



## FCC RADIO TEST REPORT

FCC ID

: TE7RE505X

Equipment

: AX1500 Wi-Fi Range Extender

**Brand Name** 

: tp-link

Model Name

: RE505X

Applicant

: TP-Link Technologies Co., Ltd.

Building 24 (floors 1,3,4,5) and 28 (floors 1-4), Central Science and Technology Park, Nanshan

Shenzhen, 518057 China

Manufacturer : TP-Link Technologies Co., Ltd.

Building 24 (floors 1,3,4,5) and 28 (floors1-4), Central Science and Technology Park, Nanshan

Shenzhen, 518057 China

Standard

: 47 CFR FCC Part 15.247

The product was received on Sep. 23, 2019, and testing was started from Oct. 21, 2019 and completed on Dec. 27, 2019. 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.)

TEL: 886-3-656-9065

FAX: 886-3-656-9085

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: Dec. 27, 2019

Report Version : 02

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Photographs of EUT v01

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## History of this test report

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Report No.	Version	Description	Issued Date
FR991919AA	01	Initial issue of report	Dec. 23, 2019
FR991919AA	02	Adding the test channel for Maximum Conducted Output Power (Refer to section 2.1 for detail information)	Dec. 27, 2019

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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	-

#### **Declaration of Conformity:**

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

#### **Comments and Explanations:**

- The test configuration, test mode and test software were written in this test report are declared by the manufacturer.
- 2. The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

Reviewed by: Sam Chen Report Producer: Wendy Pan

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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	1TX
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

	Po	ort			Gain (dBi)			
Ant.	WLAN 2.4GHz	WLAN 5GHz	Brand	Brand Model Name Antenna Type Connector	WLAN 2.4GHz	WLAN 5GHz		
1	1	2	tp-link	3101502662	Dipole	I-PEX	3	5
2	2	1	tp-link	3101502662	Dipole	I-PEX	3	5

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Note: The above information was declared by manufacturer.

#### For 2.4GHz function:

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

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

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

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

Port 1 and Port 2 could transmit/receive simultaneously.

#### For 5GHz function:

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

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

Port 1 and Port 2 could transmit/receive simultaneously.

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#### 1.1.3 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
802.11b	0.952	0.21	12.425m	100
802.11g	0.953	0.21	2.068m	1k
802.11n HT20	0.952	0.21	1.913m	1k
802.11n HT40	0.911	0.4	933.75u	3k

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NI	oto.	
ľ	OLG.	

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

#### 1.1.4 EUT Operational Condition

EUT Power Type	Internal power supply					
Beamforming Function	$\boxtimes$	With beamforming		Without beamforming		
beamorning randion	For	For 802.11ac/ax in 5GHz				
Function		Point-to-multipoint		Point-to-point		
<b>Test Software Version</b>		Mtool ver 3.1.0.3				

Note: The above information was declared by manufacturer.

#### 1.1.5 Table for EUT support function.

Function
AP (Master) Mode
Extender (Master + Client without radar detection) Mode

Note: The EUT supports AP and Extender mode, Extender mode only for AC power-line conducted emissions and Unwanted Emissions below 1GHz were tested and recorded in this test report by manufacturer request.

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### 1.2 Applicable 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 v05r02
- FCC KDB 662911 D01 v02r01
- FCC KDB 414788 D01 v01r01

#### 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 Condition Test Site No.		Test Environment	Test Date
RF Conducted	TH01-CB	Eddie Weng	24~25.8°C / 57~59%	Oct. 21, 2019 ~ Dec. 27, 2019
Radiated<1GHz	03CH05-CB	Paul Chen	23.7~25.8°C / 55~60%	Oct. 21, 2019
Radiated>1GHz	03CH06-CB	KJ Chang	24.1~25.7°C / 55~58%	Oct. 16, 2019 ~ Nov. 04, 2019
AC Conduction	CO01-CB	Wei Li	23~24°C / 56~59%	Oct. 29, 2019

Test site Designation No. TW0006 with FCC.

Test site registered number IC 4086D with Industry Canada.

## 1.4 Measurement Uncertainty

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

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

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## 2 Test Configuration of EUT

## 2.1 Test Channel Mode

Mode	Power Setting
802.11b_Nss1,(1Mbps)_1TX	-
2412MHz	88
2417MHz	91
2422MHz	94
2427MHz	97
2437MHz	97
2442MHz	97
2447MHz	95
2452MHz	90
2457MHz	87
2462MHz	86
802.11g_Nss1,(6Mbps)_2TX	-
2412MHz	56
2417MHz	67
2422MHz	75
2427MHz	82
2437MHz	82
2442MHz	79
2447MHz	75
2452MHz	71
2457MHz	65
2462MHz	58
802.11n HT20_Nss1,(MCS0)_2TX	-
2412MHz	51
2417MHz	63
2422MHz	72
2427MHz	77
2437MHz	77
2442MHz	77
2447MHz	71
2452MHz	68
2457MHz	62
2462MHz	54
802.11n HT40_Nss1,(MCS0)_2TX	-
2422MHz	37

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Mode	Power Setting
2427MHz	44
2432MHz	55
2437MHz	55
2442MHz	55
2447MHz	44
2452MHz	39

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## 2.2 The Worst Case Measurement Configuration

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

	T	
Th	e 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 use regardless of spatial multiplexing MIMO configuration), the radiated to be performed with highest antenna gain of each antenna type.		
Operating Mode < 1GHz Normal Link		
1	Extender Mode - EUT in Y axis + antenna in vertical	
2	Extender Mode - EUT in Z axis + antenna in 90°	
3 Extender Mode - EUT in Z axis + antenna in 180°		
For operating mode 3 is the worst case and it was record in this test report.		
Operating Mode > 1GHz CTX		
The EUT was performed at Y axis + antenna in vertical, Z axis + antenna in 90° and Z axis + antenna in 180 position, and the worst case was found at Y axis + antenna in vertical. So the measurement will follow this same test configuration.		
1 EUT in Y axis + antenna in vertical		

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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 + antenna in vertical, Z axis + antenna in 90° and Z axis + antenna in 180° position, and the worst case was found at EUT in Z axis + antenna in 180°. So the measurement will follow this same test configuration.		
1 WLAN 2.4GHz + WLAN 5GHz - EUT in Z axis + antenna in 180°			
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.: FA991919 for Co-location RF Exposure Evaluation.			

## 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

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## 2.5 Support Equipment

#### For AC Conduction:

	Support Equipment					
No.	No. Equipment Brand Name Model Name FCC ID					
Α	LAN NB	DELL	E6430	N/A		
В	2.4G NB	DELL	E6430	N/A		
С	5G NB	DELL	E6430	N/A		
D	AP Router	ASUS	RP-N53	MSQ-RPN53		

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For Radiated (below 1GHz):

Support Equipment					
No.	Equipment	Brand Name	Model Name	FCC ID	
Α	Notebook	DELL	E4300	N/A	
В	Notebook	DELL	E4300	N/A	
С	Notebook	DELL	E4300	N/A	
D	WLAN AP	tp-link	RE505	N/A	

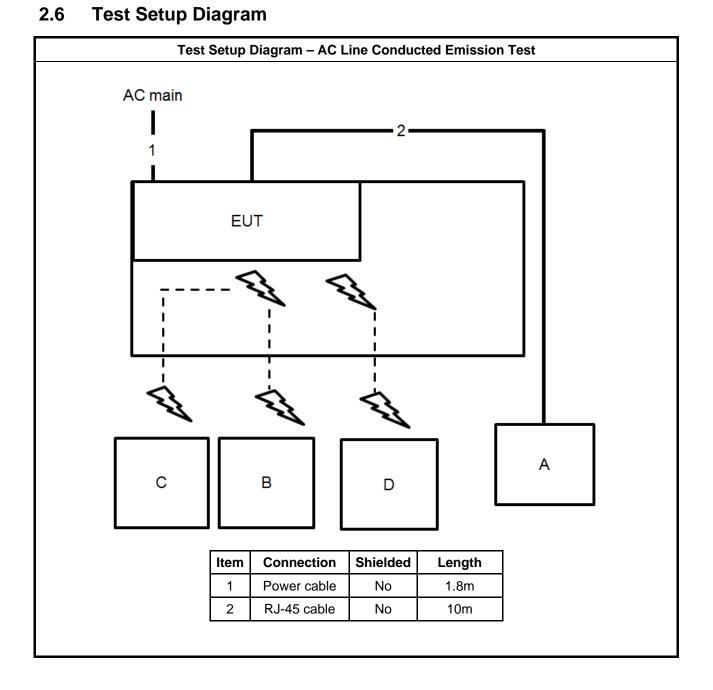
For Radiated (above 1GHz):

Support Equipment					
No.	No. Equipment Brand Name Model Name FCC ID				
Α	Notebook	DELL	E4300	N/A	

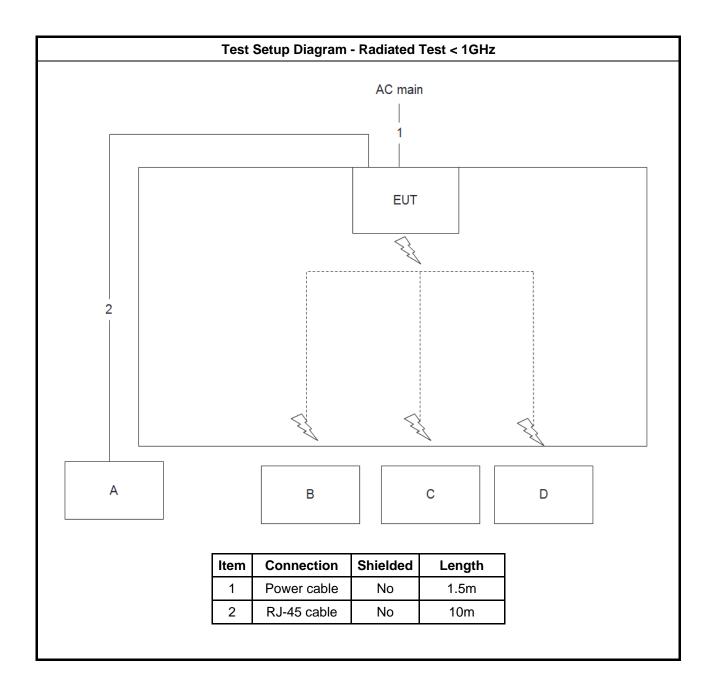
#### For RF Conducted:

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
Α	Notebook	DELL	E4300	N/A

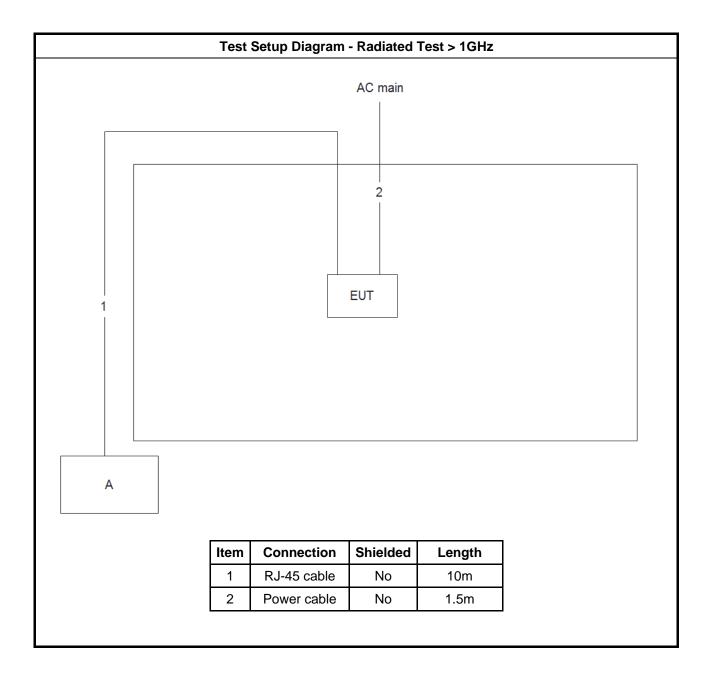
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#### 3 Transmitter Test Result

#### 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

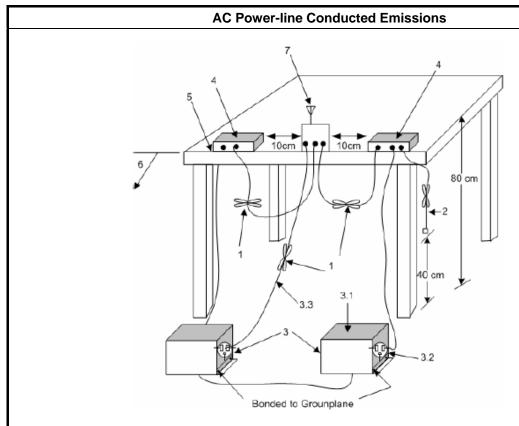
Refer a test equipment and calibration data table in this test report.

#### 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  $\Omega$  loads. LISN may be placed on top of, or immediately beneath, reference ground plane.
- 3.1—All other equipment powered from additional LISN(s).
- 3.2—A multiple-outlet strip may be used for multiple power cords of non-EUT equipment.
- 3.3—LISN at least 80 cm from nearest part of EUT chassis.
- 4—Non-EUT components of EUT system being tested.
- 5—Rear of EUT, including peripherals, shall all be aligned and flush with edge of tabletop.
- 6—Edge of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded to the ground plane.
- 7—Antenna can be integral or detachable. If detachable, then the antenna shall be attached for this test.

#### 3.1.5 Test Result of AC Power-line Conducted Emissions

Refer as Appendix A

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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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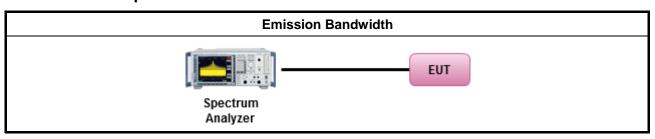
#### 3.2.2 Measuring Instruments

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<sub>TX</sub> ≤ 6 dBi, then P<sub>Out</sub> ≤ 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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 $\mathbf{P}_{\text{Out}}$  = maximum peak conducted output power or maximum conducted output power in dBm,  $\mathbf{G}_{\text{TX}}$  = 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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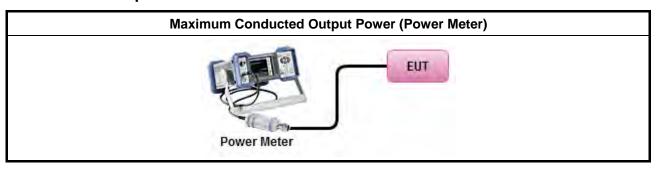
#### 3.3.3 Test Procedures

		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)					
	Measurement using a power meter (PM)						
		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).					
	$\boxtimes$	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: $P_{total} = P_1 + P_2 + \ldots + P_n$ (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

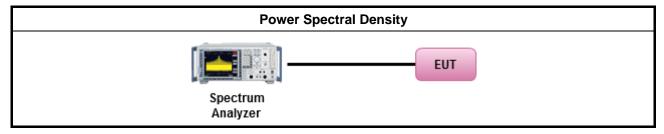
	Test Method								
•	Peak power spectral density procedures that the same method as used to determine the conducted output power. If maximum peak conducted output power was measured to demonstrate compliance to the output power limit, then the peak PSD procedure below (Method PKPSD) shall be used. If maximum conducted output power was measured to demonstrate compliance to the output power limit, then one of the average PSD procedures shall be used, as applicable based on the following criteria (the peak PSD procedure is also an acceptable option).								
	Refer as FCC KDB 558074, clause 8.4 & C63.10 clause 11.10.2 Method PKPSD.								
	[duty 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 11.10.8 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 (dBc)					
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.

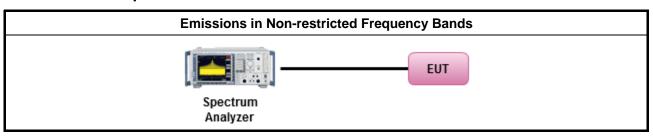
#### 3.5.2 Measuring Instruments

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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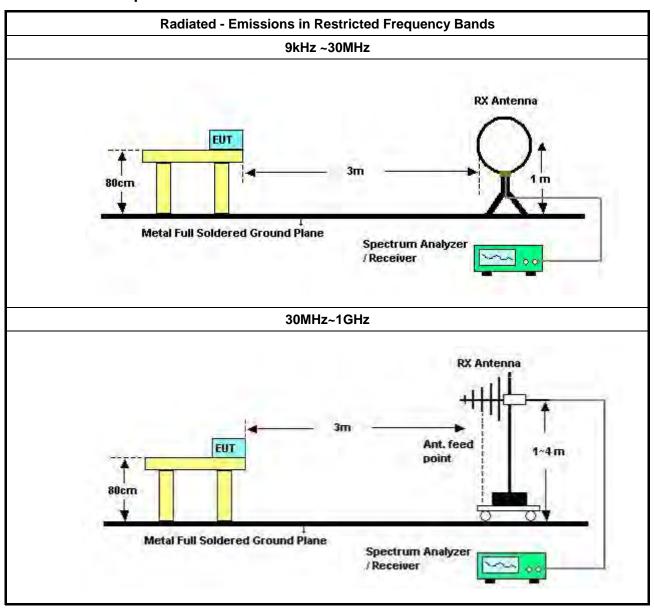
#### 3.6.3 Test Procedures

		Test Method					
•	The average emission levels shall be measured in [duty cycle ≥ 98 or duty factor].						
•	<ul> <li>Refer as ANSI C63.10, clause 6.10.3 band-edge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band.</li> </ul>						
•	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 11.12.2.5.3 (Reduced VBW). VBW ≥ 1/T, where T is pulse time.					
		Refer as ANSI C63.10, clause 7.5 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 peak or average radiated measurements, emissions within 2 MHz of the authorized band edge may be 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.					

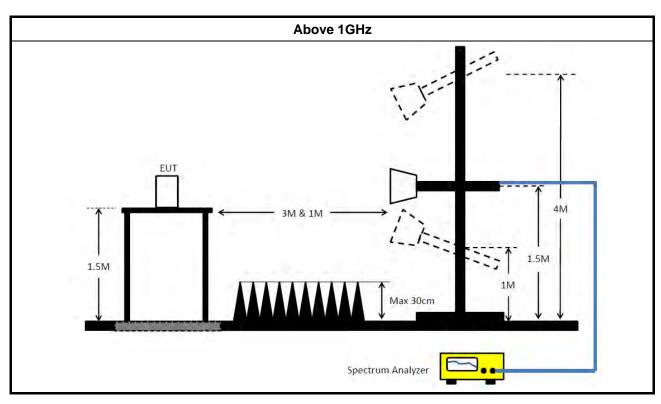
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#### 3.6.4 Test Setup



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#### 3.6.5 Measurement Results Calculation

The measured Level is calculated using:

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

#### 3.6.6 Emissions in Restricted Frequency Bands (Below 30MHz)

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

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

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

#### 3.6.7 Test Result of Emissions in Restricted Frequency Bands

Refer as Appendix F

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## 4 Test Equipment and Calibration Data

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
EMI Receiver	Agilent	N9038A	My52260123	9kHz ~ 8.45GHz	Jan. 28, 2019	Jan. 29, 2020	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50- 16-2	04083	150kHz ~ 100MHz	Dec. 24, 2018	Dec. 23, 2019	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Jan. 11, 2019	Jan. 10, 2020	Conduction (CO01-CB)
COND Cable	Woken	Cable	Low cable-CO01	9kHz ~ 30MHz	May 21, 2019	May 20, 2020	Conduction (CO01-CB)
Software	Audix	E3	6.120210n	-	N.C.R.	N.C.R.	Conduction (CO01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	Mar. 29, 2019	Mar. 28, 2020	Radiation (03CH05-CB)
Bilog Antenna with 6dB Attenuator	TESE & EMCI	CBL 6112D & N-6-06	35236 & AT-N0610	30MHz ~ 2GHz	Mar. 28, 2019	Mar. 27, 2020	Radiation (03CH05-CB)
Pre-Amplifier	EMCI	EMC330N	980331	20MHz ~ 3GHz	May 01, 2019	Apr. 30, 2020	Radiation (03CH05-CB)
Spectrum Analyzer	R&S	FSP40	100304	9kHz ~ 40GHz	Aug. 15, 2019	Aug. 14, 2020	Radiation (03CH05-CB)
EMI Test Receiver	R&S	ESCS	826547/017	9kHz ~ 2.75GHz	May 15, 2019	May 14, 2020	Radiation (03CH05-CB)
RF Cable-low	Woken	RG402	LOW Cable-04+23	30MHz~1GHz	Oct. 07, 2019	Oct. 06, 2020	Radiation (03CH05-CB)
Horn Antenna	SCHWARZBE CK	BBHA9120D	9120D-1292	1GHz~18GHz	Jul. 17, 2019	Jul. 16, 2020	Radiation (03CH06-CB)
Horn Antenna	SCHWARZBE CK	BBHA 9170	BBHA9170507	15GHz ~ 40GHz	Jun. 12, 2019	Jun. 11, 2020	Radiation (03CH06-CB)
Pre-Amplifier	Agilent	83017A	MY53270064	0.5GHz ~ 26.5GHz	May 08, 2019	May 07, 2020	Radiation (03CH06-CB)
Pre-Amplifier	MITEQ	TTA1840-35-H G	1864479	18GHz ~ 40GHz	Jul. 03, 2019	Jul. 02, 2020	Radiation (03CH06-CB)
Spectrum analyzer	R&S	FSP40	100080	9kHz~40GHz	Oct. 21, 2019	Oct. 20, 2020	Radiation (03CH06-CB)
RF Cable-high	HUBER+SUH NER	RG402	High Cable-05	1GHz~18GHz	Oct. 07, 2019	Oct. 06, 2020	Radiation (03CH06-CB)
RF Cable-high	HUBER+SUH NER	RG402	High Cable-05+24	1GHz~18GHz	Oct. 07, 2019	Oct. 06, 2020	Radiation (03CH06-CB)
RF Cable-high	Woken	RG402	High Cable-40G#1	18GHz ~ 40 GHz	Jul. 24, 2019	Jul. 23, 2020	Radiation (03CH06-CB)
RF Cable-high	Woken	RG402	High Cable-40G#2	18GHz ~ 40 GHz	Jul. 24, 2019	Jul. 23, 2020	Radiation (03CH06-CB)
Spectrum analyzer	R&S	FSV40	100979	9kHz~40GHz	Feb. 25, 2019	Feb. 24, 2020	Conducted (TH01-CB)

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Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
RF Cable-high	Woken	RG402	High Cable-06	1 GHz – 26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-07	1 GHz –26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-08	1 GHz –26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-09	1 GHz –26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-10	1 GHz –26.5 GHz	Oct. 07, 2019	Oct. 06, 2020	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-28	1 GHz –26.5 GHz	Nov. 19, 2018	Nov. 18, 2019	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-28	1 GHz –26.5 GHz	Nov. 18, 2019	Nov. 17, 2020	Conducted (TH01-CB)
Power Sensor	Agilent	E9327A	US40442088	50MHz~18GHz	Jan. 15, 2019	Jan. 14, 2020	Conducted (TH01-CB)
Power Meter	Agilent	E4416A	GB41291199	50MHz~18GHz	Jan. 15, 2019	Jan. 14, 2020	Conducted (TH01-CB)

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

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

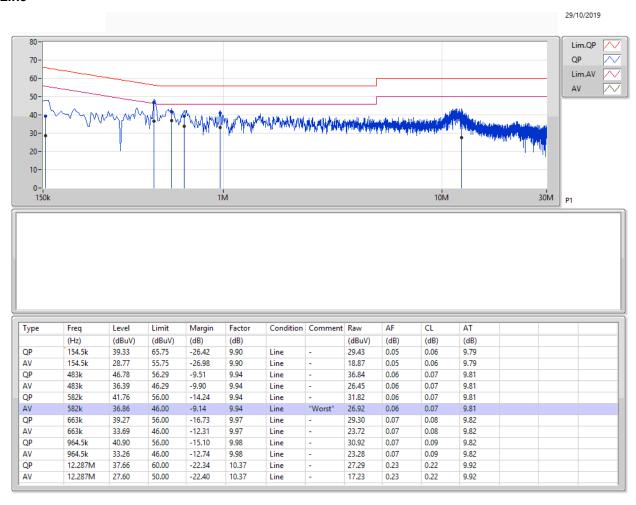
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#### **AC Power Port Conducted Emission Result**

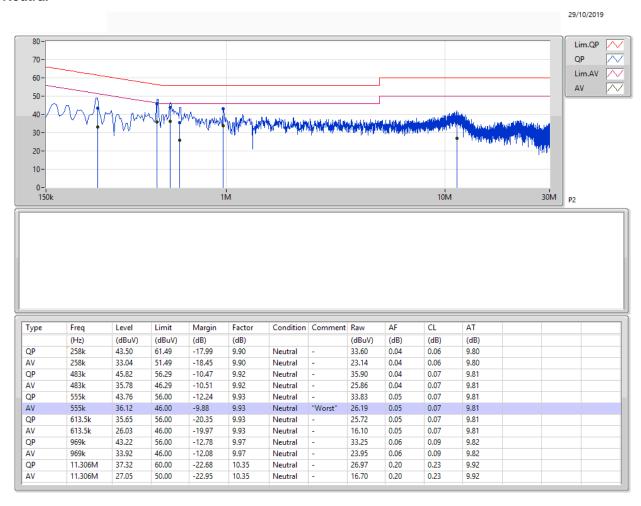
Test Mode Mode 1	Frequency Range	0.15 MHz to 30 MHz
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#### Line





#### Neutral





EBW 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)_1TX	8.55M	14.343M	14M3D2W	8.025M	10.17M	
802.11g_Nss1,(6Mbps)_2TX	16.35M	16.842M	16M8D7W	16.325M	16.517M	
802.11n HT20_Nss1,(MCS0)_2TX	17.6M	17.766M	17M8D7W	17.525M	17.641M	
802.11n HT40_Nss1,(MCS0)_2TX	35.7M	36.182M	36M2D7W	35.3M	36.032M	

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;



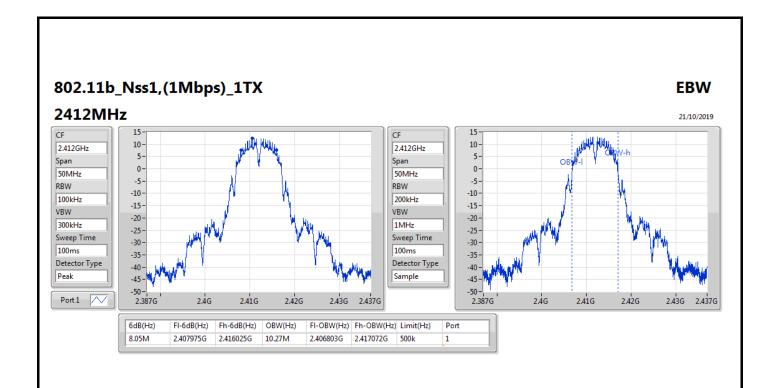
EBW Appendix B

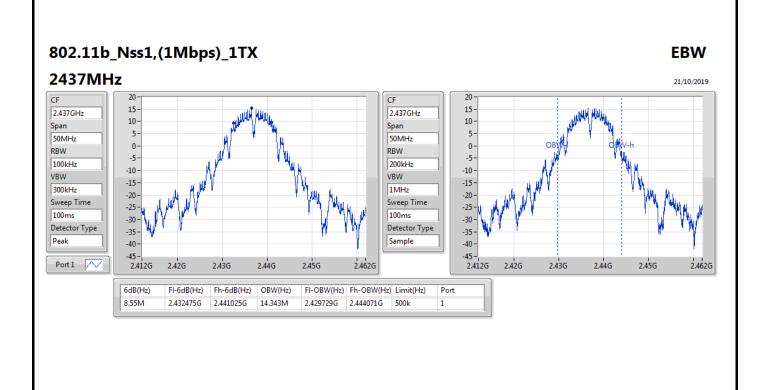
#### Result

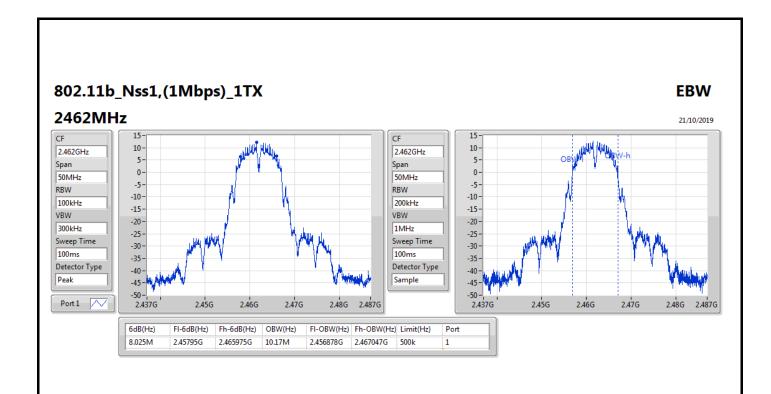
Mode	Result	Limit	Port 1-N dB	Port 1-OBW	Port 2-N dB	Port 2-OBW
		(Hz)	(Hz)	(Hz)	(Hz)	(Hz)
802.11b_Nss1,(1Mbps)_1TX	-	-	-	-	-	-
2412MHz	Pass	500k	8.05M	10.27M		
2437MHz	Pass	500k	8.55M	14.343M		
2462MHz	Pass	500k	8.025M	10.17M		
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	16.325M	16.542M	16.35M	16.542M
2437MHz	Pass	500k	16.325M	16.842M	16.325M	16.767M
2462MHz	Pass	500k	16.325M	16.517M	16.325M	16.567M
802.11n HT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	17.575M	17.666M	17.6M	17.691M
2437MHz	Pass	500k	17.525M	17.766M	17.575M	17.741M
2462MHz	Pass	500k	17.575M	17.641M	17.6M	17.666M
802.11n HT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2422MHz	Pass	500k	35.3M	36.032M	35.7M	36.132M
2437MHz	Pass	500k	35.5M	36.032M	35.3M	36.082M
2452MHz	Pass	500k	35.3M	36.082M	35.7M	36.182M

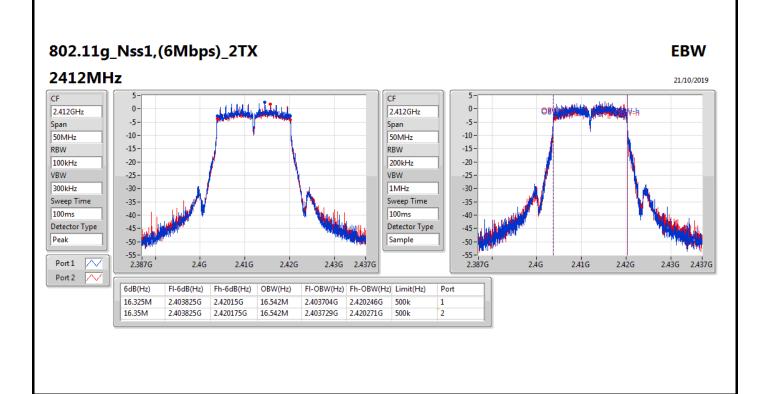
Port X-N dB = Port X 6dB down bandwidth; Port X-OBW = Port X 99% occupied bandwidth;

