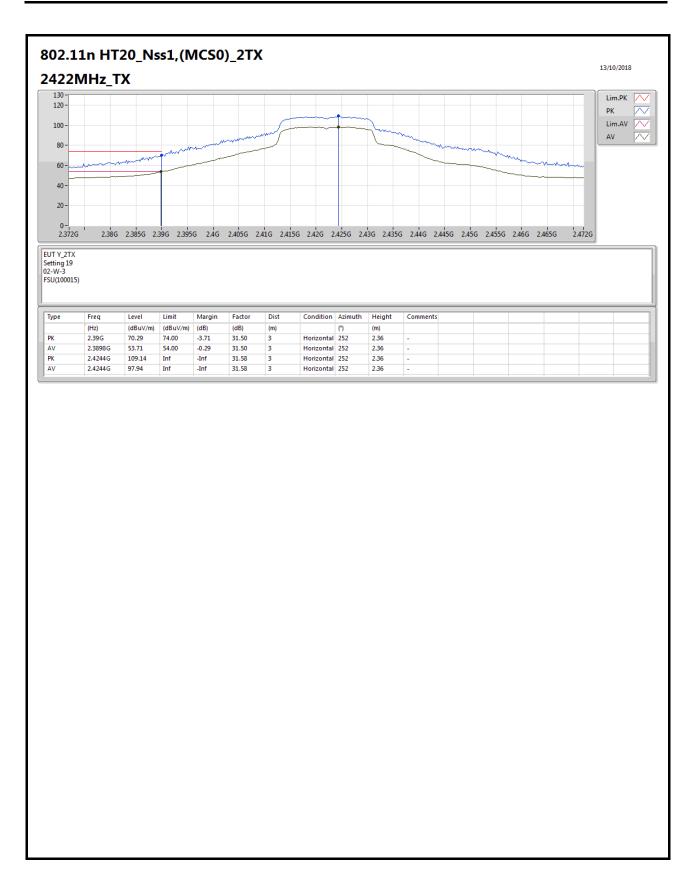
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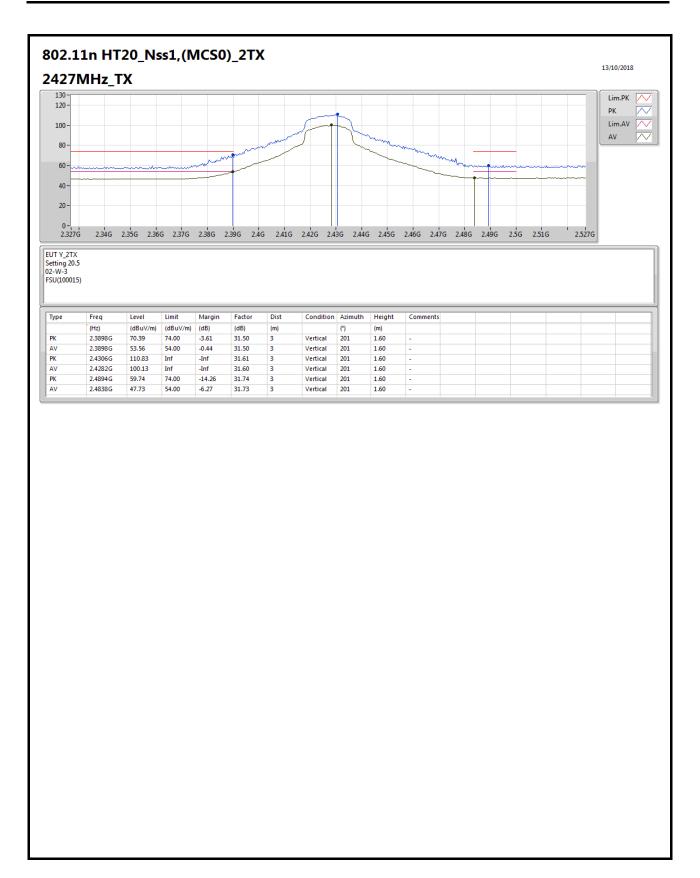
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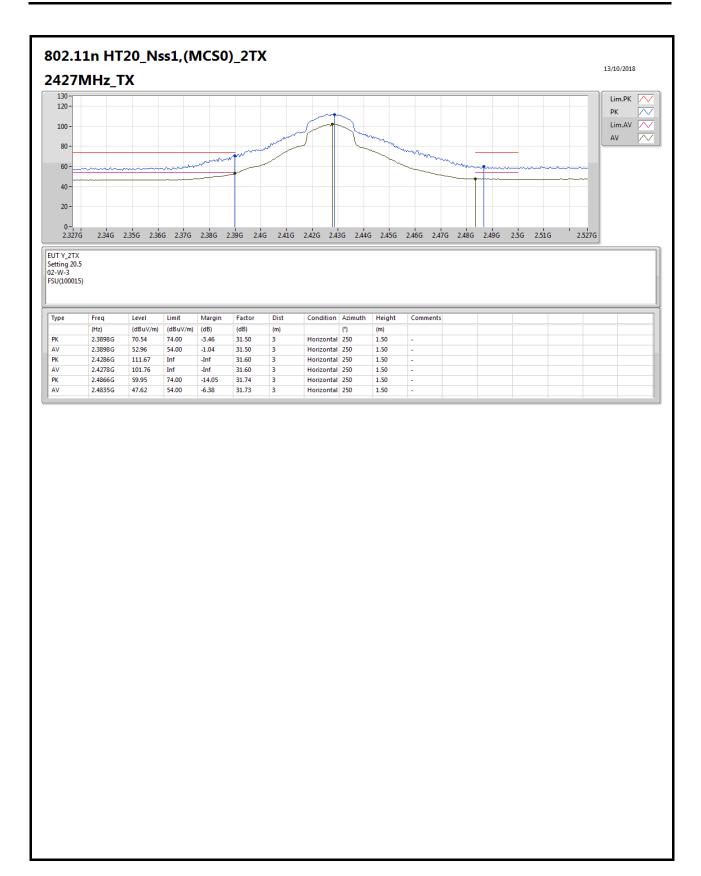
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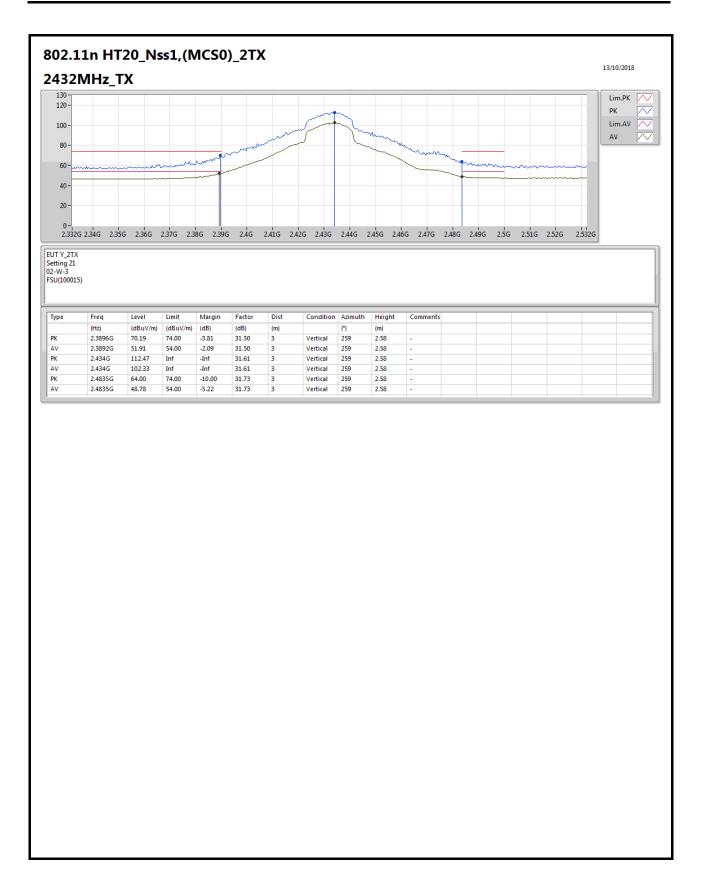
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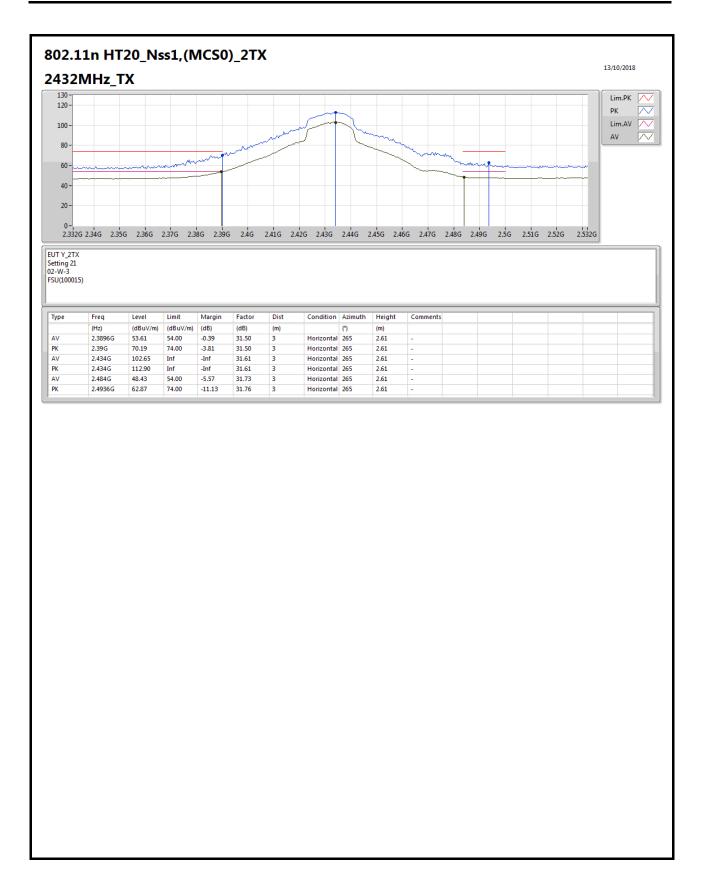
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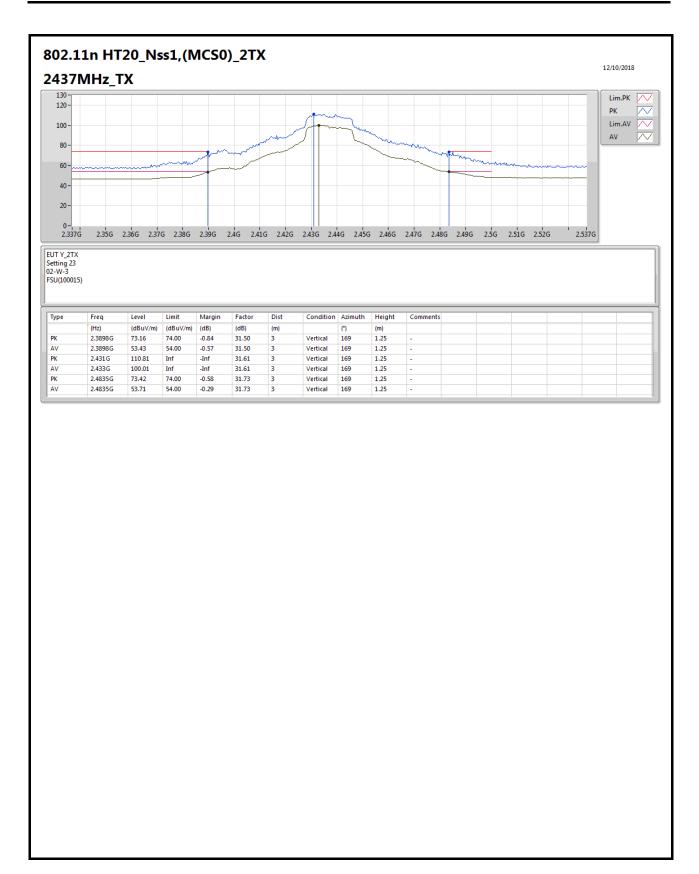
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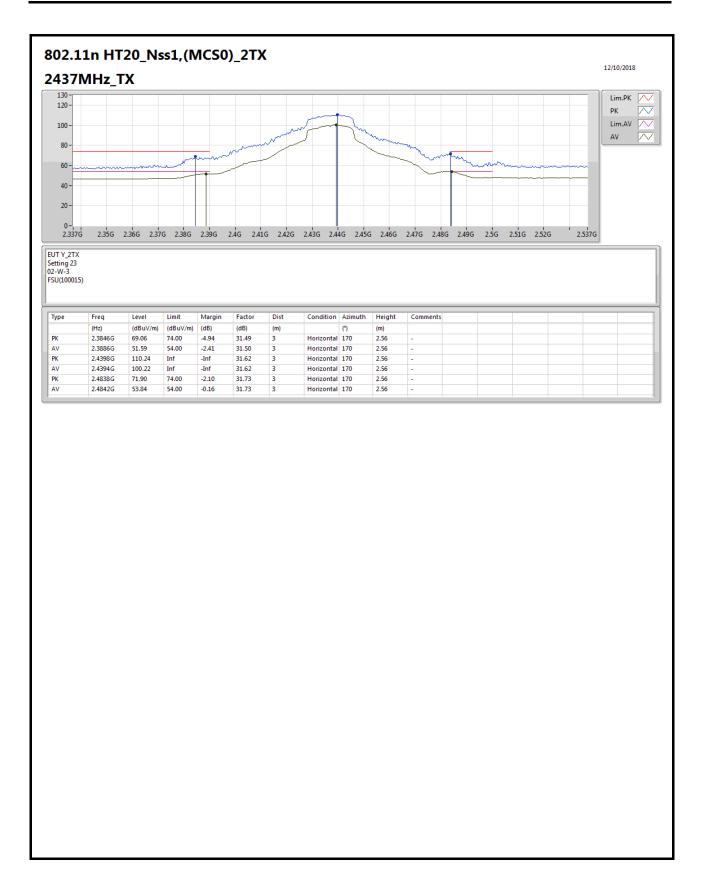
