TEST REPORT

Applicant	:	SKYTECH USA LLC.
Address of Applicant	:	INCORP SERVICES, INC. 3458 LAKESHORE DRIVE TALLAHASSEE, FL 32312 US
Product Name	:	ALL IN ONE
Brand Name	:	STGsivir & STGSivir
Model Name	:	SIV0123
Sample Acquisition Method	:	Sent by Client
Sample No.	:	E23100101-01#01
FCC ID	:	2BGCASIV0123
Standards	:	FCC CFR47 Part 15, Subpart E
Date of Receipt	:	2023-11-03
Date of Test	:	2023-11-17~ 2024-04-28
Date of Issue	:	2024-06-03

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)

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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	ALL IN ONE
Brand Name	STGsivir & STGSivir
Test Model Name	SIV0123
FCC ID	2BGCASIV0123
Mode of Operation	WLAN 802.11a/n(HT20/40)/ac(VHT20/40/80)
Operation Frequency	Band I:5150MHz～5250MHz; Band IV: 5725MHz ~ 5850MHz
Modulation Type	256QAM, 64QAM, 16QAM, BPSK, QPSK, 128QAM, OFDM
Number of Channels	39
Channel Bandwidth	802.11a: 20MHz 802.11n: 20MHz, 40MHz 802.11ac: 20MHz, 40MHz, 80MHz
Antenna Type	Internal Antenna
Antenna Gain	2.97dBi
Extreme Temperature Range	0℃~ +70℃
Test Voltage	AC 100-240V 50/60Hz

Extreme Voltage	Low Voltage: AC 100V High Voltage: AC 240V
Product Type	Mobile and portable for FCC standard
Hardware Version	1.2
Software Version	2024.10.139.200_Drv_3.00.0044.L
RF power setting in TEST SW	802.11a: Realtek 11ac 8821C PCIE WLAN MP Diagnostic Program 0.0007.00.20190801_Power level setting_52 for Band I 802.11a: Realtek 11ac 8821C PCIE WLAN MP Diagnostic Program 0.0007.00.20190801_Power level setting_52 for Band IV 802.11n(HT20): Realtek 11ac 8821C PCIE WLAN MP Diagnostic Program 0.0007.00.20190801_Power level setting_52for Band I 802.11n(HT20): Realtek 11ac 8821C PCIE WLAN MP Diagnostic Program 0.0007.00.20190801_Power level setting_52 for Band IV 802.11n(HT40): Realtek 11ac 8821C PCIE WLAN MP Diagnostic Program 0.0007.00.20190801_Power level setting_50 for Band I 802.11n(HT40): Realtek 11ac 8821C PCIE WLAN MP Diagnostic Program 0.0007.00.20190801_Power level setting_50 for Band IV 802.11ac(VHT20): Realtek 11ac 8821C PCIE WLAN MP Diagnostic Program 0.0007.00.20190801_Power level setting_52for Band I 802.11ac(VHT20): Realtek 11ac 8821C PCIE WLAN MP Diagnostic Program 0.0007.00.20190801_Power level setting_52 for Band IV 802.11ac(VHT40): Realtek 11ac 8821C PCIE WLAN MP Diagnostic Program 0.0007.00.20190801_Power level setting_50 for Band I 802.11ac(VHT40): Realtek 11ac 8821C PCIE WLAN MP Diagnostic Program 0.0007.00.20190801_Power level setting_50 for Band IV 802.11ac(VHT80): Realtek 11ac 8821C PCIE WLAN MP Diagnostic Program 0.0007.00.20190801_Power level setting_46 for Band I 802.11ac(VHT80): Realtek 11ac 8821C PCIE WLAN MP Diagnostic Program 0.0007.00.20190801_Power level setting_48 for Band IV

Note:

1. *The above information was declared by the manufacture.*
2. *The EUT is designed as master device.*
3. *The EUT do not support TPC.*
4. *For more details, please refer to the User's manual of the EUT.*

Channel List

Frequency Band	Channel Number	Frequency
5150 MHz ~ 5250MHz	36	5180 MHz
	38	5190 MHz
	40	5200 MHz
	42	5210 MHz
	44	5220 MHz
	46	5230 MHz
	48	5240 MHz
5725 MHz ~ 5850MHz	149	5745 MHz
	151	5755 MHz
	153	5765 MHz
	155	5775 MHz
	157	5785 MHz
	159	5795 MHz
	165	5825 MHz

Note: For 20MHZ bandwidth system use Channel 36,44,48,149,157,165;

For 40MHZ bandwidth system use Channel 38,46,151,159;

For 80MHZ bandwidth system use Channel 42,155.

1.4 Test Methodology

47 CFR Part 15, Subpart E	Subpart E—Unlicensed National Information Infrastructure Devices
KDB Publication 789033 D02 v02r01	Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices Part 15, Subpart E
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 15.407(a), 15.203	PASS
Maximum Conducted Output Power	FCC Part 15.407(a)	PASS
26dB Bandwidth and 99% Bandwidth	FCC Part 15.407(a)	PASS
6dB Bandwidth	FCC Part 15.407(e)	PASS
Maximum Conducted Output Power Spectral Density	FCC Part 15.407(a)	PASS
Conducted Spurious Emission	FCC Part 15.407(b), 15.209	PASS
Radiated Emission	FCC Part 15.407(b), 15.209, 15.205	PASS
Band Edge (Restricted-band band-edge)	FCC Part 15.407(b), 15.205, 15.209	PASS
Frequency Stability	FCC Part 15.407(g)	PASS
Conducted Emission on AC Mains	FCC Part 15.207(a)	PASS

2 Test Condition

2.1 Environmental conditions

Temperature (°C)	18-25
Humidity (%RH)	40-65
Barometric Pressure (mbar)	960-1060

2.2 Equipment List

Name of Equipment	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer	Keysight	N9020B	MY59260184	2023-07-27	2024-07-26
Spectrum Analyzer	Rohde & Schwarz	FSV40N	101450	2023-06-08	2024-06-07
Signal Generator	Rohde & Schwarz	SMR27	100184	2023-07-27	2024-07-26
EMI Test Receiver	Rohde & Schwarz	ESPI3	100173	2023-06-08	2024-06-07
EMI Test Receiver	Rohde & Schwarz	ESR 7	101911	2023-06-08	2024-06-07
V-network	SCHWARZBECK	NSLK 8127	8127-902	2023-06-07	2024-06-06
Attenuator	SCHWARZBECK	VTSD 9561-FN	/	2023-06-06	2024-06-05
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	N/A	2023-06-09	2024-06-08
Horn Antenna-40G	YINGLIAN	LB-180400-KF	N/A	2023-06-18	2025-06-17
Broadband Preamplifier	SCHWARZBECK	BBV 9718	346	2023-06-08	2024-06-07
DC Power Supply	ITECH	IT6952A	N/A	2022-06-07	2024-06-06
Temperature Box	ESPEC	ECT-2	055239A	2023-11-09	2024-11-08
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:1.0.0.117	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	< 1GHz	± 1.5 dB
	> 1GHz	± 1.5 dB
Radiated Emission	< 1GHz	± 5.01 dB
	> 1GHz	± 5.21 dB
Conducted Emission on AC Mains	150KHz-30MHz	± 2.68 dB
Occupied Channel Bandwidth		±5 %
Maximum Conducted Output Power		±0.64 dB
Maximum Conducted Output Power Spectral Density		±1.18 dB
Frequency Stability		±10 ppm

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 802.11a/n(HT20), 802.11ac (VHT20)

Band I (5150 – 5250 MHz)		Band IV (5725 – 5850 MHz)	
Channel	**Frequency**	**Channel**	**Frequency**
The lowest channel(CH36)	5180MHz	The lowest channel(CH149)	5745MHz
The middle channel(CH44)	5220MHz	The middle channel(CH157)	5785MHz
The highest channel(CH48)	5240MHz	The highest channel(CH165)	5825MHz

For 802.11n(HT40), 802.11ac (VHT40)

Band I (5150 – 5250 MHz)		Band IV (5725 – 5850 MHz)	
Channel	**Frequency**	**Channel**	**Frequency**
The lowest channel(CH38)	5190MHz	The lowest channel(CH151)	5755MHz
The highest channel(CH46)	5230MHz	The highest channel(CH159)	5795MHz

For 802.11ac (VHT80)

Band I (5150 – 5250 MHz)		Band IV (5725 – 5850 MHz)	
Channel	**Frequency**	**Channel**	**Frequency**
The lowest channel(CH42)	5210MHz	The lowest channel(CH155)	5775MHz

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
802.11a	48Mbps
802.11n(HT20), 802.11n(HT40)	MCS6
802.11ac (VHT20), 802.11ac (VHT40)	MCS6
802.11ac (VHT80)	MCS8

The basic operation modes are:

A. On
   1. WLAN mode
      a. Transmitting
      b. Receiving

B. Standby

C. Off

3.2 Special Accessories and Auxiliary Equipment

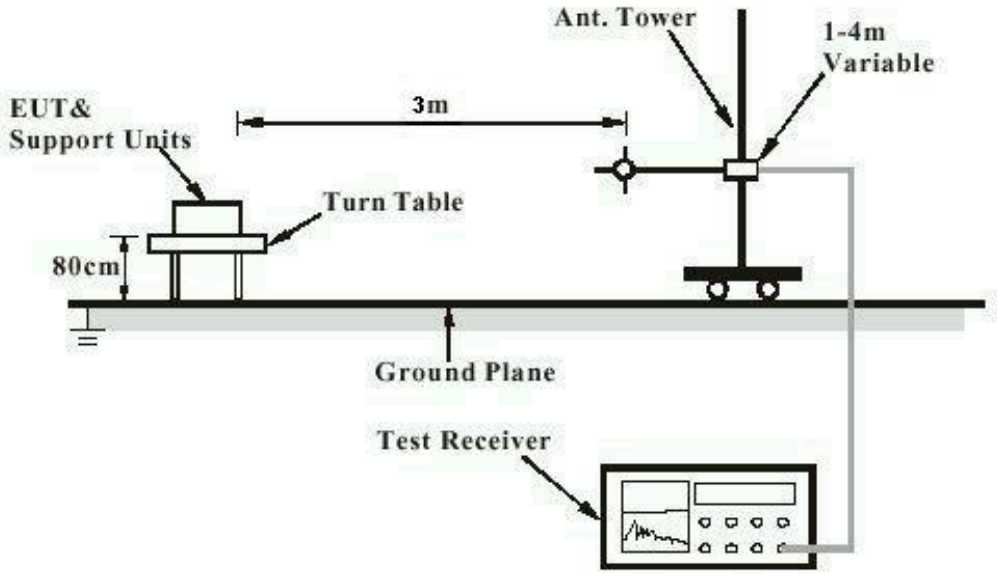
Description	Manufacturer	Model Name	Serial No.
AC/DC ADAPTER	Guangdong Mingxin Power Technologies Co., Ltd	MX120Z-19006300	MX120Z19006300
Mouse	Dell	MS116t1	CN-065K5F-LO300-248-0VP2
Keyboard	Dell	KB216P	CN-0M4W71-73826-6C801SQ-A02

3.3 Support Software

Description	Manufacturer	Software Name
Software	N/A	Realtek 11ac 8821C PCIE WLAN MP Diagnostic Program 0.0007.00.20190801

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

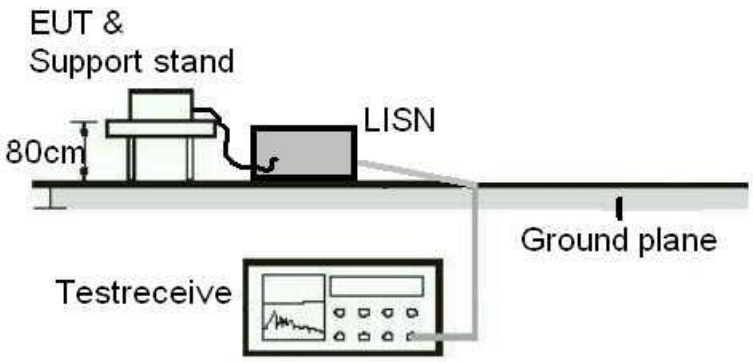


Diagram of Measurement Configuration for Transmitter Test

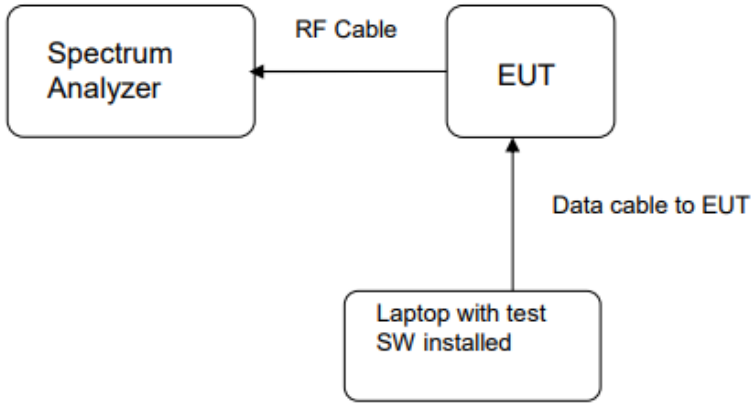
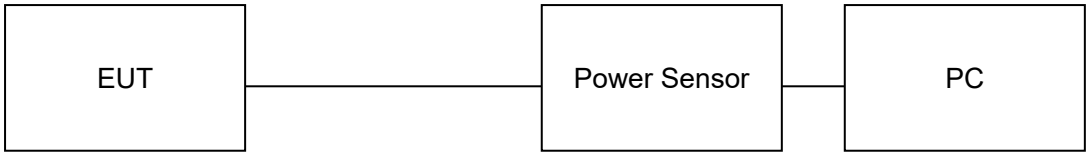


Diagram of Measurement Equipment Configuration for conducted output power setup



4 Test Results

4.1 Transmitter Requirement & Test Suites

4.1.1 Antenna Requirement

RESULT: **PASS**

Test standard	:	FCC Part 15.407(a), 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 2.97dBi. 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 Output Power

RESULT: **PASS**

Test standard : FCC Part 15.407(a)
Requirement : ANSI C63.10-2013 clause 12.3.3.1, KDB 789033
Kind of test site : Shielded room

Test setup

Test Channel : Low/Middle/High
Operation Mode : A.1.a
Ambient temperature : 23.8°C
Relative humidity : 46%

Table 1: Maximum Conducted Output Power for Band I (5150MHz～5250MHz)

Test Mode	Duty Cycle (%)	Test Channel (MHz)	Maximum Conducted Output Power		Applicable Limit
			(dBm)	(mW)	
802.11a	100	5180	11.21	13.21	250mW (23.98dBm)
		5220	11.84	15.28	
		5240	12.23	16.71	
802.11n(HT20)	100	5180	11.47	14.03	
		5220	11.55	14.29	
		5240	12.10	16.22	
802.11ac(VHT20)	100	5180	10.59	11.46	
		5220	11.04	12.71	
		5240	11.42	13.87	
802.11n(HT40)	100	5190	10.73	11.83	
		5230	10.93	12.39	
802.11ac(VHT40)	100	5190	10.01	10.02	
		5230	10.49	11.19	
802.11ac(VHT80)	100	5210	8.45	7.00	

Notes:

1. 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.

Table 2: Maximum Conducted Output Power for Band IV (5725MHz～5850MHz)

Test Mode	Duty Cycle (%)	Test Channel (MHz)	Maximum Conducted Output Power		Applicable Limit
			(dBm)	(mW)	
802.11a	100	5745	13.03	20.09	1W(30dBm)
		5785	13.06	20.23	
		5825	12.99	19.91	
802.11n(HT20)	100	5745	13.06	20.23	
		5785	13.66	23.23	
		5825	13.18	20.80	
802.11ac(VHT20)	100	5745	13.15	20.65	
		5785	13.41	21.93	
		5825	13.24	21.09	
802.11n(HT40)	100	5755	12.57	18.07	
		5795	12.37	17.26	
802.11ac(VHT40)	100	5755	12.70	18.62	
		5795	12.42	17.46	
802.11ac(VHT80)	100	5775	10.95	12.45	

Notes:

1. 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 26dB Bandwidth and 99% Bandwidth

RESULT: **PASS**

Test standard : FCC Part 15.407(a)
Requirement : ANSI C63.10-2013 clause 12.4, KDB 789033
Kind of test site : Shielded room

Test setup

Test Channel : Low/Middle/High
Operation Mode : A.1.a
Ambient temperature : 23.8°C
Relative humidity : 46%

Table 3: 26dB Bandwidth and 99% Bandwidth for Band I (5150MHz～5250 MHz)

Test Mode	Test Channel (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
802.11a	5180	20.18	16.560
	5220	20.05	16.604
	5240	20.29	16.540
802.11n(HT20)	5180	21.53	17.732
	5220	21.50	17.757
	5240	21.83	17.769
802.11ac(VHT20)	5180	20.91	17.730
	5220	20.95	17.724
	5240	21.21	17.734
802.11n(HT40)	5190	41.19	36.263
	5230	42.10	36.263
802.11ac(VHT40)	5190	40.67	36.200
	5230	40.99	36.259
802.11ac(VHT80)	5210	80.36	75.654

