FCC Test Report

Report No.: AGC03285241203FR04

FCC ID	:	2AMWOFSC-BW121
APPLICATION PURPOSE	:	Original Equipment
PRODUCT DESIGNATION	:	Bluetooth and WIFI combo module
BRAND NAME	:	Feasycom
MODEL NAME	:	FSC-BW121
APPLICANT	:	Shenzhen Feasycom Co., Ltd
DATE OF ISSUE	:	Apr. 21, 2025
STANDARD(S)	:	FCC Part 15 Subpart E §15.407
REPORT VERSION	:	V1.0

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

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Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Apr. 21, 2025	Valid	Initial Release

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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
2.10 Description of Test Software 12
3. Test Environment 14
3.1 Address of The Test Laboratory 14
3.2 Test Facility 14
3.3 Environmental Conditions 15
3.4 Measurement Uncertainty 15
3.5 List of Equipment Used 16
4.System Test Configuration 18
4.1 EUT Configuration 18
4.2 EUT Exercise 18
4.3 Configuration of Tested System 18
4.4 Equipment Used in Tested System 18
4.5 Summary of Test Results 19
5. Description of Test Modes 20
6. Duty Cycle Measurement 23
7. RF Output Power Measurement 29
7.1 Provisions Applicable 29
7.2 Measurement Procedure 29
7.3 Measurement Setup (Block Diagram of Configuration) 29
7.4 Measurement Result 30
8. 6dB&26dB Bandwidth Measurement 32
8.1 Provisions Applicable 32
8.2 Measurement Procedure 32
8.3 Measurement Setup (Block Diagram of Configuration) 32
8.4 Measurement Results 33

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9. Power Spectral Density Measurement 72
9.1 Provisions Applicable 72
9.2 Measurement Procedure 72
9.3 Measurement Setup (Block Diagram of Configuration) 72
9.4 Measurement Result 73
10. Conducted Band Edge and Out-of-Band Emissions 106
10.1 Provisions Applicable 106
10.2 Measurement Procedure 106
10.3 Measurement Setup (Block Diagram of Configuration) 107
10.4 Measurement Results 108
11. Radiated Spurious Emission 152
11.1 Measurement Limit 152
11.2 Measurement Procedure 153
11.3 Measurement Setup (Block Diagram of Configuration) 155
11.4 Measurement Result 156
12. AC Power Line Conducted Emission Test 189
12.1 Measurement limit 189
12.2 Block Diagram of Line Conducted Emission Test 189
12.3 Preliminary Procedure of Line Conducted Emission Test 190
12.4 Final Procedure of Line Conducted Emission Test 190
12.5 Test Result of Line Conducted Emission Test 191
Appendix I: Photographs of Test Setup 193
Appendix II: Photographs of EUT 193

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1. General Information

Applicant	Shenzhen Feasycom Co., Ltd
Address	Rm 508, Building A, Fenghuang Zhigu, No.50, Tiezai Road, Xixiang, Baoan District, Shenzhen, 518102, China
Manufacturer	Shenzhen Feasycom Co., Ltd
Address	Rm 508, Building A, Fenghuang Zhigu, No.50, Tiezai Road, Xixiang, Baoan District, Shenzhen, 518102, China
Factory	Shenzhen Feasycom Co., Ltd
Address	Rm 508, Building A, Fenghuang Zhigu, No.50, Tiezai Road, Xixiang, Baoan District, Shenzhen, 518102, China
Product Designation	Bluetooth and WIFI combo module
Brand Name	Feasycom
Test Model	FSC-BW121
Series Model(s)	N/A
Difference Description	N/A
Date of receipt of test item	Jan. 02, 2025
Date of Test	Jan. 02, 2025~Feb. 07, 2025
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	Bibo Zhang (Project Engineer)	Apr. 21, 2025
Reviewed By	Calvin Liu (Reviewer)	Apr. 21, 2025
Approved By	Angela Li (Authorized Officer)	Apr. 21, 2025

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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	V1.1
Software Version	V1.0
Test Frequency Range	For 802.11a/n-HT20/ac-VHT20: 5180~5240MHz/5260~5320MHz/5500~5720MHz/5745~5825MHz; For 802.11n-HT40/ac-VHT40: 5190~5230MHz/5270~5310MHz/5510~5710MHz/5755~5795MHz; For 802.11ac-VHT80: 5210MHz/5290MHz/5530~5690MHz/5775MHz
RF Output Power	802.11a: 12.31dBm; 802.11n(HT20): 12.22dBm; 802.11n(HT40): 12.57dBm; 802.11ac (VHT20): 12.32dBm; 802.11ac (VHT40): 12.29dBm; 802.11ac (VHT80): 11.53dBm;
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	U-NII-1:2.83dBi; U- NII-2A: 3.32dBi, U-NII-2C: 4.30dBi; U- NII 3:3.21dBi
Power Supply	DC 3.3V

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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	--	--

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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 channels are provided for 802.11ac (VHT80):

Channel	Frequency	Channel	Frequency
106	5530 MHz	122	5610 MHz

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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	--	--

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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

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2.4 Related Submittal(S) / Grant (S)

This submittal(s) (test report) is intended for **FCC ID: 2AMWOFSC-BW121** 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 refer to Section 2.1of the report

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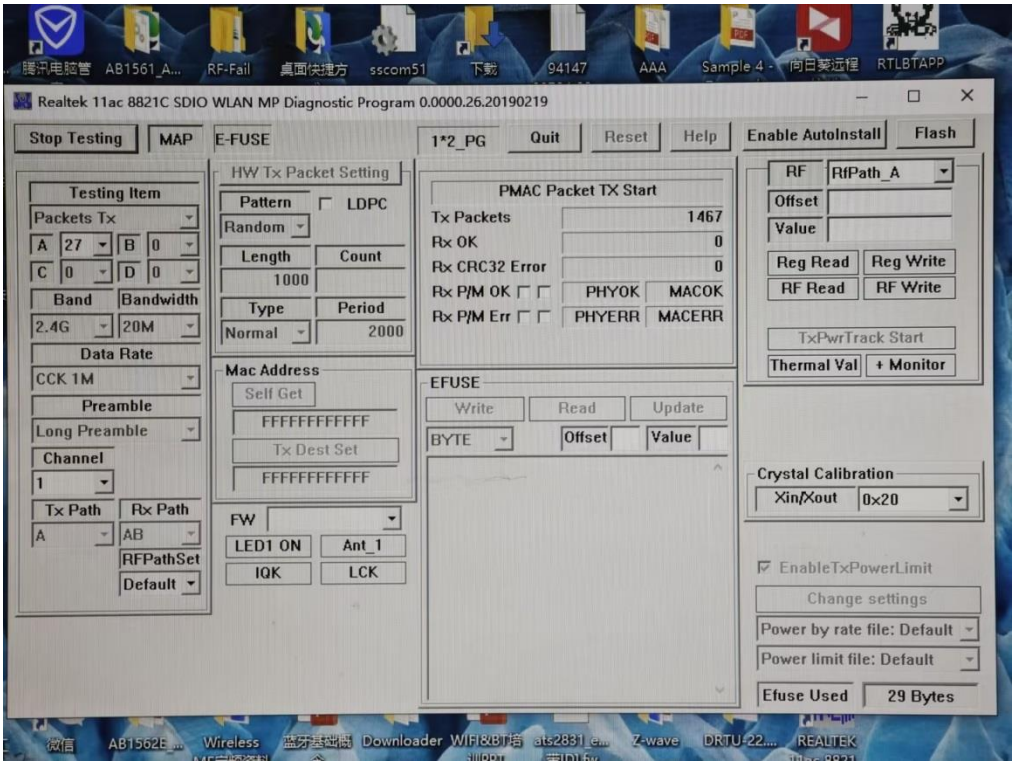
2.10 Description of Test Software

For IEEE 802.11 mode:

The test utility software used during testing was “Realtek 11ac 8821C SDI0 WLAN MP Diagnostic Program”, and the version was “0.0000.26.20190219”.

Software Setting Diagram



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Test Mode 5150MHz~5250MHz	Channel	Power Index
802.11a	L/M/H	42
802.11n(HT20)	L/M/H	42
802.11n(HT40)	L/M/H	40
802.11ac(VHT20)	L/M/H	42
802.11ac(VHT40)	L/M/H	40
802.11ac(VHT80)	L/M/H	38
Test Mode 5250MHz~5350MHz	Channel	Power Index
802.11a	L/M/H	42
802.11n(HT20)	L/M/H	42
802.11n(HT40)	L/M/H	40
802.11ac(VHT20)	L/M/H	42
802.11ac(VHT40)	L/M/H	40
802.11ac(VHT80)	L/M/H	38
Test Mode 5725MHz~5850MHz	Channel	Power Index
802.11a	L/M/H	44
802.11n(HT20)	L/M/H	44
802.11n(HT40)	L/M/H	42
802.11ac(VHT20)	L/M/H	44
802.11ac(VHT40)	L/M/H	42
802.11ac(VHT80)	L/M/H	40
Test Mode 5725MHz~5850MHz	Channel	Power Index
802.11a	L/M/H	50
802.11n(HT20)	L/M/H	50
802.11n(HT40)	L/M/H	48
802.11ac(VHT20)	L/M/H	50
802.11ac(VHT40)	L/M/H	48
802.11ac(VHT80)	L/M/H	46

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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.

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3.3 Environmental Conditions

	Normal Conditions
Temperature range (℃)	15 - 35
Relative humidity range	20% - 75%
Pressure range (kPa)	86 - 106
Power supply	DC 3.3V

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 %

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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	2024-05-24	2025-05-23
☒	AGC-ER-E062	Power Sensor	Agilent	U2021XA	MY54110007	2024-02-01	2025-01-31
☒	AGC-ER-E062	Power Sensor	Agilent	U2021XA	MY54110007	2025-01-14	2026-01-13
☒	AGC-ER-E063	Power Sensor	Agilent	U2021XA	MY54110009	2024-02-01	2025-01-31
☒	AGC-ER-E063	Power Sensor	Agilent	U2021XA	MY54110009	2025-01-14	2026-01-13
☒	AGC-ER-A001	6dB Attenuator	Eeatsheep	LM-XX-6-5W	N/A	2023-06-09	2025-06-08
☐	AGC-ER-E083	Signal Generator	Agilent	E4421B	US39340815	2024-05-23	2025-05-22
☒	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	2024-02-01	2025-01-31
☐	AGC-EM-E046	EMI Test Receiver	R&S	ESCI	10096	2025-01-14	2026-01-13
☒	AGC-EM-E116	EMI Test Receiver	R&S	ESCI	100034	2024-05-24	2025-05-23
☒	AGC-EM-E061	Spectrum Analyzer	Agilent	N9010A	MY53470504	2024-05-28	2025-05-27
☒	AGC-EM-E086	Loop Antenna	ZHINAN	ZN30900C	18051	2024-03-05	2026-03-04
☒	AGC-EM-E001	Wideband Antenna	SCHWARZBECK	VULB9168	D69250	2023-05-11	2025-05-10
☒	AGC-EM-E029	Broadband Ridged Horn Antenna	ETS	3117	00034609	2024-03-31	2025-03-30
☒	AGC-EM-E082	Horn Antenna	SCHWARZBECK	BBHA 9170	#768	2023-09-24	2025-09-23
☒	AGC-EM-E146	Pre-amplifier	ETS	3117-PA	00246148	2024-07-24	2026-07-23
☒	AGC-EM-A118	5G Filter	SongYi	BRM50716	N/A	2024-05-23	2025-05-22
☒	AGC-EM-A138	6dB Attenuator	Eeatsheep	LM-XX-6-5W	N/A	2023-06-09	2025-06-08
☐	AGC-EM-A139	6dB Attenuator	Eeatsheep	LM-XX-6-5W	N/A	2023-06-09	2025-06-08

● 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	2024-05-28	2025-05-27
☒	AGC-EM-A130	6dB Attenuator	Eeatsheep	LM-XX-6-5W	DC-6GZ	2023-06-09	2025-06-08

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☒	AGC-EM-E023	AMN	R&S	100086	ESH2-Z5	2024-05-28	2025-05-27

● 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

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4.System Test Configuration

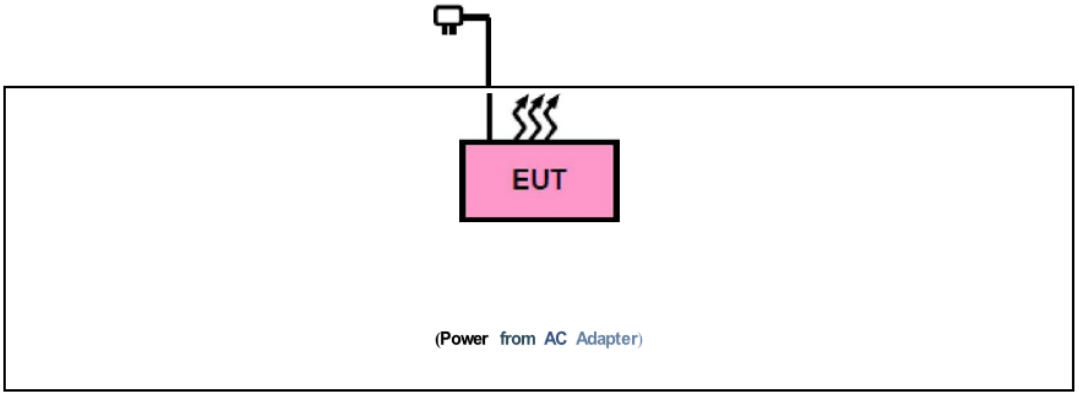
4.1 EUT Configuration

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

☐ Test Accessories Come From The Manufacturer

No.	Equipment	Manufacturer	Model No.	Specification Information	Cable
1	Computer host	Dell	Vostro 3688	COBCPR2	--

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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(a/1/2/3)	6 dB Bandwidth	Pass
4	§15.403(a)	26dB bandwidth Measurement	Pass
5	§15.407(a/1/2/3)	Power Spectral Density	Pass
6	§15.407(b)(1/2/3/4)	Conducted Spurious Emission	Pass
7	§15.209,§15.407(b)(1/2/3/4)	Radiated Emission& Band Edge	Pass
8	§15.207	AC Power Line Conducted Emission	Pass

Note:

1. Refer to the manufacturer's declaration in the user manual.
2. The device operates without the transmission of information.

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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).

☐ Support 802.11ax, device debugging is tested in Full RU state

☐ 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)
C	802.11n (20MHz)	5180-5240	36 to 48	36, 40, 48	OFDM	MCS0
C	802.11n (20MHz)	5260-5320	52 to 64	52, 60, 64	OFDM	MCS0
C	802.11n (20MHz)	5500-5700	100 to 140	100, 120, 140	OFDM	MCS0
C	802.11n (20MHz)	5745-5825	149 to 165	149, 157, 165	OFDM	MCS0

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- **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)
C	802.11n(20MHz)	5180-5240	36 to 48	36	OFDM	MCS0

- **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)
C	802.11n(20MHz)	5180-5240	36 to 48	36	OFDM	MCS0

- **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).
☐ Support 802.11ax, device debugging is tested in Full RU state
☐ 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)
C	802.11a	5180-5240	36 to 48	36	OFDM	MCS0
C	802.11n (40MHz)		38 to 46	38	OFDM	MCS0
C	802.11ac (80MHz)		42	42	OFDM	MCS0
C	802.11ax (80MHz)		42	42	OFDMA	MCS0
C	802.11a	5260-5320	52 to 64	64	OFDM	MCS0
C	802.11n (40MHz)		54 to 62	62	OFDM	MCS0
C	802.11ac (80MHz)		58	58	OFDM	MCS0
C	802.11ax (80MHz)		58	58	OFDMA	MCS0
C	802.11a	5500-5700	100 to 140	100	OFDM	MCS0
C	802.11n (40MHz)		102 to 134	102	OFDM	MCS0
C	802.11ac (80MHz)		106,122	106	OFDM	MCS0
C	802.11ax (80MHz)		106,122	106	OFDMA	MCS0

Note: Only the data of band edge emission at the restricted band 4.5GHz-5.15GHz and 5.35GHz-5.46GHz record in the report. Other restricted band 7.25GHz-7.77GHz were considered as ambient noise. No recording in the test report.

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- **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).

☐ Support 802.11ax, device debugging is tested in Full RU state

☒ 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)
C	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	6.0
C	802.11n (20MHz)		36 to 48	36, 40, 48	OFDM	MCS0
C	802.11n (40MHz)		38 to 46	38, 46	OFDM	MCS0
C	802.11ac (20MHz)		36 to 48	36, 40, 48	OFDM	MCS0
C	802.11ac (40MHz)		38 to 46	38, 46	OFDM	MCS0
C	802.11ac (80MHz)		42	42	OFDM	MCS0
C	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	6.0
C	802.11n (20MHz)		52 to 64	52, 60, 64	OFDM	MCS0
C	802.11n (40MHz)		54 to 62	54, 62	OFDM	MCS0
C	802.11ac (20MHz)		52 to 64	52, 60, 64	OFDM	MCS0
C	802.11ac (40MHz)		54 to 62	54, 62	OFDM	MCS0
C	802.11ac (80MHz)		58	58	OFDM	MCS0
C	802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	6.0
C	802.11n (20MHz)		100 to 140	100, 116, 140	OFDM	MCS0
C	802.11n (40MHz)		102 to 134	102, 110, 134	OFDM	MCS0
C	802.11ac (20MHz)		100 to 140	100, 116, 140	OFDM	MCS0
C	802.11ac (40MHz)		102 to 134	102, 110, 134	OFDM	MCS0
C	802.11ac (80MHz)		106,122	106,122	OFDM	MCS0
C	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	6.0
C	802.11n (20MHz)		149 to 165	149, 157, 165	OFDM	MCS0
C	802.11n (40MHz)		151 to 159	151, 159	OFDM	MCS0
C	802.11ac (20MHz)		149 to 165	149, 157, 165	OFDM	MCS0
C	802.11ac (40MHz)		151 to 159	151, 159	OFDM	MCS0
C	802.11ac (80MHz)		155	155	OFDM	MCS0

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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 = Average. 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)
Band U-NII1:5150MHz-5250MHz			
802.11a	6	58	2.37
802.11n_HT20	MCS0	56	2.52
802.11n_HT40	MCS0	39	4.09
802.11ac_VHT20	MCS0	56	2.52
802.11ac_VHT40	MCS0	39	4.09
802.11ac_VHT80	MCS0	24	6.20
Band U-NII 2A:5250MHz-5350MHz			
802.11a	6	58	2.37
802.11n_HT20	MCS0	56	2.52
802.11n_HT40	MCS0	39	4.09
802.11ac_VHT20	MCS0	56	2.52
802.11ac_VHT40	MCS0	36	4.09
802.11ac_VHT80	MCS0	24	6.20

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Operating mode	Data rates (Mbps)	Duty Cycle (%)	Duty Cycle Factor (dB)
Band U-NII 2C: 5470MHz-5725MHz			
802.11a	6	57	2.44
802.11n_HT20	MCS0	56	2.52
802.11n_HT40	MCS0	39	4.09
802.11ac_VHT20	MCS0	56	2.52
802.11ac_VHT40	MCS0	39	4.09
802.11ac_VHT80	MCS0	24	6.20
Band U-NII 3: 5725MHz-5850MHz			
802.11a	6	58	2.37
802.11n_HT20	MCS0	56	2.52
802.11n_HT40	MCS0	39	4.09
802.11ac_VHT20	MCS0	56	2.52
802.11ac_VHT40	MCS0	39	4.09
802.11ac_VHT80	MCS0	24	6.20

Remark:

1. Duty Cycle factor = 10 * log (1/ 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.

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The test plots as follows:

