

# **FCC Test Report**

Report No.: AGC16740241205FR03

**FCC ID** : WQ8-DV2411

**APPLICATION PURPOSE** : Original Equipment

**PRODUCT DESIGNATION**: PROFESSIONAL SCAN TOOL

**BRAND NAME** : AUTEL

**MODEL NAME** : MaxiDiag MD909 Pro, MaxiDiag MD906 Pro

**APPLICANT**: Autel Intelligent Technology Corp., Ltd.

**DATE OF ISSUE** : Jan. 08, 2025

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

**REPORT VERSION**: V1.0

Attestation of Global Concellance (Shenzhen) Co., Ltd



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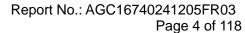
# **Report Revise Record**

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Jan. 08, 2025	Valid	Initial Release



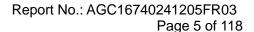
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# 1. General Information

Applicant	Autel Intelligent Technology Corp., Ltd.
Address	Floor 2, Caihong Keji Building, 36 Hi-tech North Six Road, Songpingshan
, ludi 666	Community, Xili, Nanshan, Shenzhen 518055, China
Manufacturer	Autel Intelligent Technology Corp., Ltd.
Address	Floor 2, Caihong Keji Building, 36 Hi-tech North Six Road, Songpingshan
/ ladi 633	Community, Xili, Nanshan, Shenzhen 518055, China
Factory	Autel Intelligent Technology Corp., Ltd. Guangming Branch
Address	7F&6F, East Wing, Building 2, and 6F of Electronical Building, Yanxiang Industrial
Addiess	Zone, Gaoxin Rd, Dongzhou Community of Guangming New District, Shenzhen
Product Designation	PROFESSIONAL SCAN TOOL
Brand Name	AUTEL
Test Model	MaxiDiag MD909 Pro
Series Model(s)	MaxiDiag MD906 Pro
Difference Description	All the series models are the same as the test model except for the model names
Difference Description	and the color of appearance.
Date of receipt of test item	Dec. 23, 2024
Date of Test	Dec. 23, 2024~Jan. 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.

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	(Project Engineer)	Jan. 08, 2025
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	Calvin Liu	Jan. 08 2025
	(Reviewer)	Jan. 06 2025
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	(Authorized Officer)	Jan. 08, 2025



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# 2. Product Information

## 2.1 Product Technical Description

Equipment Type	<ul><li>☐ Outdoor access points</li><li>☐ Fixed P2P access points</li><li>☐ Client devices</li></ul>
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	DV2411_MAIN_V1
Software Version	V01.01.00
Test Frequency Range	For 802.11a/n-HT20/ac-VHT20: 5180~5240MHz/5745~5825MHz; For 802.11n-HT40/ac-VHT40: 5190~5230MHz/5755~5795MHz; For 802.11ac-VHT80: 5210MHz/5775MHz
RF Output Power	802.11a: 12.08dBm; 802.11n(HT20): 11.61dBm; 802.11n(HT40):12.59dBm; 802.11ac (VHT20): 11.60dBm; 802.11ac (VHT40):12.52dBm; 802.11ac (VHT80): 11.78dBm
Modulation	802.11a/n: (64-QAM, 16-QAM, QPSK, BPSK) OFDM 802.11ac: (256-QAM, 64-QAM, 16-QAM, QPSK, BPSK) OFDM
Data Rate	802.11a: 6/9/12/18/24/36/48/54Mbps; 802.11n: up to 300Mbps; 802.11ac: up to 866.6Mbps
Number of channels	7 channels of U-NII-1 Band; 8 channels of U- NII 3 Band
Antenna Designation	PIFA Antenna
Antenna Gain	1.6dBi
Power Supply	DC 3.8V by battery or 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), 802.11ac (VHT20):

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

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

Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz

## 1 channel is provided for 802.11ac (VHT80):

Channel	Frequency	Channel	Frequency
42	5210 MHz		

#### For 5745~5825MHz:

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

Channel	Frequency	Channel	Frequency
149	5745 MHz	161	5805 MHz
153	5765 MHz	165	5825 MHz
157	5785 MHz		1

# 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 <sub>BPSC</sub>	N <sub>C</sub>	BPS	N <sub>DBPS</sub>		Data (Mb 800)	
					20MHz	MHz 40MHz 20		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: WQ8-DV2411 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
5	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 antennathat uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a brokenantenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

### **EUT Antenna:**

The non-detachable antenna inside the device cannot be replaced by the user at will. The gain of the antenna is 1.6dBi.



## 2.9 Description of Test Software

### For IEEE 802.11 mode:

The test utility software used during testing was "CMD", and the version was "10. 0. 19045. 5247".



Test Mode	Channel	Power Index
802.11a	L/M/H	14
802.11n(HT20)	L/M/H	14
802.11n(HT40)	L/M/H	15
802.11ac(VHT20)	L/M/H	14
802.11ac(VHT40)	L/M/H	15
802.11ac(VHT80)	L/M/H	15



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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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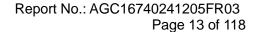
## 3.3 Environmental Conditions

	Normal Conditions
Temperature range (°C)	15 - 35
Relative humidity range	20% - 75%
Pressure range (kPa)	86 - 106
Power supply	DC 3.8V by battery or DC 5V by adapter

# 3.4 Measurement Uncertainty

The reported uncertainty of measurement y ±U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%.

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 <sub>c</sub> = ±2 %
$U_c = \pm 2.7 \%$





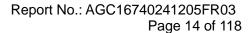
# 3.5 List of Equipment Used

• R	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	
$\boxtimes$	AGC-ER-E062	Power Sensor	Agilent	U2021XA	MY54110007	2024-02-01	2025-01-31	
$\boxtimes$	AGC-ER-E063	Power Sensor	Agilent	U2021XA	MY54110009	2024-02-01	2025-01-31	
$\boxtimes$	AGC-EM-A152	6dB Attenuator	Eeatsheep	LM-XX-6-5W	N/A	2023-09-21	2025-09-20	
$\boxtimes$	AGC-ER-E083	Signal Generator	Agilent	E4421B	US39340815	2024-05-23	2025-05-22	
$\boxtimes$	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	
$\boxtimes$	AGC-EM-E061	EXA Signal Analyzer	Aglient	N9010A	MY53470504	2024-05-28	2025-05-27	

• 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	2024-02-01	2025-01-31	
$\boxtimes$	AGC-EM-E116	EMI Test Receiver	R&S	ESCI	100034	2024-05-24	2025-05-23	
$\boxtimes$	AGC-EM-E061	Spectrum Analyzer	Agilent	N9010A	MY53470504	2024-05-28	2025-05-27	
$\boxtimes$	AGC-EM-E086	Loop Antenna	ZHINAN	ZN30900C	18051	2024-03-05	2026-03-04	
$\boxtimes$	AGC-EM-E001	Wideband Antenna	SCHWARZBECK	VULB9168	D69250	2023-05-11	2025-05-10	
	AGC-EM-E029	Broadband Ridged Horn Antenna	ETS	3117	00034609	2024-03-31	2025-03-30	
$\boxtimes$	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	2024-07-24	2026-07-23	
$\boxtimes$	AGC-EM-E083	Pre-amplifier	CHENGXI	EMC184045SE	980508	2023-09-20	2025-09-19	
$\boxtimes$	AGC-EM-A118	5G Filter	SongYi	N/A	N/A	2024-05-23	2025-05-22	
$\boxtimes$	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	

<ul><li>A</li></ul>	AC Power Line Conducted Emission							
Used	ed Faujoment No. 1 Test Faujoment   Manutacturer   Model No. 1 Serial No. 1						Next Cal. Date (YY-MM-DD)	
$\boxtimes$	AGC-EM-E045	EMI Test Receiver	R&S	ESPI	101206	2024-05-28	2025-05-27	
$\boxtimes$	AGC-EM-A130	6dB Attenuator	Eeatsheep	LM-XX-6-5W	DC-6GZ	2023-06-09	2025-06-08	
$\boxtimes$	AGC-EM-E023	AMN	R&S	100086	ESH2-Z5	2024-05-28	2025-05-27	