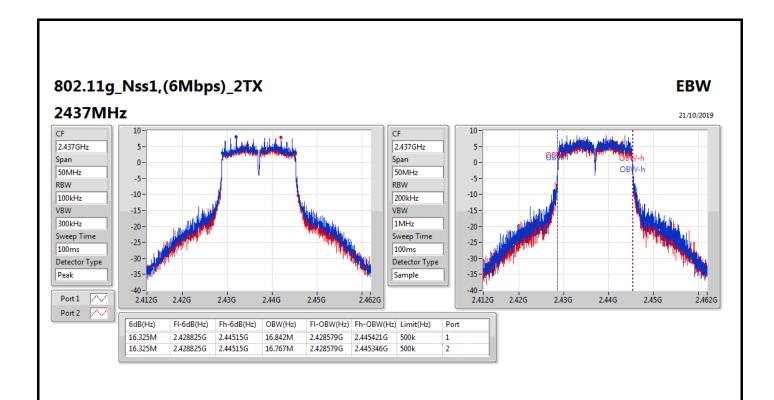
EBW Appendix B

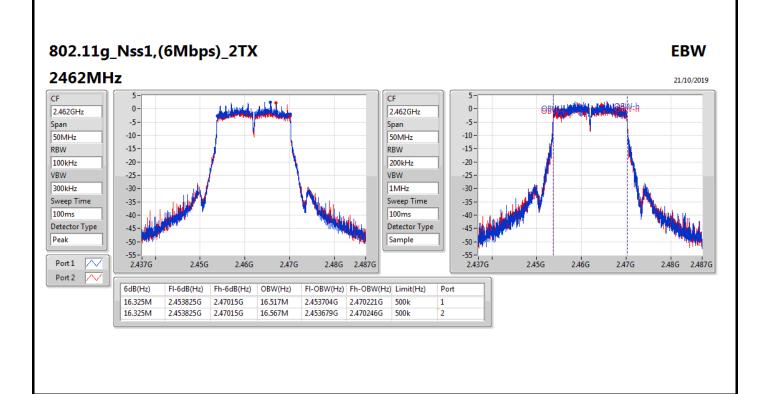


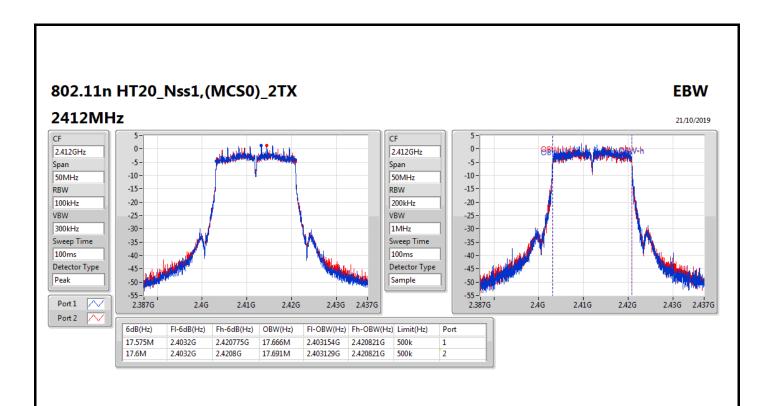


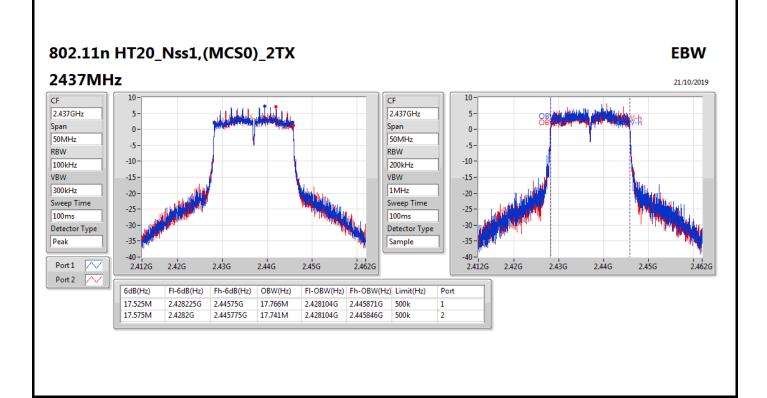


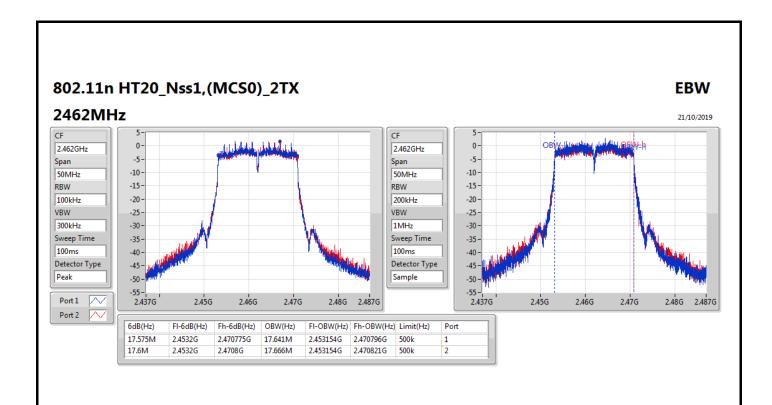


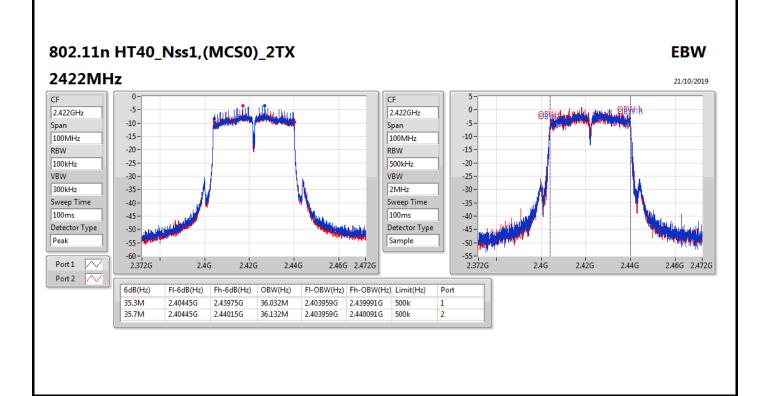


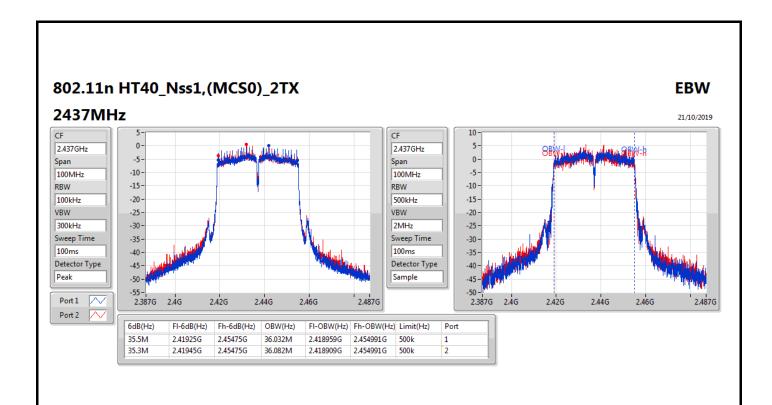


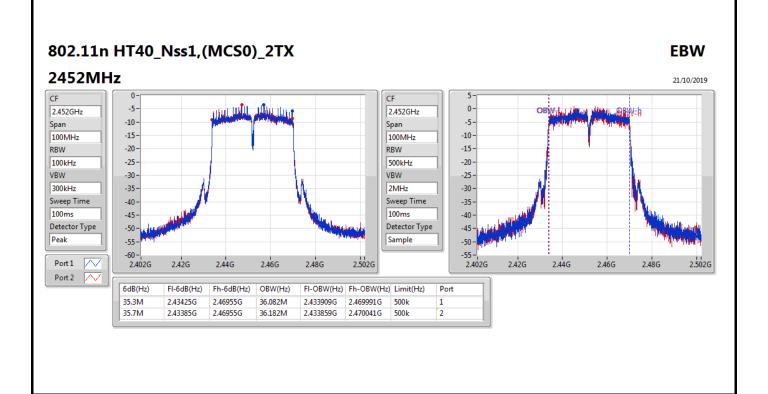














Average Power Appendix C

**Summary** 

Mode	Total Power	Total Power		
	(dBm)	(W)		
2.4-2.4835GHz	-	-		
802.11b_Nss1,(1Mbps)_1TX	24.47	0.27990		
802.11g_Nss1,(6Mbps)_2TX	22.99	0.19907		
802.11n HT20_Nss1,(MCS0)_2TX	22.14	0.16368		
802.11n HT40_Nss1,(MCS0)_2TX	17.82	0.06053		

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Average Power Appendix C

### Result

Mode	Result	DG	Port 1	Port 2	Total Power	Power Limit
		(dBi)	(dBm)	(dBm)	(dBm)	(dBm)
802.11b_Nss1,(1Mbps)_1TX	-	-	-	-	-	-
2412MHz	Pass	3.00	21.95		21.95	30.00
2417MHz	Pass	3.00	22.84		22.84	30.00
2422MHz	Pass	3.00	23.49		23.49	30.00
2427MHz	Pass	3.00	24.35		24.35	30.00
2437MHz	Pass	3.00	24.47		24.47	30.00
2442MHz	Pass	3.00	24.42		24.42	30.00
2447MHz	Pass	3.00	23.94		23.94	30.00
2452MHz	Pass	3.00	22.41		22.41	30.00
2457MHz	Pass	3.00	21.64		21.64	30.00
2462MHz	Pass	3.00	21.30		21.30	30.00
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	3.00	13.99	14.43	17.23	30.00
2417MHz	Pass	3.00	16.91	16.68	19.81	30.00
2422MHz	Pass	3.00	18.83	18.62	21.74	30.00
2427MHz	Pass	3.00	20.01	19.93	22.98	30.00
2437MHz	Pass	3.00	20.11	19.84	22.99	30.00
2442MHz	Pass	3.00	19.52	19.39	22.47	30.00
2447MHz	Pass	3.00	18.53	18.61	21.58	30.00
2452MHz	Pass	3.00	17.53	17.49	20.52	30.00
2457MHz	Pass	3.00	16.20	15.73	18.98	30.00
2462MHz	Pass	3.00	14.78	14.38	17.59	30.00
802.11n HT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	3.00	13.78	13.30	16.56	30.00
2417MHz	Pass	3.00	16.50	16.19	19.36	30.00
2422MHz	Pass	3.00	18.01	18.83	21.45	30.00
2427MHz	Pass	3.00	19.02	19.09	22.07	30.00
2437MHz	Pass	3.00	19.21	19.04	22.14	30.00
2442MHz	Pass	3.00	19.15	19.02	22.10	30.00
2447MHz	Pass	3.00	17.69	17.53	20.62	30.00
2452MHz	Pass	3.00	16.98	16.79	19.90	30.00
2457MHz	Pass	3.00	16.02	16.28	19.16	30.00
2462MHz	Pass	3.00	14.21	13.99	17.11	30.00
802.11n HT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2422MHz	Pass	3.00	10.79	10.98	13.90	30.00
2427MHz	Pass	3.00	11.74	11.89	14.83	30.00
2432MHz	Pass	3.00	13.79	13.42	16.62	30.00
2437MHz	Pass	3.00	14.80	14.81	17.82	30.00
2442MHz	Pass	3.00	13.68	13.59	16.65	30.00
2447MHz	Pass	3.00	12.11	12.71	15.43	30.00
2452MHz	Pass	3.00	11.35	10.34	13.88	30.00

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



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**Summary** 

Mode	PD
	(dBm/RBW)
2.4-2.4835GHz	
802.11b_Nss1,(1Mbps)_1TX	1.11
802.11g_Nss1,(6Mbps)_2TX	-4.11
802.11n HT20_Nss1,(MCS0)_2TX	-5.04
802.11n HT40_Nss1,(MCS0)_2TX	-12.26

RBW=3 kHz.

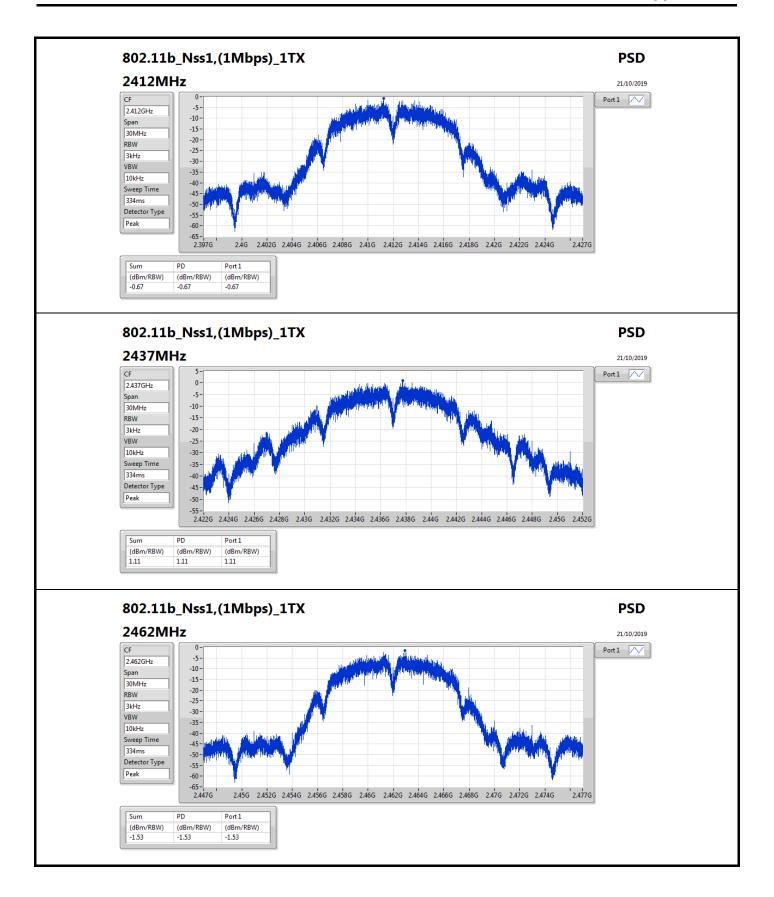


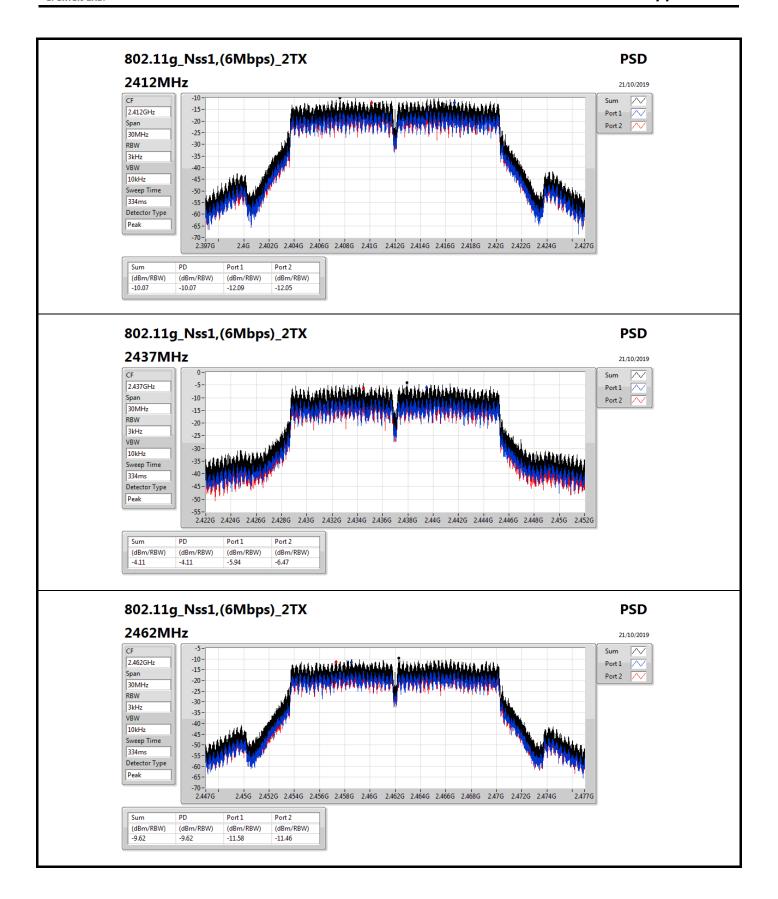
#### Result

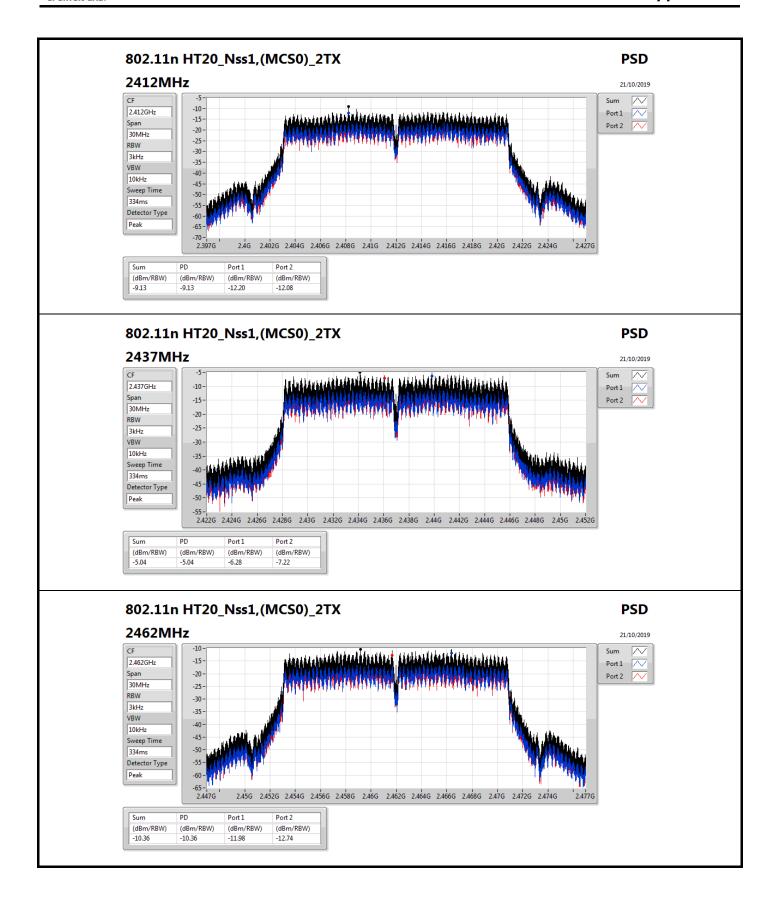
Mode	Result	DG	Port 1	Port 2	PD	PD Limit
		(dBi)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
802.11b_Nss1,(1Mbps)_1TX	-	-	-	-	-	-
2412MHz	Pass	3.00	-0.67		-0.67	8.00
2437MHz	Pass	3.00	1.11	-	1.11	8.00
2462MHz	Pass	3.00	-1.53	-	-1.53	8.00
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
2412MHz	Pass	6.01	-12.09	-12.05	-10.07	7.99
2437MHz	Pass	6.01	-5.94	-6.47	-4.11	7.99
2462MHz	Pass	6.01	-11.58	-11.46	-9.62	7.99
802.11n HT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	6.01	-12.20	-12.08	-9.13	7.99
2437MHz	Pass	6.01	-6.28	-7.22	-5.04	7.99
2462MHz	Pass	6.01	-11.98	-12.74	-10.36	7.99
802.11n HT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2422MHz	Pass	6.01	-16.85	-18.58	-15.31	7.99
2437MHz	Pass	6.01	-13.37	-14.49	-12.26	7.99
2452MHz	Pass	6.01	-17.54	-18.77	-15.63	7.99

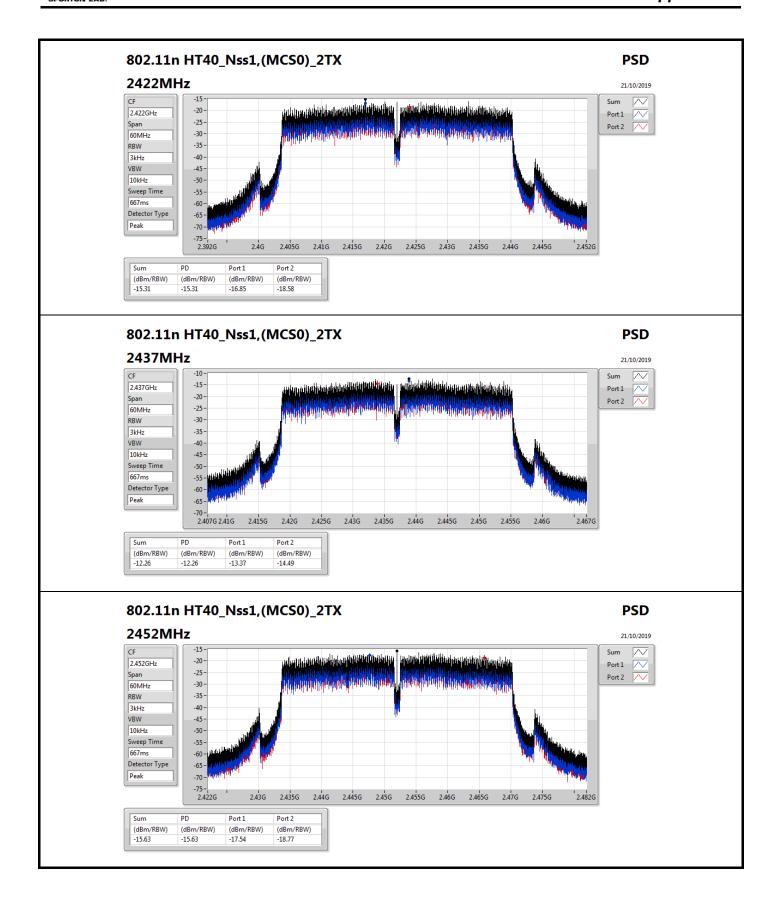
**DG** = Directional Gain; RBW=3 kHz;

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











# CSE(Non-restricted Band)

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)_1TX	Pass	2.43795G	14.70	-15.30	2.30641G	-51.14	2.39998G	-24.36	2.49002G	-43.65	24.91852G	-43.96	1
802.11g_Nss1,(6Mbps)_2TX	Pass	2.4395G	8.23	-21.77	87.96M	-53.65	2.3995G	-29.08	2.49136G	-48.34	24.99157G	-45.12	1
802.11n HT20_Nss1,(MCS0)_2TX	Pass	2.43945G	7.29	-22.71	2.14914G	-53.14	2.3995G	-29.46	2.5G	-49.24	16.33531G	-45.16	1
802.11n HT40_Nss1,(MCS0)_2TX	Pass	2.442G	0.42	-29.58	851.25M	-53.31	2.39952G	-32.54	2.48414G	-49.41	17.5006G	-45.52	1



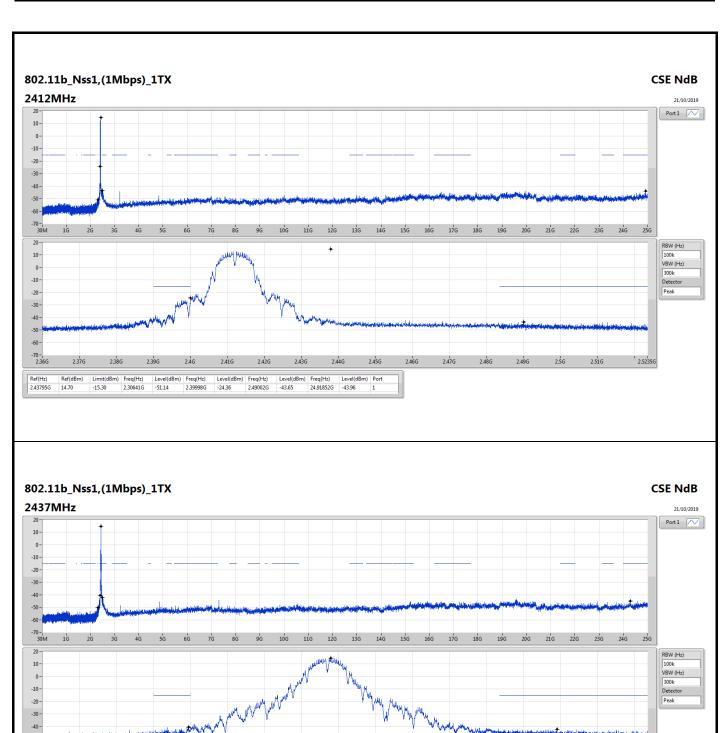
# CSE(Non-restricted Band)

# Appendix E

#### Result

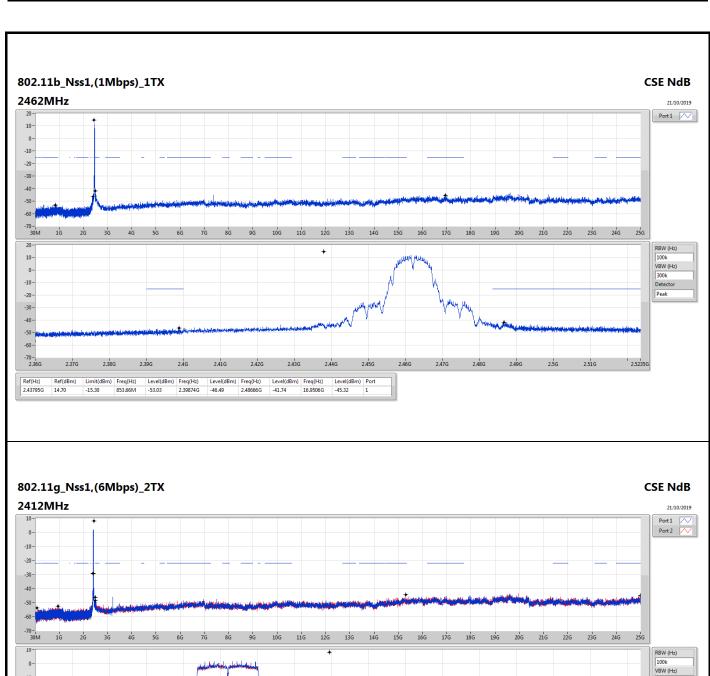
Mode	Result	Ref	Ref	Limit	Freq	Level	Freq	Level	Freq	Level	Freq	Level	Port
		(Hz)	(dBm)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	
802.11b_Nss1,(1Mbps)_1TX	-	-	-	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	2.43795G	14.70	-15.30	2.30641G	-51.14	2.39998G	-24.36	2.49002G	-43.65	24.91852G	-43.96	1
2437MHz	Pass	2.43795G	14.70	-15.30	2.3067G	-50.17	2.3995G	-40.34	2.49906G	-42.18	24.28637G	-44.99	1
2462MHz	Pass	2.43795G	14.70	-15.30	853.66M	-53.03	2.39874G	-46.49	2.48666G	-41.74	16.9506G	-45.32	1
802.11g_Nss1,(6Mbps)_2TX	-	-	-	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	2.4395G	8.23	-21.77	87.96M	-53.65	2.3995G	-29.08	2.49136G	-48.34	24.99157G	-45.12	1
2412MHz	Pass	2.4395G	8.23	-21.77	945.98M	-52.47	2.39952G	-29.24	2.5G	-46.28	15.31825G	-44.48	2
2437MHz	Pass	2.4395G	8.23	-21.77	2.3035G	-52.37	2.39854G	-35.99	2.4838G	-44.40	24.89886G	-44.69	1
2437MHz	Pass	2.4395G	8.23	-21.77	2.30728G	-53.09	2.39602G	-40.15	2.49224G	-43.41	24.70781G	-44.73	2
2462MHz	Pass	2.4395G	8.23	-21.77	946.56M	-53.19	2.39524G	-49.85	2.4845G	-41.60	24.85671G	-45.23	1
2462MHz	Pass	2.4395G	8.23	-21.77	798.03M	-53.39	2.39534G	-49.67	2.4846G	-42.59	16.28193G	-45.14	2
802.11n HT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-	-	-	-	-
2412MHz	Pass	2.43945G	7.29	-22.71	2.14914G	-53.14	2.3995G	-29.46	2.5G	-49.24	16.33531G	-45.16	1
2412MHz	Pass	2.43945G	7.29	-22.71	676.58M	-53.34	2.39948G	-30.53	2.50002G	-45.62	24.75838G	-44.44	2
2437MHz	Pass	2.43945G	7.29	-22.71	919.48M	-53.50	2.39926G	-43.09	2.48572G	-44.40	24.82019G	-44.19	1
2437MHz	Pass	2.43945G	7.29	-22.71	783.17M	-53.43	2.39888G	-40.36	2.48376G	-45.46	24.98314G	-44.66	2
2462MHz	Pass	2.43945G	7.29	-22.71	901.42M	-53.21	2.39412G	-50.19	2.48396G	-43.93	16.54603G	-44.23	1
2462MHz	Pass	2.43945G	7.29	-22.71	813.17M	-53.17	2.3936G	-49.94	2.48728G	-42.89	16.57974G	-44.91	2
802.11n HT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-	-	-	-	-	-
2422MHz	Pass	2.442G	0.42	-29.58	851.25M	-53.31	2.39952G	-32.54	2.48414G	-49.41	17.5006G	-45.52	1
2422MHz	Pass	2.442G	0.42	-29.58	1.8225G	-52.79	2.39948G	-33.05	2.49998G	-48.17	24.98037G	-44.99	2
2437MHz	Pass	2.442G	0.42	-29.58	834.94M	-53.79	2.39952G	-38.37	2.48466G	-46.45	15.2289G	-44.99	1
2437MHz	Pass	2.442G	0.42	-29.58	686.09M	-53.73	2.39952G	-37.99	2.48458G	-45.53	16.55266G	-44.70	2
2452MHz	Pass	2.442G	0.42	-29.58	882.45M	-53.77	2.39876G	-50.09	2.48718G	-46.07	24.26801G	-44.67	1
2452MHz	Pass	2.442G	0.42	-29.58	873.87M	-53.42	2.39996G	-48.79	2.49998G	-46.12	24.85416G	-44.93	2



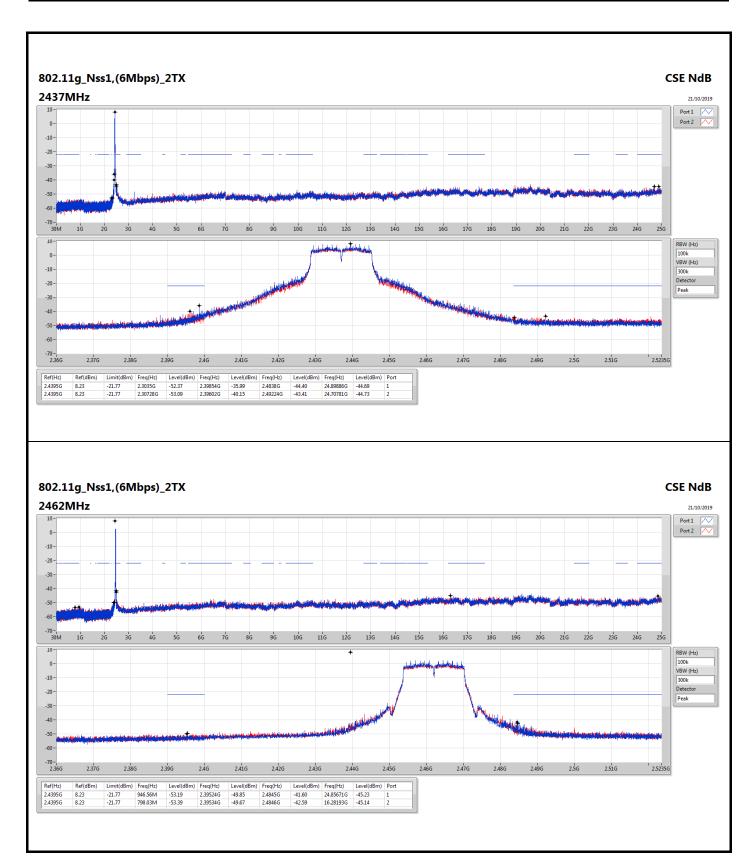


2.45G

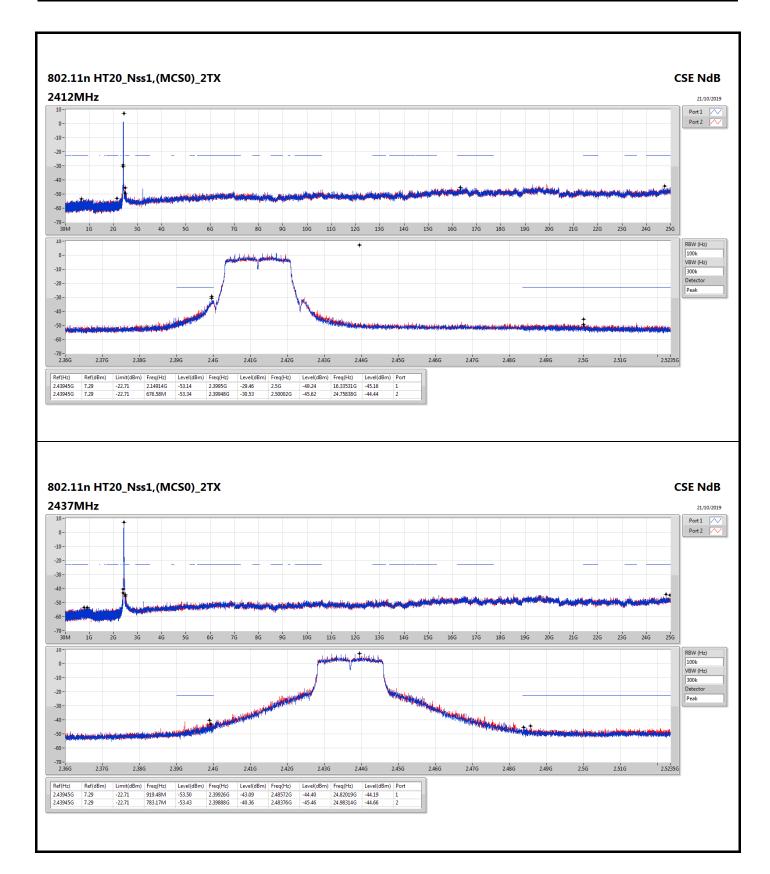




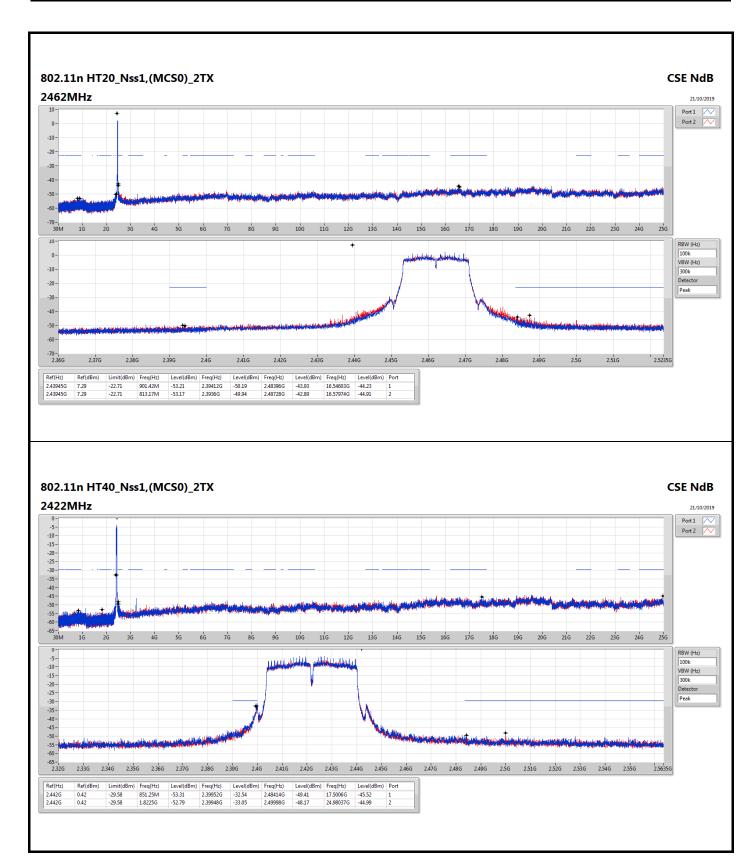




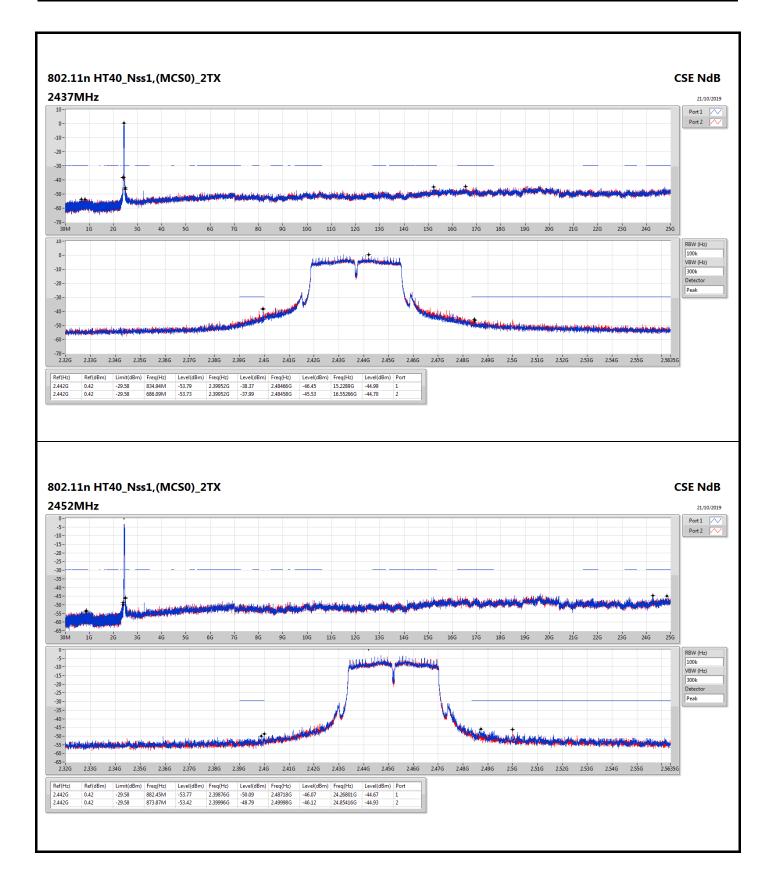








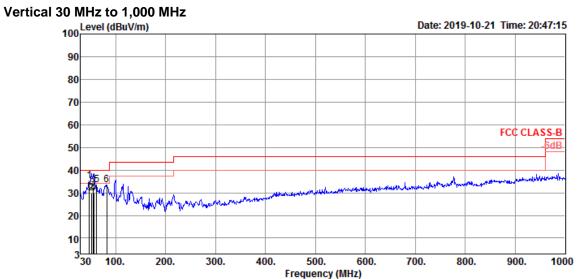






## Radiated Emission below 1GHz Result

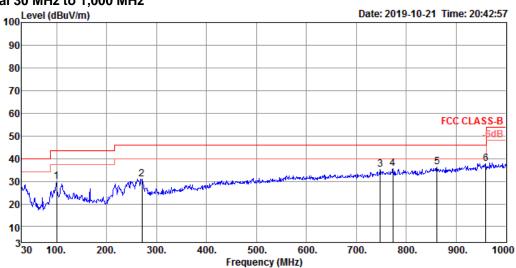
30 MHz to 1,000 MHz **Test Mode** Mode 3 **Frequency Range** 



