

TEST REPORT

Reference No. : WTD23D06128854W005
FCC ID..... : 2AADC-RCMA
Applicant..... : Inspectron Inc.
Address : 29108 Lorie Lane Wixom, MI 48393 USA
Manufacturer : Inspectron Inc.
Address : 29108 Lorie Lane Wixom, MI 48393 USA
Product Name : ROCAM mini HD
Model No. : ROCAM mini HD-Basis AMP
Brand Name. : 
Standards..... : FCC 47CFR Part 15 Section 15.407
Date of Receipt sample..... : 2023-06-15
Date of Test..... : 2023-06-15 to 2023-10-11
Date of Issue : 2023-10-20
Test Result : **Pass**

Remarks:

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company.
The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

Prepared By:

Waltek Testing Group Co., Ltd.

Address: No. 77, Houjie Section, Guantai Road, Houjie Town, Dongguan City, Guangdong, China

Tel: +86-769-2267 6998

Fax: +86-769-2267 6828

Compiled by:

Approved by:



Estel Qian / Project Engineer



Deval Qin / Designated Reviewer

2 Contents

	Page
1 COVER PAGE.....	1
2 CONTENTS.....	2
3 REVISION HISTORY.....	4
4 GENERAL INFORMATION.....	5
4.1 GENERAL DESCRIPTION OF E.U.T.....	5
4.2 DETAILS OF E.U.T.	5
4.3 CHANNEL LIST	5
4.4 TEST MODE DESCRIPTION.....	7
4.5 TEST FACILITY	7
5 EQUIPMENT USED DURING TEST.....	8
5.1 EQUIPMENTS LIST	8
5.2 DESCRIPTION OF SUPPORT UNITS	9
5.3 MEASUREMENT UNCERTAINTY	9
6 TEST SUMMARY.....	10
7 DUTY CYCLE.....	11
7.1 SUMMARY OF TEST RESULTS	11
8 RADIATED EMISSIONS.....	18
8.1 EUT OPERATION	18
8.2 TEST SETUP	19
8.3 SPECTRUM ANALYZER SETUP.....	20
8.4 TEST PROCEDURE	21
8.5 CORRECTED AMPLITUDE & MARGIN CALCULATION	21
8.6 SUMMARY OF TEST RESULTS	22
9 BAND EDGE.....	36
9.1 TEST PRODUCE	36
9.2 TEST RESULT	37
10 6 DB BANDWIDTH	49
10.1 TEST PROCEDURE	49
10.2 TEST RESULT	49
11 26 DB BANDWIDTH AND 99% OCCUPIED BANDWIDTH.....	57
11.1 TEST PROCEDURE	57
11.2 TEST RESULT	58
12 CONDUCTED OUTPUT POWER	73
12.1 TEST PROCEDURE	73
12.2 TEST RESULT	74
13 POWER SPECTRAL DENSITY	90
13.1 TEST PROCEDURE	90
13.2 TEST RESULT	91
14 FREQUENCY STABILITY	107
14.1 TEST PROCEDURE	107
14.2 TEST RESULT	108
15 ANTENNA REQUIREMENT	109

16 RF EXPOSURE.....109

17 PHOTOGRAPHS OF TEST SETUP AND EUT.....109

3 Revision History

Test Report No.	Date of Receipt Sample	Date of Test	Date of Issue	Purpose	Comment	Approved
WTD23D06128854W005	2023-06-15	2023-06-15 to 2023-10-11	2023-10-20	original	-	Valid

4 General Information

4.1 General Description of E.U.T.

Product:	ROCAM mini HD
Model(s):	ROCAM mini HD-Basis AMP
Model Description:	N/A
Wi-Fi Specification:	802.11a/ n(HT20/40)/ac(VHT20/40/80)
Hardware Version:	REV D
Software Version:	v12.05.23

4.2 Details of E.U.T.

Operation Frequency:	802.11a/n/ac (VHT20): U-NII-1: 5150-5250MHz, U-NII-3:5725-5850MHz 802.11n/ac (VHT40): U-NII-1: 5190-5230MHz, U-NII-3: 5755-5795MHz 802.11ac (VHT80): U-NII-1: 5210MHz, U-NII-3: 5775MHz
----------------------	--

Max. RF output power:	U-NII-1: 9.95dBm U-NII-3: 7.77dBm
-----------------------	--------------------------------------

Type of Modulation:	OFDM
---------------------	------

Antenna installation:	internal permanent antenna
-----------------------	----------------------------

Antenna Gain:	4dBi
---------------	------

Note:

#: The antenna gain is provided by the applicant, and the applicant should be responsible for its authenticity, WALTERK lab has not verified the authenticity of its information.