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





• Tes	Test 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				
	AGC-EM-S004	RE Test System	Tonscend	TS+Ver2.1(JS32-RE)	4.0.0.0				
$\boxtimes$	AGC-ER-S012	BT/WIFI Test System	Tonscend	JS1120-2	2.6				
$\boxtimes$	AGC-EM-S011	RSE Test System	Tonscend	TS+-Ver2.1(JS36-RSE)	4.0.0.0				



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# 4. System Test Configuration

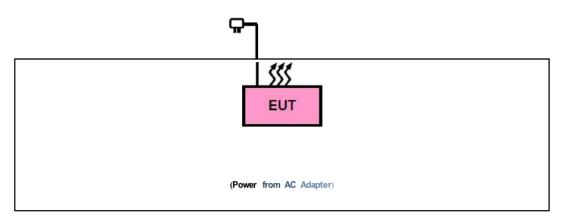
### 4.1 EUT Configuration

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	Manufacturer	Model No.	Specification Information	Cable
1	Adapter	Huawei	HW-200440C00		
2	Control Box	RISYM	USB-TTL		

☐ Test Accessories Come From The Manufacturer

No.	Equipment	Manufacturer	Model No.	Specification Information	Cable
1					



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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/1/3)	RF Output Power	Pass
3	§15.407(e)	6 dB Bandwidth and 99% Occupied Bandwidth	Pass
4	§15.407(a)	26dB Bandwidth and 99% Occupied Bandwidth	Pass
5	§15.407(a/1/3)	Power Spectral Density	Pass
6	§15.407(g)	Frequency Stability	Pass (See Note 1)
7	§15.407(c)	Transmission Discontinuation Requirement	Pass (See Note 2)
8	§15.407(b)(1/4)	Conducted Band Edge and Out-of-Band Emissions	Pass
9	§15.209,§15.407(b)(1/4)	Radiated Spurious Emission	Pass
10	§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	
Lo i Comigare Mode	RE > 1G	RE<1G	PLC	APCM	Description	
А	$\boxtimes$	$\boxtimes$	$\boxtimes$	$\boxtimes$	Powered by Adapter with WIFI(5G) Link	
В	$\boxtimes$	$\boxtimes$		$\boxtimes$	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.

# • Radiated Emission Test (Above 1GHz):

$\boxtimes$	Pre-Scan has been conducted to determine the worst-case mode from all possible combinations be Meer
	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)
В	802.11n (20MHz)	5180-5240	36 to 48	36, 40, 48	OFDM	MCS0
В	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)
В	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)
Α	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 Available Tested Channel Channel		Modulation	Data Rate (Mbps)	
В	802.11a		36 to 48	36	OFDM	6.0
В	802.11n (40MHz)	5180-5240	38 to 46	38	OFDM	MCS0
В	802.11ac (80MHz)		42	42	OFDM	MCS0
В	802.11a		149 to 165	149	OFDM	6.0
В	802.11n (40MHz)	5745-5825	151 to 159	151	OFDM	MCS0
В	802.11ac (80MHz)		155	155	OFDM	MCS0



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# • Antenna Port Conducted Measurement:

$\boxtimes$	Pre-Scan has bee	n conducted to de	etermine the wo	rst-case mode fr	om all possib	le combinations	be Meen
ava	ailable modulations	, data rates and a	antenna ports (If	EUT with anten	na diversity a	rchitecture).	

☐ 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)
В	802.11a		36 to 48	36, 40, 48	OFDM	6.0
В	802.11n (20MHz)		36 to 48	36, 40, 48	OFDM	MCS0
В	802.11n (40MHz)	5180-5240	38 to 46	38, 46	OFDM	MCS0
В	802.11ac (20MHz)	5160-5240	36 to 48	36, 40, 48	OFDM	MCS0
В	802.11ac (40MHz)		38 to 46	38, 46	OFDM	MCS0
В	802.11ac (80MHz)		42	42	OFDM	MCS0
В	802.11a		149 to 165	149, 157, 165	OFDM	6.0
В	802.11n (20MHz)		149 to 165	149, 157, 165	OFDM	MCS0
В	802.11n (40MHz)	5745-5825	151 to 159	151, 159	OFDM	MCS0
В	802.11ac (20MHz)	0740-0620	149 to 165	149, 157, 165	OFDM	MCS0
В	802.11ac (40MHz)		151 to 159	151, 159	OFDM	MCS0
В	802.11ac (80MHz)		155	155	OFDM	MCS0



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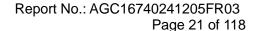
# 6. Duty Cycle Measurement

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	97.08	0.13					
802.11n_HT20	MCS0	96.07	0.17					
802.11n_HT40	MCS0	94.00	0.27					
802.11ac_VHT20	MCS0	97.05	0.13					
802.11ac_VHT40	MCS0	94.13	0.26					
802.11ac_VHT80	MCS0	89.07	0.5					
	Band U-NII 3:5725N	MHz-5850MHz						
802.11a	6	97.08	0.13					
802.11n_HT20	MCS0	96.74	0.14					
802.11n_HT40	MCS0	94.07	0.27					
802.11ac_VHT20	MCS0	96.98	0.13					
802.11ac_VHT40	MCS0	94.40	0.25					
802.11ac_VHT80	MCS0	89.32	0.49					

### Remark:

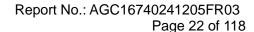
- Duty Cycle factor = 10 \* log (1/ Duty cycle)
- 2. The duty cycle of each frequency band mode reflects the determination requirements of the low channel measurement value.
- 3. Involving the test items of duty cycle compensation coefficient, the final results have been added and calculated by the software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



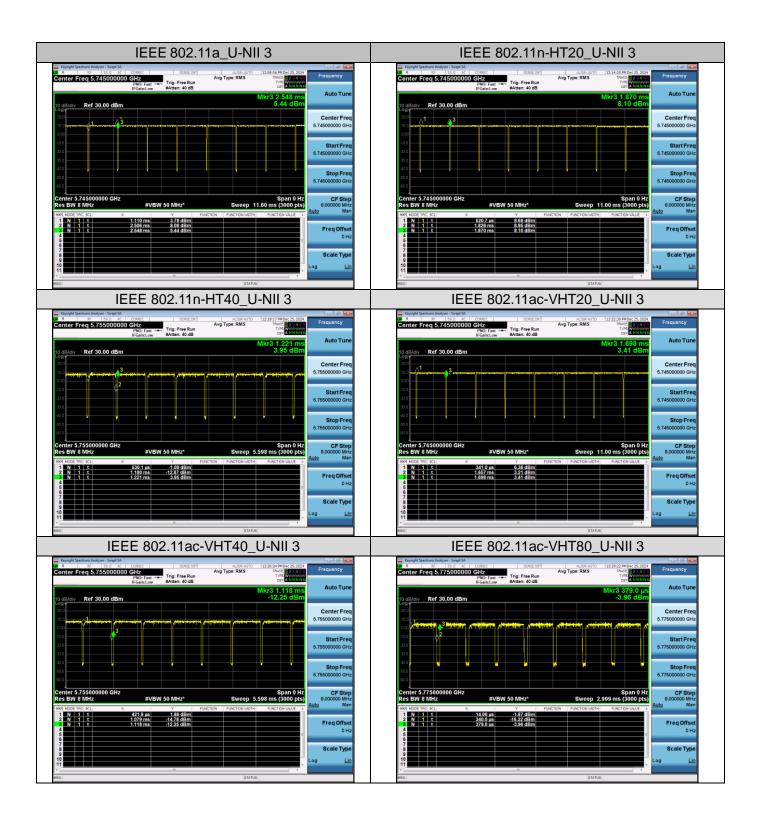


### The test plots as follows:











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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)	
J	Fixed point-to-point Access Point		1 Watt (30 dBm)	
	☐ Indoor Access Point		1 Watt (30 dBm)	
	$\boxtimes$	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)	

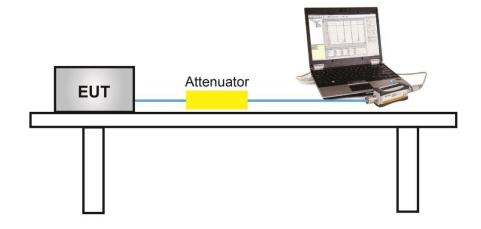
Note: Where B is the 26dB emission bandwidth in MHz.