	Freq	Level		Over Limit						T/Pos	Remark	Pol/Phase
_	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	47.46	35.16	40.00	-4.84	51.58	1.28	15.01	32.71	100	320	Peak	VERTICAL
2	51.34	29.78	40.00	-10.22	47.61	1.33	13.55	32.71	150	357	QP	VERTICAL
3	54.25	32.04	40.00	-7.96	50.59	1.37	12.73	32.65	300	281	QP	VERTICAL
4	56.19	29.97	40.00	-10.03	48.80	1.39	12.39	32.61	100	45	QP	VERTICAL
5	62.01	33.44	40.00	-6.56	52.42	1.46	12.05	32.49	125	358	Peak	VERTICAL
6	82.38	33.59	40.00	-6.41	51.32	1.69	13.06	32.48	150	111	Peak	VERTICAL



## Horizontal 30 MHz to 1,000 MHz



	Freq	Level		Over Limit						T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	99.84	29.89	43.50	-13.61	43.64	1.88	16.73	32.36	300	35	Peak	HORIZONTAL
2	270.56	30.89	46.00	-15.11	41.15	3.19	18.95	32.40	150	189	Peak	HORIZONTAL
3	747.80	35.17	46.00	-10.83	36.44	5.46	25.35	32.08	125	207	Peak	HORIZONTAL
4	773.02	35.53	46.00	-10.47	36.63	5.55	25.54	32.19	200	305	Peak	HORIZONTAL
5	861.29	36.14	46.00	-9.86	35.92	5.88	26.06	31.72	125	101	Peak	HORIZONTAL
6	959.26	37.81	46.00	-8.19	36.24	6.30	26.56	31.29	150	78	Peak	HORTZONTAL



## RSE TX above 1GHz

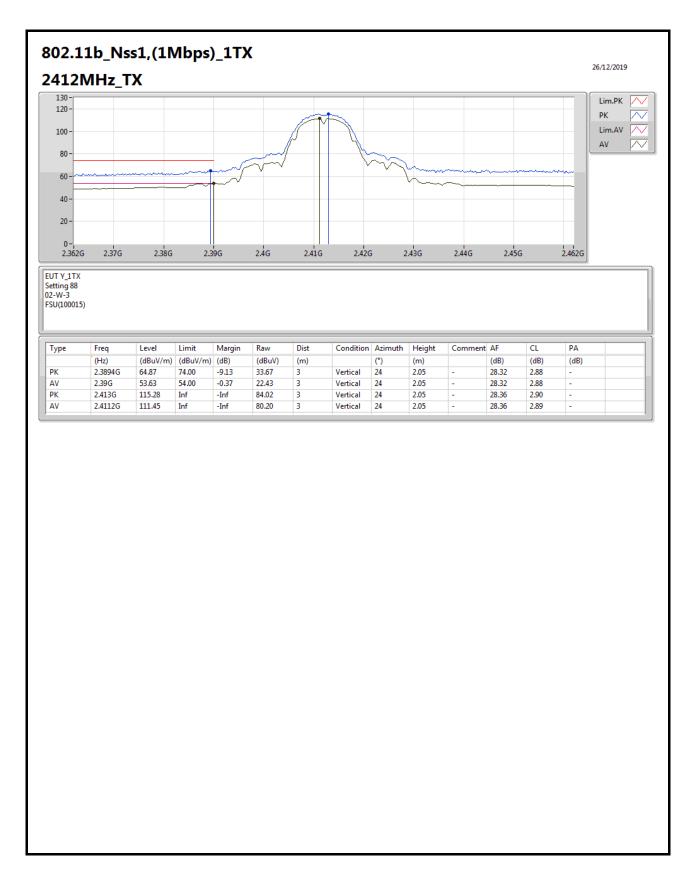
Appendix F.2

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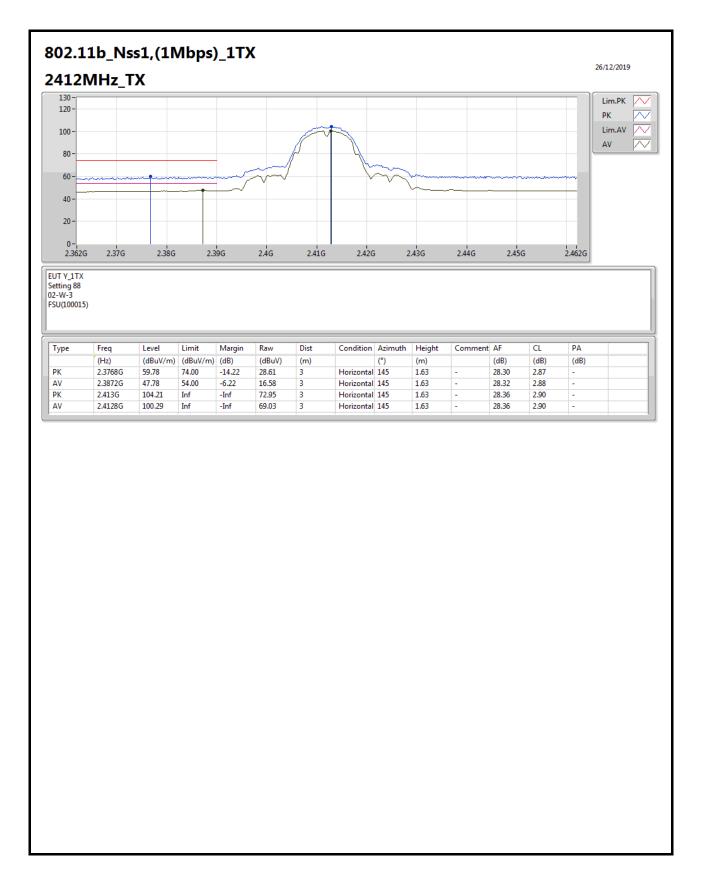
**Summary** 

Mode	Result	Туре	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
			(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-
802.11g_Nss1,(6Mbps)_2TX	Pass	AV	2.39G	53.98	54.00	-0.02	30.68	3	Vertical	162	1.99	-

