
FCC Test Report

Report No.: AGC11034230404FE06

FCC ID : 2AYHE-2303A
APPLICATION PURPOSE : Original Equipment
PRODUCT DESIGNATION : WiFi IP Camera
BRAND NAME : Reolink
MODEL NAME : E1 Outdoor Pro, T1 Outdoor Pro, TP4KW6
APPLICANT : Reolink Innovation Limited
DATE OF ISSUE : May 12, 2023
STANDARD(S) : FCC Part 15 Subpart E §15.407
REPORT VERSION : V1.0

Attestation of Global Compliance (Shenzhen) Co., Ltd



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REPORT REVISE RECORD

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	May 12, 2023	Valid	Initial Release

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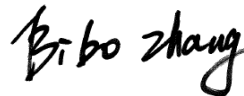
1. VERIFICATION OF CONFORMITY

Applicant	Reolink Innovation Limited
Address	FLAT/RM 705 7/F FA YUEN COMMERCIAL BUILDING 75-77 FA YUEN STREET MONG KOK KL Hong Kong
Manufacturer	Reolink Innovation Limited
Address	FLAT/RM 705 7/F FA YUEN COMMERCIAL BUILDING 75-77 FA YUEN STREET MONG KOK KL Hong Kong
Factory	Shenzhen Reolink Technology Co., Ltd
Address	2-4th Floor, Building 2, Yuanling Industrial Park, ShangWu, Shiyan Street, Bao'an District, Shenzhen, China
Product Designation	WiFi IP Camera
Brand Name	Reolink
Test Model	E1 Outdoor Pro
Series Model	T1 Outdoor Pro, TP4KW6
Declaration of Difference	All the same except the model name
Date of receipt of test item	Apr. 23, 2023
Date of test	Apr. 23, 2023~May 12, 2023
Deviation	No any deviation from the test method
Condition of Test Sample	Normal
Test Result	Pass
Report Template	AGCRT-US-BGN/RF

We hereby certify that:

The above equipment was tested by Attestation of Global Compliance (Shenzhen) Co., Ltd. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10 (2013) and the energy emitted by the sample EUT tested as described in this report is in compliance with requirement of FCC Part 15 Rules requirement.

Prepared By



Bibo Zhang
(Project Engineer)

May 12, 2023

Reviewed By



Calvin Liu
(Reviewer)

May 12, 2023

Approved By



Max Zhang
Authorized Officer

May 12, 2023

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2. GENERAL INFORMATION

2.1. PRODUCT DESCRIPTION

Equipment Type	<input type="checkbox"/> Outdoor access points <input type="checkbox"/> Indoor access points <input type="checkbox"/> Fixed P2P access points <input checked="" type="checkbox"/> Client devices
Operation Frequency	<input checked="" type="checkbox"/> U-NII 1:5150MHz~5250MHz <input checked="" type="checkbox"/> U-NII 2A: 5250MHz~5350MHz <input checked="" type="checkbox"/> U-NII 2C:5470MHz~5725MHz <input checked="" type="checkbox"/> U-NII 3: 5725MHz~5850MHz
DFS Design Type	<input type="checkbox"/> Master <input type="checkbox"/> Slave with radar detection <input checked="" type="checkbox"/> Slave without radar detection
TPC Function	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hardware Version	N60C05 PWR32
Software Version	V1
Test Frequency Range	For 802.11a/n-HT20/ac-VHT20: 5180~5240MHz, 5260~5320MHz, 5500~5720MHz, 5745~5825MHz For 802.11n-HT40/ac-VHT40: 5190~5230MHz, 5270~5310MHz, 5510~5710MHz, 5755~5795MHz For 802.11ac-VHT80: 5210MHz, 5290MHz, 5530~5690MHz, 5775MHz
Output Power	IEEE 802.11a(HT20): 11.82dBm; IEEE 802.11n(HT20): 11.21dBm; IEEE802.11n(HT40): 10.89dBm; IEEE 802.11ac(VHT20): 10.87dBm; IEEE802.11ac(VHT40): 10.99dBm; IEEE802.11ac(VHT80): 11.04dBm;
Output Power_MIMO	IEEE 802.11nHT(20): 13.93 dBm;IEEE802.11n(HT40): 13.62dBm IEEE 802.11ac(VHT20): 13.54dBm; IEEE802.11ac(VHT40): 13.79dBm; IEEE802.11ac(VHT80): 13.69dBm;
Modulation	802.11a/n:(64-QAM, 16-QAM, QPSK, BPSK) OFDM 802.11ac :(256-QAM, 64-QAM, 16-QAM, QPSK, BPSK) OFDM
Data Rate	802.11a:6/9/12/18/24/36/48/54Mbps; 802.11n:up to 300Mbps; 802.11ac:up to 866.6Mbps;
Number of channels	7 channels of U-NII-1 Band 7 channels of U-NII-2A Band 21 channels of U-NII-2C Band 8 channels of U-NII-3 Band
Antenna Designation	FPC Antenna
Antenna Gain	Refer to Chapter 2.8 of the report.
Power Supply	DC 12V by adapter

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2.2. TABLE OF CARRIER FREQUENCIES

For 5180~5240MHz:

4 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

Channel	Frequency	Channel	Frequency
36	5180 MHz	44	5220 MHz
40	5200 MHz	48	5240 MHz

2 channels are provided for 802.11n (HT40), 802.11ac (VHT40):

Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz

1 channel is provided for 802.11ac (VHT80), 802.11ax:

Channel	Frequency	Channel	Frequency
42	5210 MHz	--	--

For 5260~5320MHz:

5 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

Channel	Frequency	Channel	Frequency
52	5260 MHz	60	5300 MHz
56	5280 MHz	64	5320 MHz

2 channels are provided for 802.11n (HT40), 802.11ac (VHT40):

Channel	Frequency	Channel	Frequency
54	5270 MHz	62	5310 MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency	Channel	Frequency
58	5290 MHz	--	--

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For 5500~5720MHz:

12 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

Channel	Frequency	Channel	Frequency
100	5500 MHz	124	5620 MHz
104	5520 MHz	128	5640 MHz
108	5540 MHz	132	5660 MHz
112	5560 MHz	136	5680 MHz
116	5580 MHz	140	5700 MHz
120	5600 MHz	144	5720 MHz

6 channels are provided for 802.11n (HT40), 802.11ac (VHT40):

Channel	Frequency	Channel	Frequency
102	5510 MHz	126	5630 MHz
110	5550 MHz	134	5670 MHz
118	5590 MHz	142	5710 MHz

3 channel is provided for 802.11ac (VHT80):

Channel	Frequency	Channel	Frequency
106	5530 MHz	122	5610 MHz
138	5690 MHz	--	--

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For 5745~5825MHz:

5 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

Channel	Frequency	Channel	Frequency
149	5745 MHz	161	5805 MHz
153	5765 MHz	165	5825 MHz
157	5785 MHz	--	--

2 channels are provided for 802.11n (HT40), 802.11ac (VHT40):

Channel	Frequency	Channel	Frequency
151	5755 MHz	159	5795 MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency	Channel	Frequency
155	5775 MHz	--	--

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2.3. RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for **FCC ID: 2AYHE-2303A** filing to comply with the FCC Part 15 requirements.

2.4. TEST METHODOLOGY

No.	Identity	Document Title
1	FCC 47 CFR Part 2	Frequency allocations and radio treaty matters; general rules and regulations
2	FCC 47 CFR Part 15	Radio Frequency Devices
3	ANSI C63.10-2013	American National Standard for Testing Unlicensed Wireless Devices
4	KDB 662911	662911 D01 Multiple Transmitter Output v02r01
5	KDB 789033	789033 D02 General U-NII Test Procedures New Rules v02r01

2.5. SPECIAL ACCESSORIES

Refer to section 5.2.

2.6. EQUIPMENT MODIFICATIONS

Not available for this EUT intended for grant.

2.7. ANTENNA REQUIREMENT

Standard Requirement
<p>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, 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.</p>
<p>EUT Antenna: The non-detachable antenna inside the device cannot be replaced by the user at will. The gain of the antenna refer to Section 2.8 of the report</p>

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2.8. DESCRIPTION OF AVAILABLE ANTENNAS

Antenna Type	Frequency Band (MHz)	TX Paths	Bandwidth (MHz)	Max Peak Gain (dBi)		Max Directional Gain (dBi)
				Ant 1	Ant 2	
5G WIFI FPC Antenna List (5GHz 2*2 MIMO)						
FPC Antenna	5150 ~ 5250	2	20,40,80	3.6	4.56	7.57
	5250 ~ 5350	2	20,40,80	3.3	4.21	7.22
	5470 ~ 5725	2	20,40,80	3.1	3.85	6.86
	5725 ~ 5850	2	20,40,80	3.7	3.97	6.98

Note 1: The EUT supports Cyclic Delay Diversity (CDD) technology for 802.11n/ac mode.

Note 2: The EUT supports Cyclic Delay Diversity (CDD) mode, and CDD signals are correlated.

If all antennas have the same gain, G_{ANT} , Directional gain = $G_{ANT} + \text{Array Gain}$, where Array Gain is as follows.

- For power spectral density (PSD) measurements on devices:

$$\text{Array Gain} = 10 \log (N_{ANT} / N_{SS}) \text{ dB} = 3.01;$$

- For power measurements on IEEE 802.1 devices:

$$\text{Array Gain} = 0 \text{ dB for } N_{ANT} \leq 4;$$

$$\text{Array Gain} = 0 \text{ dB (i.e., no array gain) for channel widths } \geq 40 \text{ MHz for any } N_{ANT};$$

$$\text{Array Gain} = 5 \log(N_{ANT}/N_{SS}) \text{ dB or } 3 \text{ dB, whichever is less, for } 20 \text{ MHz channel widths with } N_{ANT} \geq 5.$$

If antenna gains are not equal, Directional gain may be calculated by using the formulas applicable to equal gain antennas with G_{ANT} set equal to the gain of the antenna having the highest gain.

3. TEST ENVIRONMENT

3.1 ADDRESS OF THE TEST LABORATORY

Laboratory: Attestation of Global Compliance (Shenzhen) Co., Ltd.

Address: 1-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

3.2 TEST FACILITY

The test facility is recognized, certified, or accredited by the following organizations:

CNAS-Lab Code: L5488

Attestation of Global Compliance (Shenzhen) Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC17025: 2017 General Requirements) for the Competence of Testing and Calibration Laboratories.

A2LA-Lab Cert. No.: 5054.02

Attestation of Global Compliance (Shenzhen) Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

FCC-Registration No.: 975832

Attestation of Global Compliance (Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files with Registration 975832.

IC-Registration No.: 24842 (CAB identifier: CN0063)

Attestation of Global Compliance (Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the Certification and Engineering Bureau of Industry Canada. The acceptance letter from the IC is maintained in our files with Registration 24842.

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3.3 ENVIRONMENTAL CONDITIONS

	NORMAL CONDITIONS	EXTREME CONDITIONS
Temperature range (°C)	15 - 35	-20 - 50
Relative humidity range	20 % - 75 %	20 % - 75 %
Pressure range (kPa)	86 - 106	86 - 106
Power supply	DC 12V	--

Note: The Extreme Temperature and Extreme Voltages declared by the manufacturer.

3.4 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95%.

Item	Measurement Uncertainty
Uncertainty of Conducted Emission for AC Port	$U_c = \pm 3.1$ dB
Uncertainty of Radiated Emission below 1GHz	$U_c = \pm 4.0$ dB
Uncertainty of Radiated Emission above 1GHz	$U_c = \pm 4.8$ dB
Uncertainty of total RF power, conducted	$U_c = \pm 0.8$ dB
Uncertainty of RF power density, conducted	$U_c = \pm 2.6$ dB
Uncertainty of spurious emissions, conducted	$U_c = \pm 2$ %
Uncertainty of Occupied Channel Bandwidth	$U_c = \pm 2.7$ %

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3.5 LIST OF EQUIPMENTS USED

TEST EQUIPMENT OF CONDUCTED EMISSION TEST

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESPI	101206	Aug. 04, 2022	Aug. 03, 2023
LISN	R&S	ESH2-Z5	100086	Jun. 08, 2022	Jun. 07, 2023
Test software	R&S	ES-K1 (Ver.V1.71)	N/A	N/A	N/A

TEST EQUIPMENT OF RADIATED EMISSION TEST

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESCI	10096	Feb. 18, 2023	Feb. 17, 2024
EXA Signal Analyzer	Aglient	N9010A	MY53470504	Aug. 04, 2022	Aug. 03, 2023
Power sensor	Aglient	U2021XA	MY54110007	Mar. 03, 2023	Mar. 02, 2024
5GHz Fliter	EM Electronics	5150-5880MHz	N/A	N/A	N/A
Attenuator	ZHINAN	E-002	N/A	Sep. 01, 2022	Aug. 31, 2023
Horn antenna	SCHWARZBECK	BBHA 9170	#768	Oct. 31, 2021	Oct. 30, 2023
Active loop antenna (9K-30MHZ)	ZHINAN	ZN30900C	18051	Mar. 12, 2022	Mar. 11, 2024
Double-Ridged Waveguide Horn	ETS LINDGREN	3117	00034609	Mar. 03, 2023	Mar. 02, 2024
Broadband Preamplifier	ETS LINDGREN	3117PA	00225134	N/A	N/A
ANTENNA	SCHWARZBECK	VULB9168	494	Jan. 05, 2023	Jan. 04, 2025
Test software	Tonscend	JS32-RE (Ver.2.5)	N/A	N/A	N/A

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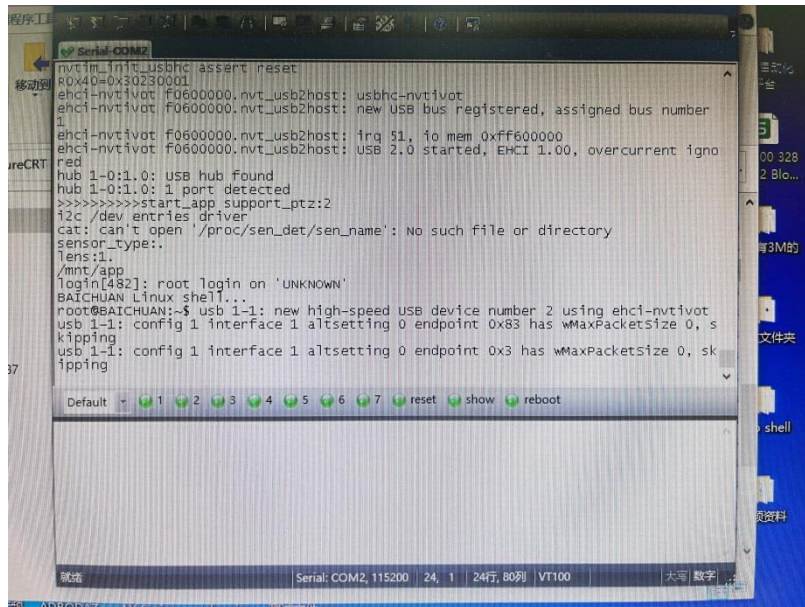
4. DESCRIPTION OF TEST MODES

Mode	Available channel	Tested channel	Modulation	Date rate (Mbps)
802.11a/n/ac20	Refer to Section 2.2	36,40,48,52,60,64,100 116,140,149,157,165	OFDM/OFDMA	6Mbps/MCS0
802.11n/ac40		38,46,54,62,102 110,134,151,159	OFDM/OFDMA	MCS0
802.11ac80		42,58,106,121,155	OFDM/OFDMA	MCS0

Note:

1. The EUT has been set to operate continuously on tested channel individually, and the EUT is operating at its maximum duty cycle>or equal 98%.
2. All modes under which configure applicable have been tested and the worst mode test data recording in the test report, if no other mode data.

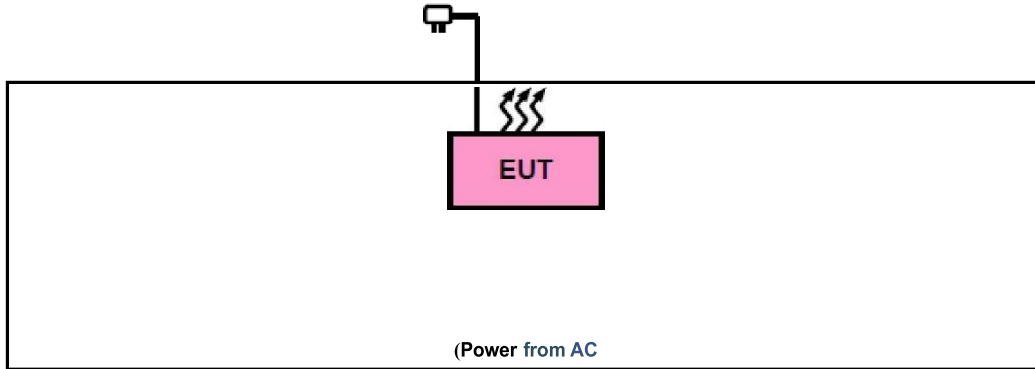
Software Setting



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5. SYSTEM TEST CONFIGURATION

5.1. CONFIGURATION OF EUT SYSTEM



5.2. EQUIPMENT USED IN EUT SYSTEM

Item	Equipment	Model No.	ID or Specification	Remark
1	WiFi IP Camera	E1 Outdoor Pro	2AYHE-2303A	EUT
2	Adapter	DCT12W120100US-B0	Input: AC 100-240V 50/60Hz, 0.3A Output: DC 12V 1A	AE

5.3. SUMMARY OF TEST RESULTS

Item	FCC Rules	Description Of Test	Result
1	§15.203	Antenna Equipment	Pass
2	§15.407(a/1/2/3)	RF Output Power	Pass
3	§15.407(e)	6dB Bandwidth Measurement	Pass
4	§2.1049	26dB bandwidth Measurement	Pass
5	§15.407(a/1/2/3)	Power Spectral Density	Pass
6	§15.407(b)(1/2/3/4)	Conducted Spurious Emission	Pass
7	§15.209, §15.407(b)(1/2/3/4)	Radiated Emission & Band Edge	Pass
8	§15.207	AC Power Line Conducted Emission	Pass

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6. RF OUTPUT POWER MEASUREMENT

6.1 MEASUREMENT LIMITS

Operation Band	EUT Category		LIMIT
U-NII-1	<input type="checkbox"/>	Outdoor Access Point	1 Watt (30 dBm) (Max. e.i.r.p < 125mW(21 dBm) at any elevation angle above 30 degrees as measured from the horizon)
	<input type="checkbox"/>	Fixed point-to-point Access Point	1 Watt (30 dBm)
	<input type="checkbox"/>	Indoor Access Point	1 Watt (30 dBm)
	<input checked="" type="checkbox"/>	Client devices	250mW (23.98 dBm)
U-NII-2A	/		250mW (23.98 dBm) or 11 dBm+10 log B*
U-NII-2C	/		250mW (23.98 dBm) or 11 dBm+10 log B*
U-NII-3	/		1 Watt (30 dBm)

Note: Where B is the 26dB emission bandwidth in MHz.

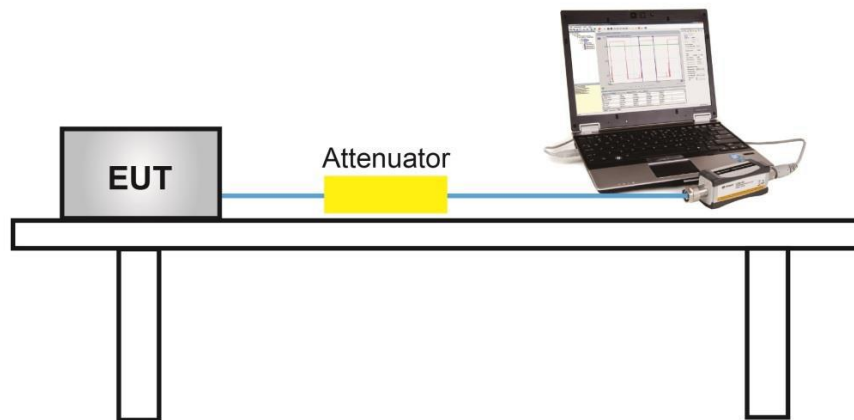
6.2 MEASUREMENT PROCEDURE

Method PM is Measurement using an RF average power meter. The procedure for this method is as follows:

1. The testing follows the ANSI C63.10 Section 12.3.3.1
2. Measurements may be performed using a wideband RF power meter with a thermocouple detector or equivalent if all of the following conditions are satisfied:
3. The EUT is configured to transmit continuously, or to transmit with a constant duty cycle.
4. At all times when the EUT is transmitting, it shall be transmitting at its maximum power control level.
5. The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five.
6. Determine according to the duty cycle of the equipment: when it is less than 98%, follow the steps below.
7. Measure the average power of the transmitter. This measurement is an average over both the ON and OFF periods of the transmitter.
8. Adjust the measurement in dBm by adding $[10 \log (1 / D)]$, where D is the duty cycle {e.g., $[10 \log (1 / 0.25)]$, if the duty cycle is 25%}.
9. Record the test results in the report.

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6.3 MEASUREMENT SETUP (BLOCK DIAGRAM OF CONFIGURATION)



6.4 MEASUREMENT RESULT

Test Data of Conducted Output Power for band 5.15-5.25 GHz-Ant 1				
Test Mode	Test Channel (MHz)	Average Power (dBm)	Limits (dBm)	Pass or Fail
802.11a	5180	11.68	24	Pass
	5200	11.67	24	Pass
	5240	11.73	24	Pass
802.11n20	5180	10.42	24	Pass
	5200	9.58	24	Pass
	5240	11.21	24	Pass
802.11n40	5190	10.32	24	Pass
	5230	10.76	24	Pass
802.11ac20	5180	10.64	24	Pass
	5200	10.69	24	Pass
	5240	10.62	24	Pass
802.11ac40	5190	10.44	24	Pass
	5230	10.55	24	Pass
802.11ac80	5210	11.04	24	Pass

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Test Data of Conducted Output Power for band 5.15-5.25 GHz-Ant 2				
Test Mode	Test Channel (MHz)	Average Power (dBm)	Limits (dBm)	Pass or Fail
802.11a	5180	11.14	24	Pass
	5200	10.86	24	Pass
	5240	10.64	24	Pass
802.11n20	5180	10.52	24	Pass
	5200	11.00	24	Pass
	5240	10.61	24	Pass
802.11n40	5190	10.21	24	Pass
	5230	10.16	24	Pass
802.11ac20	5180	10.12	24	Pass
	5200	9.48	24	Pass
	5240	9.45	24	Pass
802.11ac40	5190	10.96	24	Pass
	5230	10.99	24	Pass
802.11ac80	5210	10.28	24	Pass

Test Data of Conducted Output Power for band 5.15-5.25 GHz-MIMO				
Test Mode	Test Channel (MHz)	Average Power (dBm)	Limits (dBm)	Pass or Fail
802.11n20	5180	13.48	23.98	Pass
	5200	13.36	23.98	Pass
	5240	13.93	23.98	Pass
802.11n40	5190	13.28	23.98	Pass
	5230	13.48	23.98	Pass
802.11ac20	5180	13.40	23.98	Pass
	5200	13.14	23.98	Pass
	5240	13.08	23.98	Pass
802.11ac40	5190	13.72	23.98	Pass
	5230	13.79	23.98	Pass
802.11ac80	5210	13.69	23.98	Pass

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Test Data of Conducted Output Power for band 5.25-5.35 GHz-Ant 1				
Test Mode	Test Channel (MHz)	Average Power (dBm)	Limits (dBm)	Pass or Fail
802.11a	5260	11.57	24	Pass
	5300	11.22	24	Pass
	5320	11.11	24	Pass
802.11n20	5260	10.35	24	Pass
	5300	10.60	24	Pass
	5320	9.97	24	Pass
802.11n40	5270	10.32	24	Pass
	5310	9.88	24	Pass
802.11ac20	5260	10.45	24	Pass
	5300	9.95	24	Pass
	5320	10.10	24	Pass
802.11ac40	5270	10.28	24	Pass
	5310	9.82	24	Pass
802.11ac80	5290	10.30	24	Pass

Test Data of Conducted Output Power for band 5.25-5.35 GHz-Ant 2				
Test Mode	Test Channel (MHz)	Average Power (dBm)	Limits (dBm)	Pass or Fail
802.11a	5260	11.44	24	Pass
	5300	11.23	24	Pass
	5320	11.36	24	Pass
802.11n20	5260	10.65	24	Pass
	5300	9.81	24	Pass
	5320	9.86	24	Pass
802.11n40	5270	10.89	24	Pass
	5310	10.77	24	Pass
802.11ac20	5260	10.57	24	Pass
	5300	10.05	24	Pass
	5320	10.62	24	Pass
802.11ac40	5270	10.56	24	Pass
	5310	10.59	24	Pass
802.11ac80	5290	10.98	24	Pass

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Test Data of Conducted Output Power for band 5.25-5.35 GHz-MIMO

Test Mode	Test Channel (MHz)	Average Power (dBm)	Limits (dBm)	Pass or Fail
802.11n20	5260	13.51	23.98	Pass
	5300	13.23	23.98	Pass
	5320	12.93	23.98	Pass
802.11n40	5270	13.62	23.98	Pass
	5310	13.36	23.98	Pass
802.11ac20	5260	13.52	23.98	Pass
	5300	13.01	23.98	Pass
	5320	13.38	23.98	Pass
802.11ac40	5270	13.43	23.98	Pass
	5310	13.23	23.98	Pass
802.11ac80	5290	13.66	23.98	Pass

Test Data of Conducted Output Power for band 5.470-5.725 GHz-Ant 1

Test Mode	Test Channel (MHz)	Average Power (dBm)	Limits (dBm)	Pass or Fail
802.11a	5500	11.19	24	Pass
	5600	10.13	24	Pass
	5700	9.22	24	Pass
802.11n20	5500	10.15	24	Pass
	5600	10.03	24	Pass
	5700	9.37	24	Pass
802.11n40	5510	10.71	24	Pass
	5590	9.78	24	Pass
	5670	9.02	24	Pass
802.11ac20	5670	10.15	24	Pass
	5500	9.20	24	Pass
	5600	8.32	24	Pass
802.11ac40	5510	10.99	24	Pass
	5590	9.99	24	Pass
	5670	8.85	24	Pass
802.11ac80	5530	10.27	24	Pass
	5610	9.17	24	Pass

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Test Data of Conducted Output Power for band 5.470-5.725 GHz-Ant 2				
Test Mode	Test Channel (MHz)	Average Power (dBm)	Limits (dBm)	Pass or Fail
802.11a	5500	11.82	24	Pass
	5600	10.82	24	Pass
	5700	10.31	24	Pass
802.11n20	5500	10.88	24	Pass
	5600	9.76	24	Pass
	5700	9.28	24	Pass
802.11n40	5510	10.31	24	Pass
	5590	9.42	24	Pass
	5670	9.16	24	Pass
802.11ac20	5670	10.87	24	Pass
	5500	9.77	24	Pass
	5600	9.28	24	Pass
802.11ac40	5510	10.34	24	Pass
	5590	9.39	24	Pass
	5670	9.12	24	Pass
802.11ac80	5530	10.10	24	Pass
	5610	9.30	24	Pass

Test Data of Conducted Output Power for band 5.470-5.725 GHz-MIMO				
Test Mode	Test Channel (MHz)	Average Power (dBm)	Limits (dBm)	Pass or Fail
802.11n20	5500	13.54	24	Pass
	5600	12.91	24	Pass
	5700	12.34	24	Pass
802.11n40	5510	13.52	24	Pass
	5590	12.61	24	Pass
	5670	12.10	24	Pass
802.11ac20	5670	13.54	24	Pass
	5500	12.50	24	Pass
	5600	11.84	24	Pass
802.11ac40	5510	13.69	24	Pass
	5590	12.71	24	Pass
	5670	12.00	24	Pass
802.11ac80	5530	13.20	24	Pass
	5610	12.25	24	Pass

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Test Data of Conducted Output Power for band 5.725-5.85 GHz-Ant 1				
Test Mode	Test Channel (MHz)	Average Power (dBm)	Limits (dBm)	Pass or Fail
802.11a	5745	10.81	24	Pass
	5785	10.18	24	Pass
	5825	9.66	24	Pass
802.11n20	5745	9.77	24	Pass
	5785	9.09	24	Pass
	5825	8.61	24	Pass
802.11n40	5755	9.46	24	Pass
	5795	8.70	24	Pass
802.11ac20	5745	9.67	24	Pass
	5785	9.02	24	Pass
	5825	8.64	24	Pass
802.11ac40	5755	9.35	24	Pass
	5795	8.82	24	Pass
802.11ac80	5775	8.31	24	Pass

Test Data of Conducted Output Power for band 5.725-5.85 GHz-Ant 2				
Test Mode	Test Channel (MHz)	Average Power (dBm)	Limits (dBm)	Pass or Fail
802.11a	5745	10.68	24	Pass
	5785	10.64	24	Pass
	5825	10.93	24	Pass
802.11n20	5745	9.95	24	Pass
	5785	9.82	24	Pass
	5825	9.74	24	Pass
802.11n40	5755	9.38	24	Pass
	5795	9.05	24	Pass
802.11ac20	5745	9.03	24	Pass
	5785	8.80	24	Pass
	5825	8.70	24	Pass
802.11ac40	5755	9.41	24	Pass
	5795	9.13	24	Pass
802.11ac80	5775	8.20	24	Pass

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Test Data of Conducted Output Power for band 5.725-5.85 GHz-MIMO				
Test Mode	Test Channel (MHz)	Average Power (dBm)	Limits (dBm)	Pass or Fail
802.11n20	5745	12.87	30	Pass
	5785	12.48	30	Pass
	5825	12.22	30	Pass
802.11n40	5755	12.43	30	Pass
	5795	11.89	30	Pass
802.11ac20	5745	12.37	30	Pass
	5785	11.92	30	Pass
	5825	11.68	30	Pass
802.11ac40	5755	12.39	30	Pass
	5795	11.99	30	Pass
802.11ac80	5775	11.27	30	Pass

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7. 6DB&26DB BANDWIDTH MEASUREMENT

7.1 MEASUREMENT LIMITS

The minimum 6dB bandwidth shall be at least 500 kHz.

7.2 MEASUREMENT PROCEDURE

7.2.1 -6dB bandwidth (DTS bandwidth) Test setting:

1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
2. Set the EUT Work on operation frequency individually.
3. Set RBW = 100kHz.
4. Set the VBW $\geq 3 \times$ RBW. Detector = Peak. Trace mode = max hold.
5. Measure the maximum width of the emission that is 6 dB down from the peak of the emission.

7.2.2 99% occupied bandwidth test setting:

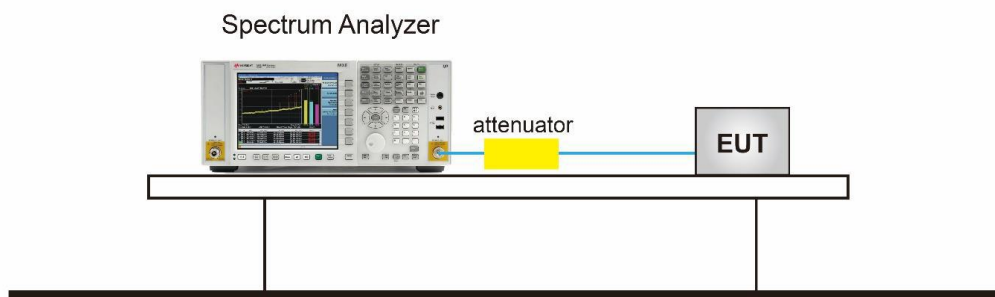
1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
2. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
3. Set Span = approximately 1.5 to 5 times the OBW, centered on a nominal channel
The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW and video bandwidth (VBW) shall be approximately three times RBW; Sweep = auto; Detector function = peak
4. Set SPA Trace 1 Max hold, then View.

7.2.3 -26dB Bandwidth test setting:

1. Set RBW = approximately 1% of the emission bandwidth.
2. Set the VBW > RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Measure the maximum width of the emission that is 26 dB down from the maximum of the emission.
Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

Note: The EUT was tested according to KDB 789033 for compliance to FCC 47CFR 15.407 requirements.

7.3 MEASUREMENT SETUP (BLOCK DIAGRAM OF CONFIGURATION)



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7.4 MEASUREMENT RESULTS

Test Data of Occupied Bandwidth and -26dB Bandwidth for band 5.15-5.25 GHz-Ant 1					
Test Mode	Test Channel (MHz)	99% Occupied Bandwidth (MHz)	-26dB Bandwidth (MHz)	Limits (MHz)	Pass or Fail
802.11a	5180	16.966	23.539	N/A	Pass
	5200	16.970	24.030	N/A	Pass
	5240	16.444	19.583	N/A	Pass
802.11n20	5180	17.877	23.876	N/A	Pass
	5200	17.869	25.046	N/A	Pass
	5240	17.556	19.906	N/A	Pass
802.11n40	5190	35.797	39.408	N/A	Pass
	5230	35.793	39.433	N/A	Pass
802.11ac20	5180	17.865	23.948	N/A	Pass
	5200	17.886	24.155	N/A	Pass
	5240	17.562	20.039	N/A	Pass
802.11ac40	5190	35.801	39.408	N/A	Pass
	5230	35.735	39.423	N/A	Pass
802.11ac80	5210	75.188	79.527	N/A	Pass

Test Data of Occupied Bandwidth and -26dB Bandwidth for band 5.25-5.35 GHz-Ant 1					
Test Mode	Test Channel (MHz)	99% Occupied Bandwidth (MHz)	-26dB Bandwidth (MHz)	Limits (MHz)	Pass or Fail
802.11a	5260	16.953	24.174	N/A	Pass
	5300	16.986	23.465	N/A	Pass
	5320	16.969	24.107	N/A	Pass
802.11n20	5260	17.899	24.425	N/A	Pass
	5300	17.857	24.605	N/A	Pass
	5320	17.853	24.125	N/A	Pass
802.11n40	5270	35.782	39.522	N/A	Pass
	5310	35.794	40.004	N/A	Pass
802.11ac20	5260	17.863	24.342	N/A	Pass
	5300	17.891	24.027	N/A	Pass
	5320	17.880	24.216	N/A	Pass
802.11ac40	5270	35.769	39.630	N/A	Pass
	5310	35.793	39.552	N/A	Pass
802.11ac80	5290	75.247	79.696	N/A	Pass

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Test Data of Occupied Bandwidth and -26dB Bandwidth for band 5.470-5.725 GHz-Ant 1					
Test Mode	Test Channel (MHz)	99% Occupied Bandwidth (MHz)	-26dB Bandwidth (MHz)	Limits (MHz)	Pass or Fail
802.11a	5500	16.998	23.665	N/A	Pass
	5600	16.950	23.589	N/A	Pass
	5700	16.954	23.603	N/A	Pass
802.11n20	5500	17.862	24.623	N/A	Pass
	5600	17.874	24.252	N/A	Pass
	5700	17.834	23.811	N/A	Pass
802.11n40	5510	35.784	39.564	N/A	Pass
	5590	35.775	39.534	N/A	Pass
	5670	35.767	39.431	N/A	Pass
802.11ac20	5500	17.876	39.431	N/A	Pass
	5600	17.886	24.733	N/A	Pass
	5700	17.889	24.255	N/A	Pass
802.11ac40	5510	35.787	23.923	N/A	Pass
	5590	35.781	39.521	N/A	Pass
	5670	35.776	39.449	N/A	Pass
802.11ac80	5530	75.135	79.827	N/A	Pass
	5610	75.283	79.637	N/A	Pass

Test Data of Occupied Bandwidth and DTS Bandwidth for band 5.725-5.85 GHz-Ant 1					
Test Mode	Test Channel (MHz)	99% Occupied Bandwidth (MHz)	DTS Bandwidth (MHz)	Limits (MHz)	Pass or Fail
802.11a	5745	17.057	16.286	0.5	Pass
	5785	16.964	16.276	0.5	Pass
	5825	16.985	16.321	0.5	Pass
802.11n20	5745	17.993	16.870	0.5	Pass
	5785	17.881	16.392	0.5	Pass
	5825	17.876	16.922	0.5	Pass
802.11n40	5755	35.769	35.064	0.5	Pass
	5795	35.761	35.070	0.5	Pass
802.11ac20	5745	17.903	17.550	0.5	Pass
	5785	17.874	16.577	0.5	Pass
	5825	17.900	16.627	0.5	Pass
802.11ac40	5755	35.773	35.071	0.5	Pass
	5795	35.802	34.973	0.5	Pass
802.11ac80	5775	75.195	75.128	0.5	Pass

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Test Data of Occupied Bandwidth and -26dB Bandwidth for band 5.15-5.25 GHz-Ant 2					
Test Mode	Test Channel (MHz)	99% Occupied Bandwidth (MHz)	-26dB Bandwidth (MHz)	Limits (MHz)	Pass or Fail
802.11a	5180	17.033	24.671	N/A	Pass
	5200	16.928	24.069	N/A	Pass
	5240	16.477	19.642	N/A	Pass
802.11n20	5180	17.881	23.904	N/A	Pass
	5200	17.865	23.865	N/A	Pass
	5240	17.542	20.023	N/A	Pass
802.11n40	5190	35.805	39.647	N/A	Pass
	5230	35.793	39.527	N/A	Pass
802.11ac20	5180	17.887	23.761	N/A	Pass
	5200	17.900	24.032	N/A	Pass
	5240	17.577	20.098	N/A	Pass
802.11ac40	5190	35.812	39.372	N/A	Pass
	5230	35.740	39.265	N/A	Pass
802.11ac80	5210	75.194	79.654	N/A	Pass

Test Data of Occupied Bandwidth and -26dB Bandwidth for band 5.25-5.35 GHz-Ant 2					
Test Mode	Test Channel (MHz)	99% Occupied Bandwidth (MHz)	-26dB Bandwidth (MHz)	Limits (MHz)	Pass or Fail
802.11a	5260	16.978	23.865	N/A	Pass
	5300	16.956	24.171	N/A	Pass
	5320	16.932	24.016	N/A	Pass
802.11n20	5260	17.879	24.292	N/A	Pass
	5300	17.860	24.395	N/A	Pass
	5320	17.861	25.056	N/A	Pass
802.11n40	5270	35.810	39.486	N/A	Pass
	5310	35.814	39.725	N/A	Pass
802.11ac20	5260	17.866	24.356	N/A	Pass
	5300	17.891	24.561	N/A	Pass
	5320	17.877	24.724	N/A	Pass
802.11ac40	5270	35.812	39.335	N/A	Pass
	5310	35.748	39.414	N/A	Pass
802.11ac80	5290	75.266	79.479	N/A	Pass

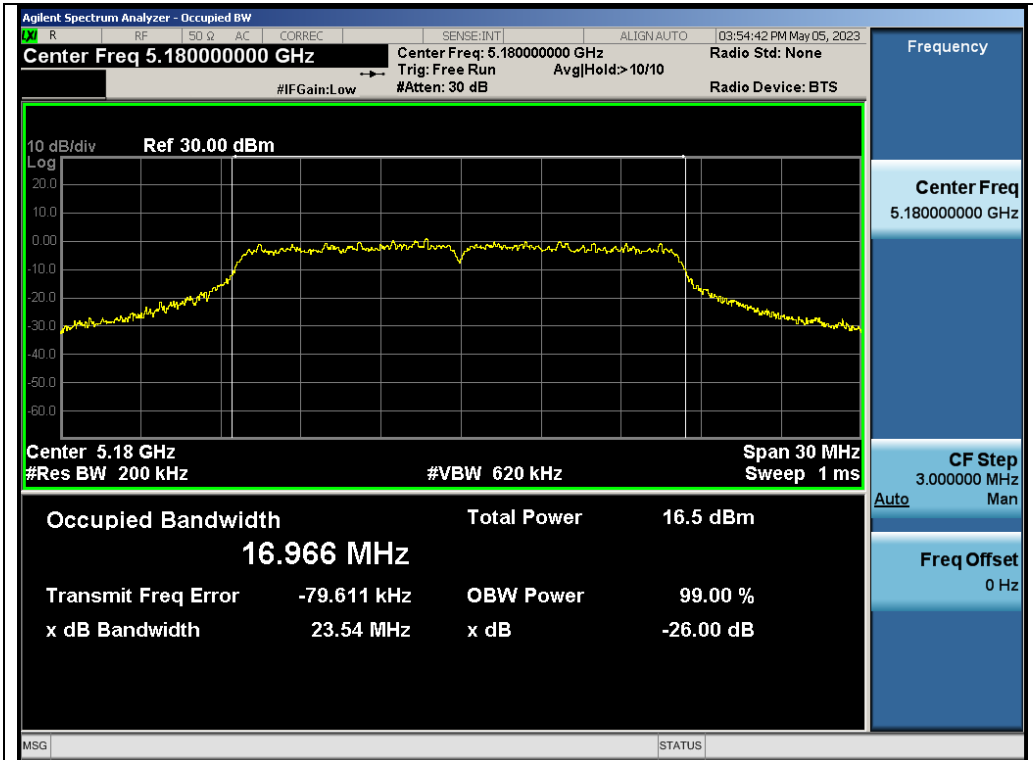
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Test Data of Occupied Bandwidth and -26dB Bandwidth for band 5.470-5.725 GHz-Ant 2					
Test Mode	Test Channel (MHz)	99% Occupied Bandwidth (MHz)	-26dB Bandwidth (MHz)	Limits (MHz)	Pass or Fail
802.11a	5500	17.008	24.120	N/A	Pass
	5600	16.964	23.633	N/A	Pass
	5700	17.012	24.087	N/A	Pass
802.11n20	5500	17.873	25.482	N/A	Pass
	5600	17.895	24.101	N/A	Pass
	5700	17.851	24.051	N/A	Pass
802.11n40	5510	35.782	39.707	N/A	Pass
	5590	35.786	39.742	N/A	Pass
	5670	35.822	39.549	N/A	Pass
802.11ac20	5500	17.890	24.257	N/A	Pass
	5600	17.881	24.044	N/A	Pass
	5700	17.885	24.128	N/A	Pass
802.11ac40	5510	35.796	39.594	N/A	Pass
	5590	35.813	35.523	N/A	Pass
	5670	35.792	39.364	N/A	Pass
802.11ac80	5530	75.195	79.805	N/A	Pass
	5610	75.257	79.758	N/A	Pass