#### 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
- 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.
- 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)

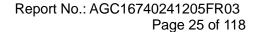




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### 7.4 Measurement Result

	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					
	5180	10.82	23.98	Pass					
802.11a	5200	11.03	23.98	Pass					
	5240	11.67	23.98	Pass					
	5180	10.51	23.98	Pass					
802.11n20	5200	10.81	23.98	Pass					
	5240	11.41	23.98	Pass					
802.11n40	5190	11.51	23.98	Pass					
002.111140	5230	12.21	23.98	Pass					
	5180	10.36	23.98	Pass					
802.11ac20	5200	10.68	23.98	Pass					
	5240	11.31	23.98	Pass					
802.11ac40	5190	11.39	23.98	Pass					
002.11ac40	5230	12.24	23.98	Pass					
802.11ac80	5210	11.69	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			
	5745	12.08	30	Pass			
802.11a	5785	11.40	30	Pass			
	5825	10.56	30	Pass			
	5745	11.61	30	Pass			
802.11n20	5785	11.00	30	Pass			
	5825	10.11	30	Pass			
802.11n40	5755	12.59	30	Pass			
	5795	11.80	30	Pass			
802.11ac20	5745	11.60	30	Pass			
	5785	10.99	30	Pass			
	5825	10.10	30	Pass			
802.11ac40	5755	12.52	30	Pass			
	5795	11.73	30	Pass			
802.11ac80	5775	11.78	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:

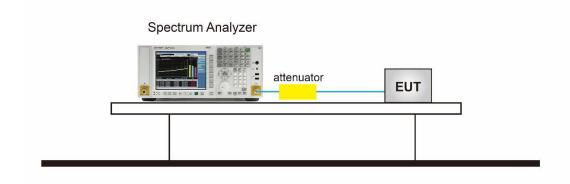
- 1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 2. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
- 3. Set Span = approximately 1.5 to 5 times the OBW, centered on a nominal channel
  The nominal IF filter bandwidth (3 dB RBW)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

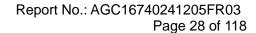




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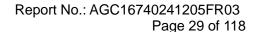
### 8.4 Measurement Results

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	16.552	21.032	N/A	Pass	
802.11a	5200	16.529	20.791	N/A	Pass	
	5240	16.523	20.577	N/A	Pass	
802.11n20	5180	17.675	21.139	N/A	Pass	
	5200	17.681	21.580	N/A	Pass	
	5240	17.629	20.941	N/A	Pass	
802.11n40	5190	36.143	47.017	N/A	Pass	
	5230	36.134	44.035	N/A	Pass	
802.11ac20	5180	17.681	21.187	N/A	Pass	
	5200	17.675	21.142	N/A	Pass	
	5240	17.672	20.862	N/A	Pass	
802.11ac40	5190	36.155	47.314	N/A	Pass	
	5230	36.159	46.674	N/A	Pass	
802.11ac80	5210	75.454	95.193	N/A	Pass	



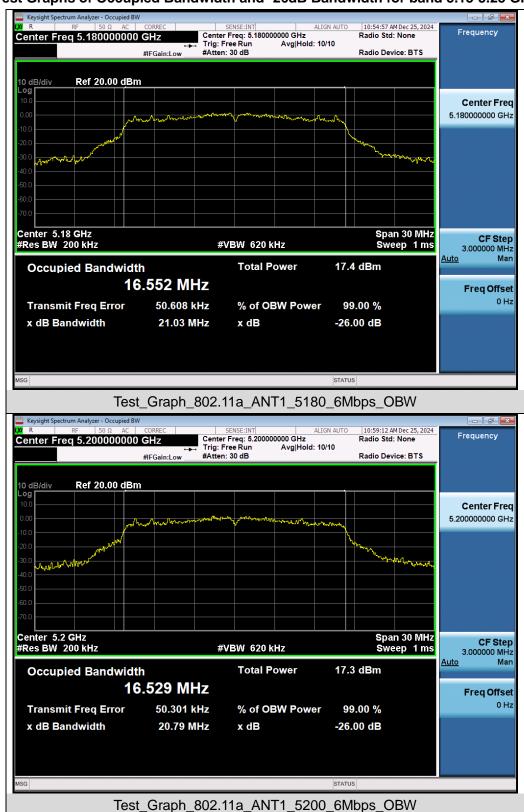


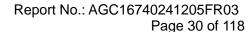
Test Data of Occupied Bandwidth and DTS Bandwidth for band 5.725-5.85 GHz						
Test Mode	Test Channel (MHz)	99% Occupied Bandwidth (MHz)	DTS Bandwidth (MHz)	Limits (MHz)	Pass or Fail	
802.11a	5745	16.546	15.771	0.5	Pass	
	5785	16.556	15.111	0.5	Pass	
	5825	16.533	15.708	0.5	Pass	
802.11n20	5745	17.685	14.978	0.5	Pass	
	5785	17.679	15.180	0.5	Pass	
	5825	17.691	15.723	0.5	Pass	
802.11n40	5755	36.149	35.244	0.5	Pass	
	5795	36.124	35.238	0.5	Pass	
802.11ac20	5745	17.710	16.003	0.5	Pass	
	5785	17.730	16.652	0.5	Pass	
	5825	17.718	15.392	0.5	Pass	
802.11ac40	5755	36.097	32.031	0.5	Pass	
	5795	36.099	35.260	0.5	Pass	
802.11ac80	5775	75.394	75.367	0.5	Pass	



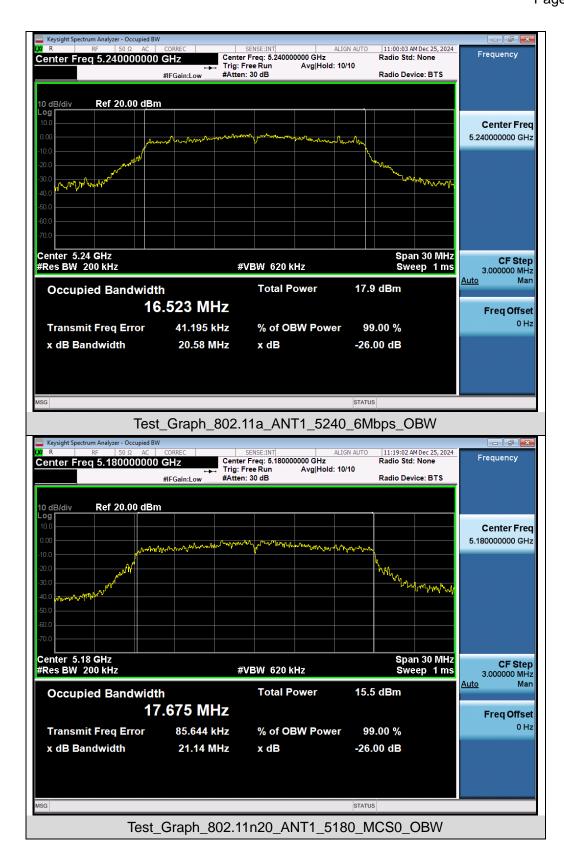


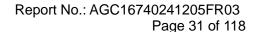
### Test Graphs of Occupied Bandwidth and -26dB Bandwidth for band 5.15-5.25 GHz