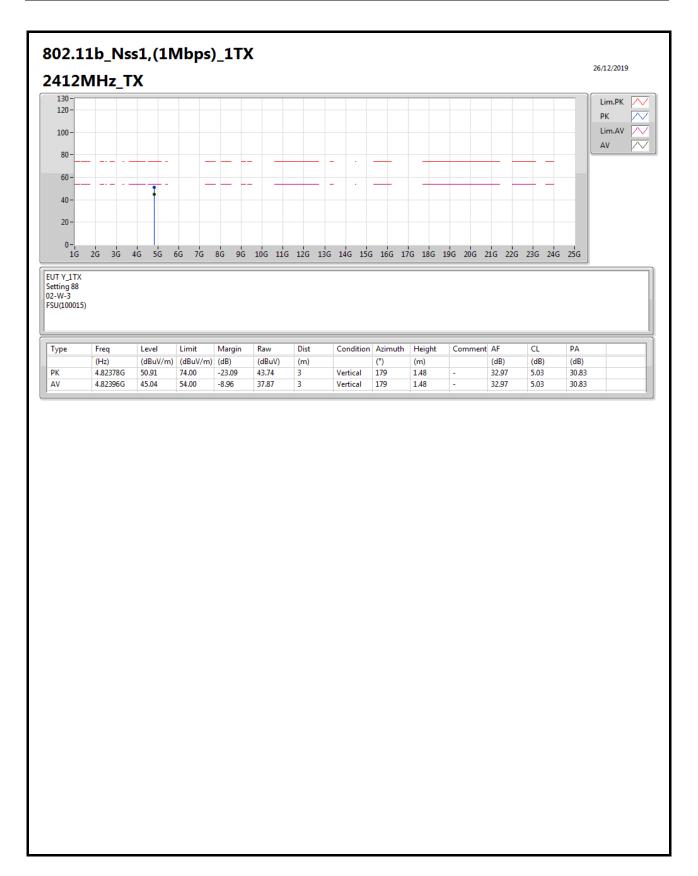




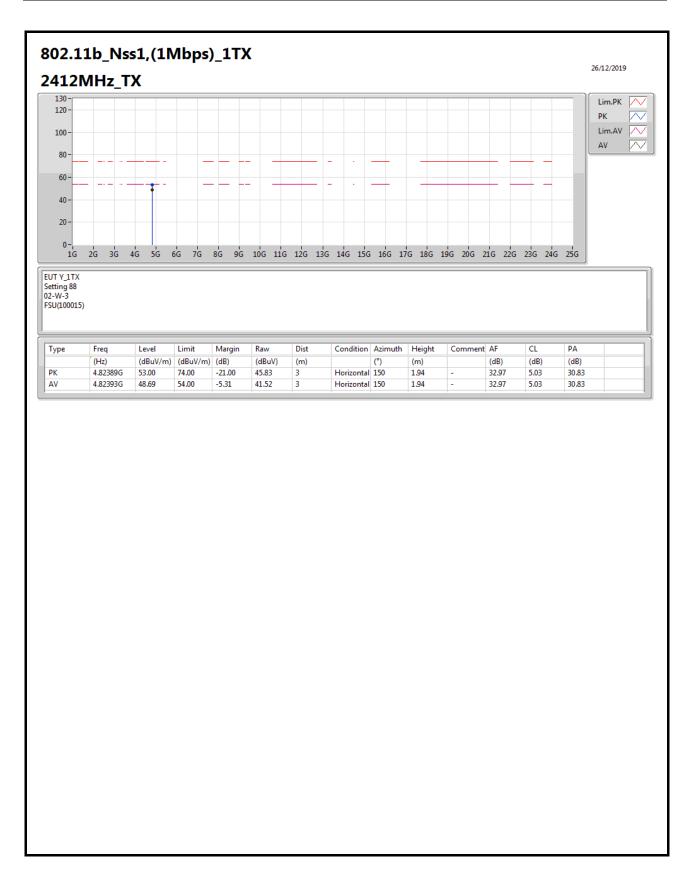




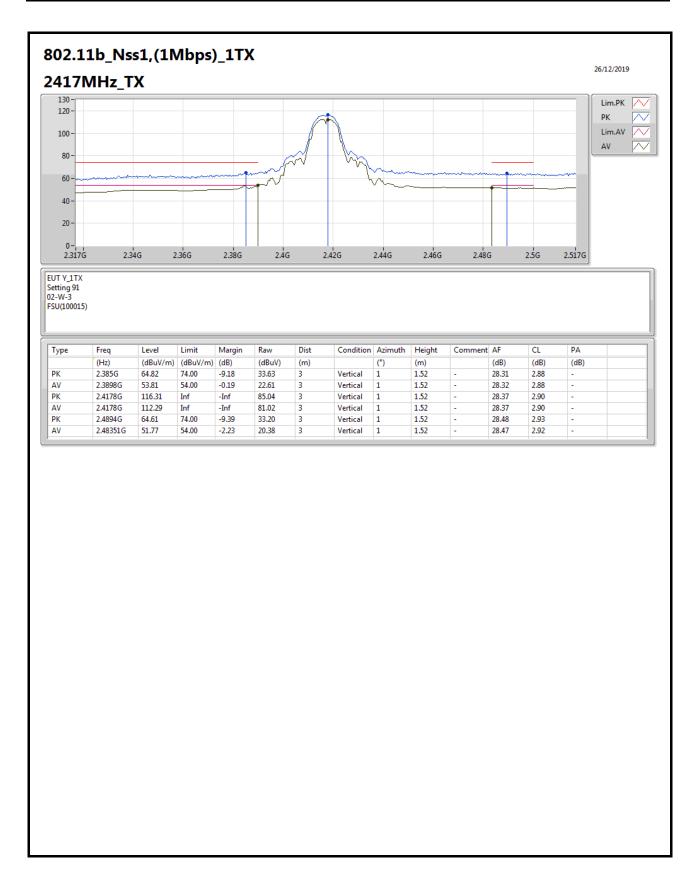




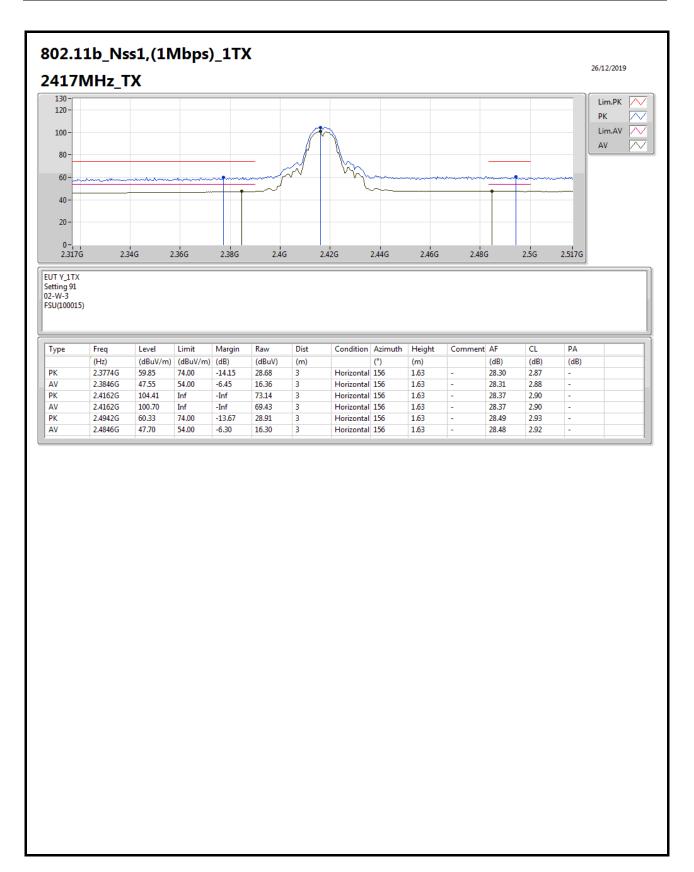




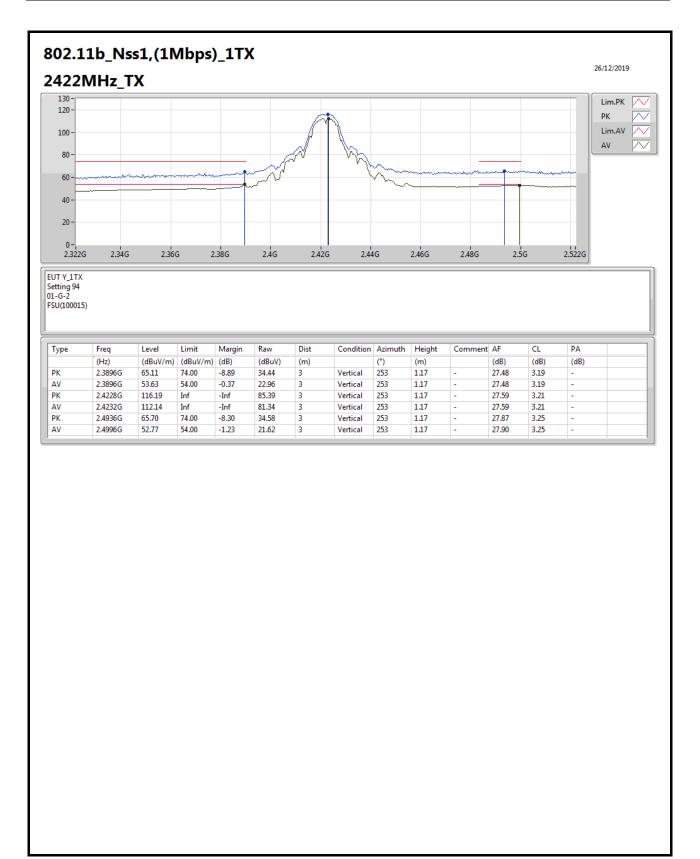




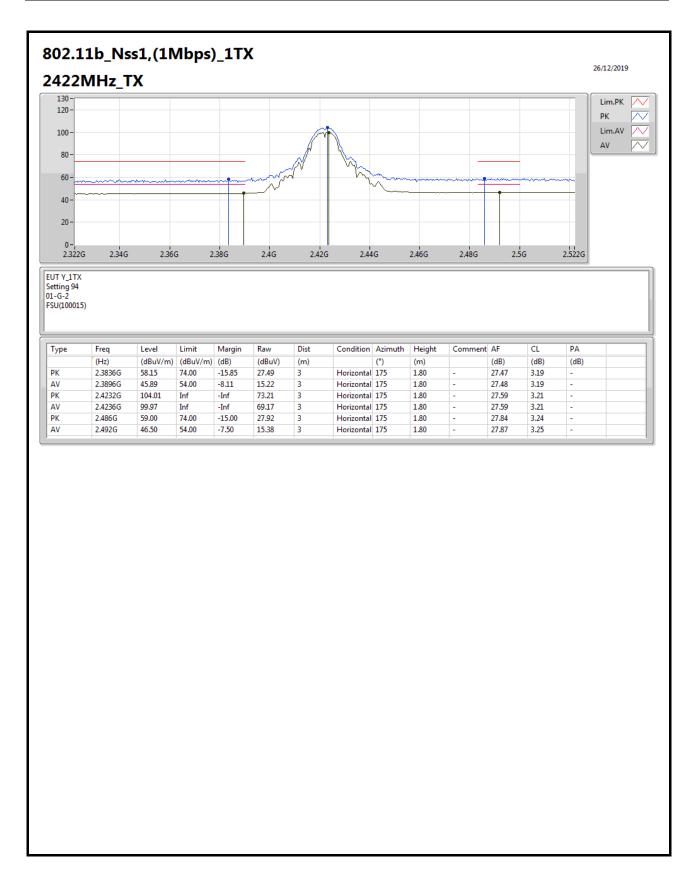




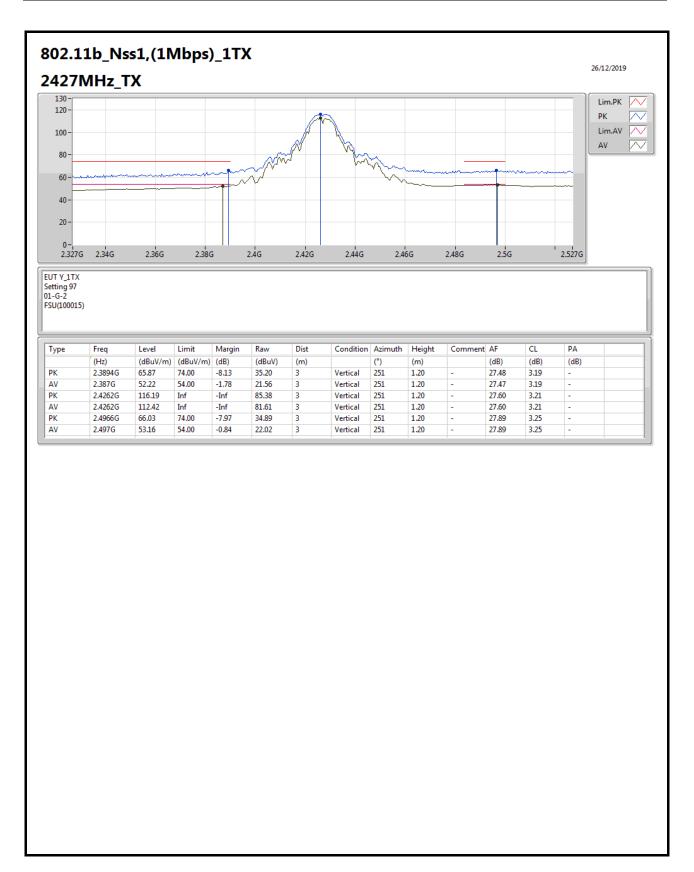




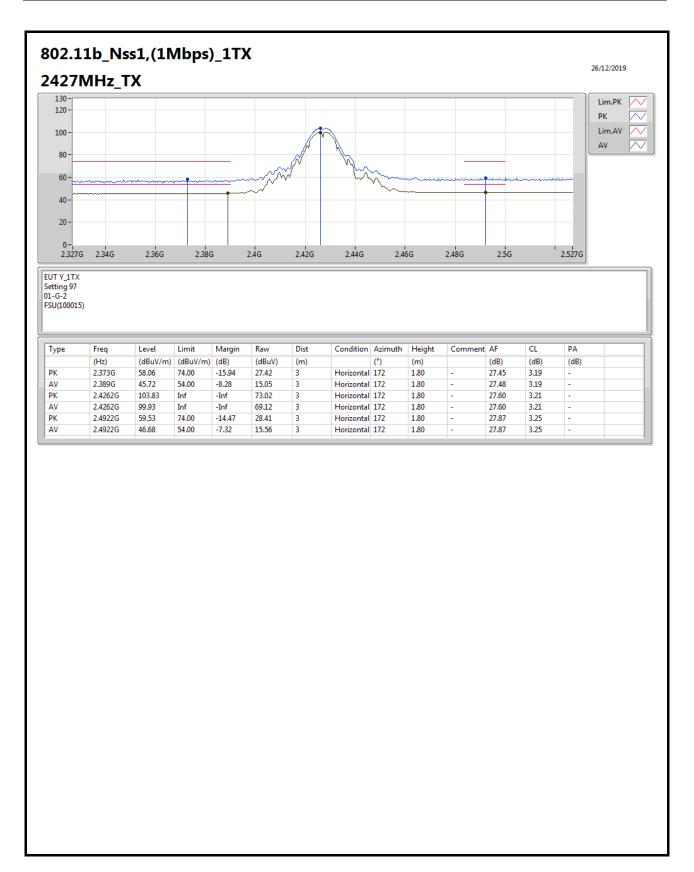




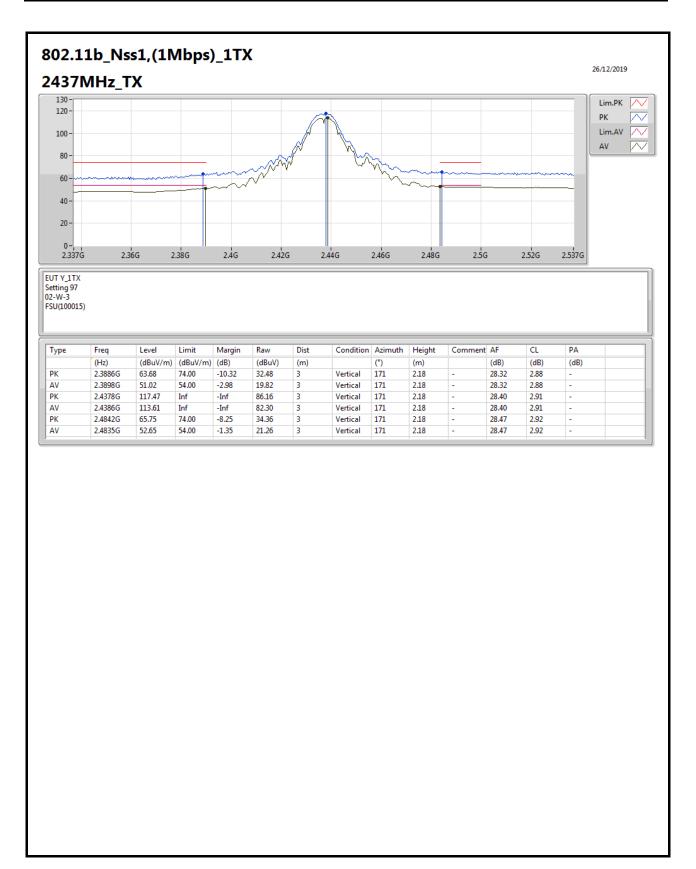




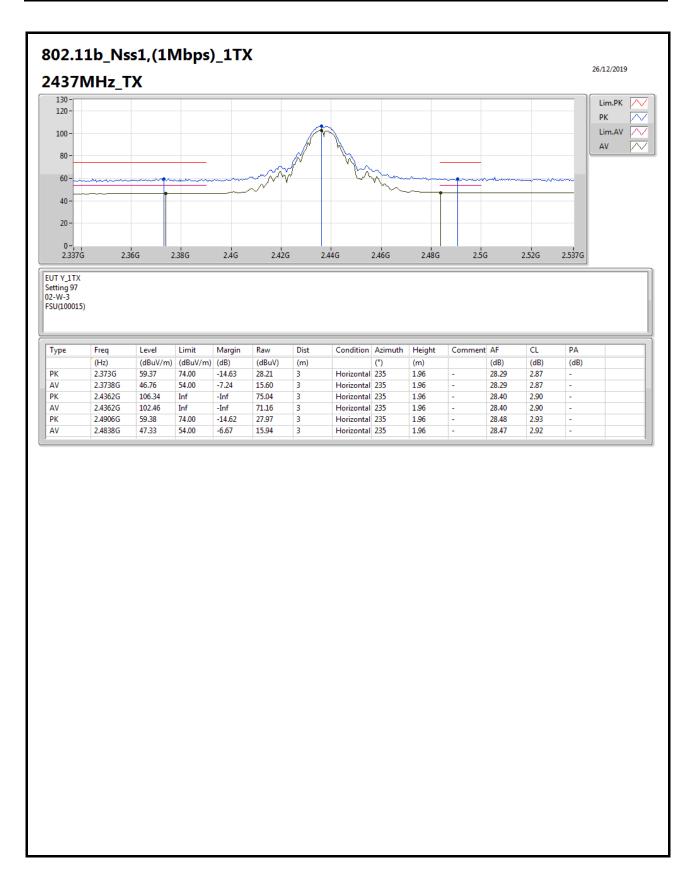




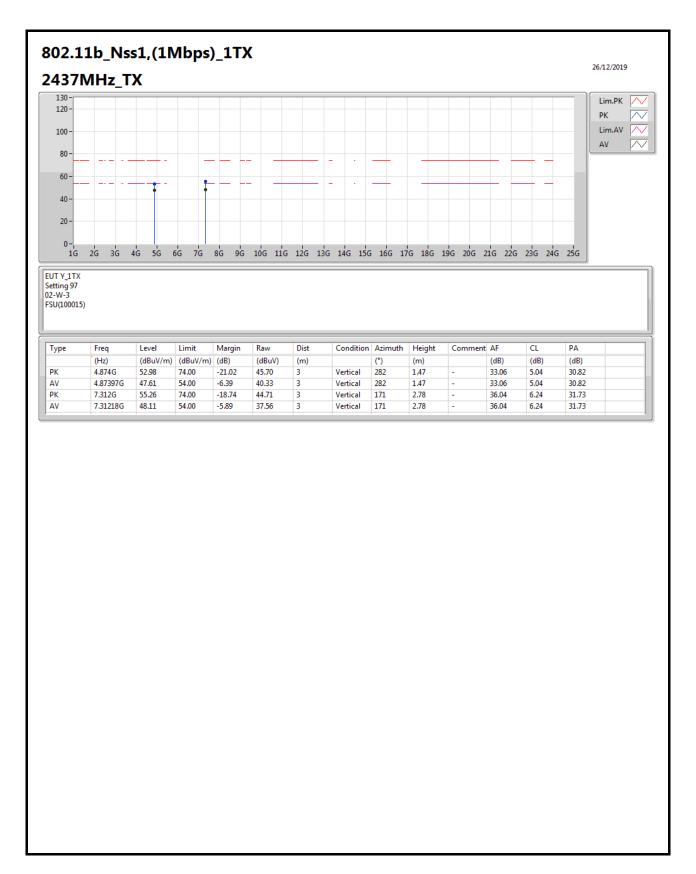




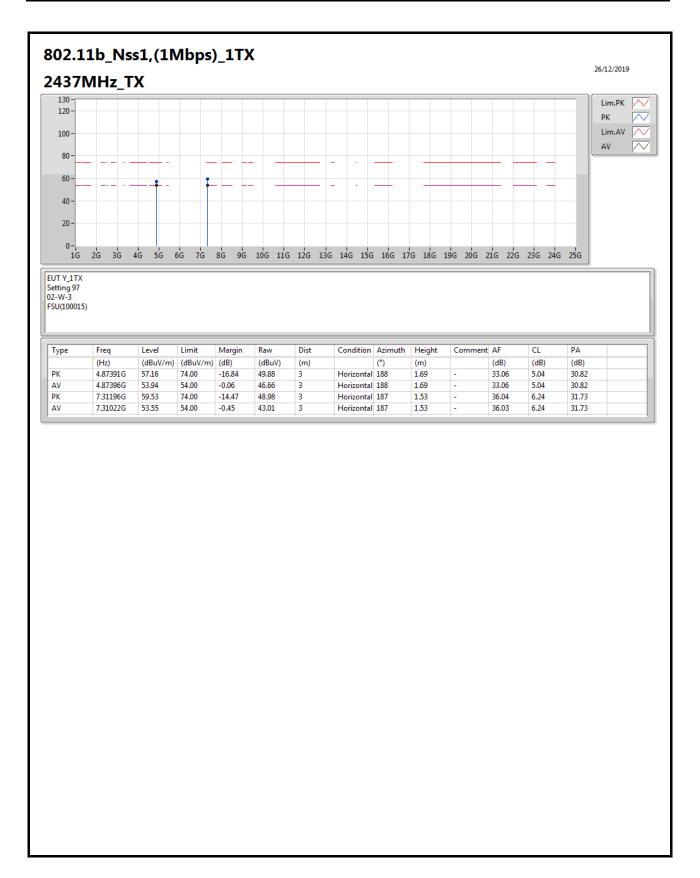




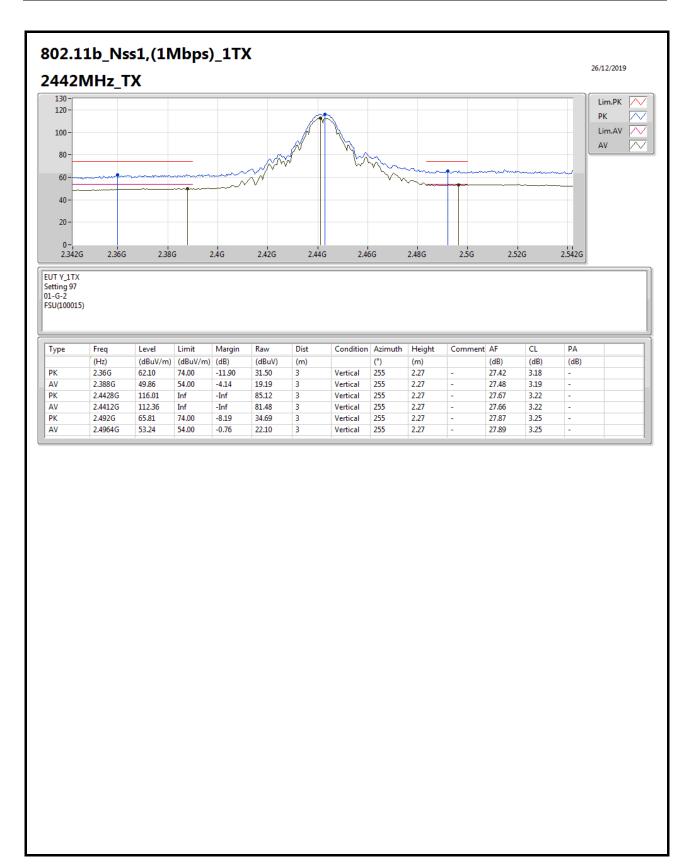




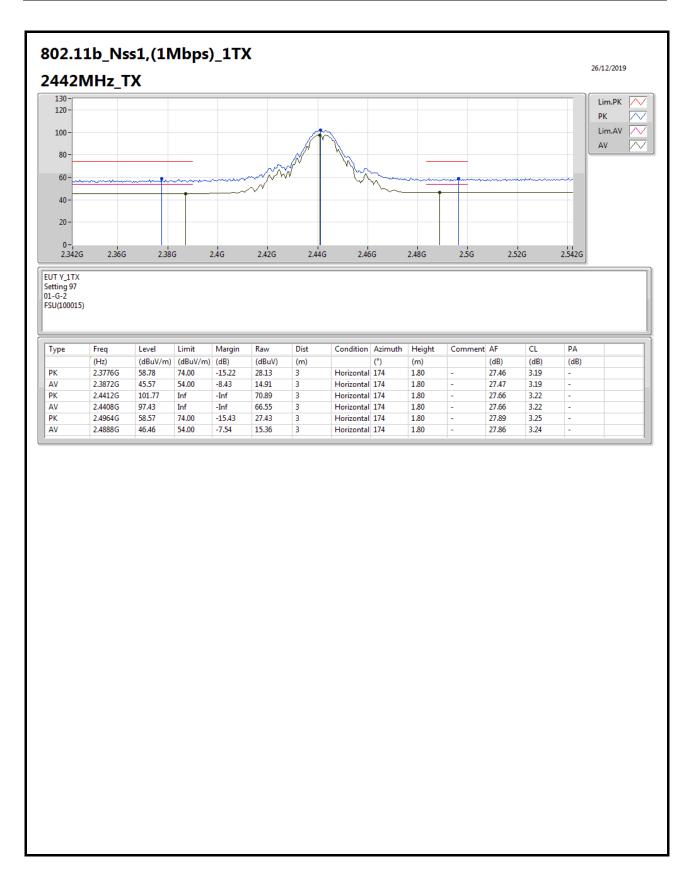




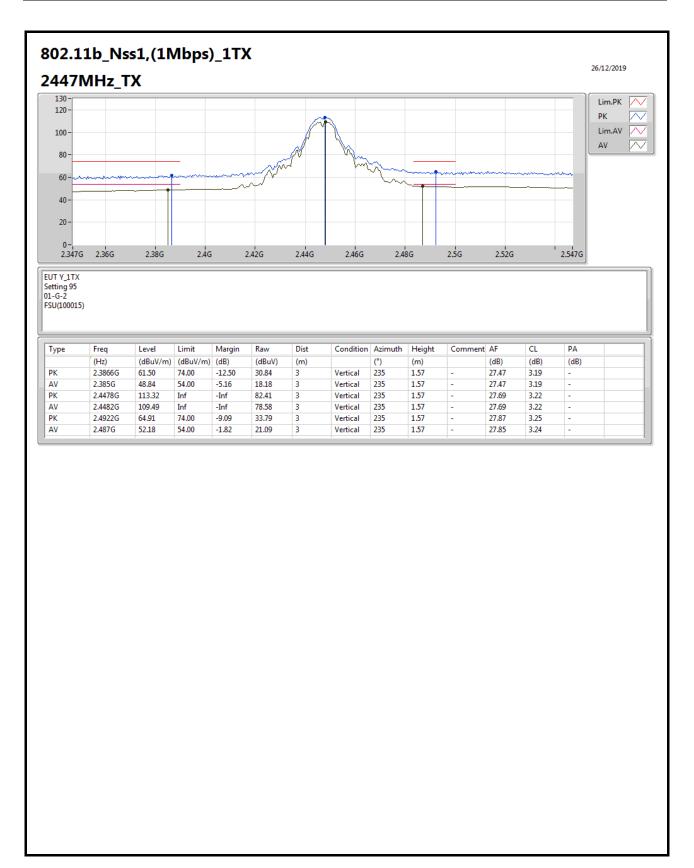




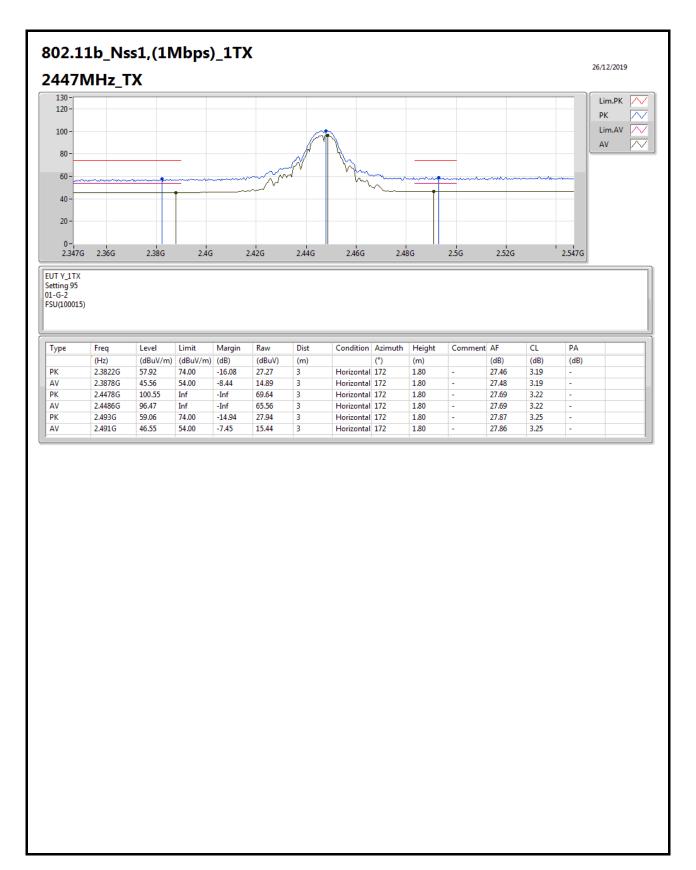




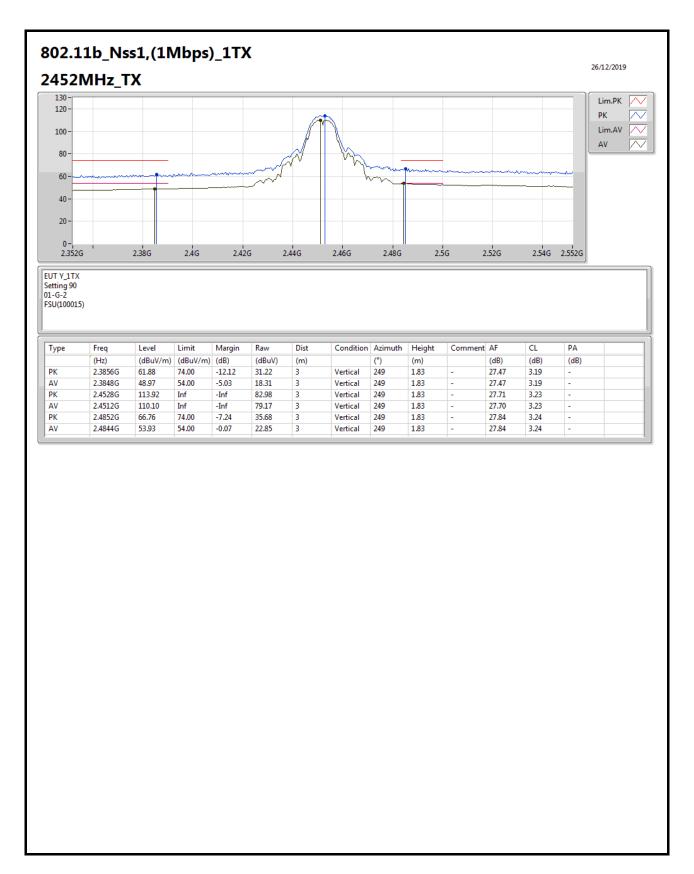


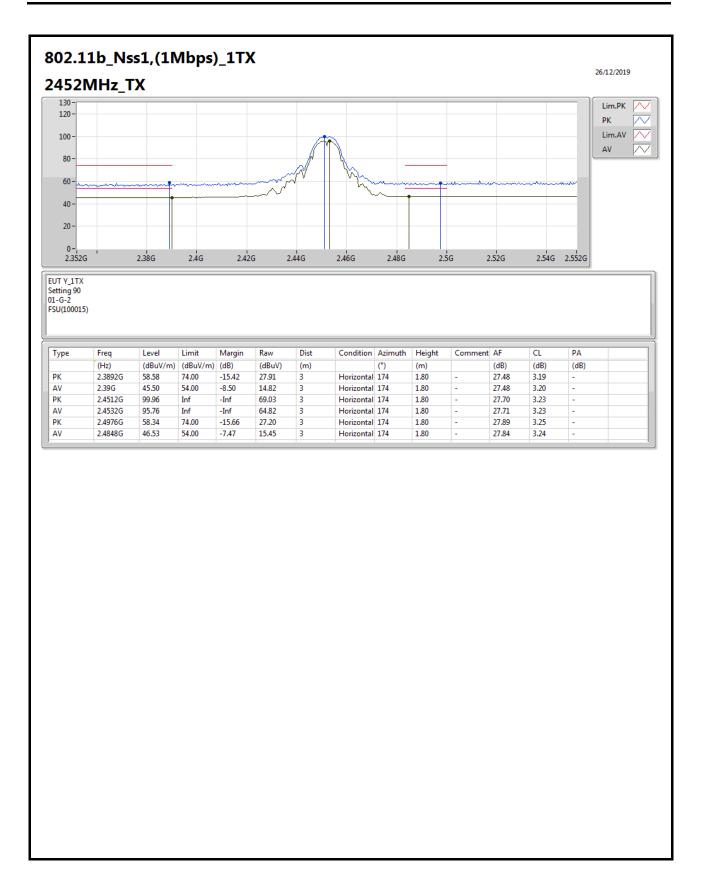