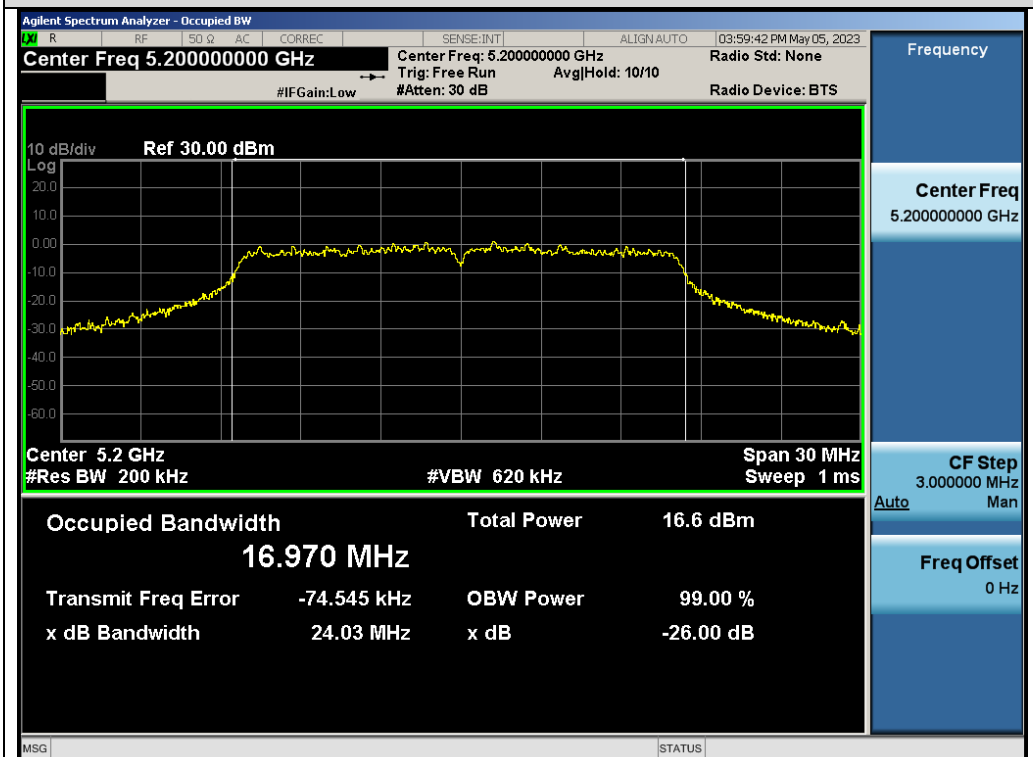
Test Data of Occupied Bandwidth and DTS Bandwidth for band 5.725-5.85 GHz-Ant 2					
Test Mode	Test Channel (MHz)	99% Occupied Bandwidth (MHz)	DTS Bandwidth (MHz)	Limits (MHz)	Pass or Fail
802.11a	5745	16.975	16.307	0.5	Pass
	5785	16.956	16.270	0.5	Pass
	5825	16.993	16.315	0.5	Pass
802.11n20	5745	17.907	15.797	0.5	Pass
	5785	17.876	15.475	0.5	Pass
	5825	17.884	16.294	0.5	Pass
802.11n40	5755	35.800	35.068	0.5	Pass
	5795	35.776	35.065	0.5	Pass
802.11ac20	5745	17.871	17.529	0.5	Pass
	5785	17.888	15.797	0.5	Pass
	5825	17.899	17.527	0.5	Pass
802.11ac40	5755	35.792	35.033	0.5	Pass
	5795	35.797	35.061	0.5	Pass
802.11ac80	5775	75.205	75.130	0.5	Pass

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Test Graphs of Occupied Bandwidth and -26dB Bandwidth for band 5.15-5.25 GHz-Ant 1

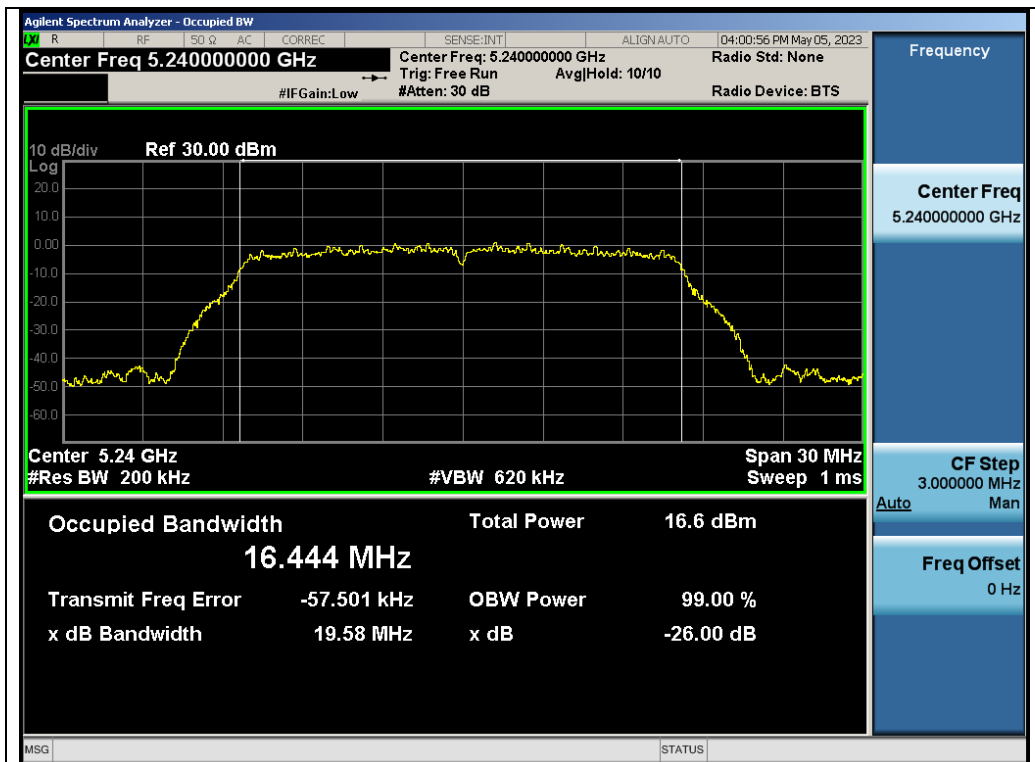


Test_Graph_802.11a_ANT1_5180_6Mbps_OBW

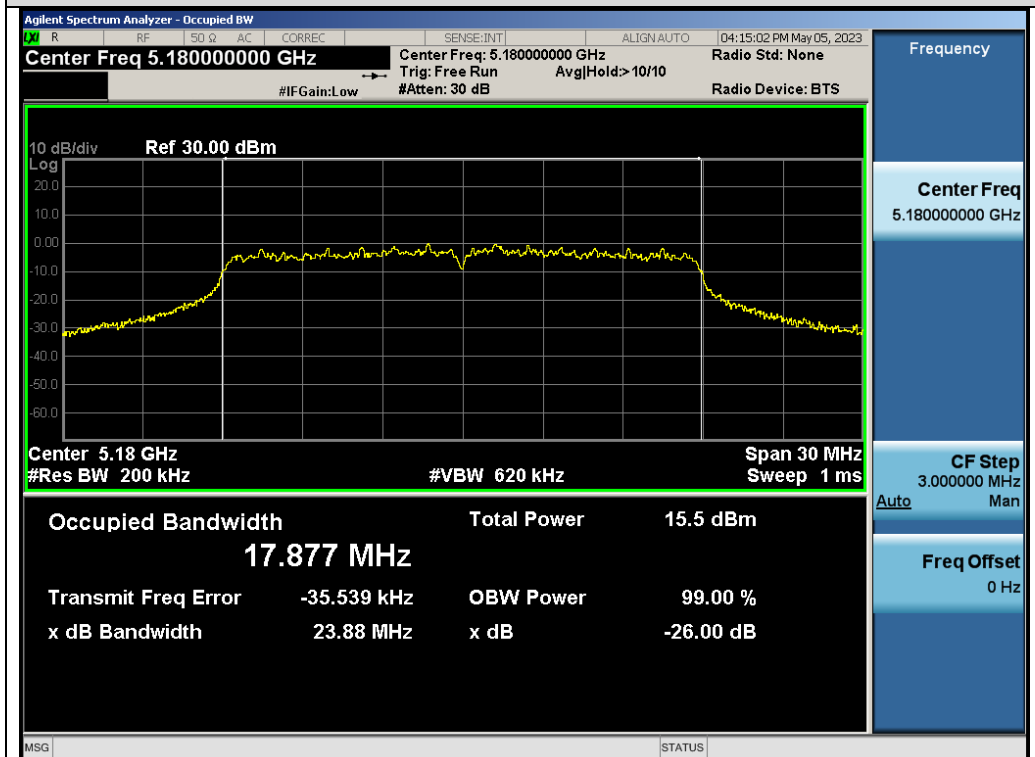


Test_Graph_802.11a_ANT1_5200_6Mbps_OBW

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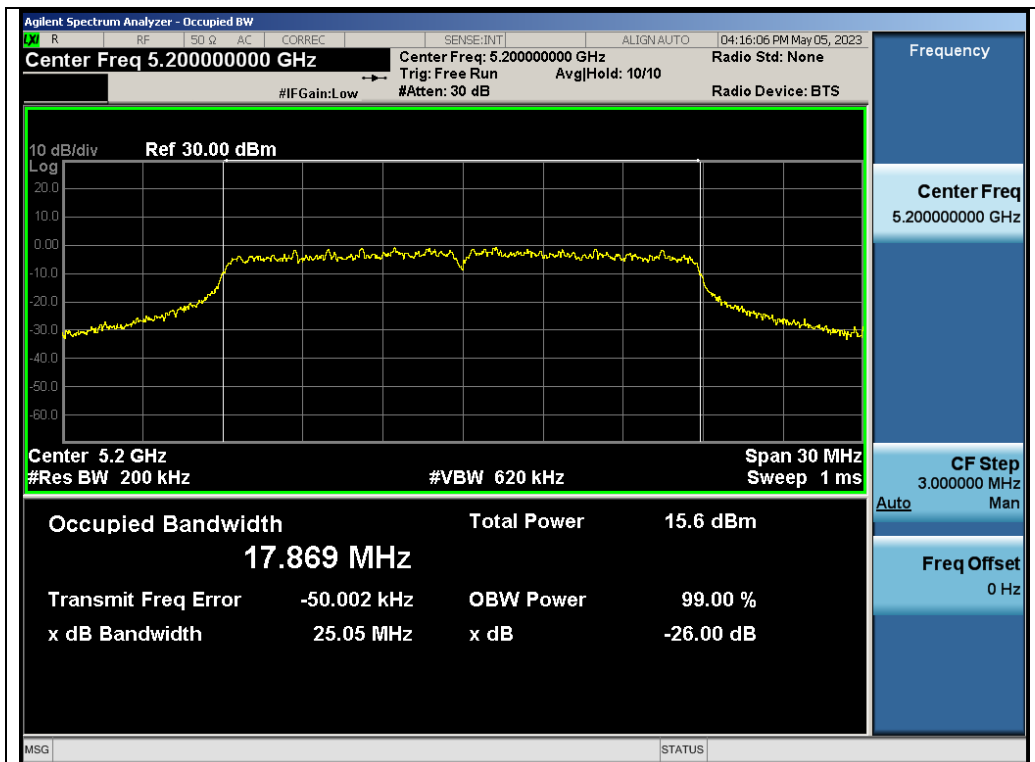


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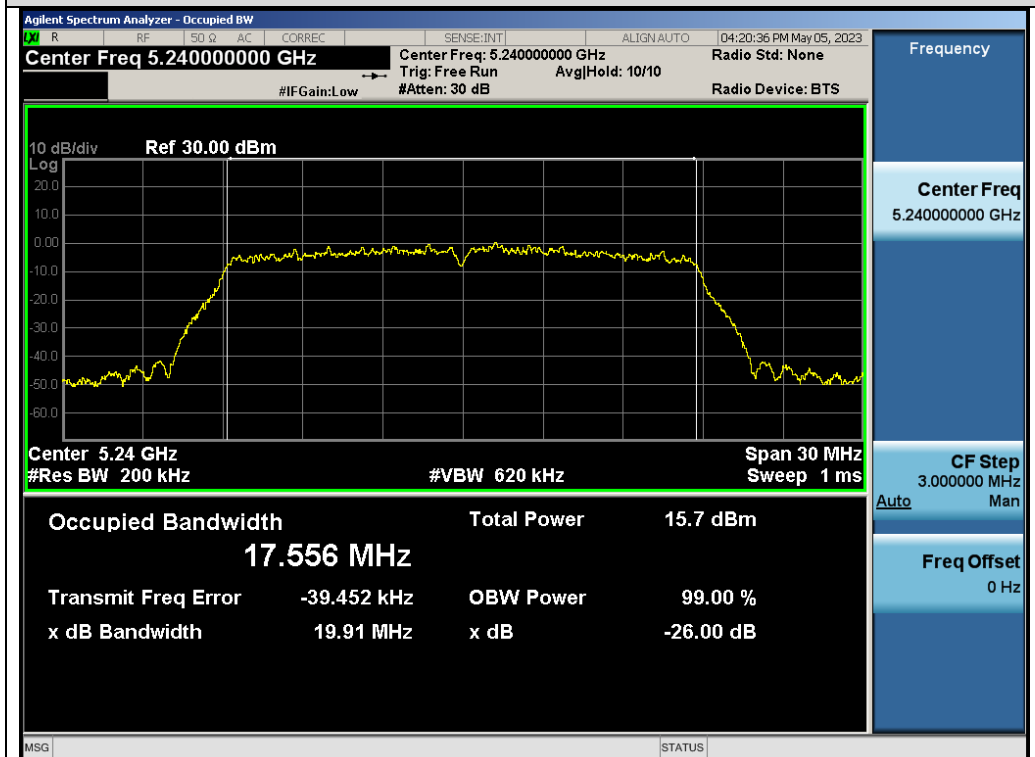


Test_Graph_802.11n20_ANT1_5180_MCS0_OBW

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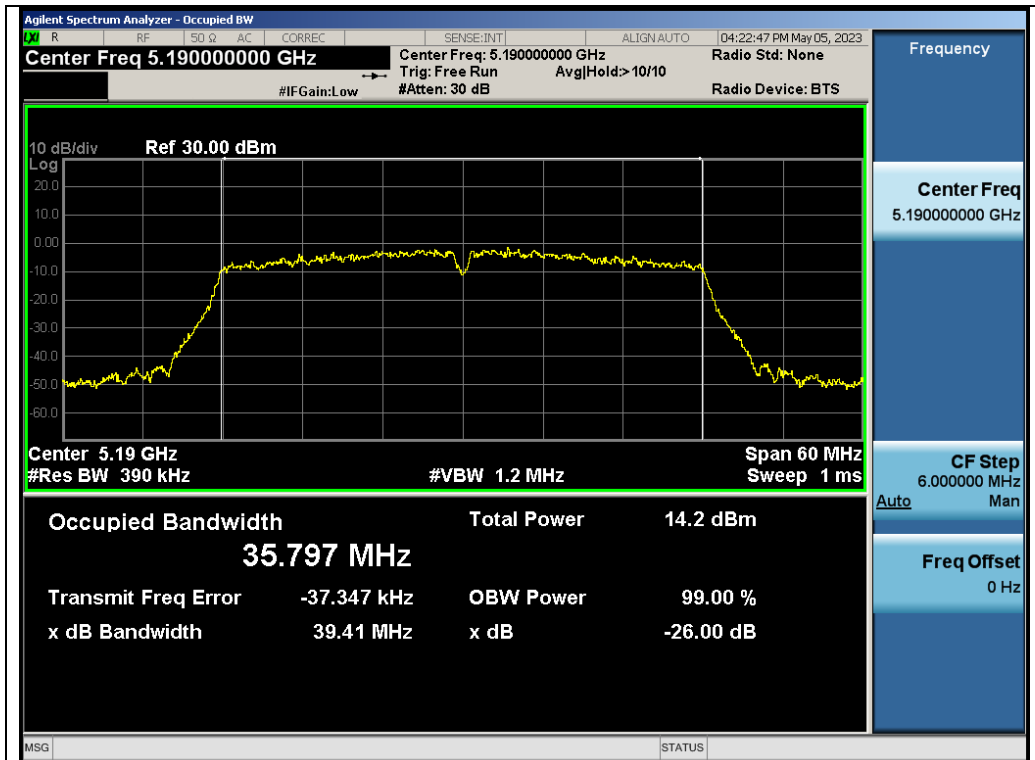


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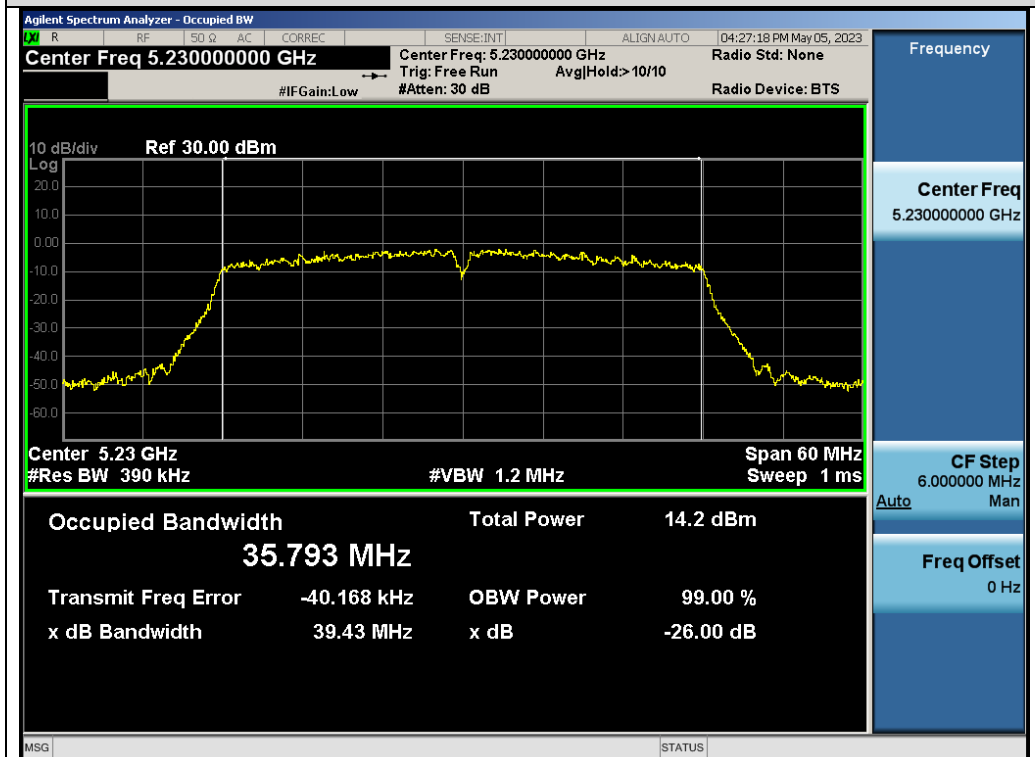


Test_Graph_802.11n20_ANT1_5240_MCS0_OBW

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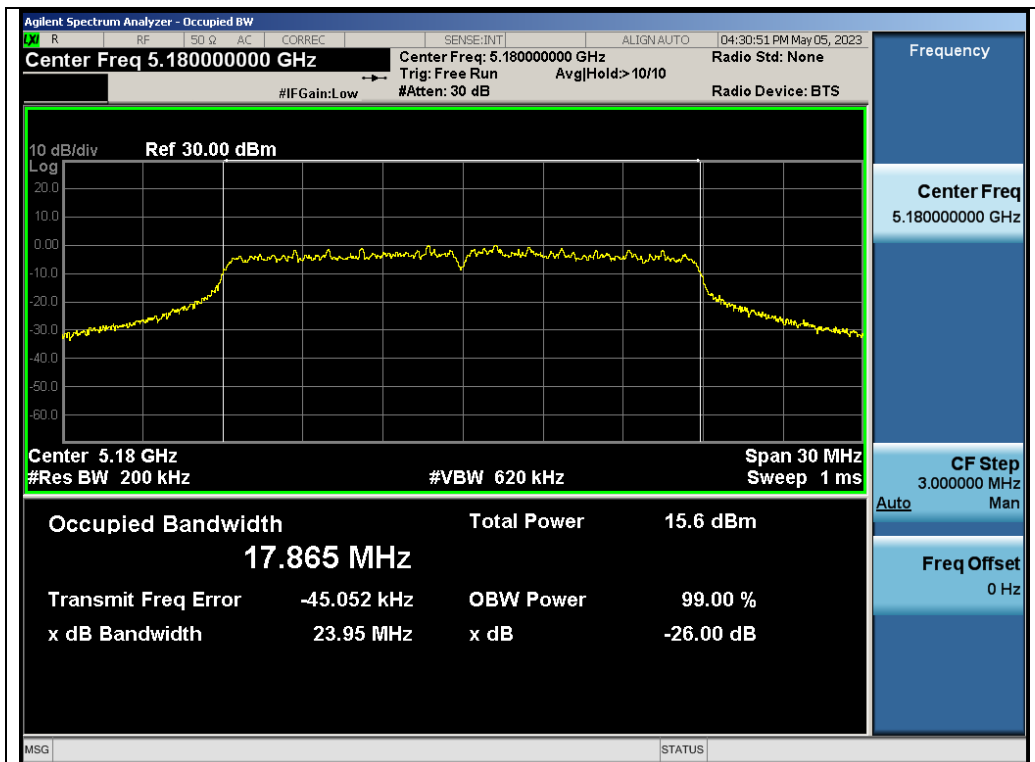


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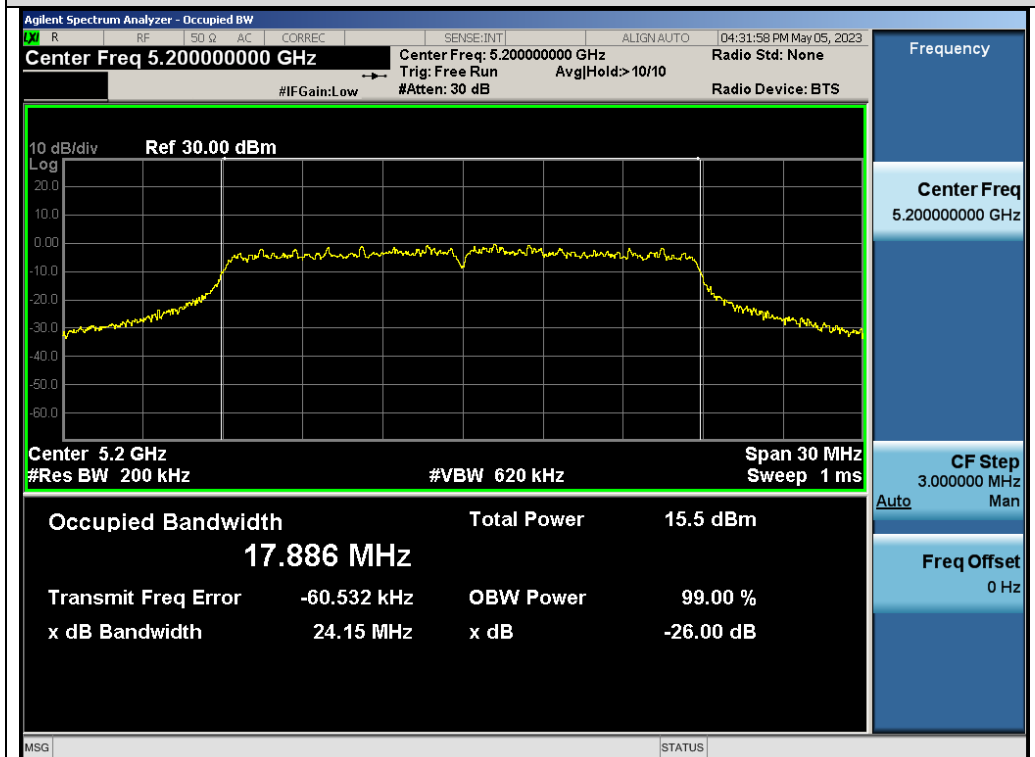


Test_Graph_802.11n40_ANT1_5230_MCS0_OBW

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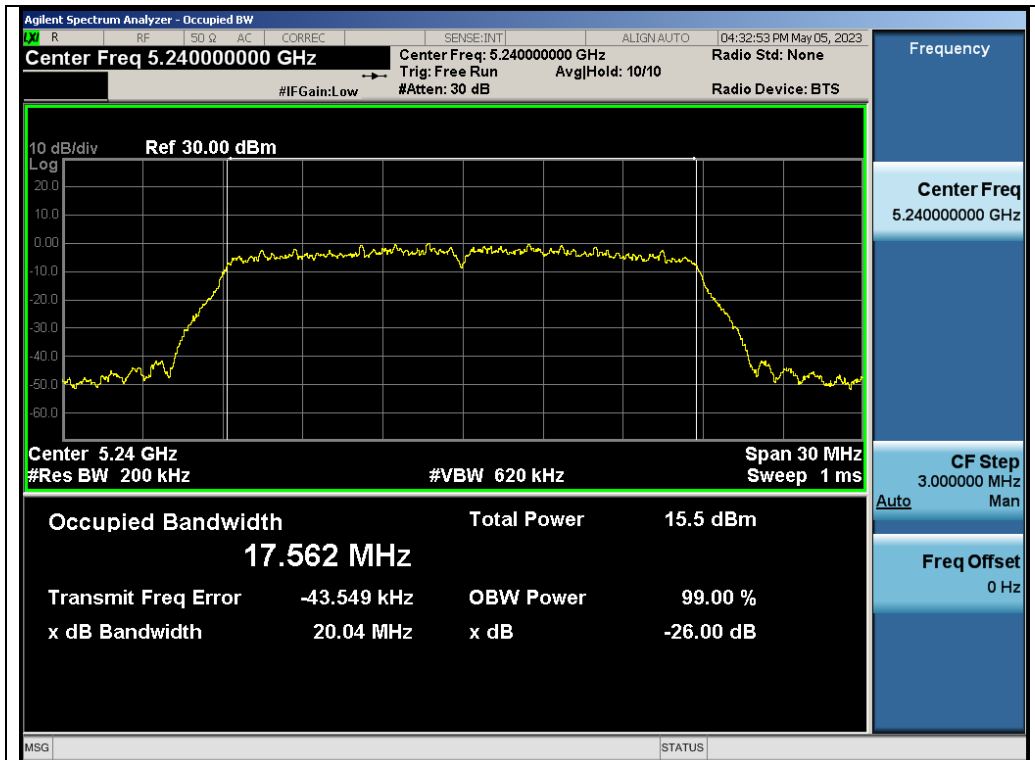


Test_Graph_802.11ac20_ANT1_5180_MCS0_OBW

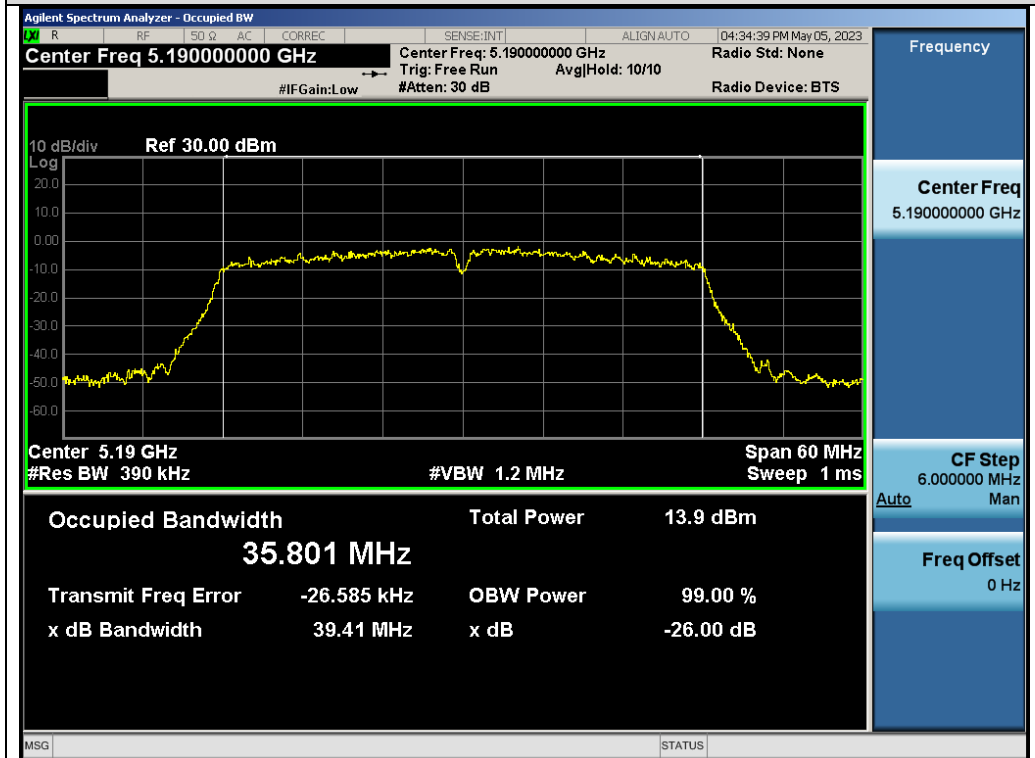


Test_Graph_802.11ac20_ANT1_5200_MCS0_OBW

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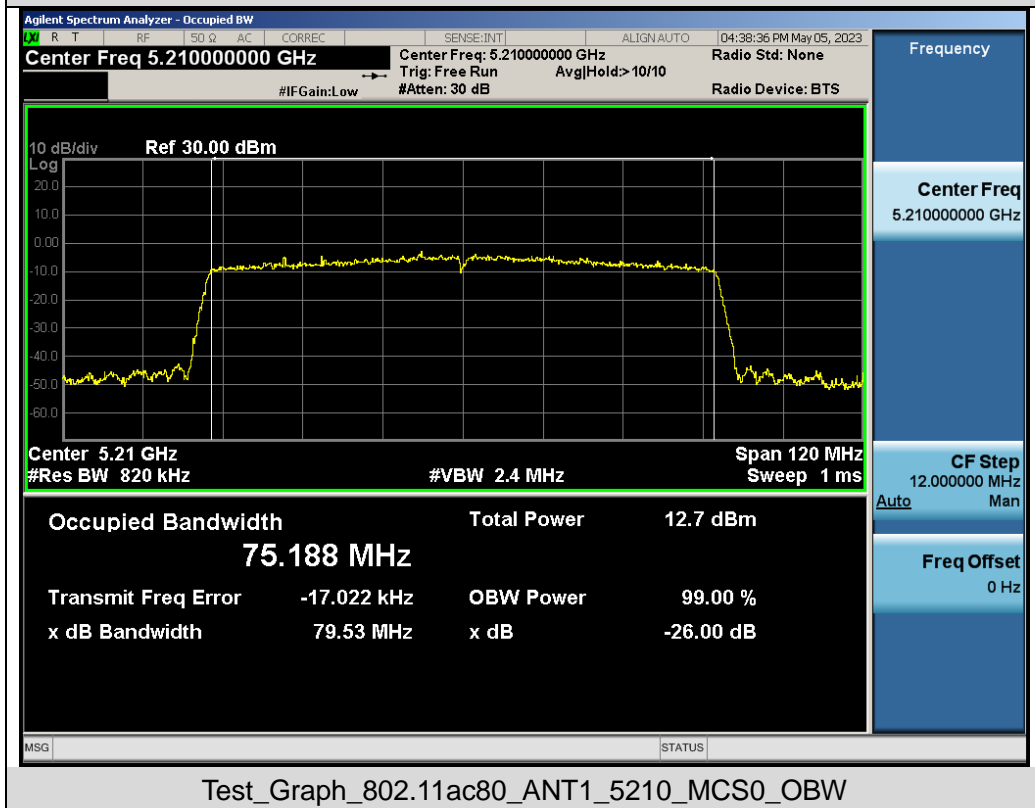
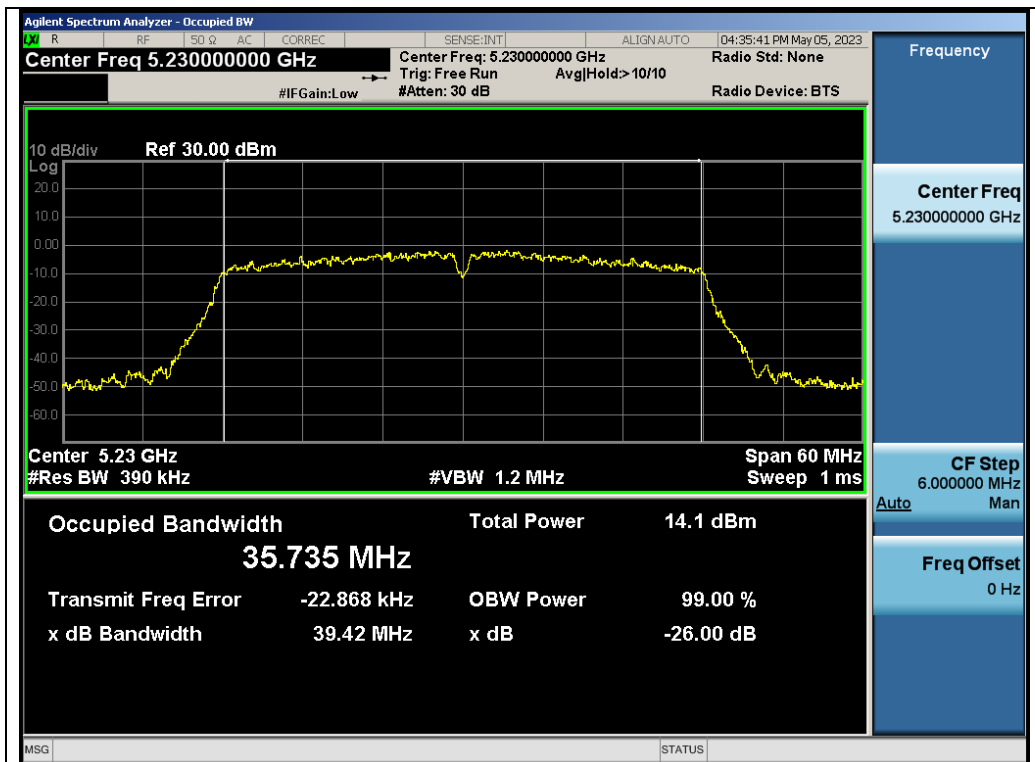


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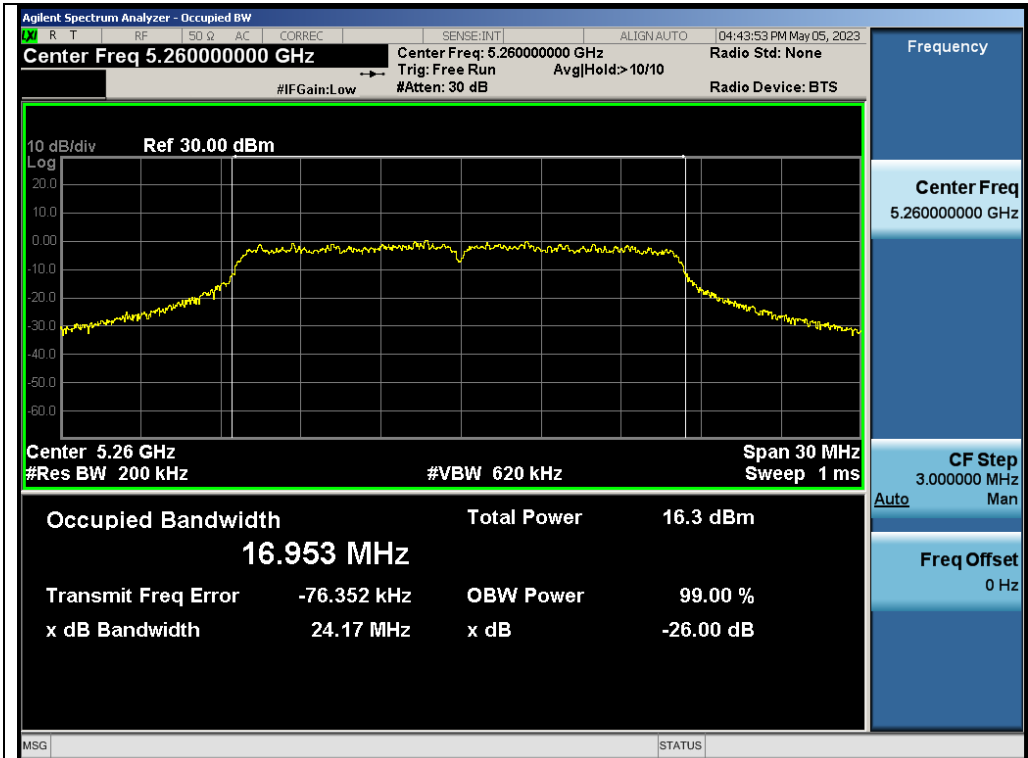
Test_Graph_802.11ac40_ANT1_5190_MCS0_OBW

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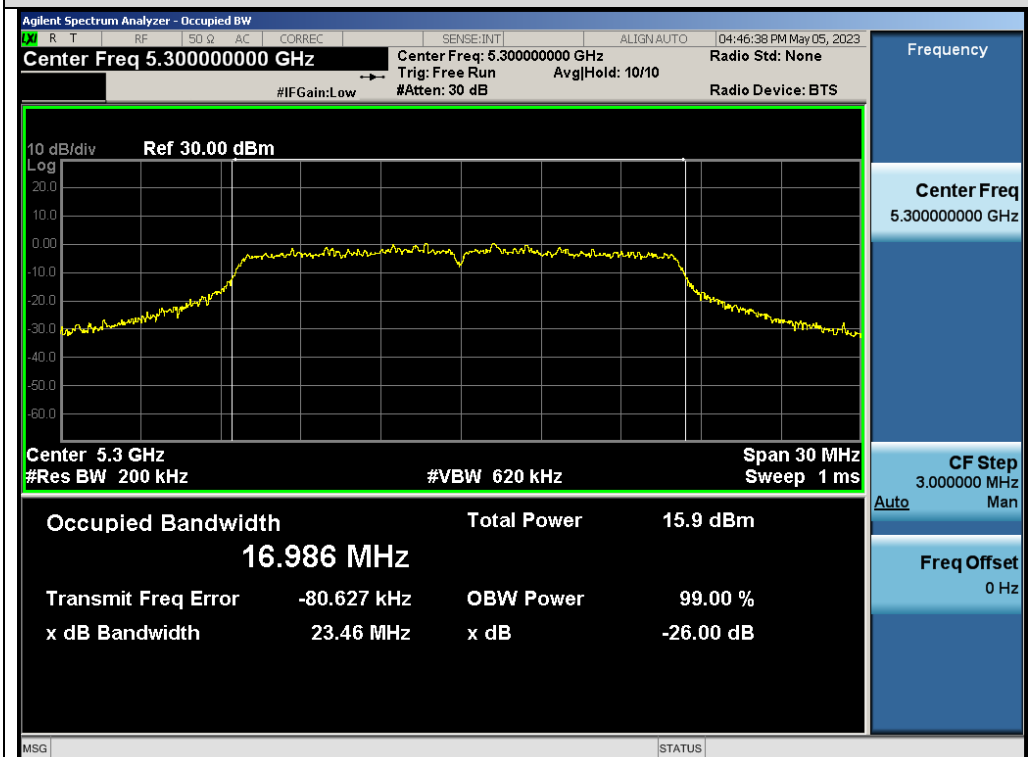


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Test Graphs of Occupied Bandwidth and -26dB Bandwidth for band 5.25-5.35 GHz-Ant 1

