

FCC Test Report

Report No.: AGC06662231104FR02

FCC ID : 2ANTC-C519M

APPLICATION PURPOSE : Original Equipment

PRODUCT DESIGNATION: Wireless IP Camera

BRAND NAME : N/A

MODEL NAME : C519M, C519

APPLICANT : Ansjer Electronics Co., Ltd

DATE OF ISSUE : Dec. 27, 2023

STANDARD(S) : FCC Part 15 Subpart E §15.407

REPORT VERSION: V1.0

Attestation of Global Conciliance (Shenzhen) Co., Ltd



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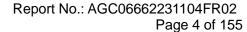
Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Dec. 27, 2023	Valid	Initial Release



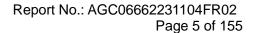
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1. General Information

Applicant	Ansjer Electronics Co., Ltd
Address	301,1st Building, No.21 Yongtian Road, Xiangzhou, Zhuhai, Guangdong, China
Manufacturer	Ansjer Electronics Co., Ltd
Address	No.5 WanLi Road, SanXiang, ZhongShan 528463, Guangdong, China
Factory	Ansjer Electronics Co., Ltd
Address	No.5 WanLi Road, SanXiang, ZhongShan 528463, Guangdong, China
Product Designation	Wireless IP Camera
Brand Name	N/A
Test Model	C519M
Series Model(s)	C519
Difference Description	All the same except the model name
Date of receipt of test item	Nov. 27, 2023
Date of Test	Nov. 27, 2023~Dec. 27, 2023
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	Thea Huang	
	Thea Huang (Project Engineer)	Dec. 27, 2023
Reviewed By	Calin Lin	
	Calvin Liu (Reviewer)	Dec. 27, 2023
Approved By	Max Zhang	
	Max Zhang Authorized Officer	Dec. 27, 2023



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2. Product Information

2.1 Product Technical Description

Equipment Type	☐ Outdoor access points☐ Fixed P2P access points☐ Client devices		
Operation Frequency	 U-NII 1:5150MHz~5250MHz U-NII 2A: 5250MHz~5350MHz U-NII 3: 5725MHz~5850MHz 		
DFS Design Type	☐ Master ☐ Slave with radar detection ☐ Slave without radar detection		
TPC Function	☐ Yes ☐ No		
Hardware Version	IY823-G42-519M2		
Software Version	V1.0		
Test Frequency Range	For 802.11a/n-HT20-VHT20: 5180~5240MHz, 5260~5320MHz, 5500~5720MHz, 5745~5825MHz For 802.11n-HT40-VHT40: 5190~5230MHz, 5270~5310MHz, 5510~5710MHz, 5755~5795MHz		
RF Output Power	IEEE 802.11a(HT20): 11.73dBm; IEEE 802.11n(HT20): 11.47dBm; IEEE802.11n(HT40): 11.13dBm;		
Modulation	802.11a/n:(64-QAM, 16-QAM, QPSK, BPSK) OFDM		
Data Rate	802.11a:6/9/12/18/24/36/48/54Mbps; 802.11n:up to 300Mbps;		
Number of channels	6 channels of U-NII-1 Band 6 channels of U-NII-2A Band 16 channels of U-NII-2C Band 7 channels of U-NII 3 Band		
Antenna Designation	Bipolar antenna		
Antenna Gain	1.98dBi		
Power Supply	DC 5V by adapter		



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2.2 Table of Carrier Frequency

For 5180~5240MHz:

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

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

2 channels are provided for 802.11n (HT40):

Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz

For 5260~5320MHz:

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

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

2 channels are provided for 802.11n (HT40):

Channel	Frequency	Channel	Frequency
54	5270 MHz	62	5310 MHz



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For 5500~5720MHz:

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

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):

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

For 5745~5825MHz:

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

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):

Channel	Frequency	Channel	Frequency	
151	5755 MHz	159	5795 MHz	



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2.3 IEEE 802.11n Modulation Scheme

MCS Index	Nss	Modulation	R	N _{BPSC}	N _C	N _{CBPS}		BPS	Data (Mb 800i	ps)
					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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2.5 Related Submittal(S) / Grant (S)

This submittal(s) (test report) is intended for **FCC ID: 2ANTC-C519M** filing to comply with the FCC Part 15 requirements.

2.6 Test Methodology

No.	Identity	Document Title
1	FCC 47 CFR Part 2	Frequency allocations and radio treaty matters; general rules and regulations
2	FCC 47 CFR Part 15	Radio Frequency Devices
3	ANSI C63.10-2013	American National Standard for Testing Unlicensed Wireless Devices
4	KDB 662911	662911 D01 Multiple Transmitter Output v02r01
5	KDB 789033	789033 D02 General U-NII Test Procedures New Rules v02r01

2.7 Special Accessories

Refer to section 4.4.

2.8 Equipment Modifications

Not available for this EUT intended for grant.

2.9 Antenna Requirement

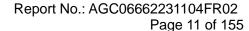
Standard Requirement

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 1.98dBi



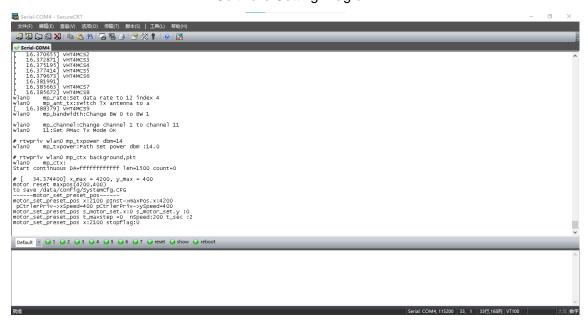


2.11 Description of Test Software

For IEEE 802.11 mode:

The test utility software used during testing was "SecureCRT".

Software Setting Diagram



Test Mode	Channel	Power Index
Test Mode	Charmer	
802.11a	L/M/H	16
802.11n(HT20)	L/M/H	16
802.11n(HT40)	L/M/H	14



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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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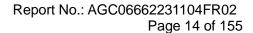
3.3 Environmental Conditions

	Normal Conditions
Temperature range (°C)	15 - 35
Relative humidity range	20% - 75%
Pressure range (kPa)	86 - 106
Power supply	DC 5V

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%.

Measurement Uncertainty
$U_c = \pm 2.9 \text{ dB}$
$U_c = \pm 3.9 \text{ dB}$
$U_c = \pm 4.9 \text{ dB}$
$U_c = \pm 0.8 \text{ dB}$
$U_c = \pm 2.6 \text{ dB}$
U _c = ±2 %
$U_c = \pm 2.7 \%$



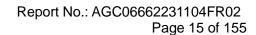


3.5 List of Equipment Used

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
\boxtimes	AGC-ER-E062	Power Sensor	Agilent	U2021XA	MY54110007	2023-03-03	2024-03-02
\boxtimes	AGC-ER-E063	Power Sensor	Agilent	U2021XA	MY54110009	2023-03-03	2024-03-02
\boxtimes	AGC-EM-A152	6dB Attenuator	Eeatsheep	LM-XX-6-5W	N/A	2023-06-09	2024-06-08
\boxtimes	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
\boxtimes	N/A	RF Connection Cable	N/A	2#	N/A	Each time	N/A

• F	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-E116	EMI Test Receiver	R&S	ESCI	100034	2023-06-03	2024-06-02
\boxtimes	AGC-EM-E061	Spectrum Analyzer	Agilent	N9010A	MY53470504	2023-06-01	2024-05-31
\boxtimes	AGC-EM-E086	Loop Antenna	ZHINAN	ZN30900C	18051	2022-03-12	2024-03-11
\boxtimes	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
\boxtimes	AGC-EM-E082	Horn Antenna	SCHWARZBECK	BBHA 9170	#768	2023-09-24	2025-09-23
\boxtimes	AGC-EM-E146	Pre-amplifier	ETS	3117-PA	00246148	2022-08-04	2024-08-03
\boxtimes	AGC-EM-A119	2.4G Filter	SongYi	N/A	N/A	2023-06-01	2024-05-31
\boxtimes	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

A	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)	
\boxtimes	AGC-EM-E045	EMI Test Receiver	R&S	ESPI	101206	2023-06-03	2024-06-02	
\boxtimes	AGC-EM-E023	AMN	R&S	100086	ESH2-Z5	2023-06-03	2024-06-02	
\boxtimes	AGC-EM-A130	6dB Attenuator	Eeatsheep	LM-XX-6-5W	DC-6GZ	2023-06-09	2024-06-08	





• Tes	st Software				
Used	Equipment No.	Test Equipment	Manufacturer	Model No.	Version Information
\boxtimes	AGC-EM-S001	CE Test System	R&S	ES-K1	V1.71
\boxtimes	AGC-EM-S003	RE Test System	FARA	EZ-EMC	VRA-03A
\boxtimes	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

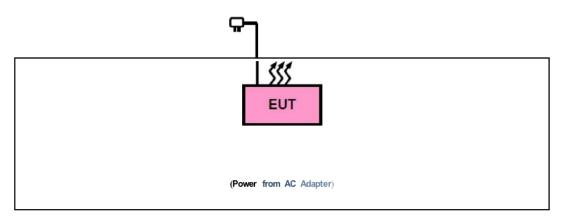
4.1 EUT Configuration

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

No.	Equipment	Model No.	Manufacturer	Specification Information	Cable
1	Xiaomi Phone	MI 10	Xiaomi	N/A	N/A
2	TF Card	N/A	N/A	N/A	N/A

