

FCC Test Report

Report No.: AGC08389250807FR02

FCC ID : 2ATFT-215KZ

APPLICATION PURPOSE : Original Equipment

PRODUCT DESIGNATION: Digital picture frame

BRAND NAME : N/A

215KZ, 215K, 216K, 216KZ, 217K, 217KZ, 320K, 320KZ,

MODEL NAME : 321K, 321KZ, 215C, 216C, 217C, 320C, 321C, 215KZ-WD,

215KZ-BK, 215KZ-WH

APPLICANT : Shenzhen Kejinming Electronic Co., Ltd.

DATE OF ISSUE : Sep. 12, 2025

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

REPORT VERSION: V1.0

Attestation of Global Compliance (Shenzhen) Co., Ltd



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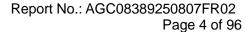
Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Sep. 12, 2025	Valid	Initial Release



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1. General Information

<u></u>			
Shenzhen Kejinming Electronic Co., Ltd.			
Floor1-6, BlockB7, YintianIndustrialPark, Yantian Community, XixiangStreet, Bao'			
an Dist., Shenzhen, Guangdong, China			
Shenzhen Kejinming Electronic Co., Ltd.			
Floor1-6, BlockB7, YintianIndustrialPark, Yantian Community, XixiangStreet, Bao'			
an Dist., Shenzhen, Guangdong, China			
Shenzhen Kejinming Electronic Co., Ltd.			
Floor1-6, BlockB7, YintianIndustrialPark, Yantian Community, XixiangStreet, Bao'			
an Dist., Shenzhen, Guangdong, China			
Digital picture frame			
N/A			
215KZ			
215K, 216K, 216KZ, 217K, 217KZ, 320K, 320KZ, 321K, 321KZ, 215C, 216C, 217C, 320C, 321C, 215KZ-WD, 215KZ-BK, 215KZ-WH			
All the same except the model name.			
Aug. 14, 2025			
Aug. 14, 2025~Sep. 12, 2025			
No any deviation from the test method			
Normal			
Pass			
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 Yuang	
	Thea Huang (Project Engineer)	Sep. 12, 2025
Reviewed By	Bibo zhang	
	Bibo Zhang (Reviewer)	Sep. 12, 2025
Approved By	Angole Li	
	Angela Li (Authorized Officer)	Sep. 12, 2025



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2. Product Information

2.1 Product Technical Description

Equipment Type	☐ Outdoor access points ☐ Indoor access points ☐ Client devises					
	Fixed P2P access points					
Operation Frequency	☐ U-NII 1:5150MHz~5250MHz ☐ U-NII 2A: 5250MHz~5350MHz					
Operation Frequency	☐ U-NII 2C:5470MHz~5725MHz ☐ U-NII 3: 5725MHz~5850MHz					
Hardware Version	JX-08D05V1.9					
Software Version	V1.0					
	For 802.11a/n-HT20/: 5180~5240MHz/5745~5825MHz;					
Test Frequency Range	For 802.11n-HT40/: 5190~5230MHz/5755~5795MHz;					
RF Output Power	802.11a: 12.04dBm,802.11n(HT20):11.88dBm; 802.11n(HT40): 8.19dBm					
Modulation	802.11a/n:(64-QAM, 16-QAM, QPSK, BPSK) OFDM					
802.11a:6/9/12/18/24/36/48/54Mbps;						
Data Rate	802.11n: up to 150Mbps;					
Number of channels	6 channels of U-NII-1 Band;7 channels of U- NII 3 Band					
Antenna Designation	Integral Antenna					
Antenna Gain	2.569dBi					
Power Supply	DC 12V from 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	

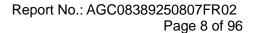
For 5745~5825MHz:

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	





2.3 IEEE 802.11n Modulation Scheme

MCS Index	Nss	Modulation	R	N _{BPSC}	N _C	BPS	N _D	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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2.4 Related Submittal(S) / Grant (S)

This submittal(s) (test report) is intended for **FCC ID**: **2ATFT-215KZ**, 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 regulat		
2	FCC 47 CFR Part 15	Radio Frequency Devices		
3	ANSI C63.10-2020	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		

2.6 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 2.569dBi

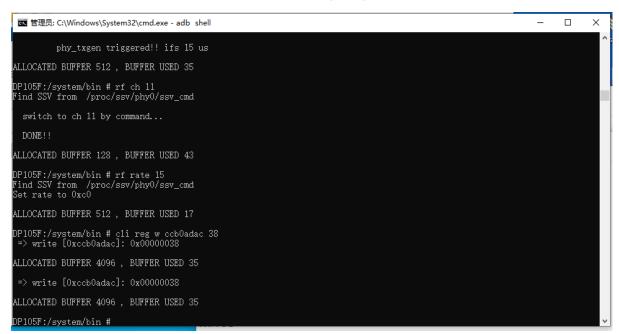


2.10 Description of Test Software

For IEEE 802.11 mode:

The test utility software used during testing was "System 32\cmd".

Software Setting Diagram



Test Mode 5150MHz~5250MHz	Channel	Power Index
802.11a	L/M/H	8056666
802.11n(HT20)	L/M/H	8056666
802.11n(HT40)	L/M/H	80376666
Test Mode 5725MHz~5850MHz	Channel	Power Index
802.11a	L/M/H	80566657
802.11n(HT20)	L/M/H	80566657
802.11n(HT40)	L/M/H	80566654



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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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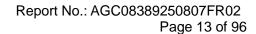
3.3 Environmental Conditions

	Normal Conditions
Temperature range (°C)	15 - 35
Relative humidity range	20% - 75%
Pressure range (kPa)	86 - 106
Power supply	DC 12V from 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 _c = ±2 %
$U_c = \pm 2.7 \%$



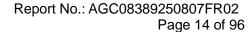


3.5 List of Equipment Used

• F	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)	
\boxtimes	AGC-ER-E036	Spectrum Analyzer	Agilent	N9020A	MY49100060	2025-05-08	2026-05-07	
\boxtimes	AGC-ER-A007	6dB Fixed Attenuator	Mini circuits	BW-S6-2W263A+	N/A	2025-01-30	2026-01-29	
	AGC-ER-E083	Signal Generator	Agilent	E4421B	US39340815	2025-05-21	2026-05-20	
\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	

• 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)	
\boxtimes	AGC-EM-E046	EMI Test Receiver	R&S	ESCI	10096	2025-05-16	2027-05-15	
	AGC-EM-E116	EMI Test Receiver	R&S	ESCI	100034	2025-05-08	2026-05-07	
\boxtimes	AGC-EM-E061	Spectrum Analyzer	Agilent	N9010A	MY53470504	2025-05-08	2026-05-07	
\boxtimes	AGC-EM-E086	Loop Antenna	ZHINAN	ZN30900C	18051	2024-03-05	2026-03-04	
\boxtimes	AGC-EM-E001	Wideband Antenna	SCHWARZBECK	VULB9168	D69250	2025-03-14	2027-03-13	
\boxtimes	AGC-EM-E029	Broadband Ridged Horn Antenna	ETS	3117	00034609	2025-03-27	2026-03-26	
\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-A118	5G Filter	SongYi	BRM50716	N/A	2025-05-16	2026-05-15	
	AGC-EM-A138	6dB Attenuator	Eeatsheep	LM-XX-6-5W	N/A	2025-05-16	2027-05-15	

•	AC Power Line Conducted Emission							
U	sed	Equipment No.	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)
	\boxtimes	AGC-EM-A171	Attenuator	Mini-Circuits	UNAT-10A+	N/A	2024-02-01	2026-01-31
	\boxtimes	AGC-EM-E023	Artificial Mains Network	R&S	ESH2-Z5	100086	2025-05-08	2026-05-07
	\boxtimes	AGC-EM-E116	Test Receiver	R&S	ESCI	100034	2025-05-08	2026-05-07





• Tes	● Test Software							
Used	Equipment No.	Test Equipment	Manufacturer	Model No.	Version Information			
\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			
\boxtimes	AGC-EM-S011	RSE Test System	Tonscend	TS+-Ver2.1(JS36-RSE)	4.0.0.0			



4.System Test Configuration

4.1 EUT Configuration

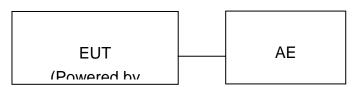
The EUT configuration for testing is installed on RF field strength measurement to meet the Commission's requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

4.2 EUT Exercise

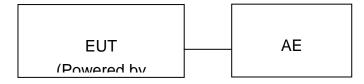
The Transmitter was operated in the normal operating mode. The TX frequency was fixed which was for the purpose of the measurements.

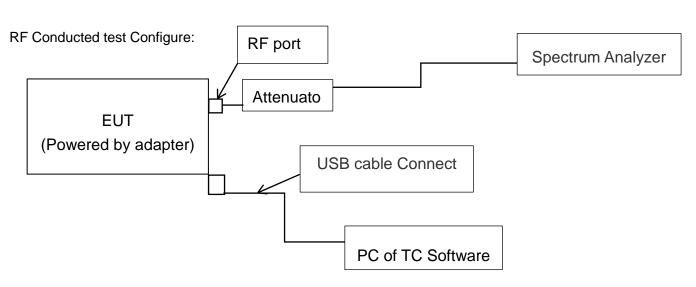
4.3 Configuration of Tested System

Radiated Emission Configure:



Conducted Emission Configure:







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4.4 Equipment Used in Tested System

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

No	. Equipment	Manufacturer	Model No.	Specification Information	Cable
1	PC	Redmi	XMA2002-AB	N/A	N/A

No.	Equipment	Manufacturer	Model No.	Specification Information	Cable
1	Adapter	DongGuan XunTuo Technology Co., Ltd	XTB36W1203000U	Input: 100-240V 50/60HZ 1.2A Output: DC 12V 3A	N/A



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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)	6dB Bandwidth Measurement	Pass
4	§15.403(a)	26dB bandwidth Measurement	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	
		RE > 1G	RE < 1G	PLC	APCM	Boomplion	
	A	\boxtimes	\boxtimes	\boxtimes	\boxtimes	Powered by Adapter with WIFI(5G) Link	
	В	-				Powered by Battery with WIFI(5G) Link	
(С					Powered by USB with WIFI(5G) Link	
				Measuremer	nt Annotation		
Where	RE	> 1G: Radiated	d Emission abo	ove 1GHz	Р	LC: Power Line Conducted Emission	
vvnere	RE	< 1G: Radiated Emission below 1GHz APC				M: Antenna Port Conducted Measurement	
Note							
Positioning in three axes was pre-tested, with the worst case being positioning in the X-plane.							
2. The radiation part tests the dual-antenna MIMO as the worst combination.							
3. ""means no effect.							

