TEST REPORT

Applicant	:	SKYTECH USA LLC.
Address of Applicant	:	INCORP SERVICES, INC. 3458 LAKESHORE DRIVE TALLAHASSEE, FL 32312 US
Product Name	:	Desktop Computer
Brand Name	:	STGAubron & STGsivir
Model Name	:	ABR1924
Sample Acquisition Method	:	Sent by Client
Sample No.	:	E24110067-01#03 E24110067-01#04
FCC ID	:	2BGCAABR1924
Standards	:	FCC CFR47 Part 15.247, Subpart C
Date of Receipt	:	2024-11-21
Date of Test	:	2024-11-21~ 2025-02-18
Date of Issue	:	2025-02-19

Remark:

This report details the results of the testing carried out on one sample, the results contained in this report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

Prepared by: Erik. Yang (Erik Yang) Reviewed by: Jennifer Zhou (Jennifer Zhou) Approved by: Echo Mu (Authorized signatory: Echo Mu)

Contents

1 General Information

1.1 Testing Laboratory

Company Name	ICAS Testing Technology Service (Shanghai) Co., Ltd.
Address	No.1298, Pingan Road, Minhang District, Shanghai, China
Telephone	0086 21-51682999
Fax	0086 21-54711112
Homepage	www.icasiso.com

1.2 Details of Application

Applicant Company Name	SKYTECH USA LLC.
Address	INCORP SERVICES, INC. 3458 LAKESHORE DRIVE TALLAHASSEE, FL 32312 US
Contact Person	Hu yan
Telephone	001-647-8892-868
Email	yan.hu@astsys.com
Manufacturer Company Name	SKYTECH USA LLC.
Address	INCORP SERVICES, INC. 3458 LAKESHORE DRIVE TALLAHASSEE, FL 32312 US
Factory Company Name	SKYTECH USA LLC.
Address	INCORP SERVICES, INC. 3458 LAKESHORE DRIVE TALLAHASSEE, FL 32312 US

1.3 Details of EUT

Product Name	Desktop Computer
Brand Name	STGAubron & STGsivir
Test Model Name	ABR1924
FCC ID	2BGCAABR1924
Mode of Operation	WIFI 802.11b/g/n(HT20/40)/ax(HE20/40)
Maximum Conducted (average) output power	IEEE 802.11b: 16.69dBm IEEE 802.11g: 14.47dBm IEEE 802.11n(20): 16.16dBm IEEE 802.11ax(20): 15.92dBm IEEE 802.11n(40): 15.69dBm IEEE 802.11ax(40): 16.30dBm
Operating Frequency Range	2412MHz ~ 2462MHz
Channel Separation	5 MHz
Number of channels	11
Modulation Type	802.11b: DSSS(CCK, DQPSK, DBPSK) 802.11g/n: OFDM(64-QAM, 16-QAM, QPSK, BPSK) 802.11ax: OFDMA(1024-QAM, 256-QAM, 64-QAM, 16-QAM, QPSK, BPSK)

Antenna Type	Internal Antenna
Antenna Gain	1.51dBi
Extreme Temperature Range	0℃~ +70℃
Test Voltage	AC 100-240V 50/60Hz
Hardware Version	H311M-K PLUS
Software Version	5.12
RF power setting in TEST SW	802.11b: AX Series MP Toolkit Version mp_v1.0.39_Power level setting_16dBm 802.11g: AX Series MP Toolkit Version mp_v1.0.39_Power level setting_16dBm 802.11n(HT20/40): AX Series MP Toolkit Version mp_v1.0.39_Power level setting_15dBm 802.11ax(HE20/40): AX Series MP Toolkit Version mp_v1.0.39_Power level setting_15dBm

Note:

1. *The above information was declared by the manufacture.*
2. *For more details, please refer to the User's manual of the EUT.*
3. *There are two antenna positions in the test sample, and the test data of both antenna positions meet the requirements.*
4. *IEEE 802.11ax Only support Full RU.*
5. *Directional gain = GANT +10 log(NANT) =4.52.*

Channel List

Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2.412GHz	5	2.432GHz	9	2.452GHz
2	2.417GHz	6	2.437GHz	10	2.457GHz
3	2.422GHz	7	2.442GHz	11	2.462GHz
4	2.427GHz	8	2.447GHz		

Note:

For 20MHz bandwidth system use Channel 1 to Channel 11

For 40MHz bandwidth system use Channel 3 to Channel 9

1.4 Test Methodology

47 CFR Part 15, Subpart C	Telecommunication-Radio Frequency Devices-Intentional Radiators
KDB Publication 558074 D01 v05r02	15.247 Meas Guidance.
KDB Publication 662911 D01 v02r01	Emissions Testing of Transmitters with Multiple Outputs in the Same Band (e.g., MIMO, Smart Antenna, etc)
ANSI C63.10-2013	American National Standard for Testing Unlicensed Wireless Devices

Note(s):

All test items were verified and recorded according to the standards and without any addition/deviation/exclusion during the test.

1.5 Test Summary

Test Item	FCC Rules	Result
Antenna Requirement	FCC Part 15.247(b)(4), Part 15.203	PASS
Maximum conducted (average) output power	FCC Part 15.247(b)(3)	PASS
6dB Bandwidth and 99% Bandwidth	FCC Part 15.247(a)(2)	PASS
Maximum conducted output power spectral density	FCC Part 15.247(e)	PASS
Conducted Spurious Emission & Authorized-band band-edge	FCC Part 15.247(d)	PASS
Radiated Emission	FCC Part 15.247(d), 15.205, 15.209	PASS
Band Edge (Restricted-band band-edge)	FCC Part 15.247(d), 15.205, 15.209	PASS
Conducted Emission on AC Mains	FCC Part 15.207(a)	PASS

2 Test Condition

2.1 Environmental conditions

Temperature (°C)	15-35
Humidity (%RH)	30-60
Barometric Pressure (mbar)	860-1060

Note: Actual values will be recorded during the test.

2.2 Equipment List

Name of Equipment	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer	Keysight	N9020B	MY59260184	2024-06-26	2025-06-25
Spectrum Analyzer	Rohde & Schwarz	FSV40N	101450	2024-06-04	2025-06-03
Signal Generator	Rohde & Schwarz	SMR27	100184	2024-06-26	2025-06-25
EMI Test Receiver	Rohde & Schwarz	ESPI3	100173	2024-06-05	2025-06-04
EMI Test Receiver	Rohde & Schwarz	ESR 7	101911	2024-06-04	2025-06-03
V-network	SCHWARZBECK	NSLK 8127	8127-902	2024-06-05	2025-06-04
Attenuator	SCHWARZBECK	VTSD 9561-FN	/	2024-06-05	2025-06-04
Broadband Antenna	SCHWARZBECK	VULB9163	9163-1037	2023-03-22	2025-03-21
Horn Antenna-18G	SCHWARZBECK	BBHA9120D	9120D-1775	2023-06-13	2025-06-12
Loop Antenna	SCHWARZBECK	FMZB 1513	/	2023-06-09	2025-06-08
Horn Antenna-40G	YINGLIAN	LB-180400-KF	N/A	2023-06-18	2025-06-17
Broadband Preamplifier	SCHWARZBECK	BBV 9718	346	2024-06-04	2025-06-03
EMC chamber 9*6*6(L*W*H)	CHANGNING	966	N/A	2023-06-09	2025-06-08
Shielded Enclosure 8*5*4(L*W*H)	CHANGNING	854	N/A	2023-06-09	2025-06-08
Test Software	BL	BL410_E	Version:2.1.1.436	N/A	N/A
Test Software	BL	BL410_R	Version:2.1.1.409	N/A	N/A

2.3 Measurement Uncertainty

The uncertainty is calculated using the methods suggested in the “Guide to the Expression of Uncertainty in measurement” (GUM) published by CISPR and ANSI. The reported uncertainty of measurement y ±U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95.45%.

Parameter		Uncertainty
Antenna Port Conducted Emission		± 1.04dB
Radiated Emission	< 1GHz	± 5.00dB
	> 1GHz	± 5.46dB
Conducted Emission on AC Mains	150kHz-30MHz	± 3.36dB
Occupied Channel Bandwidth		±39.26KHz
Maximum Conducted Output Power		±1.06dB
Maximum Conducted Output Power Spectral Density		±1.12dB

3 Test Set-up and Operation Modes

3.1 Details of Test Mode

Using test software was control EUT work in continuous transmitter and receiver mode. Select test channel as below:

For 802.11b/g/n/ax (20M)

Channel	Frequency
The lowest channel (CH1)	2412MHz
The middle channel (CH6)	2437MHz
The Highest channel (CH11)	2462MHz

For 802.11n/ax(40M)

Channel	Frequency
The lowest channel (CH3)	2422MHz
The middle channel (CH6)	2437MHz
The Highest channel (CH9)	2452MHz

Through Pre-scan under all rate at lowest channel, the data rate as below table described is the worst case, so we choose these data rate for test.

Type	Data rate
802.11b	1Mbps
802.11g	6Mbps
802.11n(20M)	MCS0
802.11ax(20M)	MCS11
802.11n(40M)	MCS0
802.11ax(40M)	MCS11

The basic operation modes are:

A. On
   1. WLAN mode
      a. Transmitting
         i. Low Channel
         ii. Middle Channel
         iii. High Channel
      b. Receiving

B. Standby

C. Off

3.2 Special Accessories and Auxiliary Equipment

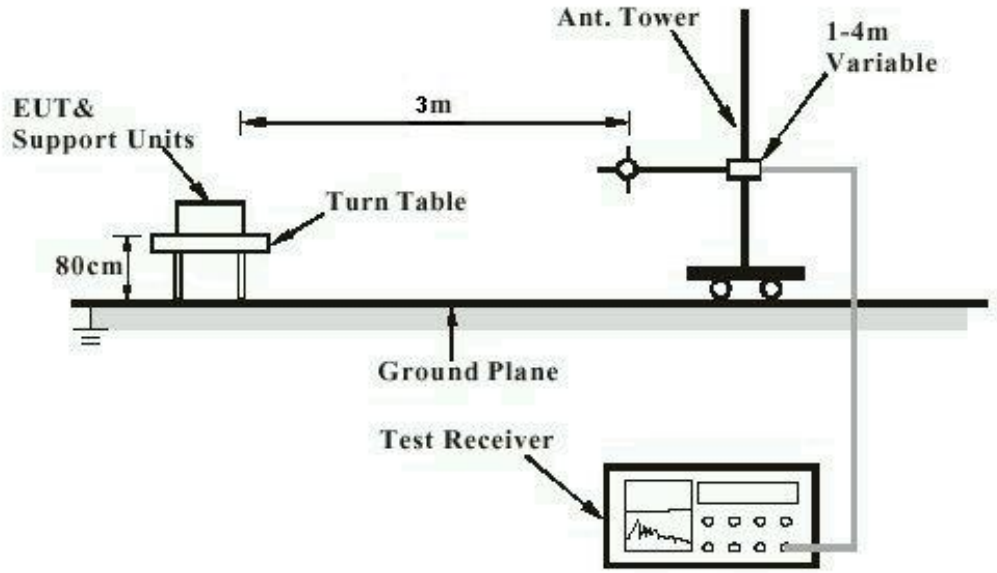
Description	Manufacturer	Model Name	Serial No.
Display	Dell	YMLK003	YMLK003
Mouse	Dell	MS116t1	CN-065K5F-LO300-248-0VP2
Keyboard	Dell	KB216P	CN-0M4W71-73826-6C801SQ-A02
HDMI Cable	Shengwei	HEC	1m Unshielded

3.3 Support Software

Description	Manufacturer	Software Name
Software	N/A	AX Series MP Toolkit Version mp_v1.0.39

3.4 Test Setup Diagram

Diagram of Measurement Configuration for Radiation Test



Note: Measurements above 1GHz are done with a table height of 1.5m. In addition, there is RF absorbing material on the floor of the test site for above 1GHz measurement.

