



FCC Test Report

Equipment : High Power AC2200 Wi-Fi Range Extender with Direct Link

Brand Name : amped wireless

Model No. : RE2200T

FCC ID : ZTT-RE2200T

Standard : 47 CFR FCC Part 15.407

Operating Band : 5150 MHz – 5250 MHz
5725 MHz – 5850 MHz

Applicant : Amped Wireless
13089 Peyton Dr. #C307 Chino Hills, CA 91709 USA

Manufacturer : Amped Wireless
13089 Peyton Dr. #C307 Chino Hills, CA 91709 USA

Function : ☐ Outdoor; ☒ Indoor; ☐ Fixed P2P
☐ Client

The product sample received on Nov. 09, 2016 and completely tested on Dec. 21, 2016. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

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


Cliff Chang
SPORTON INTERNATIONAL INC.





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Summary of Test Result

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

Revision History

[illegible]

1 General Description

1.1 Information

1.1.1 RF General Information

Frequency Range (MHz)	IEEE Std. 802.11	Ch. Frequency (MHz)	Channel Number
5150-5250	a, n (HT20), ac (VHT20)	5180-5240	36-48 [4]
5725-5850		5745-5825	149-165 [5]
5150-5250	n (HT40), ac (VHT40)	5190-5230	38-46 [2]
5725-5850		5755-5795	151-159 [2]
5150-5250	ac (VHT80)	5210	42 [1]
5725-5850		5775	155 [1]

Band	Mode	BWch (MHz)	Nant
5.2G	11a	20	2
5.2G	HT20	20	2
5.2G	HT20,BF	20	2
5.2G	VHT20	20	2
5.2G	VHT20,BF	20	2
5.2G	HT40	40	2
5.2G	HT40,BF	40	2
5.2G	VHT40	40	2
5.2G	VHT40,BF	40	2
5.2G	VHT80	80	2
5.2G	VHT80,BF	80	2
5.8G	11a	20	2
5.8G	HT20	20	2
5.8G	HT20,BF	20	2
5.8G	VHT20	20	2
5.8G	VHT20,BF	20	2
5.8G	HT40	40	2
5.8G	HT40,BF	40	2
5.8G	VHT40	40	2
5.8G	VHT40,BF	40	2
5.8G	VHT80	80	2
5.8G	VHT80,BF	80	2

Note:

- ♦ 5.2G/5.2G-I(IC) is the 5.2GHz Band (5.15-5.25GHz).
- ♦ 5.8G/5.8G-I(IC) is the 5.8GHz Band (5.725-5.850GHz).
- ♦ 11a, HT20 and HT40 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.
- ♦ VHT20, VHT40, VHT80 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM, modulation.
- ♦ BWch is the nominal channel bandwidth.
- ♦ Nss-Min is the minimum number of spatial streams.
- ♦ Nant is the number of outputs. e.g., 2(2,3) means have 2 outputs for port 2 and port 3. 2 means have 2 outputs for port 1 and port 2.

1.1.2 Antenna Information

Ant.	Brand	Model Name (Product number)	Antenna Type	Connector	Gain (dBi)
1	Cortec	AN2450-5010BRS	Dipole Antenna	Reversed-SMA	Note 1
2	Cortec	AN2450-5010BRS	Dipole Antenna	Reversed-SMA	
3	LYNwave	ALA110-091021-000000	PIFA Antenna	I-PEX	
4	Cortec	AN2450-5010BRS	Dipole Antenna	Reversed-SMA	

Note1:

Ant.	Gain (dBi)			Cable loss			True Gain (dBi)		
	2.4GHz	5GHz Band 1	5GHz Band 4	2.4GHz	5GHz Band 1	5GHz Band 4	2.4GHz	5GHz Band 1	5GHz Band 4
1	5.03	5.59	-	0.8	1.3	-	4.23	4.29	-
2	5.03	5.59	-	0.8	1.3	-	4.23	4.29	-
3	-	-	2	-	-	1.3	-	-	0.7
4	-	-	5.59	-	-	1.3	-	-	4.29

Note2:

These two radios will be operated in different bands. Radio 1 supports WLAN 2.4GHz/5GHz Band 1 function and Radio 2 supports WLAN 5GHz Band 4 function only.

Chain 1 connect Ant. 1, Chain 2 connect Ant. 2, Chain 3 connect Ant. 3 and Chain 4 connect Ant. 4.

For Radio 1:
<For 2.4GHz Function>
For IEEE 802.11b/g/n mode (2TX, 2RX):

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

Chain 1(Port 1) and Chain 2(Port 2) could transmit/receive simultaneously.

<For 5GHz Band 1 Function>
For IEEE 802.11a/n/ac mode (2TX/2RX):

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

Chain 1(Port 1) and Chain 2(Port 2) could transmit/receive simultaneously.

For Radio 2:

<For 5GHz Band 4 Function>

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

Chain 3(Port 1) and Chain 4(Port 2) can be used as transmitting/receiving antenna.

Chain 3(Port 1) and Chain 4(Port 2) could transmit/receive simultaneously.

1.1.3 Mode Test Duty Cycle

Mode	DC	T(s)	VBW(Hz) $\geq 1/T$
11a	0.994	n/a (DC $\geq$ 0.98)	n/a (DC $\geq$ 0.98)
VHT20	1	n/a (DC $\geq$ 0.98)	n/a (DC $\geq$ 0.98)
VHT20,BF	0.94	1.748m	1k
VHT40	0.969	2.433m	1k
VHT40,BF	0.867	1.665m	1k
VHT80	0.93	1.148m	1k
VHT80,BF	0.9	1.923m	1k

1.1.4 EUT Operational Condition

EUT Power Type	From Power Adapter		
Beamforming Function	☒	With beamforming for 802.11n/ac in 5GHz.	☐ Without beamforming

1.2 Testing Applied Standards

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

- ♦ 47 CFR FCC Part 15
- ♦ ANSI C63.10-2013
- ♦ FCC KDB 789033 D02 v01r03
- ♦ FCC KDB 644545 D03 v01
- ♦ FCC KDB 662911 D01 v02r01

1.3 Testing Location Information

Testing Location				
☐	HWA YA	ADD : No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.	TEL : 886-3-327-3456	FAX : 886-3-318-0055
☒	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	Serway Li	22°C / 54%	Nov. 19, 2016~ Dec. 12, 2016
Radiated	03CH01-CB	Mars Lin & Zero Chen & Stim Sung & Jay Luo	22°C / 54%	Nov. 14, 2016~ Dec. 21, 2016
AC Conduction	CO01-CB	Edison Lin	23°C / 60%	Nov. 15, 2016

Test site Designation No. TW0006 with FCC

Test site registered number IC 4086D with Industry Canada.

1.4 Measurement Uncertainty

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

Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	3.2 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	3.6 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	3.7 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	3.5 dB	Confidence levels of 95%
Conducted Emission	1.7 dB	Confidence levels of 95%
Output Power Measurement	1.33 dB	Confidence levels of 95%
Power Density Measurement	1.27 dB	Confidence levels of 95%
Bandwidth Measurement	9.74×10^{-8}	Confidence levels of 95%
Frequency Stability	6.06×10^{-8}	Confidence levels of 95%

2 Test Configuration of EUT

2.1 Test Channel Mode

Band	Mode	BWch (MHz)	Nss-Min	Nant	Ch. (MHz)	Range	Power Setting
5.2G	11a	20	1	2	5180	L	24
5.2G	11a	20	1	2	5200	M	23.5
5.2G	11a	20	1	2	5240	H	23.5
5.8G	11a	20	1	2	5745	L	18
5.8G	11a	20	1	2	5785	M	18
5.8G	11a	20	1	2	5825	H	18
5.2G	VHT20	20	1,(M0)	2	5180	L	23
5.2G	VHT20	20	1,(M0)	2	5200	M	23
5.2G	VHT20	20	1,(M0)	2	5240	H	23.5
5.8G	VHT20	20	1,(M0)	2	5745	L	19
5.8G	VHT20	20	1,(M0)	2	5785	M	19
5.8G	VHT20	20	1,(M0)	2	5825	H	18
5.2G	VHT40	40	1,(M0)	2	5190	L	18.5
5.2G	VHT40	40	1,(M0)	2	5230	H	24
5.8G	VHT40	40	1,(M0)	2	5755	L	20
5.8G	VHT40	40	1,(M0)	2	5795	H	19
5.2G	VHT80	80	1,(M0)	2	5210	S	18.5
5.8G	VHT80	80	1,(M0)	2	5775	S	22
5.2G	VHT20,BF	20	1,(M0)	2	5180	L	24
5.2G	VHT20,BF	20	1,(M0)	2	5200	M	24
5.2G	VHT20,BF	20	1,(M0)	2	5240	H	24
5.8G	VHT20,BF	20	1,(M0)	2	5745	L	23
5.8G	VHT20,BF	20	1,(M0)	2	5785	M	23
5.8G	VHT20,BF	20	1,(M0)	2	5825	H	23
5.2G	VHT40,BF	40	1,(M0)	2	5190	L	22
5.2G	VHT40,BF	40	1,(M0)	2	5230	H	24
5.8G	VHT40,BF	40	1,(M0)	2	5755	L	23
5.8G	VHT40,BF	40	1,(M0)	2	5795	H	24
5.2G	VHT80,BF	80	1,(M0)	2	5210	S	21
5.8G	VHT80,BF	80	1,(M0)	2	5775	S	23

Note:

- ♦ Test range channel consist of L (Low Ch.), M (Middle Ch.), H (High Ch.), S (Single Ch.) and C (Straddle Band Ch.).
- ♦ VHT20/VHT40 covers HT20/HT40, due to same modulation. The power setting for 802.11n HT20 and HT40 are the same or lower than 802.11ac VHT20 and VHT40.
- ♦ There are two modes of EUT, one is beamforming mode, and the other is non-beamforming mode for 802.11n/ac in 5GHz, Beamforming mode and non-beamforming mode has been test and record in this test report.

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	EUT – Radio 1 (2.4GHz) + Radio 2 (5GHz band 4) + Adapter
2	EUT – Radio 1 (5GHz) + Radio 2 (5GHz band 4) + Adapter
For operating mode 1 is the worst case and it was record in this test report.	

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

The Worst Case Mode for Following Conformance Tests	
Tests Item	Unwanted Emissions
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in 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	Place EUT in X axis – Radio 1 (2.4GHz) + Radio 2 (5GHz band 4) + Adapter
2	Place EUT in Z axis – Radio 1 (2.4GHz) + Radio 2 (5GHz band 4) + Adapter
Mode 2 has been evaluated to be the worst case between Mode 1~2, thus measurement for Mode 3 will follow this same test mode.	
3	Place EUT in Z axis – Radio 1 (5GHz) + Radio 2 (5GHz band 4) + Adapter
For operating mode 2 is the worst case and it was record in this test report.	
Operating Mode > 1GHz	CTX
The EUT was performed at X axis and Z axis position, and the worst case was found at X axis. So the measurement will follow this same test configuration.	
1	Place EUT in X axis + Adapter



The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis
Test Condition	Radiated measurement
Operating Mode	Normal Link
1	Place EUT in X axis – Radio 1 (2.4GHz) + Radio 2 (5GHz band 4)
2	Place EUT in Z axis – Radio 1 (2.4GHz) + Radio 2 (5GHz band 4)
3	Place EUT in X axis – Radio 1 (5GHz) + Radio 2 (5GHz band 4)
4	Place EUT in Z axis – Radio 1 (5GHz) + Radio 2 (5GHz band 4)
For operating mode 4 is the worst case and it was record in this test report.	
Refer to Sporton Test Report No.: FA6N0915 for Co-location RF Exposure Evaluation and Appendix G for Radiated Emission Co-location.	

2.3 EUT Operation during Test

For CTX Mode:

non-beamforming mode:

The EUT was programmed to be in continuously transmitting mode.

beamforming mode:

For Conducted Mode:

The EUT was programmed to be in continuously transmitting mode.

For Radiated Mode:

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

The program was executed as follows:

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

For Normal Link:

During the test, the EUT operation to normal function.

2.4 Accessories

Accessories			
Equipment Name	Brand Name	Model Name	Rating
Adapter	DVE	DSA-36PFH-12 FUS 120300AN	INPUT: 100-240V~50/60Hz 1A OUTPUT: 12V, 3A
Other			
Pedestal*1			

2.5 Support Equipment

For Test Site No: CO01-CB

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
1	Notebook	DELL	E6430	DoC
2	Notebook	DELL	E6430	DoC
3	Notebook	DELL	E6430	DoC
4	Notebook	DELL	E6430	DoC
5	AP Router	Planex	GW-AP54SGX	DoC
6	Flash disk3.0	Transcend	639205 7755	DoC

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

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
1	Notebook	DELL	E6430	DoC
2	Notebook	DELL	E6430	DoC
3	Notebook	Apple	Mac Book	DoC
4	Notebook	Apple	Mac Book	DoC
5	Wireless ac AP	Netgear	R6300V2	PY313200227
6	Flash disk3.0	Silicon Power	B06	DoC

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

For non-beamforming mode

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

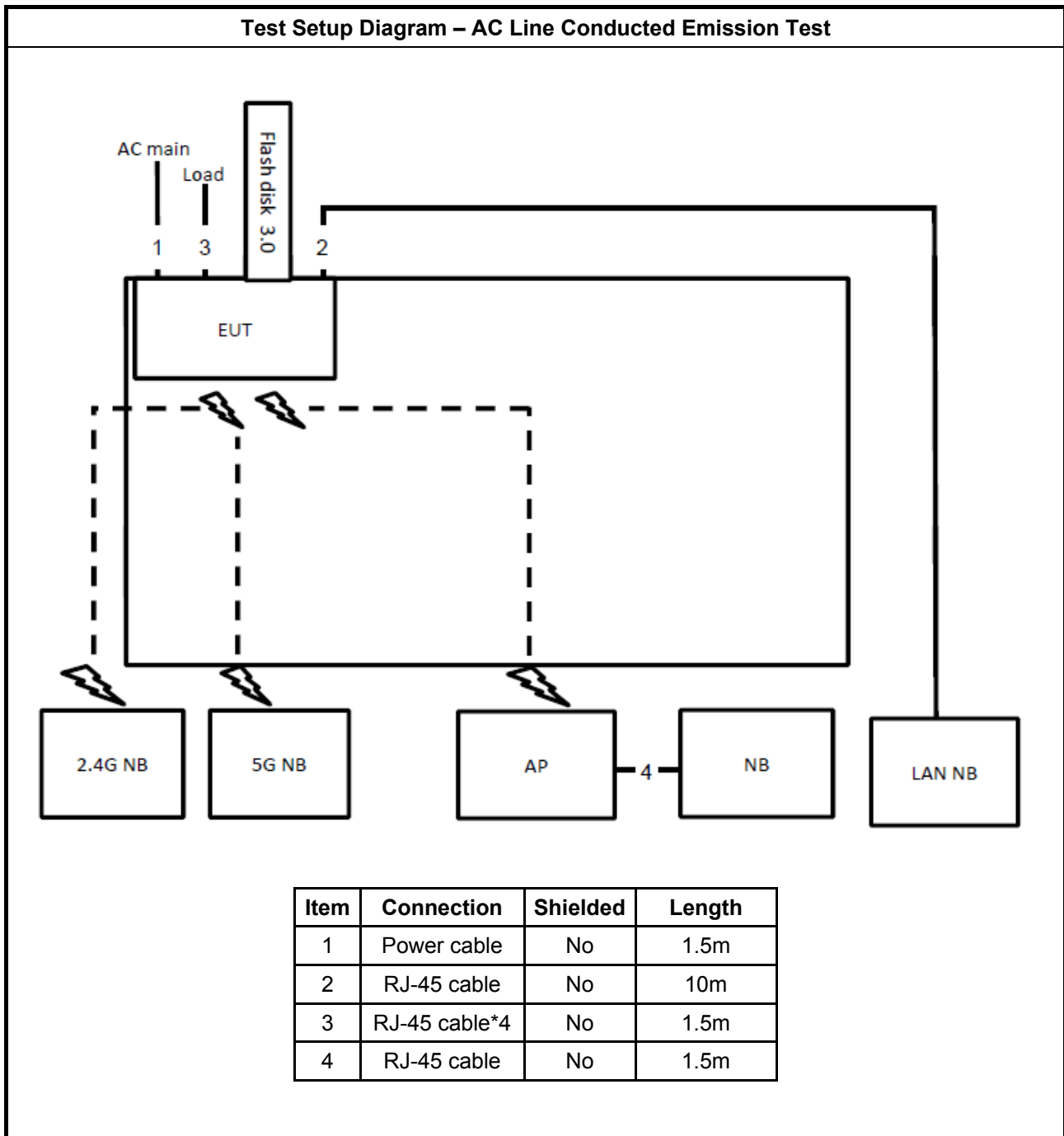
**For beamforming mode**

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
1	Notebook	DELL	E4300	DoC
2	Notebook	DELL	E4300	DoC
3	Router (RX Device)	Amped Wireless	AC2200 repeater router	DoC

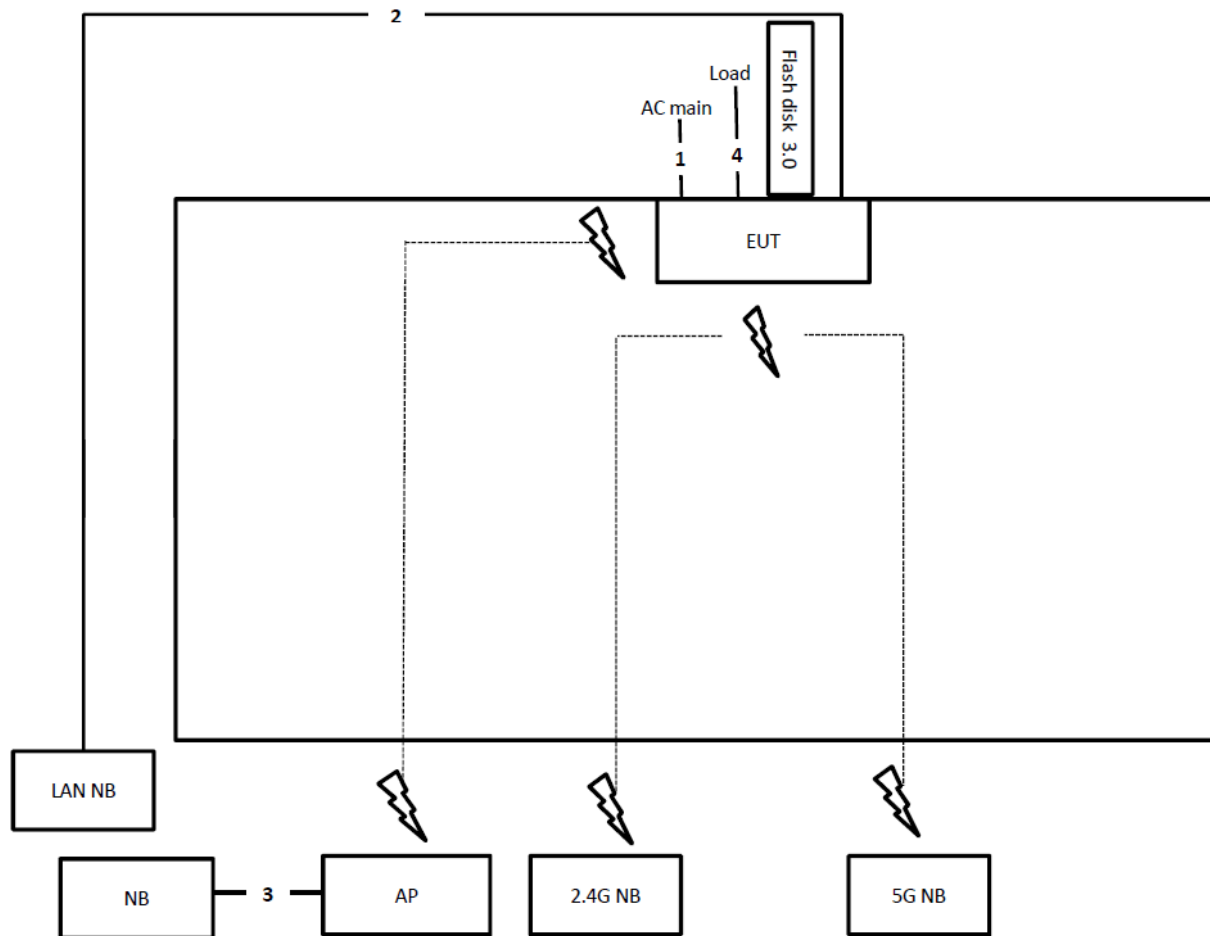
For Test Site No: TH01-CB

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

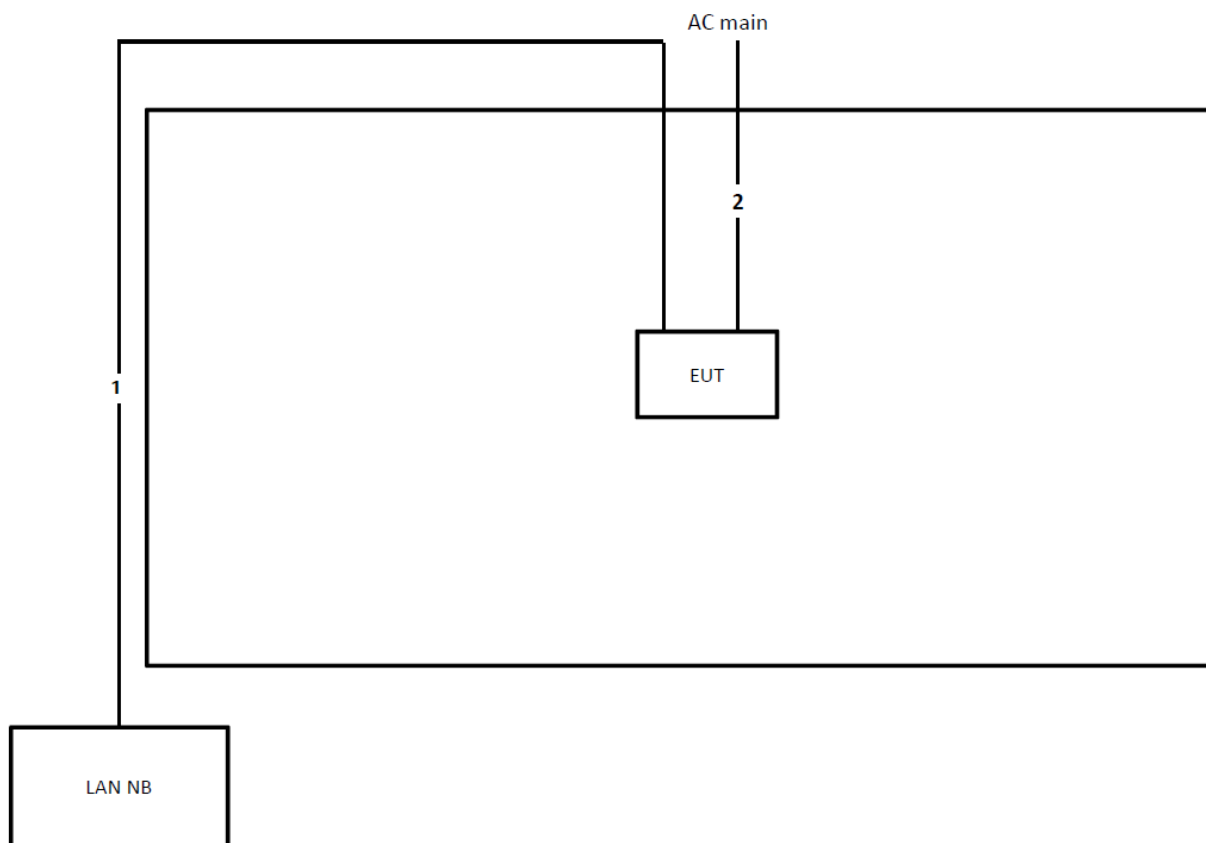
2.6 Test Setup Diagram



Test Setup Diagram - Radiated Test < 1GHz

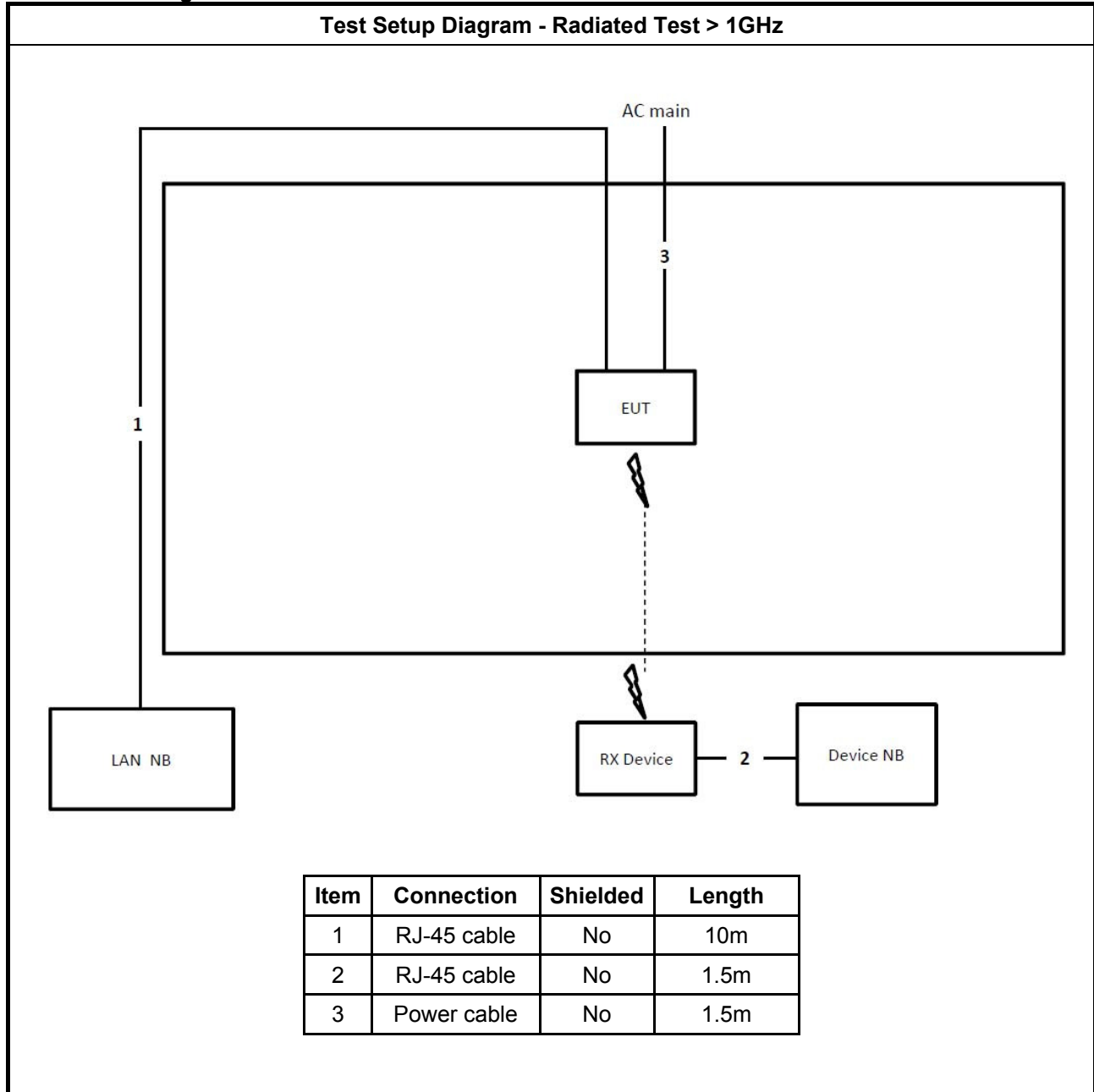


Item	Connection	Shielded	Length
1	Power cable	No	1.5m
2	RJ-45 cable	No	10m
3	RJ-45 cable	No	1.5m
4	RJ-45 cable*4	No	1.5m

For non-beamforming mode
Test Setup Diagram - Radiated Test > 1GHz


Item	Connection	Shielded	Length
1	RJ-45 cable	No	10m
2	Power cable	No	1.5m

For beamforming mode



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.

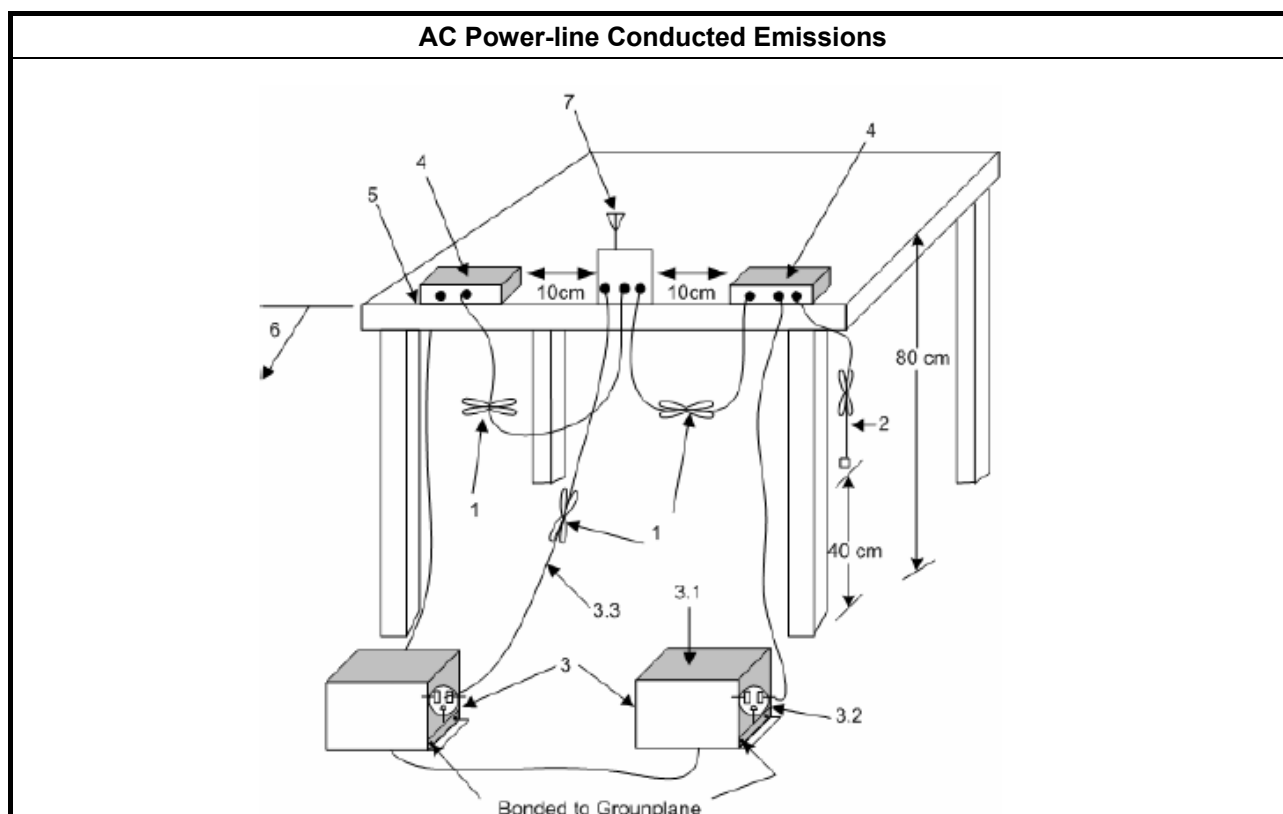
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

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

3.1.4 Test Setup





3.1.5 Test Result of AC Power-line Conducted Emissions

Refer as Appendix A

3.2 Emission Bandwidth

3.2.1 Emission Bandwidth Limit

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

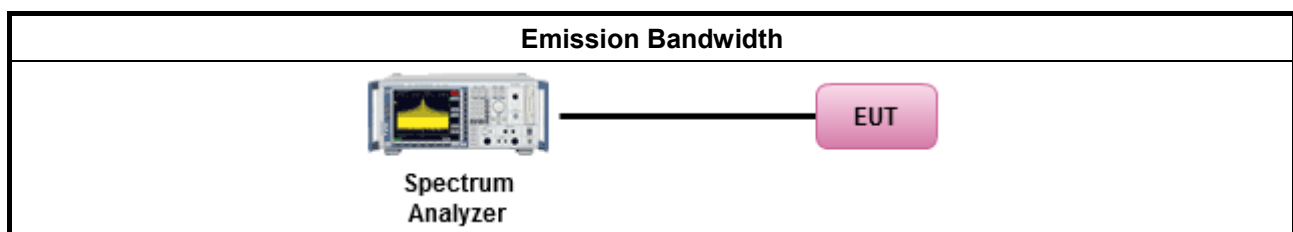
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

Test Method	
For the emission bandwidth shall be measured using one of the options below:	
☒	Refer as FCC KDB 789033, clause C for EBW and clause D for OBW measurement.
☐	Refer as ANSI C63.10, clause 6.9.1 for occupied bandwidth testing.
☒	Refer as IC RSS-Gen, clause 4.6 for bandwidth testing.

3.2.4 Test Setup



3.2.5 Test Result of Emission Bandwidth

Refer as Appendix B

3.3 Maximum Conducted Output Power

3.3.1 Maximum Conducted Output Power Limit

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

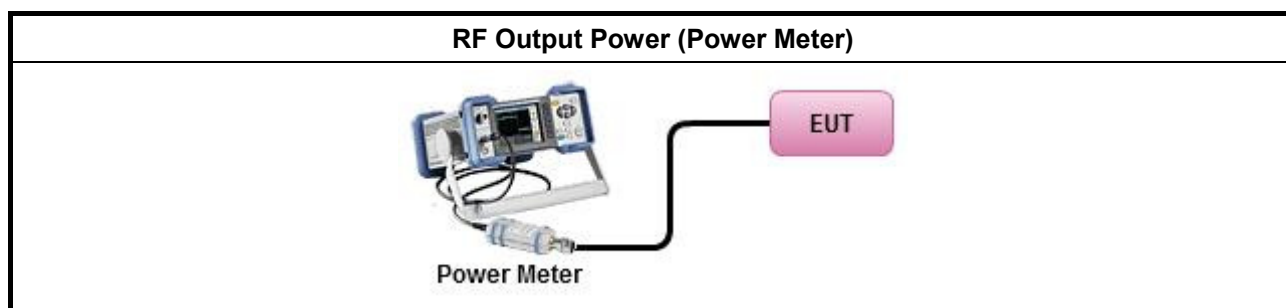
3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

Test Method	
Maximum Conducted Output Power	
Average over on/off periods with duty factor	
☐	Refer as FCC KDB 789033, clause E Method SA-2 (spectral trace averaging).
☐	Refer as FCC KDB 789033, clause E Method SA-2 Alt. (RMS detection with slow sweep speed)
Wideband RF power meter and average over on/off periods with duty factor	
☒	Refer as FCC KDB 789033, clause E Method PM-G (using an RF average power meter).
For conducted measurement.	
If the EUT supports multiple transmit chains using options given below: Refer as FCC KDB 662911, In-band power measurements. Using the measure-and-sum approach, measured all transmit ports individually. Sum the power (in linear power units e.g., mW) of all ports for each individual sample and save them.	
If multiple transmit chains, EIRP calculation could be following as methods: $P_{total} = P_1 + P_2 + \dots + P_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $EIRP_{total} = P_{total} + DG$	

3.3.4 Test Setup



3.3.5 Test Result of Maximum Conducted Output Power

Refer as Appendix C

3.4 Peak Power Spectral Density

3.4.1 Peak Power Spectral Density Limit

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

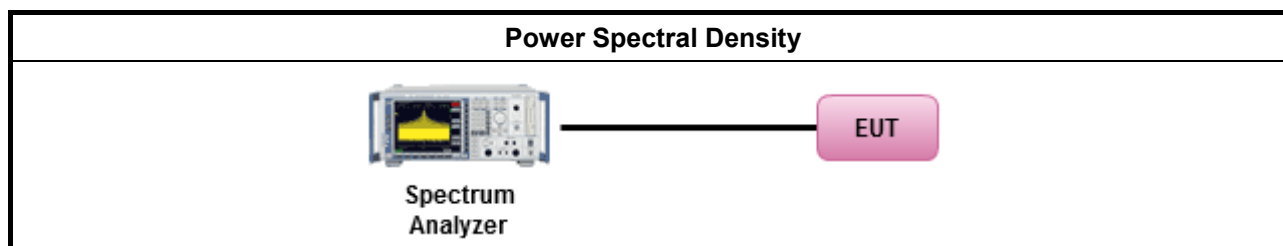
3.4.2 Measuring Instruments

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

3.4.4 Test Setup





3.4.5 Test Result of Peak Power Spectral Density

Refer as Appendix D

3.5 Unwanted Emissions

3.5.1 Transmitter Radiated Unwanted Emissions Limit

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

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

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

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

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

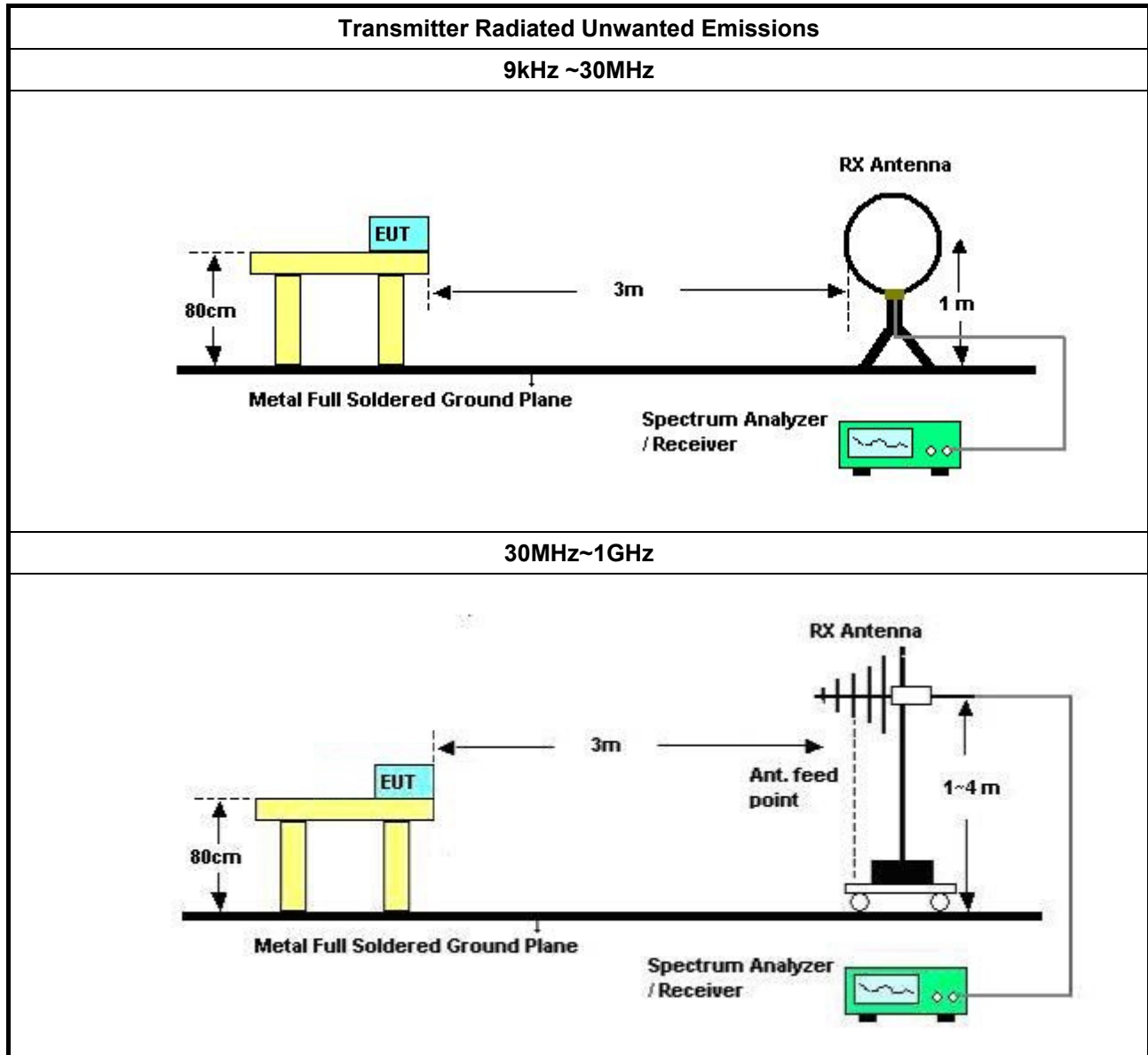
3.5.2 Measuring Instruments

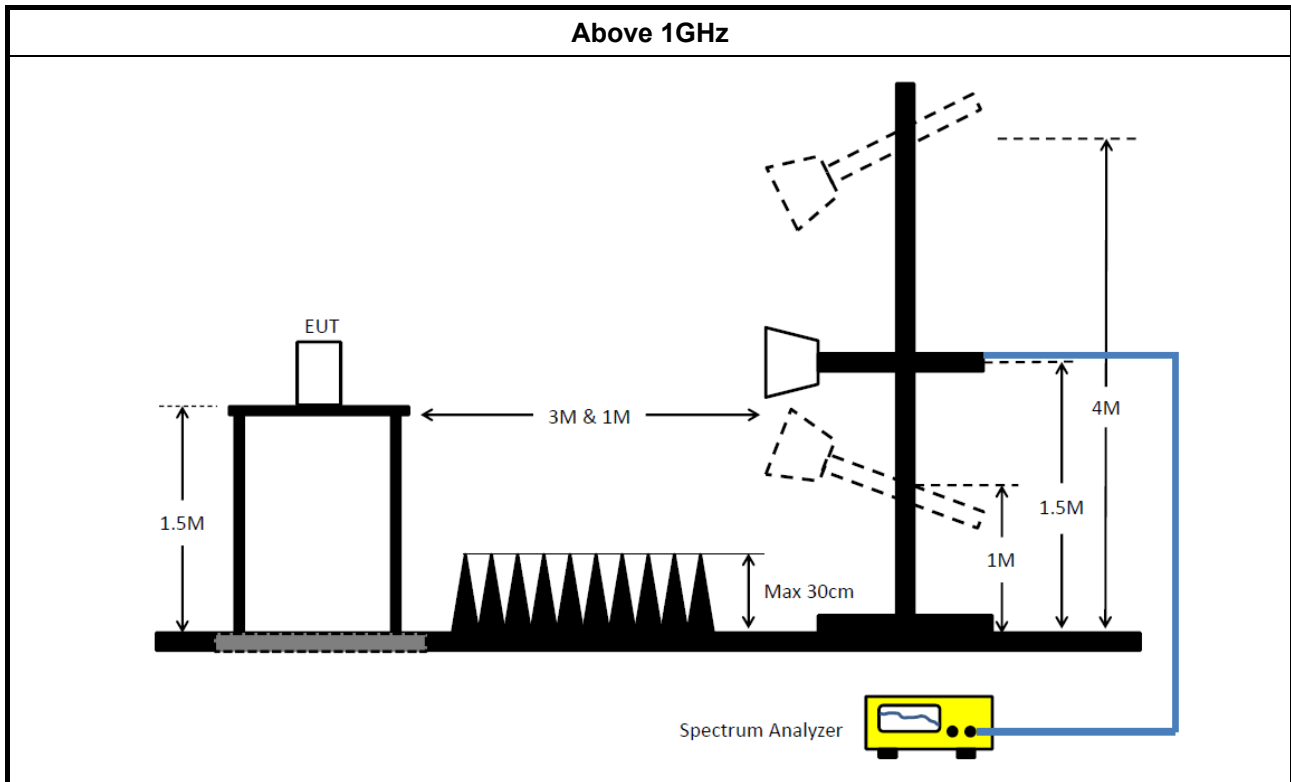
Refer a test equipment and calibration data table in this test report.

3.5.3 Test Procedures

Test Method	
Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 m for frequencies above 30 MHz, unless it can be further demonstrated that measurements at a distance of 30 m or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).	
The average emission levels shall be measured in [duty cycle $\geq$ 98 or duty factor].	
For the transmitter unwanted emissions shall be measured using following options below:	
	Refer as FCC KDB 789033, clause H)2) for unwanted emissions into non-restricted bands.
	Refer as FCC KDB 789033, clause H)1) for unwanted emissions into restricted bands.
	☐ Refer as FCC KDB 789033, H)6) Method AD (Trace Averaging).
	☒ Refer as FCC KDB 789033, H)6) Method VB (Reduced VBW).
	☐ Refer as ANSI C63.10, clause 4.2.3.2.3 (Reduced VBW). VBW $\geq$ 1/T, where T is pulse time.
	☐ Refer as ANSI C63.10, clause 4.2.3.2.4 average value of pulsed emissions.
	☒ Refer as FCC KDB 789033, clause H)5) measurement procedure peak limit.
	☐ Refer as ANSI C63.10, clause 4.2.3.2.2 measurement procedure peak limit.
	For radiated measurement.
	Refer as ANSI C63.10, clause 6.4 for radiated emissions below 30 MHz and test distance is 3m.
	Refer as ANSI C63.10, clause 6.5 for radiated emissions 30 MHz to 1 GHz and test distance is 3m.
	Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1GHz.
	The any unwanted emissions level shall not exceed the fundamental emission level.
All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.	

3.5.4 Test Setup





3.5.5 Transmitter Unwanted Emissions (Below 30MHz)

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

3.5.6 Test Result of Transmitter Unwanted Emissions

Refer as Appendix E

3.6 Frequency Stability

3.6.1 Frequency Stability Limit

Frequency Stability Limit
UNII Devices
In-band emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.
LE-LAN Devices
N/A
IEEE Std. 802.11
The transmitter center frequency tolerance shall be ± 20 ppm maximum for the 5 GHz band and ± 25 ppm maximum for the 2.4 GHz band.

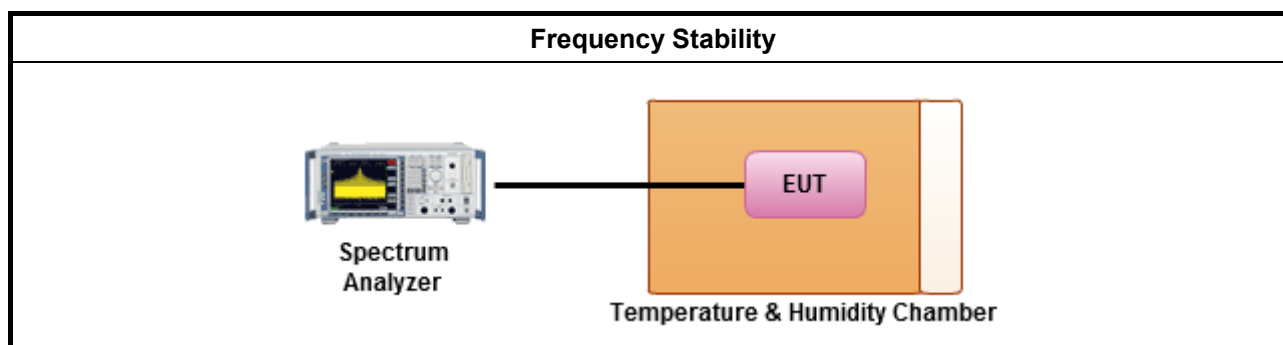
3.6.2 Measuring Instruments

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

3.6.3 Test Procedures

Test Method
Refer as ANSI C63.10, clause 6.8 for frequency stability tests
- Frequency stability with respect to ambient temperature - Frequency stability when varying supply voltage - Extreme temperature is 0°C~40°C.

3.6.4 Test Setup





3.6.5 Test Result of Frequency Stability

Refer as Appendix F



4 Test Equipment and Calibration Data

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMI Receiver	Agilent	N9038A	My52260123	9kHz ~ 8.45GHz	Jan. 27, 2016	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz ~ 100MHz	Dec. 08, 2015	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Dec. 23, 2015	Conduction (CO01-CB)
COND Cable	Woken	Cable	01	150kHz ~ 30MHz	May 24, 2016	Conduction (CO01-CB)
Software	Audix	E3	6.120210n	-	N.C.R.	Conduction (CO01-CB)
BILOG ANTENNA with 6dB Attenuator	TESEQ & EMC	CBL6112D & N-6-06	37880 & AT-N0609	20MHz ~ 2GHz	Aug. 30, 2016	Radiation (03CH01-CB)
Horn Antenna	EMCO	3115	00075790	750MHz ~ 18GHz	Nov. 10, 2016	Radiation (03CH01-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Jul. 25, 2016	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8447D	2944A10991	0.1MHz ~ 1.3GHz	Mar. 15, 2016	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Jan. 18, 2016	Radiation (03CH01-CB)
Pre-Amplifier	MITEQ	TTA1840-35-HG	1864479	18GHz ~ 40GHz	Jun. 28, 2016	Radiation (03CH01-CB)
Spectrum Analyzer	R&S	FSP-40	100019	9kHz ~ 40GHz	Apr. 21, 2016	Radiation (03CH01-CB)
EMI Test	R&S	ESCS	100355	9kHz ~ 2.75GHz	May 16, 2016	Radiation (03CH01-CB)
RF Cable-low	Woken	Low Cable-16+17	N/A	30 MHz ~ 1 GHz	Oct. 24, 2016	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16	N/A	1 GHz ~ 18 GHz	Oct. 24, 2016	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16+17	N/A	1 GHz ~ 18 GHz	Oct. 24, 2016	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G#1	N/A	18GHz ~ 40 GHz	Oct. 24, 2016	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G#2	N/A	18GHz ~ 40 GHz	Oct. 24, 2016	Radiation (03CH01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz ~ 30 MHz	Mar. 16, 2016*	Radiation (03CH01-CB)
Test Software	Audix	E3	6.2009-I0-7	N/A	N/A	Radiation (03CH01-CB)



FCC Test Report

Report No. : FR6N0915AB

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Spectrum analyzer	R&S	FSV40	101027	9kHz~40GHz	Jul. 26, 2016	Conducted (TH01-CB)
Temp. and Humidity Chamber	Ten Billion	TTH-D3SP	TBN-931011	-30~100 degree	Jun. 03, 2016	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-6	1GHz – 26.5 GHz	Oct. 24, 2016	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-7	1GHz – 26.5 GHz	Oct. 24, 2016	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-8	1GHz – 26.5 GHz	Oct. 24, 2016	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-9	1GHz – 26.5 GHz	Oct. 24, 2016	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-10	1GHz – 26.5 GHz	Oct. 24, 2016	Conducted (TH01-CB)
Power Sensor	Anritsu	MA2411B	1126203	300MHz~40GHz	Sep. 09, 2016	Conducted (TH01-CB)
Power Meter	Anritsu	ML2495A	1210004	300MHz~40GHz	Sep. 09, 2016	Conducted (TH01-CB)

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

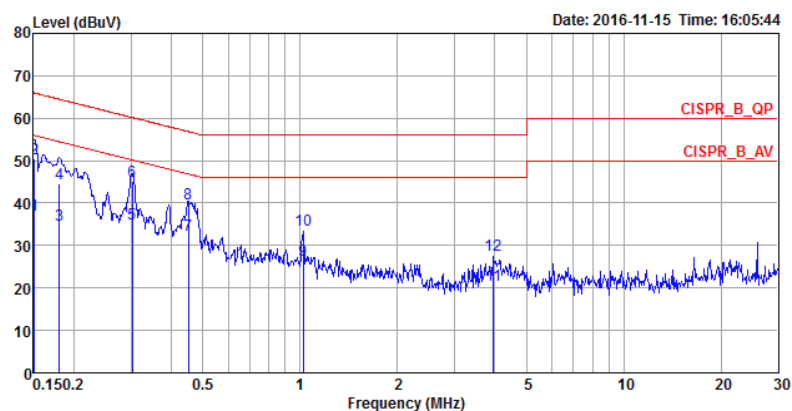
“*” Calibration Interval of instruments listed above is two years.

NCR means Non-Calibration required.



AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Neutral
Operating Function	Normal Link		

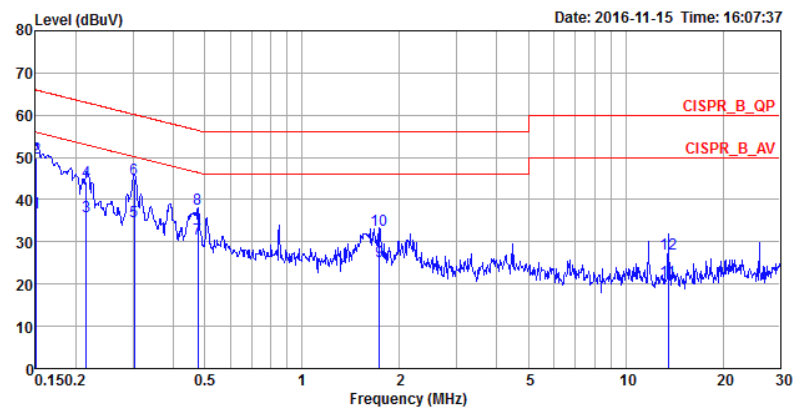


	Freq	Level	Over	Limit	Read	LISN	Cable	Pol/Phase	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss		
			dB	dBuV	dBuV	dB	dB		
1	0.1508	37.12	-18.84	55.96	26.94	10.02	0.16	NEUTRAL	Average
2	0.1508	50.60	-15.36	65.96	40.42	10.02	0.16	NEUTRAL	QP
3	0.1806	34.79	-19.67	54.46	24.69	9.92	0.18	NEUTRAL	Average
4	0.1806	44.70	-19.76	64.46	34.60	9.92	0.18	NEUTRAL	QP
5	0.3035	35.03	-15.12	50.15	25.03	9.92	0.08	NEUTRAL	Average
6	0.3035	45.12	-15.03	60.15	35.12	9.92	0.08	NEUTRAL	QP
7	0.4516	32.61	-14.24	46.85	22.58	9.92	0.11	NEUTRAL	Average
8	0.4516	39.88	-16.97	56.85	29.85	9.92	0.11	NEUTRAL	QP
9	1.0211	26.63	-19.37	46.00	15.97	9.94	0.72	NEUTRAL	Average
10	1.0211	33.68	-22.32	56.00	23.02	9.94	0.72	NEUTRAL	QP
11	3.9639	20.61	-25.39	46.00	10.53	9.99	0.09	NEUTRAL	Average
12	3.9639	27.68	-28.32	56.00	17.60	9.99	0.09	NEUTRAL	QP

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

Operating Mode	1	Power Phase	Line
Operating Function	Normal Link		



	Freq	Level	Over	Limit	Read	LISN	Cable	Pol/Phase	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss		
			dB	dBuV	dBuV	dB	dB		
1	0.1508	37.00	-18.96	55.96	26.82	10.02	0.16	LINE	Average
2	0.1508	49.84	-16.12	65.96	39.66	10.02	0.16	LINE	QP
3	0.2151	36.08	-16.93	53.01	25.99	9.92	0.17	LINE	Average
4	0.2151	44.33	-18.68	63.01	34.24	9.92	0.17	LINE	QP
5	0.3035	34.82	-15.33	50.15	24.82	9.92	0.08	LINE	Average
6	0.3035	44.83	-15.32	60.15	34.83	9.92	0.08	LINE	QP
7	0.4761	30.69	-15.72	46.41	20.62	9.92	0.15	LINE	Average
8	0.4761	37.69	-18.72	56.41	27.62	9.92	0.15	LINE	QP
9	1.7345	25.40	-20.60	46.00	15.24	9.96	0.20	LINE	Average
10	1.7345	32.75	-23.25	56.00	22.59	9.96	0.20	LINE	QP
11	13.5509	20.57	-29.43	50.00	10.16	10.21	0.20	LINE	Average
12	13.5509	27.23	-32.77	60.00	16.82	10.21	0.20	LINE	QP

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



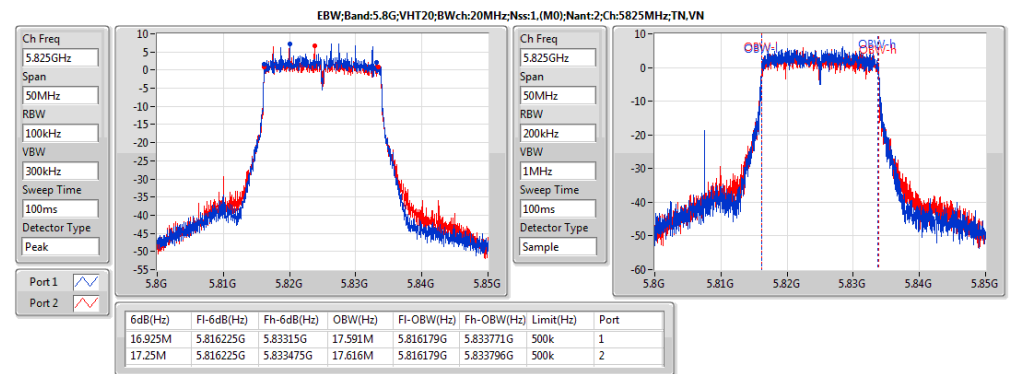
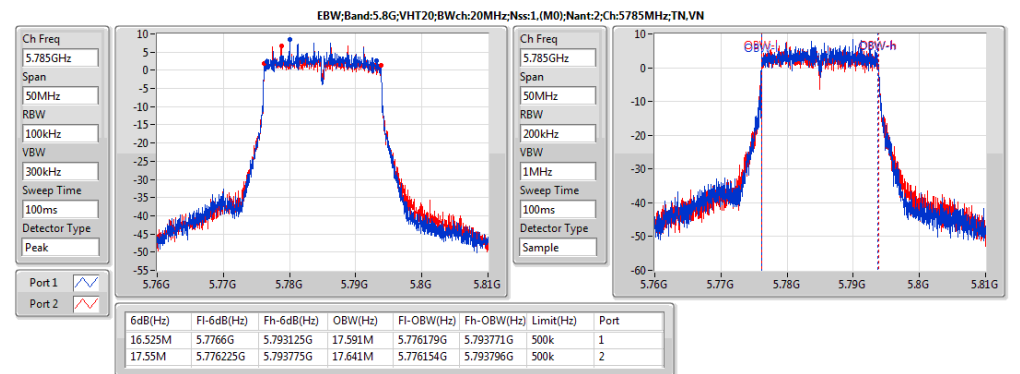
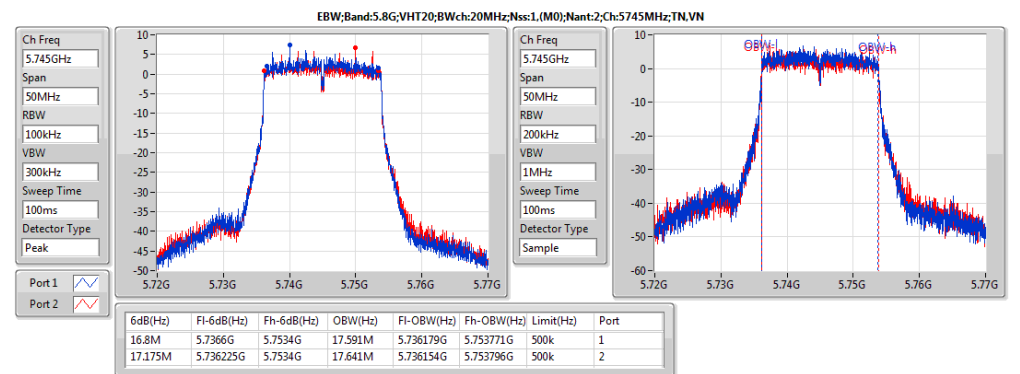
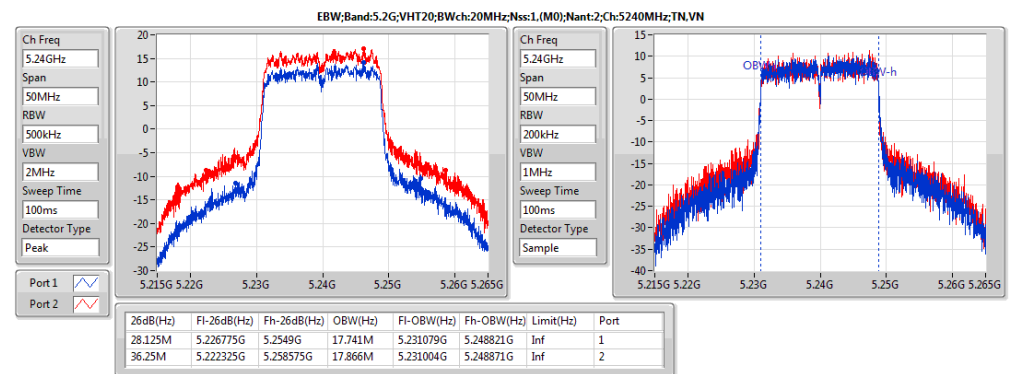
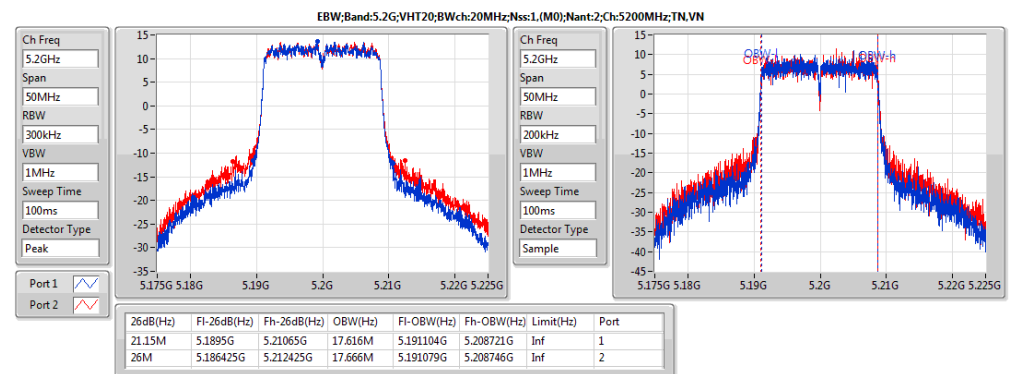
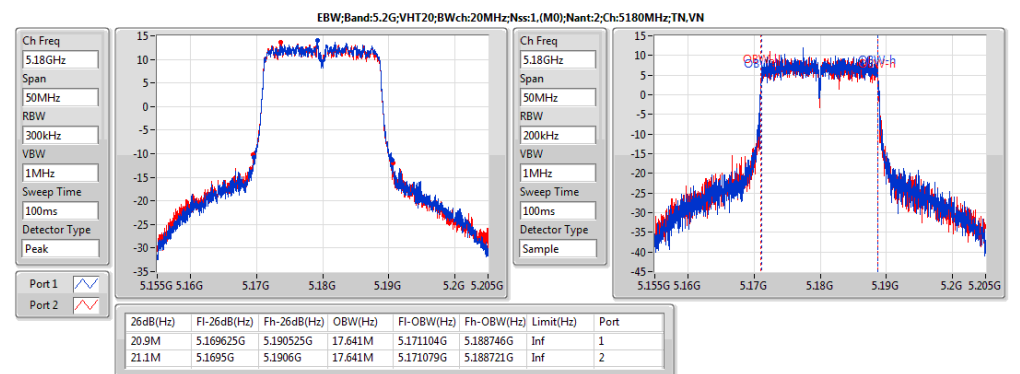
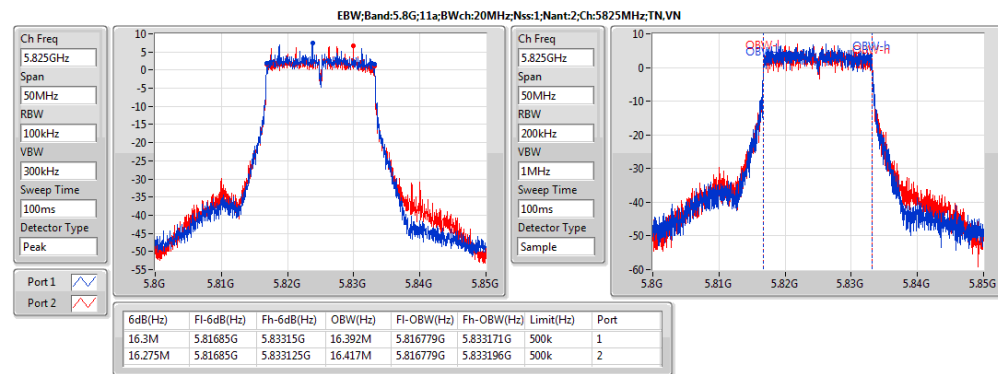
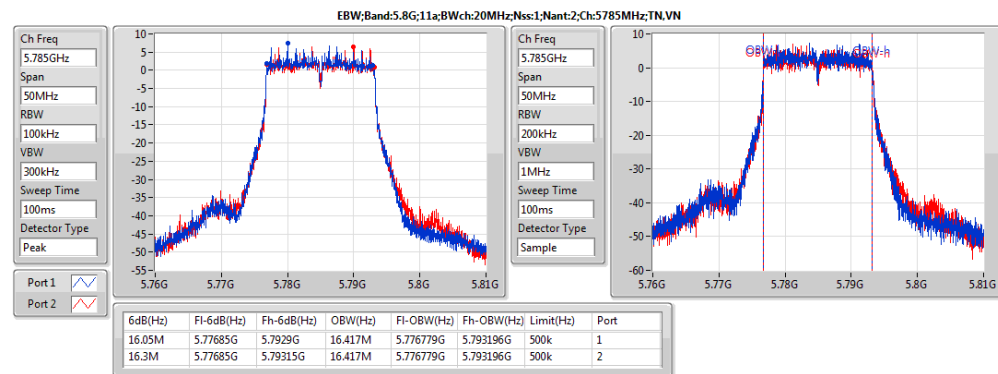
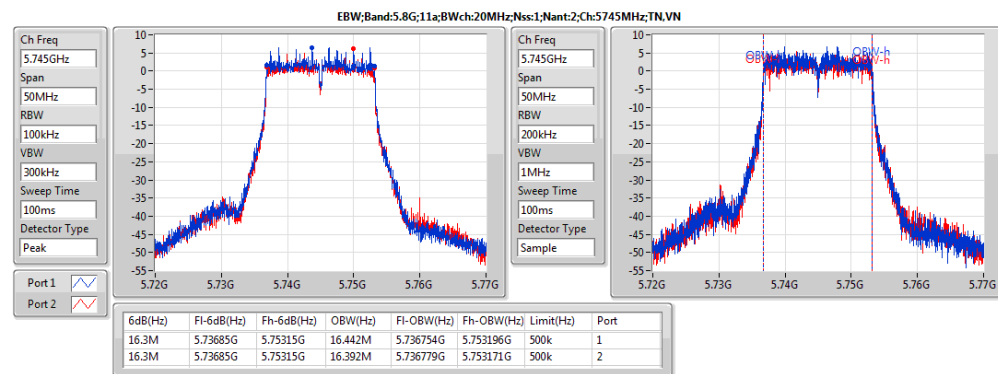
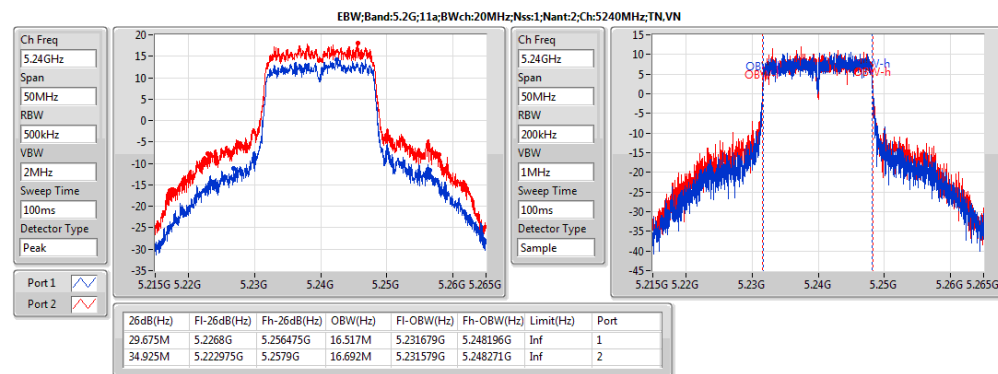
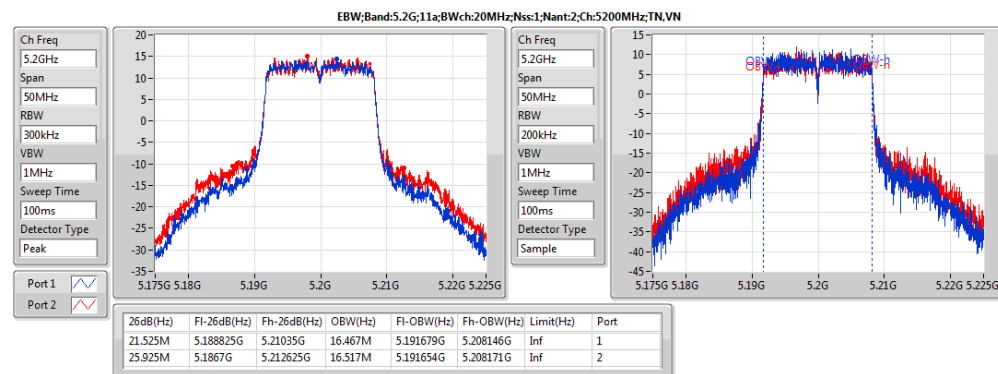
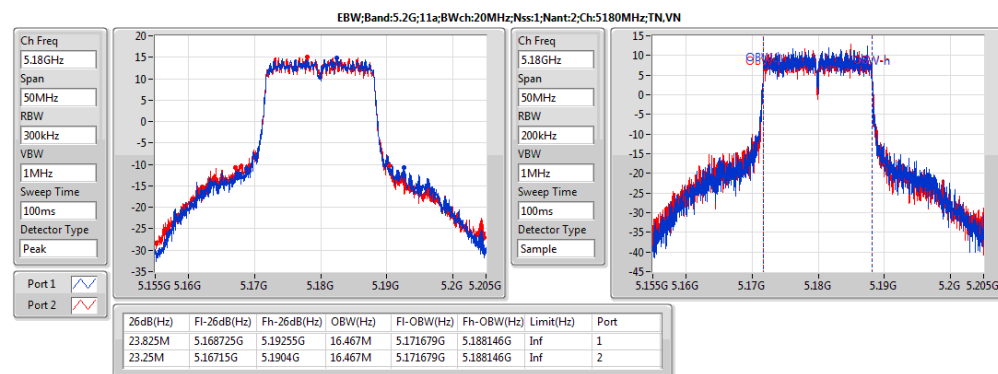
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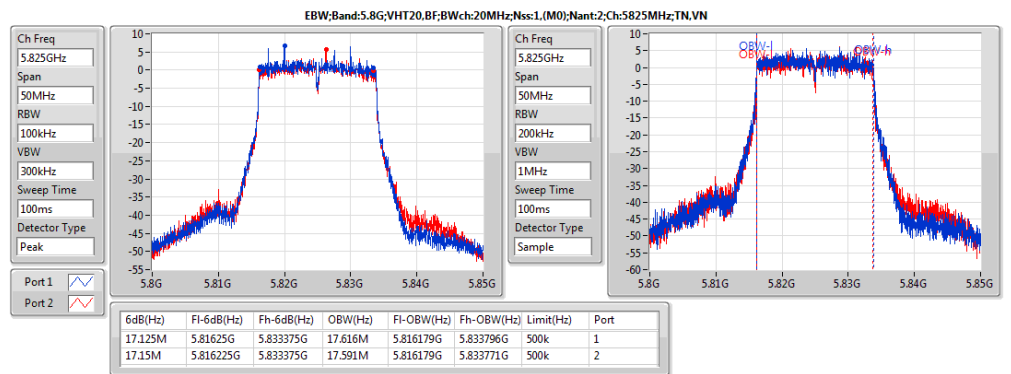
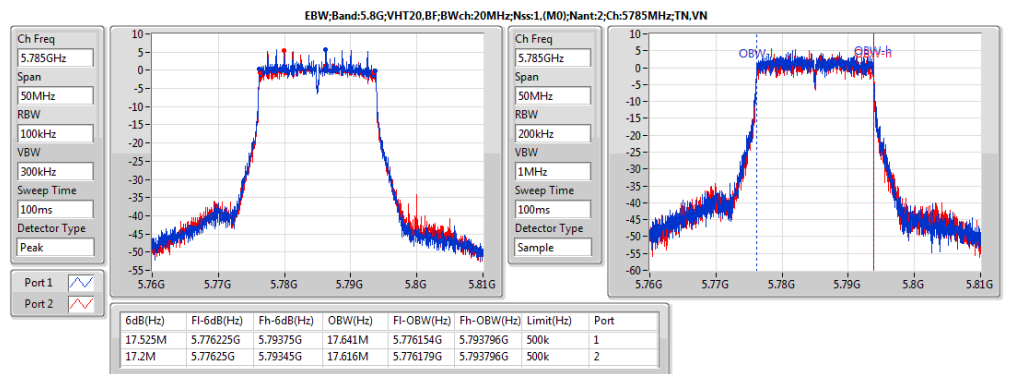
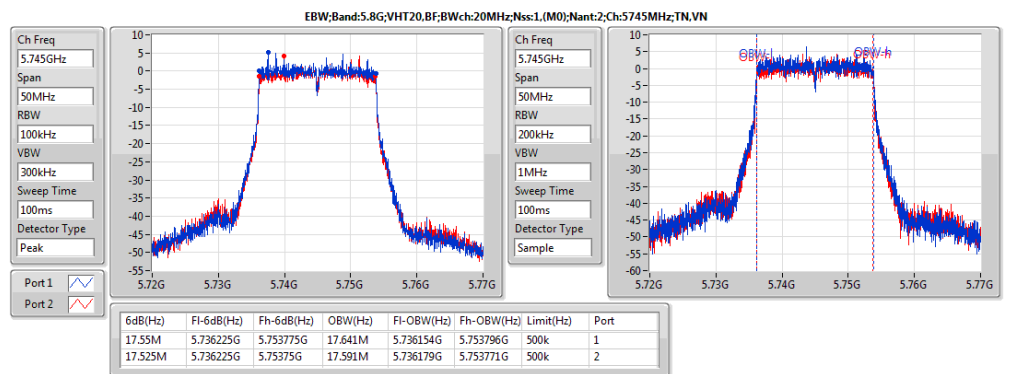
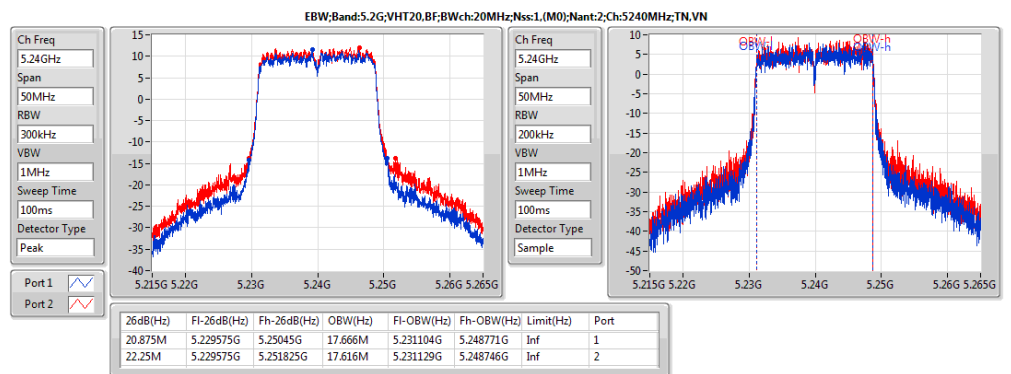
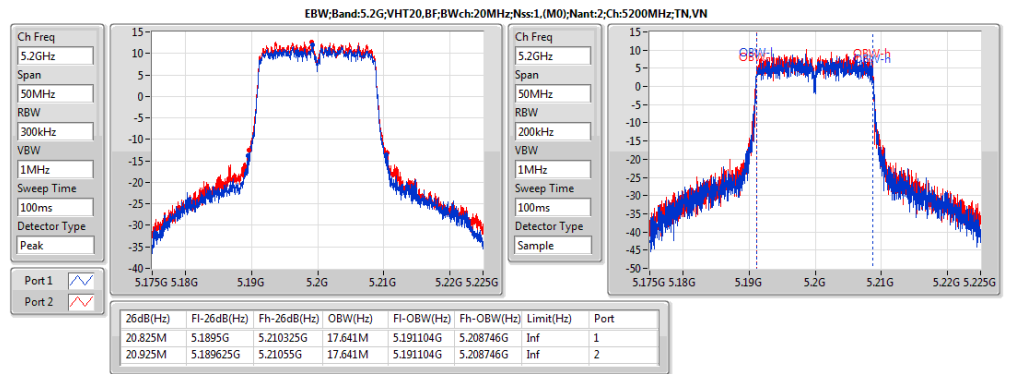
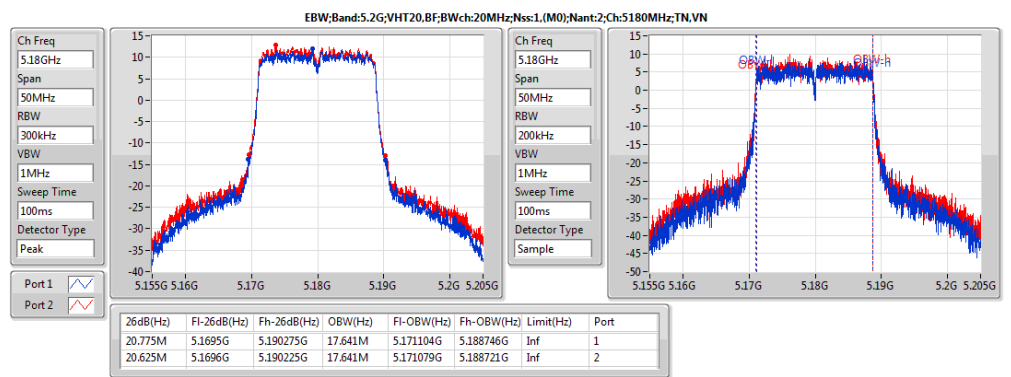
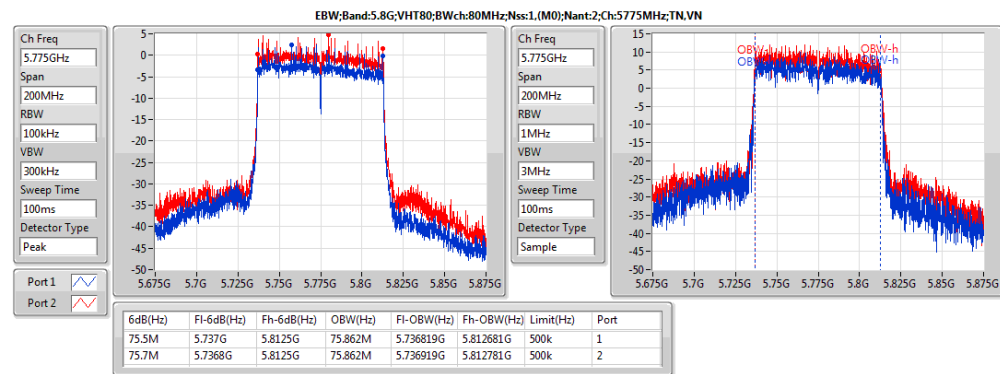
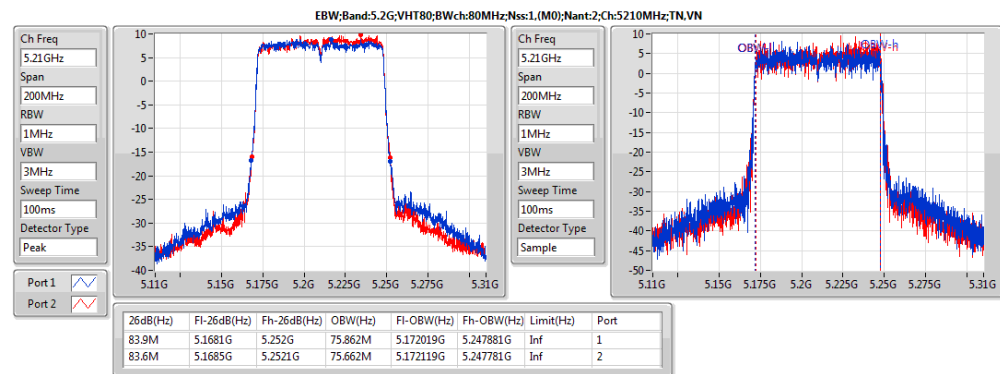
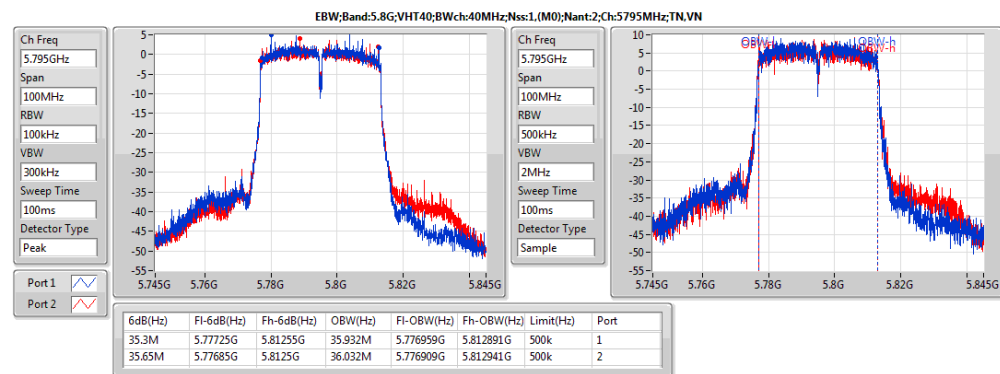
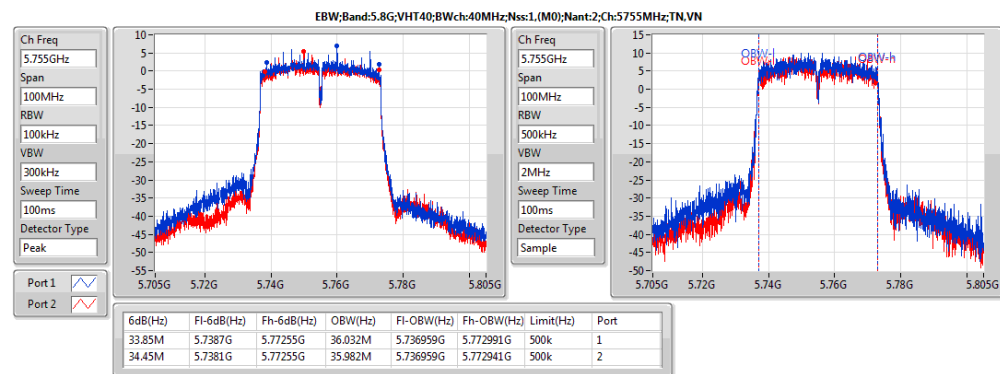
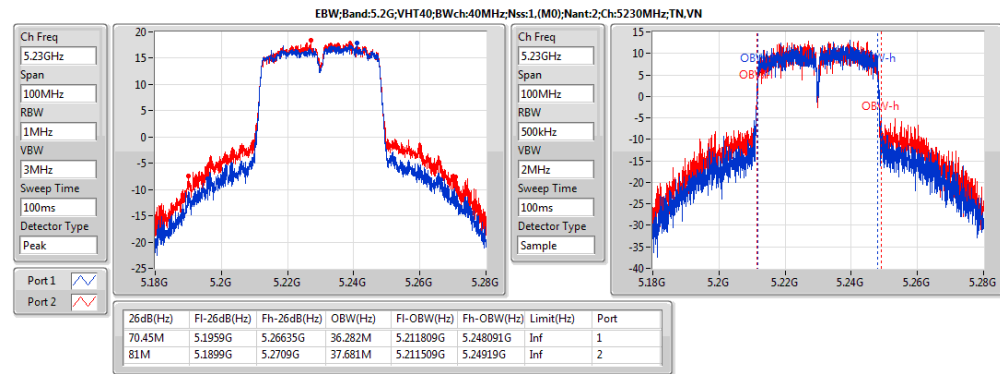
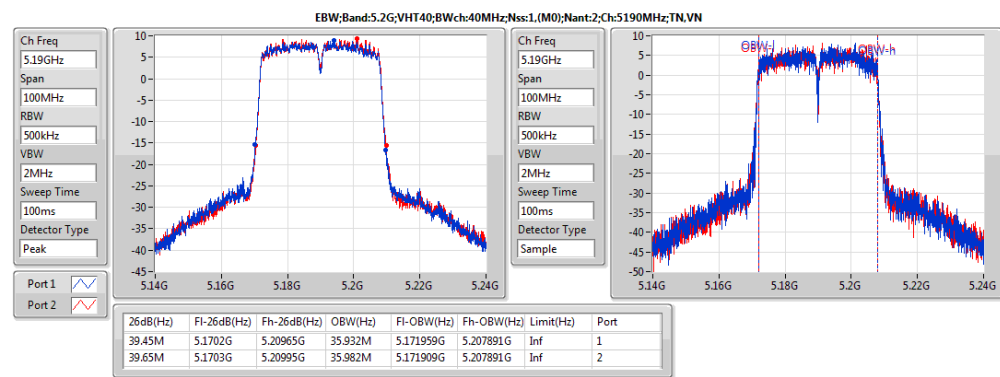
Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.2G;11a;Nss1;Ntx2	34.925M	16.692M	16M7D1D	21.525M	16.467M
5.8G;11a;Nss1;Ntx2	16.3M	16.442M	16M4D1D	16.05M	16.392M
5.2G;VHT20;Nss1,(M0);Ntx2	36.25M	17.866M	17M9D1D	20.9M	17.616M
5.8G;VHT20;Nss1,(M0);Ntx2	17.55M	17.641M	17M6D1D	16.525M	17.591M
5.2G;VHT40;Nss1,(M0);Ntx2	81M	37.681M	37M7D1D	39.45M	35.932M
5.8G;VHT40;Nss1,(M0);Ntx2	35.65M	36.032M	36M0D1D	33.85M	35.932M
5.2G;VHT80;Nss1,(M0);Ntx2	83.9M	75.862M	75M9D1D	83.6M	75.662M
5.8G;VHT80;Nss1,(M0);Ntx2	75.7M	75.862M	75M9D1D	75.5M	75.862M
5.2G;VHT20,BF;Nss1,(M0);Ntx2	22.25M	17.666M	17M7D1D	20.625M	17.616M
5.8G;VHT20,BF;Nss1,(M0);Ntx2	17.55M	17.641M	17M6D1D	17.125M	17.591M
5.2G;VHT40,BF;Nss1,(M0);Ntx2	41.9M	36.032M	36M0D1D	39.7M	35.932M
5.8G;VHT40,BF;Nss1,(M0);Ntx2	35.35M	36.032M	36M0D1D	34.9M	35.882M
5.2G;VHT80,BF;Nss1,(M0);Ntx2	83.7M	75.962M	76M0D1D	83.7M	75.662M
5.8G;VHT80,BF;Nss1,(M0);Ntx2	74.3M	75.862M	75M9D1D	74.1M	75.662M

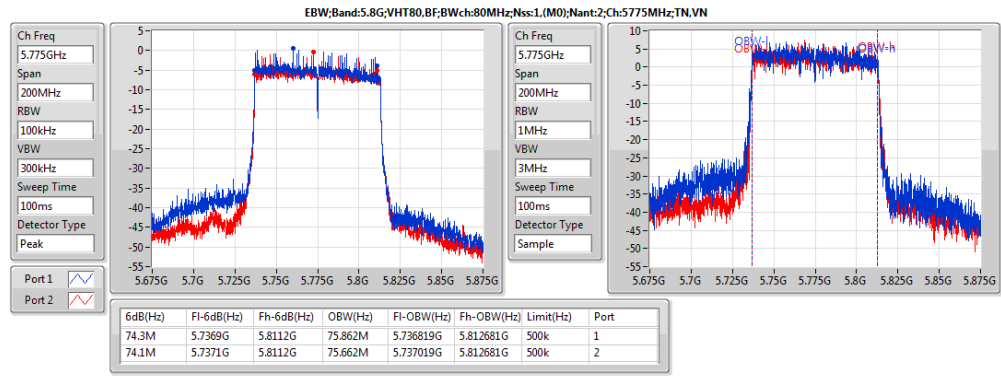
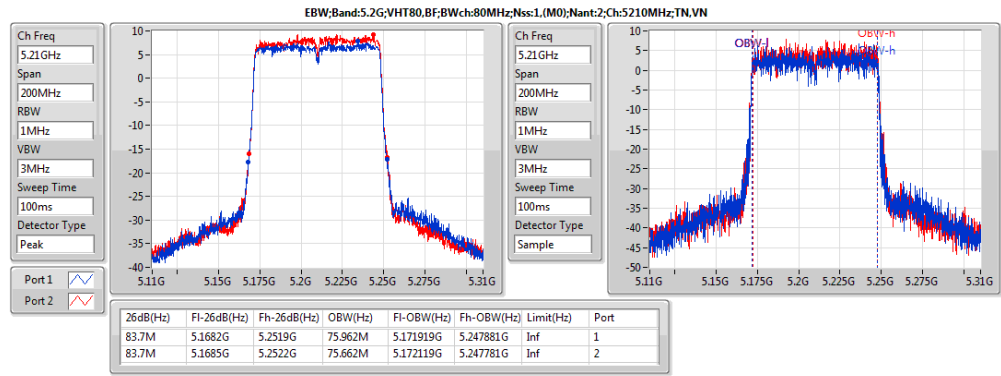
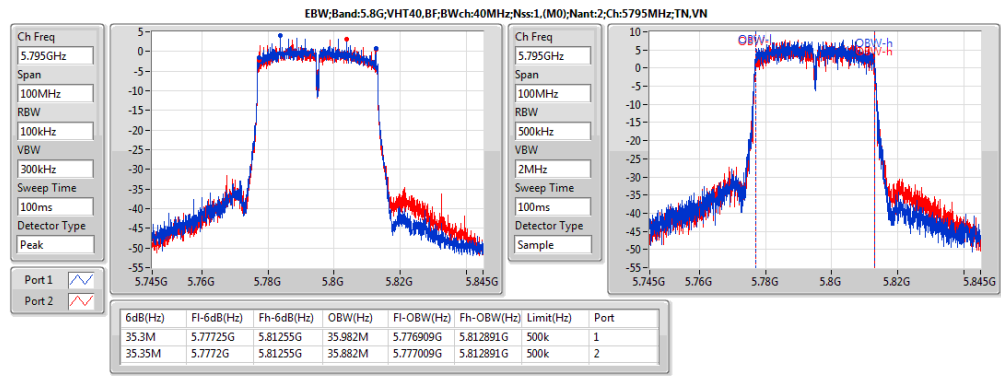
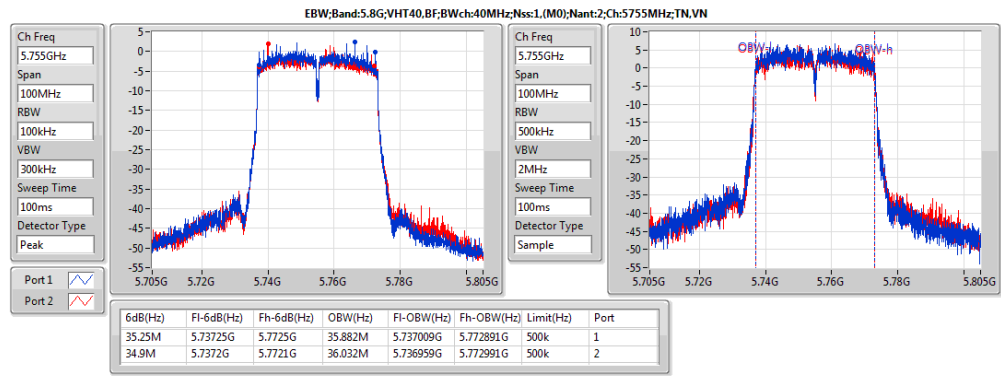
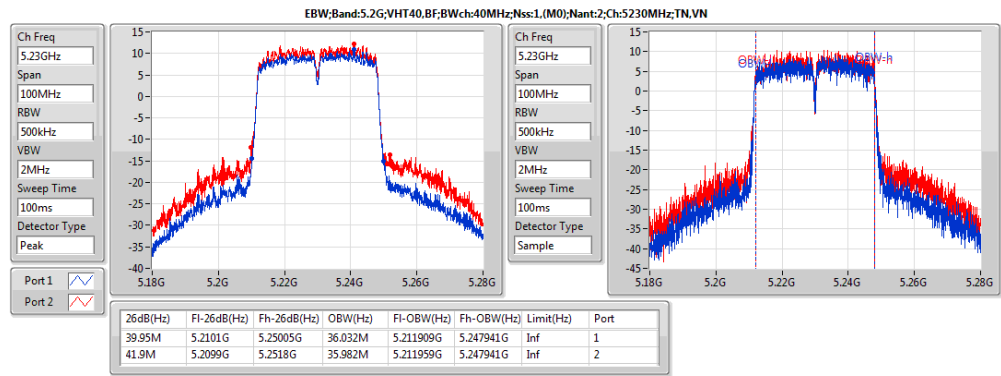
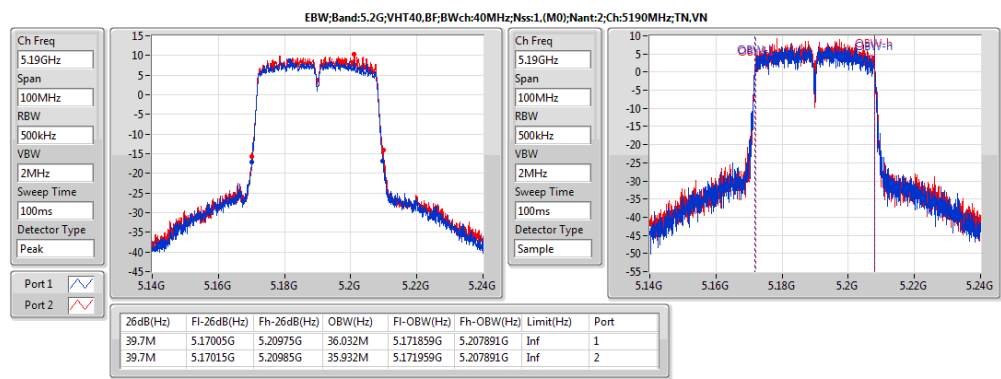


Result

Mode	Result	Limit (Hz)	P1-N dB (Hz)	P1-OBW (Hz)	P2-N dB (Hz)	P2-OBW (Hz)
5.2G;11a;Nss1;Ntx2;5180	Pass	Inf	23.825M	16.467M	23.25M	16.467M
5.2G;11a;Nss1;Ntx2;5200	Pass	Inf	21.525M	16.467M	25.925M	16.517M
5.2G;11a;Nss1;Ntx2;5240	Pass	Inf	29.675M	16.517M	34.925M	16.692M
5.8G;11a;Nss1;Ntx2;5745	Pass	500k	16.3M	16.442M	16.3M	16.392M
5.8G;11a;Nss1;Ntx2;5785	Pass	500k	16.05M	16.417M	16.3M	16.417M
5.8G;11a;Nss1;Ntx2;5825	Pass	500k	16.3M	16.392M	16.275M	16.417M
5.2G;VHT20;Nss1,(M0);Ntx2;5180	Pass	Inf	20.9M	17.641M	21.1M	17.641M
5.2G;VHT20;Nss1,(M0);Ntx2;5200	Pass	Inf	21.15M	17.616M	26M	17.666M
5.2G;VHT20;Nss1,(M0);Ntx2;5240	Pass	Inf	28.125M	17.741M	36.25M	17.866M
5.8G;VHT20;Nss1,(M0);Ntx2;5745	Pass	500k	16.8M	17.591M	17.175M	17.641M
5.8G;VHT20;Nss1,(M0);Ntx2;5785	Pass	500k	16.525M	17.591M	17.55M	17.641M
5.8G;VHT20;Nss1,(M0);Ntx2;5825	Pass	500k	16.925M	17.591M	17.25M	17.616M
5.2G;VHT40;Nss1,(M0);Ntx2;5190	Pass	Inf	39.45M	35.932M	39.65M	35.982M
5.2G;VHT40;Nss1,(M0);Ntx2;5230	Pass	Inf	70.45M	36.282M	81M	37.681M
5.8G;VHT40;Nss1,(M0);Ntx2;5755	Pass	500k	33.85M	36.032M	34.45M	35.982M
5.8G;VHT40;Nss1,(M0);Ntx2;5795	Pass	500k	35.3M	35.932M	35.65M	36.032M
5.2G;VHT80;Nss1,(M0);Ntx2;5210	Pass	Inf	83.9M	75.862M	83.6M	75.662M
5.8G;VHT80;Nss1,(M0);Ntx2;5775	Pass	500k	75.5M	75.862M	75.7M	75.862M
5.2G;VHT20,BF;Nss1,(M0);Ntx2;5180	Pass	Inf	20.775M	17.641M	20.625M	17.641M
5.2G;VHT20,BF;Nss1,(M0);Ntx2;5200	Pass	Inf	20.825M	17.641M	20.925M	17.641M
5.2G;VHT20,BF;Nss1,(M0);Ntx2;5240	Pass	Inf	20.875M	17.666M	22.25M	17.616M
5.8G;VHT20,BF;Nss1,(M0);Ntx2;5745	Pass	500k	17.55M	17.641M	17.525M	17.591M
5.8G;VHT20,BF;Nss1,(M0);Ntx2;5785	Pass	500k	17.525M	17.641M	17.2M	17.616M
5.8G;VHT20,BF;Nss1,(M0);Ntx2;5825	Pass	500k	17.125M	17.616M	17.15M	17.591M
5.2G;VHT40,BF;Nss1,(M0);Ntx2;5190	Pass	Inf	39.7M	36.032M	39.7M	35.932M
5.2G;VHT40,BF;Nss1,(M0);Ntx2;5230	Pass	Inf	39.95M	36.032M	41.9M	35.982M
5.8G;VHT40,BF;Nss1,(M0);Ntx2;5755	Pass	500k	35.25M	35.882M	34.9M	36.032M
5.8G;VHT40,BF;Nss1,(M0);Ntx2;5795	Pass	500k	35.3M	35.982M	35.35M	35.882M
5.2G;VHT80,BF;Nss1,(M0);Ntx2;5210	Pass	Inf	83.7M	75.962M	83.7M	75.662M
5.8G;VHT80,BF;Nss1,(M0);Ntx2;5775	Pass	500k	74.3M	75.862M	74.1M	75.662M









Summary

Mode	Sum (dBm)	Sum (W)	EIRP (dBm)	EIRP (W)
5.2G;11a;Nss1;Ntx2	26.55	0.45186	30.84	1.21339
5.8G;11a;Nss1;Ntx2	20.44	0.11066	24.73	0.29717
5.2G;VHT20;Nss1,(M0);Ntx2	25.96	0.39446	30.25	1.05925
5.8G;VHT20;Nss1,(M0);Ntx2	21.04	0.12706	25.33	0.34119
5.2G;VHT40;Nss1,(M0);Ntx2	26.81	0.47973	31.10	1.28825
5.8G;VHT40;Nss1,(M0);Ntx2	22.50	0.17783	26.79	0.47753
5.2G;VHT80;Nss1,(M0);Ntx2	21.43	0.139	25.72	0.37325
5.8G;VHT80;Nss1,(M0);Ntx2	24.09	0.25645	28.38	0.68865
5.2G;VHT20,BF;Nss1,(M0);Ntx2	24.26	0.26669	31.56	1.43219
5.8G;VHT20,BF;Nss1,(M0);Ntx2	22.73	0.1875	28.42	0.69502
5.2G;VHT40,BF;Nss1,(M0);Ntx2	24.34	0.27164	31.64	1.45881
5.8G;VHT40,BF;Nss1,(M0);Ntx2	25.26	0.33574	30.95	1.24451
5.2G;VHT80,BF;Nss1,(M0);Ntx2	20.97	0.12503	28.27	0.67143
5.8G;VHT80,BF;Nss1,(M0);Ntx2	22.92	0.19588	28.61	0.72611



Result

Mode	Result	DG (dBi)	Sum (dBm)	Sum Lim. (dBm)	EIRP (dBm)	P1 (dBm)	P2 (dBm)
5.2G;11a;Nss1;Ntx2;5180	Pass	4.29	26.55	30.00	30.84	23.67	23.41
5.2G;11a;Nss1;Ntx2;5200	Pass	4.29	26.25	30.00	30.54	23.21	23.26
5.2G;11a;Nss1;Ntx2;5240	Pass	4.29	25.97	30.00	30.26	22.89	23.02
5.8G;11a;Nss1;Ntx2;5745	Pass	4.29	19.73	30.00	24.02	16.41	17.01
5.8G;11a;Nss1;Ntx2;5785	Pass	4.29	20.14	30.00	24.43	16.94	17.32
5.8G;11a;Nss1;Ntx2;5825	Pass	4.29	20.44	30.00	24.73	17.43	17.43
5.2G;VHT20;Nss1,(M0);Ntx2;5180	Pass	4.29	25.72	30.00	30.01	22.78	22.63
5.2G;VHT20;Nss1,(M0);Ntx2;5200	Pass	4.29	25.79	30.00	30.08	22.72	22.84
5.2G;VHT20;Nss1,(M0);Ntx2;5240	Pass	4.29	25.96	30.00	30.25	22.87	23.03
5.8G;VHT20;Nss1,(M0);Ntx2;5745	Pass	4.29	20.57	30.00	24.86	17.35	17.76
5.8G;VHT20;Nss1,(M0);Ntx2;5785	Pass	4.29	21.04	30.00	25.33	17.89	18.17
5.8G;VHT20;Nss1,(M0);Ntx2;5825	Pass	4.29	20.28	30.00	24.57	17.12	17.42
5.2G;VHT40;Nss1,(M0);Ntx2;5190	Pass	4.29	21.78	30.00	26.07	18.75	18.79
5.2G;VHT40;Nss1,(M0);Ntx2;5230	Pass	4.29	26.81	30.00	31.10	23.61	23.98
5.8G;VHT40;Nss1,(M0);Ntx2;5755	Pass	4.29	22.50	30.00	26.79	19.32	19.65
5.8G;VHT40;Nss1,(M0);Ntx2;5795	Pass	4.29	21.96	30.00	26.25	18.85	19.04
5.2G;VHT80;Nss1,(M0);Ntx2;5210	Pass	4.29	21.43	30.00	25.72	18.23	18.61
5.8G;VHT80;Nss1,(M0);Ntx2;5775	Pass	4.29	24.09	30.00	28.38	21.52	20.58
5.2G;VHT20,BF;Nss1,(M0);Ntx2;5180	Pass	7.30	24.26	28.70	31.56	21.35	21.14
5.2G;VHT20,BF;Nss1,(M0);Ntx2;5200	Pass	7.30	23.69	28.70	30.99	20.84	20.51
5.2G;VHT20,BF;Nss1,(M0);Ntx2;5240	Pass	7.30	23.74	28.70	31.04	20.89	20.57
5.8G;VHT20,BF;Nss1,(M0);Ntx2;5745	Pass	5.69	22.71	30.00	28.40	19.12	20.21
5.8G;VHT20,BF;Nss1,(M0);Ntx2;5785	Pass	5.69	22.47	30.00	28.16	19.21	19.7
5.8G;VHT20,BF;Nss1,(M0);Ntx2;5825	Pass	5.69	22.73	30.00	28.42	19.02	20.32
5.2G;VHT40,BF;Nss1,(M0);Ntx2;5190	Pass	7.30	22.24	28.70	29.54	19.37	19.08
5.2G;VHT40,BF;Nss1,(M0);Ntx2;5230	Pass	7.30	24.34	28.70	31.64	21.53	21.11
5.8G;VHT40,BF;Nss1,(M0);Ntx2;5755	Pass	5.69	23.91	30.00	29.60	20.3	21.42
5.8G;VHT40,BF;Nss1,(M0);Ntx2;5795	Pass	5.69	25.26	30.00	30.95	21.61	22.81
5.2G;VHT80,BF;Nss1,(M0);Ntx2;5210	Pass	7.30	20.97	28.70	28.27	18.14	17.78
5.8G;VHT80,BF;Nss1,(M0);Ntx2;5775	Pass	5.69	22.92	30.00	28.61	19.59	20.21



Summary

Mode	PD (dBm/RBW)	EIRP.PD (dBm/RBW)
5.2G;11a;Nss1;Ntx2	13.21	20.51
5.8G;11a;Nss1;Ntx2	6.71	12.40
5.2G;VHT20;Nss1,(M0);Ntx2	12.68	19.98
5.8G;VHT20;Nss1,(M0);Ntx2	6.78	12.47
5.2G;VHT40;Nss1,(M0);Ntx2	10.92	18.22
5.8G;VHT40;Nss1,(M0);Ntx2	5.67	11.36
5.2G;VHT80;Nss1,(M0);Ntx2	2.05	9.35
5.8G;VHT80;Nss1,(M0);Ntx2	3.21	8.90
5.2G;VHT20,BF;Nss1,(M0);Ntx2	11.00	18.30
5.8G;VHT20,BF;Nss1,(M0);Ntx2	5.47	11.16
5.2G;VHT40,BF;Nss1,(M0);Ntx2	8.52	15.82
5.8G;VHT40,BF;Nss1,(M0);Ntx2	4.61	10.30
5.2G;VHT80,BF;Nss1,(M0);Ntx2	2.06	9.36
5.8G;VHT80,BF;Nss1,(M0);Ntx2	-0.38	5.31



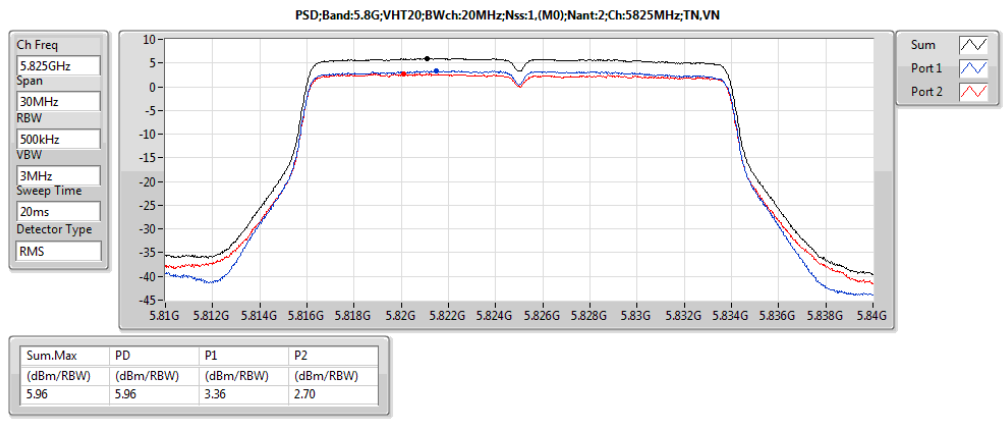
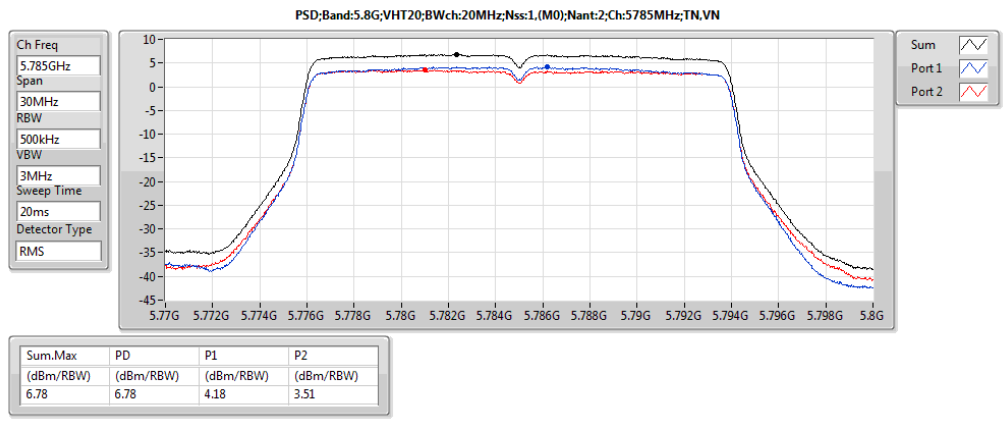
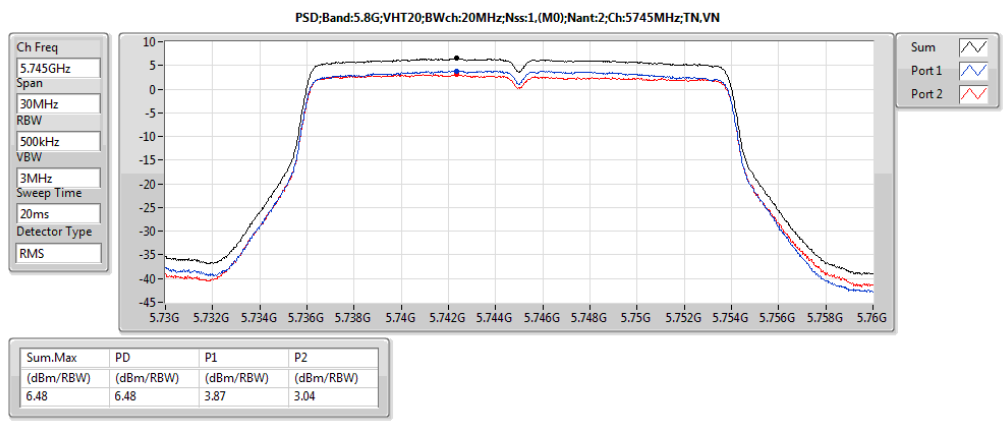
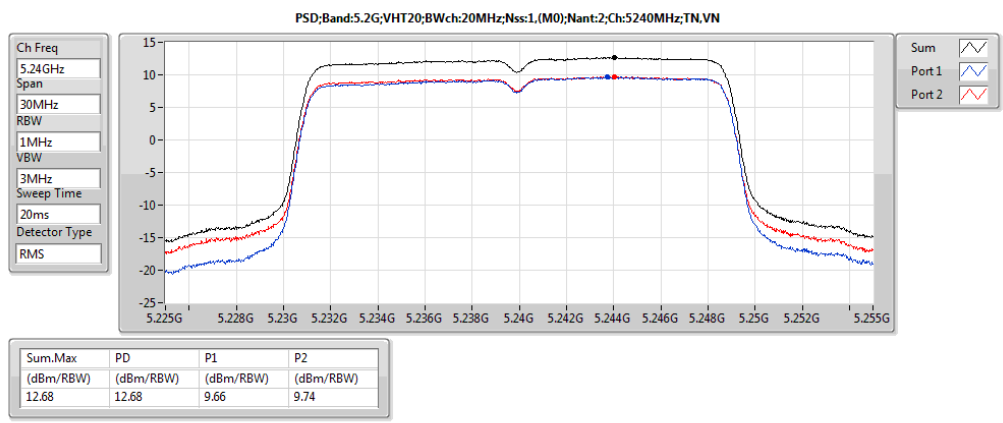
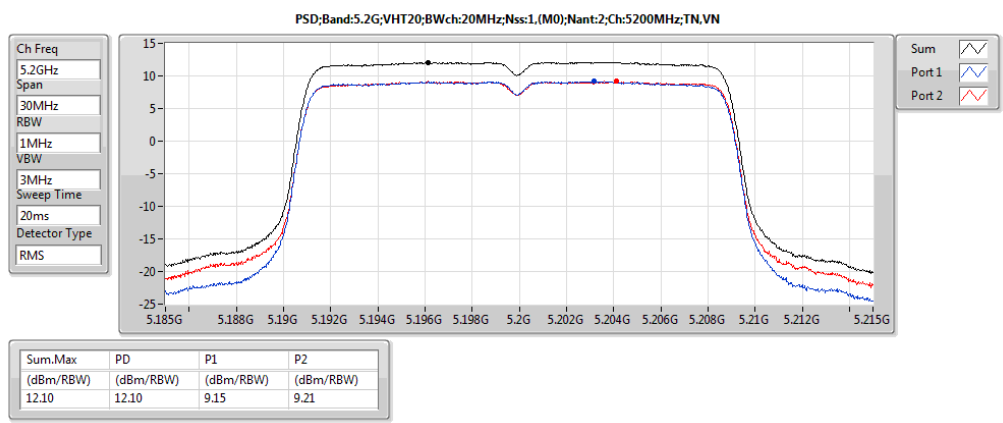
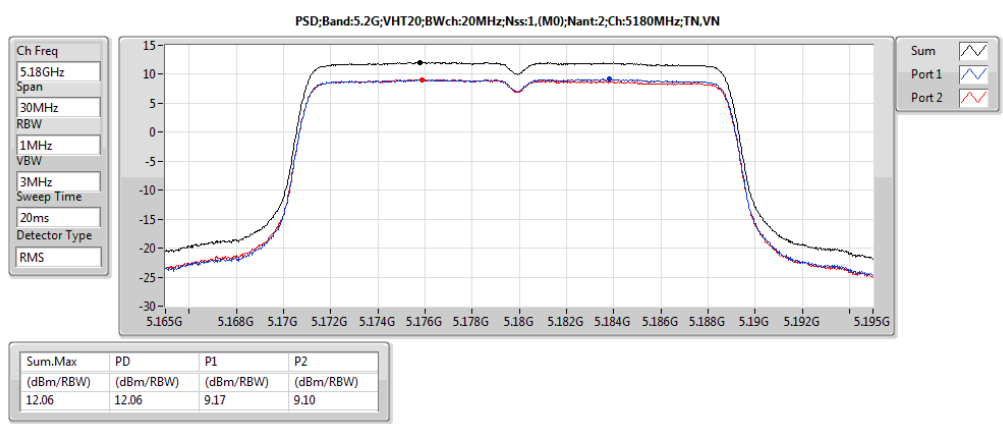
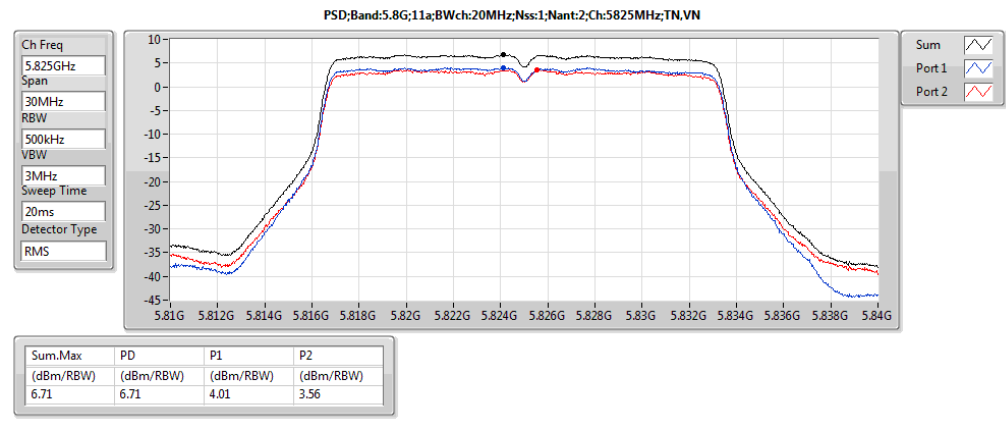
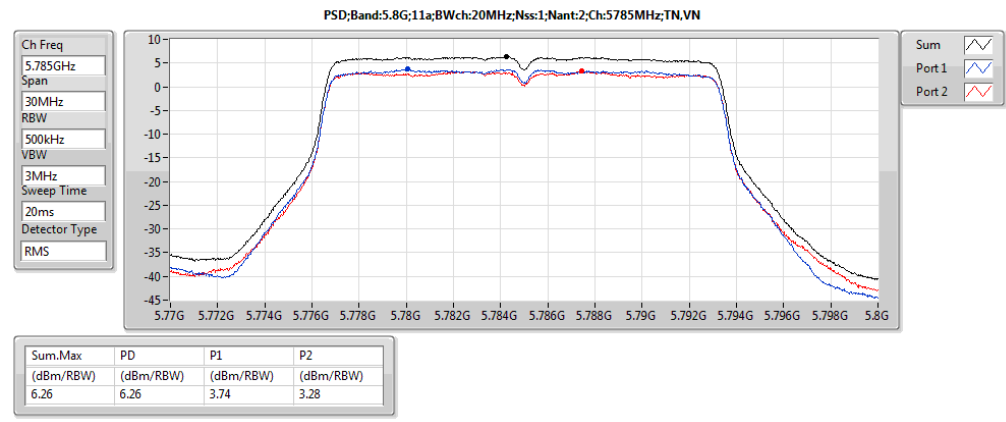
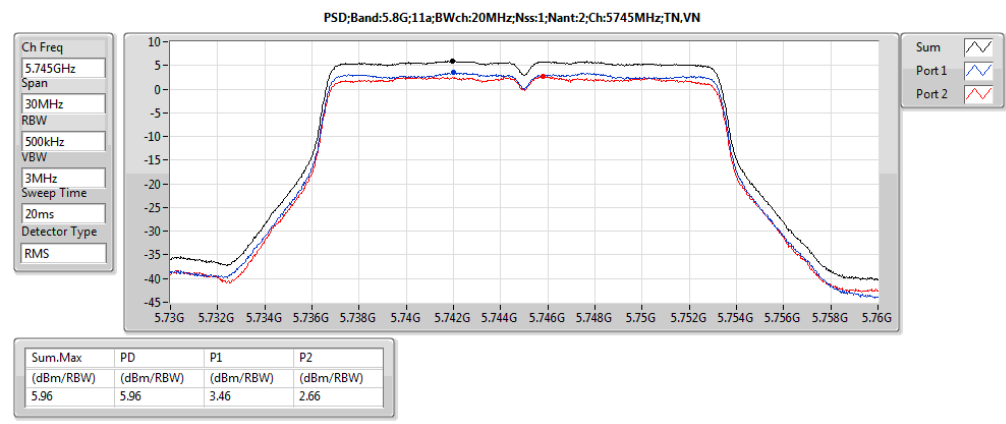
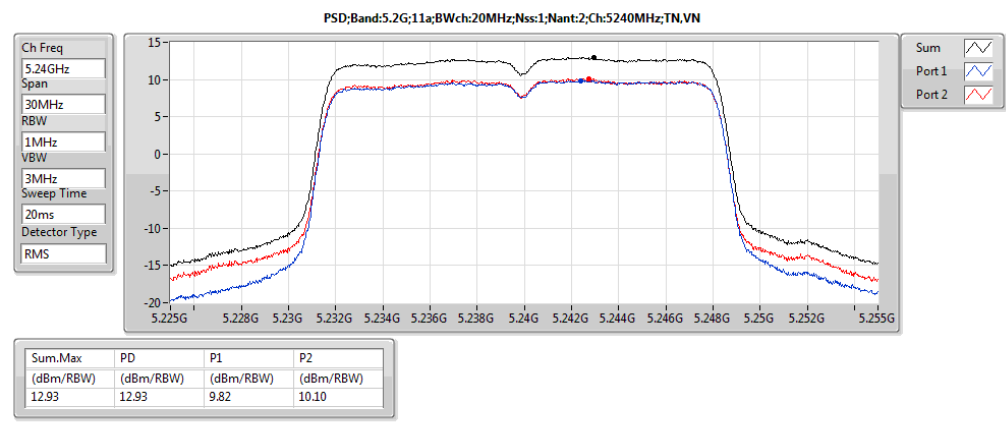
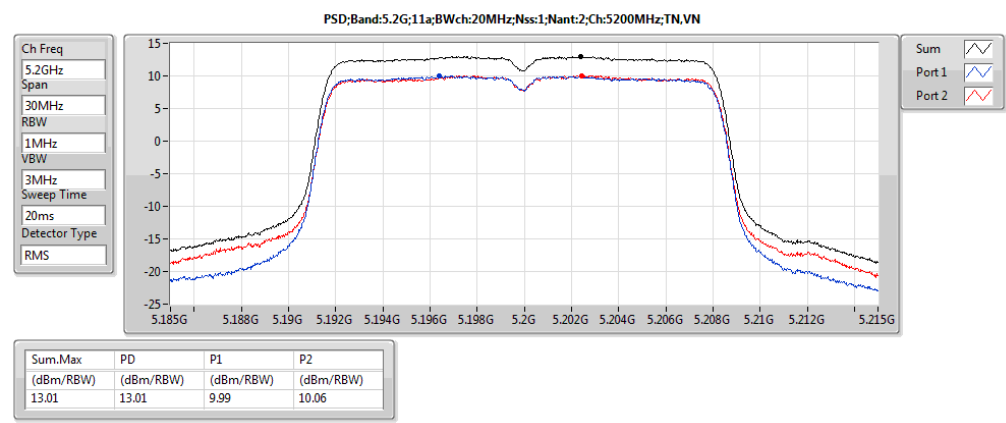
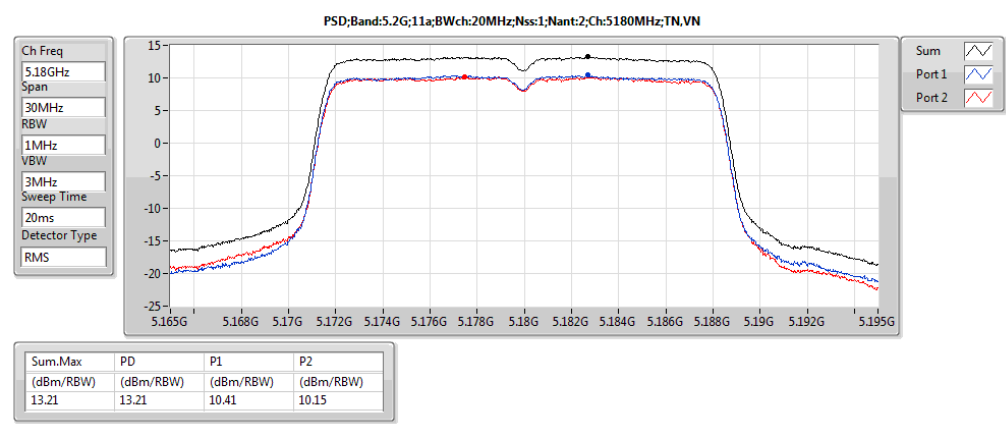
Result

