
FCC Test Report

Report No.: AGC03570210602FE06

FCC ID : 2A2CY-HCYS001
APPLICATION PURPOSE : Original Equipment
PRODUCT DESIGNATION : AC2100 Dual Band Wi-Fi Repeater
BRAND NAME : ROCK, rock space
MODEL NAME : RSD0623
APPLICANT : Shenzhen Hechuang Yousu Trade co., Ltd.
DATE OF ISSUE : Aug. 23, 2021
STANDARD(S) : FCC Part 15.407
TEST PROCEDURE(S) : KDB 789033 D02 v02r01
REPORT VERSION : V1.0

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REPORT REVISE RECORD

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Aug. 23, 2021	Valid	Initial Release

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1. VERIFICATION OF CONFORMITY

Applicant	Shenzhen Hechuang Yousu Trade co., Ltd.
Address	Room F, Floor 16, Block A, Zhongguan Shidai Square, No.4168 Liuxian Road, Pingshan Community, Taoyuan Street, Nanshan District, Shenzhen, Guangdong, China
Manufacturer	Shenzhen Hechuang Yousu Trade co., Ltd.
Address	Room F, Floor 16, Block A, Zhongguan Shidai Square, No.4168 Liuxian Road, Pingshan Community, Taoyuan Street, Nanshan District, Shenzhen, Guangdong, China
Factory	Shenzhen Hechuang Yousu Trade co., Ltd.
Address	Room F, Floor 16, Block A, Zhongguan Shidai Square, No.4168 Liuxian Road, Pingshan Community, Taoyuan Street, Nanshan District, Shenzhen, Guangdong, China
Product Designation	AC2100 Dual Band Wi-Fi Repeater
Brand Name	ROCK, rock space
Test Model	RSD0623
Date of test	Jul. 22, 2021 to Aug. 19, 2021
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



Kelly Cheng
(Project Engineer)

Aug. 21, 2021

Reviewed By



Max Zhang
(Reviewer)

Aug. 23, 2021

Approved By



Forrest Lei
(Authorized Officer)

Aug. 23, 2021

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2. GENERAL INFORMATION

2.1. PRODUCT DESCRIPTION

The EUT is designed as “AC2100 Dual Band Wi-Fi Repeater”. It is designed by way of utilizing the OFDM technology to achieve the system operation.

A major technical description of EUT is described as following

Operation Frequency	5150 MHz~5250MHz; 5725 MHz~5850MHz
Test Frequency Range:	For 802.11a/n-HT20/ac-VHT20: 5180~5240MHz, 5745~5825MHz For 802.11n-HT40/ac-VHT40: 5190~5230MHz, 5755~5795MHz For 802.11ac-VHT80: 5210MHz, 5775MHz
Output Power	IEEE 802.11a20:14.73dBm; IEEE 802.11n(20):13.82dBm; IEEE802.11n(40):13.82dBm; IEEE 802.11ac(20):13.22dBm; IEEE 802.11ac(40):13.83dBm; IEEE 802.11ac(80):13.55dBm
Output Power_MIMO	IEEE 802.11n(20):19.62dBm; IEEE802.11n(40):19.73dBm; IEEE 802.11ac(20):19.08dBm; IEEE 802.11ac(40):19.18dBm; IEEE 802.11ac(80):18.76dBm
Modulation	BPSK, QPSK, 16QAM, 64QAM, 128QAM, 256QAM, OFDM
Data Rate	802.11a: 6/9/12/18/24/36/48/54Mbps 802.11n: up to 300Mbps 802.11ac: up to 400Mbps
Number of channels	7 channels of U-NII-1 Band 8 channels of U-NII-3 Band
Hardware Version	11
Software Version	V1.0
Antenna Designation	Omni-directional Antenna (Comply with requirements of the FCC part 15.203)
Number of transmit chain	4(802.11a/11n/ac all used four antennas, but 802.11a support SISO and 802.11n/ac support MIMO)
Antenna Gain	Refer to Chapter 2.8 of the report.
Power Supply	AC120V

Note:

1. The EUT is designed as indoor access point devices without radar detection.
2. The device do not support TPC.

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2.2. TABLE OF CARRIER FREQUENCIES

802.11a/n-HT20/ac-VHT20

Channel	Frequency	Channel	Frequency	Channel	Frequency
36	5180 MHz	40	5200 MHz	44	5220 MHz
48	5240 MHz	149	5745 MHz	153	5765 MHz
157	5785 MHz	161	5805 MHz	165	5825 MHz

802.11n-HT40/ac-VHT40

Channel	Frequency	Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz	151	5755 MHz
159	5795 MHz	--	--	--	--

802.11ac-VHT80

Channel	Frequency	Channel	Frequency	Channel	Frequency
42	5210 MHz	155	5775 MHz	--	--

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

This submittal(s) (test report) is intended for **FCC ID: 2A2CY-HCYS001** filing to comply with the FCC Part 15 requirements.

2.4. TEST METHODOLOGY

Both conducted and radiated testing was performed according to the procedures in ANSI C63.10 (2013).

Radiated testing was performed at an antenna to EUT distance 3 meters.

Others testing (listed at item 5.3) was performed according to the procedures in FCC Part 15.407 rules KDB 789033 D02

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

This intentional radiator is designed with a permanently attached antenna of an antenna to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

For more information of the antenna, please refer to the APPENDIX B: PHOTOGRAPHS OF EUT.

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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	Ant 3	Ant 4	
5G WIFI Omni-directional Antenna List (5GHz 4*4 MIMO)								
Omni-directional Antenna	5150 ~ 5250	4	20,40,80	5	5	5	5	11.02
	5725 ~ 5850	4	20,40,80	5	5	5	5	11.02

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:

Array Gain = $10 \log (N_{ANT}/N_{SS})$ dB = 6.02;

- For power measurements on IEEE 802.1 devices:

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.

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3. MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, 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	$U_c = \pm 3.1 \text{ dB}$
Uncertainty of Radiated Emission below 1GHz	$U_c = \pm 4.0 \text{ dB}$
Uncertainty of Radiated Emission above 1GHz	$U_c = \pm 4.8 \text{ dB}$
Uncertainty of total RF power, conducted	$U_c = \pm 0.8 \text{ dB}$
Uncertainty of RF power density, conducted	$U_c = \pm 2.6 \text{ dB}$
Uncertainty of spurious emissions, conducted	$U_c = \pm 2 \%$
Uncertainty of Occupied Channel Bandwidth	$U_c = \pm 2 \%$

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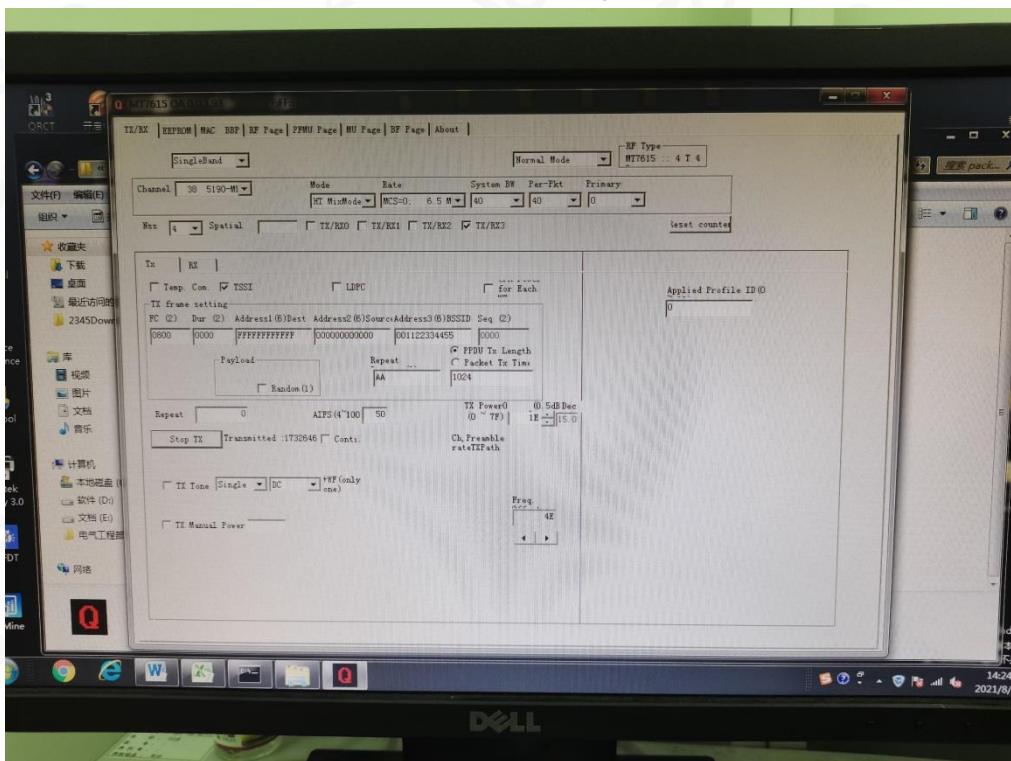
4. DESCRIPTION OF TEST MODES

Mode	Available channel	Tested channel	Modulation	Date rate(Mbps)
802.11a/n/ac20	36, 40, 44, 48, 52, 56, 60, 64, 100, 104, 108, 112, 116, 120, 124, 128, 132, 136, 140, 149, 153, 157, 161, 165	36, 40, 48, 52, 60, 64, 100, 120, 140, 149, 157, 165	OFDM	6Mbps/MCS0
802.11n/ac40	38, 46, 54, 62, 102, 110, 118, 126, 134, 151, 159;	38, 46, 54, 62, 102, 118, 134, 151, 159	OFDM	MCS0
802.11ac80	42, 58, 106, 122, 155	42, 58, 106, 122, 155	OFDM	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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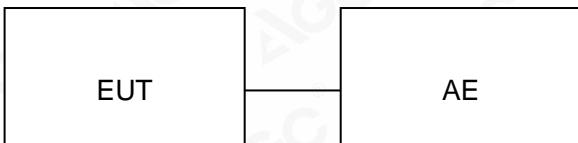
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5. SYSTEM TEST CONFIGURATION

5.1. CONFIGURATION OF EUT SYSTEM

Configure 1:



5.2. EQUIPMENT USED IN EUT SYSTEM

Item	Equipment	Model No.	ID or Specification	Remark
1	AC2100 Dual Band Wi-Fi	RSD0623	2A2CY-HCYS001	EUT
2	Power supply	--	--	AE

5.3. SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
§15.407	6dB&-26dB Bandwidth; 99% occupied bandwidth	Compliant
§15.407	Emission Bandwidth	Compliant
§15.407	Maximum conducted output power	Compliant
§15.407	Conducted Spurious Emission	Compliant
§15.407	Maximum Conducted Output Power Density	Compliant
§15.209	Radiated Emission	Compliant
§15.407	Band Edges	Compliant
§15.207	Line Conduction Emission	Compliant

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6. TEST FACILITY

Test Site	Attestation of Global Compliance (Shenzhen) Co., Ltd
Location	1-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China
Designation Number	CN1259
FCC Test Firm Registration Number	975832
A2LA Cert. No.	5054.02
Description	Attestation of Global Compliance(Shenzhen) Co., Ltd is accredited by A2LA

TEST EQUIPMENT OF CONDUCTED EMISSION TEST

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESPI	101206	May 15, 2021	May 14, 2022
LISN	R&S	ESH2-Z5	100086	Jun. 09, 2021	Jun. 08, 2022
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	May 15, 2021	May 14, 2022
EXA Signal Analyzer	Aglient	N9010A	MY53470504	Dec. 07, 2020	Dec. 06, 2021
5GHz Fliter	EM Electronics	5150-5880MHz	N/A	Mar. 23, 2020	Mar. 22, 2022
Attenuator	ZHINAN	E-002	N/A	Sep. 03, 2020	Sep. 02, 2022
Horn antenna	SCHWARZBECK	BBHA 9170	#768	Sep.21, 2019	Sep. 20, 2021
Active loop antenna (9K-30MHz)	ZHINAN	ZN30900C	18051	May 22, 2020	May 21, 2022
Double-Ridged Waveguide Horn	ETS LINDGREN	3117	00034609	Apr. 23, 2021	Apr. 22, 2022
Broadband Preamplifier	ETS LINDGREN	3117PA	00225134	Sep. 03, 2020	Sep. 02, 2022
ANTENNA	SCHWARZBECK	VULB9168	494	Sep. 20, 2019	Sep. 19, 2021
Test software	Tonscend	JS32-RE (Ver.2.5)	N/A	N/A	N/A

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7. MAXIMUM CONDUCTED OUTPUT POWER

7.1. MEASUREMENT PROCEDURE

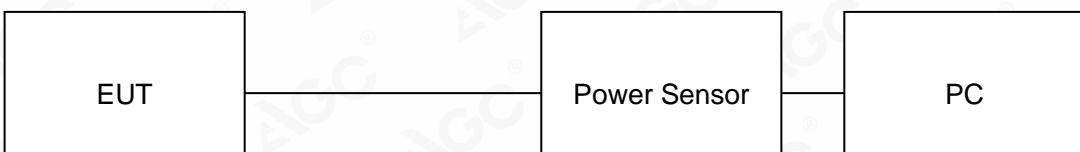
For average power test:

1. Connect EUT RF output port to power sensor through an RF attenuator.
2. Connect the power sensor to the PC.
3. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
4. Record the maximum power from the software.