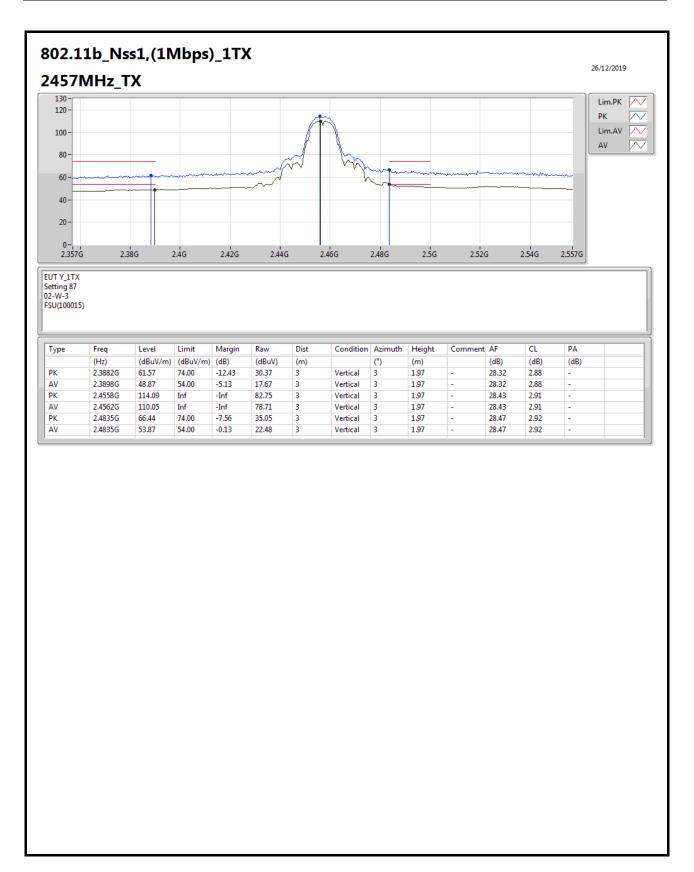




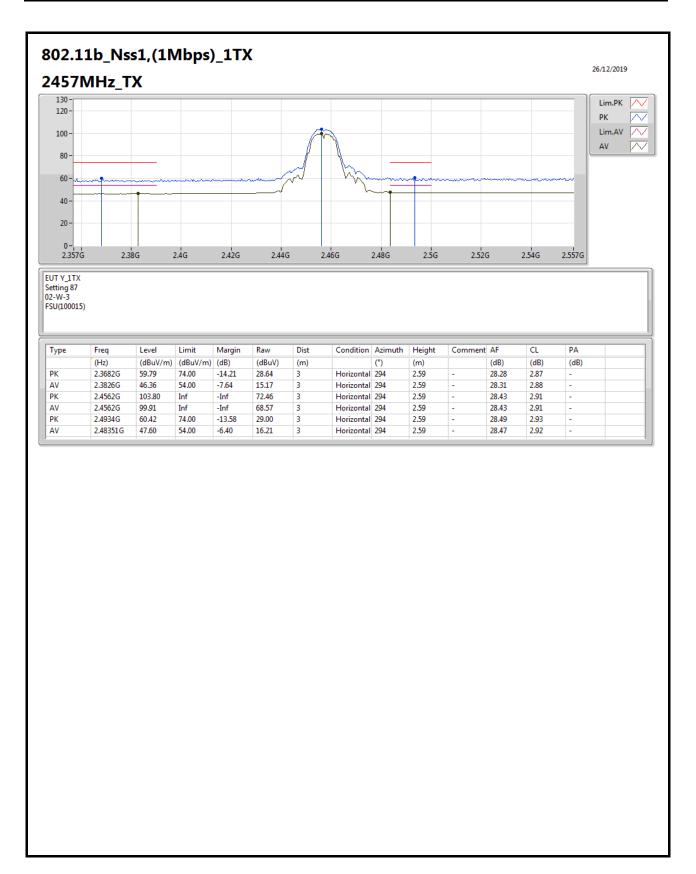




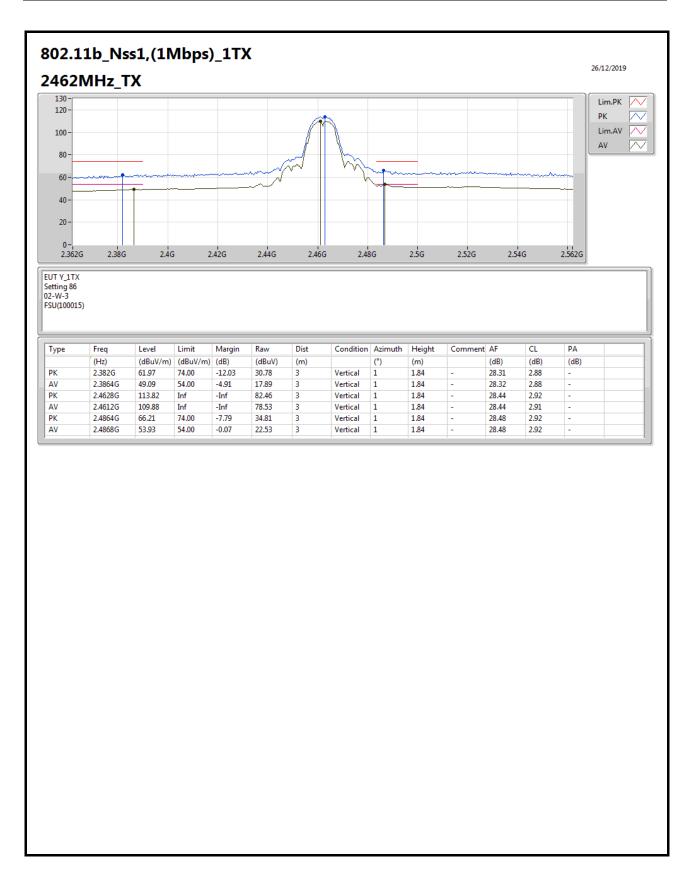


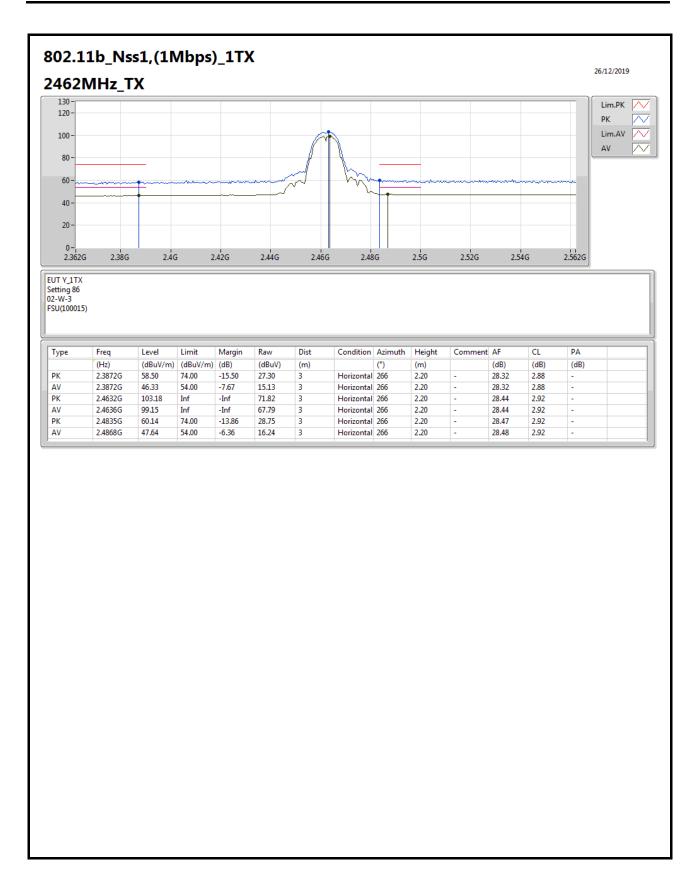




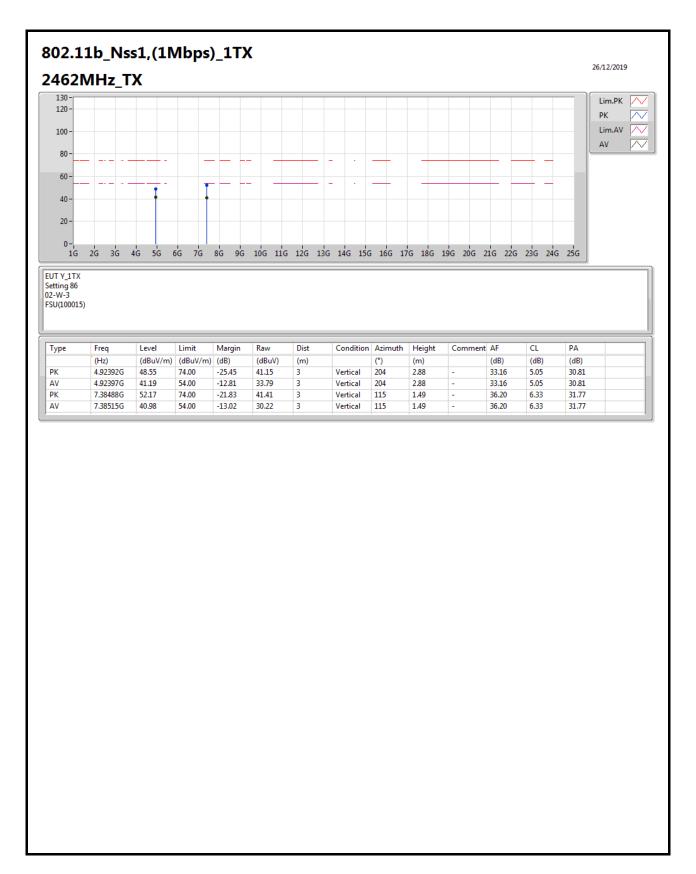




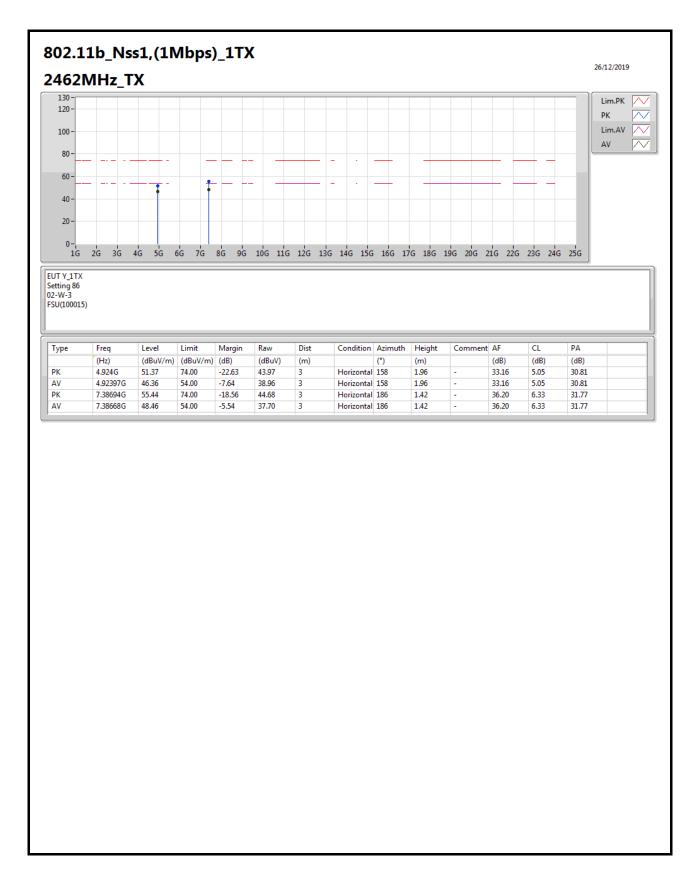


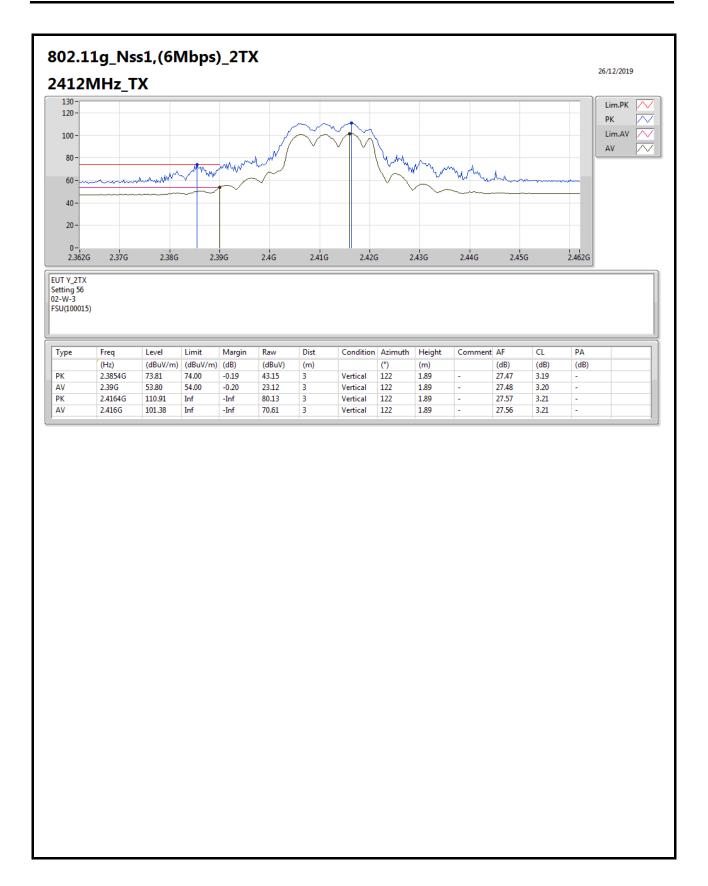




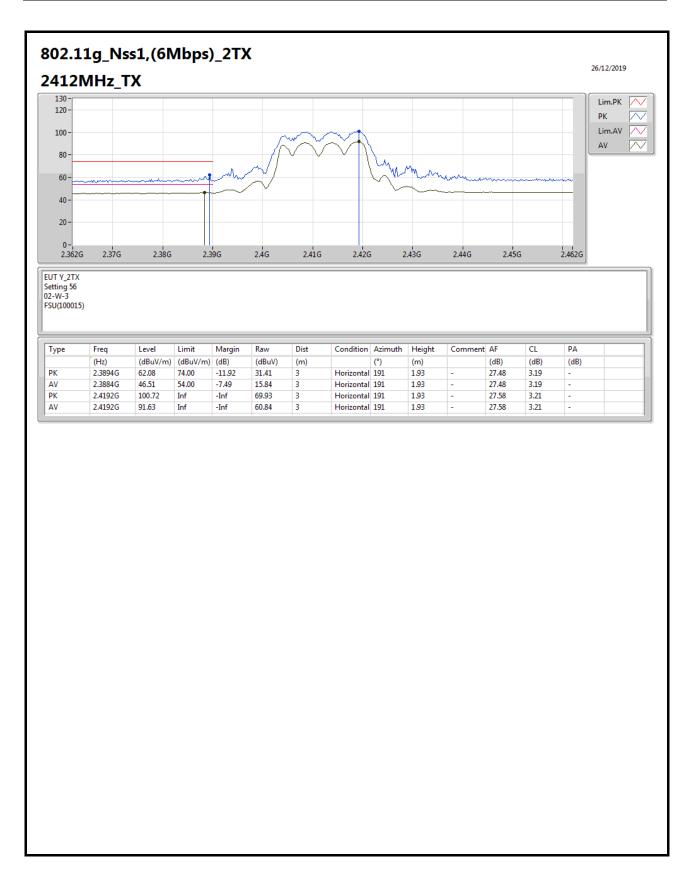




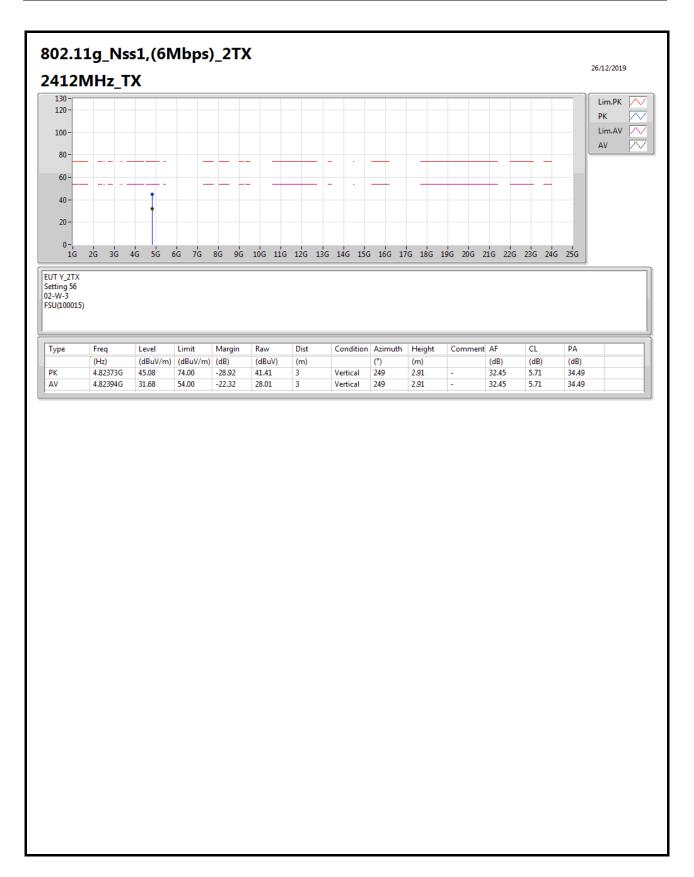




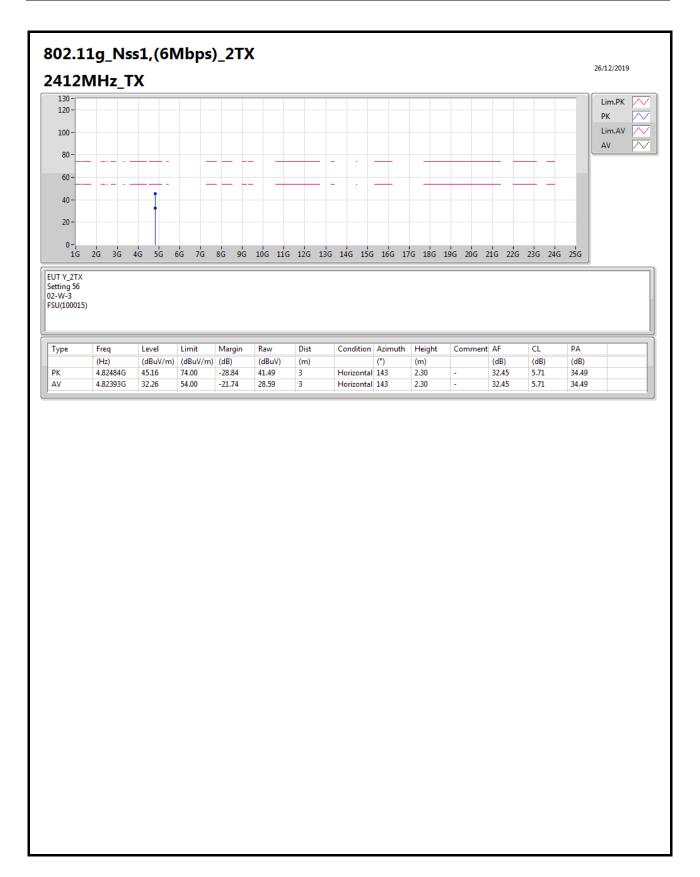




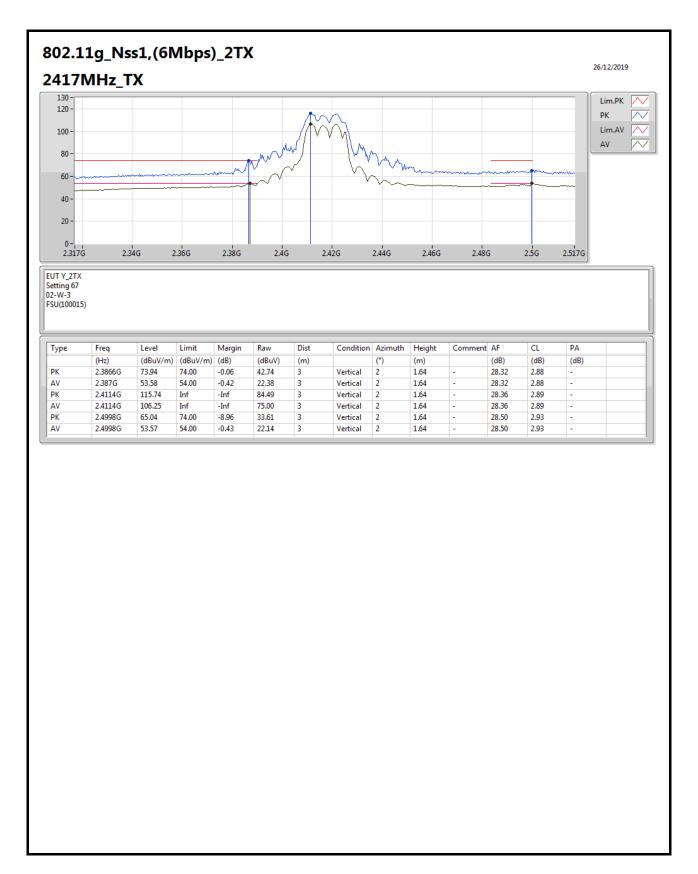




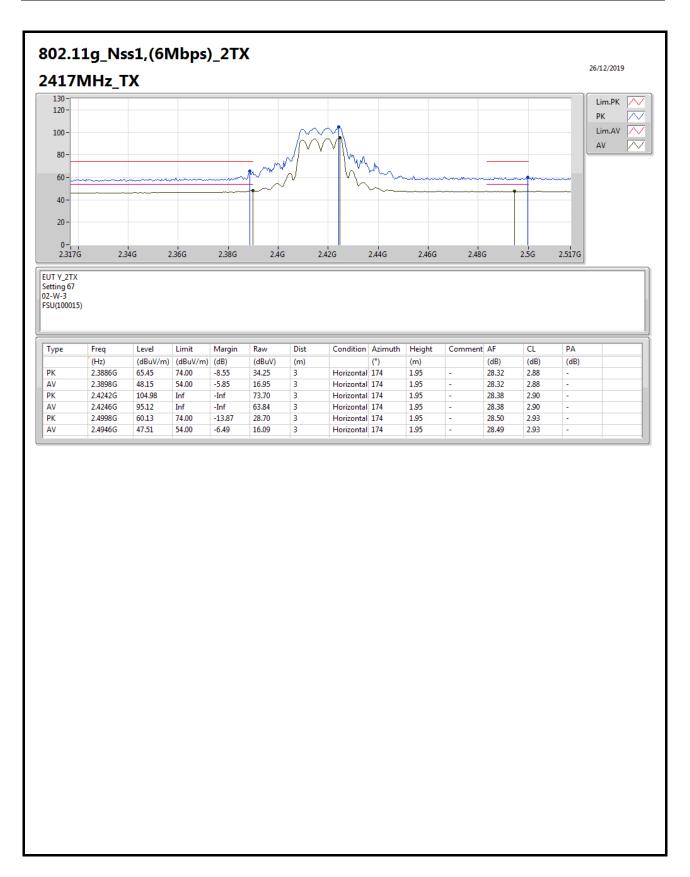




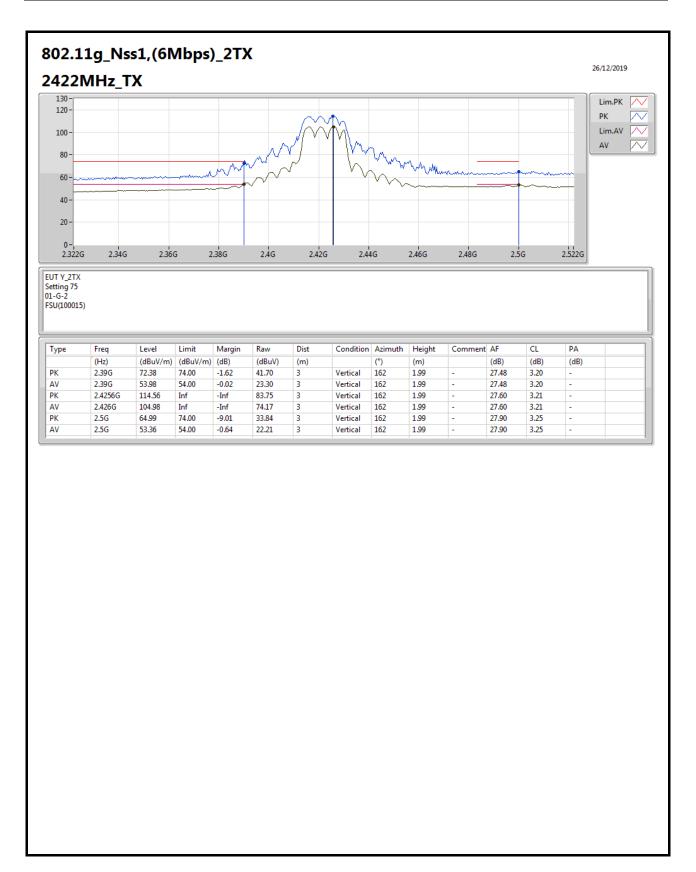




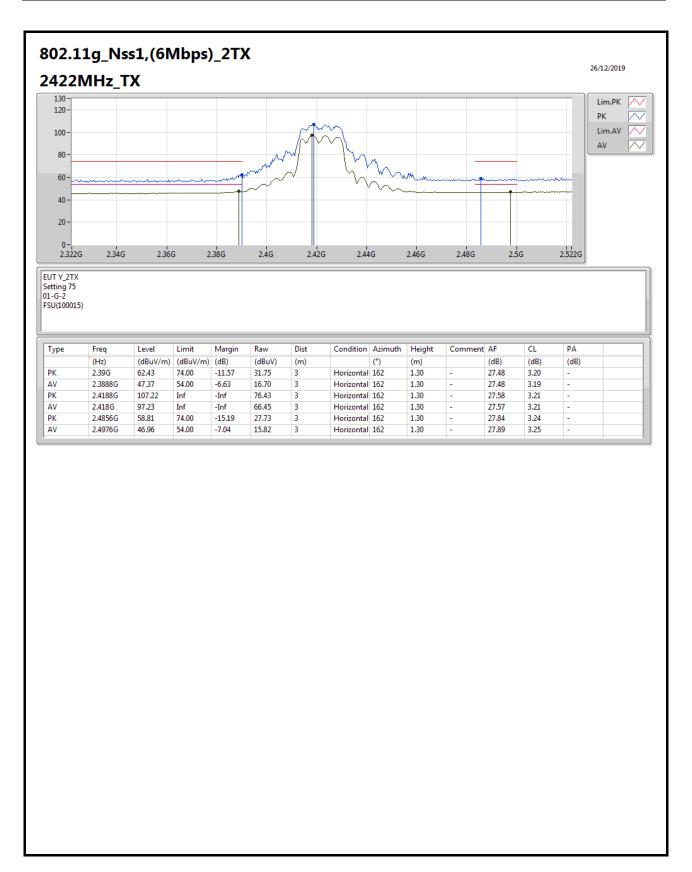




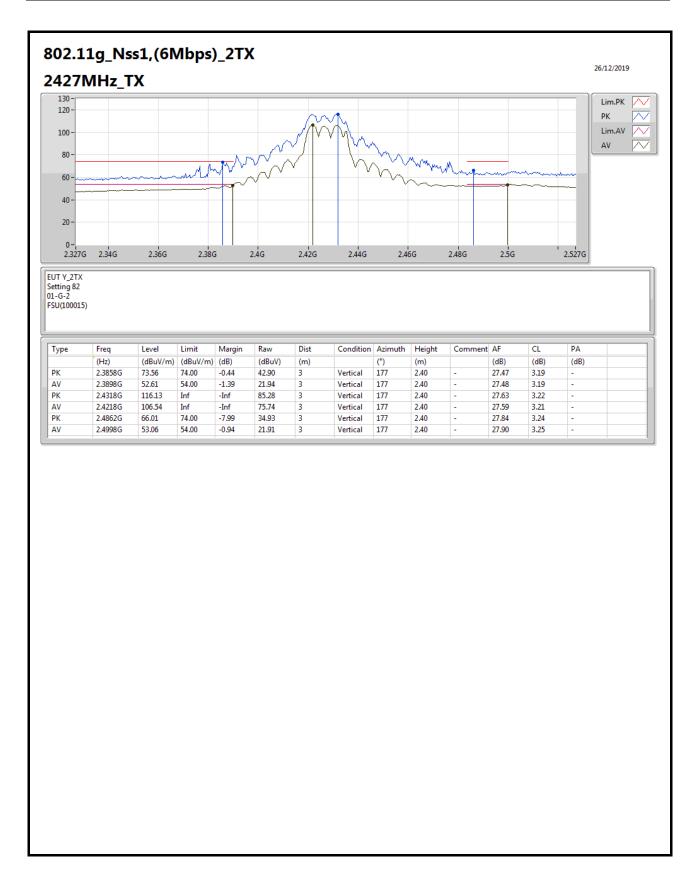




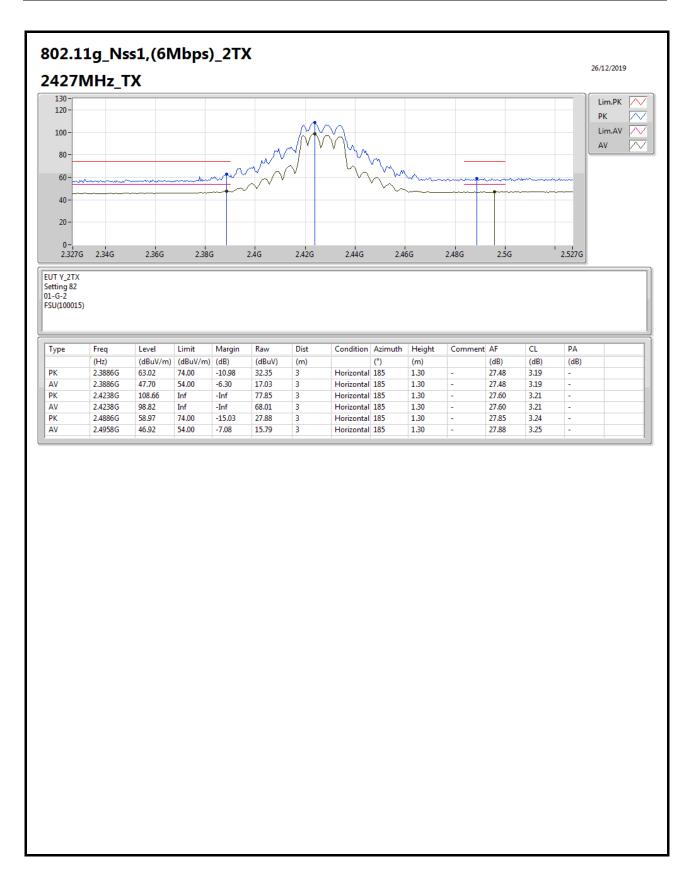


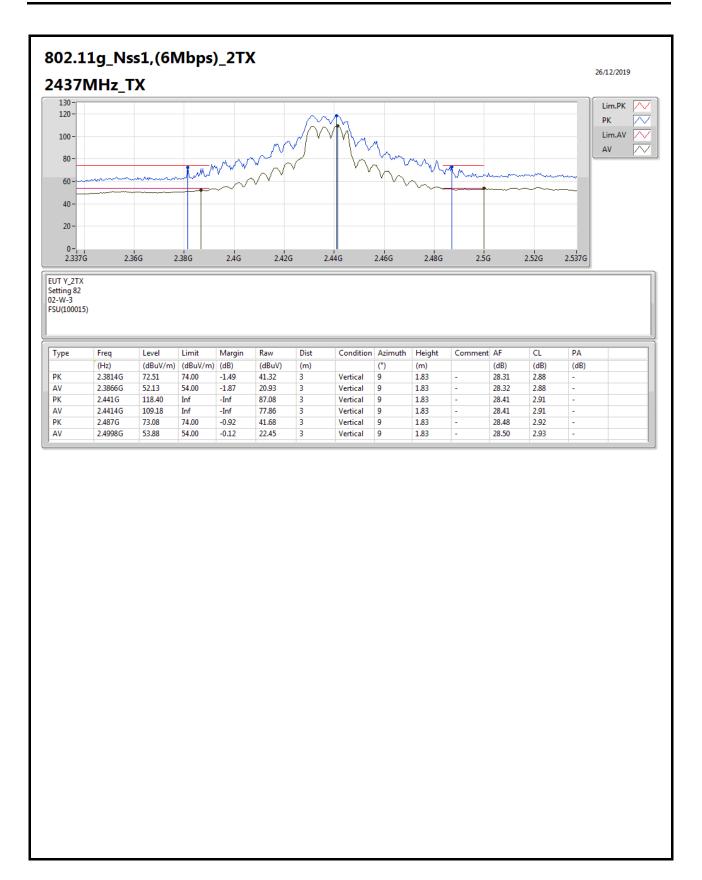