☐ Test Accessories Come From The Manufacturer

No	. Equipment	Model No.	Manufacturer	Specification Information	Cable
1	Adapter	SA0101-0501500UA	Shenzhen ShiAn Power Technology Co.,Ltd	Input: AC 100-240V 50/60Hz,0.35A Output: DC 5V 1.5A	1.2m unshielde d



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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	RF Output Power	Pass
3	§15.407	6 dB Bandwidth	Pass
4	§2.1049	99% Occupied Bandwidth	Pass
5	§15.407	Power Spectral Density	Pass
6	§15.407	Conducted Band Edge and Out-of-Band Emissions	Pass
7	§15.209	Radiated Spurious Emission	Pass
8	§15.207	AC Power Line Conducted Emission	Pass



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5. Description of Test Modes

EUT Configure Mode		Applic	able To	Description	
201 Comigare Mode	RE > 1G	RE < 1G	PLC	APCM	
А	\boxtimes	\boxtimes	\boxtimes		Powered by Adapter with WIFI(5G) Link
В				\boxtimes	Powered by Battery with WIFI(5G) Link
С					Powered by USB with WIFI(5G) Link

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

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.

NOTE 3: The radiation part tests the dual-antenna MIMO as the worst combination.

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)
Α	802.11n (20MHz)	5180-5240	36 to 48	36, 40, 48	OFDM	6.5
Α	802.11n (20MHz)	5260-5320	52 to 64	52, 60, 64	OFDM	6.5
Α	802.11n (20MHz)	5500-5700	100 to 140	100, 116, 140	OFDM	6.5
Α	802.11n (20MHz)	5745-5825	149 to 165	149, 157, 165	OFDM	6.5



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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)
Α	802.11n(20MHz)	5180-5240	36 to 48	36	OFDM	6.5

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)
Α	802.11n(20MHz)	5180-5240	36 to 48	36	OFDM	6.5

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)
Α	802.11n (20MHz)	5180-5240	36	36	OFDM	6.5
Α	802.11n (40MHz)	3180-3240	38	38	OFDM	13.5
Α	802.11n (20MHz)	5260-5320	52	52	OFDM	6.5
Α	802.11n (40MHz)	3200-3320	54	54	OFDM	13.5
A	802.11n (20MHz)	5500-5700	100	100	OFDM	6.5
A	802.11n (40MHz)	5500-5700	102	102	OFDM	13.5



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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).

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)
В	802.11a		36 to 48	36, 40, 48	OFDM	6.0
В	802.11n (20MHz)	5180-5240	36 to 48	36, 40, 48	OFDM	6.5
В	802.11n (40MHz)		38 to 46	38, 46	OFDM	13.5
В	802.11a		52 to 64	52, 60, 64	OFDM	6.0
В	802.11n (20MHz)	5260-5320	52 to 64	52, 60, 64	OFDM	6.5
В	802.11n (40MHz)		54 to 62	54, 62	OFDM	13.5
В	802.11a		100 to 140	100, 116, 140	OFDM	6.0
В	802.11n (20MHz)	5500-5700	100 to 140	100, 116, 140	OFDM	6.5
В	802.11n (40MHz)		102 to 134	102, 110, 134	OFDM	13.5
В	802.11a		149 to 165	149, 157, 165	OFDM	6.0
В	802.11n (20MHz)	5745-5825	149 to 165	149, 157, 165	OFDM	6.5
В	802.11n (40MHz)		151 to 159	151, 159	OFDM	13.5



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6. Duty Cycle Measurement

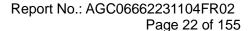
5GHz WLAN (NII) operation is possible in 20MHz and 40MHz channel bandwidths. The maximum achievable duty cycles for all modes were determined based on measurements performed on a spectrum analyzer in zero-span mode with RBW = 8MHz, VBW = 50MHz, and detector = Peak. The RBW and VBW were both greater than 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	80	0.97	0.49	-1.94	
802.11n_HT20	MCS0	79	1.02	0.53	-2.05	
802.11n_HT40	MCS0	65	1.87	1.08	-3.74	
	Ва	nd U-NII 2A:5250	MHz-5350MHz			
802.11a	6	87	0.60	0.49	-1.21	
802.11n_HT20	MCS0	79	1.02	0.53	-2.05	
802.11n_HT40	MCS0	65	1.87	1.08	-3.74	

Operating mode	Data rates (Mbps)	Duty Cycle (%)	Duty Cycle Factor (dB)	1/ T Minimum VBW (kHz)	Average Factor (dB)
	Ва	nd U-NII 2C:5500	MHz-5700MHz		
802.11a	6	80	0.97	0.49	-1.94
802.11n_HT20	MCS0	79	1.02	0.53	-2.05
802.11n_HT40	MCS0	65	1.87	1.08	-3.74
	Ва	and U-NII 3:5745N	MHz-5825MHz		
802.11a	6	80	0.97	0.49	-1.94
802.11n_HT20	MCS0	79	1.02	0.53	-2.05
802.11n_HT40	MCS0	65	1.87	1.08	-3.74

Remark:

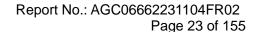
- 1. Duty Cycle factor = 10 * log (1/ Duty cycle), Average factor = 20 log10 Duty Cycle
- 2. The duty cycle of each frequency band mode reflects the determination requirements of the low channel measurement value.
- 3. Involving the test items of duty cycle compensation coefficient, the final results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



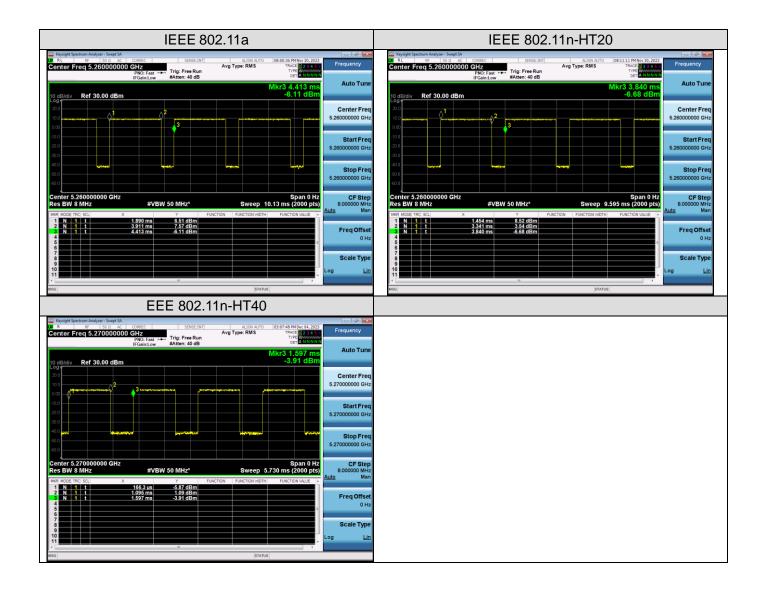


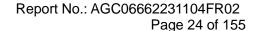
The test plots as follows:





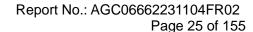


















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7. RF Output Power Measurement

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)
0		Fixed point-to-point Access Point	1 Watt (30 dBm)
		Indoor Access Point	1 Watt (30 dBm)
		Client devices	250mW (23.98 dBm)
U-NII-2A		/	250mW (23.98 dBm) or 11 dBm+10 log B*
U-NII-2C	/		250mW (23.98 dBm) or 11 dBm+10 log B*
U-NII-3		/	1 Watt (30 dBm)

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

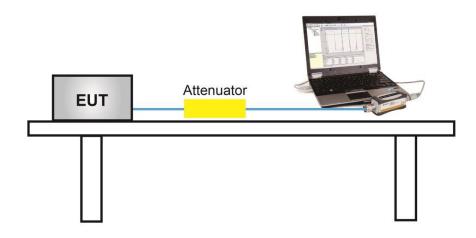
7.2 Measurement Procedure

Method PM is Measurement using an RF average power meter. The procedure for this method is as follows:

- 1. The testing follows the ANSI C63.10 Section 12.3.3.1
- 2. Measurements may be performed using a wideband RF power meter with a thermocouple detector or equivalent if all of the following conditions are satisfied:
- 3. The EUT is configured to transmit continuously, or to transmit with a constant duty cycle.
- 4. At all times when the EUT is transmitting, it shall be transmitting at its maximum power control level.
- 5. The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five.
- 6. Determine according to the duty cycle of the equipment: when it is less than 98%, follow the steps below.
- 7. Measure the average power of the transmitter. This measurement is an average over both the ON and OFF periods of the transmitter.
- 8. Adjust the measurement in dBm by adding [10 log (1 / D)], where D is the duty cycle {e.g., [10 log (1 / 0.25)], if the duty cycle is 25%}.
- 9. Record the test results in the report.