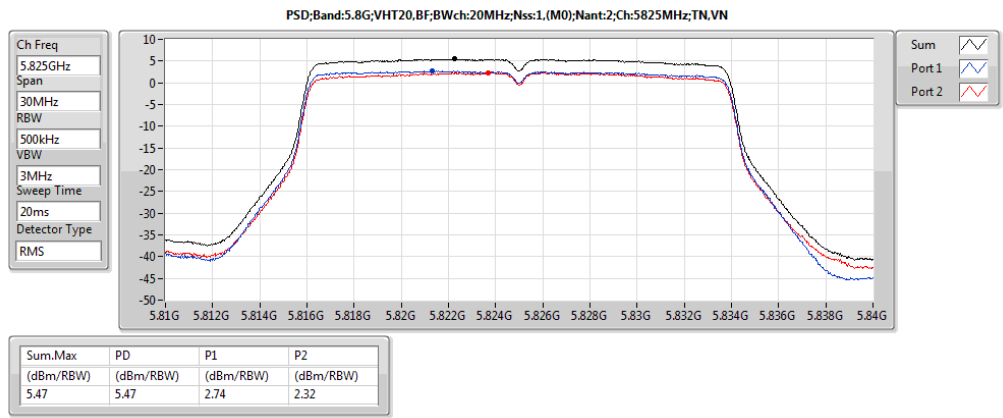
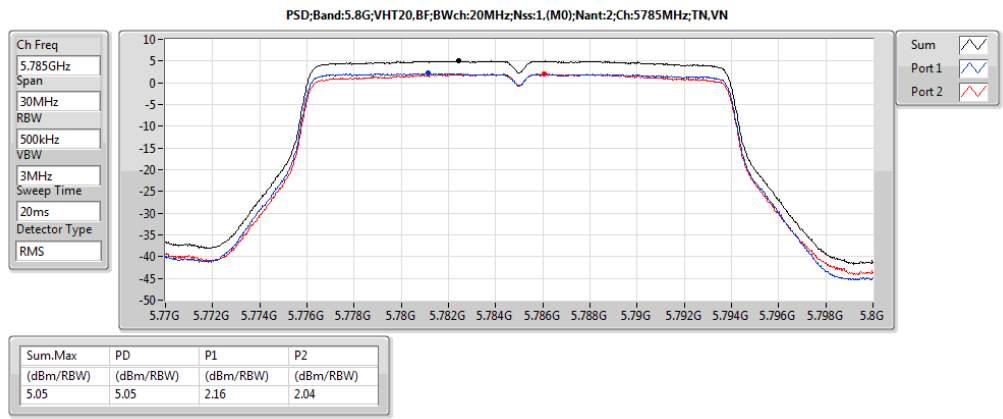
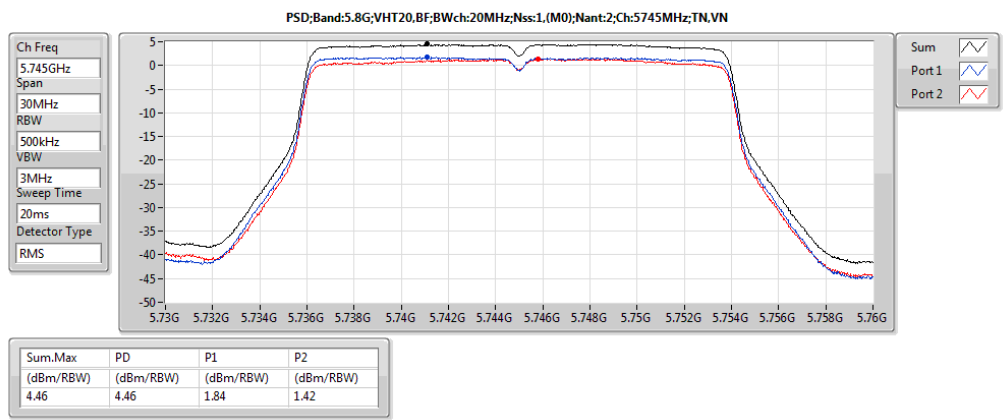
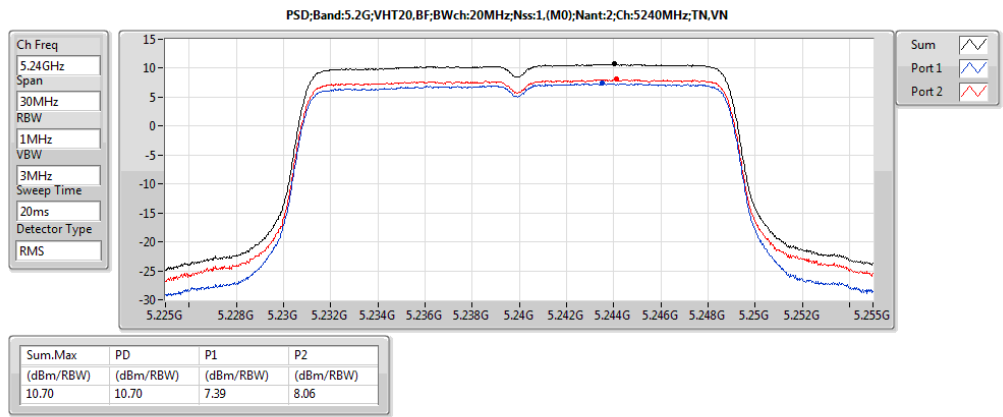
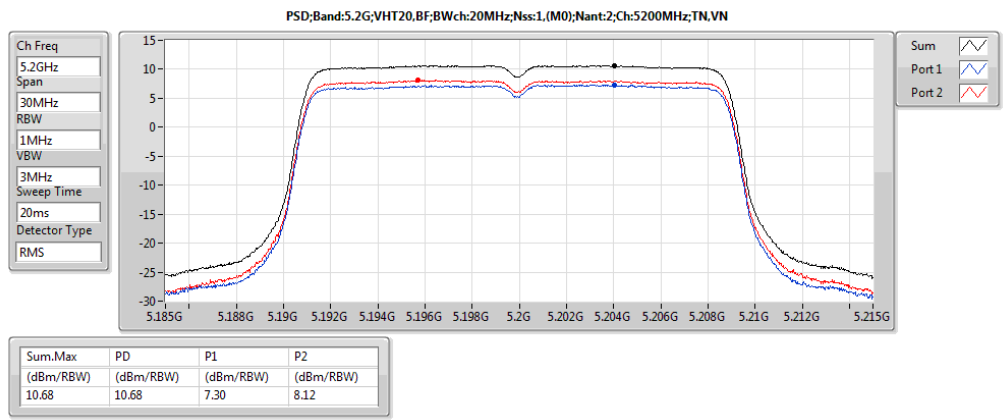
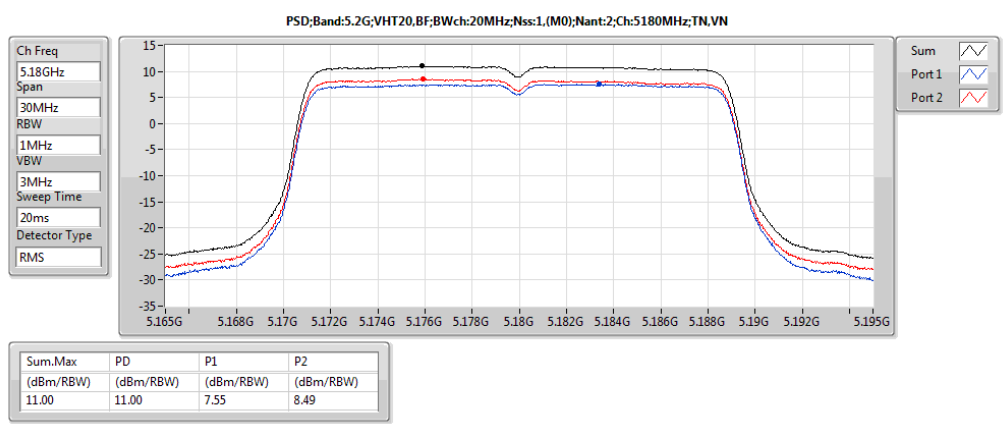
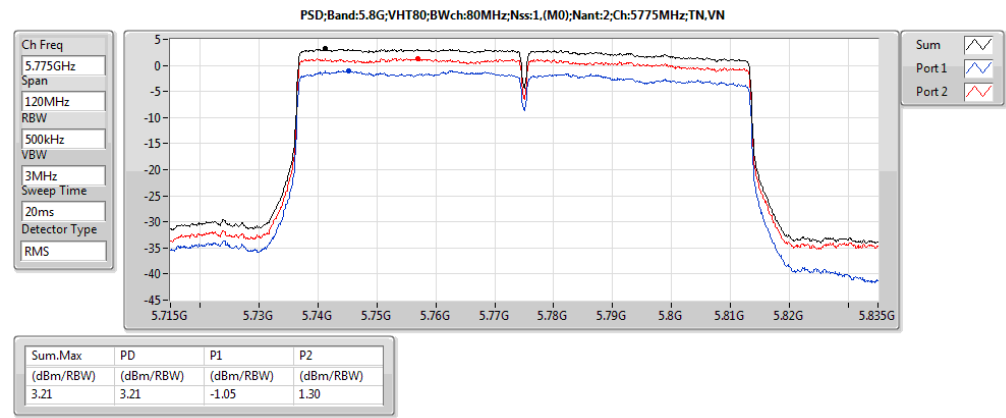
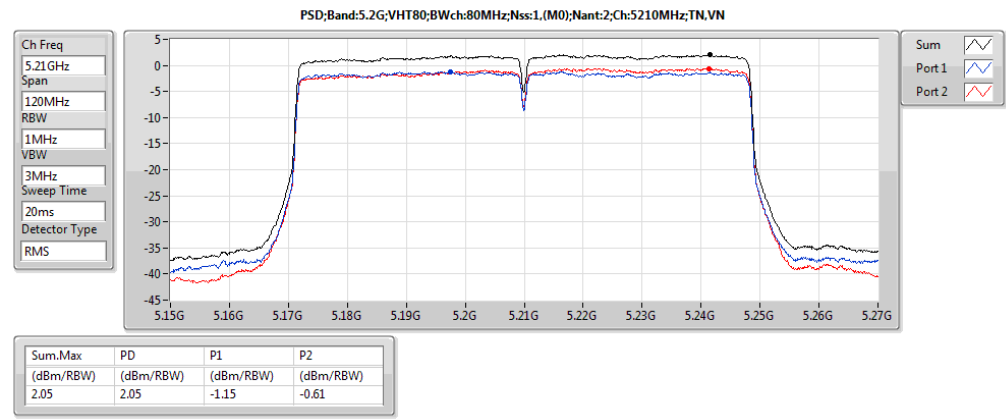
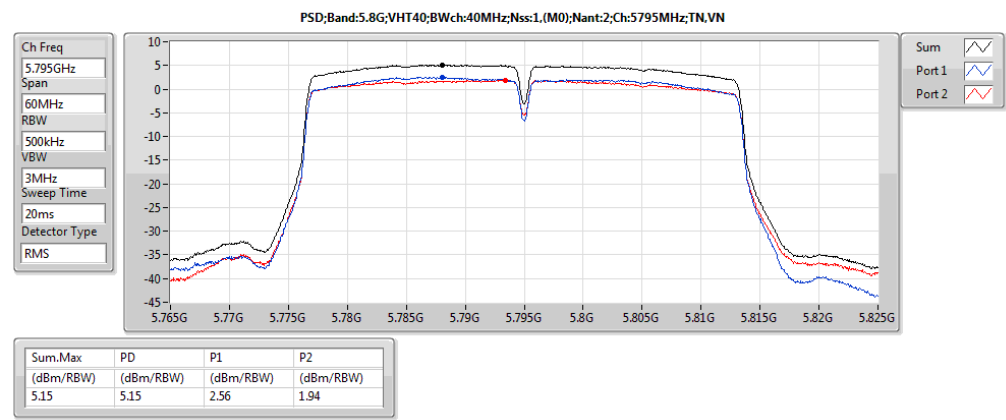
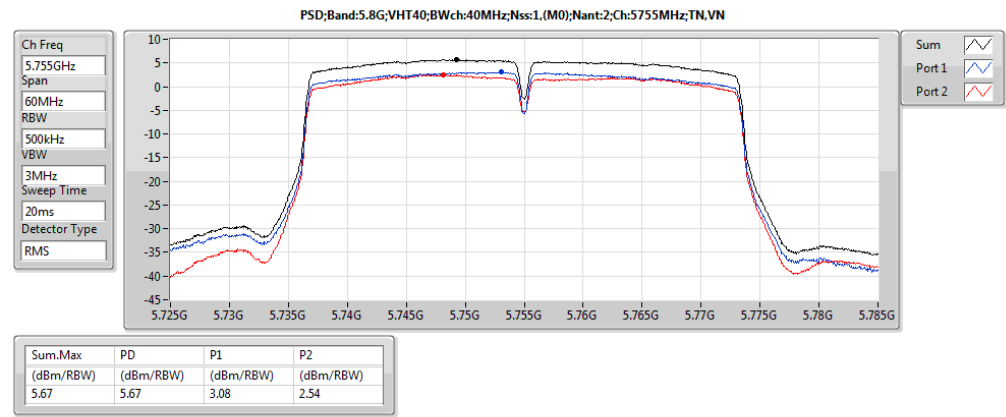
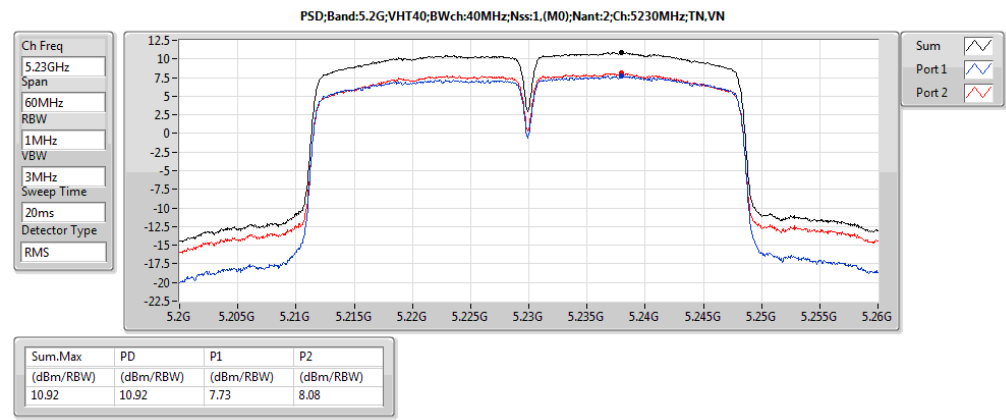
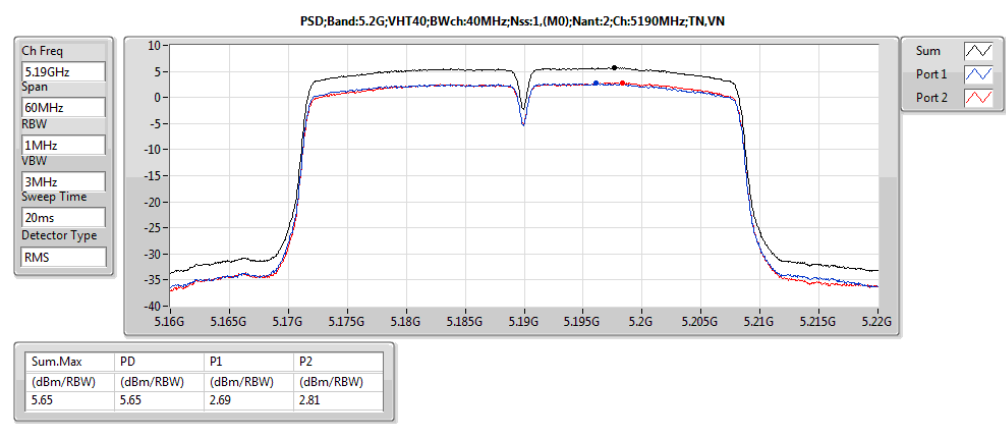
Mode	Result	DG (dBi)	PD (dBm/RBW)	PD.Limit (dBm/RBW)	P1 (dBm/RBW)	P2 (dBm/RBW)
5.2G;11a;Nss1;Ntx2;5180	Pass	7.30	13.21	15.70	10.41	10.15
5.2G;11a;Nss1;Ntx2;5200	Pass	7.30	13.01	15.70	9.99	10.06
5.2G;11a;Nss1;Ntx2;5240	Pass	7.30	12.93	15.70	9.82	10.10
5.8G;11a;Nss1;Ntx2;5745	Pass	5.69	5.96	30.00	3.46	2.66
5.8G;11a;Nss1;Ntx2;5785	Pass	5.69	6.26	30.00	3.74	3.28
5.8G;11a;Nss1;Ntx2;5825	Pass	5.69	6.71	30.00	4.01	3.56
5.2G;VHT20;Nss1,(M0);Ntx2;5180	Pass	7.30	12.06	15.70	9.17	9.10
5.2G;VHT20;Nss1,(M0);Ntx2;5200	Pass	7.30	12.10	15.70	9.15	9.21
5.2G;VHT20;Nss1,(M0);Ntx2;5240	Pass	7.30	12.68	15.70	9.66	9.74
5.8G;VHT20;Nss1,(M0);Ntx2;5745	Pass	5.69	6.48	30.00	3.87	3.04
5.8G;VHT20;Nss1,(M0);Ntx2;5785	Pass	5.69	6.78	30.00	4.18	3.51
5.8G;VHT20;Nss1,(M0);Ntx2;5825	Pass	5.69	5.96	30.00	3.36	2.70
5.2G;VHT40;Nss1,(M0);Ntx2;5190	Pass	7.30	5.65	15.70	2.69	2.81
5.2G;VHT40;Nss1,(M0);Ntx2;5230	Pass	7.30	10.92	15.70	7.73	8.08
5.8G;VHT40;Nss1,(M0);Ntx2;5755	Pass	5.69	5.67	30.00	3.08	2.54
5.8G;VHT40;Nss1,(M0);Ntx2;5795	Pass	5.69	5.15	30.00	2.56	1.94
5.2G;VHT80;Nss1,(M0);Ntx2;5210	Pass	7.30	2.05	15.70	-1.15	-0.61
5.8G;VHT80;Nss1,(M0);Ntx2;5775	Pass	5.69	3.21	30.00	-1.05	1.30
5.2G;VHT20,BF;Nss1,(M0);Ntx2;5180	Pass	7.30	11.00	15.70	7.55	8.49
5.2G;VHT20,BF;Nss1,(M0);Ntx2;5200	Pass	7.30	10.68	15.70	7.30	8.12
5.2G;VHT20,BF;Nss1,(M0);Ntx2;5240	Pass	7.30	10.70	15.70	7.39	8.06
5.8G;VHT20,BF;Nss1,(M0);Ntx2;5745	Pass	5.69	4.46	30.00	1.84	1.42
5.8G;VHT20,BF;Nss1,(M0);Ntx2;5785	Pass	5.69	5.05	30.00	2.16	2.04
5.8G;VHT20,BF;Nss1,(M0);Ntx2;5825	Pass	5.69	5.47	30.00	2.74	2.32
5.2G;VHT40,BF;Nss1,(M0);Ntx2;5190	Pass	7.30	6.43	15.70	3.00	3.97
5.2G;VHT40,BF;Nss1,(M0);Ntx2;5230	Pass	7.30	8.52	15.70	5.04	5.96
5.8G;VHT40,BF;Nss1,(M0);Ntx2;5755	Pass	5.69	2.96	30.00	0.54	-0.30
5.8G;VHT40,BF;Nss1,(M0);Ntx2;5795	Pass	5.69	4.61	30.00	1.82	1.61
5.2G;VHT80,BF;Nss1,(M0);Ntx2;5210	Pass	7.30	2.06	15.70	-1.67	-0.25
5.8G;VHT80,BF;Nss1,(M0);Ntx2;5775	Pass	5.69	-0.38	30.00	-2.72	-3.66

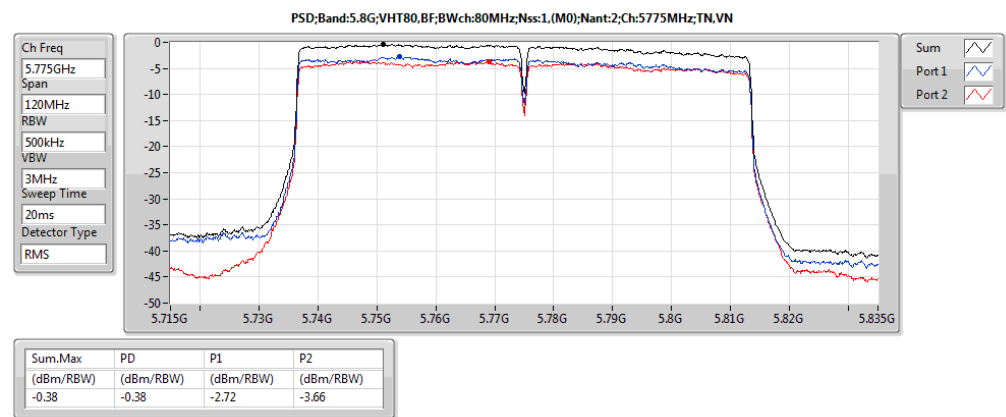
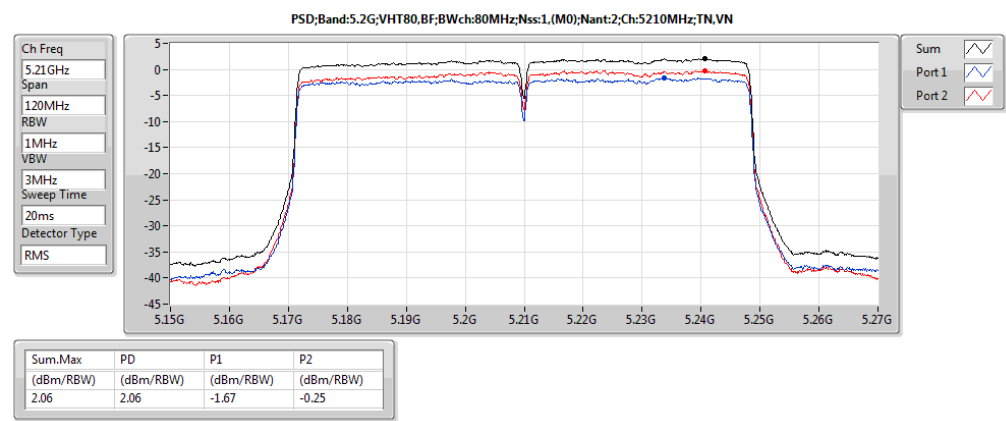
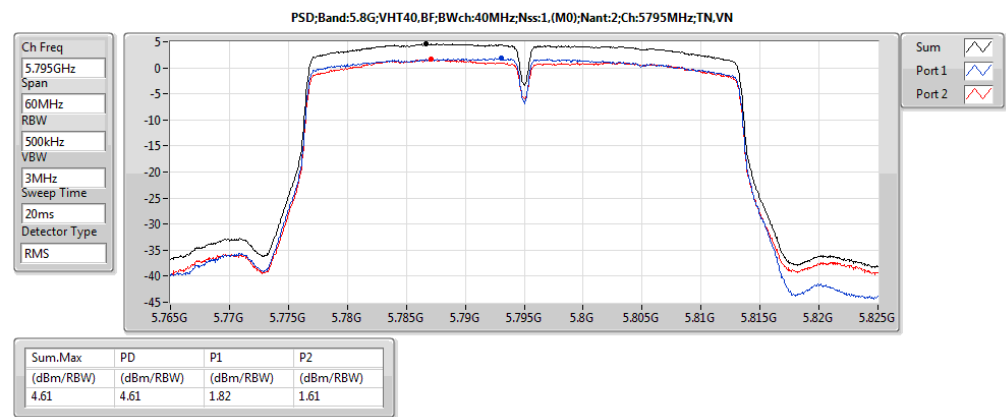
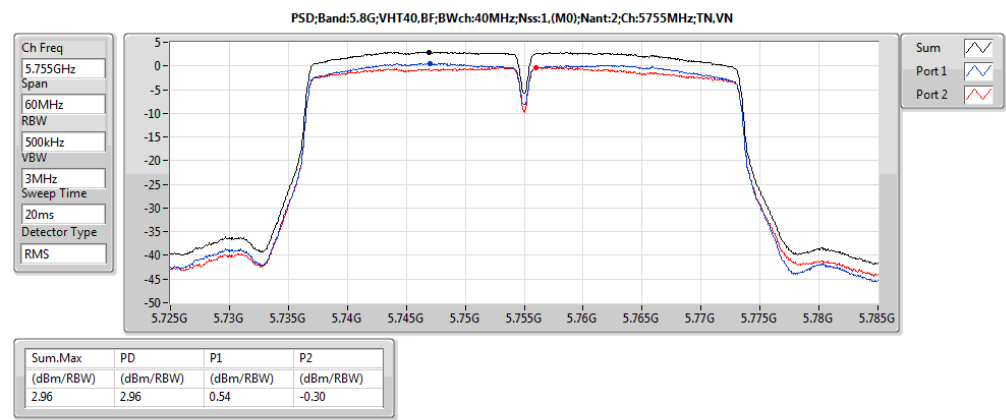
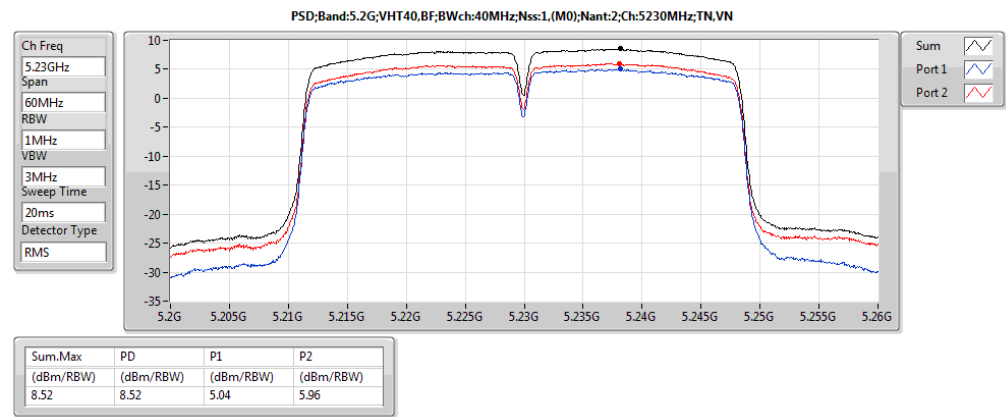
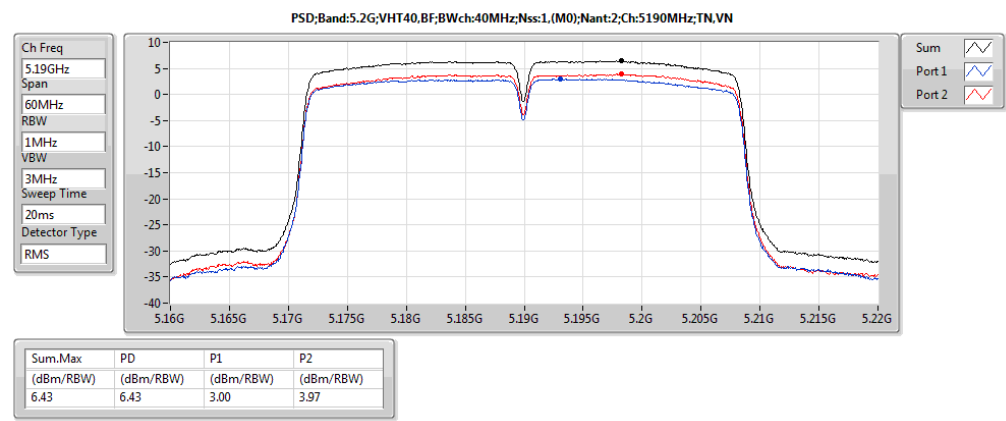


PSD Result

Appendix D









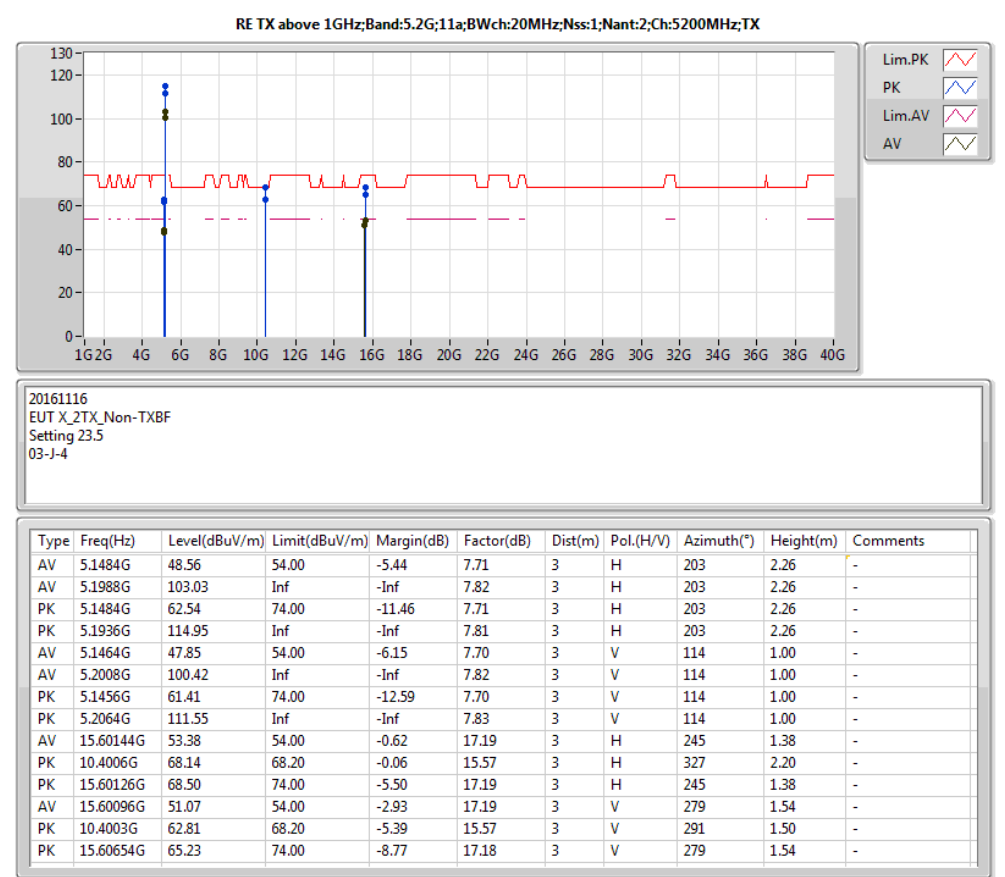
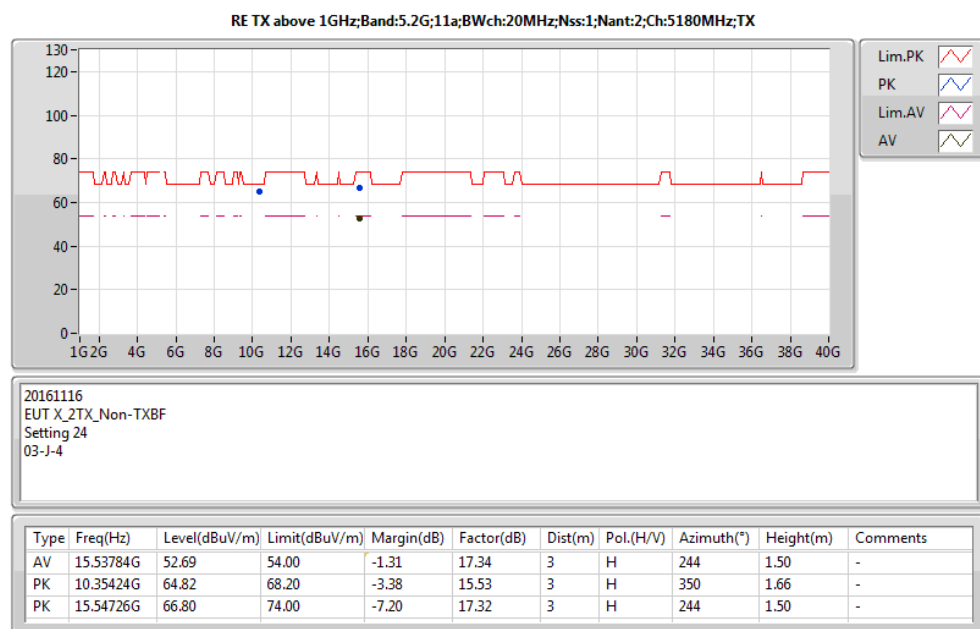
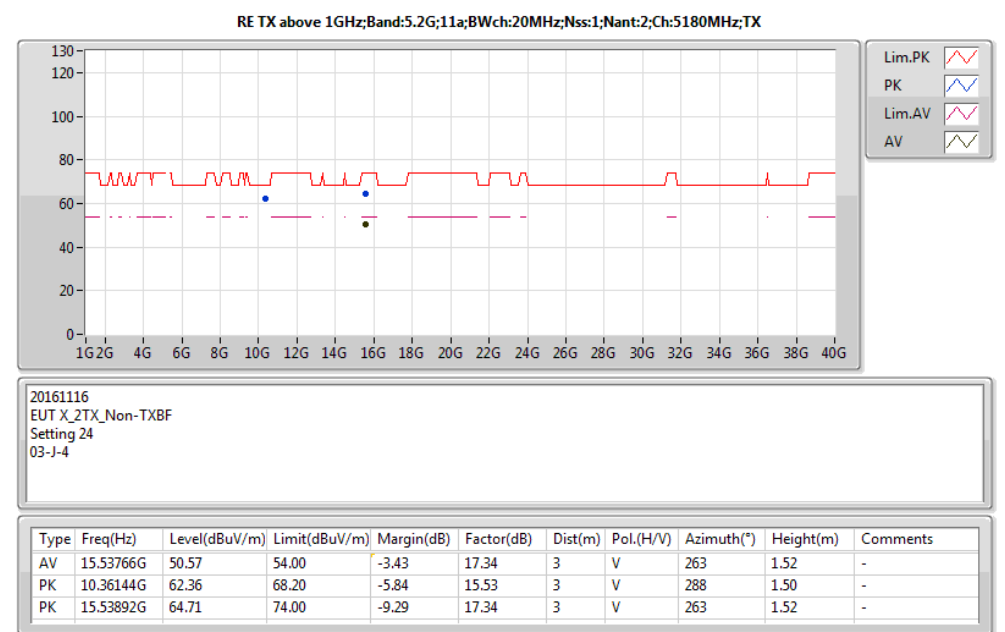
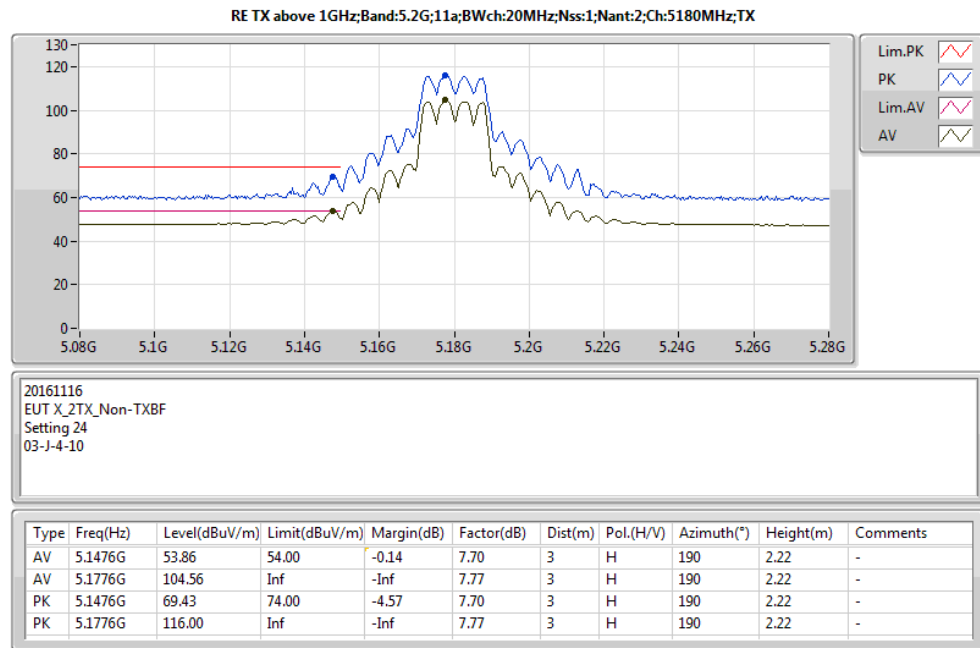
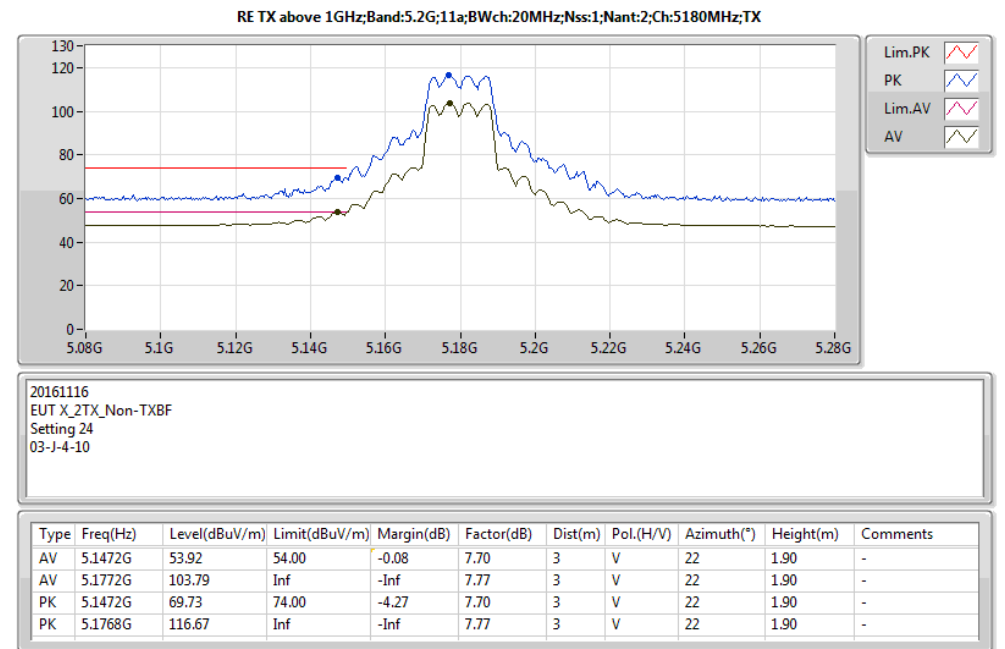
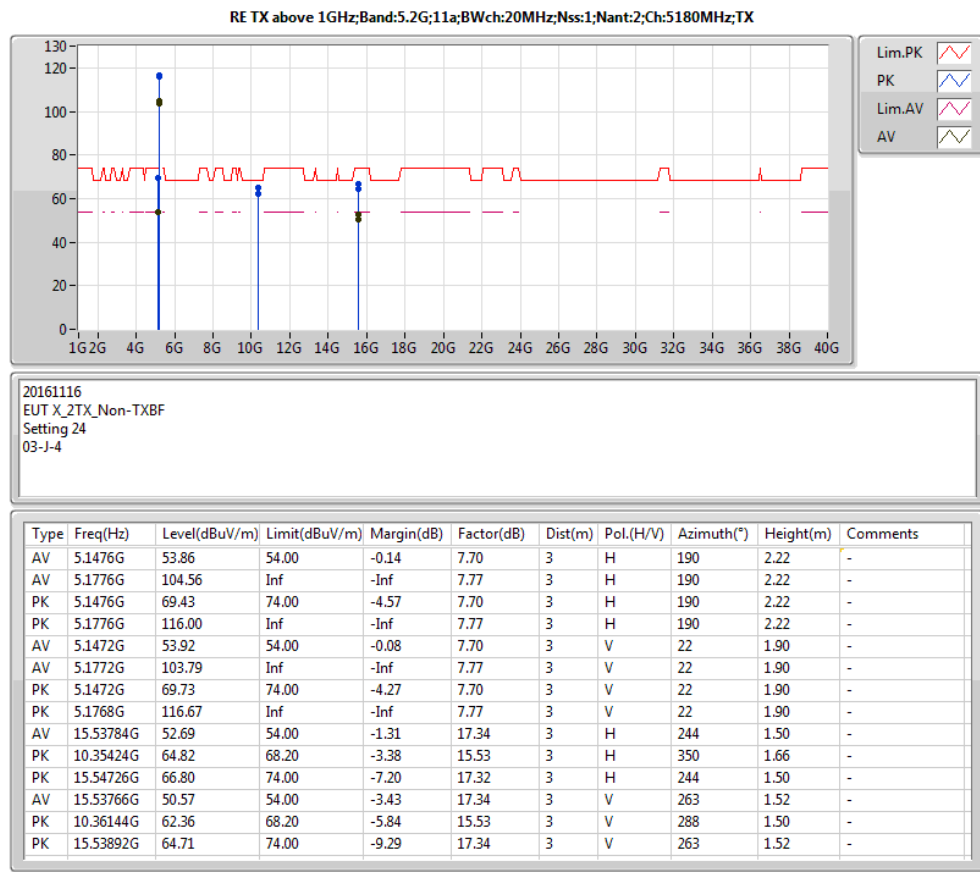
RSE below 1GHz Result											
Operating Mode	2				Polarization				Horizontal		
Operating Function	Normal Link										
Level (dBuV/m) Date: 2016-11-14 Time: 15:07:08 Frequency (MHz)											
	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	166.77	34.01	43.50	-9.49	49.08	1.28	16.00	32.35	100	26 QP	HORIZONTAL
2	191.02	34.16	43.50	-9.34	49.73	1.37	15.39	32.33	100	36 QP	HORIZONTAL
3	207.51	37.07	43.50	-6.43	51.81	1.43	16.16	32.33	100	36 QP	HORIZONTAL
4	436.43	37.43	46.00	-8.57	44.88	2.04	22.81	32.30	100	132 QP	HORIZONTAL
5	443.22	39.44	46.00	-6.56	46.79	2.06	22.90	32.31	100	132 QP	HORIZONTAL
6	460.68	37.04	46.00	-8.96	44.10	2.10	23.16	32.32	100	132 QP	HORIZONTAL
7	927.25	41.94	46.00	-4.06	42.70	2.98	27.66	31.40	125	111 Peak	HORIZONTAL
8	940.83	40.64	46.00	-5.36	41.16	3.01	27.76	31.29	100	222 Peak	HORIZONTAL
9	945.68	41.18	46.00	-4.82	41.64	3.01	27.78	31.25	150	33 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.)											

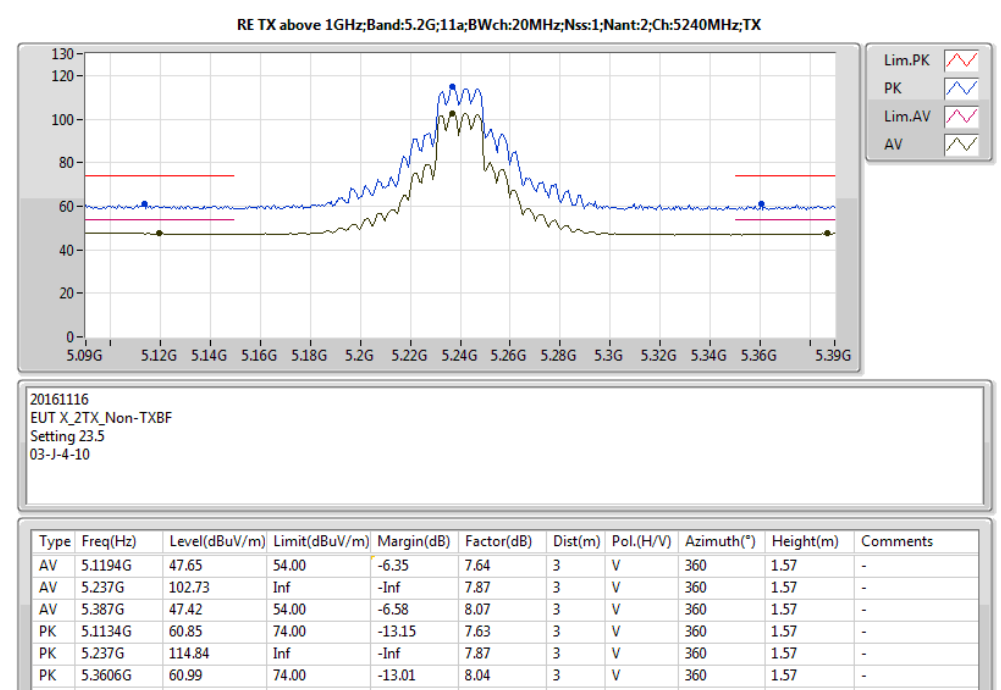
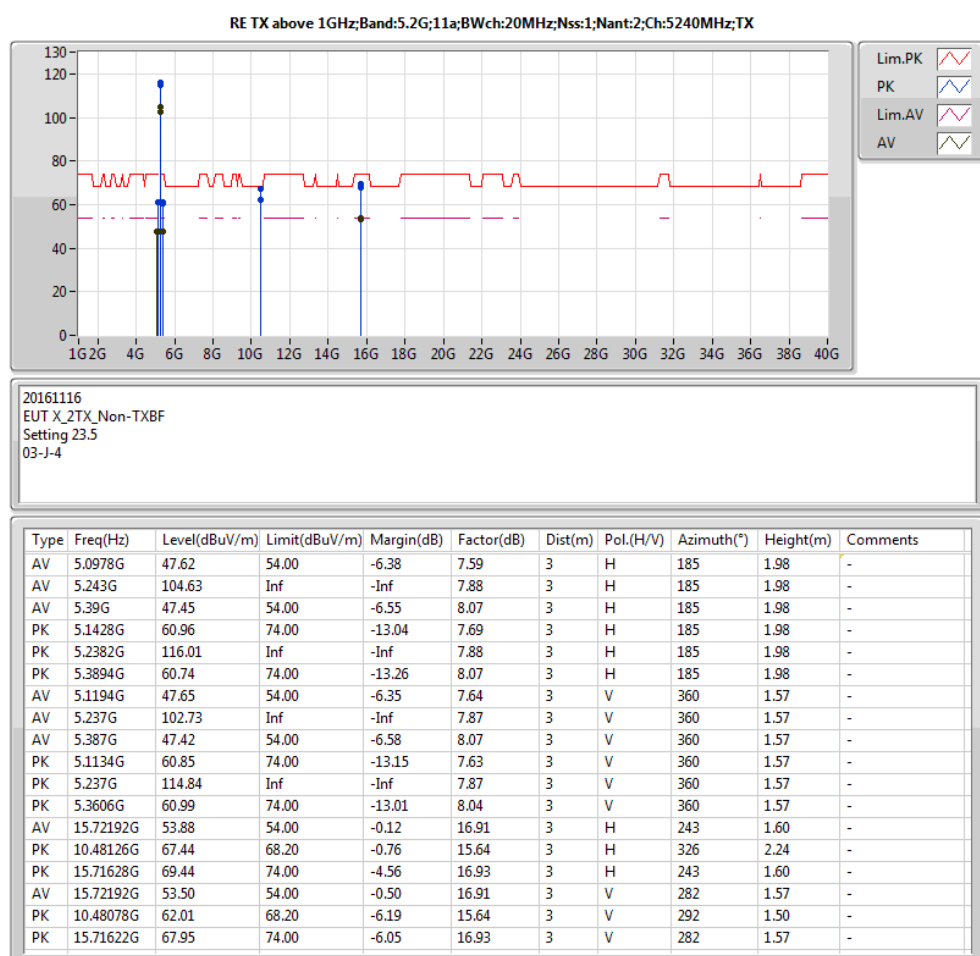
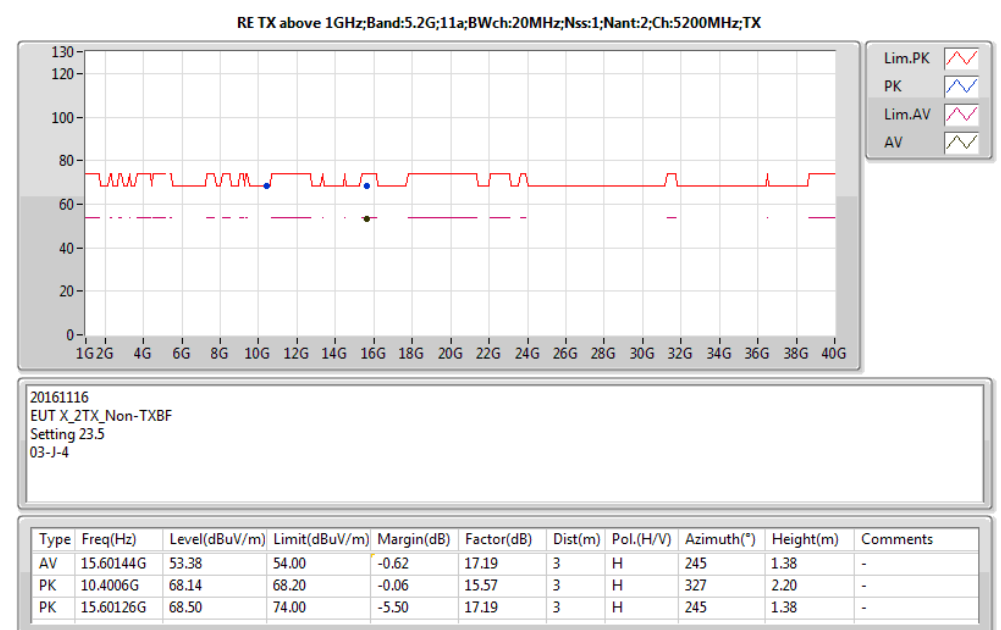
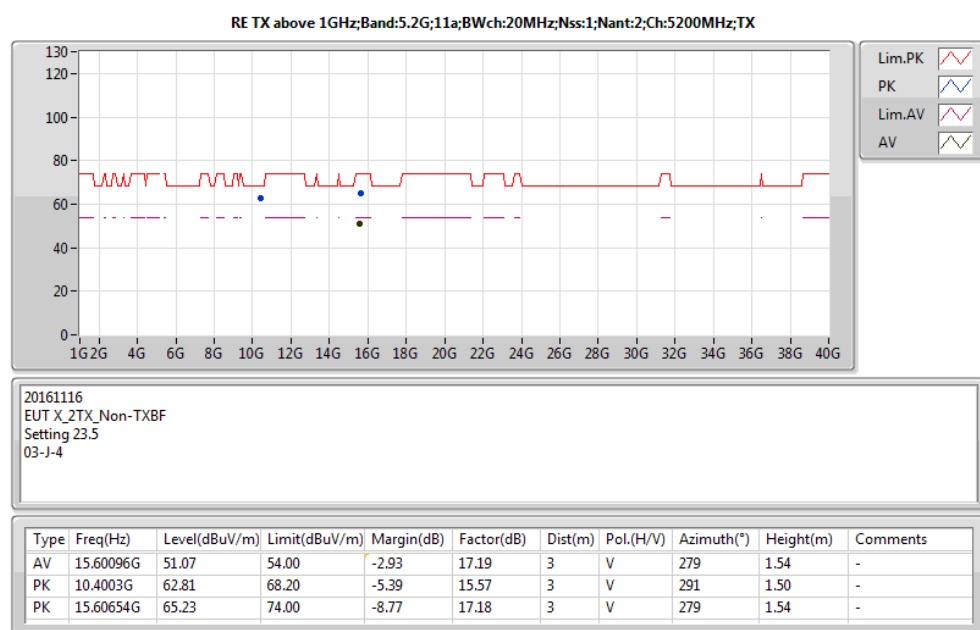
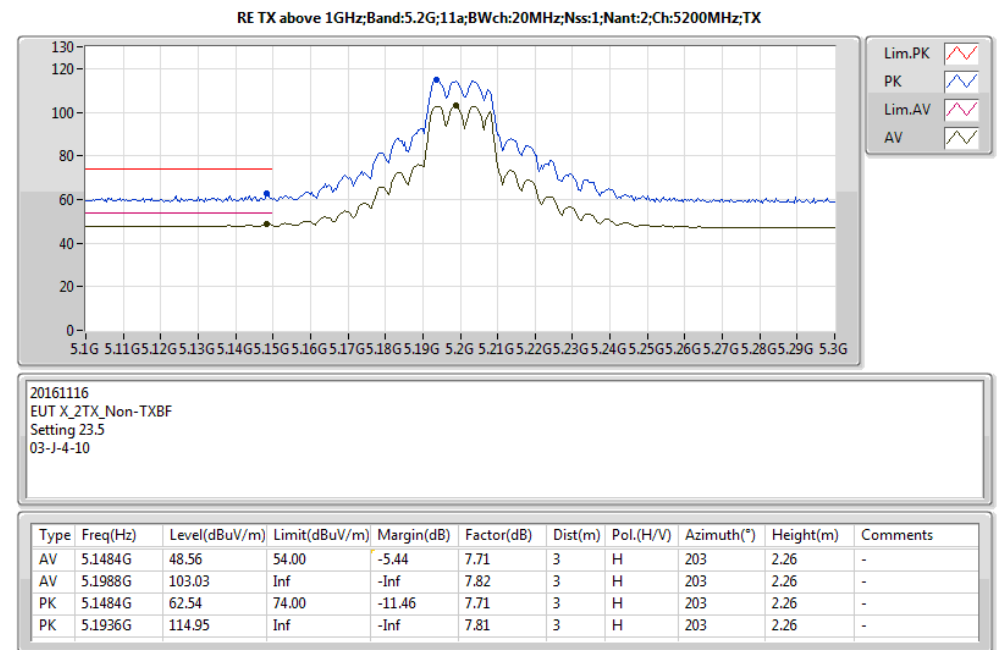
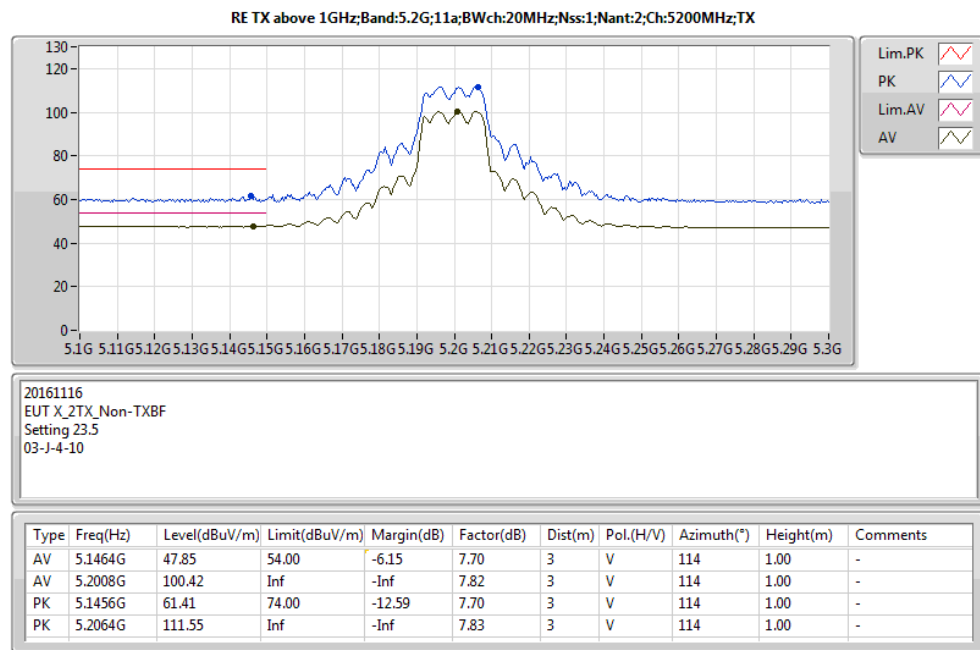
RSE below 1GHz Result											
Operating Mode	2				Power Phase				Vertical		
Operating Function	Normal Link										
Level (dBuV/m) Date: 2016-11-14 Time: 15:06:18 Frequency (MHz)											
	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	58.13	29.92	40.00	-10.08	48.88	0.76	12.66	32.38	100	32 QP	VERTICAL
2	186.17	40.61	43.50	-2.89	56.30	1.35	15.30	32.34	100	132 QP	VERTICAL
3	204.60	42.58	43.50	-0.92	57.39	1.42	16.10	32.33	132	34 QP	VERTICAL
4	429.64	39.52	46.00	-6.48	47.12	2.02	22.68	32.30	100	68 QP	VERTICAL
5	453.89	41.27	46.00	-4.73	48.43	2.08	23.07	32.31	100	68 QP	VERTICAL
6	471.35	37.75	46.00	-8.25	44.63	2.12	23.33	32.33	100	68 QP	VERTICAL
7	944.71	41.30	46.00	-4.70	41.76	3.01	27.78	31.25	150	200 Peak	VERTICAL
8	959.26	41.29	46.00	-4.71	41.50	3.06	27.86	31.13	200	163 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.)											