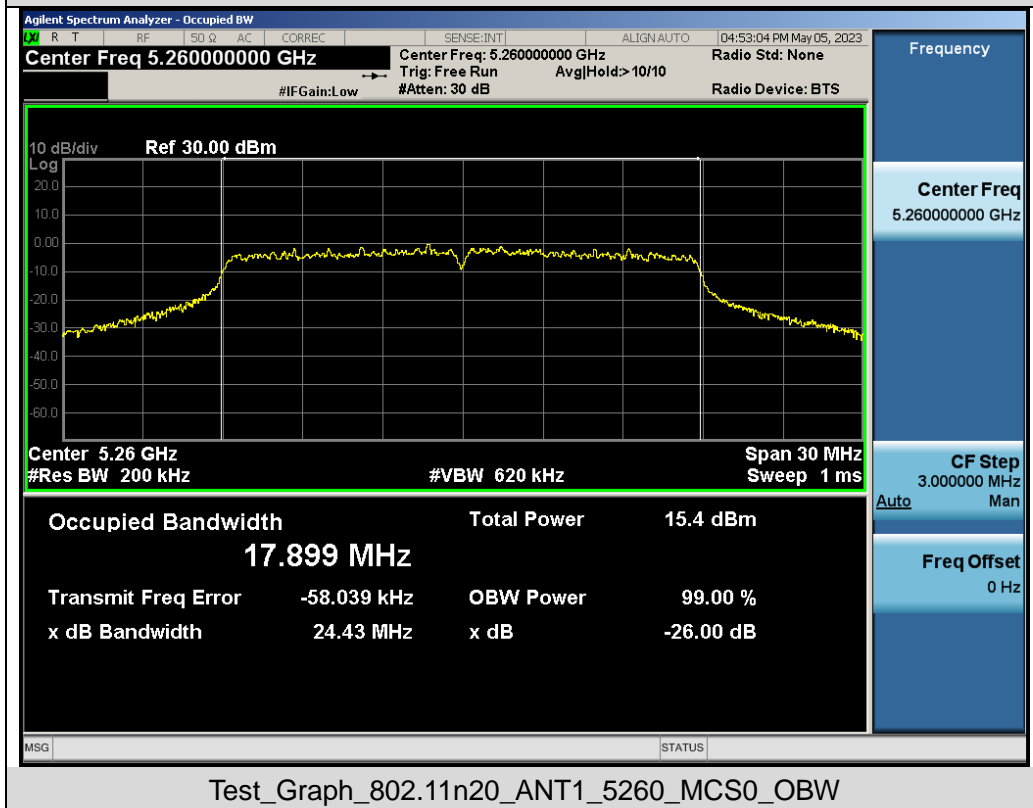
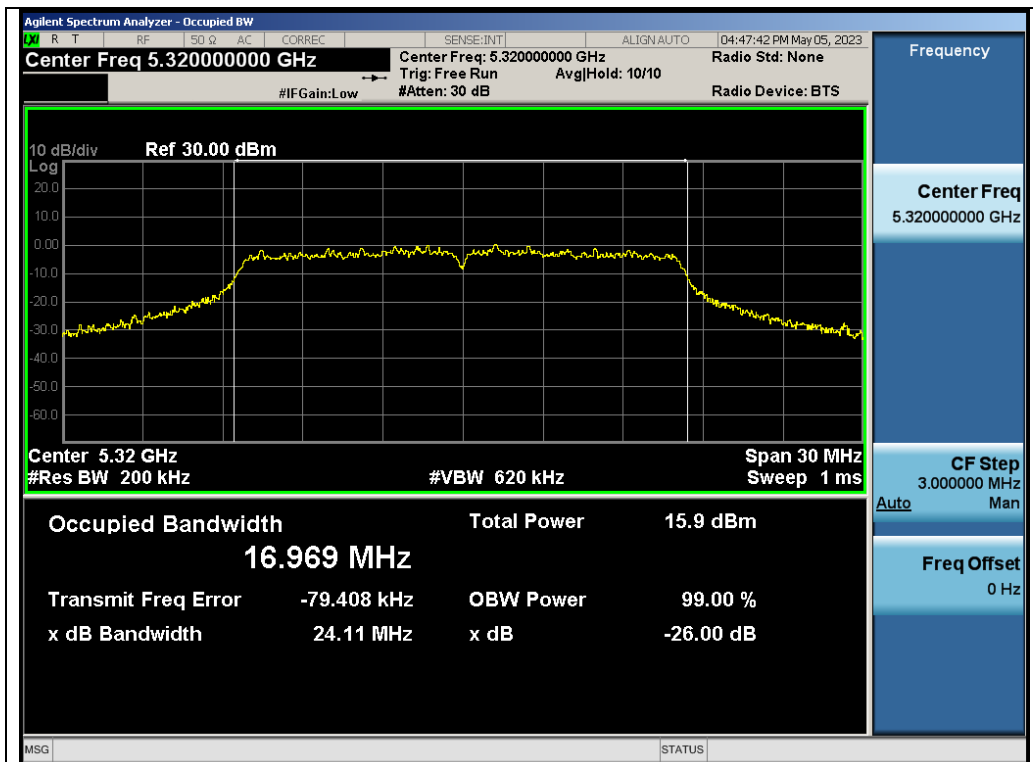


Test_Graph_802.11a_ANT1_5260_6Mbps_OBW

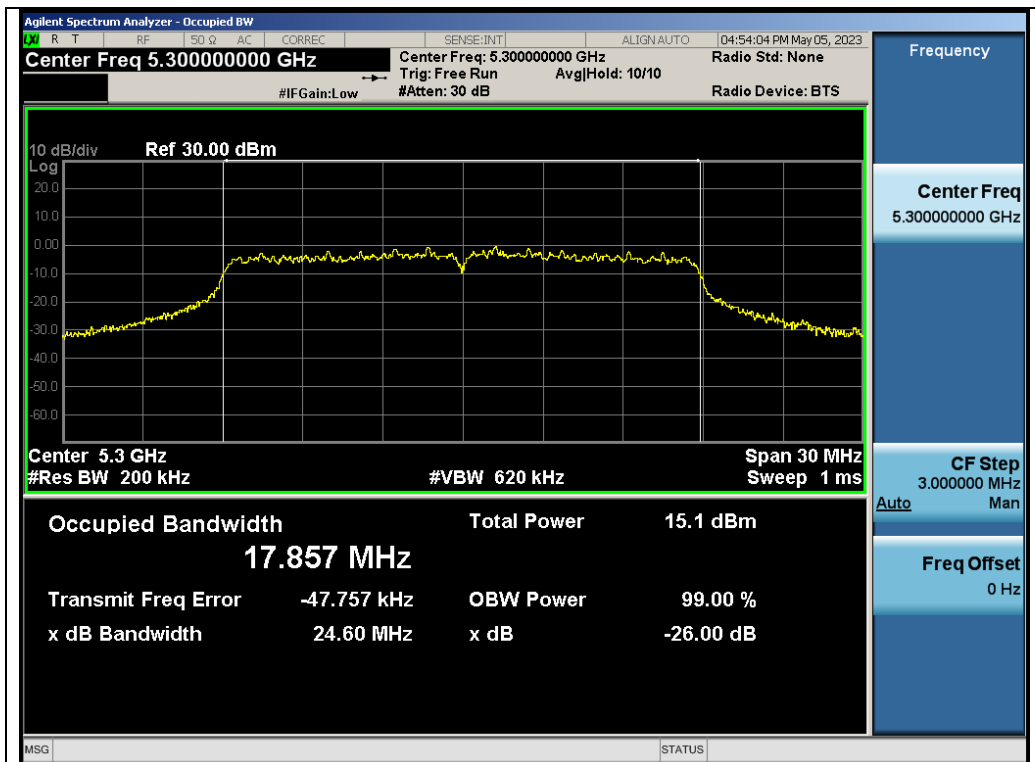


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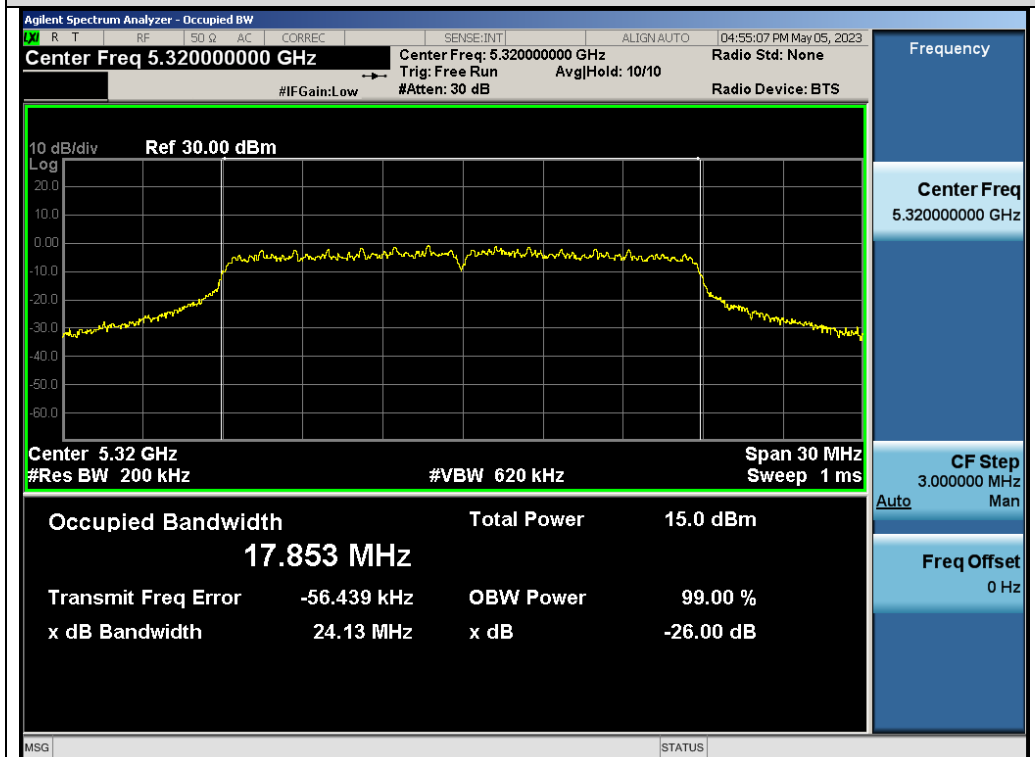
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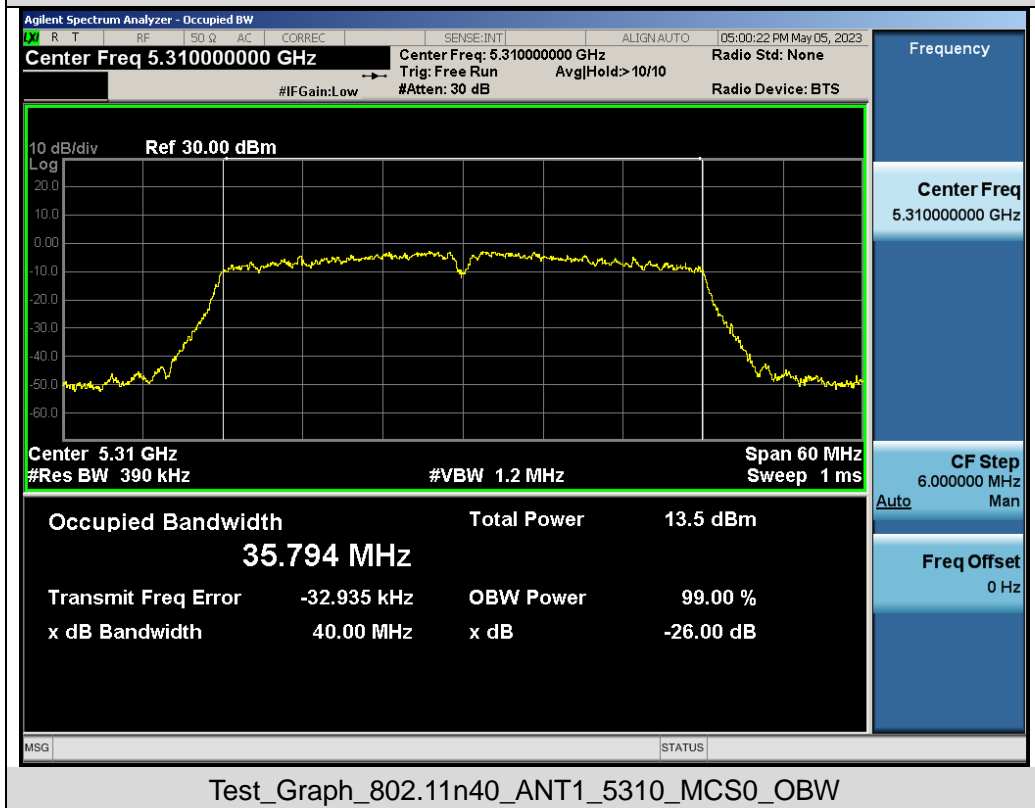
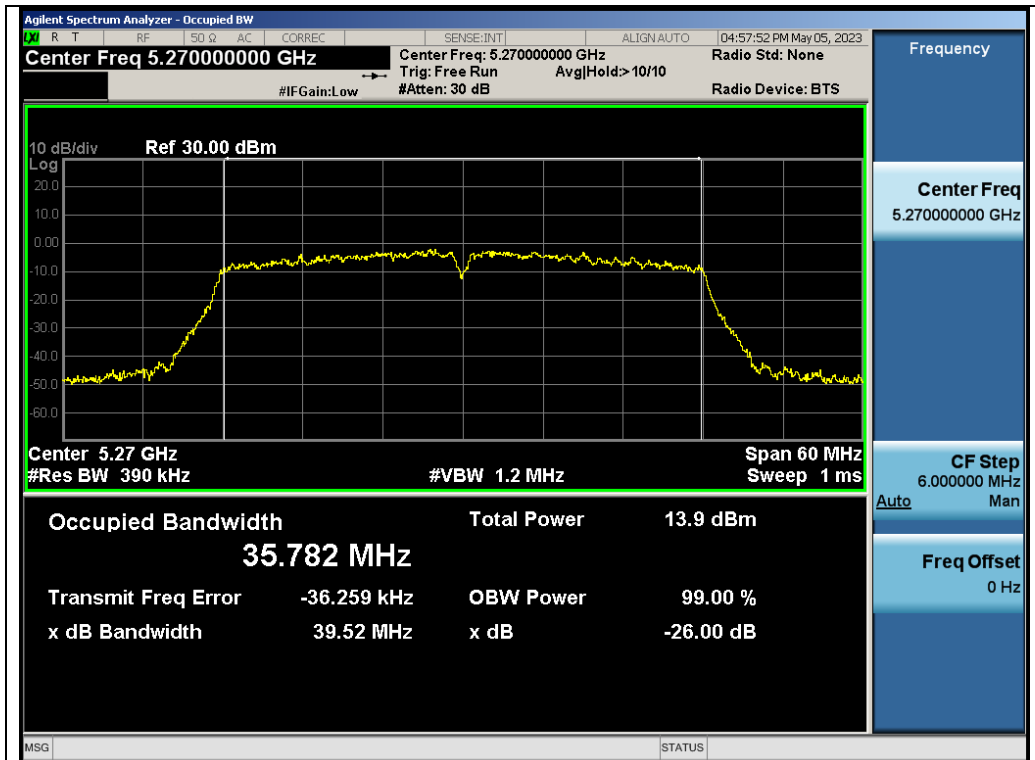


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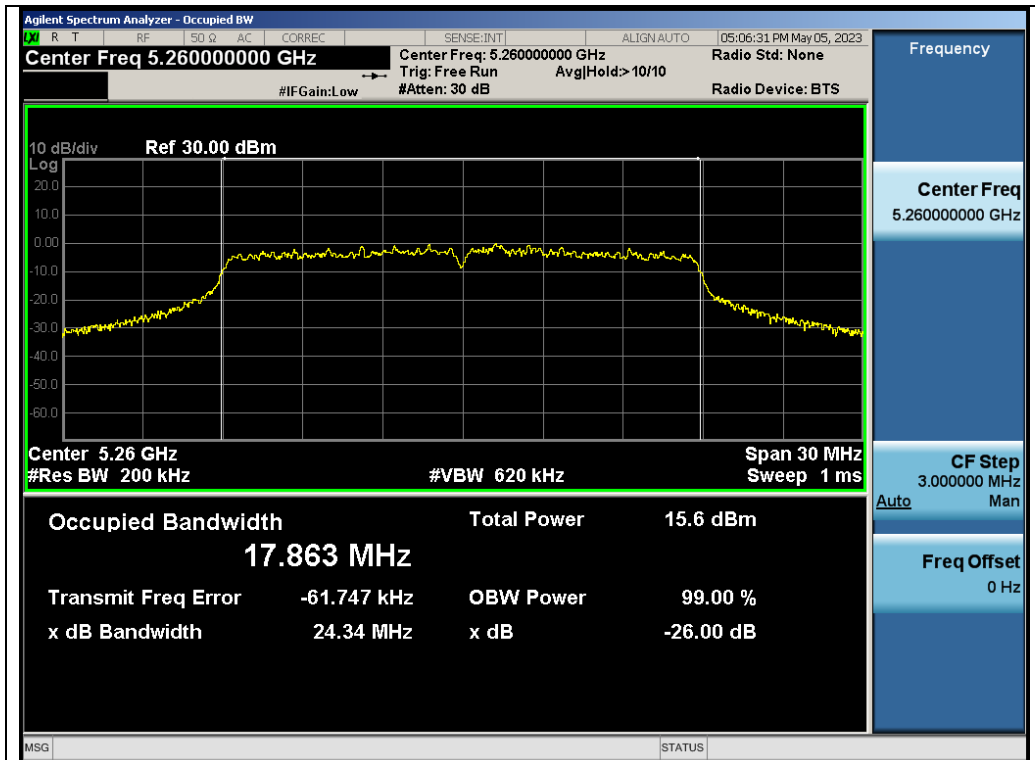


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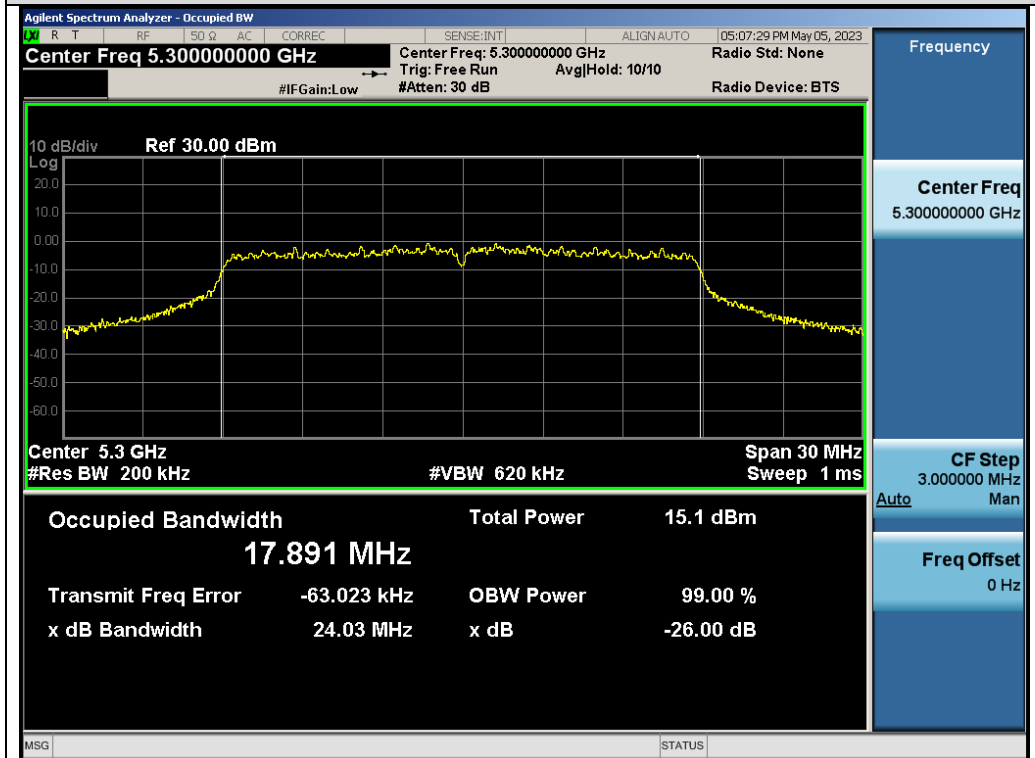
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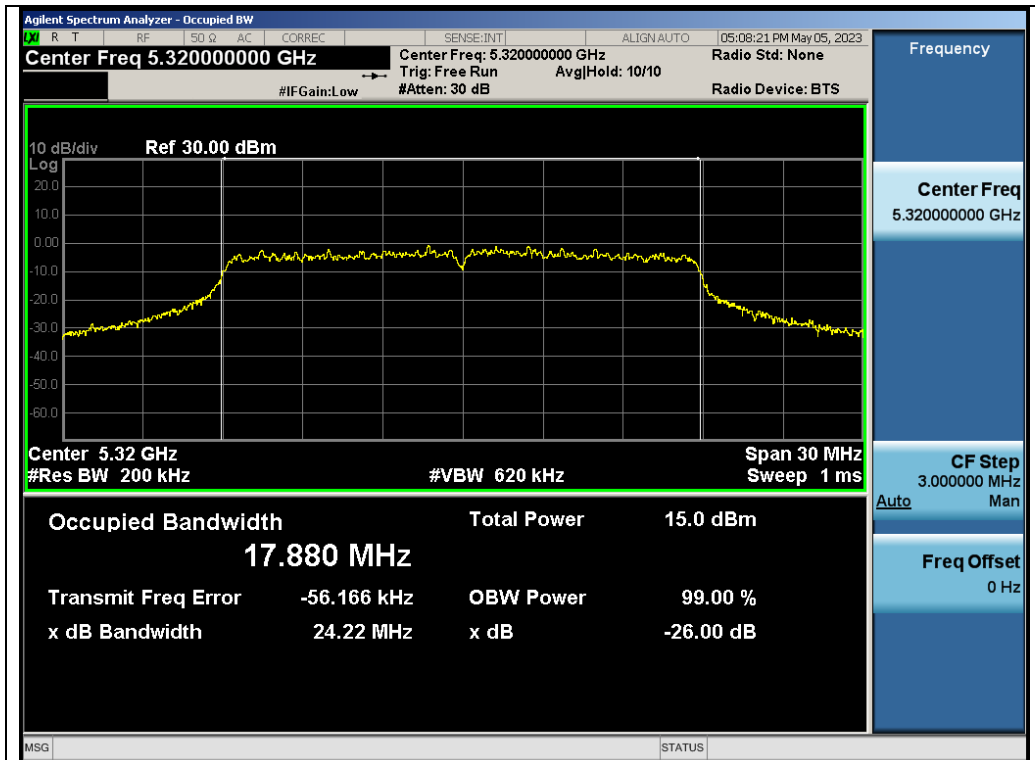


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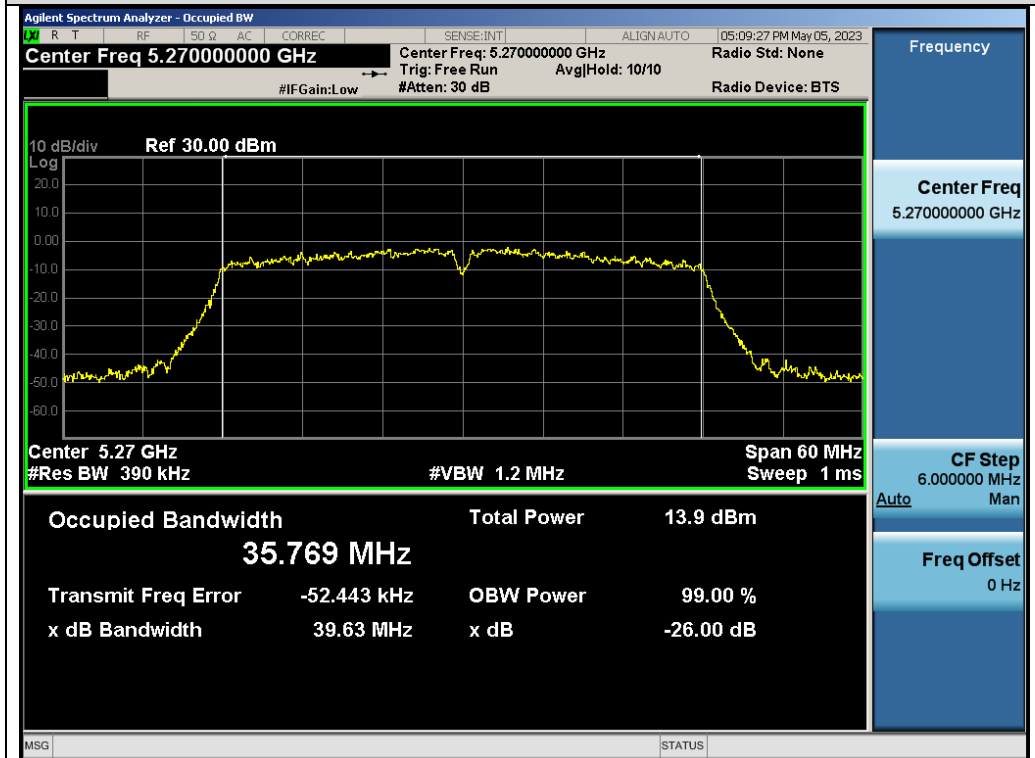


Test_Graph_802.11ac20_ANT1_5300_MCS0_OBW

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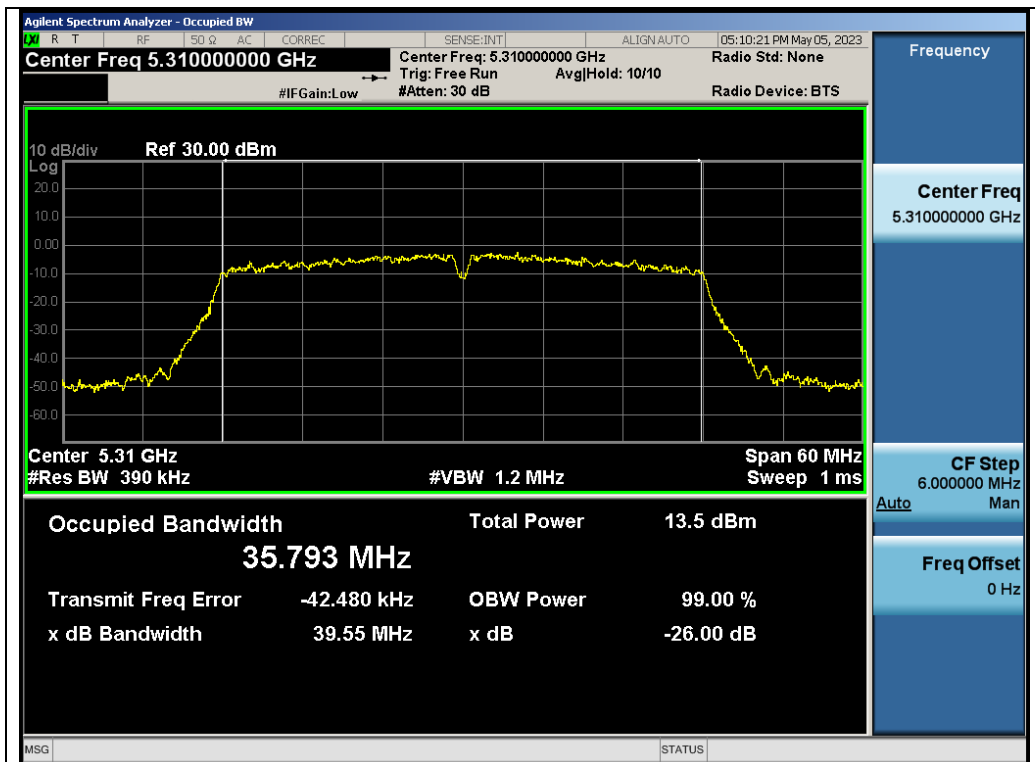


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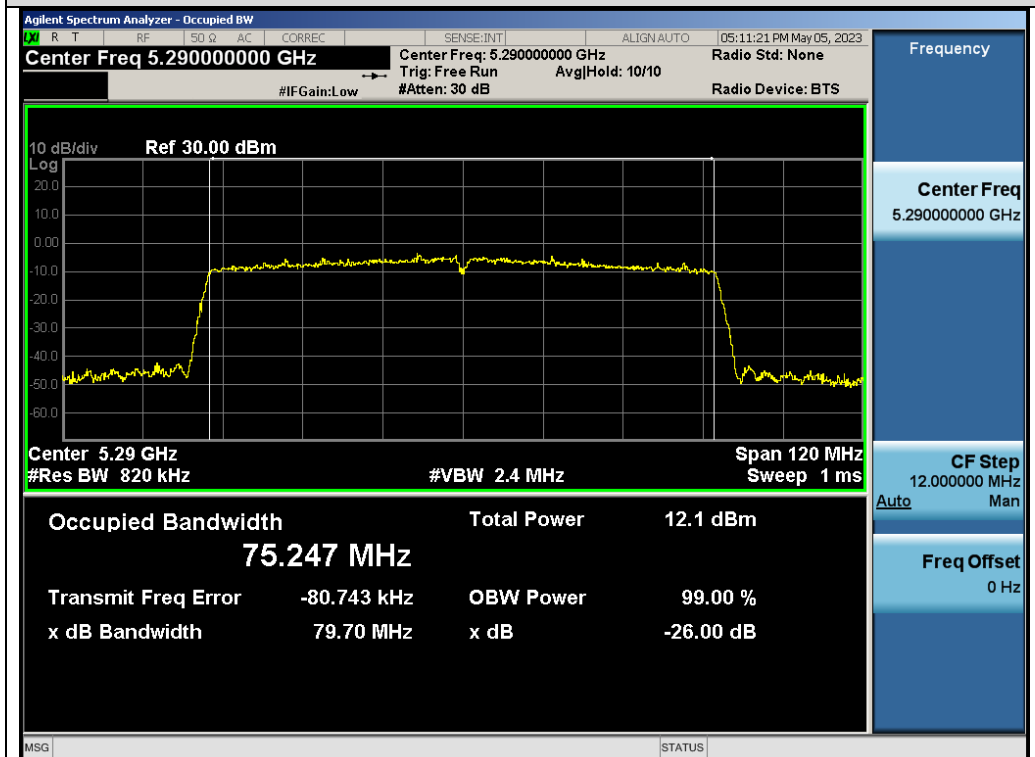


Test_Graph_802.11ac40_ANT1_5270_MCS0_OBW

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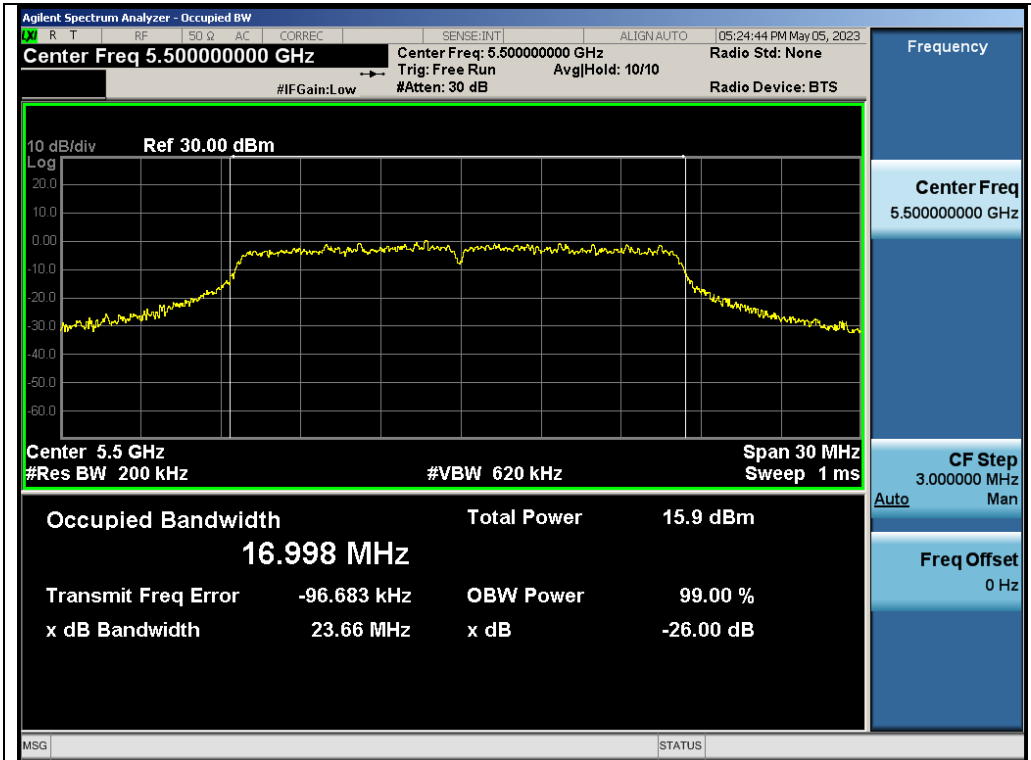
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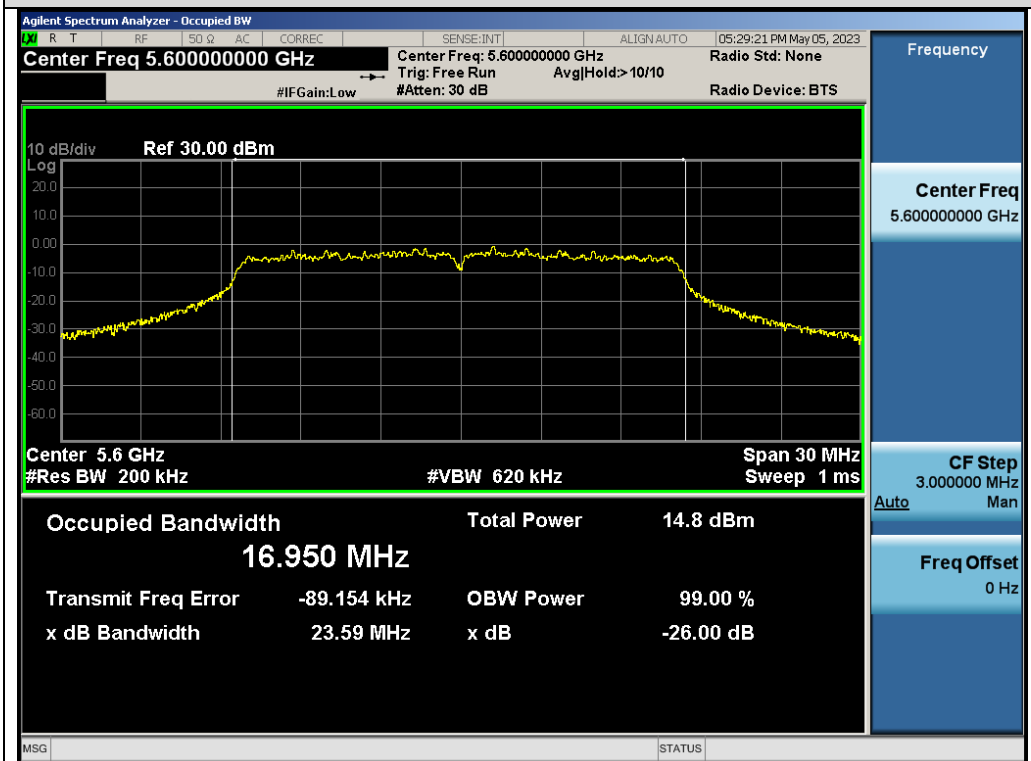
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Test Graphs of Occupied Bandwidth and -26dB Bandwidth for band 5.470-5.725 GHz-Ant 1

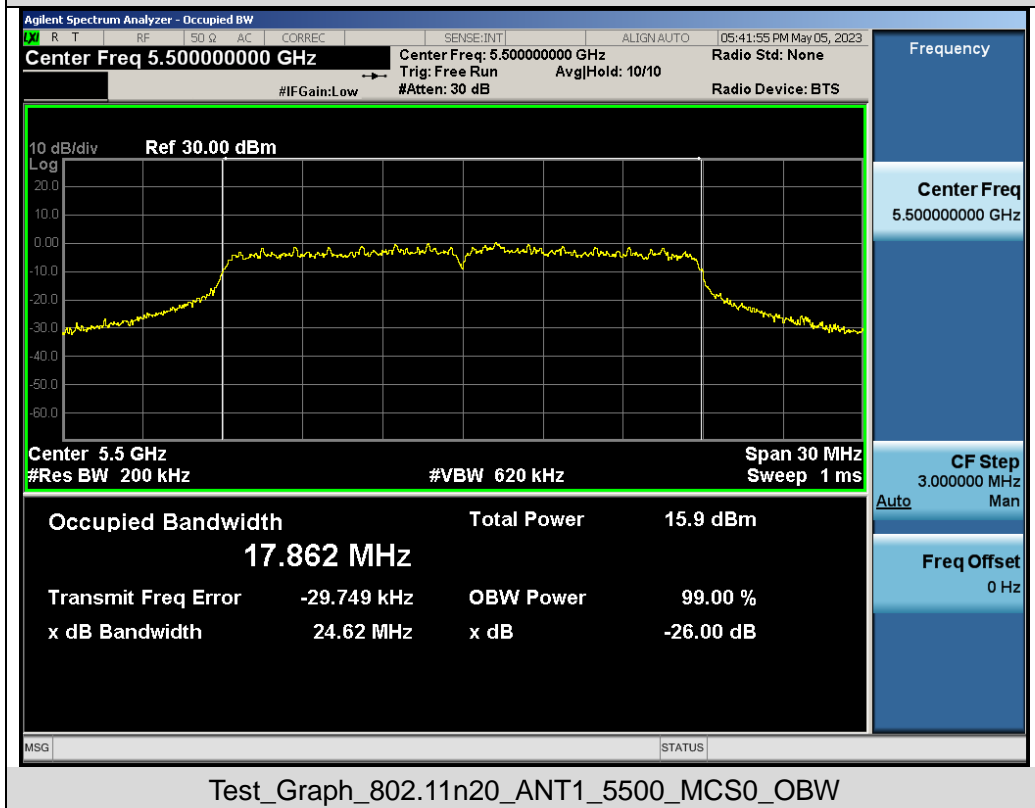
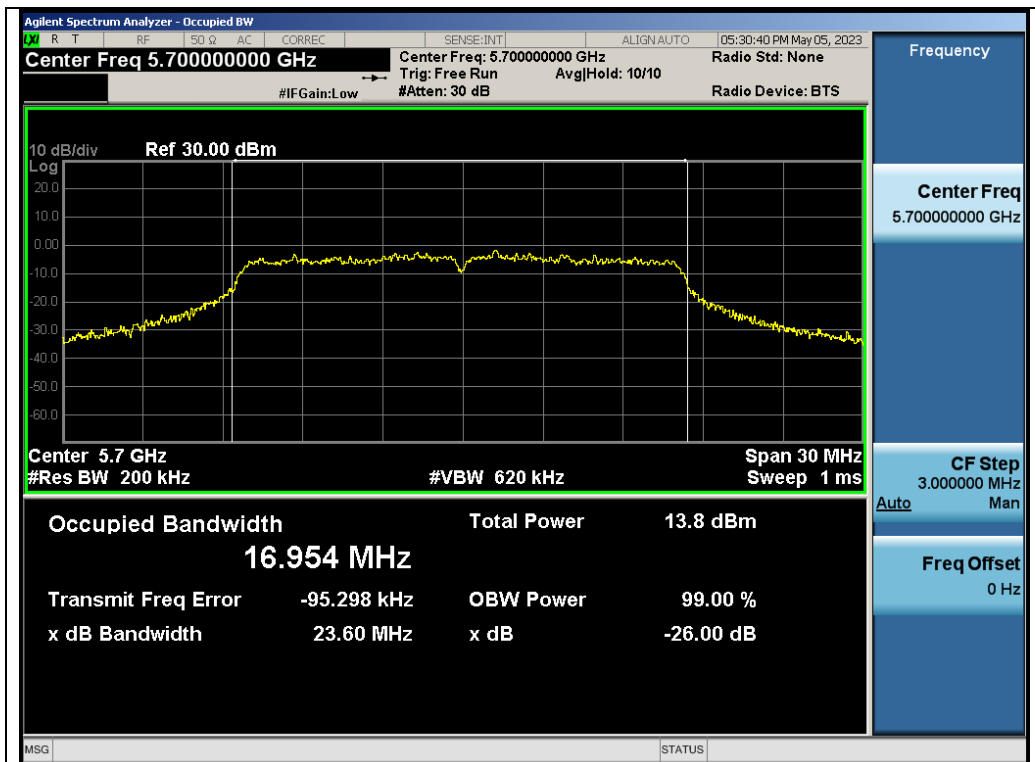