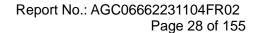
7.3 Measurement Setup (Block Diagram of Configuration)



7.4 Measurement Result

Test Data of Conducted Output Power for band 5.15-5.25 GHz					
Test Mode	Test Channel (MHz)	3 - 3 - 1		Pass or Fail	
	5180	11.37	23.98	Pass	
802.11a	5200	11.41	23.98	Pass	
	5240	11.63	23.98	Pass	
	5180	11.22	23.98	Pass	
802.11n20	5200	11.16	23.98	Pass	
	5240	11.47	23.98	Pass	
802.11n40	5190	10.72	23.98	Pass	
	5230	10.83	23.98	Pass	

Test Data of Conducted Output Power for band 5.25-5.35 GHz					
Test Mode	Test Channel (MHz)	Average Power (dBm)		Pass or Fail	
	5260	11.73	23.98	Pass	
802.11a	5300	11.32	23.98	Pass	
	5320	11.17	23.98	Pass	
	5260	11.52	23.98	Pass	
802.11n20	5300	11.04	23.98	Pass	
	5320	11.11	23.98	Pass	
802.11n40	5270	11.13	23.98	Pass	
	5310	10.62	23.98	Pass	





Test Data of Conducted Output Power for band 5.470-5.725 GHz					
Test Mode	Test Channel (MHz)	nel Average Power Limits (dBm) (dBm)		Pass or Fail	
	5500	10.10	23.98	Pass	
802.11a	5580	10.55	23.98	Pass	
	5700	11.44	23.98	Pass	
	5500	10.09	23.98	Pass	
802.11n20	5580	10.27	23.98	Pass	
	5700	11.23	23.98	Pass	
	5510	9.13	23.98	Pass	
802.11n40	5590	8.85	23.98	Pass	
	5670	9.26	23.98	Pass	

Test Data of Conducted Output Power for band 5.725-5.850 GHz					
Test Mode	Test Channel (MHz)	I Average Power Limits (dBm) (dBm)		Pass or Fail	
	5745	10.52	30	Pass	
802.11a	5785	10.35	30	Pass	
	5825	10.71	30	Pass	
	5745	10.26	30	Pass	
802.11n20	5785	10.05	30	Pass	
	5825	10.50	30	Pass	
802.11n40	5755	8.50	30	Pass	
	5795	8.11	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 $\geq 3*RBW$. 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:

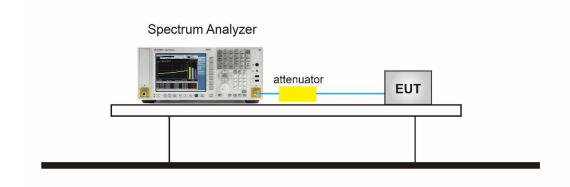
- 1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 2. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
- 3. Set Span = approximately 1.5 to 5 times the OBW, centered on a nominal channel
 The nominal IF filter bandwidth (3 dB RBW)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



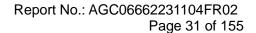


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8.4 Measurement Results

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
	5180	16.223	18.819	N/A	Pass
802.11a	5200	16.214	19.057	N/A	Pass
	5240	16.197	18.644	N/A	Pass
	5180	17.361	19.888	N/A	Pass
802.11n20	5200	17.319	19.790	N/A	Pass
	5240	17.322	19.787	N/A	Pass
802.11n40	5190	35.182	37.777	N/A	Pass
	5230	35.184	37.914	N/A	Pass

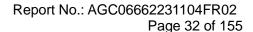
Test Data of Occupied Bandwidth and -26dB Bandwidth for band 5.25-5.35 GHz					
Test Mode	Test Channel (MHz)	99% Occupied Bandwidth (MHz)	-26dB Bandwidth (MHz)	Limits (MHz)	Pass or Fail
	5260	16.195	19.032	N/A	Pass
802.11a	5300	16.210	19.153	N/A	Pass
	5320	16.207	18.822	N/A	Pass
	5260	17.307	19.686	N/A	Pass
802.11n20	5300	17.324	19.775	N/A	Pass
	5320	17.327	19.696	N/A	Pass
802.11n40	5270	35.182	37.753	N/A	Pass
	5310	35.210	37.716	N/A	Pass





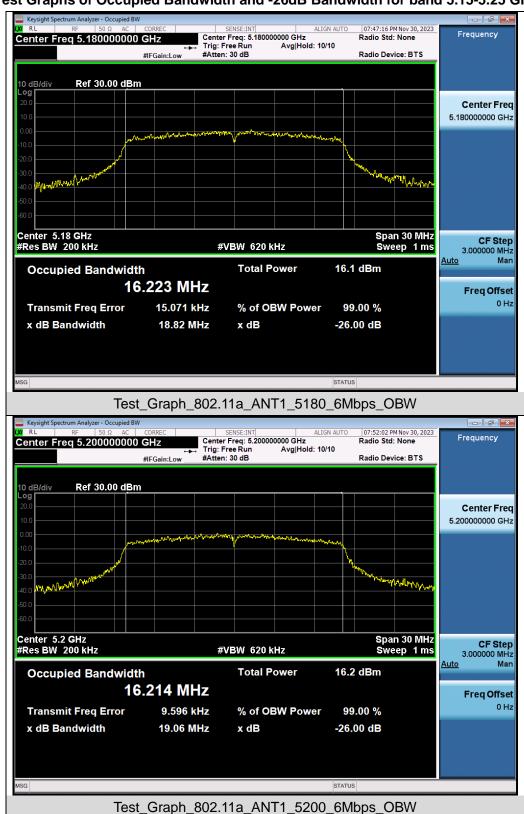
Test Data of Occupied Bandwidth and -26dB Bandwidth for band 5.47-5.725 GHz					
Test Mode	Test Channel (MHz)	99% Occupied Bandwidth (MHz)	-26dB Bandwidth (MHz)	Limits (MHz)	Pass or Fail
	5500	16.192	18.788	N/A	Pass
802.11a	5600	16.203	18.954	N/A	Pass
	5700	16.211	18.999	N/A	Pass
	5500	17.311	19.728	N/A	Pass
802.11n20	5600	17.311	19.489	N/A	Pass
	5700	17.304	19.837	N/A	Pass
802.11n40	5510	35.209	37.770	N/A	Pass
	5590	35.218	37.883	N/A	Pass
	5670	35.221	37.751	N/A	Pass

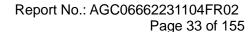
Test Data of Occupied Bandwidth and DTS Bandwidth for band 5.725-5.85 GHz						
Test Mode	Test Channel (MHz)	99% Occupied Bandwidth (MHz)	DTS Bandwidth (MHz)	Limits (MHz)	Pass or Fail	
	5745	16.219	15.080	0.5	Pass	
802.11a	5785	16.216	15.062	0.5	Pass	
	5825	16.221	12.521	0.5	Pass	
802.11n20	5745	17.300	12.928	0.5	Pass	
	5785	17.331	14.971	0.5	Pass	
	5825	17.319	15.034	0.5	Pass	
802.11n40	5755	35.196	28.823	0.5	Pass	
	5795	35.227	31.278	0.5	Pass	