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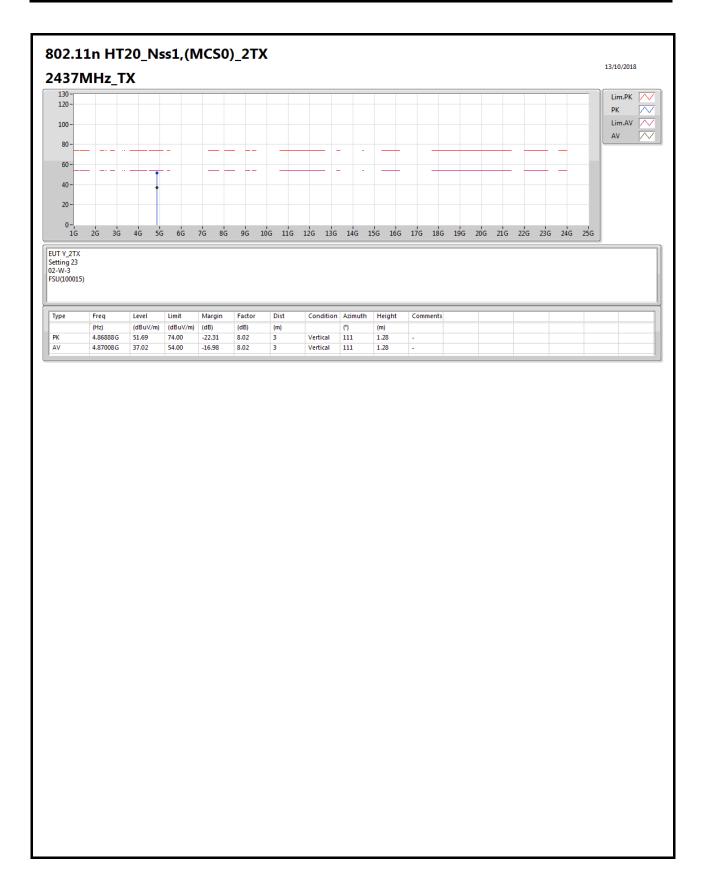
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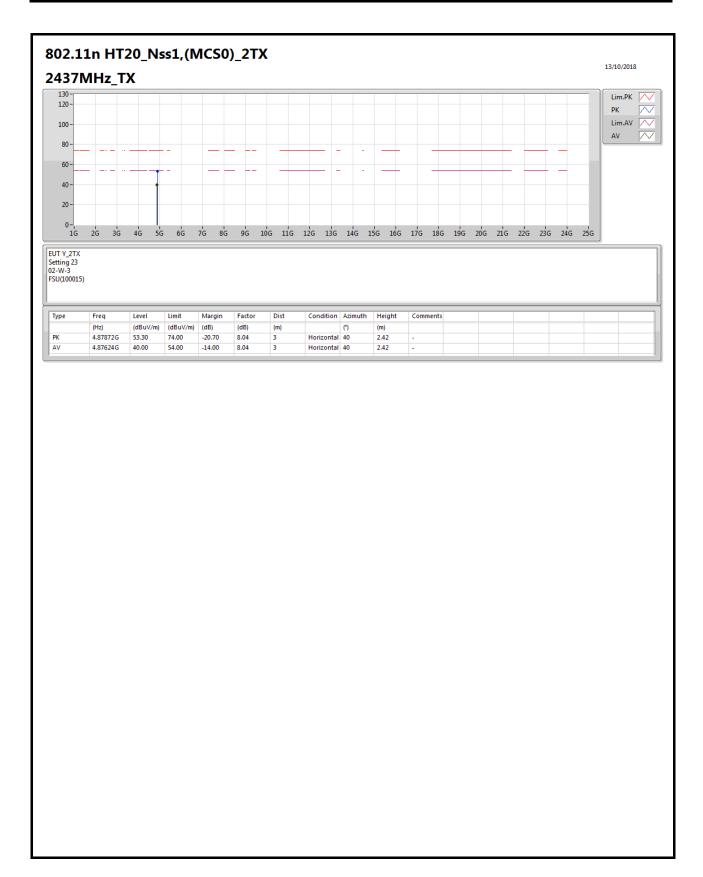
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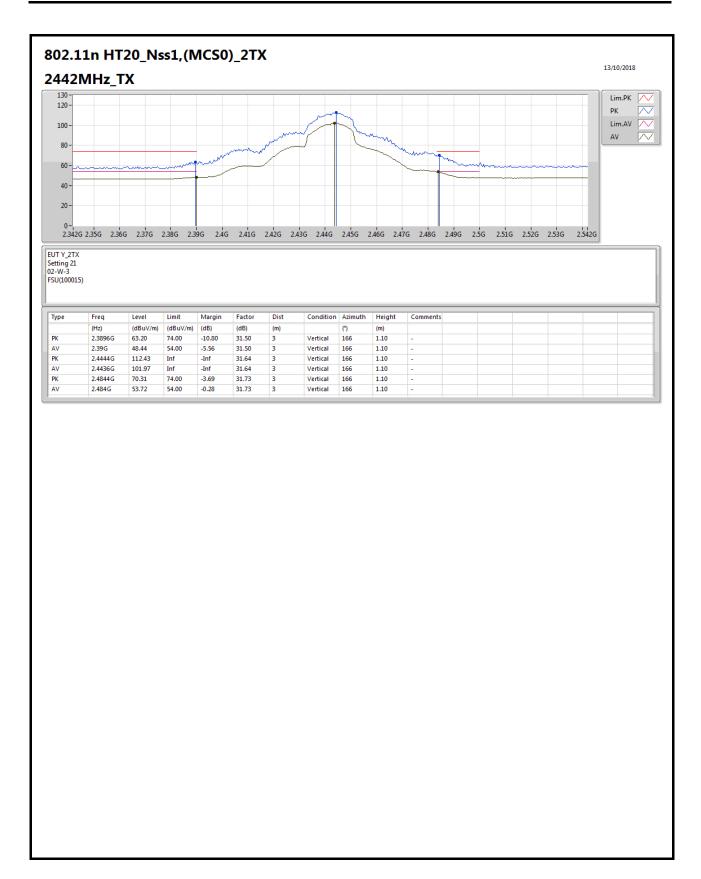
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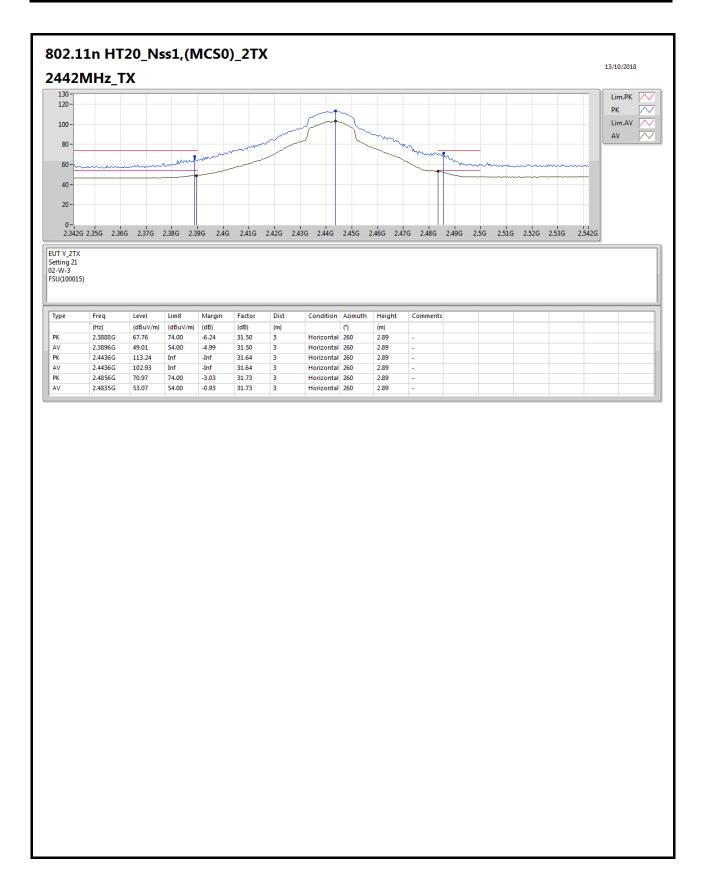
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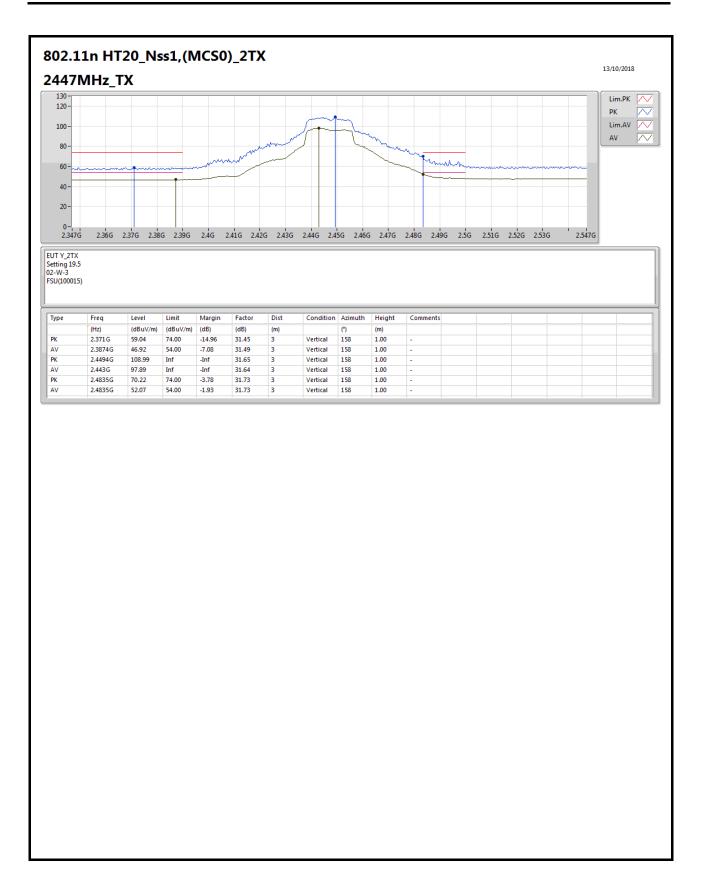
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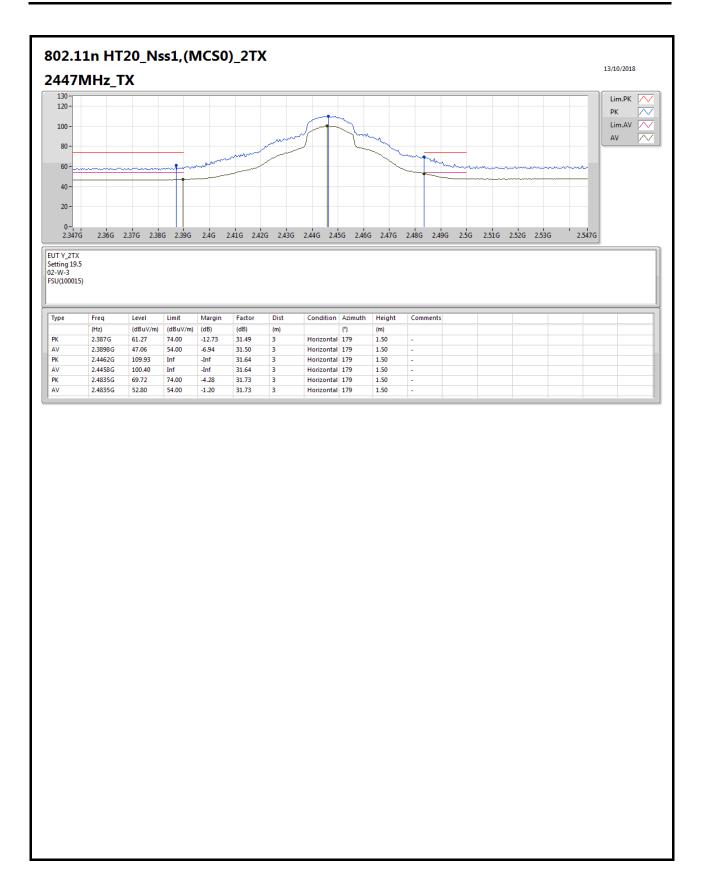
