FCC Test Report

Report No.: AGC11143221003FE06

FCC ID	:	2AYLN-N104
APPLICATION PURPOSE	:	Original Equipment
PRODUCT DESIGNATION	:	NewCube Mini PC
BRAND NAME	:	JWIPC
MODEL NAME	:	N104, N1040, N*********(*=A-Z, 0-9, character or blank)
APPLICANT	:	JWIPC TECHNOLOGY CO., LTD.
DATE OF ISSUE	:	Nov. 11, 2022
STANDARD(S)	:	FCC Part 15 Subpart E §15.407
REPORT VERSION	:	V1.0

*A*ttestation of *G*lobal Compliance (Shenzhen) Co., Ltd

REPORT REVISE RECORD

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Nov. 11, 2022	Valid	Initial Release

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1. VERIFICATION OF CONFORMITY

Applicant	JWIPC TECHNOLOGY CO., LTD.
Address	13/F, Building B, Haisong Edifice, Tairan 9th Road, Futian District, Shenzhen, China
Manufacturer	JWIPC TECHNOLOGY CO., LTD.
Address	13/F, Building B, Haisong Edifice, Tairan 9th Road, Futian District, Shenzhen, China
Factory	DONGGUAN SCD TECHNOLOGY CO., LTD.
Address	No.1 Longcheng 2nd Street, Qingxi Town, Dongguan City, Guangdong Province, China
Product Designation	NewCube Mini PC
Brand Name	JWIPC
Test Model	N104
Series Model	N1040, N*********(*=A-Z, 0-9, character or blank)
Declaration of Difference	Different CPU models, memory hard disk capacity is different
Date of receipt of test item	Oct. 08, 2022
Date of Test	Oct. 08, 2022~Nov. 11, 2022
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) Nov. 11, 2022

Reviewed By

Calvin Liu
(Reviewer) Nov. 11, 2022

Approved By

Max Zhang
Authorized Officer Nov. 11, 2022

2. GENERAL INFORMATION

2.1. PRODUCT DESCRIPTION

Equipment Type	☐ Outdoor access points ☐ Indoor access points ☐ Fixed P2P access points ☒ Client devices
Operation Frequency	☒ U-NII 1:5150MHz~5250MHz ☐ U-NII 2A: 5250MHz~5350MHz ☐ U-NII 2C:5470MHz~5725MHz ☒ U-NII 3: 5725MHz~5850MHz
DFS Design Type	☐ Master ☐ Slave with radar detection ☒ Slave without radar detection
TPC Function	☐ Yes ☒ No
Hardware Version	IADPNS02-00
Software Version	Windows 11
Test Frequency Range:	For 802.11a/n/ax-HT20-VHT20: 5180~5240MHz, 5745~5825MHz For 802.11n/ax-HT40-HE 40: 5190~5230MHz, 5755~5795MHz For 802.11ac/ax-VHT80-HE80: 5210MHz, 5775MHz
Output Power	IEEE 802.11a(HT20):12.19dBm; IEEE 802.11n(HT20):11.90dBm; IEEE802.11n(HT40):11.59dBm; IEEE 802.11ac(VHT20):11.19dBm; IEEE802.11ac(VHT40):10.65dBm; IEEE802.11ac(VHT80):10.02dBm; IEEE802.11ax(HE20):10.28dBm; IEEE802.11ax(HE40):9.55dBm; IEEE802.11ax(HE80):9.12dBm
Output Power_MIMO	IEEE 802.11nHT(20):14.66dBm;IEEE802.11n(HT40):14.24dBm IEEE 802.11ac(VHT20):13.63dBm; IEEE802.11ac(VHT40):13.34dBm; IEEE802.11ac(VHT80):12.62dBm;IEEE802.11ax(HE20):12.99dBm; IEEE802.11ax(HE40):12.18dBm;IEEE802.11ax(HE80):11.77dBm
Modulation	802.11a/n:(64-QAM, 16-QAM, QPSK, BPSK) OFDM 802.11ac :(256-QAM, 64-QAM, 16-QAM, QPSK, BPSK) OFDM 802.11ax :(1024-QAM,256-QAM, 64-QAM, 16-QAM, QPSK, BPSK) OFDMA
Data Rate	802.11a: 6/9/12/18/24/36/48/54Mbps; 802.11n: up to 300Mbps; 802.11ac: up to 866.6Mbps; 802.11ax: up to 1201Mbps
Number of channels	7 channels of U-NII-1 Band 8 channels of U-NII-3 Band
Antenna Designation	PIFA Antenna
Antenna Gain	Refer to Chapter 2.8 of the report.
Power Supply	DC 19V

Note: Three adapters (DA-90J19, NB-65B19, SOY-1900342-327) and four CPU (I5-1235U, I3-1215U, I5-1240P, I7-1255U) were tested.The test records reported below are the worst results compared with other modes (DA-90J19 and I7-1255U).

2.2. TABLE OF CARRIER FREQUENCYS

For 5180~5240MHz:

4 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20):

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), 802.11ax (HE40):

Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz

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

Channel	Frequency	Channel	Frequency
42	5210 MHz	--	--

For 5745~5825MHz:

5 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20) , 802.11ax (HE20):

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) , 802.11ax (HE40):

Channel	Frequency	Channel	Frequency
151	5755 MHz	159	5795 MHz

1 channel is provided for 802.11ac (VHT80) , 802.11ax (HE80):

Channel	Frequency	Channel	Frequency
155	5775 MHz	--	--

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

This submittal(s) (test report) is intended for **FCC ID: 2AYLN-N104** 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
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 antennathat uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a brokenantenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.
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

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 PIFA Antenna List (5GHz 2*2 MIMO)						
PIFA Antenna	5150 ~ 5250	2	20,40,80	4.77	4.39	7.78
	5725 ~ 5850	2	20,40,80	4.95	5.31	8.32

Note 1: The EUT supports Cyclic Delay Diversity (CDD) technology for 802.11n/ac/ax 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} + Array Gain, where Array Gain is as follows.

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

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

- For power measurements on IEEE 802.1devices:

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

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

  Array Gain = 5 log(N_{ANT}/N_{SS}) dB or 3 dB, whichever is less, for 20 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.

3.3 ENVIRONMENTAL CONDITIONS

	NORMAL CONDITIONS	EXTREME CONDITIONS
Temperature range (℃)	15 - 35	-20 - 50
Relative humidty range	20 % - 75 %	20 % - 75 %
Pressure range (kPa)	86 - 106	86 - 106
Power supply	DC 19.0V	--
Note: The Extreme Temperature and Extreme Voltages declared by the manufacturer.		

3.4 MEASUREMENT UNCERTAINTY

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%.

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

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

TEST EQUIPMENT OF RADIATED EMISSION TEST

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESCI	10096	Mar. 28, 2022	Mar. 27, 2023
EXA Signal Analyzer	Aglient	N9010A	MY53470504	Aug. 04, 2022	Aug. 03, 2023
Power sensor	Aglient	U2021XA	MY54110007	Mar. 04, 2022	Mar. 02, 2023
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, 2023
Double-Ridged Waveguide Horn	ETS LINDGREN	3117	00034609	Apr. 23, 2021	Apr. 22, 2023
Broadband Preamplifier	ETS LINDGREN	3117PA	00225134	Sep. 01, 2022	Aug. 31, 2023
ANTENNA	SCHWARZBECK	VULB9168	494	Jan. 08, 2021	Jan. 07, 2023
Test software	Tonscend	JS32-RE	Ver.2.5	N/A	N/A

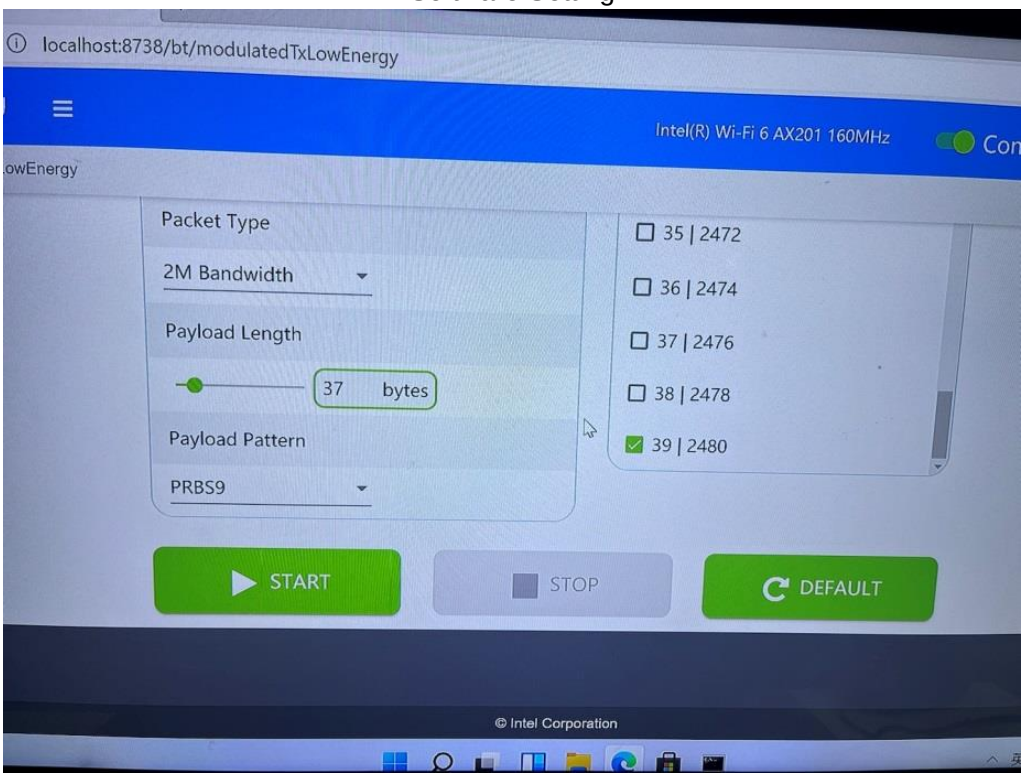
4. DESCRIPTION OF TEST MODES

Mode	Available channel	Tested channel	Modulation	Date rate (Mbps)
802.11a/n/ac/ax20	36,40,44,48, 149,153,157,161,165	36,40,48, 149,157,165	OFDM/OFDMA	6Mbps/MCS0
802.11n/ac/ax40	38,46,151,159	38,46, 151,159	OFDM/OFDMA	MCS0
802.11ac/ax80	42, 155	42, 155	OFDM/OFDMA	MCS0

Note:

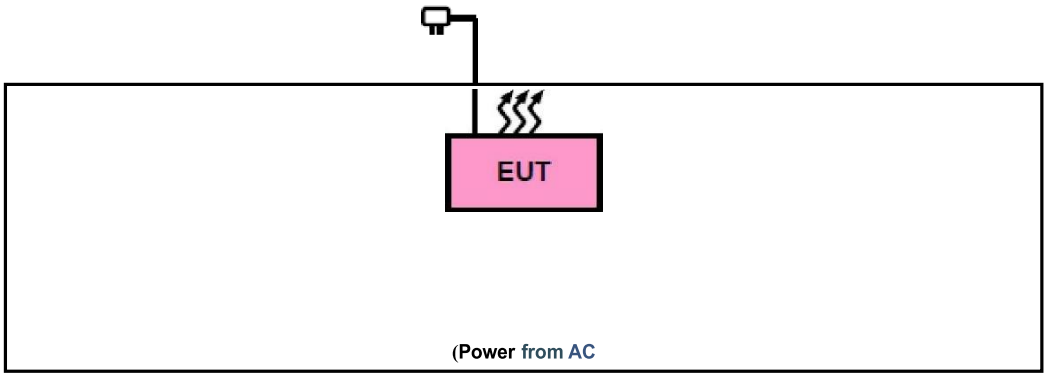
1. The EUT has been set to operate continuously on tested channel individually, and the EUT is operating at its maximum duty cycle>or equal 98%.
2. All modes under which configure applicable have been tested and the worst mode test data recording in the test report, if no other mode data.

Software Setting



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	NewCube Mini PC	N104	2AYLN-N104	EUT
2	Adapter 1	DA-90J19	Input: AC 100-240V 50-60Hz, 1.5A Max Output: DC 19V 4.74A	AE
3	Adapter 2	NB-65B19	Input: AC 100-240V 50-60Hz, 1.5A Max Output: DC 19V 3.42A	AE
4	Adapter 3	SOY-1900342-327	Input: AC 100-240V 50-60Hz, 1.5A Max Output: DC 19V 3.42A	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)(1/2/3/4/5)	Conducted Spurious Emission	Pass
7	§15.407(b)(1/2/3/4/5)	Radiated Emission& Band Edge	Pass
8	§15.407(b)(6)	AC Power Line Conducted Emission	Pass

6. RF OUTPUT POWER MEASUREMENT

6.1 MEASUREMENT LIMITS

Operation Band	EUT Category		LIMIT
U-NII-1	☐	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)
	☐	Fixed point-to-point Access Point	1 Watt (30 dBm)
	☐	Indoor Access Point	1 Watt (30 dBm)
	☒	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)

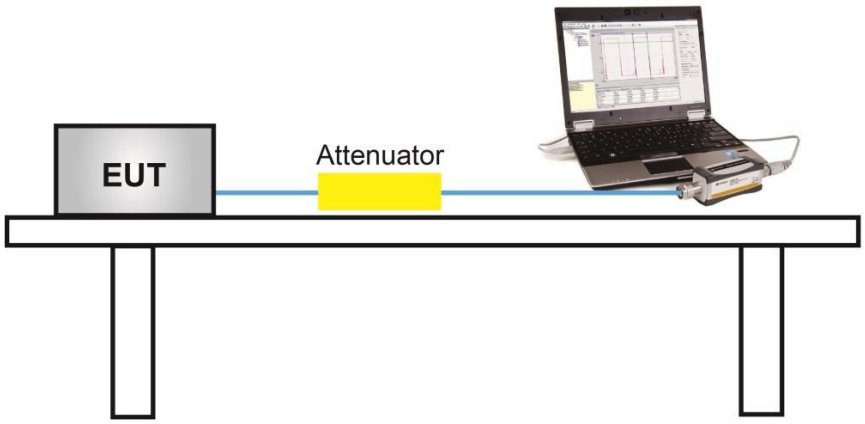
Note: Where B is the 26dB emission bandwidth in MHz.

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.

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	12.03	23.98	Pass
	5200	**12.19**	23.98	Pass
	5240	12.04	23.98	Pass
802.11n20	5180	11.79	23.98	Pass
	5200	11.90	23.98	Pass
	5240	11.88	23.98	Pass
802.11n40	5190	11.52	23.98	Pass
	5230	11.59	23.98	Pass
802.11ac20	5180	11.01	23.98	Pass
	5200	11.19	23.98	Pass
	5240	11.00	23.98	Pass
802.11ac40	5190	10.65	23.98	Pass
	5230	10.59	23.98	Pass
802.11ac80	5210	10.02	23.98	Pass
802.11ax20	5180	10.19	23.98	Pass
	5200	10.28	23.98	Pass
	5240	10.25	23.98	Pass
802.11ax40	5190	9.55	23.98	Pass
	5230	9.54	23.98	Pass
802.11ax80	5210	9.12	23.98	Pass

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	**11.65**	23.98	Pass
	5200	11.48	23.98	Pass
	5240	11.00	23.98	Pass
802.11n20	5180	11.50	23.98	Pass
	5200	11.31	23.98	Pass
	5240	10.72	23.98	Pass
802.11n40	5190	10.92	23.98	Pass
	5230	10.20	23.98	Pass
802.11ac20	5180	10.14	23.98	Pass
	5200	9.97	23.98	Pass
	5240	9.33	23.98	Pass
802.11ac40	5190	9.99	23.98	Pass
	5230	9.38	23.98	Pass
802.11ac80	5210	9.15	23.98	Pass
802.11ax20	5180	9.76	23.98	Pass
	5200	9.54	23.98	Pass
	5240	9.02	23.98	Pass
802.11ax40	5190	8.76	23.98	Pass
	5230	8.19	23.98	Pass
802.11ax80	5210	8.36	23.98	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	**14.66**	23.98	Pass
	5200	14.63	23.98	Pass
	5240	14.35	23.98	Pass
802.11n40	5190	14.24	23.98	Pass
	5230	13.96	23.98	Pass
802.11ac20	5180	13.61	23.98	Pass
	5200	13.63	23.98	Pass
	5240	13.26	23.98	Pass
802.11ac40	5190	13.34	23.98	Pass
	5230	13.04	23.98	Pass
802.11ac80	5210	12.62	23.98	Pass
802.11ax20	5180	12.99	23.98	Pass
	5200	12.94	23.98	Pass
	5240	12.69	23.98	Pass
802.11ax40	5190	12.18	23.98	Pass
	5230	11.93	23.98	Pass
802.11ax80	5210	11.77	23.98	Pass

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	10.55	30	Pass
	5785	**10.85**	30	Pass
	5825	10.53	30	Pass
802.11n20	5745	10.41	30	Pass
	5785	10.60	30	Pass
	5825	10.43	30	Pass
802.11n40	5755	10.11	30	Pass
	5795	10.24	30	Pass
802.11ac20	5745	9.71	30	Pass
	5785	9.82	30	Pass
	5825	9.53	30	Pass
802.11ac40	5755	9.06	30	Pass
	5795	9.19	30	Pass
802.11ac80	5775	8.51	30	Pass
802.11ax20	5745	9.44	30	Pass
	5785	9.64	30	Pass
	5825	9.43	30	Pass
802.11ax40	5755	8.70	30	Pass
	5795	8.77	30	Pass
802.11ax80	5775	8.17	30	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	10.52	30	Pass
	5785	**11.02**	30	Pass
	5825	10.34	30	Pass
802.11n20	5745	10.32	30	Pass
	5785	10.84	30	Pass
	5825	10.21	30	Pass
802.11n40	5755	9.86	30	Pass
	5795	10.12	30	Pass
802.11ac20	5745	9.72	30	Pass
	5785	10.25	30	Pass
	5825	9.67	30	Pass
802.11ac40	5755	9.01	30	Pass
	5795	9.42	30	Pass
802.11ac80	5775	8.32	30	Pass
802.11ax20	5745	9.30	30	Pass
	5785	10.00	30	Pass
	5825	9.43	30	Pass
802.11ax40	5755	8.65	30	Pass
	5795	9.06	30	Pass
802.11ax80	5775	8.04	30	Pass

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	13.55	30	Pass
	5785	13.95	30	Pass
	5825	13.45	30	Pass
802.11n40	5755	13.38	30	Pass
	5795	13.73	30	Pass
802.11ac20	5745	13.33	30	Pass
	5785	13.00	30	Pass
	5825	13.19	30	Pass
802.11ac40	5755	12.73	30	Pass
	5795	13.05	30	Pass
802.11ac80	5775	12.61	30	Pass
802.11ax20	5745	12.05	30	Pass
	5785	12.32	30	Pass
	5825	11.43	30	Pass
802.11ax40	5755	11.69	30	Pass
	5795	11.93	30	Pass
802.11ax80	5775	11.12	30	Pass

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 ≥3*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:

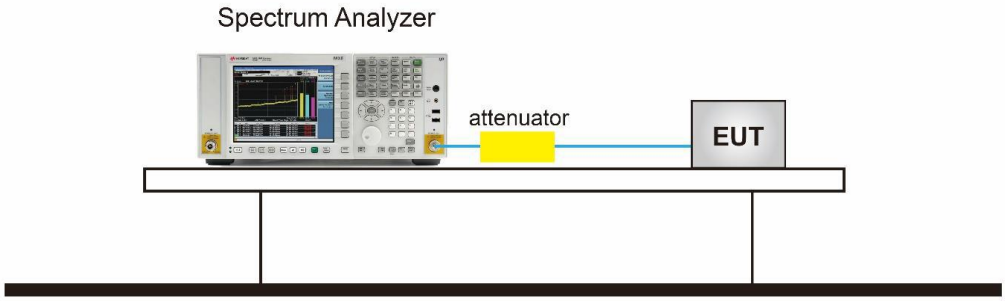
1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
2. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
3. Set Span = approximately 1.5 to 5 times the OBW, centered on a nominal channel
   The nominal IF filter bandwidth (3 dB RBW) shall 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)



7.4 MEASUREMENT RESULTS

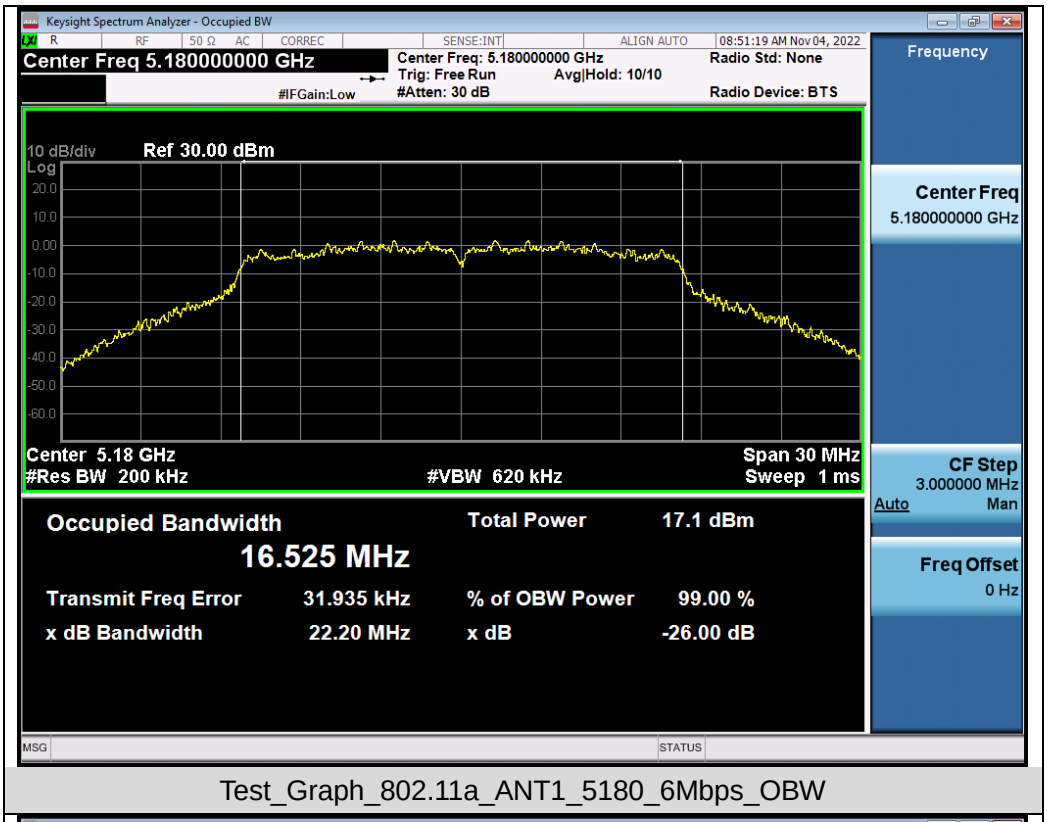
Test Data of Occupied Bandwidth and -26dB Bandwidth for band 5.15-5.25 GHz-ANT 1					
Test Mode	Test Channel (MHz)	99% Occupied Bandwidth (MHz)	-26dB Bandwidth (MHz)	Limits (MHz)	Pass or Fail
802.11a	5180	16.525	22.196	N/A	Pass
	5200	16.512	22.328	N/A	Pass
	5240	16.510	22.221	N/A	Pass
802.11n20	5180	17.651	22.219	N/A	Pass
	5200	17.647	23.218	N/A	Pass
	5240	17.631	22.547	N/A	Pass
802.11n40	5190	35.981	42.663	N/A	Pass
	5230	35.988	42.483	N/A	Pass
802.11ac20	5180	17.613	21.909	N/A	Pass
	5200	17.631	23.324	N/A	Pass
	5240	17.664	22.417	N/A	Pass
802.11ac40	5190	35.978	42.450	N/A	Pass
	5230	35.959	42.551	N/A	Pass
802.11ac80	5210	75.024	83.432	N/A	Pass
802.11ax20	5180	18.844	22.849	N/A	Pass
	5200	18.825	23.023	N/A	Pass
	5240	18.873	22.917	N/A	Pass
802.11ax40	5190	37.532	42.821	N/A	Pass
	5230	37.555	41.115	N/A	Pass
802.11ax80	5210	76.497	81.317	N/A	Pass