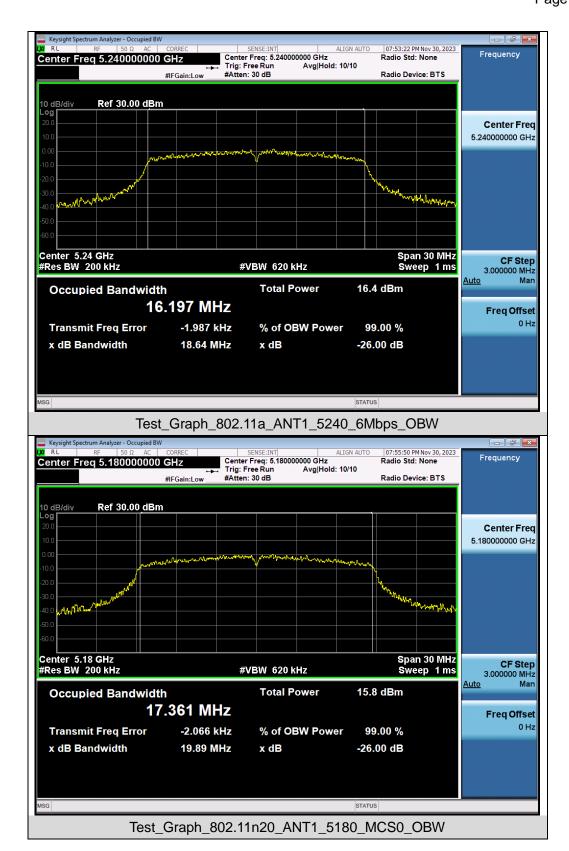


Test Graphs of Occupied Bandwidth and -26dB Bandwidth for band 5.15-5.25 GHz

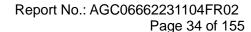




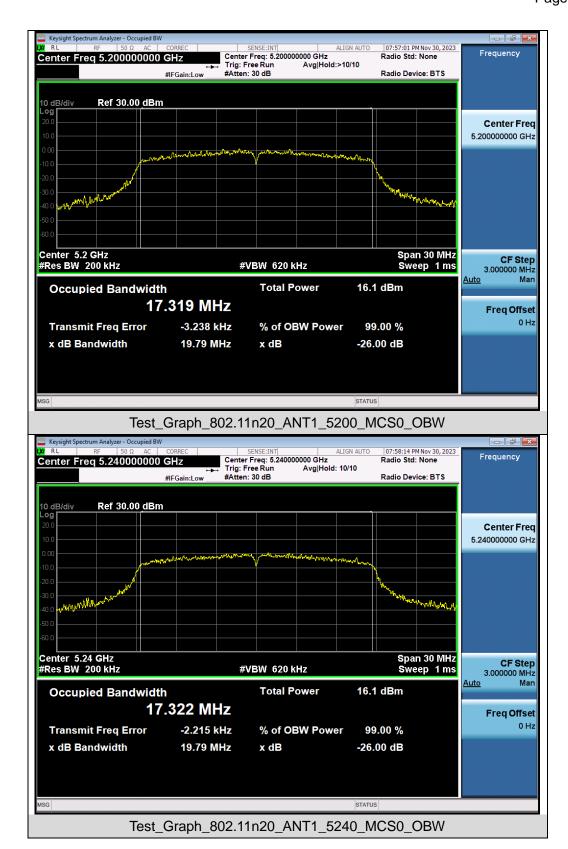




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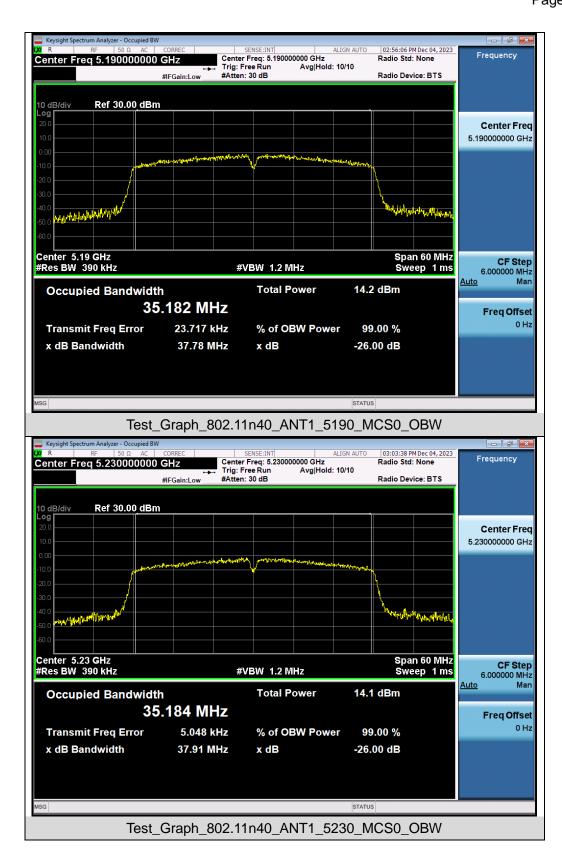


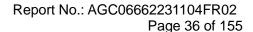




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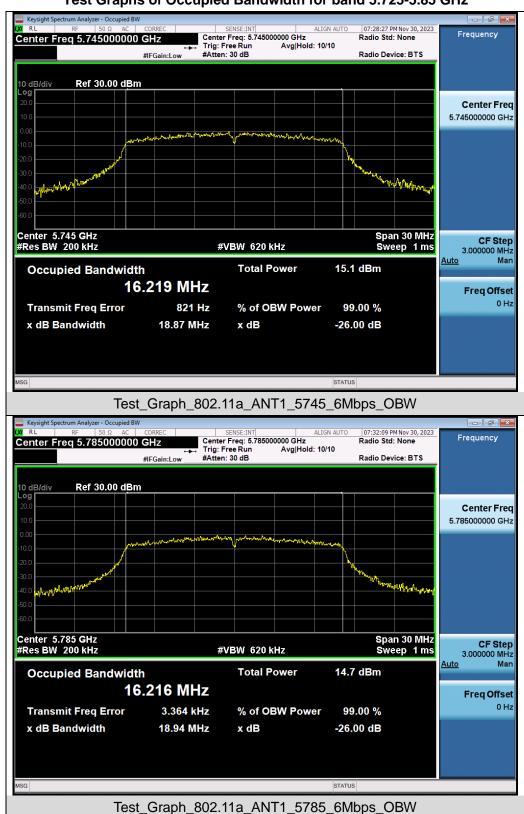