Test_Graph_802.11a_ANT1_5500_6Mbps_OBW

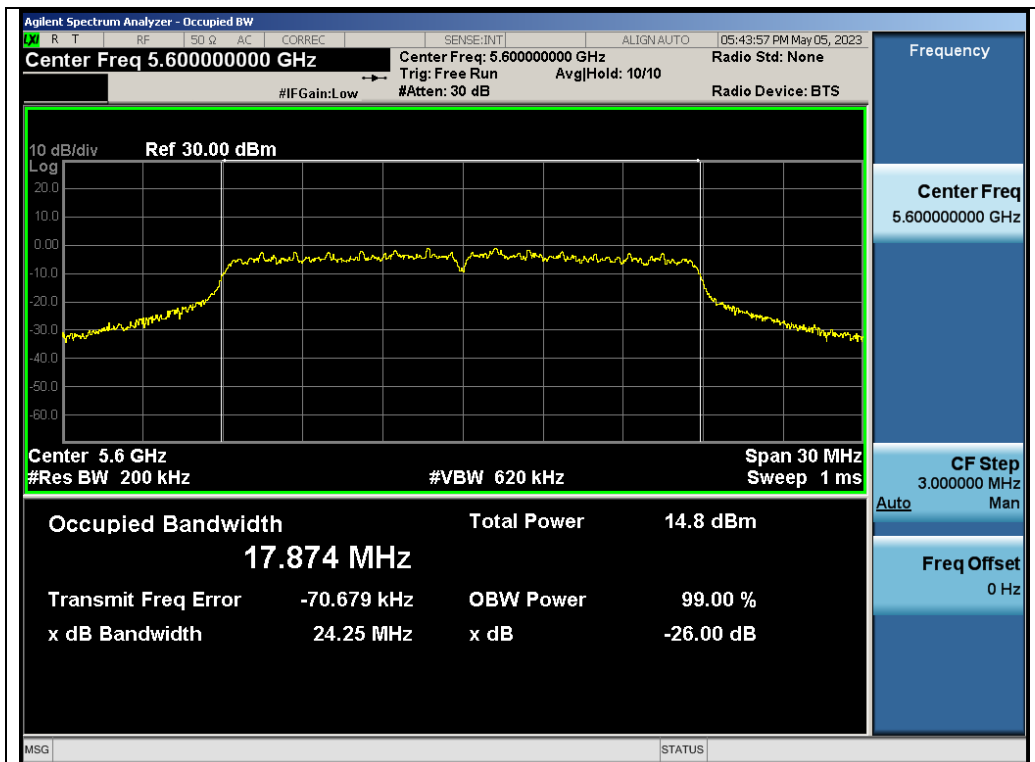


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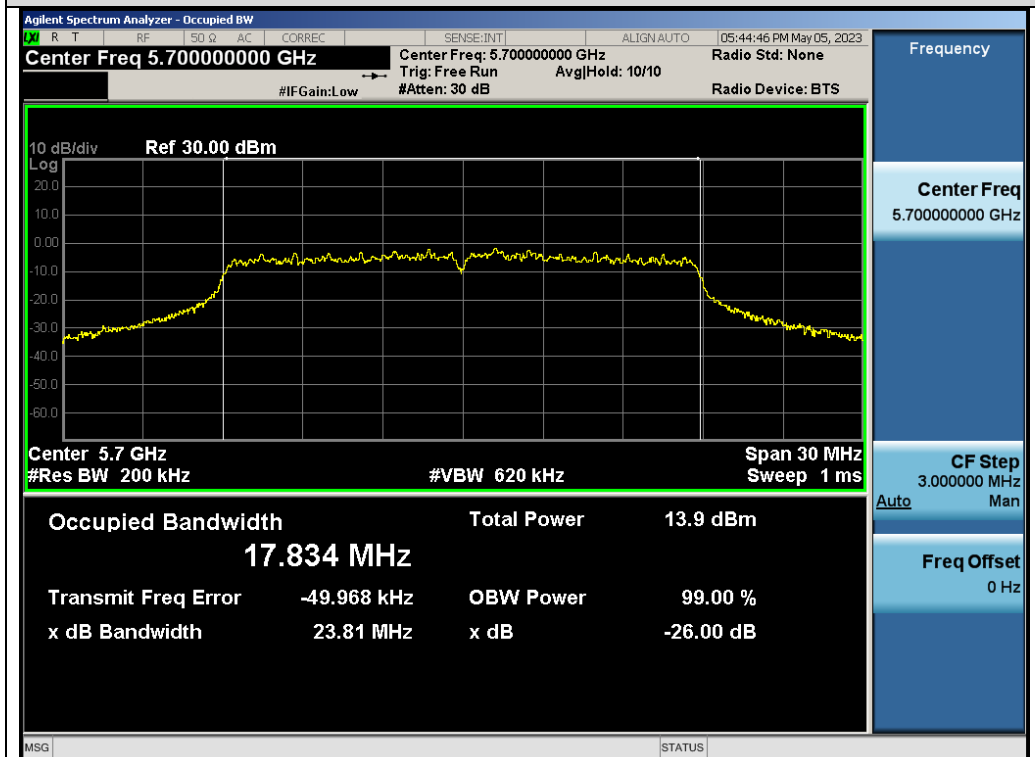
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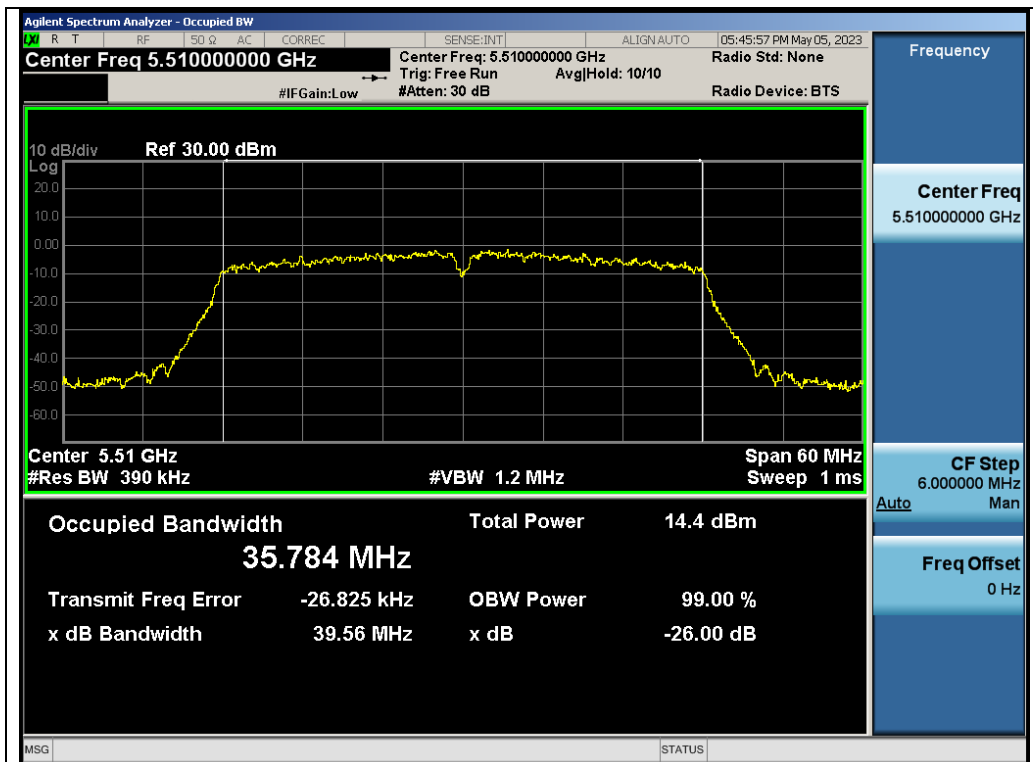


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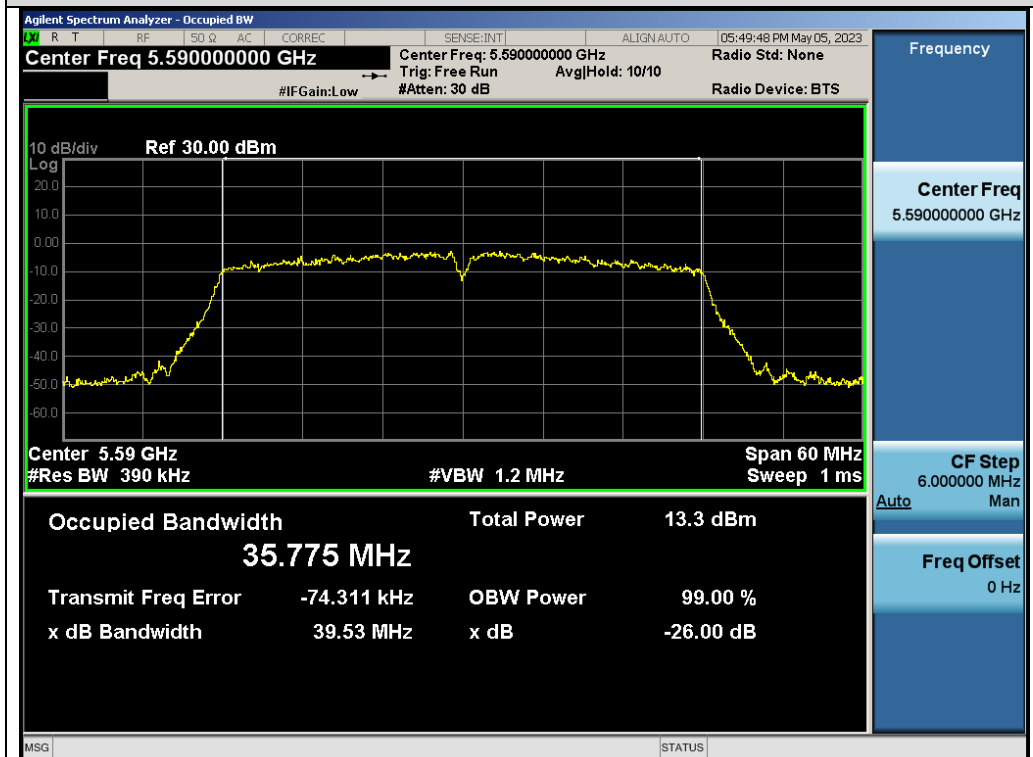


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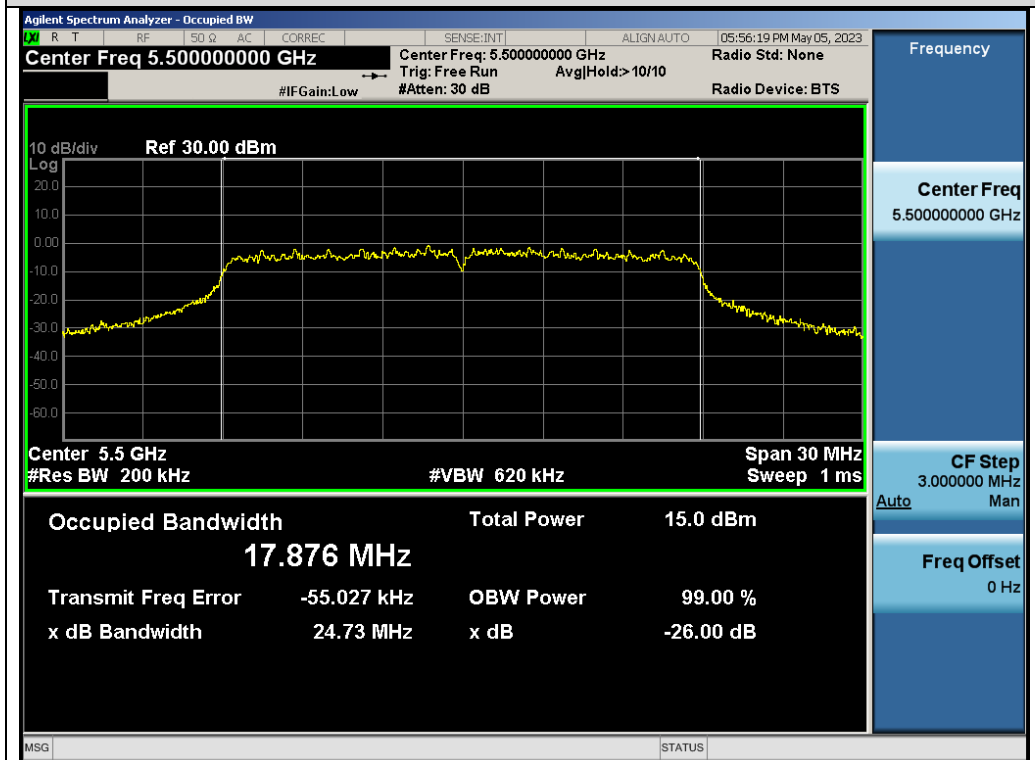
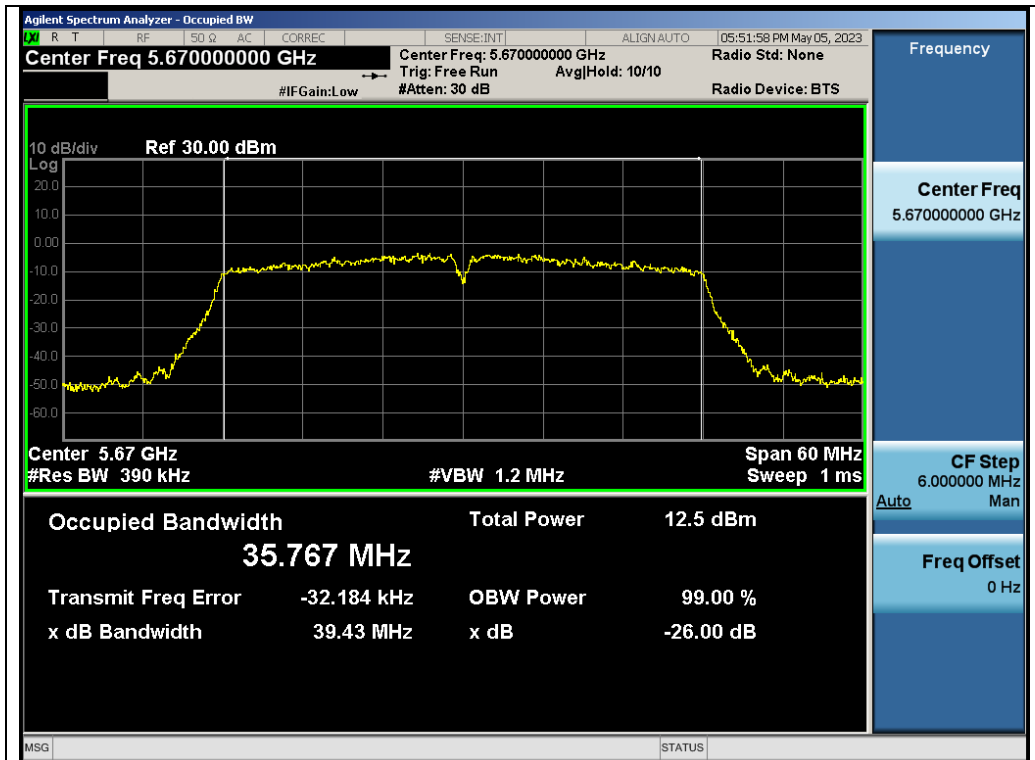


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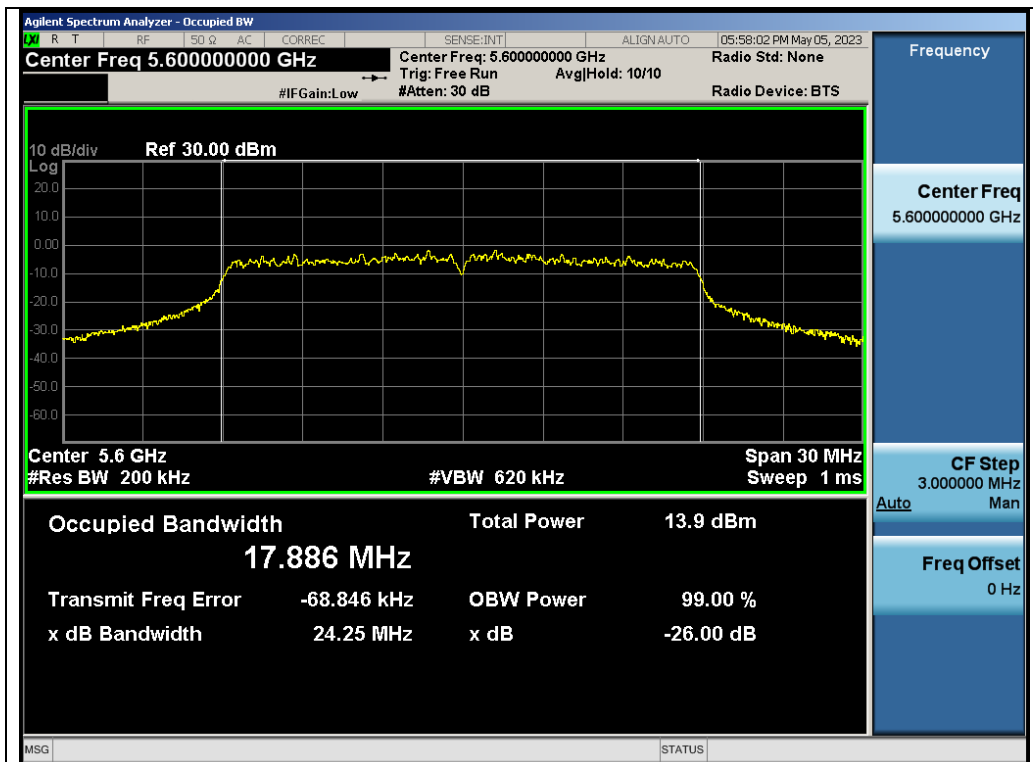


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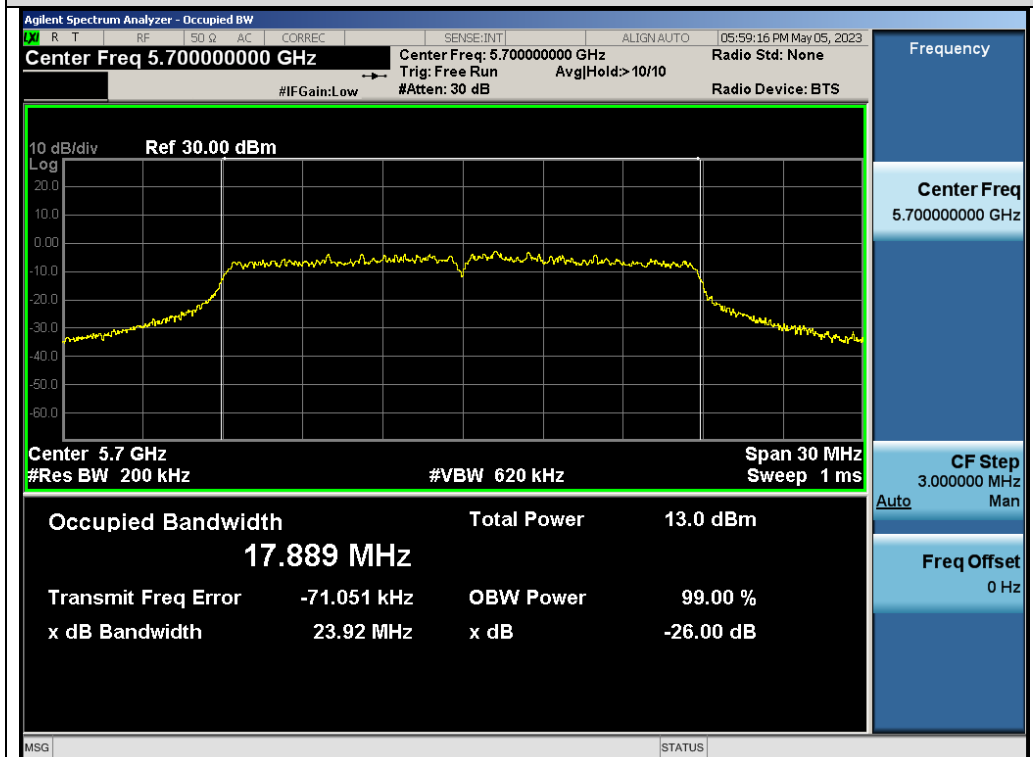
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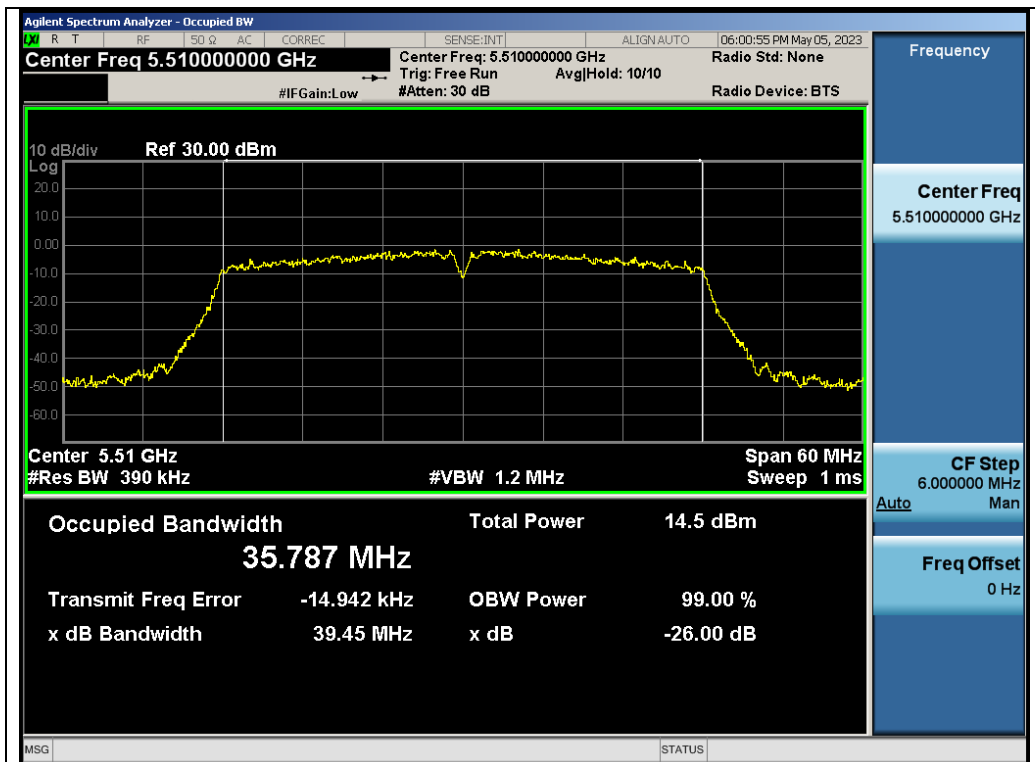


Test_Graph_802.11ac20_ANT1_5600_MCS0_OBW

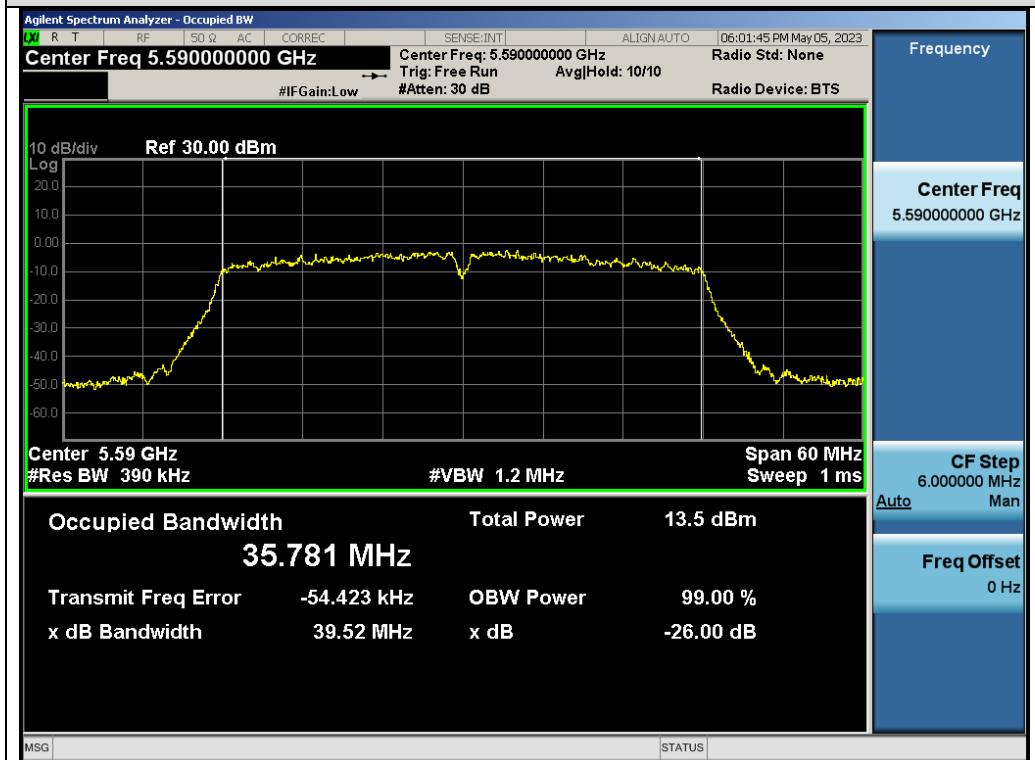


Test_Graph_802.11ac20_ANT1_5700_MCS0_OBW

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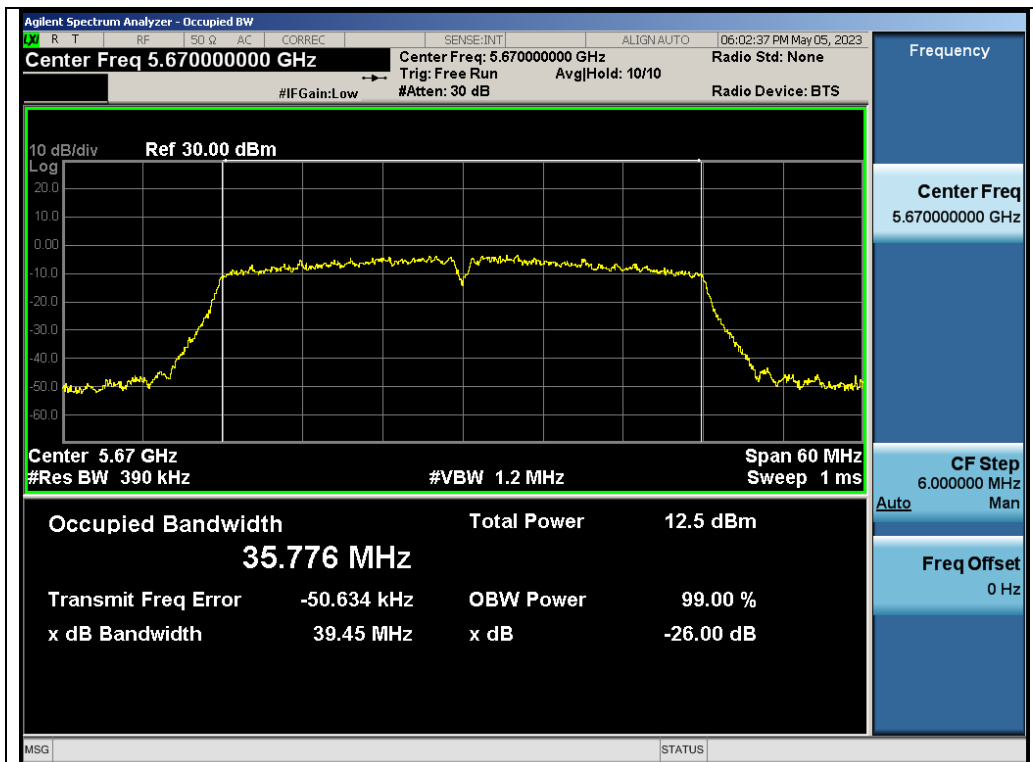


Test_Graph_802.11ac40_ANT1_5510_MCS0_OBW

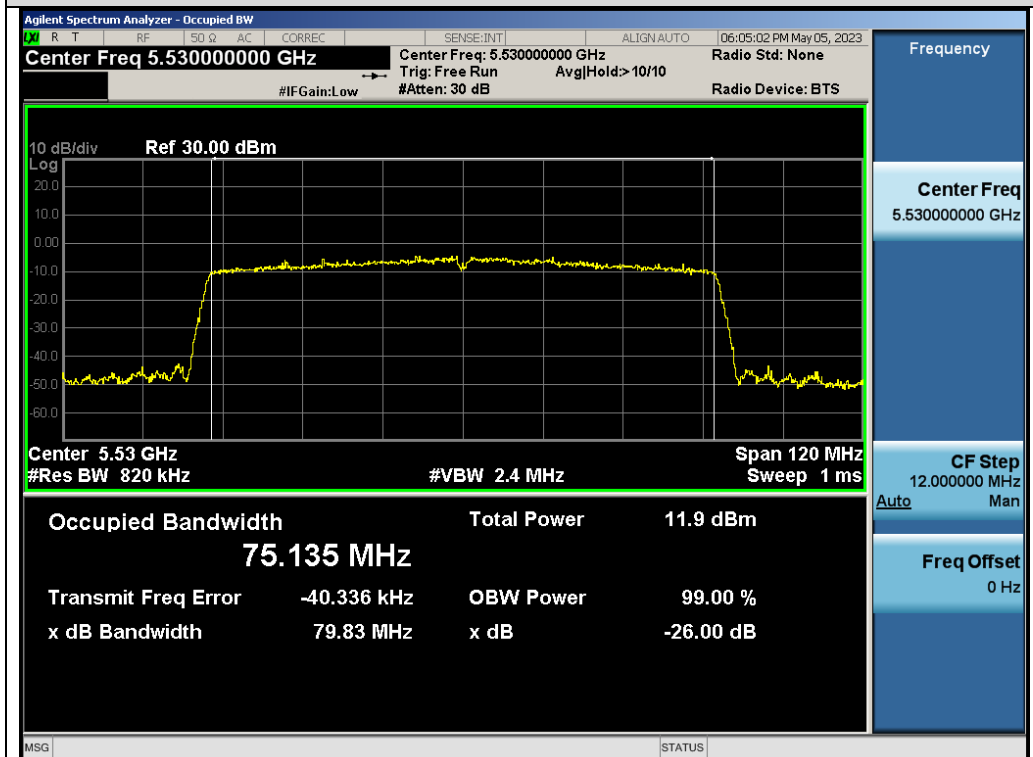


Test_Graph_802.11ac40_ANT1_5590_MCS0_OBW

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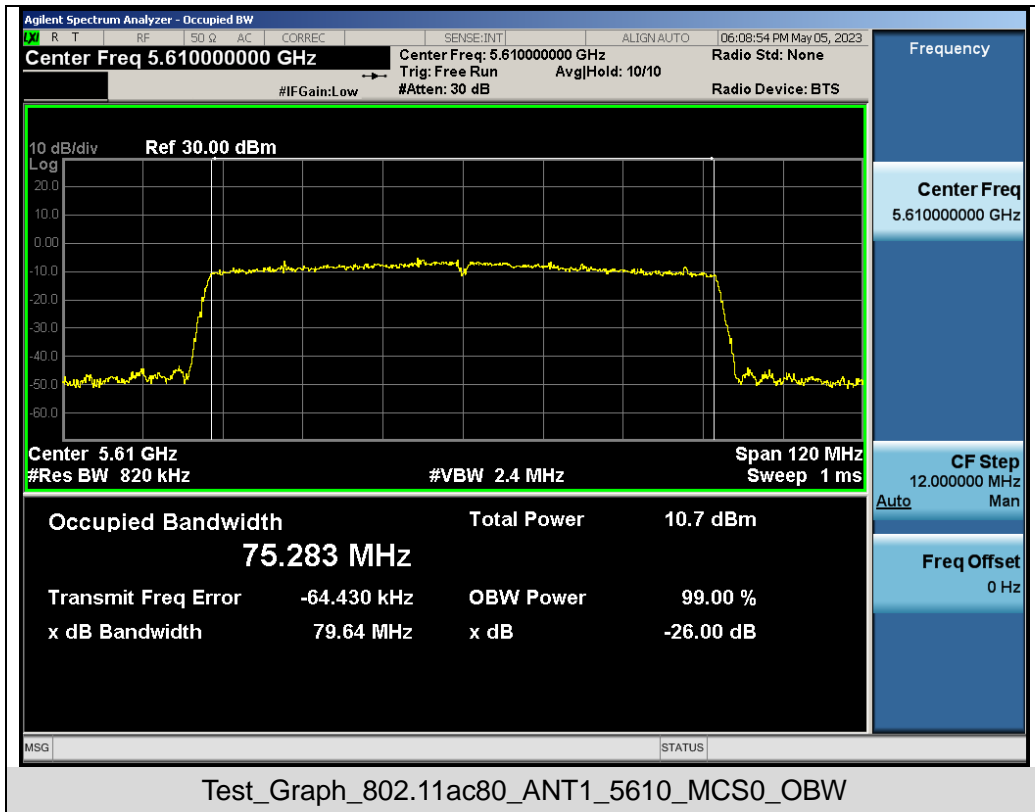


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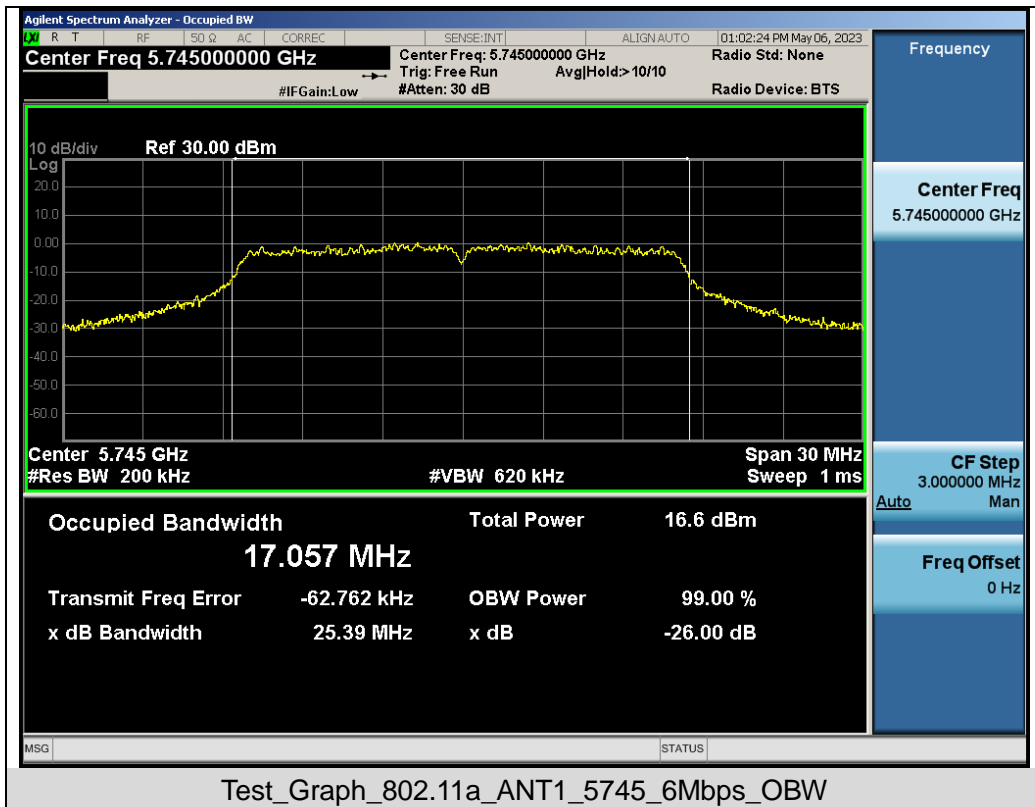


Test_Graph_802.11ac80_ANT1_5530_MCS0_OBW

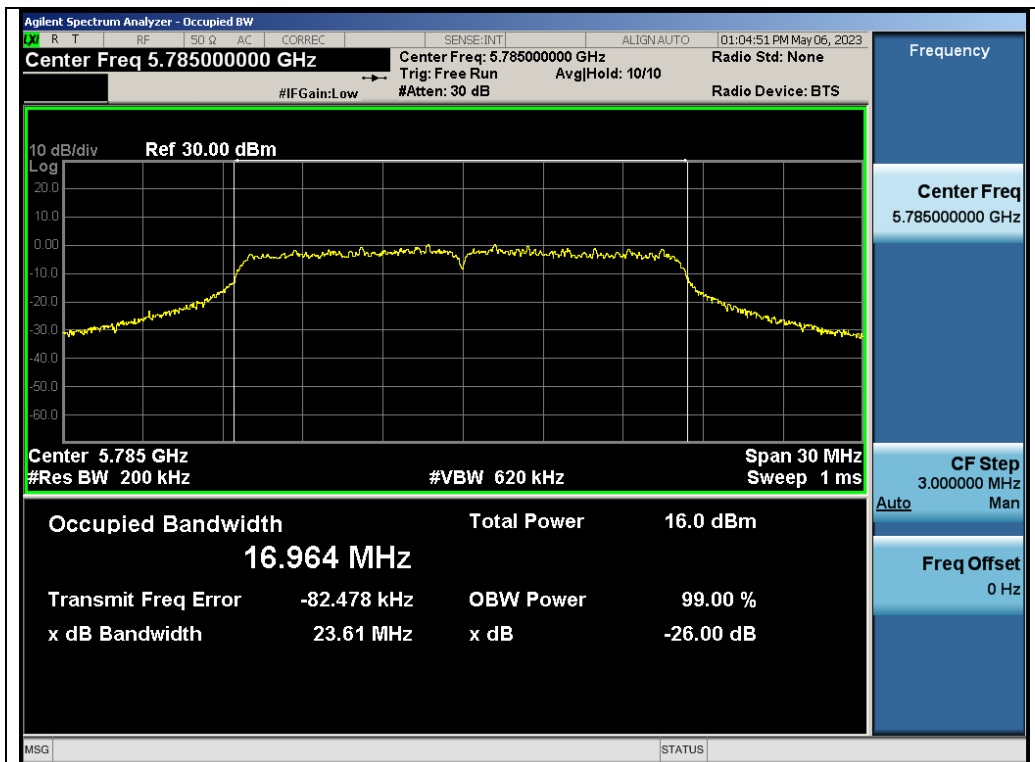
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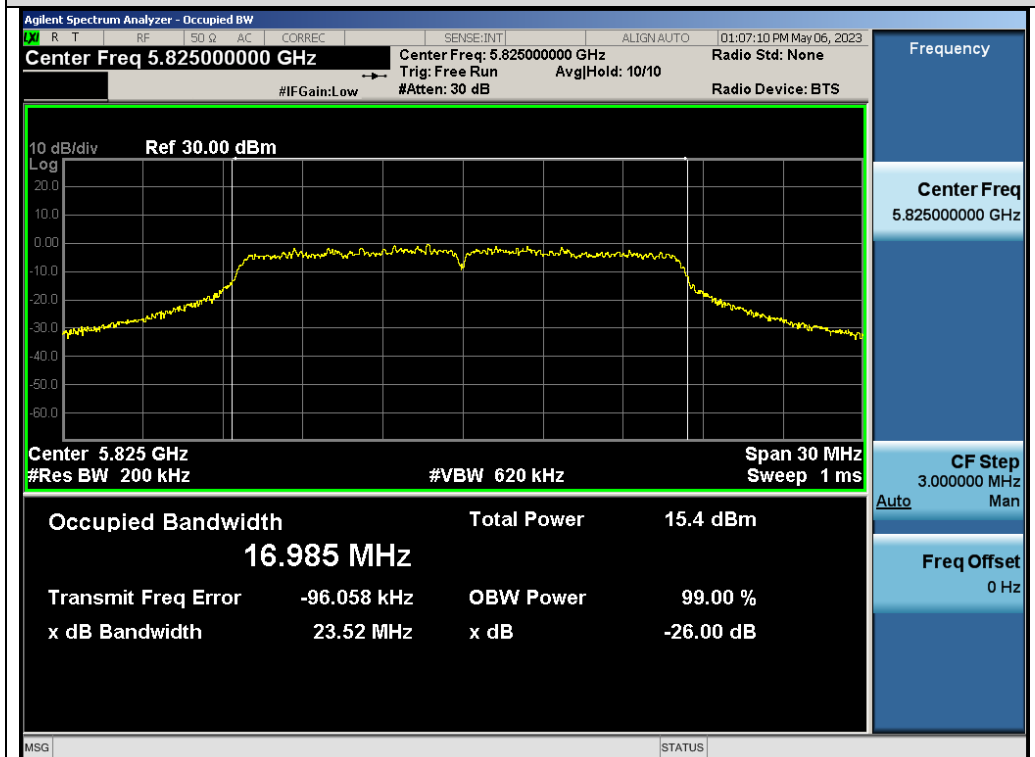
Test Graphs of Occupied Bandwidth for band 5.725-5.85 GHz-Ant 1



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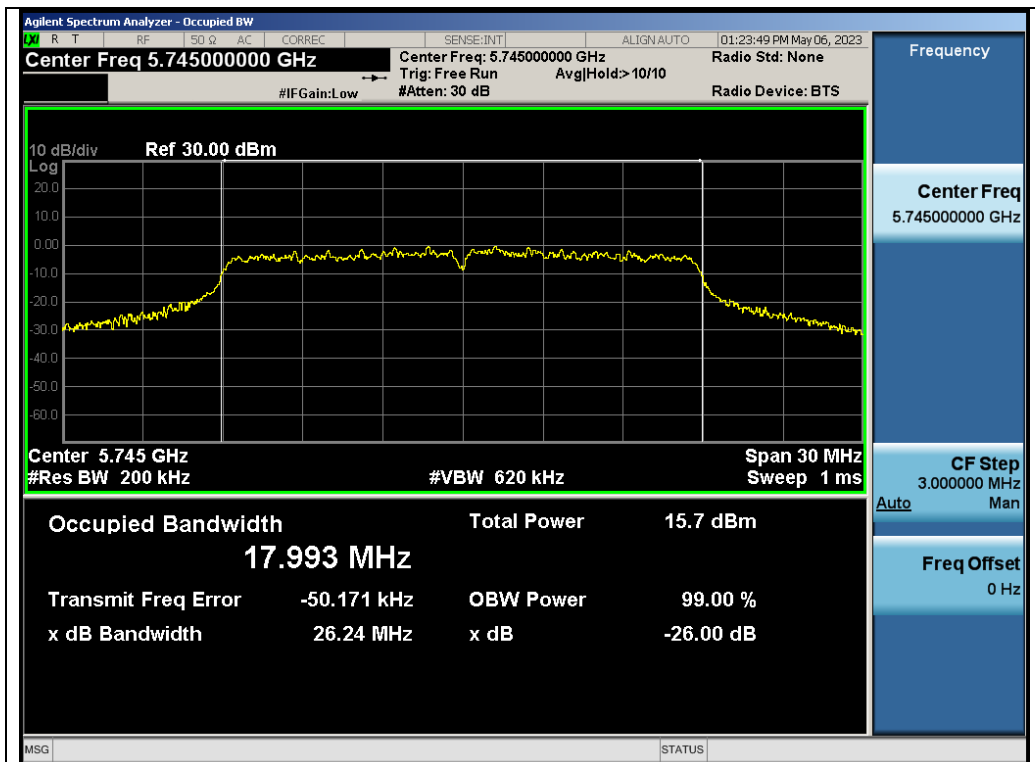


