



RADIO TEST REPORT

FCC ID : Z8H89FT0069
Equipment : ePMP 6 GHz Force 4600C SM / ePMP 4600L 6 GHz 2x2 Access Point
Brand Name : Cambium Networks
Model Name : ePMP 6 GHz Force 4600C SM / ePMP 4600L 6 GHz 2x2 Access Point
Model Number : C068940P151A
Applicant : Cambium Networks Inc.
3800 Golf Road, Suite 360 Rolling Meadows, IL 60008, USA
Manufacturer : Cambium Networks, Ltd.
Ashburton, TQ13 7UP, UK
Standard : 47 CFR FCC Part 15.407

The product was received on Nov. 22, 2021, and testing was started from Dec. 09, 2021 and completed on Dec. 26, 2023. We, Sporton International Inc. Hsinchu Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

The test results in this variant report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. Hsinchu Laboratory, the test report shall not be reproduced except in full.



Approved by: Sam Chen

Sporton International Inc. Hsinchu Laboratory
No. 8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County 302010, Taiwan (R.O.C.)



Table of Contents

History of this test report.....3

Summary of Test Result.....4

1 General Description5

1.1 Information.....5

1.2 Applicable Standards9

1.3 Testing Location Information9

1.4 Measurement Uncertainty10

2 Test Configuration of EUT11

2.1 Test Channel Mode11

2.2 The Worst Case Measurement Configuration12

2.3 EUT Operation during Test14

2.4 Accessories14

2.5 Support Equipment.....14

2.6 Test Setup Diagram15

3 Transmitter Test Result19

3.1 AC Power-line Conducted Emissions19

3.2 Emission Bandwidth21

3.3 Maximum Equivalent Isotropically Radiated Power (E.I.R.P.)22

3.4 Peak Power Spectral Density (E.I.R.P.)25

3.5 Unwanted Emissions.....28

4 Test Equipment and Calibration Data33

Appendix A. Test Results of AC Power-line Conducted Emissions

Appendix B. Test Results of Emission Bandwidth

Appendix C. Test Results of Maximum Equivalent Isotropically Radiated Power (E.I.R.P.)

Appendix D. Test Results of Peak Power Spectral Density (E.I.R.P.)

Appendix E. Test Results of Unwanted Emissions

Appendix F. Test Photos

Photographs of EUT v01



Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
1.1.2	15.203	Antenna Requirement	PASS	-
3.1	15.207	AC Power-line Conducted Emissions	PASS	-
3.2	15.407(a)	Emission Bandwidth	PASS	-
3.3	15.407(a)	Maximum Equivalent Isotropically Radiated Power (E.I.R.P.)	PASS	-
3.4	15.407(a)	Peak Power Spectral Density (E.I.R.P.)	PASS	-
3.5	15.407(b)	Unwanted Emissions	PASS	-
-	15.407(d)	Contention-Based Protocol	N/A	Standard Power AP w/o test

Note: Reference to Sporton Project No.: 140145-06.

Conformity Assessment Condition:

1. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacture who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.
2. The measurement uncertainty please refer to each test result in the chapter "Measurement Uncertainty".

Disclaimer:

The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.

Reviewed by: **Sam Chen**

Report Producer: **Sophia Shiung**



1 General Description

1.1 Information

1.1.1 RF General Information

Frequency Range (MHz)	IEEE Std. 802.11	Ch. Frequency (MHz)	Channel Number
5925-6425	ax (HEW20)	5955-6415	1-93 [24]
6525-6875		6535-6855	117-181 [17]
5925-6425	ax (HEW40)	5965-6405	3-91 [12]
6525-6875		6565-6845	123-179 [8]
5925-6425	ax (HEW80)	5985-6385	7-87 [6]
6525-6875		6625-6785	135-167 [3]
5925-6425	ax (HEW160)	6025-6345	15-79 [3]
6525-6875		6665	143 [1]

Band	Mode	BWch (MHz)	Nant
5.925-6.425GHz	802.11ax HEW20	20	2TX
5.925-6.425GHz	802.11ax HEW40	40	2TX
5.925-6.425GHz	802.11ax HEW80	80	2TX
5.925-6.425GHz	802.11ax HEW160	160	2TX
6.525-6.875GHz	802.11ax HEW20	20	2TX
6.525-6.875GHz	802.11ax HEW40	40	2TX
6.525-6.875GHz	802.11ax HEW80	80	2TX
6.525-6.875GHz	802.11ax HEW160	160	2TX

Note:

- HEW20, HEW40, HEW80 and HEW160 use a combination of OFDMA-BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM modulation.
- BWch is the nominal channel bandwidth.



1.1.2 Antenna Information

For Dish Antenna:

Ant.	Port	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	
						UNII3	UNII5&7
1	1	Cambium	ePMP 6GHz 2x2 Dish Antenna	Dish (Directional Ant.)	RP-SMA	25.21	29
	2	Cambium	ePMP 6GHz 2x2 Dish Antenna	Dish (Directional Ant.)	RP-SMA	25.21	29

Note 1: The Dish antenna is cross polarization.

For Sector Antenna:

Ant.	Ant. CH	Port	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	
							UNII3&5	UNII7
1	0	-	Cambium	ePMP 2x2 6GHz MU-MIMO Sector Antenna	Sector (Directional Ant.)	RP-SMA	18	18.73
	1	1	Cambium	ePMP 2x2 6GHz MU-MIMO Sector Antenna	Sector (Directional Ant.)	RP-SMA	18	18.73
	2	2	Cambium	ePMP 2x2 6GHz MU-MIMO Sector Antenna	Sector (Directional Ant.)	RP-SMA	18	18.73
	3	-	Cambium	ePMP 2x2 6GHz MU-MIMO Sector Antenna	Sector (Directional Ant.)	RP-SMA	18	18.73

Note 2: The Sector antenna has four CH ports. Only two CH ports (CH1 and CH2) were used for the EUT. The Sector antenna is cross polarization: CH 1 is vertical and CH 2 is horizontal.

Note 3: The above information was declared by manufacturer.

For 5GHz function

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

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

Port 1 and Port 2 could transmit/receive simultaneously.

For 6GHz function

For IEEE 802.11ax (2TX/2RX):

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

Port 1 and Port 2 could transmit/receive simultaneously.



1.1.3 Mode Test Duty Cycle

For Dish Antenna:

Mode	DC	DCF (dB)	T (s)	VBW (Hz)_1/T
802.11ax HEW20	0.866	0.62	5.458m	300
802.11ax HEW40	0.87	0.6	5.458m	300
802.11ax HEW80	0.861	0.65	5.458m	300
802.11ax HEW160	0.868	0.61	5.458m	300

For Sector Antenna:

Mode	DC	DCF (dB)	T (s)	VBW (Hz) ≥ 1/T
802.11ax HEW20	0.866	0.62	5.458m	300
802.11ax HEW40	0.838	0.77	5.458m	300
802.11ax HEW80	0.853	0.69	5.46m	300
802.11ax HEW160	0.865	0.63	5.46m	300

Note:

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

1.1.4 EUT Operational Condition

EUT Power Type	From PoE			
Beamforming Function	<input type="checkbox"/>	With beamforming	<input checked="" type="checkbox"/>	Without beamforming
Device Type	<input type="checkbox"/>	Indoor Access Point	<input type="checkbox"/>	Subordinate
	<input type="checkbox"/>	Indoor Client	<input checked="" type="checkbox"/>	Standard Power Access Point
	<input type="checkbox"/>	Dual Client	<input checked="" type="checkbox"/>	Standard Client
	<input checked="" type="checkbox"/>	Fixed Client		
Channel Puncturing Function	<input type="checkbox"/>	Supported	<input checked="" type="checkbox"/>	Unsupported
Support RU	<input checked="" type="checkbox"/>	Full RU	<input type="checkbox"/>	Partial RU
Test Software Version	For Dish antenna: QRCT (4.0.00182.0) For Sector antenna: QRCT V4.0.00192.0			

Note: The above information was declared by manufacturer.



1.1.5 Table for Multiple Listing

Equipment Name / Model Name	Function	Support
ePMP 6 GHz Force 4600C SM	Client	WLAN 5GHz UNII 3 / 6GHz UNII 5&7
ePMP 4600L 6 GHz 2x2 Access Point	AP	

Note 1: From the above models, model: ePMP 4600L 6 GHz 2x2 Access Point was selected as representative model for the test, and its data was recorded in this report.

Note 2: The above information was declared by manufacturer.

1.1.6 Table for Permissive Change

This product is an extension of original one reported under Sporton project number: 140145-02

Below is the table for the change of the product with respect to the original one.

Modifications	Performance Checking
<ol style="list-style-type: none"> 1. Add 6GHz for Standard Power (6SD), Fixed Client (6FC) and Standard Client (6FX) through SW change. 2. Add a new directional Sector Antenna for the EUT with the same antenna type but lower gain than the original. (Refer to section 1.1.2 for detailed information.) 	All test items (For Standard Power Access Point mode only.)



1.2 Applicable Standards

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

- ◆ 47 CFR FCC Part 15.407
- ◆ ANSI C63.10-2013
- ◆ FCC KDB 789033 D02 v02r01

The following reference test guidance is not within the scope of accreditation of TAF.

- ◆ FCC KDB 662911 D01 v02r01
- ◆ FCC KDB 987594 D02 v02r01
- ◆ FCC KDB 412172 D01 v01r01
- ◆ FCC KDB 414788 D01 v01r01

1.3 Testing Location Information

Testing Location Information	
Test Lab. : Sporton International Inc. Hsinchu Laboratory	
Hsinchu	ADD: No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County 302010, Taiwan (R.O.C.)
(TAF: 3787)	TEL: 886-3-656-9065 FAX: 886-3-656-9085
	Test site Designation No. TW3787 with FCC.
	Conformity Assessment Body Identifier (CABID) TW3787 with ISED.

Test Condition	Test Site No.	Test Engineer	Test Environment (°C / %)	Test Date	Remark
RF Conducted	TH01-CB	Kevin Huang	24.5-25.1 / 65-67	Oct. 17, 2023	For Dish Ant.
	TH03-CB	Ken Yeh	24.3-24.6 / 66-69	Nov. 27, 2023	For Sector Ant.
RF Radiated (E.I.R.P. Power for others / PSD)	03CH02-CB	Black Lu	22-23 / 56-59	Oct. 12, 2023~ Oct. 18, 2023	For Dish Ant.
	03CH05-CB		22.7-23.8 / 56-59		
	03CH02-CB	Jackson Peng	22-23 / 55-58	Nov. 22, 2023~ Nov. 25, 2023	For Sector Ant.
Radiated < 1GHz	03CH05-CB	Black Lu	22.5-23.6 / 56-57	Oct. 19, 2023~ Oct. 20, 2023	For Dish Ant.
	10CH01-CB	Tim Chen	23-24 / 60-62	Nov. 30, 2023~ Dec. 26, 2023	For Sector Ant.
Radiated > 1GHz (Unwanted Emissions)	03CH02-CB	Black Lu	22-23 / 56-59	Oct. 12, 2023~ Oct. 18, 2023	For Dish Ant.
	03CH05-CB		22.7-23.8 / 56-59		
	03CH02-CB	Jackson Peng	22-23 / 55-58	Nov. 22, 2023~ Nov. 25, 2023	For Sector Ant.
AC Conduction	CO01-CB	Peter Wu	21-23 / 55-57	Dec. 09, 2021	For Dish Ant.
	CO01-CB	Ryan Huang	21-22 / 60-61	Nov. 30, 2023~ Dec. 26, 2023	For Sector Ant.

Note 1: The tested sample with Dish antenna for WLAN 6GHz (AC Power-line Conducted Emissions) was received on Nov. 22, 2021.

Note 2: The tested sample with Dish antenna for WLAN 6GHz (except for AC Power-line Conducted Emissions) was received on Jul. 06, 2022.

Note 3: The tested sample with Sector antenna was received on Nov. 15, 2023.



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))

For other test sites

Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	3.4 dB	Confidence levels of 95%
Radiated Emission (9kHz ~ 30MHz)	3.7 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	5.1 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	4.1 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	4.2 dB	Confidence levels of 95%
Conducted Emission	3.1 dB	Confidence levels of 95%
Output Power Measurement	0.8 dB	Confidence levels of 95%
Bandwidth Measurement	2.2%	Confidence levels of 95%

Test Site No.: 10CH01-CB

Test Items	Uncertainty	Remark
Radiated Emission (9kHz ~ 30MHz)	5.0 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	5.0 dB	Confidence levels of 95%



2 Test Configuration of EUT

2.1 Test Channel Mode

For Dish Antenna:

Mode	Power Setting
802.11ax HEW20_Nss1,(MCS0)_2TX	-
5955MHz	11
6195MHz	12
6415MHz	12
6535MHz	12
6695MHz	13.5
6855MHz	11
802.11ax HEW40_Nss1,(MCS0)_2TX	-
5965MHz	14
6205MHz	14.5
6405MHz	14.5
6565MHz	15
6685MHz	15
6845MHz	15
802.11ax HEW80_Nss1,(MCS0)_2TX	-
5985MHz	14.5
6225MHz	14.5
6385MHz	14.5
6625MHz	15
6705MHz	15
6785MHz	15
802.11ax HEW160_Nss1,(MCS0)_2TX	-
6025MHz	14.5
6185MHz	14.5
6345MHz	14.5
6665MHz	15.5

For Sector Antenna:

Mode	Power Setting
802.11ax HEW20_Nss1,(MCS0)_2TX	-
5955MHz	13
6195MHz	12.5
6415MHz	12.5
6535MHz	14.5
6695MHz	14
6855MHz	14.5
802.11ax HEW40_Nss1,(MCS0)_2TX	-
5965MHz	13
6205MHz	12.5



Mode	Power Setting
6405MHz	12.5
6565MHz	14.5
6685MHz	14
6845MHz	14.5
802.11ax HEW80_Nss1,(MCS0)_2TX	-
5985MHz	13
6225MHz	12.5
6385MHz	12.5
6625MHz	14
6705MHz	14
6785MHz	14
802.11ax HEW160_Nss1,(MCS0)_2TX	-
6025MHz	13
6185MHz	13
6345MHz	13
6665MHz	14

Note: This test report tested Standard Power Access Point mode only. The power settings of fixed client mode are the same as Standard Power Access Point mode.

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 Test Voltage: 120Vac / 60Hz
Operating Mode	Normal Link
1	EUT + PoE + Dish antenna_WLAN 6GHz
2	EUT + PoE + Sector antenna_WLAN 6GHz
3	EUT + PoE + Sector antenna_WLAN 5GHz
Mode 2 generated the worst test result, so it was recorded in this report.	

The Worst Case Mode for Following Conformance Tests	
Tests Item	Emission Bandwidth Maximum Equivalent Isotropically Radiated Power (E.I.R.P.) for Phi 30° Emission MASK
Test Condition	Conducted measurement at transmit chains
Test Mode	
1	EUT + Dish antenna
2	EUT + Sector antenna



The Worst Case Mode for Following Conformance Tests	
Tests Item	Maximum Equivalent Isotropically Radiated Power (E.I.R.P.) for others Peak Power Spectral Density (E.I.R.P.)
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.
Test Mode	After evaluating, EUT in Y axis was the worst case, so the measurement will follow this same test configuration.
1	EUT in Y axis + Dish antenna
2	EUT in Y axis + Sector antenna

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
	After evaluating, EUT in Y axis was the worst case, so the measurement will follow this same test configuration.
1	EUT in Y axis + PoE + Dish antenna_WLAN 6GHz
2	EUT in Y axis + PoE + Sector antenna_WLAN 6GHz
3	EUT in Y axis + PoE + Sector antenna_WLAN 5GHz
Mode 1 generated the worst test result, so it was recorded in this report.	
Operating Mode > 1GHz	CTX
	After evaluating, EUT in Y axis was the worst case, so the measurement will follow this same test configuration.
1	EUT in Y axis + Dish antenna
2	EUT in Y axis + Sector antenna

Note: The PoE was for measurement only and would not be marketed. Its information is shown as below:

Equipment	Brand Name	Model Name	FCC ID
PoE	Cambium Networks	NET-P30-56IN	N/A



2.3 EUT Operation during Test

For CTX Mode:

The EUT was programmed to be in continuously transmitting mode.

For Normal Link:

During the test, the EUT operation to normal function.

2.4 Accessories

N/A

2.5 Support Equipment

For AC Conduction:

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	PoE	Cambium Networks	NET-P30-56IN	N/A
B	ETH NB	DELL	E6430	N/A
C	SFP PC	ASUS	S300TA	TX2-RTL8821CE
D	GPS Simulator	WELNAVIGATE	GS-100	N/A
E	Device	Cambium Networks	Force 4600C	Z8H89FT0069
F	Device NB	DELL	E6430	N/A
G	GPS ANT	Unictron	H2M3A023C20100	N/A

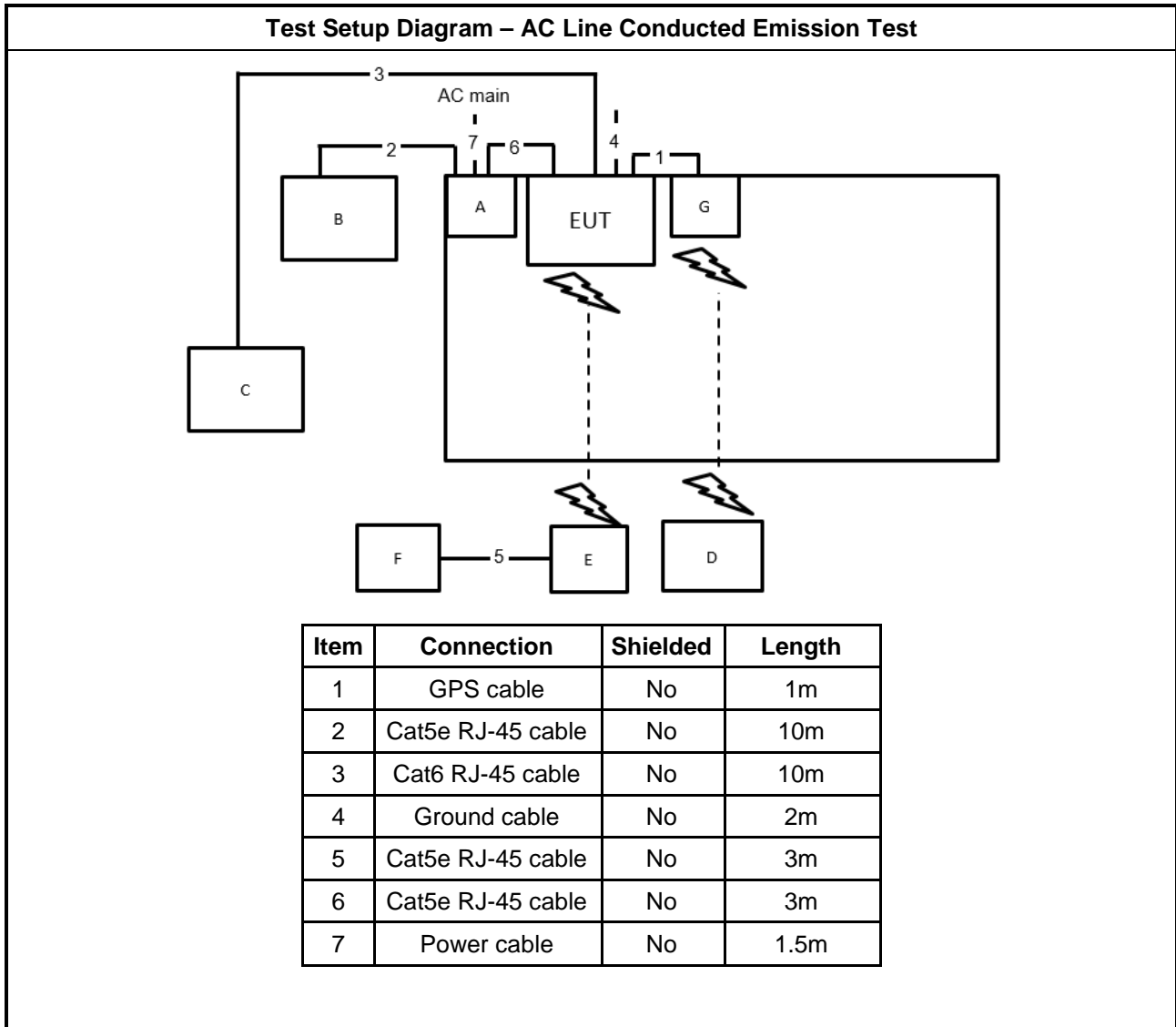
For Radiated < 1GHz:

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	PoE	Cambium Networks	NET-P30-56IN	N/A
B	Eth/Reset NB	DELL	E4300	N/A
C	Device NB	DELL	E4300	N/A
D	SFP NB	HP	SGH8190LP1	N/A
E	GPS Simulator	WELNAVIGATE	GS-100	N/A
F	Device	Cambium Networks	Force 4600C	Z8H89FT0069

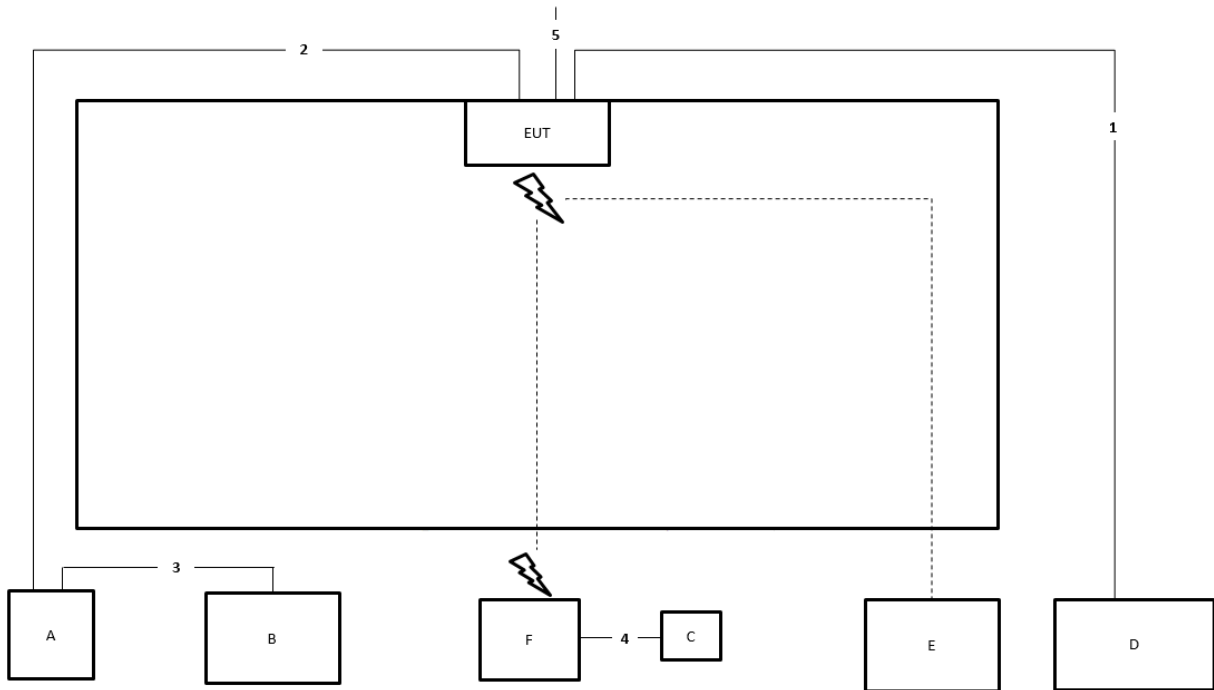
For Radiated > 1GHz (Unwanted Emissions / E.I.R.P. Power for others / PSD) and RF Conducted:

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	Notebook	DELL	E4300	N/A
B	PoE	Cambium Networks	NET-P30-56IN	N/A

2.6 Test Setup Diagram

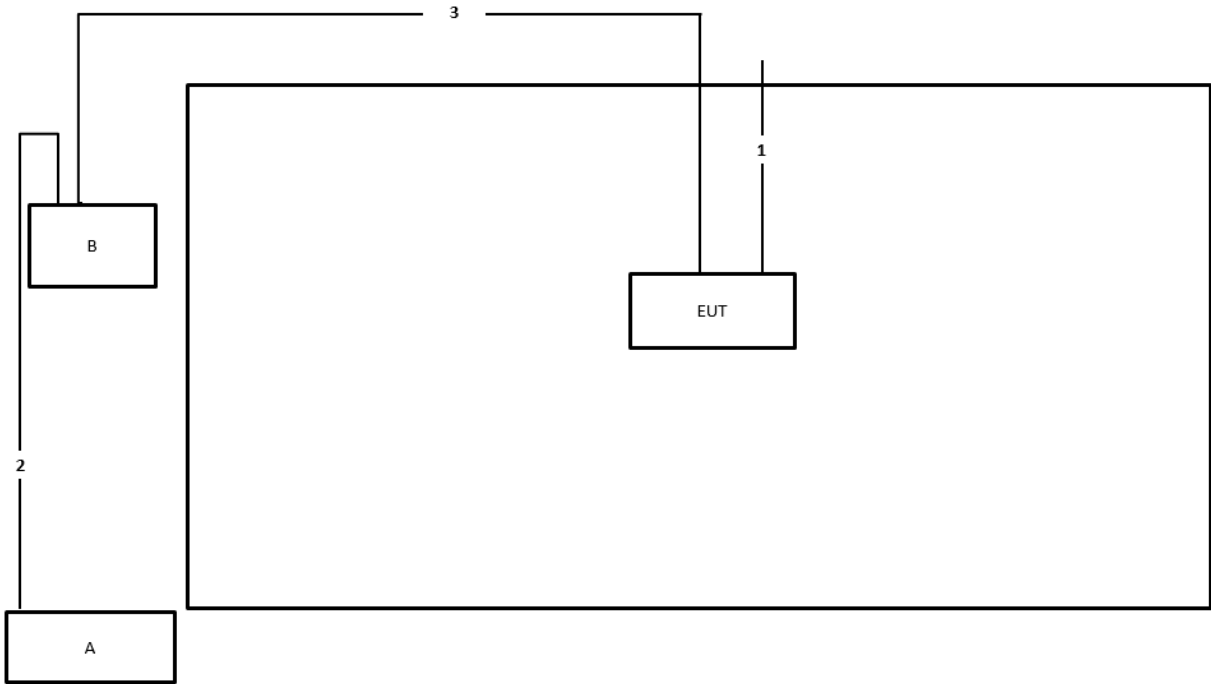


Test Setup Diagram - Radiated Test < 1GHz

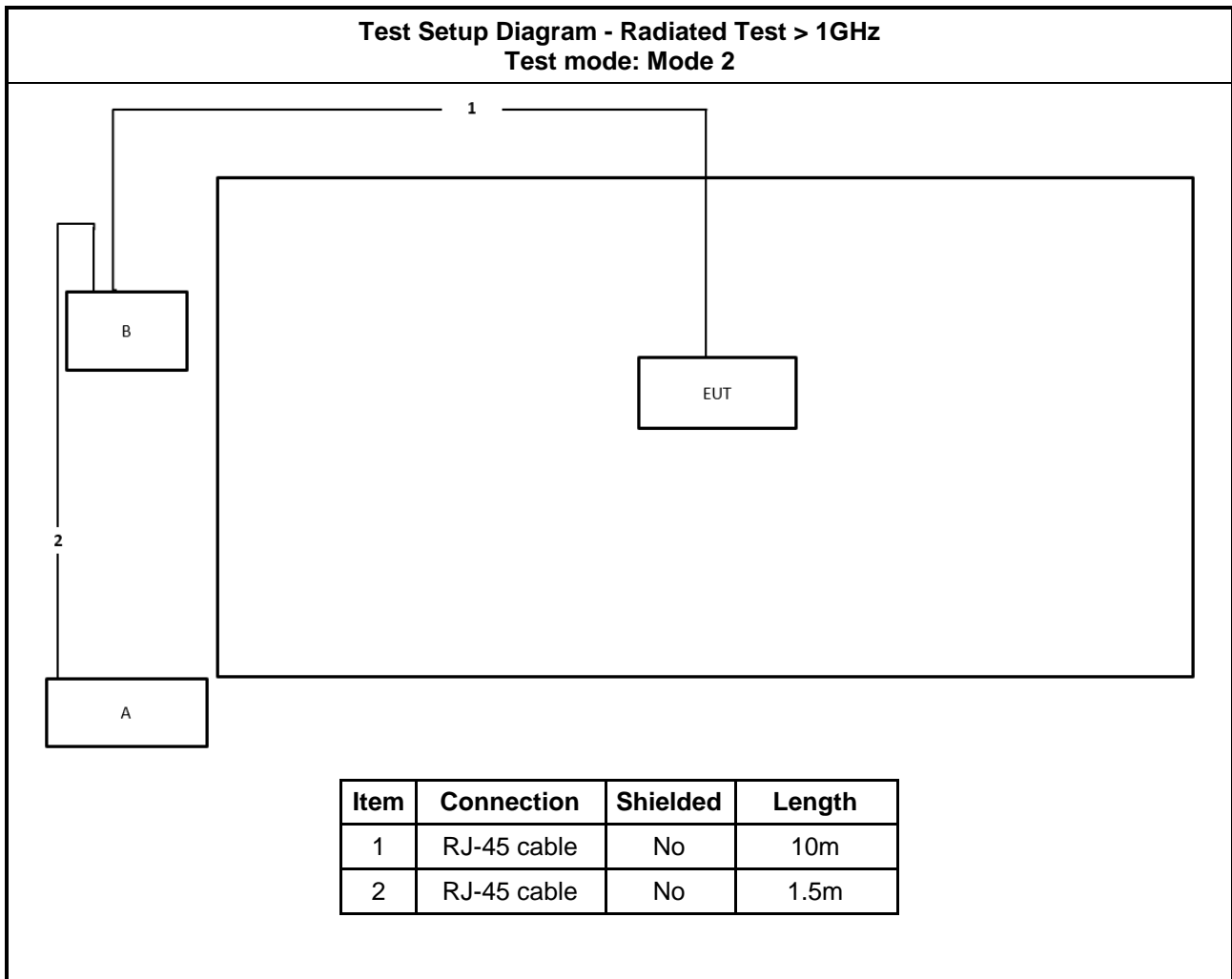


Item	Connection	Shielded	Length
1	RJ-45 cable	No	10m
2	RJ-45 cable	No	10m
3	RJ-45 cable	No	1.5m
4	RJ-45 cable	No	10m
5	Ground cable	No	1.5m

Test Setup Diagram - Radiated Test > 1GHz
Test mode: Mode 1



Item	Connection	Shielded	Length
1	Ground cable	No	3m
2	RJ-45 cable	No	1.5m
3	RJ-45 cable	No	10m





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.

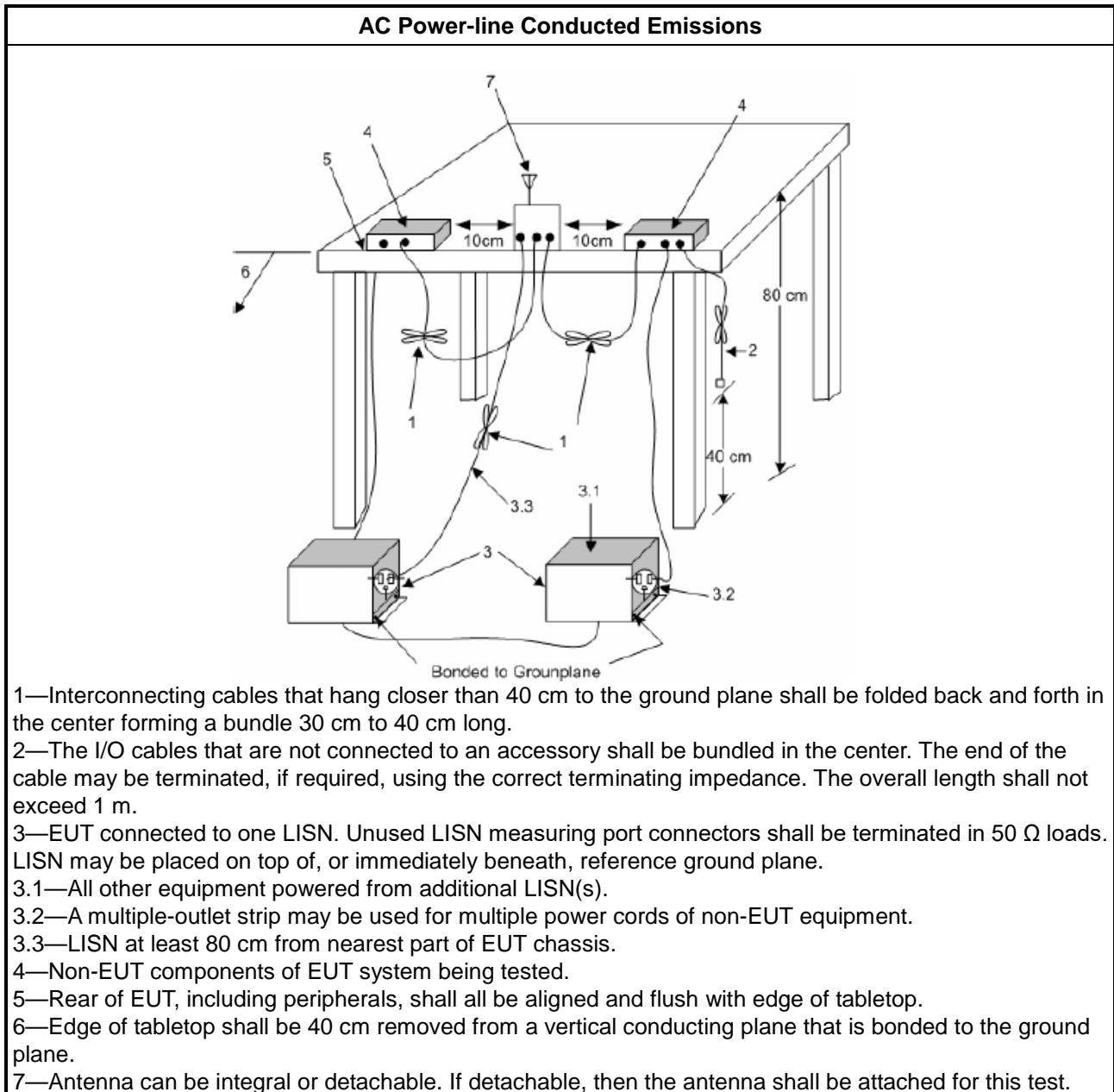
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

Test Method
<input checked="" type="checkbox"/> Refer as ANSI C63.10-2013, clause 6.2 for AC power-line conducted emissions.

3.1.4 Test Setup



3.1.5 Measurement Results Calculation

The measured Level is calculated using:

- a. Corrected Reading (dBuV) = LISN Factor + Cable Loss + Read Level = Level
- b. Margin = - Limit + (Read Level + LISN Factor + Cable Loss)

3.1.6 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	
<input checked="" type="checkbox"/>	For the 5925-6425 GHz band, N/A
<input type="checkbox"/>	For the 6425-6525 GHz band, N/A
<input checked="" type="checkbox"/>	For the 6525-6875 GHz band, N/A
<input type="checkbox"/>	For the 6875-7125 GHz band, N/A
RLAN Devices	
<input type="checkbox"/>	For the 5925-6425 GHz band, N/A
<input type="checkbox"/>	For the 6425-6525 GHz band, N/A
<input type="checkbox"/>	For the 6525-6875 GHz band, N/A
<input type="checkbox"/>	For the 6875-7125 GHz band, N/A

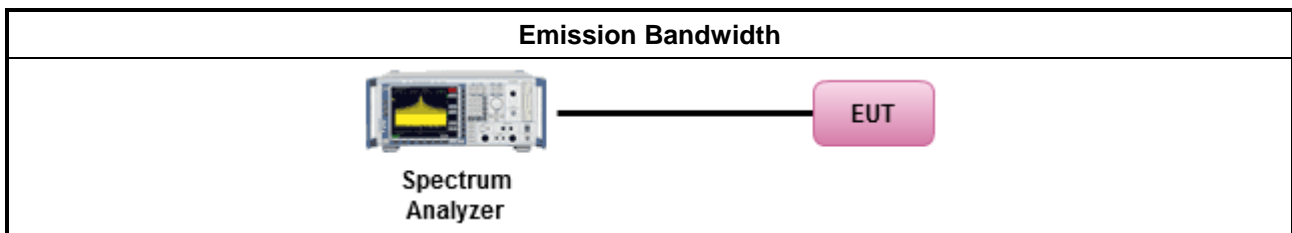
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

Test Method	
<ul style="list-style-type: none"> ▪ For the emission bandwidth shall be measured using one of the options below: 	
<input checked="" type="checkbox"/>	According to FCC KDB 987594 D02 clause II.C, measurement procedure shall refer to FCC KDB 789033 D02, clause C for EBW and clause D for OBW measurement.
<input type="checkbox"/>	Refer as ANSI C63.10, clause 6.9.1 for occupied bandwidth testing.
<input type="checkbox"/>	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 Equivalent Isotropically Radiated Power (E.I.R.P.)

3.3.1 Maximum Equivalent Isotropically Radiated Power (E.I.R.P.) Limit

Maximum Equivalent Isotropically Radiated Power (E.I.R.P.) Limit	
UNII Devices	
<input checked="" type="checkbox"/>	For the 5.925 ~ 6.425 GHz band:
<input type="checkbox"/>	<ul style="list-style-type: none"> ▪ For standard power access point and fixed client device : e.i.r.p < 36 dBm , For outdoor devices, the maximum e.i.r.p. at any elevation angle above 30 degrees not exceed 125 mW (21 dBm). ▪ For indoor access point : e.i.r.p < 30 dBm. ▪ For subordinate device control of an indoor access point : e.i.r.p < 30 dBm. ▪ For client device control of a standard power access point : e.i.r.p < 30 dBm. ▪ For client device control of an indoor access point : e.i.r.p < 24 dBm.
<input type="checkbox"/>	For the 6.425 ~ 6.525 GHz band:
<input type="checkbox"/>	<ul style="list-style-type: none"> ▪ For indoor access point : e.i.r.p < 30 dBm. ▪ For client device control of an indoor access point : e.i.r.p < 24 dBm.
<input checked="" type="checkbox"/>	For the 6.525 ~ 6.875 GHz band:
<input type="checkbox"/>	<ul style="list-style-type: none"> ▪ For standard power access point and fixed client device : e.i.r.p < 36 dBm , For outdoor devices, the maximum e.i.r.p. at any elevation angle above 30 degrees not exceed 125 mW (21 dBm). ▪ For indoor access point : e.i.r.p < 30 dBm. ▪ For subordinate device control of an indoor access point : e.i.r.p < 30 dBm. ▪ For client device control of a standard power access point : e.i.r.p < 30 dBm. ▪ For client device control of an indoor access point : e.i.r.p < 24 dBm.
<input type="checkbox"/>	For the 6.875 ~ 7.125 GHz band:
<input type="checkbox"/>	<ul style="list-style-type: none"> ▪ For indoor access point : e.i.r.p < 30 dBm. ▪ For client device control of an indoor access point : e.i.r.p < 24 dBm.
RLAN Devices	
<input type="checkbox"/>	For the 5.925 ~ 7.125 GHz band:
<input type="checkbox"/>	<ul style="list-style-type: none"> ▪ For low-power indoor access-points & indoor subordinate devices < 30 dBm . ▪ For low-power client devices < 24 dBm.
<input type="checkbox"/>	For the 5.925 ~ 6.875 GHz band:
<input type="checkbox"/>	<ul style="list-style-type: none"> ▪ For standard-power access points & fixed client devices < 36 dBm. ▪ For standard client devices < 30 dBm.



3.3.2 Measuring Instruments

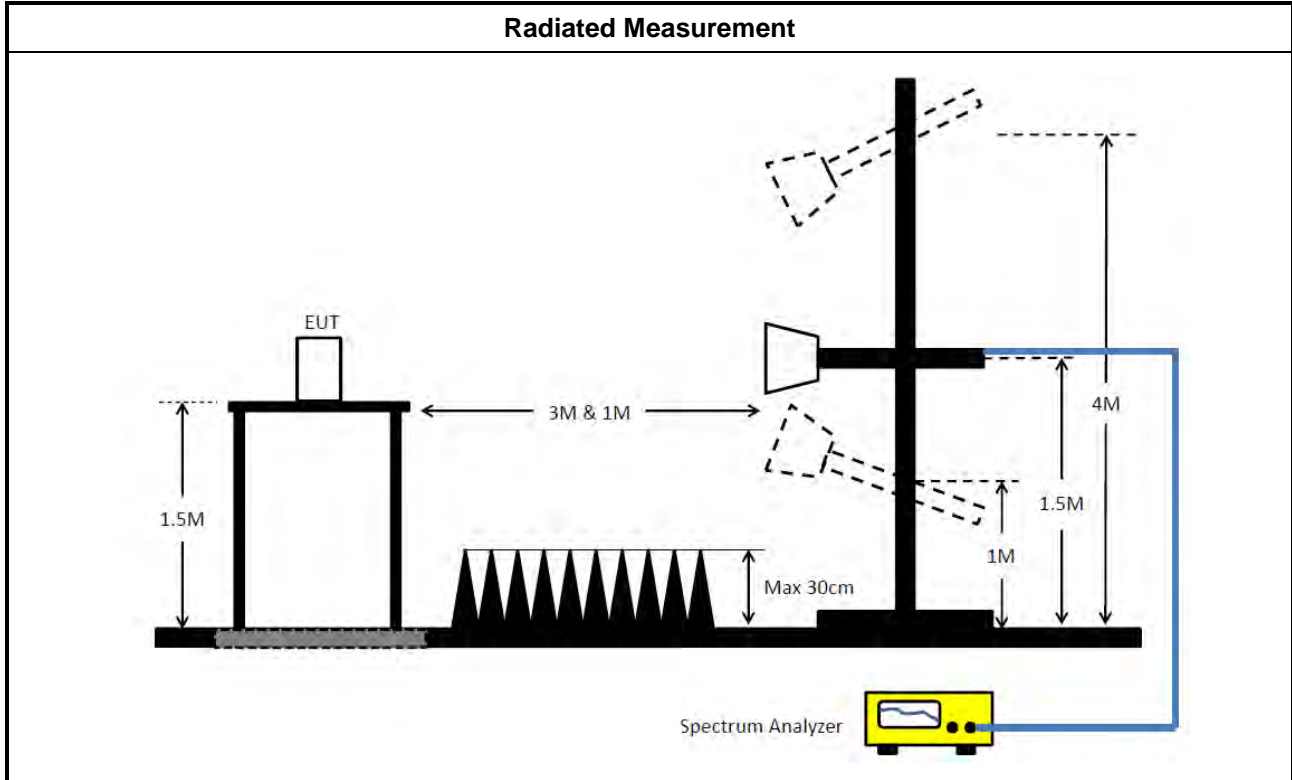
Refer a test equipment and calibration data table in this test report.

3.3.3 Test Procedures

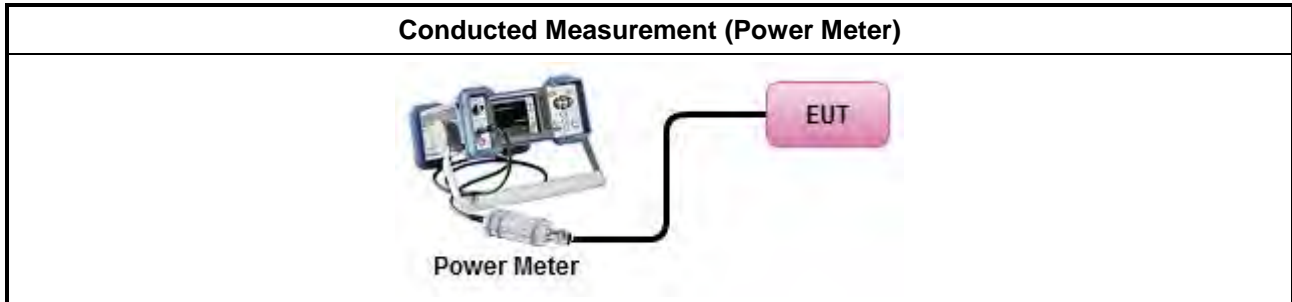
Test Method	
<ul style="list-style-type: none"> According to FCC KDB 987594 D02 clause II.E, the test measurement procedure shall refer to KDB 789033. 	
Average over on/off periods with duty factor	
<input checked="" type="checkbox"/>	For others: Refer as FCC KDB 789033 D02, clause E Method SA-2 (spectral trace averaging). Spectrum analyzer setting: RBW/VBW : 1/3MHz ; Detector : RMS ; Trace mode : Average ; Sweep Count 100.
<input type="checkbox"/>	Refer as FCC KDB 789033 D02, 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	
<input checked="" type="checkbox"/>	For Phi 30°: Refer as FCC KDB 789033 D02, clause E Method PM-G (using an RF average power meter).
<input checked="" type="checkbox"/>	For conducted measurement.
<ul style="list-style-type: none"> 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]) $EIRP_{total} = P_{total} + DG$ 	
<input checked="" type="checkbox"/>	For radiated measurement.
<ul style="list-style-type: none"> Refer as FCC KDB 789033 D02 clause II A.1.F "Antenna-port Conducted versus Radiated Testing" Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1GHz. Refer as FCC KDB 412172 D01 clause 2.2 for EIRP calculation. 	

3.3.4 Test Setup

For others:



For Phi 30°:



3.3.5 Test Result of Maximum Equivalent Isotropically Radiated Power (E.I.R.P)

Refer as Appendix C



3.4 Peak Power Spectral Density (E.I.R.P.)

3.4.1 Peak Power Spectral Density (E.I.R.P.) Limit

Peak Power Spectral Density (E.I.R.P.) Limit	
UNII Devices	
<input checked="" type="checkbox"/>	For the 5.925 ~ 6.425 GHz band:
<input type="checkbox"/>	For the 6.425 ~ 6.525 GHz band:
<input checked="" type="checkbox"/>	For the 6.525 ~ 6.875 GHz band:
<input type="checkbox"/>	For the 6.875 ~ 7.125 GHz band:
RLAN Devices	
<input type="checkbox"/>	For the 5.925 ~ 7.125 GHz band:
<input type="checkbox"/>	For the 5.925 ~ 6.875 GHz band:

3.4.2 Measuring Instruments

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

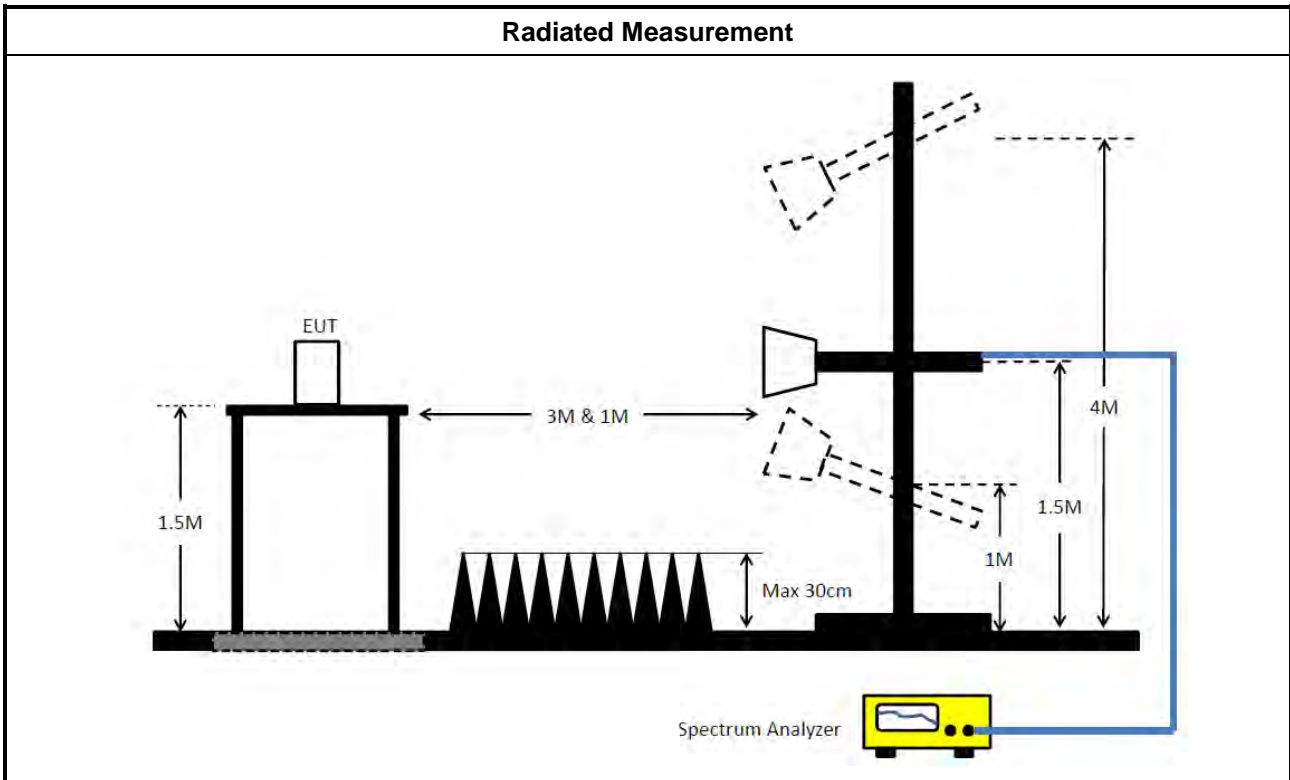


3.4.3 Test Procedures

Test Method	
	<ul style="list-style-type: none"> ▪ According to FCC KDB 987594 D02 clause II.F, the measurement procedure shall refer to KDB 789033. 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:
<input type="checkbox"/>	Refer as FCC KDB 789033 D02, 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]
<input checked="" type="checkbox"/>	Refer as FCC KDB 789033 D02, clause E Method SA-1 (spectral trace averaging).
<input type="checkbox"/>	Refer as FCC KDB 789033 D02, clause E Method SA-1 Alt. (RMS detection with slow sweep speed)
	duty cycle < 98% and average over on/off periods with duty factor
<input checked="" type="checkbox"/>	Refer as FCC KDB 789033 D02, clause E Method SA-2 (spectral trace averaging).
<input type="checkbox"/>	Refer as FCC KDB 789033 D02, clause E Method SA-2 Alt. (RMS detection with slow sweep speed)
<input type="checkbox"/>	For conducted measurement.
	<ul style="list-style-type: none"> ▪ If the EUT supports multiple transmit chains using options given below:
<input type="checkbox"/>	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.
<input type="checkbox"/>	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,
<input type="checkbox"/>	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.
	<ul style="list-style-type: none"> ▪ 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]) $EIRP_{total} = PPSD_{total} + DG$

<input checked="" type="checkbox"/>	For radiated measurement.
<input type="checkbox"/>	Refer as FCC KDB 789033 D02 clause II A.1.F "Antenna-port Conducted versus Radiated Testing"
<input type="checkbox"/>	Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1GHz.
<input type="checkbox"/>	Refer as FCC KDB 412172 D01 clause 2.2 for EIRP calculation.

3.4.4 Test Setup



3.4.5 Test Result of Peak Power Spectral Density (E.I.R.P.)

Refer as Appendix D



3.5 Unwanted Emissions

3.5.1 Transmitter Unwanted Emissions Limit

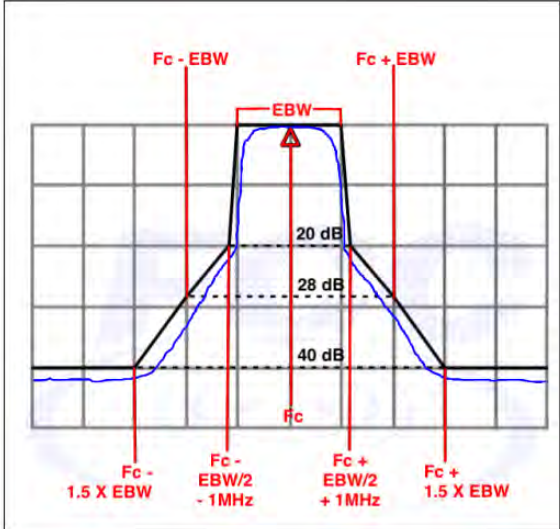
Unwanted emissions below 1 GHz and restricted band emissions above 1GHz limit			
Frequency Range (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m)	Measure Distance (m)
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300
0.490~1.705	24000/F(kHz)	33.8 - 23	30
1.705~30.0	30	29	30
30~88	100	40	3
88~216	150	43.5	3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

Note 3: Using the distance of 1m during the test for above 18 GHz, and the test value to correct for the distance factor at 3m($20 \times \log(\text{standard distance}/\text{test distance}) = 20\log(3/1) = 9.54\text{dB}$).
 EX. Above 18GHz emission limit calculation (3m to 1m) = $54\text{dBuV/m at } 3\text{m} + 9.54\text{dB} = 63.54\text{ dBuV/m at } 1\text{m}$.

Un-restricted band emissions above 1GHz Limit	
Frequency	Limit
Any outside the 5.945 – 7.125 GHz emission	e.i.r.p. -27 dBm [68.2 dBuV/m@3m] Note 1: Using the distance of 1m during the test for above 18 GHz, and the test value to correct for the distance factor at 3m($20 \times \log(\text{standard distance}/\text{test distance}) = 20\log(3/1) = 9.54\text{dB}$). EX. Above 18GHz emission limit calculation (3m to 1m) = $68.2\text{dBuV/m at } 3\text{m} + 9.54\text{dB} = 77.74\text{ dBuV/m at } 1\text{m}$. Note 2:-27 dBm EIRP OOBE is measured RMS which is a deviation from the current 15E rules for 5 GHz bands. In addition, 15.35(b) applies where the peak emissions must be limited to no more than 20 dB above the average limit.

Frequency	Emission MASK Limit
5.945 – 7.125 GHz	<p>Power spectral density must be suppressed by 20 dB at 1 MHz outside of channel edge, by 28 dB at one channel bandwidth from the channel center, and by 40 dB at one- and one-half times the channel bandwidth away from channel center. At frequencies between one megahertz outside an unlicensed device's channel edge and one channel bandwidth from the center of the channel, the limits must be linearly interpolated between 20 dB and 28 dB suppression, and at frequencies between one and one- and one-half times an unlicensed device's channel bandwidth, the limits must be linearly interpolated between 28 dB and 40 dB suppression. Emissions removed from the channel center by more than one- and one-half times the channel bandwidth must be suppressed by at least 40 dB.</p> 



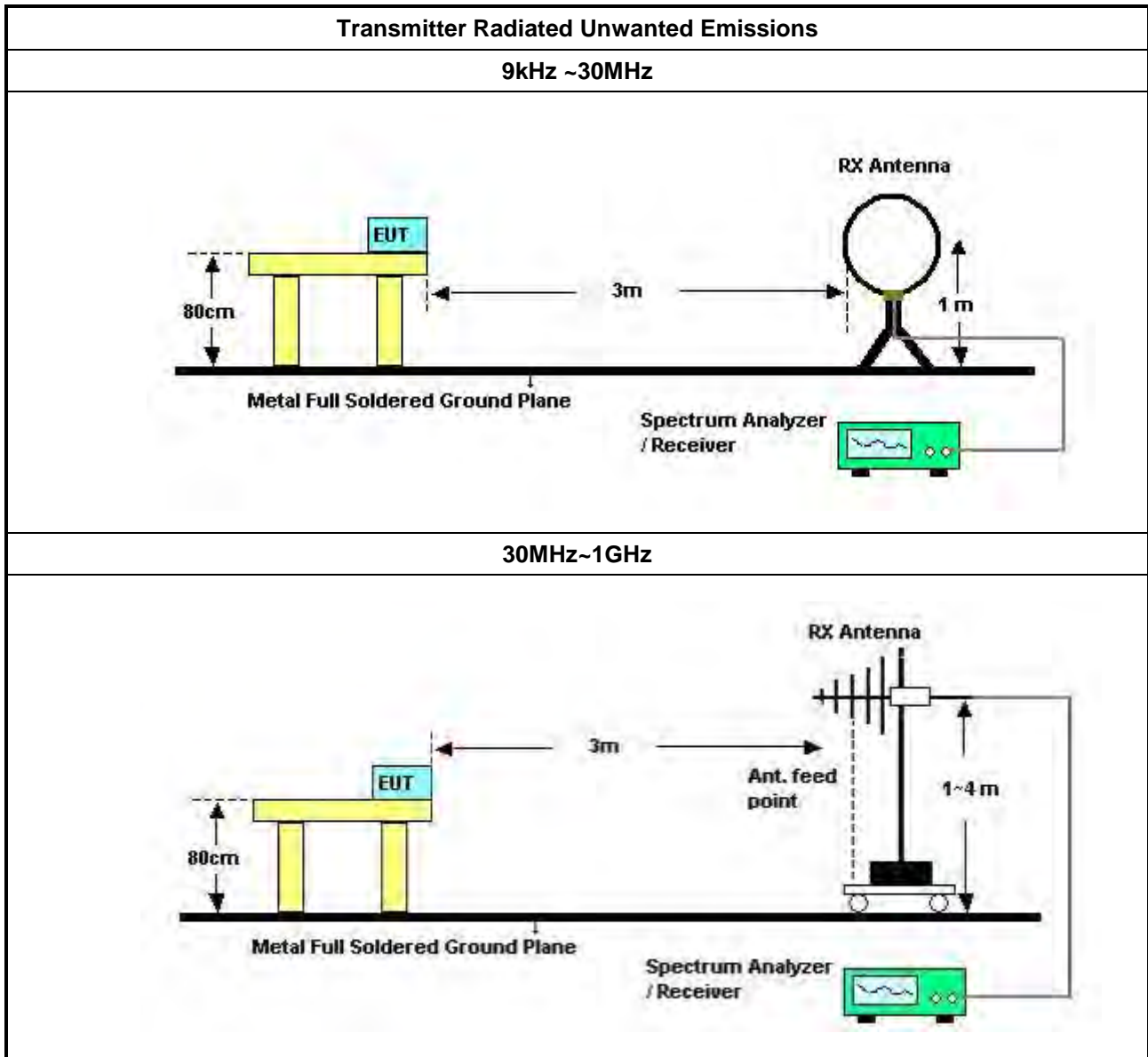
3.5.2 Measuring Instruments

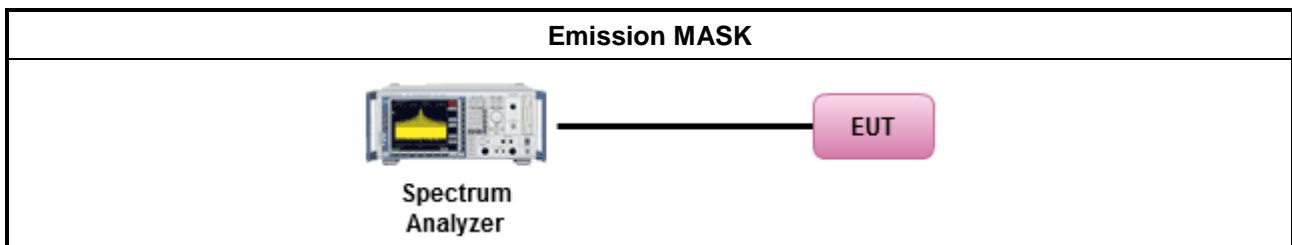
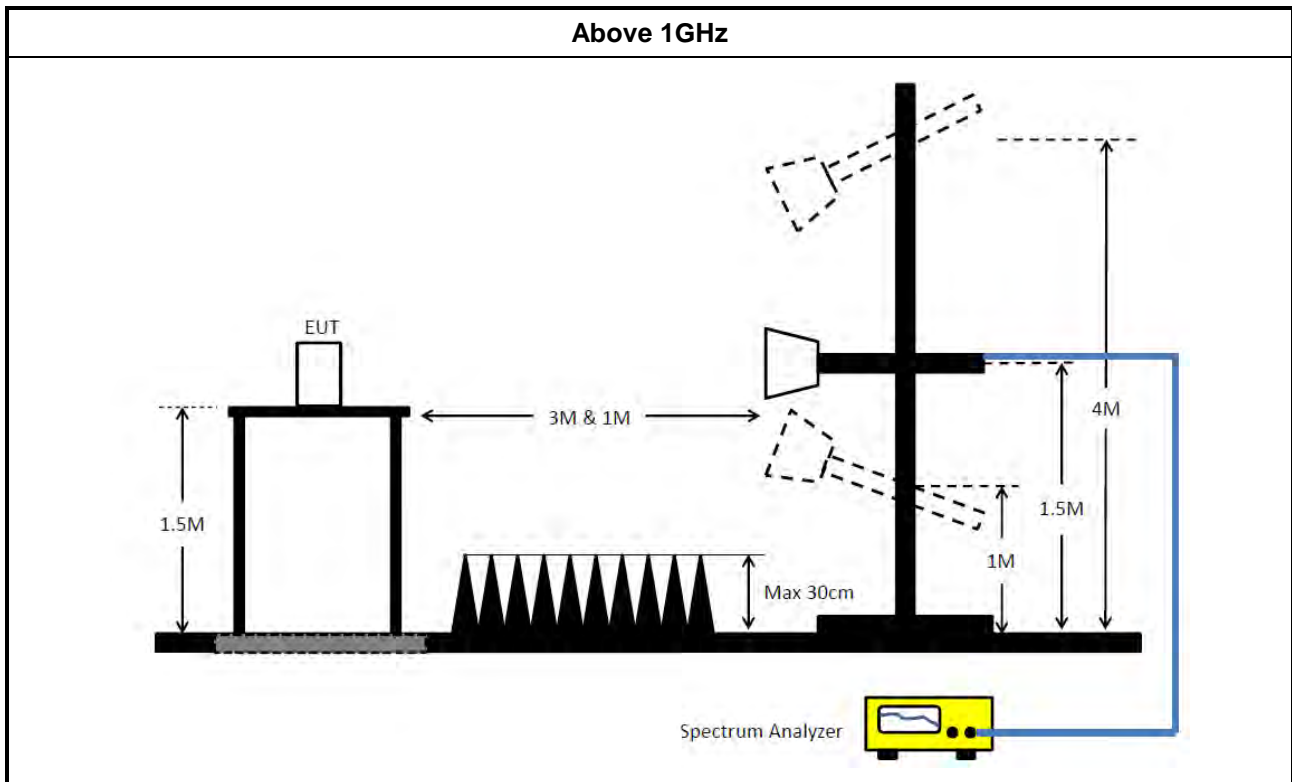
Refer a test equipment and calibration data table in this test report.

