FCC Test Report

Report No.: AGC00408210203FE09

FCC ID	:	2AL95-M7
APPLICATION PURPOSE	:	Original Equipment
PRODUCT DESIGNATION	:	Smart phone
BRAND NAME	:	AGM
MODEL NAME	:	M7, M7 SE, M7 PRO
APPLICANT	:	AGM Group Limited
DATE OF ISSUE	:	Apr. 25, 2021
STANDARD(S) **TEST PROCEDURE(S)**	:	FCC Part 15.407 KDB 789033 D02 v02r01
REPORT VERSION	:	V1.0

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

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REPORT REVISE RECORD

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Apr. 25, 2021	Valid	Initial Release

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1. VERIFICATION OF CONFORMITY

Applicant	AGM Group Limited
Address	Level 5, Development Bank of Samoa Building. Beach Road, Apia, Samoa
Manufacturer	SHENZHEN AIJIEMO SCIENCE AND TECHNOLOGY CO.,LTD
Address	1st Floor101 and Floor 201 Building A2,Huafeng Century Technology Park,Nanchang Community xixiang Baoan District,Shenzhen China
Factory	SHENZHEN AIJIEMO SCIENCE AND TECHNOLOGY CO.,LTD
Address	1st Floor101 and Floor 201 Building A2,Huafeng Century Technology Park,Nanchang Community xixiang Baoan District,Shenzhen China
Product Designation	Smart phone
Brand Name	AGM
Test Model	M7
Series Model	M7 SE, M7 PRO
Difference Description	All the same except the model name.
Date of test	Feb. 07, 2021~Apr. 25, 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

Donjon Huang
(Project Engineer) Apr. 25, 2021

Reviewed By

Calvin Liu
(Reviewer) Apr. 25, 2021

Approved By

Forrest Lei
Authorized Officer Apr. 25, 2021

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2. GENERAL INFORMATION

2.1. PRODUCT DESCRIPTION

The EUT is designed as “Smart phone”. 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
Output Power	IEEE 802.11a20:10.74dBm; IEEE 802.11n(20):10.85dBm; IEEE802.11n(40):11.19dBm; IEEE 802.11ac(20):10.93dBm; IEEE 802.11ac(40):10.66dBm;
Modulation	BPSK, QPSK, 16QAM, 64QAM, 128QAM, 256QAM, OFDM
Number of channels	15
Hardware Version	V1.0
Software Version	V1.0
Antenna Designation	PIFA Antenna (Comply with requirements of the FCC part 15.203)
Antenna Gain	0dBi
Power Supply	DC 3.7V by battery or DC 5V by adapter.

Note:

1. The EUT is designed as indoor equipment operating without radar detection.
2. The device do not support TPC.

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2.2. TABLE OF CARRIER FREQUENCYS

Frequency Band	Channel Number	Frequency	Frequency Band	Channel Number	Frequency
5150 GHz～5250GHz	36	5180 MHz	5725 GHz～5850GHz	149	5745 MHz
	38	5190 MHz		151	5755 MHz
	40	5200 MHz		153	5765 MHz
	42	5210 MHz		155	5775MHz
	44	5220 MHz		157	5785 MHz
	46	5230 MHz		159	5795 MHz
	48	5240 MHz		161	5805 MHz
				165	5825MHz

Note: For 20MHZ bandwidth system use Channel 36,40,44,48,149,153,157,161,165; For 40MHZ bandwidth system use Channel 38,46,151,159. For 80MHZ bandwidth system use Channel 42,155.

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

This submittal(s) (test report) is intended for **FCC ID: 2AL95-M7** 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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3. 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 %

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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, 149,153,157,161,165	36,40,48, 149,157,165	OFDM	6Mbps/MCS0
802.11n/ac40	38,46,151,159	38,46, 151,159	OFDM	MCS0
802.11ac80	42, 155	42, 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.
3. The test software is through engineering commands, EUT can be set to a separate test mode.

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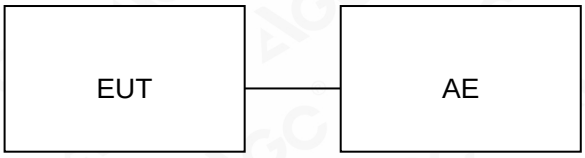
5. SYSTEM TEST CONFIGURATION

5.1. CONFIGURATION OF EUT SYSTEM

Configure 1:



5.2. EQUIPMENT USED IN EUT SYSTEM

Item	Equipment	Model No.	ID or Specification	Remark
1	Smart phone	M7	2AL95-M7	EUT
2	Adapter 1	TPA-97H050100UW01	Input: 100-240V AC 50/60Hz, 0.15A Output: DC 5.0V 1A	AE
3	Adapter 2	DCS10-0501000F	Input: 100-240V AC 50/60Hz, 0.3A Output: DC 5.0V 1A	AE
4	Adapter 3	TPA-46B050100UU	Input: 100-240V AC 50/60Hz, 0.2A Output: DC 5.0V 1A	AE
5	Battery	M2500	DC 3.7V 2500mAh	AE

5.3. SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
§15.407	6dB 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, 2020	May 14, 2021
LISN	R&S	ESH2-Z5	100086	Jul. 03,2020	Jul. 02,2021
Test software	FARA	ES-K1 (Ver.AGC-CON03A1)	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, 2020	May 14, 2021
EXA Signal Analyzer	Aglient	N9010A	MY53470504	Dec. 07, 2020	Dec. 06, 2021
Power sensor	Aglient	U2021XA	MY54110007	Jun. 08, 2020	Jun. 07, 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	00225134	Sep. 03, 2020	Sep. 02, 2021
Broadband Preamplifier	ETS LINDGREN	3117PA	00225134	Jan. 08, 2021	Jan. 07, 2023
ANTENNA	SCHWARZBECK	VULB9168	494	Sep. 03, 2020	Sep. 02, 2021
Test software	Tonscend	JS32-RE (Ver.2.5)	N/A	N/A	N/A
Test software	FARA	EZ-EMC (Ver.RA-03A)	N/A	N/A	N/A

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7. MAXIMUM CONDUCTED OUTPUT POWER

7.1. MEASUREMENT PROCEDURE

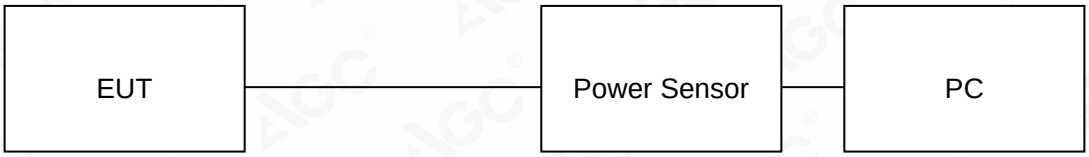
For average power test:

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				
Test Mode	Test Channel (MHz)	Average Power (dBm)	Limits (dBm)	Pass or Fail
802.11a	5180	10.01	24	Pass
	5200	10.26	24	Pass
	5240	10.74	24	Pass
802.11n20	5180	9.15	24	Pass
	5200	10.45	24	Pass
	5240	10.85	24	Pass
802.11n40	5190	10.92	24	Pass
	5230	11.19	24	Pass
802.11ac20	5180	10.13	24	Pass
	5200	10.21	24	Pass
	5240	10.93	24	Pass
802.11ac40	5190	10.66	24	Pass
	5230	10.35	24	Pass

Test Data of Conducted Output Power for band 5.725-5.85 GHz				
Test Mode	Test Channel (MHz)	Average Power (dBm)	Limits (dBm)	Pass or Fail
802.11a	5745	8.82	30	Pass
	5785	8.23	30	Pass
	5825	7.82	30	Pass
802.11n20	5745	8.78	30	Pass
	5785	8.13	30	Pass
	5825	7.69	30	Pass
802.11n40	5755	9.47	30	Pass
	5795	8.91	30	Pass
802.11ac20	5745	8.88	30	Pass
	5785	8.26	30	Pass
	5825	7.80	30	Pass
802.11ac40	5755	9.49	30	Pass
	5795	9.06	30	Pass

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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 ⩾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.

99% occupied bandwidth:

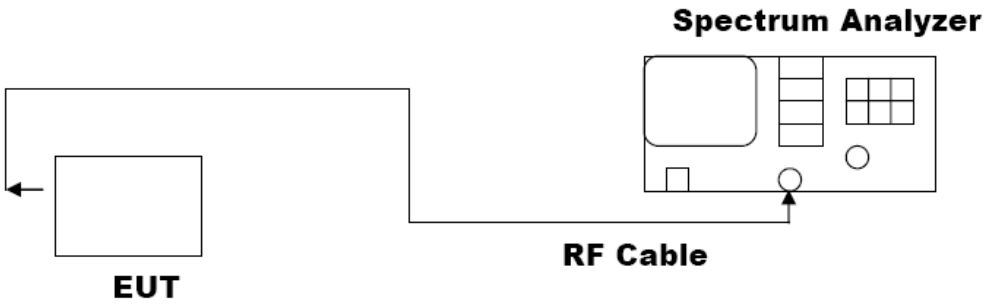
1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
2. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
3. Set Span = approximately 1.5 to 5 times the OBW, centered on a nominal channel
   The nominal IF filter bandwidth (3 dB RBW) shall 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					
Test Mode	Test Channel (MHz)	99% Occupied Bandwidth (MHz)	-26dB Bandwidth (MHz)	Limits (MHz)	Pass or Fail
802.11a	5180	16.535	20.249	N/A	Pass
	5200	16.553	20.141	N/A	Pass
	5240	16.563	21.289	N/A	Pass
802.11n20	5180	17.609	20.929	N/A	Pass
	5200	17.608	21.186	N/A	Pass
	5240	17.621	21.808	N/A	Pass
802.11n40	5190	36.035	48.532	N/A	Pass
	5230	36.052	52.115	N/A	Pass
802.11ac20	5180	17.607	21.047	N/A	Pass
	5200	17.605	20.268	N/A	Pass
	5240	17.592	21.614	N/A	Pass
802.11ac40	5190	36.043	52.071	N/A	Pass
	5230	36.044	53.663	N/A	Pass

Test Data of Occupied Bandwidth and DTS Bandwidth for band 5.725-5.85 GHz					
Test Mode	Test Channel (MHz)	99% Occupied Bandwidth (MHz)	DTS Bandwidth (MHz)	Limits (MHz)	Pass or Fail
802.11a	5745	17.022	15.127	0.5	Pass
	5785	16.985	15.136	0.5	Pass
	5825	16.829	15.094	0.5	Pass
802.11n20	5745	17.982	15.137	0.5	Pass
	5785	17.900	16.056	0.5	Pass
	5825	17.805	15.138	0.5	Pass
802.11n40	5755	36.546	35.176	0.5	Pass
	5795	36.464	35.182	0.5	Pass
802.11ac20	5745	17.962	15.085	0.5	Pass
	5785	17.911	15.118	0.5	Pass
	5825	17.836	15.122	0.5	Pass
802.11ac40	5755	36.487	35.176	0.5	Pass
	5795	36.367	35.175	0.5	Pass

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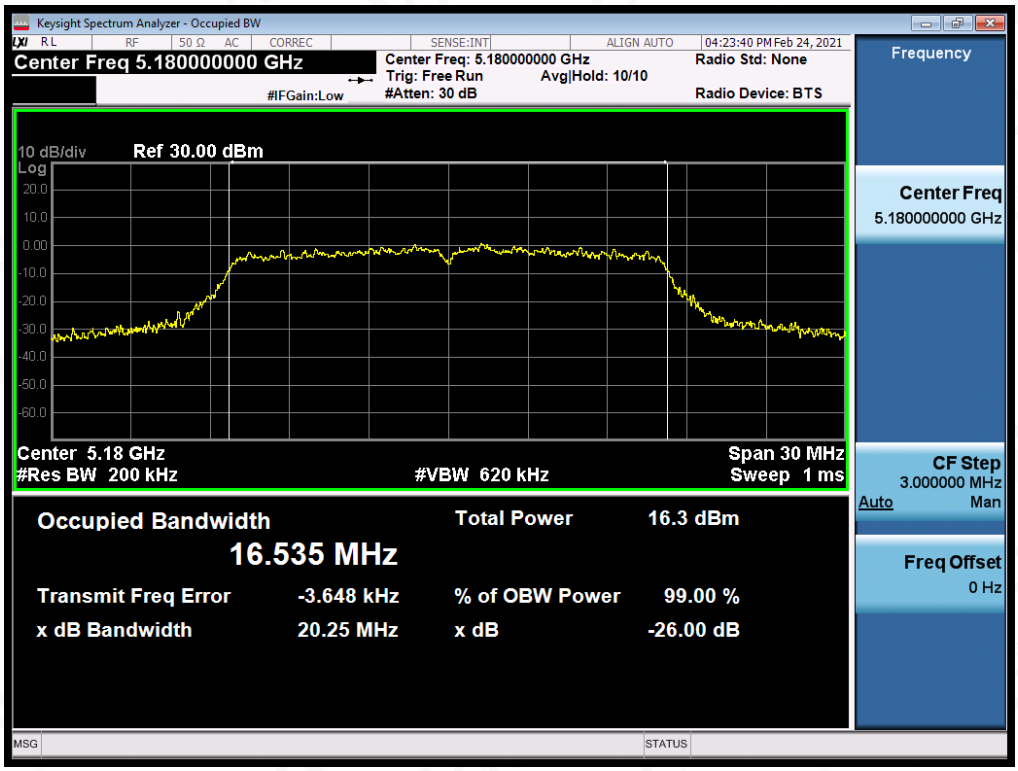
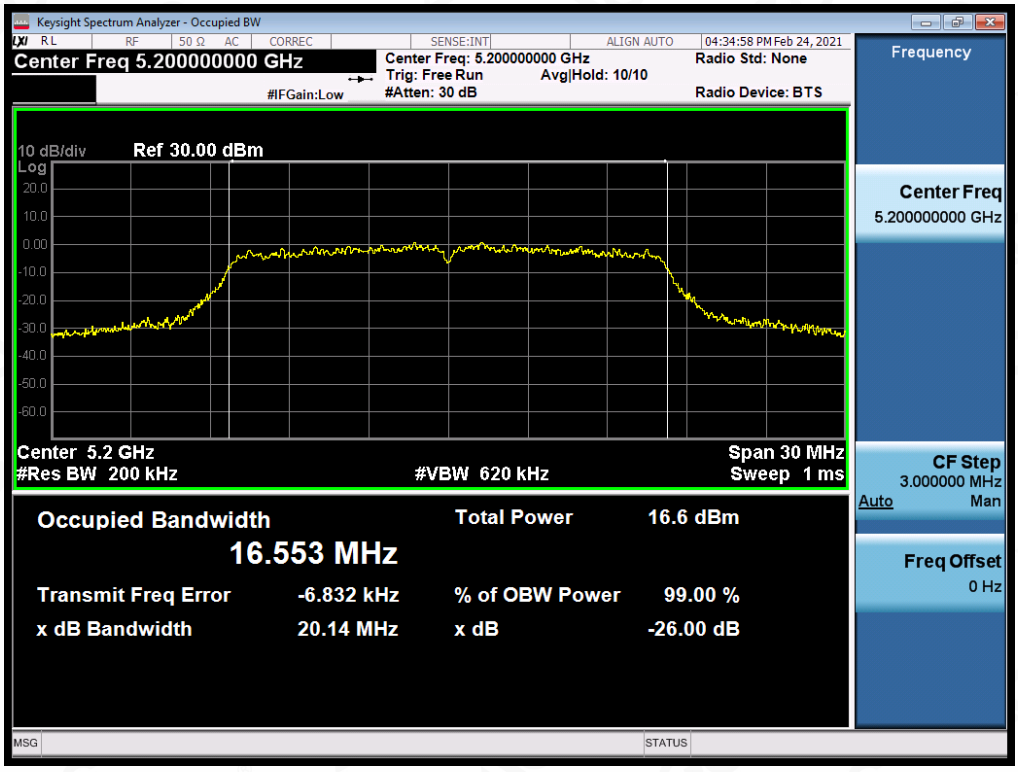
Test Graphs of Occupied Bandwidth and -26dB Bandwidth for band 5.15-5.25 GHz