Diagram of Measurement Configuration for Conduction Test

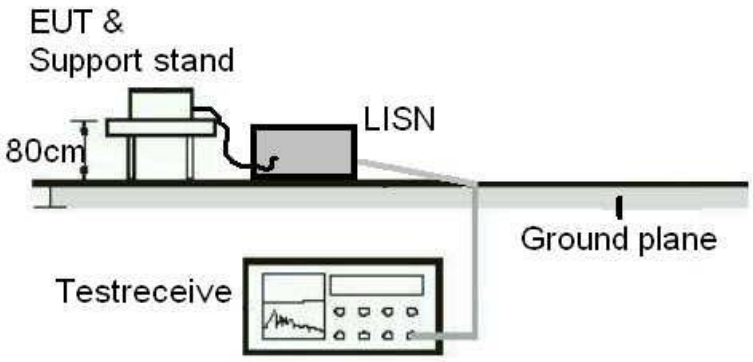
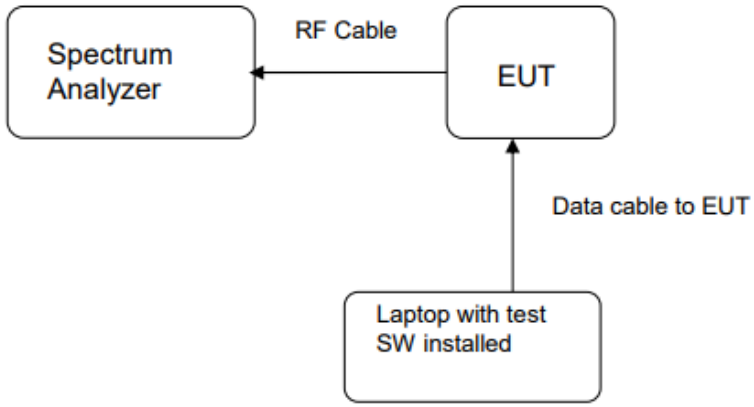


Diagram of Measurement Configuration for Transmitter Test



4 Test Results

4.1 Transmitter Requirement & Test Suites

4.1.1 Antenna Requirement

RESULT: **PASS**

Test standard	:	FCC Part 15.247(b)(4), Part 15.203
Requirement	:	An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. In addition, If transmitting antennas of directional gain greater than 6dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

According to the manufacturer declaration, the EUT has an antenna with a directional gain of 4.52dBi. The antenna is an internal antenna with no possibility of replacement with a non-approved antenna by the end-user.

Therefore, the EUT is considered to comply with this provision.

4.1.2 Maximum conducted (average) output power

RESULT: **PASS**

Test standard : FCC Part 15.247(b)(3)
Requirement : ANSI C63.10-2013, Clause 11.9.2
KDB 558074 D01 v05r02, Clause 8.3.2
Kind of test site : Shielded room

Test setup

Test Channel : Low/Middle/High
Operation Mode : A.1.a
Ambient temperature : 24.1°C
Relative humidity : 47%

Table 1: Maximum conducted (average) output power

Test Mode	Duty Cycle (%)	Test Channel (MHz)	Maximum conducted (average) output power						Limit (W)
			Chain 1		Chain 2		Total Power		
			(dBm)	(mW)	(dBm)	(mW)	(dBm)	(mW)	
802.11b	100	2412	16.69	46.666	15.22	33.266	N/A	N/A	≤1
		2437	16.23	41.976	14.87	30.690	N/A	N/A	
		2462	16.33	42.954	15.30	33.884	N/A	N/A	
802.11g	100	2412	14.47	27.990	13.52	22.491	N/A	N/A	
		2437	13.81	24.044	13.33	21.528	N/A	N/A	
		2462	14.04	25.351	13.43	22.029	N/A	N/A	
802.11n(HT20)	100	2412	13.60	22.909	12.65	18.408	16.16	41.317	
		2437	12.78	18.967	12.30	16.982	15.56	35.949	
		2462	12.88	19.409	12.56	18.030	15.73	37.439	
802.11ax(HE20)	100	2412	13.21	20.941	12.58	18.113	15.92	39.054	
		2437	12.50	17.783	12.40	17.378	15.46	35.161	
		2462	12.68	18.535	12.66	18.450	15.68	36.985	
802.11n(HT40)	100	2422	12.64	18.365	12.27	16.866	15.47	35.231	
		2437	12.75	18.836	12.58	18.113	15.68	36.949	
		2452	12.67	18.493	12.47	17.660	15.58	36.153	
802.11ax(HE40)	100	2422	13.48	22.284	13.02	20.045	16.27	42.329	
		2437	13.30	21.380	13.09	20.370	16.21	41.750	
		2452	13.29	21.330	13.28	21.281	16.30	42.611	

Notes:

1. 802.11b/g support SISO and 802.11n/ax support MIMO.
2. Add [10 log (1 / D)], where D is the duty cycle, to the measured power to compute the average power during the actual transmission times.

4.1.3 6dB Bandwidth and 99% Bandwidth

RESULT: **PASS**

Test standard : FCC Part 15.247(a)(2)
ANSI C63.10-2013, Clause 11.8.1
Requirement : KDB 558074 D01 v05r02, Clause 8.2

Kind of test site : Shielded room

Test setup
Test Channel : Low/Middle/High
Operation Mode : A.1.a
Ambient temperature : 22.8°C
Relative humidity : 42%

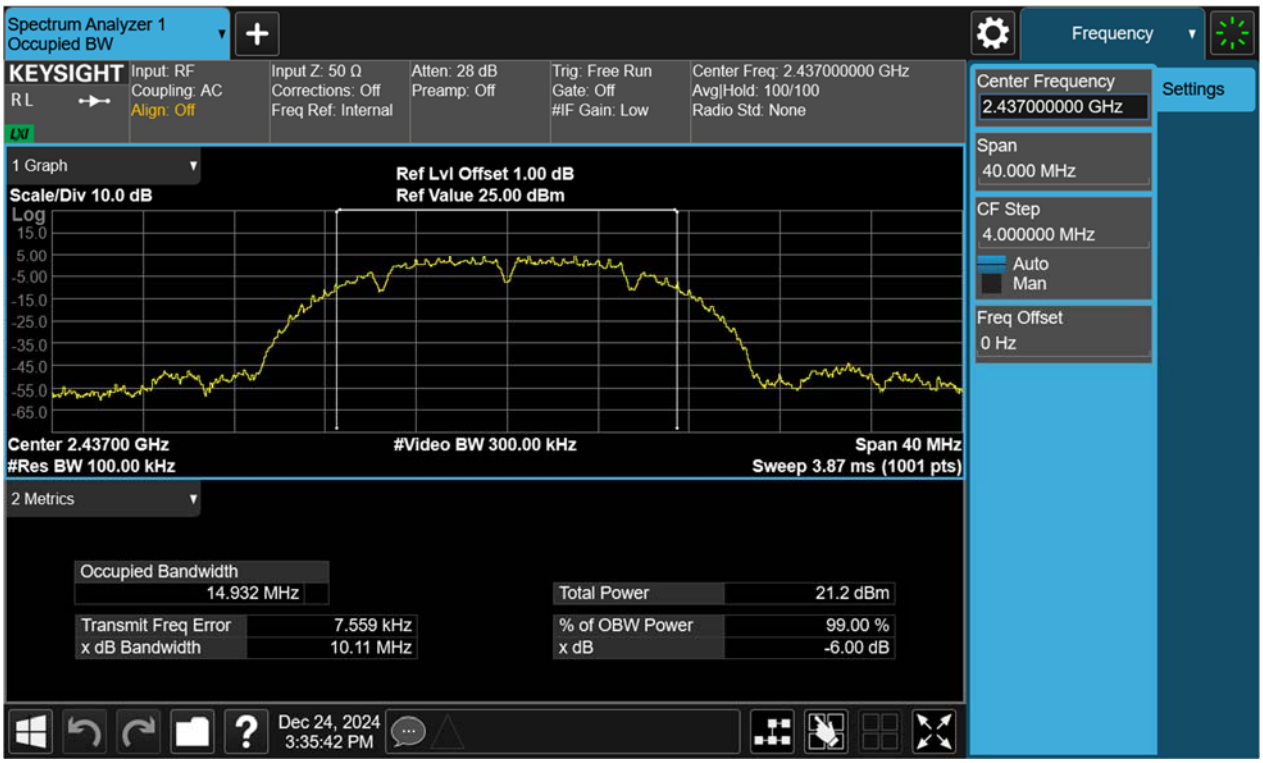
Table 2: 6dB Bandwidth and 99% Bandwidth

Test Mode	Test Channel (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	6dB Bandwidth Applicable Limit
802.11b	2412	10.09	13.875	≥0.5
	2437	10.11	14.883	
	2462	11.08	14.897	
802.11g	2412	16.50	16.481	
	2437	16.48	16.493	
	2462	16.49	16.491	
802.11n(HT20)	2412	17.70	17.548	
	2437	17.67	17.572	
	2462	17.69	17.568	
802.11ax(HE20)	2412	19.14	18.936	
	2437	19.07	18.969	
	2462	19.12	18.892	
802.11n(HT40)	2422	35.09	35.687	
	2437	36.56	36.101	
	2452	36.56	36.105	
802.11ax(HE40)	2422	38.27	37.742	
	2437	38.22	37.809	
	2452	38.21	37.830	