3.5.3 Test Procedures

Test Method		
<ul style="list-style-type: none"> ▪ According to FCC KDB 987594 D02 II.G. the unwanted emission measurement procedure shall refer to KDB 789300(except emission MASK). 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). 		
<ul style="list-style-type: none"> ▪ The average emission levels shall be measured in [duty cycle ≥ 98 or duty factor]. 		
<ul style="list-style-type: none"> ▪ For the transmitter unwanted emissions shall be measured using following options below: 		
	<ul style="list-style-type: none"> ▪ Refer as FCC KDB 789033 D02, clause G)2) for unwanted emissions into non-restricted bands. 	
	<ul style="list-style-type: none"> ▪ Refer as FCC KDB 789033 D02, clause G)1) for unwanted emissions into restricted bands. 	
	<input checked="" type="checkbox"/> Refer as FCC KDB 789033 D02, G)6) Method AD (Trace Averaging). (For unrestricted band measurement)	
	<input type="checkbox"/> Refer as FCC KDB 789033 D02, G)6) Method VB (Reduced VBW).	
	<input checked="" type="checkbox"/> Refer as ANSI C63.10, clause 11.12.2.5.3 (Reduced VBW). VBW ≥ 1/T, where T is pulse time.(For restricted band average measurement)	
	<input type="checkbox"/> Refer as ANSI C63.10, clause 7.5 average value of pulsed emissions.	
	<input checked="" type="checkbox"/> Refer as FCC KDB 789033 D02, clause G)5) measurement procedure peak limit.	
	<input type="checkbox"/> Refer as ANSI C63.10, clause 4.1.4.2.2 measurement procedure peak limit.	
	<ul style="list-style-type: none"> ▪ Refer as FCC KDB 789033 D02, clause G)3)d)ii) for Band edge Integration measurements. 	
	<ul style="list-style-type: none"> ▪ For emission MASK shall be measured using following options below: 	
	<input checked="" type="checkbox"/> Refer as FCC KDB 987594 D02, J) In-Band Emissions	
<ul style="list-style-type: none"> ▪ For radiated measurement. 		
	<ul style="list-style-type: none"> ▪ Refer as ANSI C63.10, clause 6.4 for radiated emissions below 30 MHz and test distance is 3m. 	
	<ul style="list-style-type: none"> ▪ Refer as ANSI C63.10, clause 6.5 for radiated emissions 30 MHz to 1 GHz and test distance is 3m. 	
	<ul style="list-style-type: none"> ▪ Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1GHz. 	
<ul style="list-style-type: none"> ▪ The any unwanted emissions level shall not exceed the fundamental emission level. 		
<ul style="list-style-type: none"> ▪ 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 Measurement Results Calculation

The measured Level is calculated using:

Corrected Reading: Antenna factor (AF) + Cable loss (CL) + Read level (Raw) - Preamp factor (PA)(if applicable)
= Level

3.5.6 Transmitter Unwanted Emissions (Below 30MHz)

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

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

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

3.5.7 Test Result of Transmitter Unwanted Emissions

Refer as Appendix E



4 Test Equipment and Calibration Data

Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
EMI Receiver	Agilent	N9038A	My52260123	9kHz ~ 8.4GHz	Mar. 03, 2021	Mar. 02, 2022	Conduction (CO01-CB)
EMI Receiver	Agilent	N9038A	My52260123	9kHz ~ 8.4GHz	Feb. 20, 2023	Feb. 19, 2024	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz ~ 100MHz	Jan. 06, 2021	Jan. 05, 2022	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz ~ 100MHz	Feb. 16, 2023	Feb. 15, 2024	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Mar. 07, 2021	Mar. 06, 2022	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Apr. 27, 2023	Apr. 26, 2024	Conduction (CO01-CB)
Pulse Limiter	Rohde& Schwarz	ESH3-Z2	100430	9kHz ~ 30MHz	Jan. 30, 2021	Jan. 29, 2022	Conduction (CO01-CB)
Pulse Limiter	Rohde&Schwarz	ESH3-Z2	100430	9kHz ~ 30MHz	Feb. 09, 2023	Feb. 08, 2024	Conduction (CO01-CB)
COND Cable	Woken	Cable	Low cable-CO01	9kHz ~ 30MHz	May 19, 2021	May 18, 2022	Conduction (CO01-CB)
COND Cable	Woken	Cable	Low cable-CO01	9kHz ~ 30MHz	Oct. 17, 2023	Oct. 16, 2024	Conduction (CO01-CB)
Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Conduction (CO01-CB)
Loop Antenna	Teseq	HLA 6121	65417	9kHz - 30 MHz	Oct. 13, 2023	Oct. 12, 2024	Radiation (10CH01-CB)
10m Semi Anechoic Chamber NSA	TDK	SAC-10M	10CH01-CB	30MHz~1GHz 10m,3m	Jan. 18, 2023	Jan. 17, 2024	Radiation (10CH01-CB)
Amplifier	Agilent	8447D	2944A10783	9kHz ~ 1.3GHz	Mar. 10, 2023	Mar. 09, 2024	Radiation (10CH01-CB)
Amplifier	Agilent	8447D	2944A10784	9kHz ~ 1.3GHz	Mar. 10, 2023	Mar. 09, 2024	Radiation (10CH01-CB)
Low Cable	Woken	SUCOFLEX 104	low cable-01	25MHz ~ 1GHz	Oct. 17, 2023	Oct. 16, 2024	Radiation (10CH01-CB)
Low Cable	Woken	SUCOFLEX 104	low cable-02	25MHz ~ 1GHz	Oct. 17, 2023	Oct. 16, 2024	Radiation (10CH01-CB)
EMI Test Receiver	Rohde&Schwarz	ESCI	100186	9kHz ~ 3GHz	Jul. 11, 2023	Jul. 10, 2024	Radiation (10CH01-CB)
Spectrum Analyzer	Rohde&Schwarz	FSV30	101026	9kHz ~ 30GHz	Apr. 19, 2023	Apr. 18, 2024	Radiation (10CH01-CB)
Bilog Antenna with 6dB Attenuator	Schaffner & EMC	CBL6112B& N-6-06	2888&AT-N0605	30MHz ~ 1GHz	Jan. 19, 2023	Jan. 18, 2024	Radiation (10CH01-CB)



Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
Amplifier	EM	EM101	060703	10MHz ~ 1GHz	Oct. 18, 2023	Oct. 17, 2024	Radiation (10CH01-CB)
Low Cable	TITAN	T318E	low cable-03	30MHz ~ 1GHz	Nov. 23, 2023	Nov. 22, 2024	Radiation (10CH01-CB)
Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (10CH01-CB)
Loop Antenna	Teseq	HLA 6120	31244	9kHz - 30 MHz	Mar. 23, 2023	Mar. 22, 2024	Radiation (03CH05-CB)
3m Semi Anechoic Chamber NSA	TDK	SAC-3M	03CH05-CB	30 MHz ~ 1GHz	Aug. 02, 2023	Aug. 01, 2024	Radiation (03CH05-CB)
Bilog Antenna with 6dB Attenuator	TESEQ & EMCI	CBL 6112D & N-6-06	35236 & AT-N0610	30MHz ~ 2GHz	Mar. 24, 2023	Mar. 23, 2024	Radiation (03CH05-CB)
Amplifier	EMCI	EMC330N	980331	20MHz ~ 3GHz	May 03, 2023	May 02, 2024	Radiation (03CH05-CB)
Spectrum Analyzer	R&S	FSP40	100304	9kHz ~ 40GHz	Apr. 18, 2023	Apr. 17, 2024	Radiation (03CH05-CB)
EMI Test Receiver	R&S	ESCS	826547/017	9kHz ~ 2.75GHz	Jun. 13, 2023	Jun. 12, 2024	Radiation (03CH05-CB)
RF Cable-low	Woken	RG402	Low Cable-04+23	30MHz~1GHz	Oct. 02, 2023	Oct. 01, 2024	Radiation (03CH05-CB)
3m Semi Anechoic Chamber VSWR	TDK	SAC-3M	03CH05-CB	1GHz ~18GHz 3m	Sep. 29, 2023	Sep. 28, 2024	Radiation (03CH05-CB)
Horn Antenna	SCHWARZBECK	BBHA9120D	BBHA 9120 D-1291	1GHz~18GHz	Jun. 08, 2023	Jun. 07, 2024	Radiation (03CH05-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Sep. 04, 2023	Sep. 03, 2024	Radiation (03CH05-CB)
Pre-Amplifier	EMCI	EMC12630SE	980287	1GHz – 26.5GHz	Jun. 30, 2023	Jun. 29, 2024	Radiation (03CH05-CB)
Pre-Amplifier	SGH	SGH184	20221107-3	18GHz ~ 40GHz	Nov. 16, 2022	Nov. 15, 2023	Radiation (03CH05-CB)
Spectrum Analyzer	R&S	FSP40	100304	9kHz ~ 40GHz	Apr. 18, 2023	Apr. 17, 2024	Radiation (03CH05-CB)
RF Cable-high	Woken	RG402	High Cable-28	1GHz~18GHz	Oct. 02, 2023	Oct. 01, 2024	Radiation (03CH05-CB)
RF Cable-high	Woken	RG402	High Cable-04+28	1GHz~18GHz	Oct. 02, 2023	Oct. 01, 2024	Radiation (03CH05-CB)
High Cable	Woken	WCA0929M	40G#5+6	1GHz ~ 40 GHz	Oct. 02, 2023	Oct. 01, 2024	Radiation (03CH05-CB)
High Cable	Woken	WCA0929M	40G#5	1GHz ~ 40 GHz	Oct. 02, 2023	Oct. 01, 2024	Radiation (03CH05-CB)
High Cable	Woken	WCA0929M	40G#6	1GHz ~ 40 GHz	Oct. 02, 2023	Oct. 01, 2024	Radiation (03CH05-CB)



Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
Band Rejector	MTJ	6G Band Rejector	BRJ-01	1GHz ~ 7.4GHz	Oct. 03, 2023	Oct. 02, 2024	Radiation (03CH05-CB)
Band Rejector	MTJ	6G Band Rejector	BRJ-02	1GHz ~ 8GHz	Oct. 03, 2023	Oct. 02, 2024	Radiation (03CH05-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (03CH05-CB)
3m Semi Anechoic Chamber VSWR	RIKEN	SAC-3M	03CH02-CB	1GHz ~18GHz	Mar. 25, 2023	Mar. 24, 2024	Radiation (03CH02-CB)
Horn Antenna	EMCO	3115	9610-4976	1GHz ~ 18GHz	Apr. 18, 2023	Apr. 17, 2024	Radiation (03CH02-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Sep. 04, 2023	Sep. 03, 2024	Radiation (03CH02-CB)
Pre-Amplifier	Agilent	83017A	MY39501305	1GHz ~ 26.5GHz	Jun. 30, 2023	Jun. 29, 2024	Radiation (03CH02-CB)
Pre-Amplifier	SGH	SGH184	20230109-3	18~40GHz	Jan. 13, 2023	Jan. 12, 2024	Radiation (03CH02-CB)
Signal Analyzer	R&S	FSV3044	101437	10kHz ~ 44GHz	Nov. 29, 2022	Nov. 29, 2023	Radiation (03CH02-CB)
RF Cable-high	Woken	RG402	High Cable-18	1GHz ~ 18GHz	Oct. 02, 2023	Oct. 01, 2024	Radiation (03CH02-CB)
RF Cable-high	Woken	RG402	High Cable-18+19	1GHz ~ 18GHz	Oct. 02, 2023	Oct. 01, 2024	Radiation (03CH02-CB)
High Cable	Woken	WCA0929M	40G#5+6	1GHz ~ 40 GHz	Oct. 02, 2023	Oct. 01, 2024	Radiation (03CH02-CB)
High Cable	Woken	WCA0929M	40G#5	1GHz ~ 40 GHz	Oct. 02, 2023	Oct. 01, 2024	Radiation (03CH02-CB)
High Cable	Woken	WCA0929M	40G#6	1GHz ~ 40 GHz	Oct. 02, 2023	Oct. 01, 2024	Radiation (03CH02-CB)
Band Rejector	MTJ	6G Band Rejector	BRJ-01	1GHz ~ 7.4GHz	Oct. 03, 2023	Oct. 02, 2024	Radiation (03CH02-CB)
Band Rejector	MTJ	6G Band Rejector	BRJ-02	1GHz ~ 8GHz	Oct. 03, 2023	Oct. 02, 2024	Radiation (03CH02-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (03CH02-CB)
Spectrum analyzer	R&S	FSV40	100979	9kHz~40GHz	May 29, 2023	May 28, 2024	Conducted (TH01-CB)
Switch	SPTCB	SP-SWI	SWI-01	1~26.5 GHz	Oct. 03, 2023	Oct. 02, 2024	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-06	1 GHz – 18 GHz	Oct. 02, 2023	Oct. 01, 2024	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-07	1 GHz – 18 GHz	Oct. 02, 2023	Oct. 01, 2024	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-08	1 GHz – 18 GHz	Oct. 02, 2023	Oct. 01, 2024	Conducted (TH01-CB)



Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
RF Cable-high	Woken	RG402	High Cable-09	1 GHz – 18 GHz	Oct. 02, 2023	Oct. 01, 2024	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-10	1 GHz – 18 GHz	Oct. 02, 2023	Oct. 01, 2024	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-30	1 GHz – 18 GHz	Oct. 02, 2023	Oct. 01, 2024	Conducted (TH01-CB)
Power Sensor	Agilent	E9327A	US40442088	50MHz~18GHz	Feb. 22, 2023	Feb. 21, 2024	Conducted (TH01-CB)
Power Meter	Agilent	E4416A	GB41291199	50MHz~18GHz	Feb. 22, 2023	Feb. 21, 2024	Conducted (TH01-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Conducted (TH01-CB)
Spectrum analyzer	R&S	FSV40	101028	9kHz~40GHz	Dec. 30, 2022	Dec. 29, 2023	Conducted (TH03-CB)
Power Sensor	Anritsu	MA2411B	1726195	300MHz~40GHz	Sep. 04, 2023	Sep. 03, 2024	Conducted (TH03-CB)
Power Meter	Anritsu	ML2495A	1035008	300MHz~40GHz	Sep. 04, 2023	Sep. 03, 2024	Conducted (TH03-CB)
RF Cable	Woken	RG402	High Cable-11	30MHz –18 GHz	Oct. 02, 2023	Oct. 01, 2024	Conducted (TH03-CB)
RF Cable	Woken	RG402	High Cable-12	30MHz –18 GHz	Oct. 02, 2023	Oct. 01, 2024	Conducted (TH03-CB)
RF Cable	Woken	RG402	High Cable-13	30MHz –18 GHz	Oct. 02, 2023	Oct. 01, 2024	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-14	1 GHz –18 GHz	Oct. 02, 2023	Oct. 01, 2024	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-15	1 GHz –18 GHz	Oct. 02, 2023	Oct. 01, 2024	Conducted (TH03-CB)
Switch	SPTCB	SP-SWI	SWI-03	1 ~26.5 GHz	Oct. 03, 2023	Oct. 02, 2024	Conducted (TH03-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Conducted (TH03-CB)

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

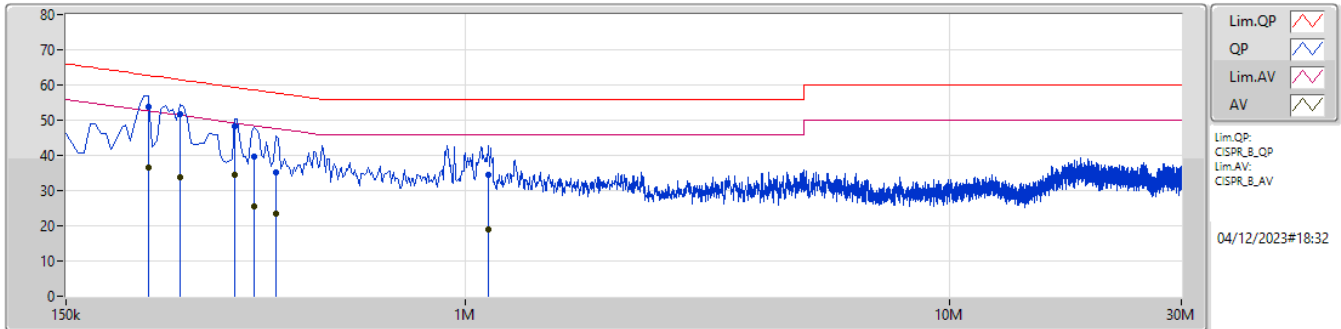
NCR means Non-Calibration required.



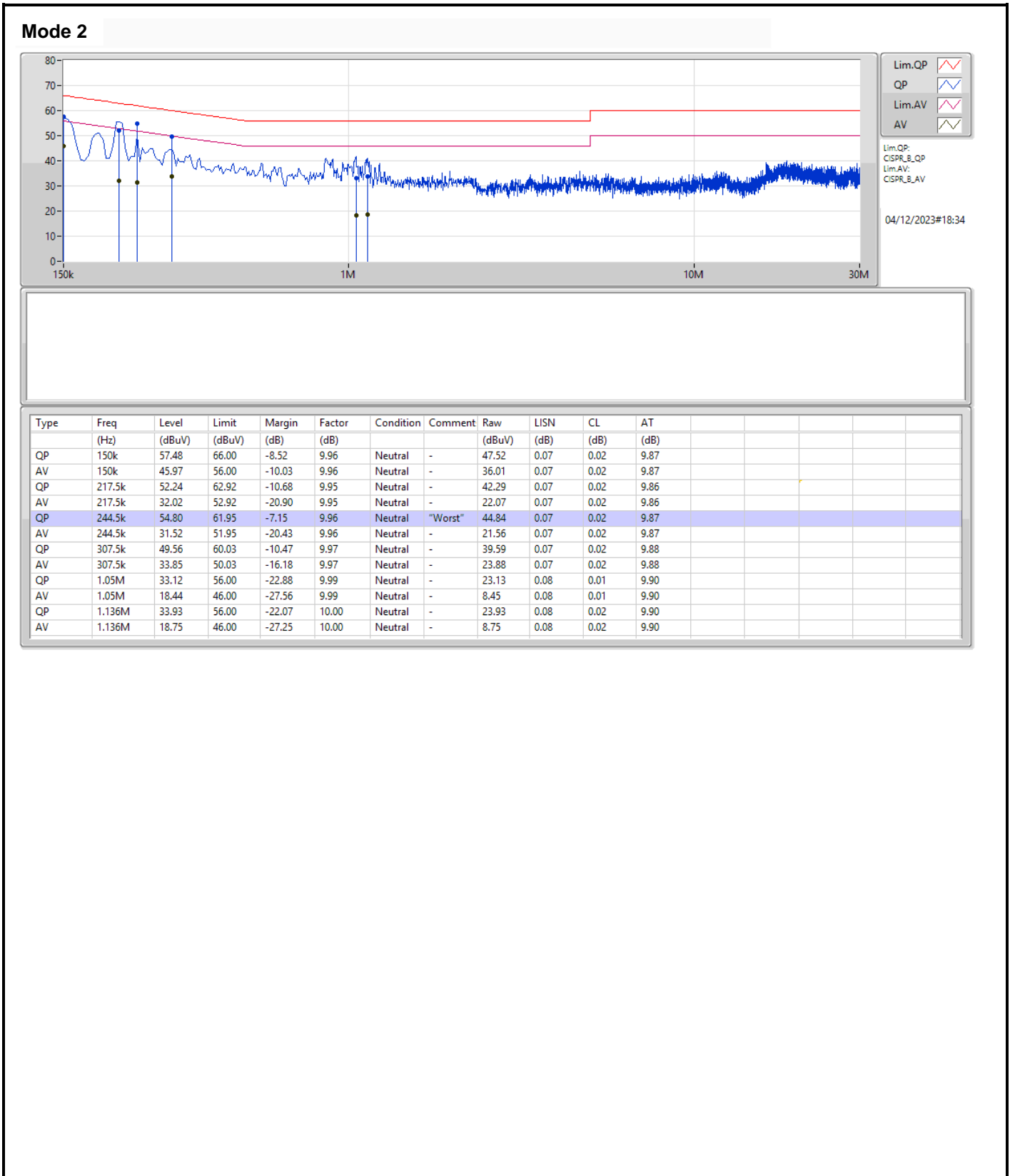
Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 2	Pass	QP	244.5k	54.80	61.95	-7.15	Neutral

Mode 2



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)
QP	222k	53.83	62.75	-8.92	9.97	Line	"Worst"	43.86	0.08	0.02	9.87
AV	222k	36.42	52.75	-16.33	9.97	Line	-	26.45	0.08	0.02	9.87
QP	258k	51.61	61.49	-9.88	9.97	Line	-	41.64	0.08	0.02	9.87
AV	258k	33.96	51.49	-17.53	9.97	Line	-	23.99	0.08	0.02	9.87
QP	334.5k	48.27	59.35	-11.08	10.00	Line	-	38.27	0.09	0.02	9.89
AV	334.5k	34.58	49.35	-14.77	10.00	Line	-	24.58	0.09	0.02	9.89
QP	366k	39.69	58.60	-18.91	10.00	Line	-	29.69	0.09	0.02	9.89
AV	366k	25.50	48.60	-23.10	10.00	Line	-	15.50	0.09	0.02	9.89
QP	406.5k	35.21	57.72	-22.51	10.01	Line	-	25.20	0.09	0.02	9.90
AV	406.5k	23.32	47.72	-24.40	10.01	Line	-	13.31	0.09	0.02	9.90
QP	1.118M	34.46	56.00	-21.54	10.03	Line	-	24.43	0.11	0.02	9.90
AV	1.118M	18.83	46.00	-27.17	10.03	Line	-	8.80	0.11	0.02	9.90





Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.925-6.425GHz	-	-	-	-	-
802.11ax HEW20_Nss1,(MCS0)_2TX	20.955M	19.149M	19M1D1D	20.185M	19M
802.11ax HEW40_Nss1,(MCS0)_2TX	39.93M	37.757M	37M8D1D	39.38M	37.601M
802.11ax HEW80_Nss1,(MCS0)_2TX	81.84M	77.18M	77M2D1D	80.96M	76.983M
802.11ax HEW160_Nss1,(MCS0)_2TX	164.12M	154.975M	155MD1D	161.92M	154.594M
6.525-6.875GHz	-	-	-	-	-
802.11ax HEW20_Nss1,(MCS0)_2TX	21.285M	19.135M	19M1D1D	20.13M	19M
802.11ax HEW40_Nss1,(MCS0)_2TX	40.7M	37.723M	37M7D1D	39.38M	37.516M
802.11ax HEW80_Nss1,(MCS0)_2TX	81.84M	77.185M	77M2D1D	80.96M	76.914M
802.11ax HEW160_Nss1,(MCS0)_2TX	162.8M	154.737M	155MD1D	162.8M	154.705M

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



Result

Mode	Result	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)
802.11ax HEW20_Nss1,(MCS0)_2TX	-	-	-	-	-
5955MHz	Pass	20.955M	19.039M	20.185M	19.149M
6195MHz	Pass	20.405M	19.057M	20.68M	19M
6415MHz	Pass	20.295M	19.021M	20.9M	19.099M
6535MHz	Pass	20.735M	19.021M	20.57M	19.135M
6695MHz	Pass	20.79M	19.111M	20.625M	19.053M
6855MHz	Pass	21.285M	19M	20.13M	19.088M
802.11ax HEW40_Nss1,(MCS0)_2TX	-	-	-	-	-
5965MHz	Pass	39.38M	37.64M	39.93M	37.757M
6205MHz	Pass	39.49M	37.62M	39.49M	37.601M
6405MHz	Pass	39.49M	37.608M	39.38M	37.7M
6565MHz	Pass	40.7M	37.516M	39.6M	37.723M
6685MHz	Pass	39.38M	37.601M	39.38M	37.656M
6845MHz	Pass	39.49M	37.706M	39.38M	37.635M
802.11ax HEW80_Nss1,(MCS0)_2TX	-	-	-	-	-
5985MHz	Pass	81.84M	77.027M	81.4M	77.158M
6225MHz	Pass	80.96M	77.107M	81.18M	76.983M
6385MHz	Pass	81.84M	77.18M	81.18M	77.036M
6625MHz	Pass	80.96M	77.055M	81.18M	77.185M
6705MHz	Pass	81.18M	77.012M	81.18M	76.968M
6785MHz	Pass	81.84M	76.914M	81.4M	76.929M
802.11ax HEW160_Nss1,(MCS0)_2TX	-	-	-	-	-
6025MHz	Pass	164.12M	154.975M	161.92M	154.73M
6185MHz	Pass	162.36M	154.657M	161.92M	154.75M
6345MHz	Pass	164.12M	154.608M	161.92M	154.594M
6665MHz	Pass	162.8M	154.705M	162.8M	154.737M

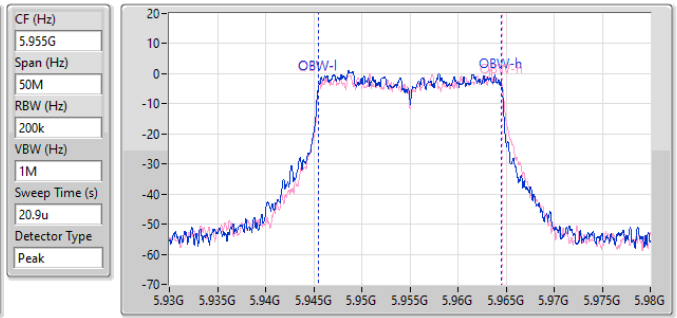
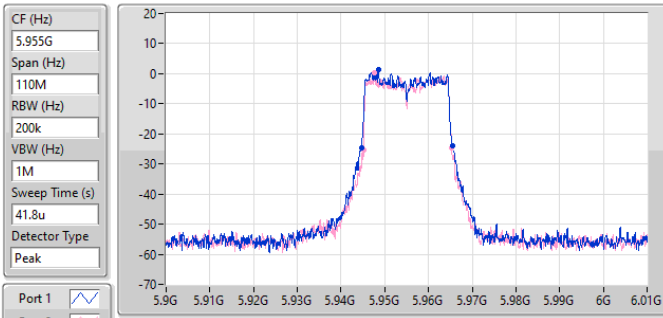
Port X-N dB = Port X 6dB down bandwidth for 5.725-5.85GHz band / 26dB down bandwidth for other band
 Port X-OBW = Port X 99% occupied bandwidth

5.925-6.425GHz_802.11ax HEW20_Nss1,(MCS0)_2TX

EBW

5955MHz

17/10/2023



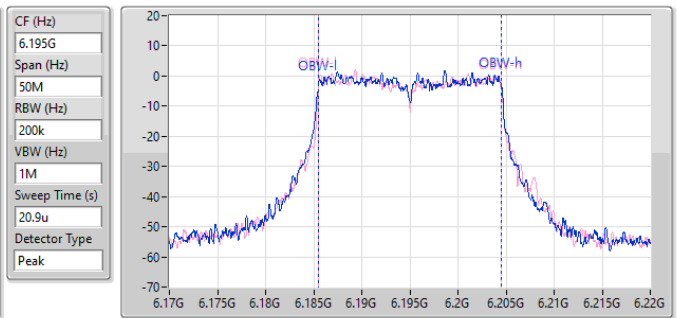
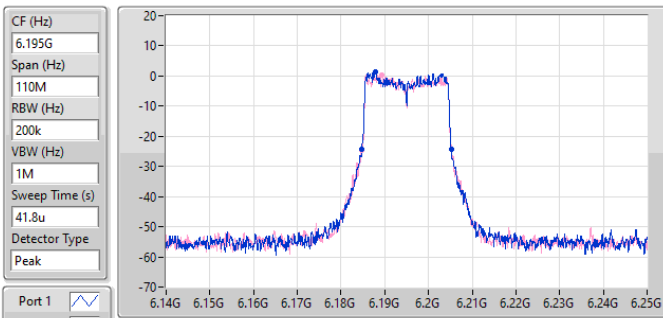
26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
20.955M	5.944605G	5.96556G	19.039M	5.945496G	5.964536G	Inf	1
20.185M	5.945155G	5.96534G	19.149M	5.945514G	5.964663G	Inf	2

5.925-6.425GHz_802.11ax HEW20_Nss1,(MCS0)_2TX

EBW

6195MHz

17/10/2023



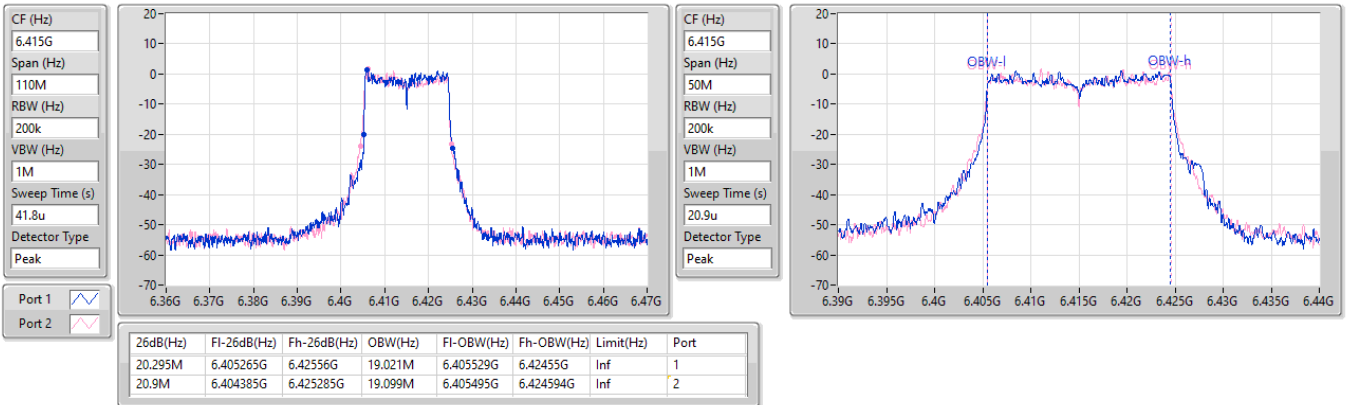
26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
20.405M	6.18477G	6.205175G	19.057M	6.185474G	6.204531G	Inf	1
20.68M	6.184605G	6.205285G	19M	6.18552G	6.20452G	Inf	2

5.925-6.425GHz_802.11ax HEW20_Nss1,(MCS0)_2TX

EBW

6415MHz

17/10/2023

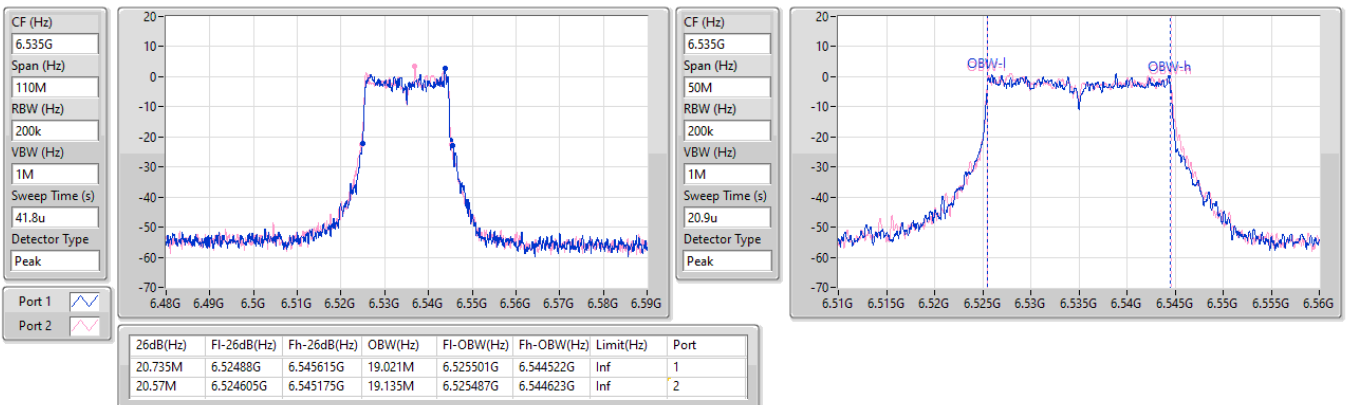


6.525-6.875GHz_802.11ax HEW20_Nss1,(MCS0)_2TX

EBW

6535MHz

17/10/2023

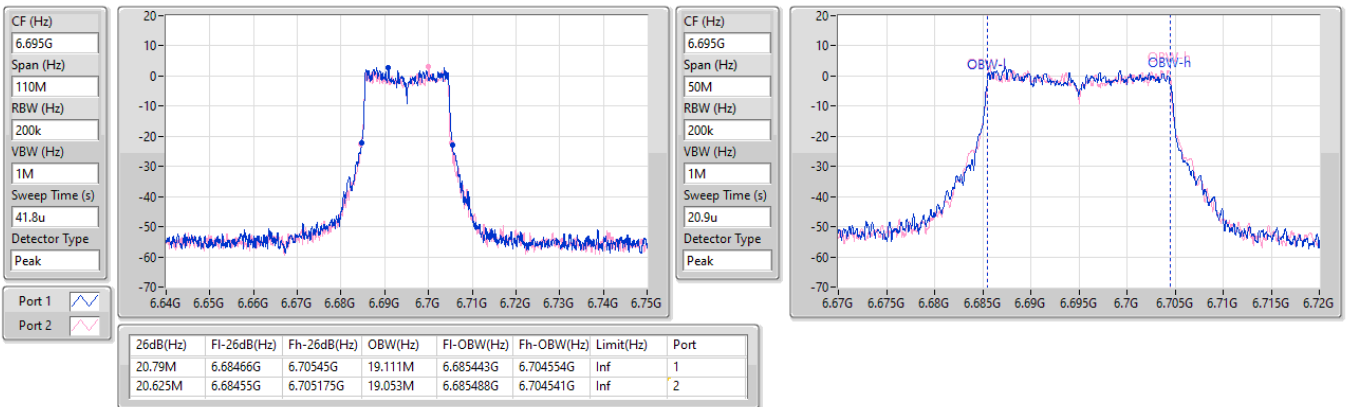


6.525-6.875GHz_802.11ax HEW20_Nss1,(MCS0)_2TX

EBW

6695MHz

17/10/2023

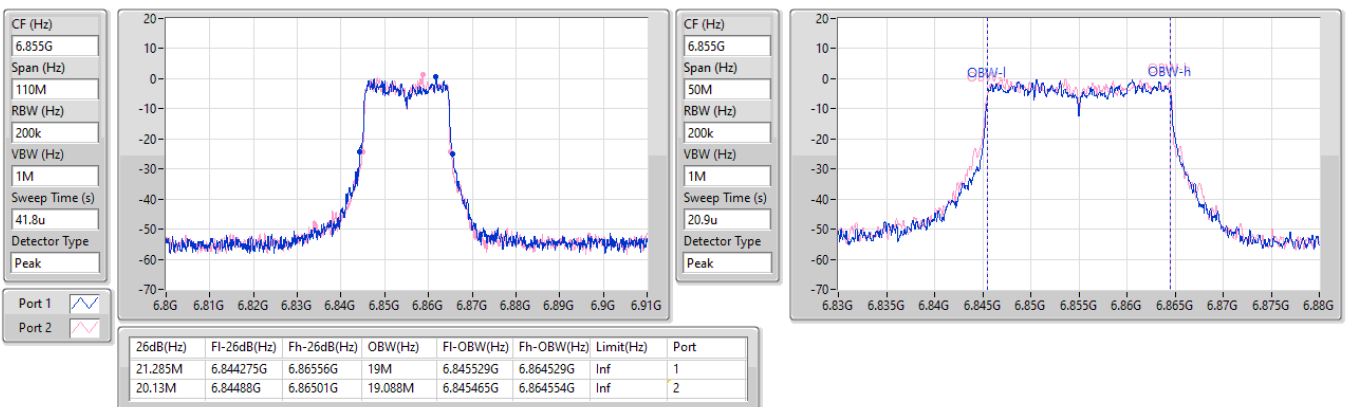


6.525-6.875GHz_802.11ax HEW20_Nss1,(MCS0)_2TX

EBW

6855MHz

17/10/2023

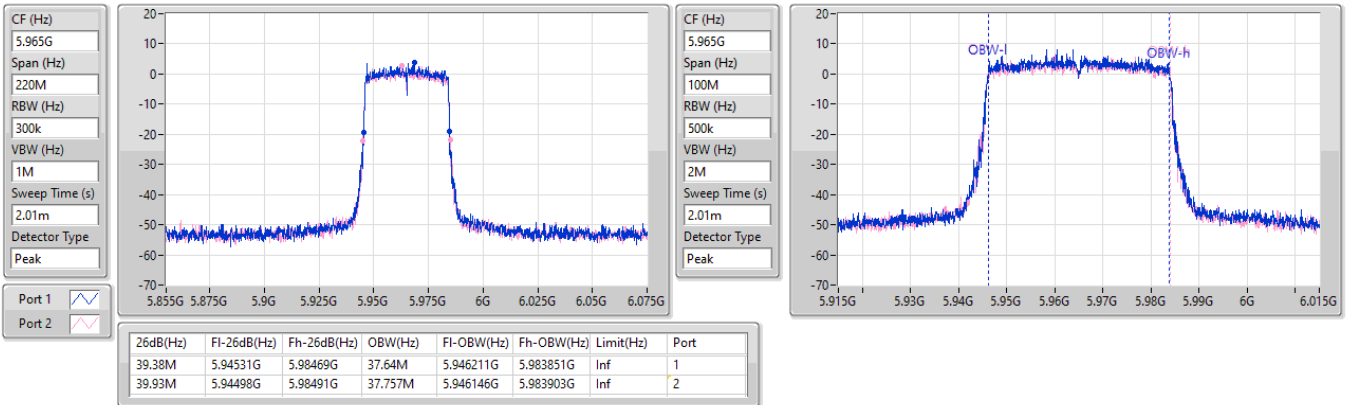


5.925-6.425GHz_802.11ax HEW40_Nss1,(MCS0)_2TX

EBW

5965MHz

17/10/2023

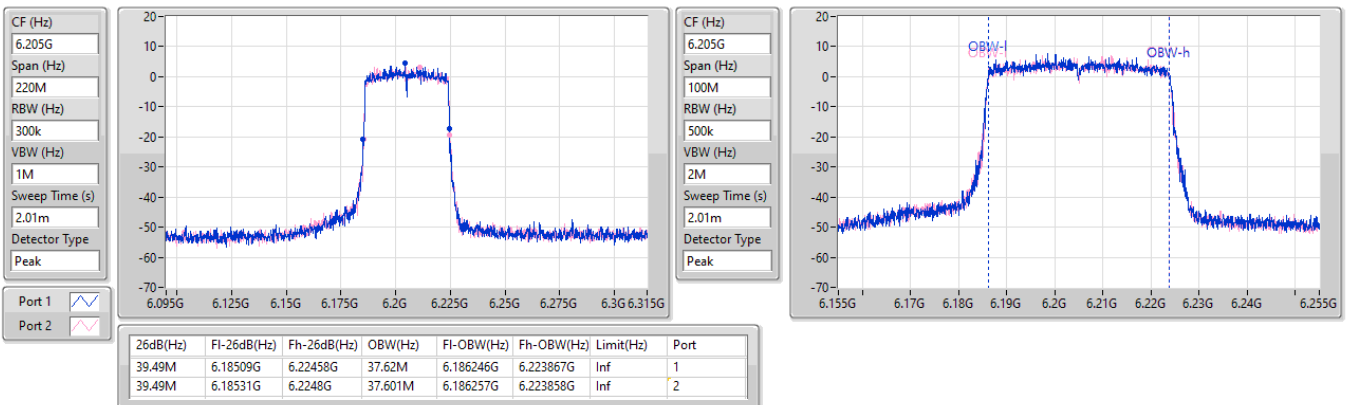


5.925-6.425GHz_802.11ax HEW40_Nss1,(MCS0)_2TX

EBW

6205MHz

17/10/2023

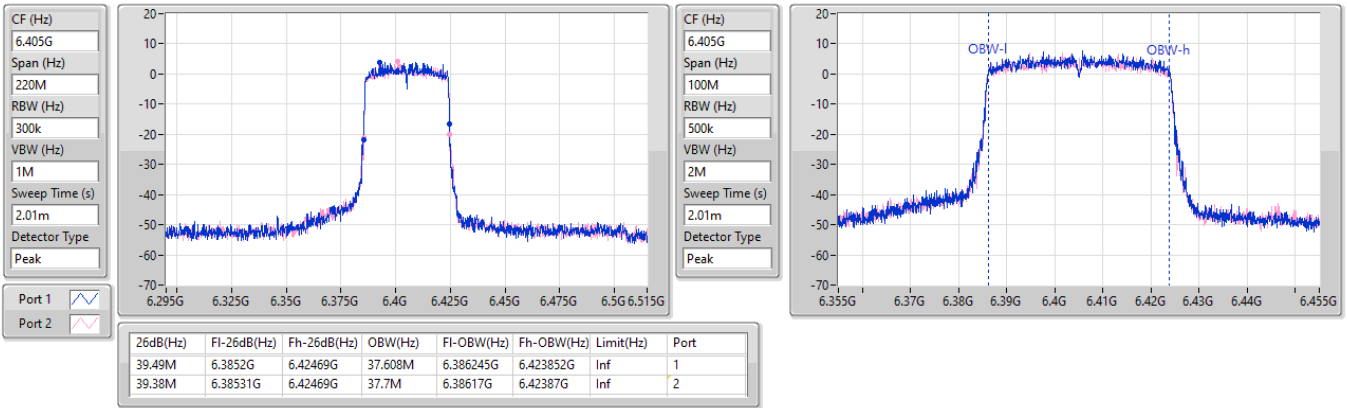


5.925-6.425GHz_802.11ax HEW40_Nss1,(MCS0)_2TX

EBW

6405MHz

17/10/2023

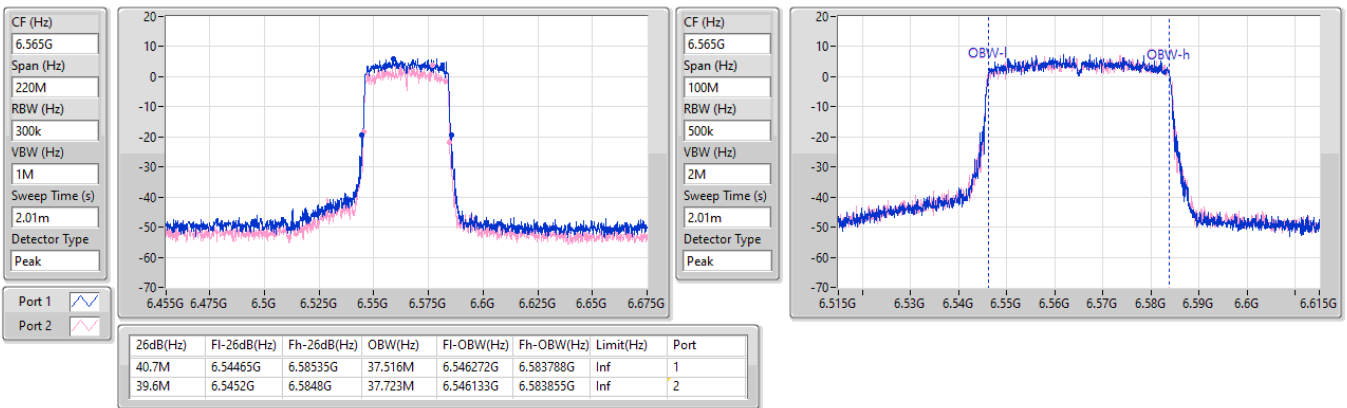


6.525-6.875GHz_802.11ax HEW40_Nss1,(MCS0)_2TX

EBW

6565MHz

17/10/2023

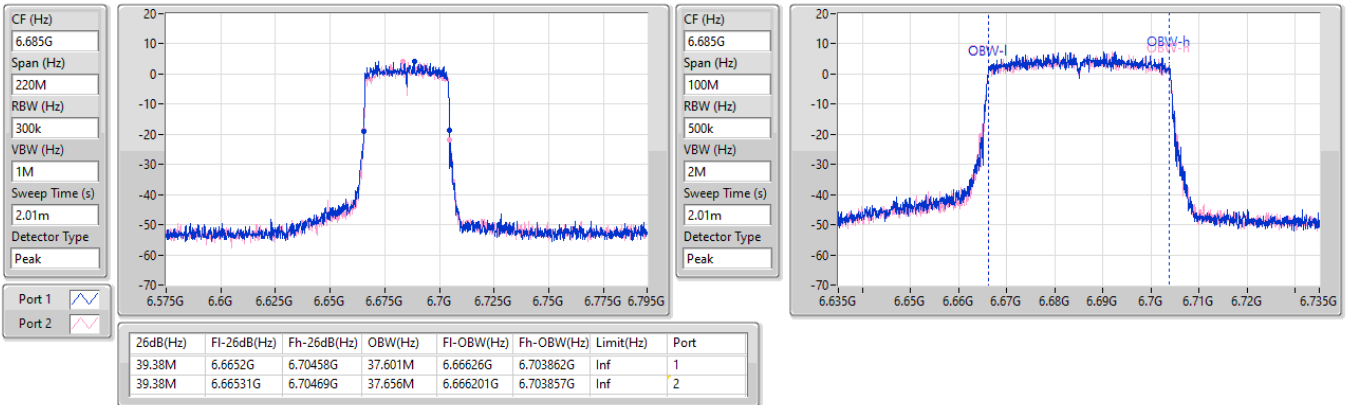


6.525-6.875GHz_802.11ax HEW40_Nss1,(MCS0)_2TX

EBW

6685MHz

17/10/2023

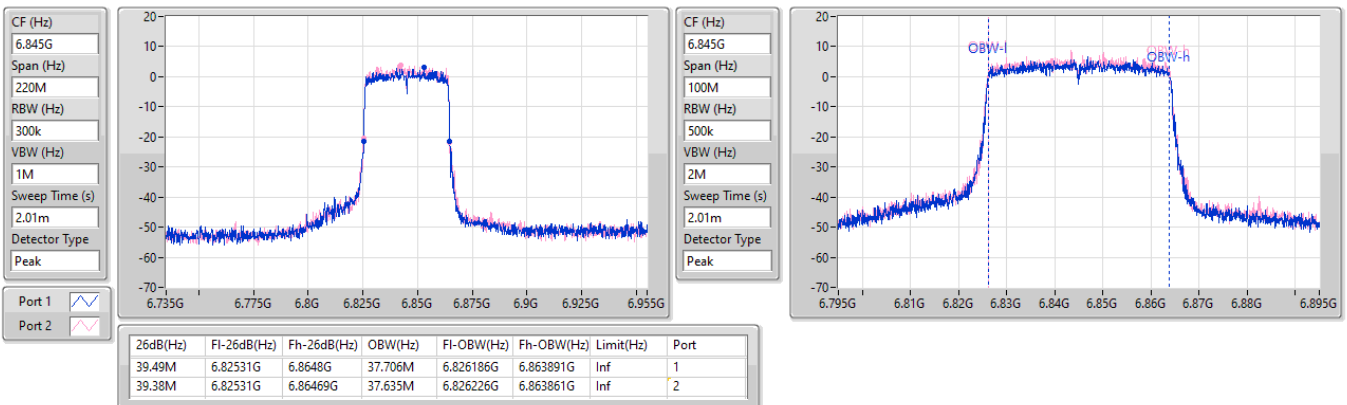


6.525-6.875GHz_802.11ax HEW40_Nss1,(MCS0)_2TX

EBW

6845MHz

17/10/2023

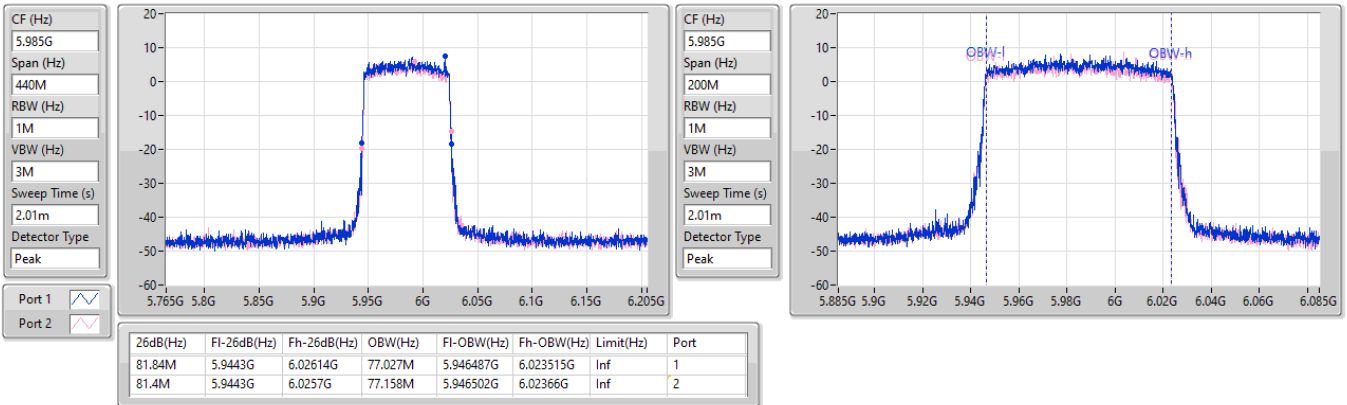


5.925-6.425GHz_802.11ax HEW80_Nss1,(MCS0)_2TX

EBW

5985MHz

17/10/2023

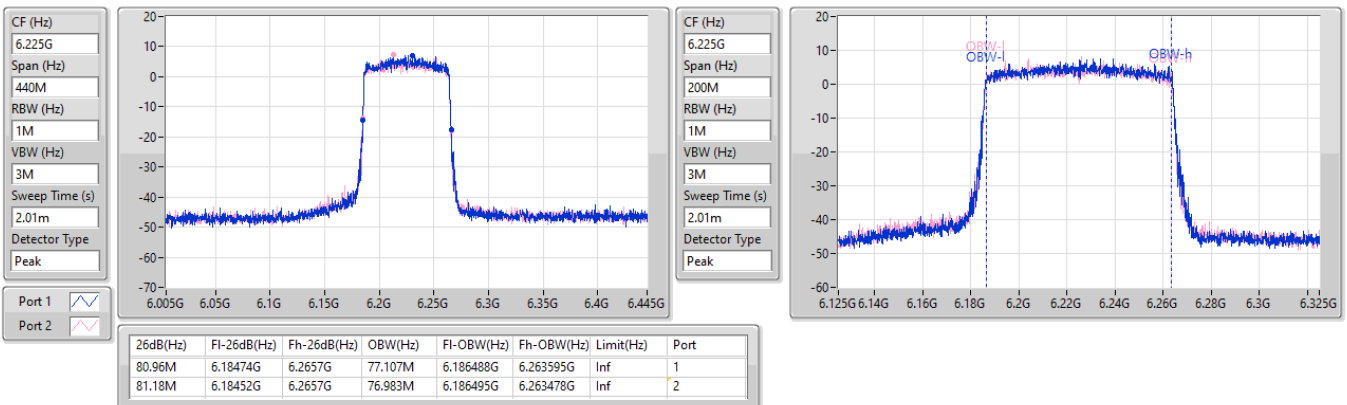


5.925-6.425GHz_802.11ax HEW80_Nss1,(MCS0)_2TX

EBW

6225MHz

17/10/2023

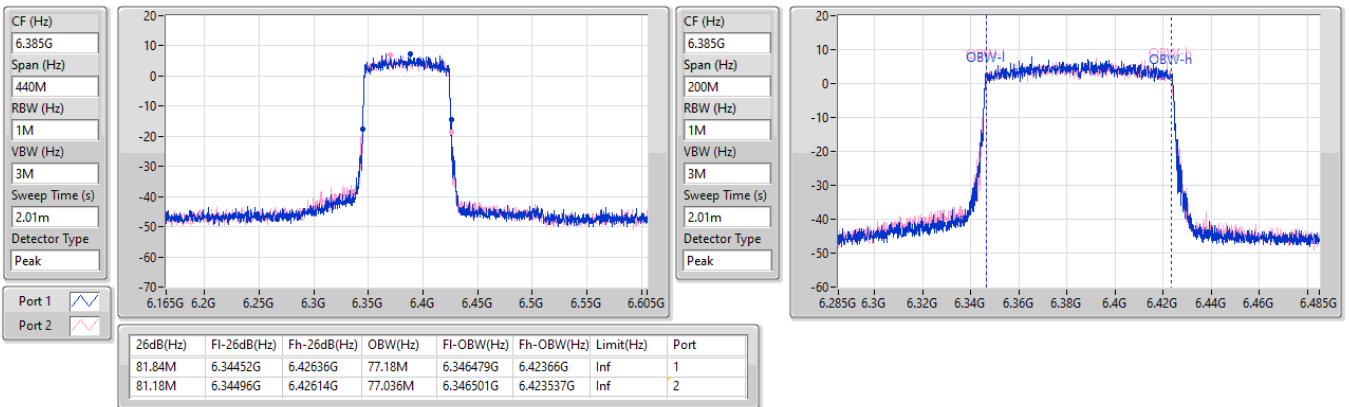


5.925-6.425GHz_802.11ax HEW80_Nss1,(MCS0)_2TX

EBW

6385MHz

17/10/2023

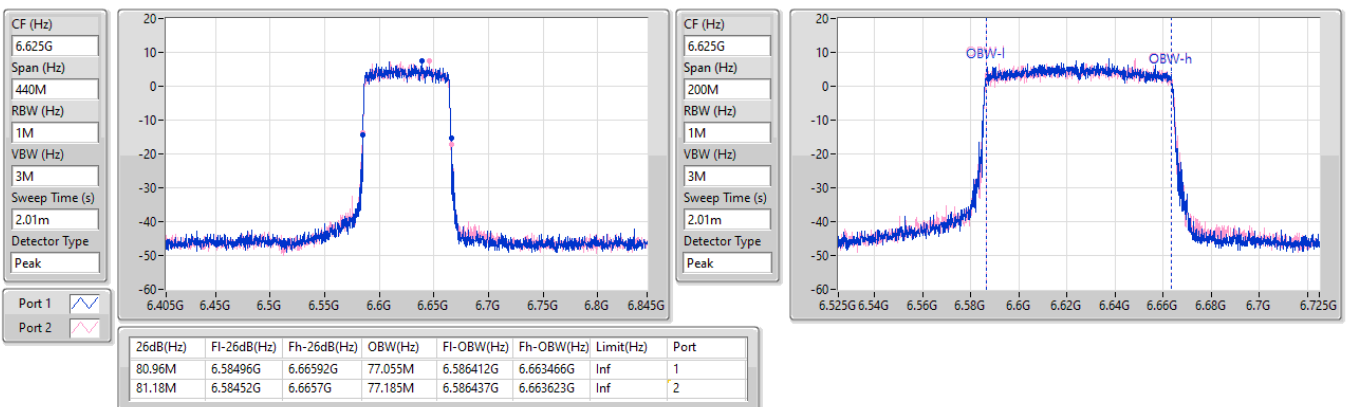


6.525-6.875GHz_802.11ax HEW80_Nss1,(MCS0)_2TX

EBW

6625MHz

17/10/2023

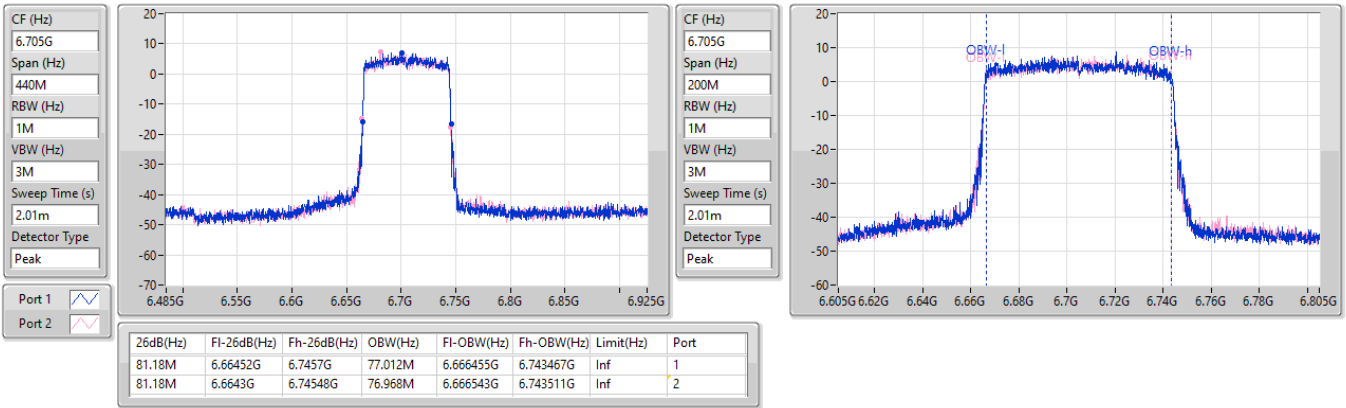


6.525-6.875GHz_802.11ax HEW80_Nss1,(MCS0)_2TX

EBW

6705MHz

17/10/2023

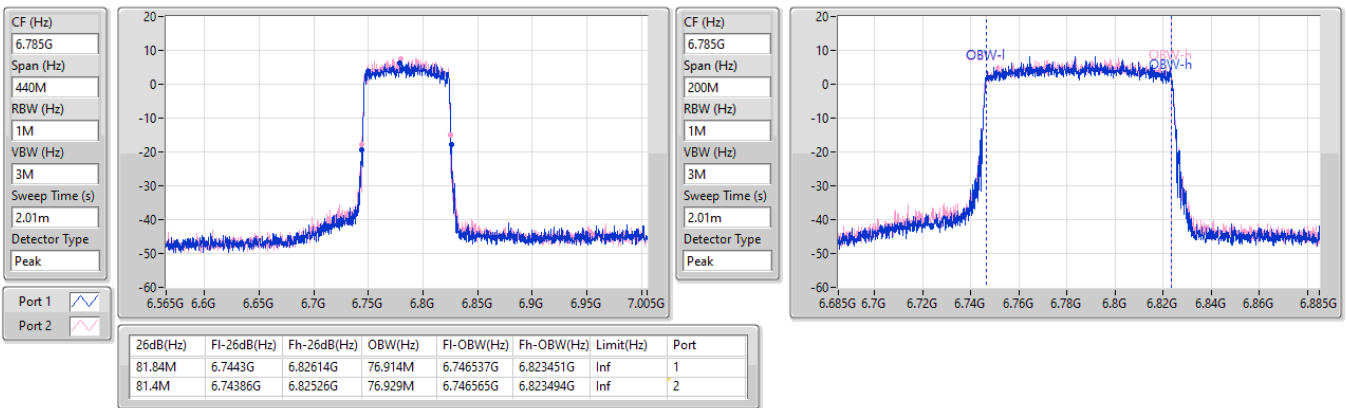


6.525-6.875GHz_802.11ax HEW80_Nss1,(MCS0)_2TX

EBW

6785MHz

17/10/2023

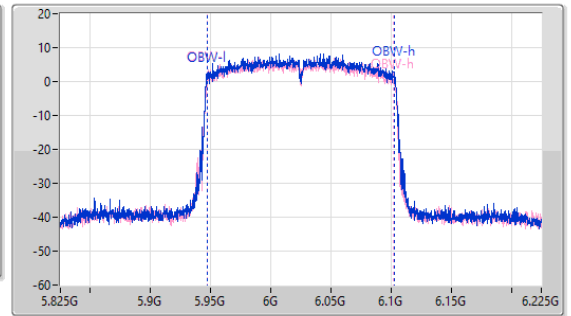
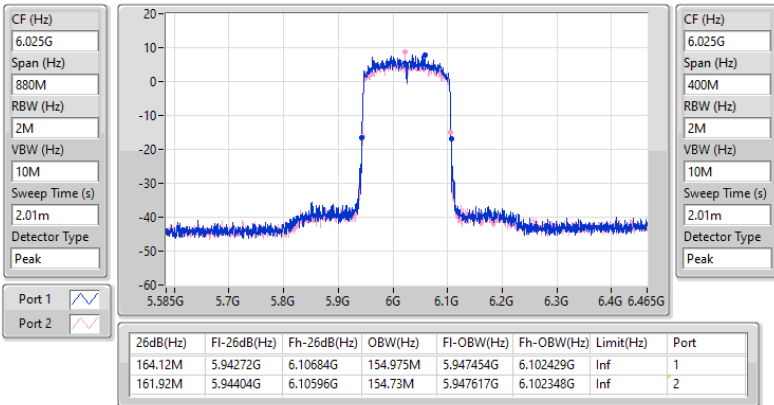


5.925-6.425GHz_802.11ax HEW160_Nss1,(MCS0)_2TX

EBW

6025MHz

17/10/2023

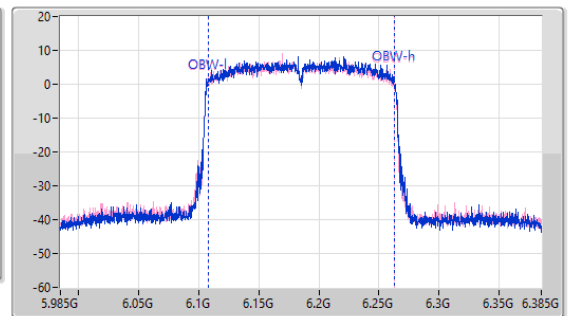
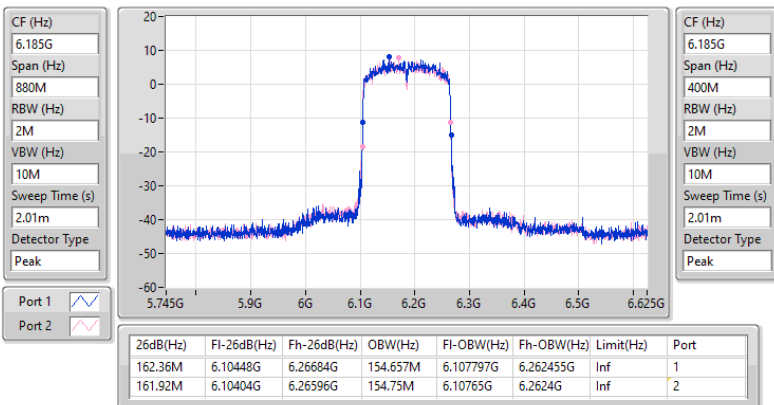


5.925-6.425GHz_802.11ax HEW160_Nss1,(MCS0)_2TX

EBW

6185MHz

17/10/2023

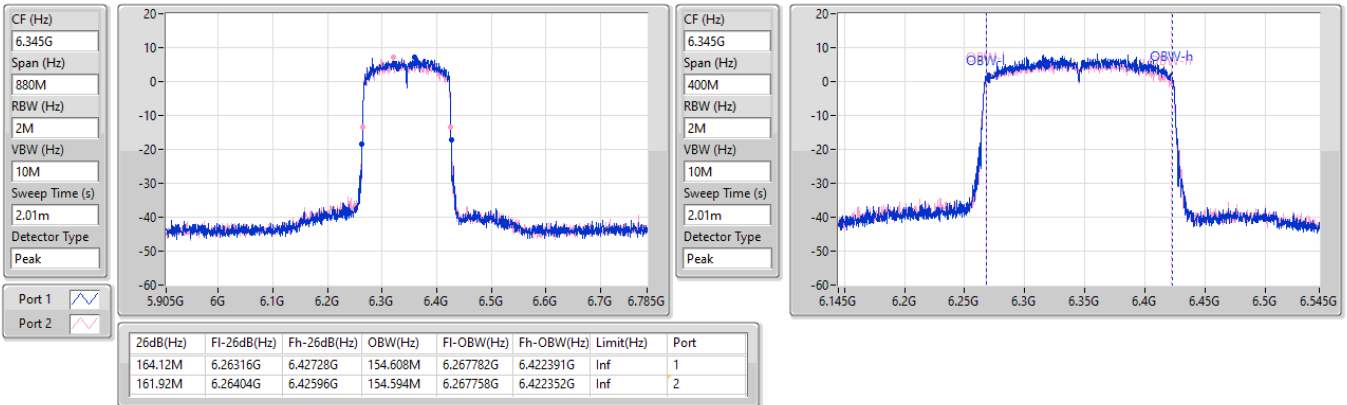


5.925-6.425GHz_802.11ax HEW160_Nss1,(MCS0)_2TX

EBW

6345MHz

17/10/2023

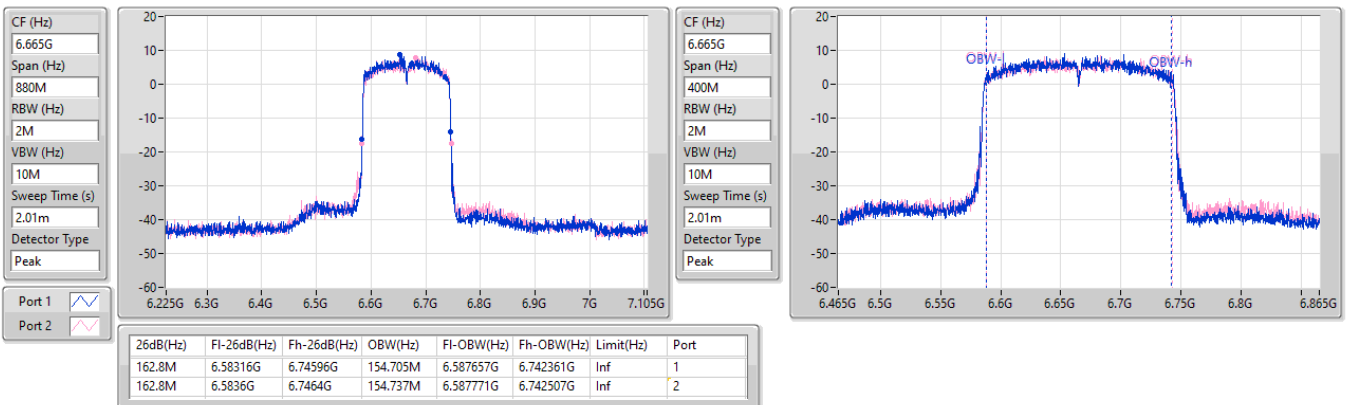


6.525-6.875GHz_802.11ax HEW160_Nss1,(MCS0)_2TX

EBW

6665MHz

17/10/2023





Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.925-6.425GHz	-	-	-	-	-
802.11ax HEW20_Nss1,(MCS0)_2TX	21.23M	19.113M	19M1D1D	20.13M	18.967M
802.11ax HEW40_Nss1,(MCS0)_2TX	39.6M	37.846M	37M8D1D	38.94M	37.537M
802.11ax HEW80_Nss1,(MCS0)_2TX	81.4M	77.131M	77M1D1D	80.08M	76.429M
802.11ax HEW160_Nss1,(MCS0)_2TX	162.8M	154.975M	155MD1D	161.48M	153.785M
6.525-6.875GHz	-	-	-	-	-
802.11ax HEW20_Nss1,(MCS0)_2TX	21.23M	19.221M	19M2D1D	20.515M	18.991M
802.11ax HEW40_Nss1,(MCS0)_2TX	39.6M	37.722M	37M7D1D	39.05M	37.511M
802.11ax HEW80_Nss1,(MCS0)_2TX	80.96M	77.279M	77M3D1D	80.08M	76.425M
802.11ax HEW160_Nss1,(MCS0)_2TX	161.92M	155.137M	155MD1D	161.48M	153.921M