Ratings:	DC 18V from battery
----------	---------------------

Battery Capacity:	2.0Ah, 36.0Wh
-------------------	---------------

4.3 Channel List

U-NII-1 (5.15-5.25GHz)			
channel	Frequency(MHz)	channel	Frequency(MHz)
36	5180	38	5190
40	5200	42	5210
44	5220	46	5230
48	5240		

U-NII-3 (5.725-5.85GHz)			
channel	Frequency(MHz)	channel	Frequency(MHz)
149	5745	151	5755
153	5765	155	5775
157	5785	159	5795
161	5805	165	5825

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

For 802.11a/n/ac(VHT20):

channel	Frequency(MHz)	channel	Frequency(MHz)
36	5180	40	5200
48	5240		

channel	Frequency(MHz)	channel	Frequency(MHz)
149	5745	157	5785
165	5825		

For 802.11n/ac(VHT40):

channel	Frequency(MHz)	channel	Frequency(MHz)
38	5190	46	5230

channel	Frequency(MHz)	channel	Frequency(MHz)
151	5755	159	5795

For 802.11ac(VHT80):

channel	Frequency(MHz)	channel	Frequency(MHz)
42	5210		

channel	Frequency(MHz)	channel	Frequency(MHz)
155	5775		

4.4 Test Mode Description

During testing, Channel and Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

Transmitting duty cycle is no less 98%.

The software is TermAssist and SecureCRT tool Use together.

Test Items	Mode	Data Rate	TX/RX
Radiated Emissions	802.11a (HT20)	6 Mbps	TX
	802.11n/ac(HT20/40/80)	MCS0	TX
Duty Cycle	802.11a (HT20)	6 Mbps	TX
	802.11n/ac(HT20/40/80)	MCS0	TX
Band Edge	802.11a (HT20)	6 Mbps	TX
	802.11n/ac(HT20/40/80)	MCS0	TX
6dB Bandwidth	802.11a (HT20)	6 Mbps	TX
	802.11n/ac(HT20/40/80)	MCS0	TX
26dB Bandwidth and 99% Occupied Bandwidth	802.11a (HT20)	6 Mbps	TX
	802.11n/ac(HT20/40/80)	MCS0	TX
Conducted Output Power	802.11a (HT20)	6 Mbps	TX
	802.11n/ac(HT20/40/80)	MCS0	TX
Power Spectral Density	802.11a (HT20)	6 Mbps	TX
	802.11n/ac(HT20/40/80)	MCS0	TX
Frequency Stability	Un-modulation	/	TX

4.5 Test Facility

The test facility has a test site registered with the following organizations:

ISED CAB identifier: CN0013. Test Firm Registration No.: 7760A.

Waltek Testing Group Co., Ltd. Has been registered and fully described in a report filed with the Industry Canada. The acceptance letter from the Industry Canada is maintained in our files.

Registration number 7760A, October 15, 2016.

FCC Designation No.: CN1201. Test Firm Registration No.: 523476.

Waltek Testing Group 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. Registration number 523476, September 10, 2019.