Figure 1: 6dB Bandwidth, 802.11b, 2412MHz

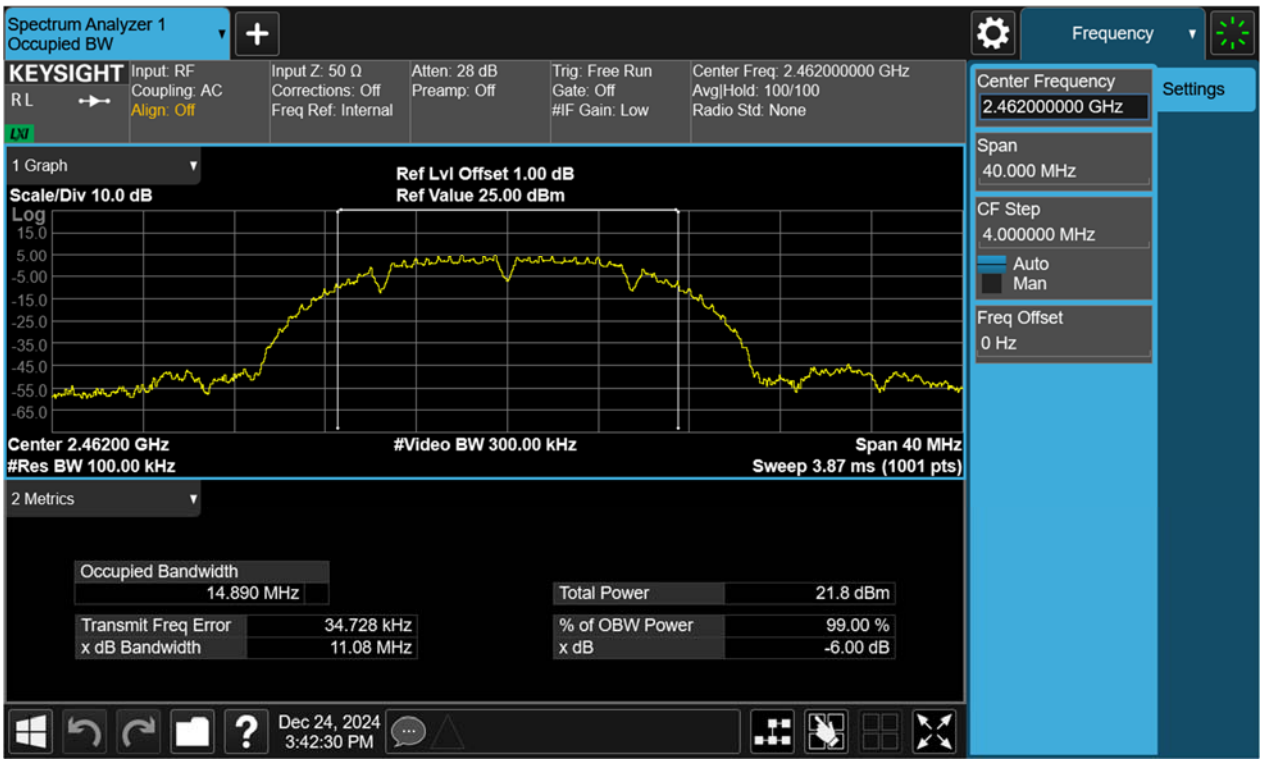
99% Bandwidth, 802.11b, 2412MHz

Figure 2: 6dB Bandwidth, 802.11b, 2437MHz



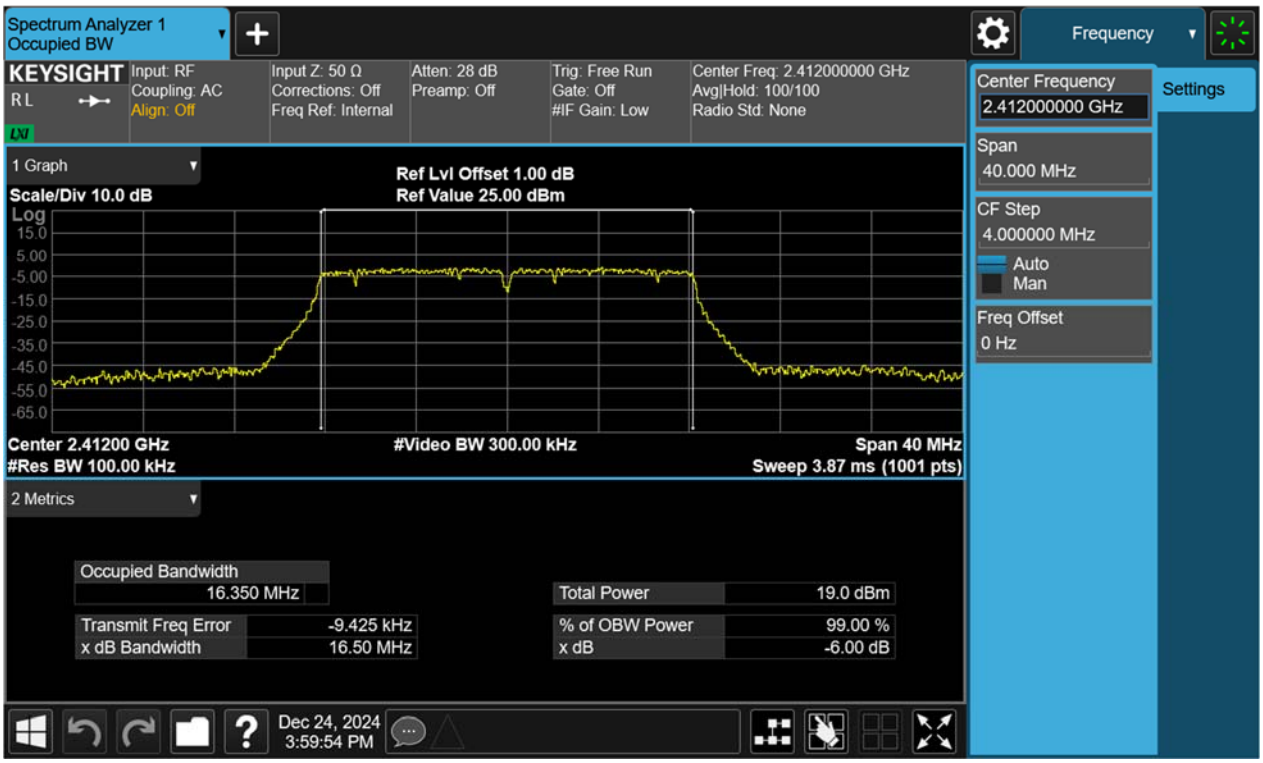
99% Bandwidth, 802.11b, 2437MHz

Figure 3: 6dB Bandwidth, 802.11b, 2462MHz



99% Bandwidth, 802.11b, 2462MHz

Figure 4: 6dB Bandwidth, 802.11g, 2412MHz



99% Bandwidth, 802.11g, 2412MHz

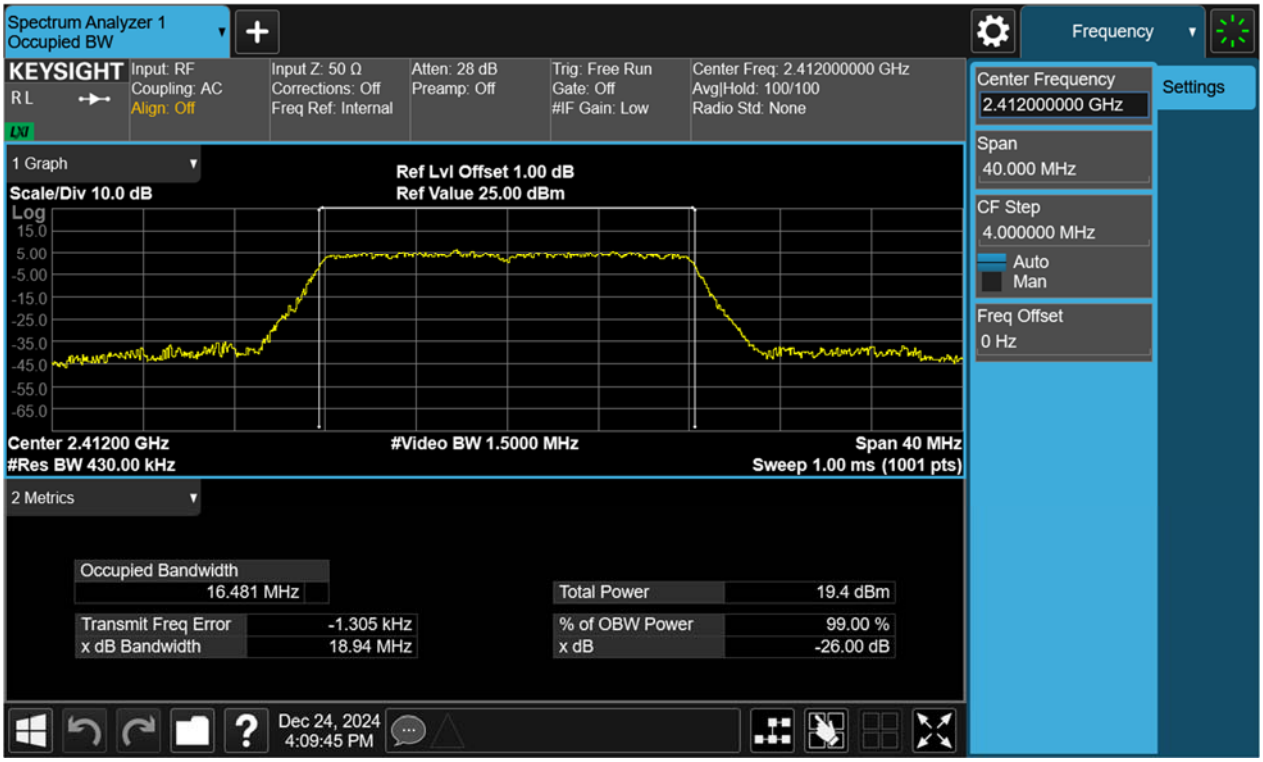
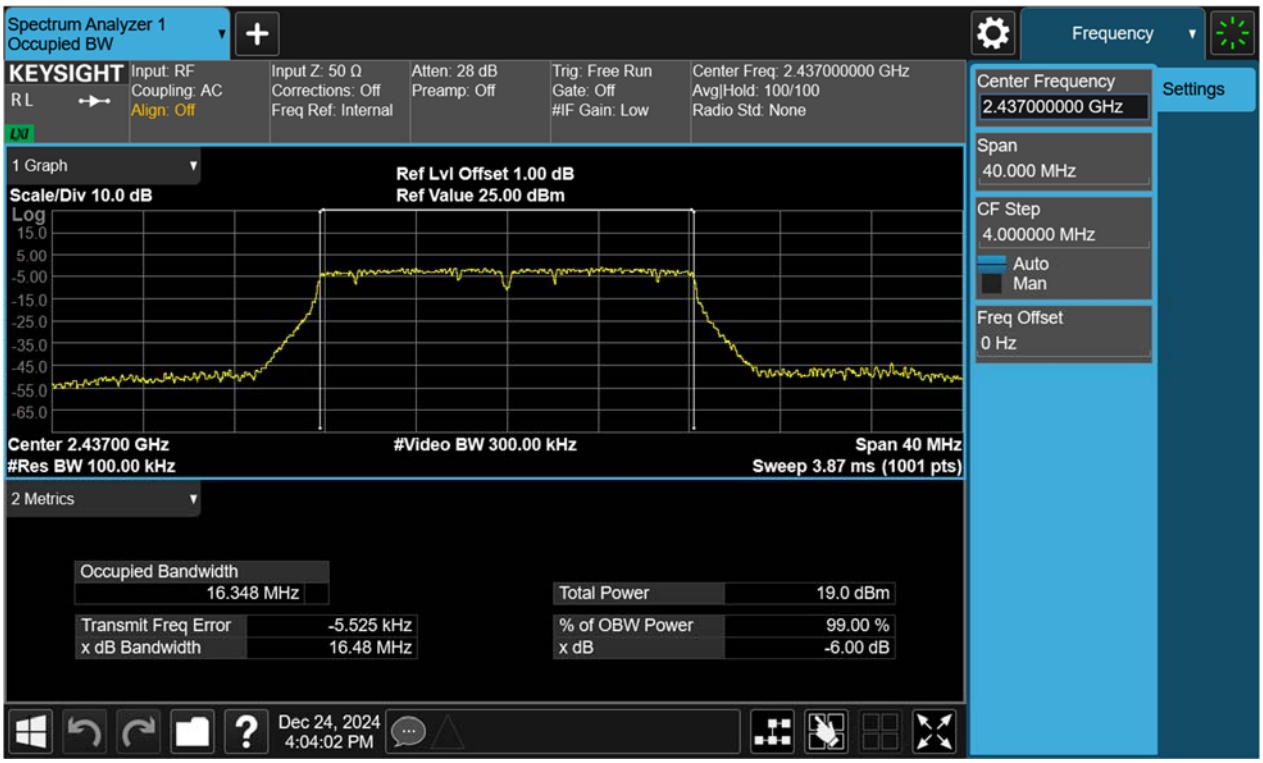


