



FCC Radio Test Report

FCC ID : C3K2028
Equipment : Computing Device
Brand Name : Microsoft Corporation
Model Name : 2028
Applicant : Microsoft Corporation
One Microsoft Way Redmond, WA 98052-6399, U.S.A.
Manufacturer : Microsoft Corporation
One Microsoft Way Redmond, WA 98052-6399, U.S.A.
Standard : 47 CFR FCC Part 15.247

The product was received on Mar. 16, 2022, and testing was started from Apr. 02, 2022 and completed on Aug. 26, 2022. We, SPORTON INTERNATIONAL INC. Hsinhua 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 report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. Hsinhua Laboratory, the test report shall not be reproduced except in full.

Approved by: Jackson Tsai

SPORTON INTERNATIONAL INC. Hsinhua Laboratory

No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333411, Taiwan (R.O.C.)



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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	15.247(a)	DTS Bandwidth	PASS	-
3.3	15.247(b)	Maximum Conducted Output Power	PASS	-
3.4	15.247(e)	Power Spectral Density	PASS	-
3.5	15.247(d)	Emissions in Non-restricted Frequency Bands	PASS	-
3.6	15.247(d)	Emissions in Restricted Frequency Bands	PASS	-

Declaration of Conformity:
The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.
Comments and explanations:
None

Reviewed by: Ben Tseng

Report Producer: Jenny Yang



1 General Description

1.1 Information

1.1.1 RF General Information

Frequency Range (MHz)	IEEE Std. 802.11	Ch. Frequency (MHz)	Channel Number
2400-2483.5	b, g, n (HT20), ax(HEW20)	2412-2472	1-13 [13]
2400-2483.5	n (HT40), ax(HEW40)	2422-2462	3-11 [9]

Full RU

Band	Mode	BWch (MHz)	Nant
2.4-2.4835GHz	802.11b	20	1TX(Port 1)
2.4-2.4835GHz	802.11b	20	1TX(Port 2)
2.4-2.4835GHz	802.11g	20	1TX(Port 1)
2.4-2.4835GHz	802.11g	20	1TX(Port 2)
2.4-2.4835GHz	802.11n HT20	20	1TX(Port 1)
2.4-2.4835GHz	802.11n HT20	20	1TX(Port 2)
2.4-2.4835GHz	802.11n HT20	20	2TX
2.4-2.4835GHz	802.11n HT40	40	1TX(Port 1)
2.4-2.4835GHz	802.11n HT40	40	1TX(Port 2)
2.4-2.4835GHz	802.11n HT40	40	2TX
2.4-2.4835GHz	802.11ax HEW20	20	1TX(Port 1)
2.4-2.4835GHz	802.11ax HEW20	20	1TX(Port 2)
2.4-2.4835GHz	802.11ax HEW20	20	2TX
2.4-2.4835GHz	802.11ax HEW40	40	1TX(Port 1)
2.4-2.4835GHz	802.11ax HEW40	40	1TX(Port 2)
2.4-2.4835GHz	802.11ax HEW40	40	2TX

Partial RU

Band	Mode	BWch (MHz)	Nant
2.4-2.4835GHz	802.11ax HEW20	20	1TX(Port 1)
2.4-2.4835GHz	802.11ax HEW20	20	1TX(Port 2)
2.4-2.4835GHz	802.11ax HEW20	20	2TX
2.4-2.4835GHz	802.11ax HEW40	40	1TX(Port 1)
2.4-2.4835GHz	802.11ax HEW40	40	1TX(Port 2)
2.4-2.4835GHz	802.11ax HEW40	40	2TX



Note:

- ♦ 11b mode uses a combination of DSSS-DBPSK, DQPSK, CCK modulation.
- ♦ 11g, HT20 and HT40 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.
- ♦ HEW20, HEW40 use a combination of OFDMA-BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM modulation.
- ♦ BWch is the nominal channel bandwidth.
- ♦ For 802.11ax20 partial tones, 802.11ax20 26T, 52T and 106T were tested which were the worst case configurations.
- ♦ For 802.11ax40 partial tones, only 802.11ax40 242T and 484T were tested which were the worst case configurations.

1.1.2 Antenna Information

Ant.	Brand	Model Name	Antenna Type	Connector	Support
1 (Aux)	AWAN	AYP8Y-100012A(1415-09AW0QS) AYL00-000003A(1415-09AN0QS)	PIFA	I-Pex	2.4G+5G
2 (Main)	AWAN	AYP8Y-100011A(1415-09AM0QS) AYL00-000002A(1415-09AP0QS)	PIFA	I-Pex	2.4G+5G
3	AWAN	AYL8Y-100000A (1415-09AQ0QS)	PIFA	I-Pex	BT/BT LE

Ant.	Port	Gain (dBi)					BT/BT LE
		2.4G	5G				
			U-NII-1	U-NII-2A	U-NII-2C	U-NII-3	
1	1	7.32	6.35	6.35	6.49	6.49	-
2	2	6.07	6.2	6.35	6.15	5.03	-
3	1	-	-	-	-	-	2.91

Note 1: The EUT has three antennas.

Note 2: Transmit signals are uncorrelated.

For 2.4GHz function:

For IEEE 802.11 b/g mode (1TX/1RX)

Support diversity function that each single chain was tested and recorded in this test report.

For IEEE 802.11 n/ax mode (2TX/2RX)

Ant. 1 (port 1) and Ant. 2 (port 2) could transmit/receive simultaneously.

For BT/BT LE function:

For IEEE 802.15.1 Bluetooth mode (1TX/1RX)

Ant. 3 (port 1) could transmit/receive.

For 5GHz function:

For IEEE 802.11 a mode (1TX/1RX)

Support diversity function that each single chain was tested and recorded in this test report.

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

Ant. 1 (port 1) and Ant. 2 (port 2) could transmit/receive simultaneously.



1.1.3 EUT Information

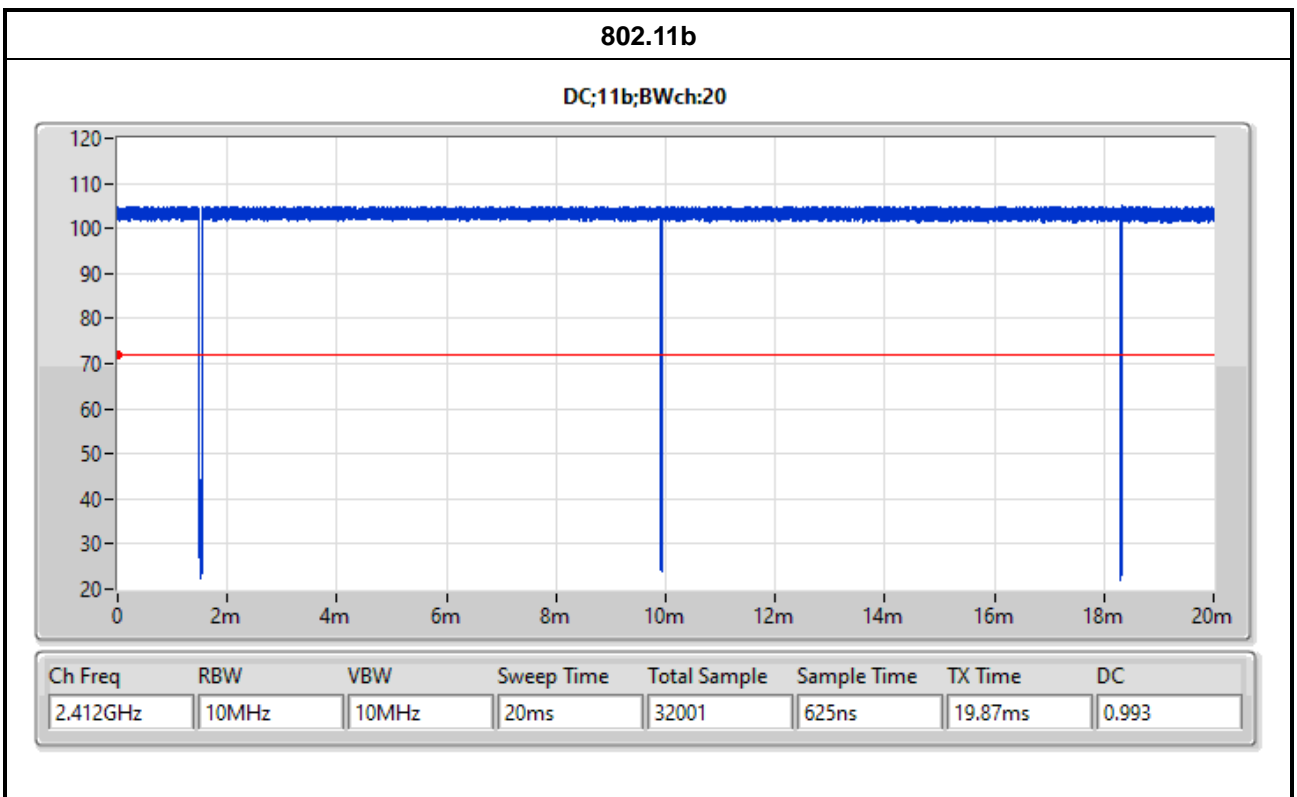
Operational Condition			
EUT Power Type	From Switching power supply		
EUT Function	<input checked="" type="checkbox"/> Point-to-multipoint	<input type="checkbox"/> Point-to-point	
Beamforming Function	<input type="checkbox"/> With beamforming	<input checked="" type="checkbox"/> Without beamforming	
Resource Unit(802.11ax)	<input checked="" type="checkbox"/> Full RU	<input checked="" type="checkbox"/> Partial RU	
Type of EUT			
<input checked="" type="checkbox"/>	Stand-alone		
<input type="checkbox"/>	Combined (EUT where the radio part is fully integrated within another device)		
	Combined Equipment - Brand Name / Model No.:	...	
<input type="checkbox"/>	Plug-in radio (EUT intended for a variety of host systems)		
	Host System - Brand Name / Model No.:	...	
<input type="checkbox"/>	Other:		



1.1.4 Mode Test Duty Cycle

Full RU

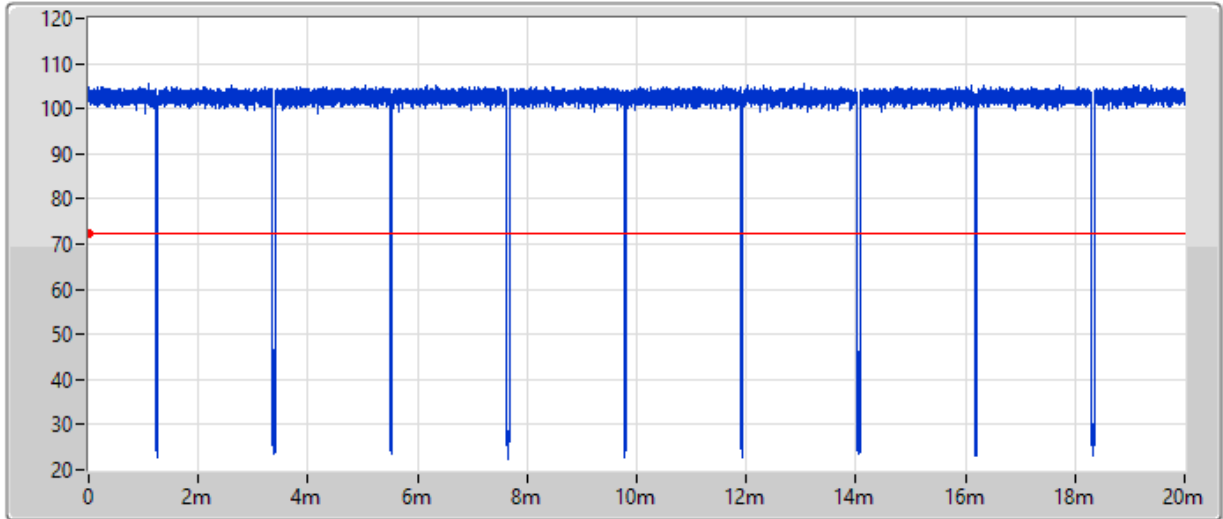
Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
802.11b_Nss1,(1Mbps)_1TX	0.993	0.03	n/a (DC>=0.98)	n/a (DC>=0.98)
802.11g_Nss1,(6Mbps)_1TX	0.979	0.09	2.089m	1k
802.11n HT20_Nss1,(MCS8)_2TX	0.988	0.05	n/a (DC>=0.98)	n/a (DC>=0.98)
802.11n HT40_Nss1,(MCS8)_2TX	0.988	0.05	n/a (DC>=0.98)	n/a (DC>=0.98)
802.11ax HEW20_Nss1,(MCS0)_2TX	0.988	0.05	n/a (DC>=0.98)	n/a (DC>=0.98)
802.11ax HEW40_Nss1,(MCS0)_2TX	0.988	0.05	n/a (DC>=0.98)	n/a (DC>=0.98)





802.11g

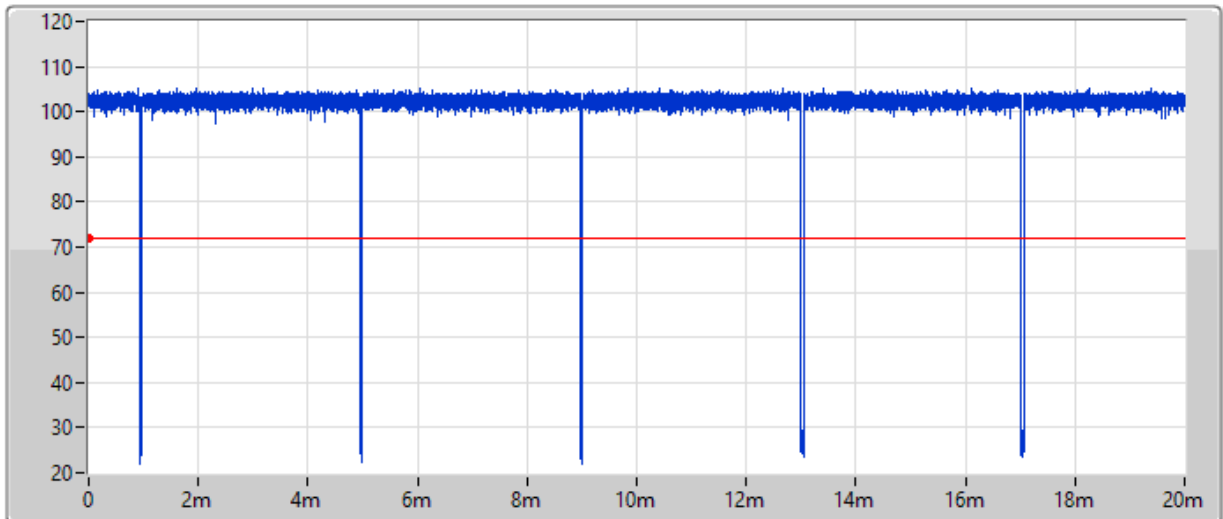
DC;11g;BWch:20



Ch Freq	RBW	VBW	Sweep Time	Total Sample	Sample Time	TX Time	DC
2.412GHz	10MHz	10MHz	20ms	32001	625ns	19.58375ms	0.979

802.11n HT20

DC;HT20;BWch:20

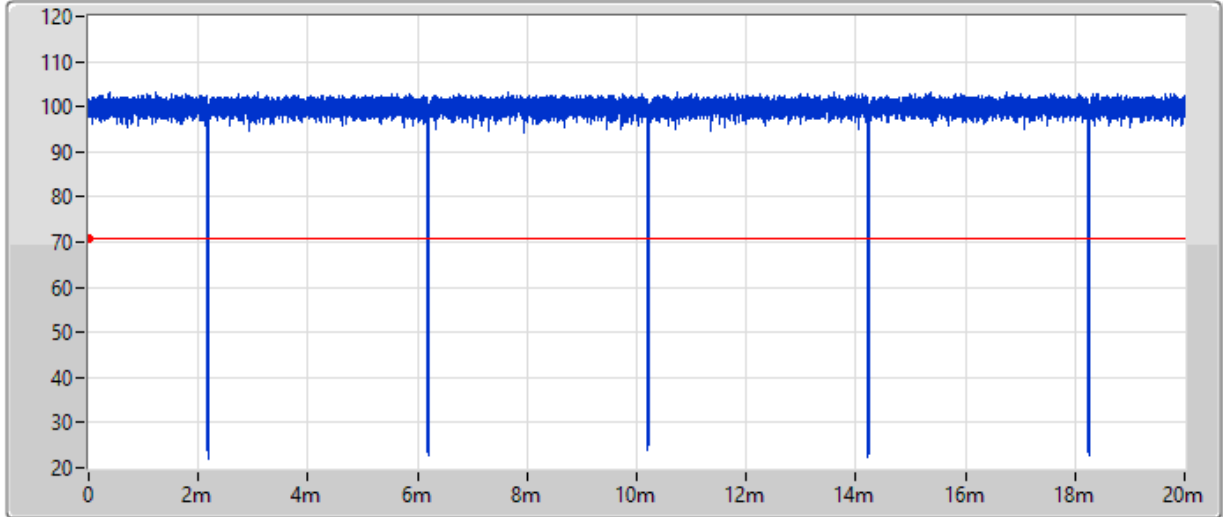


Ch Freq	RBW	VBW	Sweep Time	Total Sample	Sample Time	TX Time	DC
2.412GHz	10MHz	10MHz	20ms	32001	625ns	19.76875ms	0.988



802.11n HT40

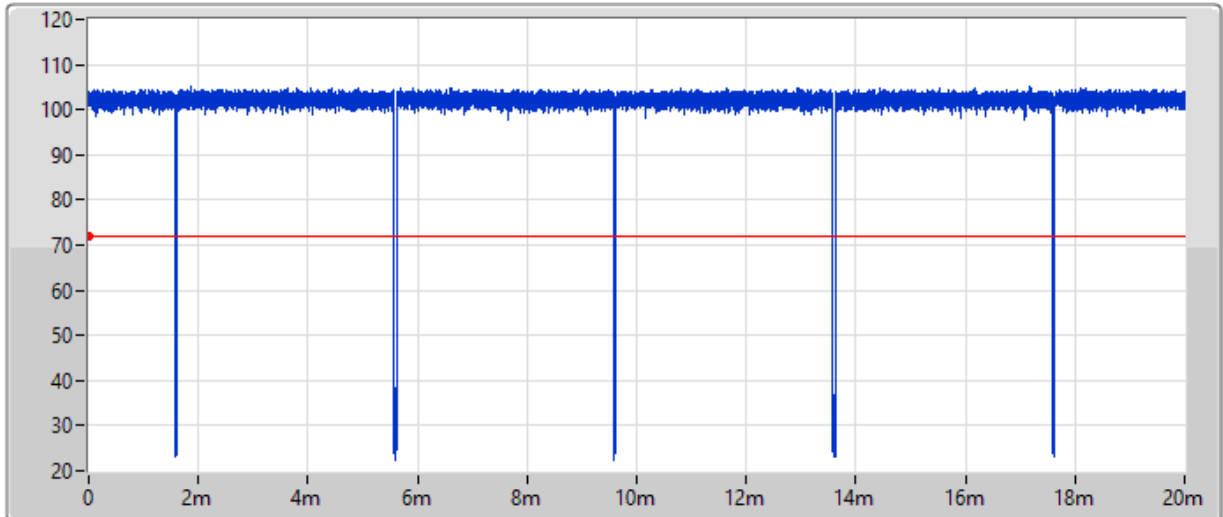
DC;HT40;BWch:40



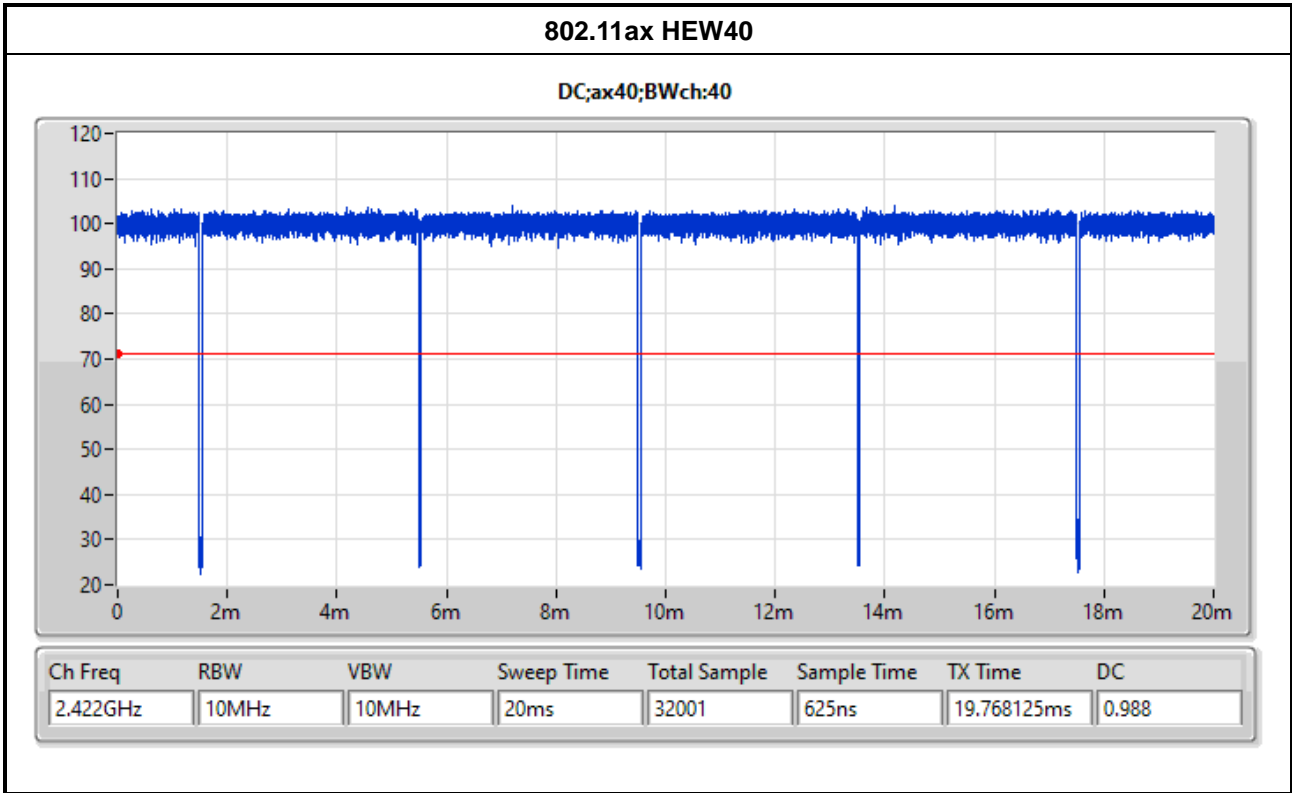
Ch Freq	RBW	VBW	Sweep Time	Total Sample	Sample Time	TX Time	DC
2.422GHz	10MHz	10MHz	20ms	32001	625ns	19.769375ms	0.988

802.11ax HEW20

DC;ax20;BWch:20



Ch Freq	RBW	VBW	Sweep Time	Total Sample	Sample Time	TX Time	DC
2.412GHz	10MHz	10MHz	20ms	32001	625ns	19.763125ms	0.988

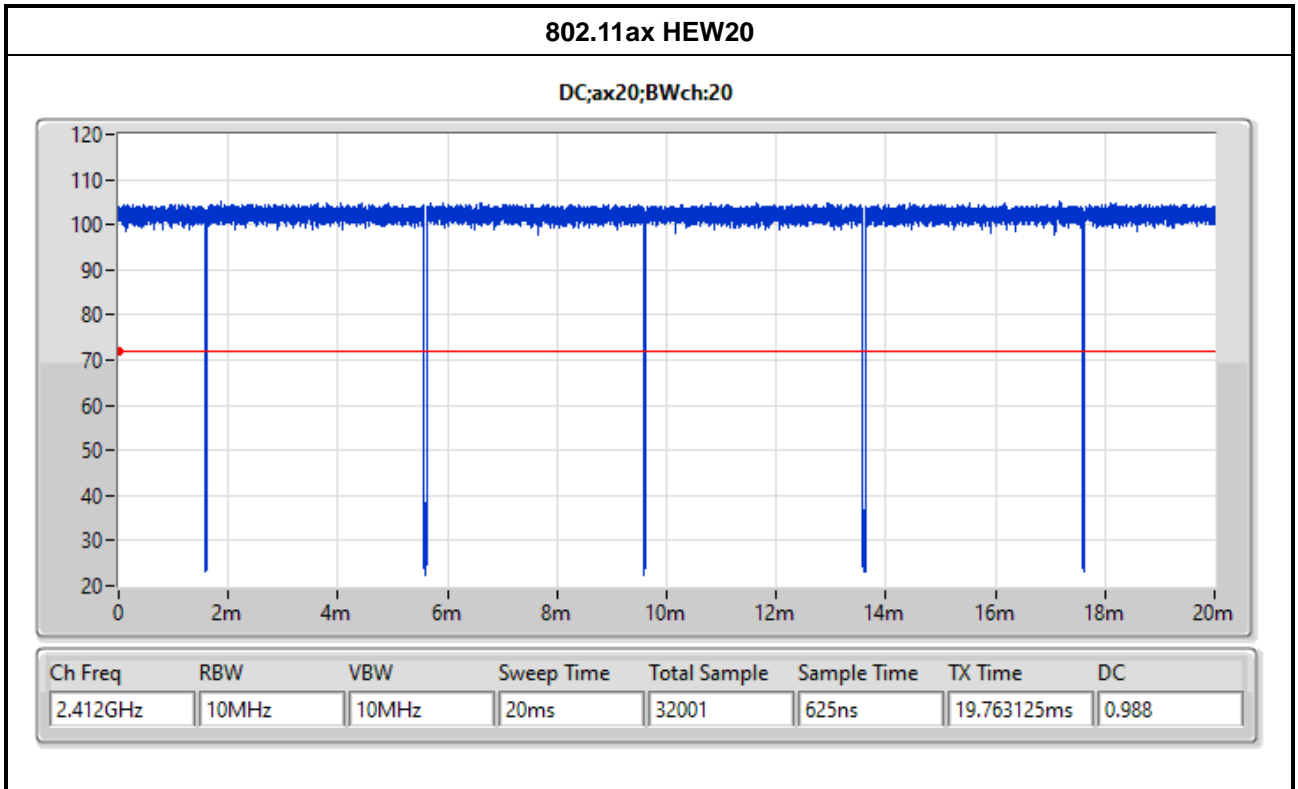


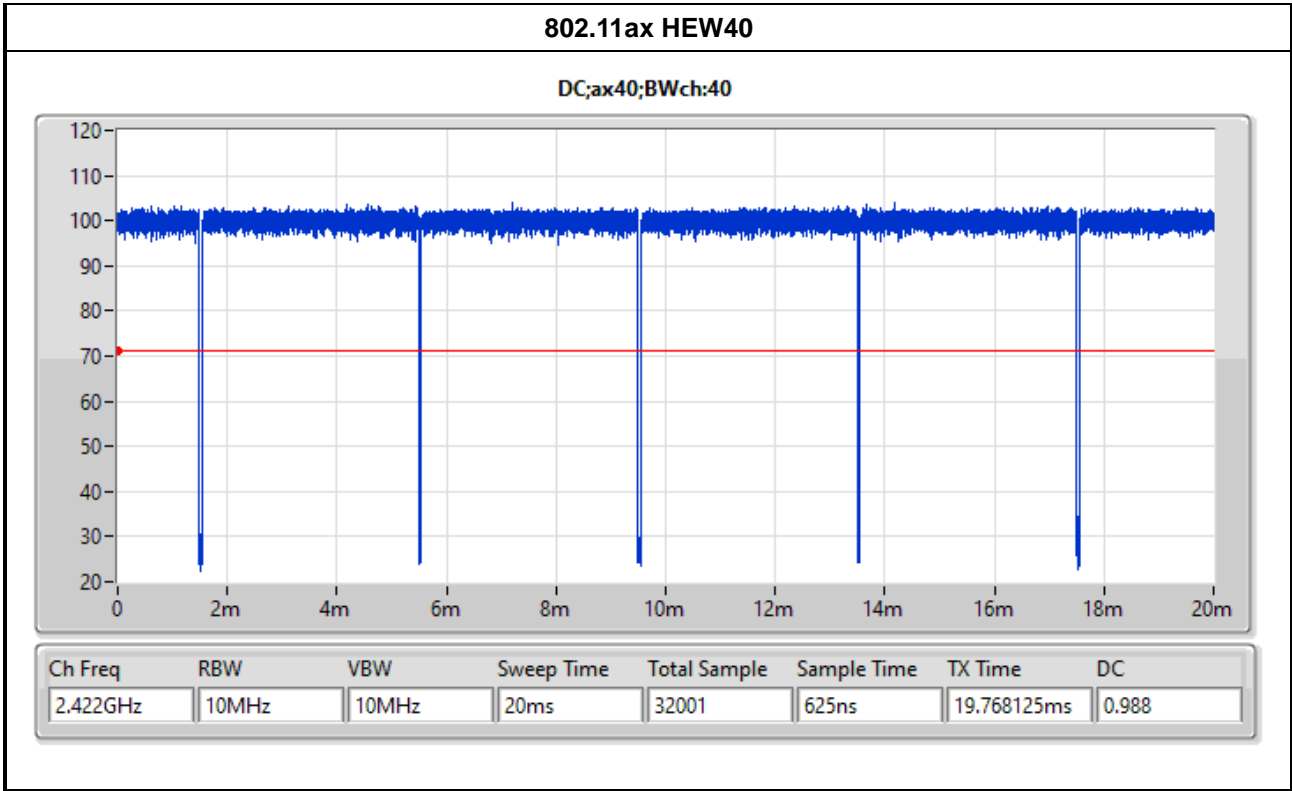


Partial RU

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
802.11ax HEW20_Nss1,(MCS0)_1TX	0.988	0.05	n/a (DC>=0.98)	n/a (DC>=0.98)
802.11ax HEW20_Nss1,(MCS0)_2TX	0.988	0.05	n/a (DC>=0.98)	n/a (DC>=0.98)
802.11ax HEW40_Nss1,(MCS0)_1TX	0.988	0.05	n/a (DC>=0.98)	n/a (DC>=0.98)
802.11ax HEW40_Nss1,(MCS0)_2TX	0.988	0.05	n/a (DC>=0.98)	n/a (DC>=0.98)

Note. If DC < 0.98, the DCF was added while measuring Output power and PSD.







1.2 Testing Applied Standards

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

- ◆ 47 CFR FCC Part 15
- ◆ ANSI C63.10-2013

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

- ◆ KDB 558074 D01 v05r02
- ◆ KDB 662911 D01 v02r01
- ◆ KDB 414788 D01 v01r01

1.3 Testing Location Information

Test Lab. : Sporton International Inc. Hsinhua Laboratory				
<input checked="" type="checkbox"/> Hsinhua (TAF: 3785)	ADD: No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333411, Taiwan (R.O.C.)			
	TEL: 886-3-327-3456		FAX: 886-3-327-0973	
Test site Designation No. TW3785 with FCC.				
Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
AC Conduction	CO04-HY	Wayne Chiu	21.4~22.4°C / 55~58%	27/Jul/2022~28/Jul/2022
RF Conducted	TH01-HY	Johnny Yu	23~27°C / 55~60%	08/Apr/2022~26/Aug/2022
Radiated	03CH03-HY	Daniel Lin	20.7~25.5°C / 51~67%	02/Apr/2022~25/Aug/2022
<input type="checkbox"/> Wen 33rd.St. (TAF: 3785)	ADD: No.14-1, Ln. 19, Wen 33rd St., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.)			
	TEL: 886-3-318-0787		FAX: 886-3-318-0287	
Test site Designation No. TW0008 with FCC.				

1.4 Measurement Uncertainty

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

Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	0.9 dB	Confidence levels of 95%
Radiated Emission (9kHz ~ 30MHz)	2.4 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	3.7 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	3.6 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	3.5 dB	Confidence levels of 95%
Conducted Emission	1.0 dB	Confidence levels of 95%
Temperature	0.41 °C	Confidence levels of 95%
Humidity	3.4 %	Confidence levels of 95%

2 Test Configuration of EUT



2.1 Test Channel Mode

Test Software Version	DRTU.00918.22.120.0
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2.2 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
Tests Item	AC power-line conducted emissions
Condition	AC power-line conducted measurement for line and neutral Test Voltage: 120Vac / 60Hz
Operating Mode	CTX
1	Switching power supply mode
2	Switching power supply mode, Full port

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

The Worst Case Mode for Following Conformance Tests		
Tests Item	Emissions in Restricted Frequency Bands	
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.	
Operating Mode < 1GHz	CTX	
1	Switching power supply mode	
2	Switching power supply mode, Full port	
Operating Mode > 1GHz	CTX	
Orthogonal Planes of EUT	Y Plane	Z Plane
		
Worst Planes of EUT	V	



2.3 Accessories

Accessories		
Keyboard	Brand Name	Microsoft
mouse	Brand Name	Microsoft
pen	Brand Name	Microsoft
power supply	Brand Name	WELLSHIN

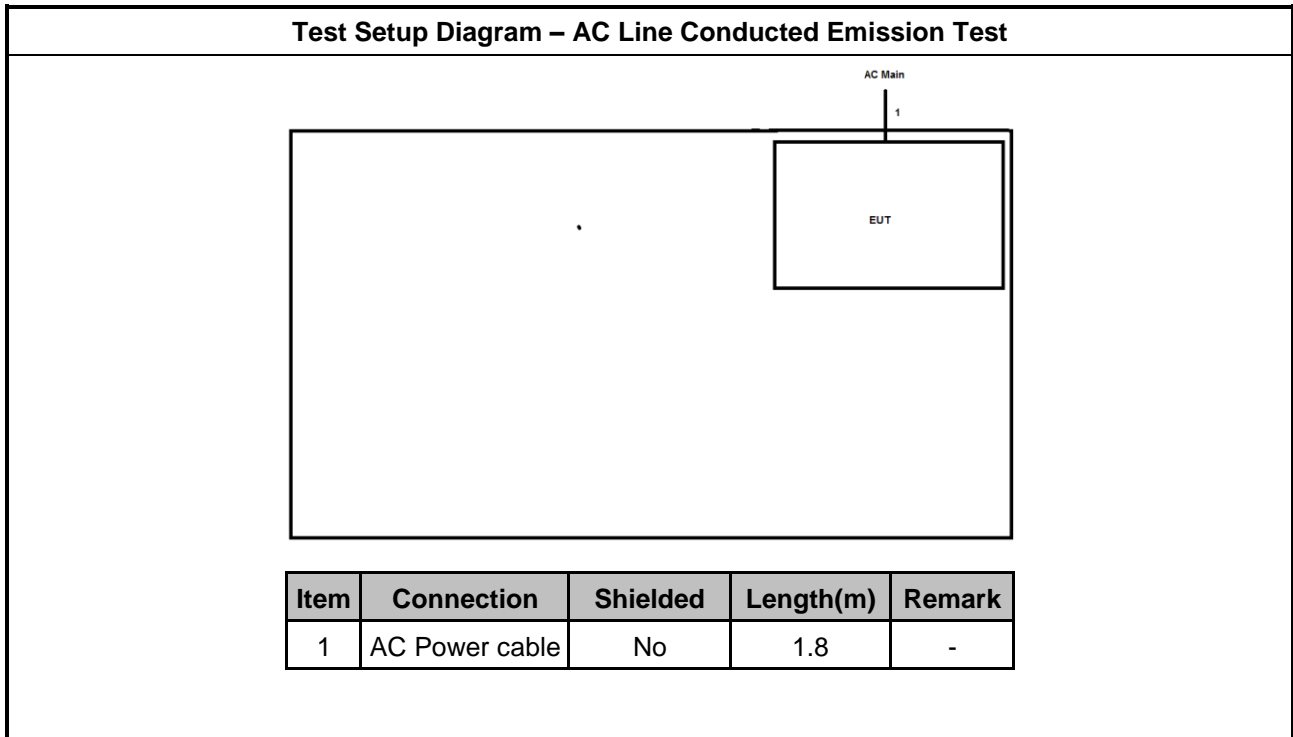
Reminder: Regarding to more detail and other information, please refer to user manual.

2.4 Support Equipment

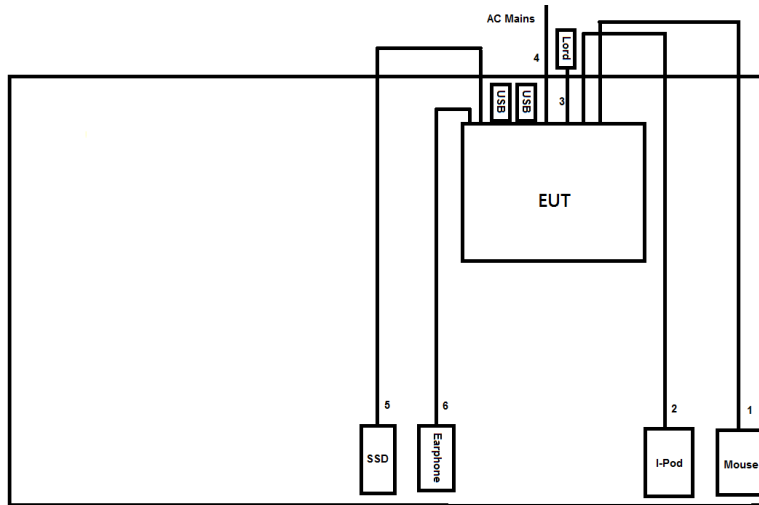
Support Equipment – AC Conduction					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	iPod	APPLE	A1199	-	-
2	30-pin to USB Original cable	APPLE	MA591GC	-	-
3	Mouse(USB)	Lenovo	MOGOUO	-	-
4	earphone	APPLE	MD827FE/A	-	-
5	Portable SSD(3.1)	TRANSCEND	TS240GESD240C	-	-
6	USB 3.0 Flash	SandDisk	SDDDC-128G-G36	-	-
7	USB 3.0 Flash	SandDisk	SDDDC-128G-G36	-	-
8	load	Sporton	Sporton	-	-

Support Equipment – Radiated					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	iPod	APPLE	A1199	-	-
2	30-pin to USB Original cable	APPLE	MA591GC	-	-
3	Mouse(USB)	Lenovo	MOGOUO	-	-
4	earphone	APPLE	MD827FE/A	-	-
5	Portable SSD(3.1)	TRANSCEND	TS240GESD240C	-	-
6	USB 3.0 Flash	SandDisk	SDDDC-128G-G36	-	-
7	USB 3.0 Flash	SandDisk	SDDDC-128G-G36	-	-
8	load	Sporton	Sporton	-	-

2.5 Test Setup Diagram

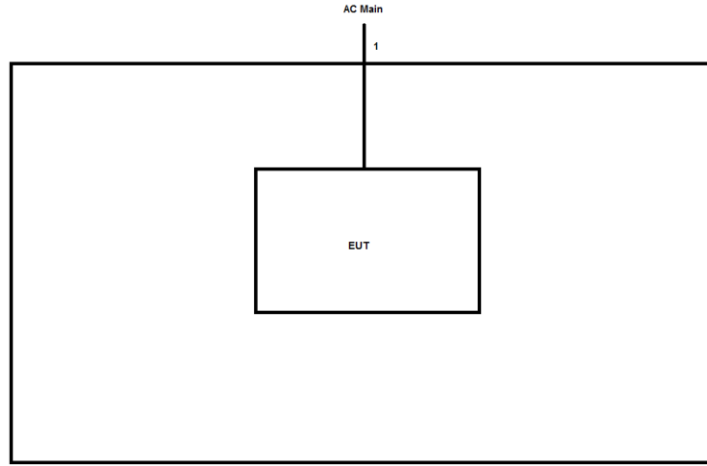


Test Setup Diagram – AC Line Conducted Emission Test (Full port)



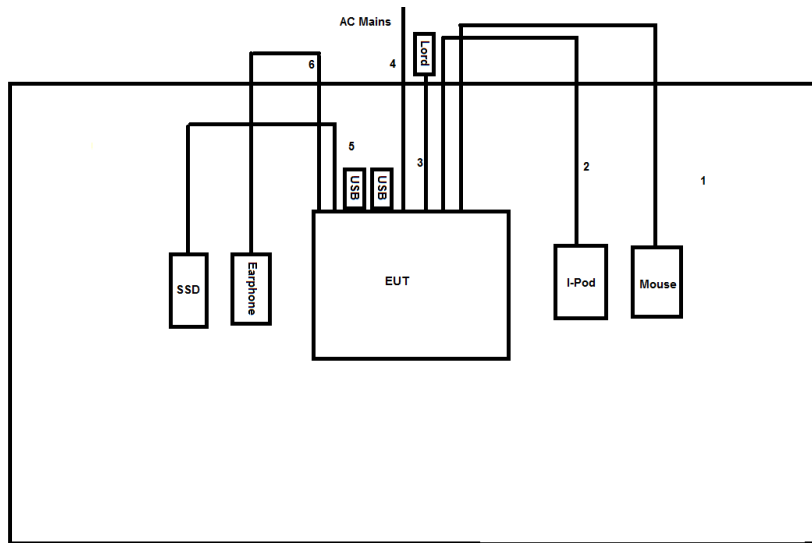
Item	Connection	Shielded	Length(m)	Remark
1	USB cable	No	1.0	-
2	30-pin to USB Original Cable	No	1.0	-
3	RJ45 cable	No	1.0	-
4	AC Power cable	No	1.8	-
5	USB cable	No	1.0	-
6	Audio cable	No	1.25	-

Test Setup Diagram - Radiated Test



Item	Connection	Shielded	Length(m)	Remark
1	AC Power cable	No	1.8	-

Test Setup Diagram - Radiated Test(Full port)



Item	Connection	Shielded	Length(m)	Remark
1	USB cable	No	1.0	-
2	30-pin to USB Original Cable	No	1.0	-
3	RJ45 cable	No	1.0	-
4	AC Power cable	No	1.8	-
5	USB cable	No	1.0	-
6	Audio cable	No	1.25	-



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

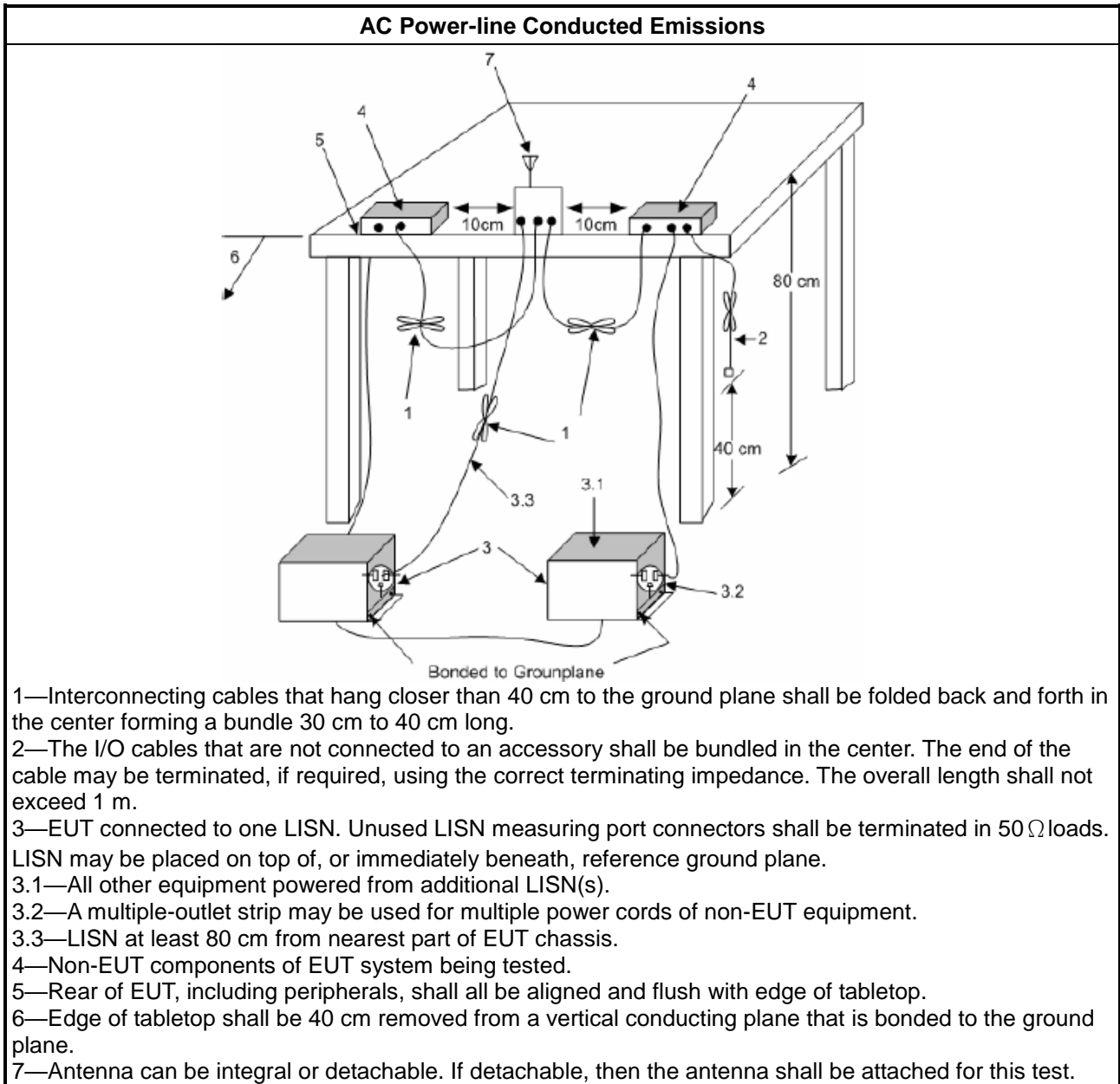
Test Method
<input checked="" type="checkbox"/> Refer as ANSI C63.10-2013, clause 6.2 for AC power-line conducted emissions.

3.1.4 Measurement Results Calculation

The measured Level is calculated using:

Corrected Reading: Raw(Read Level) + LISN(LISN Factor) + CL(Cable Loss) + AT(Attenuator).