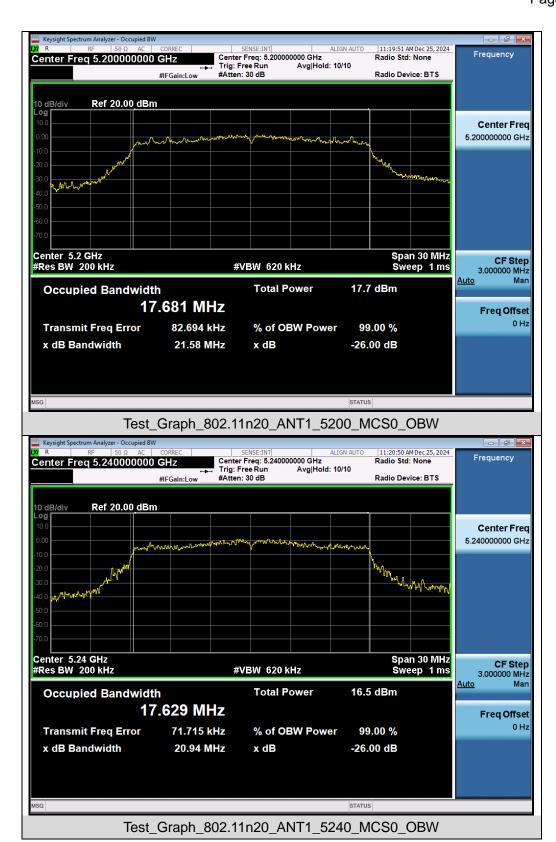


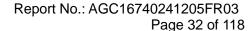




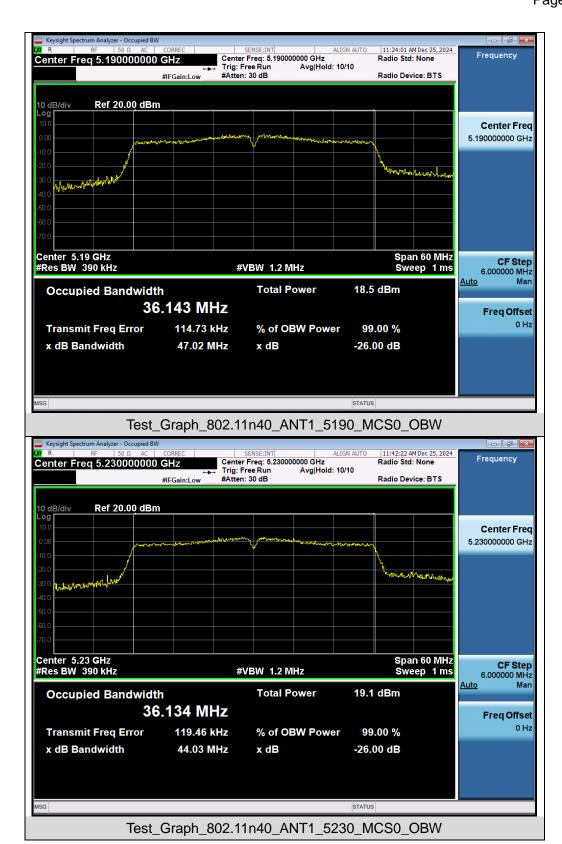


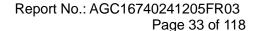




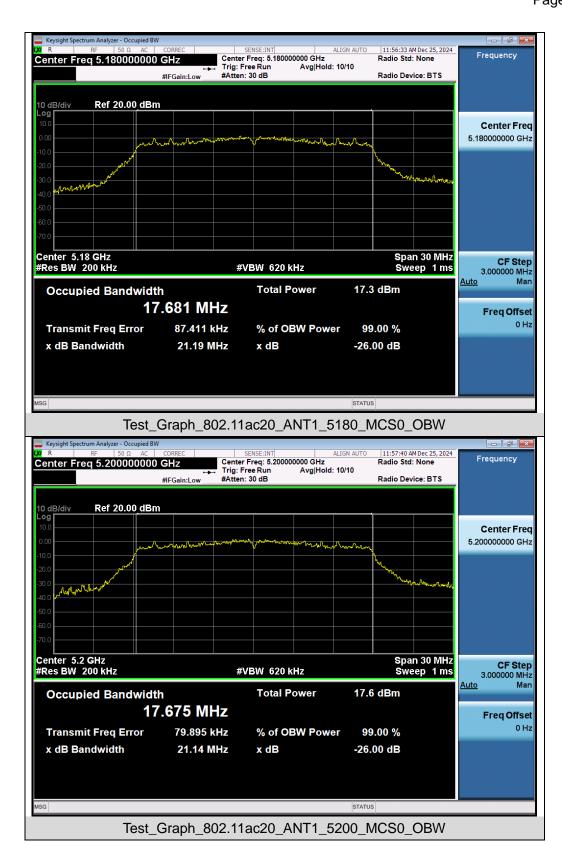


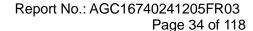




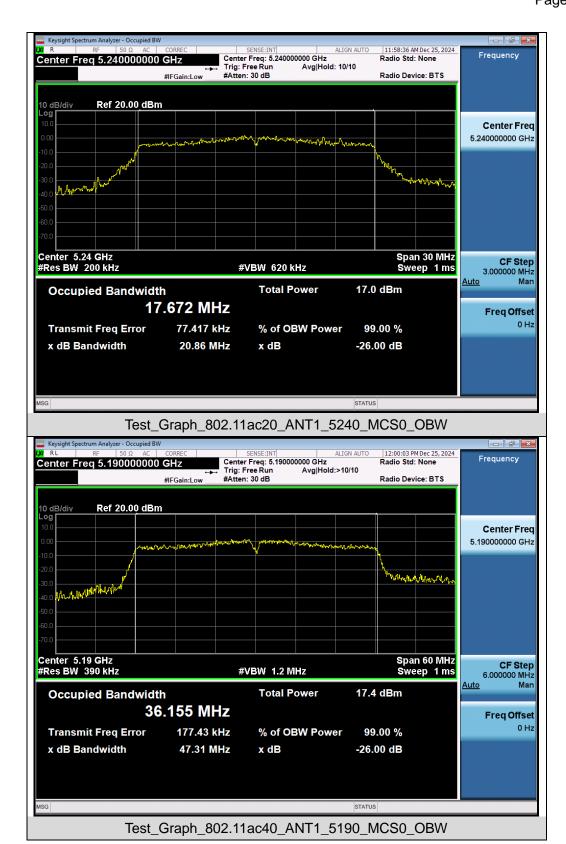


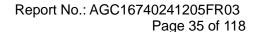




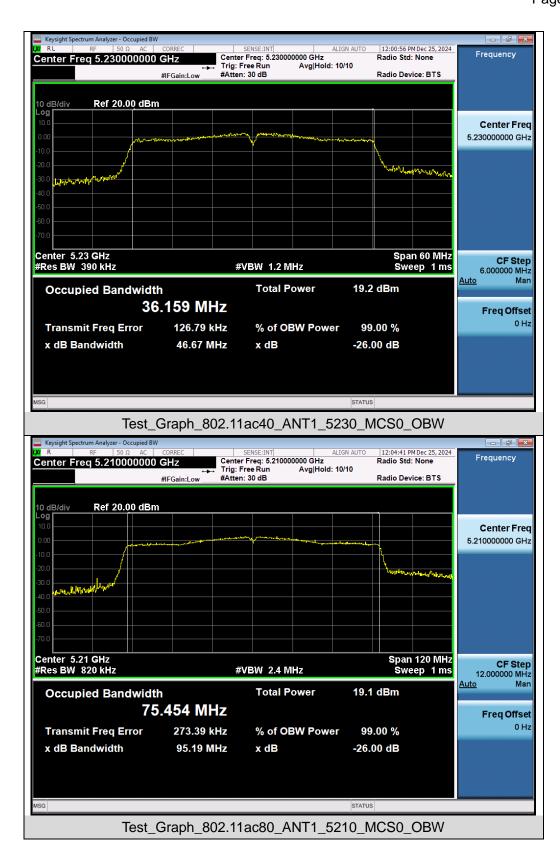


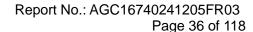






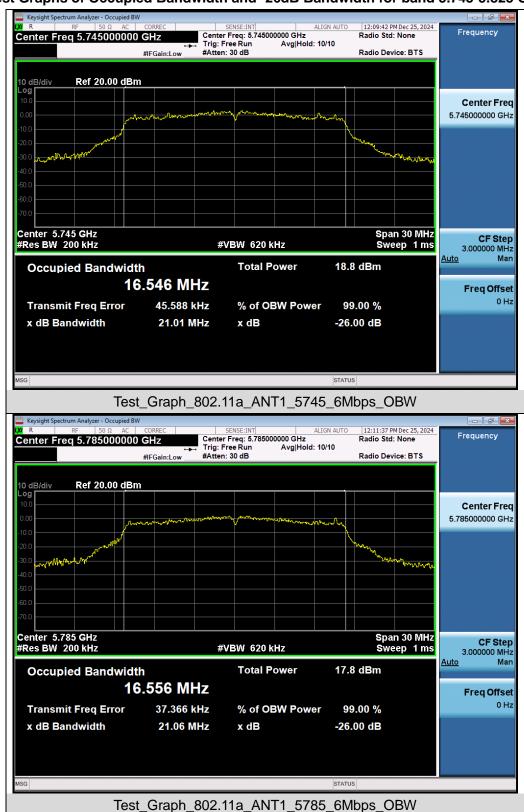


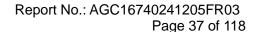




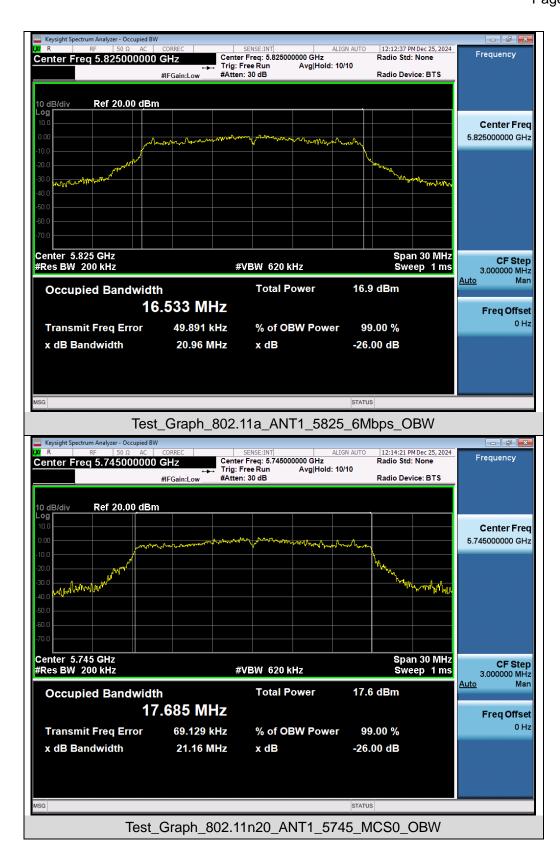


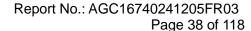
### Test Graphs of Occupied Bandwidth and -26dB Bandwidth for band 5.745-5.825 GHz