Figure 1: The plots of 26dB Bandwidth and 99% Bandwidth, 802.11a, 5180MHz

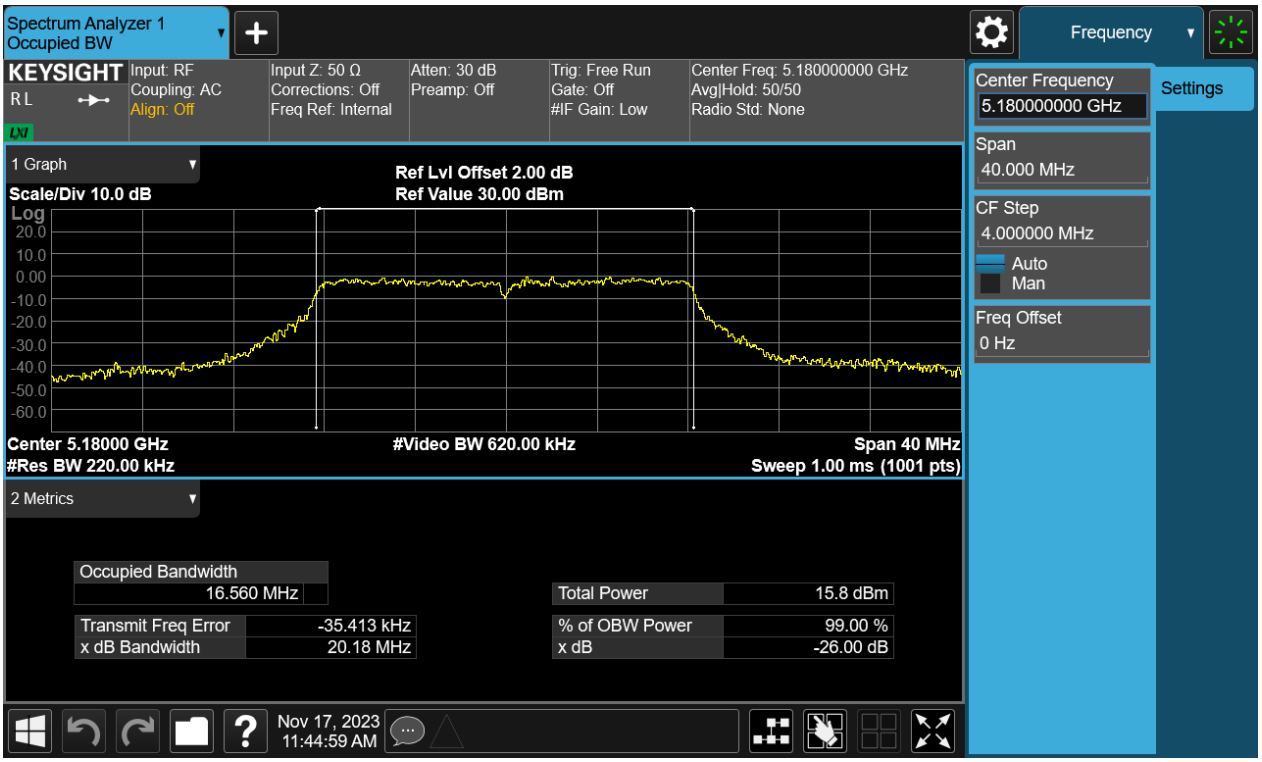


Figure 2: The plots of 26dB Bandwidth and 99% Bandwidth, 802.11a, 5220MHz

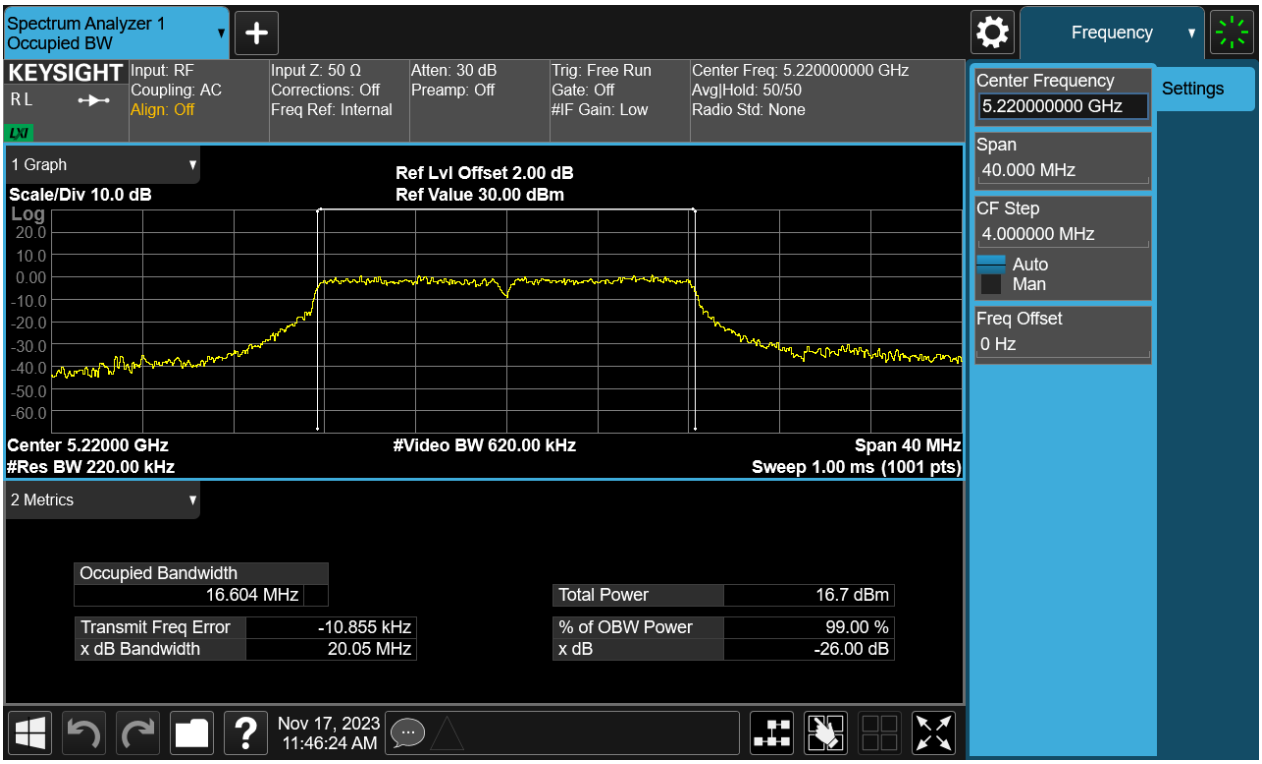


Figure 3: The plots of 26dB Bandwidth and 99% Bandwidth, 802.11a, 5240MHz

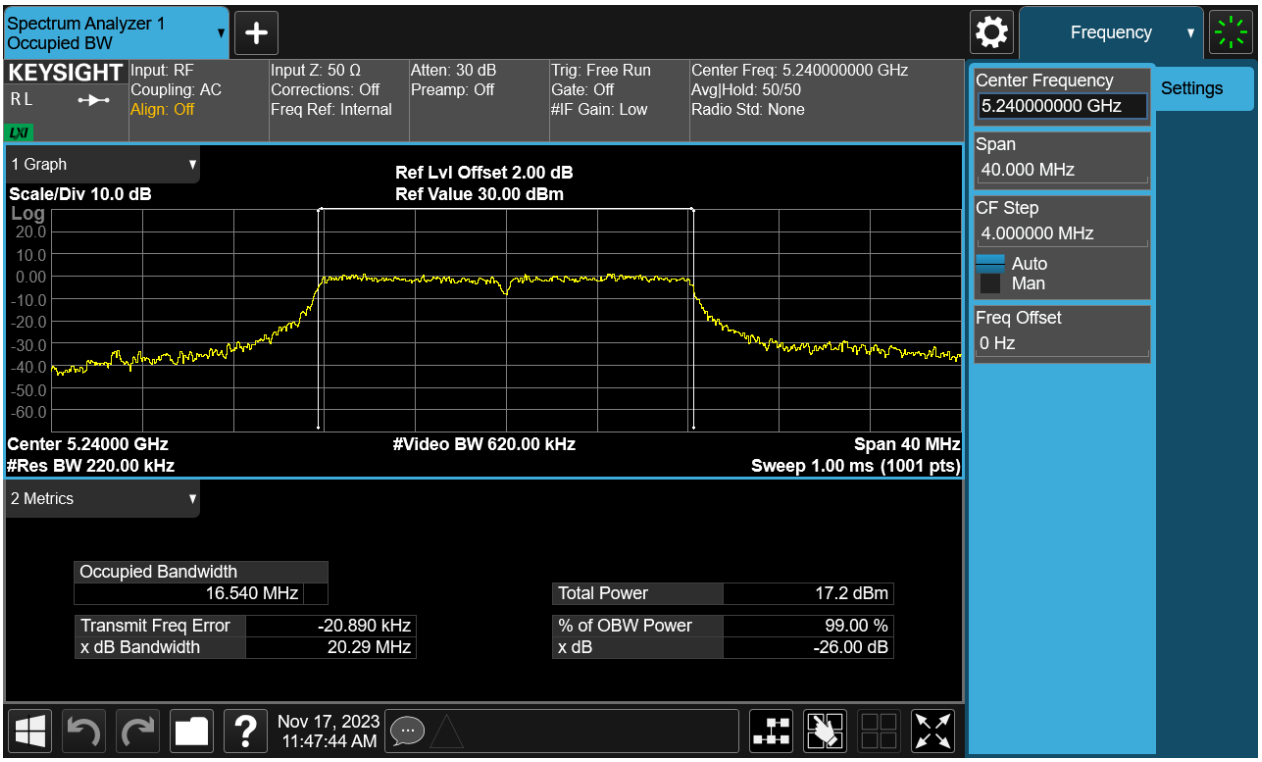


Figure 4: The plots of 26dB Bandwidth and 99% Bandwidth, 802.11n(HT20), 5180MHz

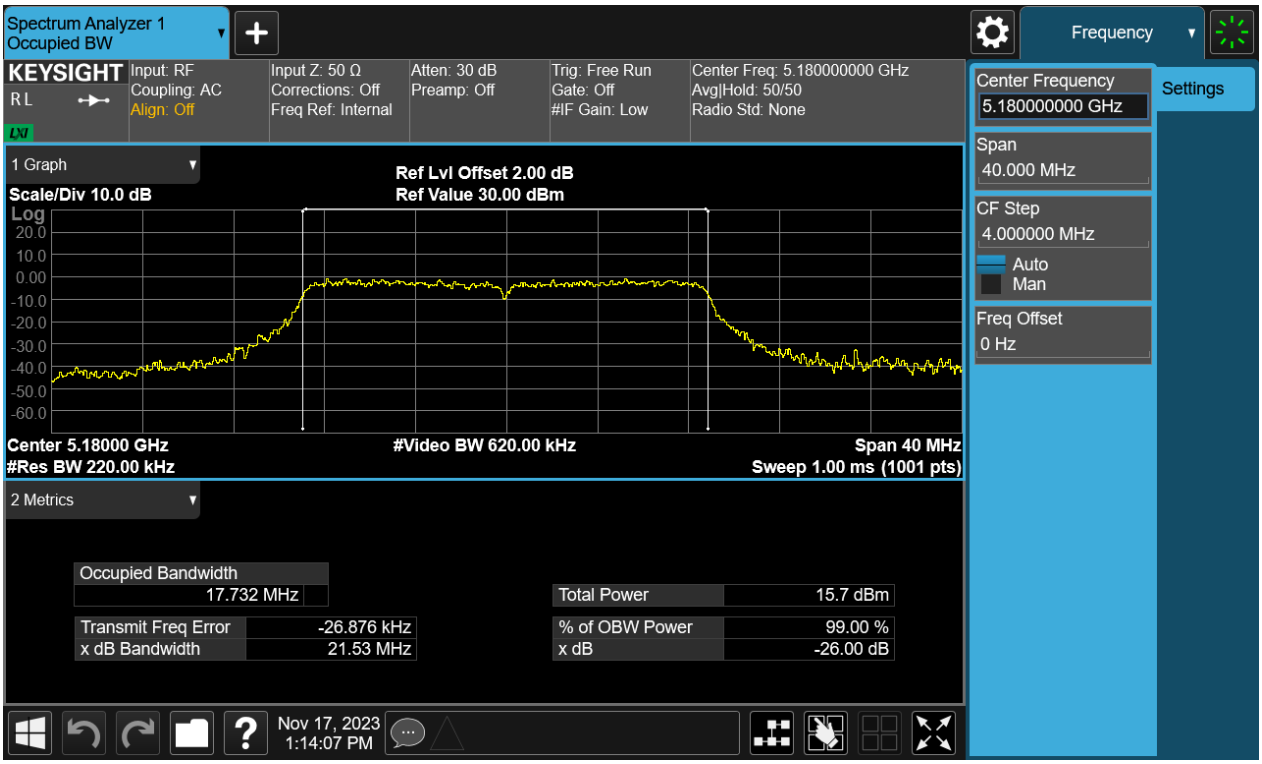


Figure 5: The plots of 26dB Bandwidth and 99% Bandwidth, 802.11n(HT20), 5220MHz

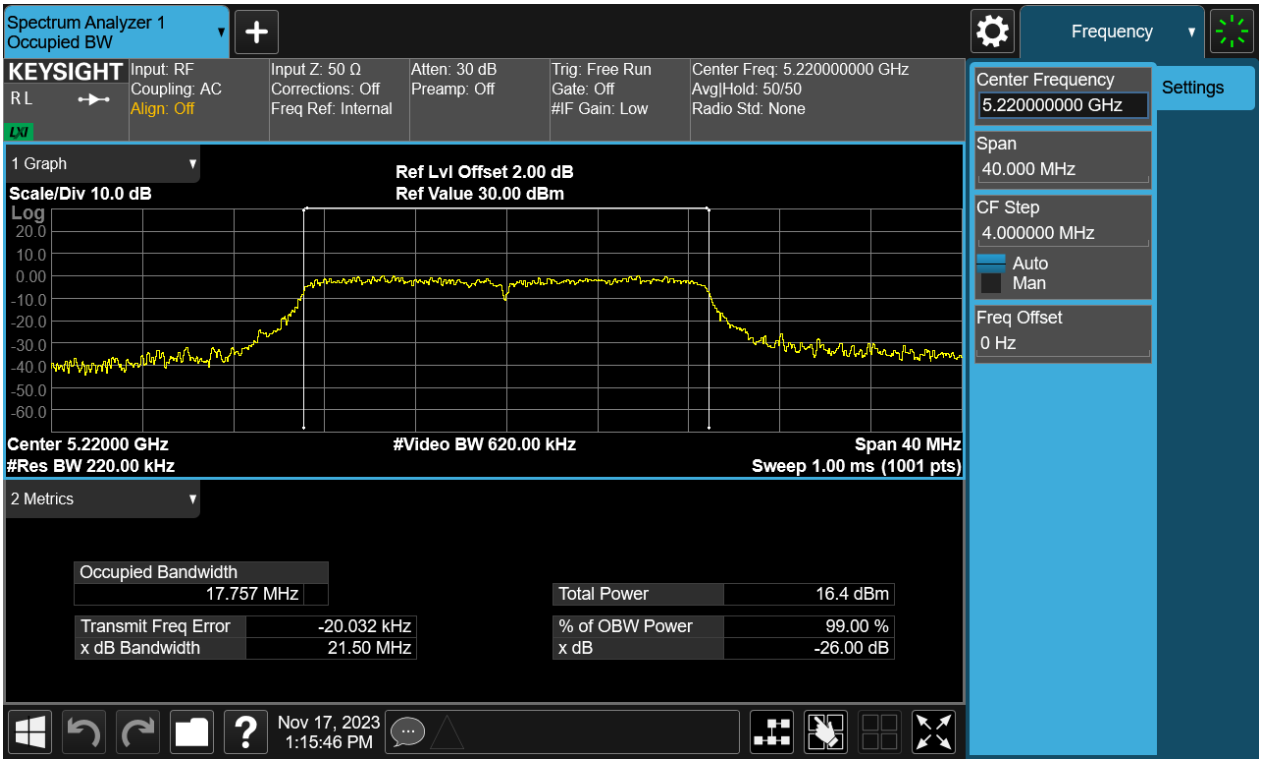


Figure 6: The plots of 26dB Bandwidth and 99% Bandwidth, 802.11n(HT20), 5240MHz

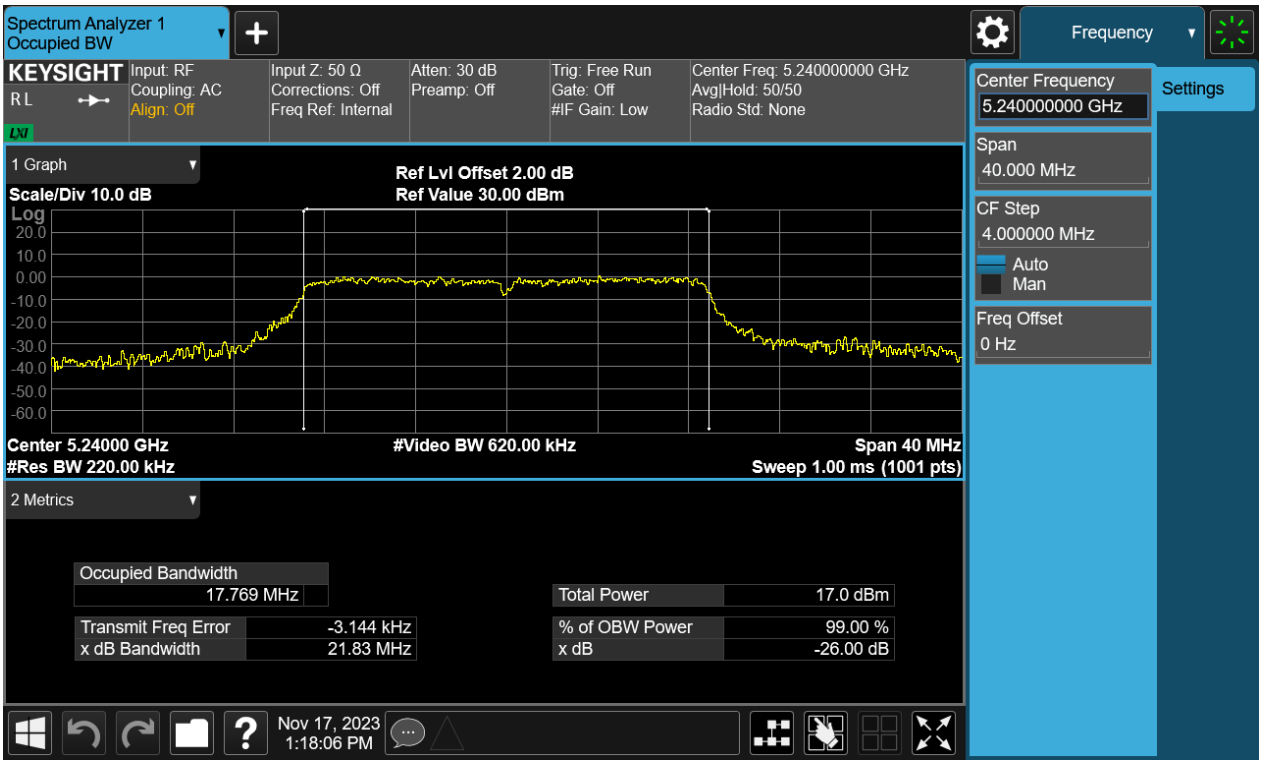


Figure 7: The plots of 26dB Bandwidth and 99% Bandwidth, 802.11ac(VHT20), 5180MHz

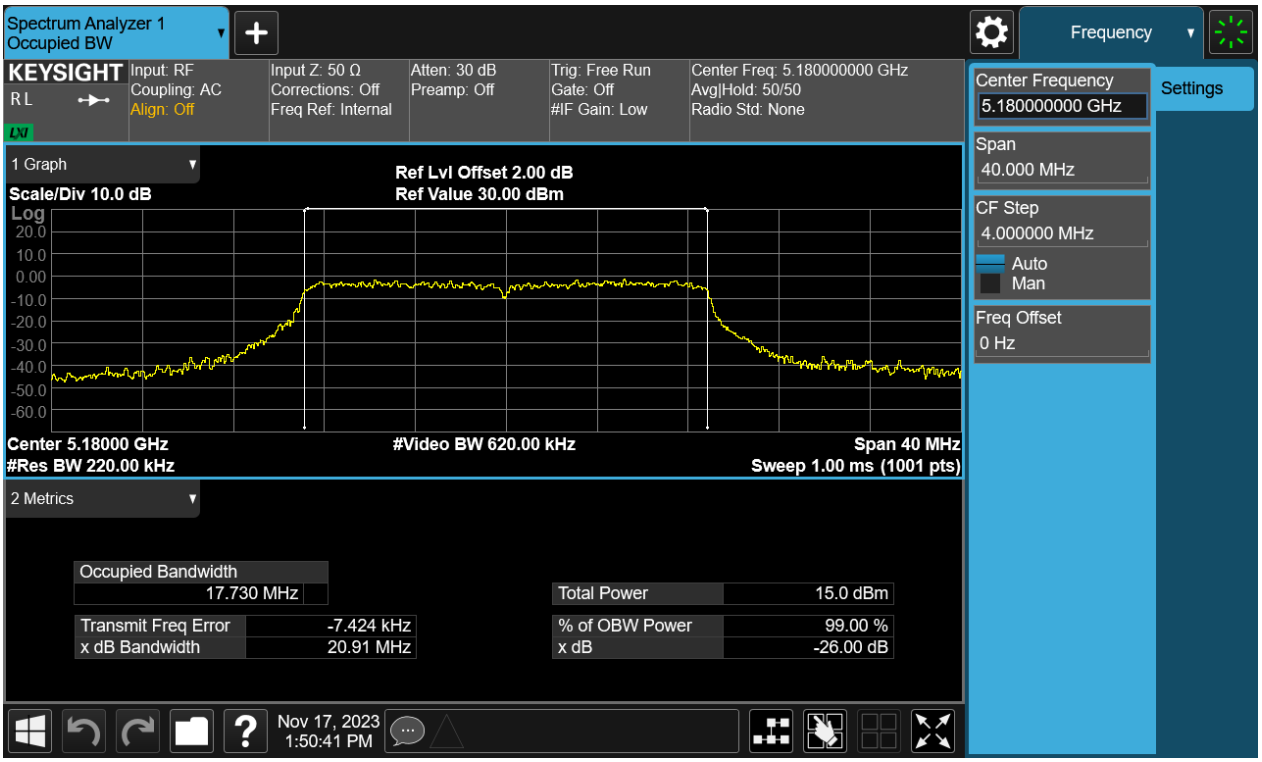


Figure 8: The plots of 26dB Bandwidth and 99% Bandwidth, 802.11ac(VHT20), 5220MHz

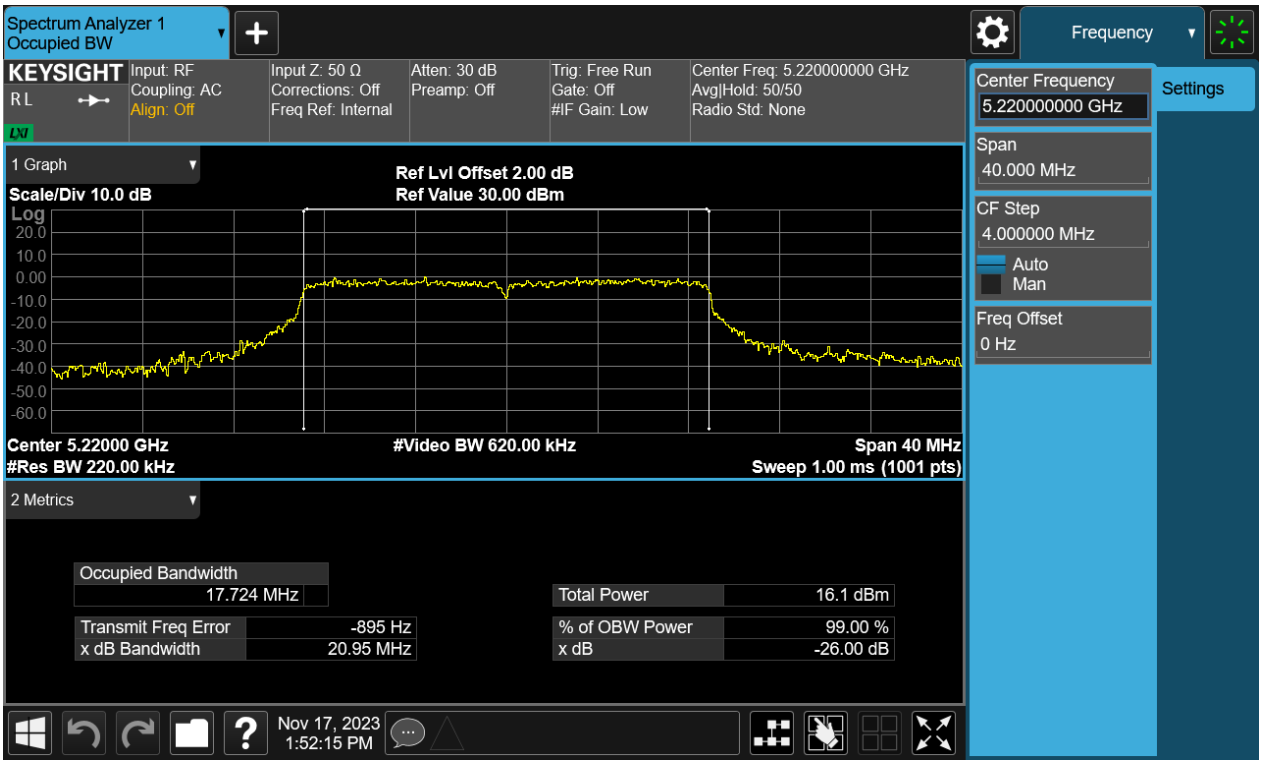


Figure 9: The plots of 26dB Bandwidth and 99% Bandwidth, 802.11ac(VHT20), 5240MHz

