FCC Test Report

Report No.: AGC10514231205FR03

FCC ID	:	2BCRN-BREAKX2
APPLICATION PURPOSE	:	Original Equipment
PRODUCT DESIGNATION	:	Smart Karaoke Machine
BRAND NAME	:	Ikarao
MODEL NAME	:	BREAK X2, BREAK i200
APPLICANT	:	Dongguan Aika Electronic Technology Co., Ltd.
DATE OF ISSUE	:	Mar. 07, 2024
STANDARD(S)	:	FCC Part 15 Subpart E §15.407
REPORT VERSION	:	V1.0

Attestation of Global Compliance (Shenzhen) Co., Ltd

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Mar. 07, 2024	Valid	Initial Release

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

Table of Contents

1. General Information 5
2. Product Information 6
2.1 Product Technical Description 6
2.2 Table of Carrier Frequency 7
2.3 IEEE 802.11n Modulation Scheme 10
2.4 Related Submittal(S) / Grant (S) 11
2.5 Test Methodology 11
2.6 Special Accessories 11
2.7 Equipment Modifications 11
2.8 Antenna Requirement 11
2.9 Description of Test Software 12
3. Test Environment 13
3.1 Address of The Test Laboratory 13
3.2 Test Facility 13
3.3 Environmental Conditions 14
3.4 Measurement Uncertainty 14
3.5 List of Equipment Used 15
4.System Test Configuration 17
4.1 EUT Configuration 17
4.2 EUT Exercise 17
4.3 Configuration of Tested System 17
4.4 Equipment Used in Tested System 17
4.5 Summary of Test Results 18
5. Description of Test Modes 19
6. Duty Cycle Measurement 22
7. RF Output Power Measurement 28
7.1 Provisions Applicable 28
7.2 Measurement Procedure 28
7.3 Measurement Setup (Block Diagram of Configuration) 29
7.4 Measurement Result 29
8. 6dB&26dB Bandwidth Measurement 33
8.1 Provisions Applicable 33
8.2 Measurement Procedure 33
8.3 Measurement Setup (Block Diagram of Configuration) 33
8.4 Measurement Results 34

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

9. Power Spectral Density Measurement 75
9.1 Provisions Applicable 75
9.2 Measurement Procedure 75
9.3 Measurement Setup (Block Diagram of Configuration) 75
9.4 Measurement Result 76
10. Conducted Band Edge and Out-of-Band Emissions 110
10.1 Provisions Applicable 110
10.2 Measurement Procedure 110
10.3 Measurement Setup (Block Diagram of Configuration) 110
10.4 Measurement Results 111
11. Radiated Spurious Emission 168
11.1 Measurement Limit 168
11.2 Measurement Procedure 169
11.3 Measurement Setup (Block Diagram of Configuration) 171
11.4 Measurement Result 172
12. AC Power Line Conducted Emission Test 205
12.1 Measurement limit 205
12.2 Block Diagram of Line Conducted Emission Test 205
12.3 Preliminary Procedure of Line Conducted Emission Test 206
12.4 Final Procedure of Line Conducted Emission Test 206
12.5 Test Result of Line Conducted Emission Test 207
Appendix I: Photographs of Test Setup 211
Appendix II: Photographs of EUT 211

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

1. General Information

Applicant	Dongguan Aika Electronic Technology Co., Ltd.
Address	Room 201, Building 2, No. 388, Bihu Road, Fenggang Town, Dongguan City, Guangdong Province, China
Manufacturer	GUANGDONG TAIDE ZHILIAN TECHNOLOGY CO., LTD
Address	No. 388 Bihu Road, Fenggang Town, Dongguan city, Guangdong Province, China
Factory	GUANGDONG TAIDE ZHILIAN TECHNOLOGY CO., LTD
Address	No. 388 Bihu Road, Fenggang Town, Dongguan city, Guangdong Province, China
Product Designation	Smart Karaoke Machine
Brand Name	Ikarao
Test Model	BREAK X2
Series Model(s)	BREAK i200
Difference Description	There is no difference in the products, but there is a small difference in the packaging
Date of receipt of test item	Dec. 21, 2023
Date of Test	Dec. 21, 2023~Mar. 07, 2024
Deviation from Standard	No any deviation from the test method
Condition of Test Sample	Normal
Test Result	Pass
Test Report Form No	AGCER-FCC-5G WLAN-V1

Note: The test results of this report relate only to the tested sample identified in this report.

Prepared By	Alan Duan (Project Engineer)	Mar. 07, 2024
Reviewed By	Calvin Liu (Reviewer)	Mar. 07, 2024
Approved By	Max Zhang (Authorized Officer)	Mar. 07, 2024

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

2. Product Information

2.1 Product Technical 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	V1.2
Software Version	V1.0.2
Test Frequency Range	For 802.11a/n-HT20/ac-VHT20: 5180~5240MHz, 5260~5320MHz, 5500~5700MHz, 5745~5825MHz For 802.11n-HT40/ac-VHT40: 5190~5230MHz, 5270~5310MHz, 5510~5670MHz, 5755~5795MHz For 802.11ac-VHT80: 5210MHz, 5290MHz, 5530~5610MHz, 5775MHz
RF Output Power	IEEE 802.11a(HT20):13.51dBm; IEEE 802.11n(HT20):12.83dBm; IEEE802.11n(HT40):12.51dBm; IEEE 802.11ac(VHT20):12.59dBm; IEEE802.11ac(VHT40):12.39dBm; IEEE802.11ac(VHT80):11.93dBm;
Modulation	802.11a/n:(64-QAM, 16-QAM, QPSK, BPSK) OFDM 802.11ac :(256-QAM, 64-QAM, 16-QAM, QPSK, BPSK) OFDM
Data Rate	802.11a:6/9/12/18/24/36/48/54Mbps; 802.11n:up to 300Mbps; 802.11ac:up to 866.6Mbps;
Number of channels	7 channels of U-NII-1 Band 7 channels of U- NII-2A Band 12 channels of U-NII-2C Band 8 channels of U- NII 3 Band
Antenna Designation	FPC Antenna
Antenna Gain	2.97dBi
Power Supply	DC 14.8V by battery or DC 18V/3.6A by adapter

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

2.2 Table of Carrier Frequency

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 5260~5320MHz:

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

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

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

Channel	Frequency	Channel	Frequency
54	5270 MHz	62	5310 MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency	Channel	Frequency
58	5290 MHz	--	--

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

For 5500~5700MHz:

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

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

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

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

2 channel is provided for 802.11ac (VHT80):

Channel	Frequency	Channel	Frequency
106	5530 MHz	122	5610 MHz

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

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	--	--

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

2.3 IEEE 802.11n Modulation Scheme

MCS Index	Nss	Modulation	R	N_{BPSC}	N_{CBPS}		N_{DBPS}		Data rate (Mbps) 800nsGI	
					20MHz	40MHz	20MHz	40MHz	20MHz	40MHz
0	1	BPSK	1/2	1	52	108	26	54	6.5	13.5
1	1	QPSK	1/2	2	104	216	52	108	13.0	27.0
2	1	QPSK	3/4	2	104	216	78	162	19.5	40.5
3	1	16-QAM	1/2	4	208	432	104	216	26.0	54.0
4	1	16-QAM	3/4	4	208	432	156	324	39.0	81.0
5	1	64-QAM	2/3	6	312	648	208	432	52.0	108.0
6	1	64-QAM	3/4	6	312	648	234	489	58.5	121.5
7	1	64-QAM	5/6	6	312	648	260	540	65.0	135.0

Symbol	Explanation
NSS	Number of spatial streams
R	Code rate
NBPSC	Number of coded bits per single carrier
NCBPS	Number of coded bits per symbol
NDBPS	Number of data bits per symbol
GI	Guard interval

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

2.4 Related Submittal(S) / Grant (S)

This submittal(s) (test report) is intended for FCC ID: 2BCRN-BREAKX2 filing to comply with the FCC Part 15 requirements.

2.5 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 789033	789033 D02 General U-NII Test Procedures New Rules v02r01

2.6 Special Accessories

Refer to section 4.4.

2.7 Equipment Modifications

Not available for this EUT intended for grant.

2.8 Antenna Requirement

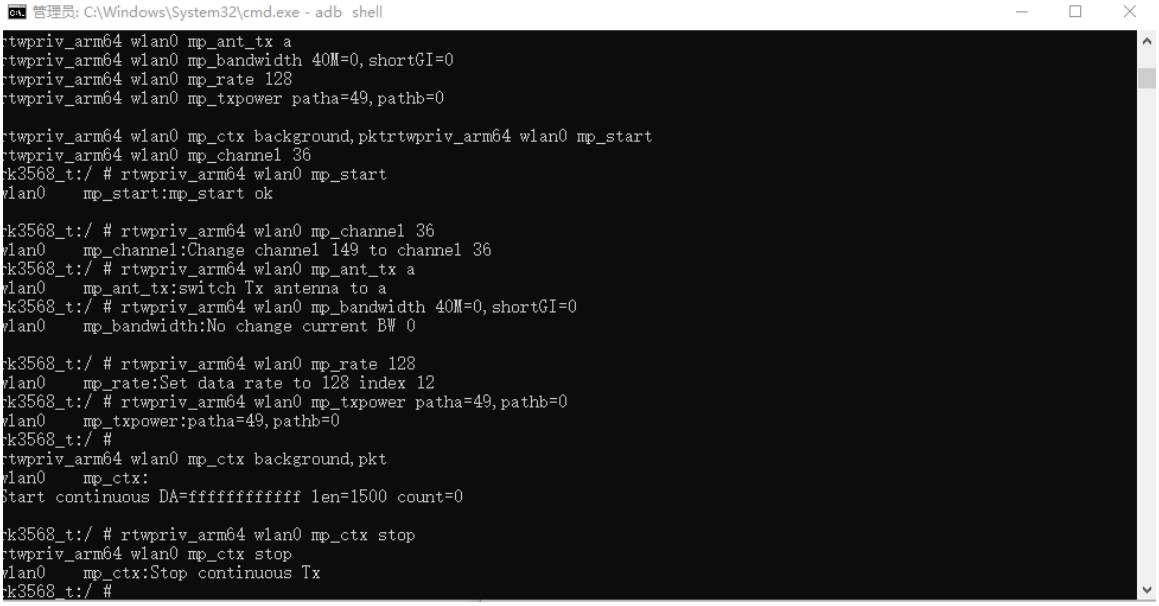
Standard Requirement
15.203 requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.
EUT Antenna:
The non-detachable antenna inside the device cannot be replaced by the user at will. The gain of the antenna is 2.97dBi.

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

2.9 Description of Test Software

For IEEE 802.11 mode:

Software Setting Diagram



Test Mode	Channel	Power Index
802.11a	L/M/H	49
802.11n(HT20)	L/M/H	49
802.11n(HT40)	L/M/H	49
802.11ac(VHT20)	L/M/H	49
802.11ac(VHT40)	L/M/H	49
802.11ac(VHT80)	L/M/H	49

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

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 follow 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 follow 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.

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

3.3 Environmental Conditions

	Normal Conditions
Temperature range (℃)	15 - 35
Relative humidity range	20% - 75%
Pressure range (kPa)	86 - 106
Power supply	DC 14.8V by battery or DC 18V/3.6A by adapter

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 = ±2.9 dB
Uncertainty of Radiated Emission below 1GHz	U_c = ±3.9 dB
Uncertainty of Radiated Emission above 1GHz	U_c = ±4.9 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 %

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

3.5 List of Equipment Used

● RF Conducted Test System							
Used	Equipment No.	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)
☒	AGC-ER-E036	Spectrum Analyzer	Agilent	N9020A	MY49100060	2023-06-01	2024-05-31
☒	AGC-ER-E062	Power Sensor	Agilent	U2021XA	MY54110007	2023-03-03	2024-03-02
☒	AGC-ER-E062	Power Sensor	Agilent	U2021XA	MY54110007	2024-02-01	2025-01-31
☒	AGC-ER-E063	Power Sensor	Agilent	U2021XA	MY54110009	2023-03-03	2024-03-02
☒	AGC-ER-E063	Power Sensor	Agilent	U2021XA	MY54110009	2024-02-01	2025-01-31
☒	AGC-EM-A152	6dB Attenuator	Eeatsheep	LM-XX-6-5W	N/A	2023-06-09	2024-06-08
☒	AGC-ER-E083	Signal Generator	Agilent	E4421B	US39340815	2023-06-01	2024-05-31
☒	N/A	RF Connection Cable	N/A	1#	N/A	Each time	N/A
☒	N/A	RF Connection Cable	N/A	2#	N/A	Each time	N/A

● Radiated Spurious Emission							
Used	Equipment No.	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)
☐	AGC-EM-E046	EMI Test Receiver	R&S	ESCI	10096	2023-02-18	2024-02-17
☐	AGC-EM-E046	EMI Test Receiver	R&S	ESCI	10096	2024-02-01	2025-01-31
☒	AGC-EM-E116	EMI Test Receiver	R&S	ESCI	100034	2023-06-03	2024-06-02
☒	AGC-EM-E061	Spectrum Analyzer	Agilent	N9010A	MY53470504	2023-06-01	2024-05-31
☒	AGC-EM-E086	Loop Antenna	ZHINAN	ZN30900C	18051	2022-03-12	2024-03-11
☒	AGC-EM-E001	Wideband Antenna	SCHWARZBECK	VULB9168	D69250	2023-05-11	2025-05-10
☒	AGC-EM-E029	Broadband Ridged Horn Antenna	ETS	3117	00034609	2023-03-23	2024-03-22
☒	AGC-EM-E082	Horn Antenna	SCHWARZBECK	BBHA 9170	#768	2023-11-13	2024-11-12
☒	AGC-EM-E146	Pre-amplifier	ETS	3117-PA	00246148	2022-08-04	2024-08-03
☒	AGC-EM-A119	5G Filter	SongYi	N/A	N/A	2023-06-01	2024-05-31
☒	AGC-EM-A138	6dB Attenuator	Eeatsheep	LM-XX-6-5W	N/A	2023-06-09	2024-06-08
☐	AGC-EM-A139	6dB Attenuator	Eeatsheep	LM-XX-6-5W	N/A	2023-06-09	2024-06-08

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

● AC Power Line Conducted Emission							
Used	Equipment No.	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)
☒	AGC-EM-E045	EMI Test Receiver	R&S	ESPI	101206	2023-06-03	2024-06-02
☒	AGC-EM-E023	AMN	R&S	100086	ESH2-Z5	2023-06-03	2024-06-02
☒	AGC-EM-A130	6dB Attenuator	Eeatsheep	LM-XX-6-5W	DC-6GZ	2023-06-09	2024-06-08

● Test Software					
Used	Equipment No.	Test Equipment	Manufacturer	Model No.	Version Information
☒	AGC-EM-S001	CE Test System	R&S	ES-K1	V1.71
☒	AGC-EM-S003	RE Test System	FARA	EZ-EMC	VRA-03A
☒	AGC-ER-S012	BT/WIFI Test System	Tonscend	JS1120-2	2.6
☒	AGC-EM-S011	RSE Test System	Tonscend	TS+-Ver2.1(JS36-RSE)	4.0.0.0

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

4.System Test Configuration

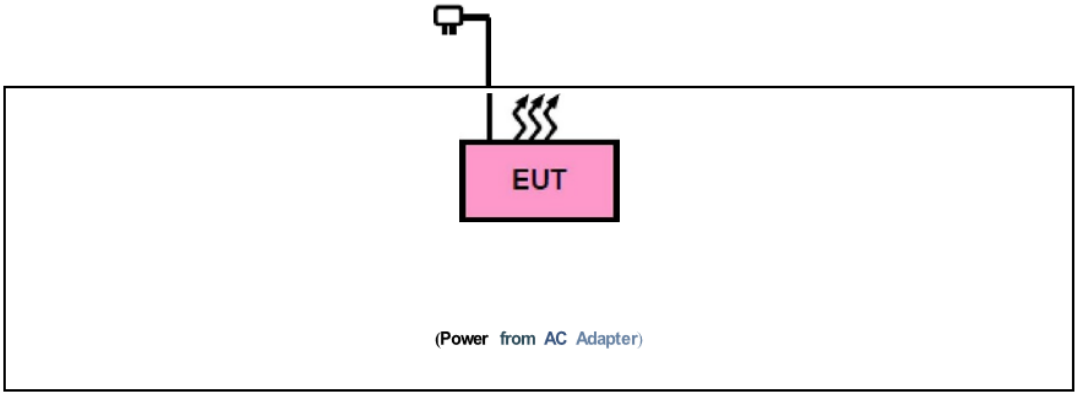
4.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commission's requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

4.2 EUT Exercise

The Transmitter was operated in the normal operating mode. The TX frequency was fixed which was for the purpose of the measurements.