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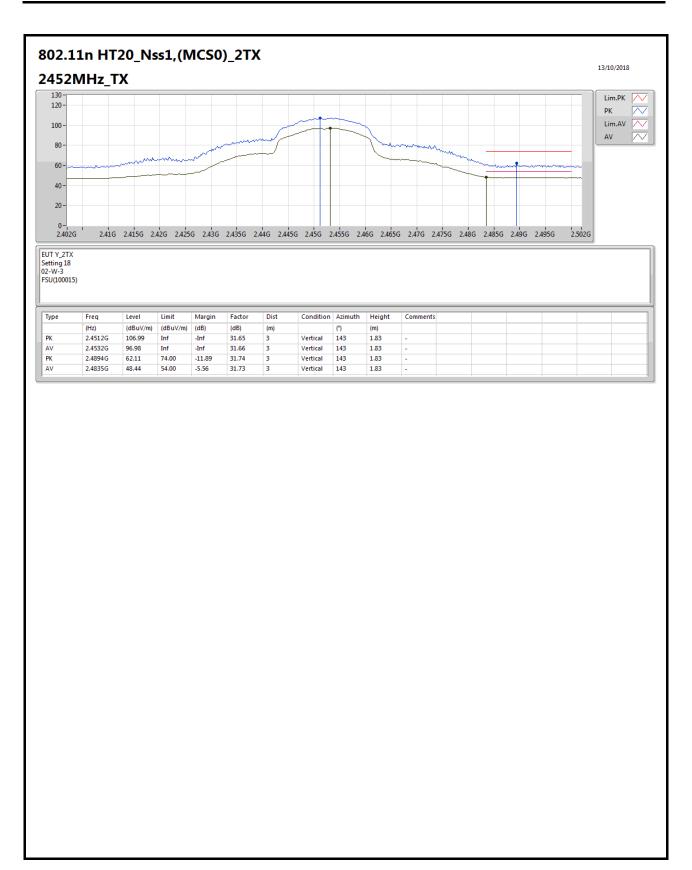
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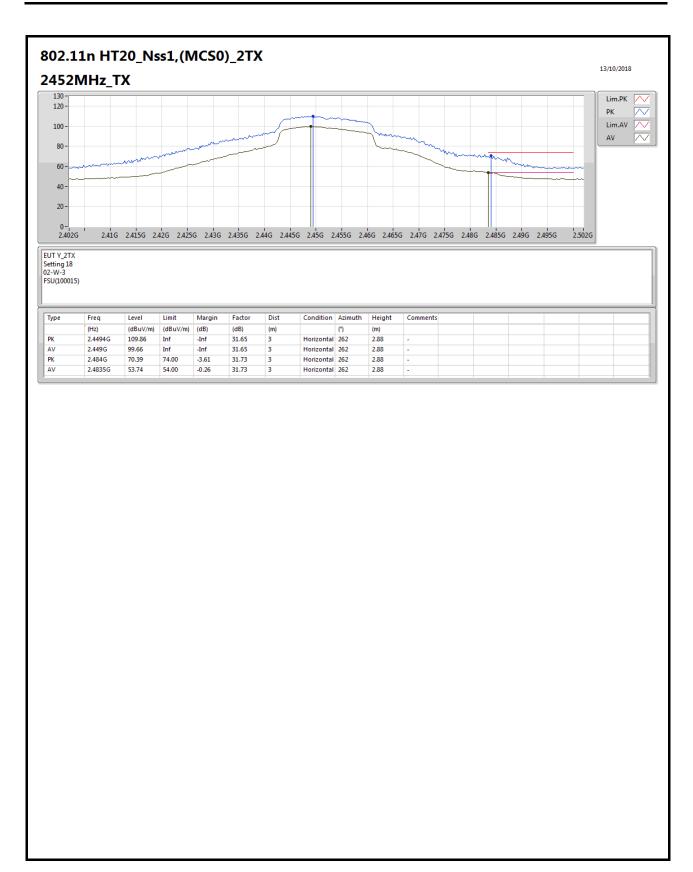
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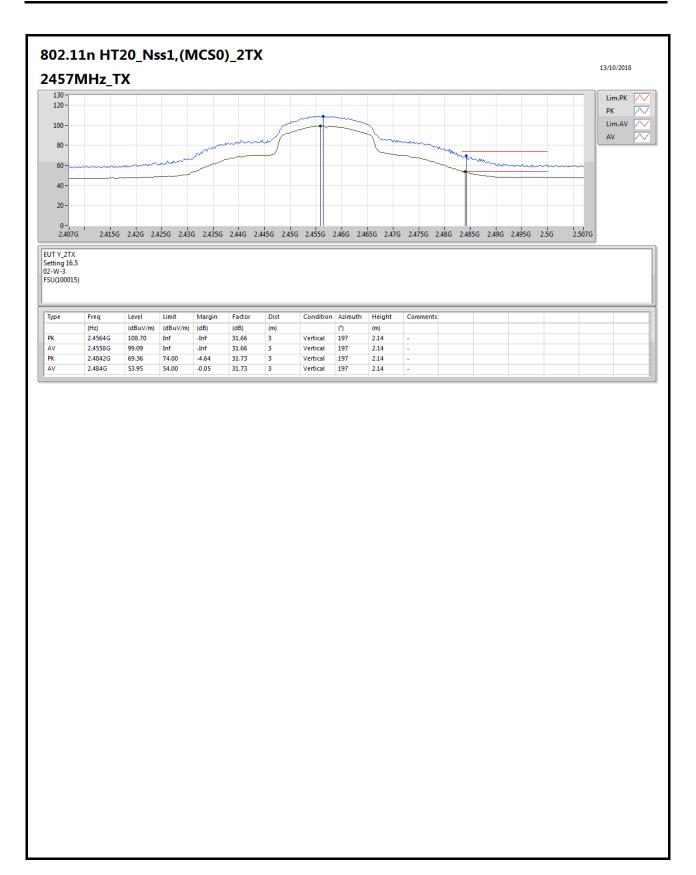
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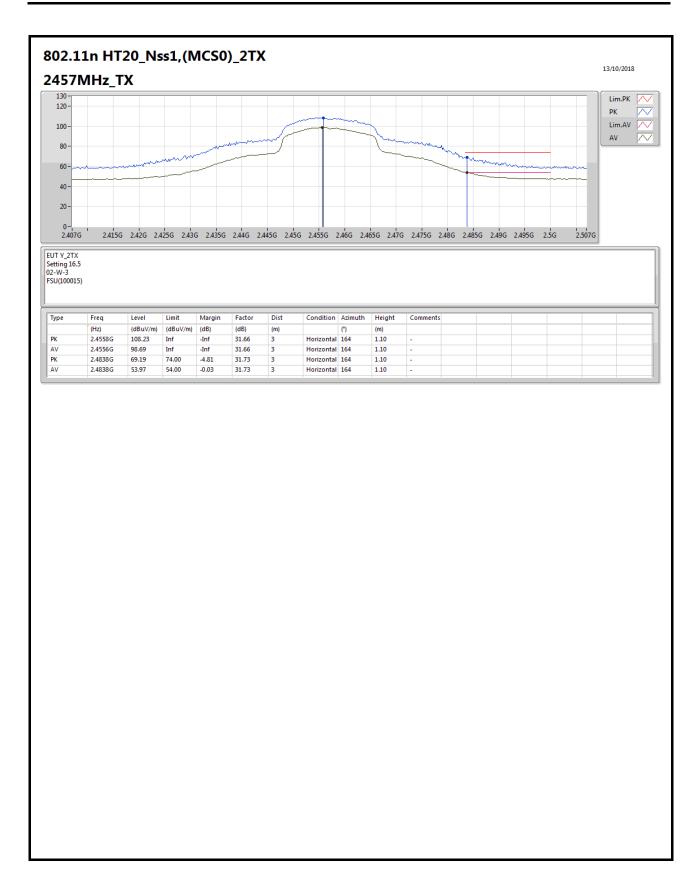
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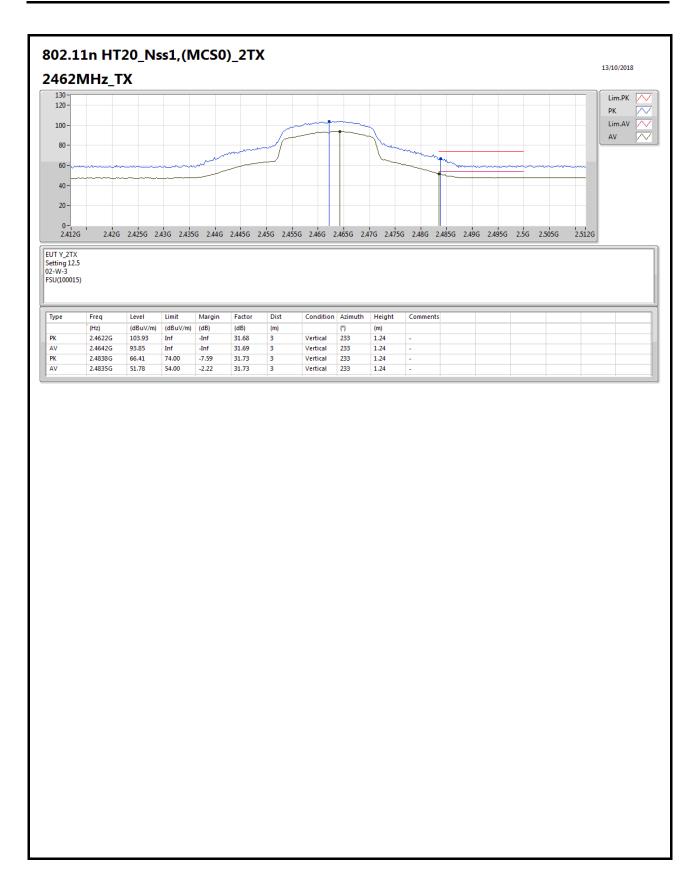
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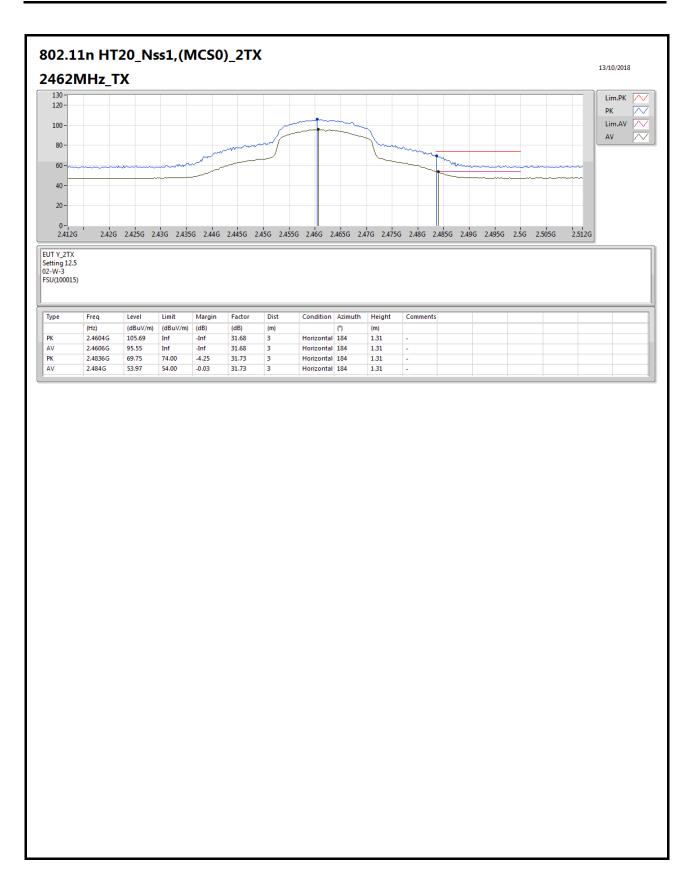