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

7.2. TEST SET-UP

AVERAGE POWER SETUP



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7.3. LIMITS AND MEASUREMENT RESULT

Test Data of Conducted Output Power for band 5.15-5.25 GHz-antenna 1				
Test Mode	Test Channel (MHz)	Average Power (dBm)	Limits (dBm)	Pass or Fail
802.11a	5180	13.84	30	Pass
	5200	13.75	30	Pass
	5240	14.08	30	Pass
802.11n20	5180	13.40	30	Pass
	5200	13.33	30	Pass
	5240	13.61	30	Pass
802.11n40	5190	13.46	30	Pass
	5230	13.17	30	Pass
802.11ac20	5180	13.17	30	Pass
	5200	12.94	30	Pass
	5240	13.22	30	Pass
802.11ac40	5190	13.63	30	Pass
	5230	13.83	30	Pass
802.11ac80	5210	13.55	30	Pass

Test Data of Conducted Output Power for band 5.15-5.25 GHz-antenna 2				
Test Mode	Test Channel (MHz)	Average Power (dBm)	Limits (dBm)	Pass or Fail
802.11a	5180	14.38	30	Pass
	5200	14.73	30	Pass
	5240	13.85	30	Pass
802.11n20	5180	13.82	30	Pass
	5200	13.66	30	Pass
	5240	13.30	30	Pass
802.11n40	5190	13.57	30	Pass
	5230	13.27	30	Pass
802.11ac20	5180	12.96	30	Pass
	5200	12.72	30	Pass
	5240	12.36	30	Pass
802.11ac40	5190	12.37	30	Pass
	5230	12.08	30	Pass
802.11ac80	5210	11.80	30	Pass

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Test Data of Conducted Output Power for band 5.15-5.25 GHz-antenna 3				
Test Mode	Test Channel (MHz)	Average Power (dBm)	Limits (dBm)	Pass or Fail
802.11a	5180	14.36	30	Pass
	5200	14.20	30	Pass
	5240	13.83	30	Pass
802.11n20	5180	13.42	30	Pass
	5200	13.24	30	Pass
	5240	12.79	30	Pass
802.11n40	5190	13.24	30	Pass
	5230	13.81	30	Pass
802.11ac20	5180	12.94	30	Pass
	5200	12.81	30	Pass
	5240	12.45	30	Pass
802.11ac40	5190	13.48	30	Pass
	5230	12.61	30	Pass
802.11ac80	5210	12.39	30	Pass

Test Data of Conducted Output Power for band 5.15-5.25 GHz-antenna 4				
Test Mode	Test Channel (MHz)	Average Power (dBm)	Limits (dBm)	Pass or Fail
802.11a	5180	14.44	30	Pass
	5200	14.31	30	Pass
	5240	14.63	30	Pass
802.11n20	5180	13.76	30	Pass
	5200	13.47	30	Pass
	5240	13.08	30	Pass
802.11n40	5190	13.45	30	Pass
	5230	13.55	30	Pass
802.11ac20	5180	13.17	30	Pass
	5200	12.97	30	Pass
	5240	11.66	30	Pass
802.11ac40	5190	13.05	30	Pass
	5230	12.27	30	Pass
802.11ac80	5210	13.03	30	Pass

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Test Data of Conducted Output Power for band 5.15-5.25 GHz-antenna 1+2+3+4				
Test Mode	Test Channel (MHz)	Average Power (dBm)	Limits (dBm)	Pass or Fail
802.11n20	5180	19.62	30	Pass
	5200	19.45	30	Pass
	5240	19.23	30	Pass
802.11n40	5190	19.45	30	Pass
	5230	19.48	30	Pass
802.11ac20	5180	19.08	30	Pass
	5200	18.88	30	Pass
	5240	18.48	30	Pass
802.11ac40	5190	19.18	30	Pass
	5230	18.77	30	Pass
802.11ac80	5210	18.76	30	Pass

Test Data of Conducted Output Power for band 5.725-5.85 GHz-antenna 1				
Test Mode	Test Channel (MHz)	Average Power (dBm)	Limits (dBm)	Pass or Fail
802.11a	5745	15.00	30	Pass
	5785	14.24	30	Pass
	5825	14.56	30	Pass
802.11n20	5745	13.46	30	Pass
	5785	13.64	30	Pass
	5825	13.55	30	Pass
802.11n40	5755	13.97	30	Pass
	5795	13.69	30	Pass
802.11ac20	5745	11.98	30	Pass
	5785	13.26	30	Pass
	5825	12.66	30	Pass
802.11ac40	5755	11.68	30	Pass
	5795	13.19	30	Pass
802.11ac80	5775	12.07	30	Pass

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Test Data of Conducted Output Power for band 5.725-5.85 GHz-antenna 2				
Test Mode	Test Channel (MHz)	Average Power (dBm)	Limits (dBm)	Pass or Fail
802.11a	5745	14.34	30	Pass
	5785	13.72	30	Pass
	5825	13.87	30	Pass
802.11n20	5745	12.89	30	Pass
	5785	13.11	30	Pass
	5825	12.84	30	Pass
802.11n40	5755	13.52	30	Pass
	5795	12.80	30	Pass
802.11ac20	5745	12.35	30	Pass
	5785	11.70	30	Pass
	5825	11.53	30	Pass
802.11ac40	5755	12.89	30	Pass
	5795	12.13	30	Pass
802.11ac80	5775	12.13	30	Pass

Test Data of Conducted Output Power for band 5.725-5.85 GHz-antenna 3				
Test Mode	Test Channel (MHz)	Average Power (dBm)	Limits (dBm)	Pass or Fail
802.11a	5745	14.54	30	Pass
	5785	13.99	30	Pass
	5825	14.18	30	Pass
802.11n20	5745	13.72	30	Pass
	5785	13.36	30	Pass
	5825	13.80	30	Pass
802.11n40	5755	13.86	30	Pass
	5795	13.18	30	Pass
802.11ac20	5745	13.07	30	Pass
	5785	12.42	30	Pass
	5825	12.69	30	Pass
802.11ac40	5755	13.75	30	Pass
	5795	13.09	30	Pass
802.11ac80	5775	13.03	30	Pass

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Test Data of Conducted Output Power for band 5.725-5.85 GHz-antenna 4				
Test Mode	Test Channel (MHz)	Average Power (dBm)	Limits (dBm)	Pass or Fail
802.11a	5745	14.97	30	Pass
	5785	14.41	30	Pass
	5825	13.61	30	Pass
802.11n20	5745	13.81	30	Pass
	5785	14.05	30	Pass
	5825	14.05	30	Pass
802.11n40	5755	13.88	30	Pass
	5795	13.83	30	Pass
802.11ac20	5745	13.17	30	Pass
	5785	12.65	30	Pass
	5825	12.55	30	Pass
802.11ac40	5755	13.66	30	Pass
	5795	13.13	30	Pass
802.11ac80	5775	13.17	30	Pass

Test Data of Conducted Output Power for band 5.725-5.85 GHz-antenna 1+2+3+4				
Test Mode	Test Channel (MHz)	Average Power (dBm)	Limits (dBm)	Pass or Fail
802.11n20	5745	19.51	30	Pass
	5785	19.57	30	Pass
	5825	19.60	30	Pass
802.11n40	5755	19.83	30	Pass
	5795	19.41	30	Pass
802.11ac20	5745	18.69	30	Pass
	5785	18.56	30	Pass
	5825	18.40	30	Pass
802.11ac40	5755	19.09	30	Pass
	5795	18.93	30	Pass
802.11ac80	5775	18.65	30	Pass

Note: 1.The Total Average Power (dBm) = $10^{\log \{10^{(\text{Ant 1 Average Power /10})} + 10^{(\text{Ant 2 Average Power /10})} + 10^{(\text{Ant 3 Average Power /10})} + 10^{(\text{Ant 4 Average Power /10})}\}}$.

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8. BANDWIDTH

8.1. MEASUREMENT PROCEDURE

-6dB bandwidth (DTS bandwidth):

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.

99% occupied bandwidth:

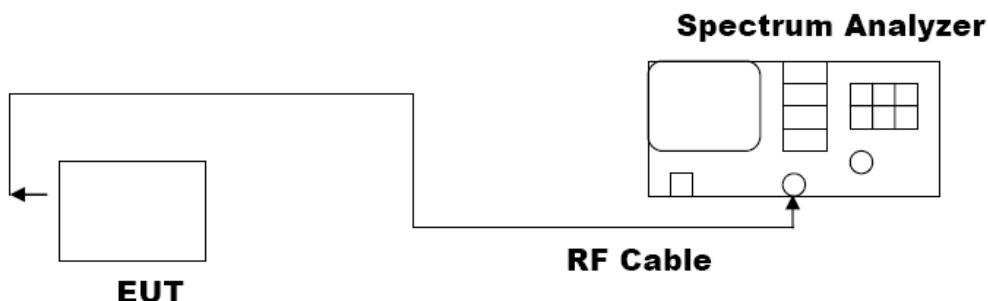
1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
2. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
3. Set Span = approximately 1.5 to 5 times the OBW, centered on a nominal channel
The nominal IF filter bandwidth (3 dB RBW) shall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

-26dB Bandwidth:

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.