4.3 Configuration of Tested System



4.4 Equipment Used in Tested System

The following peripheral devices and interface cables were connected during the measurement:

☒ Test Accessories Come From The Laboratory

No.	Equipment	Model No.	Manufacturer	Specification Information	Cable
1	Xiaomi Phone	MI 10	Xiaomi	--	--

☒ Test Accessories Come From The Manufacturer

No.	Equipment	Model No.	Manufacturer	Specification Information	Cable
1	Adapter 1	CW1803600	Shenzhen Cenwell Technology Co., Ltd.	Input:100-240V, 50/60Hz, 2.0A Output: 18.0V, 3.6A, 64.8W	--
2	Adapter 2	MSA65ED-18036001	Shenzhen JingQuanHua & Everrise Intelligent Electric Co., Ltd	Input:100-240V, 50/60Hz, 1.5A Output: 18.0V, 3.6A, 65W	--

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

4.5 Summary of Test Results

Item	FCC Rules	Description Of Test	Result
1	§15.203	Antenna Equipment	Pass
2	§15.407(a/1/2/3)	RF Output Power	Pass
3	§15.407(e)	6 dB Bandwidth	Pass
4	§15.403(i)	99% Occupied Bandwidth	Pass
5	§15.407(a/1/2/3)	Power Spectral Density	Pass
6	§15.407(b)(1/2/3/4)	Conducted Band Edge and Out-of-Band Emissions	Pass
7	§15.209,§15.407(b)(1/2/3/4)	Radiated Spurious Emission	Pass
8	§15.207	AC Power Line Conducted Emission	Pass

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

5. Description of Test Modes

EUT Configure Mode	Applicable To				Description
	RE > 1G	RE < 1G	PLC	APCM	
A	--	--	--	--	Powered by Adapter with WIFI(5G) Link
B	☒	☒	☒	☒	Powered by Battery with WIFI(5G) Link
C	--	--	--	--	Powered by USB with WIFI(5G) Link

Where, **RE > 1G: Radiated Emission above 1GHz** **PLC: Power Line Conducted Emission**

RE < 1G: Radiated Emission below 1GHz **APCM: Antenna Port Conducted Measurement**

NOTE 1: The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on X-plane.

NOTE 2: "--"means no effect.

- **Radiated Emission Test (Above 1GHz):**

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations be Meen available modulations, data rates and antenna ports (IF EUT with antenna diversity architecture).

☐ The device under test has multiple antennas. The mode that supports MIMO technology records the worst data, and the mode that does not support MIMO technology records antenna 1 as the worst data.

☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Freq. Band (MHz)	Available Channel	Tested Channel	Modulation	Data Rate (Mbps)
B	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	6.0
B	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	6.0
B	802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	6.0
B	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	6.0

- **Radiated Emission Test (Below 1GHz):**

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations be Meen available modulations, data rates and antenna ports (If EUT with antenna diversity architecture).

☐ The device under test has multiple antennas. The mode that supports MIMO technology records the worst data, and the mode that does not support MIMO technology records antenna 1 as the worst data.

☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Freq. Band (MHz)	Available Channel	Tested Channel	Modulation	Data Rate (Mbps)
B	802.11a	5180-5240	36 to 48	36	OFDM	6.0

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

- **Power Line Conducted Emission Test:**

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations be Meen available modulations, data rates and antenna ports (If EUT with antenna diversity architecture).

☐ The device under test has multiple antennas. The mode that supports MIMO technology records the worst data, and the mode that does not support MIMO technology records antenna 1 as the worst data.

☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Freq. Band (MHz)	Available Channel	Tested Channel	Modulation	Data Rate (Mbps)
B	802.11a	5180-5240	36 to 48	36	OFDM	6.0

- **Band edge Measurement:**

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations be Meen available modulations, data rates and antenna ports (If EUT with antenna diversity architecture).

☐ The device under test has multiple antennas. The mode that supports MIMO technology records the worst data, and the mode that does not support MIMO technology records antenna 1 as the worst data.

☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Freq. Band (MHz)	Available Channel	Tested Channel	Modulation	Data Rate (Mbps)
B	802.11a	5180-5240	36 to 48	36	OFDM	6.0
B	802.11n (40MHz)		38 to 46	38	OFDM	MCS0
B	802.11ac (80MHz)		42	42	OFDM	MCS9
B	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	6.0
B	802.11n (40MHz)		54 to 62	54, 62	OFDM	MCS0
B	802.11ac (80MHz)		58	58	OFDM	MCS9
B	802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	6.0
B	802.11n (40MHz)		102 to 134	102, 110, 134	OFDM	MCS0
B	802.11ac (80MHz)		106	106, 122	OFDM	MCS9
B	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	6.0
B	802.11n (40MHz)		151 to 159	151, 159	OFDM	MCS0
B	802.11ac (80MHz)		155	155	OFDM	MCS9

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

- **Antenna Port Conducted Measurement:**

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations be Meen available modulations, data rates and antenna ports (If EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Freq. Band (MHz)	Available Channel	Tested Channel	Modulation	Data Rate (Mbps)
B	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	6.0
B	802.11n (20MHz)		36 to 48	36, 40, 48	OFDM	MCS0
B	802.11n (40MHz)		38 to 46	38, 46	OFDM	MCS9
B	802.11ac (20MHz)		36 to 48	36, 40, 48	OFDM	MCS0
B	802.11ac (40MHz)		38 to 46	38, 46	OFDM	MCS9
B	802.11ac (80MHz)		42	42	OFDM	MCS9
B	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	6.0
B	802.11n (20MHz)		52 to 64	52, 60, 64	OFDM	MCS0
B	802.11n (40MHz)		54 to 62	54, 62	OFDM	MCS9
B	802.11ac (20MHz)		52 to 64	52, 60, 64	OFDM	MCS0
B	802.11ac (40MHz)		54 to 62	54, 62	OFDM	MCS9
B	802.11ac (80MHz)		58	58	OFDM	MCS9
B	802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	6.0
B	802.11n (20MHz)		100 to 140	100, 116, 140	OFDM	MCS0
B	802.11n (40MHz)		102 to 134	102, 110, 134	OFDM	MCS9
B	802.11ac (20MHz)		100 to 140	100, 116, 140	OFDM	MCS0
B	802.11ac (40MHz)		102 to 134	102, 110, 134	OFDM	MCS9
B	802.11ac (80MHz)		106	106, 122	OFDM	MCS9
B	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	6.0
B	802.11n (20MHz)		149 to 165	149, 157, 165	OFDM	MCS0
B	802.11n (40MHz)		151 to 159	151, 159	OFDM	MCS9
B	802.11ac (20MHz)		149 to 165	149, 157, 165	OFDM	MCS0
B	802.11ac (40MHz)		151 to 159	151, 159	OFDM	MCS9
B	802.11ac (80MHz)		155	155	OFDM	MCS9

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

6. Duty Cycle Measurement

5GHz WLAN (NII) operation is possible in 20MHz and 40MHz 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)
Band U-NII1:5150MHz-5250MHz					
802.11a	6	97.68	0.10	0.72	-0.20
802.11n_HT20	MCS0	97.30	0.12	0.77	-0.24
802.11n_HT40	MCS0	95.46	0.20	1.53	-0.40
802.11ac_VHT20	MCS0	97.40	0.11	0.76	-0.23
802.11ac_VHT40	MCS0	94.34	0.25	1.55	-0.51
802.11ac_VHT80	MCS9	90.40	0.44	3.07	-0.88
Band U-NII 2A:5250MHz-5350MHz					
802.11a	6	97.61	0.11	0.72	-0.21
802.11n_HT20	MCS0	97.53	0.11	0.77	-0.22
802.11n_HT40	MCS0	94.69	0.24	1.54	-0.47
802.11ac_VHT20	MCS0	96.54	0.15	0.76	-0.31
802.11ac_VHT40	MCS0	95.33	0.21	1.53	-0.42
802.11ac_VHT80	MCS9	90.48	0.43	3.1	-0.87

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

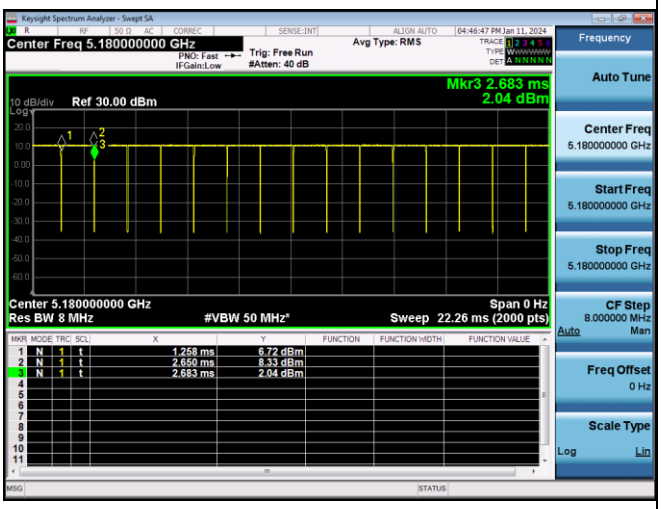
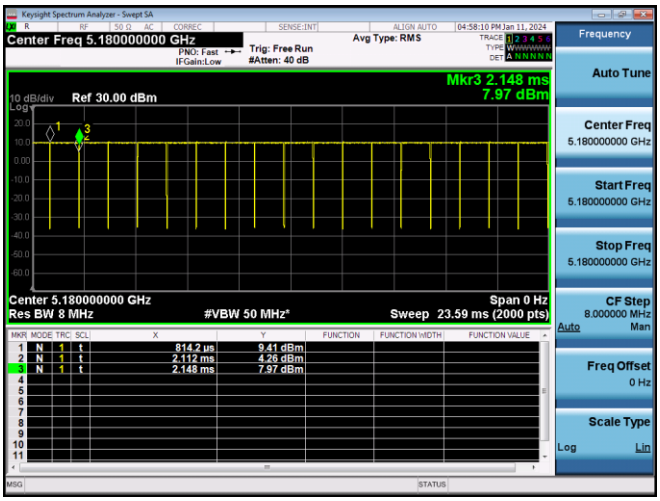
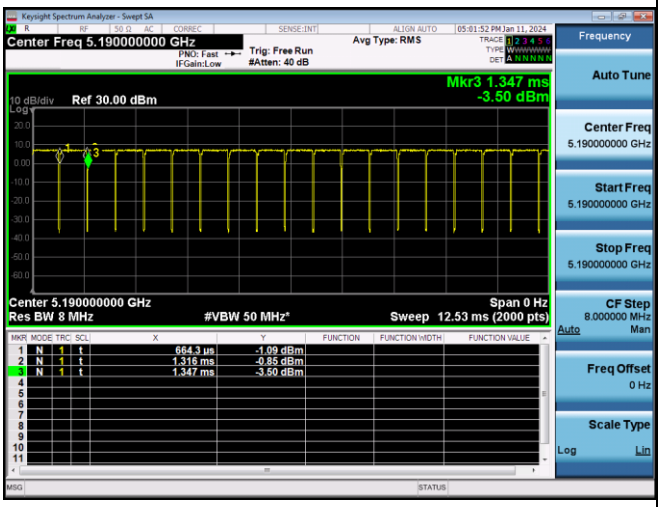
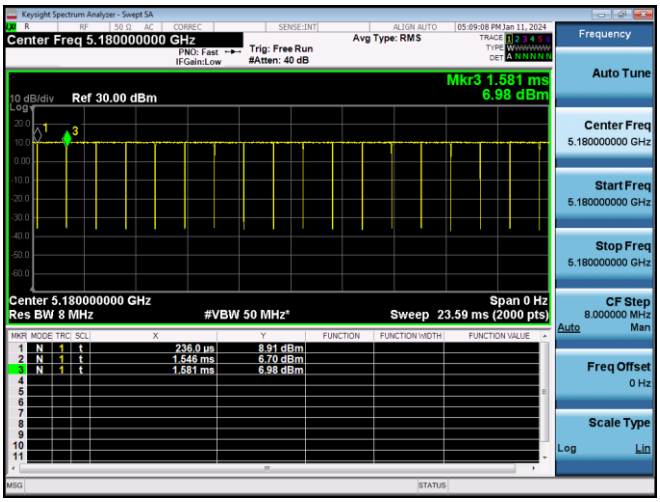
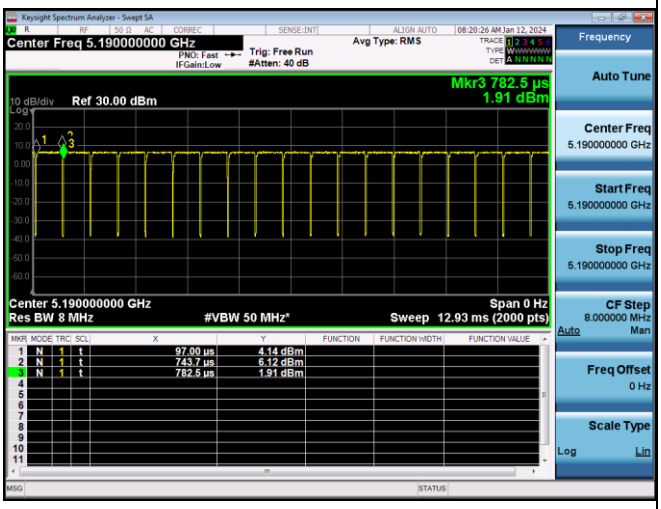
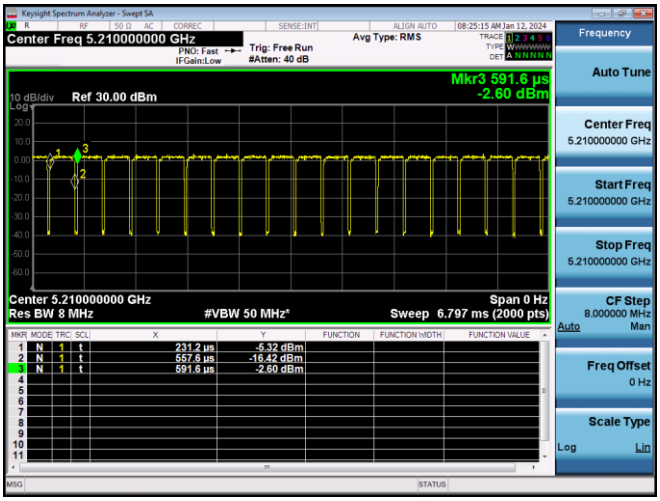
Operating mode	Data rates (Mbps)	Duty Cycle (%)	Duty Cycle Factor (dB)	1/ T Minimum VBW (kHz)	Average Factor (dB)
Band U-NII 2C:5150MHz-5250MHz					
802.11a	6	97.90	0.09	0.71	-0.18
802.11n_HT20	MCS0	97.38	0.12	0.77	-0.23
802.11n_HT40	MCS0	94.85	0.23	1.54	-0.47
802.11ac_VHT20	MCS0	97.32	0.12	0.76	-0.24
802.11ac_VHT40	MCS0	95.05	0.22	1.53	-0.44
802.11ac_VHT80	MCS9	90.28	0.44	3.10	-0.89
Band U-NII 3:5250MHz-5350MHz					
802.11a	6	97.84	0.09	0.71	-0.19
802.11n_HT20	MCS0	97.17	0.12	0.77	-0.25
802.11n_HT40	MCS0	95.14	0.22	1.55	-0.43
802.11ac_VHT20	MCS0	97.42	0.11	0.76	-0.23
802.11ac_VHT40	MCS0	94.12	0.26	1.55	-0.53
802.11ac_VHT80	MCS9	90.48	0.43	3.1	-0.87

Remark:

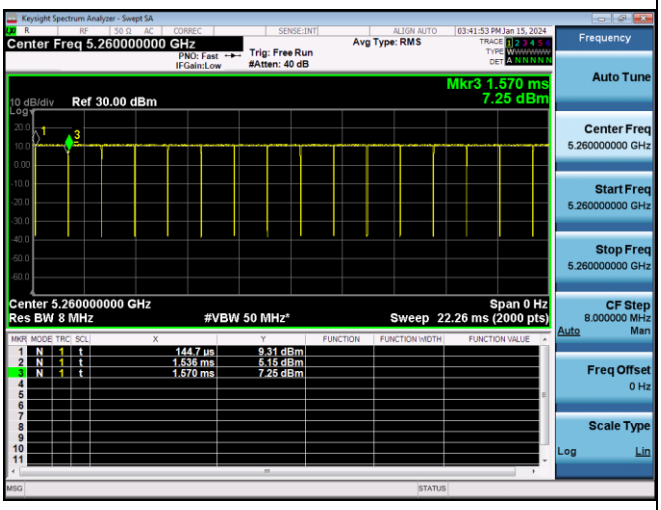
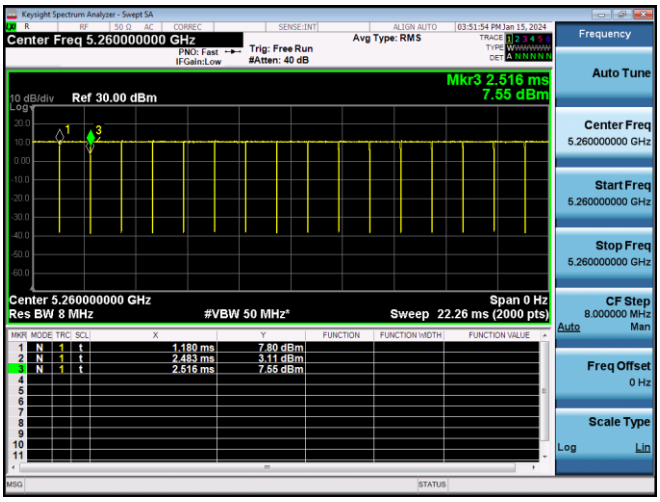
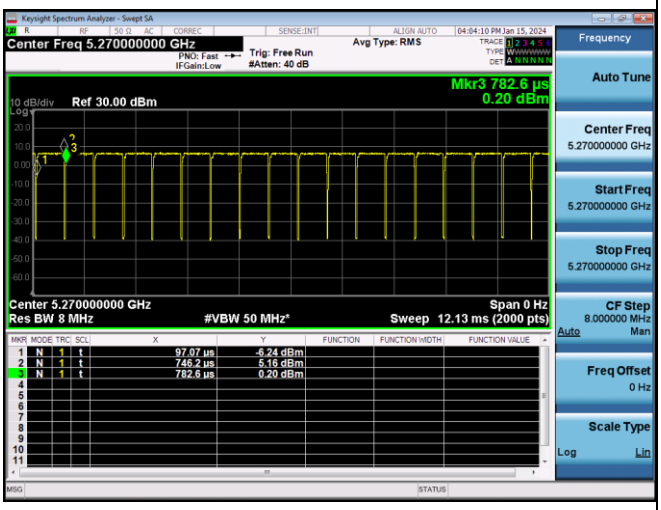
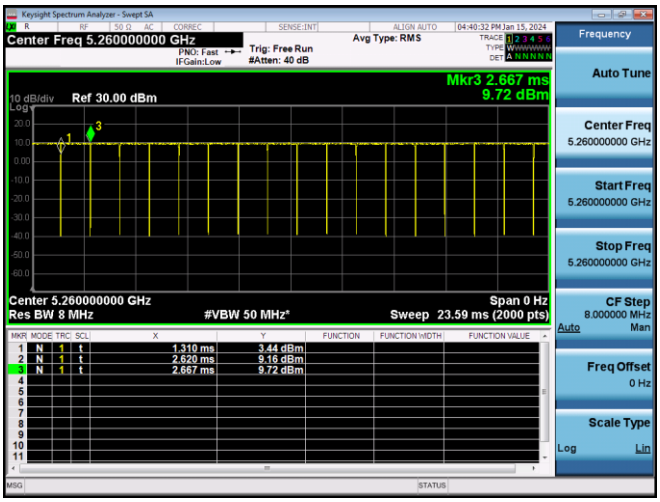
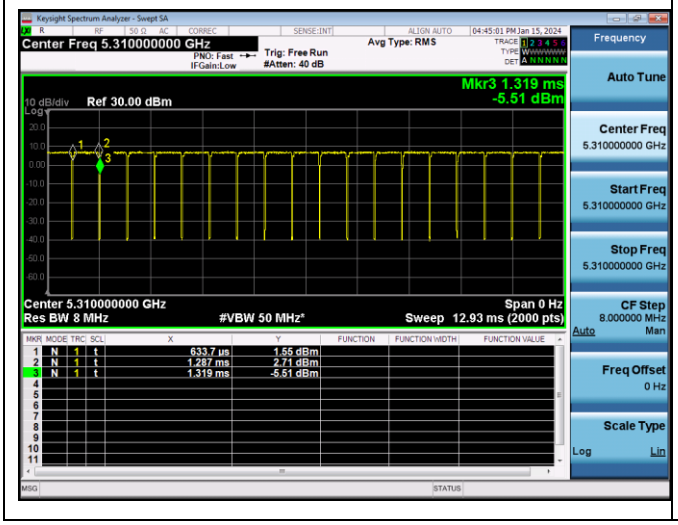
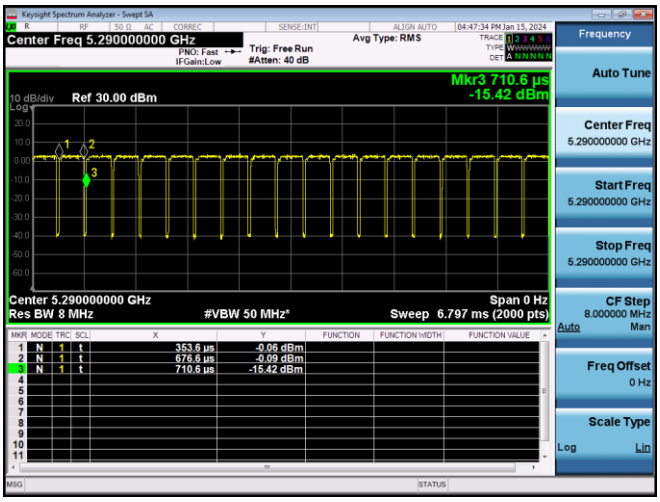
1. Duty Cycle factor = 10 * log (1/ Duty cycle) , Average factor = 20 log10 Duty Cycle
2. The duty cycle of each frequency band mode reflects the determination requirements of the low channel measurement value.
3. Involving the test items of duty cycle compensation coefficient, the final results have been added and calculated by the software and presented.

The test plots as follows:

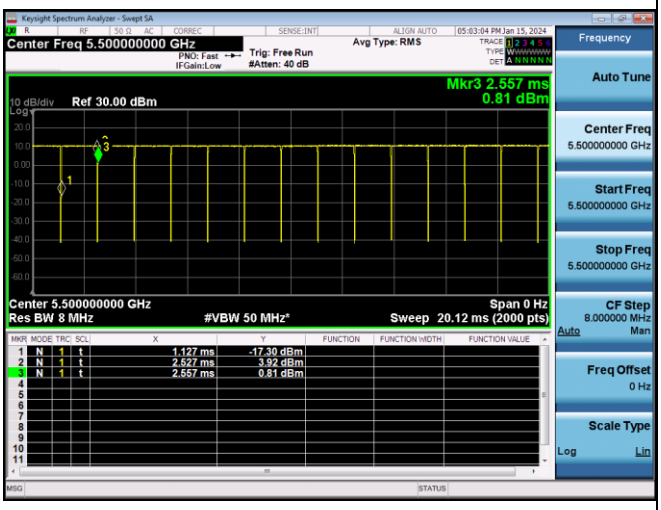
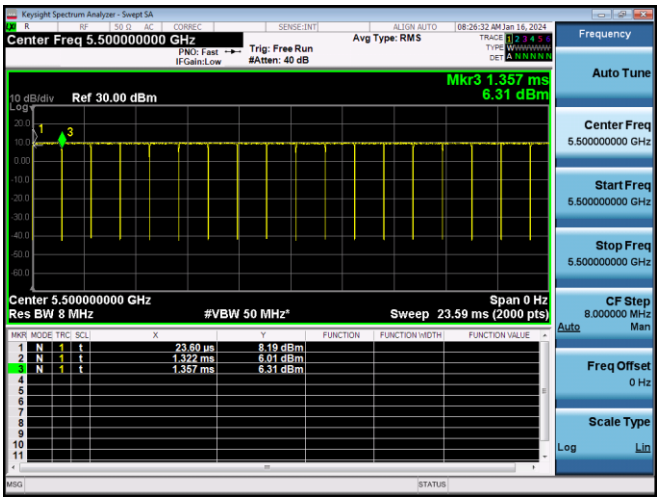
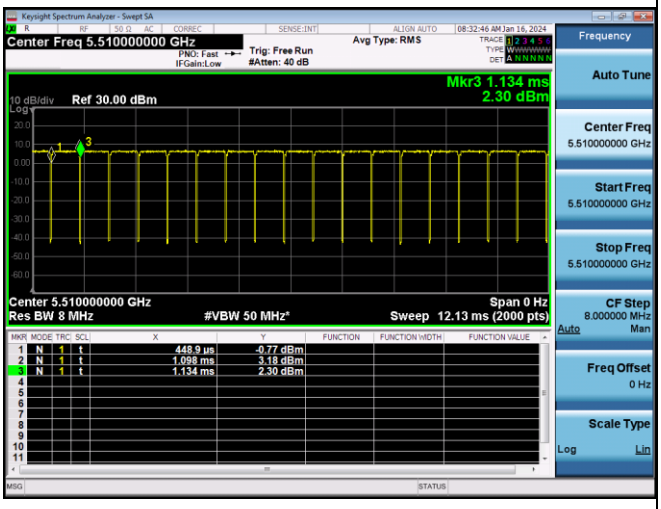
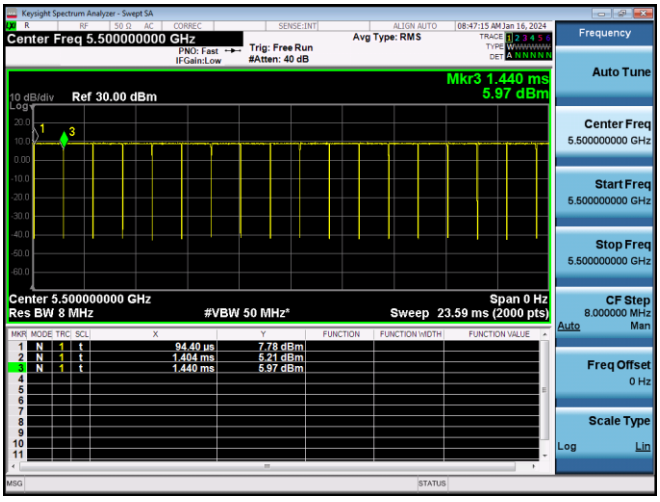
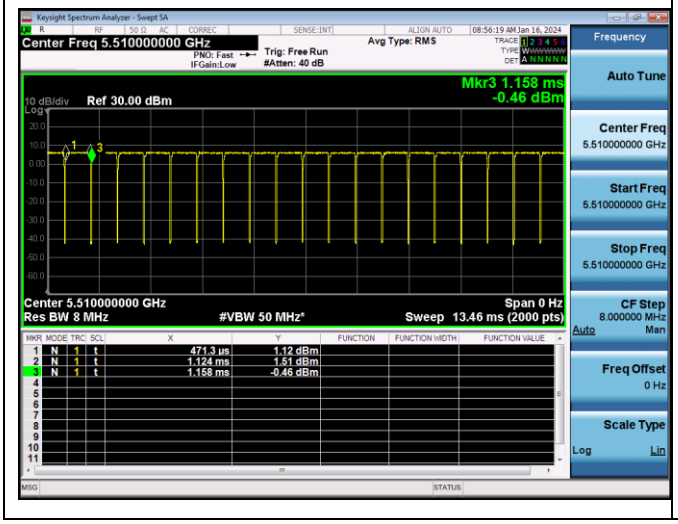
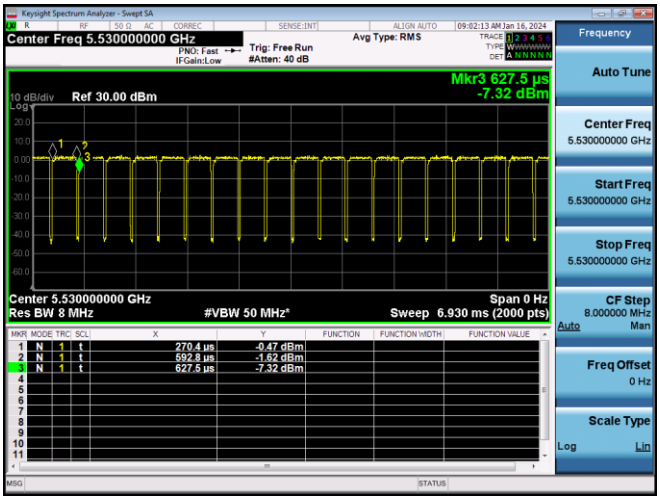
Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

Band U-NII1_IEEE 802.11a	Band U-NII1_IEEE 802.11n-HT20
	
Band U-NII1_IEEE 802.11n-HT40	**Band U-NII1_IEEE 802.11ac-VHT20**
	
Band U-NII1_IEEE 802.11ac-VHT40	**Band U-NII1_IEEE 802.11ac-VHT80**
	

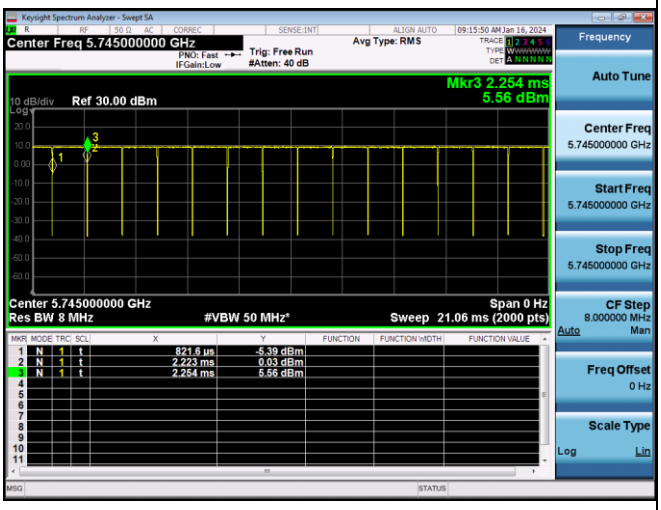
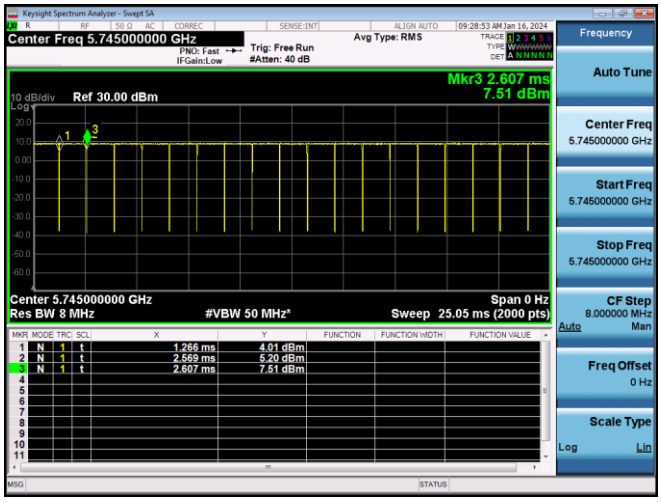
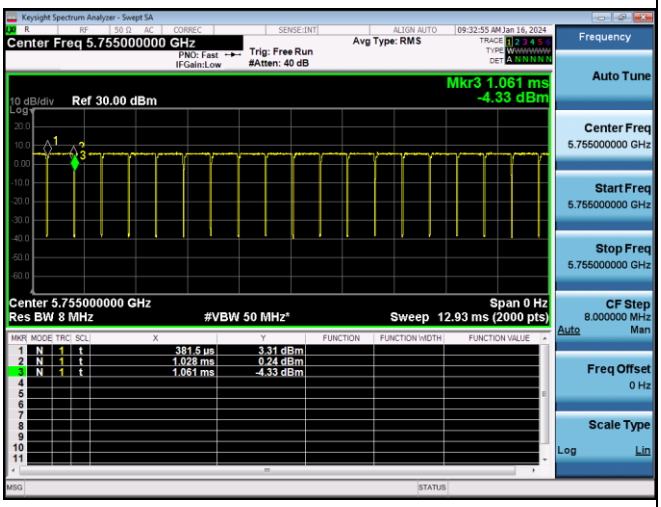
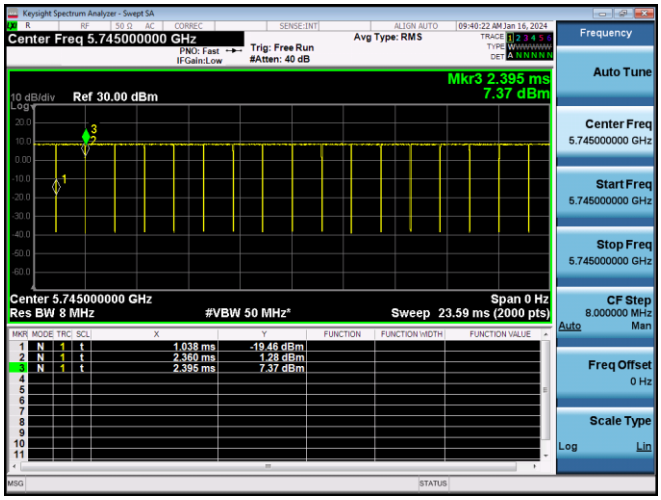
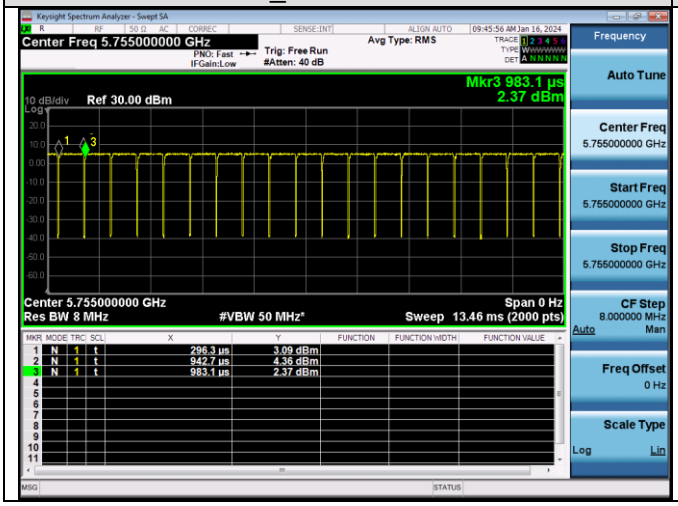
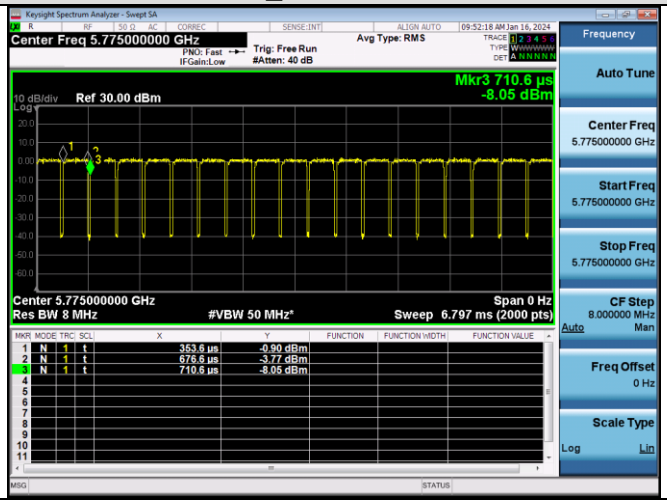
Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

Band U-NII 2A_IEEE 802.11a	Band U-NII 2A_IEEE 802.11n-HT20
	
Band U-NII 2A_EEE 802.11n-HT40	**Band U-NII 2A_IEEE 802.11ac-VHT20**
	
Band U-NII 2A_IEEE 802.11ac-VHT40	**Band U-NII 2A_IEEE 802.11ac-VHT80**
	

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

Band U-NII 2C_IEEE 802.11a	Band U-NII 2C_IEEE 802.11n-HT20
	
Band U-NII 2C_EEE 802.11n-HT40	**Band U-NII 2C_IEEE 802.11ac-VHT20**
	
Band U-NII 2C_IEEE 802.11ac-VHT40	**Band U-NII 2C_IEEE 802.11ac-VHT80**
	

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

Band U-NII 3_IEEE 802.11a	Band U-NII 3_IEEE 802.11n-HT20
	
Band U-NII 3_IEEE 802.11n-HT40	**Band U-NII 3_IEEE 802.11ac-VHT20**
	
Band U-NII 3_IEEE 802.11ac-VHT40	**Band U-NII 3_IEEE 802.11ac-VHT80**
	

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

7. RF Output Power Measurement

7.1 Provisions Applicable

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.