Test_Graph_802.11a_ANT1_5785_6Mbps_OBW

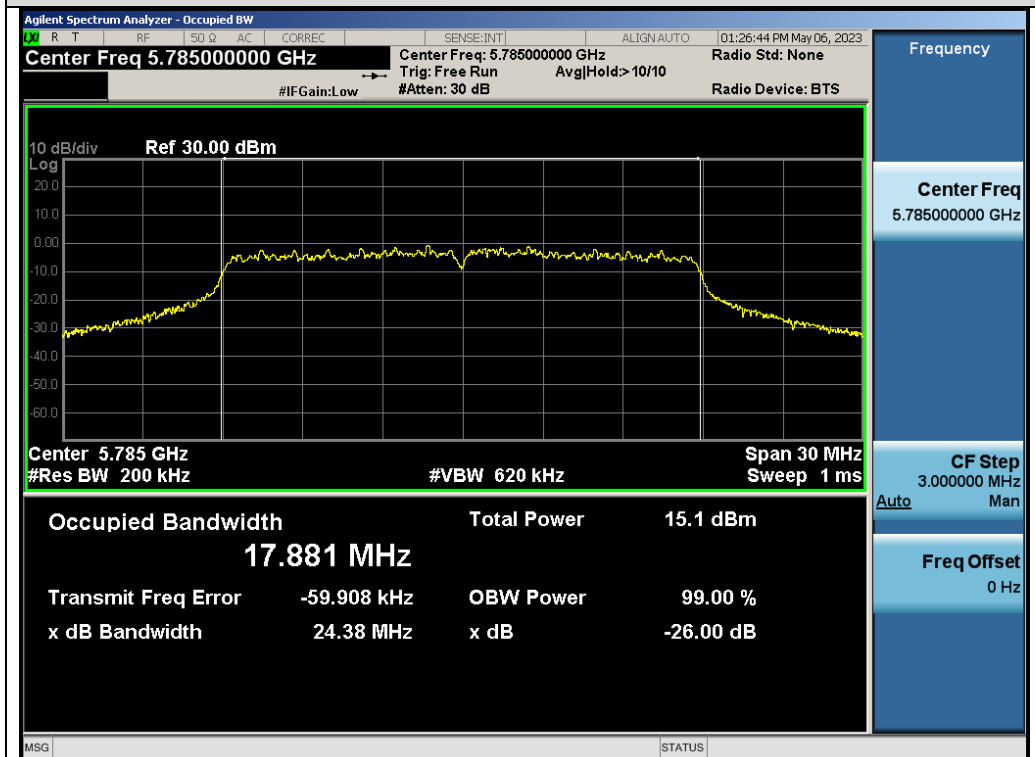


Test_Graph_802.11a_ANT1_5825_6Mbps_OBW

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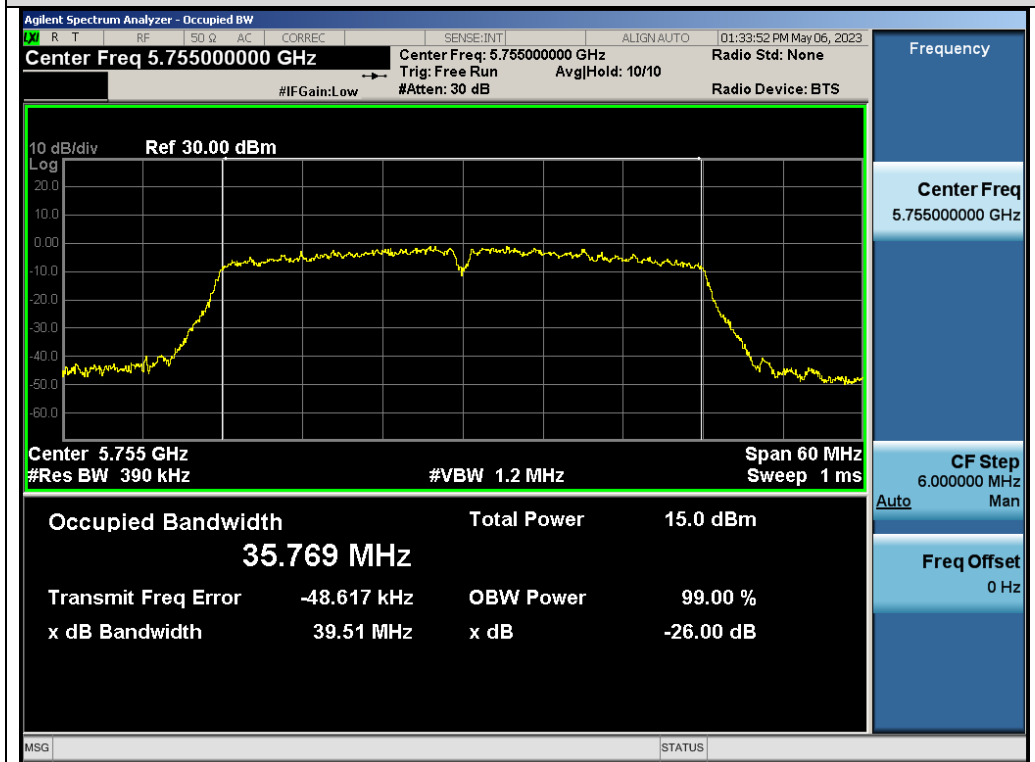
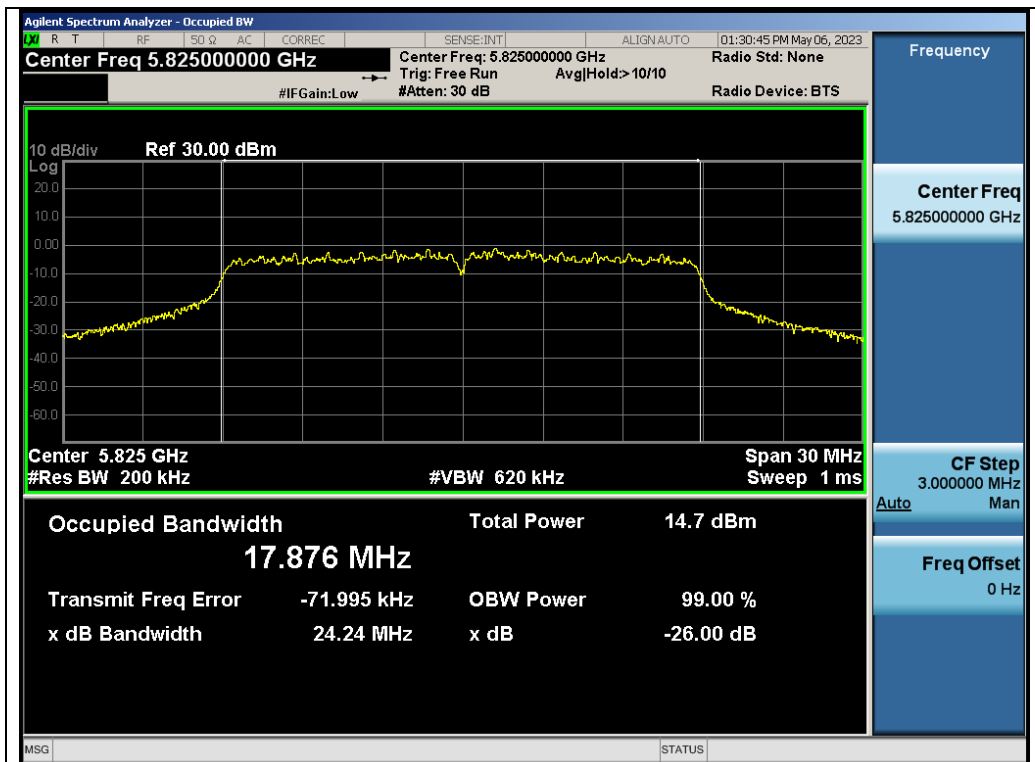


Test_Graph_802.11n20_ANT1_5745_MCS0_OBW

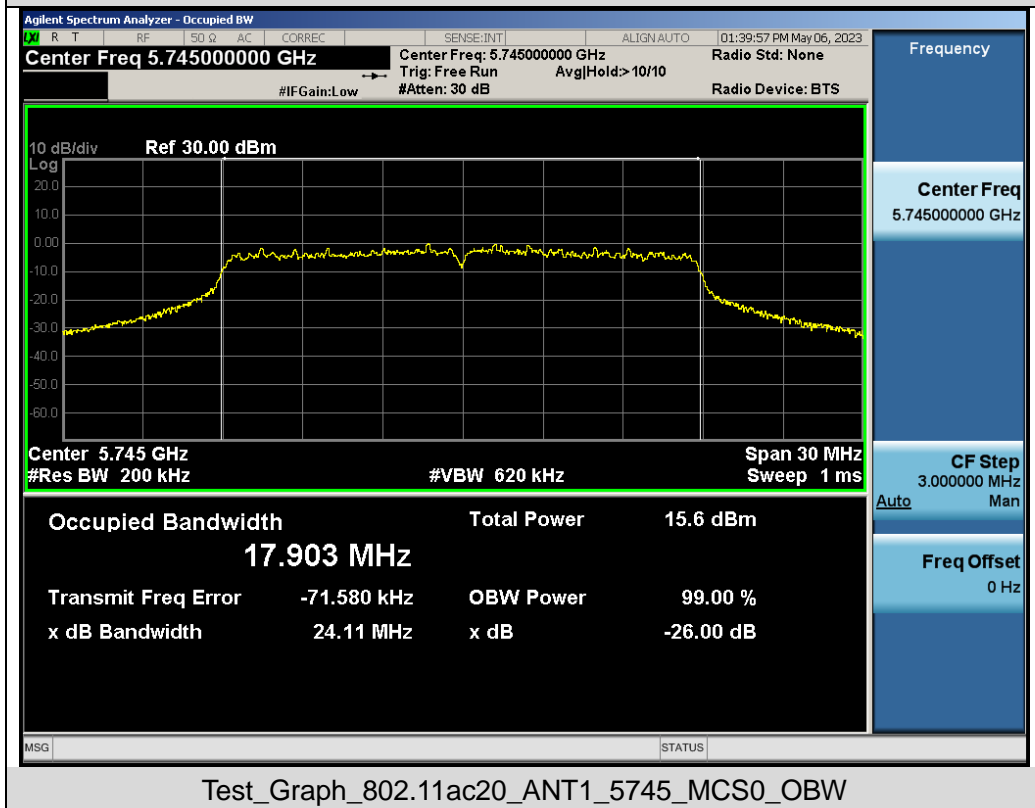
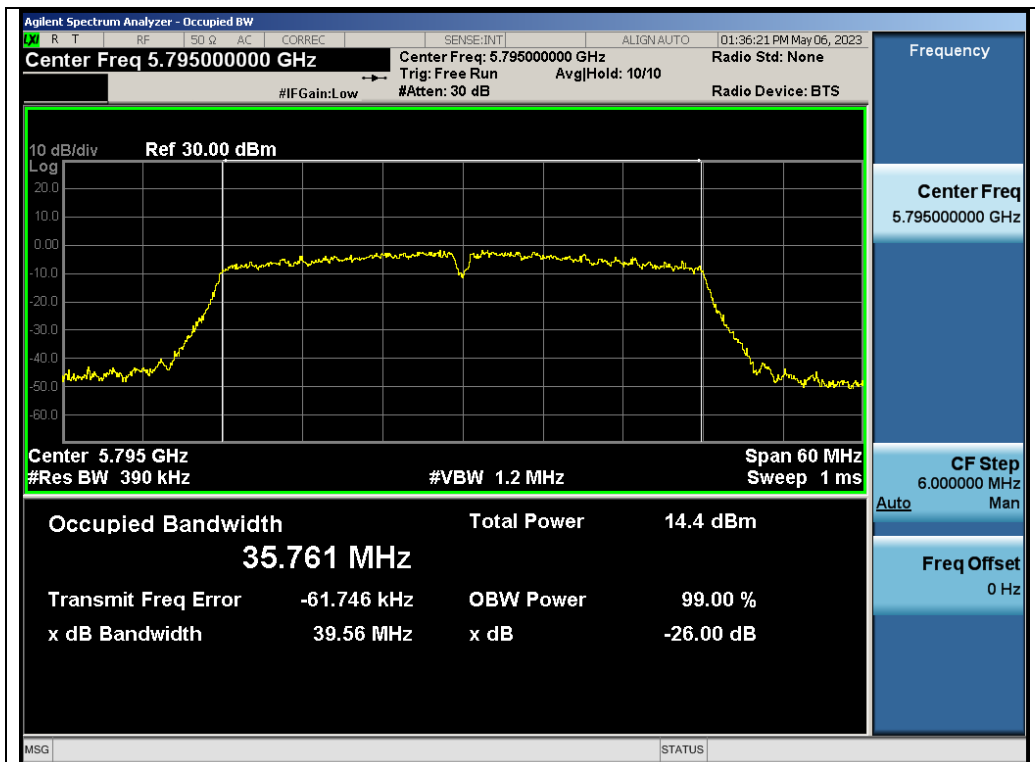


Test_Graph_802.11n20_ANT1_5785_MCS0_OBW

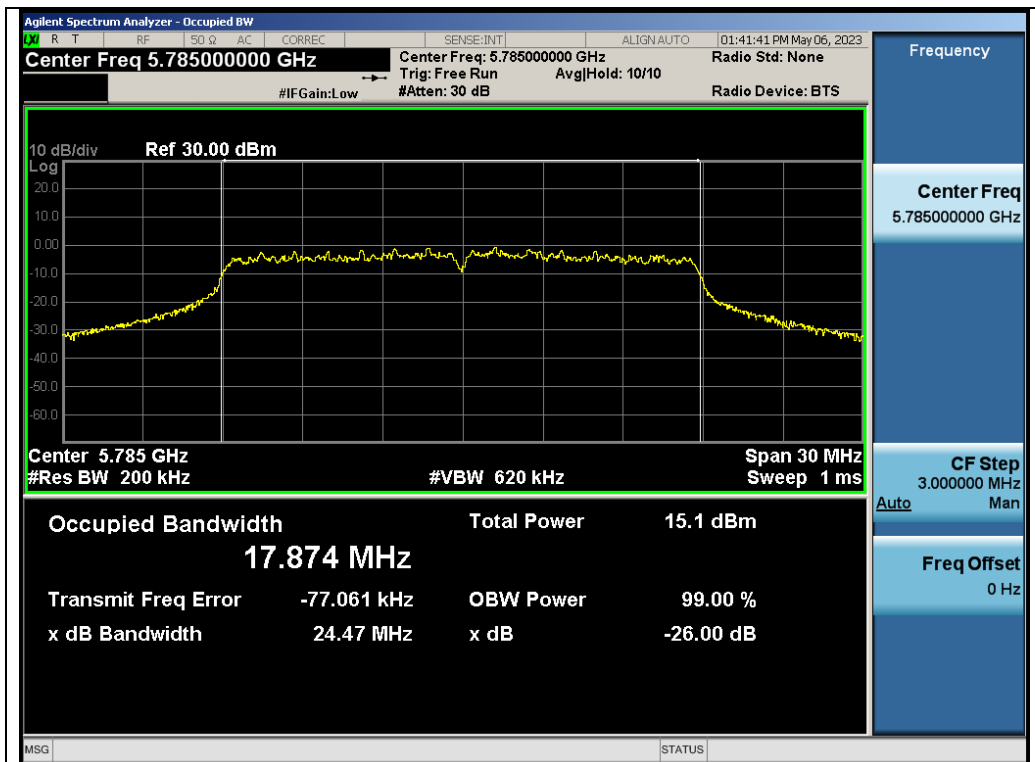
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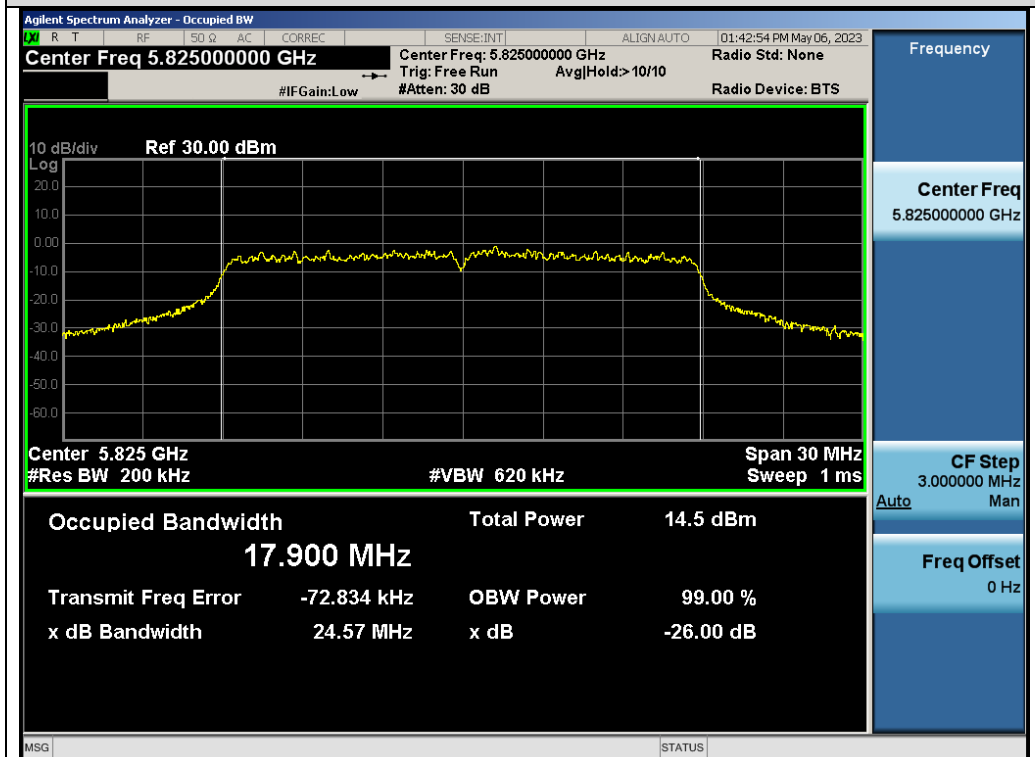
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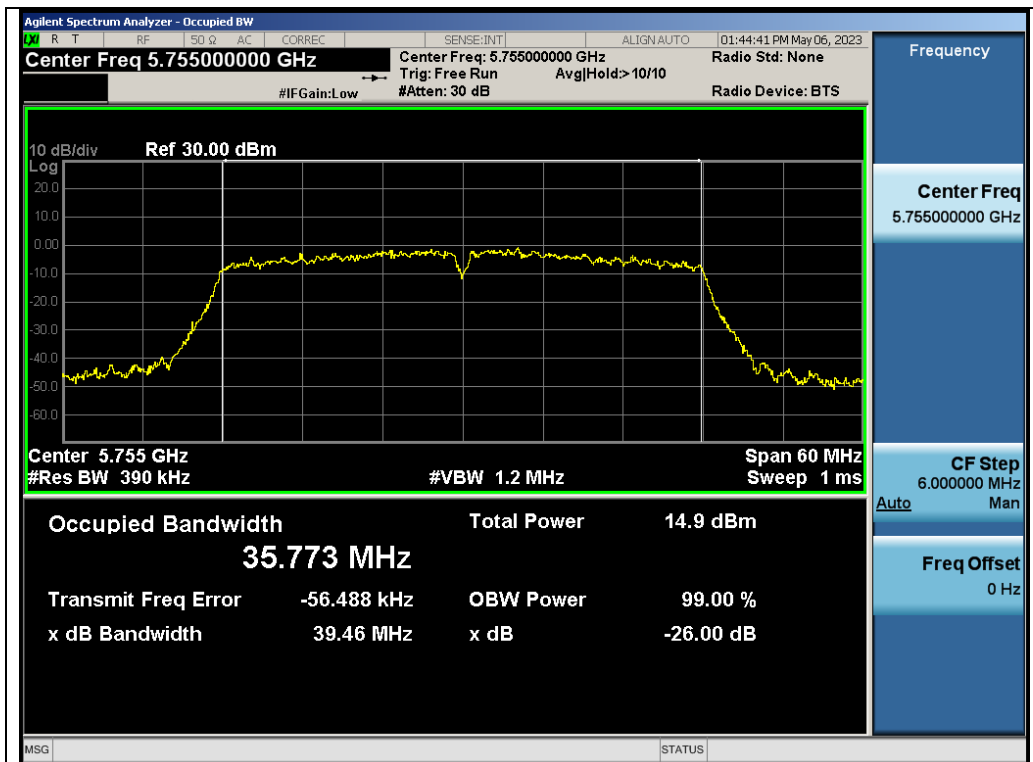


Test_Graph_802.11ac20_ANT1_5785_MCS0_OBW

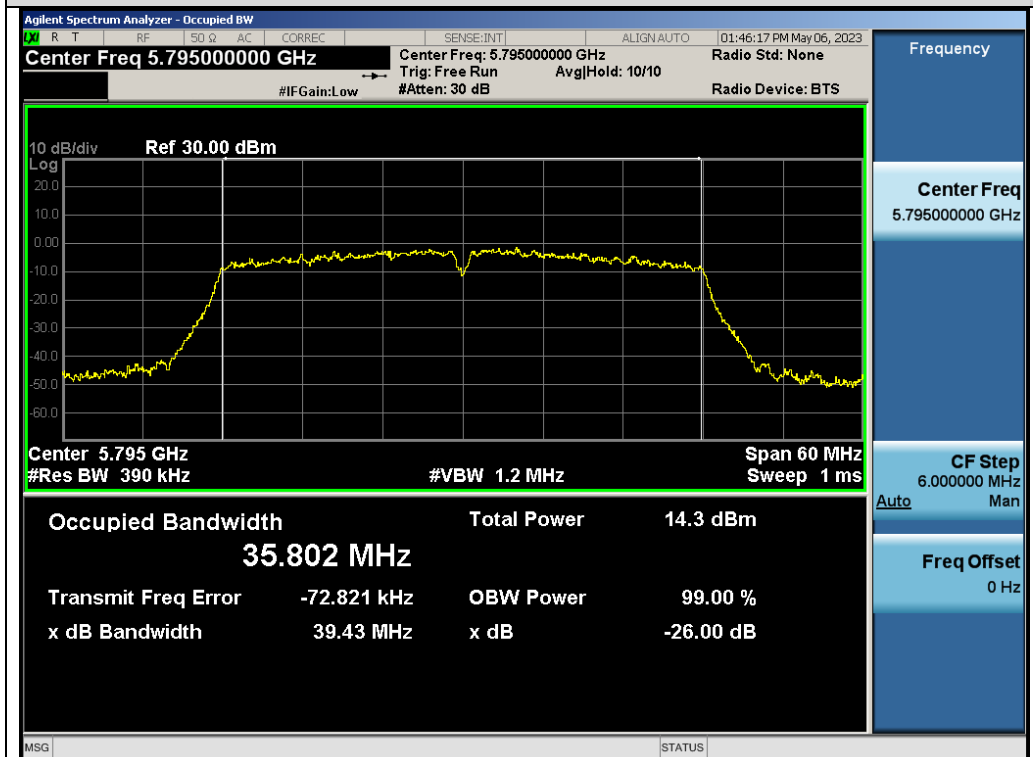


Test_Graph_802.11ac20_ANT1_5825_MCS9_OBW

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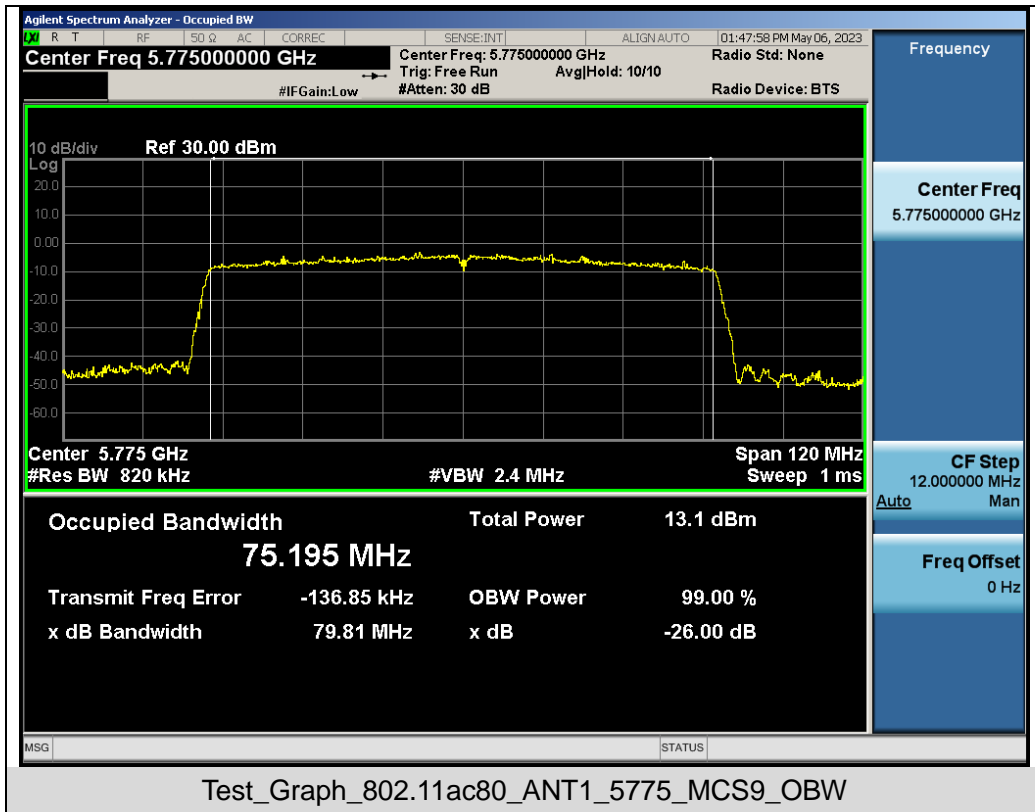


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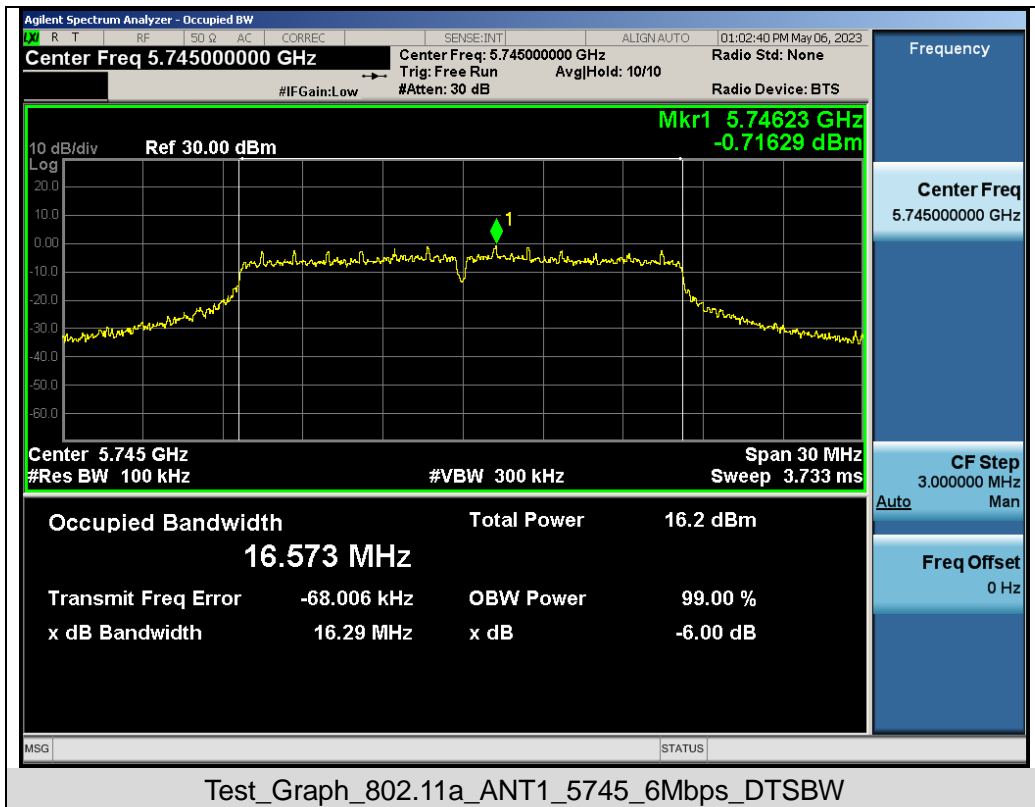


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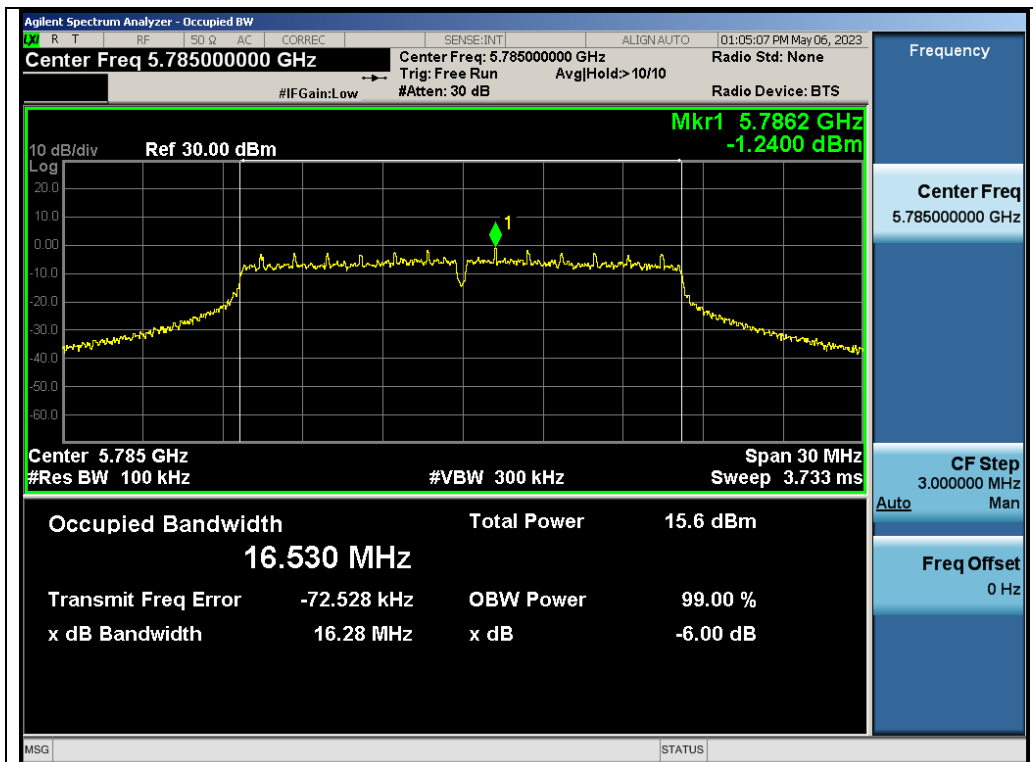
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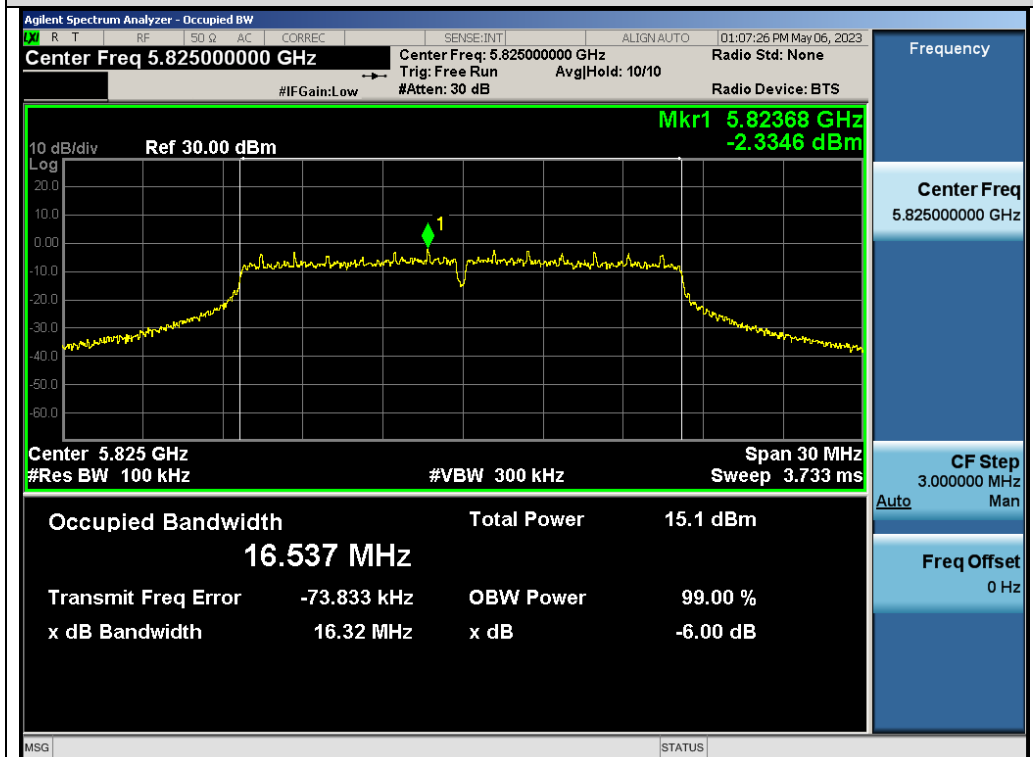
Test Graphs of DTS Bandwidth for band 5.725-5.85 GHz-Ant 1



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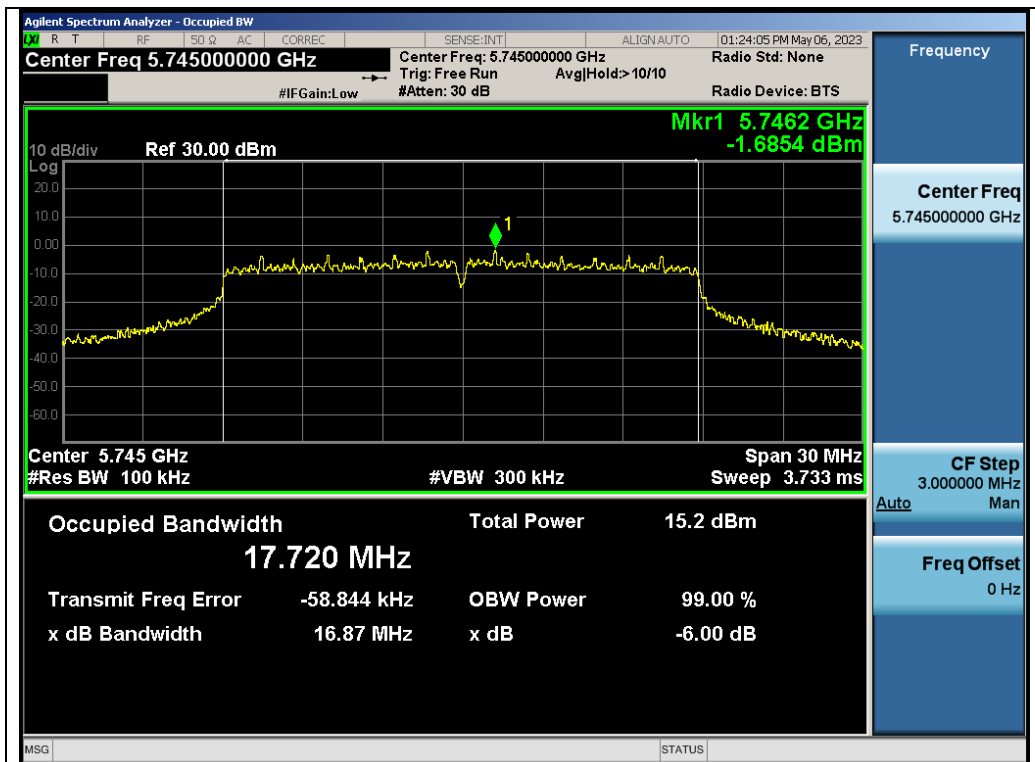


Test_Graph_802.11a_ANT1_5785_6Mbps_DTSBW

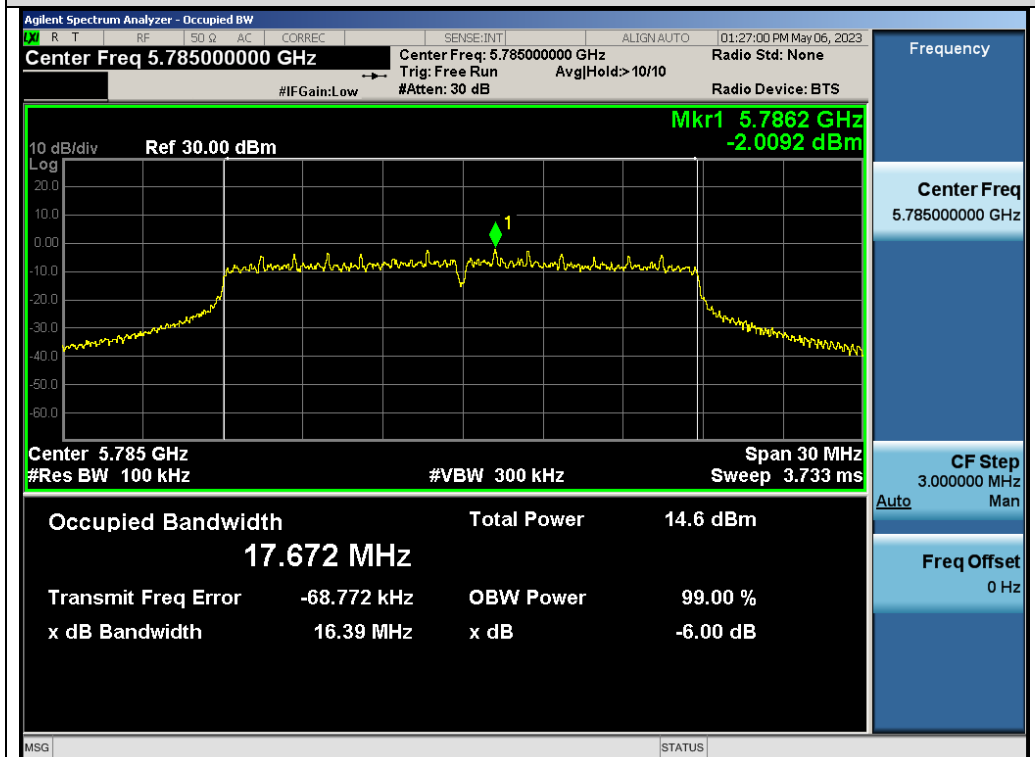


Test_Graph_802.11a_ANT1_5825_6Mbps_DTSBW

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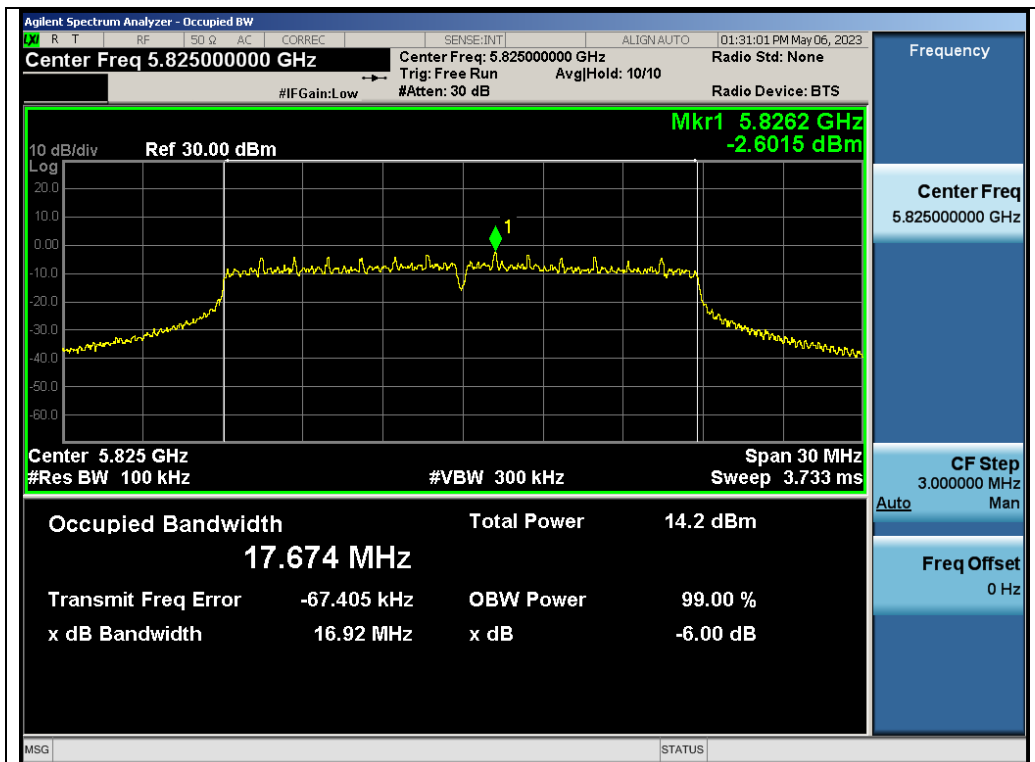