8.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)



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8.3. LIMITS AND MEASUREMENT RESULTS

Test Data of Occupied Bandwidth and -26dB Bandwidth for band 5.15-5.25 GHz-antenna 1					
Test Mode	Test Channel (MHz)	99% Occupied Bandwidth (MHz)	-26dB Bandwidth (MHz)	Limits (MHz)	Pass or Fail
802.11a	5180	16.414	19.79	N/A	Pass
	5200	16.516	22.17	N/A	Pass
	5240	16.903	28.87	N/A	Pass
802.11n20	5180	17.531	19.95	N/A	Pass
	5200	17.613	20.99	N/A	Pass
	5240	17.825	29.53	N/A	Pass
802.11n40	5190	36.026	42.83	N/A	Pass
	5230	36.776	60.00	N/A	Pass
802.11ac20	5180	17.548	20.08	N/A	Pass
	5200	17.639	23.99	N/A	Pass
	5240	18.819	30.00	N/A	Pass
802.11ac40	5190	36.042	49.84	N/A	Pass
	5230	38.993	60.00	N/A	Pass
802.11ac80	5210	75.577	98.31	N/A	Pass

Test Data of Occupied Bandwidth and -26dB Bandwidth for band 5.15-5.25 GHz-antenna 2					
Test Mode	Test Channel (MHz)	99% Occupied Bandwidth (MHz)	-26dB Bandwidth (MHz)	Limits (MHz)	Pass or Fail
802.11a	5180	16.354	19.31	N/A	Pass
	5200	16.355	19.32	N/A	Pass
	5240	16.341	19.30	N/A	Pass
802.11n20	5180	17.525	19.89	N/A	Pass
	5200	17.524	19.81	N/A	Pass
	5240	17.496	19.75	N/A	Pass
802.11n40	5190	35.902	39.15	N/A	Pass
	5230	35.910	38.78	N/A	Pass
802.11ac20	5180	17.558	19.91	N/A	Pass
	5200	17.526	19.79	N/A	Pass
	5240	17.565	19.81	N/A	Pass
802.11ac40	5190	35.880	40.05	N/A	Pass
	5230	35.940	40.05	N/A	Pass
802.11ac80	5210	74.868	79.67	N/A	Pass

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Test Data of Occupied Bandwidth and -26dB Bandwidth for band 5.15-5.25 GHz-antenna 3					
Test Mode	Test Channel (MHz)	99% Occupied Bandwidth (MHz)	-26dB Bandwidth (MHz)	Limits (MHz)	Pass or Fail
802.11a	5180	16.348	19.57	N/A	Pass
	5200	16.351	19.40	N/A	Pass
	5240	16.366	19.40	N/A	Pass
802.11n20	5180	17.508	19.76	N/A	Pass
	5200	17.537	19.75	N/A	Pass
	5240	17.530	19.82	N/A	Pass
802.11n40	5190	35.947	39.33	N/A	Pass
	5230	35.894	39.61	N/A	Pass
802.11ac20	5180	17.532	19.82	N/A	Pass
	5200	17.555	19.88	N/A	Pass
	5240	17.552	19.81	N/A	Pass
802.11ac40	5190	35.928	39.65	N/A	Pass
	5230	35.889	39.60	N/A	Pass
802.11ac80	5210	74.798	79.75	N/A	Pass

Test Data of Occupied Bandwidth and -26dB Bandwidth for band 5.15-5.25 GHz-antenna 4					
Test Mode	Test Channel (MHz)	99% Occupied Bandwidth (MHz)	-26dB Bandwidth (MHz)	Limits (MHz)	Pass or Fail
802.11a	5180	16.355	19.31	N/A	Pass
	5200	16.345	19.42	N/A	Pass
	5240	16.345	19.53	N/A	Pass
802.11n20	5180	17.533	19.83	N/A	Pass
	5200	17.513	19.82	N/A	Pass
	5240	17.533	19.92	N/A	Pass
802.11n40	5190	35.907	39.42	N/A	Pass
	5230	35.947	39.49	N/A	Pass
802.11ac20	5180	17.567	19.83	N/A	Pass
	5200	17.546	19.83	N/A	Pass
	5240	17.555	19.88	N/A	Pass
802.11ac40	5190	35.922	39.42	N/A	Pass
	5230	35.930	39.76	N/A	Pass
802.11ac80	5210	74.744	79.77	N/A	Pass

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Test Data of Occupied Bandwidth and DTS Bandwidth for band 5.725-5.85 GHz-antenna 1					
Test Mode	Test Channel (MHz)	99% Occupied Bandwidth (MHz)	DTS Bandwidth (MHz)	Limits (MHz)	Pass or Fail
802.11a	5745	16.489	15.90	0.5	Pass
	5785	16.371	15.75	0.5	Pass
	5825	16.359	15.74	0.5	Pass
802.11n20	5745	17.528	16.04	0.5	Pass
	5785	17.516	16.60	0.5	Pass
	5825	17.535	16.90	0.5	Pass
802.11n40	5755	36.007	35.12	0.5	Pass
	5795	35.957	35.12	0.5	Pass
802.11ac20	5745	17.562	16.23	0.5	Pass
	5785	17.560	15.12	0.5	Pass
	5825	17.567	15.95	0.5	Pass
802.11ac40	5755	35.994	35.11	0.5	Pass
	5795	35.932	35.11	0.5	Pass
802.11ac80	5775	75.079	66.34	0.5	Pass

Test Data of Occupied Bandwidth and DTS Bandwidth for band 5.725-5.85 GHz-antenna 2					
Test Mode	Test Channel (MHz)	99% Occupied Bandwidth (MHz)	DTS Bandwidth (MHz)	Limits (MHz)	Pass or Fail
802.11a	5745	16.364	15.74	0.5	Pass
	5785	16.363	15.75	0.5	Pass
	5825	16.372	15.74	0.5	Pass
802.11n20	5745	17.524	16.04	0.5	Pass
	5785	17.525	16.01	0.5	Pass
	5825	17.556	16.88	0.5	Pass
802.11n40	5755	36.015	35.69	0.5	Pass
	5795	35.956	35.69	0.5	Pass
802.11ac20	5745	17.551	16.32	0.5	Pass
	5785	17.558	16.32	0.5	Pass
	5825	17.552	16.01	0.5	Pass
802.11ac40	5755	35.965	35.39	0.5	Pass
	5795	35.970	35.39	0.5	Pass
802.11ac80	5775	75.242	73.15	0.5	Pass

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Test Data of Occupied Bandwidth and DTS Bandwidth for band 5.725-5.85 GHz-antenna 3					
Test Mode	Test Channel (MHz)	99% Occupied Bandwidth (MHz)	DTS Bandwidth (MHz)	Limits (MHz)	Pass or Fail
802.11a	5745	16.334	15.74	0.5	Pass
	5785	16.357	15.78	0.5	Pass
	5825	16.361	15.12	0.5	Pass
802.11n20	5745	17.542	16.32	0.5	Pass
	5785	17.533	16.01	0.5	Pass
	5825	17.543	16.90	0.5	Pass
802.11n40	5755	35.966	35.66	0.5	Pass
	5795	36.011	35.69	0.5	Pass
802.11ac20	5745	17.532	16.89	0.5	Pass
	5785	17.509	16.90	0.5	Pass
	5825	17.562	16.57	0.5	Pass
802.11ac40	5755	35.928	35.41	0.5	Pass
	5795	36.000	35.41	0.5	Pass
802.11ac80	5775	75.115	69.40	0.5	Pass

Test Data of Occupied Bandwidth and DTS Bandwidth for band 5.725-5.85 GHz-antenna 4					
Test Mode	Test Channel (MHz)	99% Occupied Bandwidth (MHz)	DTS Bandwidth (MHz)	Limits (MHz)	Pass or Fail
802.11a	5745	16.357	15.72	0.5	Pass
	5785	16.356	15.72	0.5	Pass
	5825	16.366	15.71	0.5	Pass
802.11n20	5745	17.539	15.98	0.5	Pass
	5785	17.539	16.00	0.5	Pass
	5825	17.536	16.02	0.5	Pass
802.11n40	5755	36.003	35.43	0.5	Pass
	5795	36.037	35.38	0.5	Pass
802.11ac20	5745	17.553	16.32	0.5	Pass
	5785	17.554	16.03	0.5	Pass
	5825	17.566	16.30	0.5	Pass
802.11ac40	5755	35.925	35.35	0.5	Pass
	5795	36.002	35.34	0.5	Pass
802.11ac80	5775	75.174	70.59	0.5	Pass

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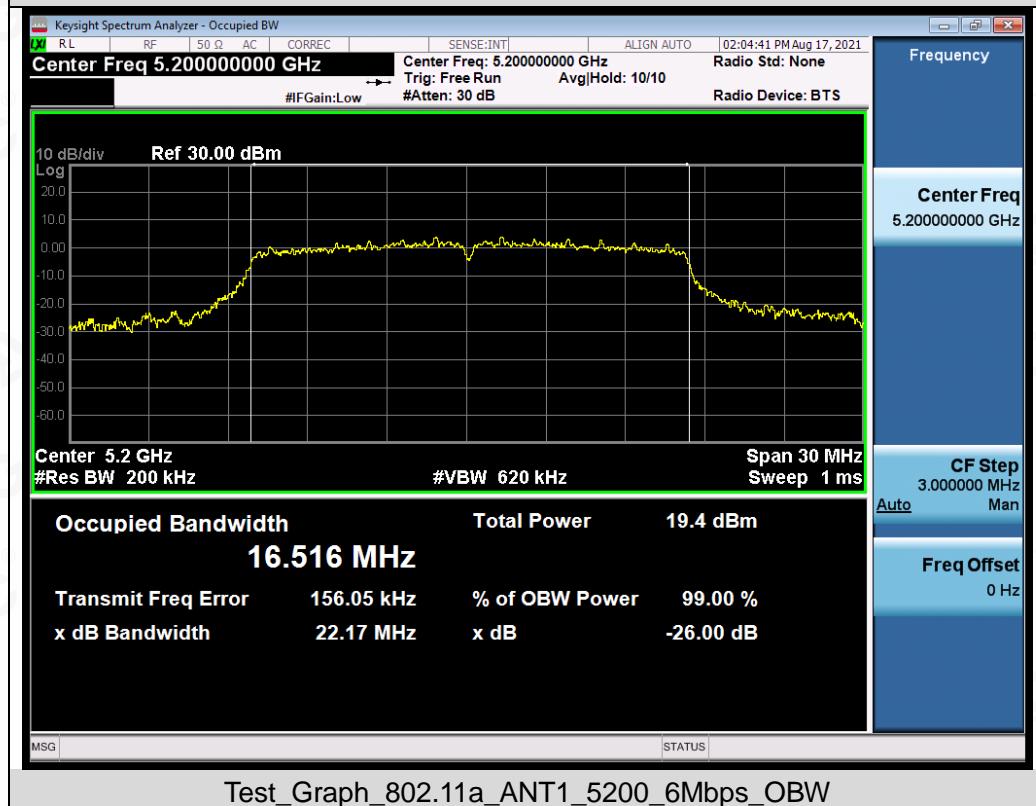
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Test Graphs of Occupied Bandwidth and -26dB Bandwidth for band 5.15-5.25 GHz