Pc	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.							
			Select Channel F	Parameter Configura	tion Test List			
EU ⁻ Config Mod	gure	Mode	Freq. Band (MHz)	Available Channel	Tested Channel	Modulation	Data Rate (Mbps)	
А		802.11n(20MHz)	5180-5240	36 to 48	36	OFDM	MCS0	

 Radiate 	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).								
	device under test has me that does not support				cords the worst	data, and the			
		Select Channel F	Parameter Configura	tion Test List					
EUT Configure Mode	Mode	Freq. Band (MHz)	Available Channel	Tested Channel	Modulation	Data Rate (Mbps)			
А	802.11n(20MHz)	5180-5240	36 to 48	36	OFDM	MCS0			



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• Ra	Radiated Emission Test (Above 1GHz)						
		Scan has been conducte lations, data rates and				ations be Meen a	available
\boxtimes	Supp	ort 802.11ax, device de	bugging is tested in	Full RU state.			
		levice under test has method that does not support				cords the worst	data, and the
			Select Channel F	Parameter Configura	tion Test List		
EUT Config Mode	ure	Mode	Freq. Band (MHz)	Available Channel	Tested Channel	Modulation	Data Rate (Mbps)
Α	A 802.11n (20MHz) 5180-5240 36 to 48 36, 40, 48 OFDM MCS0						MCS0
А		802.11n (20MHz)	5745-5825	149 to 165	149, 157, 165	OFDM	6.0

Band	Band edge Measurement						
	e-Scan has been conduct odulations, data rates and				ations be Meen a	available	
☐ Th	e device supports multiple	e antenna transmiss	ion, allowing MIMO	technology mode to be	recorded as the	worst.	
□ МІ	MO technology is not sup	ported, and the 802	.11a mode only reco	ords the worst antenna	(ANT 1) as the v	vorst	
⊠ Su	pport 802.11ax, device de	ebugging is tested in	Full RU state.				
⊠ Th	e device antenna gain an	d cable loss are add	led to the spectrum	compensation coefficie	nt or offset throu	ıgh software.	
		Select Channel F	Parameter Configura	tion Test List			
EUT Configure Mode	e Mode	Freq. Band (MHz)	Available Channel	Tested Channel	Modulation	Data Rate (Mbps)	
А	802.11n (20MHz)	5180-5240	36 to 48	36, 48	OFDM	6.0	
Α	802.11n (20MHz)	5745-5825	149 to 165	149, 165	OFDM	6.0	

Ar	Antenna 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).							
	The c	device supports multiple	antenna transmiss	ion, allowing MIMO	technology mode to be	recorded as the	worst.	
	MIMC	technology is not sup	ported, and the 802	.11a mode only reco	ords the worst antenna	(ANT 1) as the v	vorst	
\boxtimes	Supp	ort 802.11ax, device de	bugging is tested in	Full RU state.				
\boxtimes	The c	device antenna gain and	d cable loss are add	led to the spectrum	compensation coefficie	nt or offset throu	ıgh software.	
			Select Channel F	Parameter Configura	tion Test List			
EU Config Mod	gure	Mode	Freq. Band (MHz)	Available Channel	Tested Channel	Modulation	Data Rate (Mbps)	
А		802.11a	5400 5040	36 to 48	36, 48	OFDM	6.0	
А	A 802.11n (40MHz) 5180-5240 38 to 46 38, 46 OFDM MCSC				MCS0			
А		802.11a	E74E E92E	149 to 165	149, 165	OFDM	6.0	
А		802.11n (40MHz)	5745-5825	151 to 159	151, 159	OFDM	MCS0	



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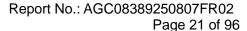
6. Duty Cycle Measurement

5GHz WLAN (NII) operation is possible in 20MHz, 40MHz hannel 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	100	/					
802.11n_HT20	MCS0	100	/					
802.11n_HT40	MCS0	100	/					
	Band U-NII 3:5745N	MHz-5795MHz						
802.11a	6	100	/					
802.11n_HT20	MCS0	100	/					
802.11n_HT40	MCS0	100	/					

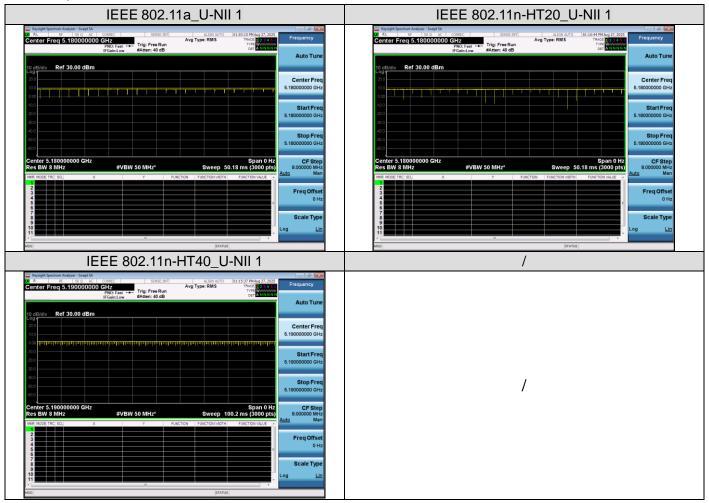
Remark:

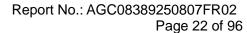
- Duty Cycle factor = 10 * log (1/ Duty cycle)
- 2. The duty cycle of each frequency band mode reflects the determination requirements of the low channel measurement value.
- 3. Involving the test items of duty cycle compensation coefficient, the final results have been added and calculated by the software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



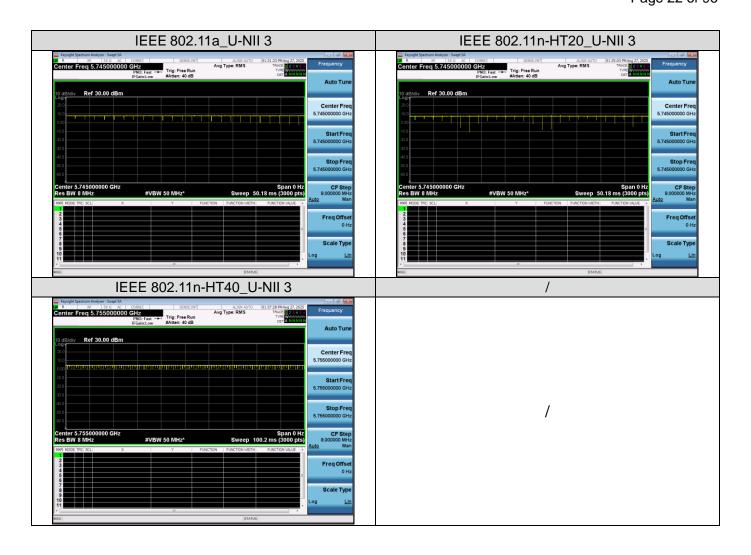


The test plots as follows:











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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)	
0		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	U-NII-3 /		1 Watt (30 dBm)	

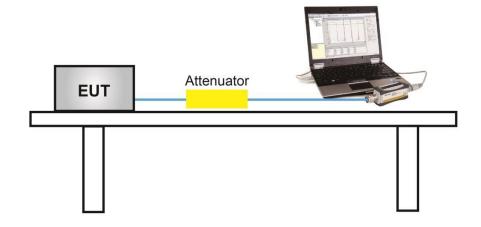
Note: Where B is the 26dB emission bandwidth in MHz.

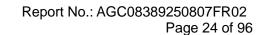
7.2 Measurement Procedure

☑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)







7.4 Measurement Result

Test Data of Conducted Output Power for band 5.15-5.25 GHz							
Test Mode	Test Frequency (MHz)	Average Power (dBm)	Limits (dBm)	Result			
	5180	12.04	23.98	Pass			
802.11a	5200	11.81	23.98	Pass			
	5240	11.73	23.98	Pass			
	5180	11.88	23.98	Pass			
802.11n20	5200	11.80	23.98	Pass			
	5240	11.72	23.98	Pass			
902 11540	5190	8.19	23.98	Pass			
802.11n40	5230	8.02	23.98	Pass			

Test Data of Conducted Output Power for band 5.725-5.850 GHz							
Test Mode	Test Frequency (MHz)	Average Power (dBm)	Limits (dBm)	Result			
	5745	11.06	30	Pass			
802.11a	5785	10.17	30	Pass			
	5825	9.42	30	Pass			
	5745	11.02	30	Pass			
802.11n20	5785	10.15	30	Pass			
	5825	9.40	30	Pass			
902 11540	5755	10.98	30	Pass			
802.11n40	5795	10.08	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:

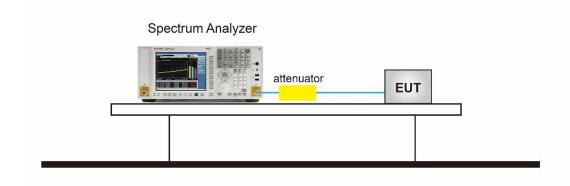
- 1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 2. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
- 3. Set Span = approximately 1.5 to 5 times the OBW, centered on a nominal channel
 The nominal IF filter bandwidth (3 dB RBW)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