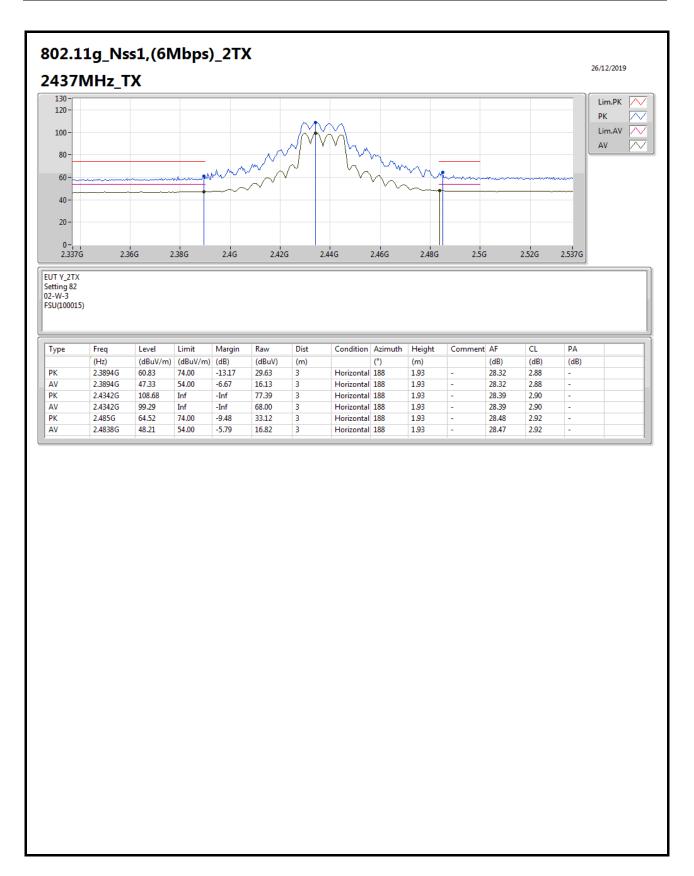




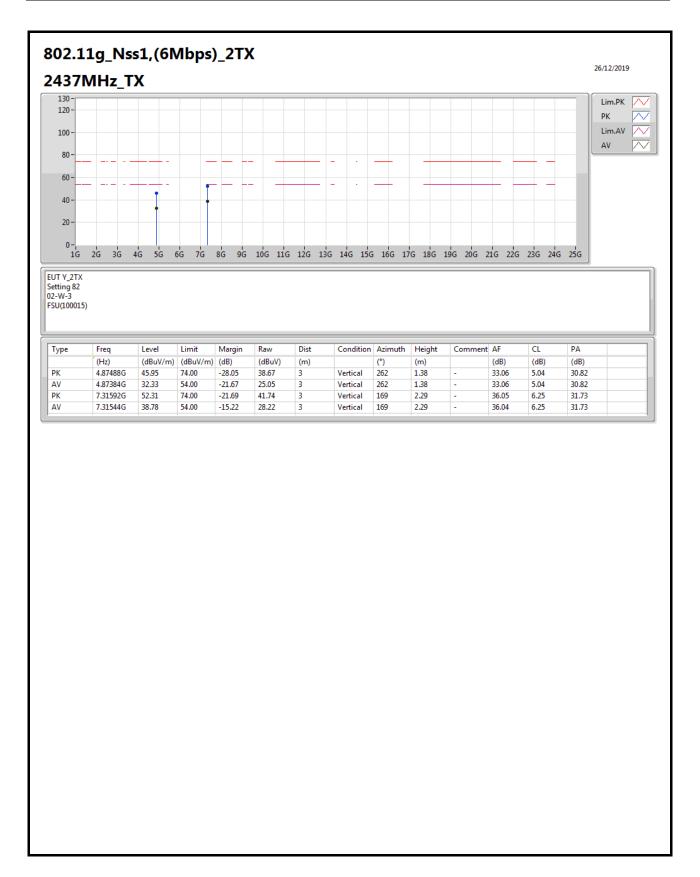




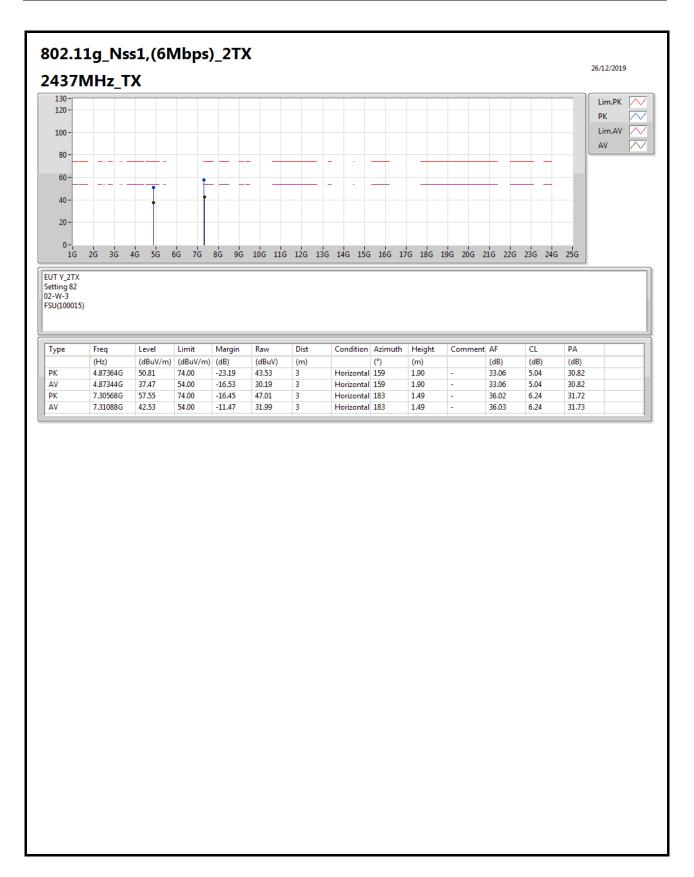


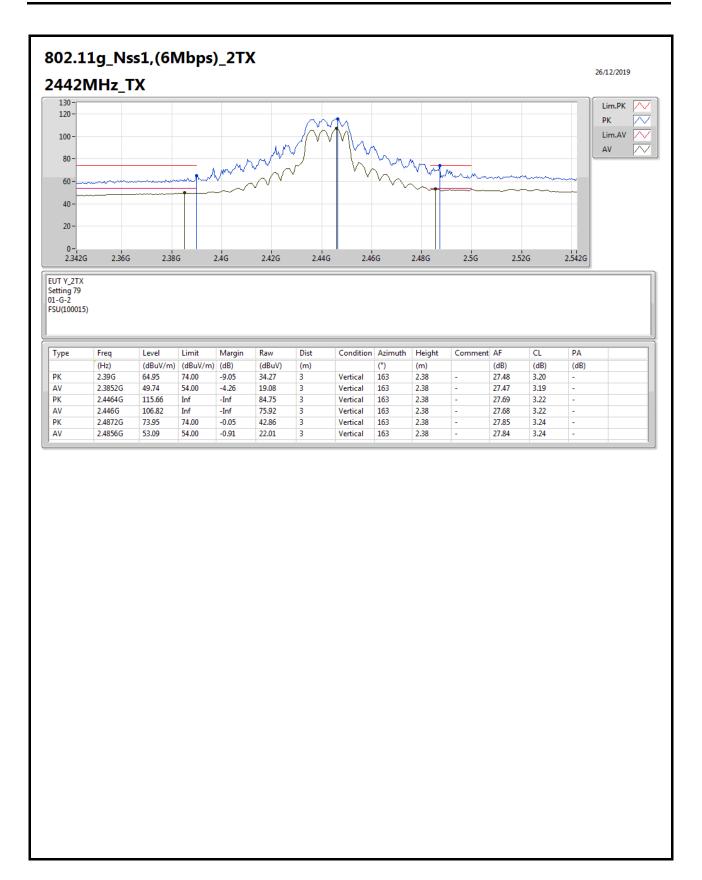


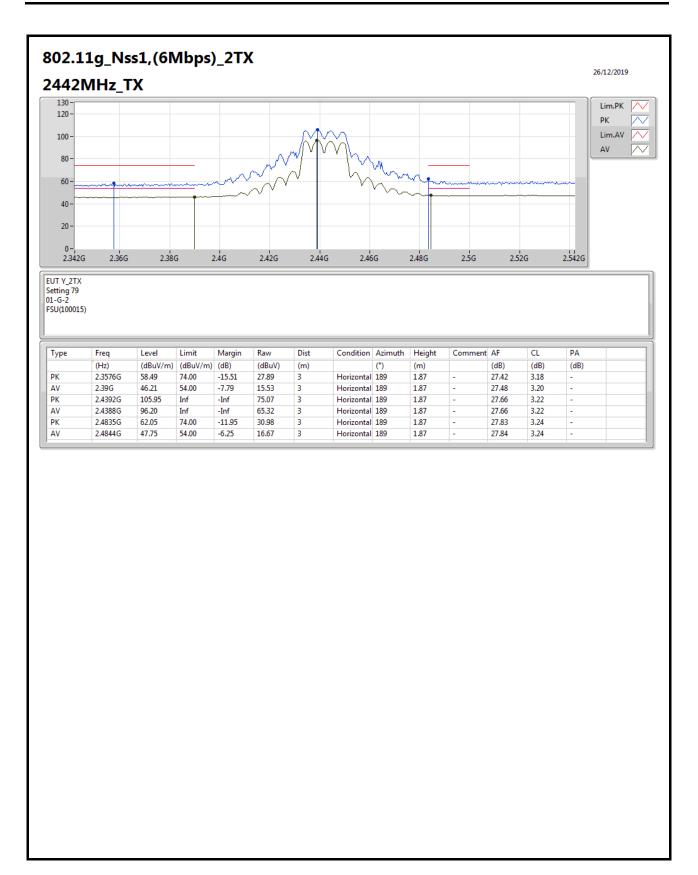




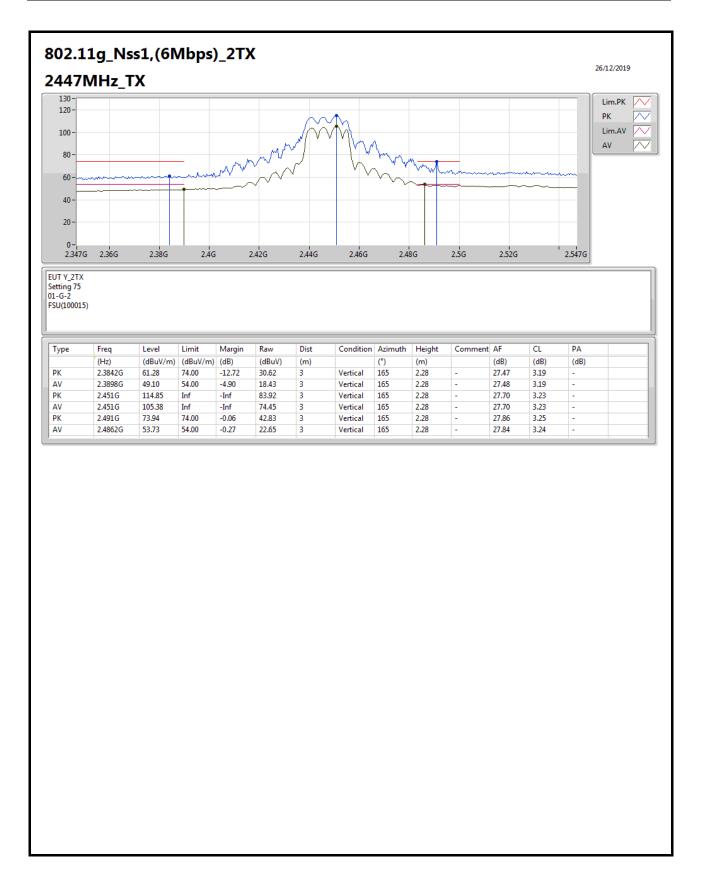


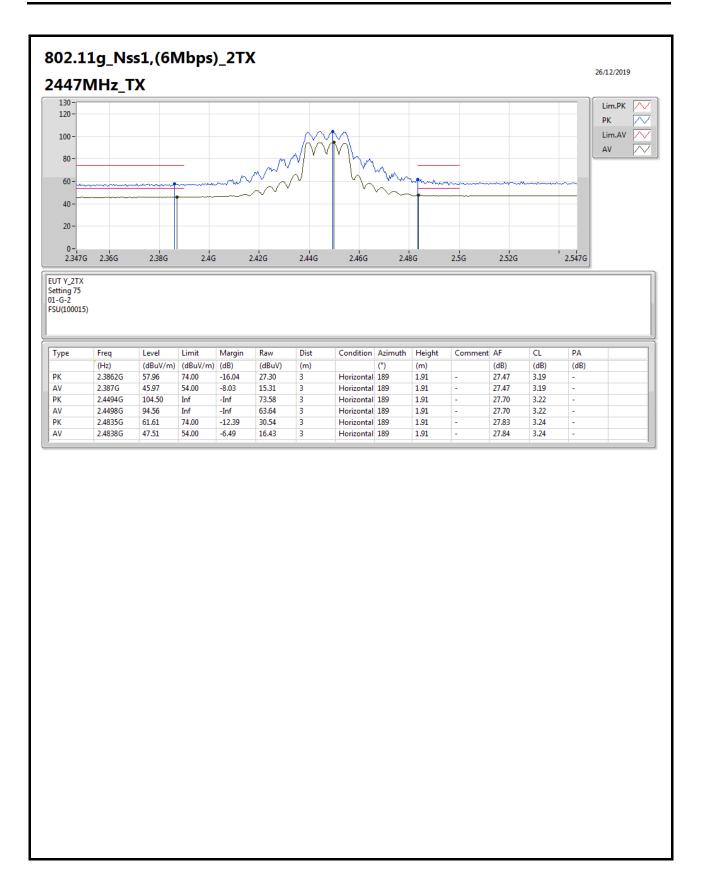




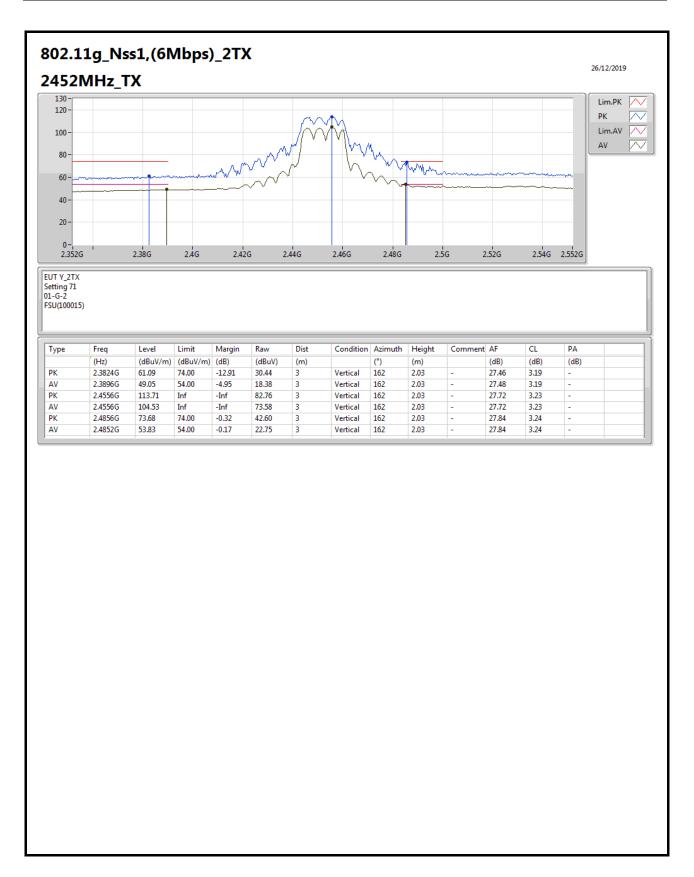


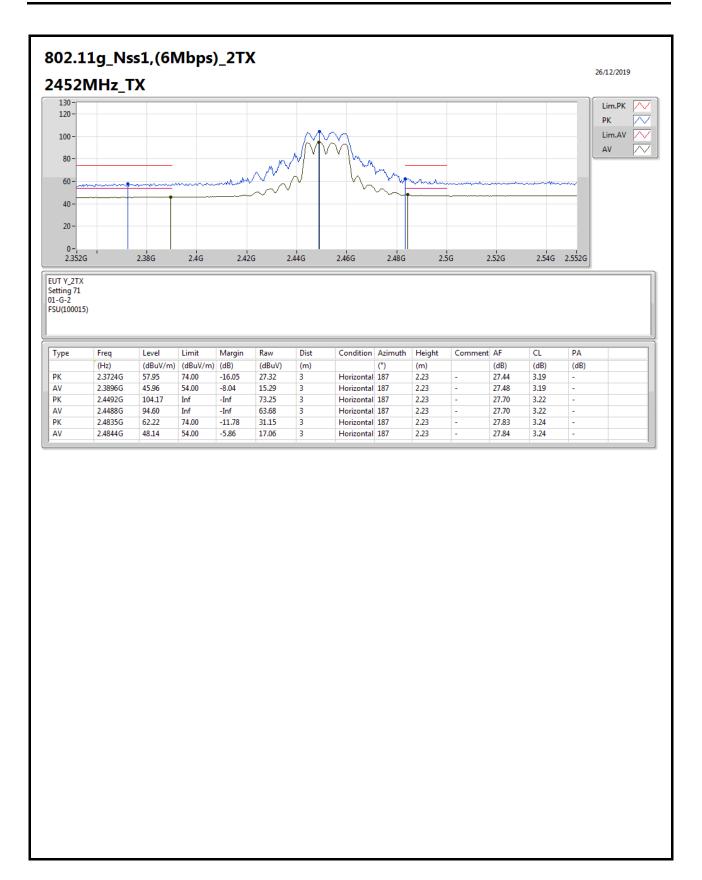


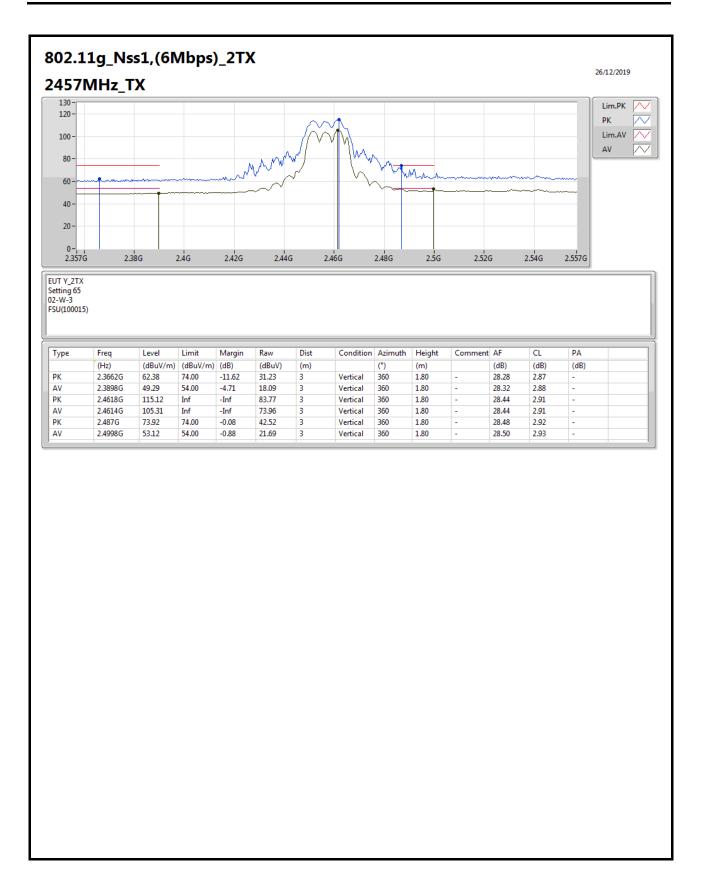




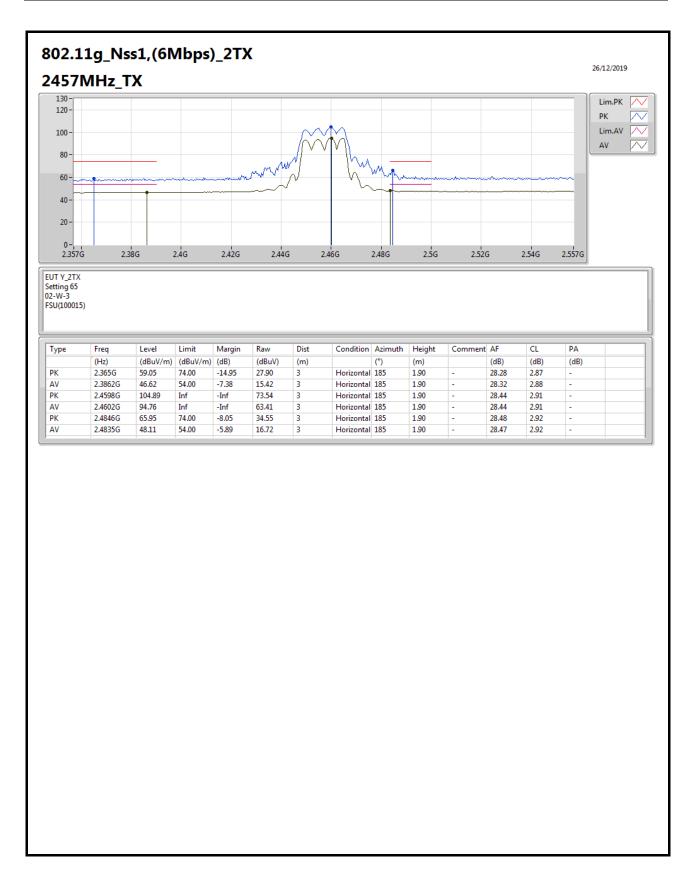




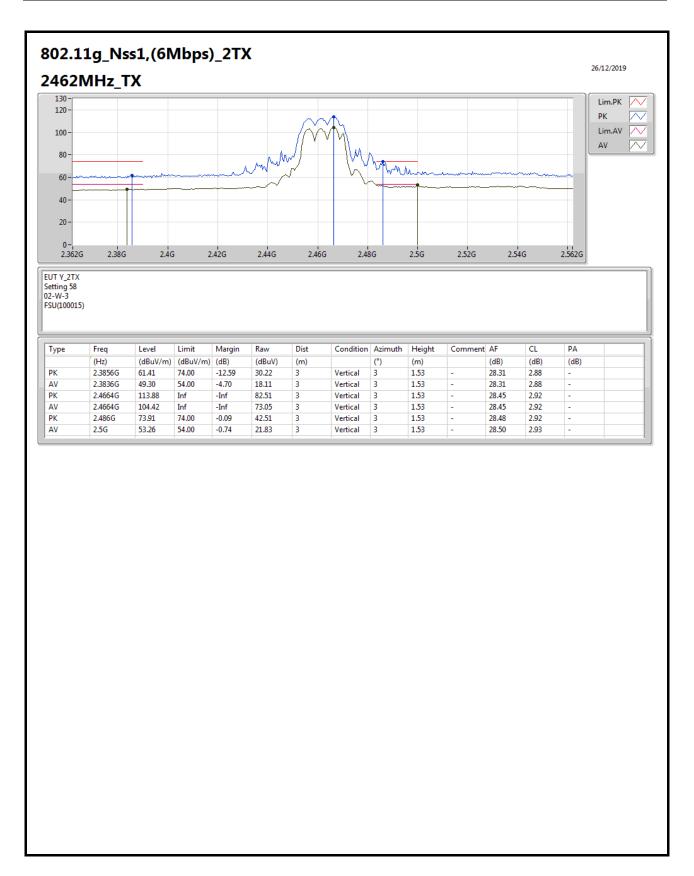




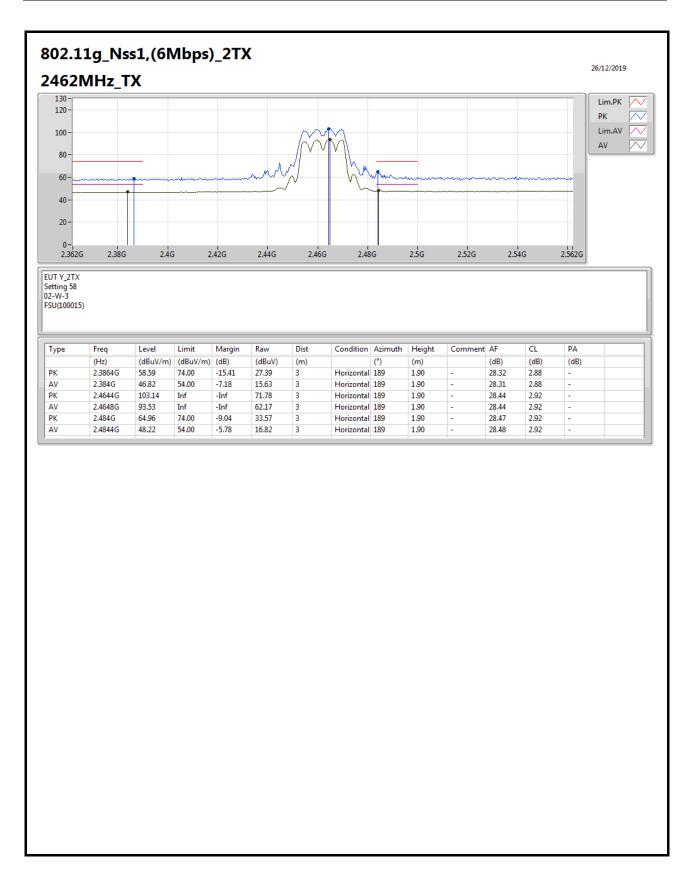




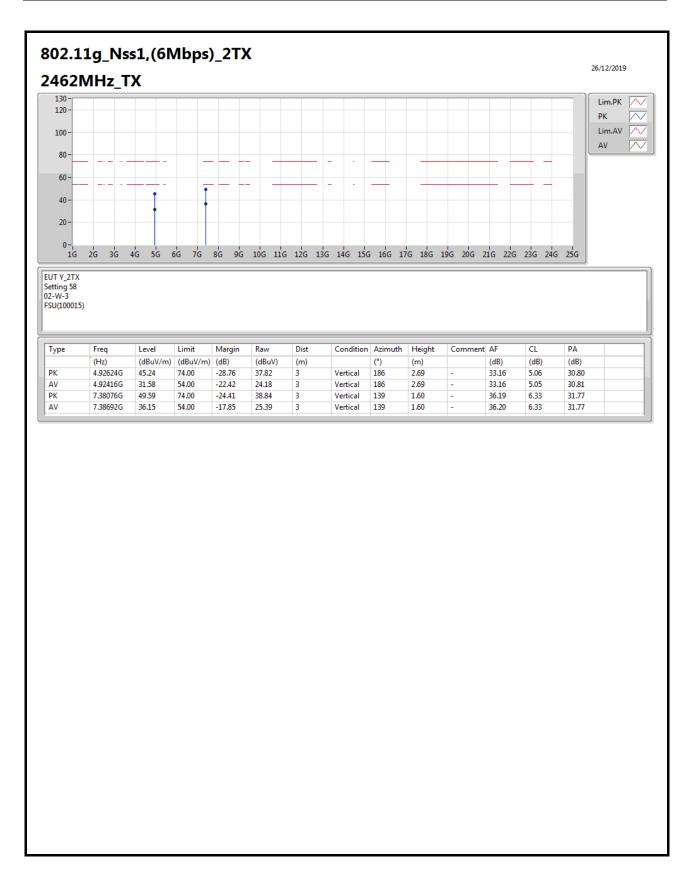






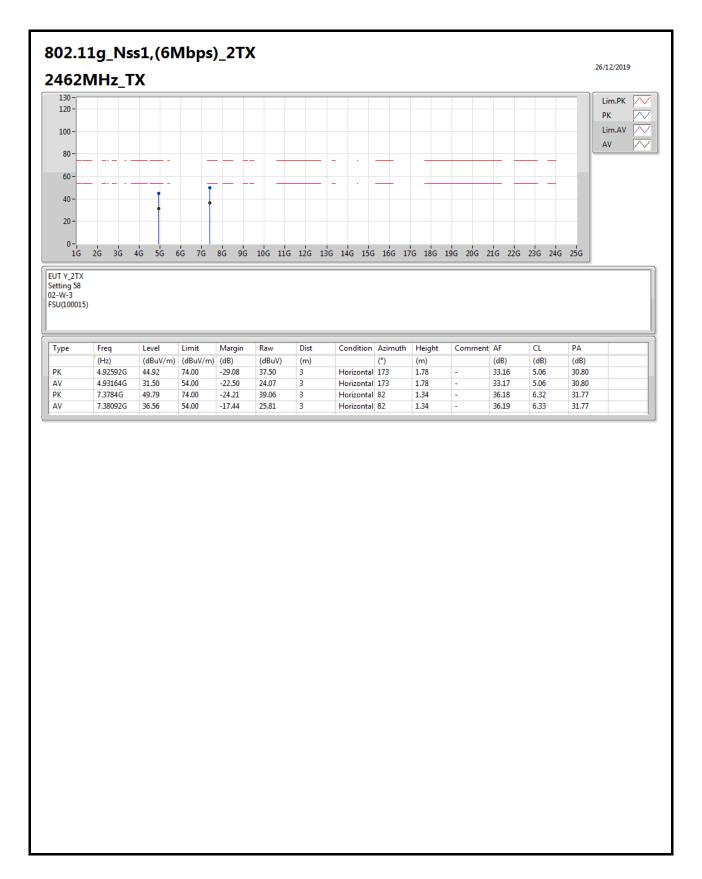




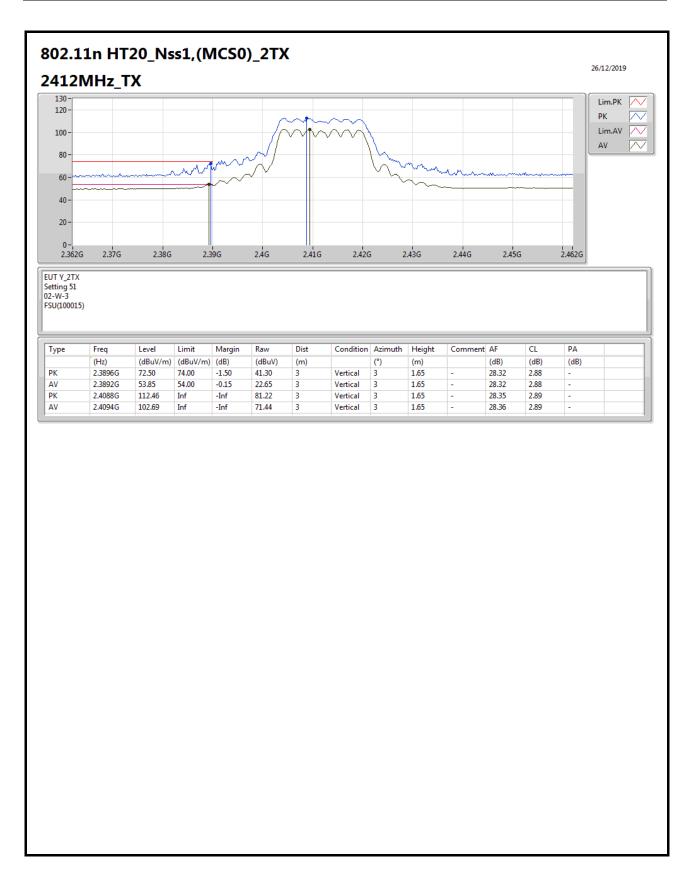


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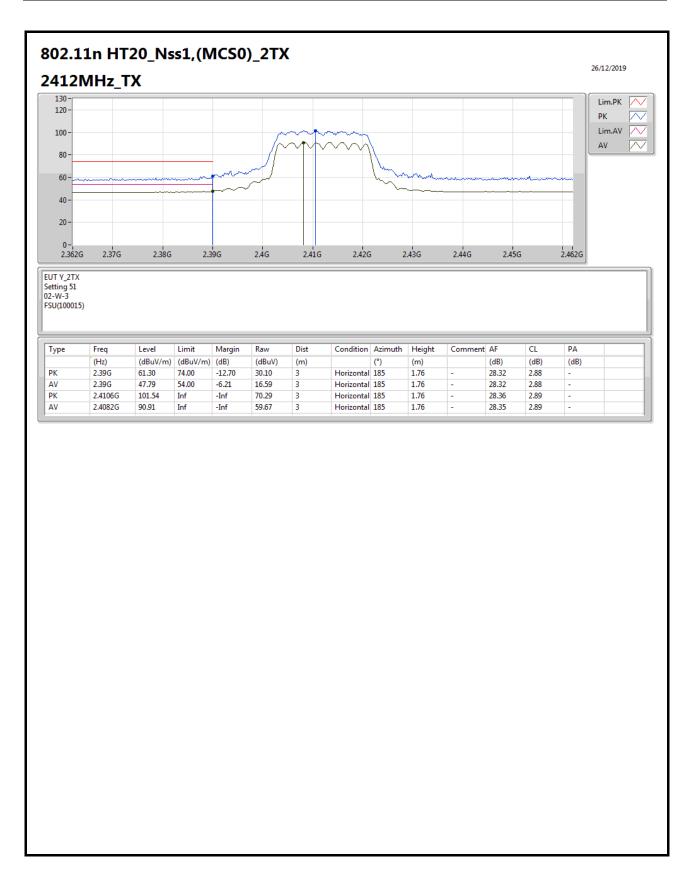