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	16.481	21.990	N/A	Pass
	5200	16.495	22.335	N/A	Pass
	5240	16.505	22.639	N/A	Pass
802.11n20	5180	17.633	22.772	N/A	Pass
	5200	17.644	22.908	N/A	Pass
	5240	17.633	22.467	N/A	Pass
802.11n40	5190	35.987	42.512	N/A	Pass
	5230	36.027	42.505	N/A	Pass
802.11ac20	5180	17.633	22.299	N/A	Pass
	5200	17.625	22.293	N/A	Pass
	5240	17.637	22.395	N/A	Pass
802.11ac40	5190	35.947	42.727	N/A	Pass
	5230	35.984	42.578	N/A	Pass
802.11ac80	5210	75.116	86.477	N/A	Pass
802.11ax20	5180	18.861	22.727	N/A	Pass
	5200	18.838	22.224	N/A	Pass
	5240	18.803	22.954	N/A	Pass
802.11ax40	5190	37.527	42.052	N/A	Pass
	5230	37.567	42.377	N/A	Pass
802.11ax80	5210	76.705	81.992	N/A	Pass

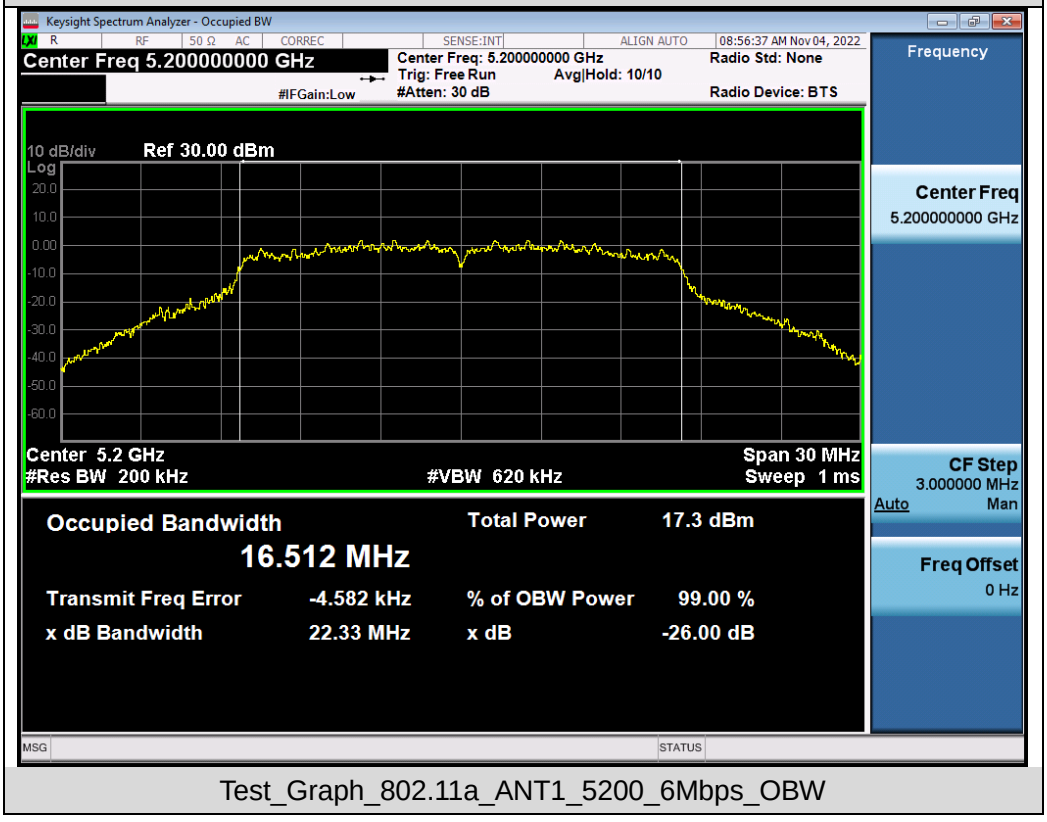
Test Data of Occupied Bandwidth and DTS Bandwidth for band 5.725-5.85 GHz-ANT 1					
Test Mode	Test Channel (MHz)	99% Occupied Bandwidth (MHz)	DTS Bandwidth (MHz)	Limits (MHz)	Pass or Fail
802.11a	5745	16.665	16.344	0.5	Pass
	5785	16.707	16.337	0.5	Pass
	5825	16.668	16.335	0.5	Pass
802.11n20	5745	17.810	17.582	0.5	Pass
	5785	17.813	17.571	0.5	Pass
	5825	17.845	17.569	0.5	Pass
802.11n40	5755	36.340	36.343	0.5	Pass
	5795	36.316	36.351	0.5	Pass
802.11ac20	5745	17.829	17.596	0.5	Pass
	5785	17.826	17.558	0.5	Pass
	5825	17.826	17.584	0.5	Pass
802.11ac40	5755	36.331	36.351	0.5	Pass
	5795	36.326	36.319	0.5	Pass
802.11ac80	5775	75.019	72.512	0.5	Pass
802.11ax20	5180	18.982	18.718	0.5	Pass
	5200	19.015	18.572	0.5	Pass
	5240	19.054	18.785	0.5	Pass
802.11ax40	5190	37.843	37.891	0.5	Pass
	5230	37.869	37.827	0.5	Pass
802.11ax80	5210	76.737	72.524	0.5	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	16.682	16.346	0.5	Pass
	5785	16.705	16.353	0.5	Pass
	5825	16.746	16.338	0.5	Pass
802.11n20	5745	17.849	17.595	0.5	Pass
	5785	17.805	17.580	0.5	Pass
	5825	17.811	17.574	0.5	Pass
802.11n40	5755	36.303	36.339	0.5	Pass
	5795	36.342	36.349	0.5	Pass
802.11ac20	5745	17.819	17.569	0.5	Pass
	5785	17.838	17.551	0.5	Pass
	5825	17.797	17.579	0.5	Pass
802.11ac40	5755	36.337	36.352	0.5	Pass
	5795	36.313	36.360	0.5	Pass
802.11ac80	5775	75.081	72.510	0.5	Pass
802.11ax20	5180	19.041	18.440	0.5	Pass
	5200	19.002	18.303	0.5	Pass
	5240	19.084	18.676	0.5	Pass
802.11ax40	5190	37.886	37.728	0.5	Pass
	5230	37.847	37.842	0.5	Pass
802.11ax80	5210	76.688	72.547	0.5	Pass

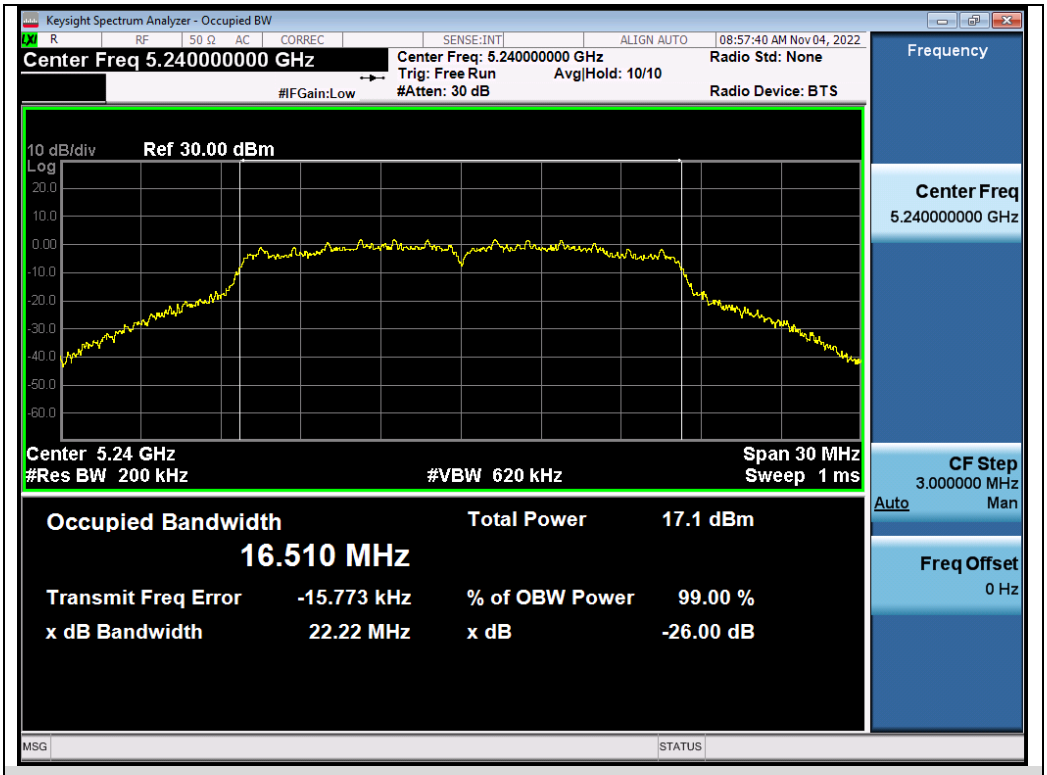
Test Graphs of Occupied Bandwidth and -26dB Bandwidth for band 5.15-5.25 GHz