Test_Graph_802.11a_ANT1_5180_6Mbps_OBW



Test_Graph_802.11a_ANT1_5200_6Mbps_OBW

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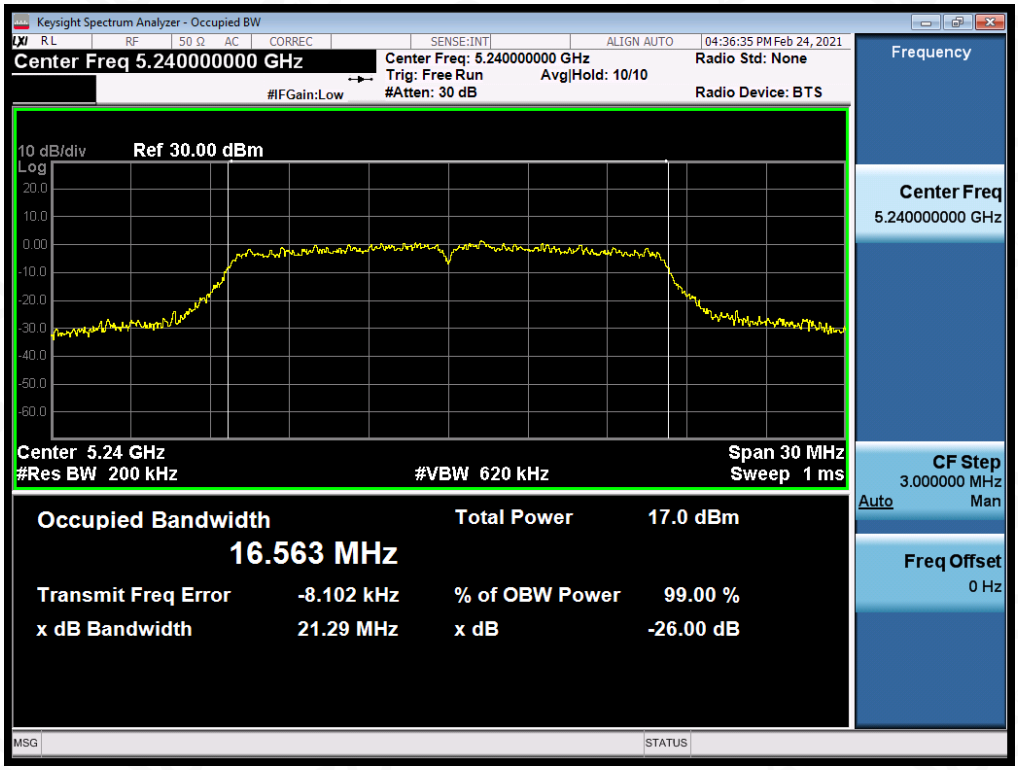
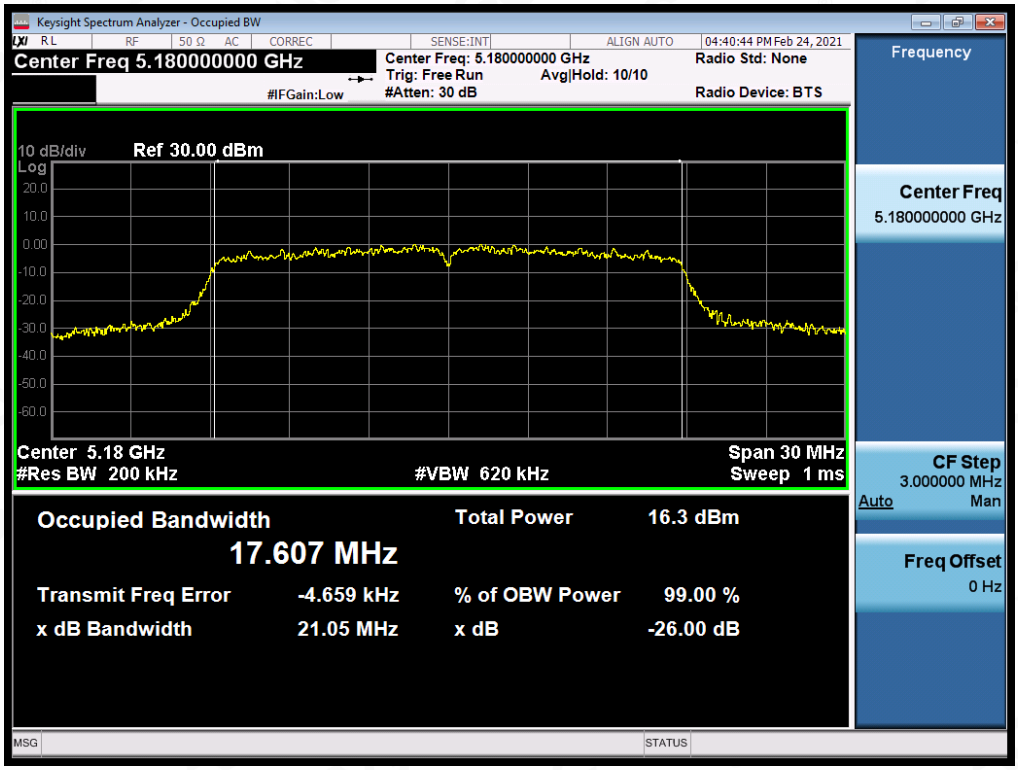


Test_Graph_802.11a_ANT1_5240_6Mbps_OBW



Test_Graph_802.11n20_ANT1_5180_MCS0_OBW

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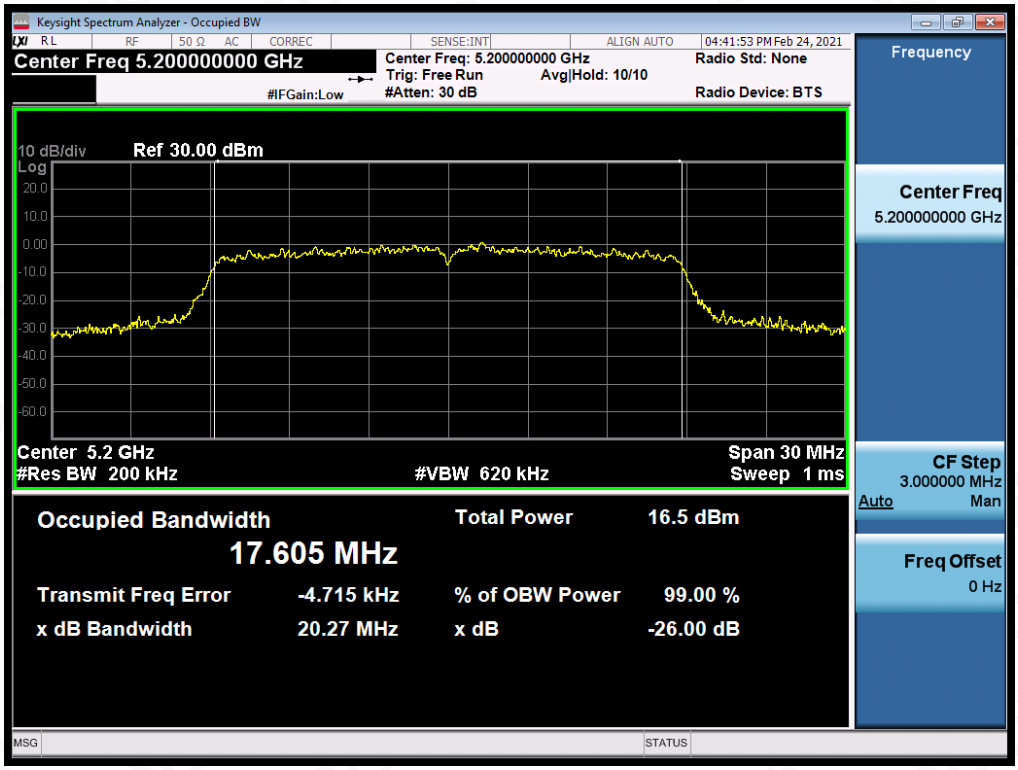
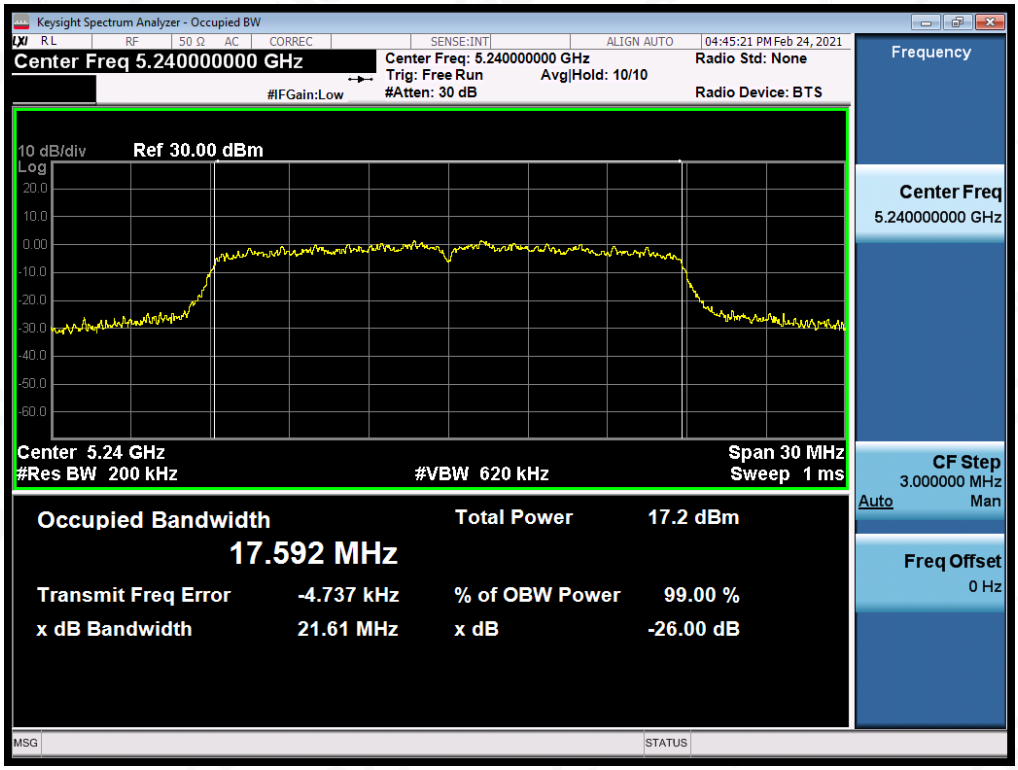


Test_Graph_802.11n20_ANT1_5200_MCS0_OBW



Test_Graph_802.11n20_ANT1_5240_MCS0_OBW

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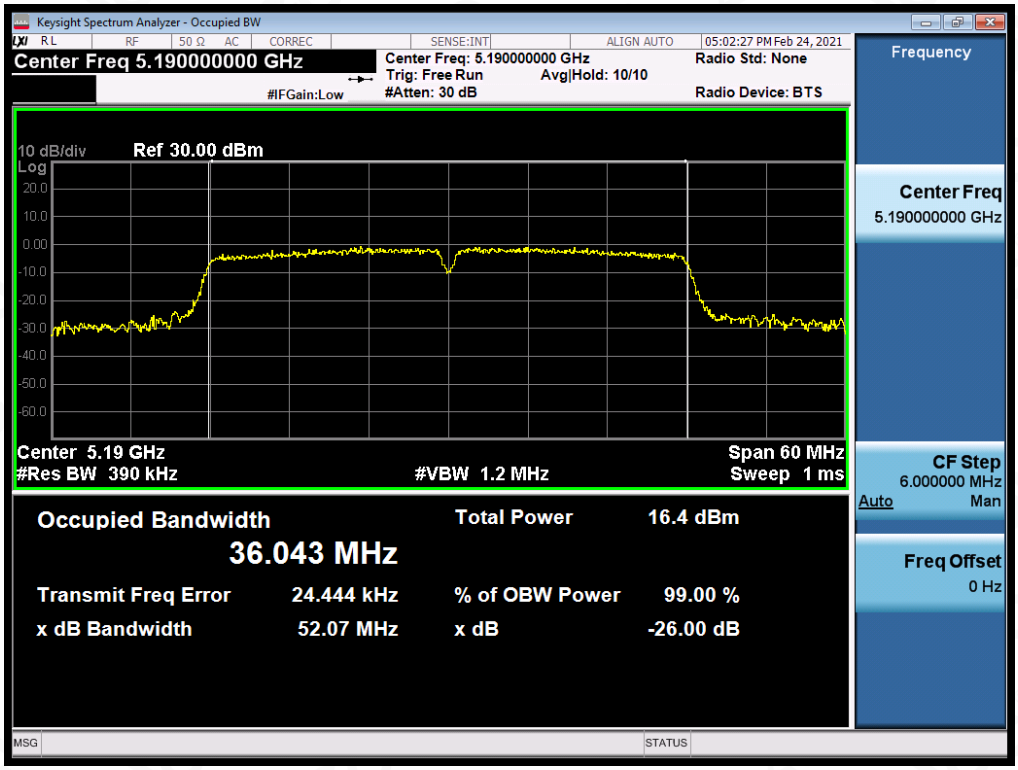
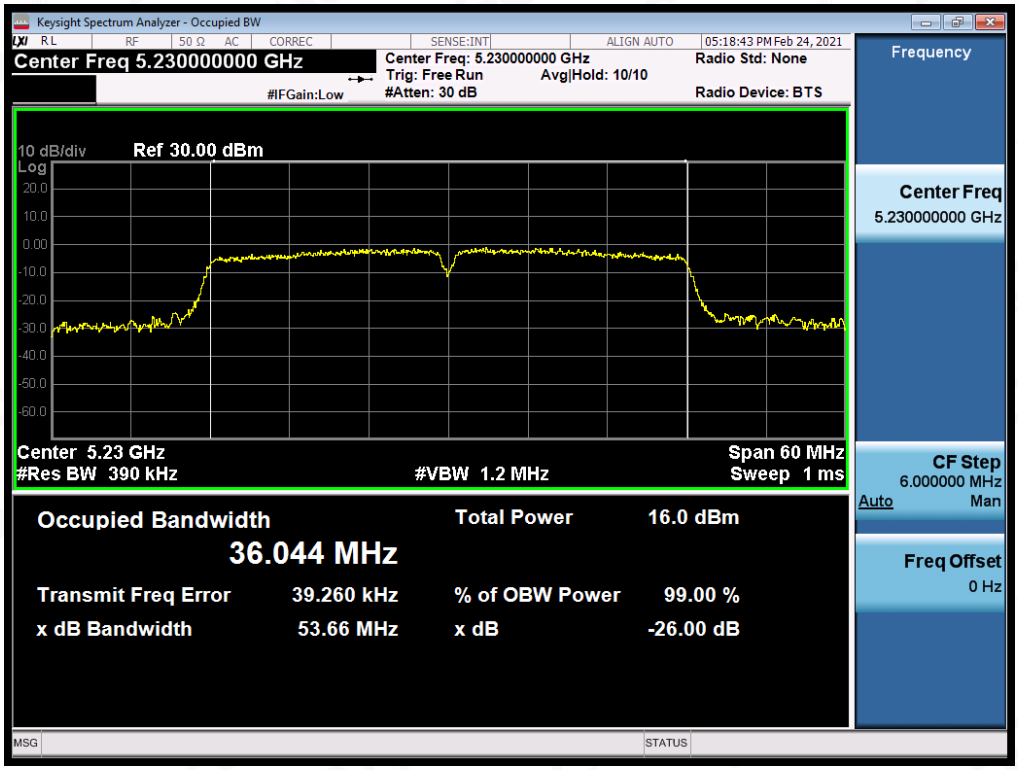