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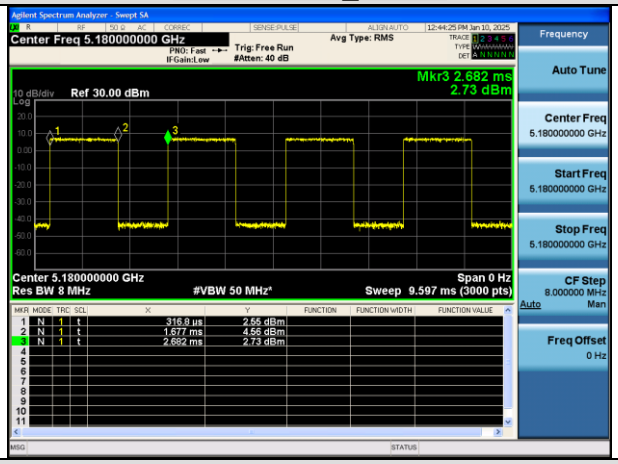	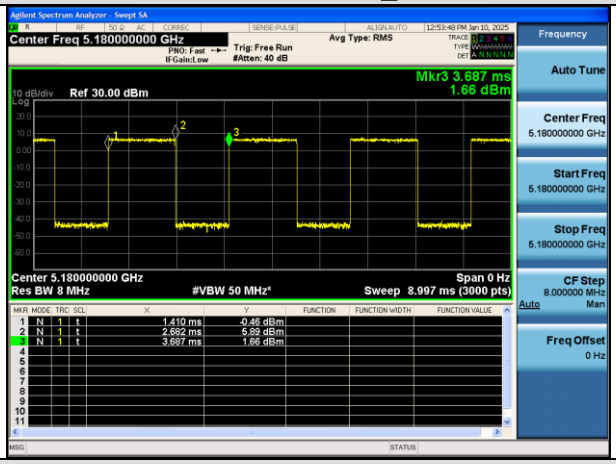
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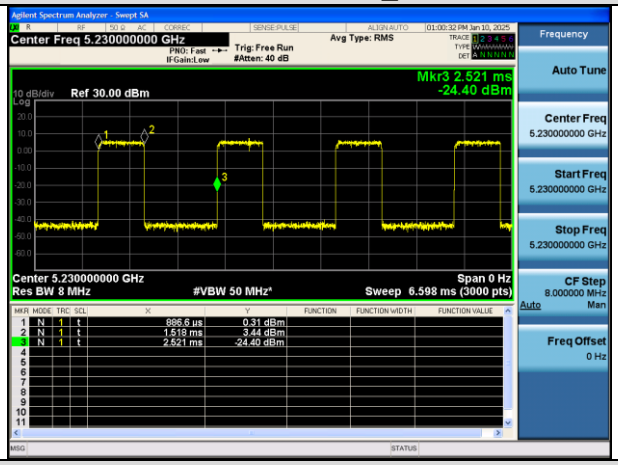	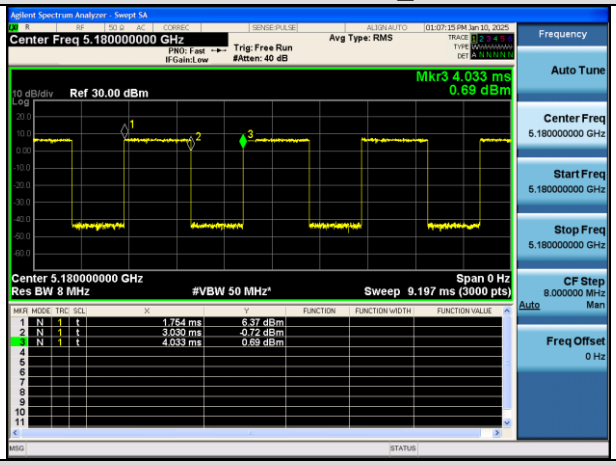
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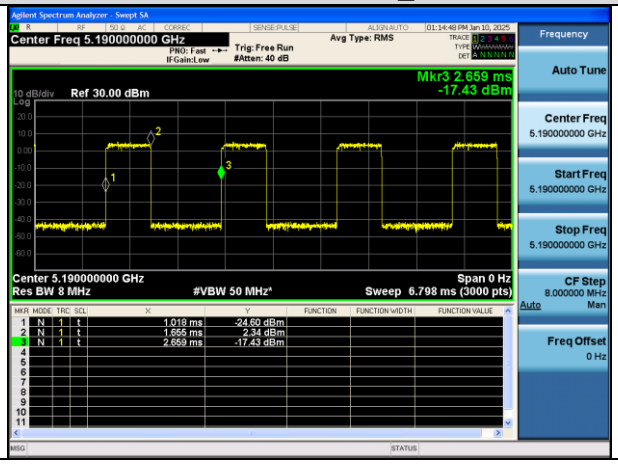	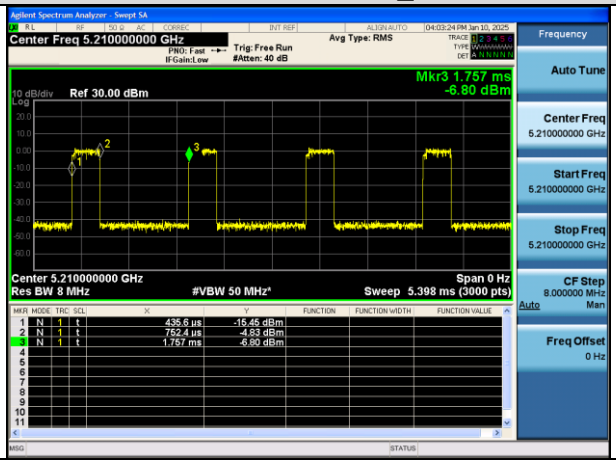

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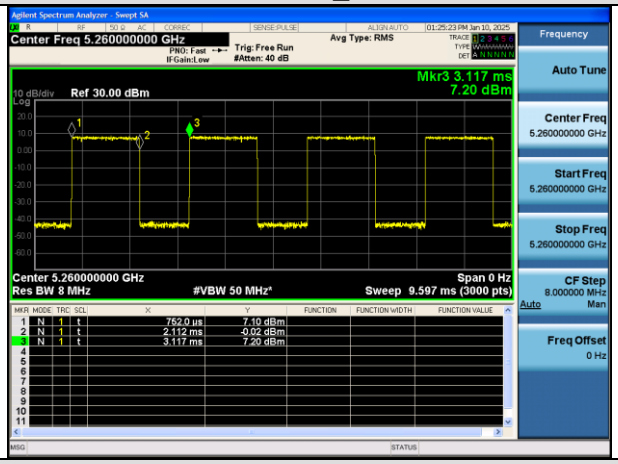	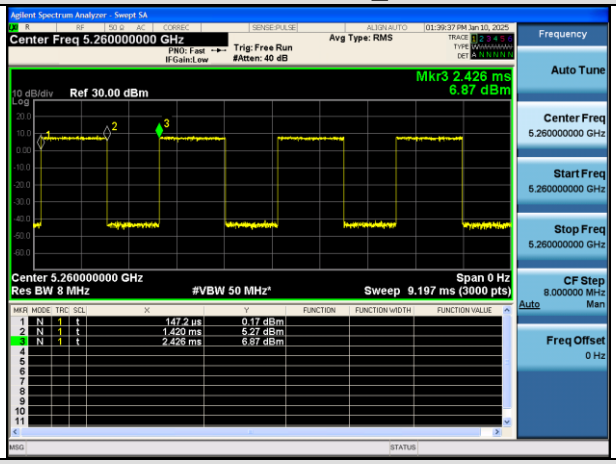
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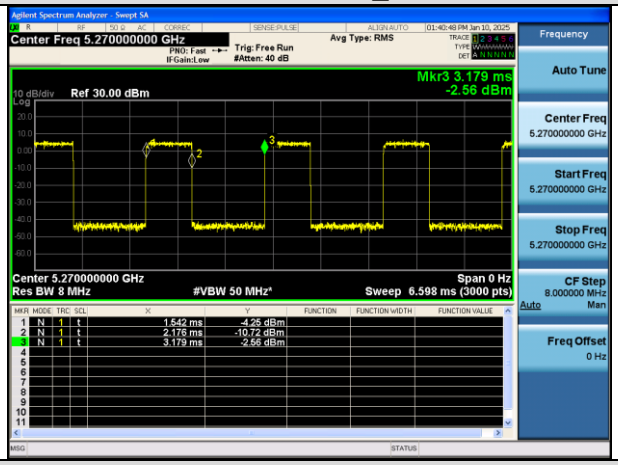	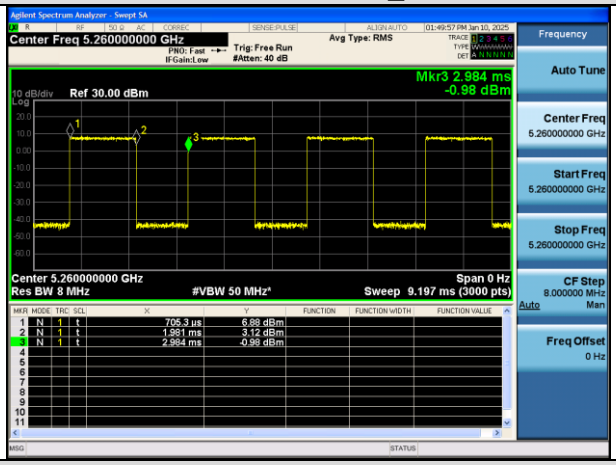
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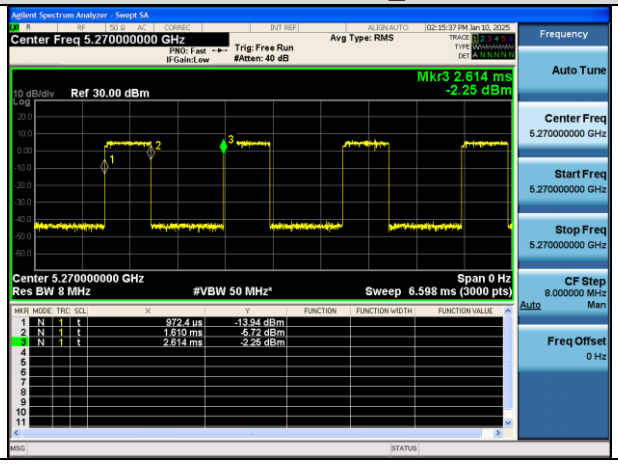	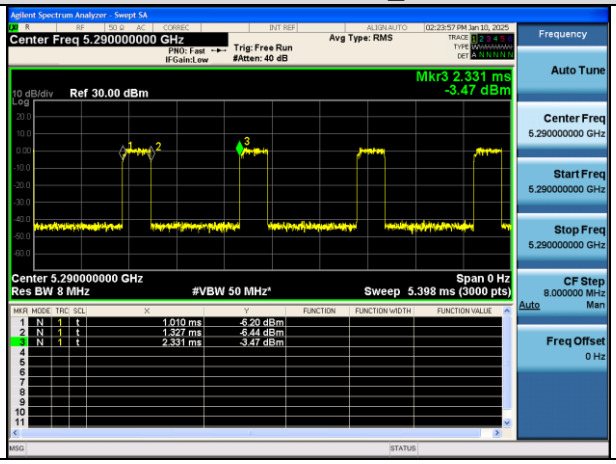

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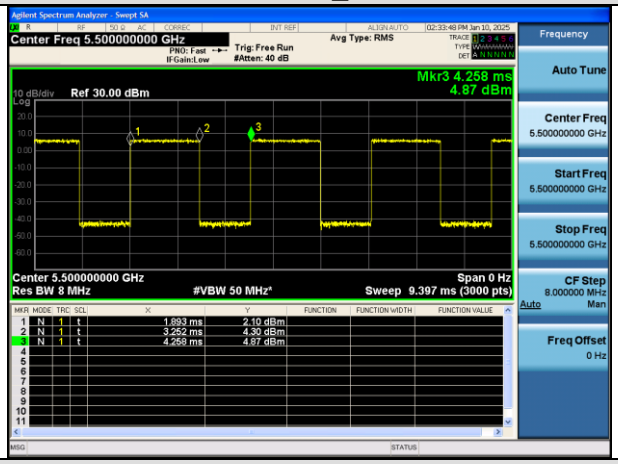	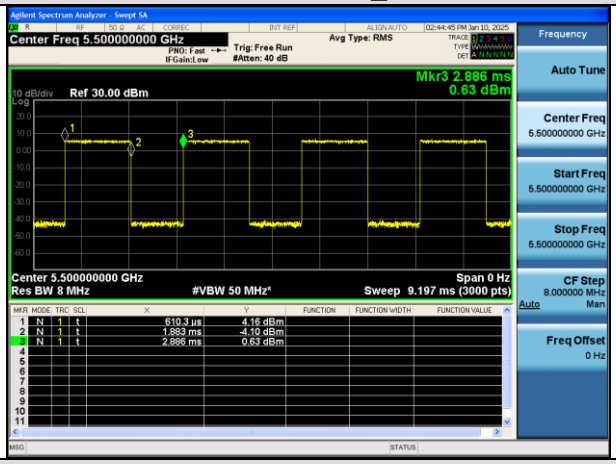
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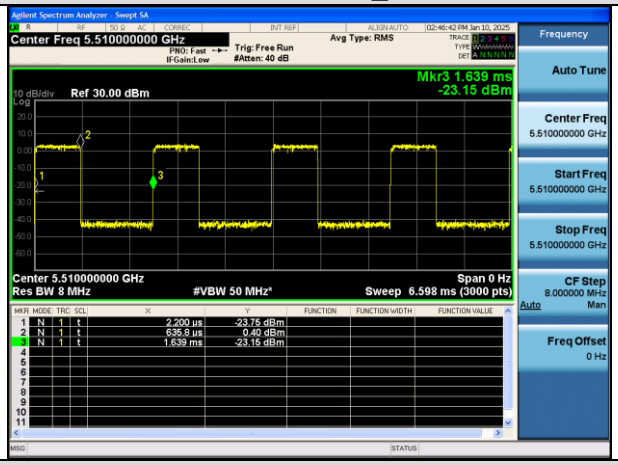	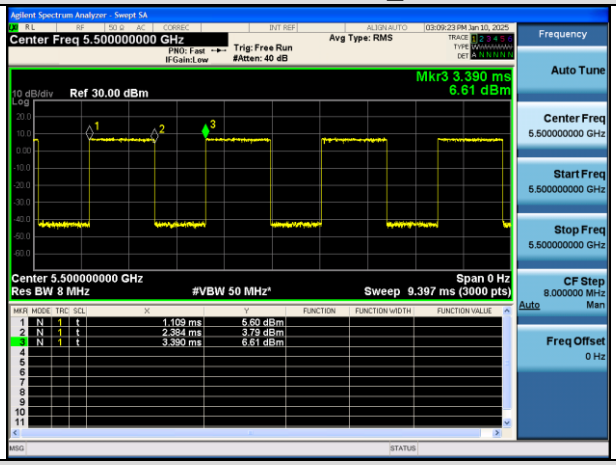
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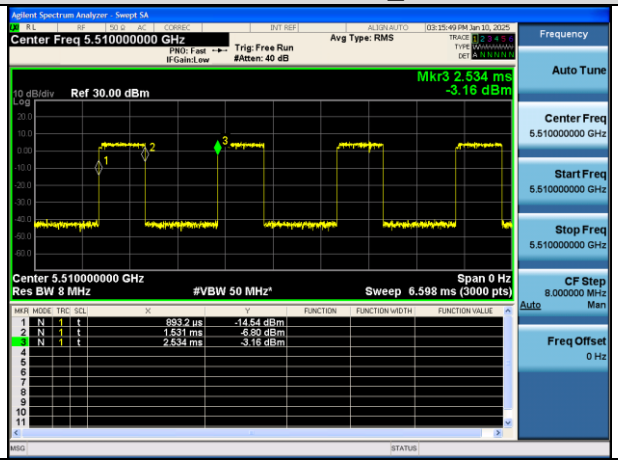	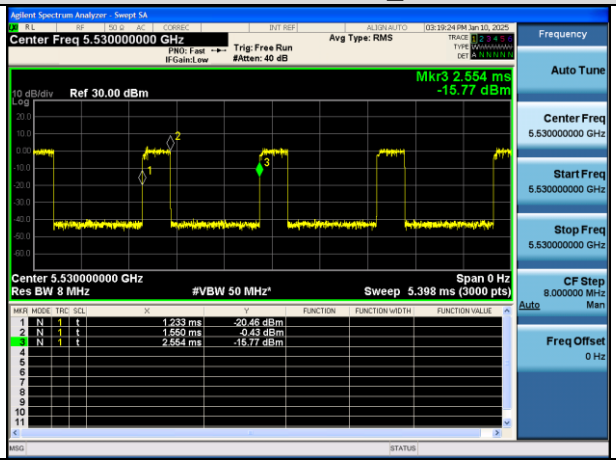

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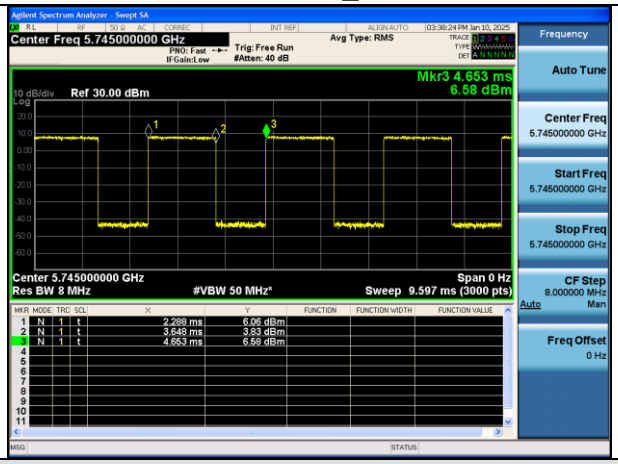
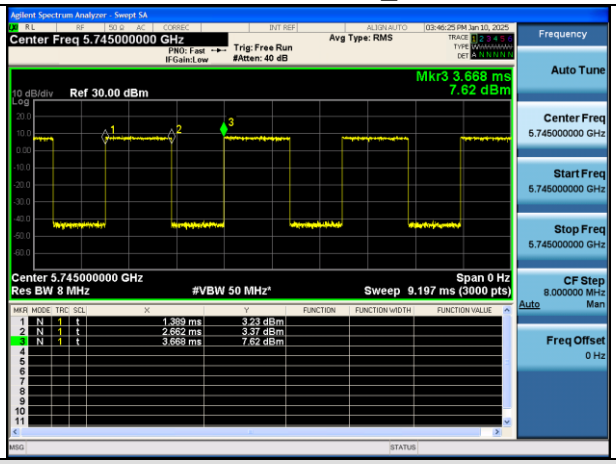
IEEE 802.11a_U-NII 3	IEEE 802.11n-HT20_U-NII 3
	
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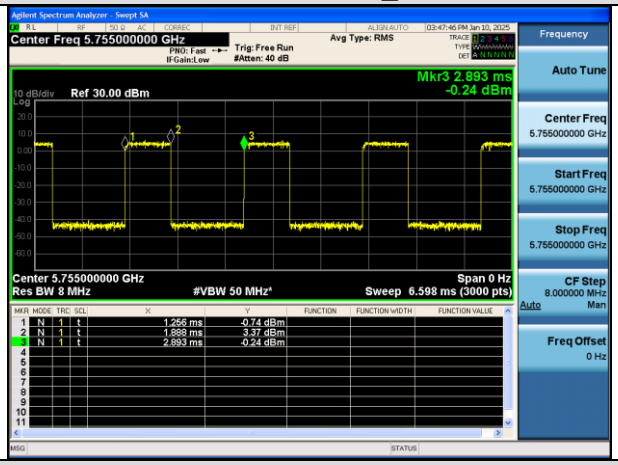
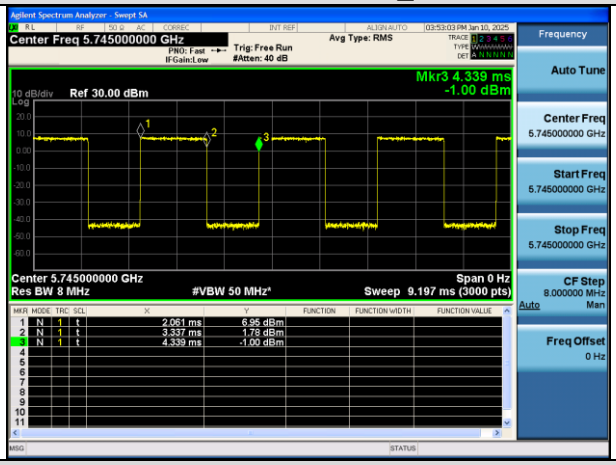
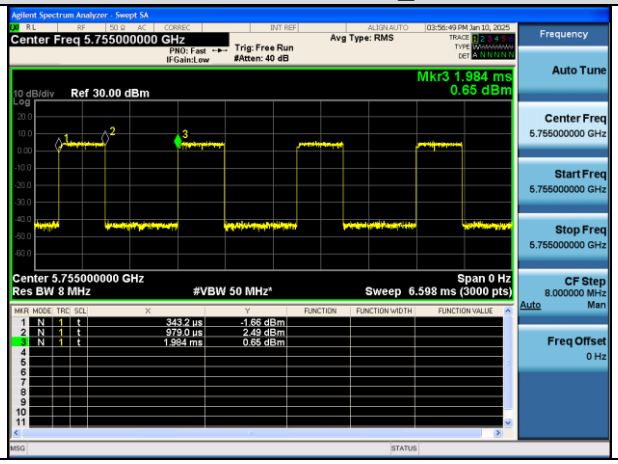
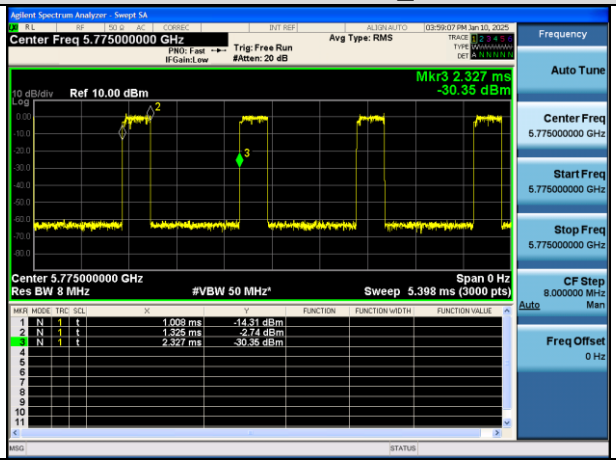
	