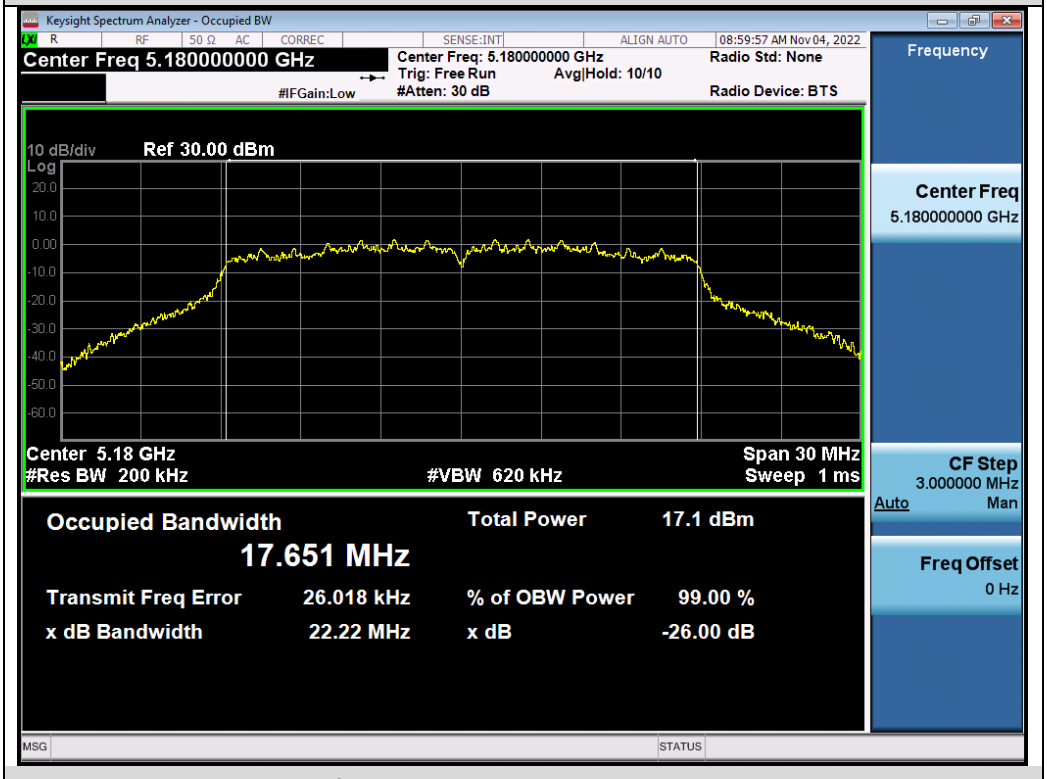
Test_Graph_802.11a_ANT1_5180_6Mbps_OBW



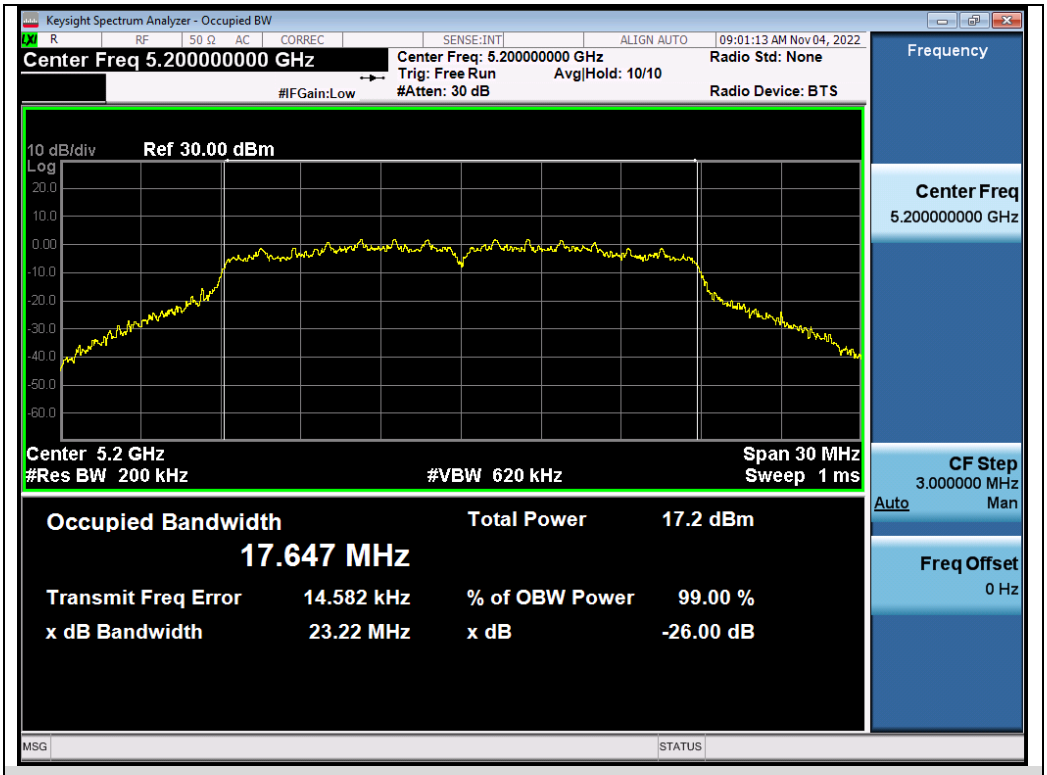
Test_Graph_802.11a_ANT1_5200_6Mbps_OBW



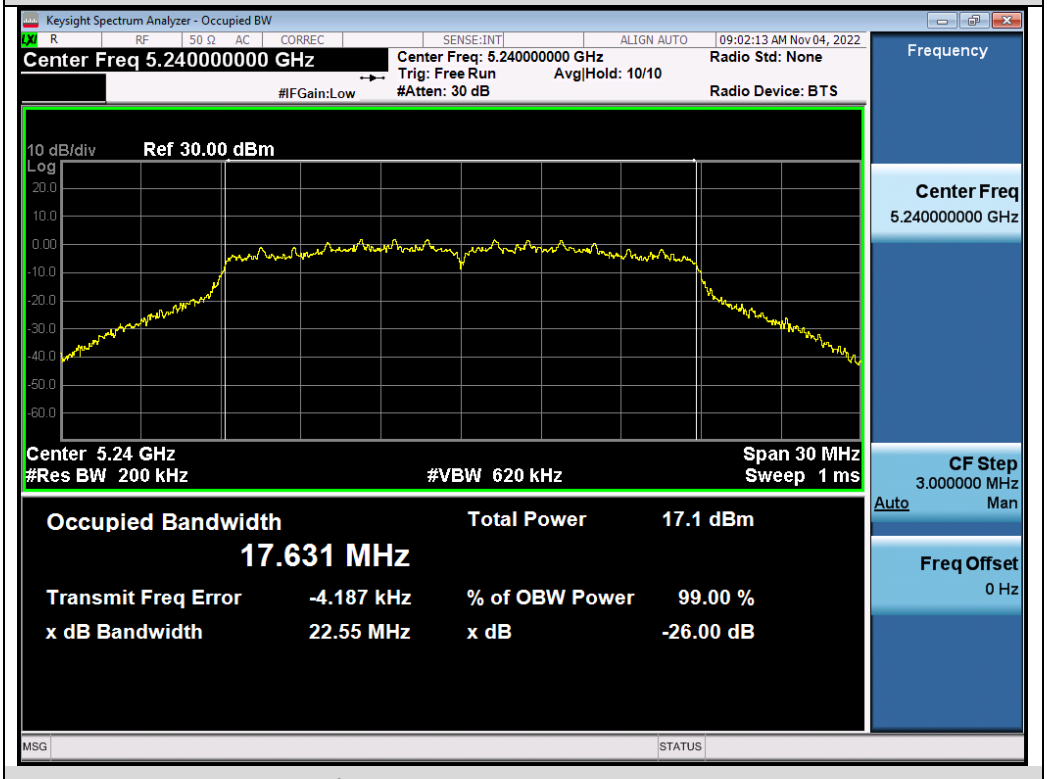
Test_Graph_802.11a_ANT1_5240_6Mbps_OBW



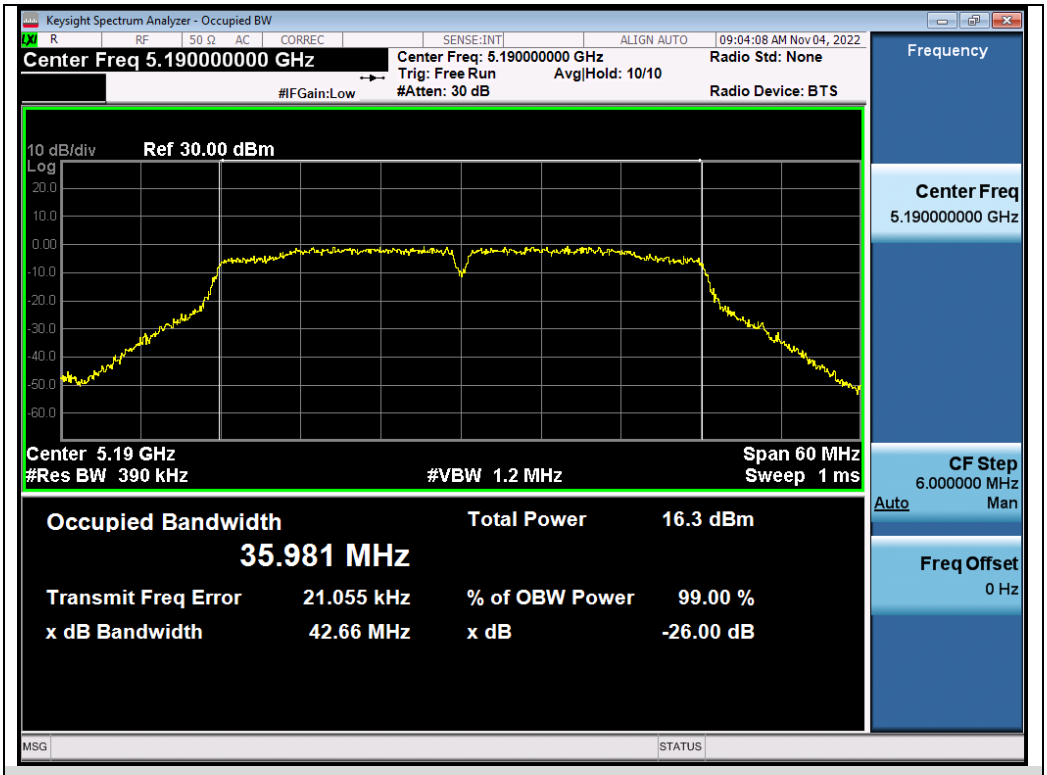
Test_Graph_802.11n20_ANT1_5180_MCS0_OBW



Test_Graph_802.11n20_ANT1_5200_MCS0_OBW

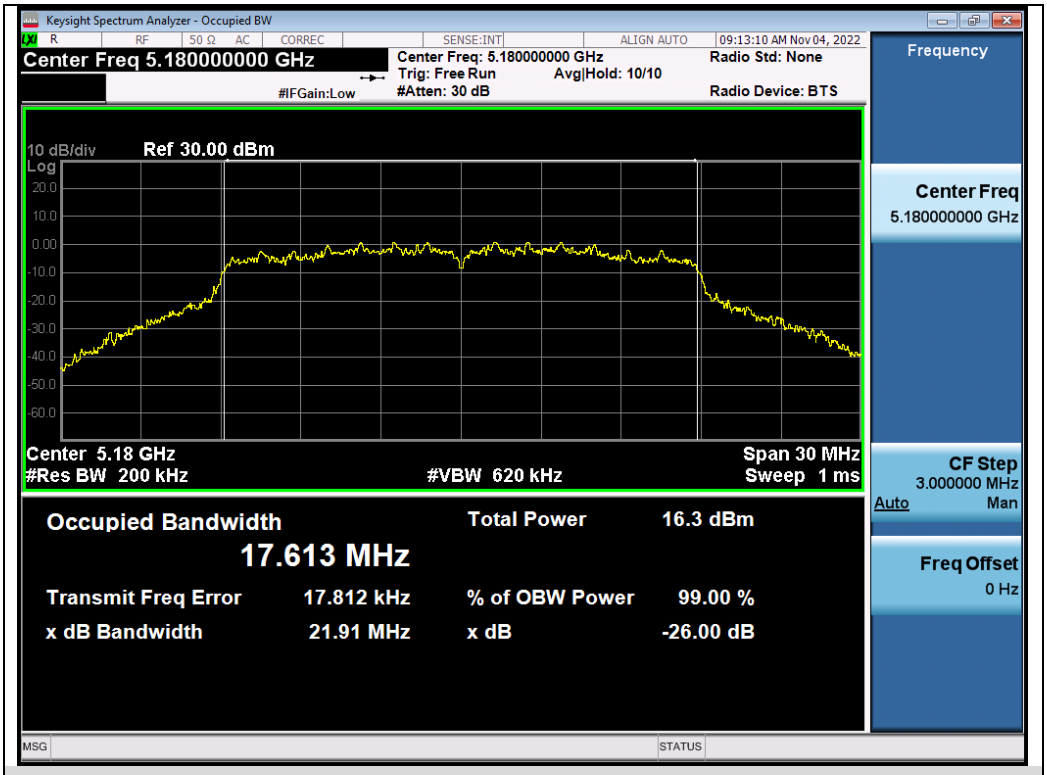


Test_Graph_802.11n20_ANT1_5240_MCS0_OBW

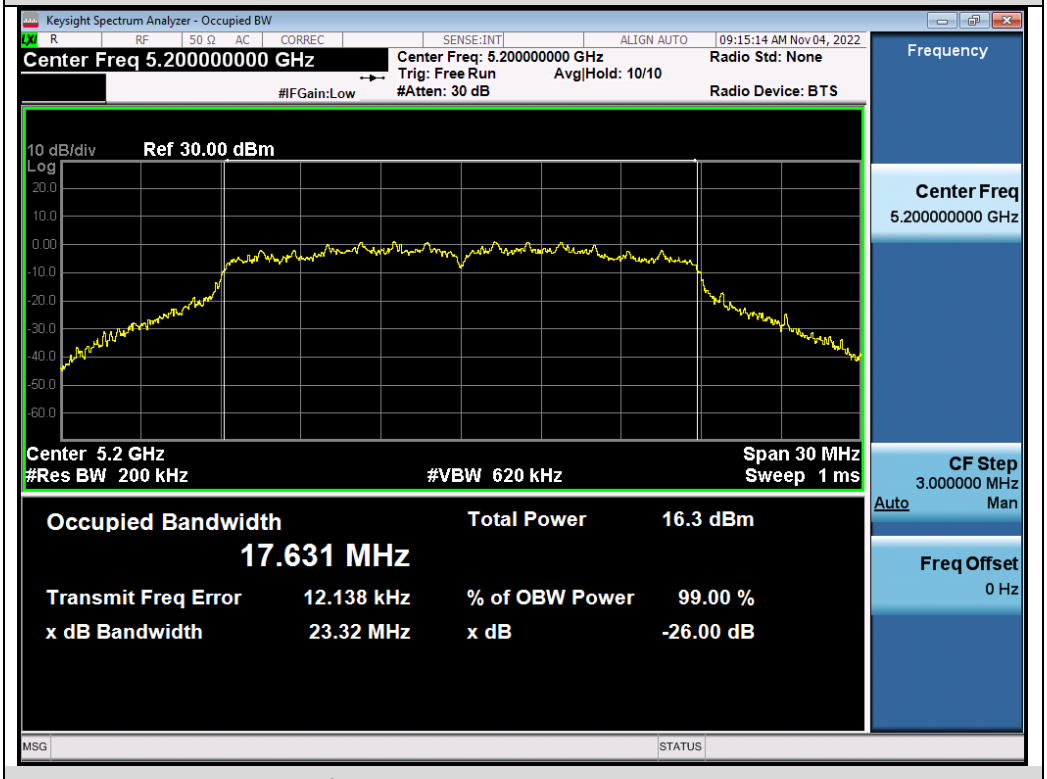


Test_Graph_802.11n40_ANT1_5190_MCS0_OBW

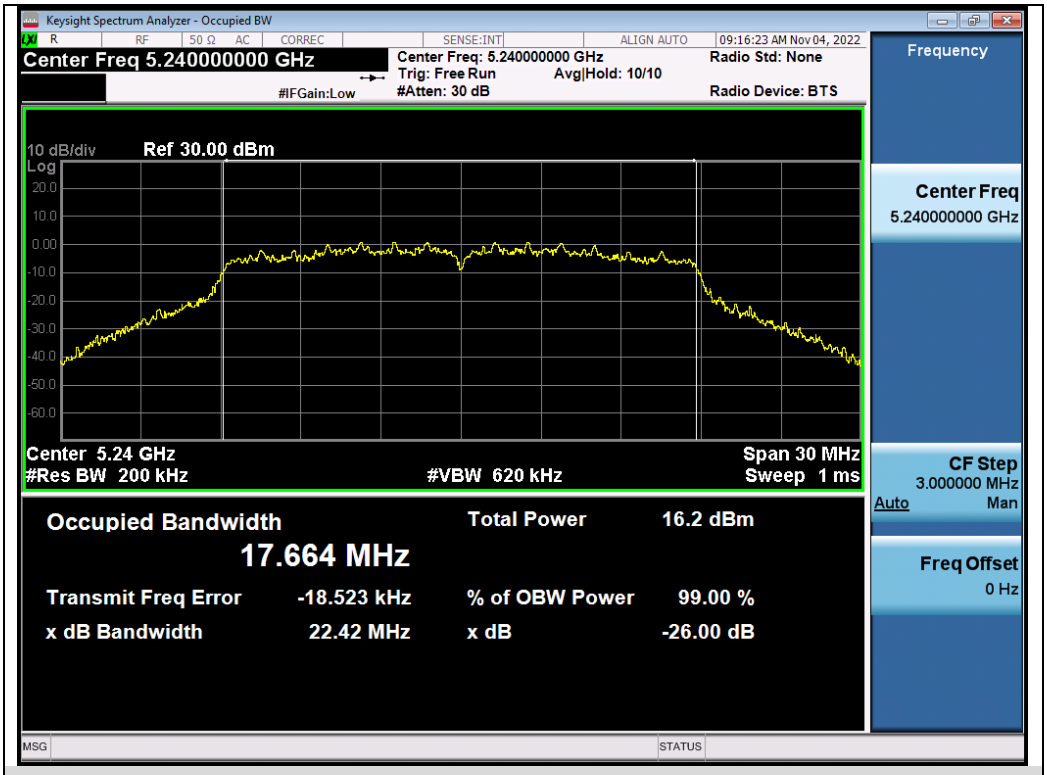
Test_Graph_802.11n40_ANT1_5230_MCS0_OBW



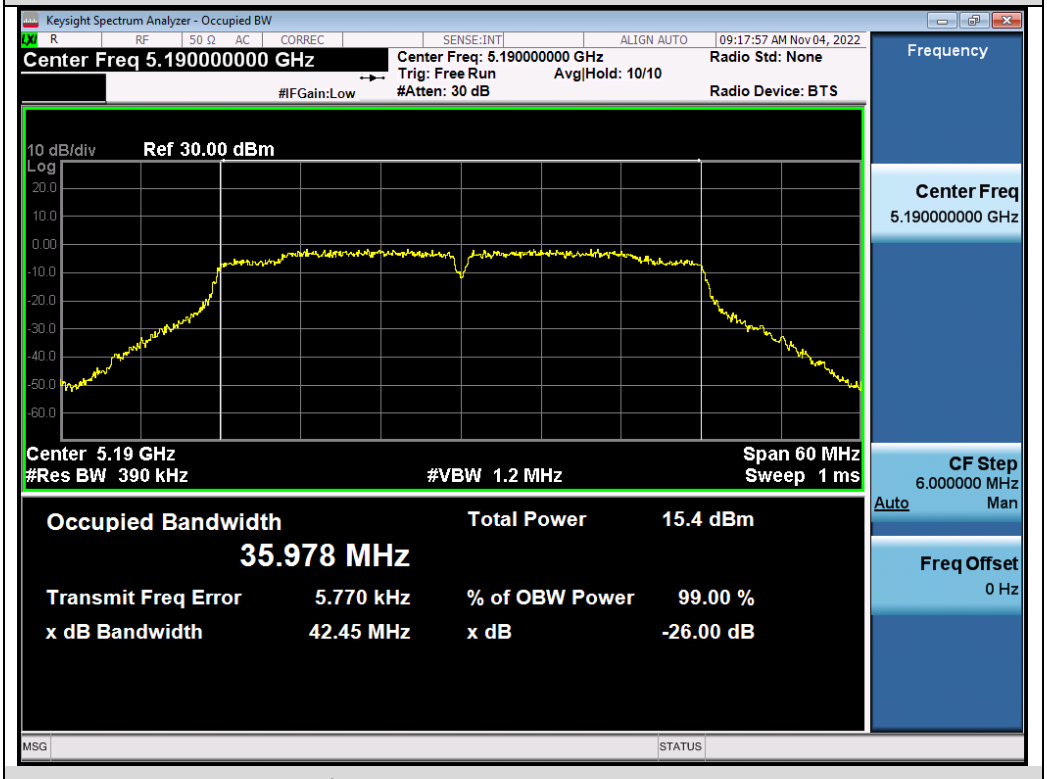
Test_Graph_802.11ac20_ANT1_5180_MCS0_OBW



Test_Graph_802.11ac20_ANT1_5200_MCS0_OBW

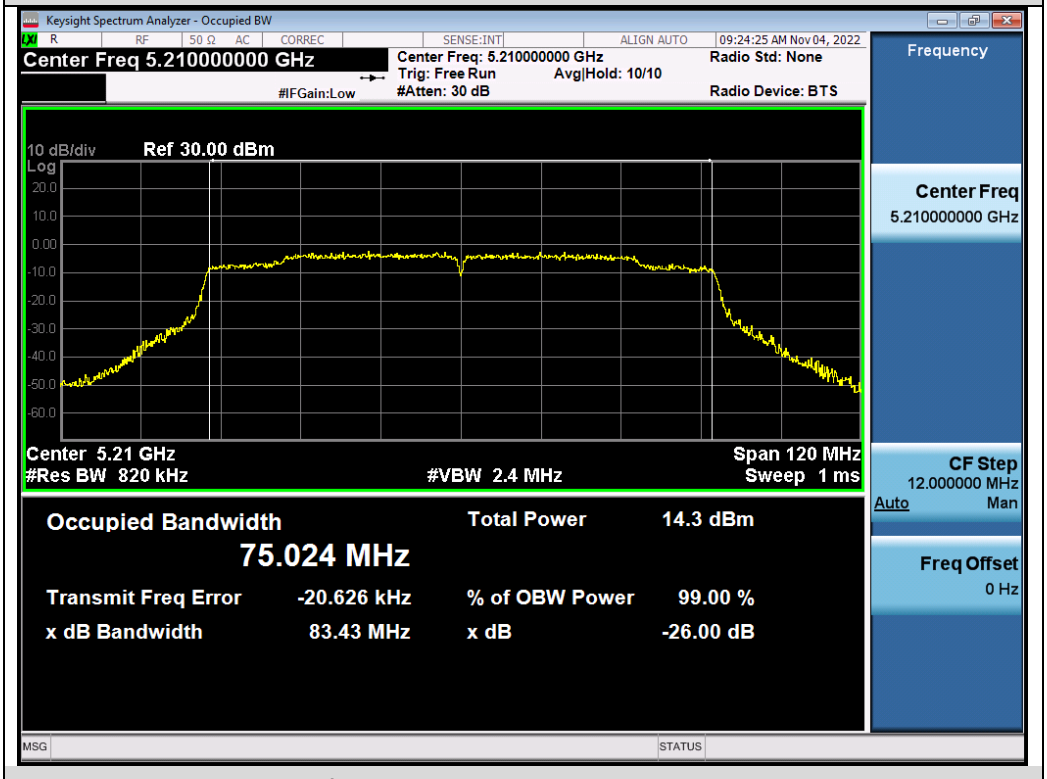


Test_Graph_802.11ac20_ANT1_5240_MCS9_OBW



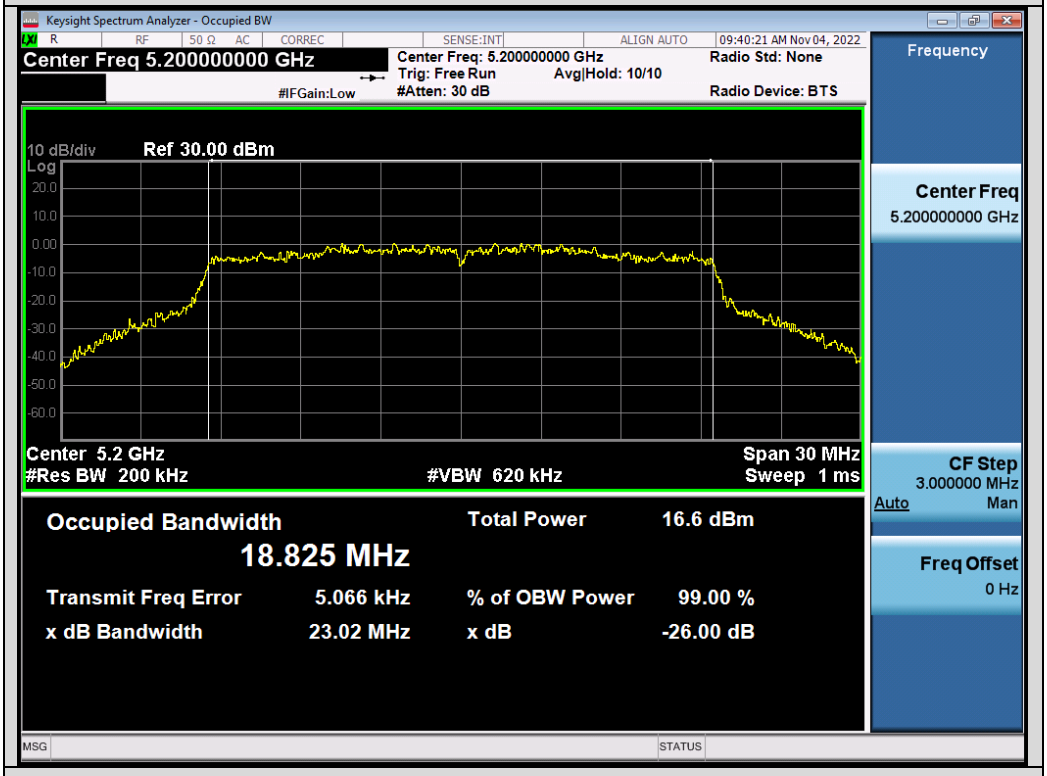
Test_Graph_802.11ac40_ANT1_5190_MCS9_OBW

Test_Graph_802.11ac40_ANT1_5230_MCS9_OBW

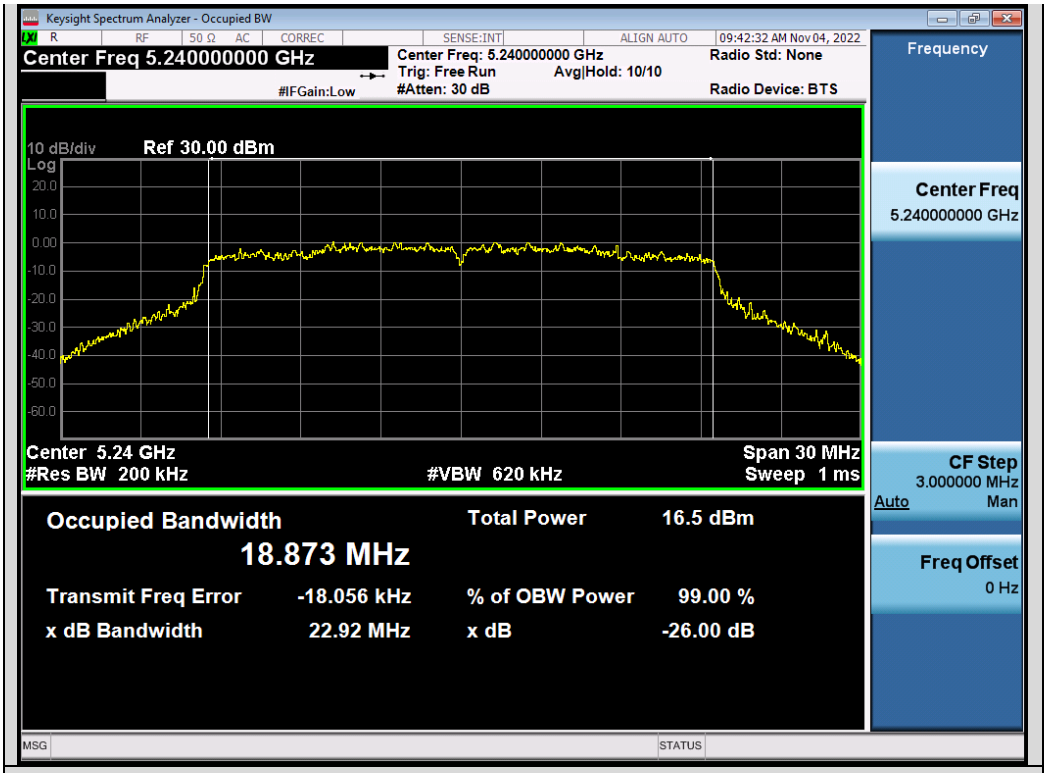


Test_Graph_802.11ac80_ANT1_5210_MCS9_OBW

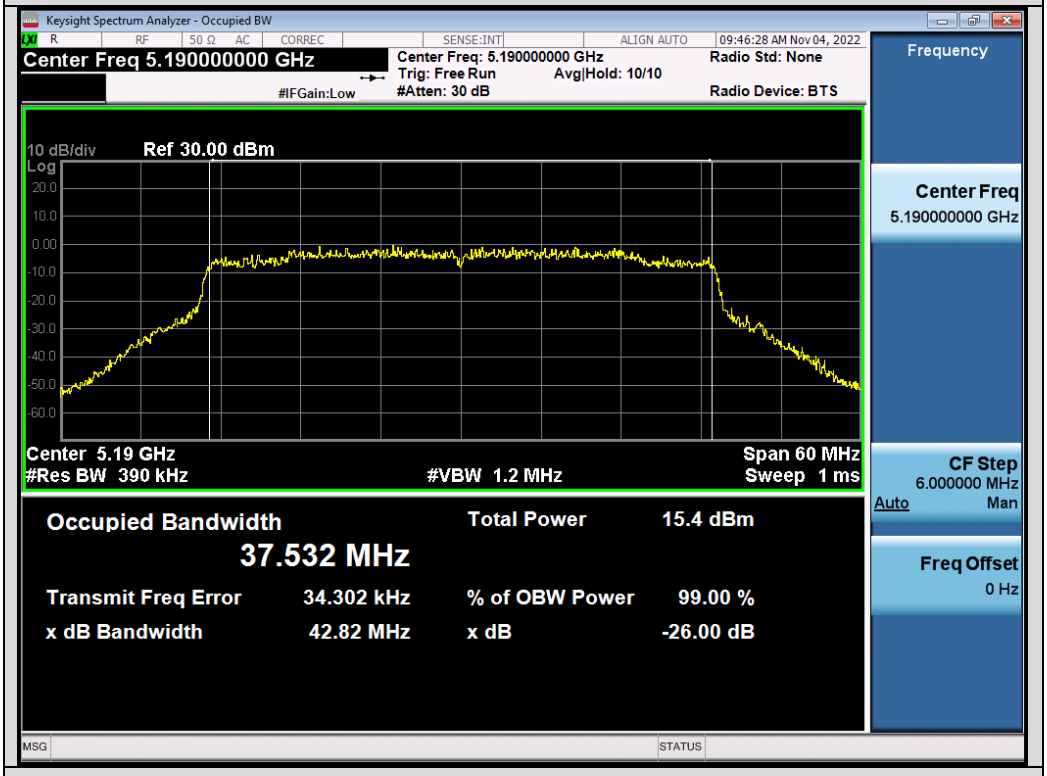
Test_Graph_802.11ax20_ANT1_5180_MCS0_OBW



Test_Graph_802.11ax20_ANT1_5200_MCS0_OBW

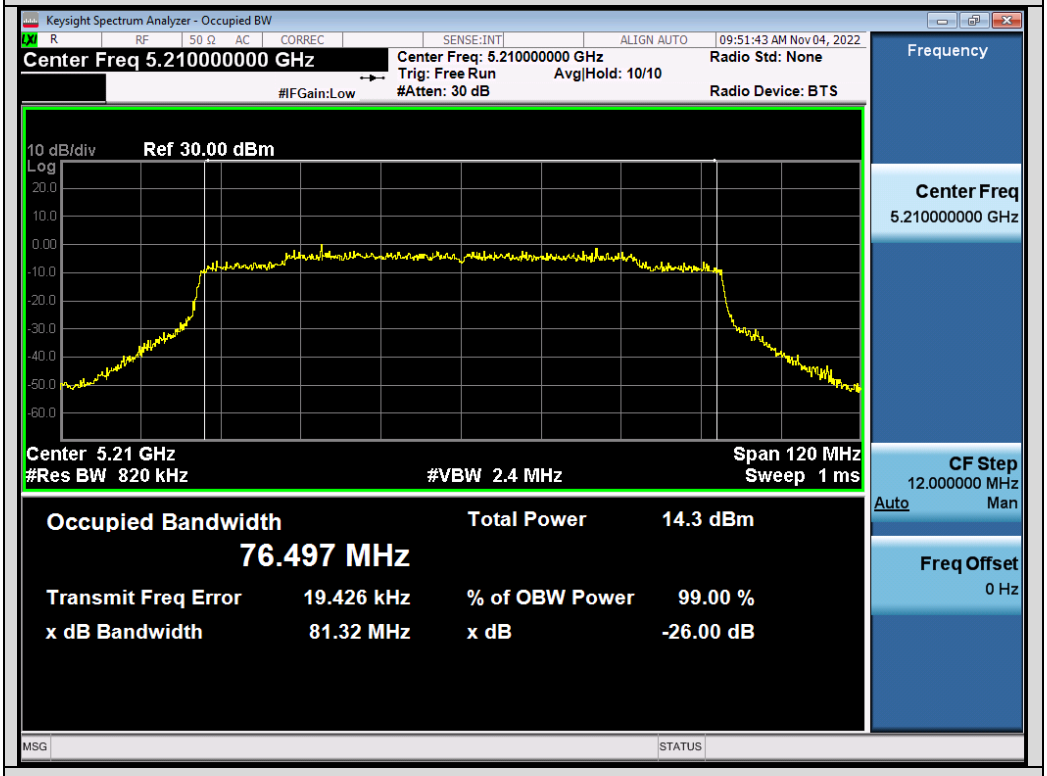


Test_Graph_802.11ax20_ANT1_5240_MCS0_OBW



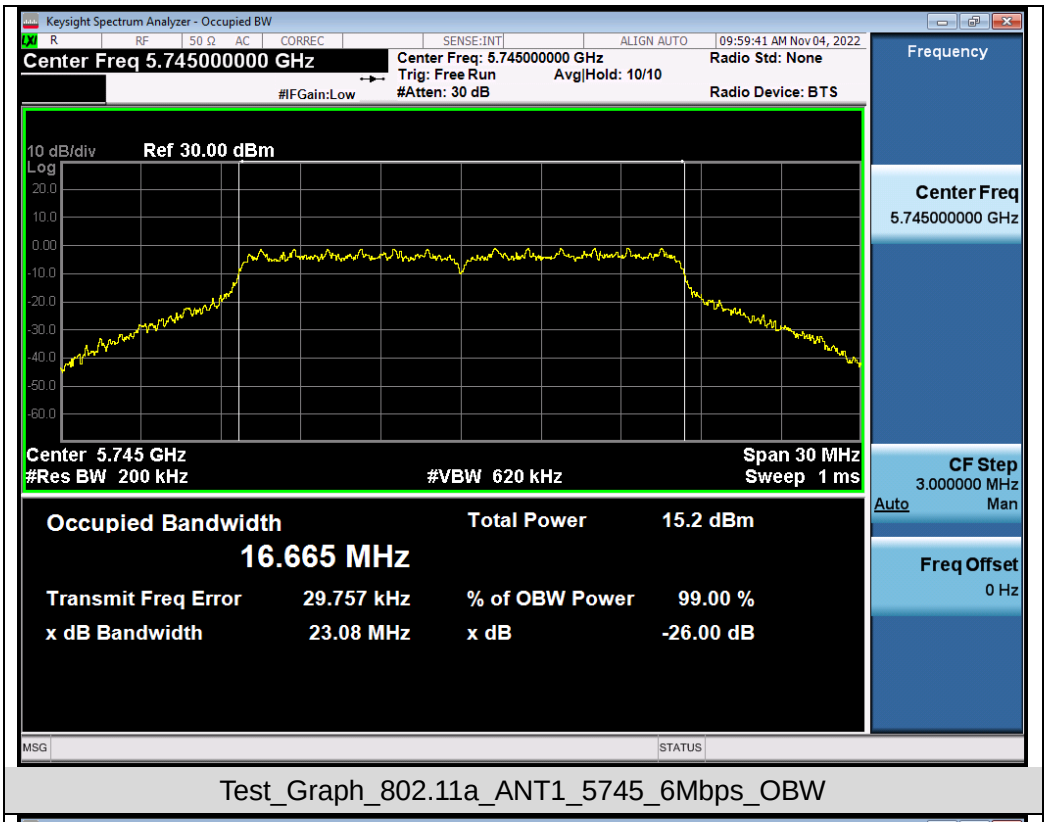
Test_Graph_802.11ax40_ANT1_5190_MCS0_OBW