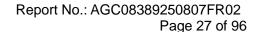


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8.4 Measurement Results

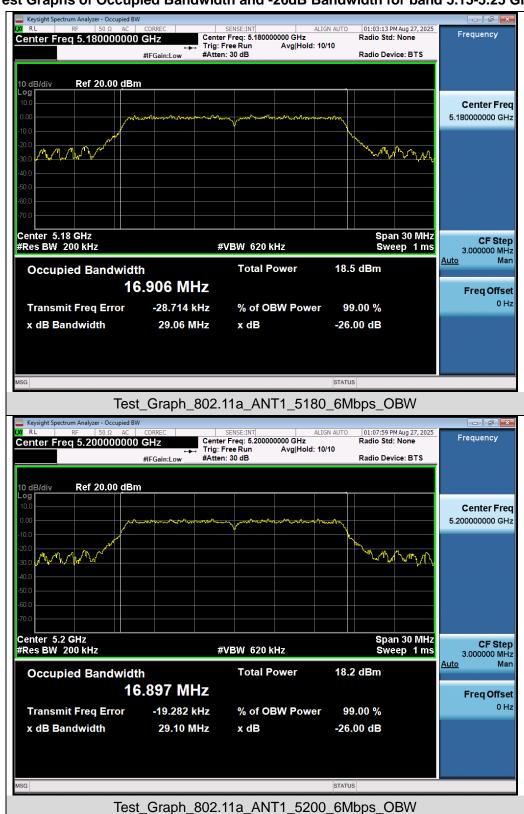
Te	Test Data of Occupied Bandwidth and -26dB Bandwidth for band 5.15-5.25 GHz							
Test Mode	Test Frequency (MHz)	99% Bandwidth (MHz)	-26dB Bandwidth (MHz)	Limits (MHz)	Result			
	5180	16.906	29.059	N/A	Pass			
802.11a	5200	16.897	29.100	N/A	Pass			
	5240	16.866	29.099	N/A	Pass			
	5180	17.804	20.837	N/A	Pass			
802.11n20	5200	17.815	20.755	N/A	Pass			
	5240	17.805	20.771	N/A	Pass			
902 11p40	5190	36.259	40.426	N/A	Pass			
802.11n40	5230	36.257	40.717	N/A	Pass			

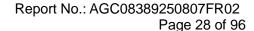
To	Test Data of Occupied Bandwidth and DTS Bandwidth for band 5.725-5.85 GHz							
Test Mode	Test Frequency (MHz)	99% Bandwidth (MHz)	DTS Bandwidth (MHz)	Limits (MHz)	Result			
	5745	16.927	16.377	0.5	Pass			
802.11a	5785	16.861	16.436	0.5	Pass			
	5825	16.892	16.386	0.5	Pass			
	5745	17.904	17.607	0.5	Pass			
802.11n20	5785	17.944	17.605	0.5	Pass			
	5825	17.928	17.595	0.5	Pass			
902 11p40	5755	36.519	34.544	0.5	Pass			
802.11n40	5795	36.565	35.699	0.5	Pass			



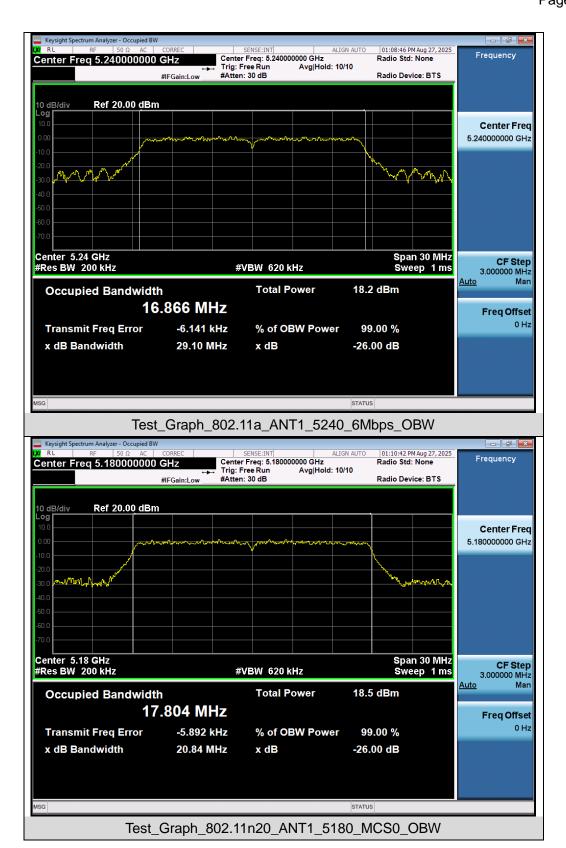


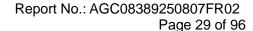
Test Graphs of Occupied Bandwidth and -26dB Bandwidth for band 5.15-5.25 GHz



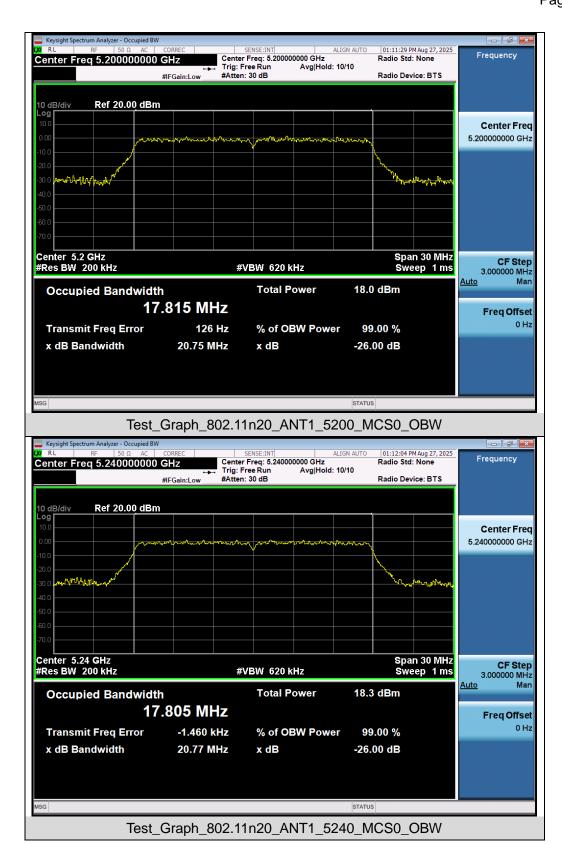


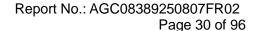




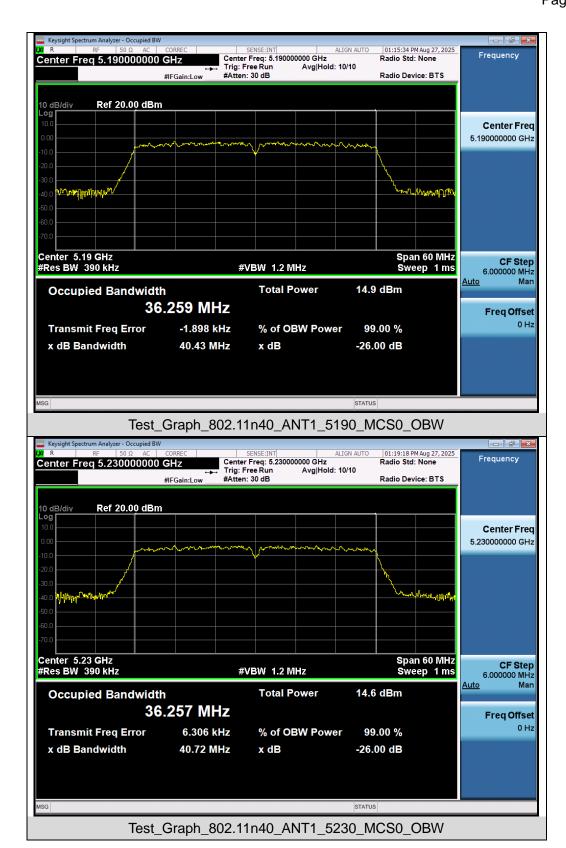


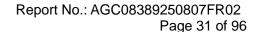






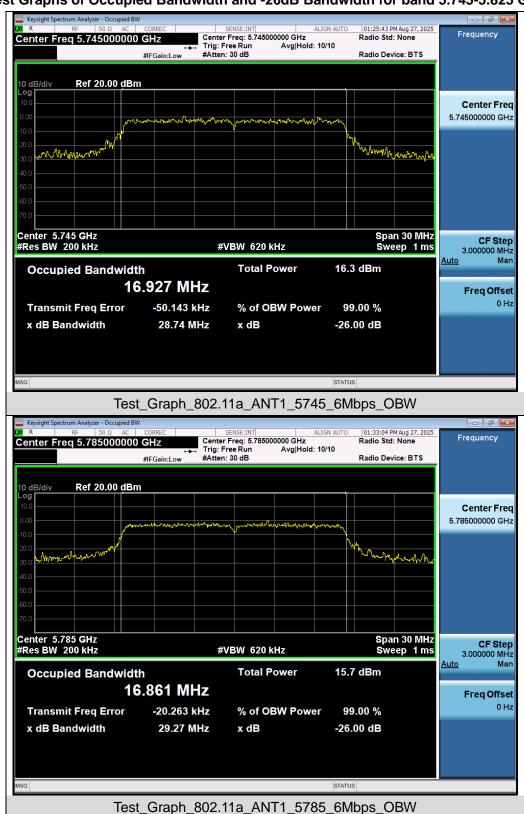


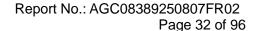




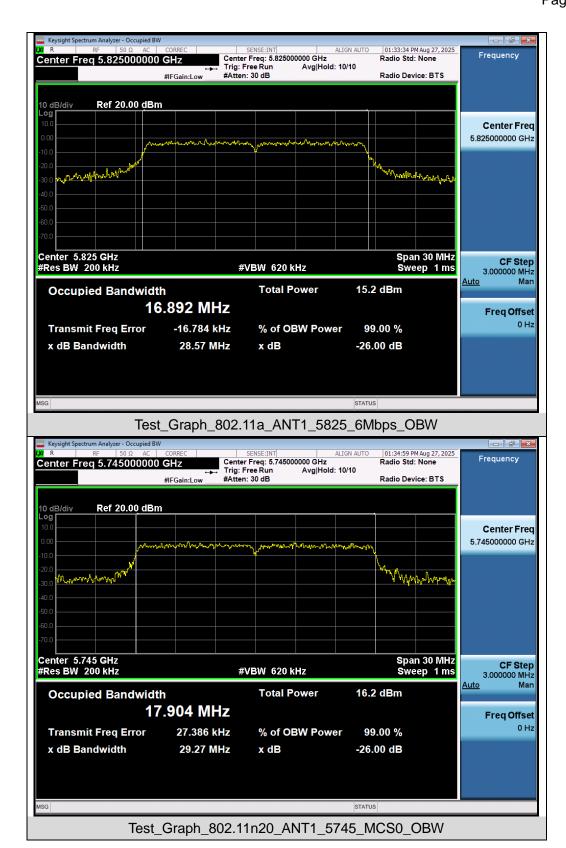


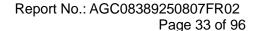
Test Graphs of Occupied Bandwidth and -26dB Bandwidth for band 5.745-5.825 GHz