IEEE 802.11ac-VHT40_U-NII 3	**IEEE 802.11ac-VHT80_U-NII 3**
	

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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)

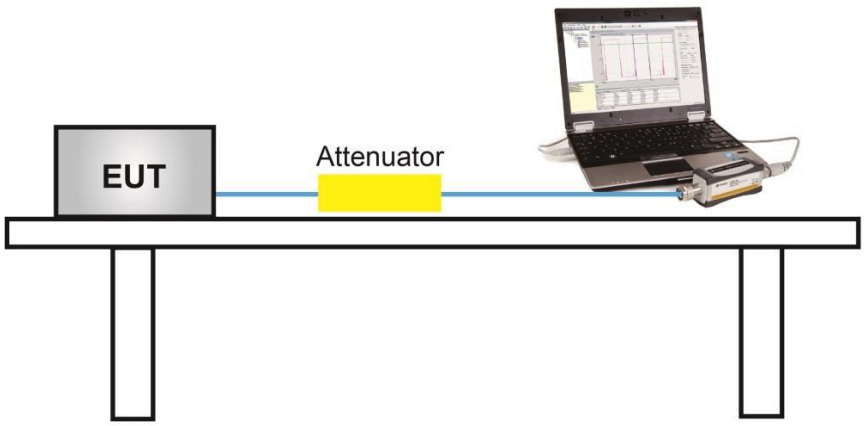
Note: Where B is the 26dB emission bandwidth in MHz.

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. The final test results have been increased by the duty cycle factor and recorded in the report.

7.3 Measurement Setup (Block Diagram of Configuration)



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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	10.19	23.98	Pass
	5200	10.90	23.98	Pass
	5240	12.31	23.98	Pass
802.11n20	5180	10.13	23.98	Pass
	5200	10.69	23.98	Pass
	5240	12.22	23.98	Pass
802.11n40	5190	10.13	23.98	Pass
	5230	11.79	23.98	Pass
802.11ac20	5180	10.28	23.98	Pass
	5200	11.02	23.98	Pass
	5240	12.28	23.98	Pass
802.11ac40	5190	10.12	23.98	Pass
	5230	11.75	23.98	Pass
802.11ac80	5210	10.39	23.98	Pass

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	10.63	23.98	Pass
	5300	11.99	23.98	Pass
	5320	11.25	23.98	Pass
802.11n20	5260	11.02	23.98	Pass
	5300	11.76	23.98	Pass
	5320	11.85	23.98	Pass
802.11n40	5270	11.09	23.98	Pass
	5310	11.62	23.98	Pass
802.11ac20	5260	11.02	23.98	Pass
	5300	12.02	23.98	Pass
	5320	12.32	23.98	Pass
802.11ac40	5270	11.29	23.98	Pass
	5310	11.73	23.98	Pass
802.11ac80	5290	10.71	23.98	Pass

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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	9.38	23.98	Pass
	5600	11.30	23.98	Pass
	5700	10.79	23.98	Pass
802.11n20	5500	9.04	23.98	Pass
	5600	10.92	23.98	Pass
	5700	10.57	23.98	Pass
802.11n40	510	9.17	23.98	Pass
	5590	11.77	23.98	Pass
	5670	**12.57**	23.98	Pass
802.11ac20	5500	10.52	23.98	Pass
	5600	12.12	23.98	Pass
	5700	11.75	23.98	Pass
802.11ac40	5510	10.62	23.98	Pass
	5590	12.29	23.98	Pass
	5670	12.25	23.98	Pass
802.11ac80	5530	9.90	23.98	Pass
	5610	11.53	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	11.38	30	Pass
	5785	10.61	30	Pass
	5825	9.43	30	Pass
802.11n20	5745	11.12	30	Pass
	5785	10.21	30	Pass
	5825	9.72	30	Pass
802.11n40	5755	10.78	30	Pass
	5795	10.31	30	Pass
802.11ac20	5745	11.47	30	Pass
	5785	10.29	30	Pass
	5825	9.31	30	Pass
802.11ac40	5755	10.74	30	Pass
	5795	10.19	30	Pass
802.11ac80	5775	9.98	30	Pass

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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:**

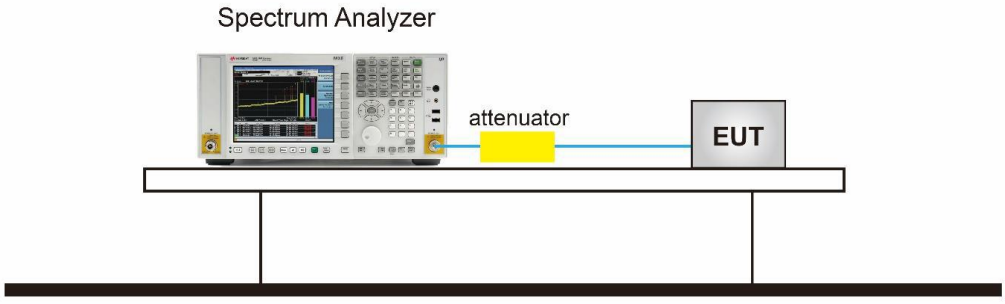
1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
2. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
3. Set Span = approximately 1.5 to 5 times the OBW, centered on a nominal channel
   The nominal IF filter bandwidth (3 dB RBW) shall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



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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	16.561	23.773	N/A	Pass
	5200	16.610	23.079	N/A	Pass
	5240	16.699	27.550	N/A	Pass
802.11n20	5180	17.597	21.835	N/A	Pass
	5200	17.645	25.541	N/A	Pass
	5240	17.701	28.850	N/A	Pass
802.11n40	5190	36.125	49.920	N/A	Pass
	5230	36.228	58.505	N/A	Pass
802.11ac20	5180	17.651	22.873	N/A	Pass
	5200	17.677	25.073	N/A	Pass
	5240	17.770	28.486	N/A	Pass
802.11ac40	5190	36.062	49.857	N/A	Pass
	5230	36.210	57.240	N/A	Pass
802.11ac80	5210	75.229	95.913	N/A	Pass

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	16.598	22.029	N/A	Pass
	5300	16.586	20.842	N/A	Pass
	5320	16.570	20.868	N/A	Pass
802.11n20	5260	17.626	23.071	N/A	Pass
	5300	17.597	21.094	N/A	Pass
	5320	17.592	20.784	N/A	Pass
802.11n40	5270	36.082	47.902	N/A	Pass
	5310	36.062	41.444	N/A	Pass
802.11ac20	5260	17.667	22.655	N/A	Pass
	5300	17.630	22.333	N/A	Pass
	5320	17.623	22.885	N/A	Pass
802.11ac40	5270	36.087	46.730	N/A	Pass
	5310	36.085	42.741	N/A	Pass
802.11ac80	5290	75.260	81.424	N/A	Pass

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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	16.547	20.481	N/A	Pass
	5600	16.541	20.207	N/A	Pass
	5700	16.537	20.481	N/A	Pass
802.11n20	5500	17.598	20.678	N/A	Pass
	5600	17.590	20.615	N/A	Pass
	5700	17.577	20.554	N/A	Pass
802.11n40	5510	36.034	40.524	N/A	Pass
	5590	36.086	41.239	N/A	Pass
	5670	36.086	41.352	N/A	Pass
802.11ac20	5500	17.632	21.093	N/A	Pass
	5600	17.618	21.213	N/A	Pass
	5700	17.631	21.238	N/A	Pass
802.11ac40	5510	36.090	40.848	N/A	Pass
	5590	36.052	41.556	N/A	Pass
	5670	36.035	40.518	N/A	Pass
802.11ac80	5530	75.241	81.160	N/A	Pass
	5610	75.210	81.172	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	16.553	16.339	0.5	Pass
	5785	16.570	16.323	0.5	Pass
	5825	16.537	16.073	0.5	Pass
802.11n20	5745	17.597	16.934	0.5	Pass
	5785	17.588	17.087	0.5	Pass
	5825	17.584	16.907	0.5	Pass
802.11n40	5755	36.109	35.333	0.5	Pass
	5795	36.068	35.183	0.5	Pass
802.11ac20	5745	17.646	16.325	0.5	Pass
	5785	17.612	17.032	0.5	Pass
	5825	17.614	16.828	0.5	Pass
802.11ac40	5755	36.118	35.194	0.5	Pass
	5795	36.050	35.224	0.5	Pass
802.11ac80	5775	75.306	75.143	0.5	Pass

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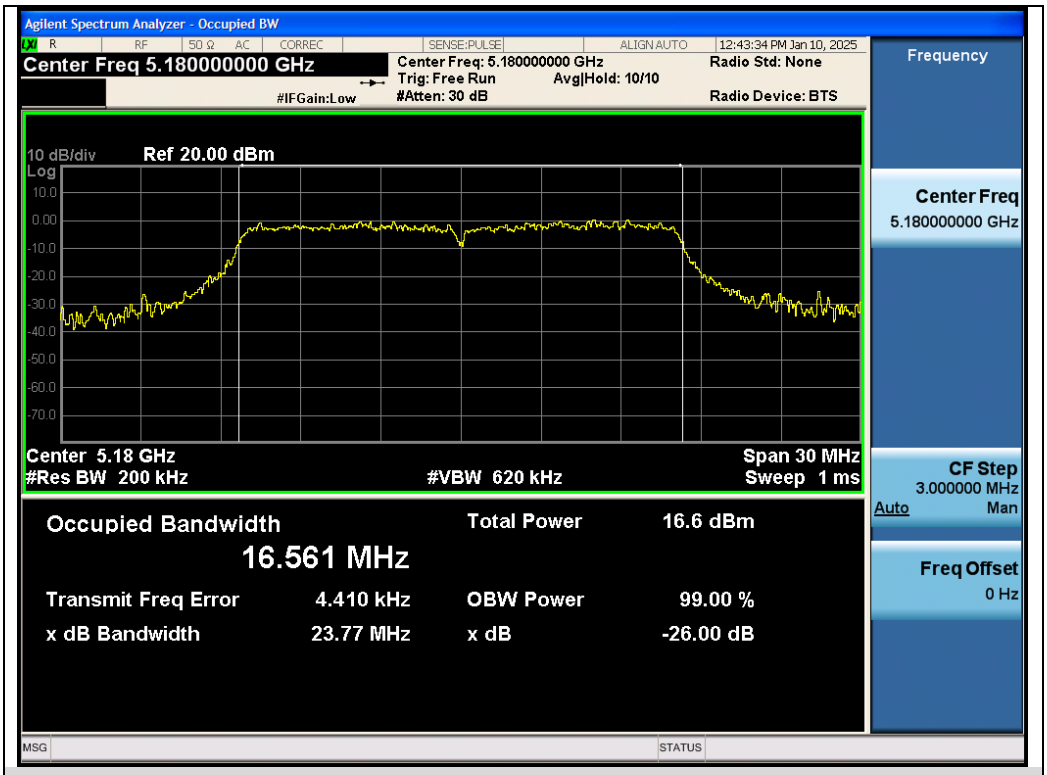
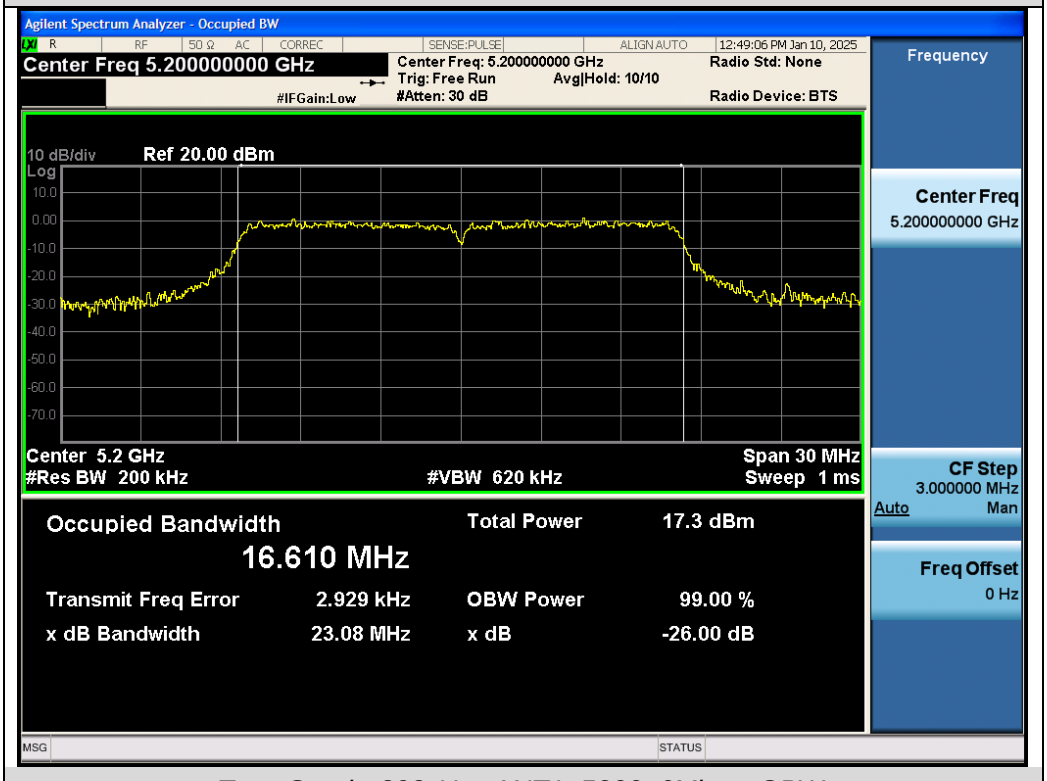
Test Graphs of Occupied Bandwidth and -26dB Bandwidth for band 5.15-5.25 GHz



Test_Graph_802.11a_ANT1_5180_6Mbps_OBW



Test_Graph_802.11a_ANT1_5200_6Mbps_OBW

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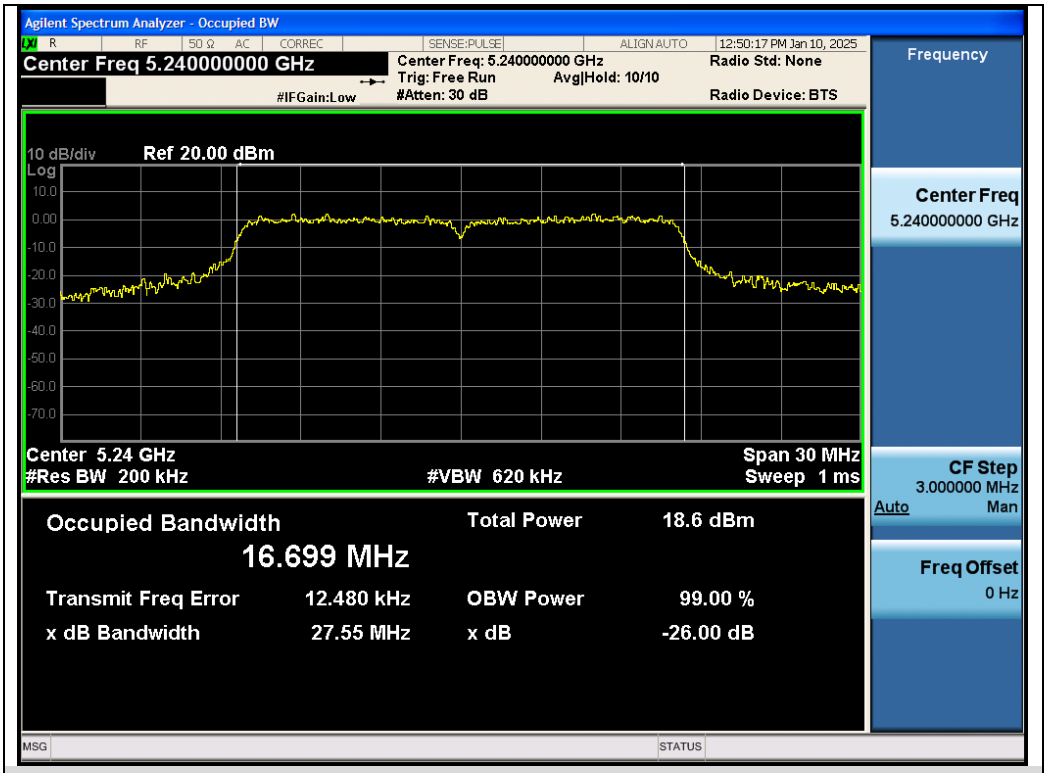
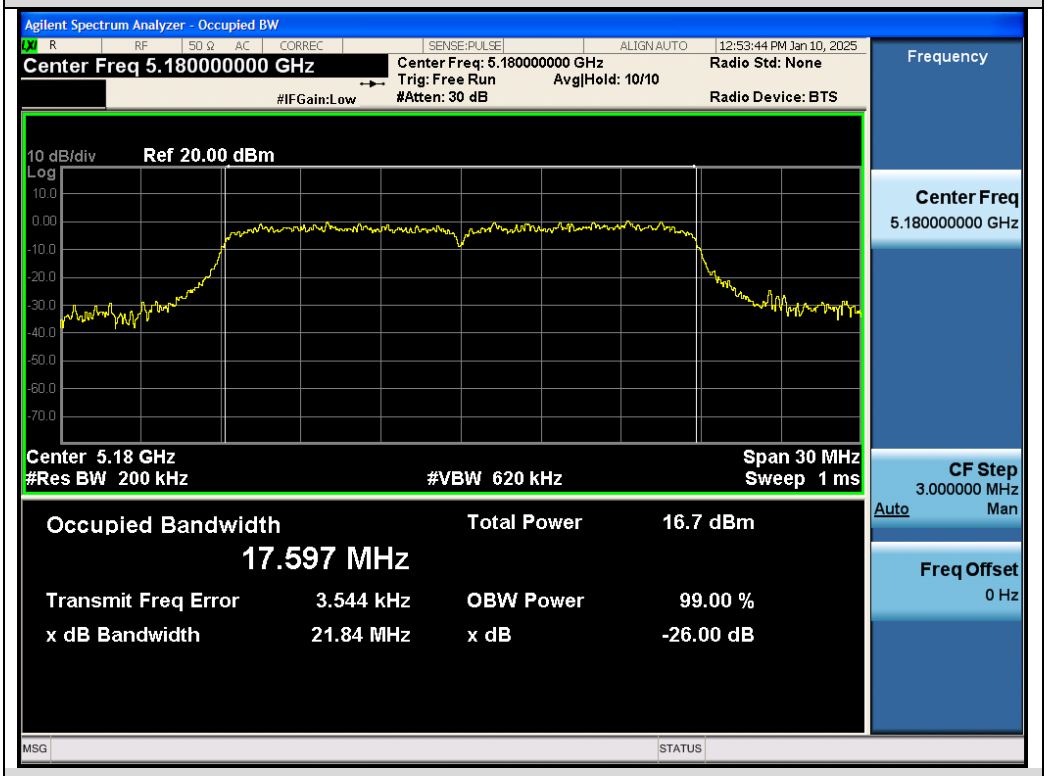