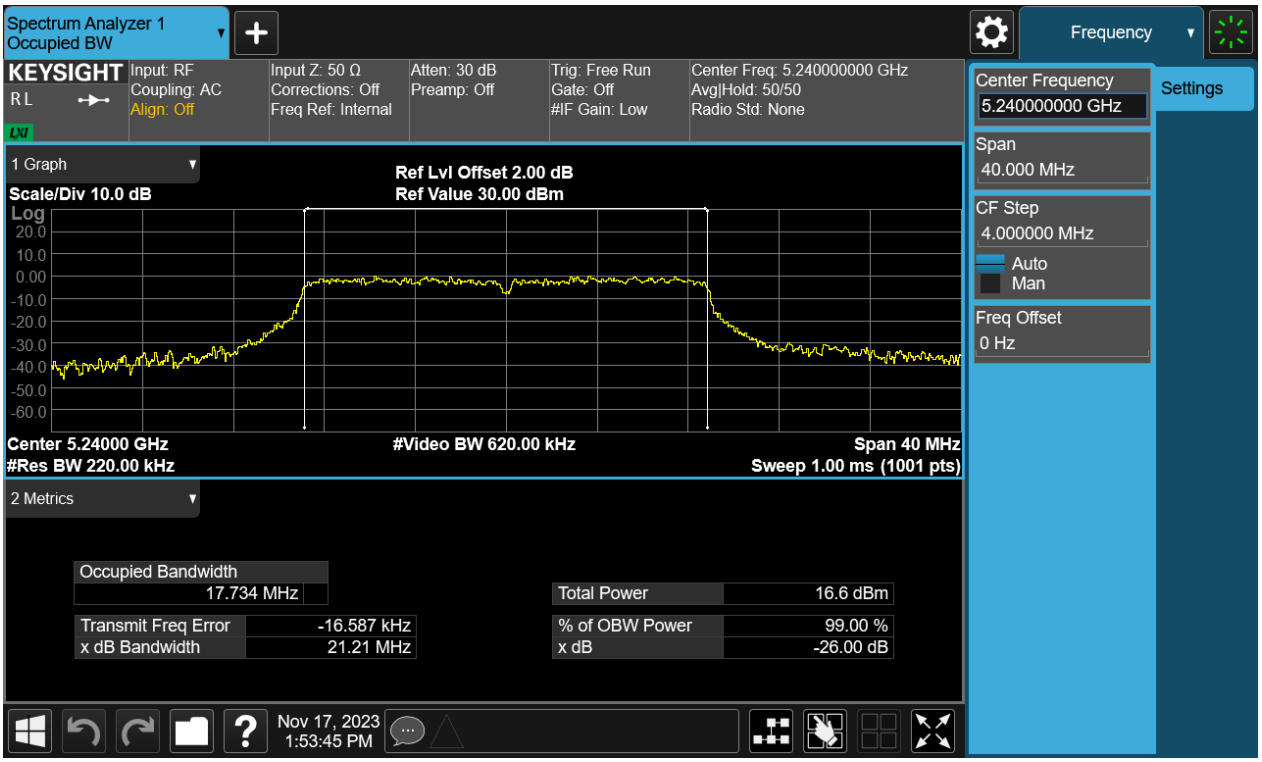


Figure 10: The plots of 26dB Bandwidth and 99% Bandwidth, 802.11n(HT40), 5190MHz

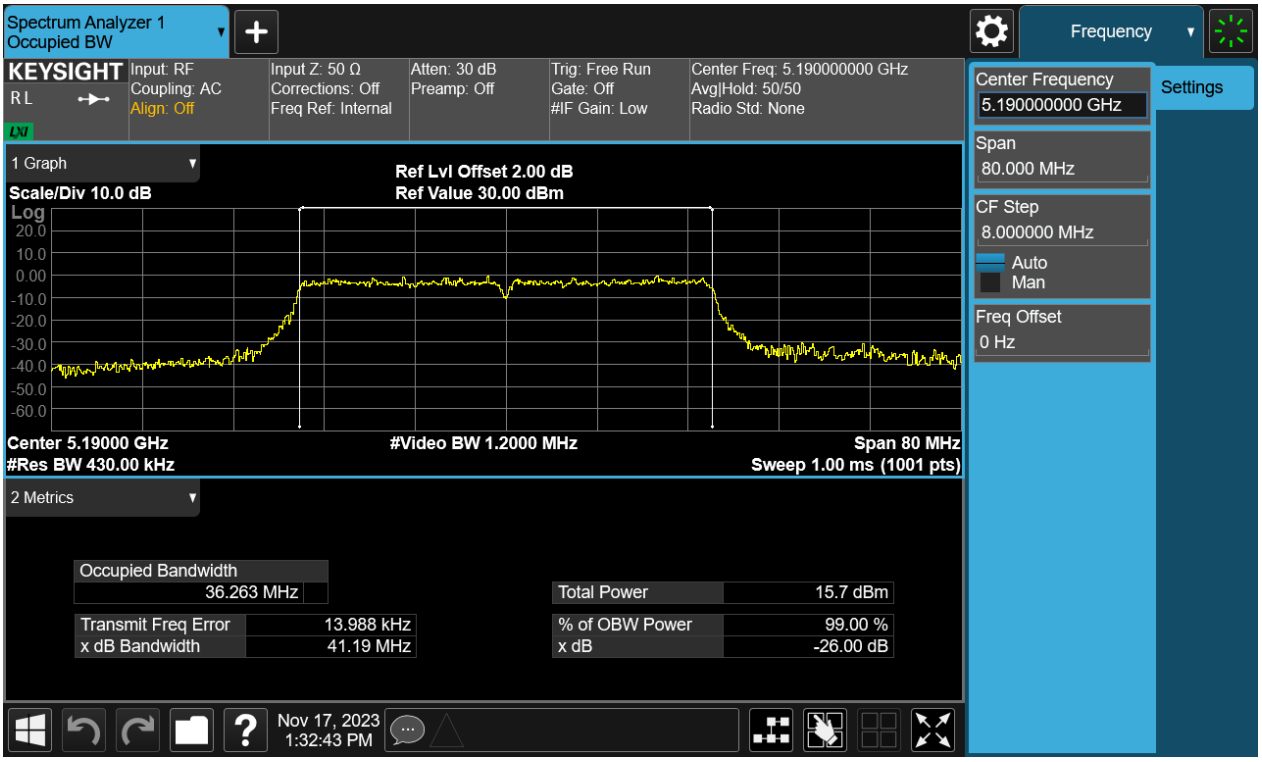


Figure 11: The plots of 26dB Bandwidth and 99% Bandwidth, 802.11n(HT40), 5230MHz

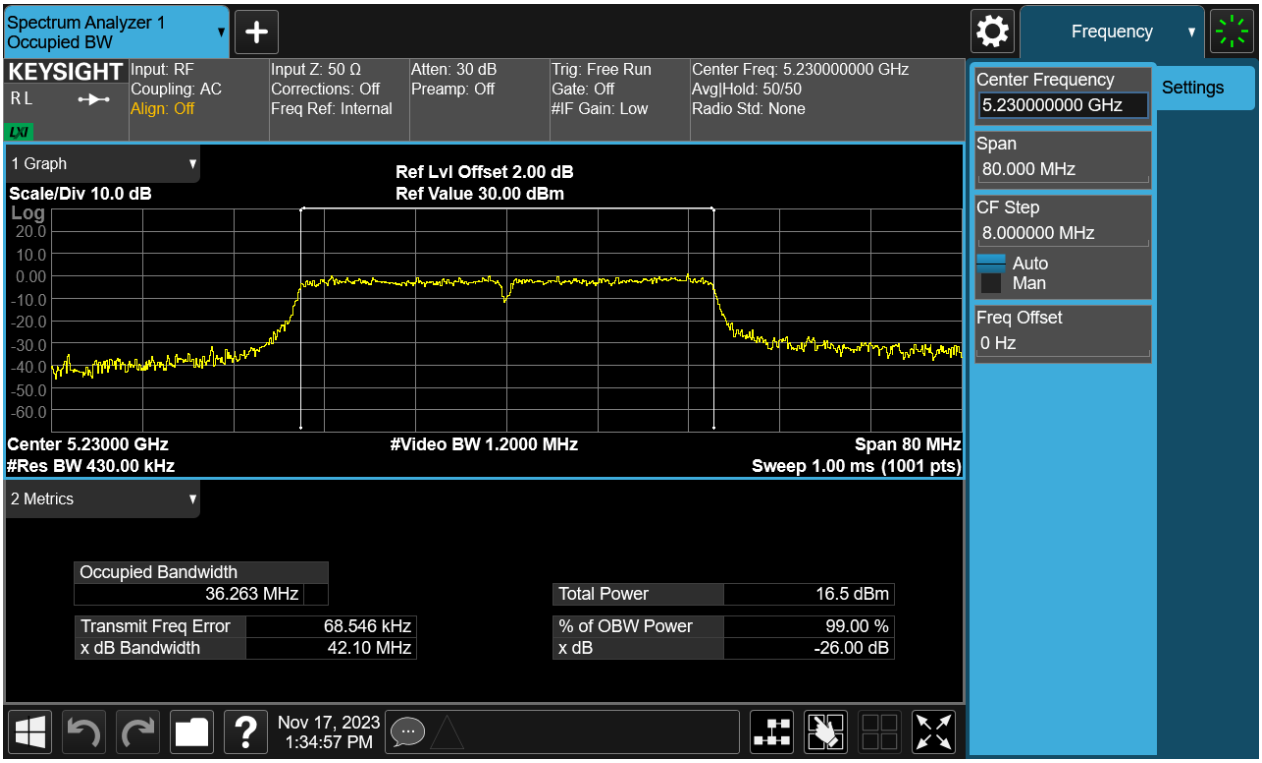


Figure 12: The plots of 26dB Bandwidth and 99% Bandwidth, 802.11ac(VHT40), 5190MHz

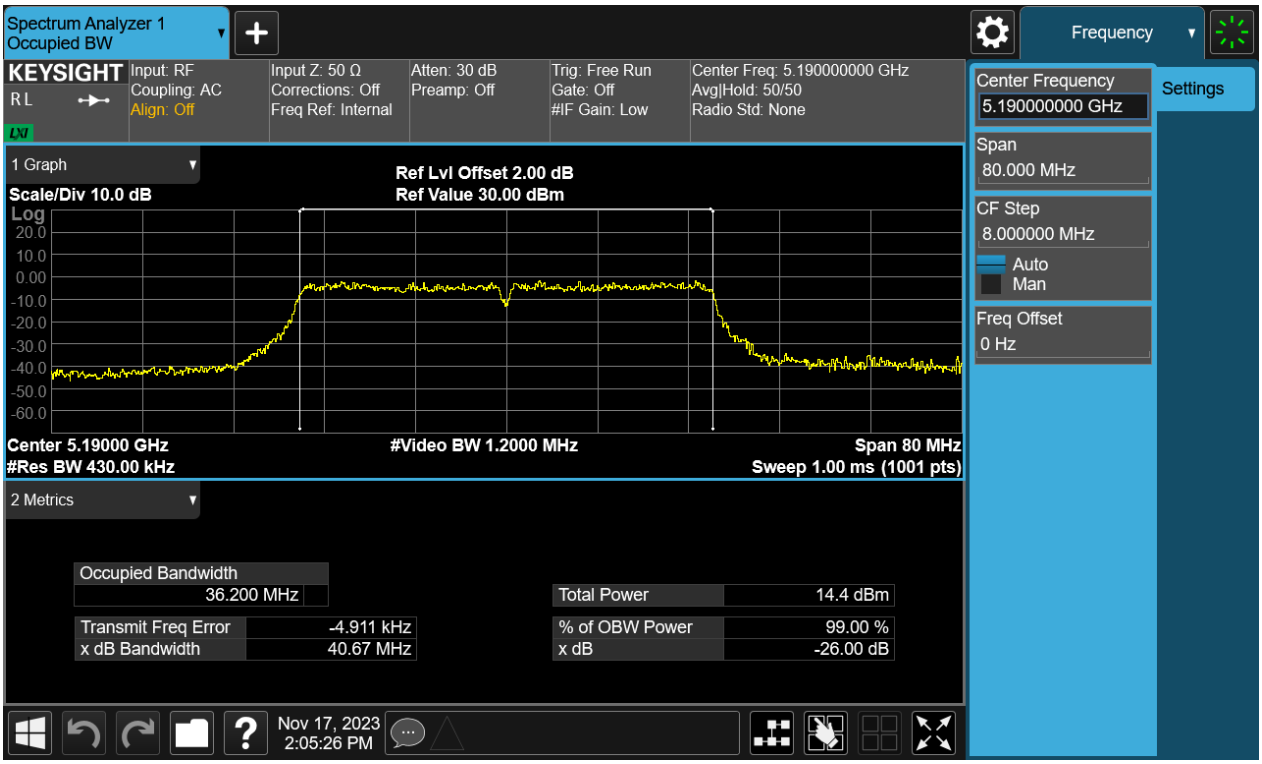


Figure 13: The plots of 26dB Bandwidth and 99% Bandwidth, 802.11ac(VHT40), 5230MHz

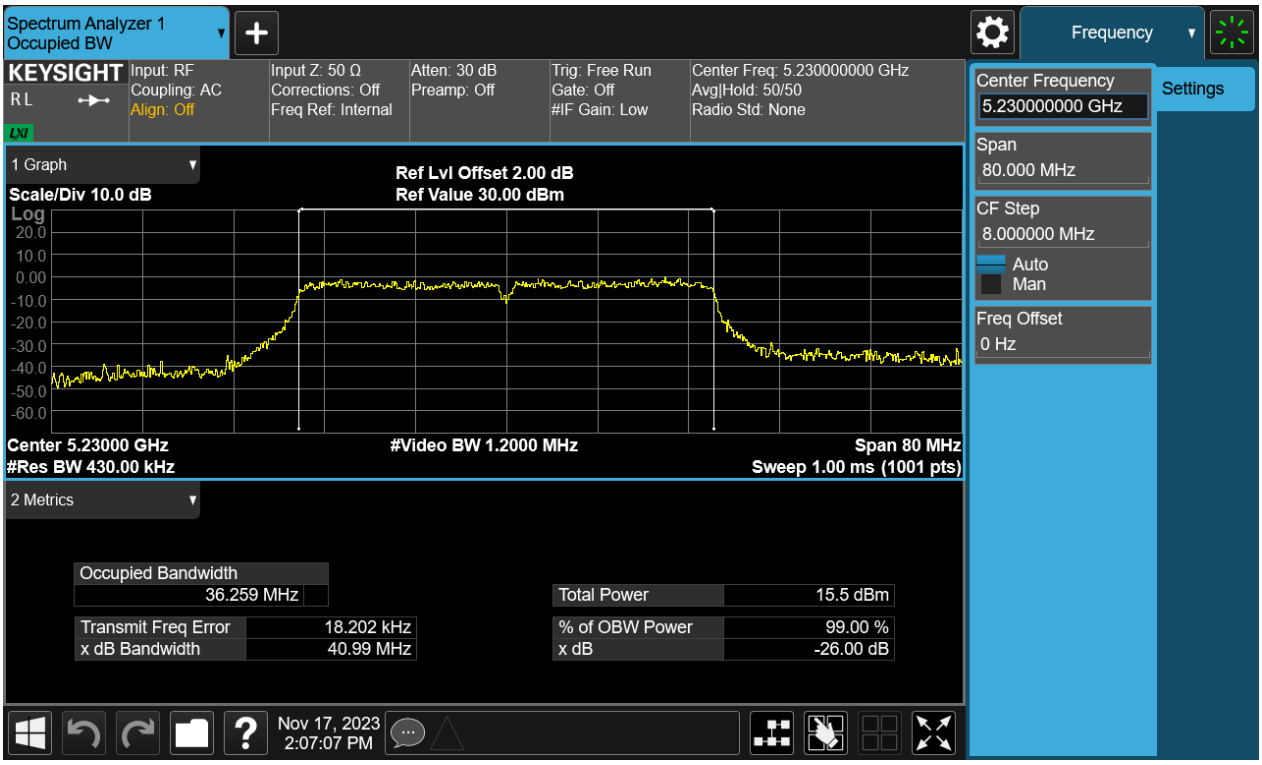
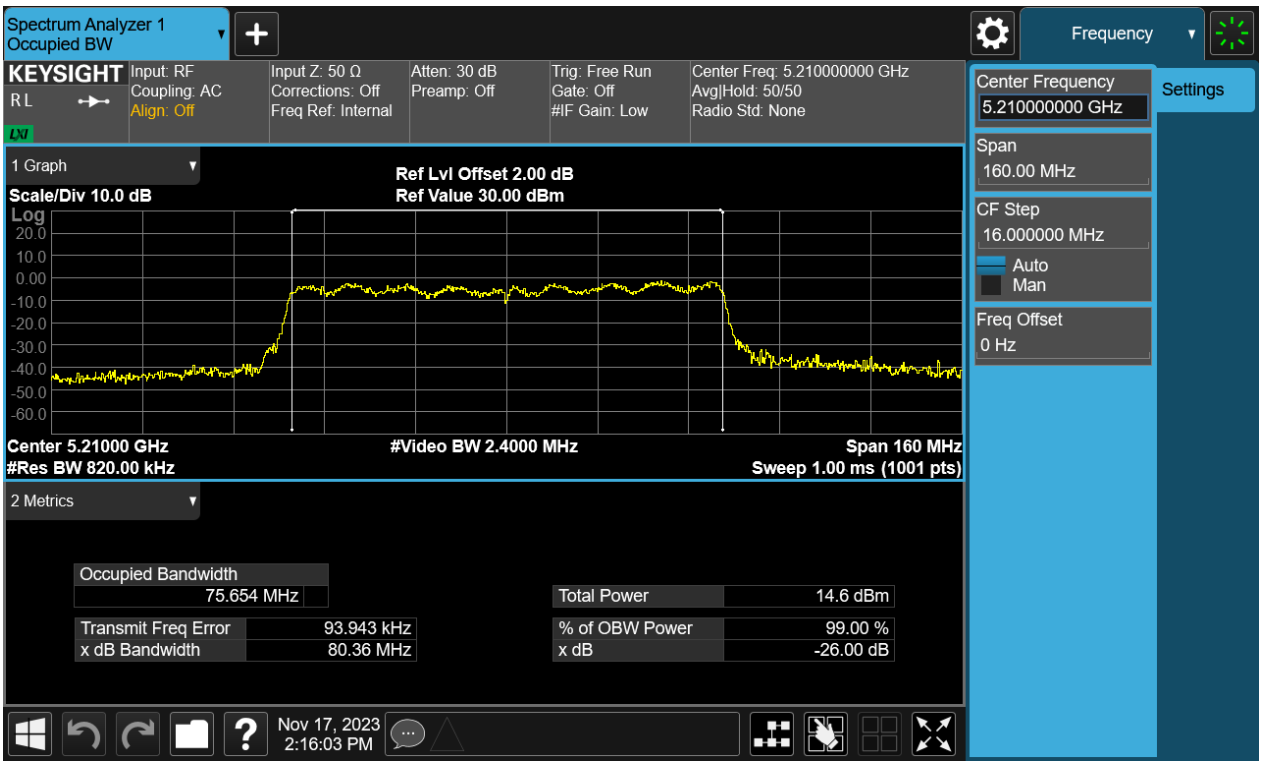


Figure 14: The plots of 26dB Bandwidth and 99% Bandwidth, 802.11ac(VHT80), 5210MHz



4.1.4 6dB Bandwidth and 99% Bandwidth

RESULT: **PASS**

Test standard : FCC Part 15.407(e)
Requirement : ANSI C63.10-2013 clause 12.4, KDB 789033
Kind of test site : Shielded room

Test setup

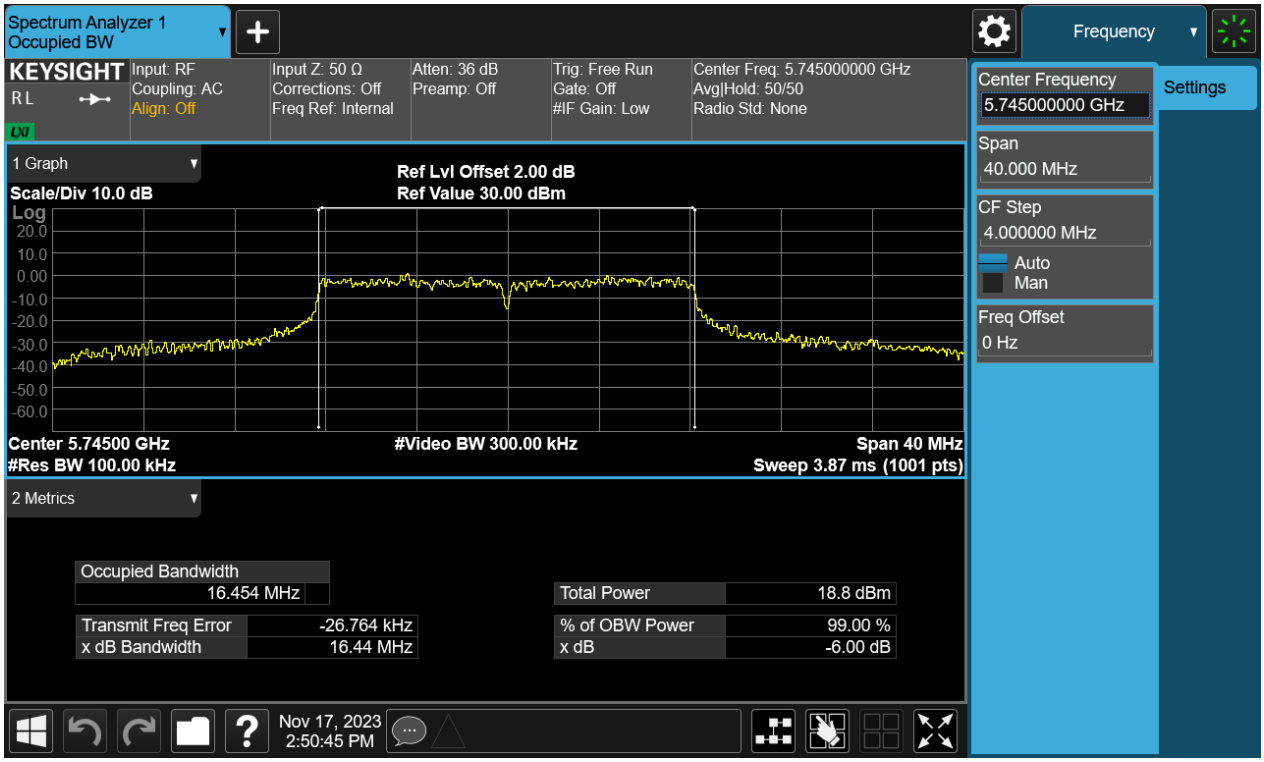
Test Channel : Low/Middle/High
Operation Mode : A.1.a
Ambient temperature : 23.8°C
Relative humidity : 46%

Table 4: 6dB Bandwidth for Band IV (5725 – 5850 MHz)

Test Mode	Test Channel (MHz)	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Applicable Limit (MHz)
802.11a	5745	16.44	16.679	>0.5
	5785	16.51	16.673	
	5825	16.44	16.632	
802.11n(HT20)	5745	17.75	17.827	
	5785	17.74	17.869	
	5825	17.78	17.818	
802.11ac(VHT20)	5745	17.76	17.885	
	5785	17.73	17.909	
	5825	17.73	17.841	
802.11n(HT40)	5755	35.52	36.641	
	5795	36.53	36.645	
802.11ac(VHT40)	5755	35.54	36.677	
	5795	36.53	36.707	
802.11ac(VHT80)	5775	76.47	75.739	

Figure 15: 802.11a, 5745MHz

Test Plot of -6dB Bandwidth



Test Plot of 99% Occupied Bandwidth

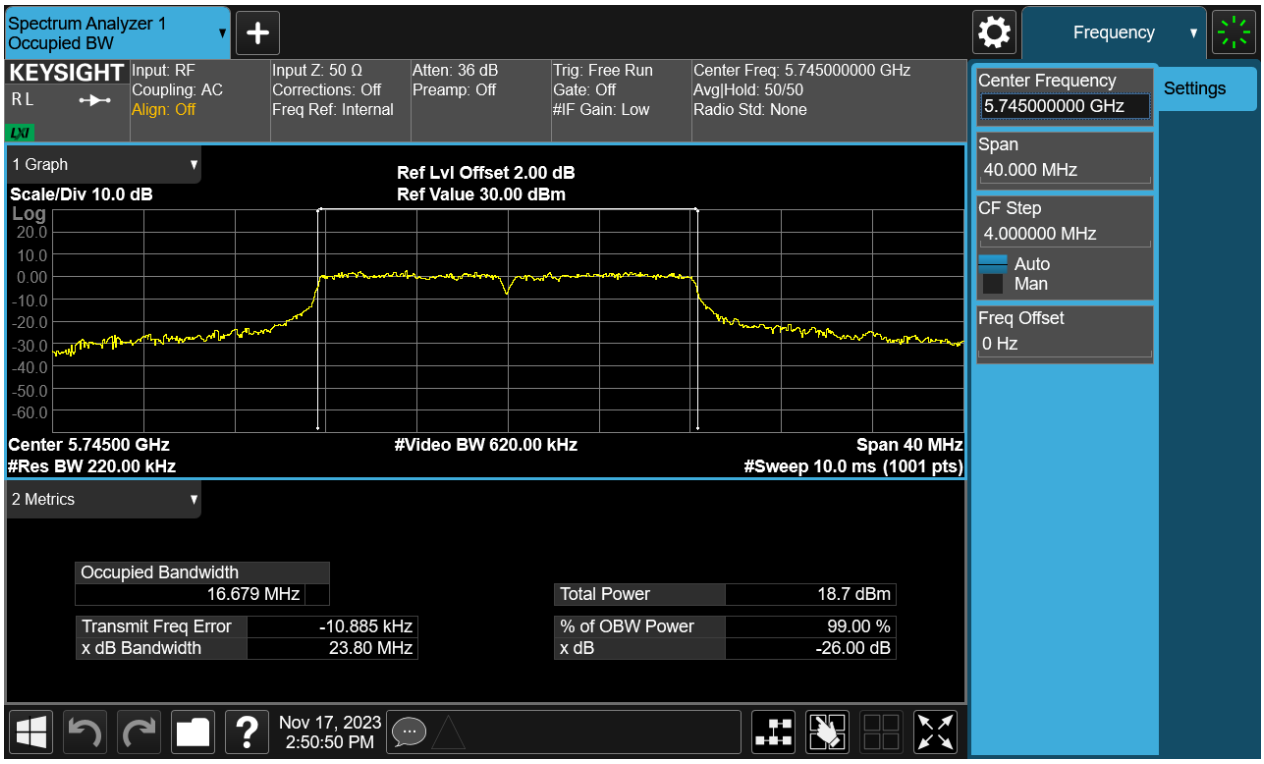
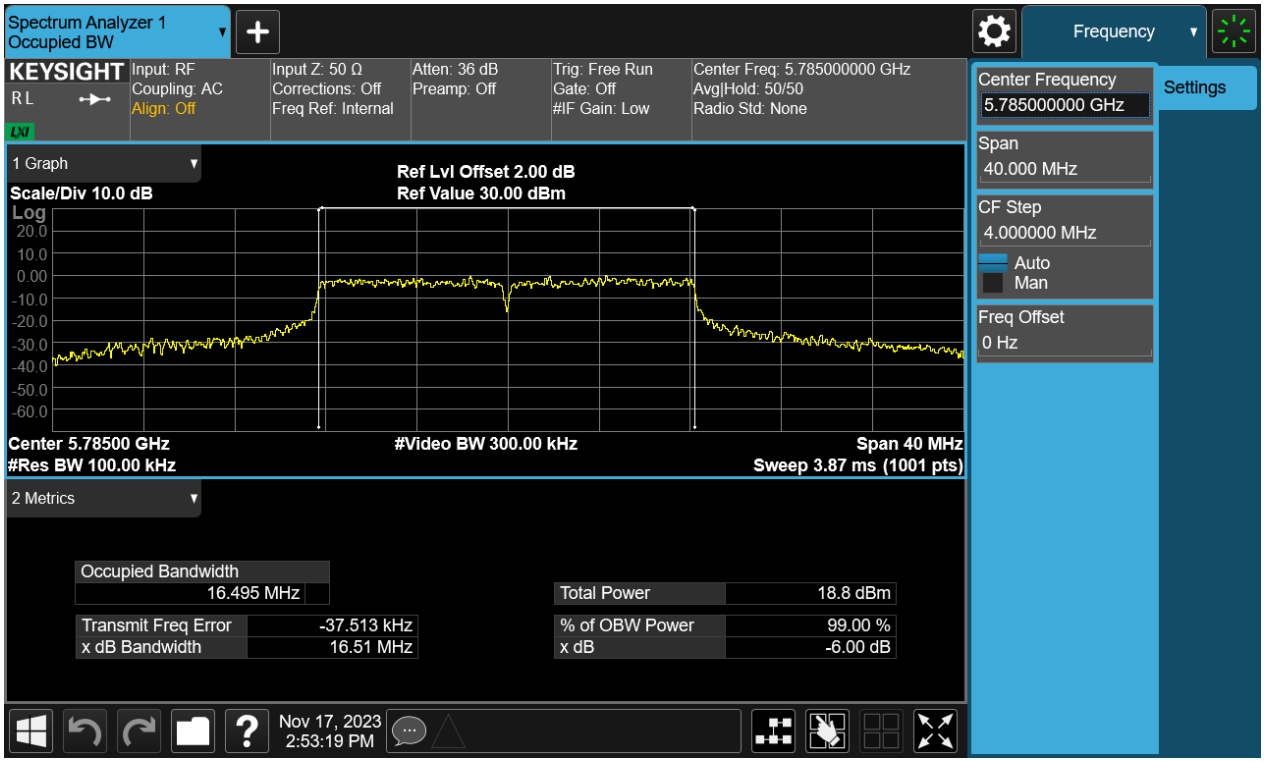