3.1.5 Test Setup



3.1.6 Test Result of AC Power-line Conducted Emissions

Refer as Appendix A

3.2 DTS Bandwidth

3.2.1 6dB Bandwidth Limit

6dB Bandwidth Limit
Systems using digital modulation techniques:
<ul style="list-style-type: none"> ▪ 6 dB bandwidth \geq 500 kHz.

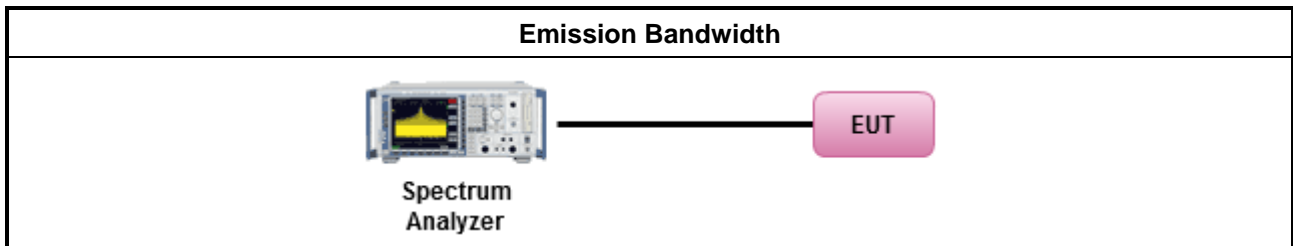
3.2.2 Measuring Instruments

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"/> Refer as KDB 558074. clause 8.2 (11.8 of ANSI C63.10) DTS bandwidth measurement.
<input type="checkbox"/> Refer as RSS-Gen, clause 6.7 for occupied bandwidth testing.
<input type="checkbox"/> Refer as ANSI C63.10, clause 6.9.3 for occupied bandwidth testing.

3.2.4 Test Setup



3.2.5 Test Result of Emission Bandwidth

Refer as Appendix B



3.3 Maximum Conducted Output Power

3.3.1 Maximum Conducted Output Power Limit

Maximum Conducted Output Power Limit	
	<ul style="list-style-type: none"> ▪ If $G_{TX} \leq 6$ dBi, then $P_{Out} \leq 30$ dBm (1 W)
	<ul style="list-style-type: none"> ▪ Point-to-multipoint systems (P2M): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$ dBm
	<ul style="list-style-type: none"> ▪ Point-to-point systems (P2P): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm
	<ul style="list-style-type: none"> ▪ Smart antenna system (SAS):
	<ul style="list-style-type: none"> - Single beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm
	<ul style="list-style-type: none"> - Overlap beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm
	<ul style="list-style-type: none"> - Aggregate power on all beams: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3 + 8$ dB dBm
e.i.r.p. Power Limit:	
	<ul style="list-style-type: none"> ▪ 2400-2483.5 MHz Band
	<ul style="list-style-type: none"> ▪ Point-to-multipoint systems (P2M): $P_{eirp} \leq 36$ dBm (4 W)
	<ul style="list-style-type: none"> ▪ Point-to-point systems (P2P): $P_{eirp} \leq \text{MAX}(36, [P_{Out} + G_{TX}])$ dBm
	<ul style="list-style-type: none"> ▪ Smart antenna system (SAS)
	<ul style="list-style-type: none"> - Single beam: $P_{eirp} \leq \text{MAX}(36, P_{Out} + G_{TX})$ dBm
	<ul style="list-style-type: none"> - Overlap beam: $P_{eirp} \leq \text{MAX}(36, P_{Out} + G_{TX})$ dBm
	<ul style="list-style-type: none"> - Aggregate power on all beams: $P_{eirp} \leq \text{MAX}(36, [P_{Out} + G_{TX} + 8])$ dBm
<p>P_{Out} = maximum peak conducted output power or maximum conducted output power in dBm, G_{TX} = the maximum transmitting antenna directional gain in dBi.</p>	

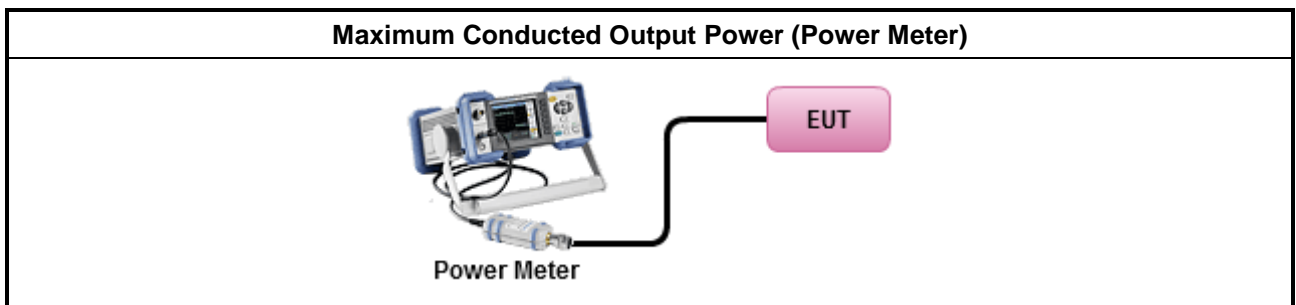
3.3.2 Measuring Instruments

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"> Maximum Peak Conducted Output Power 	
<input type="checkbox"/>	Refer as KDB 558074, clause 8.3.1.1 (11.9.1.1 of ANSI C63.10) RBW ≥ EBW method.
<input type="checkbox"/>	Refer as KDB 558074, clause 8.3.1.2 (11.9.1.2 of ANSI C63.10) integrated band power method.
<input type="checkbox"/>	Refer as KDB 558074, clause 8.3.1.3 (11.9.1.3 of ANSI C63.10) peak power meter.
<ul style="list-style-type: none"> Maximum Average Conducted Output Power 	
<input type="checkbox"/>	Refer as KDB 558074, clause 8.3.2.2 (11.9.2.2 of ANSI C63.10) using a spectrum analyzer.
<input checked="" type="checkbox"/>	Refer as KDB 558074, clause 8.3.2.3 (11.9.2.3 of ANSI C63.10) using a power meter.
<ul style="list-style-type: none"> For conducted measurement. 	
<ul style="list-style-type: none"> If the EUT supports multiple transmit chains using options given below: Refer as 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. 	
<ul style="list-style-type: none"> If multiple transmit chains, EIRP calculation could be following as methods: $P_{total} = P_1 + P_2 + \dots + P_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $EIRP_{total} = P_{total} + DG$ 	

3.3.4 Test Setup



3.3.5 Test Result of Maximum Conducted Output Power

Refer as Appendix C

3.4 Power Spectral Density

3.4.1 Power Spectral Density Limit

Power Spectral Density Limit
<ul style="list-style-type: none"> Power Spectral Density (PSD) \leq 8 dBm/3kHz

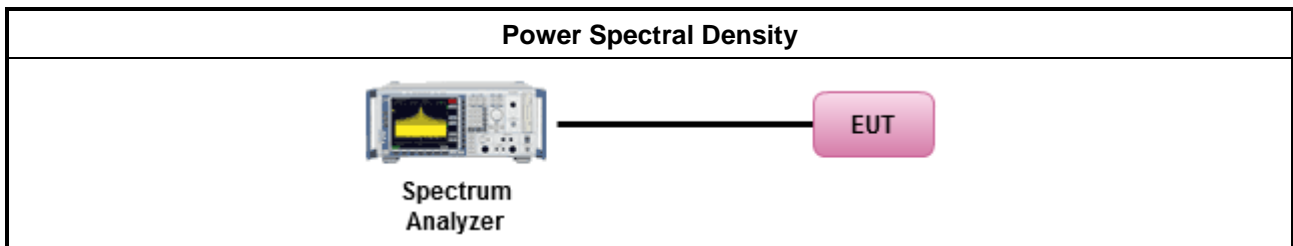
3.4.2 Measuring Instruments

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"> Peak power spectral density procedures that the same method as used to determine the conducted output power. If maximum peak conducted output power was measured to demonstrate compliance to the output power limit, then the peak PSD procedure below (Method PKPSD) shall be used. If maximum conducted output power was measured to demonstrate compliance to the output power limit, then one of the average PSD procedures shall be used, as applicable based on the following criteria (the peak PSD procedure is also an acceptable option).
<input checked="" type="checkbox"/> Refer as KDB 558074, clause 8.4 (11.10 of ANSI C63.10) Max. PSD.
<ul style="list-style-type: none"> For conducted measurement. <ul style="list-style-type: none"> If The EUT supports multiple transmit chains using options given below: <ul style="list-style-type: none"> Measure and sum the spectra across the outputs. Refer as 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.

3.4.4 Test Setup



3.4.5 Test Result of Power Spectral Density

Refer as Appendix D

3.5 Emissions in Non-restricted Frequency Bands

3.5.1 Emissions in Non-restricted Frequency Bands Limit

Un-restricted Band Emissions Limit	
RF output power procedure	Limit (dB)
Peak output power procedure	20
Average output power procedure	30
<p>Note 1: If the peak output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the peak conducted output power measured within any 100 kHz outside the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum measured in-band peak level.</p> <p>Note 2: If the average output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the power in any 100 kHz outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum measured in-band average level.</p>	

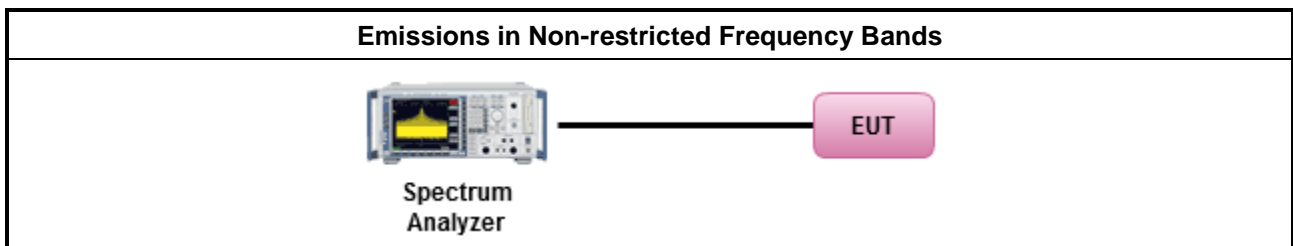
3.5.2 Measuring Instruments

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"> Refer as KDB 558074, clause 8.5 (11.11 of ANSI C63.10) for non-restricted frequency bands.

3.5.4 Test Setup



3.5.5 Test Result of Emissions in Non-restricted Frequency Bands

Refer as Appendix E



3.6 Emissions in Restricted Frequency Bands

3.6.1 Emissions in Restricted Frequency Bands Limit

Restricted Band Emissions Limit			
Frequency Range (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m)	Measure Distance (m)
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300
0.490~1.705	24000/F(kHz)	33.8 - 23	30
1.705~30.0	30	29	30
30~88	100	40	3
88~216	150	43.5	3
216~960	200	46	3
Above 960	500	54	3

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.

3.6.2 Measuring Instruments

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



3.6.3 Test Procedures

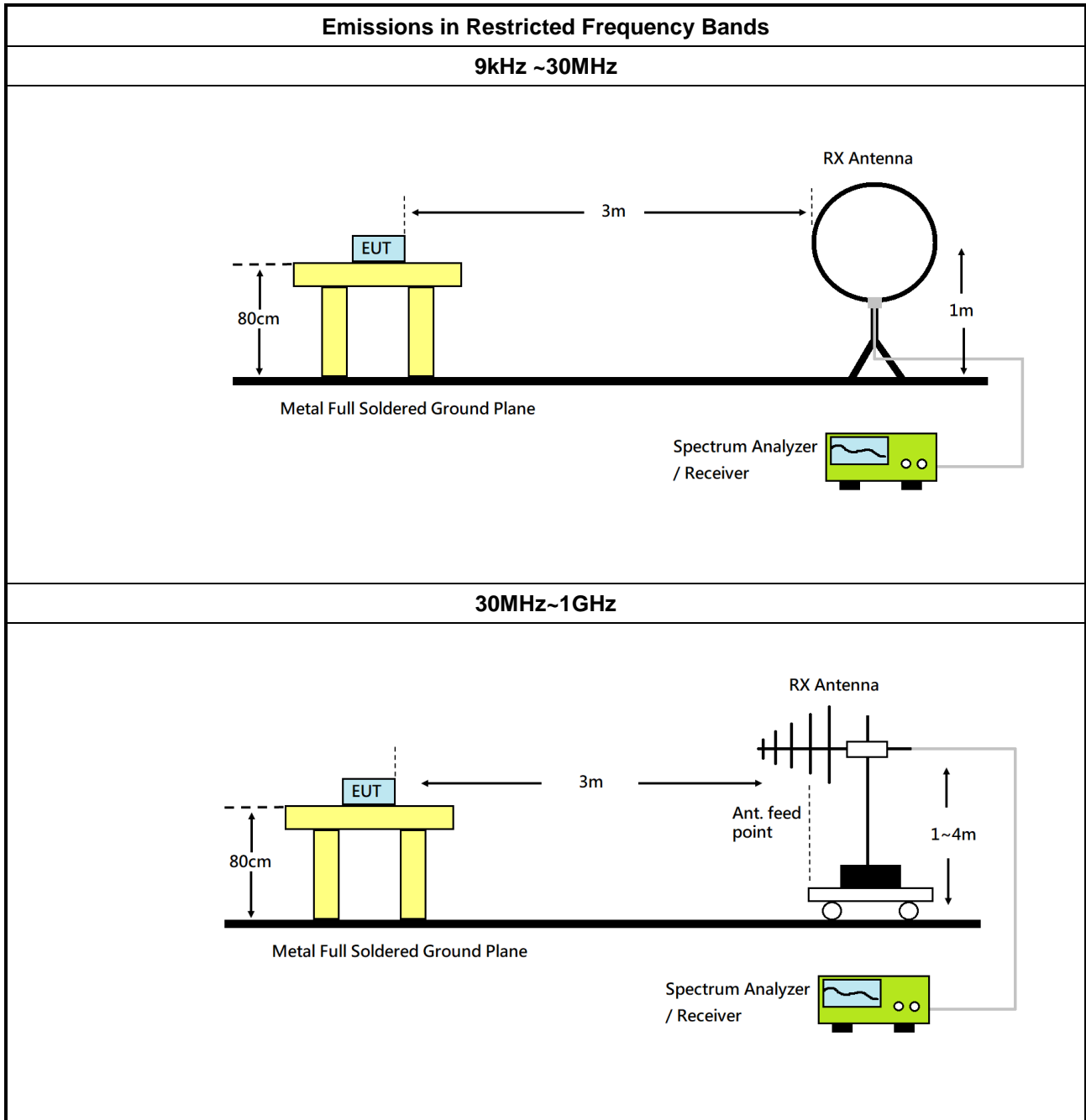
Test Method	
	<ul style="list-style-type: none"> ▪ The average emission levels shall be measured in [duty cycle ≥ 98 or duty factor].
	<ul style="list-style-type: none"> ▪ Refer as ANSI C63.10, clause 6.10.3 band-edge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band.
	<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 KDB 558074, clause 8.6 (11.12 of ANSI C63.10) for restricted frequency bands.
	<ul style="list-style-type: none"> ▪ For the transmitter band-edge emissions shall be measured using following options below:
	<ul style="list-style-type: none"> ▪ Refer as KDB 558074 clause 8.7.1, When the performing peak or average radiated measurements, emissions within 2 MHz of the authorized band edge may be measured using the marker-delta method described below.
	<ul style="list-style-type: none"> ▪ Refer as KDB 558074, clause 8.7.2 (6.10.6 of ANSI C63.10) for marker-delta method for band-edge measurements.
	<ul style="list-style-type: none"> ▪ Refer as KDB 558074, clause 8.7.3 for narrower resolution bandwidth (100kHz) using the band power and summing the spectral levels.
	<ul style="list-style-type: none"> ▪ Use the following spectrum analyzer settings:
	<ul style="list-style-type: none"> ▪ Set RBW=100 kHz for f < 1 GHz; VBW=3 * RBW; Sweep = auto; Detector function = peak; Trace = max hold.
	<ul style="list-style-type: none"> ▪ Set RBW = 1 MHz, VBW= 3MHz for f ≥ 1 GHz for peak measurement. For average measurement, refer as 1.1.4.
	<ul style="list-style-type: none"> ▪ KDB 414788 Open-Field Test Sites and Chamber Correlation Justification.
	<ul style="list-style-type: none"> ▪ Based on FCC 15.31(f)(2): measurements may be performed at a distance closer than that specified in regulations; however, an attempt should be made to avoid making measurements in the near field.
	<ul style="list-style-type: none"> ▪ Open-field site and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

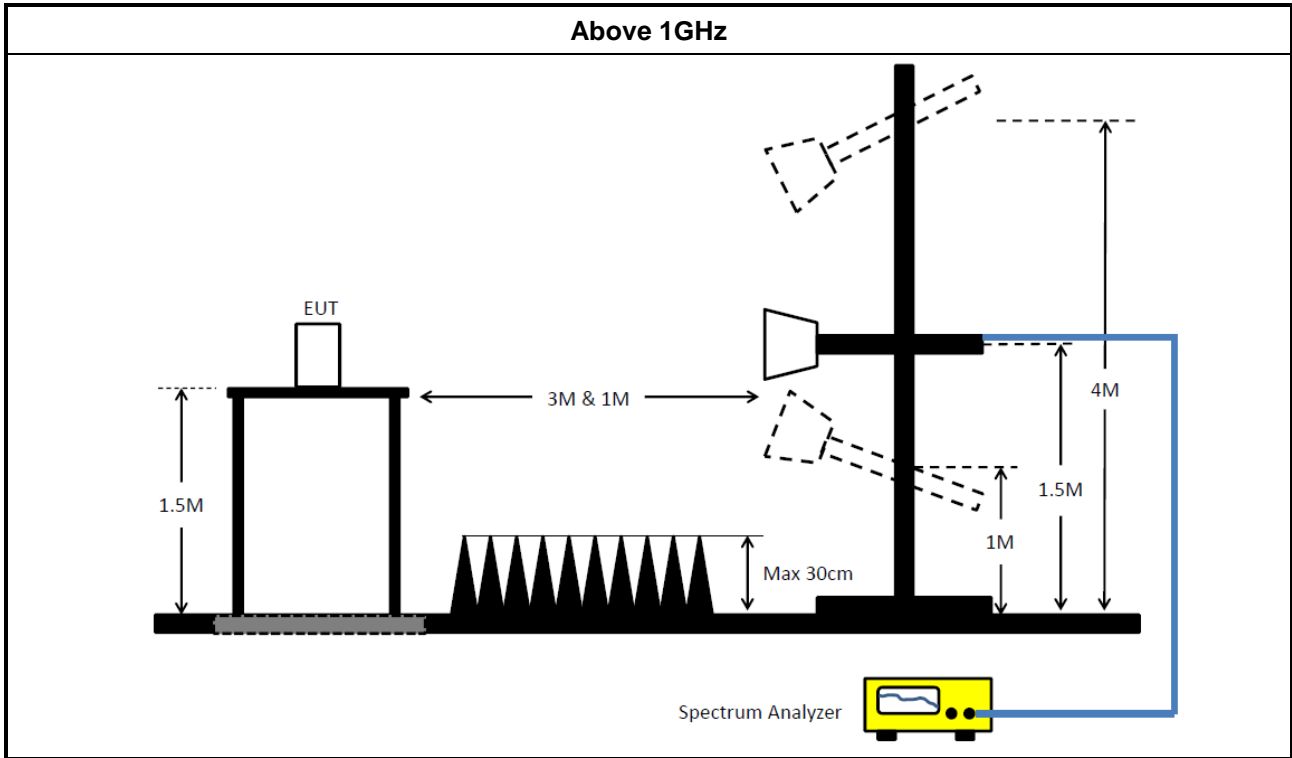
3.6.4 Measurement Results Calculation

The measured Level is calculated using:

Corrected Reading: Raw(Read Level) + AF(Antenna Factor) + CL(Cable Loss) - PA(Preamplifier Factor)

3.6.5 Test Setup





3.6.6 Test Result of Emissions in Restricted Frequency Bands (Below 30MHz)

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

3.6.7 Test Result of Emissions in Restricted Frequency Bands

Refer as Appendix F



4 Test Equipment and Calibration Data

Instrument for AC Conduction

Instrument	Manufacturer /Brand	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
EMI Test Receiver	R&S	ESR3	102051	9kHz ~ 3.6GHz	13/May/2022	12/May/2023
Two-Line V-Network	R&S	ENV 216	100003	9kHz ~ 30MHz	18/Feb/2022	17/Feb/2023
RF Cable 5m	TITAN	TITAN	CO04-cable-01	9 kHz~200MHz	01/Mar/2022	28/Feb/2023
Impuls Begrenzer Pulse Limiter	SCHWARZBECK	VTSD 9561-F	9561-F041	9kHz ~ 30MHz	26/Oct/2021	25/Oct/2022
Software	Sporton	SENSE-EMI	V5.10.8.2	-	NCR	NCR

NCR: No Calibration Required

Instrument for Conducted Test

Instrument	Manufacturer /Brand	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Signal Analyzer	R&S	FSV 40	101013	10Hz~40GHz	01/Apr/2022	31/Mar/2023
SMB100A Signal Generator	R&S	SMB100A	181147	100kHz~40GHz	21/Oct/2021	20/Oct/2022
Pulse Sensor	Anritsu	MA2411B	0917017	300MHz~40GHz	21/Feb/2022	20/Feb/2023
Power Meter	Anritsu	ML2495A	0949003	300MHz~40GHz	21/Feb/2022	20/Feb/2023
SENSE-15247_DTS	Sporton	V5.10.7.17	N/A	N/A	N/A	N/A



Instrument for Radiated Test

Instrument	Manufacturer /Brand	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30MHz~1GHz 3m	03/Aug/2021	02/Aug/2022
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	1GHz~18GHz 3m	03/Aug/2021	02/Aug/2022
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	1GHz~18GHz 3m	01/Aug/2022	31/Jul/2023
Signal Analyzer	R&S	FSV40	101500	10Hz~40GHz	12/Oct/2021	11/Oct/2022
Amplifier	HP	8447D	2944A08033	10kHz~1.3GHz	08/Apr/2022	07/Apr/2023
Bilog Antenna & 6dB Attenuator	SCHAFFNER / EMCI	CBL6112B / N-6-05	22237 / AT-N-0603	30MHz~1GHz	17/Oct/2021	16/Oct/2022
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120 D	02267	1GHz~18GHz	14/Sep/2021	13/Sep/2022
RF Cable-R03m	Jye Bao	RG142	CB021	9kHz~30MHz	16/Jun/2021	15/Jun/2022
RF Cable-R03m	Jye Bao	RG142	CB021	9kHz~30MHz	13/Jun/2022	12/Jun/2023
RF Cable-R03m	Jye Bao	RG142	MY37335/4+CB021-1+CB021-2	30MHz~1GHz	22/Mar/2022	21/Mar/2023
RF CABLE 5+6m	HUBER+SUHNER	SUOFLEX 104	SN MY38596/4+SN 804300/4	1GHz~40GHz	28/Jul/2021	27/Jul/2022
RF CABLE 5+6m	HUBER+SUHNER	SUOFLEX 104	03CH03-cable-01	1GHz~40GHz	27/Jul/2022	26/Jul/2023
Microwave Preamplifier	Agilent	8449B	3008A02326	1GHz~26.5GHz	15/Jul/2021	14/Jul/2022
Microwave Preamplifier	Agilent	8449B	3008A02326	1GHz~26.5GHz	14/Jul/2022	13/Jul/2023
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA 9170221	15GHz~40GHz	18/Mar/2022	17/Mar/2023
Microwave Premplifier	EMC INSTRUMENTS	EM18G40G	060604	18GHz ~ 40GHz	08/Mar/2022	07/Mar/2023
Loop Antenna	TESEQ	HLA 6120	31244	9kHz~30MHz	18/Mar/2022	17/Mar/2023
EMI Test Receiver	R&S	ESR3	102052	9kHz~3.6GHz	02/Jun/2021	01/Jun/2022
EMI Test Receiver	R&S	ESR3	102052	9kHz~3.6GHz	13/May/2022	12/May/2023
SENSE-15247_DTS	Sporton	v5.10.7.14	N/A	N/A	N/A	N/A



Summary

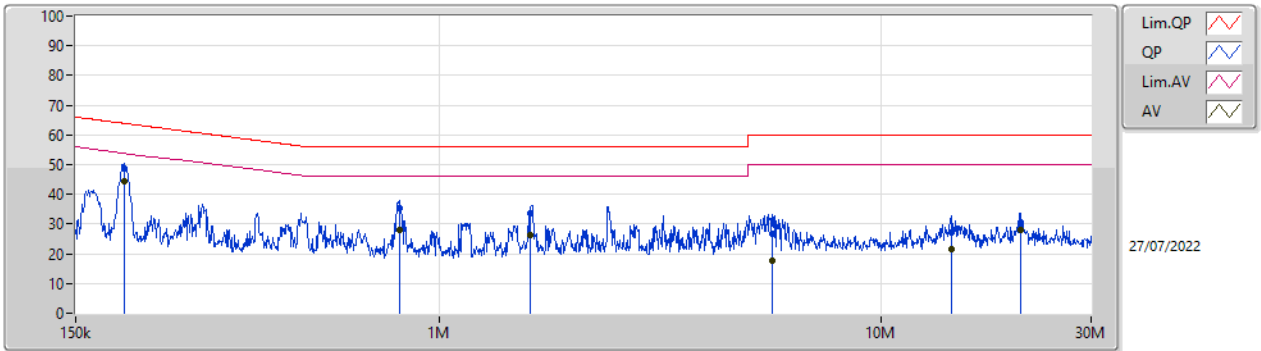
Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 1	Pass	AV	192.892k	44.64	53.92	-9.28	Neutral
Mode 2	Pass	AV	193.664k	44.70	53.88	-9.18	Line



Mode Configure

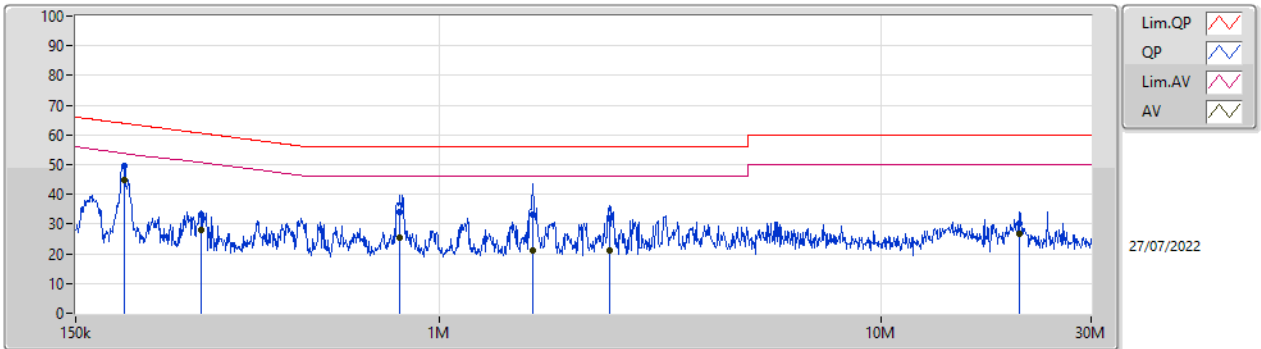
Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition	Comments
Mode 1	Pass	QP	192.892k	48.77	63.92	-15.15	Line	-
Mode 1	Pass	AV	192.892k	44.41	53.92	-9.51	Line	-
Mode 1	Pass	QP	811.805k	35.37	56.00	-20.63	Line	-
Mode 1	Pass	AV	811.805k	28.08	46.00	-17.92	Line	-
Mode 1	Pass	QP	1.613M	33.78	56.00	-22.22	Line	-
Mode 1	Pass	AV	1.613M	26.29	46.00	-19.71	Line	-
Mode 1	Pass	QP	5.695M	26.61	60.00	-33.39	Line	-
Mode 1	Pass	AV	5.695M	17.53	50.00	-32.47	Line	-
Mode 1	Pass	QP	14.436M	26.95	60.00	-33.05	Line	-
Mode 1	Pass	AV	14.436M	21.69	50.00	-28.31	Line	-
Mode 1	Pass	QP	20.76M	30.50	60.00	-29.50	Line	-
Mode 1	Pass	AV	20.76M	28.09	50.00	-21.91	Line	-
Mode 1	Pass	QP	192.892k	49.38	63.92	-14.54	Neutral	-
Mode 1	Pass	AV	192.892k	44.64	53.92	-9.28	Neutral	-
Mode 1	Pass	QP	288.682k	33.38	60.57	-27.19	Neutral	-
Mode 1	Pass	AV	288.682k	28.17	50.57	-22.40	Neutral	-
Mode 1	Pass	QP	815.052k	34.05	56.00	-21.95	Neutral	-
Mode 1	Pass	AV	815.052k	25.36	46.00	-20.64	Neutral	-
Mode 1	Pass	QP	1.626M	33.36	56.00	-22.64	Neutral	-
Mode 1	Pass	AV	1.626M	21.20	46.00	-24.80	Neutral	-
Mode 1	Pass	QP	2.433M	31.89	56.00	-24.11	Neutral	-
Mode 1	Pass	AV	2.433M	21.20	46.00	-24.80	Neutral	-
Mode 1	Pass	QP	20.677M	30.31	60.00	-29.69	Neutral	-
Mode 1	Pass	AV	20.677M	26.88	50.00	-23.12	Neutral	-
Mode 2	Pass	QP	193.664k	49.66	63.88	-14.22	Line	-
Mode 2	Pass	AV	193.664k	44.70	53.88	-9.18	Line	-
Mode 2	Pass	QP	805.349k	36.65	56.00	-19.35	Line	-
Mode 2	Pass	AV	805.349k	34.96	46.00	-11.04	Line	-
Mode 2	Pass	QP	1.613M	33.60	56.00	-22.40	Line	-
Mode 2	Pass	AV	1.613M	26.61	46.00	-19.39	Line	-
Mode 2	Pass	QP	2.433M	31.54	56.00	-24.46	Line	-
Mode 2	Pass	AV	2.433M	20.23	46.00	-25.77	Line	-
Mode 2	Pass	QP	5.407M	26.85	60.00	-33.15	Line	-
Mode 2	Pass	AV	5.407M	18.13	50.00	-31.87	Line	-
Mode 2	Pass	QP	14.265M	24.02	60.00	-35.98	Line	-
Mode 2	Pass	AV	14.265M	20.00	50.00	-30.00	Line	-
Mode 2	Pass	QP	192.892k	49.38	63.92	-14.54	Neutral	-
Mode 2	Pass	AV	192.892k	44.66	53.92	-9.26	Neutral	-
Mode 2	Pass	QP	288.682k	33.40	60.57	-27.17	Neutral	-
Mode 2	Pass	AV	288.682k	28.24	50.57	-22.33	Neutral	-
Mode 2	Pass	QP	805.349k	36.72	56.00	-19.28	Neutral	-
Mode 2	Pass	AV	805.349k	35.60	46.00	-10.40	Neutral	-
Mode 2	Pass	QP	1.613M	35.08	56.00	-20.92	Neutral	-
Mode 2	Pass	AV	1.613M	32.56	46.00	-13.44	Neutral	-
Mode 2	Pass	QP	2.414M	33.81	56.00	-22.19	Neutral	-
Mode 2	Pass	AV	2.414M	30.27	46.00	-15.73	Neutral	-
Mode 2	Pass	QP	20.76M	31.66	60.00	-28.34	Neutral	-
Mode 2	Pass	AV	20.76M	28.93	50.00	-21.07	Neutral	-

Conducted Emissions at Powerline_Mode 1



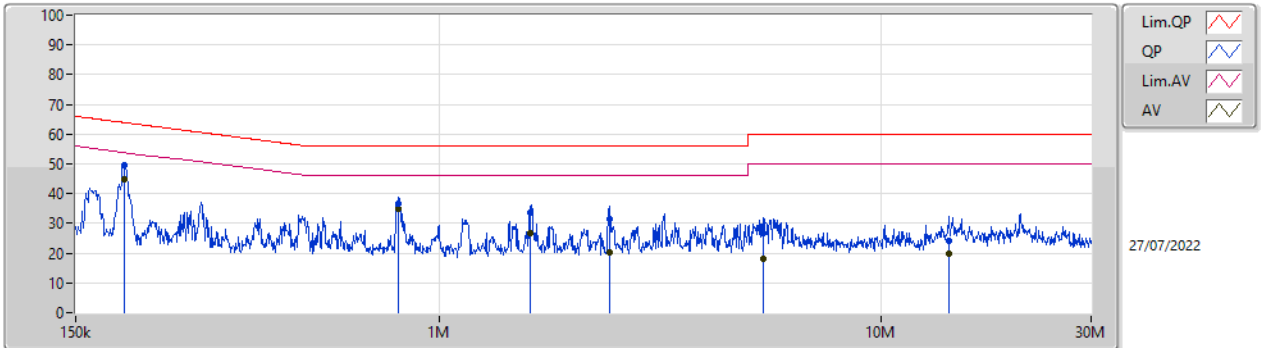
Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)
QP	192.892k	48.77	63.92	-15.15	19.63	Line	-	29.14	9.69	0.03	9.91
AV	192.892k	44.41	53.92	-9.51	19.63	Line	-	24.78	9.69	0.03	9.91
QP	811.805k	35.37	56.00	-20.63	19.65	Line	-	15.72	9.68	0.05	9.92
AV	811.805k	28.08	46.00	-17.92	19.65	Line	-	8.43	9.68	0.05	9.92
QP	1.613M	33.78	56.00	-22.22	19.68	Line	-	14.10	9.69	0.07	9.92
AV	1.613M	26.29	46.00	-19.71	19.68	Line	-	6.61	9.69	0.07	9.92
QP	5.695M	26.61	60.00	-33.39	19.82	Line	-	6.79	9.75	0.15	9.92
AV	5.695M	17.53	50.00	-32.47	19.82	Line	-	-2.29	9.75	0.15	9.92
QP	14.436M	26.95	60.00	-33.05	19.96	Line	-	6.99	9.80	0.23	9.93
AV	14.436M	21.69	50.00	-28.31	19.96	Line	-	1.73	9.80	0.23	9.93
QP	20.76M	30.50	60.00	-29.50	20.00	Line	-	10.50	9.79	0.28	9.93
AV	20.76M	28.09	50.00	-21.91	20.00	Line	-	8.09	9.79	0.28	9.93

Conducted Emissions at Powerline_Mode 1



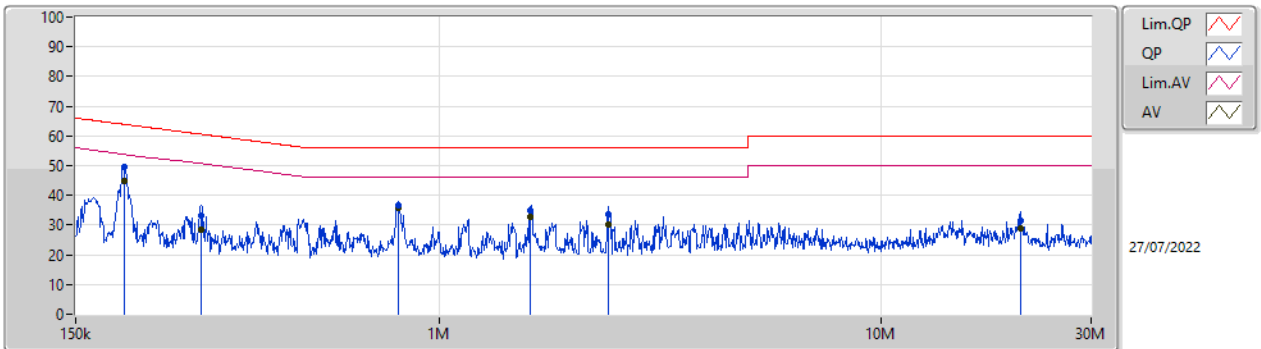
Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)
QP	192.892k	49.38	63.92	-14.54	19.66	Neutral	-	29.72	9.72	0.03	9.91
AV	192.892k	44.64	53.92	-9.28	19.66	Neutral	-	24.98	9.72	0.03	9.91
QP	288.682k	33.38	60.57	-27.19	19.67	Neutral	-	13.71	9.72	0.04	9.91
AV	288.682k	28.17	50.57	-22.40	19.67	Neutral	-	8.50	9.72	0.04	9.91
QP	815.052k	34.05	56.00	-21.95	19.70	Neutral	-	14.35	9.73	0.05	9.92
AV	815.052k	25.36	46.00	-20.64	19.70	Neutral	-	5.66	9.73	0.05	9.92
QP	1.626M	33.36	56.00	-22.64	19.73	Neutral	-	13.63	9.74	0.07	9.92
AV	1.626M	21.20	46.00	-24.80	19.73	Neutral	-	1.47	9.74	0.07	9.92
QP	2.433M	31.89	56.00	-24.11	19.76	Neutral	-	12.13	9.75	0.09	9.92
AV	2.433M	21.20	46.00	-24.80	19.76	Neutral	-	1.44	9.75	0.09	9.92
QP	20.677M	30.31	60.00	-29.69	20.21	Neutral	-	10.10	10.00	0.28	9.93
AV	20.677M	26.88	50.00	-23.12	20.21	Neutral	-	6.67	10.00	0.28	9.93

Conducted Emissions at Powerline_Mode 2



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)
QP	193.664k	49.66	63.88	-14.22	19.63	Line	-	30.03	9.69	0.03	9.91
AV	193.664k	44.70	53.88	-9.18	19.63	Line	-	25.07	9.69	0.03	9.91
QP	805.349k	36.65	56.00	-19.35	19.65	Line	-	17.00	9.68	0.05	9.92
AV	805.349k	34.96	46.00	-11.04	19.65	Line	-	15.31	9.68	0.05	9.92
QP	1.613M	33.60	56.00	-22.40	19.68	Line	-	13.92	9.69	0.07	9.92
AV	1.613M	26.61	46.00	-19.39	19.68	Line	-	6.93	9.69	0.07	9.92
QP	2.433M	31.54	56.00	-24.46	19.71	Line	-	11.83	9.70	0.09	9.92
AV	2.433M	20.23	46.00	-25.77	19.71	Line	-	0.52	9.70	0.09	9.92
QP	5.407M	26.85	60.00	-33.15	19.81	Line	-	7.04	9.74	0.15	9.92
AV	5.407M	18.13	50.00	-31.87	19.81	Line	-	-1.68	9.74	0.15	9.92
QP	14.265M	24.02	60.00	-35.98	19.96	Line	-	4.06	9.80	0.23	9.93
AV	14.265M	20.00	50.00	-30.00	19.96	Line	-	0.04	9.80	0.23	9.93

Conducted Emissions at Powerline_Mode 2



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)
QP	192.892k	49.38	63.92	-14.54	19.66	Neutral	-	29.72	9.72	0.03	9.91
AV	192.892k	44.66	53.92	-9.26	19.66	Neutral	-	25.00	9.72	0.03	9.91
QP	288.682k	33.40	60.57	-27.17	19.67	Neutral	-	13.73	9.72	0.04	9.91
AV	288.682k	28.24	50.57	-22.33	19.67	Neutral	-	8.57	9.72	0.04	9.91
QP	805.349k	36.72	56.00	-19.28	19.70	Neutral	-	17.02	9.73	0.05	9.92
AV	805.349k	35.60	46.00	-10.40	19.70	Neutral	-	15.90	9.73	0.05	9.92
QP	1.613M	35.08	56.00	-20.92	19.73	Neutral	-	15.35	9.74	0.07	9.92
AV	1.613M	32.56	46.00	-13.44	19.73	Neutral	-	12.83	9.74	0.07	9.92
QP	2.414M	33.81	56.00	-22.19	19.76	Neutral	-	14.05	9.75	0.09	9.92
AV	2.414M	30.27	46.00	-15.73	19.76	Neutral	-	10.51	9.75	0.09	9.92
QP	20.76M	31.66	60.00	-28.34	20.21	Neutral	-	11.45	10.00	0.28	9.93
AV	20.76M	28.93	50.00	-21.07	20.21	Neutral	-	8.72	10.00	0.28	9.93



Summary

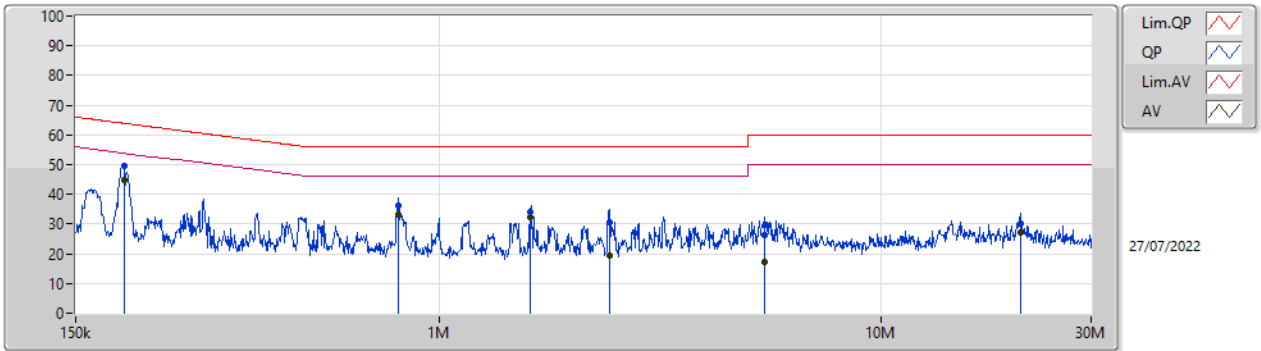
Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 1	Pass	AV	192.892k	44.81	53.92	-9.11	Line
Mode 2	Pass	AV	193.664k	44.55	53.88	-9.33	Neutral



Mode Configure

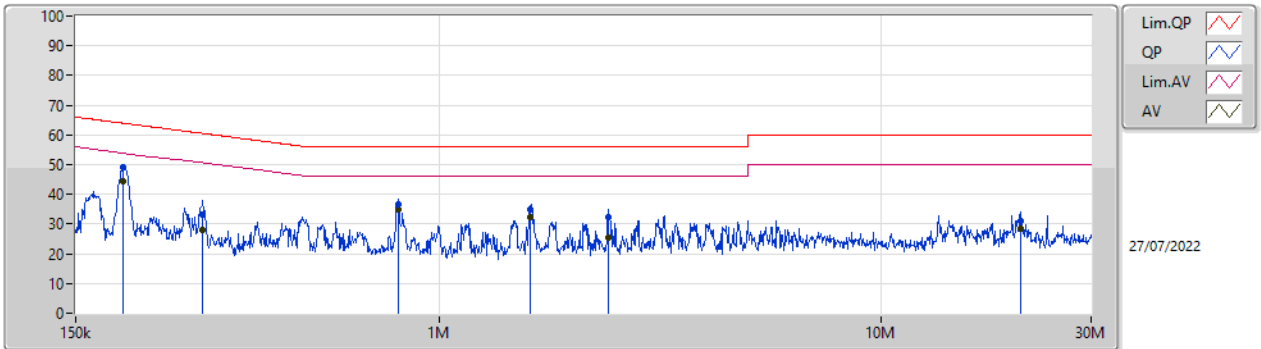
Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition	Comments
Mode 1	Pass	QP	192.892k	49.74	63.92	-14.18	Line	-
Mode 1	Pass	AV	192.892k	44.81	53.92	-9.11	Line	-
Mode 1	Pass	QP	808.571k	36.06	56.00	-19.94	Line	-
Mode 1	Pass	AV	808.571k	33.30	46.00	-12.70	Line	-
Mode 1	Pass	QP	1.613M	34.24	56.00	-21.76	Line	-
Mode 1	Pass	AV	1.613M	32.31	46.00	-13.69	Line	-
Mode 1	Pass	QP	2.433M	30.79	56.00	-25.21	Line	-
Mode 1	Pass	AV	2.433M	19.33	46.00	-26.67	Line	-
Mode 1	Pass	QP	5.45M	26.40	60.00	-33.60	Line	-
Mode 1	Pass	AV	5.45M	17.37	50.00	-32.63	Line	-
Mode 1	Pass	QP	20.76M	30.05	60.00	-29.95	Line	-
Mode 1	Pass	AV	20.76M	27.29	50.00	-22.71	Line	-
Mode 1	Pass	QP	192.124k	49.30	63.93	-14.63	Neutral	-
Mode 1	Pass	AV	192.124k	44.57	53.93	-9.36	Neutral	-
Mode 1	Pass	QP	290.996k	33.08	60.49	-27.41	Neutral	-
Mode 1	Pass	AV	290.996k	28.06	50.49	-22.43	Neutral	-
Mode 1	Pass	QP	805.349k	36.57	56.00	-19.43	Neutral	-
Mode 1	Pass	AV	805.349k	34.78	46.00	-11.22	Neutral	-
Mode 1	Pass	QP	1.613M	34.79	56.00	-21.21	Neutral	-
Mode 1	Pass	AV	1.613M	32.35	46.00	-13.65	Neutral	-
Mode 1	Pass	QP	2.414M	32.40	56.00	-23.60	Neutral	-
Mode 1	Pass	AV	2.414M	25.33	46.00	-20.67	Neutral	-
Mode 1	Pass	QP	20.76M	31.12	60.00	-28.88	Neutral	-
Mode 1	Pass	AV	20.76M	28.34	50.00	-21.66	Neutral	-
Mode 2	Pass	QP	194.439k	49.06	63.84	-14.78	Line	-
Mode 2	Pass	AV	194.439k	44.10	53.84	-9.74	Line	-
Mode 2	Pass	QP	290.996k	34.30	60.49	-26.19	Line	-
Mode 2	Pass	AV	290.996k	28.63	50.49	-21.86	Line	-
Mode 2	Pass	QP	805.349k	35.77	56.00	-20.23	Line	-
Mode 2	Pass	AV	805.349k	33.78	46.00	-12.22	Line	-
Mode 2	Pass	QP	1.607M	33.33	56.00	-22.67	Line	-
Mode 2	Pass	AV	1.607M	29.57	46.00	-16.43	Line	-
Mode 2	Pass	QP	2.414M	32.27	56.00	-23.73	Line	-
Mode 2	Pass	AV	2.414M	28.33	46.00	-17.67	Line	-
Mode 2	Pass	QP	20.677M	28.22	60.00	-31.78	Line	-
Mode 2	Pass	AV	20.677M	25.67	50.00	-24.33	Line	-
Mode 2	Pass	QP	193.664k	49.27	63.88	-14.61	Neutral	-
Mode 2	Pass	AV	193.664k	44.55	53.88	-9.33	Neutral	-
Mode 2	Pass	QP	288.682k	33.55	60.57	-27.02	Neutral	-
Mode 2	Pass	AV	288.682k	28.51	50.57	-22.06	Neutral	-
Mode 2	Pass	QP	805.349k	35.81	56.00	-20.19	Neutral	-
Mode 2	Pass	AV	805.349k	33.87	46.00	-12.13	Neutral	-
Mode 2	Pass	QP	1.613M	34.65	56.00	-21.35	Neutral	-
Mode 2	Pass	AV	1.613M	32.07	46.00	-13.93	Neutral	-
Mode 2	Pass	QP	3.218M	30.07	56.00	-25.93	Neutral	-
Mode 2	Pass	AV	3.218M	25.73	46.00	-20.27	Neutral	-
Mode 2	Pass	QP	20.76M	30.26	60.00	-29.74	Neutral	-
Mode 2	Pass	AV	20.76M	27.50	50.00	-22.50	Neutral	-