Test_Graph_802.11a_ANT1_5240_6Mbps_OBW



Test_Graph_802.11n20_ANT1_5180_MCS0_OBW

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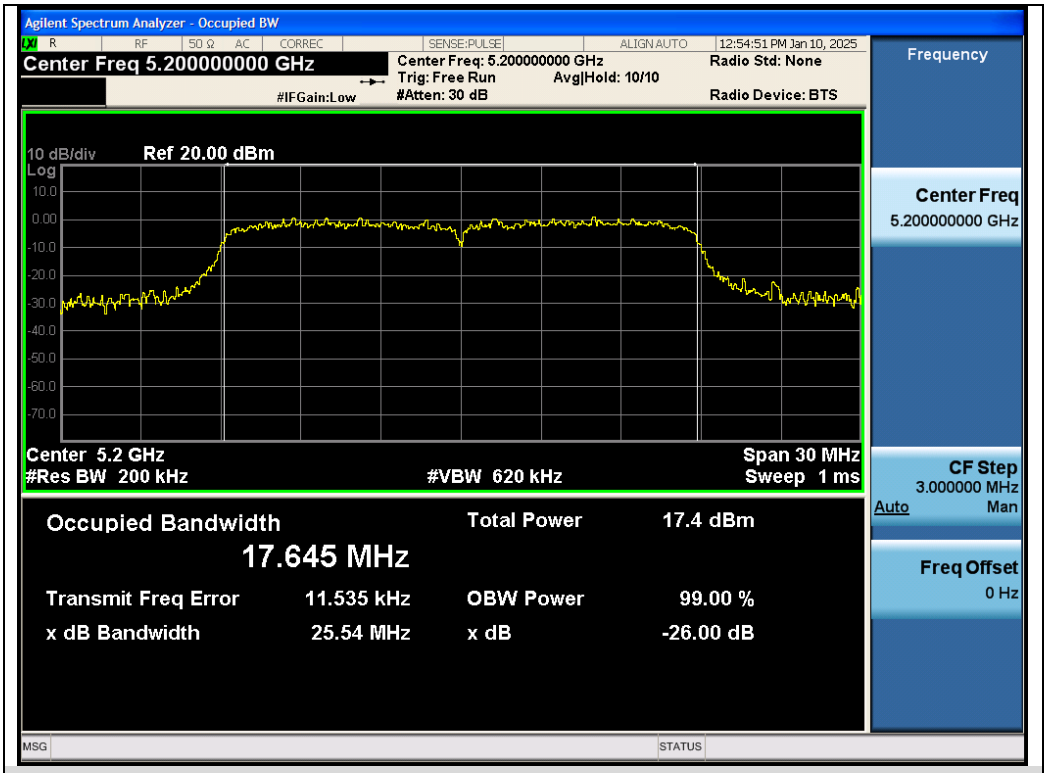

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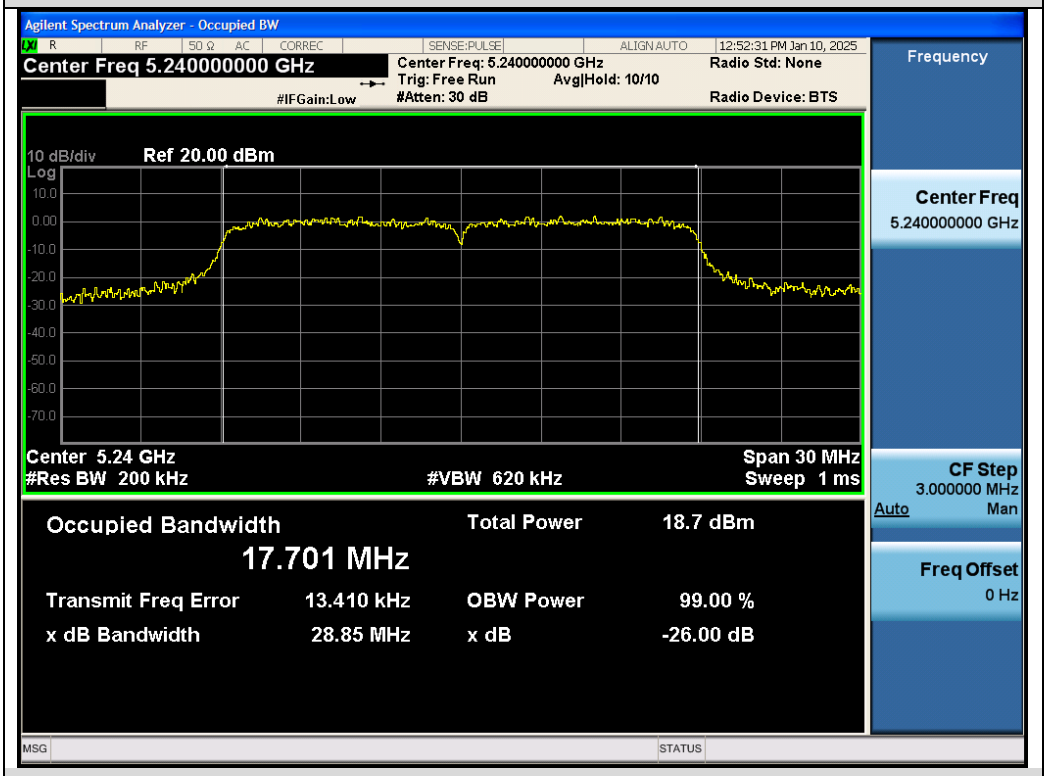

Test_Graph_802.11n20_ANT1_5240_MCS0_OBW

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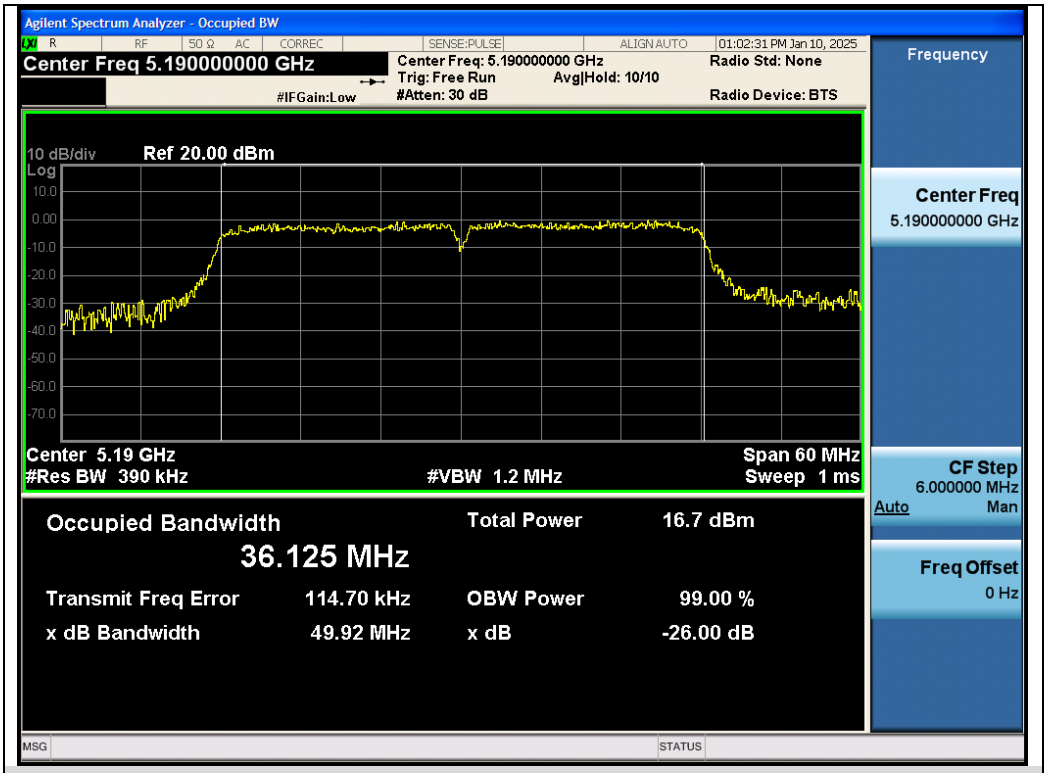

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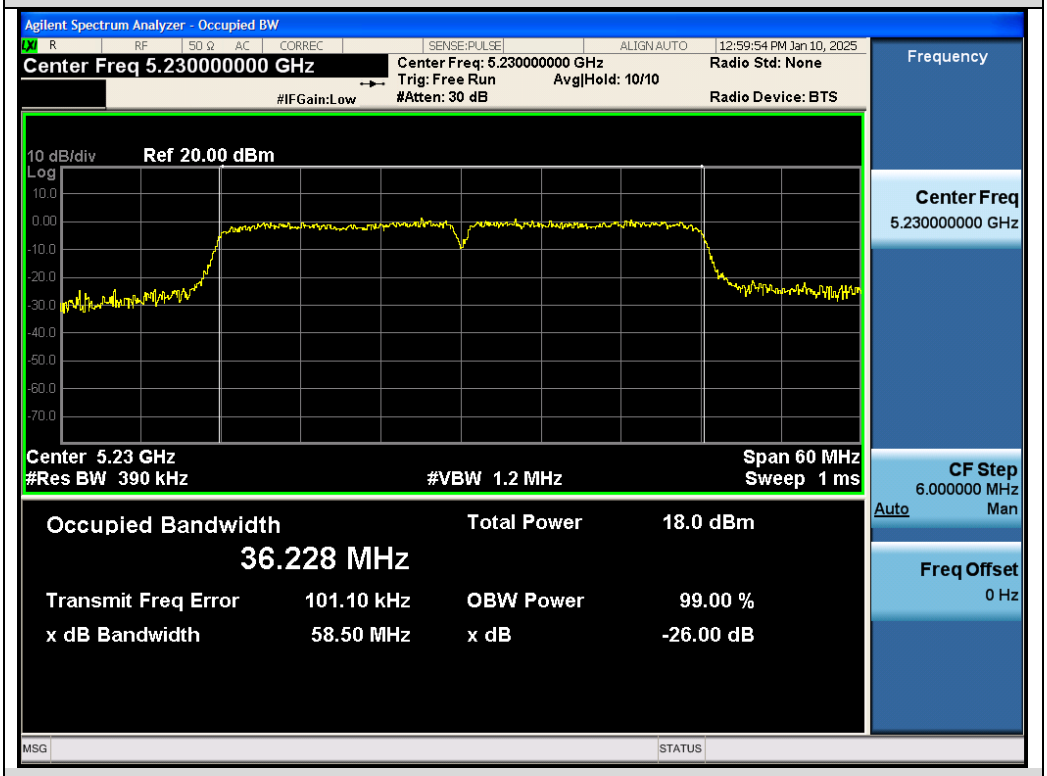

Test_Graph_802.11n40_ANT1_5230_MCS0_OBW

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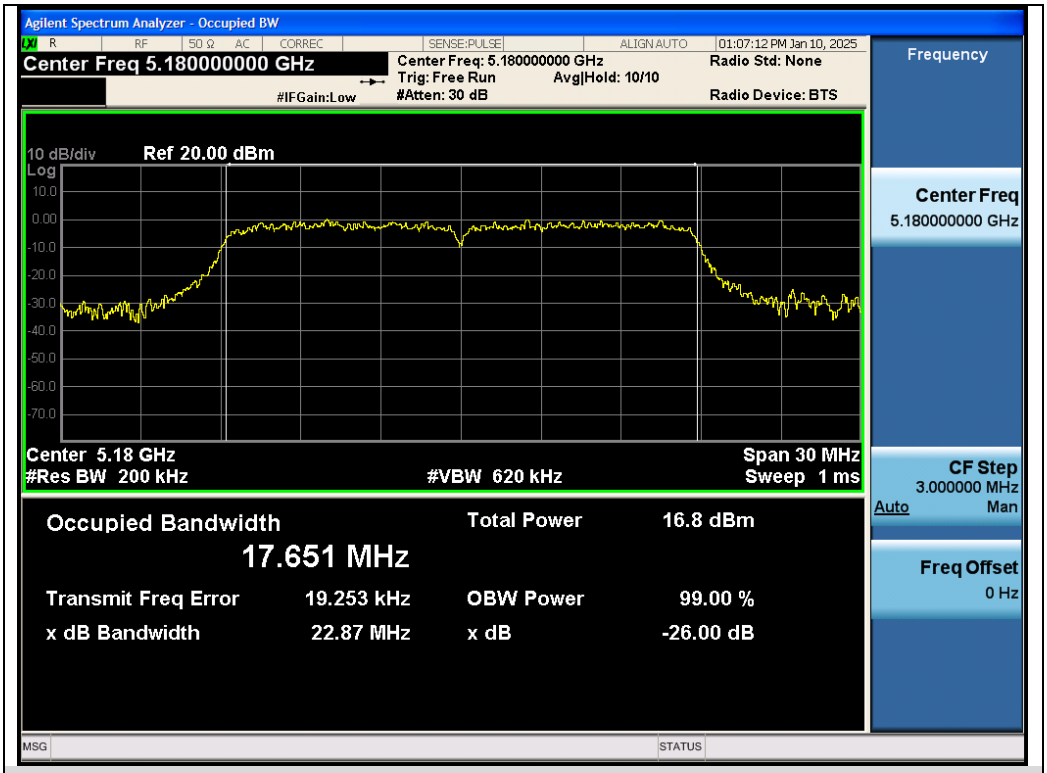

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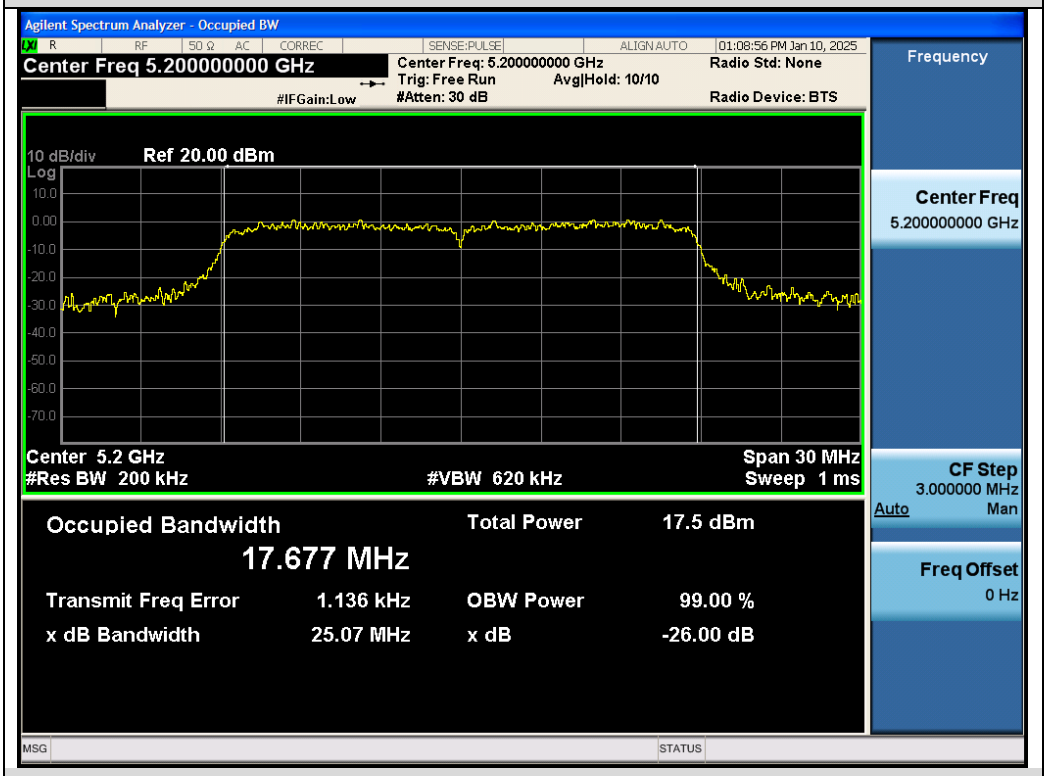

Test_Graph_802.11ac20_ANT1_5200_MCS0_OBW

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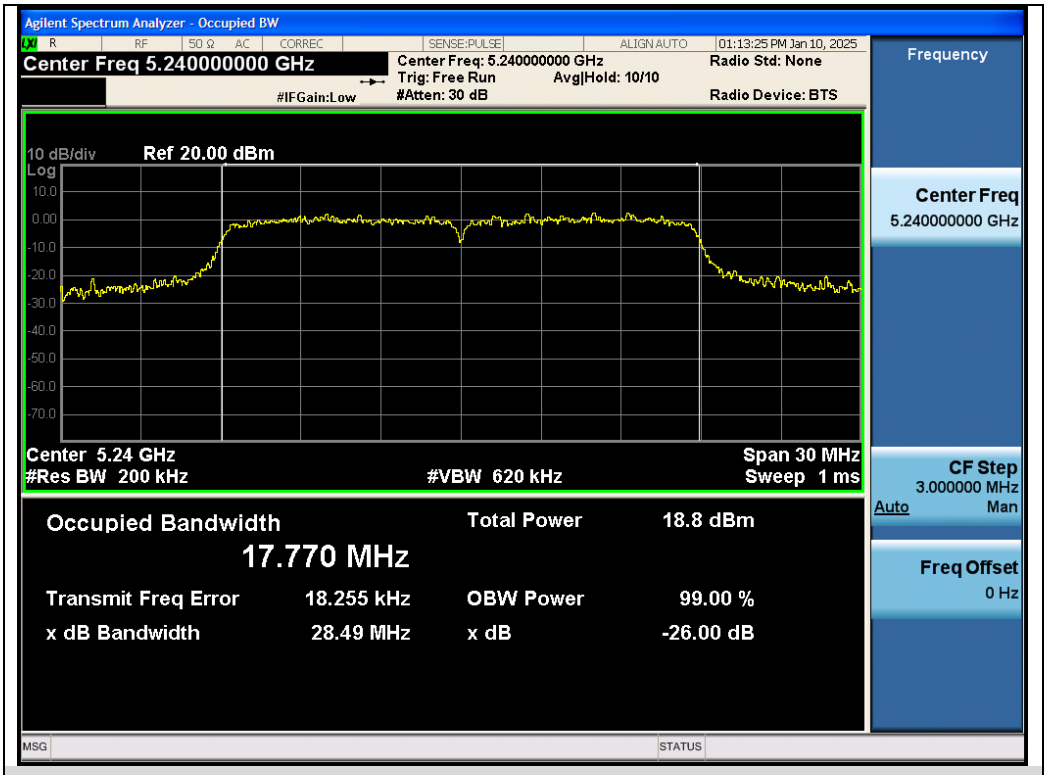