Figure 5: 6dB Bandwidth, 802.11g, 2437MHz



99% Bandwidth, 802.11g, 2437MHz

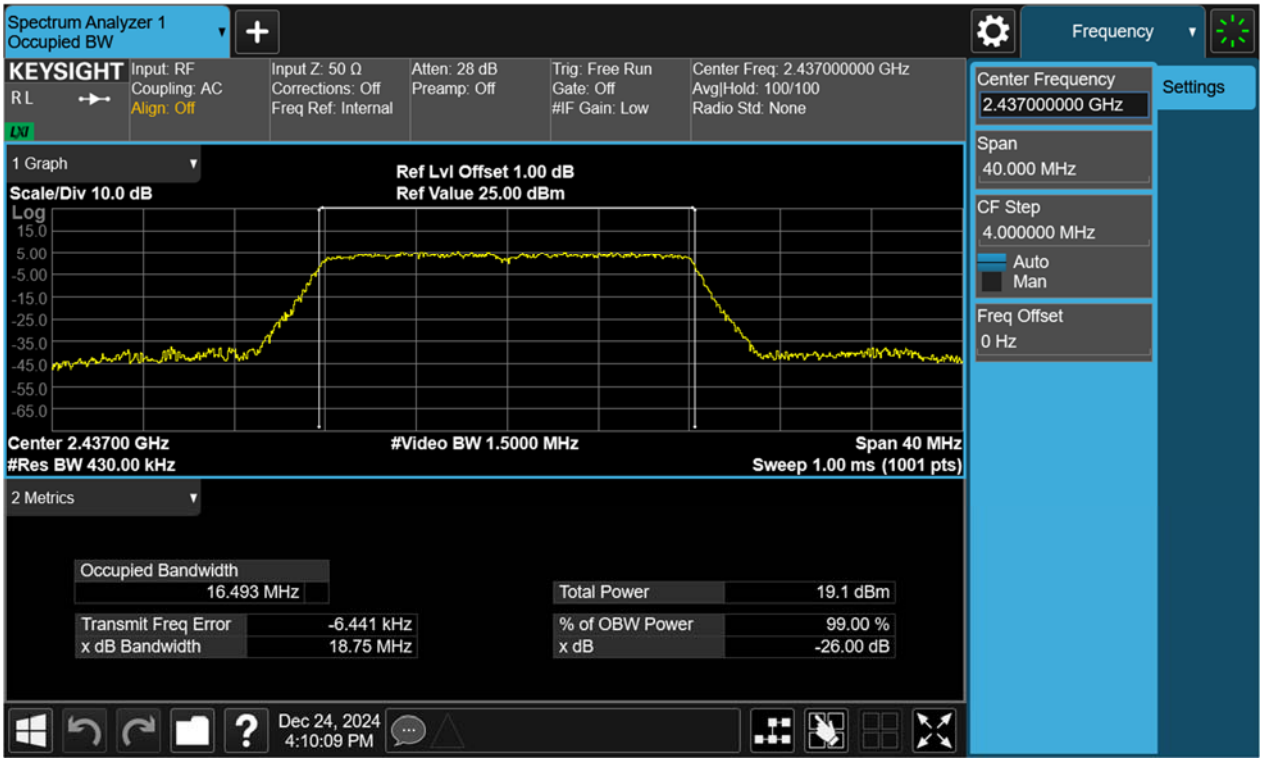
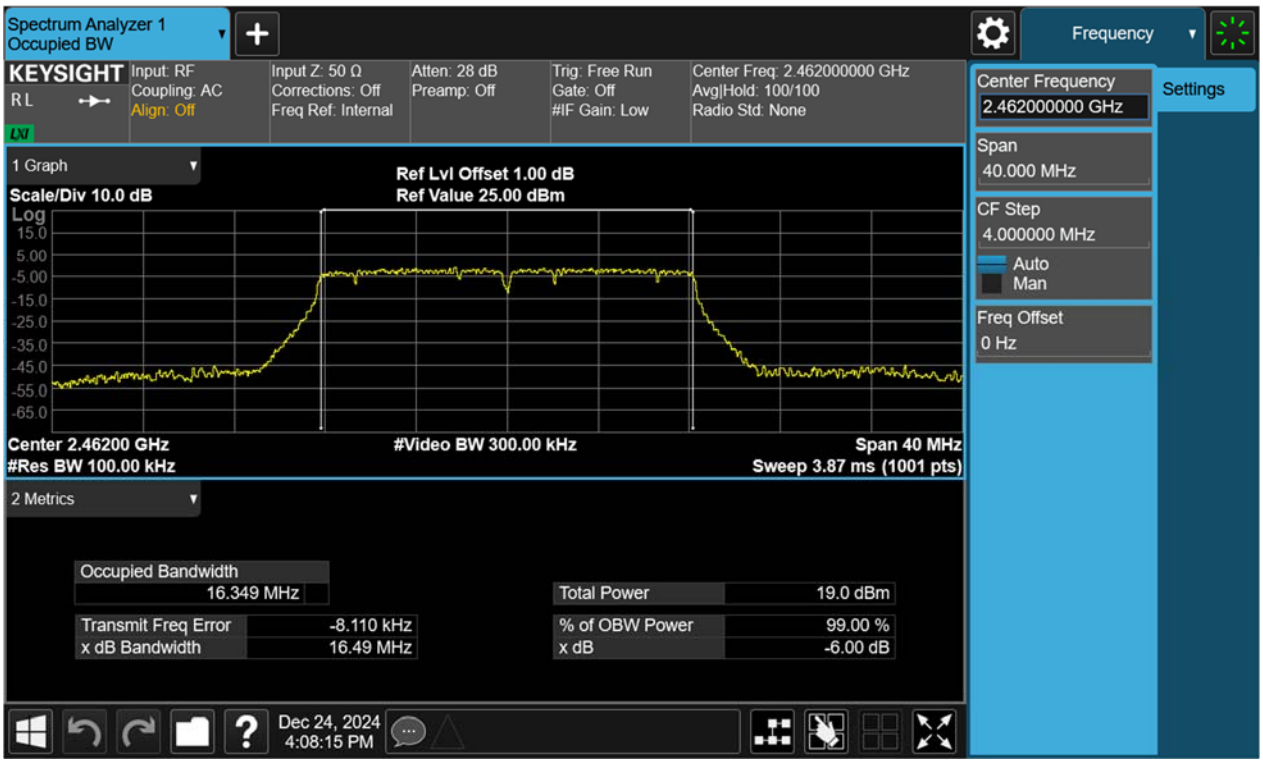


Figure 6: 6dB Bandwidth, 802.11g, 2462MHz



99% Bandwidth, 802.11g, 2462MHz

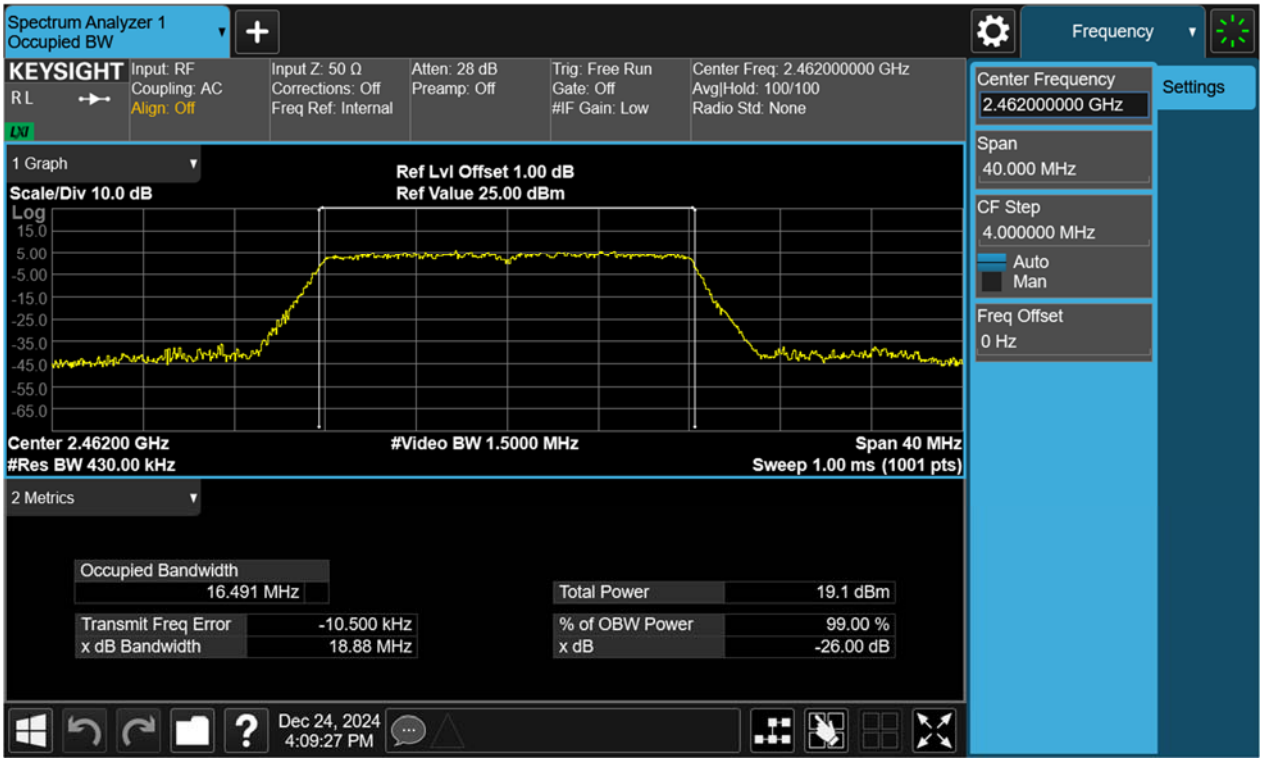
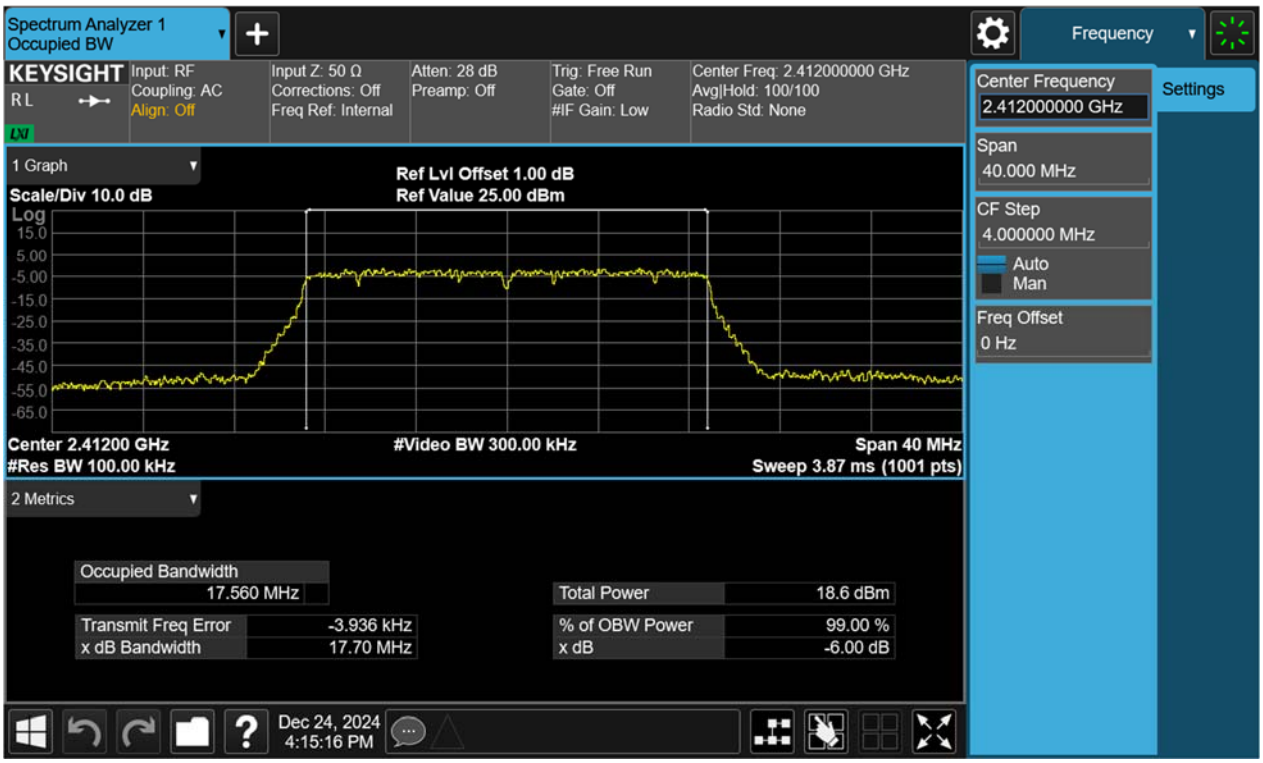


