FCC Test Report

Report No.: AGC00408230802FR04

FCC ID	:	2A3DR-AGMH6
APPLICATION PURPOSE	:	Original Equipment
PRODUCT DESIGNATION	:	4G Smart Phone
BRAND NAME	:	AGM
MODEL NAME	:	AGM_H6
APPLICANT	:	AGM MOBILE LIMITED
DATE OF ISSUE	:	Aug. 22, 2023
STANDARD(S)	:	FCC Part 15 Subpart E §15.407
REPORT VERSION	:	V1.0

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

REPORT REVISE RECORD

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Aug. 22, 2023	Valid	Initial Release

TABLE OF CONTENTS

1. VERIFICATION OF CONFORMITY 5
2. GENERAL INFORMATION 6
2.1. PRODUCT DESCRIPTION 6
2.2. TABLE OF CARRIER FREQUENCYS 7
2.3. RELATED SUBMITTAL(S) / GRANT (S) 8
2.4. TEST METHODOLOGY 8
2.5. SPECIAL ACCESSORIES 8
2.6. EQUIPMENT MODIFICATIONS 8
2.7. ANTENNA REQUIREMENT 8
3. TEST ENVIRONMENT 9
3.1 ADDRESS OF THE TEST LABORATORY 9
3.2 TEST FACILITY 9
3.3 ENVIRONMENTAL CONDITIONS 10
3.4 MEASUREMENT UNCERTAINTY 10
3.5 LIST OF EQUIPMENTS USED 11
4. DESCRIPTION OF TEST MODES 12
5. SYSTEM TEST CONFIGURATION 13
5.1. CONFIGURATION OF EUT SYSTEM 13
5.2. EQUIPMENT USED IN EUT SYSTEM 13
5.3. SUMMARY OF TEST RESULTS 13
6. DUTY CYCLE MEASUREMENT 14
7. RF OUTPUT POWER MEASUREMENT 15
7.1 MEASUREMENT LIMITS 15
7.2 MEASUREMENT PROCEDURE 15
7.3 MEASUREMENT SETUP (BLOCK DIAGRAM OF CONFIGURATION) 15
7.4 MEASUREMENT RESULT 16
8. 6DB&26DB BANDWIDTH MEASUREMENT 17
8.1 MEASUREMENT LIMITS 17
8.2 MEASUREMENT PROCEDURE 17
8.3 MEASUREMENT SETUP (BLOCK DIAGRAM OF CONFIGURATION) 17
8.4 MEASUREMENT RESULTS 18
9. POWER SPECTRAL DENSITY MEASUREMENT 40
9.1 MEASUREMENT LIMITS 40
9.2 MEASUREMENT PROCEDURE 40
9.3 MEASUREMENT SETUP (BLOCK DIAGRAM OF CONFIGURATION) 40
9.4 MEASUREMENT RESULT 41

10. CONDUCTED SPURIOUS EMISSION 56
10.1 MEASUREMENT LIMIT 56
10.2 MEASUREMENT PROCEDURE 56
10.3 MEASUREMENT SETUP (BLOCK DIAGRAM OF CONFIGURATION) 56
10.4 MEASUREMENT RESULTS 57
11. RADIATED EMISSION 77
11.1 LIMITS OF RADIATED EMISSION TEST 77
11.2 MEASUREMENT PROCEDURE 78
11.3 MEASUREMENT SETUP (BLOCK DIAGRAM OF CONFIGURATION) 80
11.4 MEASUREMENT RESULT 81
12. AC POWER LINE CONDUCTED EMISSION TEST 98
12.1. LIMITS OF LINE CONDUCTED EMISSION TEST 98
12.2. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST 98
12.3. PRELIMINARY PROCEDURE OF LINE CONDUCTED EMISSION TEST 99
12.4. FINAL PROCEDURE OF LINE CONDUCTED EMISSION TEST 99
12.5. TEST RESULT OF LINE CONDUCTED EMISSION TEST 100
APPENDIX I: PHOTOGRAPHS OF TEST SETUP 102
APPENDIX II: PHOTOGRAPHS OF EUT 102

1. VERIFICATION OF CONFORMITY

Applicant	AGM MOBILE LIMITED
Address	FLAT/RM 2253 22/F HOI TAI FACTORY ESTATE TSING YEUNG CIRCUIT TUEN MUN NT HONG KONG,CHINA
Manufacturer	SHENZHEN AIJIEMO SCIENCE AND TECHNOLOGY CO.,LTD
Address	1st Floor 101 and 2nd 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 Floor 101 and 2nd Floor 201, Building A2, Huafeng Century Technology Park, Nanchang Community, Xixiang, Baoan District, Shenzhen, China
Product Designation	4G Smart Phone
Brand Name	AGM
Test Model	AGM_H6
Date of receipt of test item	Aug. 11, 2023
Date of test	Aug. 11, 2023~Aug. 22, 2023
Deviation	No any deviation from the test method
Condition of Test Sample	Normal
Test Result	Pass
Report Template	AGCRT-US-BGN/RF

We hereby certify that:

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

Prepared By	Bibo Zhang	
	Bibo Zhang (Project Engineer)	Aug. 22, 2023
Reviewed By	Calvin Liu	
	Calvin Liu (Reviewer)	Aug. 22, 2023
Approved By	Max Zhang	
	Max Zhang Authorized Officer	Aug. 22, 2023

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	S681_V1
Software Version	Android 13
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 802.11a(HT20):12.82dBm; IEEE 802.11n(HT20): 11.87dBm; IEEE802.11n(HT40): 11.01dBm; IEEE 802.11ac(VHT20):11.88dBm; IEEE802.11ac(VHT40):11.02dBm; IEEE802.11ac(VHT80):9.19dBm;
Modulation	802.11a/n:(64-QAM, 16-QAM, QPSK, BPSK) OFDM 802.11ac :(256-QAM, 64-QAM, 16-QAM, QPSK, BPSK) OFDM
Data Rate	802.11a:6/9/12/18/24/36/48/54Mbps; 802.11n:up to 300Mbps; 802.11ac:up to 866.6Mbps;
Number of channels	7 channels of U-NII-1 Band 8 channels of U- NII 3 Band
Antenna Designation	PIFA Antenna
Antenna Gain	0.84dBi
Power Supply	DC 3.85V by battery or DC 5V by adapter

2.2. TABLE OF CARRIER FREQUENCYS

For 5180~5240MHz:

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

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

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

Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency	Channel	Frequency
42	5210 MHz	--	--

For 5745~5825MHz:

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

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

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

Channel	Frequency	Channel	Frequency
151	5755 MHz	159	5795 MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency	Channel	Frequency
155	5775 MHz	--	--

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

This submittal(s) (test report) is intended for **FCC ID: 2A3DR-AGMH6** 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 is 0.84dBi

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	-30 - 50
Relative humidty range	20 % - 75 %	20 % - 75 %
Pressure range (kPa)	86 - 106	86 - 106
Power supply	DC 3.85V	LV DC 3.27V/HV DC 4.4V
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	Jun. 03, 2023	Jun. 02, 2024
LISN	R&S	ESH2-Z5	100086	Jun. 03, 2023	Jun. 02, 2024
Test software	R&S	ES-K1 (Ver.V1.71)	N/A	N/A	N/A

TEST EQUIPMENT OF RADIATED EMISSION TEST

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

4. DESCRIPTION OF TEST MODES

Mode	Available channel	Tested channel	Modulation	Date rate (Mbps)
802.11a/n/ac	Refer to Section 2.2	36,40,48, 149,157,165	OFDM/OFDMA	6Mbps/MCS0
802.11n/ac		38,46, 151,159	OFDM/OFDMA	MCS0
802.11ac		42,155	OFDM/OFDMA	MCS0

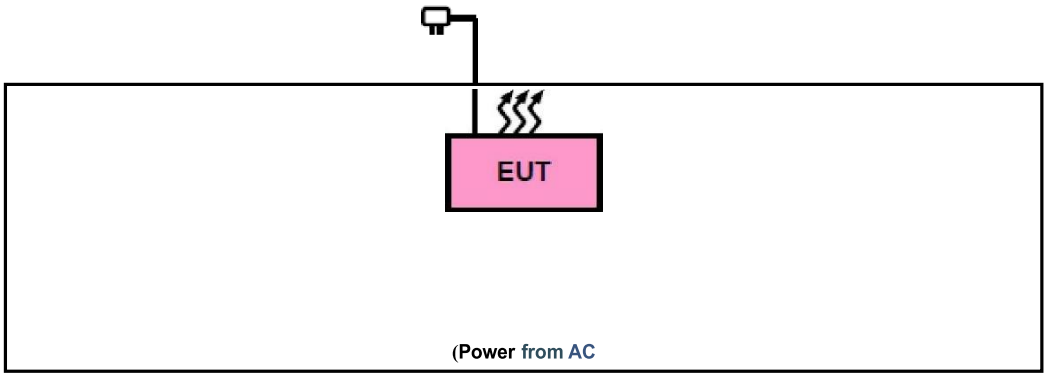
Note:

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.

3. The test software is through engineering commands, EUT can be set to a separate test mode.

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	4G Smart Phone	AGM_H6	FCC ID: 2A3DR-AGMH6	EUT
2	Adapter	U312E0A050200	Input: AC 100-240V 50/60Hz, 0.35A Output: DC 5.0V 2A	AE
3	Battery	AGM_H6	DC 3.85V 4930mAh	AE
4	USB Cable	N/A	N/A	AE

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5.3. SUMMARY OF TEST RESULTS

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

6. DUTY CYCLE MEASUREMENT

5GHz WLAN (NII) operation is possible in 20MHz, 40MHz and 80MHz channel bandwidths. The maximum achievable duty cycles for all modes were determined based on measurements performed on a spectrum analyzer in zero-span mode with RBW = 8MHz, VBW = 50MHz, and detector = Peak. The RBW and VBW were both greater than 50/T, where T is the minimum transmission duration, and the number of sweep points across T was greater than 100. The duty cycles are as follows:

Operating mode	Data rates (Mbps)	Duty Cycle (%)	Duty Cycle Factor (dB)	1/ T Minimum VBW (kHz)	Average Factor (dB)
For band 5.150-5.250 GHz:					
IEEE 802.11a	6	90	0.46	0.72	-0.92
IEEE 802.11n-HT20	MCS0	88	0.56	0.85	-1.11
IEEE 802.11n-HT40	MCS0	88	0.56	0.85	-1.11
IEEE 802.11ac-HT20	MCS9	79	1.02	1.7	-2.05
IEEE 802.11ac-HT40	MCS9	89	0.51	0.84	-1.01
IEEE 802.11ac-HT80	MCS9	66	1.80	3.38	-3.61
For band 5.725-5.850 GHz:					
IEEE 802.11a	6	90	0.46	0.72	-0.92
IEEE 802.11n-HT20	MCS0	87	0.60	0.85	-1.21
IEEE 802.11n-HT40	MCS0	79	1.02	1.7	-2.05
IEEE 802.11ac-HT20	MCS9	88	0.56	0.84	-1.11
IEEE 802.11ac-HT40	MCS9	80	0.97	1.69	-1.94
IEEE 802.11ac-HT80	MCS9	66	1.80	3.38	-3.61

Remark:

1. Duty Cycle factor = 10 * log (1/ Duty cycle) 2. Average factor = 20 log10 Duty Cycle
2. The duty cycle of each frequency band mode reflects the determination requirements of the low channel measurement value.
3. The measurement results involving the above compensation parameters have been compensated by soft ware to reflect the final results.

7. RF OUTPUT POWER MEASUREMENT

7.1 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)

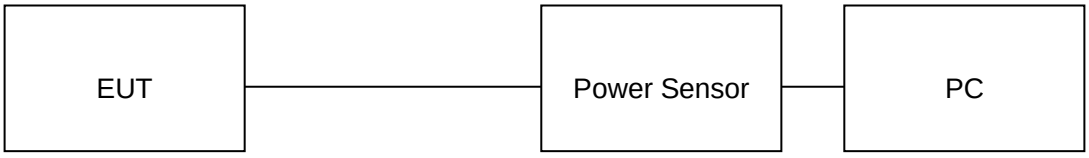
Note: Where B is the 26dB emission bandwidth in MHz.

7.2 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.

7.3 MEASUREMENT SETUP (BLOCK DIAGRAM OF CONFIGURATION)



7.4 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	11.61	23.98	Pass
	5200	11.72	23.98	Pass
	5240	12.82	23.98	Pass
802.11n20	5180	10.65	23.98	Pass
	5200	10.89	23.98	Pass
	5240	11.87	23.98	Pass
802.11n40	5190	10.30	23.98	Pass
	5230	11.01	23.98	Pass
802.11ac20	5180	10.69	23.98	Pass
	5200	10.93	23.98	Pass
	5240	11.88	23.98	Pass
802.11ac40	5190	10.46	23.98	Pass
	5230	11.02	23.98	Pass
802.11ac80	5210	9.19	23.98	Pass

Test Data of Conducted Output Power for band 5.725-5.850 GHz				
Test Mode	Test Channel (MHz)	Average Power (dBm)	Limits (dBm)	Pass or Fail
802.11a	5745	10.79	30	Pass
	5785	10.15	30	Pass
	5825	10.98	30	Pass
802.11n20	5745	10.11	30	Pass
	5785	9.56	30	Pass
	5825	10.22	30	Pass
802.11n40	5755	9.05	30	Pass
	5795	9.12	30	Pass
802.11ac20	5745	10.08	30	Pass
	5785	9.60	30	Pass
	5825	10.36	30	Pass
802.11ac40	5755	8.99	30	Pass
	5795	9.21	30	Pass
802.11ac80	5775	7.69	30	Pass

8. 6DB&26DB BANDWIDTH MEASUREMENT

8.1 MEASUREMENT LIMITS

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

8.2 MEASUREMENT PROCEDURE

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

1. Connect EUT RF output port to the Spectrum Analyzer through.
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:

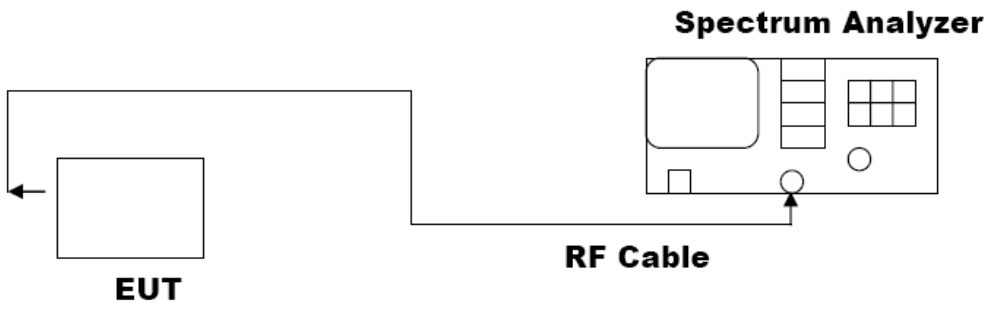
1. Connect EUT RF output port to the Spectrum Analyzer through.
2. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
3. Set Span = approximately 1.5 to 5 times the OBW, centered on a nominal channel
   The nominal IF filter bandwidth (3 dB RBW) shall be in the range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

8.3 MEASUREMENT SETUP (BLOCK DIAGRAM OF CONFIGURATION)

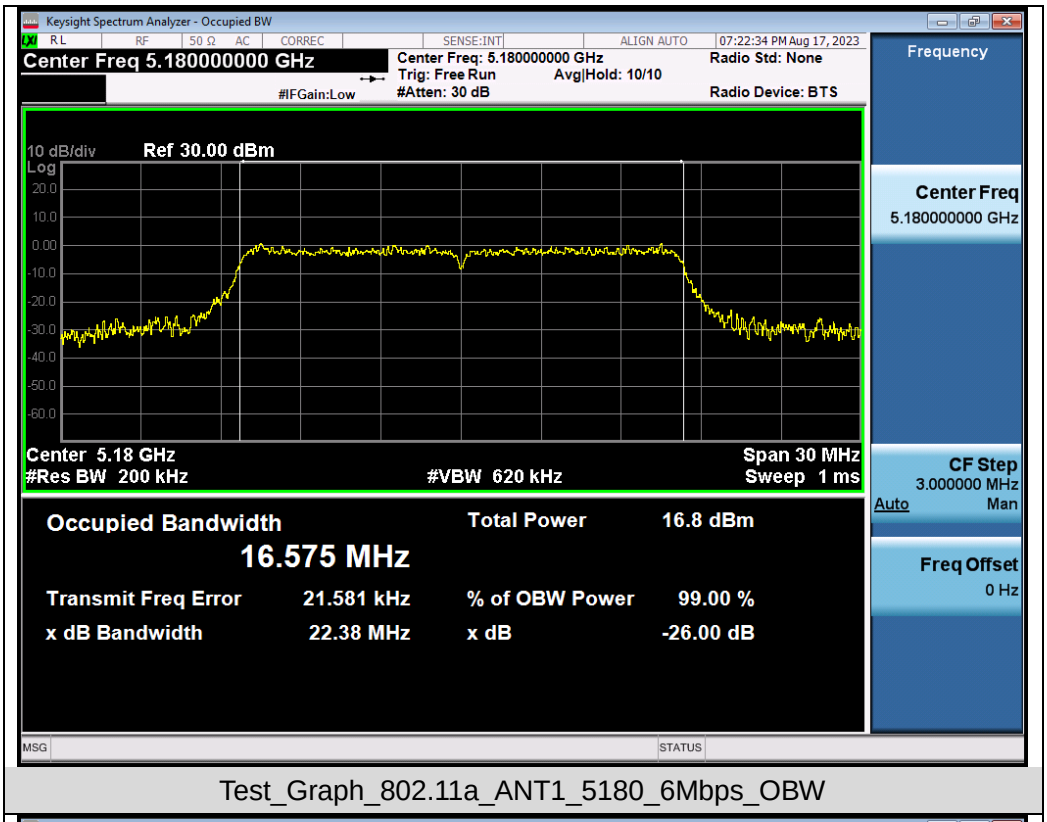


8.4 MEASUREMENT RESULTS

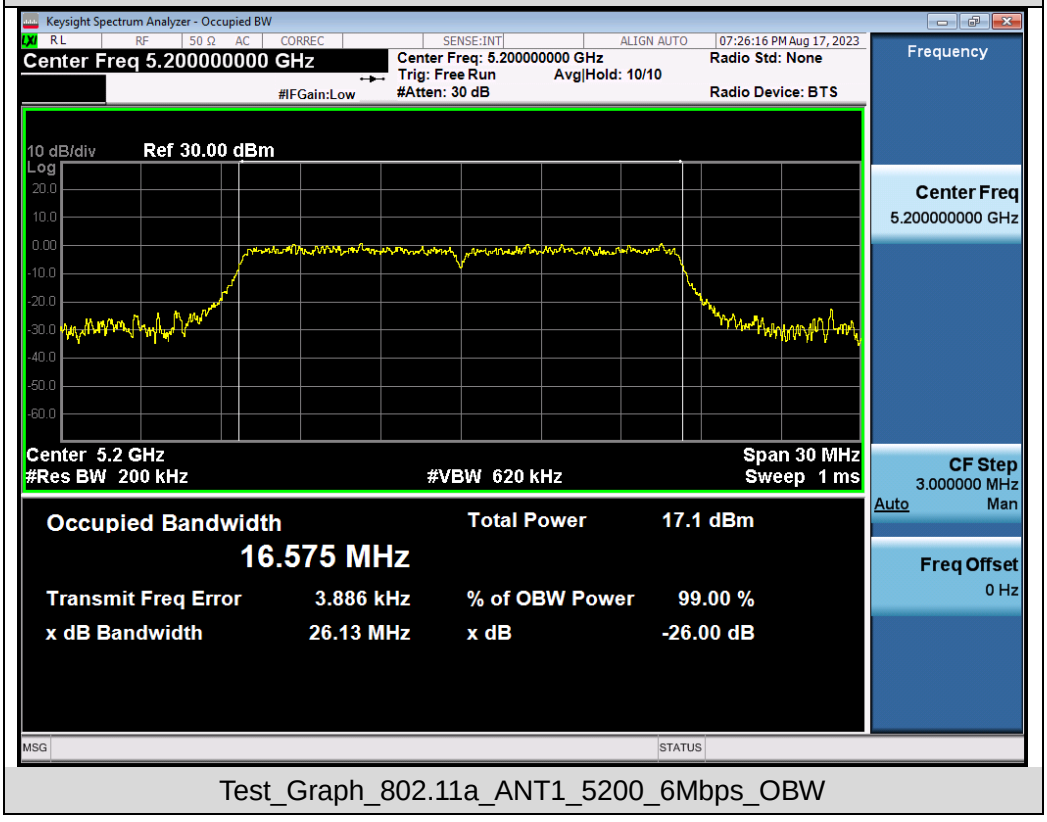
Test Data of Occupied Bandwidth and -26dB Bandwidth for band 5.15-5.25 GHz					
Test Mode	Test Channel (MHz)	99% Occupied Bandwidth (MHz)	-26dB Bandwidth (MHz)	Limits (MHz)	Pass or Fail
802.11a	5180	16.575	22.384	N/A	Pass
	5200	16.575	26.133	N/A	Pass
	5240	16.588	25.355	N/A	Pass
802.11n20	5180	17.673	26.392	N/A	Pass
	5200	17.675	27.812	N/A	Pass
	5240	17.673	26.301	N/A	Pass
802.11n40	5190	36.204	51.932	N/A	Pass
	5230	36.148	53.291	N/A	Pass
802.11ac20	5180	17.620	29.919	N/A	Pass
	5200	17.606	27.603	N/A	Pass
	5240	17.629	25.194	N/A	Pass
802.11ac40	5190	36.138	53.615	N/A	Pass
	5230	36.149	48.662	N/A	Pass
802.11ac80	5210	75.654	81.434	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	16.576	16.356	0.5	Pass
	5785	16.575	16.406	0.5	Pass
	5825	16.582	16.361	0.5	Pass
802.11n20	5745	17.654	17.433	0.5	Pass
	5785	17.677	17.530	0.5	Pass
	5825	17.649	17.307	0.5	Pass
802.11n40	5755	36.186	35.864	0.5	Pass
	5795	36.201	35.931	0.5	Pass
802.11ac20	5745	17.633	17.394	0.5	Pass
	5785	17.618	17.570	0.5	Pass
	5825	17.634	17.382	0.5	Pass
802.11ac40	5755	36.162	35.759	0.5	Pass
	5795	36.186	36.016	0.5	Pass
802.11ac80	5775	75.541	75.746	0.5	Pass

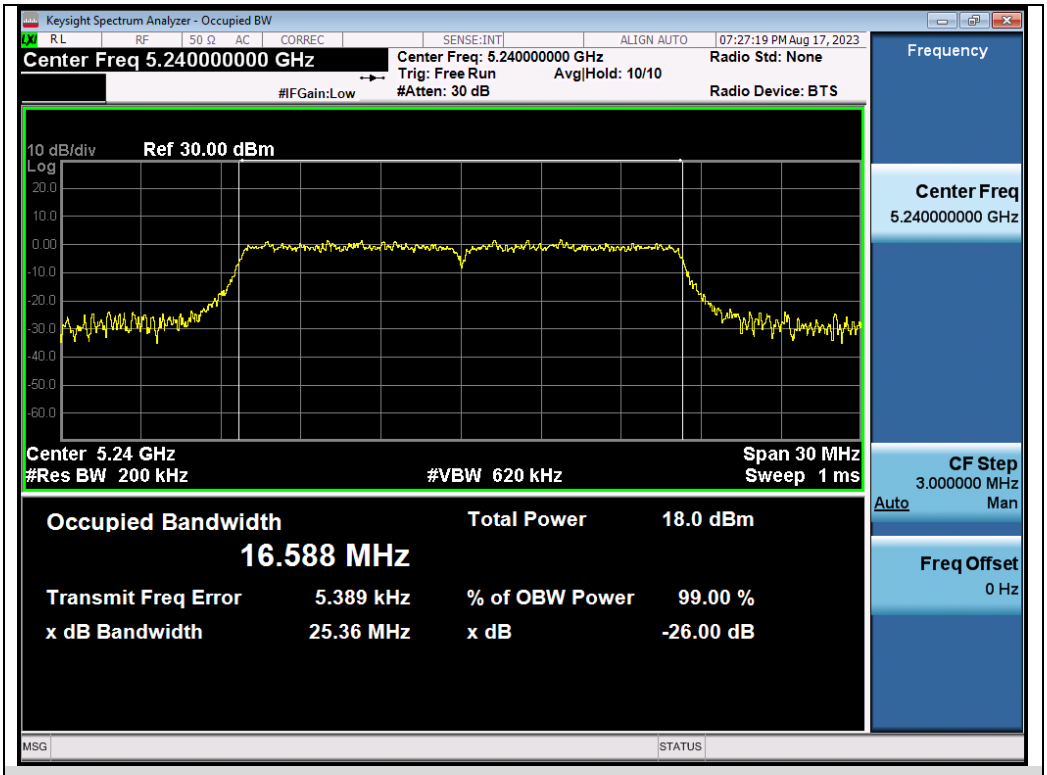
Test Graphs of Occupied Bandwidth and -26dB Bandwidth for band 5.15-5.25 GHz