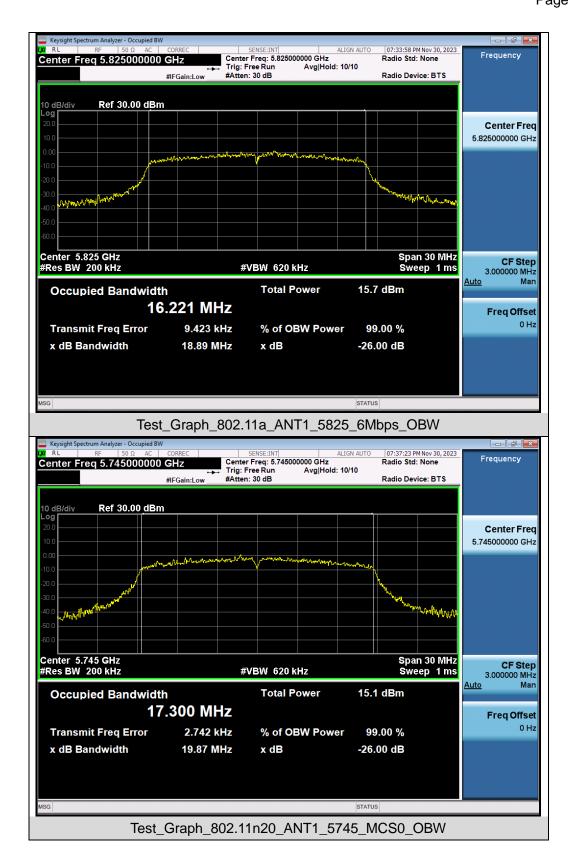


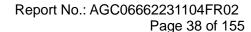


Test Graphs of Occupied Bandwidth for band 5.725-5.85 GHz

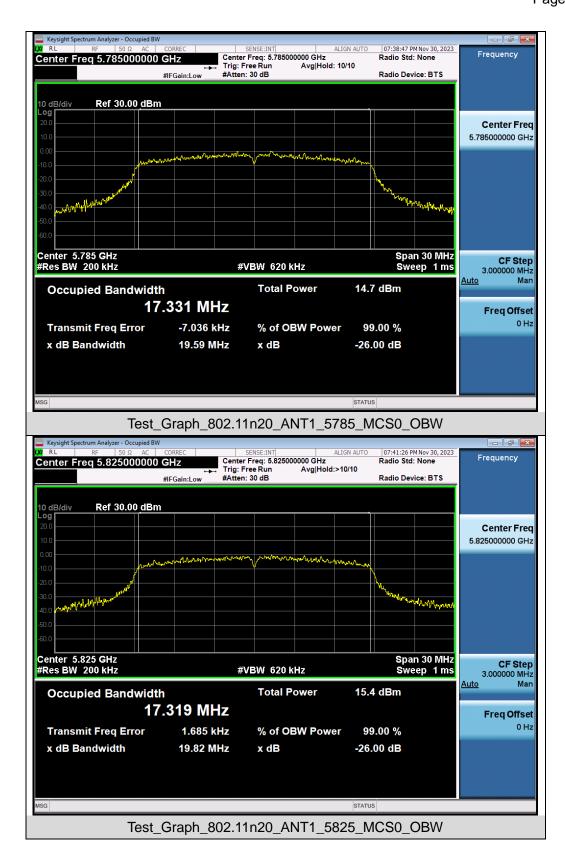




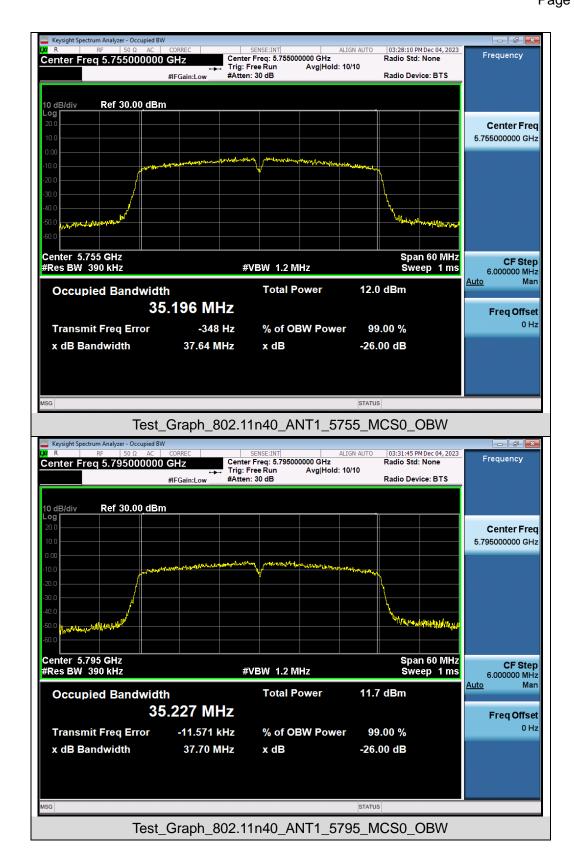


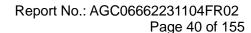






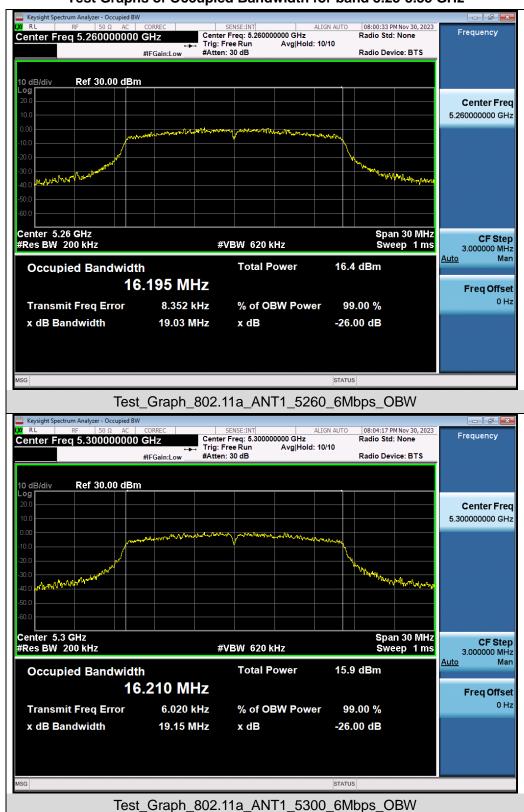




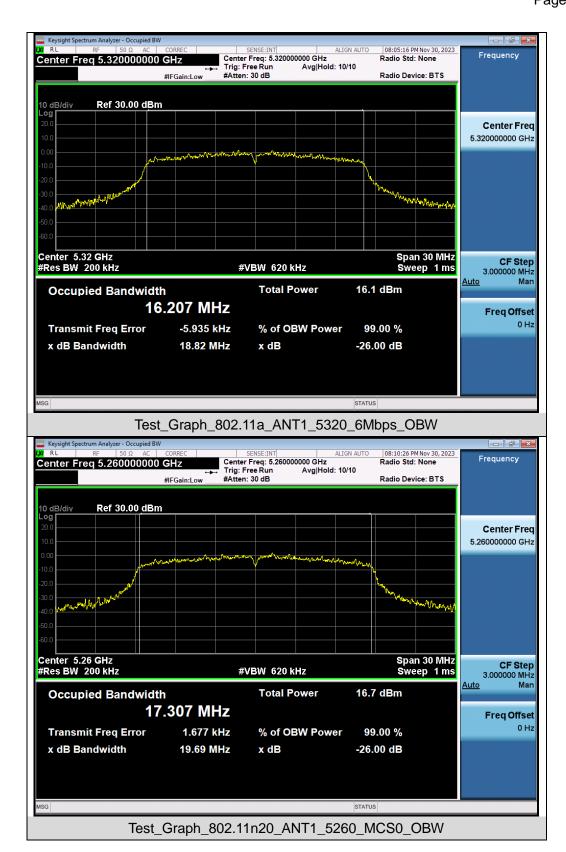


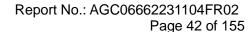


Test Graphs of Occupied Bandwidth for band 5.25-5.35 GHz

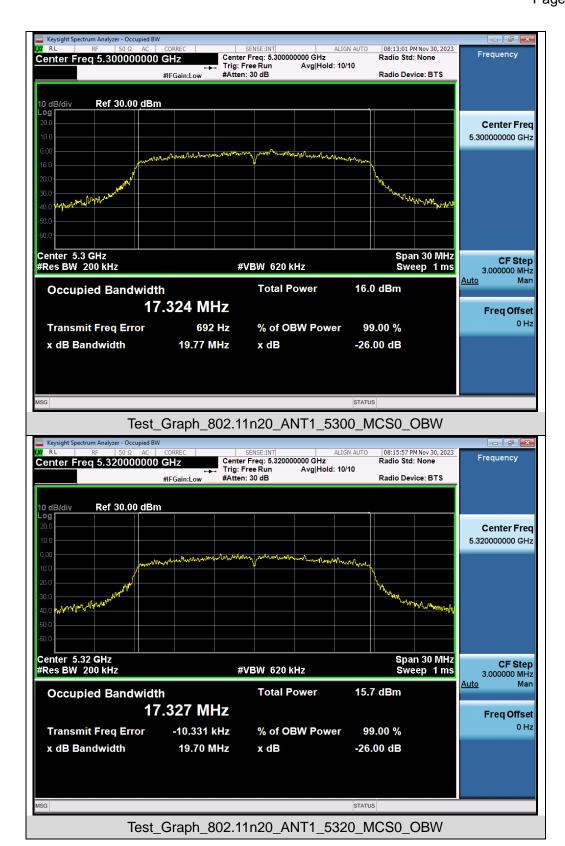


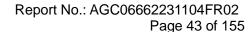




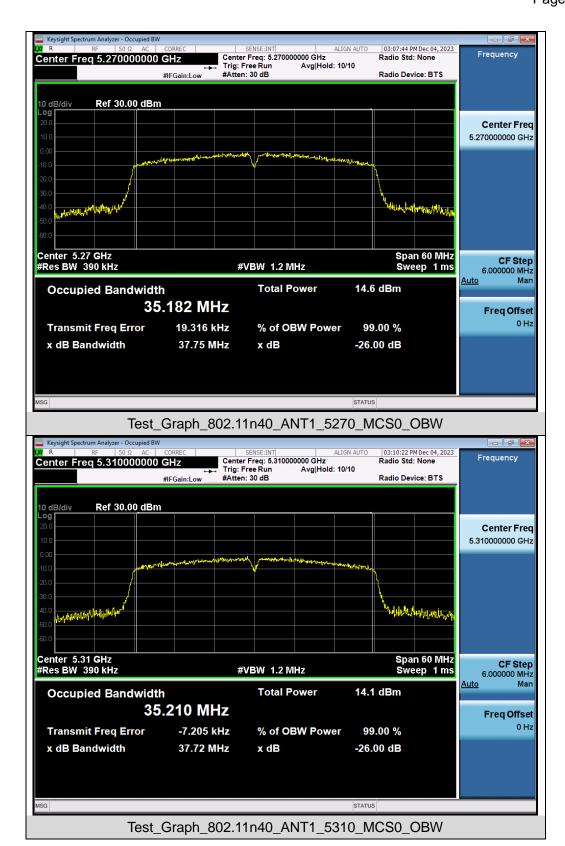




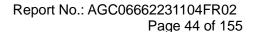






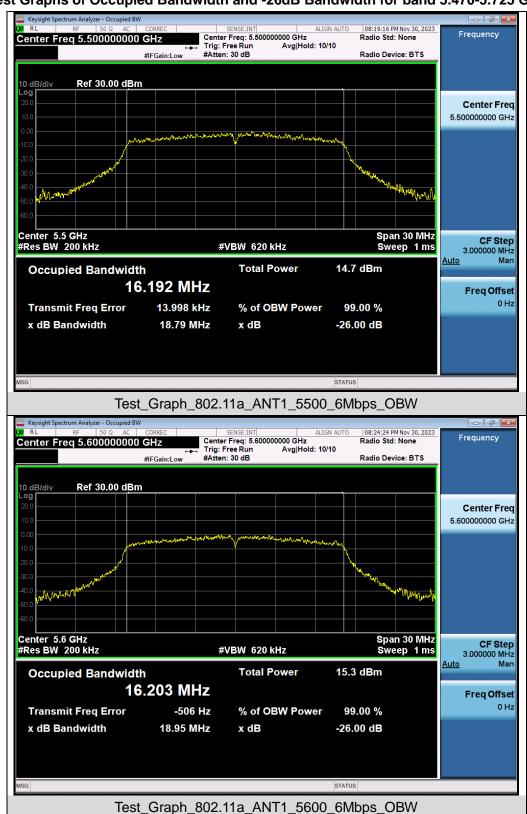


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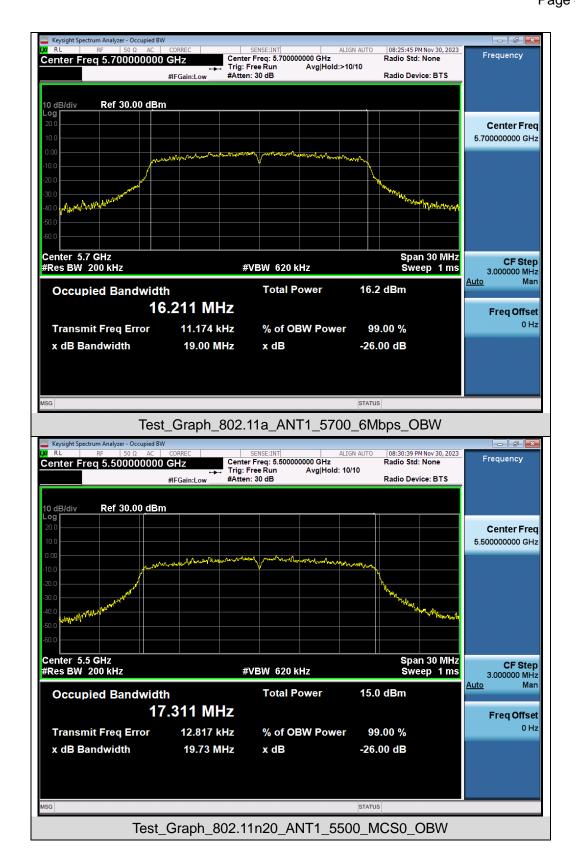