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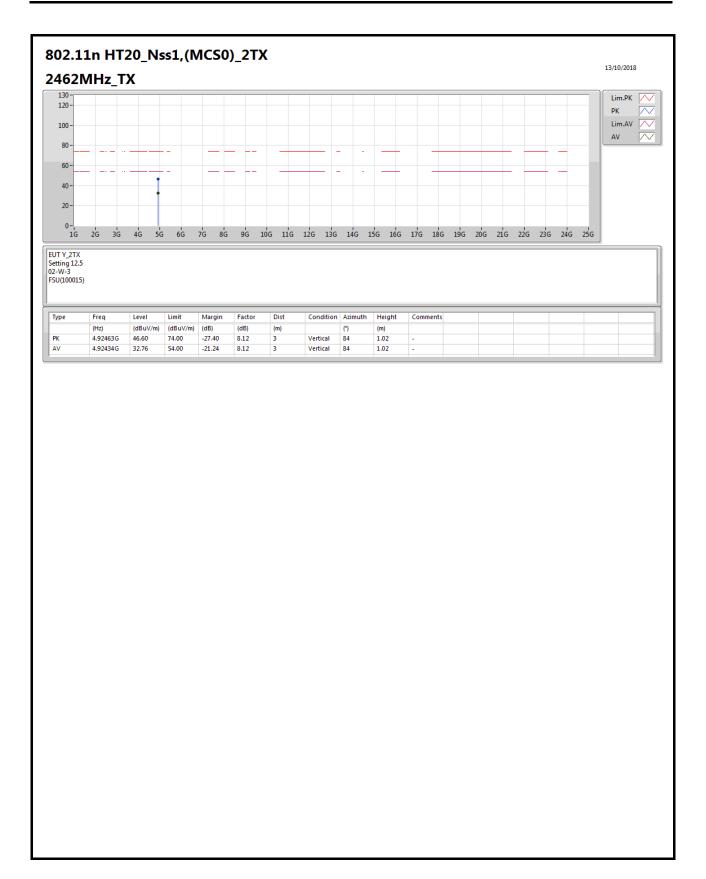






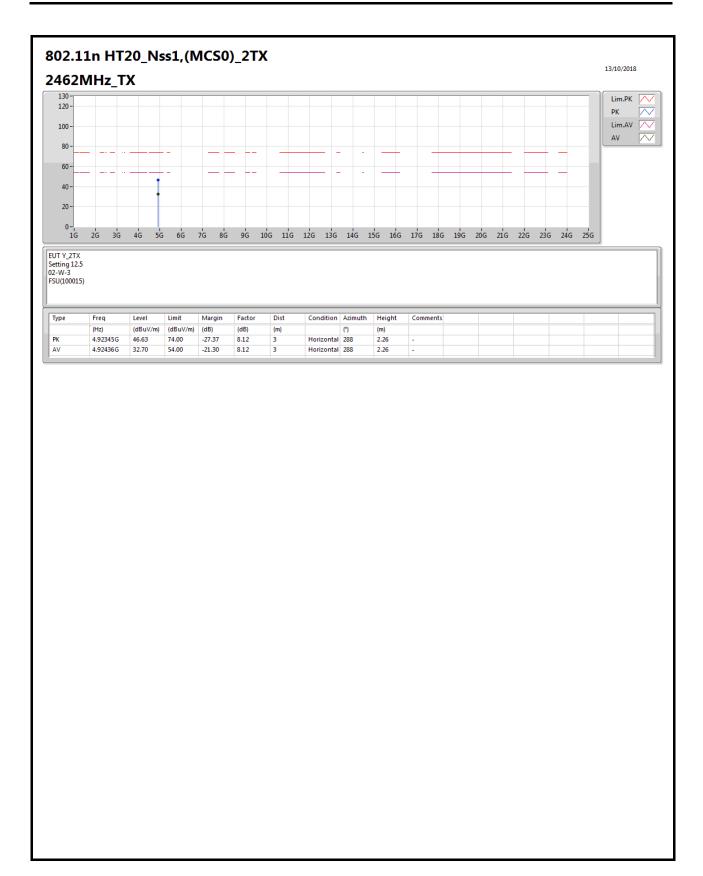
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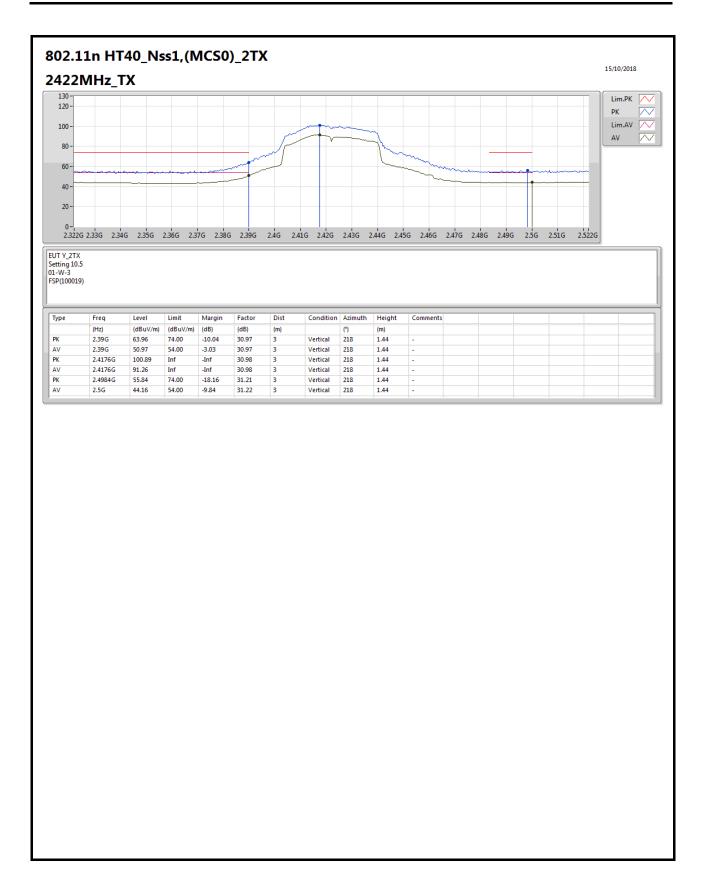
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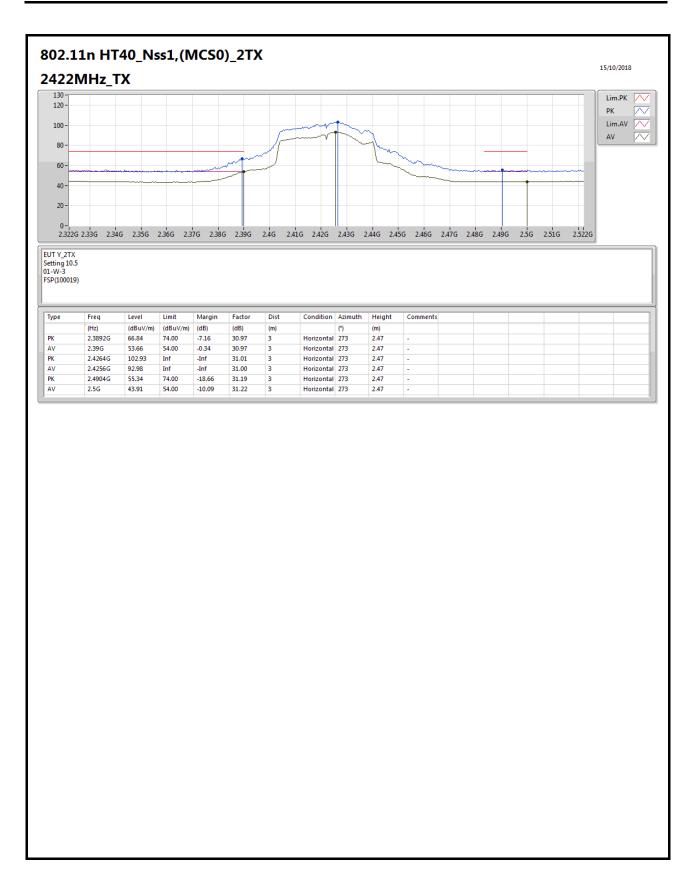
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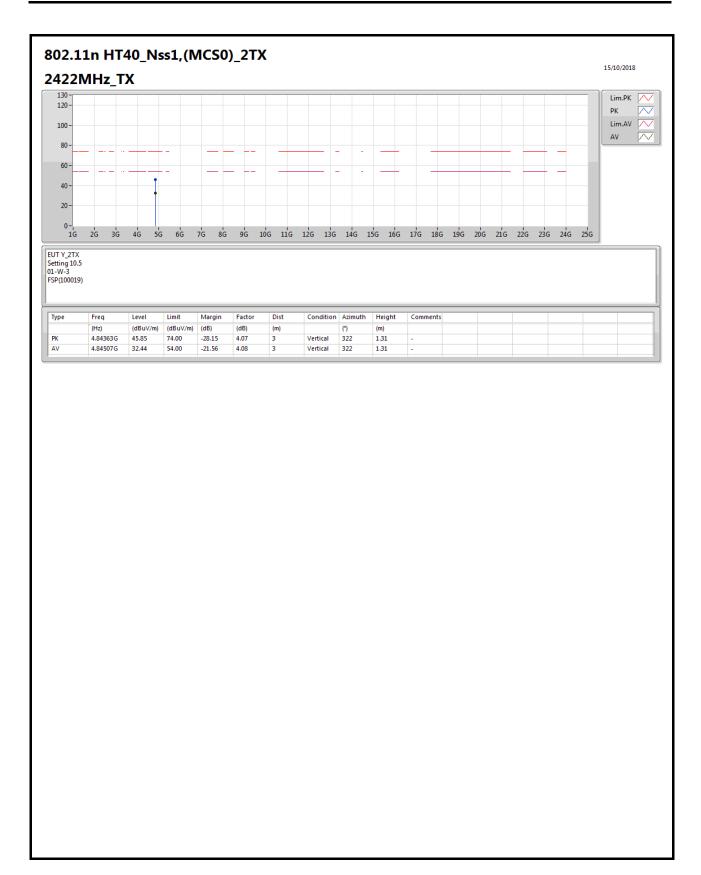
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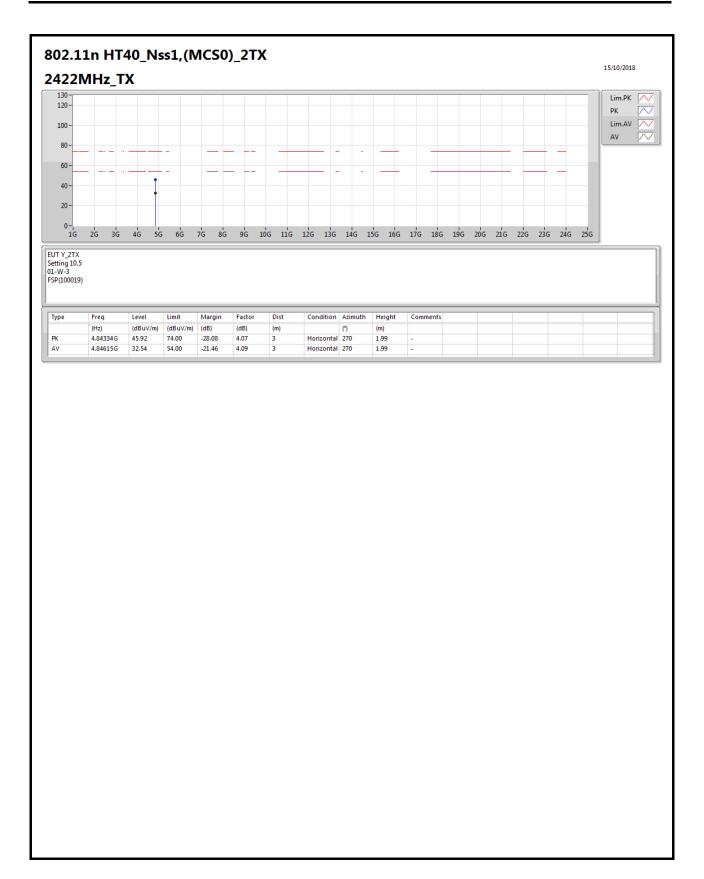
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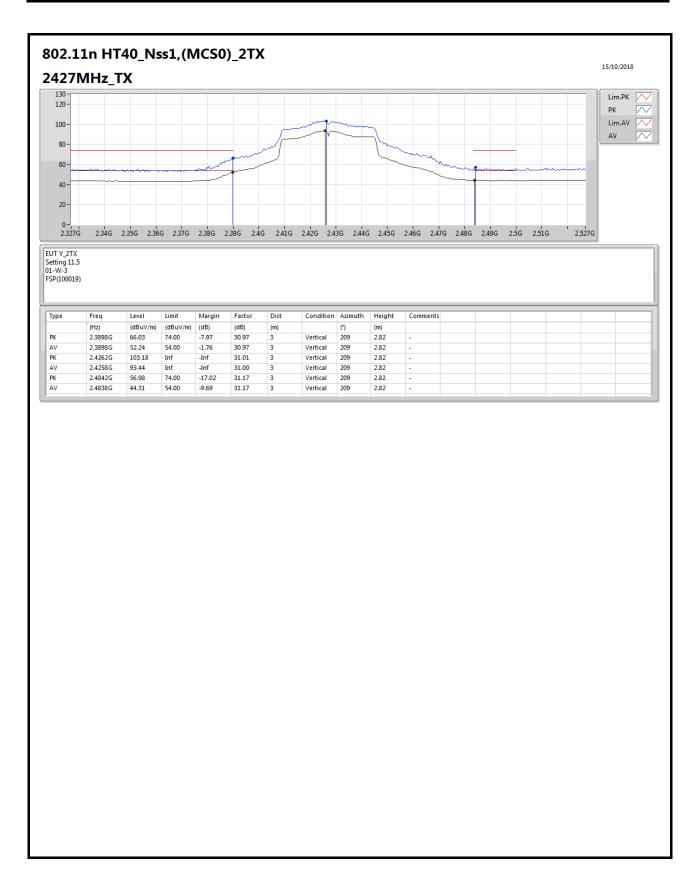