Test_Graph_802.11a_ANT1_5180_6Mbps_OBW



Test_Graph_802.11a_ANT1_5200_6Mbps_OBW

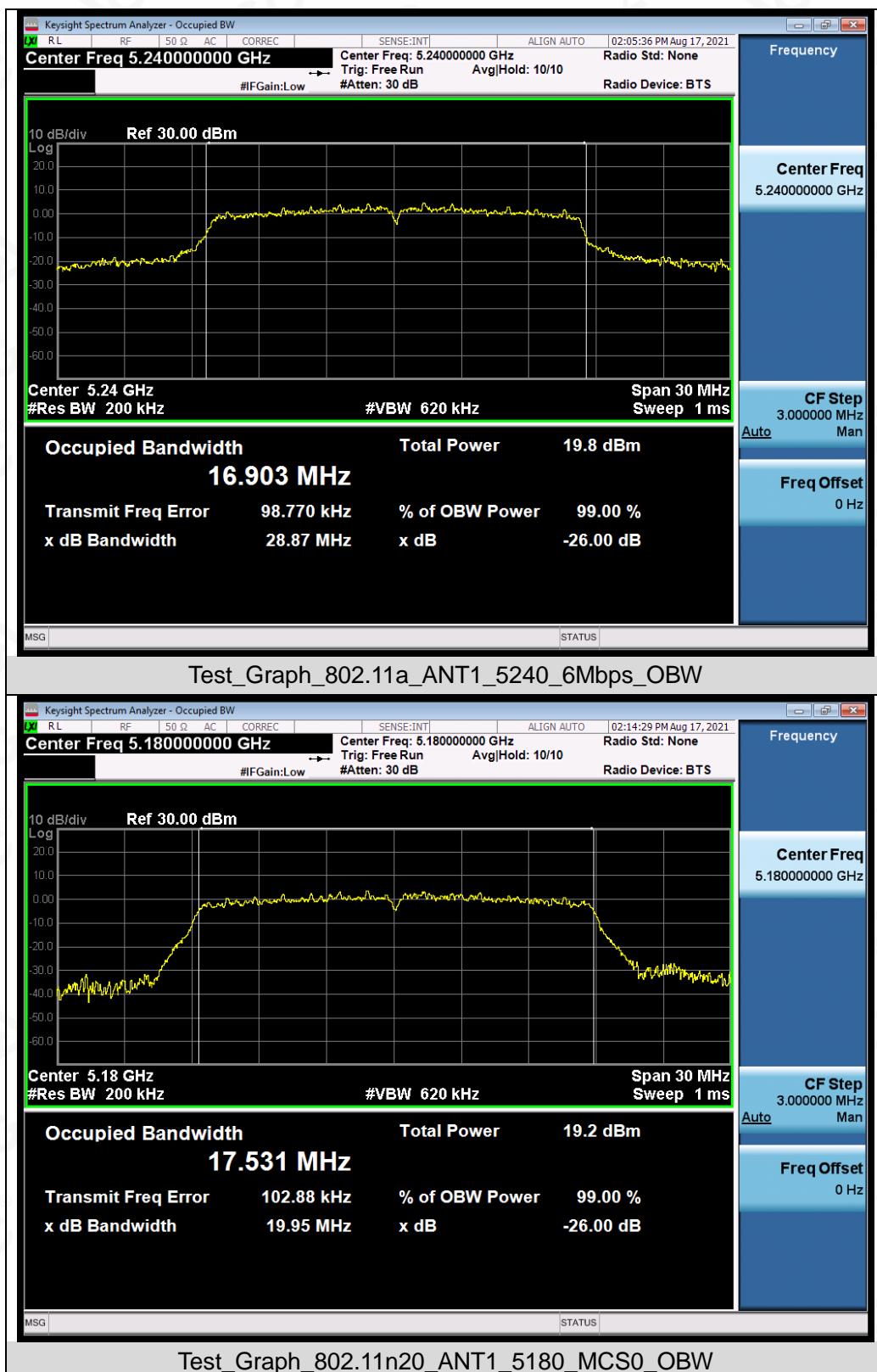
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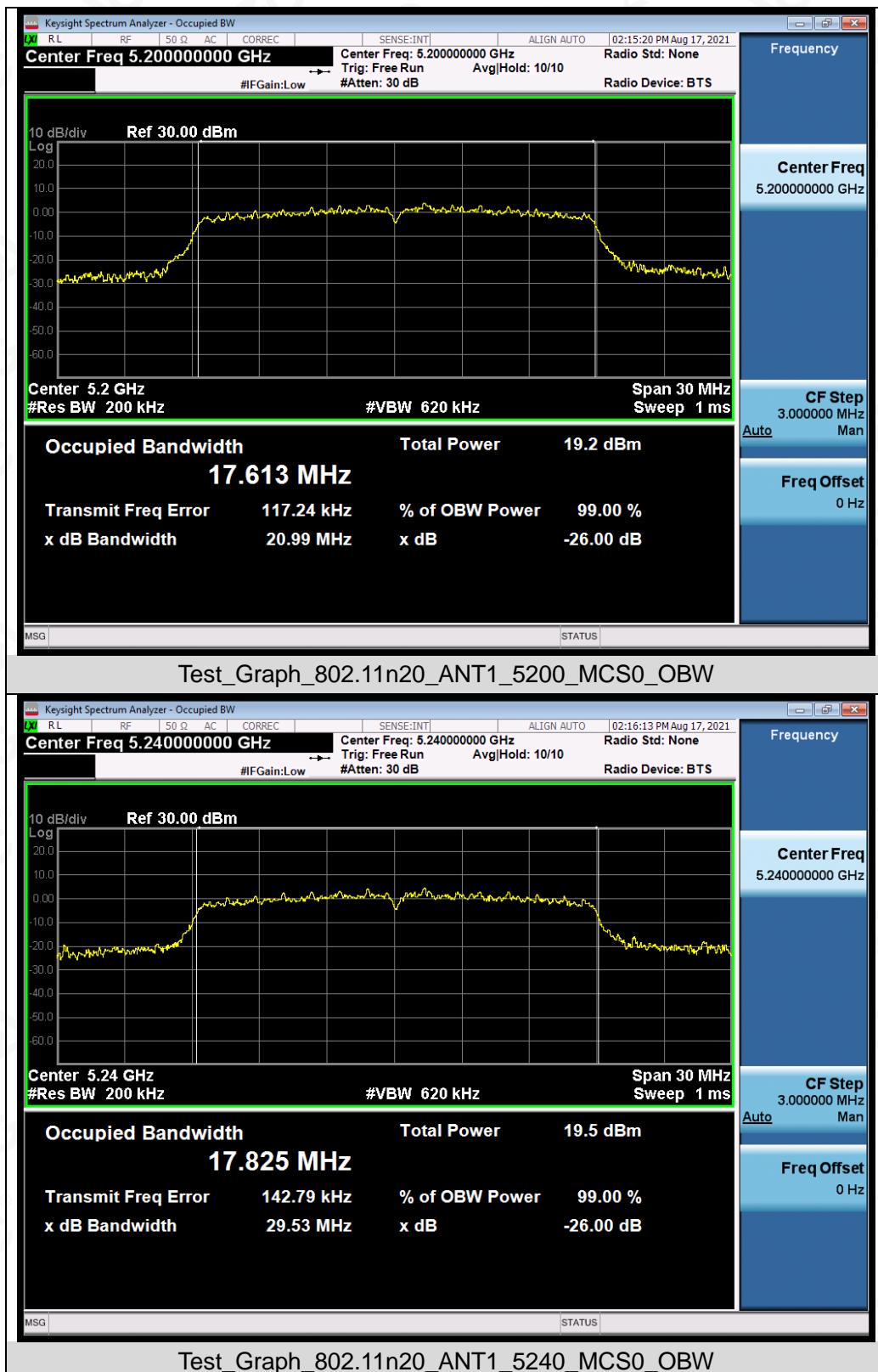
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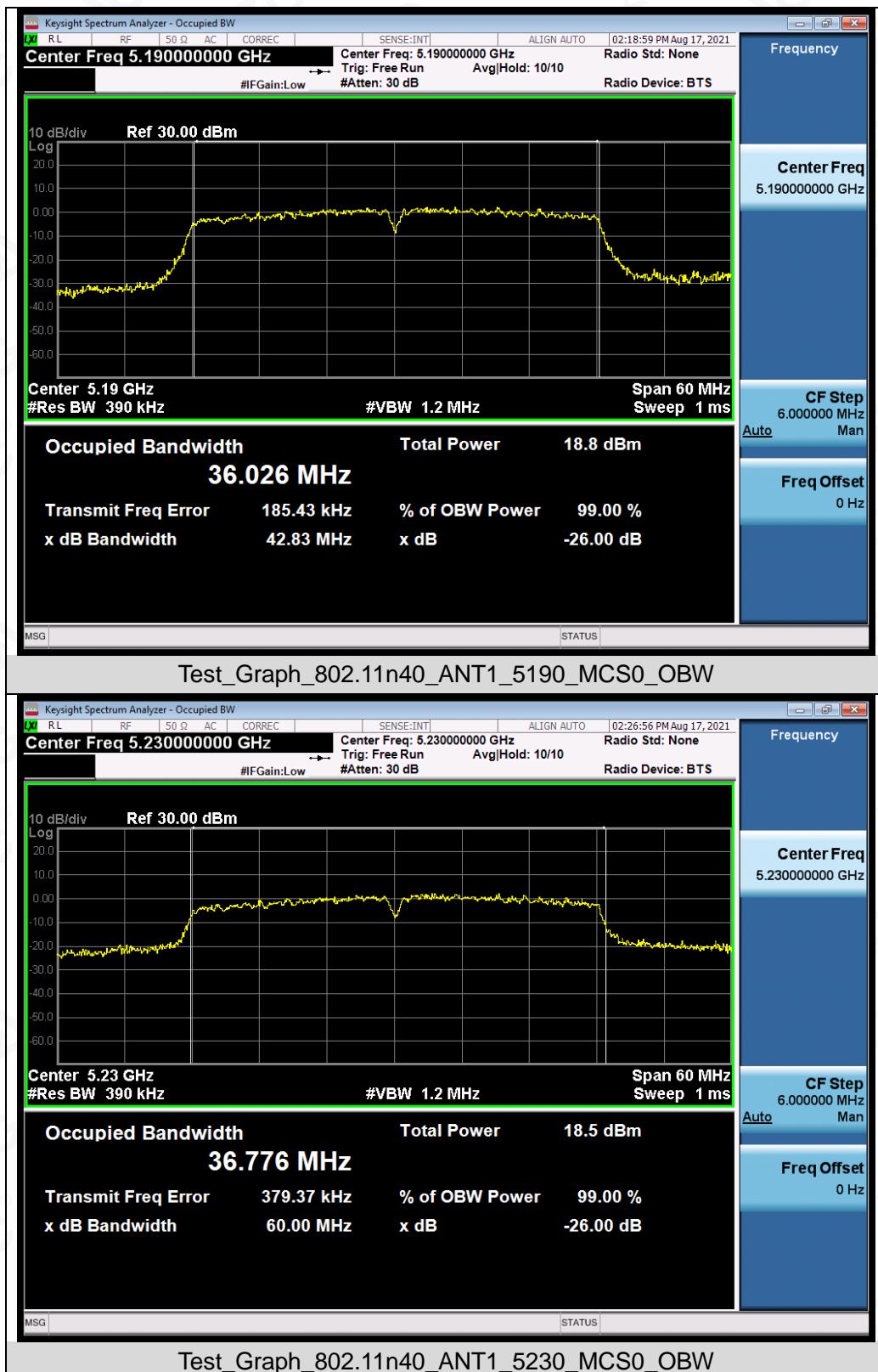