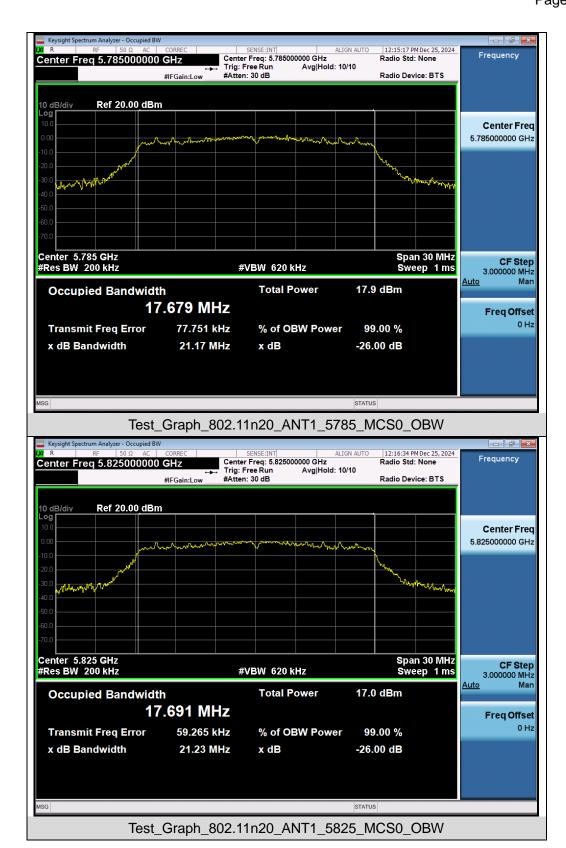


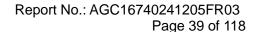




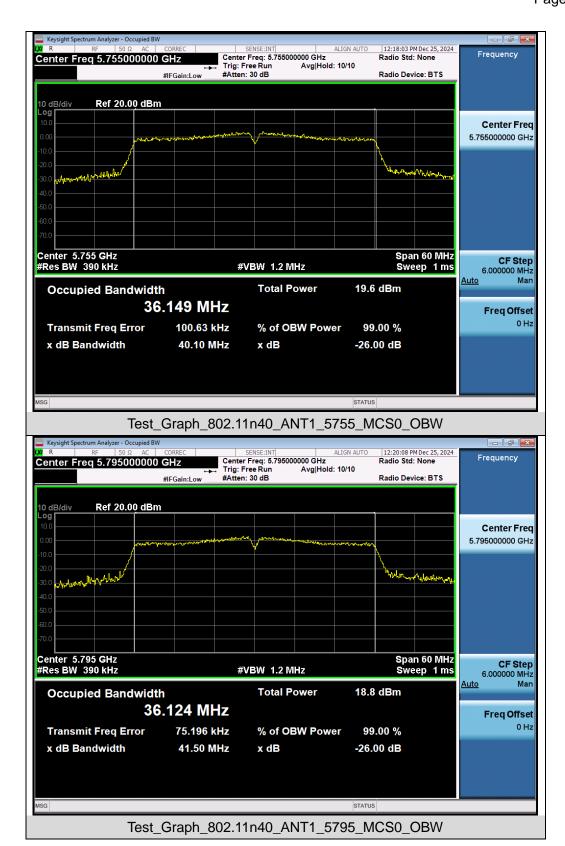


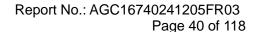




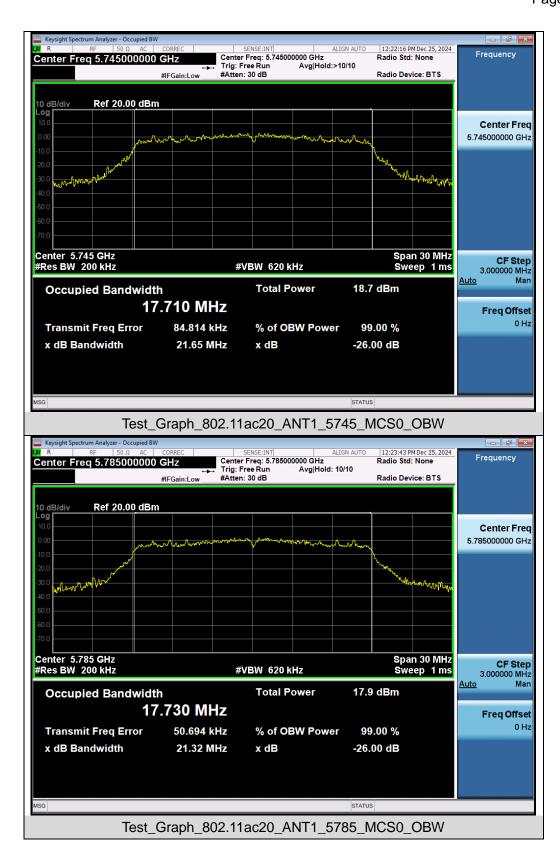


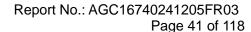




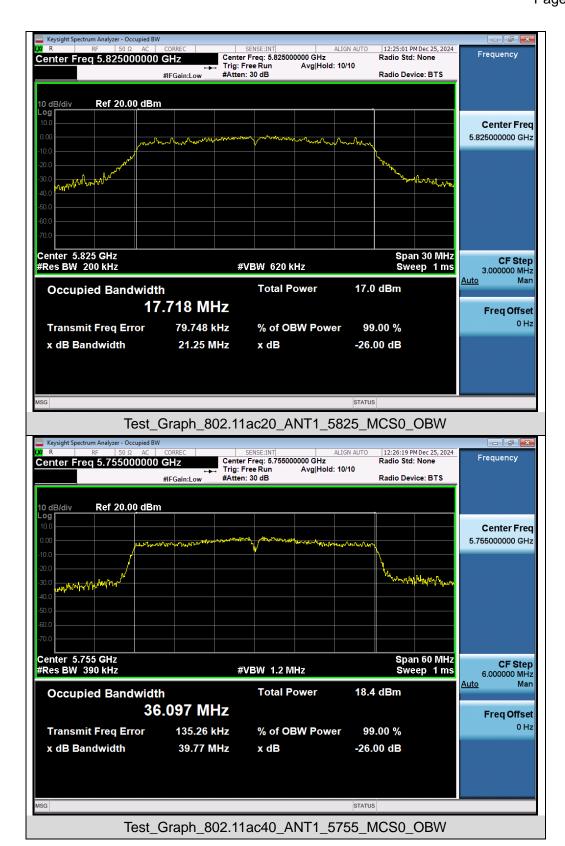


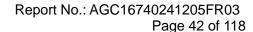