Conducted Emissions at Powerline_Mode 1



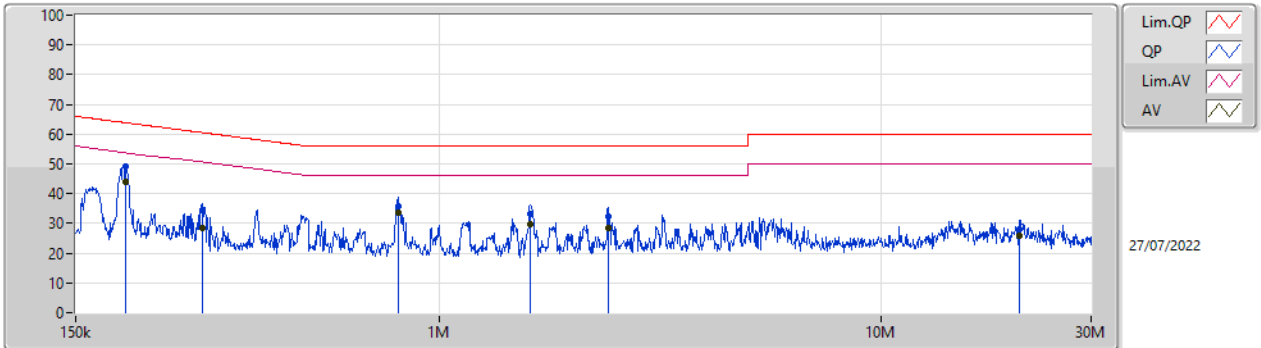
Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)
QP	192.892k	49.74	63.92	-14.18	19.63	Line	-	30.11	9.69	0.03	9.91
AV	192.892k	44.81	53.92	-9.11	19.63	Line	-	25.18	9.69	0.03	9.91
QP	808.571k	36.06	56.00	-19.94	19.65	Line	-	16.41	9.68	0.05	9.92
AV	808.571k	33.30	46.00	-12.70	19.65	Line	-	13.65	9.68	0.05	9.92
QP	1.613M	34.24	56.00	-21.76	19.68	Line	-	14.56	9.69	0.07	9.92
AV	1.613M	32.31	46.00	-13.69	19.68	Line	-	12.63	9.69	0.07	9.92
QP	2.433M	30.79	56.00	-25.21	19.71	Line	-	11.08	9.70	0.09	9.92
AV	2.433M	19.33	46.00	-26.67	19.71	Line	-	-0.38	9.70	0.09	9.92
QP	5.45M	26.40	60.00	-33.60	19.81	Line	-	6.59	9.74	0.15	9.92
AV	5.45M	17.37	50.00	-32.63	19.81	Line	-	-2.44	9.74	0.15	9.92
QP	20.76M	30.05	60.00	-29.95	20.00	Line	-	10.05	9.79	0.28	9.93
AV	20.76M	27.29	50.00	-22.71	20.00	Line	-	7.29	9.79	0.28	9.93

Conducted Emissions at Powerline_Mode 1



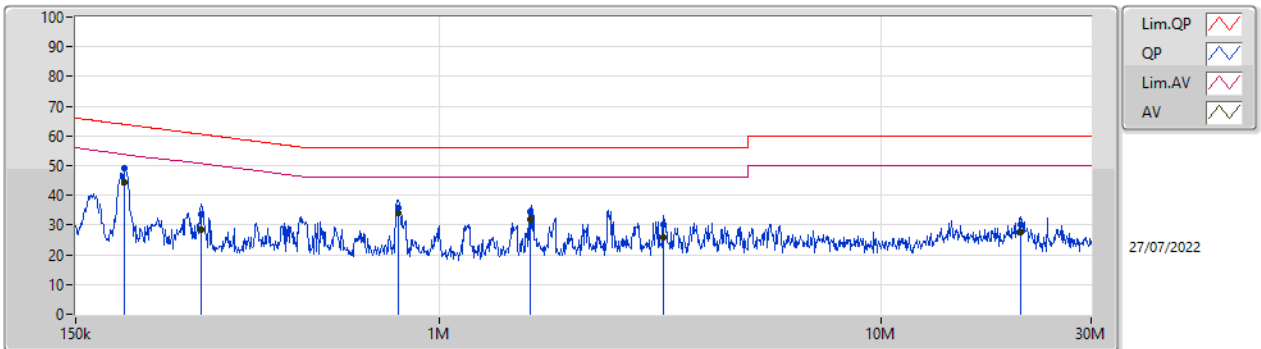
Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)
QP	192.124k	49.30	63.93	-14.63	19.66	Neutral	-	29.64	9.72	0.03	9.91
AV	192.124k	44.57	53.93	-9.36	19.66	Neutral	-	24.91	9.72	0.03	9.91
QP	290.996k	33.08	60.49	-27.41	19.67	Neutral	-	13.41	9.72	0.04	9.91
AV	290.996k	28.06	50.49	-22.43	19.67	Neutral	-	8.39	9.72	0.04	9.91
QP	805.349k	36.57	56.00	-19.43	19.70	Neutral	-	16.87	9.73	0.05	9.92
AV	805.349k	34.78	46.00	-11.22	19.70	Neutral	-	15.08	9.73	0.05	9.92
QP	1.613M	34.79	56.00	-21.21	19.73	Neutral	-	15.06	9.74	0.07	9.92
AV	1.613M	32.35	46.00	-13.65	19.73	Neutral	-	12.62	9.74	0.07	9.92
QP	2.414M	32.40	56.00	-23.60	19.76	Neutral	-	12.64	9.75	0.09	9.92
AV	2.414M	25.33	46.00	-20.67	19.76	Neutral	-	5.57	9.75	0.09	9.92
QP	20.76M	31.12	60.00	-28.88	20.21	Neutral	-	10.91	10.00	0.28	9.93
AV	20.76M	28.34	50.00	-21.66	20.21	Neutral	-	8.13	10.00	0.28	9.93

Conducted Emissions at Powerline_Mode 2



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)
QP	194.439k	49.06	63.84	-14.78	19.63	Line	-	29.43	9.69	0.03	9.91
AV	194.439k	44.10	53.84	-9.74	19.63	Line	-	24.47	9.69	0.03	9.91
QP	290.996k	34.30	60.49	-26.19	19.63	Line	-	14.67	9.68	0.04	9.91
AV	290.996k	28.63	50.49	-21.86	19.63	Line	-	9.00	9.68	0.04	9.91
QP	805.349k	35.77	56.00	-20.23	19.65	Line	-	16.12	9.68	0.05	9.92
AV	805.349k	33.78	46.00	-12.22	19.65	Line	-	14.13	9.68	0.05	9.92
QP	1.607M	33.33	56.00	-22.67	19.68	Line	-	13.65	9.69	0.07	9.92
AV	1.607M	29.57	46.00	-16.43	19.68	Line	-	9.89	9.69	0.07	9.92
QP	2.414M	32.27	56.00	-23.73	19.71	Line	-	12.56	9.70	0.09	9.92
AV	2.414M	28.33	46.00	-17.67	19.71	Line	-	8.62	9.70	0.09	9.92
QP	20.677M	28.22	60.00	-31.78	20.00	Line	-	8.22	9.79	0.28	9.93
AV	20.677M	25.67	50.00	-24.33	20.00	Line	-	5.67	9.79	0.28	9.93

Conducted Emissions at Powerline_Mode 2



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)
QP	193.664k	49.27	63.88	-14.61	19.66	Neutral	-	29.61	9.72	0.03	9.91
AV	193.664k	44.55	53.88	-9.33	19.66	Neutral	-	24.89	9.72	0.03	9.91
QP	288.682k	33.55	60.57	-27.02	19.67	Neutral	-	13.88	9.72	0.04	9.91
AV	288.682k	28.51	50.57	-22.06	19.67	Neutral	-	8.84	9.72	0.04	9.91
QP	805.349k	35.81	56.00	-20.19	19.70	Neutral	-	16.11	9.73	0.05	9.92
AV	805.349k	33.87	46.00	-12.13	19.70	Neutral	-	14.17	9.73	0.05	9.92
QP	1.613M	34.65	56.00	-21.35	19.73	Neutral	-	14.92	9.74	0.07	9.92
AV	1.613M	32.07	46.00	-13.93	19.73	Neutral	-	12.34	9.74	0.07	9.92
QP	3.218M	30.07	56.00	-25.93	19.78	Neutral	-	10.29	9.75	0.11	9.92
AV	3.218M	25.73	46.00	-20.27	19.78	Neutral	-	5.95	9.75	0.11	9.92
QP	20.76M	30.26	60.00	-29.74	20.21	Neutral	-	10.05	10.00	0.28	9.93
AV	20.76M	27.50	50.00	-22.50	20.21	Neutral	-	7.29	10.00	0.28	9.93



Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
802.11b_Nss1,(1Mbps)_1TX(Port1)	9.05M	13.568M	13M6G1D	8.525M	13.318M
802.11b_Nss1,(1Mbps)_1TX(Port2)	9M	13.693M	13M7G1D	8.55M	13.293M
802.11g_Nss1,(6Mbps)_1TX(Port1)	16.325M	16.842M	16M8D1D	15.9M	16.467M
802.11g_Nss1,(6Mbps)_1TX(Port2)	16.325M	16.742M	16M7D1D	16.025M	16.492M
802.11n HT20_Nss1,(MCS0)_1TX(Port1)	17.575M	17.941M	17M9D1D	17.175M	17.691M
802.11n HT20_Nss1,(MCS0)_1TX(Port2)	17.575M	17.991M	18M0D1D	17.175M	17.691M
802.11n HT20_Nss1,(MCS8)_2TX	17.6M	17.991M	18M0D1D	17.2M	17.691M
802.11n HT40_Nss1,(MCS0)_1TX(Port1)	36.3M	36.632M	36M6D1D	31.35M	35.932M
802.11n HT40_Nss1,(MCS0)_1TX(Port2)	36.3M	36.532M	36M5D1D	32.55M	35.932M
802.11n HT40_Nss1,(MCS8)_2TX	36.35M	36.632M	36M6D1D	30.6M	35.882M
802.11ax HEW20_Nss1,(MCS0)_1TX(Port1)	18.875M	19.09M	19M1D1D	18.2M	18.791M
802.11ax HEW20_Nss1,(MCS0)_1TX(Port2)	18.85M	19.04M	19M0D1D	18.3M	18.741M
802.11ax HEW20_Nss1,(MCS0)_2TX	18.95M	19.04M	19M0D1D	18.15M	18.766M
802.11ax HEW40_Nss1,(MCS0)_1TX(Port1)	37.85M	38.131M	38M1D1D	35.1M	37.481M
802.11ax HEW40_Nss1,(MCS0)_1TX(Port2)	37.6M	38.081M	38M1D1D	35.05M	37.331M
802.11ax HEW40_Nss1,(MCS0)_2TX	37.6M	38.131M	38M1D1D	35.05M	37.481M

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

Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)
802.11b_Nss1,(1Mbps)_1TX(Port1)	-	-	-	-	-	-
2412MHz	Pass	500k	8.55M	13.318M		
2437MHz	Pass	500k	9.025M	13.368M		
2462MHz	Pass	500k	8.525M	13.343M		
2467MHz	Pass	500k	8.525M	13.368M		
2472MHz	Pass	500k	9.05M	13.568M		
802.11b_Nss1,(1Mbps)_1TX(Port2)	-	-	-	-	-	-
2412MHz	Pass	500k			8.55M	13.368M
2437MHz	Pass	500k			9M	13.418M
2462MHz	Pass	500k			9M	13.293M
2467MHz	Pass	500k			8.575M	13.468M
2472MHz	Pass	500k			8.55M	13.693M
802.11g_Nss1,(6Mbps)_1TX(Port1)	-	-	-	-	-	-
2412MHz	Pass	500k	16.275M	16.667M		
2437MHz	Pass	500k	16.325M	16.842M		
2462MHz	Pass	500k	16.3M	16.642M		
2467MHz	Pass	500k	15.9M	16.717M		
2472MHz	Pass	500k	16.325M	16.467M		
802.11g_Nss1,(6Mbps)_1TX(Port2)	-	-	-	-	-	-
2412MHz	Pass	500k			16.325M	16.692M
2437MHz	Pass	500k			16.325M	16.742M
2462MHz	Pass	500k			16.025M	16.617M
2467MHz	Pass	500k			16.05M	16.692M
2472MHz	Pass	500k			16.325M	16.492M
802.11n HT20_Nss1,(MCS0)_1TX(Port1)	-	-	-	-	-	-
2412MHz	Pass	500k	17.55M	17.916M		
2437MHz	Pass	500k	17.575M	17.941M		
2462MHz	Pass	500k	17.275M	17.816M		
2467MHz	Pass	500k	17.175M	17.916M		
2472MHz	Pass	500k	17.575M	17.691M		
802.11n HT20_Nss1,(MCS0)_1TX(Port2)	-	-	-	-	-	-
2412MHz	Pass	500k			17.575M	17.916M
2437MHz	Pass	500k			17.575M	17.991M
2462MHz	Pass	500k			17.175M	17.866M
2467MHz	Pass	500k			17.175M	17.941M
2472MHz	Pass	500k			17.575M	17.691M
802.11n HT20_Nss1,(MCS8)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	17.575M	17.916M	17.525M	17.941M
2437MHz	Pass	500k	17.525M	17.941M	17.575M	17.991M
2462MHz	Pass	500k	17.2M	17.841M	17.575M	17.891M
2467MHz	Pass	500k	17.2M	17.891M	17.3M	17.891M
2472MHz	Pass	500k	17.575M	17.716M	17.6M	17.691M
802.11n HT40_Nss1,(MCS0)_1TX(Port1)	-	-	-	-	-	-
2422MHz	Pass	500k	36.3M	36.632M		
2437MHz	Pass	500k	36.25M	36.632M		
2452MHz	Pass	500k	35.65M	36.432M		
2457MHz	Pass	500k	31.35M	35.932M		
2462MHz	Pass	500k	36.25M	36.432M		
802.11n HT40_Nss1,(MCS0)_1TX(Port2)	-	-	-	-	-	-
2422MHz	Pass	500k			36.3M	36.482M
2437MHz	Pass	500k			36M	36.532M
2452MHz	Pass	500k			35.7M	36.532M
2457MHz	Pass	500k			32.55M	35.932M
2462MHz	Pass	500k			36.3M	36.432M
802.11n HT40_Nss1,(MCS8)_2TX	-	-	-	-	-	-



Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)
2422MHz	Pass	500k	36.3M	36.532M	36.3M	36.482M
2437MHz	Pass	500k	36.3M	36.532M	36.3M	36.632M
2452MHz	Pass	500k	36.35M	36.432M	36.35M	36.432M
2457MHz	Pass	500k	30.6M	35.982M	34.95M	35.882M
2462MHz	Pass	500k	36.3M	36.432M	36.3M	36.432M
802.11ax HEW20_Nss1,(MCS0)_1TX(Port1)	-	-	-	-	-	-
2412MHz	Pass	500k	18.65M	18.991M		
2437MHz	Pass	500k	18.875M	19.09M		
2462MHz	Pass	500k	18.775M	18.991M		
2467MHz	Pass	500k	18.2M	18.966M		
2472MHz	Pass	500k	18.225M	18.791M		
802.11ax HEW20_Nss1,(MCS0)_1TX(Port2)	-	-	-	-	-	-
2412MHz	Pass	500k			18.65M	18.991M
2437MHz	Pass	500k			18.85M	19.04M
2462MHz	Pass	500k			18.725M	18.966M
2467MHz	Pass	500k			18.3M	19.015M
2472MHz	Pass	500k			18.425M	18.741M
802.11ax HEW20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	18.7M	18.966M	18.725M	19.015M
2437MHz	Pass	500k	18.95M	19.04M	18.6M	19.015M
2462MHz	Pass	500k	18.525M	18.991M	18.225M	18.966M
2467MHz	Pass	500k	18.45M	18.941M	18.175M	18.991M
2472MHz	Pass	500k	18.15M	18.766M	18.3M	18.791M
802.11ax HEW40_Nss1,(MCS0)_1TX(Port1)	-	-	-	-	-	-
2422MHz	Pass	500k	37.85M	38.031M		
2437MHz	Pass	500k	37.65M	38.081M		
2452MHz	Pass	500k	37.7M	38.131M		
2457MHz	Pass	500k	35.1M	37.481M		
2462MHz	Pass	500k	37.6M	37.881M		
802.11ax HEW40_Nss1,(MCS0)_1TX(Port2)	-	-	-	-	-	-
2422MHz	Pass	500k			37.55M	38.081M
2437MHz	Pass	500k			37.6M	38.031M
2452MHz	Pass	500k			36.85M	37.981M
2457MHz	Pass	500k			35.05M	37.331M
2462MHz	Pass	500k			37.2M	37.781M
802.11ax HEW40_Nss1,(MCS0)_2TX	-	-	-	-	-	-
2422MHz	Pass	500k	37.5M	38.081M	37.6M	38.031M
2437MHz	Pass	500k	37.5M	38.081M	37.25M	37.981M
2452MHz	Pass	500k	37.1M	38.131M	36.45M	37.831M
2457MHz	Pass	500k	35.1M	37.531M	35.05M	37.481M
2462MHz	Pass	500k	37.2M	37.681M	36.75M	37.781M

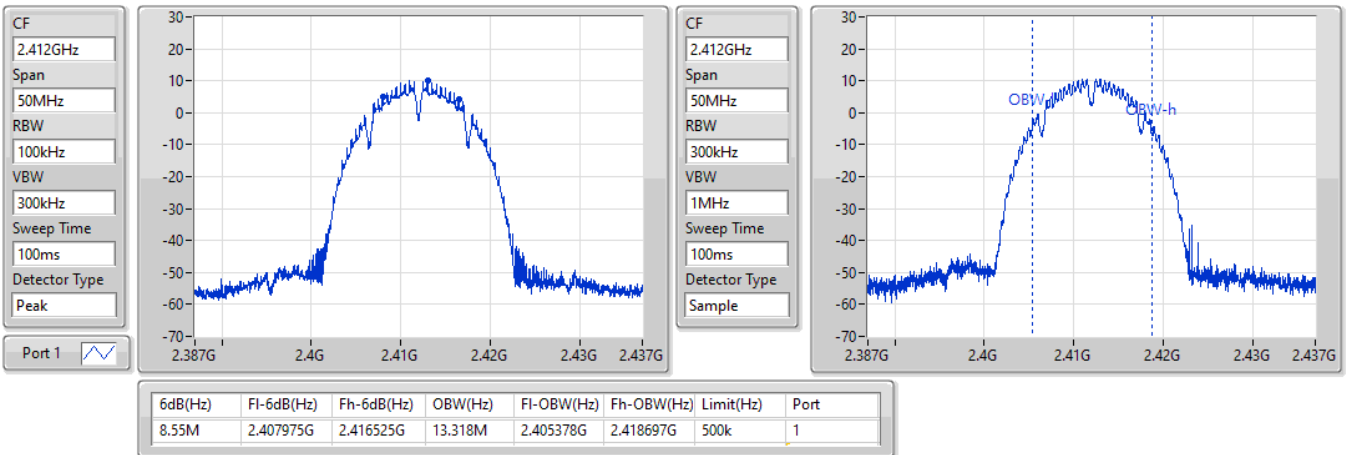
Port X-N dB = Port X 6dB down bandwidth;
 Port X-OBW = Port X 99% occupied bandwidth

802.11b_Nss1,(1Mbps)_1TX(Port1)

EBW

2412MHz

16/04/2022

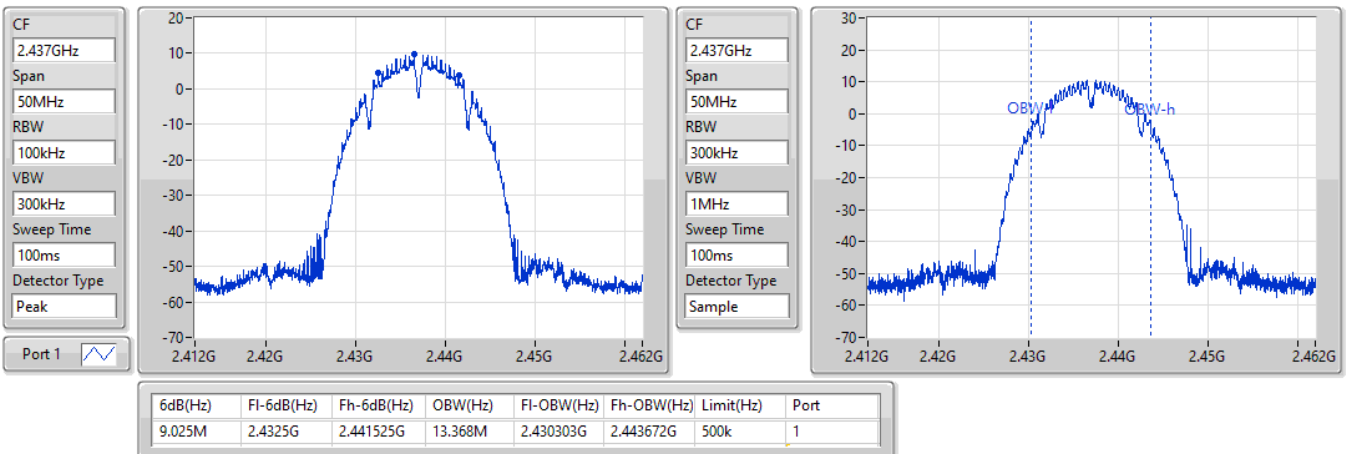


802.11b_Nss1,(1Mbps)_1TX(Port1)

EBW

2437MHz

16/04/2022

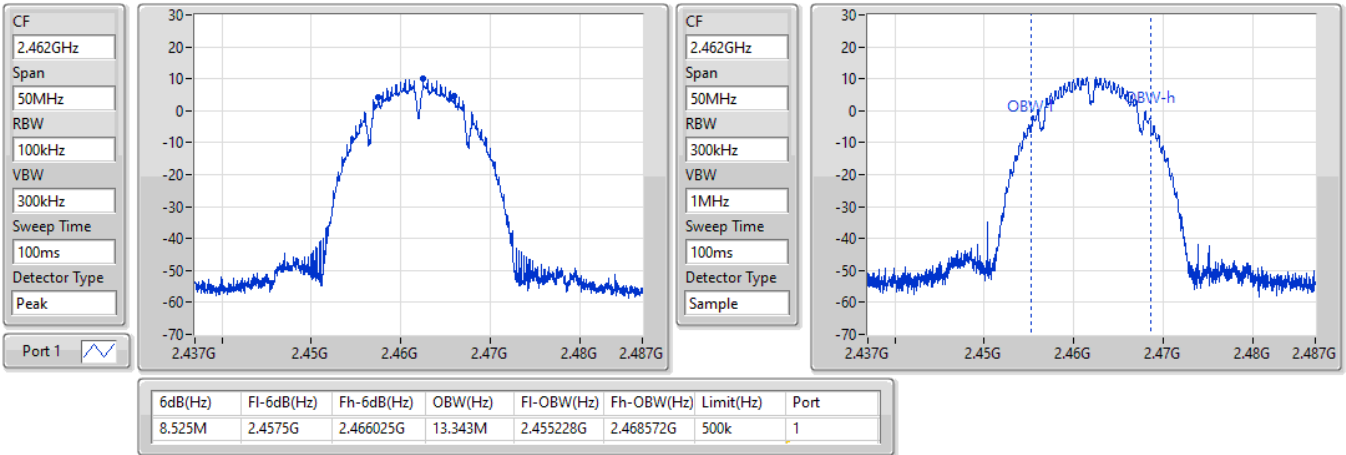


802.11b_Nss1,(1Mbps)_1TX(Port1)

EBW

2462MHz

16/04/2022

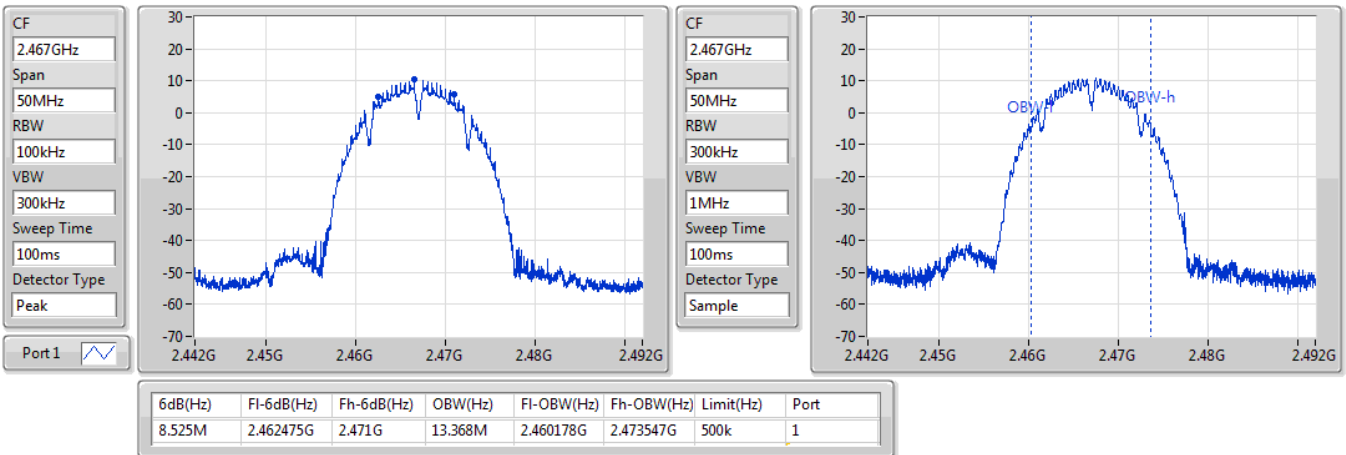


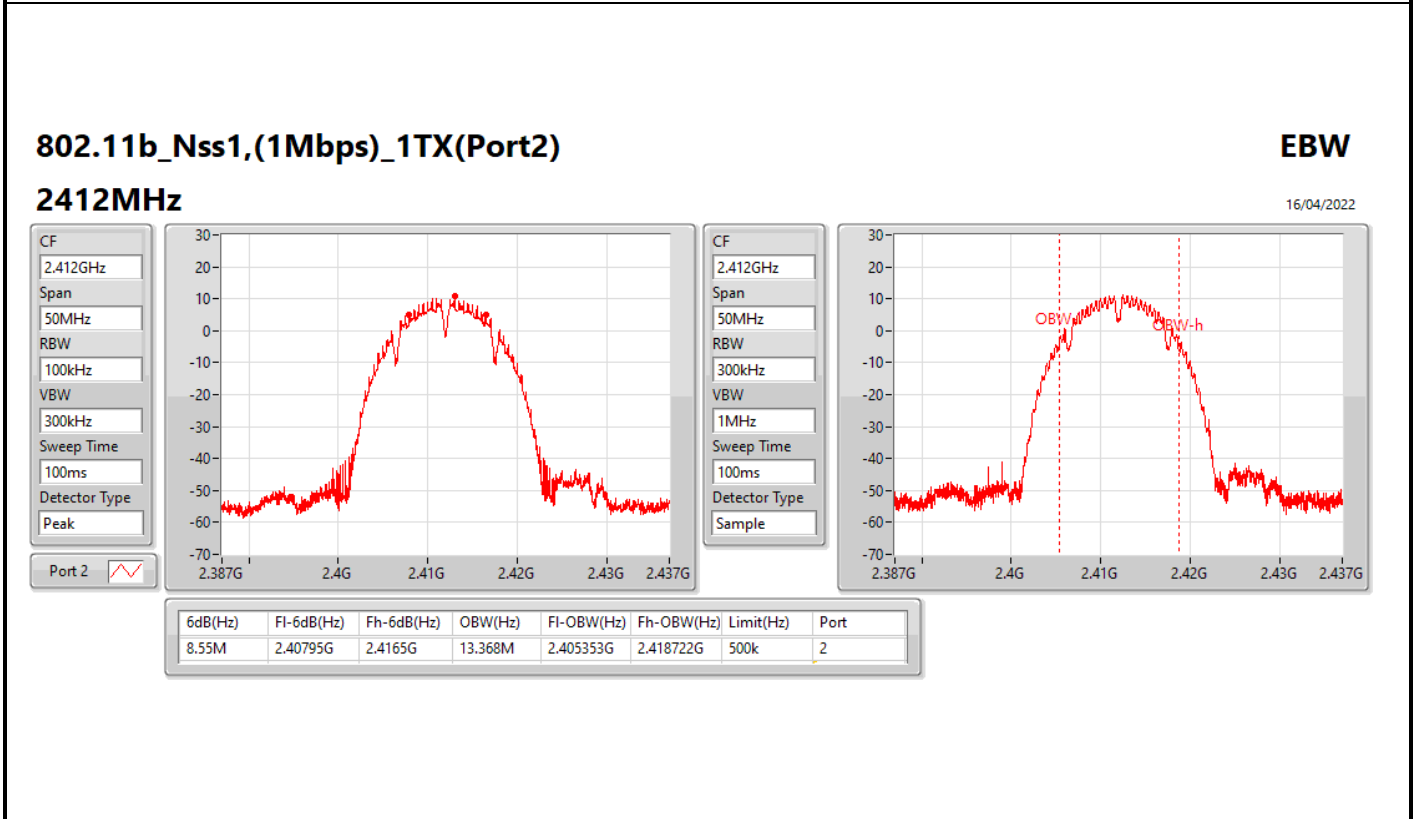
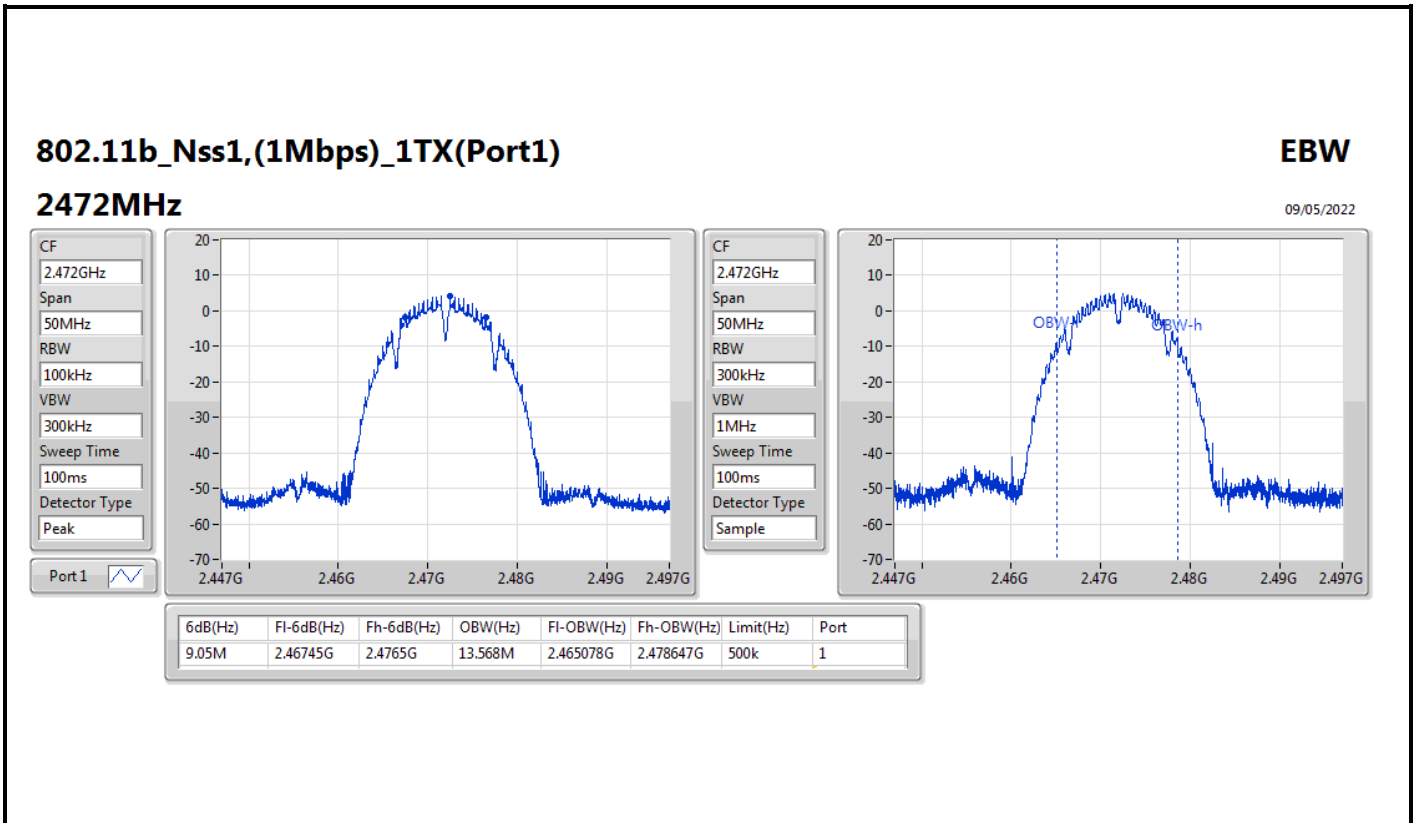
802.11b_Nss1,(1Mbps)_1TX(Port1)

EBW

2467MHz

09/05/2022



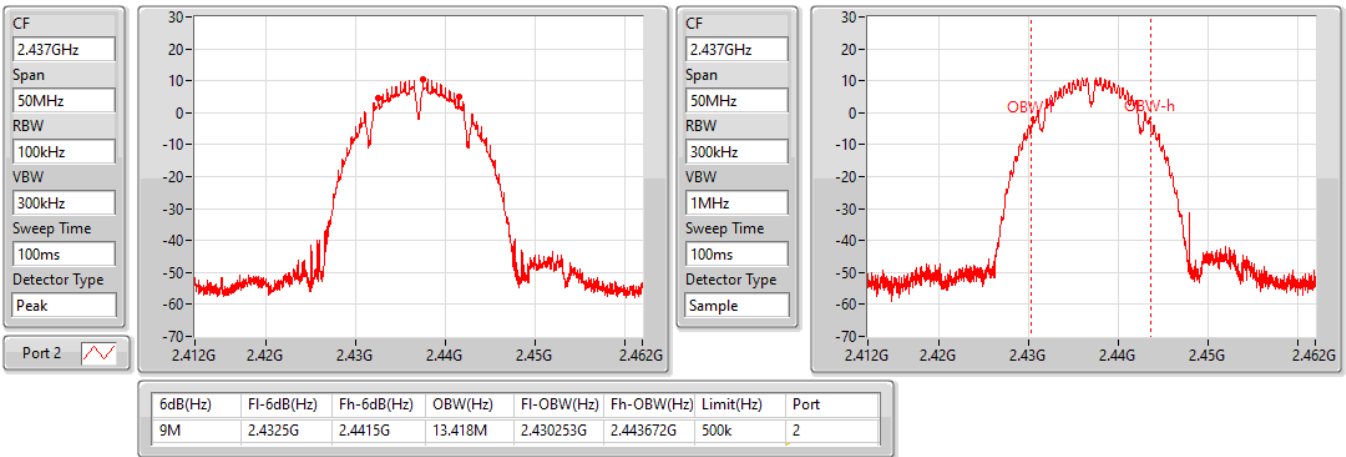


802.11b_Nss1,(1Mbps)_1TX(Port2)

EBW

2437MHz

16/04/2022

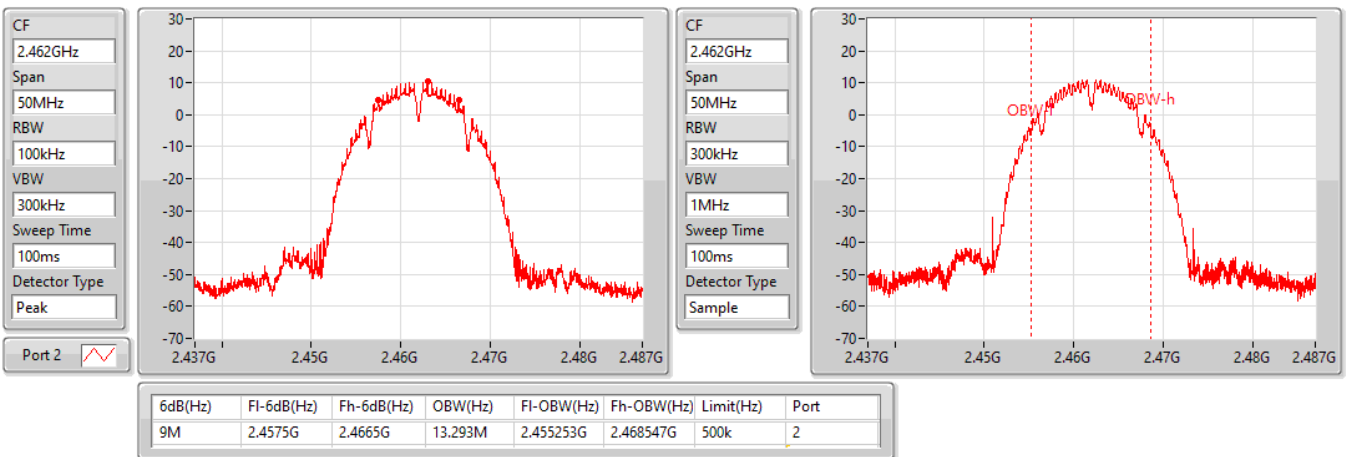


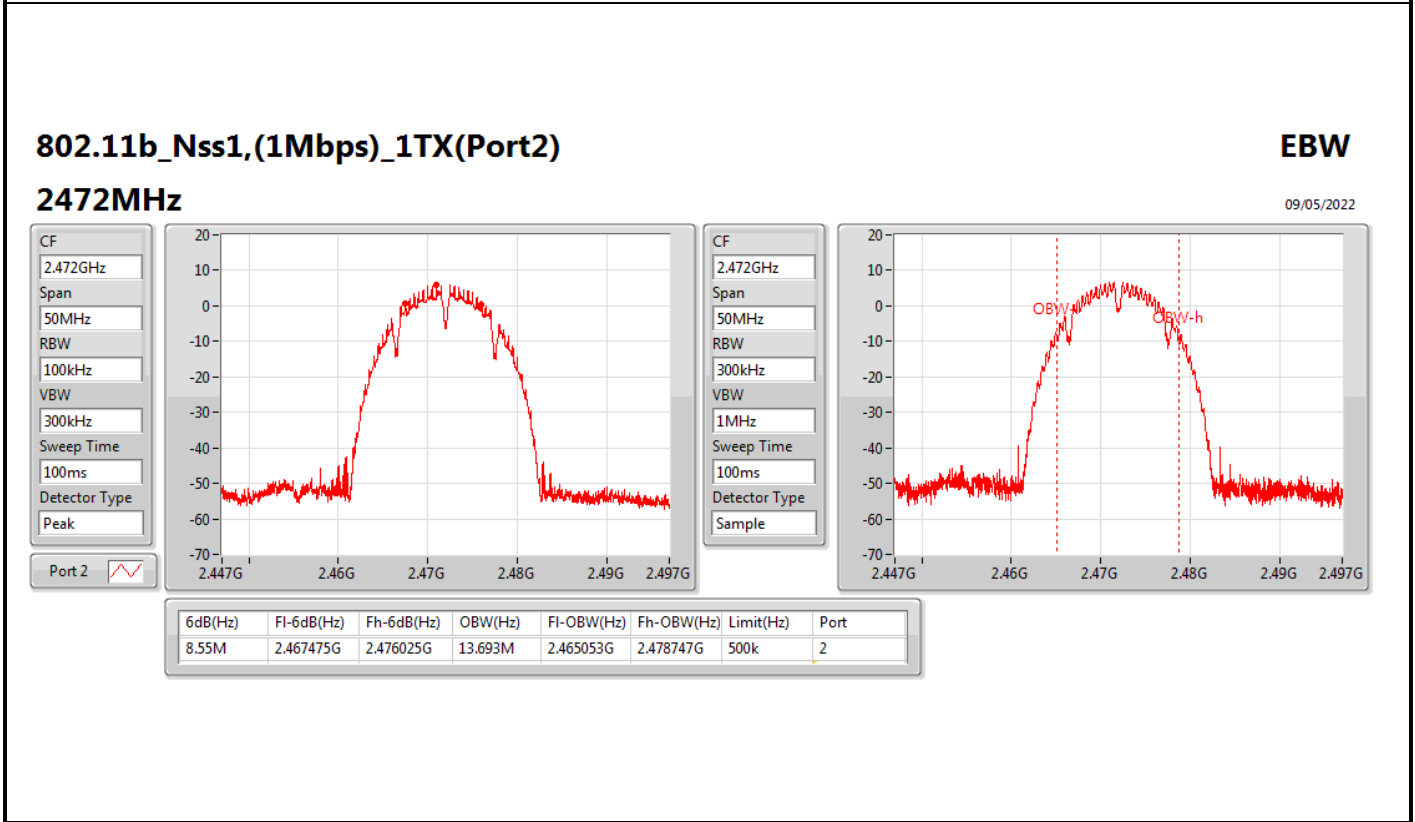
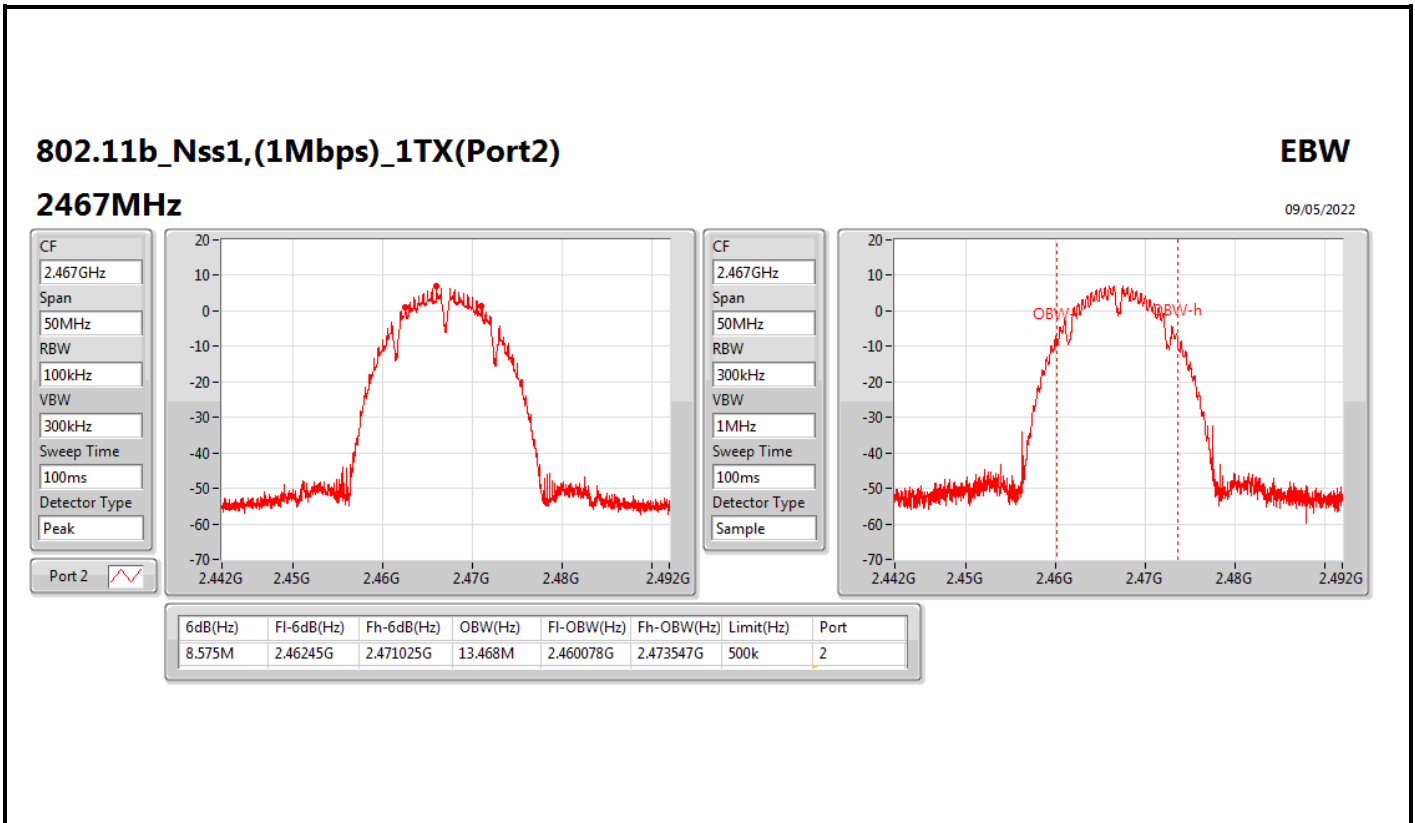
802.11b_Nss1,(1Mbps)_1TX(Port2)