Test Graphs of Occupied Bandwidth and -26dB Bandwidth for band 5.470-5.725 GHz

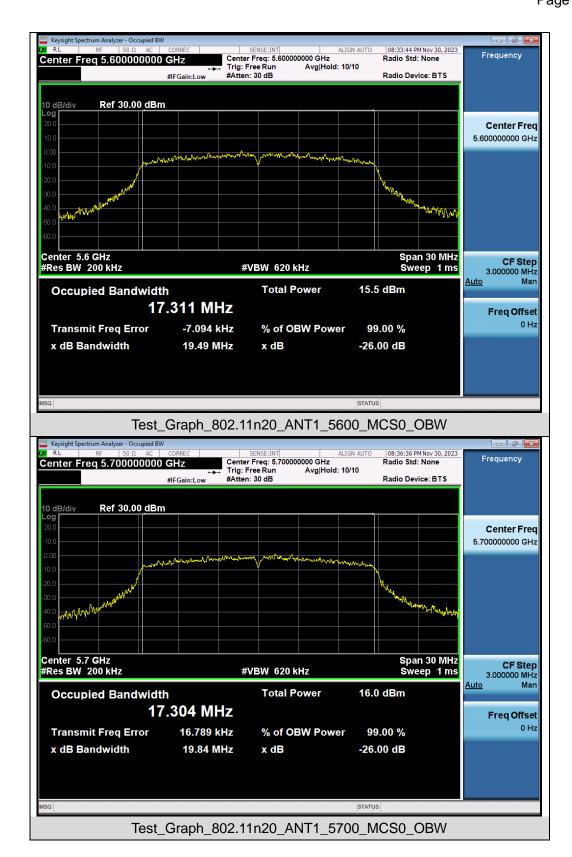




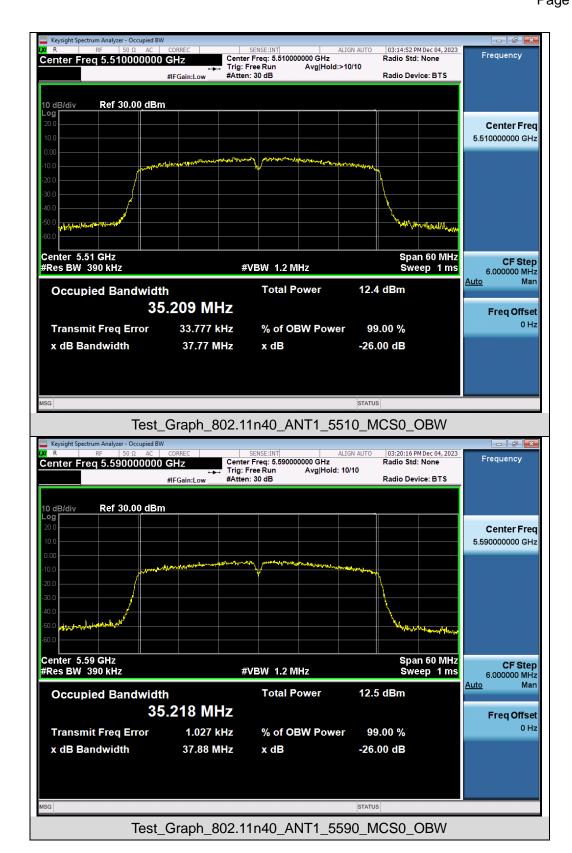


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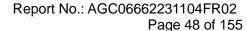




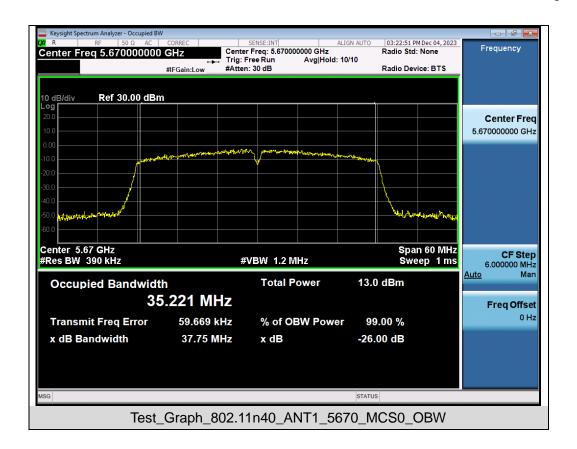


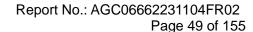


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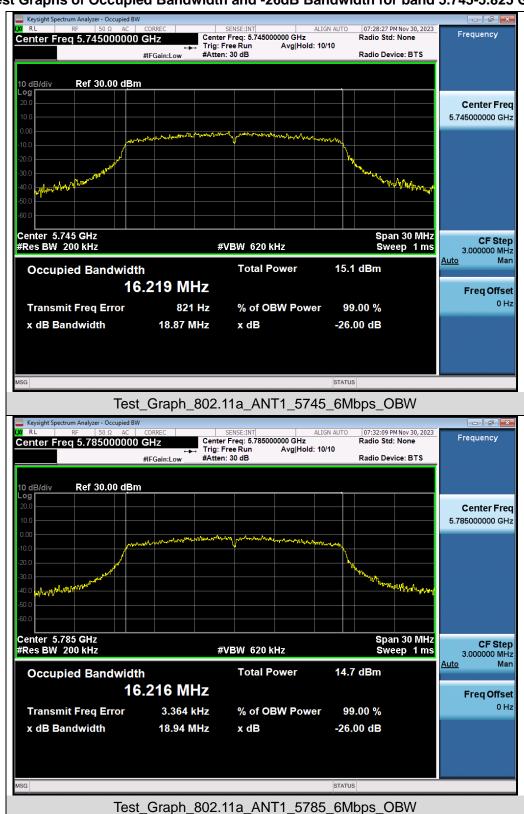