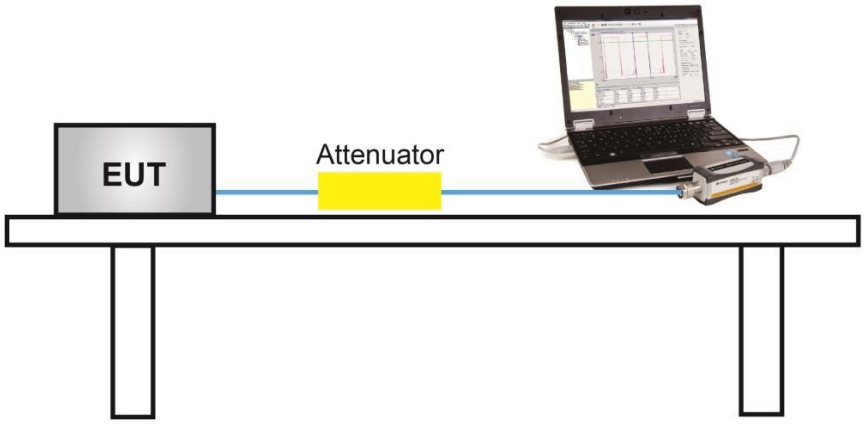
7.2 Measurement Procedure

☒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.

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

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-ANT 1				
Test Mode	Test Channel (MHz)	Average Power (dBm)	Limits (dBm)	Pass or Fail
802.11a	5180	12.85	23.98	Pass
	5200	11.50	23.98	Pass
	5240	11.49	23.98	Pass
802.11n20	5180	12.21	23.98	Pass
	5200	12.06	23.98	Pass
	5240	10.72	23.98	Pass
802.11n40	5190	12.47	23.98	Pass
	5230	11.18	23.98	Pass
802.11ac20	5180	12.59	23.98	Pass
	5200	11.55	23.98	Pass
	5240	10.96	23.98	Pass
802.11ac40	5190	11.91	23.98	Pass
	5230	11.27	23.98	Pass
802.11ac80	5210	11.29	23.98	Pass

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

Test Data of Conducted Output Power for band 5.25-5.35 GHz				
Test Mode	Test Channel (MHz)	Average Power (dBm)	Limits (dBm)	Pass or Fail
802.11a	5260	12.84	23.98	Pass
	5300	13.51	23.98	Pass
	5320	12.84	23.98	Pass
802.11n20	5260	12.83	23.98	Pass
	5300	12.79	23.98	Pass
	5320	13.13	23.98	Pass
802.11n40	5270	11.81	23.98	Pass
	5310	12.51	23.98	Pass
802.11ac20	5260	11.92	23.98	Pass
	5300	12.02	23.98	Pass
	5320	12.32	23.98	Pass
802.11ac40	5270	12.39	23.98	Pass
	5310	12.10	23.98	Pass
802.11ac80	5290	11.93	23.98	Pass

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

Test Data of Conducted Output Power for band 5.470-5.725 GHz				
Test Mode	Test Channel (MHz)	Average Power (dBm)	Limits (dBm)	Pass or Fail
802.11a	5500	12.75	23.98	Pass
	5580	12.22	23.98	Pass
	5700	12.24	23.98	Pass
802.11n20	5500	12.13	23.98	Pass
	5580	11.45	23.98	Pass
	5700	11.14	23.98	Pass
802.11n40	5510	11.95	23.98	Pass
	5590	11.45	23.98	Pass
	5670	10.96	23.98	Pass
802.11ac20	5500	11.56	23.98	Pass
	5580	11.17	23.98	Pass
	5700	11.19	23.98	Pass
802.11ac40	5510	11.69	23.98	Pass
	5590	11.07	23.98	Pass
	5670	10.72	23.98	Pass
802.11ac80	5530	10.95	23.98	Pass
	5610	10.50	23.98	Pass

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

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	11.53	30	Pass
	5785	11.16	30	Pass
	5825	11.17	30	Pass
802.11n20	5745	11.38	30	Pass
	5785	11.06	30	Pass
	5825	10.95	30	Pass
802.11n40	5755	11.03	30	Pass
	5795	10.86	30	Pass
802.11ac20	5745	10.90	30	Pass
	5785	10.56	30	Pass
	5825	10.45	30	Pass
802.11ac40	5755	10.65	30	Pass
	5795	10.32	30	Pass
802.11ac80	5775	10.12	30	Pass

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

8. 6dB&26dB Bandwidth Measurement

8.1 Provisions Applicable

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

8.2 Measurement Procedure

◆ **-6dB bandwidth (DTS bandwidth) Test setting:**

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

◆ **99% occupied bandwidth test setting:**

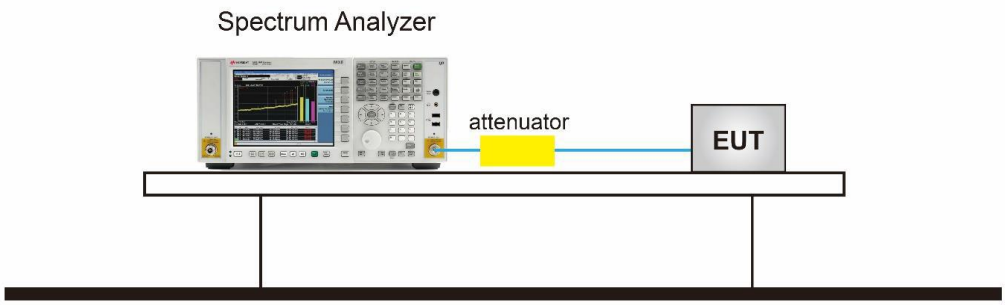
1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
2. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
3. Set Span = approximately 1.5 to 5 times the OBW, centered on a nominal channel
   The nominal IF filter bandwidth (3 dB RBW) shall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

◆ **-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)



Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

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	16.554	24.181	N/A	Pass
	5200	16.522	23.238	N/A	Pass
	5240	16.578	22.593	N/A	Pass
802.11n20	5180	17.605	20.439	N/A	Pass
	5200	17.662	24.138	N/A	Pass
	5240	17.604	22.338	N/A	Pass
802.11n40	5190	36.121	52.357	N/A	Pass
	5230	36.089	50.839	N/A	Pass
802.11ac20	5180	17.646	22.204	N/A	Pass
	5200	17.629	23.137	N/A	Pass
	5240	17.618	20.931	N/A	Pass
802.11ac40	5190	36.082	54.398	N/A	Pass
	5230	36.010	47.629	N/A	Pass
802.11ac80	5210	76.086	114.803	N/A	Pass

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

Test Data of Occupied Bandwidth and -26dB Bandwidth for band 5.25-5.35 GHz					
Test Mode	Test Channel (MHz)	99% Occupied Bandwidth (MHz)	-26dB Bandwidth (MHz)	Limits (MHz)	Pass or Fail
802.11a	5260	16.467	20.526	N/A	Pass
	5300	16.415	19.983	N/A	Pass
	5320	16.403	20.085	N/A	Pass
802.11n20	5260	17.573	20.797	N/A	Pass
	5300	17.533	19.822	N/A	Pass
	5320	17.524	19.802	N/A	Pass
802.11n40	5270	35.972	46.757	N/A	Pass
	5310	35.950	40.977	N/A	Pass
802.11ac20	5260	17.571	20.207	N/A	Pass
	5300	17.542	20.353	N/A	Pass
	5320	17.529	19.867	N/A	Pass
802.11ac40	5270	35.998	45.039	N/A	Pass
	5310	35.896	40.281	N/A	Pass
802.11ac80	5290	75.872	98.096	N/A	Pass

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

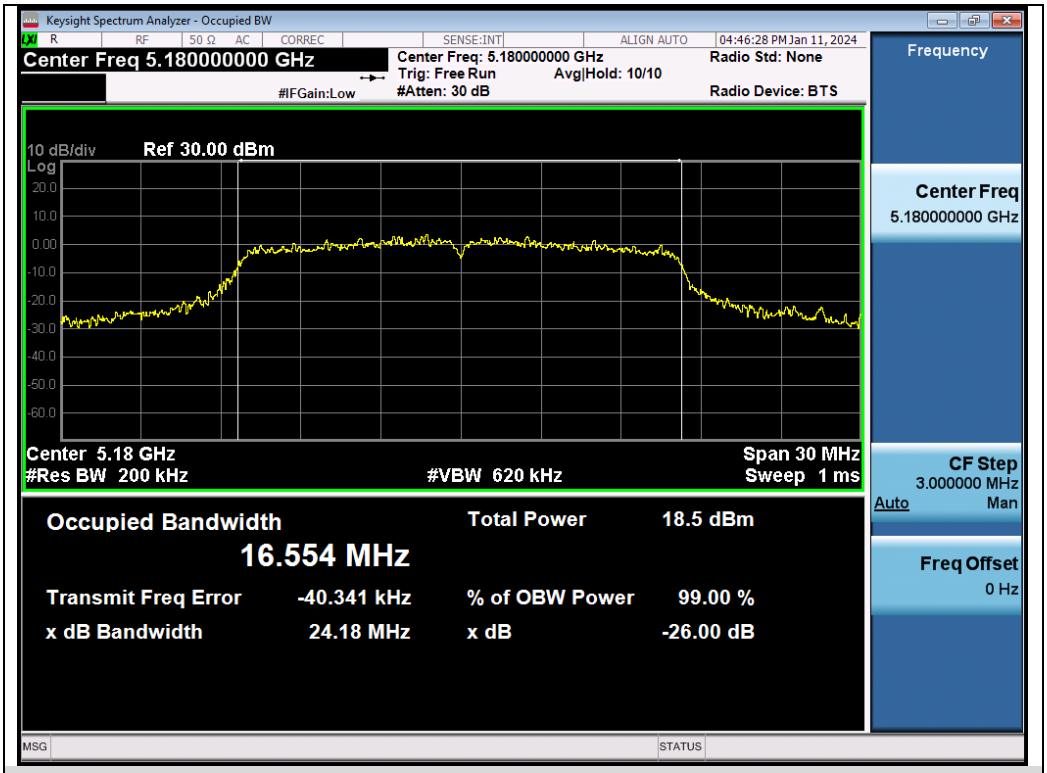
Test Data of Occupied Bandwidth and -26dB Bandwidth for band 5.47-5.725 GHz					
Test Mode	Test Channel (MHz)	99% Occupied Bandwidth (MHz)	-26dB Bandwidth (MHz)	Limits (MHz)	Pass or Fail
802.11a	5500	16.340	19.574	N/A	Pass
	5600	16.421	19.819	N/A	Pass
	5700	16.448	20.205	N/A	Pass
802.11n20	5500	17.518	19.801	N/A	Pass
	5600	17.505	19.839	N/A	Pass
	5700	17.532	19.961	N/A	Pass
802.11n40	5510	35.899	40.729	N/A	Pass
	5590	35.879	40.307	N/A	Pass
	5670	35.925	40.768	N/A	Pass
802.11ac20	5500	17.488	19.762	N/A	Pass
	5600	17.502	19.807	N/A	Pass
	5700	17.509	19.984	N/A	Pass
802.11ac40	5510	35.814	40.025	N/A	Pass
	5590	35.814	40.325	N/A	Pass
	5670	35.858	40.214	N/A	Pass
802.11ac80	5530	75.790	81.451	N/A	Pass
	5610	75.781	86.148	N/A	Pass

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

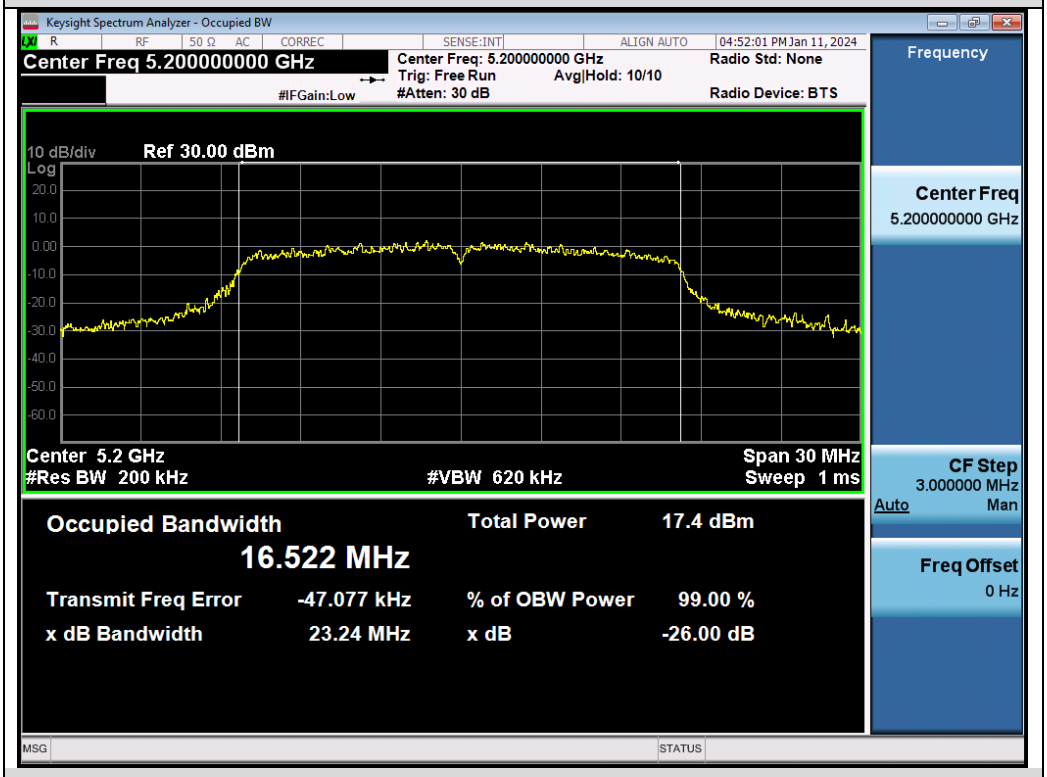
Test Data of Occupied Bandwidth and DTS Bandwidth for band 5.725-5.85 GHz					
Test Mode	Test Channel (MHz)	99% Occupied Bandwidth (MHz)	DTS Bandwidth (MHz)	DTS Limits (MHz)	Pass or Fail
802.11a	5745	16.437	15.029	0.5	Pass
	5785	16.470	15.026	0.5	Pass
	5825	16.460	15.028	0.5	Pass
802.11n20	5745	17.529	15.019	0.5	Pass
	5785	17.549	15.049	0.5	Pass
	5825	17.533	15.110	0.5	Pass
802.11n40	5755	35.931	35.093	0.5	Pass
	5795	35.958	35.082	0.5	Pass
802.11ac20	5745	17.526	13.835	0.5	Pass
	5785	17.524	15.020	0.5	Pass
	5825	17.547	14.977	0.5	Pass
802.11ac40	5755	35.908	35.072	0.5	Pass
	5795	35.917	35.105	0.5	Pass
802.11ac80	5775	75.858	76.037	0.5	Pass