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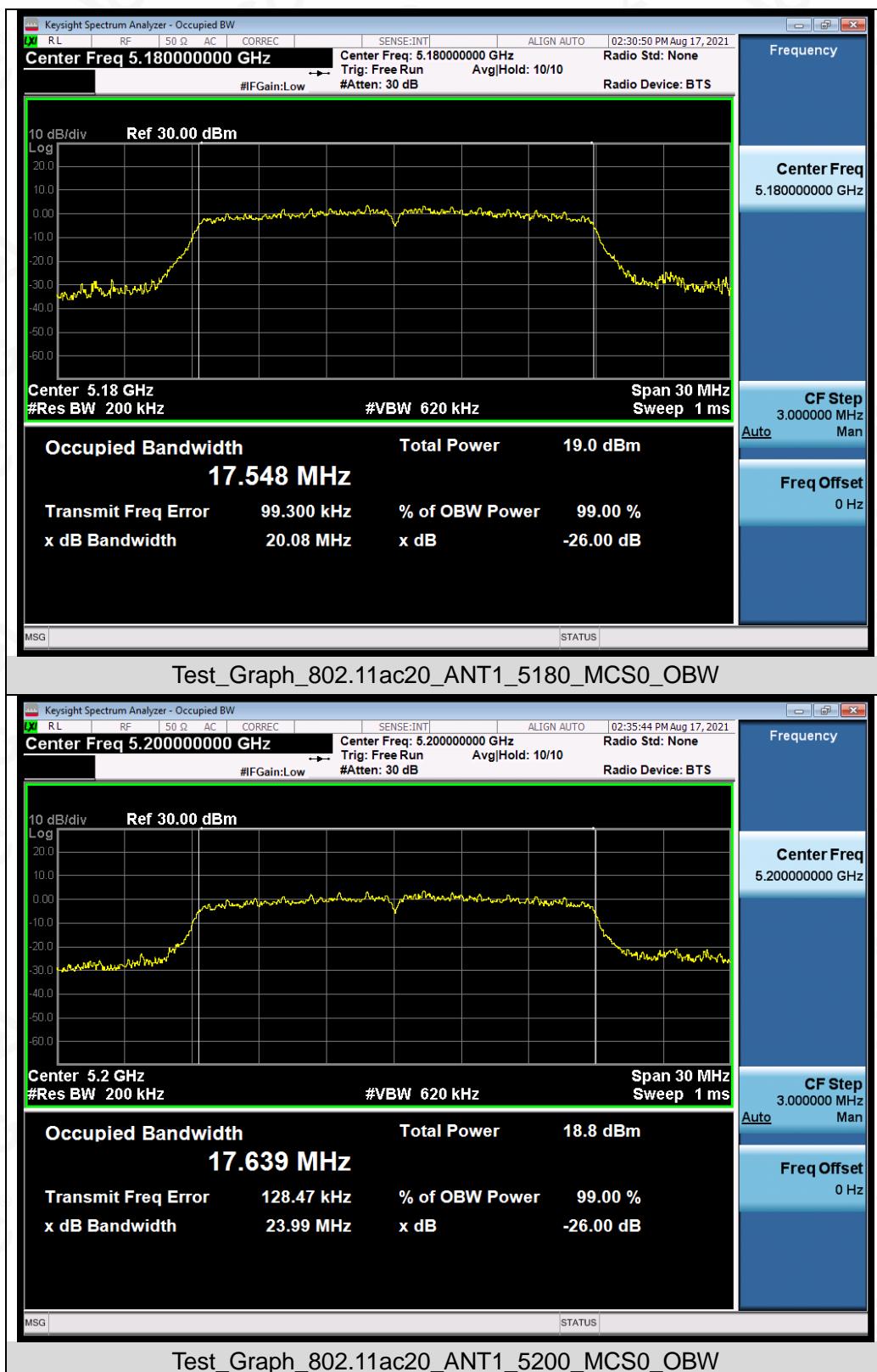
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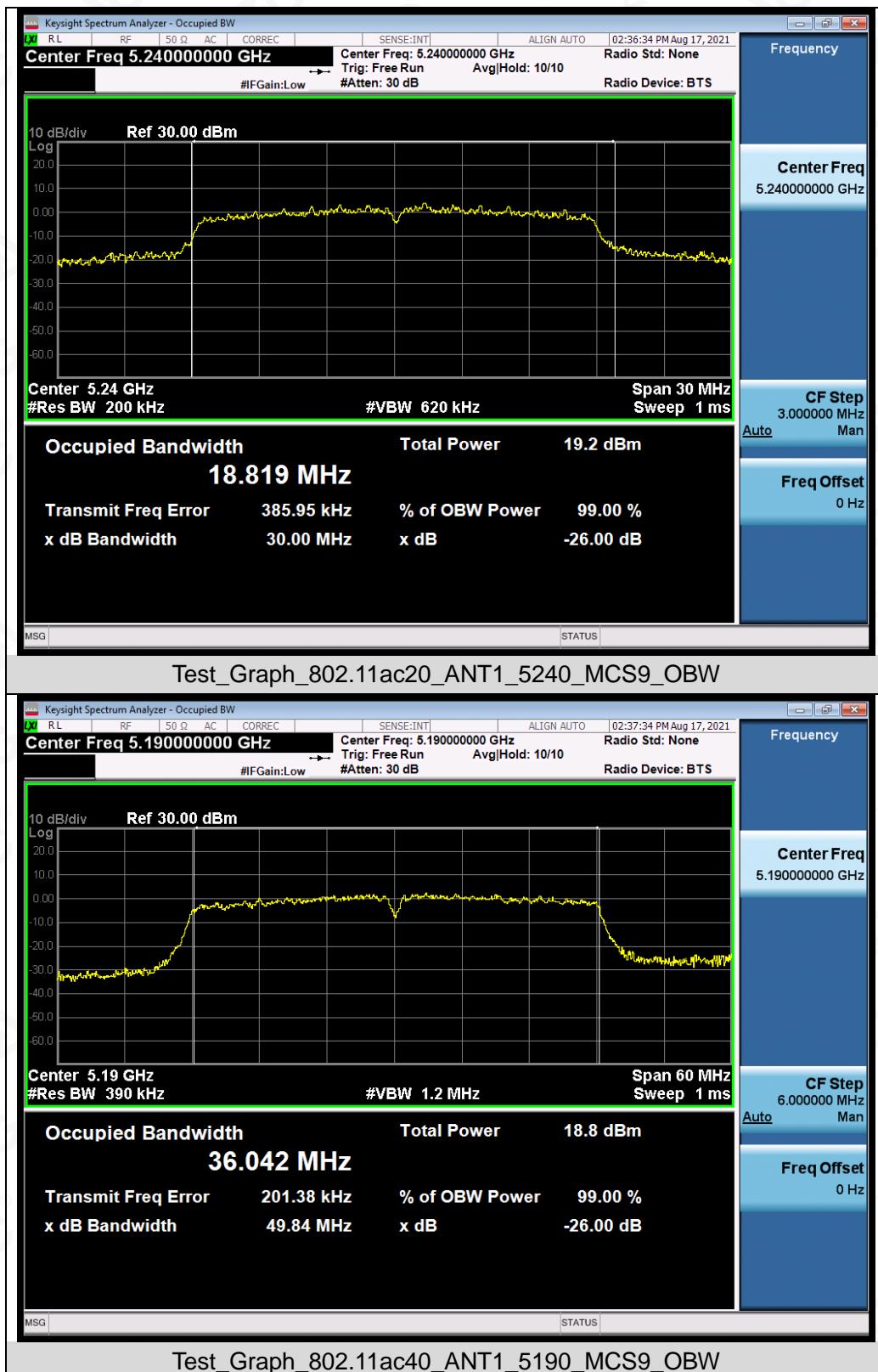
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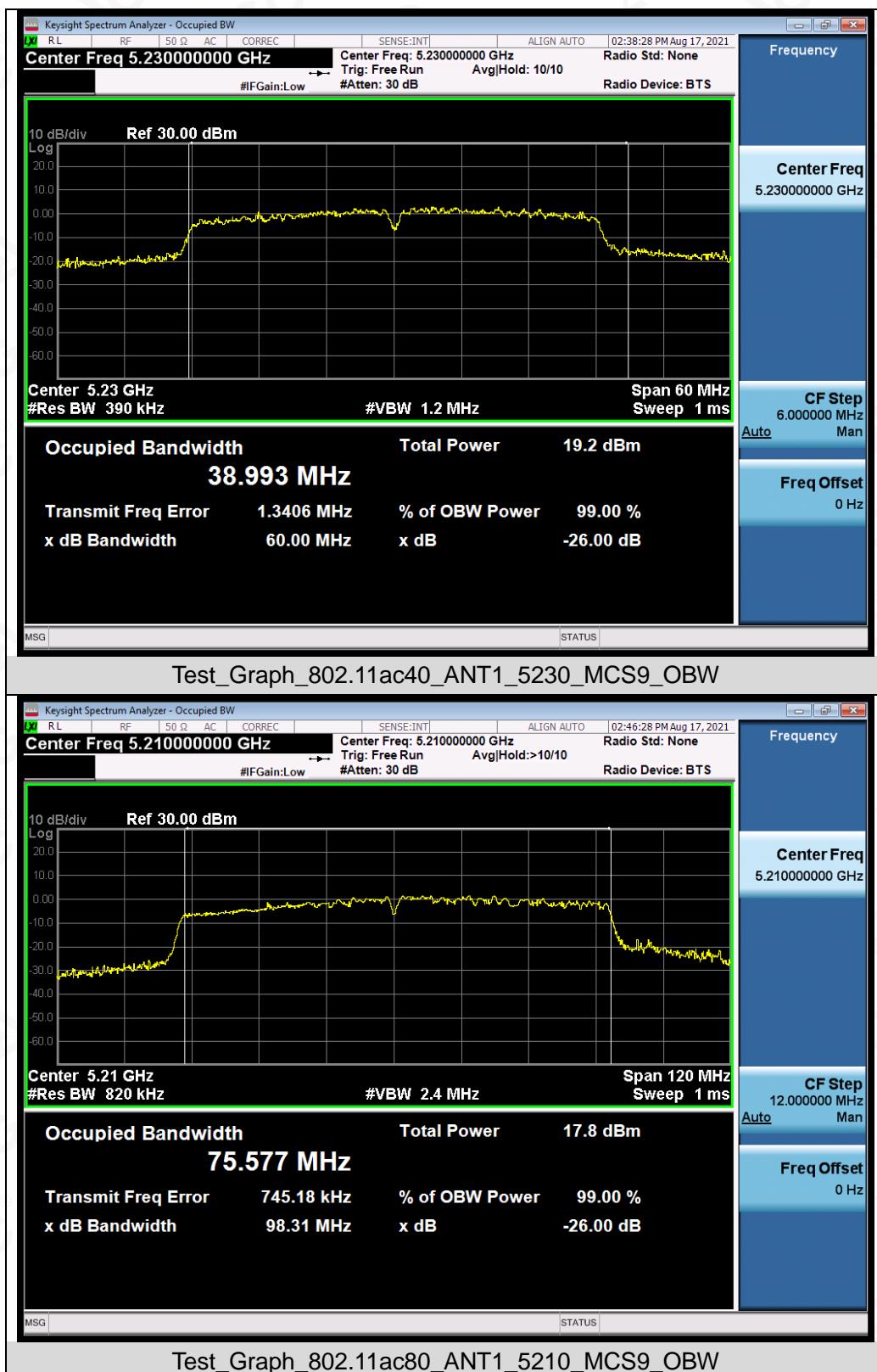