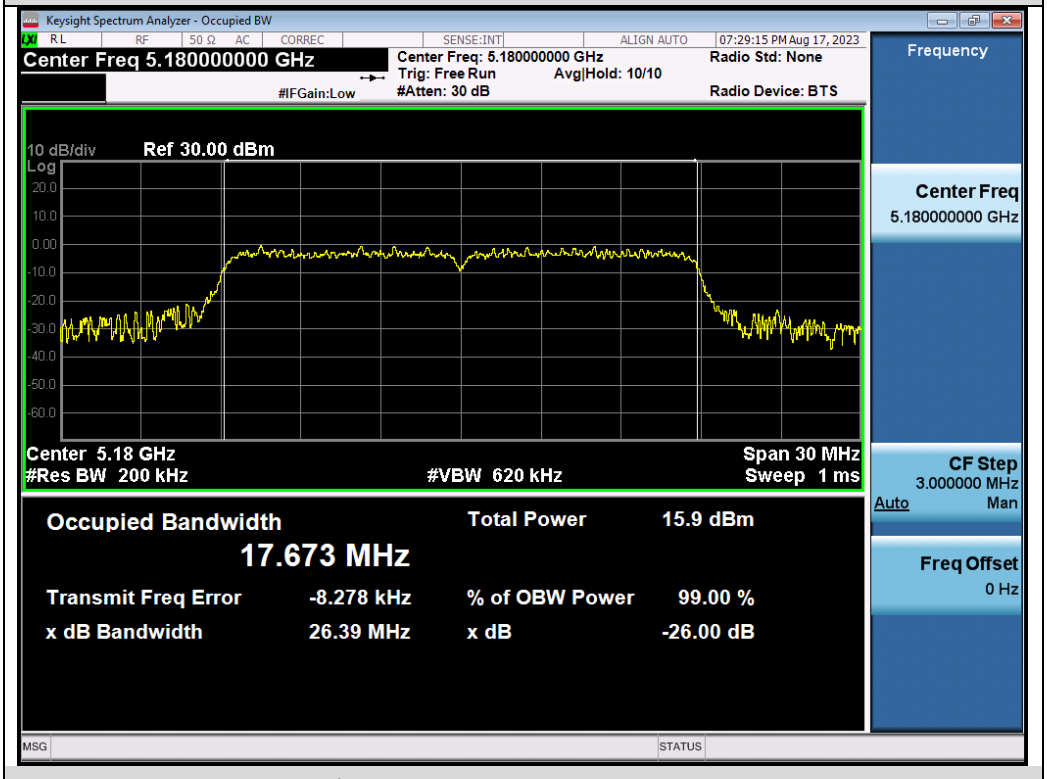
Test_Graph_802.11a_ANT1_5180_6Mbps_OBW



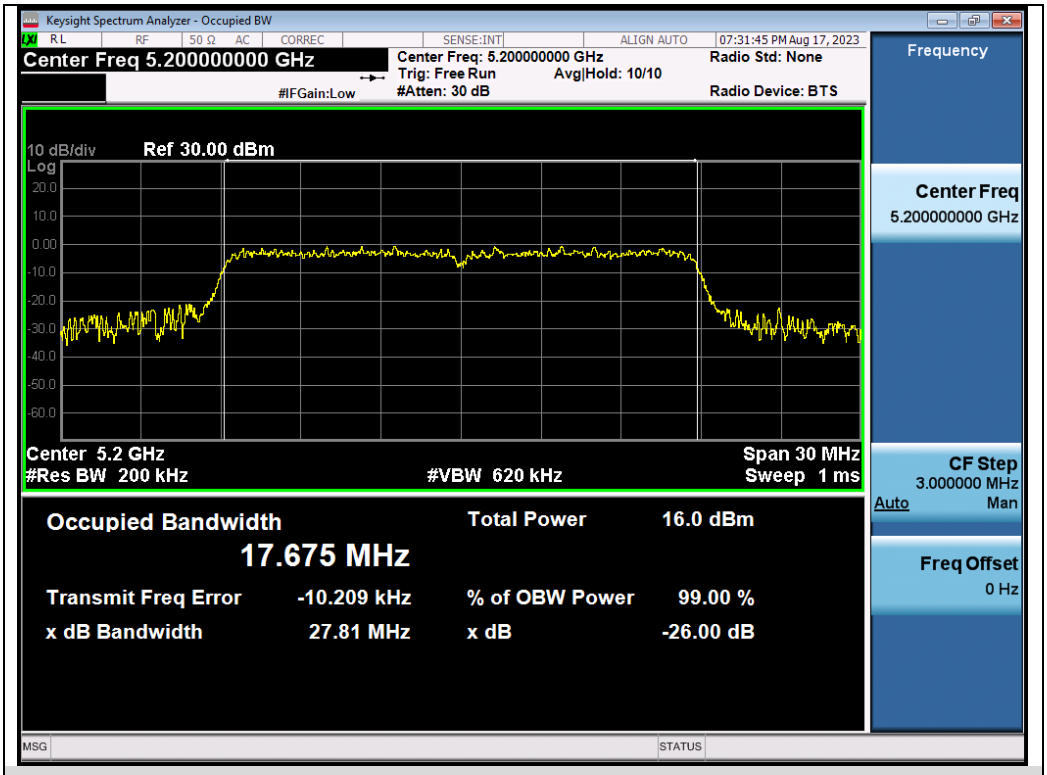
Test_Graph_802.11a_ANT1_5200_6Mbps_OBW



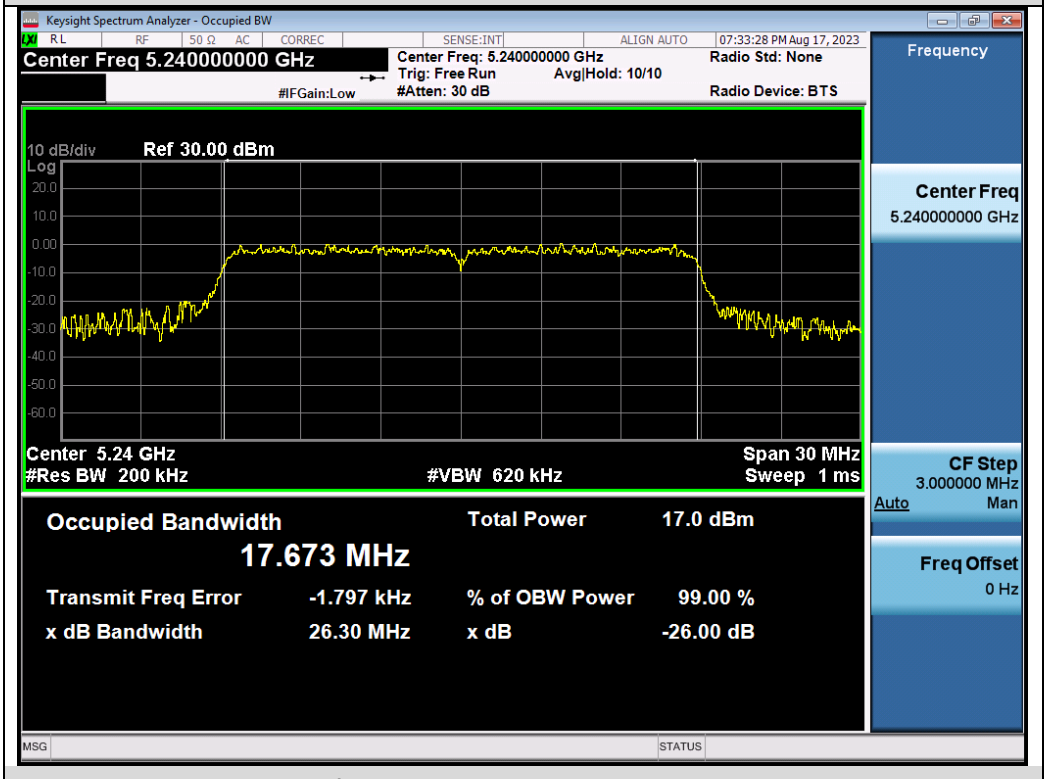
Test_Graph_802.11a_ANT1_5240_6Mbps_OBW



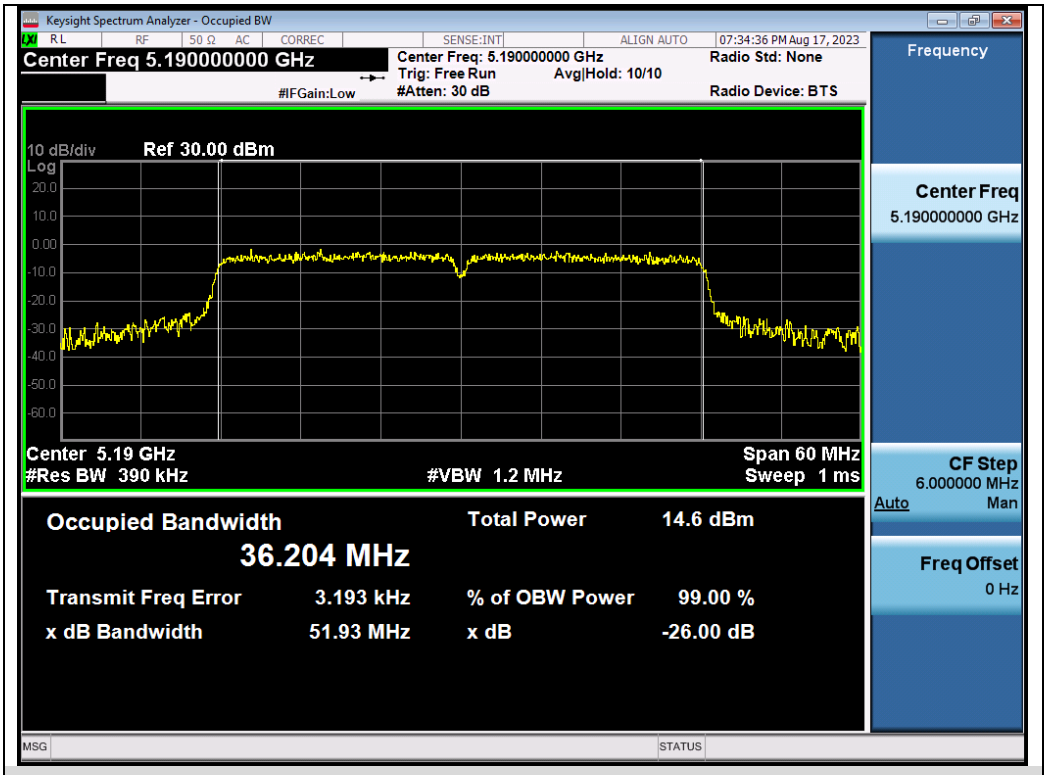
Test_Graph_802.11n20_ANT1_5180_MCS0_OBW



Test_Graph_802.11n20_ANT1_5200_MCS0_OBW

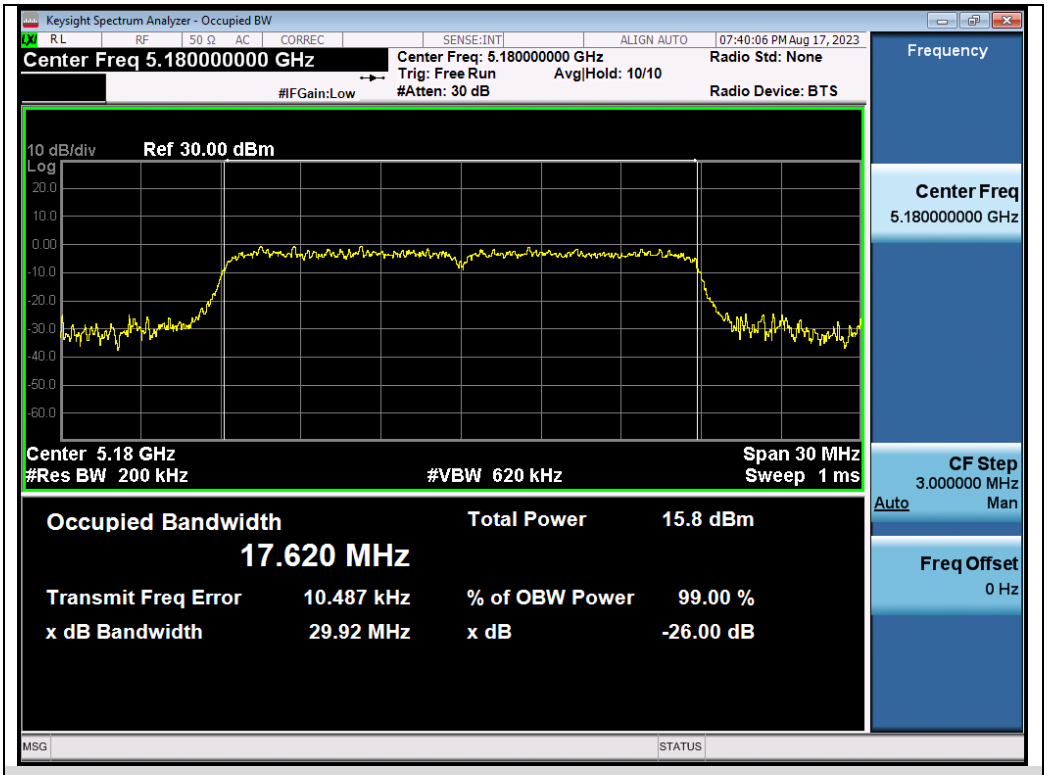


Test_Graph_802.11n20_ANT1_5240_MCS0_OBW

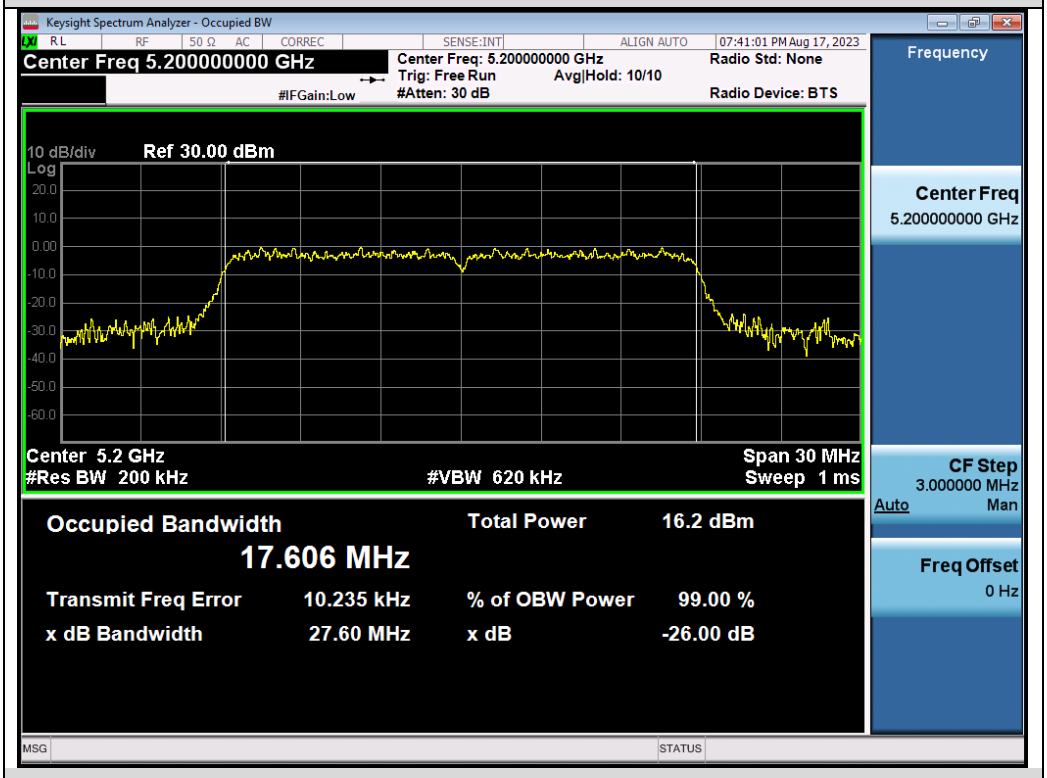


Test_Graph_802.11n40_ANT1_5190_MCS0_OBW

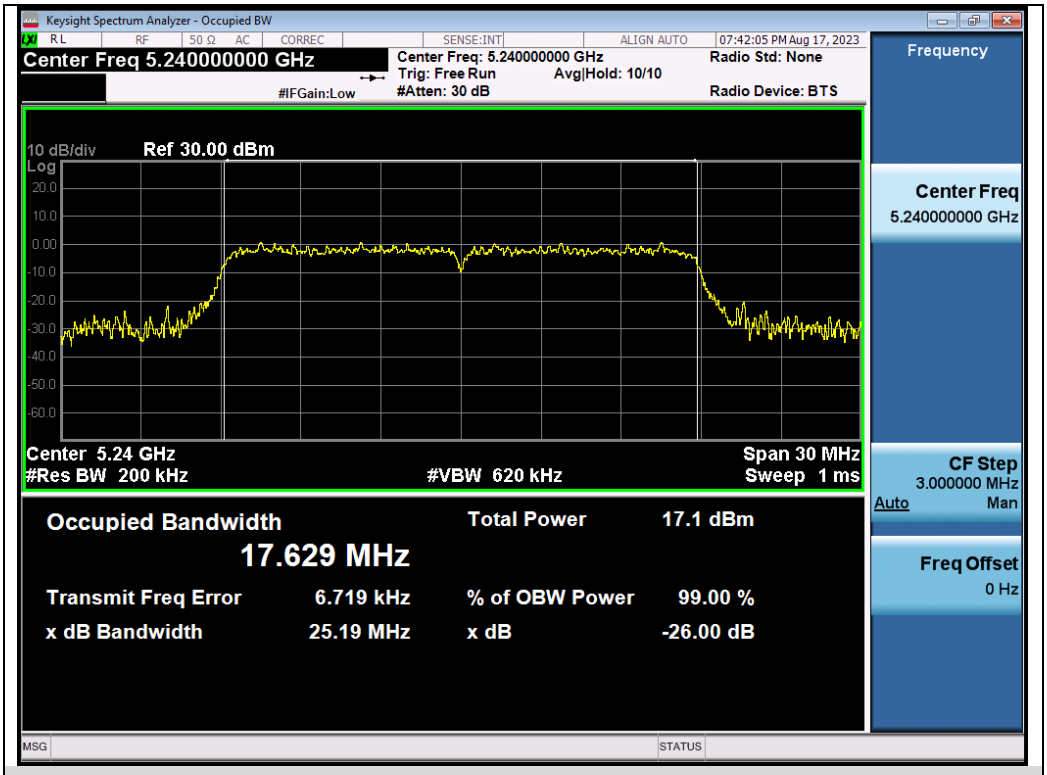
Test_Graph_802.11n40_ANT1_5230_MCS0_OBW



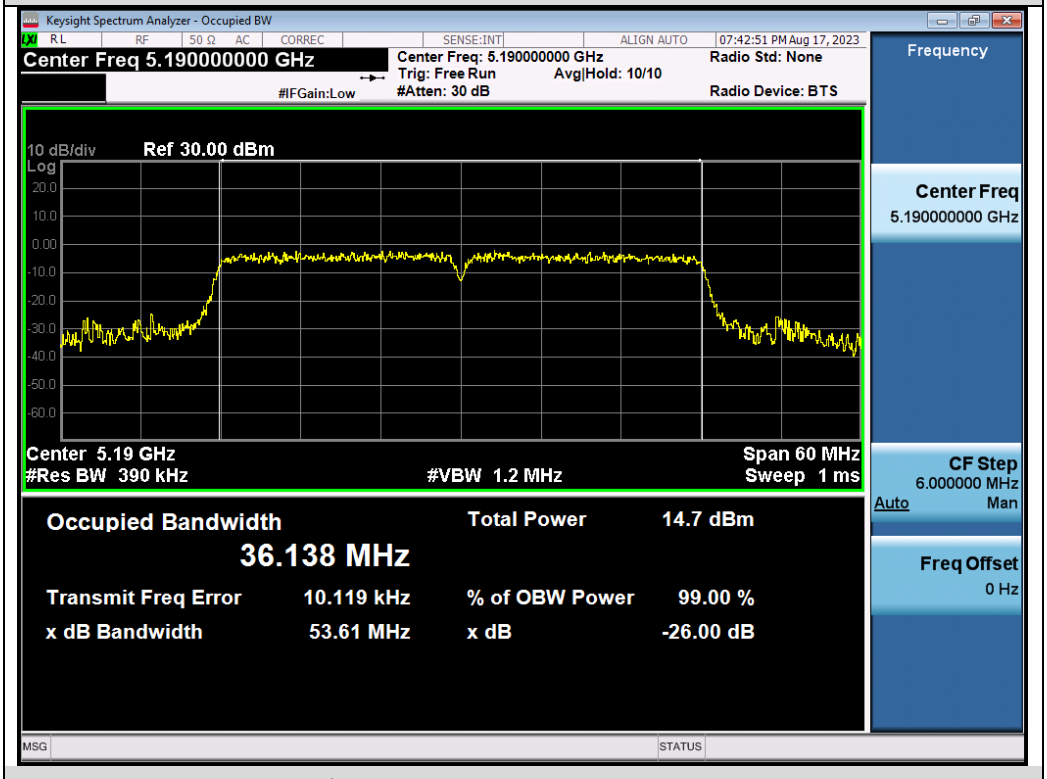
Test_Graph_802.11ac20_ANT1_5180_MCS0_OBW



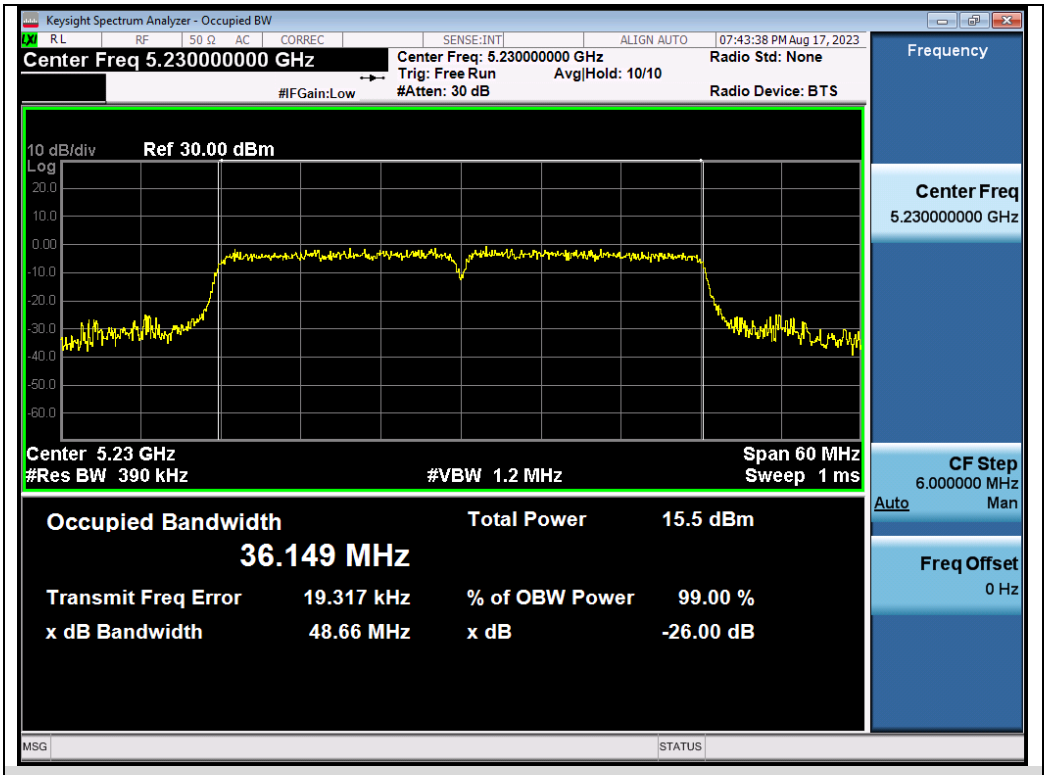
Test_Graph_802.11ac20_ANT1_5200_MCS0_OBW



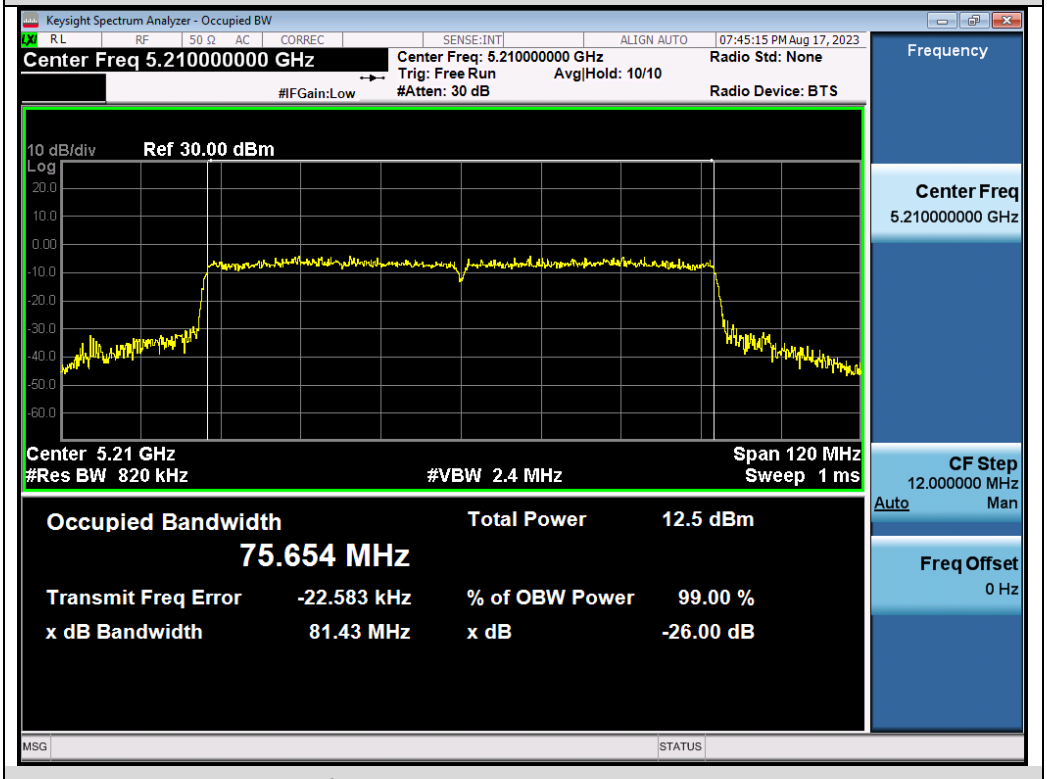
Test_Graph_802.11ac20_ANT1_5240_MCS9_OBW



Test_Graph_802.11ac40_ANT1_5190_MCS9_OBW

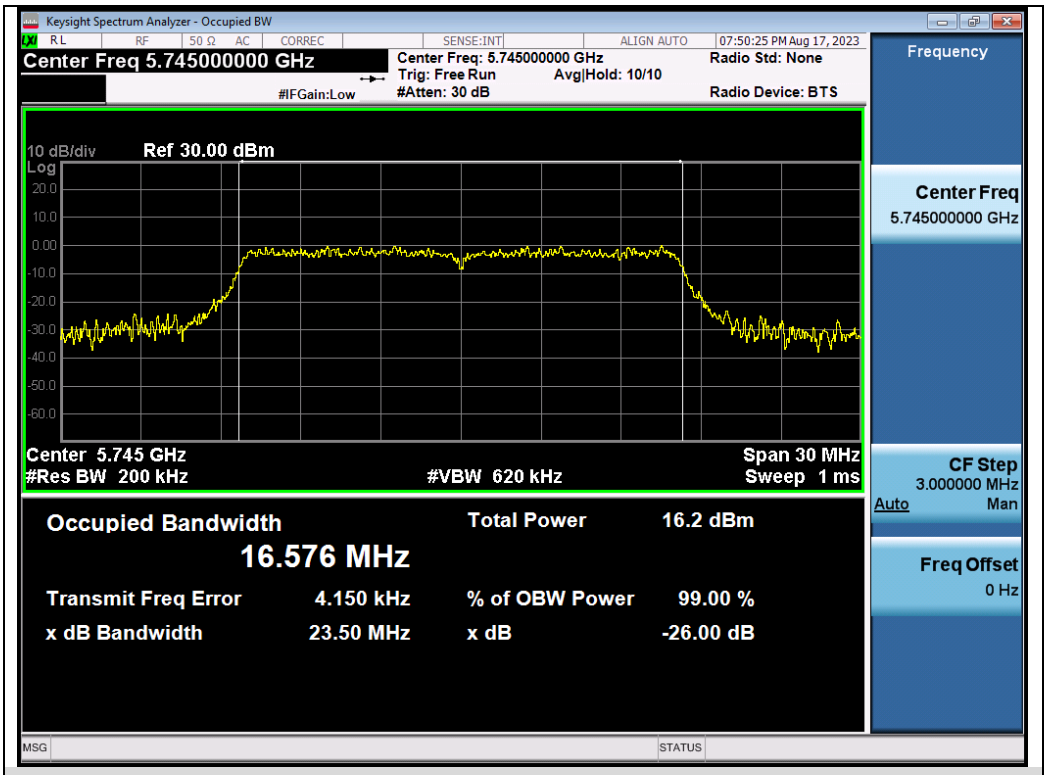


Test_Graph_802.11ac40_ANT1_5230_MCS9_OBW

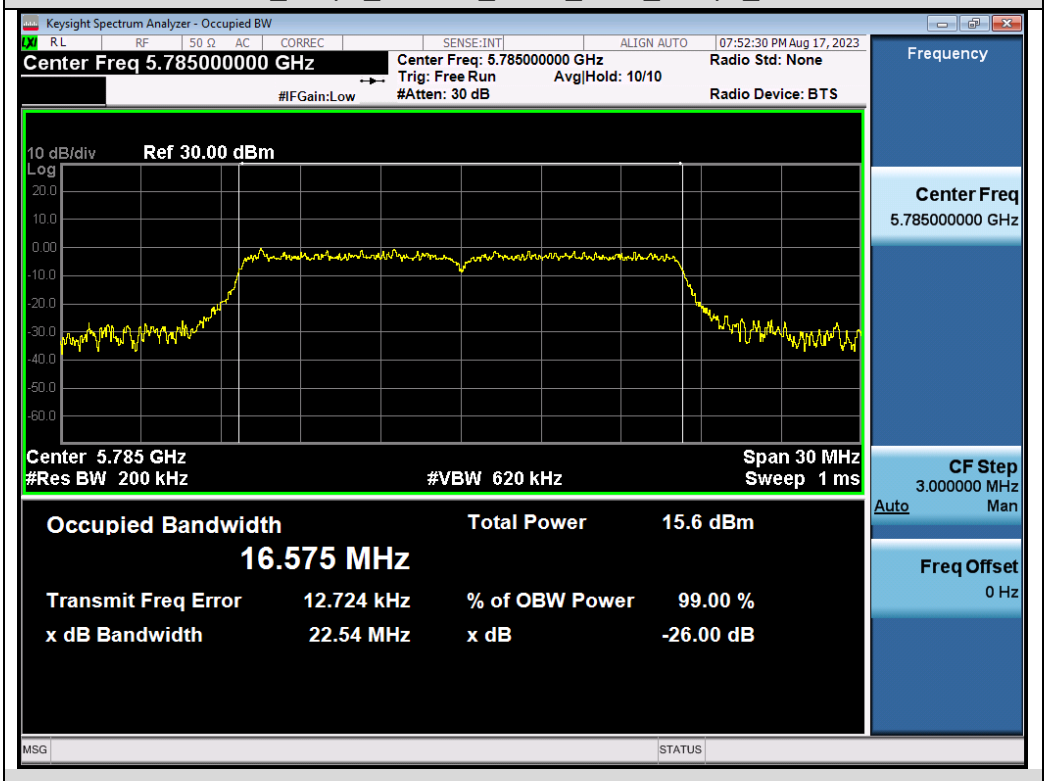


Test_Graph_802.11ac80_ANT1_5210_MCS9_OBW

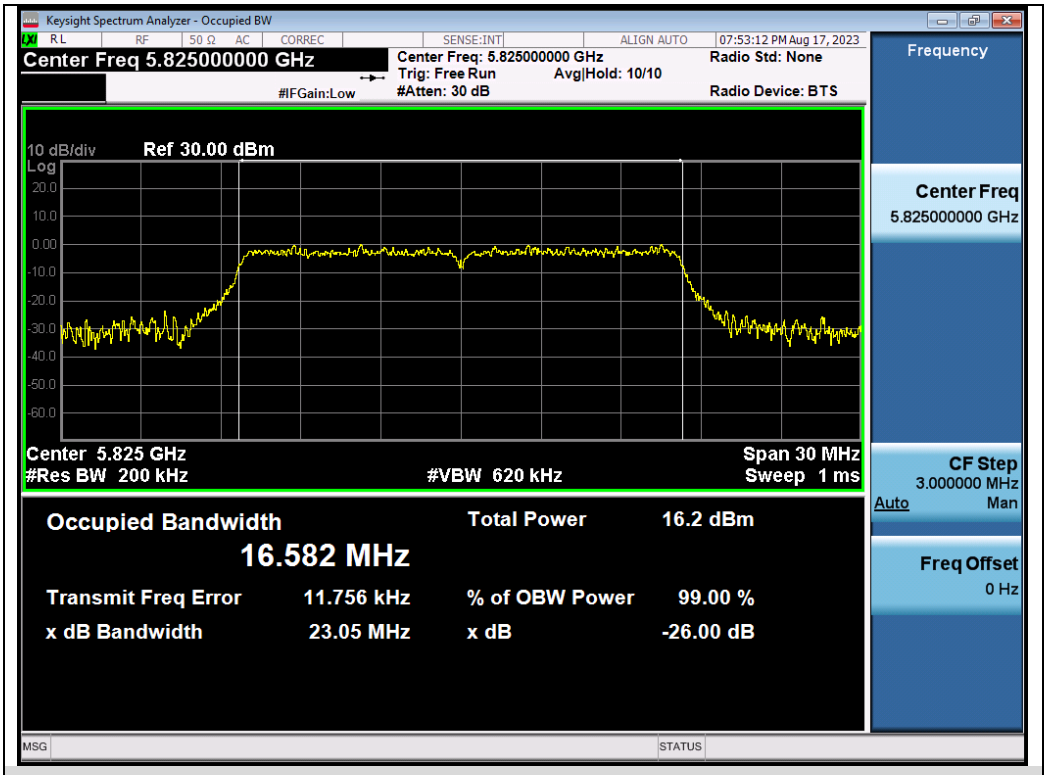
Test Graphs of Occupied Bandwidth and -26dB Bandwidth for band 5.745-5.825 GHz