5 Equipment Used during Test

5.1 Equipments List

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal. Date	Calibration Due Date
3m Semi-anechoic Chamber for Radiation Emissions 1#						
1	Spectrum Analyzer	R&S	FSP30	100091	2023-04-24	2024-04-23
2	Amplifier	Agilent	8447D	2944A10178	2022-08-01 2023-07-27	2023-07-27 2024-07-26
3	Tri-log Broadband Antenna	SCHWARZBECK	VULB9163	336	2022-08-08 2023-08-07	2023-08-07 2024-08-06
4	Coaxial Cable	Top	TYPE16(13M)	-	2023-04-24	2024-04-23
5	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9120D	667	2023-02-02	2024-02-01
6	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9170	335	2022-08-01 2023-07-27	2023-07-27 2024-07-26
7	Broadband Preamplifier	COMPLIANCE	PAP-1G18	2004	2022-08-08 2023-08-07	2023-08-07 2024-08-06
8	Coaxial Cable	Top	ZT26-NJ-NJ-8M/FA	-	2023-02-02	2024-02-01
9	Microwave Amplifier	SCHWARZBECK	BBV 9721	100472	2022-08-01 2023-07-27	2023-07-27 2024-07-26
10	Coaxial Cable	Top	ZT40-2.92J-2.92J-2.0M	17100919	2023-04-24	2024-04-23
3m Semi-anechoic Chamber for Radiation Emissions 2#						
1	Test Receiver	R&S	ESCI	101296	2023-04-24	2024-04-23
2	Trilog Broadband Antenna	SCHWARZBECK	VULB9160	9160-3325	2022-10-31	2023-10-30
3	Active Loop Antenna	Com-Power	AL-130R	10160007	2023-05-07	2024-05-06
4	Amplifier	ANRITSU	MH648A	M43381	2023-04-24	2024-04-23
5	Cable	HUBER+SUHNER	CBL2	525178	2023-04-24	2024-04-23
RF Conducting						
1	Spectrum Analyzer	R&S	FSP40	100501	2022-08-01 2023-07-27	2023-07-27 2024-07-26
2	Spectrum Analyzer	Agilent	N9020A	MY49100060	2022-08-01 2023-07-27	2023-07-27 2024-07-26

Test Software:

Test Item	Software name	Software version
Radiated Emission(3m)	EZ-EMC	EZ-EMC(RA-03A1-1)

5.2 Description of Support Units

Equipment	Manufacturer	Model No.	Series No.
/	/	/	/

5.3 Measurement Uncertainty

Parameter	Uncertainty
Radio Frequency	$\pm 1 \times 10^{-6}$
RF Power	± 1.0 dB
RF Power Density	± 2.2 dB
Radiated Spurious Emissions test	± 5.03 dB (30M~1000MHz)
	± 5.47 dB (1000M~25000MHz)
Conducted Spurious Emissions test	± 3.64 dB (AC mains 150KHz~30MHz)

6 Test Summary

Test Items	Test Requirement	Result
Conducted Emissions	15.207(a)	N/A
Radiated Emissions	15.407(a) 15.205(a) 15.209(a)	PASS
Duty Cycle	KDB 789033	PASS
6dB Bandwidth	15.407(a)	PASS
26 dB Emission Bandwidth & 99% Occupied Bandwidth	15.407(a)	PASS
Maximum Conducted Output Power	15.407(a)	PASS
Power Spectral Density	15.407(a)	PASS
Restricted bands around fundamental frequency	15.407(a)	PASS
Antenna Requirement	15.203	PASS
Maximum Permissible Exposure (Exposure of Humans to RF Fields)	1.1307(b)(1)	PASS

7 Duty cycle

Test Requirement: FCC 47CFR Part 15 Section 15.407
KDB789033 D02 General U-NII Test Procedures New Rules v02r01, Section (B)

Test Method: ANSI C63.10: 2013

Test Limit: N/A

Test Result: PASS

Remark: Through Pre-scan, and found 802.11a at lowest channel is the worst case. Only the worst case is recorded in the report.