Test_Graph_802.11n40_ANT1_5190_MCS0_OBW



Test_Graph_802.11n40_ANT1_5230_MCS0_OBW

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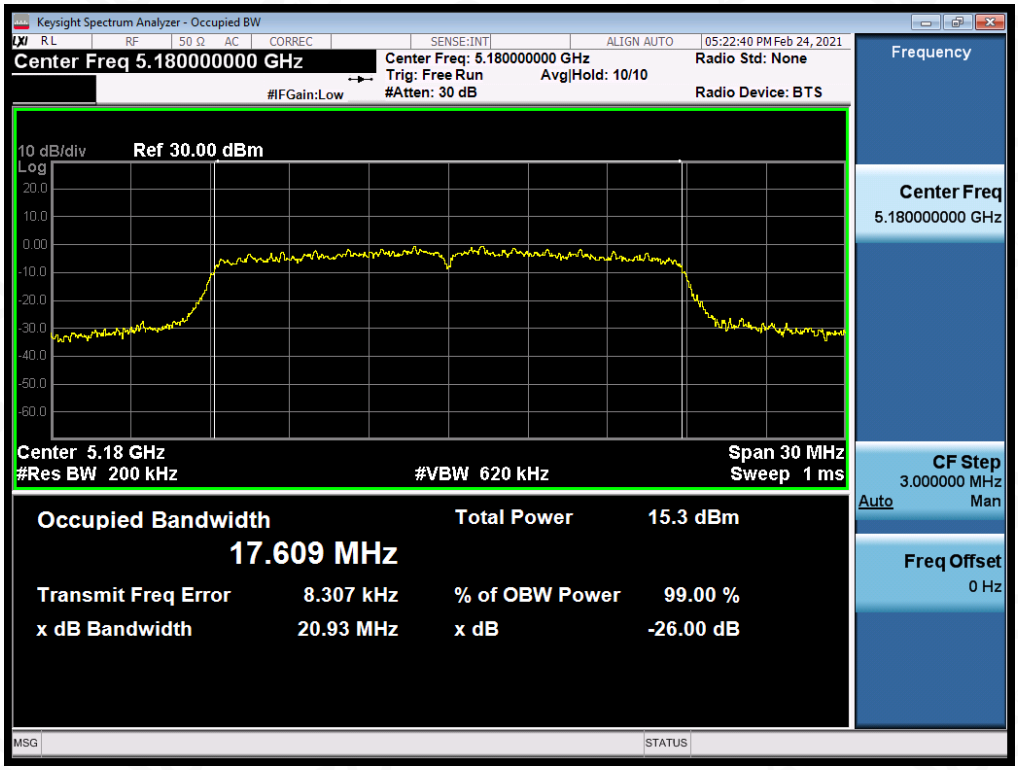
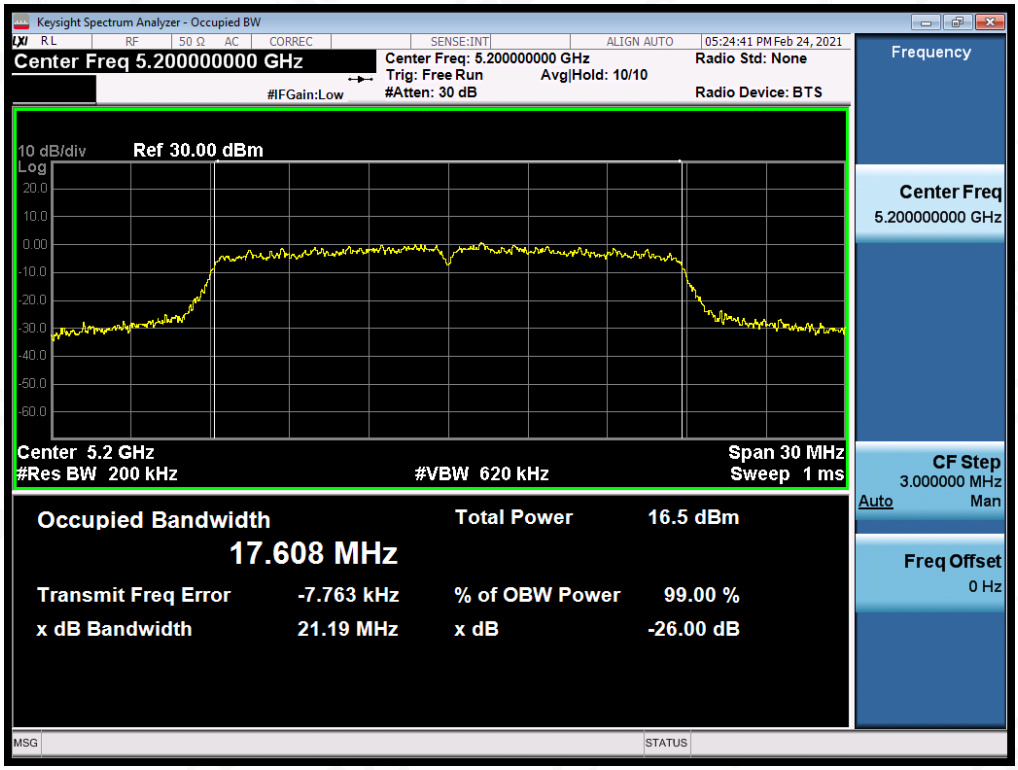


Test_Graph_802.11ac20_ANT1_5180_MCS0_OBW



Test_Graph_802.11ac20_ANT1_5200_MCS0_OBW

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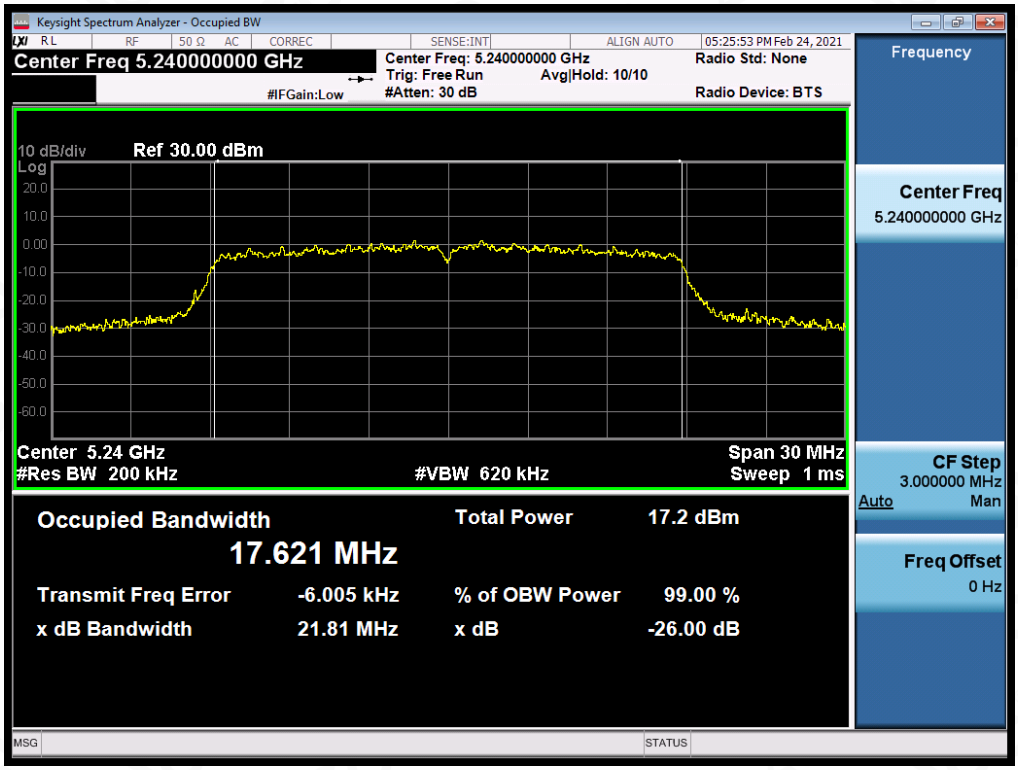
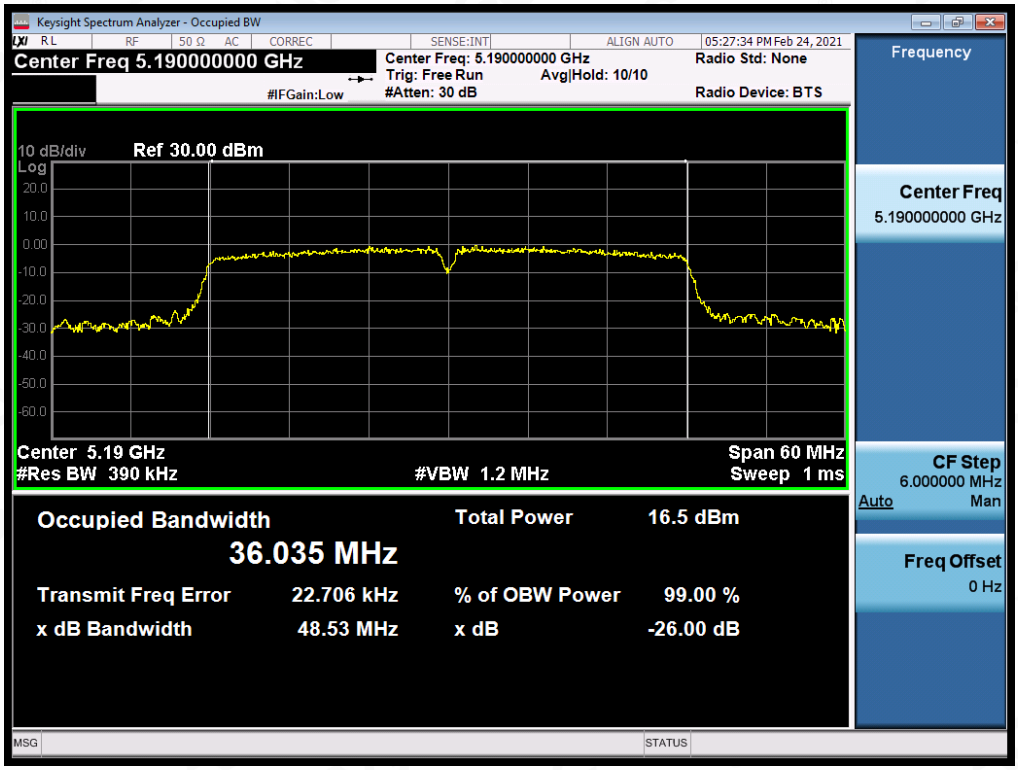


Test_Graph_802.11ac20_ANT1_5240_MCS9_OBW



Test_Graph_802.11ac40_ANT1_5190_MCS9_OBW

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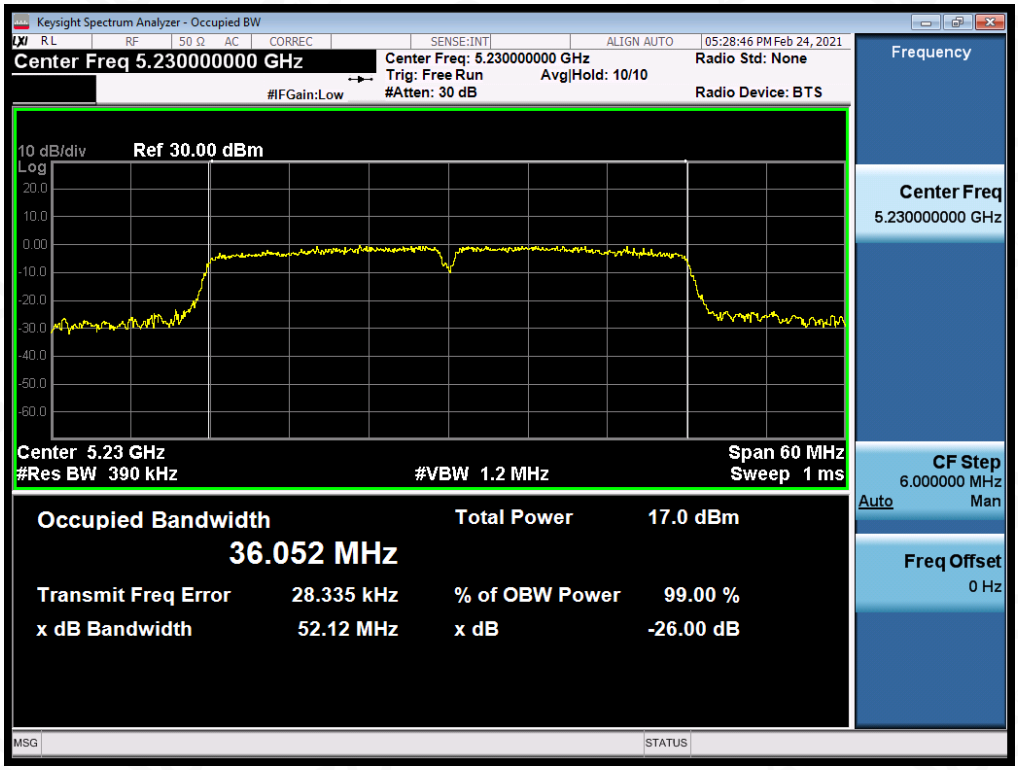

Test_Graph_802.11ac40_ANT1_5230_MCS9_OBW

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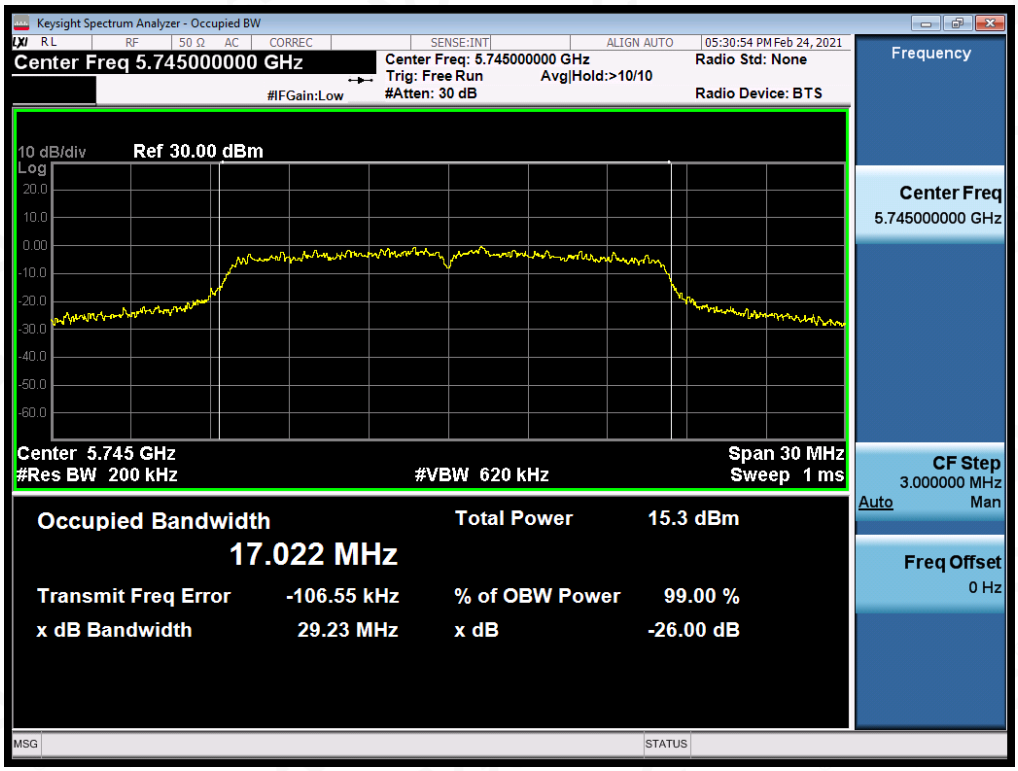
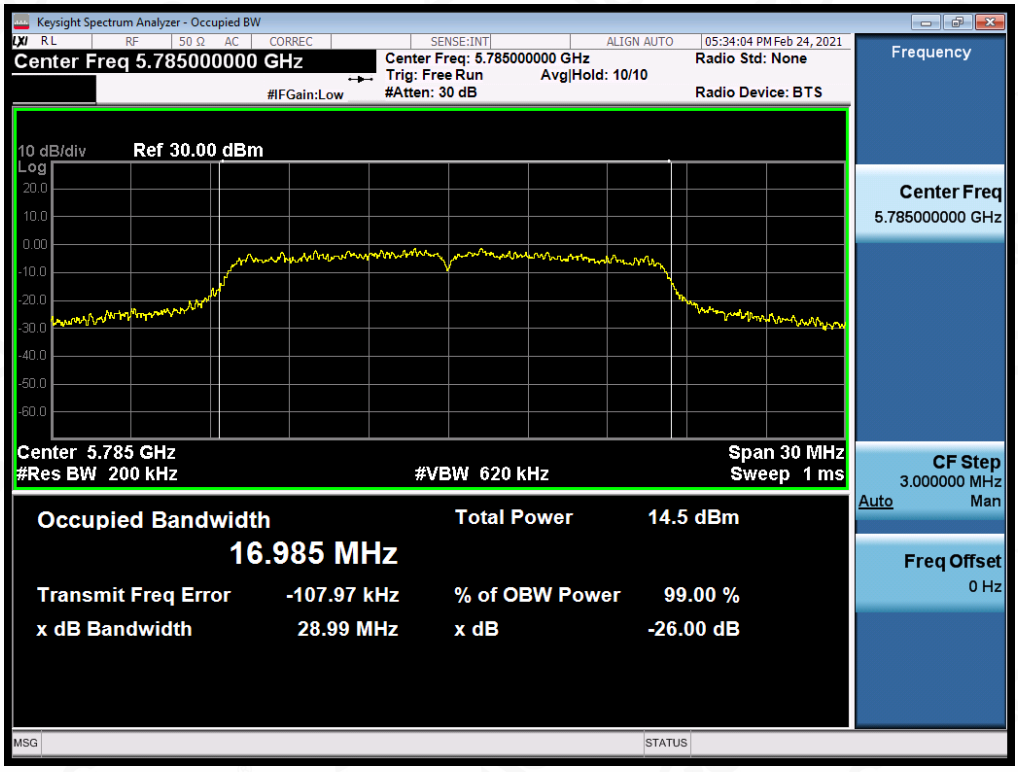
Test Graphs of Occupied Bandwidth for band 5.725-5.85 GHz