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

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

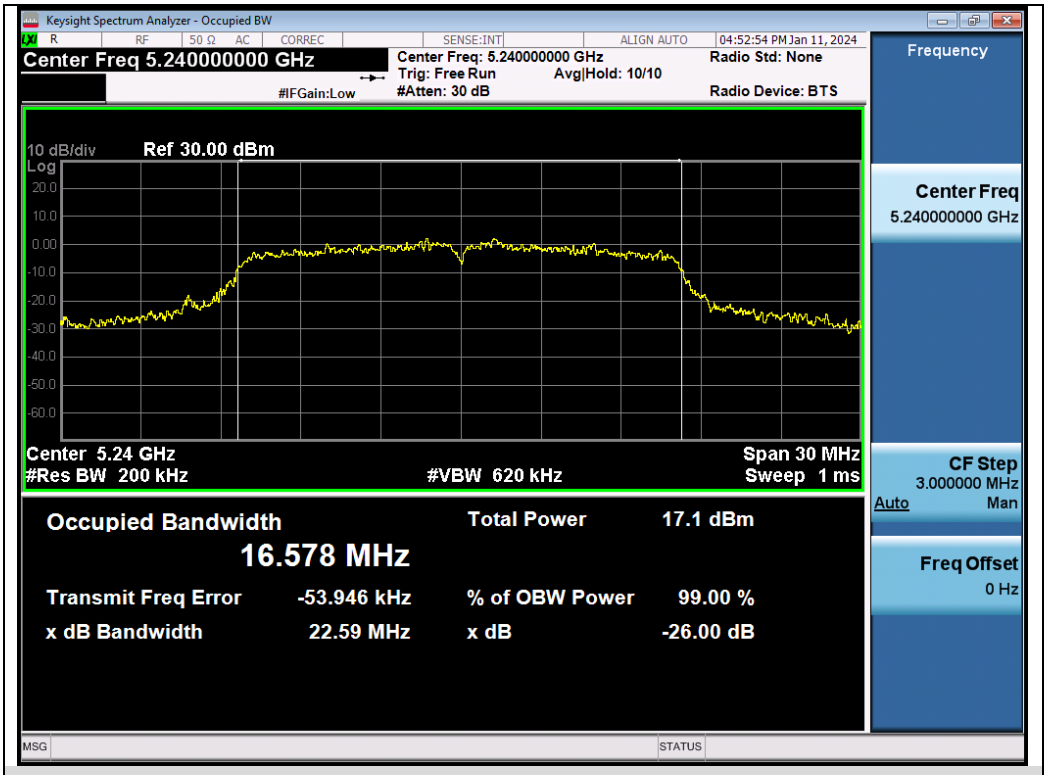


Test_Graph_802.11a_ANT1_5180_6Mbps_OBW

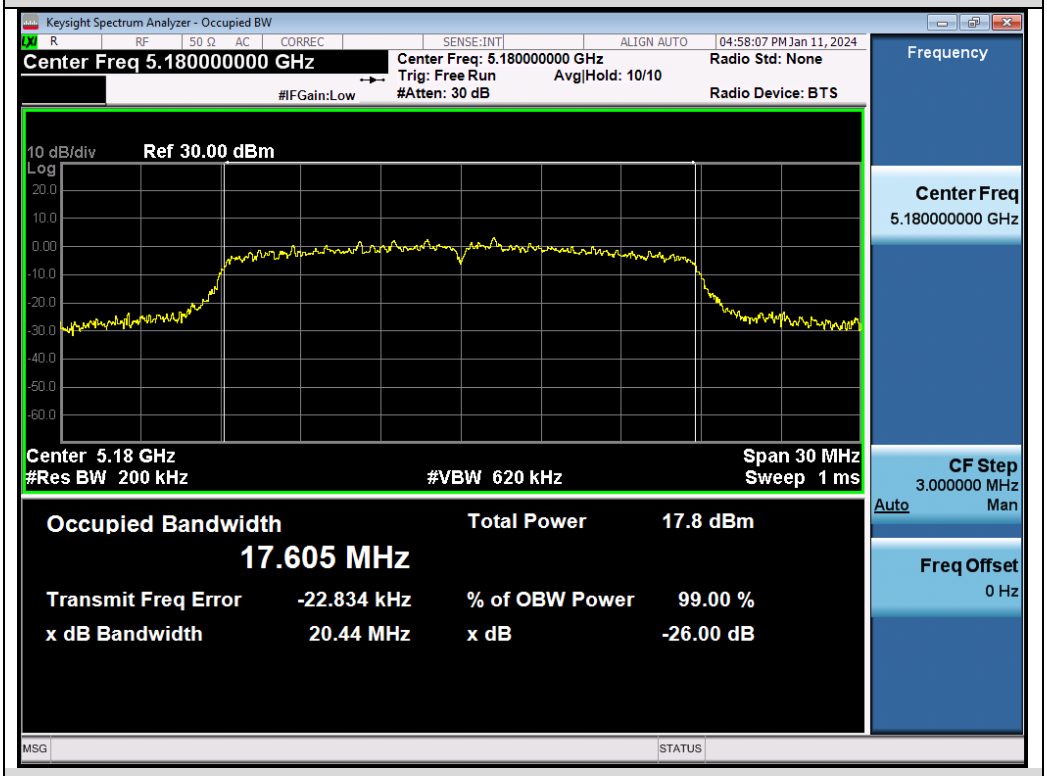


Test_Graph_802.11a_ANT1_5200_6Mbps_OBW

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

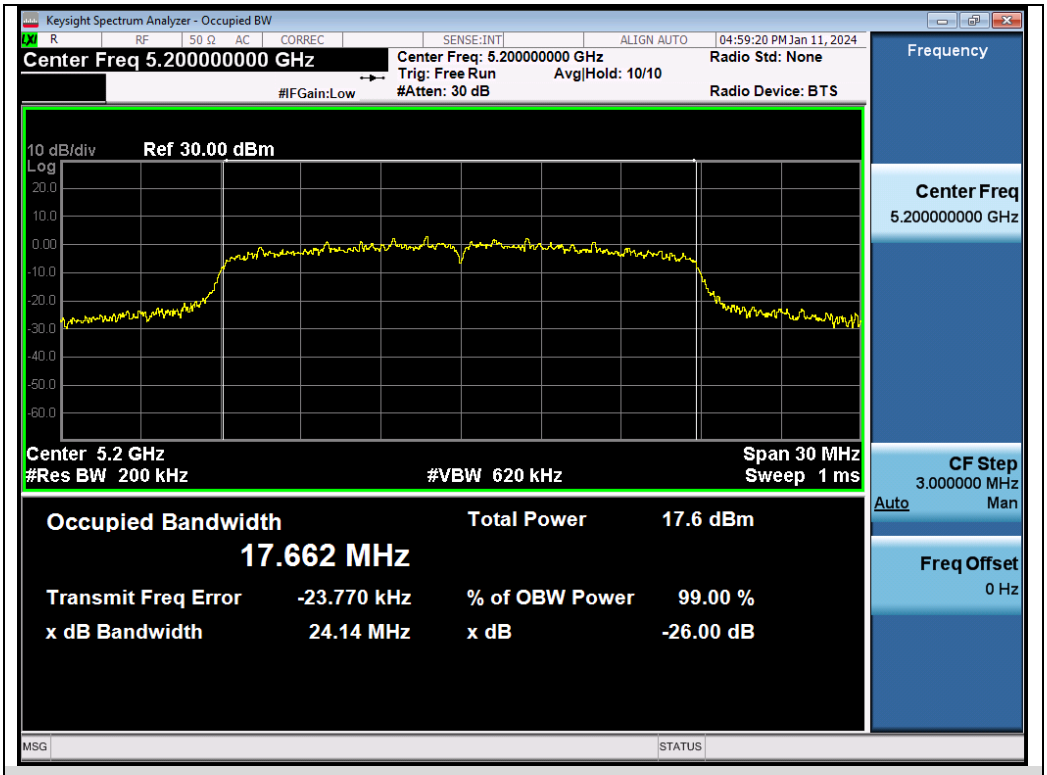


Test_Graph_802.11a_ANT1_5240_6Mbps_OBW

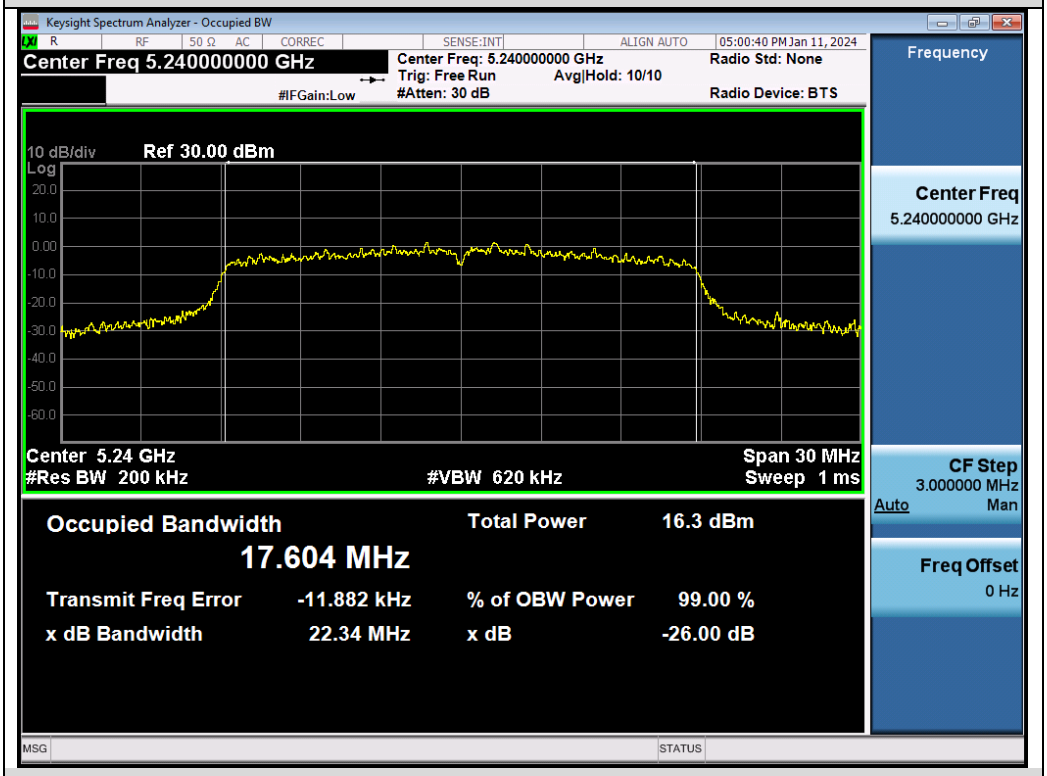


Test_Graph_802.11n20_ANT1_5180_MCS0_OBW

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

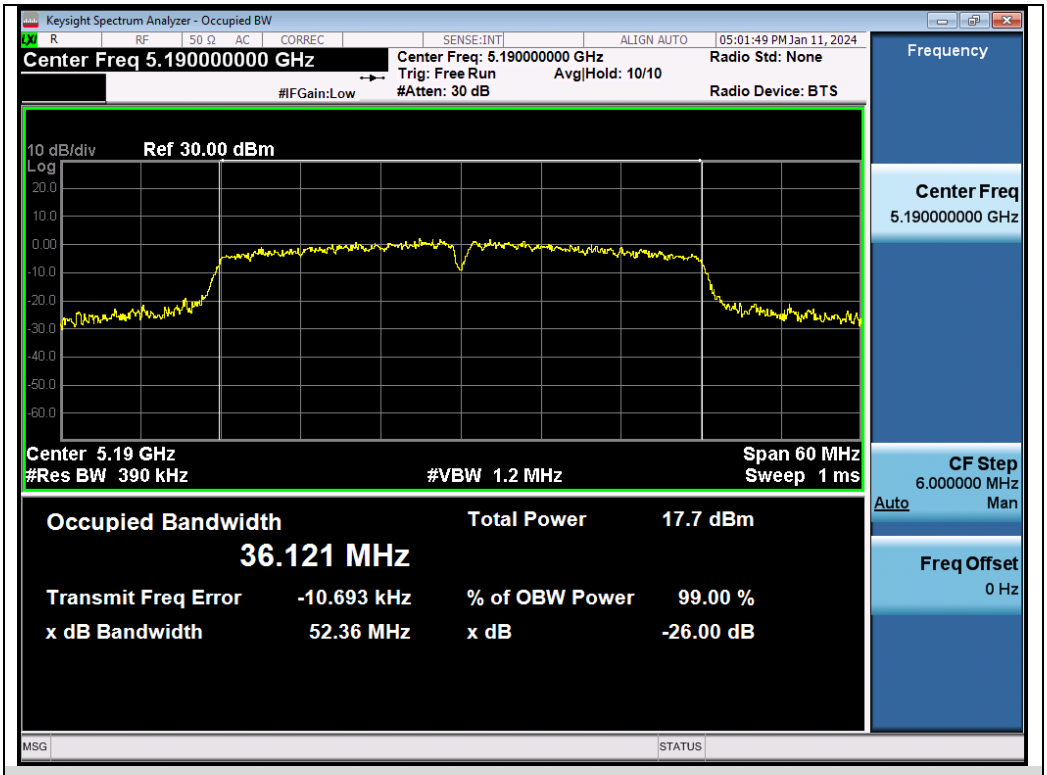


Test_Graph_802.11n20_ANT1_5200_MCS0_OBW

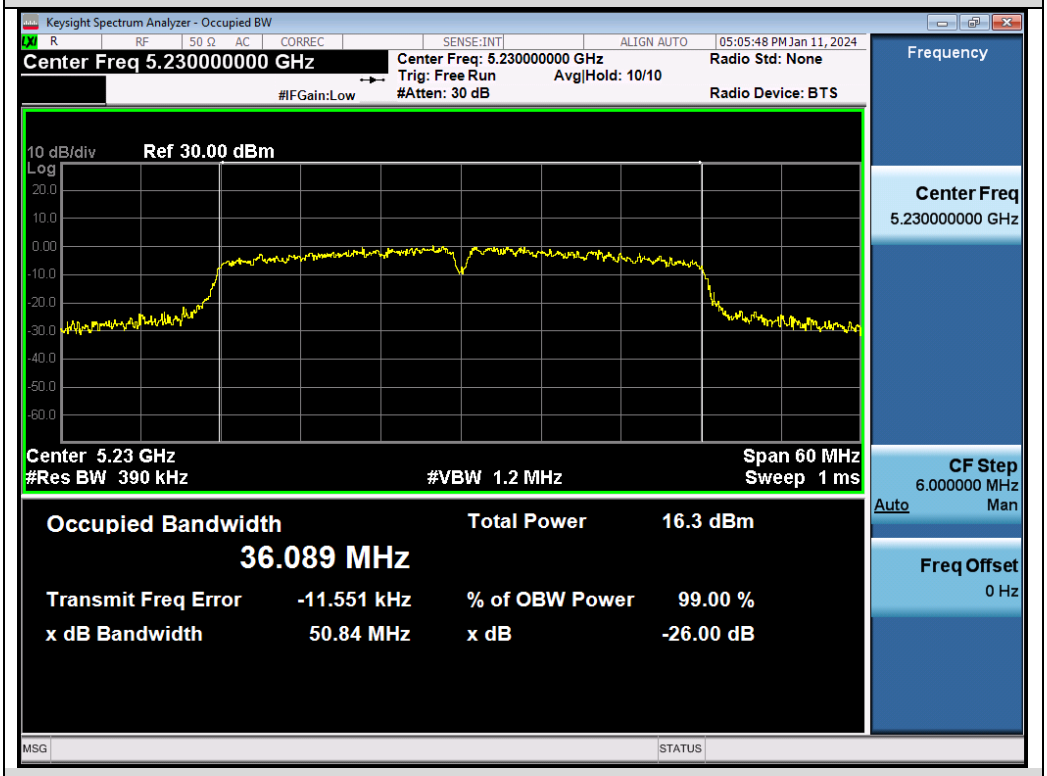


Test_Graph_802.11n20_ANT1_5240_MCS0_OBW

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