Test_Graph_802.11ax40_ANT1_5230_MCS0_OBW

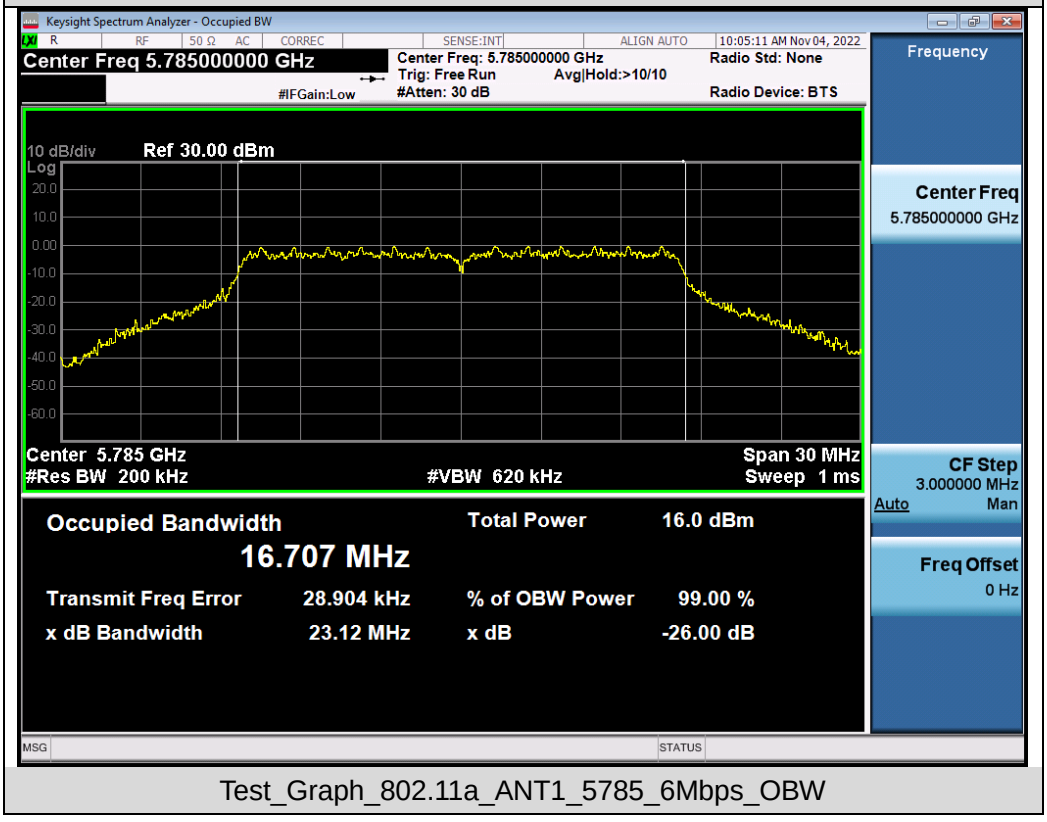


Test_Graph_802.11ax80_ANT1_5210_MCS0_OBW

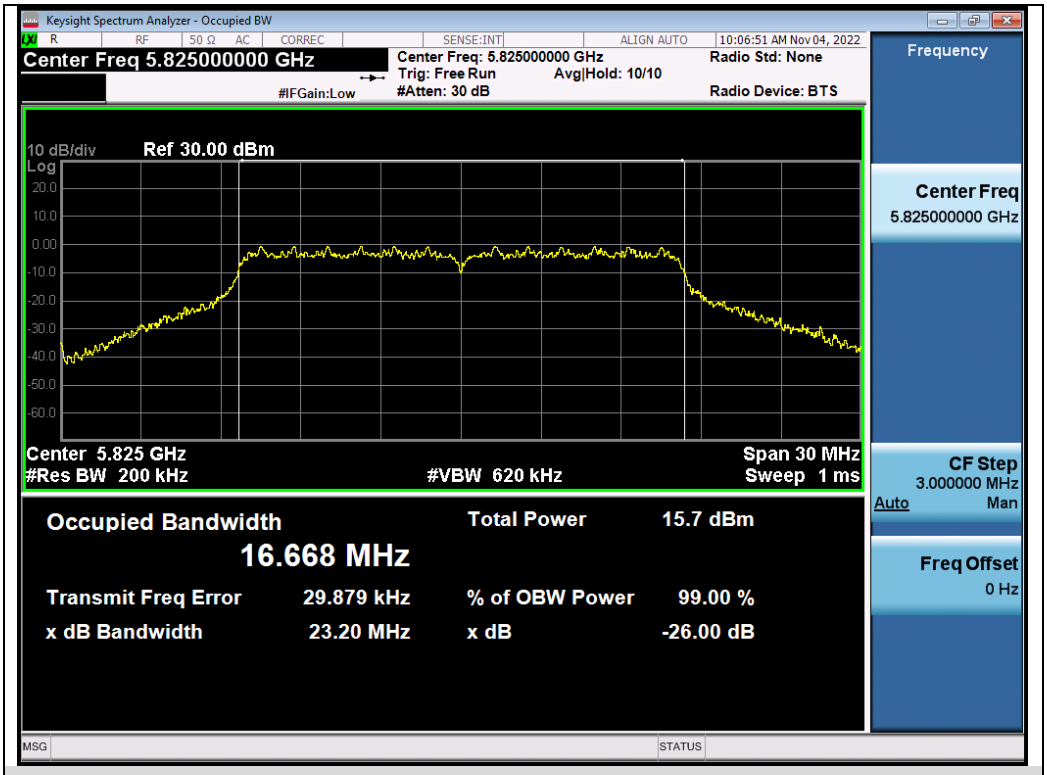
Test Graphs of Occupied Bandwidth for band 5.725-5.85 GHz