Test_Graph_802.11n20_ANT1_5745_MCS0_DTSBW

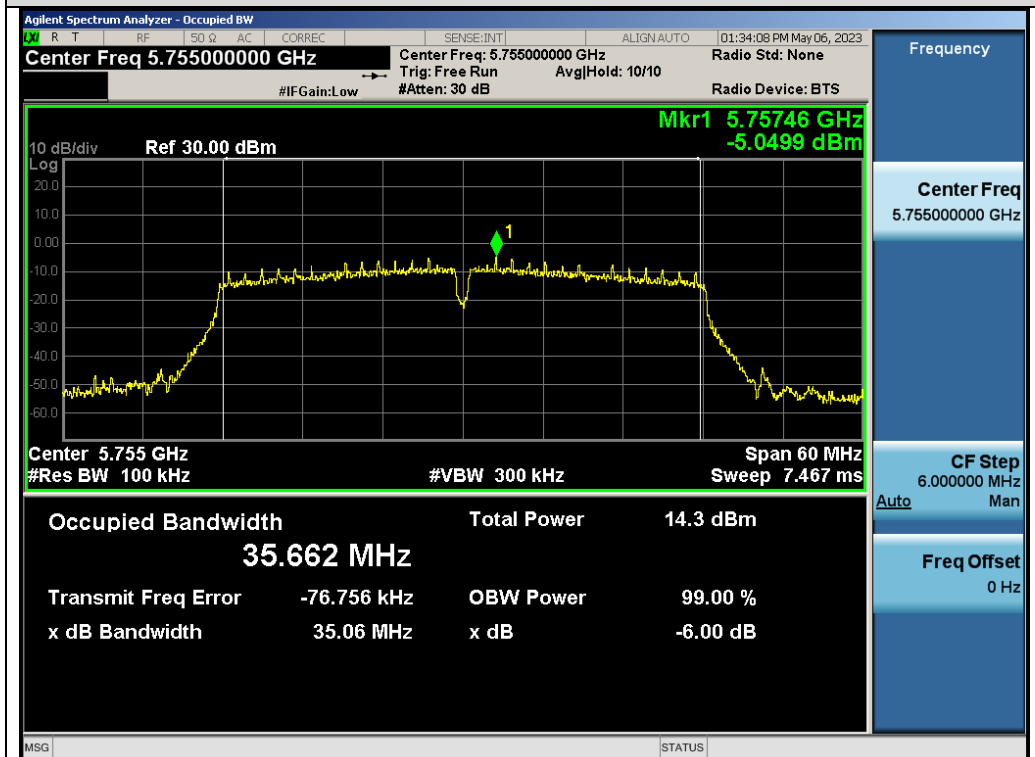


Test_Graph_802.11n20_ANT1_5785_MCS0_DTSBW

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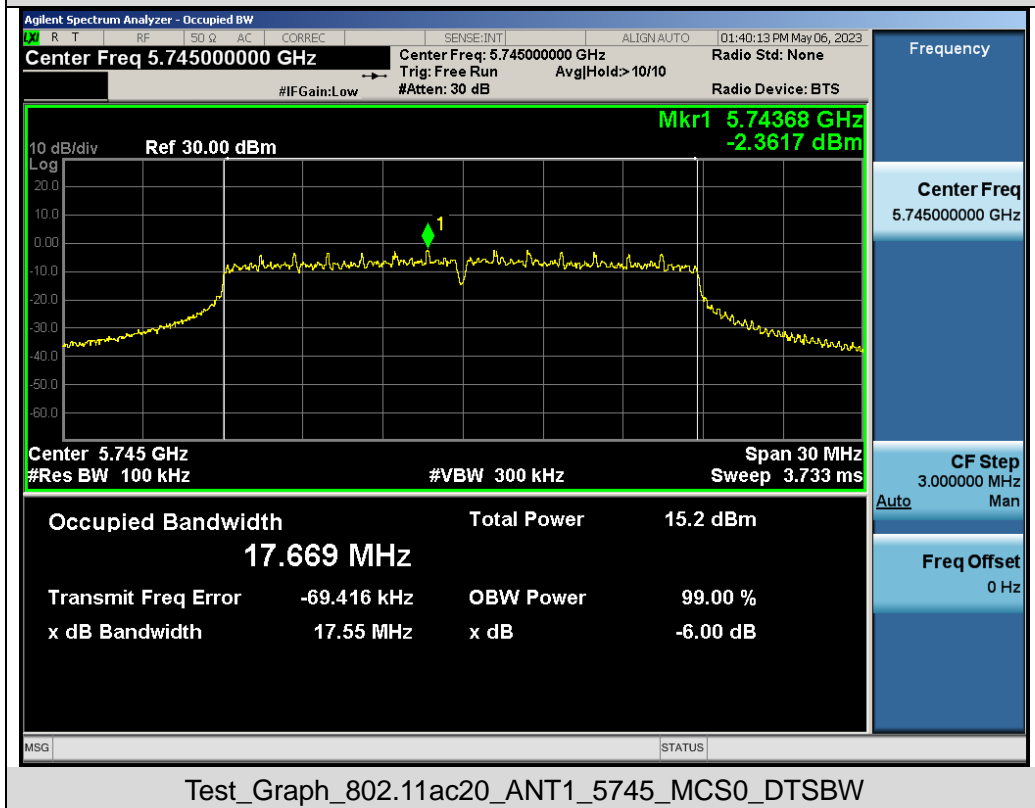
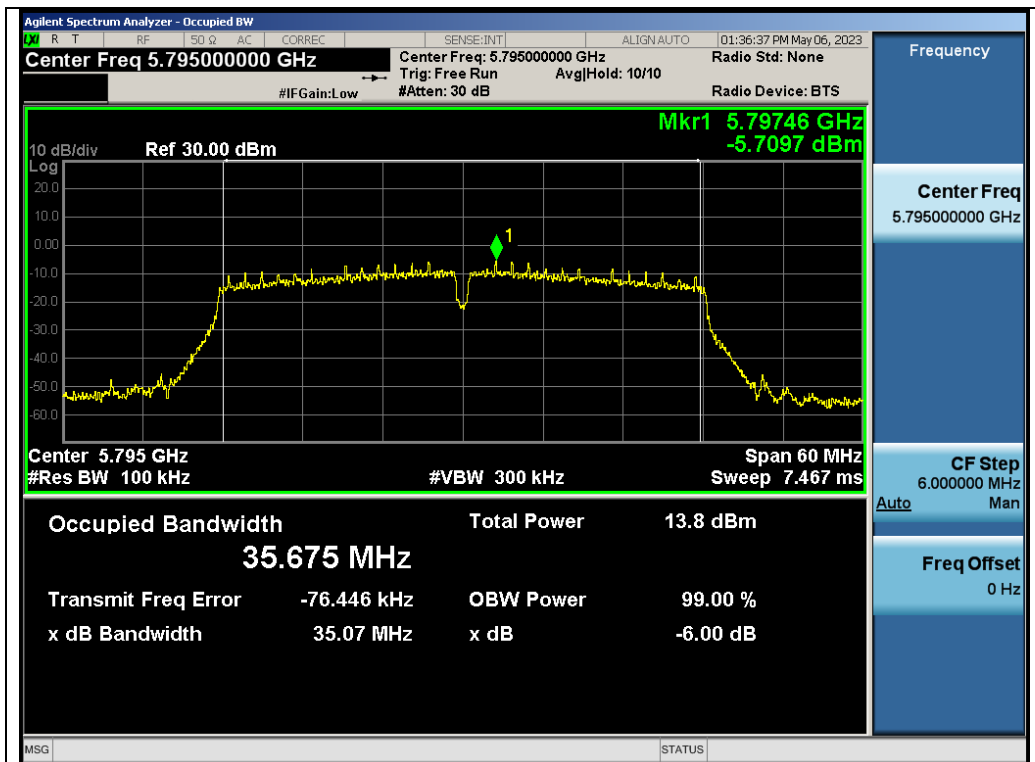


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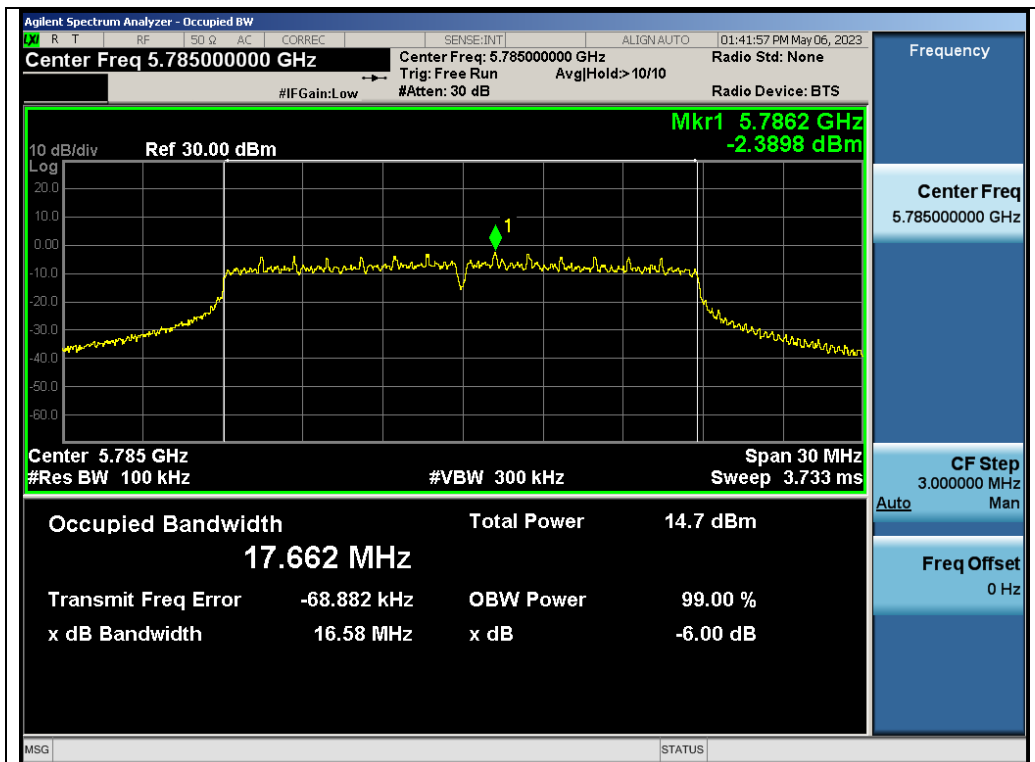


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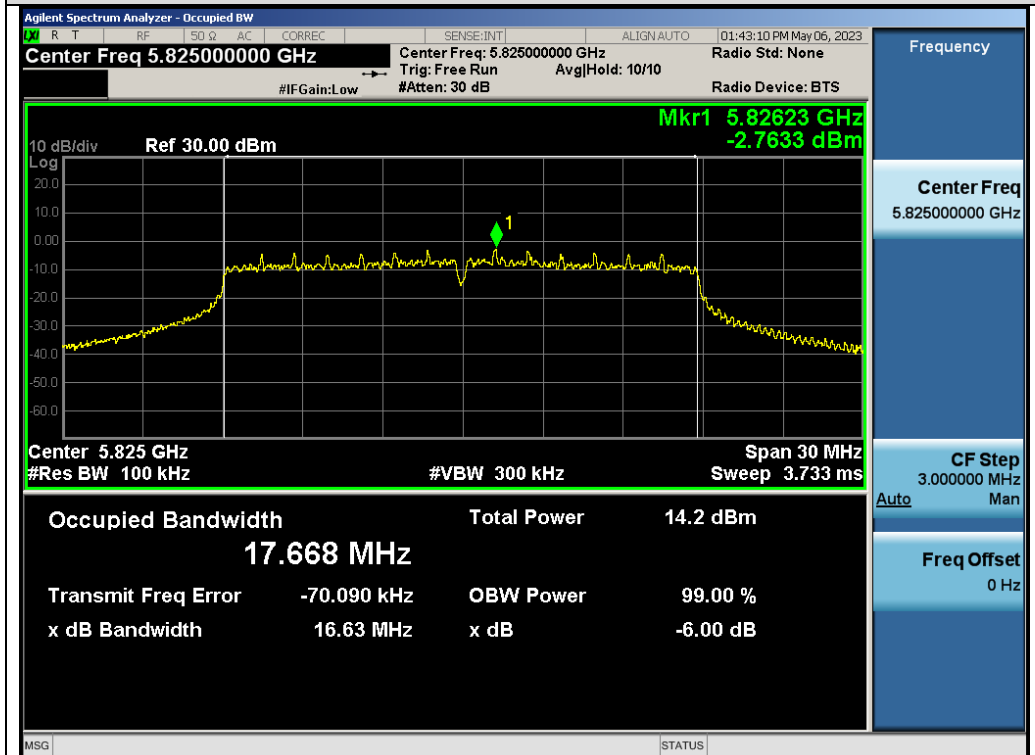
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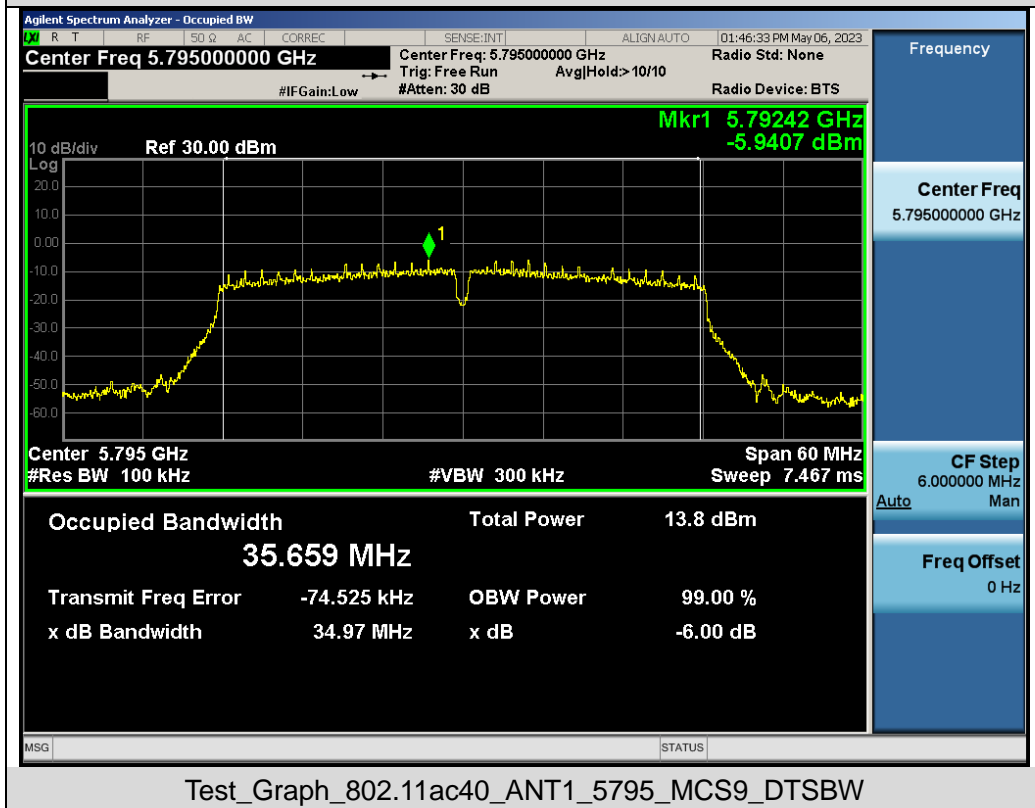
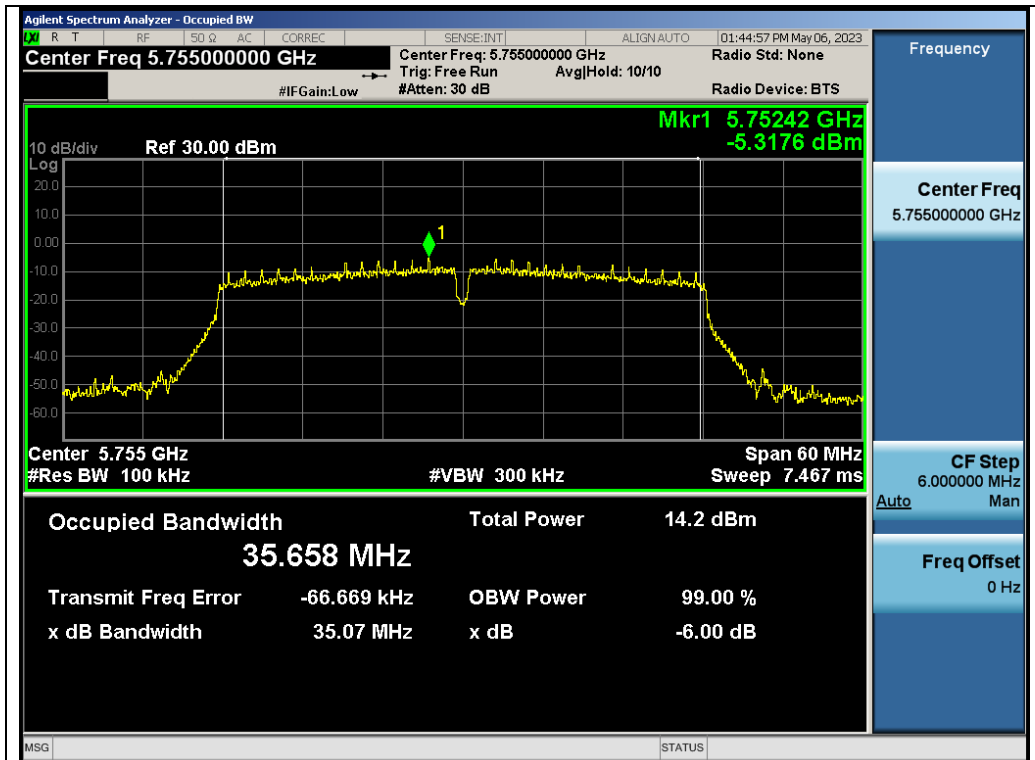


Test_Graph_802.11ac20_ANT1_5785_MCS0_DTSBW



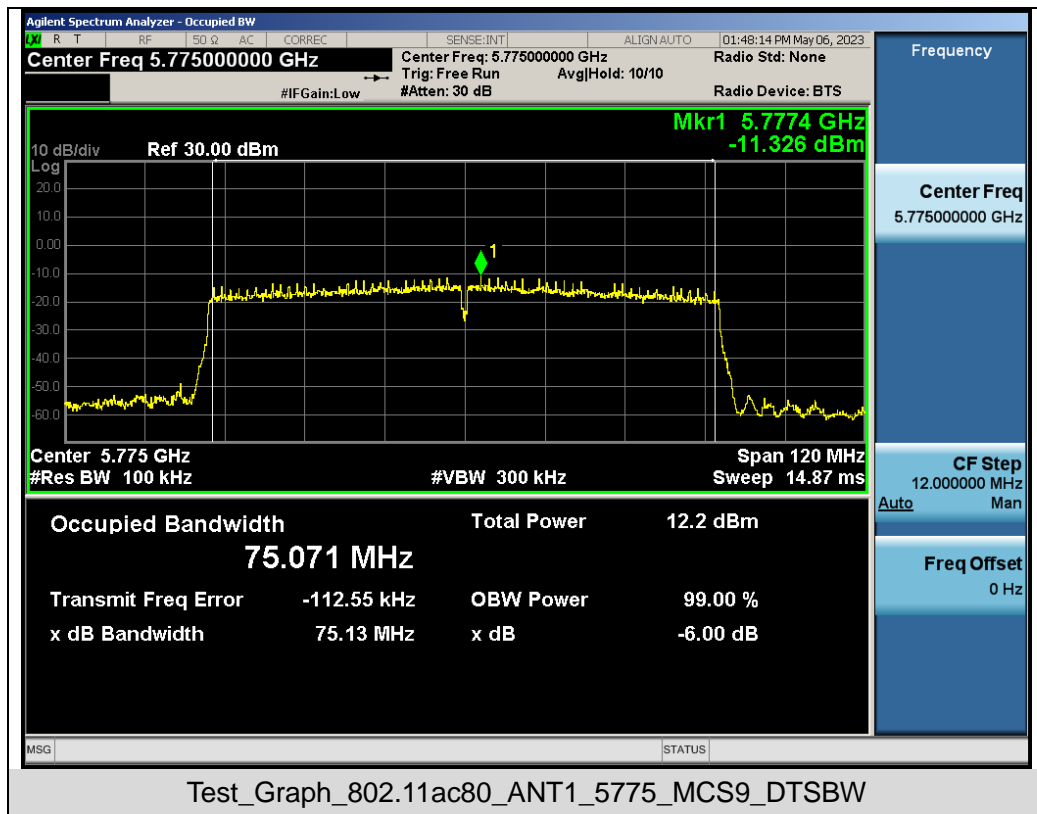
Test_Graph_802.11ac20_ANT1_5825_MCS9_DTSBW

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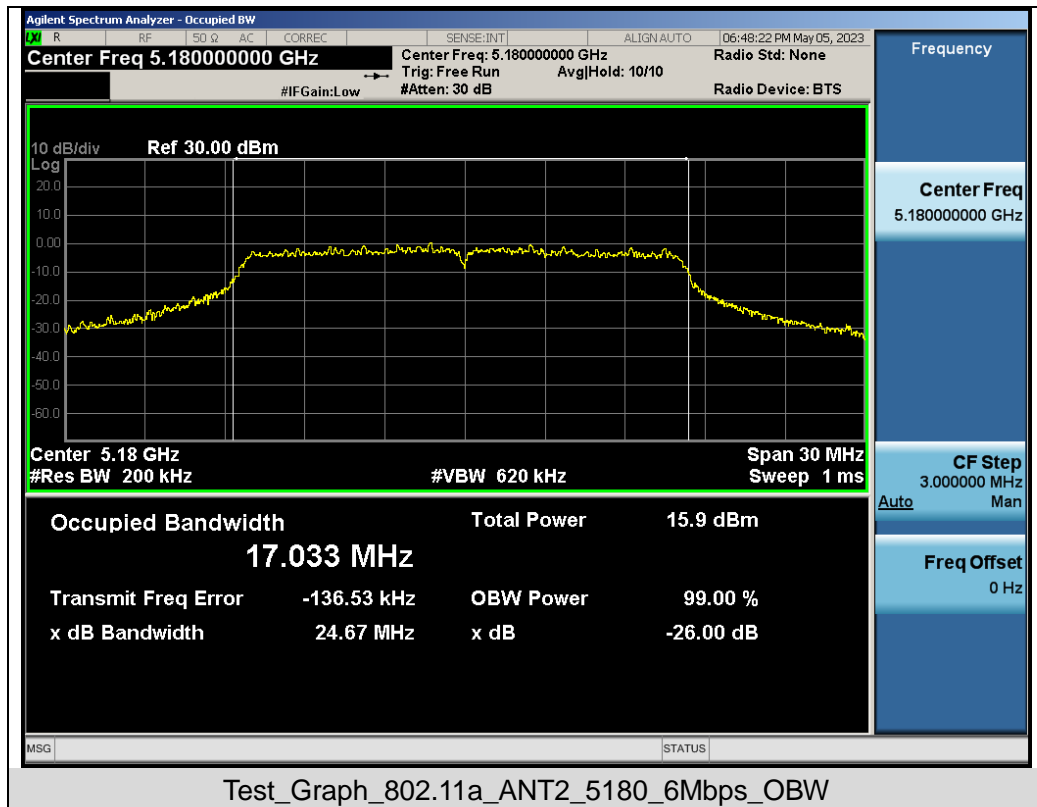


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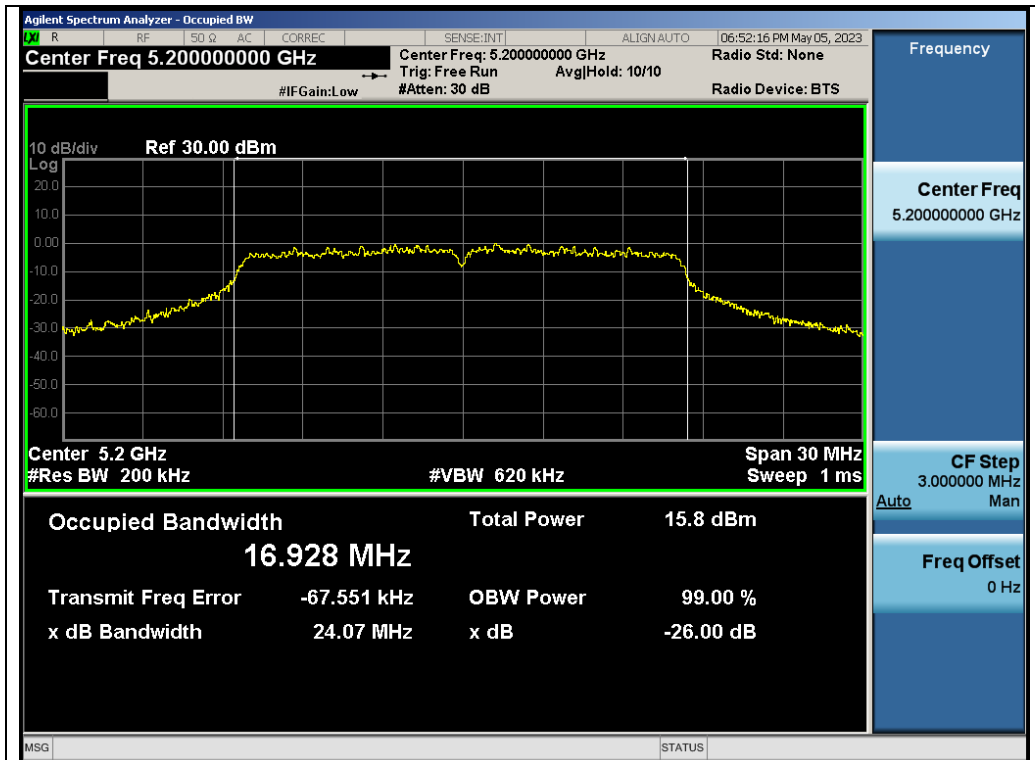
Attestation of Global Compliance(Shenzhen)Co., Ltd
Attestation of Global Compliance(Shenzhen)Std & Tech Co., Ltd
Tel: +86-755 2523 4088 E-mail: agc@agccert.com Web: http://www.agccert.com/



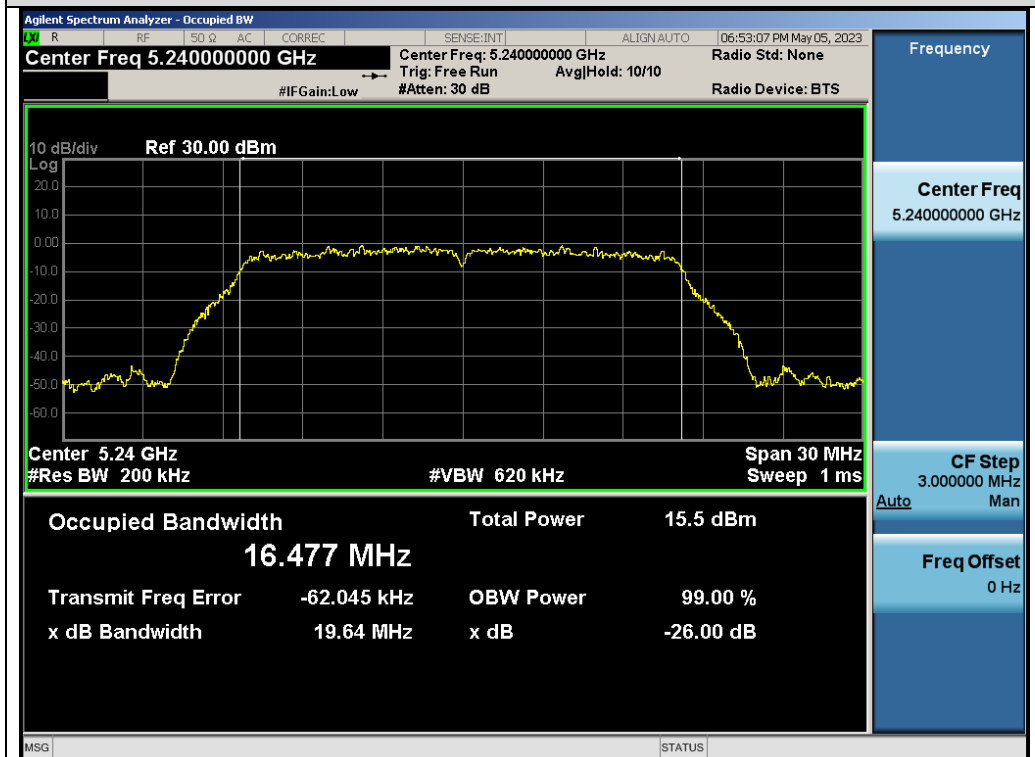
Test Graphs of Occupied Bandwidth and -26dB Bandwidth for band 5.15-5.25 GHz-Ant 2



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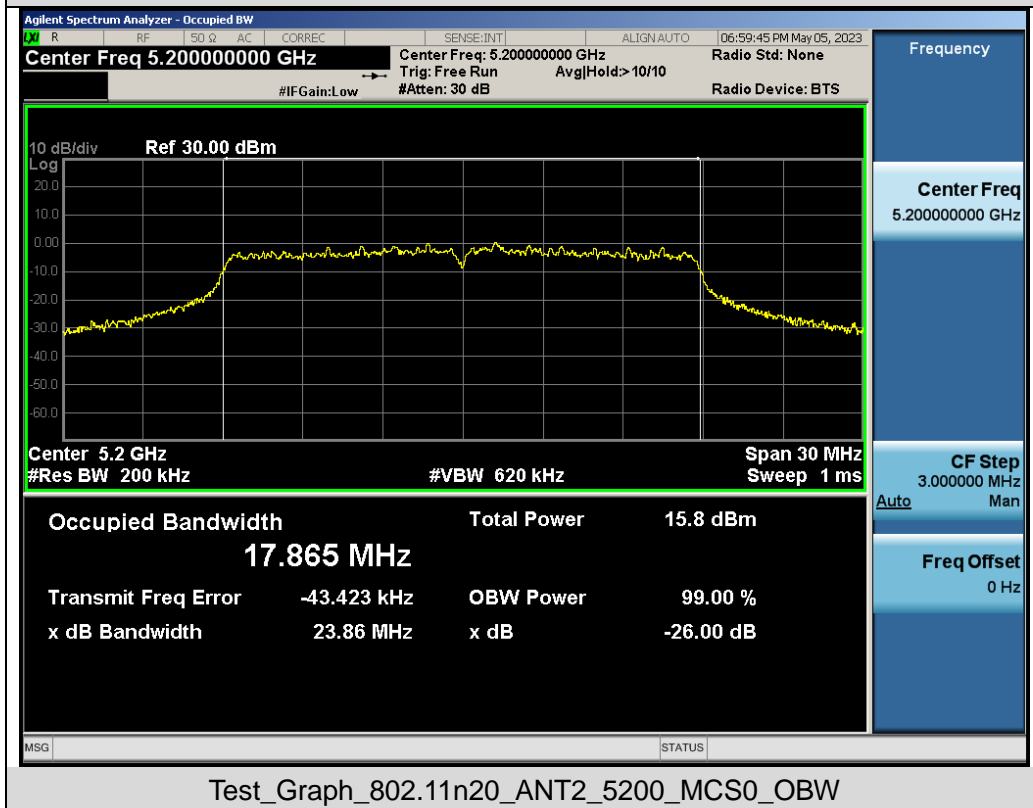
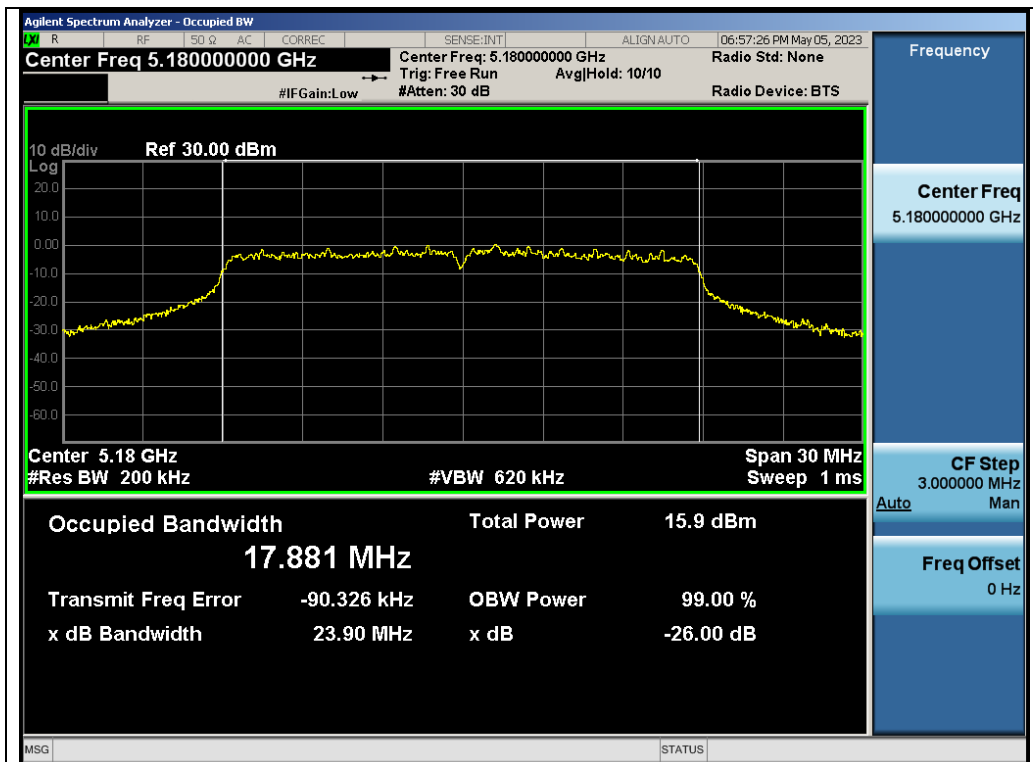


Test_Graph_802.11a_ANT2_5200_6Mbps_OBW

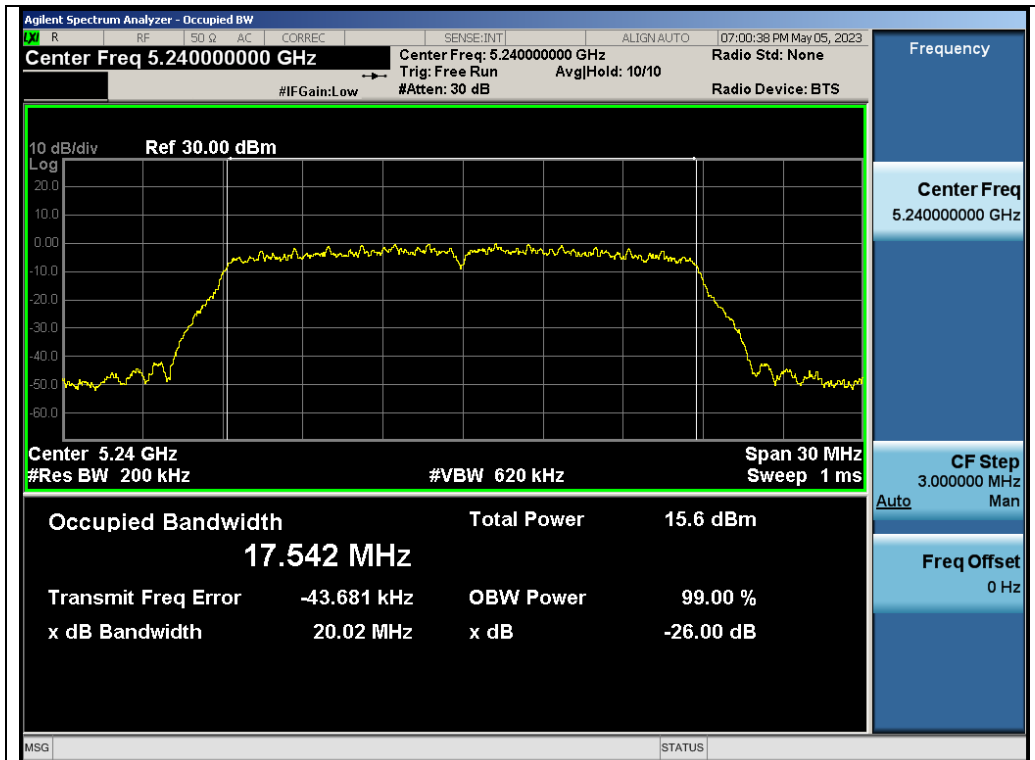


Test_Graph_802.11a_ANT2_5240_6Mbps_OBW

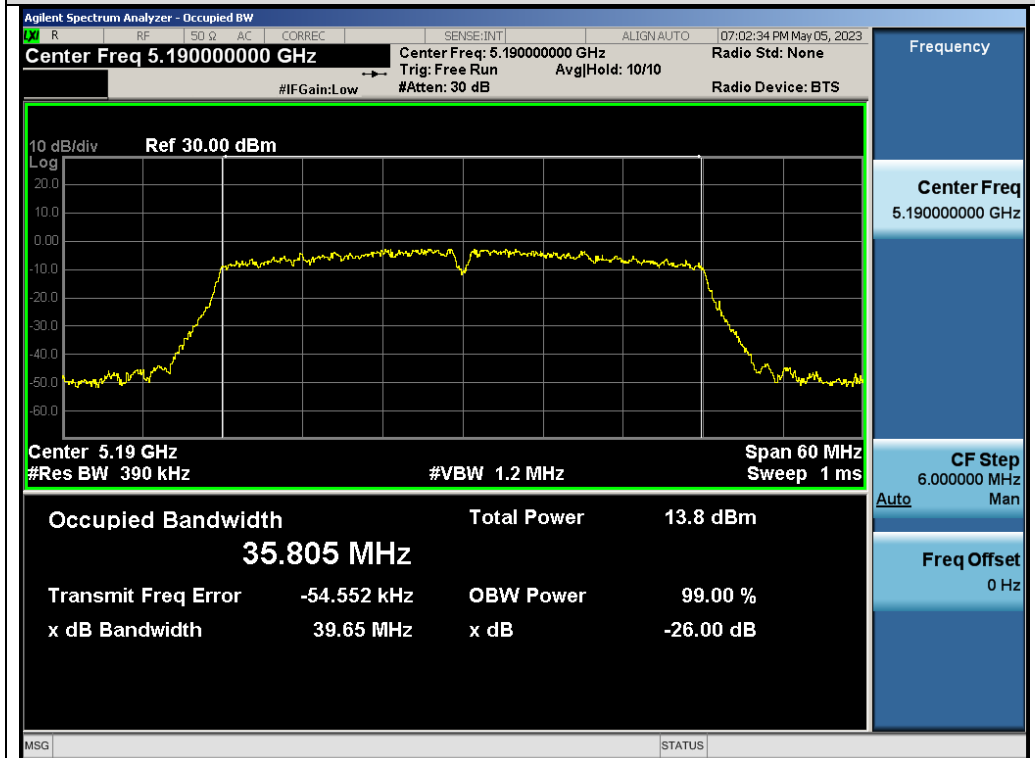
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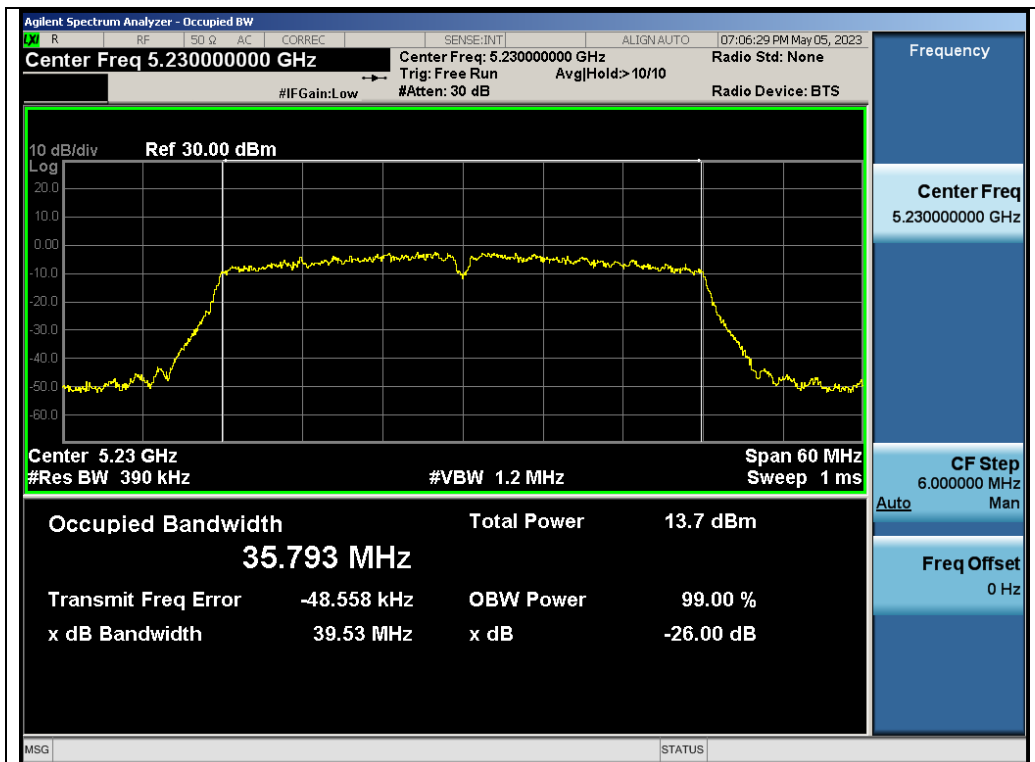


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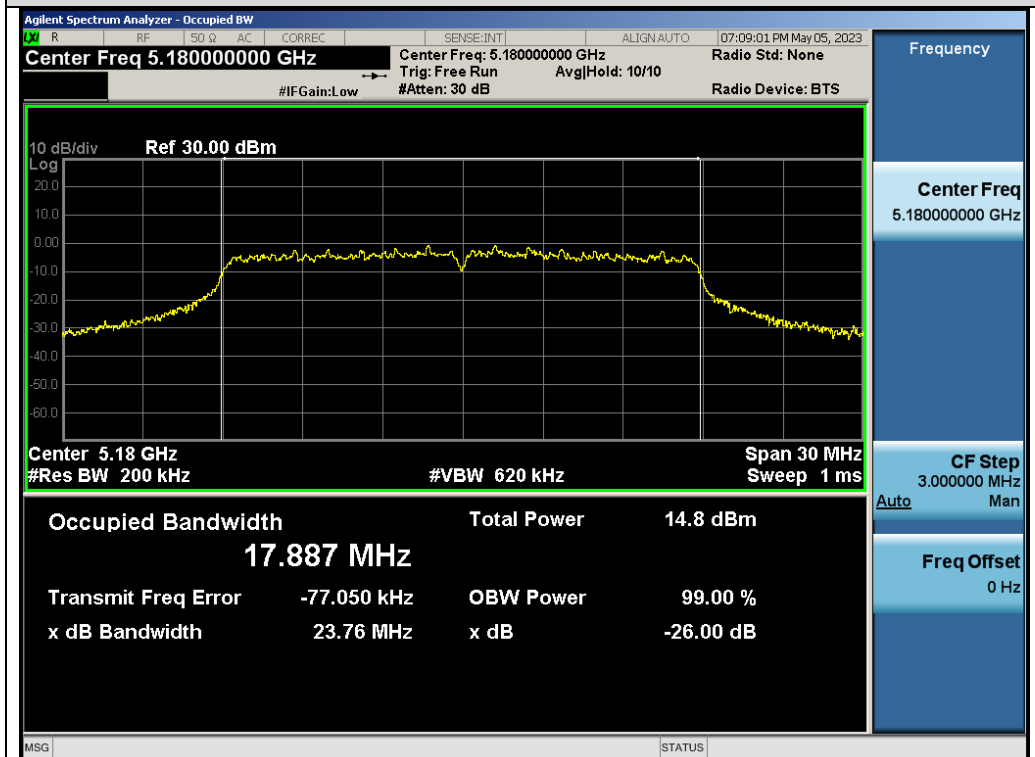