Figure 7: 6dB Bandwidth, 802.11n(HT20), 2412MHz



99% Bandwidth, 802.11n(HT20), 2412MHz

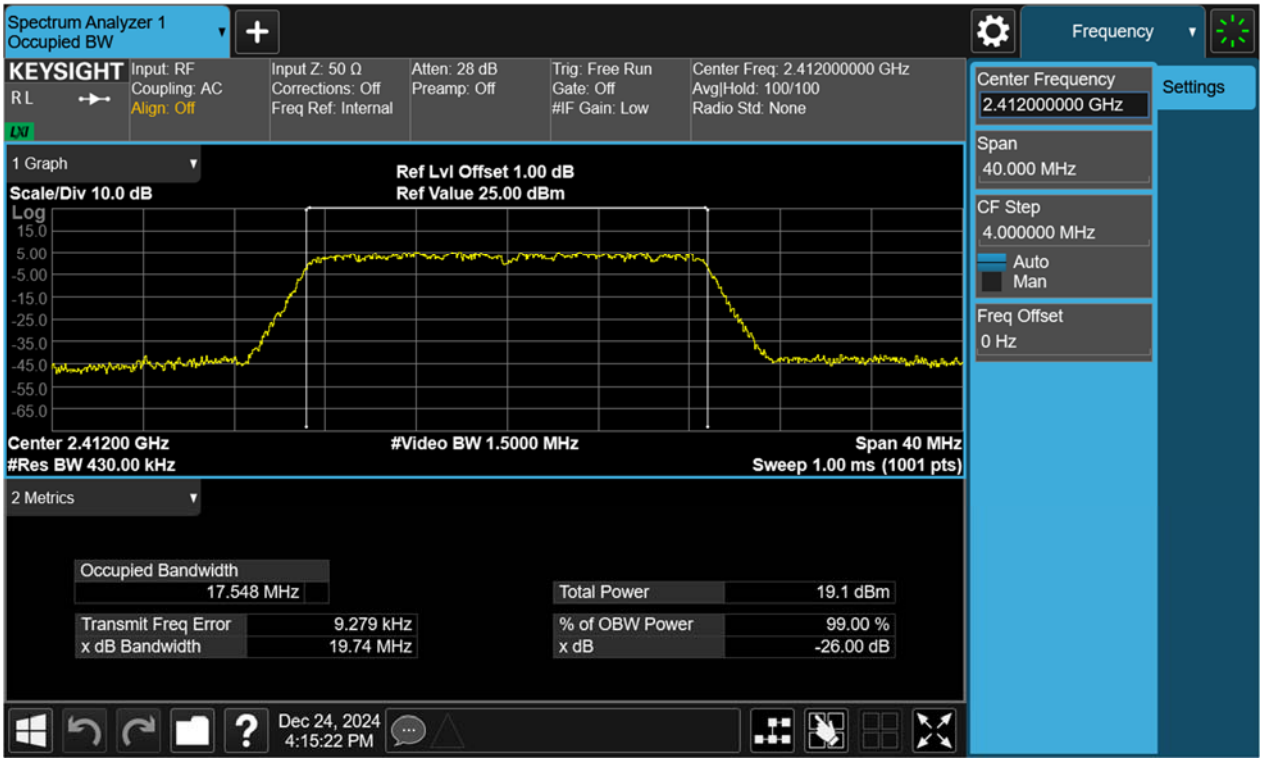
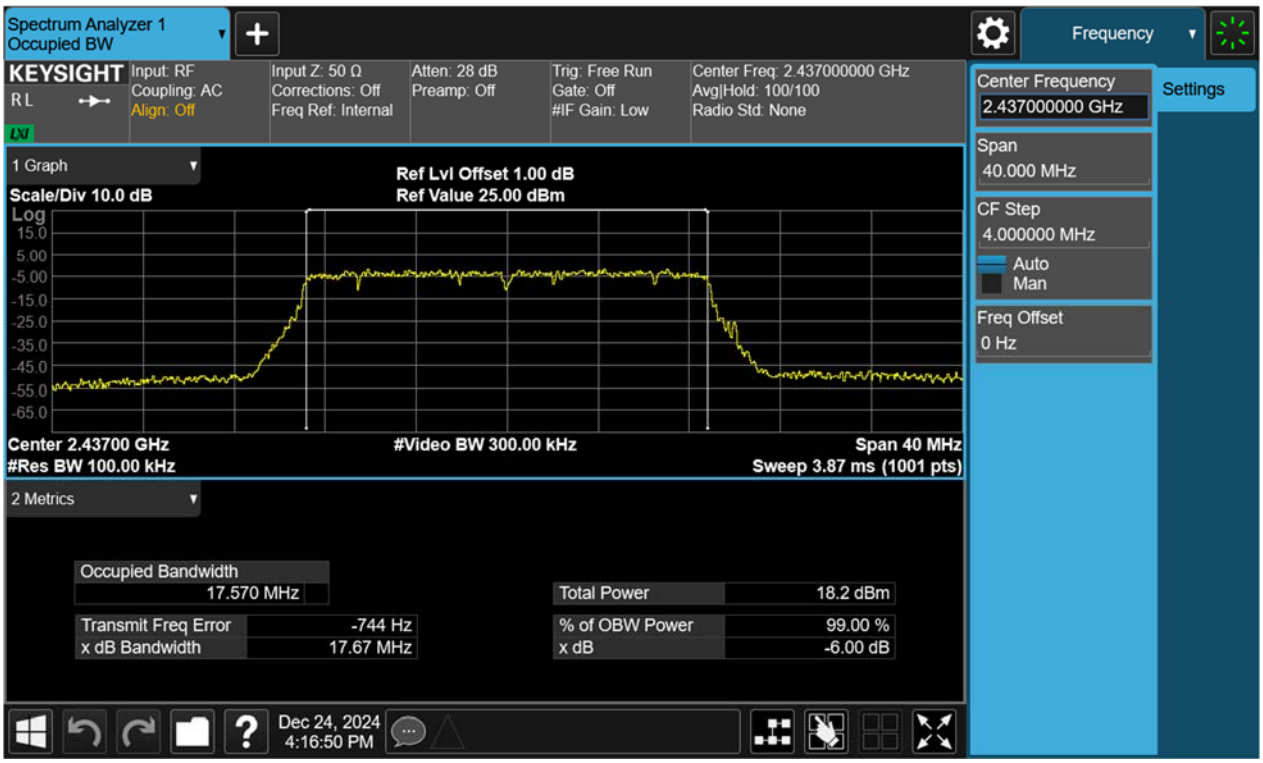


Figure 8: 6dB Bandwidth, 802.11n(HT20), 2437MHz



99% Bandwidth, 802.11n(HT20), 2437MHz

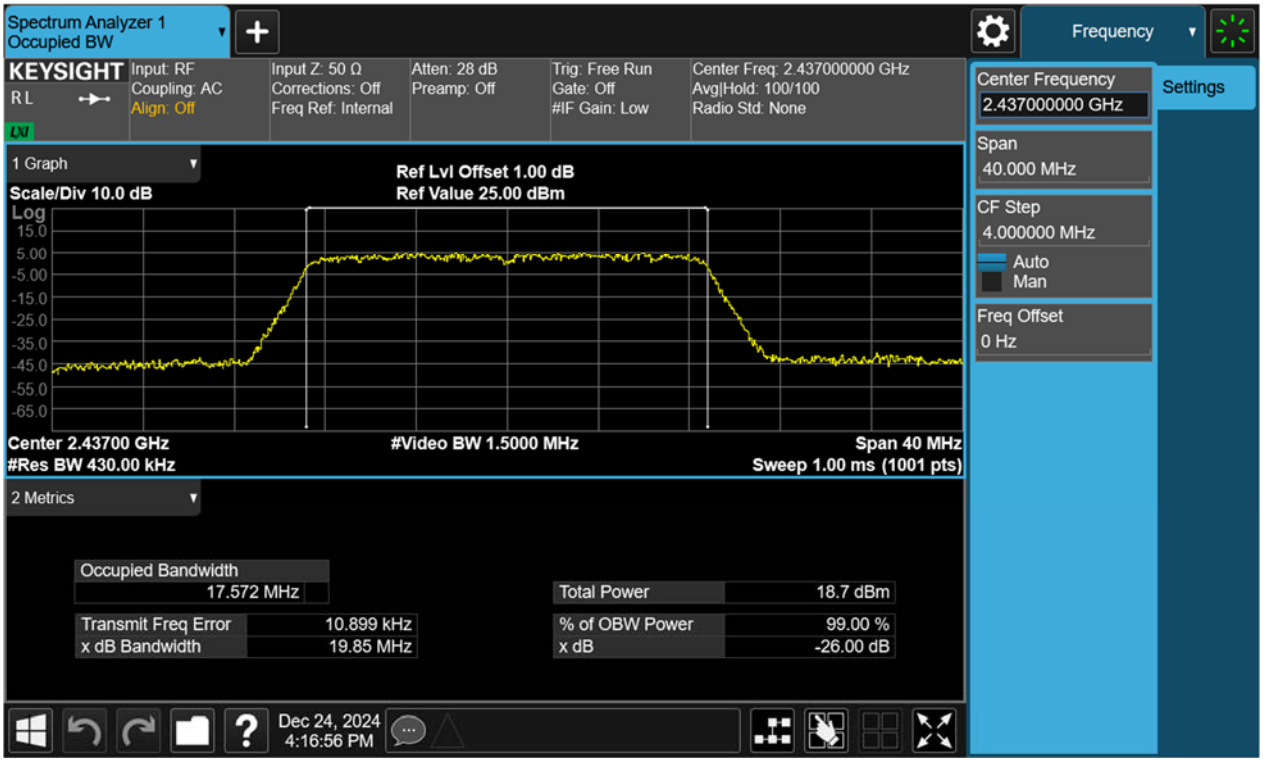
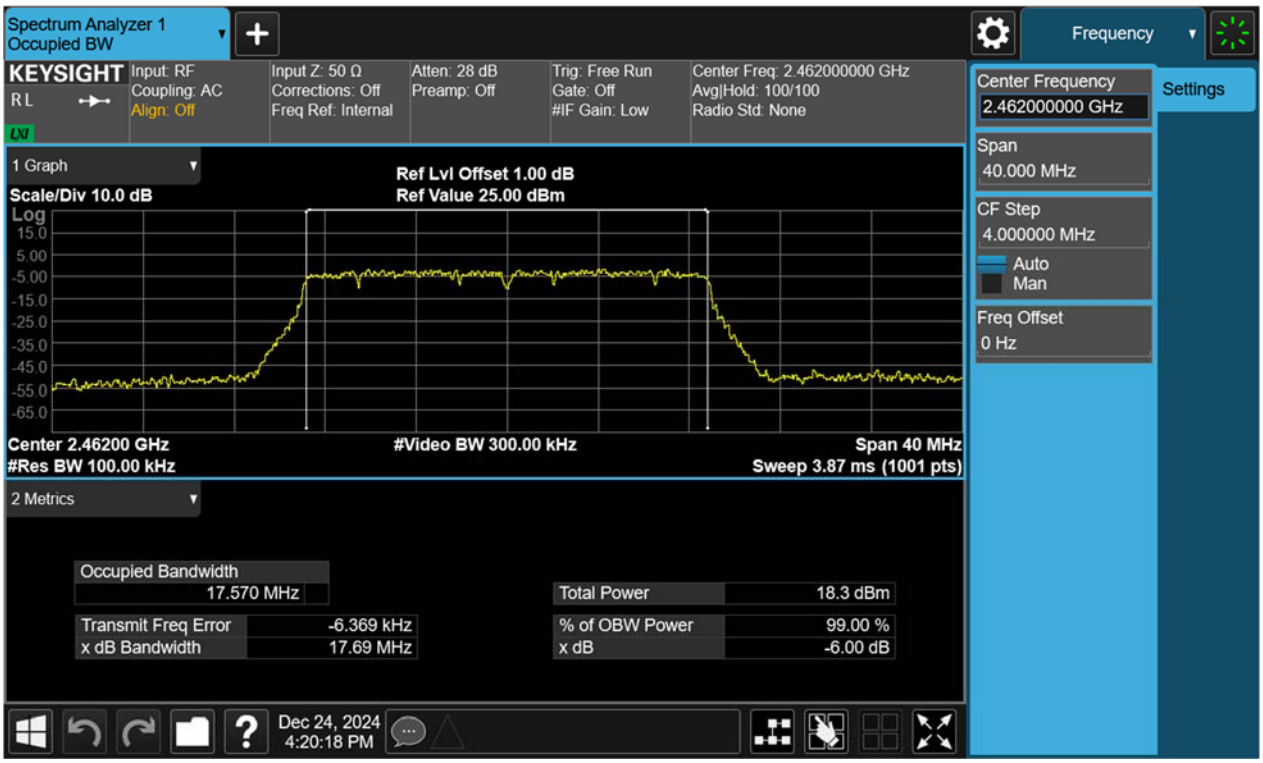