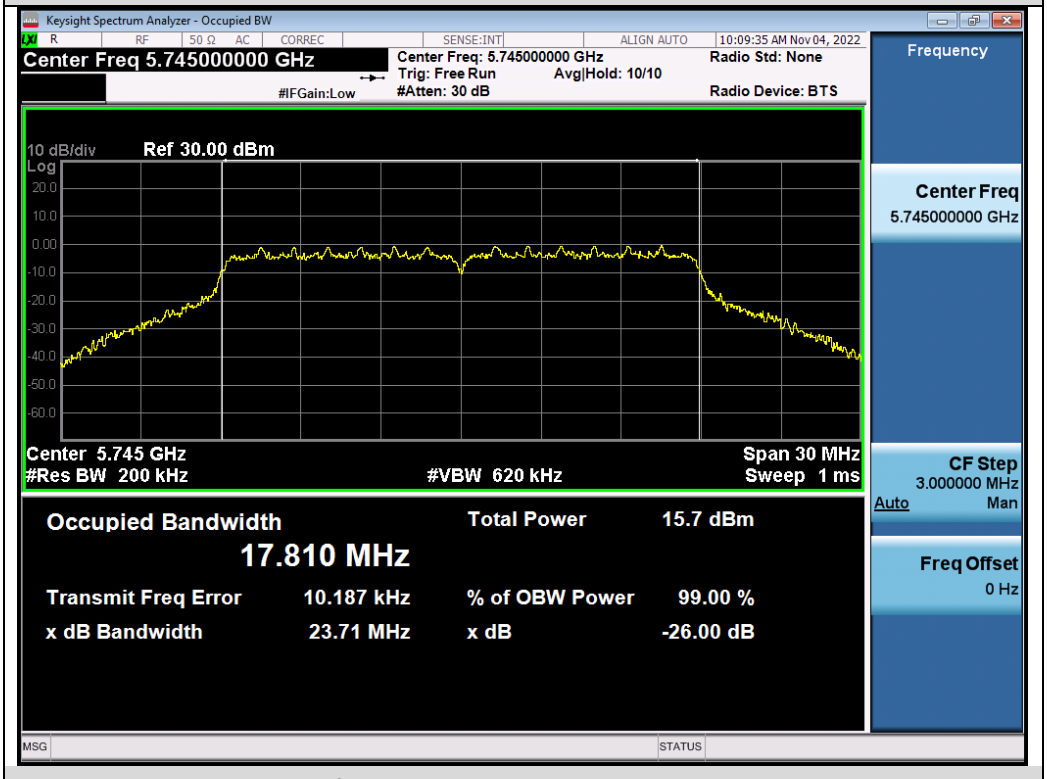
Test_Graph_802.11a_ANT1_5745_6Mbps_OBW



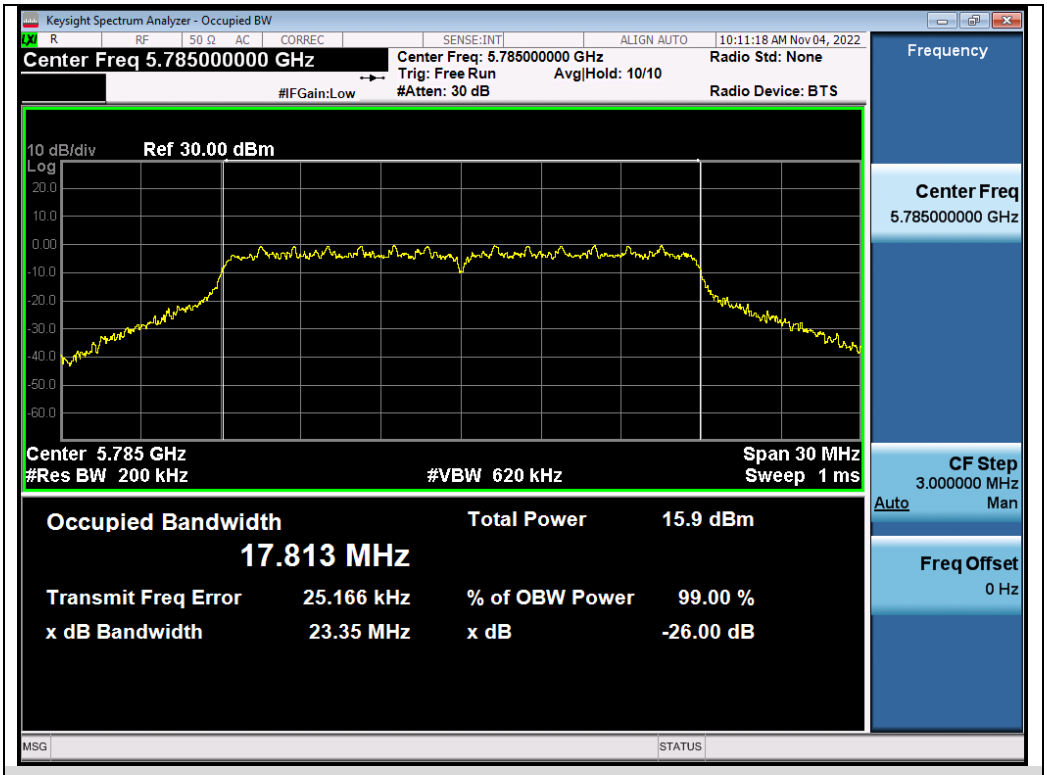
Test_Graph_802.11a_ANT1_5785_6Mbps_OBW



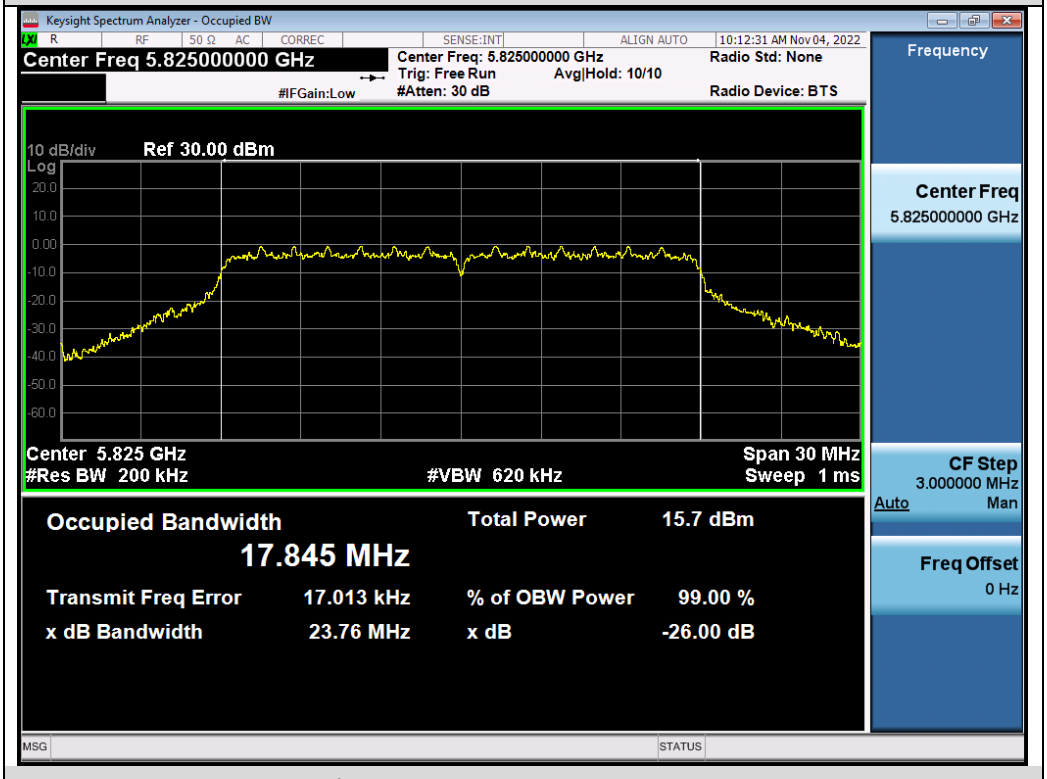
Test_Graph_802.11a_ANT1_5825_6Mbps_OBW



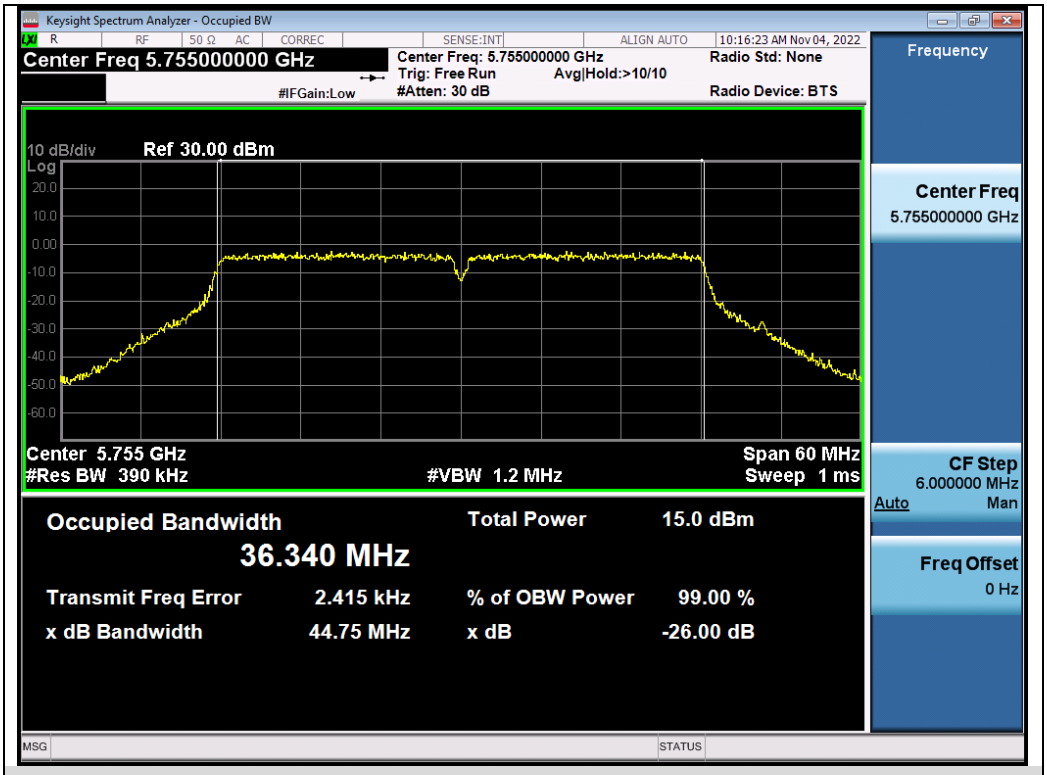
Test_Graph_802.11n20_ANT1_5745_MCS0_OBW



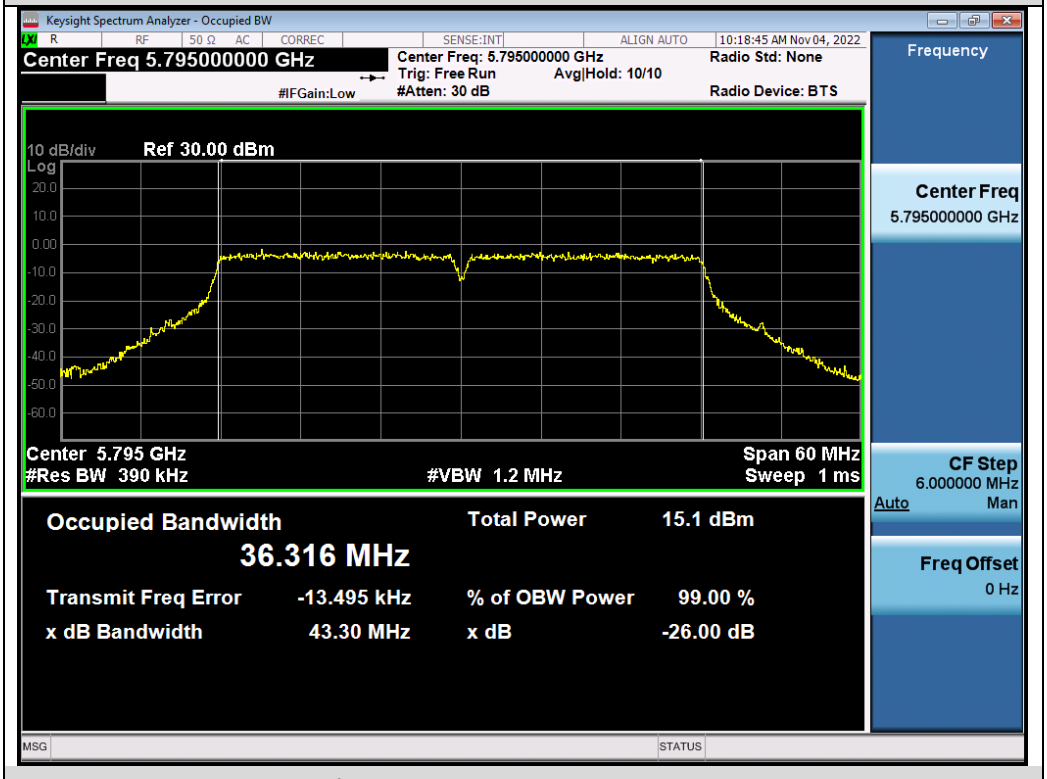
Test_Graph_802.11n20_ANT1_5785_MCS0_OBW



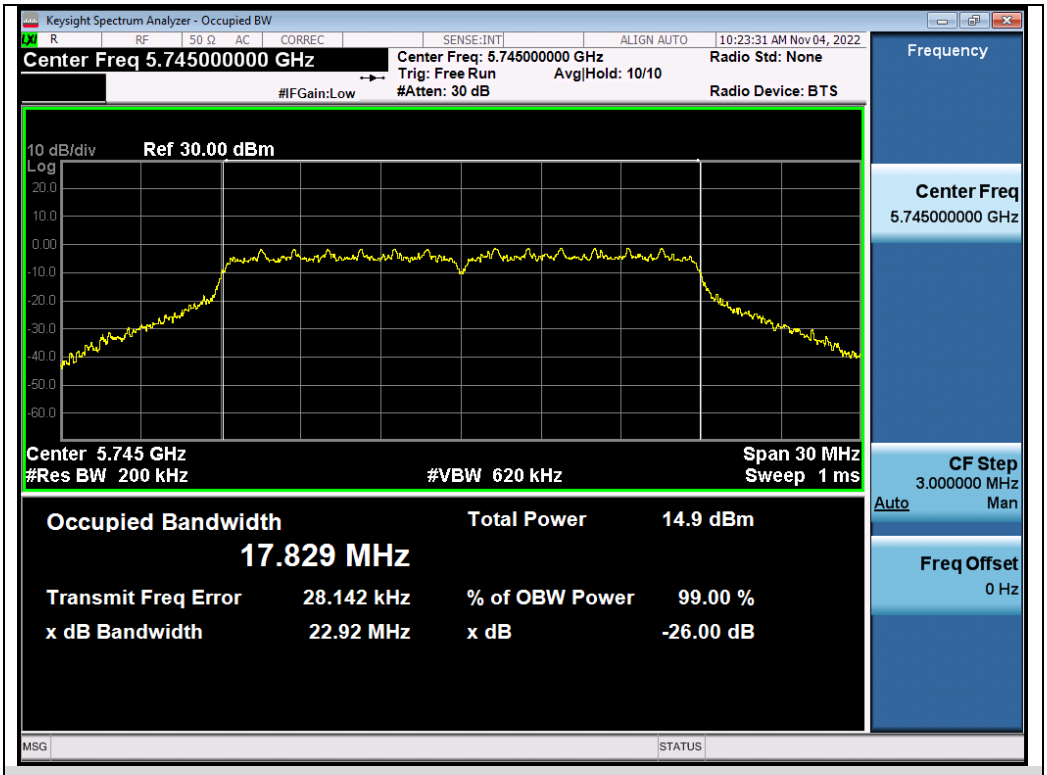
Test_Graph_802.11n20_ANT1_5825_MCS0_OBW



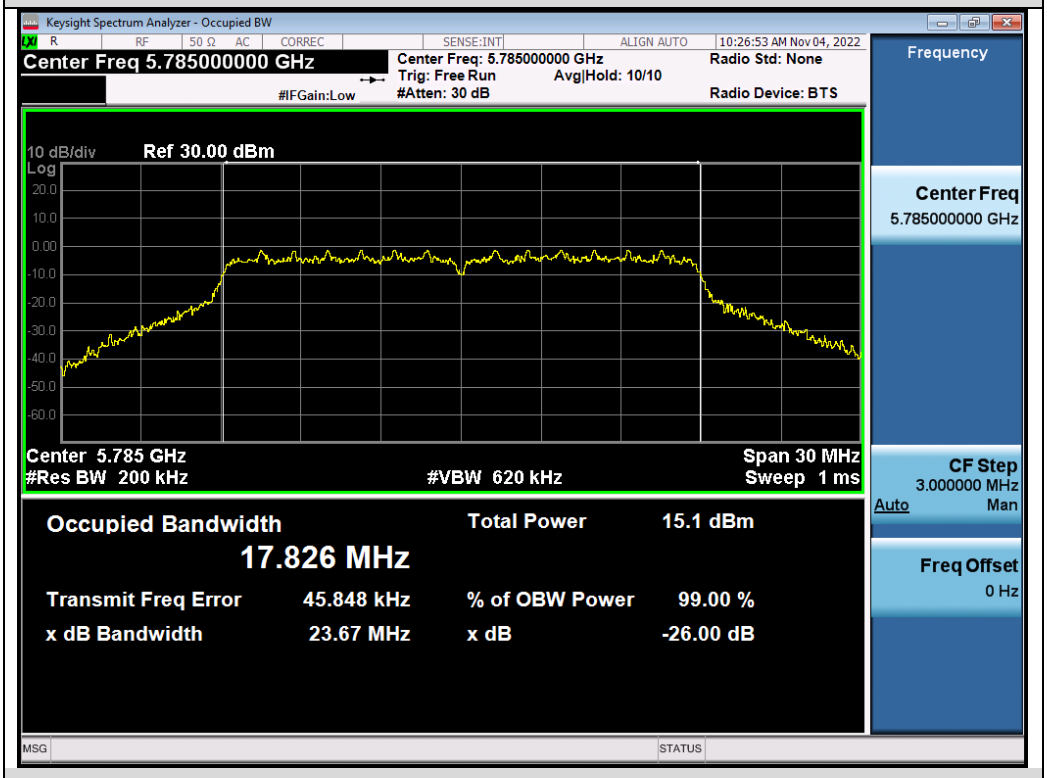
Test_Graph_802.11n40_ANT1_5755_MCS0_OBW



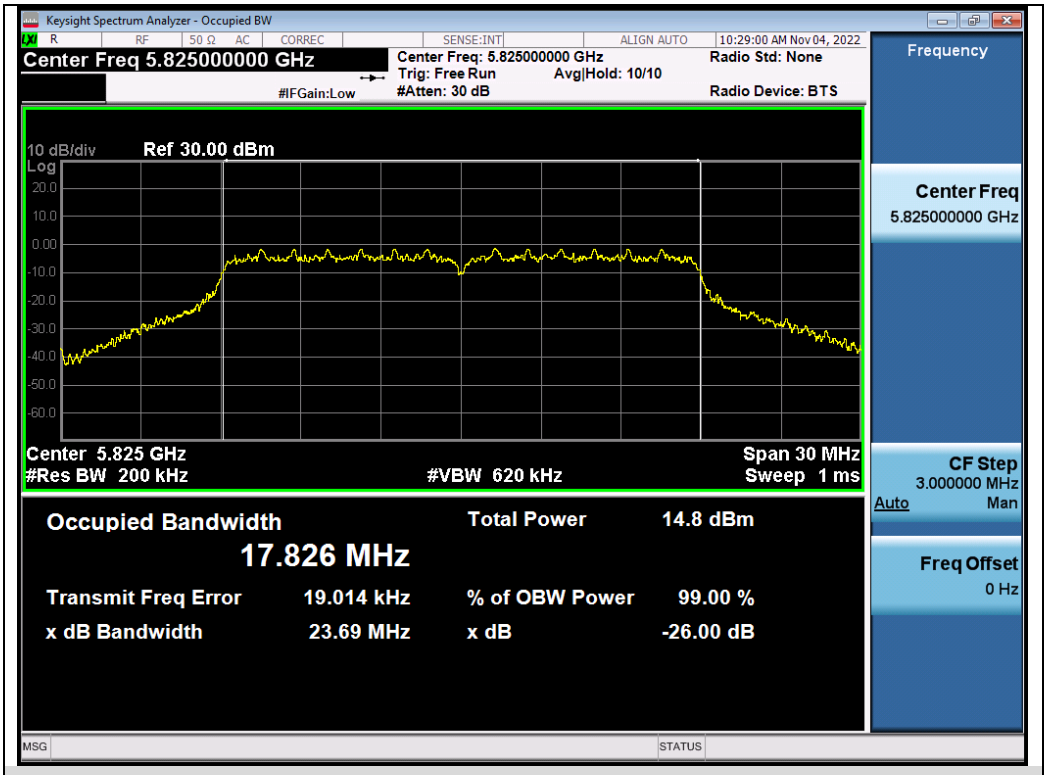
Test_Graph_802.11n40_ANT1_5795_MCS0_OBW



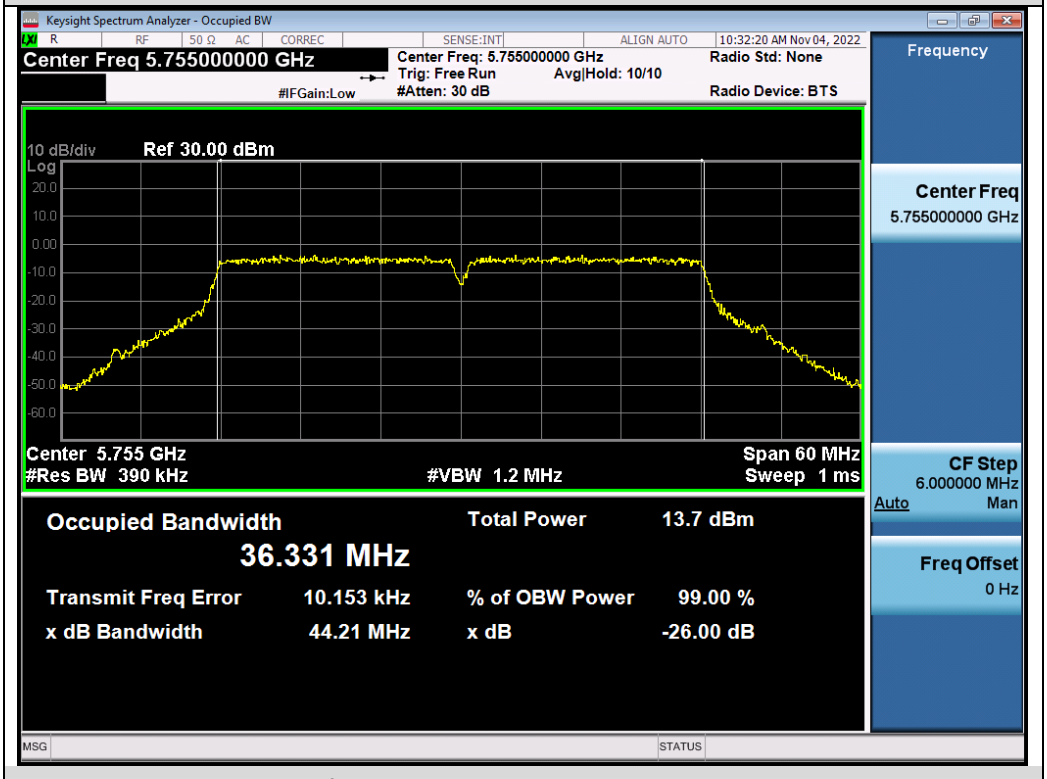
Test_Graph_802.11ac20_ANT1_5745_MCS0_OBW



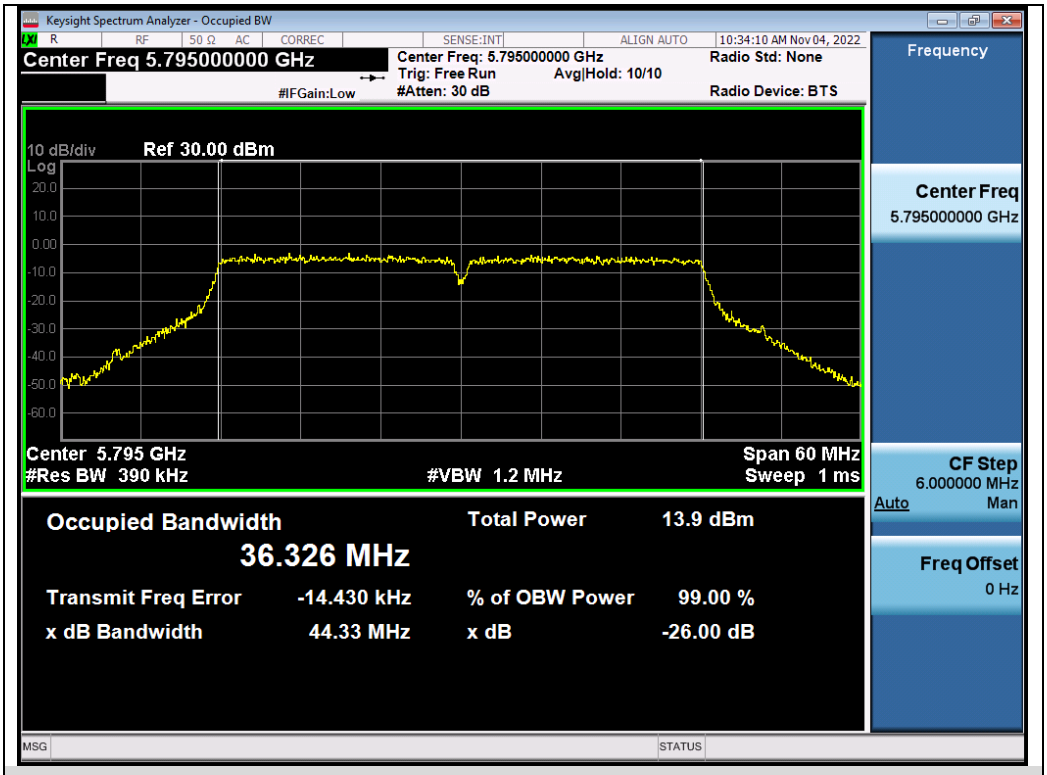
Test_Graph_802.11ac20_ANT1_5785_MCS0_OBW



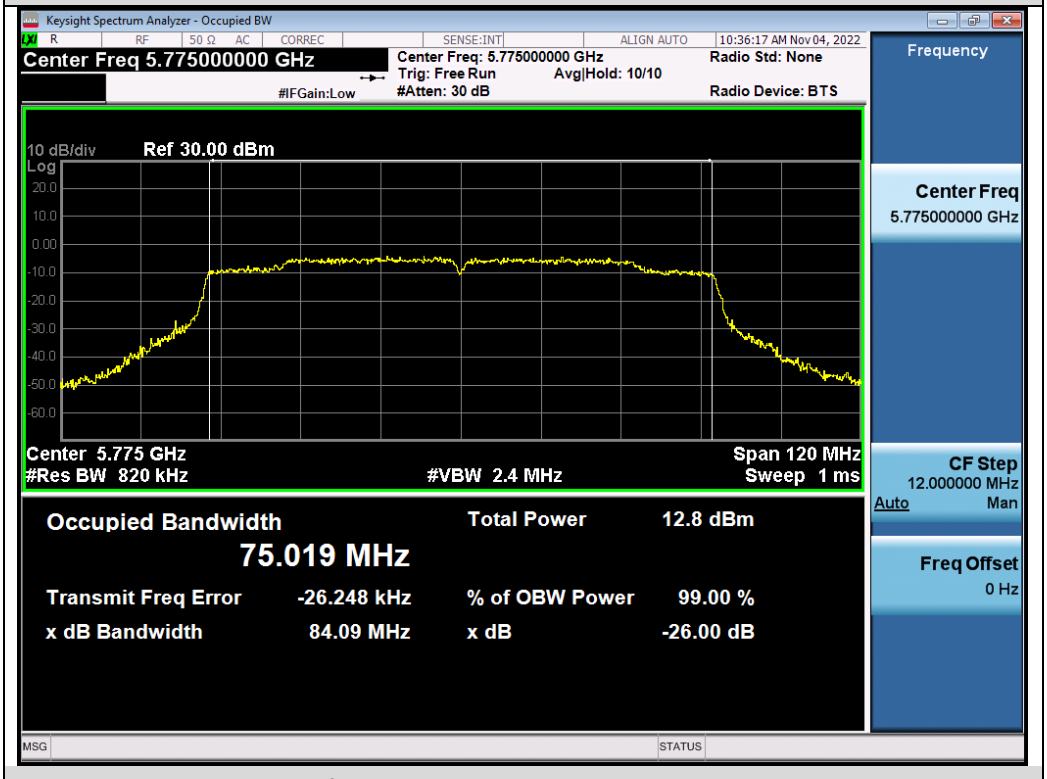
Test_Graph_802.11ac20_ANT1_5825_MCS9_OBW



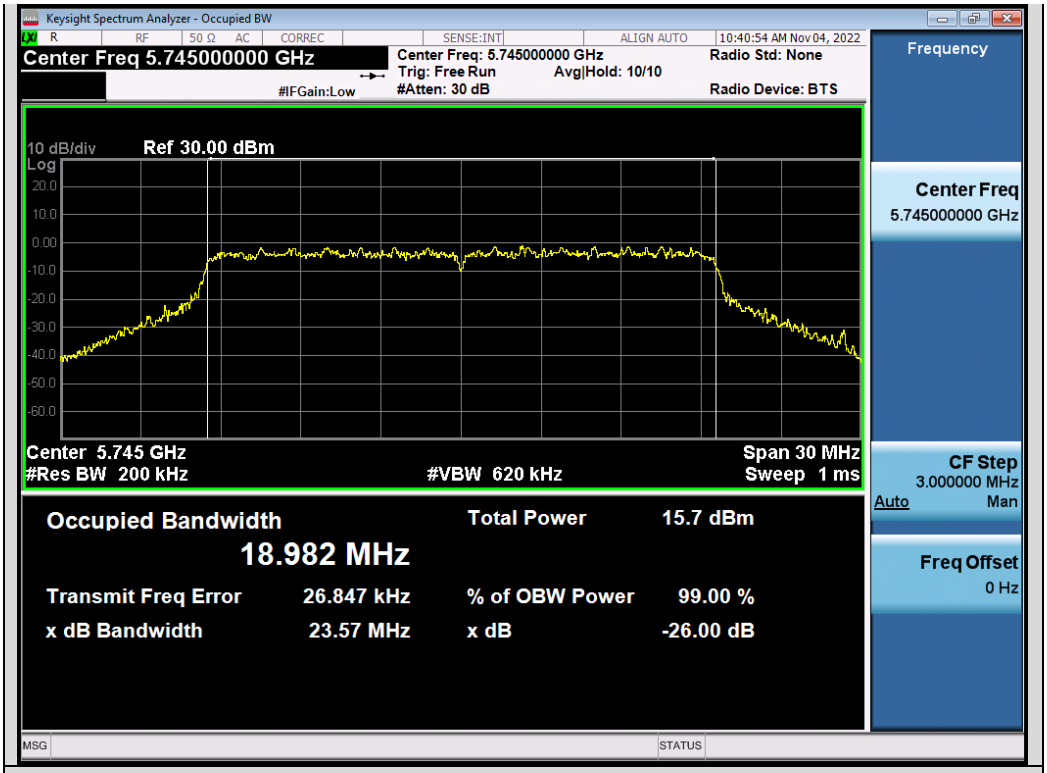
Test_Graph_802.11ac40_ANT1_5755_MCS9_OBW



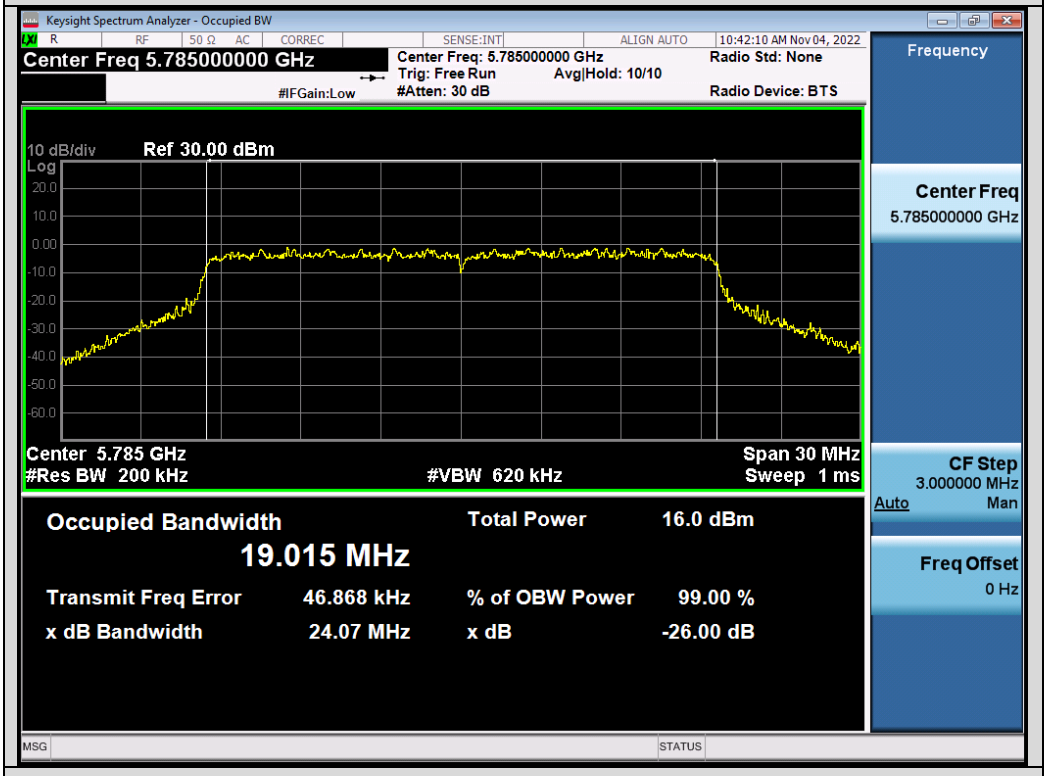
Test_Graph_802.11ac40_ANT1_5795_MCS9_OBW



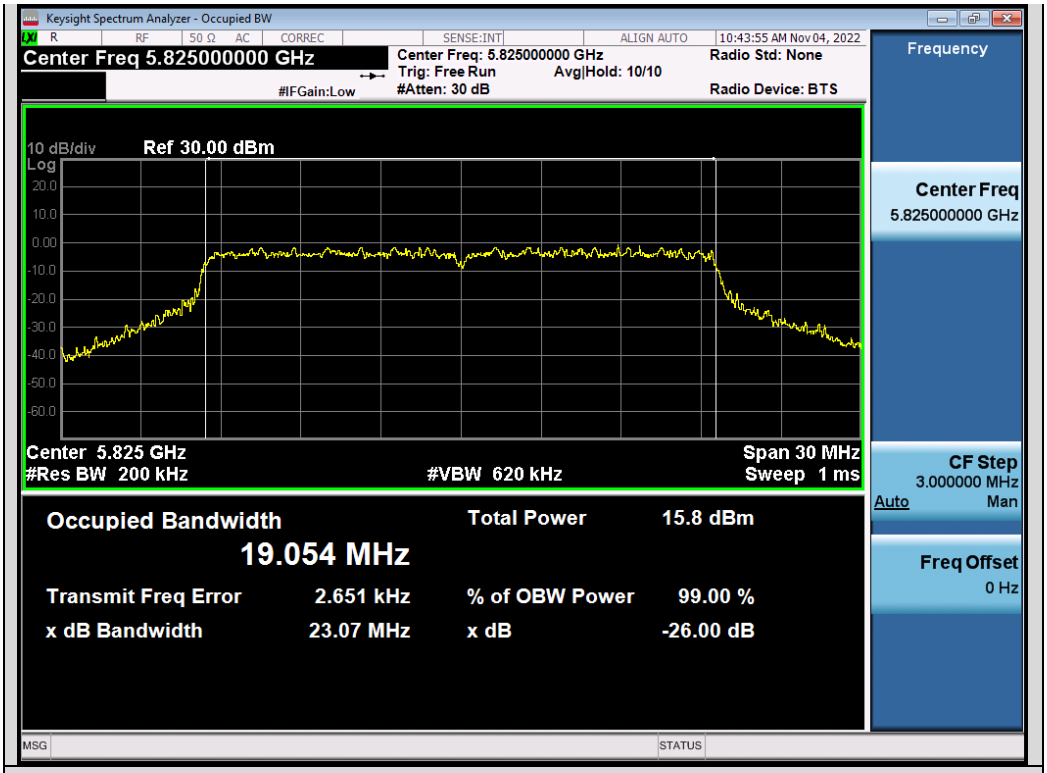
Test_Graph_802.11ac80_ANT1_5775_MCS9_OBW



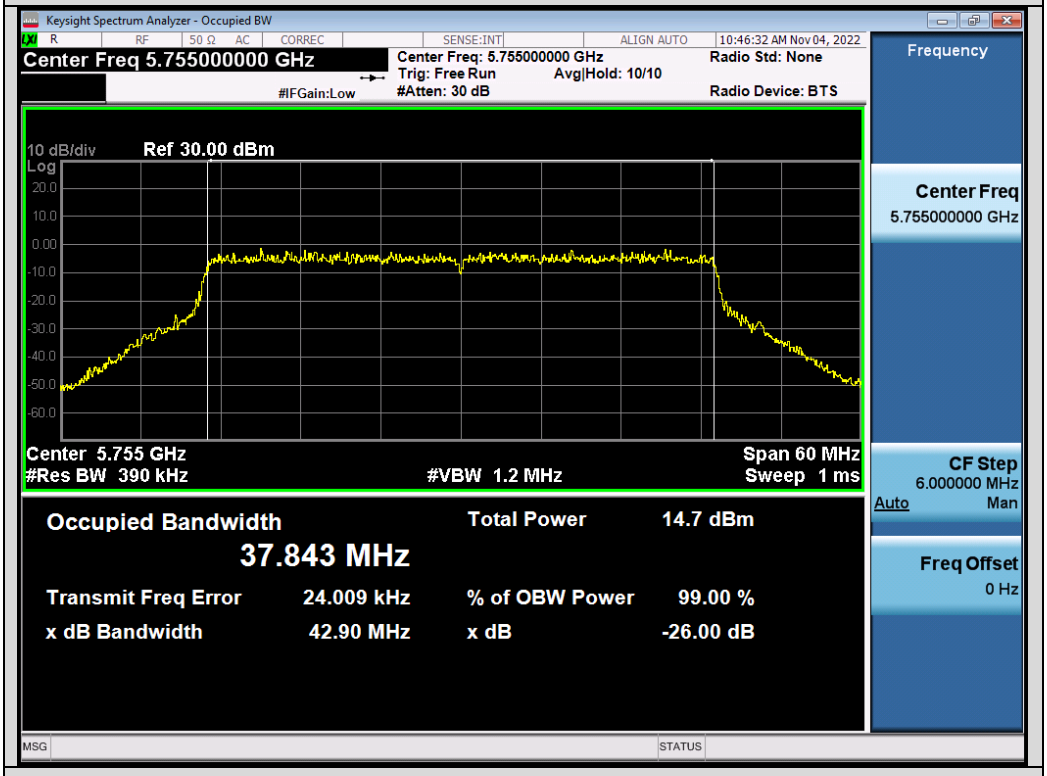
Test_Graph_802.11ax20_ANT1_5745_MCS0_OBW



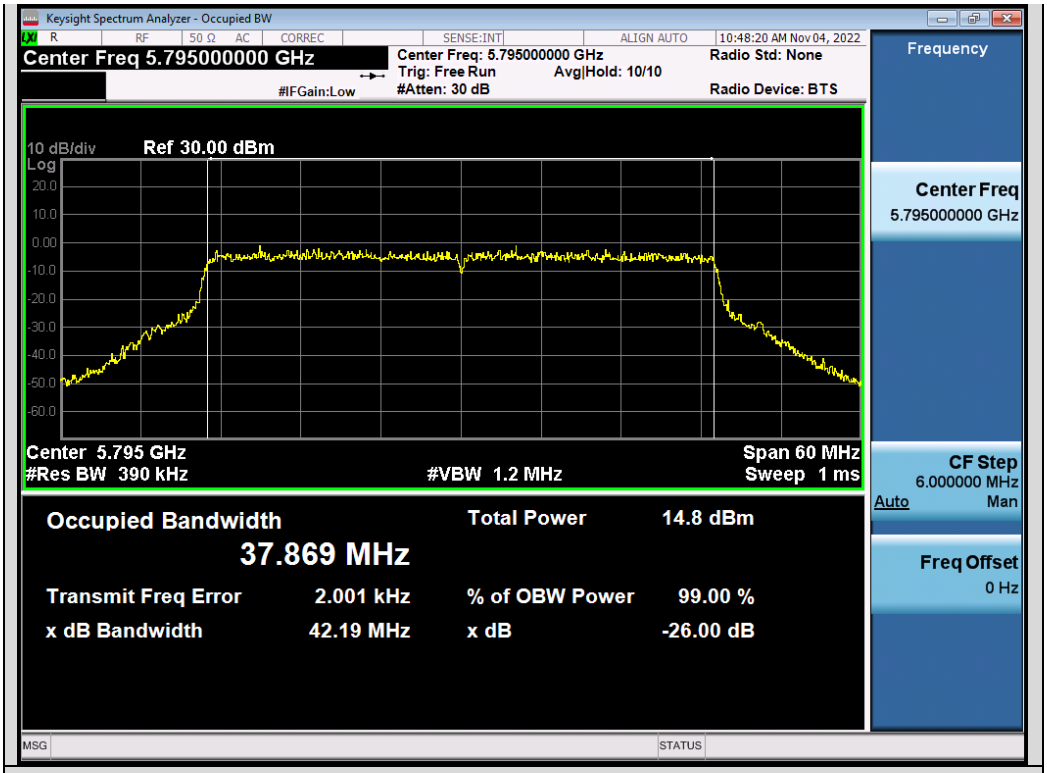
Test_Graph_802.11ax20_ANT1_5785_MCS0_OBW