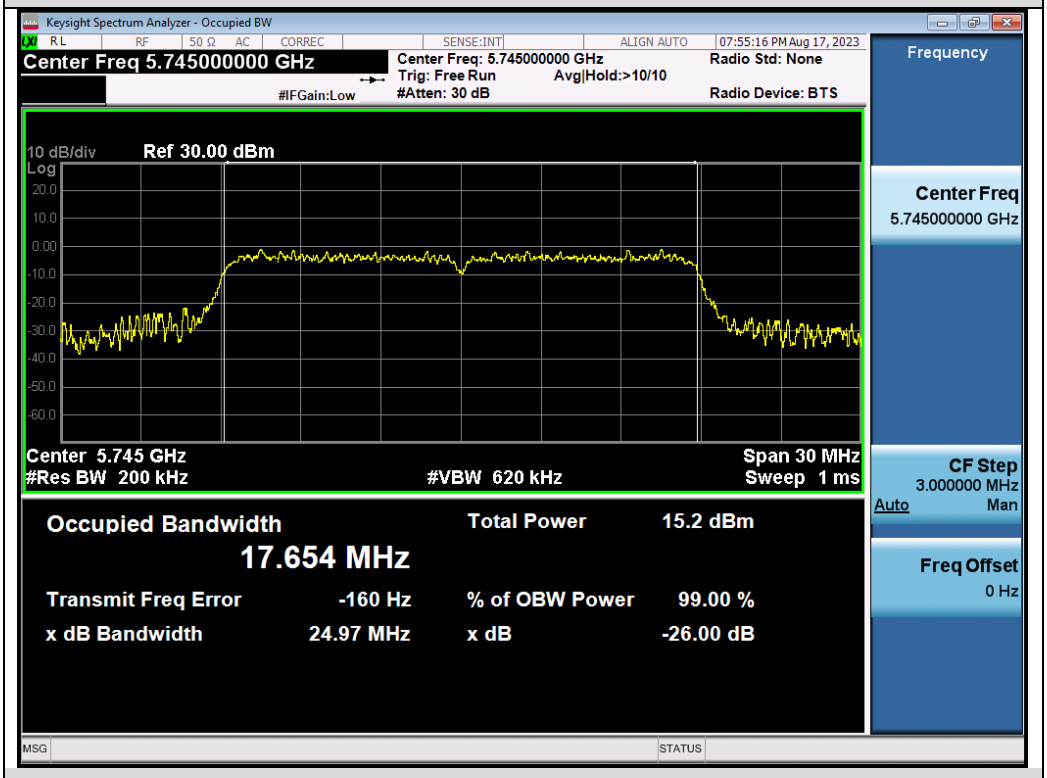
Test_Graph_802.11a_ANT1_5745_6Mbps_OBW



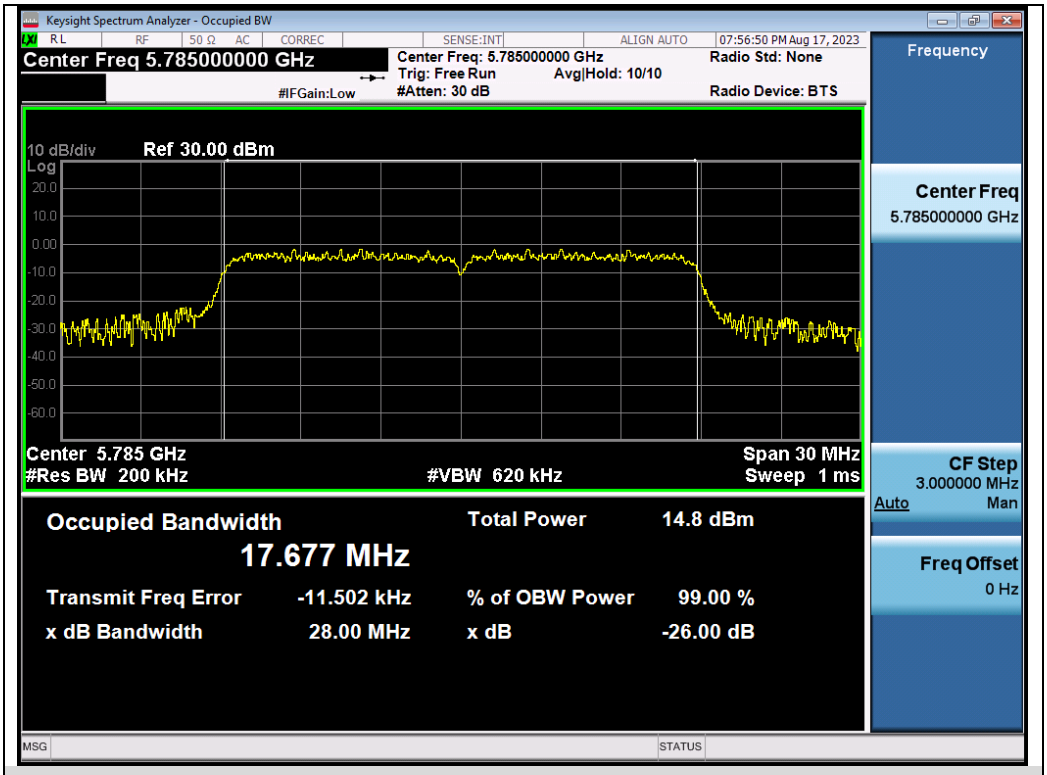
Test_Graph_802.11a_ANT1_5785_6Mbps_OBW



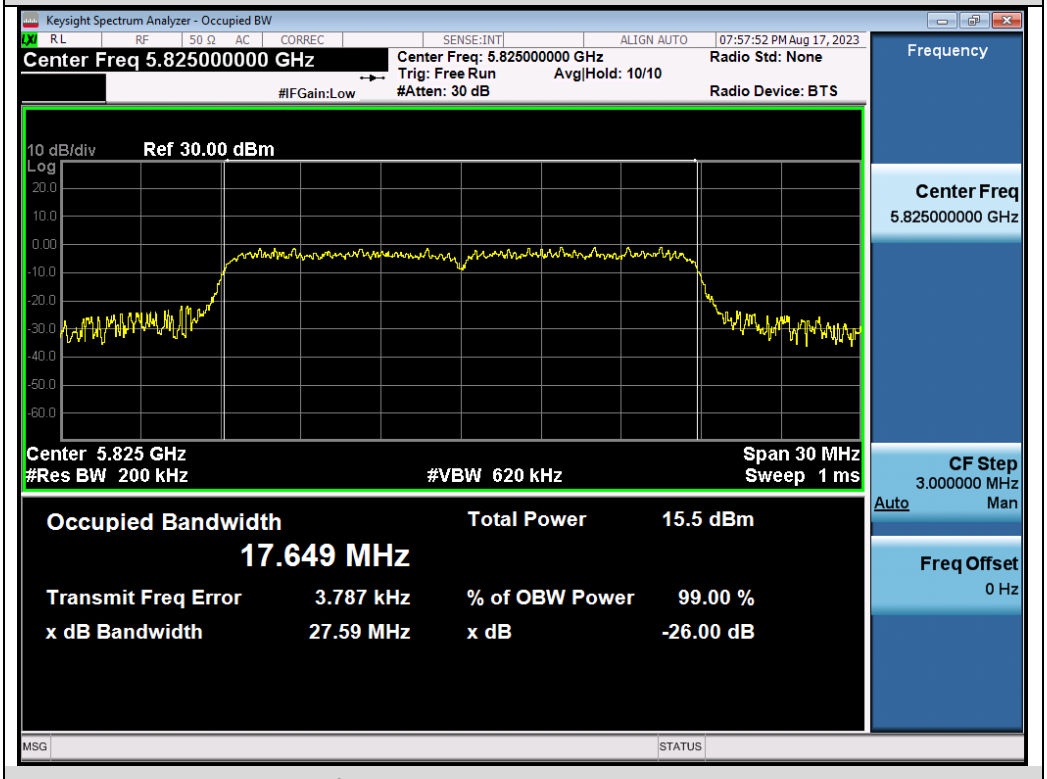
Test_Graph_802.11a_ANT1_5825_6Mbps_OBW



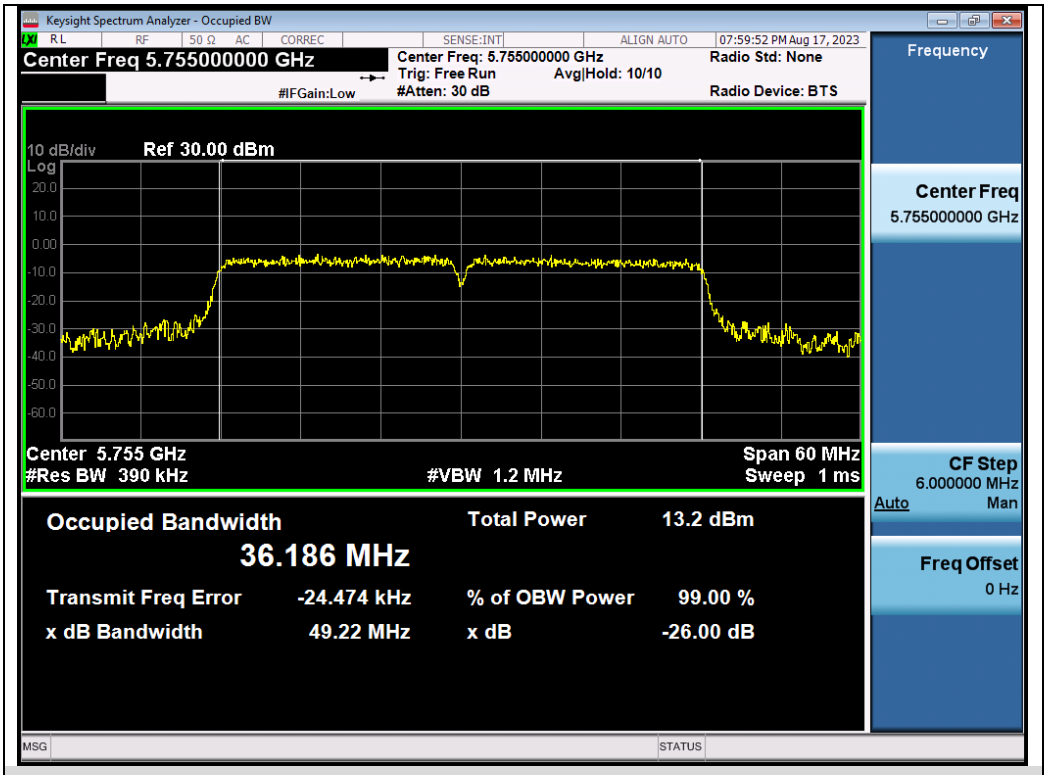
Test_Graph_802.11n20_ANT1_5745_MCS0_OBW



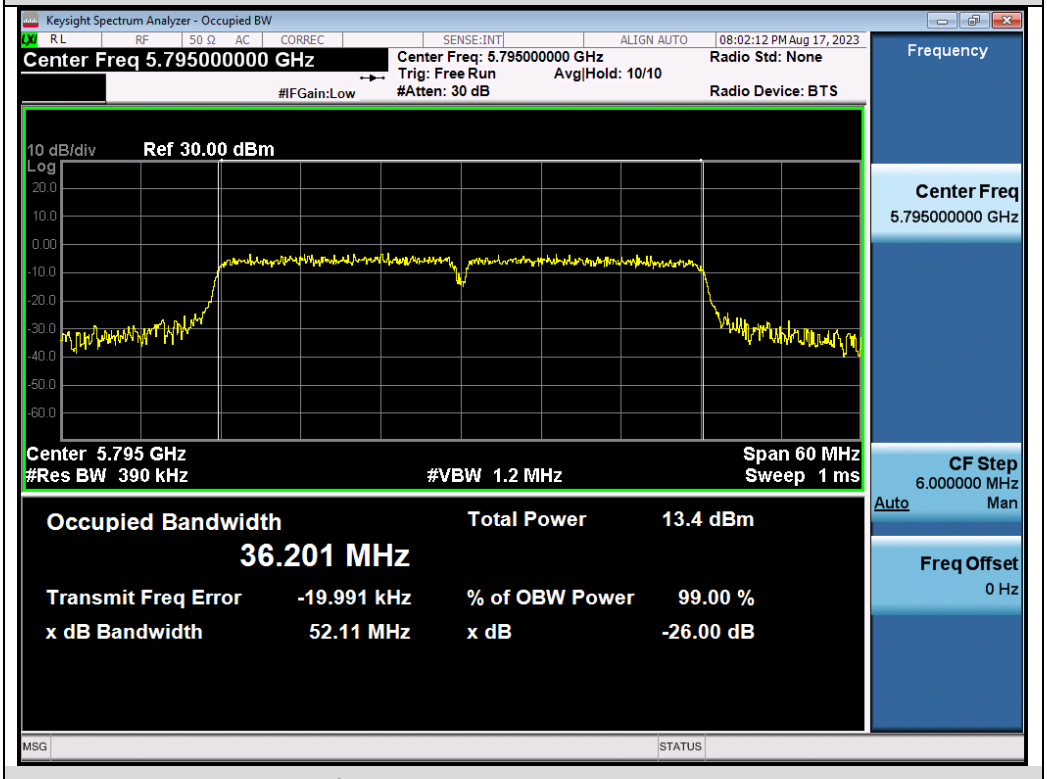
Test_Graph_802.11n20_ANT1_5785_MCS0_OBW



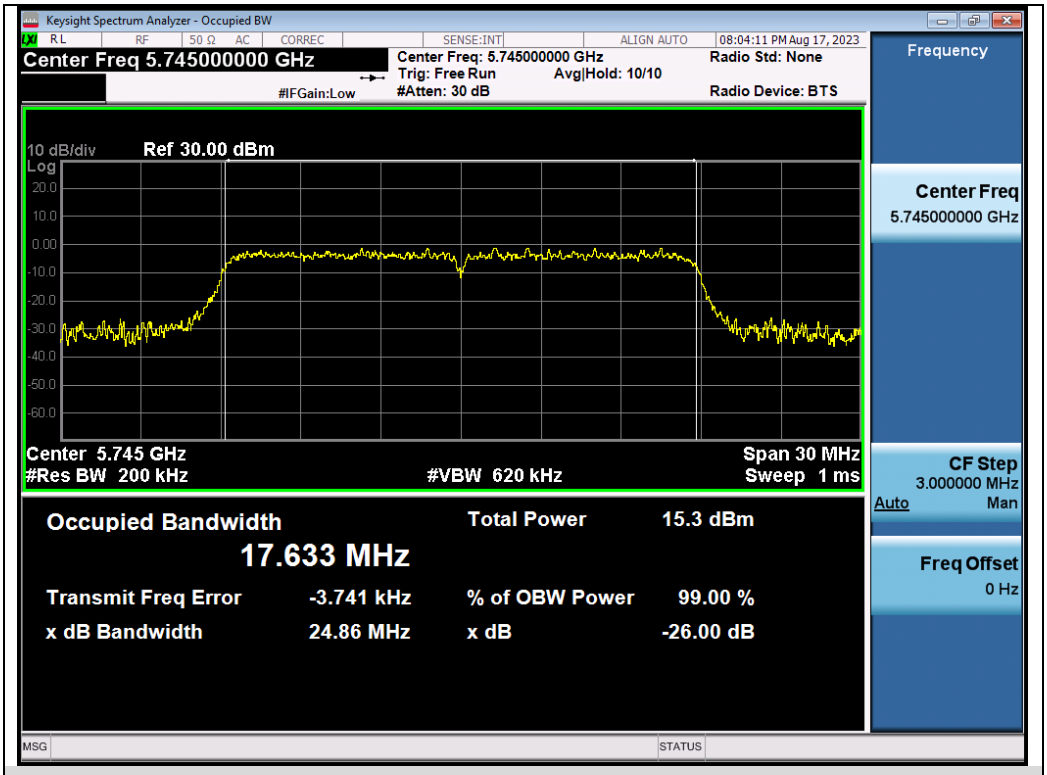
Test_Graph_802.11n20_ANT1_5825_MCS0_OBW



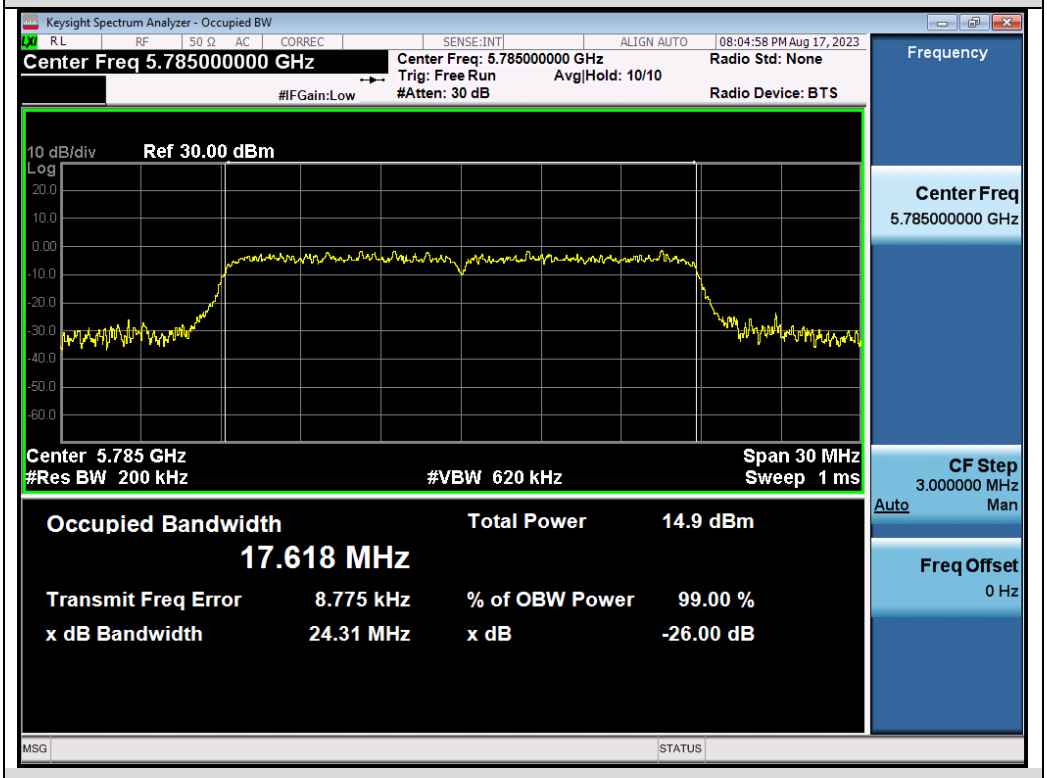
Test_Graph_802.11n40_ANT1_5755_MCS0_OBW



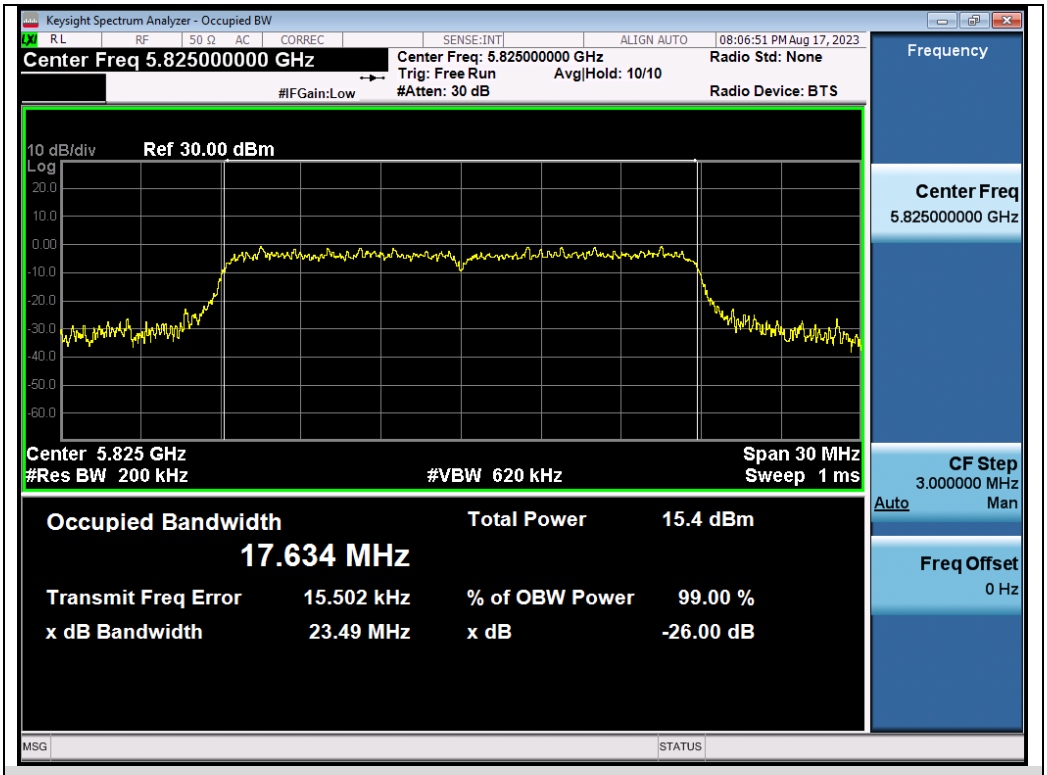
Test_Graph_802.11n40_ANT1_5795_MCS0_OBW



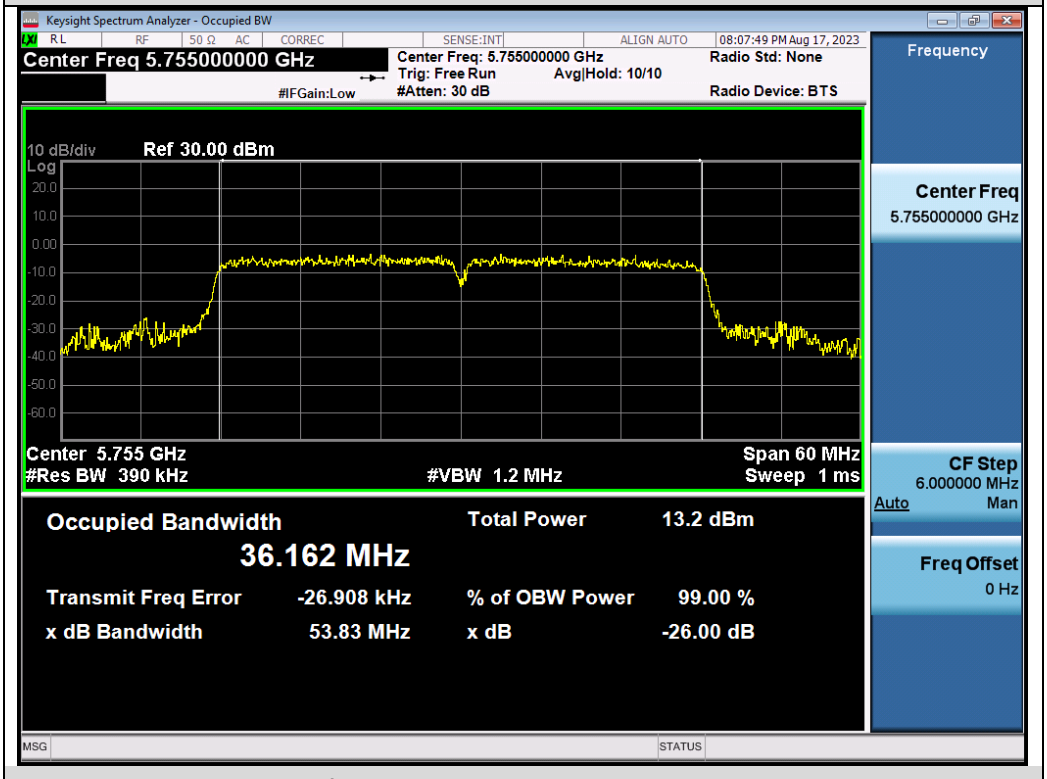
Test_Graph_802.11ac20_ANT1_5745_MCS0_OBW



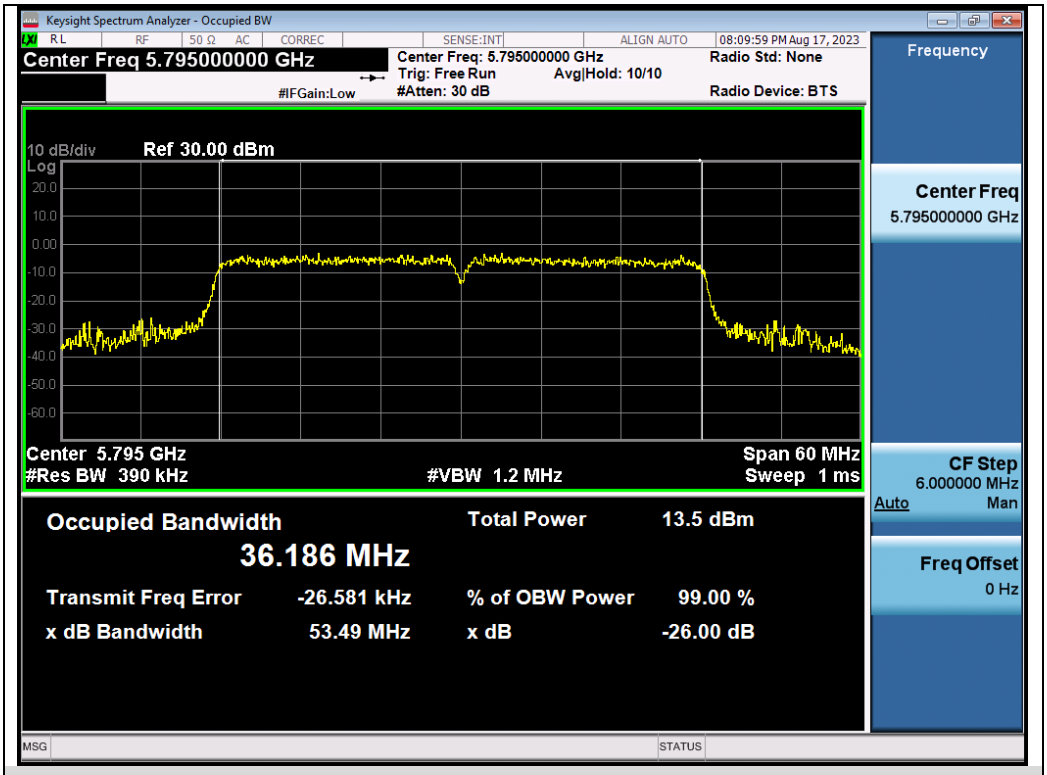
Test_Graph_802.11ac20_ANT1_5785_MCS0_OBW