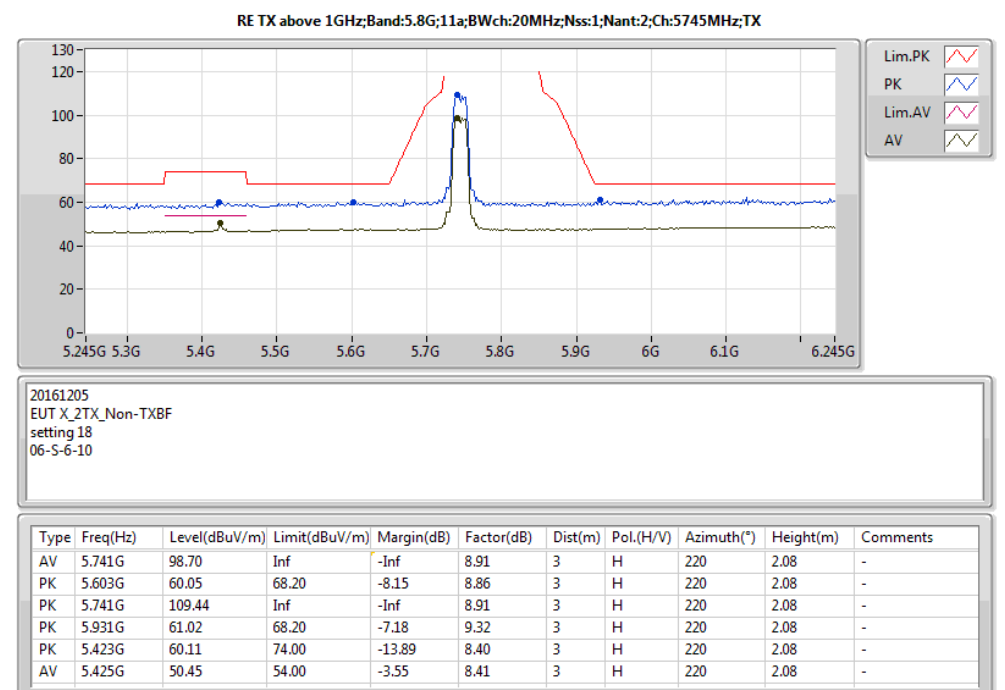
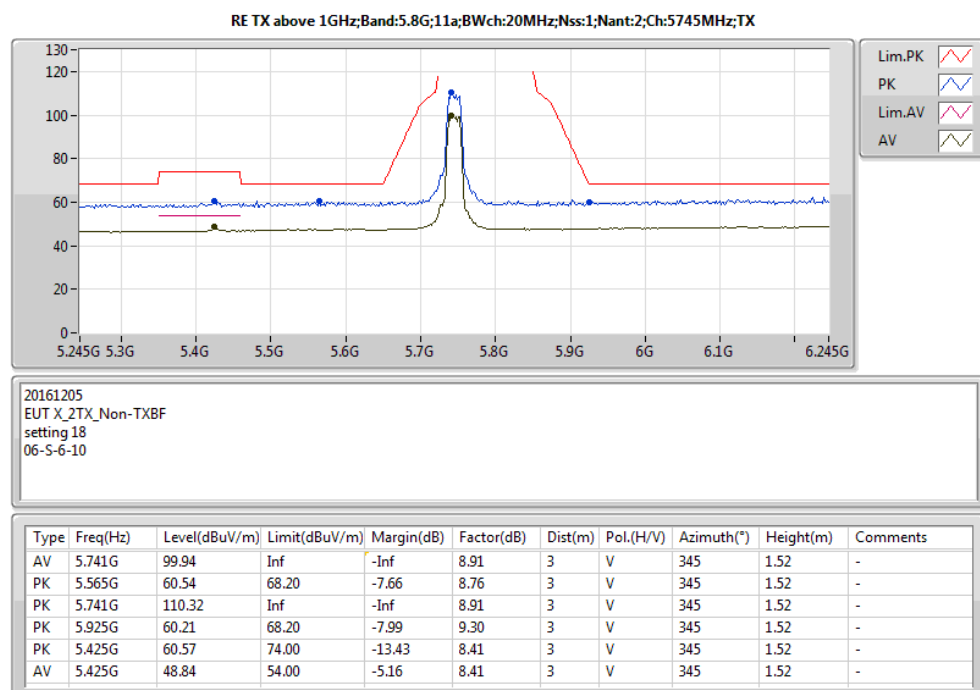
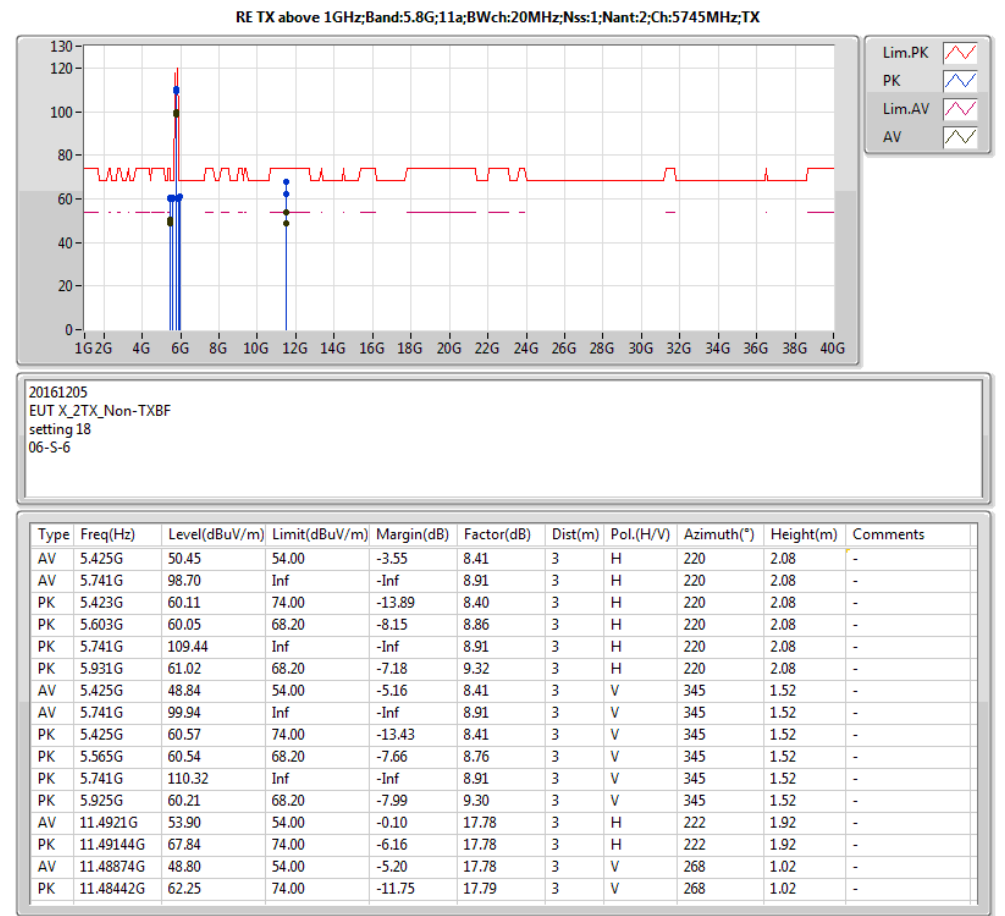
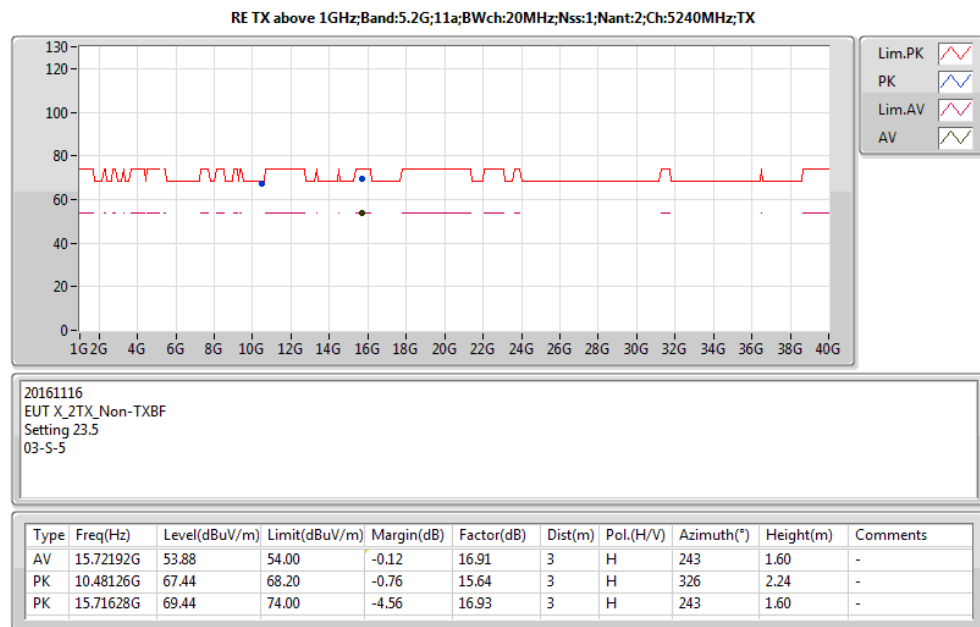
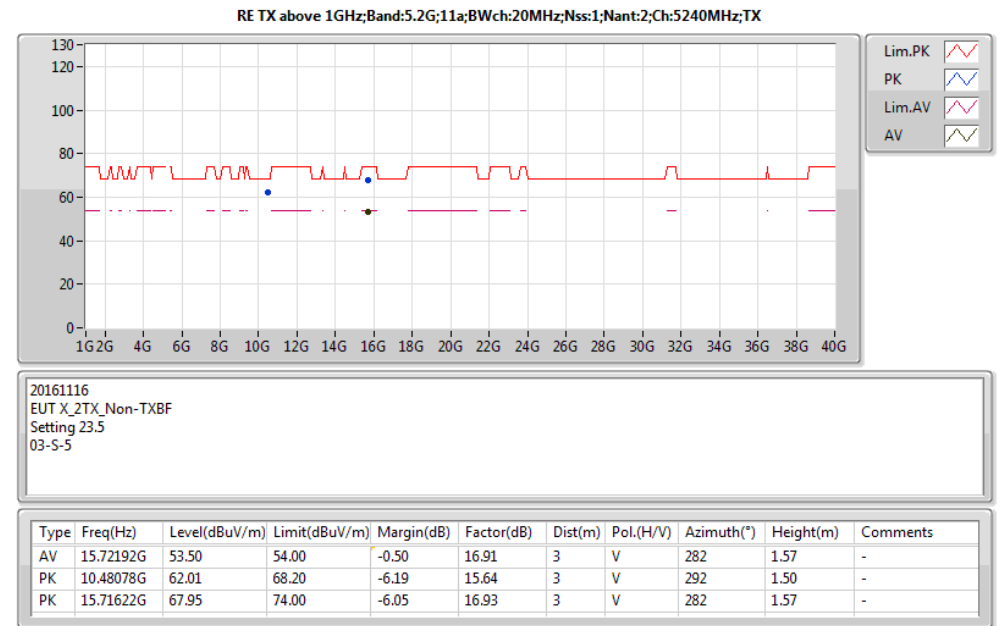
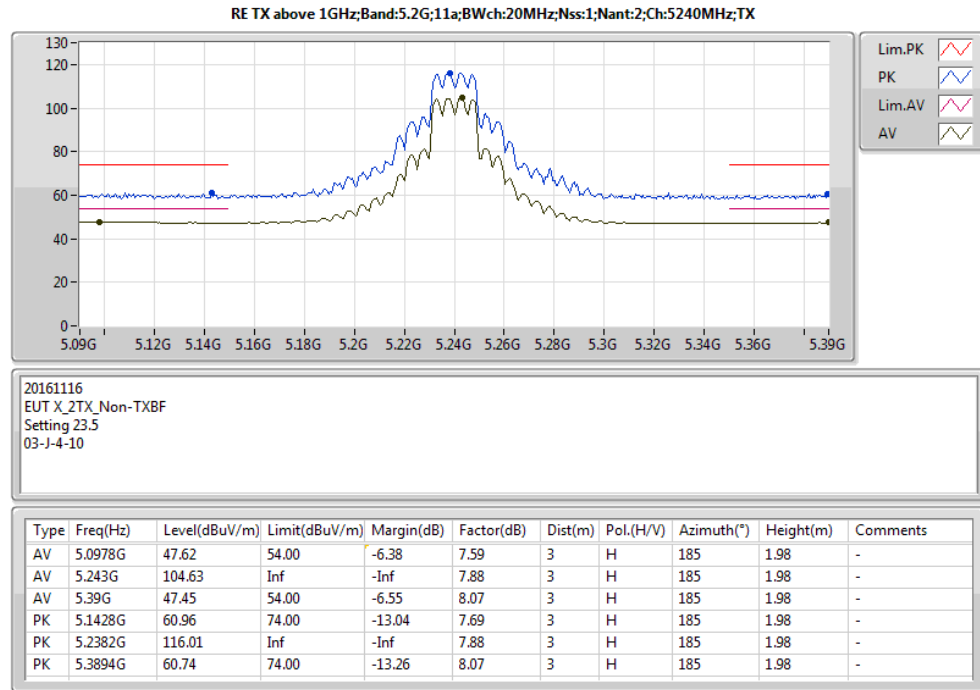


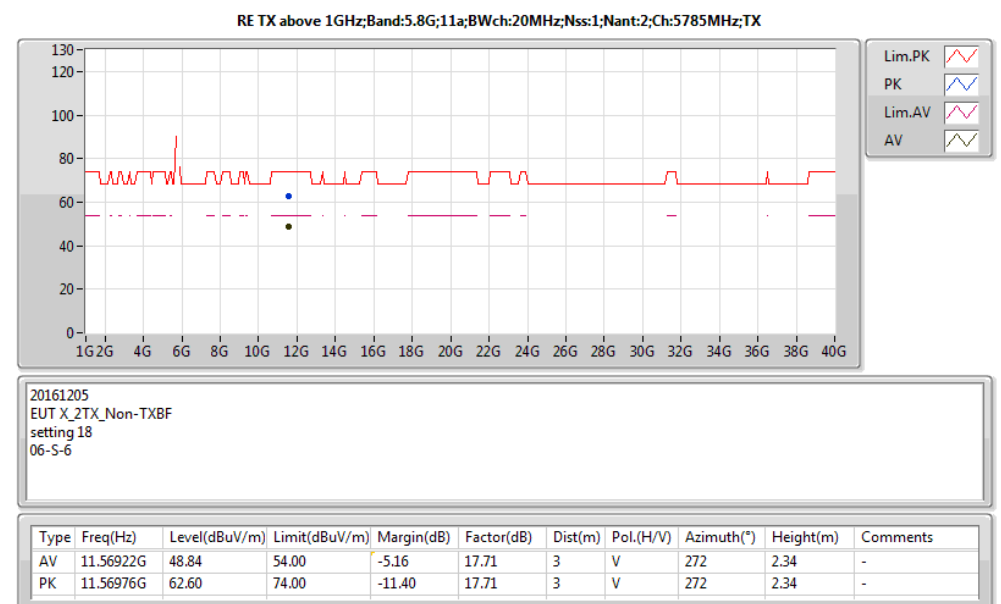
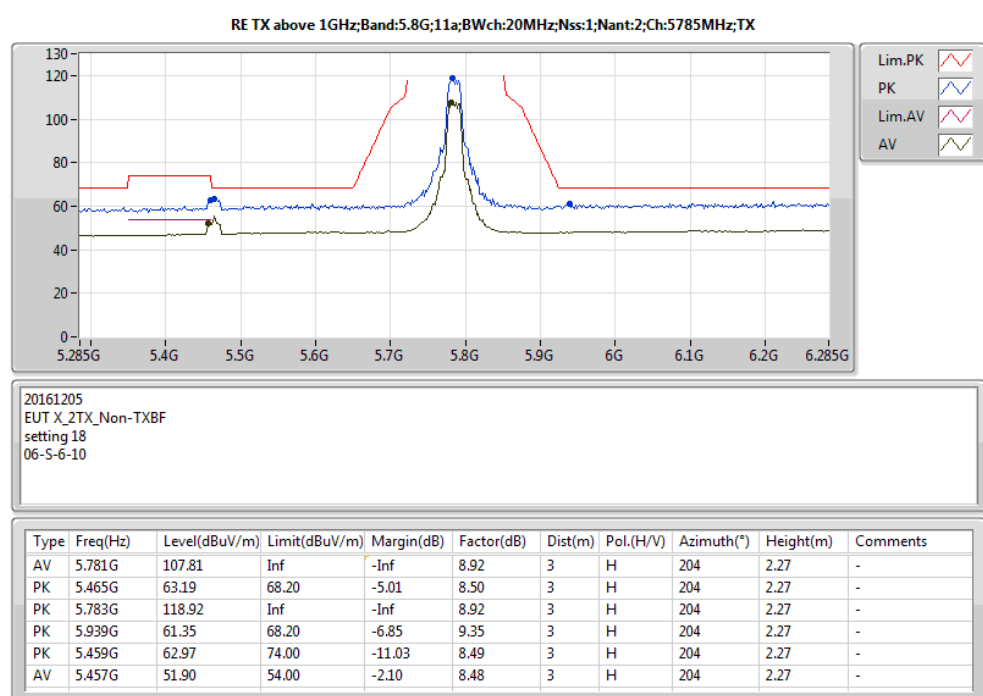
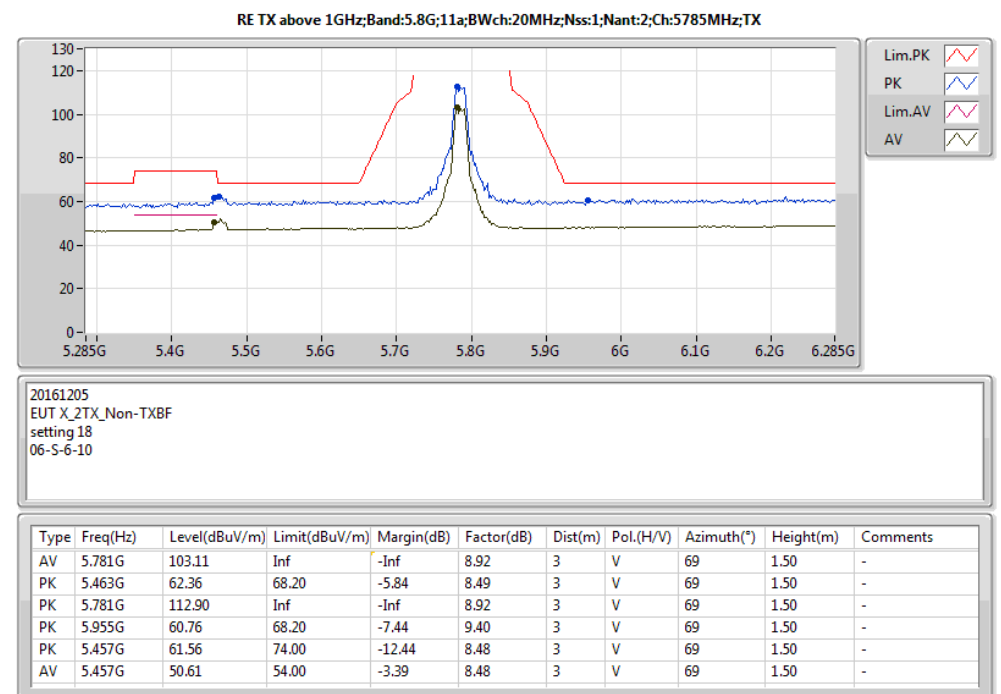
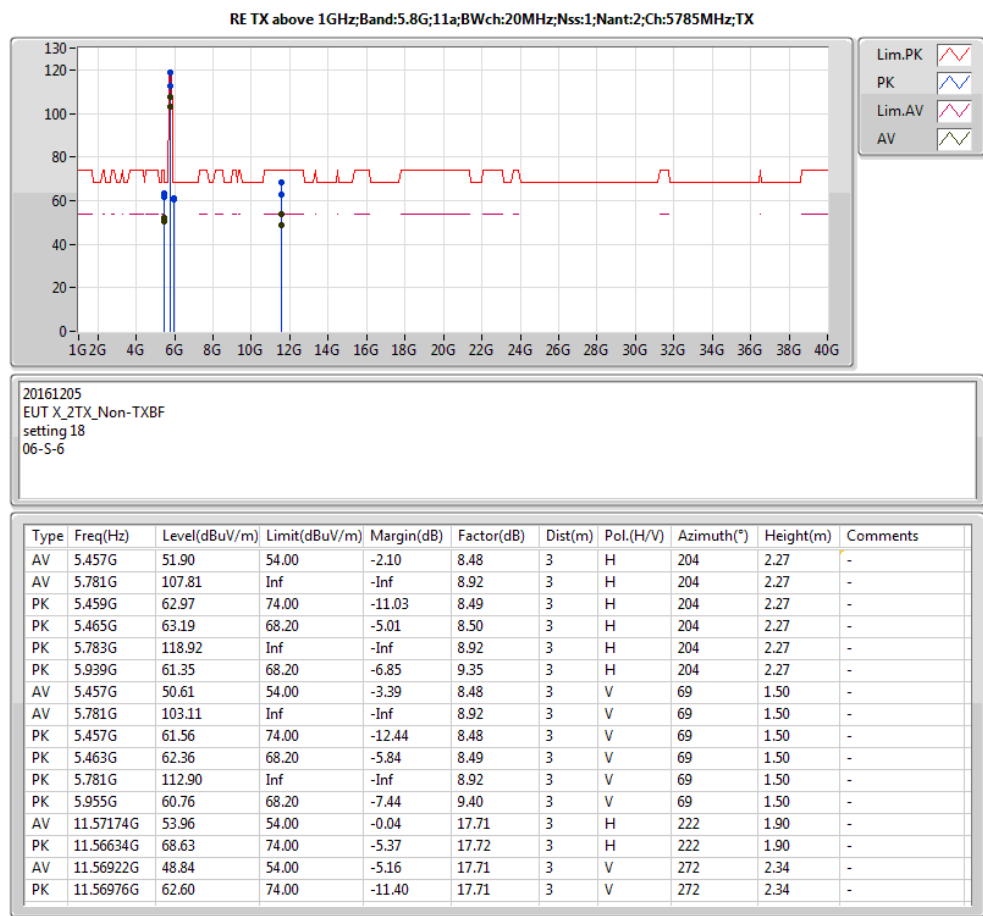
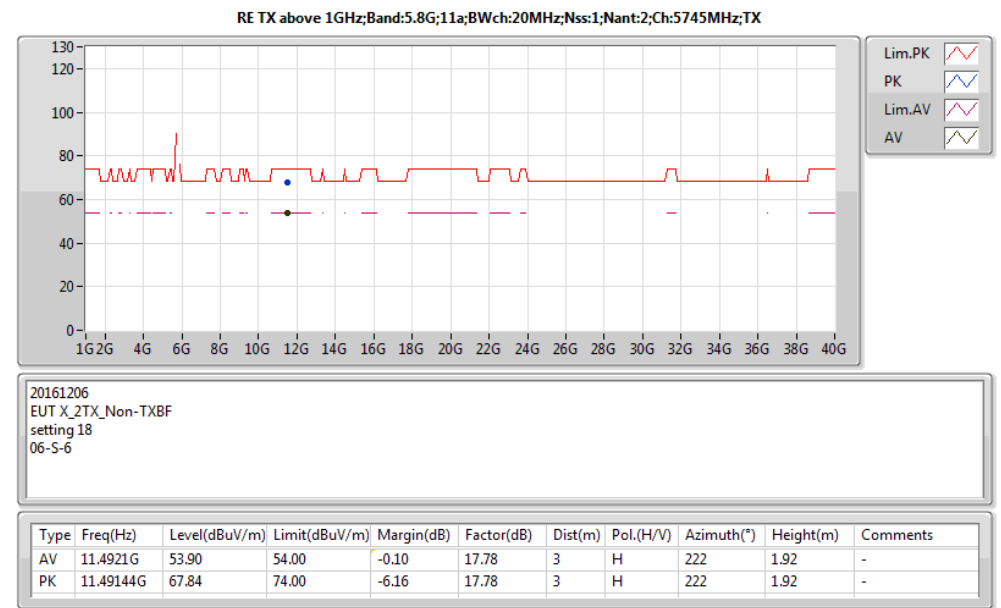
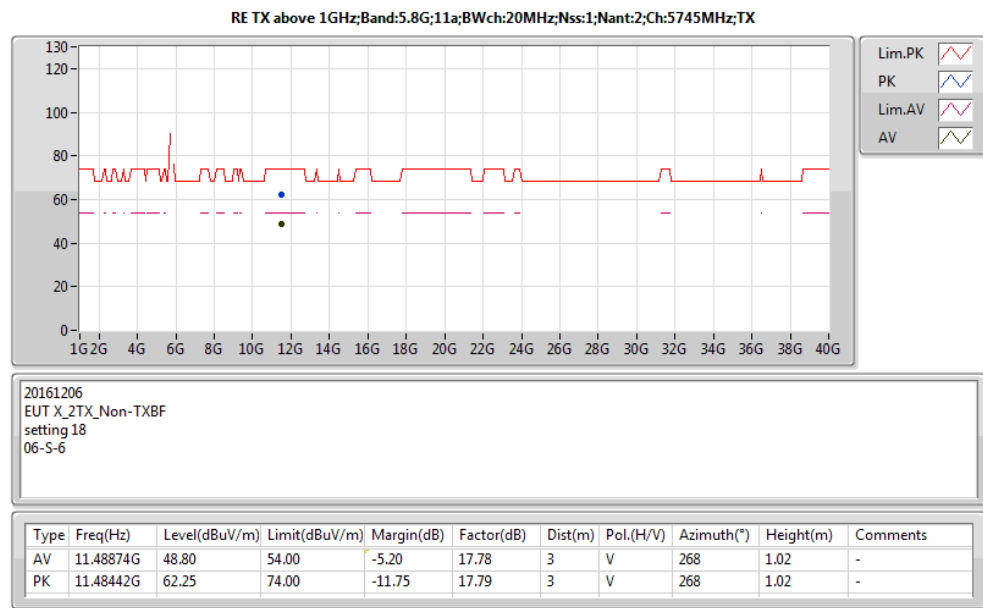
Summary

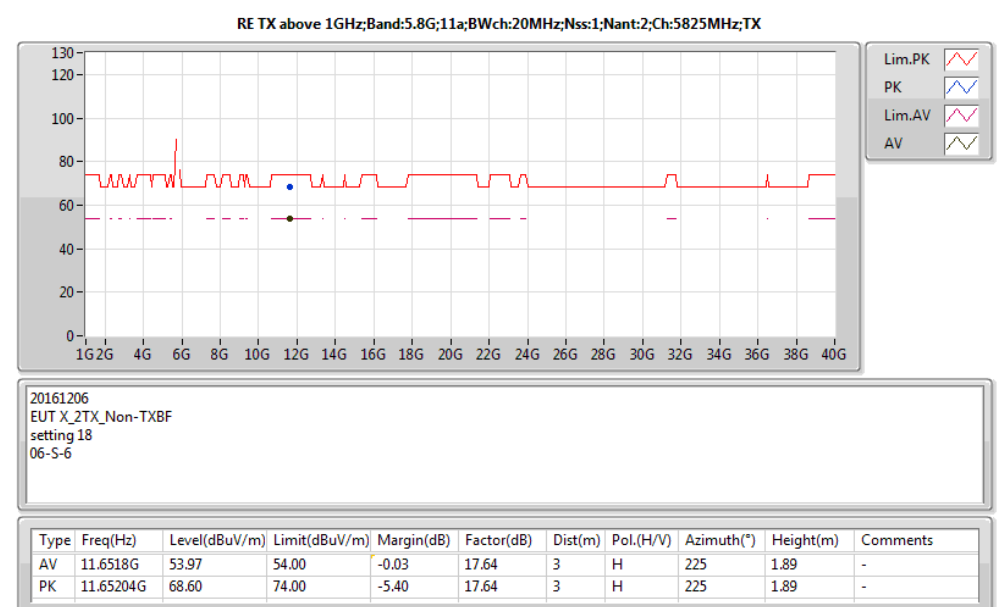
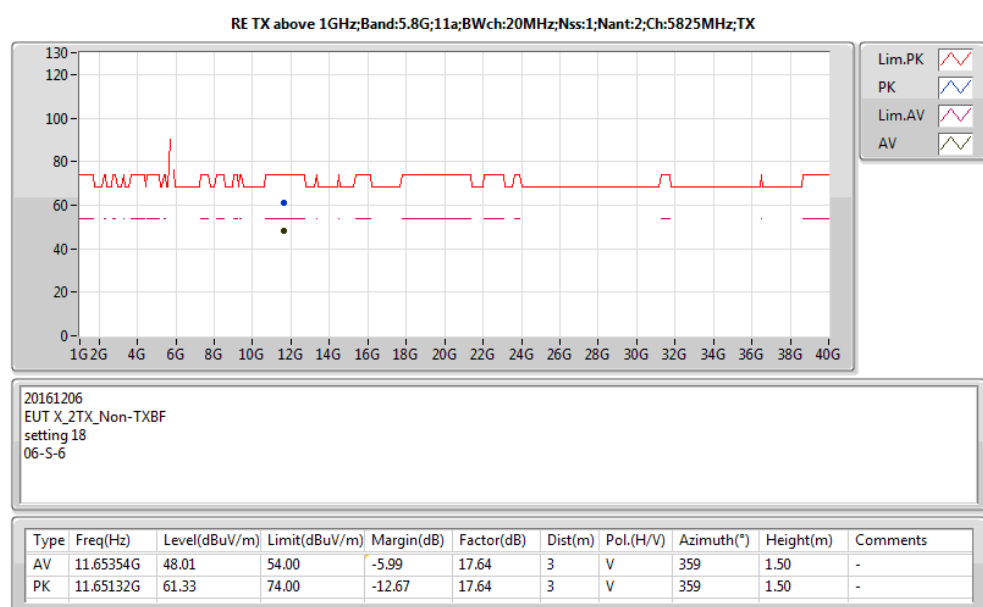
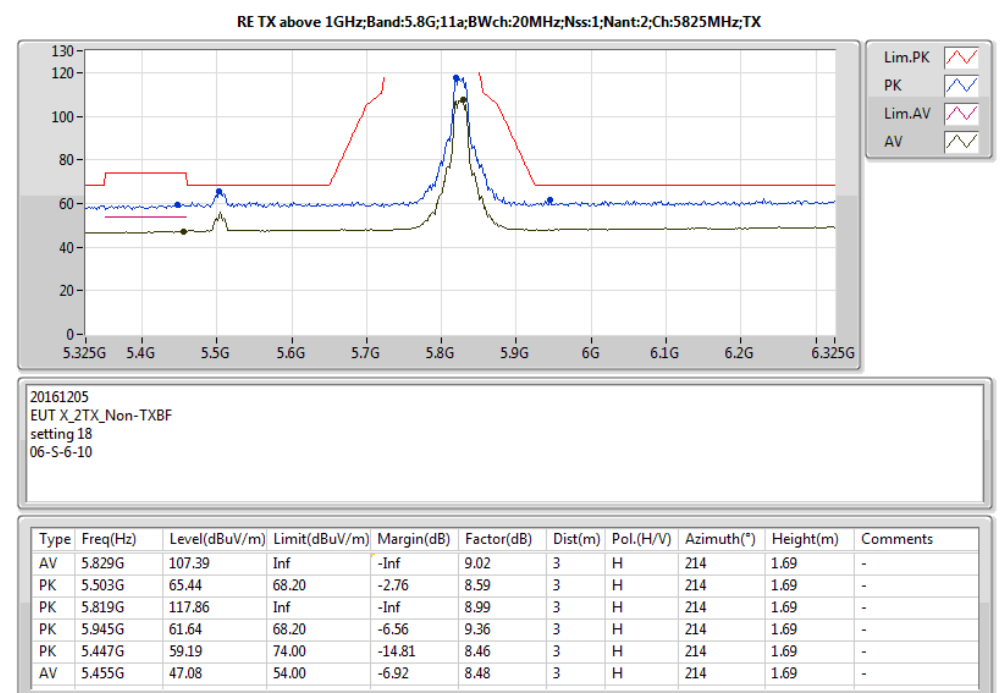
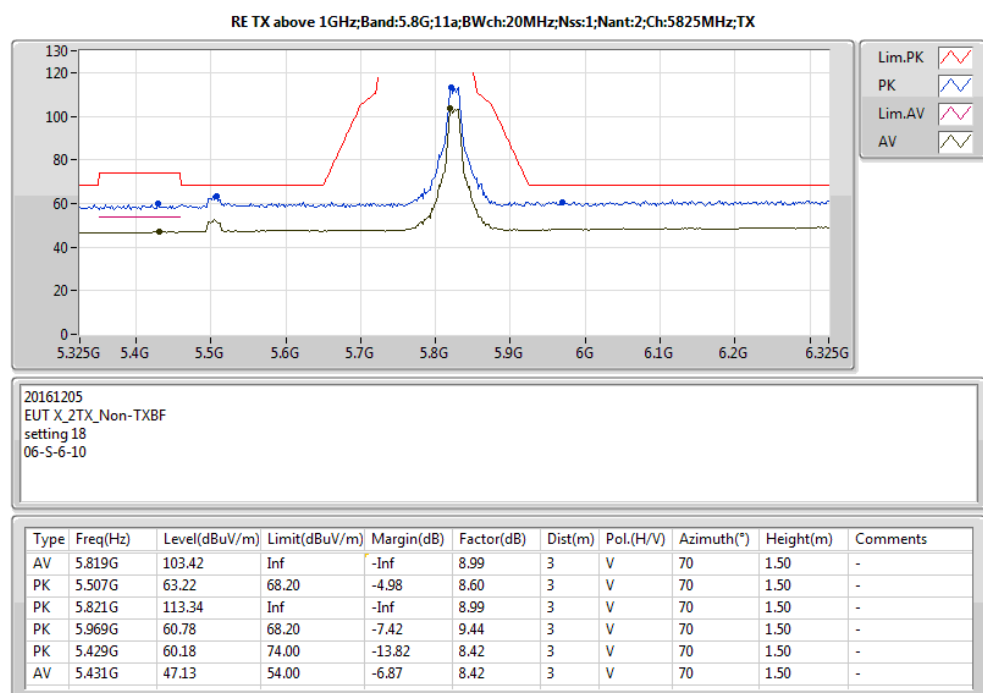
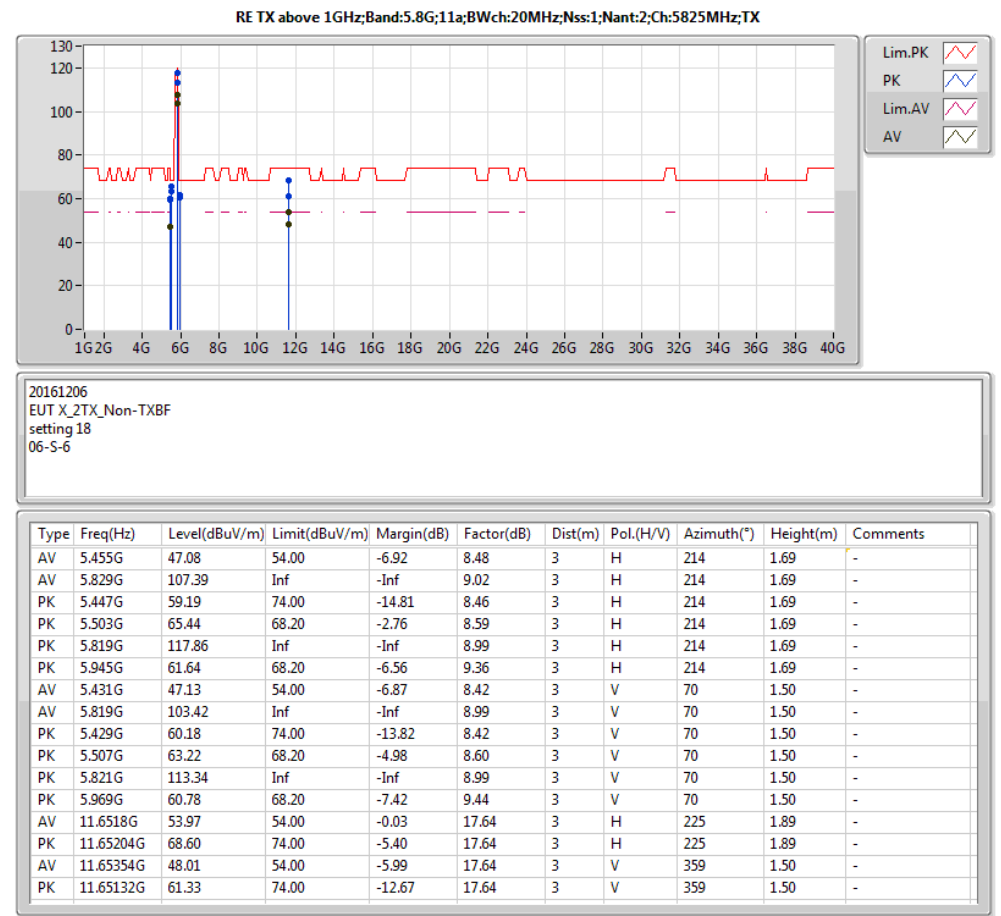
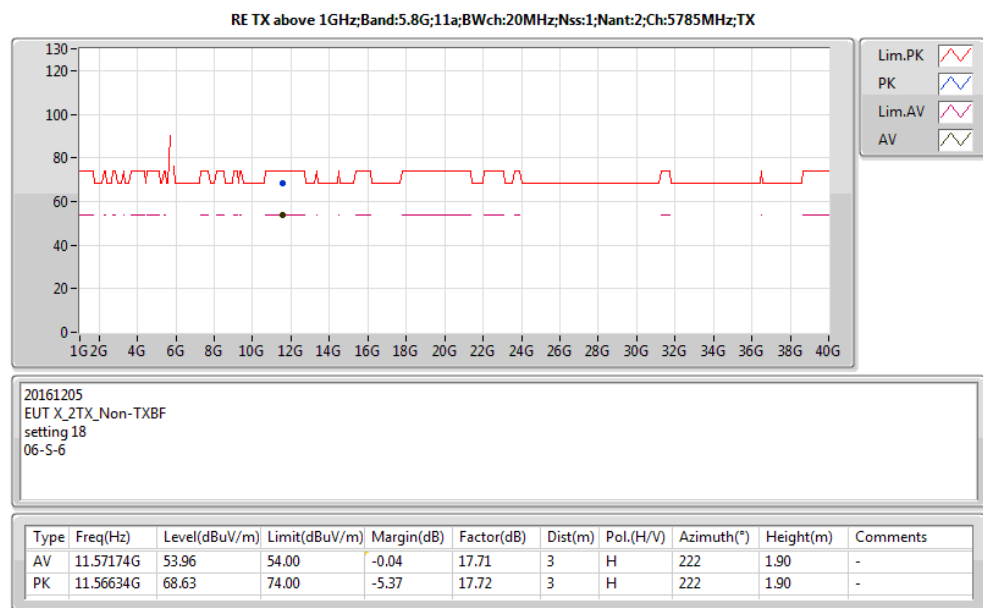
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Pol. (H/V)	Azimuth (°)	Height (m)	Comments
5.8G;VHT20,BF;Nss1,(M0);Ntx2;5825	Pass	AV	11.64694G	53.99	54.00	-0.01	17.65	3	H	288	2.12	-

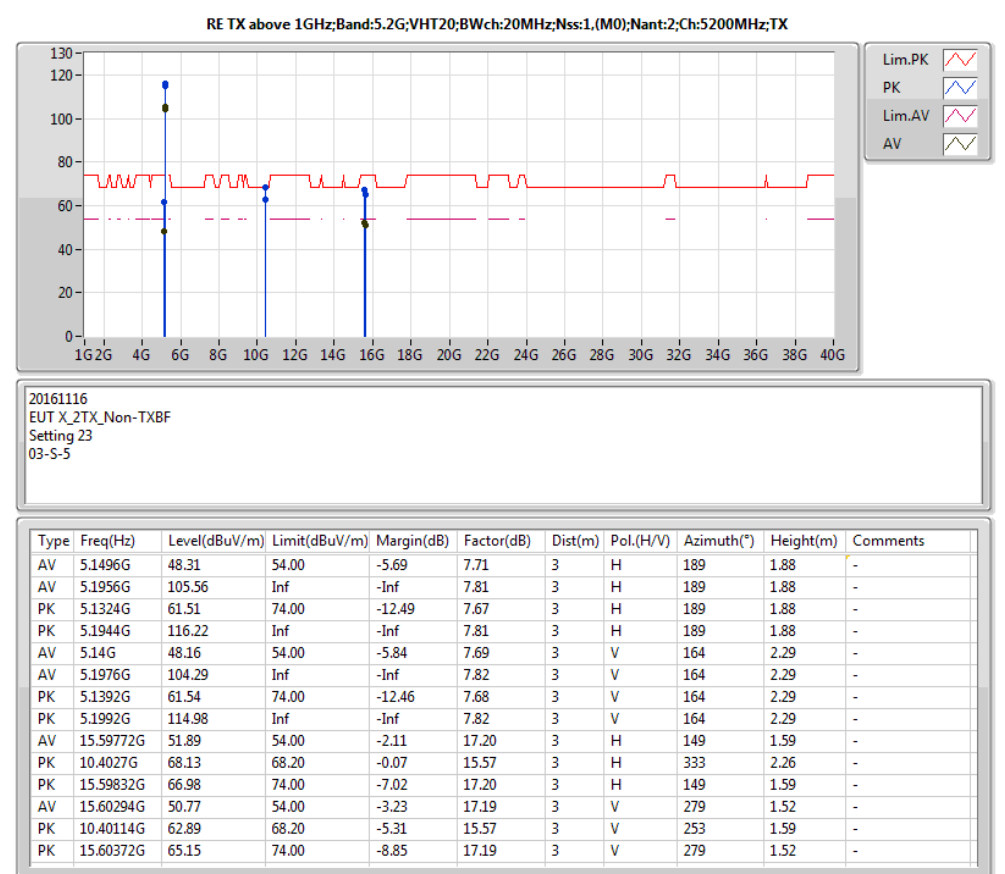
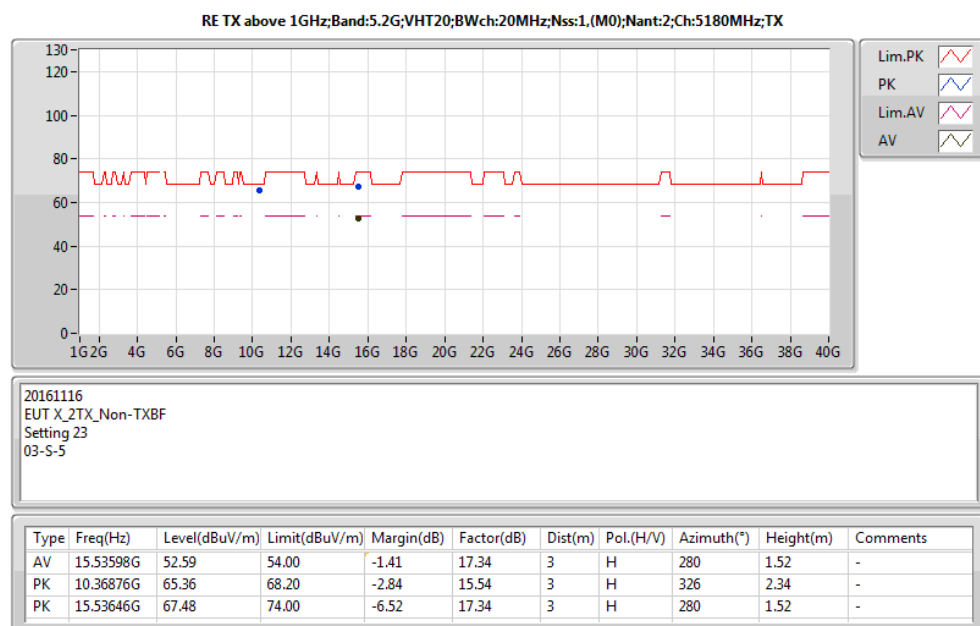
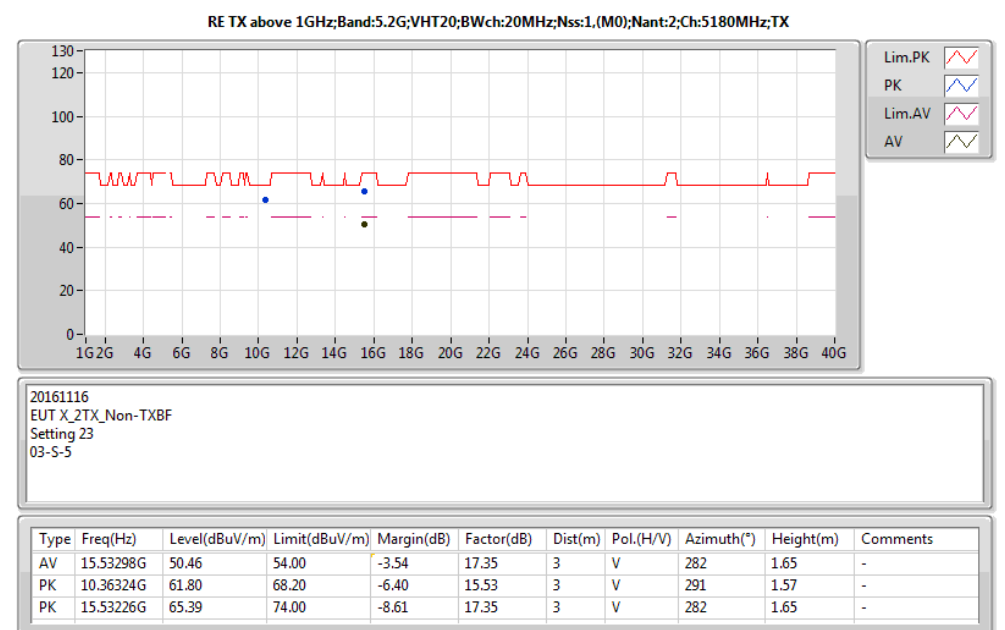
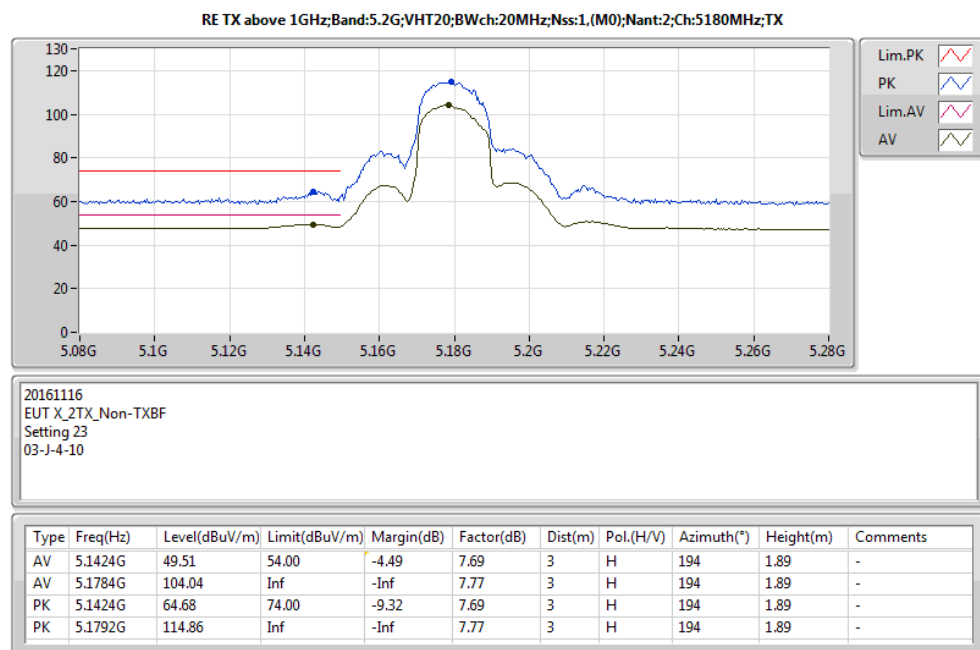
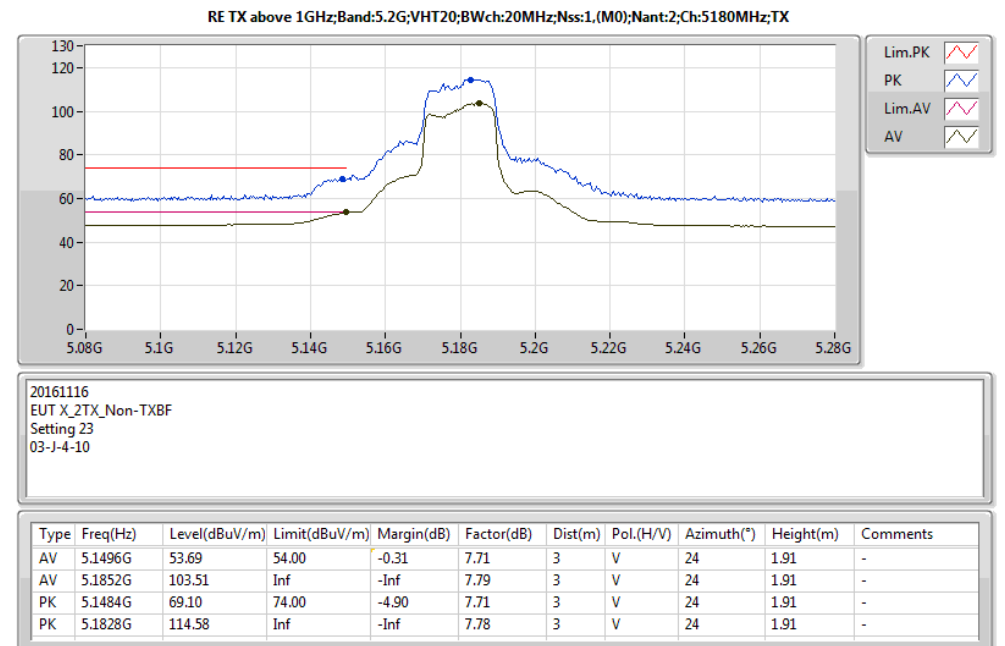
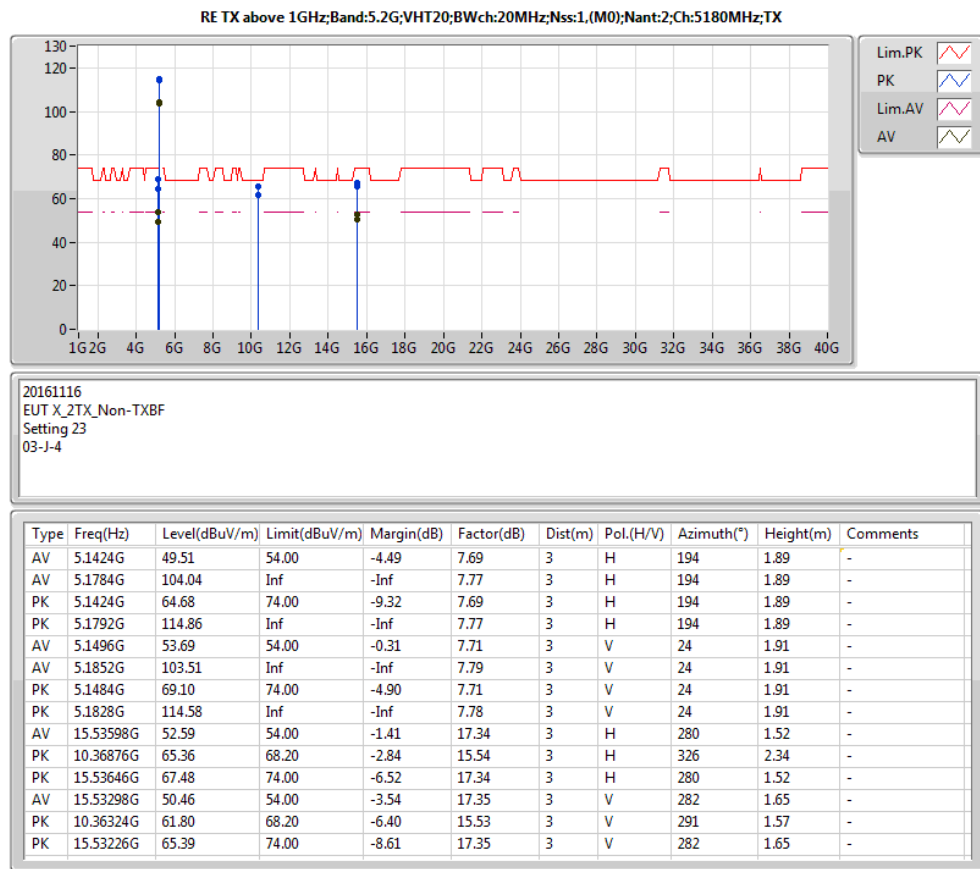


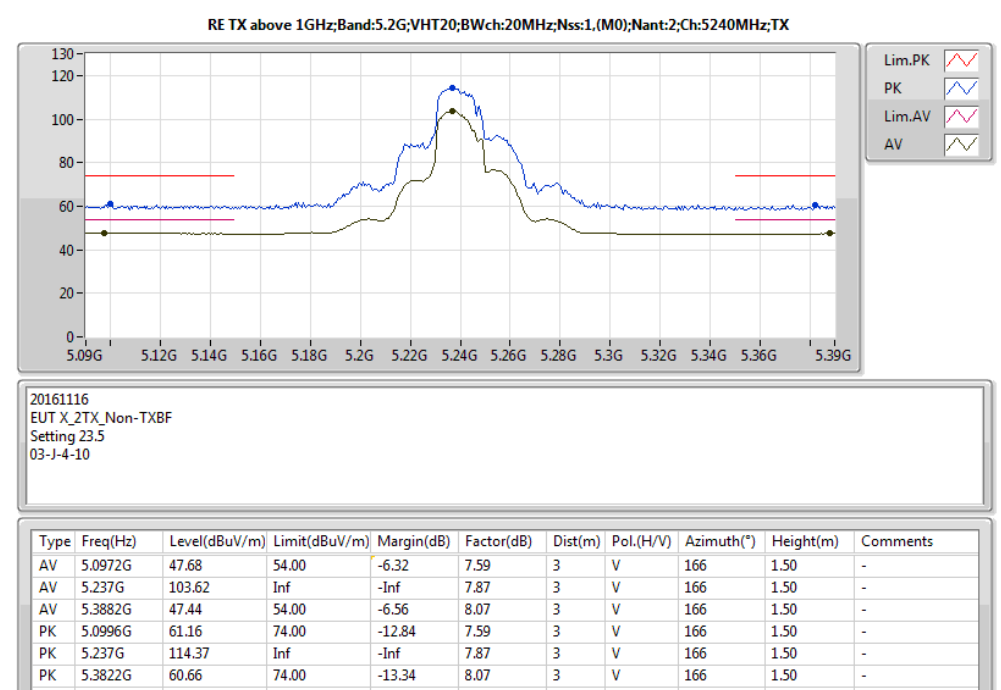
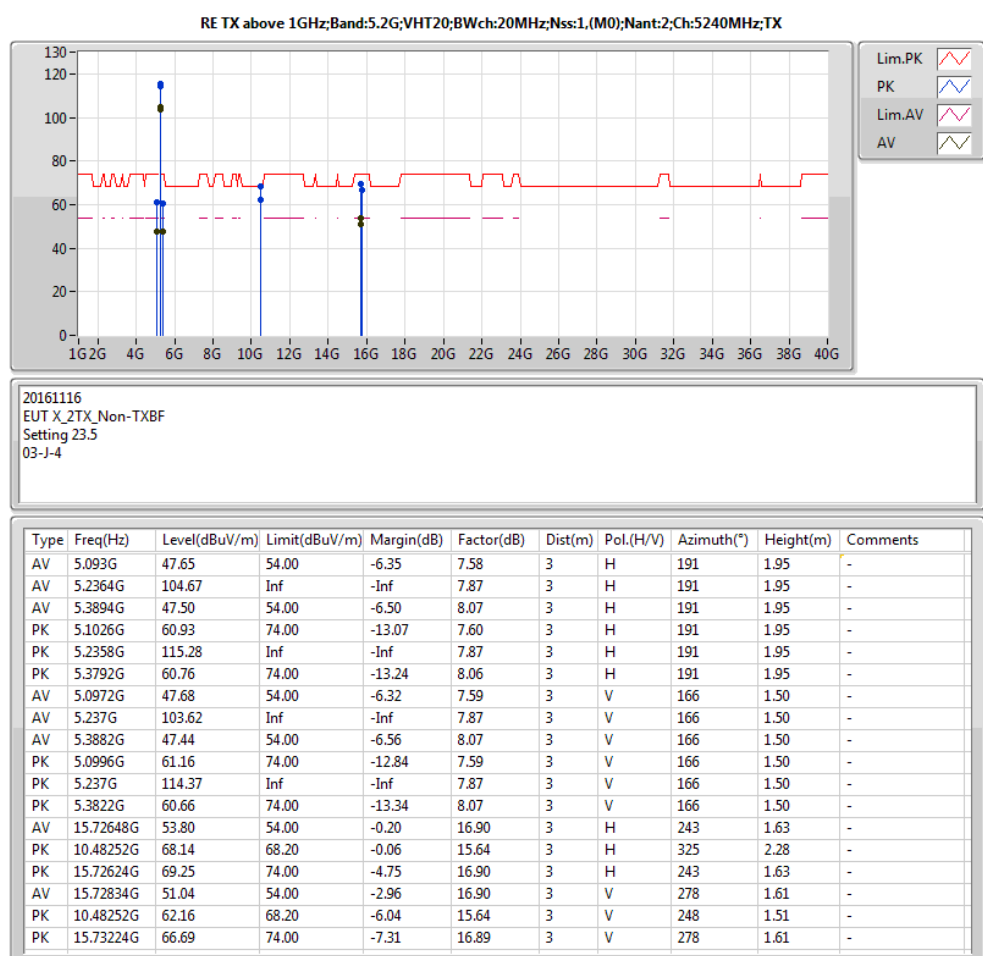
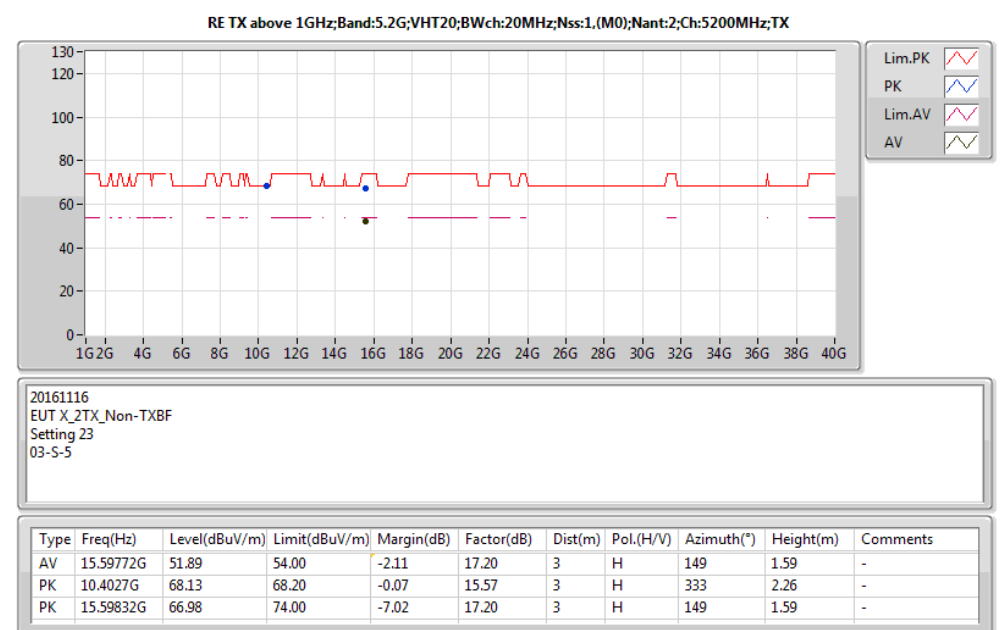
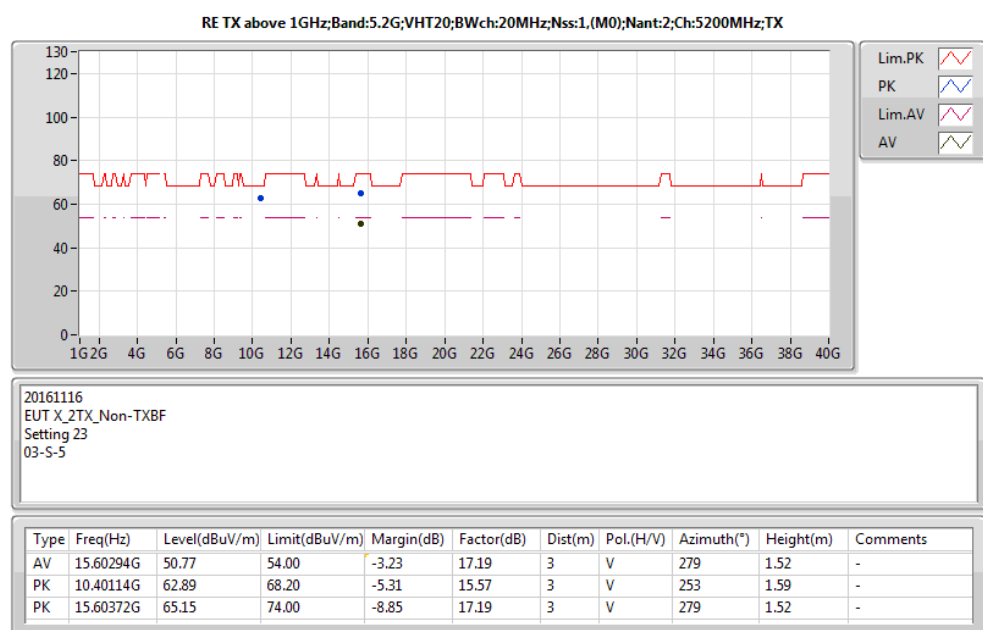
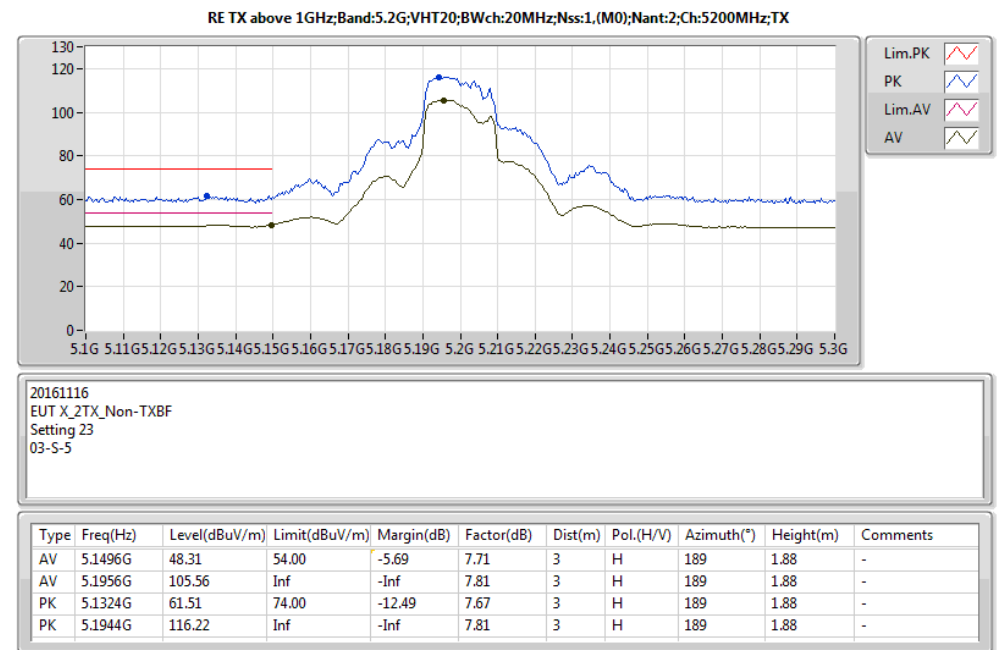
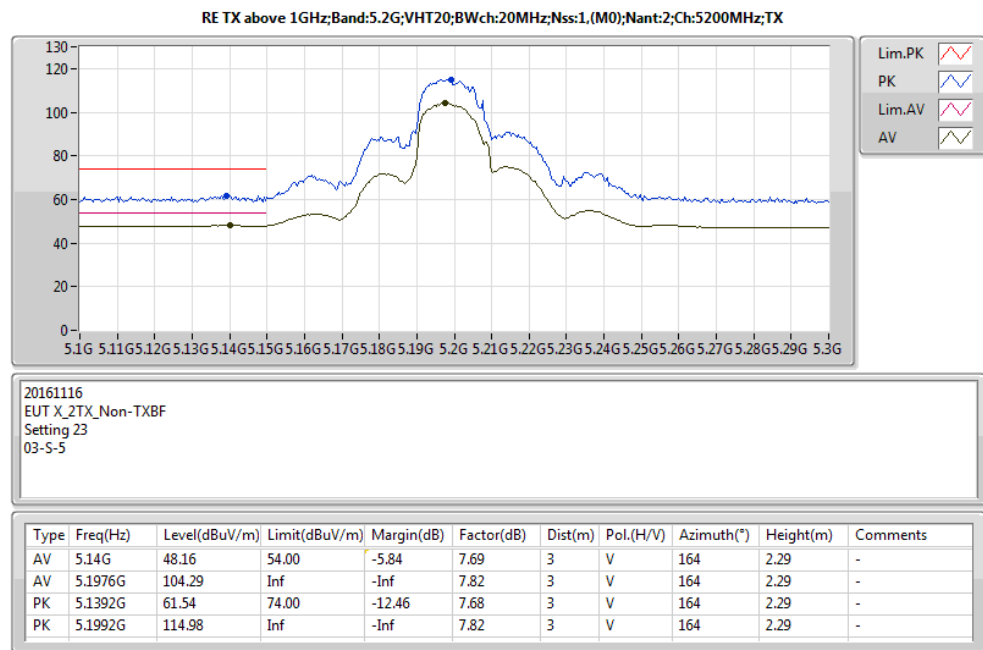