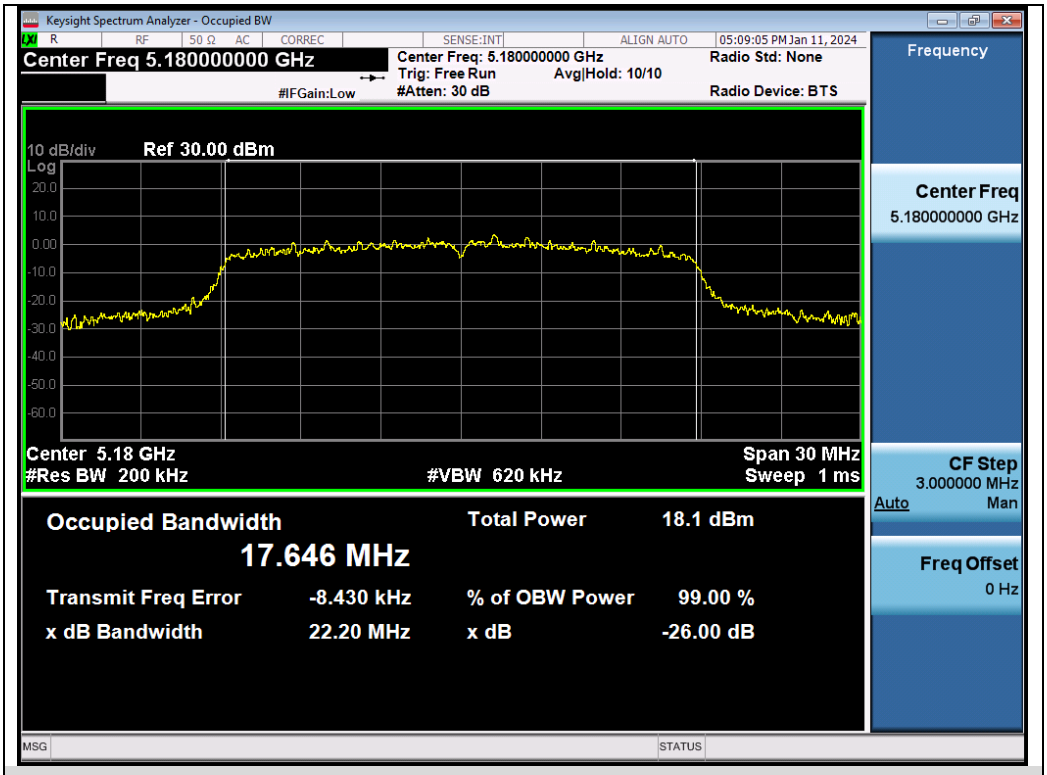


Test_Graph_802.11n40_ANT1_5190_MCS0_OBW

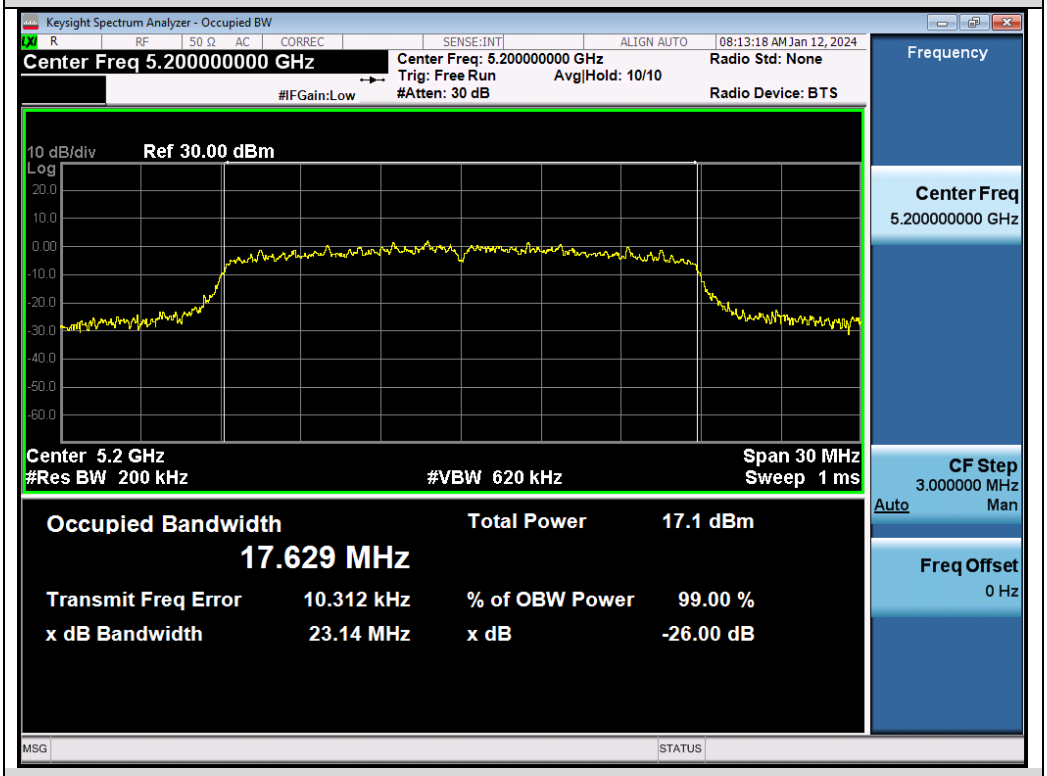


Test_Graph_802.11n40_ANT1_5230_MCS0_OBW

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

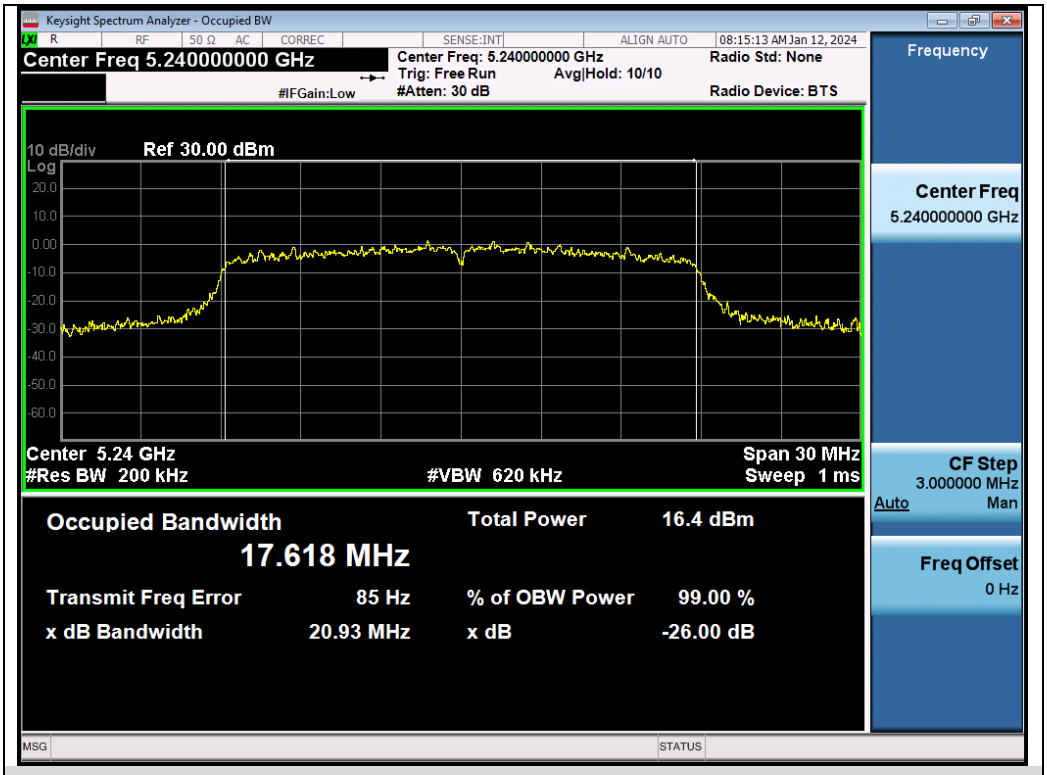


Test_Graph_802.11ac20_ANT1_5180_MCS0_OBW

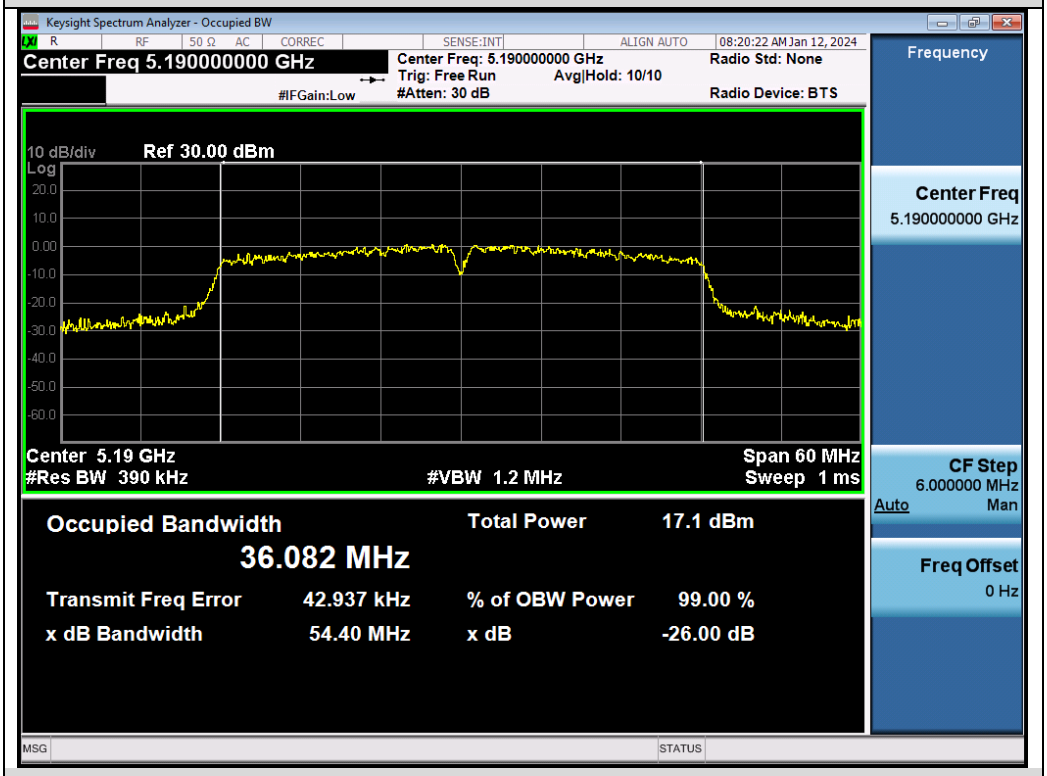


Test_Graph_802.11ac20_ANT1_5200_MCS0_OBW

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

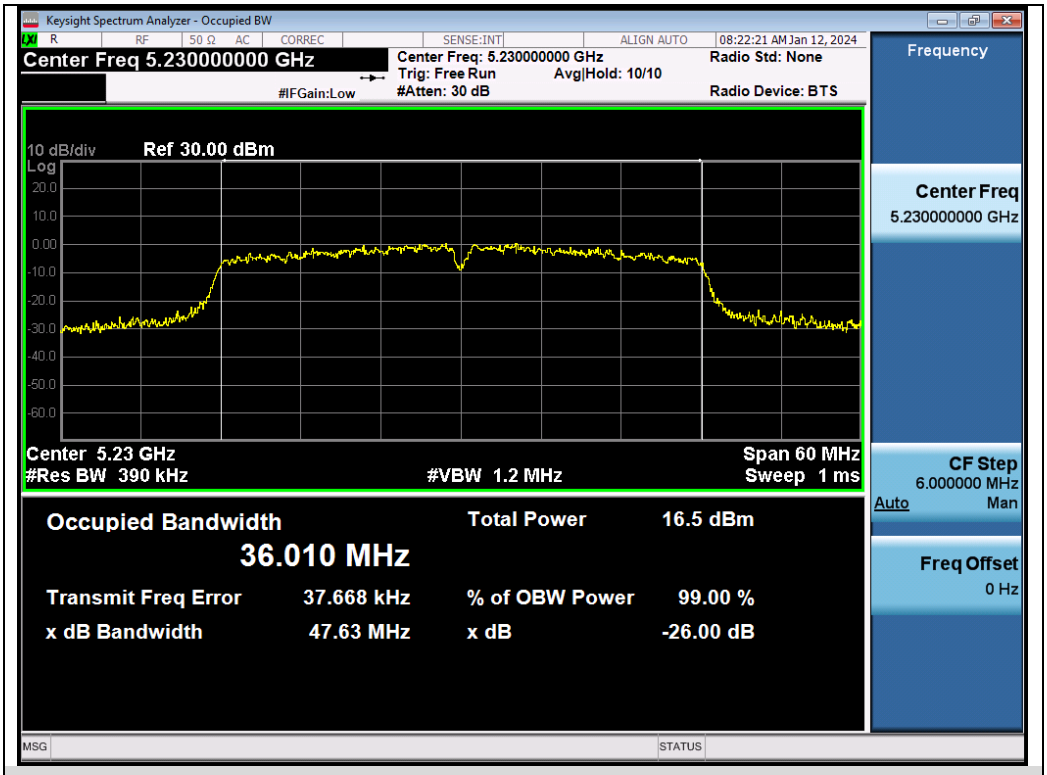


Test_Graph_802.11ac20_ANT1_5240_MCS9_OBW

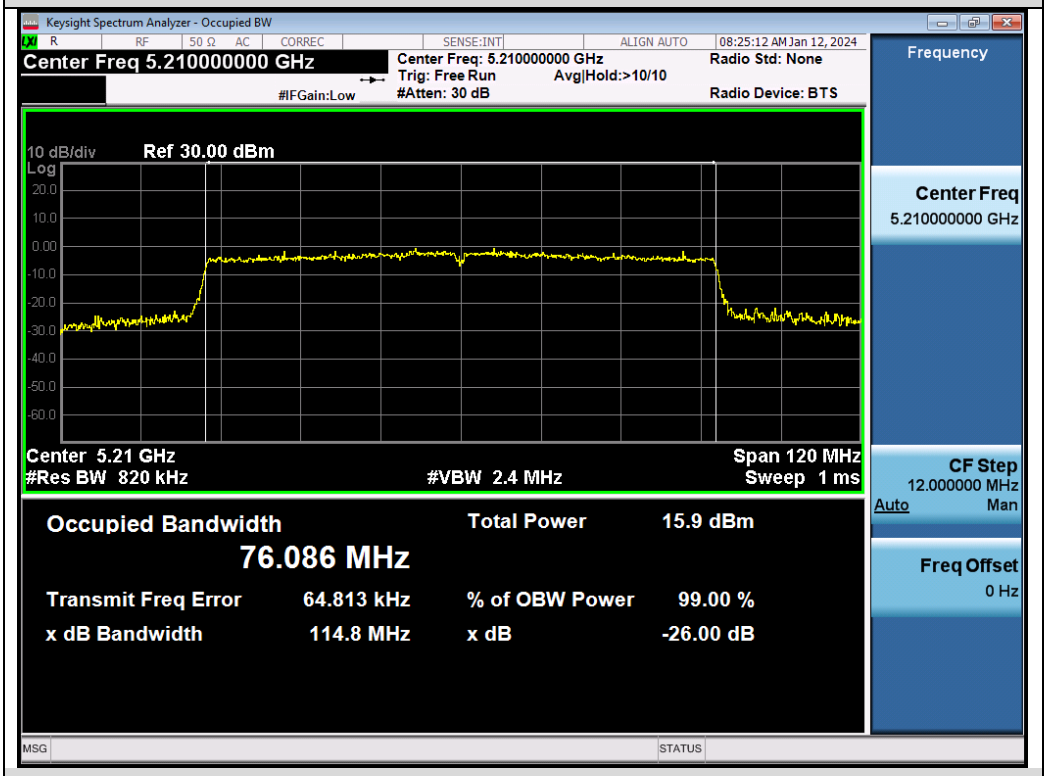


Test_Graph_802.11ac40_ANT1_5190_MCS9_OBW

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.



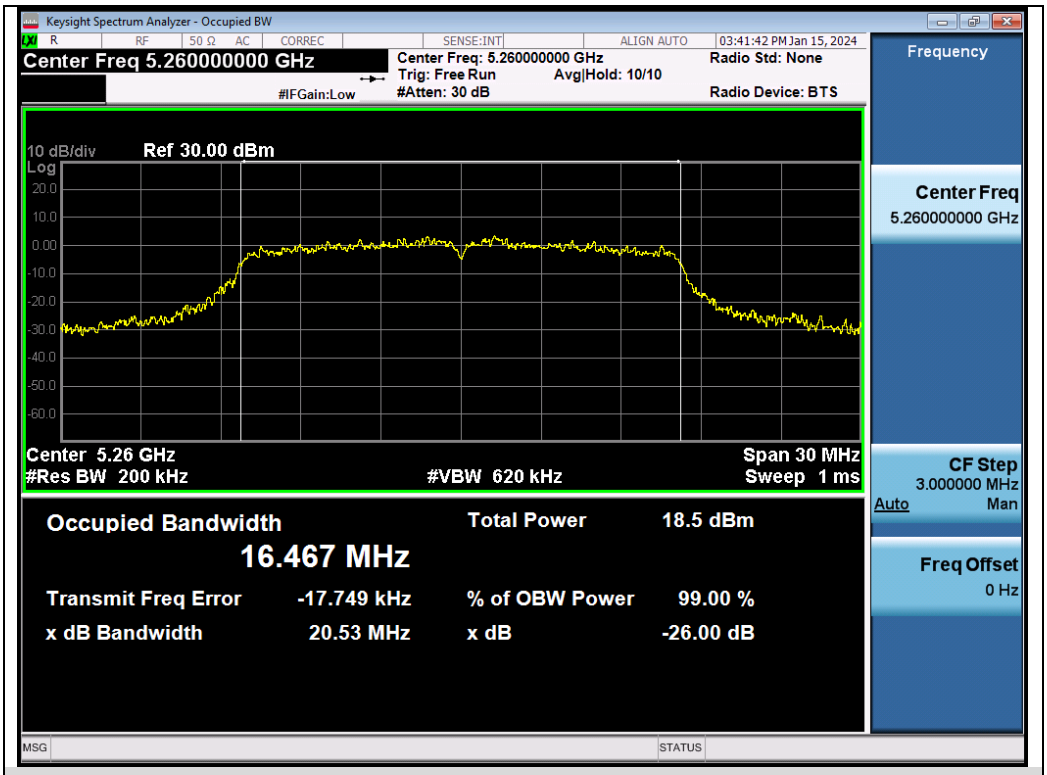
Test_Graph_802.11ac40_ANT1_5230_MCS9_OBW