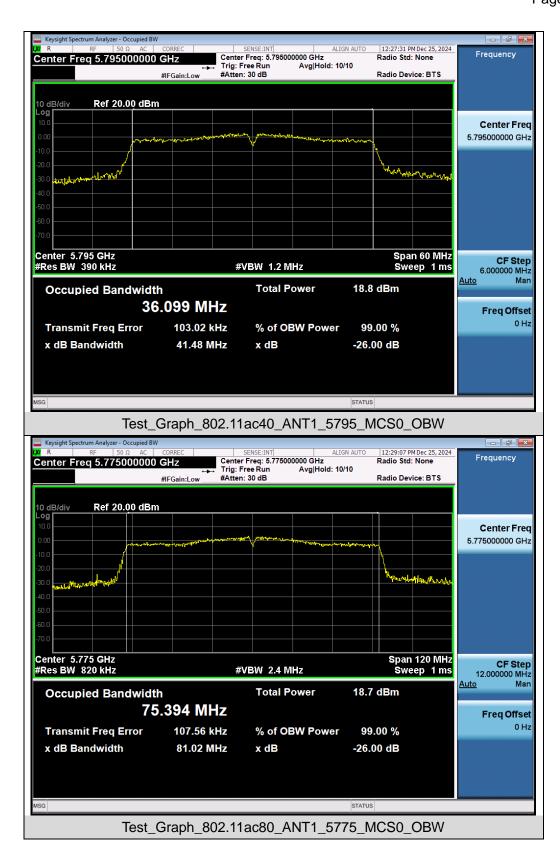


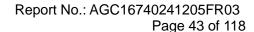






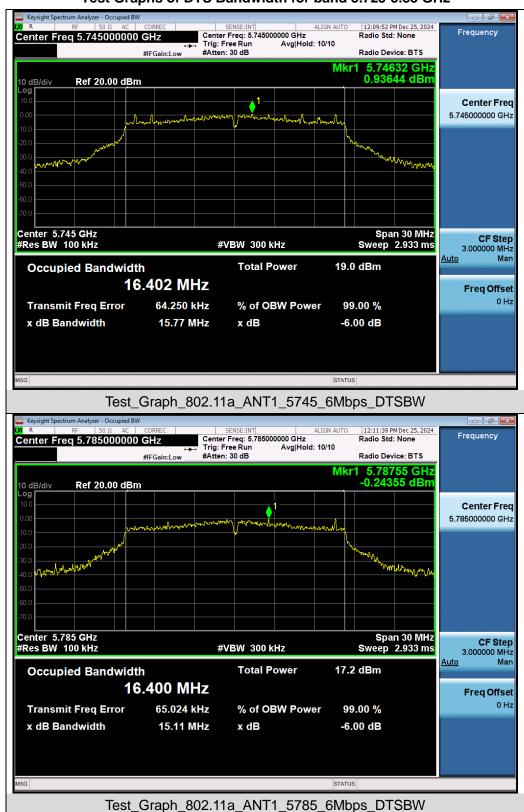


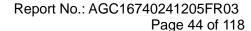




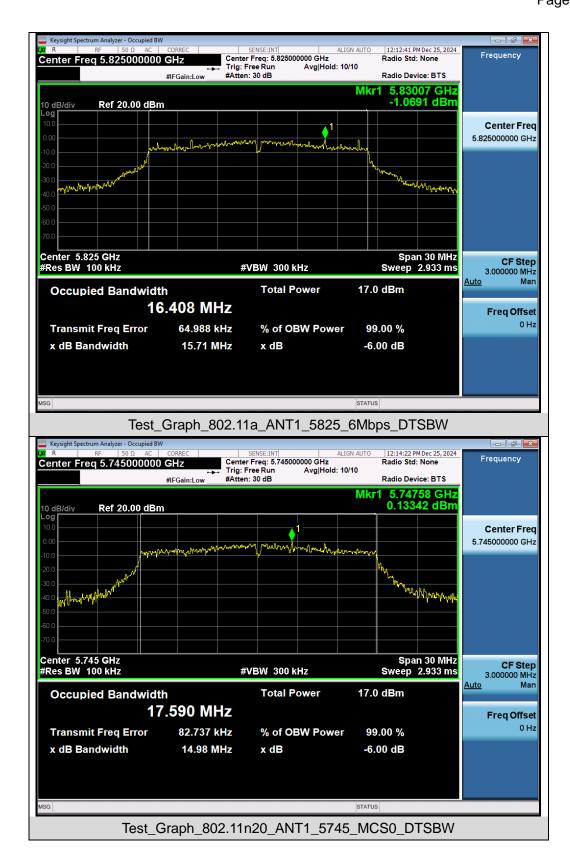


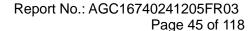
# Test Graphs of DTS Bandwidth for band 5.725-5.85 GHz