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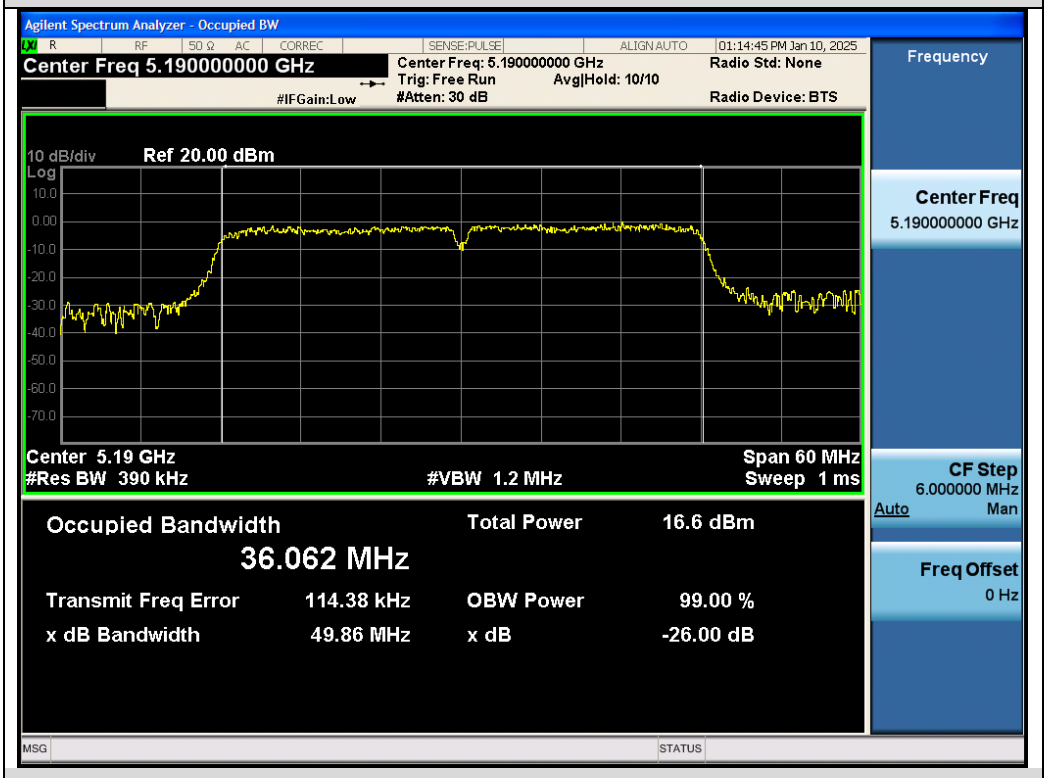

Test_Graph_802.11ac40_ANT1_5190_MCS0_OBW

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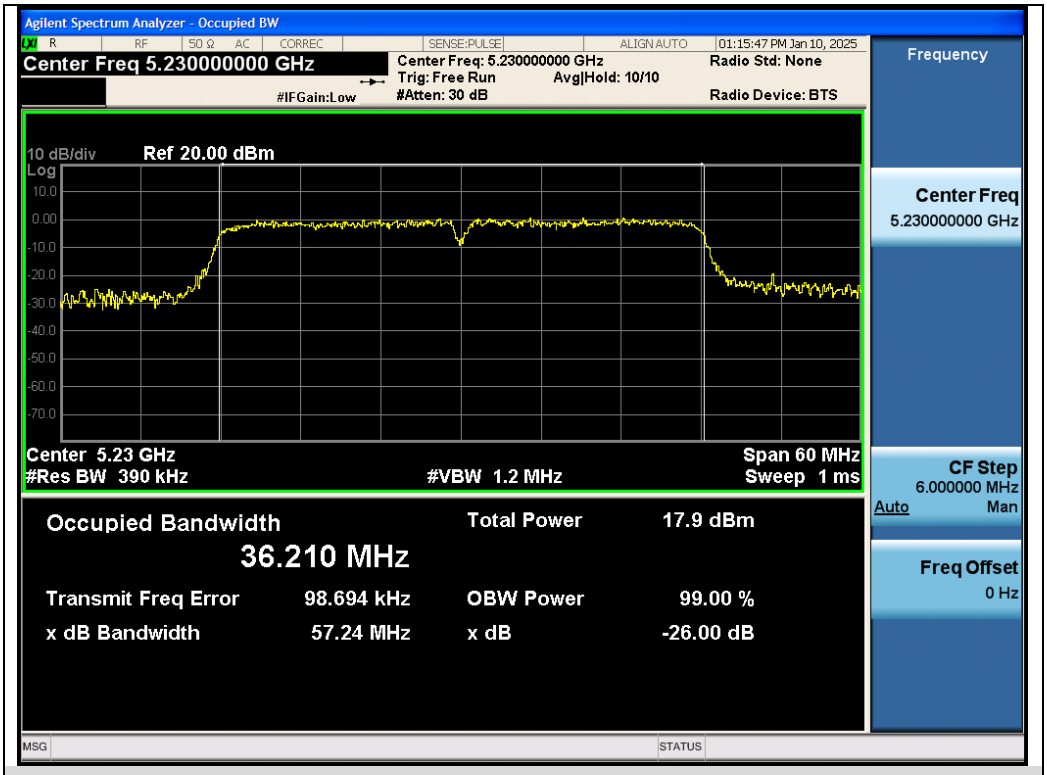

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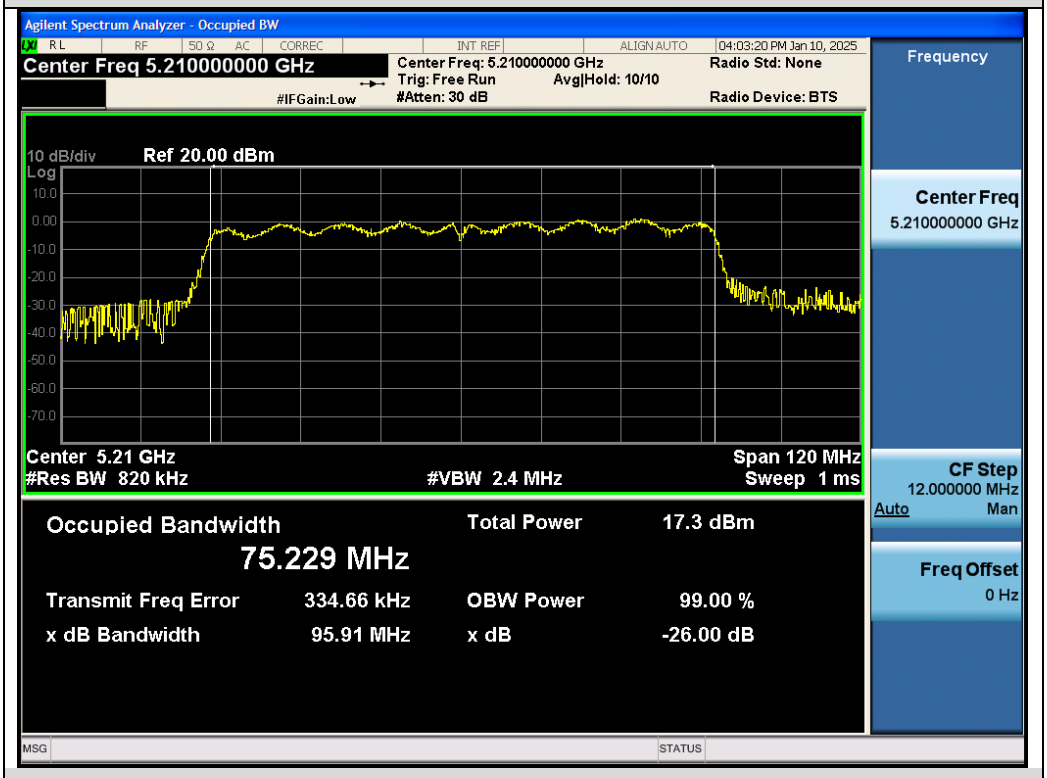

Test_Graph_802.11ac80_ANT1_5210_MCS0_OBW

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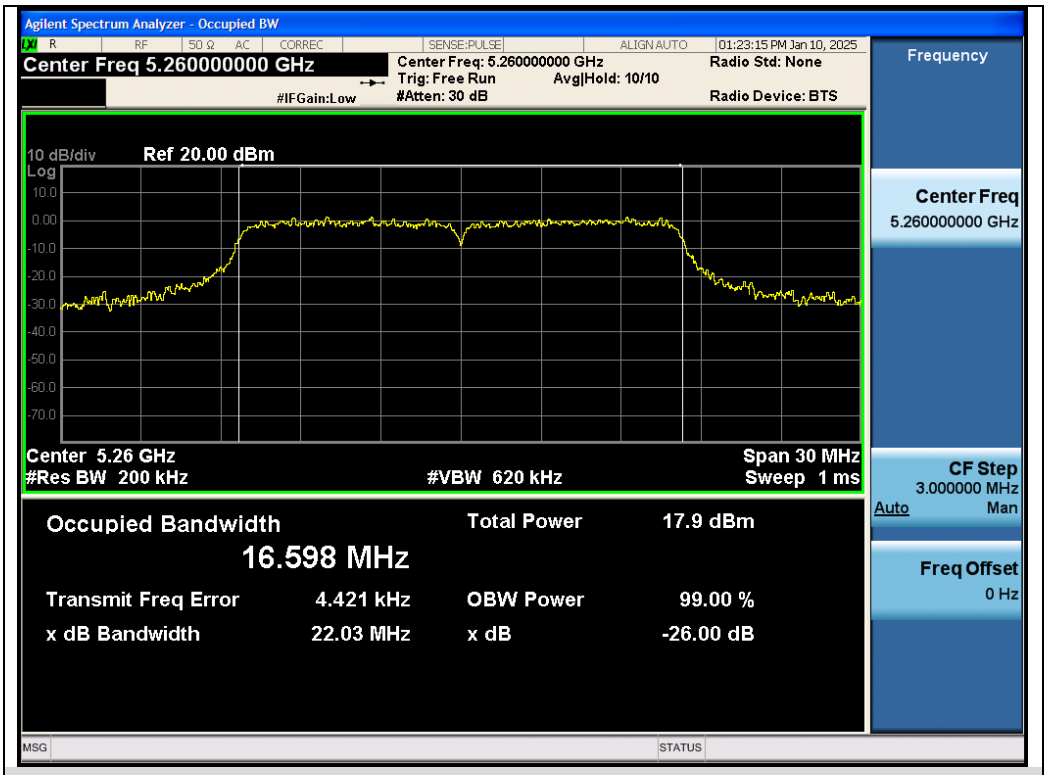
Test Graphs of Occupied Bandwidth and -26dB Bandwidth for band 5.25-5.35 GHz



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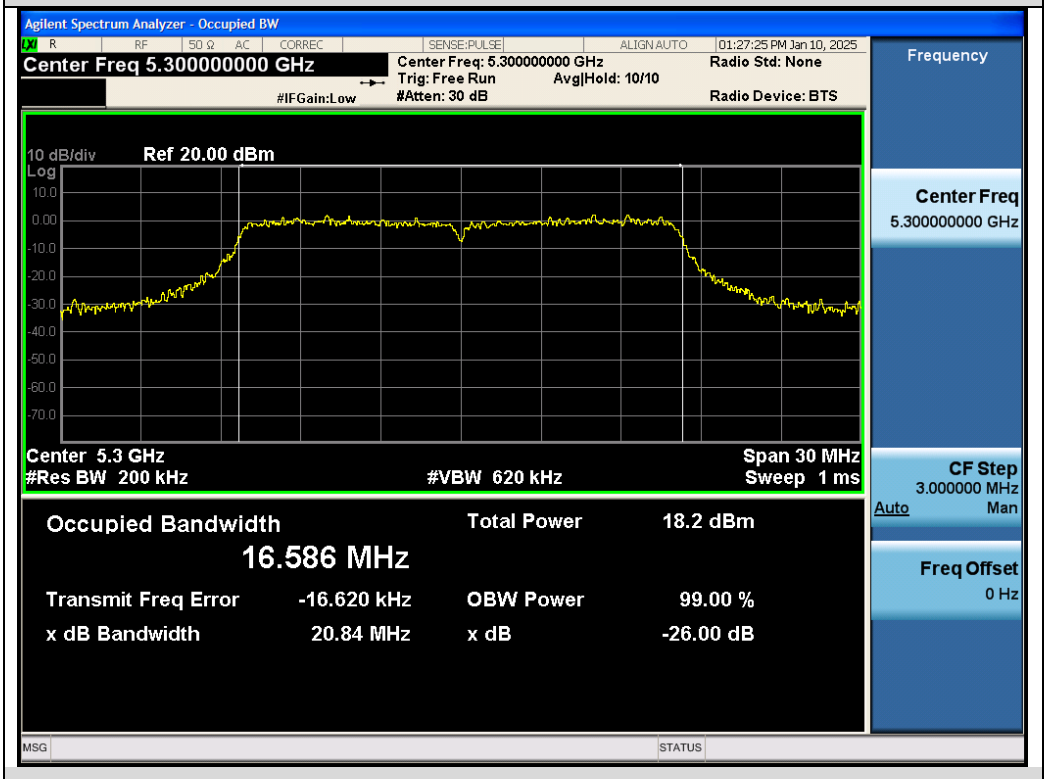

Test_Graph_802.11a_ANT1_5300_6Mbps_OBW

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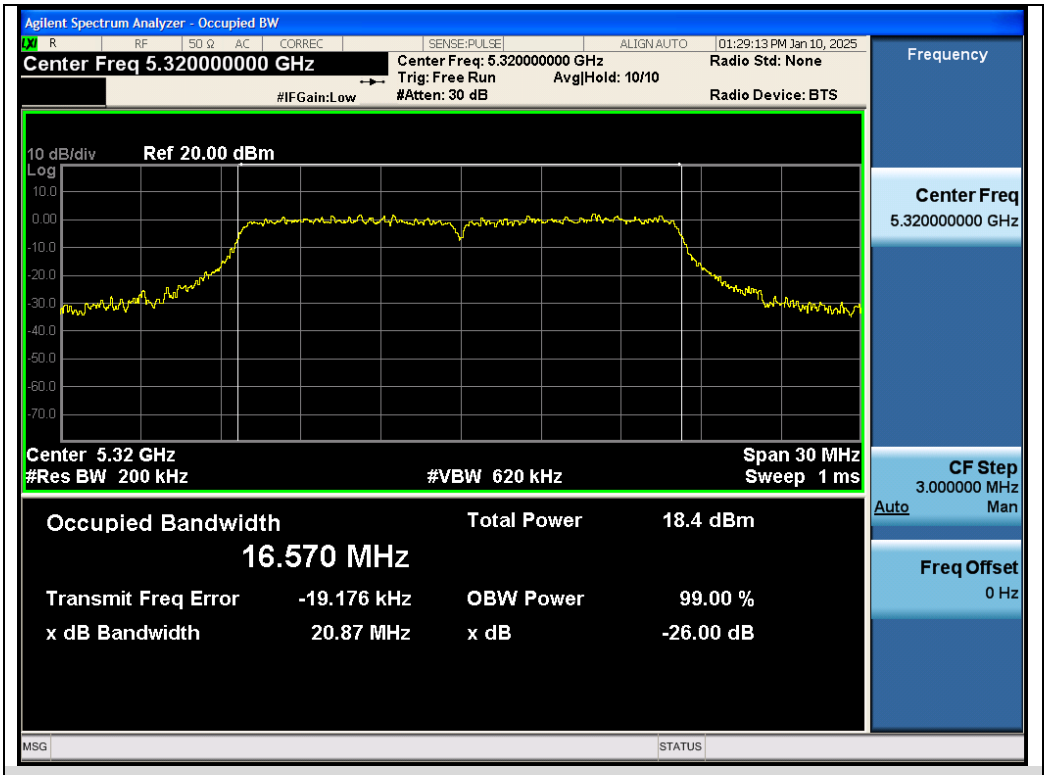

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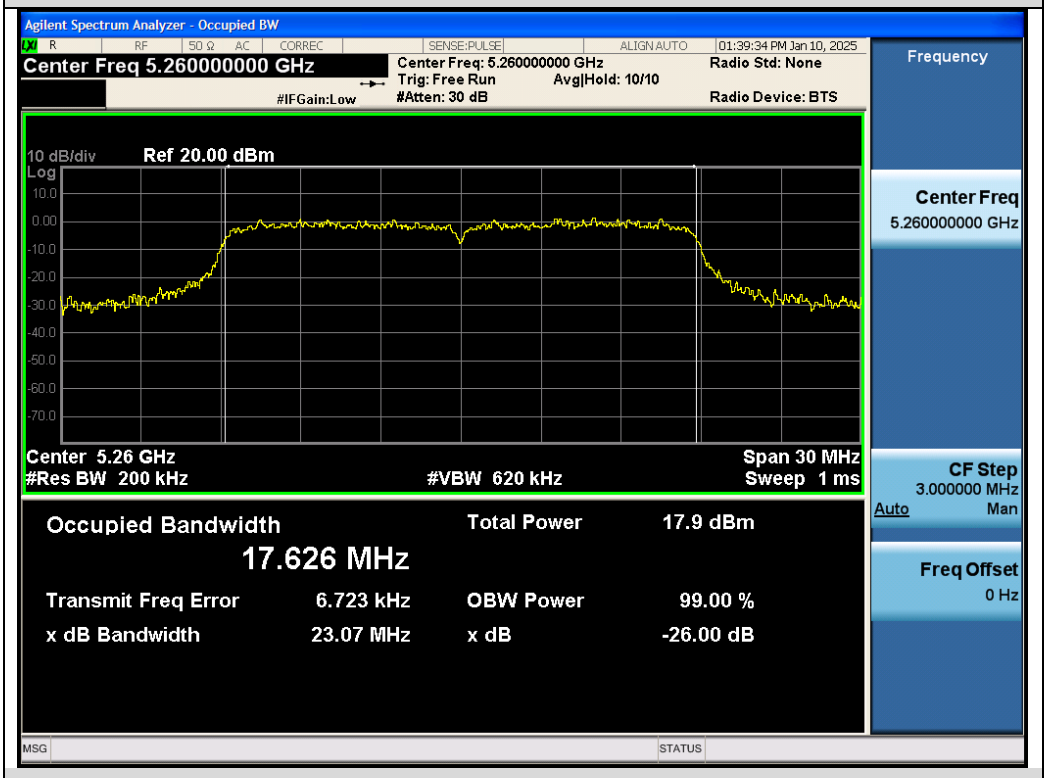

Test_Graph_802.11n20_ANT1_5260_MCS0_OBW

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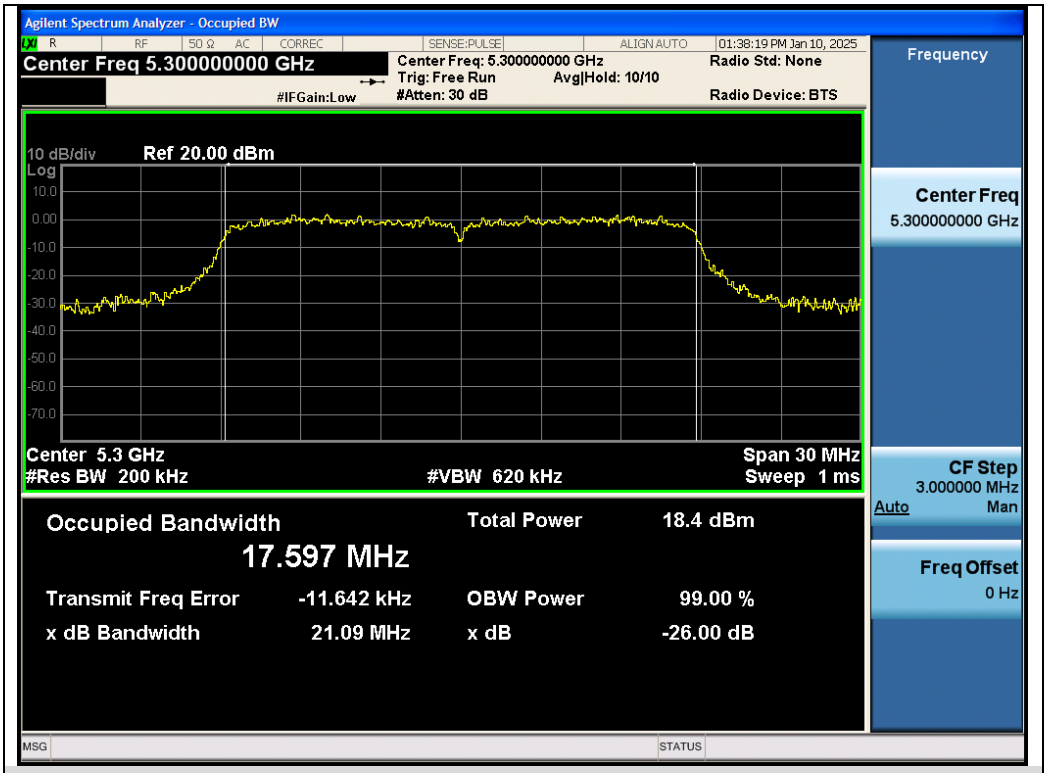
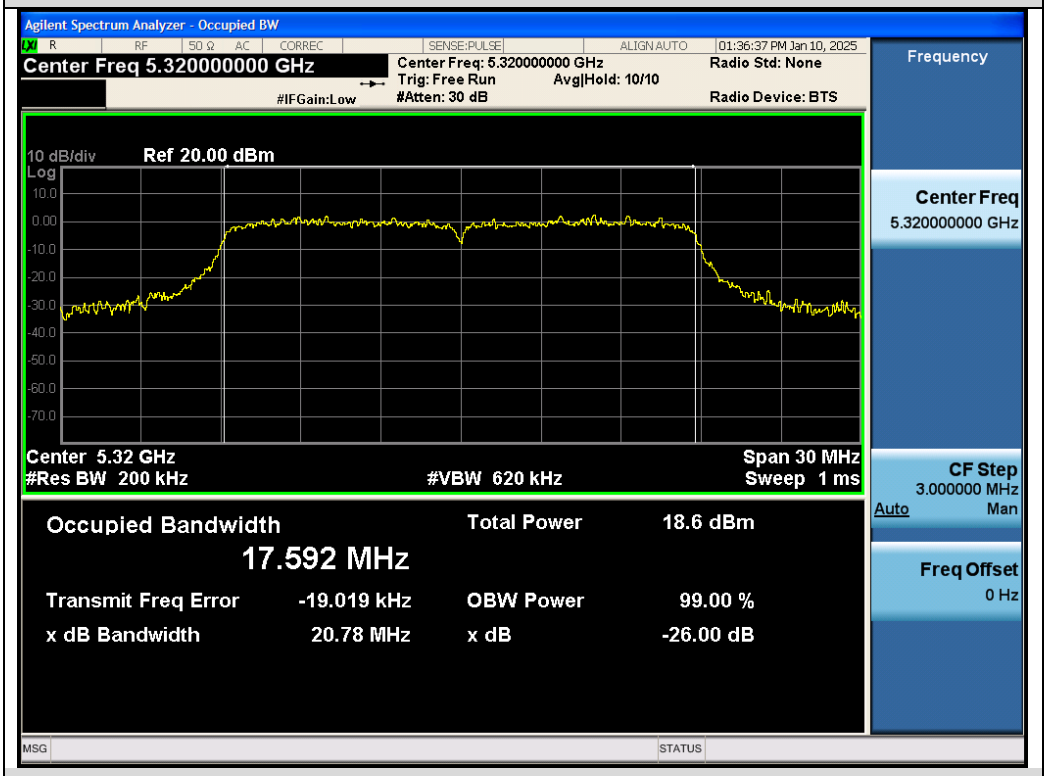