Figure 16: 802.11a, 5785MHz

Test Plot of -6dB Bandwidth



Test Plot of 99% Occupied Bandwidth

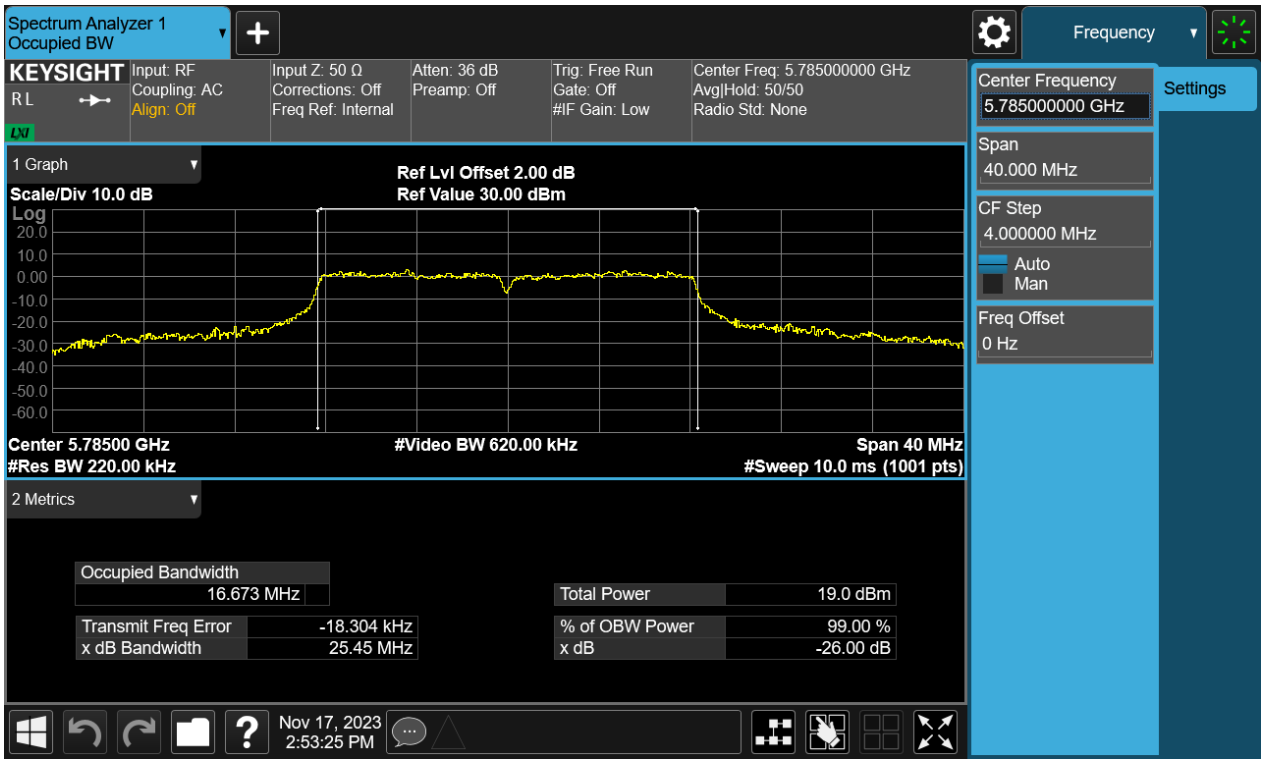
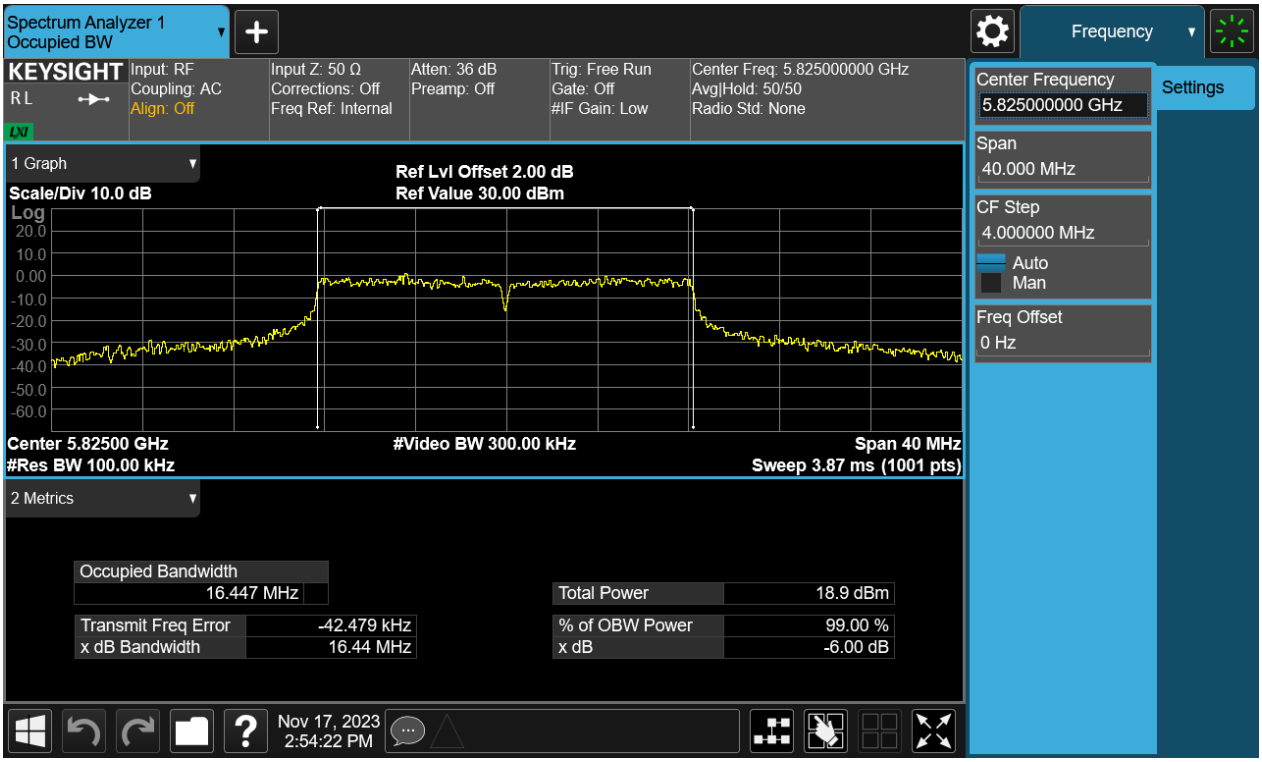


Figure 17: 802.11a, 5825MHz

Test Plot of -6dB Bandwidth



Test Plot of 99% Occupied Bandwidth

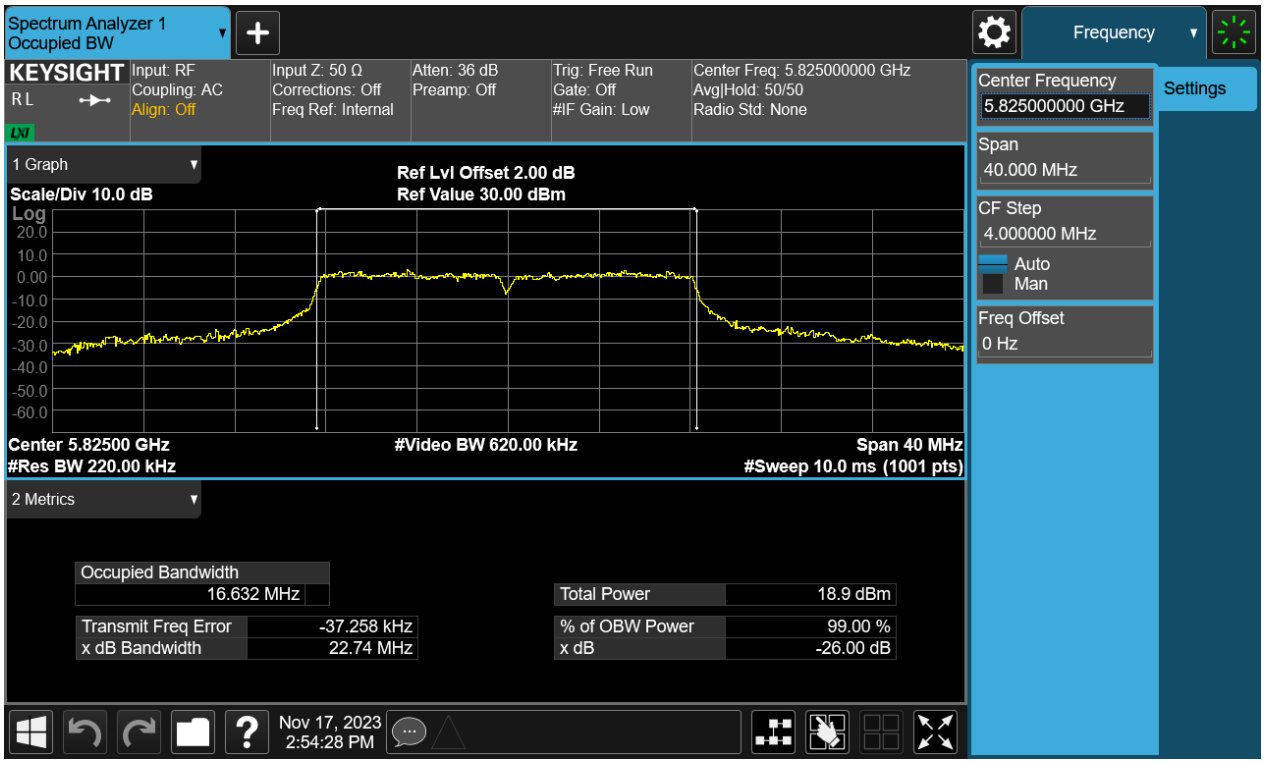
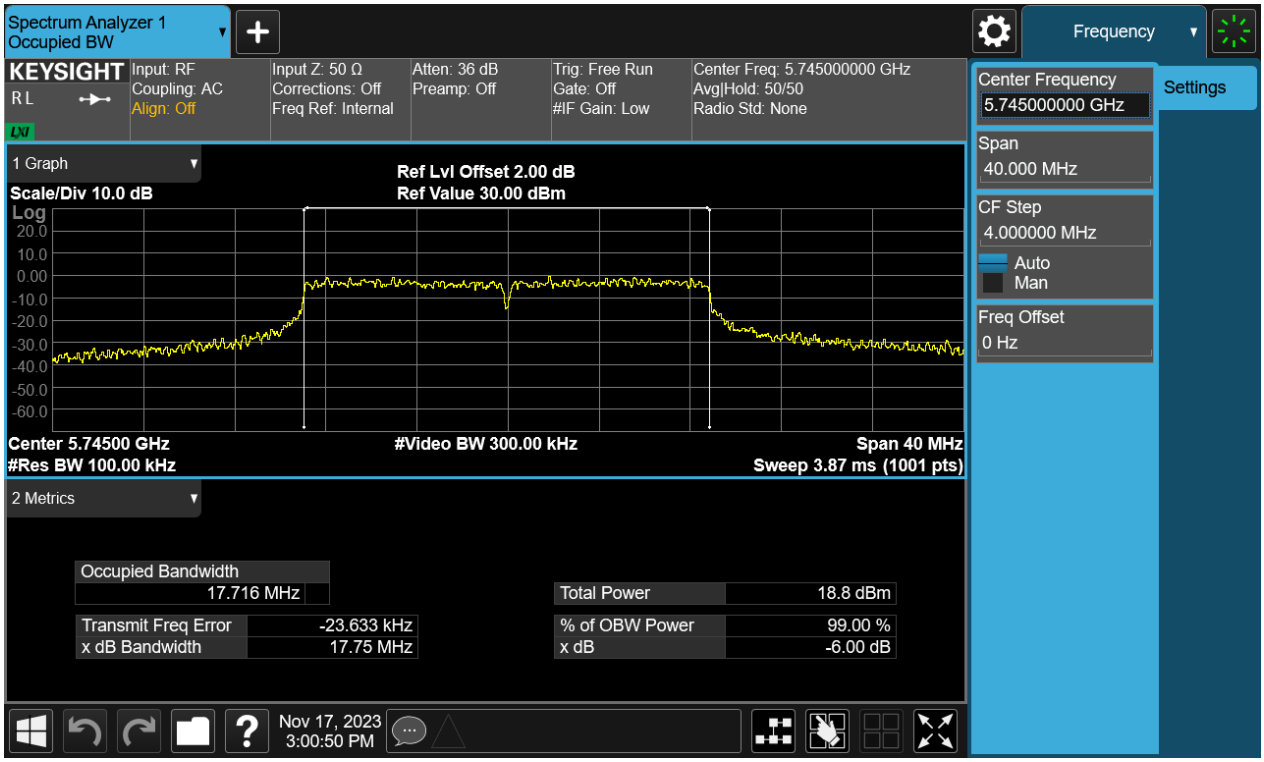


Figure 18: 802.11n(HT20), 5745MHz

Test Plot of -6dB Bandwidth



Test Plot of 99% Occupied Bandwidth

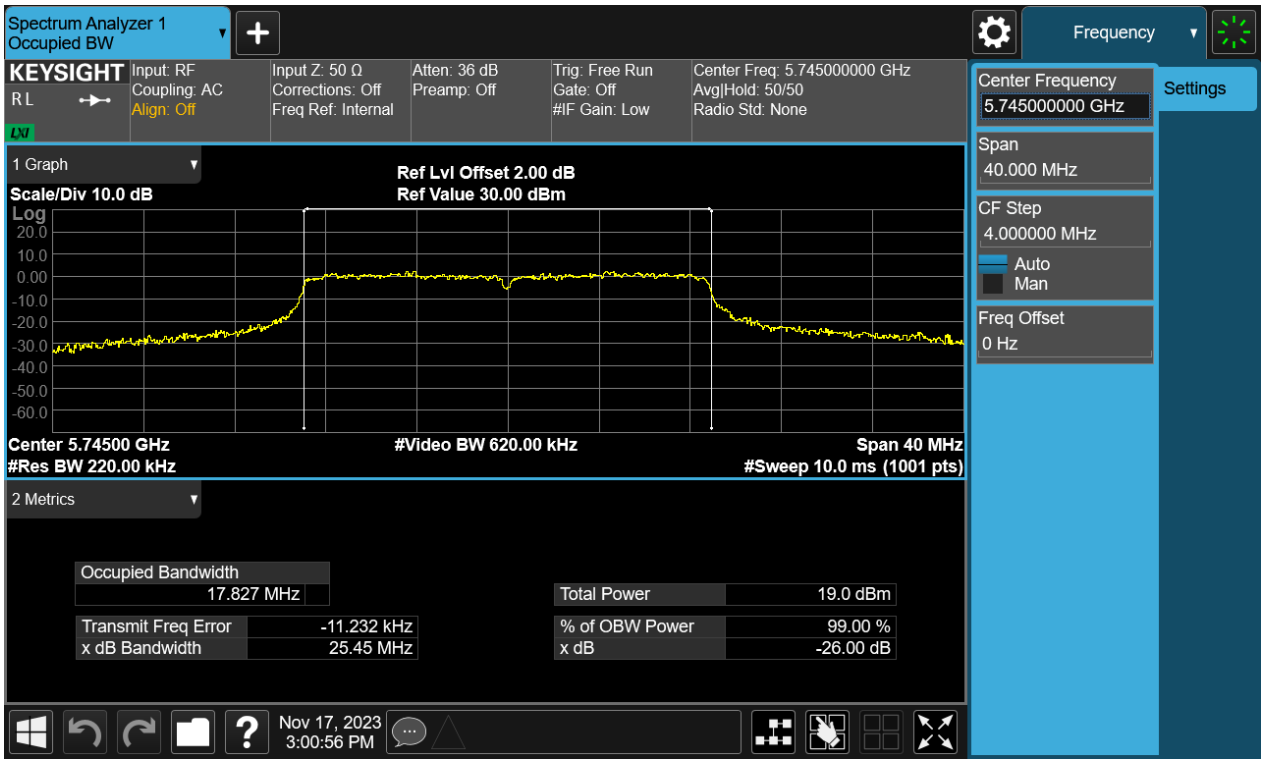
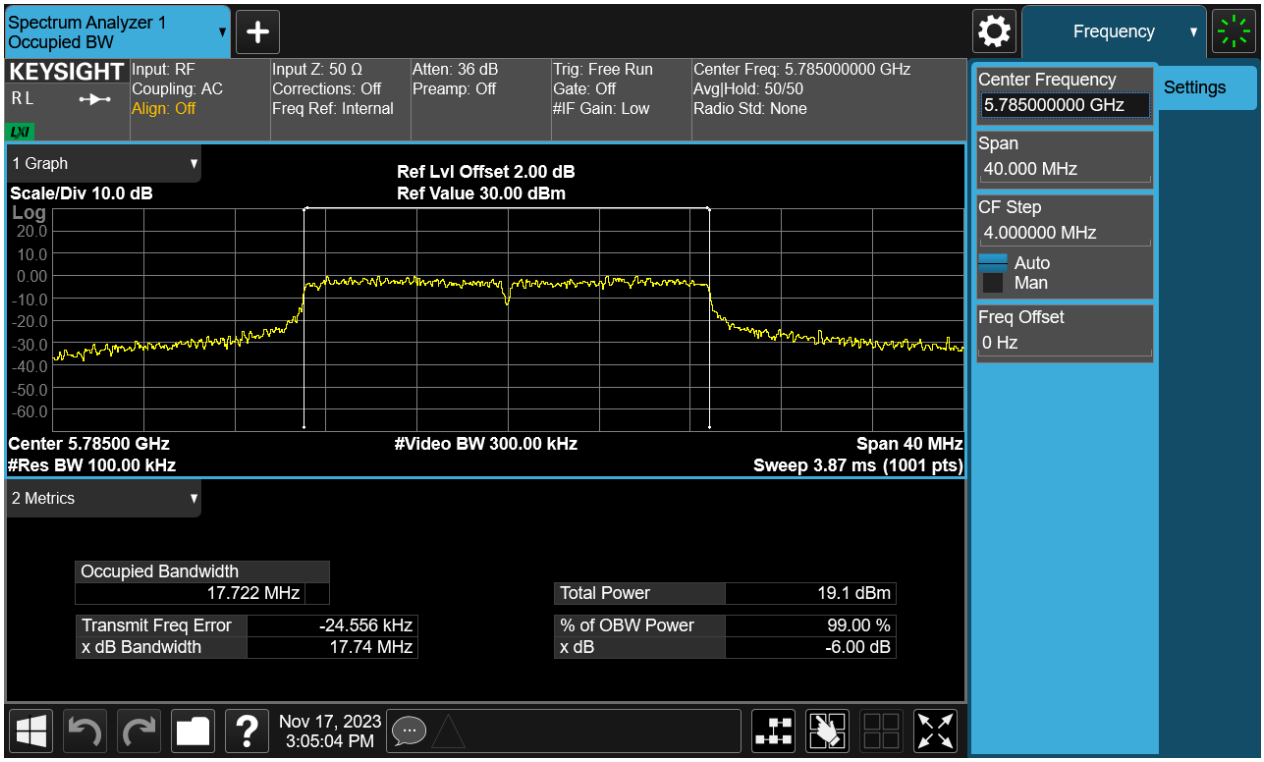