7.1 Summary of Test Results

Type of Modulation	On time ms	Period ms	Duty Cycle linear	Duty Cycle %	Duty Cycle Factor(dB)	Average Factor(dB)
U-NII-1 802.11a	2.052	2.184	0.94	93.96	0.27	-0.54
U-NII-1 802.11n(HT20)	1.902	2.046	0.93	92.96	0.32	-0.63
U-NII-1 802.11n(HT40)	0.936	1.046	0.89	89.48	0.48	-0.97
U-NII-1 802.11ac (VHT20)	1.926	2.064	0.93	93.31	0.30	-0.60
U-NII-1 802.11ac (VHT40)	0.948	1.025	0.92	92.49	0.34	-0.68
U-NII-1 802.11ac (VHT80)	0.456	0.614	0.74	74.27	1.29	-2.58
U-NII-3 802.11a	2.055	2.155	0.95	95.36	0.21	-0.41
U-NII-3 802.11n(HT20)	1.900	2.075	0.92	91.57	0.38	-0.77
U-NII-3 802.11n(HT40)	0.904	1.065	0.85	84.88	0.71	-1.42
U-NII-3 802.11ac (VHT20)	1.920	2.045	0.94	93.89	0.27	-0.55
U-NII-3 802.11ac (VHT40)	0.913	1.053	0.87	86.70	0.62	-1.24
U-NII-3 802.11ac (VHT80)	0.424	0.606	0.70	69.97	1.55	-3.10

Remark:

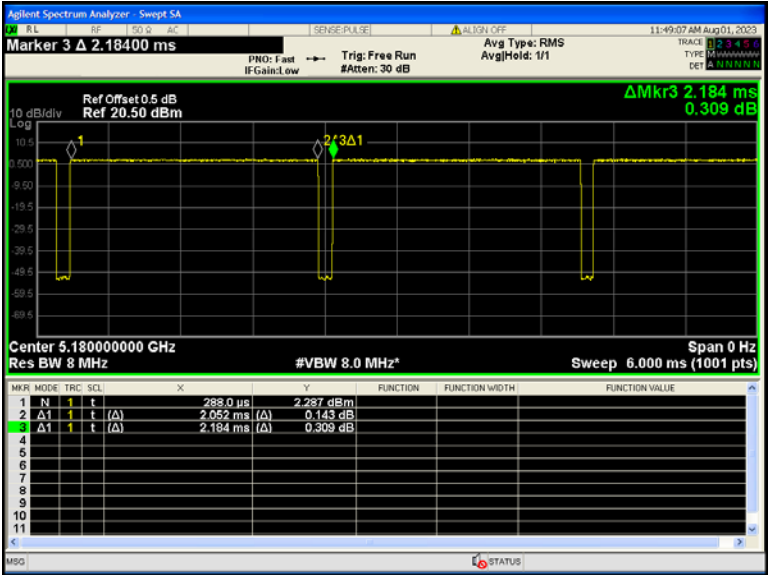
Duty cycle=On Time/period;

Duty cycle factor= $10 \cdot \log(1/\text{Duty cycle})$;

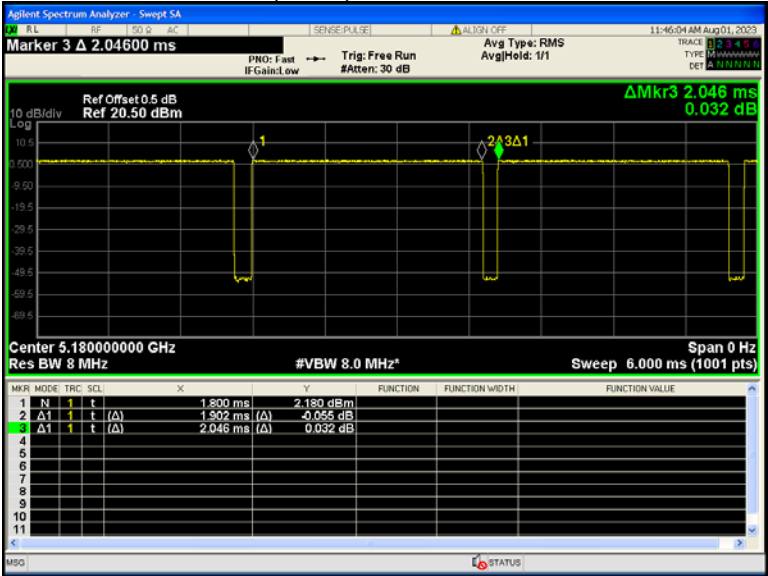
Average factor= $20 \log_{10} \text{Duty cycle}$

Test result plots shown as follows:

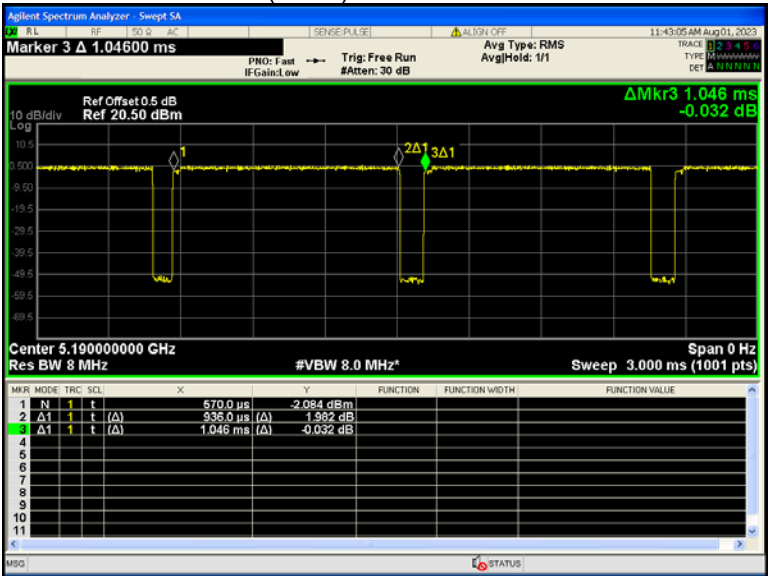
802.11a U-NII-1 Low channel



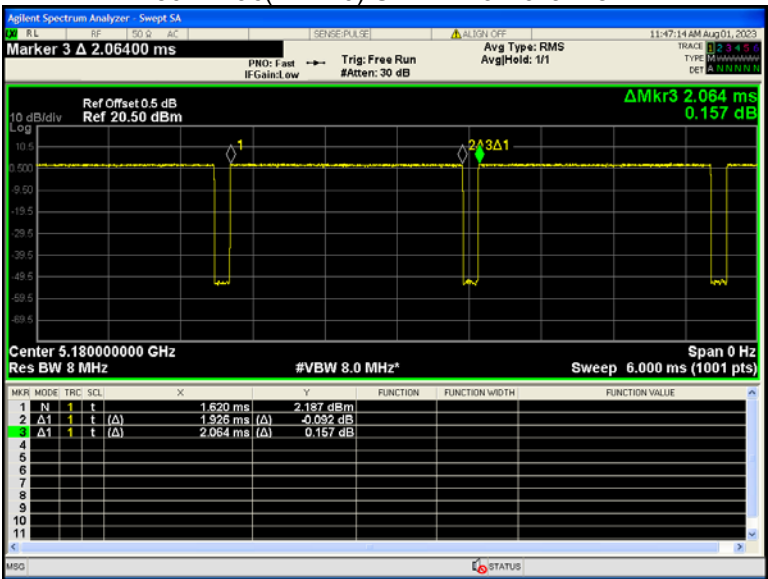
802.11n(HT20) U-NII-1 Low channel



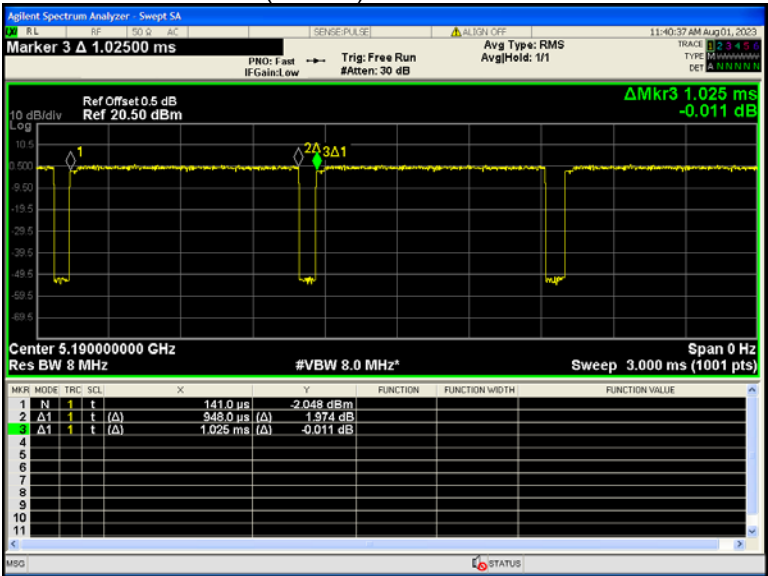