Test_Graph_802.11n20_ANT1_5300_MCS0_OBW



Test_Graph_802.11n20_ANT1_5320_MCS0_OBW

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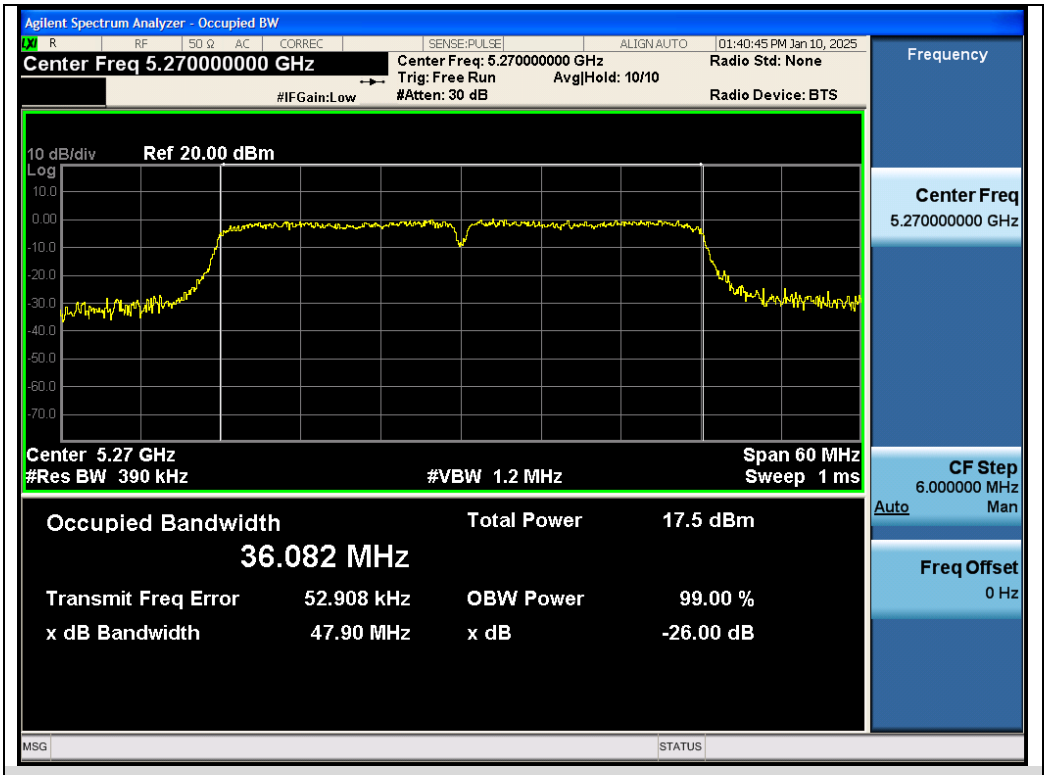
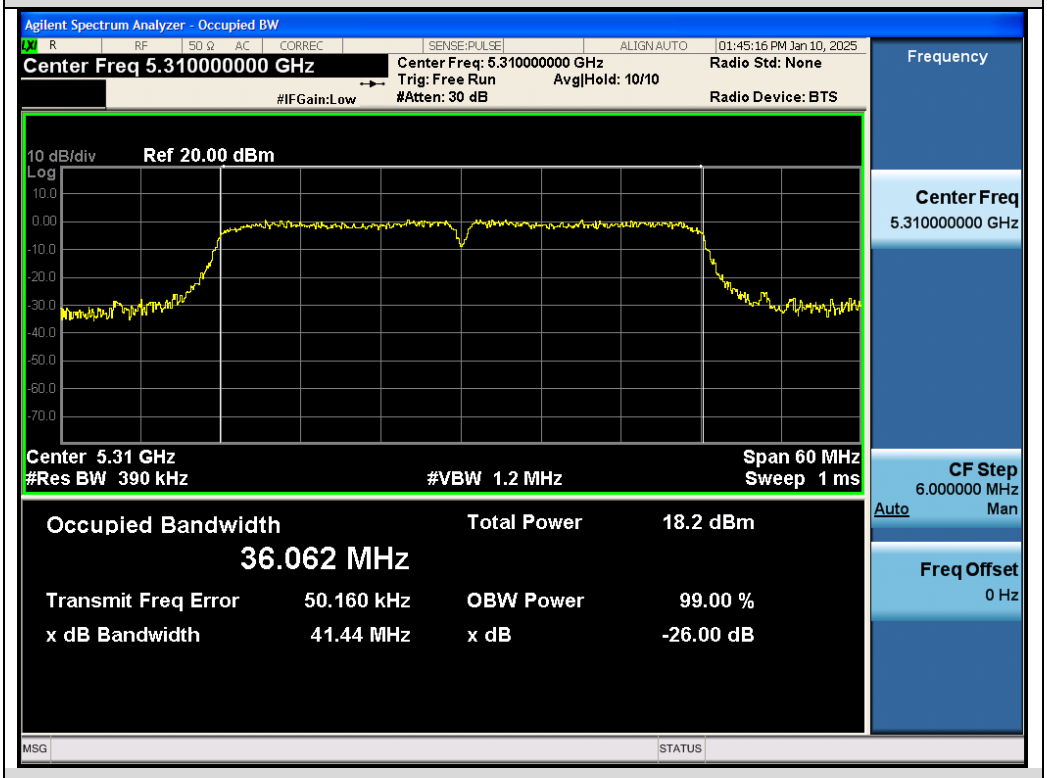


Test_Graph_802.11n40_ANT1_5270_MCS0_OBW



Test_Graph_802.11n40_ANT1_5310_MCS0_OBW

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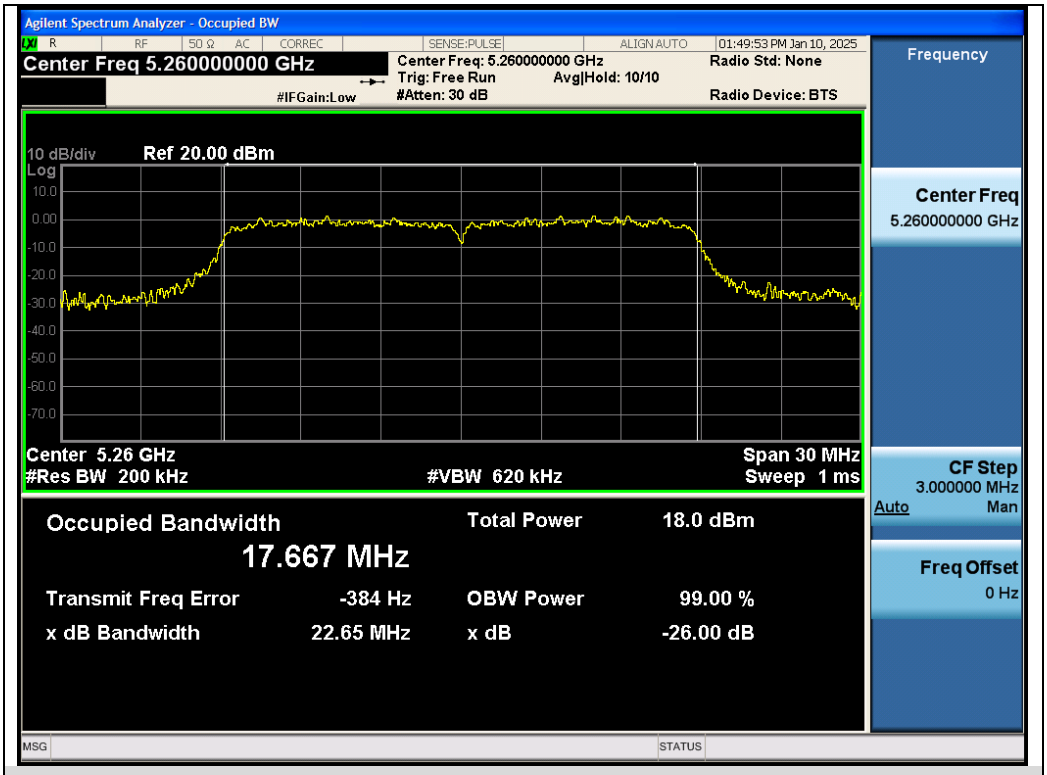

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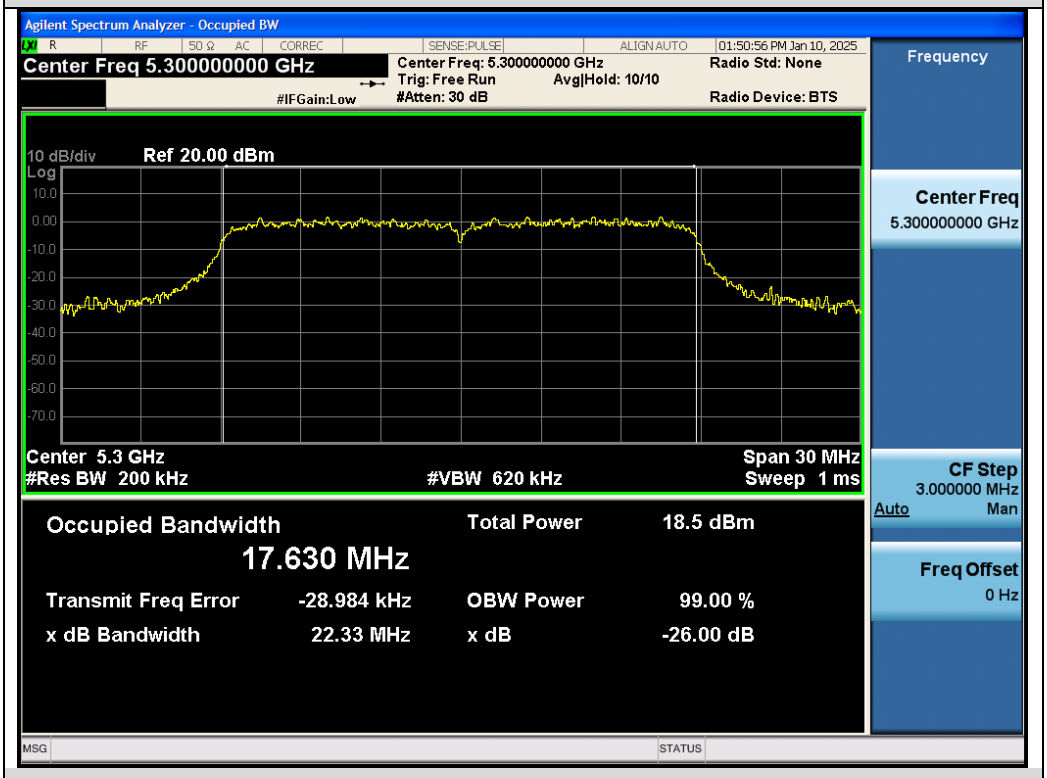

Test_Graph_802.11ac20_ANT1_5300_MCS0_OBW

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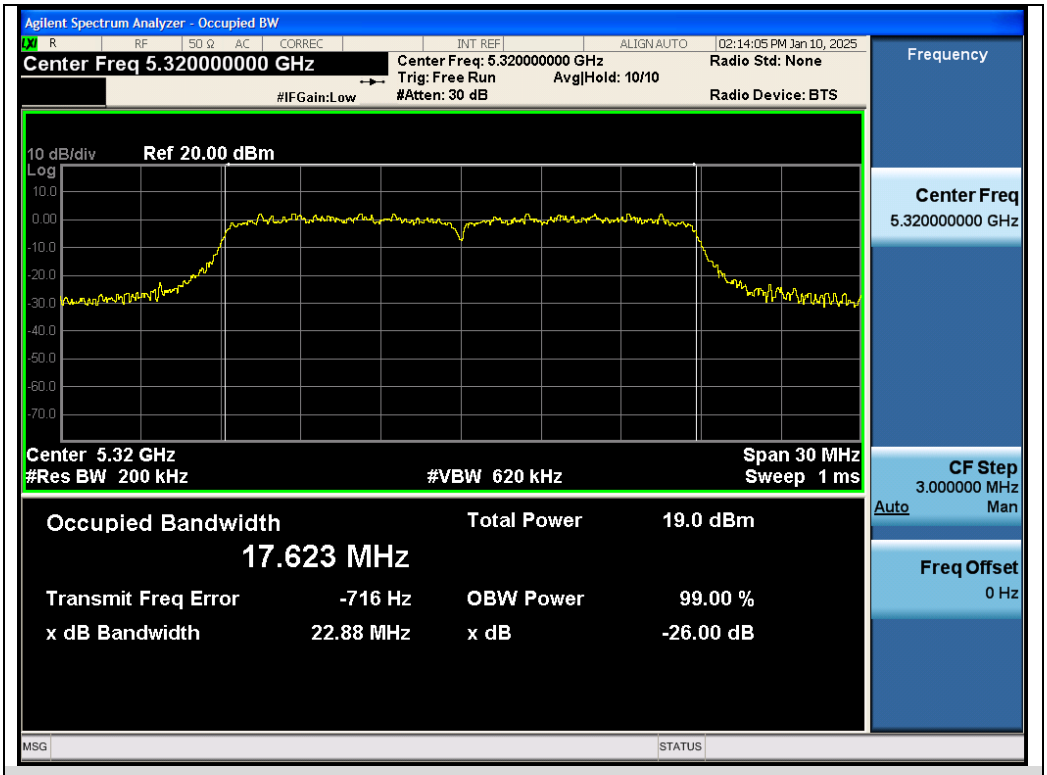

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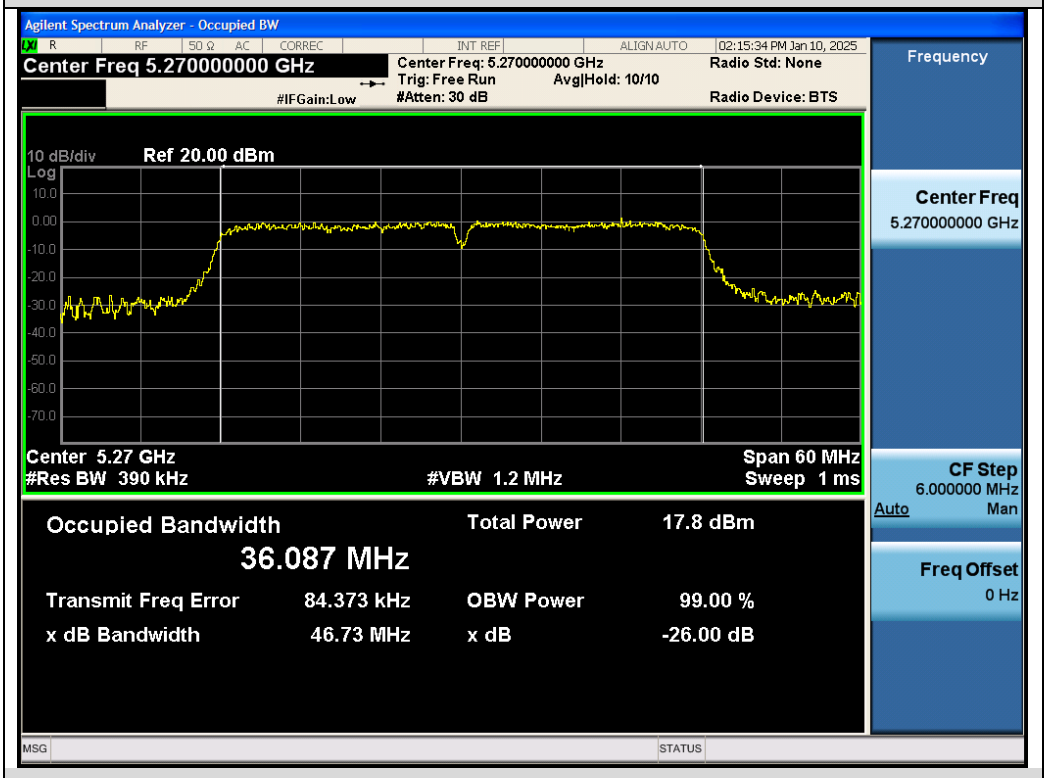

Test_Graph_802.11ac40_ANT1_5270_MCS0_OBW

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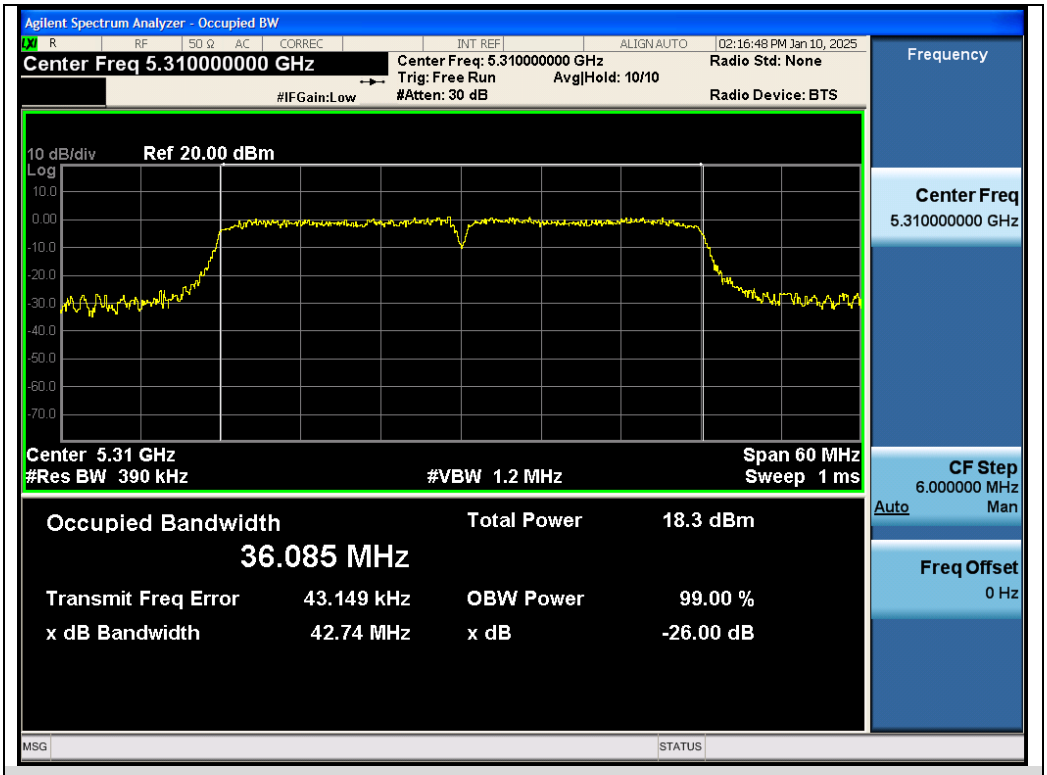