Figure 19: The plots of 6dB Bandwidth, 802.11n(HT20), 5785MHz

Test Plot of -6dB Bandwidth



Test Plot of 99% Occupied Bandwidth

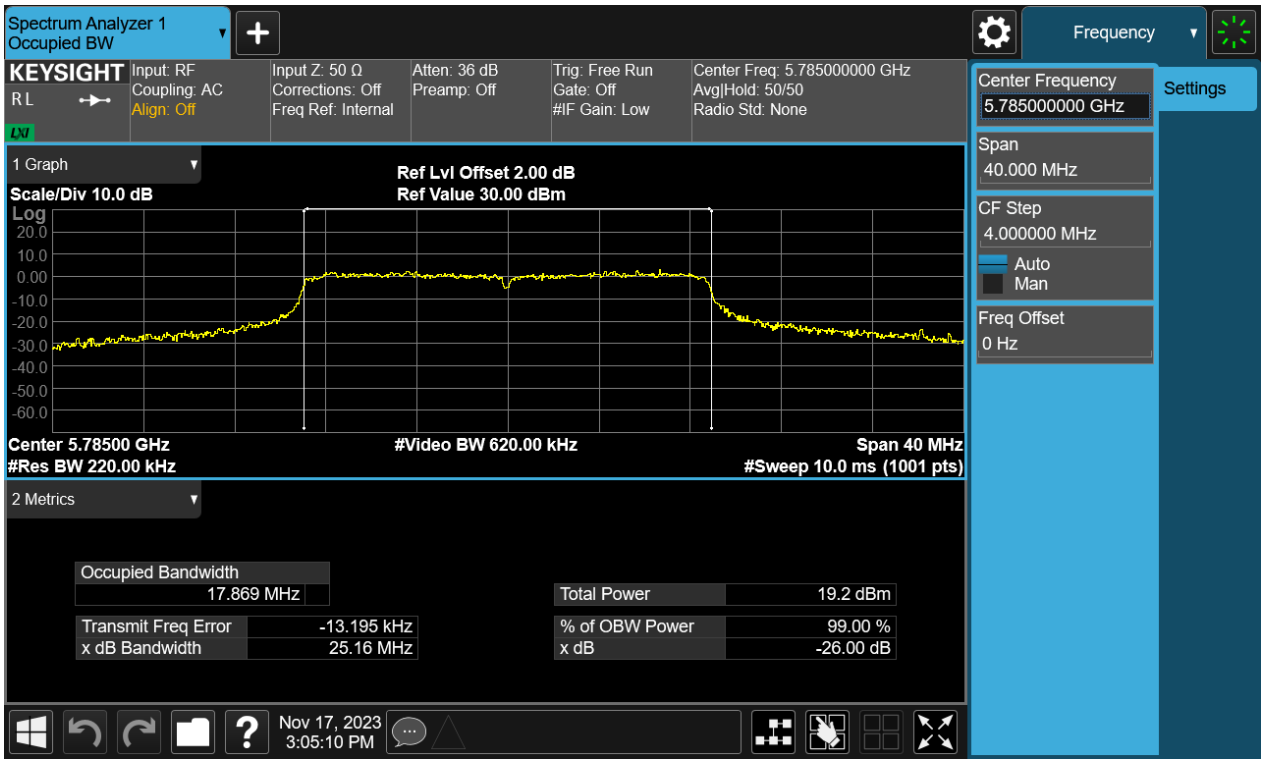
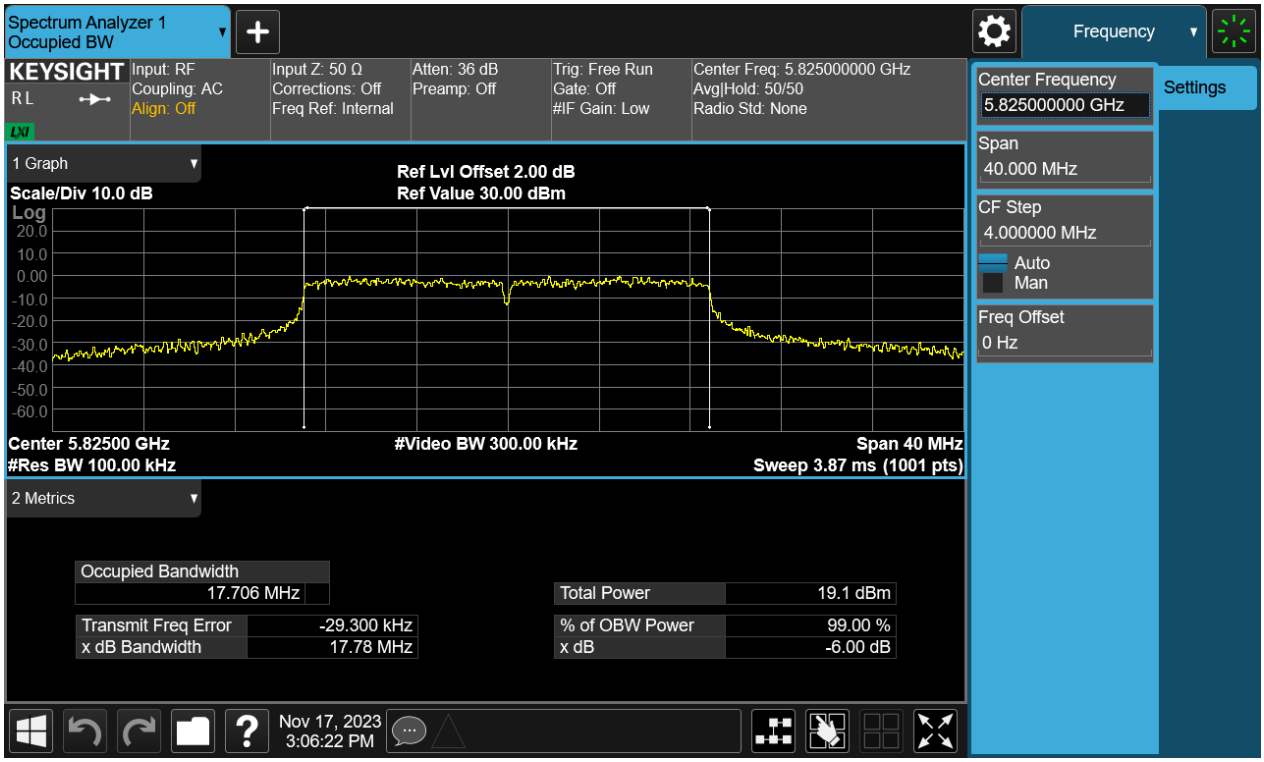


Figure 20: The plots of 6dB Bandwidth, 802.11n(HT20), 5825MHz

Test Plot of -6dB Bandwidth



Test Plot of 99% Occupied Bandwidth

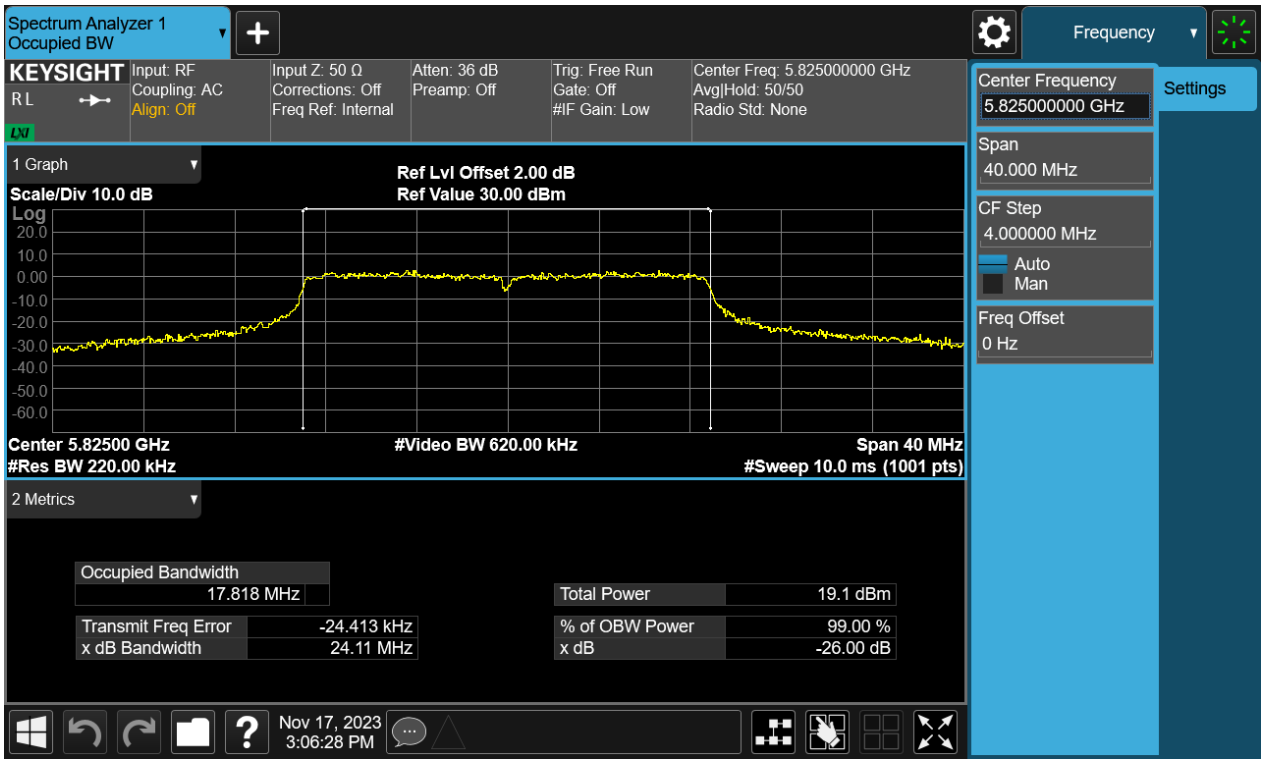
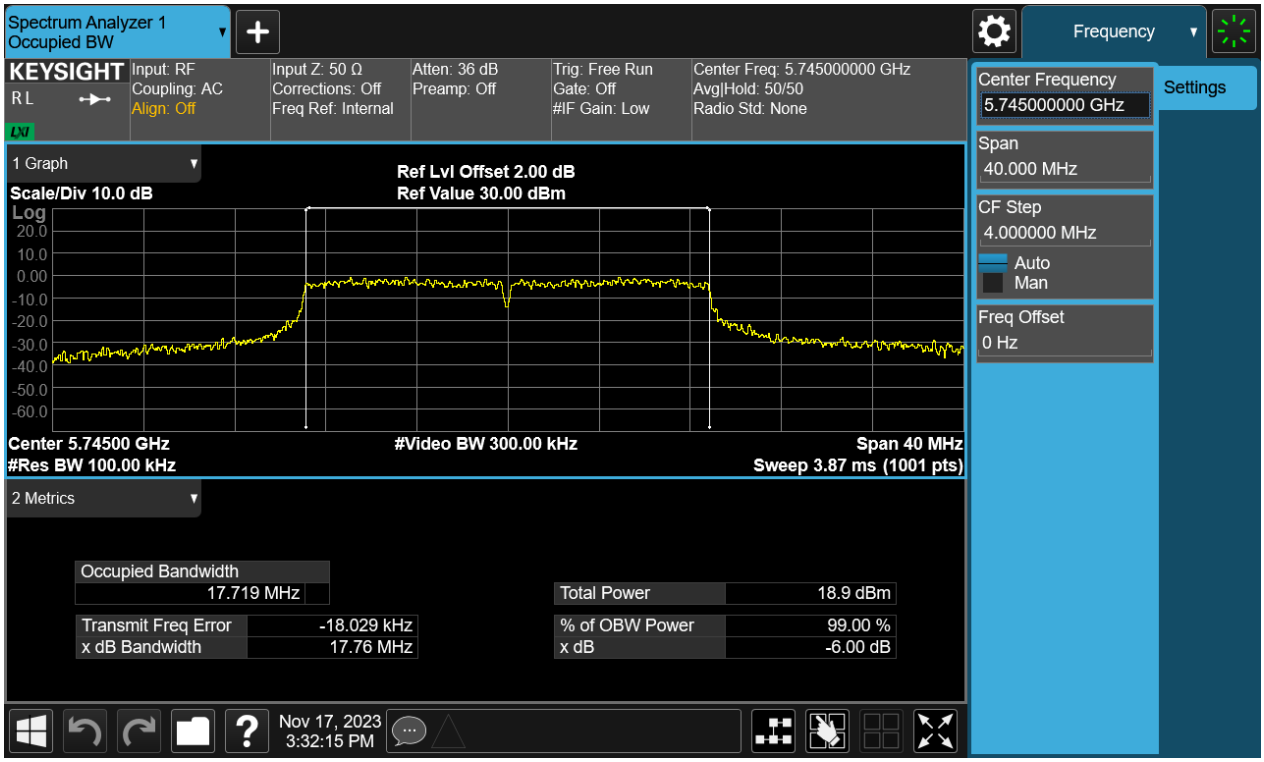


Figure 21: The plots of 6dB Bandwidth, 802.11ac(VHT20), 5745MHz

Test Plot of -6dB Bandwidth



Test Plot of 99% Occupied Bandwidth

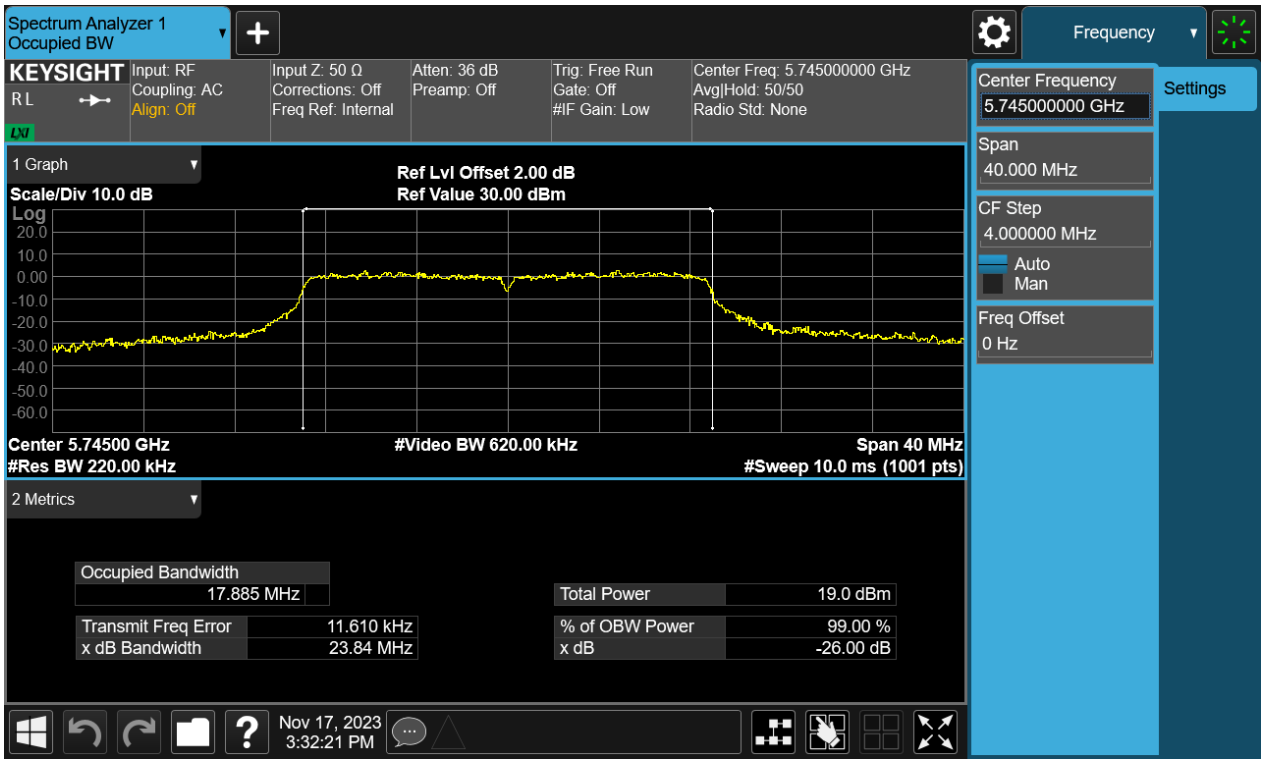
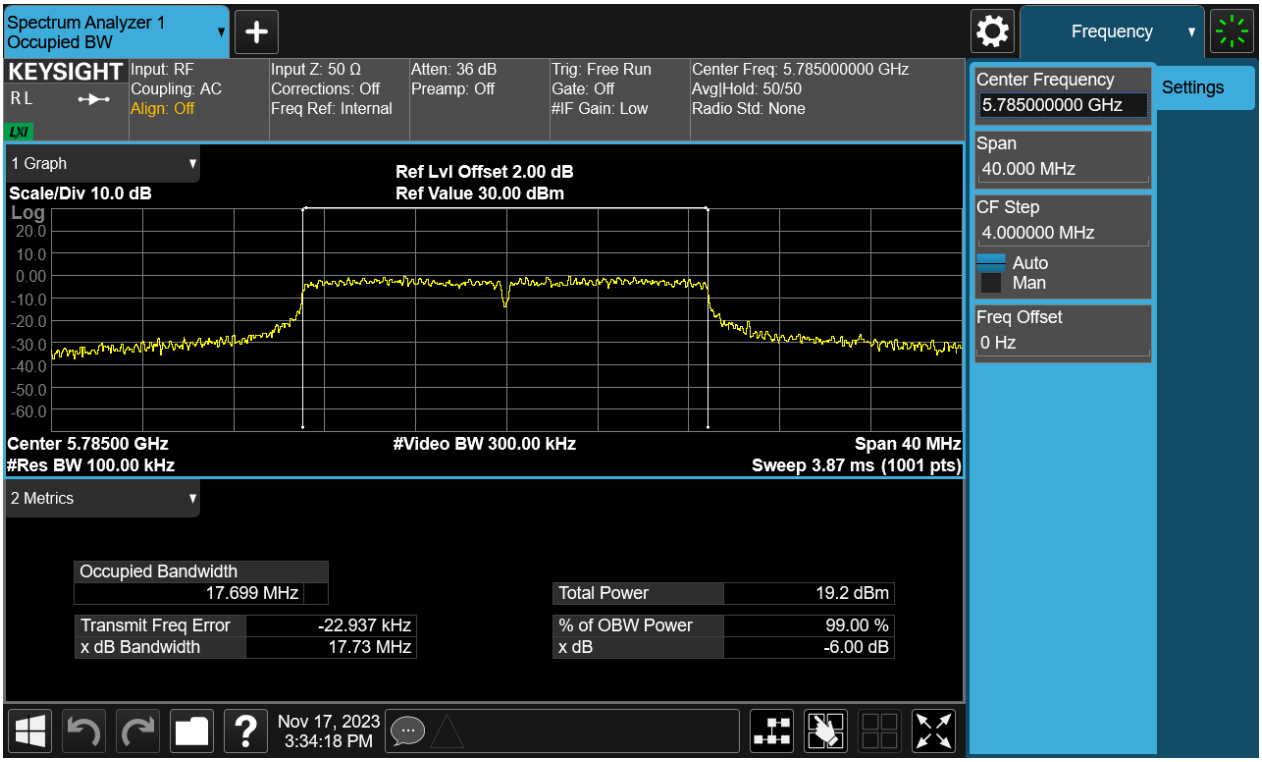


Figure 22: The plots of 6dB Bandwidth, 802.11ac(VHT20), 5785MHz

Test Plot of -6dB Bandwidth



Test Plot of 99% Occupied Bandwidth

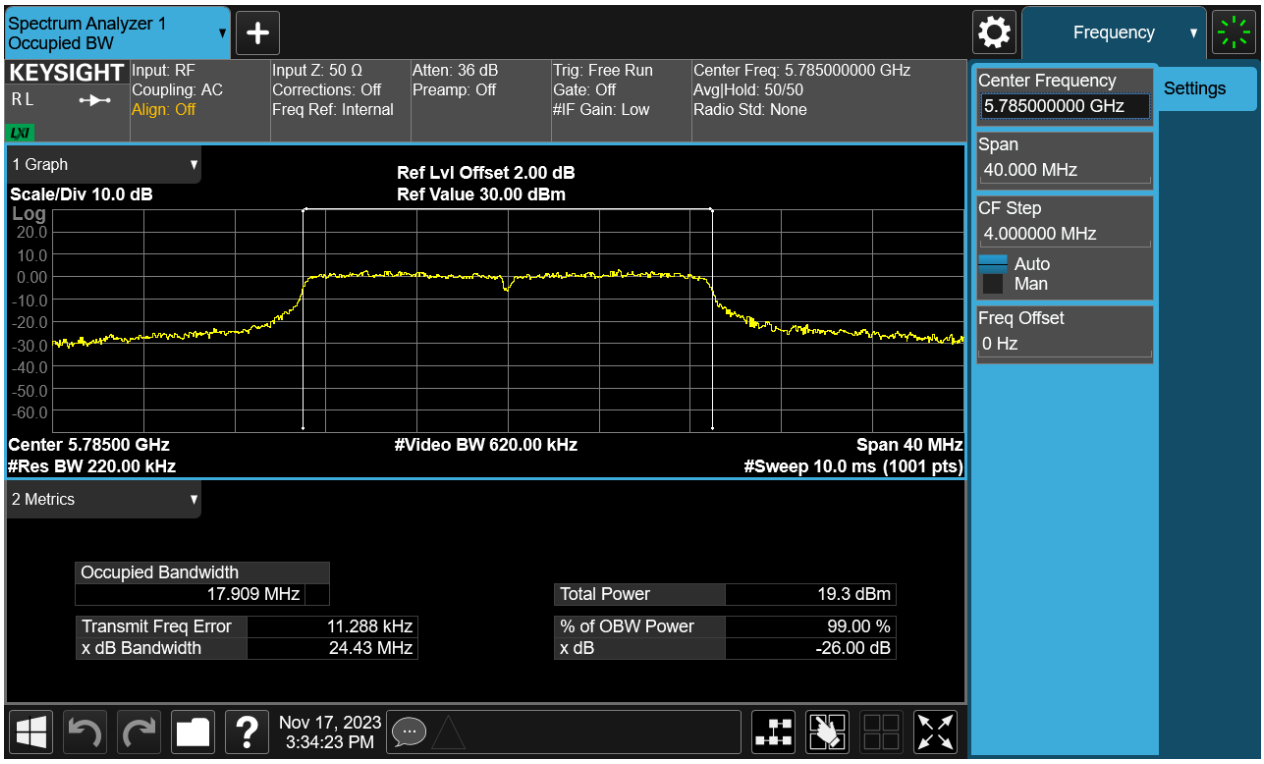
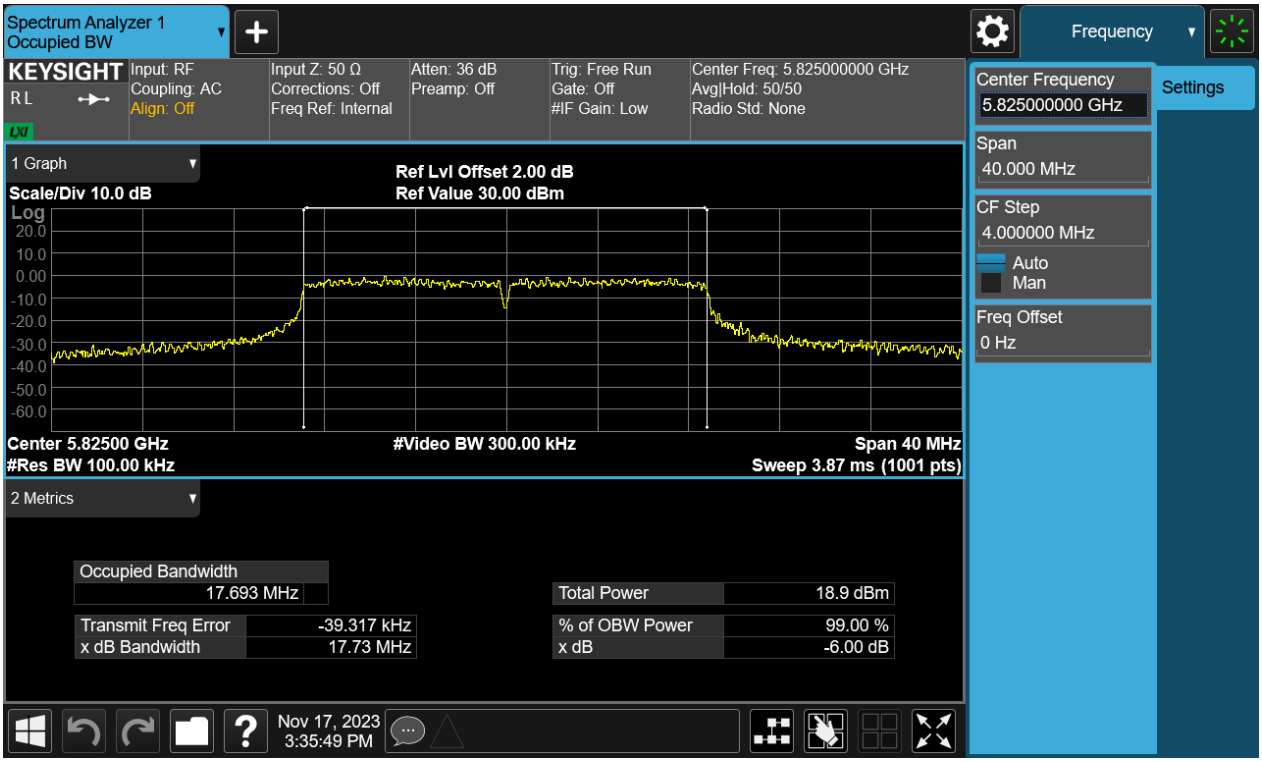