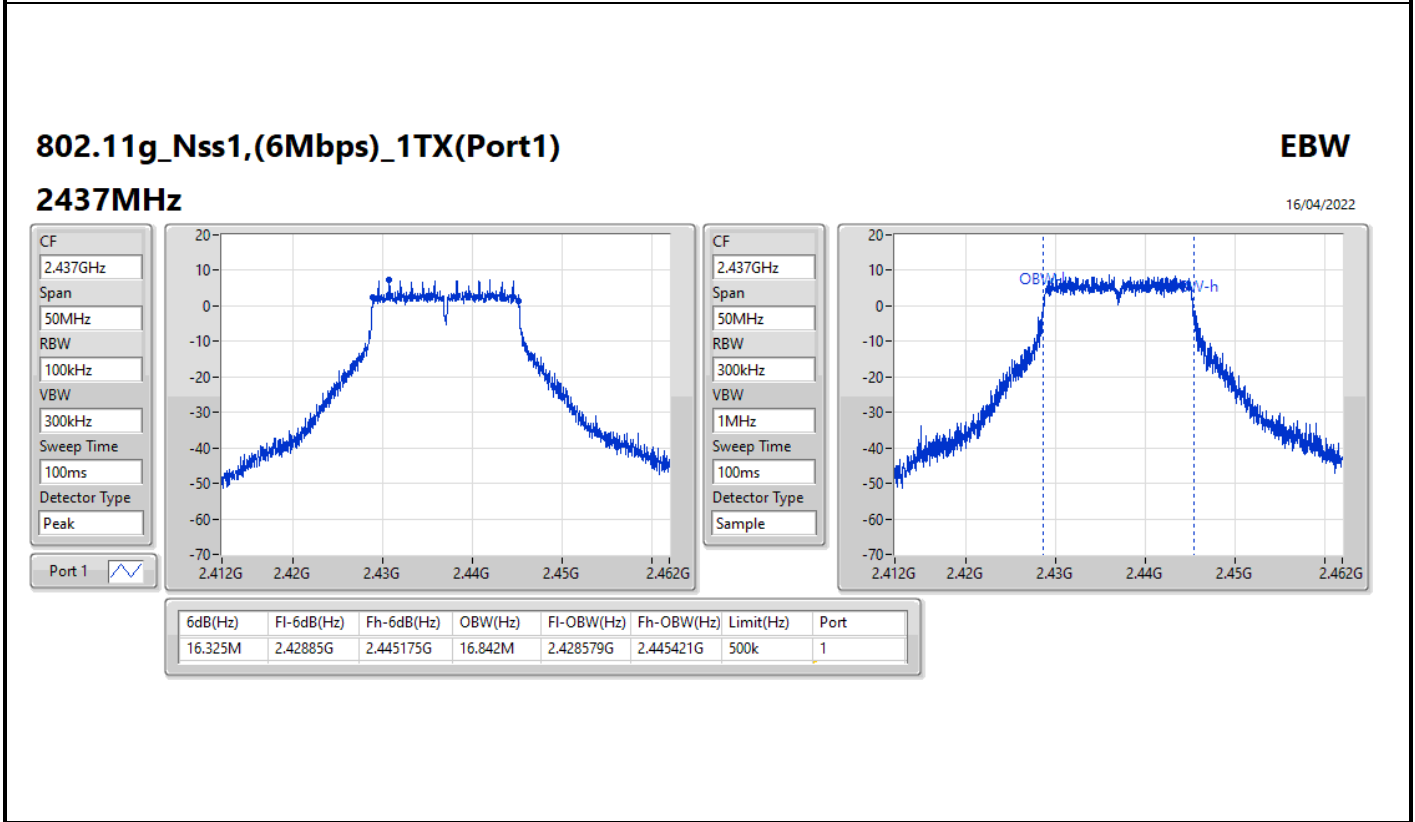
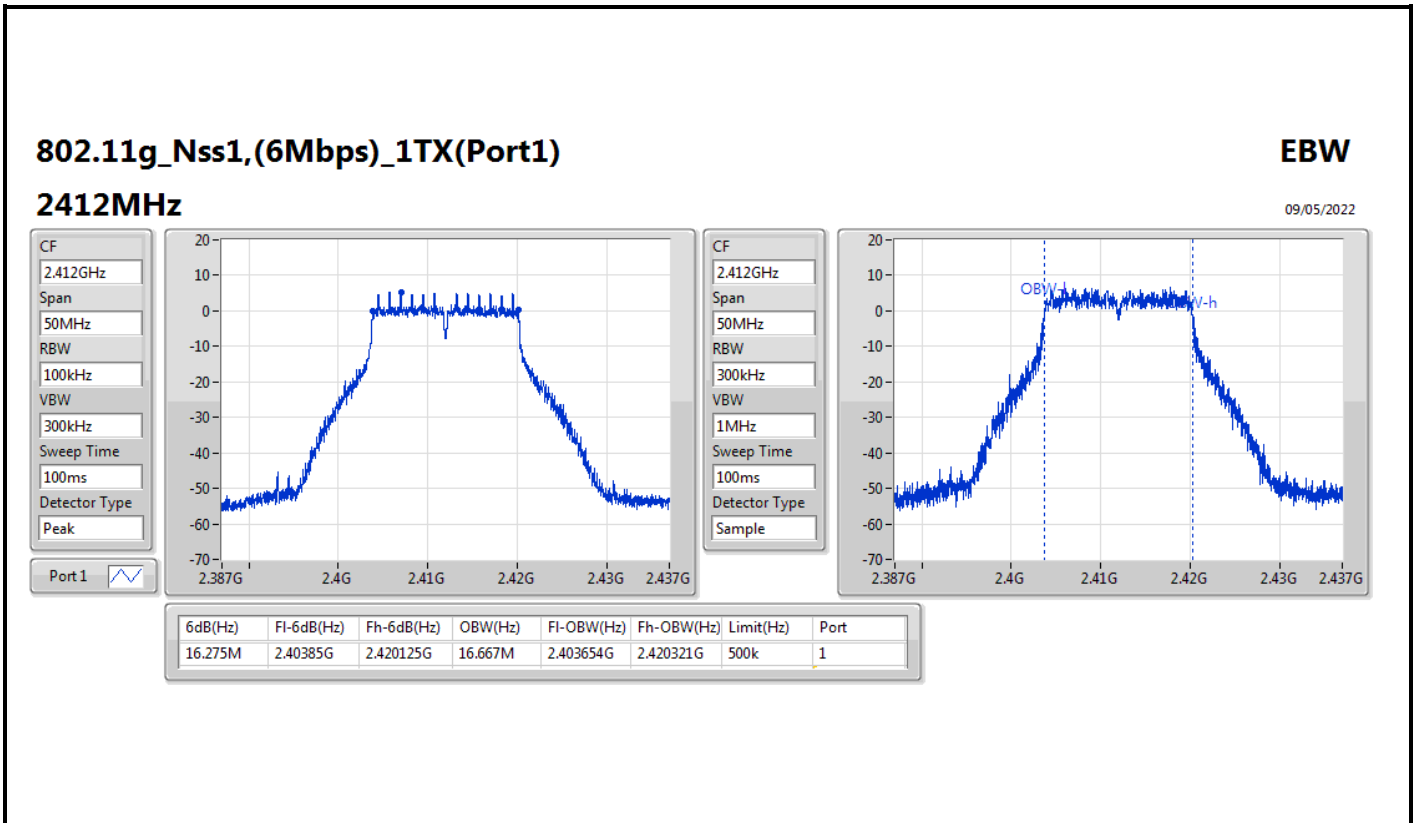
EBW

2462MHz

16/04/2022





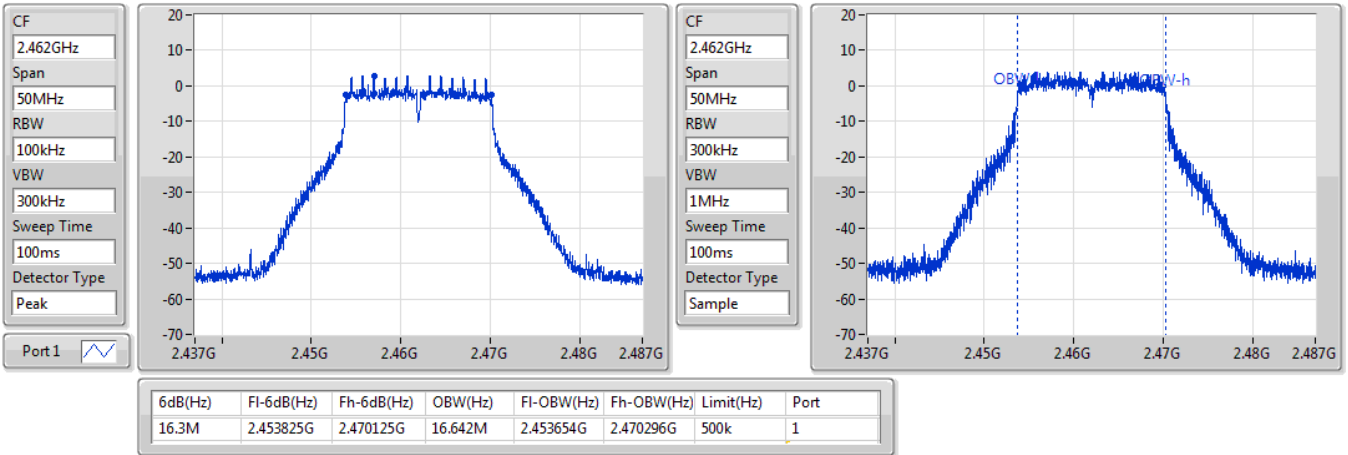


802.11g_Nss1,(6Mbps)_1TX(Port1)

EBW

2462MHz

09/05/2022

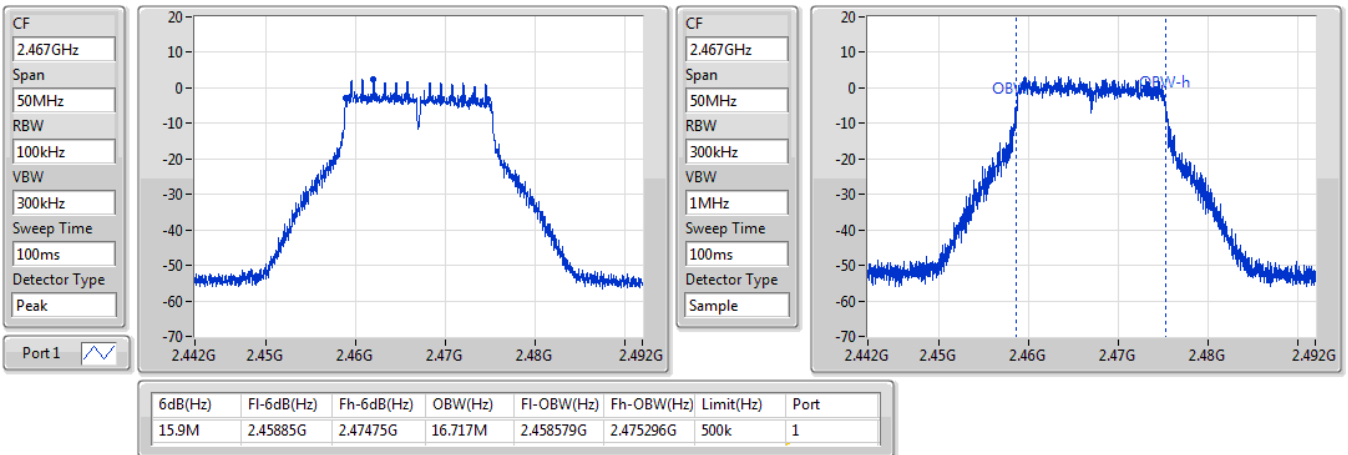


802.11g_Nss1,(6Mbps)_1TX(Port1)

EBW

2467MHz

09/05/2022

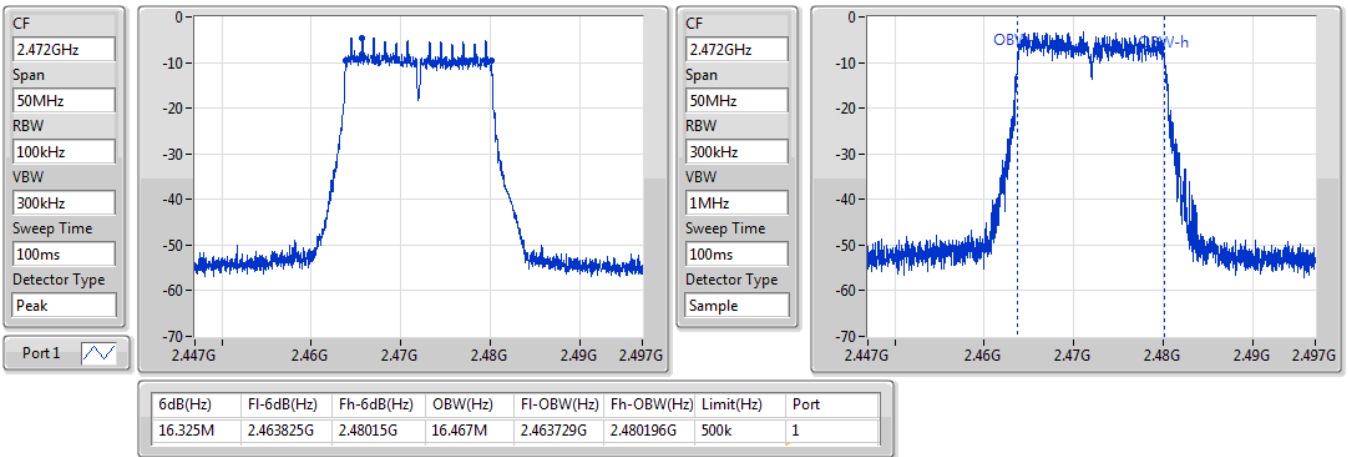


802.11g_Nss1,(6Mbps)_1TX(Port1)

EBW

2472MHz

09/05/2022

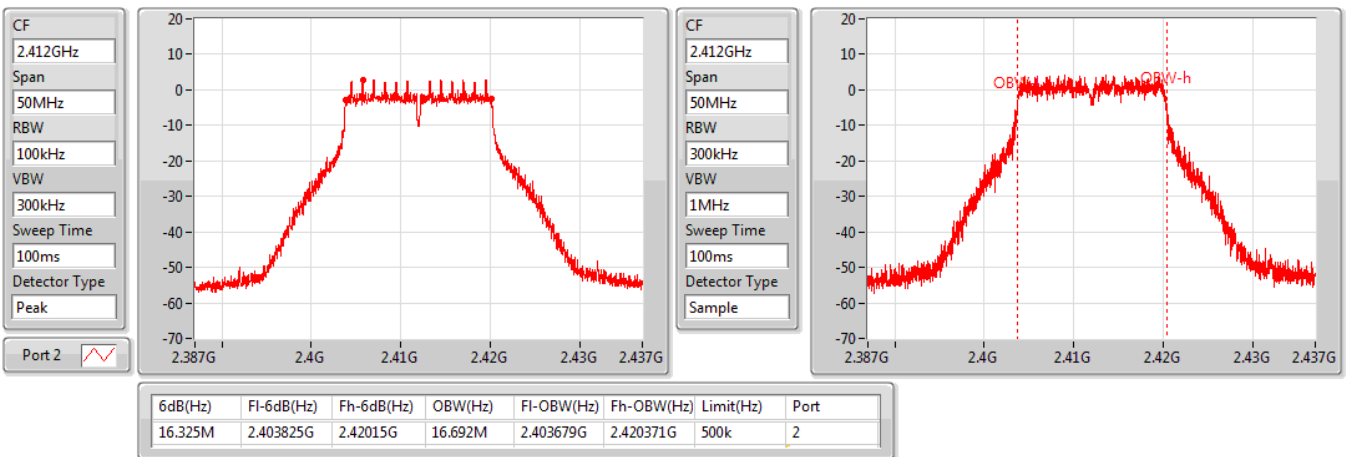


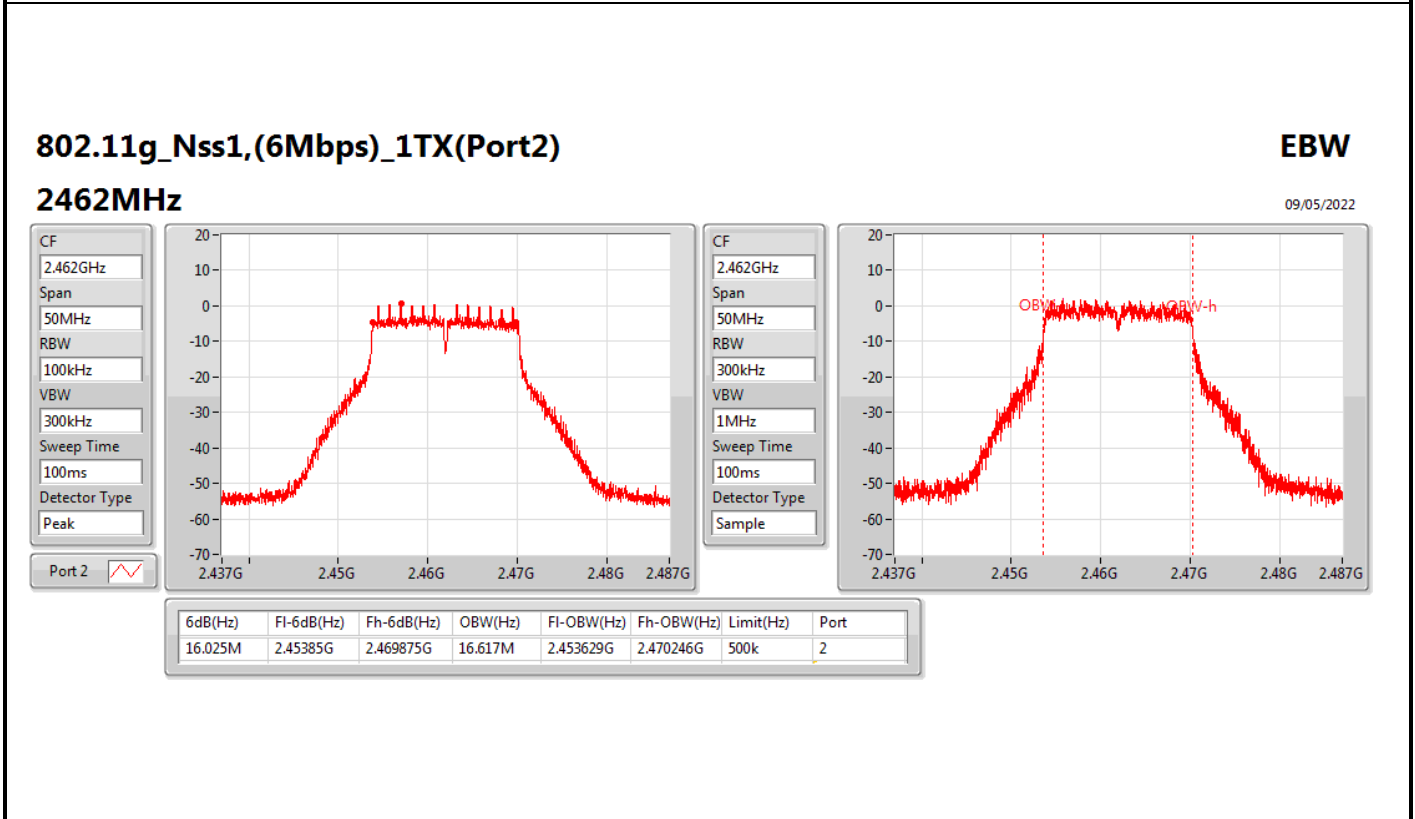
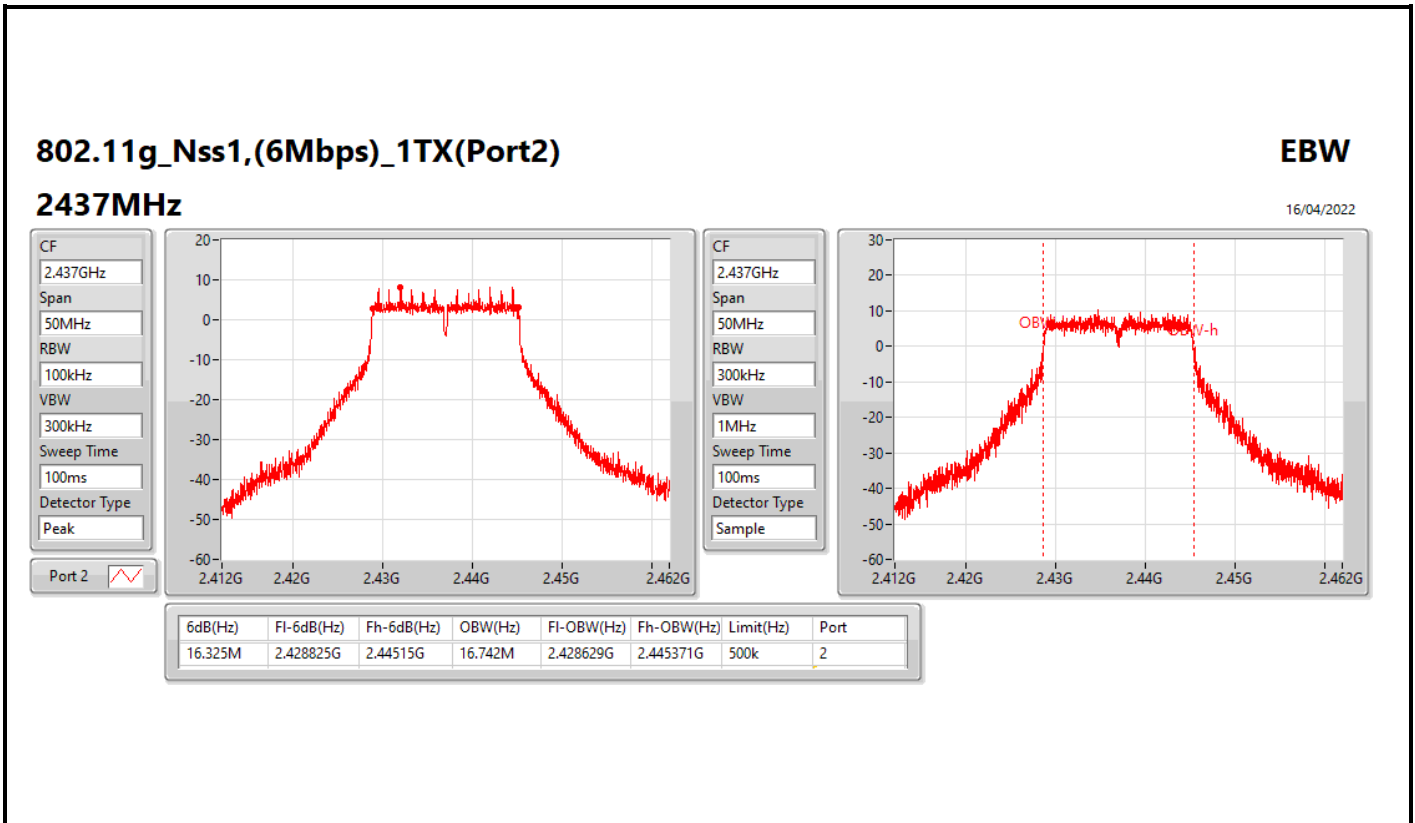
802.11g_Nss1,(6Mbps)_1TX(Port2)

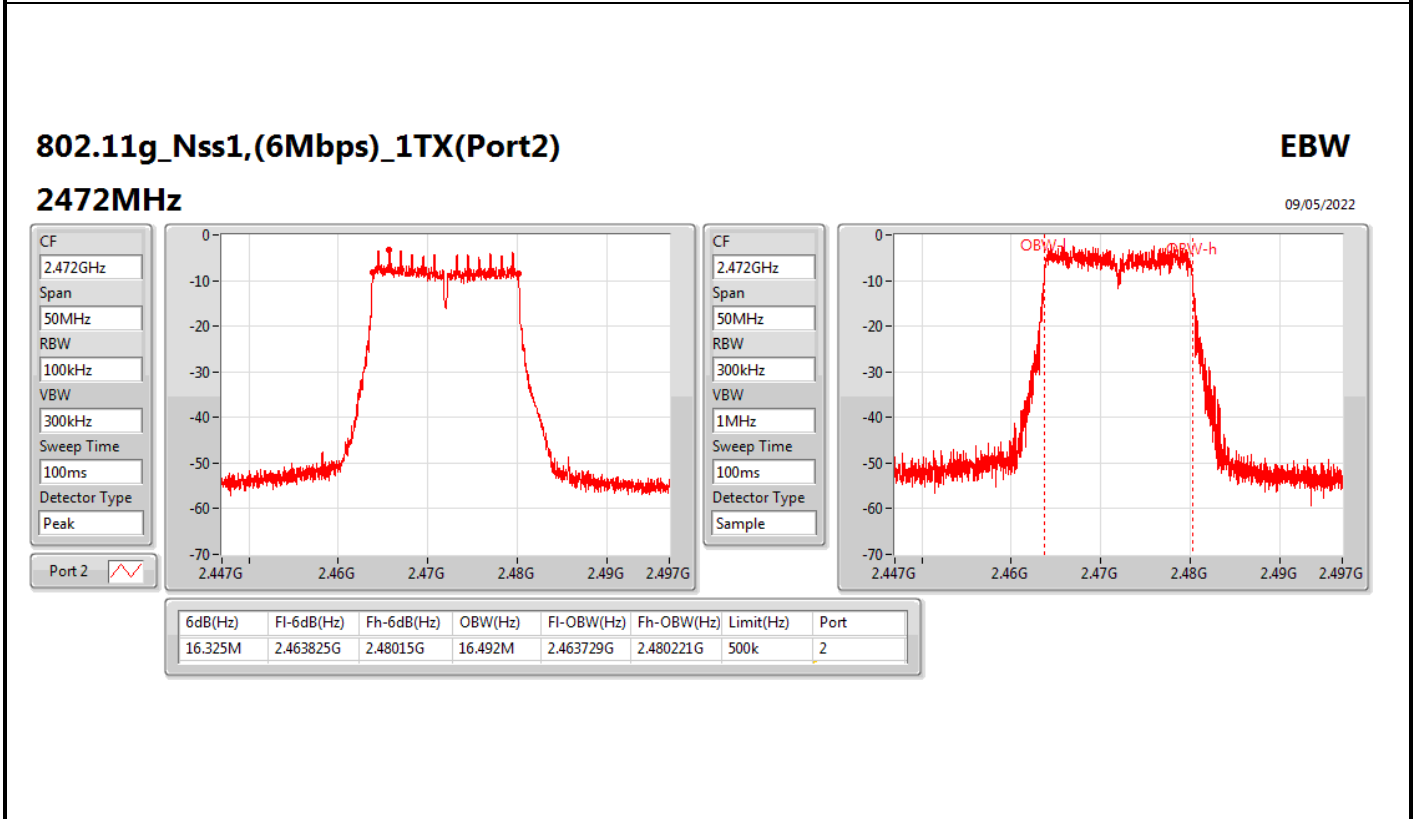
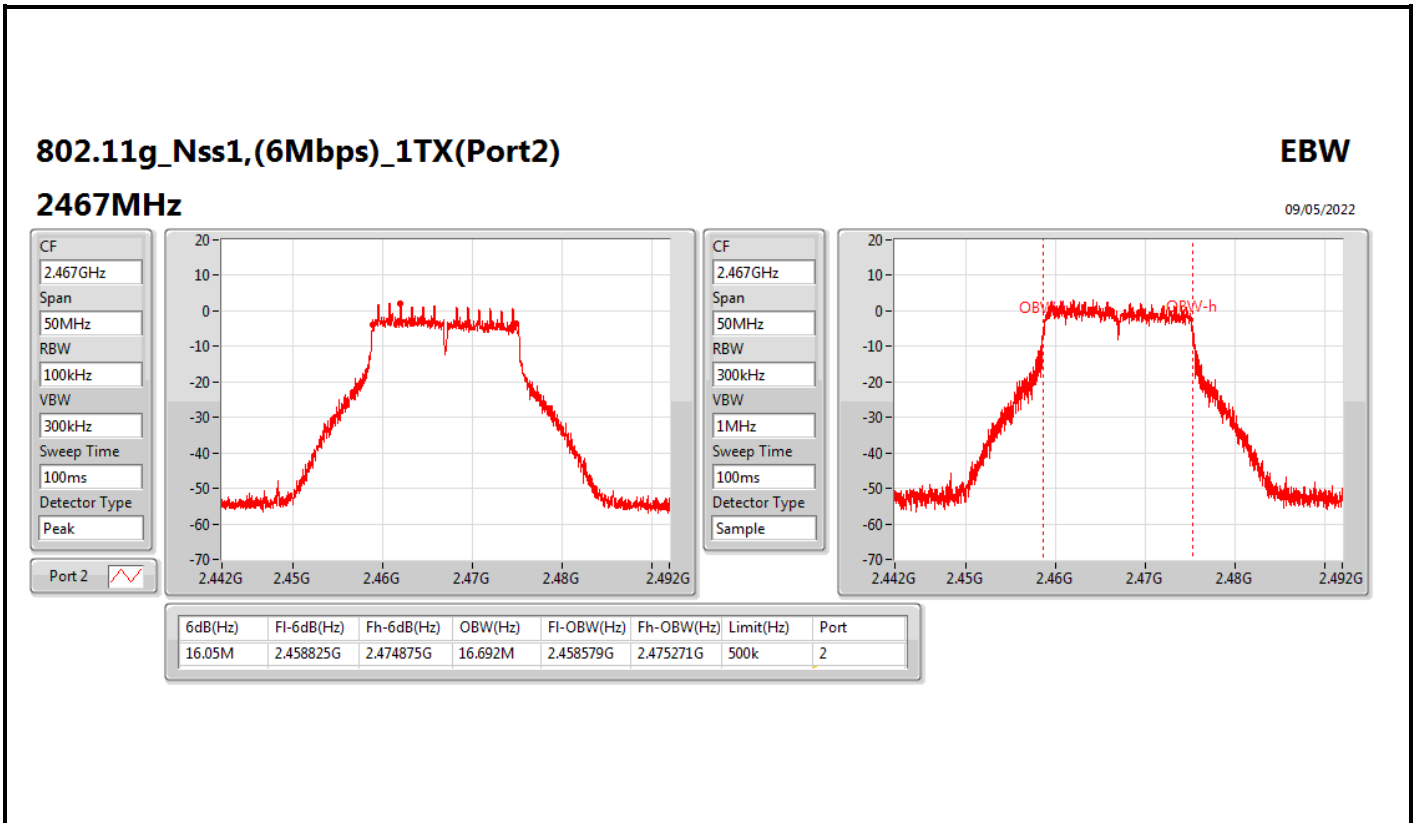
EBW

2412MHz

09/05/2022





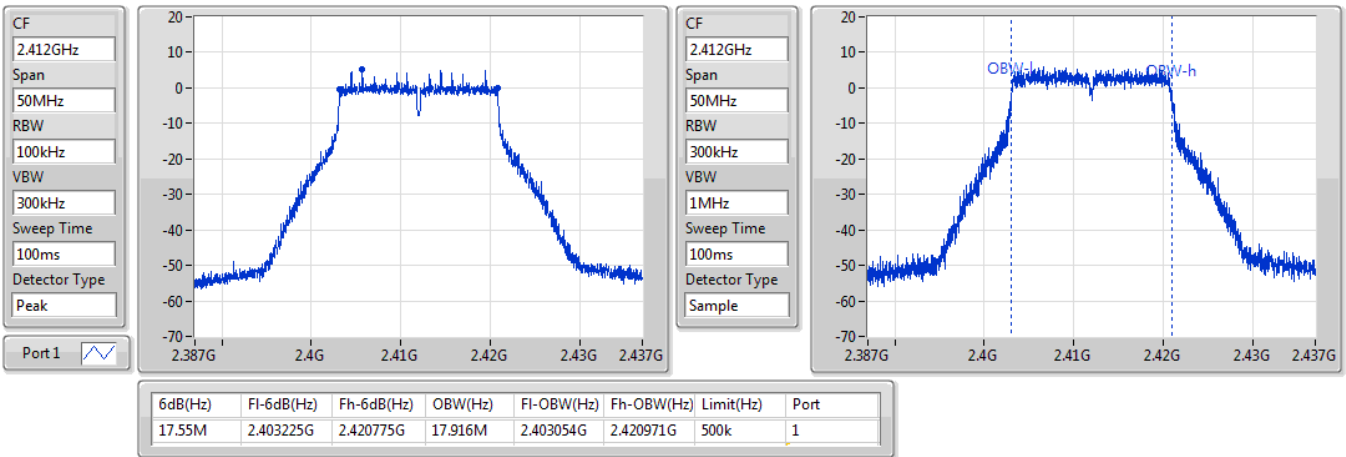


802.11n HT20_Nss1,(MCS0)_1TX(Port1)

EBW

2412MHz

11/05/2022

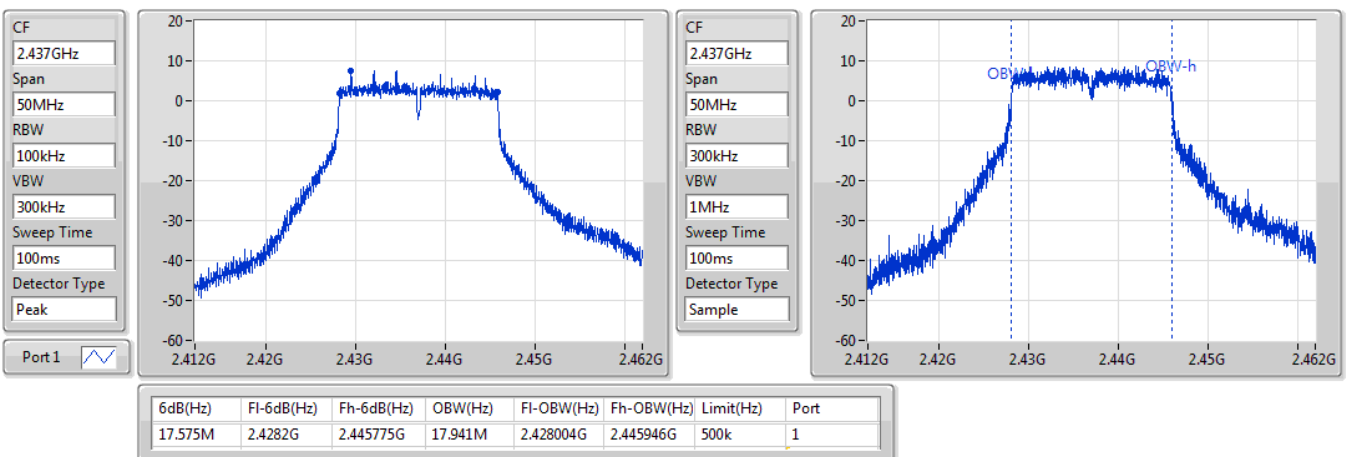


802.11n HT20_Nss1,(MCS0)_1TX(Port1)

EBW

2437MHz

11/05/2022

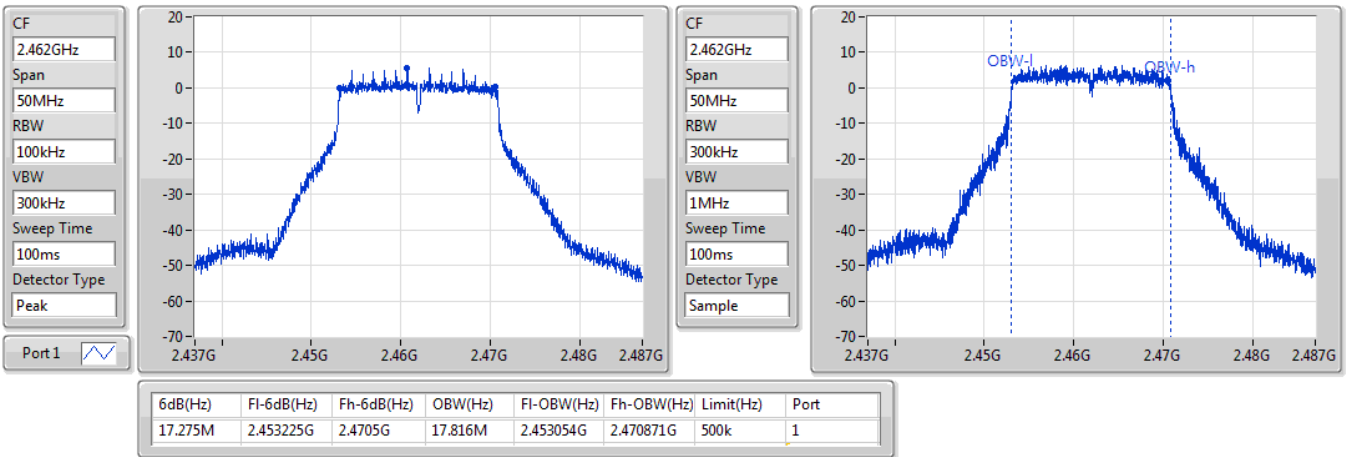


802.11n HT20_Nss1,(MCS0)_1TX(Port1)

EBW

2462MHz

11/05/2022

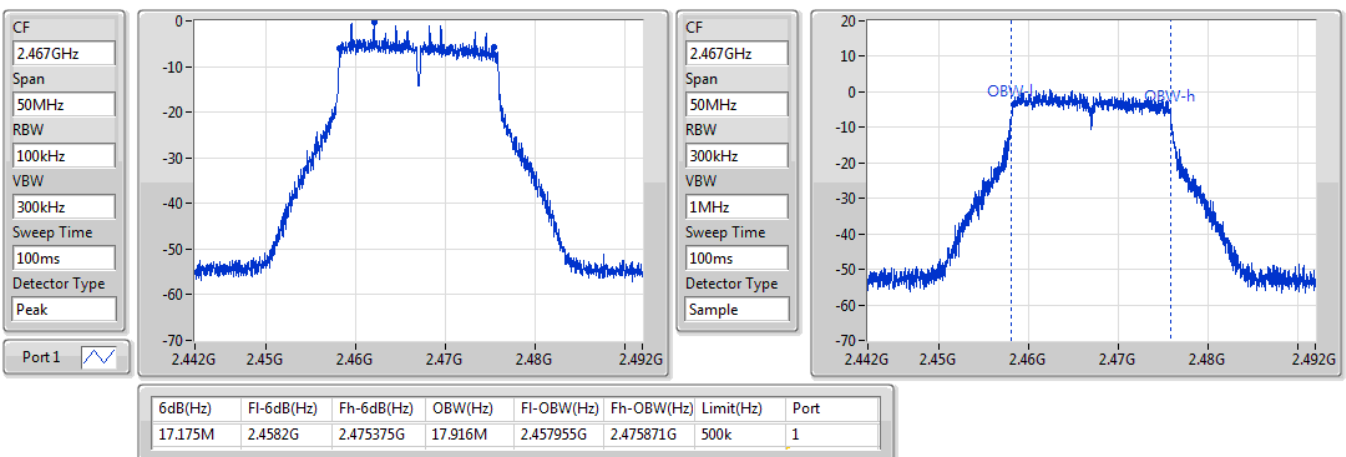


802.11n HT20_Nss1,(MCS0)_1TX(Port1)

EBW

2467MHz

11/05/2022

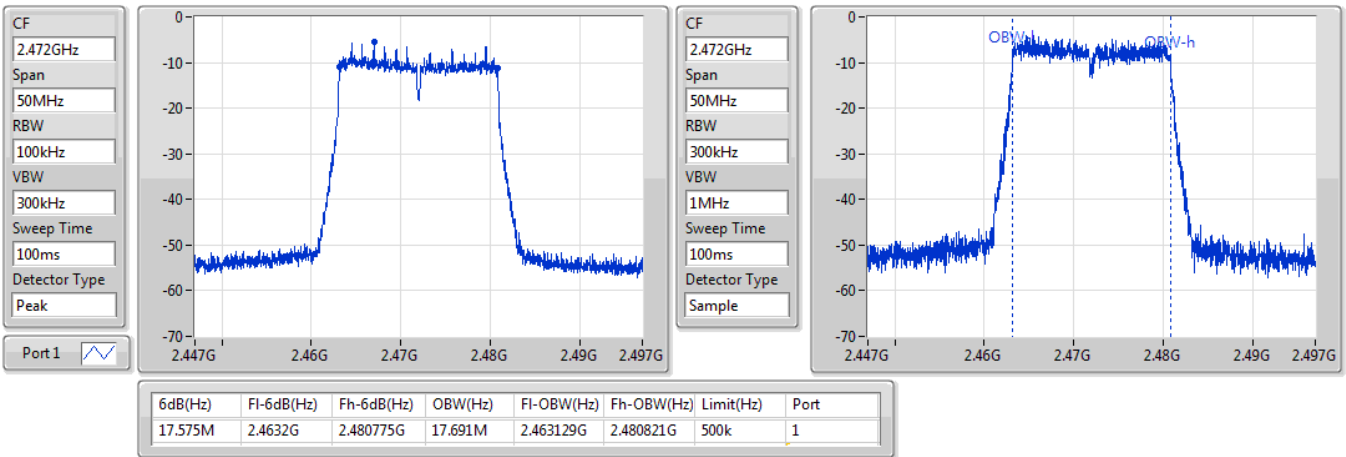


802.11n HT20_Nss1,(MCS0)_1TX(Port1)

EBW

2472MHz

11/05/2022

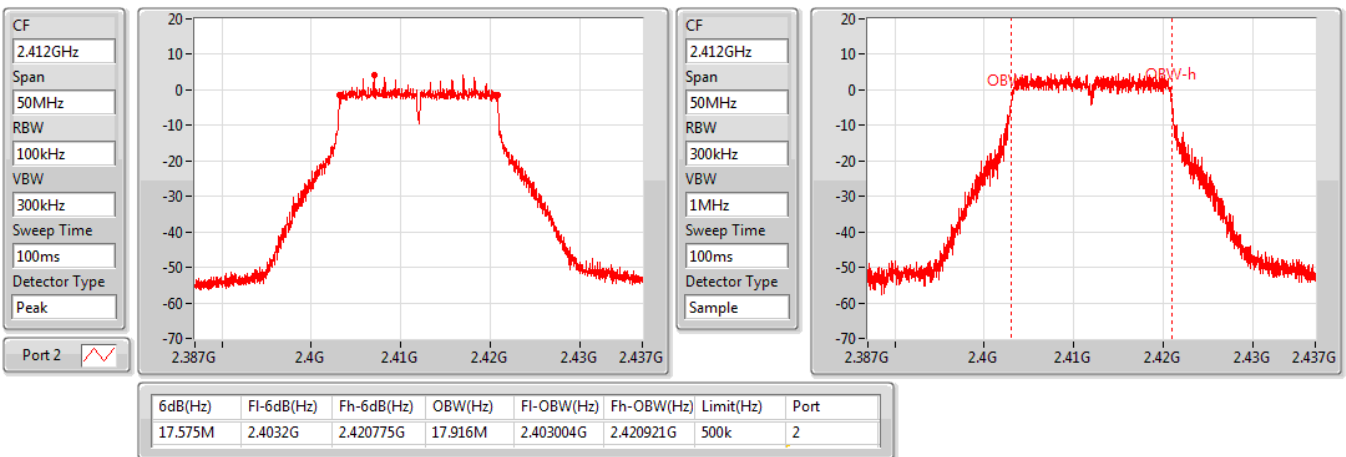


802.11n HT20_Nss1,(MCS0)_1TX(Port2)

EBW

2412MHz

11/05/2022

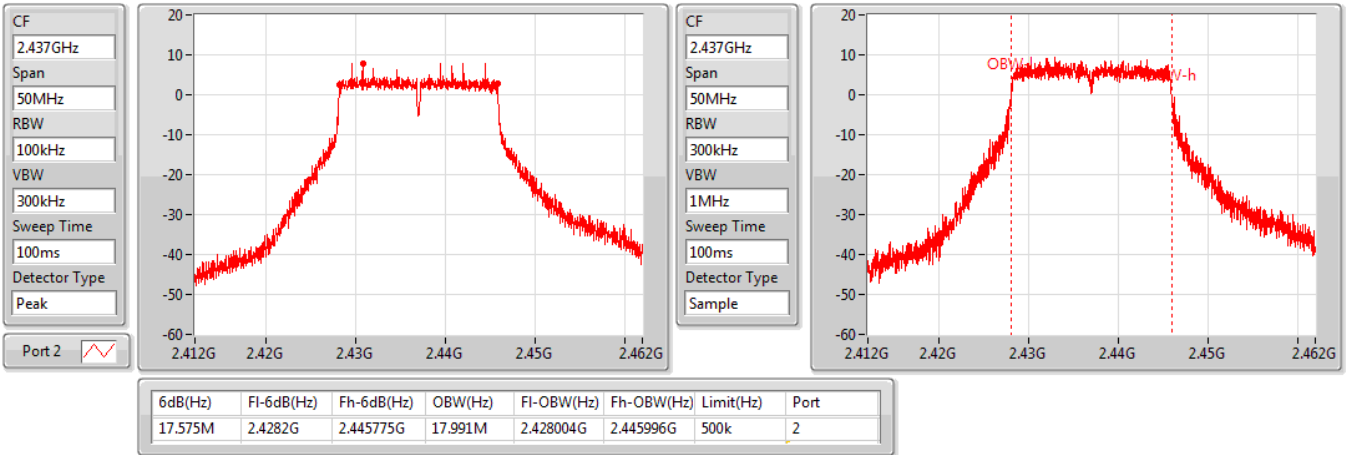


802.11n HT20_Nss1,(MCS0)_1TX(Port2)