Test_Graph_802.11n40_ANT2_5190_MCS0_OBW

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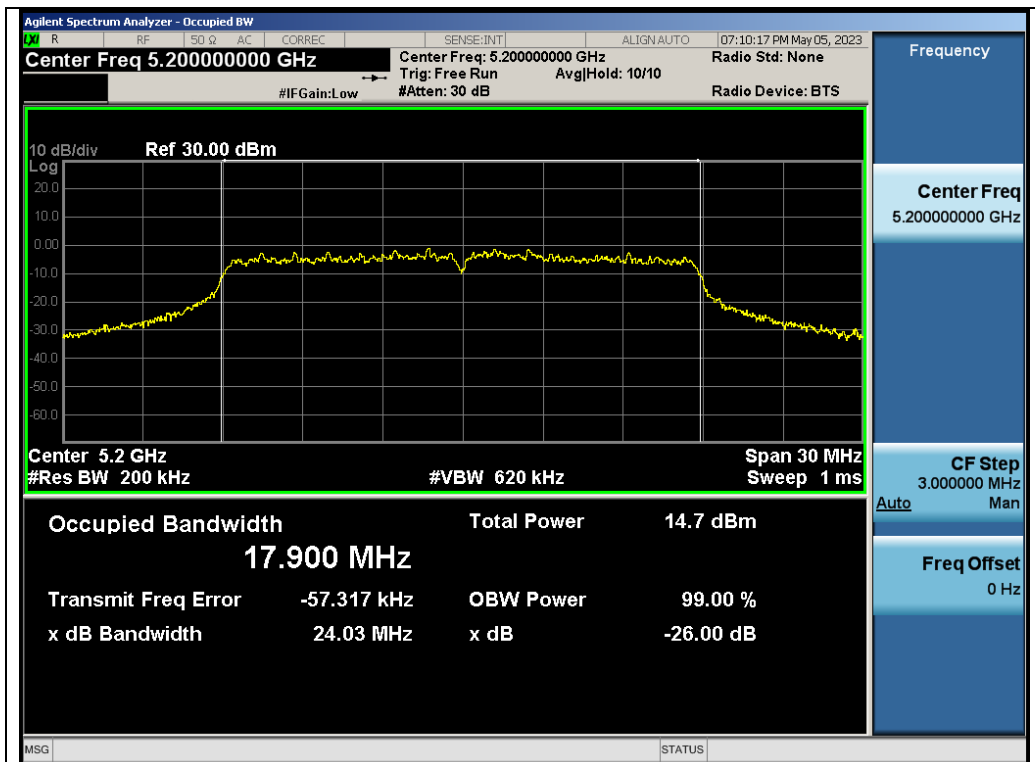


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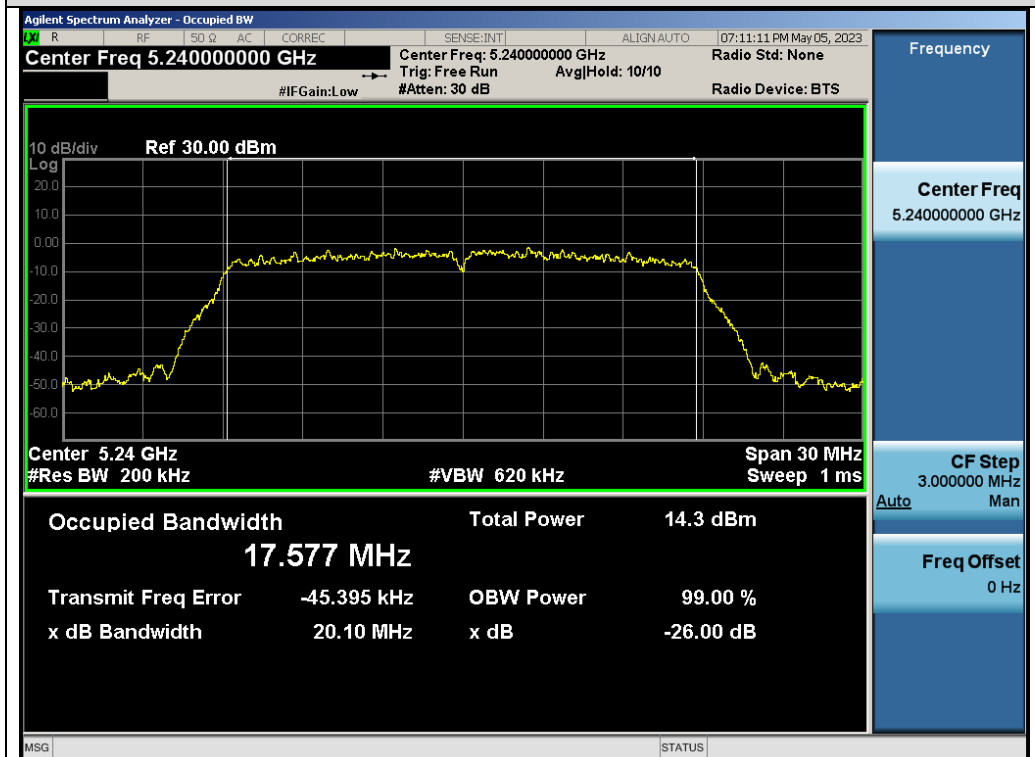


Test_Graph_802.11ac20_ANT2_5180_MCS0_OBW

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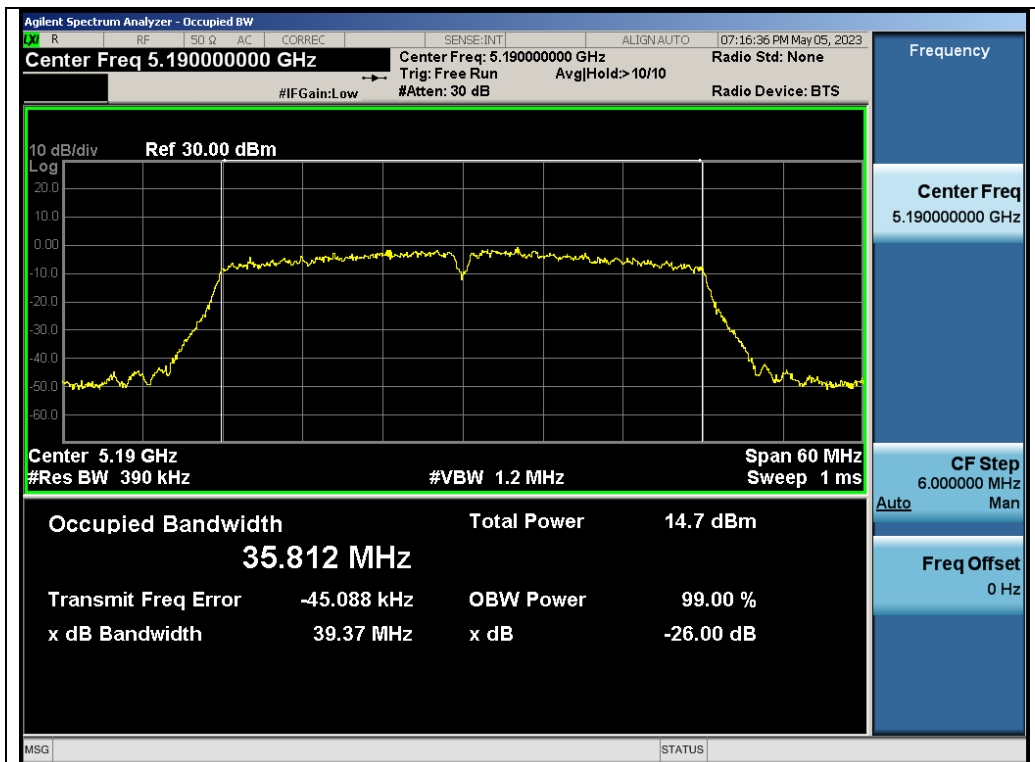


Test_Graph_802.11ac20_ANT2_5200_MCS0_OBW

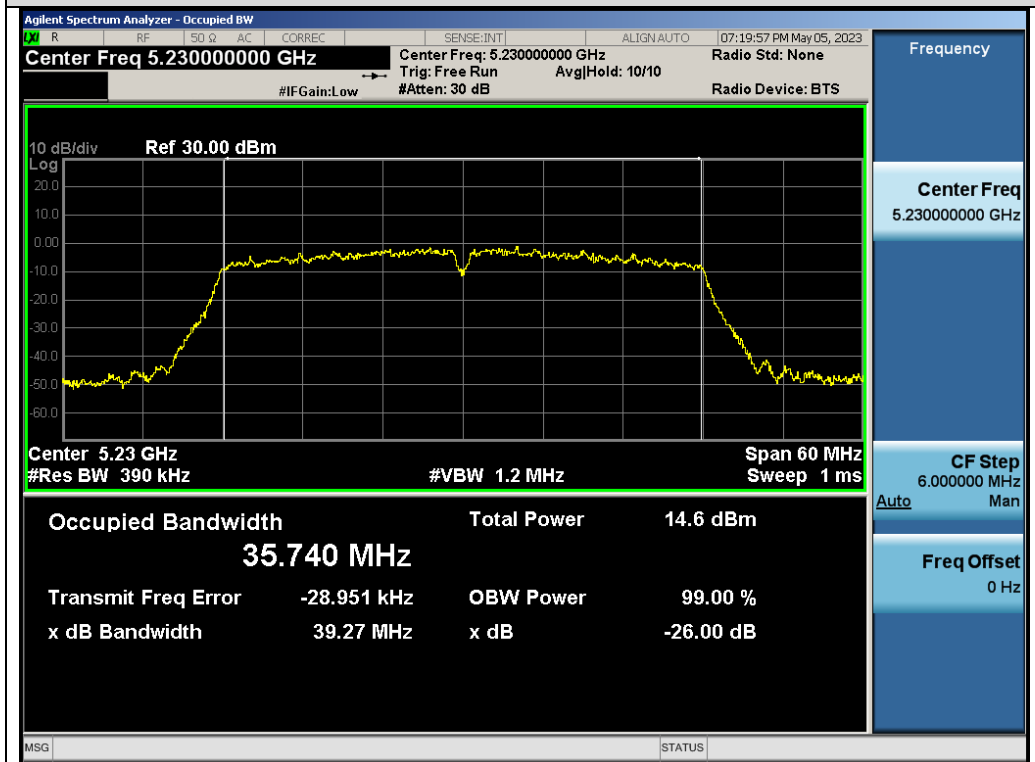


Test_Graph_802.11ac20_ANT2_5240_MCS0_OBW

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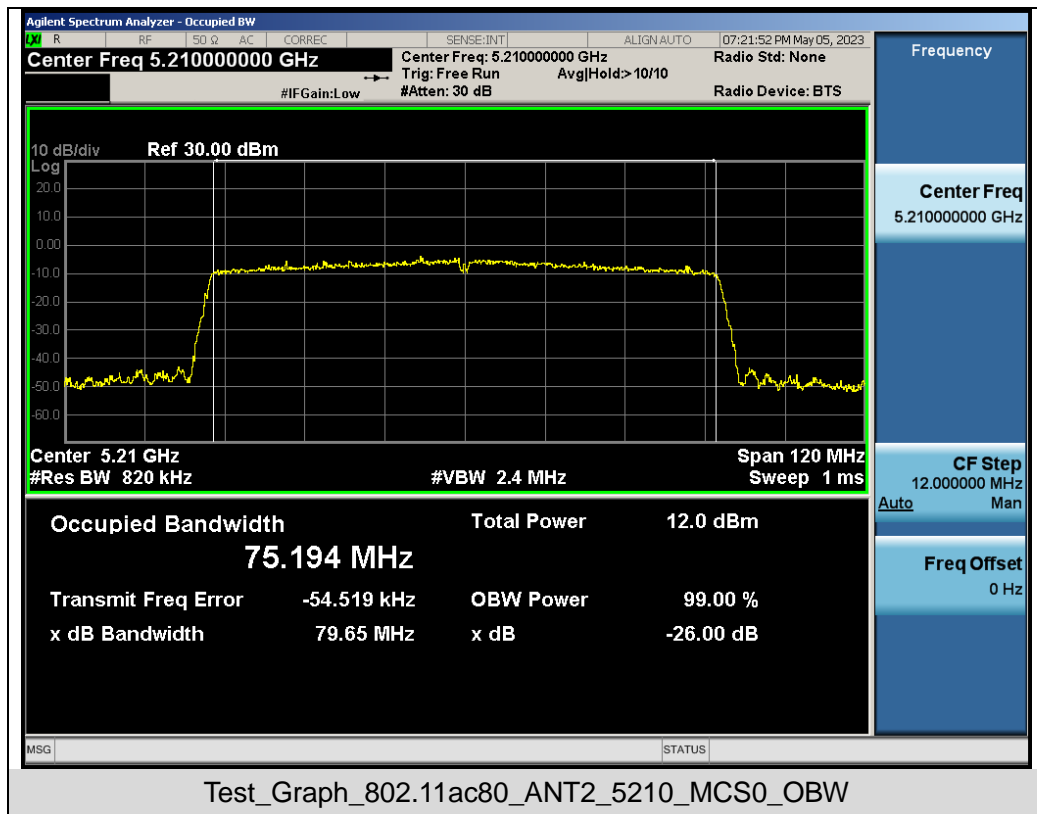


Test_Graph_802.11ac40_ANT2_5190_MCS0_OBW

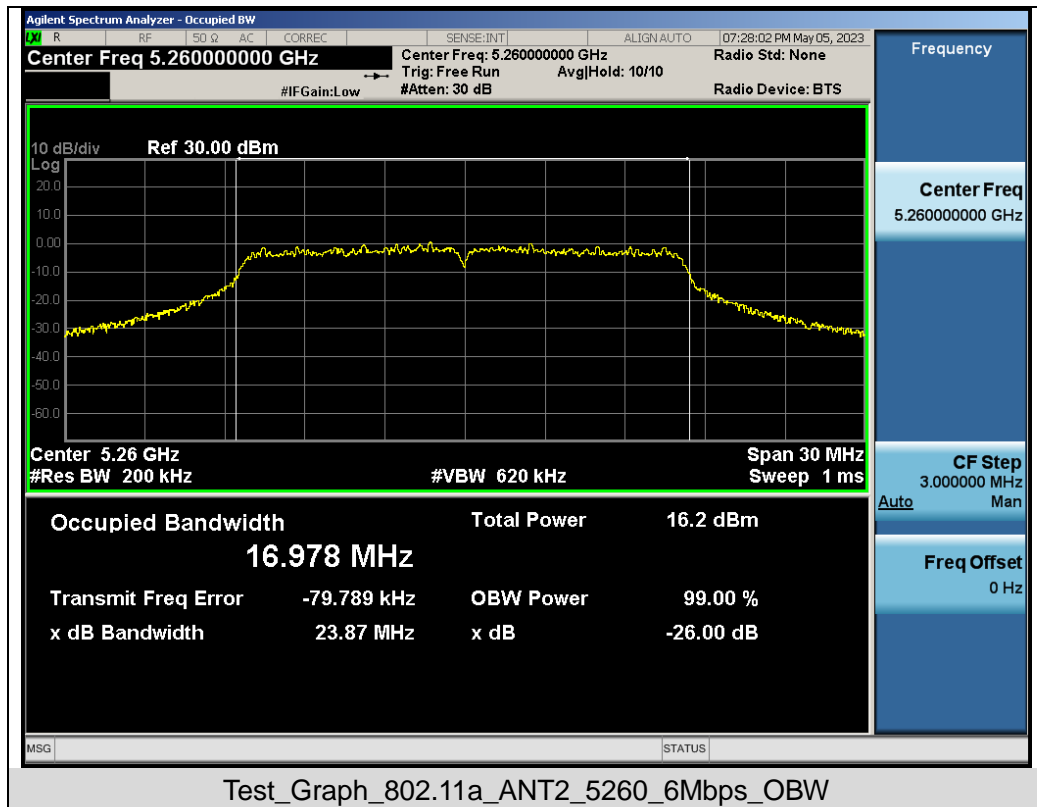


Test_Graph_802.11ac40_ANT2_5230_MCS0_OBW

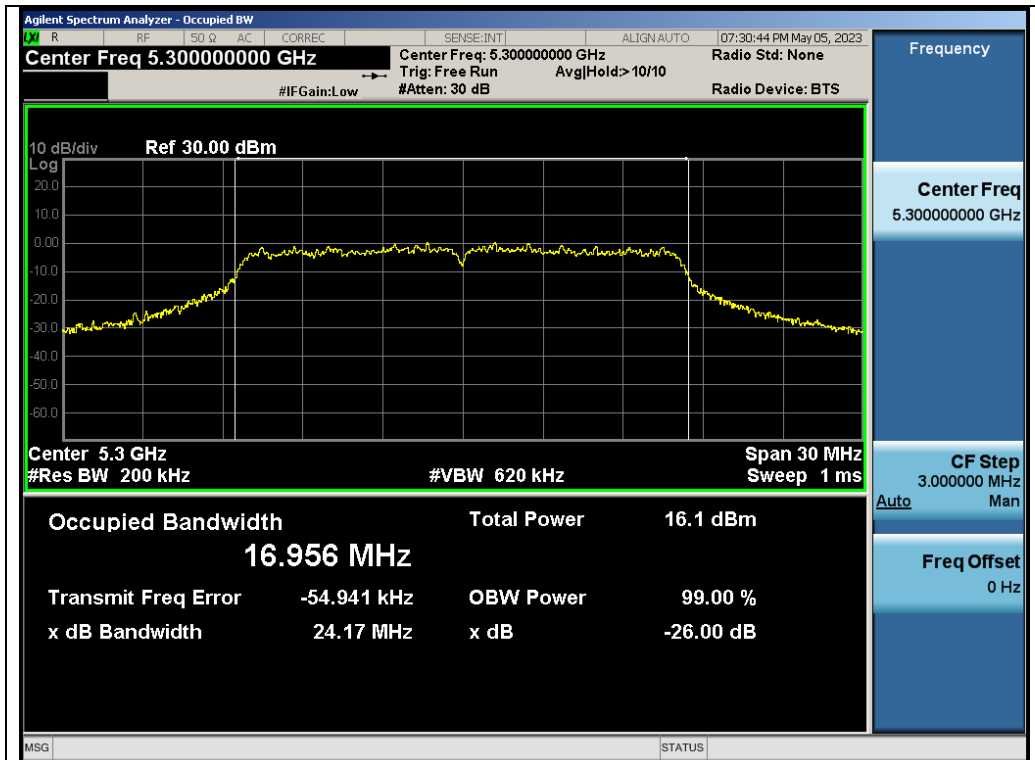
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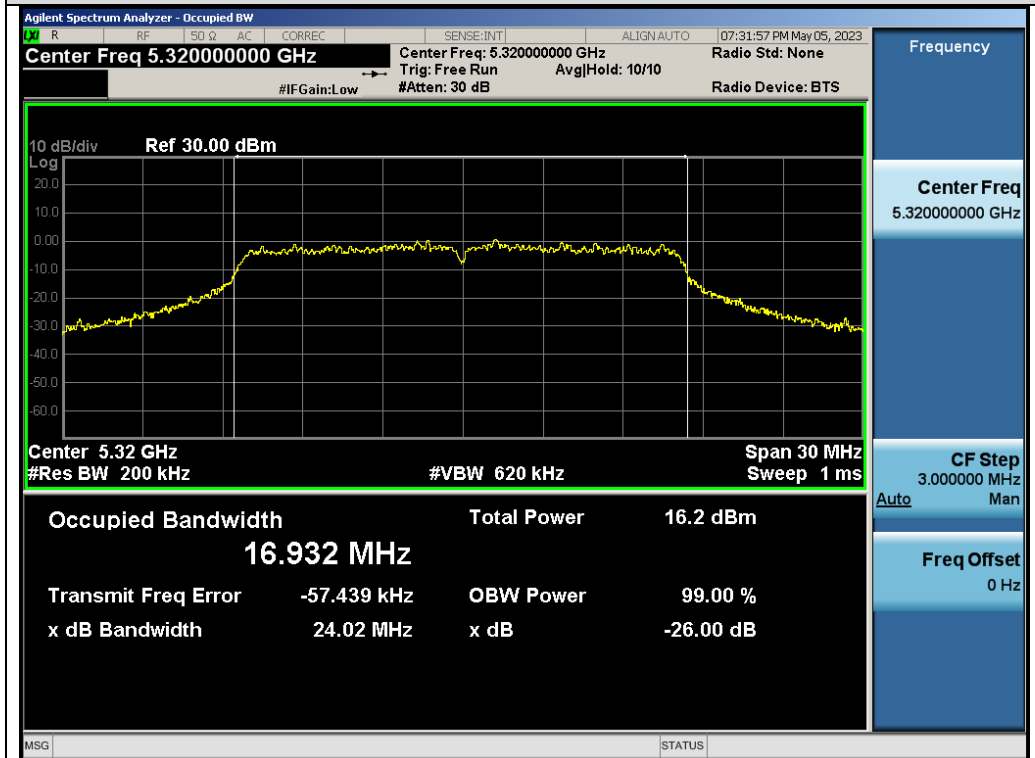
Test Graphs of Occupied Bandwidth and -26dB Bandwidth for band 5.25-5.35 GHz-Ant 2



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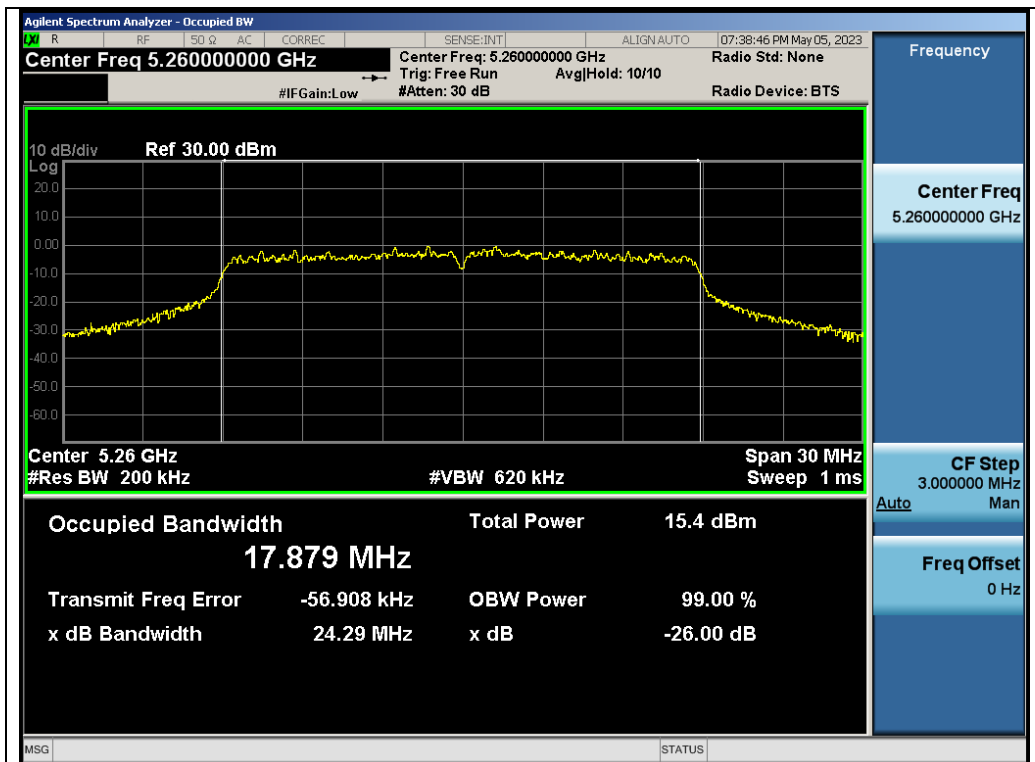


Test_Graph_802.11a_ANT2_5300_6Mbps_OBW

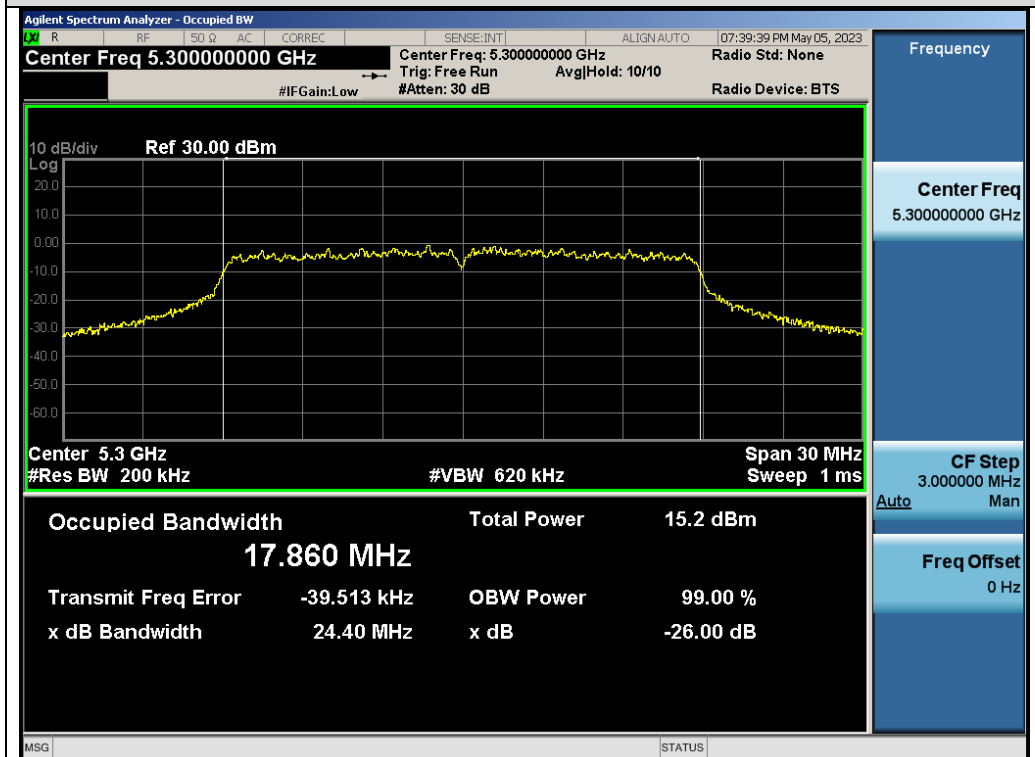


Test_Graph_802.11a_ANT2_5320_6Mbps_OBW

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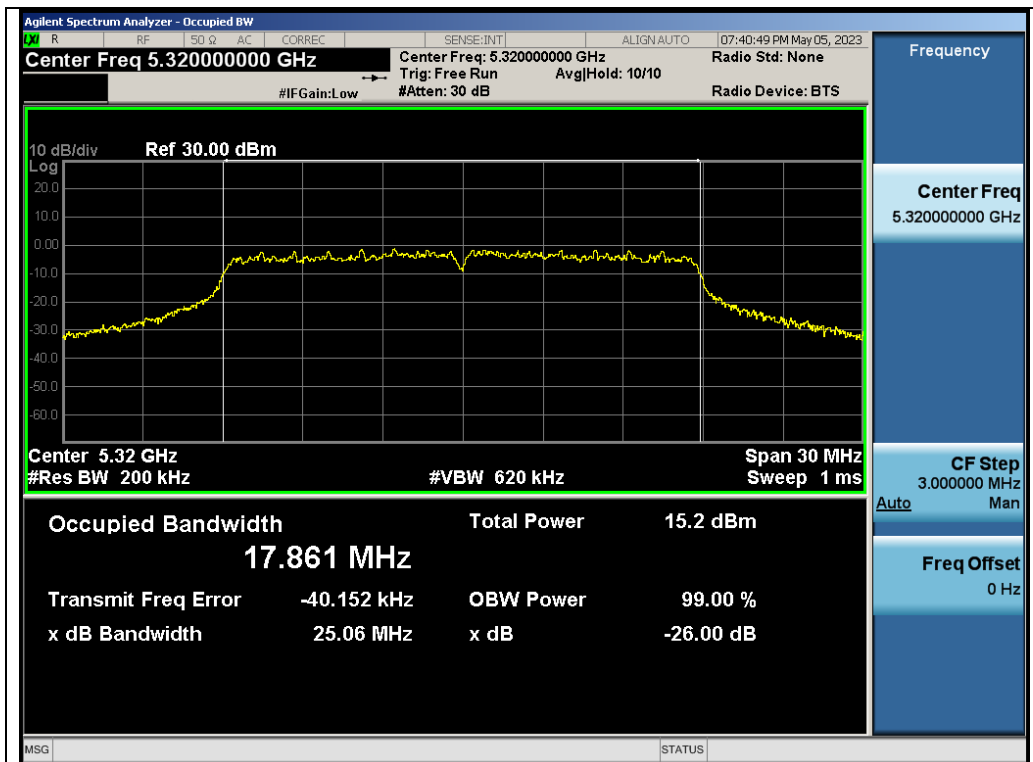


Test_Graph_802.11n20_ANT2_5260_MCS0_OBW

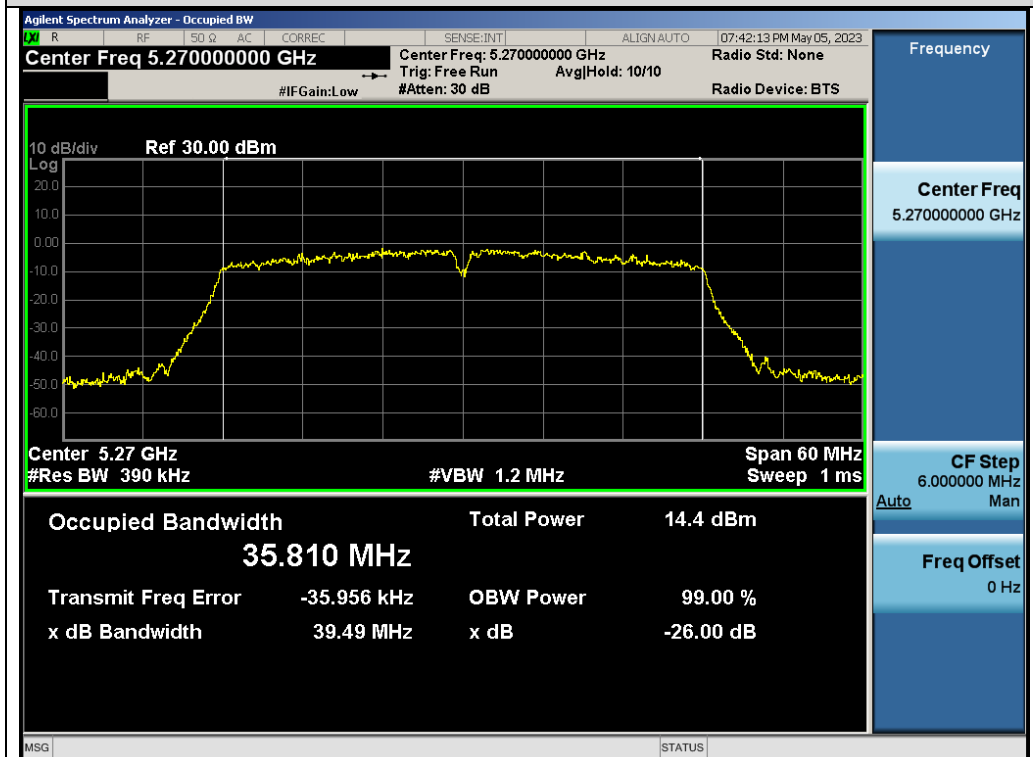


Test_Graph_802.11n20_ANT2_5300_MCS0_OBW

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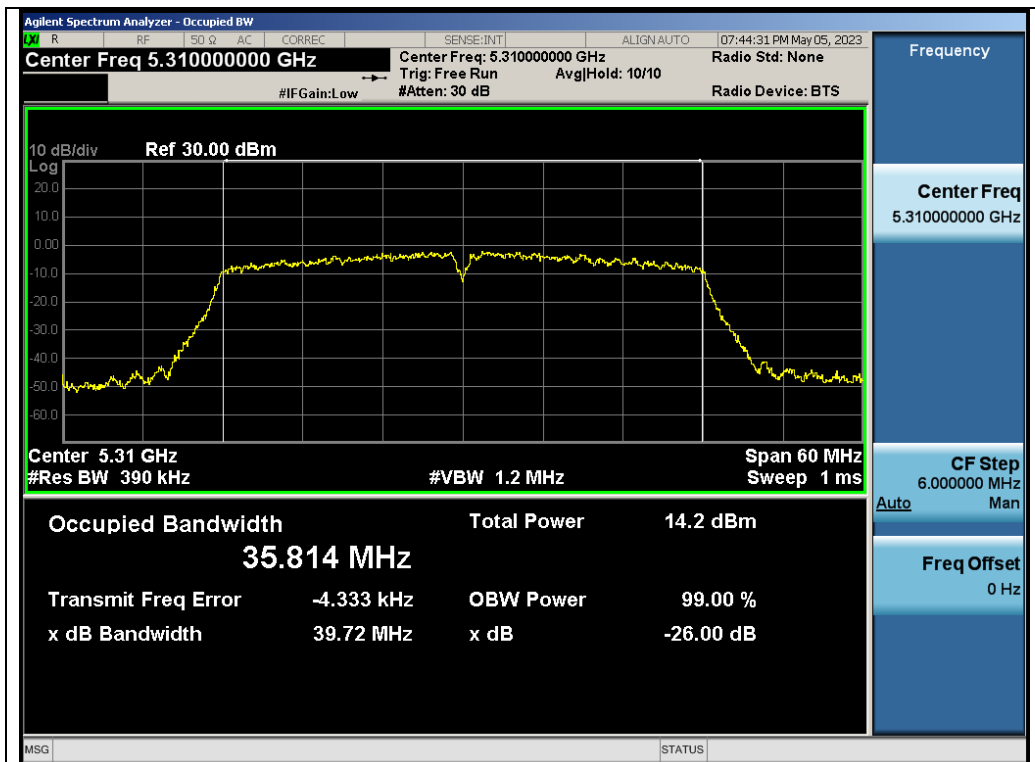


Test_Graph_802.11n20_ANT2_5320_MCS0_OBW

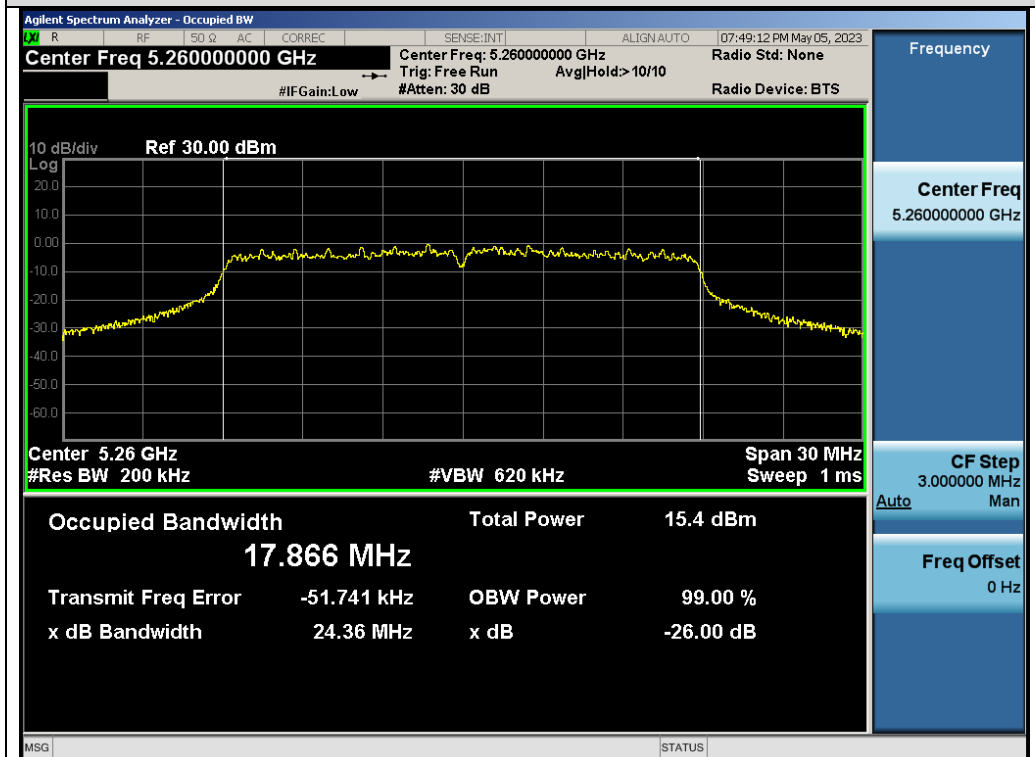


Test_Graph_802.11n40_ANT2_5270_MCS0_OBW

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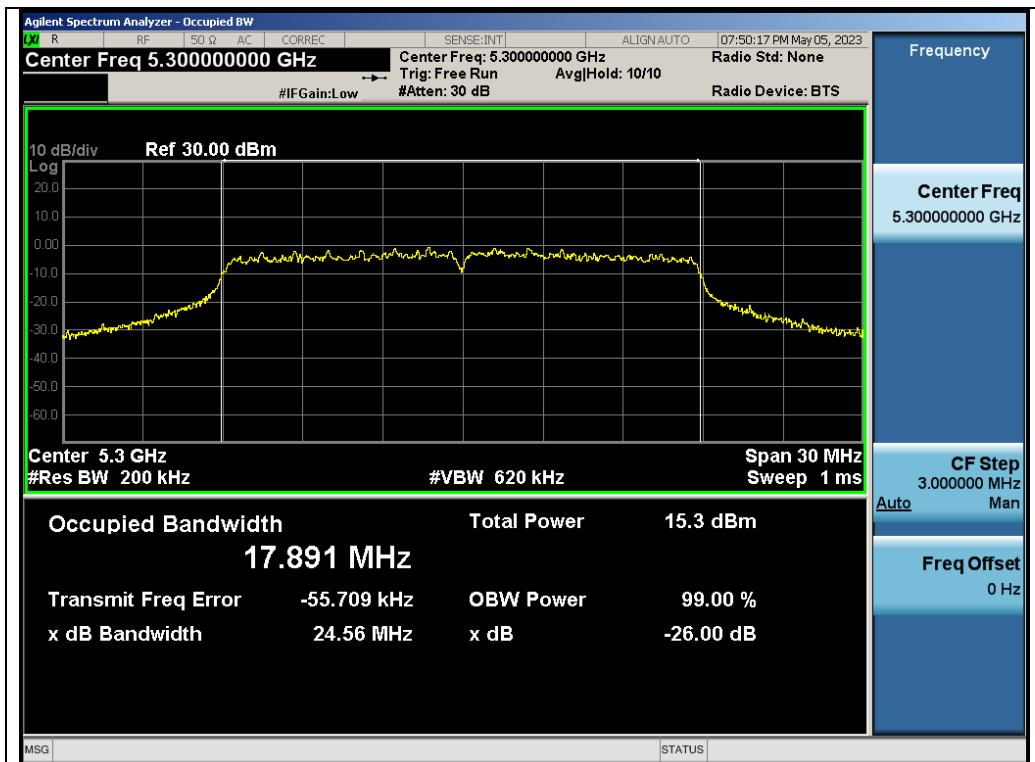