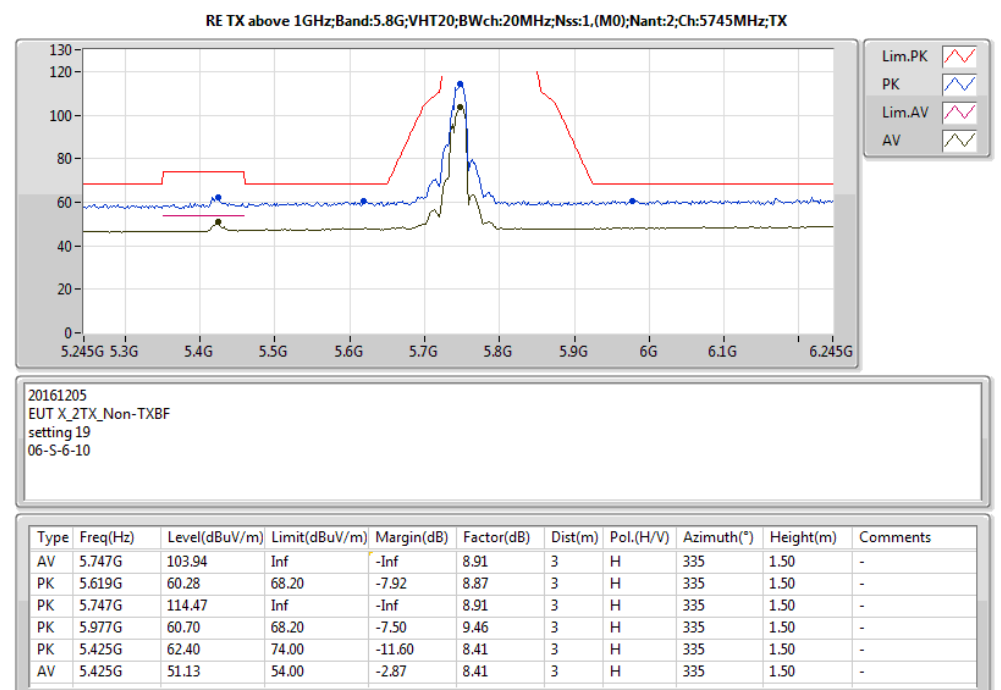
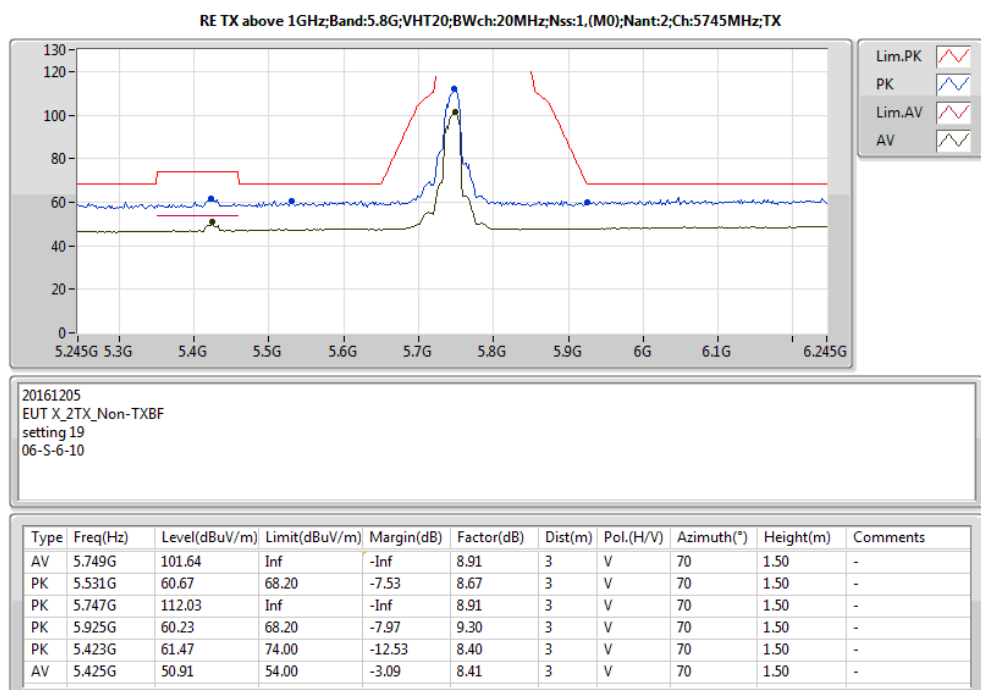
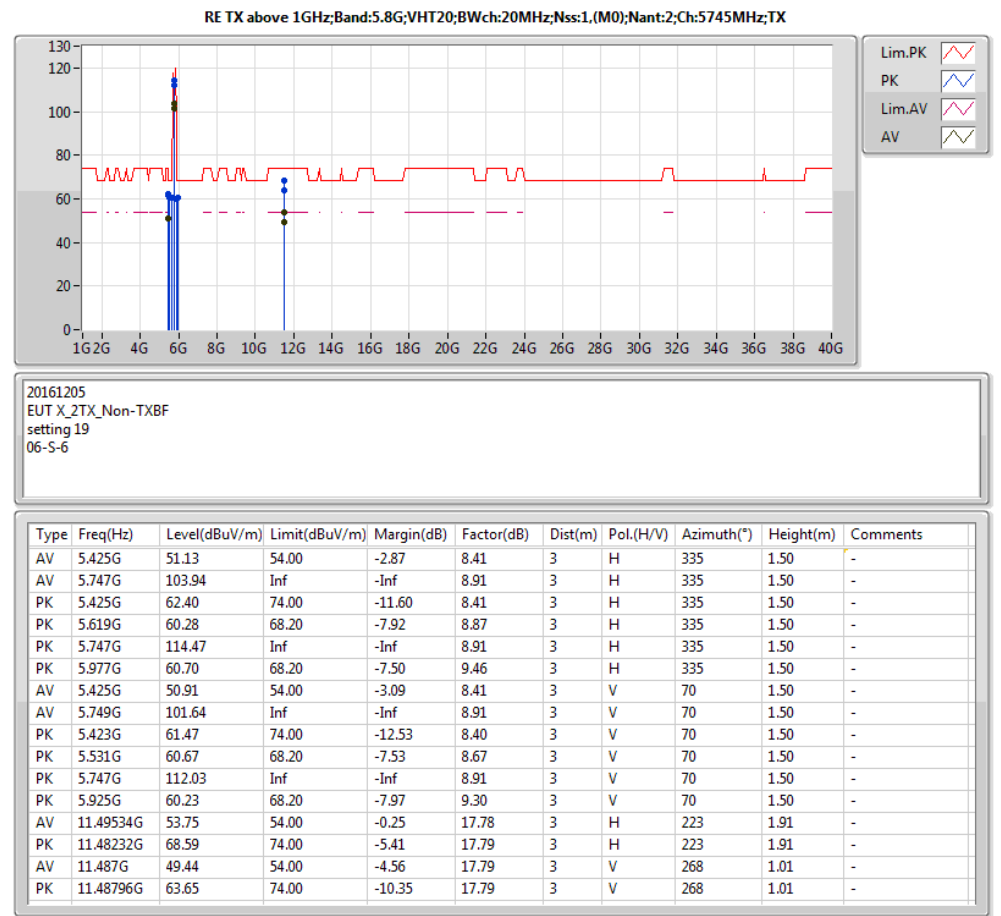
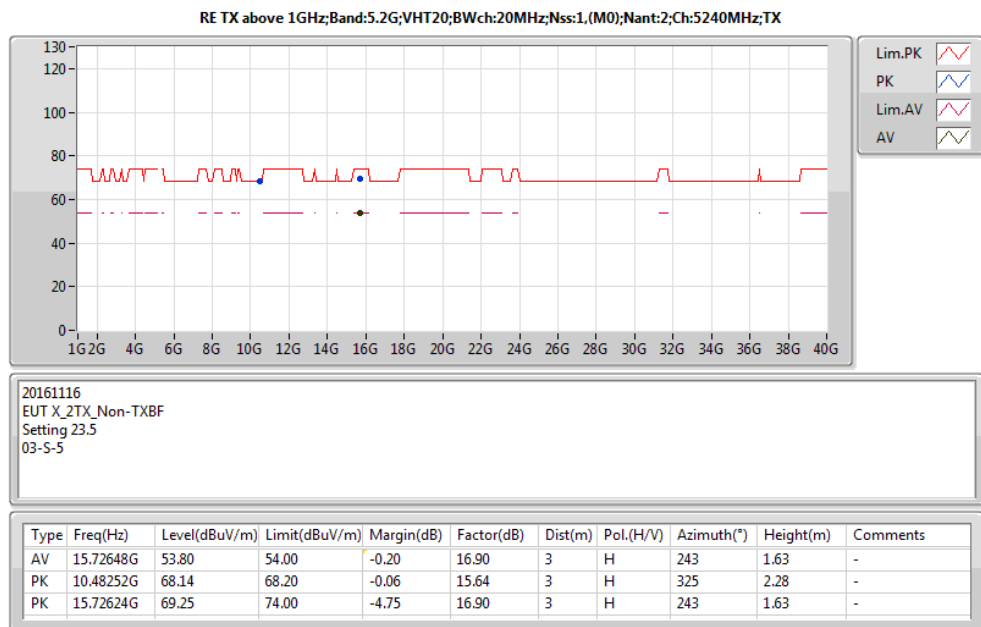
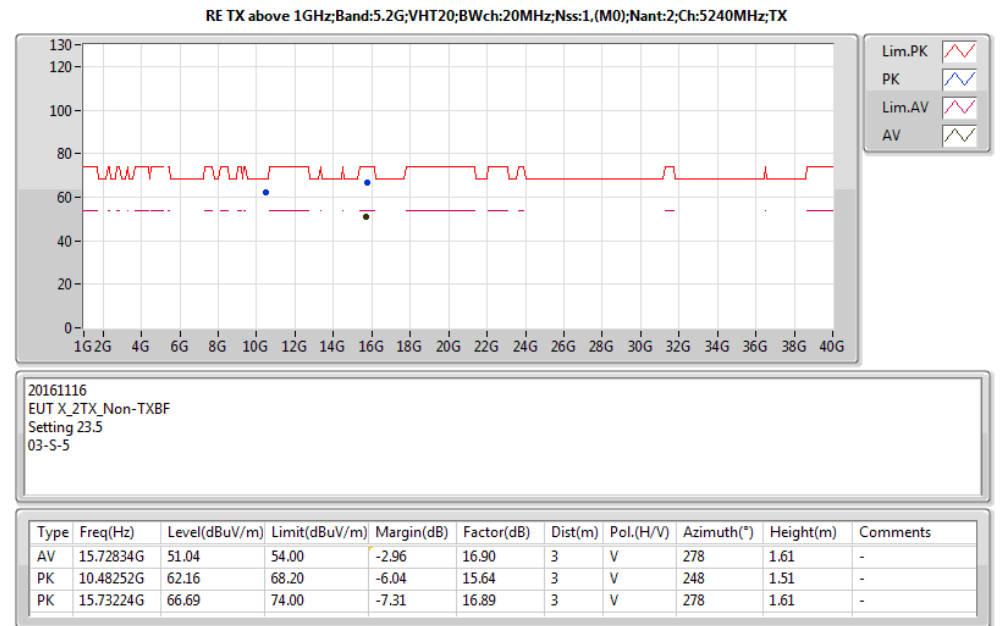
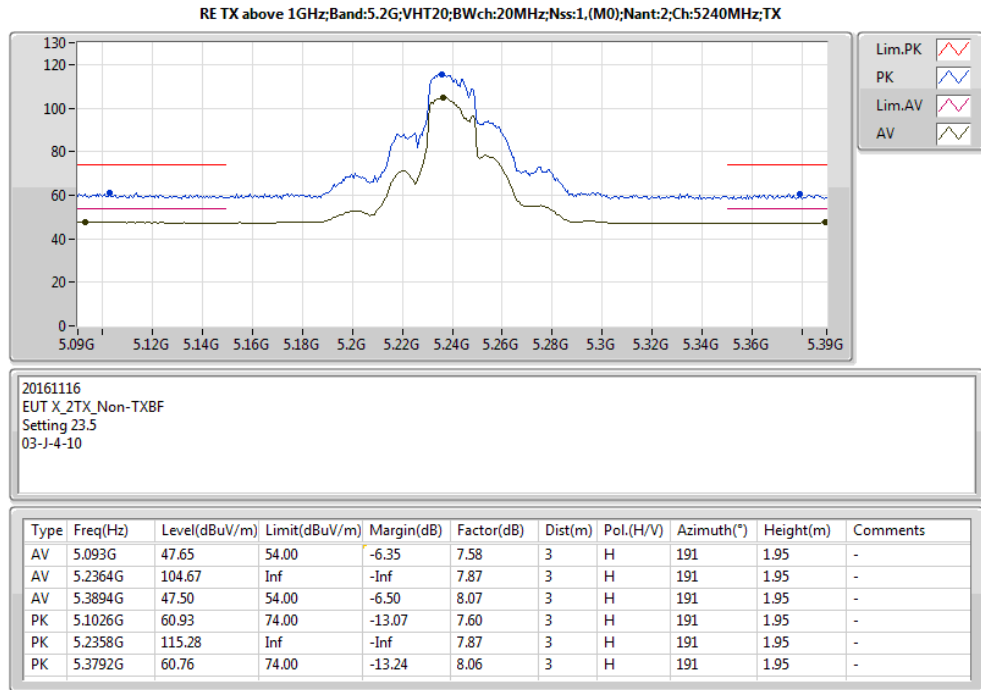


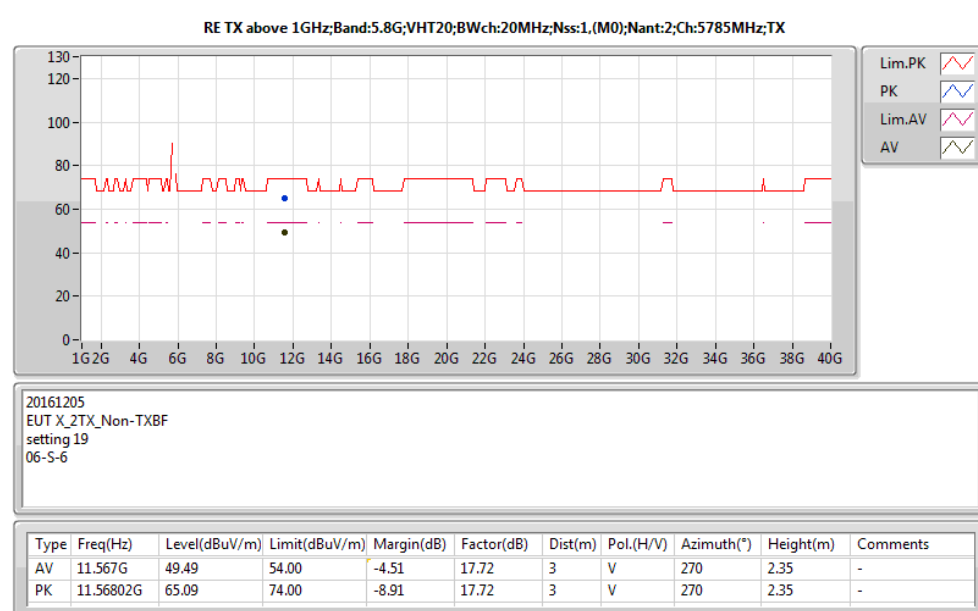
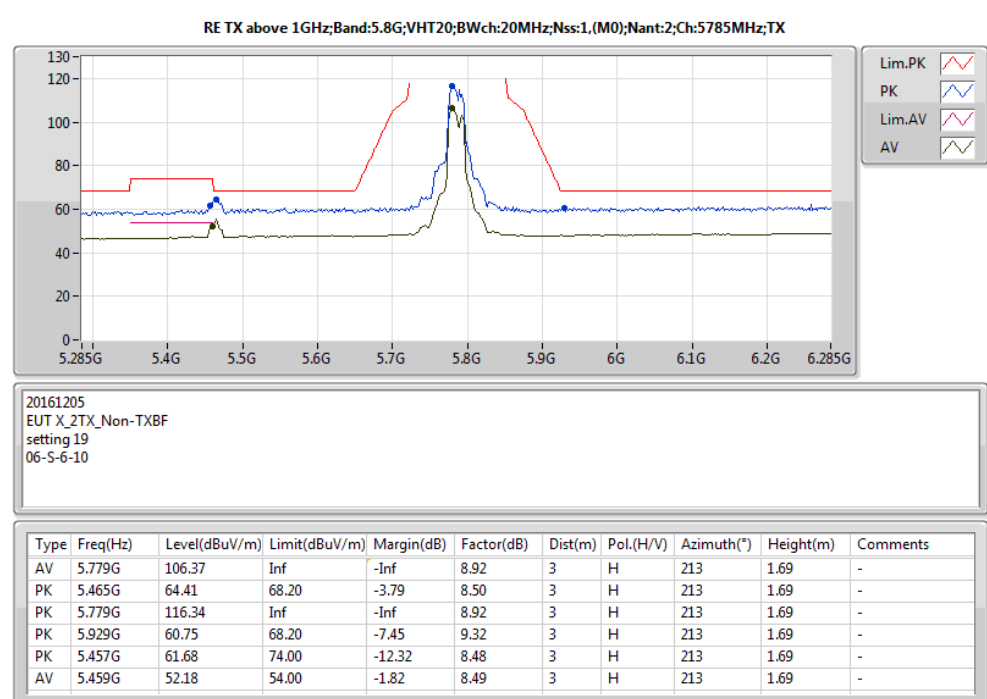
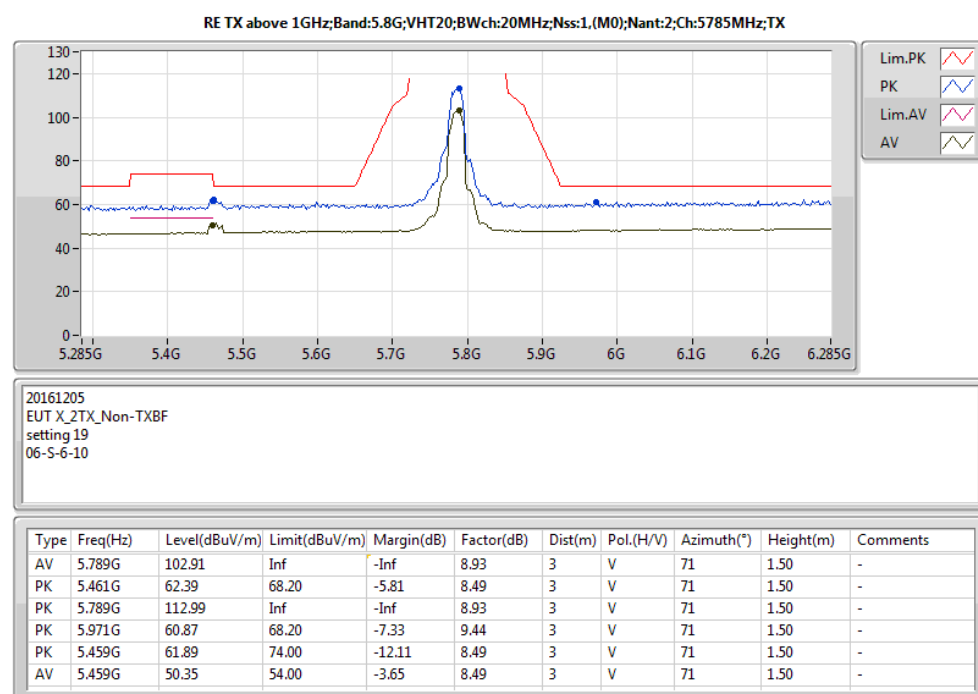
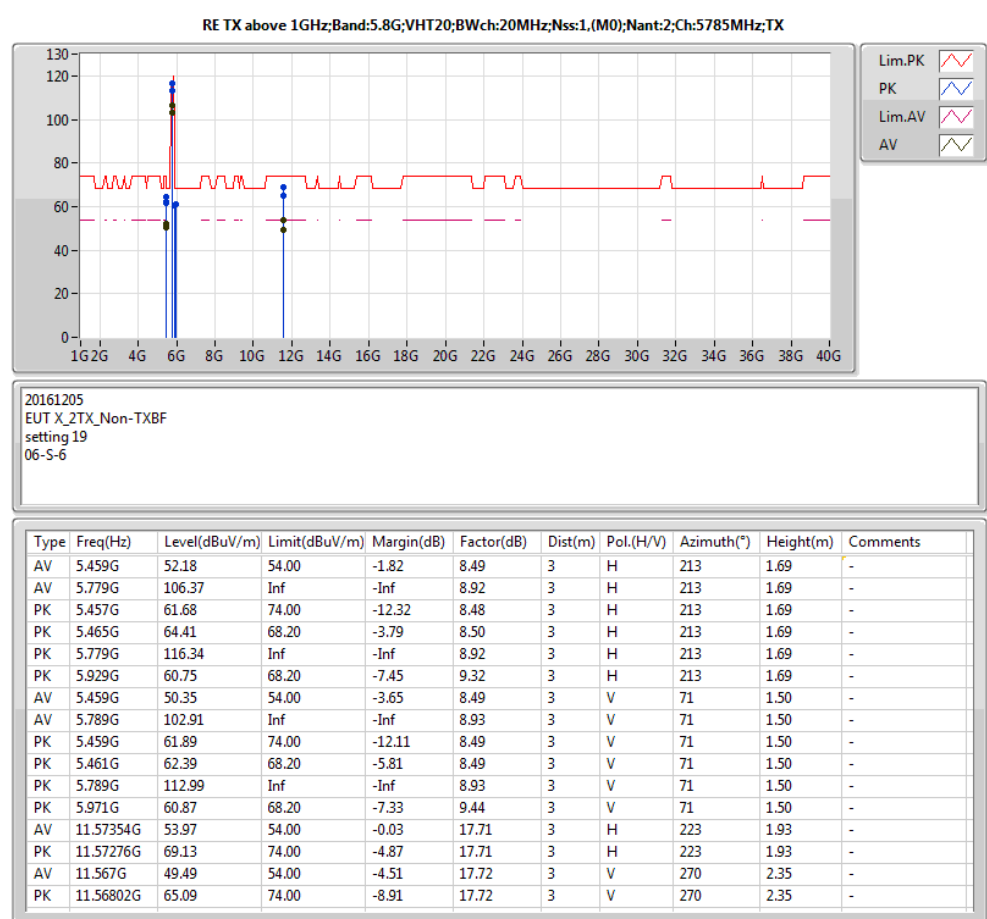
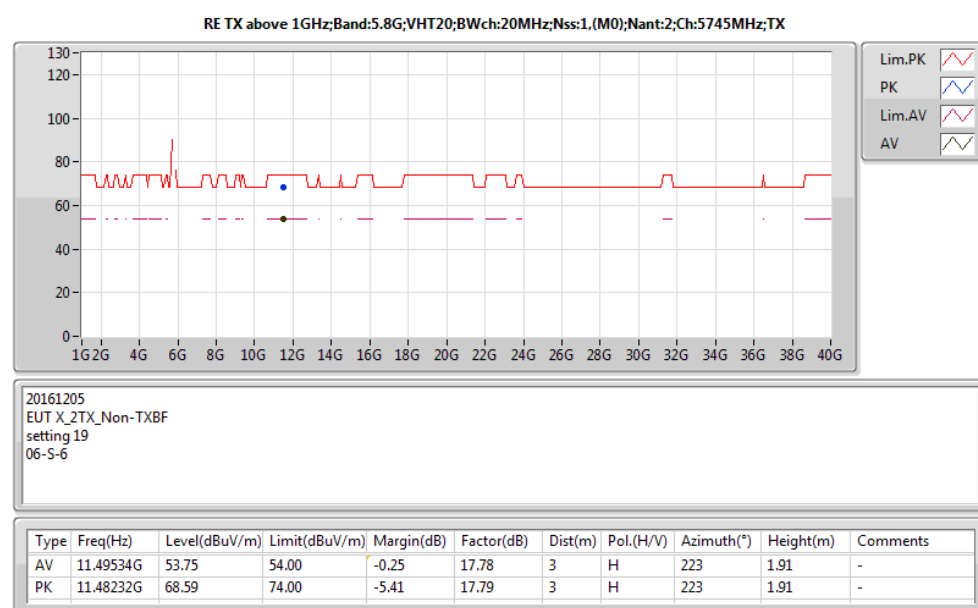
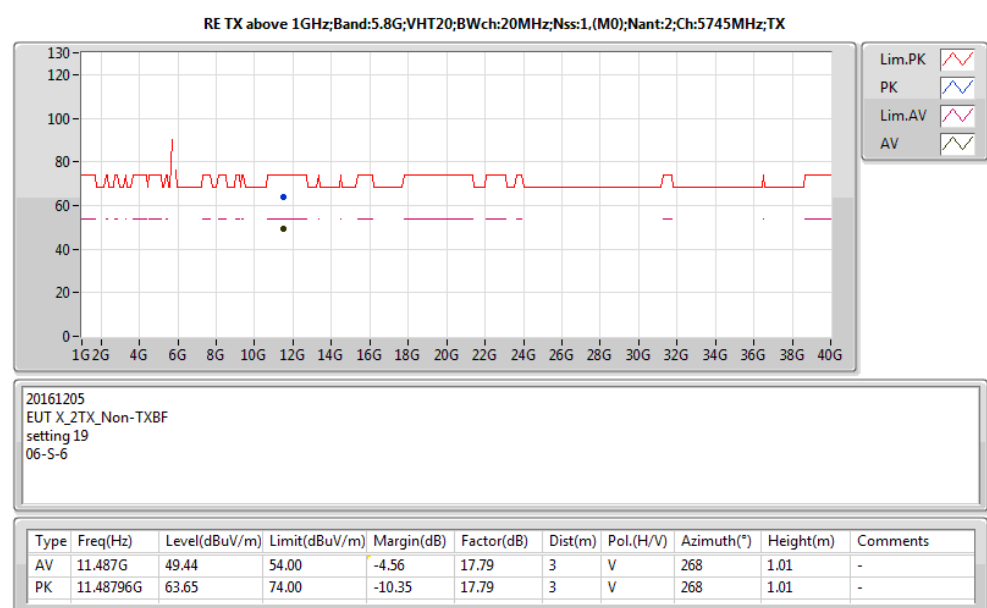


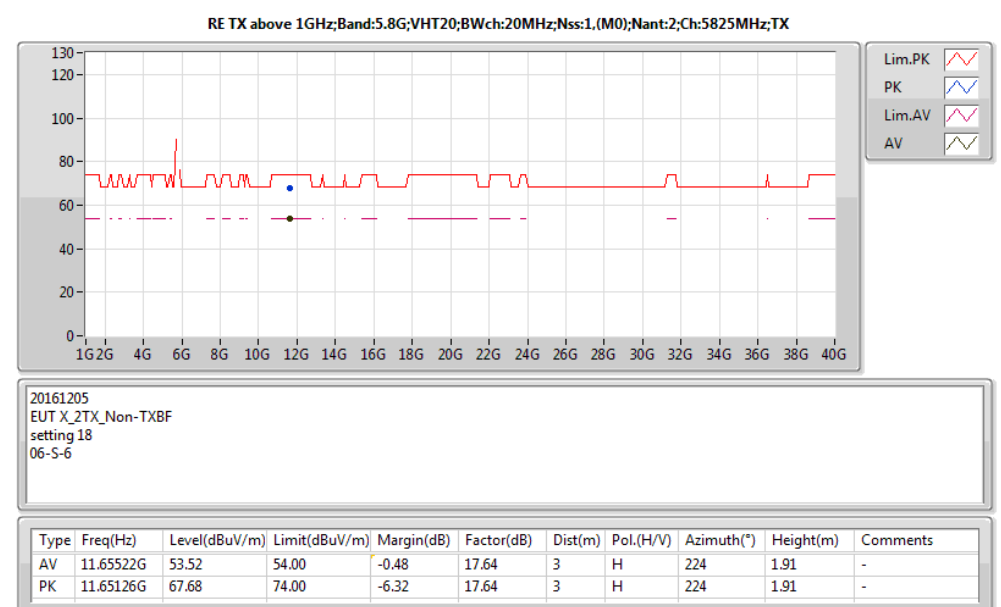
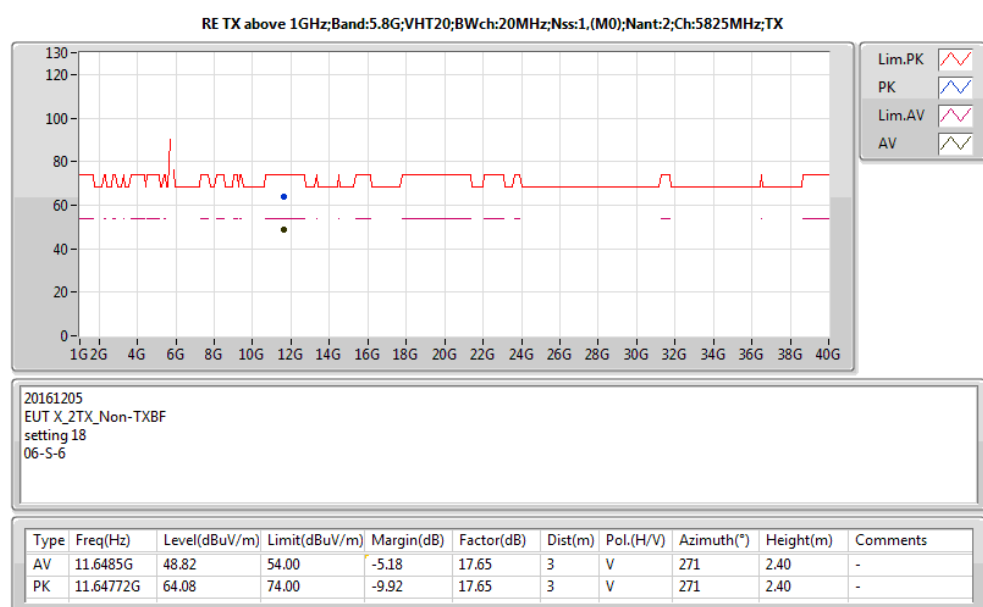
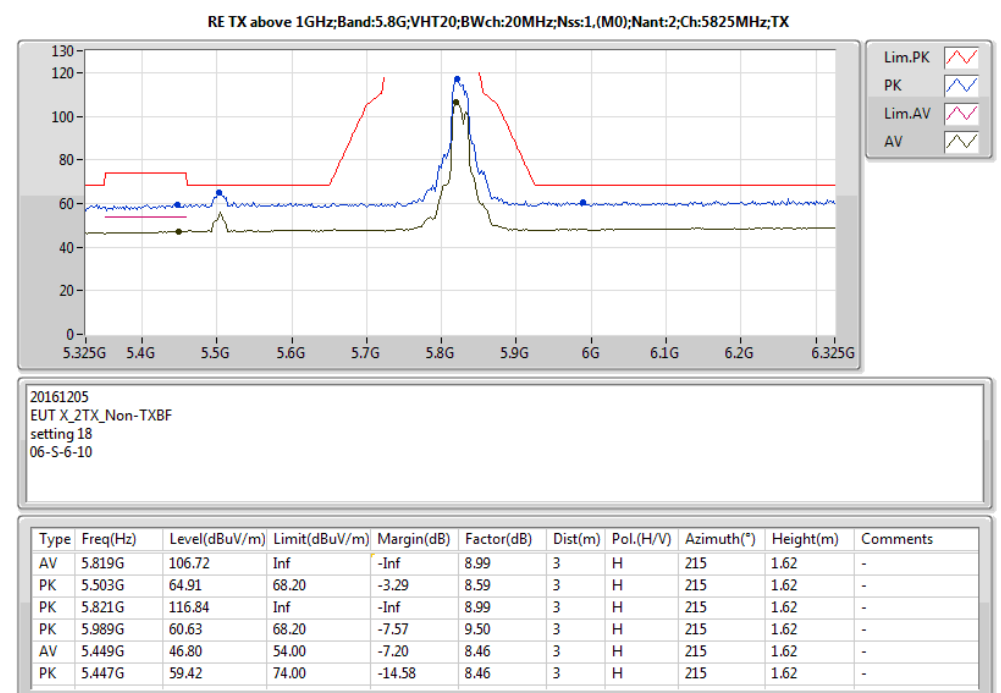
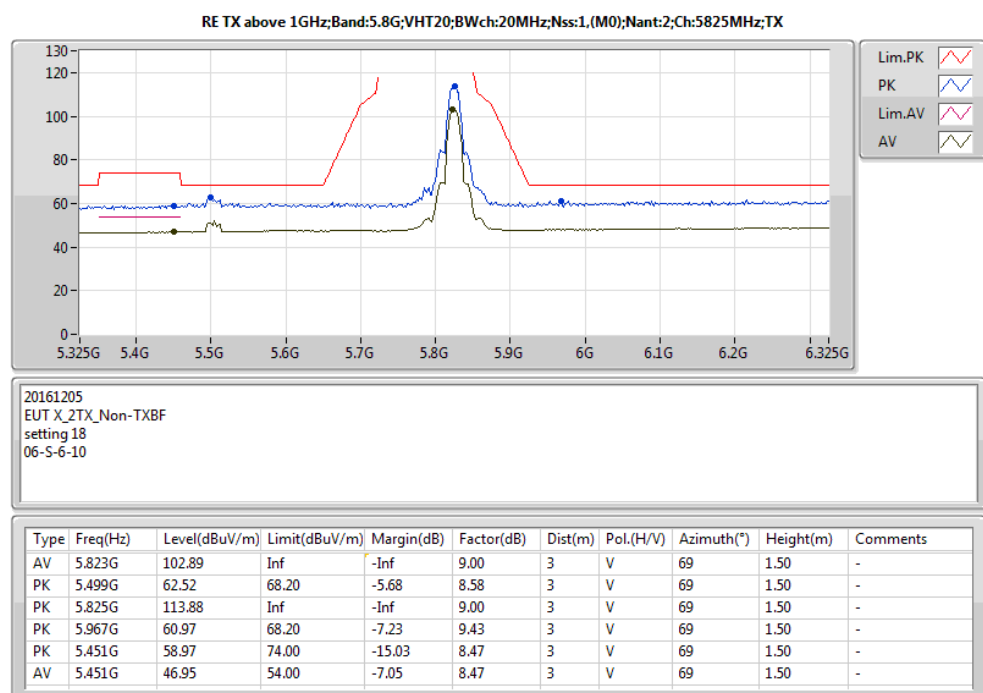
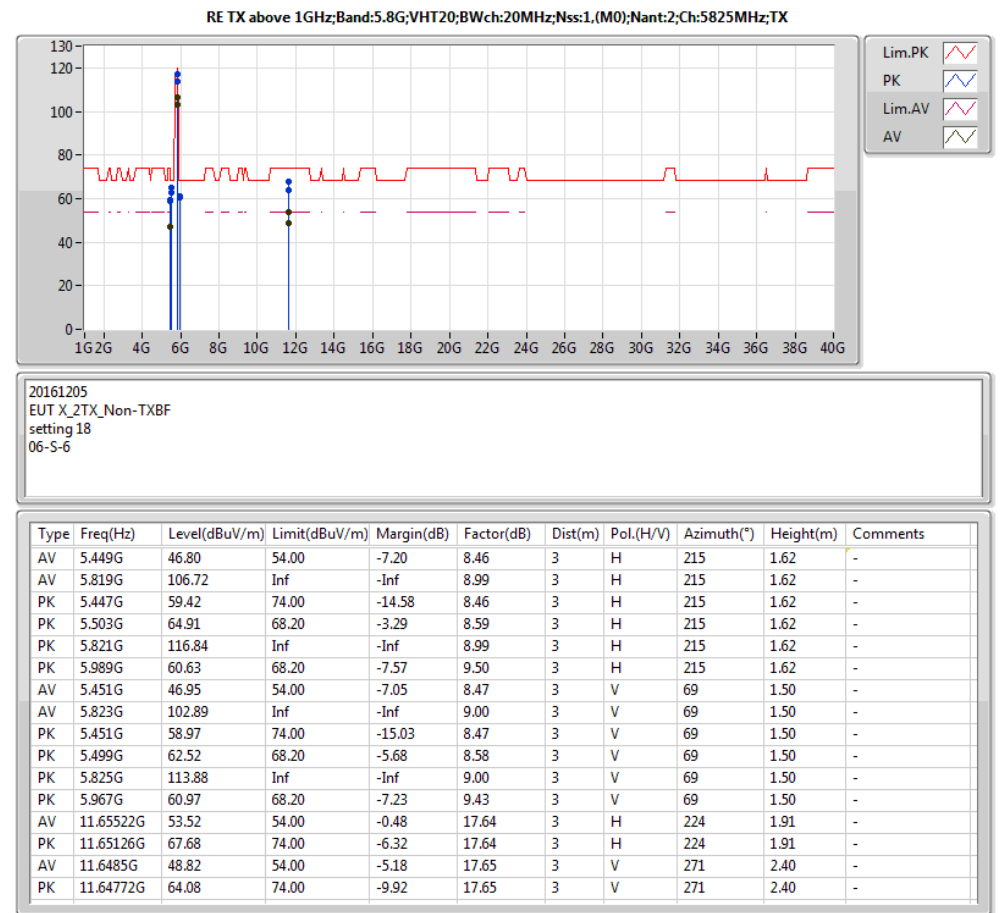
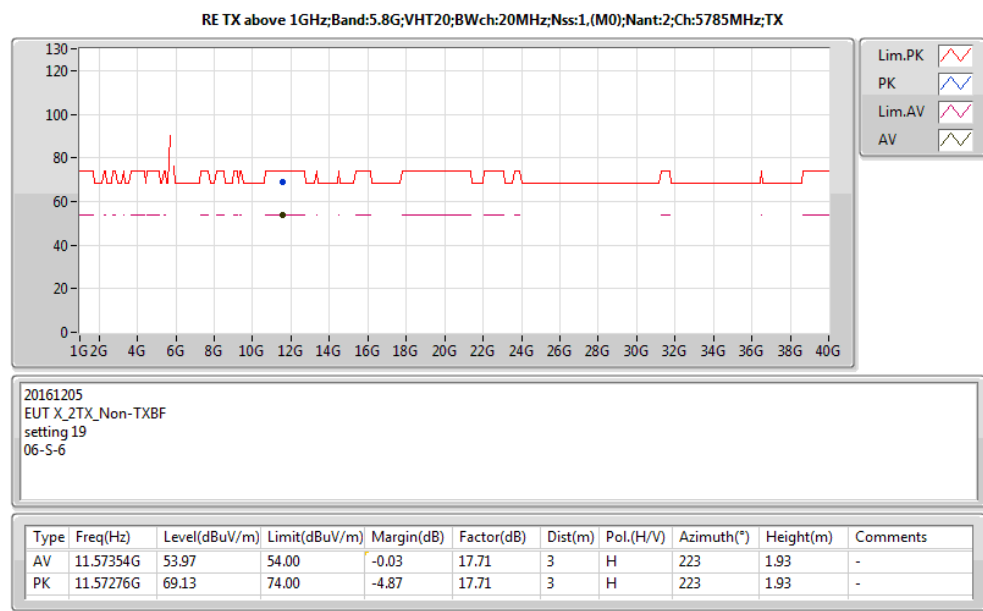


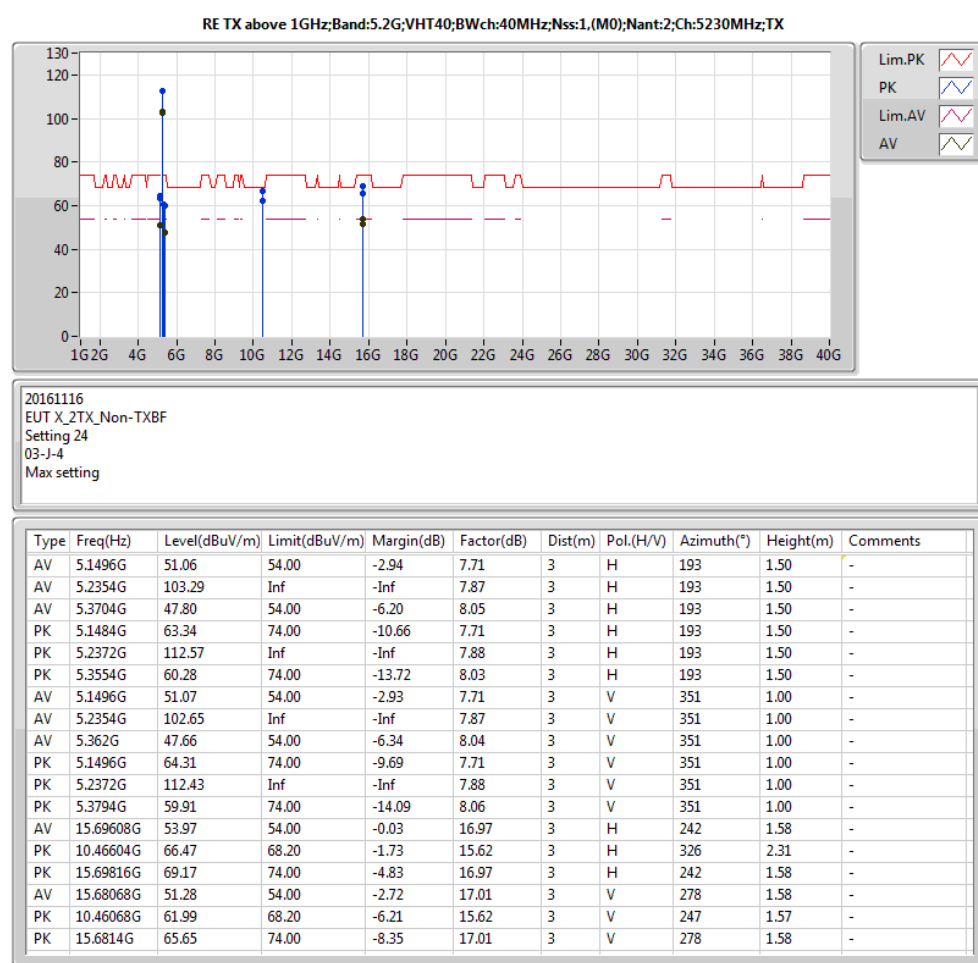
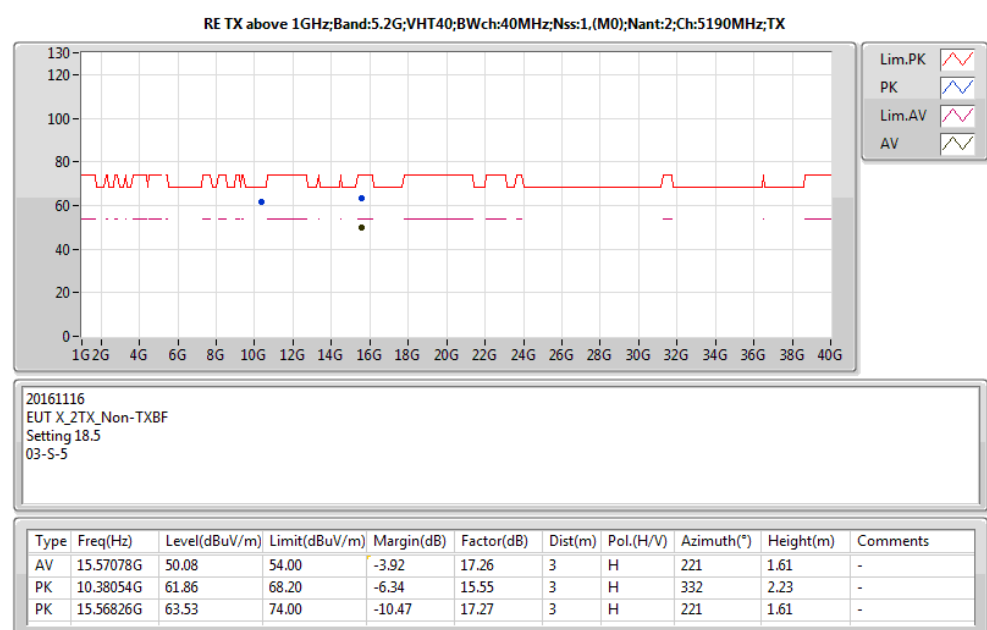
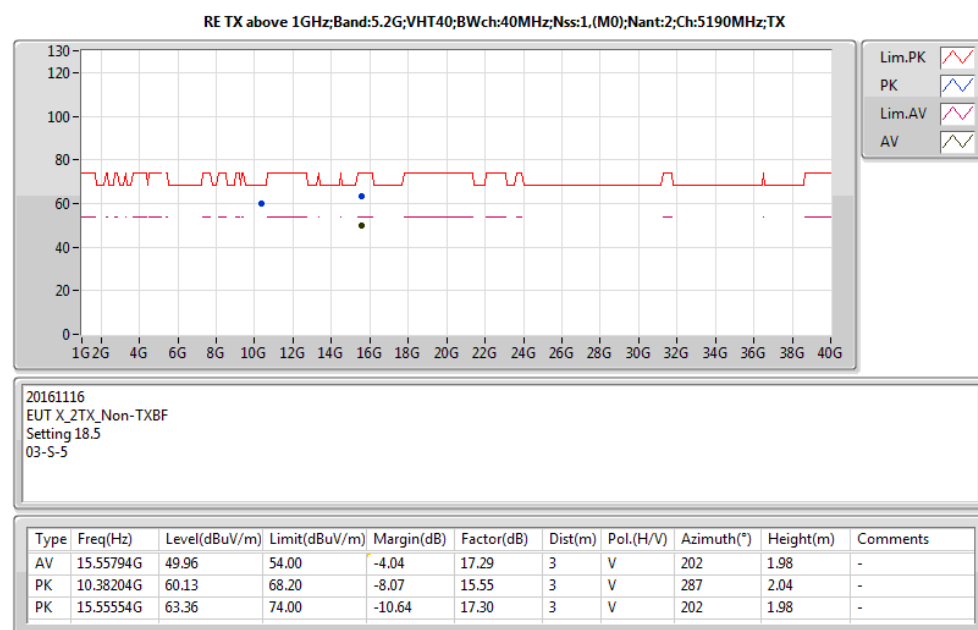
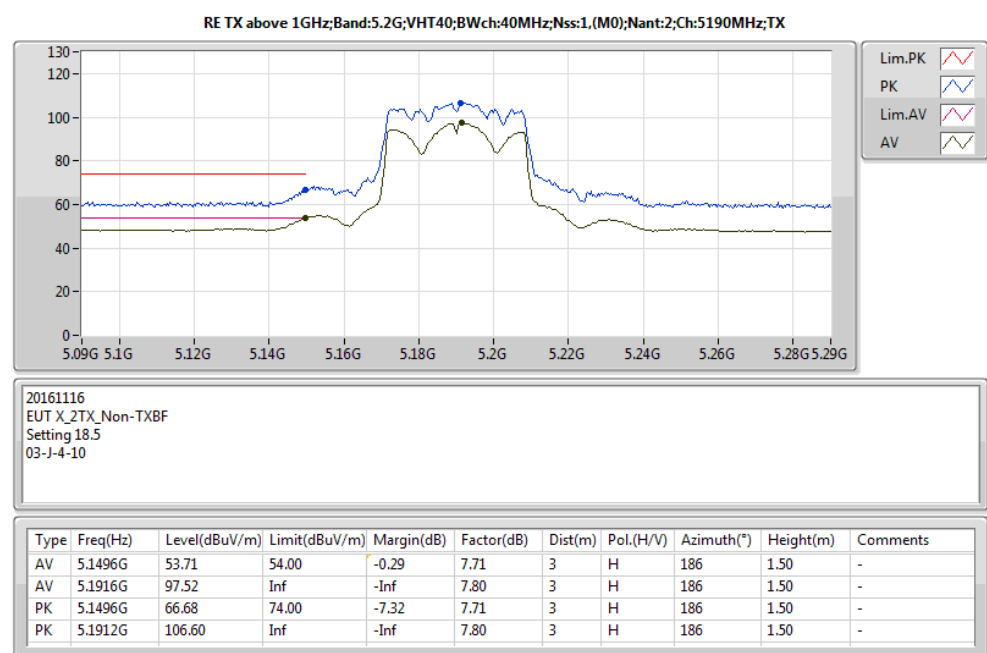
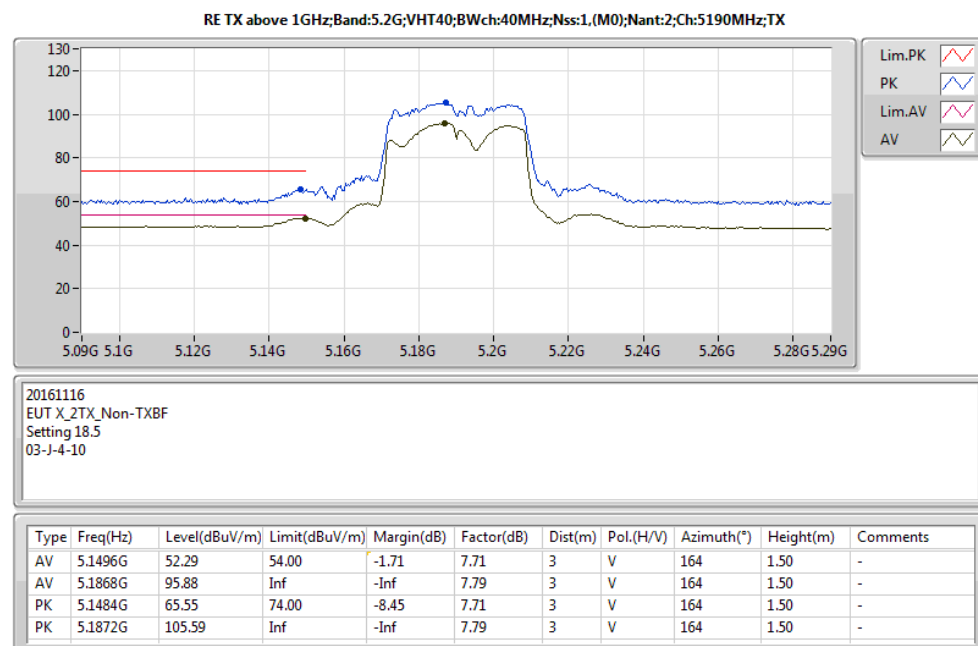
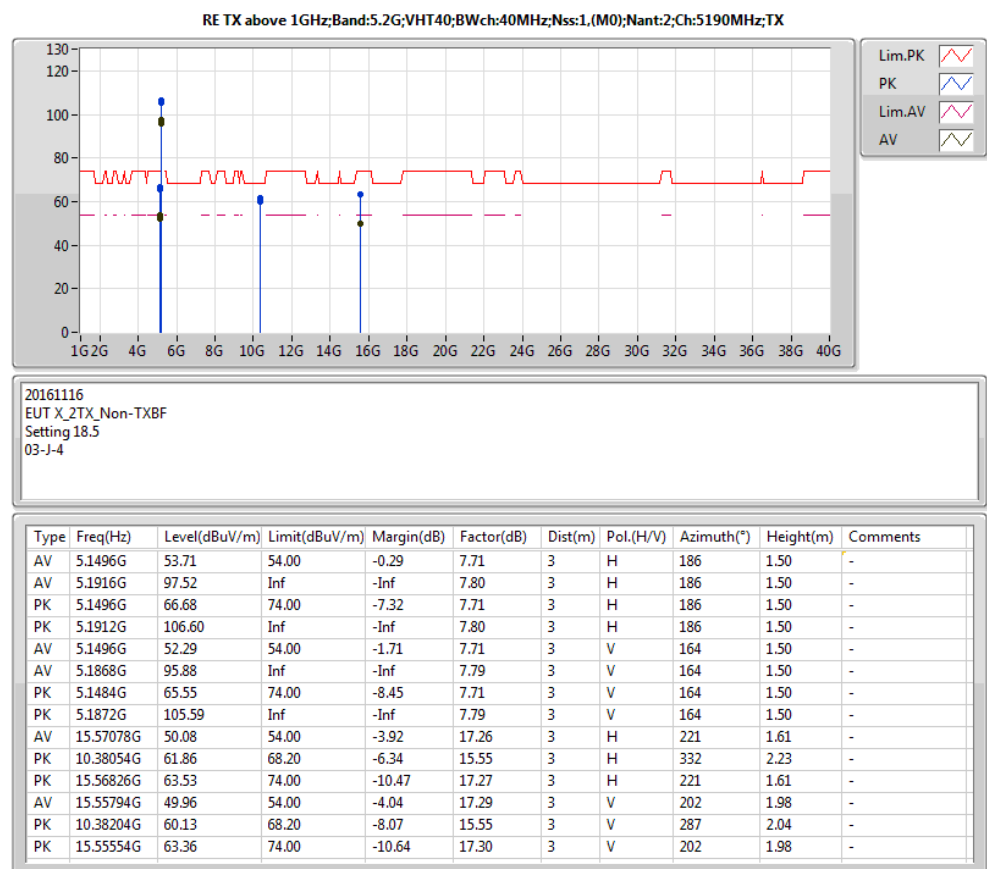