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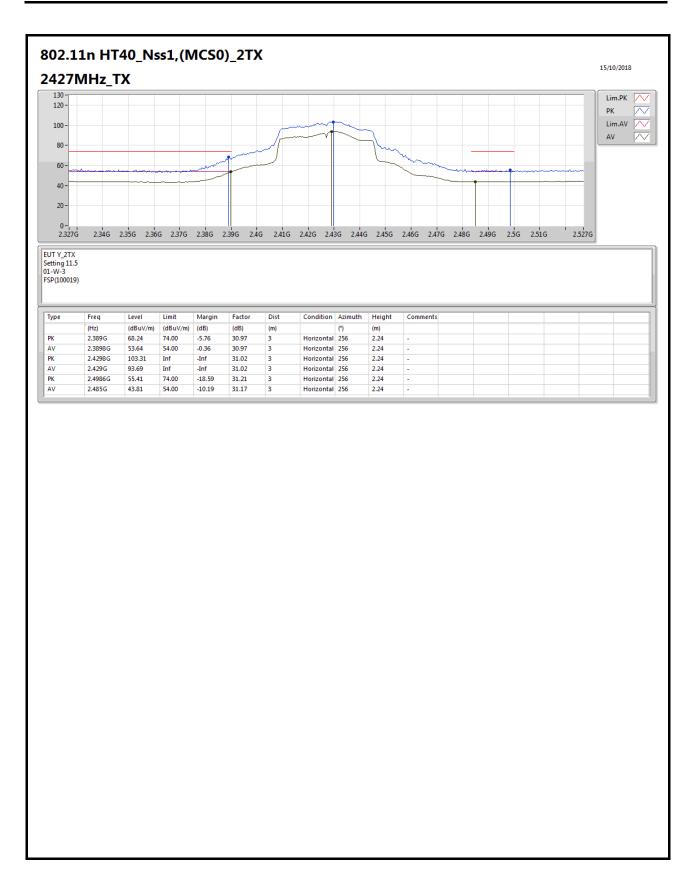
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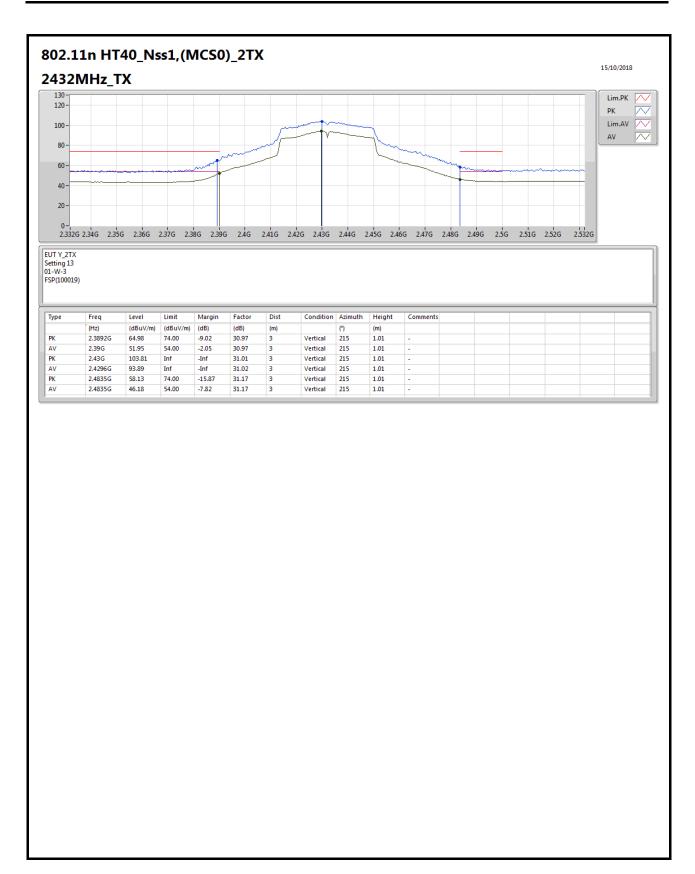
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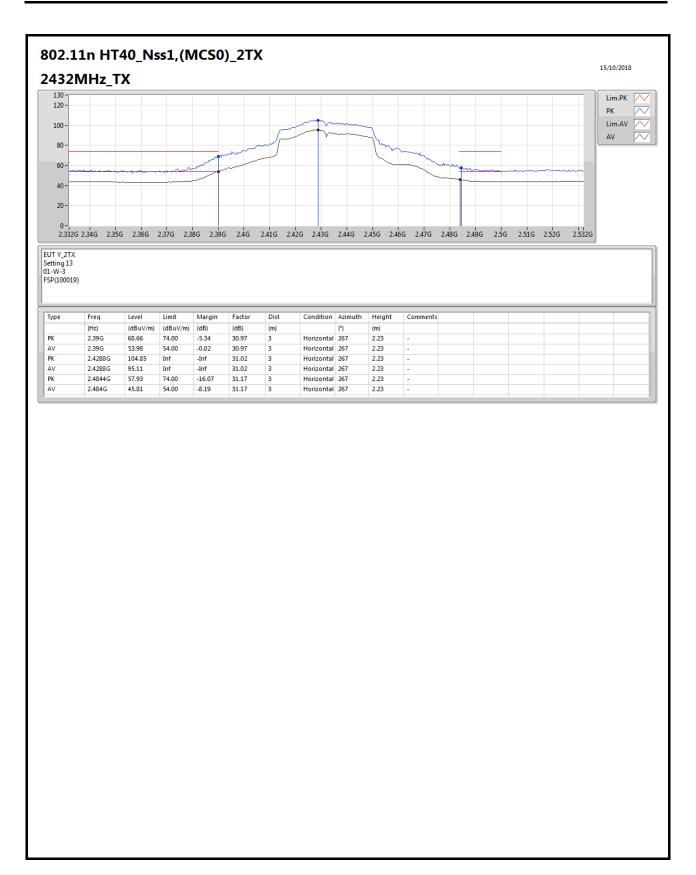
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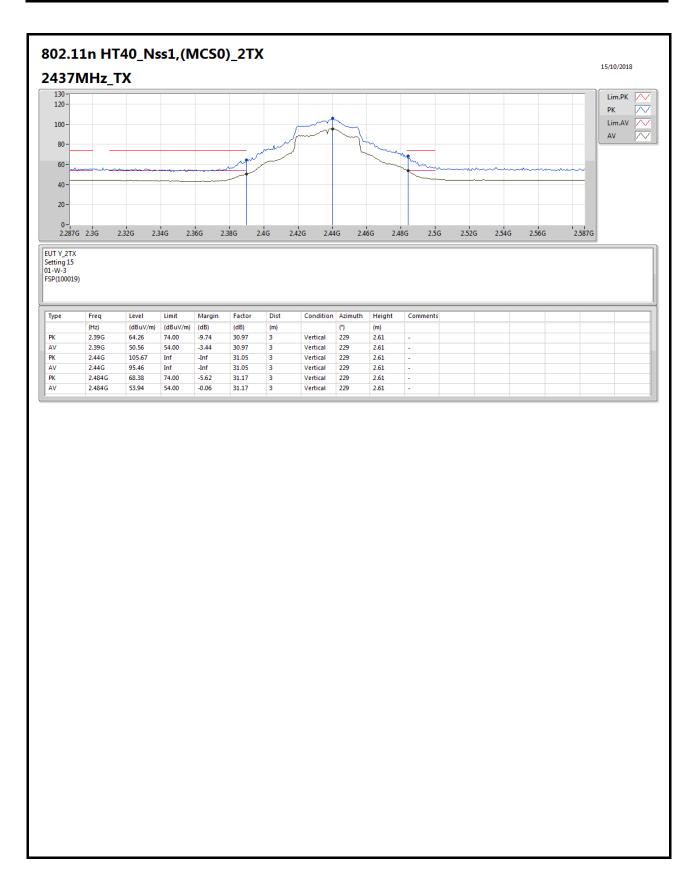
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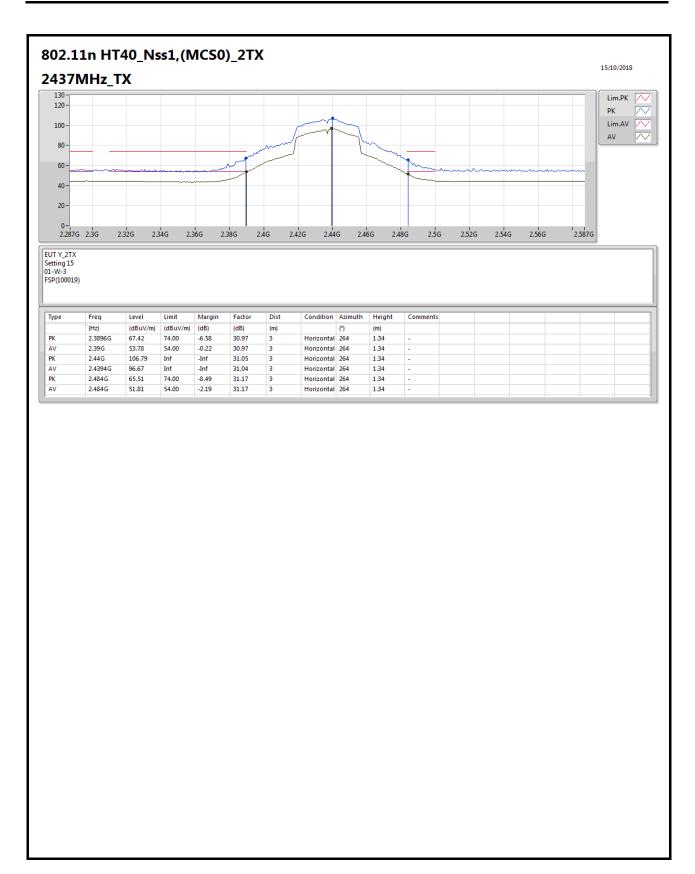
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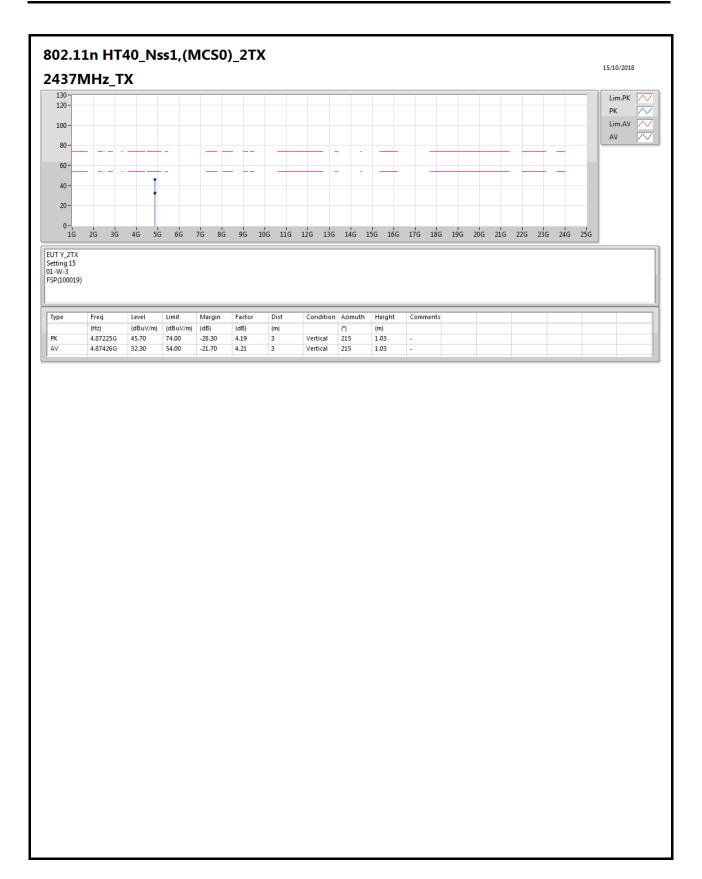