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

Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)
802.11ax HEW20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5955MHz	Pass	Inf	21.23M	19.004M	21.12M	18.967M
6195MHz	Pass	Inf	20.13M	19.029M	21.065M	19.03M
6415MHz	Pass	Inf	21.01M	19.113M	20.57M	19.027M
6535MHz	Pass	Inf	20.735M	18.991M	20.9M	19.221M
6695MHz	Pass	Inf	20.79M	19.001M	21.23M	19.083M
6855MHz	Pass	Inf	20.515M	19.063M	20.9M	19.012M
802.11ax HEW40_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5965MHz	Pass	Inf	38.94M	37.581M	39.6M	37.714M
6205MHz	Pass	Inf	39.16M	37.846M	39.38M	37.585M
6405MHz	Pass	Inf	39.16M	37.627M	39.27M	37.537M
6565MHz	Pass	Inf	39.05M	37.705M	39.6M	37.574M
6685MHz	Pass	Inf	39.49M	37.511M	39.49M	37.639M
6845MHz	Pass	Inf	39.6M	37.565M	39.38M	37.722M
802.11ax HEW80_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5985MHz	Pass	Inf	80.96M	77.043M	81.4M	76.86M
6225MHz	Pass	Inf	80.52M	76.827M	80.52M	77.107M
6385MHz	Pass	Inf	80.08M	77.131M	80.52M	76.429M
6625MHz	Pass	Inf	80.08M	76.425M	80.96M	77.217M
6705MHz	Pass	Inf	80.3M	77.279M	80.08M	77.25M
6785MHz	Pass	Inf	80.08M	77.261M	80.08M	76.981M
802.11ax HEW160_Nss1,(MCS0)_2TX	-	-	-	-	-	-
6025MHz	Pass	Inf	161.92M	154.813M	161.48M	154.218M
6185MHz	Pass	Inf	162.36M	153.943M	162.8M	154.975M
6345MHz	Pass	Inf	161.92M	153.785M	161.48M	154.394M
6665MHz	Pass	Inf	161.48M	153.921M	161.92M	155.137M

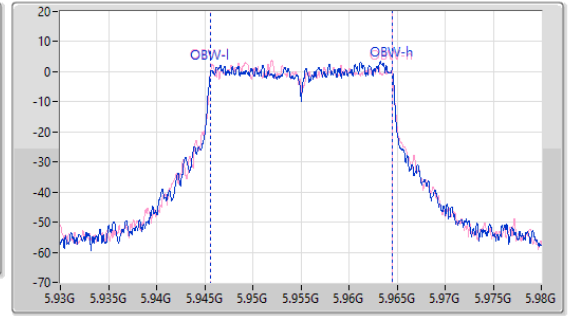
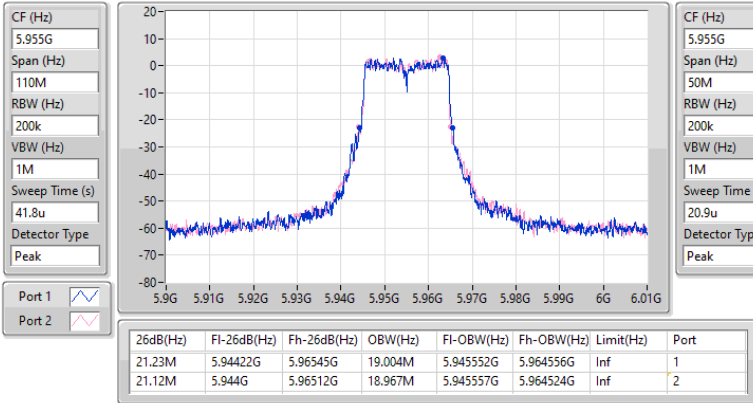
Port X-N dB = Port X 6dB down bandwidth for 5.725-5.85GHz band / 26dB down bandwidth for other band
 Port X-OBW = Port X 99% occupied bandwidth

5.925-6.425GHz_802.11ax HEW20_Nss1,(MCS0)_2TX

EBW

5955MHz

27/11/2023

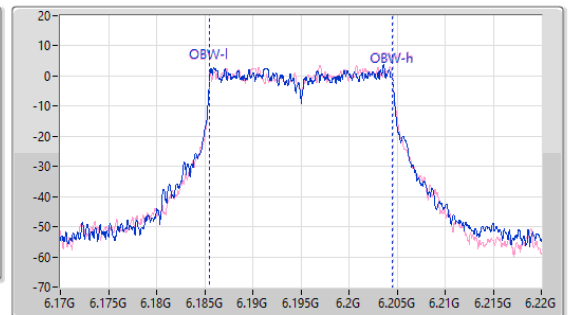
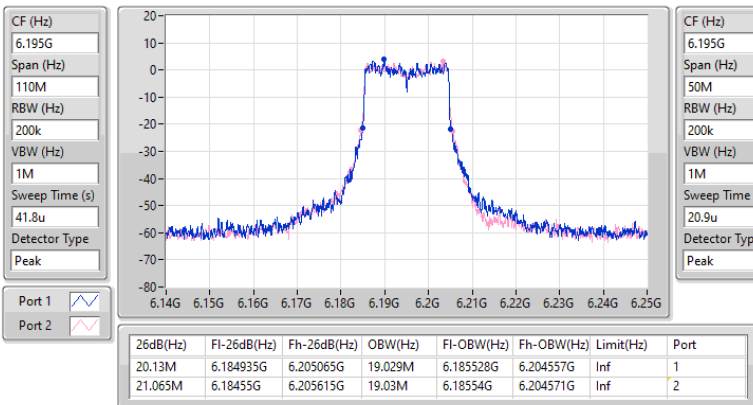


5.925-6.425GHz_802.11ax HEW20_Nss1,(MCS0)_2TX

EBW

6195MHz

27/11/2023

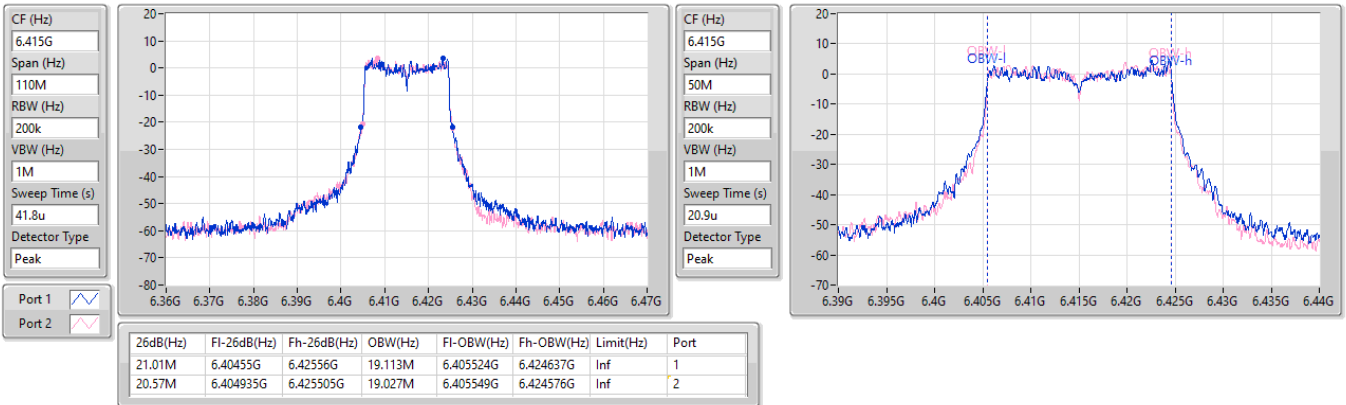


5.925-6.425GHz_802.11ax HEW20_Nss1,(MCS0)_2TX

EBW

6415MHz

27/11/2023

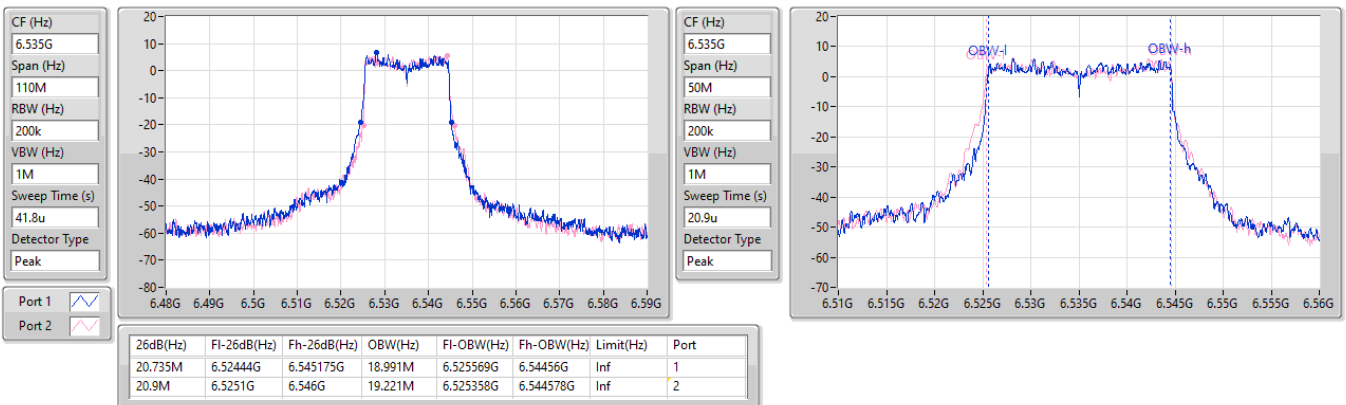


6.525-6.875GHz_802.11ax HEW20_Nss1,(MCS0)_2TX

EBW

6535MHz

27/11/2023

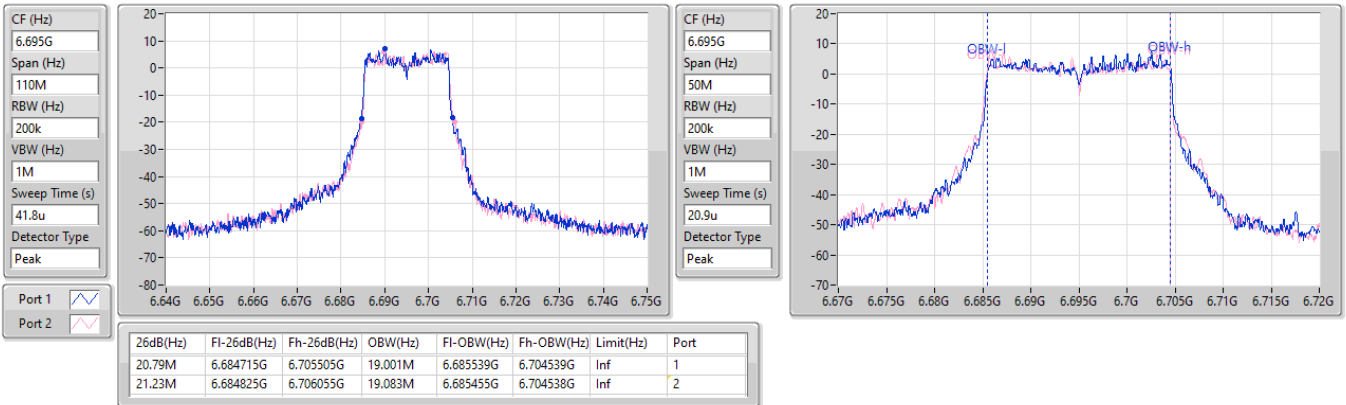


6.525-6.875GHz_802.11ax HEW20_Nss1,(MCS0)_2TX

EBW

6695MHz

27/11/2023

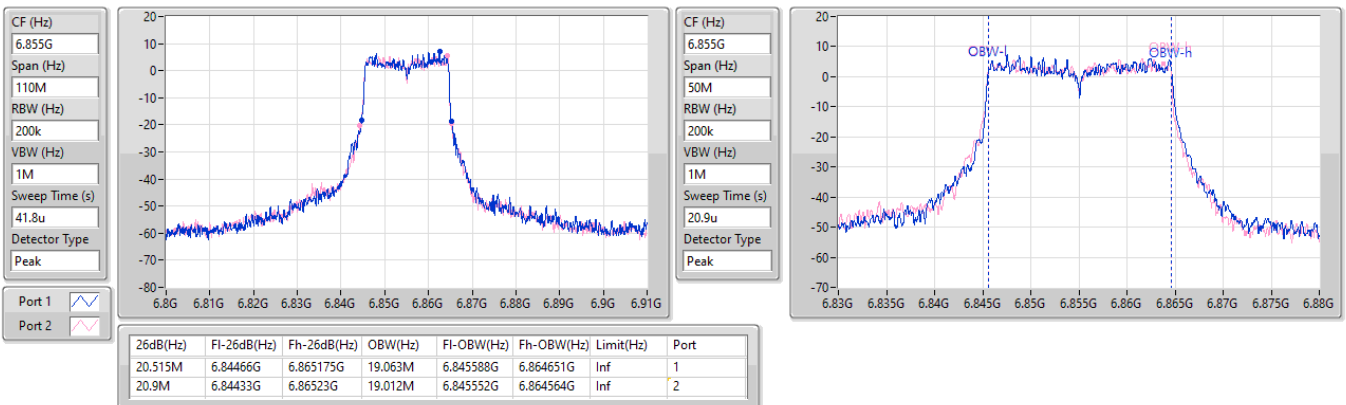


6.525-6.875GHz_802.11ax HEW20_Nss1,(MCS0)_2TX

EBW

6855MHz

27/11/2023



5.925-6.425GHz_802.11ax HEW40_Nss1,(MCS0)_2TX

EBW

5965MHz

27/11/2023

CF (Hz)
5.965G

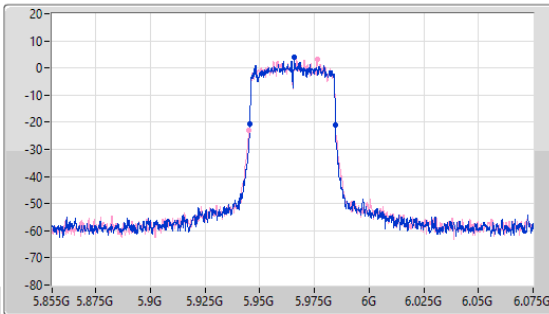
Span (Hz)
220M

RBW (Hz)
300k

VBW (Hz)
1M

Sweep Time (s)
48.7u

Detector Type
Peak



CF (Hz)
5.965G

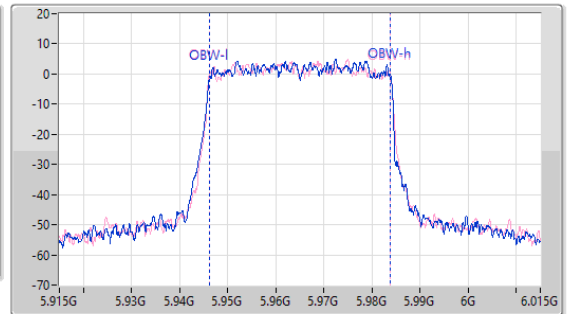
Span (Hz)
100M

RBW (Hz)
500k

VBW (Hz)
2M

Sweep Time (s)
12.6u

Detector Type
Peak



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
38.94M	5.94553G	5.98447G	37.581M	5.94625G	5.983837G	Inf	1
39.6M	5.94509G	5.98469G	37.714M	5.946158G	5.983872G	Inf	2

5.925-6.425GHz_802.11ax HEW40_Nss1,(MCS0)_2TX

EBW

6205MHz

27/11/2023

CF (Hz)
6.205G

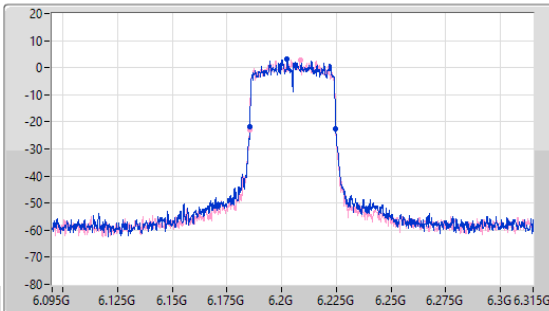
Span (Hz)
220M

RBW (Hz)
300k

VBW (Hz)
1M

Sweep Time (s)
48.7u

Detector Type
Peak



CF (Hz)
6.205G

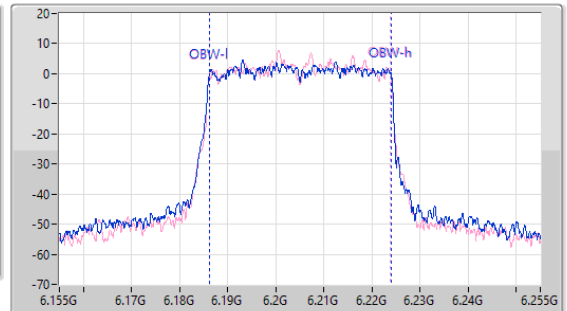
Span (Hz)
100M

RBW (Hz)
500k

VBW (Hz)
2M

Sweep Time (s)
12.6u

Detector Type
Peak



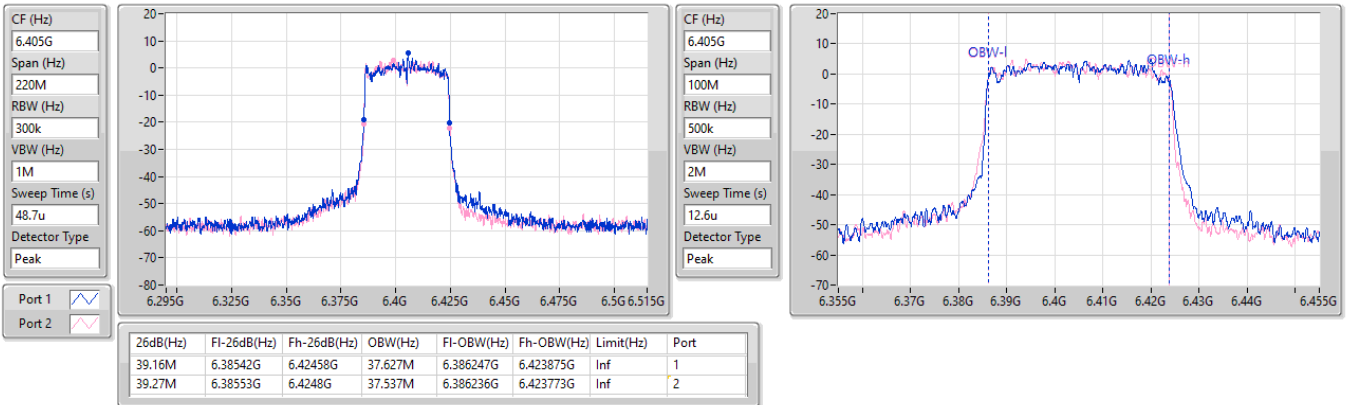
26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
39.16M	6.18553G	6.22469G	37.846M	6.186136G	6.223983G	Inf	1
39.38M	6.18531G	6.22469G	37.585M	6.186256G	6.223841G	Inf	2

5.925-6.425GHz_802.11ax HEW40_Nss1,(MCS0)_2TX

EBW

6405MHz

27/11/2023

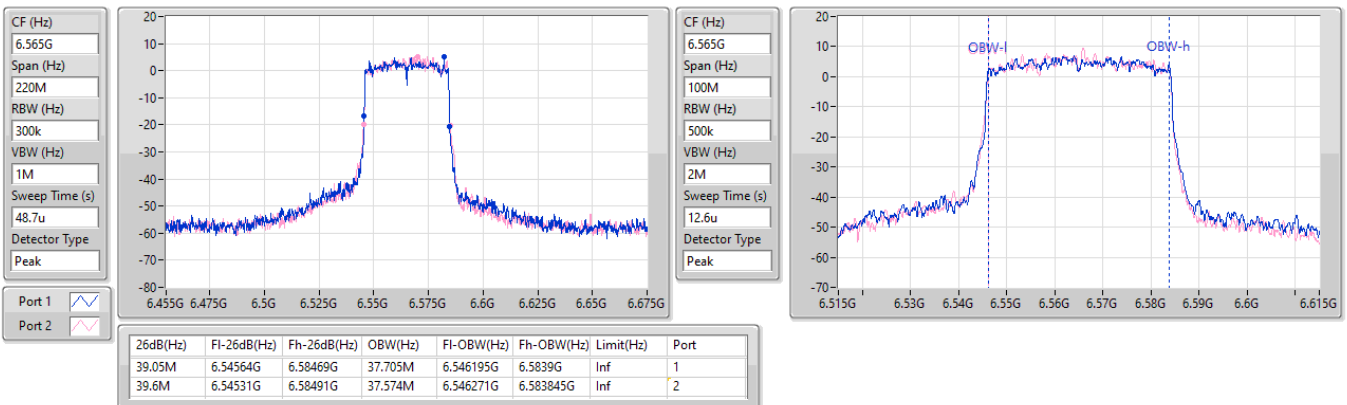


6.525-6.875GHz_802.11ax HEW40_Nss1,(MCS0)_2TX

EBW

6565MHz

27/11/2023

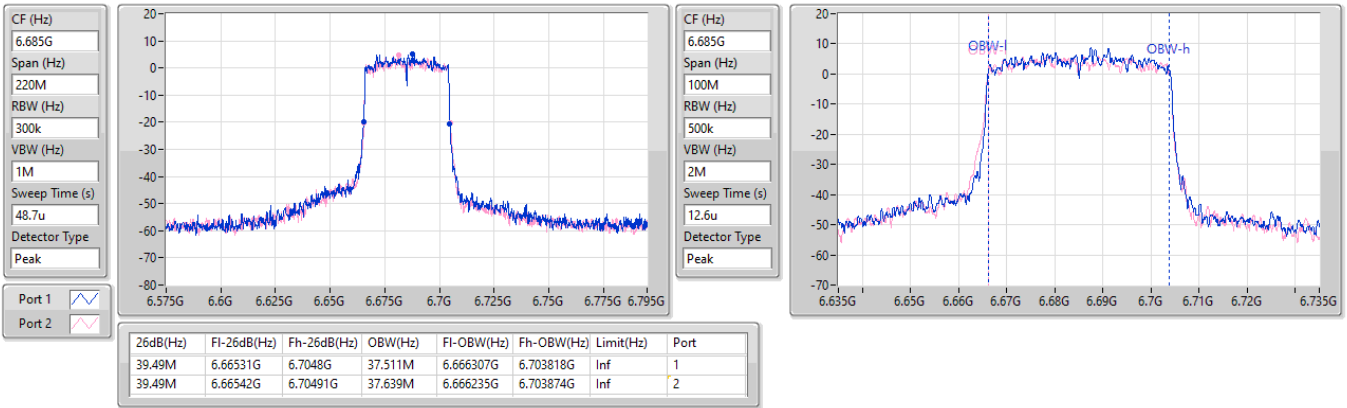


6.525-6.875GHz_802.11ax HEW40_Nss1,(MCS0)_2TX

EBW

6685MHz

27/11/2023

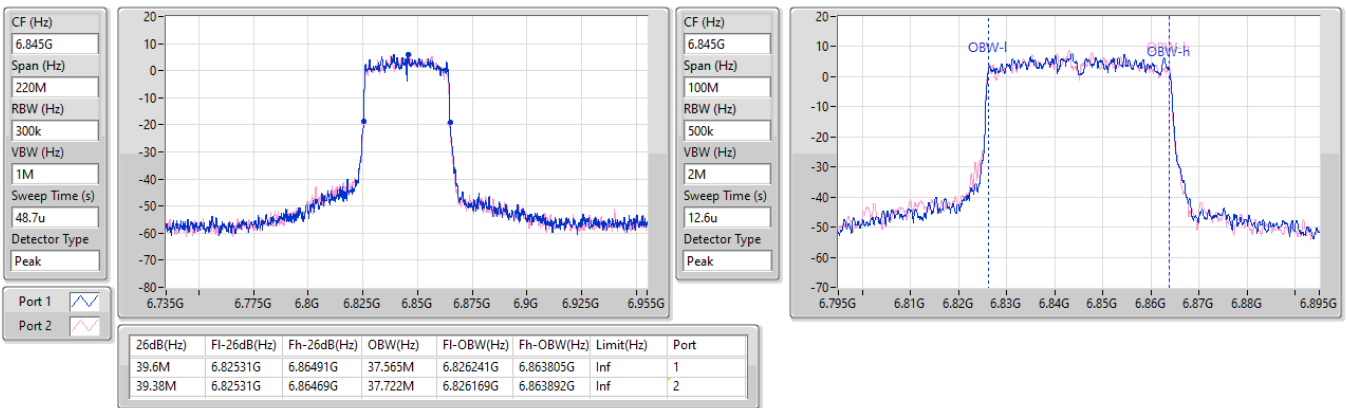


6.525-6.875GHz_802.11ax HEW40_Nss1,(MCS0)_2TX

EBW

6845MHz

27/11/2023

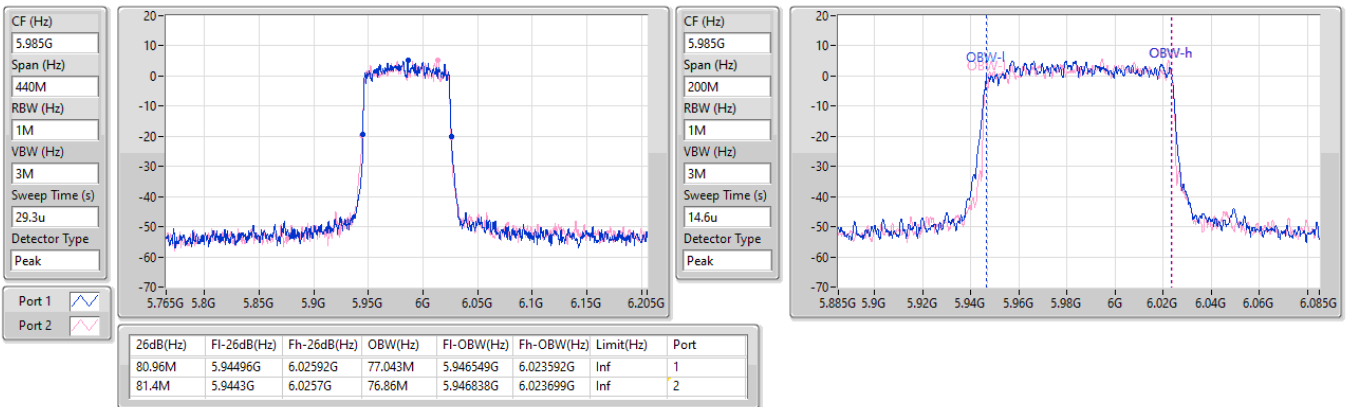


5.925-6.425GHz_802.11ax HEW80_Nss1,(MCS0)_2TX

EBW

5985MHz

27/11/2023

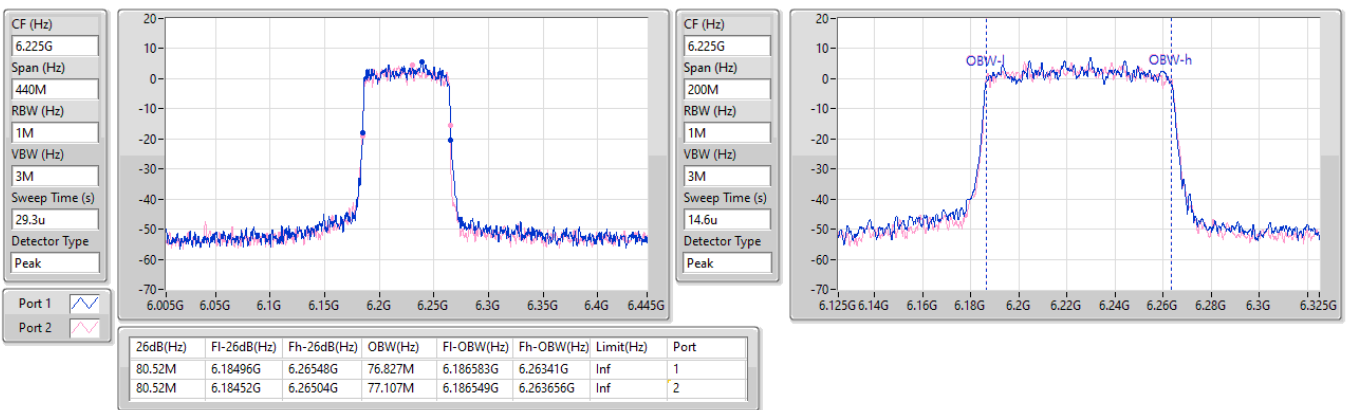


5.925-6.425GHz_802.11ax HEW80_Nss1,(MCS0)_2TX

EBW

6225MHz

27/11/2023

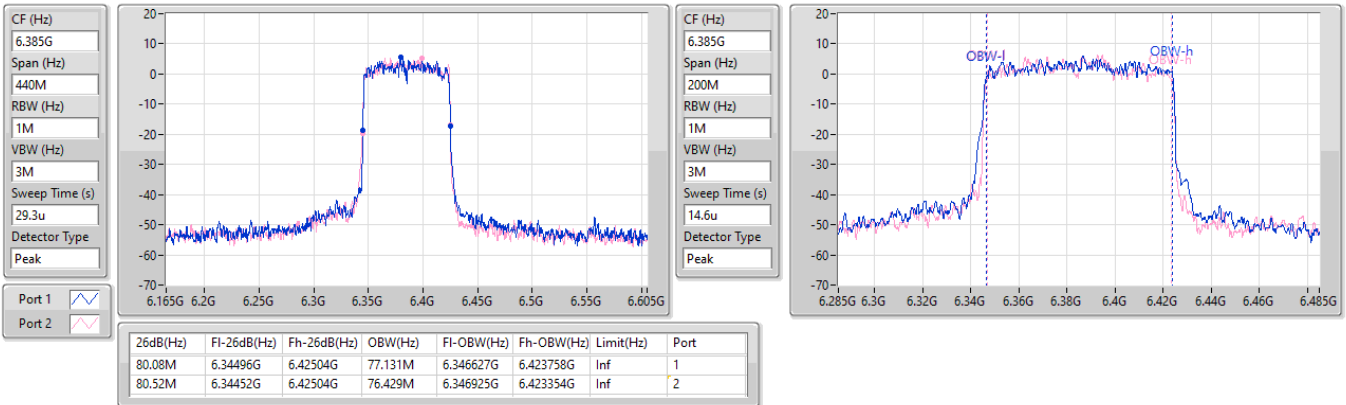


5.925-6.425GHz_802.11ax HEW80_Nss1,(MCS0)_2TX

EBW

6385MHz

27/11/2023



6.525-6.875GHz_802.11ax HEW80_Nss1,(MCS0)_2TX

EBW

6625MHz

27/11/2023

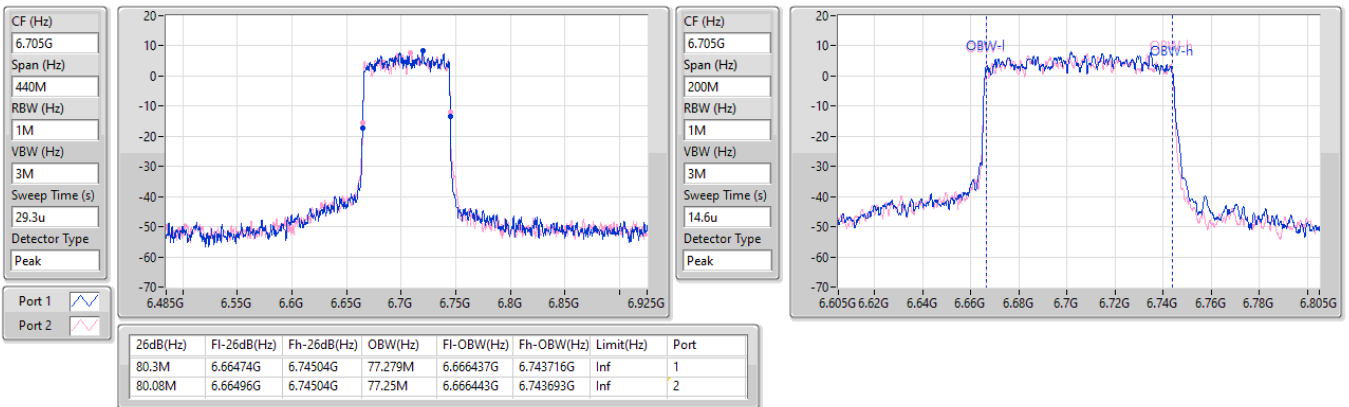


6.525-6.875GHz_802.11ax HEW80_Nss1,(MCS0)_2TX

EBW

6705MHz

27/11/2023

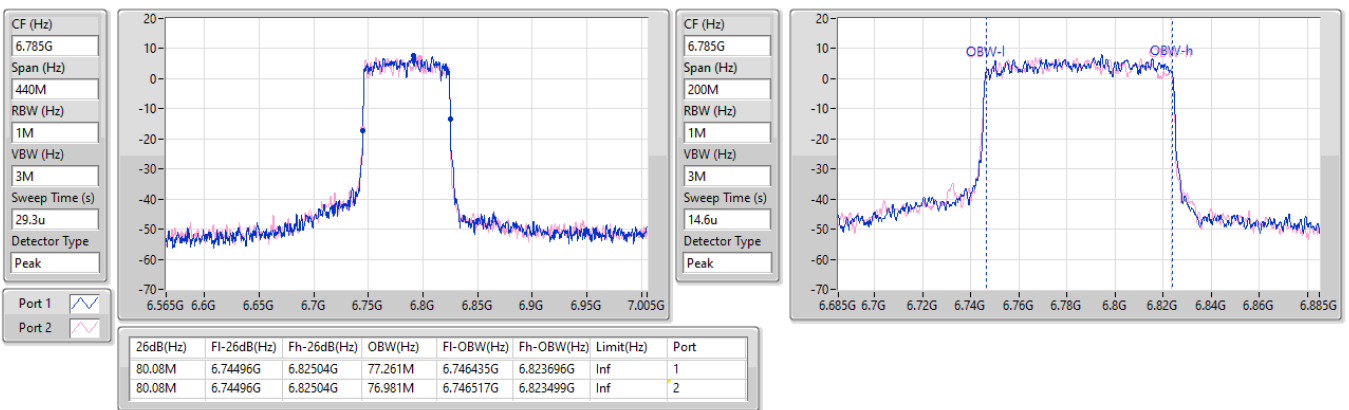


6.525-6.875GHz_802.11ax HEW80_Nss1,(MCS0)_2TX

EBW

6785MHz

27/11/2023

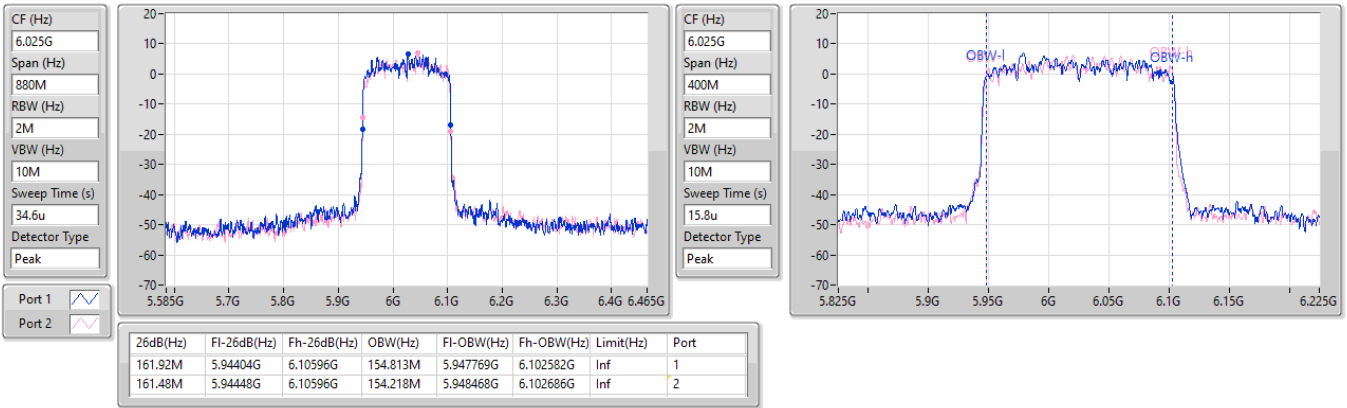


5.925-6.425GHz_802.11ax HEW160_Nss1,(MCS0)_2TX

EBW

6025MHz

27/11/2023

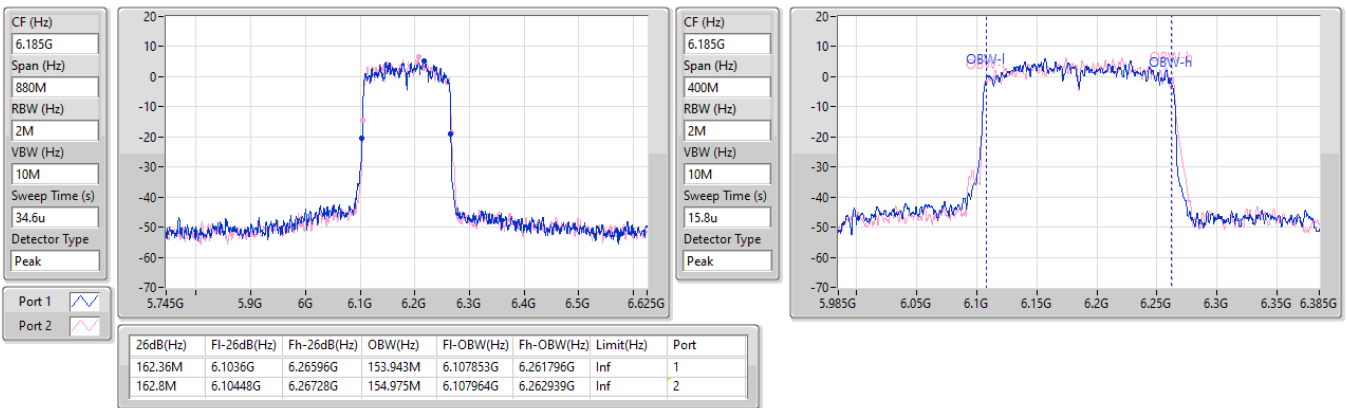


5.925-6.425GHz_802.11ax HEW160_Nss1,(MCS0)_2TX

EBW

6185MHz

27/11/2023

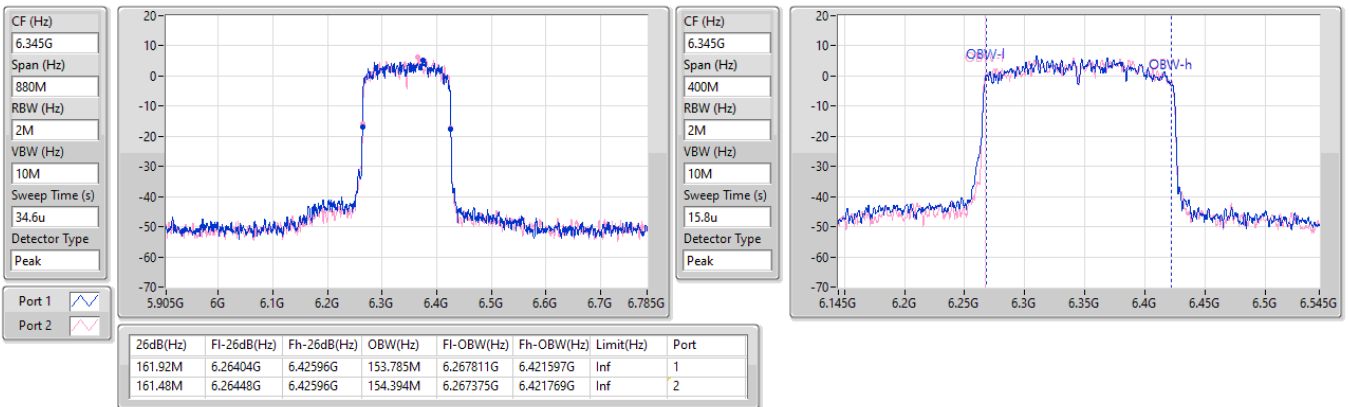


5.925-6.425GHz_802.11ax HEW160_Nss1,(MCS0)_2TX

EBW

6345MHz

27/11/2023

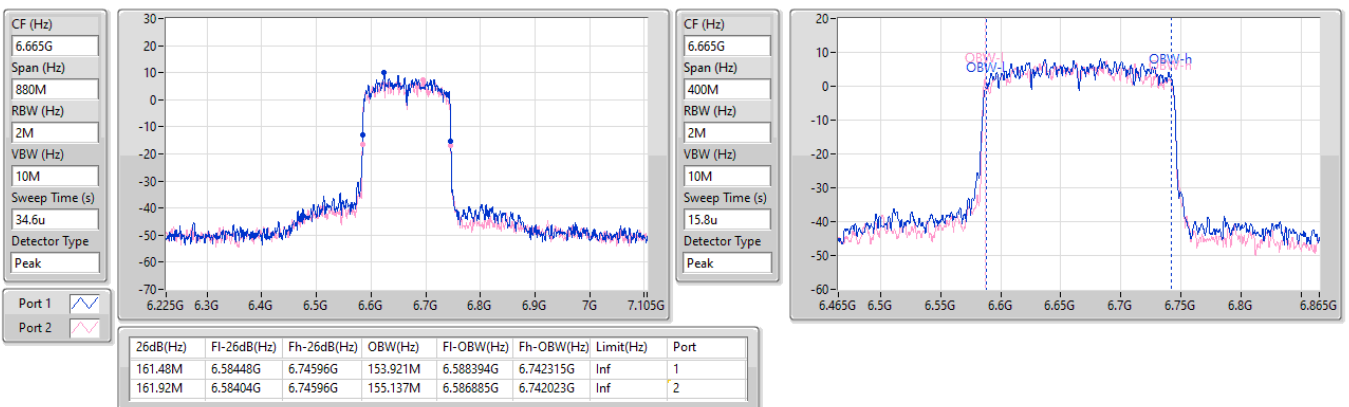


6.525-6.875GHz_802.11ax HEW160_Nss1,(MCS0)_2TX

EBW

6665MHz

27/11/2023





Summary

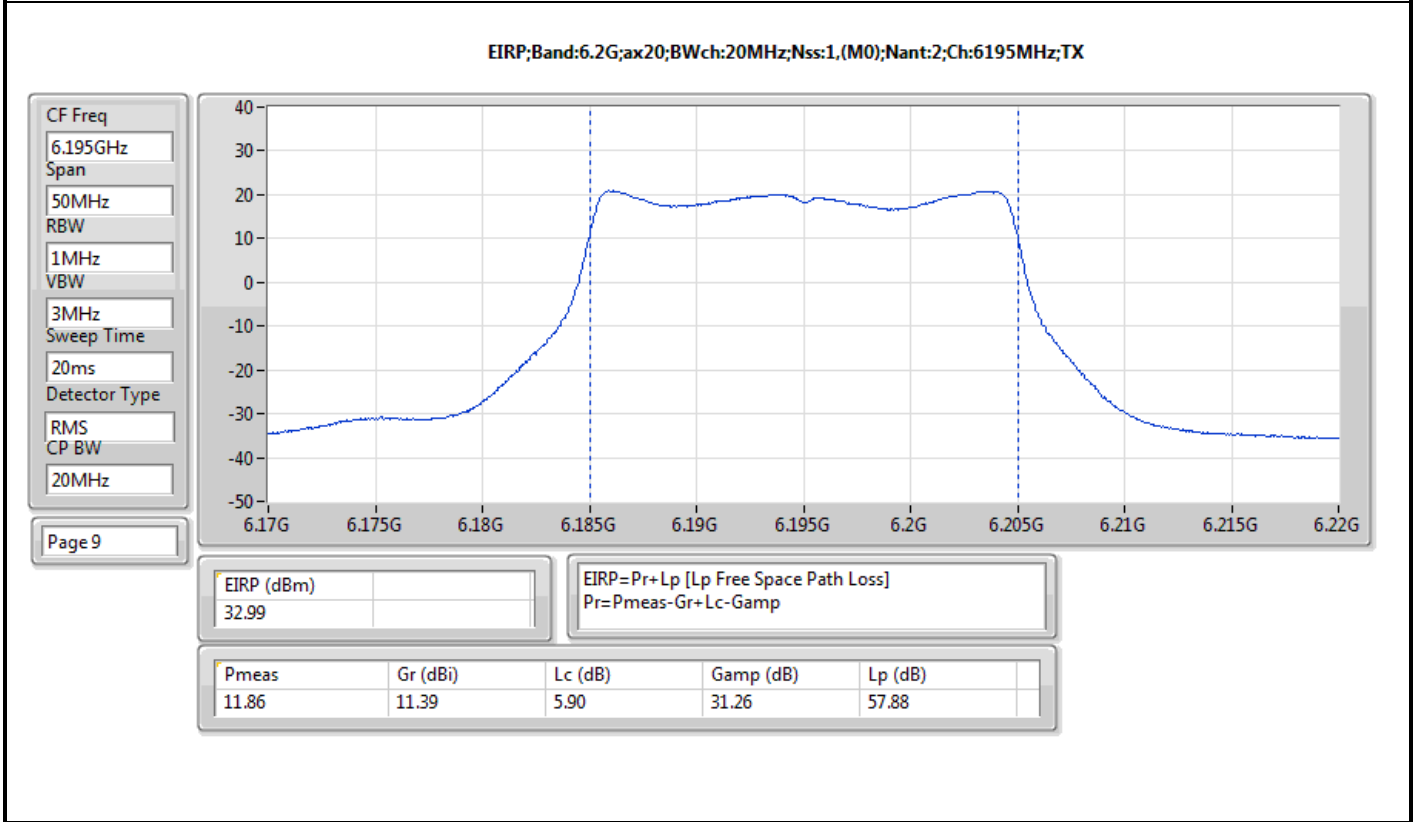
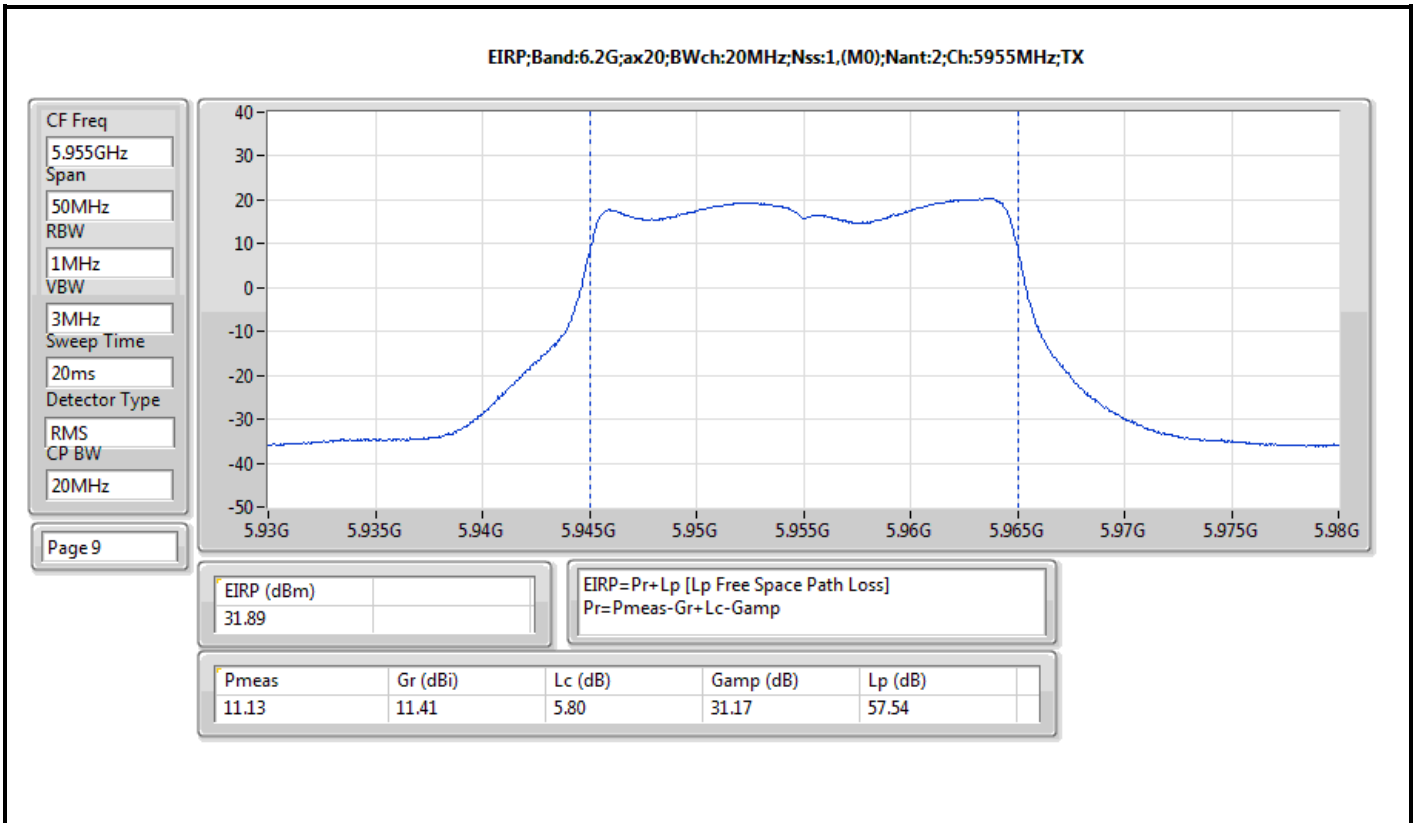
Mode	EIRP (dBm)	EIRP (W)
5.925-6.425GHz	-	-
802.11ax HEW20_Nss1,(MCS0)_2TX	32.99	1.99067
802.11ax HEW40_Nss1,(MCS0)_2TX	35.60	3.63078
802.11ax HEW80_Nss1,(MCS0)_2TX	34.14	2.59418
802.11ax HEW160_Nss1,(MCS0)_2TX	34.59	2.87740
6.525-6.875GHz	-	-
802.11ax HEW20_Nss1,(MCS0)_2TX	32.97	1.98153
802.11ax HEW40_Nss1,(MCS0)_2TX	33.36	2.16770
802.11ax HEW80_Nss1,(MCS0)_2TX	33.84	2.42103
802.11ax HEW160_Nss1,(MCS0)_2TX	33.71	2.34963

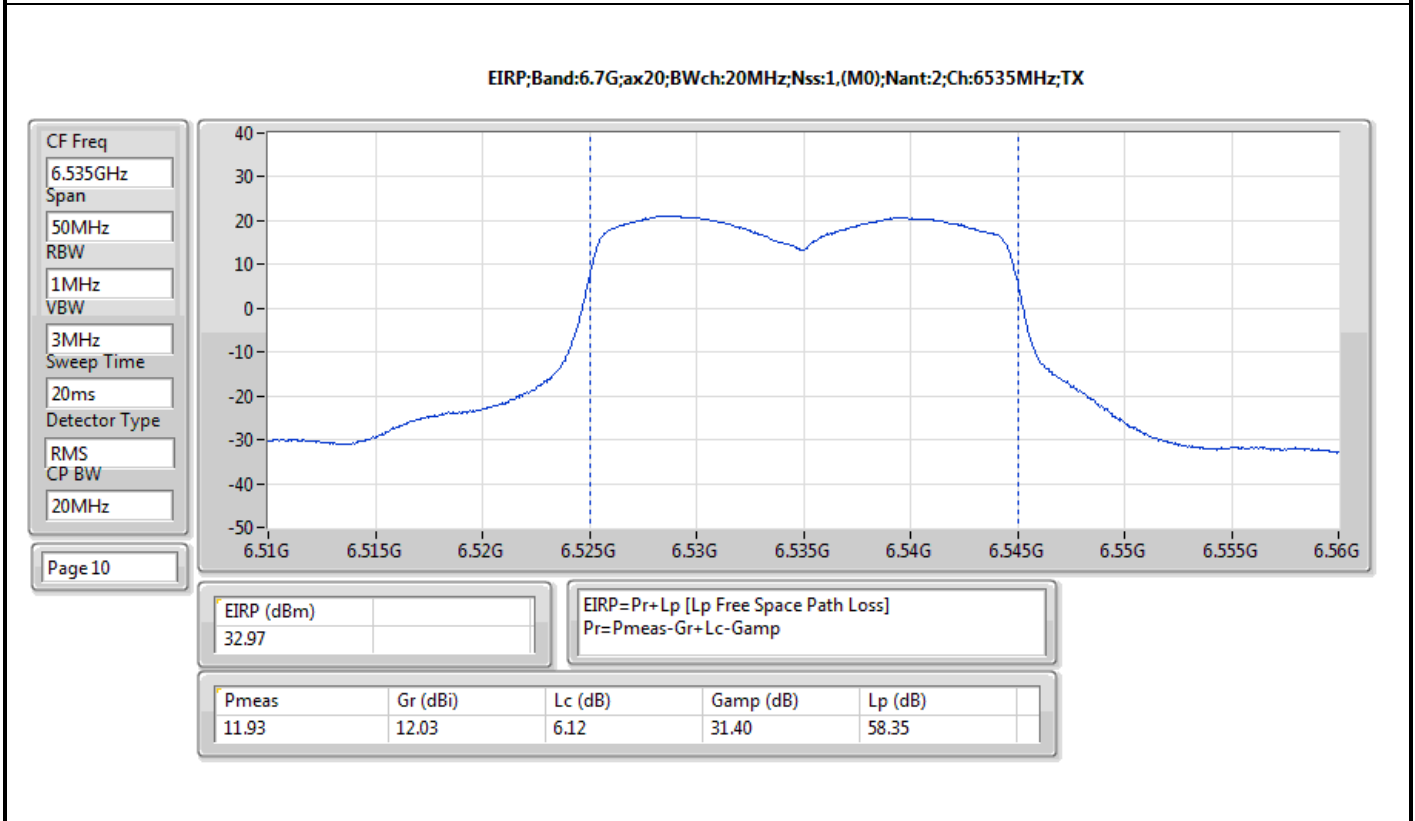
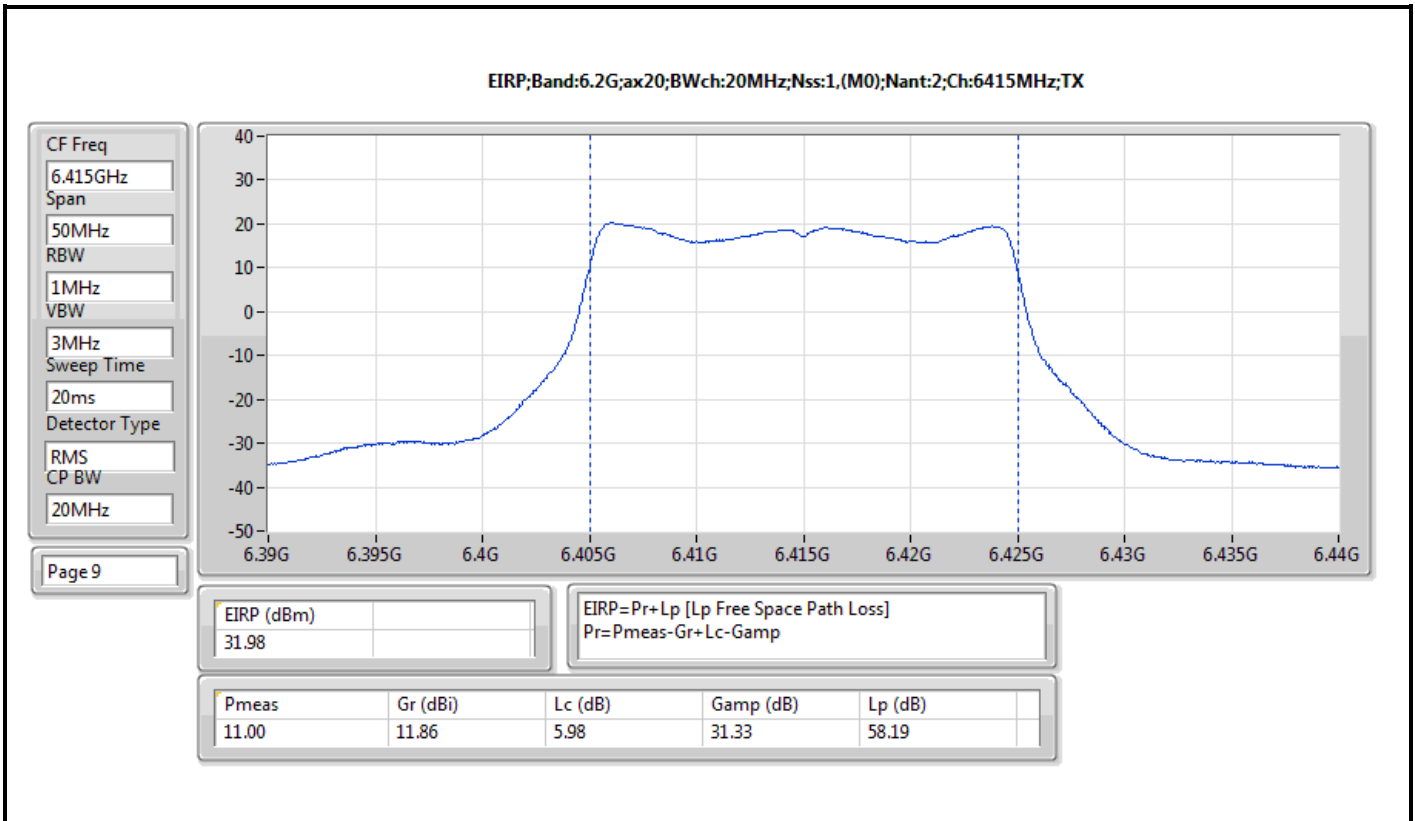


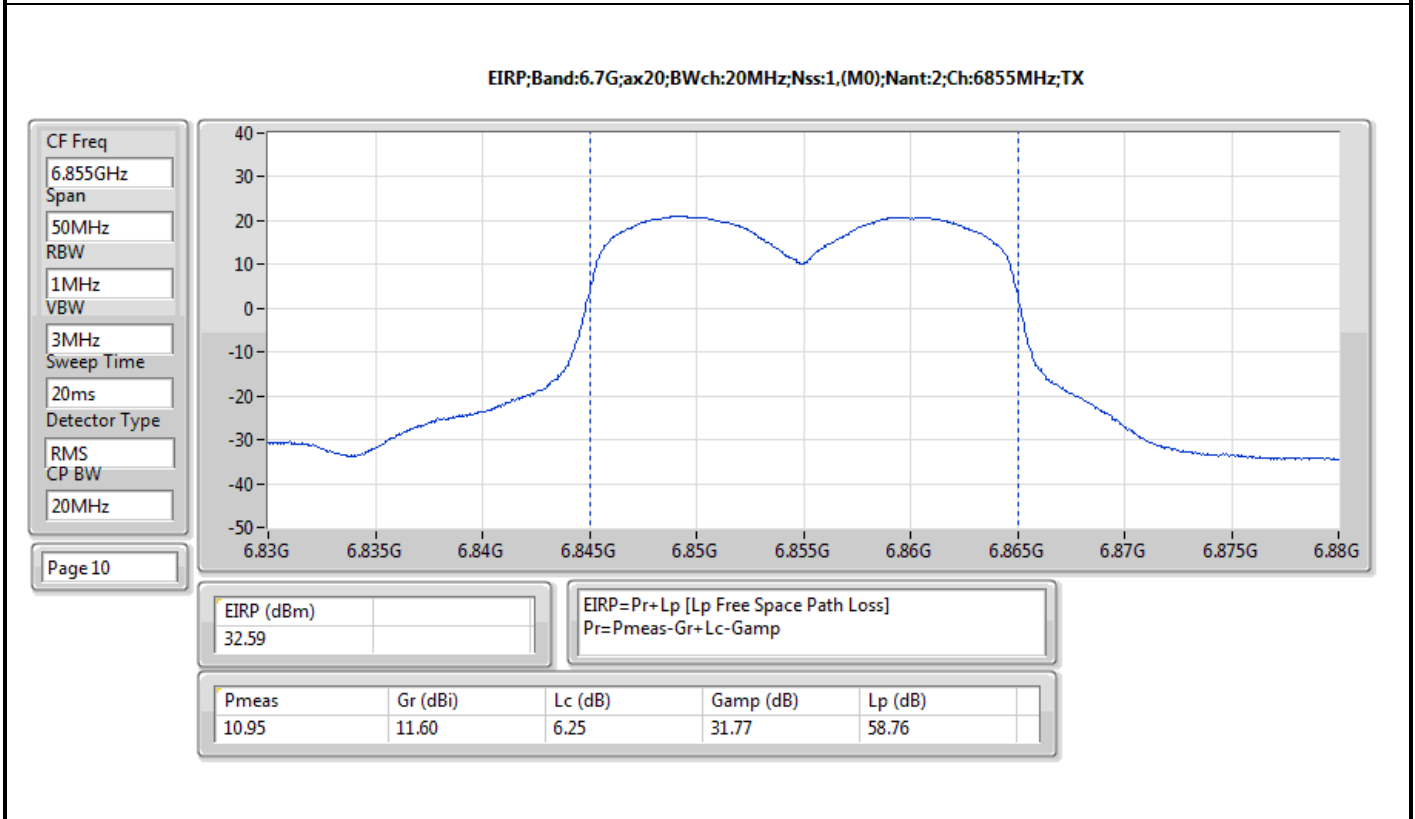
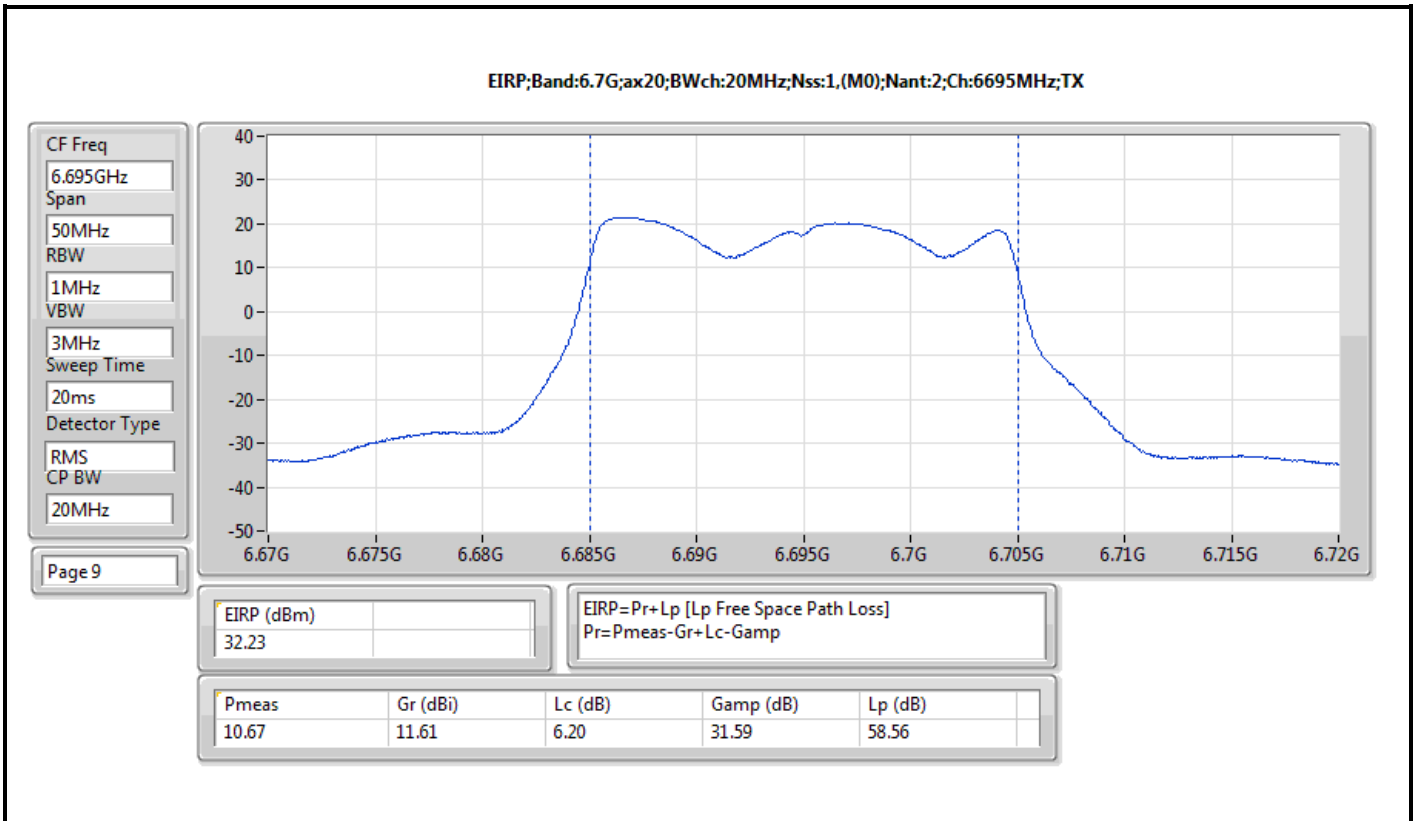
Result