EBW

2437MHz

11/05/2022

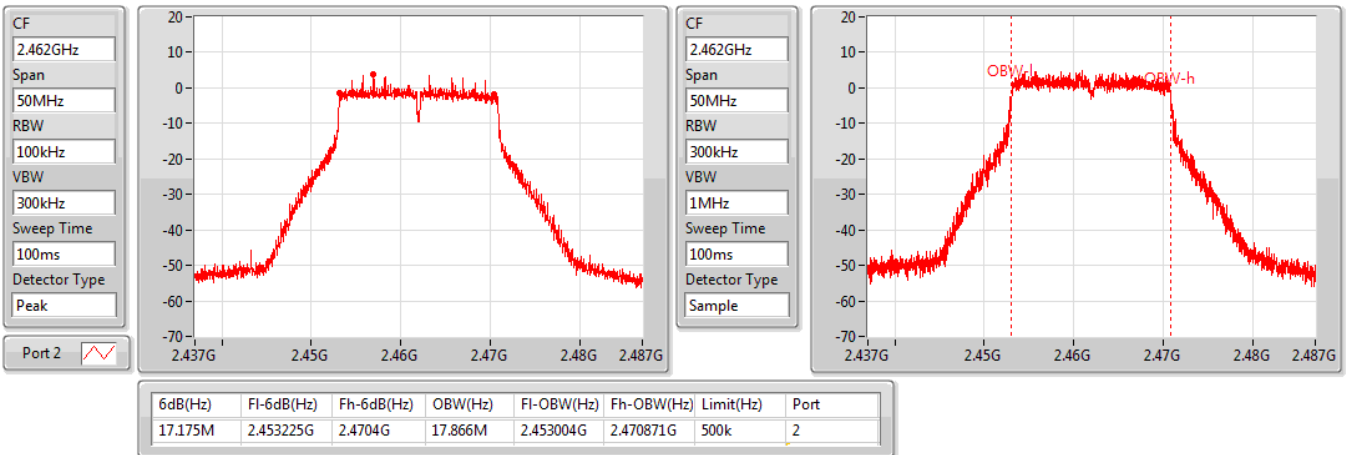


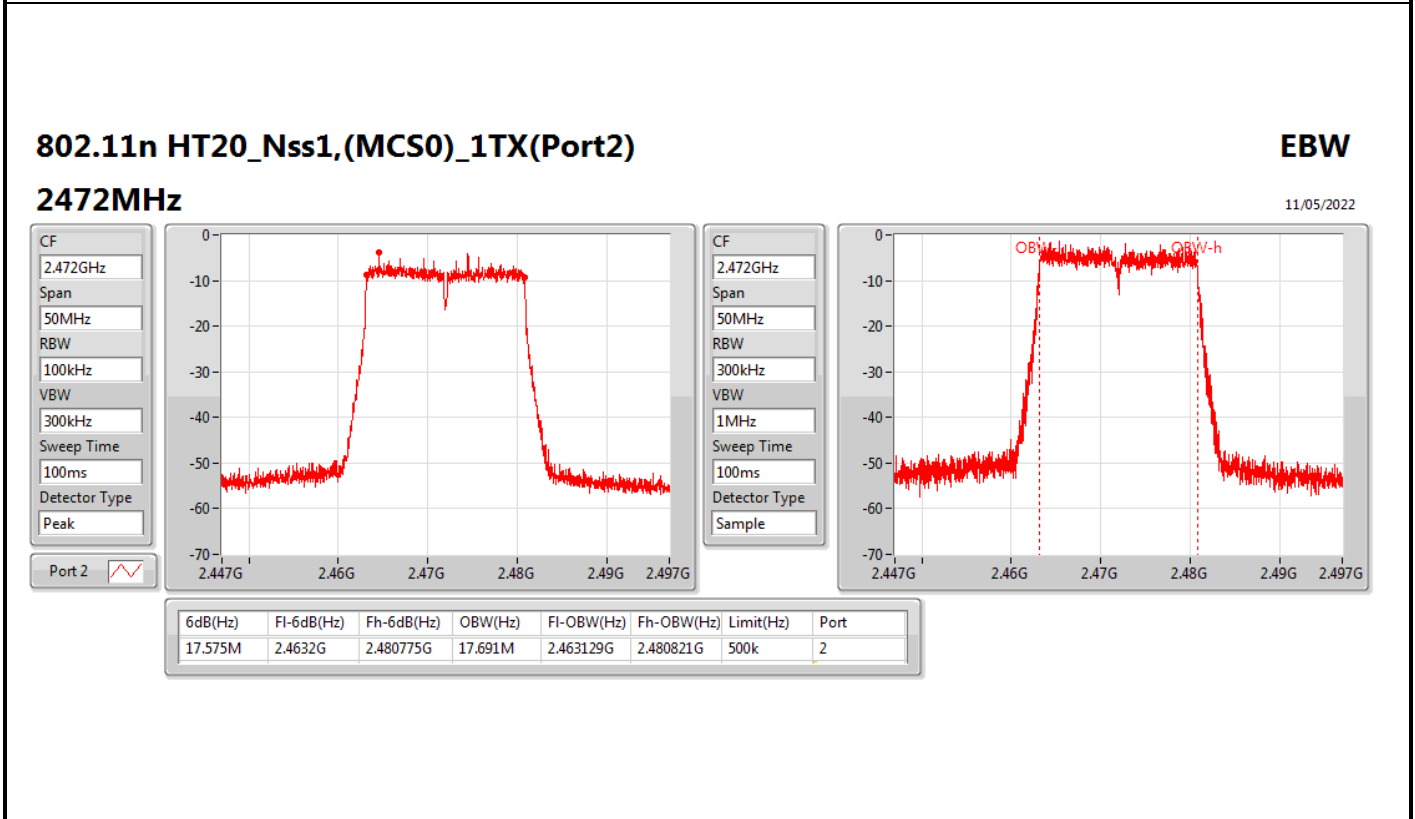
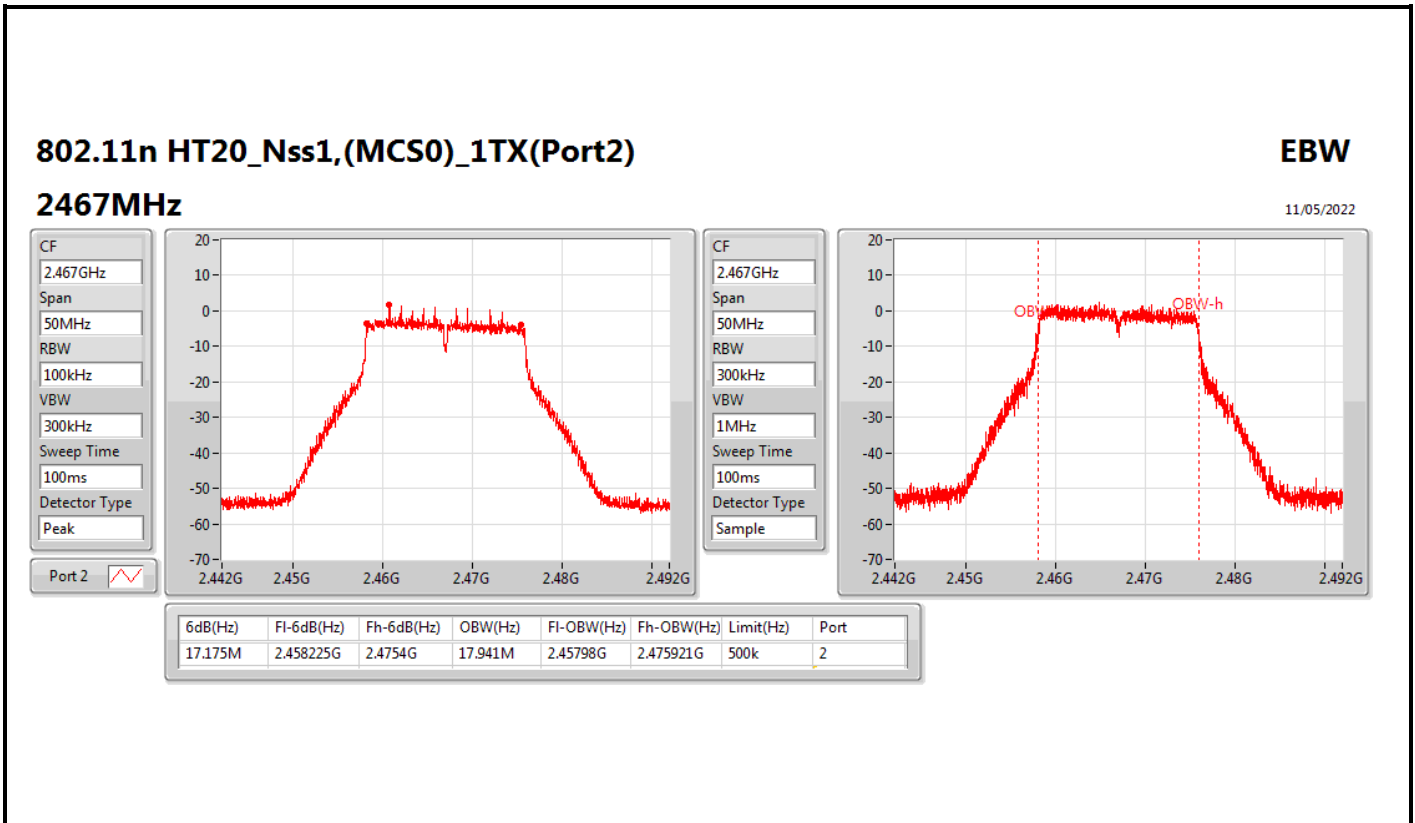
802.11n HT20_Nss1,(MCS0)_1TX(Port2)

EBW

2462MHz

11/05/2022



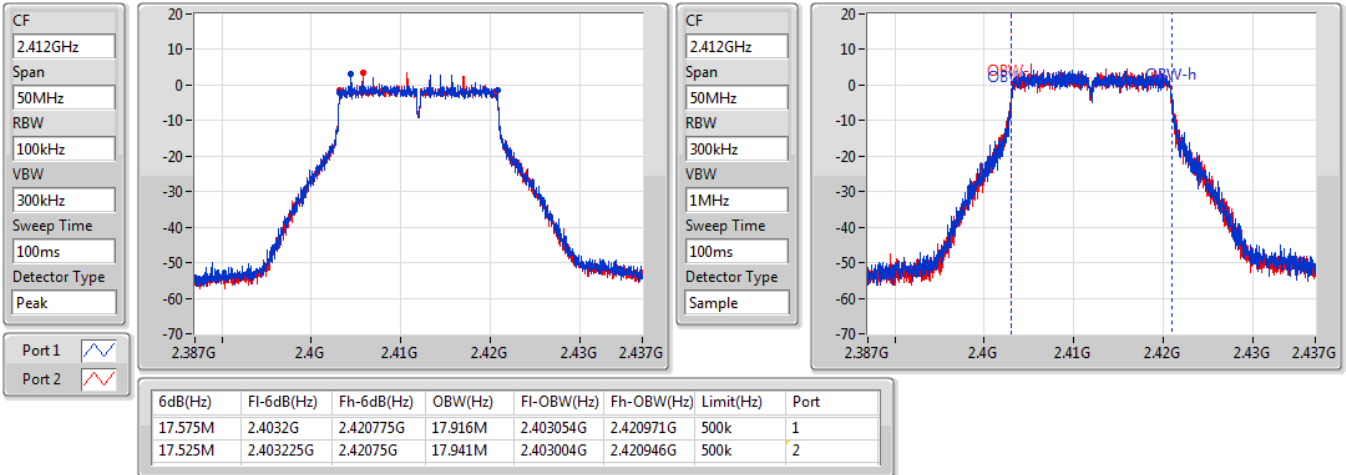


802.11n HT20_Nss1,(MCS8)_2TX

EBW

2412MHz

11/05/2022

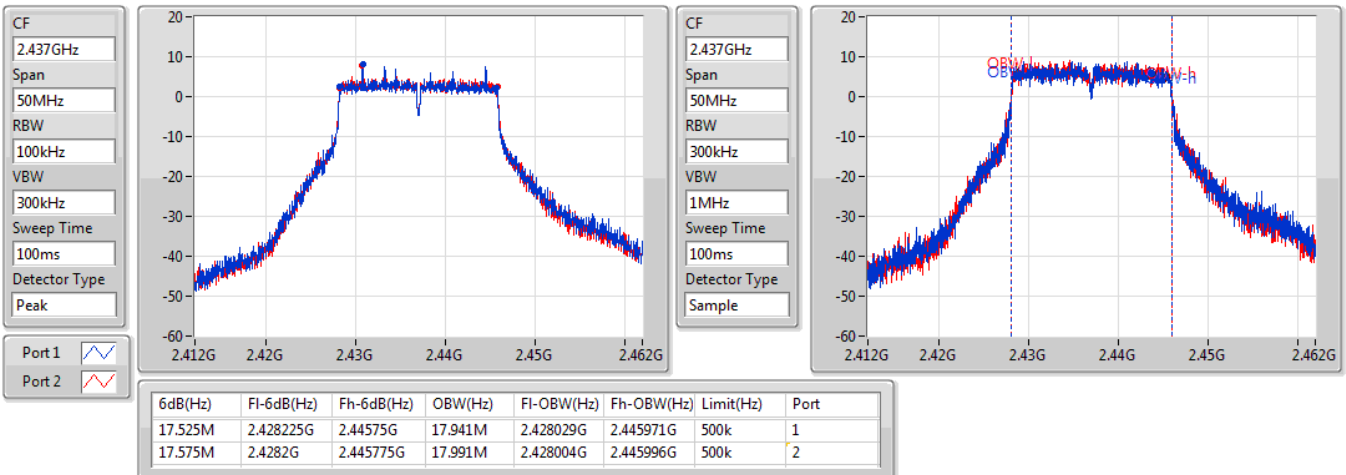


802.11n HT20_Nss1,(MCS8)_2TX

EBW

2437MHz

11/05/2022

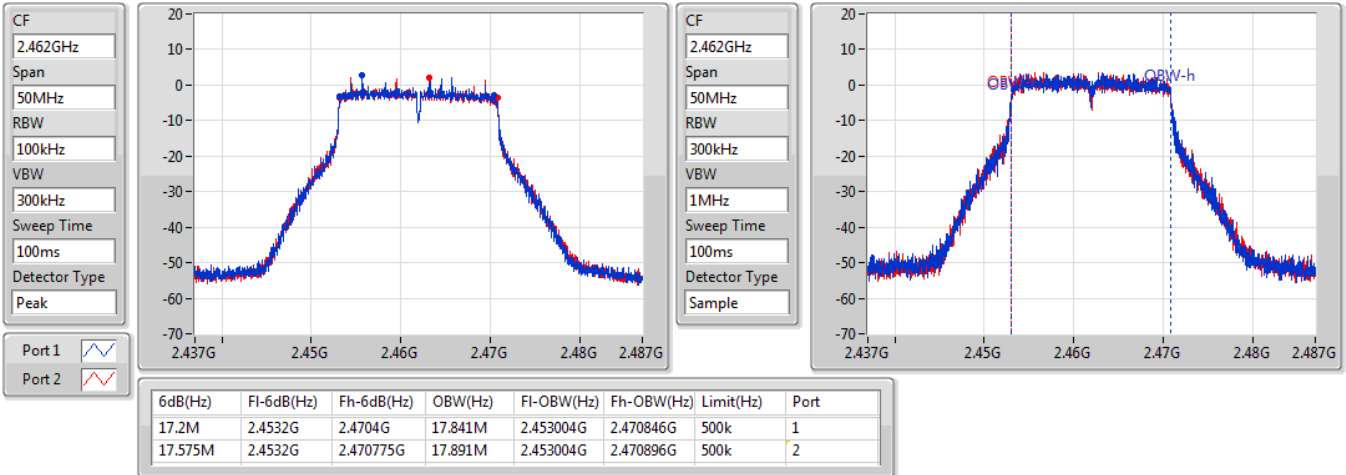


802.11n HT20_Nss1,(MCS8)_2TX

EBW

2462MHz

11/05/2022

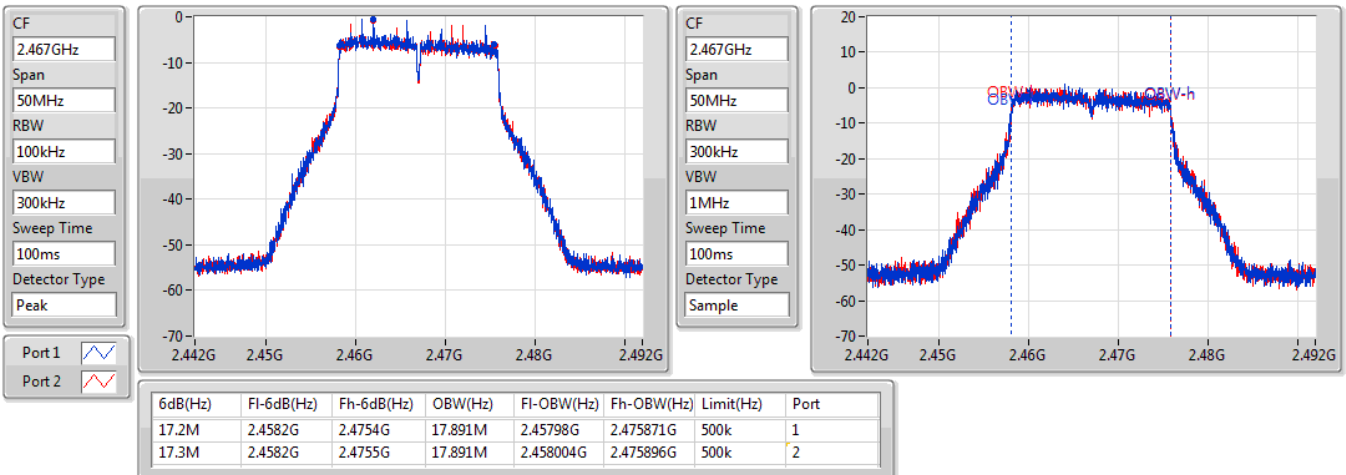


802.11n HT20_Nss1,(MCS8)_2TX

EBW

2467MHz

11/05/2022

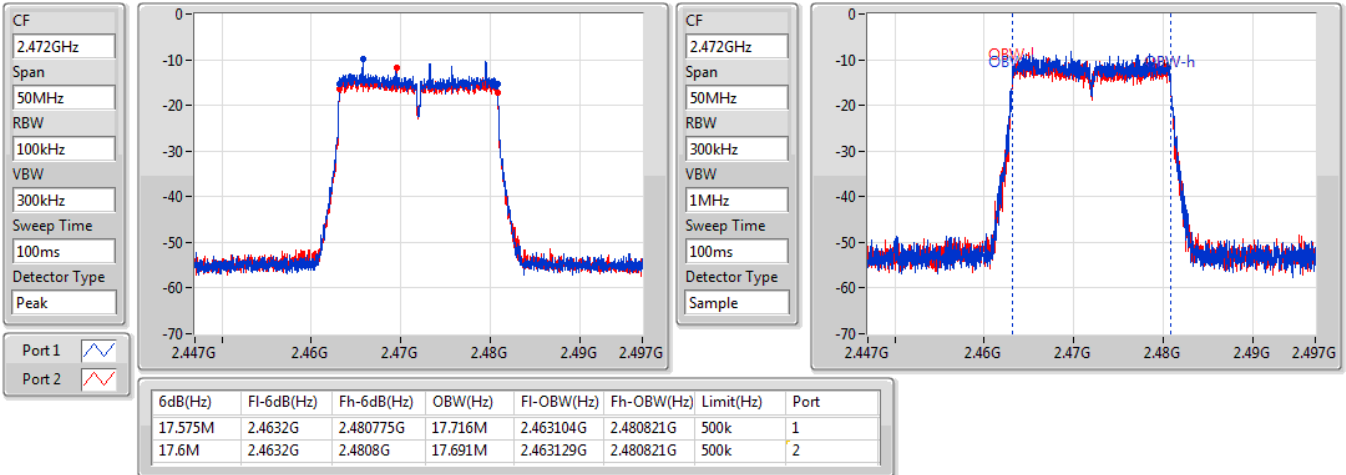


802.11n HT20_Nss1,(MCS8)_2TX

EBW

2472MHz

11/05/2022

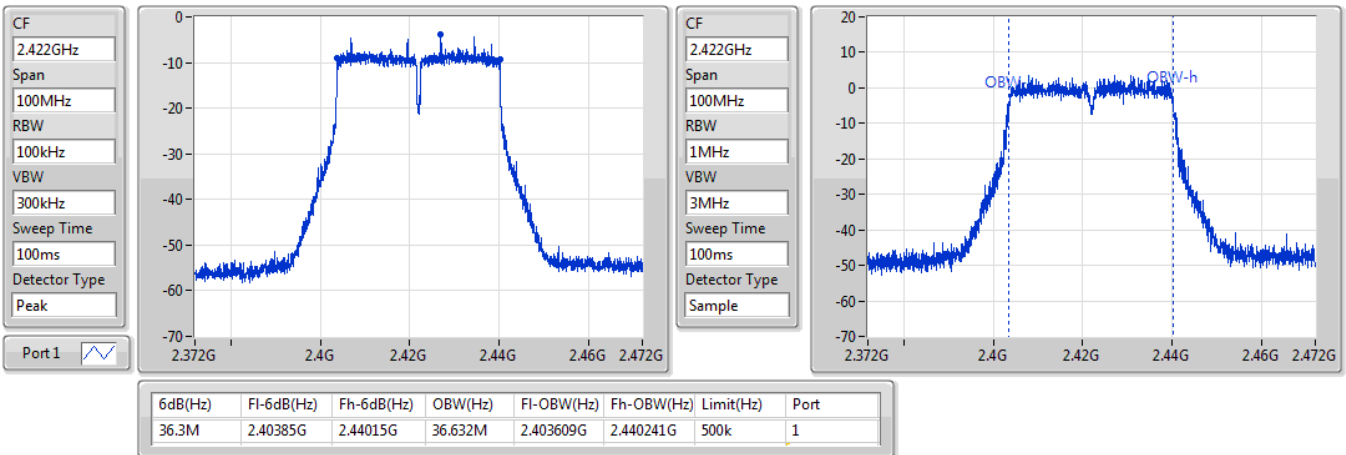


802.11n HT40_Nss1,(MCS0)_1TX(Port1)

EBW

2422MHz

11/05/2022

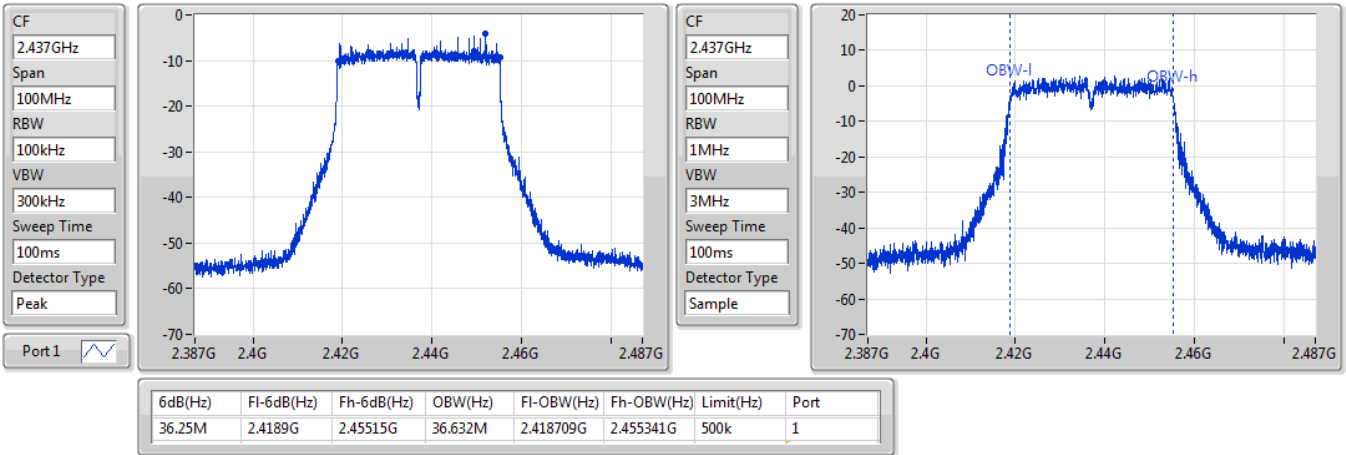


802.11n HT40_Nss1,(MCS0)_1TX(Port1)

EBW

2437MHz

11/05/2022

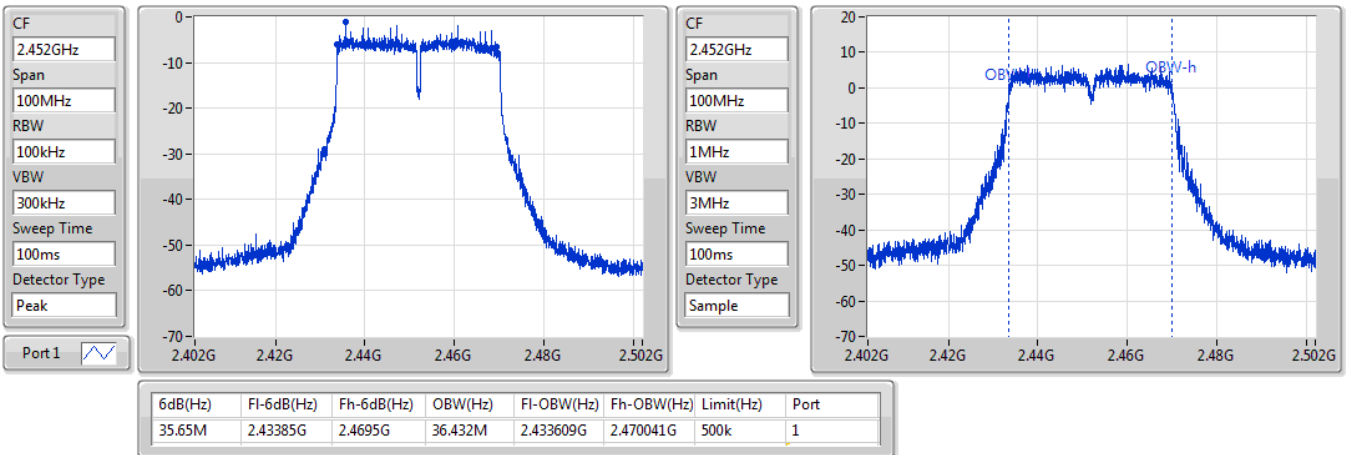


802.11n HT40_Nss1,(MCS0)_1TX(Port1)

EBW

2452MHz

11/05/2022

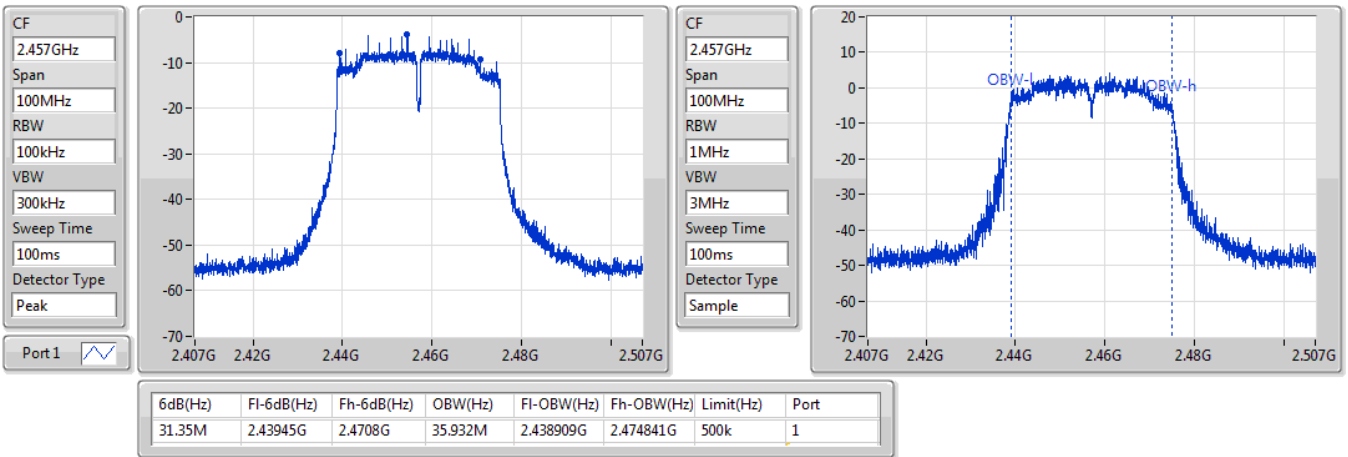


802.11n HT40_Nss1,(MCS0)_1TX(Port1)

EBW

2457MHz

11/05/2022

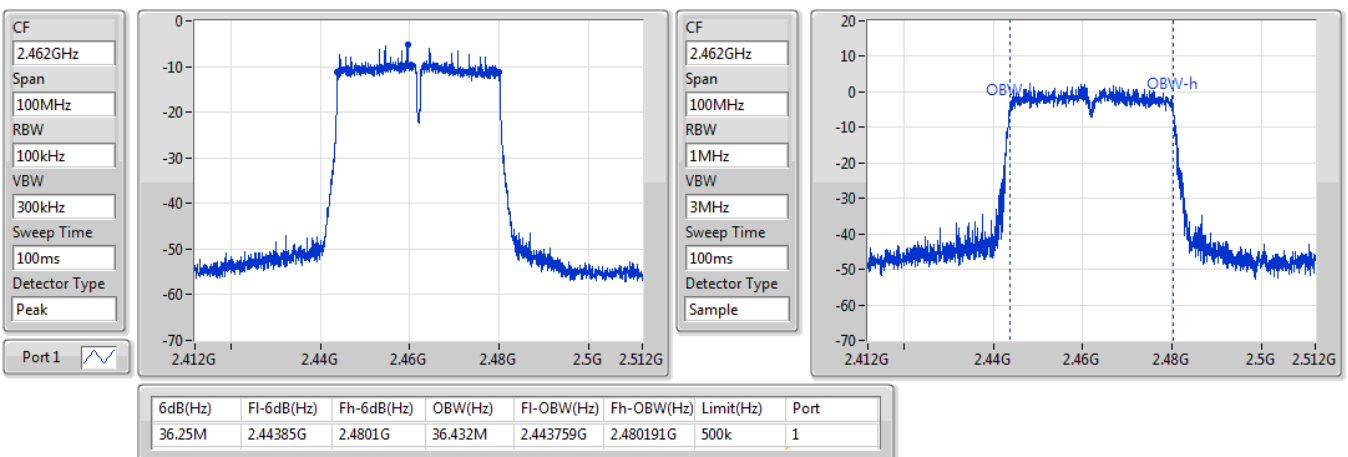


802.11n HT40_Nss1,(MCS0)_1TX(Port1)

EBW

2462MHz

11/05/2022

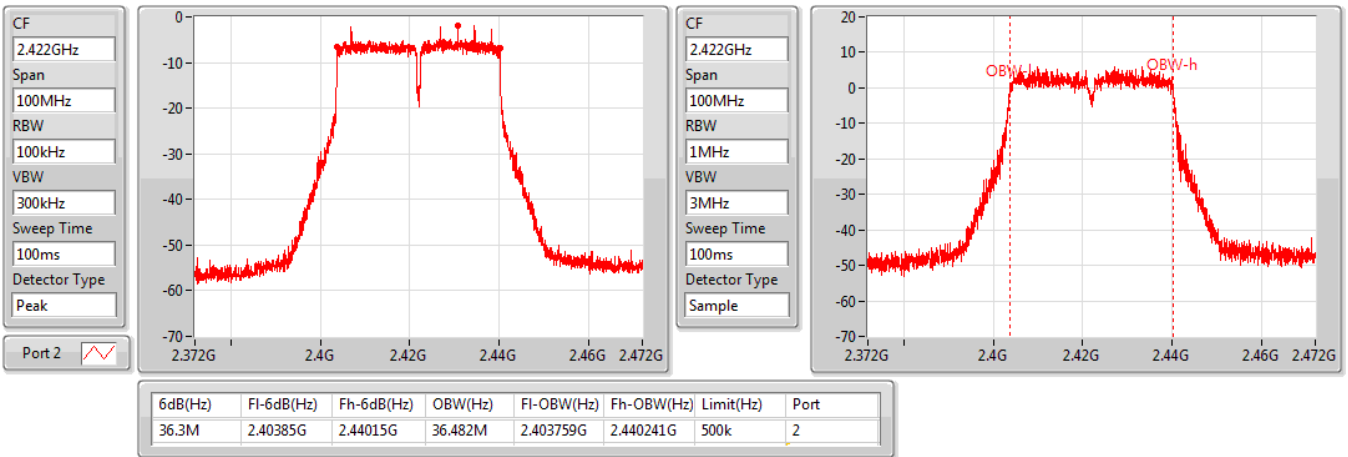


802.11n HT40_Nss1,(MCS0)_1TX(Port2)

EBW

2422MHz

11/05/2022

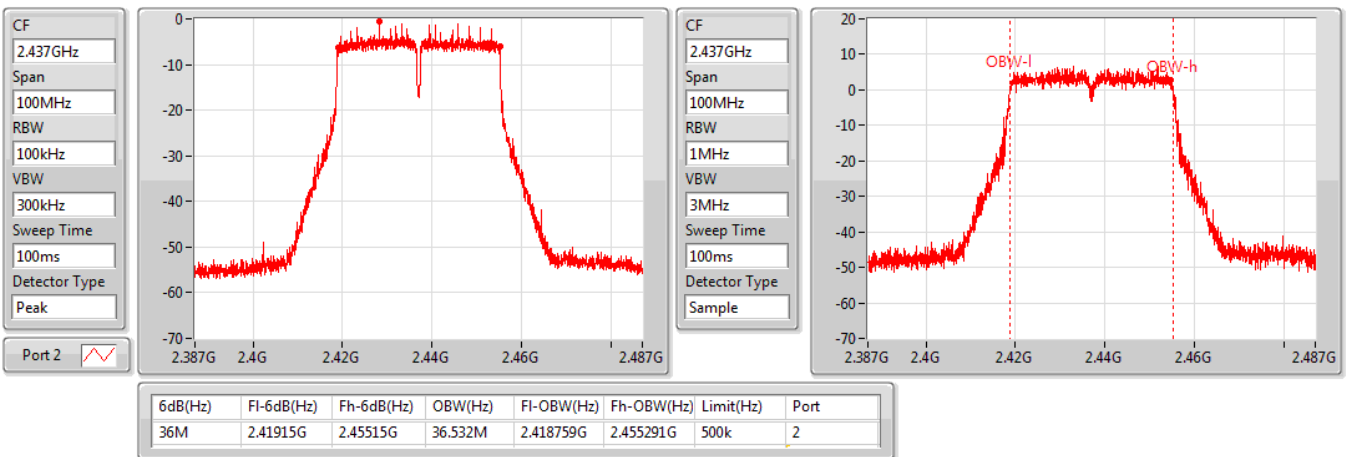


802.11n HT40_Nss1,(MCS0)_1TX(Port2)

EBW

2437MHz

11/05/2022

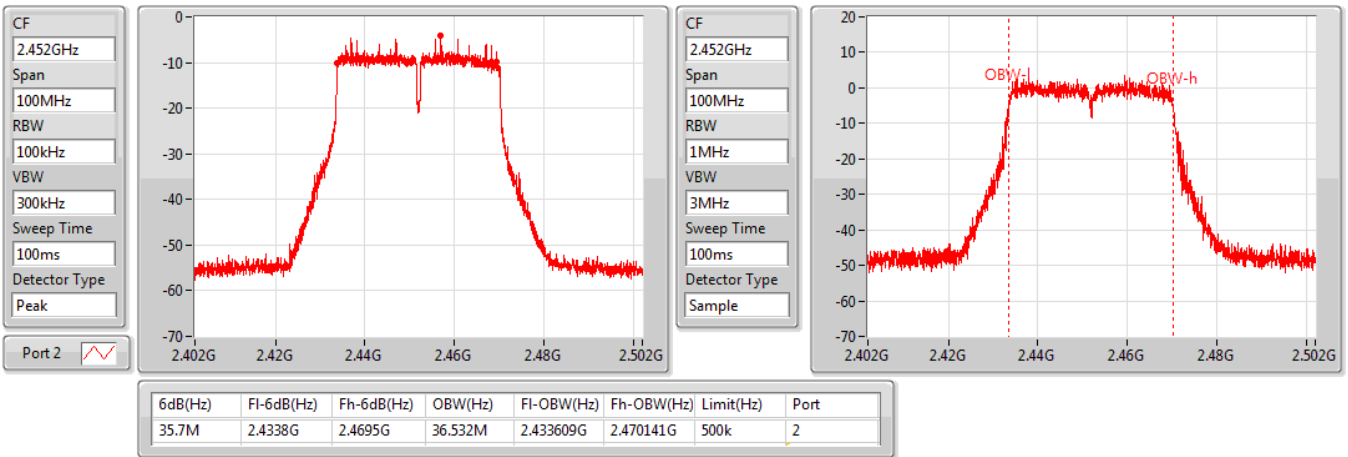


802.11n HT40_Nss1,(MCS0)_1TX(Port2)

EBW

2452MHz

11/05/2022

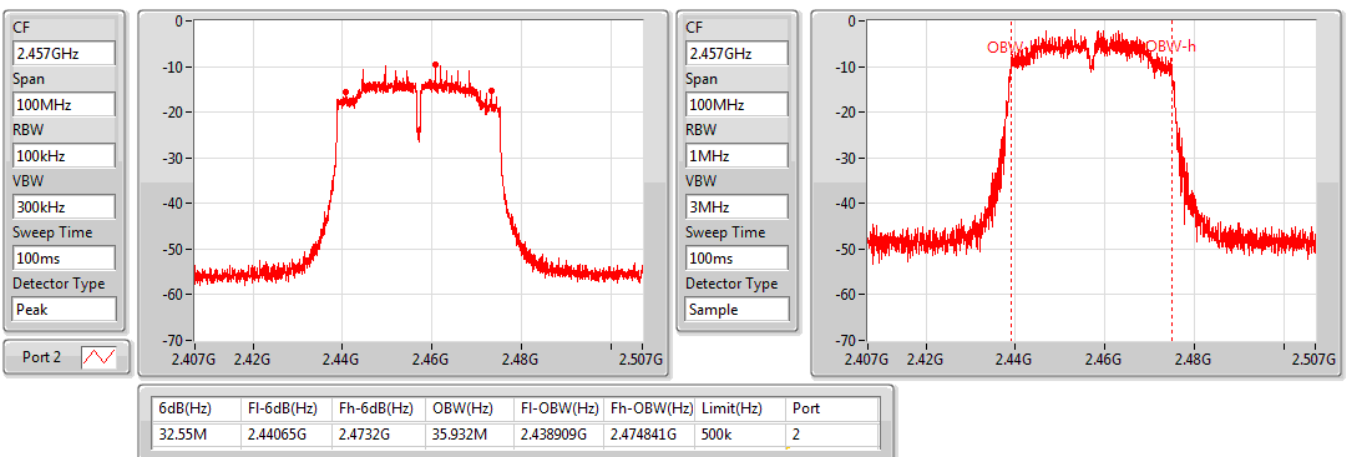


802.11n HT40_Nss1,(MCS0)_1TX(Port2)

EBW

2457MHz

11/05/2022

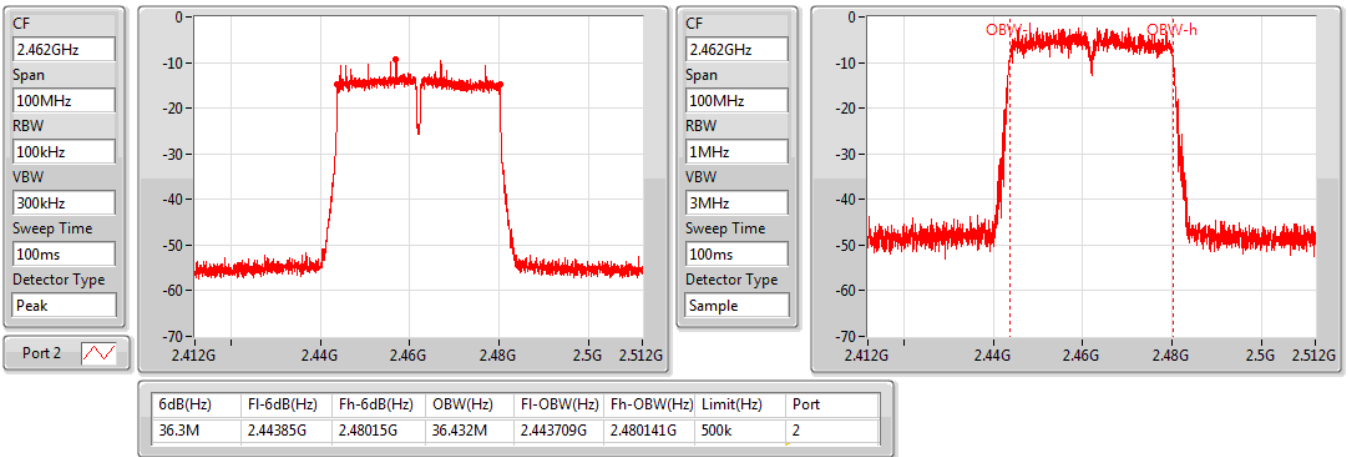


802.11n HT40_Nss1,(MCS0)_1TX(Port2)

EBW

2462MHz

11/05/2022

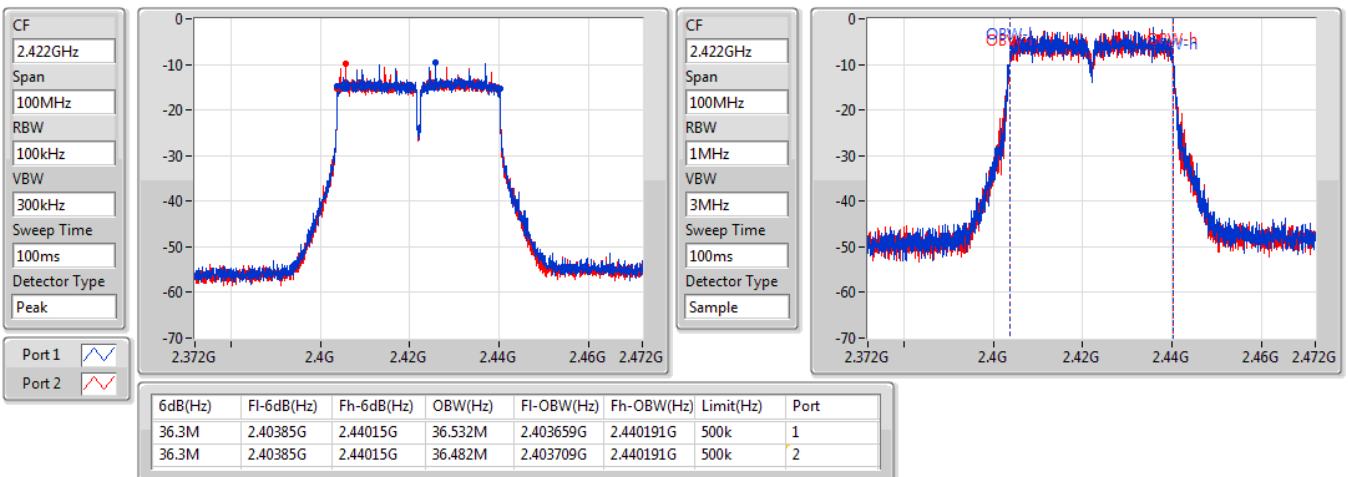


802.11n HT40_Nss1,(MCS8)_2TX

EBW

2422MHz

11/05/2022

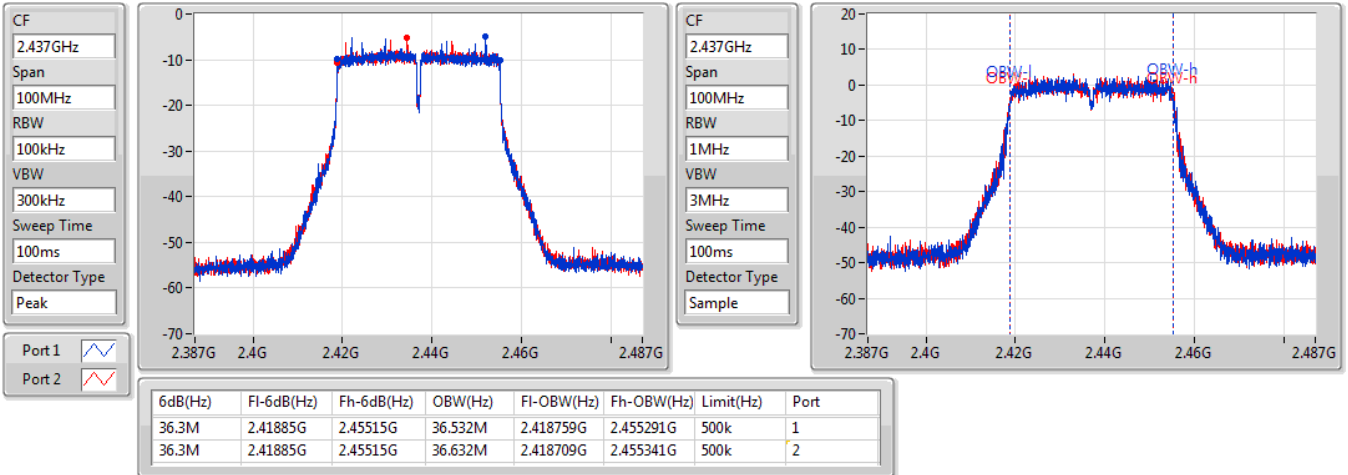


802.11n HT40_Nss1,(MCS8)_2TX

EBW

2437MHz

11/05/2022

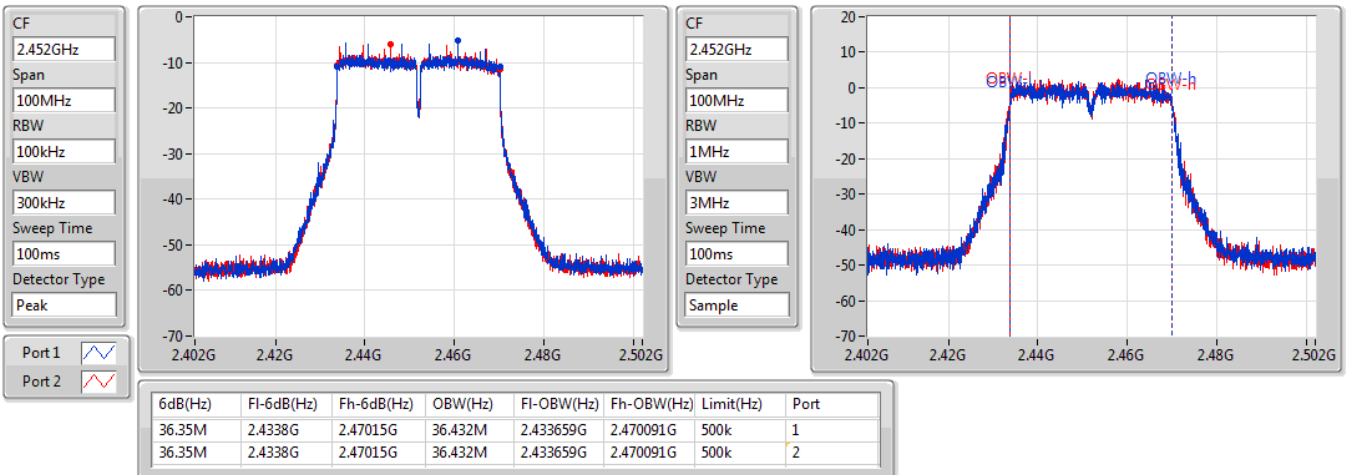


802.11n HT40_Nss1,(MCS8)_2TX

EBW

2452MHz

11/05/2022



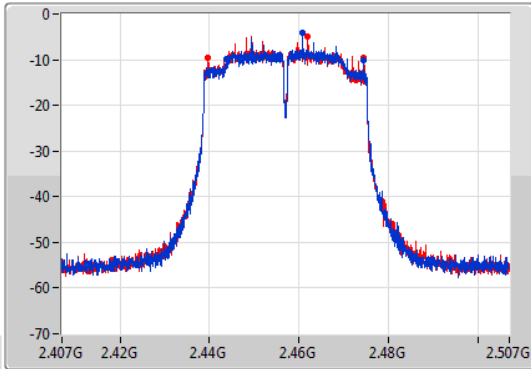
802.11n HT40_Nss1,(MCS8)_2TX

EBW

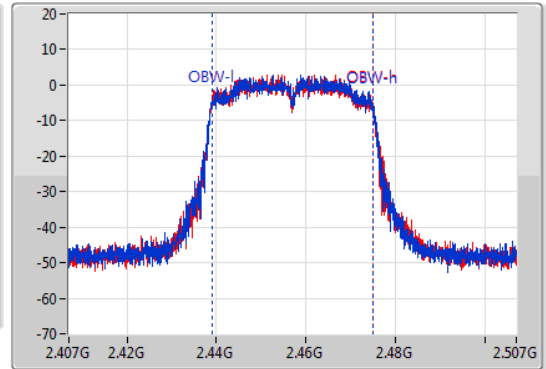
2457MHz

11/05/2022

CF
2.457GHz
Span
100MHz
RBW
100kHz
VBW
300kHz
Sweep Time
100ms
Detector Type
Peak