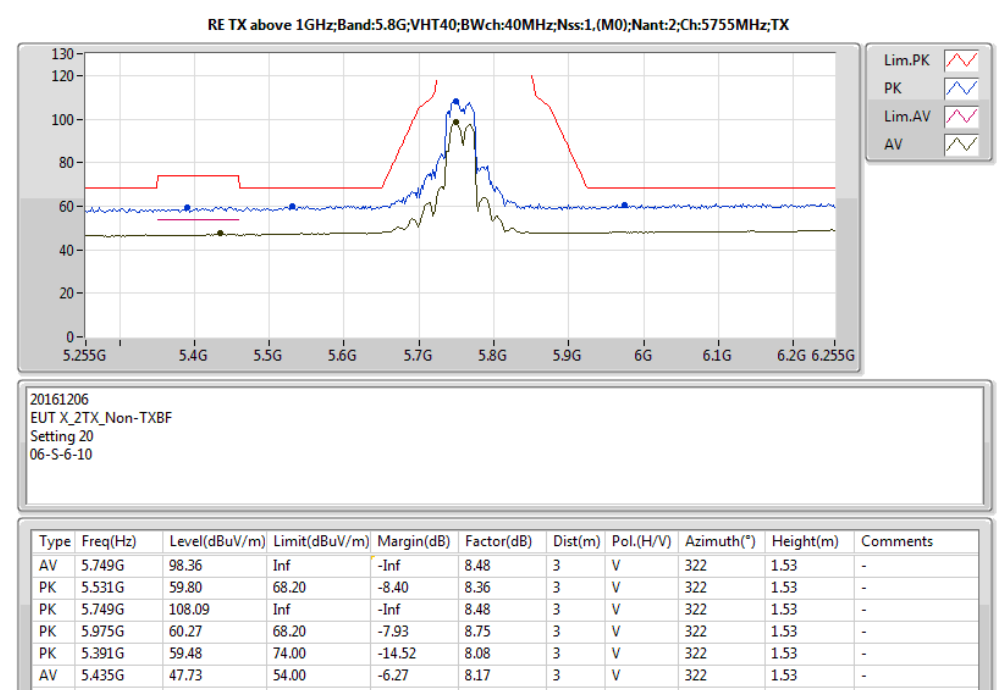
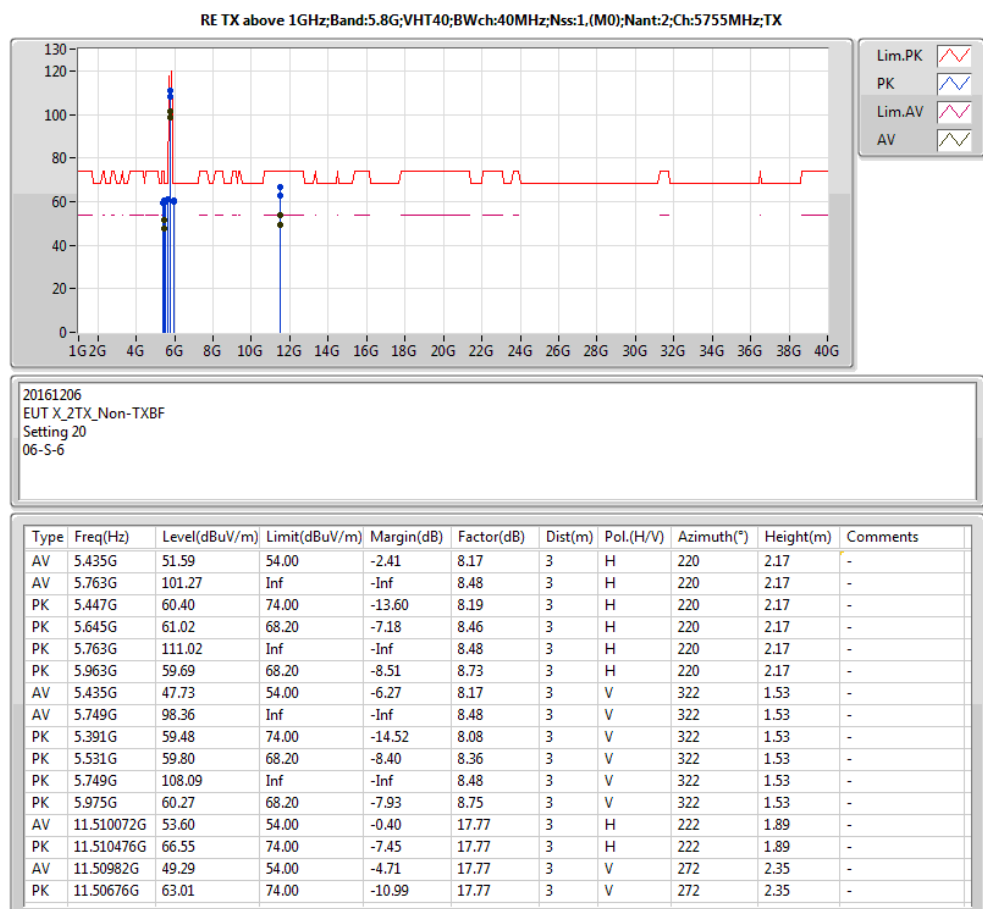
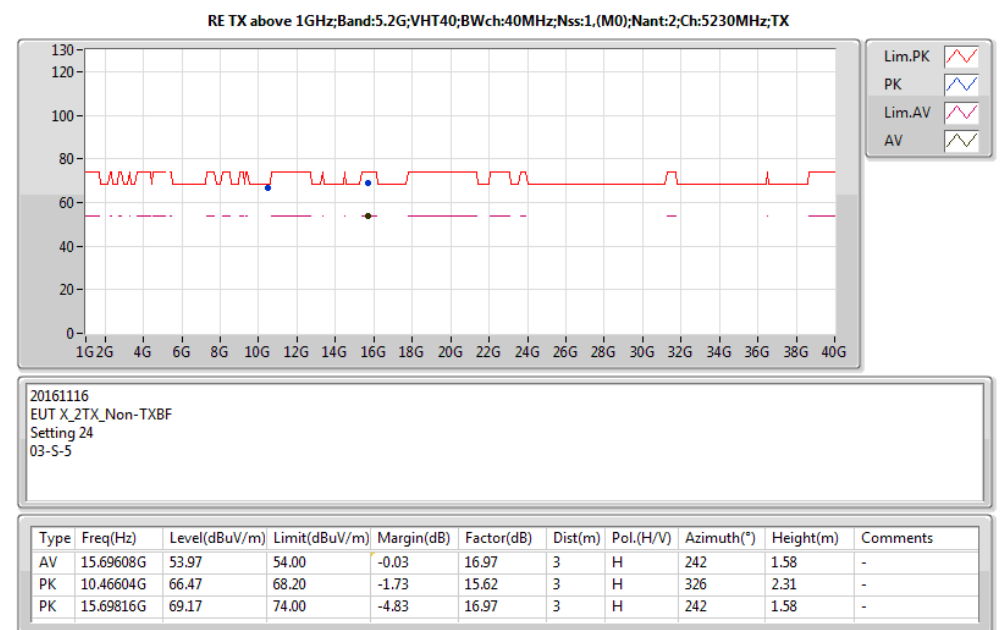
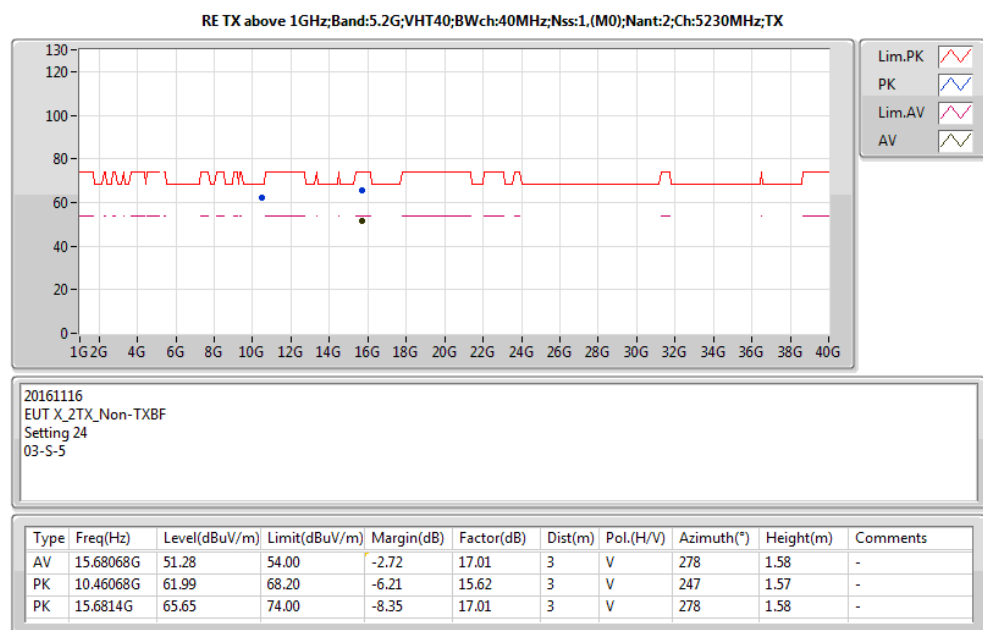
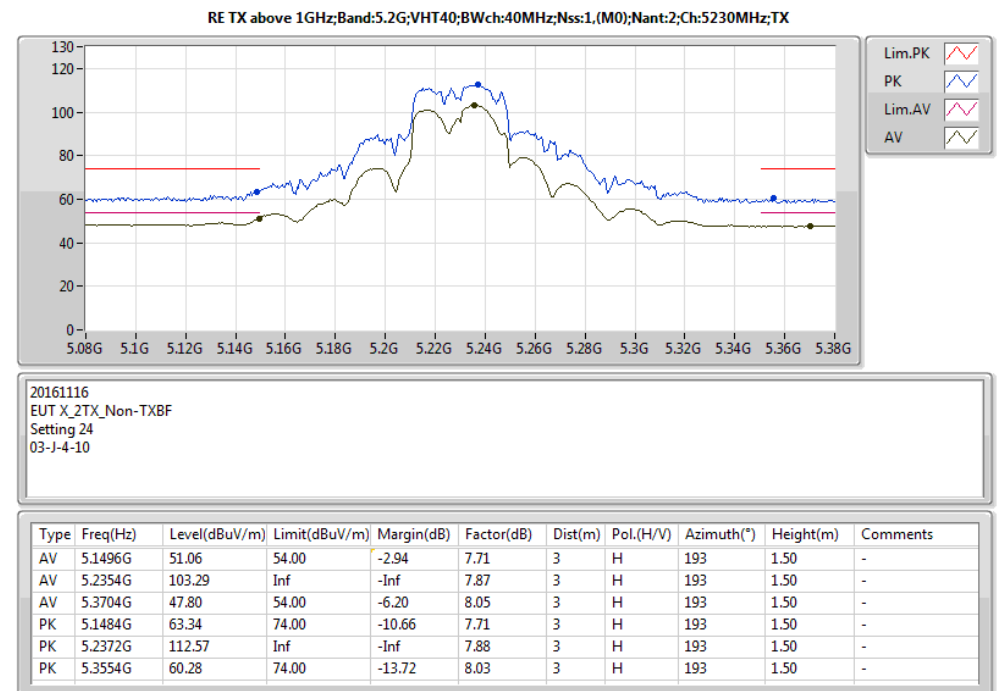
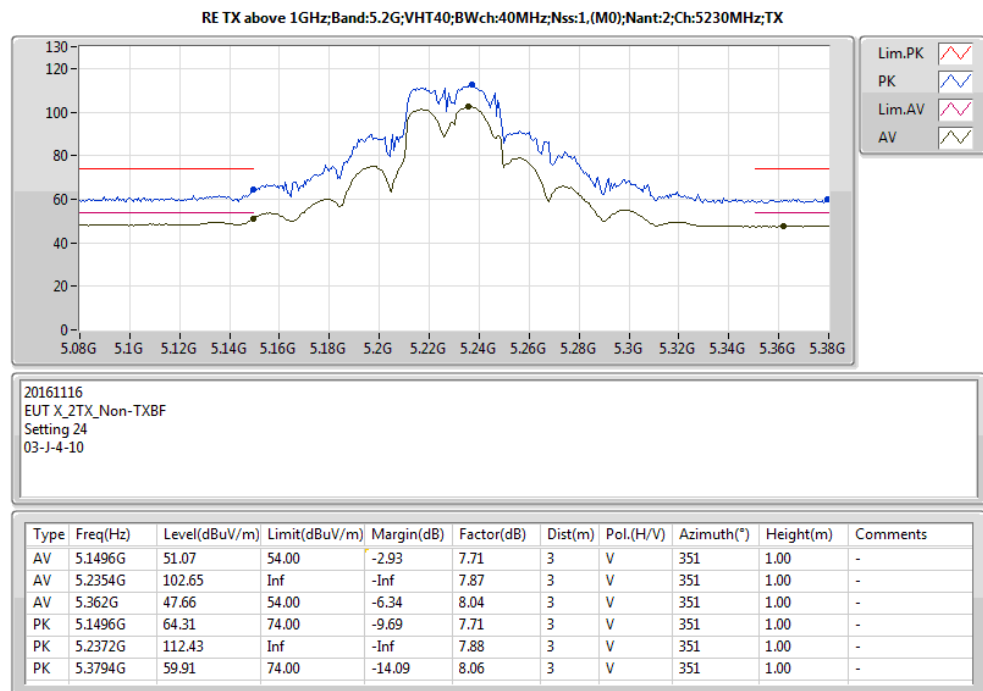


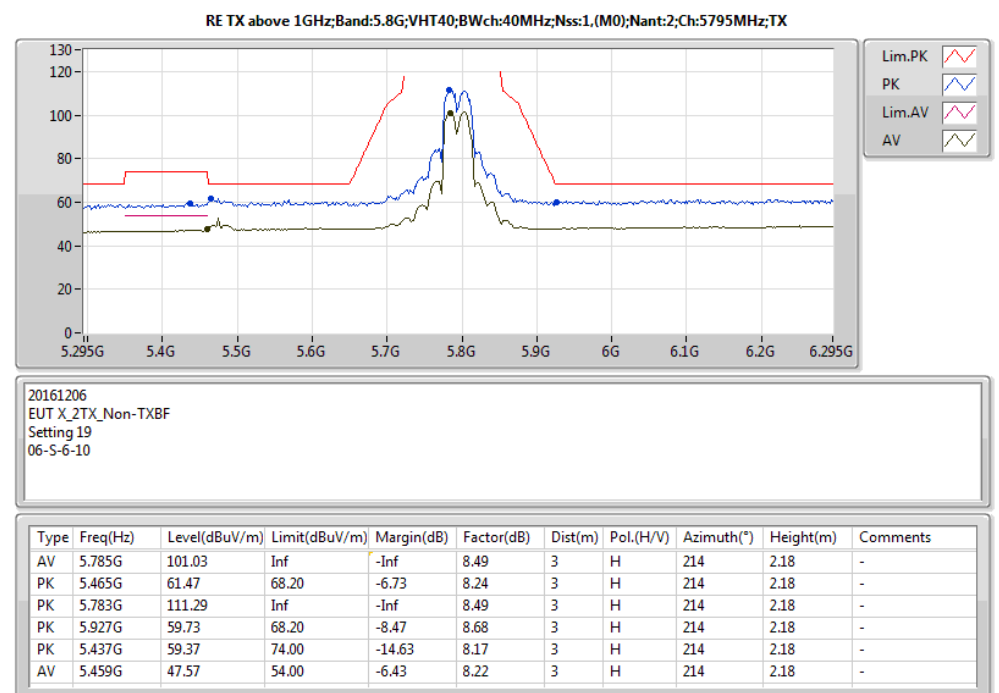
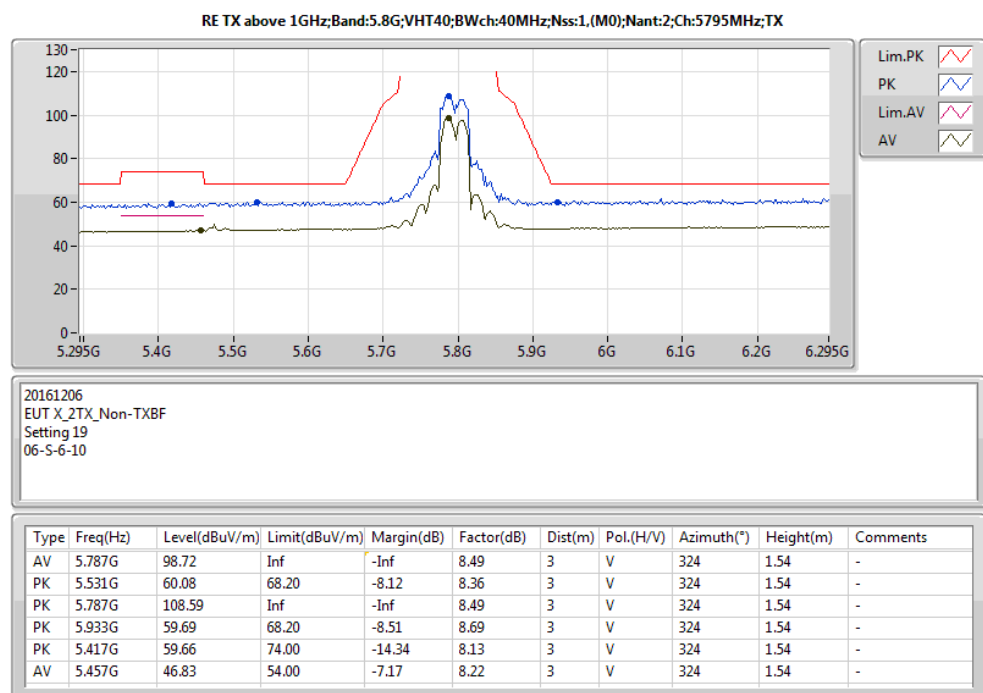
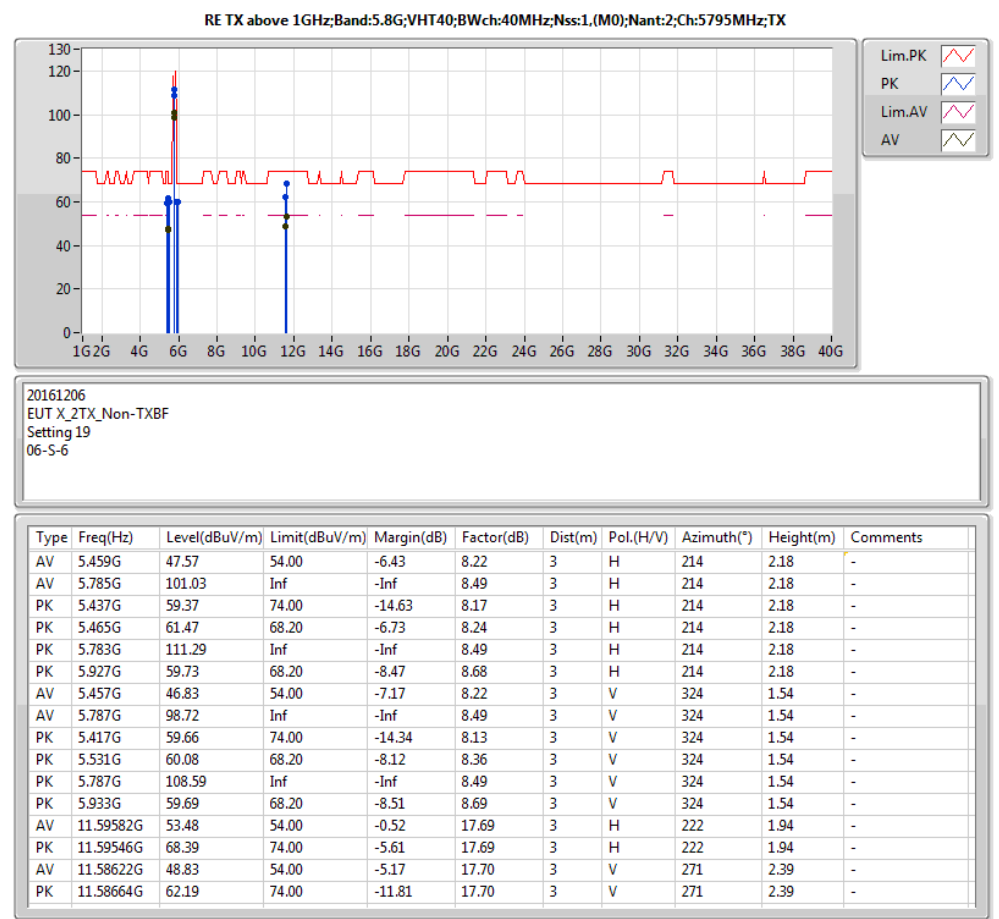
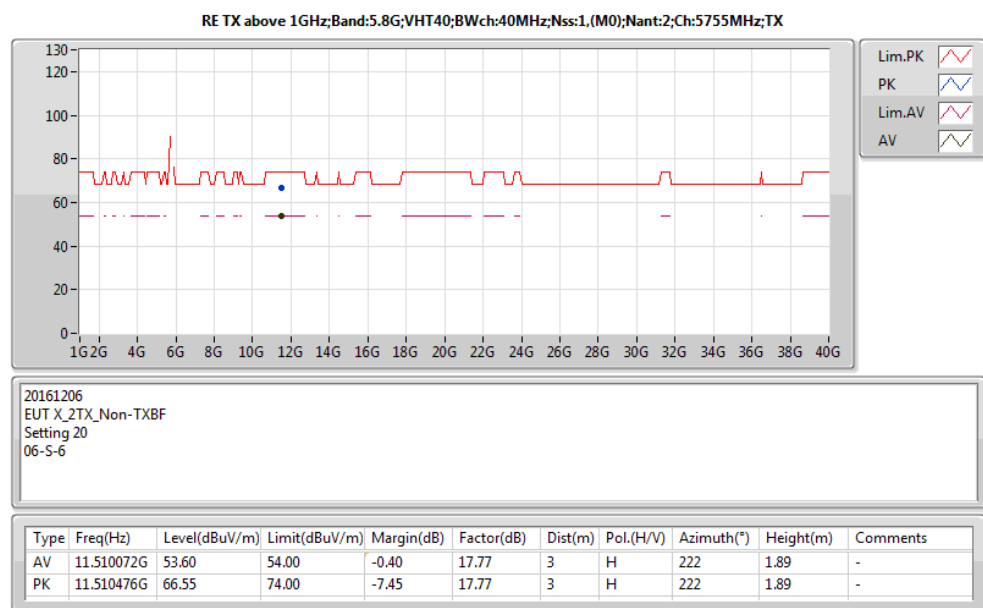
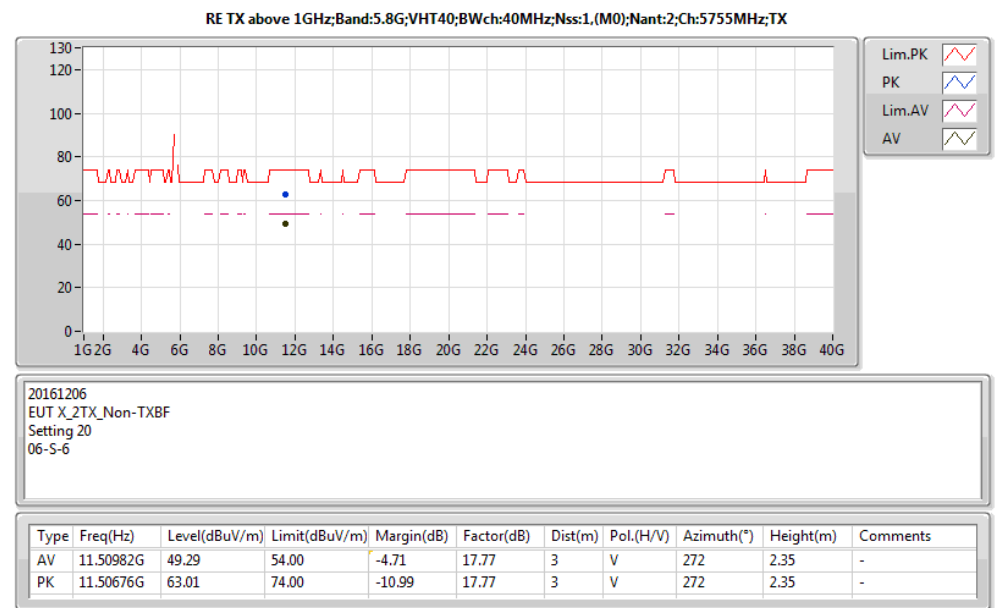
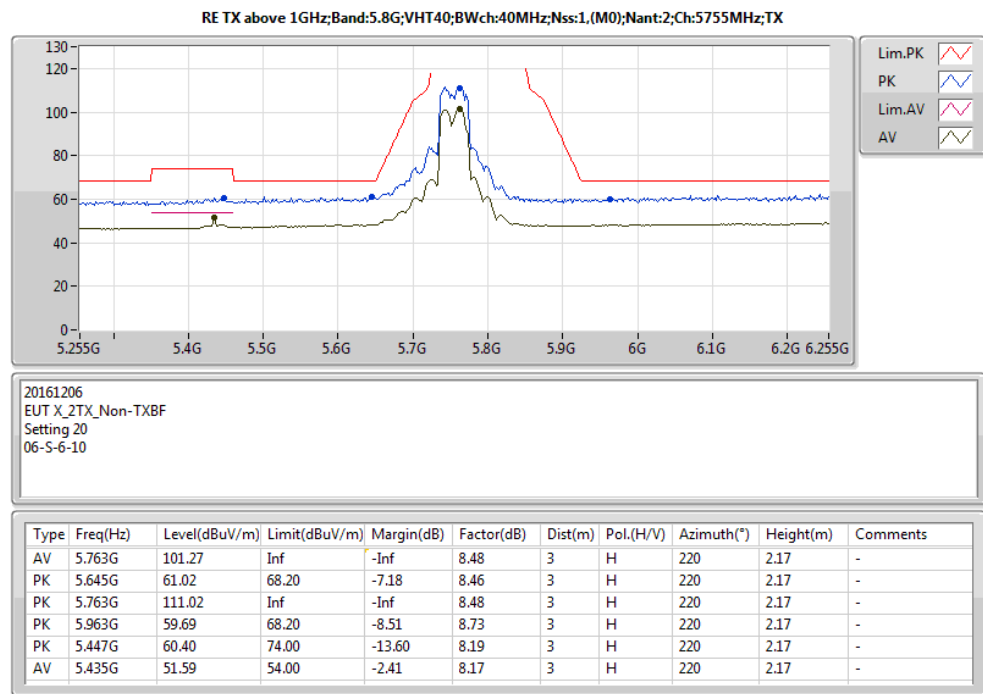


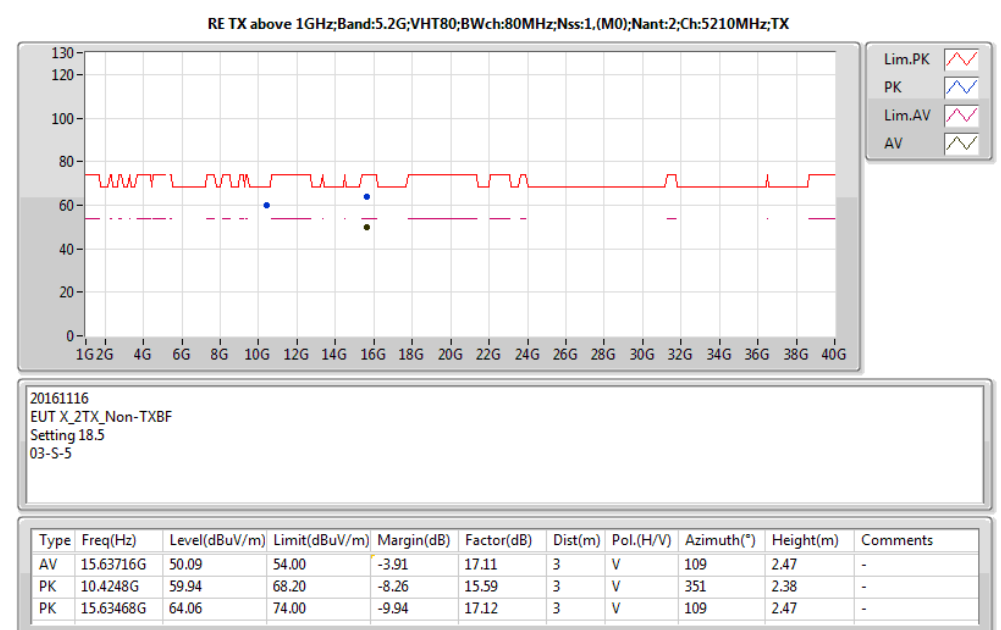
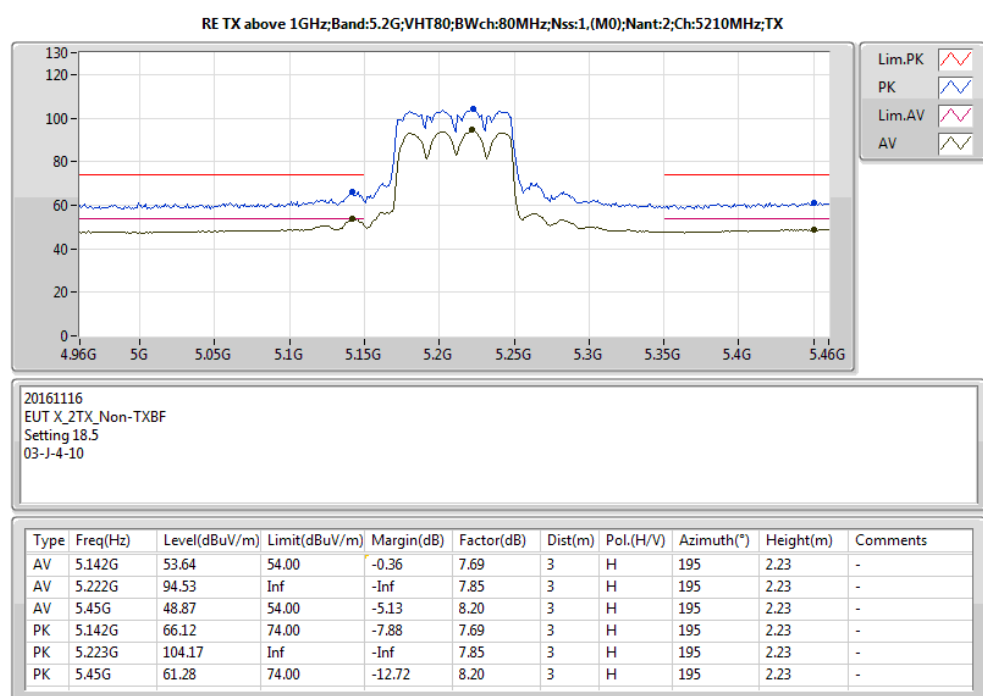
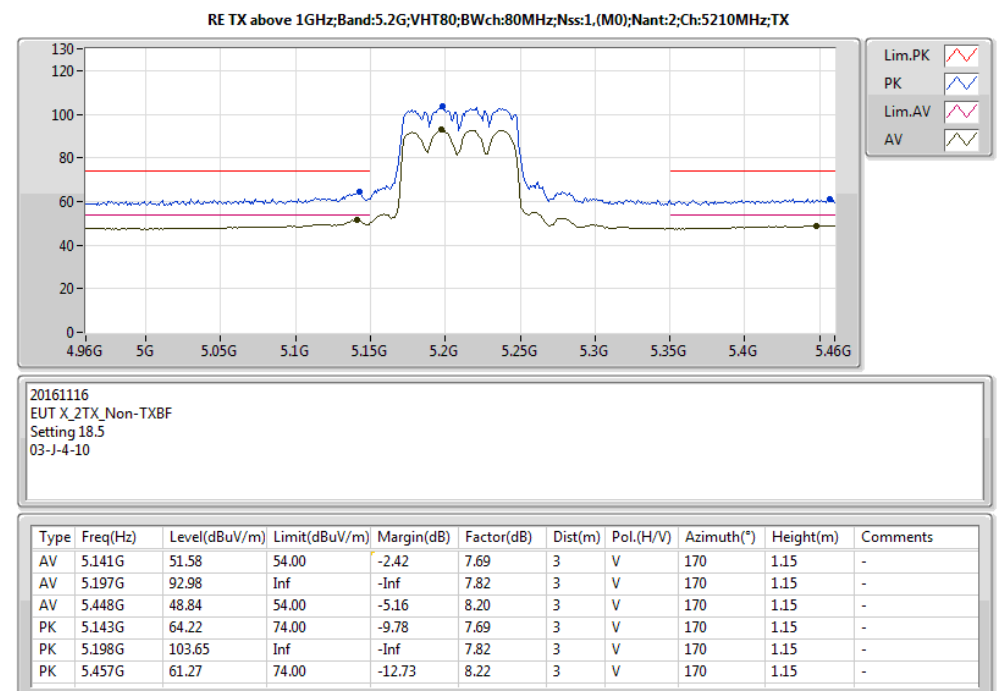
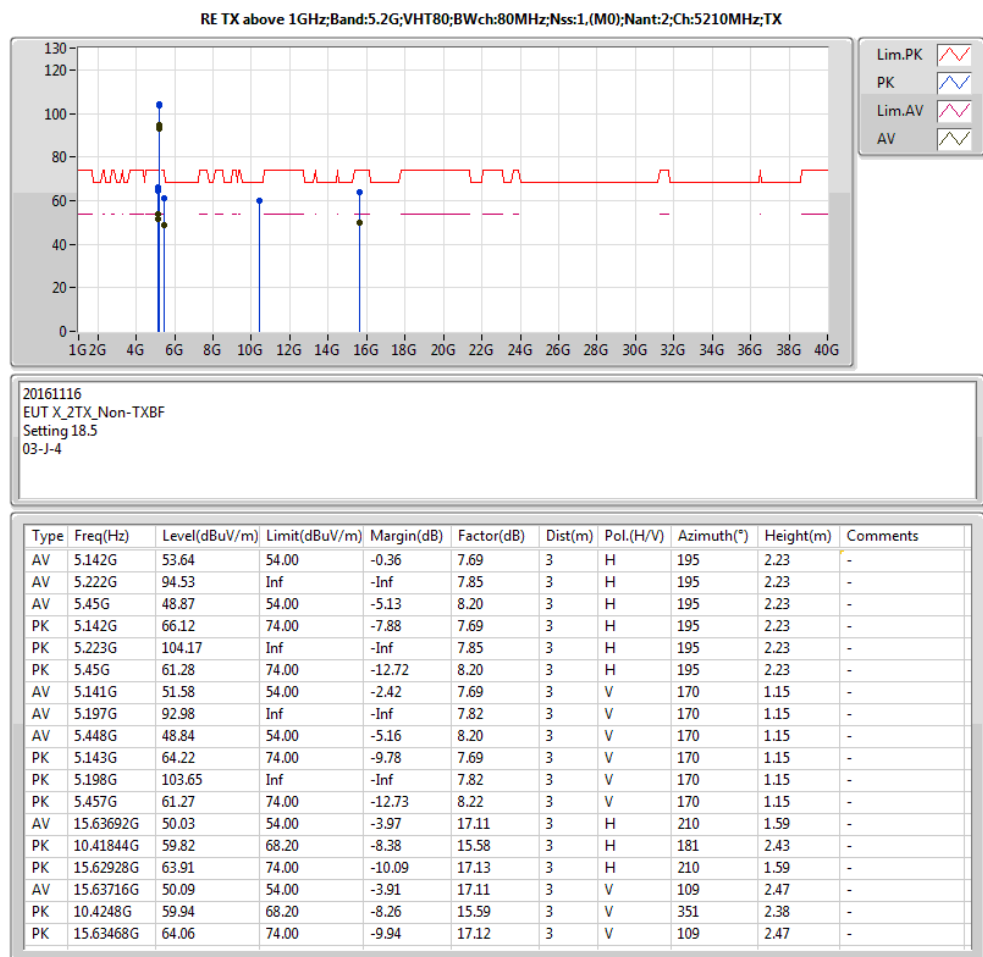
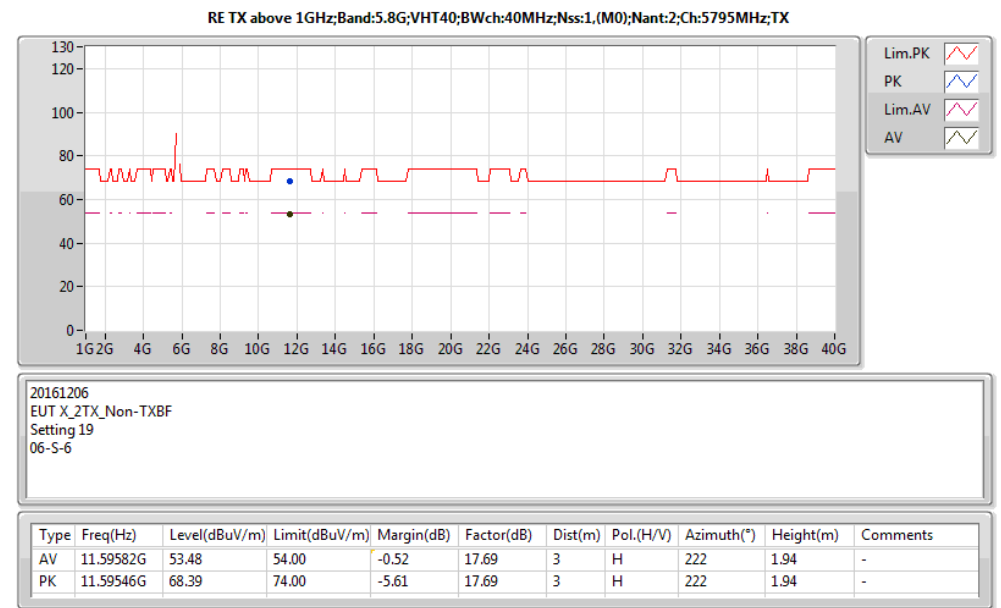
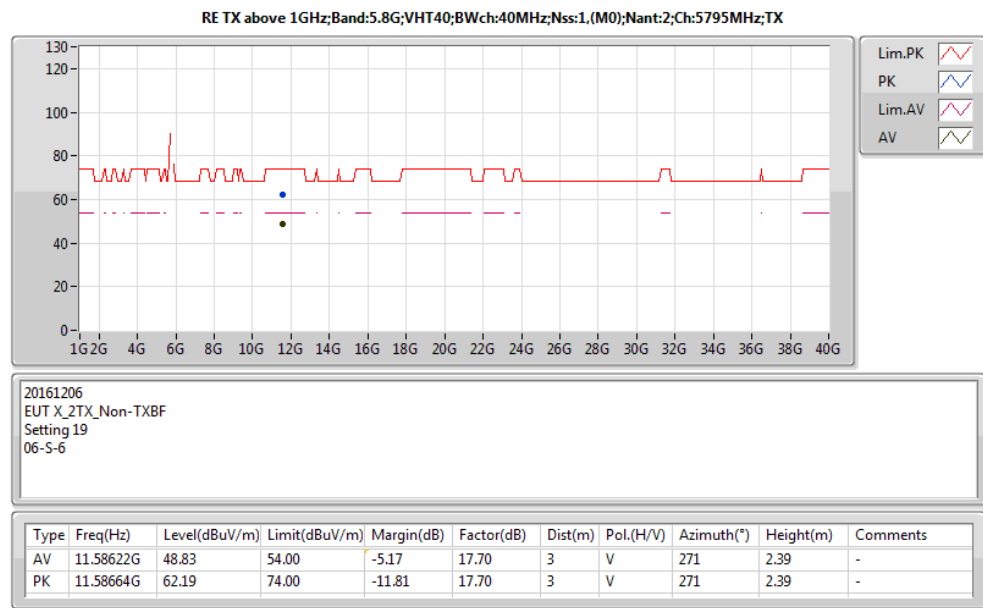


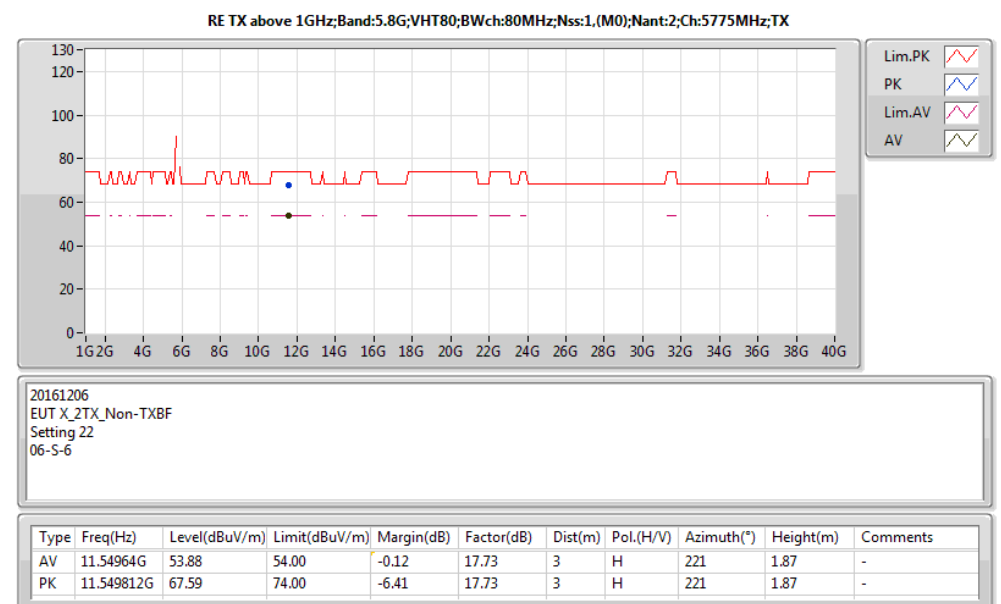
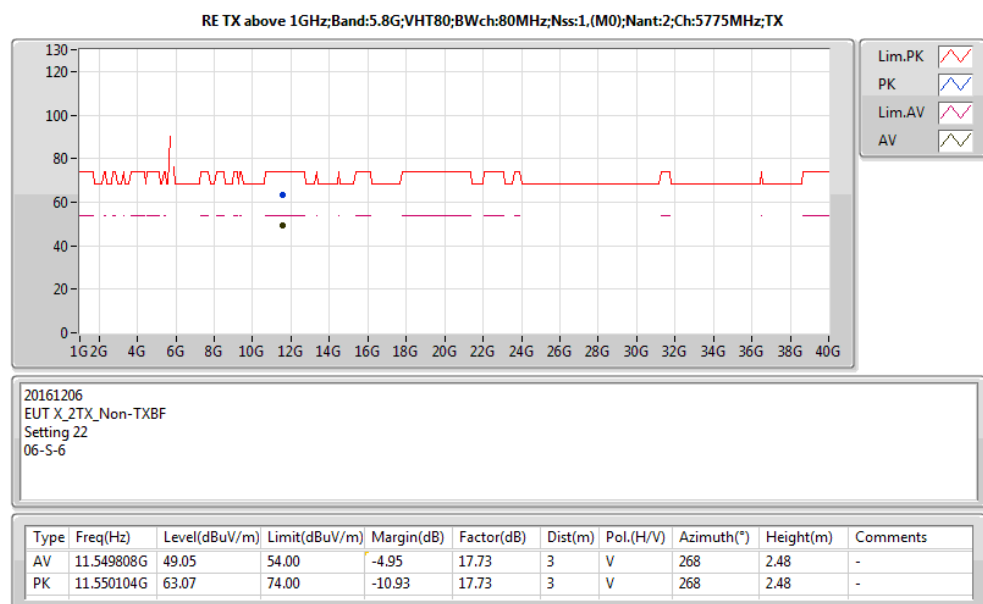
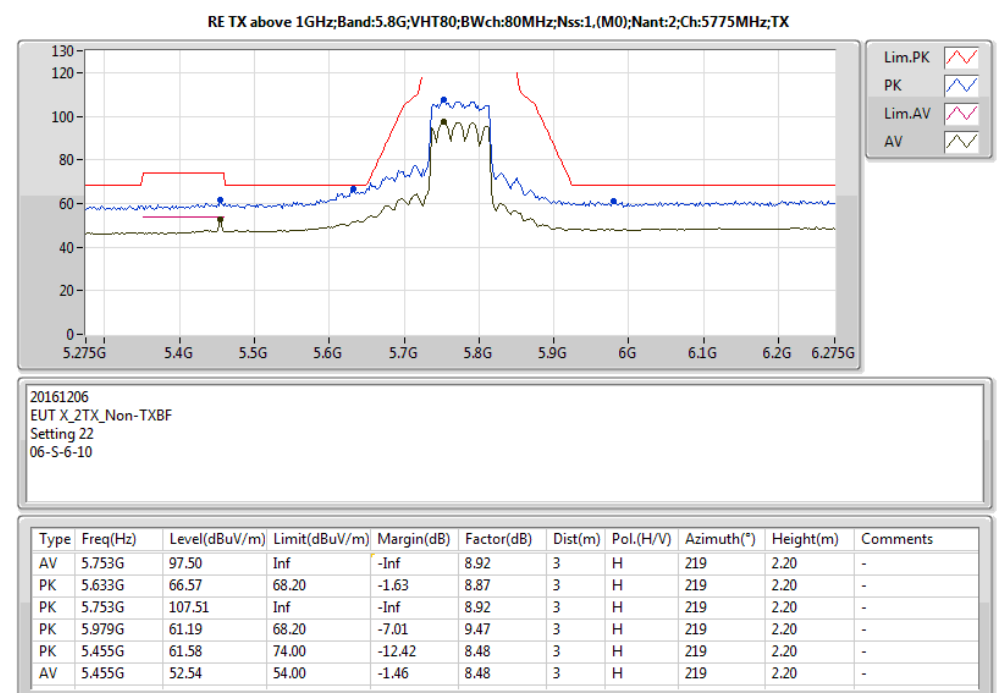
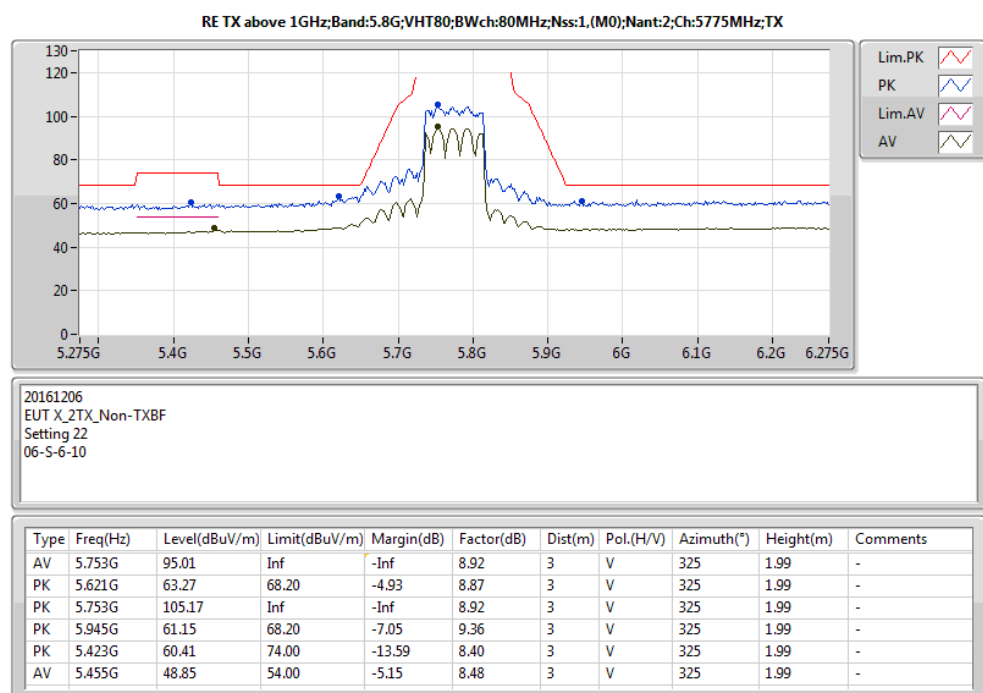
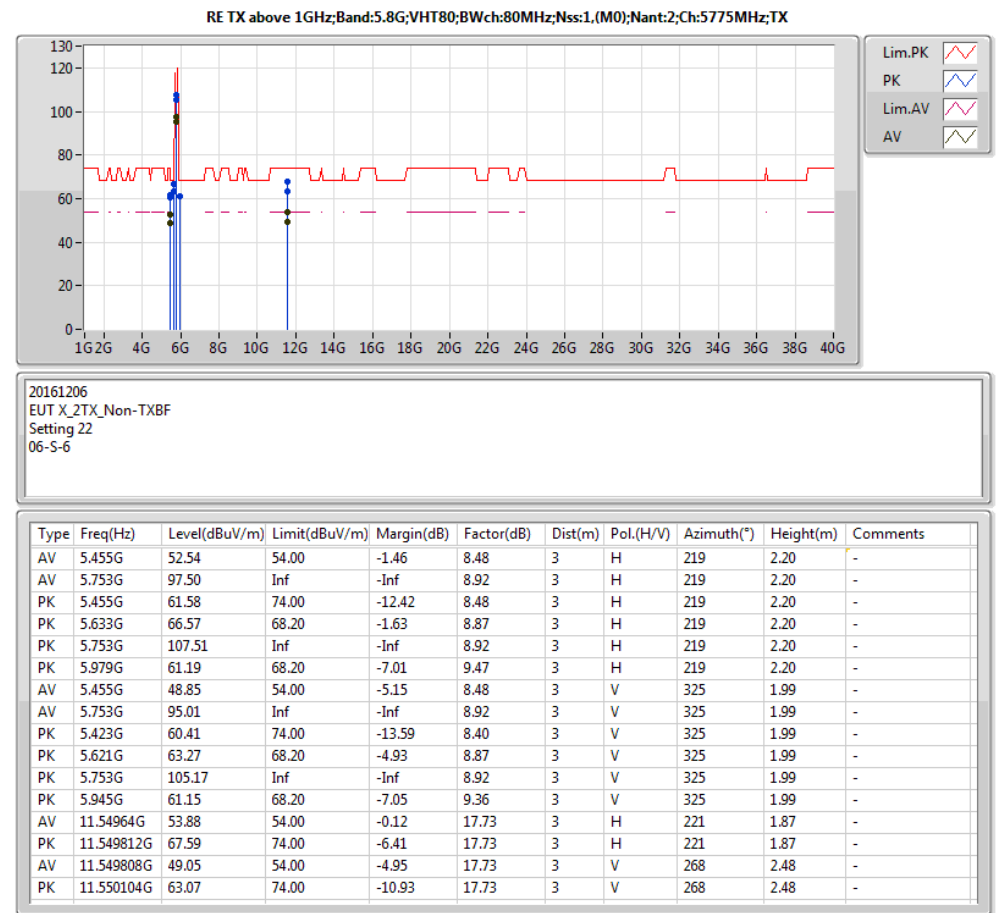
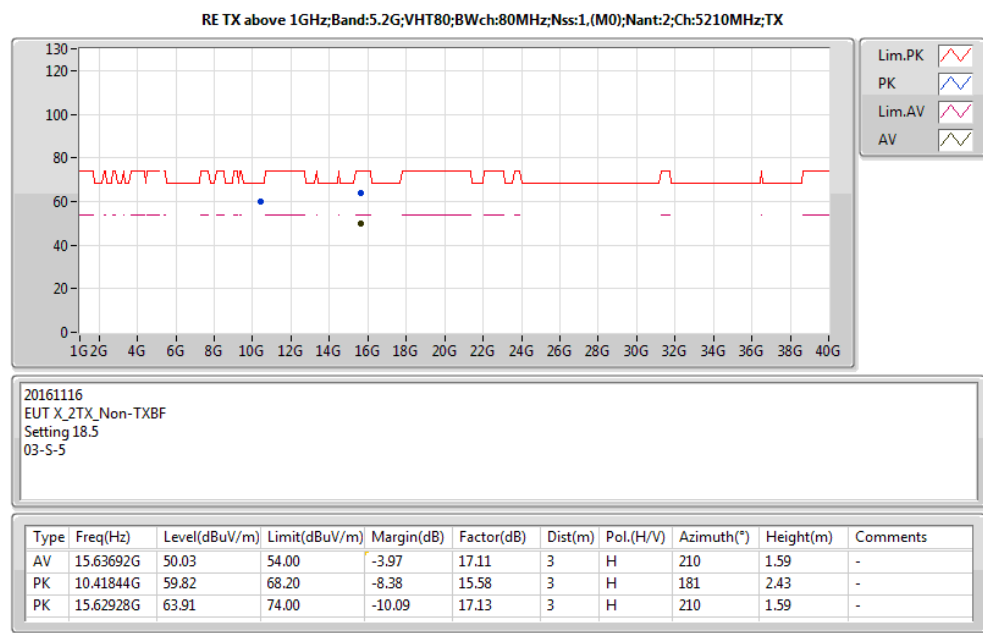


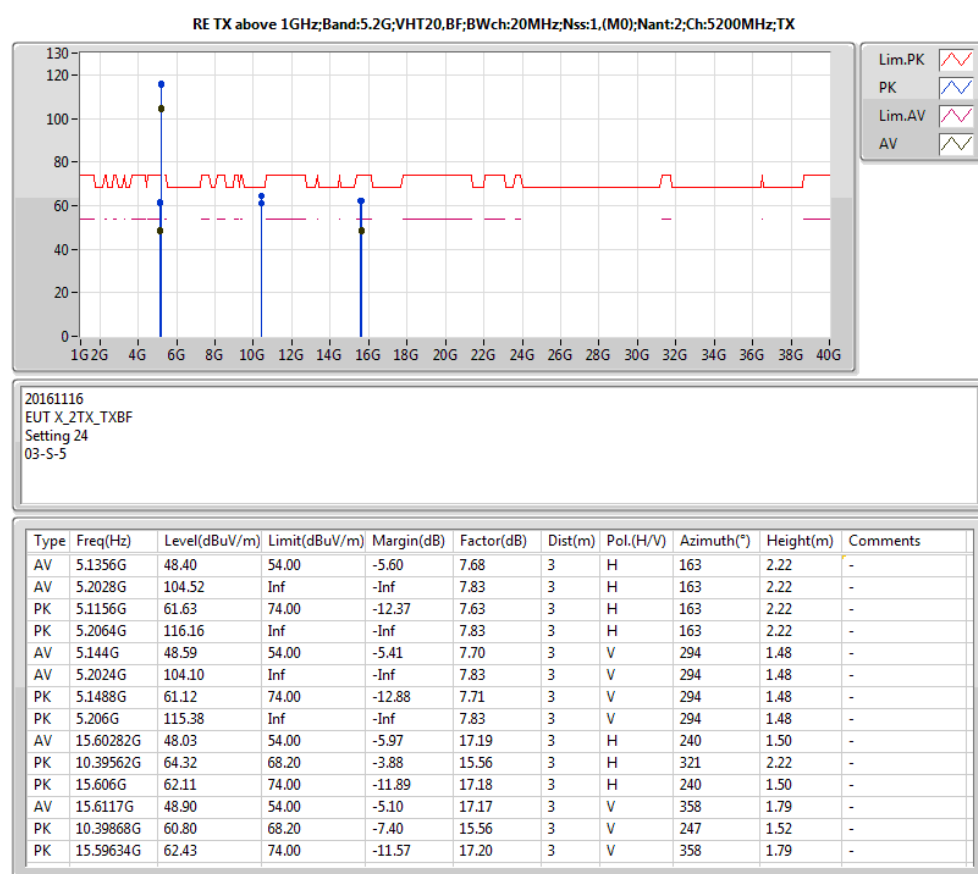
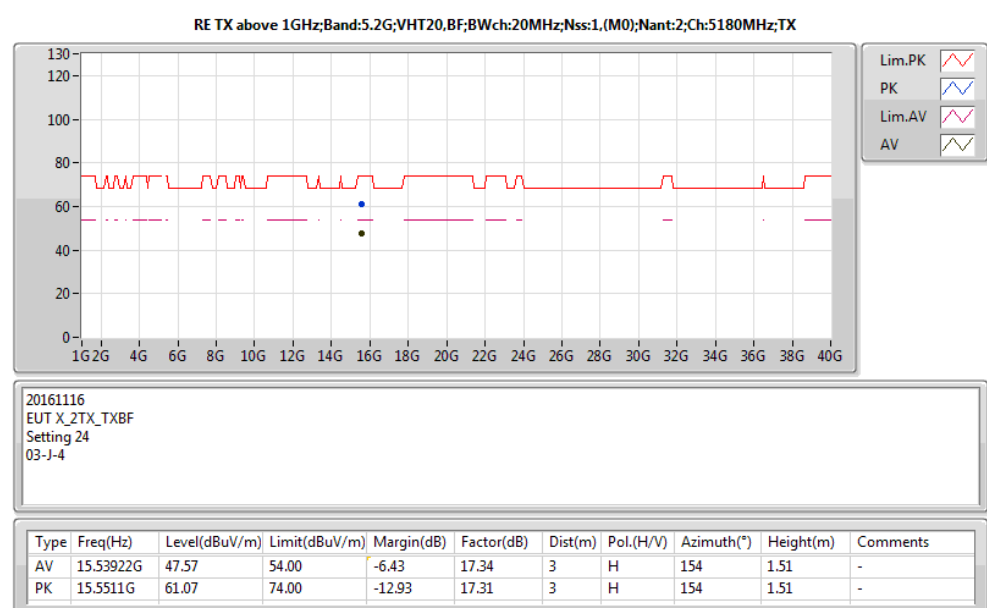
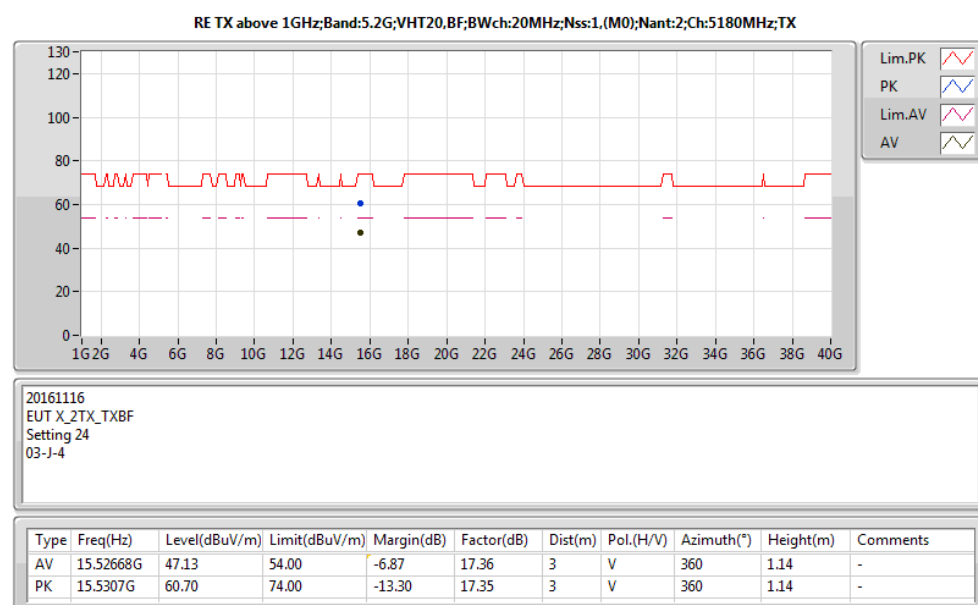
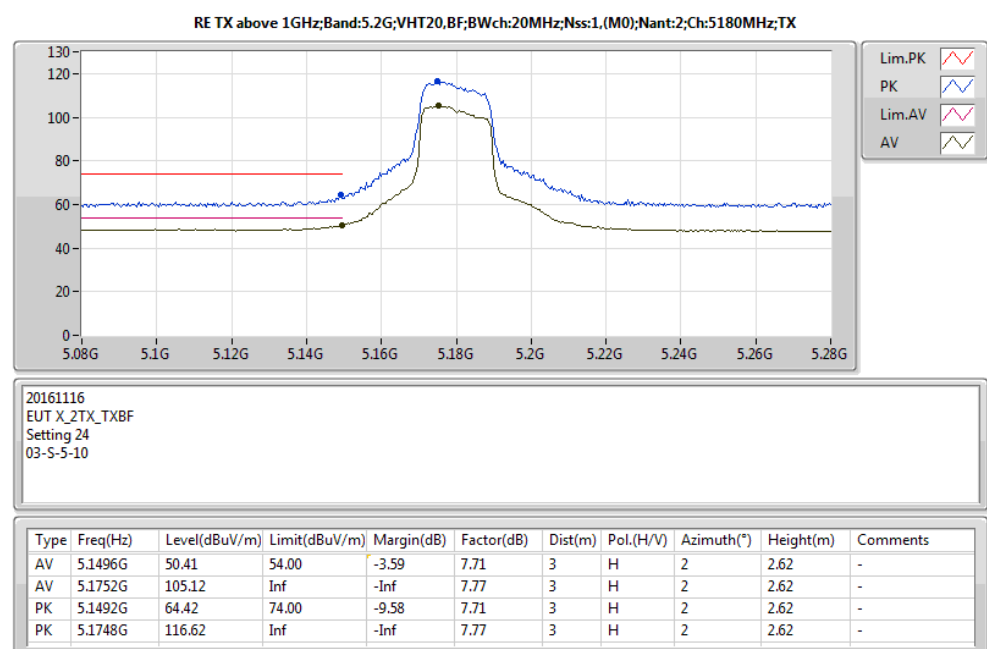
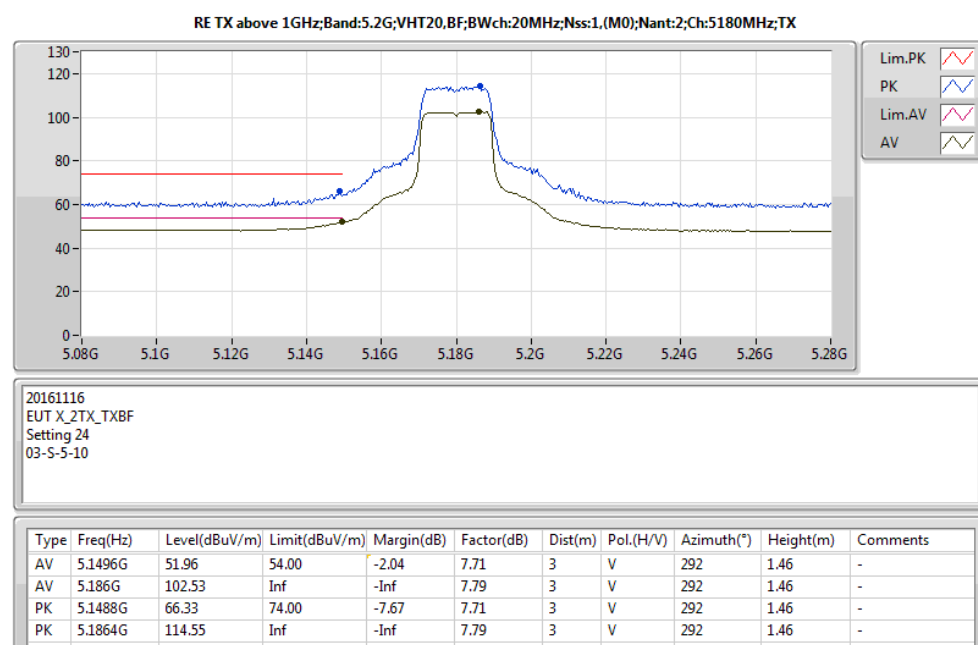
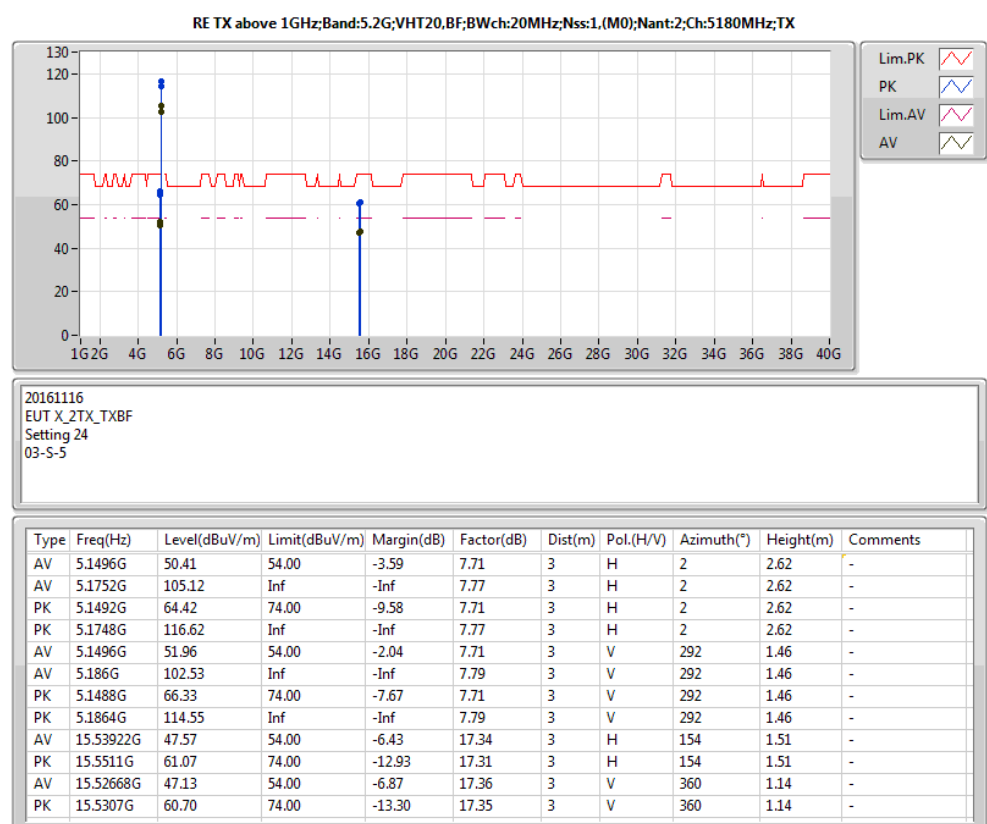