Test_Graph_802.11a_ANT1_5745_6Mbps_OBW



Test_Graph_802.11a_ANT1_5785_6Mbps_OBW

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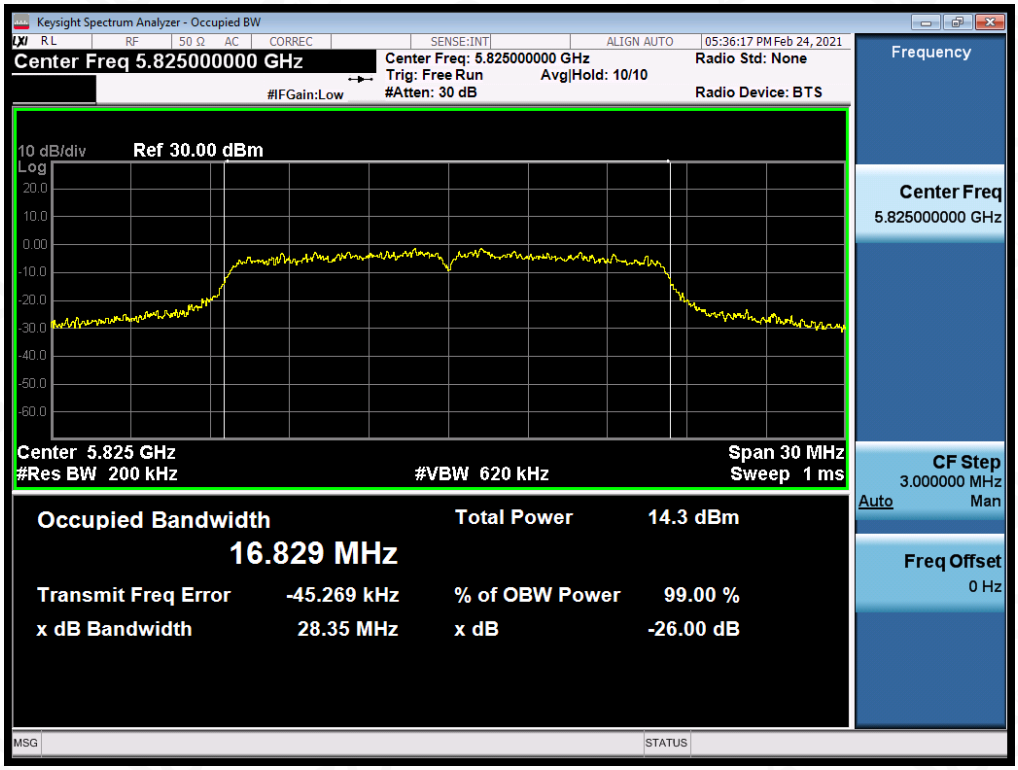

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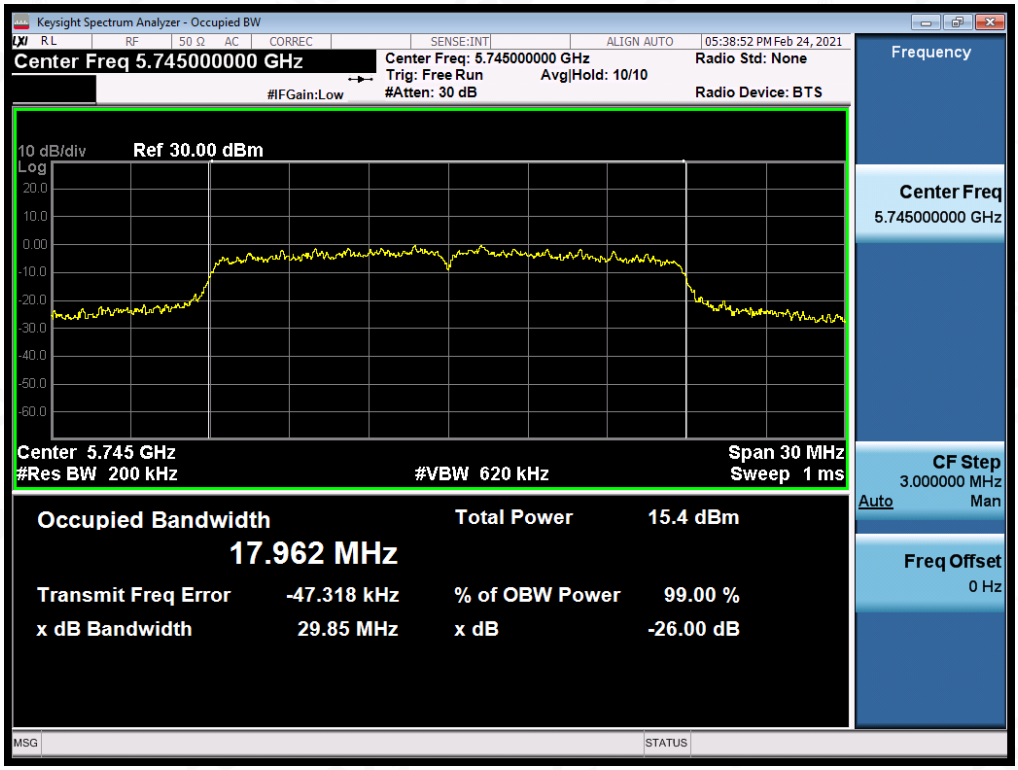

Test_Graph_802.11n20_ANT1_5745_MCS0_OBW

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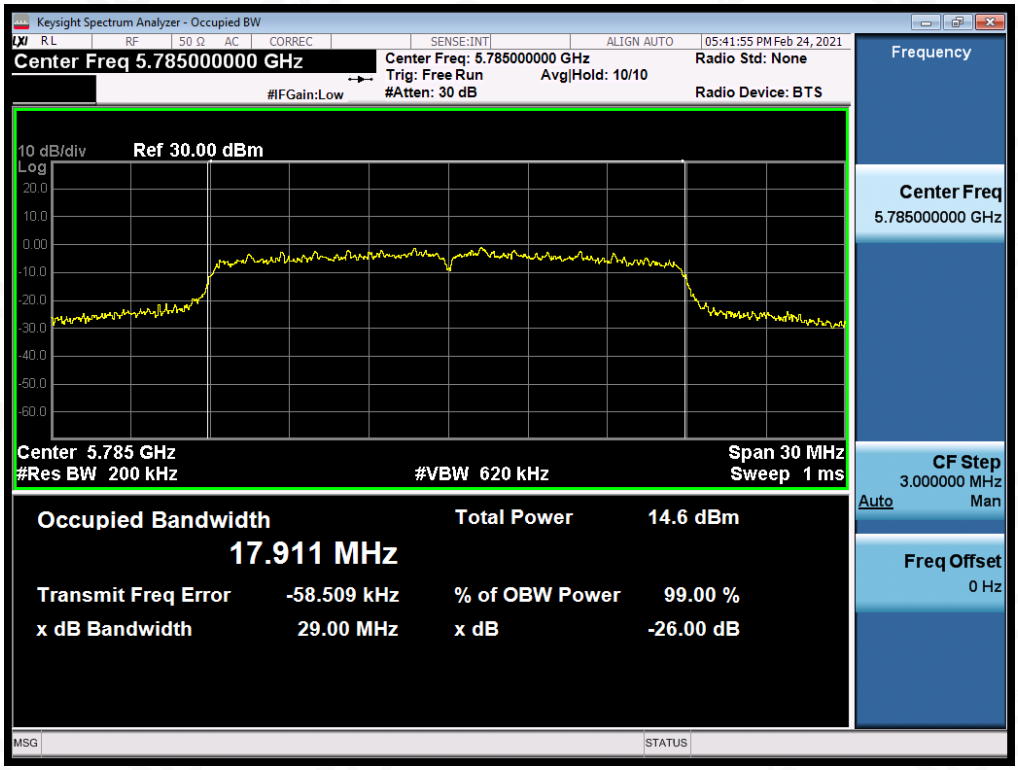

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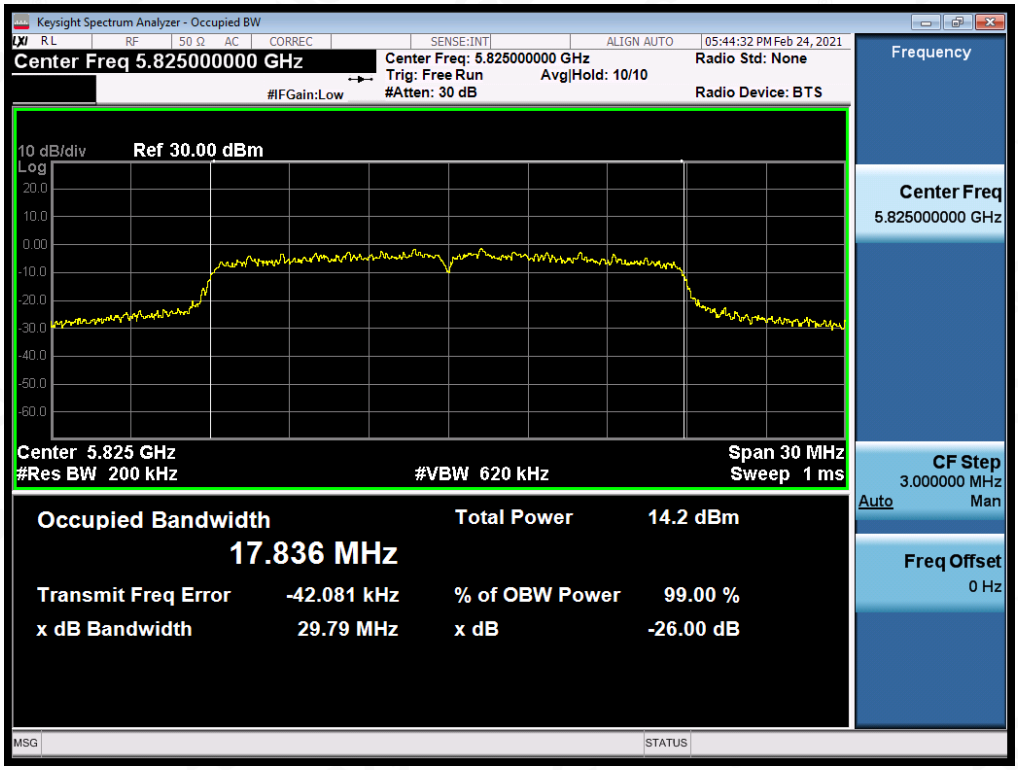

Test_Graph_802.11n20_ANT1_5825_MCS0_OBW

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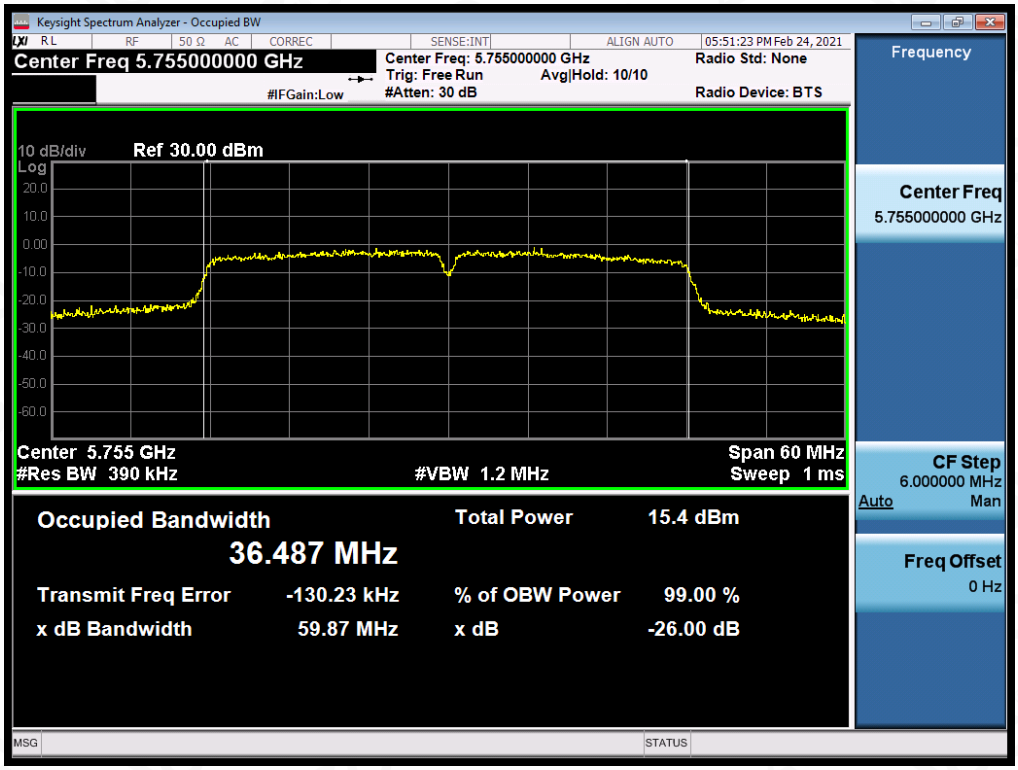
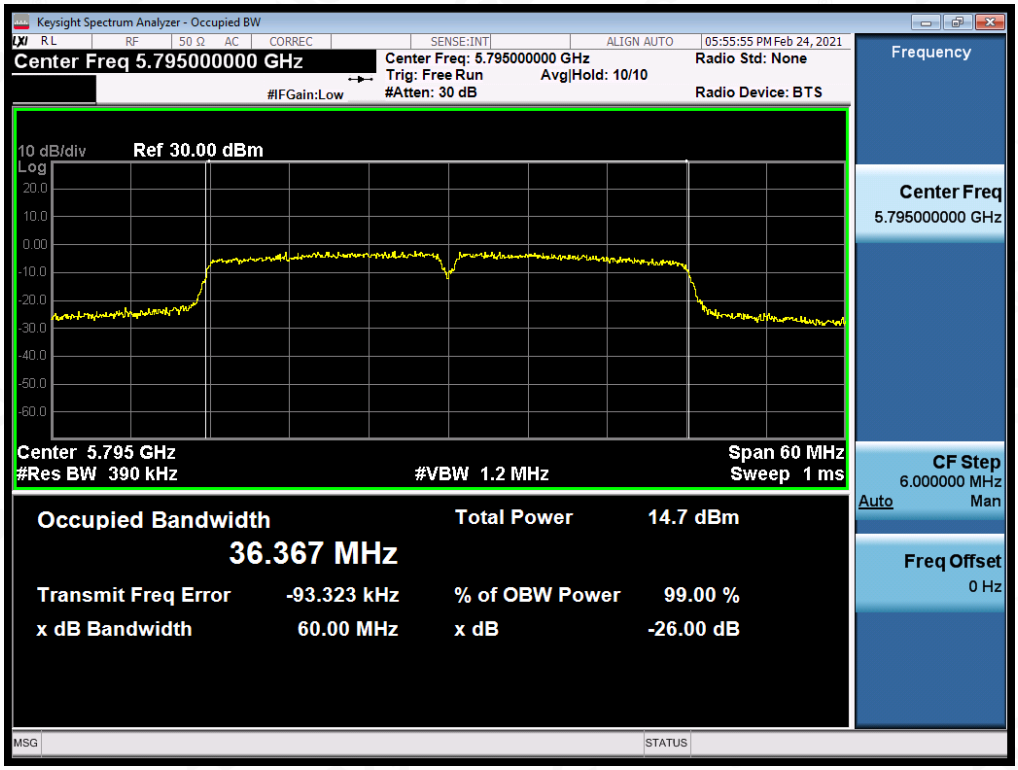