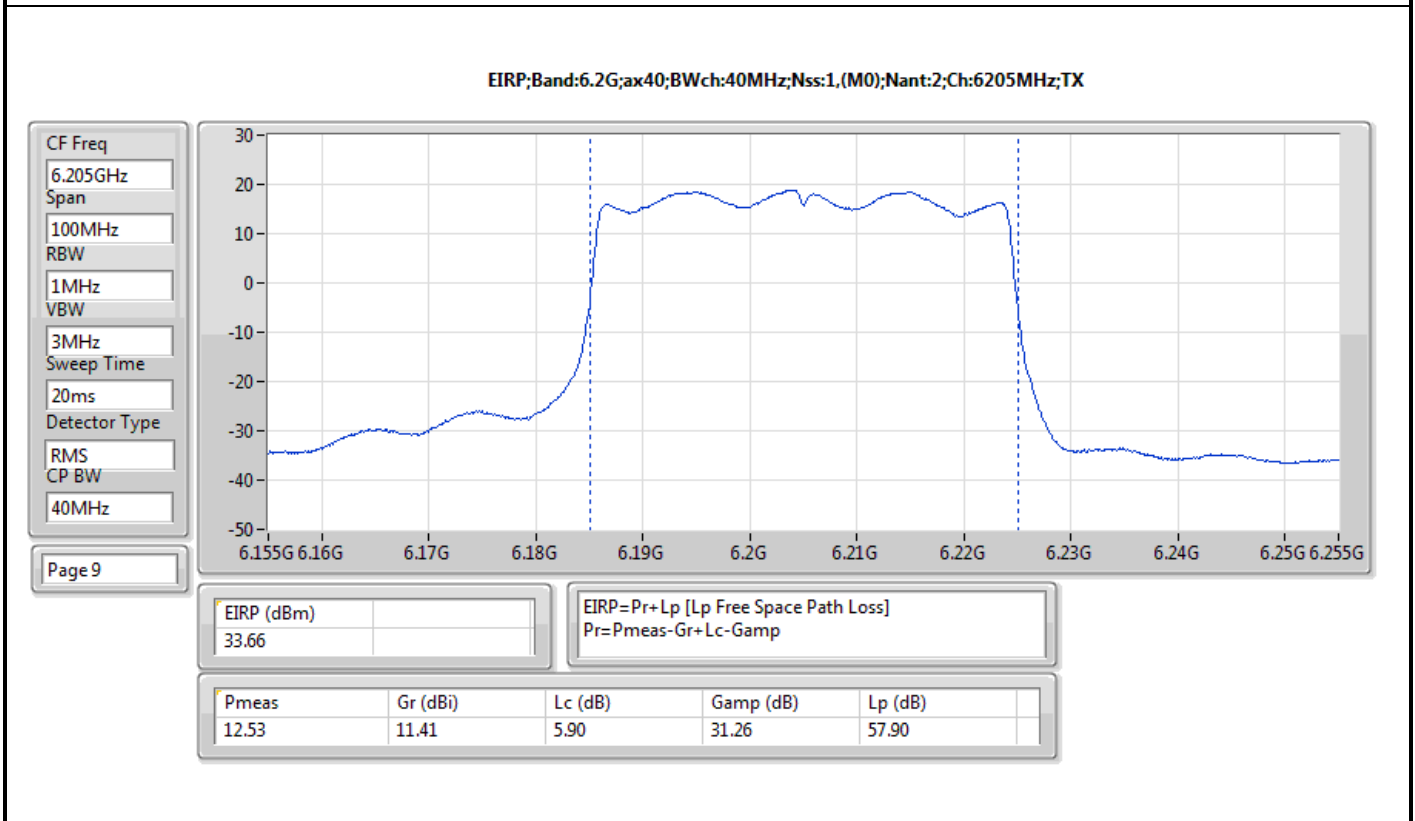
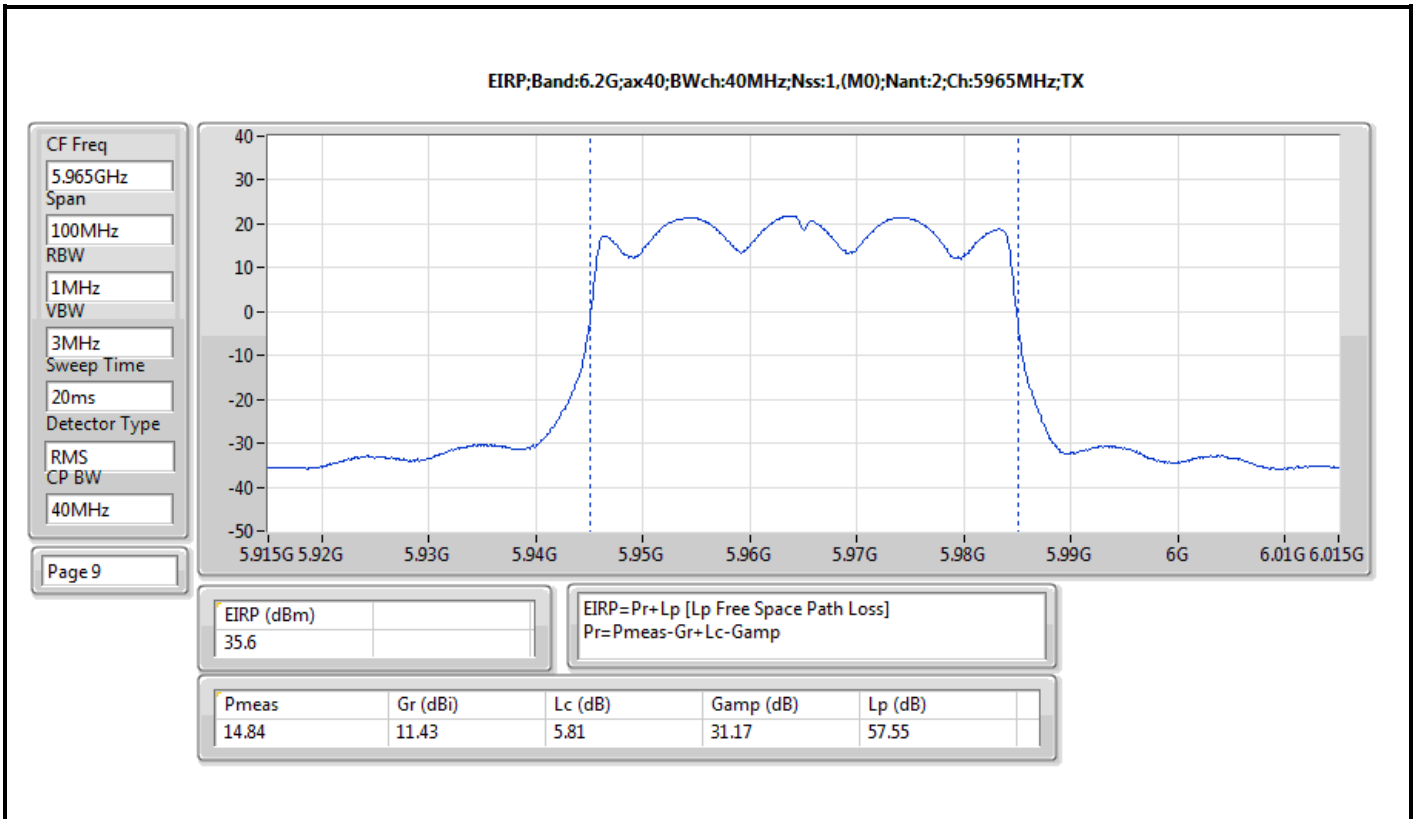
Mode	Result	Radiated EIRP (dBm)	EIRP Limit (dBm)
802.11ax HEW20_Nss1,(MCS0)_2TX	-	-	-
5955MHz	Pass	31.89	36.00
6195MHz	Pass	32.99	36.00
6415MHz	Pass	31.98	36.00
6535MHz	Pass	32.97	36.00
6695MHz	Pass	32.23	36.00
6855MHz	Pass	32.59	36.00
802.11ax HEW40_Nss1,(MCS0)_2TX	-	-	-
5965MHz	Pass	35.60	36.00
6205MHz	Pass	33.66	36.00
6405MHz	Pass	34.57	36.00
6565MHz	Pass	32.58	36.00
6685MHz	Pass	33.36	36.00
6845MHz	Pass	32.42	36.00
802.11ax HEW80_Nss1,(MCS0)_2TX	-	-	-
5985MHz	Pass	34.14	36.00
6225MHz	Pass	31.76	36.00
6385MHz	Pass	29.34	36.00
6625MHz	Pass	30.91	36.00
6705MHz	Pass	33.67	36.00
6785MHz	Pass	33.84	36.00
802.11ax HEW160_Nss1,(MCS0)_2TX	-	-	-
6025MHz	Pass	34.59	36.00
6185MHz	Pass	34.52	36.00
6345MHz	Pass	31.43	36.00
6665MHz	Pass	33.71	36.00

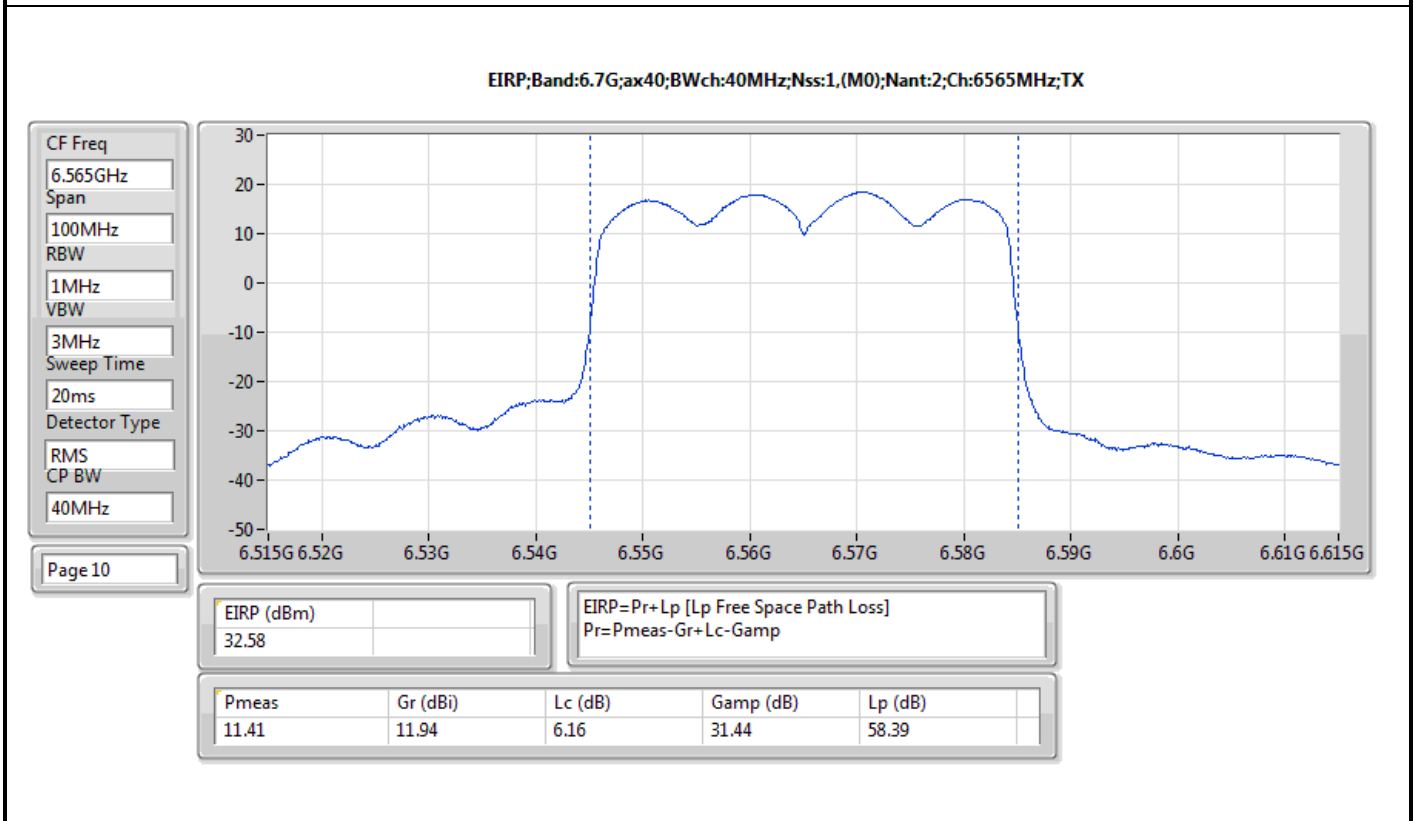
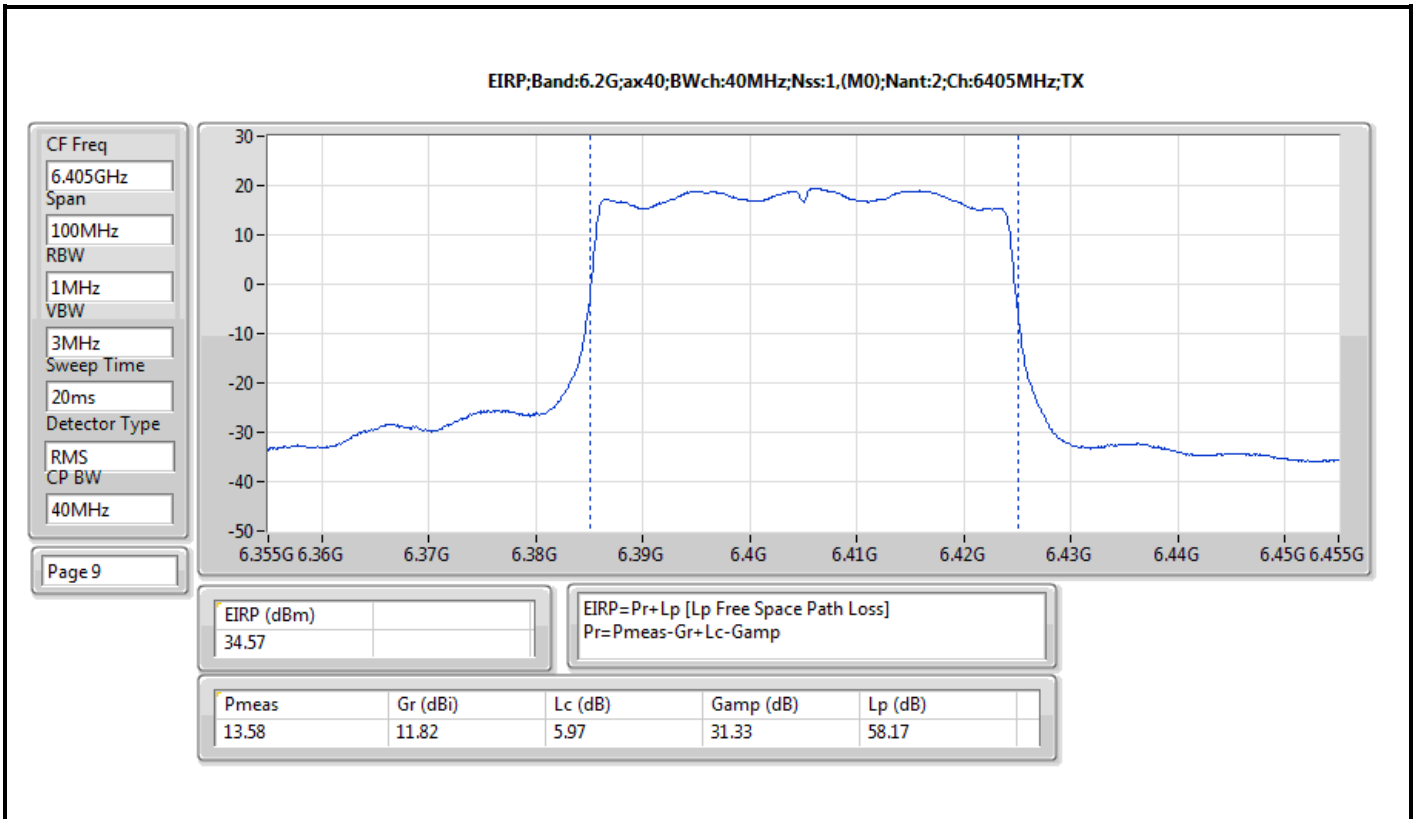
DG = Directional Gain; Port X = Port X output power

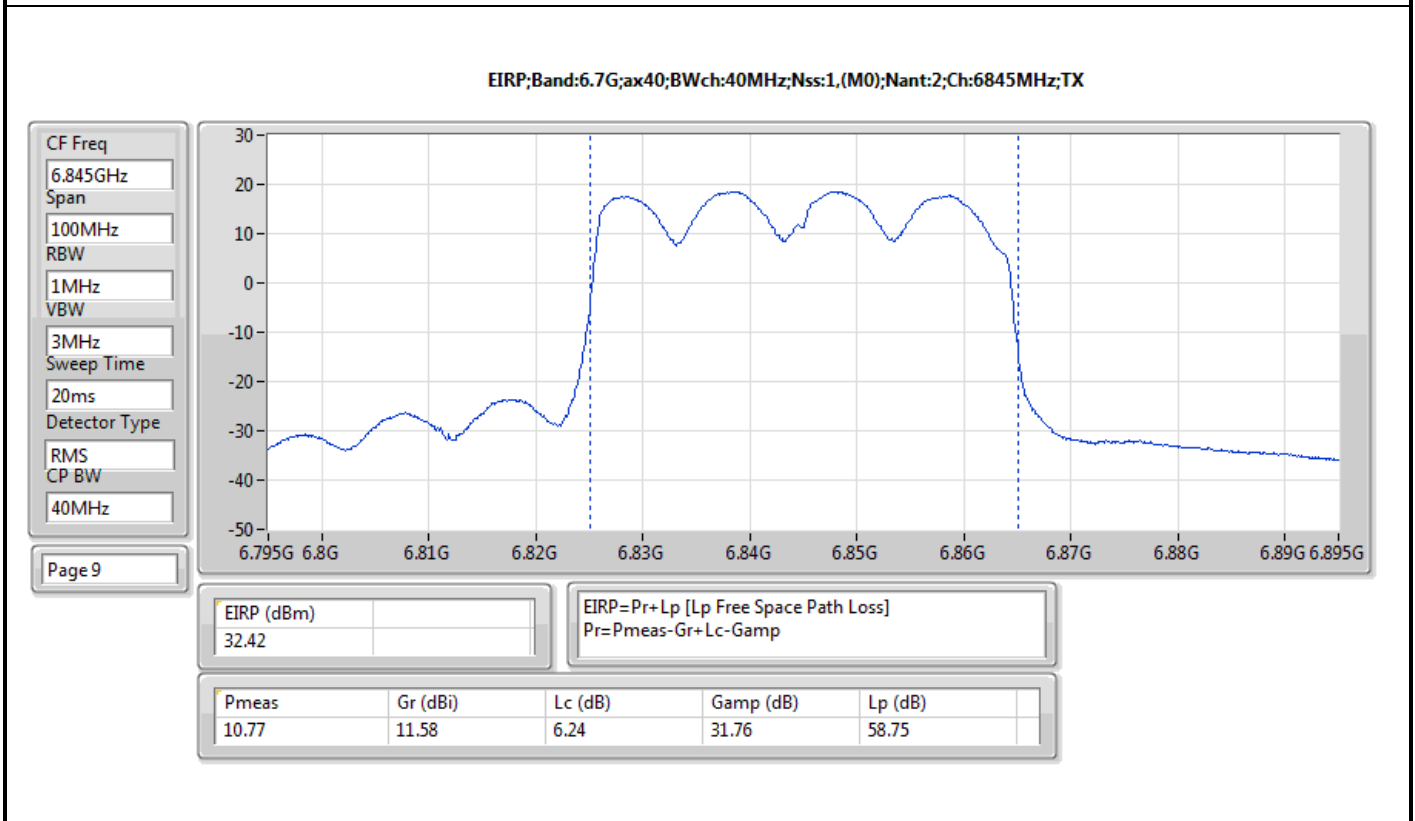
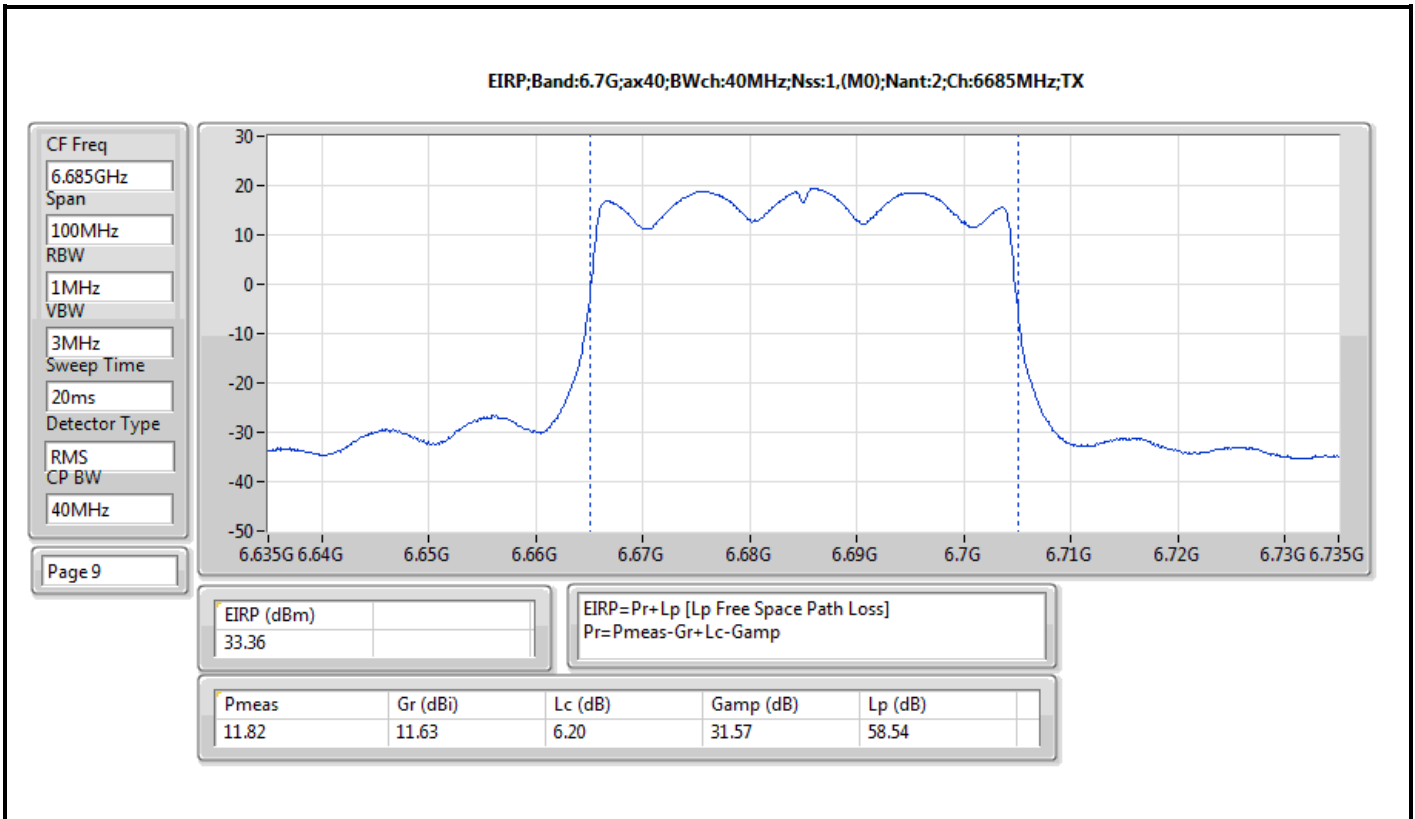


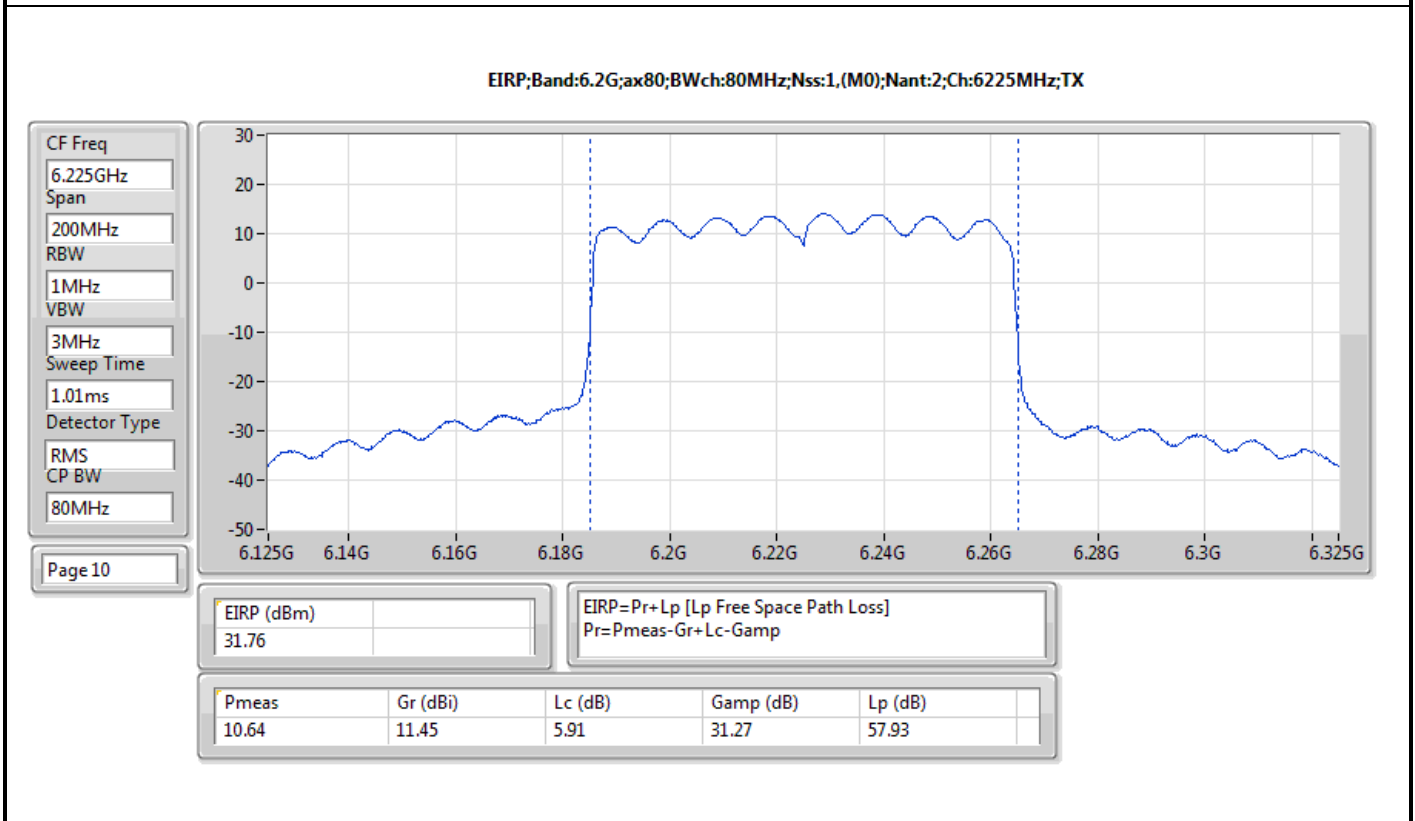
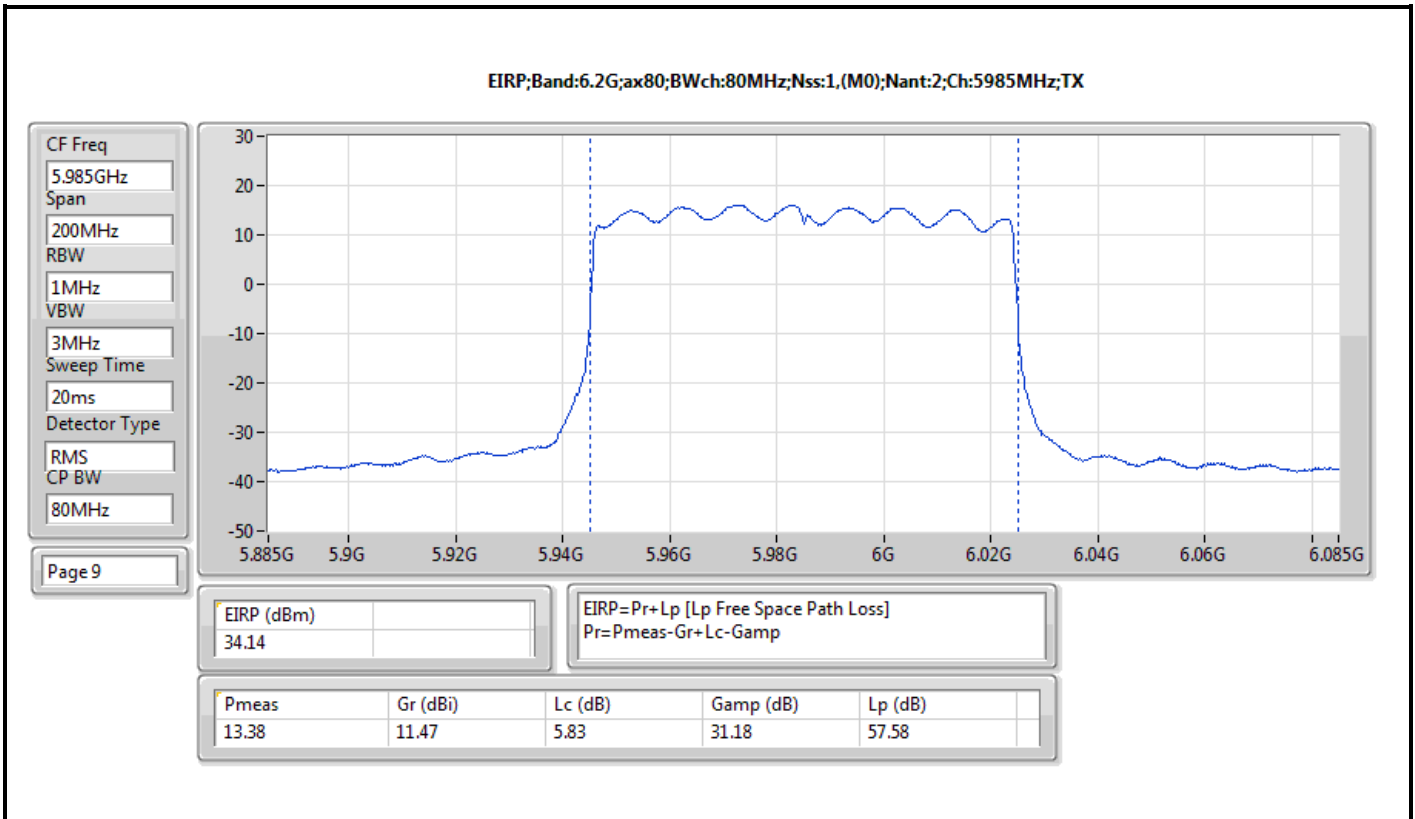


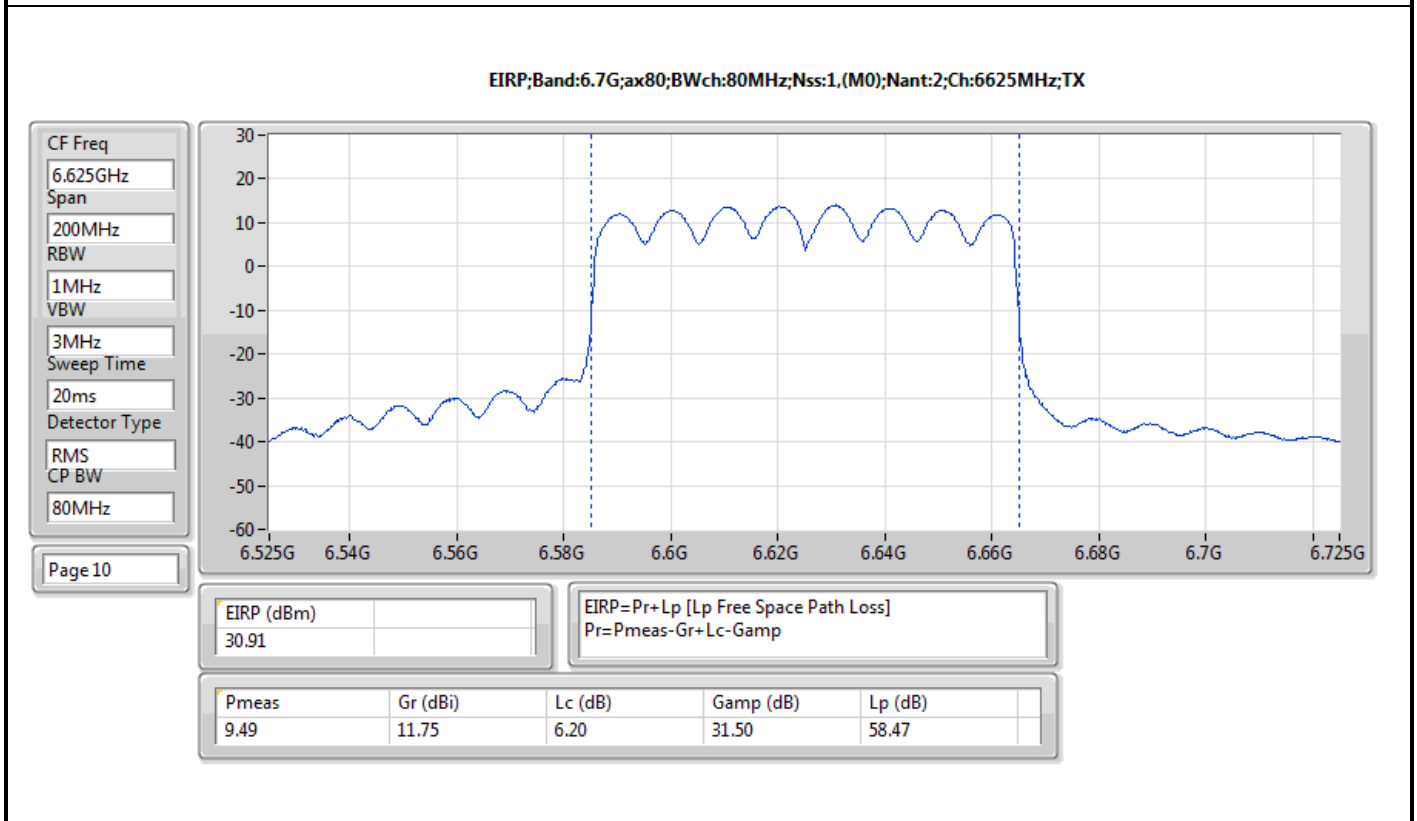
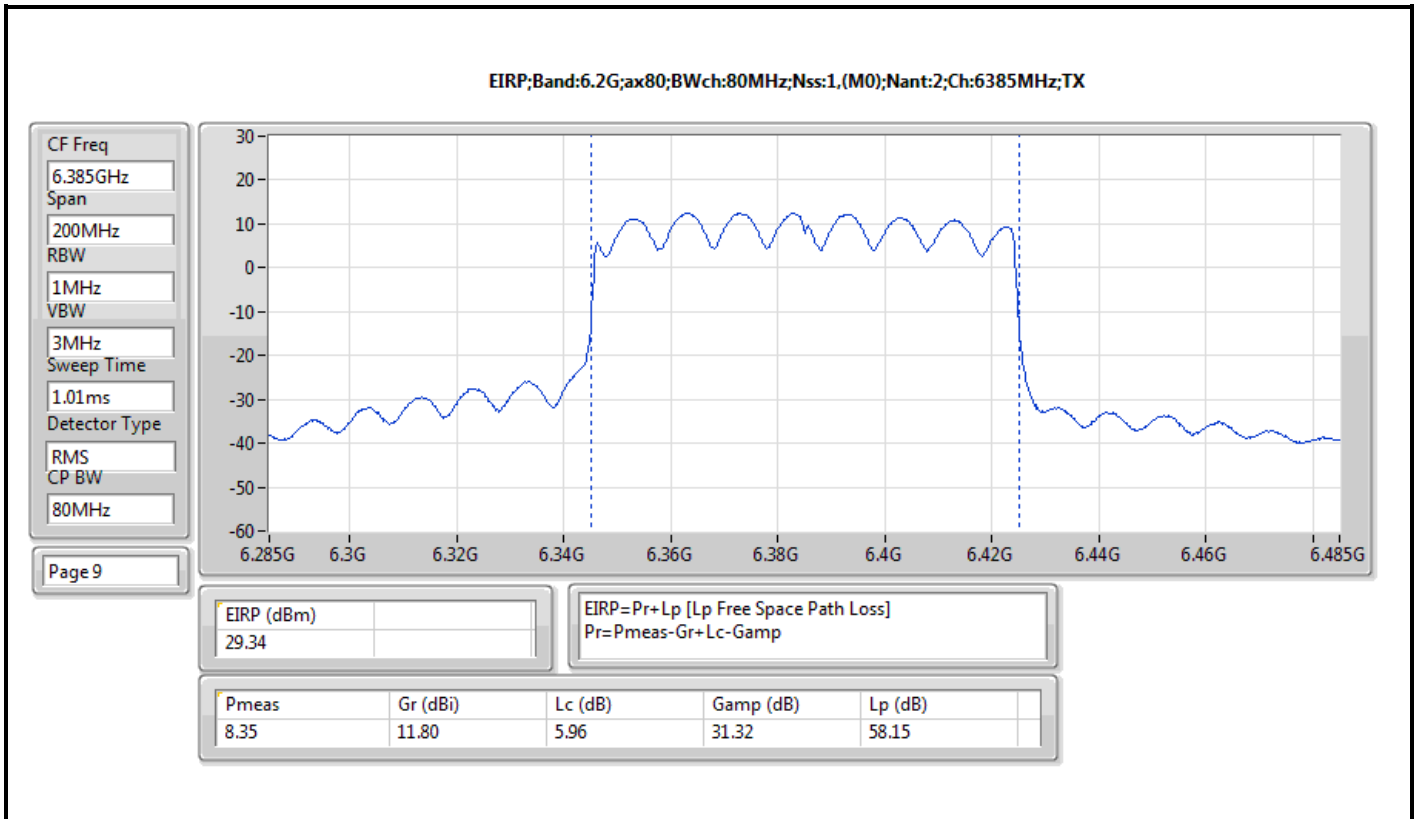


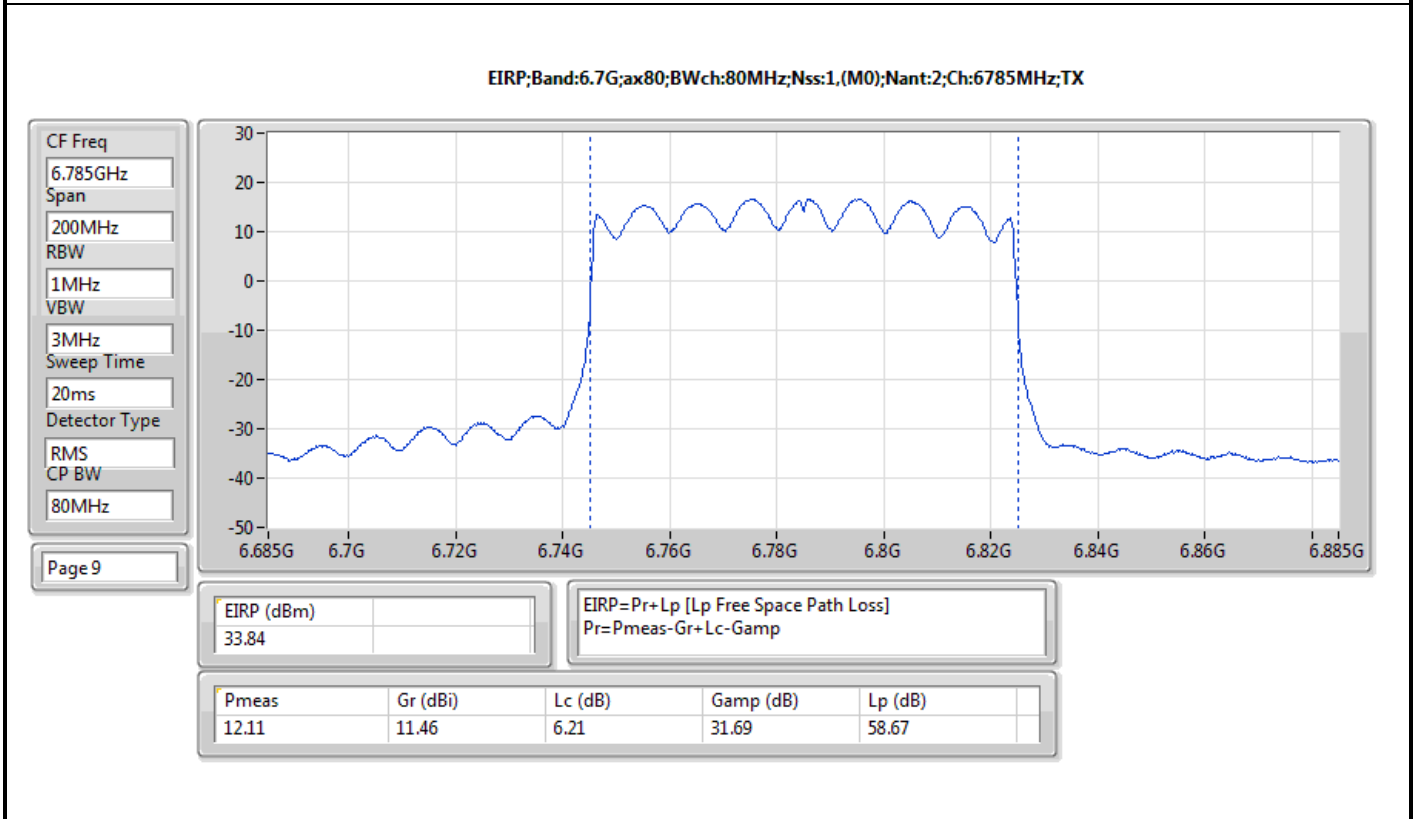
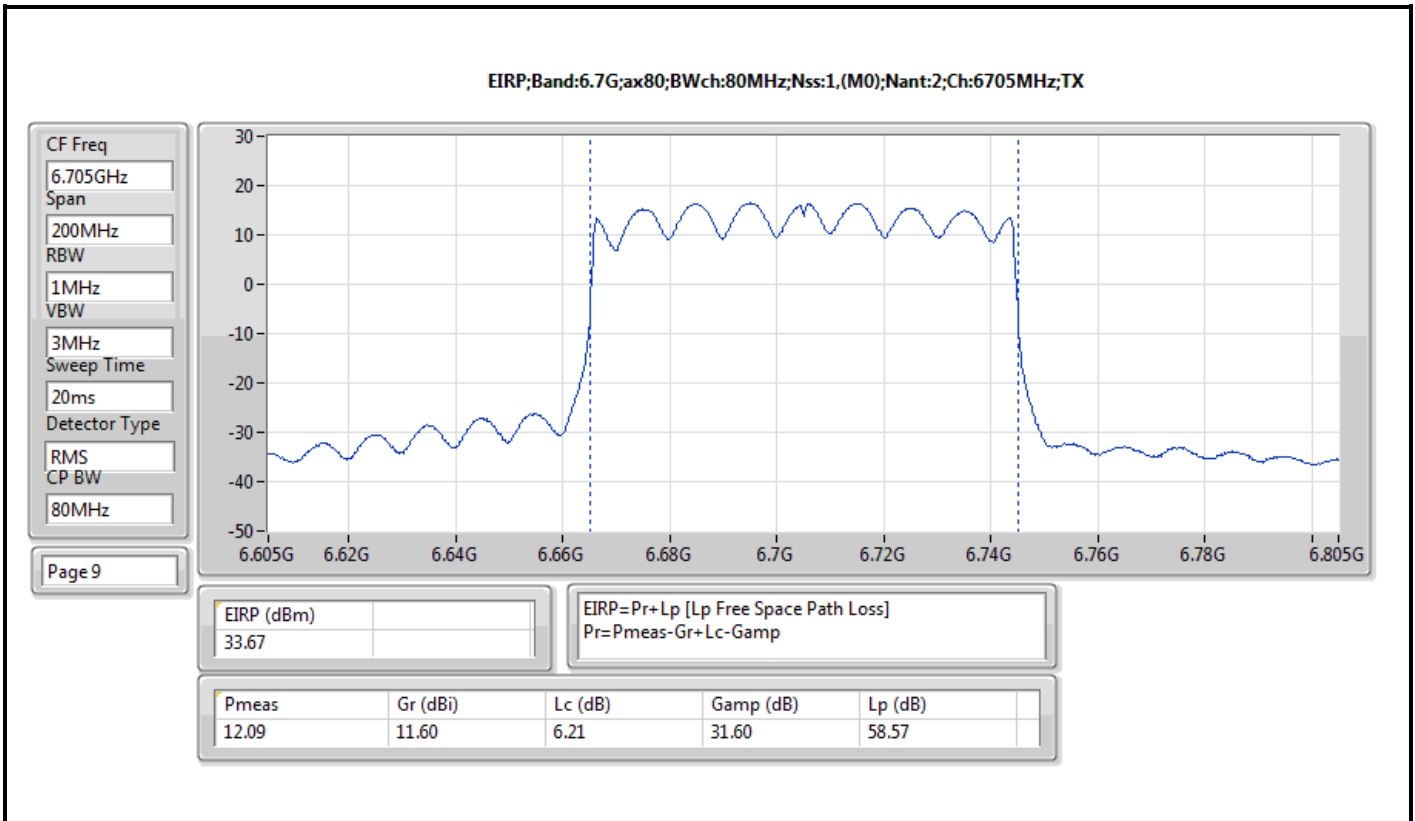


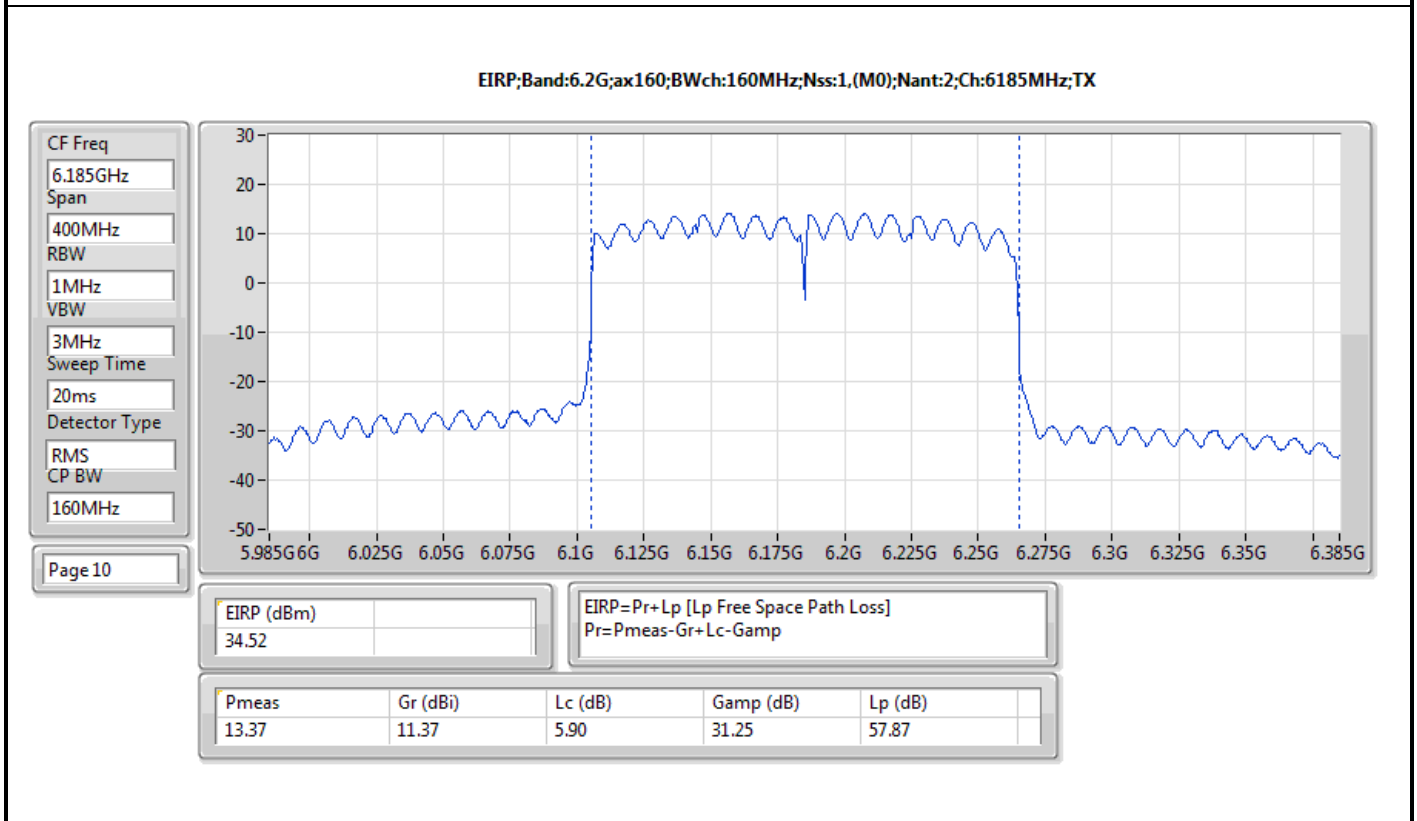
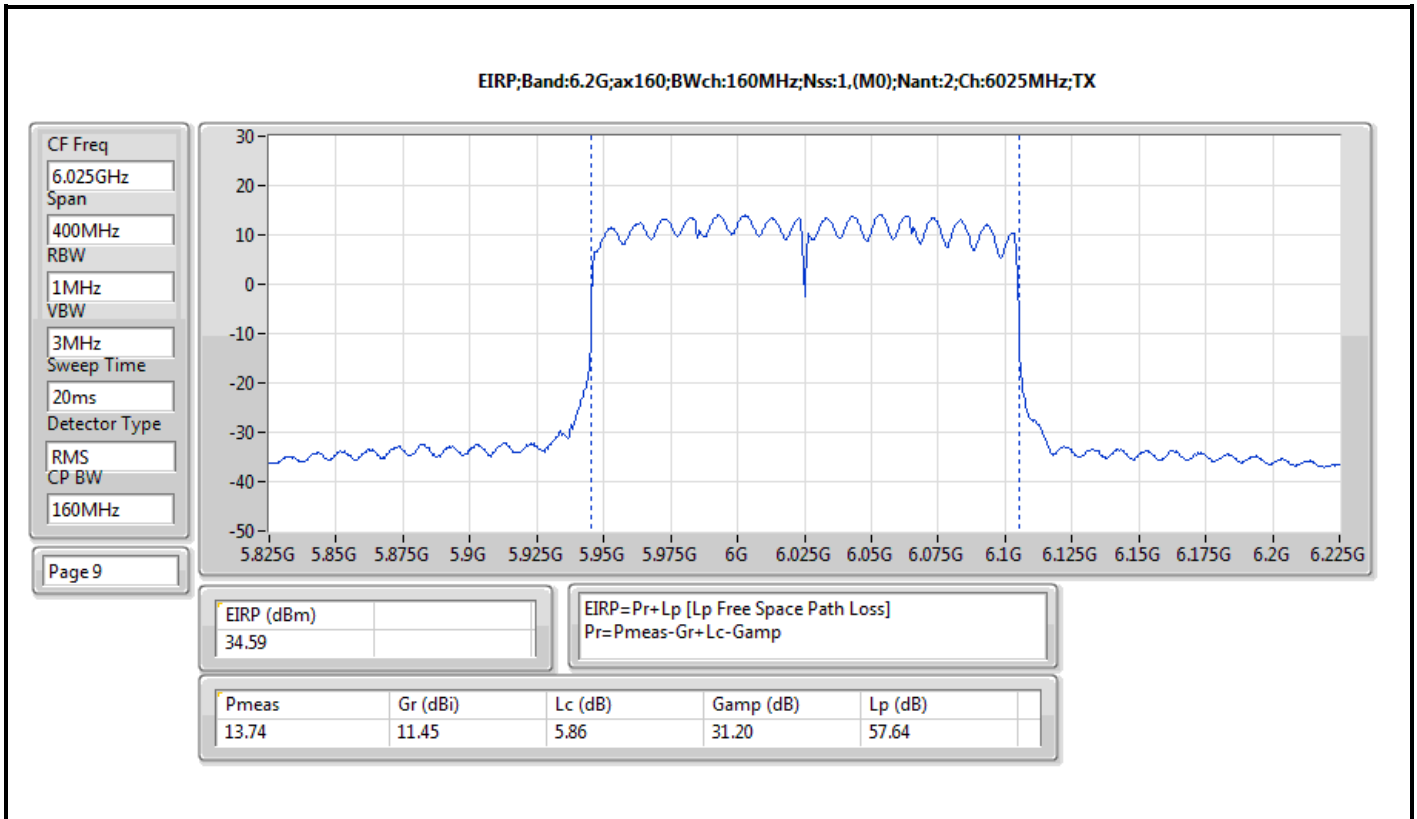


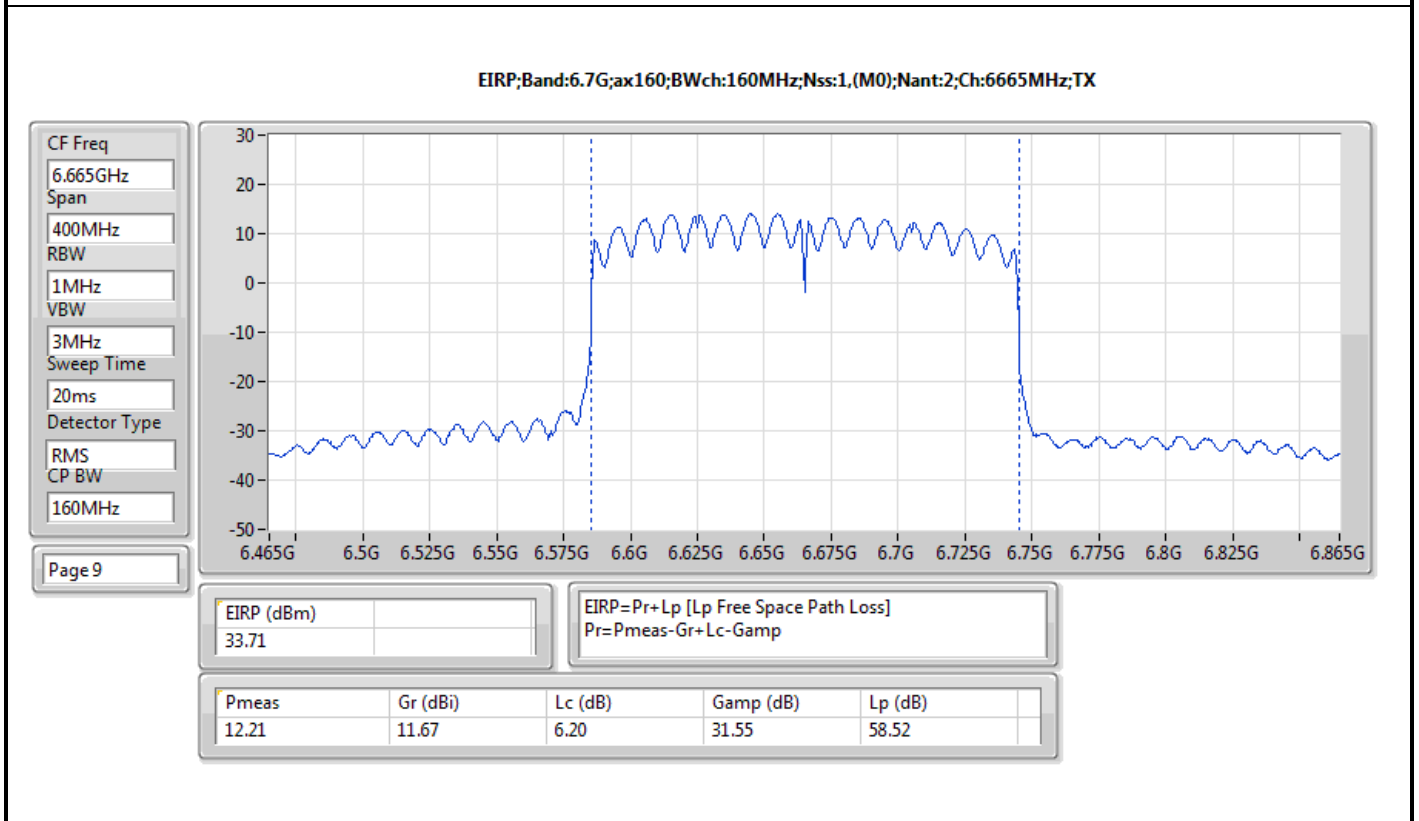
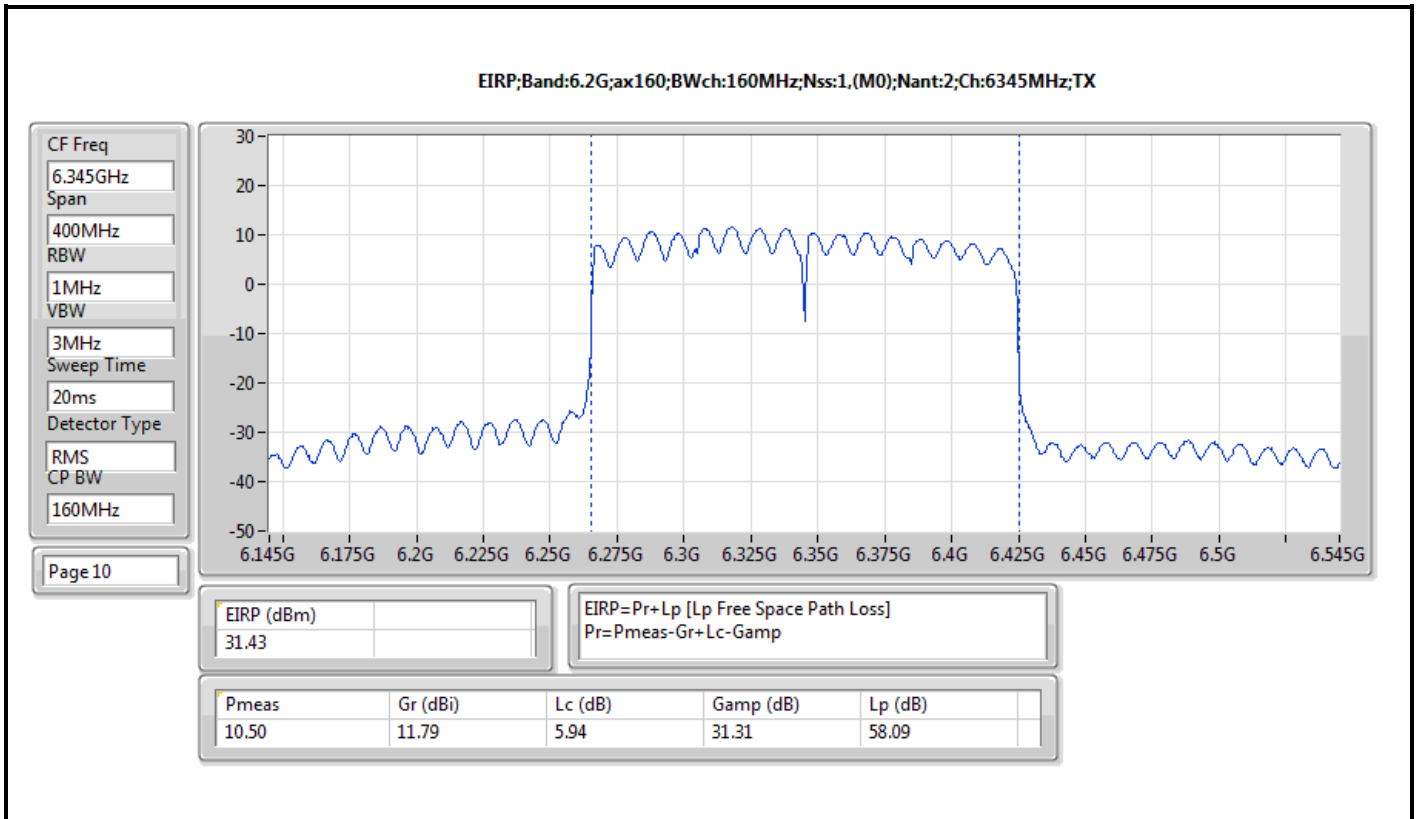














Average Power-E.I.R.P. at any elevation angle above 30 degrees
_Dish Antenna

Appendix C.2

Summary

Mode	Total Power (dBm)	Total Power (W)	EIRP [Phi 30°] (dBm)	EIRP [Phi 30°] (W)
5.925-6.425GHz	-	-	-	-
802.11ax HEW20_Nss1,(MCS0)_2TX	15.99	0.03972	18.48	0.070469
802.11ax HEW40_Nss1,(MCS0)_2TX	18.48	0.07047	20.97	0.125026
802.11ax HEW80_Nss1,(MCS0)_2TX	18.44	0.06982	20.93	0.123880
802.11ax HEW160_Nss1,(MCS0)_2TX	18.37	0.06871	20.86	0.121899
6.525-6.875GHz	-	-	-	-
802.11ax HEW20_Nss1,(MCS0)_2TX	16.98	0.04989	19.00	0.079433
802.11ax HEW40_Nss1,(MCS0)_2TX	18.71	0.07430	20.73	0.118304
802.11ax HEW80_Nss1,(MCS0)_2TX	18.63	0.07295	20.65	0.116145
802.11ax HEW160_Nss1,(MCS0)_2TX	18.88	0.07727	20.90	0.123027



**Average Power-E.I.R.P. at any elevation angle above 30 degrees
Dish Antenna**

Appendix C.2

Result

Mode	Result	DG [Phi 30°] (dBi)	Port 1 (dBm)	Port 2 (dBm)	Total Power (dBm)	EIRP [Phi 30°] (dBm)	EIRP [Phi 30°] Limit (dBm)
802.11ax HEW20_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-
5955MHz	Pass	2.49	11.71	11.51	14.62	17.11	21.00
6195MHz	Pass	2.49	12.34	12.65	15.51	18.00	21.00
6415MHz	Pass	2.49	13.04	12.91	15.99	18.48	21.00
6535MHz	Pass	2.02	12.80	12.90	15.86	17.88	21.00
6695MHz	Pass	2.02	14.15	13.79	16.98	19.00	21.00
6855MHz	Pass	2.02	11.37	12.12	14.77	16.79	21.00
802.11ax HEW40_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-
5965MHz	Pass	2.49	15.28	14.43	17.89	20.38	21.00
6205MHz	Pass	2.49	15.46	15.20	18.34	20.83	21.00
6405MHz	Pass	2.49	15.66	15.27	18.48	20.97	21.00
6565MHz	Pass	2.02	15.83	15.56	18.71	20.73	21.00
6685MHz	Pass	2.02	15.74	15.46	18.61	20.63	21.00
6845MHz	Pass	2.02	15.15	16.14	18.68	20.70	21.00
802.11ax HEW80_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-
5985MHz	Pass	2.49	15.83	14.96	18.43	20.92	21.00
6225MHz	Pass	2.49	15.50	15.22	18.37	20.86	21.00
6385MHz	Pass	2.49	15.56	15.29	18.44	20.93	21.00
6625MHz	Pass	2.02	15.81	15.37	18.61	20.63	21.00
6705MHz	Pass	2.02	15.58	15.48	18.54	20.56	21.00
6785MHz	Pass	2.02	15.35	15.87	18.63	20.65	21.00
802.11ax HEW160_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-
6025MHz	Pass	2.49	15.81	14.76	18.33	20.82	21.00
6185MHz	Pass	2.49	15.55	15.16	18.37	20.86	21.00
6345MHz	Pass	2.49	15.53	14.73	18.16	20.65	21.00
6665MHz	Pass	2.02	16.01	15.73	18.88	20.90	21.00