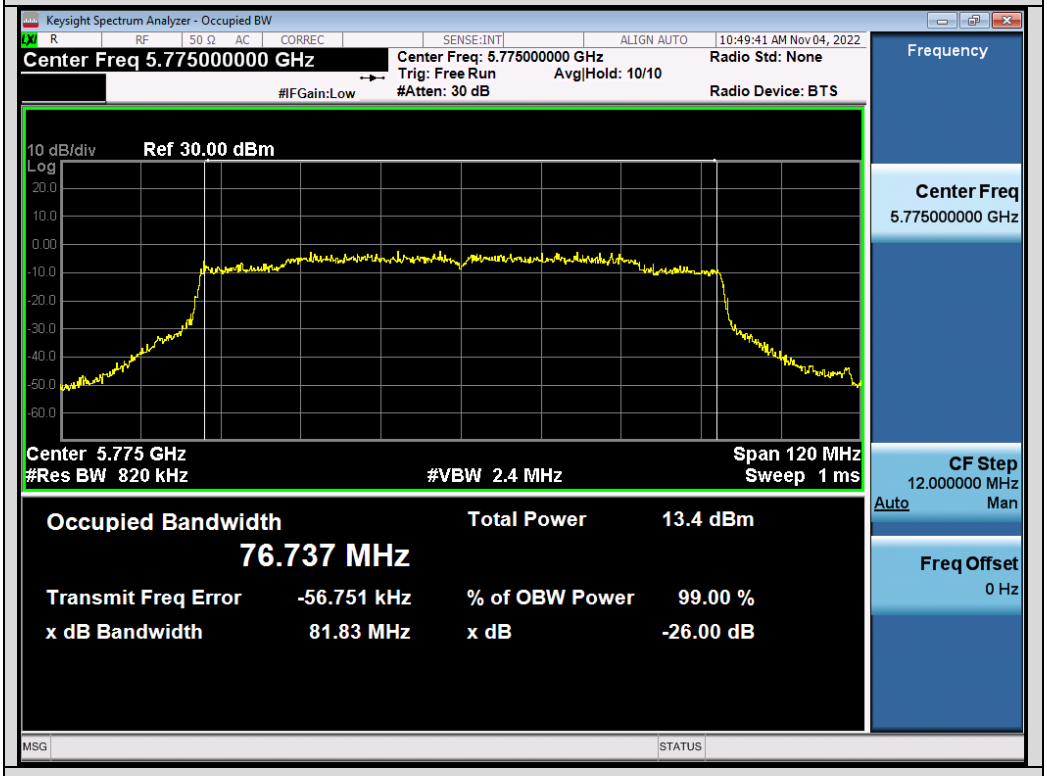
Test_Graph_802.11ax20_ANT1_5825_MCS9_OBW



Test_Graph_802.11ax40_ANT1_5755_MCS9_OBW

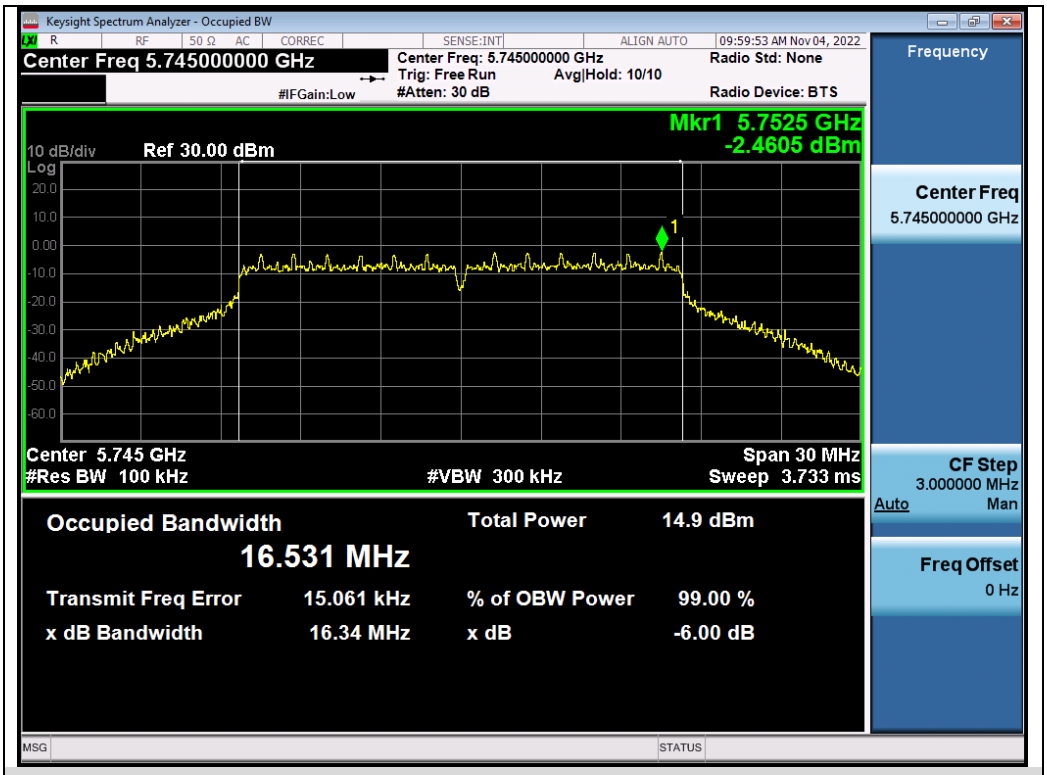


Test_Graph_802.11ax40_ANT1_5795_MCS9_OBW



Test_Graph_802.11ax80_ANT1_5775_MCS9_OBW

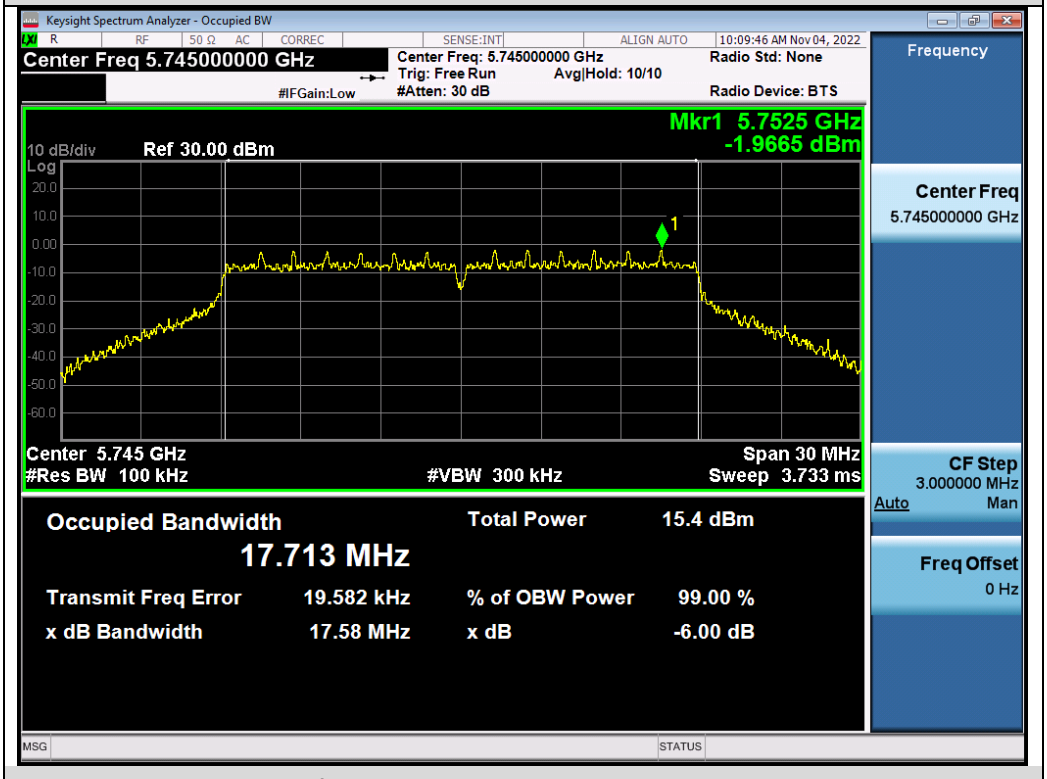
Test Graphs of DTS Bandwidth for band 5.725-5.85 GHz



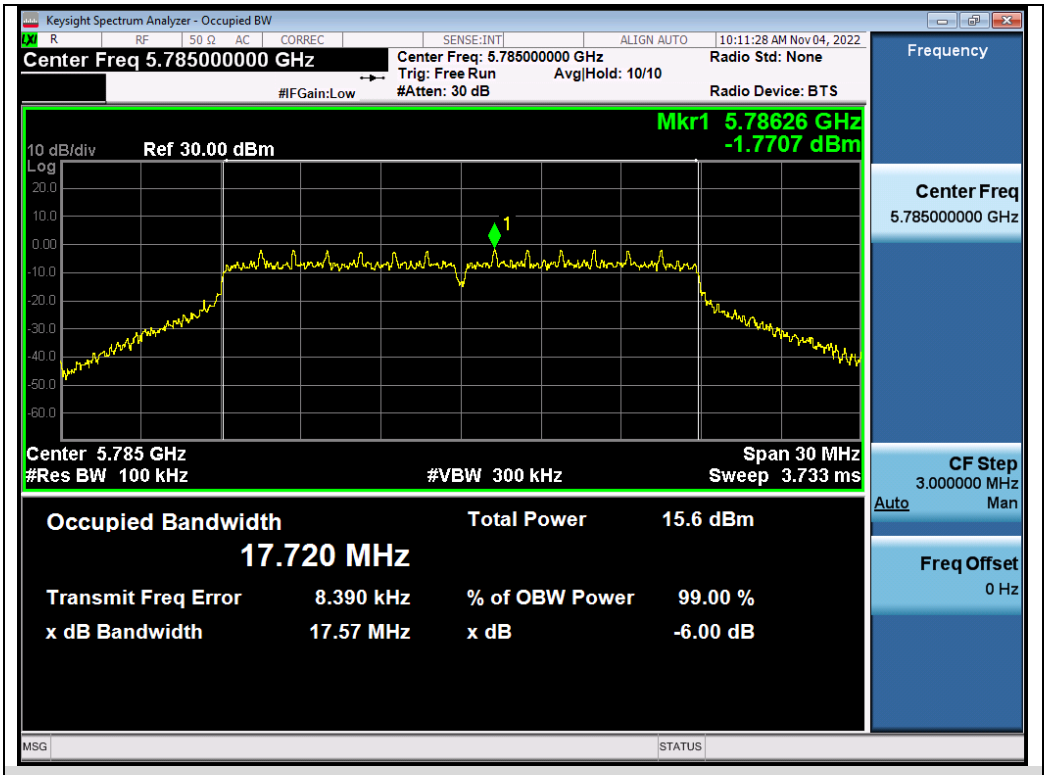
Test_Graph_802.11a_ANT1_5745_6Mbps_DTSBW

Test_Graph_802.11a_ANT1_5785_6Mbps_DTSBW

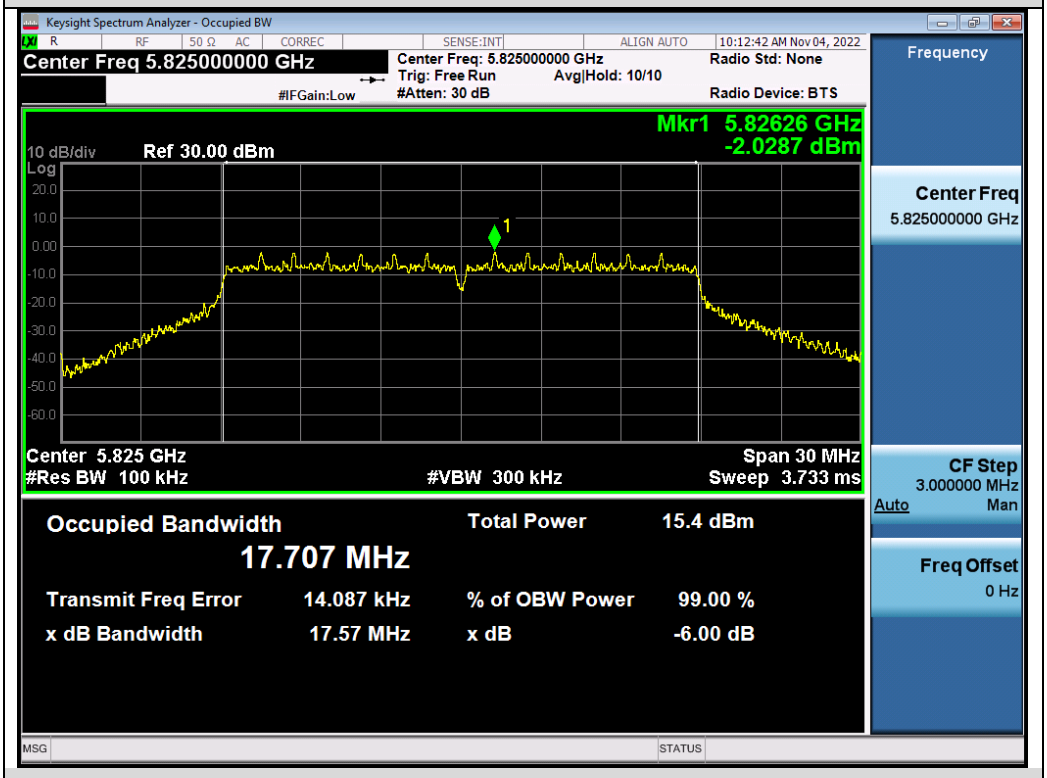
Test_Graph_802.11a_ANT1_5825_6Mbps_DTSBW



Test_Graph_802.11n20_ANT1_5745_MCS0_DTSBW



Test_Graph_802.11n20_ANT1_5785_MCS0_DTSBW



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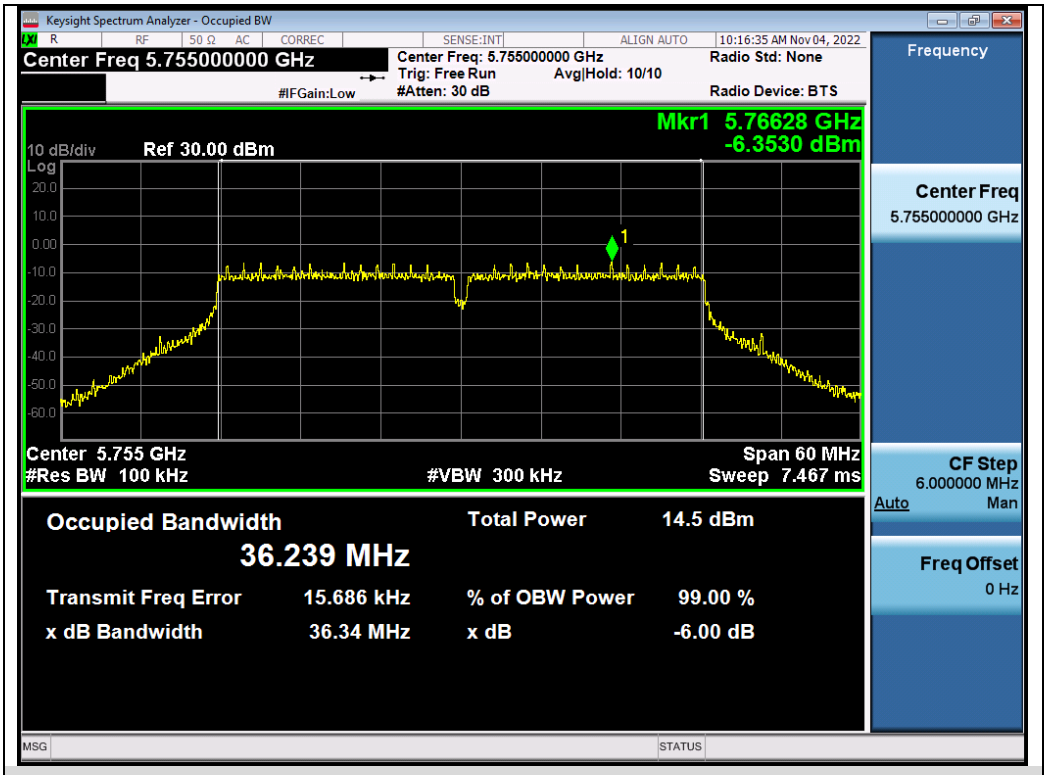
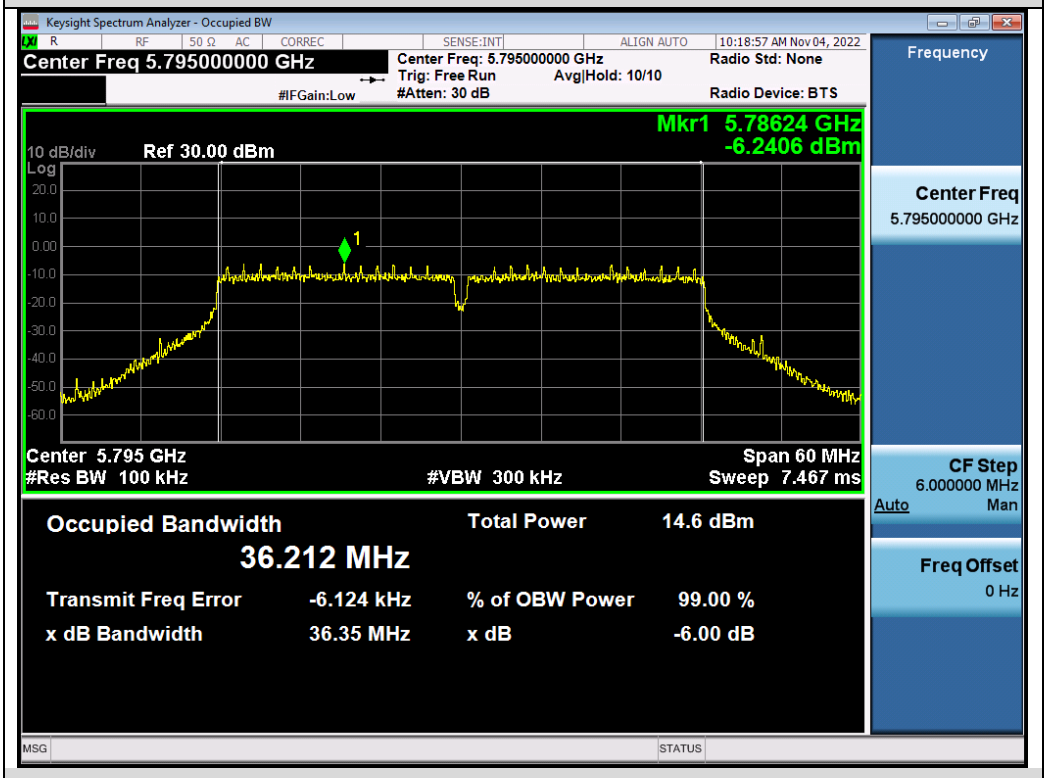
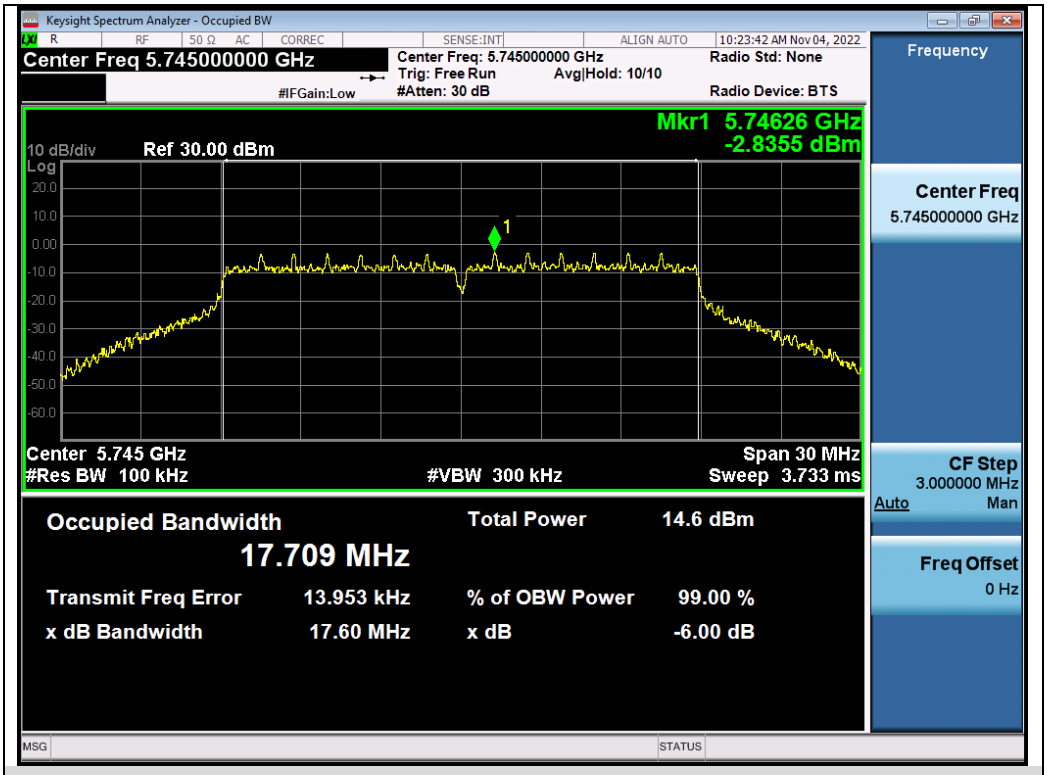


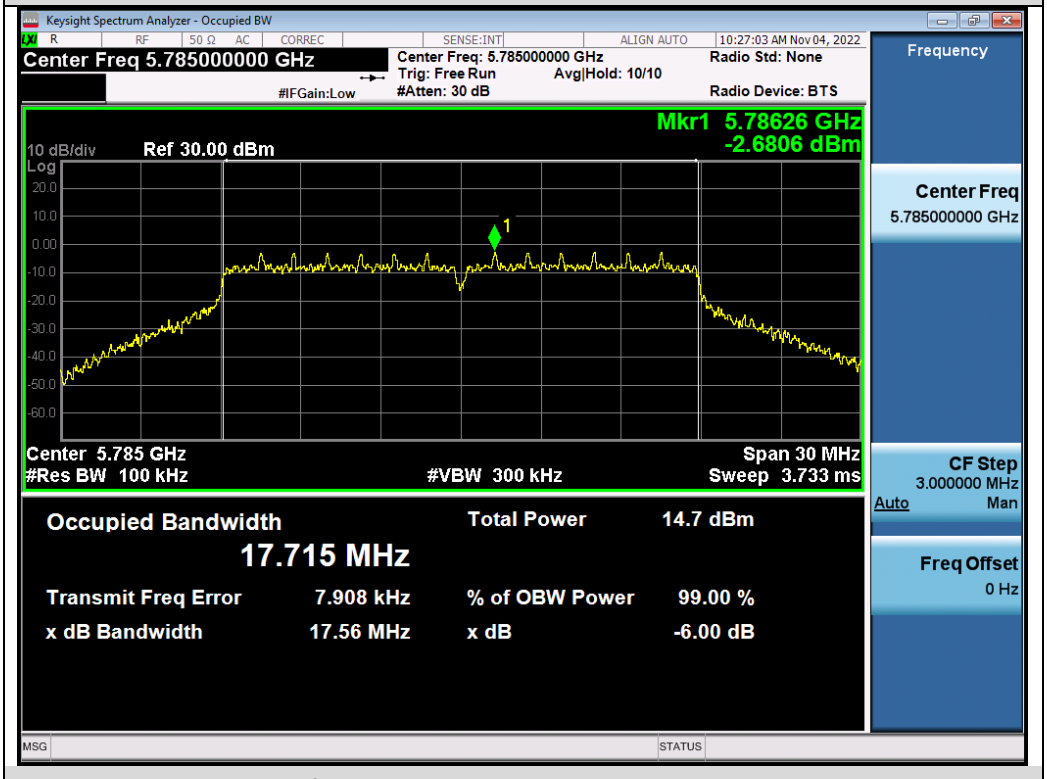
Test_Graph_802.11n40_ANT1_5755_MCS0_DTSBW