Figure 9: 6dB Bandwidth, 802.11n(HT20), 2462MHz



99% Bandwidth, 802.11n(HT20), 2462MHz

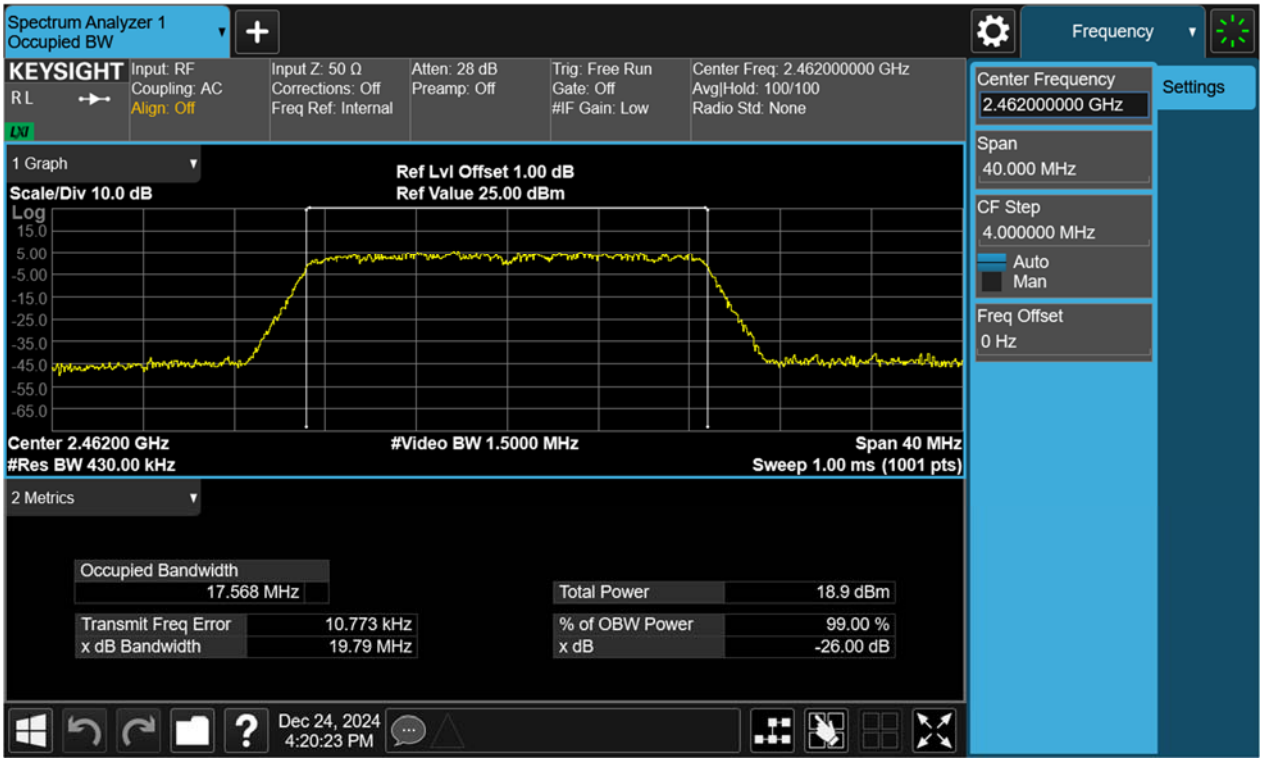
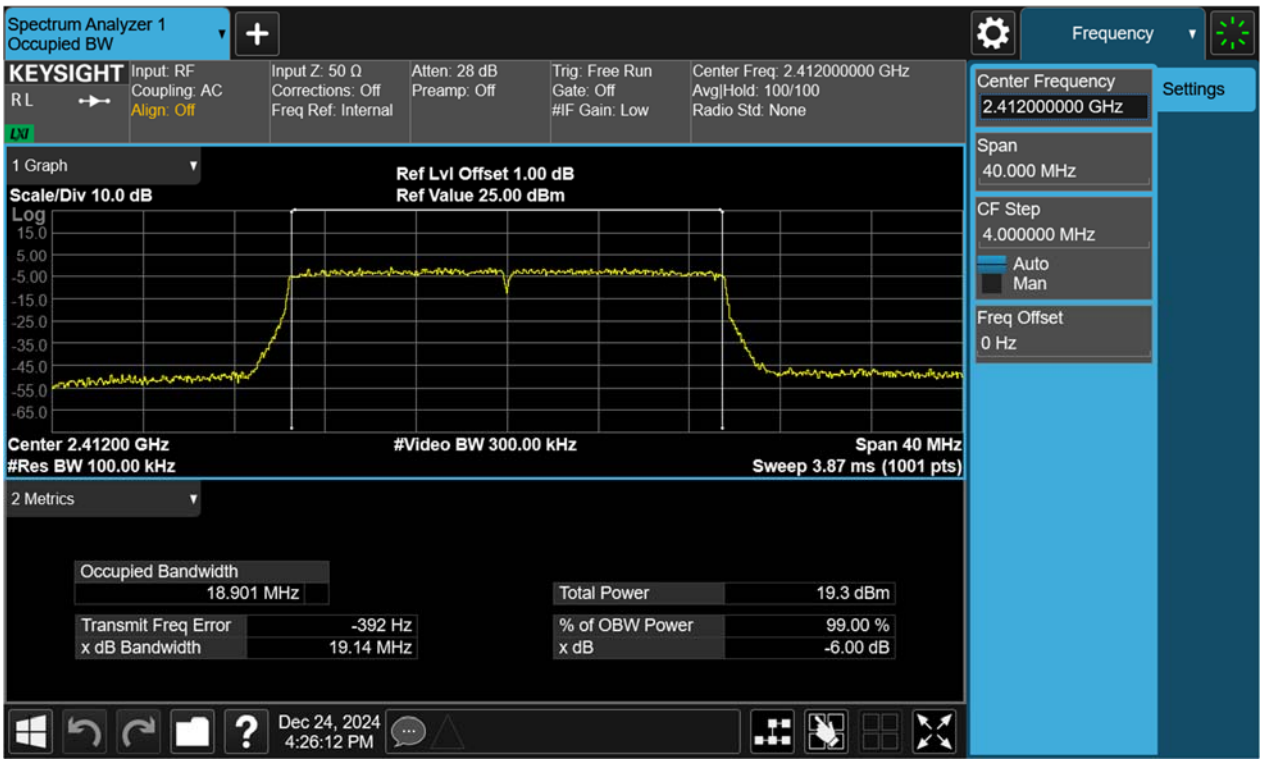


Figure 10: 6dB Bandwidth, 802.11ax(HE20), 2412MHz



99% Bandwidth, 802.11ax(HE20), 2412MHz

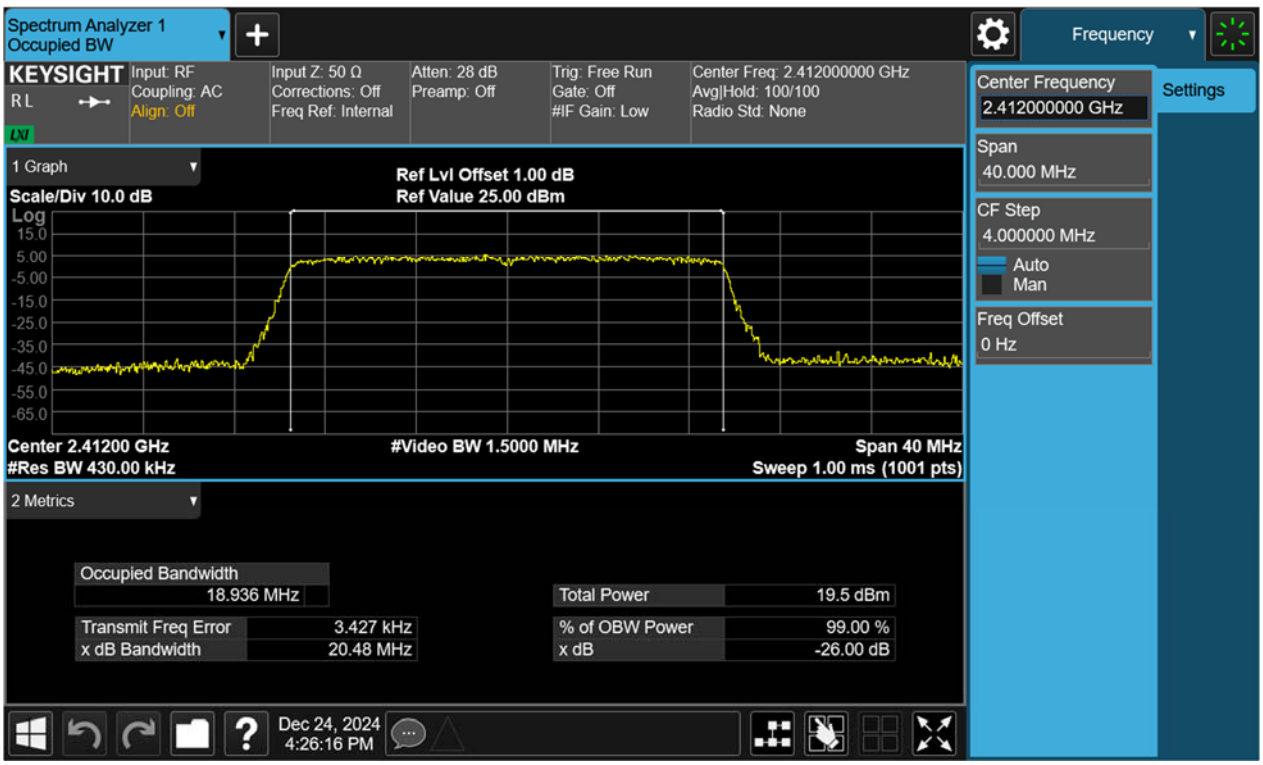
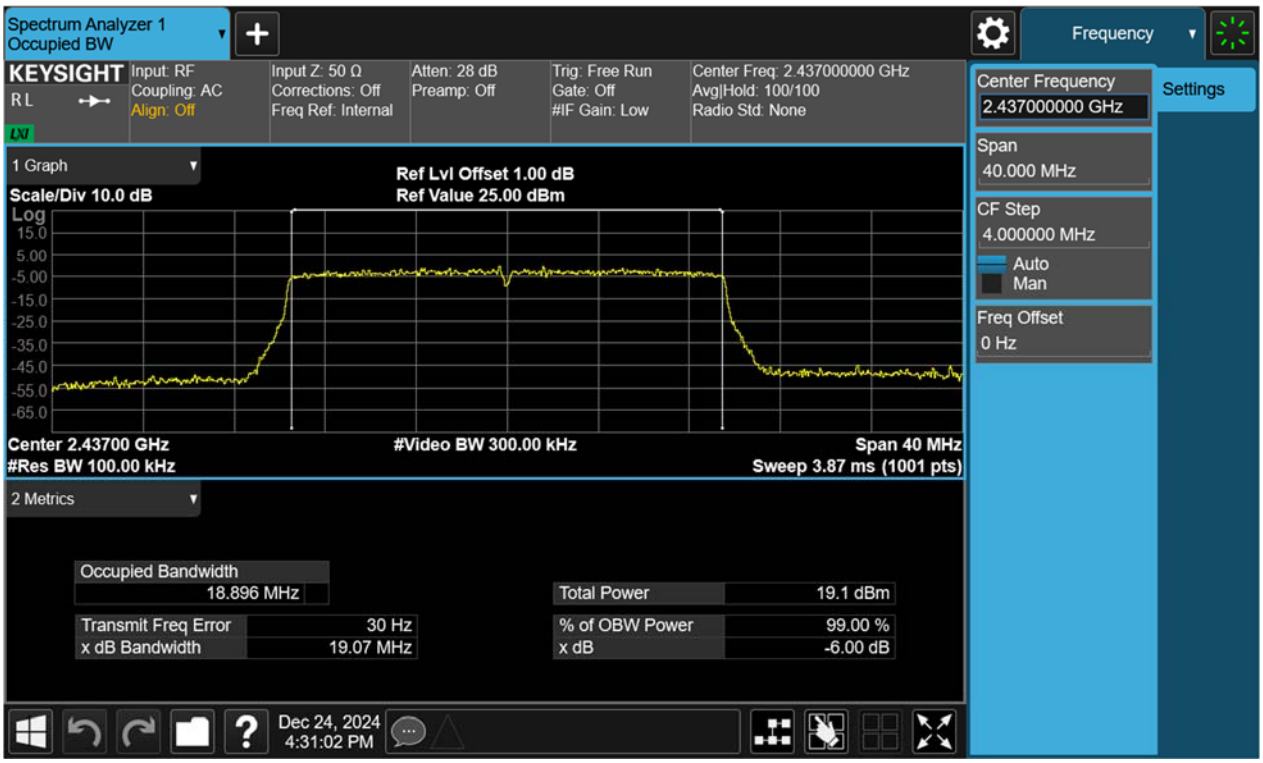