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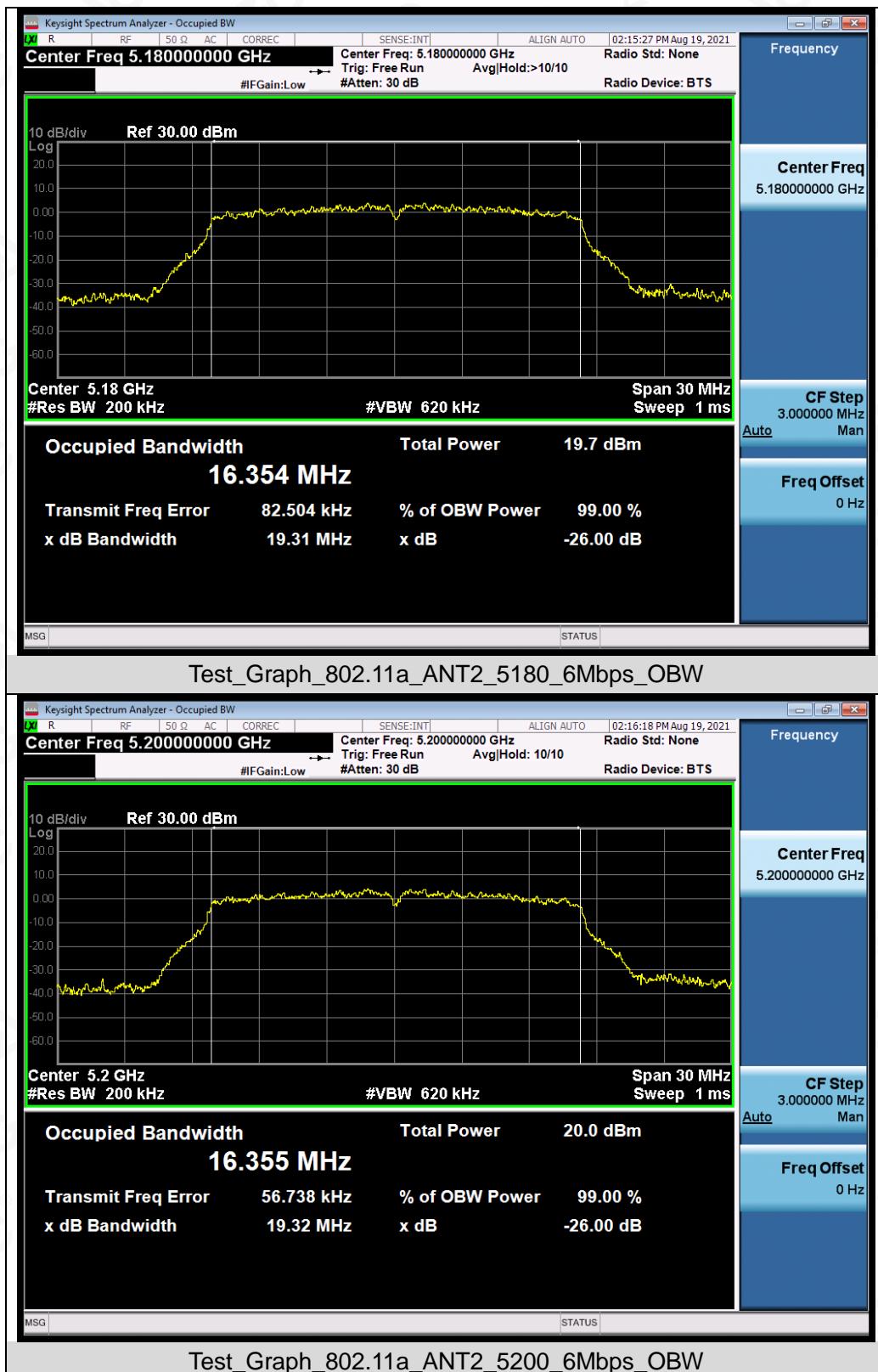
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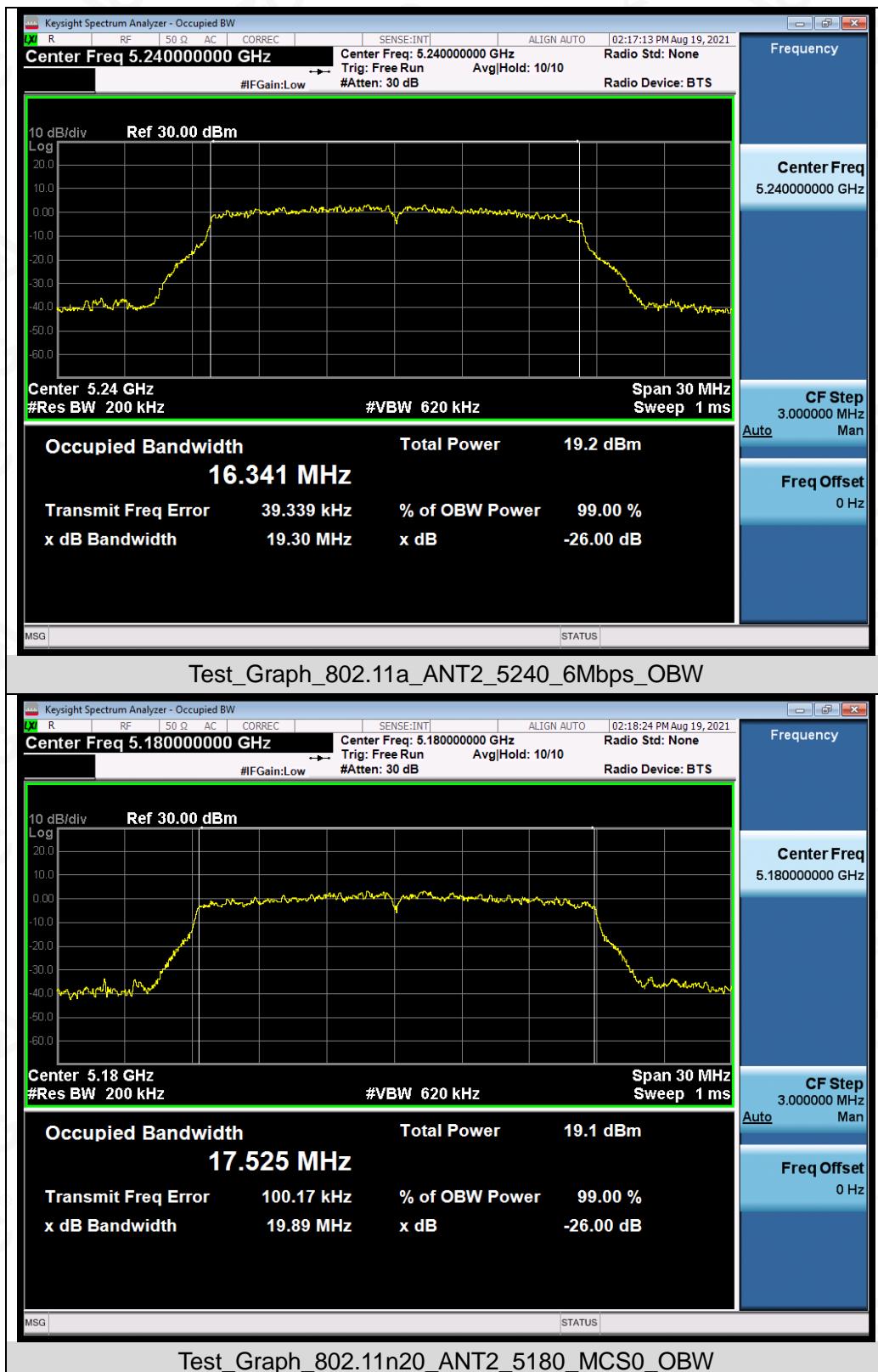
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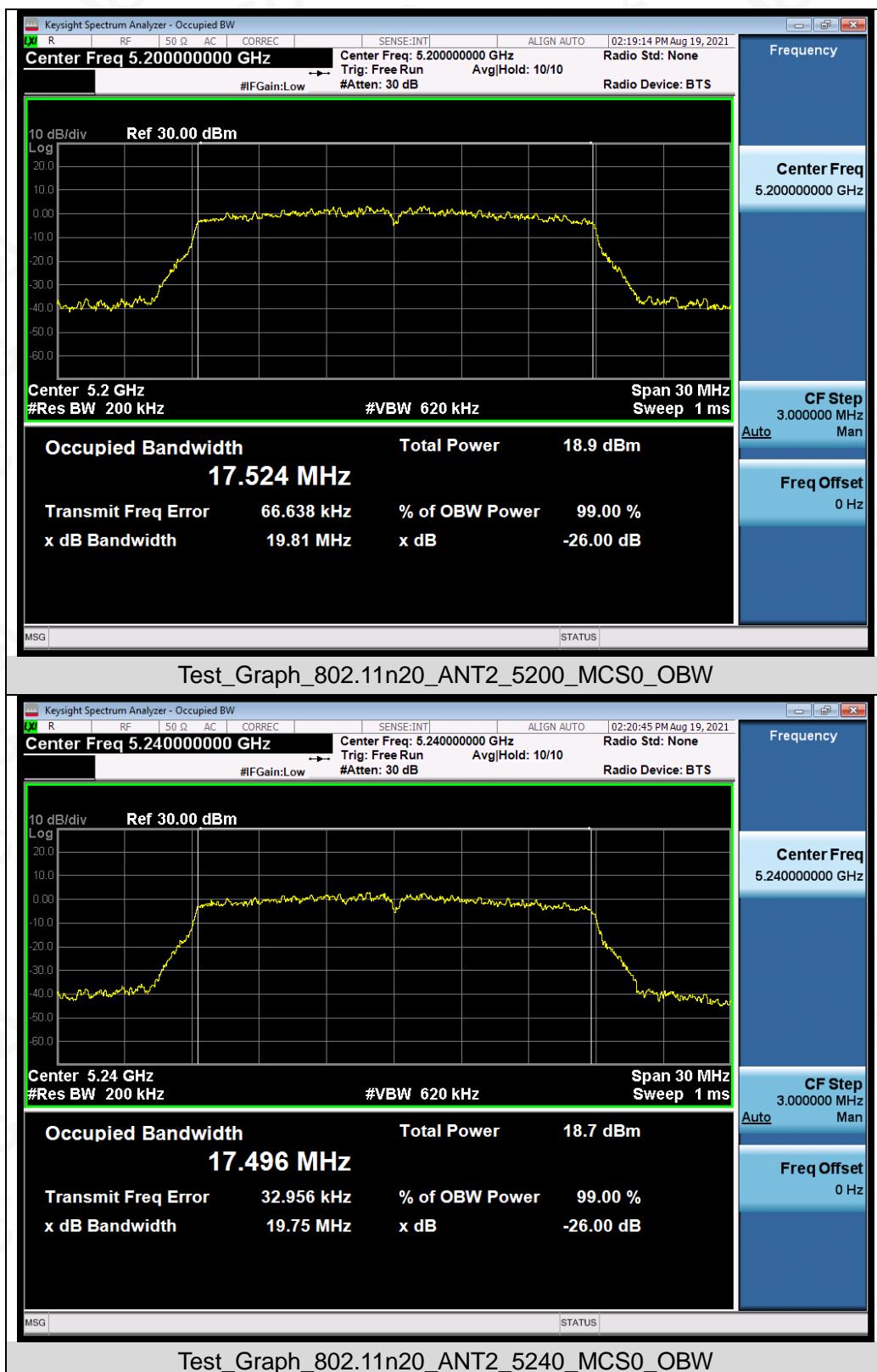
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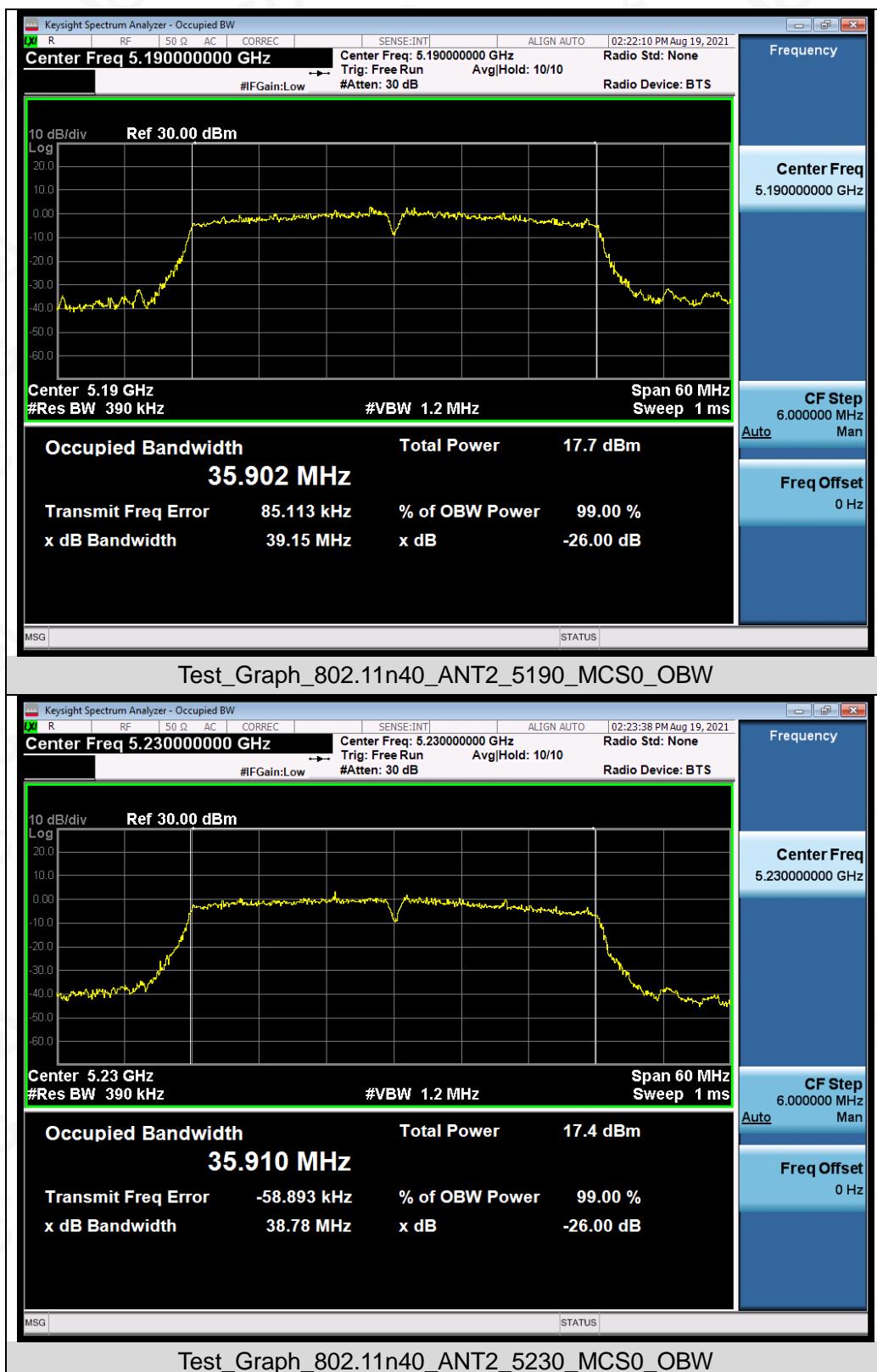