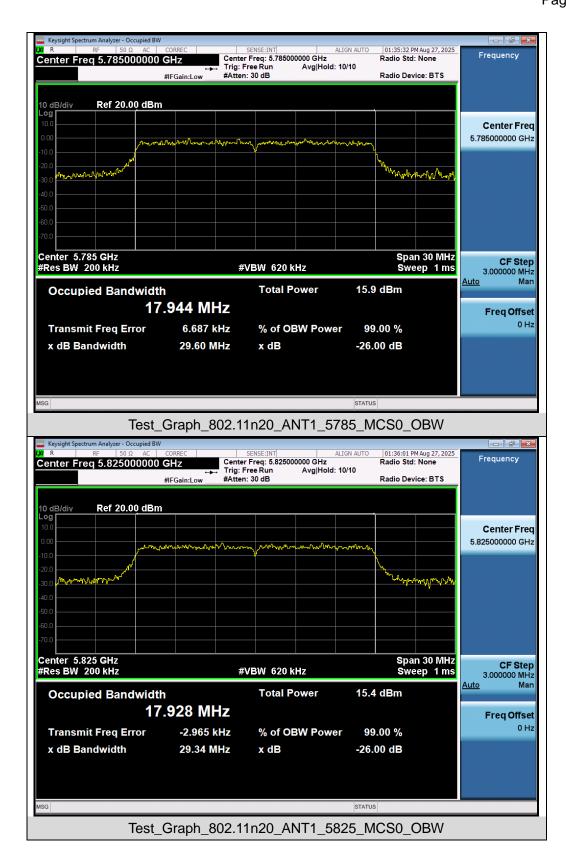


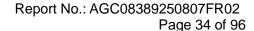




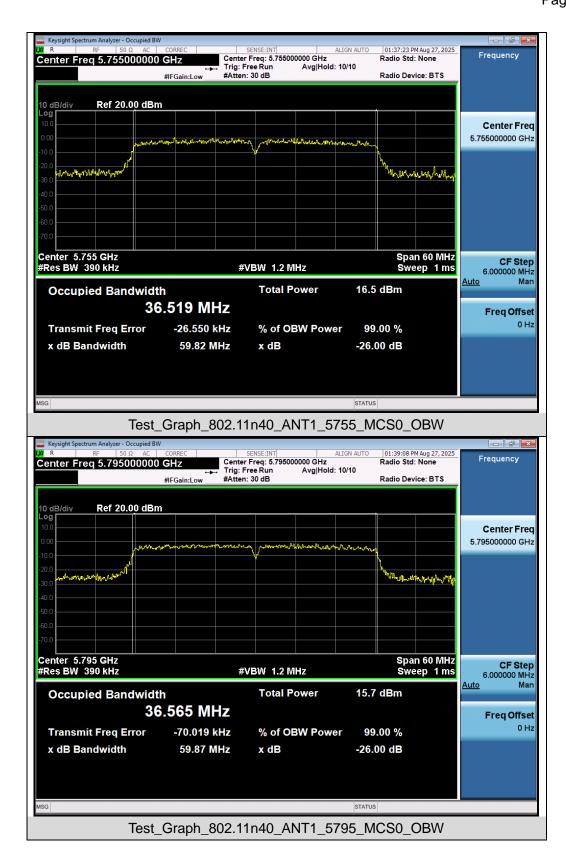


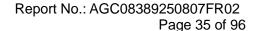






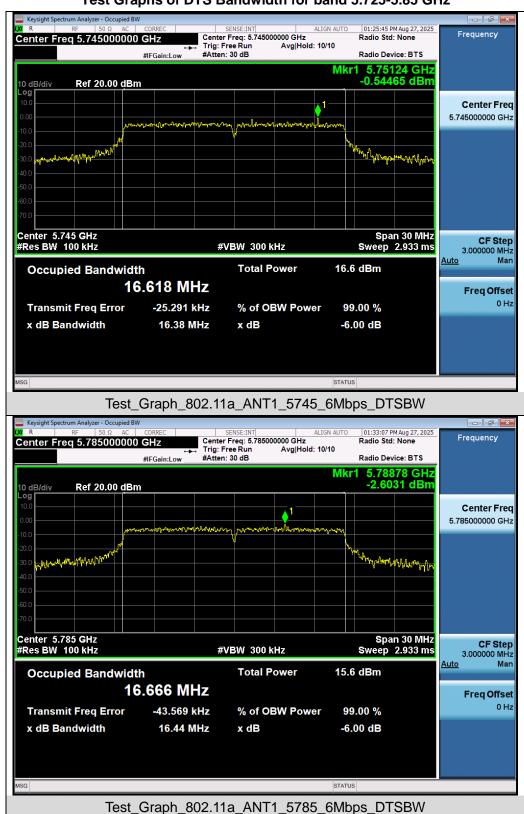






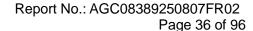


Test Graphs of DTS Bandwidth for band 5.725-5.85 GHz

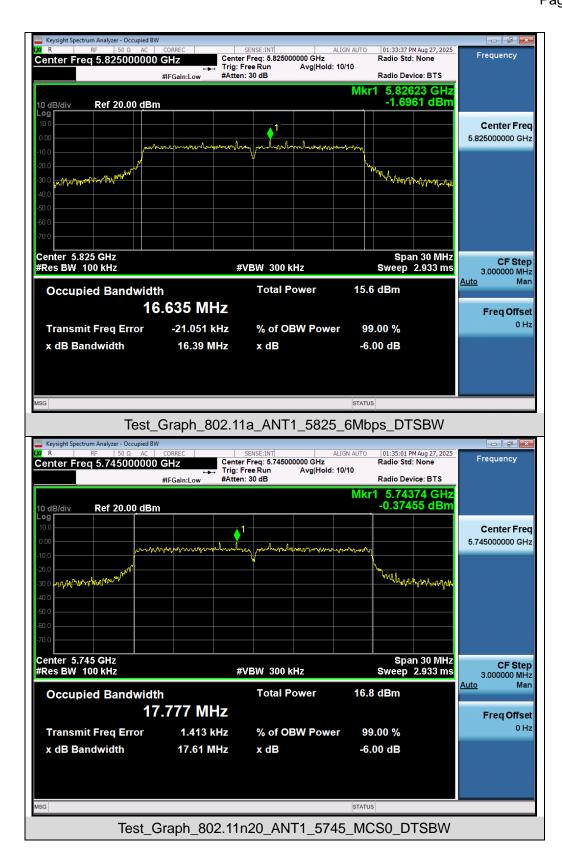


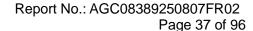
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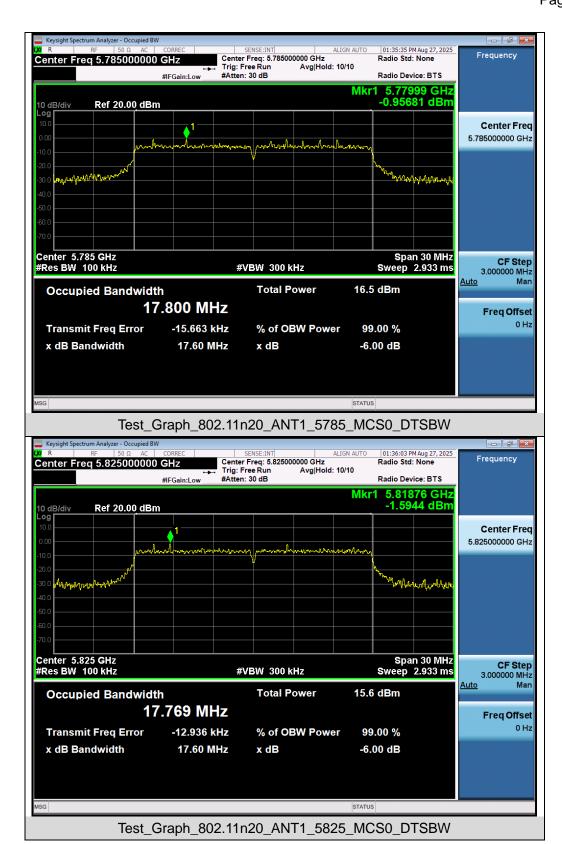


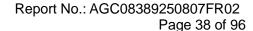




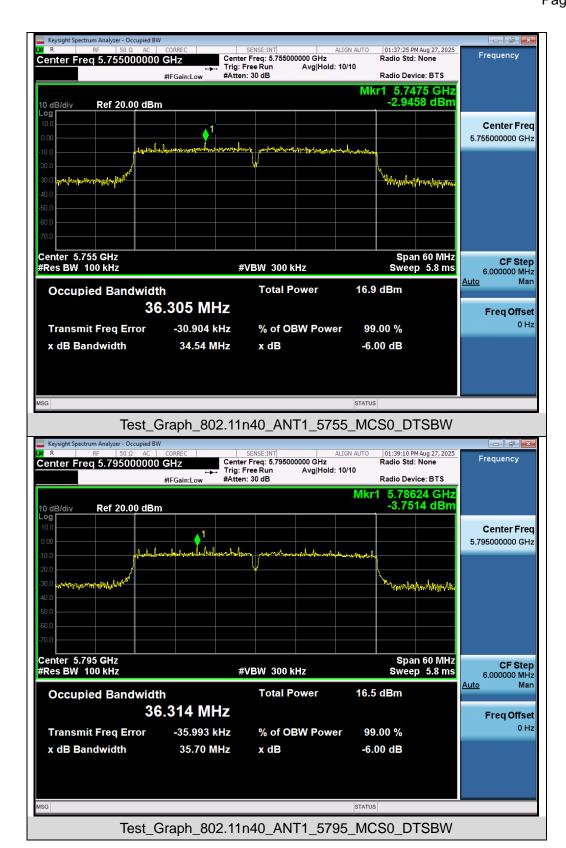












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9. Power Spectral Density Measurement