Figure 23: The plots of 6dB Bandwidth, 802.11ac(VHT20), 5825MHz

Test Plot of -6dB Bandwidth



Test Plot of 99% Occupied Bandwidth

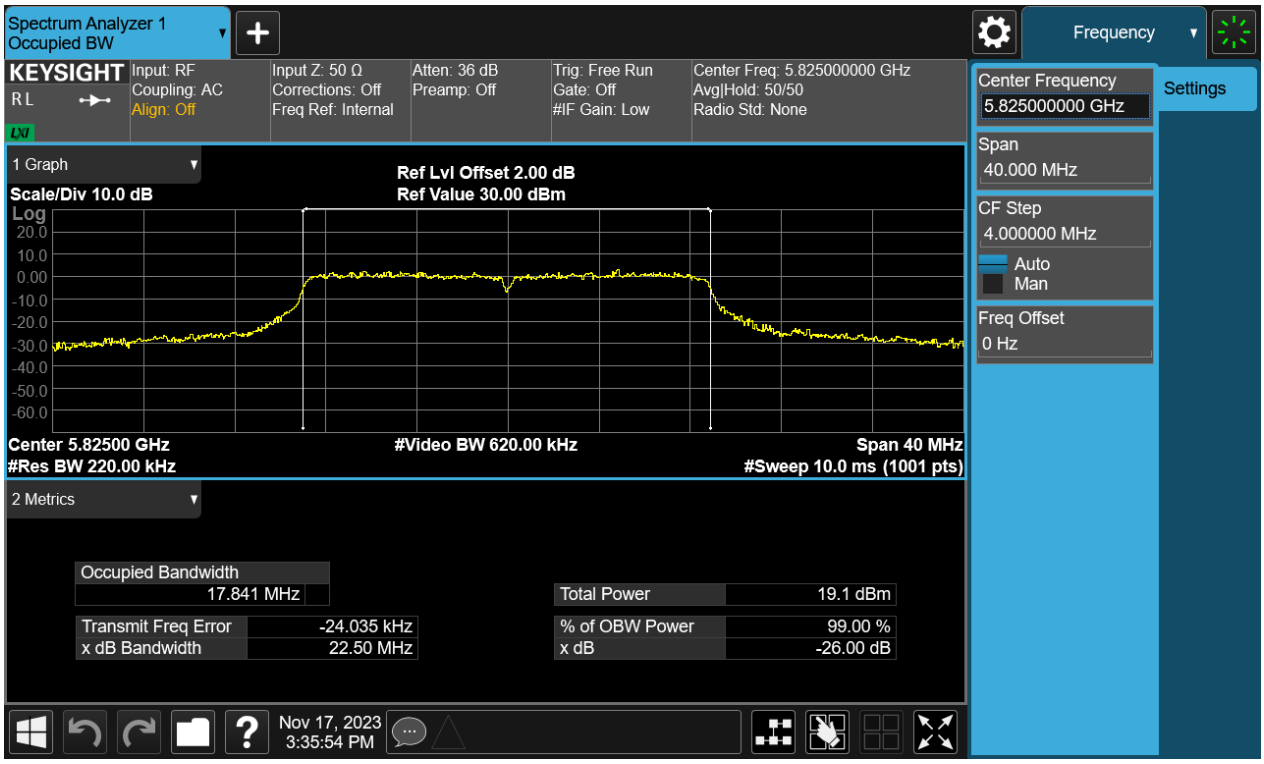
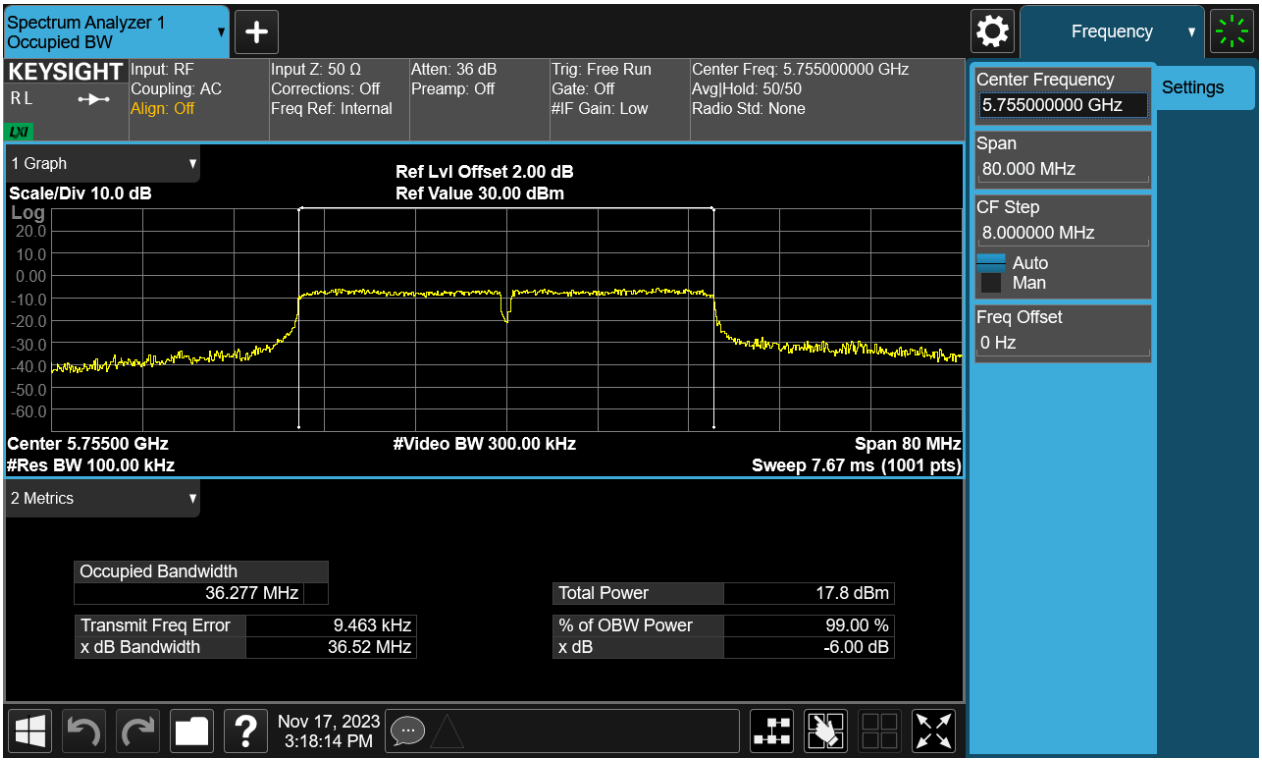


Figure 24: The plots of 6dB Bandwidth, 802.11n(HT40), 5755MHz

Test Plot of -6dB Bandwidth



Test Plot of 99% Occupied Bandwidth

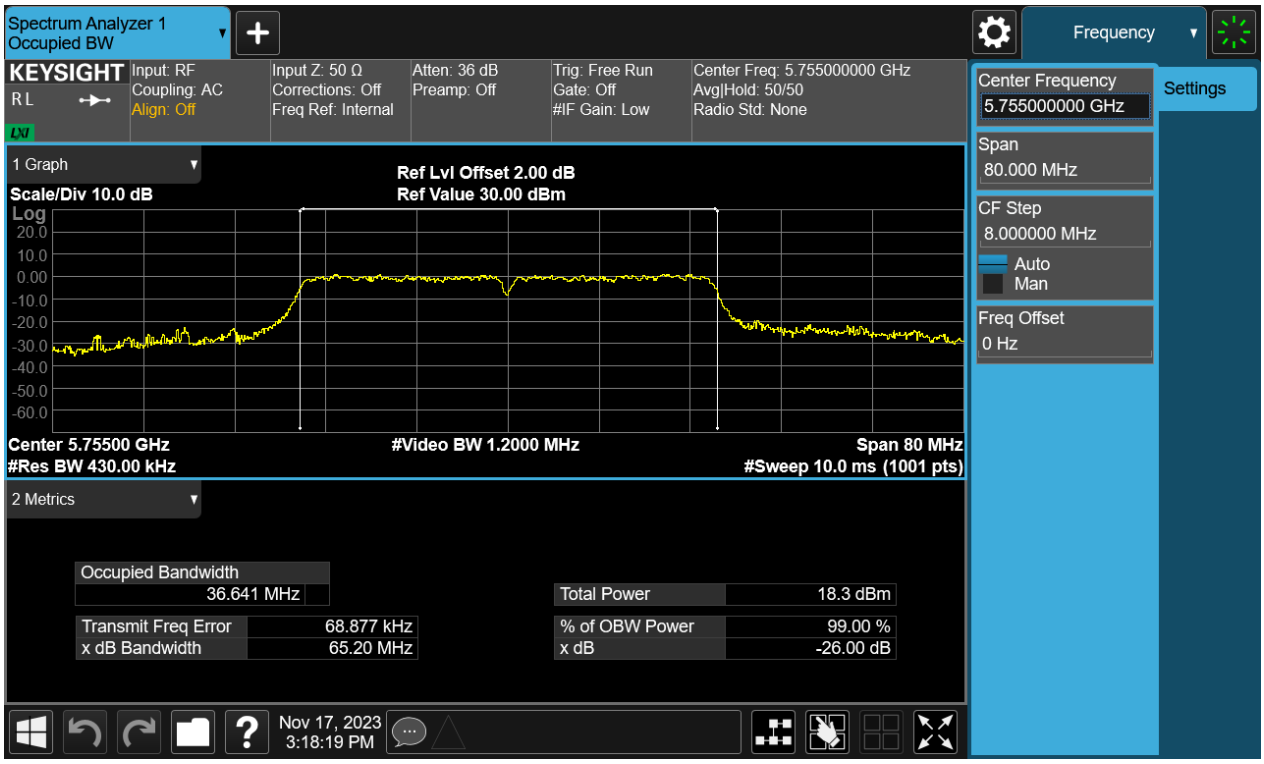
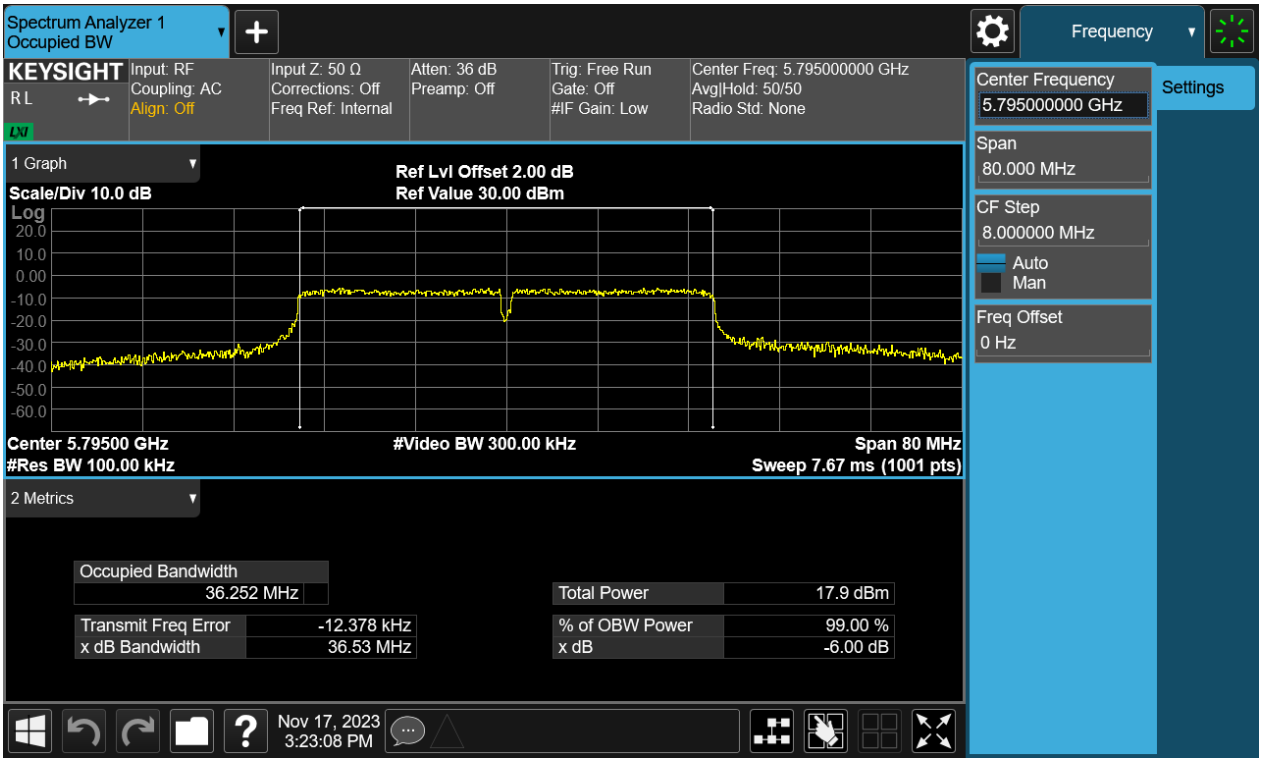


Figure 25: The plots of 6dB Bandwidth, 802.11n(HT40), 5795MHz

Test Plot of -6dB Bandwidth



Test Plot of 99% Occupied Bandwidth

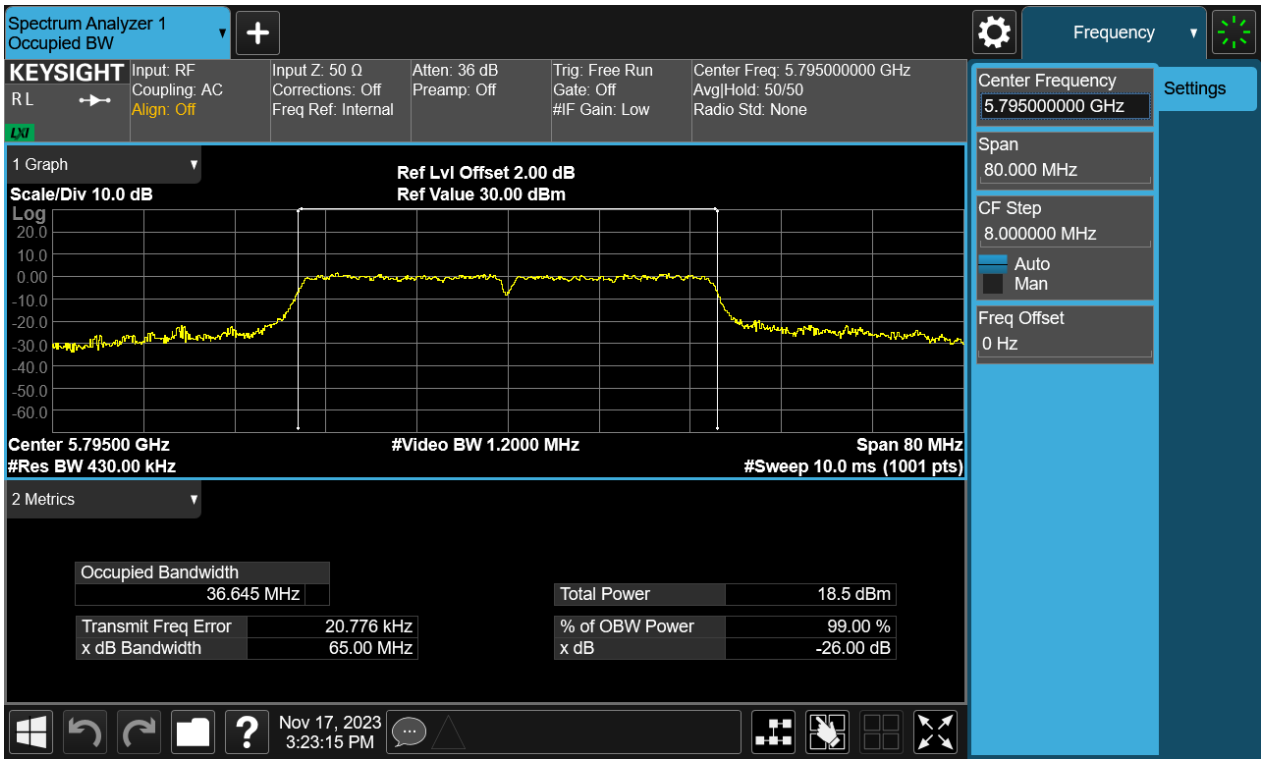
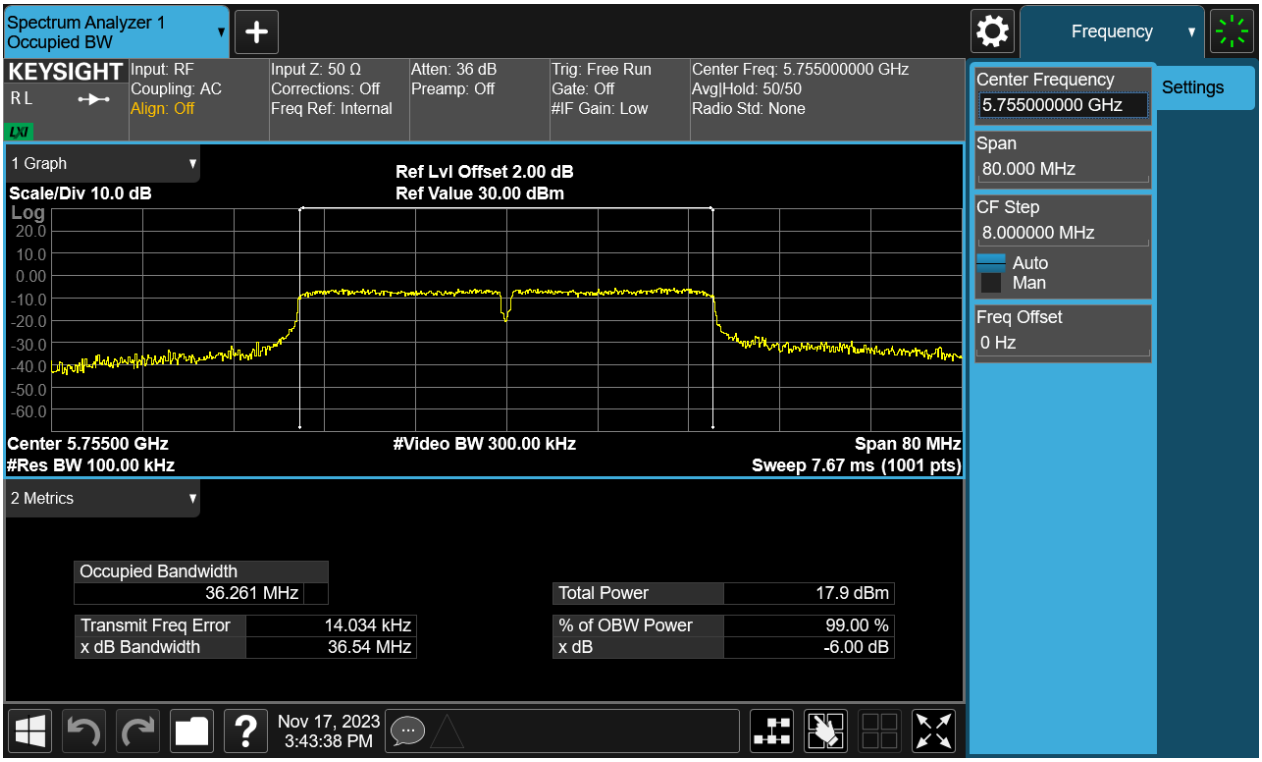


Figure 26: The plots of 6dB Bandwidth, 802.11ac(VHT40), 5755MHz

Test Plot of -6dB Bandwidth



Test Plot of 99% Occupied Bandwidth

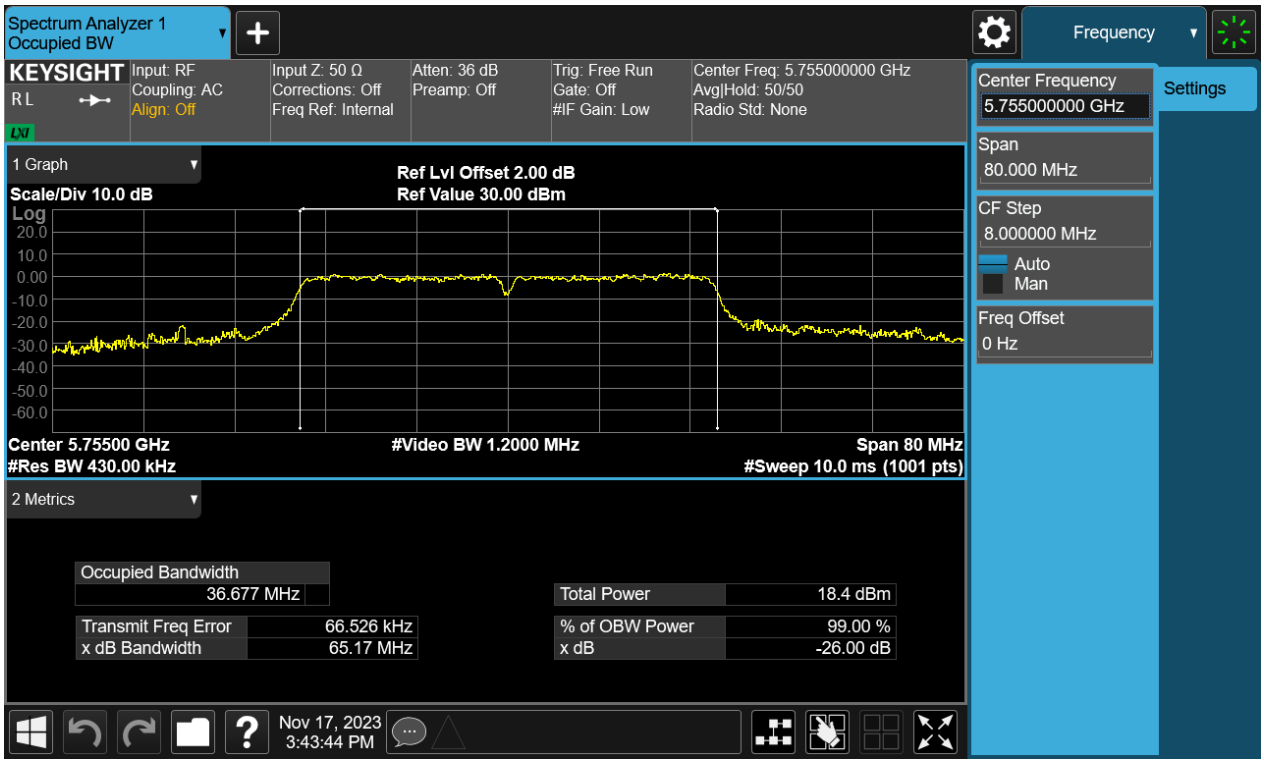
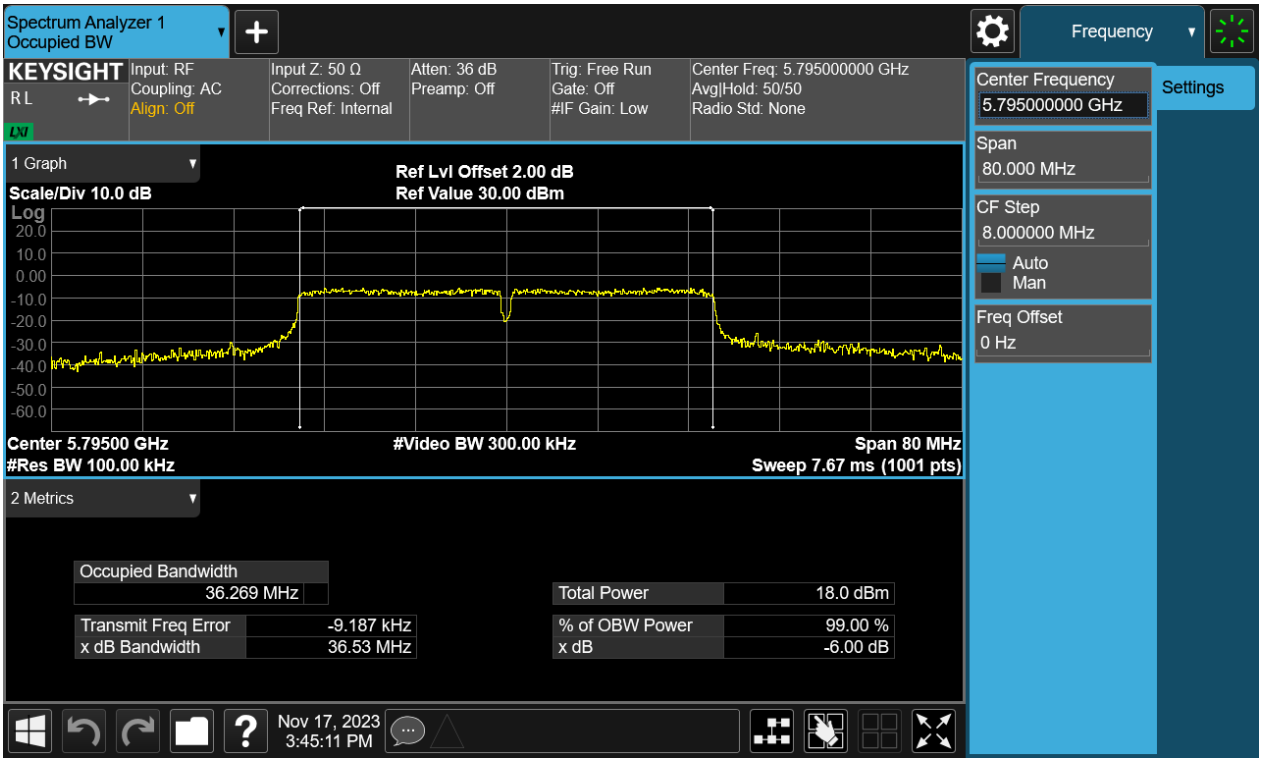