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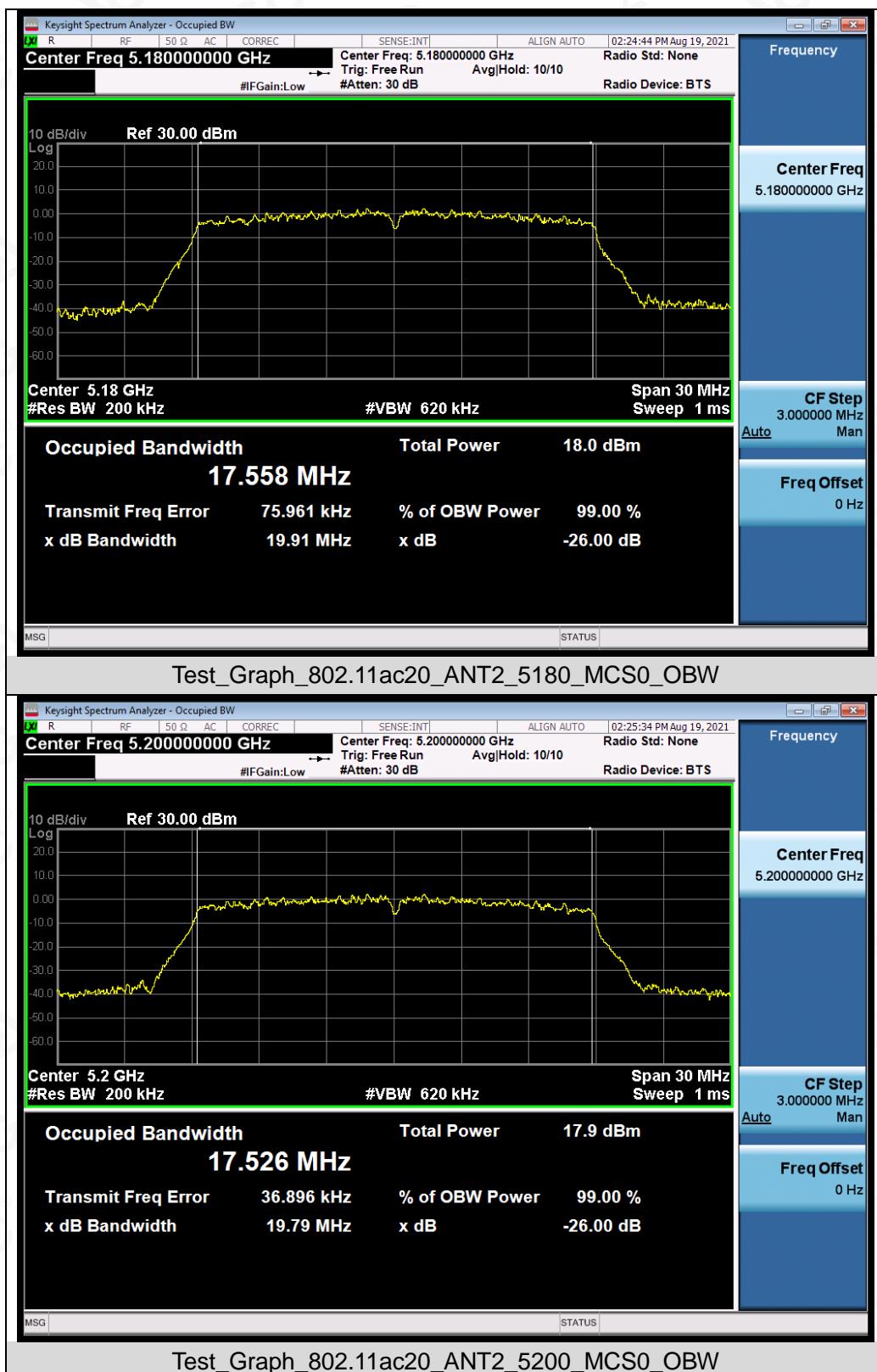
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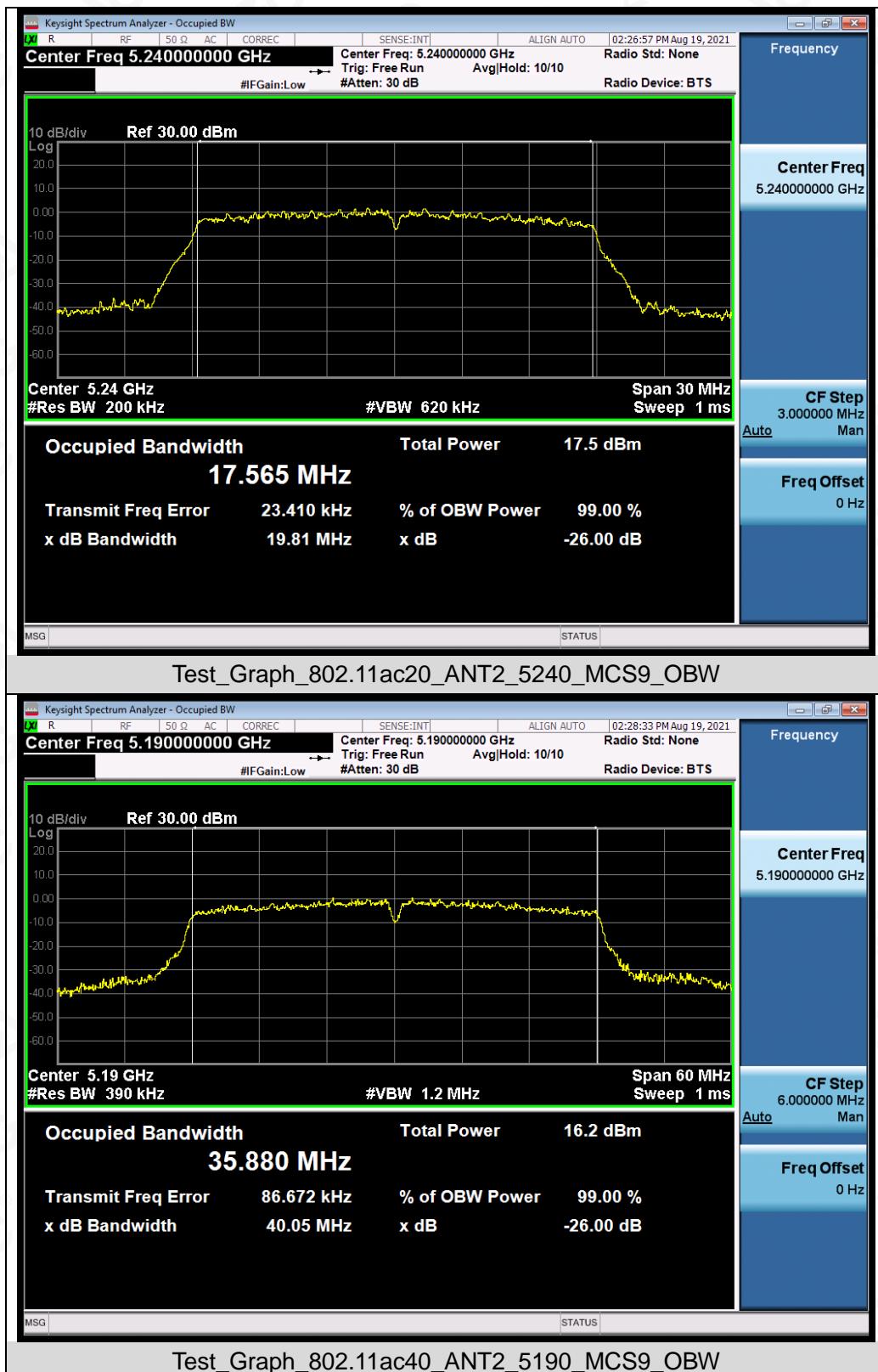
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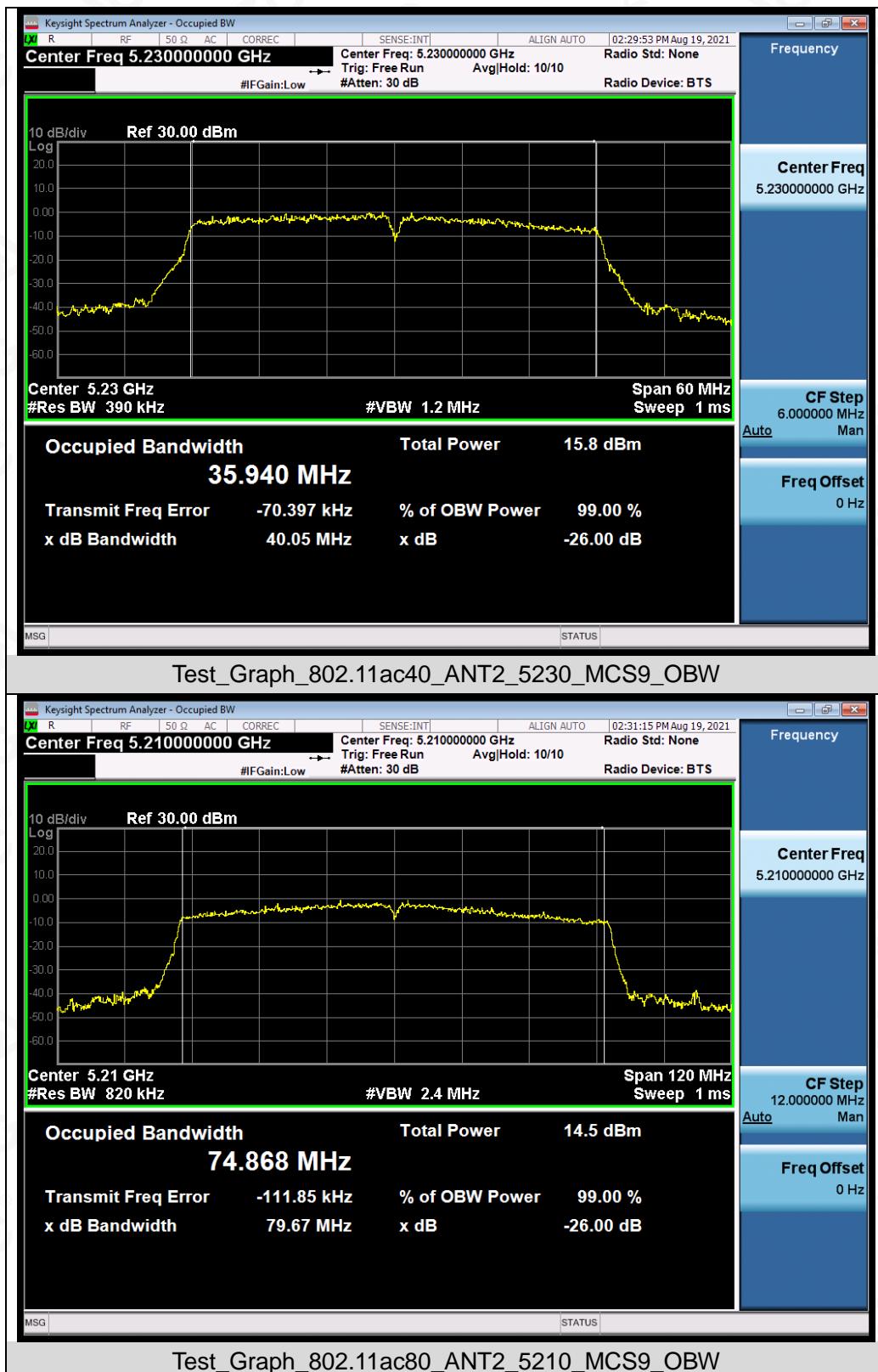