Test_Graph_802.11n40_ANT1_5755_MCS0_OBW



Test_Graph_802.11n40_ANT1_5795_MCS0_OBW

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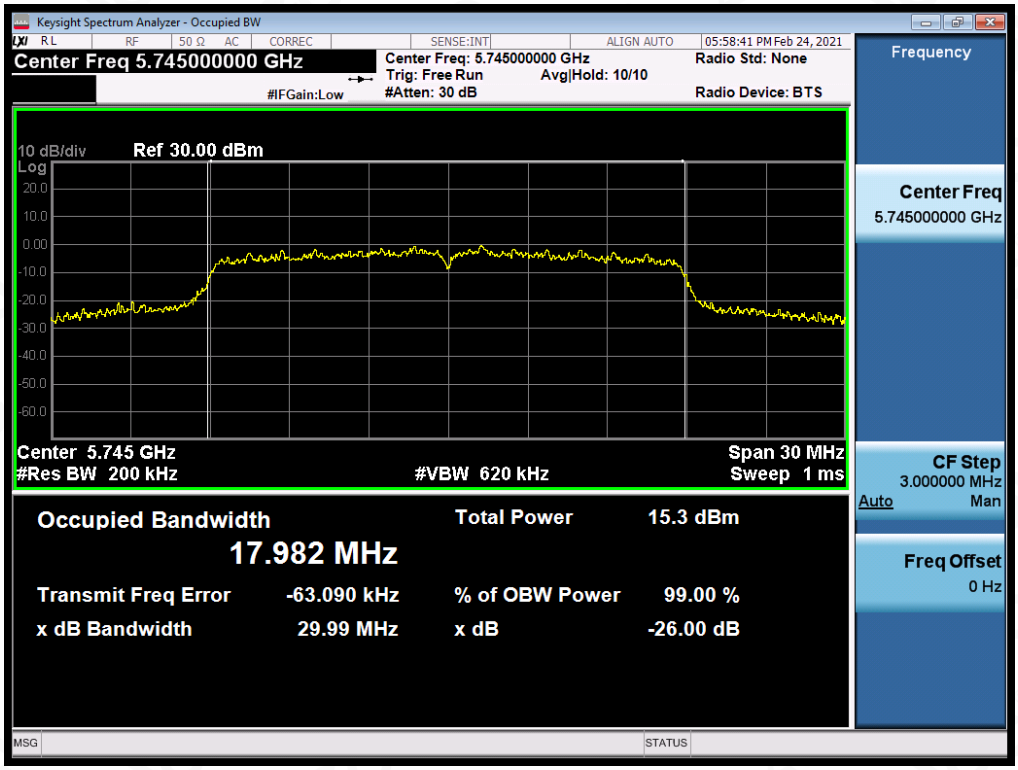

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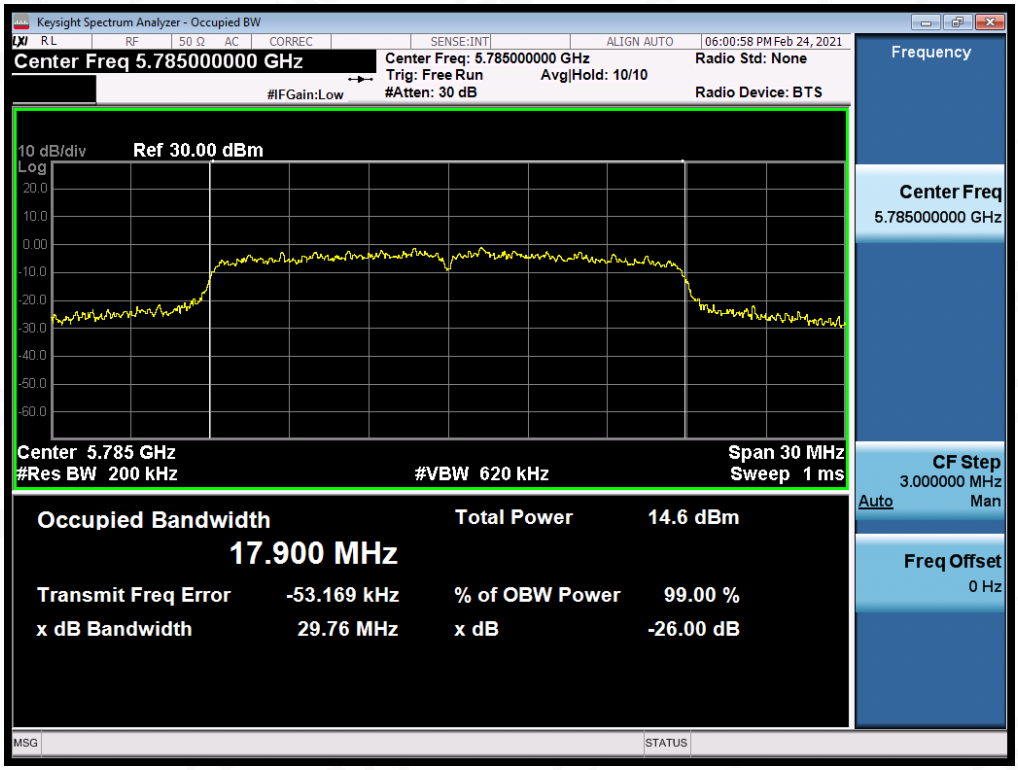

Test_Graph_802.11ac20_ANT1_5785_MCS0_OBW

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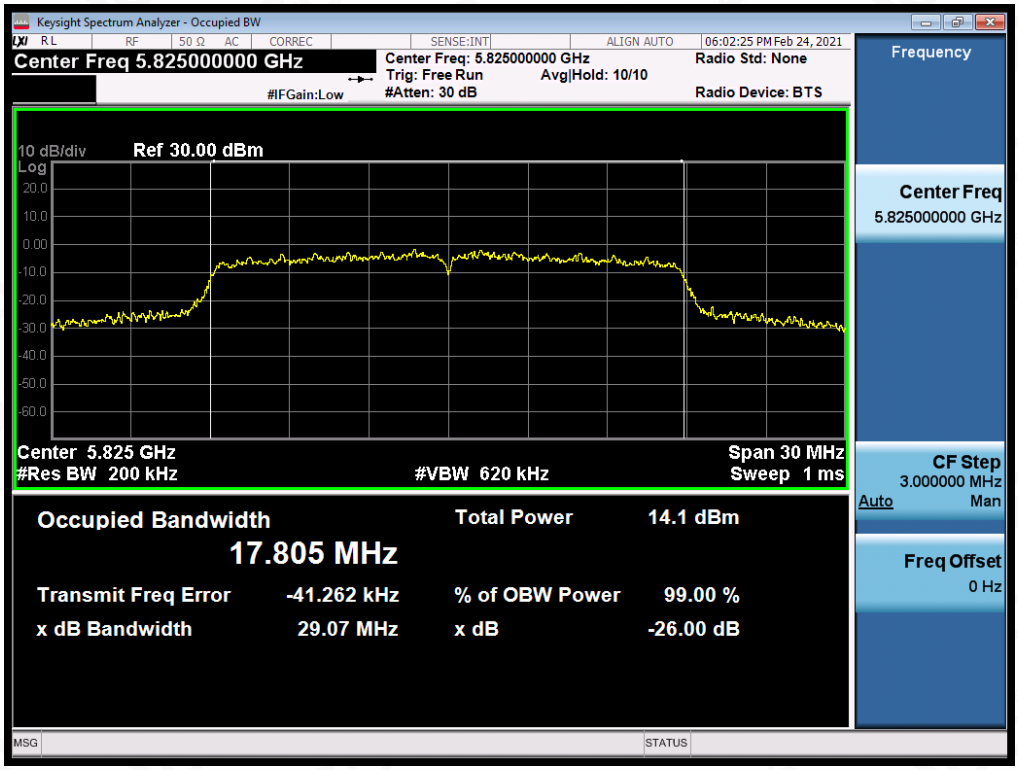

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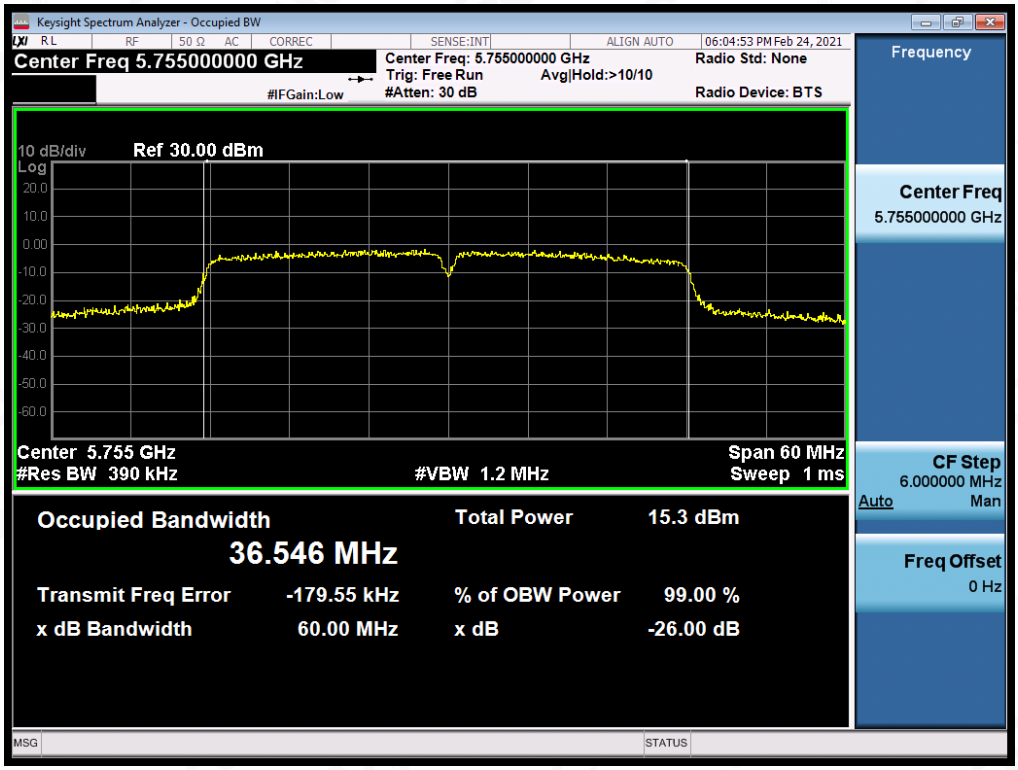

Test_Graph_802.11ac40_ANT1_5755_MCS9_OBW

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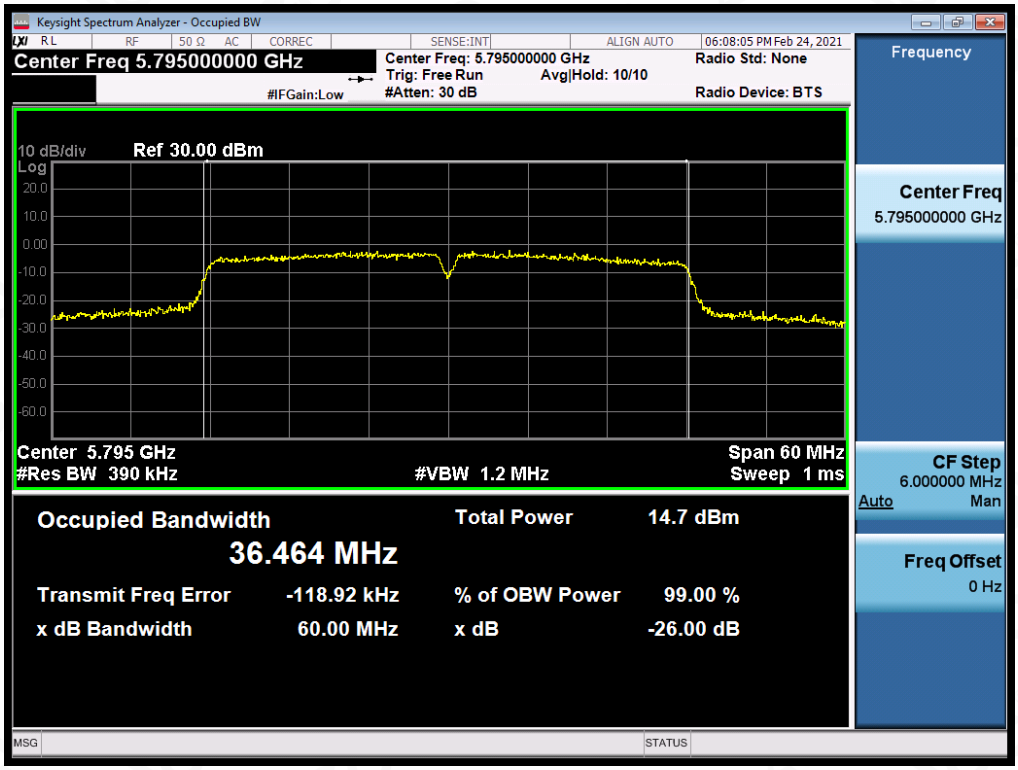

Test_Graph_802.11ac40_ANT1_5795_MCS9_OBW

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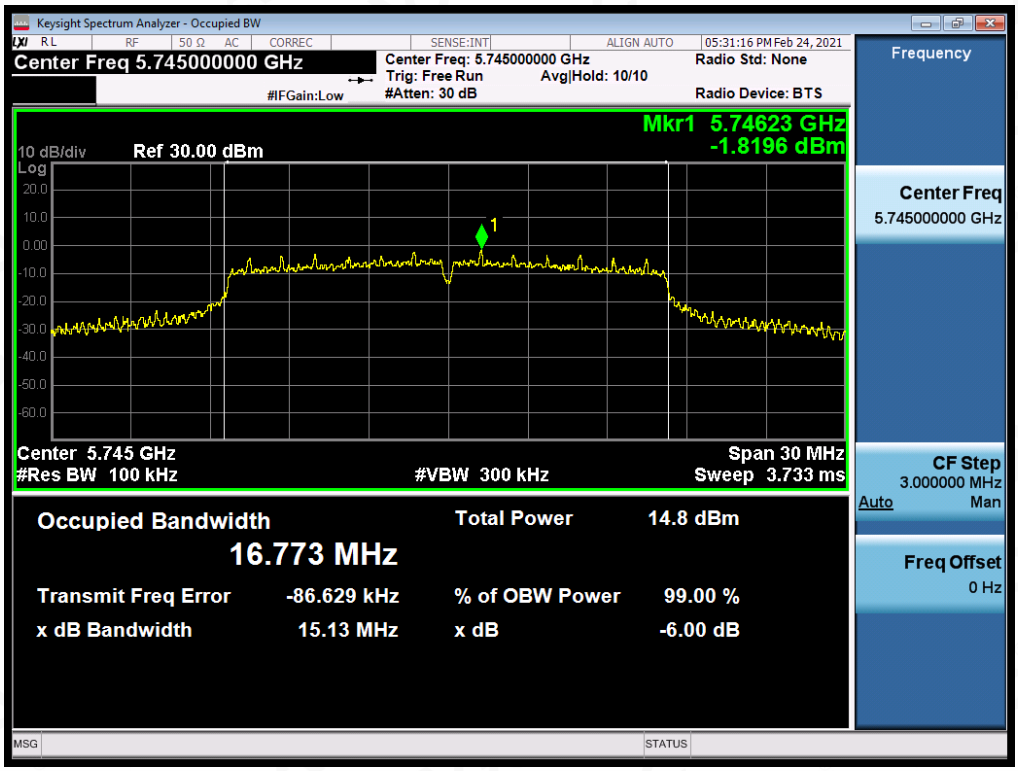
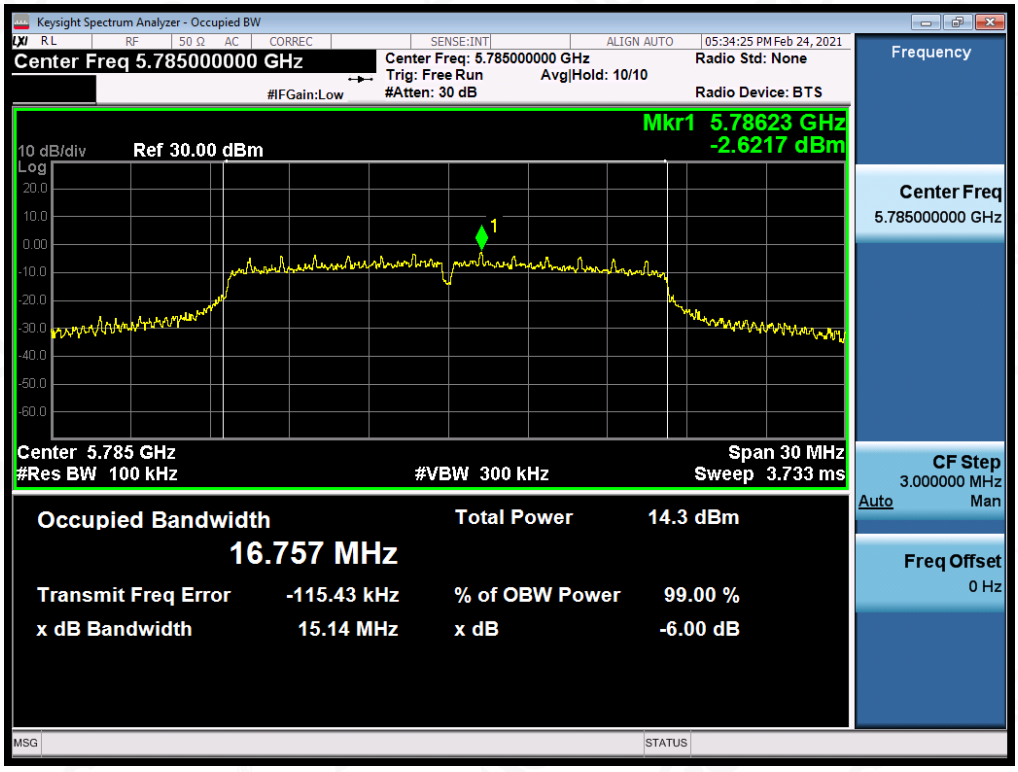
Test Graphs of DTS Bandwidth for band 5.725-5.85 GHz