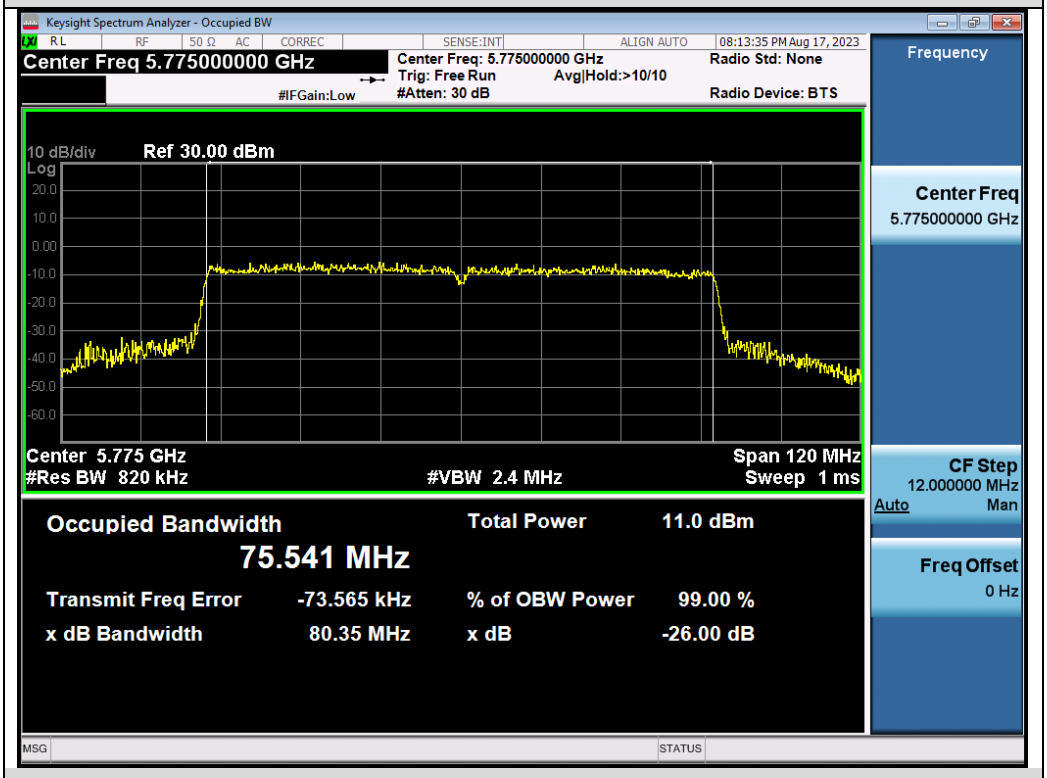
Test_Graph_802.11ac20_ANT1_5825_MCS9_OBW



Test_Graph_802.11ac40_ANT1_5755_MCS9_OBW

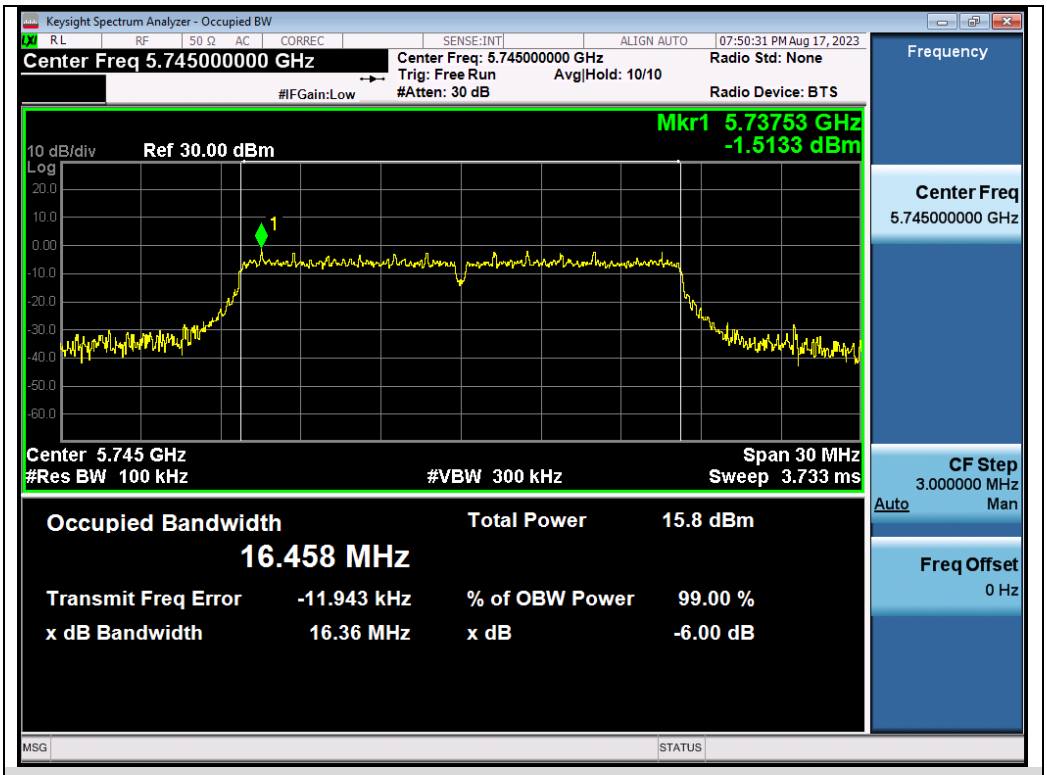


Test_Graph_802.11ac40_ANT1_5795_MCS9_OBW

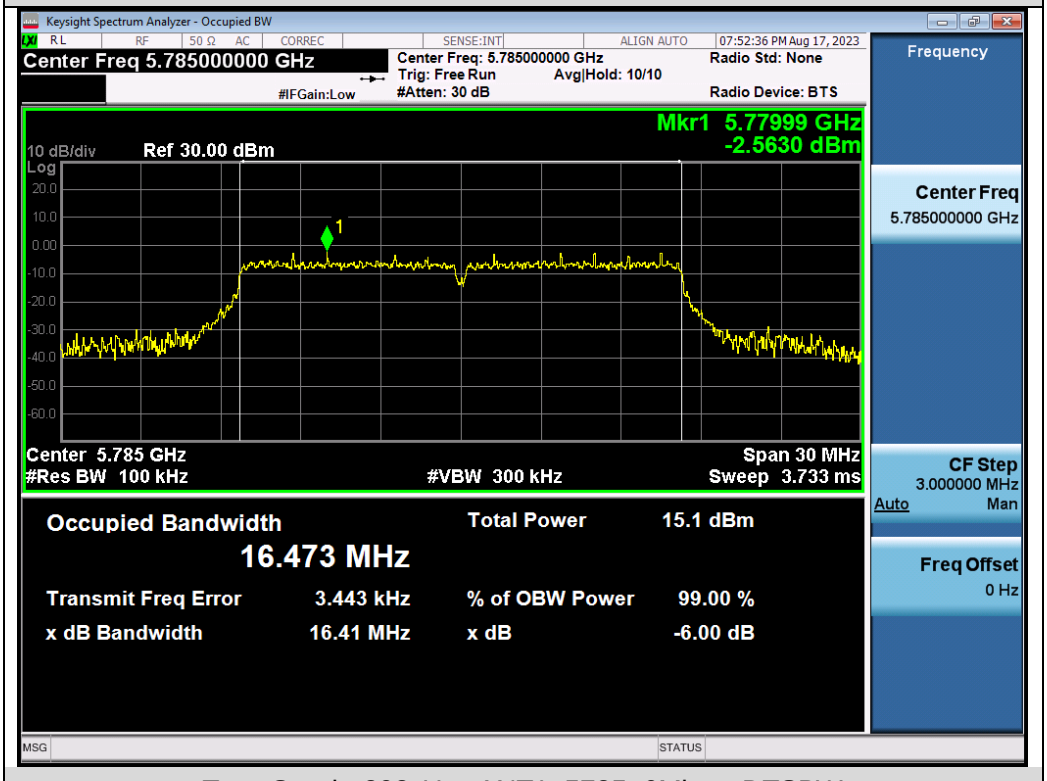


Test_Graph_802.11ac80_ANT1_5775_MCS9_OBW

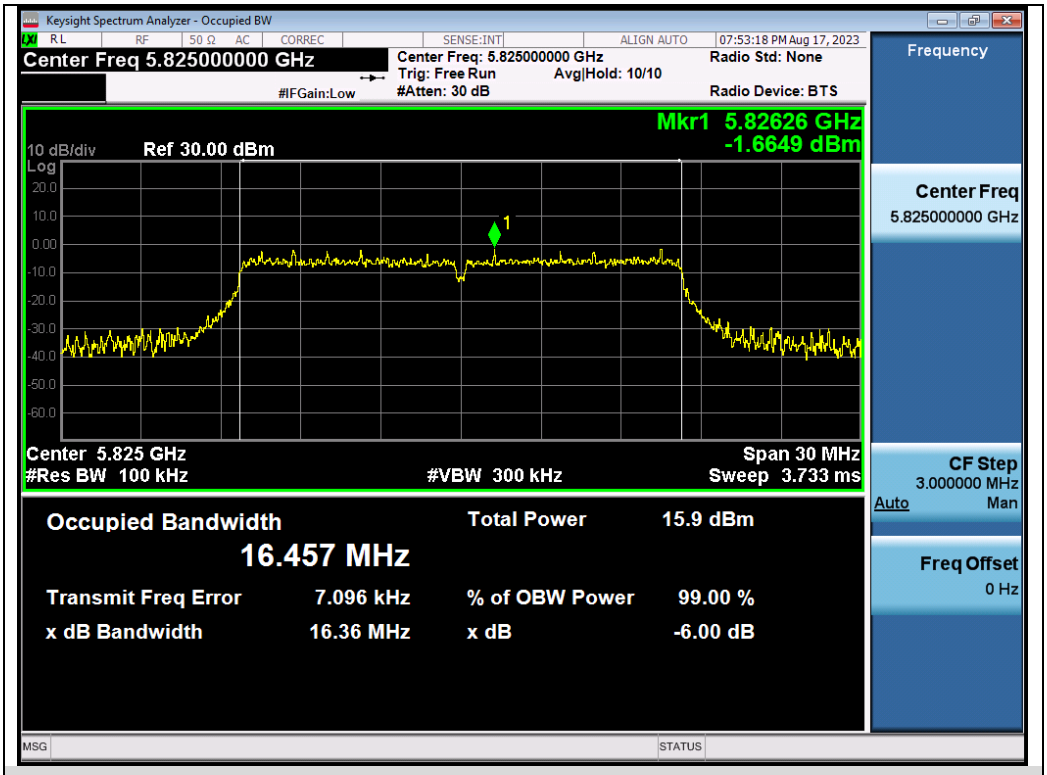
Test Graphs of DTS Bandwidth for band 5.725-5.85 GHz



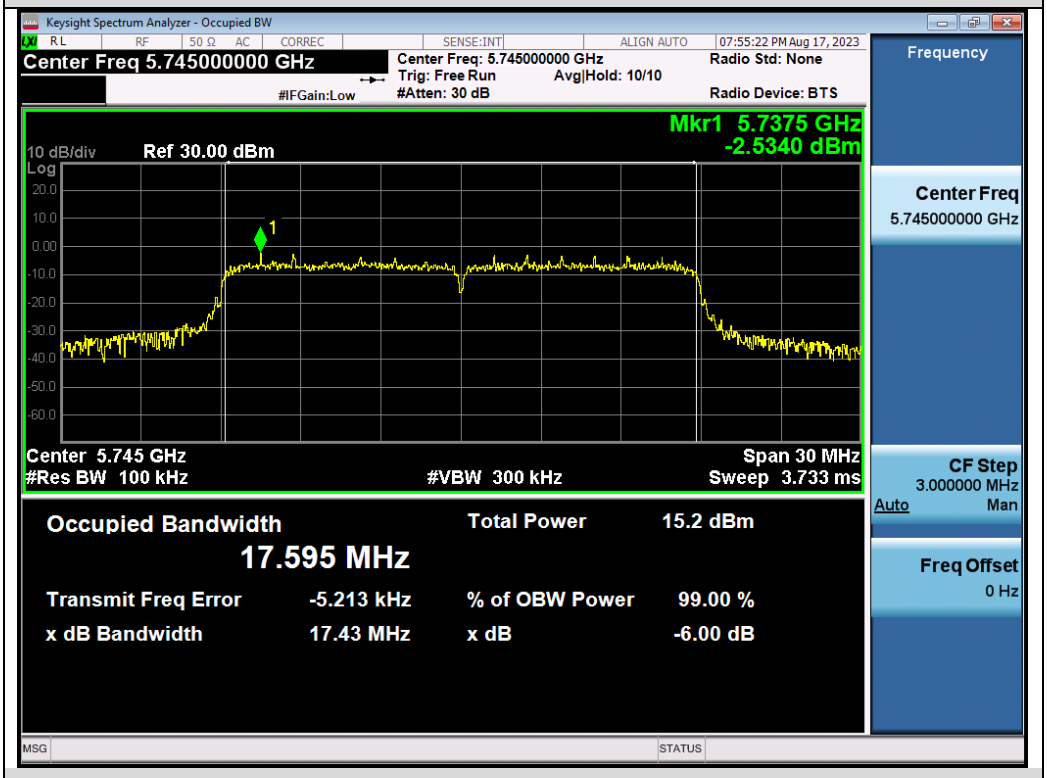
Test_Graph_802.11a_ANT1_5745_6Mbps_DTSBW



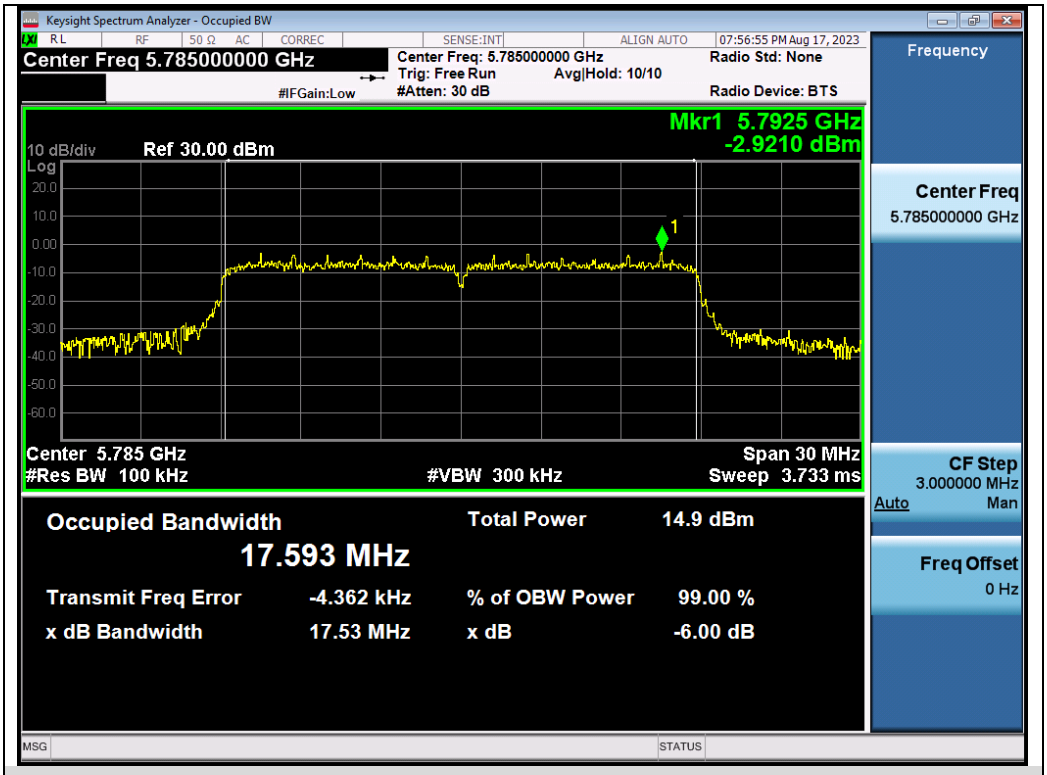
Test_Graph_802.11a_ANT1_5785_6Mbps_DTSBW



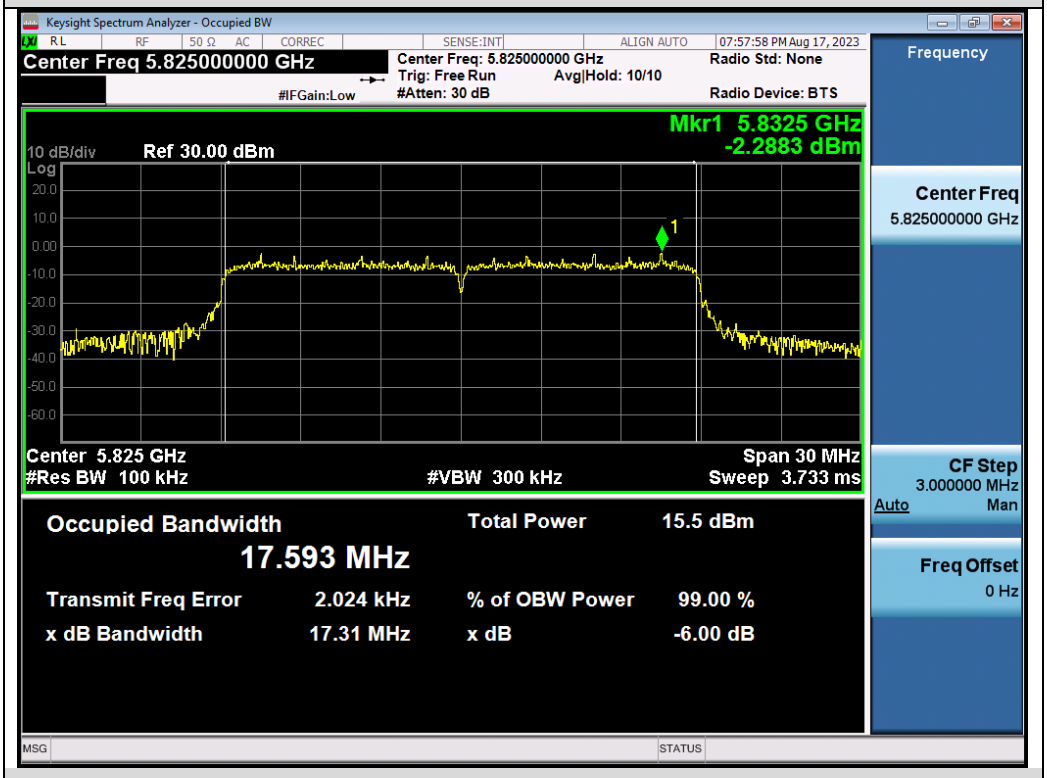
Test_Graph_802.11a_ANT1_5825_6Mbps_DTSBW



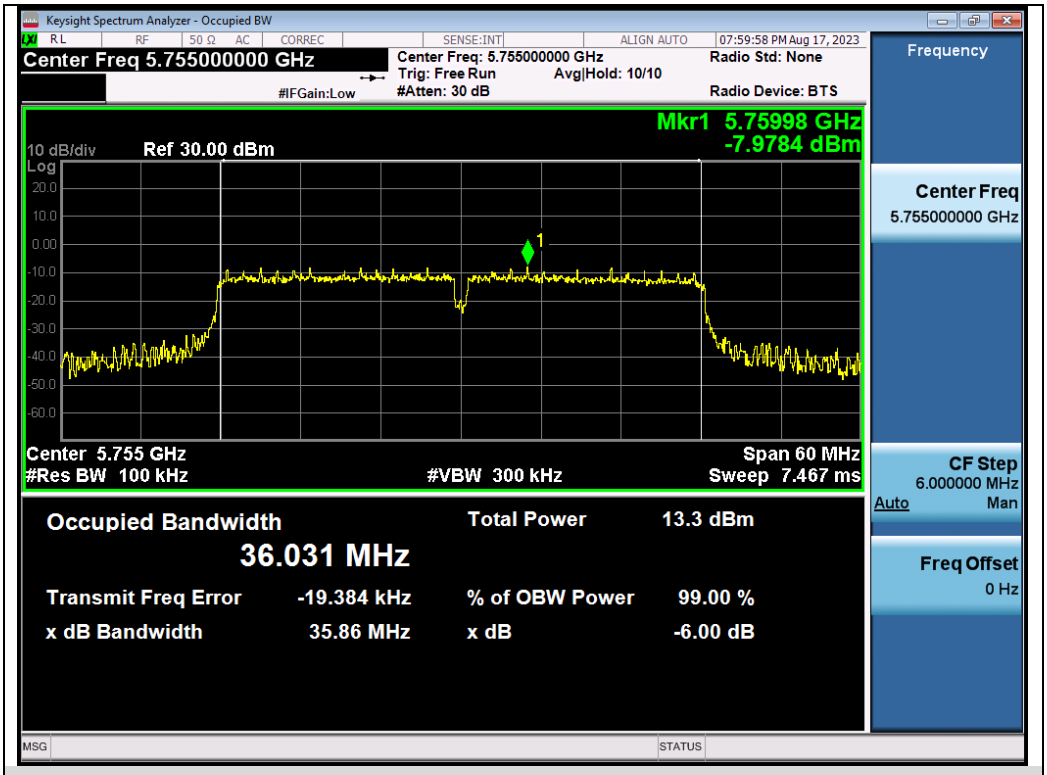
Test_Graph_802.11n20_ANT1_5745_MCS0_DTSBW



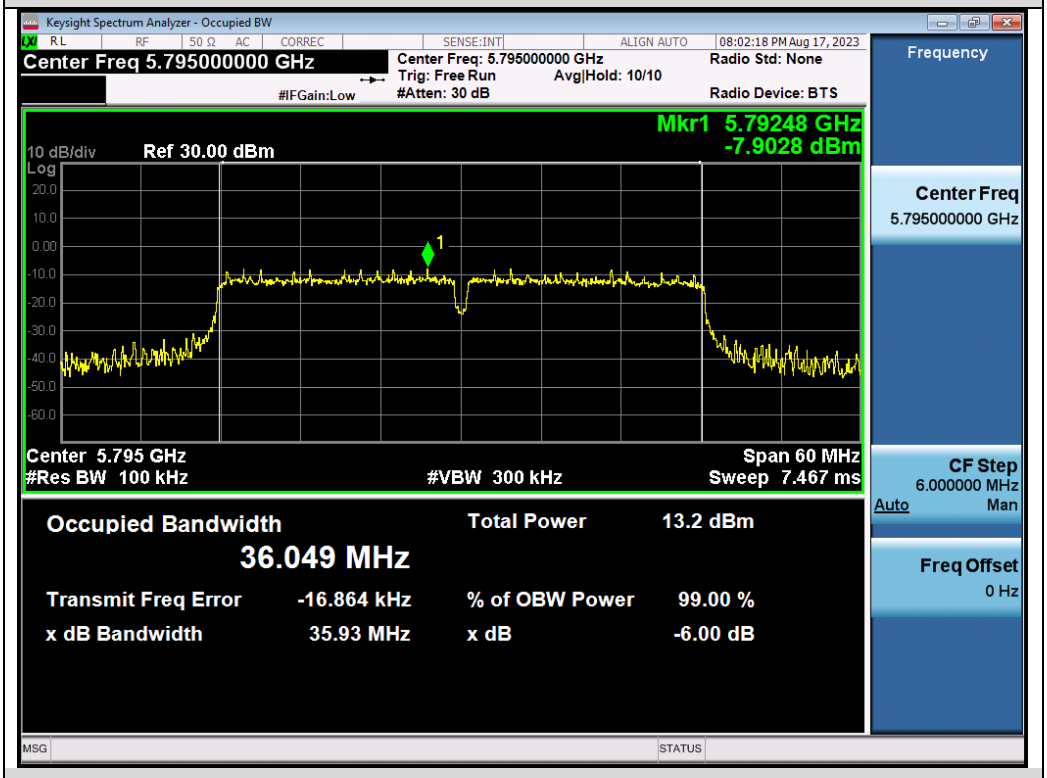
Test_Graph_802.11n20_ANT1_5785_MCS0_DTSBW



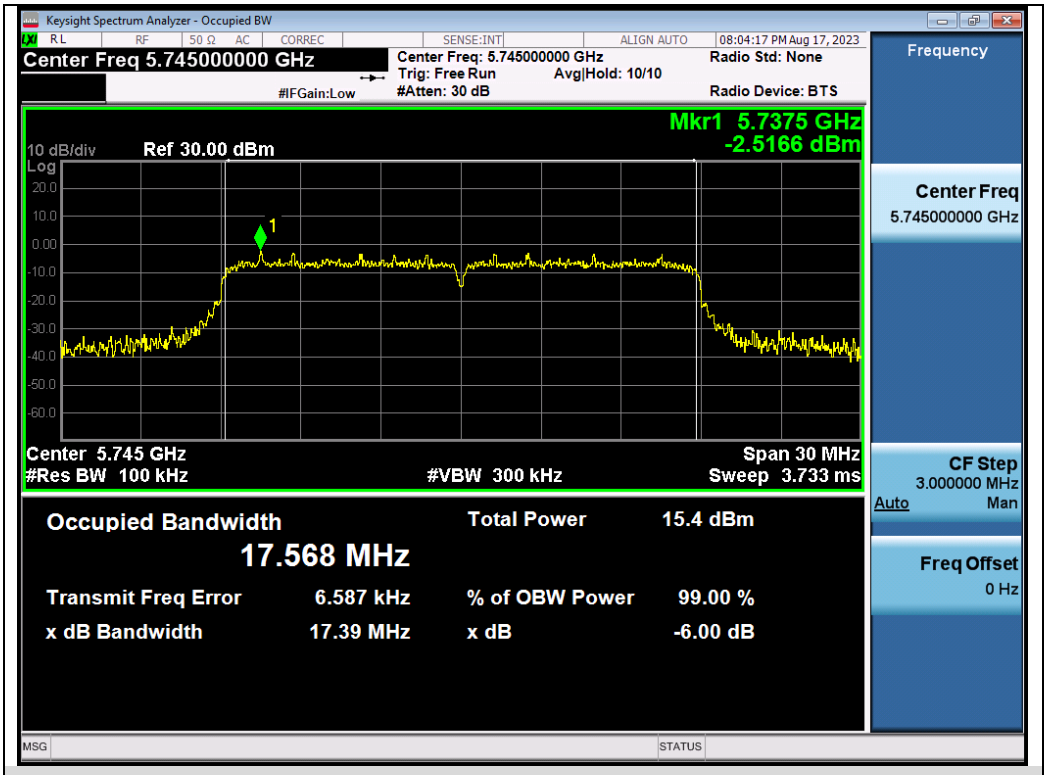
Test_Graph_802.11n20_ANT1_5825_MCS0_DTSBW



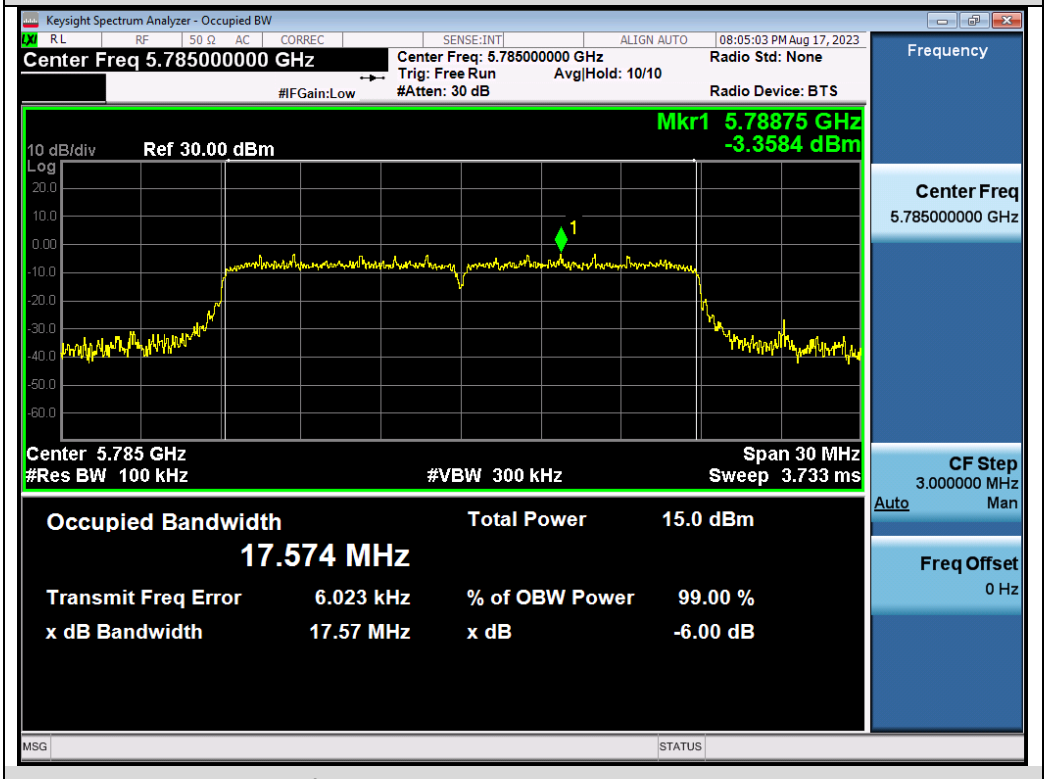
Test_Graph_802.11n40_ANT1_5755_MCS0_DTSBW