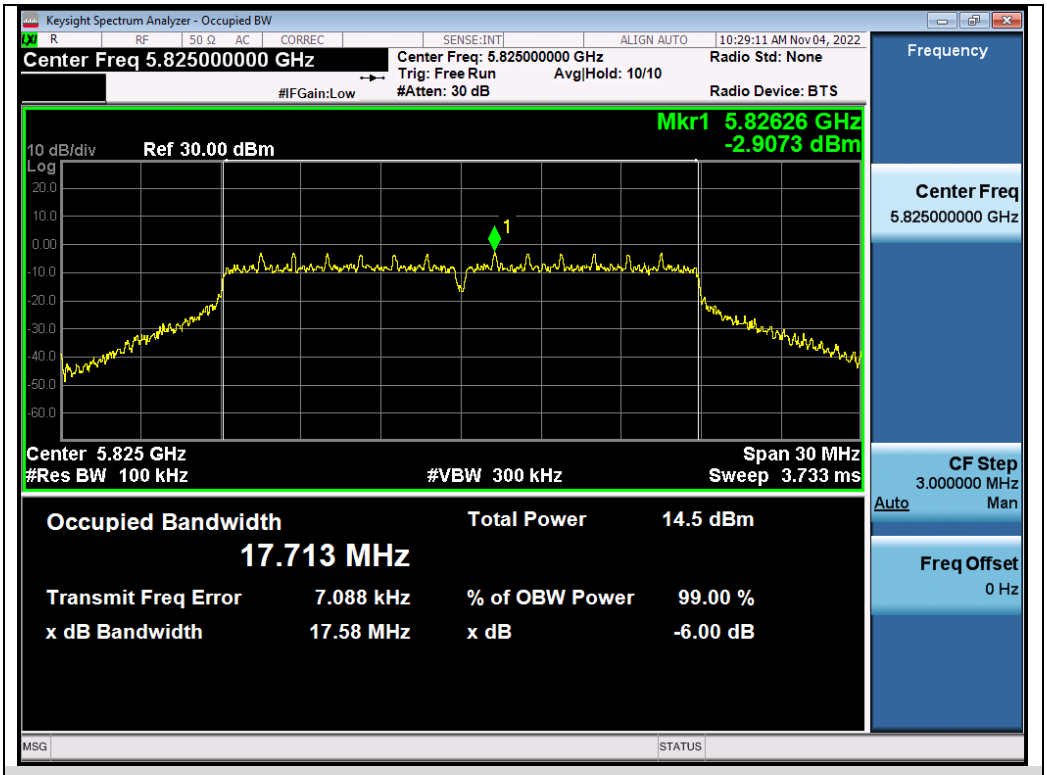
Test_Graph_802.11n40_ANT1_5795_MCS0_DTSBW



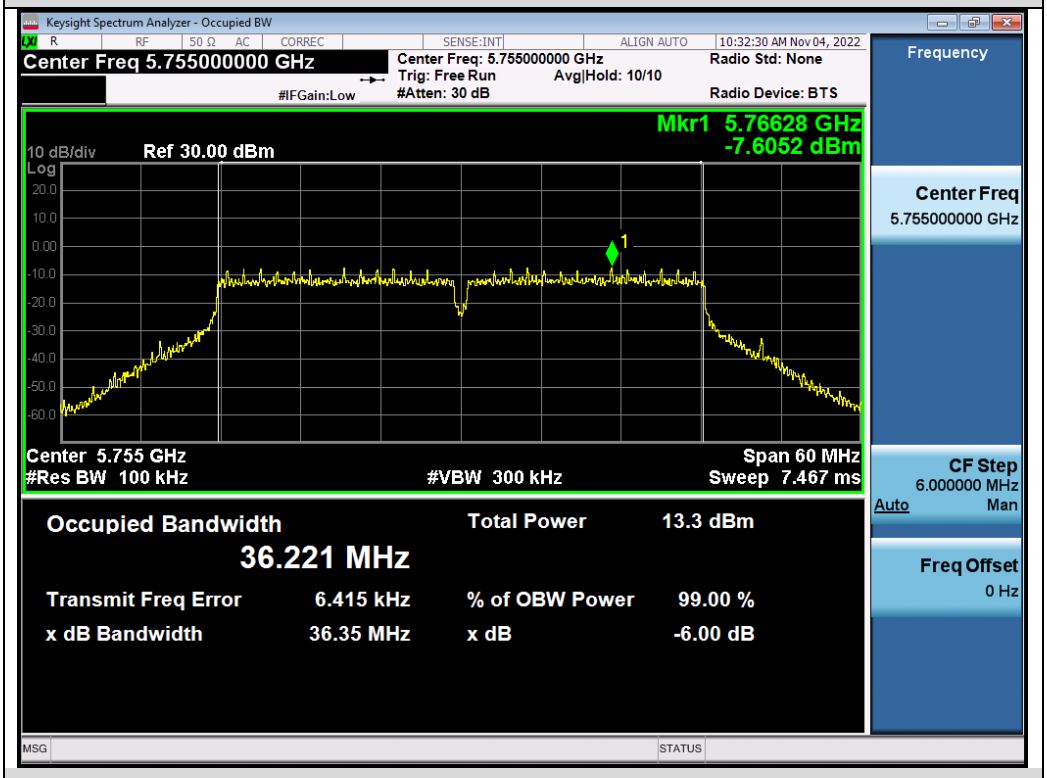
Test_Graph_802.11ac20_ANT1_5745_MCS0_DTSBW



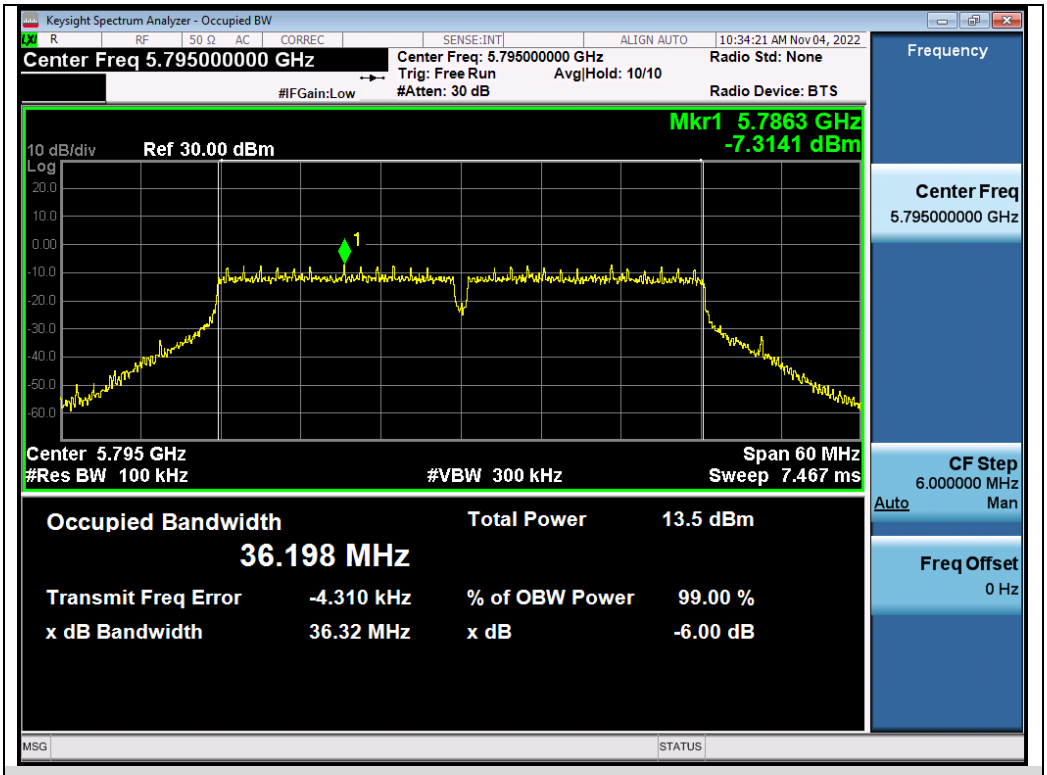
Test_Graph_802.11ac20_ANT1_5785_MCS0_DTSBW



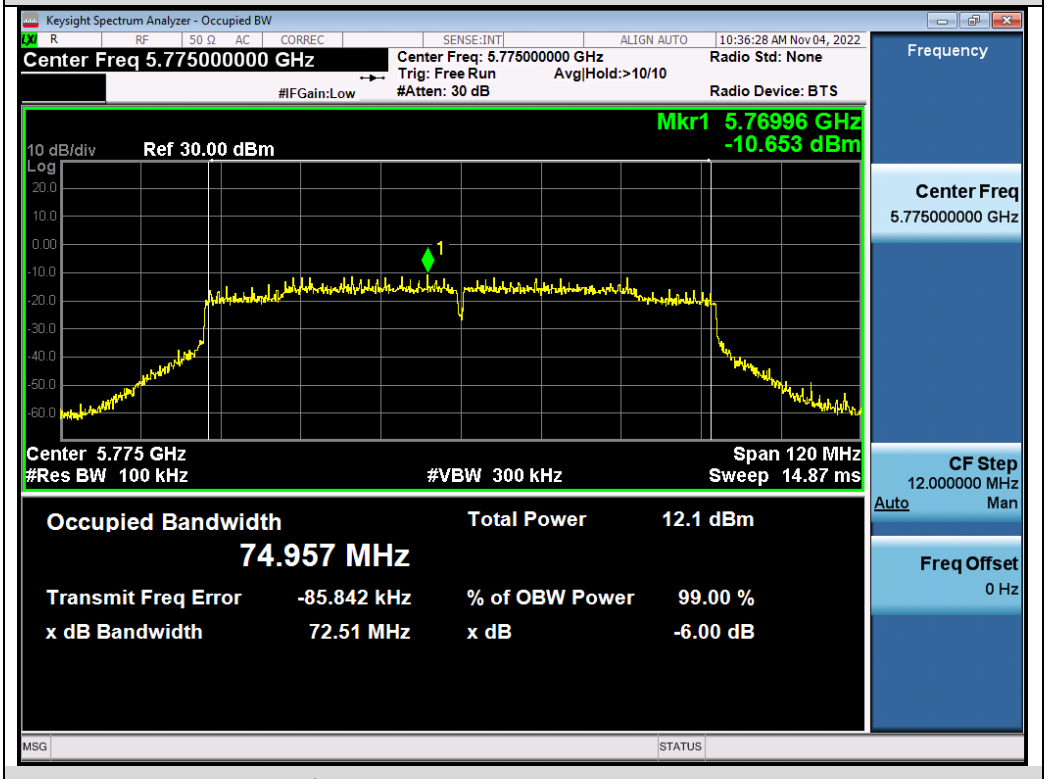
Test_Graph_802.11ac20_ANT1_5825_MCS9_DTSBW



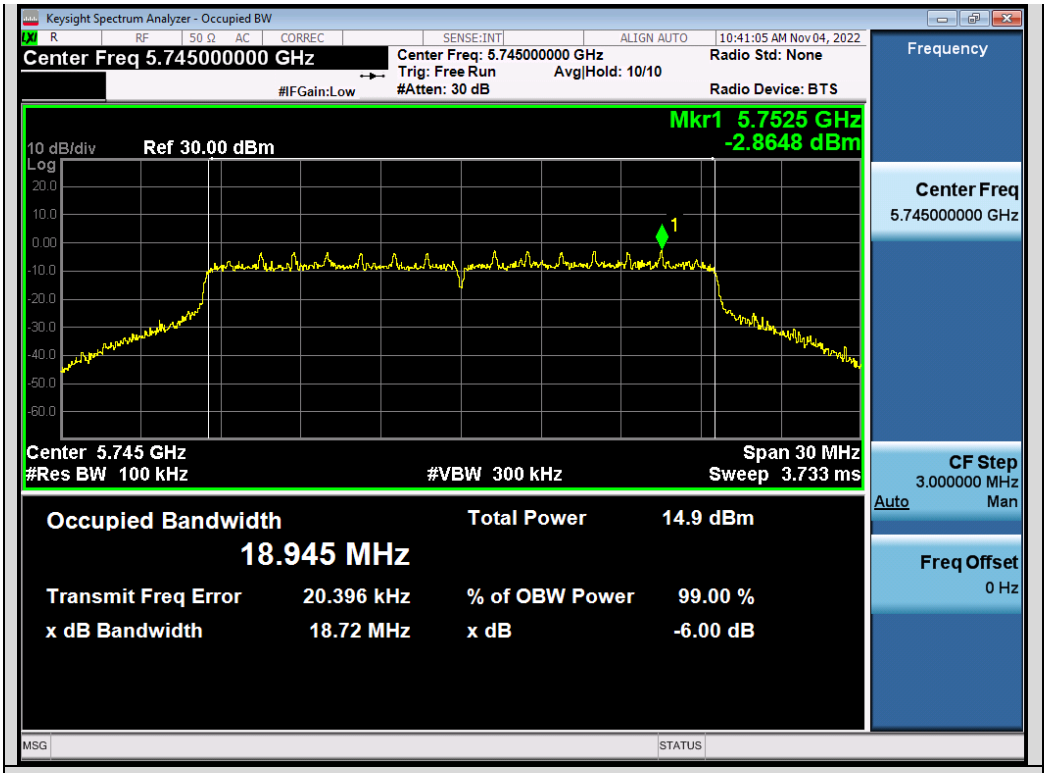
Test_Graph_802.11ac40_ANT1_5755_MCS9_DTSBW



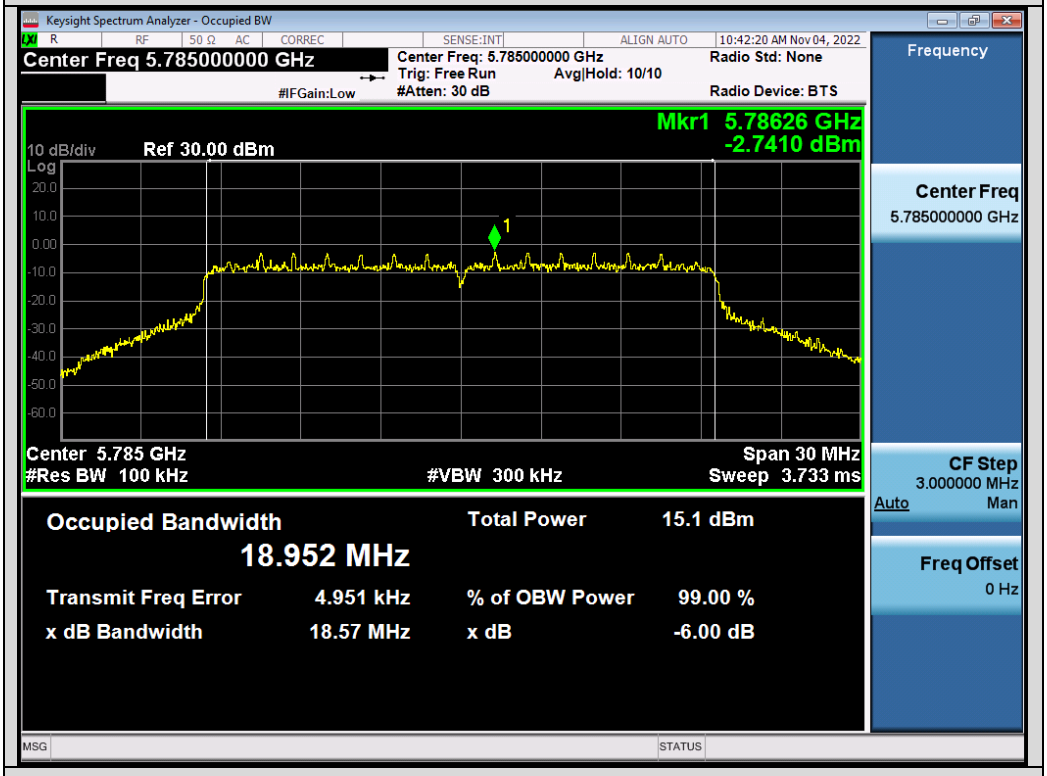
Test_Graph_802.11ac40_ANT1_5795_MCS9_DTSBW



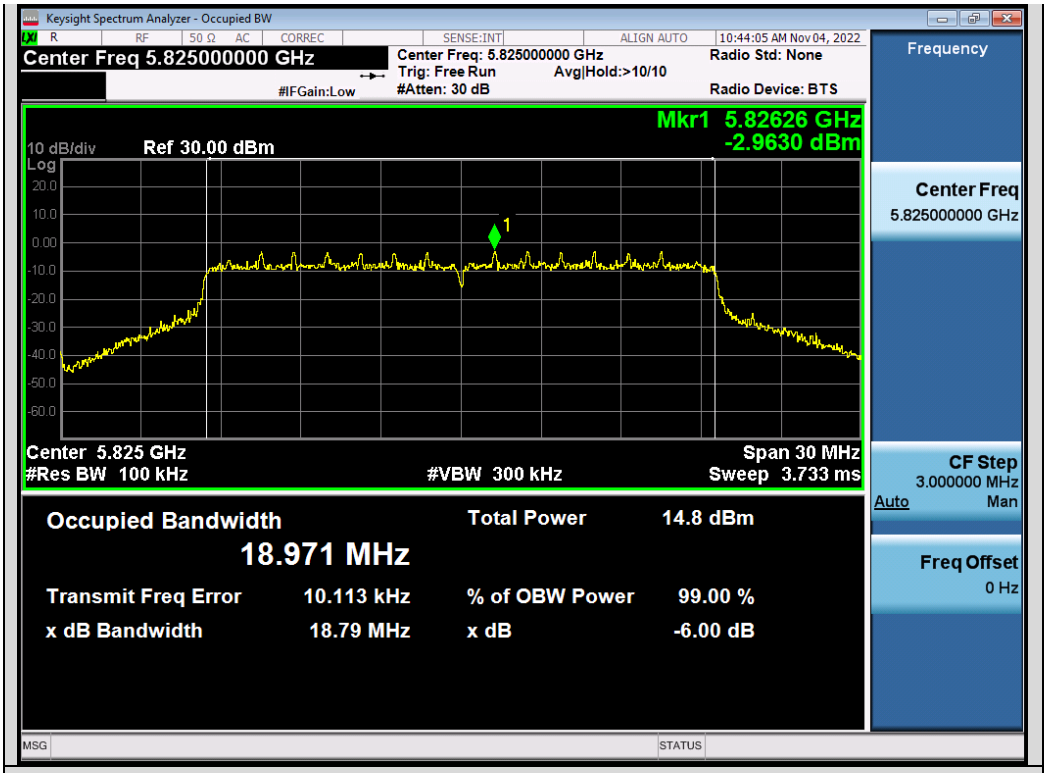
Test_Graph_802.11ac80_ANT1_5775_MCS9_DTSBW



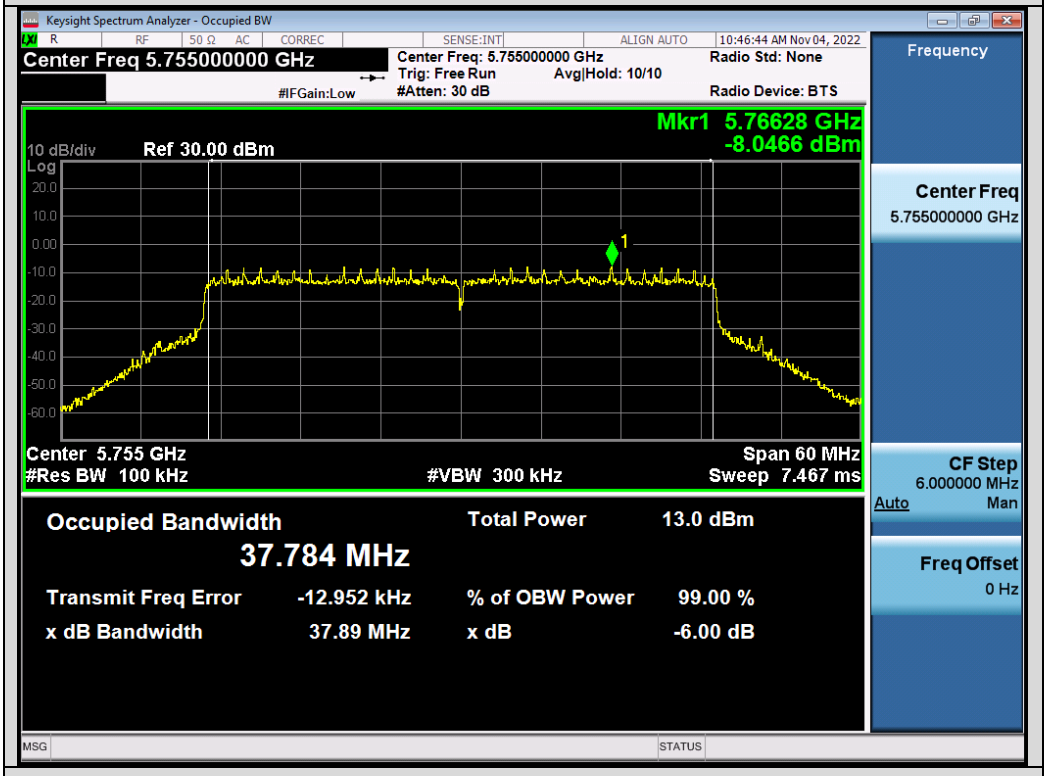
Test_Graph_802.11ax20_ANT1_5745_MCS0_DTSBW



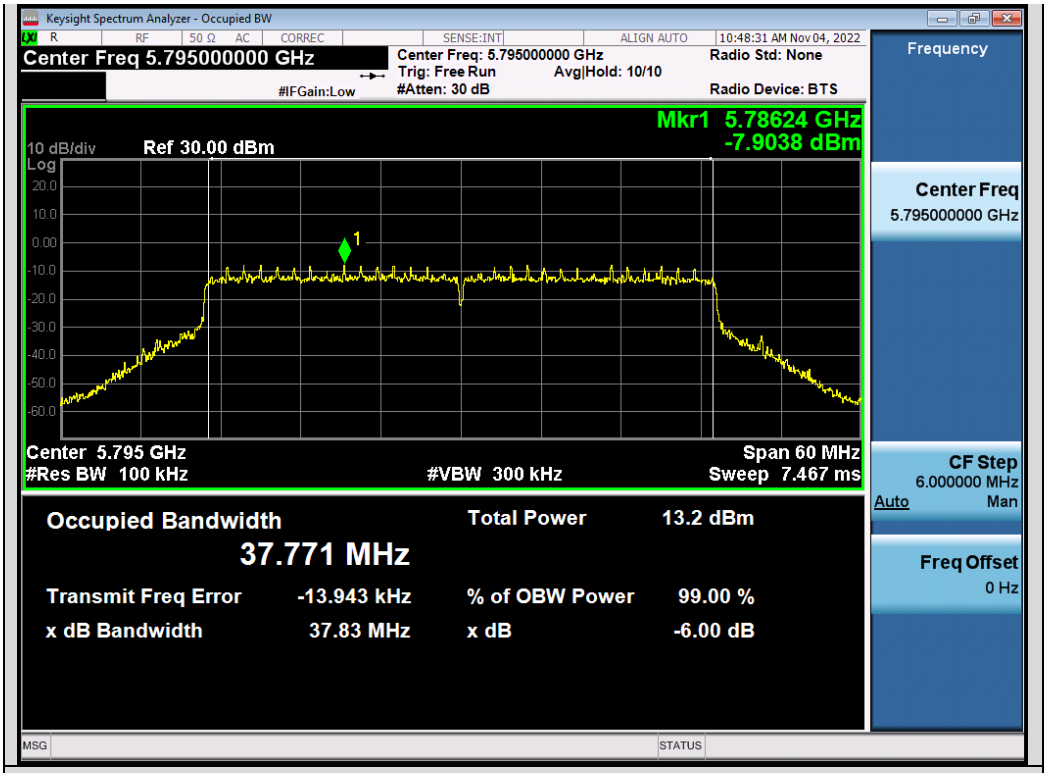
Test_Graph_802.11ax20_ANT1_5785_MCS0_DTSBW