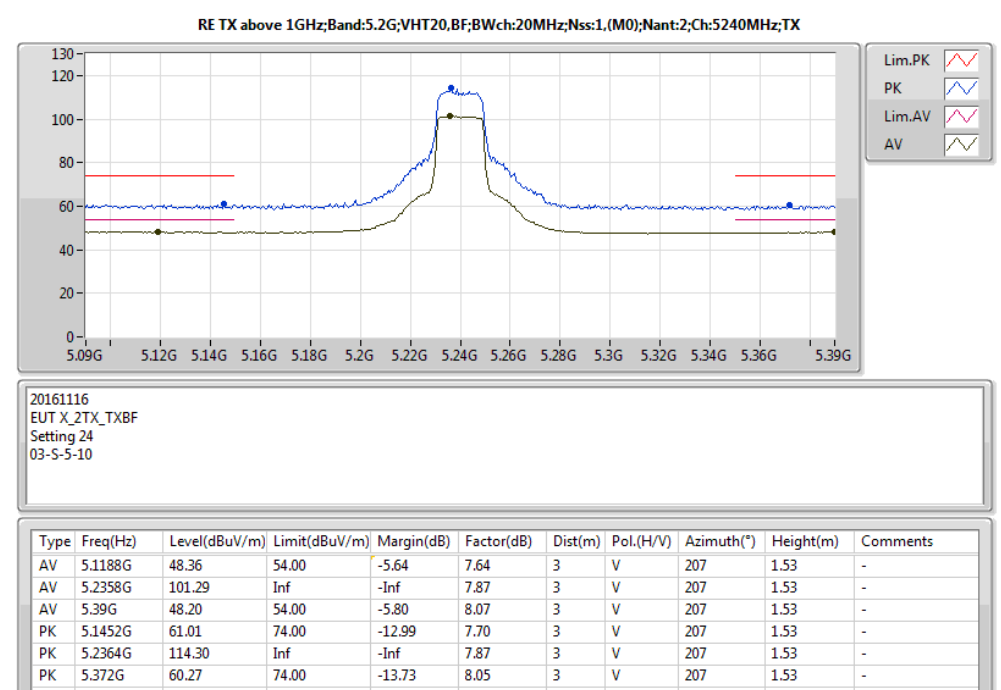
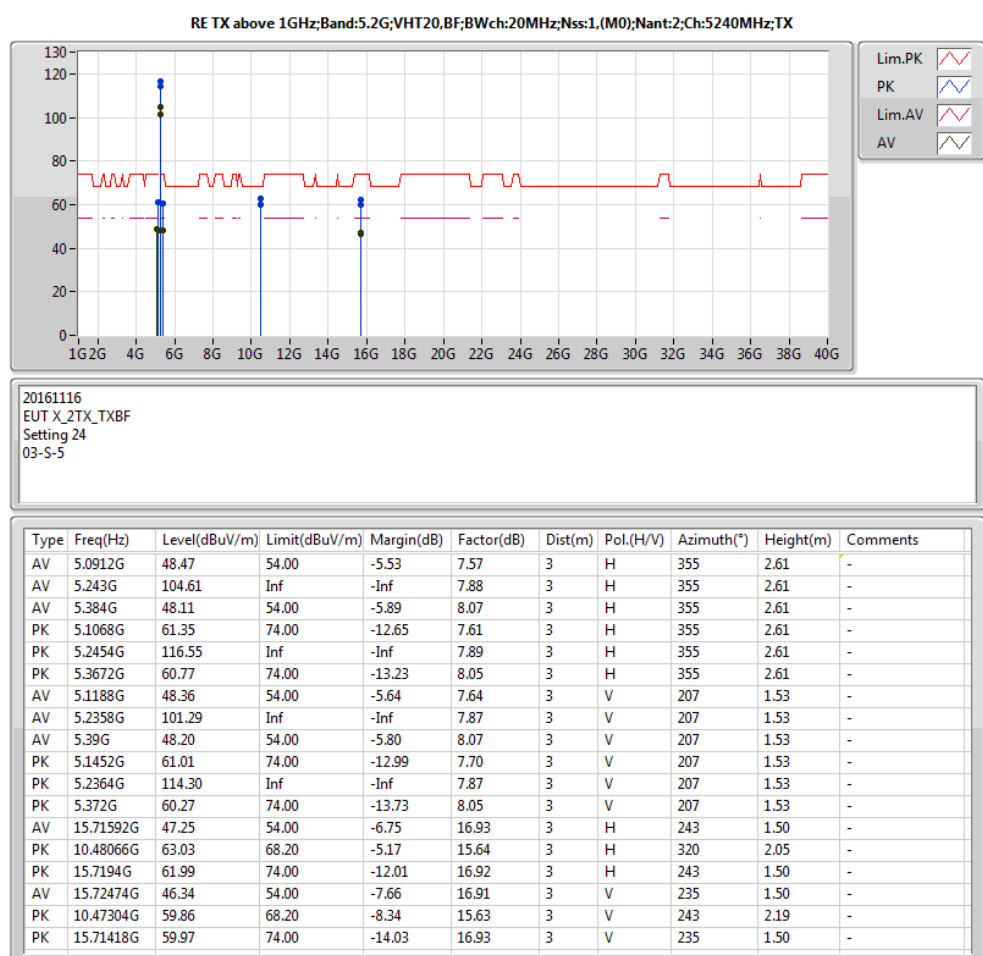
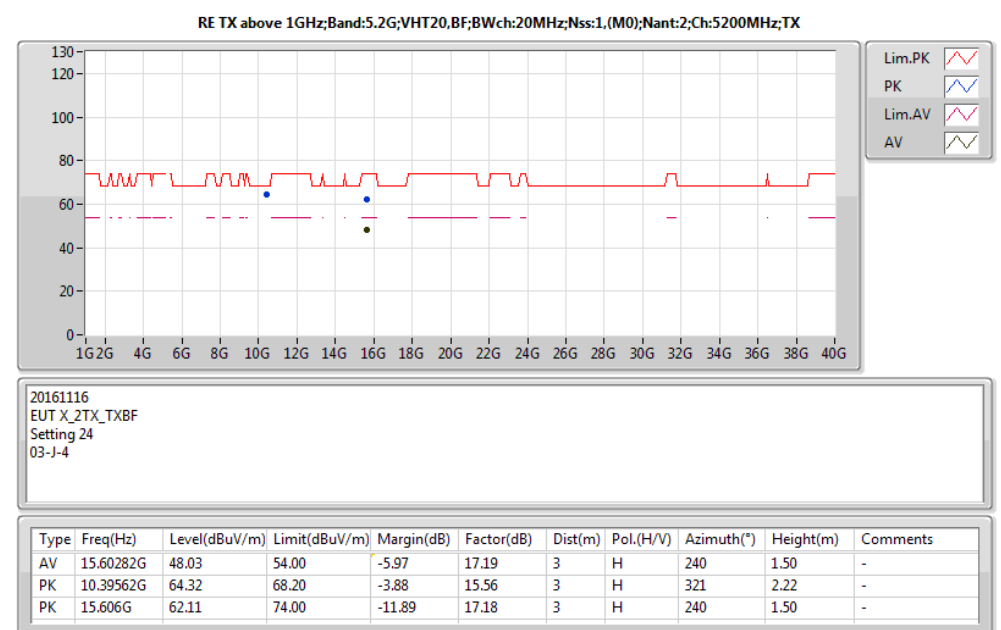
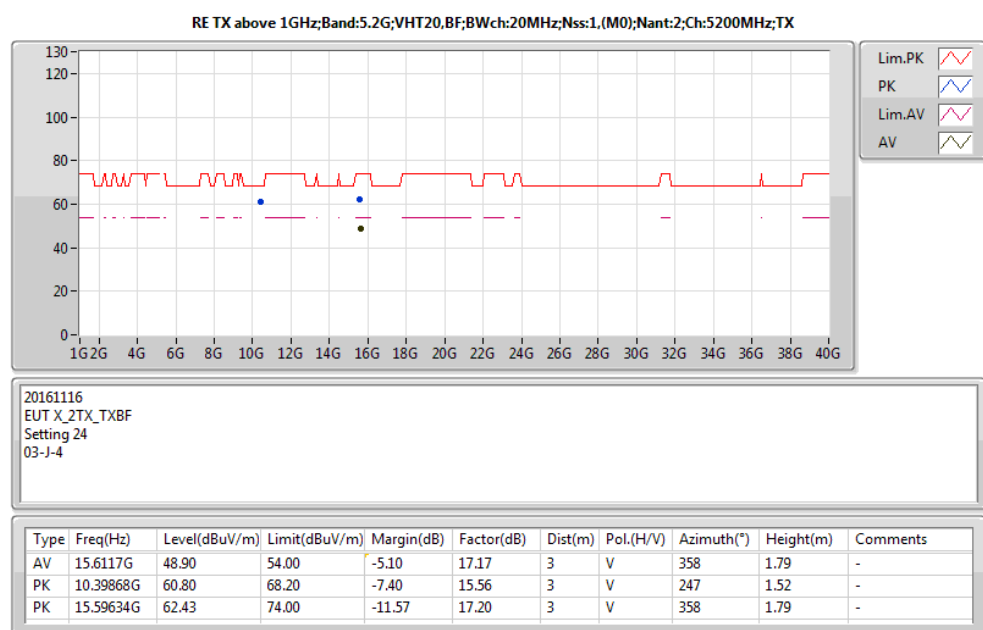
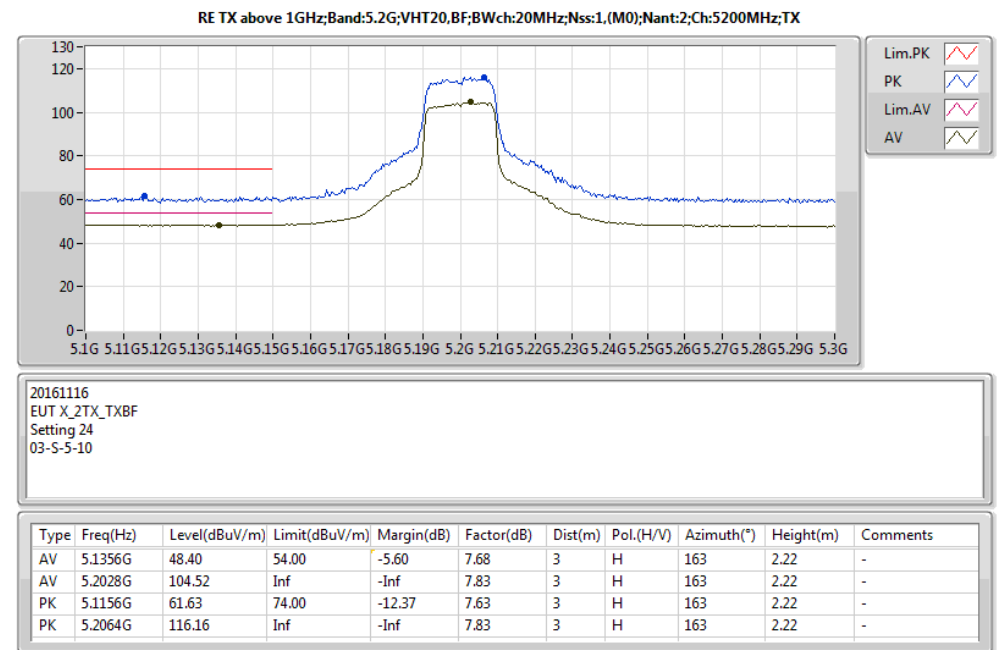
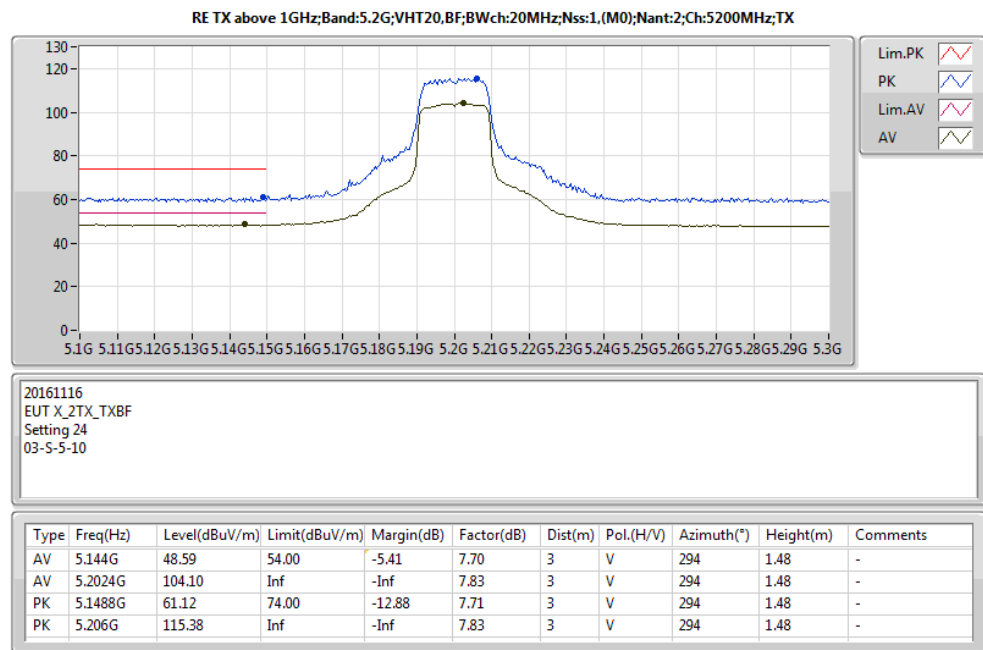


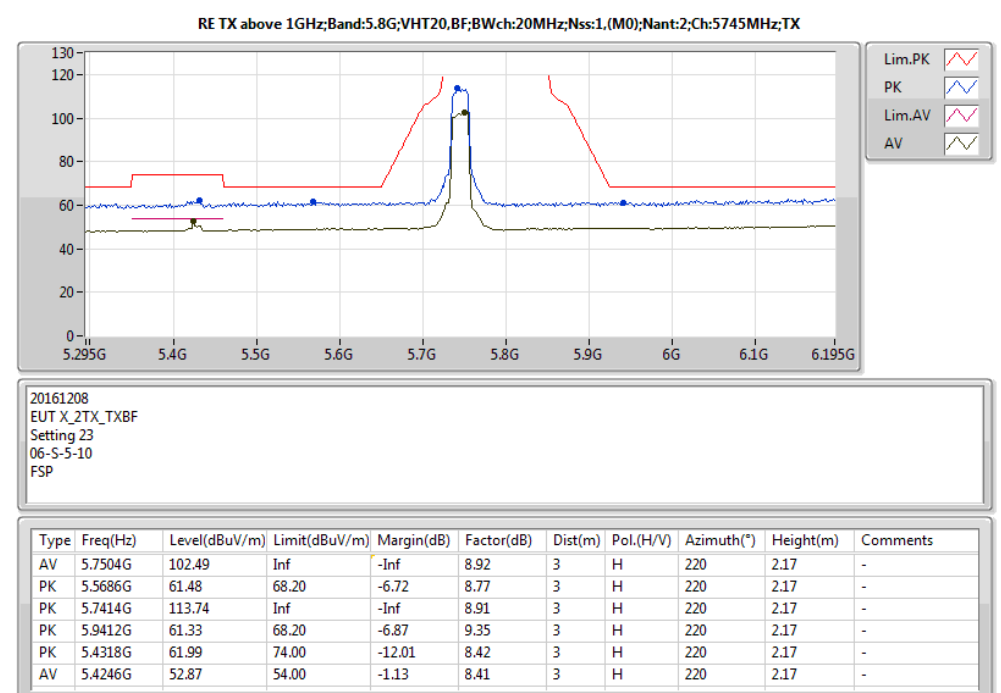
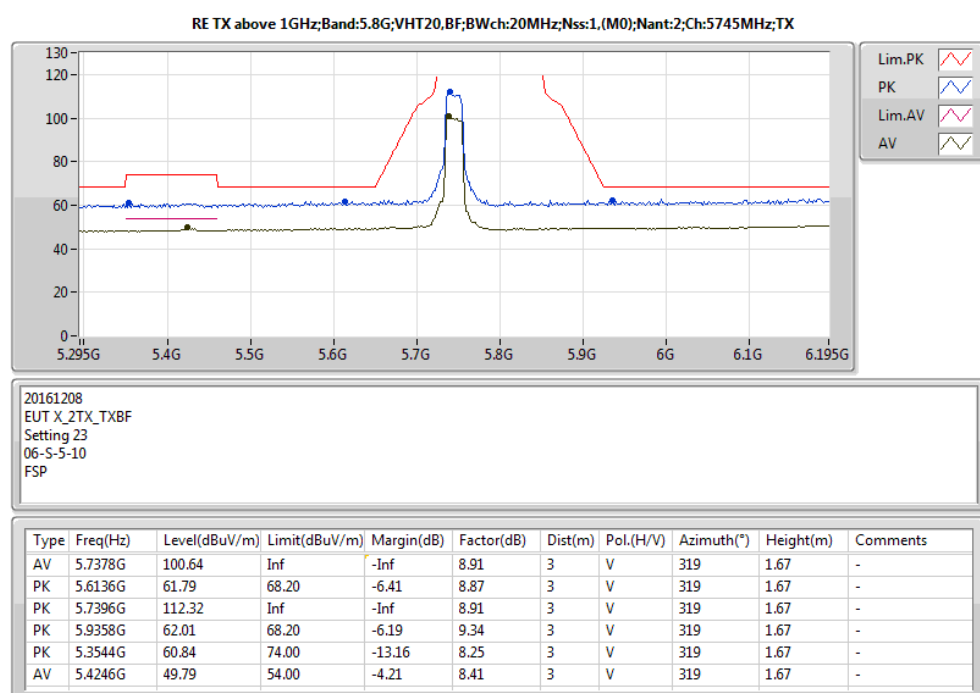
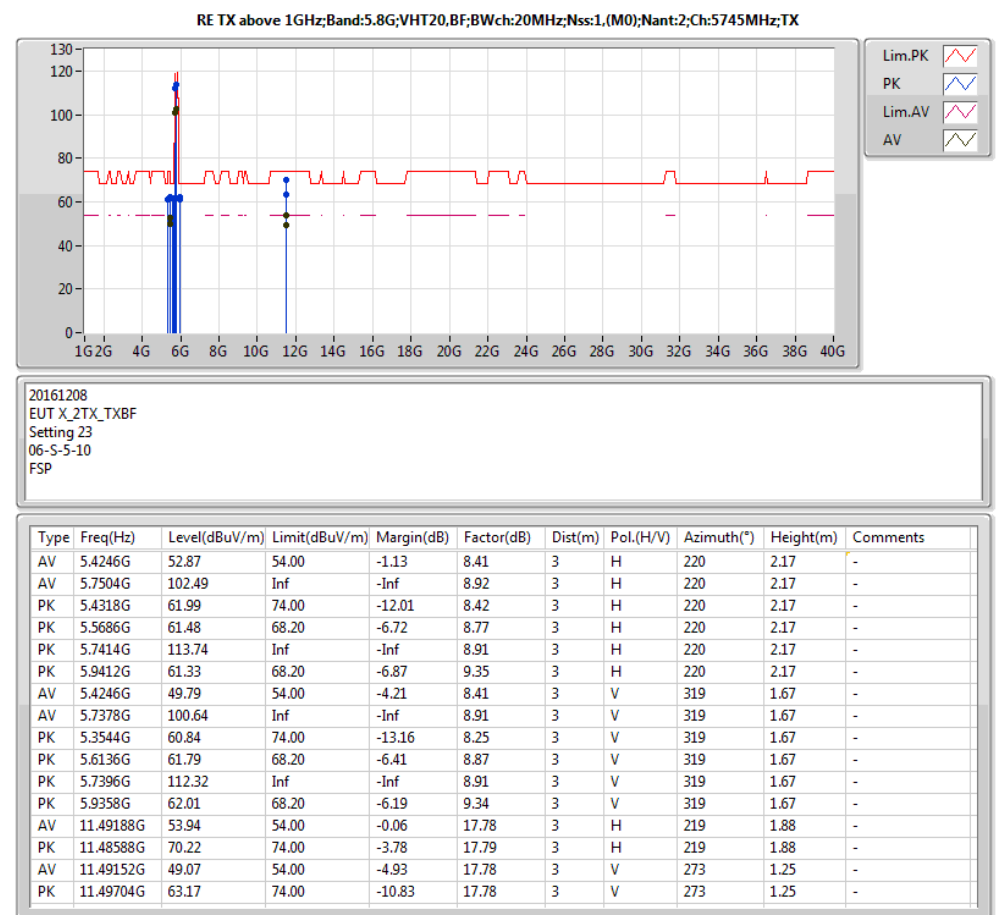
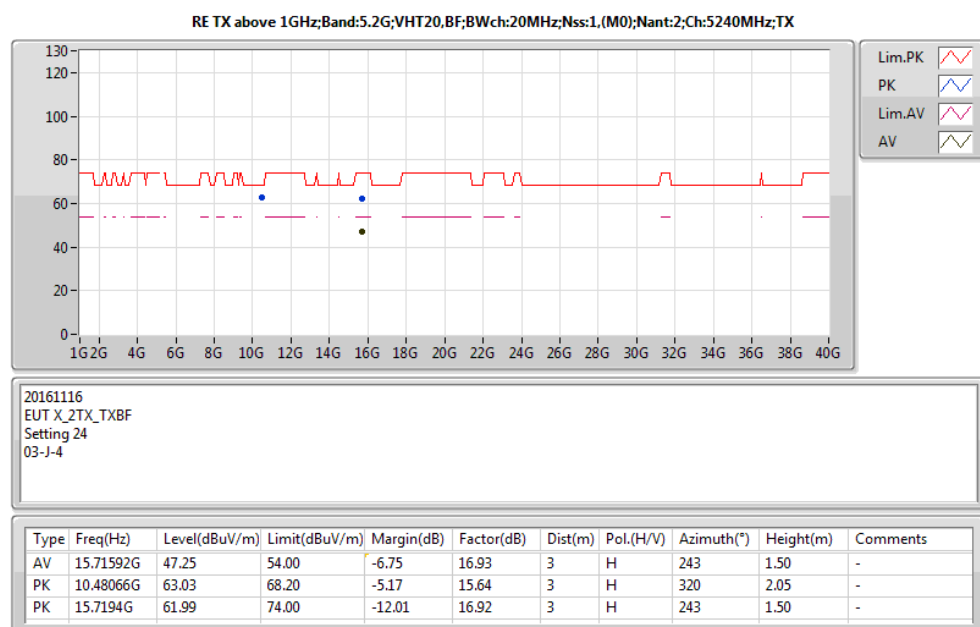
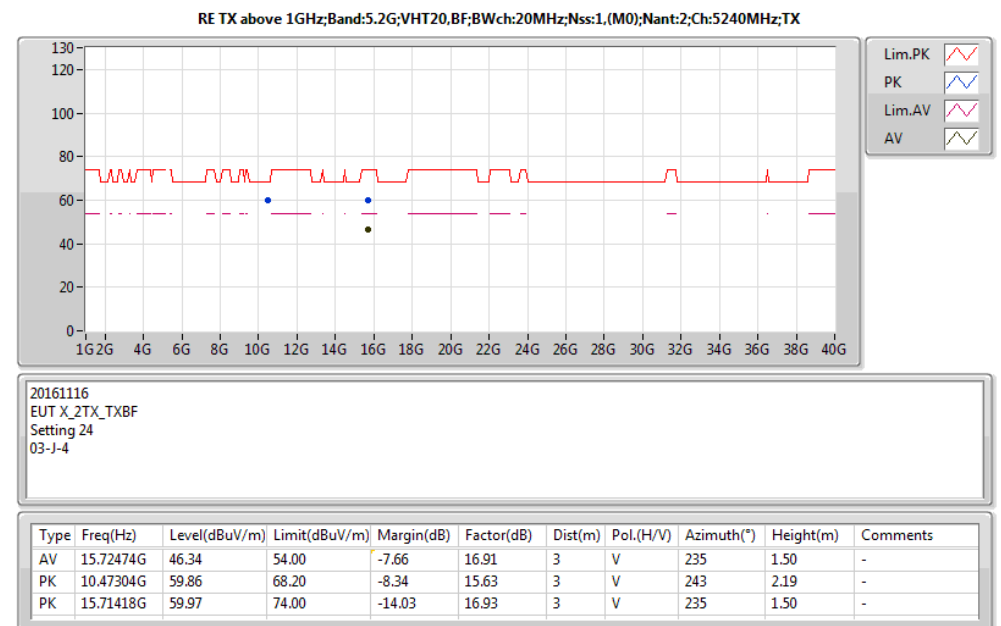
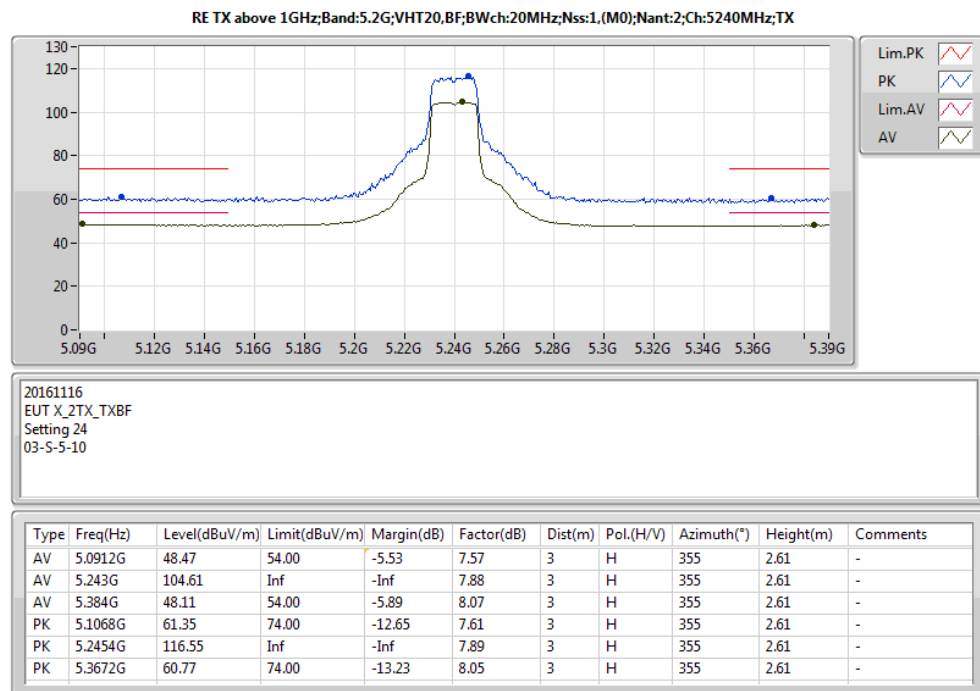




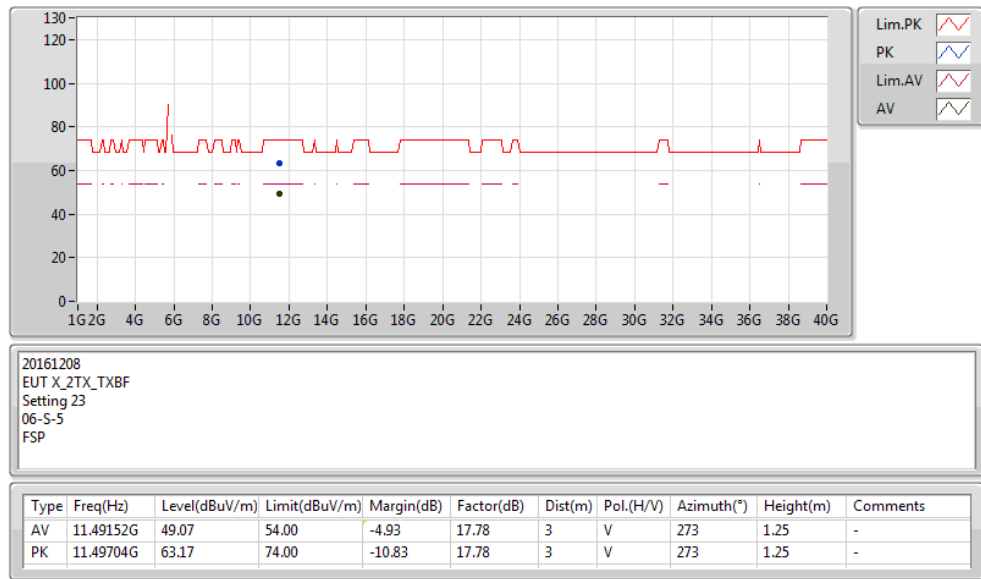




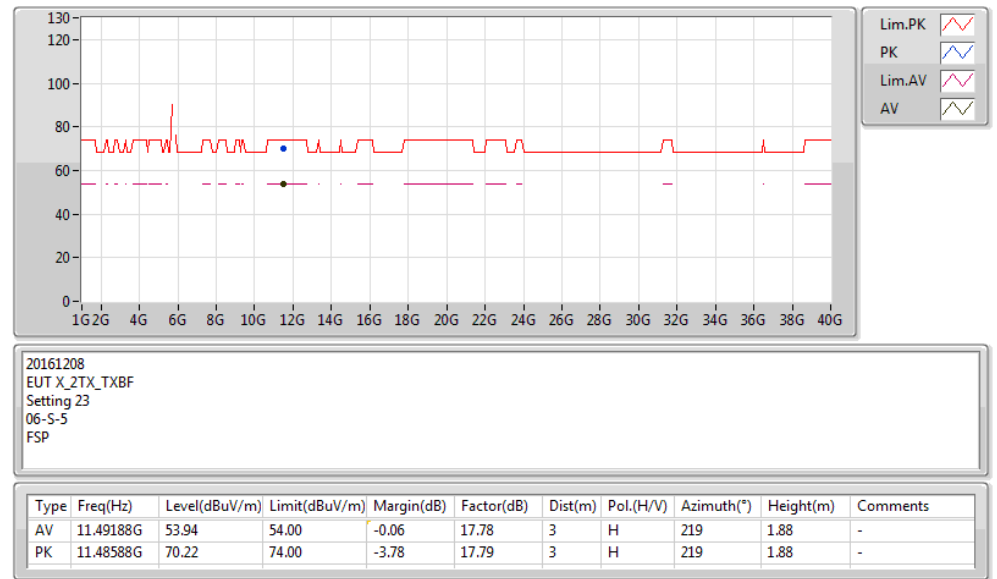




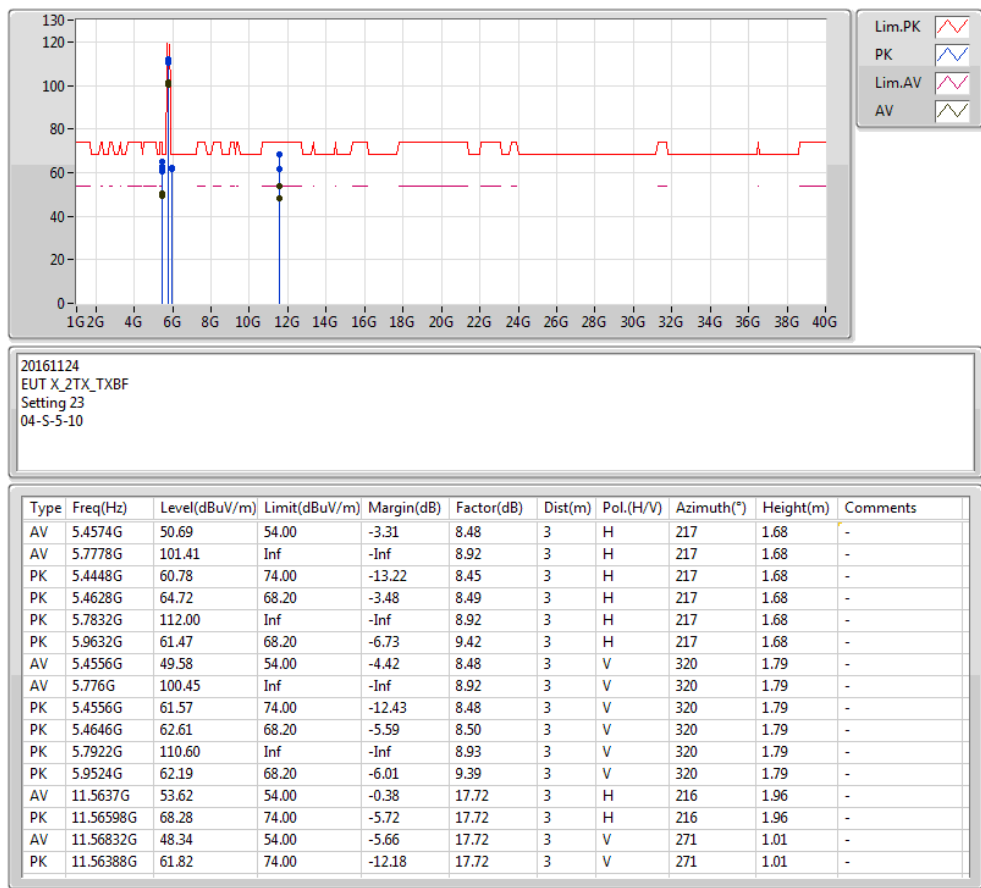
RE TX above 1GHz;Band:5.8G;VHT20,BF;BWch:20MHz;Nss:1,(M0);Nant:2;Ch:5745MHz;TX



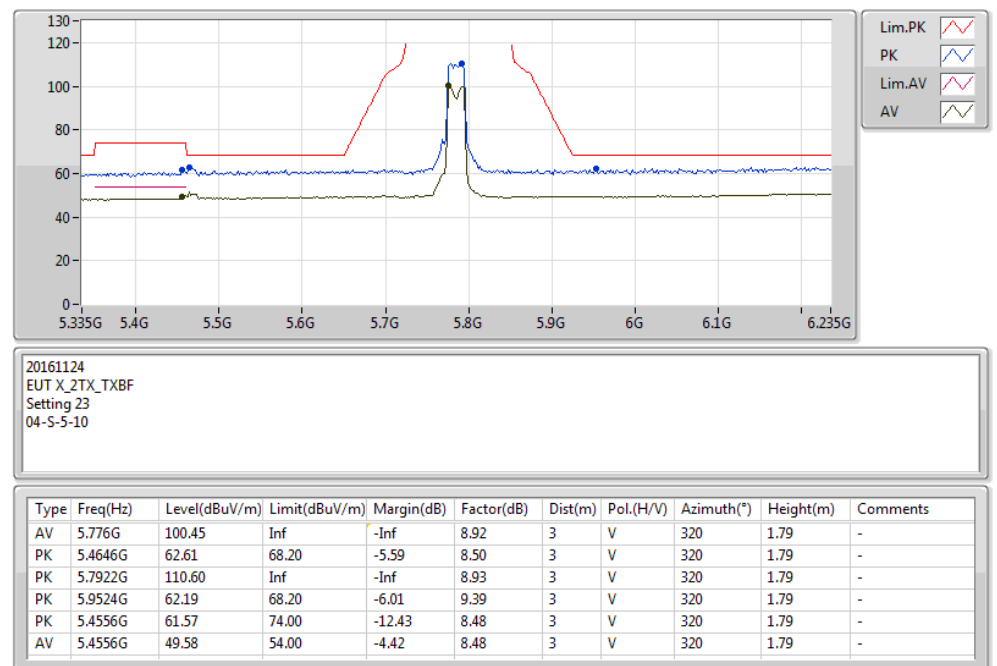
RE TX above 1GHz;Band:5.8G;VHT20,BF;BWch:20MHz;Nss:1,(M0);Nant:2;Ch:5745MHz;TX



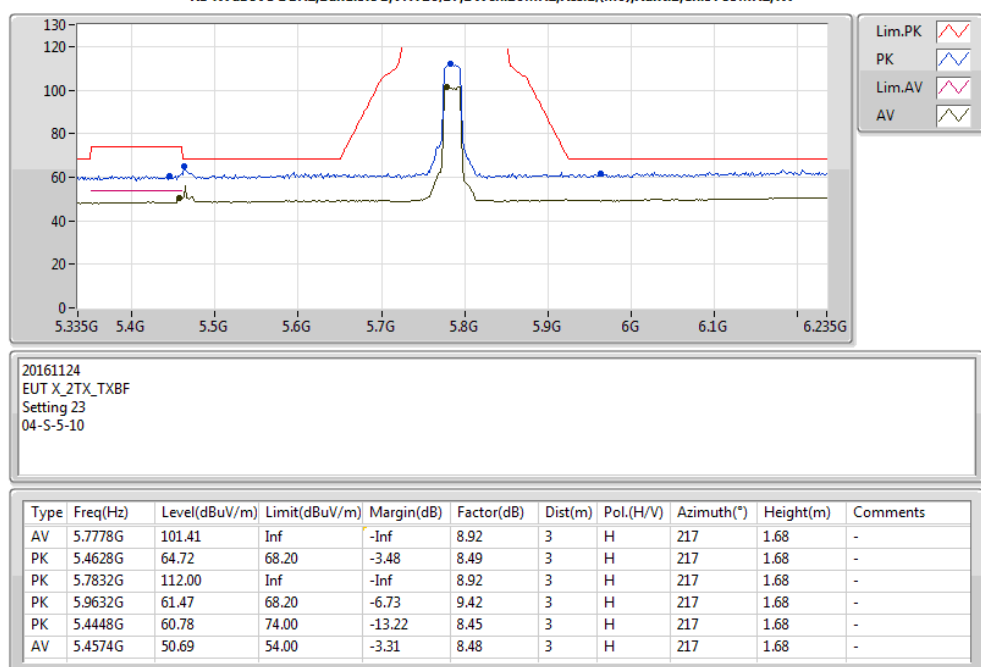
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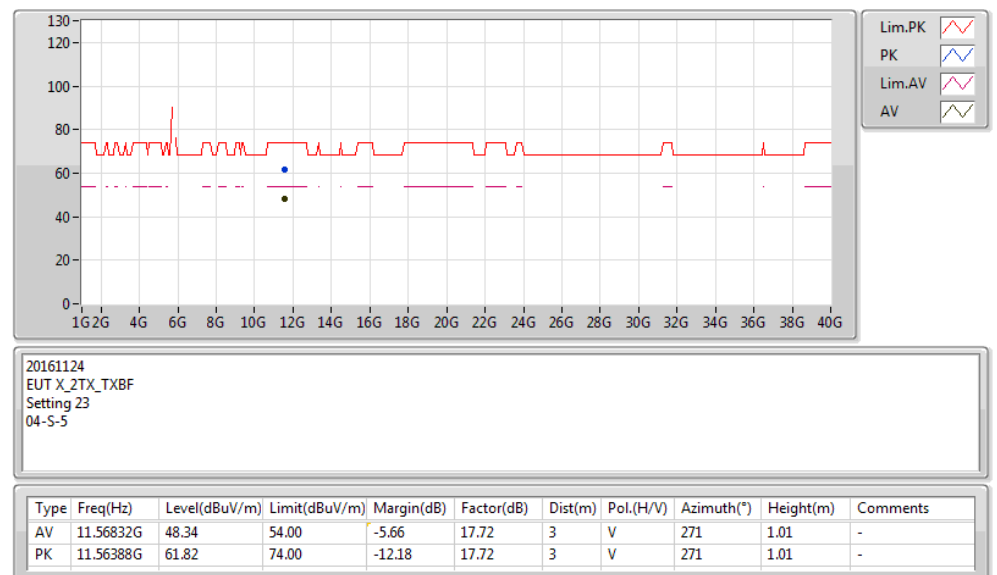
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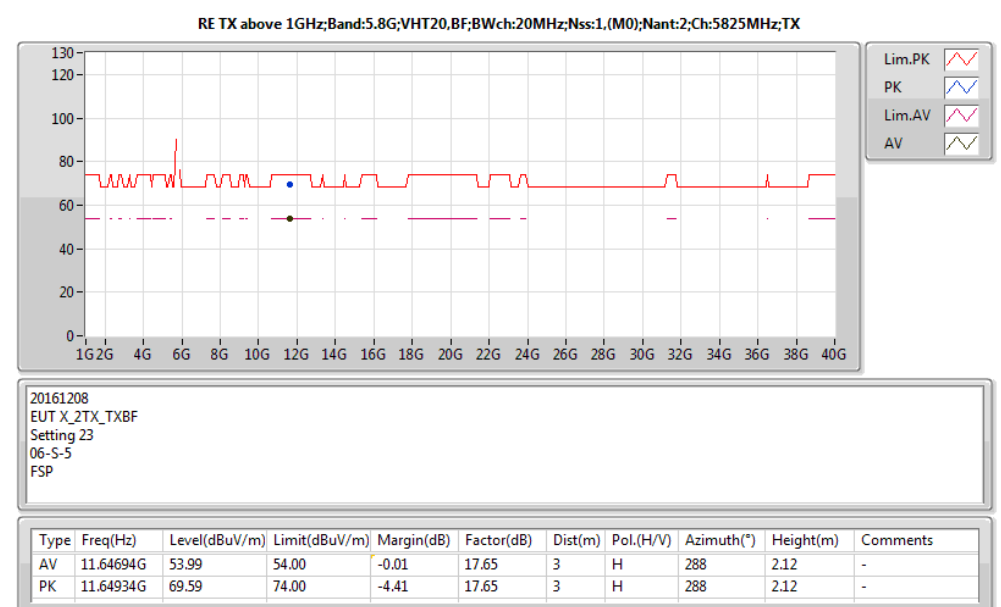
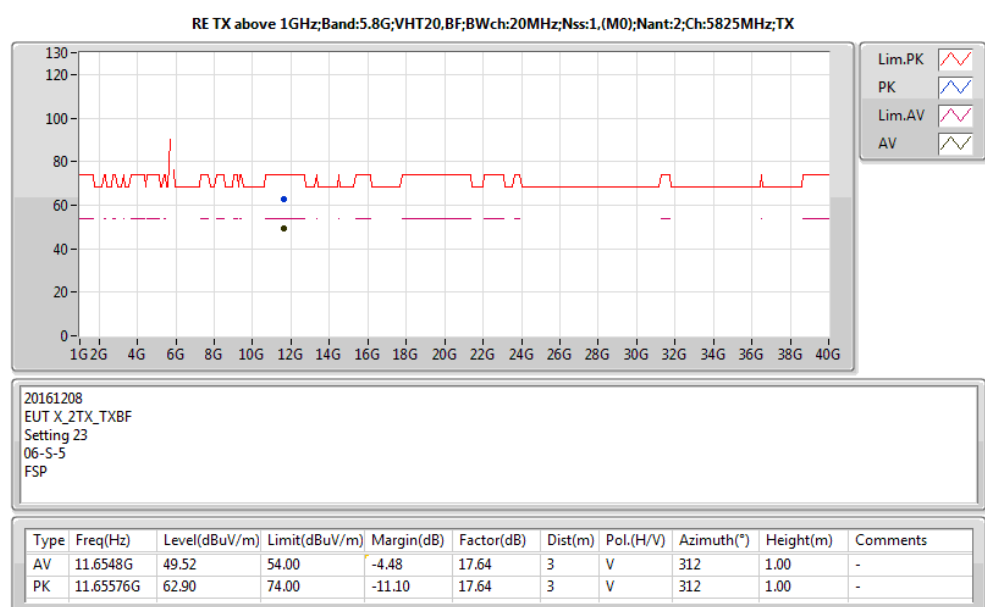
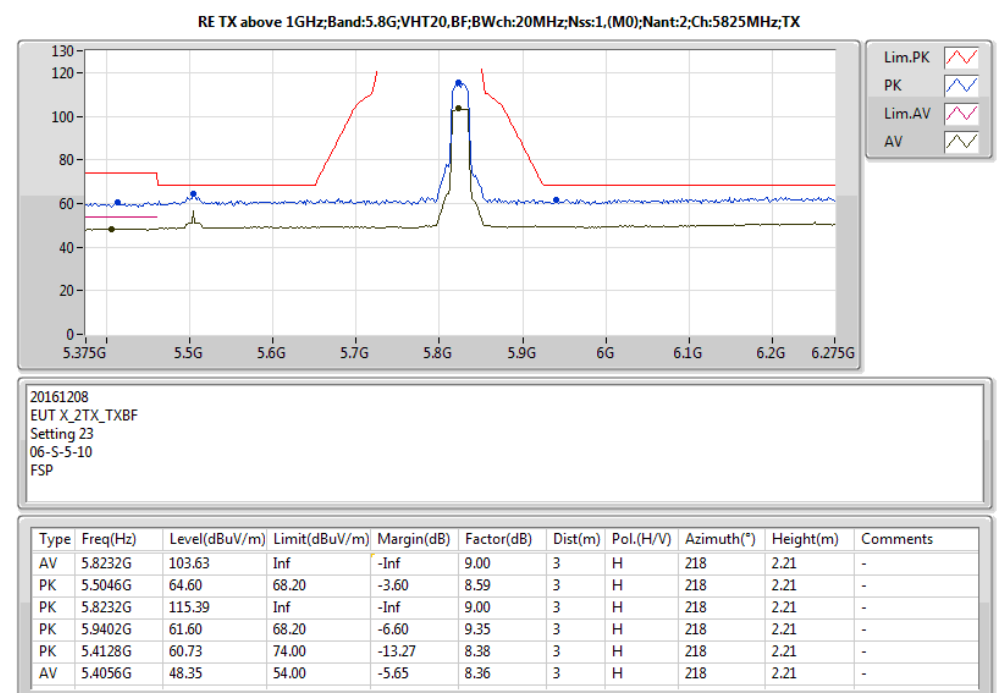
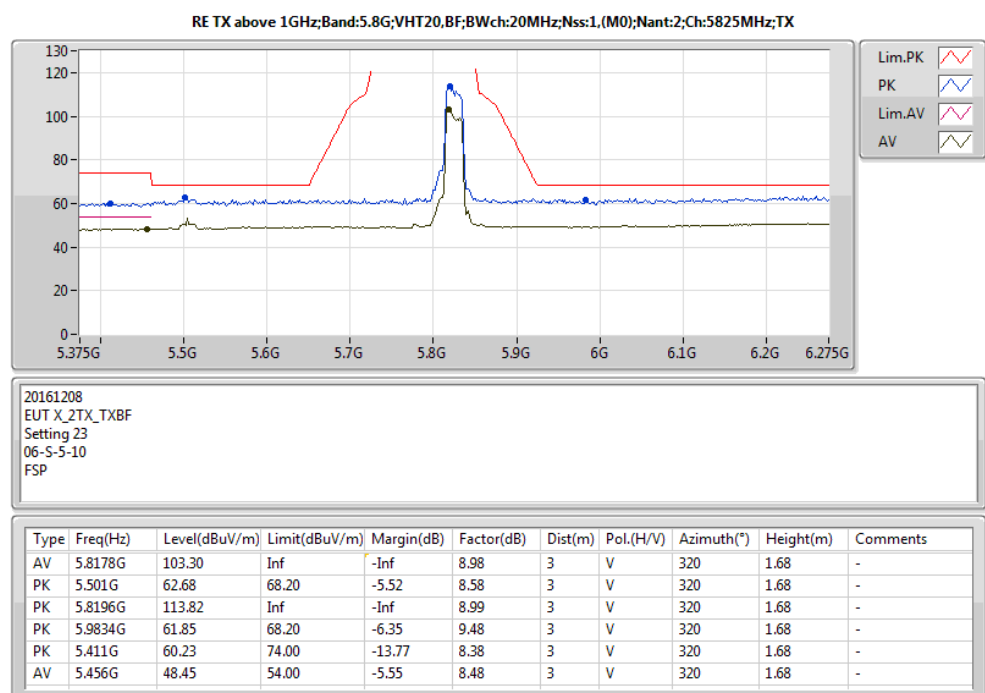
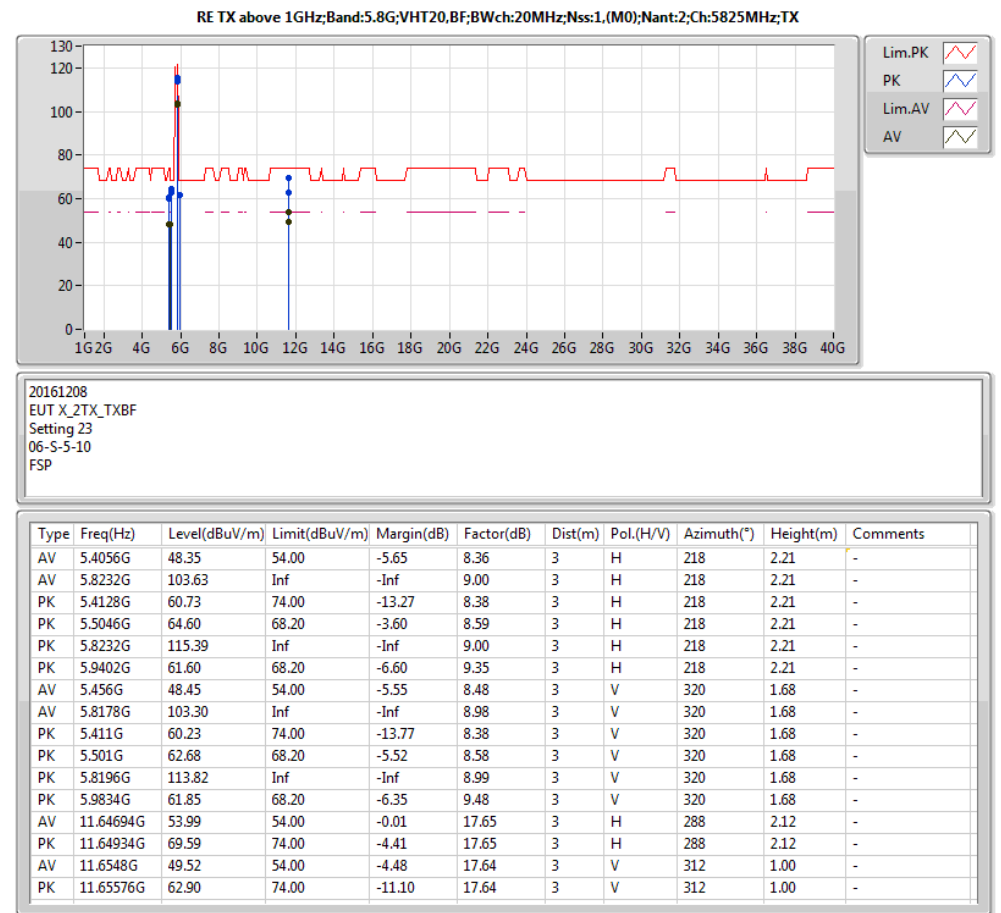
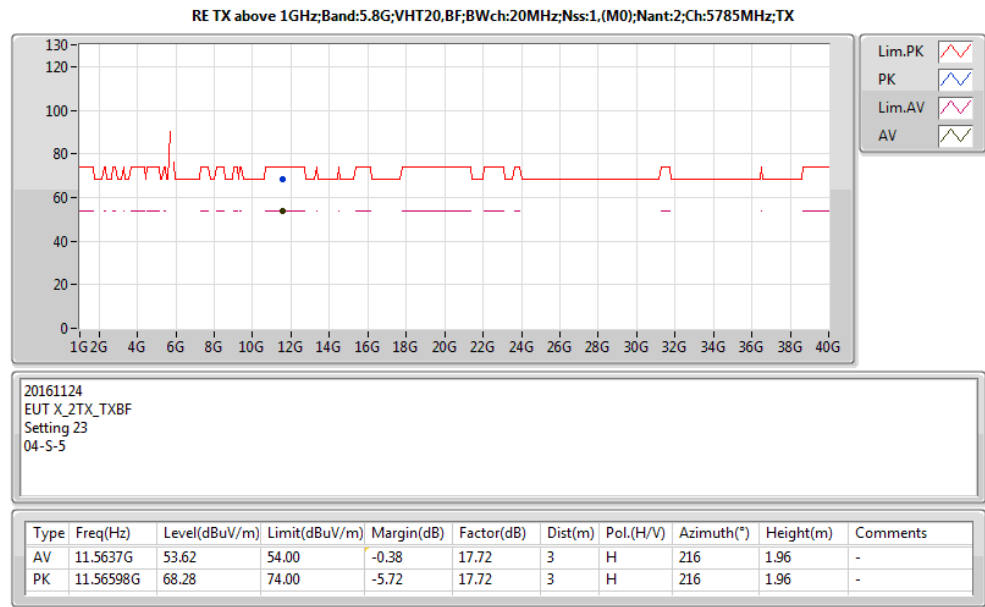