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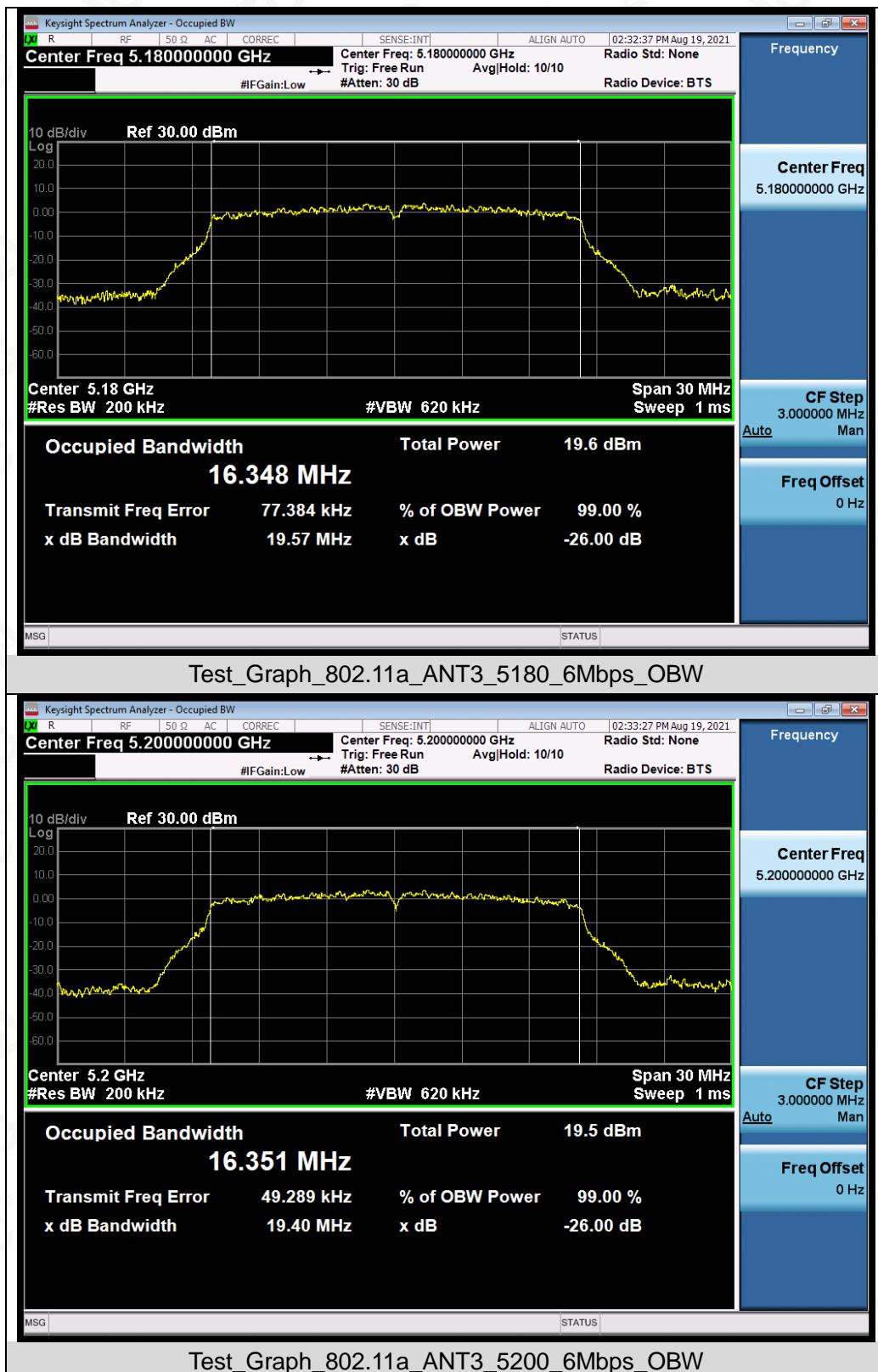
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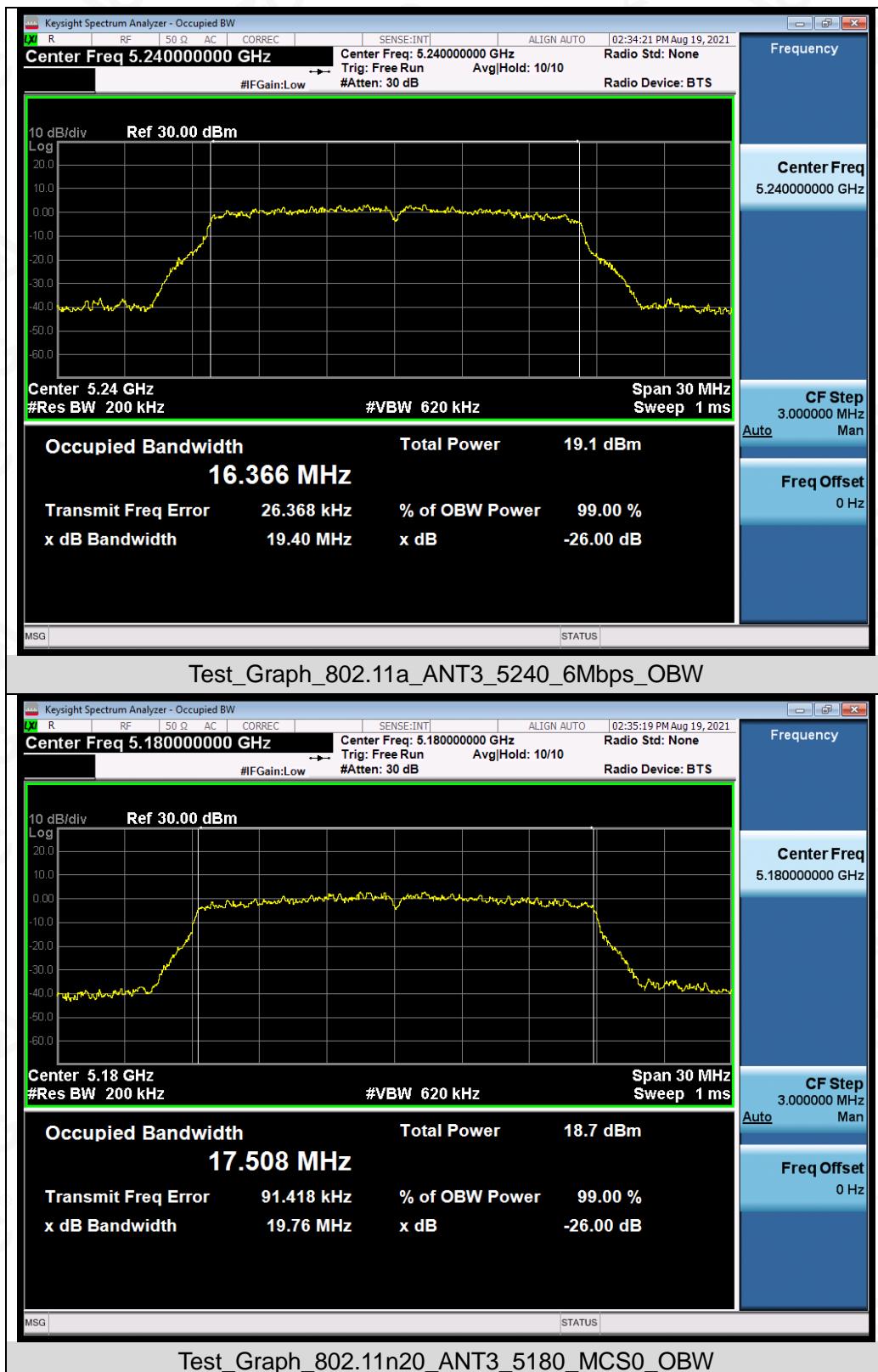
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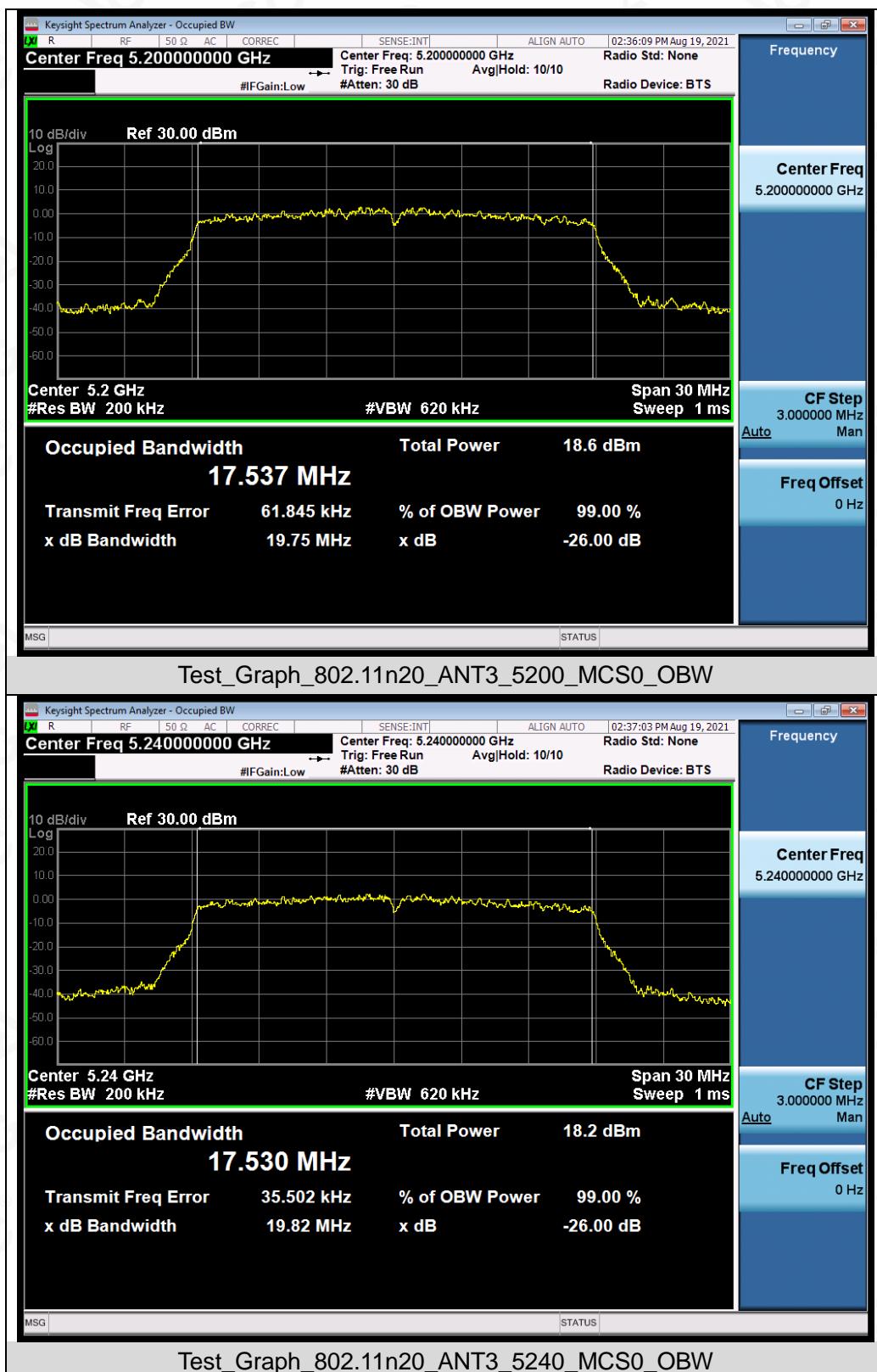
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