Figure 27: The plots of 6dB Bandwidth, 802.11ac(VHT40), 5795MHz

Test Plot of -6dB Bandwidth



Test Plot of 99% Occupied Bandwidth

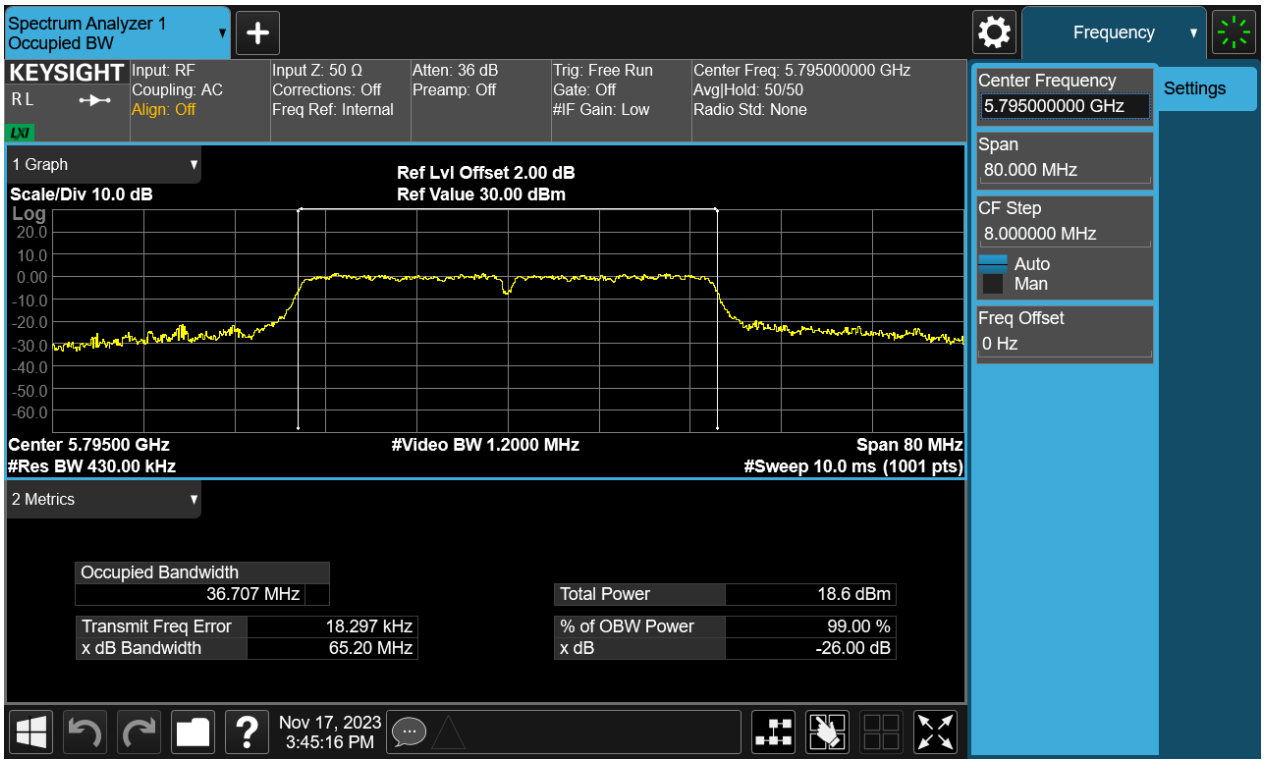
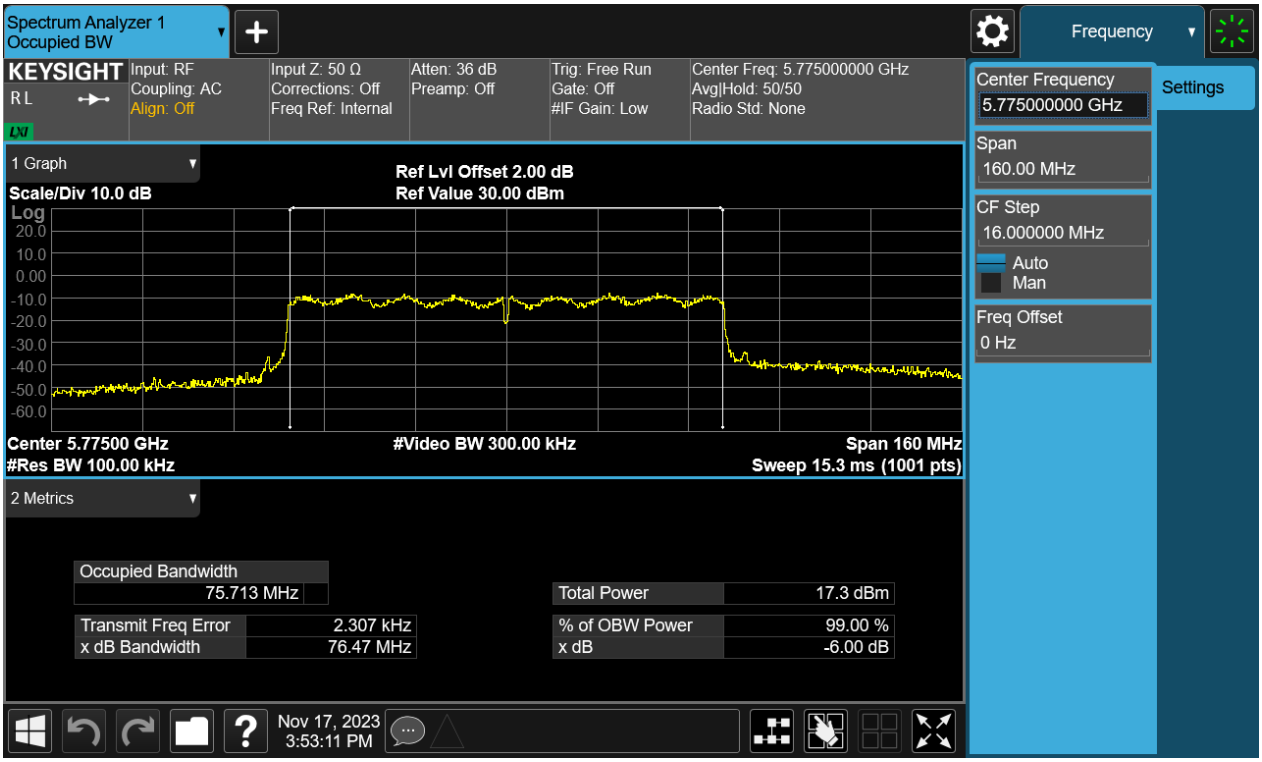
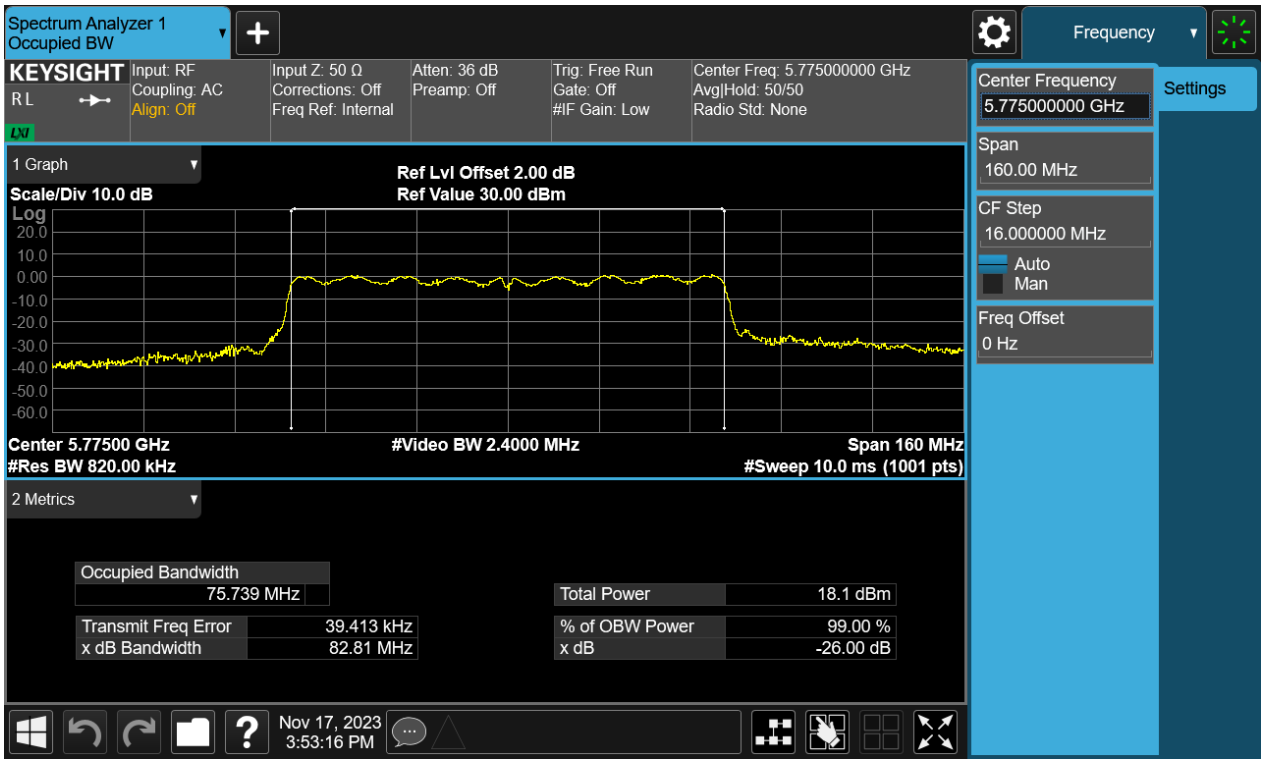


Figure 28: The plots of 6dB Bandwidth, 802.11ac(VHT80), 5775MHz

Test Plot of -6dB Bandwidth



Test Plot of 99% Occupied Bandwidth



4.1.5 Maximum Conducted Output Power Spectral Density

RESULT: **PASS**

Test standard : FCC Part 15.407(a)
Requirement : ANSI C63.10-2013 clause 12.5(SA-2), KDB 789033
Kind of test site : Shielded room

Test setup

Test Channel : Low/Middle/High
Operation Mode : A.1.a
Ambient temperature : 23.8°C
Relative humidity : 46%

Notes:
Test plots please refer to the annex document "SHE23100101-01FE DATA WIFI5GHz- Maximum Conducted Output Power Spectral Density EXHIBIT A"

Table 5: Maximum Conducted Output Power Spectral Density for Band I (5150MHz～5250MHz)

Test Mode	Duty Cycle	Test Channel (MHz)	Maximum PSD (dBm/MHz)	Applicable Limit (dBm/MHz)
802.11a	100	5180	4.35	11
		5220	5.79	
		5240	5.90	
802.11n(HT20)	100	5180	3.56	
		5220	4.36	
		5240	4.99	
802.11ac(VHT20)	100	5180	2.41	
		5220	4.20	
		5240	4.39	
802.11n(HT40)	100	5190	0.30	
		5230	1.38	
802.11ac(VHT40)	100	5190	-0.40	
		5230	0.16	
802.11ac(VHT80)	100	5210	-4.02	

Notes:
1. 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.

Table 6: Maximum Conducted Output Power Spectral Density for Band IV (5725MHz～5850MHz)

Test Mode	Duty Cycle	Test Channel (MHz)	Maximum PSD (dBm/500kHz)	Applicable Limit (dBm/500kHz)
802.11a	95.27	5745	4.52	30
		5785	5.41	
		5825	5.13	
802.11n(HT20)	90.84	5745	3.80	
		5785	4.80	
		5825	5.02	
802.11ac(VHT20)	90.96	5745	4.19	
		5785	4.79	
		5825	5.37	
802.11n(HT40)	93.08	5755	0.24	
		5795	0.23	
802.11ac(VHT40)	93.14	5755	0.33	
		5795	0.44	
802.11ac(VHT80)	76.05	5775	-2.94	

Notes:

1. 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.

4.1.6 Conducted Spurious Emission

RESULT: **PASS**

Test standard	:	FCC Part 15.407(b), 15.209
Requirement	:	ANSI C63.10-2013 clause 12.7.4, KDB 789033
Kind of test site	:	Shielded room

Test setup

Test Channel	:	Low/Middle/High
Operation Mode	:	A.1.a
Ambient temperature	:	23.8°C
Relative humidity	:	46%

Notes:

Test plots please refer to the annex document "SHE23100101-01FE DATA WLAN 5GHz-TX CSE EXHIBIT A".

4.1.7 Radiated Emission

RESULT: **PASS**

Test standard	:	FCC Part 15.407(b), 15.209, 15.205
Requirement	:	ANSI C63.10-2013 clause 12.7.4, KDB 789033
Kind of test site	:	3m Semi-Anechoic Chamber

Test setup

Test Channel	:	Low/Middle/High
Operation Mode	:	A.1.a
Ambient temperature	:	23.5°C
Relative humidity	:	54%

Notes:

Test plots please refer to the annex document "SHE23100101-01FE DATA WIFI5GHz-TX EXHIBIT A"

1. For 9 kHz ~ 30 MHz, the amplitude of spurious emissions that are attenuated by more than 20dB below the permissible. The value has no need to be reported.
2. The spurious above 18GHz is noise only and 20dB below the limit. The value has no need to be reported.
3. The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement –X, Y, and Z-plane. The X-plane results were found as the worst case and were shown in this report.
4. Factor = Antenna Factor + Cable loss - Amplifier gain, Margin= Results-Limit.

4.1.8 Band Edge (Restricted-band band-edge)

RESULT: **PASS**

Test standard	:	FCC Part 15.407(b)
Requirement	:	ANSI C63.10-2013 clause 12.7.4.4, KDB 789033
Kind of test site	:	3m Semi-Anechoic Chamber

Test setup

Test Channel	:	Low/High
Operation Mode	:	A.1.a
Ambient temperature	:	23.5°C
Relative humidity	:	54%

Notes:

Test plots please refer to the annex document "SHE23100101-01FE DATA WIFI5GHz-TX EXHIBIT A"

1. The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement –X, Y, and Z-plane. The X-plane results were found as the worst case and were shown in this report.

2. Factor = Antenna Factor + Cable loss - Amplifier gain, Margin= Results-Limit.

4.1.9 Frequency Stability

RESULT: **PASS**

Test standard : FCC Part 15.407(g)
Kind of test site : Shielded room

Test setup

Test Channel : Low/Middle/High
Operation Mode : A.1.a
Ambient temperature : 23.8°C
Relative humidity : 46%

Table 7: Frequency Stability

Band I (5150MHz – 5250MHz):

Voltage vs. Frequency Stability (5180MHz)

Test Conditions		Frequency (MHz)	Max. Deviation (ppm)	Limit (ppm)
Temp (°C)	Voltage (V)			
20	AC 120V	5179.952075	9.25	±20
	AC 100V	5179.952275	9.21	
	AC 240V	5179.952400	9.19	

Temperature vs. Frequency Stability (5180MHz)

Test Conditions		Frequency (MHz)	Max. Deviation (ppm)	Limit (ppm)
Voltage (V)	Temp (°C)			
AC 120V	0	5179.952475	9.17	±20
	10	5179.952500	9.17	
	20	5179.952550	9.16	
	30	5179.952525	9.17	
	40	5179.951625	9.34	
	50	5179.951875	9.29	
	60	5179.951575	9.35	
	70	5179.952300	9.21	

Band IV (5725MHz – 5850MHz):

Voltage vs. Frequency Stability (5745MHz)

Test Conditions		Frequency (MHz)	Max. Deviation (ppm)	Limit (ppm)
Temp (°C)	Voltage (V)			
20	AC 120V	5744.946725	9.27	±20
	AC 100V	5744.947000	9.23	
	AC 240V	5744.947150	9.20	

Temperature vs. Frequency Stability (5745MHz)

Test Conditions		Frequency (MHz)	Max. Deviation (ppm)	Limit (ppm)
Voltage (V)	Temp (°C)			
AC 120V	0	5744.947325	9.17	±20
	10	5744.947275	9.18	
	20	5744.946475	9.32	
	30	5744.946875	9.25	
	40	5744.947225	9.19	
	50	5744.947200	9.19	
	60	5744.946750	9.27	
	70	5744.946925	9.24	

Note:

The all configurations were tested respectively, but only the worst channel shown here.

4.2 Mains Emissions

4.2.1 Conducted Emission on AC Mains

RESULT: **PASS**

Test standard	:	FCC Part 15.207
Requirement	:	ANSI C63.10-2013 clause 6.2
Kind of test site	:	Shielded room

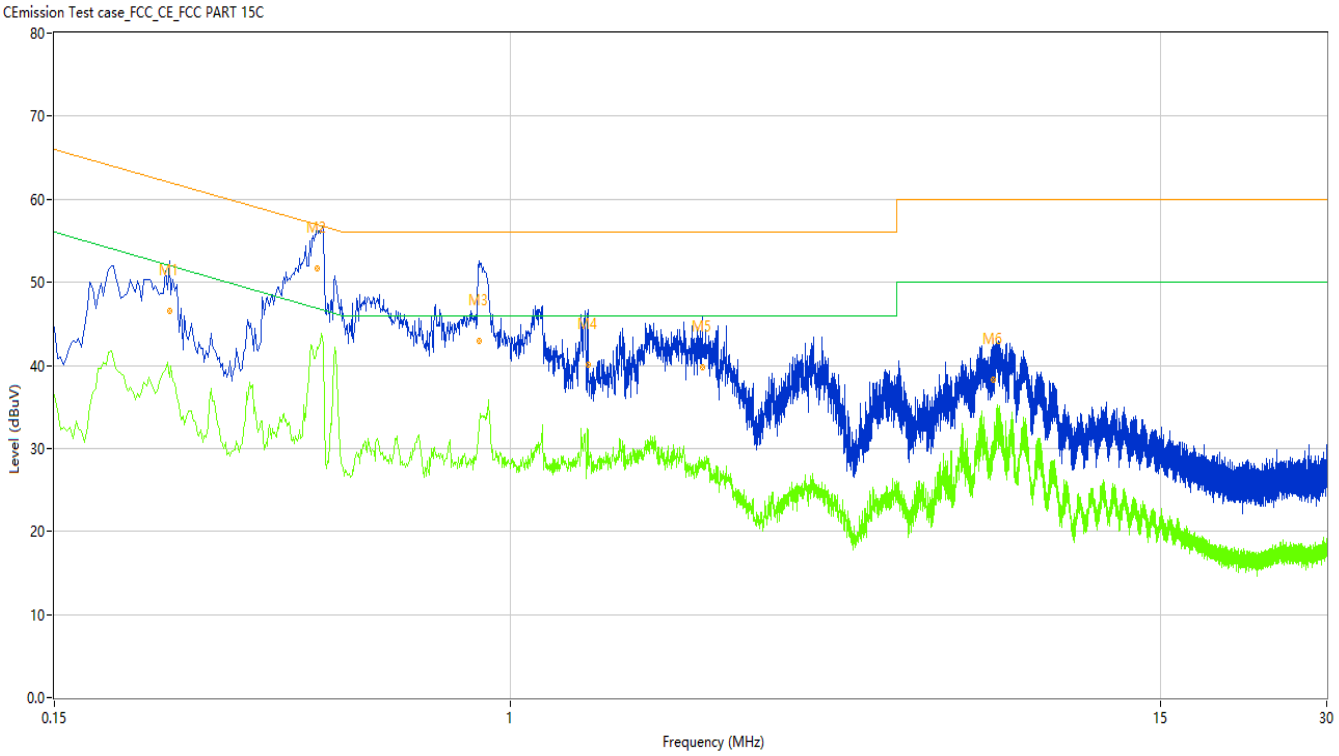
Test setup

Input Voltage	:	Which received AC 120V, 60Hz Power
Operation Mode	:	A.1.a
Earthing	:	Not Connected
Ambient temperature	:	26°C
Relative humidity	:	49%

For details refer to following test plot.