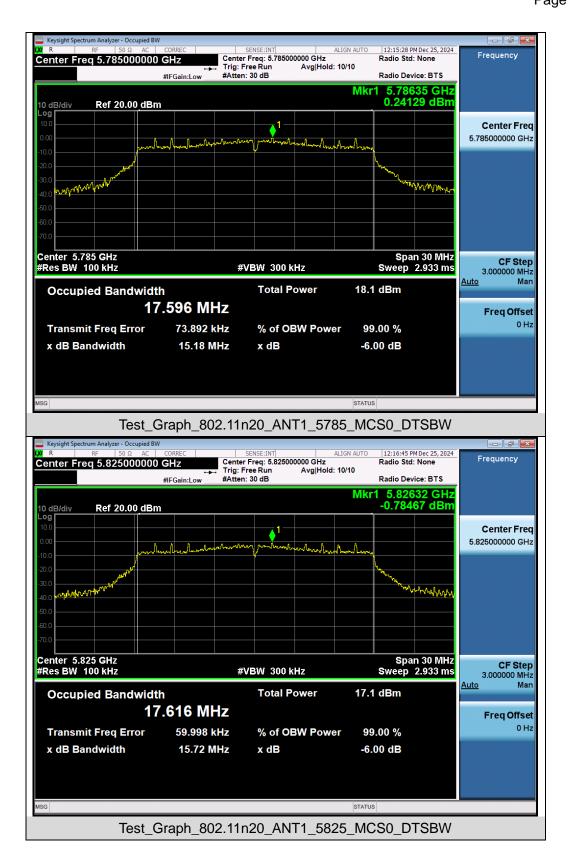


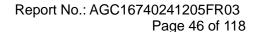




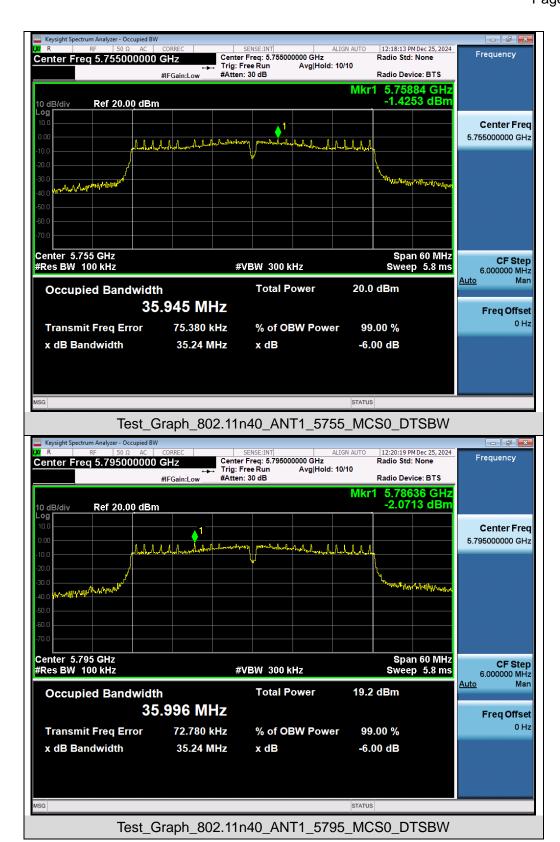


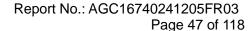




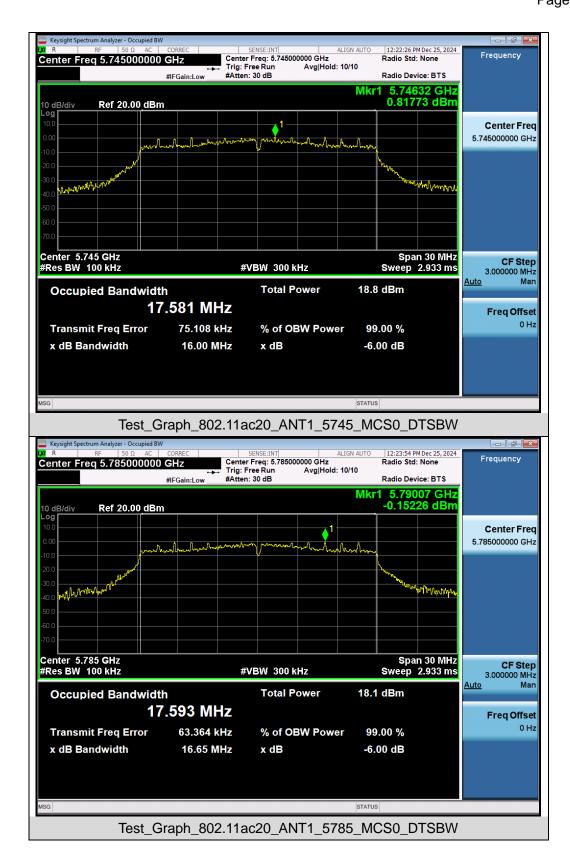


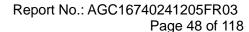




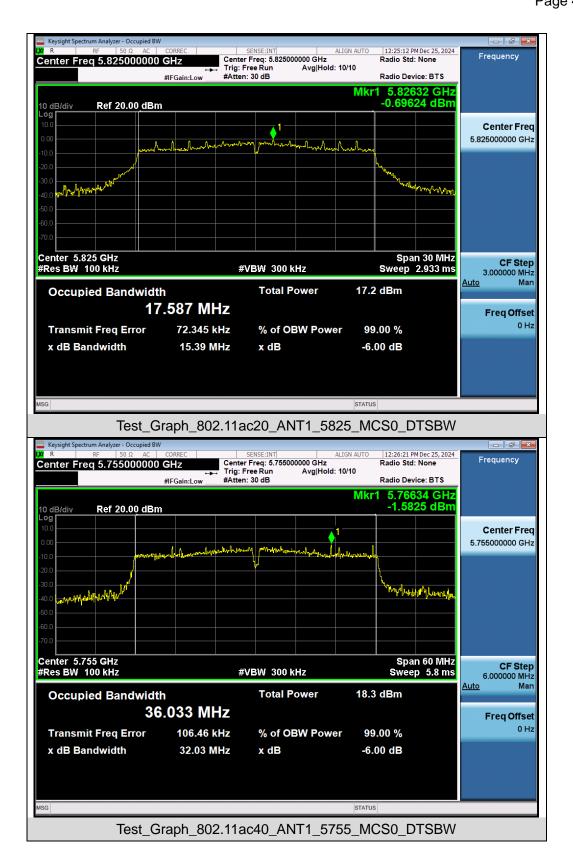


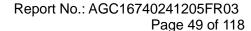




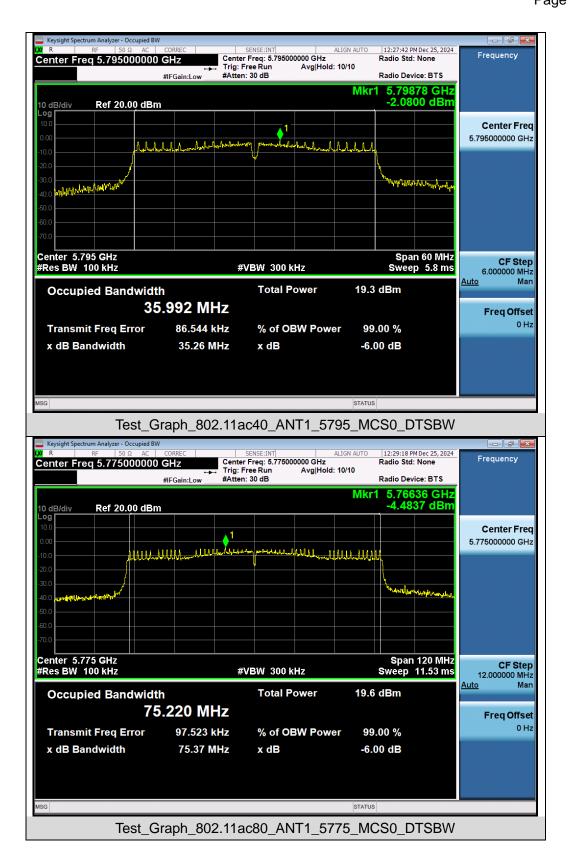














9. Power Spectral Density Measurement

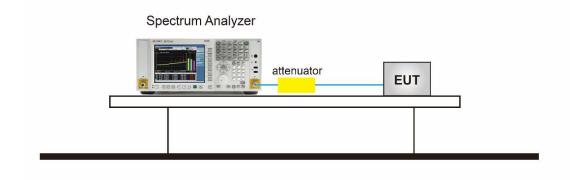
# 9.1 Provisions Applicable

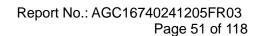
Operation Band	EUT Category		LIMIT	
U-NII-1		Outdoor Access Point	17dBm/ MHz	
		Fixed point-to-point Access Point	17dBm/ MHz	
		Indoor Access Point	17dBm/ MHz	
	$\boxtimes$	Client devices	11dBm/ MHz	
U-NII-2A	/		11dBm/ MHz	
U-NII-2C	/		11dBm/ MHz	
U-NII-3	/		30 dBm/500kHz	

#### 9.2 Measurement Procedure

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

### 9.3 Measurement Setup (Block Diagram of Configuration)

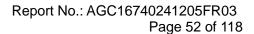






### 9.4 Measurement Result

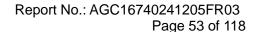
Test Data of Conducted Output Power Density for band 5.15-5.25 GHz								
Test Mode	Test Channel (MHz)	Average Power Density (dBm/MHz)	Limits (dBm/MHz)	Pass or Fail				
	5180	1.513	11	Pass				
802.11a	5200	1.688	11	Pass				
	5240	2.440	11	Pass				
802.11n20	5180	0.885	11	Pass				
	5200	1.232	11	Pass				
	5240	1.766	11	Pass				
802.11n40	5190	-0.875	11	Pass				
	5230	-0.413	11	Pass				
802.11ac20	5180	0.864	11	Pass				
	5200	1.068	11	Pass				
	5240	1.673	11	Pass				
802.11ac40	5190	-0.761	11	Pass				
	5230	-0.248	11	Pass				
802.11ac80	5210	-3.411	11	Pass				