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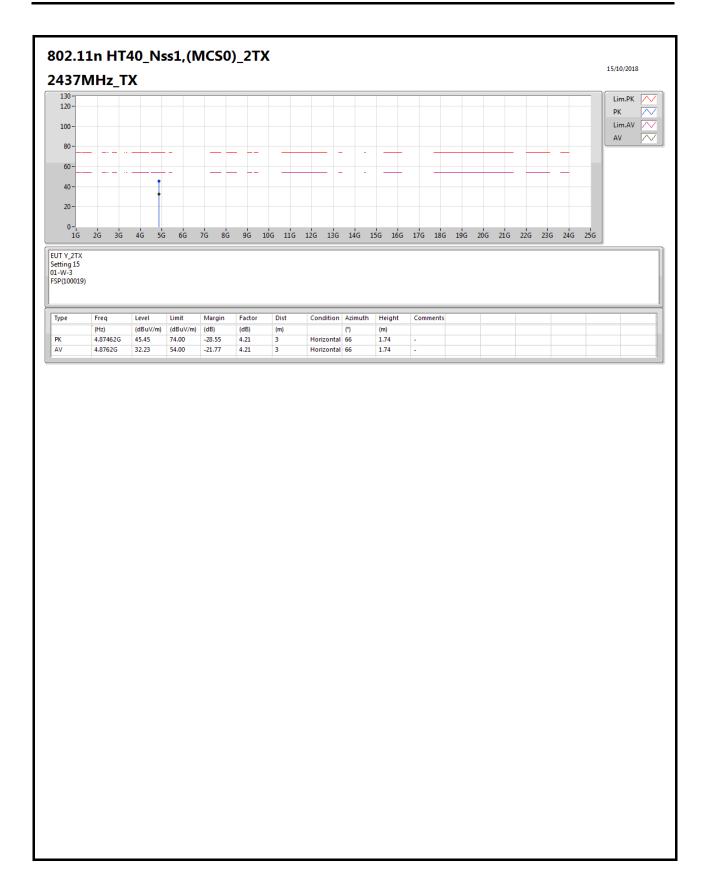
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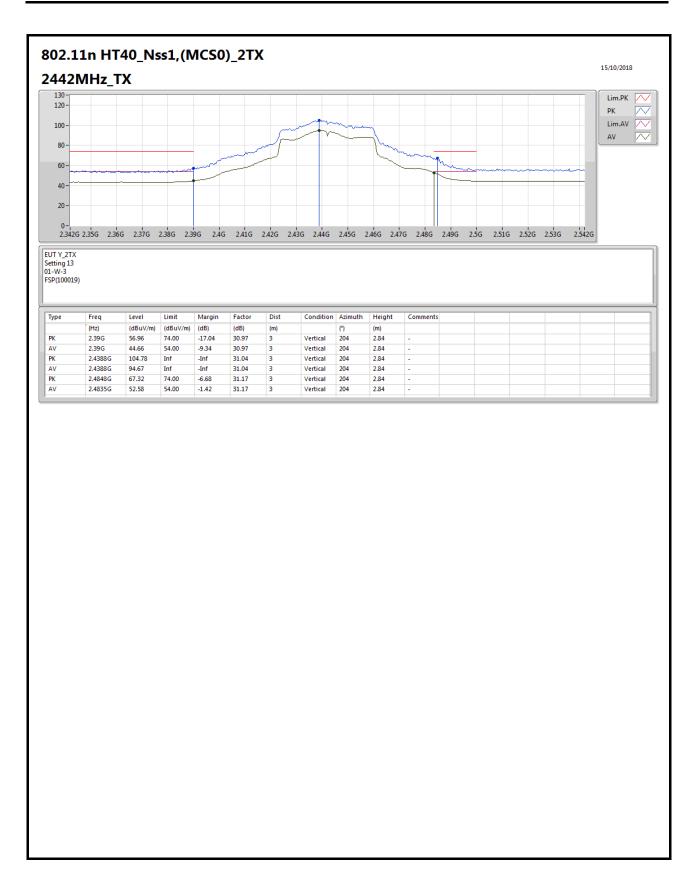
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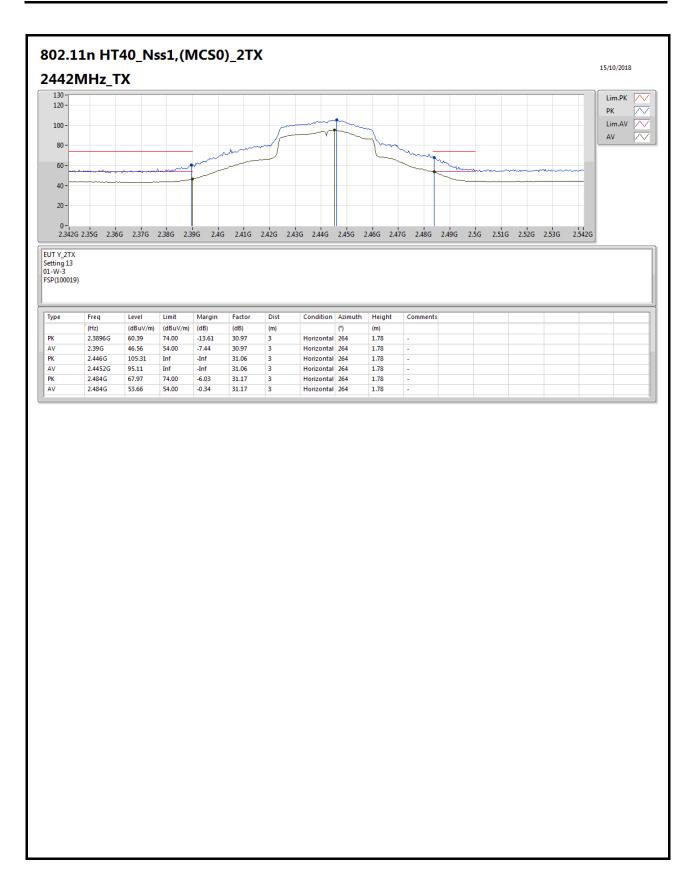
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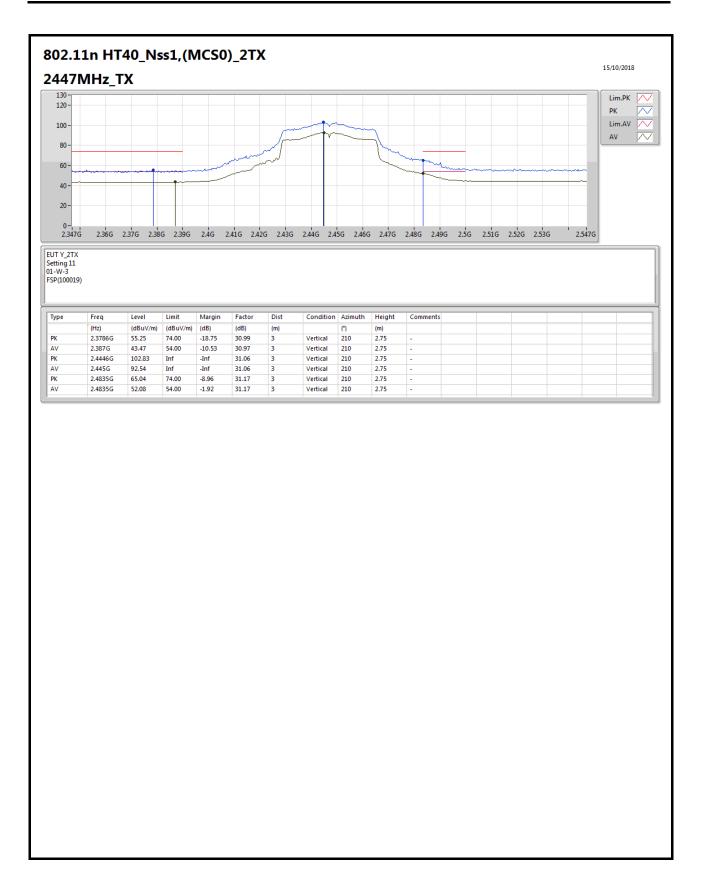
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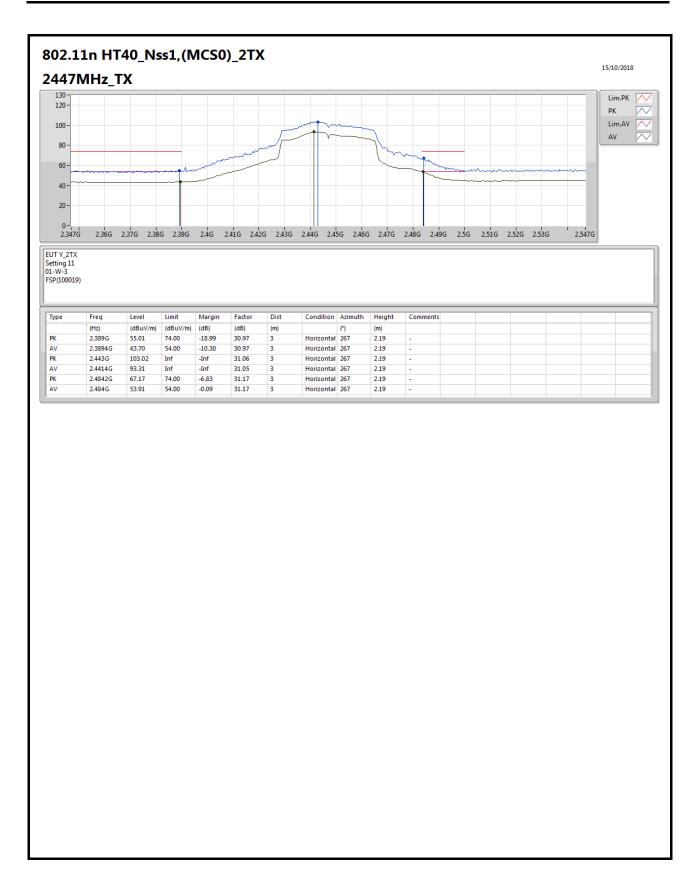
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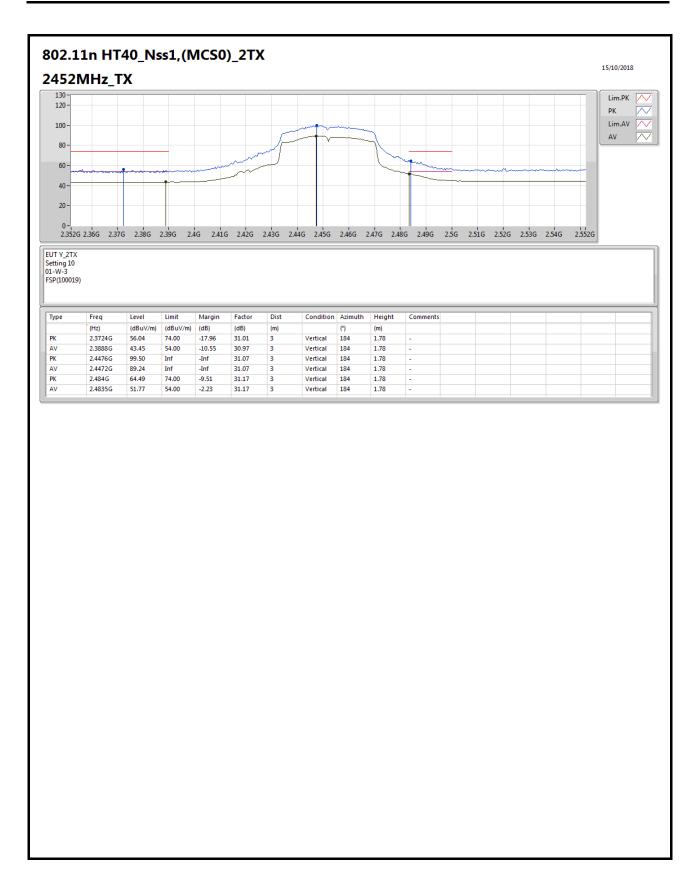