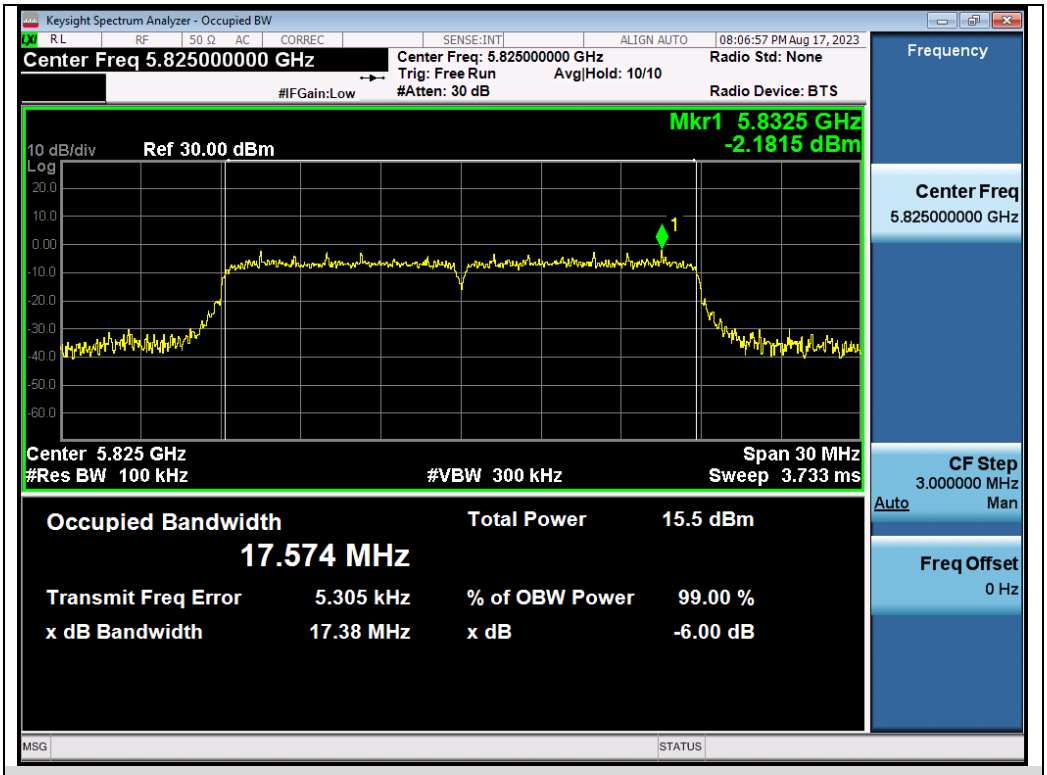
Test_Graph_802.11n40_ANT1_5795_MCS0_DTSBW



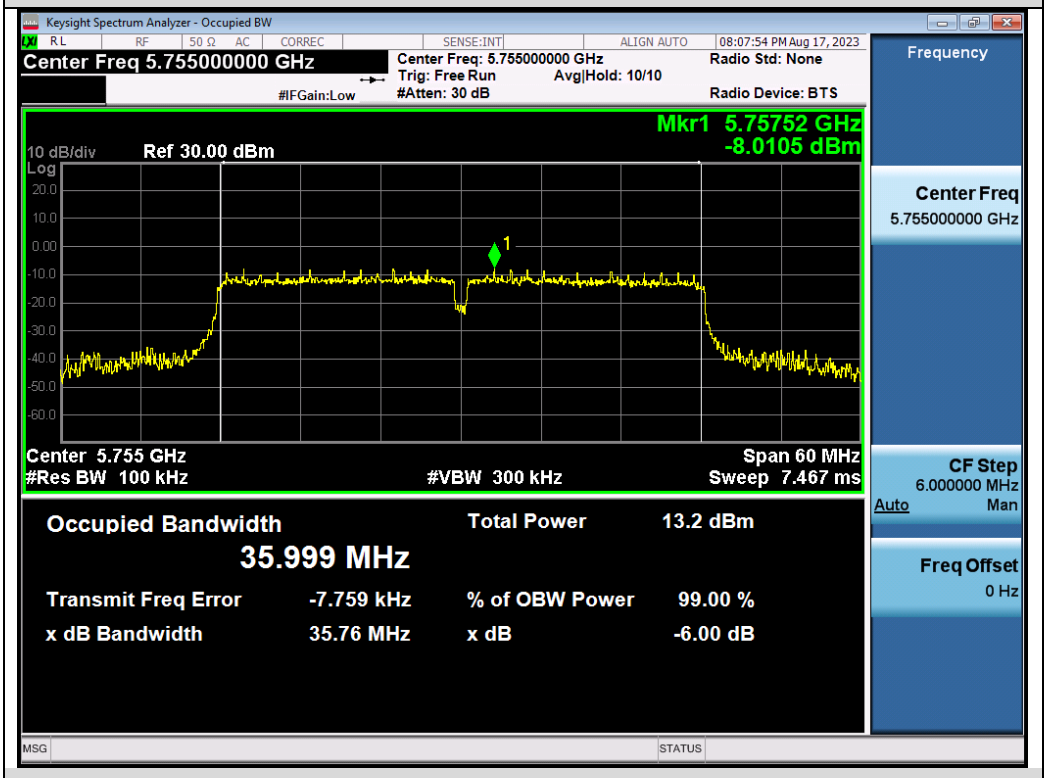
Test_Graph_802.11ac20_ANT1_5745_MCS0_DTSBW



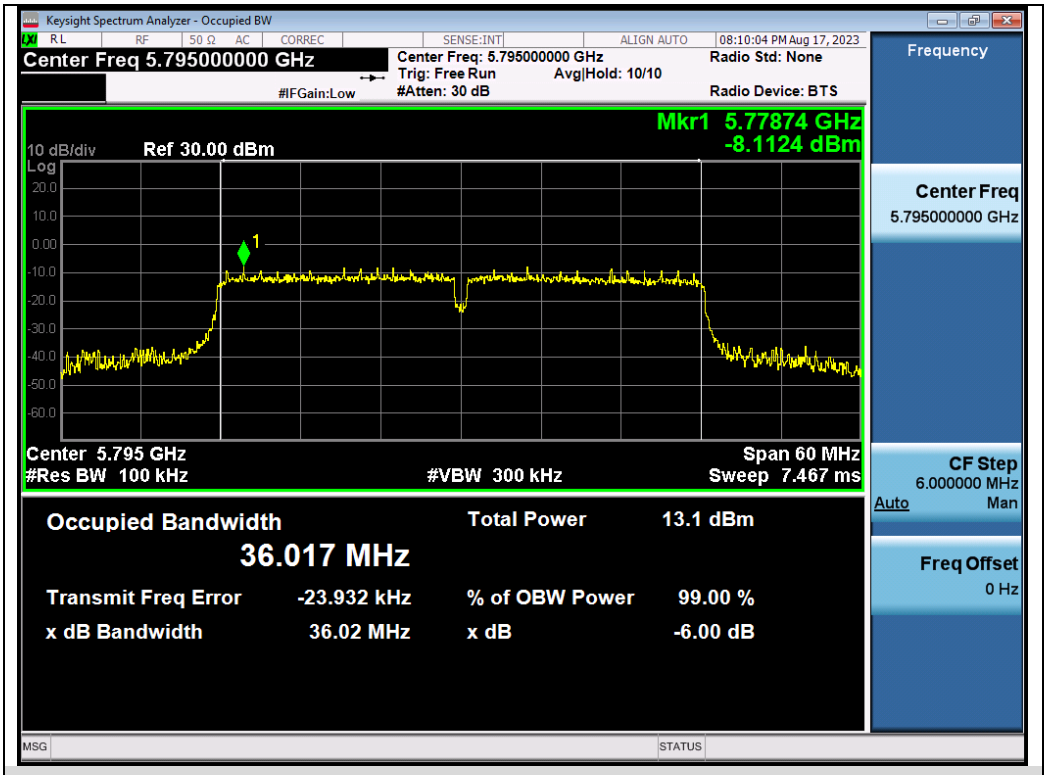
Test_Graph_802.11ac20_ANT1_5785_MCS0_DTSBW



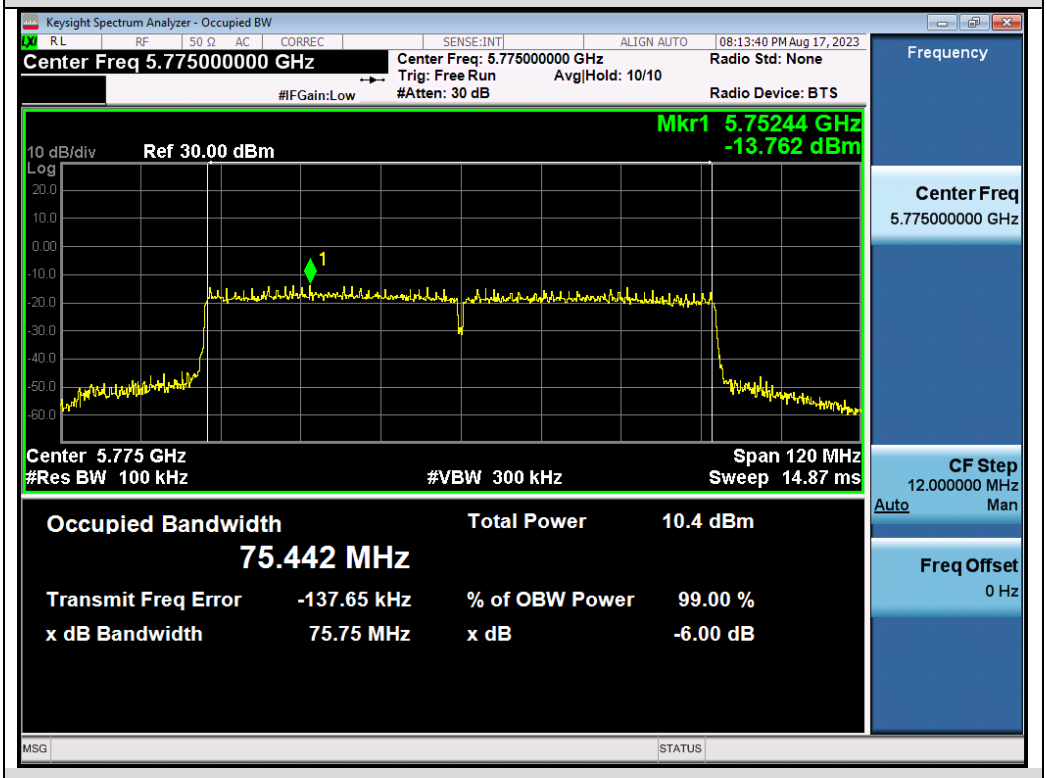
Test_Graph_802.11ac20_ANT1_5825_MCS9_DTSBW



Test_Graph_802.11ac40_ANT1_5755_MCS9_DTSBW



Test_Graph_802.11ac40_ANT1_5795_MCS9_DTSBW



Test_Graph_802.11ac80_ANT1_5775_MCS9_DTSBW

9. POWER SPECTRAL DENSITY MEASUREMENT

9.1 MEASUREMENT LIMITS

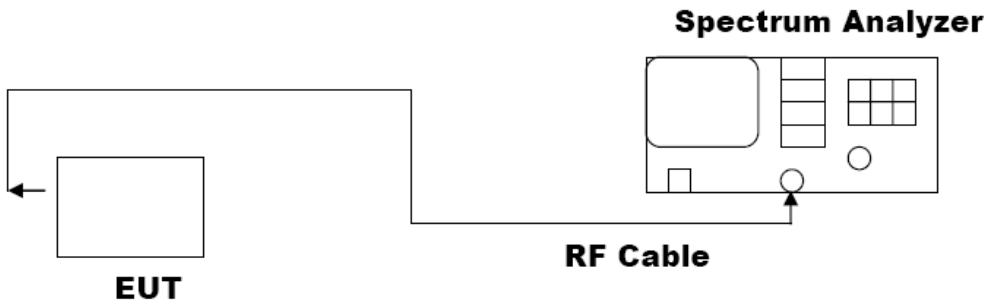
Operation Band	EUT Category		LIMIT
U-NII-1	☐	Outdoor Access Point	17dBm/ MHz
	☐	Fixed point-to-point Access Point	17dBm/ MHz
	☐	Indoor Access Point	17dBm/ MHz
	☒	Client devices	11dBm/ MHz
U-NII-2A	/		11dBm/ MHz
U-NII-2C	/		11dBm/ MHz
U-NII-3	/		30 dBm/500kHz

9.2 MEASUREMENT PROCEDURE

☒For Average power spectral density test:

1. Connect EUT RF output port to the Spectrum Analyzer through.
2. Span was set to encompass the entire 26dB EBW of the signal.
3. RBW = 1MHz.
4. If measurement bandwidth of Maximum PSD is specified in 500 kHz, RBW = 100KHz
5. Set VBW≥[3×RBW].
6. Sweep Time=Auto couple.
7. Detector function=RMS (i.e., power averaging).
8. Trace average at least 100 traces in power averaging (rms) mode.
9. When the measurement bandwidth of Maximum PSD is specified in 100 kHz, add a constant factor 10*log(500kHz/100kHz) = 6.99 dB to the measured result.
10. Determine according to the duty cycle of the equipment: when it is less than 98%, follow the steps below.
11. Add [10 log (1/D)], where D is the duty cycle, to the measured power to compute the average power during the actual transmission times (because the measurement represents an average over both the ON and OFF times of the transmission). For example, add [10 log (1/0.25)] = 6 dB if the duty cycle is 25%.
12. Record the test results in the report.

9.3 MEASUREMENT SETUP (BLOCK DIAGRAM OF CONFIGURATION)



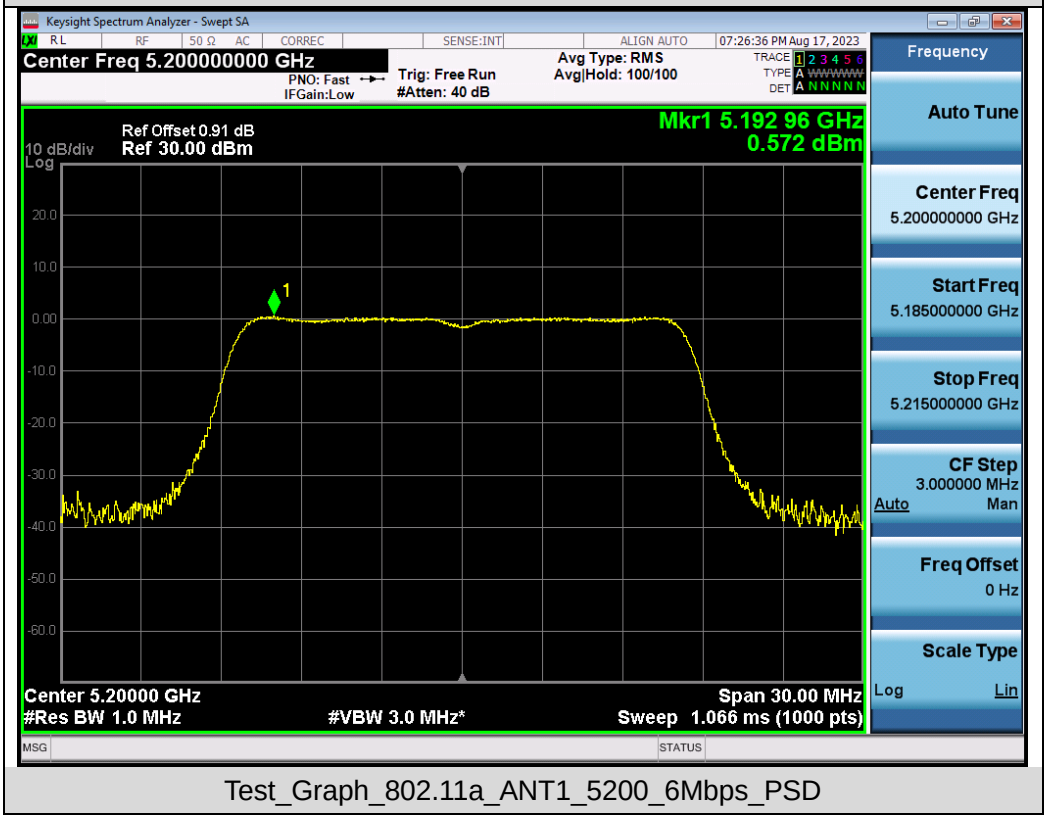
9.4 MEASUREMENT RESULT

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	0.400	11	Pass
	5200	0.572	11	Pass
	5240	1.642	11	Pass
802.11n20	5180	-0.866	11	Pass
	5200	-0.471	11	Pass
	5240	0.335	11	Pass
802.11n40	5190	-3.896	11	Pass
	5230	-3.171	11	Pass
802.11ac20	5180	-0.418	11	Pass
	5200	-0.489	11	Pass
	5240	0.676	11	Pass
802.11ac40	5190	-3.800	11	Pass
	5230	-3.333	11	Pass
802.11ac80	5210	-8.389	11	Pass

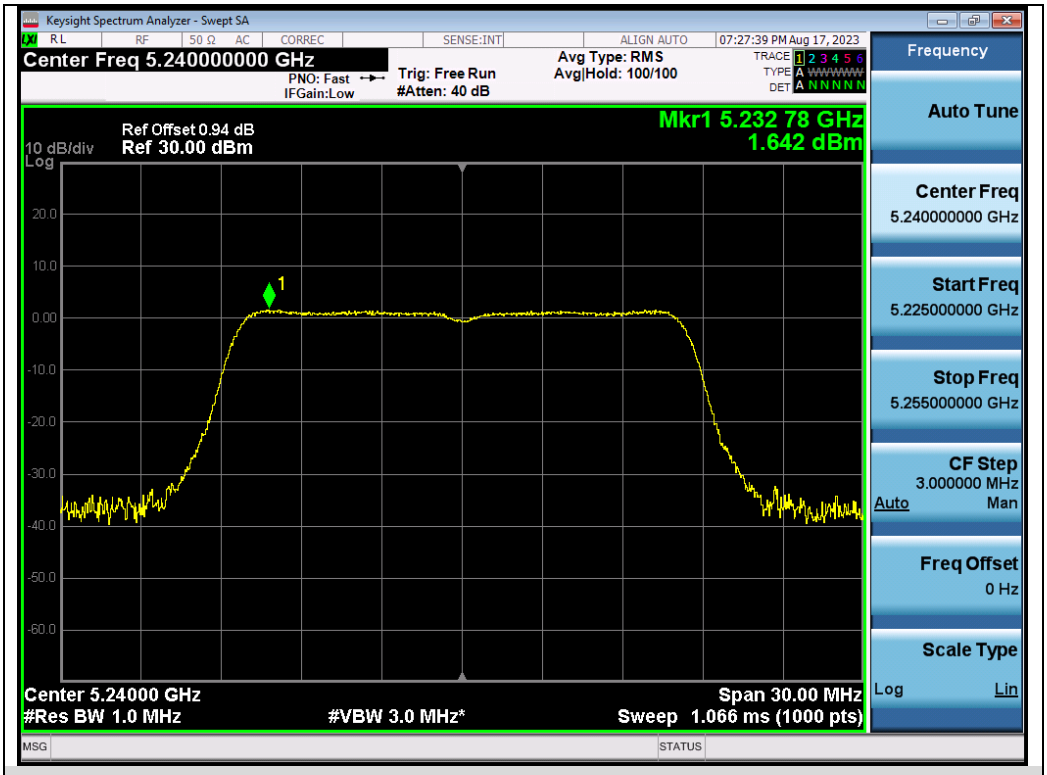
Test Data of Conducted Output Power Density for band 5.725-5.85 GHz					
Test Mode	Test Channel (MHz)	Average Power Density (dBm/100kHz)	Average Power Density (dBm/500kHz)	Limits (dBm/500kHz)	Pass or Fail
802.11a	5745	-9.17	-2.180	30	Pass
	5785	-9.813	-2.823	30	Pass
	5825	-9.188	-2.198	30	Pass
802.11n20	5745	-10.52	-3.530	30	Pass
	5785	-10.917	-3.927	30	Pass
	5825	-10.081	-3.091	30	Pass
802.11n40	5755	-14.66	-7.670	30	Pass
	5795	-14.389	-7.399	30	Pass
802.11ac20	5745	-10.313	-3.323	30	Pass
	5785	-11.073	-4.083	30	Pass
	5825	-9.964	-2.974	30	Pass
802.11ac40	5755	-14.694	-7.704	30	Pass
	5795	-14.337	-7.347	30	Pass
802.11ac80	5775	-18.052	-11.062	30	Pass