Test_Graph_802.11a_ANT1_5745_6Mbps_DTSBW



Test_Graph_802.11a_ANT1_5785_6Mbps_DTSBW

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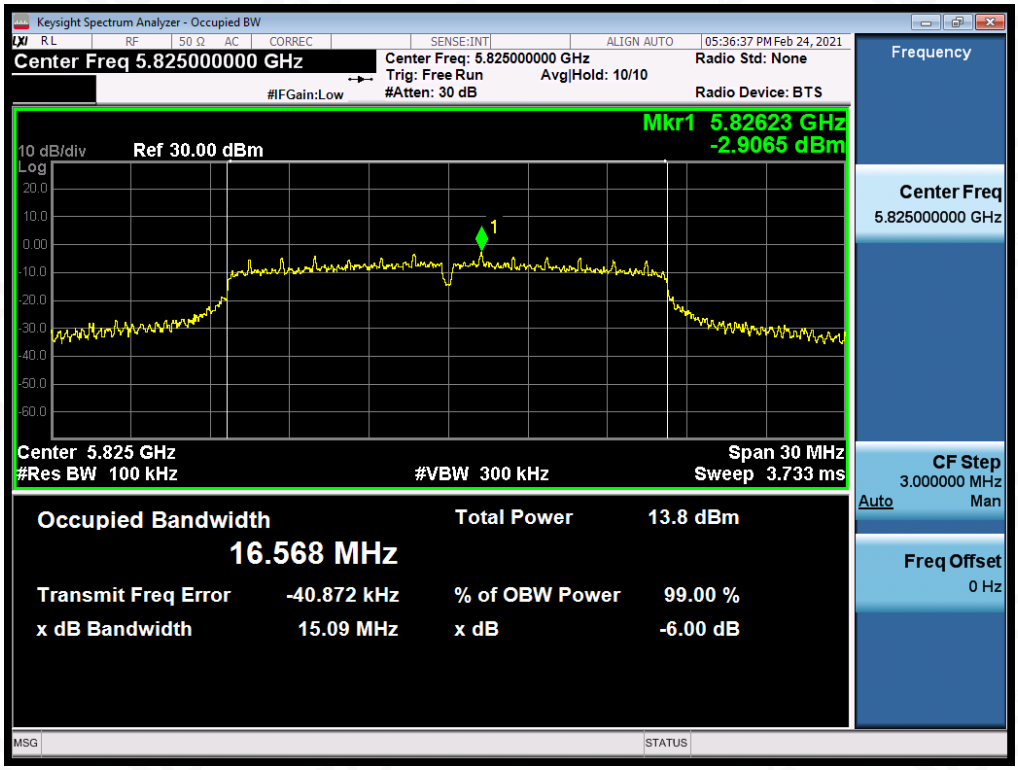
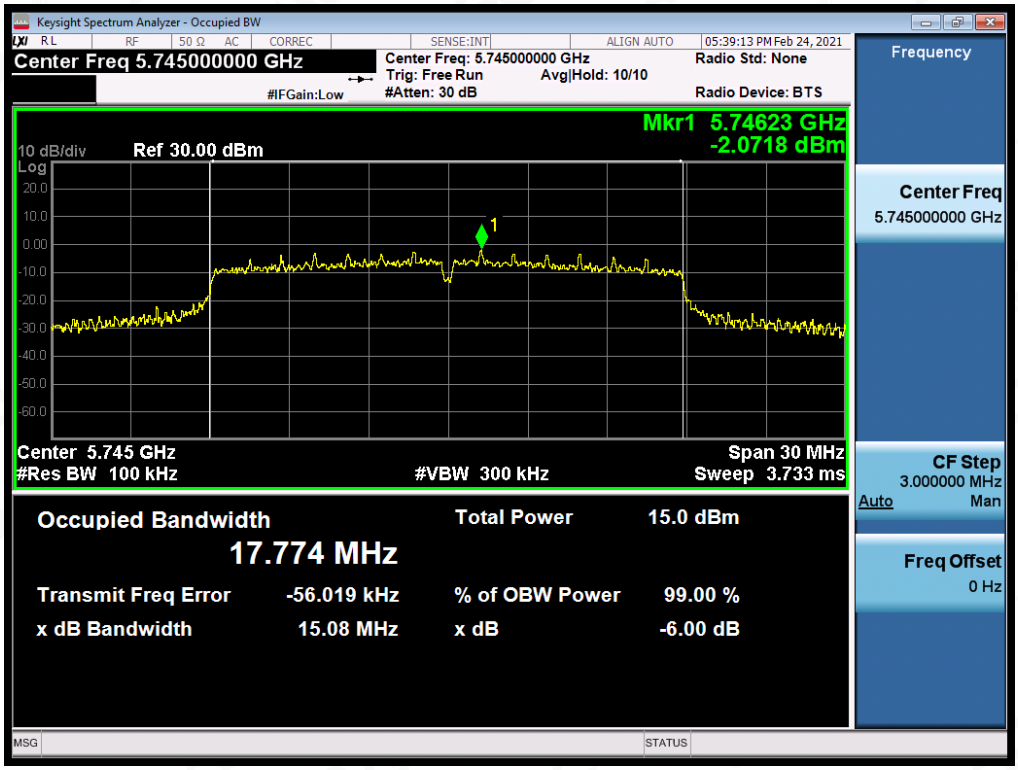


Test_Graph_802.11a_ANT1_5825_6Mbps_DTSBW



Test_Graph_802.11n20_ANT1_5745_MCS0_DTSBW

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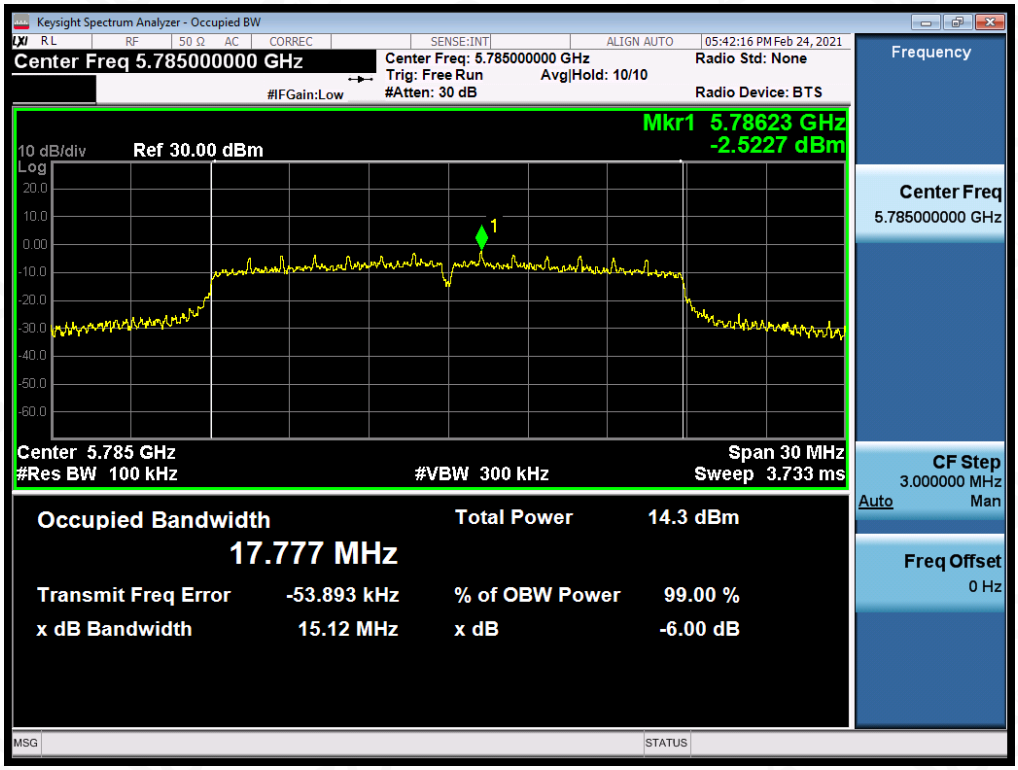
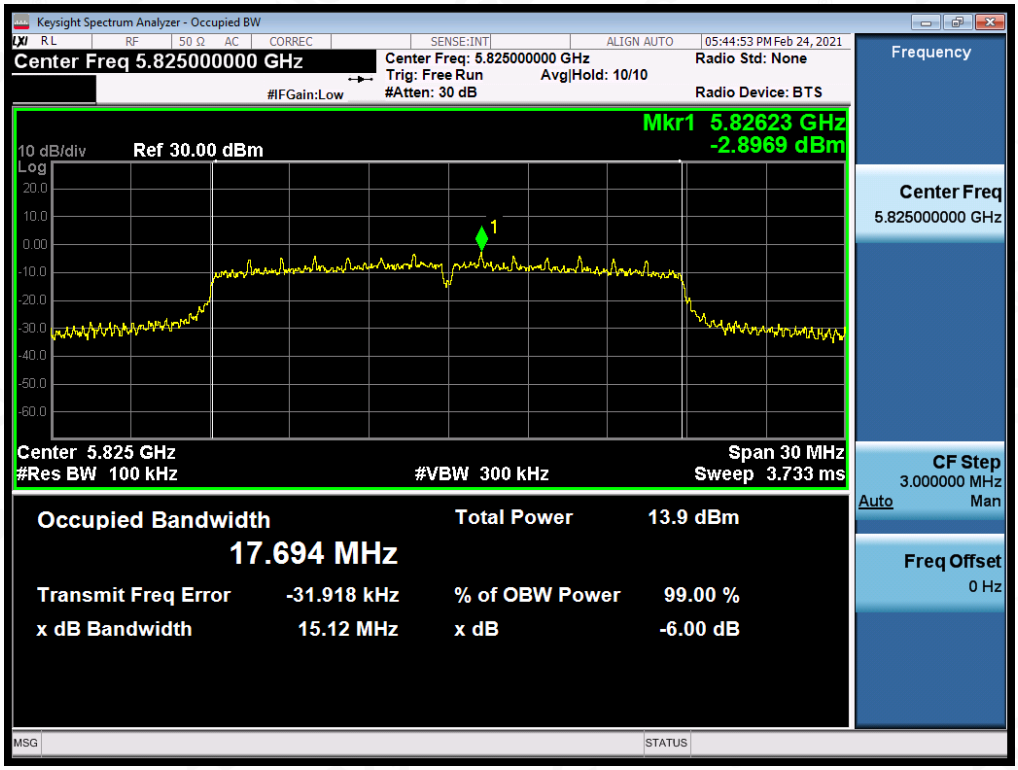


Test_Graph_802.11n20_ANT1_5785_MCS0_DTSBW



Test_Graph_802.11n20_ANT1_5825_MCS0_DTSBW

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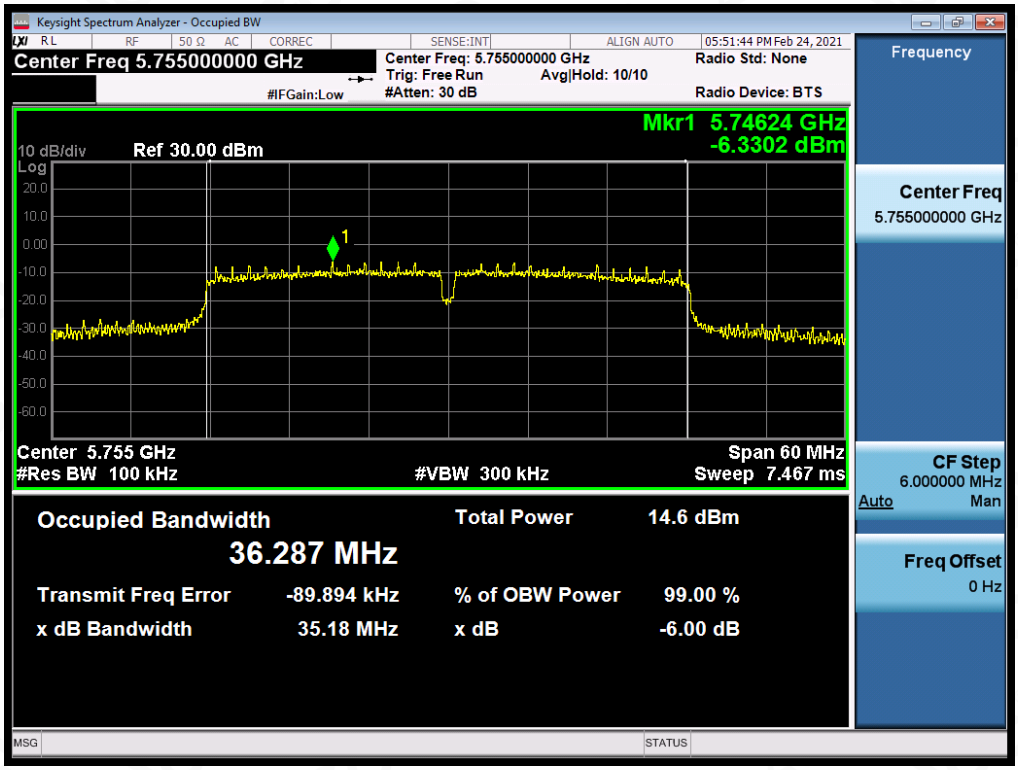
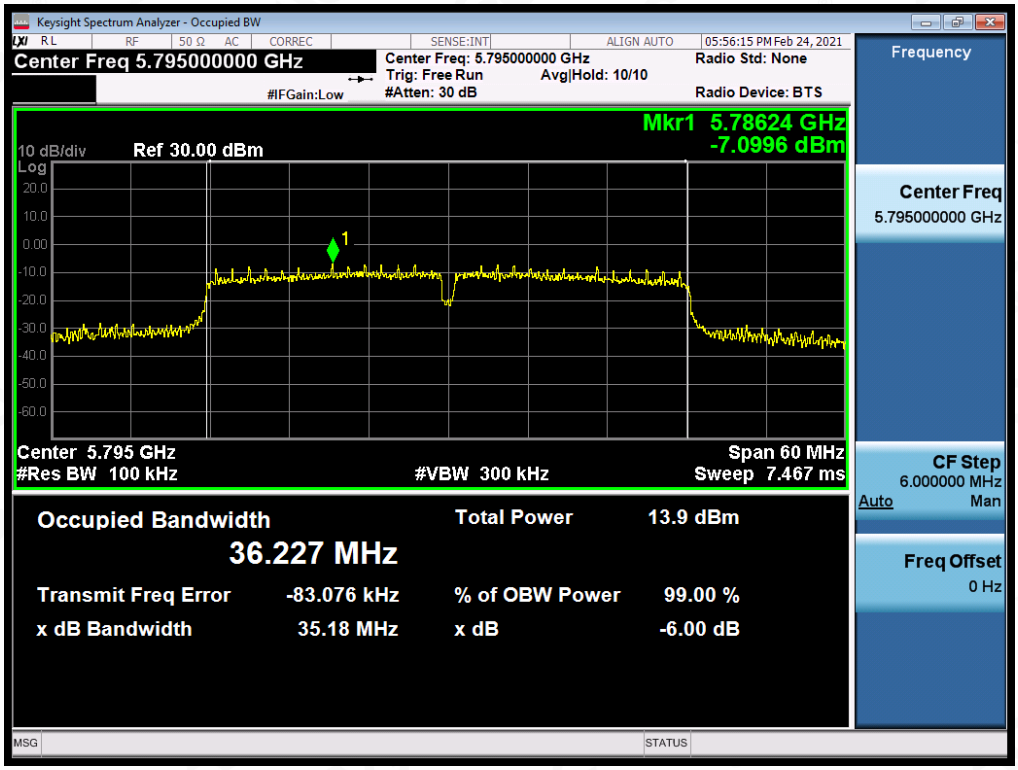