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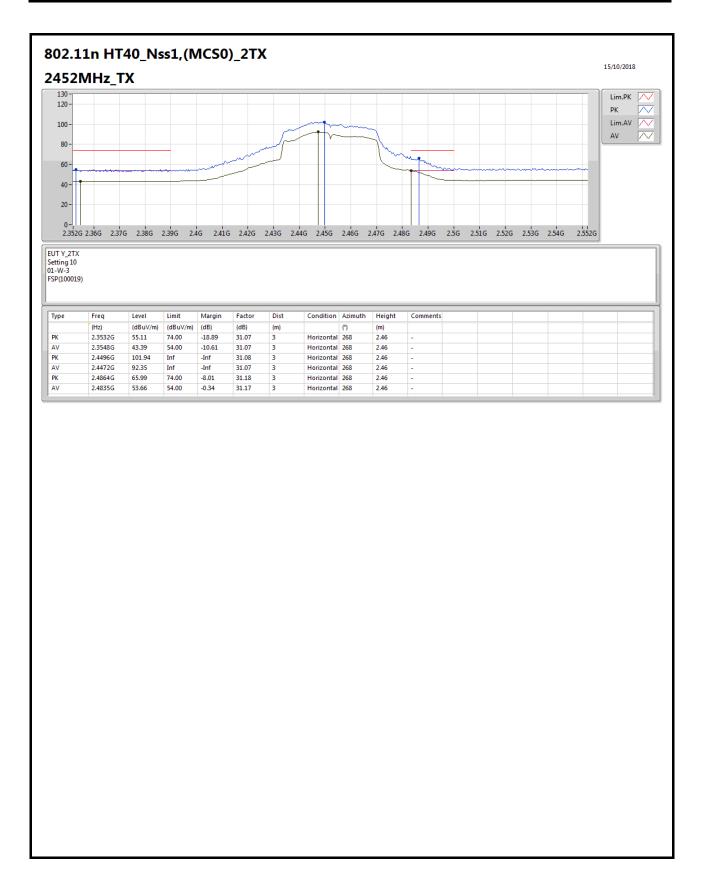
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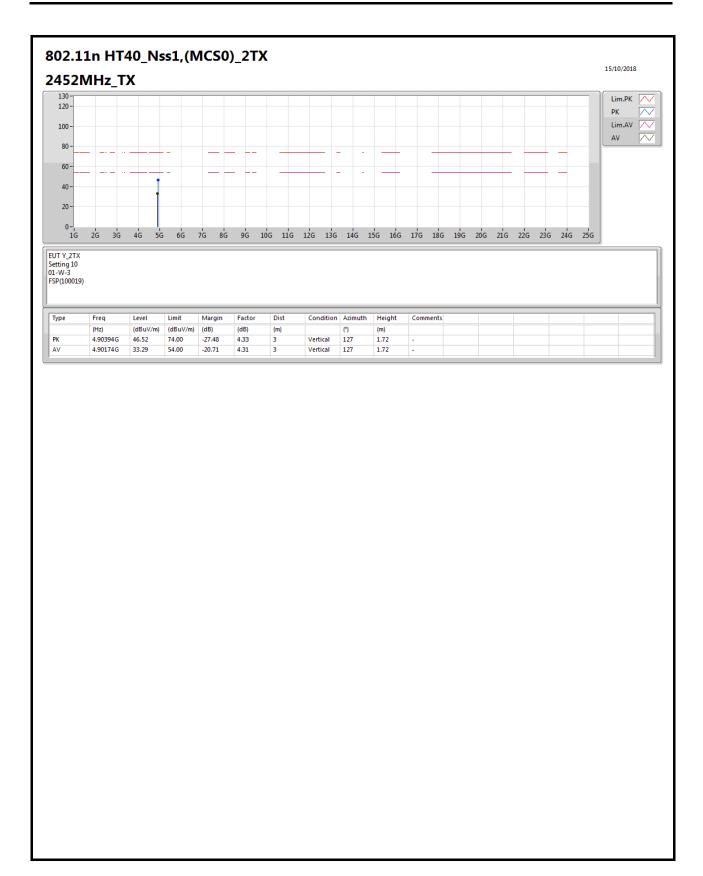
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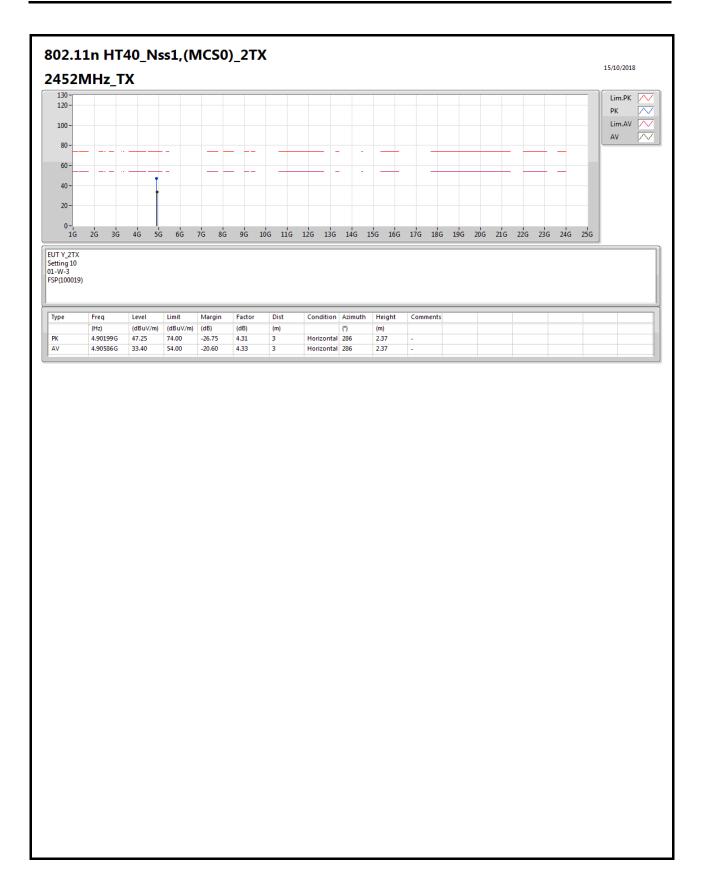
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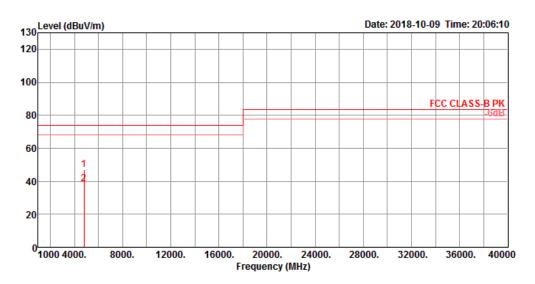
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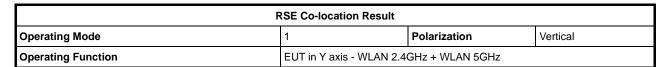


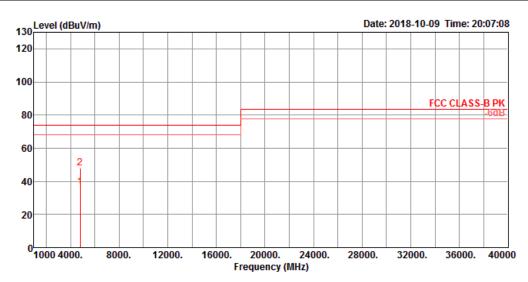
RSE Co-location Result								
Operating Mode	1	Polarization	Horizontal					
Operating Function	EUT in Y axis - WLAN 2.4GHz + WLAN 5GHz							



	F	req	Level		Over Limit								Pol/Phase
	-	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
_1	4791	.31	47.22	74.00	-26.78	42.21	6.66	33.30	34.95	150	32	Peak	HORIZONTAL
2	4792	.48	38.16	54.00	-15.84	33.15	6.66	33.30	34.95	150	32	Average	HORIZONTAL







	Freq	Level						Preamp Factor		T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4804.77	36.58	54.00	-17.42	31.54	6.65	33.34	34.95	207	288	Average	VERTICAL
2	4806.12	47.83	74.00	-26.17	42.79	6.65	33.34	34.95	207	288	Peak	VERTICAL