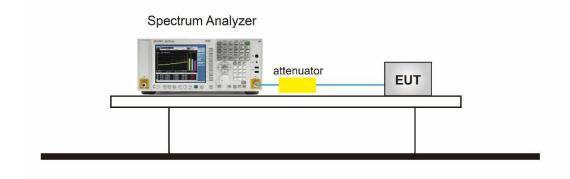
9.1 Provisions Applicable

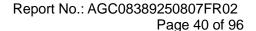
Operation Band	EUT Category		LIMIT
U-NII-1		Outdoor Access Point	17dBm/ MHz
		Fixed point-to-point Access Point	17dBm/ MHz
		Indoor Access Point	17dBm/ MHz
	\boxtimes	Client devices	11dBm/ MHz
U-NII-2A	/		11dBm/ MHz
U-NII-2C	/		11dBm/ MHz
U-NII-3	/		30 dBm/500kHz

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. 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)







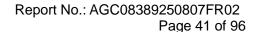
9.4 Measurement Result

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)	Result	
	5180	0.756	11	Pass	
802.11a	5200	0.526	11	Pass	
	5240	0.374	11	Pass	
802.11n20	5180	0.362	11	Pass	
	5200	0.225	11	Pass	
	5240	0.335	11	Pass	
802.11n40	5190	-6.101	11	Pass	
	5230	-6.321	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
	5745	-9.167	-2.177	30	Pass
802.11a	5785	-10.178	-3.188	30	Pass
	5825	-10.899	-3.909	30	Pass
802.11n20	5745	-9.219	-2.229	30	Pass
	5785	-10.449	-3.459	30	Pass
	5825	-11.185	-4.195	30	Pass
802.11n40	5755	-12.408	-5.418	30	Pass
	5795	-13.002	-6.012	30	Pass

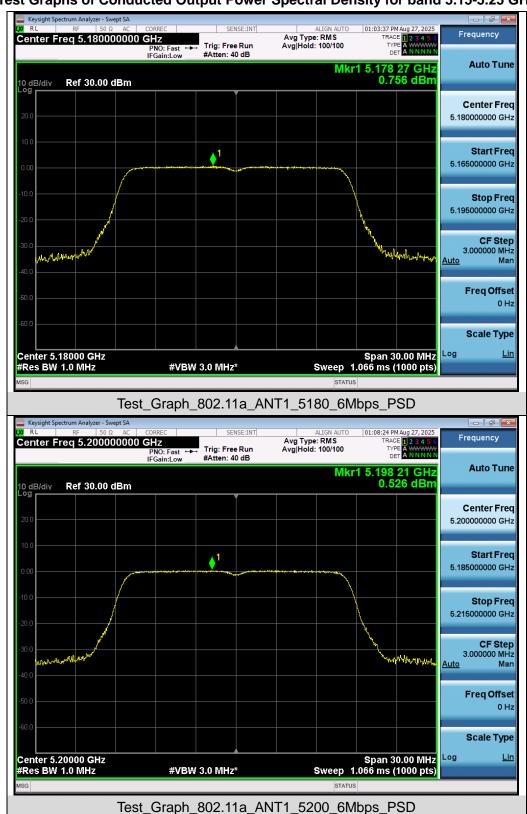
Note:1.Power density(dBm/500kHz) = Power density(dBm/100kHz)+10*log(500/100).

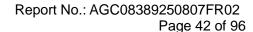
 $2. The \ Total \ PSD(dBm/500kHz) = 10*log \ \{10^{(Ant \ 1 \ PSD/10)} + \ 10^{(Ant \ 2 \ PSD/10)}\} (dBm/500kHz).$



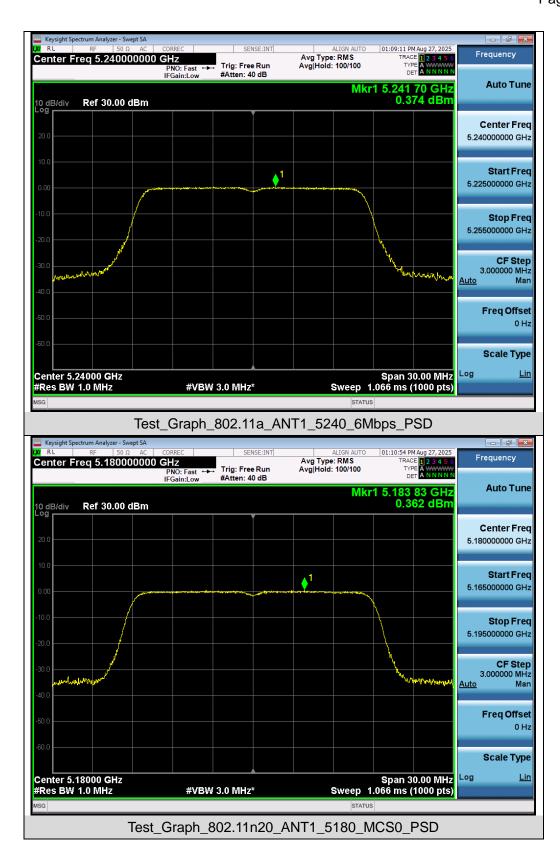


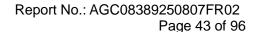
Test Graphs of Conducted Output Power Spectral Density for band 5.15-5.25 GHz



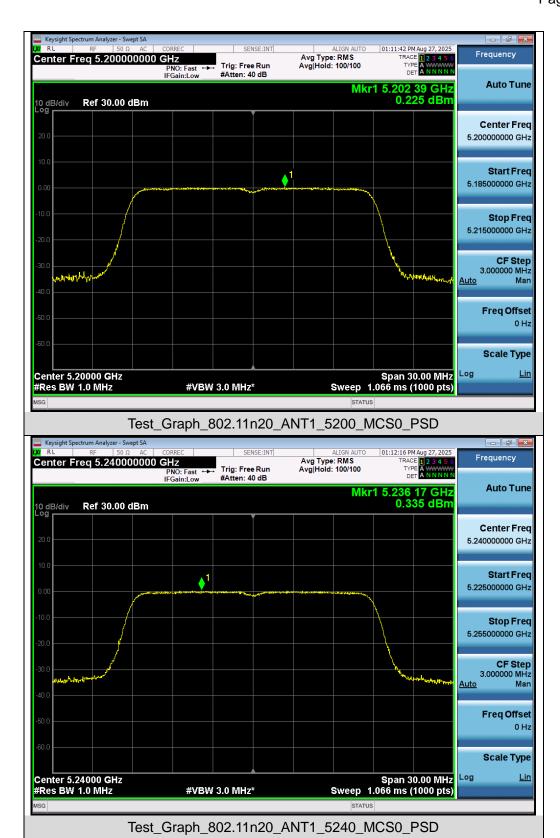


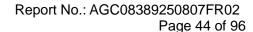




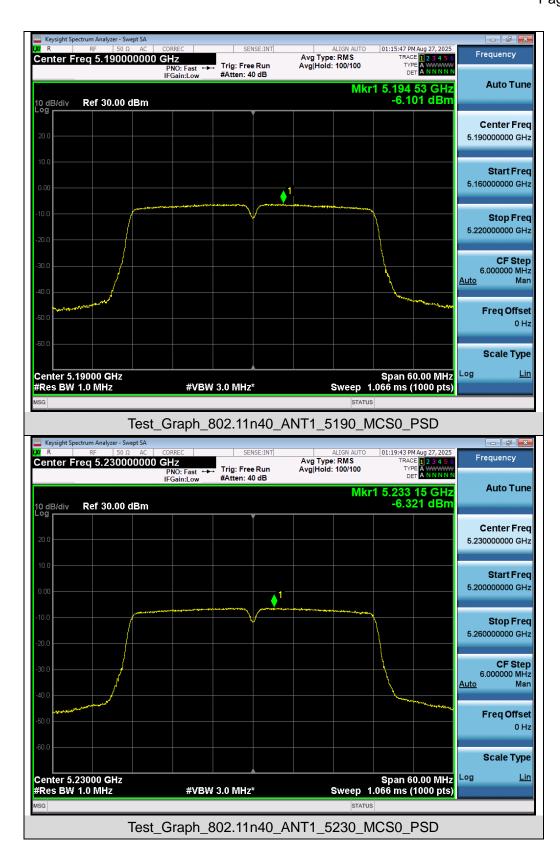


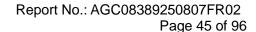






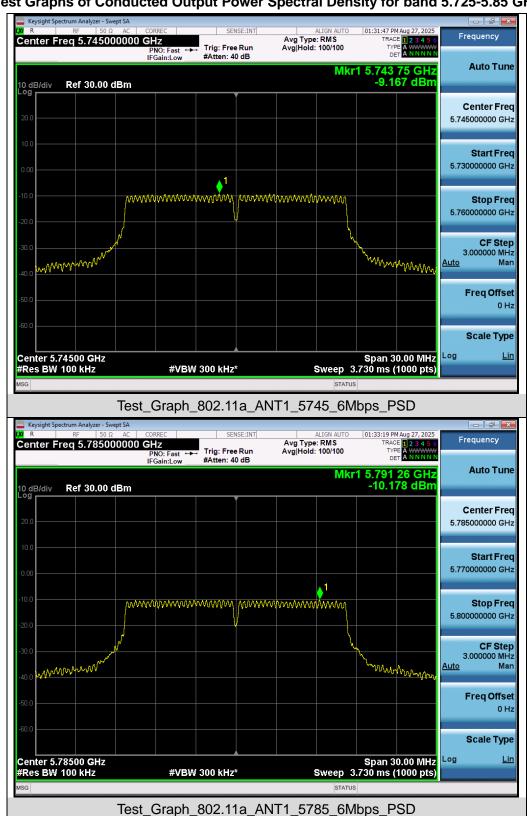


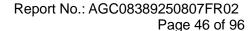




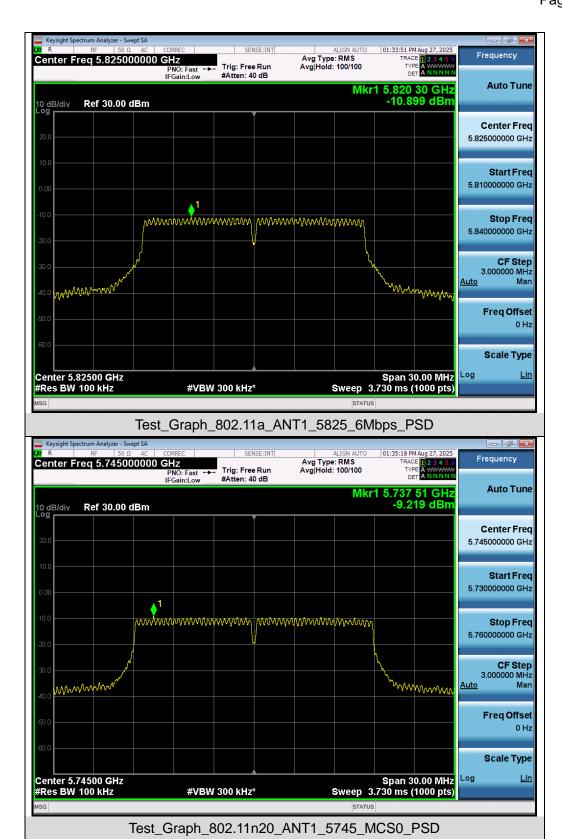


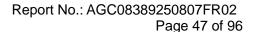
Test Graphs of Conducted Output Power Spectral Density for band 5.725-5.85 GHz