Figure 11: 6dB Bandwidth, 802.11ax(HE20), 2437MHz



99% Bandwidth, 802.11ax(HE20), 2437MHz

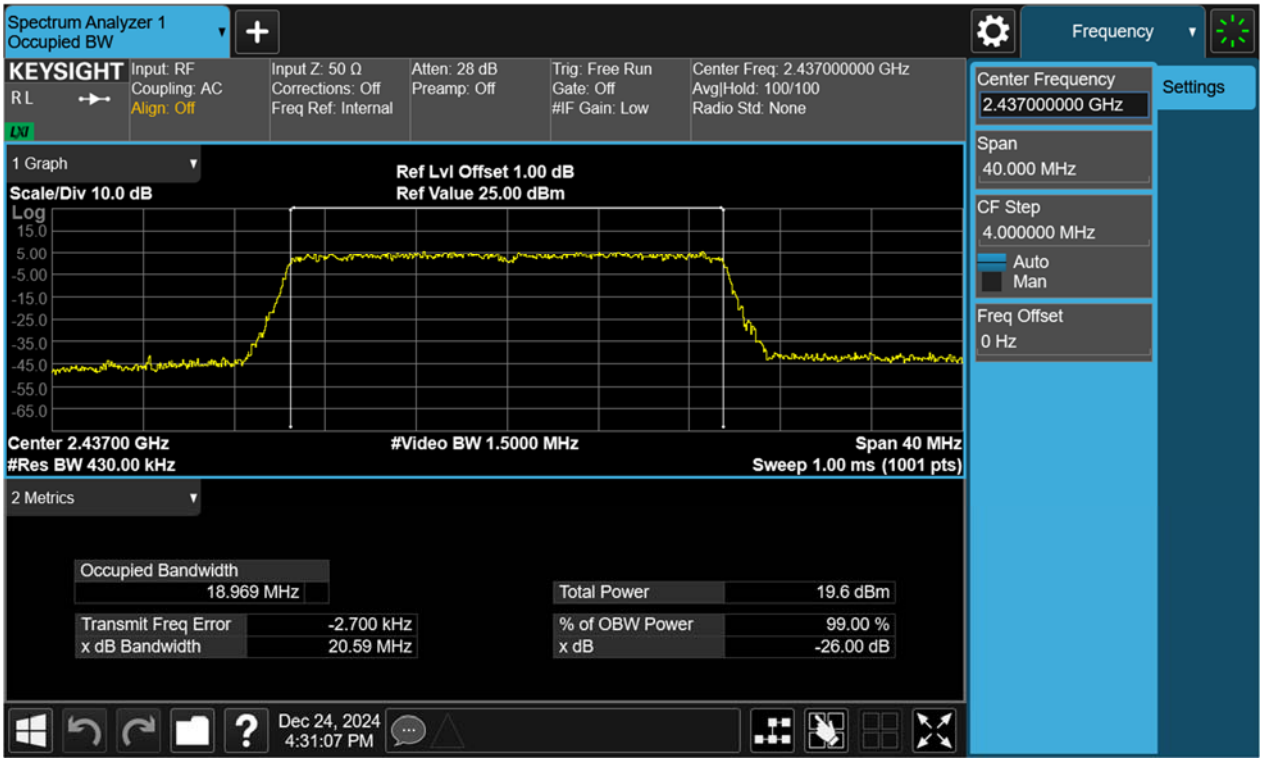
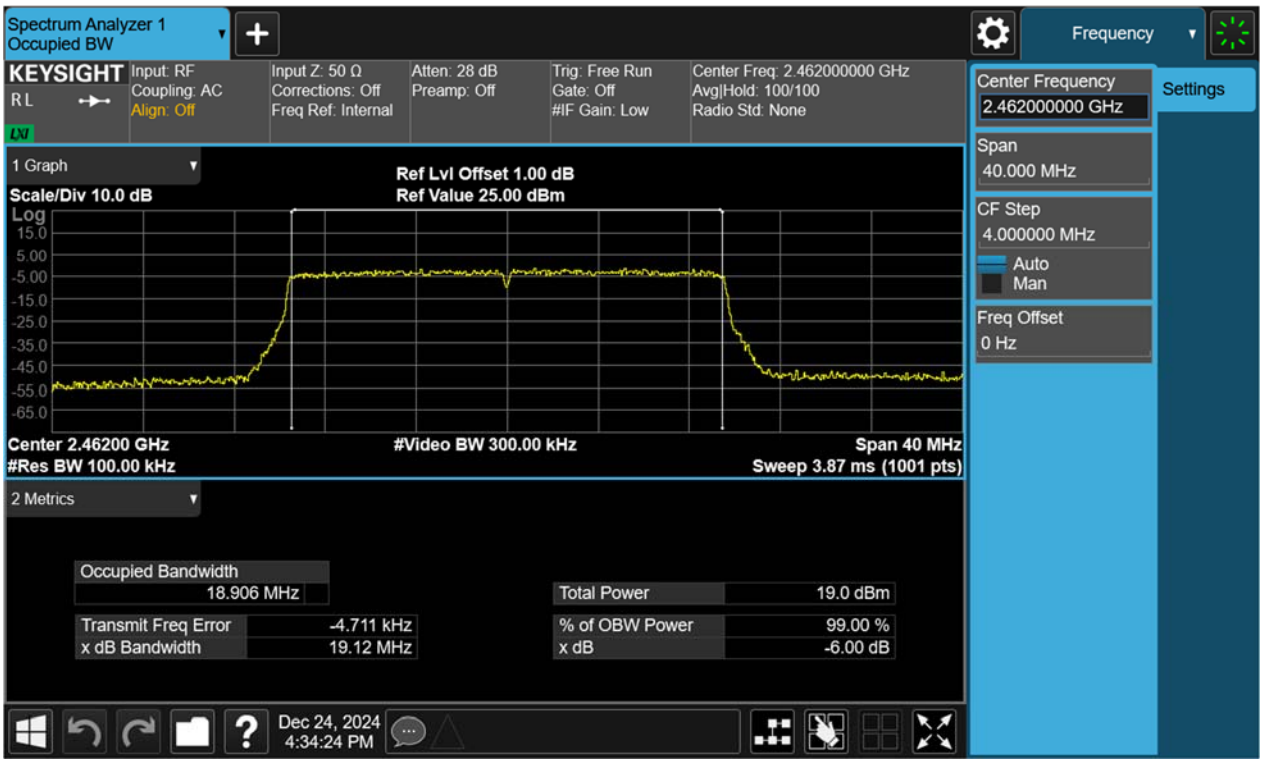


Figure 12: 6dB Bandwidth, 802.11ax(HE20), 2462MHz



99% Bandwidth, 802.11ax(HE20), 2462MHz

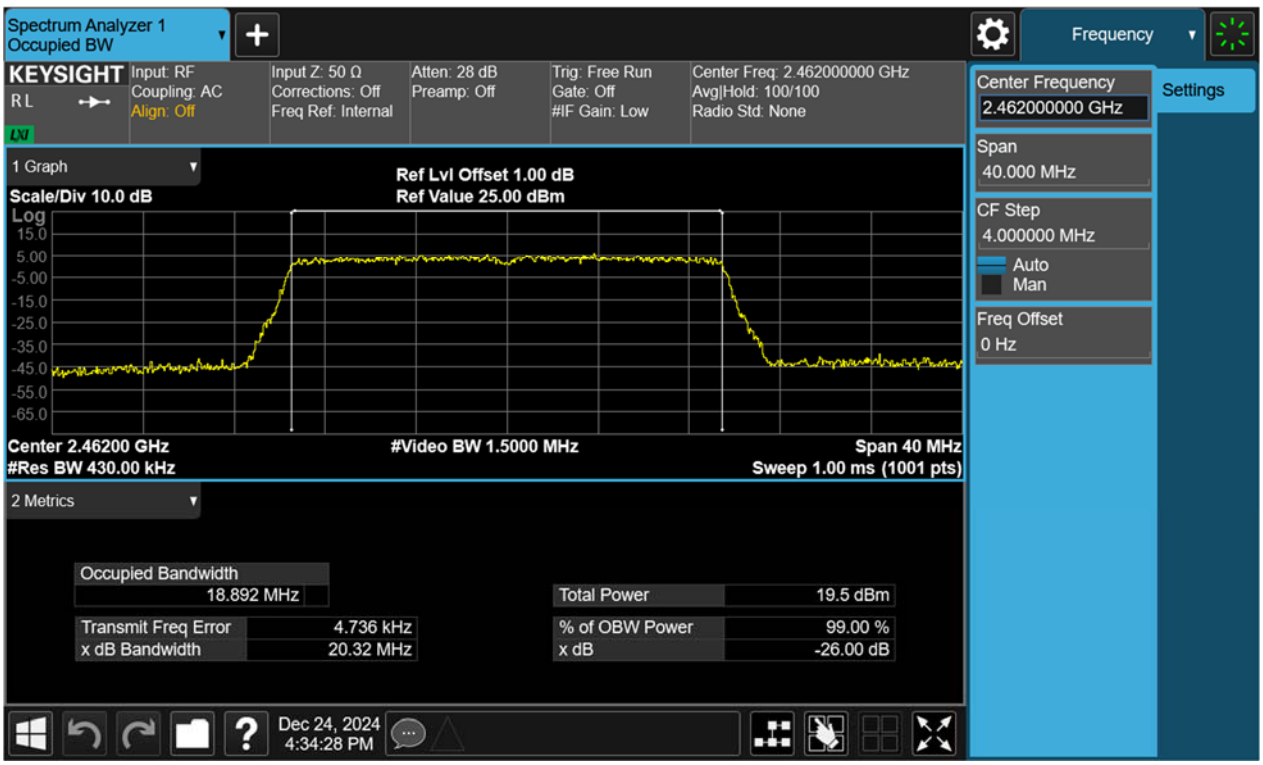
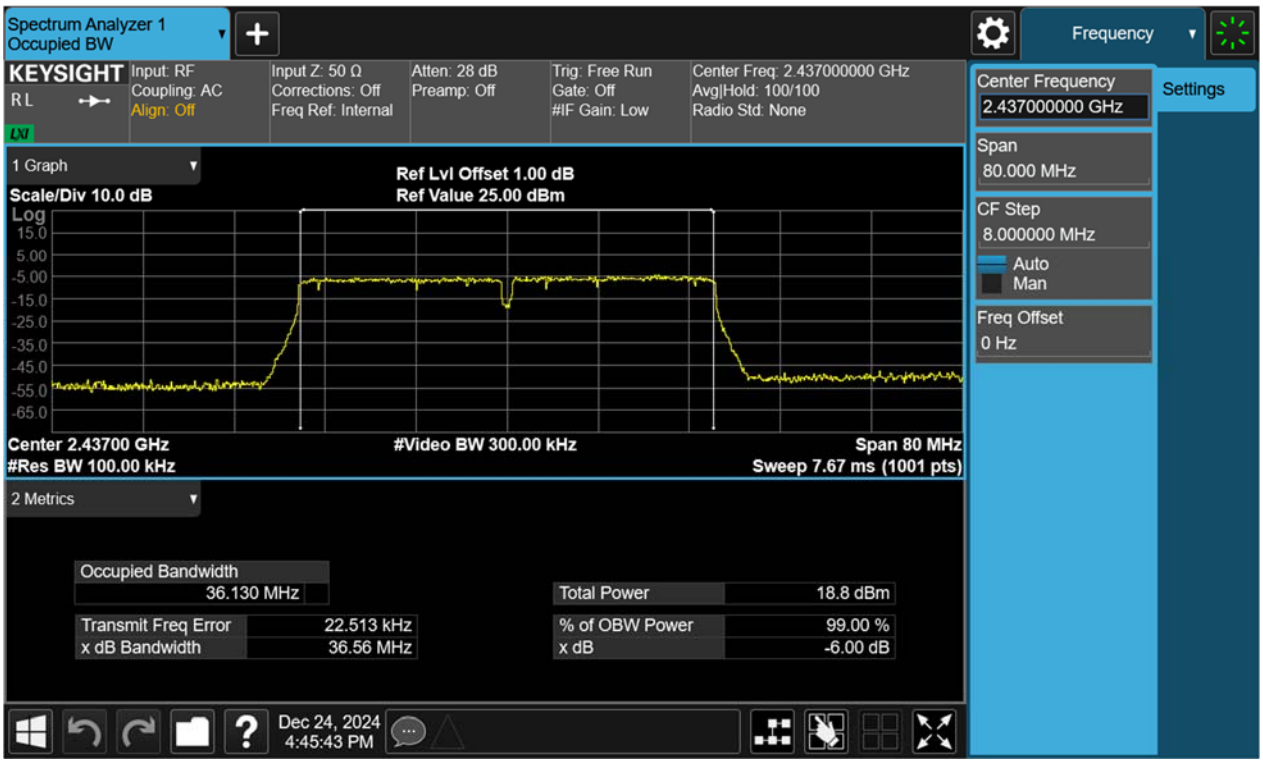