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



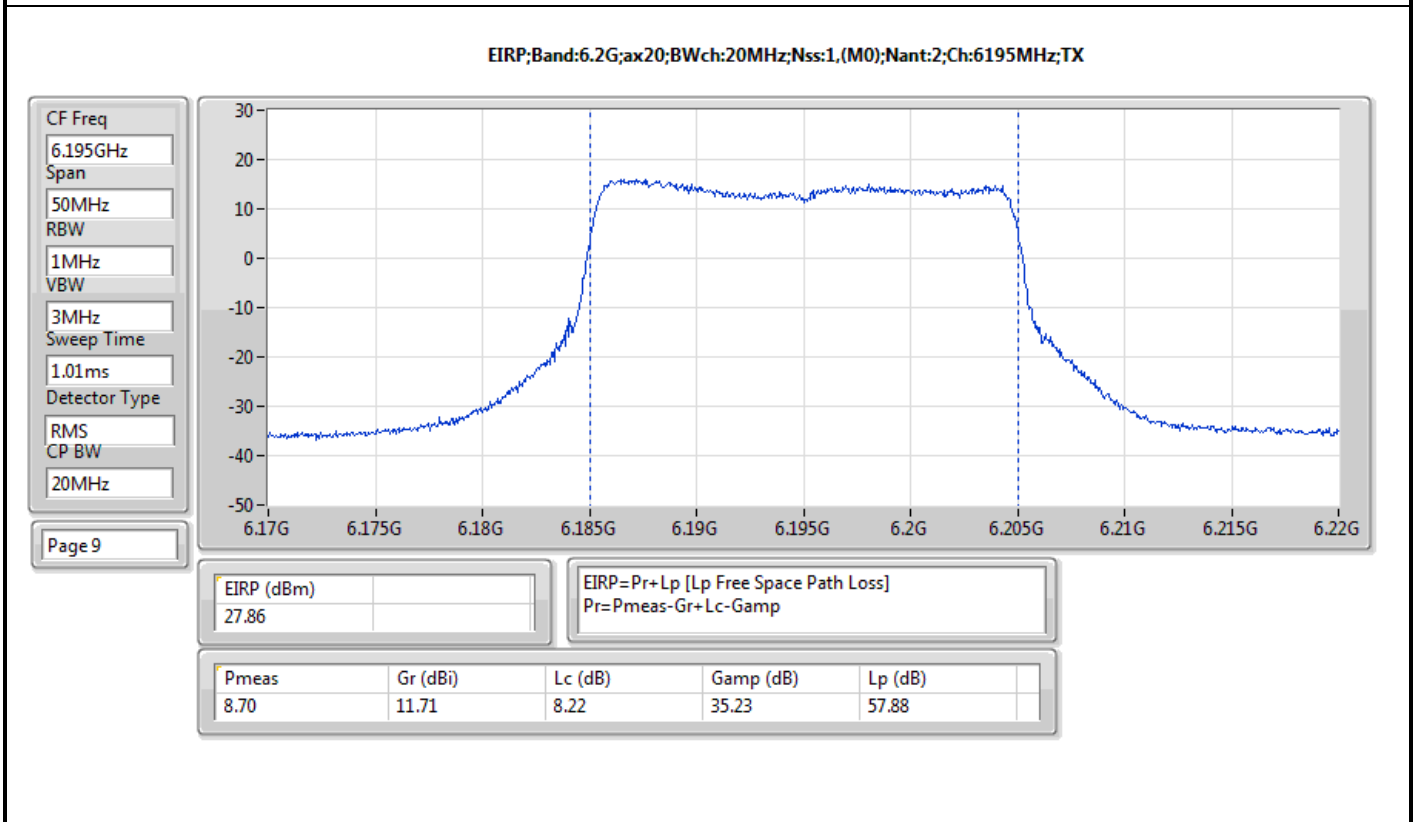
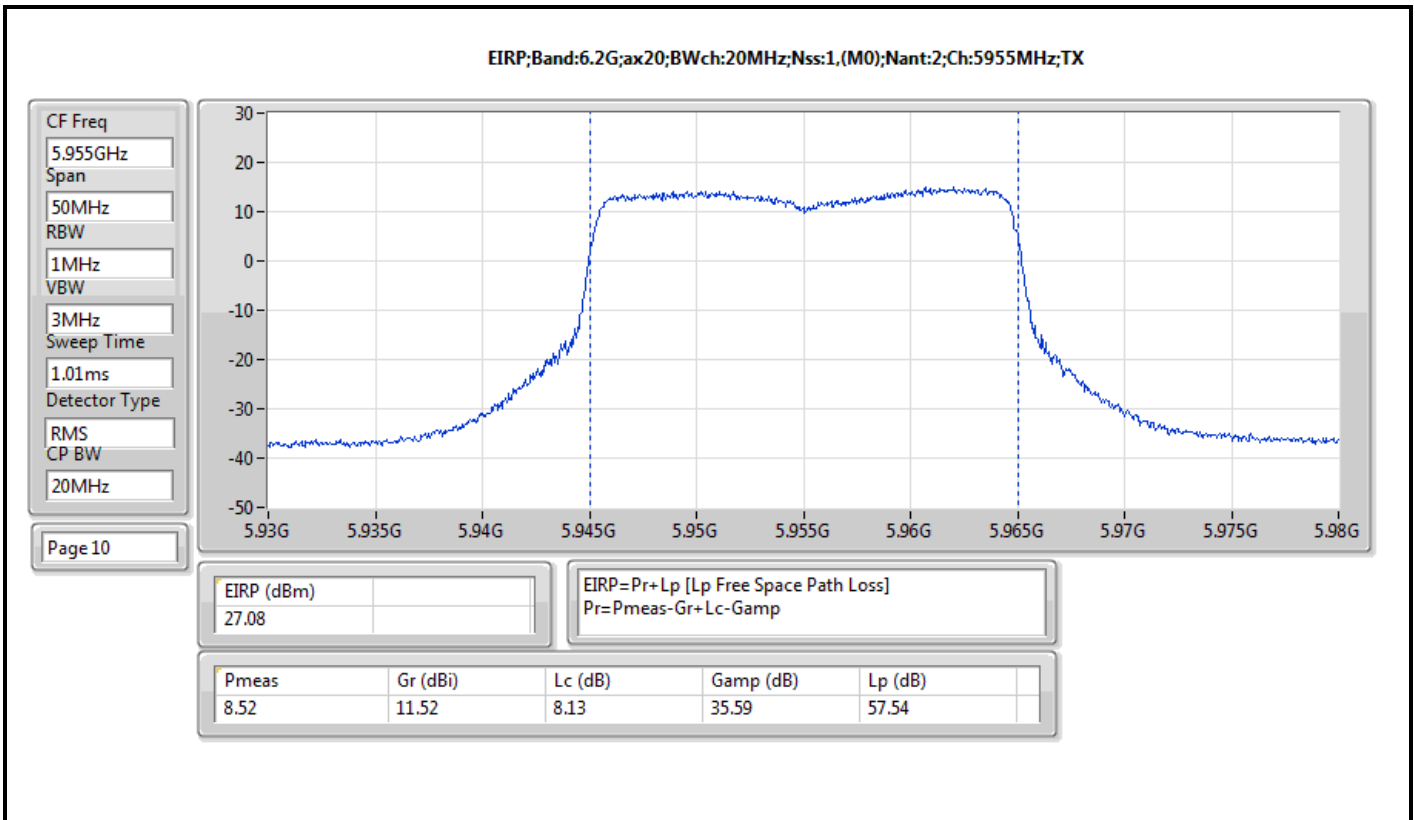
Summary

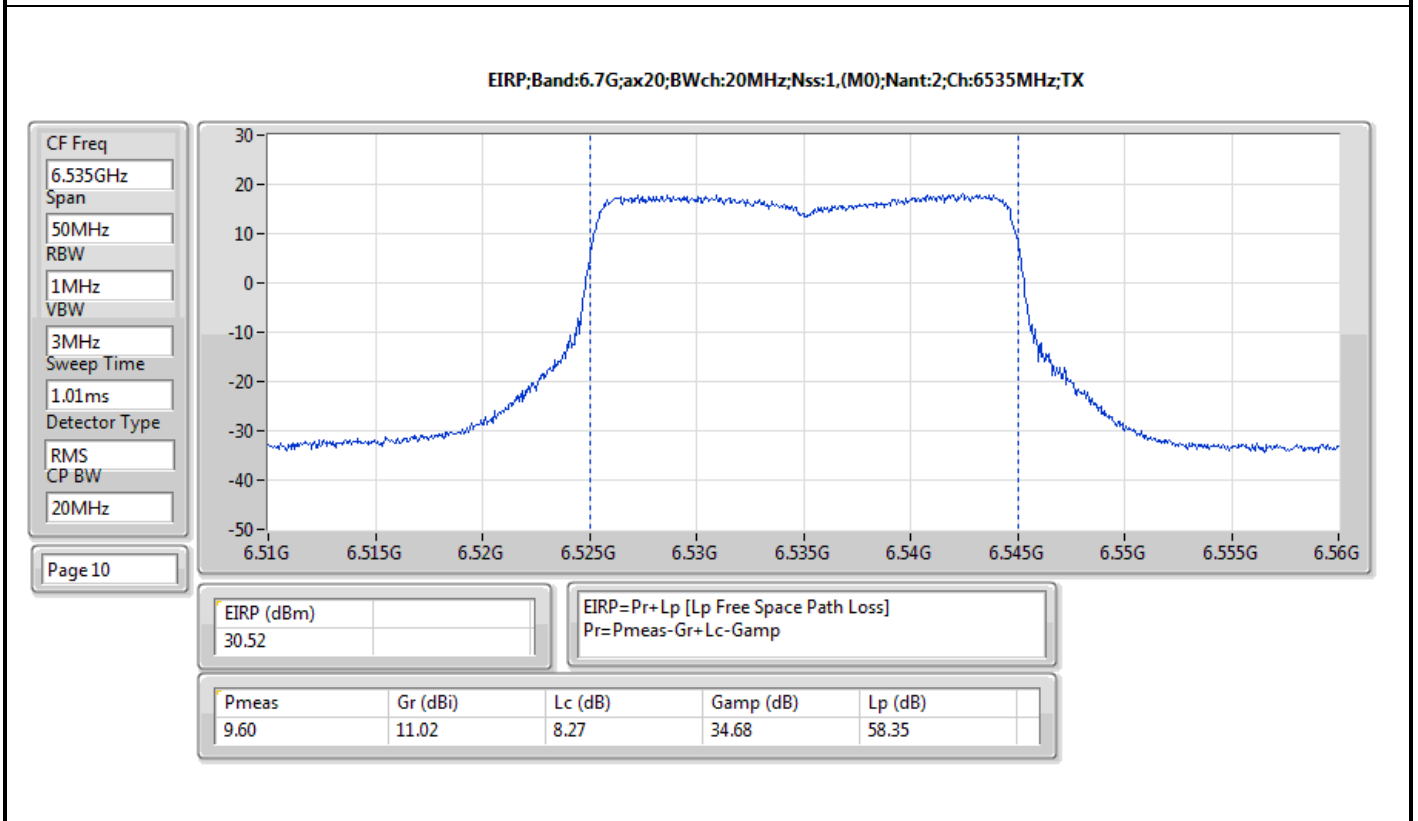
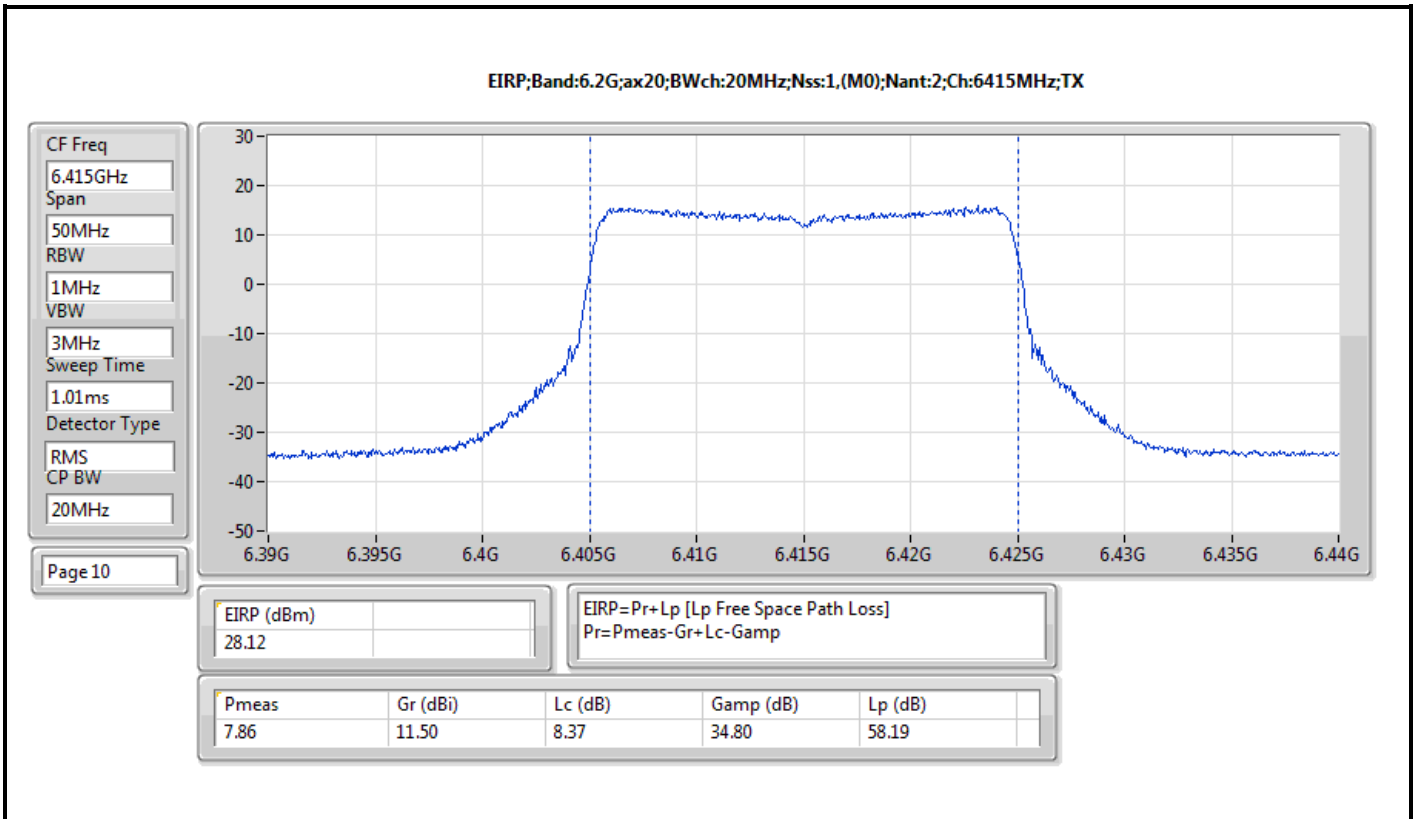
Mode	EIRP (dBm)	EIRP (W)
5.925-6.425GHz	-	-
802.11ax HEW20_Nss1,(MCS0)_2TX	28.12	0.64863
802.11ax HEW40_Nss1,(MCS0)_2TX	28.79	0.75683
802.11ax HEW80_Nss1,(MCS0)_2TX	28.23	0.66527
802.11ax HEW160_Nss1,(MCS0)_2TX	29.84	0.96383
6.525-6.875GHz	-	-
802.11ax HEW20_Nss1,(MCS0)_2TX	31.42	1.38676
802.11ax HEW40_Nss1,(MCS0)_2TX	31.33	1.35831
802.11ax HEW80_Nss1,(MCS0)_2TX	31.84	1.52757
802.11ax HEW160_Nss1,(MCS0)_2TX	31.13	1.29718

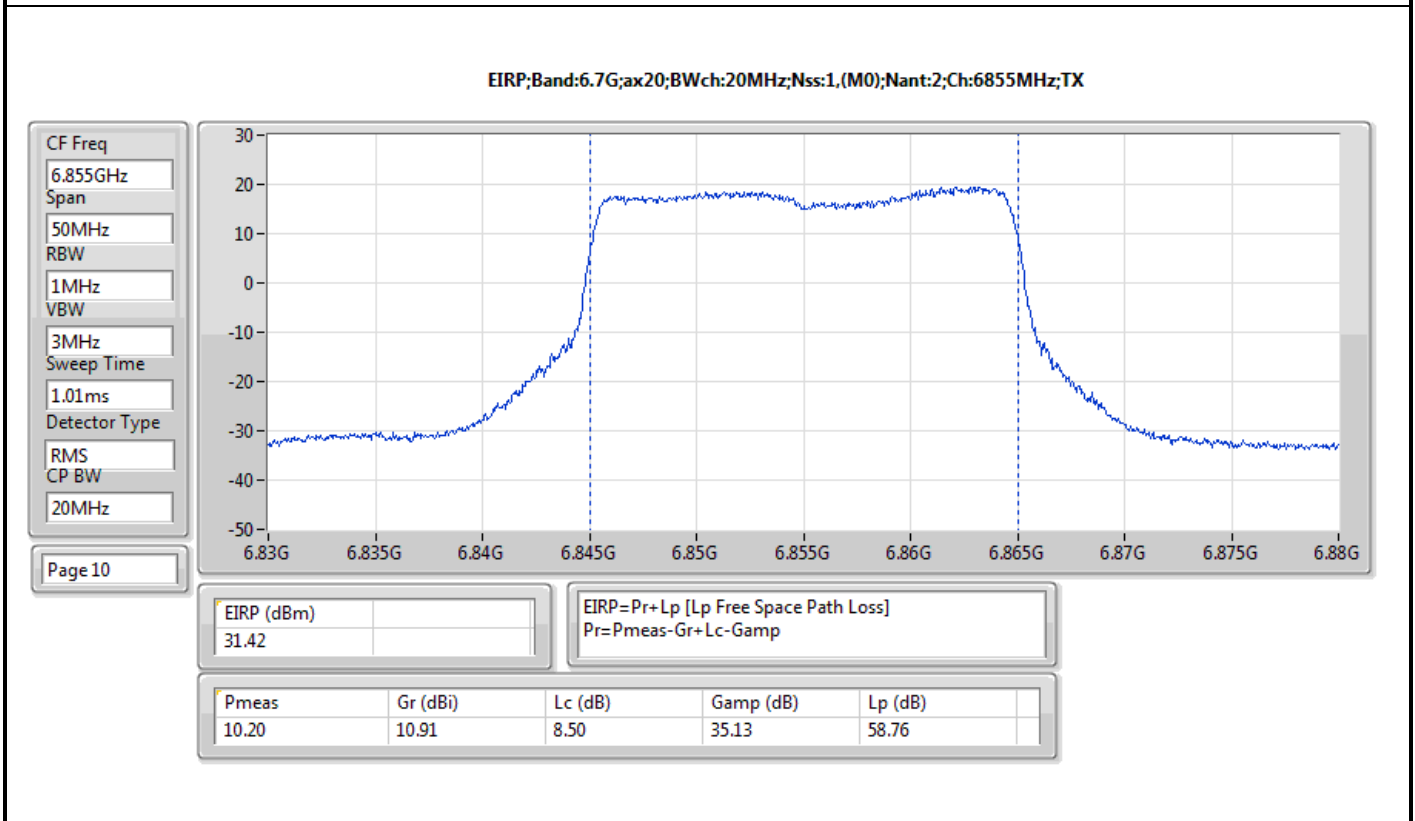
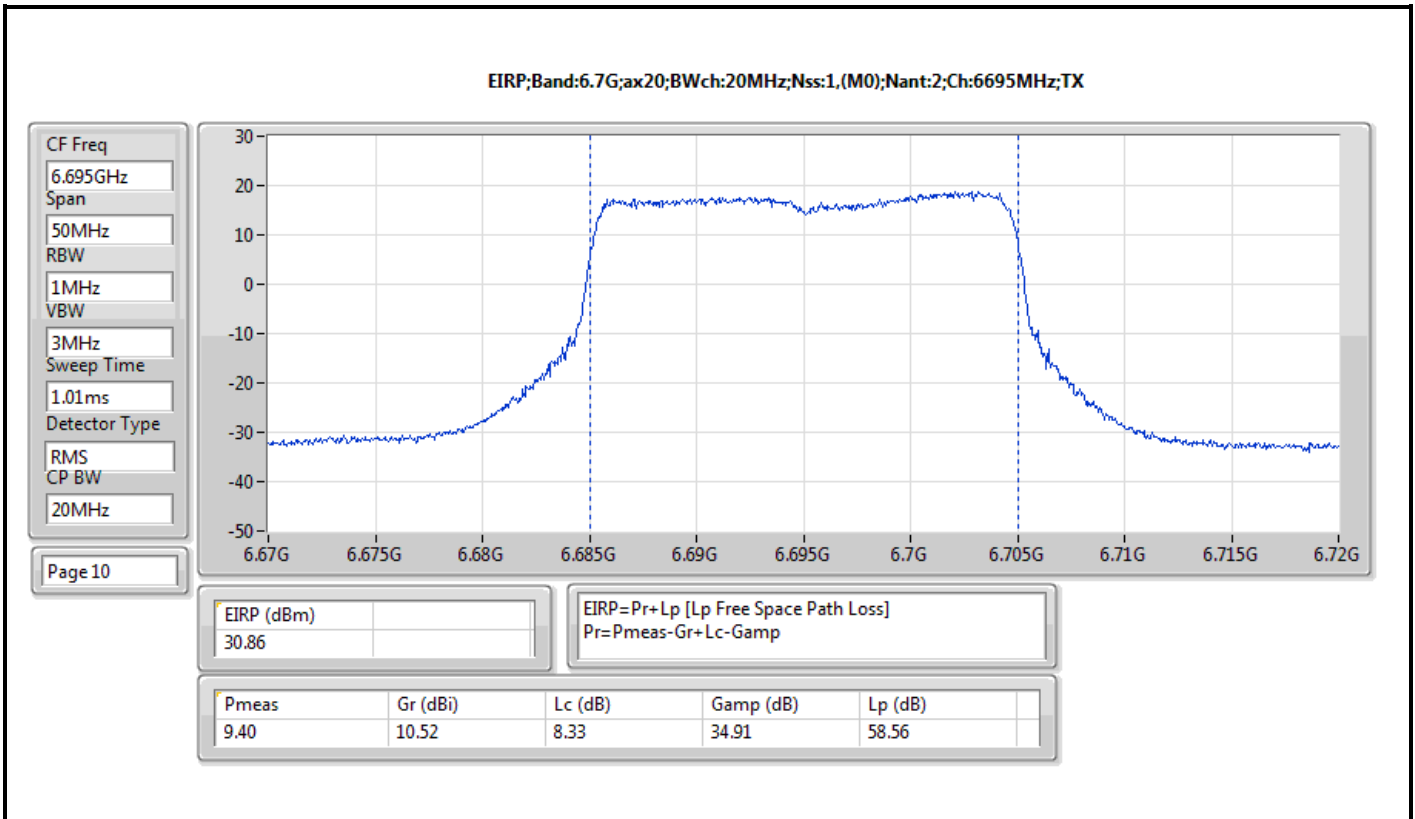
Result

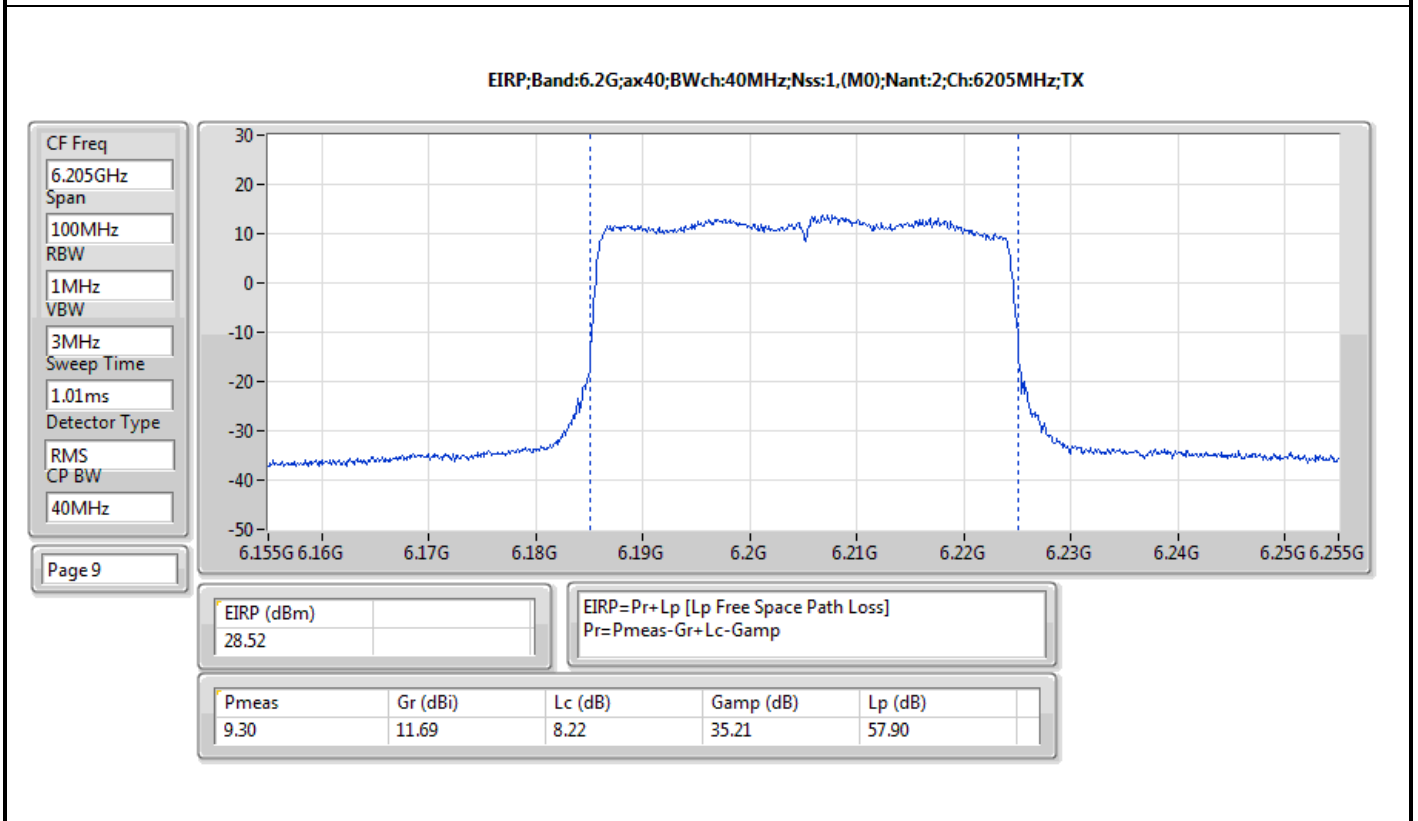
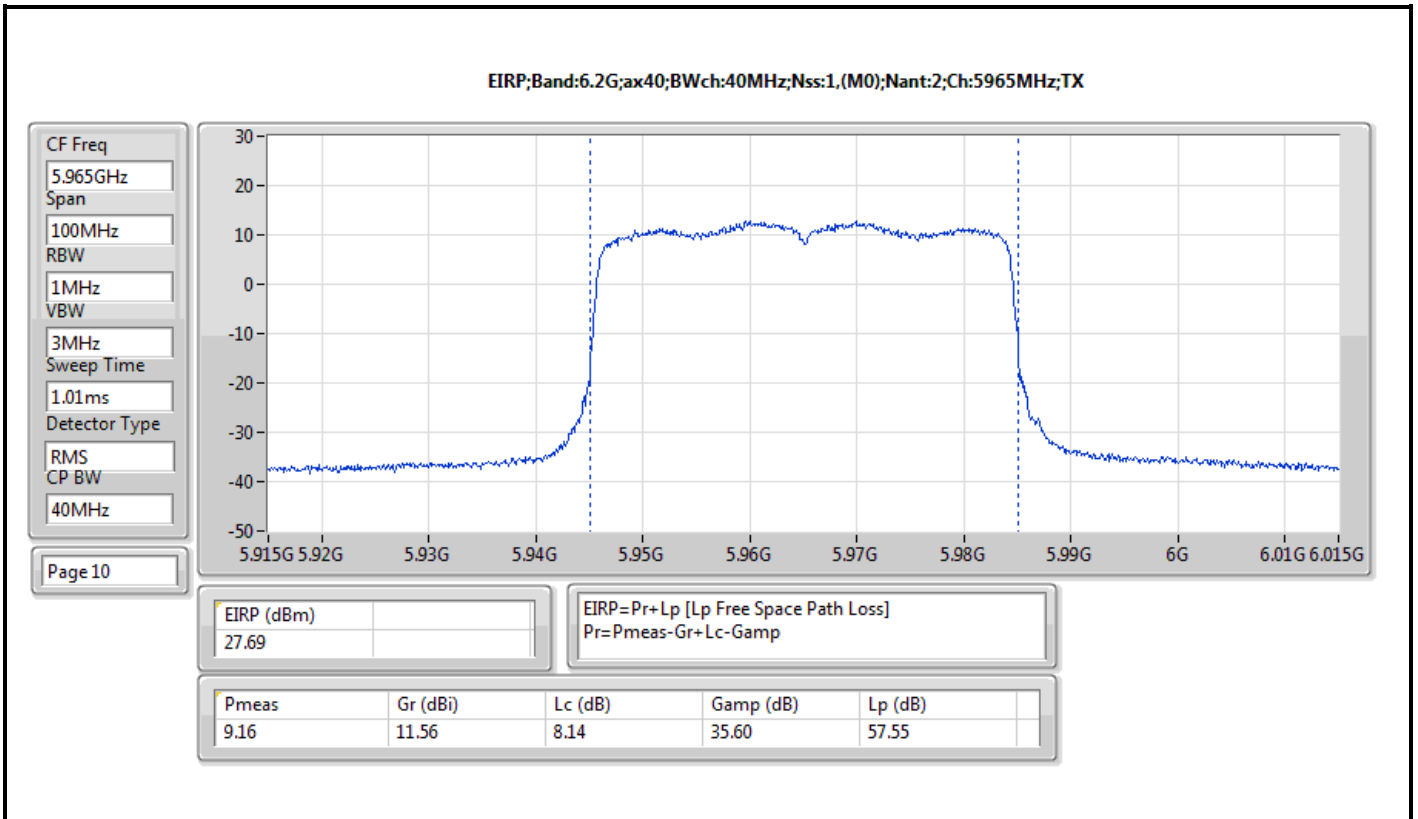
Mode	Result	Radiated EIRP (dBm)	EIRP Limit (dBm)
802.11ax HEW20_Nss1,(MCS0)_2TX	-	-	-
5955MHz	Pass	27.08	36.00
6195MHz	Pass	27.86	36.00
6415MHz	Pass	28.12	36.00
6535MHz	Pass	30.52	36.00
6695MHz	Pass	30.86	36.00
6855MHz	Pass	31.42	36.00
802.11ax HEW40_Nss1,(MCS0)_2TX	-	-	-
5965MHz	Pass	27.69	36.00
6205MHz	Pass	28.52	36.00
6405MHz	Pass	28.79	36.00
6565MHz	Pass	30.66	36.00
6685MHz	Pass	31.33	36.00
6845MHz	Pass	30.41	36.00
802.11ax HEW80_Nss1,(MCS0)_2TX	-	-	-
5985MHz	Pass	27.89	36.00
6225MHz	Pass	28.23	36.00
6385MHz	Pass	28.11	36.00
6625MHz	Pass	31.11	36.00
6705MHz	Pass	31.49	36.00
6785MHz	Pass	31.84	36.00
802.11ax HEW160_Nss1,(MCS0)_2TX	-	-	-
6025MHz	Pass	27.74	36.00
6185MHz	Pass	28.75	36.00
6345MHz	Pass	29.84	36.00
6665MHz	Pass	31.13	36.00

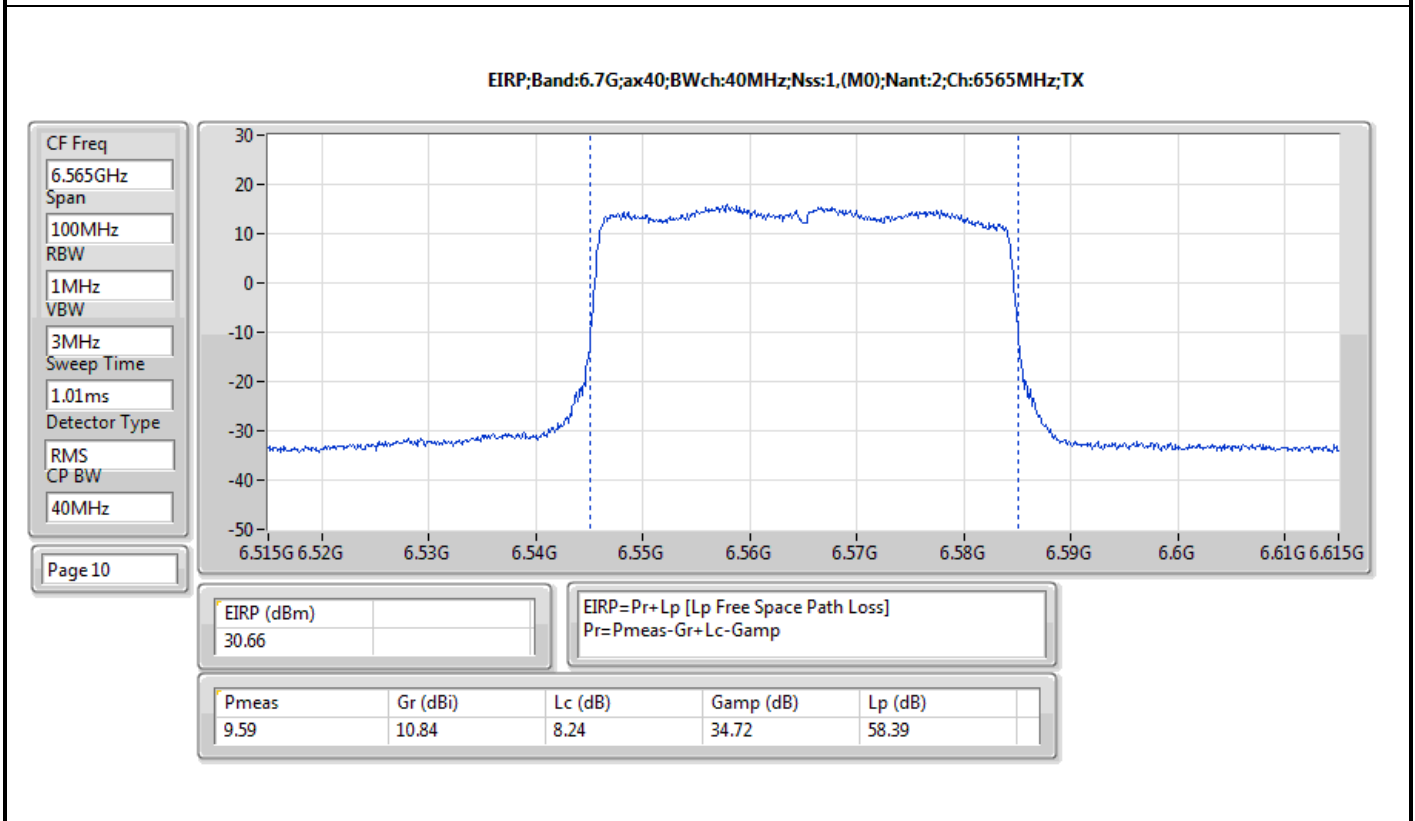
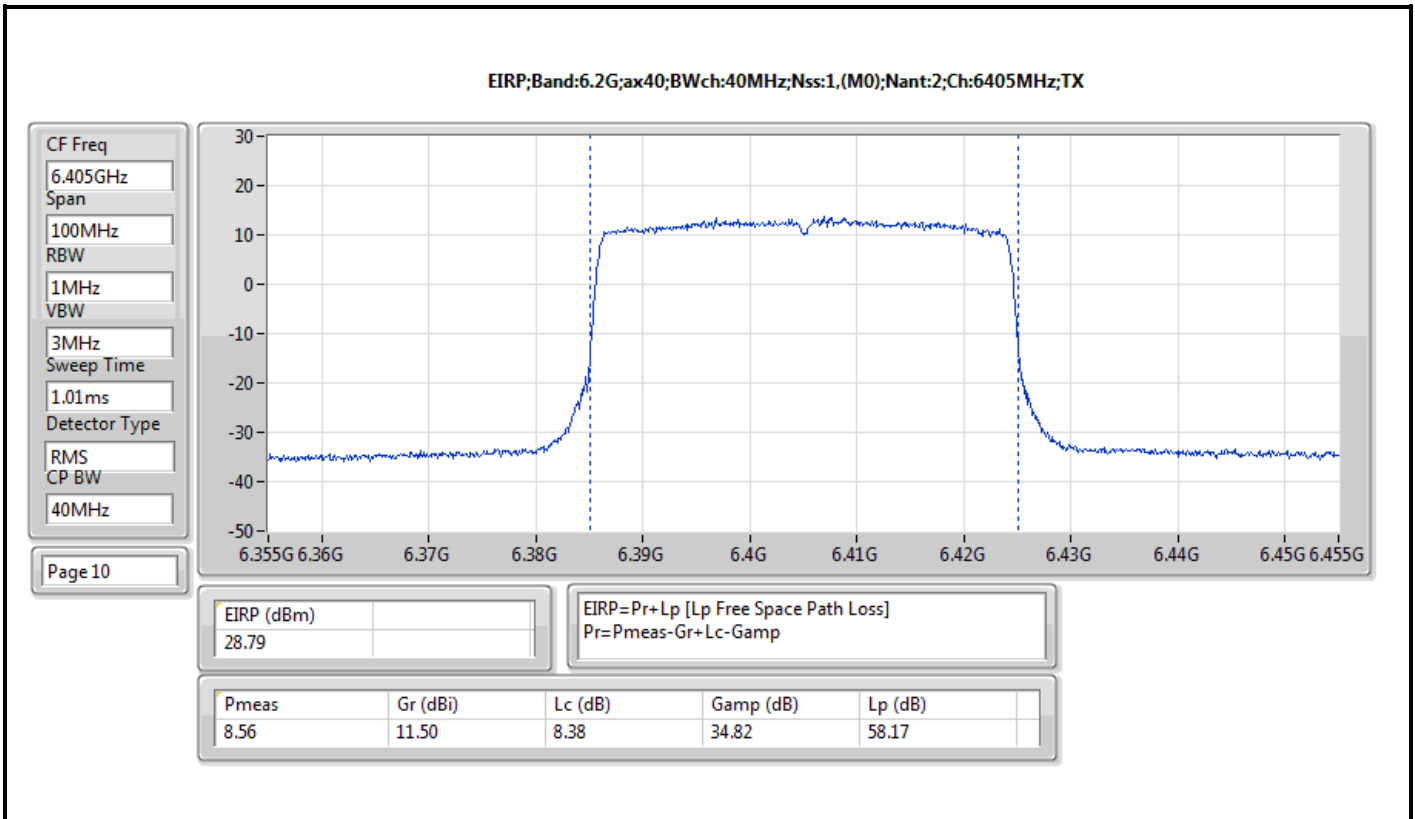
DG = Directional Gain; Port X = Port X output power

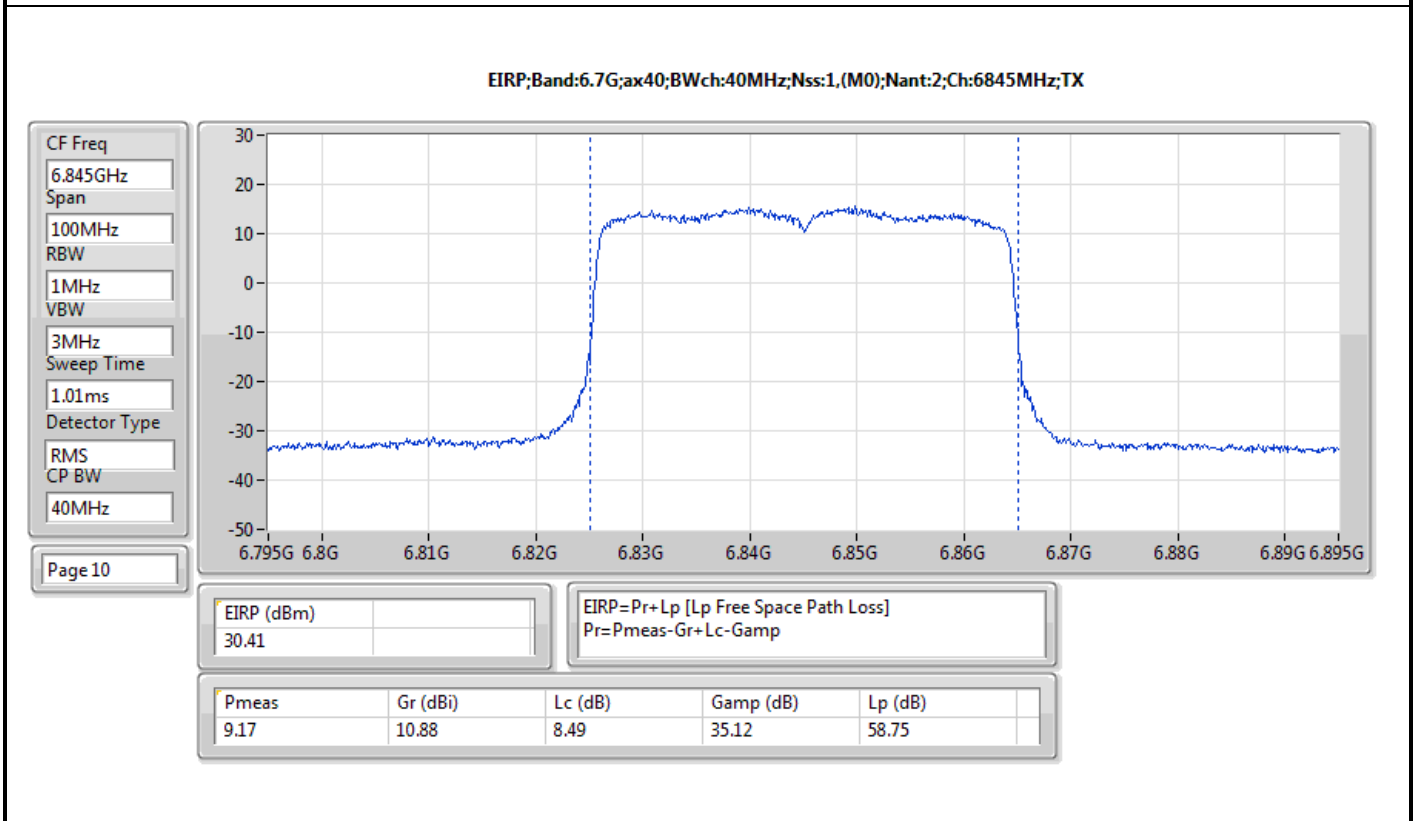
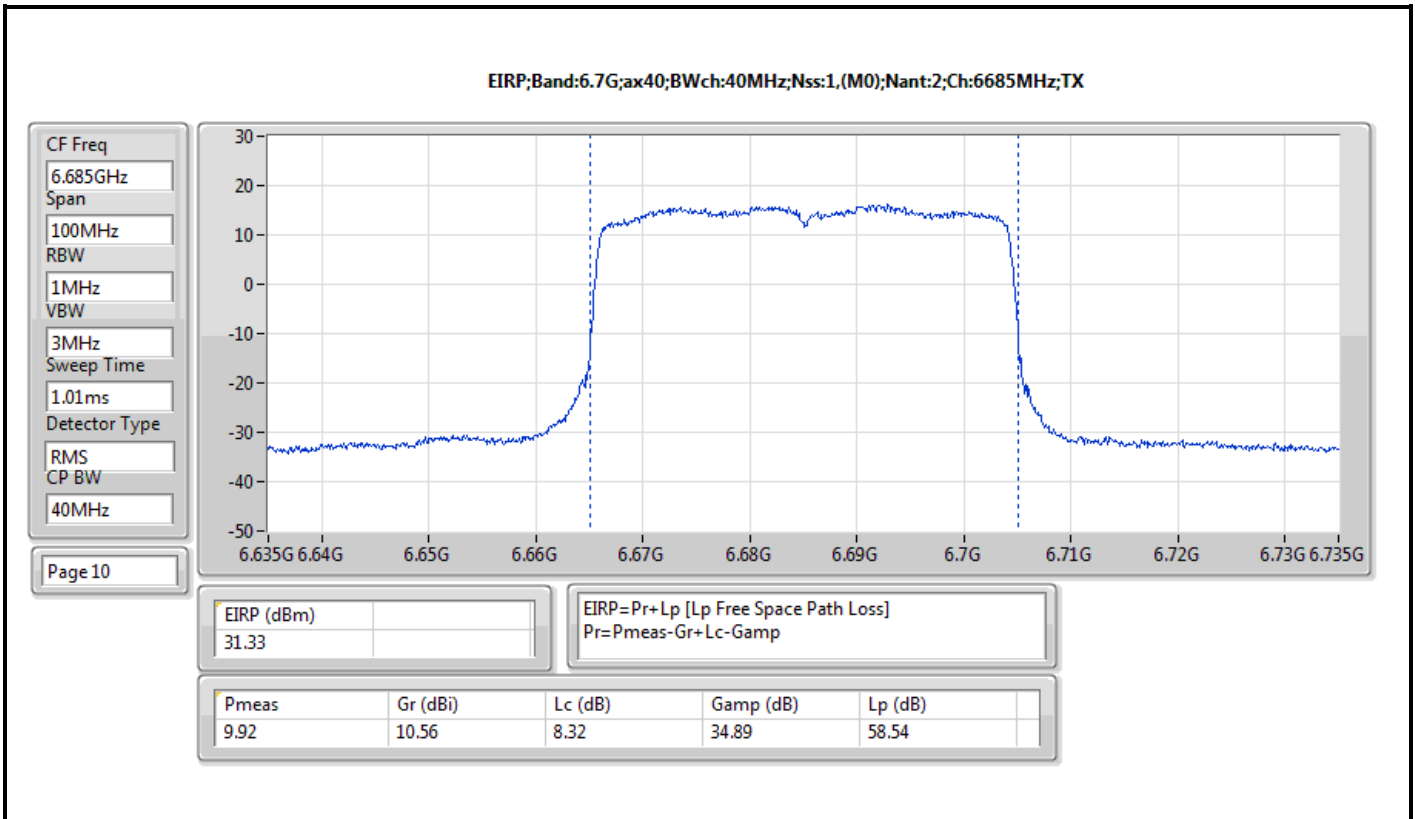


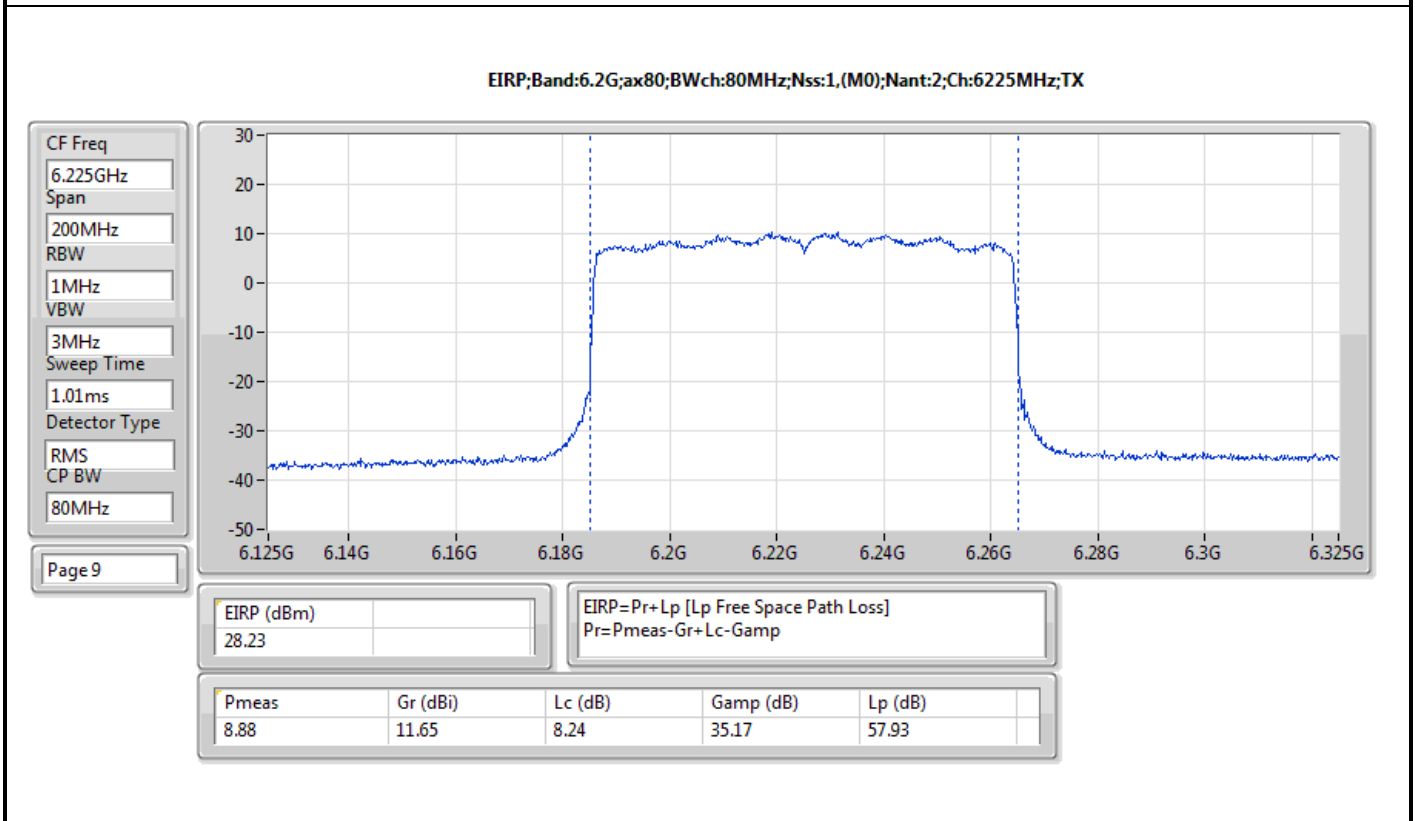
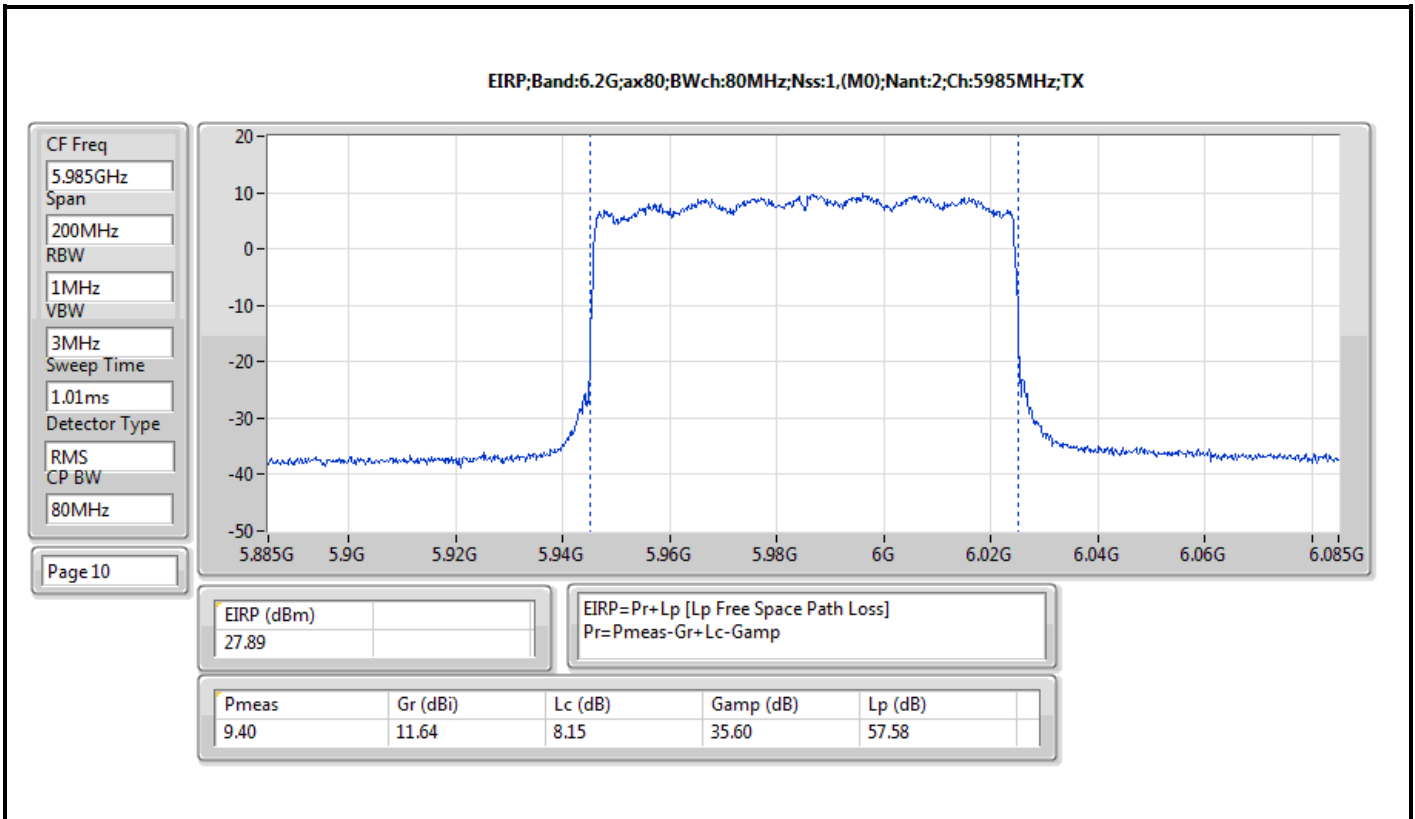


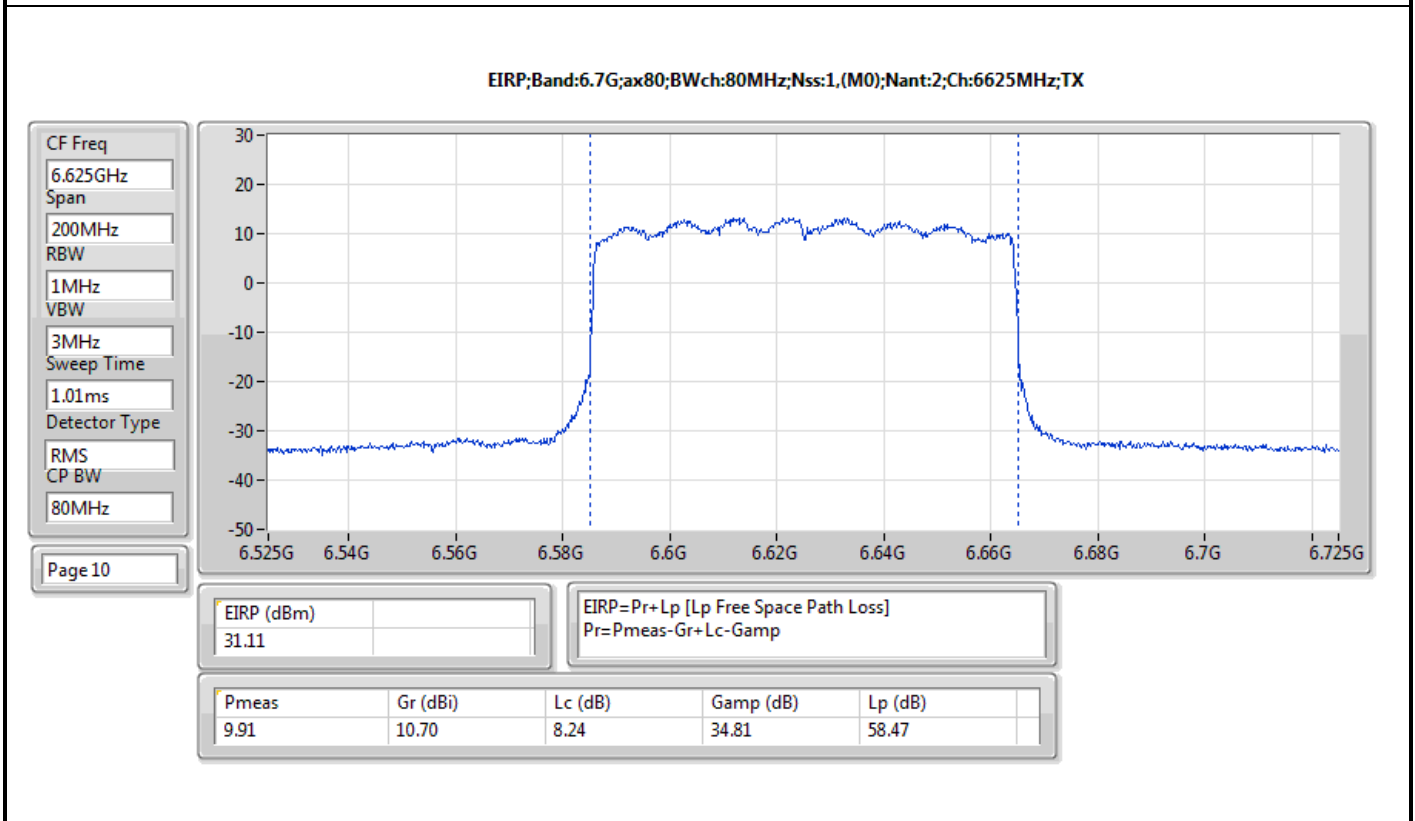
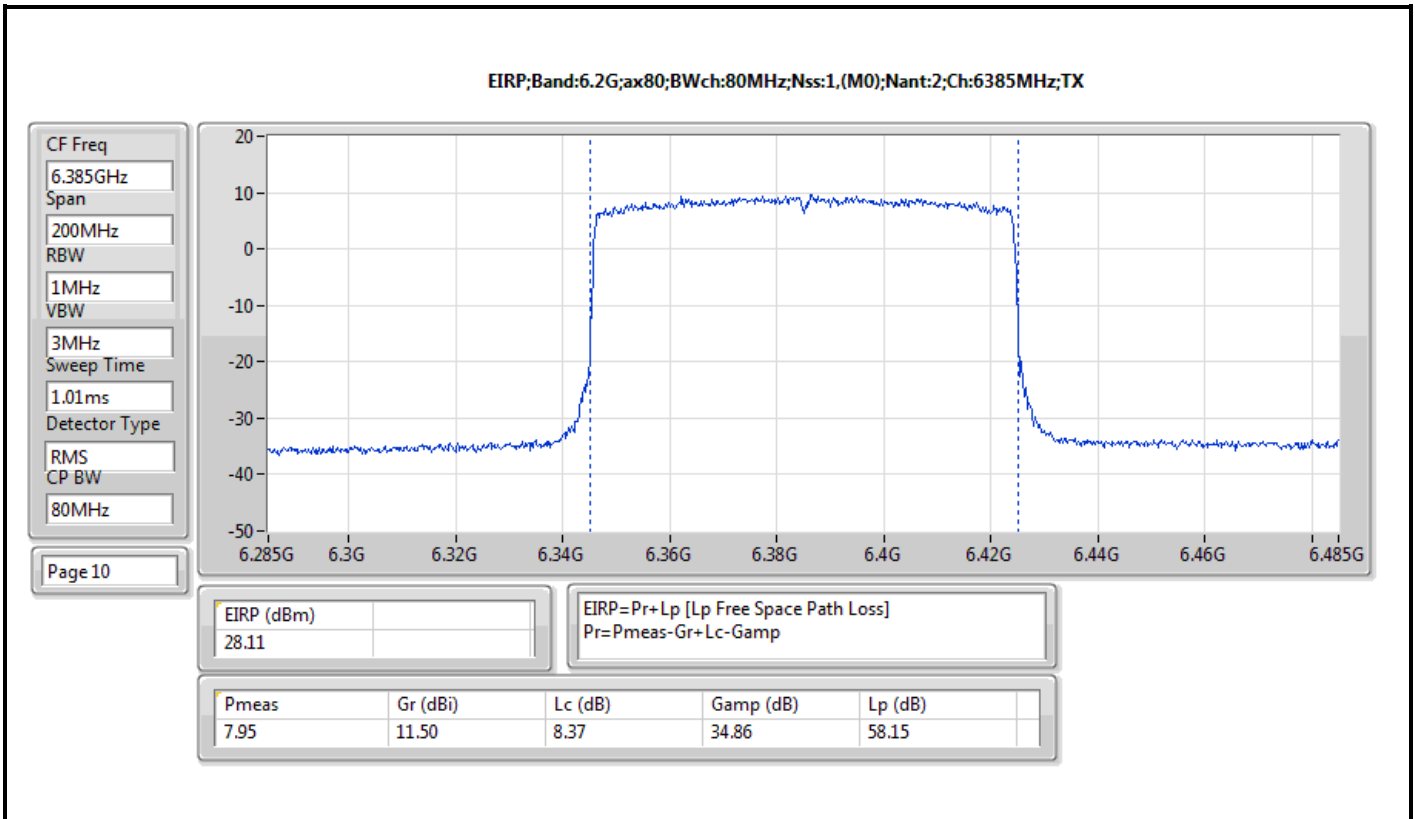


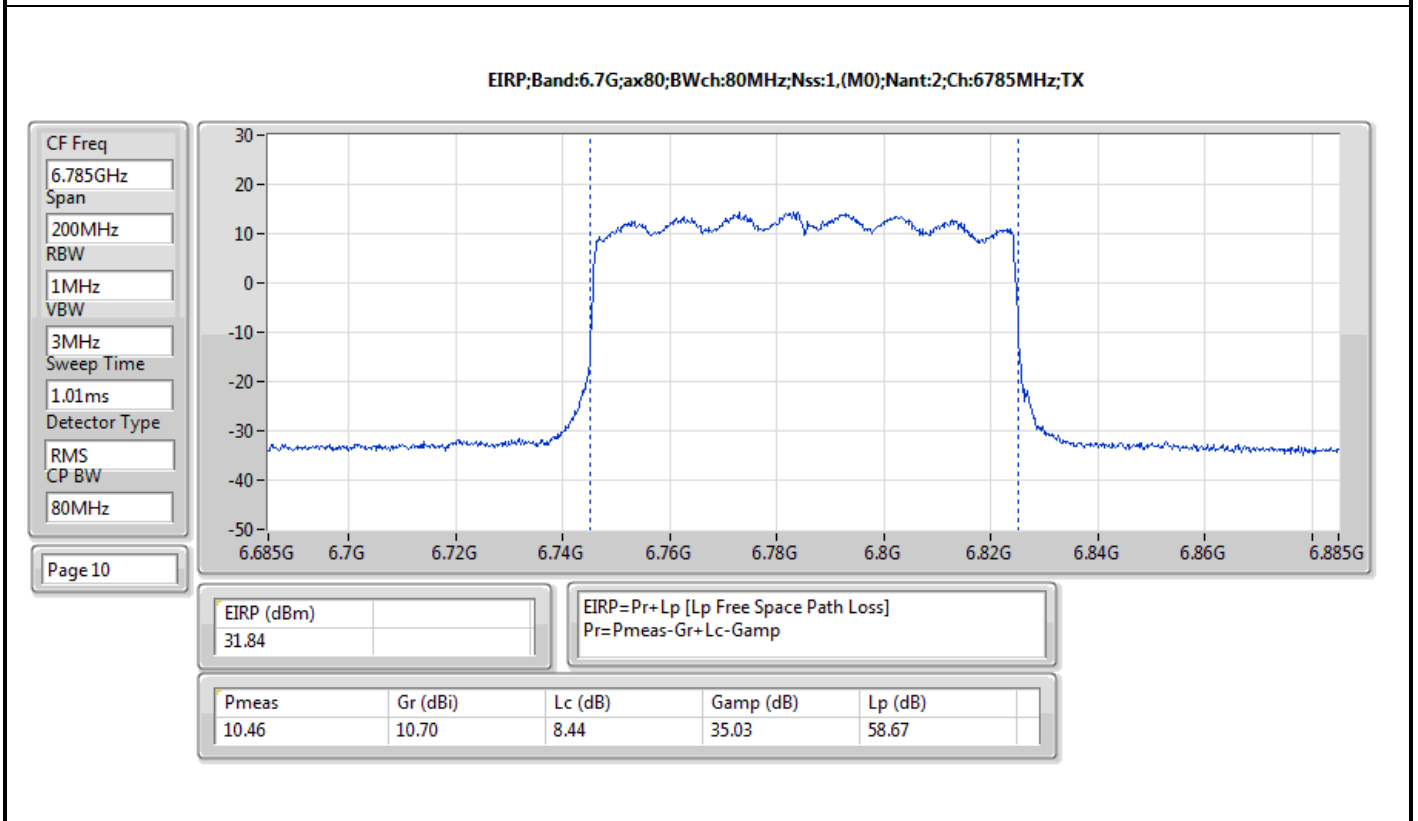
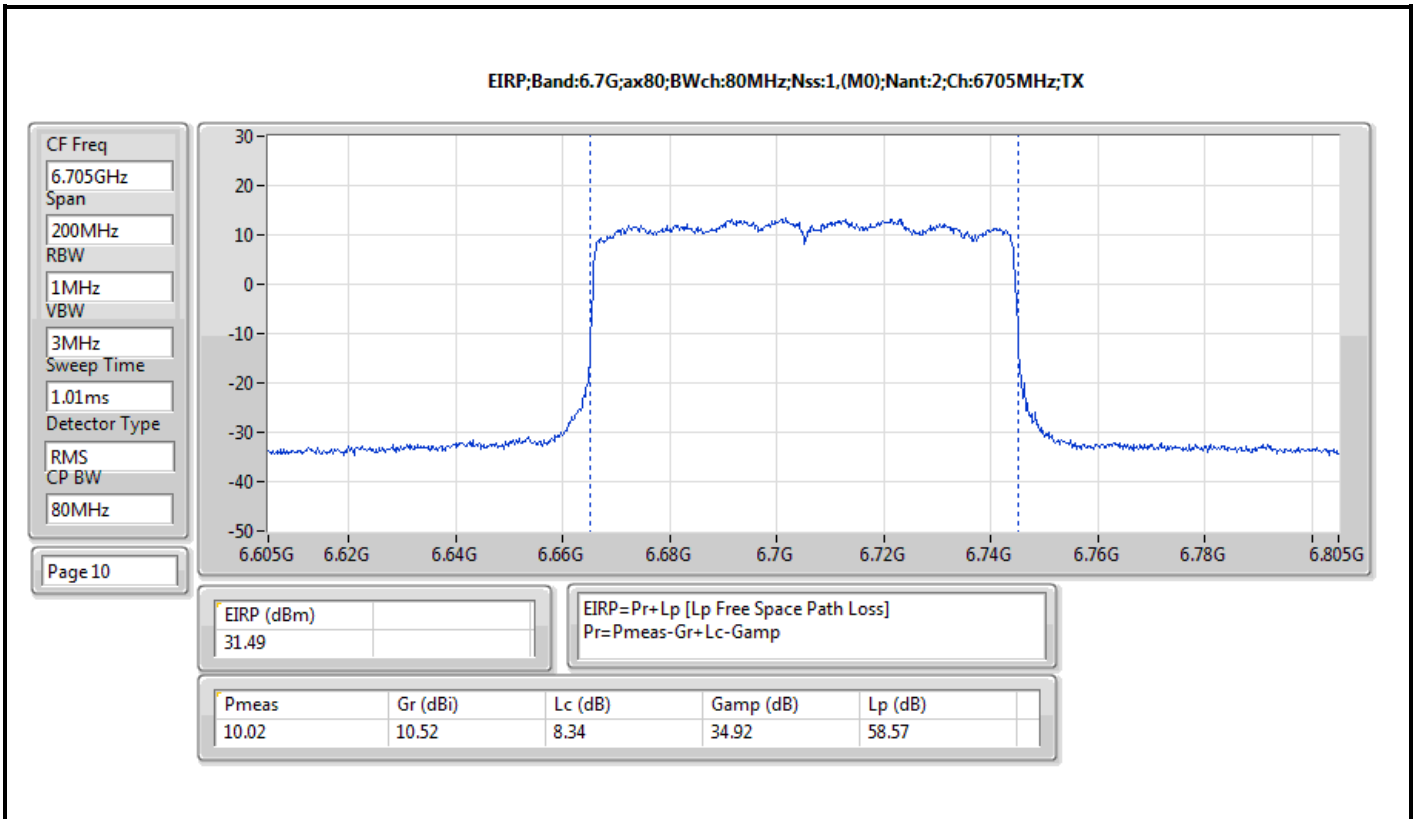