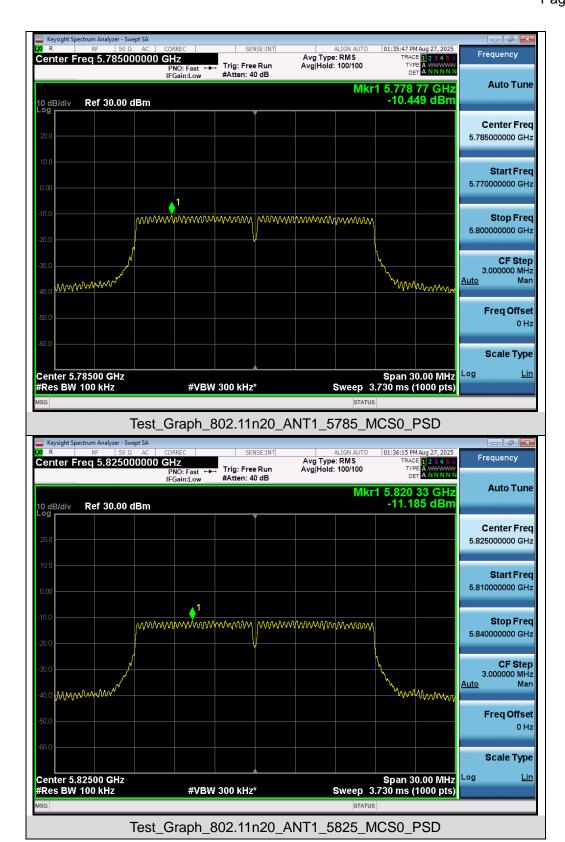


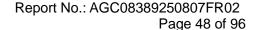
















Test Graph 802.11n40 ANT1 5795 MCS0 PSD



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10. Conducted Band Edge and Out-of-Band Emissions

10.1 Provisions Applicable

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

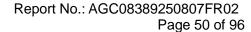
Note 1: The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

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

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

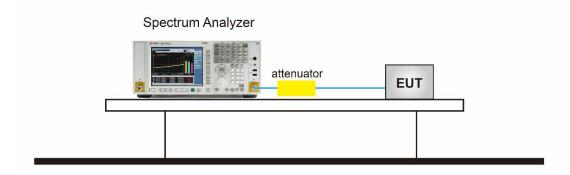
10.2 Measurement Procedure

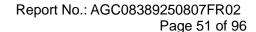
- 1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 2. Set the Span = wide enough to capture the peak level of the in-band emission and all spurious emissions from the lowest frequency generated in the EUT up through the 10th harmonic.
- 3. RBW = 1MHz; VBW= 3MHz; Sweep = auto; Detector function = Peak. (Test frequency below 1GHz)
- 4. RBW = 1 MHz; VBW= 3 MHz; Sweep = auto; Detector function = Peak. (Test frequency Above 1GHz)
- 5. Set SPA Trace 1 Max hold, then View.
- 6. Antenna gain and path loss have been compensated to the Correction factor.
- 7. Mark the maximum useless stray point and compare it with the limit value to record the result.





10.3 Measurement Setup (Block Diagram of Configuration)

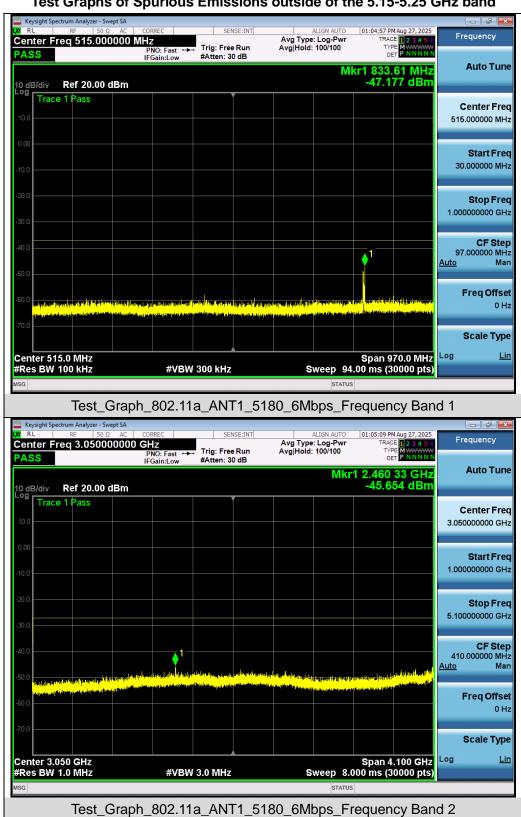






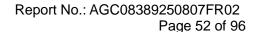
10.4 Measurement Results

Test Graphs of Spurious Emissions outside of the 5.15-5.25 GHz band

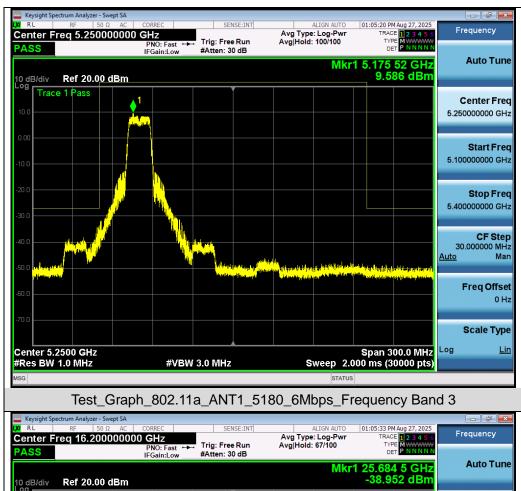


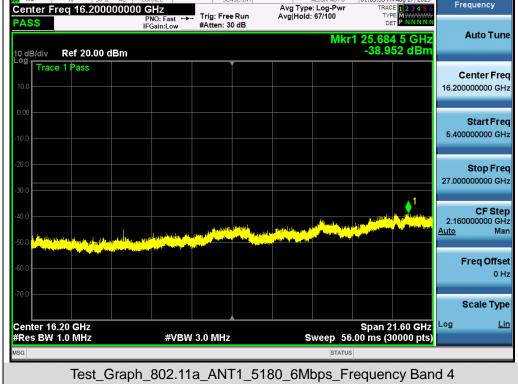
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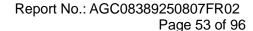
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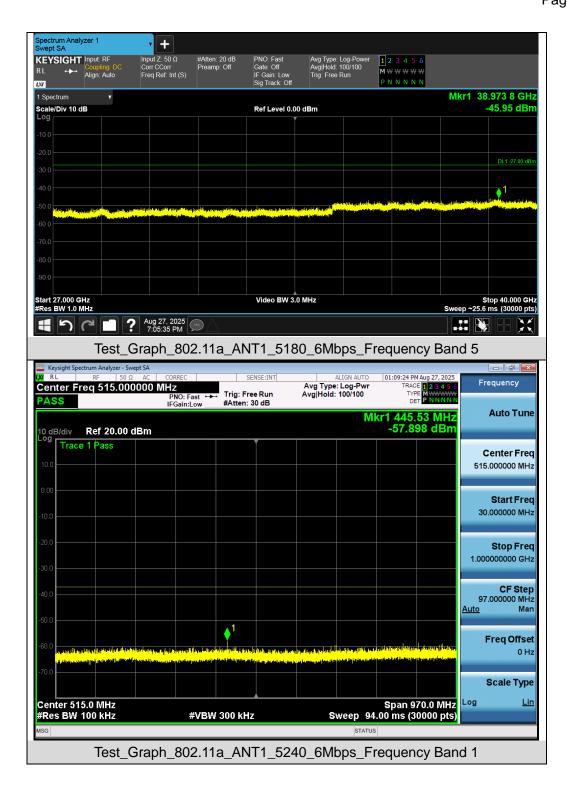