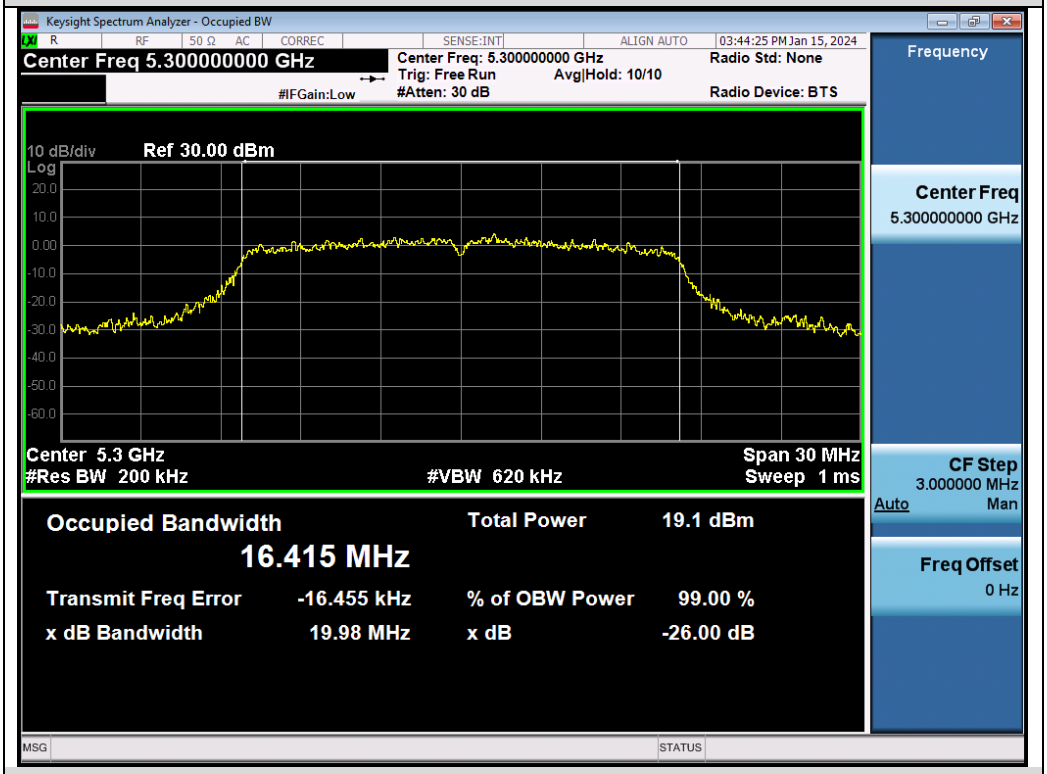
Test_Graph_802.11ac80_ANT1_5210_MCS9_OBW

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

Test Graphs of Occupied Bandwidth for band 5.25-5.35 GHz

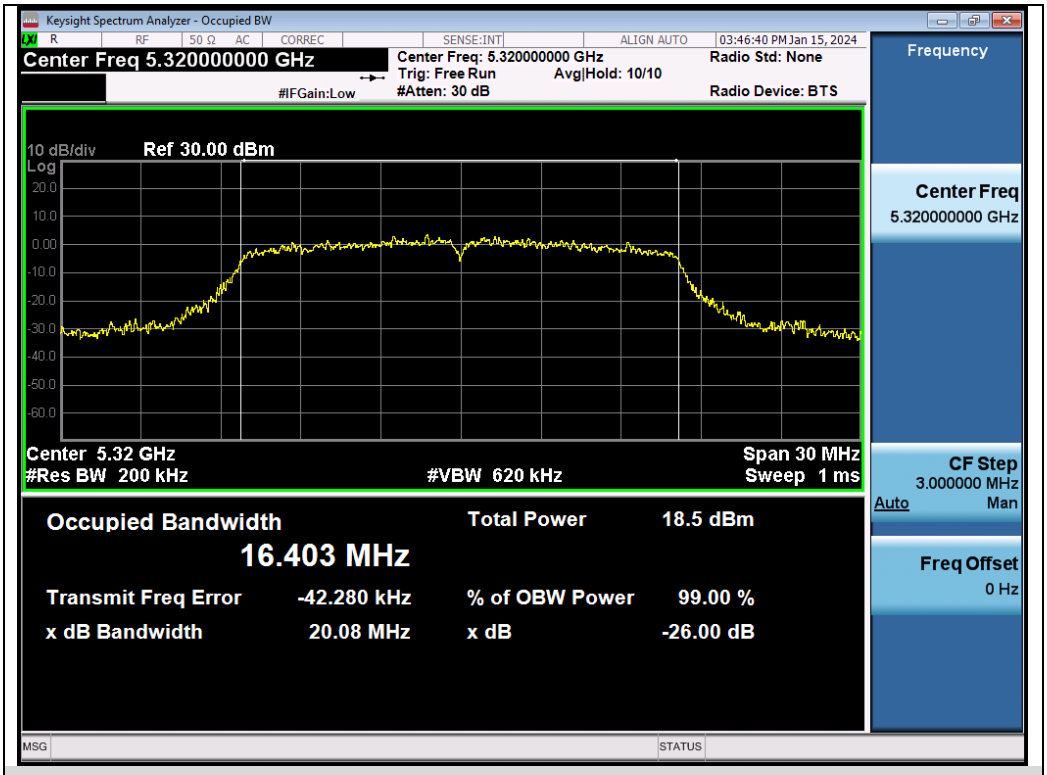


Test_Graph_802.11a_ANT1_5260_6Mbps_OBW

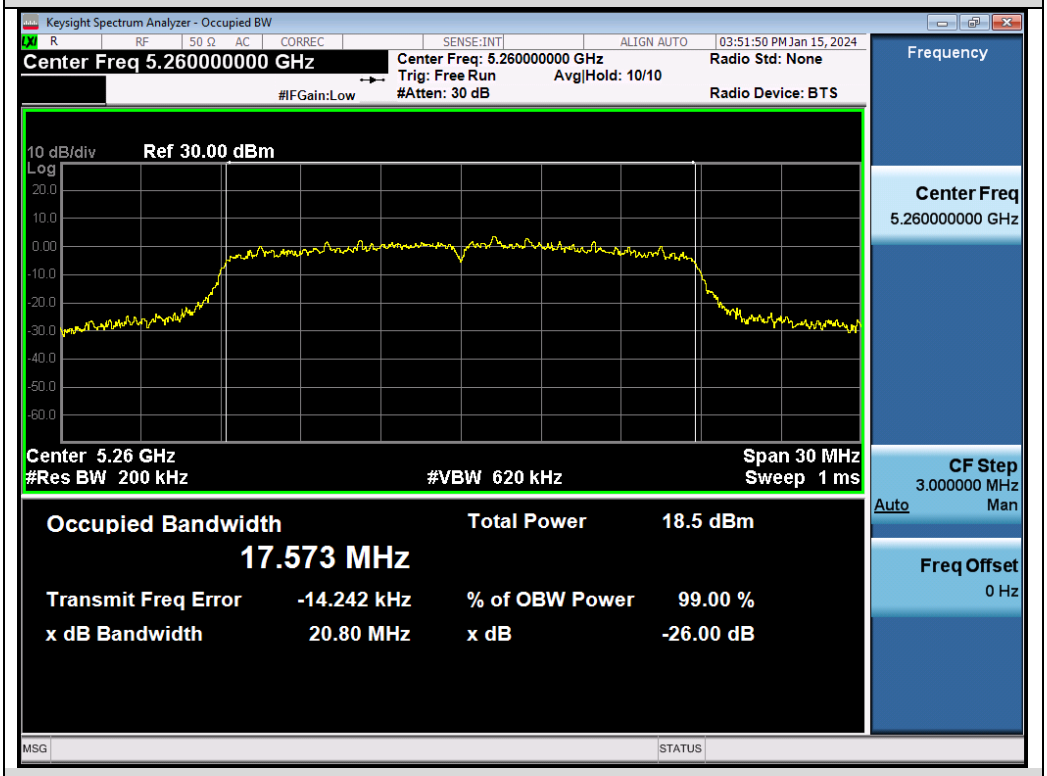


Test_Graph_802.11a_ANT1_5300_6Mbps_OBW

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

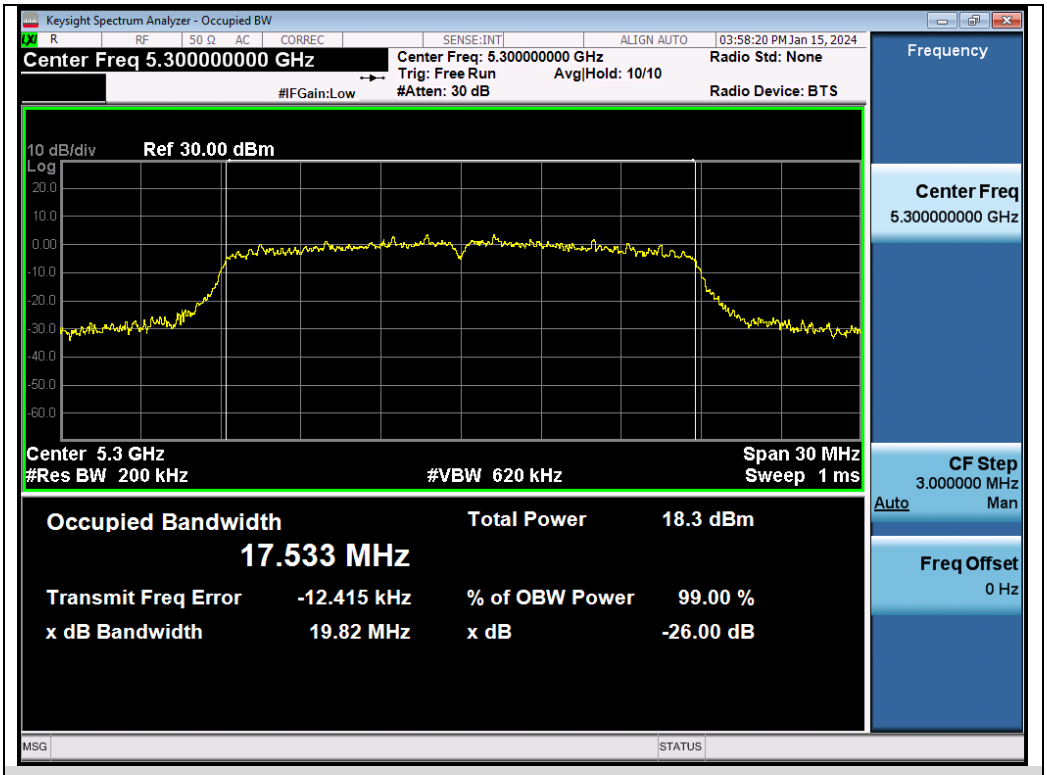


Test_Graph_802.11a_ANT1_5320_6Mbps_OBW

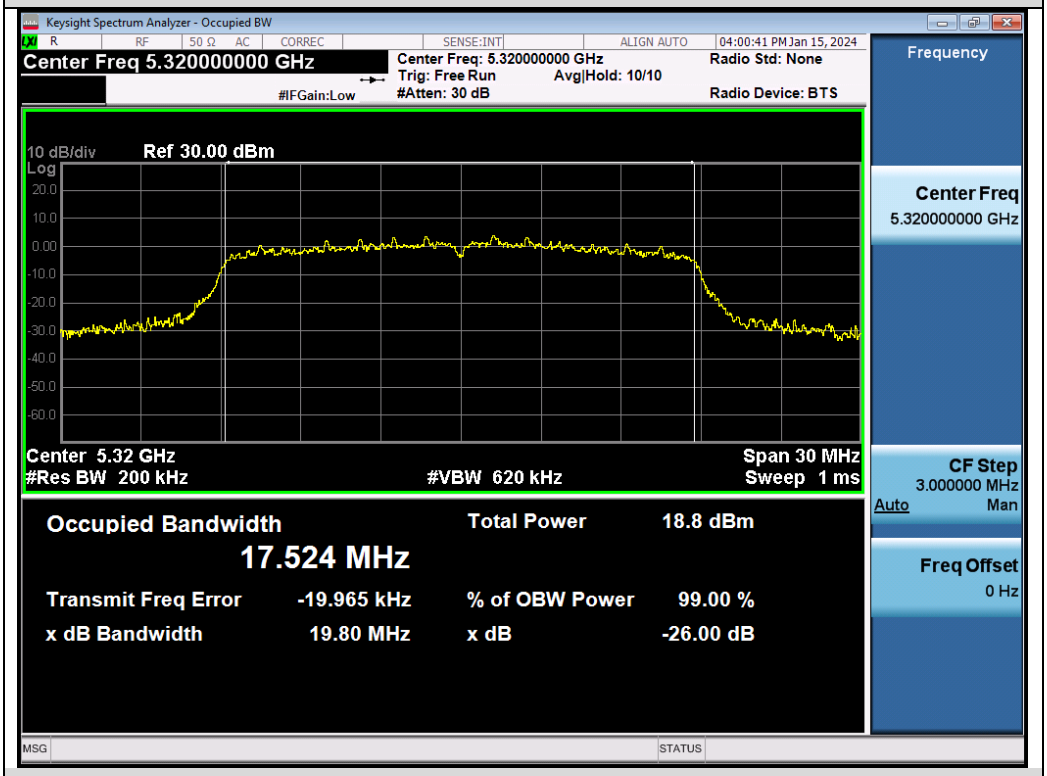


Test_Graph_802.11n20_ANT1_5260_MCS0_OBW

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

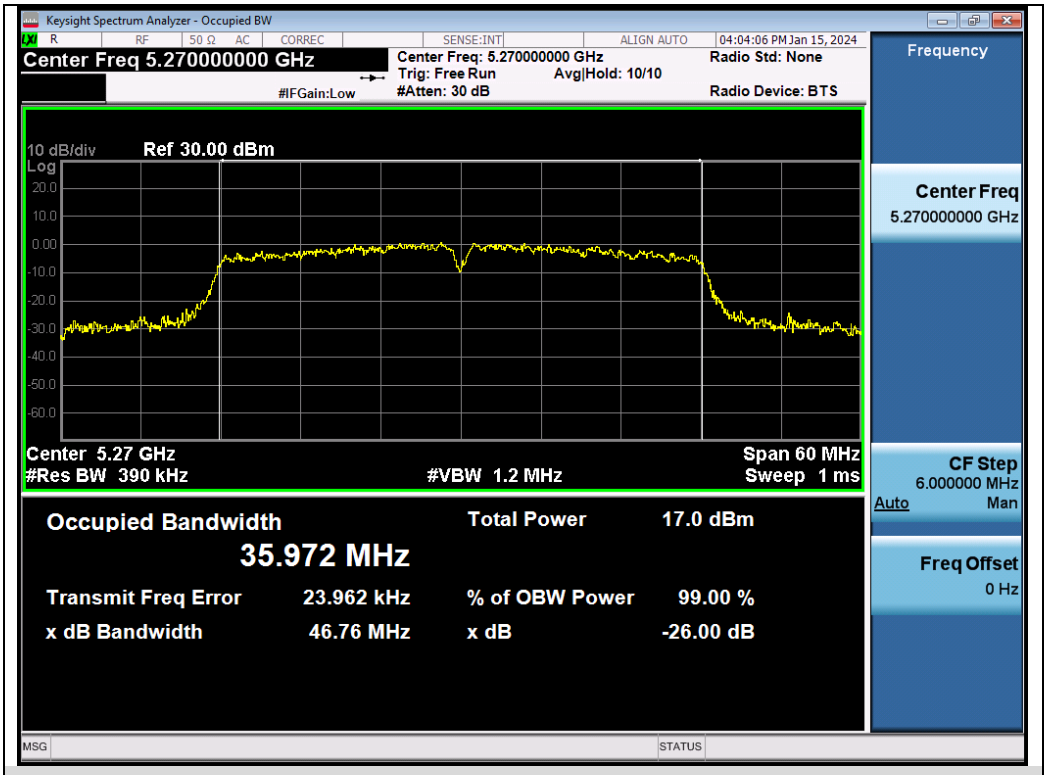


Test_Graph_802.11n20_ANT1_5300_MCS0_OBW



Test_Graph_802.11n20_ANT1_5320_MCS0_OBW

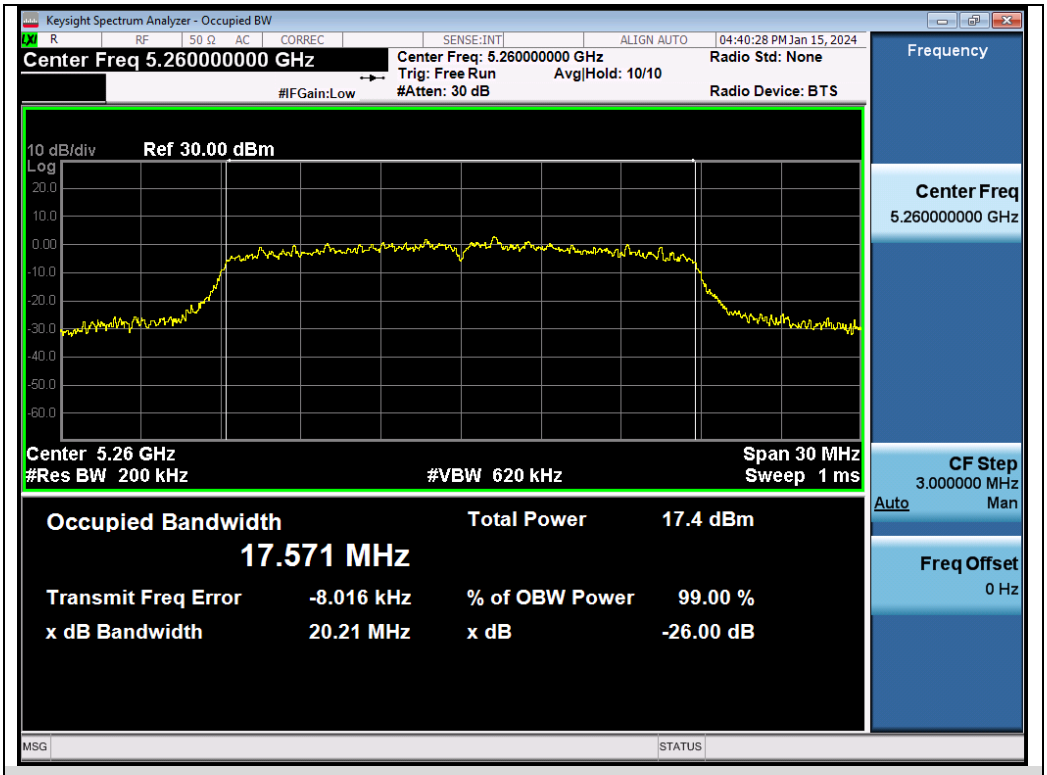
Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.