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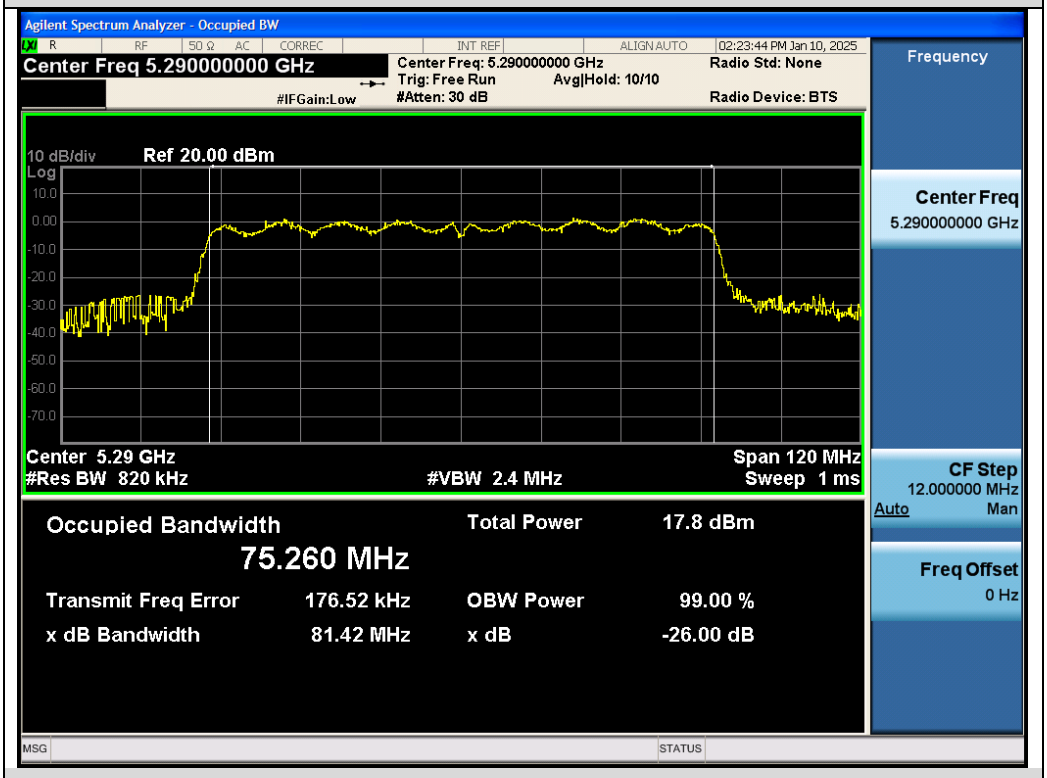

Test_Graph_802.11ac80_ANT1_5290_MCS0_OBW

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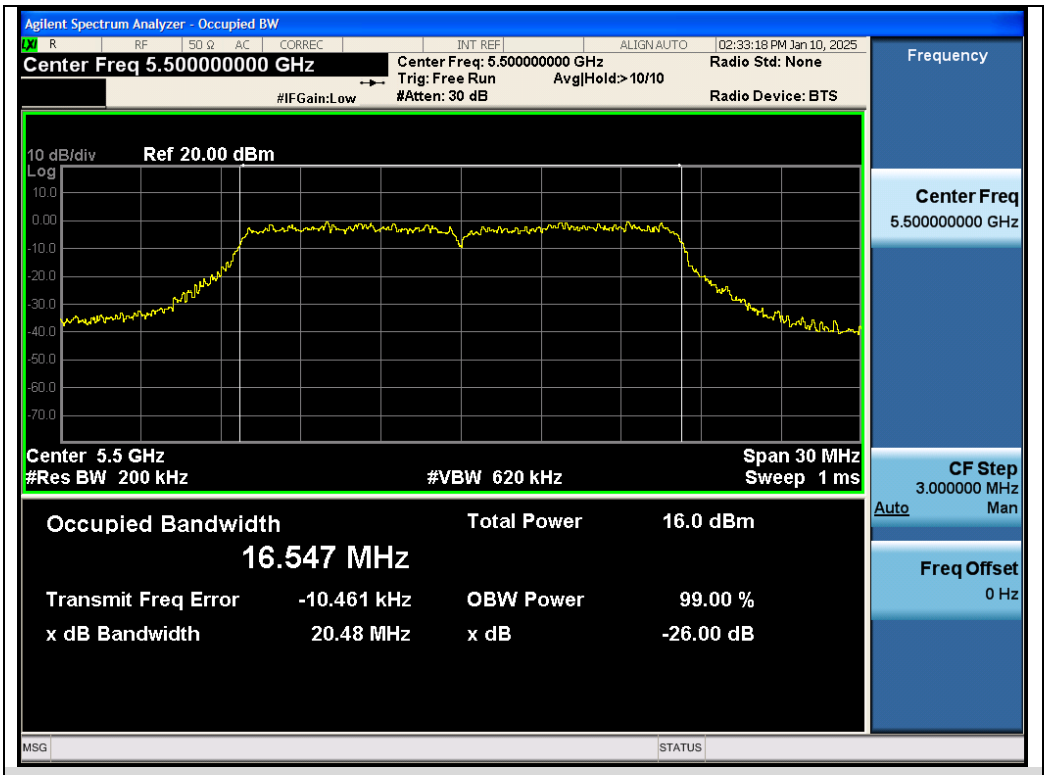
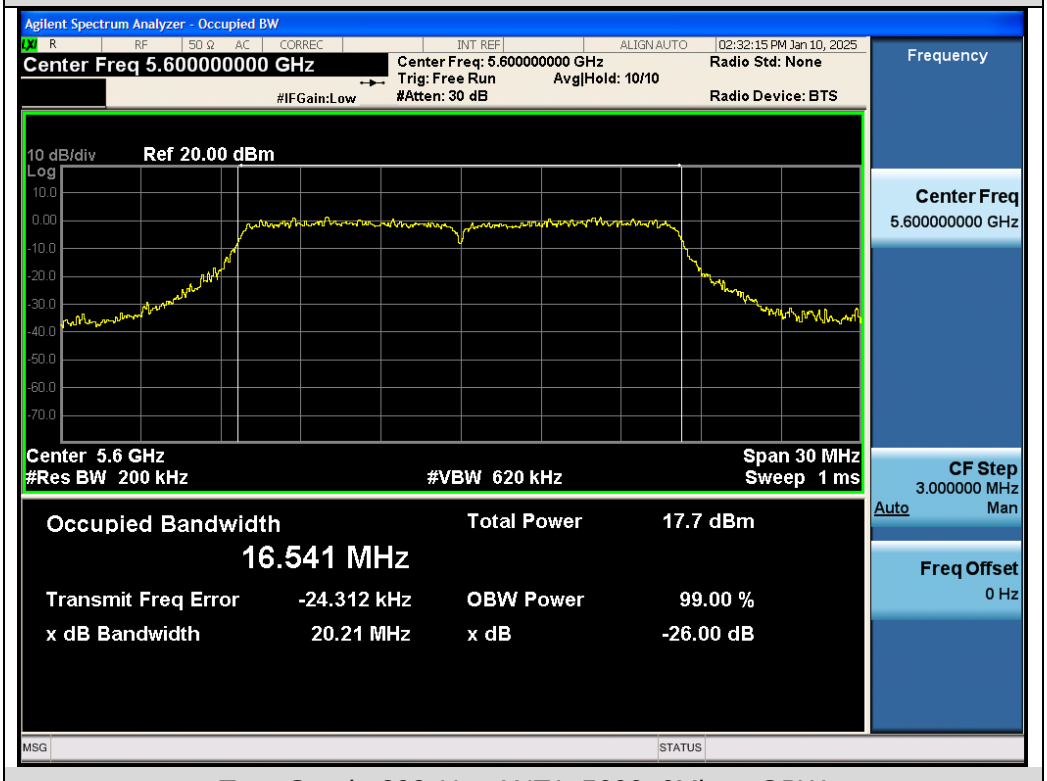
Test Graphs of Occupied Bandwidth and -26dB Bandwidth for band 5.470-5.725 GHz



Test_Graph_802.11a_ANT1_5500_6Mbps_OBW



Test_Graph_802.11a_ANT1_5600_6Mbps_OBW

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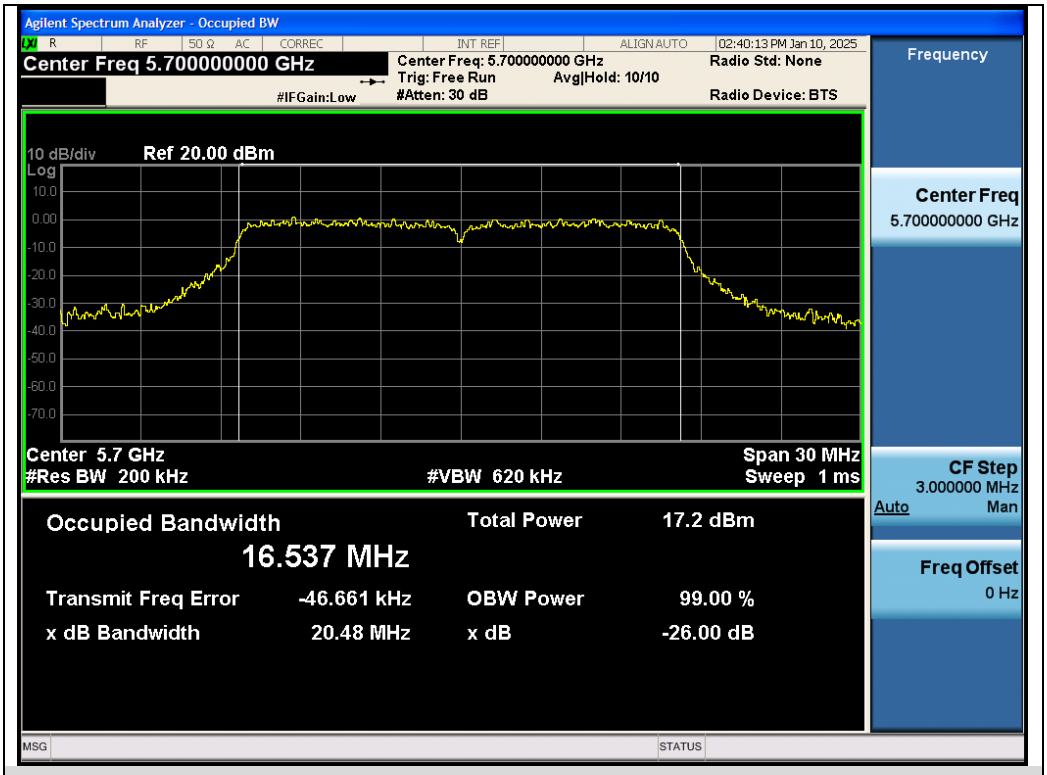
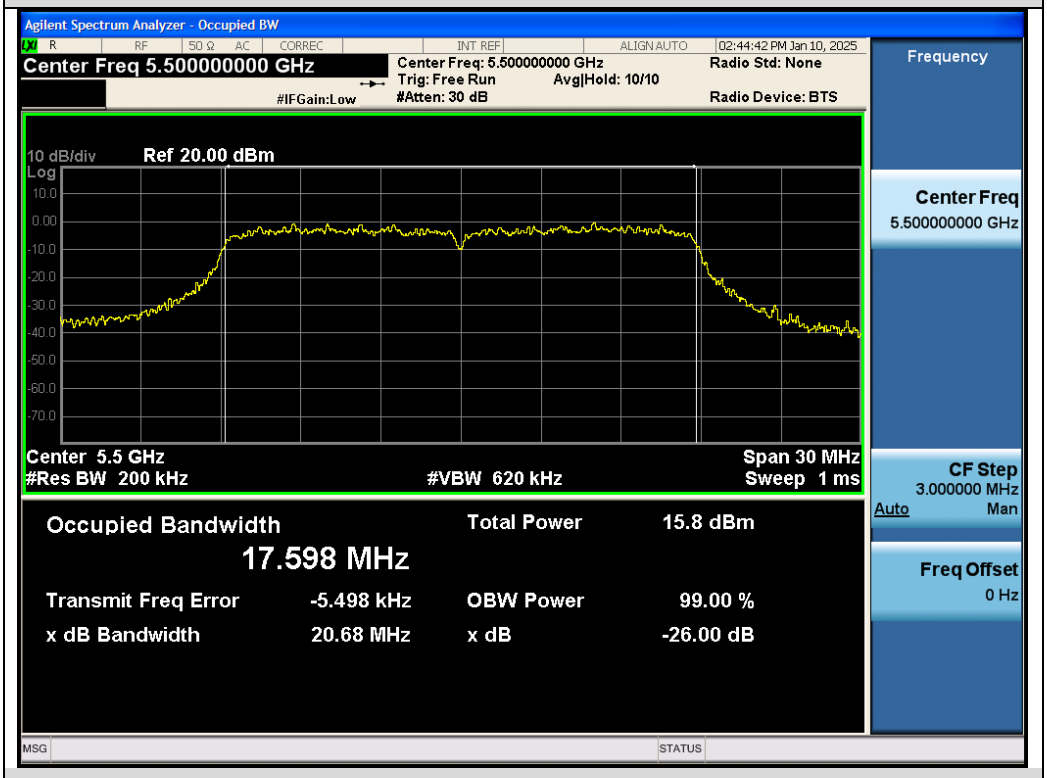


Test_Graph_802.11a_ANT1_5700_6Mbps_OBW



Test_Graph_802.11n20_ANT1_5500_MCS0_OBW

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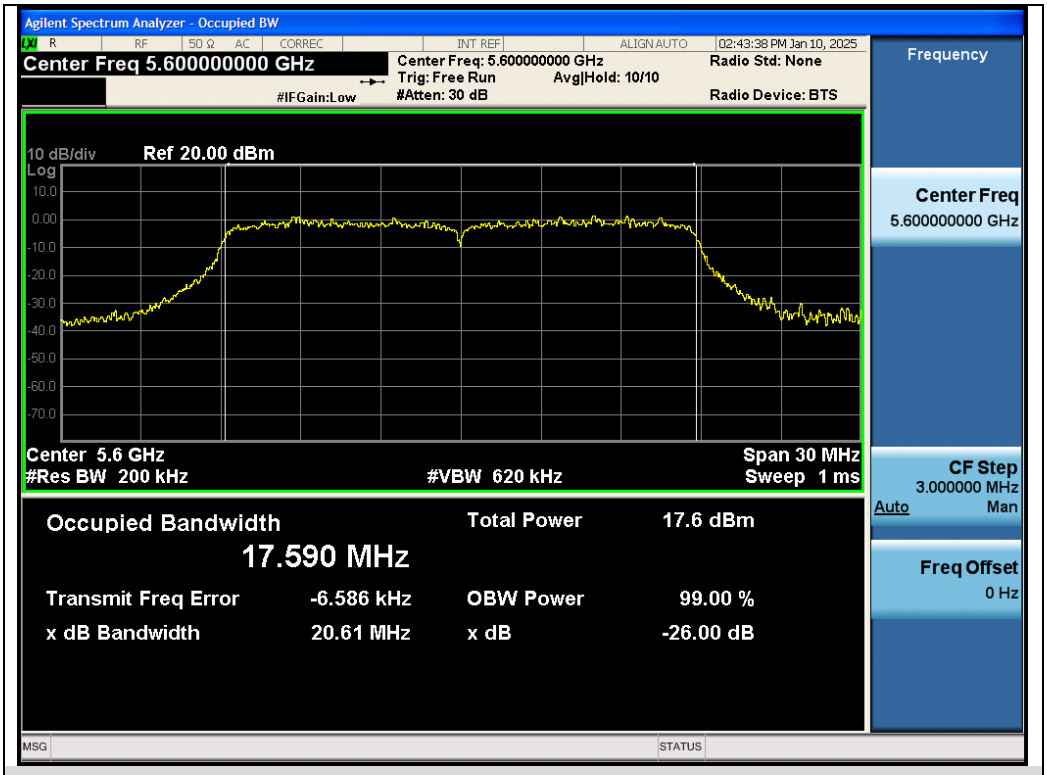

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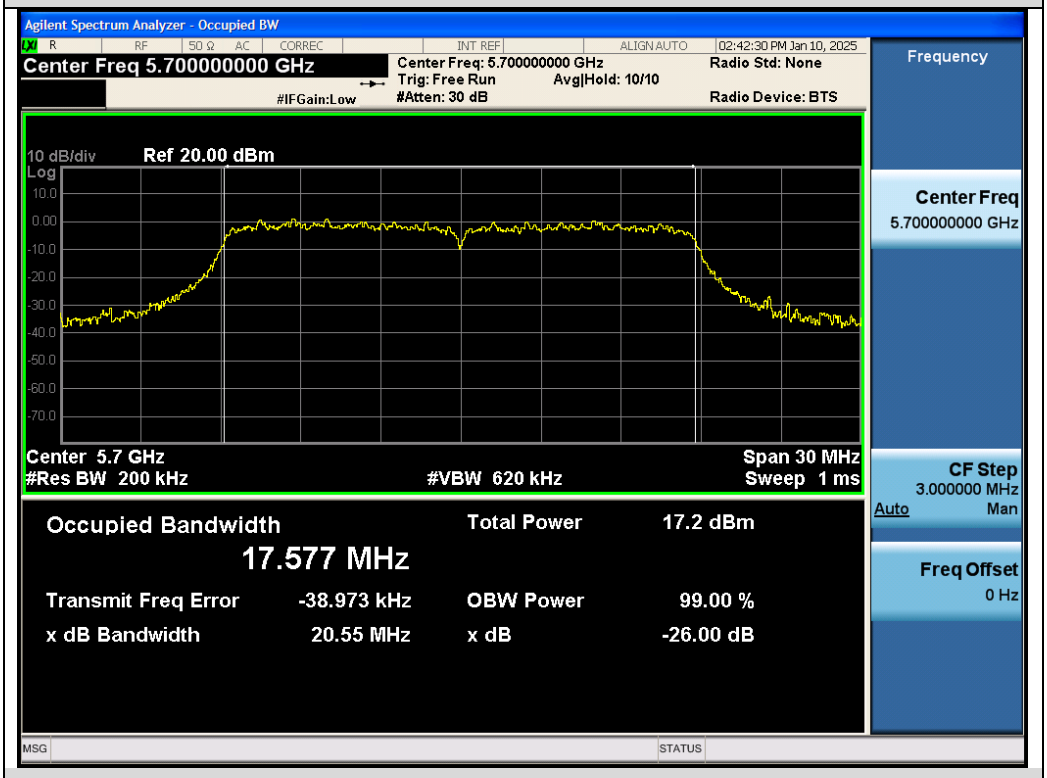