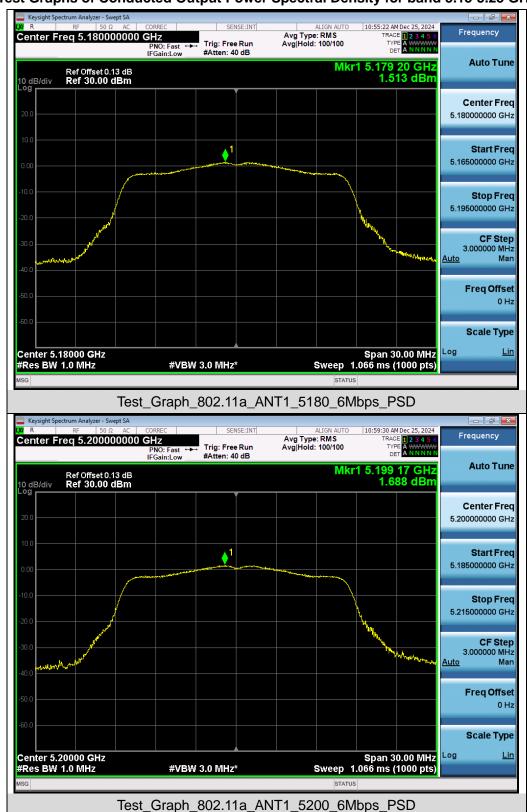
Test Data of Conducted Output Power Density for band 5.725-5.85 GHz							
Test Mode	Test Channel (MHz)	Average Power Density (dBm/100kHz)	Average Power Density (dBm/500kHz)	Limits (dBm/500kHz)	Pass or Fail		
802.11a	5745	-5.737	1.253	30	Pass		
	5785	-6.488	0.502	30	Pass		
	5825	-7.340	-0.350	30	Pass		
802.11n20	5745	-6.465	0.525	30	Pass		
	5785	-7.272	-0.282	30	Pass		
	5825	-7.969	-0.979	30	Pass		
802.11n40	5755	-8.630	-1.640	30	Pass		
	5795	-9.639	-2.649	30	Pass		
802.11ac20	5745	-6.579	0.411	30	Pass		
	5785	-7.290	-0.300	30	Pass		
	5825	-8.169	-1.179	30	Pass		
802.11ac40	5755	-8.849	-1.859	30	Pass		
	5795	-9.745	-2.755	30	Pass		
802.11ac80	5775	-12.665	-5.675	30	Pass		

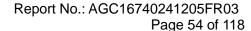
Note:1.Power density(dBm/500kHz) = Power density(dBm/100kHz)+10\*log(500/100).



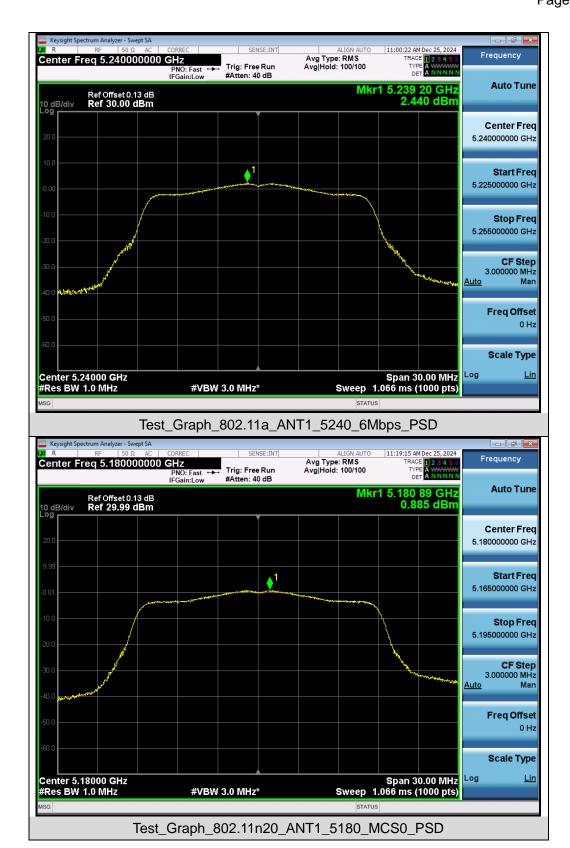


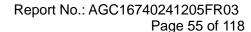
# Test Graphs of Conducted Output Power Spectral Density for band 5.15-5.25 GHz



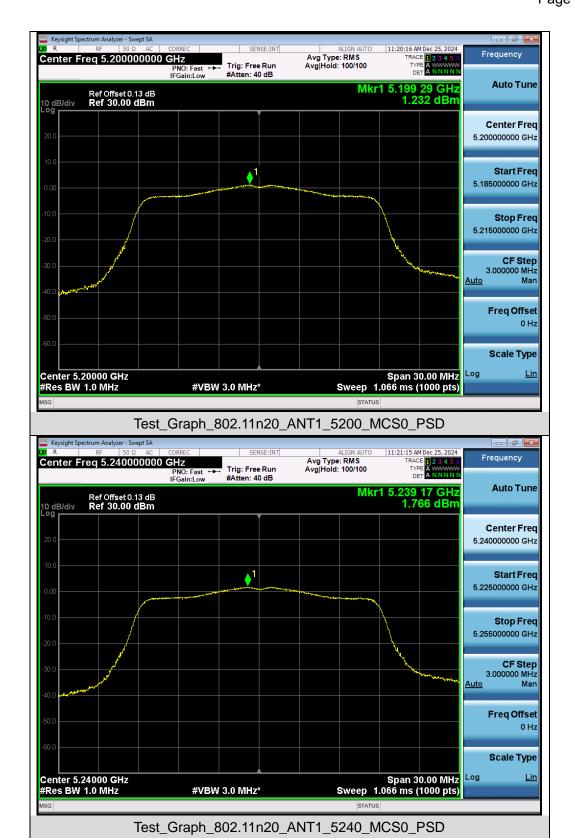


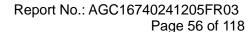






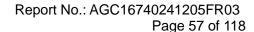




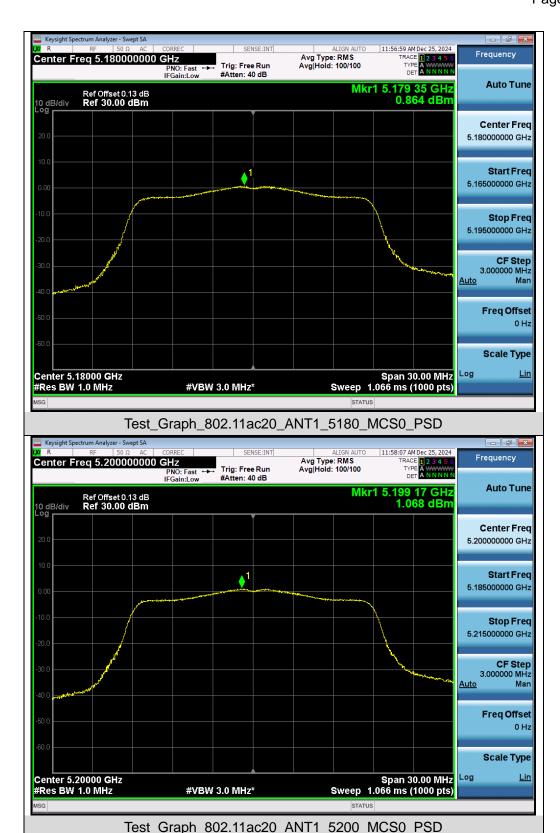


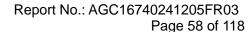






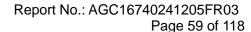






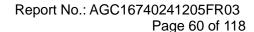














# Test Graphs of Conducted Output Power Spectral Density for band 5.725-5.85 GHz