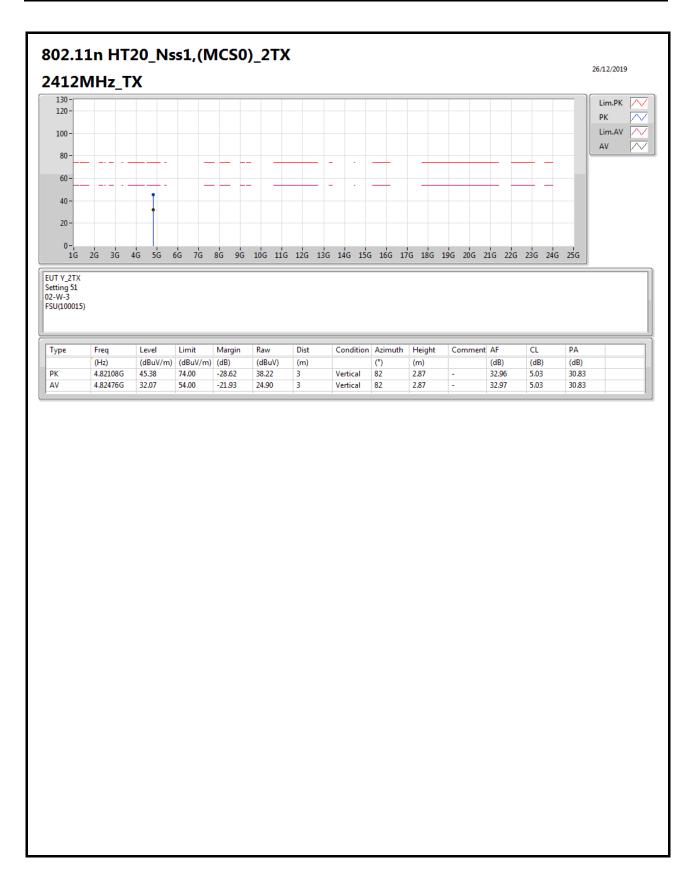




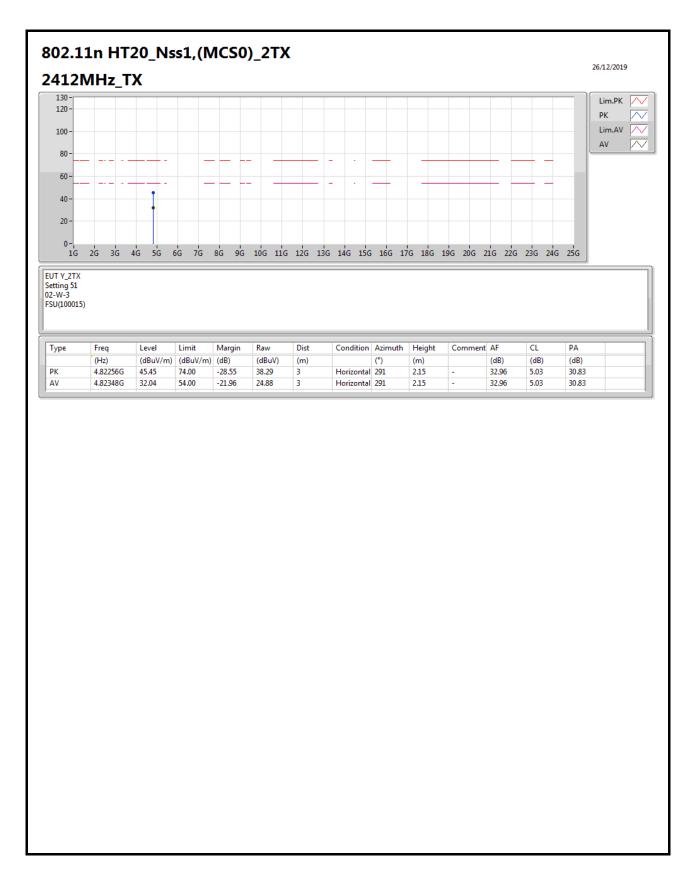




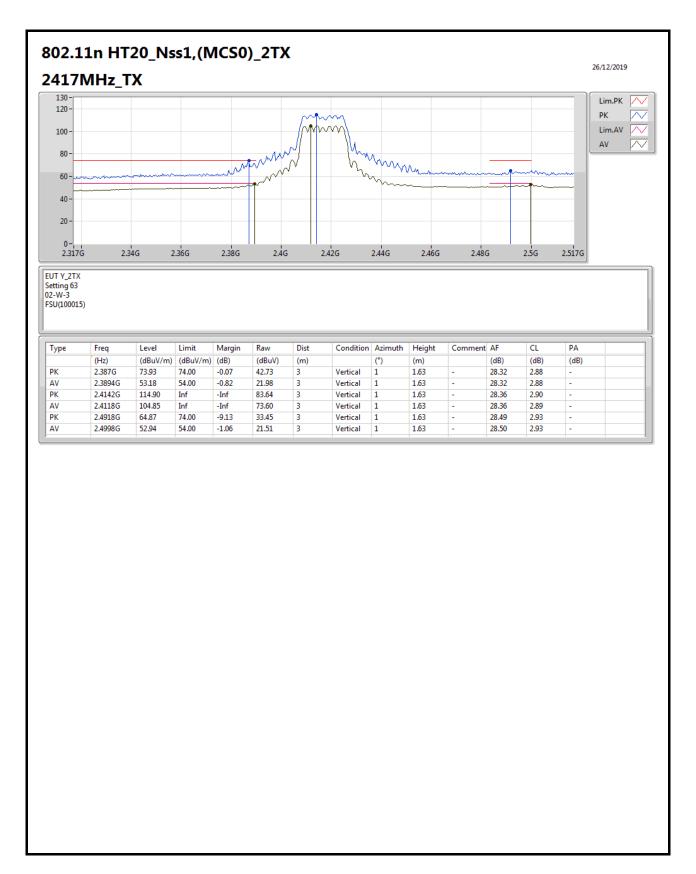




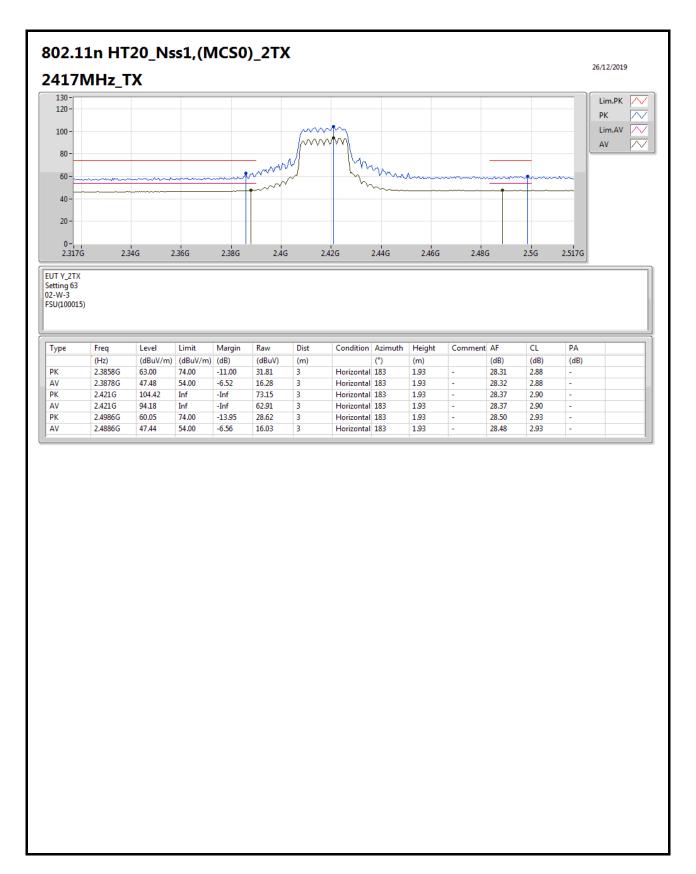




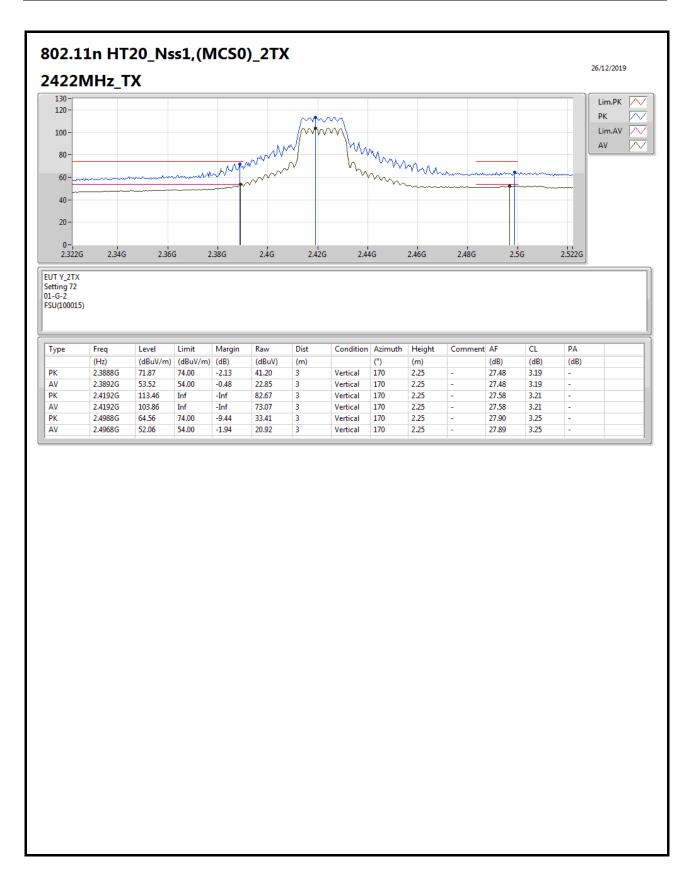




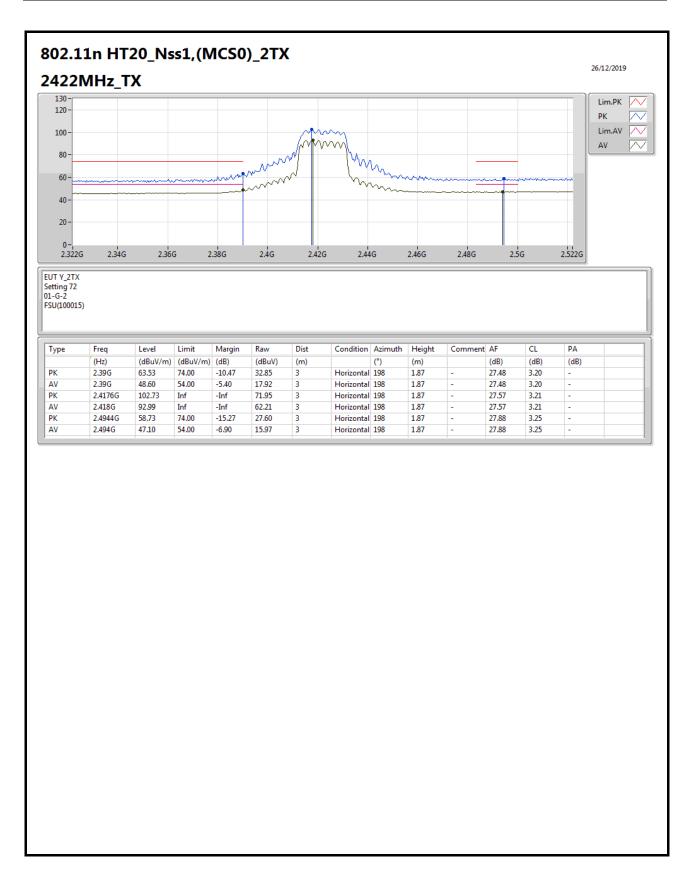




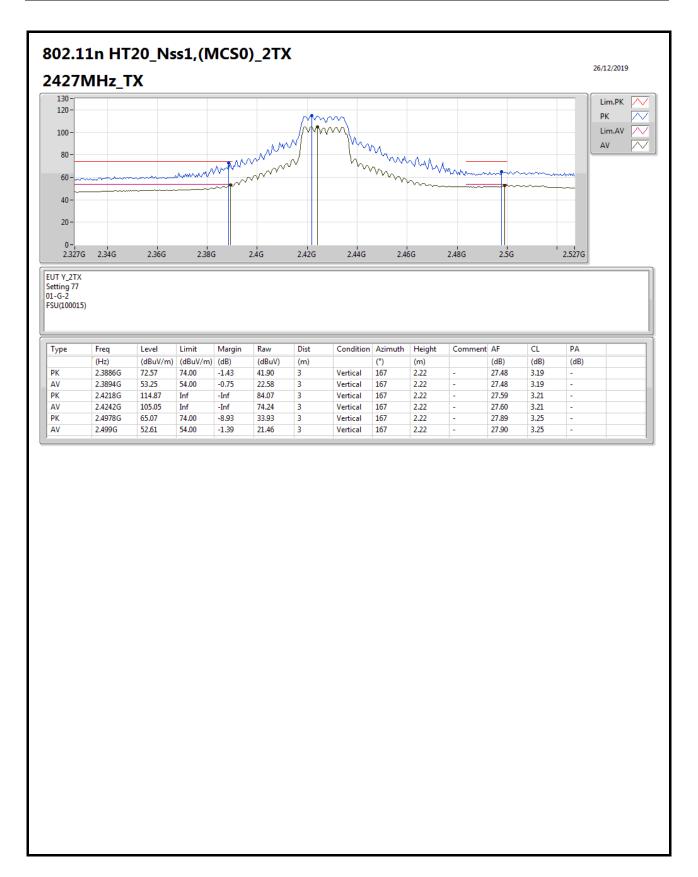




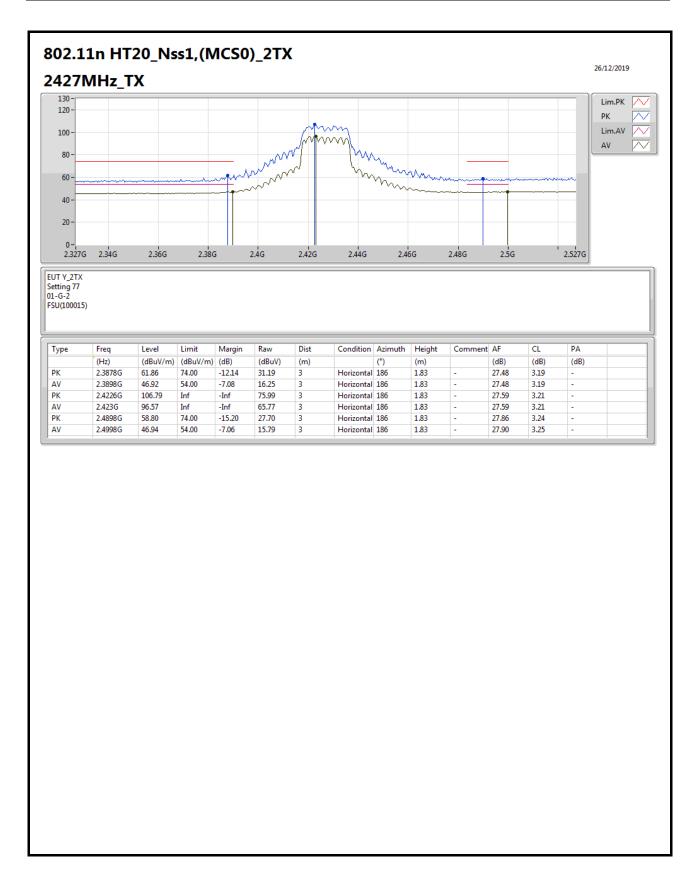




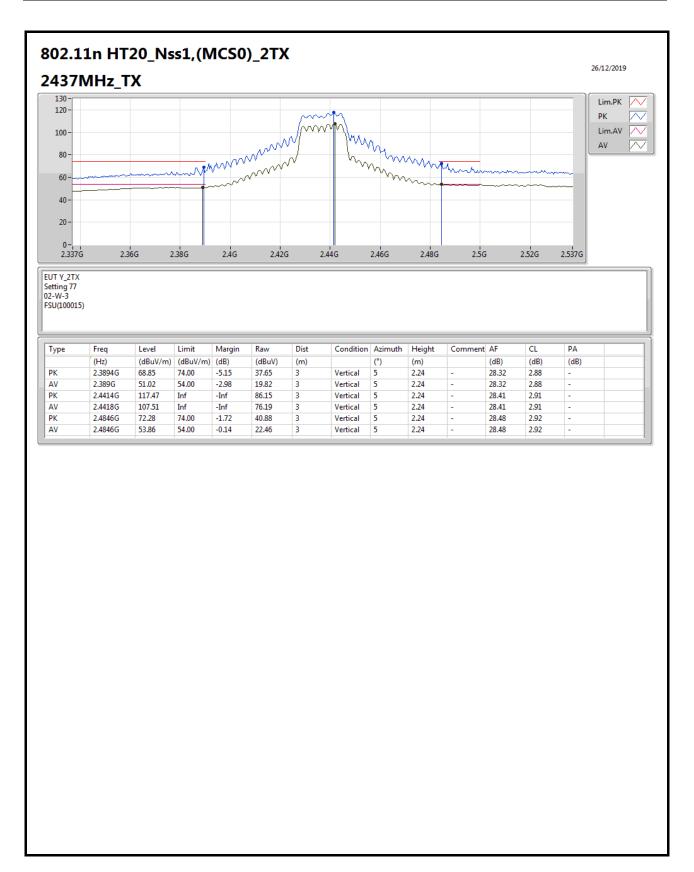




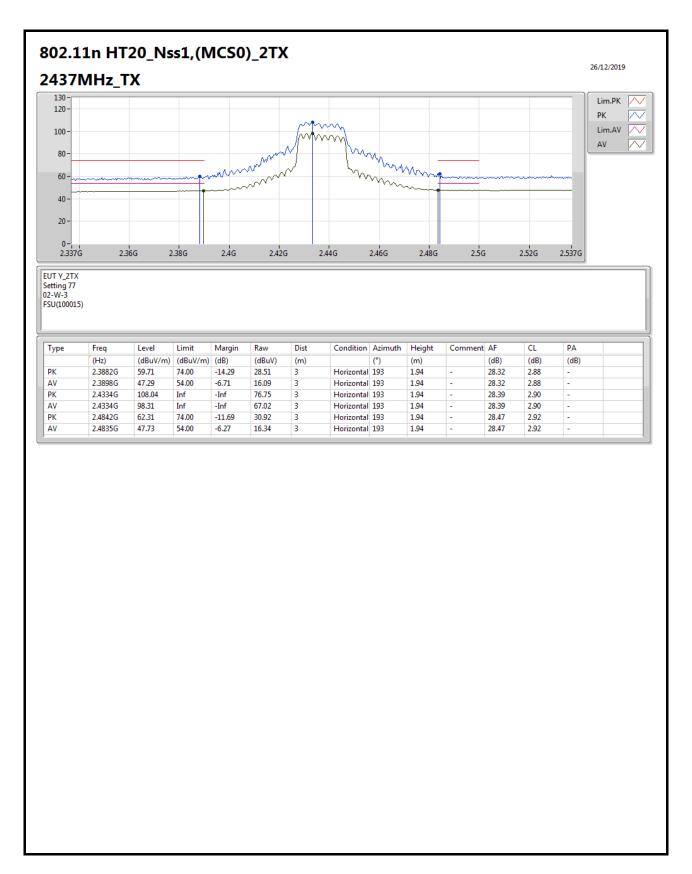




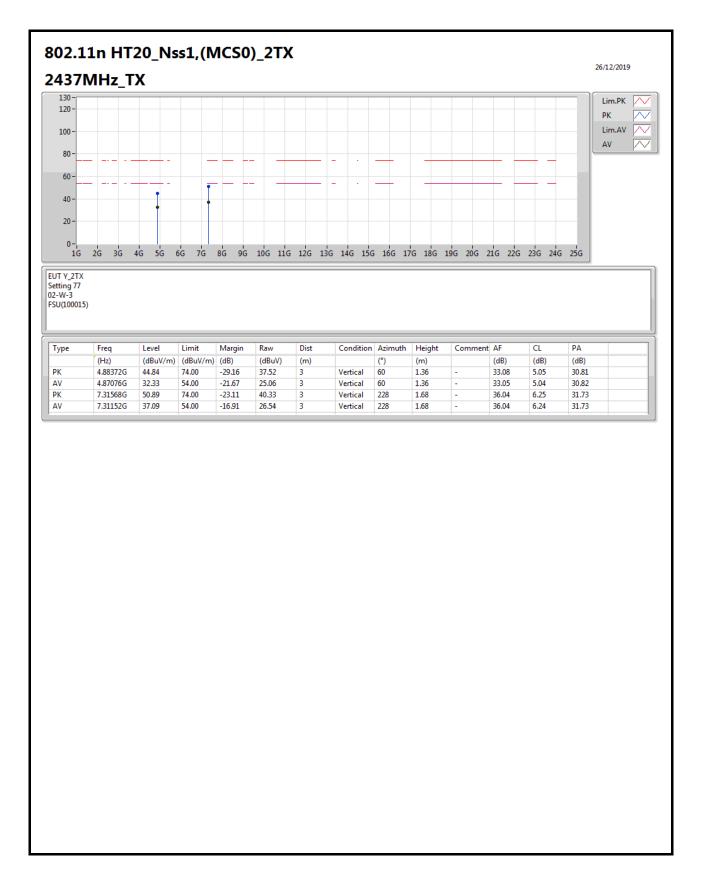




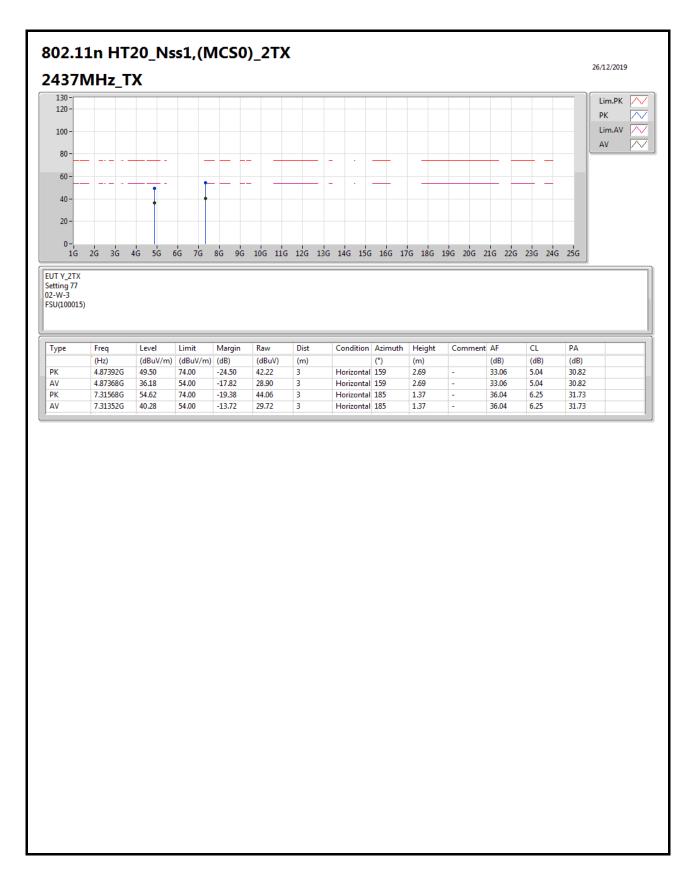




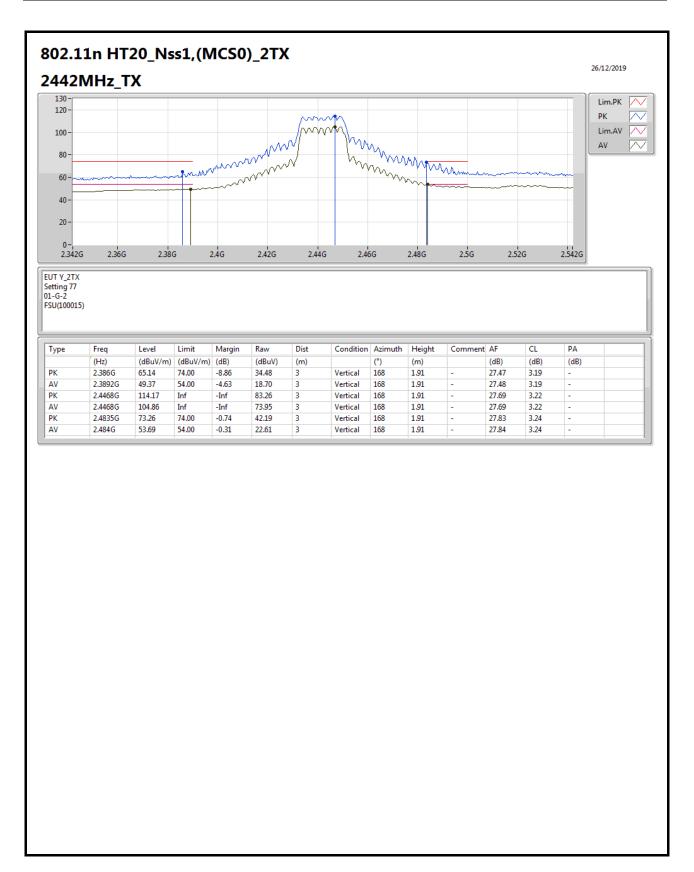




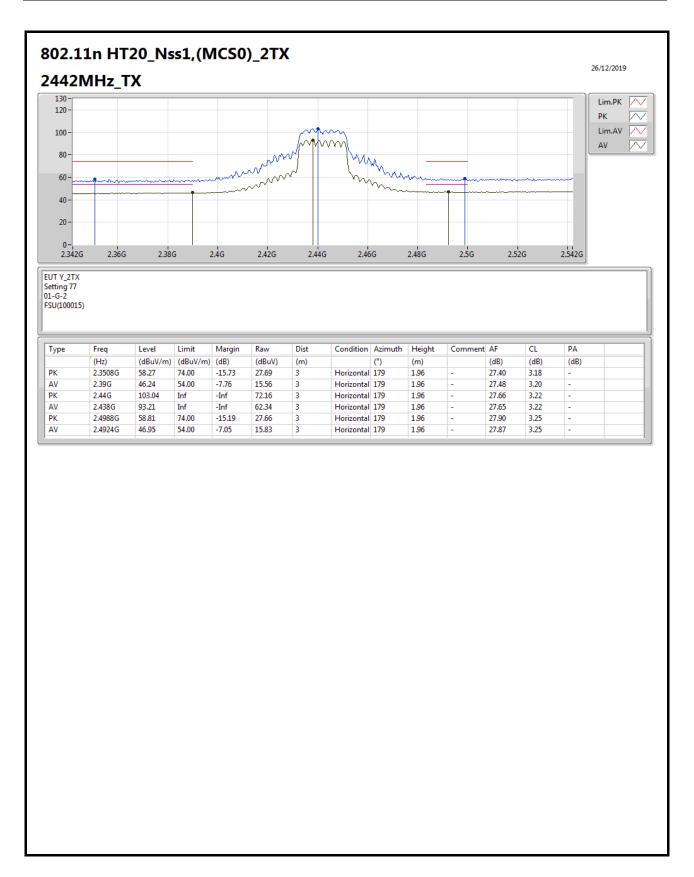




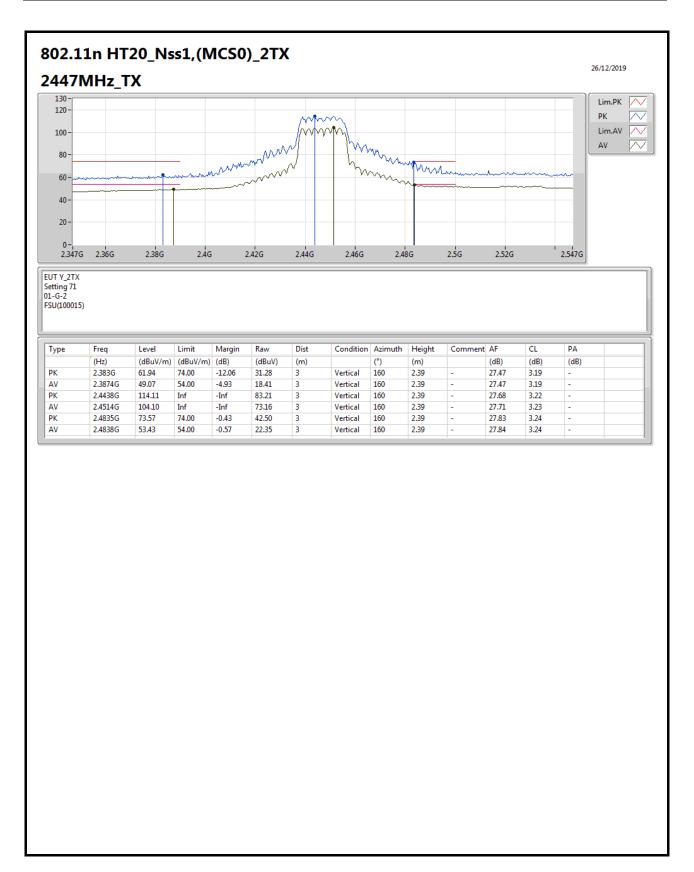




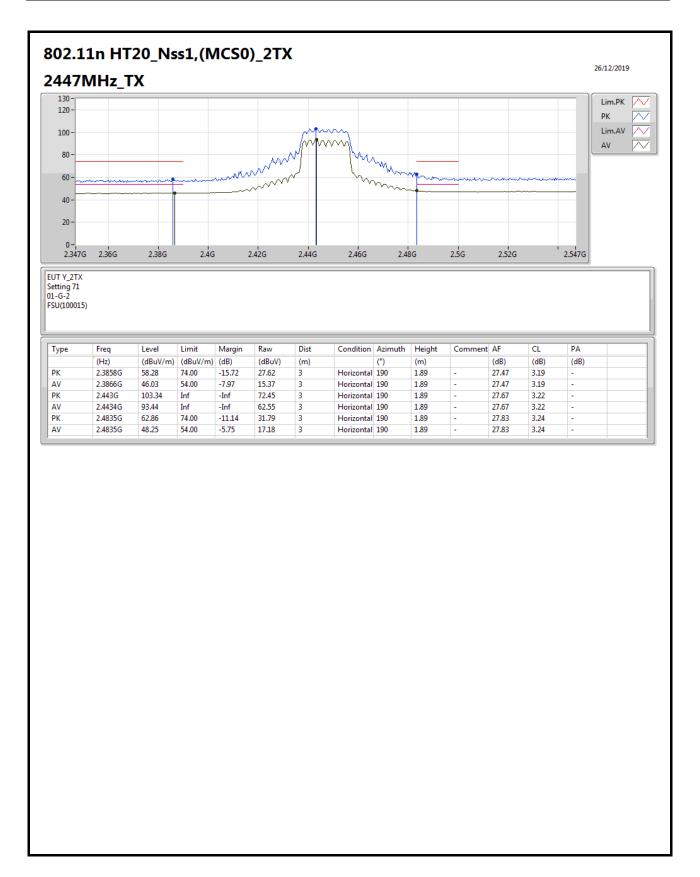




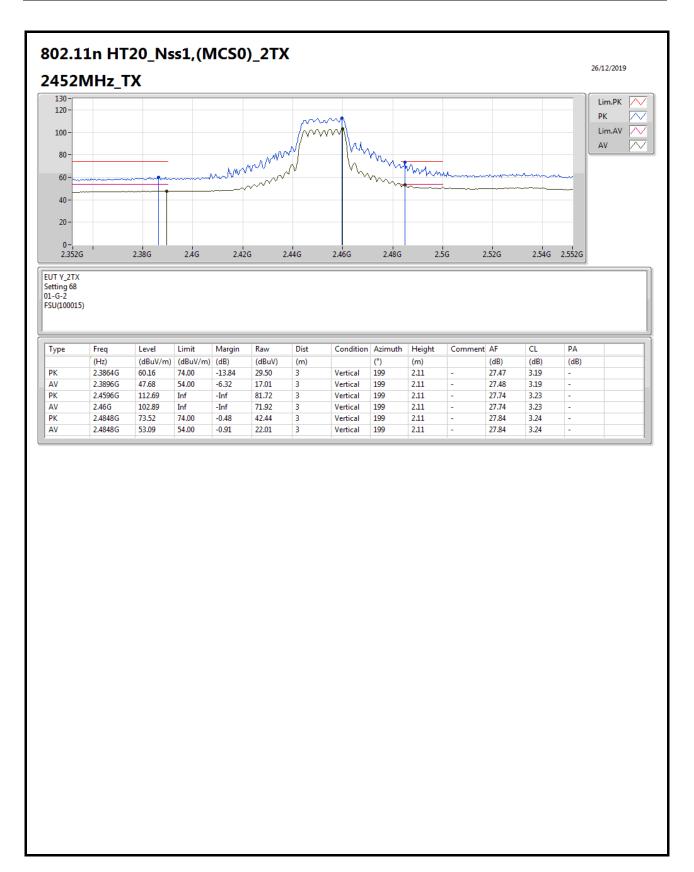




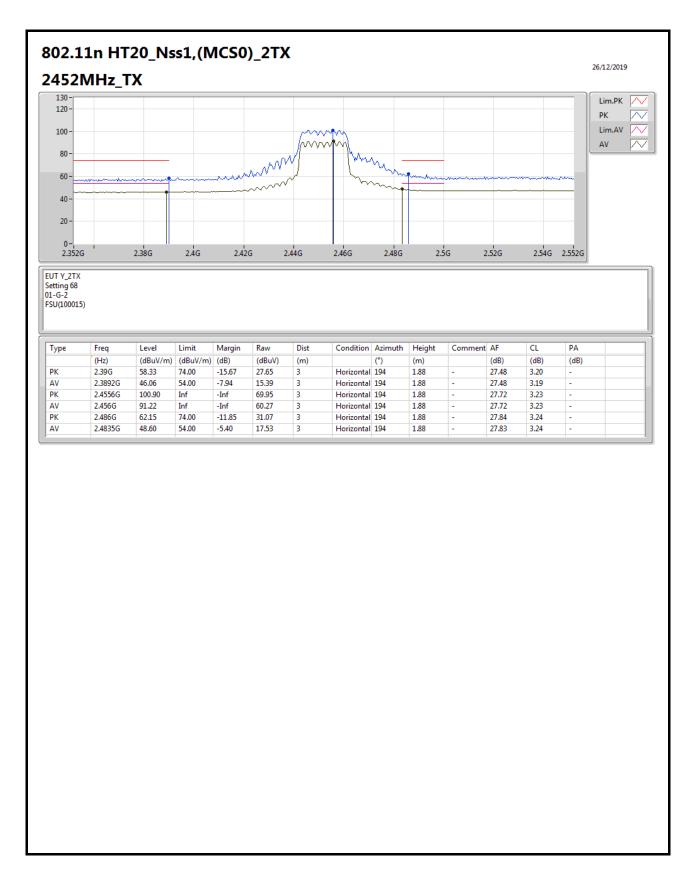




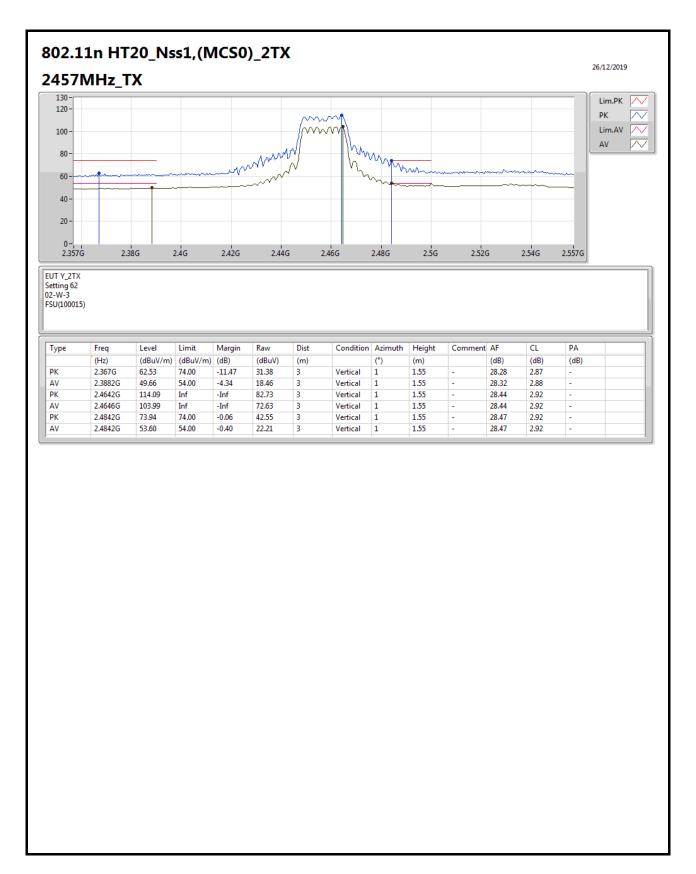




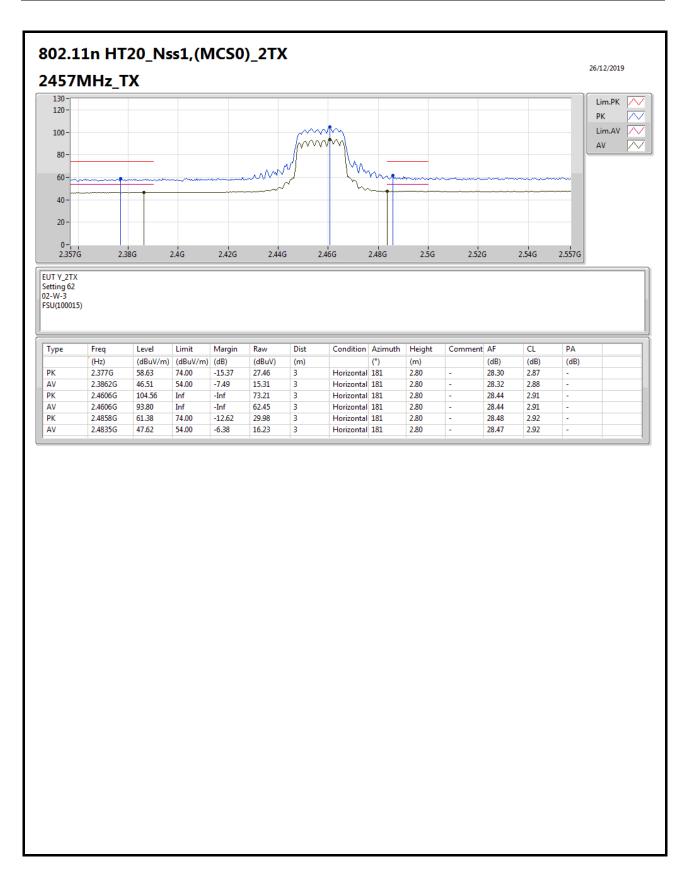




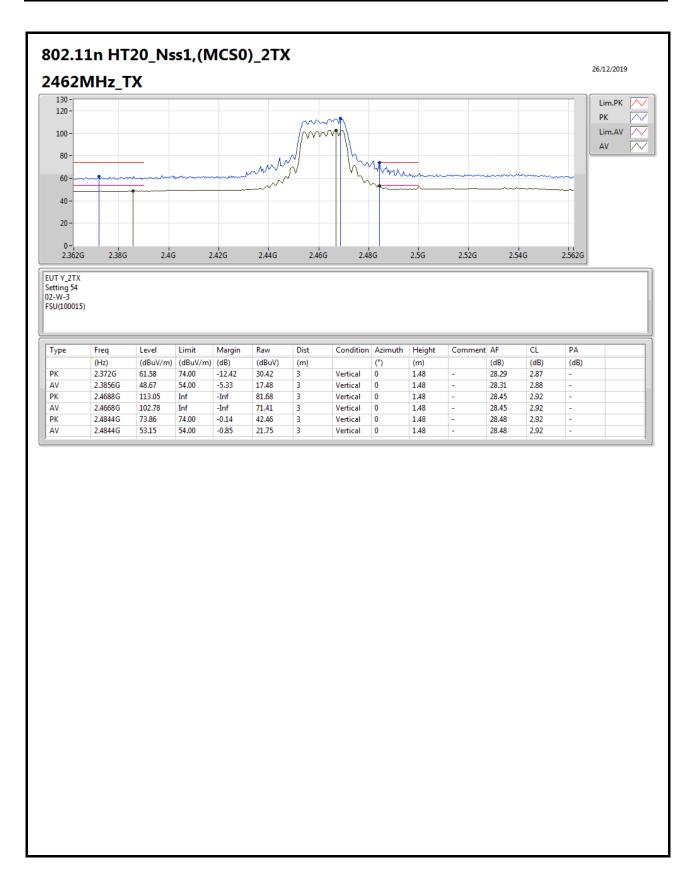




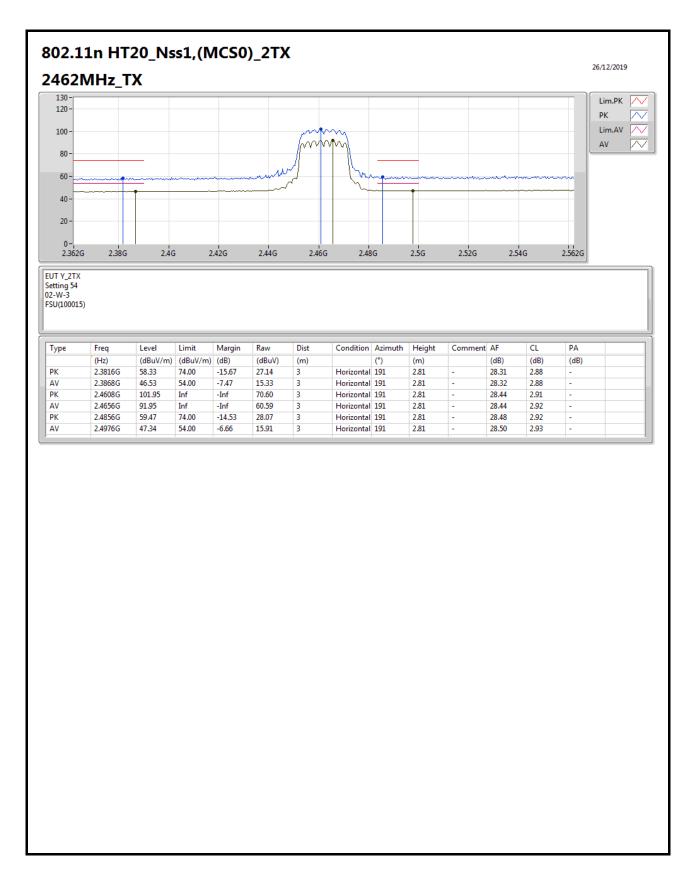




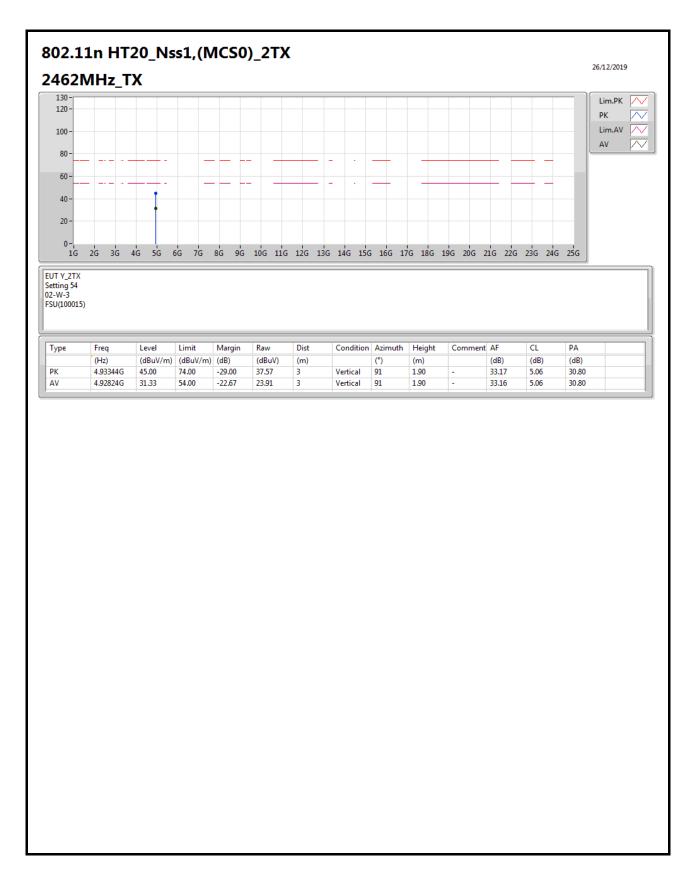




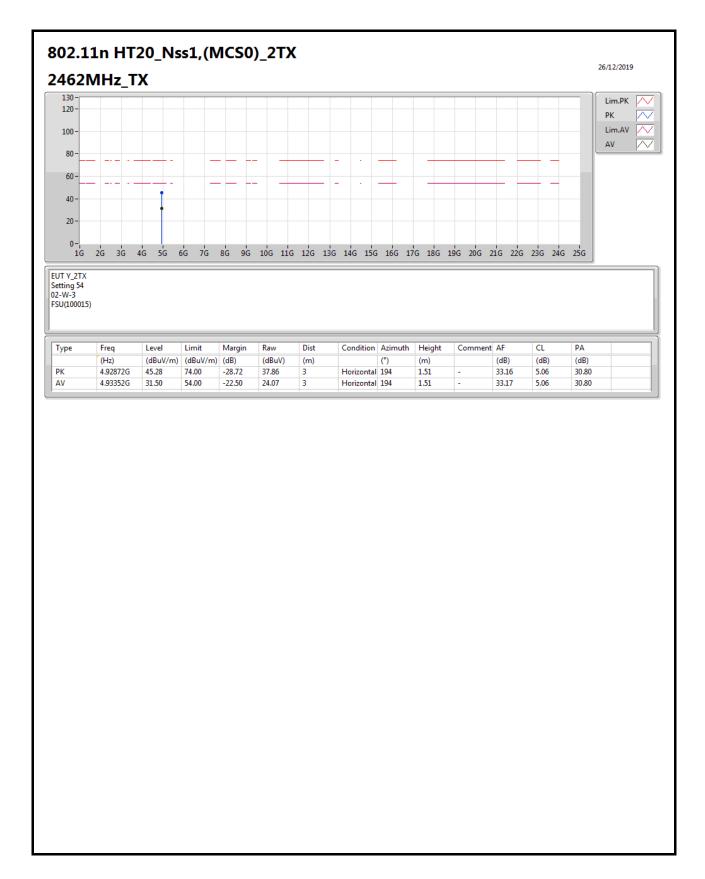




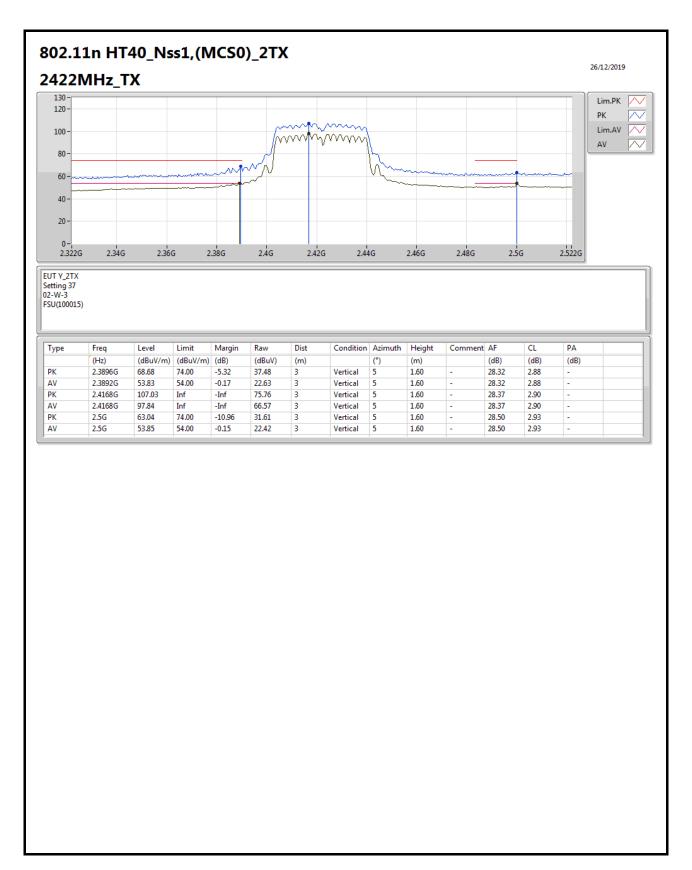




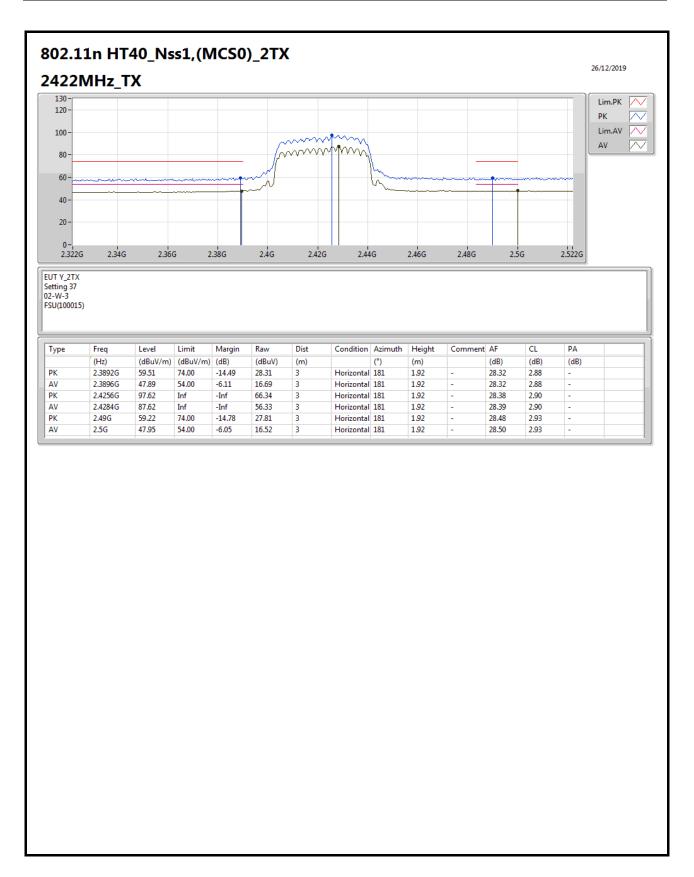




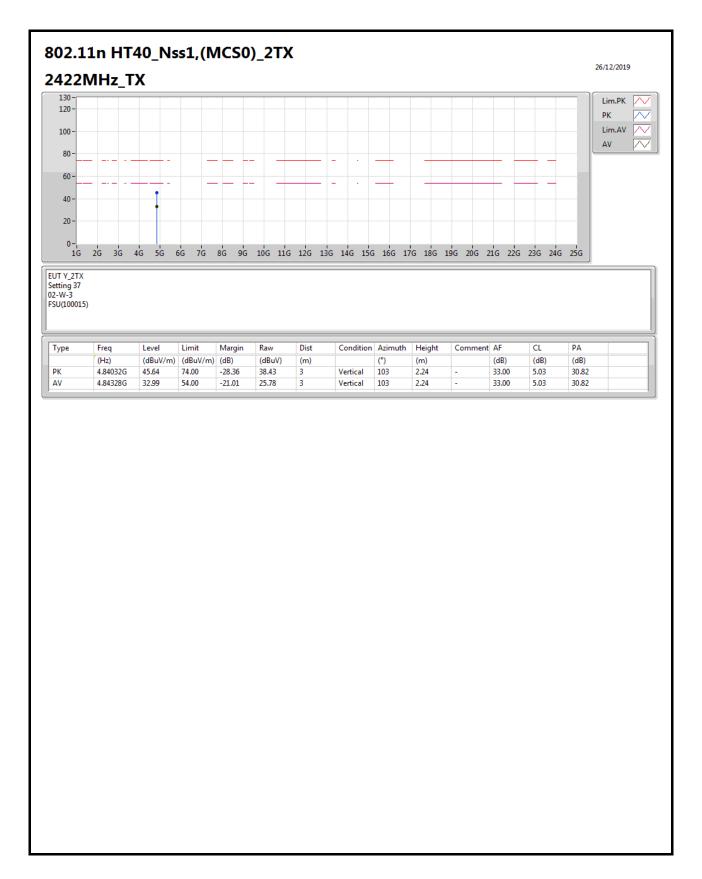






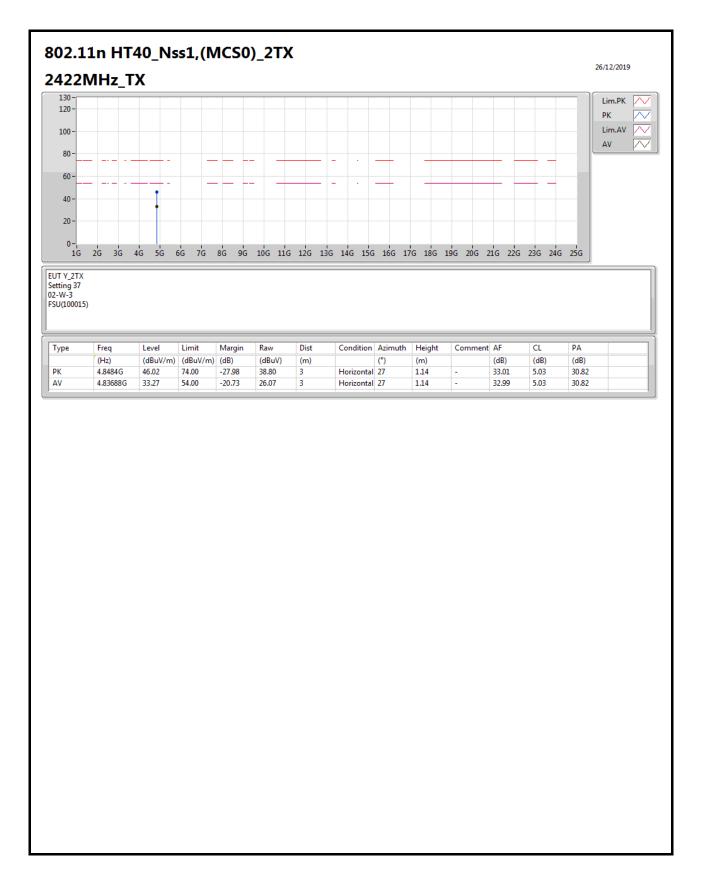




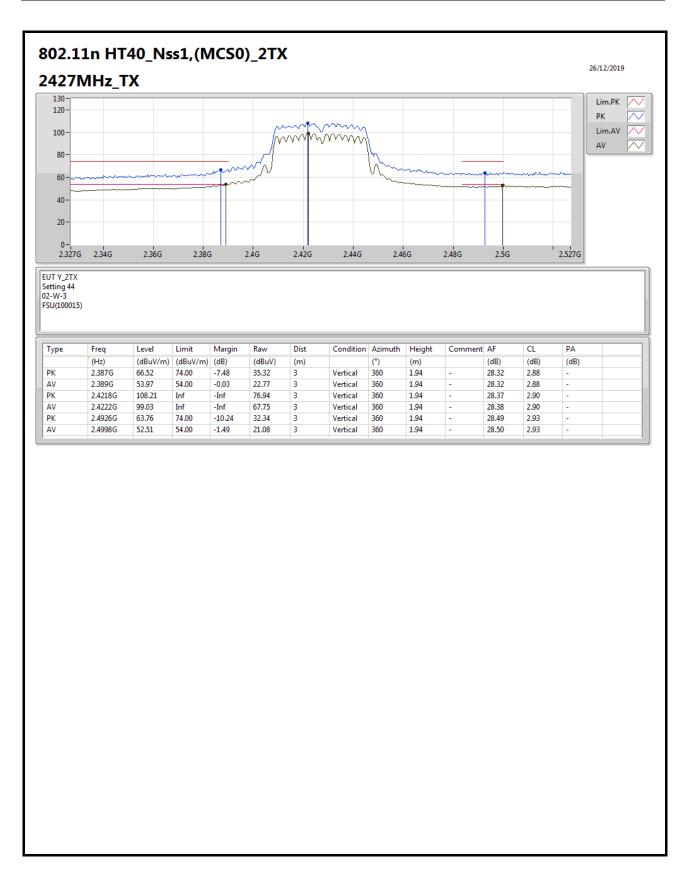


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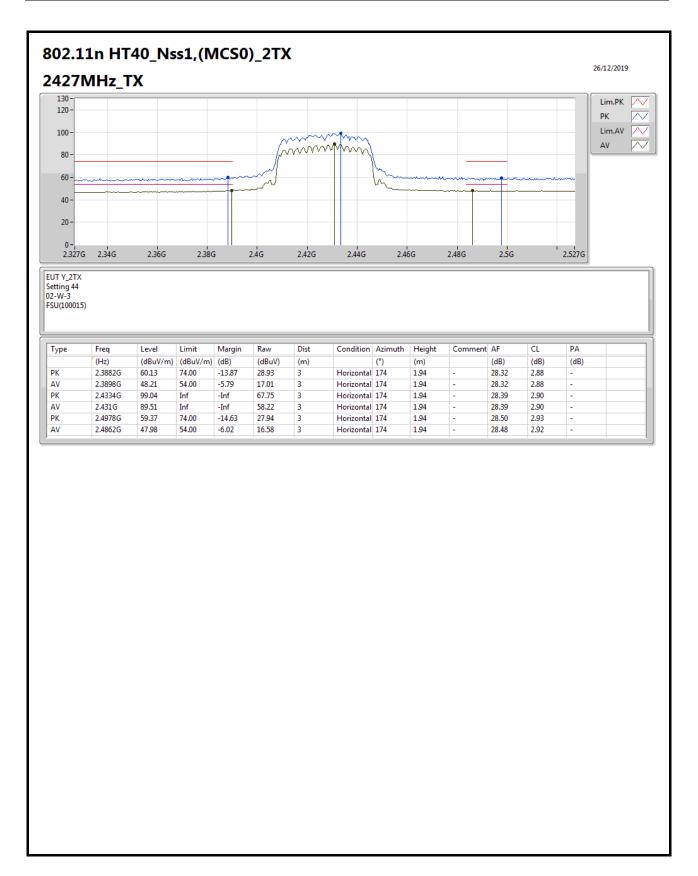