Test_Graph_802.11n20_ANT1_5700_MCS0_OBW

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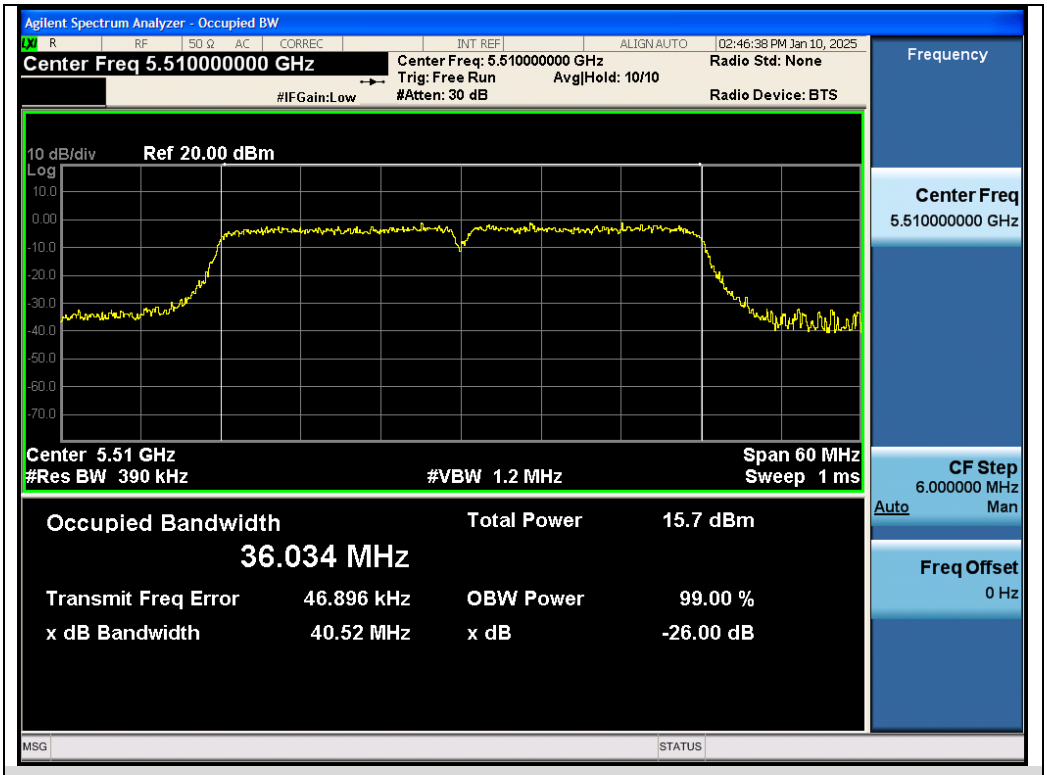
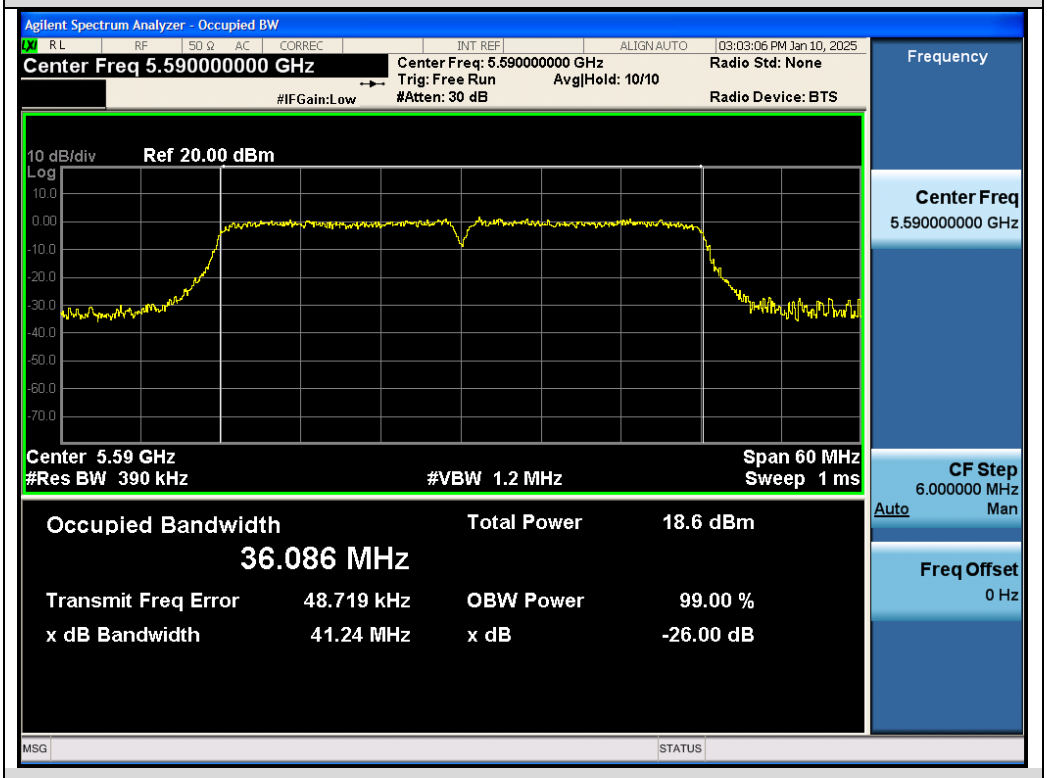


Test_Graph_802.11n40_ANT1_5510_MCS0_OBW



Test_Graph_802.11n40_ANT1_5590_MCS0_OBW

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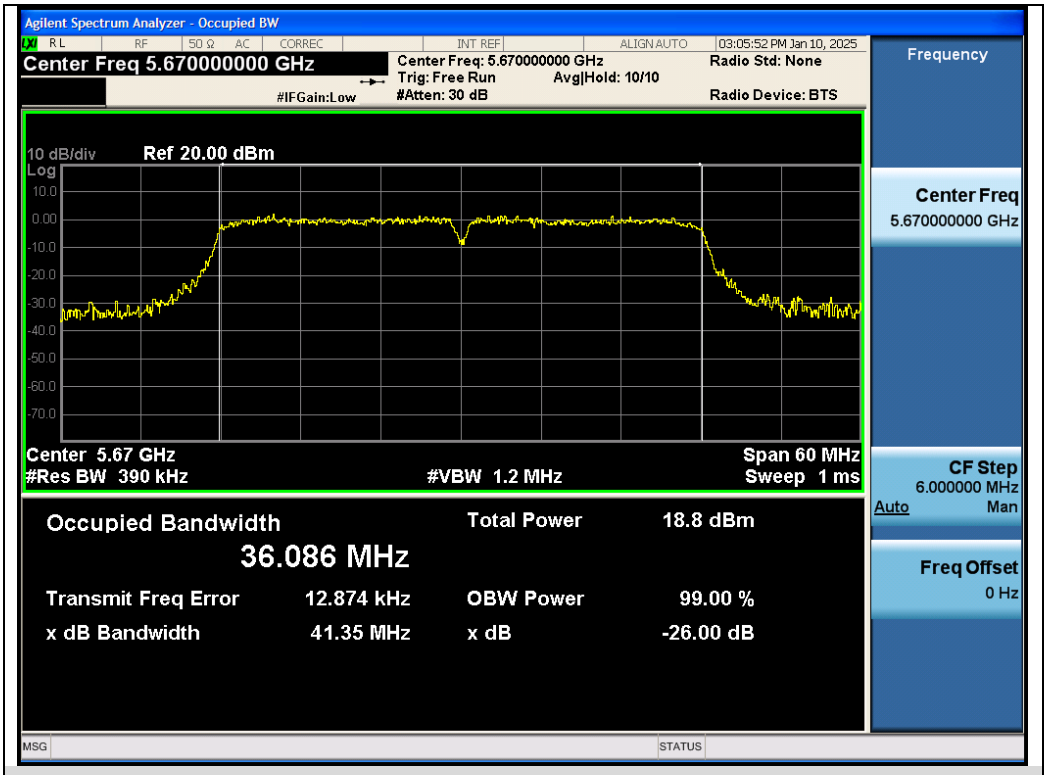

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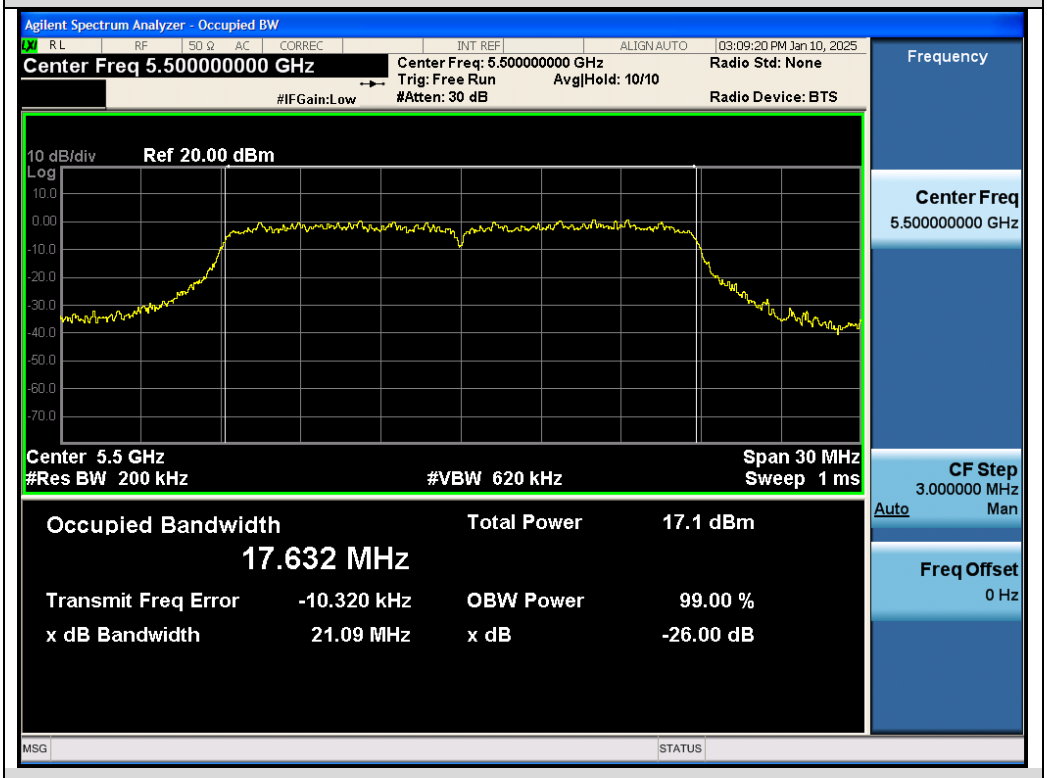

Test_Graph_802.11ac20_ANT1_5500_MCS0_OBW

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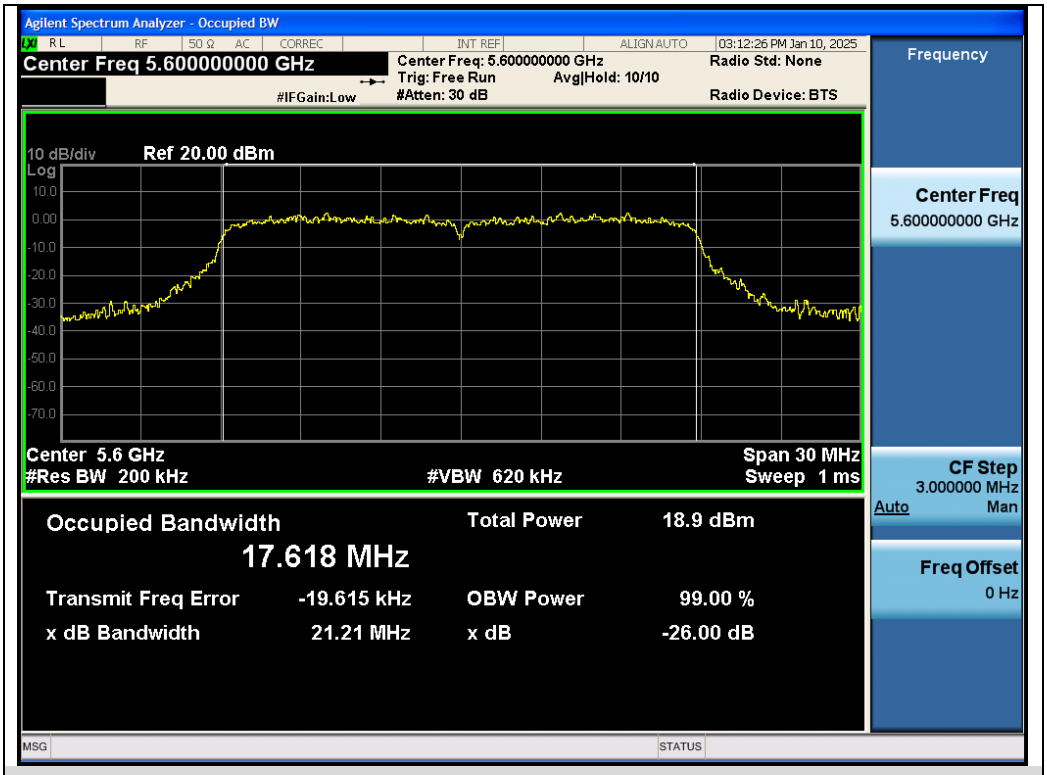

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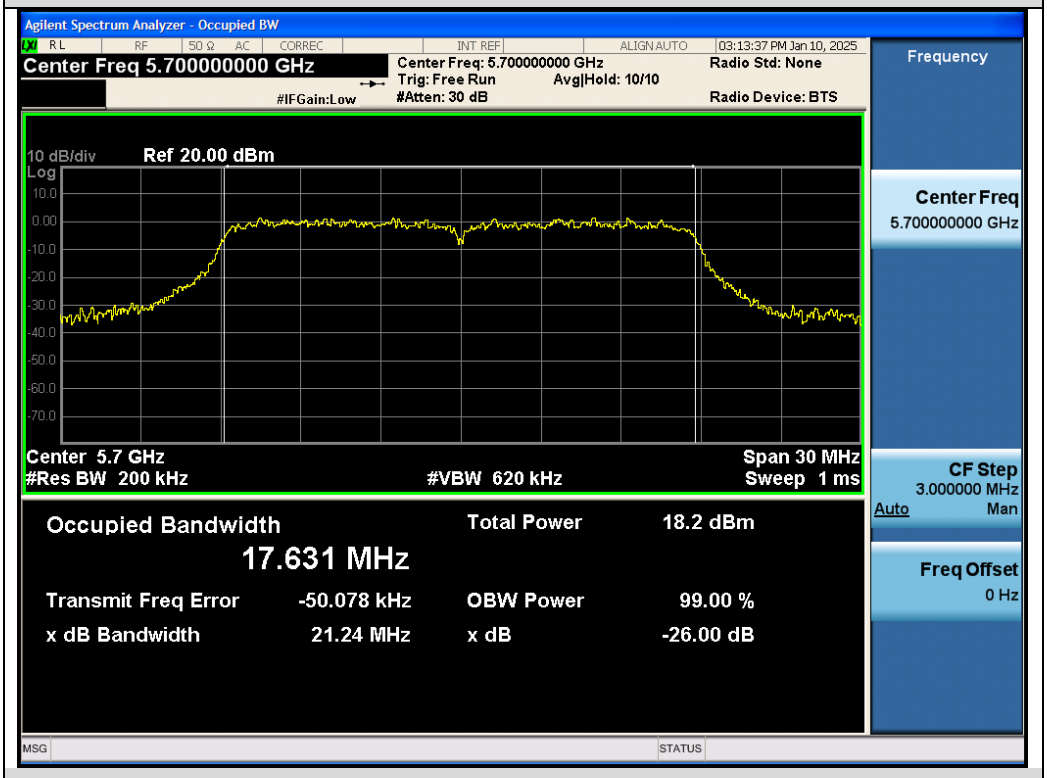

Test_Graph_802.11ac20_ANT1_5700_MCS0_OBW

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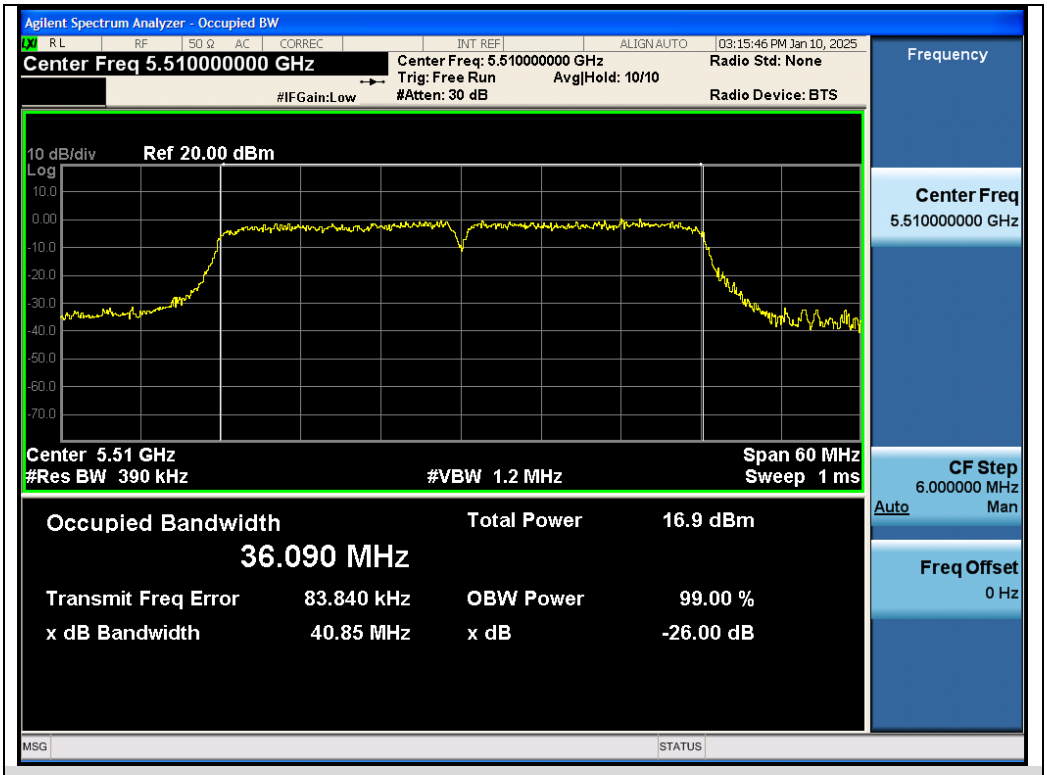

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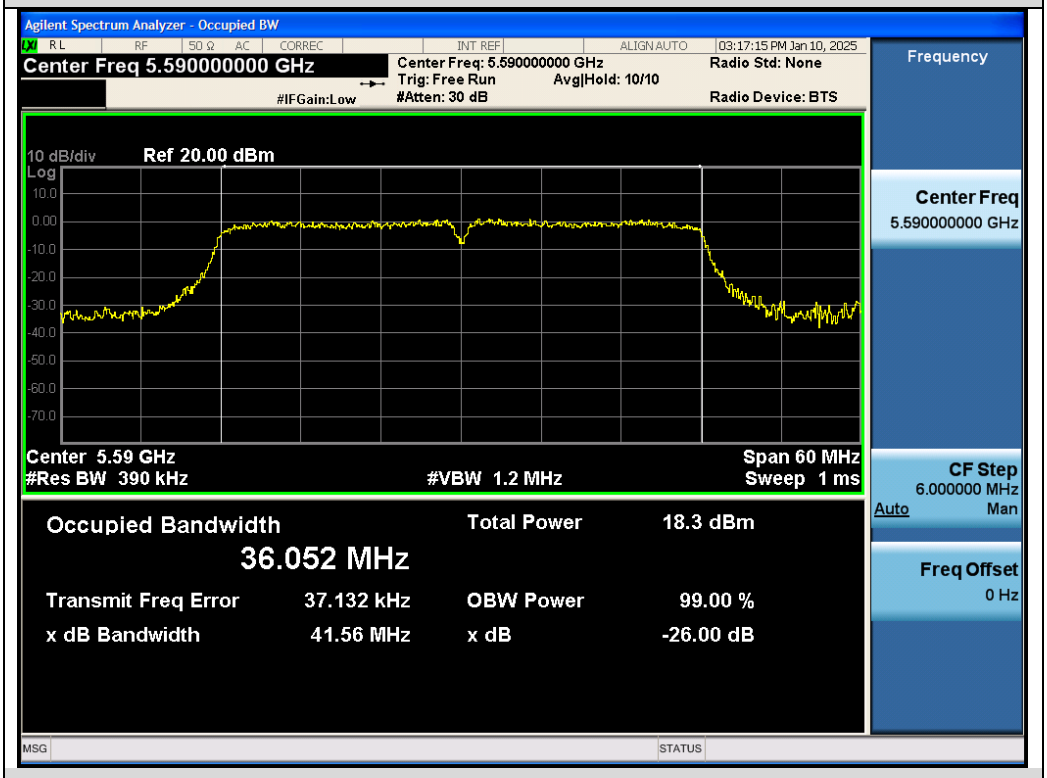

Test_Graph_802.11ac40_ANT1_5590_MCS0_OBW

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