CF
2.457GHz
Span
100MHz
RBW
1MHz
VBW
3MHz
Sweep Time
100ms
Detector Type
Sample



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
30.6M	2.44385G	2.47445G	35.982M	2.438909G	2.474891G	500k	1
34.95M	2.43955G	2.4745G	35.882M	2.438959G	2.474841G	500k	2

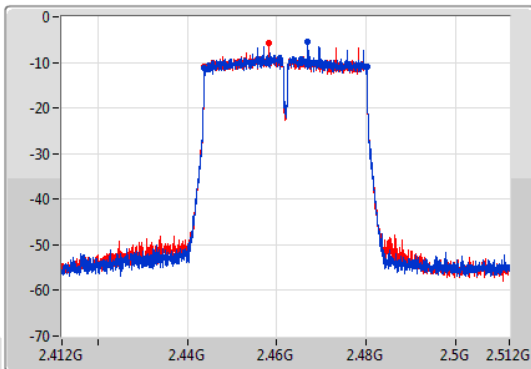
802.11n HT40_Nss1,(MCS8)_2TX

EBW

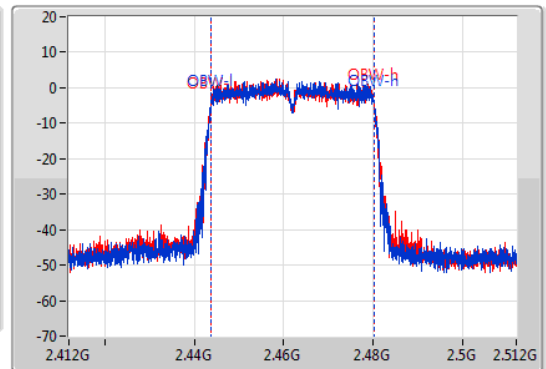
2462MHz

11/05/2022

CF
2.462GHz
Span
100MHz
RBW
100kHz
VBW
300kHz
Sweep Time
100ms
Detector Type
Peak



CF
2.462GHz
Span
100MHz
RBW
1MHz
VBW
3MHz
Sweep Time
100ms
Detector Type
Sample



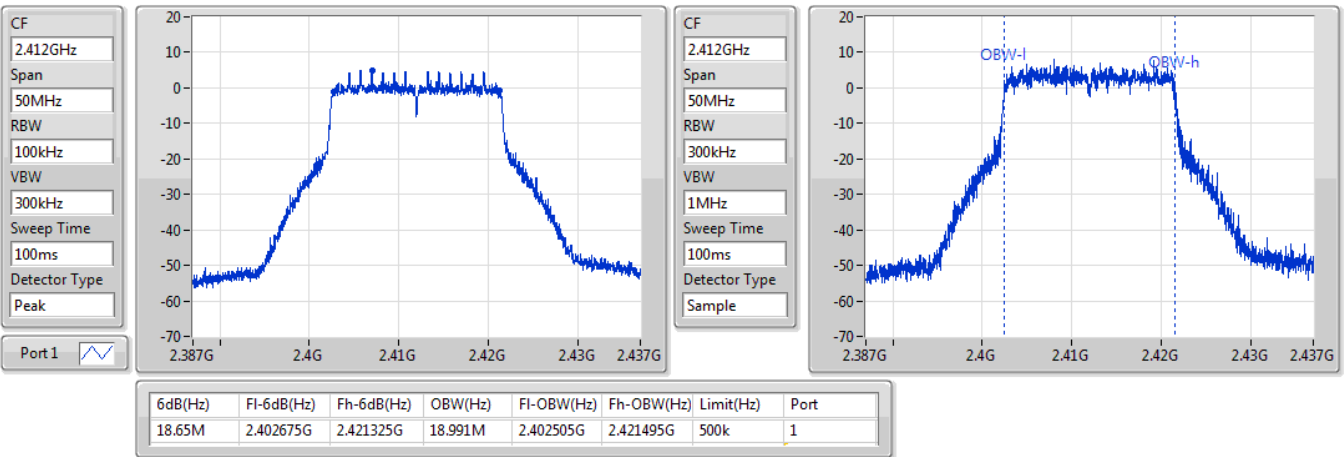
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
36.3M	2.44385G	2.48015G	36.432M	2.443809G	2.480241G	500k	1
36.3M	2.44385G	2.48015G	36.432M	2.443759G	2.480191G	500k	2

802.11ax HEW20_Nss1,(MCS0)_1TX(Port1)

EBW

2412MHz

09/05/2022

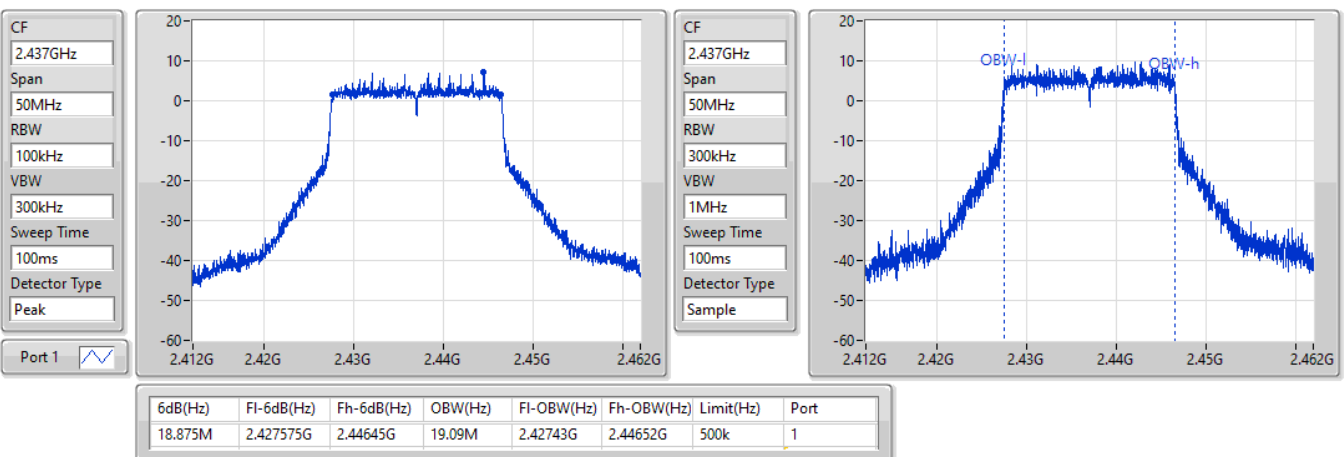


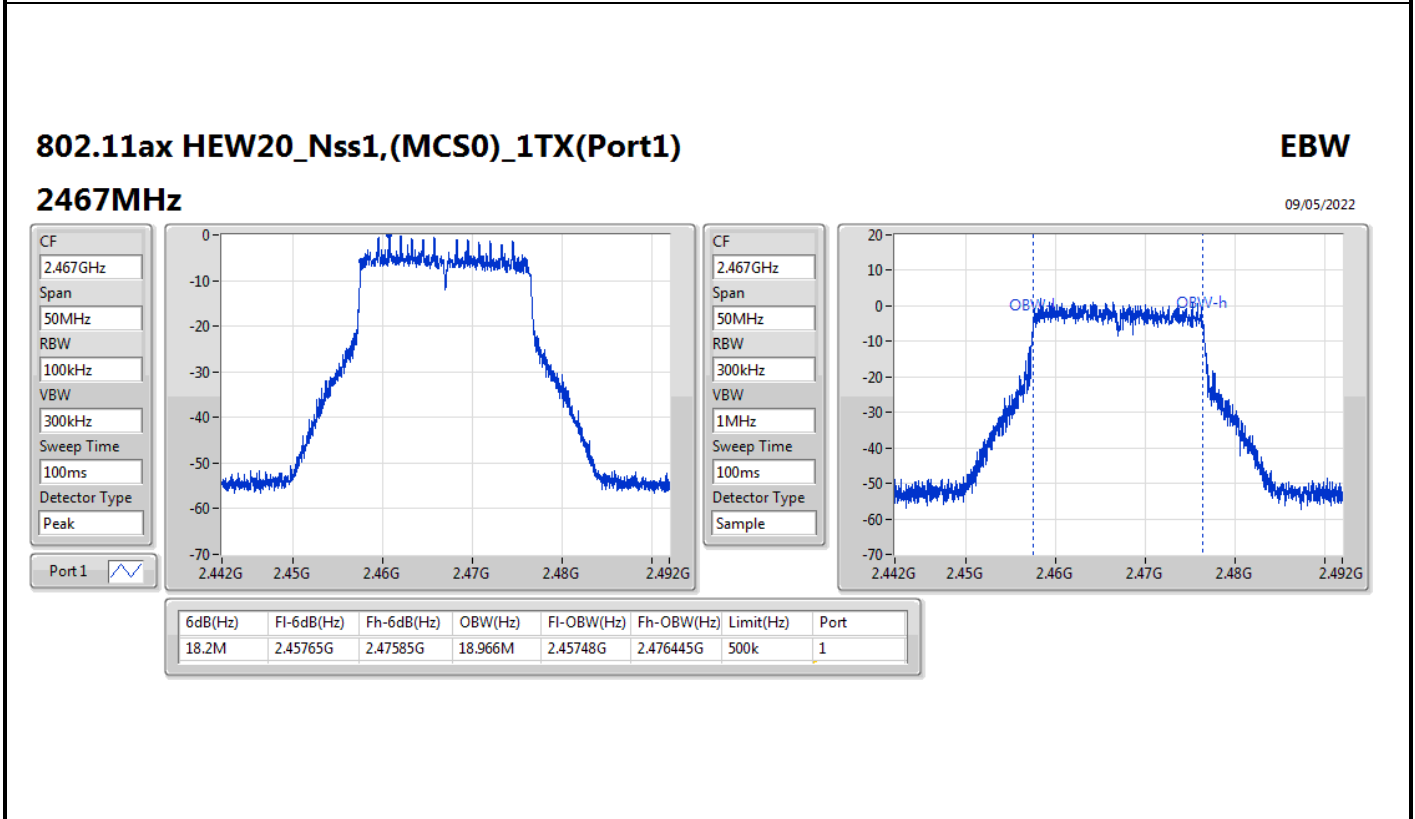
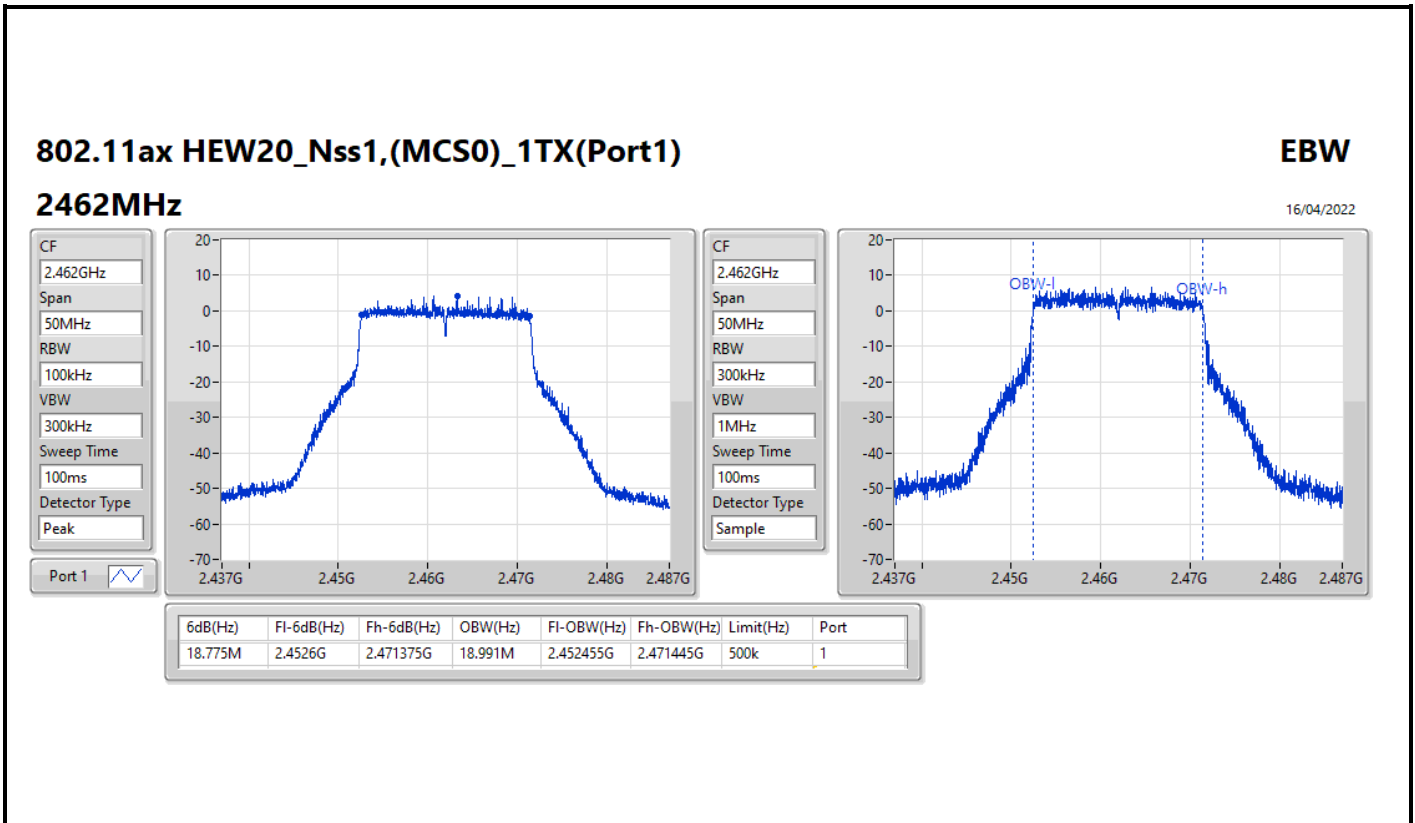
802.11ax HEW20_Nss1,(MCS0)_1TX(Port1)

EBW

2437MHz

16/04/2022



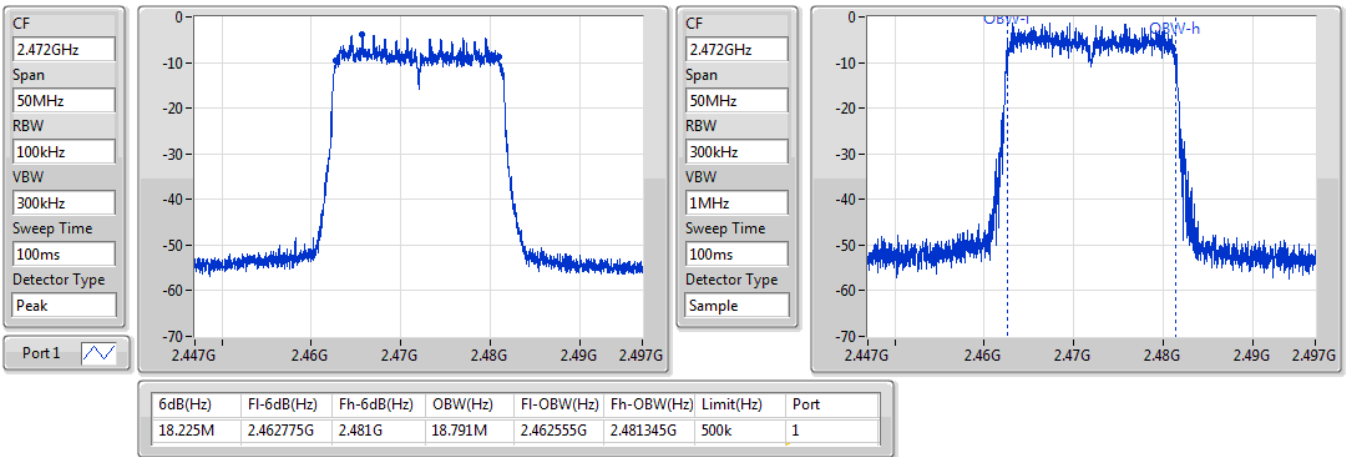


802.11ax HEW20_Nss1,(MCS0)_1TX(Port1)

EBW

2472MHz

09/05/2022

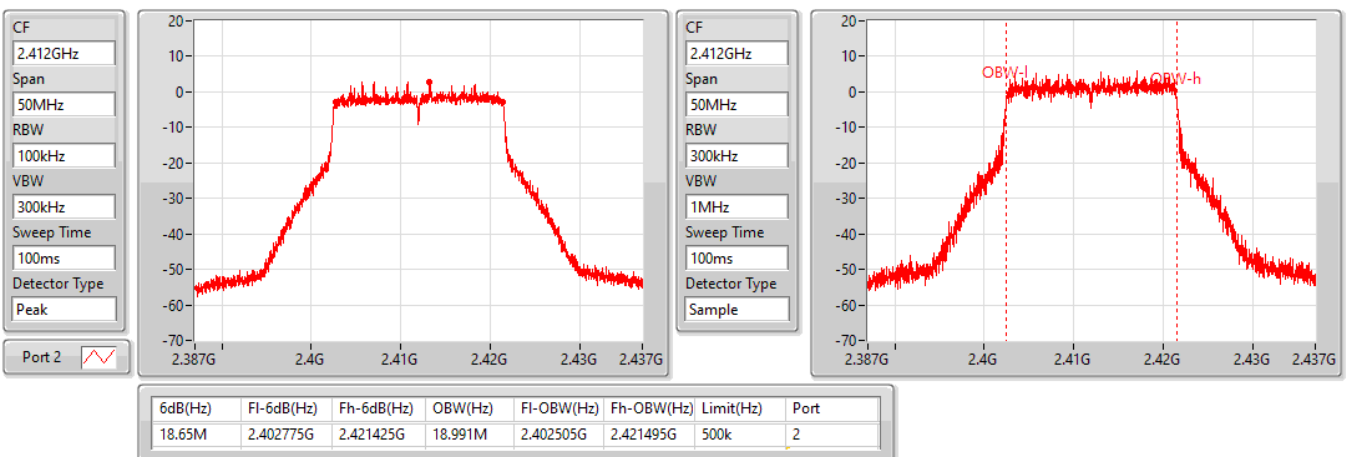


802.11ax HEW20_Nss1,(MCS0)_1TX(Port2)

EBW

2412MHz

16/04/2022

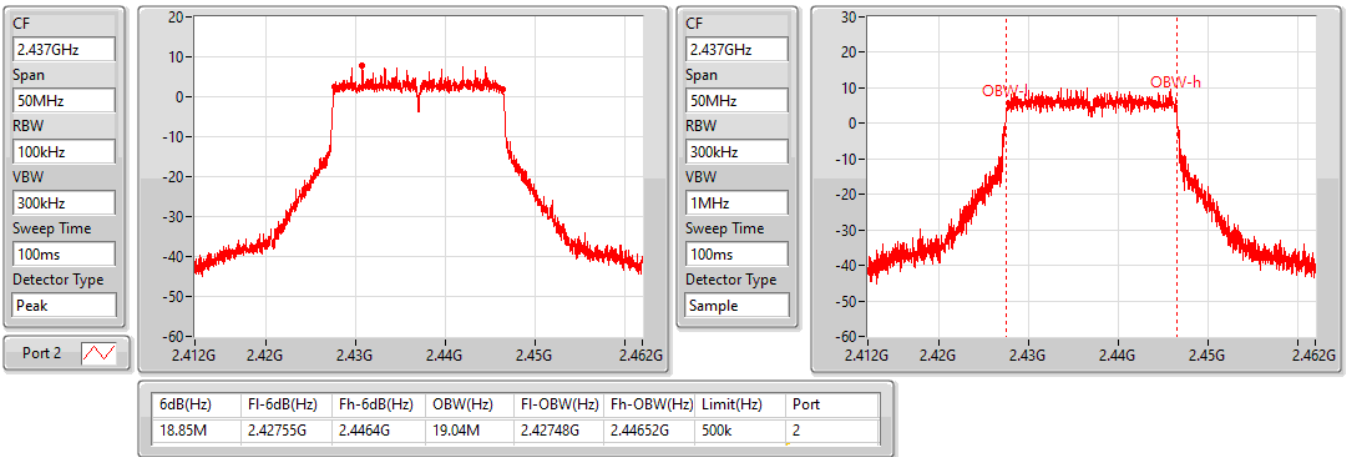


802.11ax HEW20_Nss1,(MCS0)_1TX(Port2)

EBW

2437MHz

16/04/2022

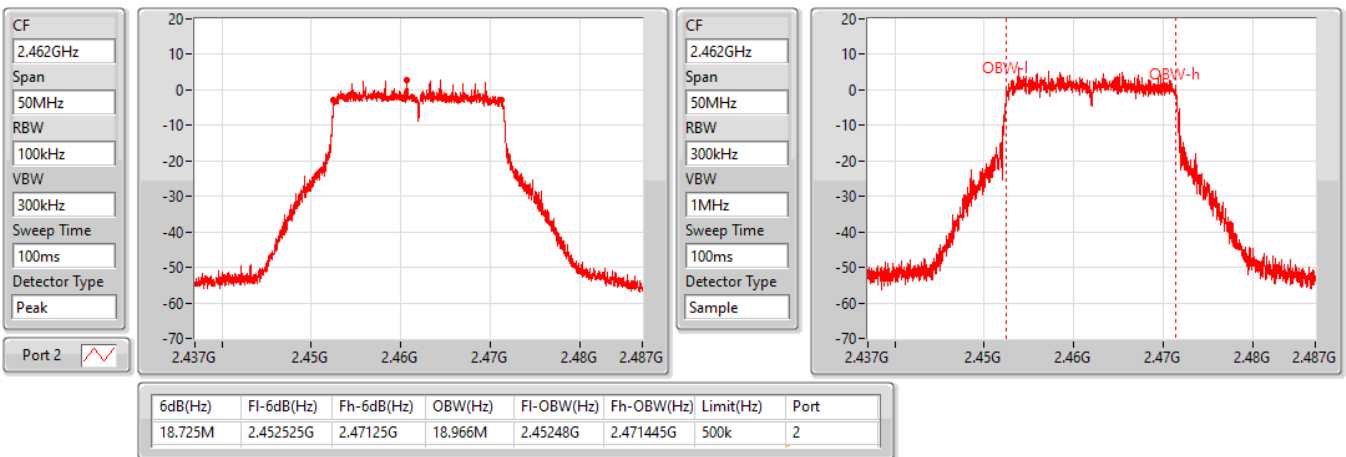


802.11ax HEW20_Nss1,(MCS0)_1TX(Port2)

EBW

2462MHz

16/04/2022

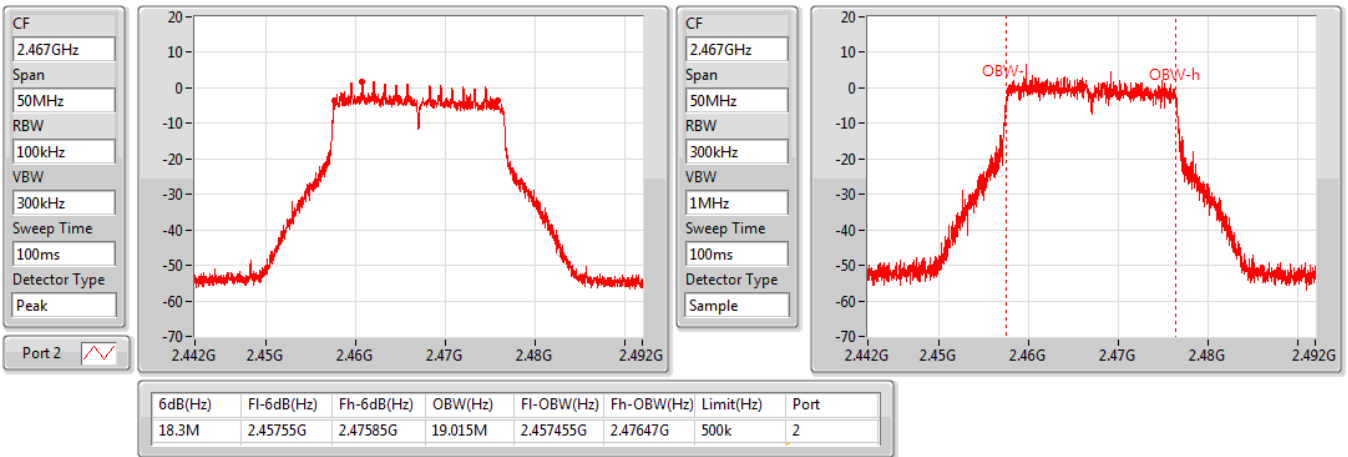


802.11ax HEW20_Nss1,(MCS0)_1TX(Port2)

EBW

2467MHz

09/05/2022

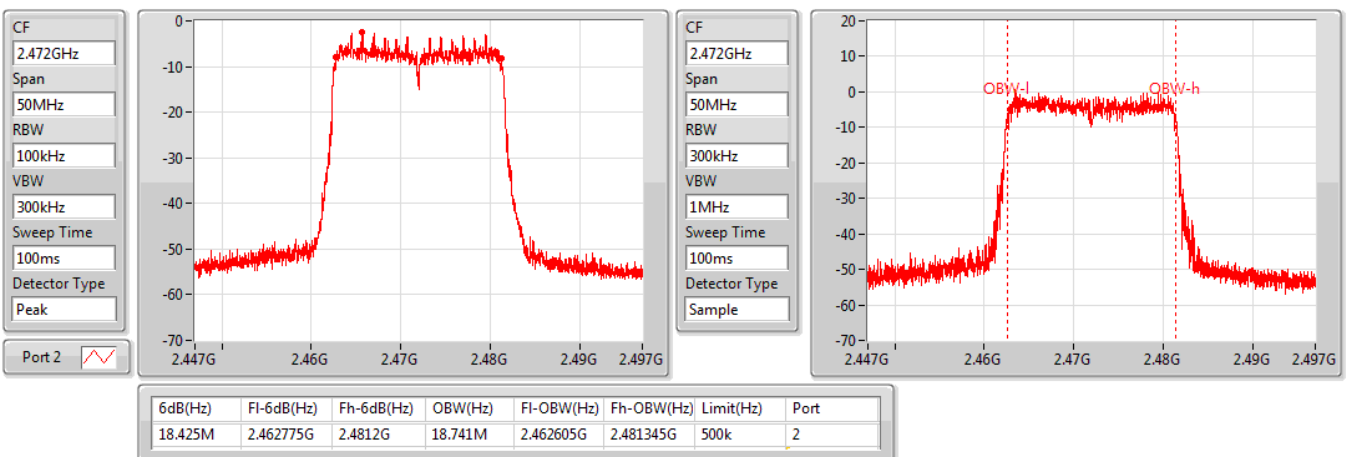


802.11ax HEW20_Nss1,(MCS0)_1TX(Port2)

EBW

2472MHz

09/05/2022

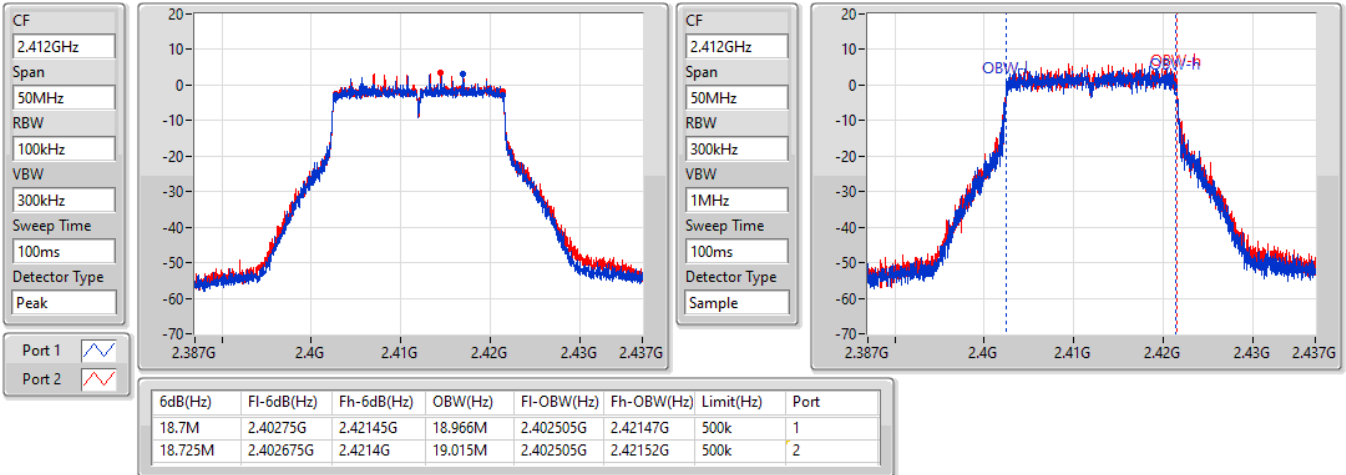


802.11ax HEW20_Nss1,(MCS0)_2TX

EBW

2412MHz

16/04/2022

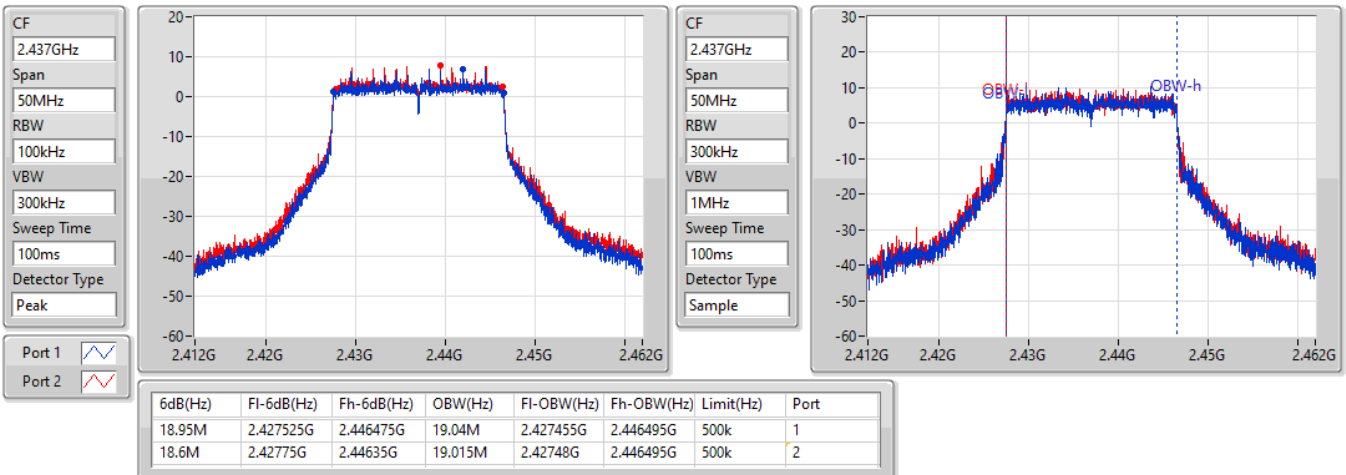


802.11ax HEW20_Nss1,(MCS0)_2TX

EBW

2437MHz

16/04/2022

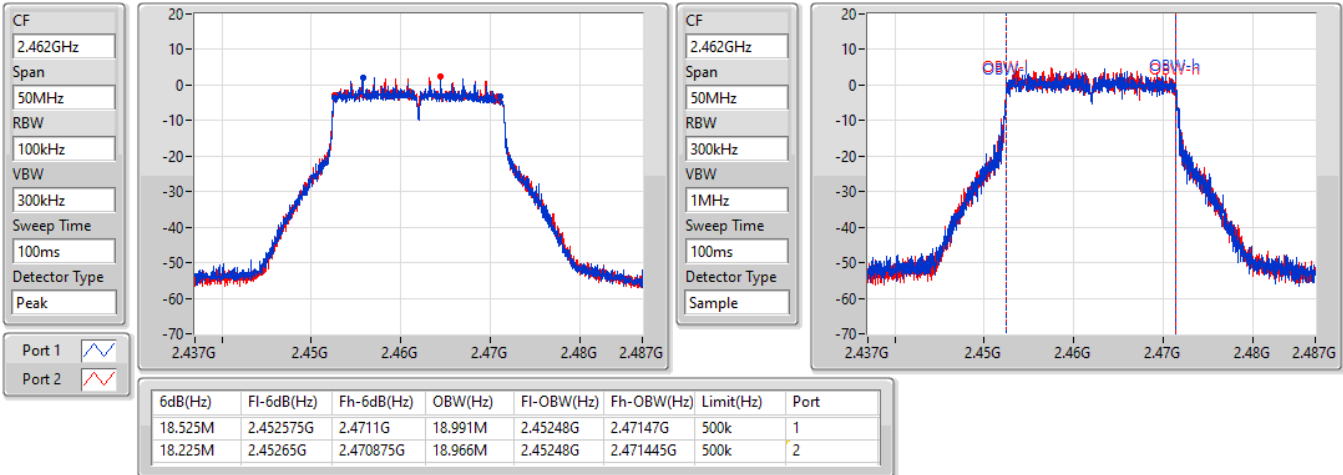


802.11ax HEW20_Nss1,(MCS0)_2TX

EBW

2462MHz

16/04/2022

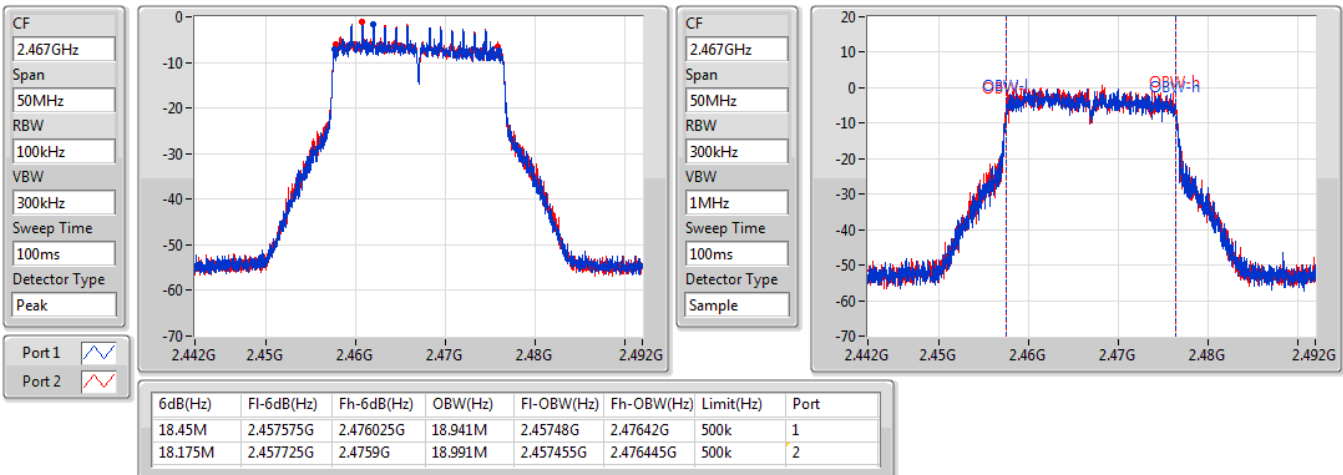


802.11ax HEW20_Nss1,(MCS0)_2TX

EBW

2467MHz

09/05/2022

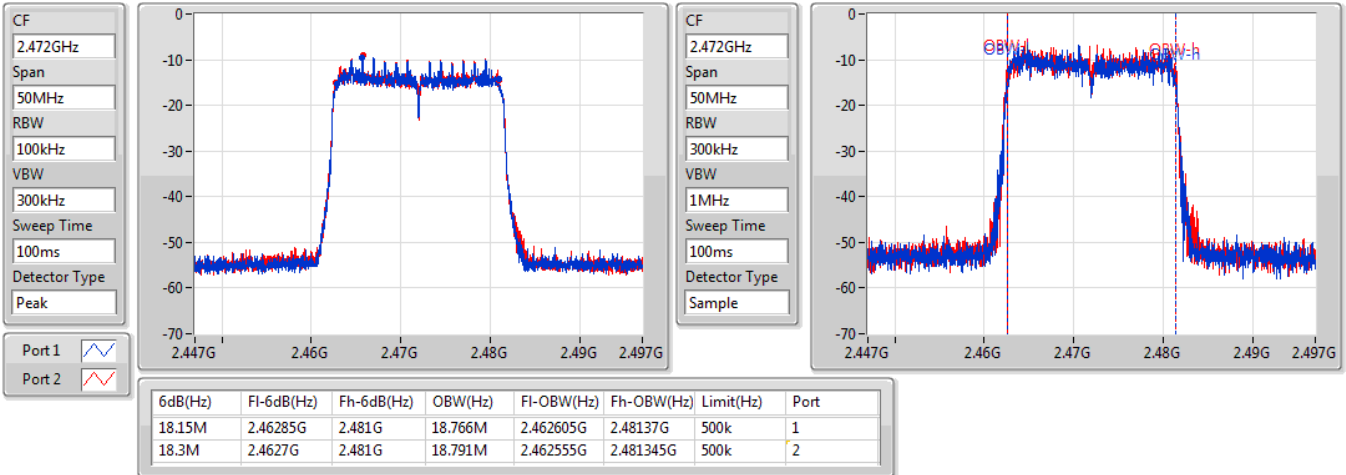


802.11ax HEW20_Nss1,(MCS0)_2TX

EBW

2472MHz

09/05/2022

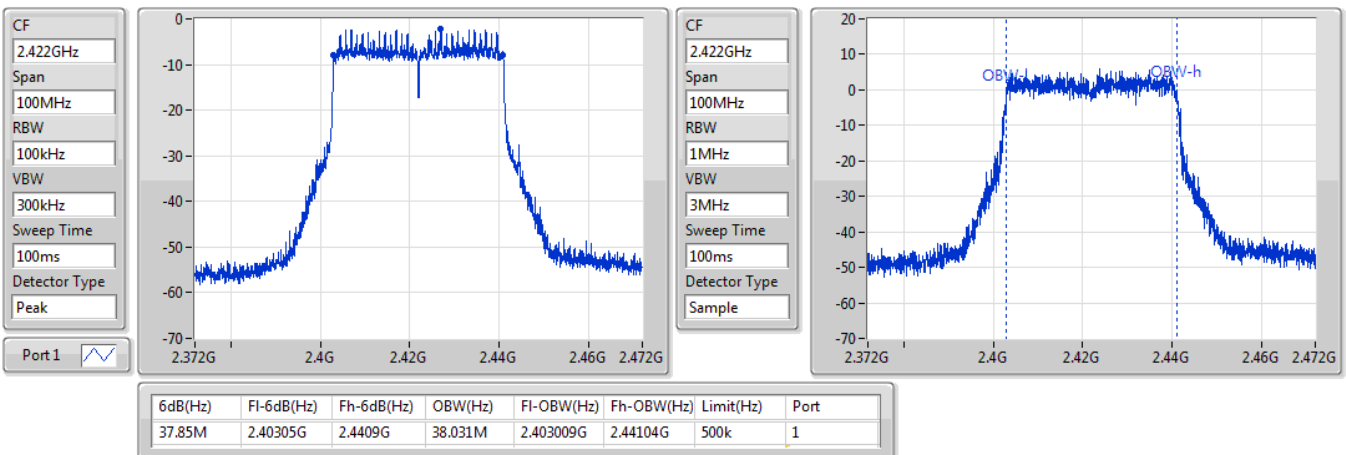


802.11ax HEW40_Nss1,(MCS0)_1TX(Port1)

EBW

2422MHz

09/05/2022

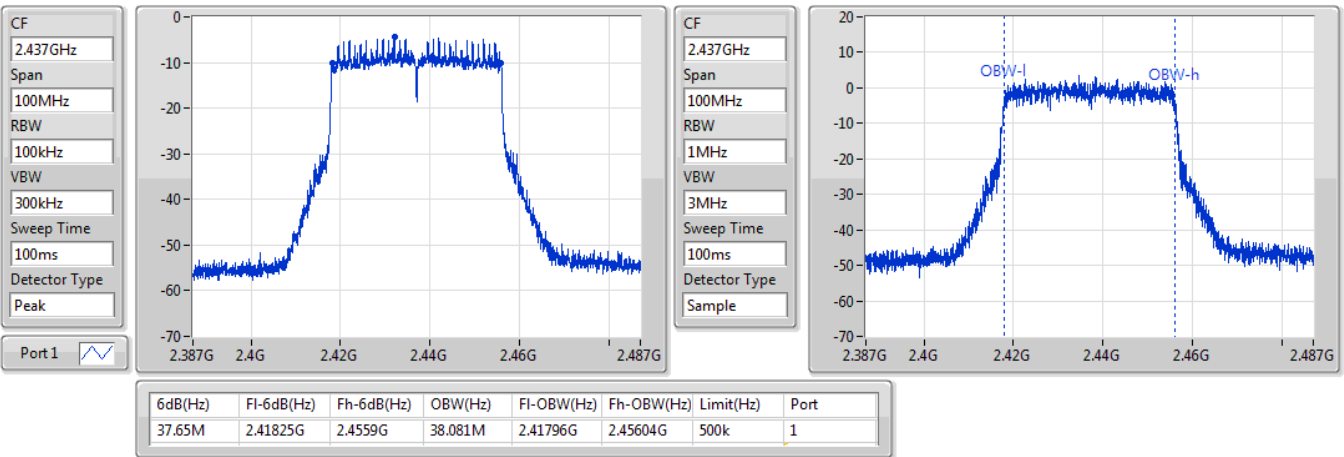


802.11ax HEW40_Nss1,(MCS0)_1TX(Port1)

EBW

2437MHz

09/05/2022

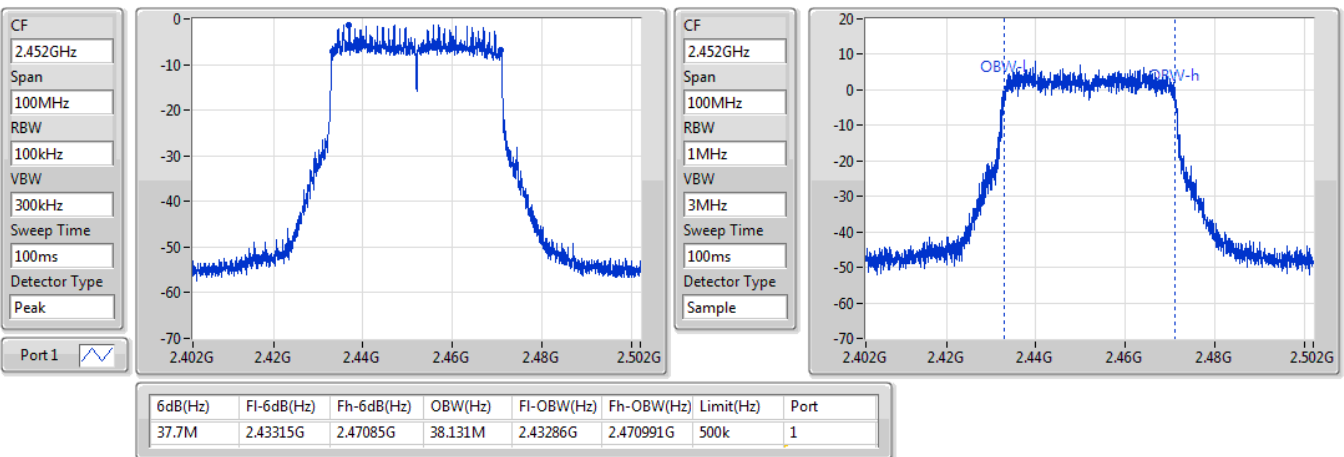


802.11ax HEW40_Nss1,(MCS0)_1TX(Port1)