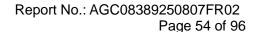




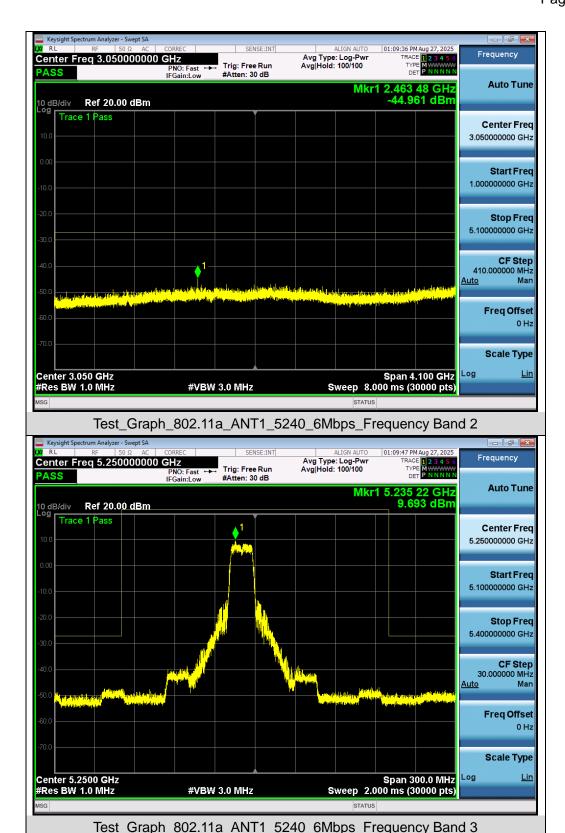


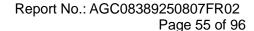




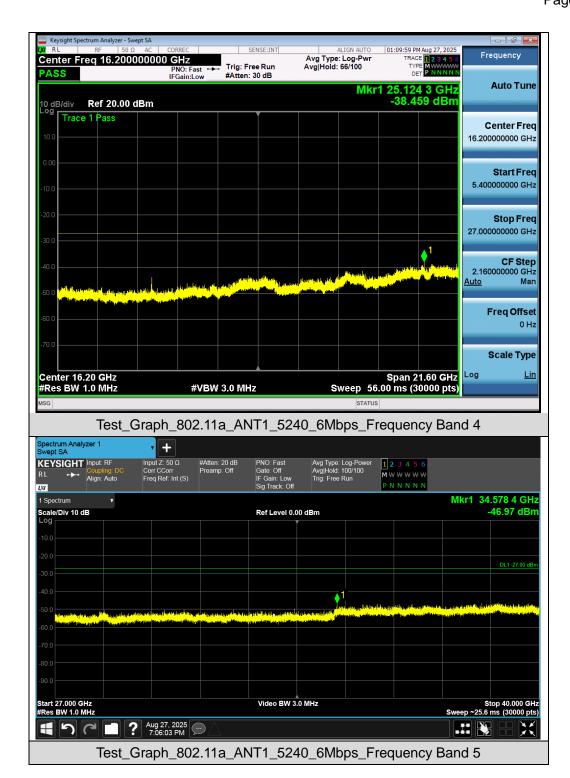


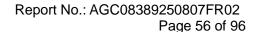










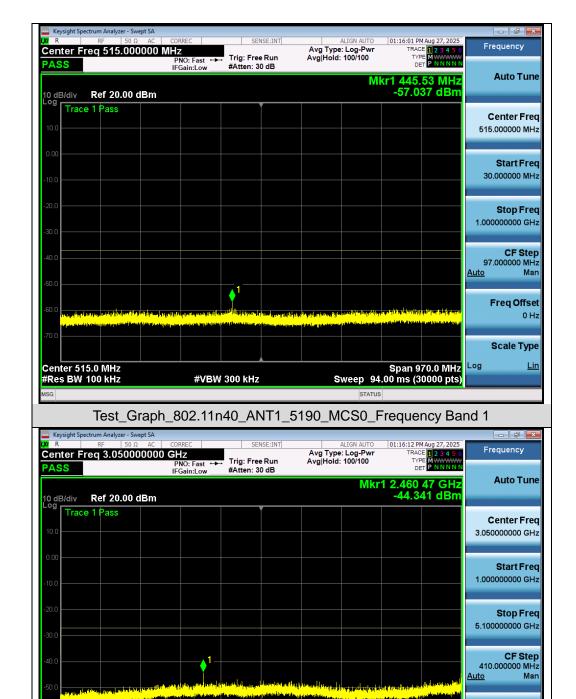


Freq Offset 0 Hz

Scale Type

Span 4.100 GHz Sweep 8.000 ms (30000 pts)



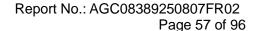


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Test Graph 802.11n40 ANT1 5190 MCS0 Frequency Band 2

#VBW 3.0 MHz

Center 3.050 GHz #Res BW 1.0 MHz

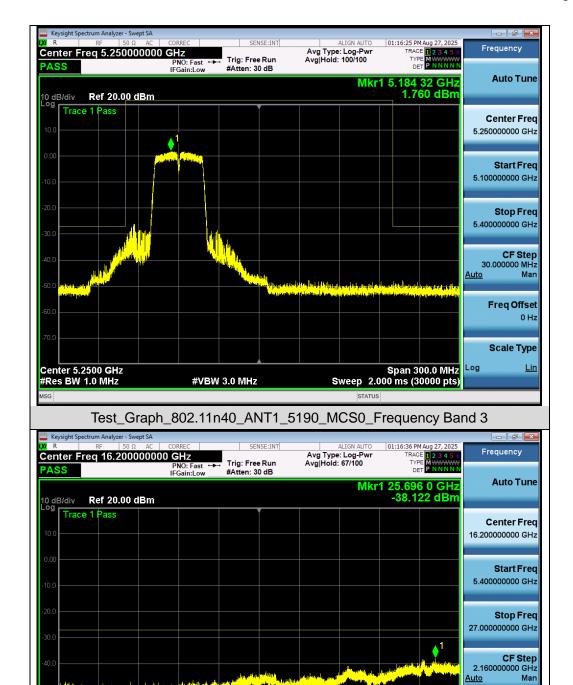


Freq Offset 0 Hz

Scale Type

Span 21.60 GHz Sweep 56.00 ms (30000 pts)



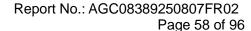


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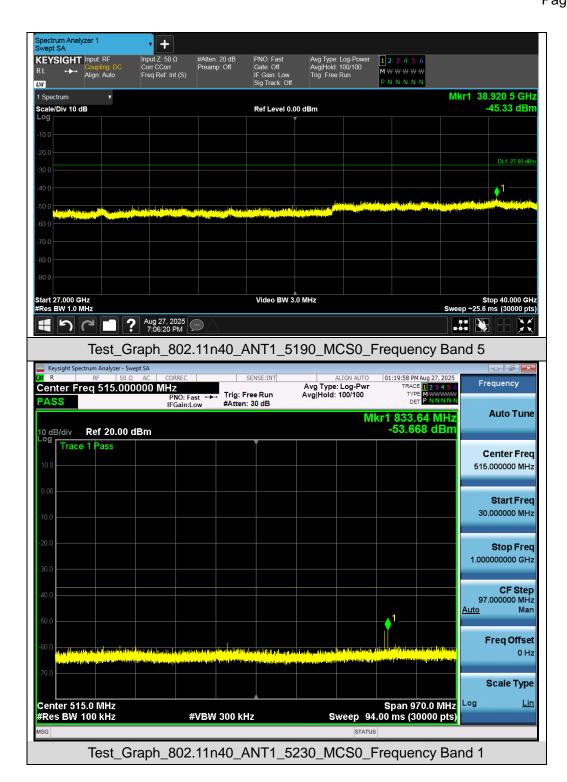
Test Graph 802.11n40 ANT1 5190 MCS0 Frequency Band 4

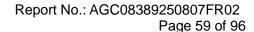
#VBW 3.0 MHz

Center 16.20 GHz #Res BW 1.0 MHz



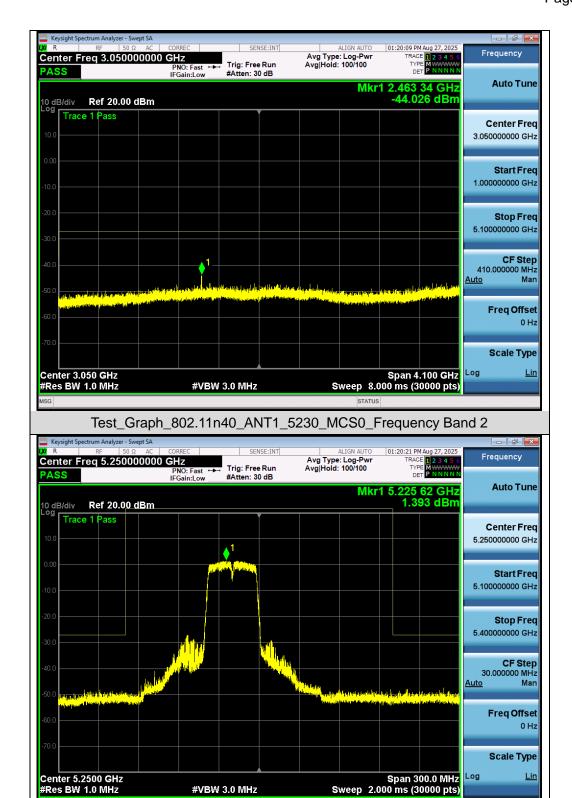






Log

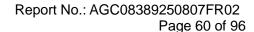




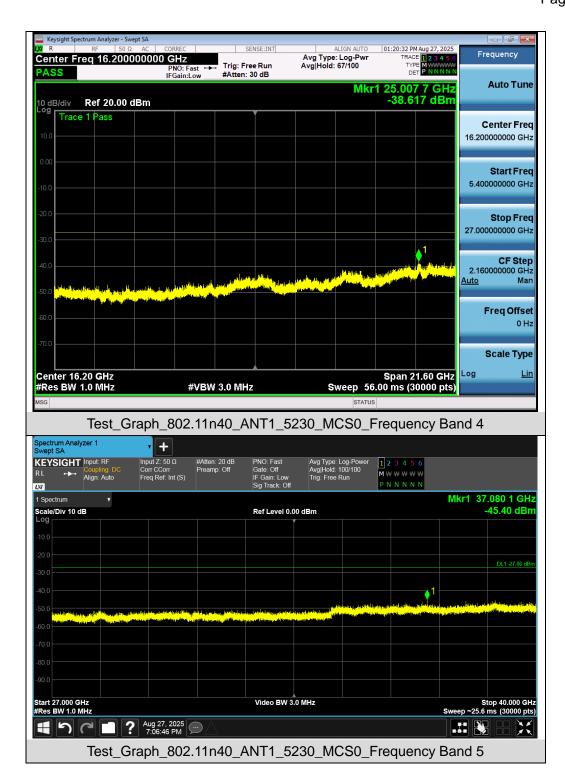
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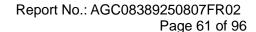
Test Graph 802.11n40 ANT1 5230 MCS0 Frequency Band 3