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

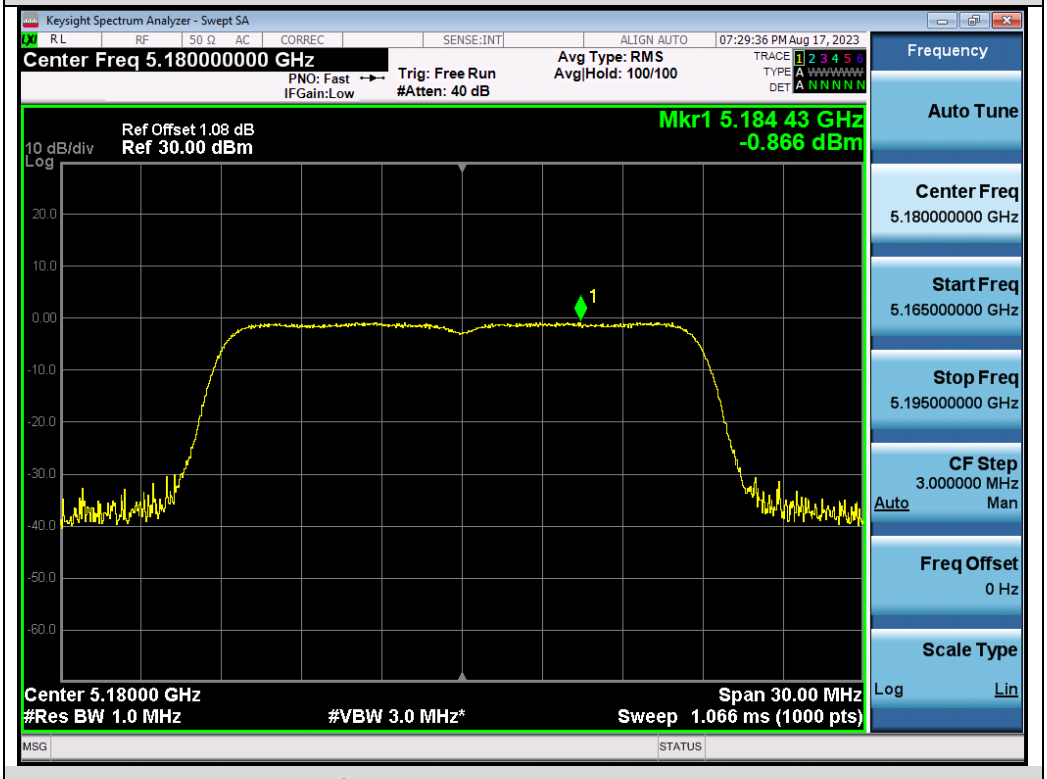
Test_Graph_802.11a_ANT1_5180_6Mbps_PSD



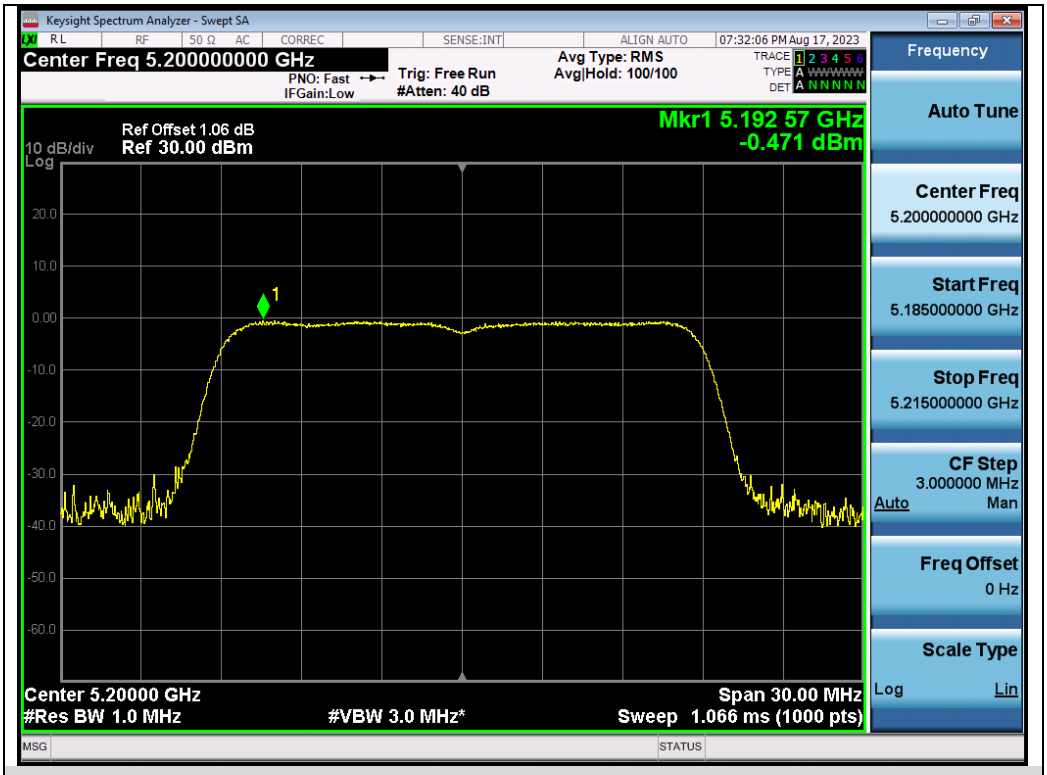
Test_Graph_802.11a_ANT1_5200_6Mbps_PSD



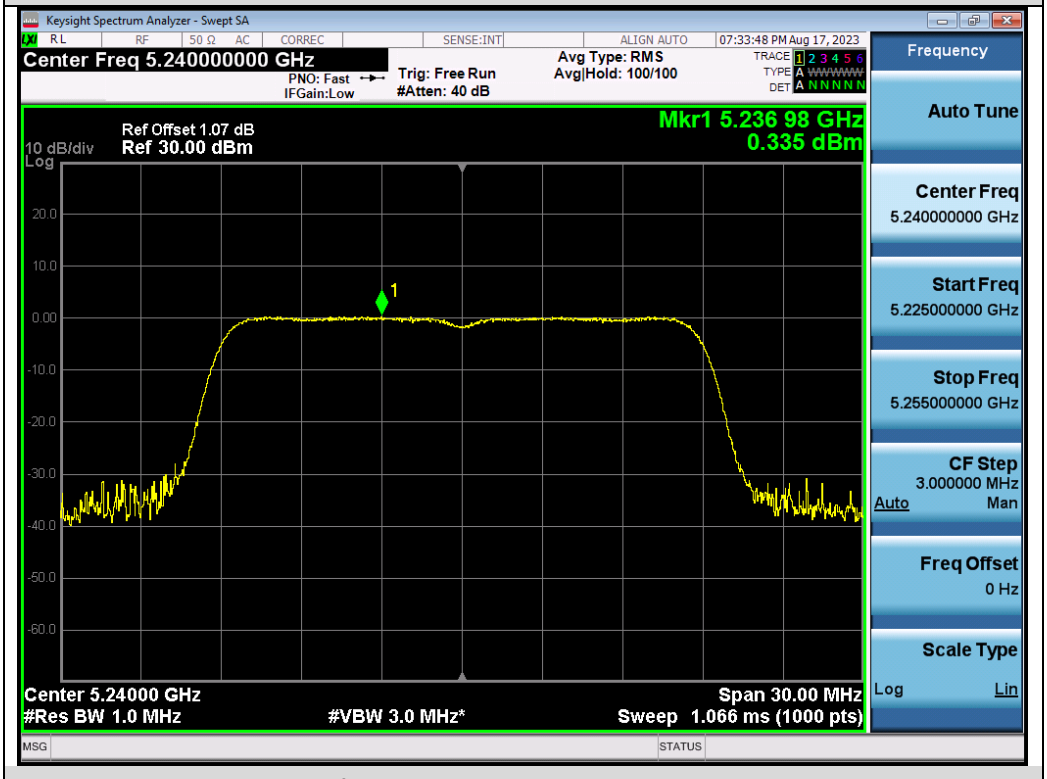
Test_Graph_802.11a_ANT1_5240_6Mbps_PSD



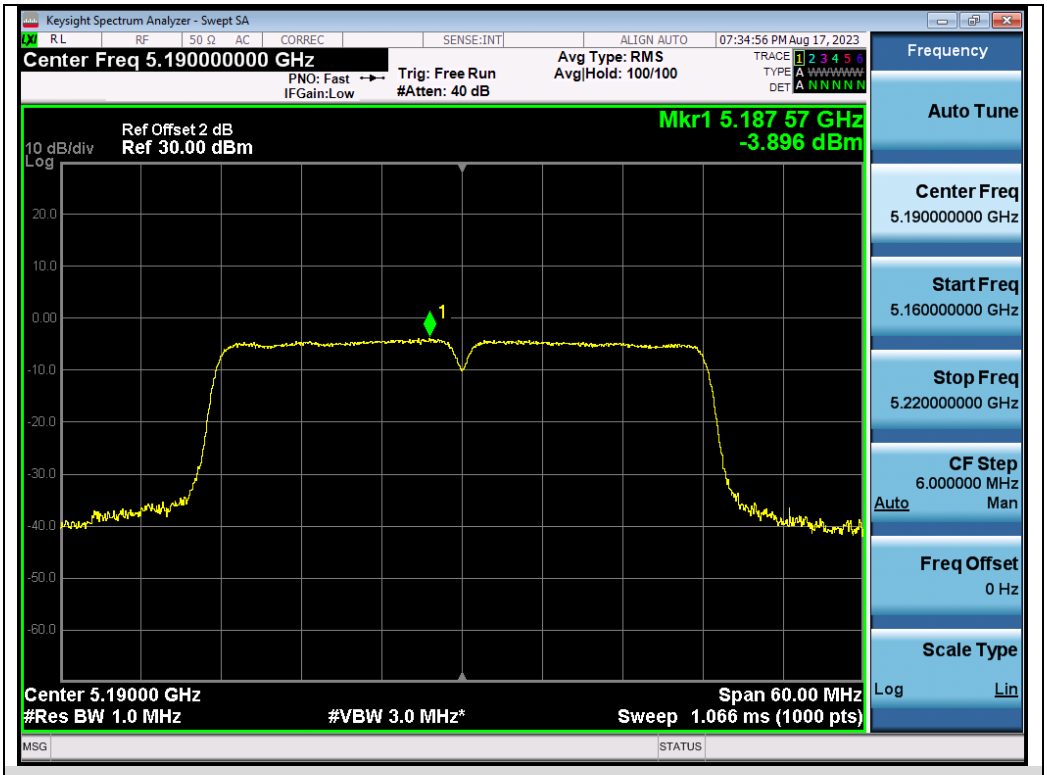
Test_Graph_802.11n20_ANT1_5180_MCS0_PSD



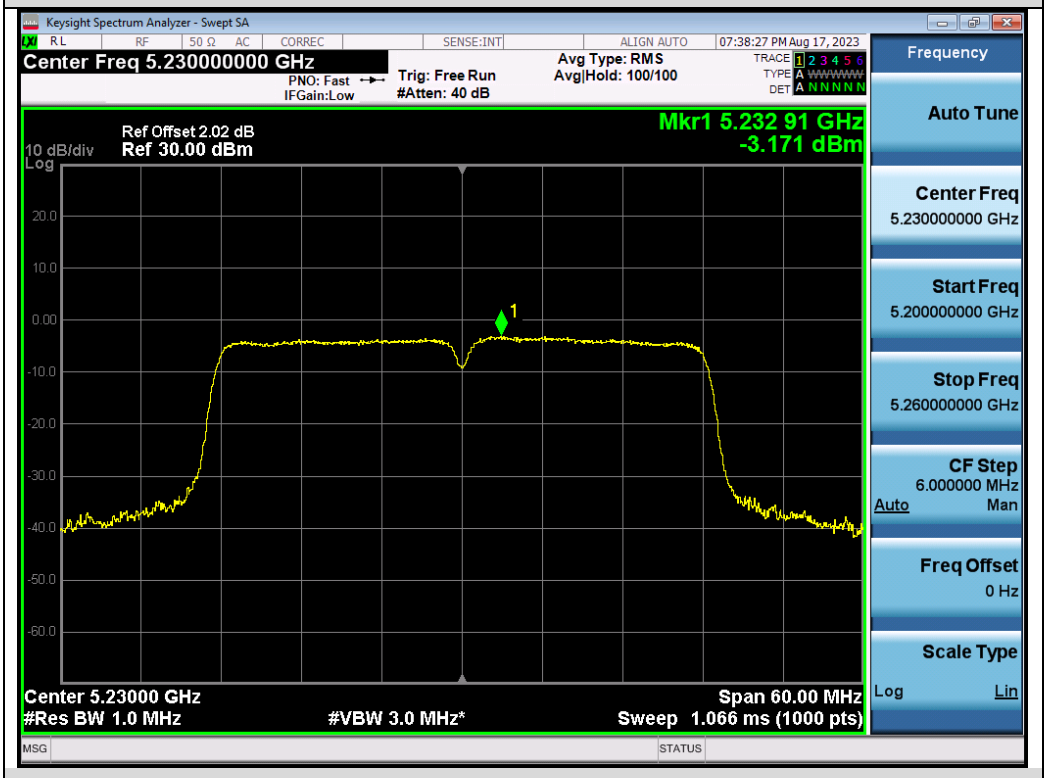
Test_Graph_802.11n20_ANT1_5200_MCS0_PSD



Test_Graph_802.11n20_ANT1_5240_MCS0_PSD



Test_Graph_802.11n40_ANT1_5190_MCS0_PSD

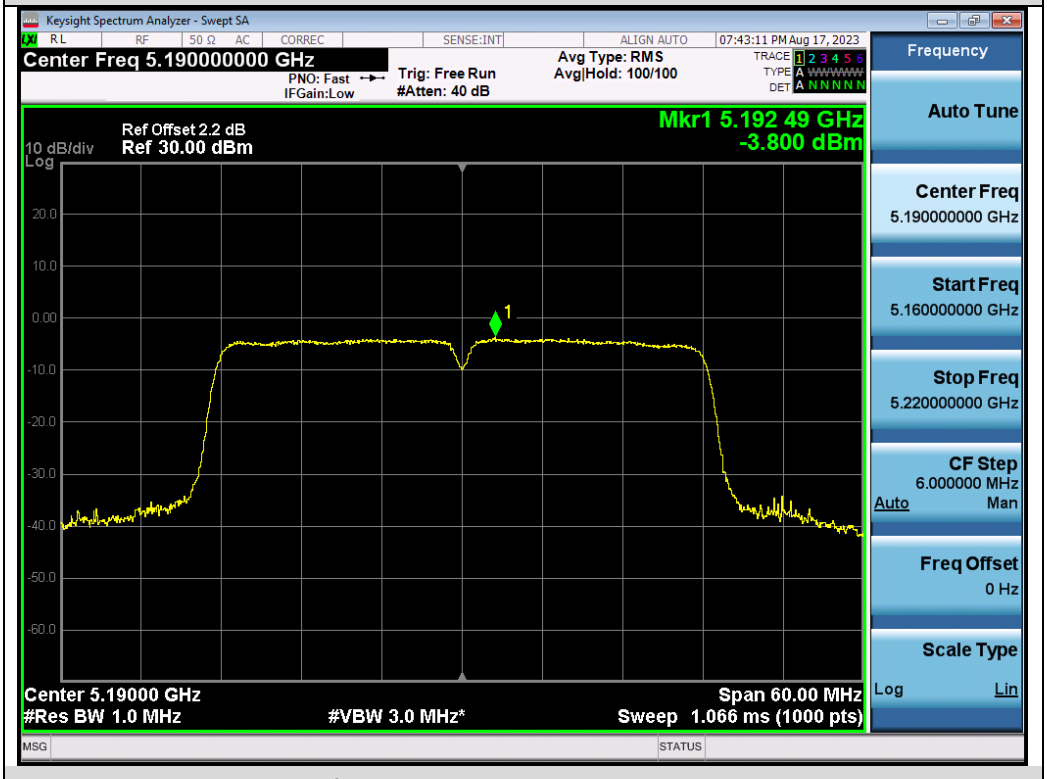


Test_Graph_802.11n40_ANT1_5230_MCS0_PSD

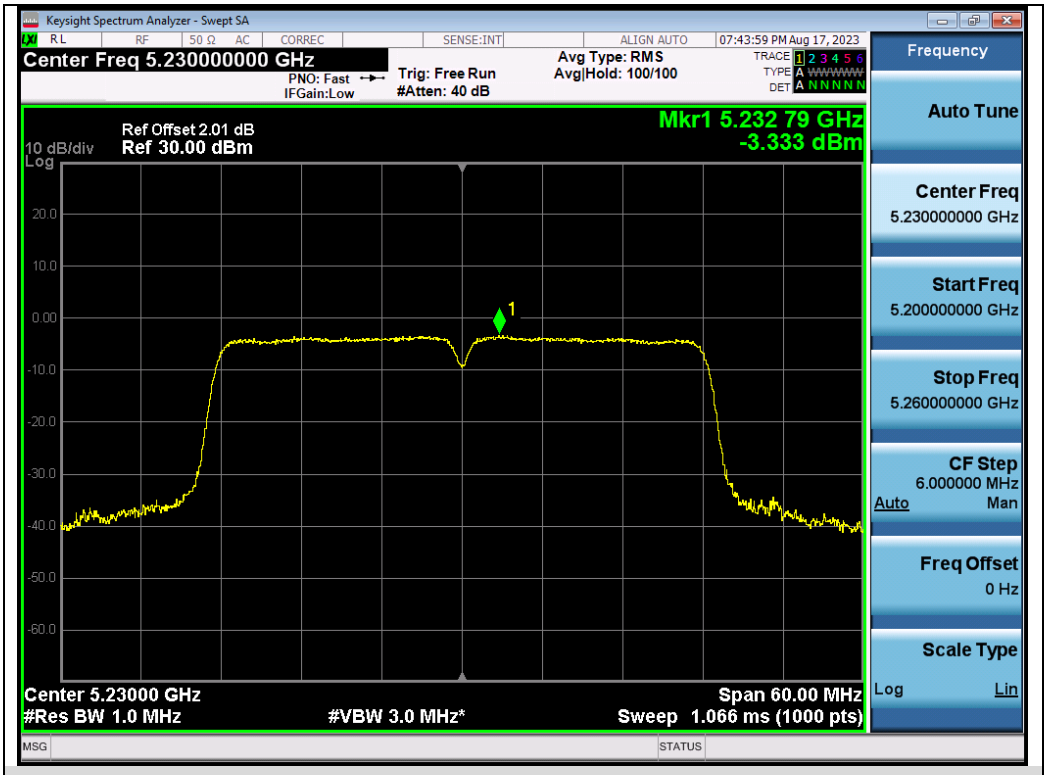
Test_Graph_802.11ac20_ANT1_5180_MCS0_PSD

Test_Graph_802.11ac20_ANT1_5200_MCS0_PSD

Test_Graph_802.11ac20_ANT1_5240_MCS9_PSD



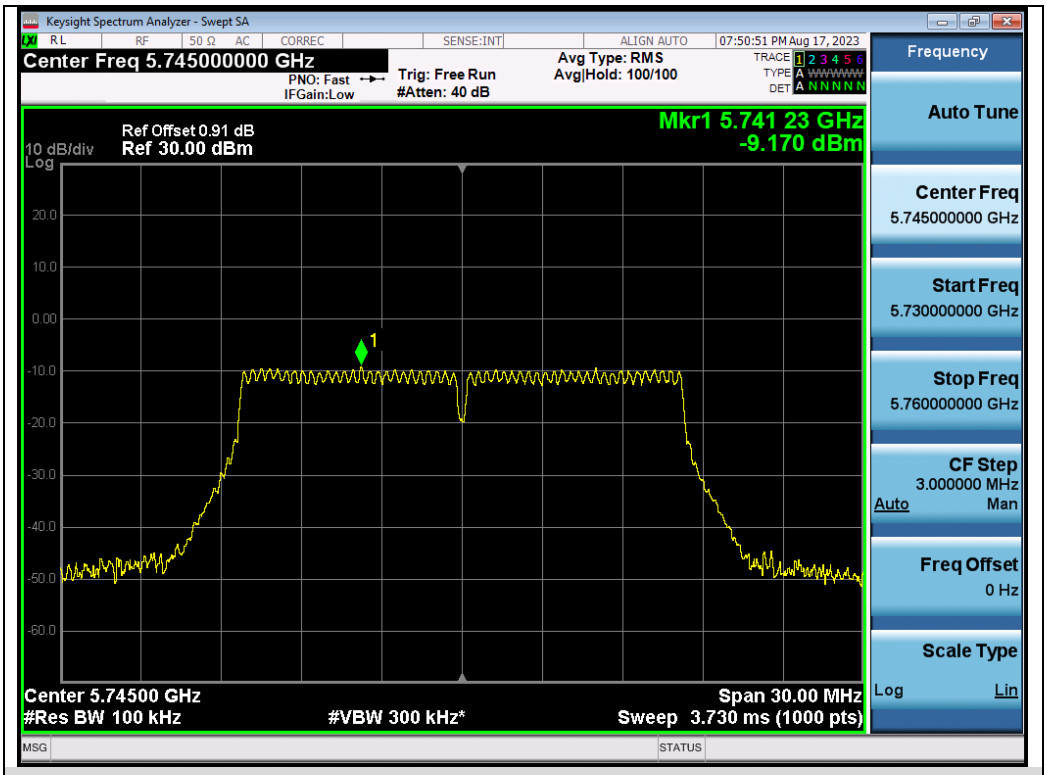
Test_Graph_802.11ac40_ANT1_5190_MCS9_PSD



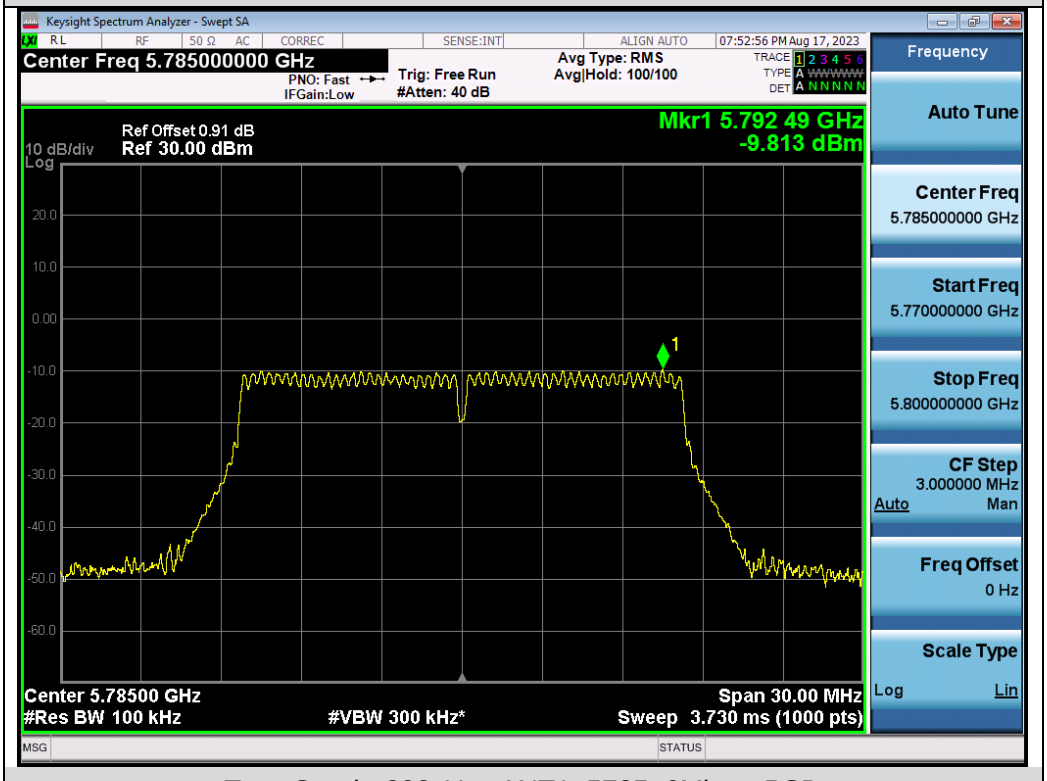
Test_Graph_802.11ac40_ANT1_5230_MCS9_PSD

Test_Graph_802.11ac80_ANT1_5210_MCS9_PSD

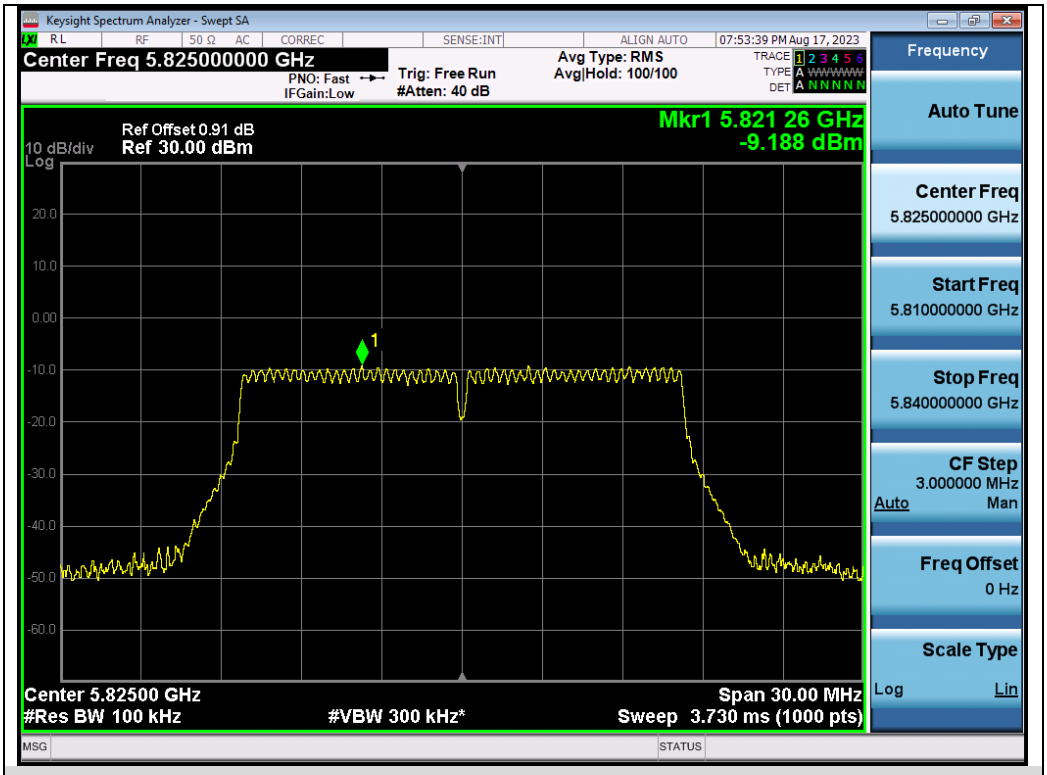
Test Graphs of Conducted Output Power Spectral Density for band 5.725-5.85 GHz