EBW

2452MHz

09/05/2022

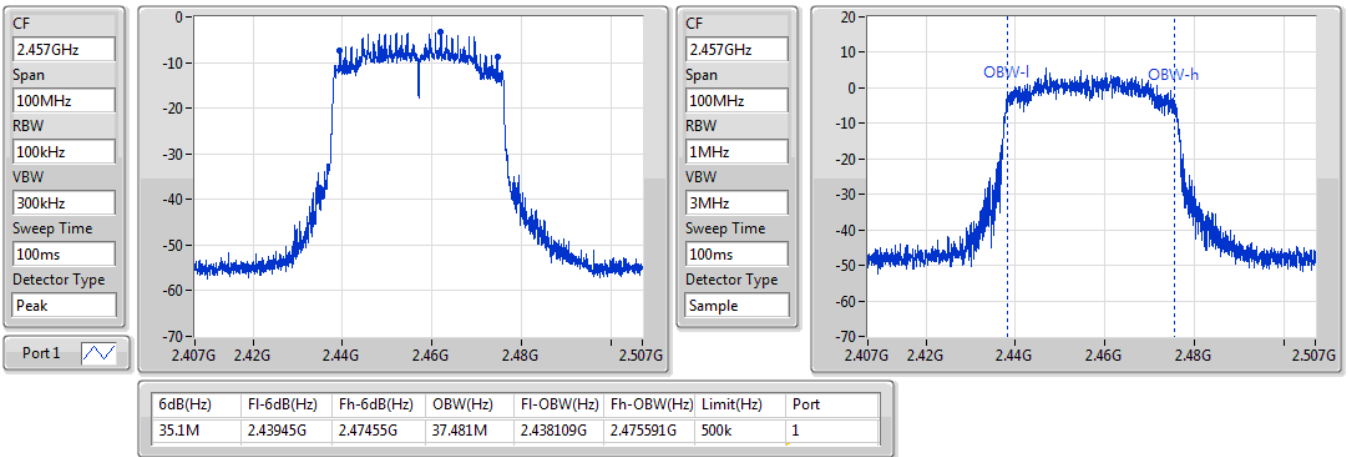


802.11ax HEW40_Nss1,(MCS0)_1TX(Port1)

EBW

2457MHz

09/05/2022

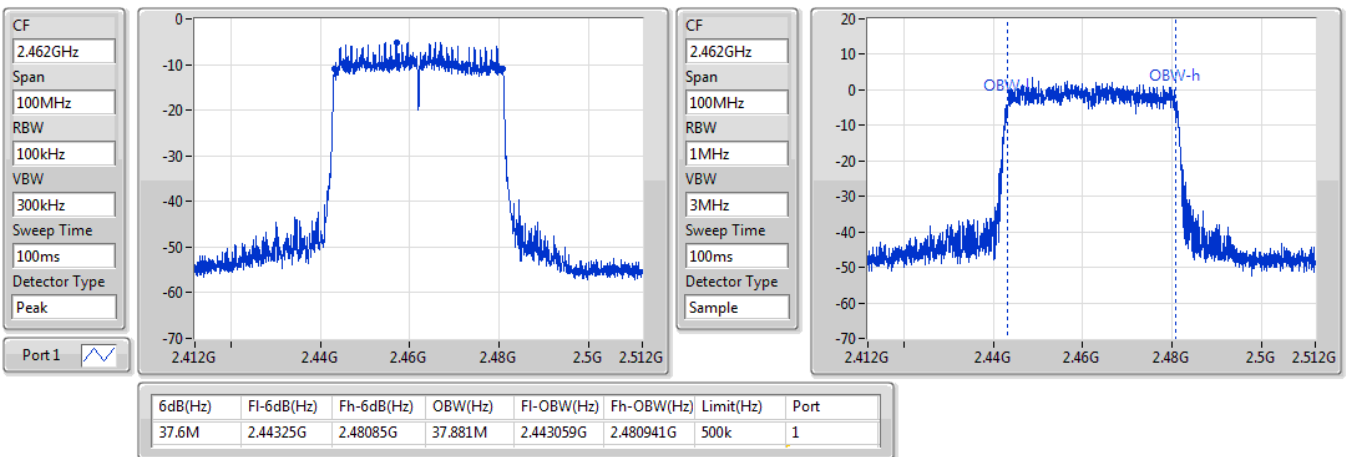


802.11ax HEW40_Nss1,(MCS0)_1TX(Port1)

EBW

2462MHz

09/05/2022

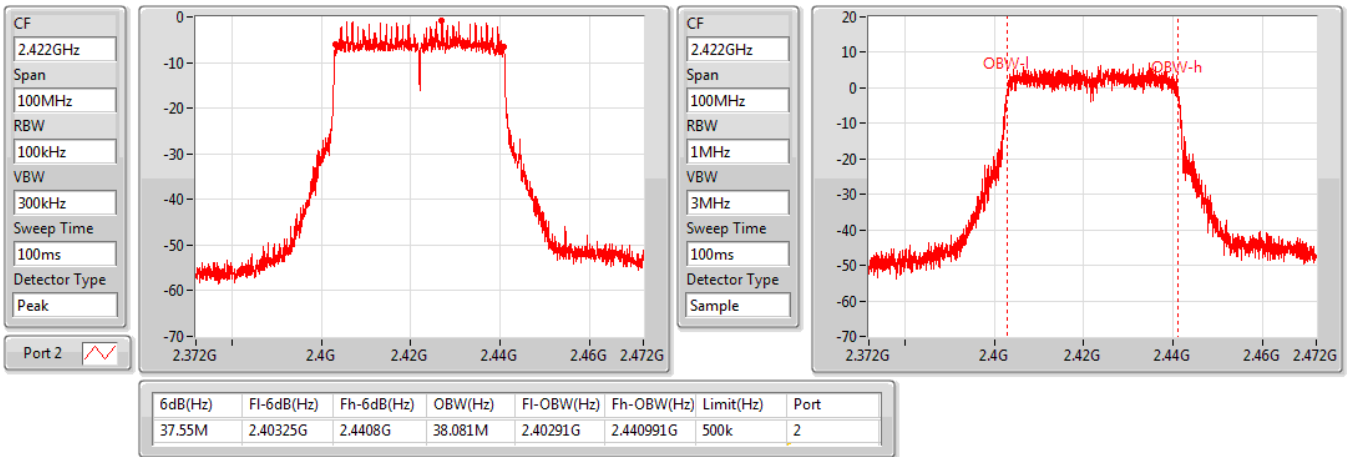


802.11ax HEW40_Nss1,(MCS0)_1TX(Port2)

EBW

2422MHz

09/05/2022

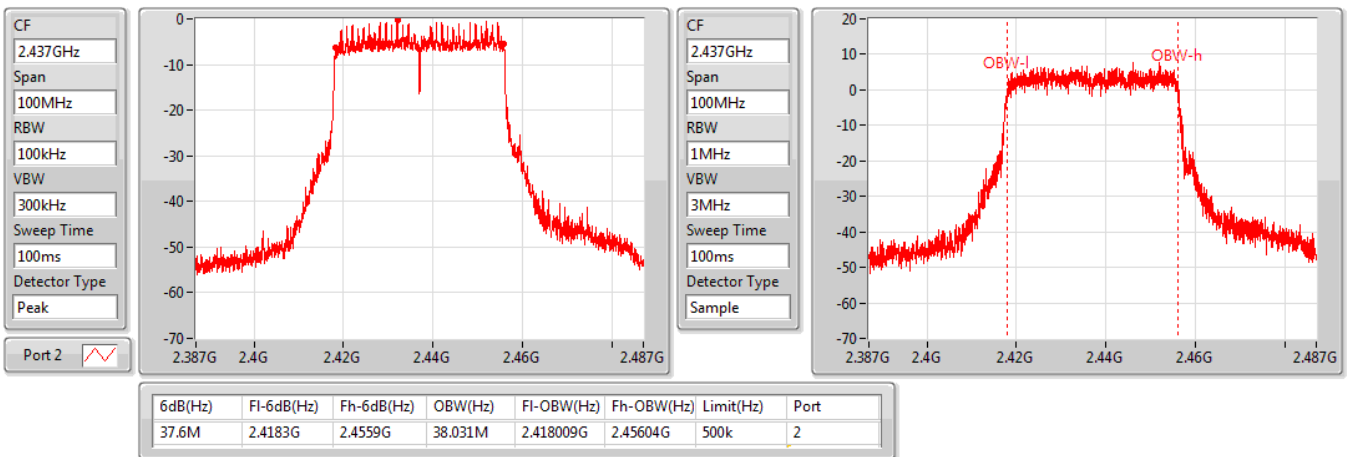


802.11ax HEW40_Nss1,(MCS0)_1TX(Port2)

EBW

2437MHz

09/05/2022

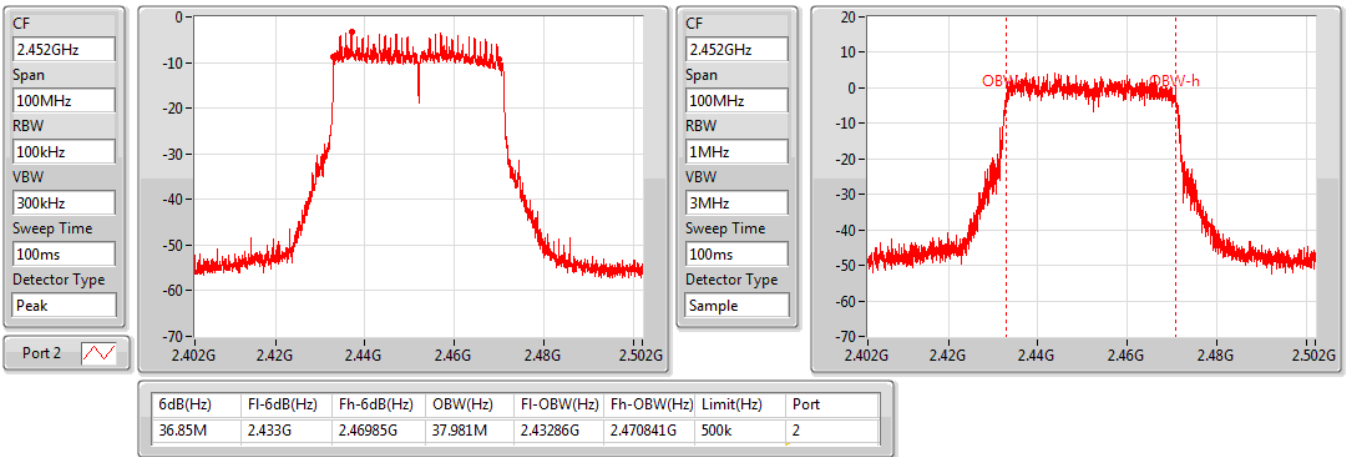


802.11ax HEW40_Nss1,(MCS0)_1TX(Port2)

EBW

2452MHz

09/05/2022

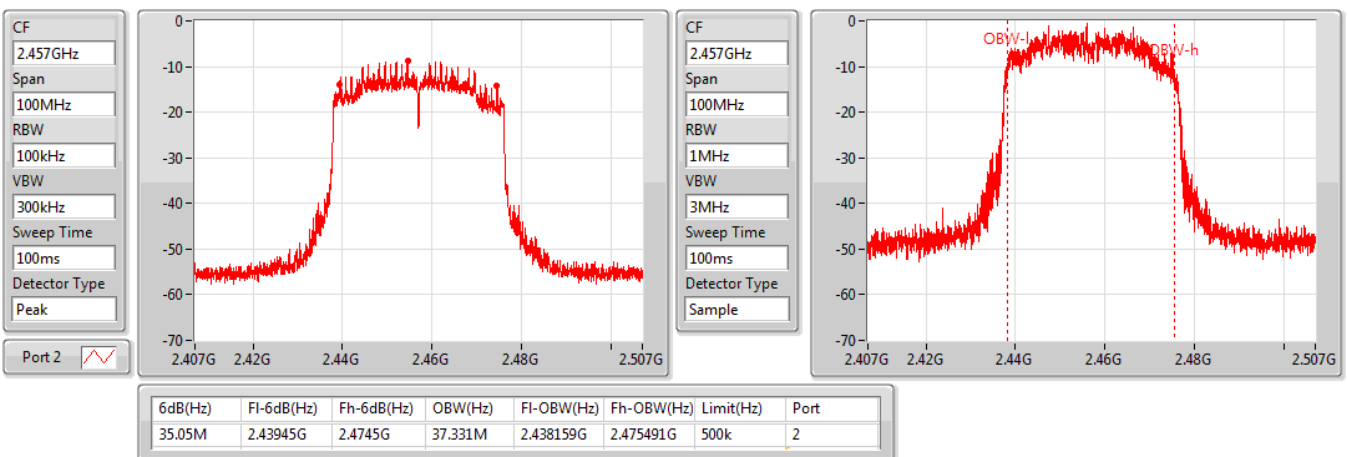


802.11ax HEW40_Nss1,(MCS0)_1TX(Port2)

EBW

2457MHz

09/05/2022

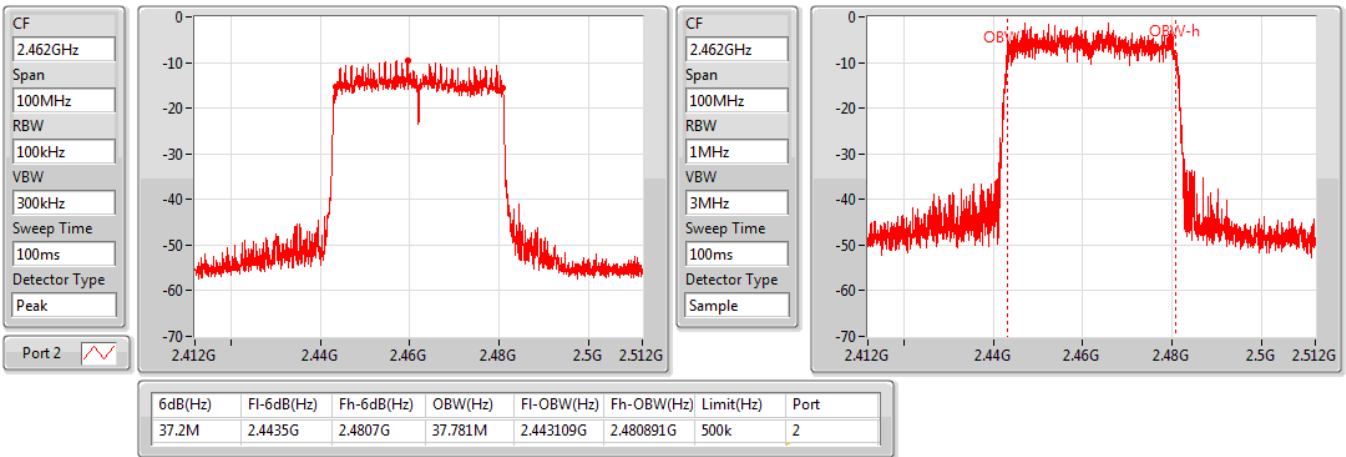


802.11ax HEW40_Nss1,(MCS0)_1TX(Port2)

EBW

2462MHz

09/05/2022

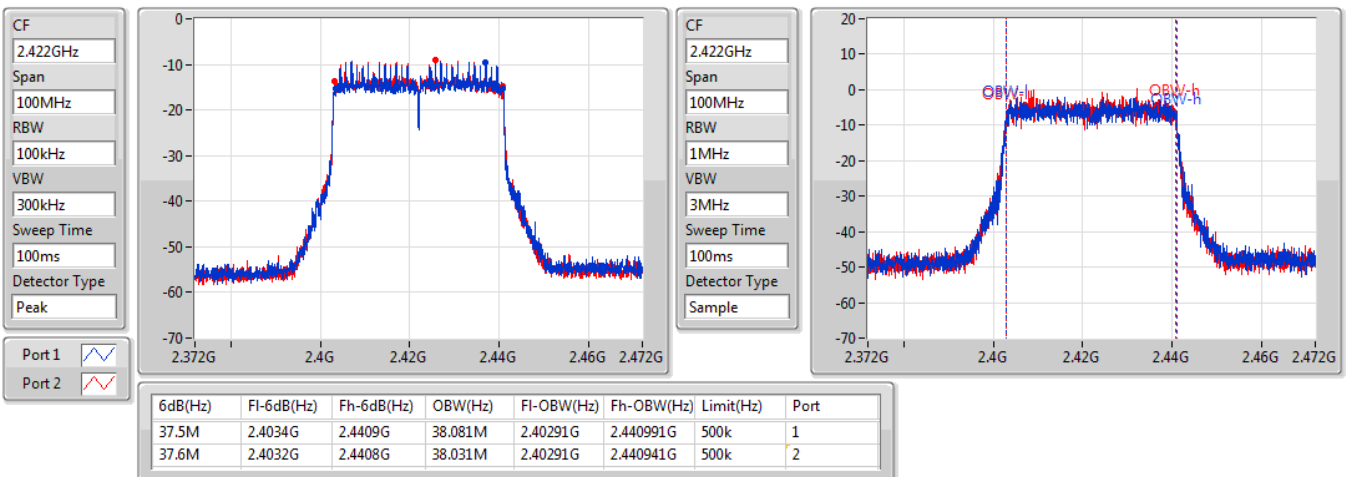


802.11ax HEW40_Nss1,(MCS0)_2TX

EBW

2422MHz

09/05/2022

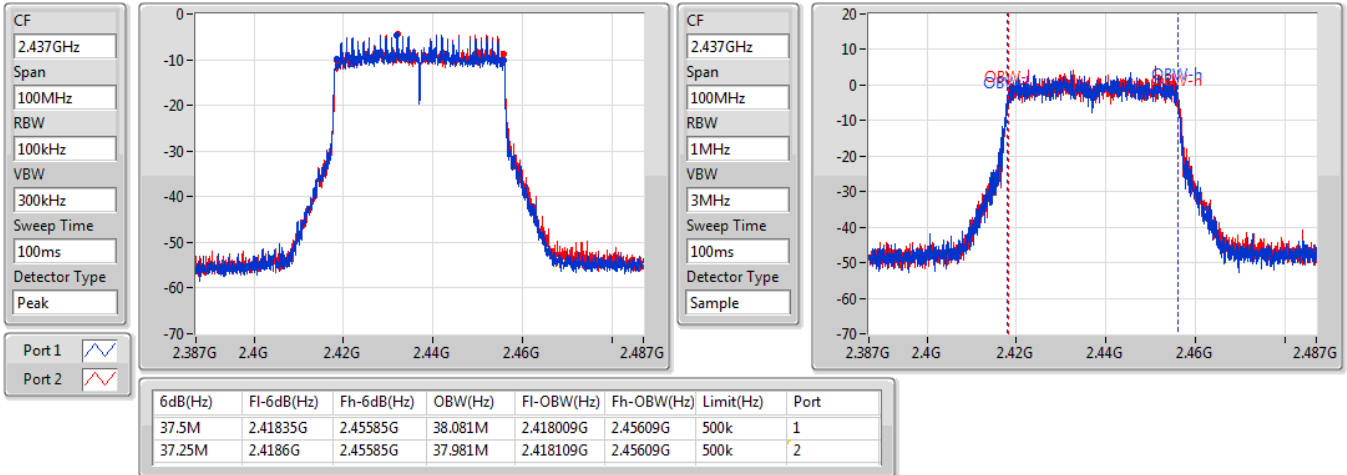


802.11ax HEW40_Nss1,(MCS0)_2TX

EBW

2437MHz

09/05/2022

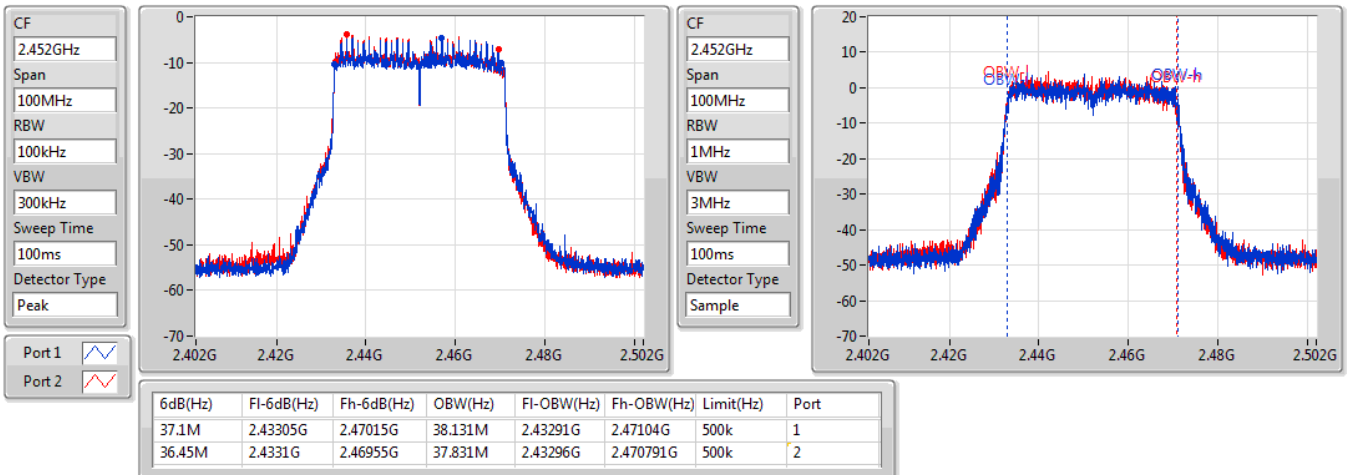


802.11ax HEW40_Nss1,(MCS0)_2TX

EBW

2452MHz

09/05/2022

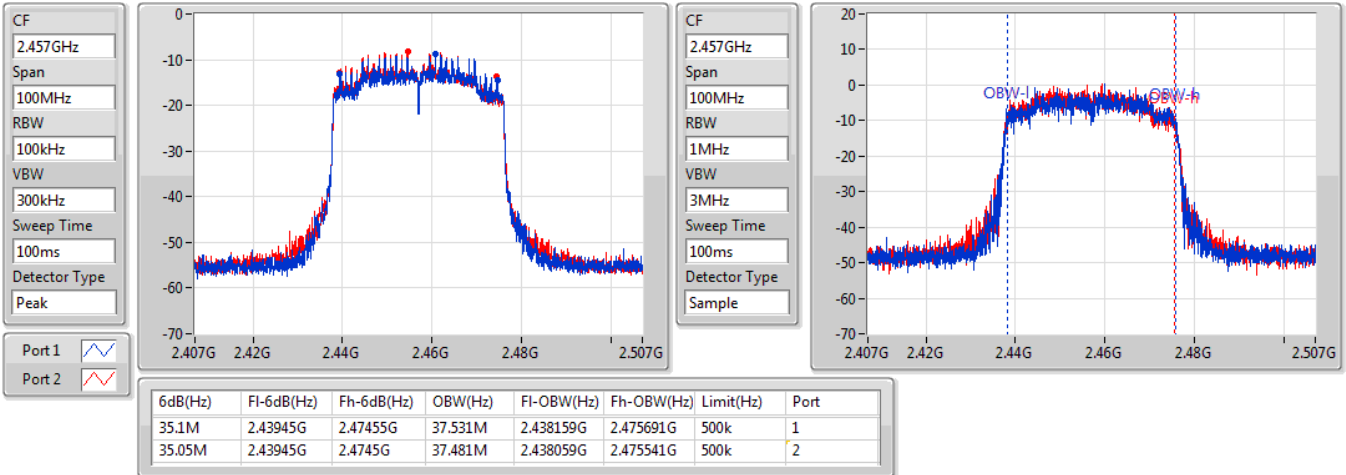


802.11ax HEW40_Nss1,(MCS0)_2TX

EBW

2457MHz

09/05/2022

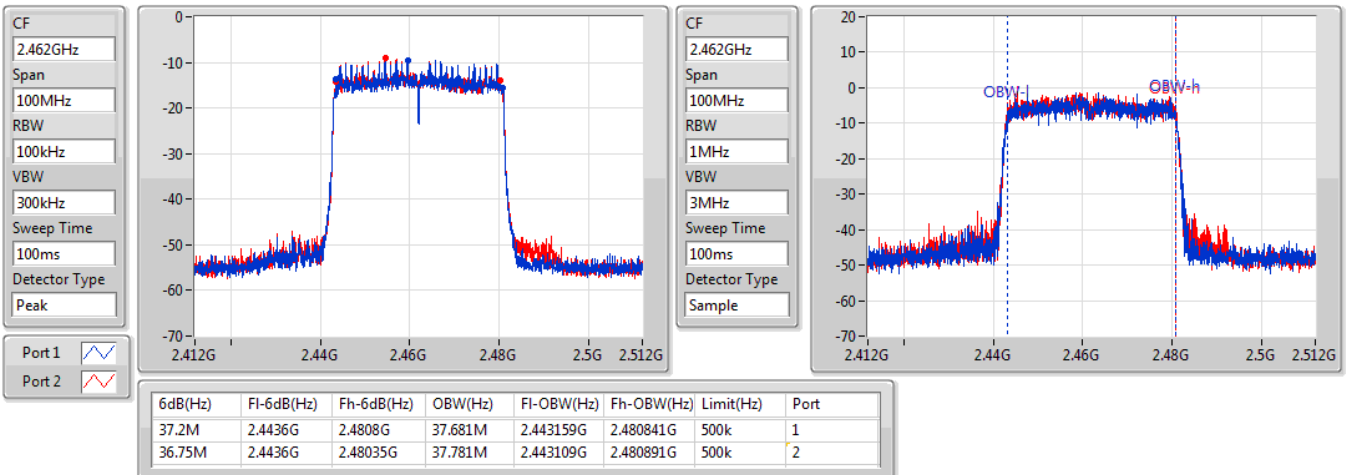


802.11ax HEW40_Nss1,(MCS0)_2TX

EBW

2462MHz

09/05/2022





Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
802.11ax HEW20_Nss1,(MCS0),RU 26,#RU 0_1TX(Port1)	3.225M	16.792M	16M8D1D	3.225M	16.792M
802.11ax HEW20_Nss1,(MCS0),RU 26,#RU 0_1TX(Port2)	1.95M	15.767M	15M8D1D	1.95M	15.767M
802.11ax HEW20_Nss1,(MCS0),RU 26,#RU 0_2TX	16.975M	16.317M	16M3D1D	2M	16.242M
802.11ax HEW20_Nss1,(MCS0),RU 26,#RU 4_1TX(Port1)	2.6M	11.094M	11M1D1D	2.6M	11.094M
802.11ax HEW20_Nss1,(MCS0),RU 26,#RU 4_1TX(Port2)	2.55M	11.694M	11M7D1D	2.55M	11.694M
802.11ax HEW20_Nss1,(MCS0),RU 26,#RU 4_2TX	2.55M	12.369M	12M4D1D	2.55M	8.396M
802.11ax HEW20_Nss1,(MCS0),RU 26,#RU 8_1TX(Port1)	17.05M	17.391M	17M4D1D	1.975M	14.993M
802.11ax HEW20_Nss1,(MCS0),RU 26,#RU 8_1TX(Port2)	15.675M	17.391M	17M4D1D	1.925M	15.492M
802.11ax HEW20_Nss1,(MCS0),RU 26,#RU 8_2TX	17.05M	17.366M	17M4D1D	1.875M	15.942M
802.11ax HEW20_Nss1,(MCS0),RU 52,#RU 37_1TX(Port1)	17M	16.042M	16M0D1D	17M	16.042M
802.11ax HEW20_Nss1,(MCS0),RU 52,#RU 37_1TX(Port2)	14.5M	14.793M	14M8D1D	14.5M	14.793M
802.11ax HEW20_Nss1,(MCS0),RU 52,#RU 37_2TX	16.9M	15.717M	15M7D1D	15.65M	14.293M
802.11ax HEW20_Nss1,(MCS0),RU 52,#RU 40_1TX(Port1)	16.975M	16.517M	16M5D1D	15.7M	12.194M
802.11ax HEW20_Nss1,(MCS0),RU 52,#RU 40_1TX(Port2)	17M	17.366M	17M4D1D	14.475M	13.818M
802.11ax HEW20_Nss1,(MCS0),RU 52,#RU 40_2TX	17M	17.341M	17M3D1D	13.25M	14.618M
802.11ax HEW20_Nss1,(MCS0),RU 106,#RU 53_1TX(Port1)	17.025M	17.066M	17M1D1D	17.025M	17.066M
802.11ax HEW20_Nss1,(MCS0),RU 106,#RU 53_1TX(Port2)	16.95M	15.867M	15M9D1D	16.95M	15.867M
802.11ax HEW20_Nss1,(MCS0),RU 106,#RU 53_2TX	17.125M	16.242M	16M2D1D	17.075M	15.217M
802.11ax HEW20_Nss1,(MCS0),RU 106,#RU 54_1TX(Port1)	17.1M	16.642M	16M6D1D	16.825M	15.117M
802.11ax HEW20_Nss1,(MCS0),RU 106,#RU 54_1TX(Port2)	17.35M	16.667M	16M7D1D	15.725M	15.617M
802.11ax HEW20_Nss1,(MCS0),RU 106,#RU 54_2TX	18.275M	16.692M	16M7D1D	15.775M	14.818M
802.11ax HEW40_Nss1,(MCS0),RU 242,#RU 61_1TX(Port1)	18.45M	19.29M	19M3D1D	18.45M	19.29M
802.11ax HEW40_Nss1,(MCS0),RU 242,#RU 61_1TX(Port2)	18.65M	19.24M	19M2D1D	18.65M	19.24M
802.11ax HEW40_Nss1,(MCS0),RU 242,#RU 61_2TX	18.8M	19.24M	19M2D1D	18.7M	19.19M
802.11ax HEW40_Nss1,(MCS0),RU 242,#RU 62_1TX(Port1)	18.75M	19.34M	19M3D1D	18.55M	18.941M
802.11ax HEW40_Nss1,(MCS0),RU 242,#RU 62_1TX(Port2)	18.75M	19.44M	19M4D1D	18.2M	19.09M
802.11ax HEW40_Nss1,(MCS0),RU 242,#RU 62_2TX	18.8M	19.34M	19M3D1D	18.45M	18.991M

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



Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)
802.11ax HEW20_Nss1,(MCS0),RU 26,#RU 0_1TX(Port1)	-	-	-	-	-	-
2412MHz	Pass	500k	3.225M	16.792M		
802.11ax HEW20_Nss1,(MCS0),RU 26,#RU 0_1TX(Port2)	-	-	-	-	-	-
2412MHz	Pass	500k			1.95M	15.767M
802.11ax HEW20_Nss1,(MCS0),RU 26,#RU 0_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	2M	16.317M	16.975M	16.242M
802.11ax HEW20_Nss1,(MCS0),RU 26,#RU 4_1TX(Port1)	-	-	-	-	-	-
2437MHz	Pass	500k	2.6M	11.094M		
802.11ax HEW20_Nss1,(MCS0),RU 26,#RU 4_1TX(Port2)	-	-	-	-	-	-
2437MHz	Pass	500k			2.55M	11.694M
802.11ax HEW20_Nss1,(MCS0),RU 26,#RU 4_2TX	-	-	-	-	-	-
2437MHz	Pass	500k	2.55M	12.369M	2.55M	8.396M
802.11ax HEW20_Nss1,(MCS0),RU 26,#RU 8_1TX(Port1)	-	-	-	-	-	-
2462MHz	Pass	500k	2.025M	17.391M		
2467MHz	Pass	500k	17.05M	14.993M		
2472MHz	Pass	500k	1.975M	16.567M		
802.11ax HEW20_Nss1,(MCS0),RU 26,#RU 8_1TX(Port2)	-	-	-	-	-	-
2462MHz	Pass	500k			15.675M	17.391M
2467MHz	Pass	500k			1.975M	15.492M
2472MHz	Pass	500k			1.925M	16.042M
802.11ax HEW20_Nss1,(MCS0),RU 26,#RU 8_2TX	-	-	-	-	-	-
2462MHz	Pass	500k	17M	17.366M	17.05M	15.942M
2467MHz	Pass	500k	1.975M	16.292M	10.725M	16.367M
2472MHz	Pass	500k	1.875M	15.992M	1.95M	16.517M
802.11ax HEW20_Nss1,(MCS0),RU 52,#RU 37_1TX(Port1)	-	-	-	-	-	-
2412MHz	Pass	500k	17M	16.042M		
802.11ax HEW20_Nss1,(MCS0),RU 52,#RU 37_1TX(Port2)	-	-	-	-	-	-
2412MHz	Pass	500k			14.5M	14.793M
802.11ax HEW20_Nss1,(MCS0),RU 52,#RU 37_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	15.65M	14.293M	16.9M	15.717M
802.11ax HEW20_Nss1,(MCS0),RU 52,#RU 40_1TX(Port1)	-	-	-	-	-	-
2437MHz	Pass	500k	15.75M	12.194M		
2462MHz	Pass	500k	16.95M	16.517M		
2467MHz	Pass	500k	16.975M	16.367M		
2472MHz	Pass	500k	15.7M	15.167M		
802.11ax HEW20_Nss1,(MCS0),RU 52,#RU 40_1TX(Port2)	-	-	-	-	-	-
2437MHz	Pass	500k			16.95M	13.818M
2462MHz	Pass	500k			16.95M	17.116M
2467MHz	Pass	500k			17M	17.266M
2472MHz	Pass	500k			14.475M	17.366M
802.11ax HEW20_Nss1,(MCS0),RU 52,#RU 40_2TX	-	-	-	-	-	-
2437MHz	Pass	500k	13.25M	16.967M	16.9M	16.092M
2462MHz	Pass	500k	16.975M	16.142M	16.925M	16.017M
2467MHz	Pass	500k	17M	14.618M	15.85M	17.341M
2472MHz	Pass	500k	15.675M	15.842M	16.875M	15.117M
802.11ax HEW20_Nss1,(MCS0),RU 106,#RU 53_1TX(Port1)	-	-	-	-	-	-
2412MHz	Pass	500k	17.025M	17.066M		
802.11ax HEW20_Nss1,(MCS0),RU 106,#RU 53_1TX(Port2)	-	-	-	-	-	-
2412MHz	Pass	500k			16.95M	15.867M
802.11ax HEW20_Nss1,(MCS0),RU 106,#RU 53_2TX	-	-	-	-	-	-
2412MHz	Pass	500k	17.075M	15.217M	17.125M	16.242M
802.11ax HEW20_Nss1,(MCS0),RU 106,#RU 54_1TX(Port1)	-	-	-	-	-	-
2437MHz	Pass	500k	16.975M	15.117M		
2462MHz	Pass	500k	17.025M	16.642M		
2467MHz	Pass	500k	17.1M	16.167M		



Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)
2472MHz	Pass	500k	16.825M	15.717M		
802.11ax HEW20_Nss1,(MCS0),RU 106,#RU 54_1TX(Port2)	-	-	-	-	-	-
2437MHz	Pass	500k			17.1M	15.942M
2462MHz	Pass	500k			16.025M	15.617M
2467MHz	Pass	500k			17.35M	16.667M
2472MHz	Pass	500k			15.725M	16.492M
802.11ax HEW20_Nss1,(MCS0),RU 106,#RU 54_2TX	-	-	-	-	-	-
2437MHz	Pass	500k	16.975M	14.818M	17.125M	15.992M
2462MHz	Pass	500k	16M	16.267M	16.05M	15.717M
2467MHz	Pass	500k	17.05M	16.592M	18.275M	16.492M
2472MHz	Pass	500k	15.775M	15.217M	17M	16.692M
802.11ax HEW40_Nss1,(MCS0),RU 242,#RU 61_1TX(Port1)	-	-	-	-	-	-
2422MHz	Pass	500k	18.45M	19.29M		
802.11ax HEW40_Nss1,(MCS0),RU 242,#RU 61_1TX(Port2)	-	-	-	-	-	-
2422MHz	Pass	500k			18.65M	19.24M
802.11ax HEW40_Nss1,(MCS0),RU 242,#RU 61_2TX	-	-	-	-	-	-
2422MHz	Pass	500k	18.7M	19.24M	18.8M	19.19M
802.11ax HEW40_Nss1,(MCS0),RU 242,#RU 62_1TX(Port1)	-	-	-	-	-	-
2437MHz	Pass	500k	18.55M	19.24M		
2452MHz	Pass	500k	18.75M	19.24M		
2457MHz	Pass	500k	18.7M	19.34M		
2462MHz	Pass	500k	18.55M	18.941M		
802.11ax HEW40_Nss1,(MCS0),RU 242,#RU 62_1TX(Port2)	-	-	-	-	-	-
2437MHz	Pass	500k			18.7M	19.44M
2452MHz	Pass	500k			18.75M	19.19M
2457MHz	Pass	500k			18.5M	19.34M
2462MHz	Pass	500k			18.2M	19.09M
802.11ax HEW40_Nss1,(MCS0),RU 242,#RU 62_2TX	-	-	-	-	-	-
2437MHz	Pass	500k	18.75M	19.29M	18.8M	19.34M
2452MHz	Pass	500k	18.8M	19.19M	18.8M	19.19M
2457MHz	Pass	500k	18.75M	19.24M	18.8M	19.24M
2462MHz	Pass	500k	18.45M	18.991M	18.45M	18.991M

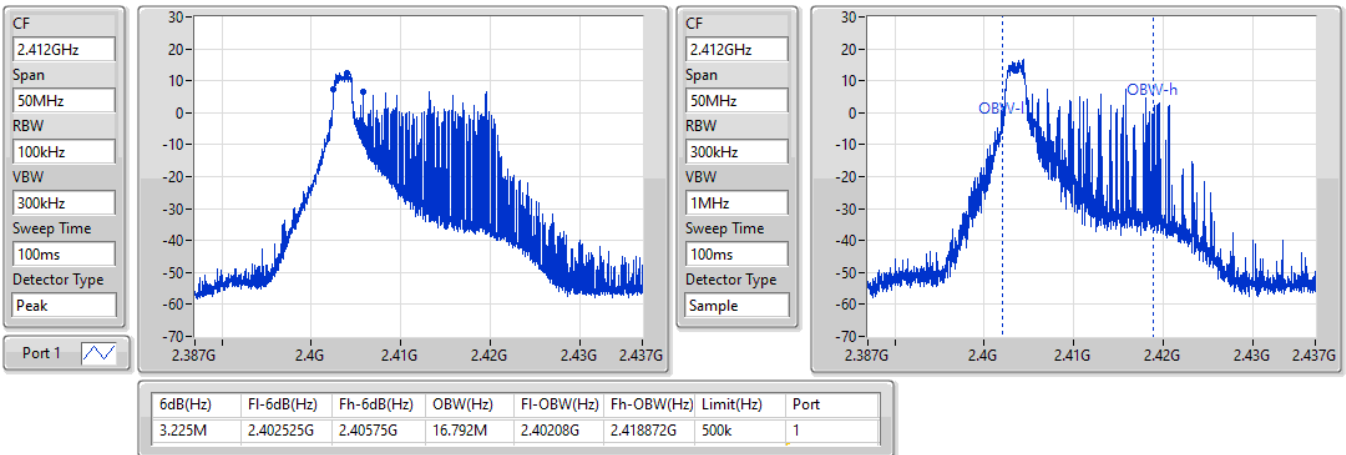
Port X-N dB = Port X 6dB down bandwidth;
 Port X-OBW = Port X 99% occupied bandwidth

802.11ax HEW20_Nss1,(MCS0),RU 26,#RU 0_1TX(Port1)

EBW

2412MHz

27/05/2022

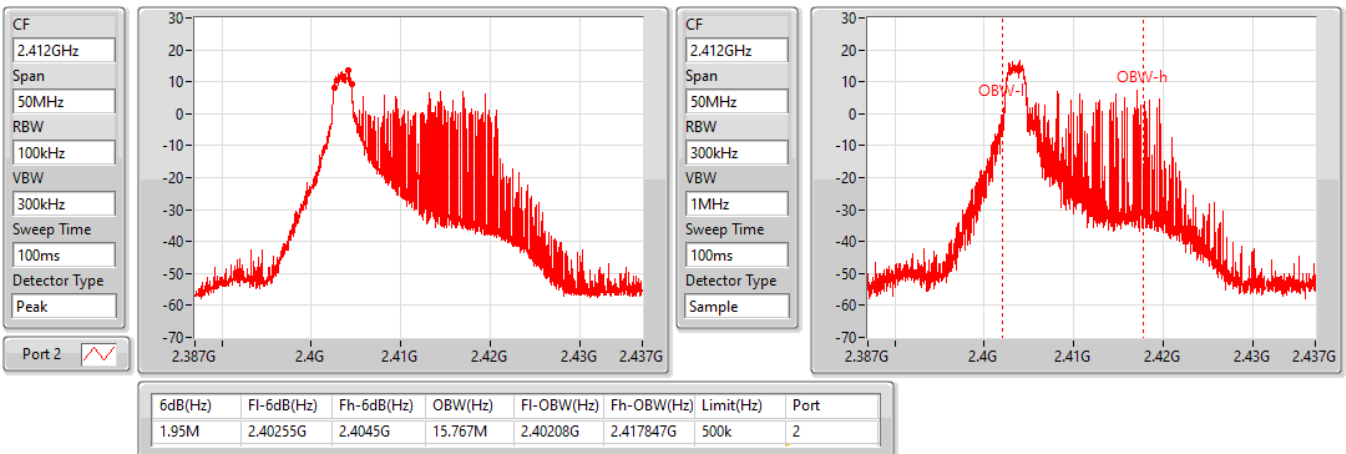


802.11ax HEW20_Nss1,(MCS0),RU 26,#RU 0_1TX(Port2)

EBW

2412MHz

27/05/2022

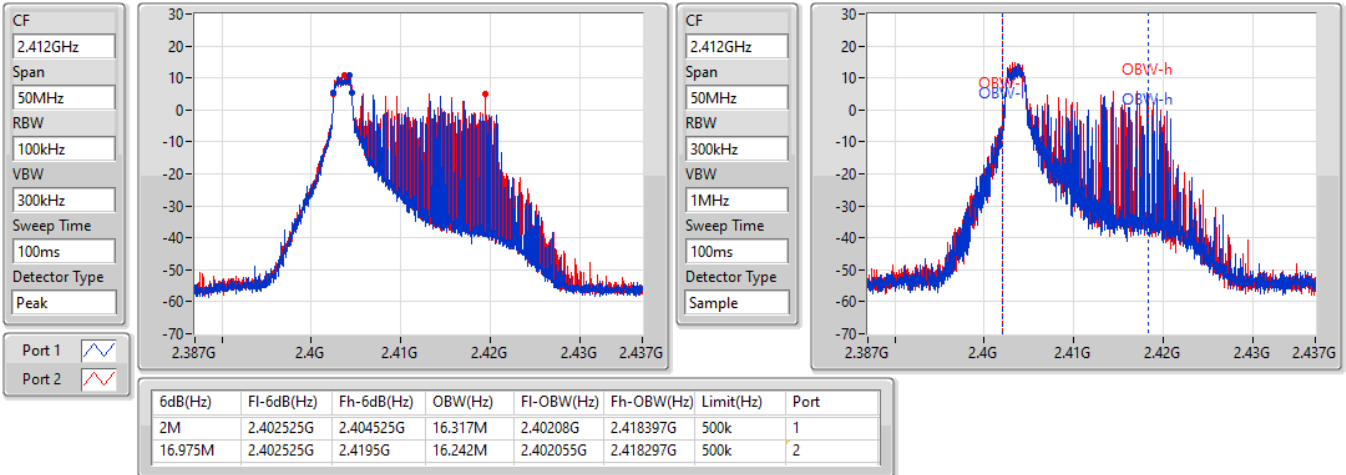


802.11ax HEW20_Nss1,(MCS0),RU 26,#RU 0_2TX

EBW

2412MHz

27/05/2022

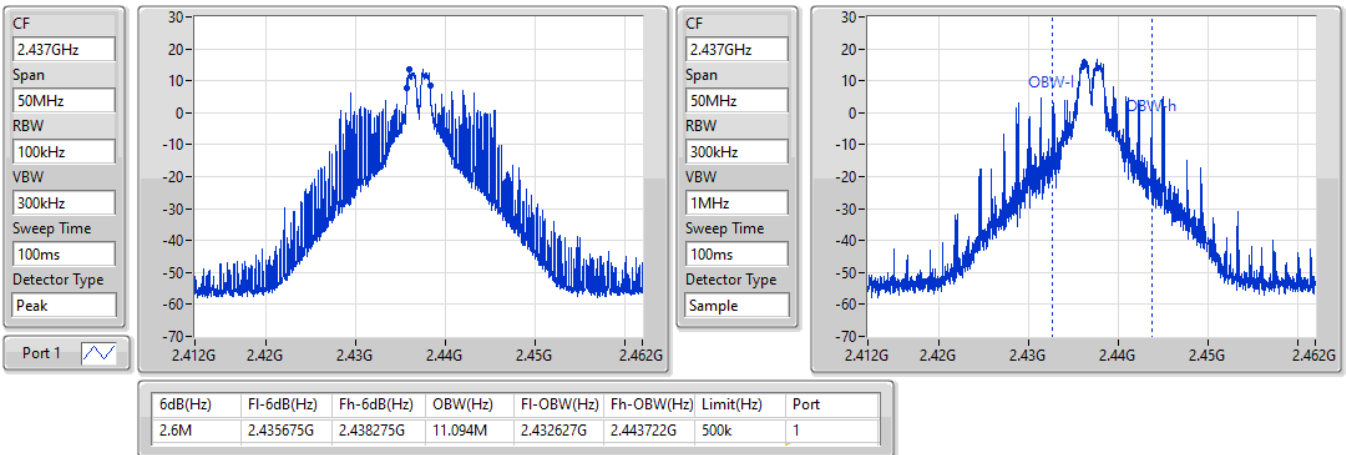


802.11ax HEW20_Nss1,(MCS0),RU 26,#RU 4_1TX(Port1)