#VBW 3.0 MHz



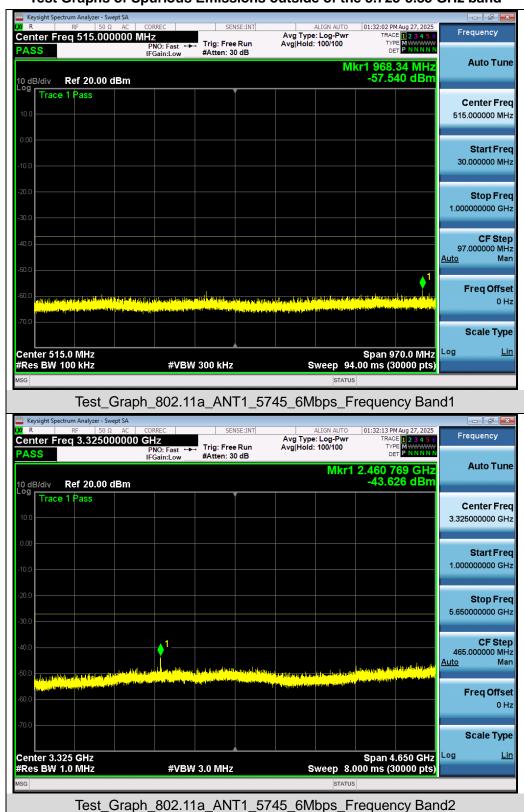


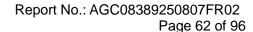






Test Graphs of Spurious Emissions outside of the 5.725-5.85 GHz band





CF Step 2.107500000 GHz

Freq Offset 0 Hz

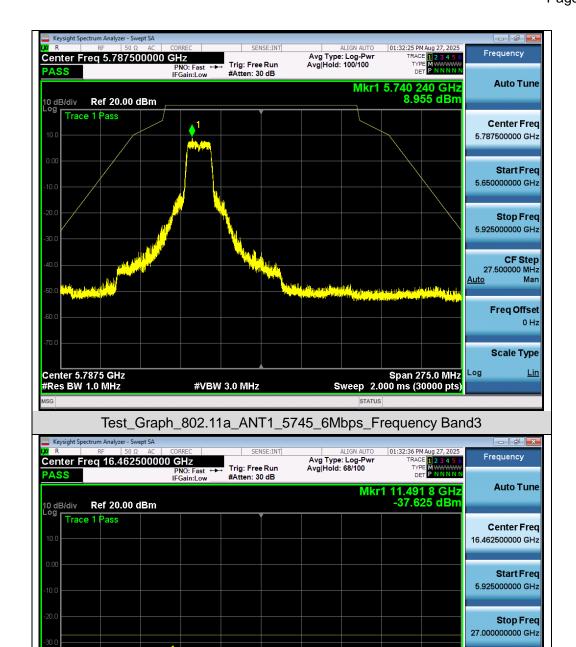
Scale Type

Man

<u>Auto</u>

Span 21.08 GHz Sweep 54.00 ms (30000 pts)



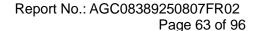


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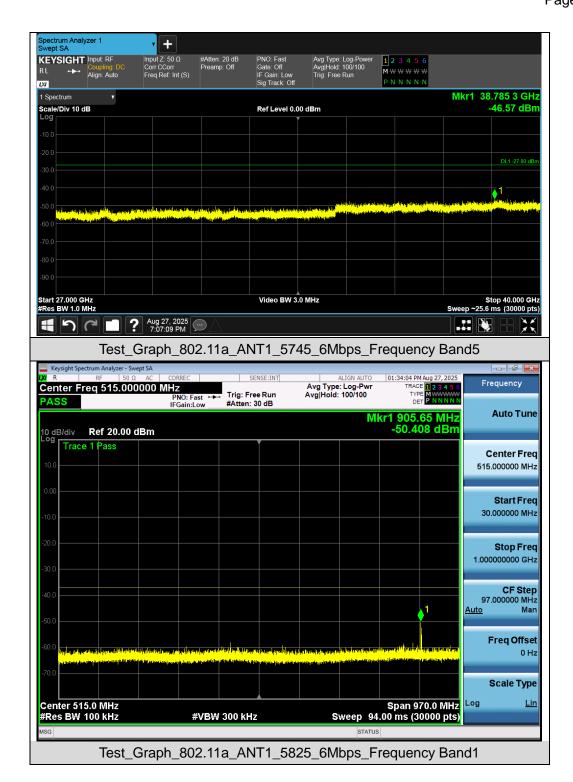
Test Graph 802.11a ANT1 5745 6Mbps Frequency Band4

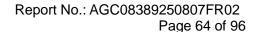
#VBW 3.0 MHz

Center 16.46 GHz #Res BW 1.0 MHz

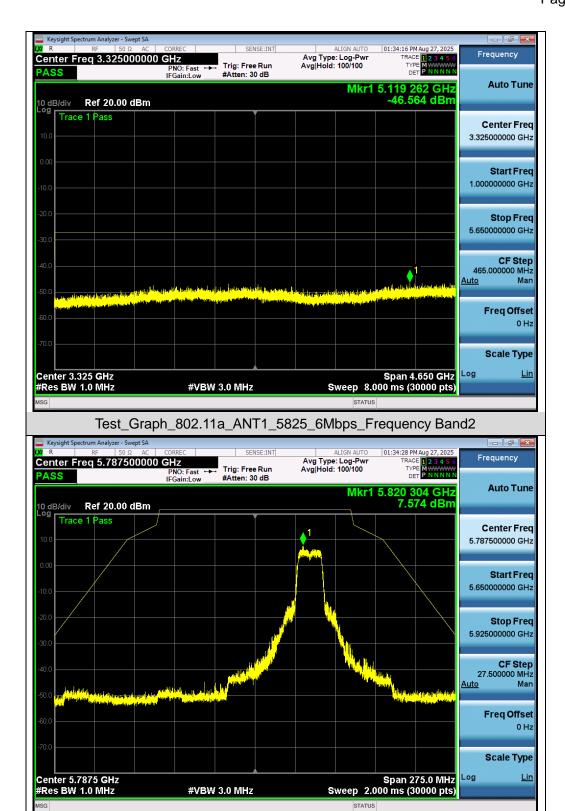




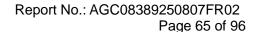




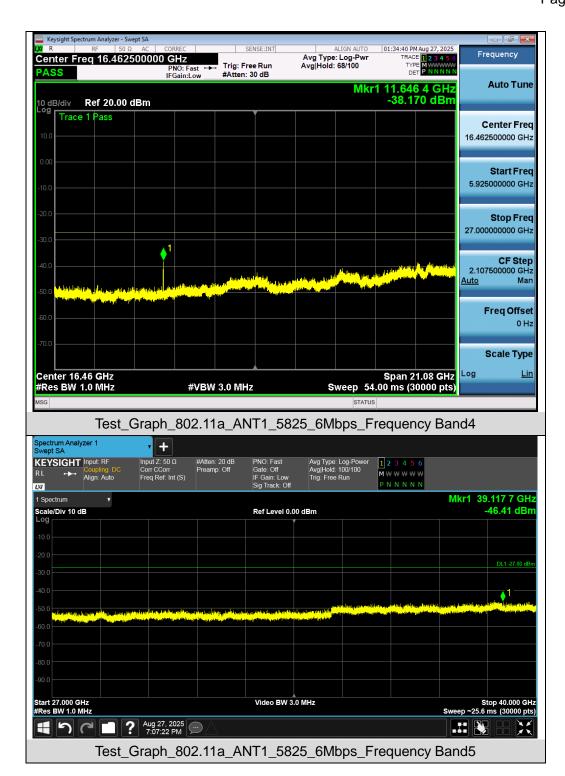


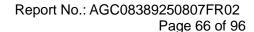


Test Graph 802.11a ANT1 5825 6Mbps Frequency Band3







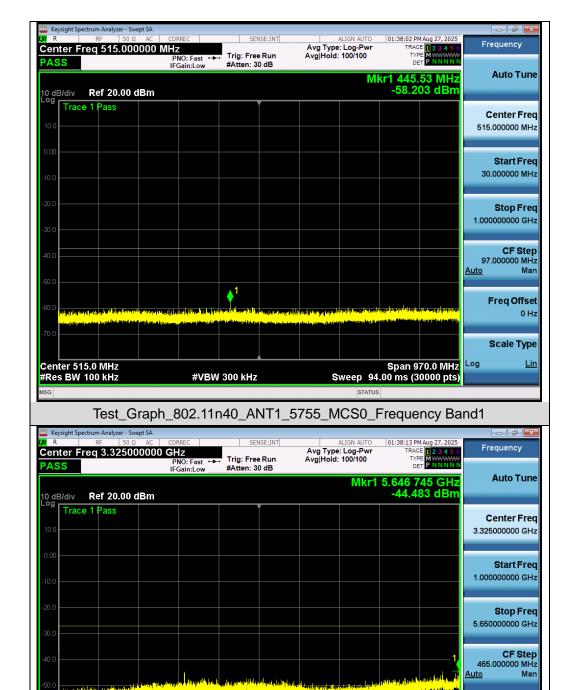


Freq Offset 0 Hz

Scale Type

Span 4.650 GHz Sweep 8.000 ms (30000 pts)



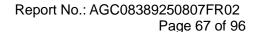


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Test Graph 802.11n40 ANT1 5755 MCS0 Frequency Band2

#VBW 3.0 MHz

Center 3.325 GHz #Res BW 1.0 MHz



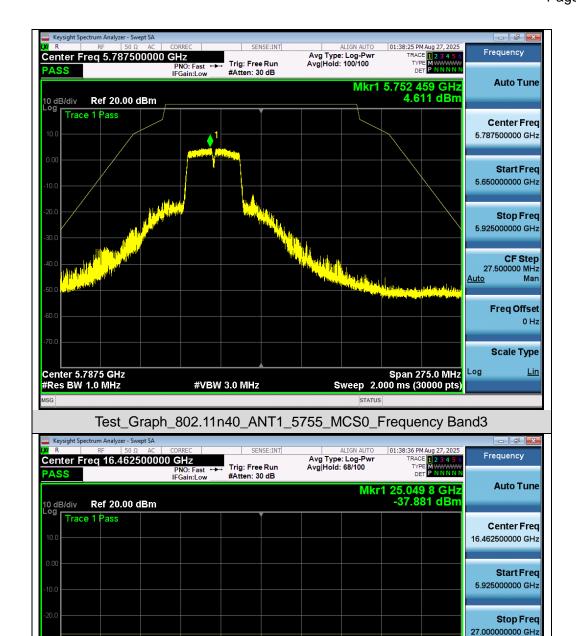
CF Step 2.107500000 GHz

Freq Offset 0 Hz

Man

<u>Auto</u>





Center 16.46 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Sweep 54.00 ms (30000 pts)

Status

Test_Graph_802.11n40_ANT1_5755_MCS0_Frequency Band4