Test_Graph_802.11n40_ANT2_5310_MCS0_OBW

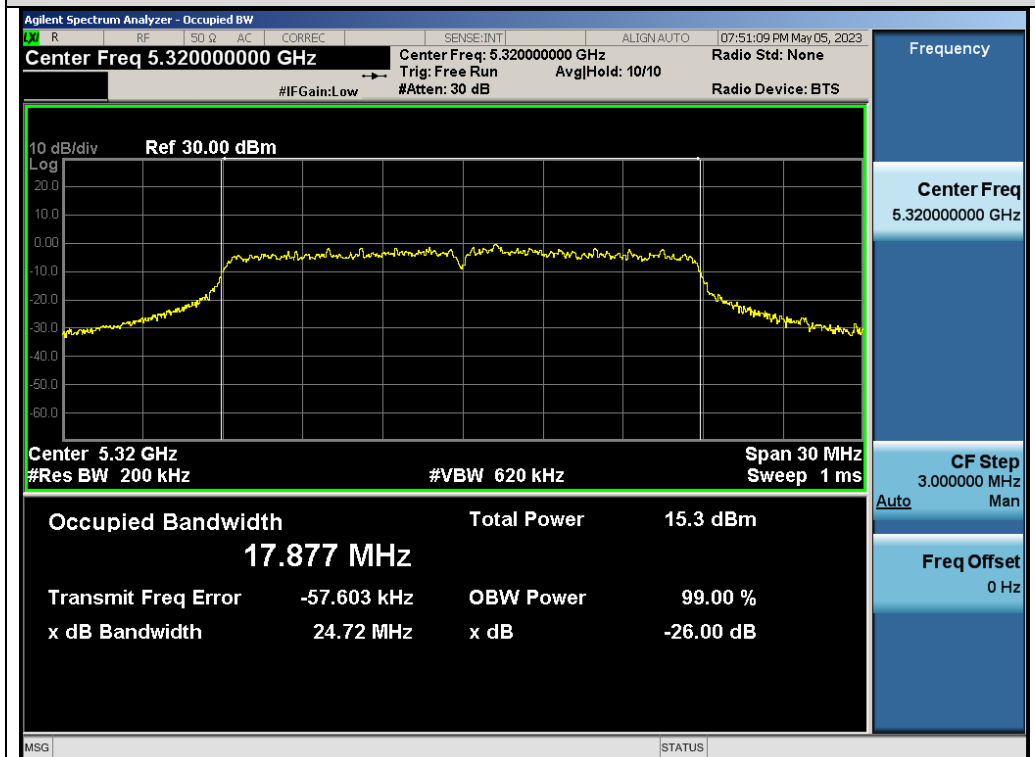


Test_Graph_802.11ac20_ANT2_5260_MCS0_OBW

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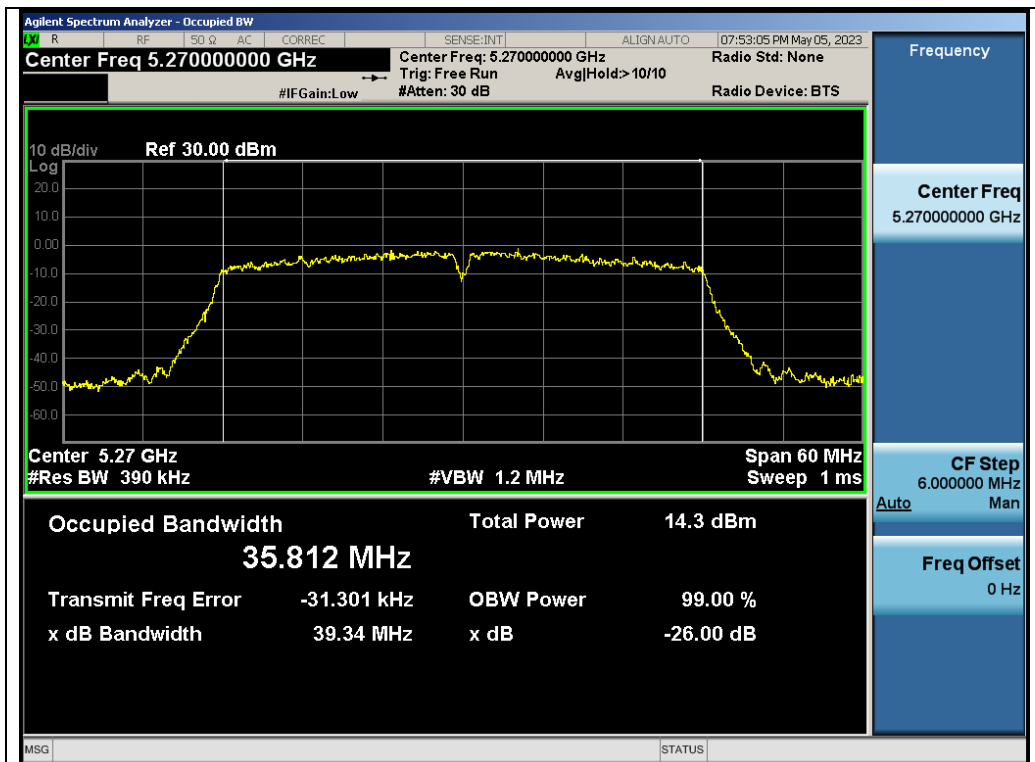


Test_Graph_802.11ac20_ANT2_5300_MCS0_OBW

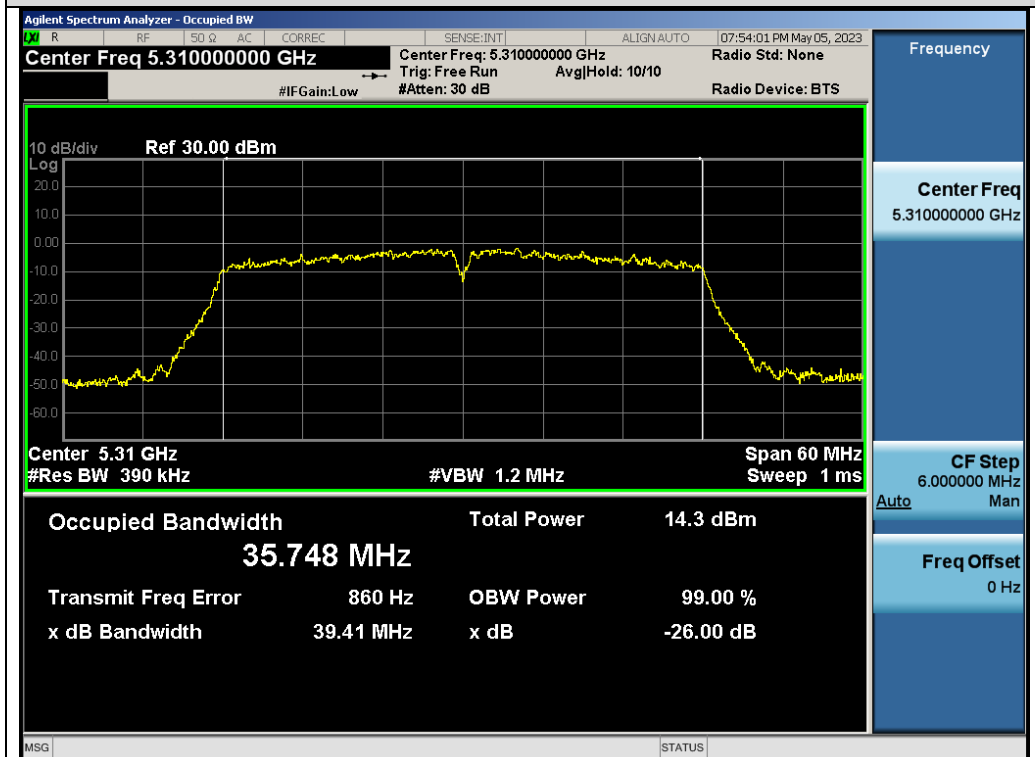


Test_Graph_802.11ac20_ANT2_5320_MCS0_OBW

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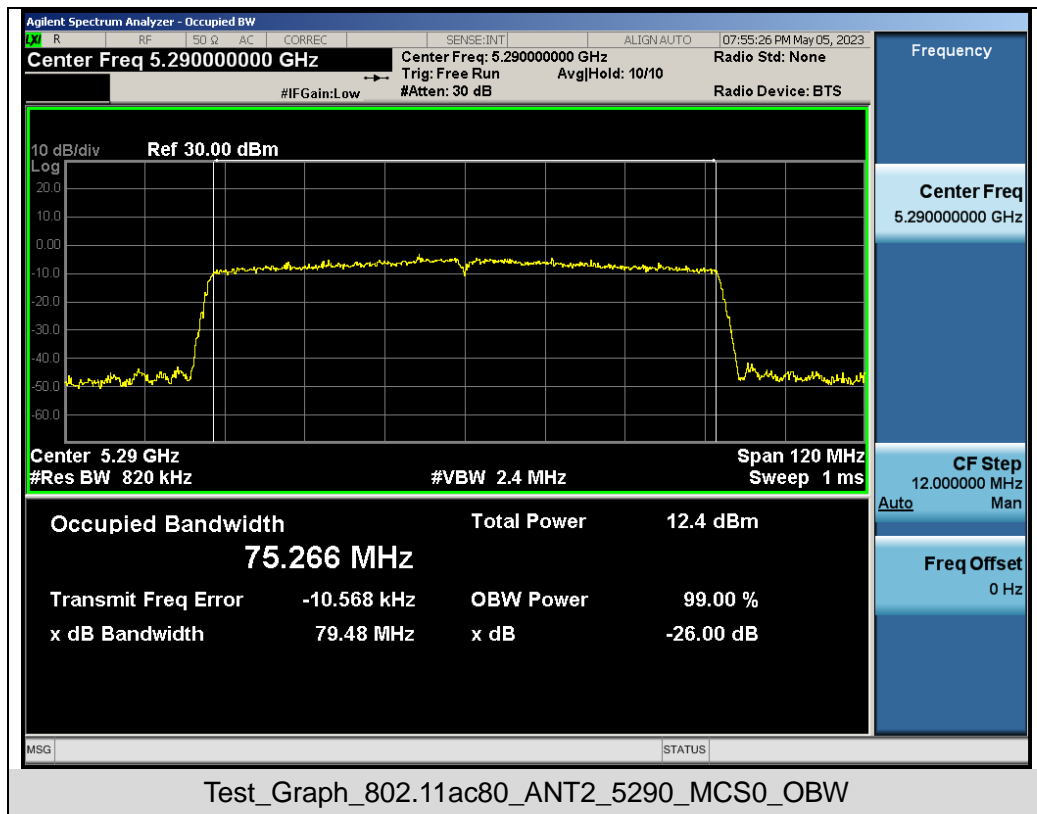


Test_Graph_802.11ac40_ANT2_5270_MCS0_OBW

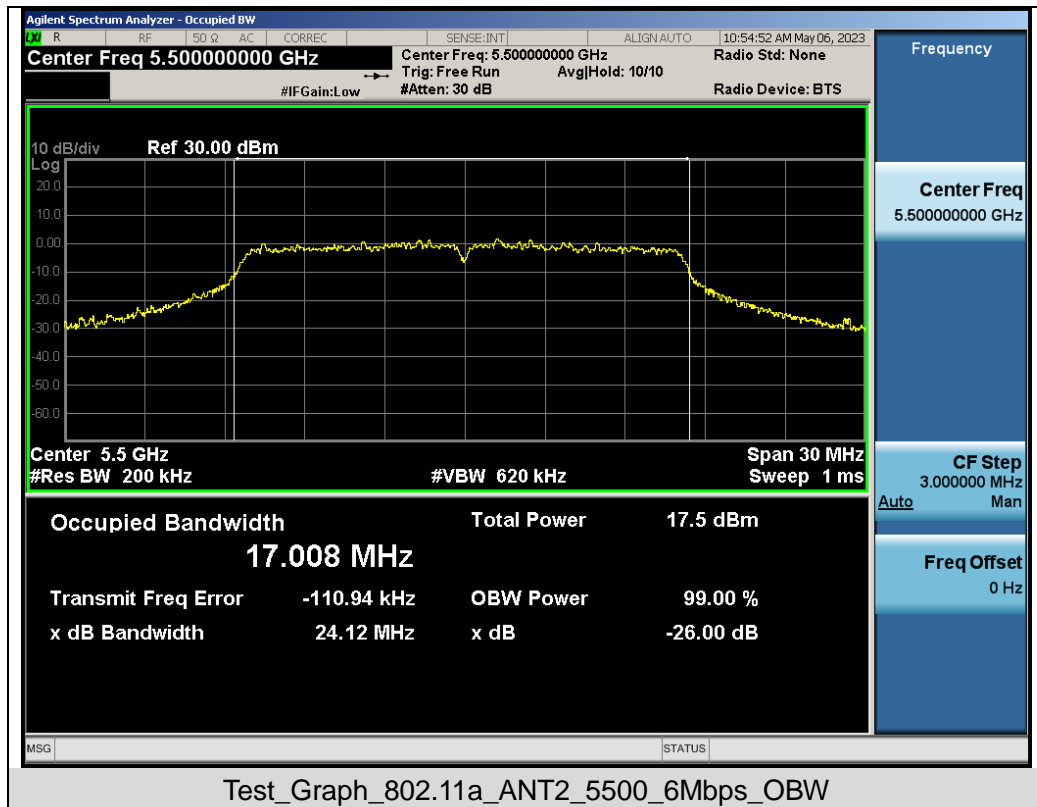


Test_Graph_802.11ac40_ANT2_5310_MCS0_OBW

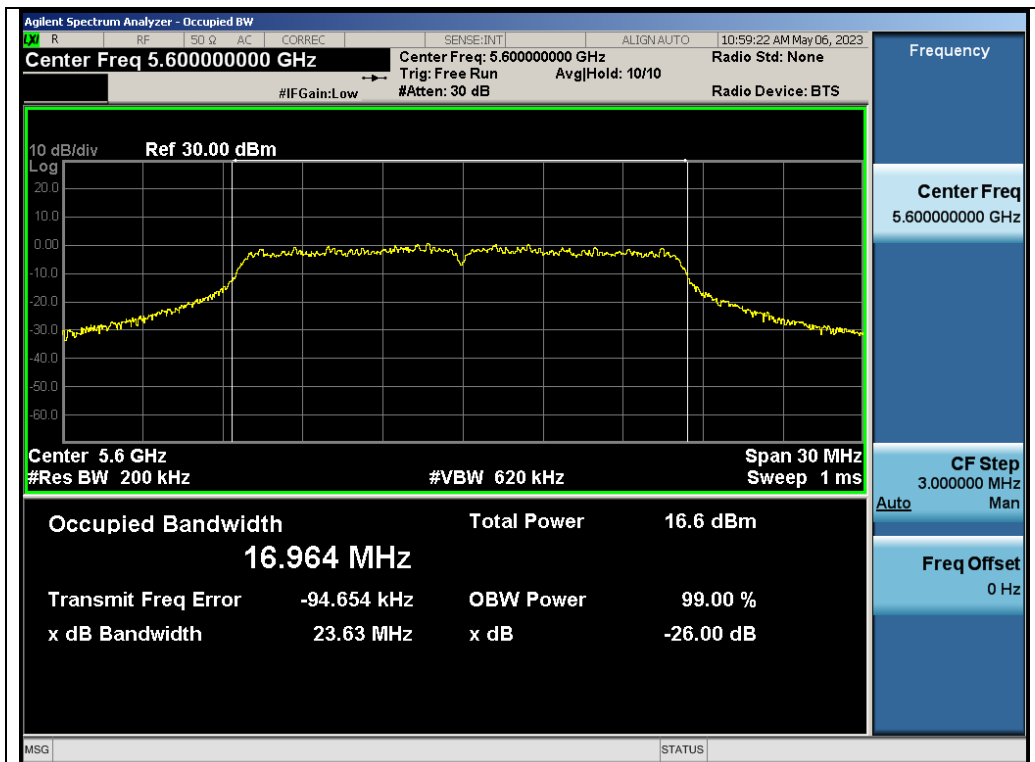
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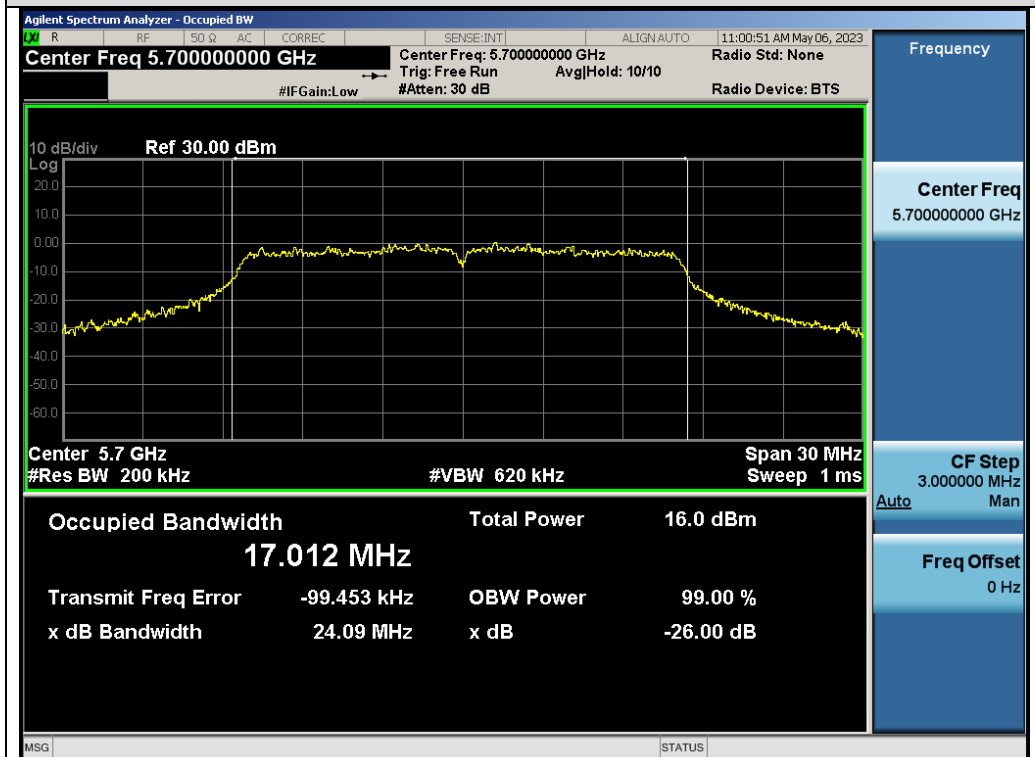
Test Graphs of Occupied Bandwidth and -26dB Bandwidth for band 5.470-5.725 GHz-Ant 2



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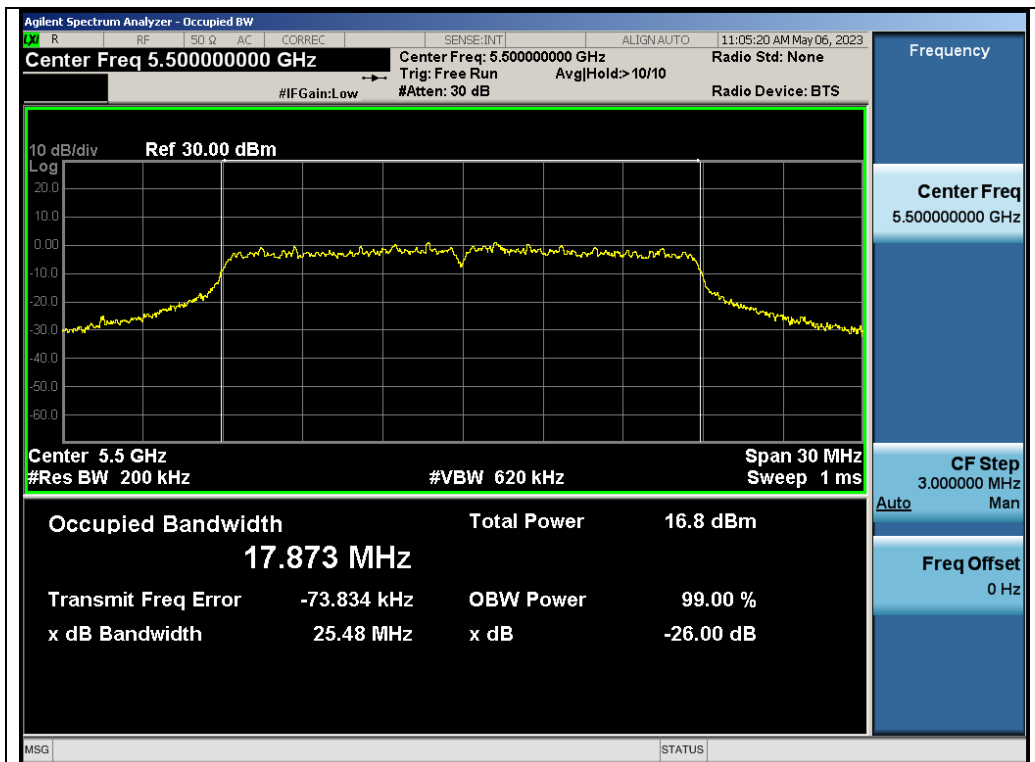


Test_Graph_802.11a_ANT2_5600_6Mbps_OBW

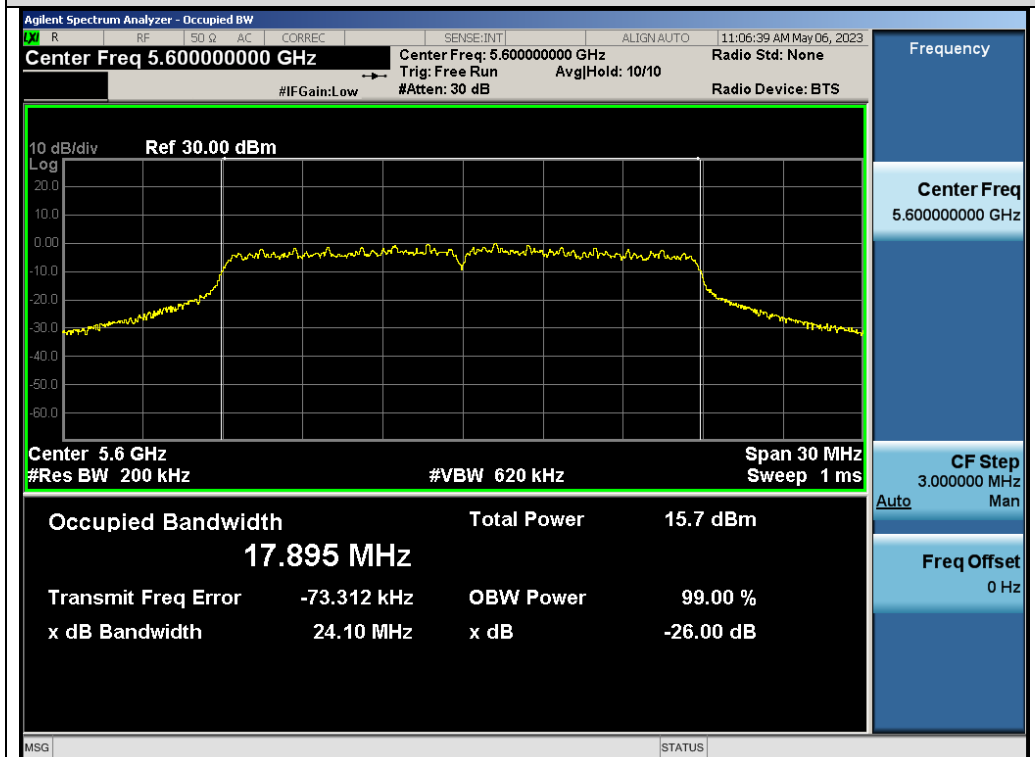


Test_Graph_802.11a_ANT2_5700_6Mbps_OBW

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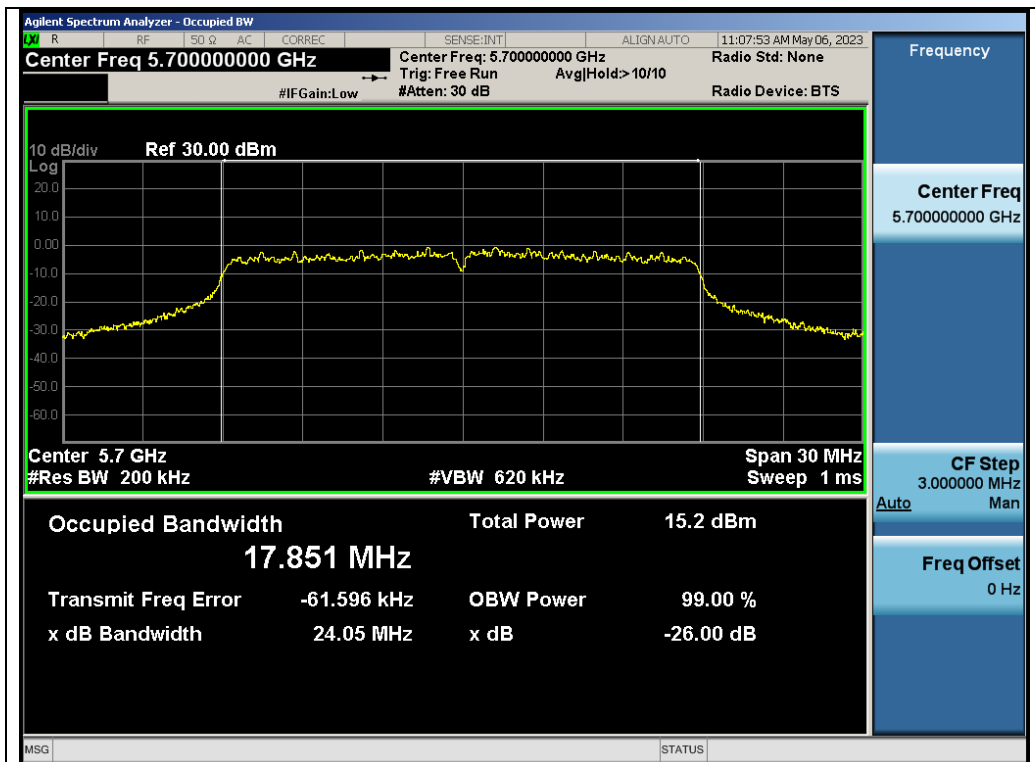


Test_Graph_802.11n20_ANT2_5500_MCS0_OBW

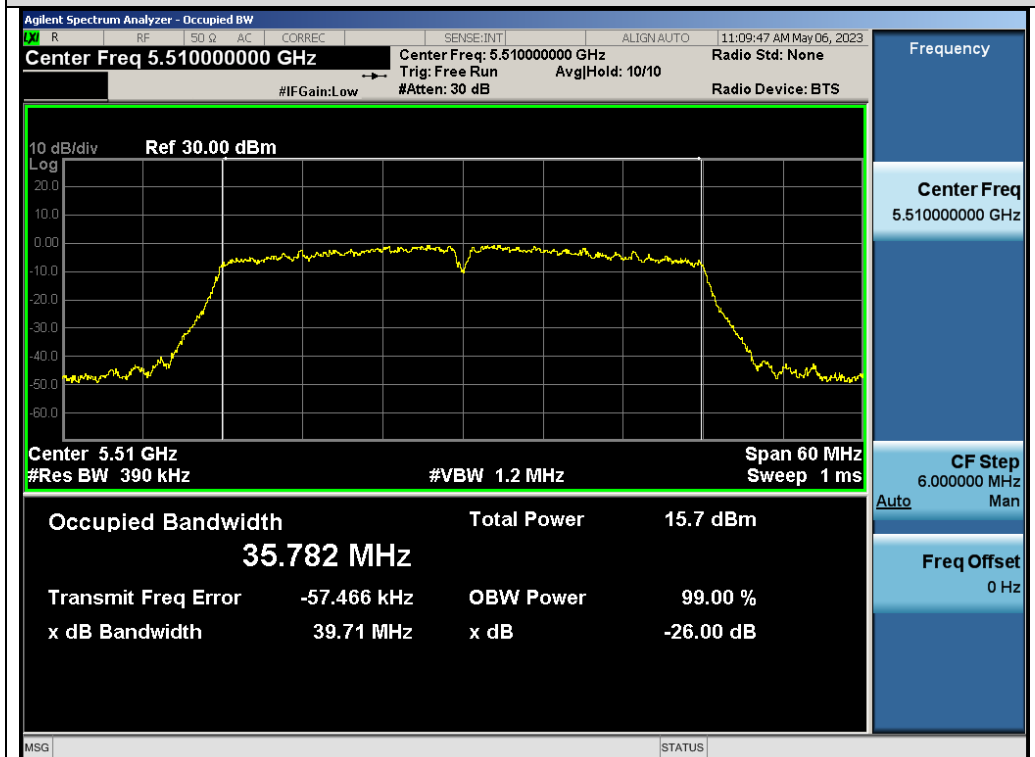


Test_Graph_802.11n20_ANT2_5600_MCS0_OBW

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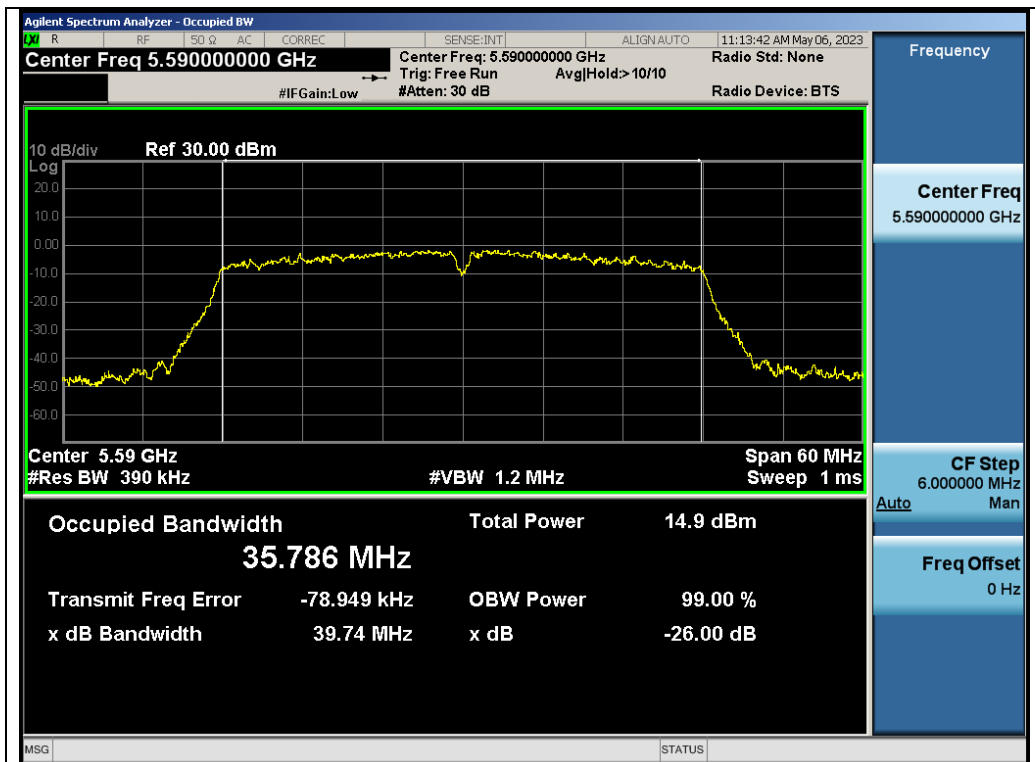


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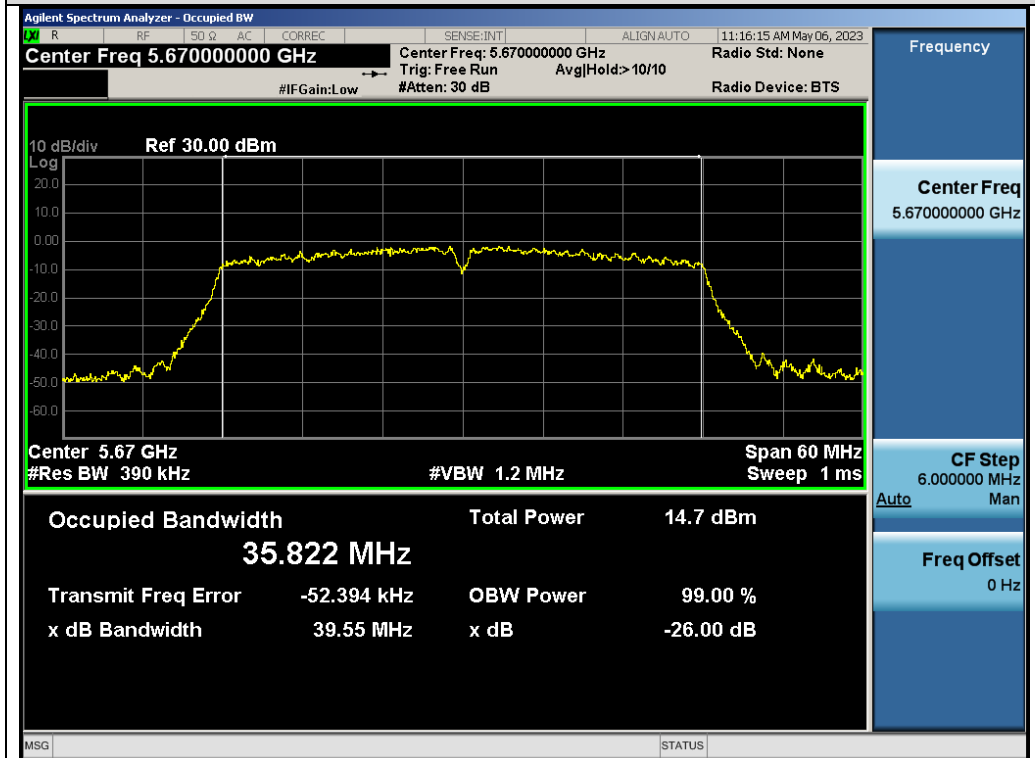


Test_Graph_802.11n40_ANT2_5510_MCS0_OBW

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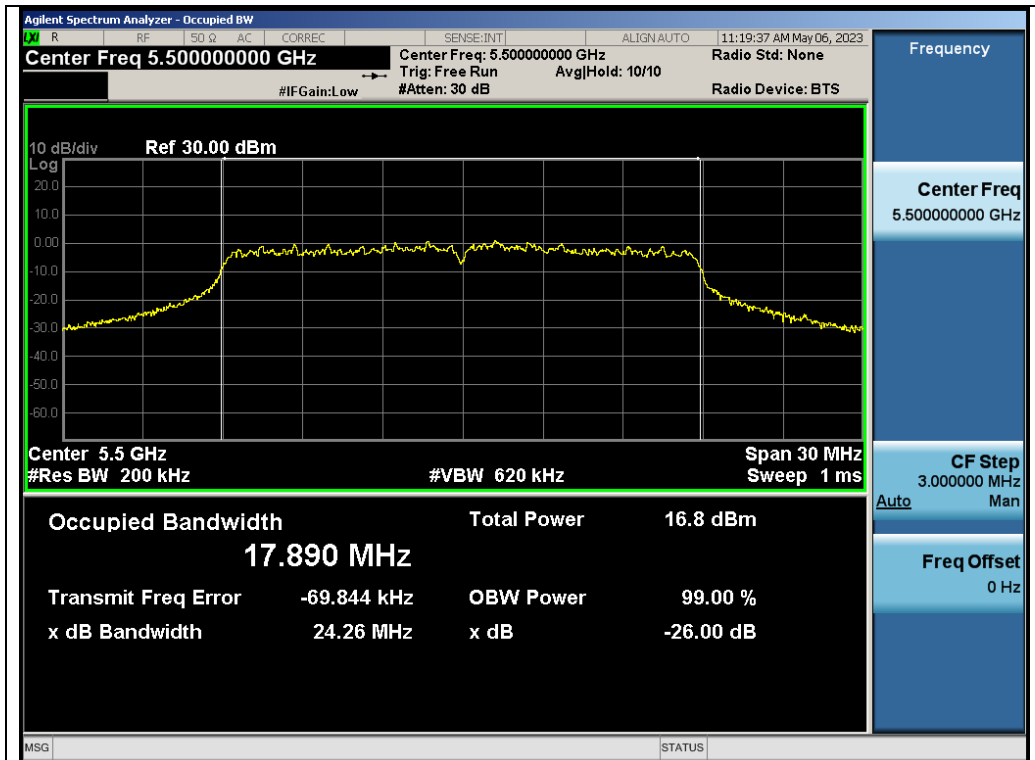


Test_Graph_802.11n40_ANT2_5590_MCS0_OBW

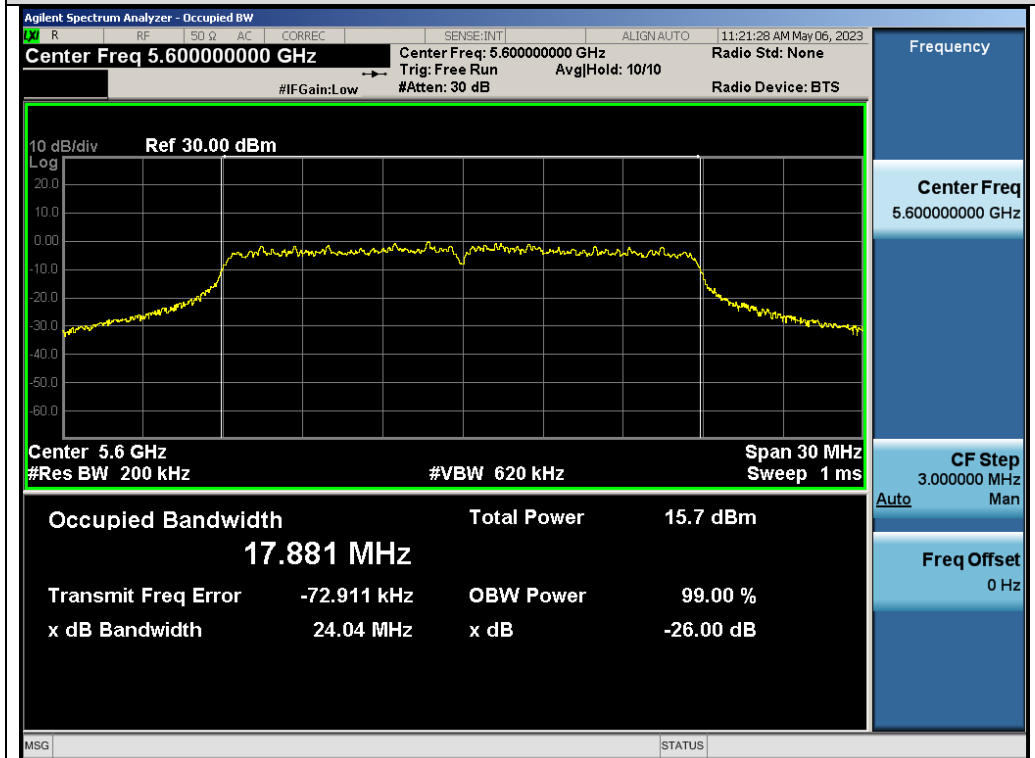


Test_Graph_802.11n40_ANT2_5670_MCS0_OBW

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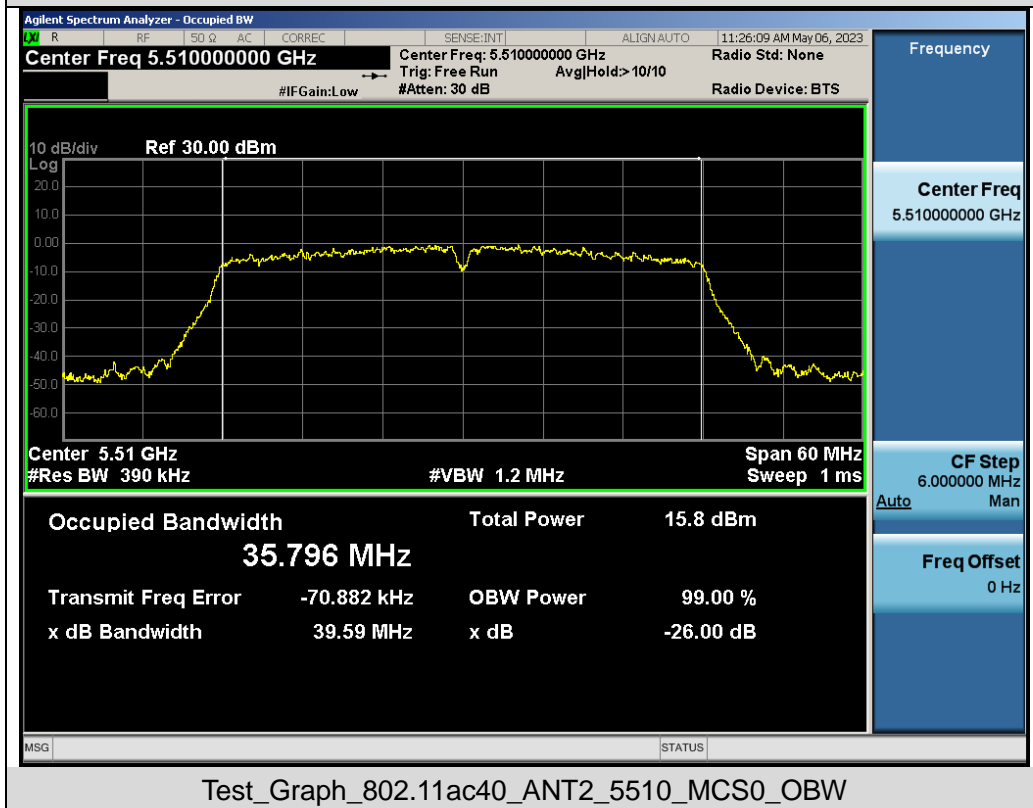
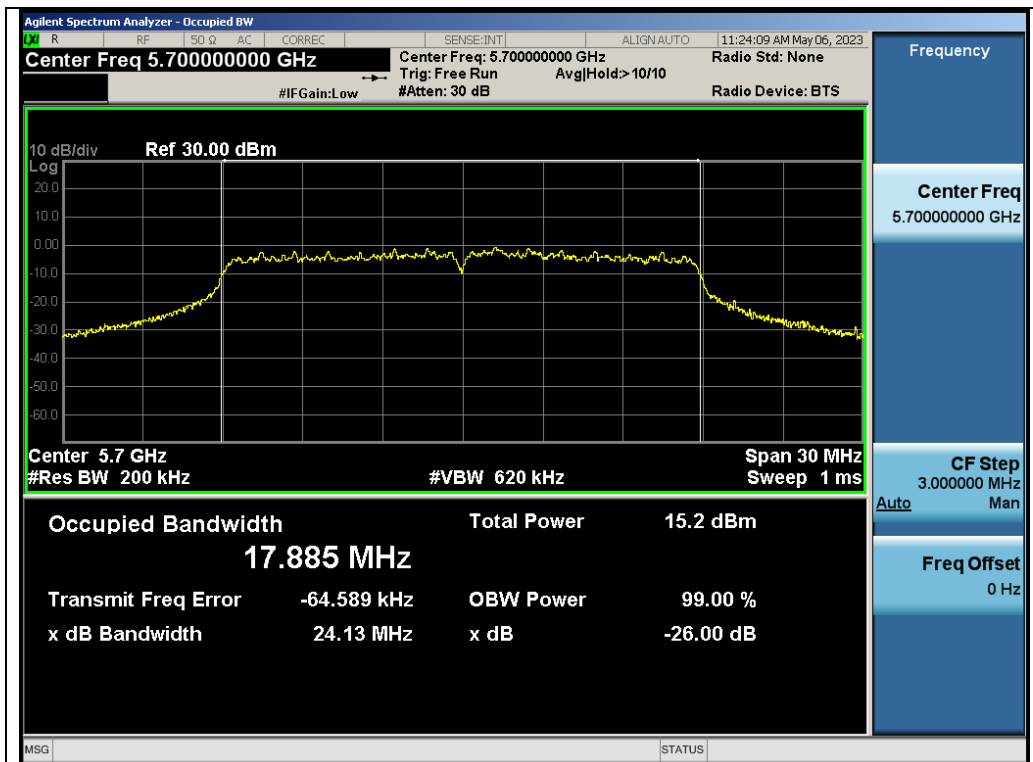


Test_Graph_802.11ac20_ANT2_5500_MCS0_OBW



Test_Graph_802.11ac20_ANT2_5600_MCS0_OBW

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