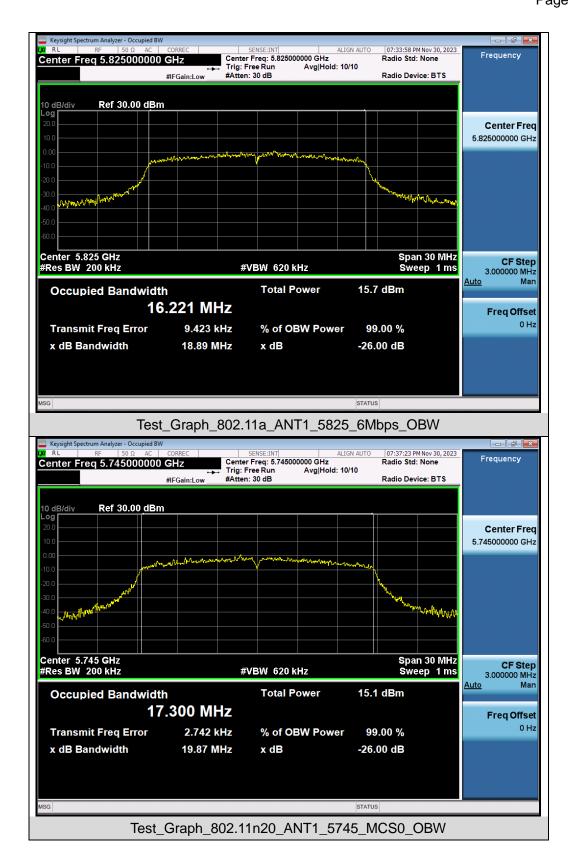




Test Graphs of Occupied Bandwidth and -26dB Bandwidth for band 5.745-5.825 GHz

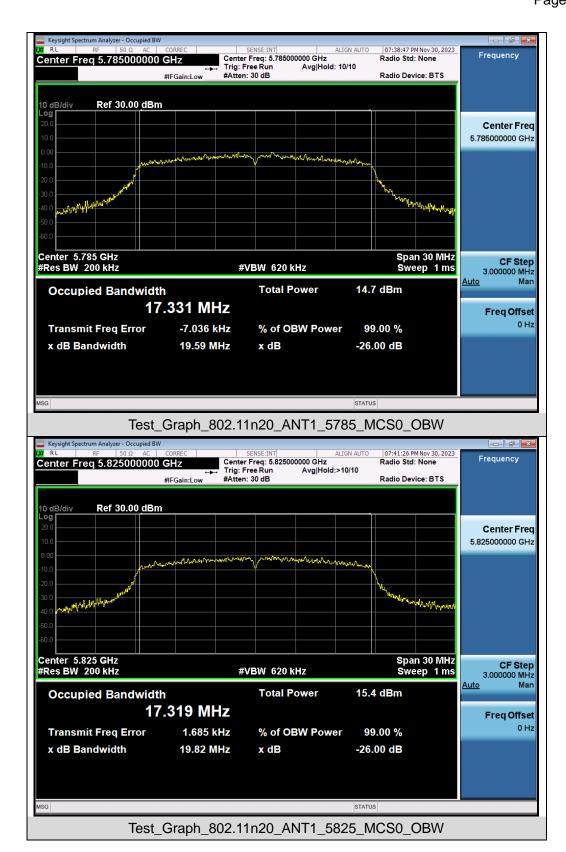


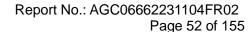




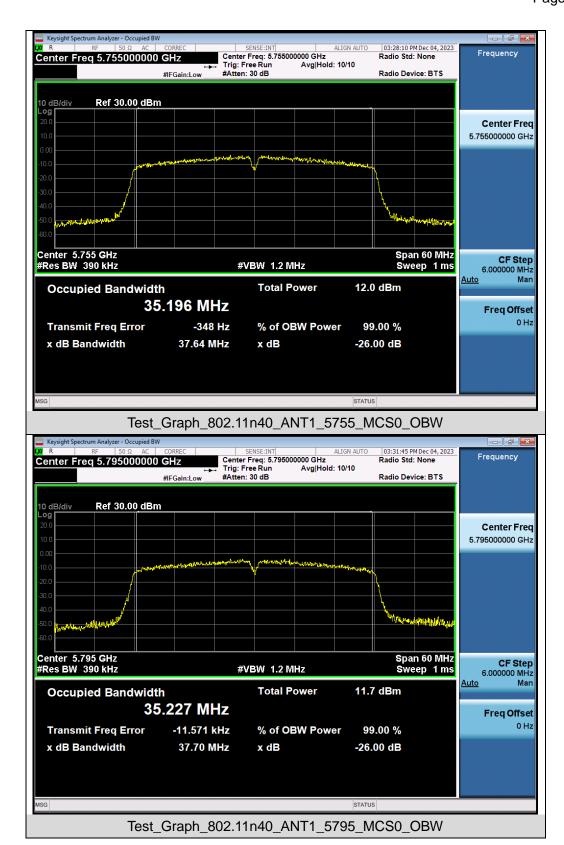
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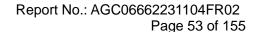






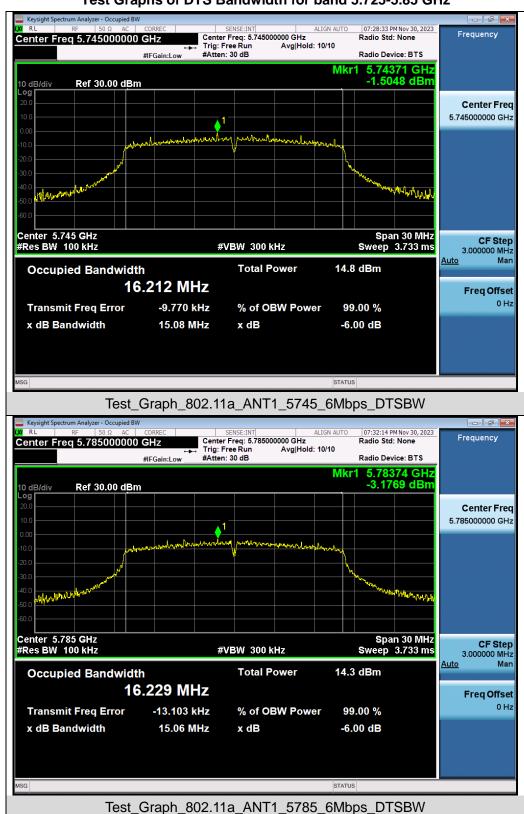




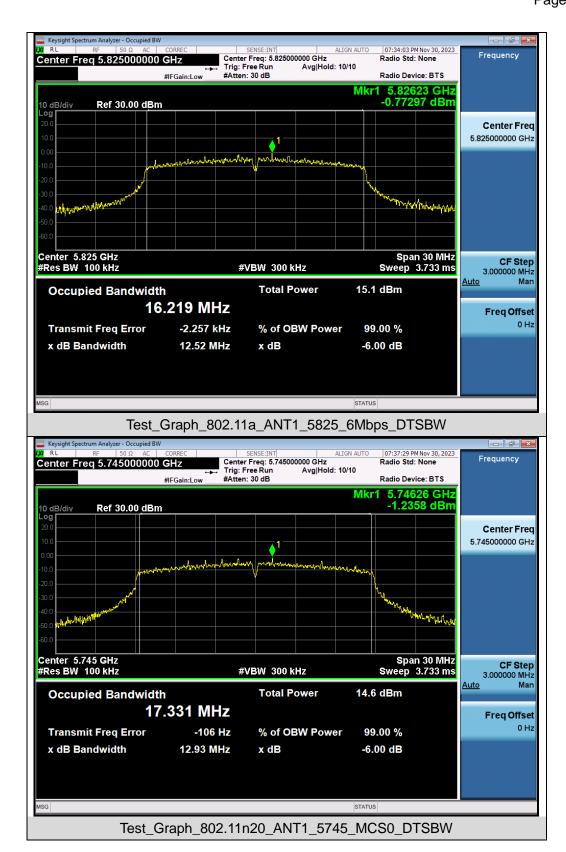




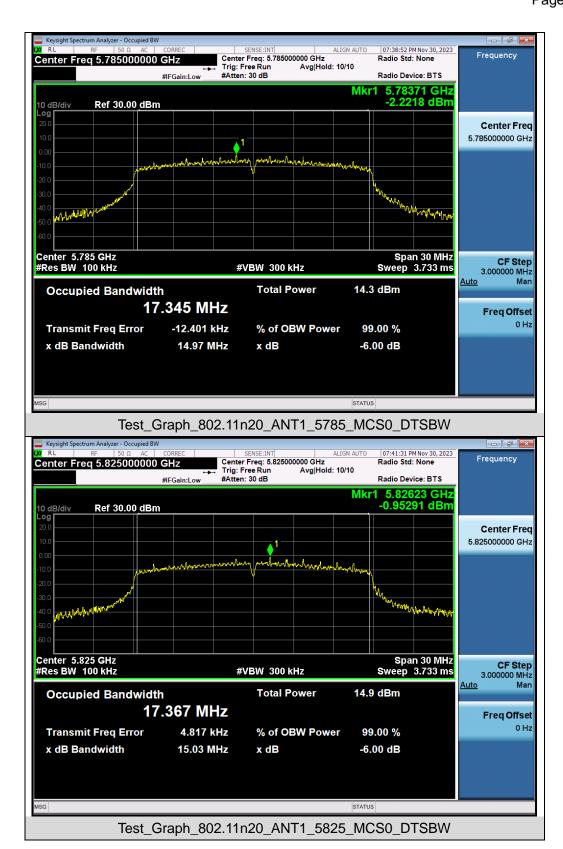
Test Graphs of DTS Bandwidth for band 5.725-5.85 GHz



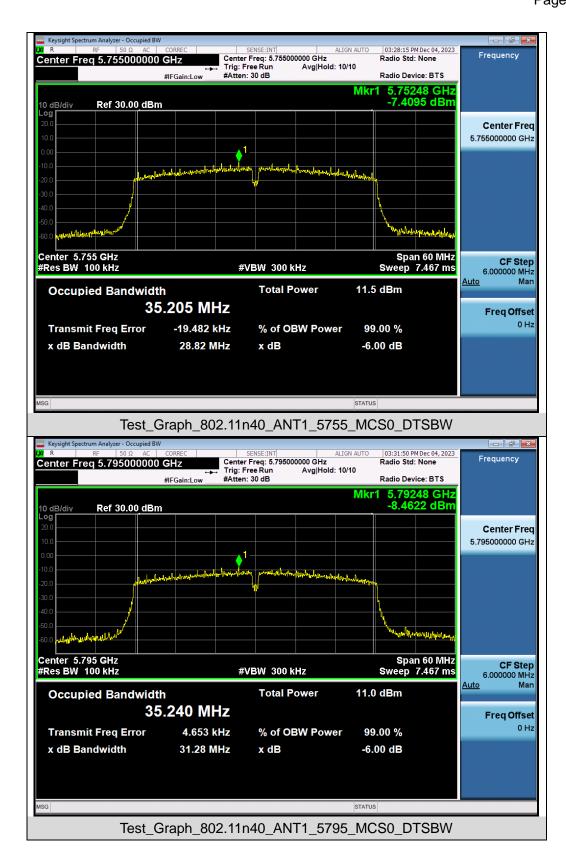














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9. Power Spectral Density Measurement

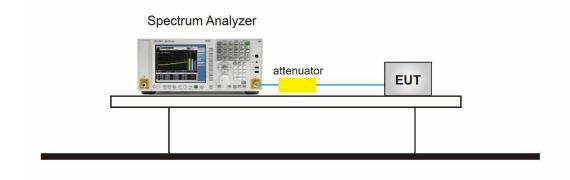
9.1 Provisions Applicable

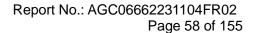
Operation Band	EUT Category		LIMIT	
U-NII-1		Outdoor Access Point	17dBm/ MHz	
		Fixed point-to-point Access Point	17dBm/ MHz	
		Indoor Access Point	17dBm/ MHz	
	\boxtimes	Client devices	11dBm/ MHz	
U-NII-2A	/		11dBm/ MHz	
U-NII-2C	/		11dBm/ MHz	
U-NII-3	/		30 dBm/500kHz	