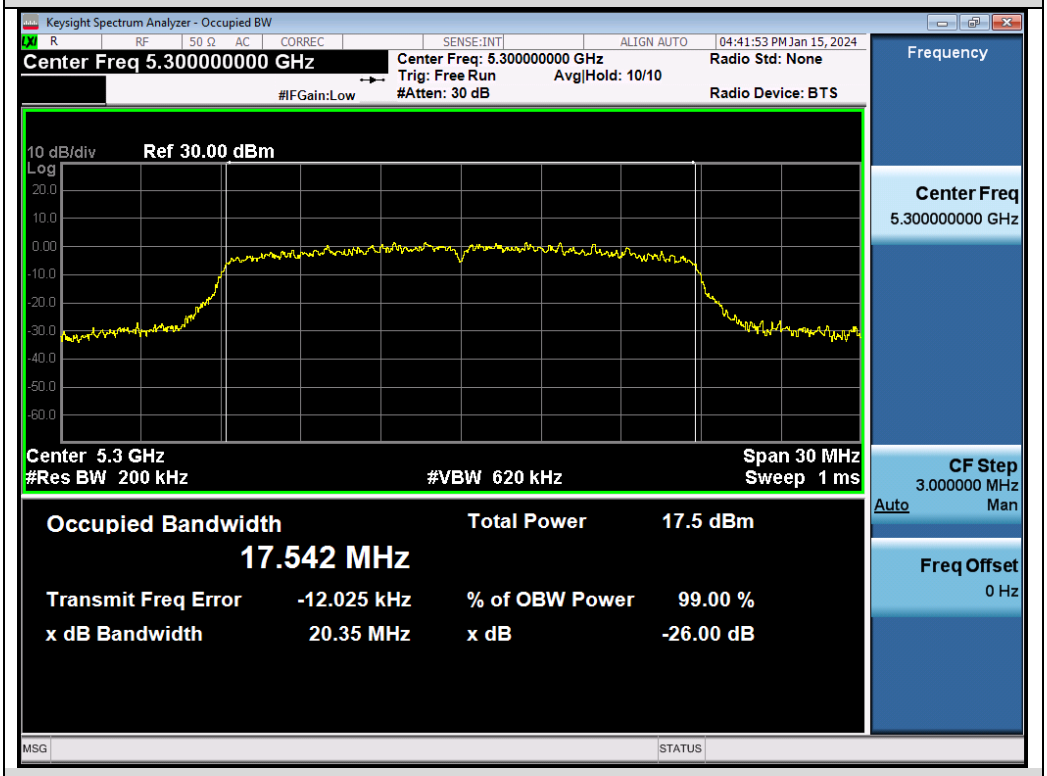
Test_Graph_802.11n40_ANT1_5270_MCS0_OBW

Test_Graph_802.11n40_ANT1_5310_MCS0_OBW

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

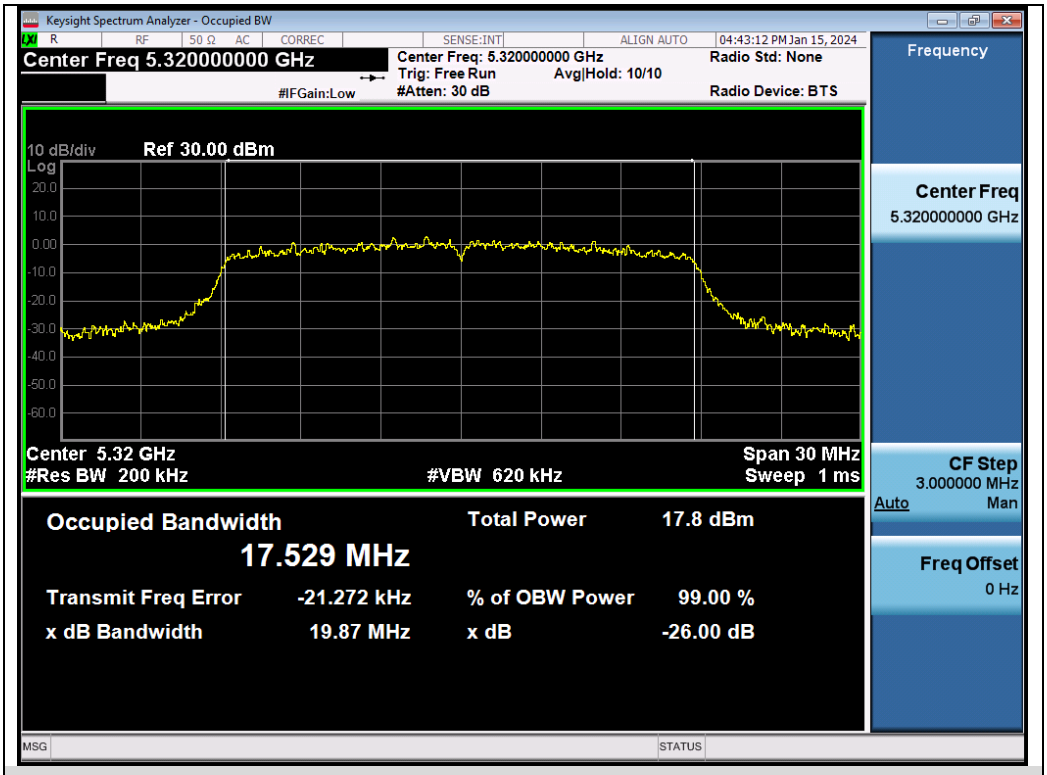


Test_Graph_802.11ac20_ANT1_5260_MCS0_OBW

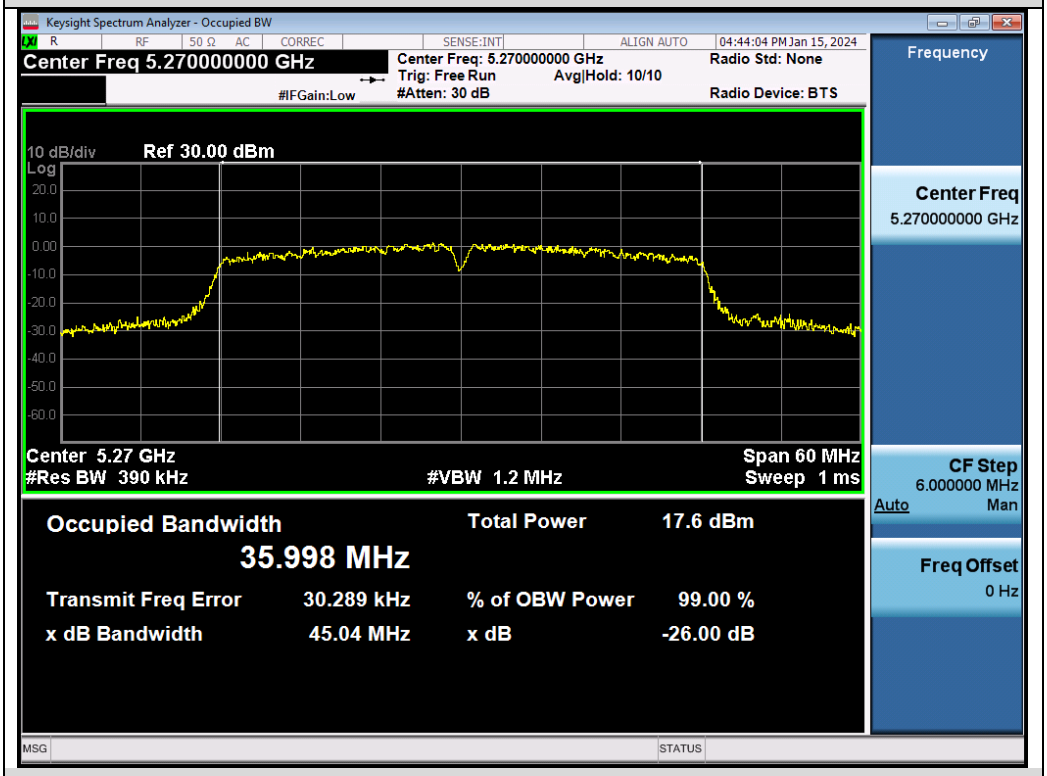


Test_Graph_802.11ac20_ANT1_5300_MCS0_OBW

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.



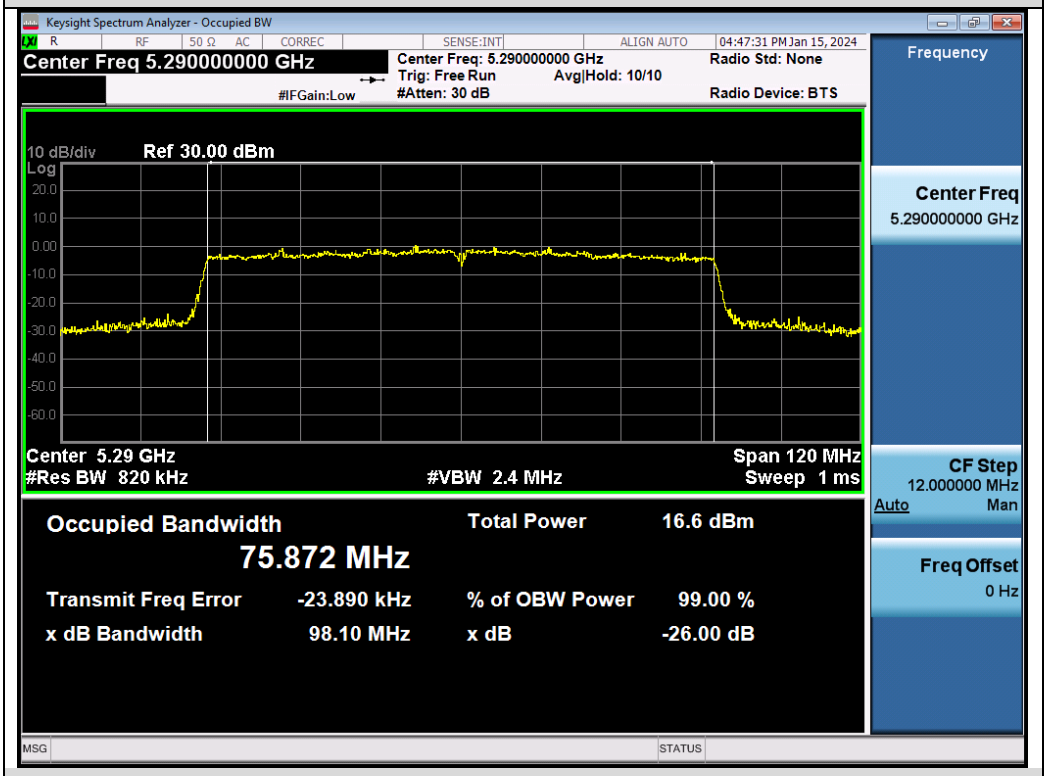
Test_Graph_802.11ac20_ANT1_5320_MCS9_OBW



Test_Graph_802.11ac40_ANT1_5270_MCS9_OBW

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

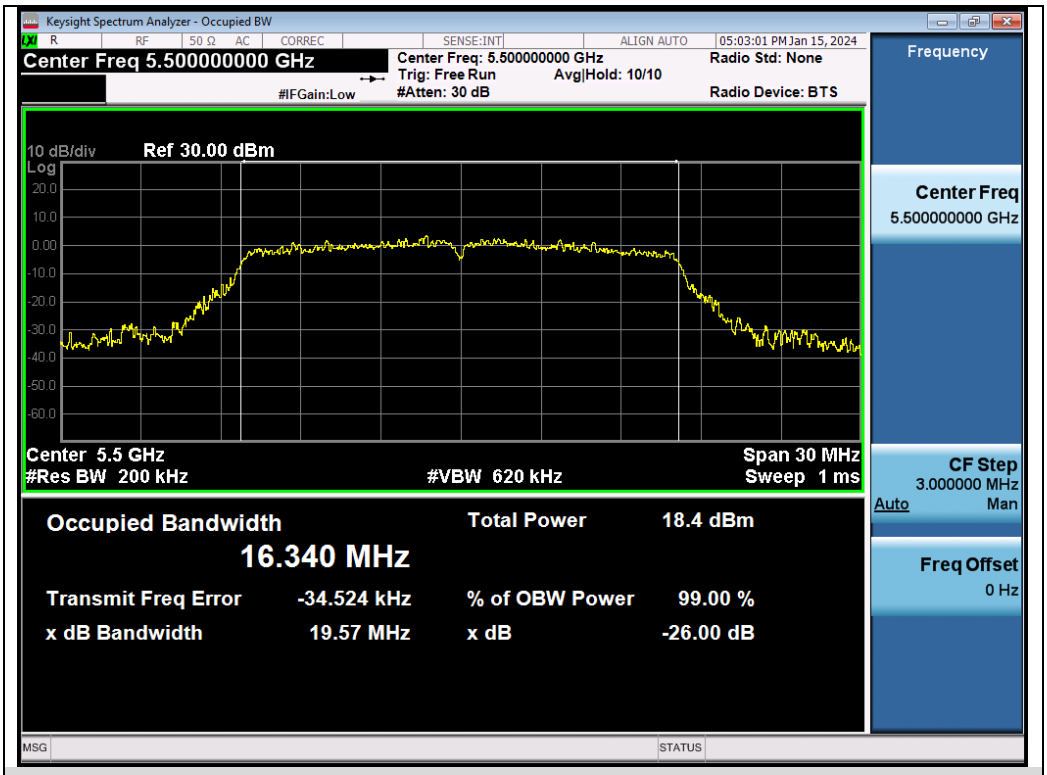
Test_Graph_802.11ac40_ANT1_5310_MCS9_OBW



Test_Graph_802.11ac80_ANT1_5290_MCS9_OBW

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

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

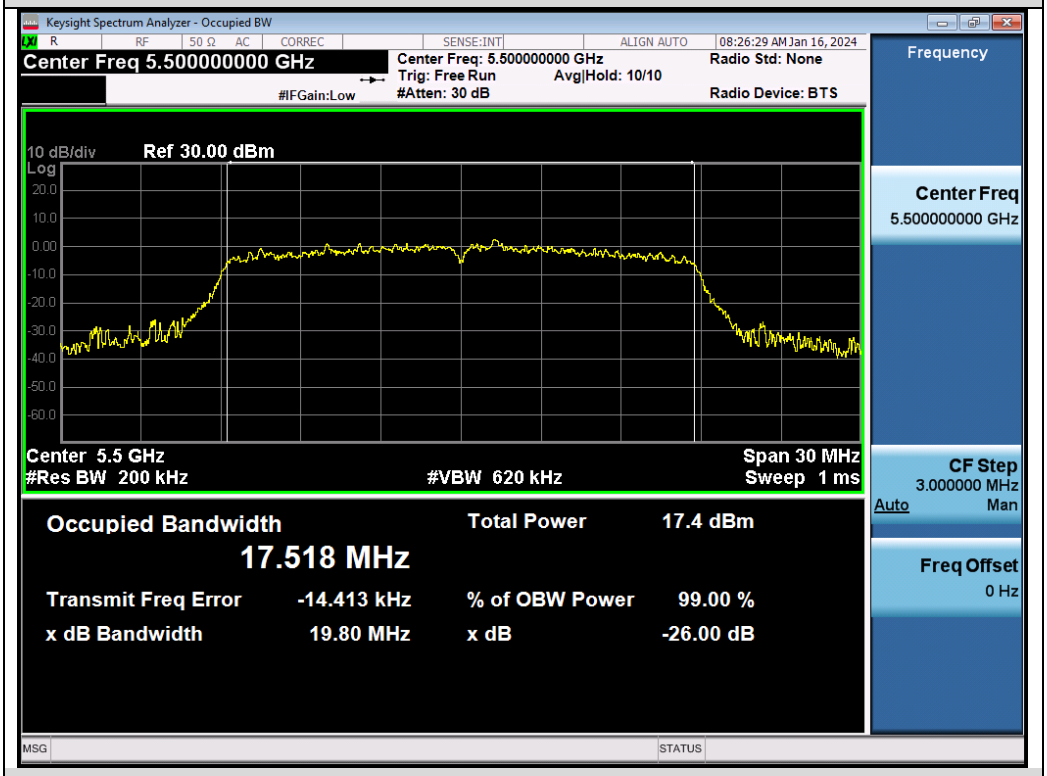


Test_Graph_802.11a_ANT1_5500_6Mbps_OBW

Test_Graph_802.11a_ANT1_5600_6Mbps_OBW

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

Test_Graph_802.11a_ANT1_5700_6Mbps_OBW



Test_Graph_802.11n20_ANT1_5500_MCS0_OBW

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.