Figure 13: 6dB Bandwidth, 802.11n(HT40), 2422MHz

99% Bandwidth, 802.11n(HT40), 2422MHz

Figure14: 6dB Bandwidth, 802.11n(HT40), 2437MHz



99% Bandwidth, 802.11n(HT40), 2437MHz

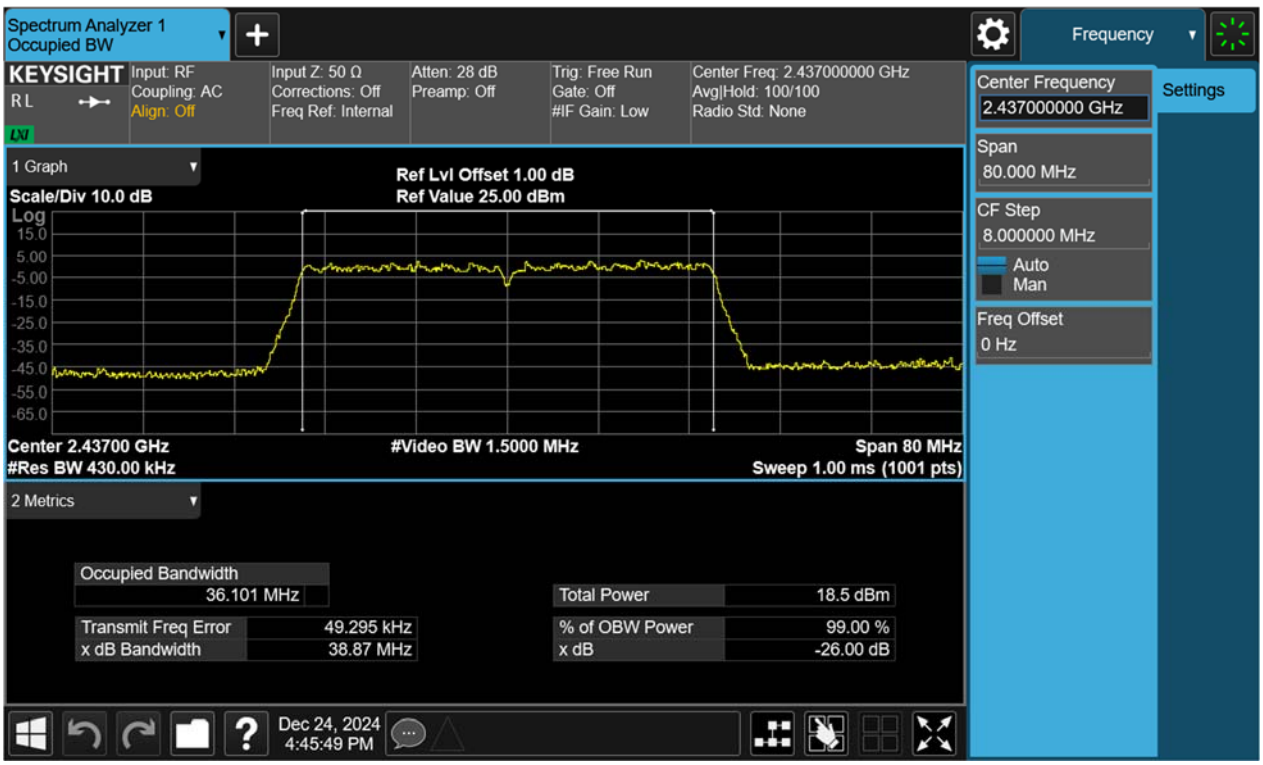
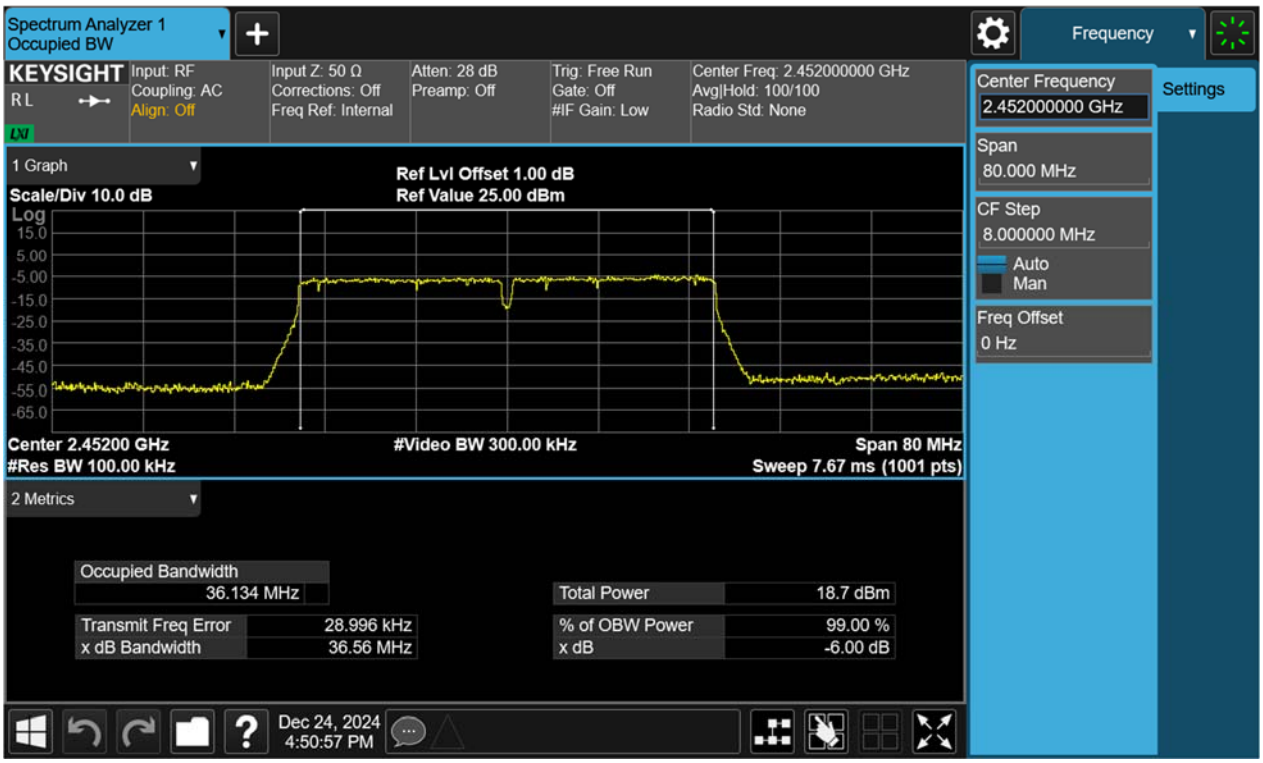
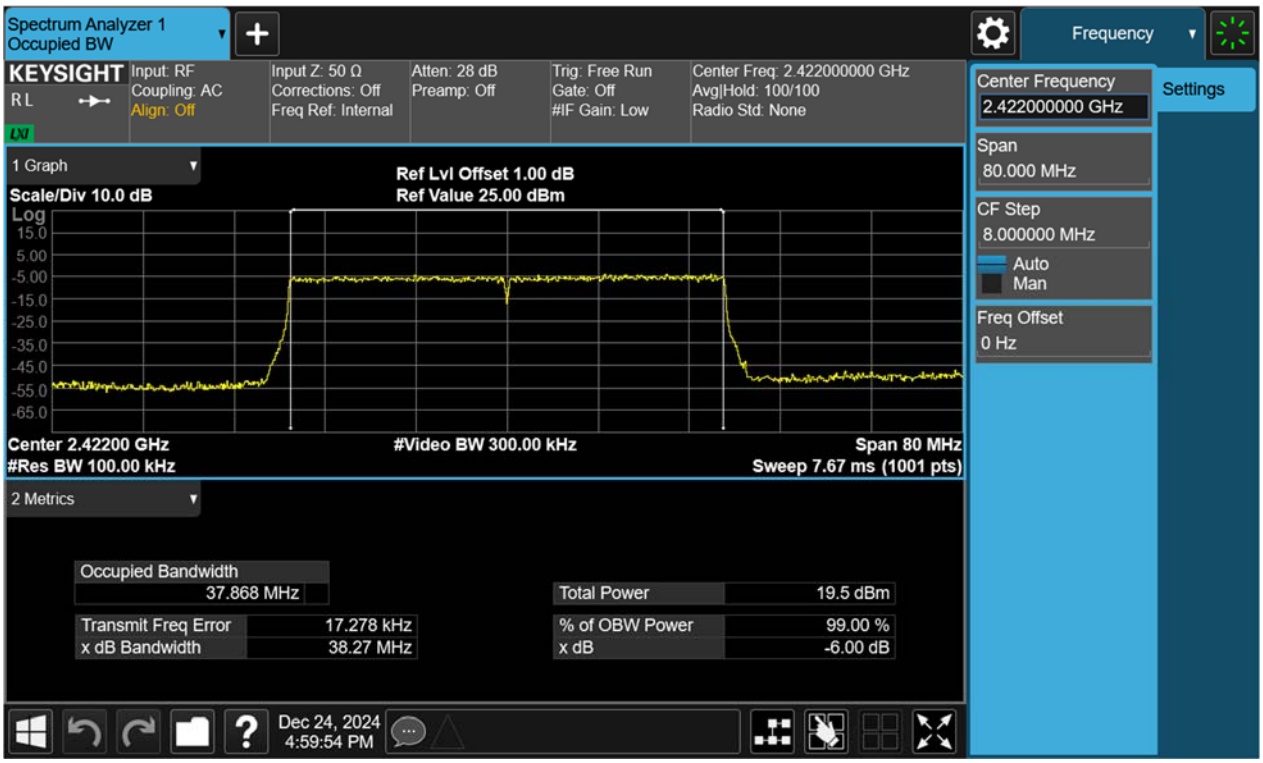


Figure15: 6dB Bandwidth, 802.11n(HT40), 2452MHz



99% Bandwidth, 802.11n(HT40), 2452MHz

Figure 16: 6dB Bandwidth, 802.11ax(HE40), 2422MHz

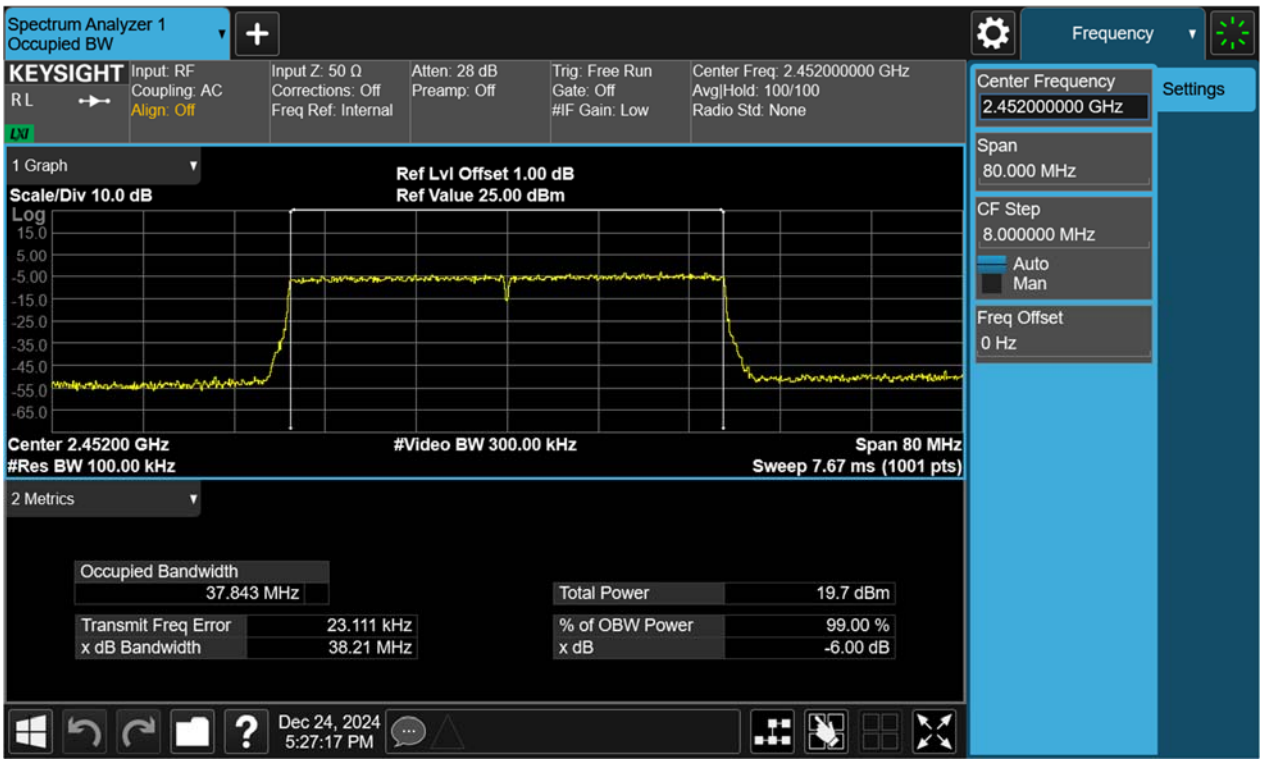


99% Bandwidth, 802.11ax(HE40), 2422MHz

Figure17: 6dB Bandwidth, 802.11ax(HE40), 2437MHz

99% Bandwidth, 802.11ax(HE40), 2437MHz

Figure18: 6dB Bandwidth, 802.11ax(HE40), 2452MHz



99% Bandwidth, 802.11ax(HE40), 2452MHz