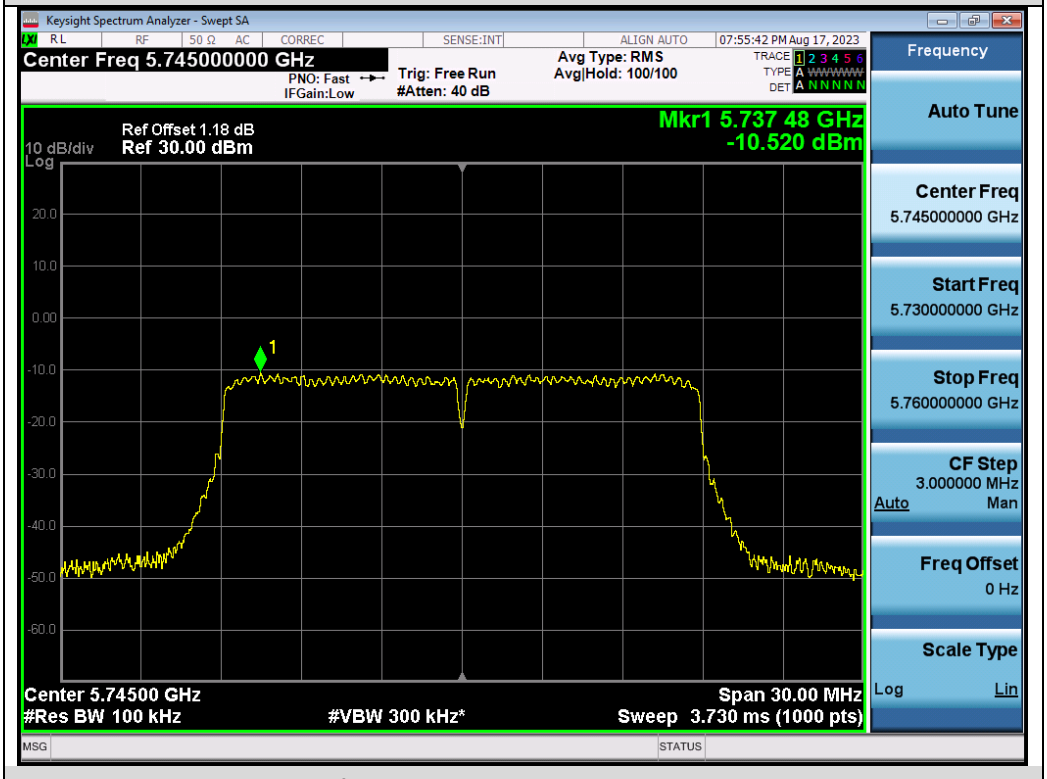
Test_Graph_802.11a_ANT1_5745_6Mbps_PSD



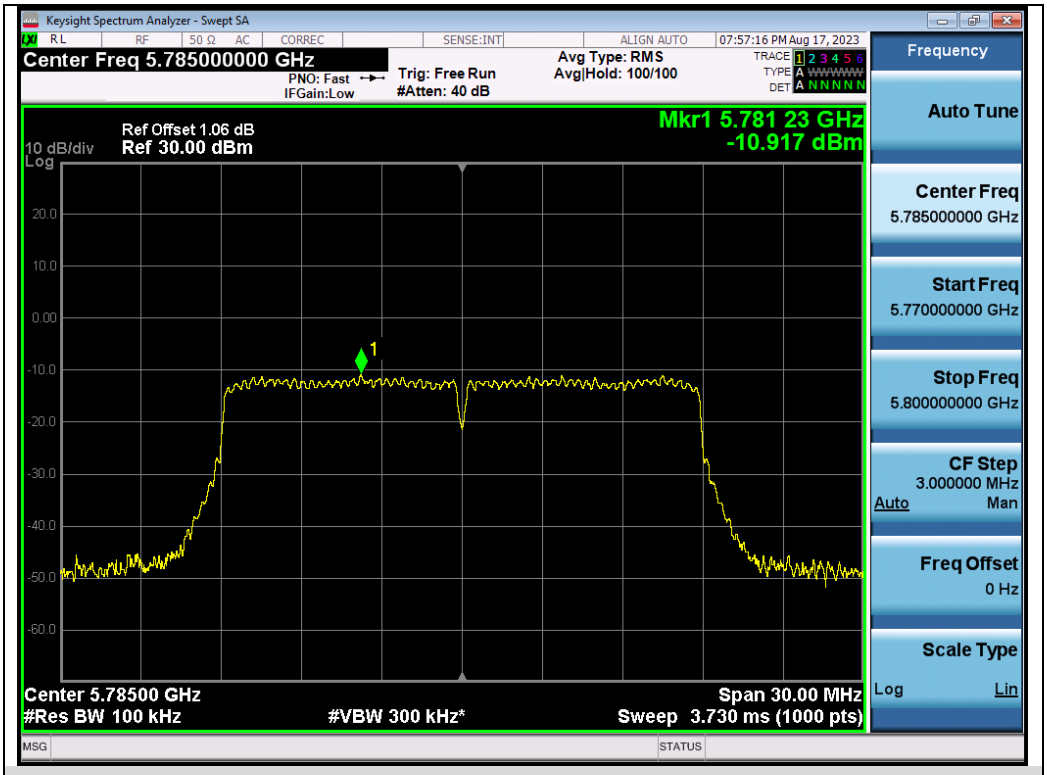
Test_Graph_802.11a_ANT1_5785_6Mbps_PSD



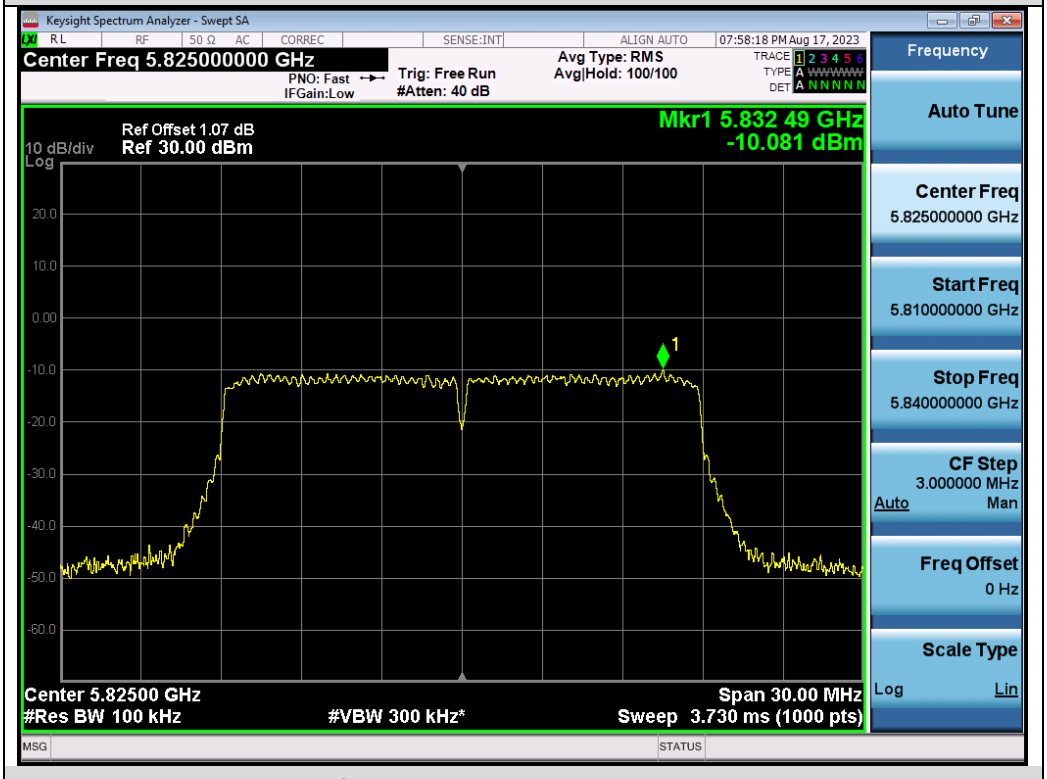
Test_Graph_802.11a_ANT1_5825_6Mbps_PSD



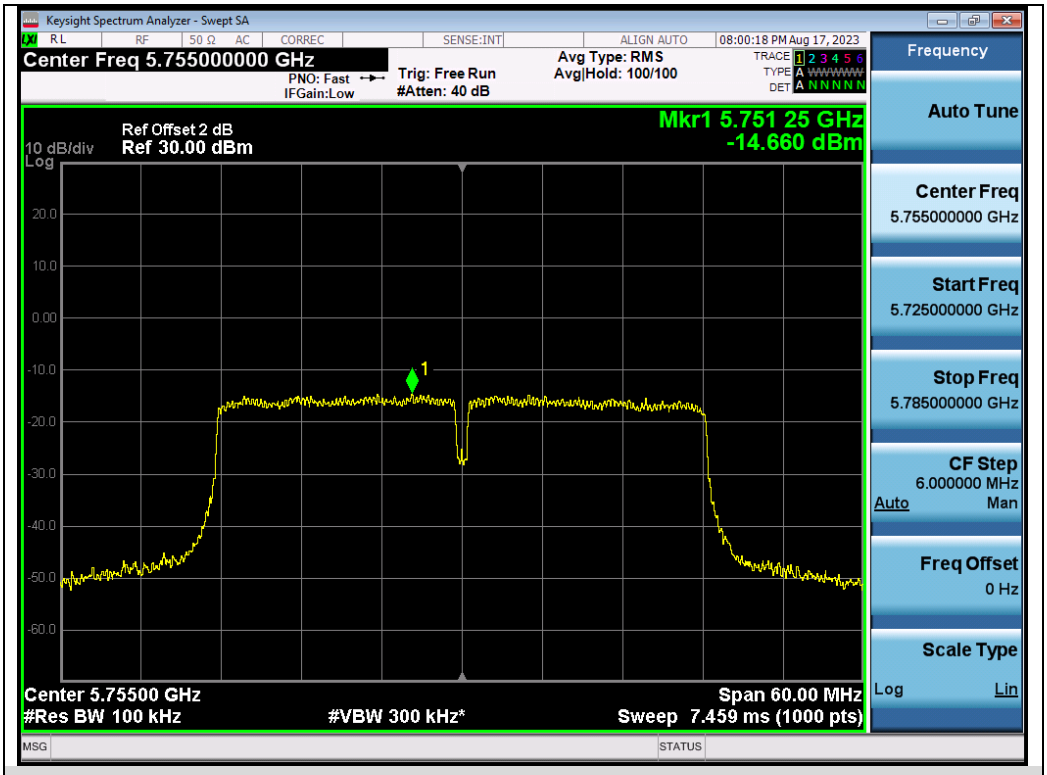
Test_Graph_802.11n20_ANT1_5745_MCS0_PSD



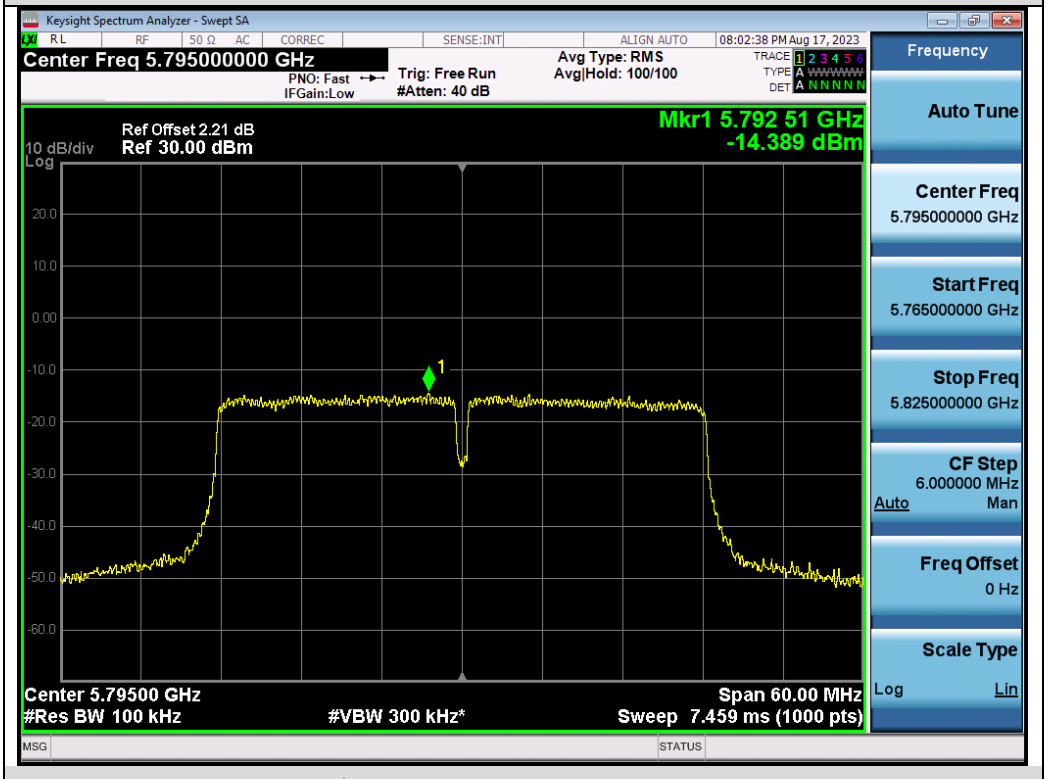
Test_Graph_802.11n20_ANT1_5785_MCS0_PSD



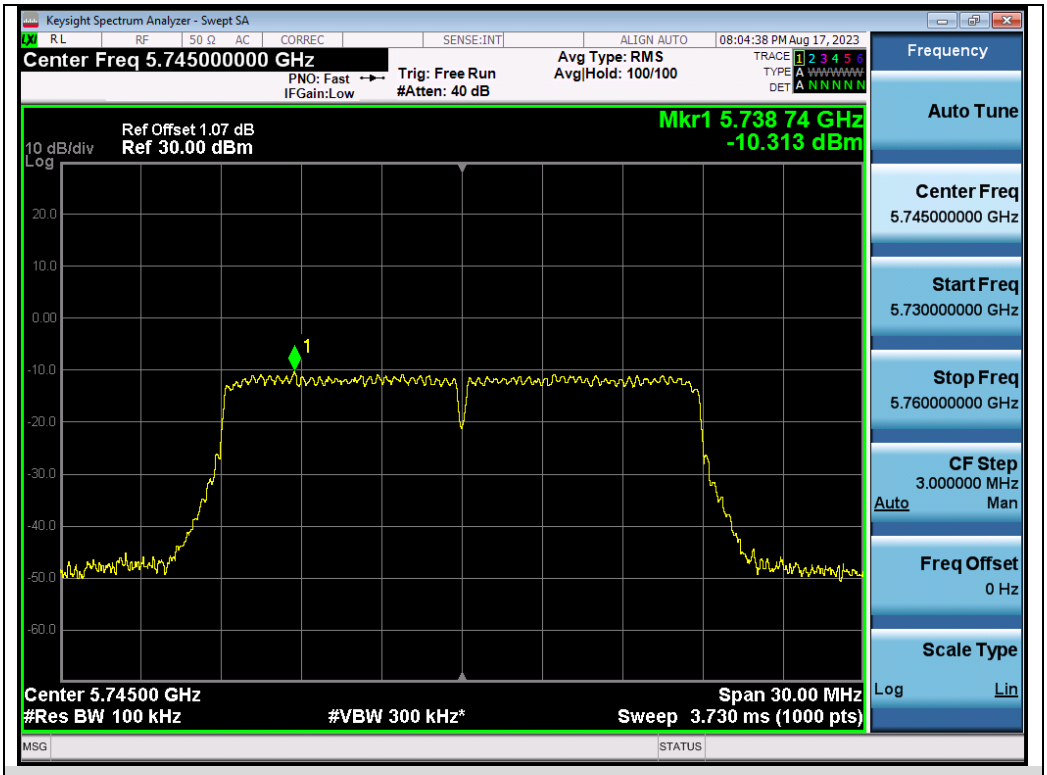
Test_Graph_802.11n20_ANT1_5825_MCS0_PSD



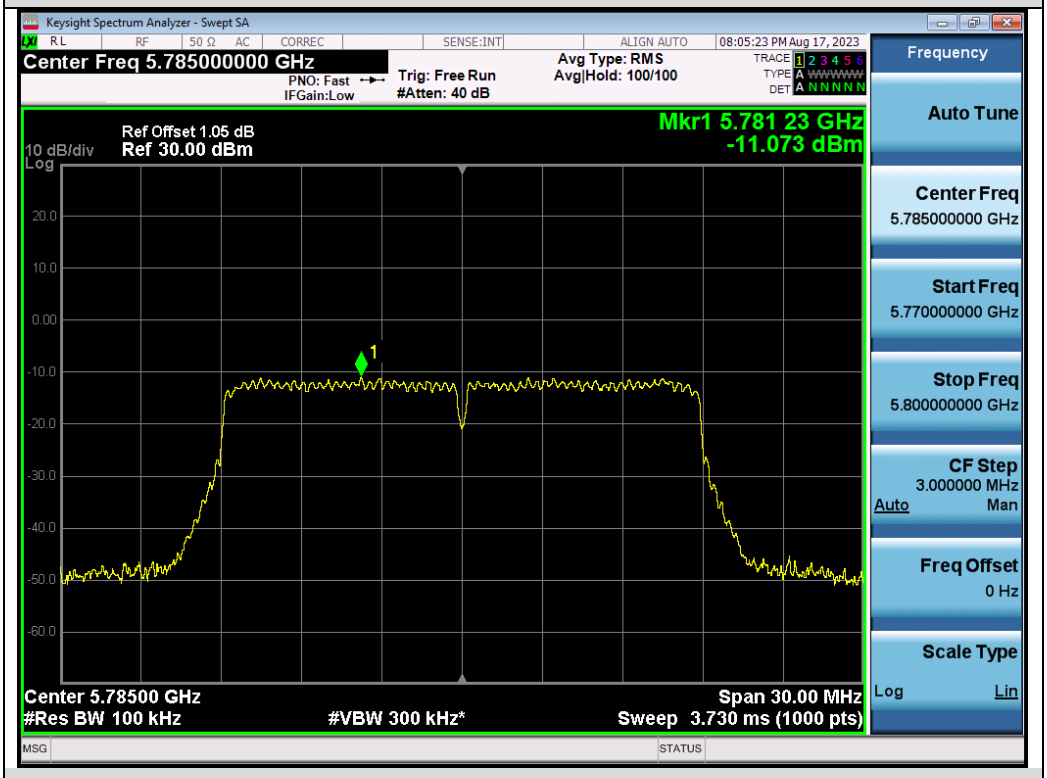
Test_Graph_802.11n40_ANT1_5755_MCS0_PSD



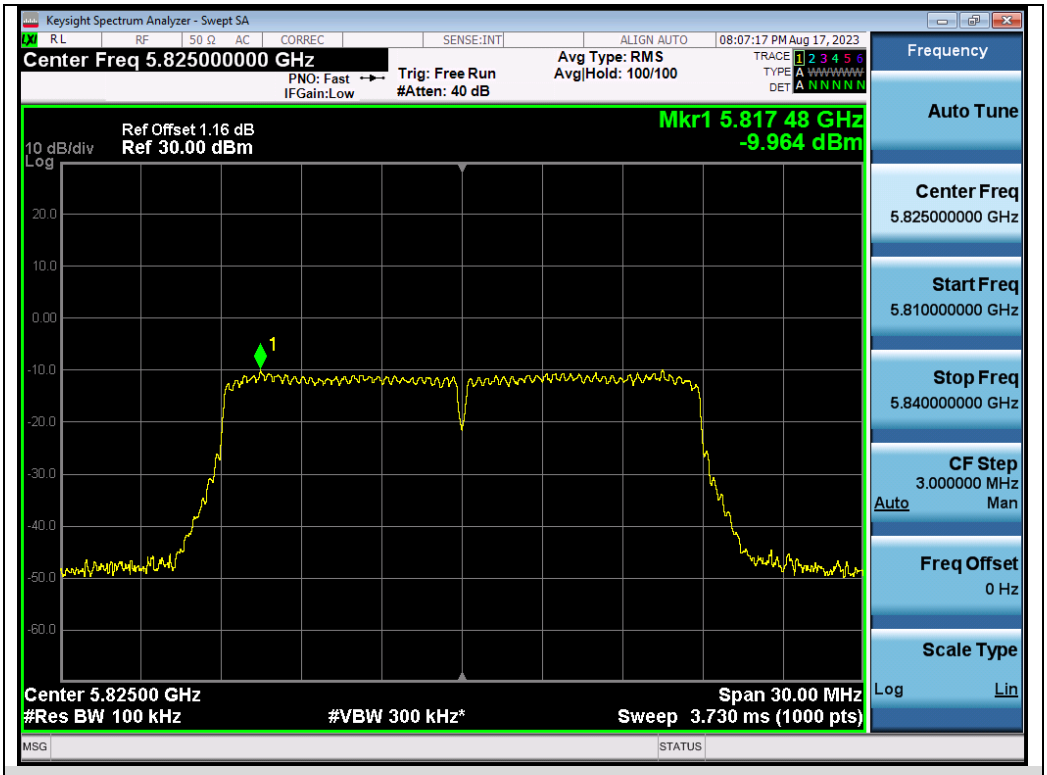
Test_Graph_802.11n40_ANT1_5795_MCS0_PSD



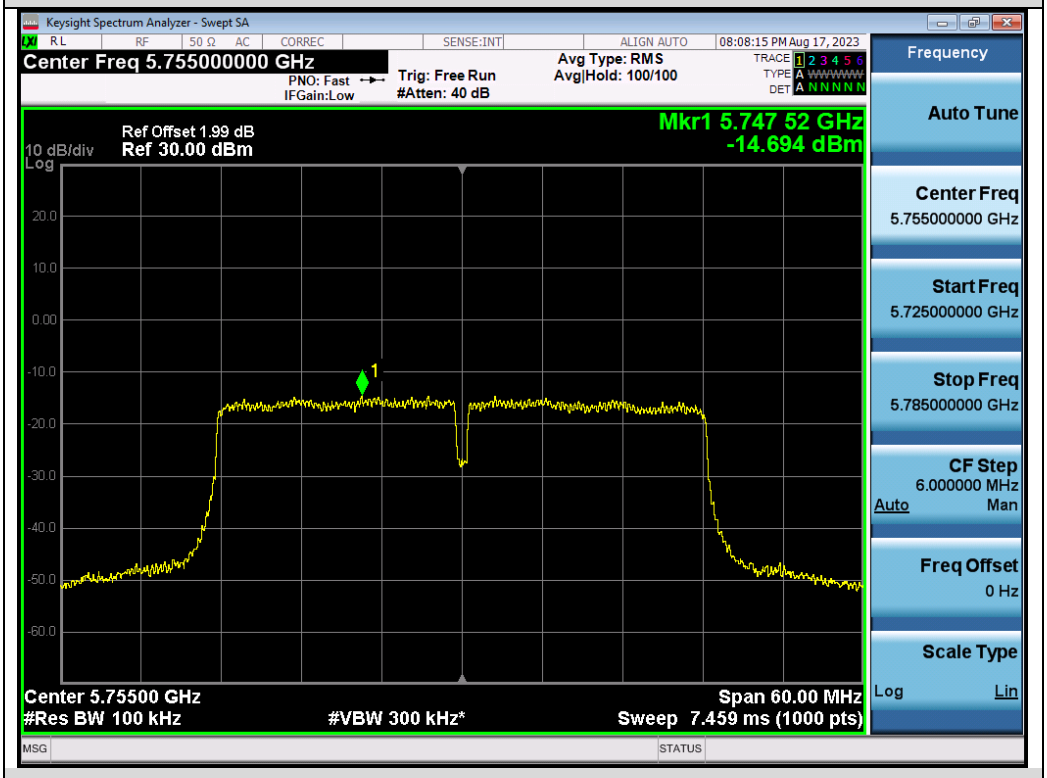
Test_Graph_802.11ac20_ANT1_5745_MCS0_PSD



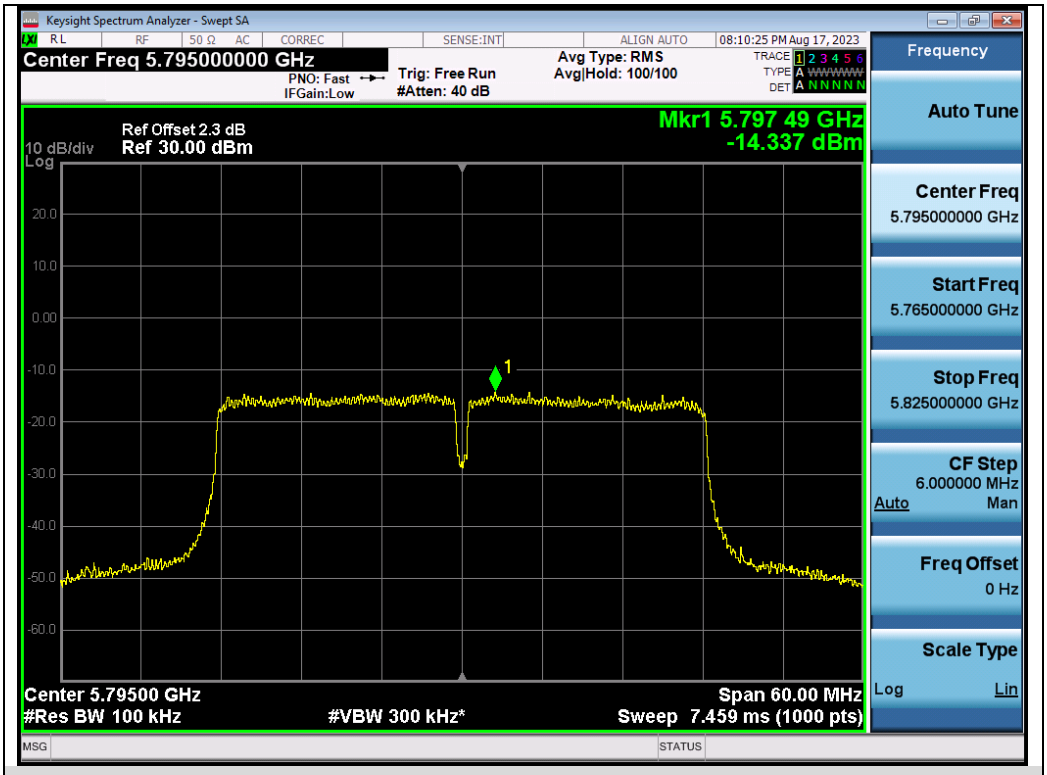
Test_Graph_802.11ac20_ANT1_5785_MCS0_PSD



Test_Graph_802.11ac20_ANT1_5825_MCS9_PSD



Test_Graph_802.11ac40_ANT1_5755_MCS9_PSD



Test_Graph_802.11ac40_ANT1_5795_MCS9_PSD

Test_Graph_802.11ac80_ANT1_5775_MCS9_PSD

10. CONDUCTED SPURIOUS EMISSION

10.1 MEASUREMENT LIMIT

Restricted bands	Applicable to	Limit	
	789033 D02 General UNII Test Procedures New Rules v02r01	Field strength at 3m (dBuV/m)	
		PK: 74	AV: 54
Out of the restricted bands	Applicable to	EIRP Limit (dBm/MHz)	Equivalent field Strength at 3m (dBuV/m)
	FCC 15.407(b)(1)	PK: -27	PK: 68.2
	15.407(b)(2)		
	15.407(b)(3)		
	15.407(b)(4)	See Note 2	

Note 1: The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

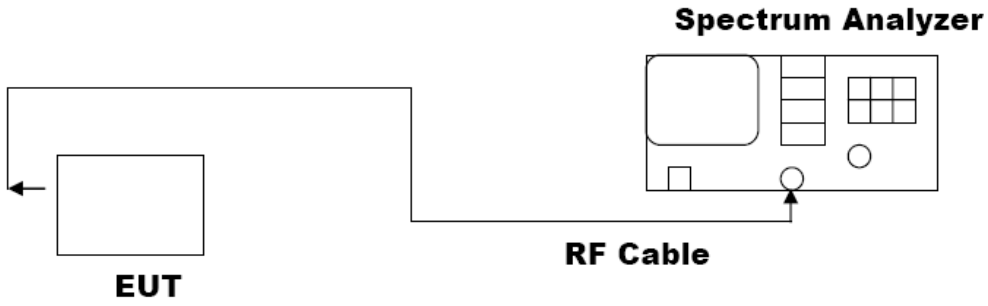
$$E = \frac{1000000 \quad \sqrt{30\ P}}{3}$$ μV/m, where P is the eirp (Watts).

Note 2: All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

10.2 MEASUREMENT PROCEDURE

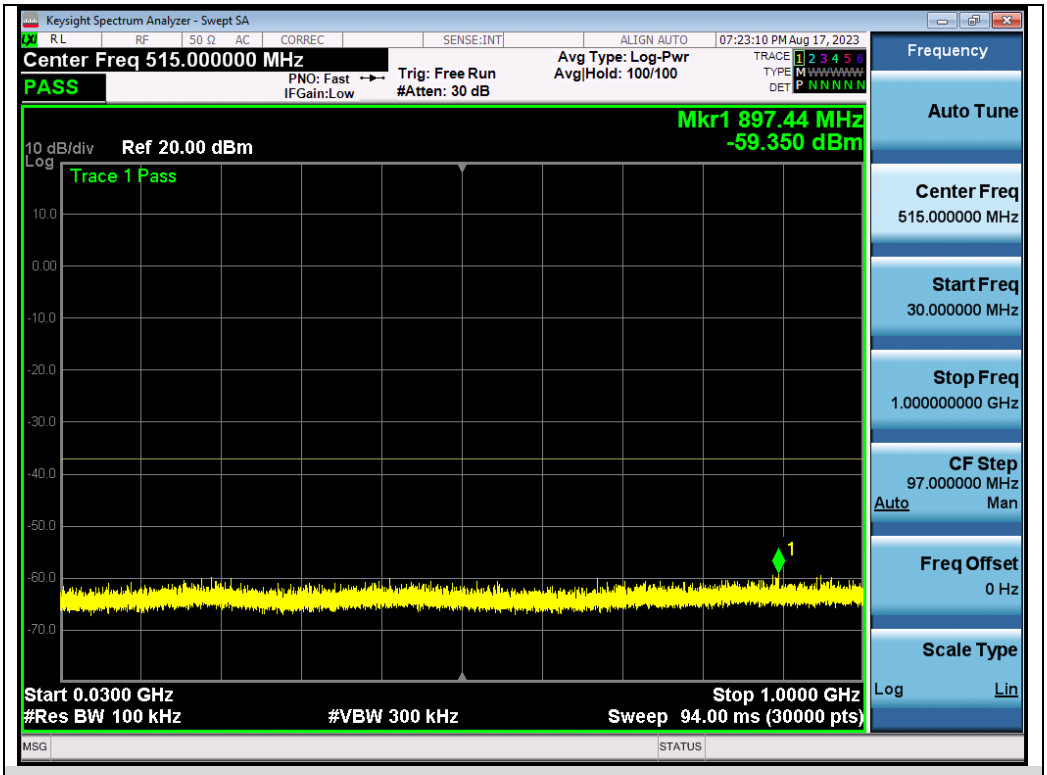
1. Connect EUT RF output port to the Spectrum Analyzer through.
2. Set the EUT Work on the top, the Middle and the bottom operation frequency individually.
3. Set the Span = wide enough to capture the peak level of the in-band emission and all spurious emissions from the lowest frequency generated in the EUT up through the 10th harmonic.
4. RBW = 100 kHz; VBW= 300 kHz; Sweep = auto; Detector function = peak.(Test frequency below 1GHz)
5. RBW = 1 MHz; VBW= 3 MHz; Sweep = auto; Detector function = peak.(Test frequency Above 1GHz)
6. Set SPA Trace 1 Max hold, then View.
7. Mark the maximum useless stray point and compare it with the limit value to record the result.

10.3 MEASUREMENT SETUP (BLOCK DIAGRAM OF CONFIGURATION)

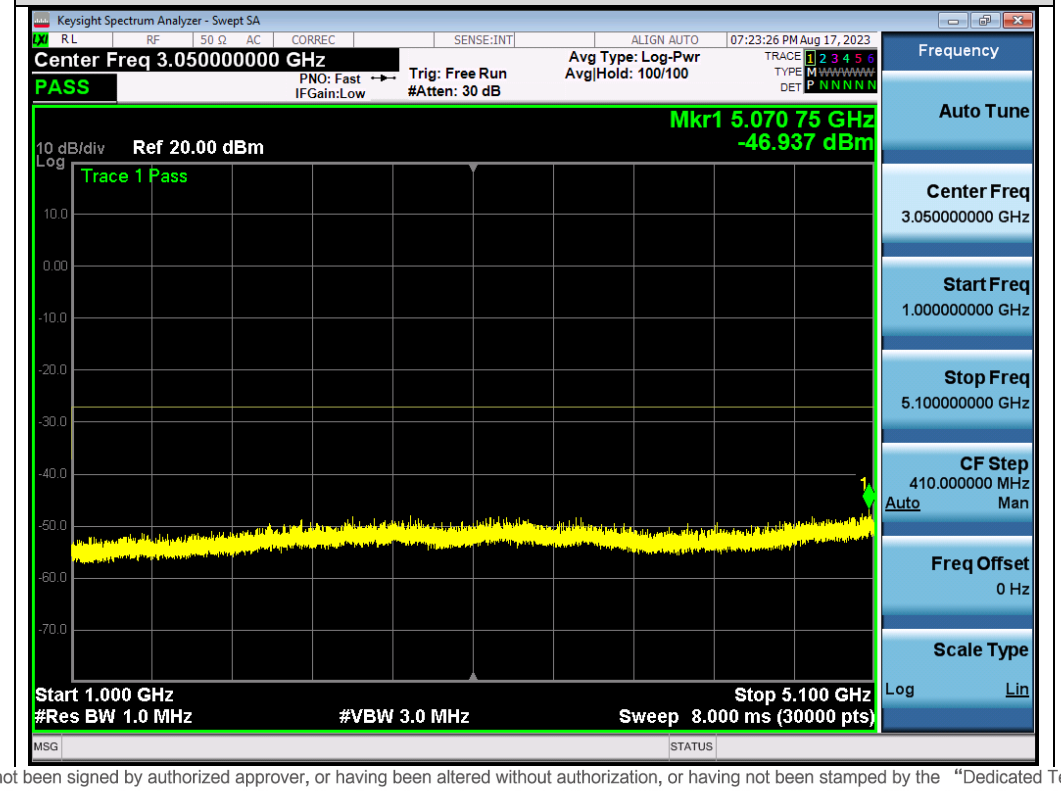


10.4 MEASUREMENT RESULTS

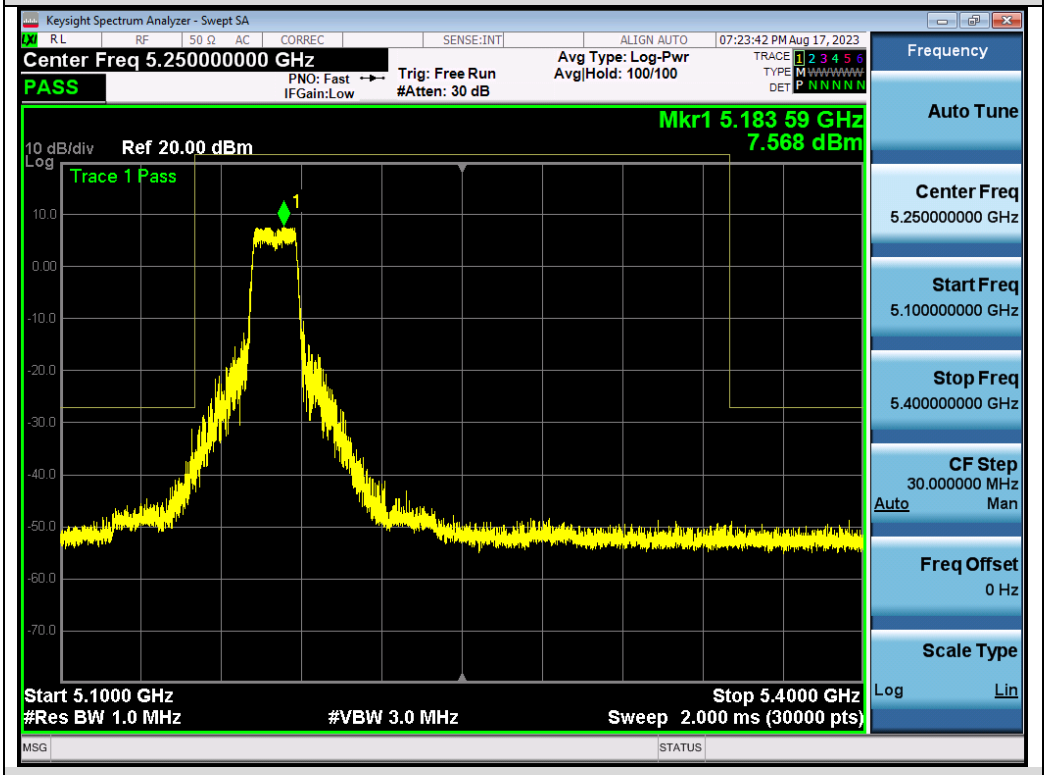
Test Graphs of Spurious Emissions outside of the 5.15-5.25 GHz band for transmitters operating in the 5.15-5.25 GHz band