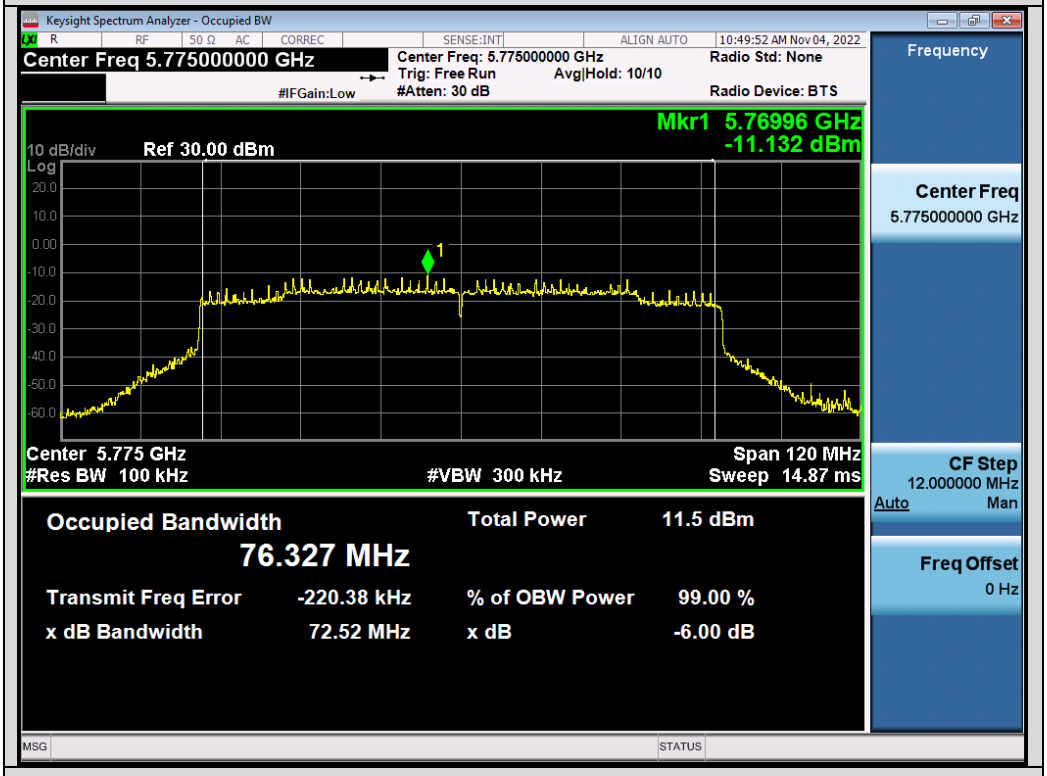
Test_Graph_802.11ax20_ANT1_5825_MCS9_DTSBW



Test_Graph_802.11ax40_ANT1_5755_MCS9_DTSBW

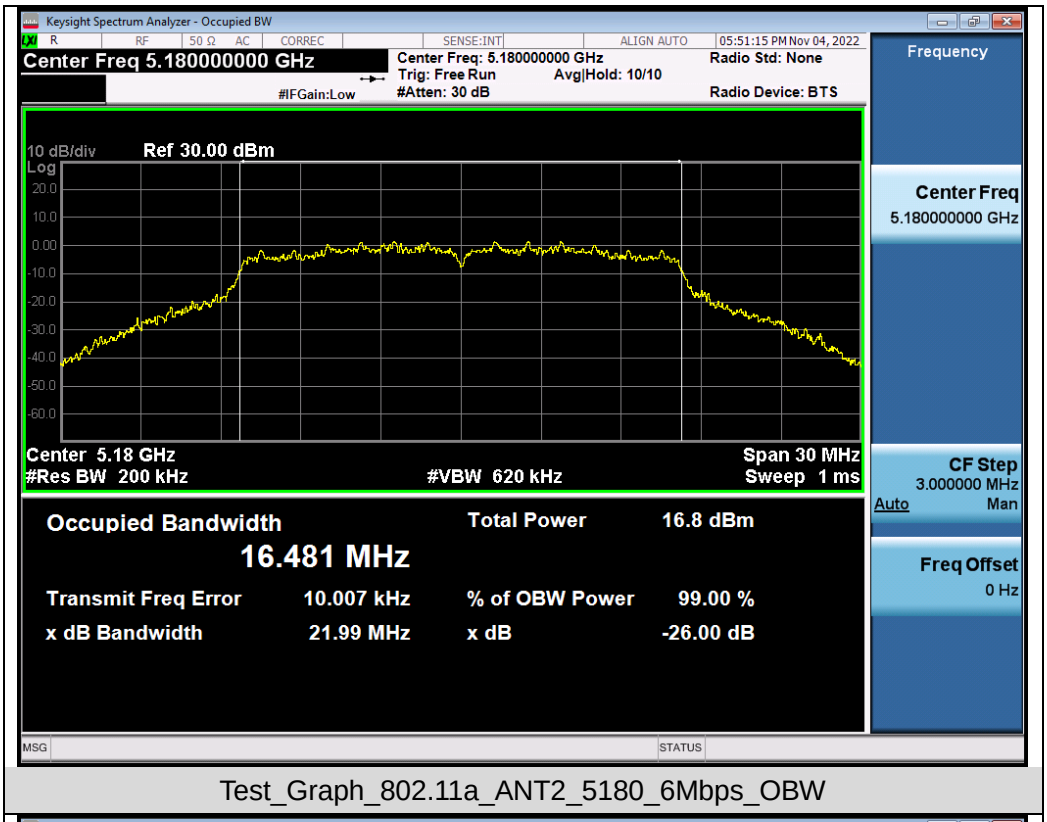


Test_Graph_802.11ax40_ANT1_5795_MCS9_DTSBW

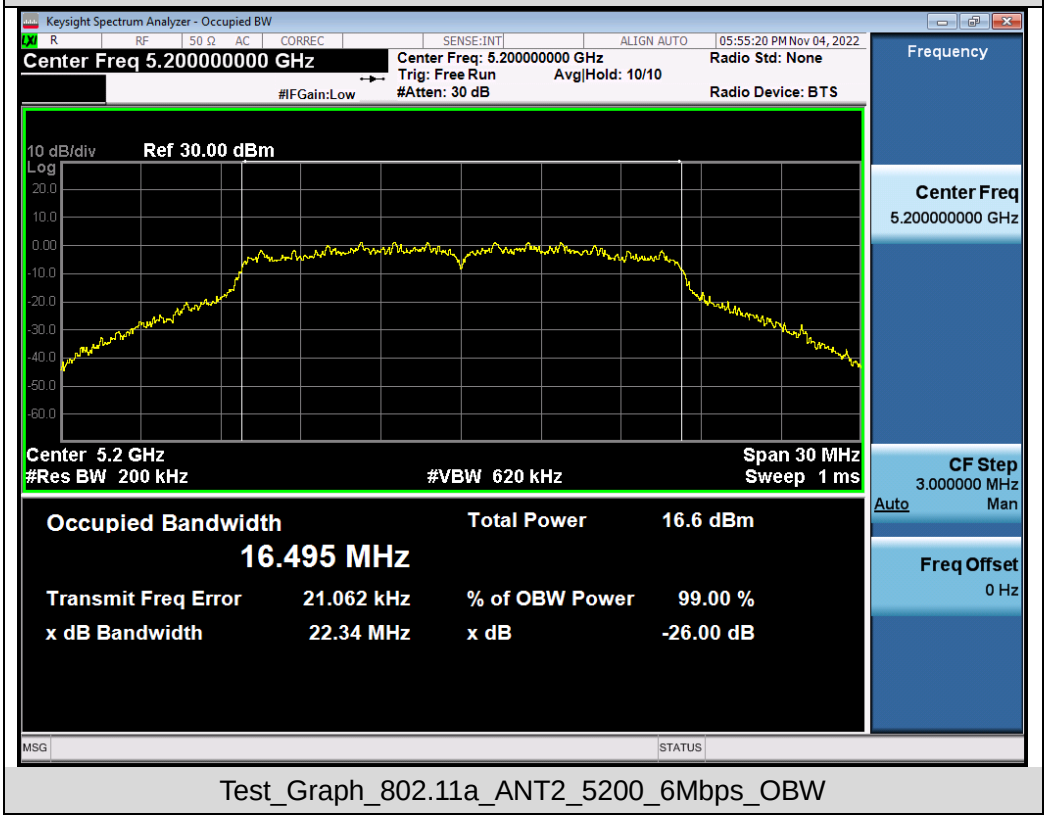


Test_Graph_802.11ax80_ANT1_5775_MCS9_DTSBW

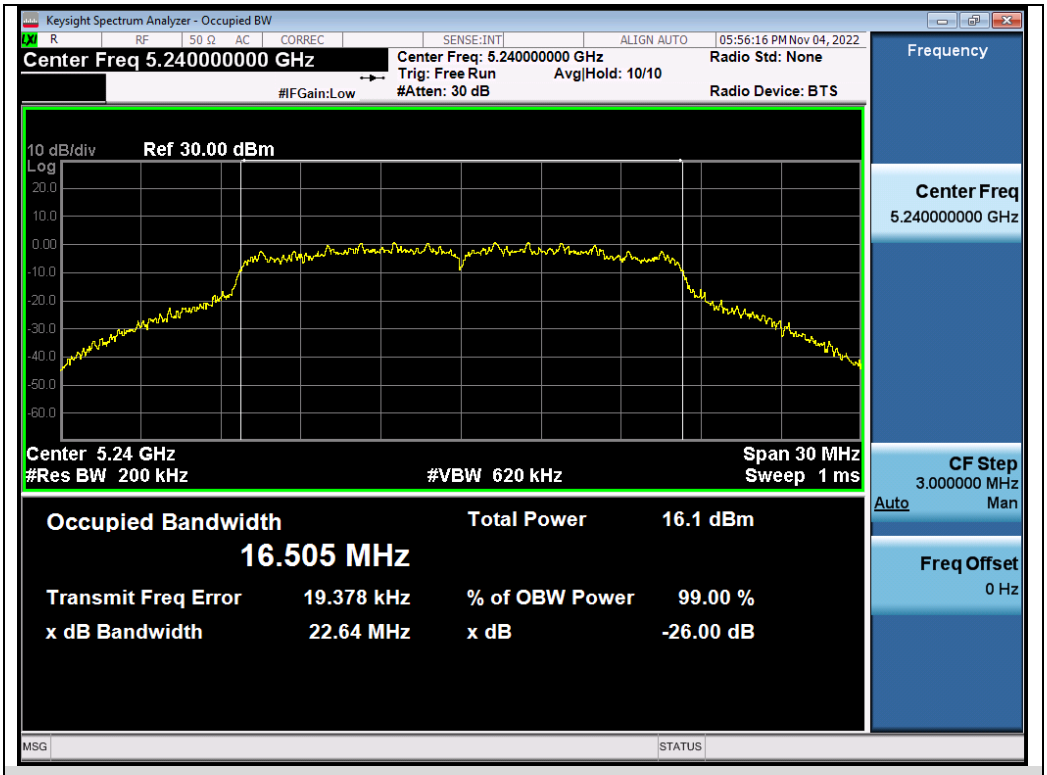
Test Graphs of Occupied Bandwidth and -26dB Bandwidth for band 5.15-5.25 GHz



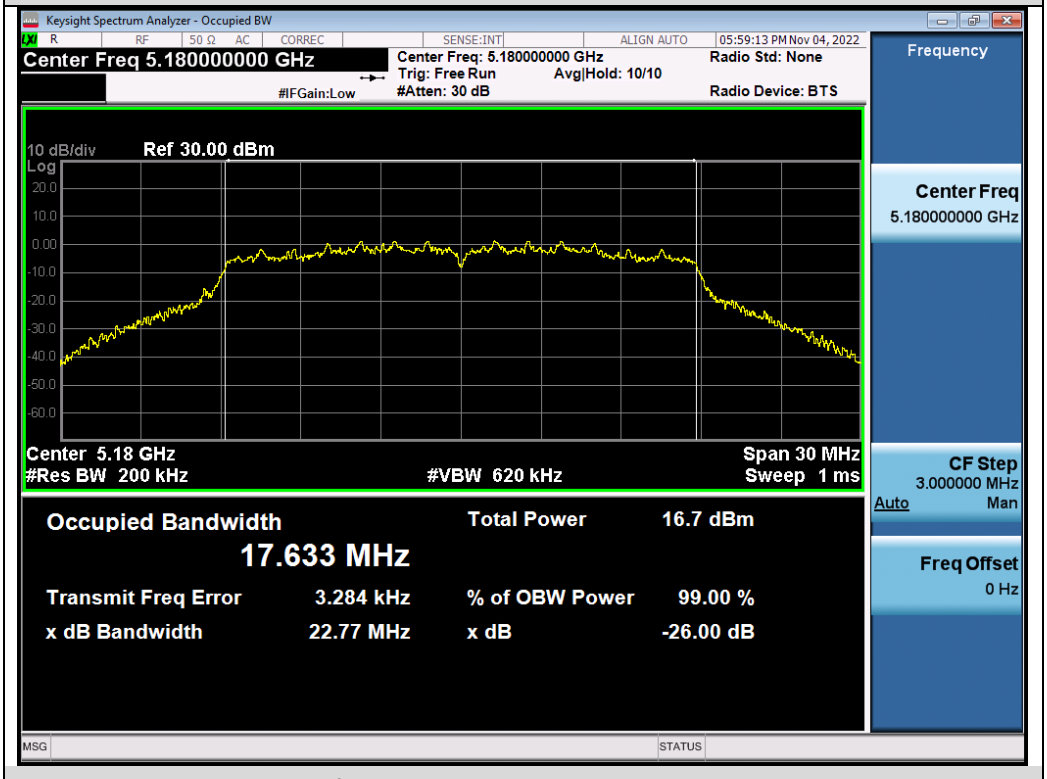
Test_Graph_802.11a_ANT2_5180_6Mbps_OBW



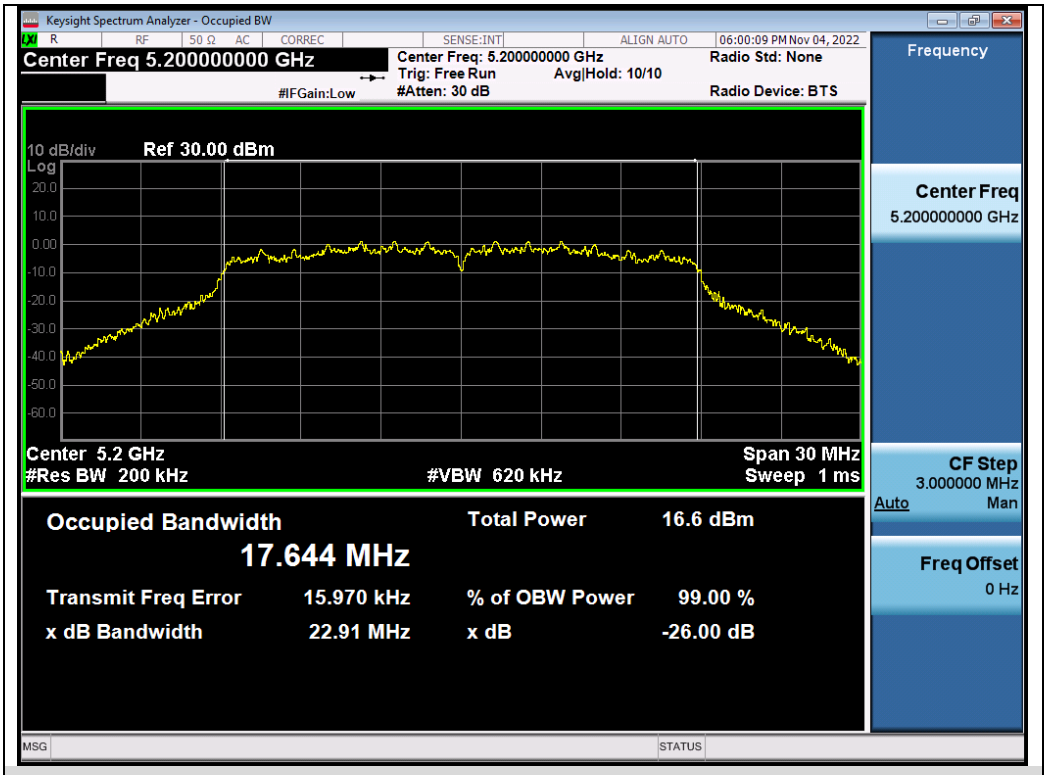
Test_Graph_802.11a_ANT2_5200_6Mbps_OBW



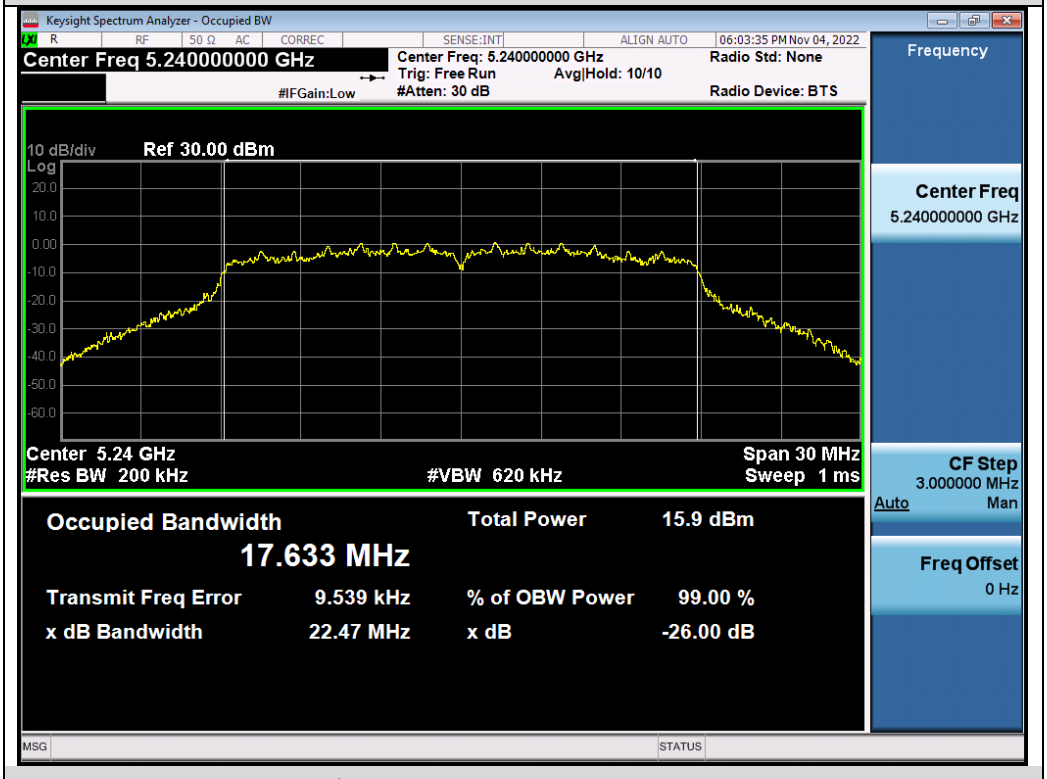
Test_Graph_802.11a_ANT2_5240_6Mbps_OBW



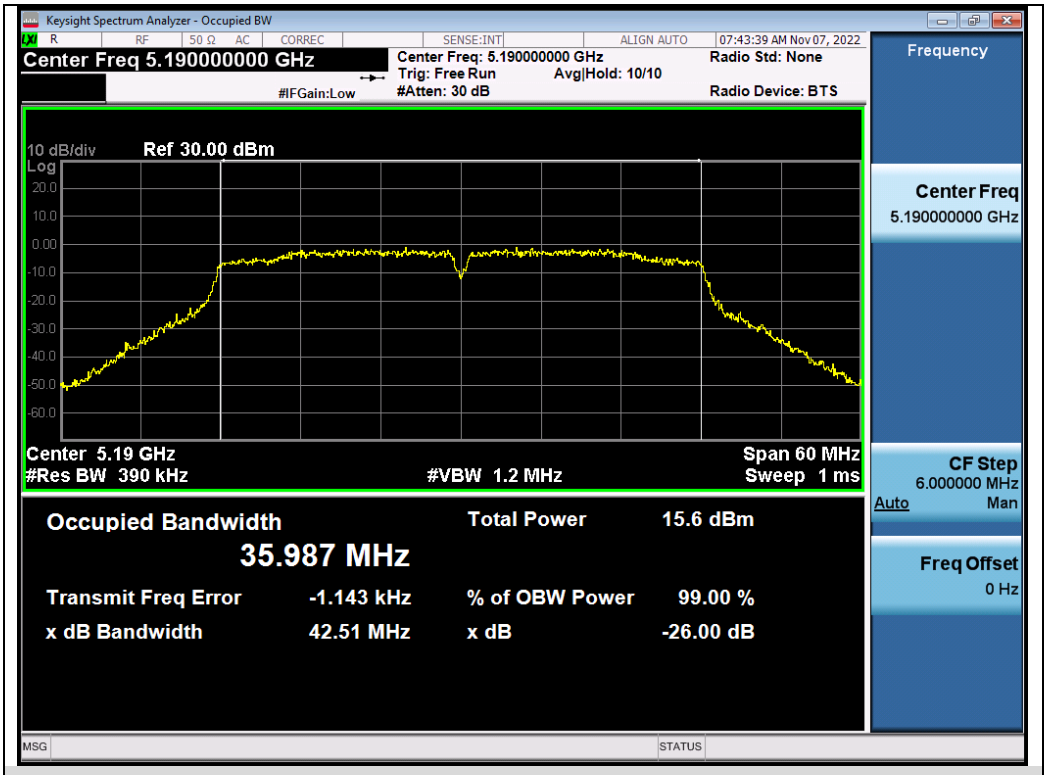
Test_Graph_802.11n20_ANT2_5180_MCS0_OBW



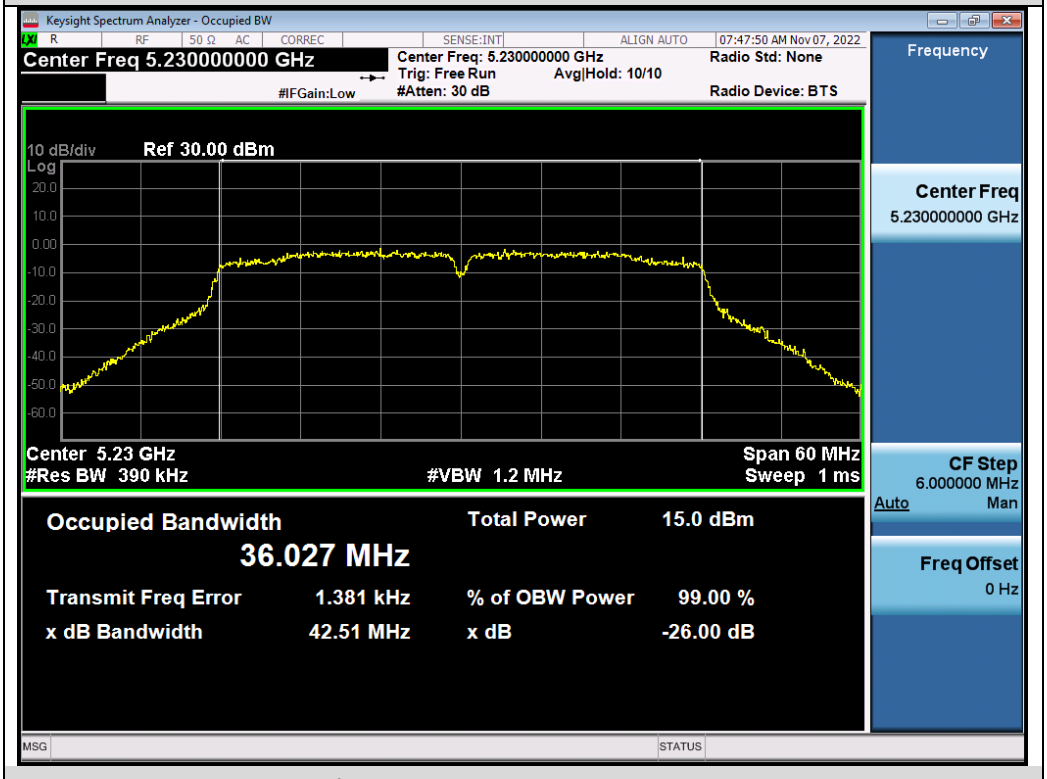
Test_Graph_802.11n20_ANT2_5200_MCS0_OBW



Test_Graph_802.11n20_ANT2_5240_MCS0_OBW



Test_Graph_802.11n40_ANT2_5190_MCS0_OBW



Test_Graph_802.11n40_ANT2_5230_MCS0_OBW