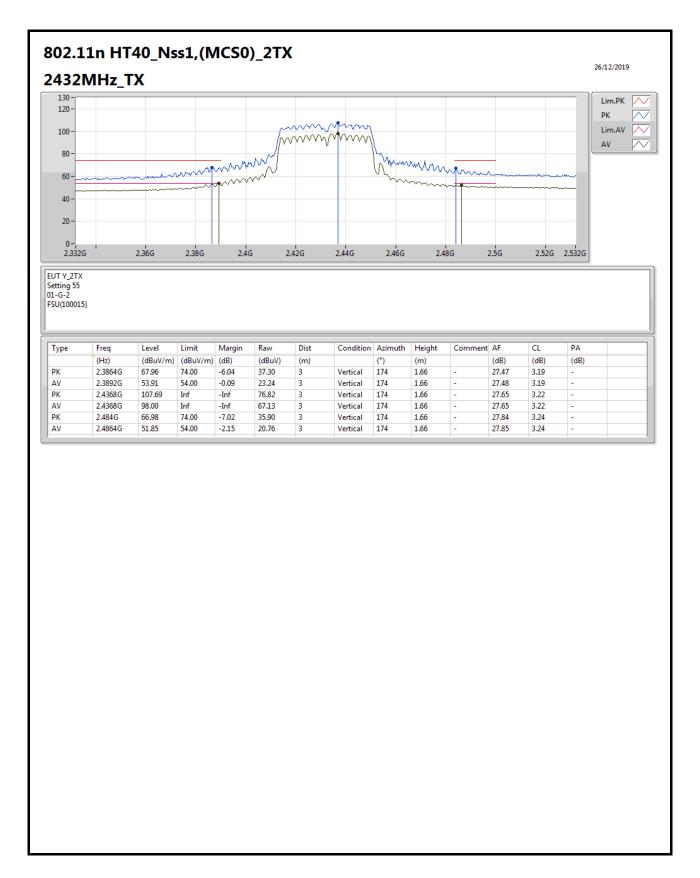




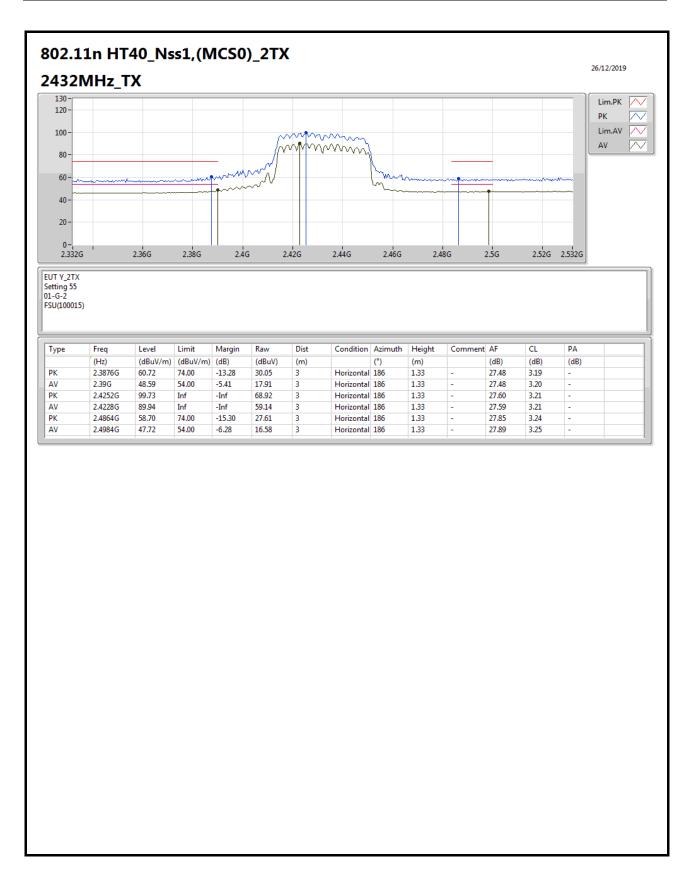




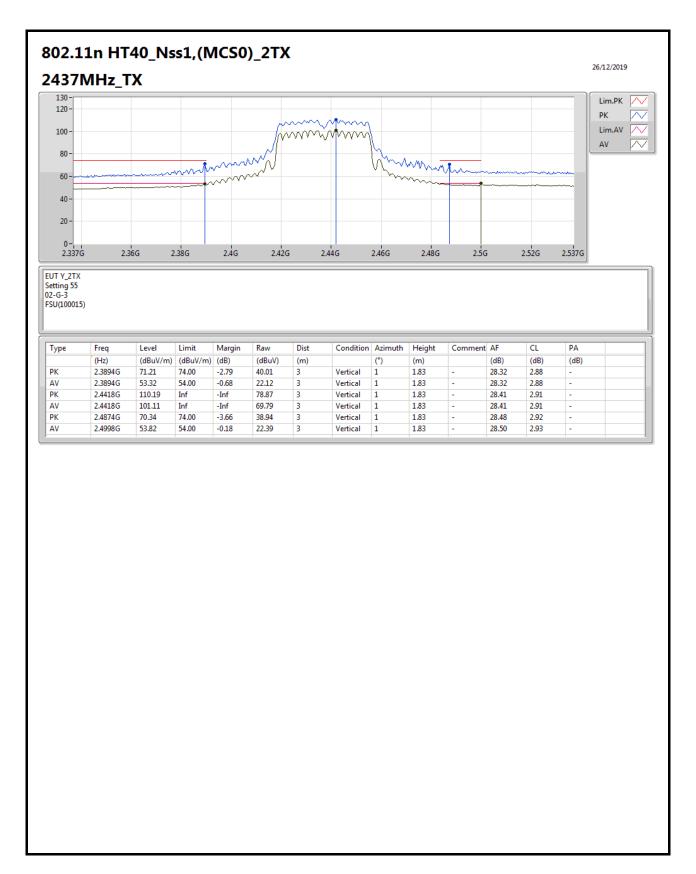




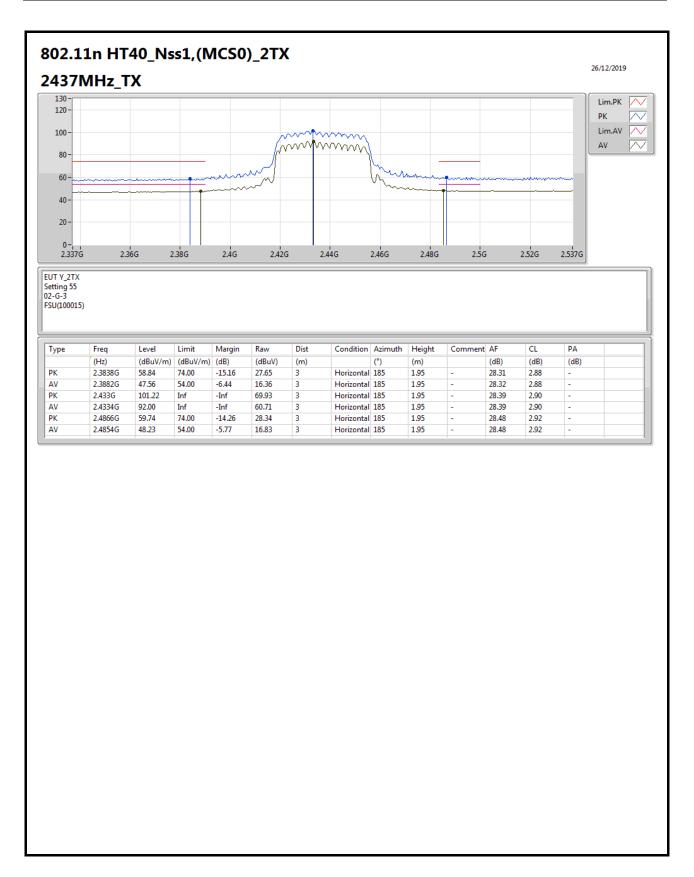




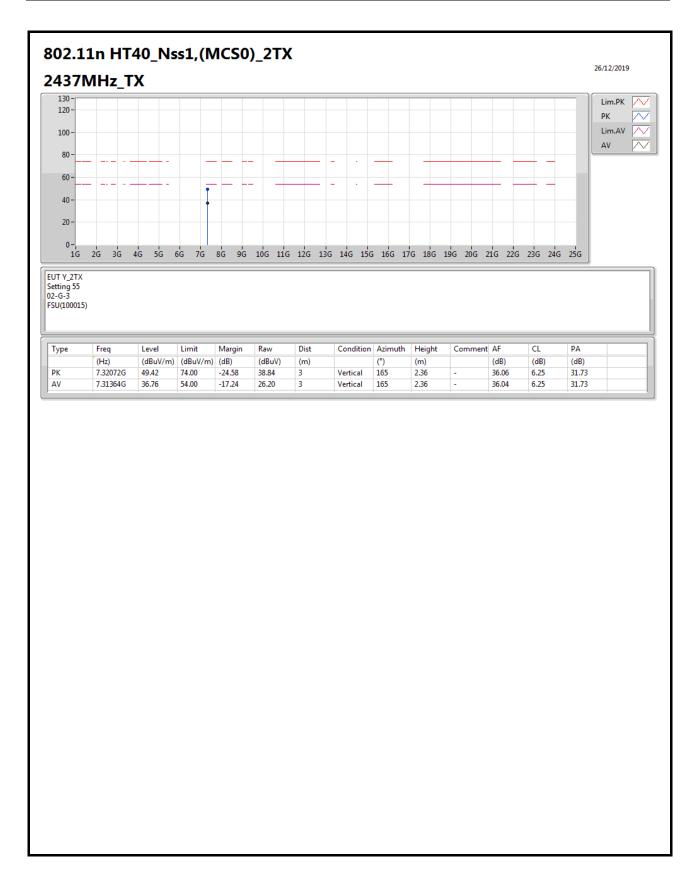




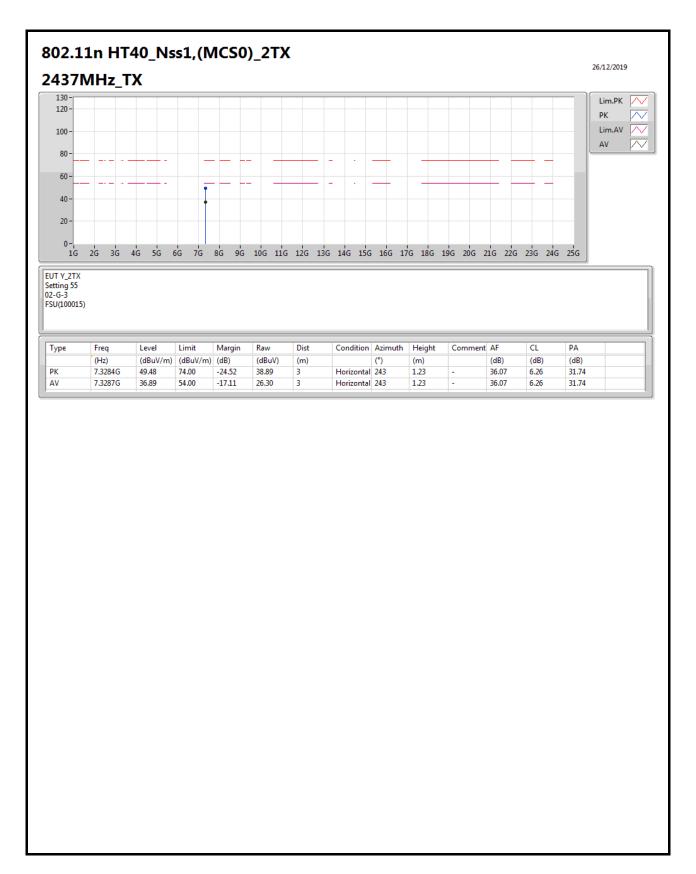




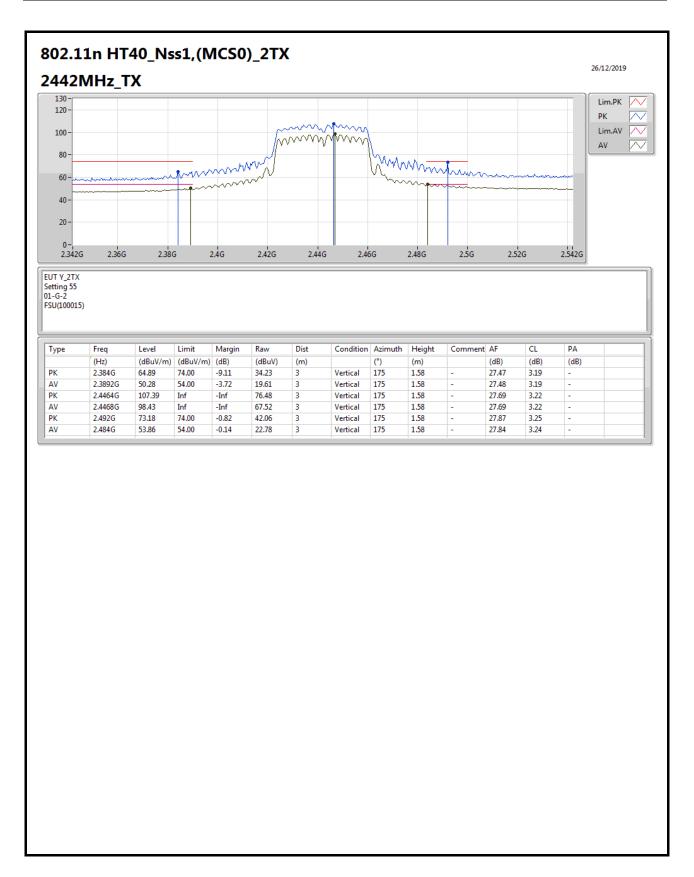




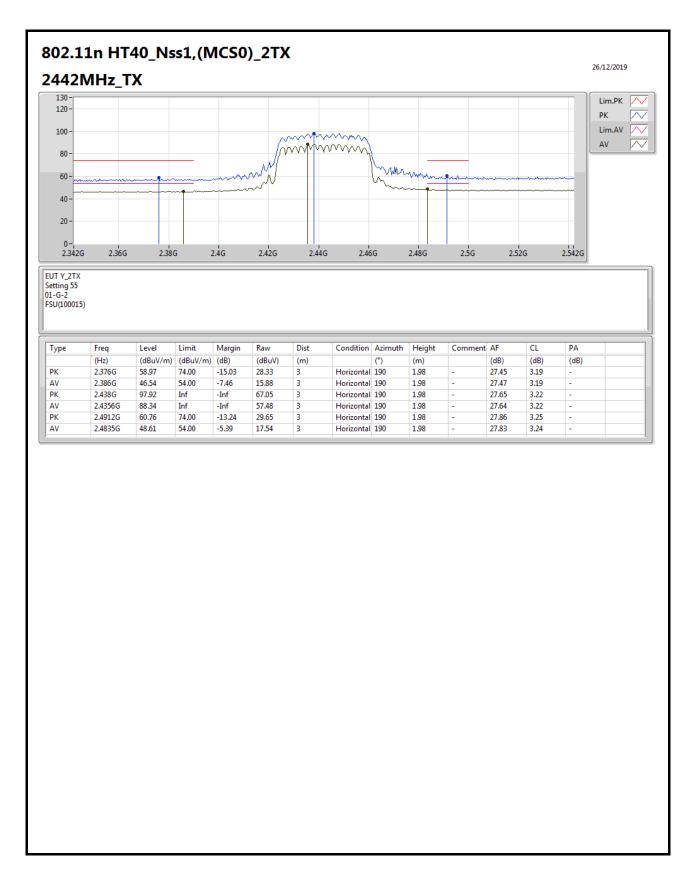




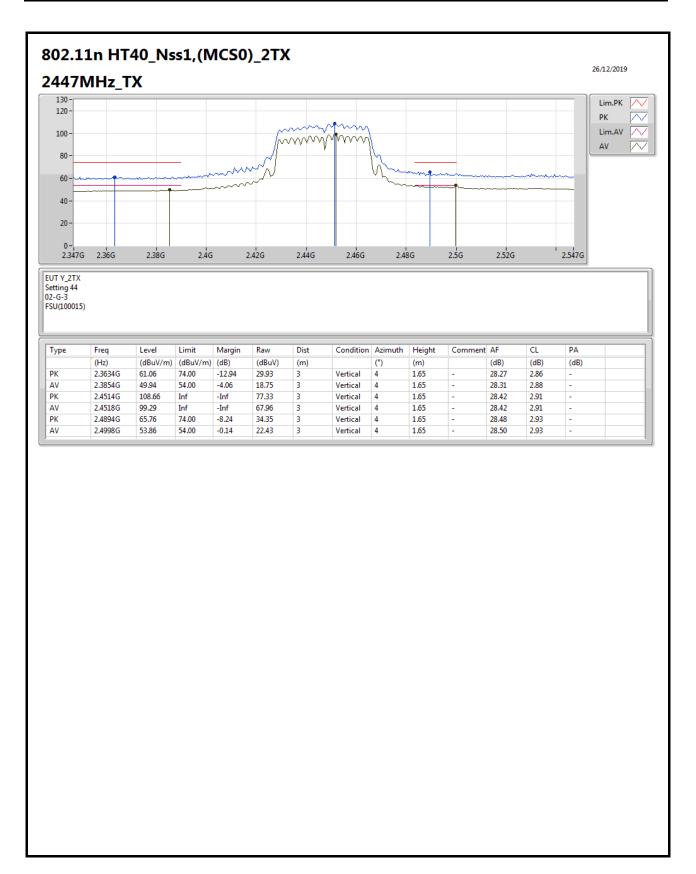


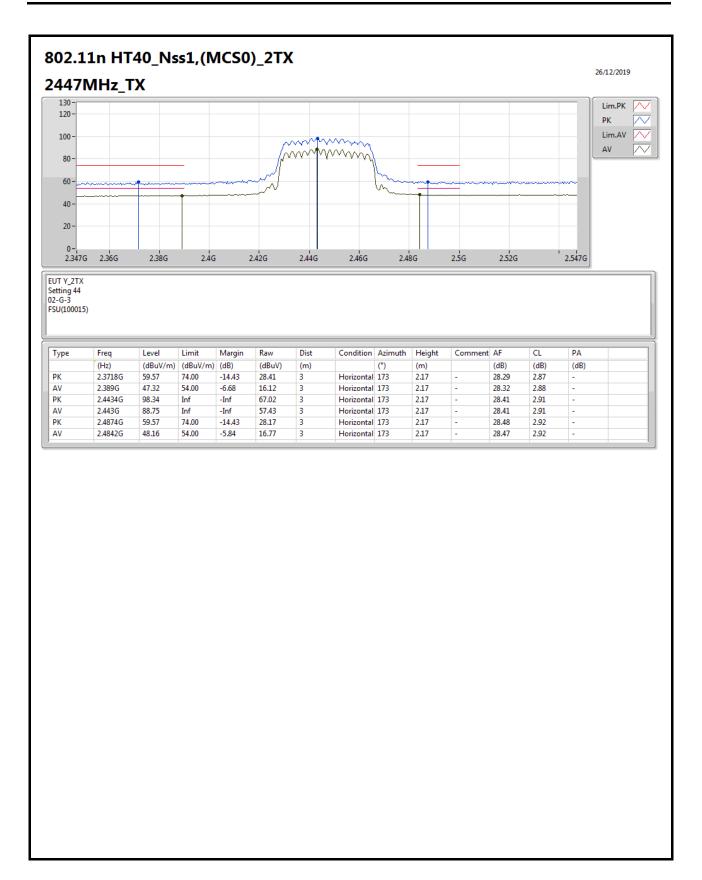




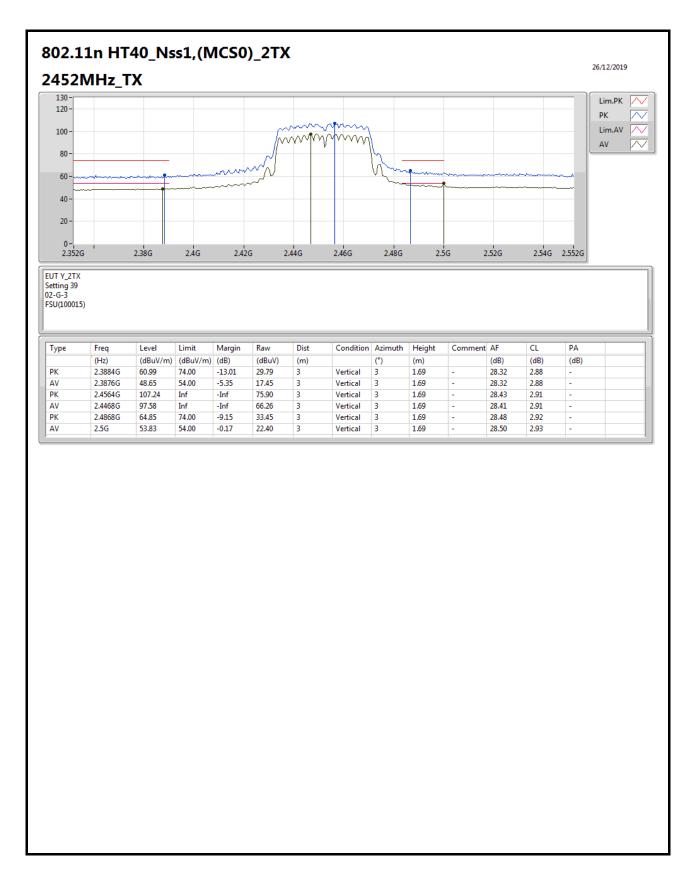




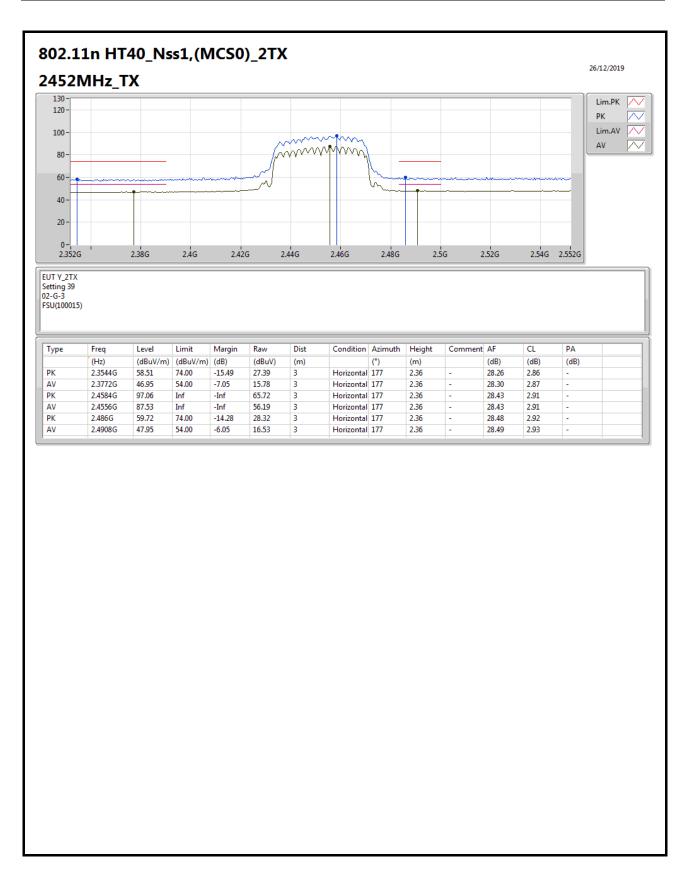




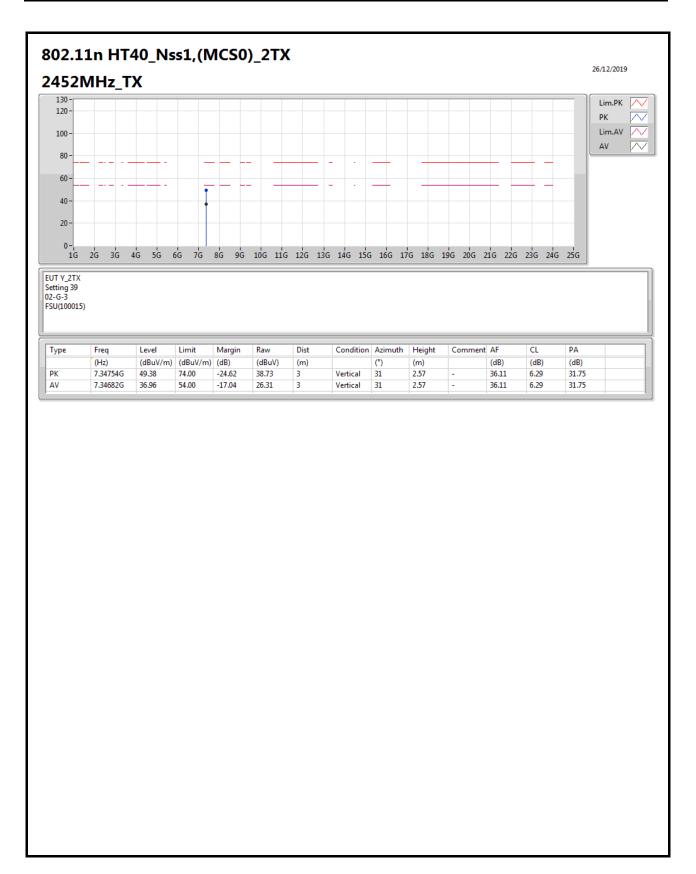




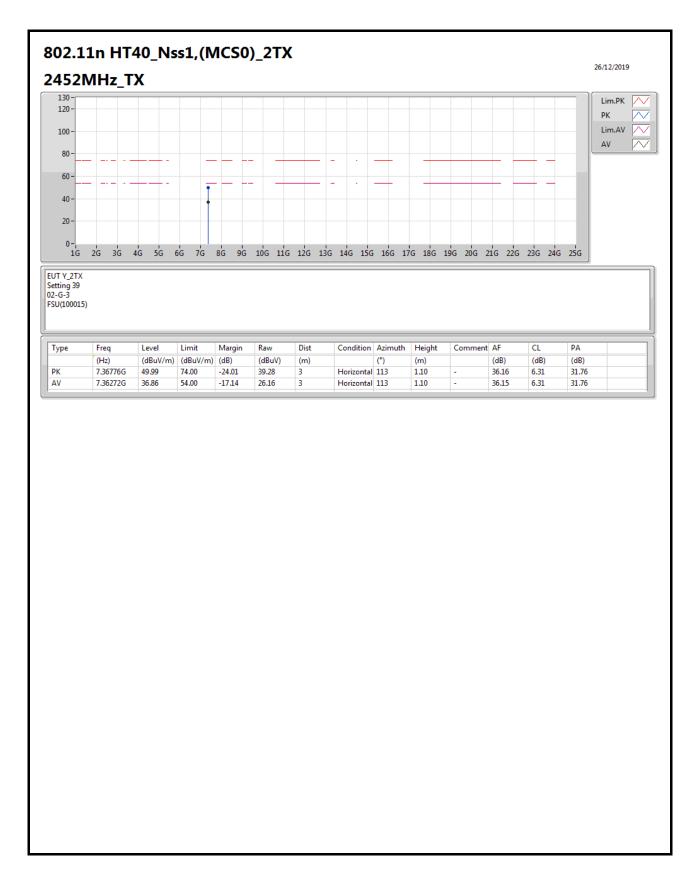








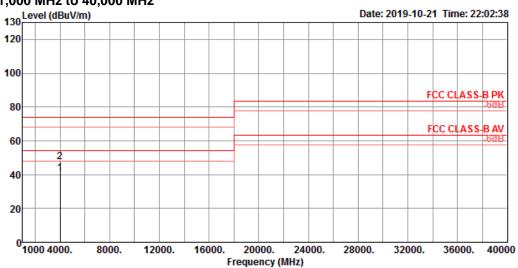






Test Mode	Mode 1	Frequency Range	1,000 MHz to 40,000 MHz

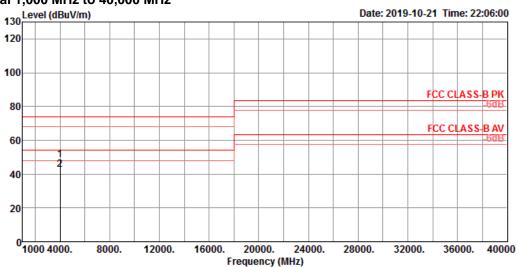
## Vertical 1,000 MHz to 40,000 MHz



	Freq	Level						Preamp Factor			Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4000.01	40.62	54.00	-13.38	38.92	4.40	29.50	32.20	115	246	Average	VERTICAL
2	4000.20	47.53	74.00	-26.47	45.83	4.40	29.50	32.20	115	246	Peak	VERTICAL



## Horizontal 1,000 MHz to 40,000 MHz



	Freq	Level		Over Limit						T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	3999.88	48.56	74.00	-25.44	46.86	4.40	29.50	32.20	100	193	Peak	HORIZONTAL
2	3999.99	42.71	54.00	-11.29	41.01	4.40	29.50	32.20	100	193	Average	HORIZONTAL