Test_Graph_802.11a_ANT1_5180_6Mbps_Frequency Band 1

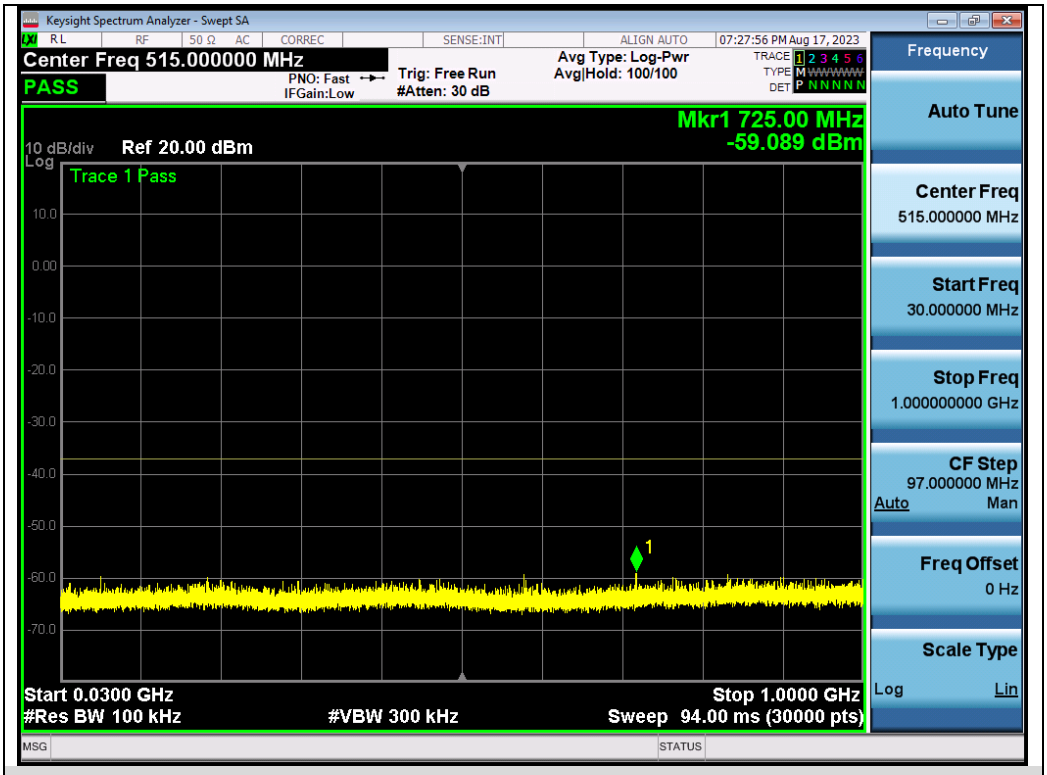


Test_Graph_802.11a_ANT1_5180_6Mbps_Frequency Band 2

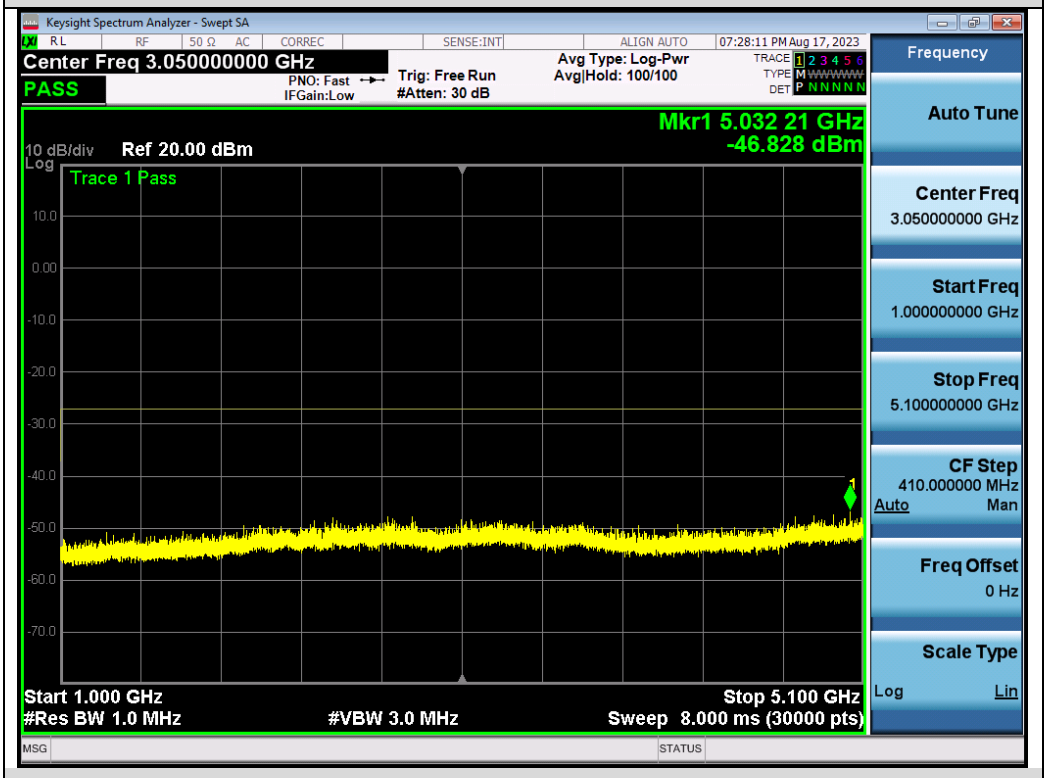


Test_Graph_802.11a_ANT1_5180_6Mbps_Frequency Band 3

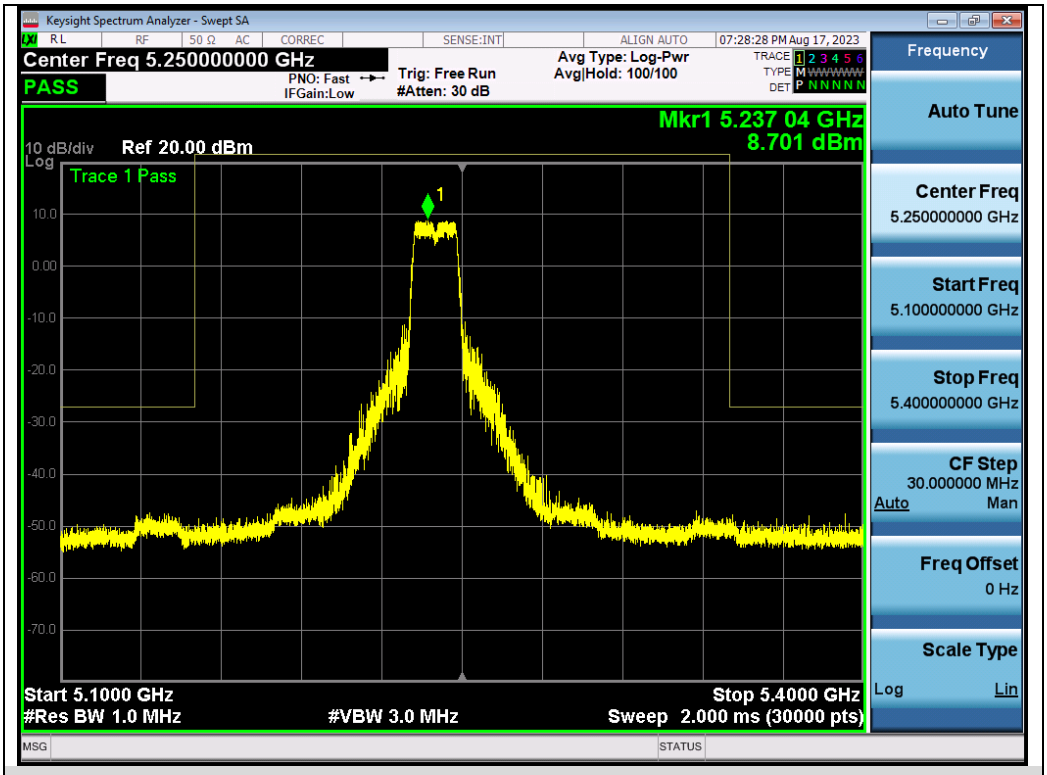
Test_Graph_802.11a_ANT1_5180_6Mbps_Frequency Band 4



Test_Graph_802.11a_ANT1_5240_6Mbps_Frequency Band 1

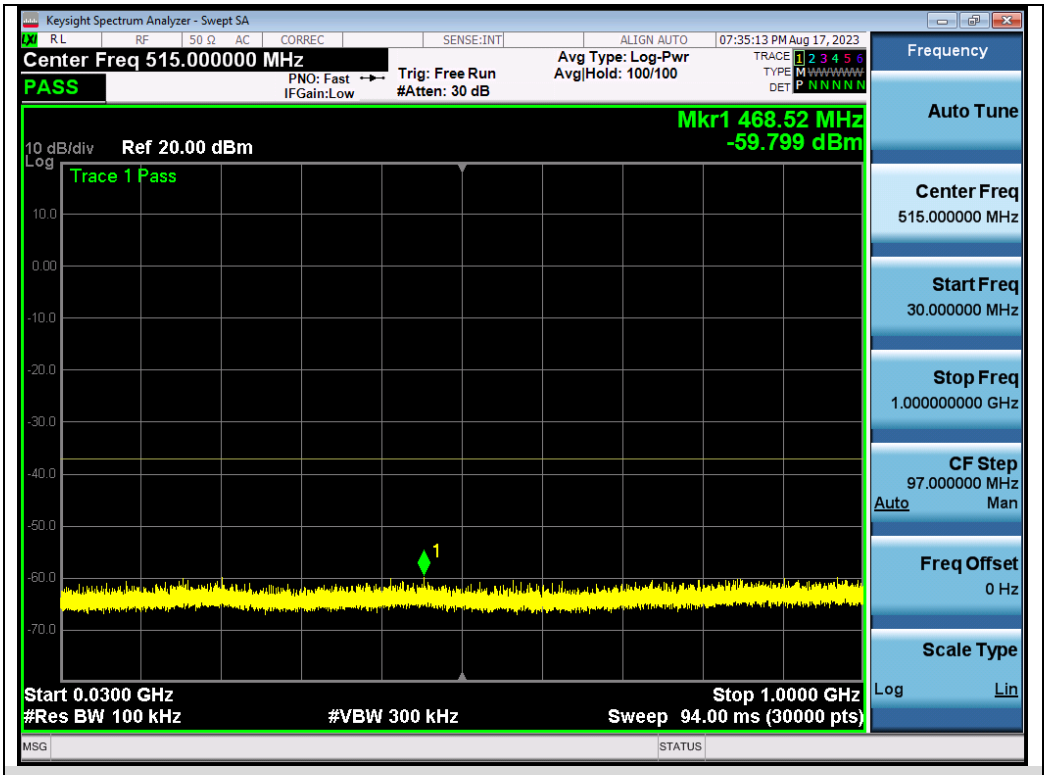


Test_Graph_802.11a_ANT1_5240_6Mbps_Frequency Band 2

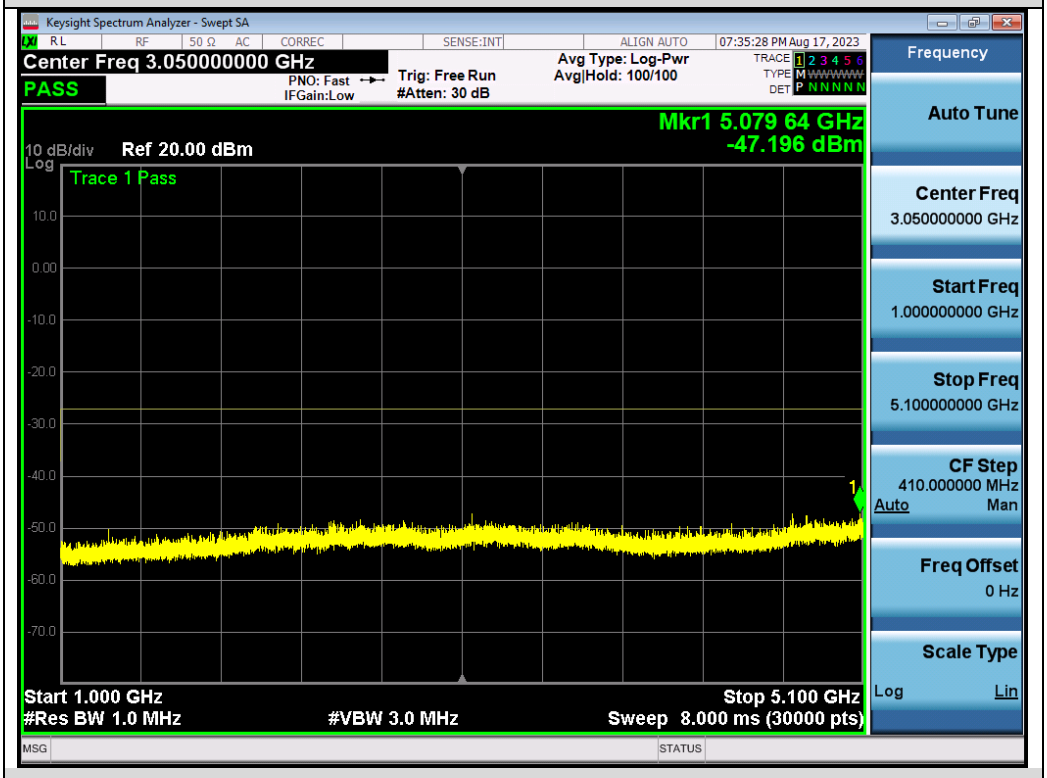


Test_Graph_802.11a_ANT1_5240_6Mbps_Frequency Band 3

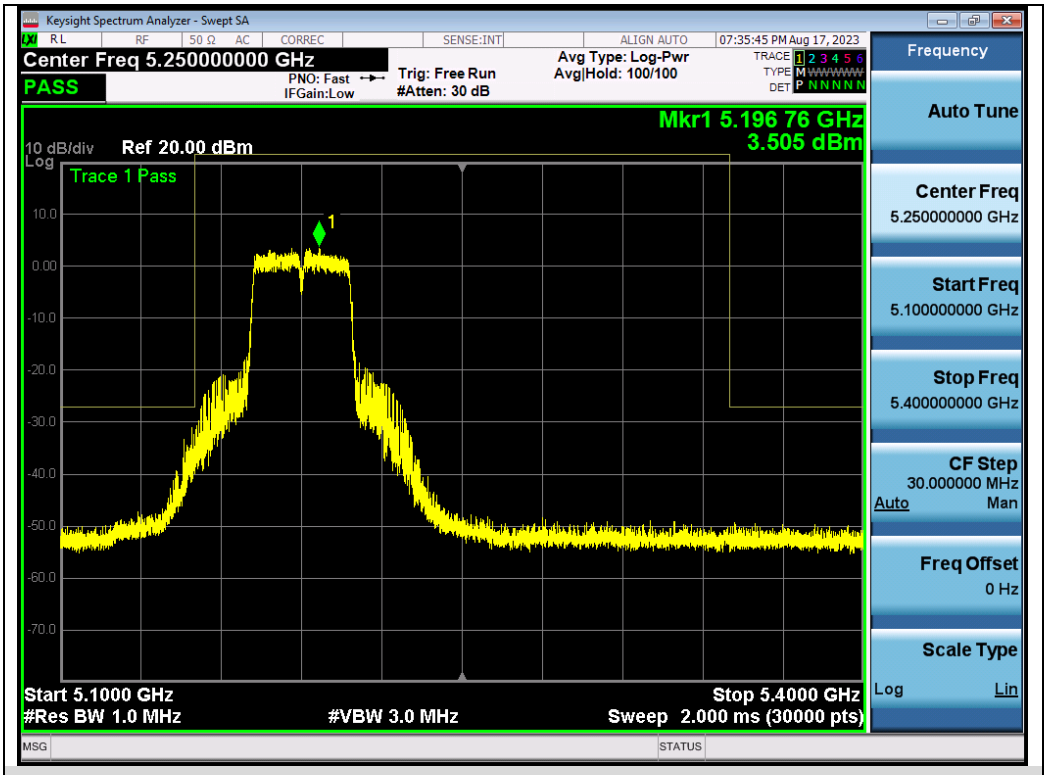
Test_Graph_802.11a_ANT1_5240_6Mbps_Frequency Band 4



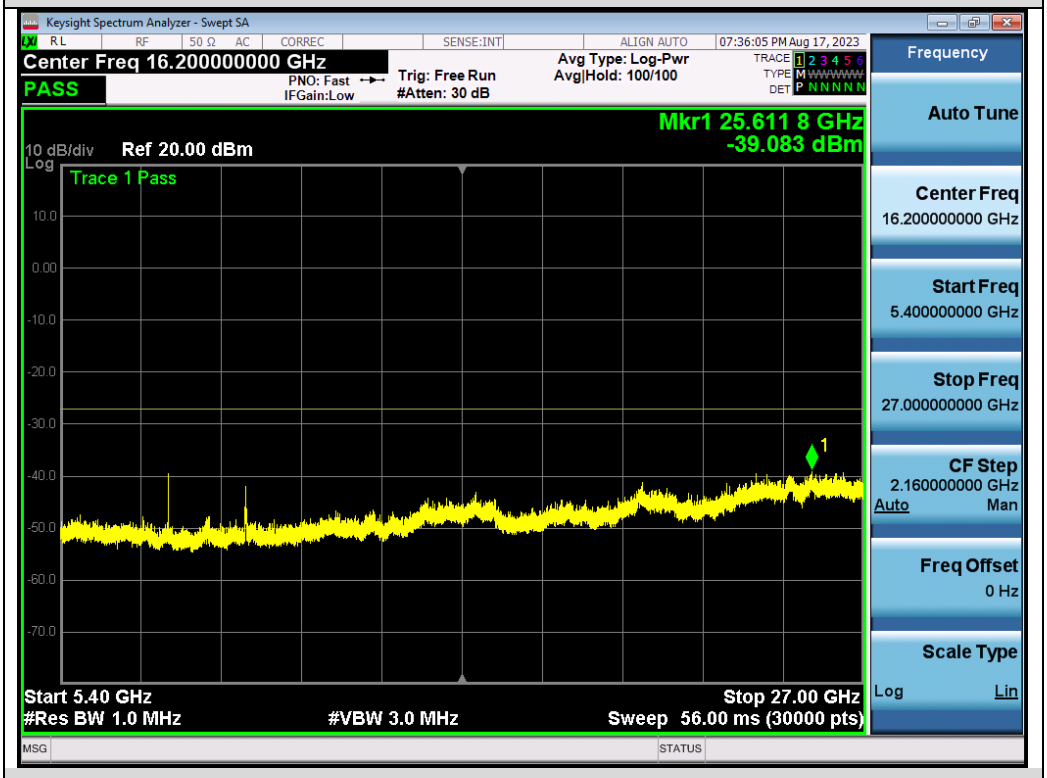
Test_Graph_802.11n40_ANT1_5190_MCS0_Frequency Band 1



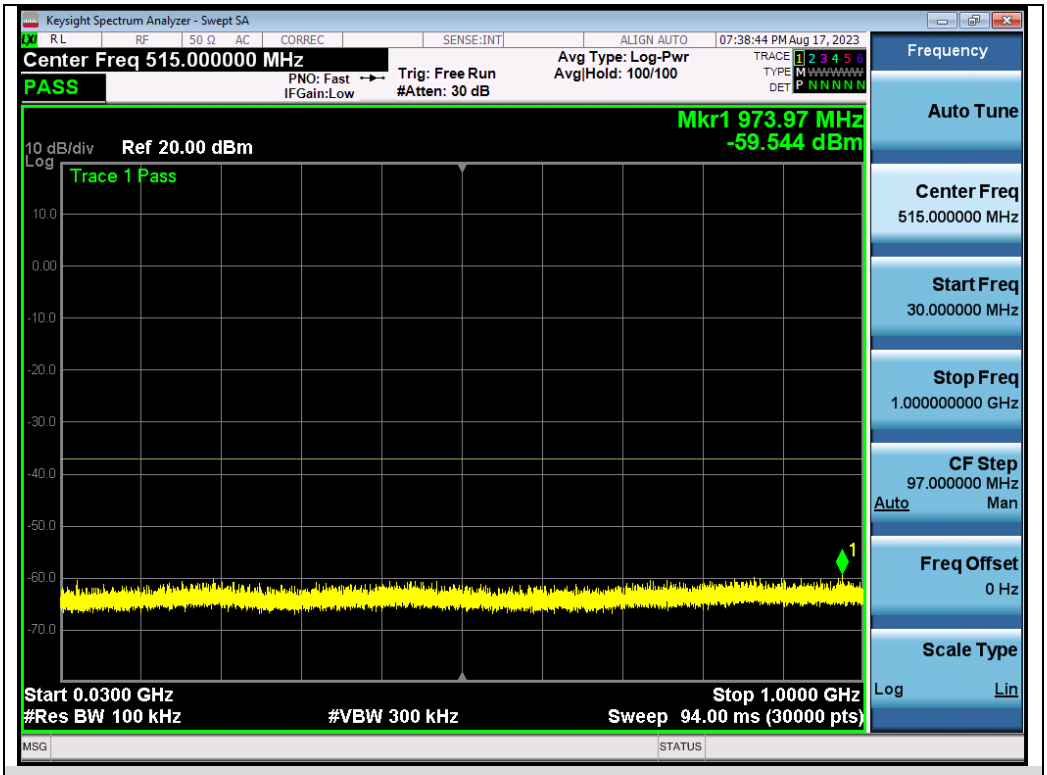
Test_Graph_802.11n40_ANT1_5190_MCS0_Frequency Band 2



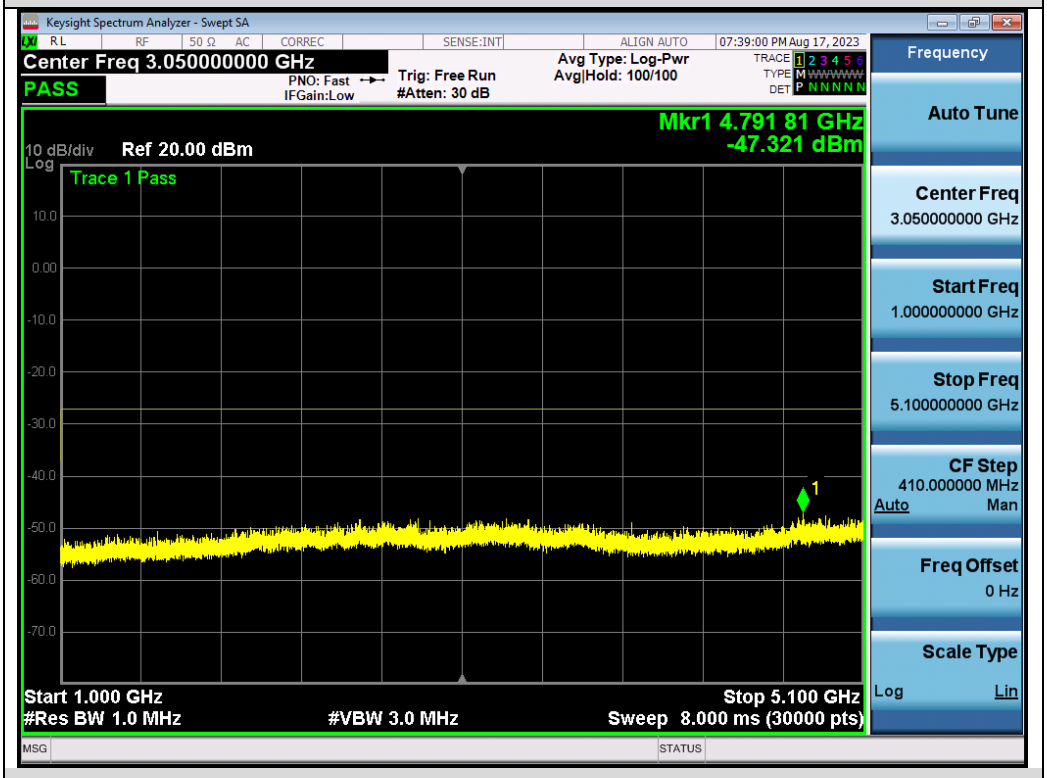
Test_Graph_802.11n40_ANT1_5190_MCS0_Frequency Band 3



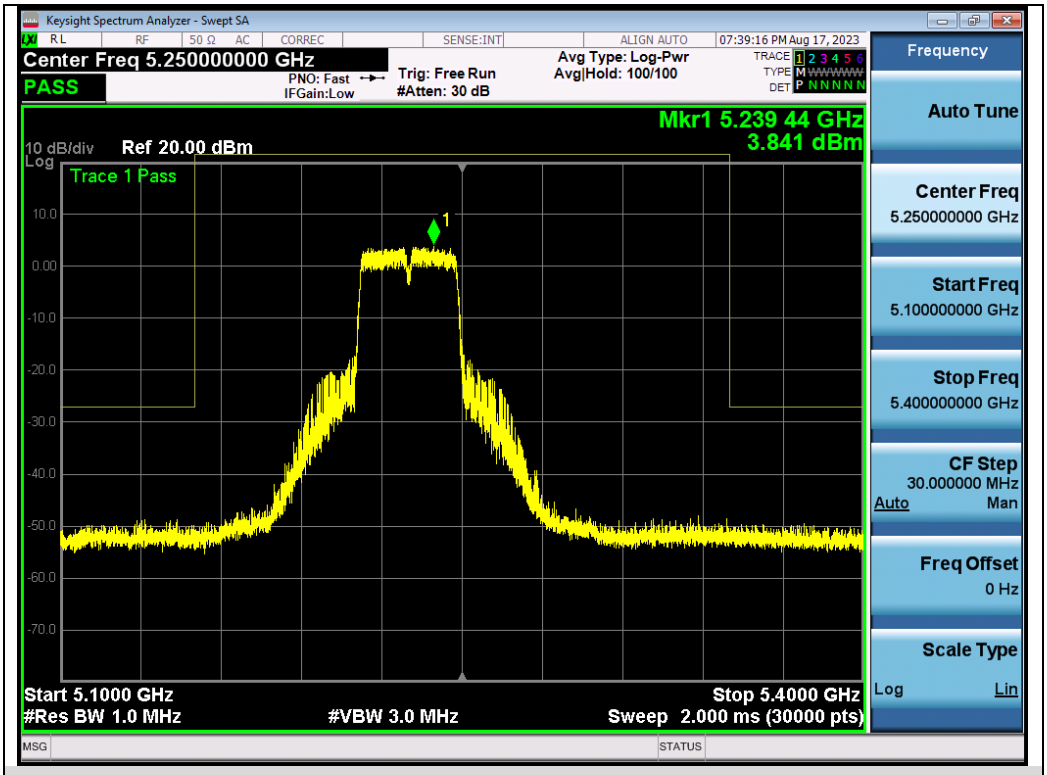
Test_Graph_802.11n40_ANT1_5190_MCS0_Frequency Band 4



Test_Graph_802.11n40_ANT1_5230_MCS0_Frequency Band 1

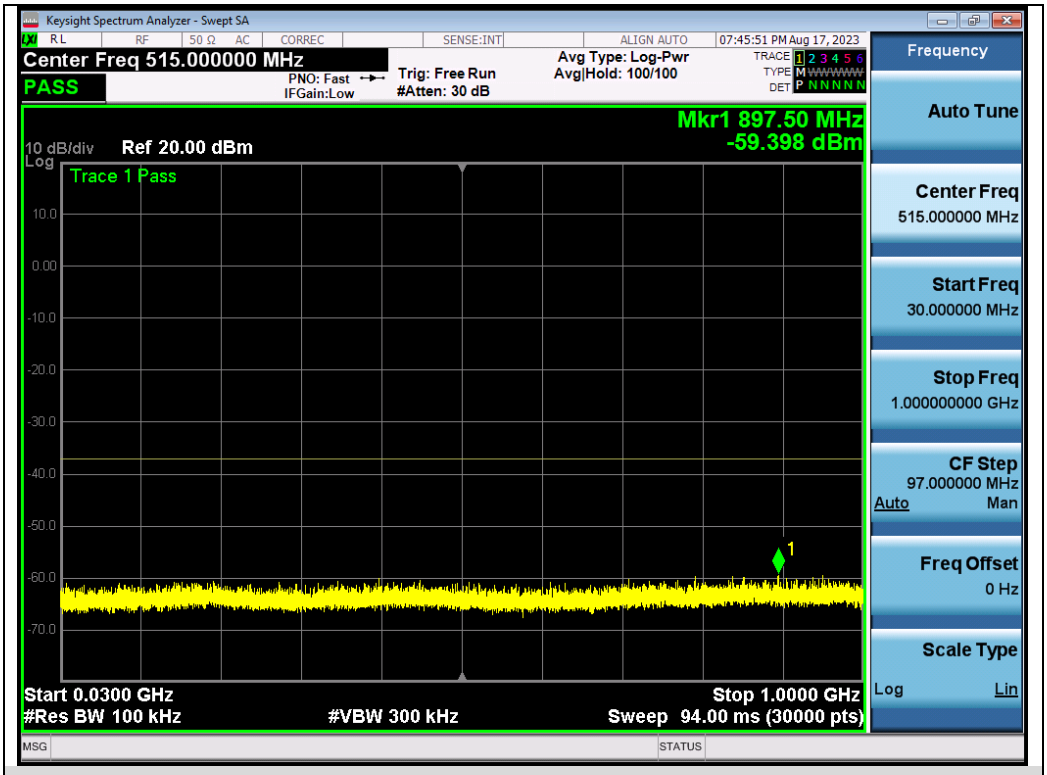


Test_Graph_802.11n40_ANT1_5230_MCS0_Frequency Band 2



Test_Graph_802.11n40_ANT1_5230_MCS0_Frequency Band 3

Test_Graph_802.11n40_ANT1_5230_MCS0_Frequency Band 4



Test_Graph_802.11ac80_ANT1_5210_MCS9_Frequency Band 1

Test_Graph_802.11ac80_ANT1_5210_MCS9_Frequency Band 2