9.2 Measurement Procedure

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

9.3 Measurement Setup (Block Diagram of Configuration)







9.4 Measurement Result

Test Data of Conducted Output Power Density for band 5.15-5.25 GHz				
Test Mode	Test Channel (MHz)	Average Power Density (dBm/MHz)	Limits (dBm/MHz)	Pass or Fail
	5180	1.535	11	Pass
802.11a	5200	1.758	11	Pass
	5240	1.871	11	Pass
802.11n20	5180	1.409	11	Pass
	5200	1.406	11	Pass
	5240	1.609	11	Pass
802.11n40	5190	-2.149	11	Pass
	5230	-2.093	11	Pass

Test Data of Conducted Output Power Density for band 5.25-5.35 GHz				
Test Mode	Test Channel (MHz)	Average Power Density (dBm/MHz)	Limits (dBm/MHz)	Pass or Fail
802.11a	5260	1.940	11	Pass
	5300	1.437	11	Pass
	5320	1.196	11	Pass
802.11n20	5260	-0.400	11	Pass
	5300	-0.694	11	Pass
	5320	1.169	11	Pass
802.11n40	5270	-1.209	11	Pass
	5310	-2.322	11	Pass

Test Data of Conducted Output Power Density for band 5.470-5.725 GHz				
Test Mode	Test Channel (MHz)	Average Power Density (dBm/MHz)	Limits (dBm/MHz)	Pass or Fail
802.11a	5500	0.286	11	Pass
	5600	1.241	11	Pass
	5700	1.675	11	Pass
802.11n20	5500	-1.950	11	Pass
	5600	-1.694	11	Pass
	5700	1.314	11	Pass
802.11n40	5510	-4.131	11	Pass
	5590	-3.639	11	Pass
	5670	-3.097	11	Pass

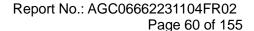


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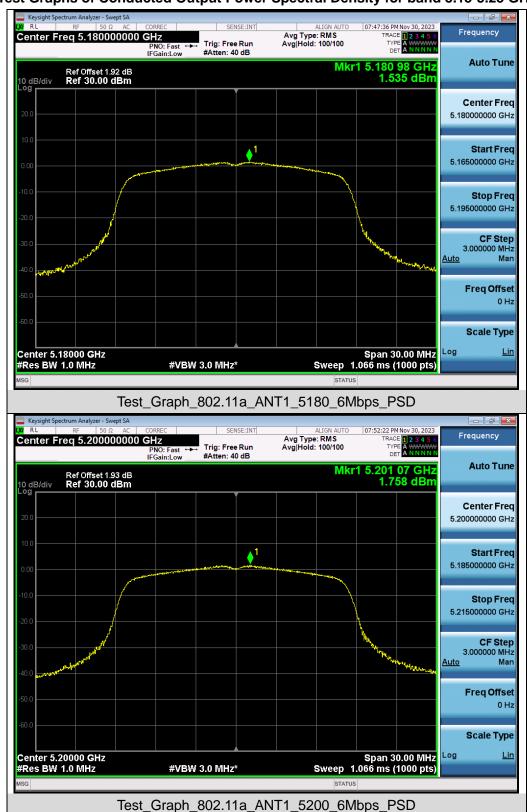
Test Data of Conducted Output Power Density for band 5.725-5.85 GHz					
Test Mode	Test Channel (MHz)	Average Power Density (dBm/100kHz)	Average Power Density (dBm/500kHz)	Limits (dBm/500kHz)	Pass or Fail
802.11a	5745	-8.137	-1.147	30	Pass
	5785	-10.28	-3.290	30	Pass
	5825	-7.868	-0.878	30	Pass
802.11n20	5745	-8.303	-1.313	30	Pass
	5785	-10.494	-3.504	30	Pass
	5825	-8.150	-1.160	30	Pass
802.11n40	5755	-12.744	-5.754	30	Pass
	5795	-13.539	-6.549	30	Pass

Note:1.Power density(dBm/500kHz) = Power density(dBm/100kHz)+10*log(500/100).

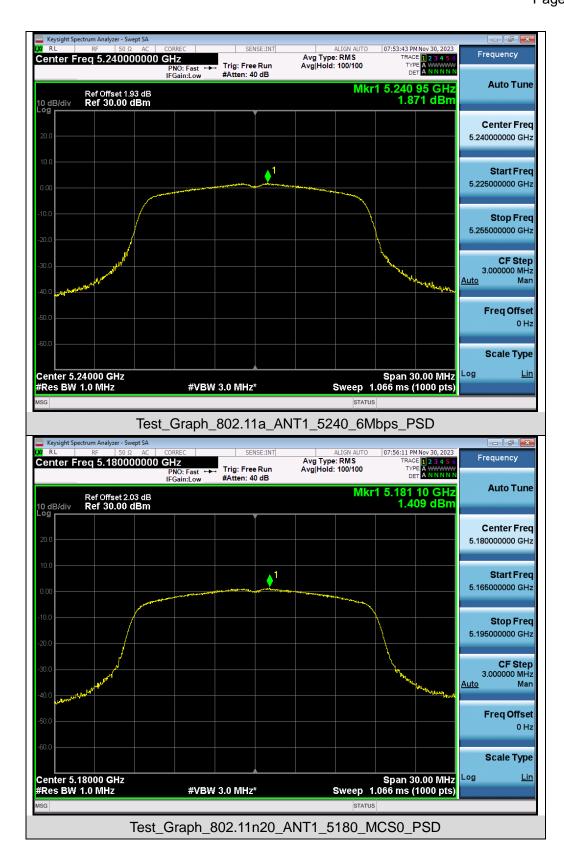




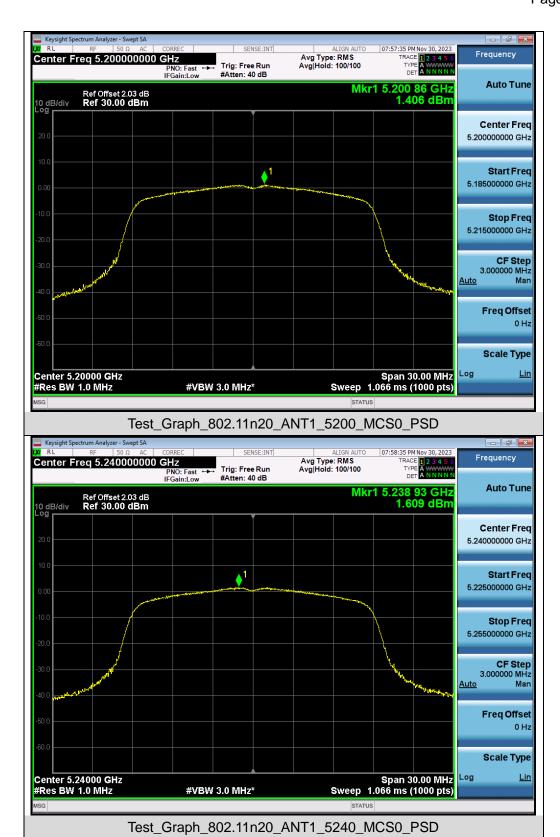
Test Graphs of Conducted Output Power Spectral Density for band 5.15-5.25 GHz



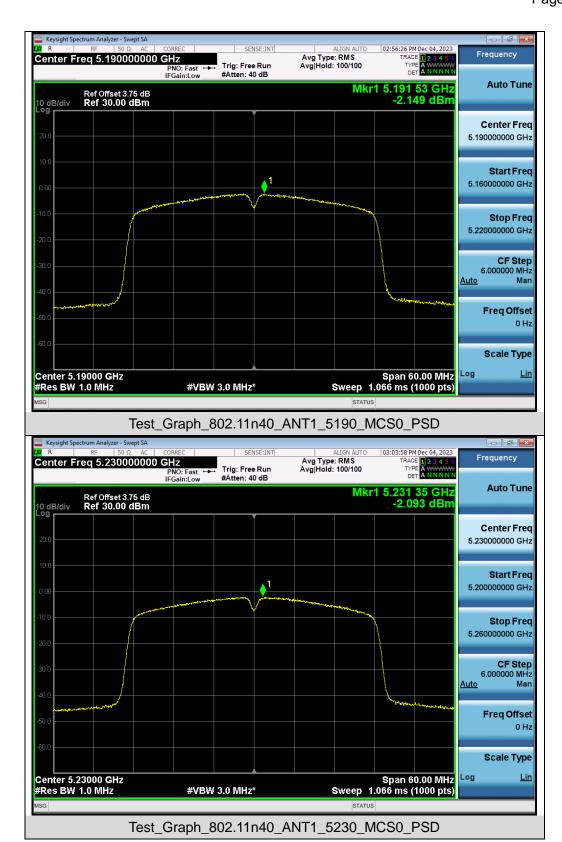


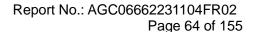














Test Graphs of Conducted Output Power Spectral Density for band 5.25-5.35 GHz