802.11n(HT40) U-NII-1 Low channel



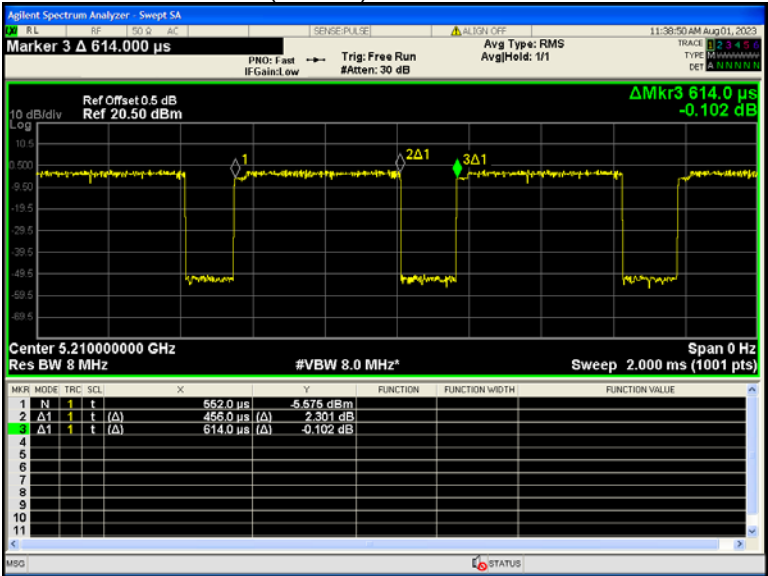
802.11ac(VHT20) U-NII-1 Low channel



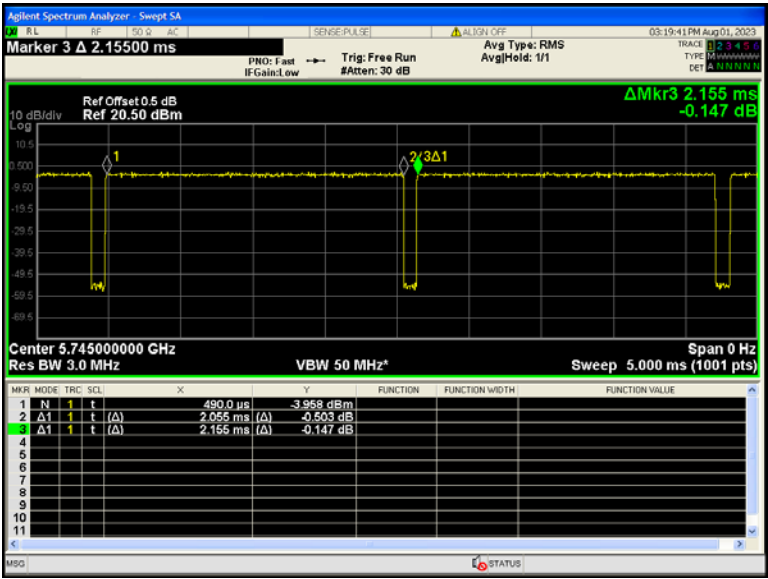
802.11ac(VHT40) U-NII-1 Low channel



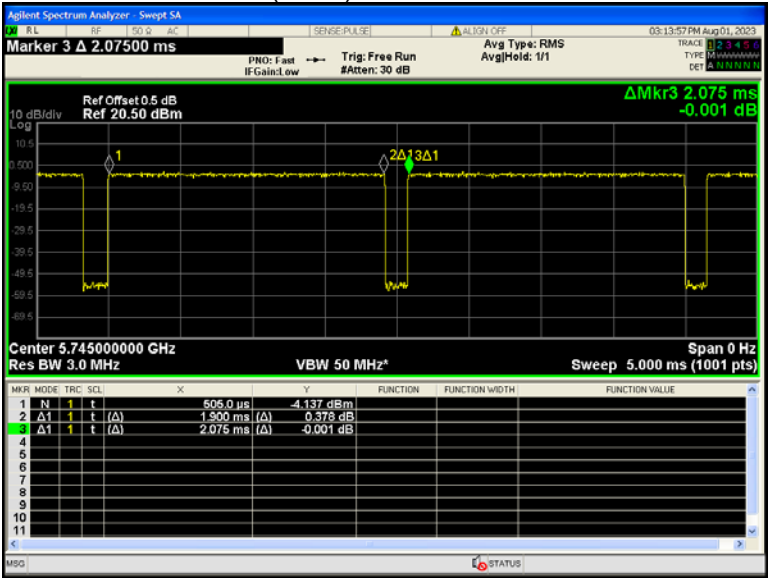