Test_Graph_802.11n40_ANT1_5755_MCS0_DTSBW



Test_Graph_802.11n40_ANT1_5795_MCS0_DTSBW

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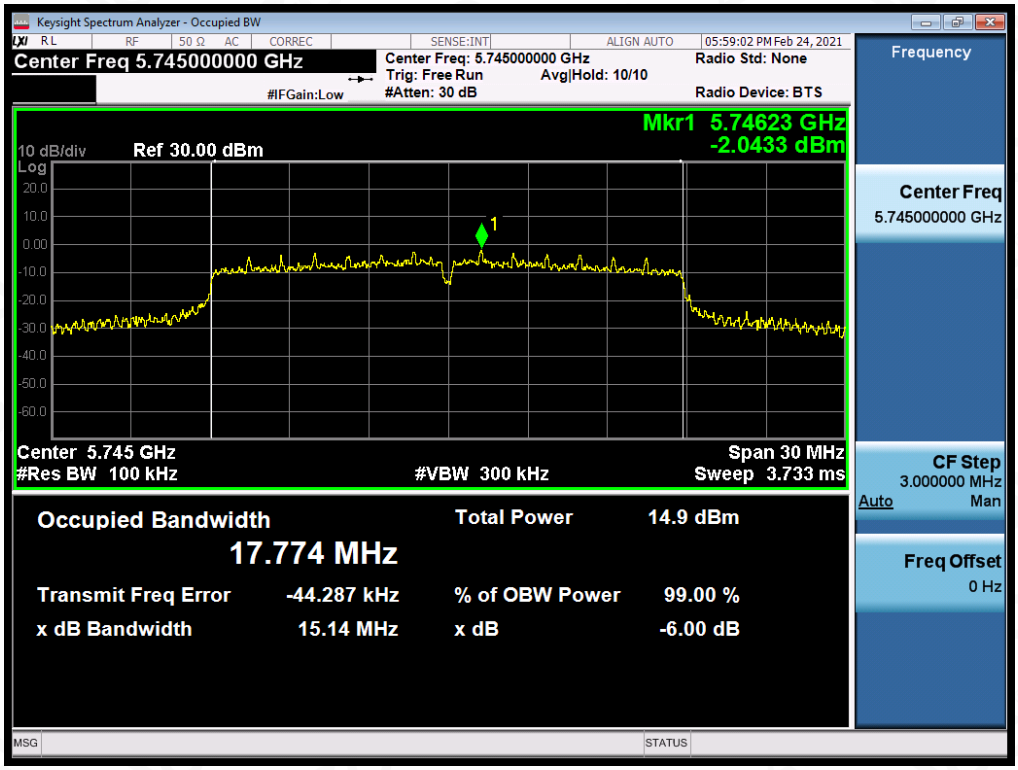

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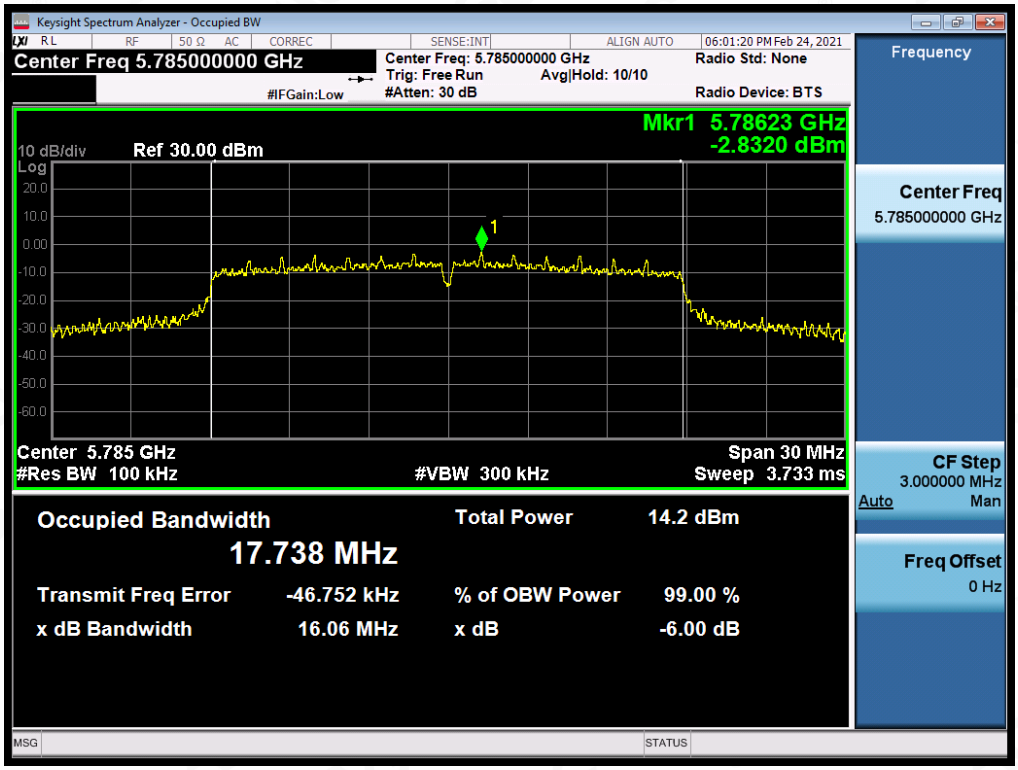

Test_Graph_802.11ac20_ANT1_5785_MCS0_DTSBW

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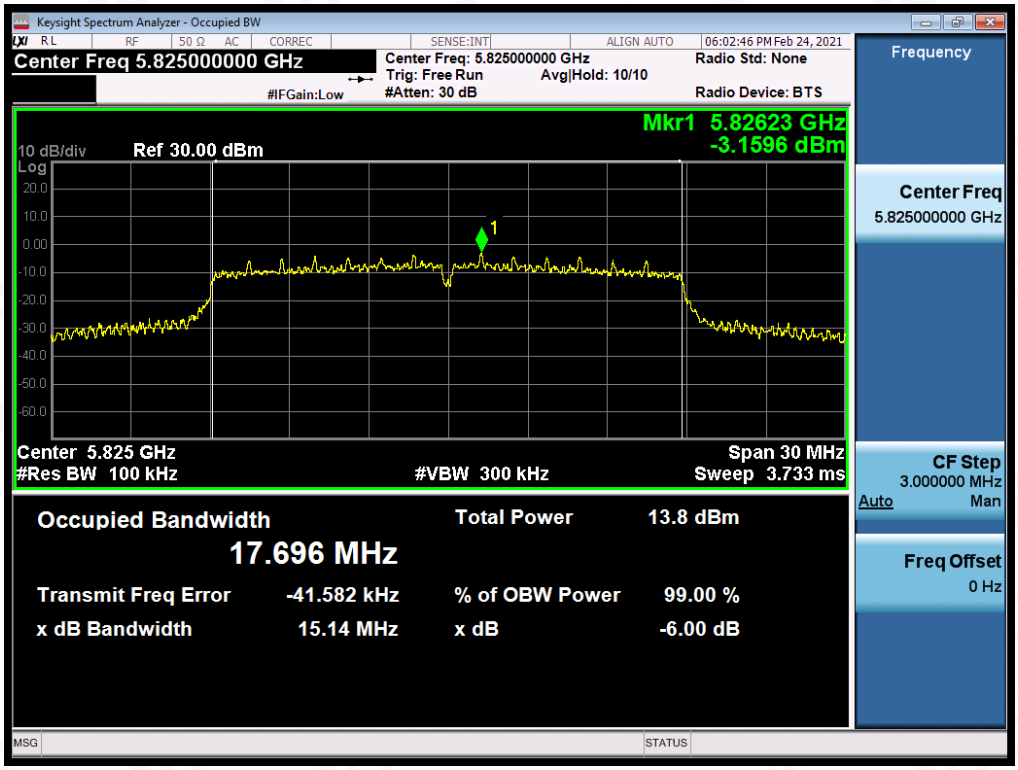
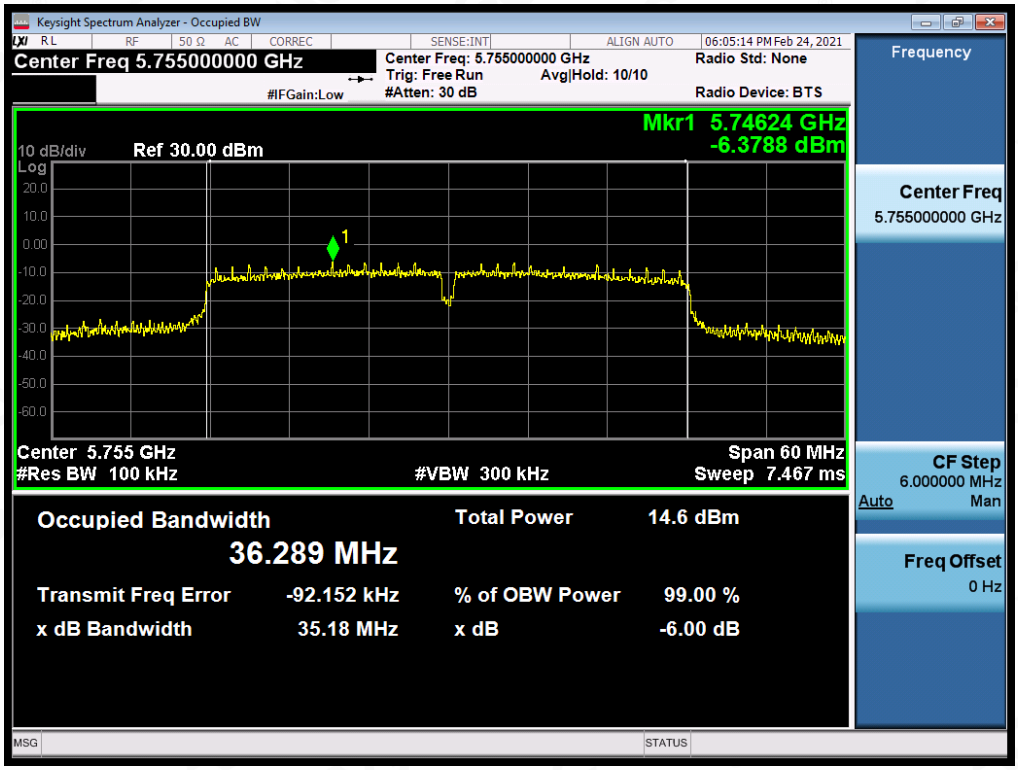


Test_Graph_802.11ac20_ANT1_5825_MCS9_DTSBW



Test_Graph_802.11ac40_ANT1_5755_MCS9_DTSBW

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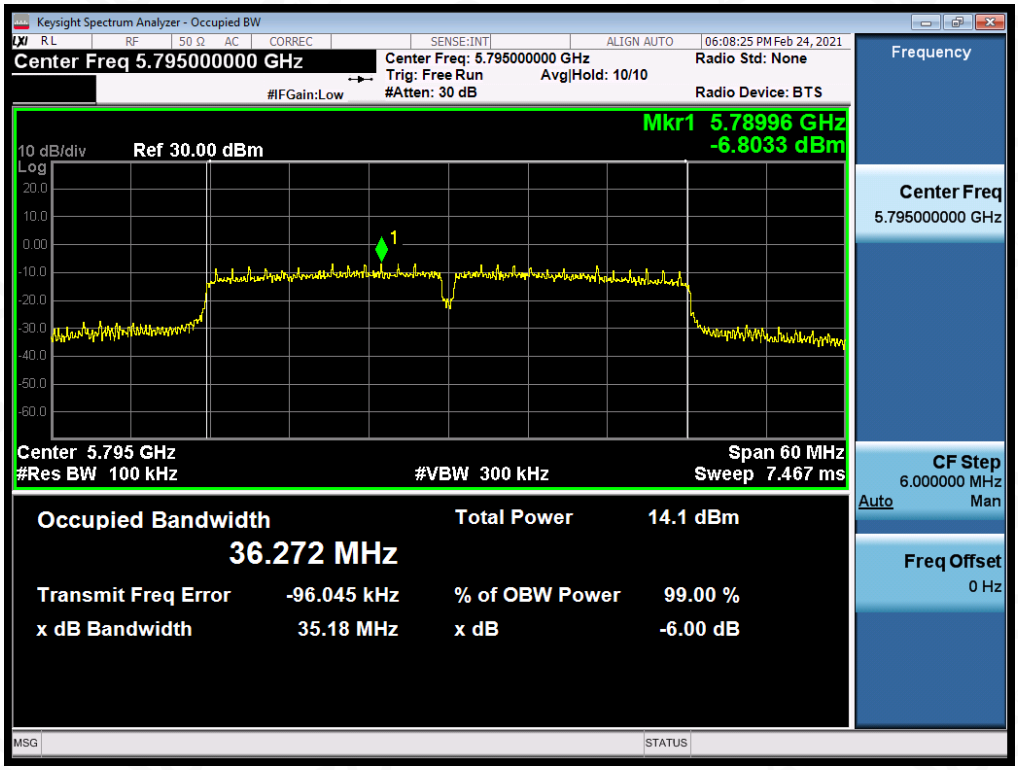

Test_Graph_802.11ac40_ANT1_5795_MCS9_DTSBW

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9. MAXIMUM CONDUCTED OUTPUT AVERAGE POWER SPECTRAL DENSITY

9.1. MEASUREMENT PROCEDURE

Refer to KDB 789033 section F

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

Refer to Section 8.2.

9.3. MEASUREMENT EQUIPMENT USED

Refer to Section 6.