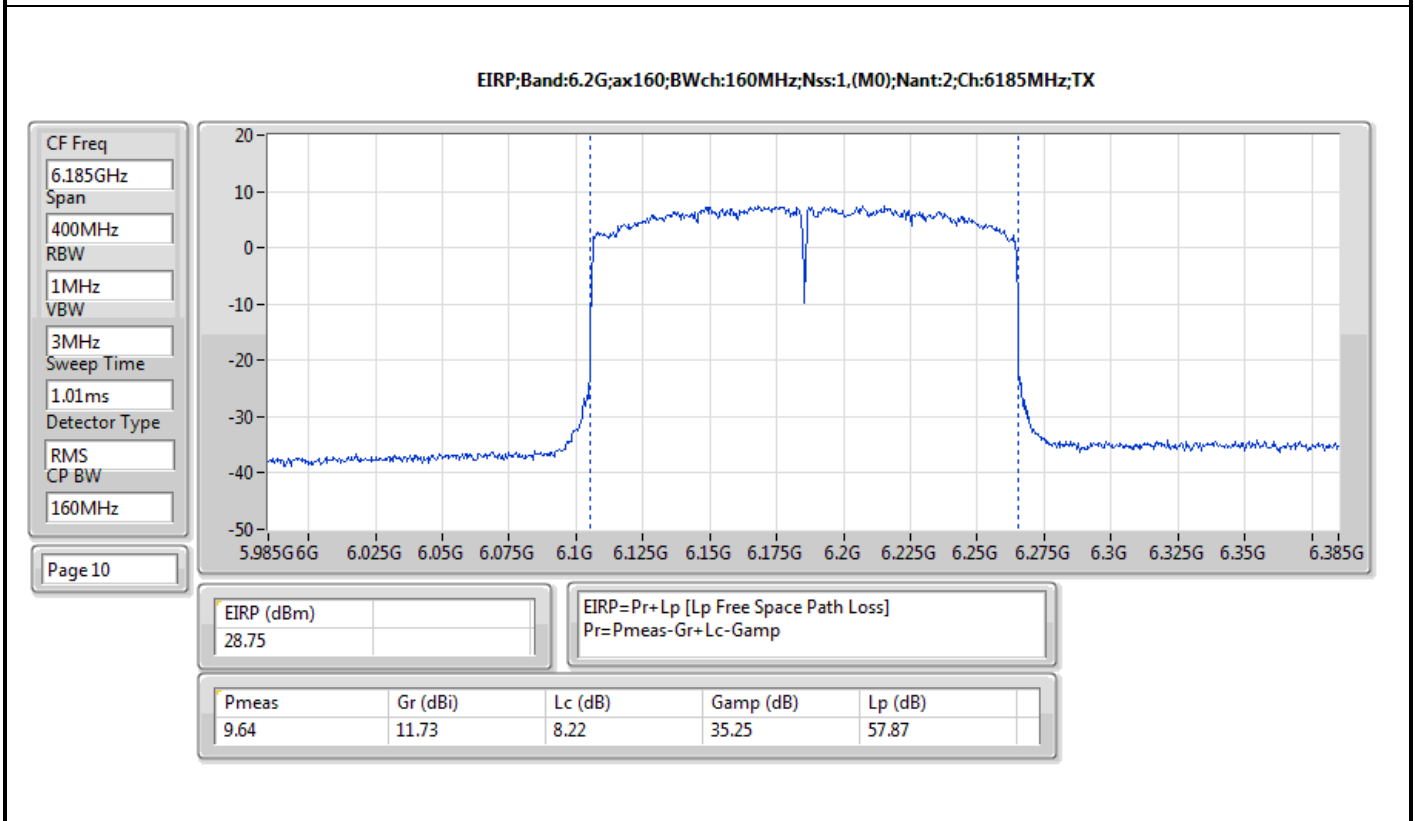
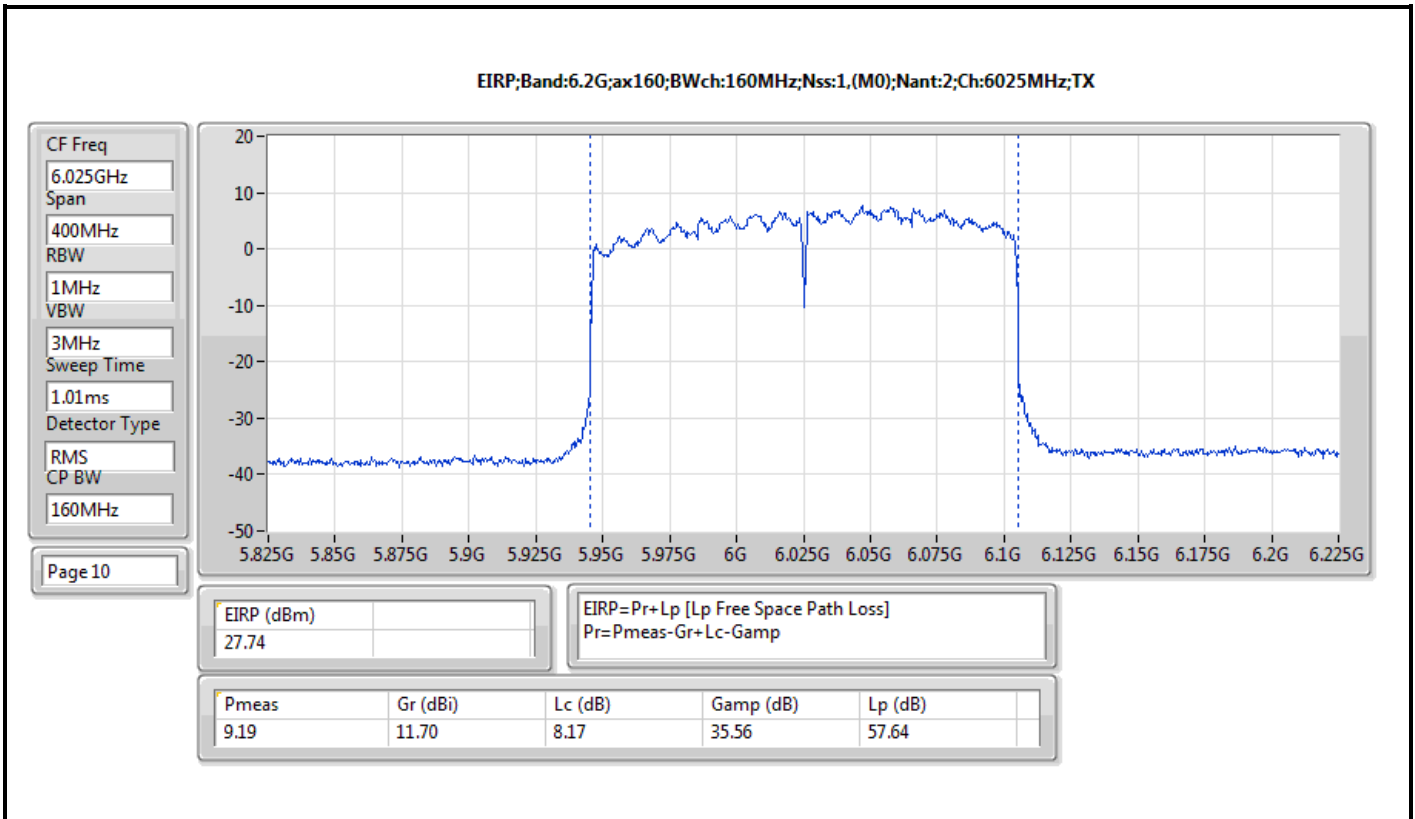


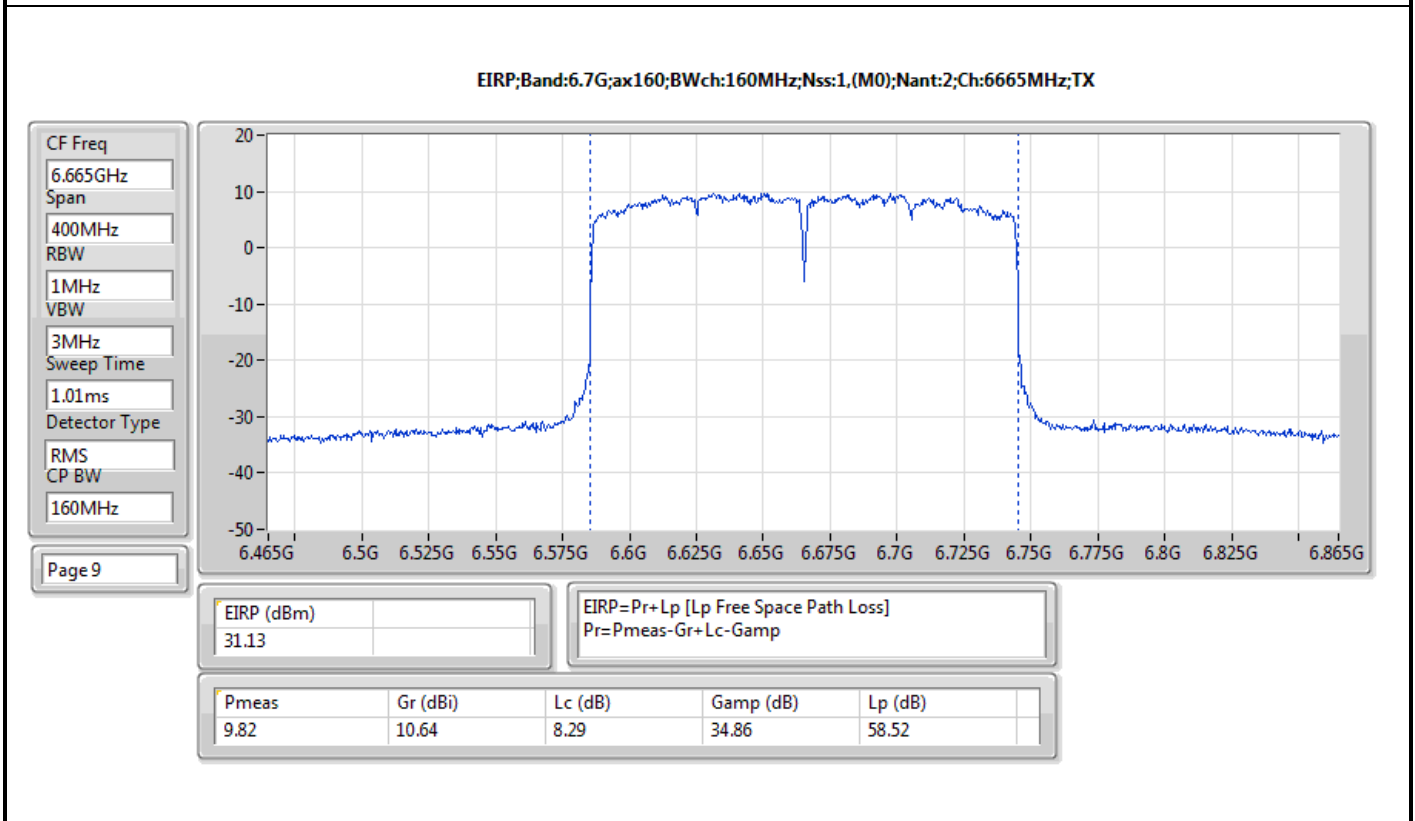
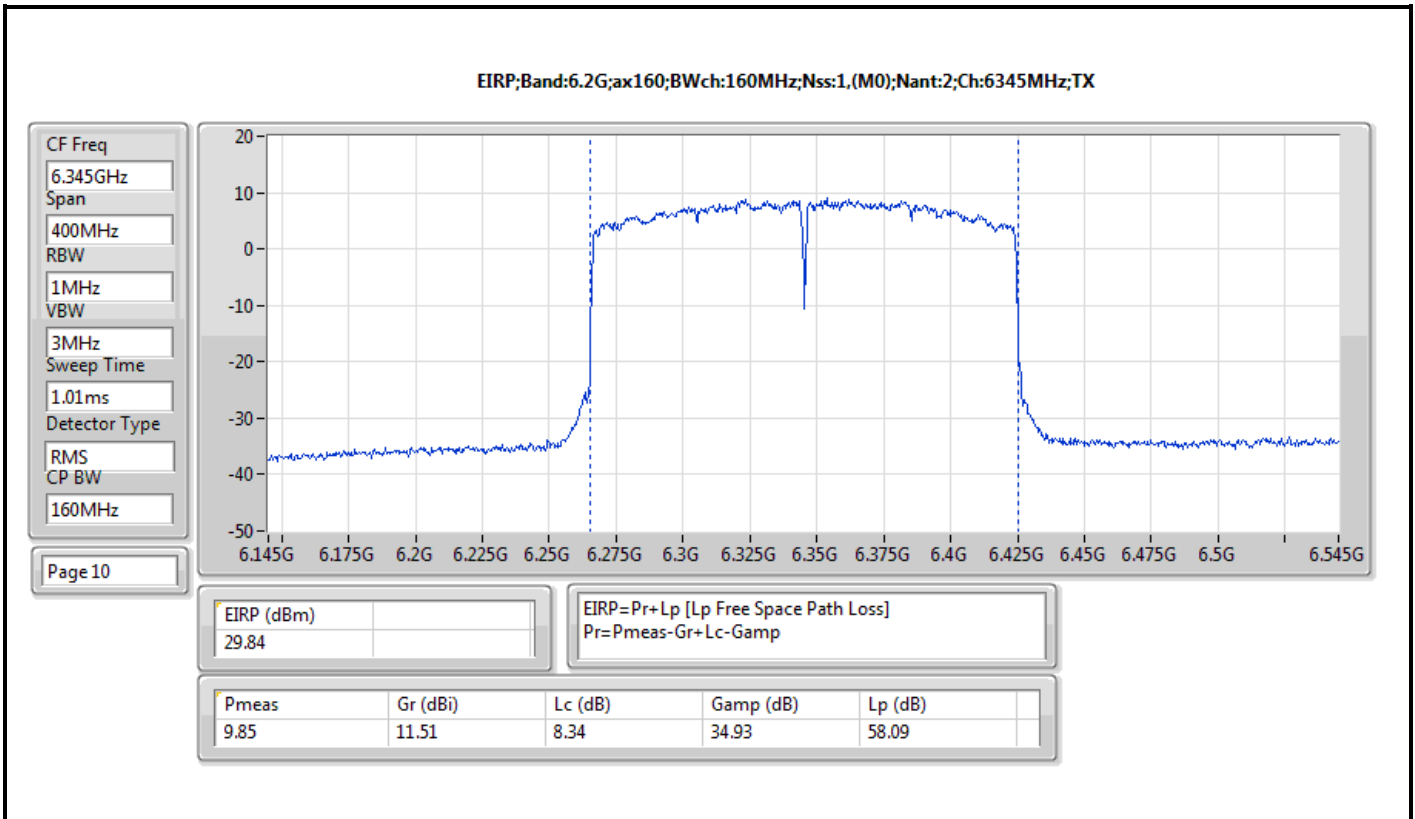














Average Power-E.I.R.P. at any elevation angle above 30 degrees
_Sector Antenna

Appendix C.4

Summary

Mode	Total Power (dBm)	Total Power (W)	EIRP [Phi 30°] (dBm)	EIRP [Phi 30°] (W)
5.925-6.425GHz	-	-	-	-
802.11ax HEW20_Nss1,(MCS0)_2TX	17.41	0.05508	20.71	0.117761
802.11ax HEW40_Nss1,(MCS0)_2TX	17.31	0.05383	20.61	0.115080
802.11ax HEW80_Nss1,(MCS0)_2TX	17.46	0.05572	20.76	0.119124
802.11ax HEW160_Nss1,(MCS0)_2TX	17.61	0.05768	20.91	0.123310
6.525-6.875GHz	-	-	-	-
802.11ax HEW20_Nss1,(MCS0)_2TX	20.01	0.10023	20.99	0.125603
802.11ax HEW40_Nss1,(MCS0)_2TX	19.82	0.09594	20.80	0.120226
802.11ax HEW80_Nss1,(MCS0)_2TX	19.87	0.09705	20.85	0.121619
802.11ax HEW160_Nss1,(MCS0)_2TX	19.67	0.09268	20.65	0.116145



Average Power-E.I.R.P. at any elevation angle above 30 degrees
_ Sector Antenna

Appendix C.4

Result

Mode	Result	DG [Phi 30°] (dBi)	Port 1 (dBm)	Port 2 (dBm)	Total Power (dBm)	EIRP [Phi 30°] (dBm)	EIRP Limit [Phi 30°] (dBm)
802.11ax HEW20_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-
5955MHz	Pass	3.30	14.39	14.23	17.32	20.62	21.00
6195MHz	Pass	3.30	14.32	14.26	17.30	20.60	21.00
6415MHz	Pass	3.30	14.37	14.42	17.41	20.71	21.00
6535MHz	Pass	0.98	16.95	16.90	19.94	20.92	21.00
6695MHz	Pass	0.98	17.16	16.79	19.99	20.97	21.00
6855MHz	Pass	0.98	17.08	16.92	20.01	20.99	21.00
802.11ax HEW40_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-
5965MHz	Pass	3.30	14.38	14.21	17.31	20.61	21.00
6205MHz	Pass	3.30	14.27	14.19	17.24	20.54	21.00
6405MHz	Pass	3.30	14.28	14.20	17.25	20.55	21.00
6565MHz	Pass	0.98	16.84	16.75	19.81	20.79	21.00
6685MHz	Pass	0.98	17.00	16.58	19.81	20.79	21.00
6845MHz	Pass	0.98	16.92	16.70	19.82	20.80	21.00
802.11ax HEW80_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-
5985MHz	Pass	3.30	14.60	14.30	17.46	20.76	21.00
6225MHz	Pass	3.30	14.31	14.23	17.28	20.58	21.00
6385MHz	Pass	3.30	14.50	14.19	17.36	20.66	21.00
6625MHz	Pass	0.98	16.74	16.36	19.56	20.54	21.00
6705MHz	Pass	0.98	16.98	16.73	19.87	20.85	21.00
6785MHz	Pass	0.98	16.81	16.65	19.74	20.72	21.00
802.11ax HEW160_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-
6025MHz	Pass	3.30	14.72	14.47	17.61	20.91	21.00
6185MHz	Pass	3.30	14.43	14.69	17.57	20.87	21.00
6345MHz	Pass	3.30	14.60	14.60	17.61	20.91	21.00
6665MHz	Pass	0.98	17.08	16.19	19.67	20.65	21.00

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



Summary

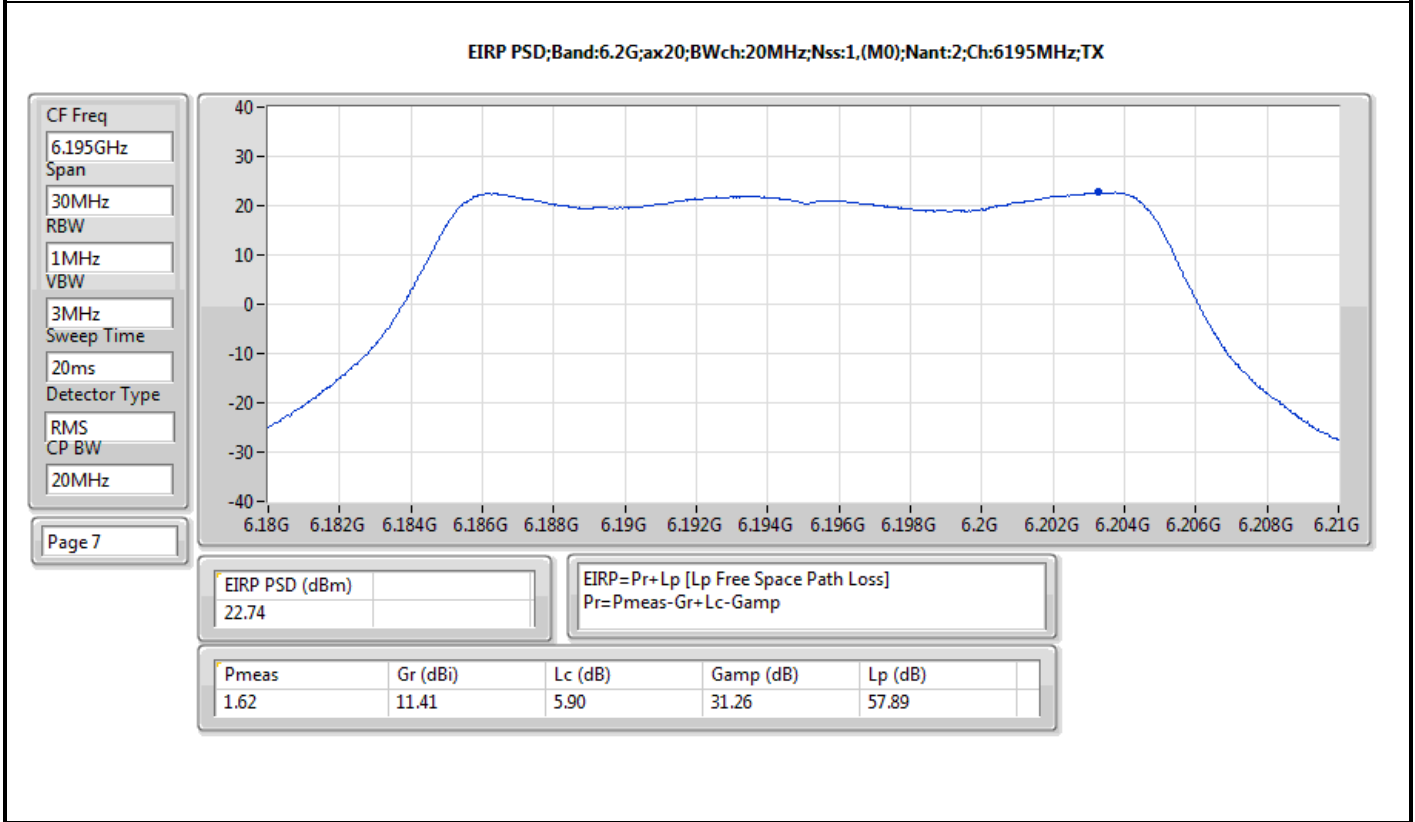
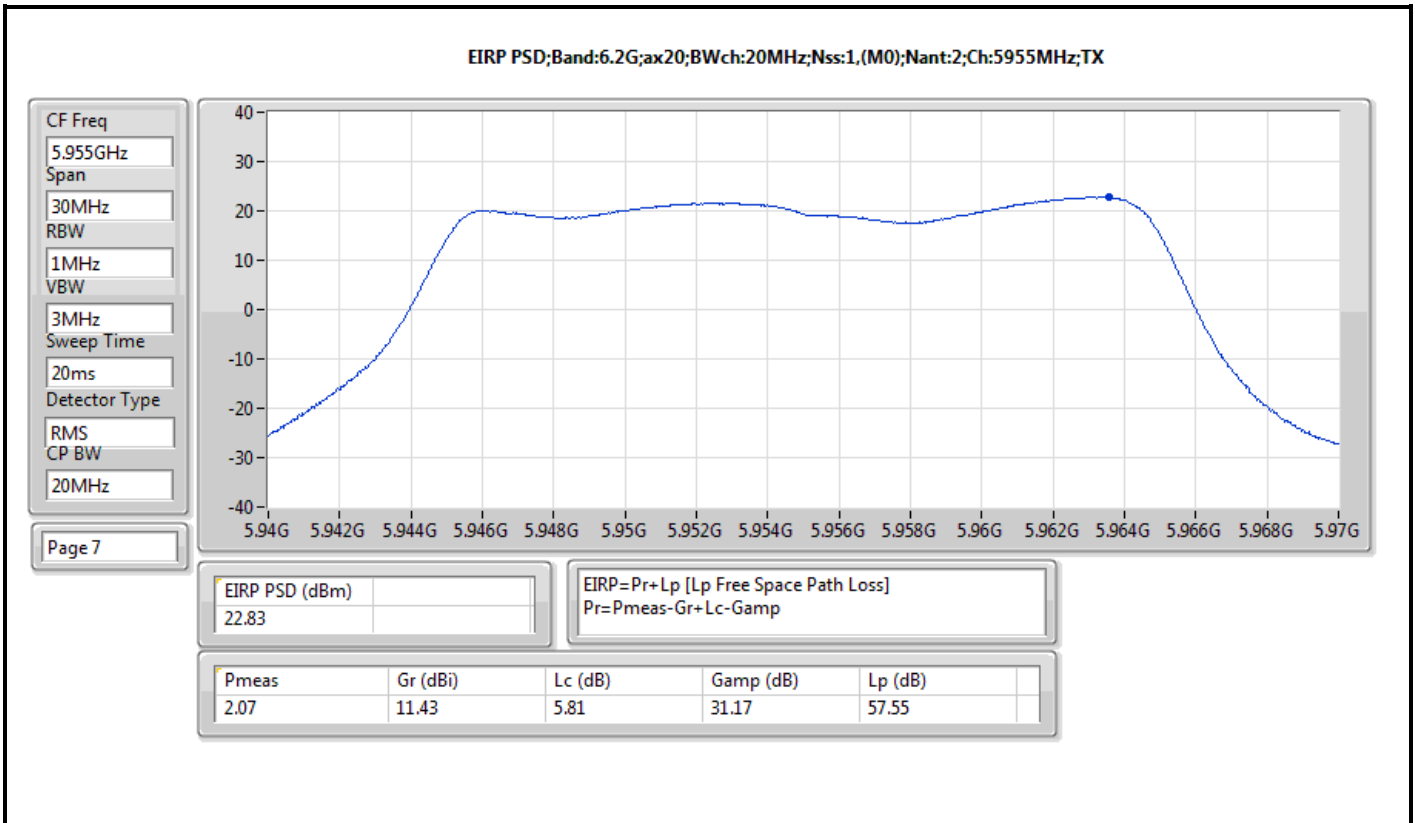
Mode	EIRP PD (dBm/RBW)
5.925-6.425GHz	-
802.11ax HEW20_Nss1,(MCS0)_2TX	22.93
802.11ax HEW40_Nss1,(MCS0)_2TX	22.94
802.11ax HEW80_Nss1,(MCS0)_2TX	18.30
802.11ax HEW160_Nss1,(MCS0)_2TX	16.16
6.525-6.875GHz	-
802.11ax HEW20_Nss1,(MCS0)_2TX	22.96
802.11ax HEW40_Nss1,(MCS0)_2TX	21.97
802.11ax HEW80_Nss1,(MCS0)_2TX	18.59
802.11ax HEW160_Nss1,(MCS0)_2TX	13.28

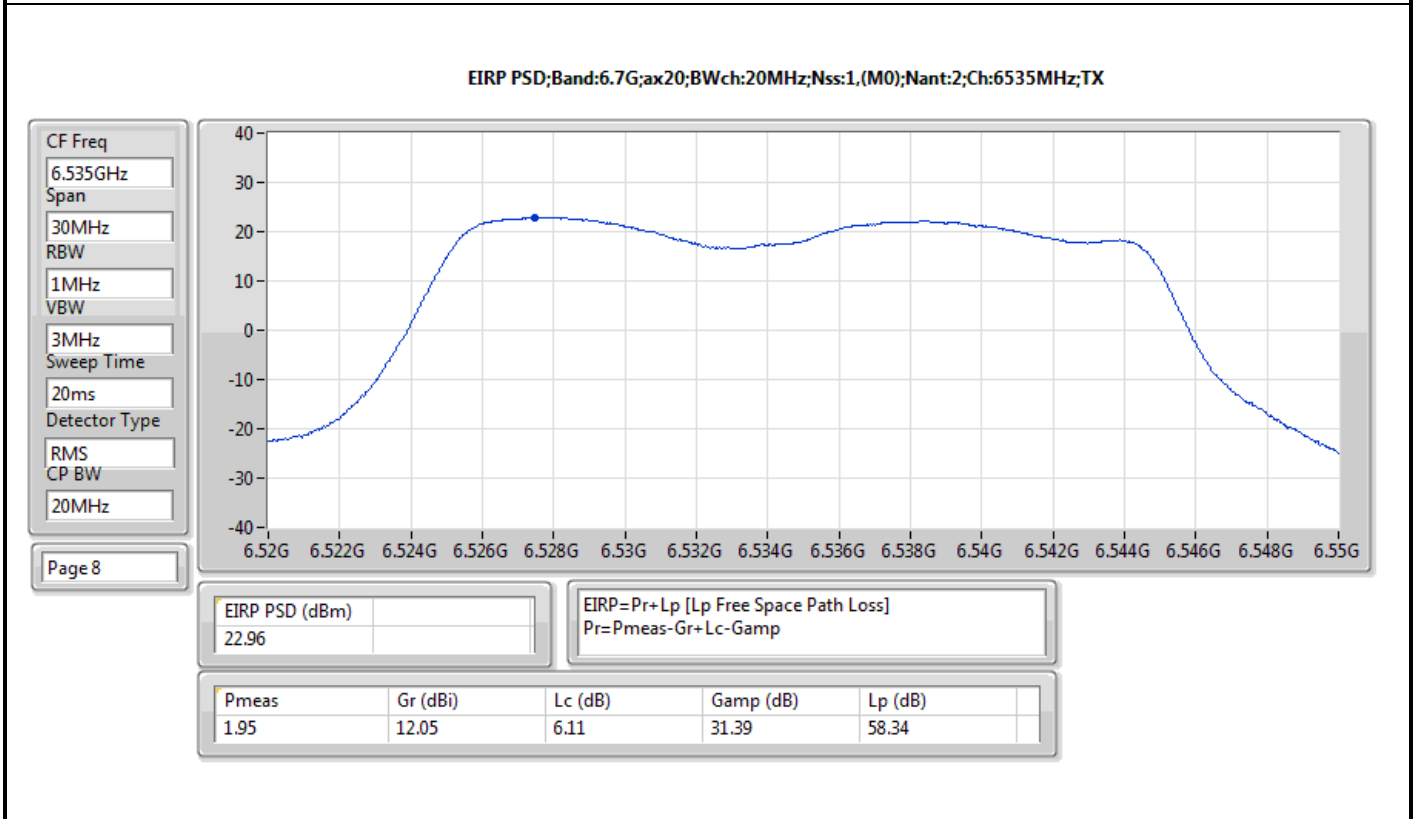
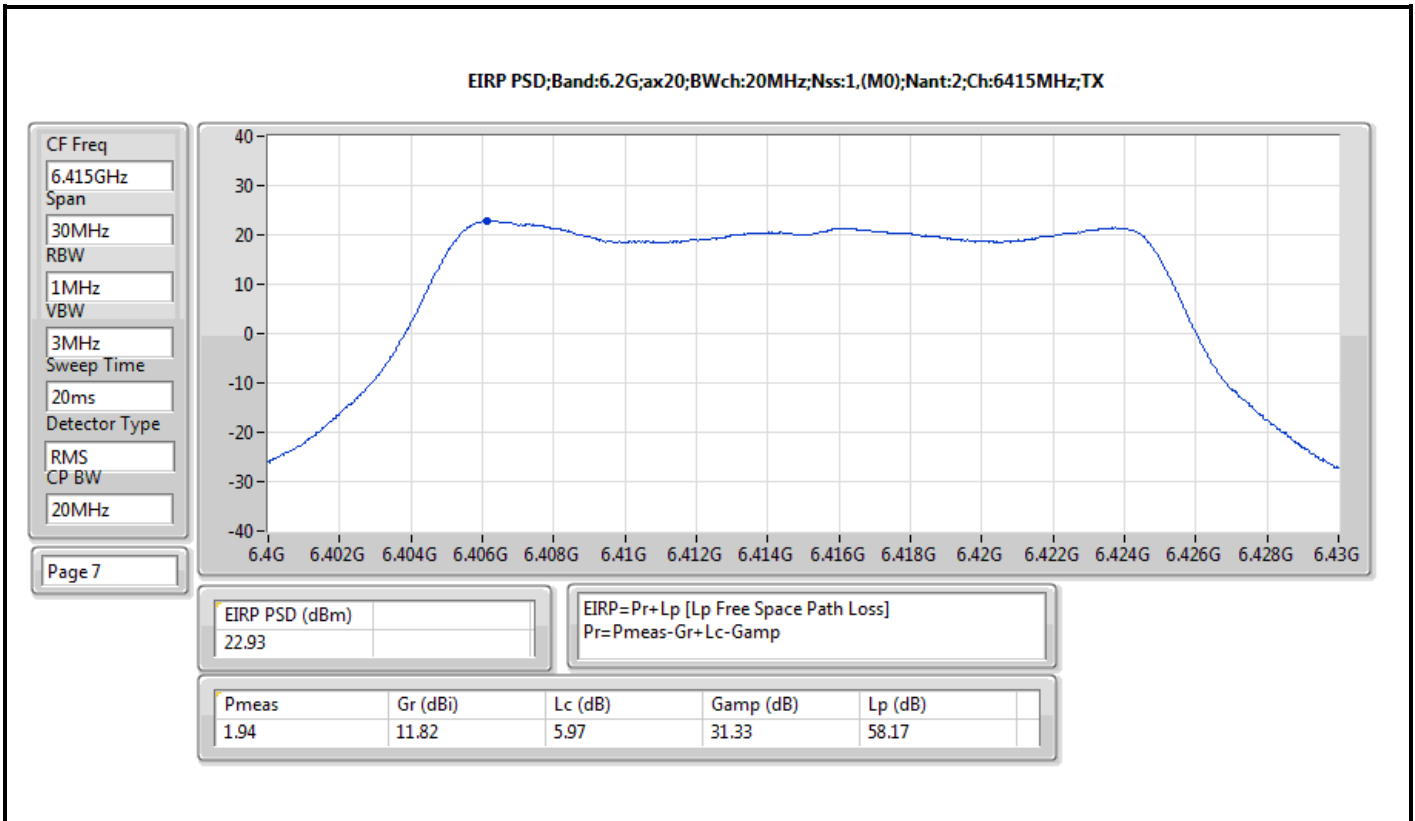
RBW = 500kHz for 5.725-5.85GHz band / 1MHz for other band;

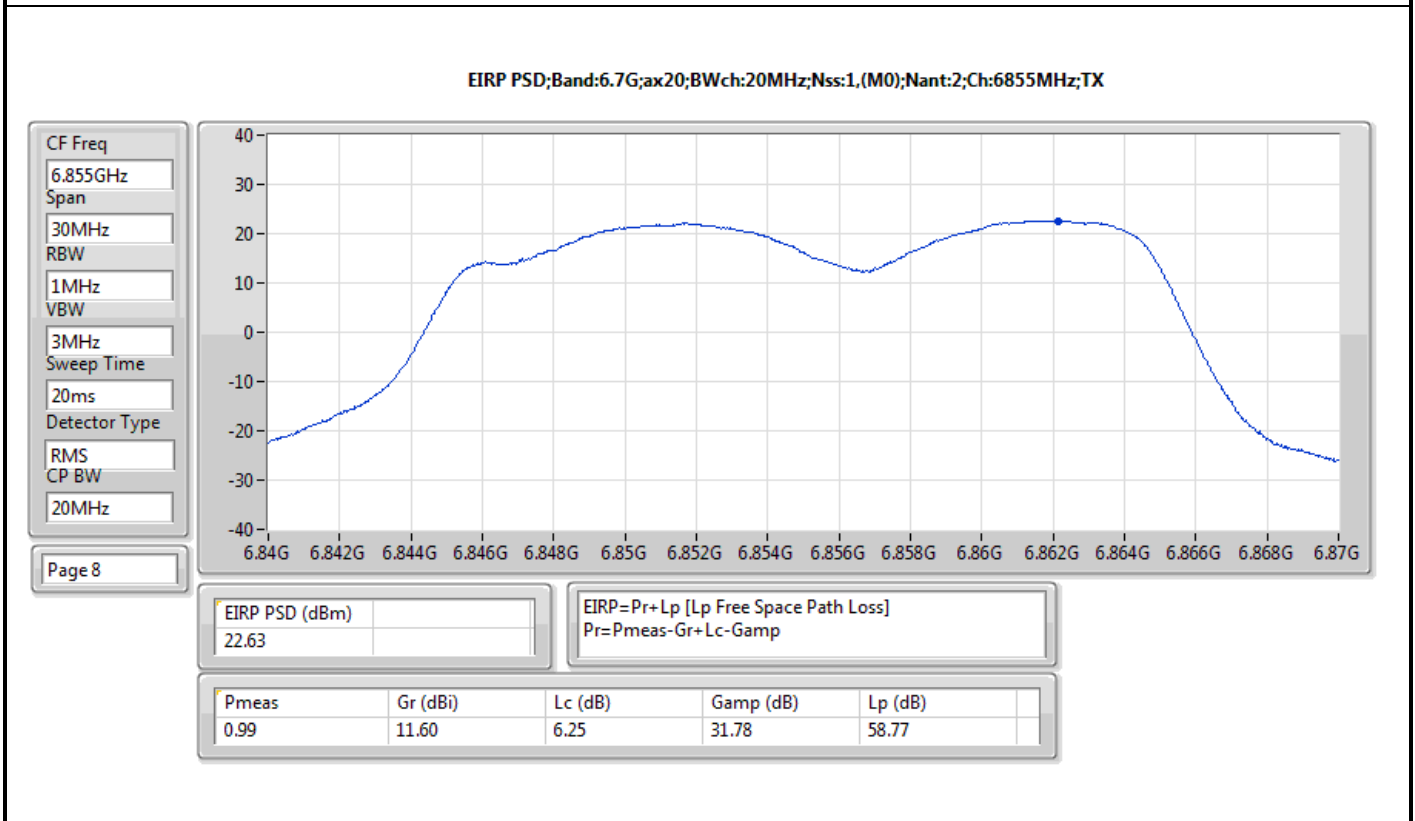
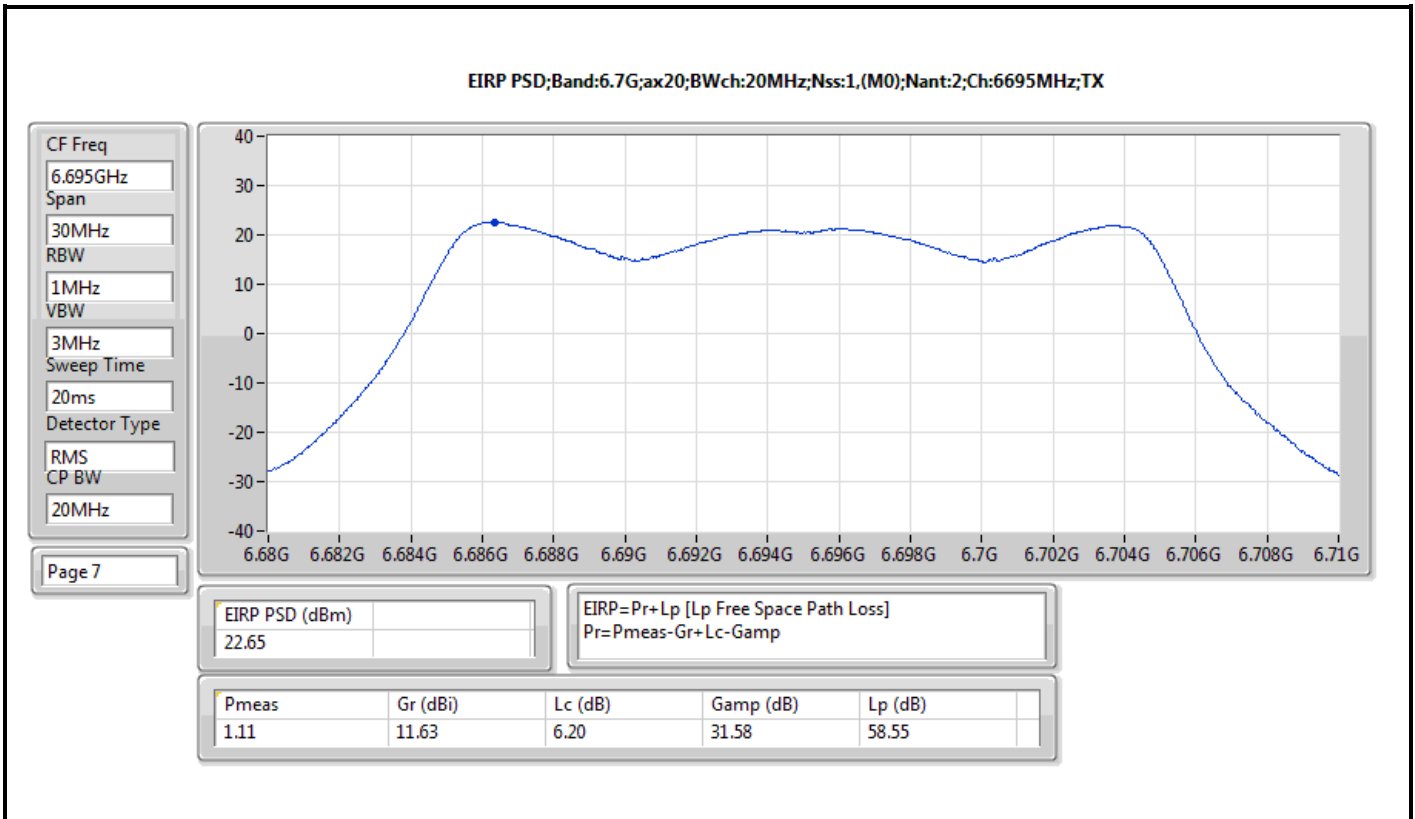
Result

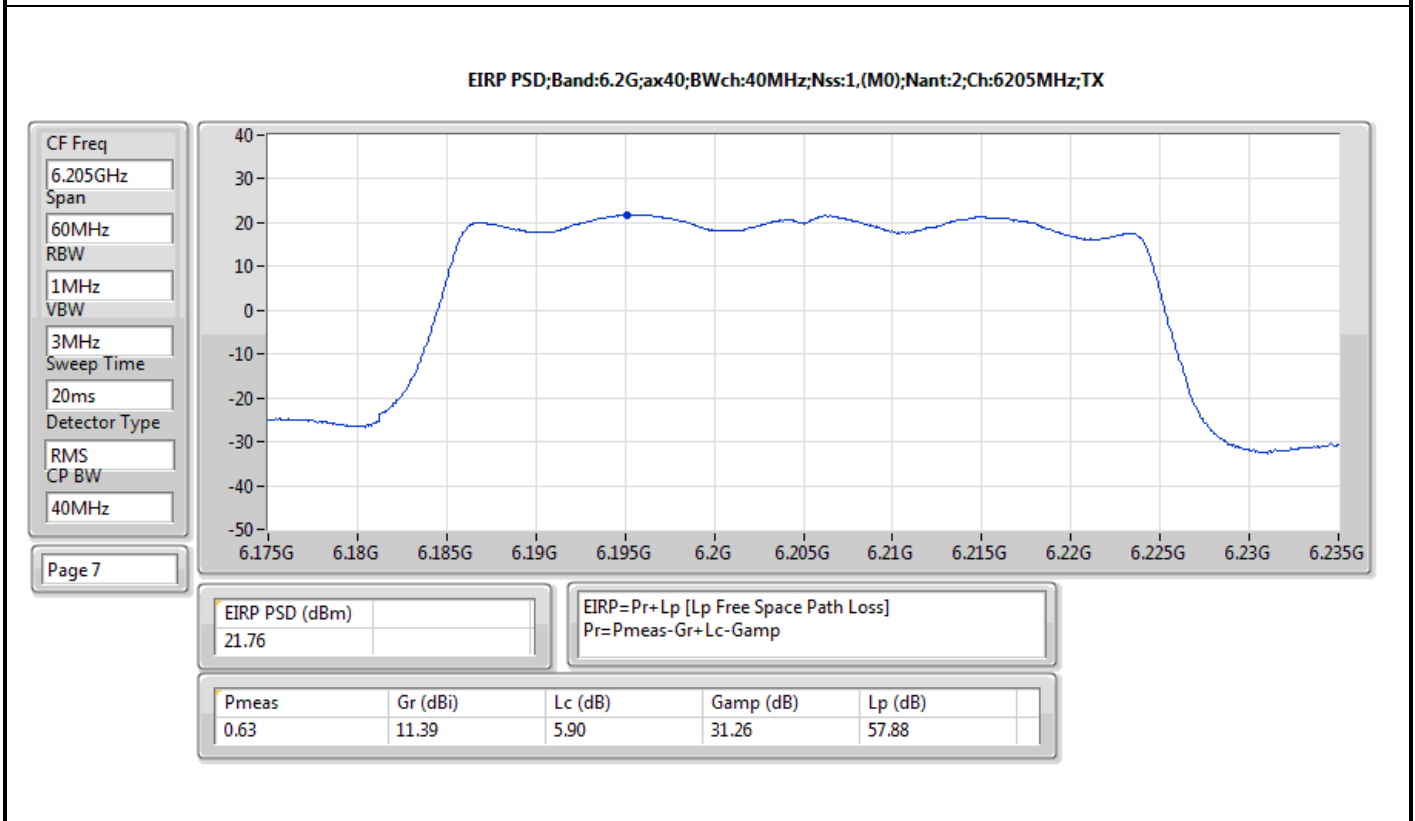
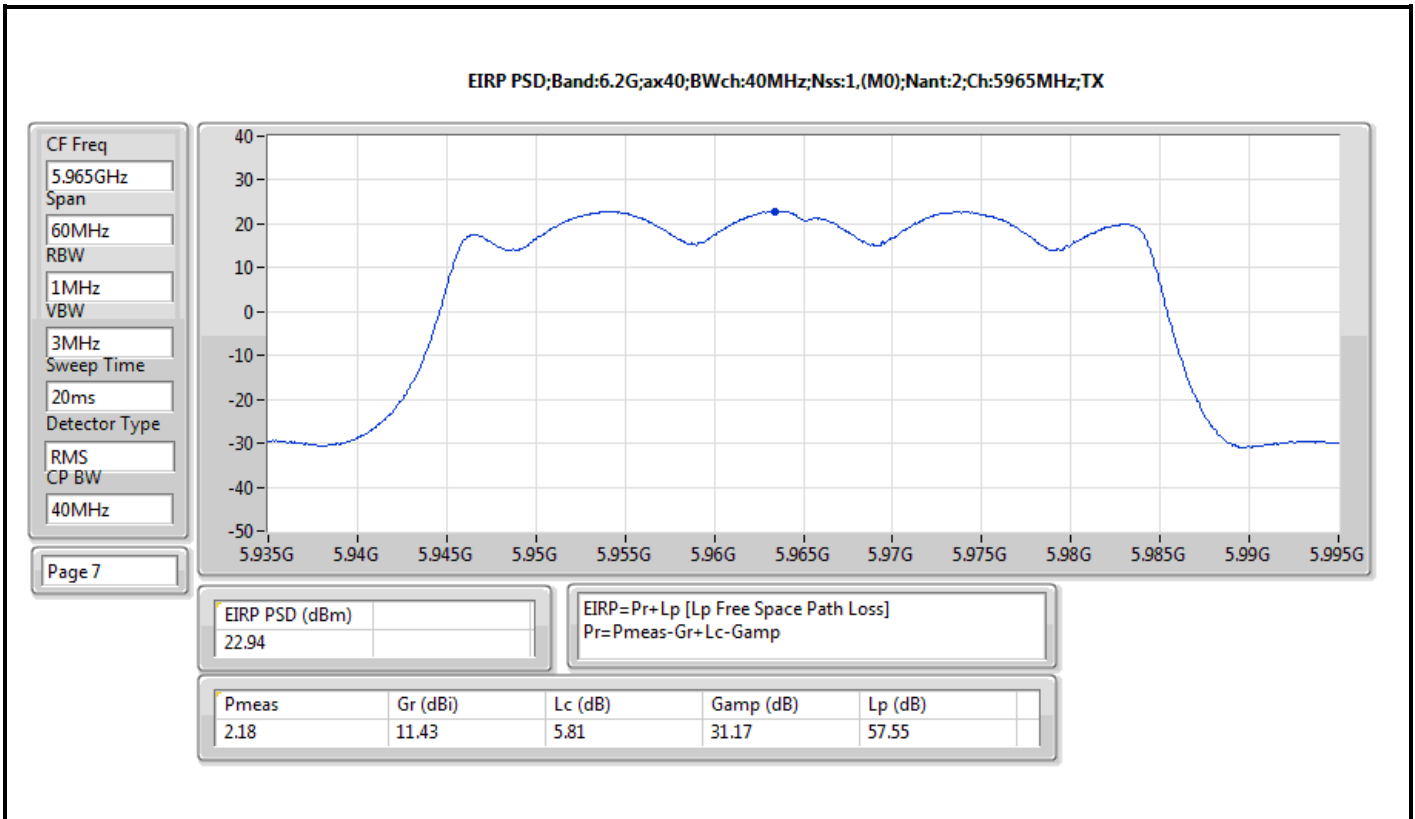
Mode	Result	EIRP PD (dBm/RBW)	EIRP PD Limit (dBm/RBW)
802.11ax HEW20_Nss1,(MCS0)_2TX	-	-	-
5955MHz	Pass	22.83	23.00
6195MHz	Pass	22.74	23.00
6415MHz	Pass	22.93	23.00
6535MHz	Pass	22.96	23.00
6695MHz	Pass	22.65	23.00
6855MHz	Pass	22.63	23.00
802.11ax HEW40_Nss1,(MCS0)_2TX	-	-	-
5965MHz	Pass	22.94	23.00
6205MHz	Pass	21.76	23.00
6405MHz	Pass	19.05	23.00
6565MHz	Pass	20.61	23.00
6685MHz	Pass	21.97	23.00
6845MHz	Pass	21.75	23.00
802.11ax HEW80_Nss1,(MCS0)_2TX	-	-	-
5985MHz	Pass	18.30	23.00
6225MHz	Pass	18.26	23.00
6385MHz	Pass	15.84	23.00
6625MHz	Pass	15.72	23.00
6705MHz	Pass	17.89	23.00
6785MHz	Pass	18.59	23.00
802.11ax HEW160_Nss1,(MCS0)_2TX	-	-	-
6025MHz	Pass	16.16	23.00
6185MHz	Pass	15.50	23.00
6345MHz	Pass	13.20	23.00
6665MHz	Pass	13.28	23.00

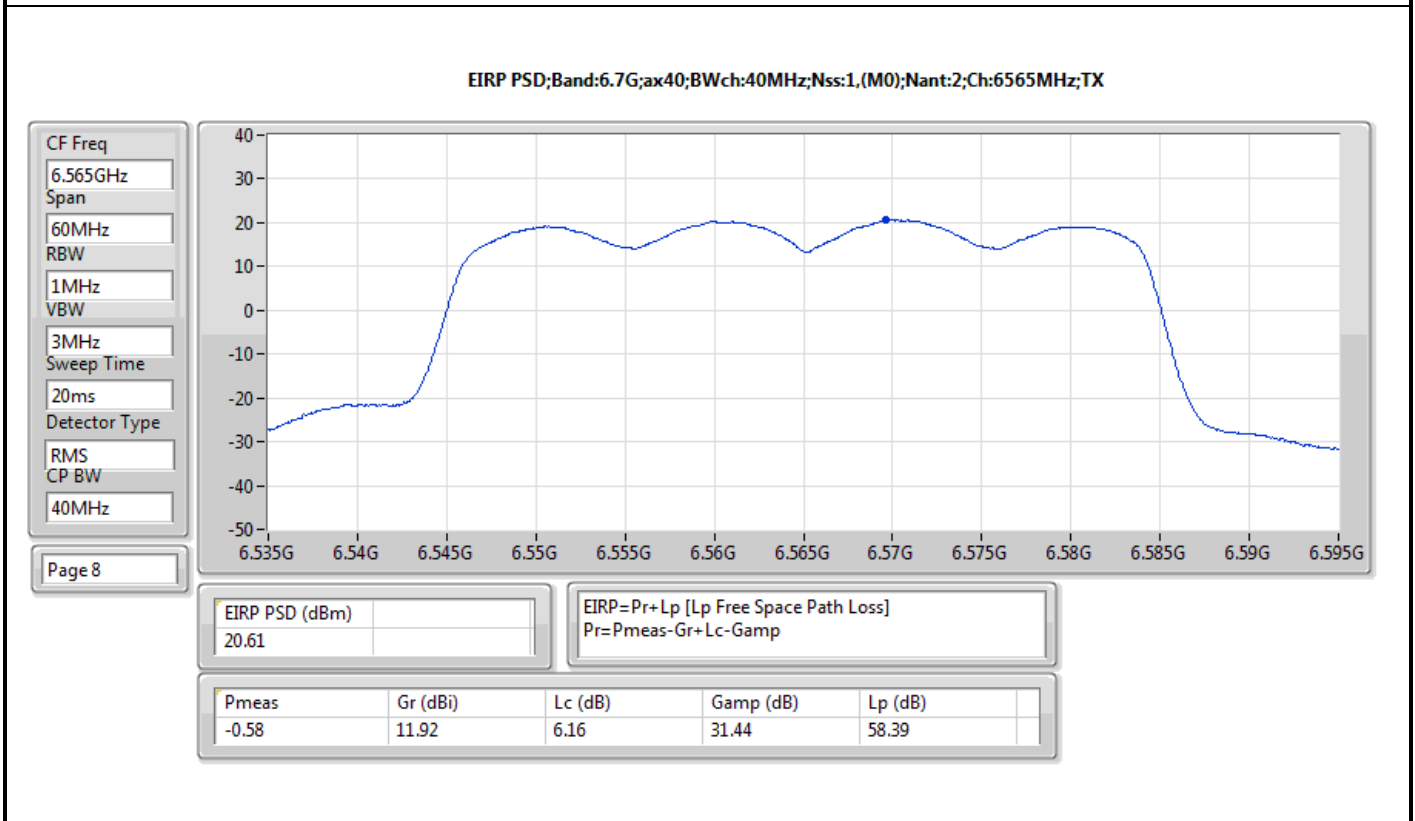
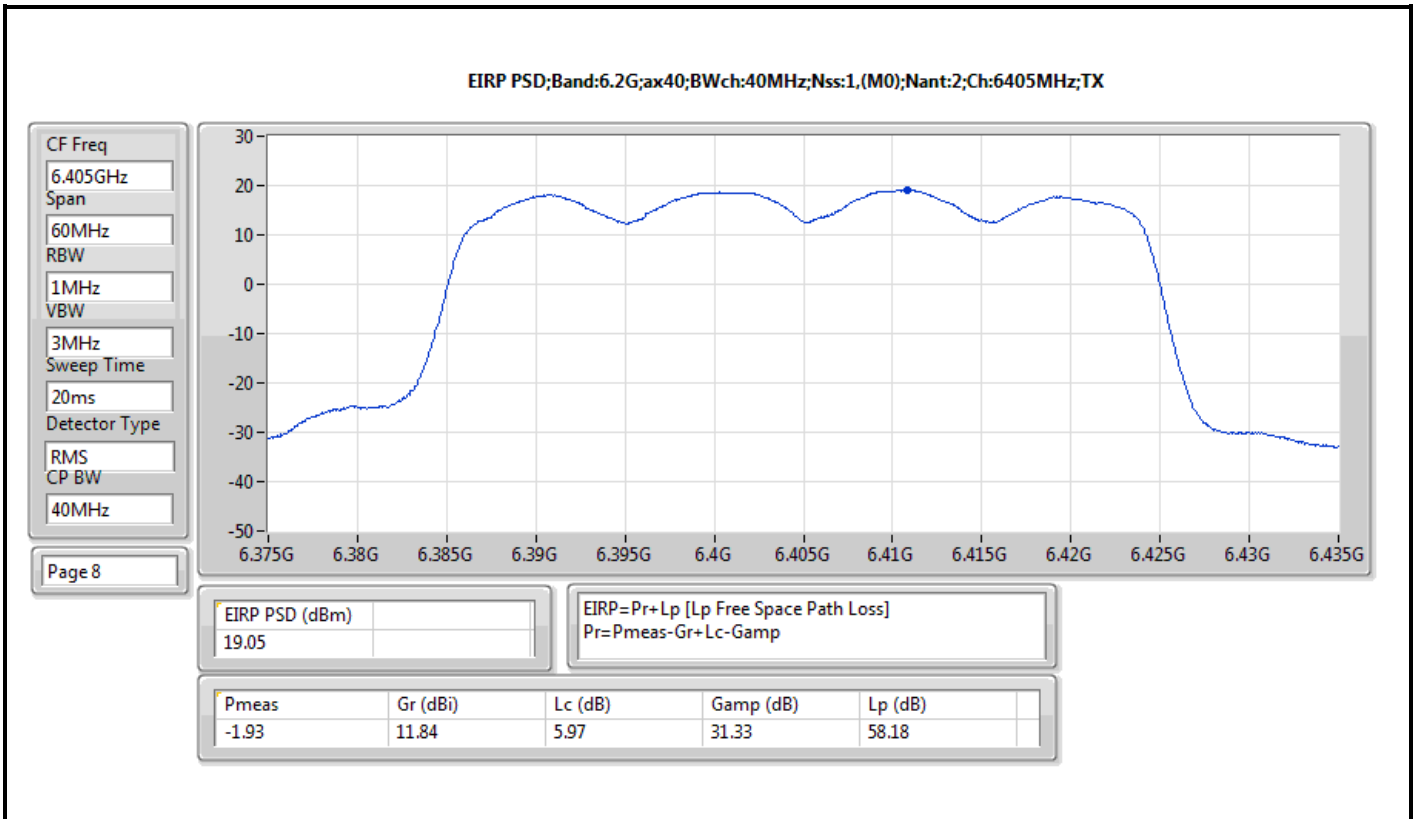
DG = Directional Gain; RBW = 500kHz for 5.725-5.85GHz band / 1MHz for other band;
 PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; Port X = Port X Power Density;

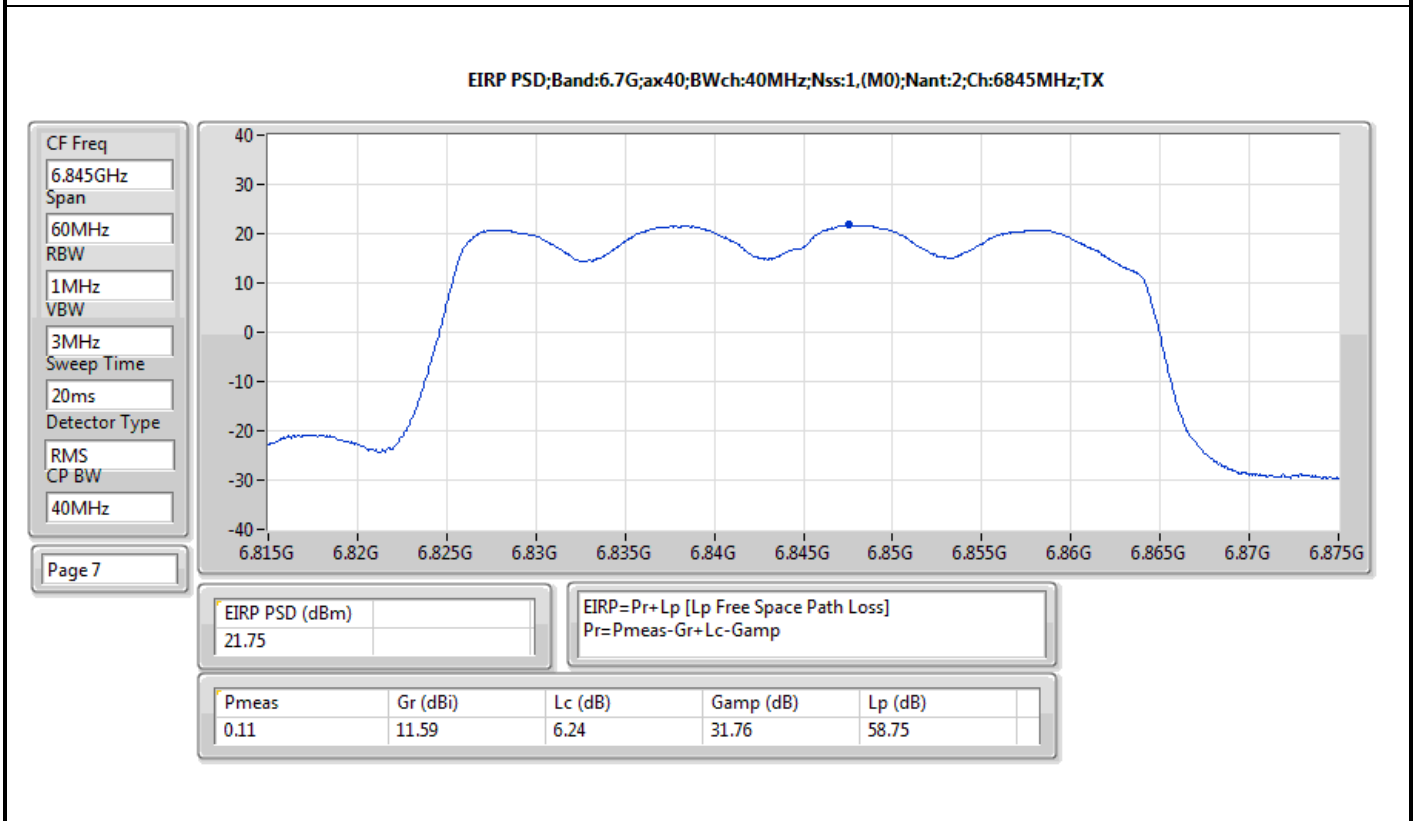
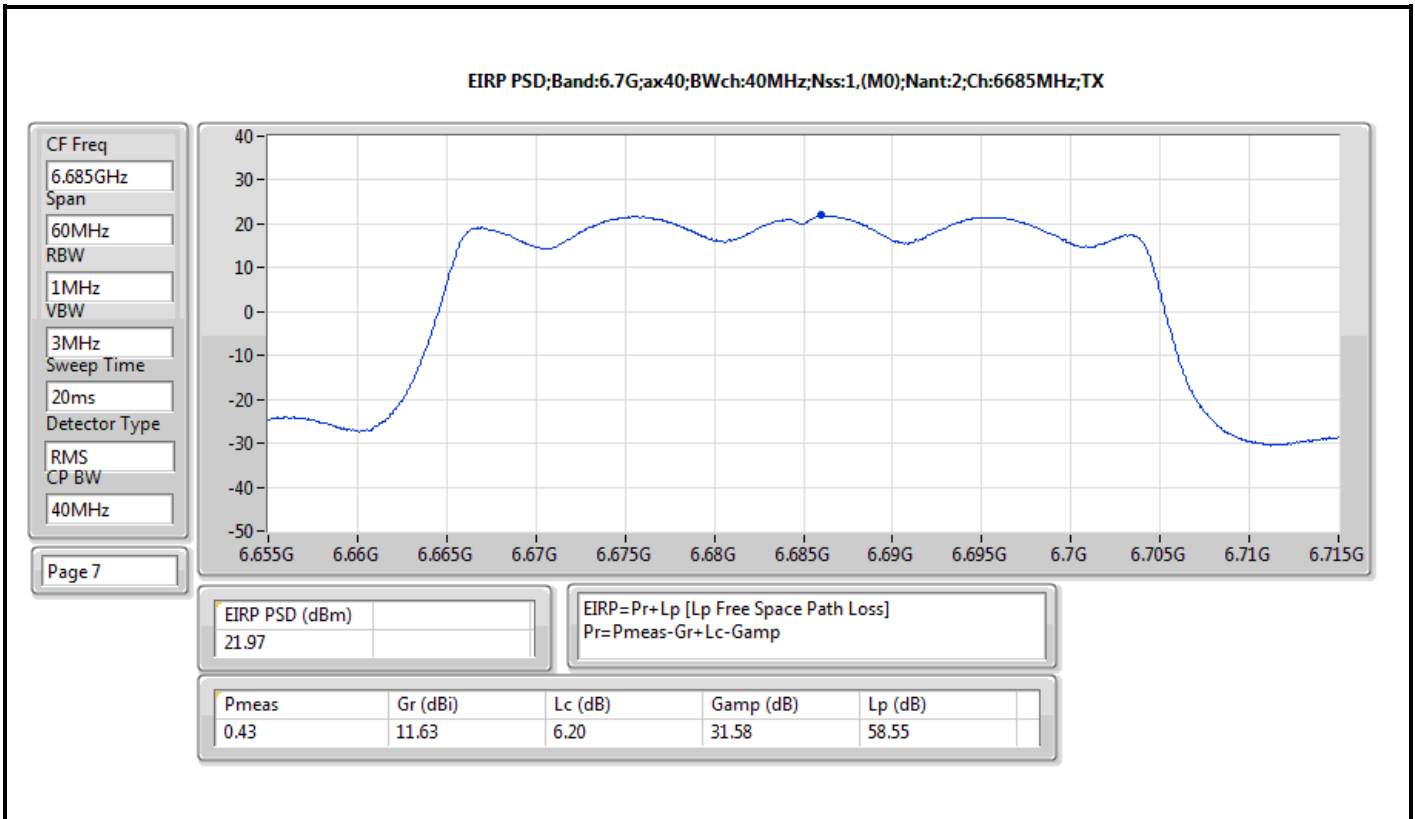