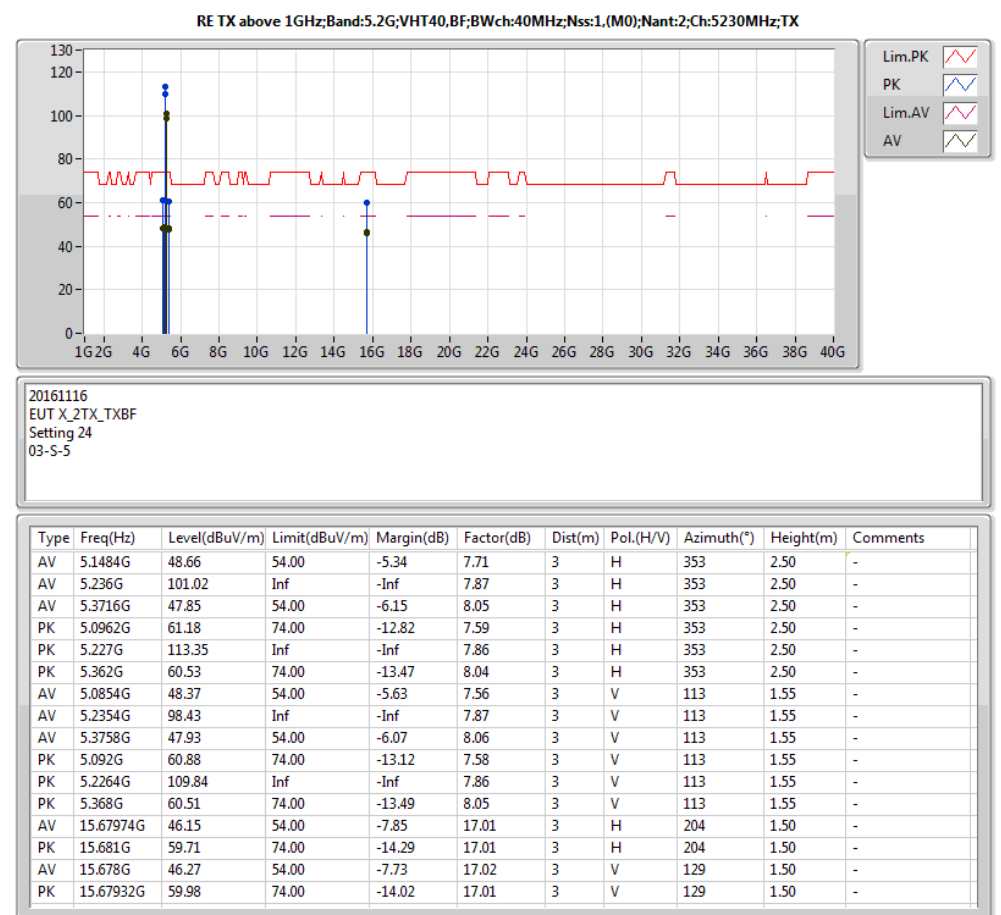
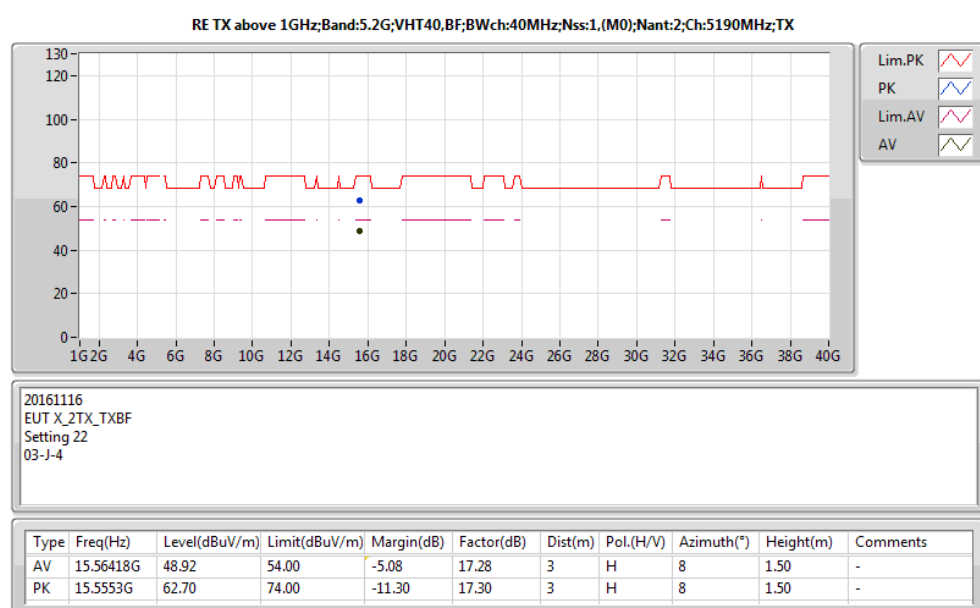
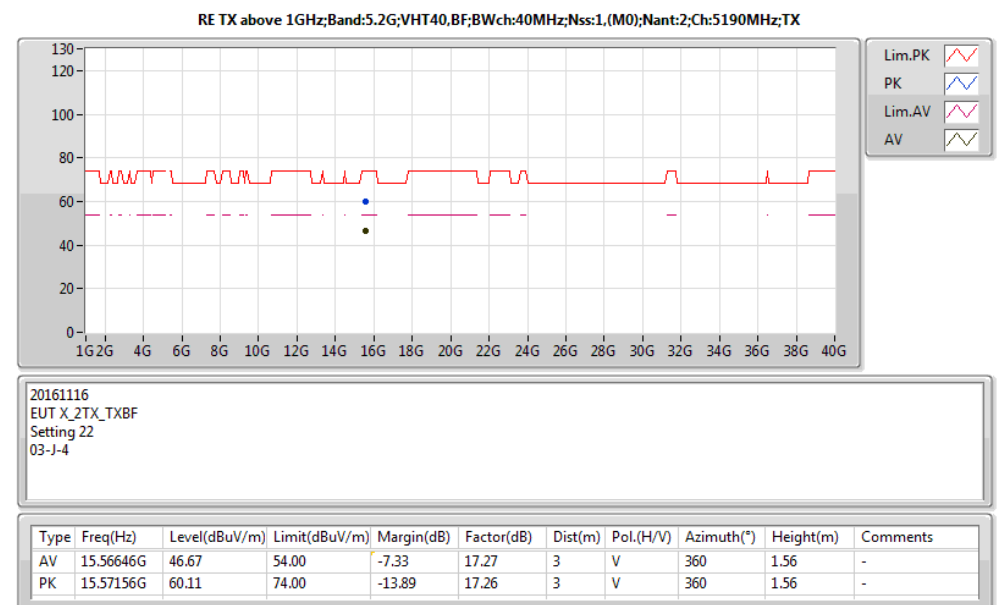
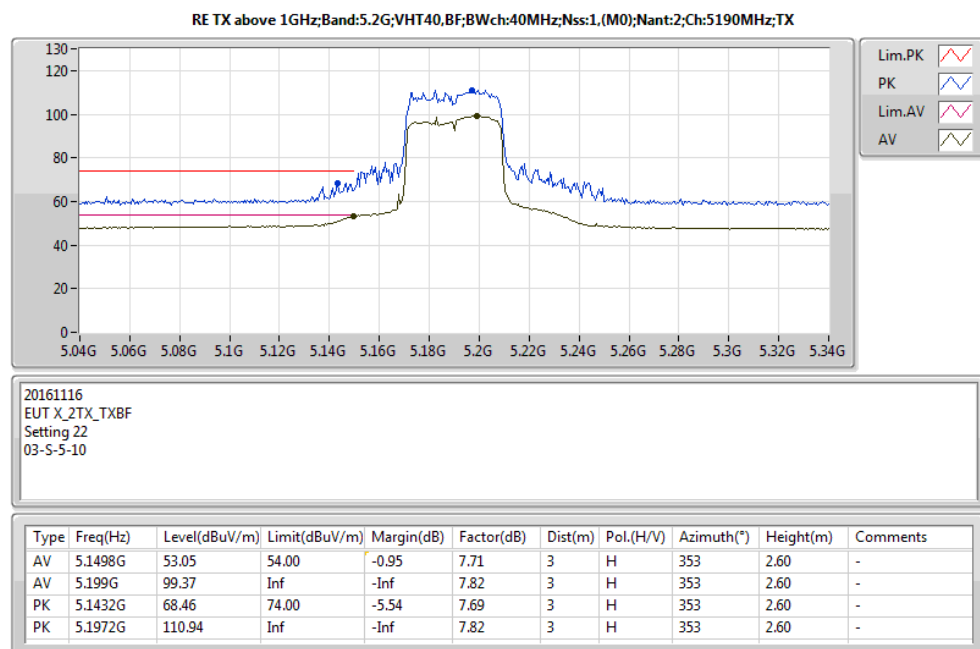
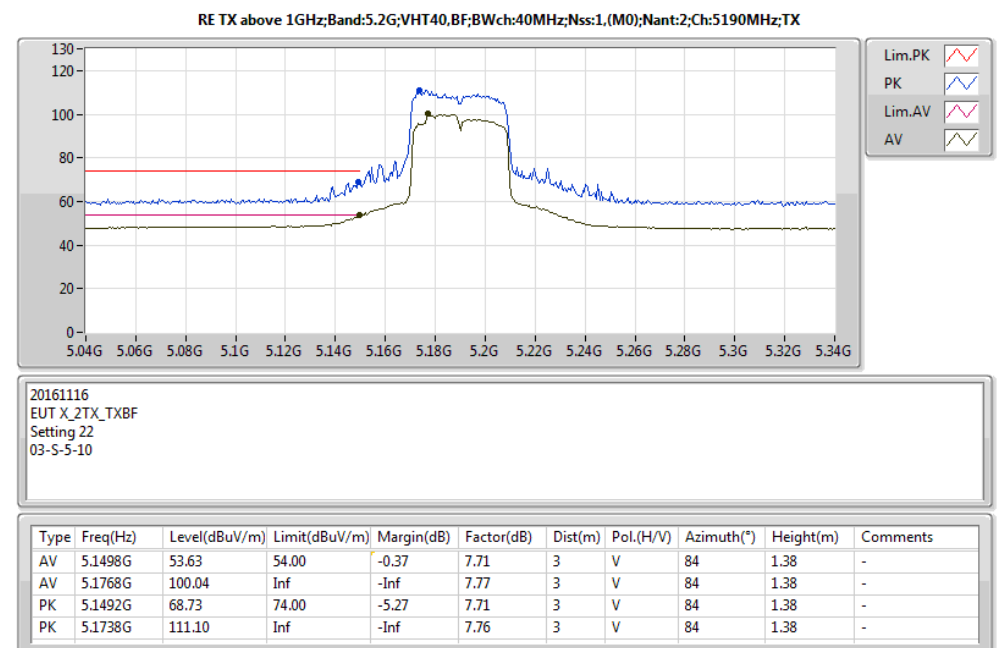
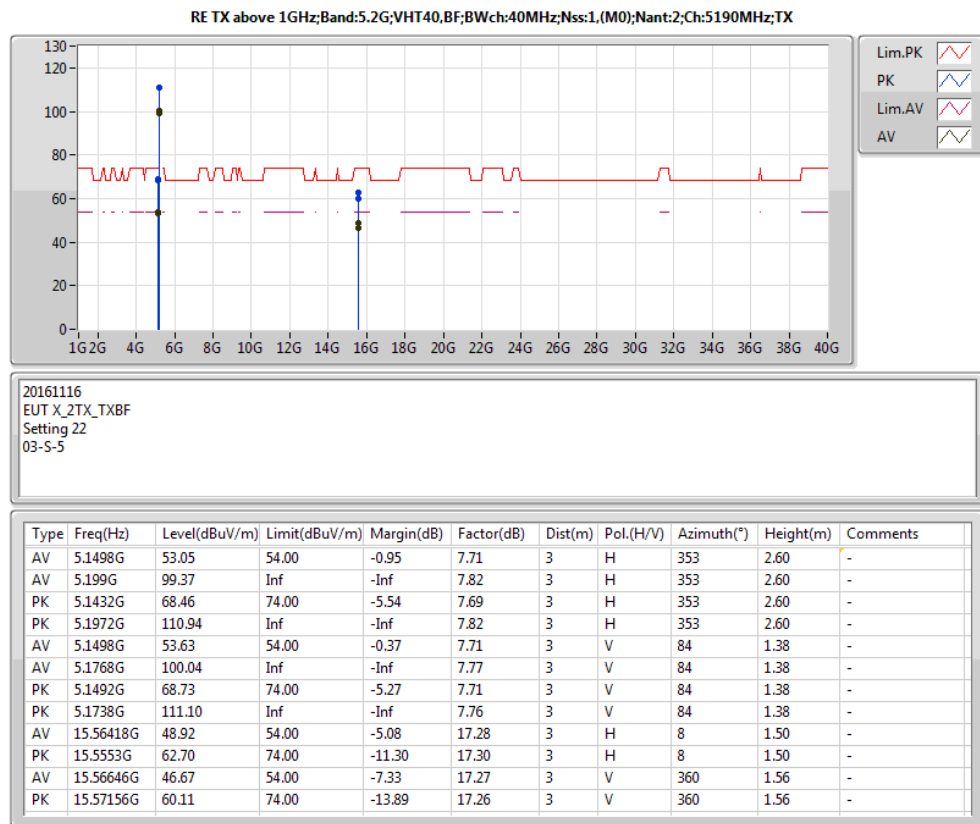
RE TX above 1GHz;Band:5.8G;VHT20,BF;BWch:20MHz;Nss:1,(M0);Nant:2;Ch:5785MHz;TX

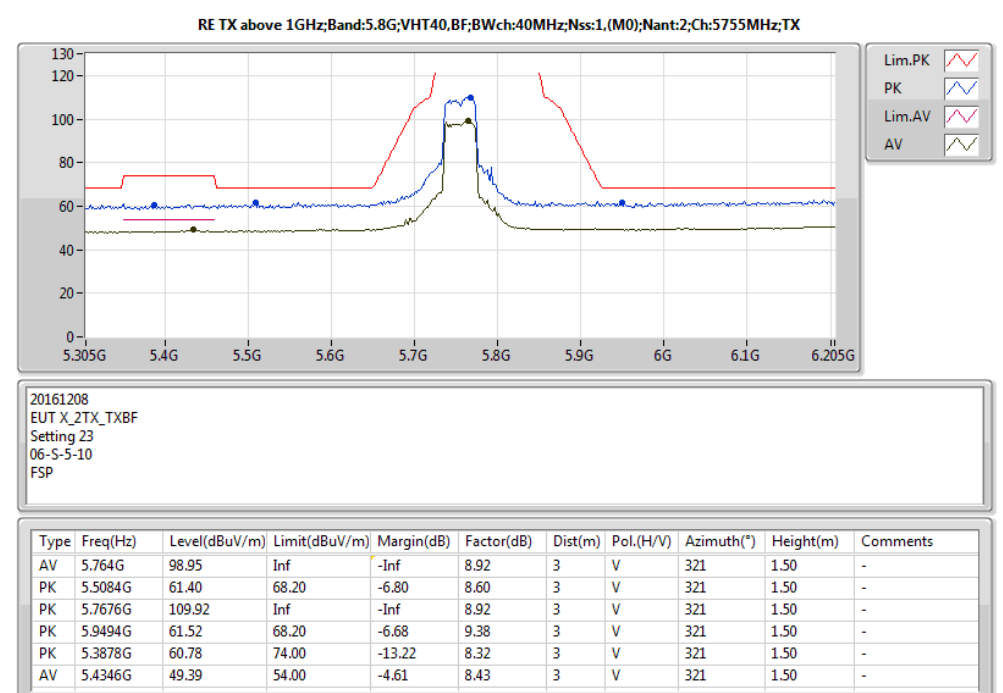
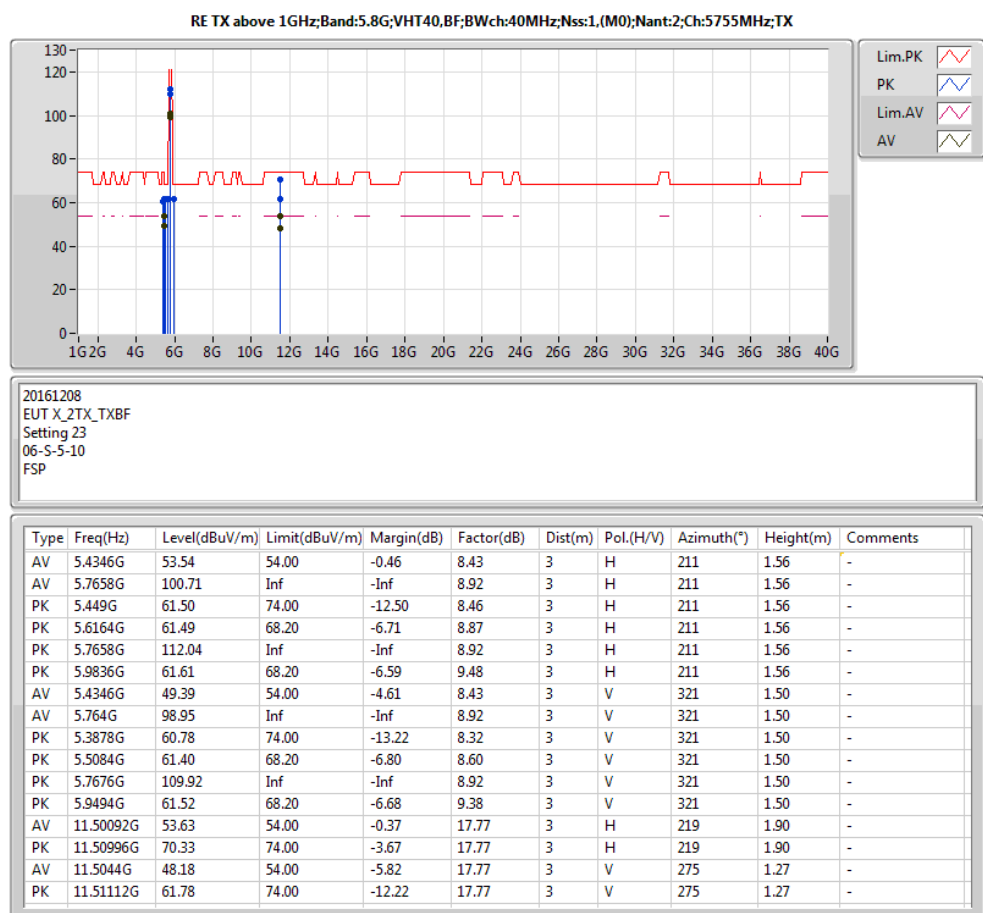
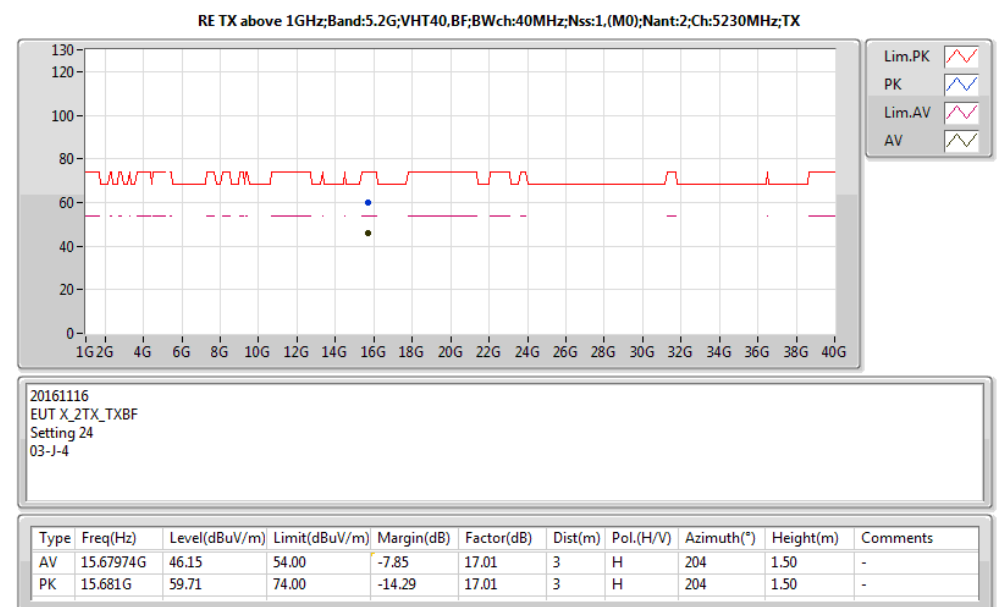
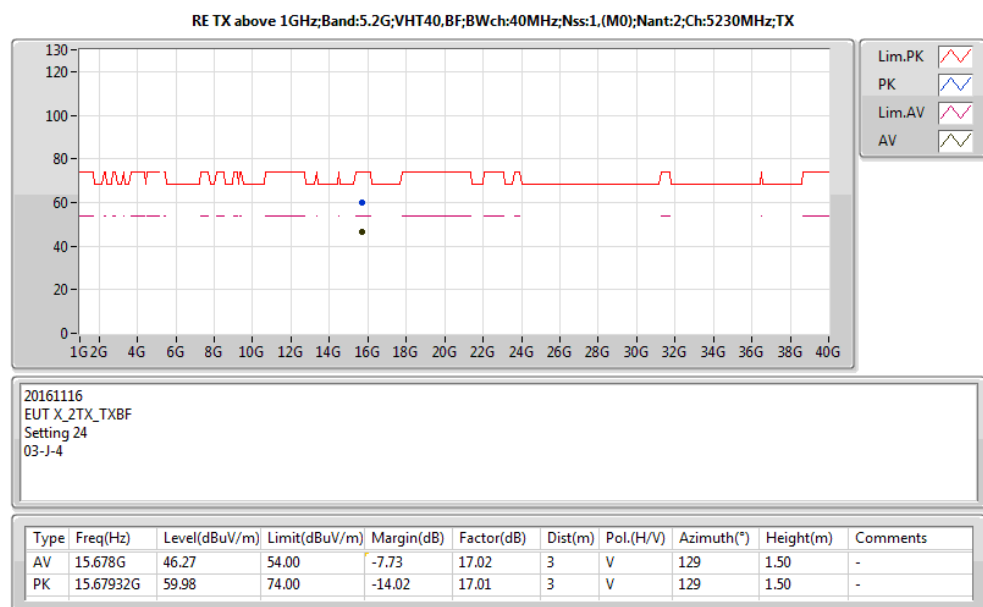
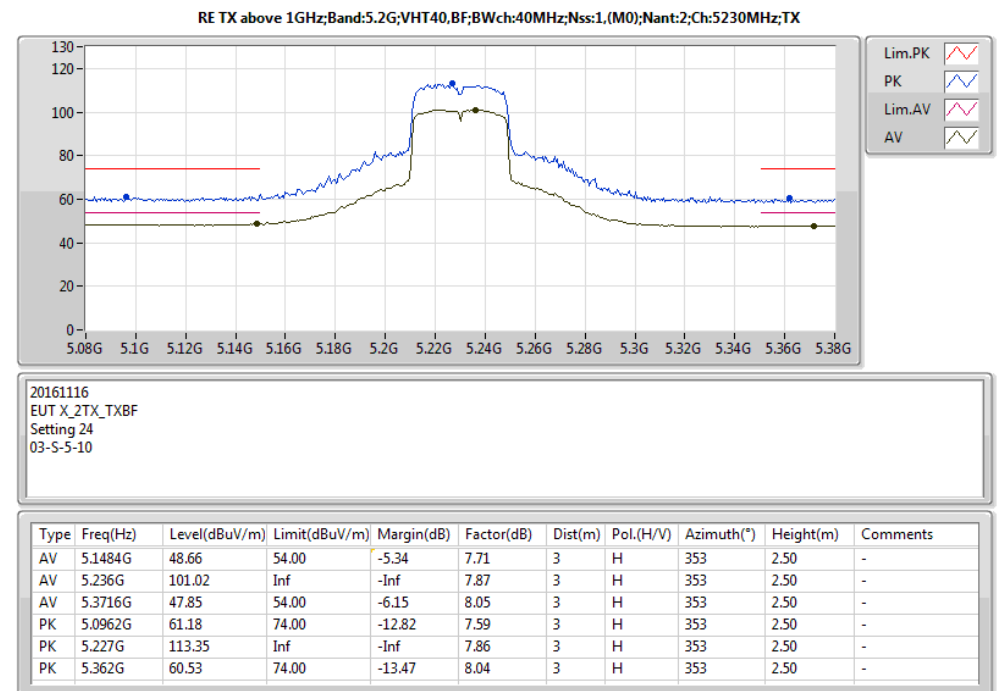
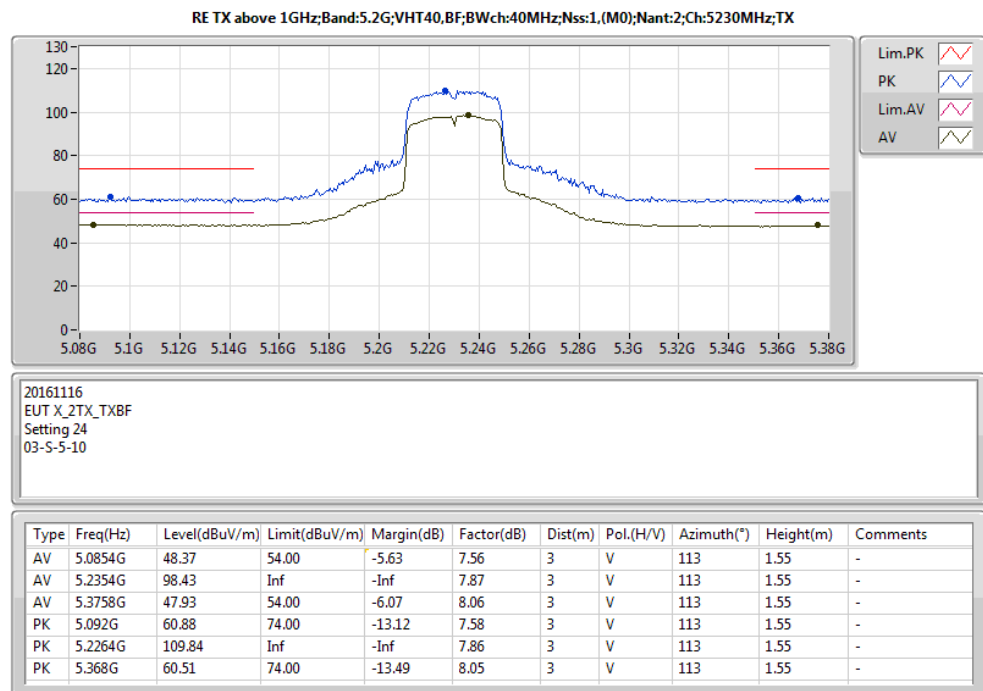


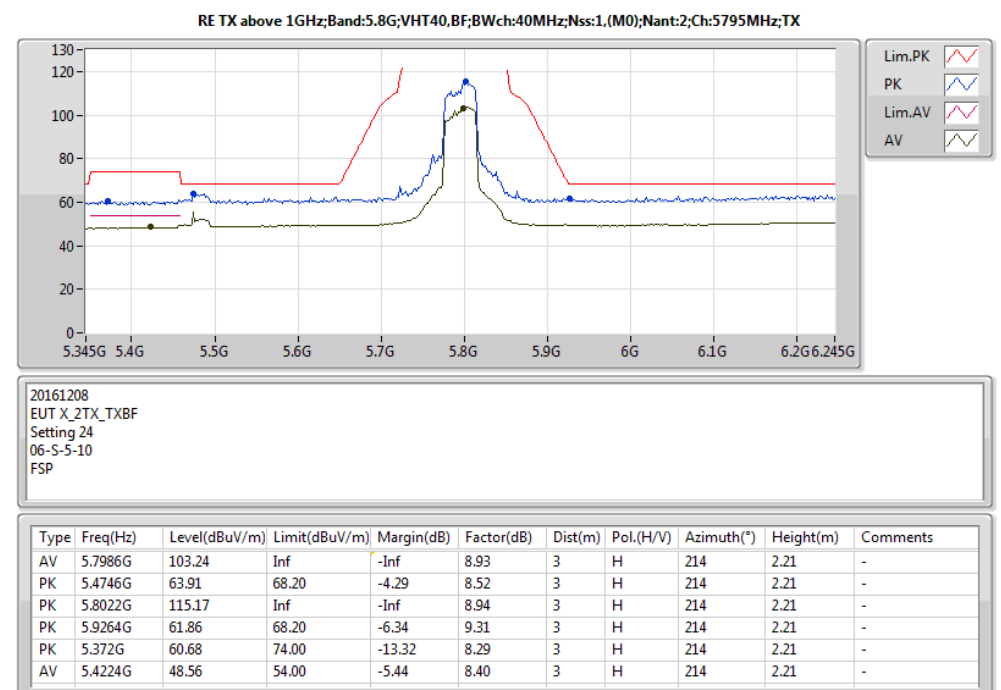
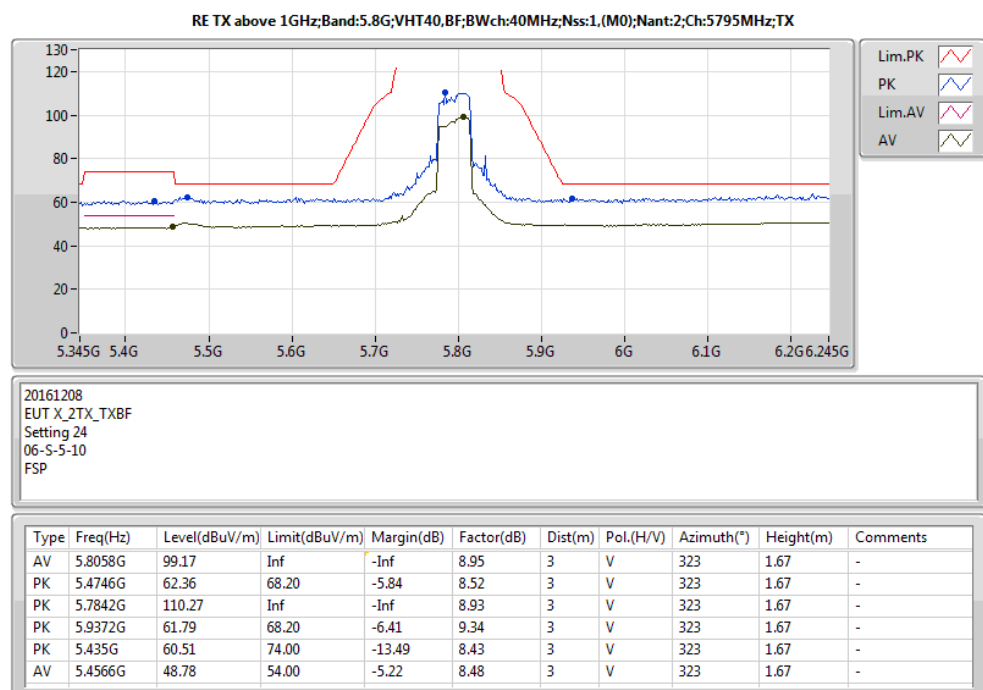
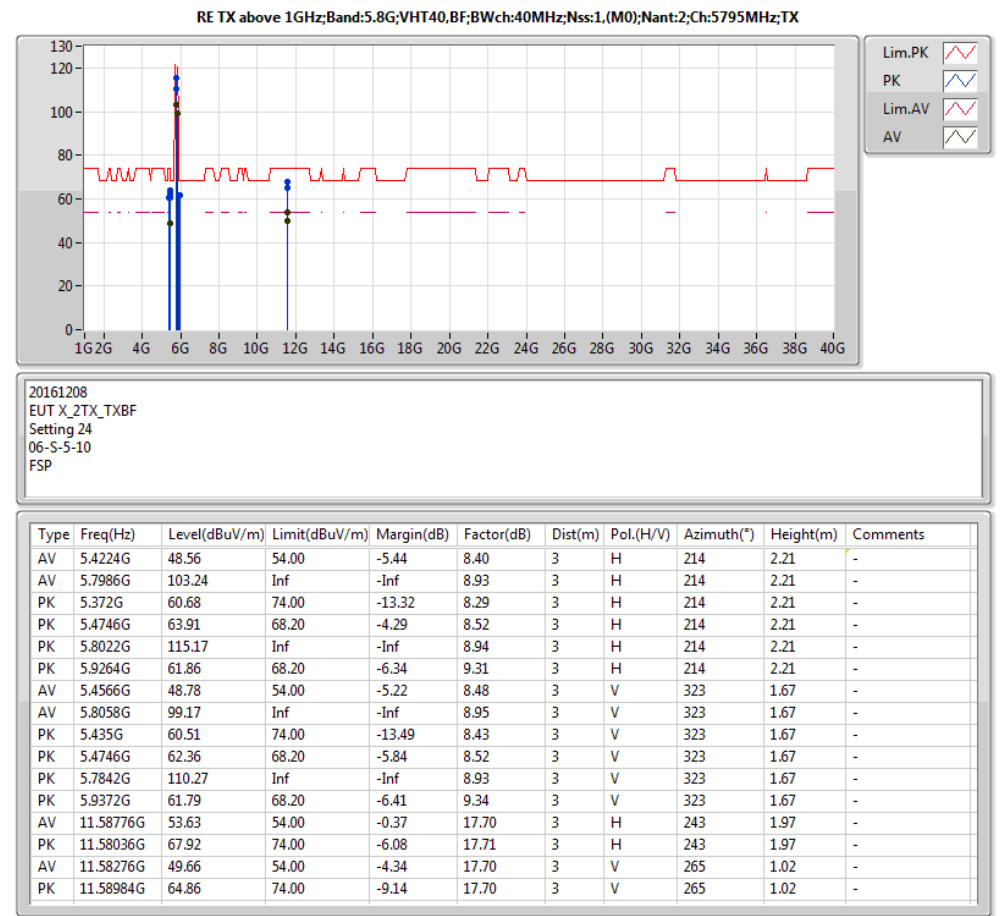
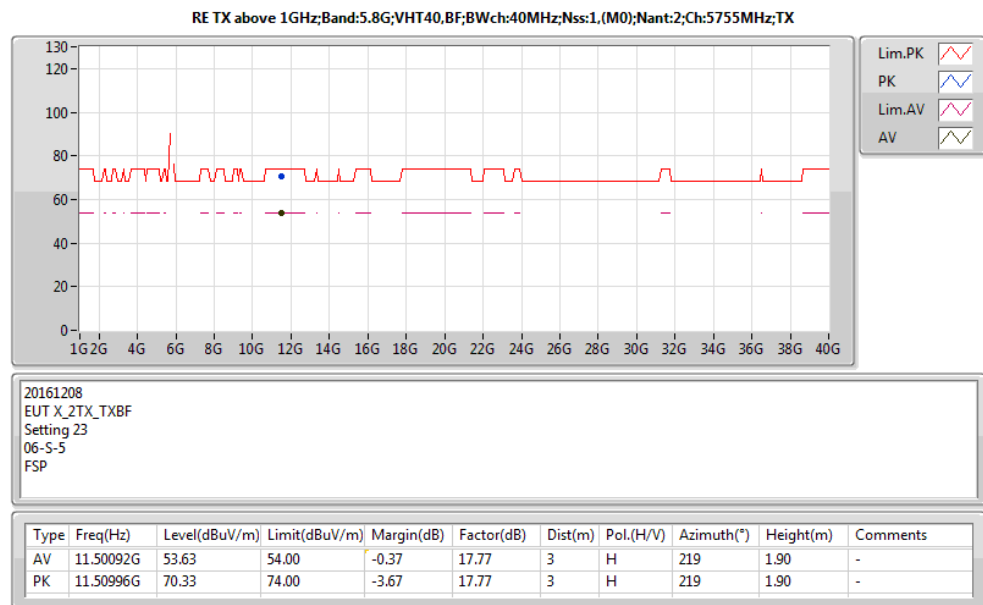
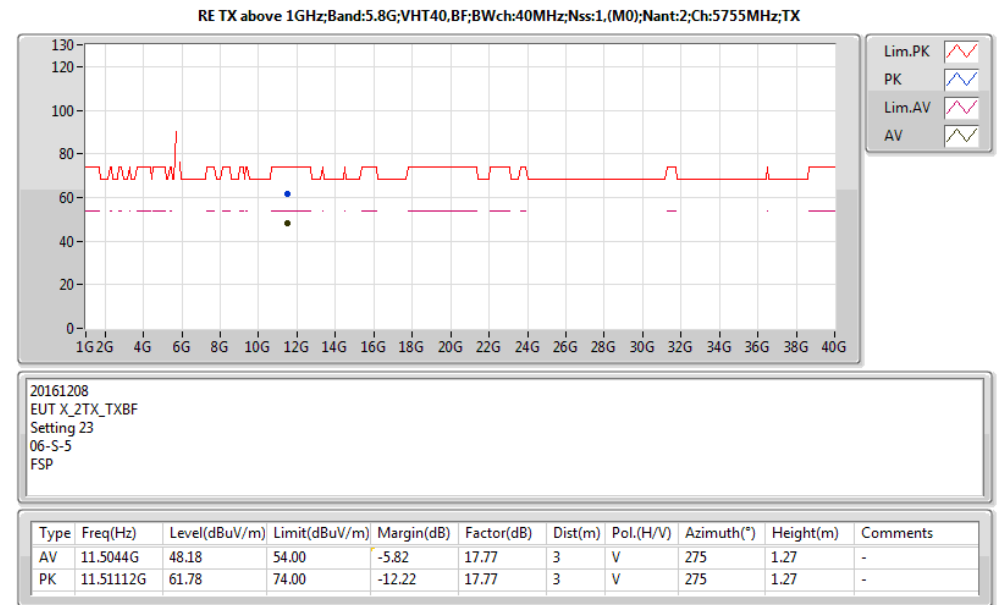
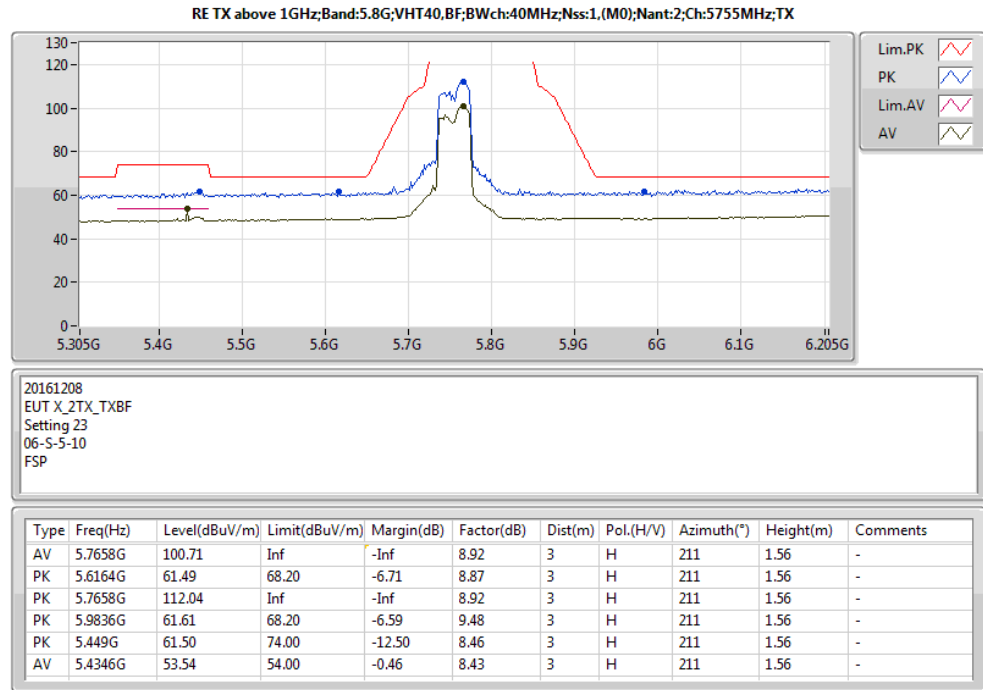
RE TX above 1GHz;Band:5.8G;VHT20,BF;BWch:20MHz;Nss:1,(M0);Nant:2;Ch:5785MHz;TX



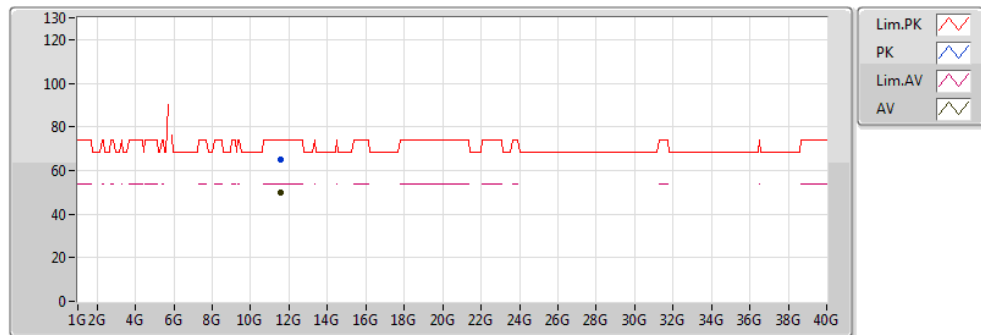








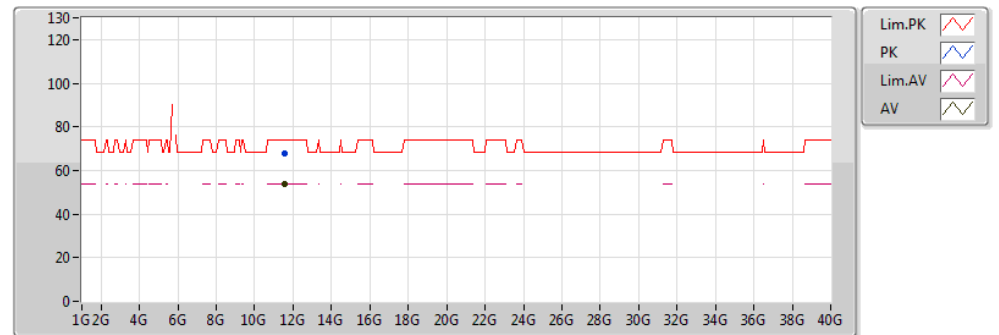
RE TX above 1GHz;Band:5.8G;VHT40,BF;BWch:40MHz;Nss:1,(M0);Nant:2;Ch:5795MHz;TX



20161208
EUT_X_2TX_TXBF
Setting 24
06-S-5
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	11.58276G	49.66	54.00	-4.34	17.70	3	V	265	1.02	-
PK	11.58984G	64.86	74.00	-9.14	17.70	3	V	265	1.02	-

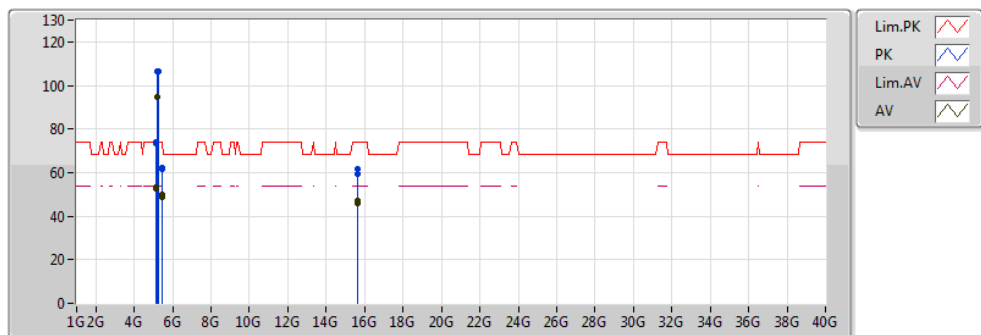
RE TX above 1GHz;Band:5.8G;VHT40,BF;BWch:40MHz;Nss:1,(M0);Nant:2;Ch:5795MHz;TX



20161208
EUT_X_2TX_TXBF
Setting 24
06-S-5
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	11.58776G	53.63	54.00	-0.37	17.70	3	H	243	1.97	-
PK	11.58036G	67.92	74.00	-6.08	17.71	3	H	243	1.97	-

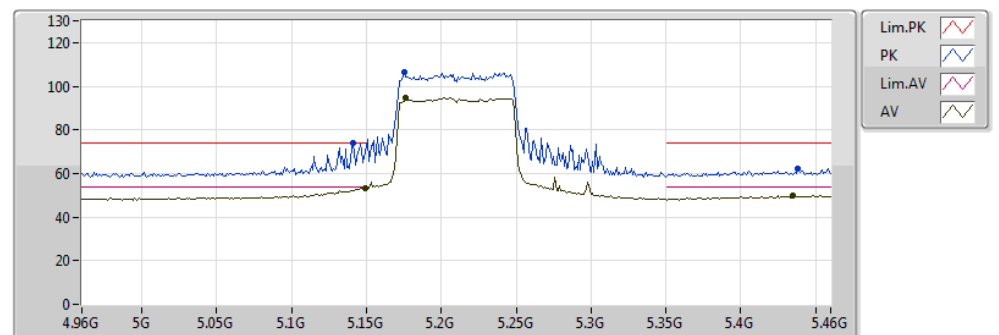
RE TX above 1GHz;Band:5.2G;VHT80,BF;BWch:80MHz;Nss:1,(M0);Nant:2;Ch:5210MHz;TX



20161116
EUT_X_2TX_TXBF
Setting 21
03-S-5

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	5.123G	52.43	54.00	-1.57	7.65	3	H	354	2.60	-
AV	5.208G	94.89	Inf	-Inf	7.83	3	H	354	2.60	-
AV	5.448G	48.92	54.00	-5.08	8.20	3	H	354	2.60	-
PK	5.132G	73.28	74.00	-0.72	7.67	3	H	354	2.60	-
PK	5.244G	106.73	Inf	-Inf	7.88	3	H	354	2.60	-
PK	5.438G	61.90	74.00	-12.10	8.17	3	H	354	2.60	-
AV	5.149G	53.24	54.00	-0.76	7.71	3	V	294	1.41	-
AV	5.176G	94.73	Inf	-Inf	7.77	3	V	294	1.41	-
AV	5.435G	49.82	54.00	-4.18	8.17	3	V	294	1.41	-
PK	5.141G	73.83	74.00	-0.17	7.69	3	V	294	1.41	-
PK	5.175G	106.33	Inf	-Inf	7.77	3	V	294	1.41	-
PK	5.438G	62.32	74.00	-11.68	8.17	3	V	294	1.41	-
AV	15.62928G	45.75	54.00	-8.25	17.13	3	H	15	1.50	-
PK	15.63612G	59.29	74.00	-14.71	17.11	3	H	15	1.50	-
AV	15.62718G	47.02	54.00	-6.98	17.13	3	V	360	1.56	-
PK	15.6312G	61.90	74.00	-12.10	17.12	3	V	360	1.56	-

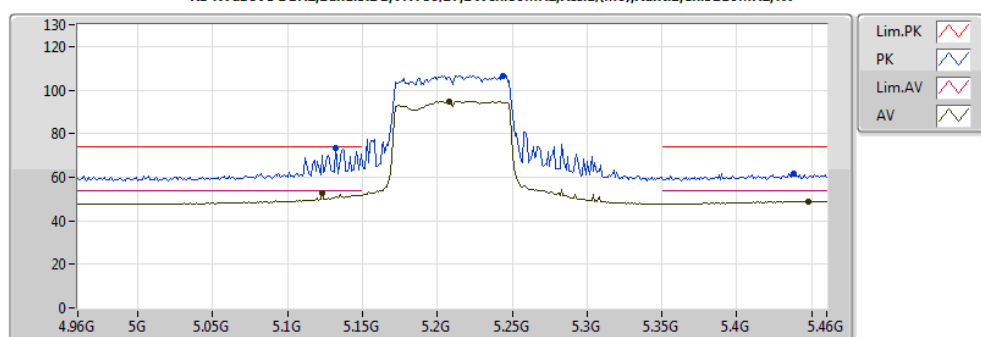
RE TX above 1GHz;Band:5.2G;VHT80,BF;BWch:80MHz;Nss:1,(M0);Nant:2;Ch:5210MHz;TX



20161116
EUT_X_2TX_TXBF
Setting 21
03-S-5-10

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	5.149G	53.24	54.00	-0.76	7.71	3	V	294	1.41	-
AV	5.176G	94.73	Inf	-Inf	7.77	3	V	294	1.41	-
AV	5.435G	49.82	54.00	-4.18	8.17	3	V	294	1.41	-
PK	5.141G	73.83	74.00	-0.17	7.69	3	V	294	1.41	-
PK	5.175G	106.33	Inf	-Inf	7.77	3	V	294	1.41	-
PK	5.438G	62.32	74.00	-11.68	8.17	3	V	294	1.41	-

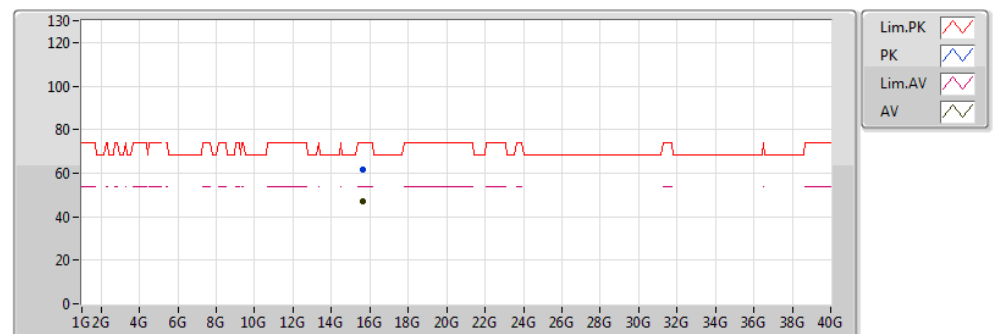
RE TX above 1GHz;Band:5.2G;VHT80,BF;BWch:80MHz;Nss:1,(M0);Nant:2;Ch:5210MHz;TX



20161116
EUT_X_2TX_TXBF
Setting 21
03-S-5-10

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	5.123G	52.43	54.00	-1.57	7.65	3	H	354	2.60	-
AV	5.208G	94.89	Inf	-Inf	7.83	3	H	354	2.60	-
AV	5.448G	48.92	54.00	-5.08	8.20	3	H	354	2.60	-
PK	5.132G	73.28	74.00	-0.72	7.67	3	H	354	2.60	-
PK	5.244G	106.73	Inf	-Inf	7.88	3	H	354	2.60	-
PK	5.438G	61.90	74.00	-12.10	8.17	3	H	354	2.60	-

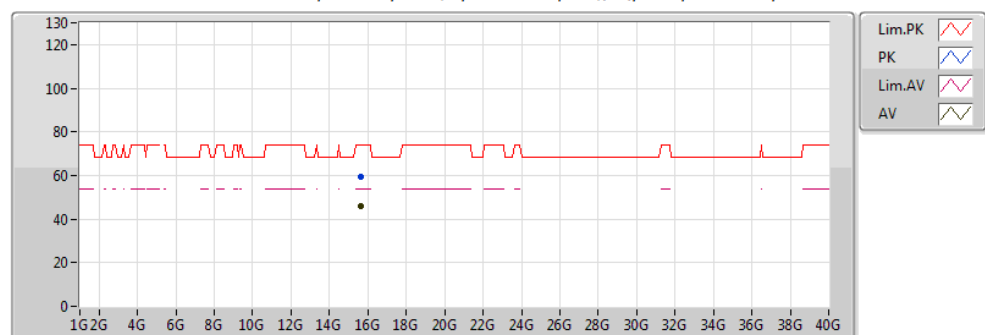
RE TX above 1GHz;Band:5.2G;VHT80,BF;BWch:80MHz;Nss:1,(M0);Nant:2;Ch:5210MHz;TX



20161116
EUT_X_2TX_TXBF
Setting 21
03-J-4

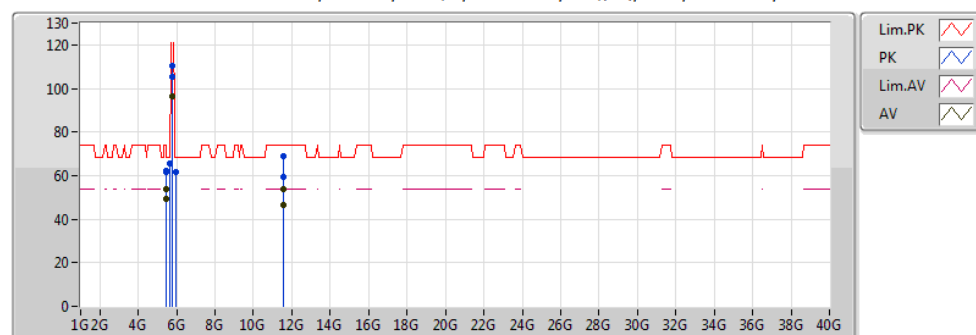
Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	15.62718G	47.02	54.00	-6.98	17.13	3	V	360	1.56	-
PK	15.6312G	61.90	74.00	-12.10	17.12	3	V	360	1.56	-

RE TX above 1GHz;Band:5.2G;VHT80,BF;BWch:80MHz;Nss:1,(M0);Nant:2;Ch:5210MHz;TX

20161116
EUT X_2TX_TXBF
Setting 21
03-J-4

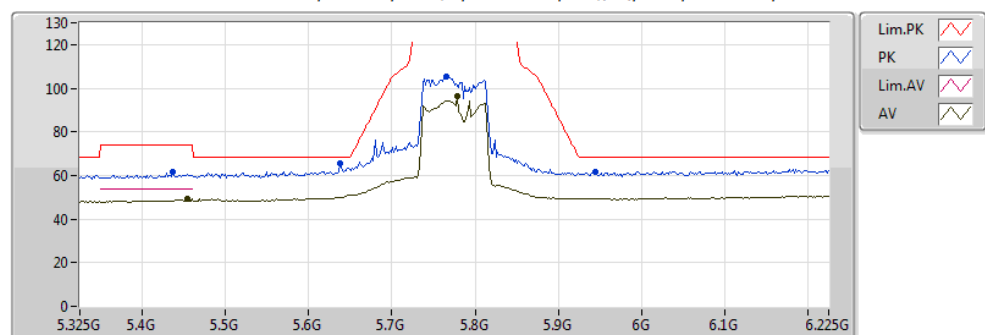
Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	15.62928G	45.75	54.00	-8.25	17.13	3	H	15	1.50	-
PK	15.63612G	59.29	74.00	-14.71	17.11	3	H	15	1.50	-

RE TX above 1GHz;Band:5.8G;VHT80,BF;BWch:80MHz;Nss:1,(M0);Nant:2;Ch:5775MHz;TX

20161208
EUT X_2TX_TXBF
Setting 23
06-S-5-10
FSP

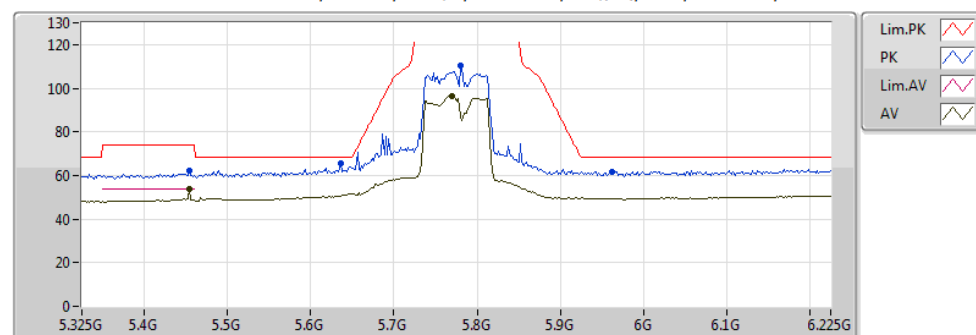
Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	5.4546G	53.98	54.00	-0.02	8.48	3	H	209	2.27	-
AV	5.7696G	96.27	Inf	-Inf	8.92	3	H	209	2.27	-
PK	5.4546G	62.20	74.00	-11.80	8.48	3	H	209	2.27	-
PK	5.6364G	65.41	68.20	-2.79	8.87	3	H	209	2.27	-
PK	5.7804G	110.35	Inf	-Inf	8.92	3	H	209	2.27	-
PK	5.9622G	61.60	68.20	-6.60	9.42	3	H	209	2.27	-
AV	5.4546G	49.48	54.00	-4.52	8.48	3	V	317	1.77	-
AV	5.7786G	96.21	Inf	-Inf	8.92	3	V	317	1.77	-
PK	5.4366G	61.43	74.00	-12.57	8.43	3	V	317	1.77	-
PK	5.6382G	65.42	68.20	-2.78	8.88	3	V	317	1.77	-
PK	5.766G	105.21	Inf	-Inf	8.92	3	V	317	1.77	-
PK	5.9442G	61.83	68.20	-6.37	9.36	3	V	317	1.77	-
AV	11.56752G	53.71	54.00	-0.29	17.72	3	H	218	2.16	-
PK	11.56992G	68.80	74.00	-5.20	17.71	3	H	218	2.16	-
AV	11.56632G	46.46	54.00	-7.54	17.72	3	V	222	1.19	-
PK	11.55072G	59.54	74.00	-14.46	17.73	3	V	222	1.19	-

RE TX above 1GHz;Band:5.8G;VHT80,BF;BWch:80MHz;Nss:1,(M0);Nant:2;Ch:5775MHz;TX

20161208
EUT X_2TX_TXBF
Setting 23
06-S-5-10
FSP

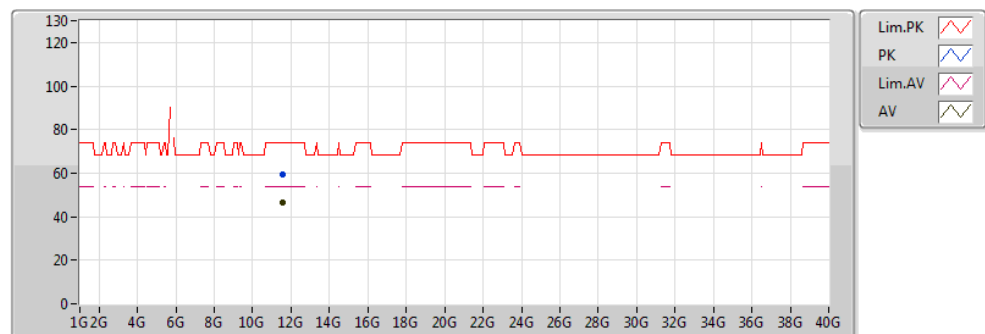
Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	5.7786G	96.21	Inf	-Inf	8.92	3	V	317	1.77	-
PK	5.6382G	65.42	68.20	-2.78	8.88	3	V	317	1.77	-
PK	5.766G	105.21	Inf	-Inf	8.92	3	V	317	1.77	-
PK	5.9442G	61.83	68.20	-6.37	9.36	3	V	317	1.77	-
PK	5.4366G	61.43	74.00	-12.57	8.43	3	V	317	1.77	-
AV	5.4546G	49.48	54.00	-4.52	8.48	3	V	317	1.77	-

RE TX above 1GHz;Band:5.8G;VHT80,BF;BWch:80MHz;Nss:1,(M0);Nant:2;Ch:5775MHz;TX

20161208
EUT X_2TX_TXBF
Setting 23
06-S-5-10
FSP

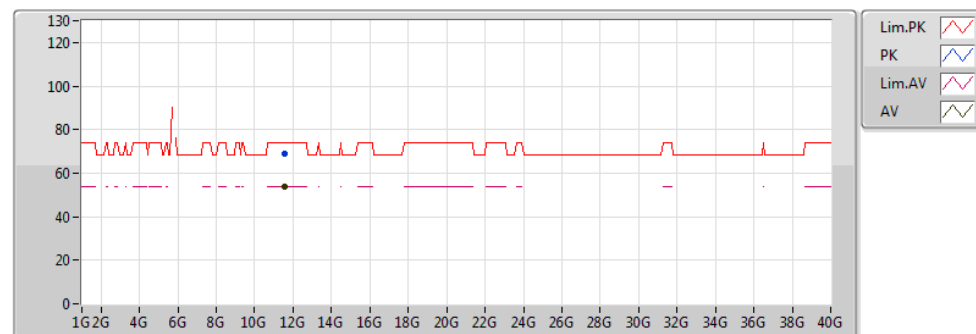
Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	5.7696G	96.27	Inf	-Inf	8.92	3	H	209	2.27	-
PK	5.7804G	110.35	Inf	-Inf	8.92	3	H	209	2.27	-
PK	5.9622G	61.60	68.20	-6.60	9.42	3	H	209	2.27	-
PK	5.4546G	62.20	74.00	-11.80	8.48	3	H	209	2.27	-
PK	5.6364G	65.41	68.20	-2.79	8.87	3	H	209	2.27	-
AV	5.4546G	53.98	54.00	-0.02	8.48	3	H	209	2.27	-

RE TX above 1GHz;Band:5.8G;VHT80,BF;BWch:80MHz;Nss:1,(M0);Nant:2;Ch:5775MHz;TX

20161208
EUT X_2TX_TXBF
Setting 23
06-S-5
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	11.56632G	46.46	54.00	-7.54	17.72	3	V	222	1.19	-
PK	11.55072G	59.54	74.00	-14.46	17.73	3	V	222	1.19	-

RE TX above 1GHz;Band:5.8G;VHT80,BF;BWch:80MHz;Nss:1,(M0);Nant:2;Ch:5775MHz;TX

20161208
EUT X_2TX_TXBF
Setting 23
06-S-5
FSP

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	11.56752G	53.71	54.00	-0.29	17.72	3	H	218	2.16	-
PK	11.56992G	68.80	74.00	-5.20	17.71	3	H	218	2.16	-

Mode: 20 MHz / Chain 2 for 5G Band 1 and Chain 4 for 5G Band 4

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5200 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5199.9962	5199.9955	5199.9946	5199.9937
110.00	5199.9961	5199.9951	5199.9944	5199.9935
93.50	5199.9959	5199.9955	5199.9954	5199.9949
Max. Deviation (MHz)	0.0041	0.0049	0.0056	0.0065
Max. Deviation (ppm)	0.79	0.94	1.08	1.25
Result	Pass			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5200 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
0	5199.9993	5199.9984	5199.9982	5199.9973
10	5199.9976	5199.9971	5199.9969	5199.9959
20	5199.9961	5199.9957	5199.9955	5199.9945
30	5199.9891	5199.9882	5199.9880	5199.9872
40	5199.9885	5199.9878	5199.9868	5199.9867
Max. Deviation (MHz)	0.0115	0.0122	0.0132	0.0133
Max. Deviation (ppm)	2.21	2.35	2.54	2.56
Result	Pass			

Mode: 40 MHz / Chain 2 for 5G Band 1 and Chain 4 for 5G Band 4

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5190 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5189.9963	5189.9960	5189.9956	5189.9953
110.00	5189.9961	5189.9956	5189.9949	5189.9943
93.50	5189.9959	5189.9957	5189.9951	5189.9942
Max. Deviation (MHz)	0.0041	0.0044	0.0051	0.0058
Max. Deviation (ppm)	0.79	0.85	0.98	1.12
Result	Pass			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5190 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
0	5189.9967	5189.9963	5189.9961	5189.9951
10	5189.9966	5189.9963	5189.9954	5189.9946
20	5189.9961	5189.9960	5189.9954	5189.9944
30	5189.9891	5189.9890	5189.9883	5189.9881
40	5189.9875	5189.9867	5189.9863	5189.9862
Max. Deviation (MHz)	0.0125	0.0133	0.0137	0.0138
Max. Deviation (ppm)	2.41	2.56	2.64	2.66
Result	Pass			

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5785 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5784.9963	5784.9953	5784.9946	5784.9936
110.00	5784.9961	5784.9956	5784.9950	5784.9945
93.50	5784.9959	5784.9953	5784.9947	5784.9941
Max. Deviation (MHz)	0.0041	0.0047	0.0054	0.0064
Max. Deviation (ppm)	0.71	0.81	0.93	1.11
Result	Pass			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5785 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
0	5784.9994	5784.9991	5784.9989	5784.9986
10	5784.9979	5784.9973	5784.9969	5784.9968
20	5784.9961	5784.9960	5784.9950	5784.9943
30	5784.9891	5784.9883	5784.9874	5784.9867
40	5784.9888	5784.9886	5784.9884	5784.9883
Max. Deviation (MHz)	0.0112	0.0117	0.0126	0.0133
Max. Deviation (ppm)	1.94	2.02	2.18	2.30
Result	Pass			

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5755 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5754.9971	5754.9969	5754.9966	5754.9958
110.00	5754.9961	5754.9957	5754.9952	5754.9949
93.50	5754.9951	5754.9944	5754.9942	5754.9940
Max. Deviation (MHz)	0.0049	0.0056	0.0058	0.0060
Max. Deviation (ppm)	0.85	0.97	1.01	1.04
Result	Pass			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5755 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
0	5754.9979	5754.9974	5754.9970	5754.9964
10	5754.9973	5754.9966	5754.9965	5754.9958
20	5754.9961	5754.9952	5754.9945	5754.9936
30	5754.9891	5754.9884	5754.9876	5754.9870
40	5754.9878	5754.9868	5754.9866	5754.9859
Max. Deviation (MHz)	0.0122	0.0132	0.0134	0.0141
Max. Deviation (ppm)	2.12	2.29	2.33	2.45
Result	Pass			



Mode: 80 MHz / Chain 2 for 5G Band 1 and Chain 4 for 5G Band 4

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5210 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5209.9962	5209.9957	5209.9951	5209.9941
110.00	5209.9961	5209.9960	5209.9956	5209.9953
93.50	5209.9958	5209.9956	5209.9947	5209.9941
Max. Deviation (MHz)	0.0042	0.0044	0.0053	0.0059
Max. Deviation (ppm)	0.81	0.84	1.02	1.13
Result	Pass			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5210 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
0	5209.9976	5209.9970	5209.9964	5209.9956
10	5209.9973	5209.9969	5209.9966	5209.9958
20	5209.9961	5209.9959	5209.9954	5209.9945
30	5209.9891	5209.9887	5209.9883	5209.9880
40	5209.9871	5209.9868	5209.9859	5209.9852
Max. Deviation (MHz)	0.0129	0.0132	0.0141	0.0148
Max. Deviation (ppm)	2.48	2.53	2.71	2.84
Result	Pass			

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5775 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5774.9966	5774.9958	5774.9948	5774.9944
110.00	5774.9961	5774.9952	5774.9942	5774.9935
93.50	5774.9951	5774.9941	5774.9933	5774.9928
Max. Deviation (MHz)	0.0049	0.0059	0.0067	0.0072
Max. Deviation (ppm)	0.85	1.02	1.16	1.25
Result	Pass			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5775 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
0	5774.9995	5774.9987	5774.9982	5774.9976
10	5774.9977	5774.9973	5774.9970	5774.9964
20	5774.9961	5774.9952	5774.9951	5774.9941
30	5774.9891	5774.9882	5774.9875	5774.9869
40	5774.9886	5774.9878	5774.9873	5774.9863
Max. Deviation (MHz)	0.0114	0.0122	0.0127	0.0137
Max. Deviation (ppm)	1.97	2.11	2.20	2.37
Result	Pass			