EBW

2437MHz

27/05/2022

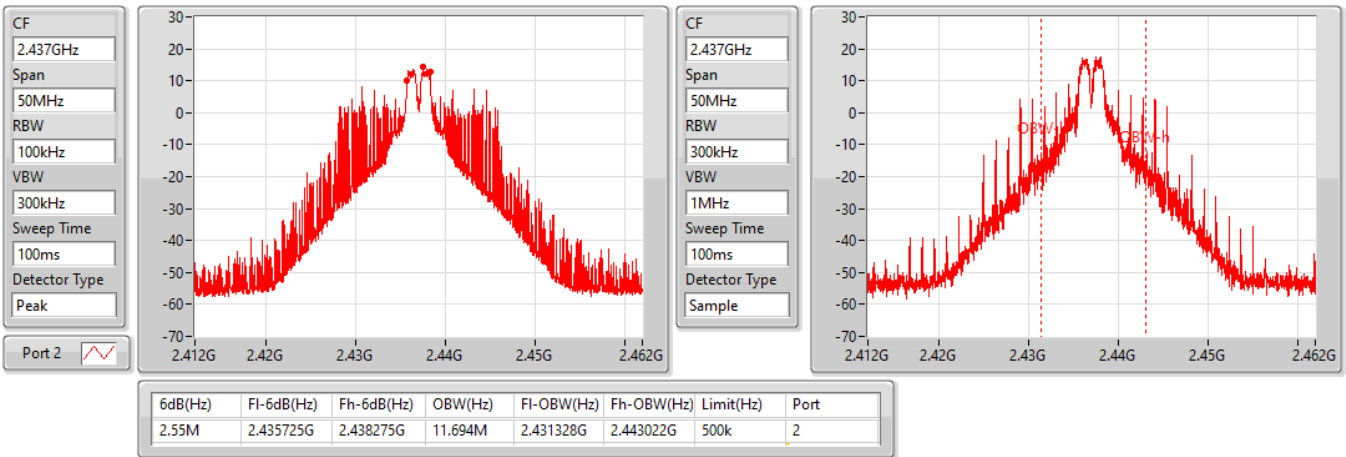


802.11ax HEW20_Nss1,(MCS0),RU 26,#RU 4_1TX(Port2)

EBW

2437MHz

27/05/2022

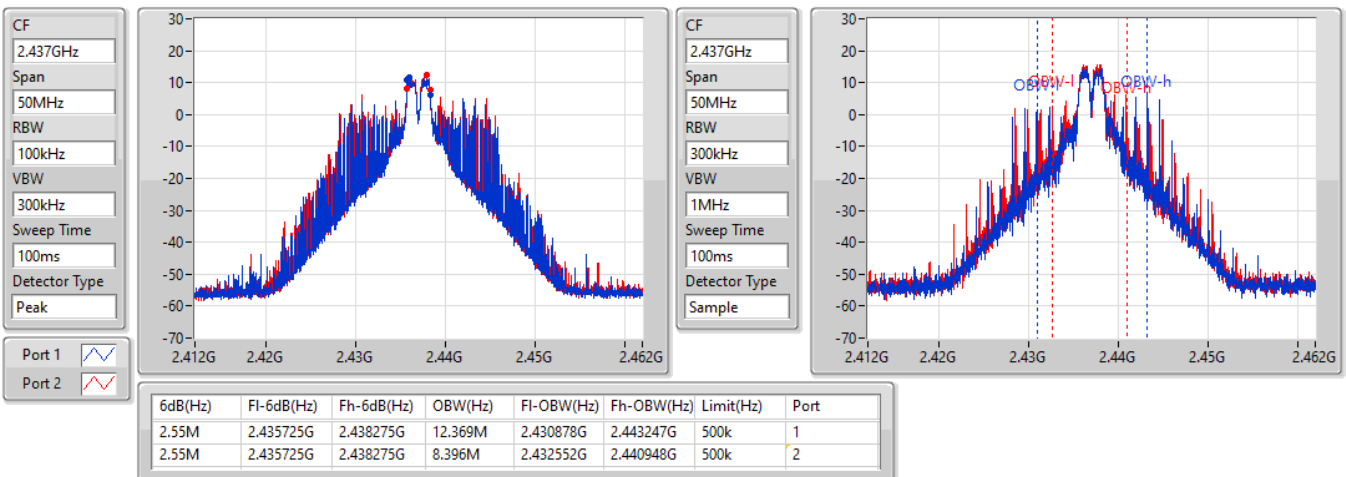


802.11ax HEW20_Nss1,(MCS0),RU 26,#RU 4_2TX

EBW

2437MHz

27/05/2022

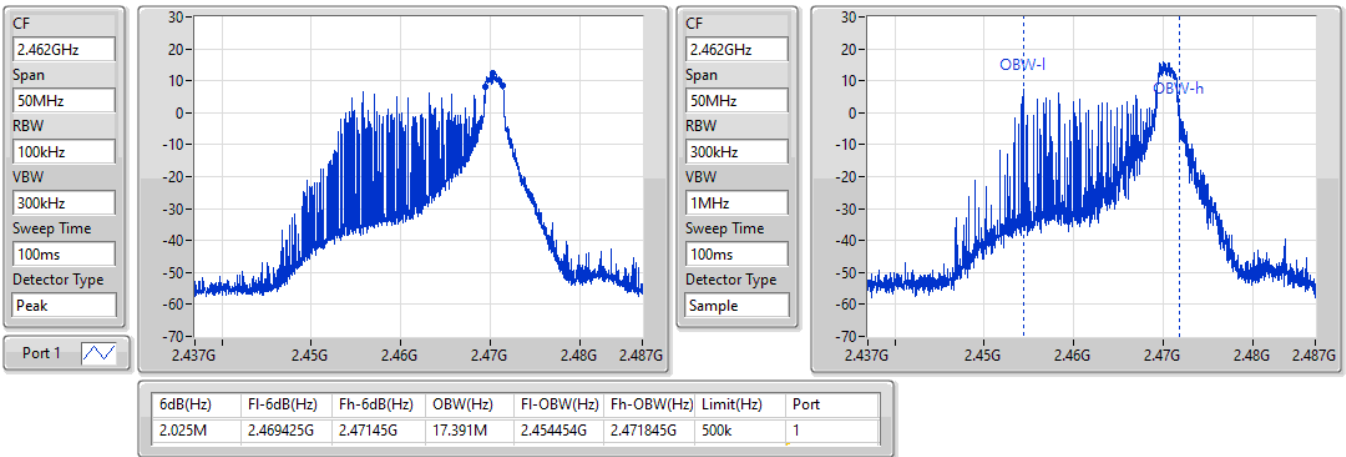


802.11ax HEW20_Nss1,(MCS0),RU 26,#RU 8_1TX(Port1)

EBW

2462MHz

27/05/2022

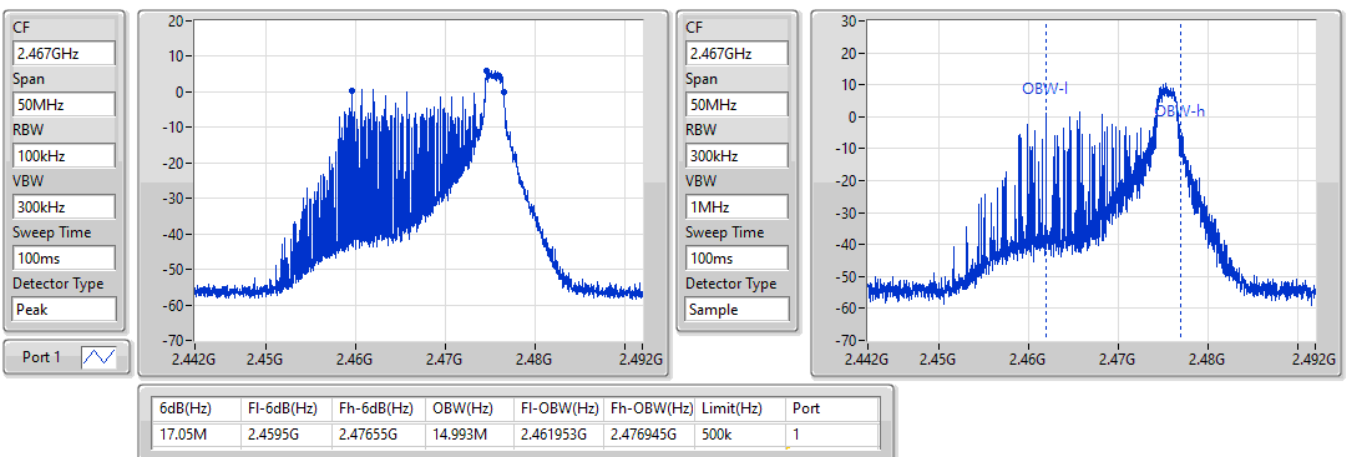


802.11ax HEW20_Nss1,(MCS0),RU 26,#RU 8_1TX(Port1)

EBW

2467MHz

27/05/2022

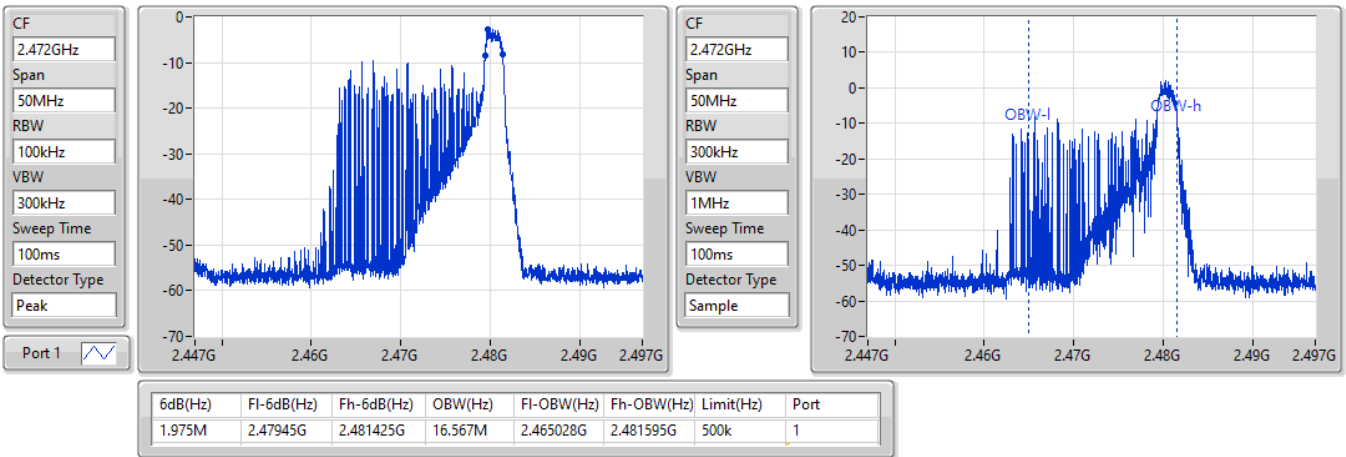


802.11ax HEW20_Nss1,(MCS0),RU 26,#RU 8_1TX(Port1)

EBW

2472MHz

27/05/2022

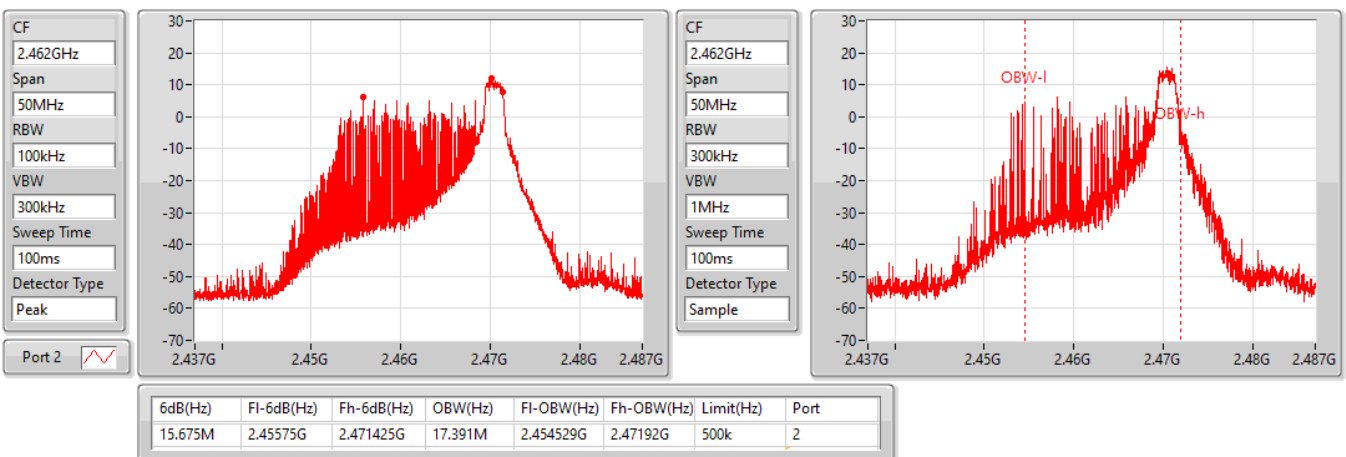


802.11ax HEW20_Nss1,(MCS0),RU 26,#RU 8_1TX(Port2)

EBW

2462MHz

27/05/2022

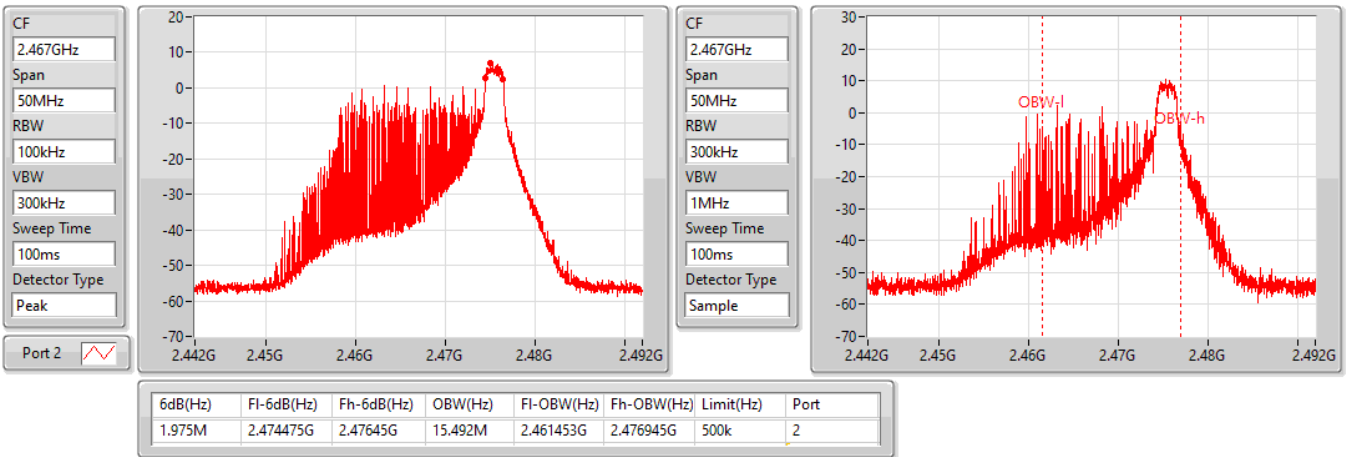


802.11ax HEW20_Nss1,(MCS0),RU 26,#RU 8_1TX(Port2)

EBW

2467MHz

27/05/2022

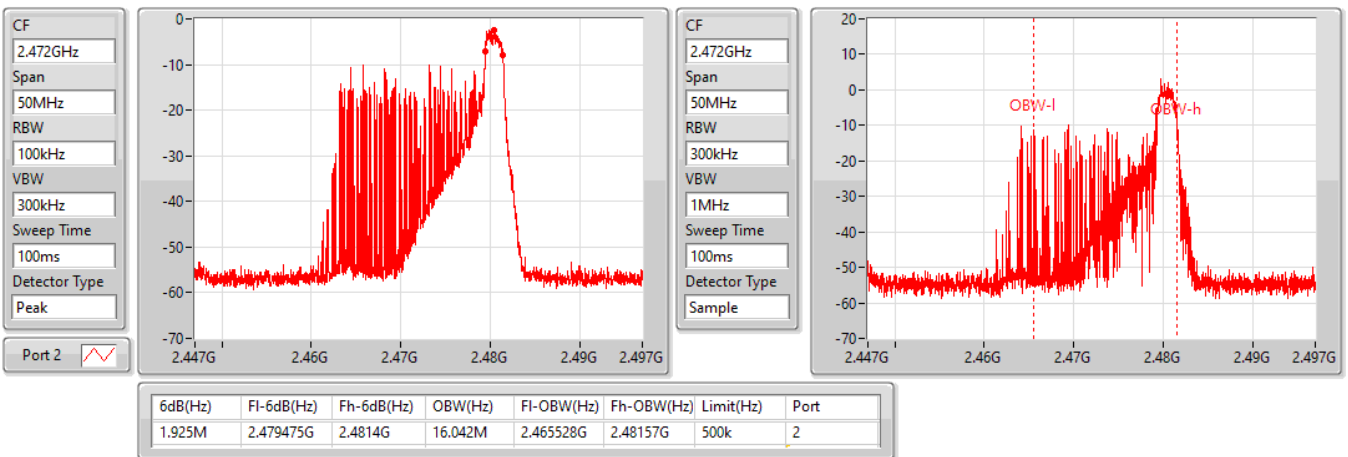


802.11ax HEW20_Nss1,(MCS0),RU 26,#RU 8_1TX(Port2)

EBW

2472MHz

27/05/2022

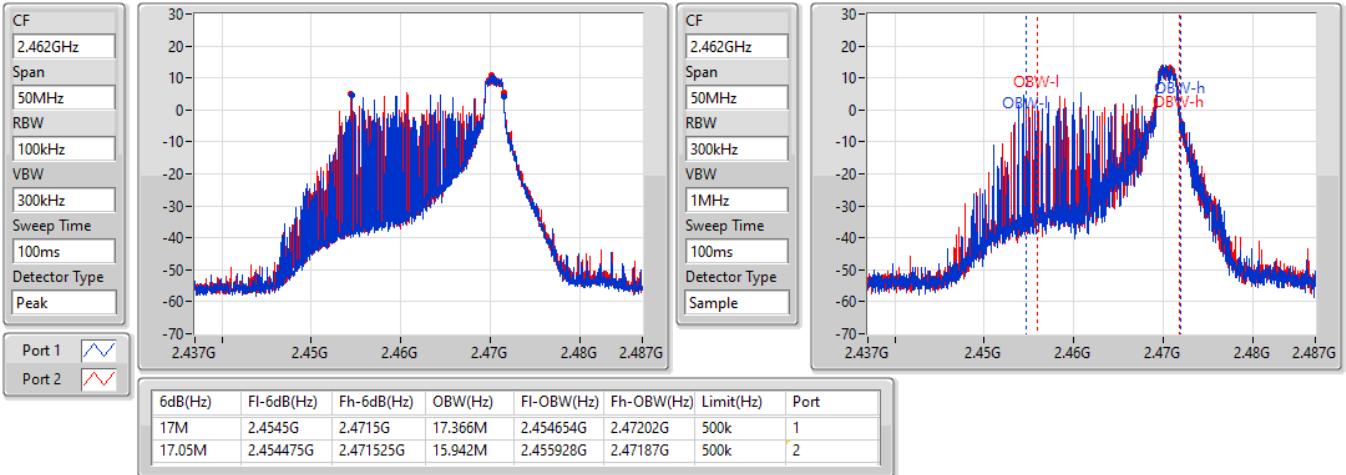


802.11ax HEW20_Nss1,(MCS0),RU 26,#RU 8_2TX

EBW

2462MHz

27/05/2022

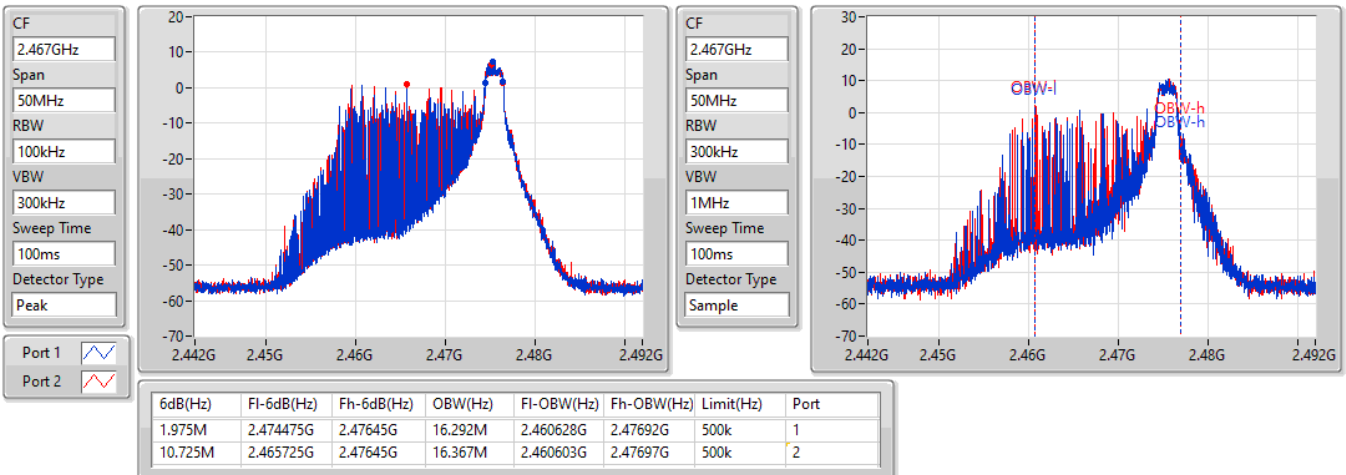


802.11ax HEW20_Nss1,(MCS0),RU 26,#RU 8_2TX

EBW

2467MHz

27/05/2022

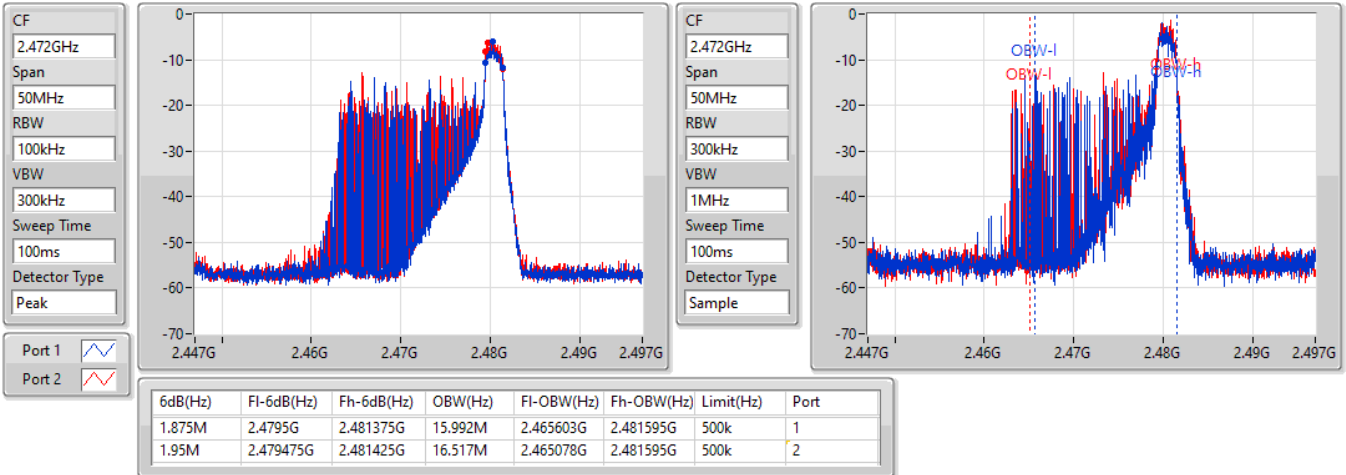


802.11ax HEW20_Nss1,(MCS0),RU 26,#RU 8_2TX

EBW

2472MHz

27/05/2022

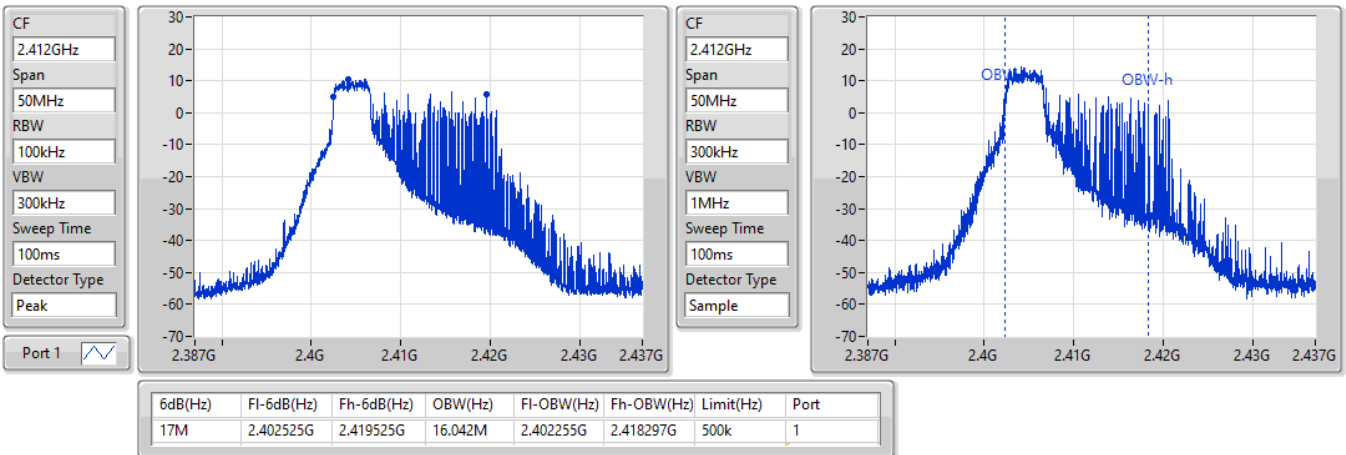


802.11ax HEW20_Nss1,(MCS0),RU 52,#RU 37_1TX(Port1)

EBW

2412MHz

27/05/2022

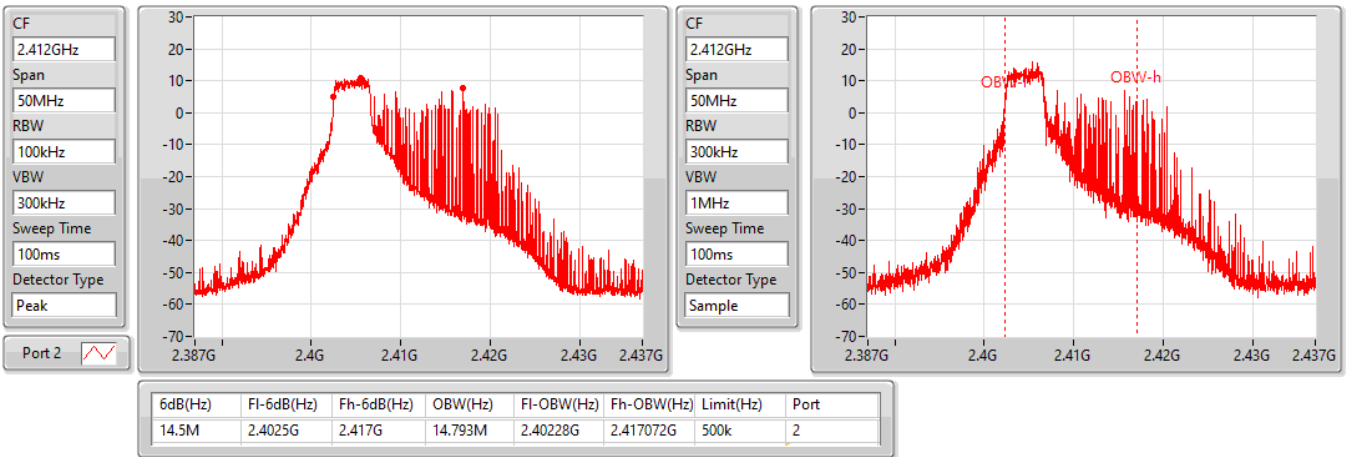


802.11ax HEW20_Nss1,(MCS0),RU 52,#RU 37_1TX(Port2)

EBW

2412MHz

27/05/2022

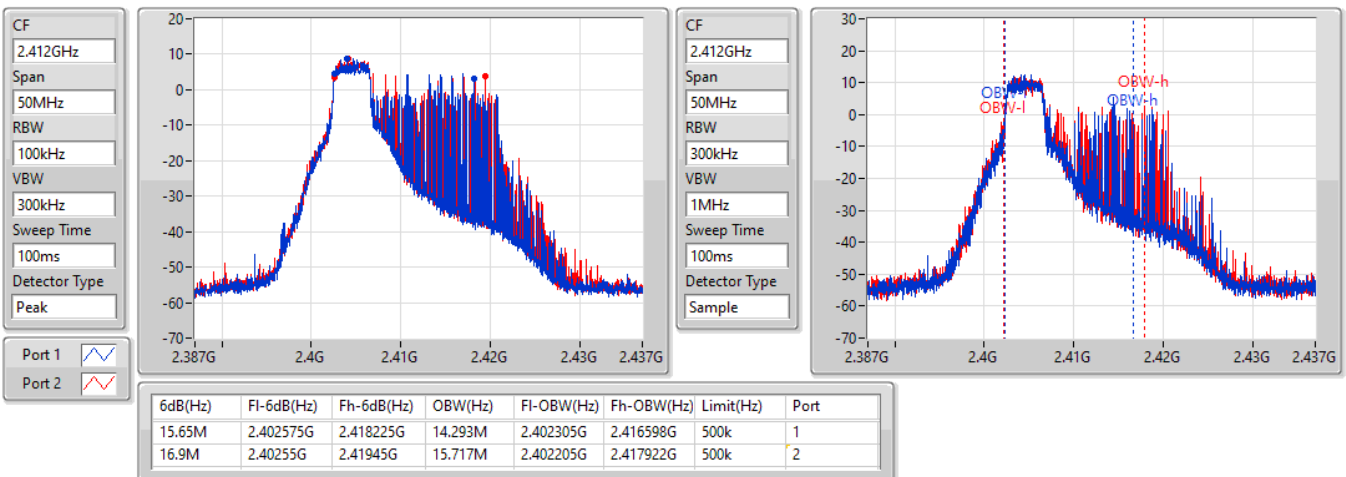


802.11ax HEW20_Nss1,(MCS0),RU 52,#RU 37_2TX

EBW

2412MHz

27/05/2022

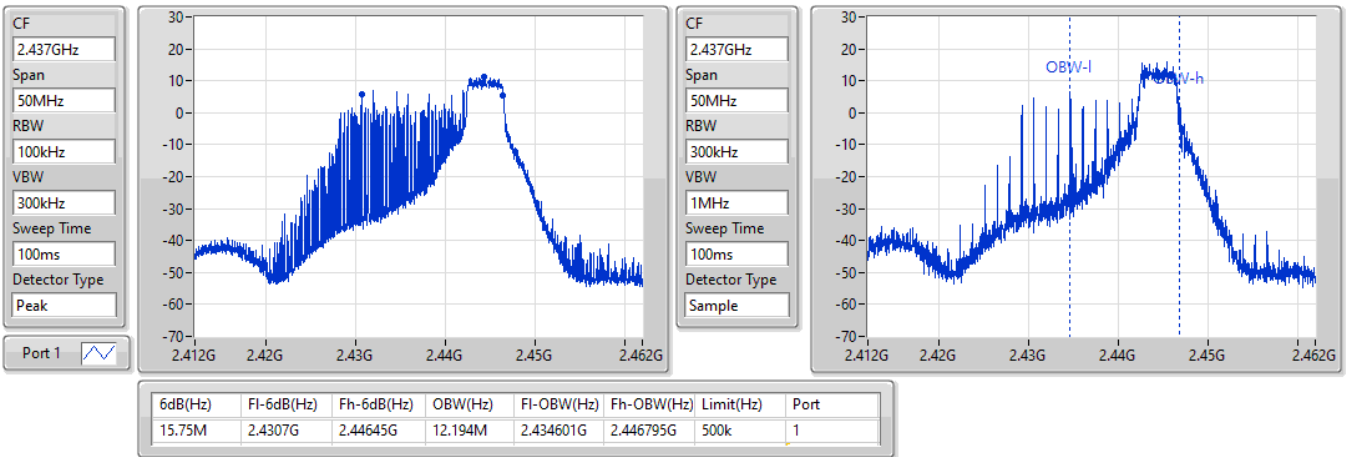


802.11ax HEW20_Nss1,(MCS0),RU 52,#RU 40_1TX(Port1)

EBW

2437MHz

27/05/2022

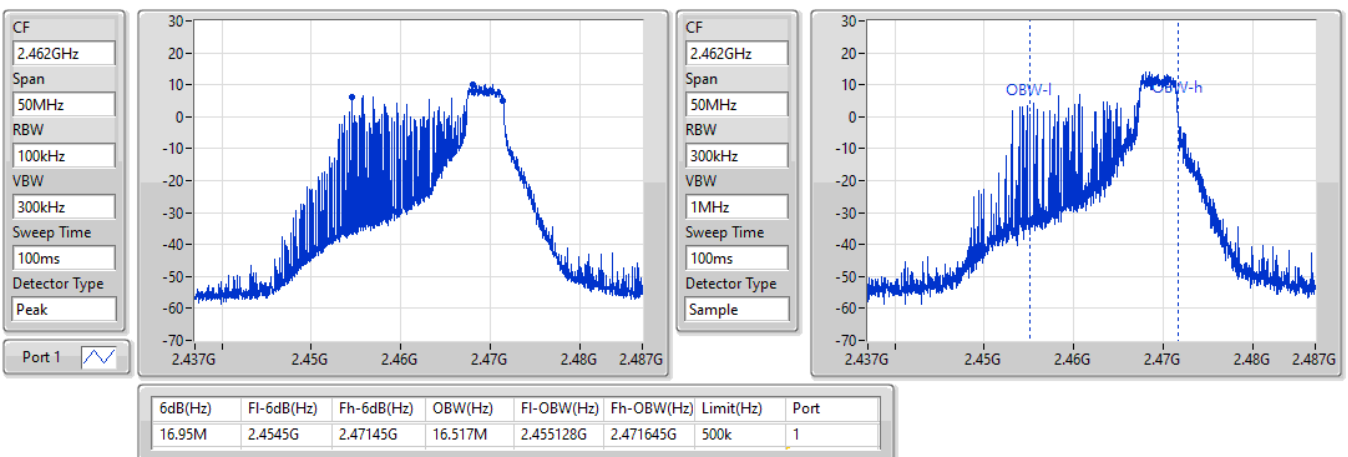


802.11ax HEW20_Nss1,(MCS0),RU 52,#RU 40_1TX(Port1)

EBW

2462MHz

27/05/2022

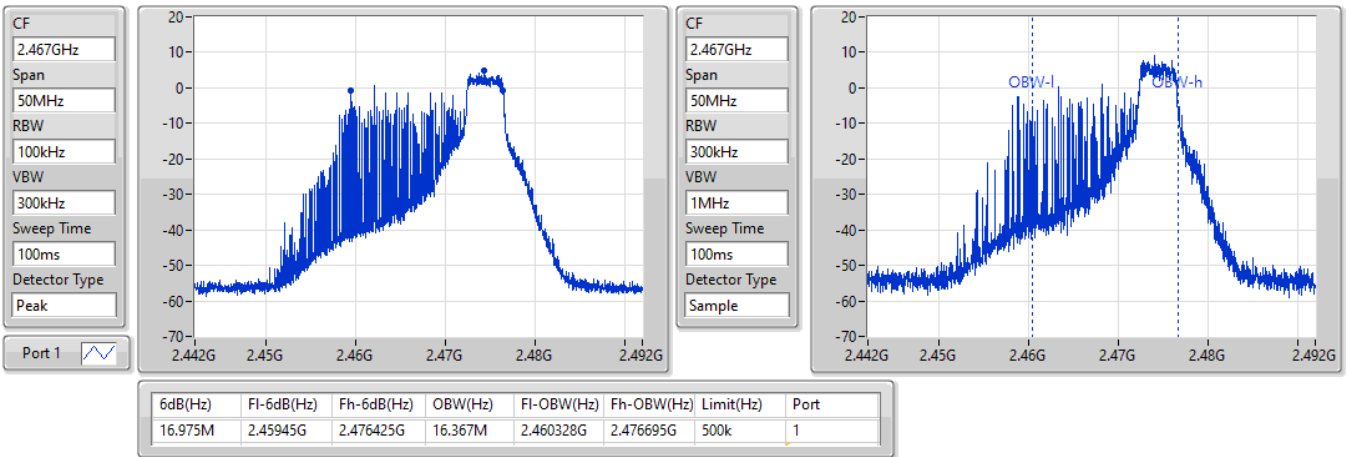


802.11ax HEW20_Nss1,(MCS0),RU 52,#RU 40_1TX(Port1)

EBW

2467MHz

27/05/2022

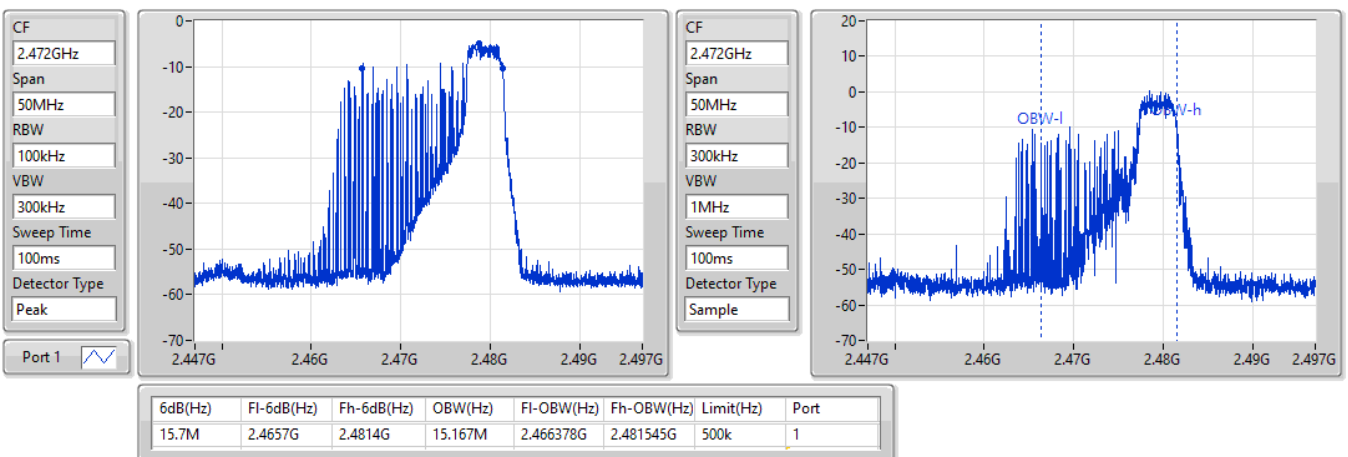


802.11ax HEW20_Nss1,(MCS0),RU 52,#RU 40_1TX(Port1)

EBW

2472MHz

27/05/2022

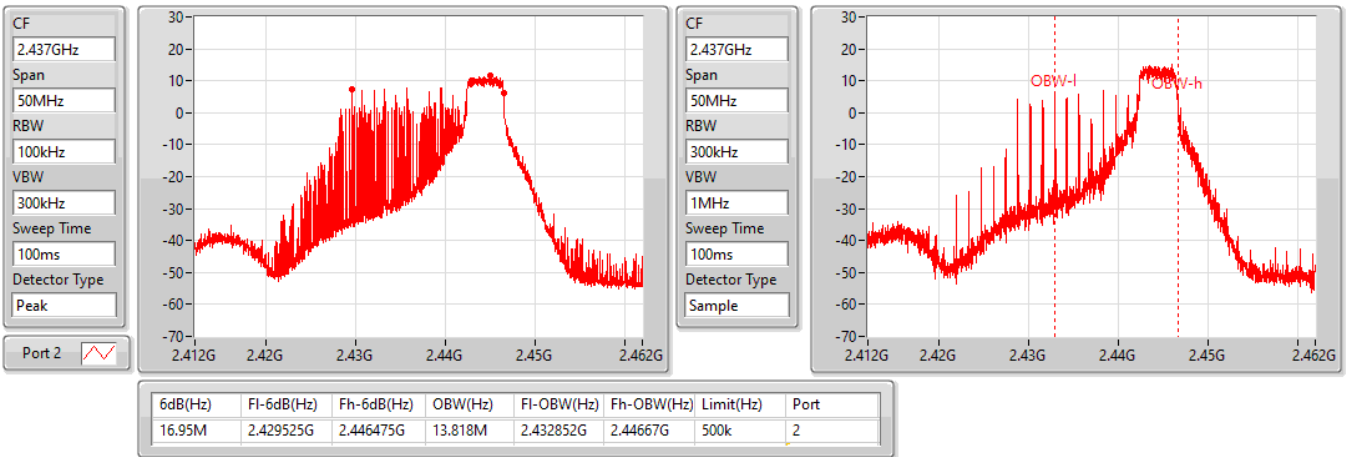


802.11ax HEW20_Nss1,(MCS0),RU 52,#RU 40_1TX(Port2)

EBW

2437MHz

27/05/2022

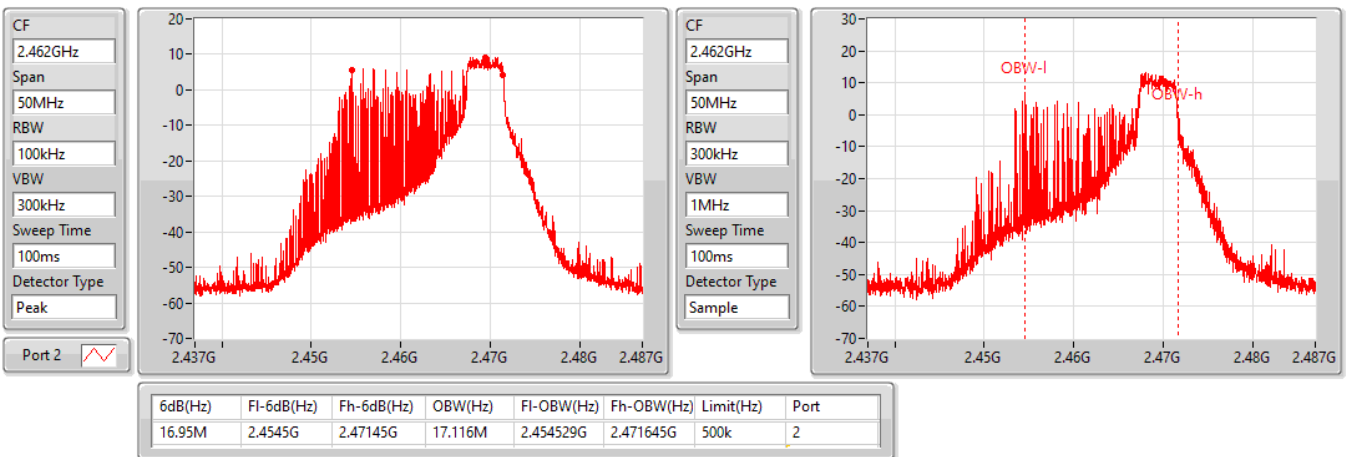


802.11ax HEW20_Nss1,(MCS0),RU 52,#RU 40_1TX(Port2)

EBW

2462MHz

27/05/2022

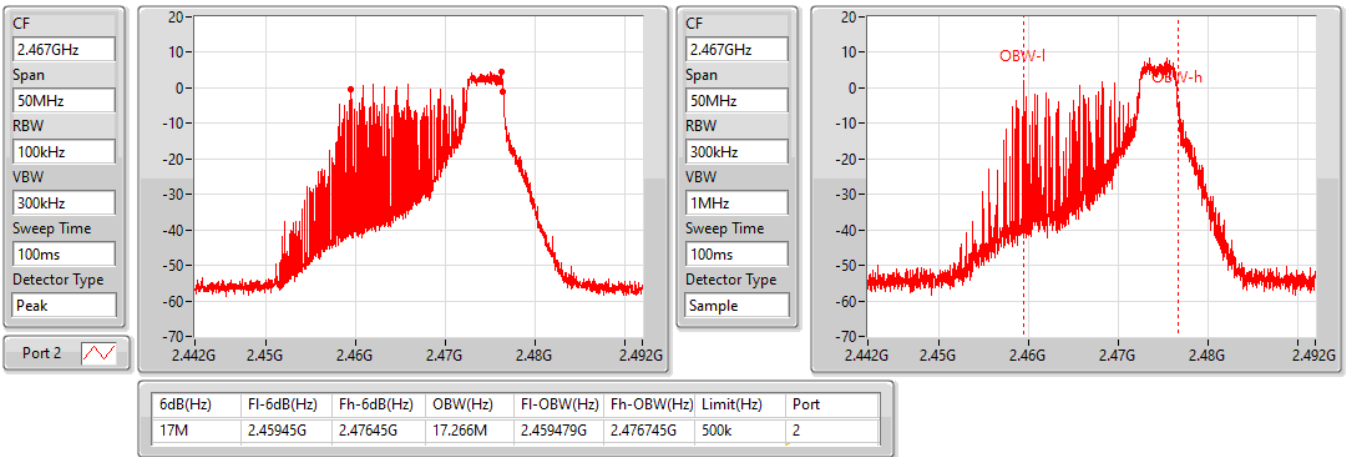


802.11ax HEW20_Nss1,(MCS0),RU 52,#RU 40_1TX(Port2)

EBW

2467MHz

27/05/2022



802.11ax HEW20_Nss1,(MCS0),RU 52,#RU 40_1TX(Port2)

EBW

2472MHz

27/05/2022