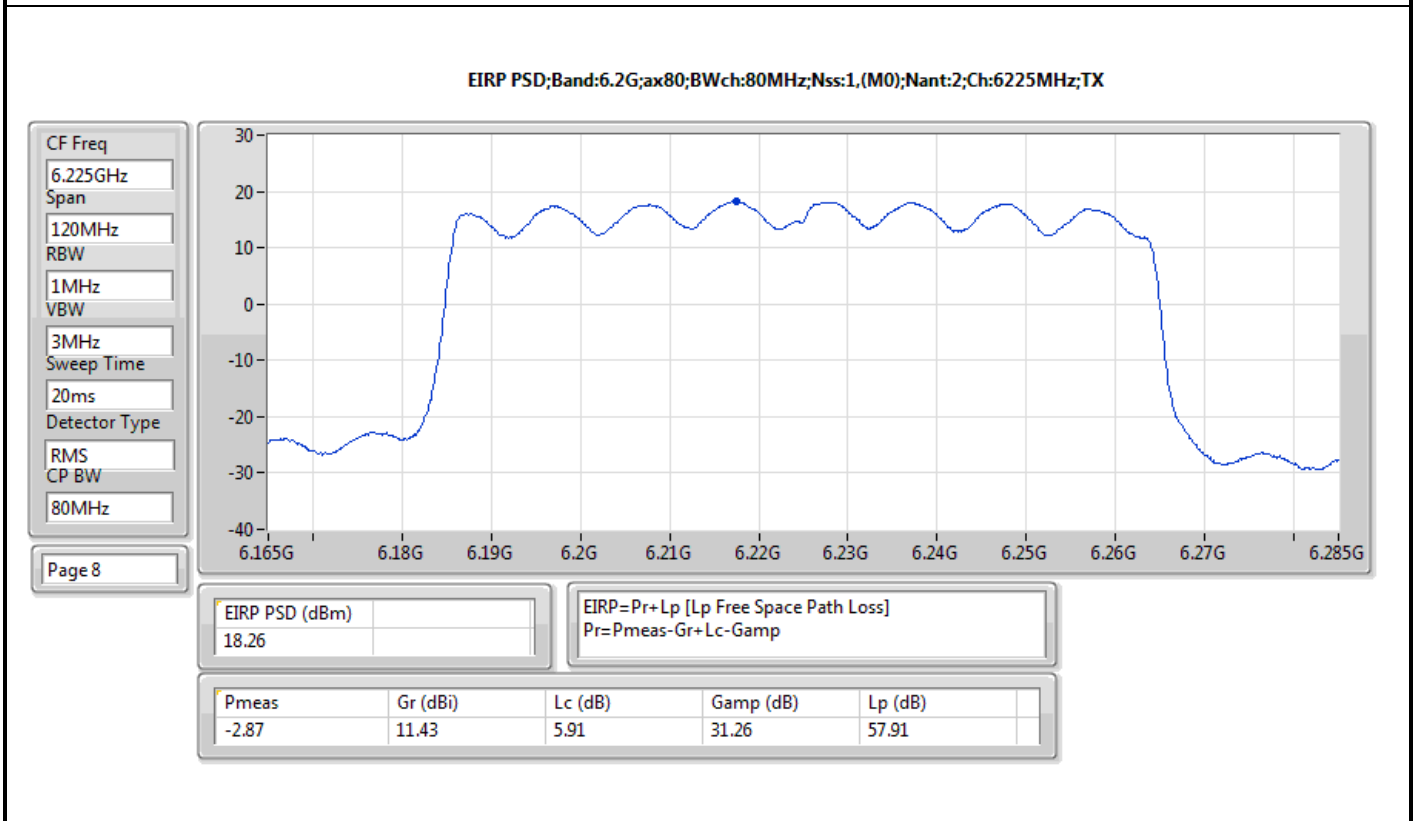
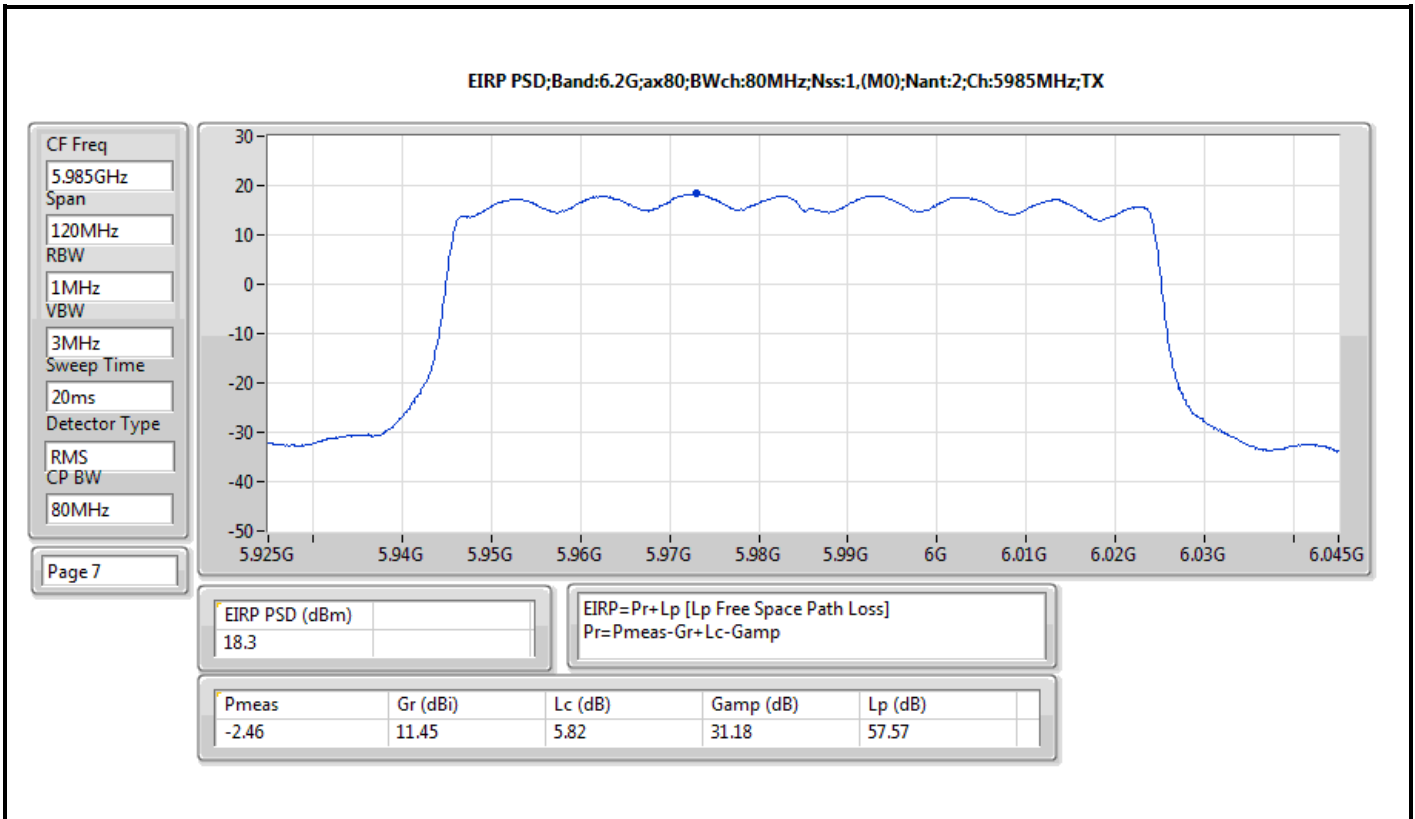


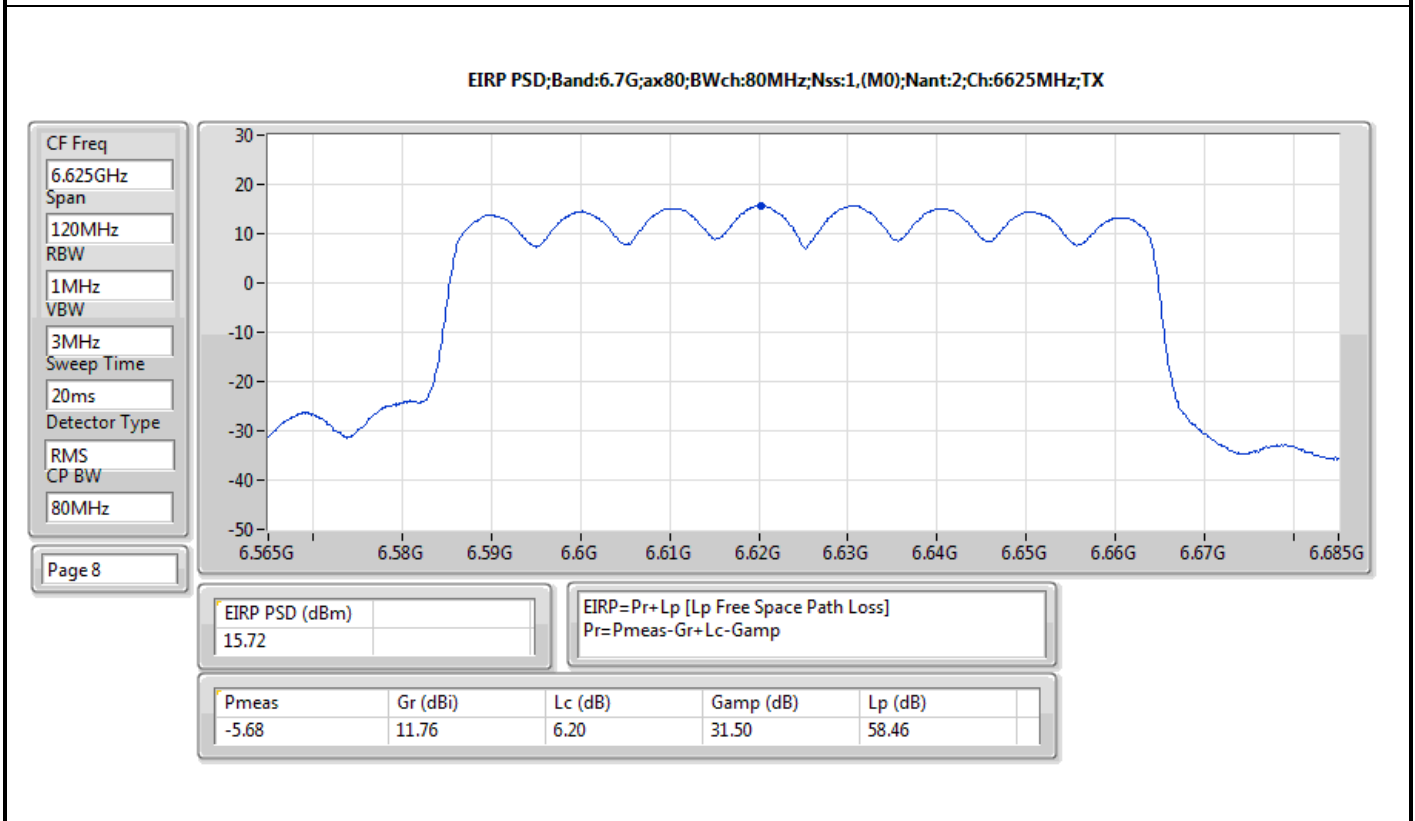
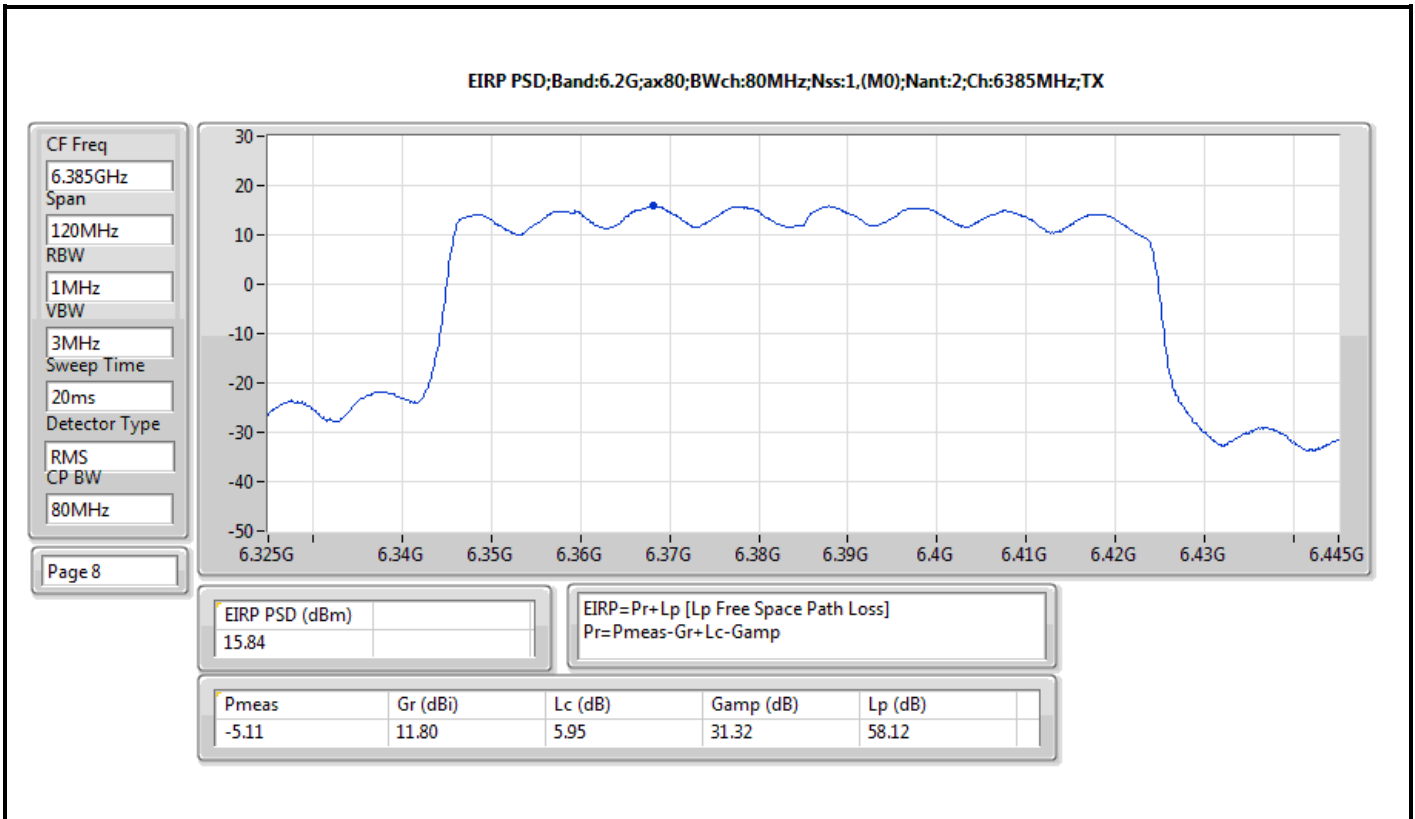


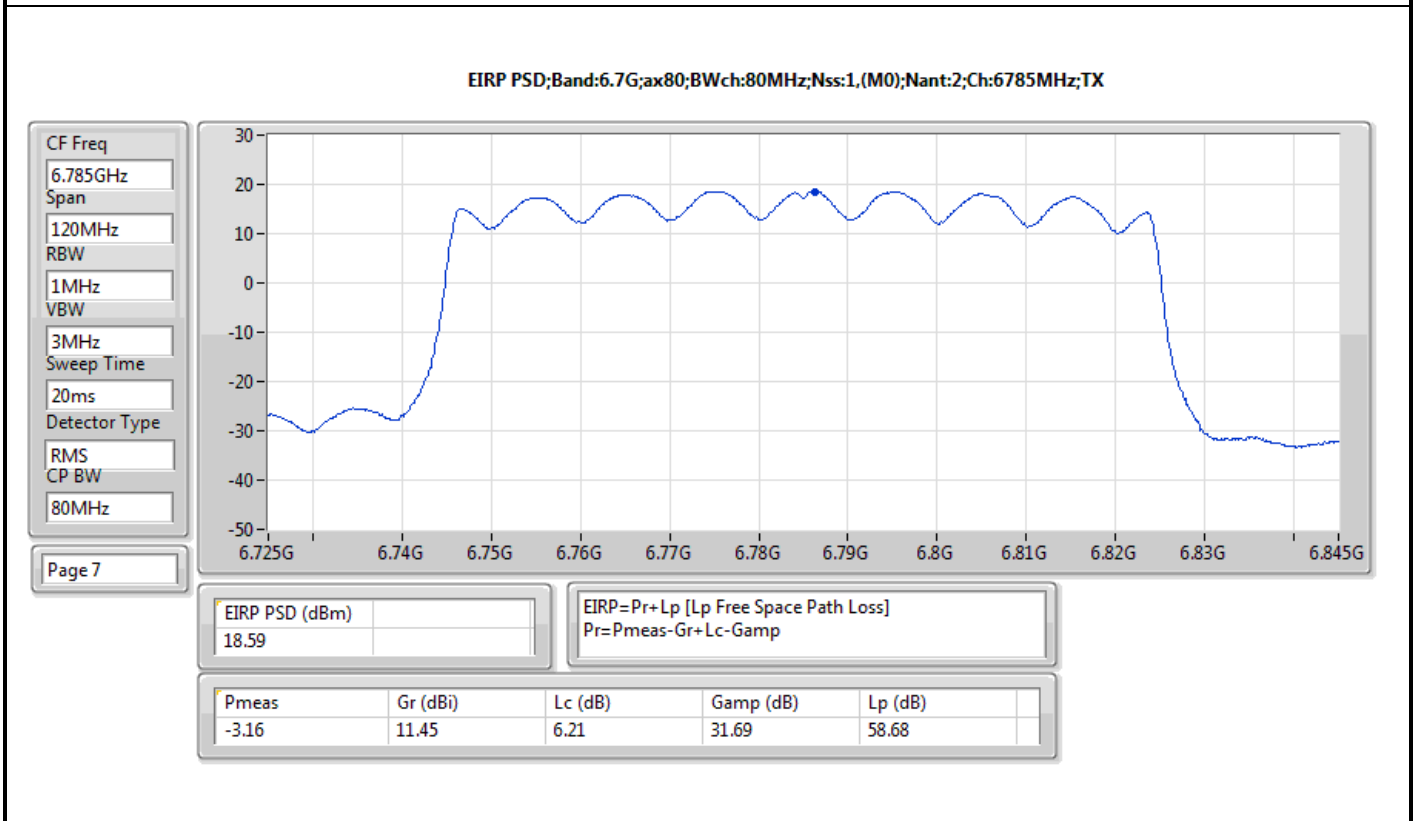
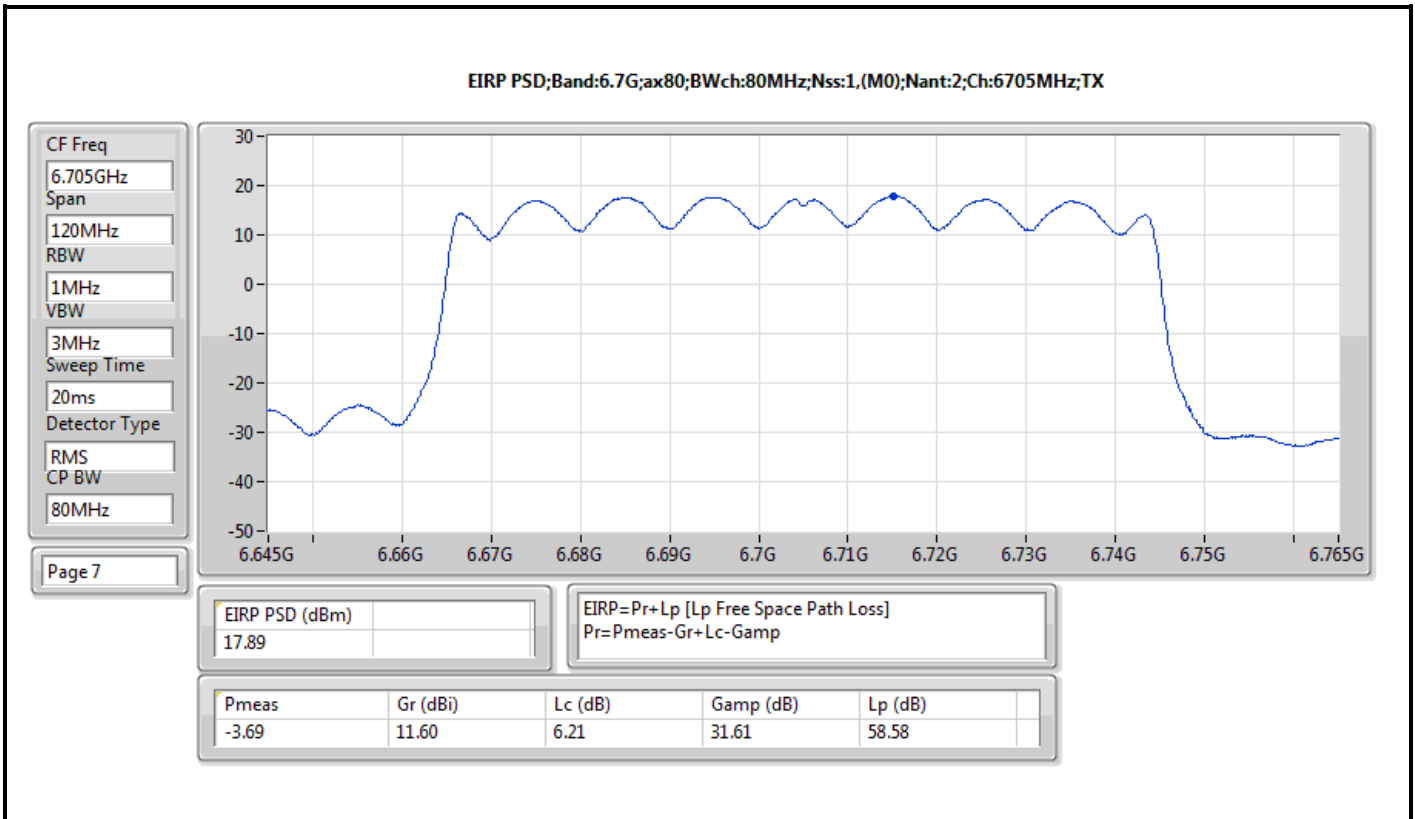


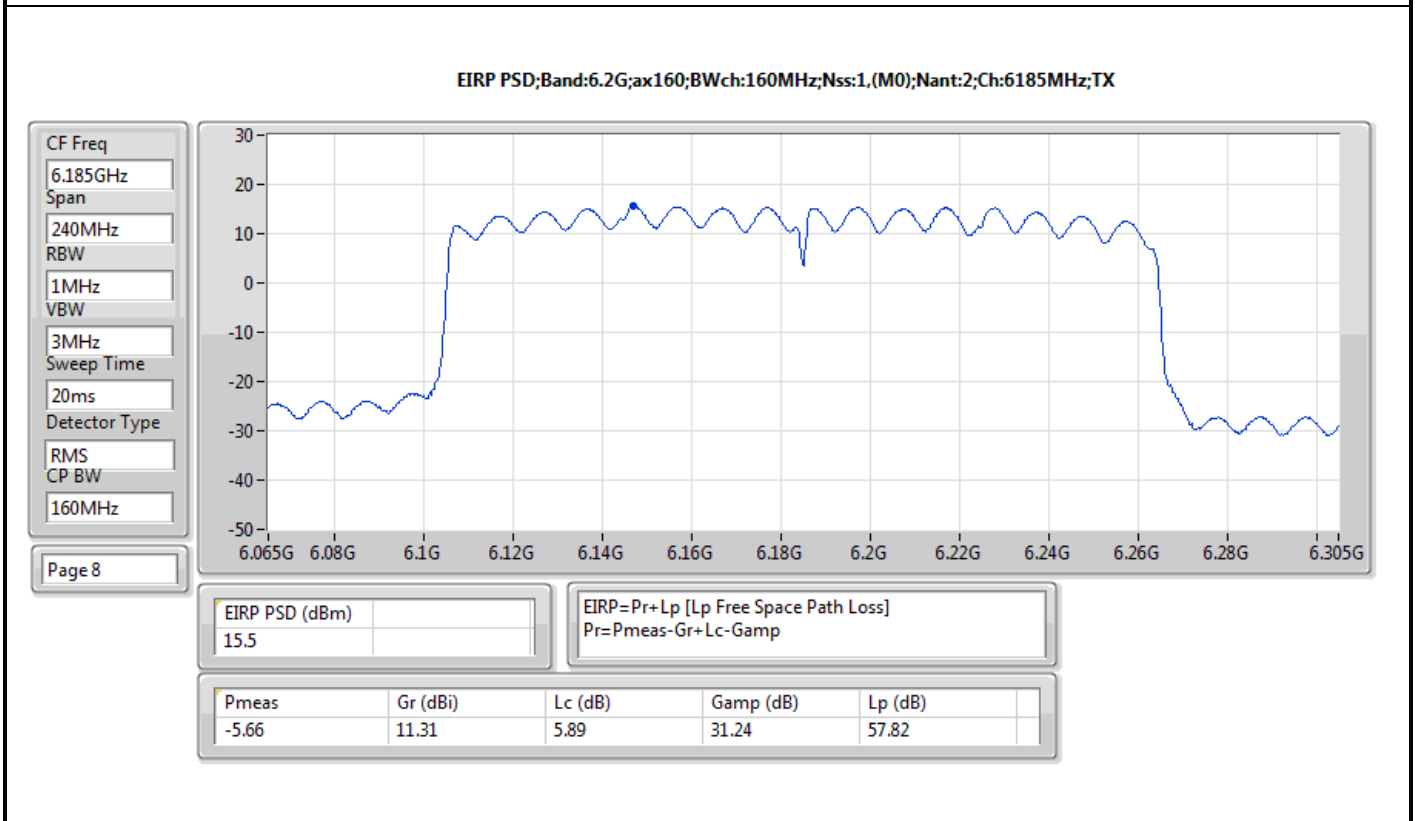
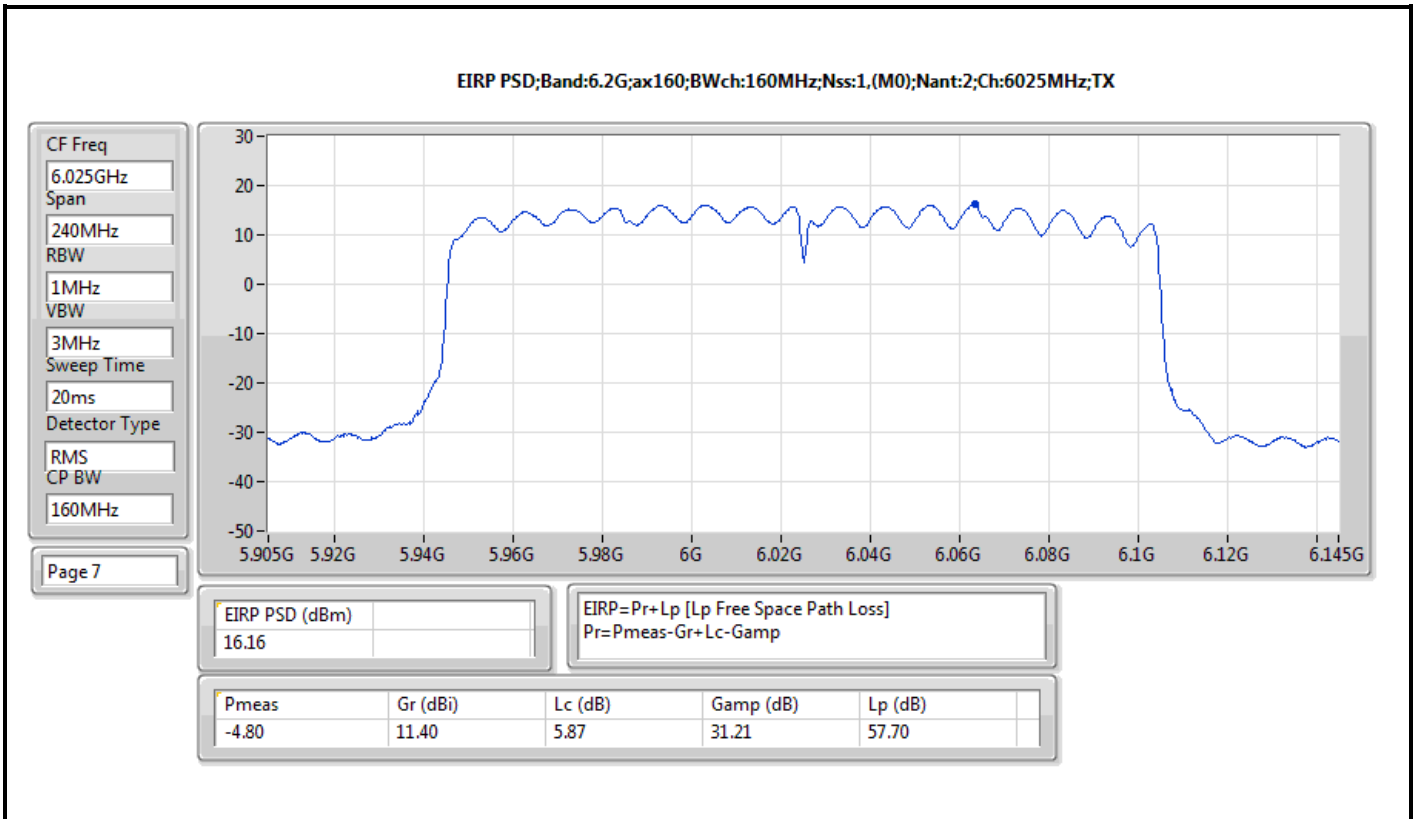


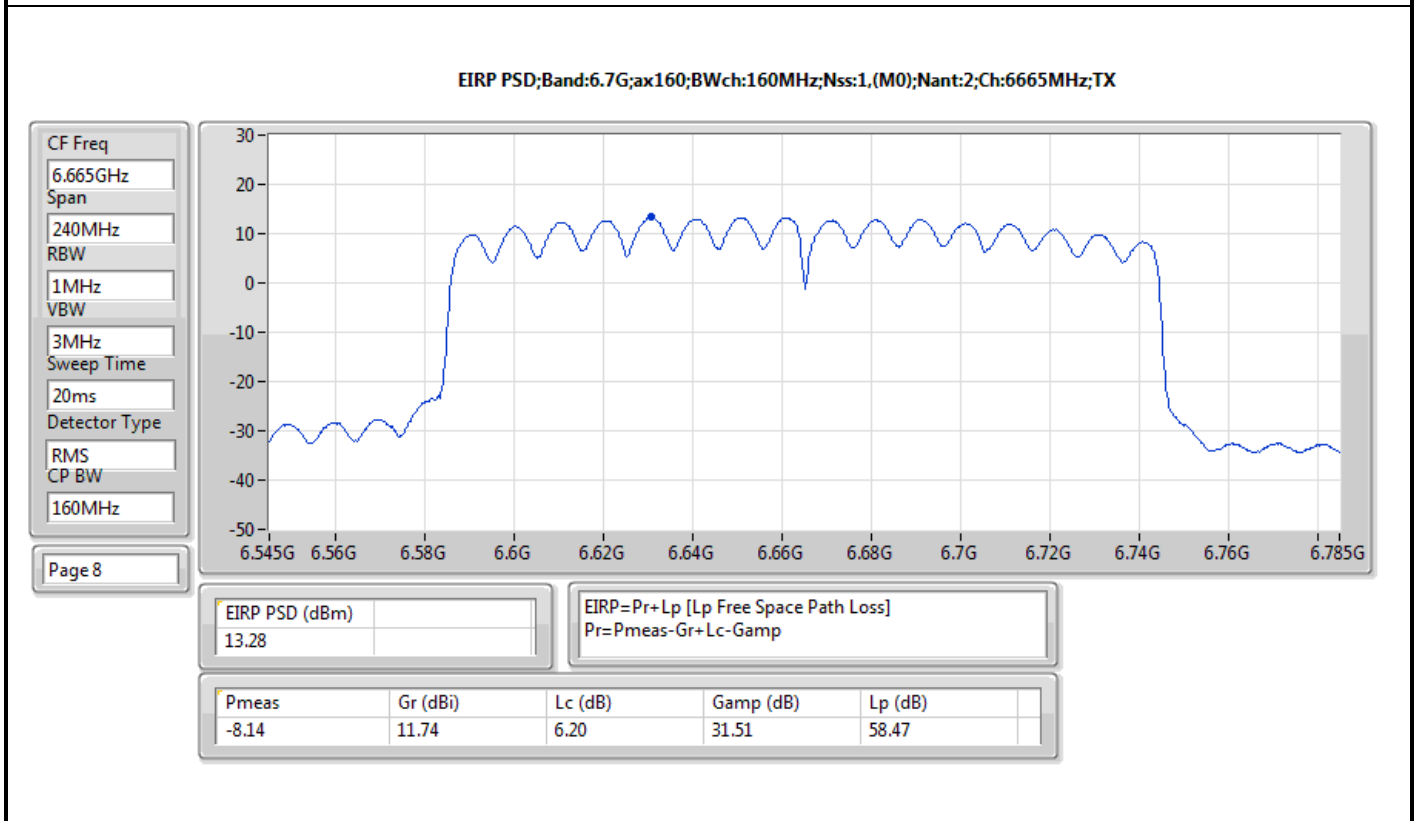
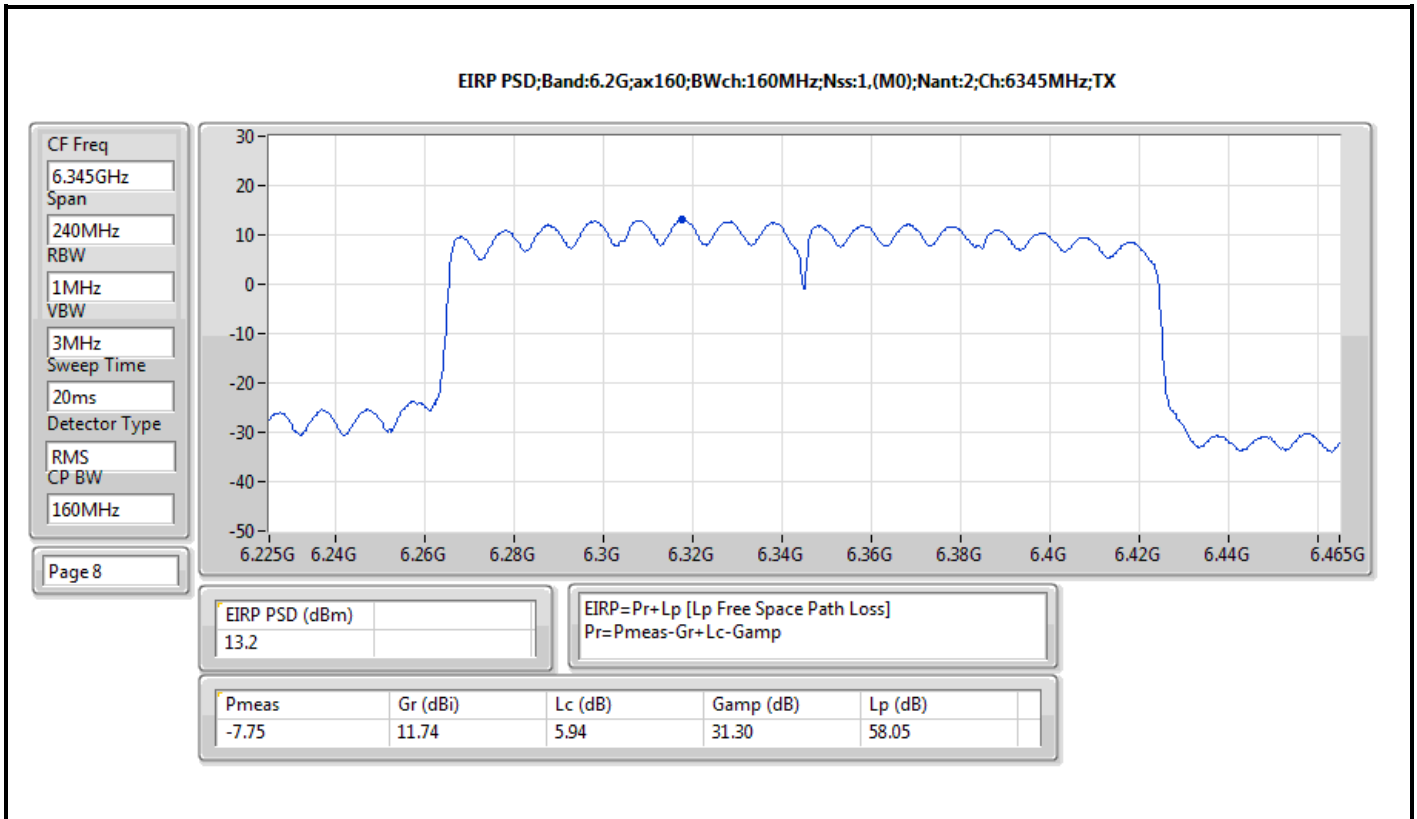














Summary

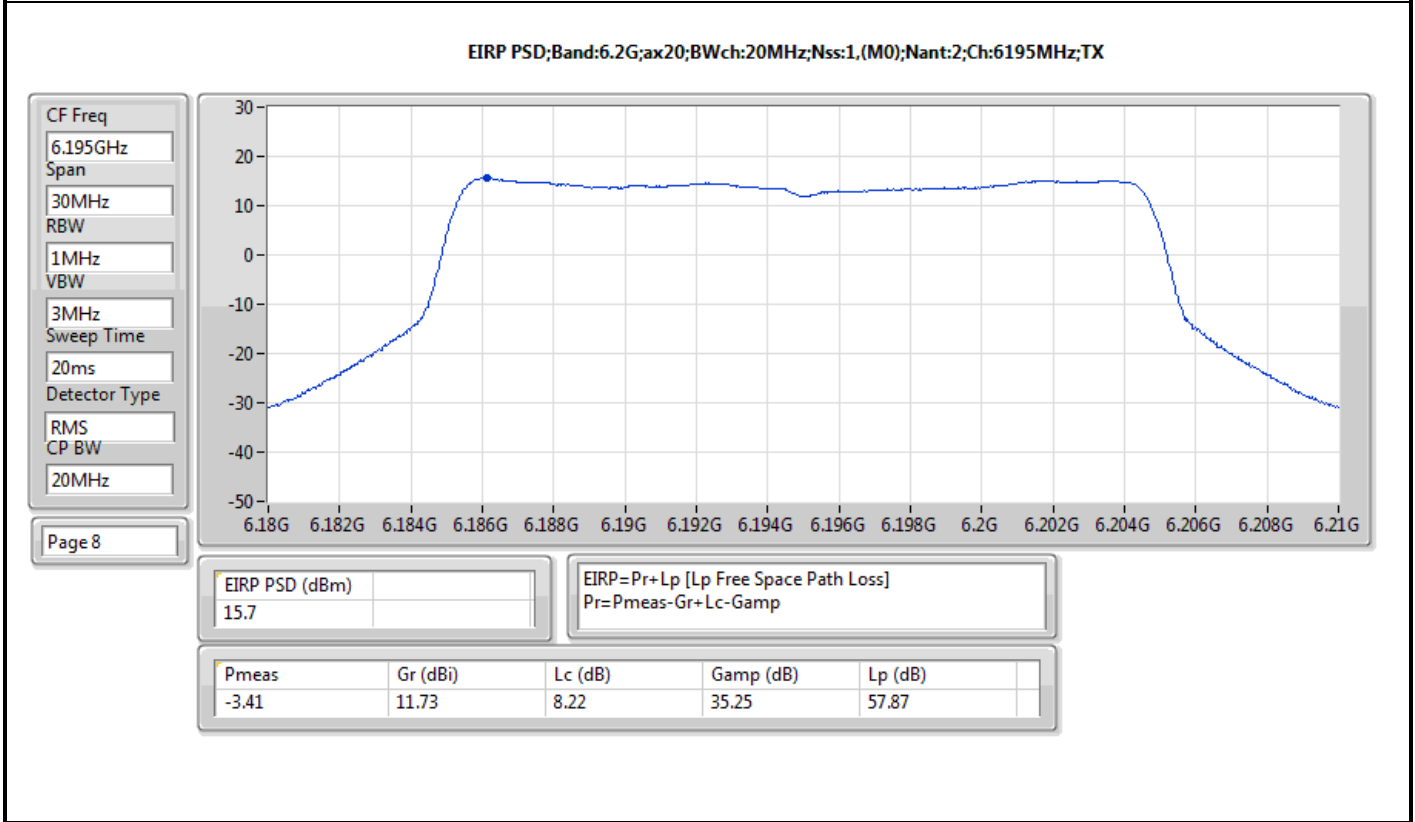
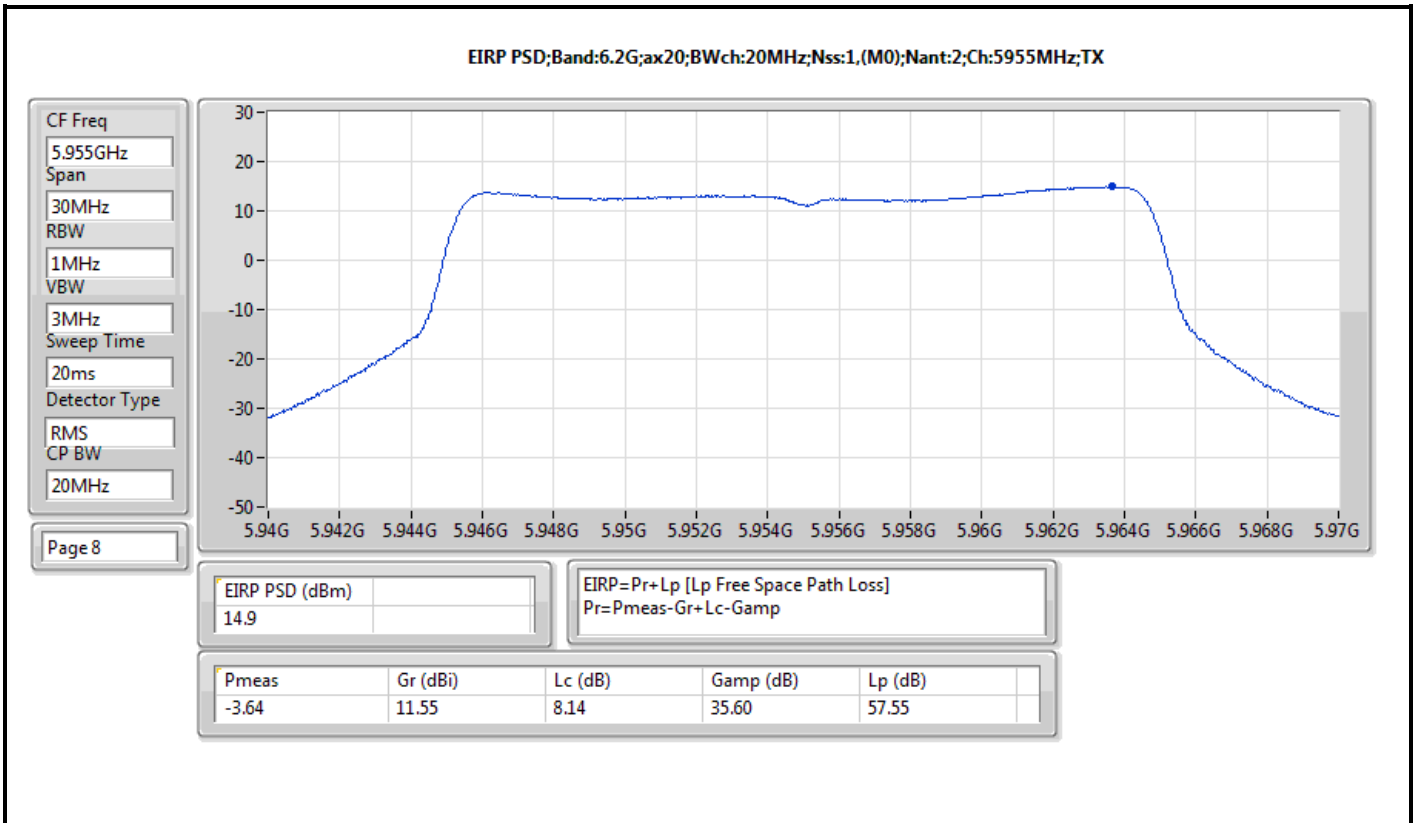
Mode	EIRP PD (dBm/RBW)
5.925-6.425GHz	-
802.11ax HEW20_Nss1,(MCS0)_2TX	15.92
802.11ax HEW40_Nss1,(MCS0)_2TX	13.28
802.11ax HEW80_Nss1,(MCS0)_2TX	9.62
802.11ax HEW160_Nss1,(MCS0)_2TX	8.30
6.525-6.875GHz	-
802.11ax HEW20_Nss1,(MCS0)_2TX	18.94
802.11ax HEW40_Nss1,(MCS0)_2TX	15.61
802.11ax HEW80_Nss1,(MCS0)_2TX	13.91
802.11ax HEW160_Nss1,(MCS0)_2TX	9.35

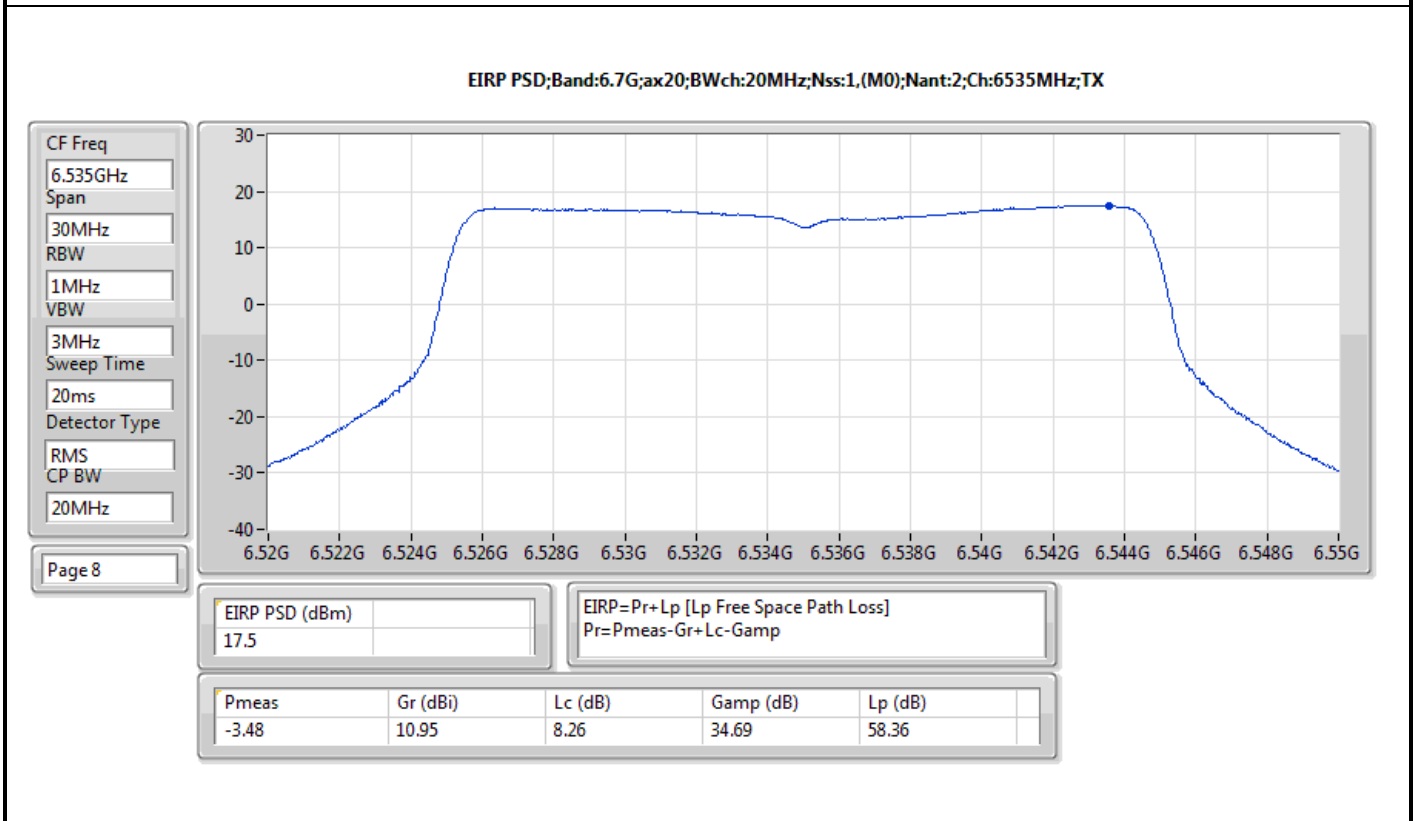
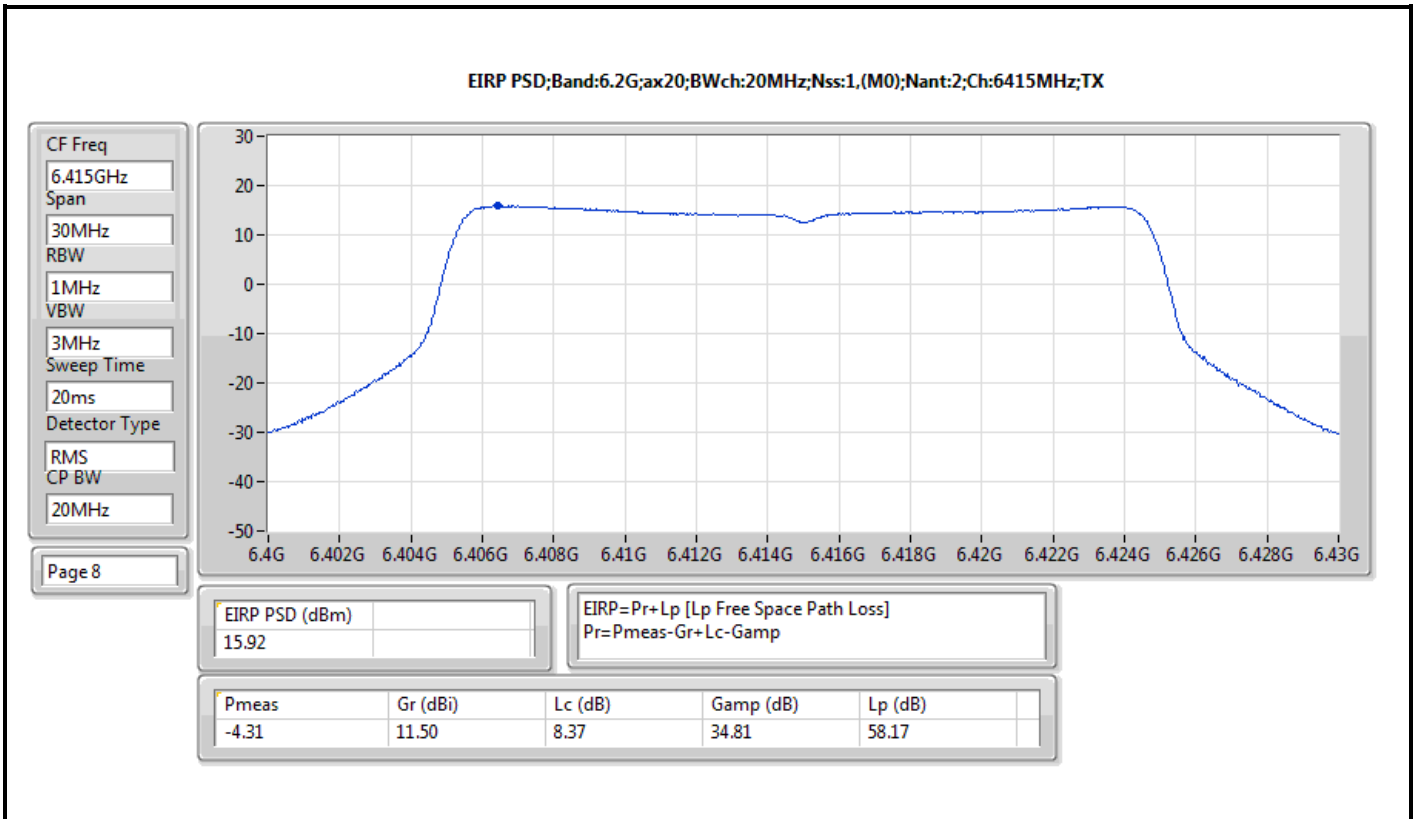
RBW = 500kHz for 5.725-5.85GHz band / 1MHz for other band;

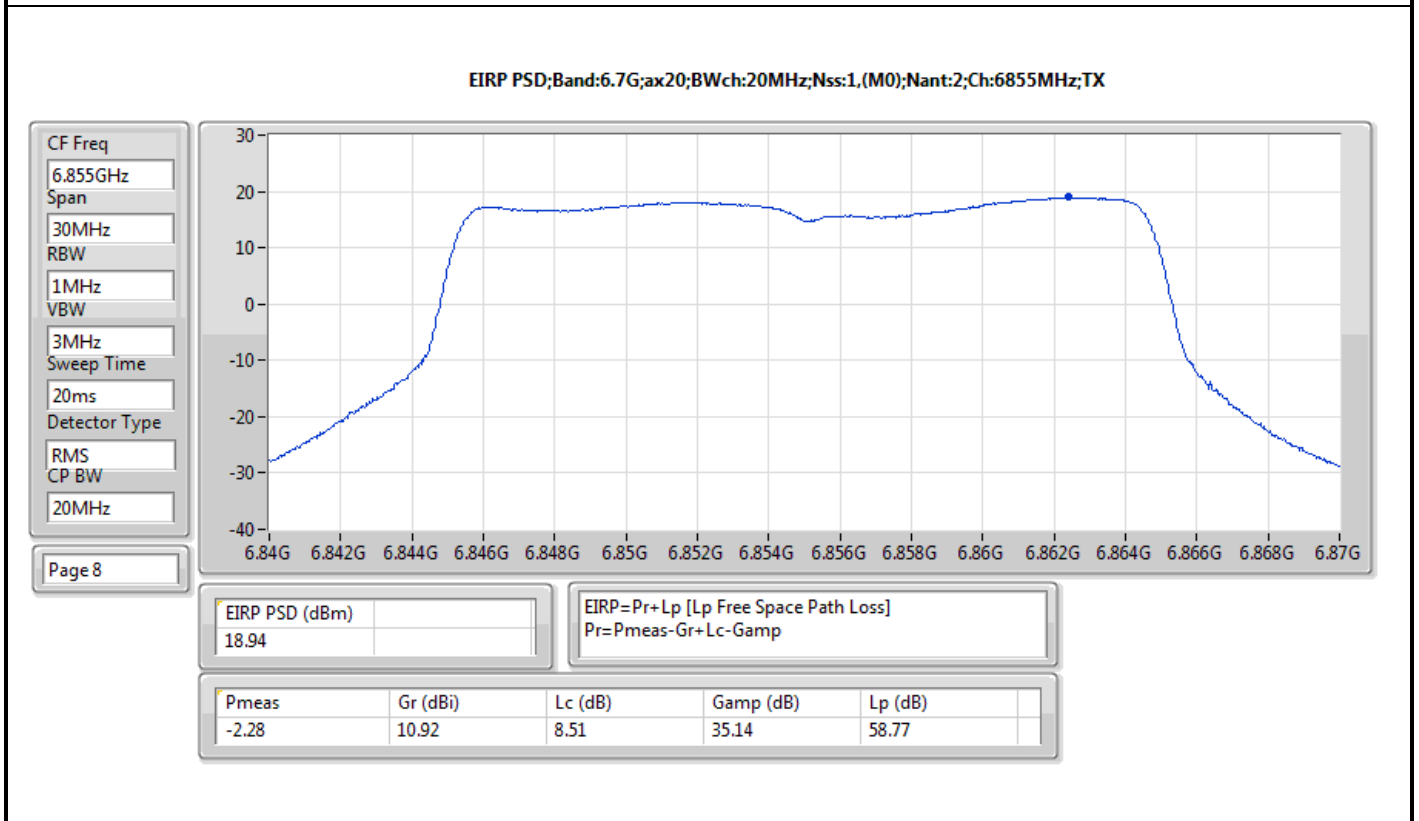
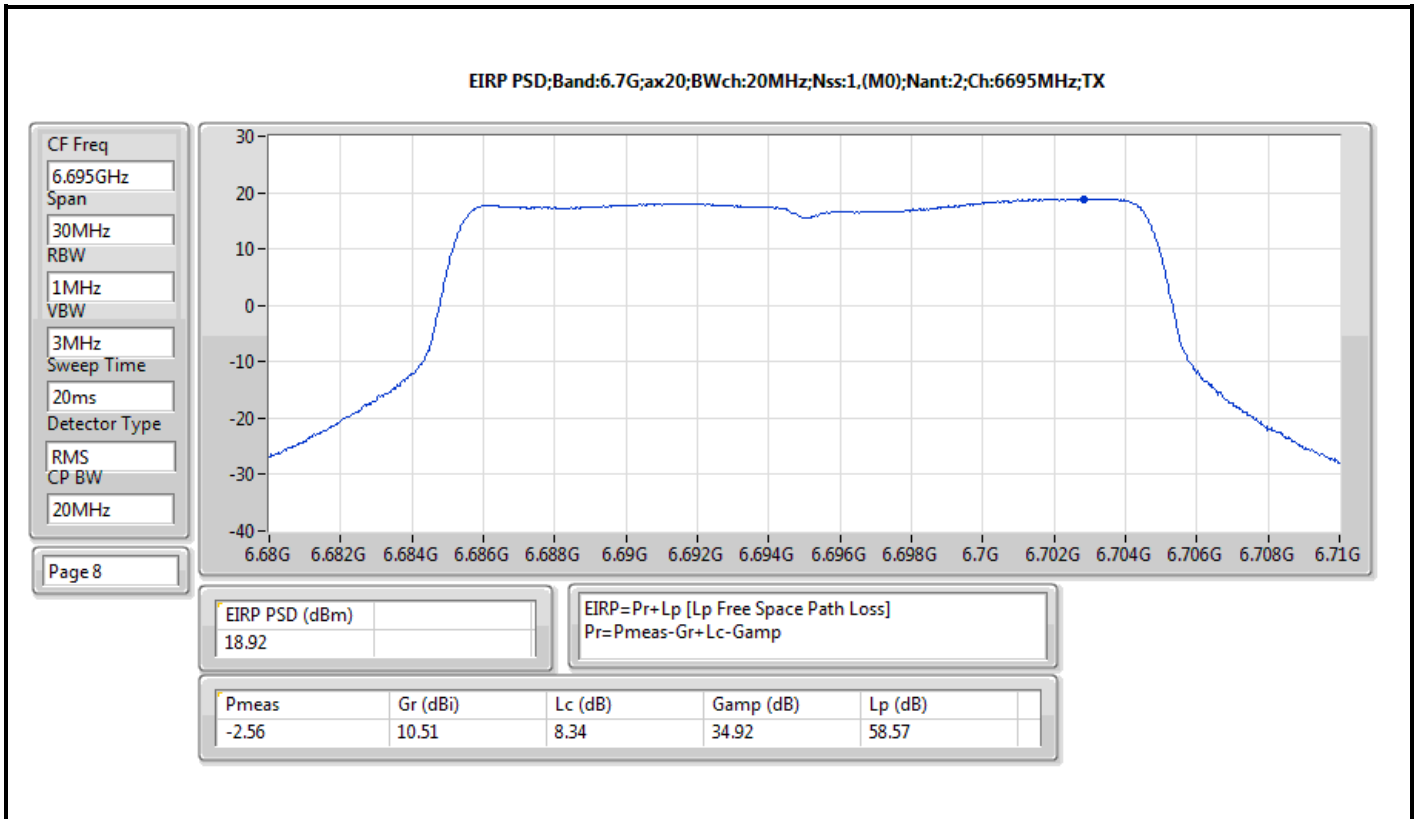
Result