9.4. LIMITS AND MEASUREMENT RESULT

Test Data of Conducted Output Power Density for band 5.15-5.25 GHz				
Test Mode	Test Channel (MHz)	Average Power Density (dBm/MHz)	Limits (dBm/MHz)	Pass or Fail
802.11a	5180	-0.169	11	Pass
	5200	-0.007	11	Pass
	5240	0.627	11	Pass
802.11n20	5180	-1.147	11	Pass
	5200	0.181	11	Pass
	5240	0.461	11	Pass
802.11n40	5190	-2.886	11	Pass
	5230	-2.780	11	Pass
802.11ac20	5180	-0.214	11	Pass
	5200	-0.225	11	Pass
	5240	0.420	11	Pass
802.11ac40	5190	-3.184	11	Pass
	5230	-3.424	11	Pass

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Test Data of Conducted Output Power Density for band 5.725-5.85 GHz				
Test Mode	Test Channel (MHz)	Average Power Density (dBm/500kHz)	Limits (dBm/500kHz)	Pass or Fail
802.11a	5745	-4.201	30	Pass
	5785	-4.702	30	Pass
	5825	-5.164	30	Pass
802.11n20	5745	-4.348	30	Pass
	5785	-5.015	30	Pass
	5825	-5.404	30	Pass
802.11n40	5755	-7.225	30	Pass
	5795	-7.793	30	Pass
802.11ac20	5745	-4.170	30	Pass
	5785	-4.860	30	Pass
	5825	-5.283	30	Pass
802.11ac40	5755	-7.158	30	Pass
	5795	-7.686	30	Pass

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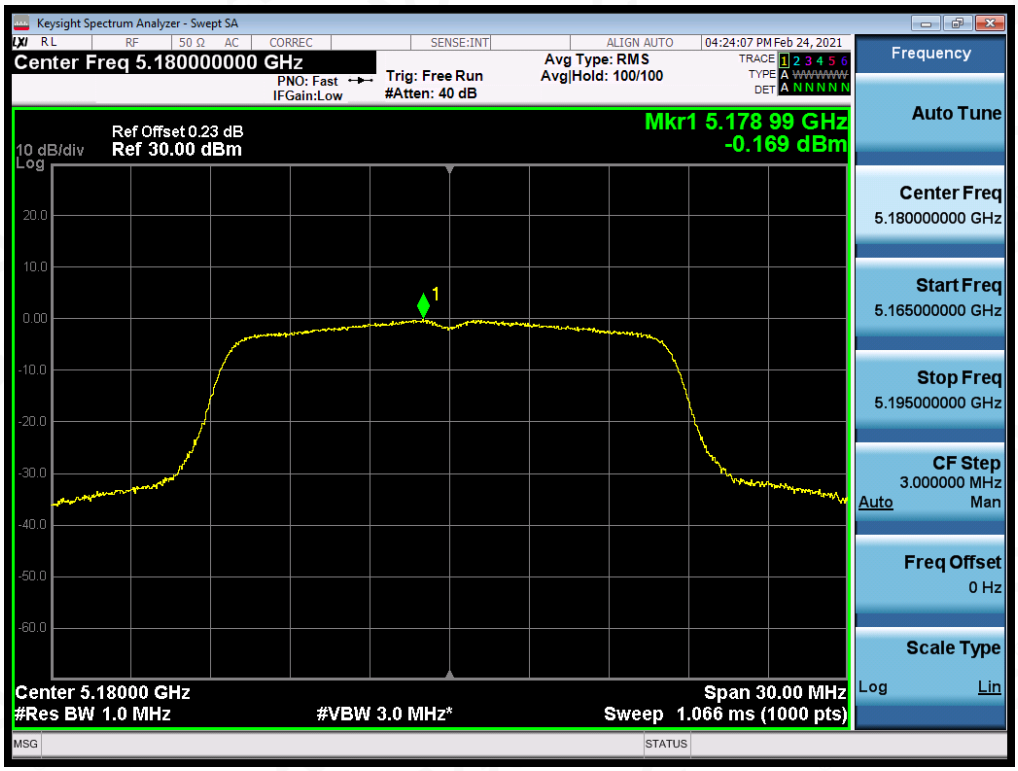
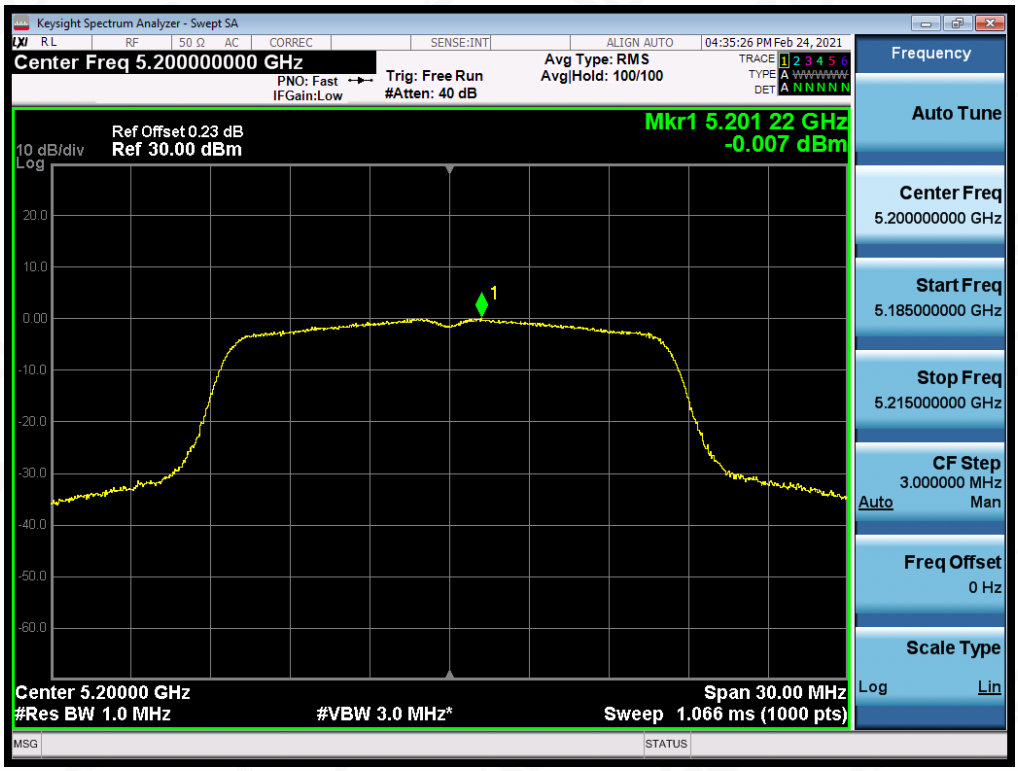
Test Graphs of Conducted Output Power Spectral Density for band 5.15-5.25 GHz



Test_Graph_802.11a_ANT1_5180_6Mbps_PSD



Test_Graph_802.11a_ANT1_5200_6Mbps_PSD

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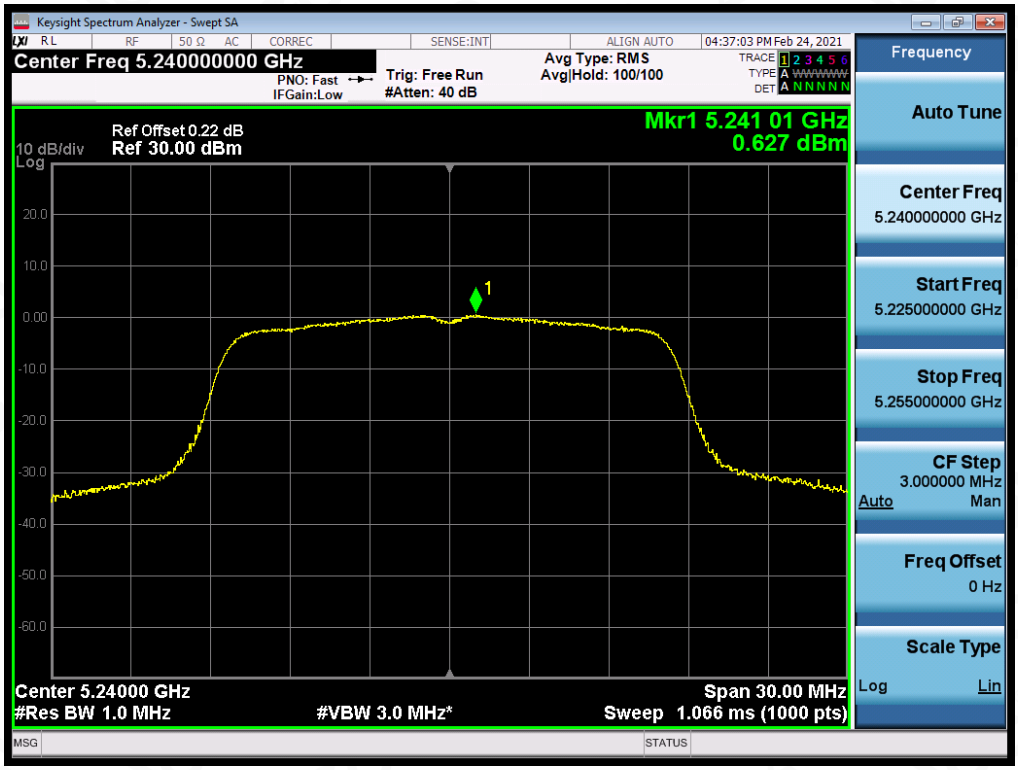

Test_Graph_802.11a_ANT1_5240_6Mbps_PSD

Test_Graph_802.11n20_ANT1_5180_MCS0_PSD

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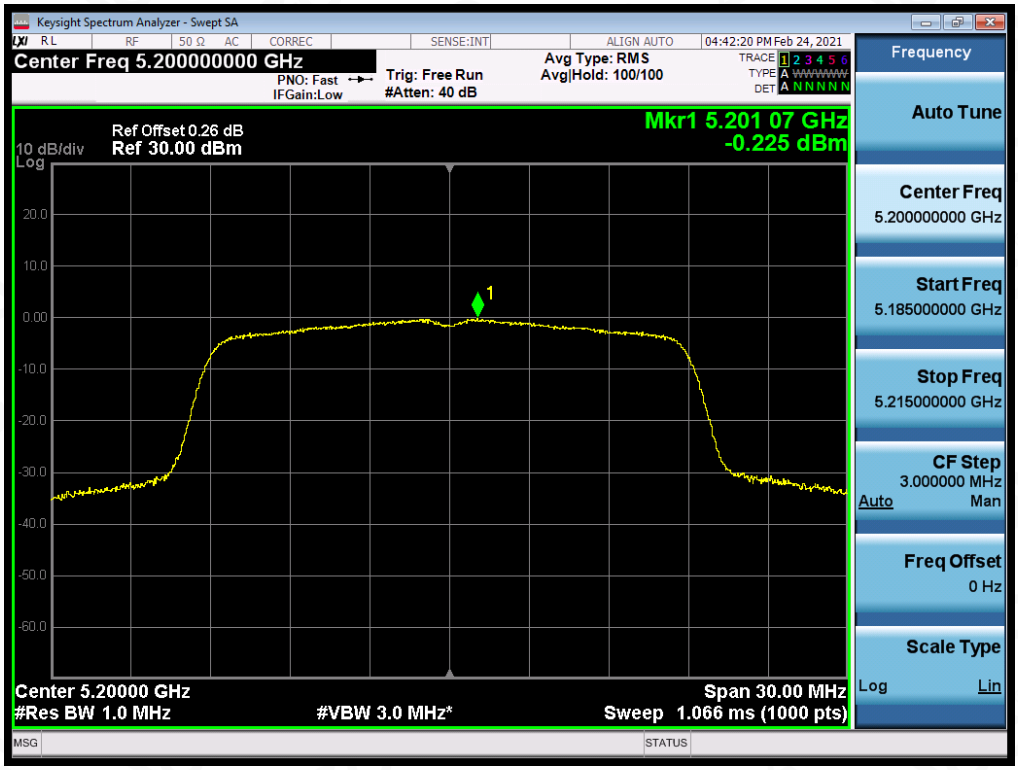

Test_Graph_802.11n20_ANT1_5200_MCS0_PSD

Test_Graph_802.11n20_ANT1_5240_MCS0_PSD

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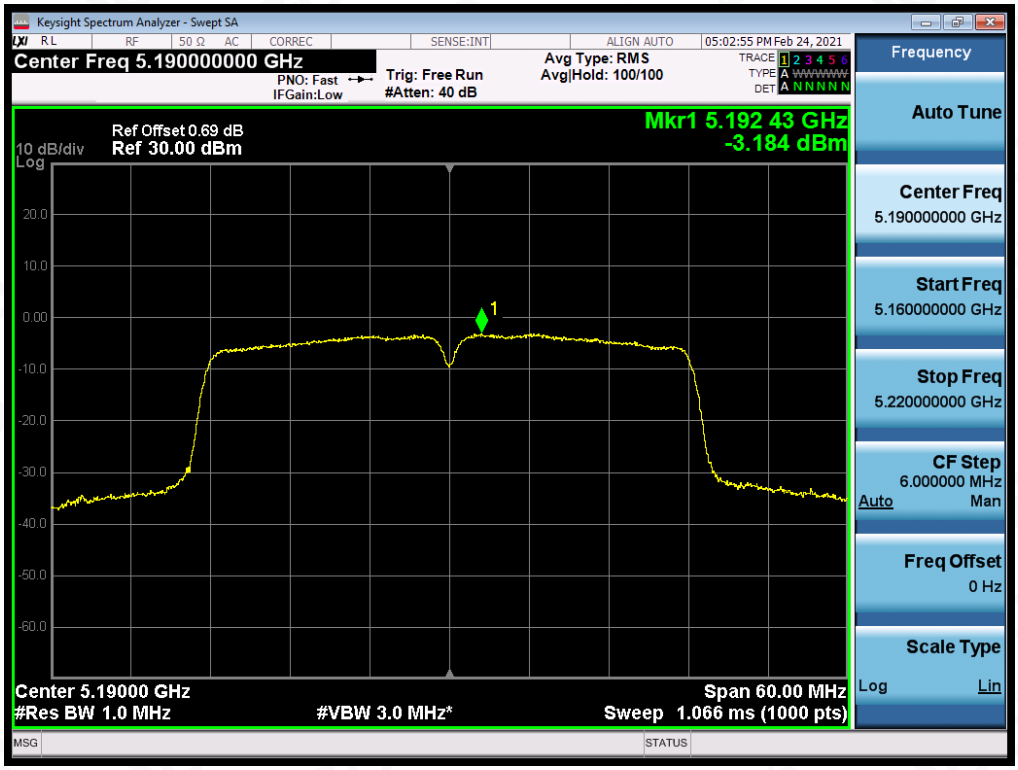

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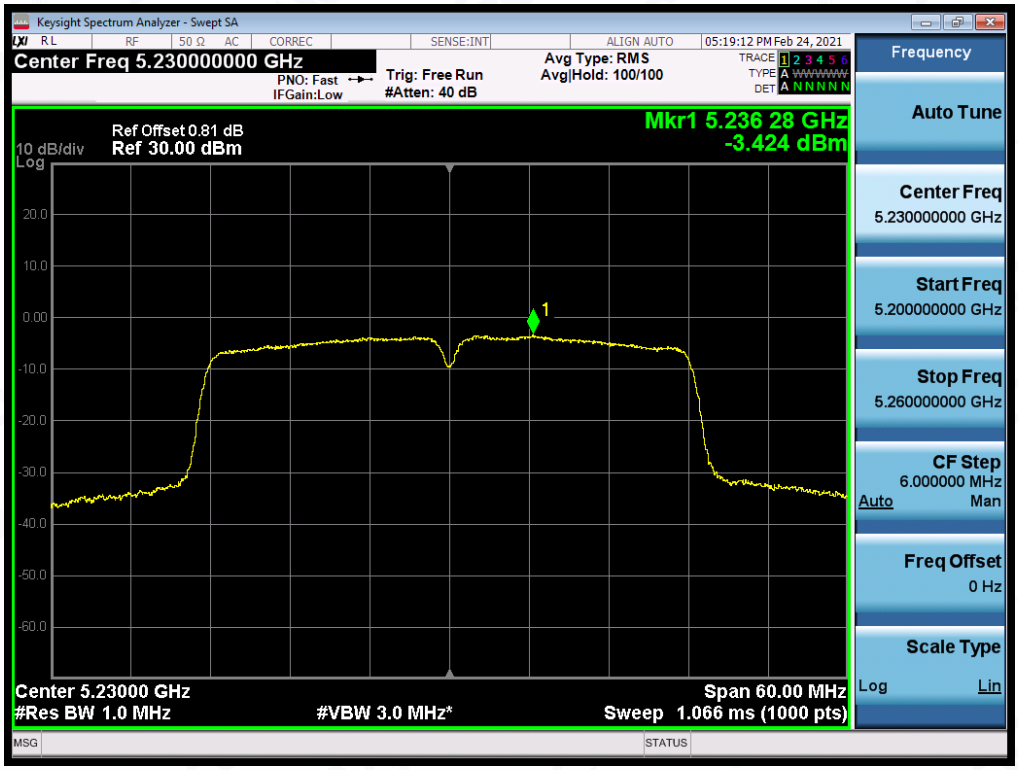

Test_Graph_802.11n40_ANT1_5230_MCS0_PSD

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Test_Graph_802.11ac20_ANT1_5180_MCS0_PSD

Test_Graph_802.11ac20_ANT1_5200_MCS0_PSD

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Test_Graph_802.11ac20_ANT1_5240_MCS9_PSD

Test_Graph_802.11ac40_ANT1_5190_MCS9_PSD

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