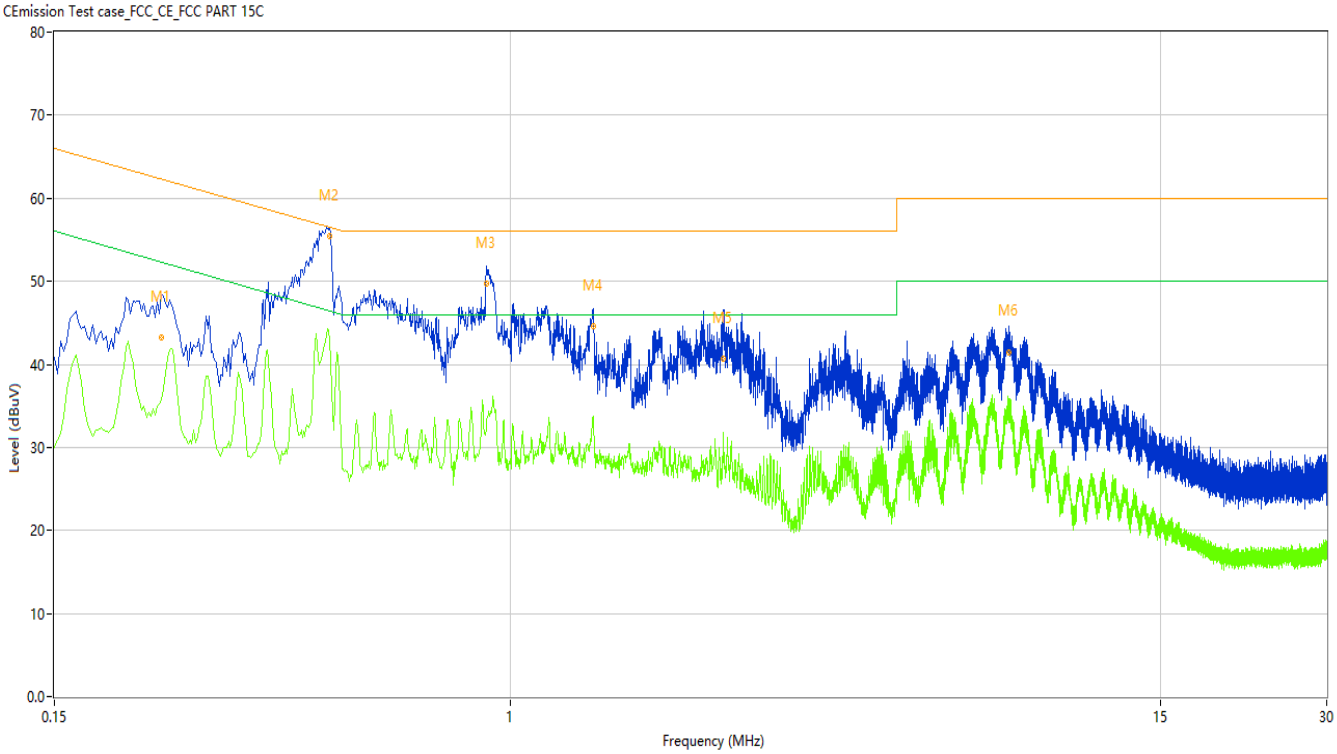
Note：The all configurations were tested respectively, but only the worst configuration shown here.

Figure 29: Conducted Emission on AC Mains, L Phase



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.242	52.84	9.96	62.03	9.19	Peak	L	Pass
1*	0.242	46.50	9.96	62.03	15.53	QP	L	Pass
1**	0.242	38.61	9.96	52.03	13.42	AV	L	Pass
2	0.448	56.52	9.97	56.91	0.39	Peak	L	Pass
2*	0.448	51.72	9.97	56.91	5.19	QP	L	Pass
2**	0.448	42.18	9.97	46.91	4.73	AV	L	Pass
3	0.878	52.30	9.94	56.00	3.70	Peak	L	Pass
3*	0.878	42.92	9.94	56.00	13.08	QP	L	Pass
3**	0.878	32.97	9.94	46.00	13.03	AV	L	Pass
4	1.386	45.13	9.84	56.00	10.87	Peak	L	Pass
4*	1.386	40.00	9.84	56.00	16.00	QP	L	Pass
4**	1.386	31.47	9.84	46.00	14.53	AV	L	Pass
5	2.232	46.27	9.85	56.00	9.73	Peak	L	Pass
5*	2.232	39.77	9.85	56.00	16.23	QP	L	Pass
5**	2.232	28.41	9.85	46.00	17.59	AV	L	Pass
6	7.472	42.52	9.77	60.00	17.48	Peak	L	Pass
6*	7.472	38.22	9.77	60.00	21.78	QP	L	Pass
6**	7.472	30.45	9.77	50.00	19.55	AV	L	Pass

Figure 30: Conducted Emission on AC Mains, N Phase



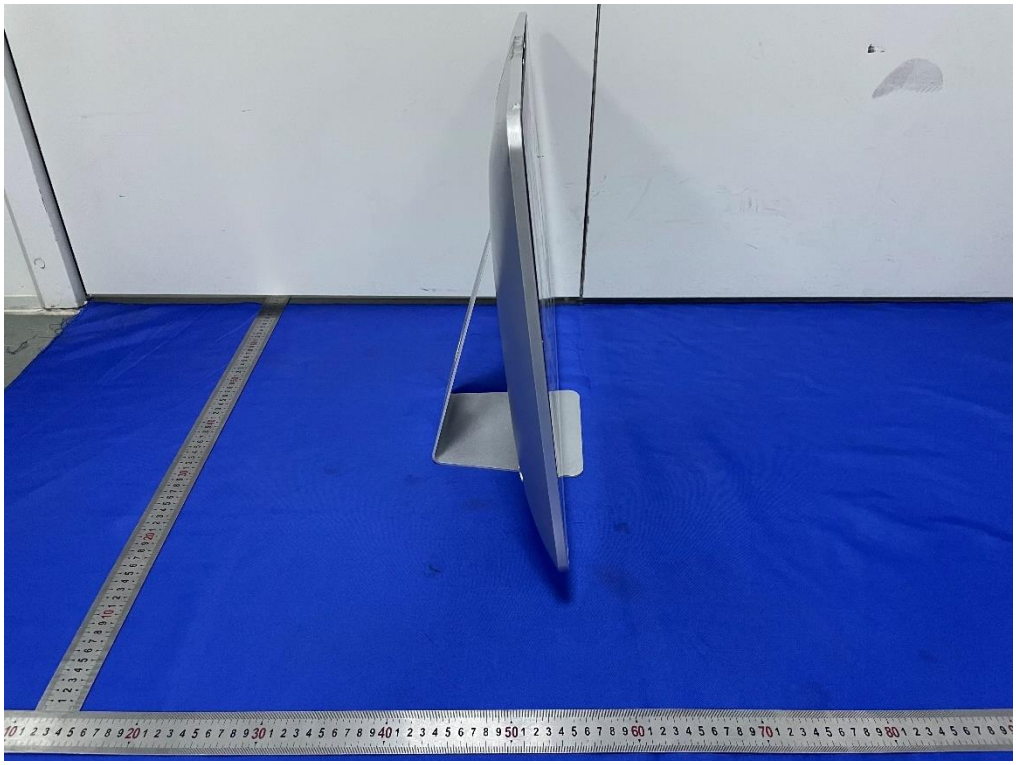
No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.234	49.58	10.05	62.31	12.73	Peak	N	Pass
1*	0.234	43.20	10.05	62.31	19.11	QP	N	Pass
1**	0.234	35.73	10.05	52.31	16.58	AV	N	Pass
2	0.472	56.80	10.07	56.48	-0.32	Peak	N	N/A
2*	0.472	55.40	10.07	56.48	1.08	QP	N	Pass
2**	0.472	42.86	10.07	46.48	3.62	AV	N	Pass
3	0.908	52.12	10.03	56.00	3.88	Peak	N	Pass
3*	0.908	49.66	10.03	56.00	6.34	QP	N	Pass
3**	0.908	33.07	10.03	46.00	12.93	AV	N	Pass
4	1.414	47.23	9.94	56.00	8.77	Peak	N	Pass
4*	1.414	44.57	9.94	56.00	11.43	QP	N	Pass
4**	1.414	33.71	9.94	46.00	12.29	AV	N	Pass
5	2.428	47.60	9.93	56.00	8.40	Peak	N	Pass
5*	2.428	40.75	9.93	56.00	15.25	QP	N	Pass
5**	2.428	30.14	9.93	46.00	15.86	AV	N	Pass
6	7.988	45.44	9.81	60.00	14.56	Peak	N	Pass
6*	7.988	41.45	9.81	60.00	18.55	QP	N	Pass
6**	7.988	35.40	9.81	50.00	14.60	AV	N	Pass

5 Appendixes

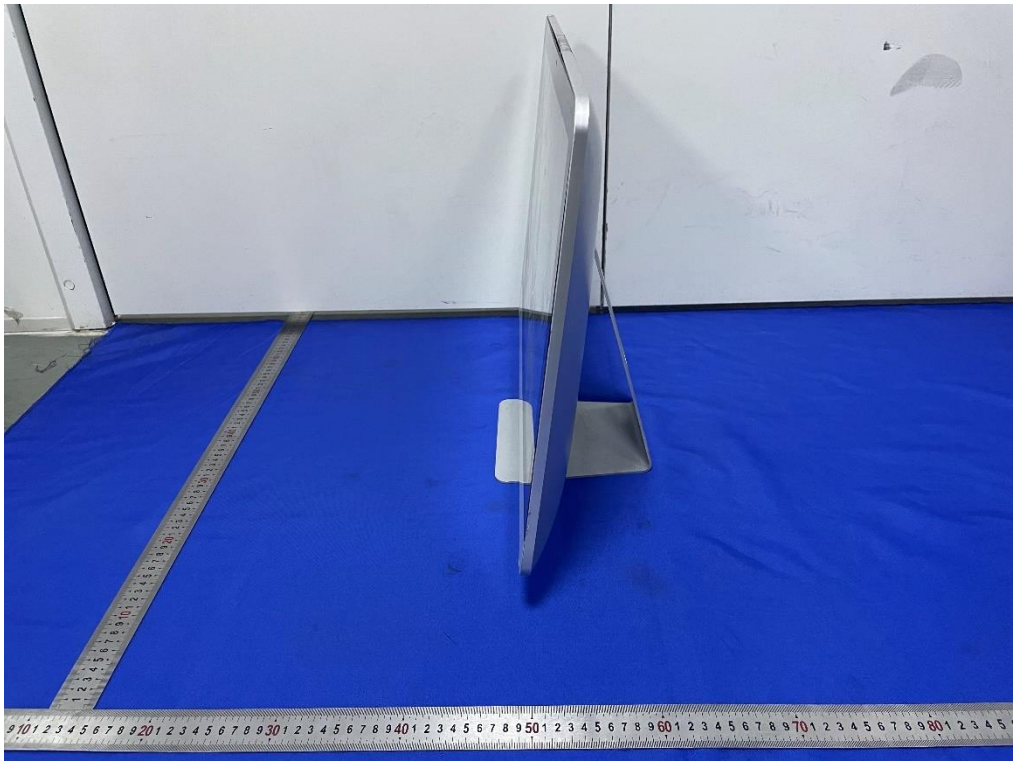
5.1 Photographs of the Sample

Front of the sample

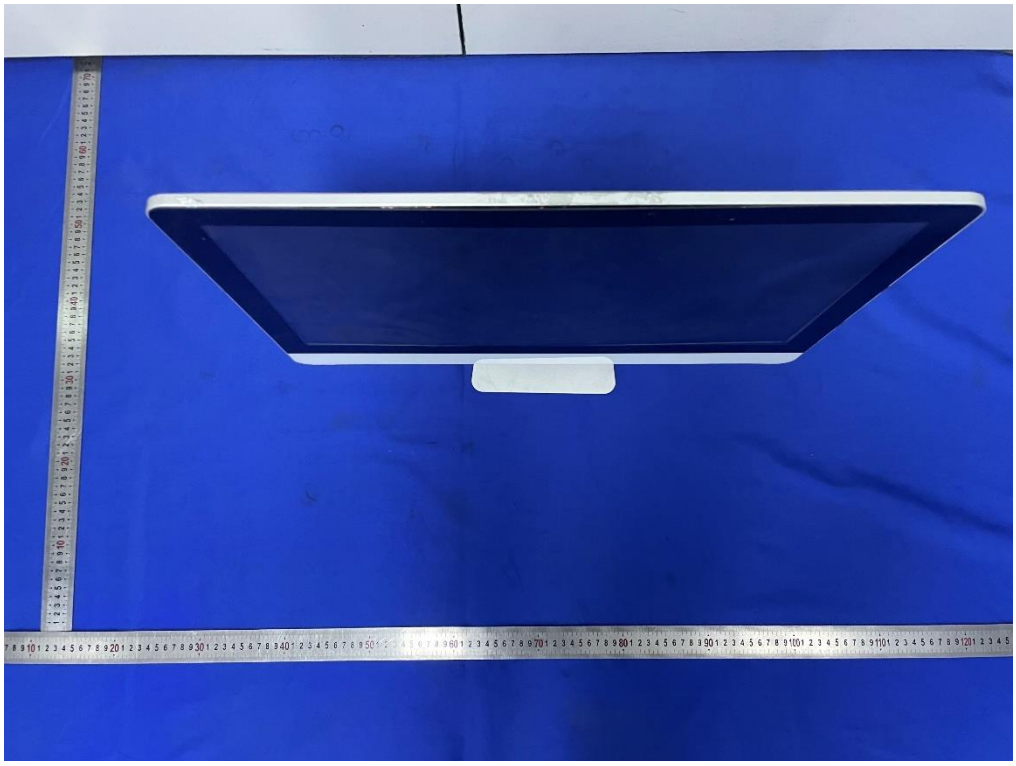
Rear of the sample



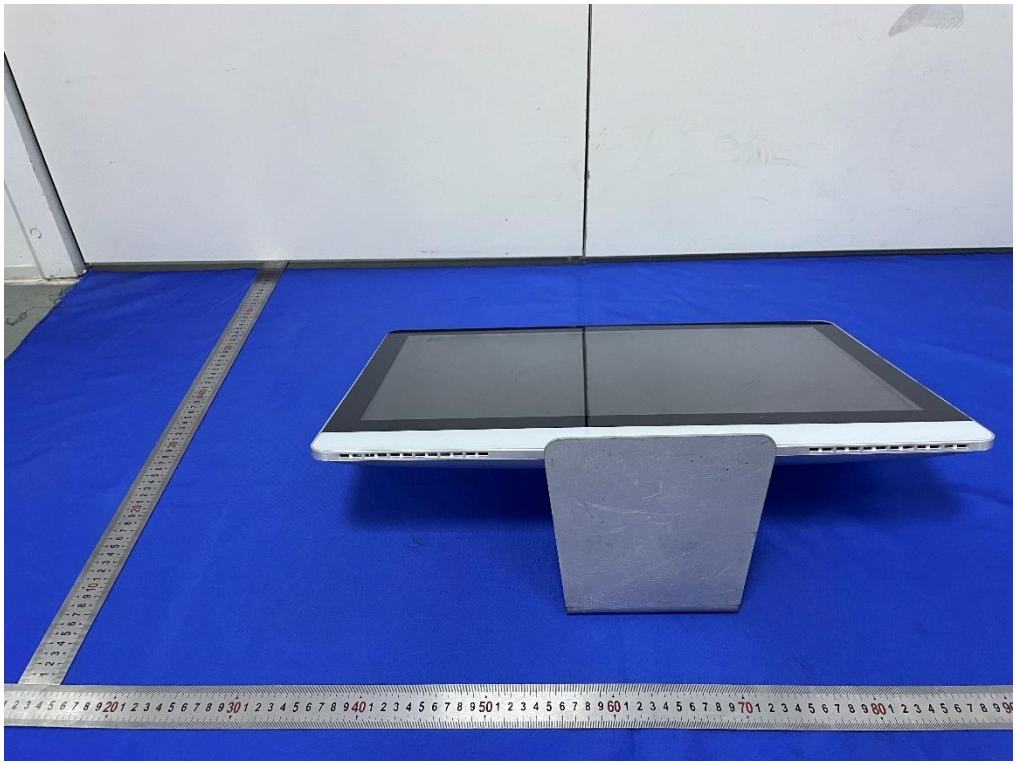
Left of the sample



Right of the sample



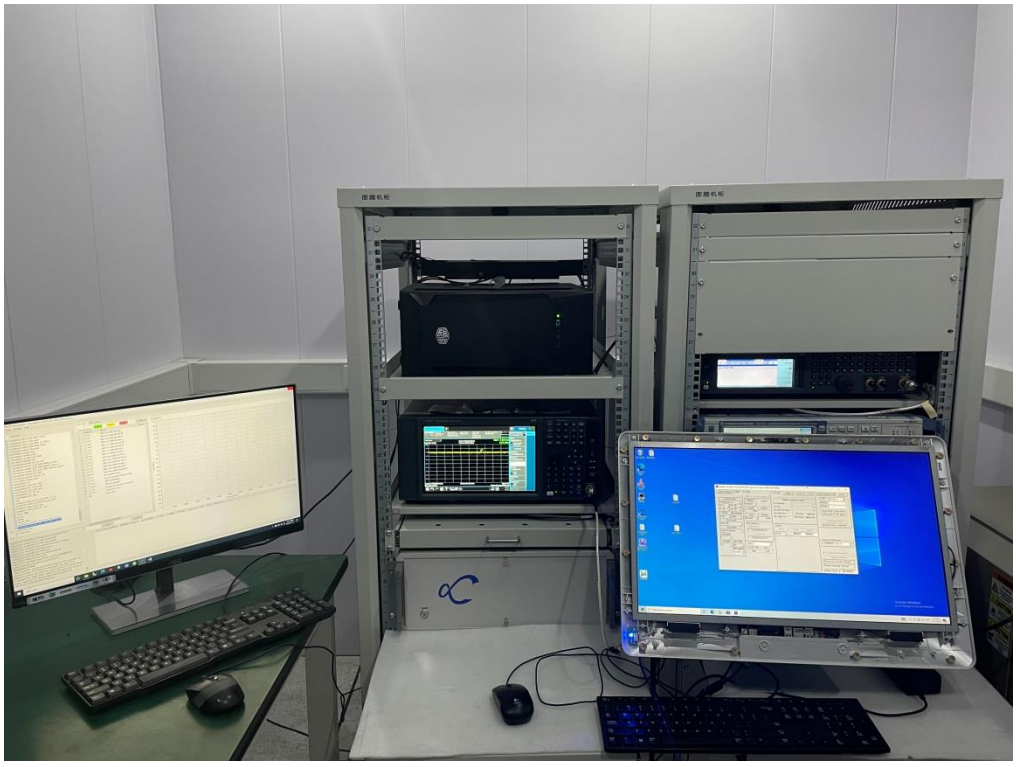
Top of the sample



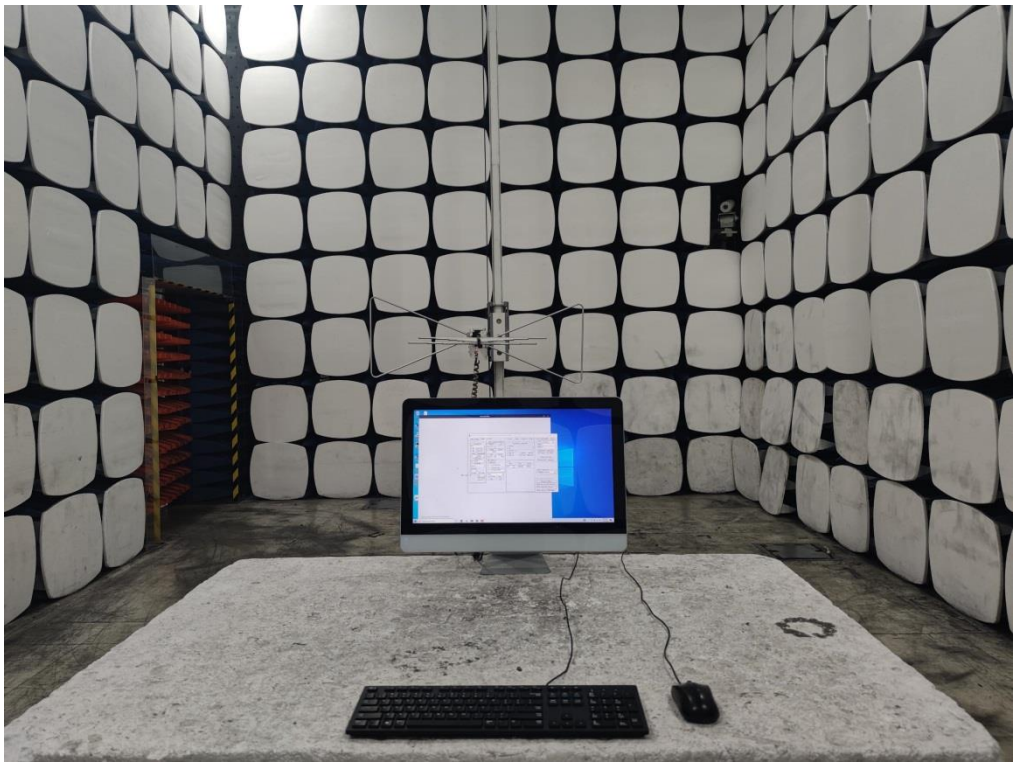
Bottom of the sample

5.2 Set-up for Conducted Emissions

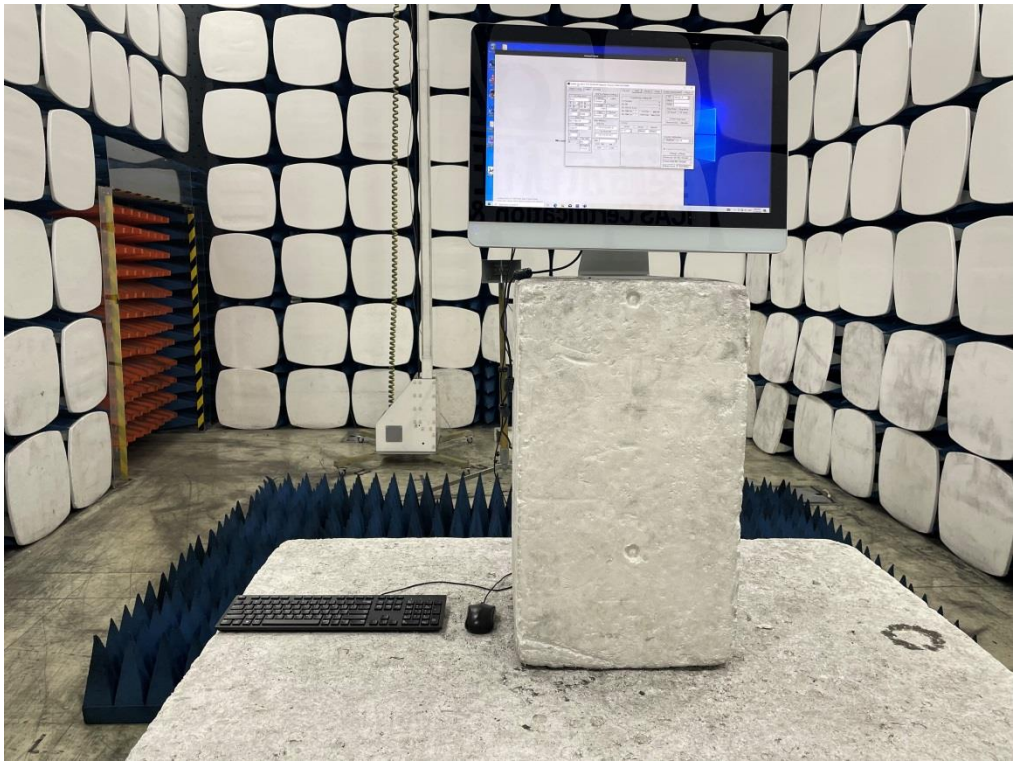
5.3 Set-up for Conducted RF test at Antenna Port



5.4 Set-up for Spurious Emissions below 1GHz



5.5 Set-up for Spurious Emissions above 1GHz



End of the report