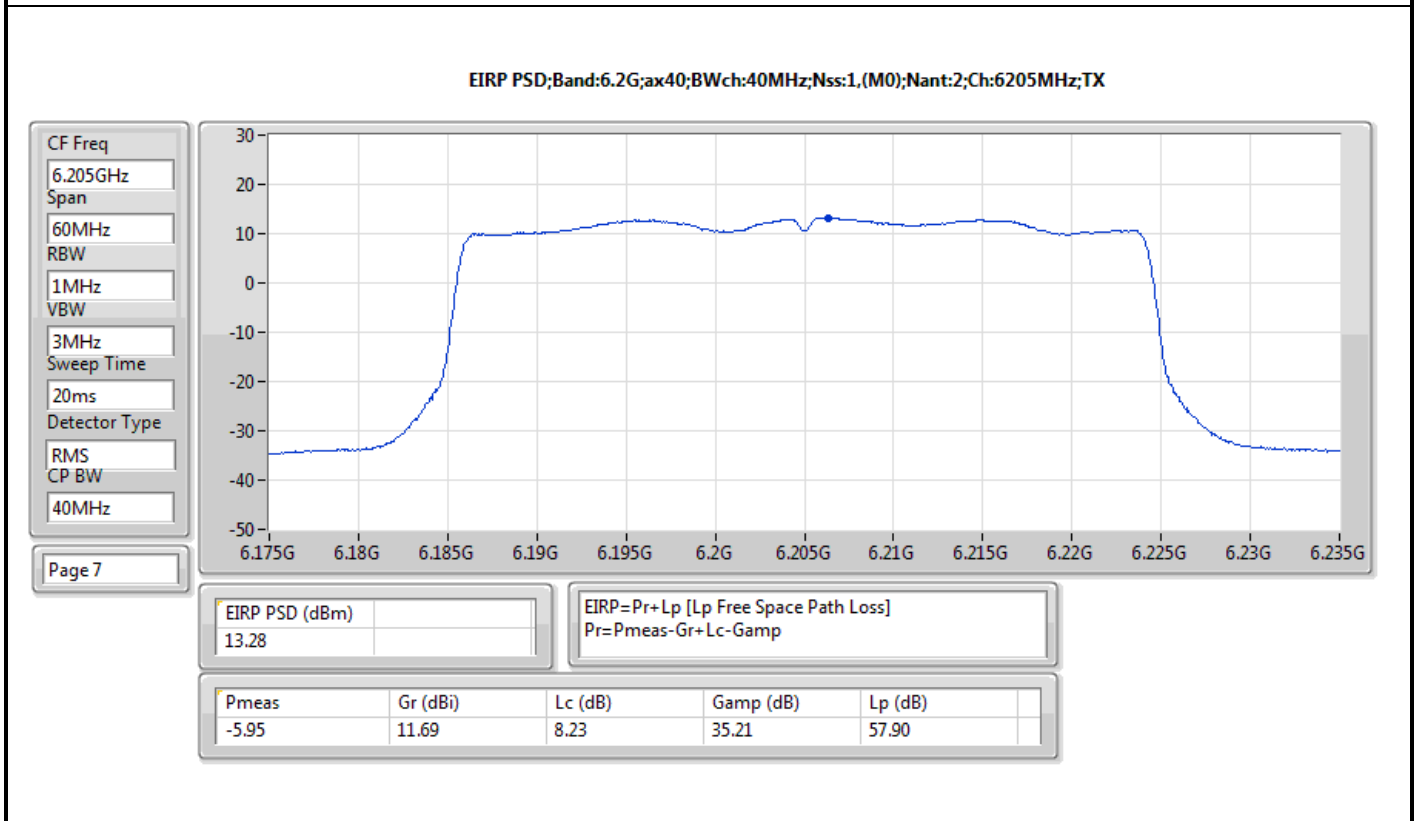
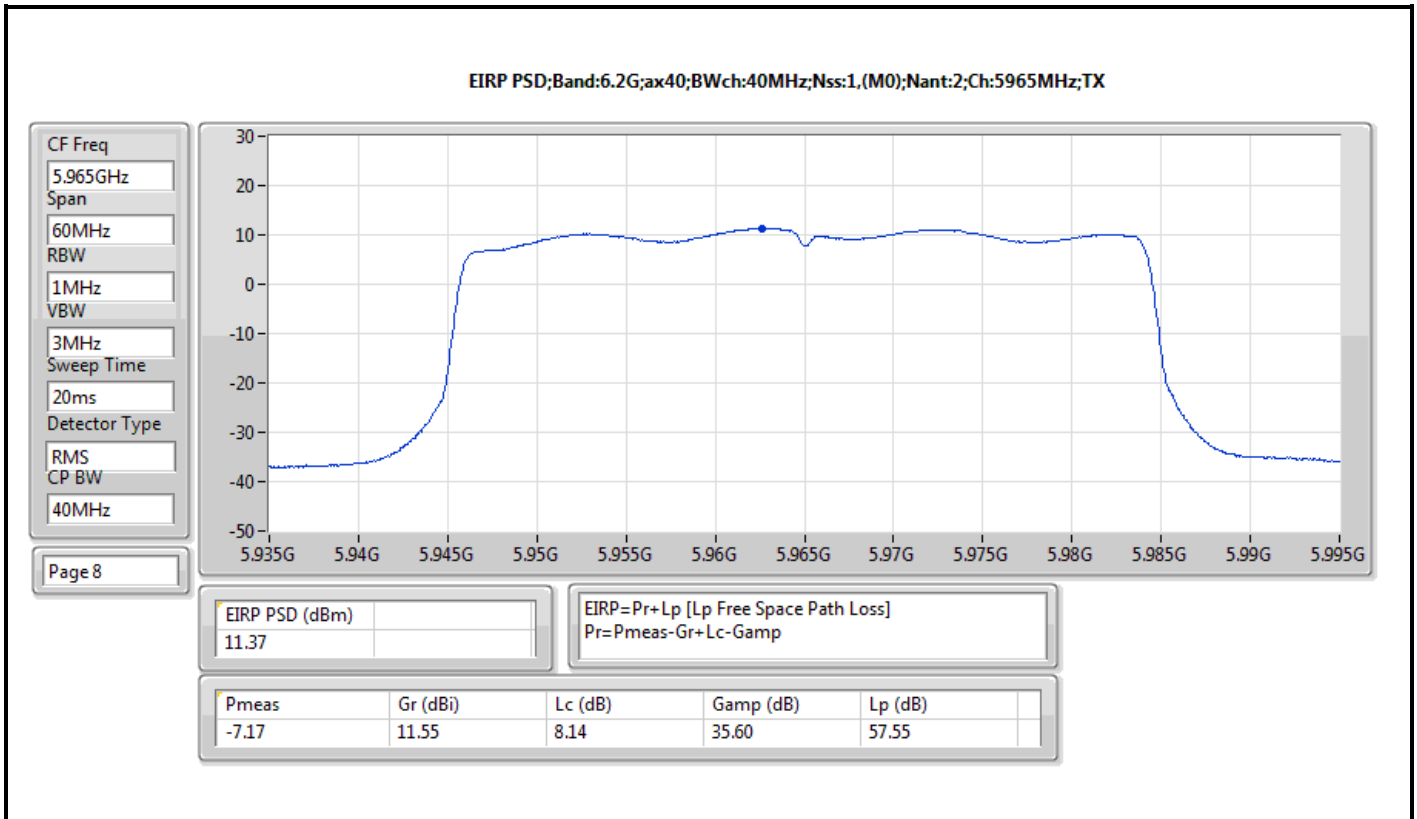
Mode	Result	EIRP PD (dBm/RBW)	EIRP PD Limit (dBm/RBW)
802.11ax HEW20_Nss1,(MCS0)_2TX	-	-	-
5955MHz	Pass	14.90	23.00
6195MHz	Pass	15.70	23.00
6415MHz	Pass	15.92	23.00
6535MHz	Pass	17.50	23.00
6695MHz	Pass	18.92	23.00
6855MHz	Pass	18.94	23.00
802.11ax HEW40_Nss1,(MCS0)_2TX	-	-	-
5965MHz	Pass	11.37	23.00
6205MHz	Pass	13.28	23.00
6405MHz	Pass	12.97	23.00
6565MHz	Pass	15.61	23.00
6685MHz	Pass	15.54	23.00
6845MHz	Pass	15.57	23.00
802.11ax HEW80_Nss1,(MCS0)_2TX	-	-	-
5985MHz	Pass	9.26	23.00
6225MHz	Pass	9.26	23.00
6385MHz	Pass	9.62	23.00
6625MHz	Pass	12.74	23.00
6705MHz	Pass	12.92	23.00
6785MHz	Pass	13.91	23.00
802.11ax HEW160_Nss1,(MCS0)_2TX	-	-	-
6025MHz	Pass	6.94	23.00
6185MHz	Pass	7.18	23.00
6345MHz	Pass	8.30	23.00
6665MHz	Pass	9.35	23.00

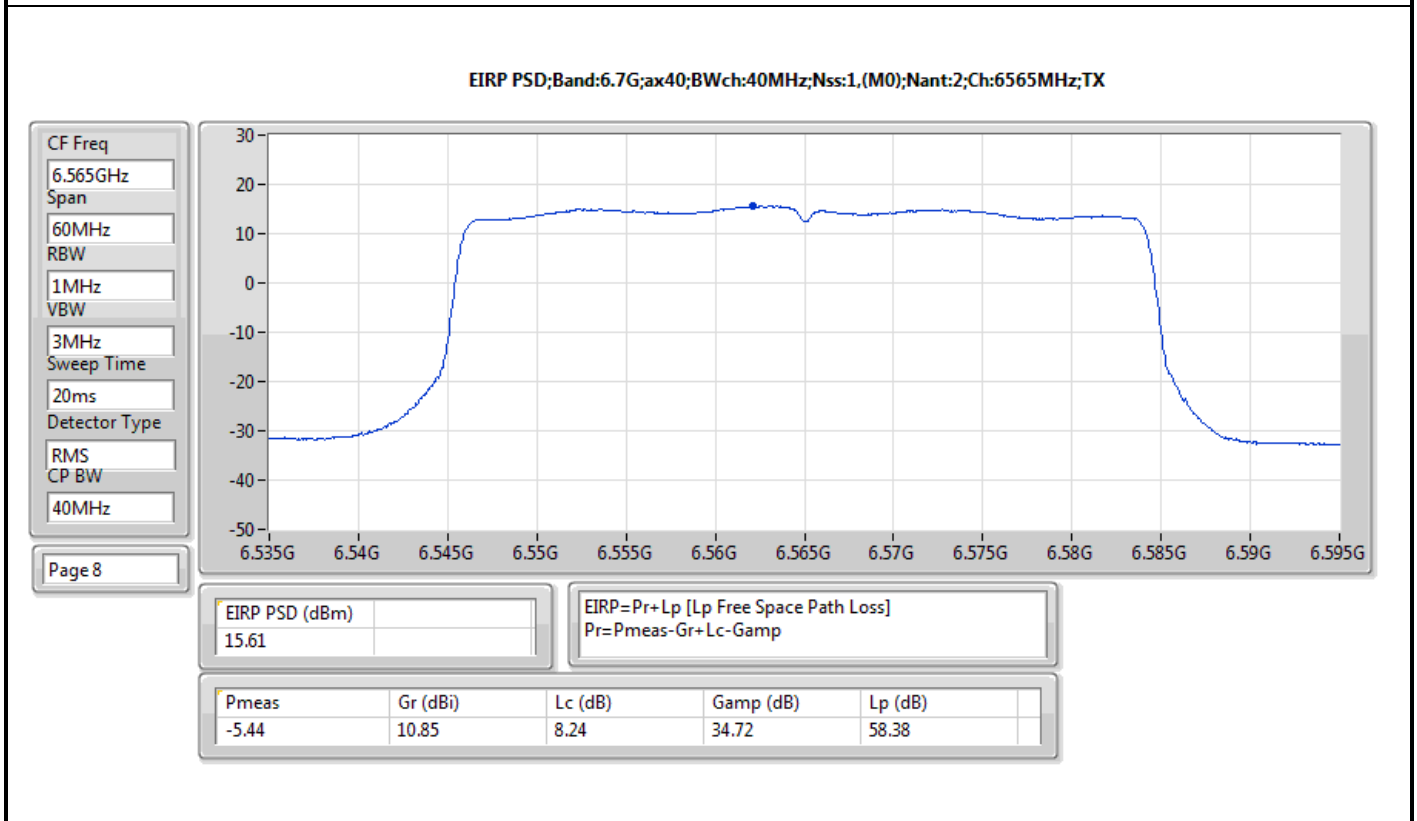
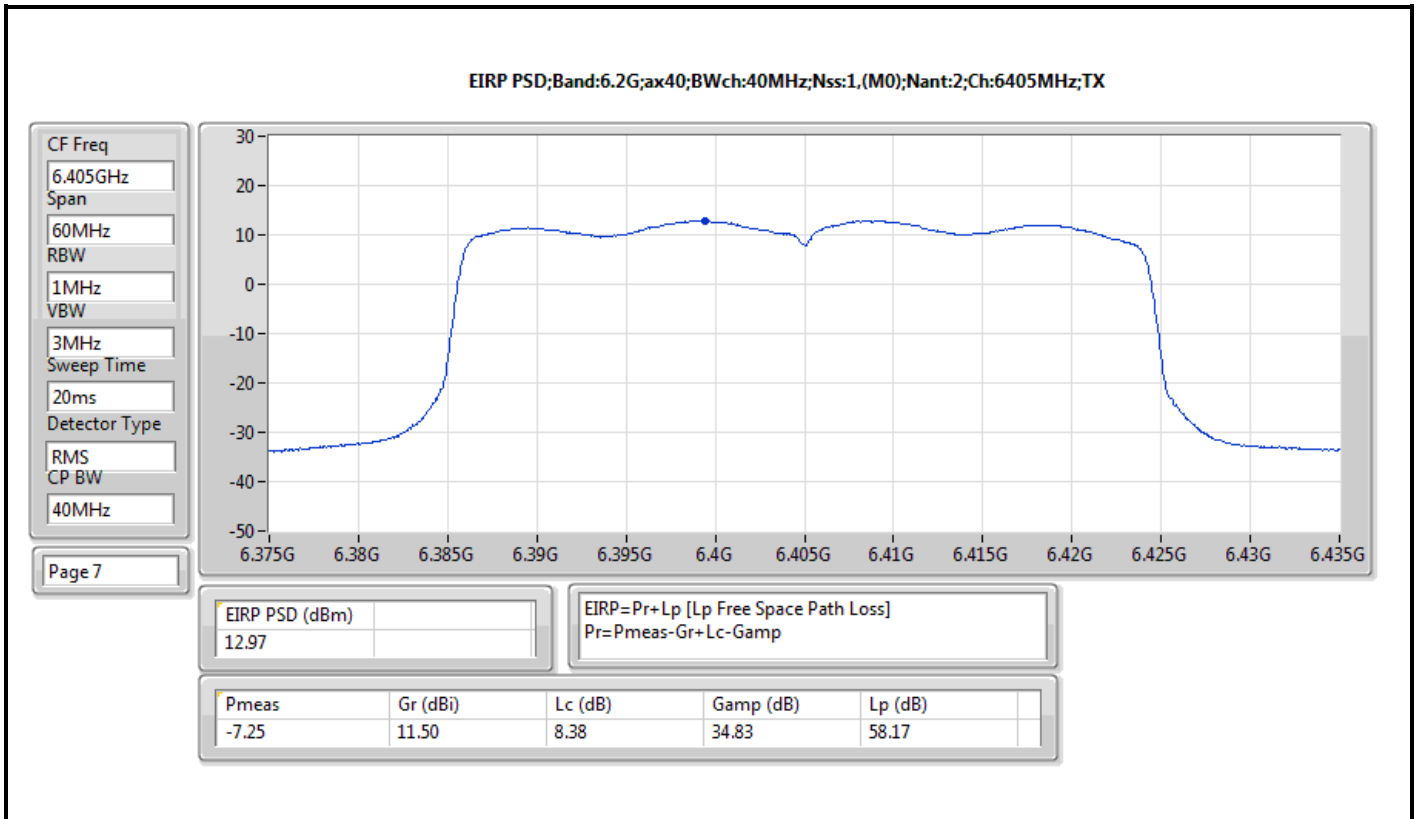
DG = Directional Gain; RBW = 500kHz for 5.725-5.85GHz band / 1MHz for other band;
 PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; Port X = Port X Power Density;

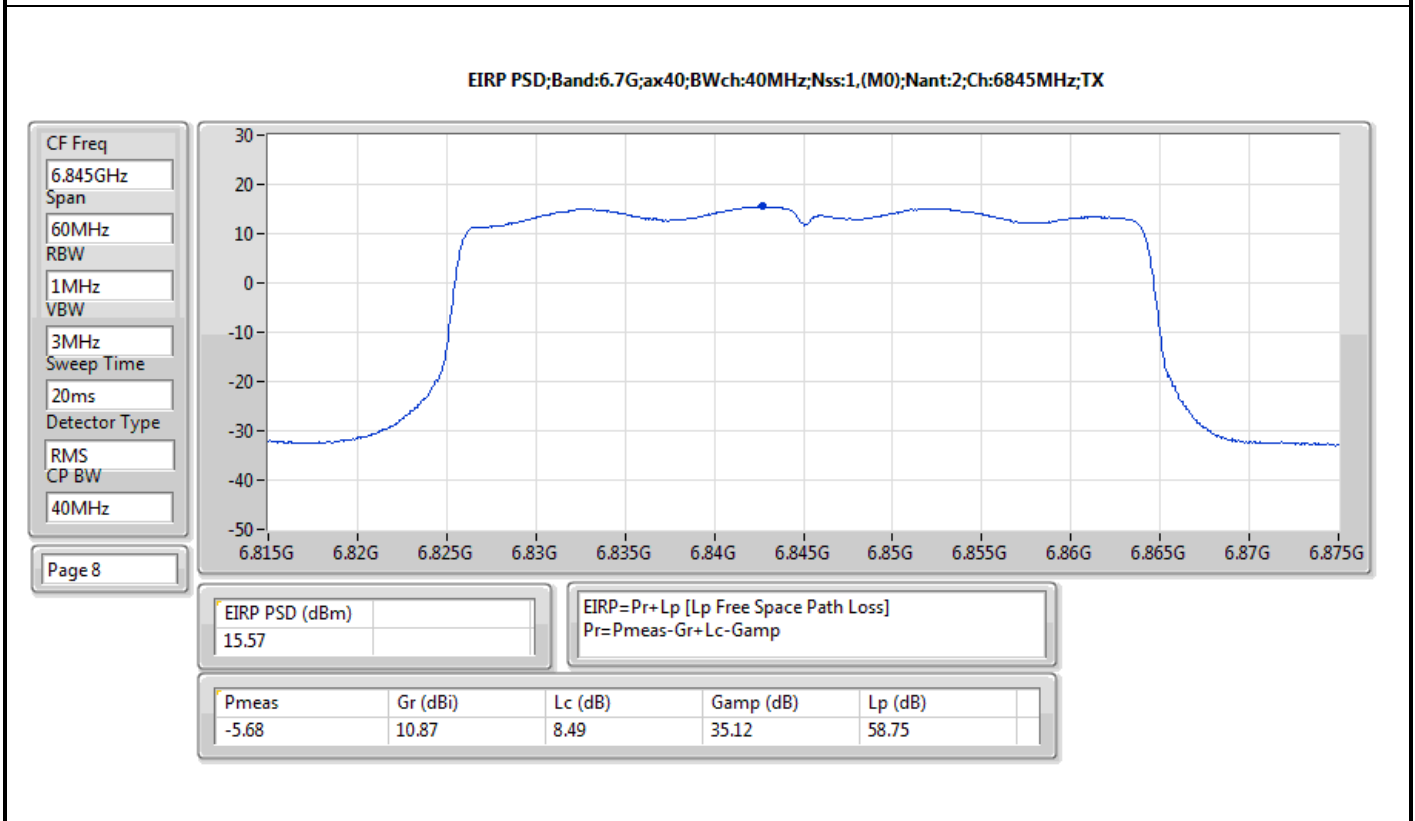
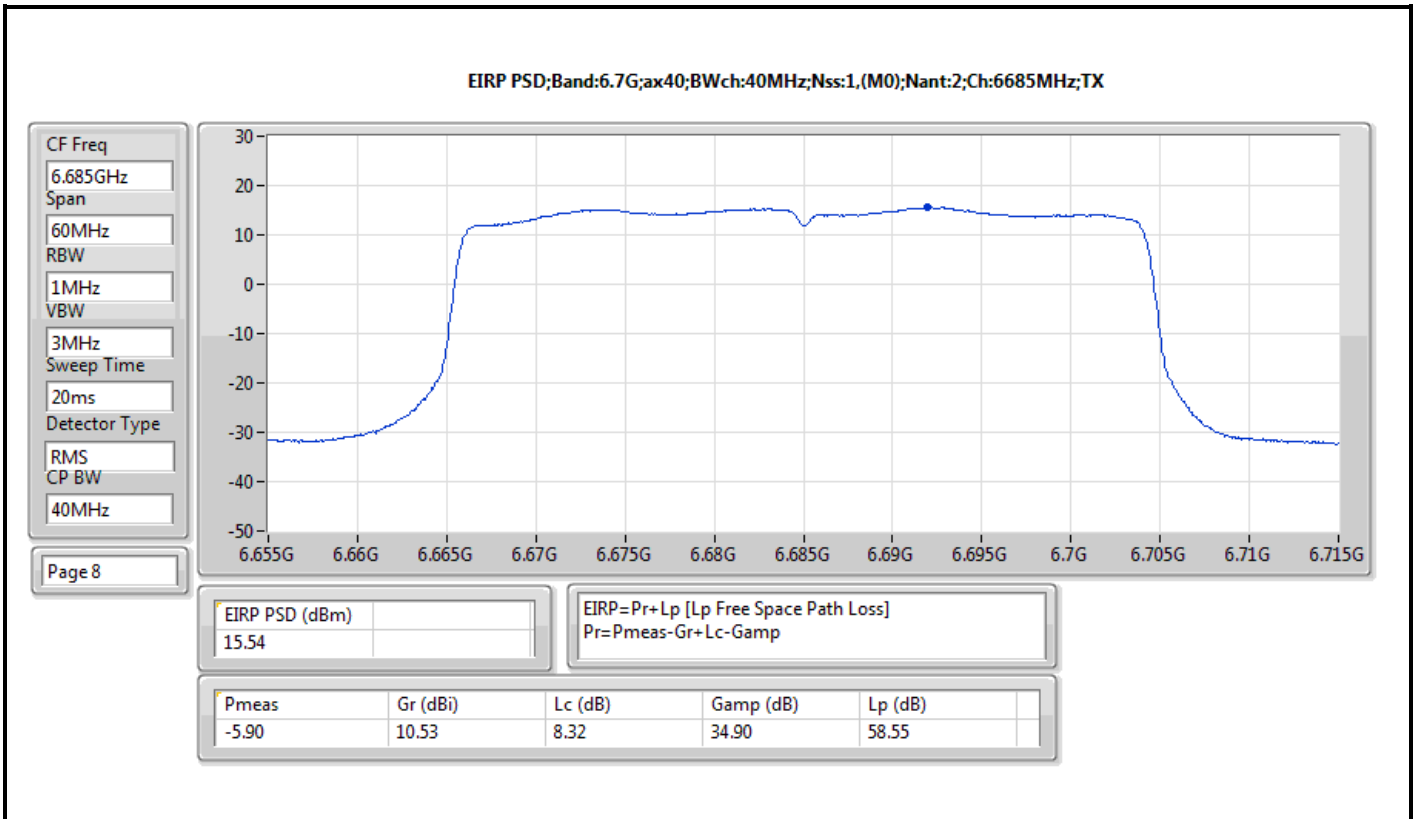


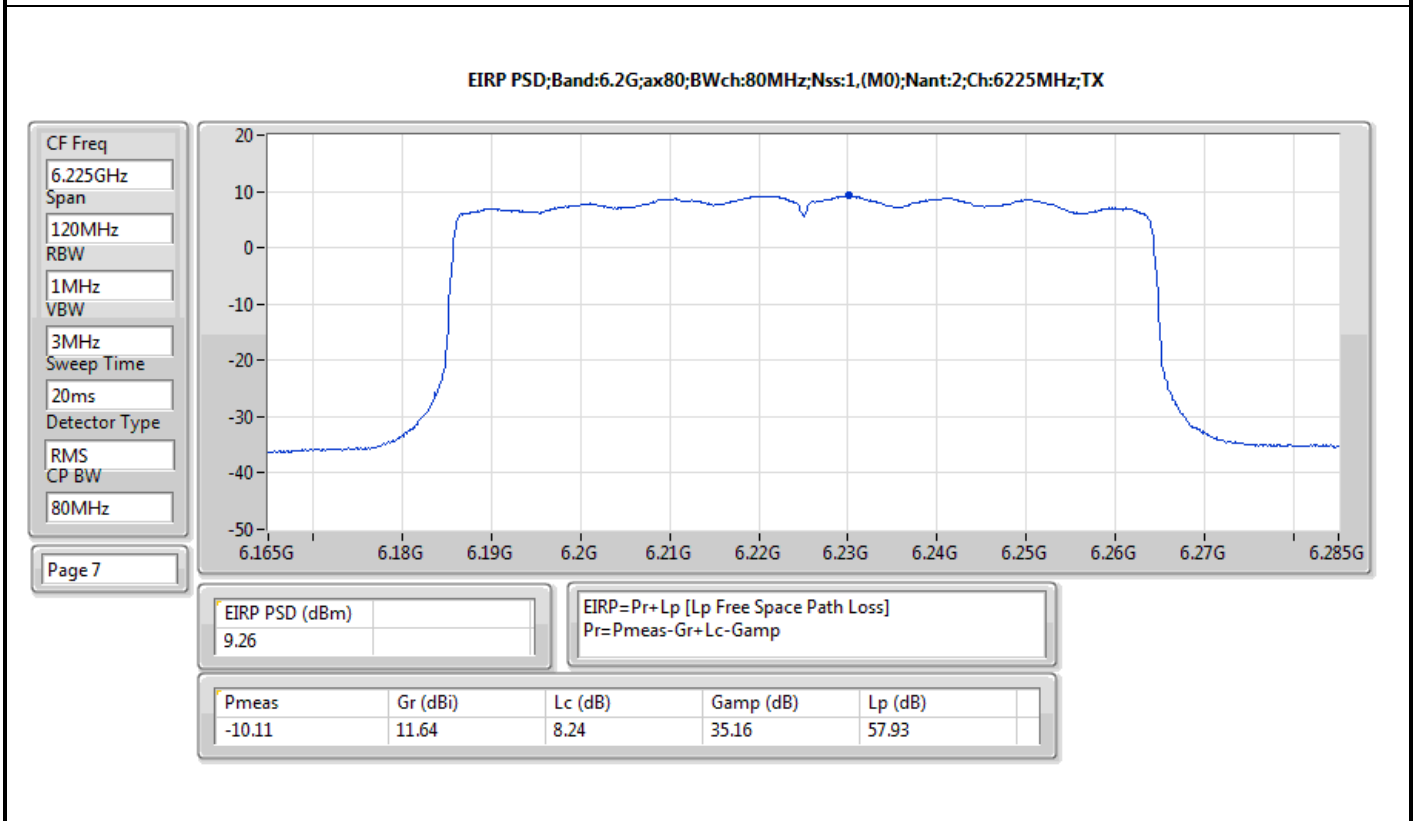
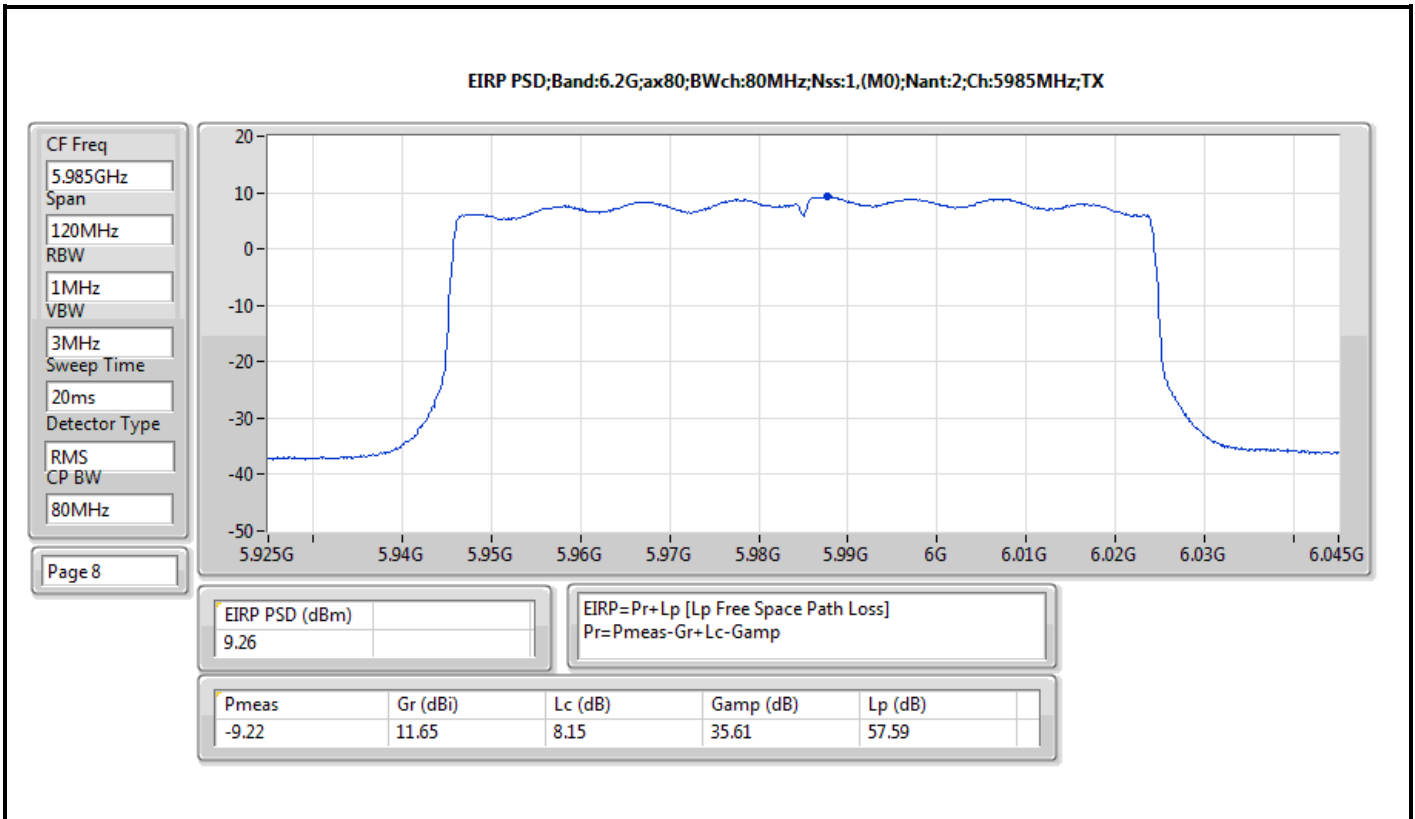


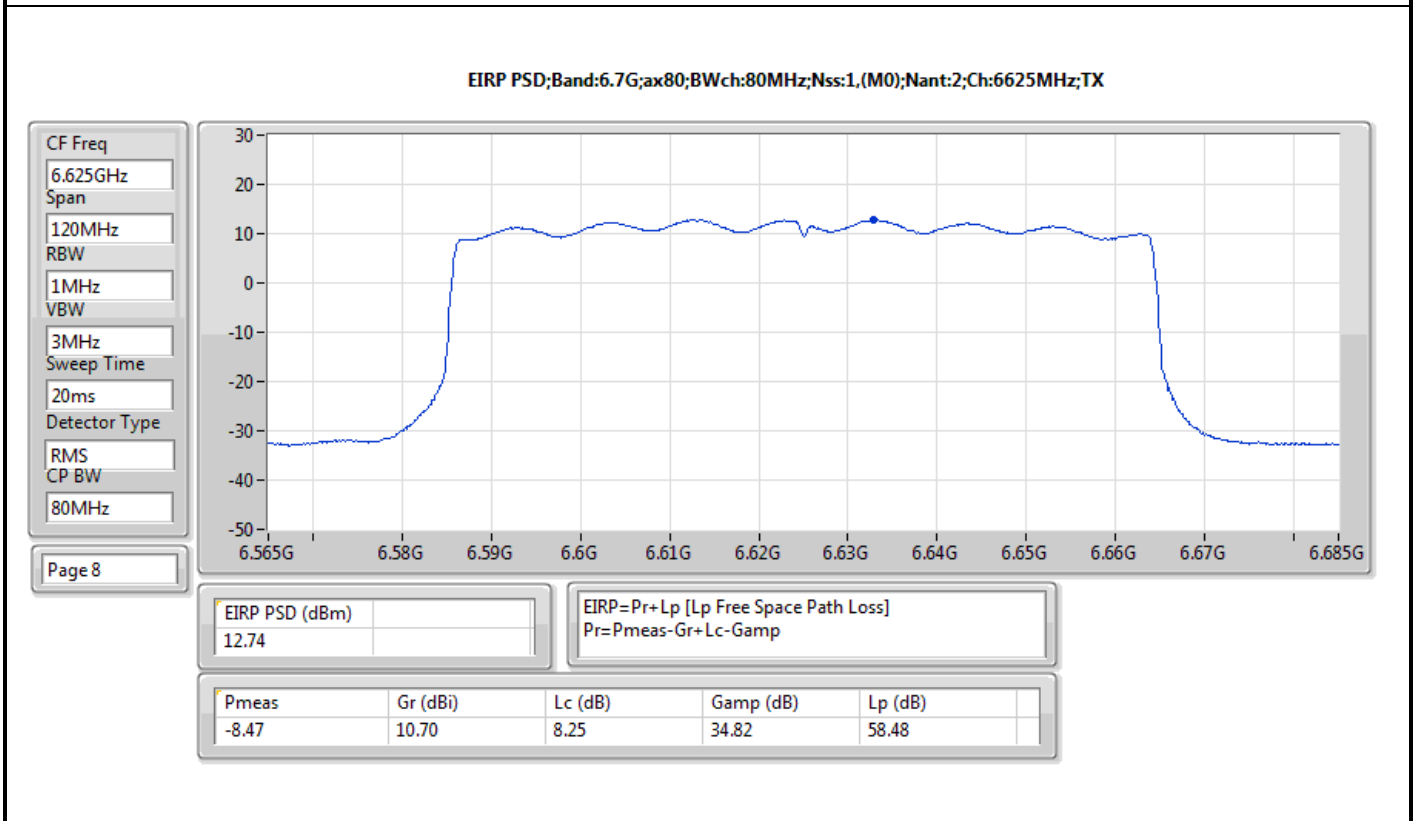
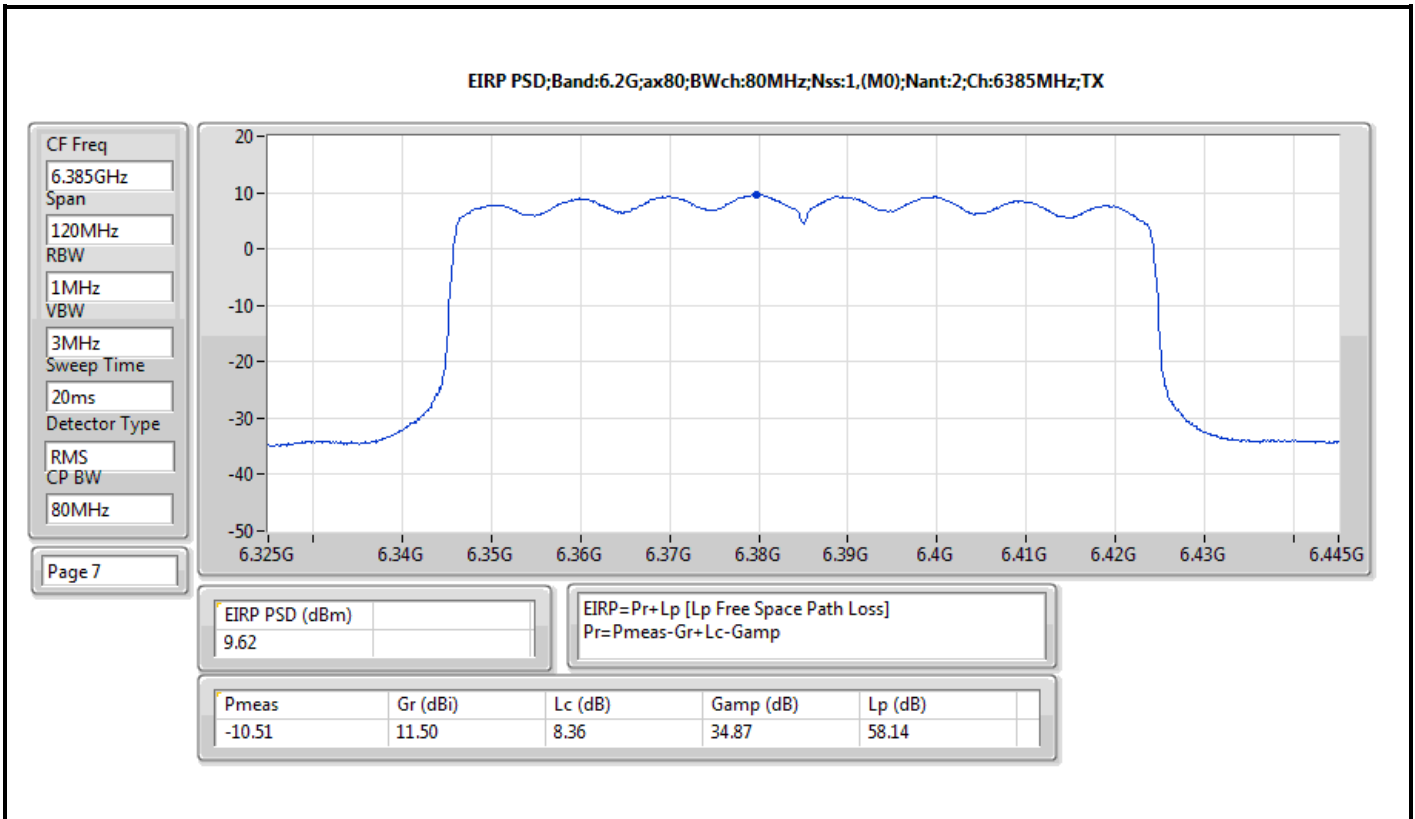


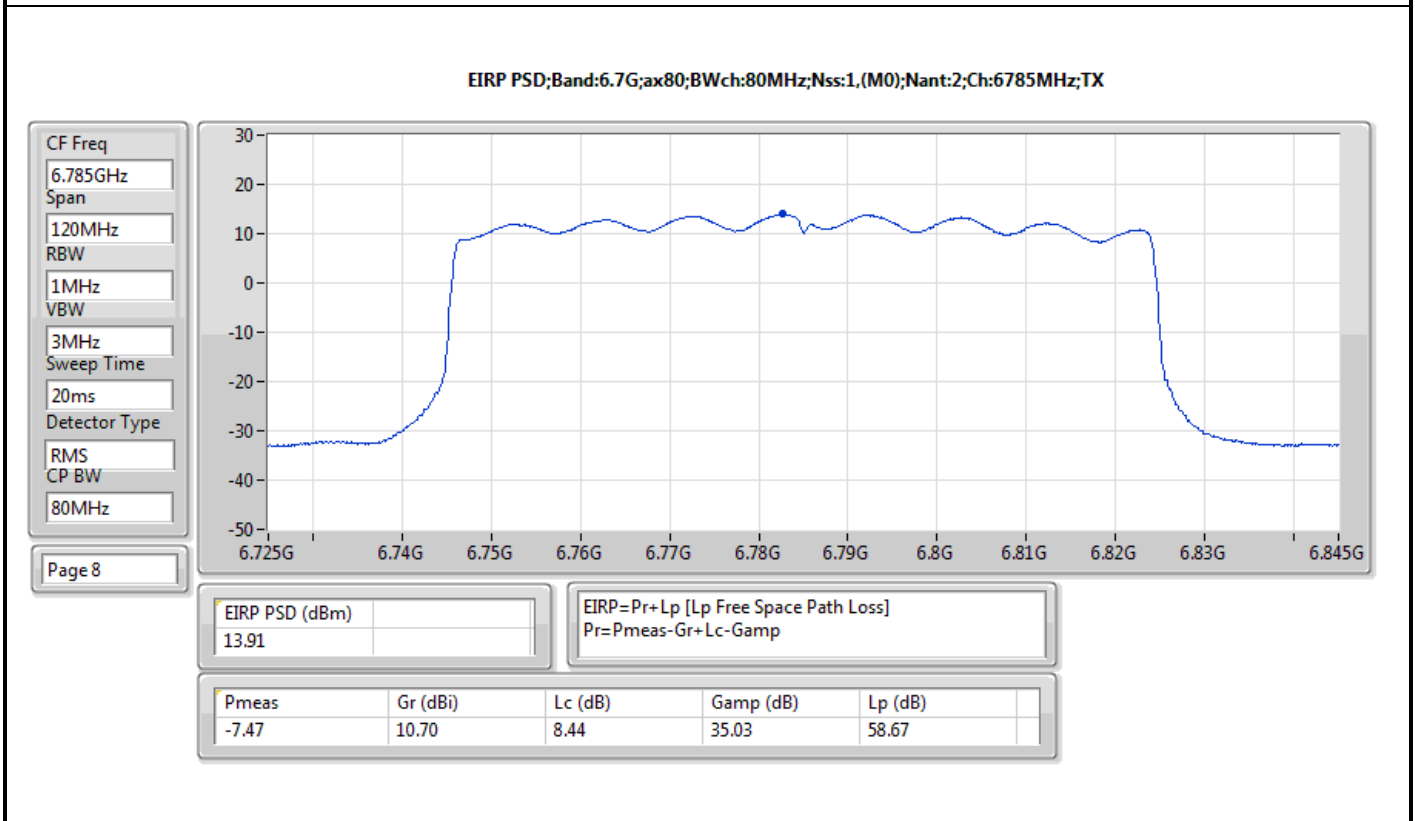
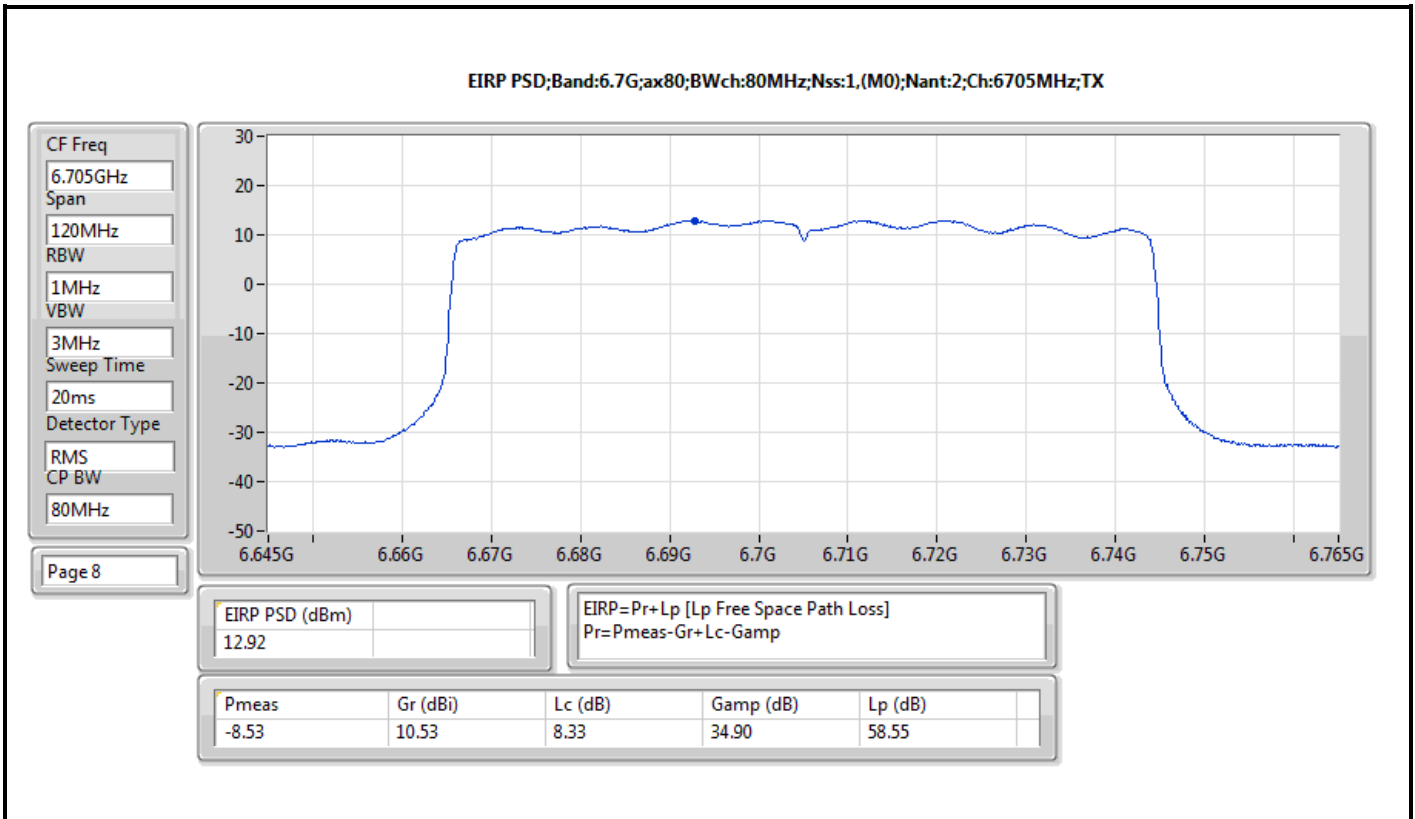


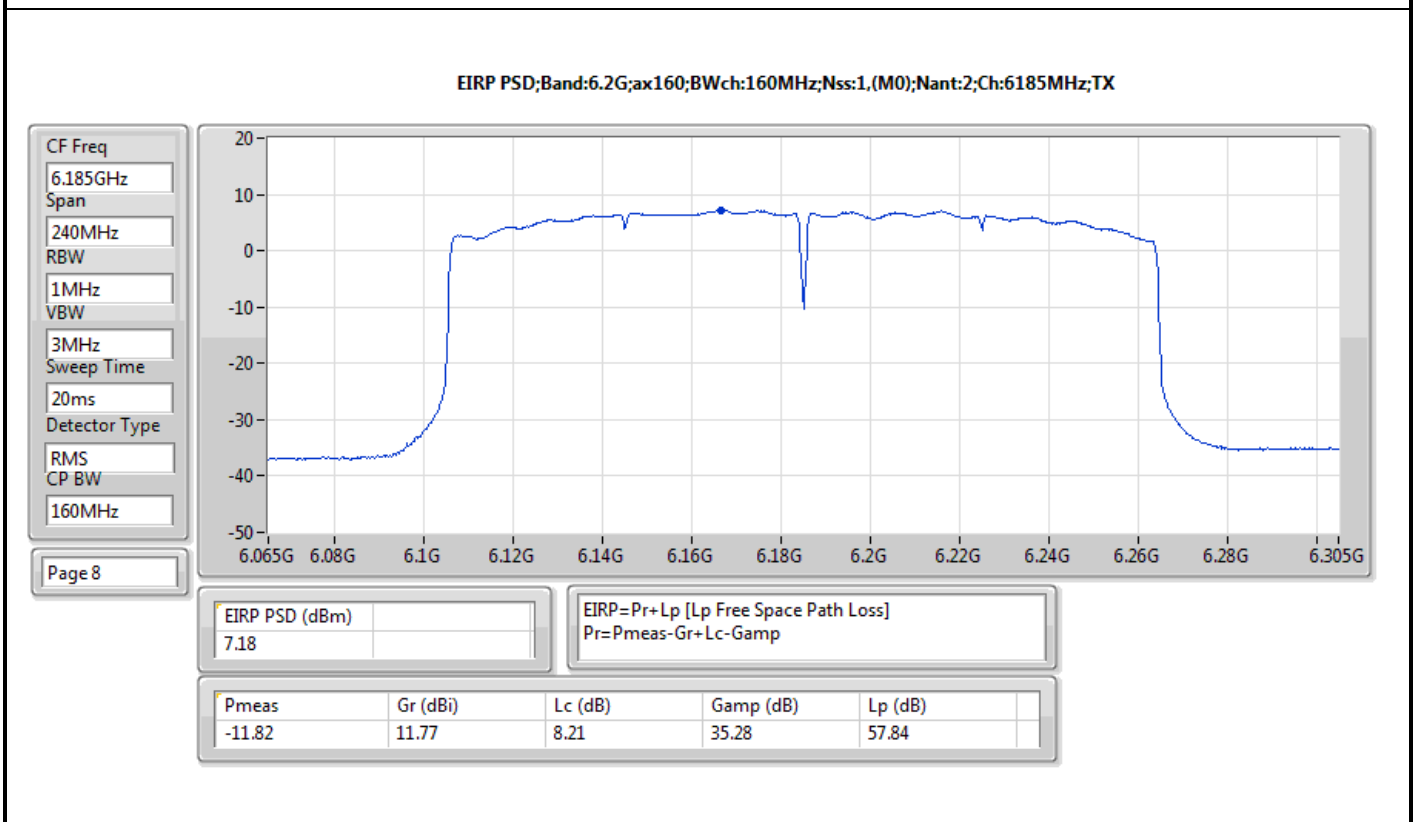
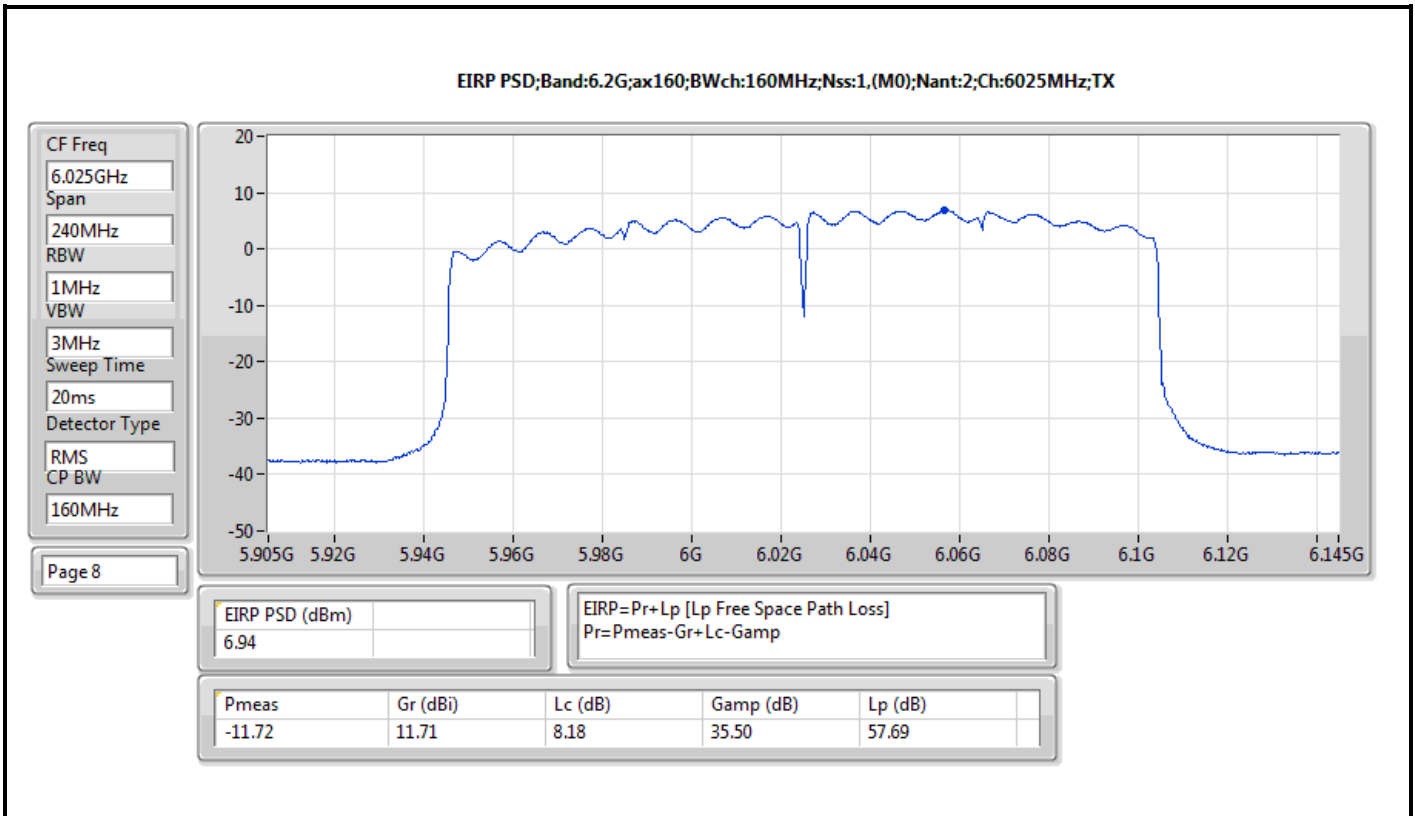


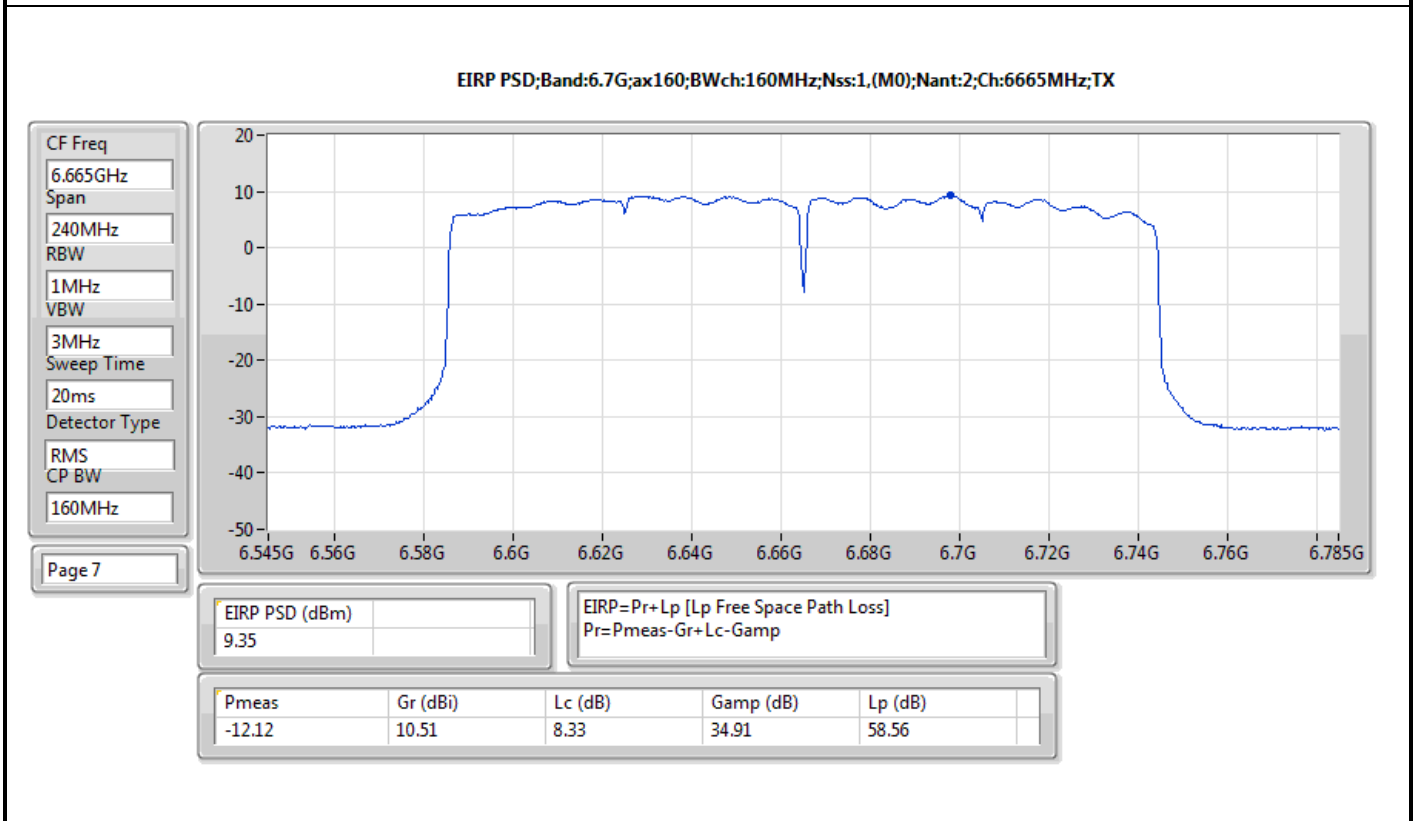
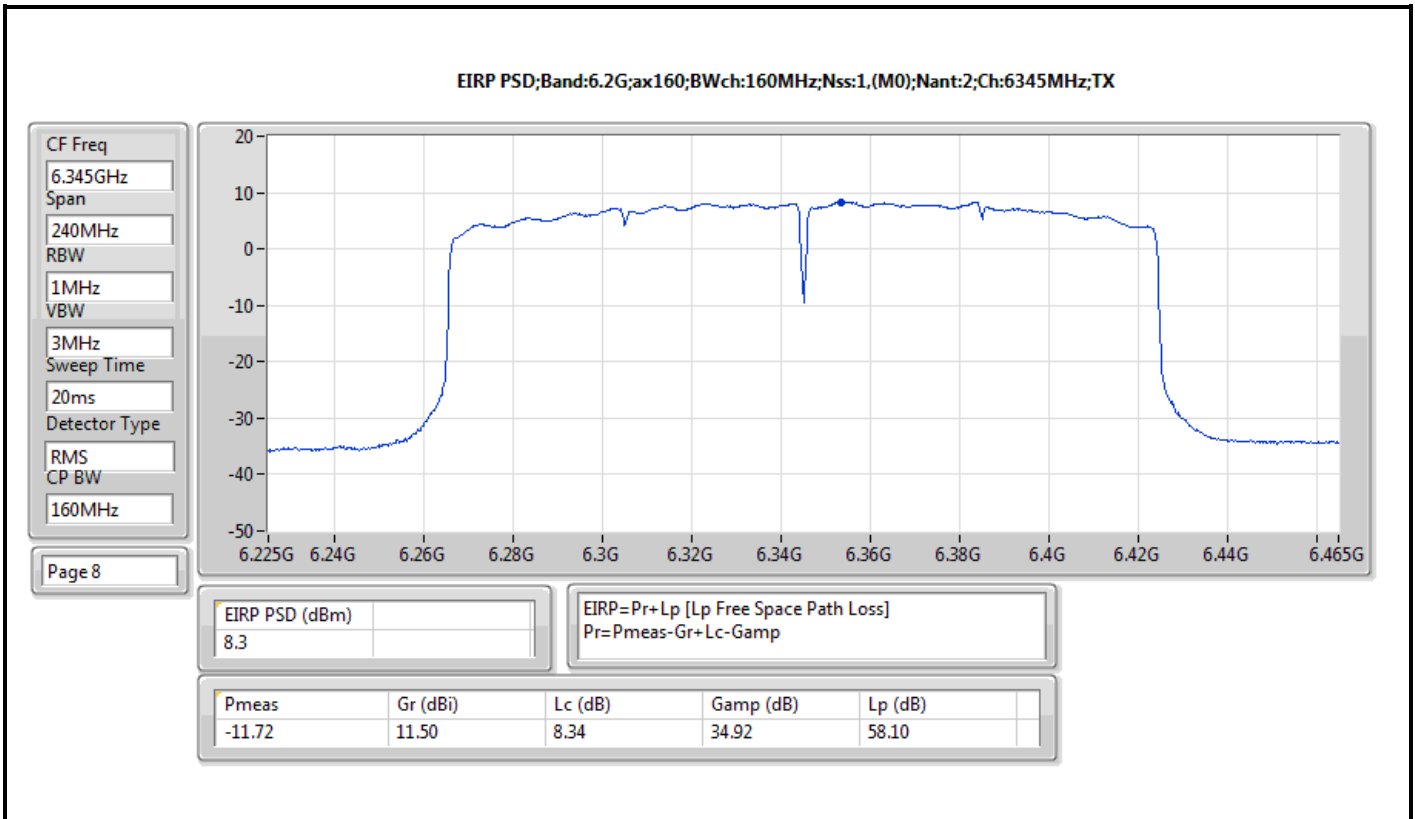










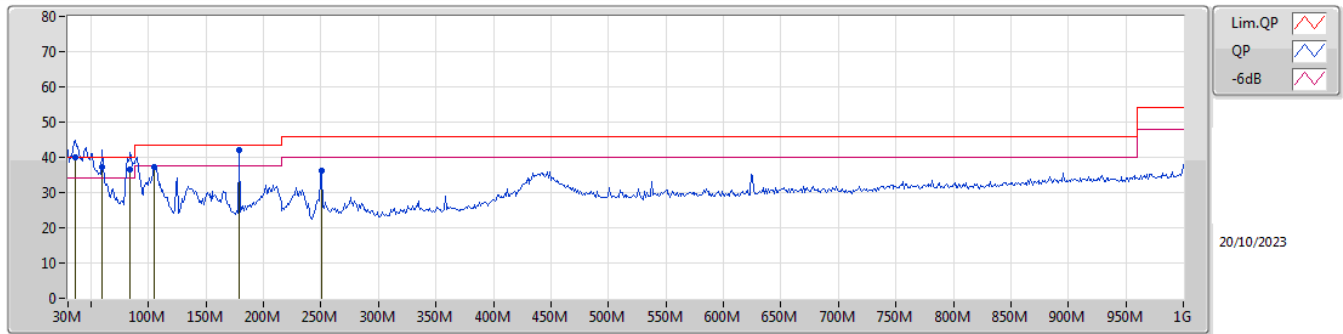




Summary

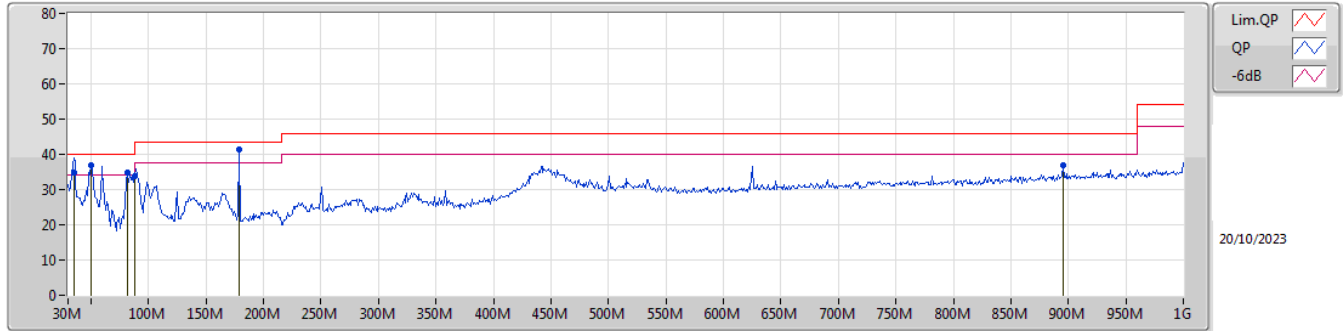
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Condition
Mode 1	Pass	QP	35.82M	39.91	40.00	-0.09	Vertical

Mode 1



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB/m)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV/m)	AF (dB/m)	CL (dB)	PA (dB)
QP	35.82M	39.91	40.00	-0.09	-9.51	3	Vertical	251	1.00	"Worst"	49.42	21.04	1.14	31.69
QP	59.1M	37.11	40.00	-2.89	-18.19	3	Vertical	140	1.00	-	55.30	12.27	1.44	31.90
QP	84.32M	36.49	40.00	-3.51	-16.51	3	Vertical	270	1.00	-	53.00	13.70	1.69	31.90
PK	104.69M	37.25	43.50	-6.25	-12.62	3	Vertical	329	1.00	-	49.87	17.45	1.88	31.95
QP	178.41M	42.06	43.50	-1.44	-14.24	3	Vertical	283	1.00	-	56.30	15.32	2.45	32.01
PK	250.19M	36.12	46.00	-9.88	-10.87	3	Vertical	197	1.00	-	46.99	18.28	2.89	32.04

Mode 1



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB/m)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV/m)	AF (dB/m)	CL (dB)	PA (dB)
QP	34.85M	34.88	40.00	-5.12	-8.82	3	Horizontal	129	1.00		43.70	21.72	1.13	31.67
PK	50.37M	36.84	40.00	-3.16	-16.59	3	Horizontal	356	1.00	-	53.43	13.92	1.37	31.88
PK	81.41M	34.91	40.00	-5.09	-17.06	3	Horizontal	28	1.25	-	51.97	13.22	1.66	31.94
PK	88M	33.67	43.50	-9.83	-15.82	3	Horizontal	120	1.25	-	49.49	14.41	1.71	31.94
QP	178.41M	41.46	43.50	-2.04	-14.24	3	Horizontal	195	1.00	"Worst"	55.70	15.32	2.45	32.01
PK	895.24M	36.92	46.00	-9.08	-0.06	3	Horizontal	0	2.00	-	36.98	26.39	6.02	32.47



Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
5.925-6.425GHz	-	-	-	-	-	-	-	-	-	-	-
802.11ax HEW20_Nss1,(MCS0)_2TX	Pass	AV	17.86872G	50.54	54.00	-3.46	3	Vertical	31	1.71	-
802.11ax HEW40_Nss1,(MCS0)_2TX	Pass	AV	17.90288G	50.69	54.00	-3.31	3	Vertical	332	1.81	-
802.11ax HEW80_Nss1,(MCS0)_2TX	Pass	AV	17.95528G	50.81	54.00	-3.19	3	Horizontal	12	1.98	-
802.11ax HEW160_Nss1,(MCS0)_2TX	Pass	RMS	5.9226G	62.43	68.20	-5.77	3	Vertical	360	1.54	-
6.525-6.875GHz	-	-	-	-	-	-	-	-	-	-	-
802.11ax HEW20_Nss1,(MCS0)_2TX	Pass	AV	13.39G	45.60	54.00	-8.40	3	Vertical	185	1.39	-
802.11ax HEW40_Nss1,(MCS0)_2TX	Pass	AV	13.37006G	44.61	54.00	-9.39	3	Vertical	185	1.39	-
802.11ax HEW80_Nss1,(MCS0)_2TX	Pass	AV	13.25002G	41.64	54.00	-12.36	3	Vertical	196	1.35	-
802.11ax HEW160_Nss1,(MCS0)_2TX	Pass	AV	13.33003G	42.37	54.00	-11.63	3	Vertical	181	2.27	-