802.11ac(VHT80) U-NII-1 Low channel



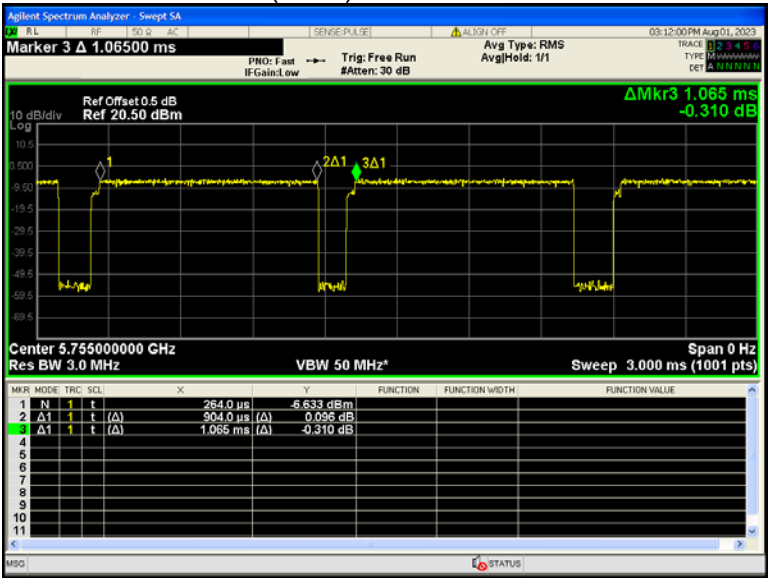
802.11a U-NII-3 Low channel



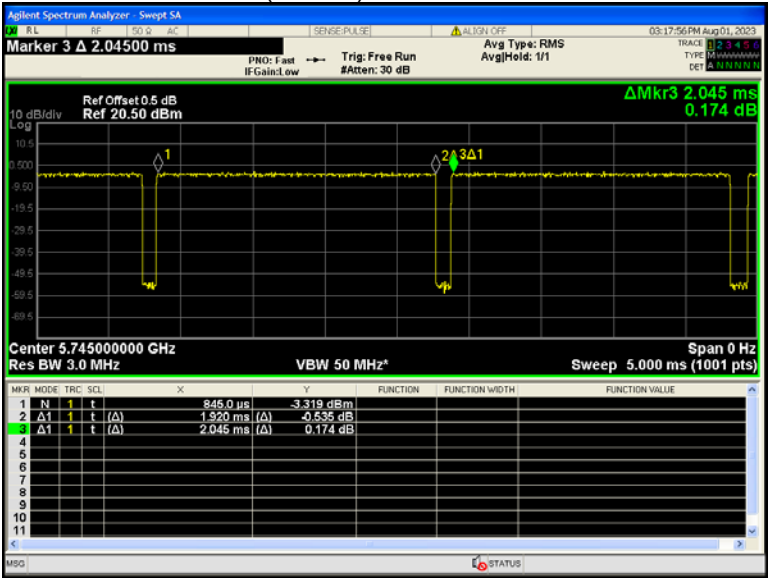
802.11n(HT20) U-NII-3 Low channel



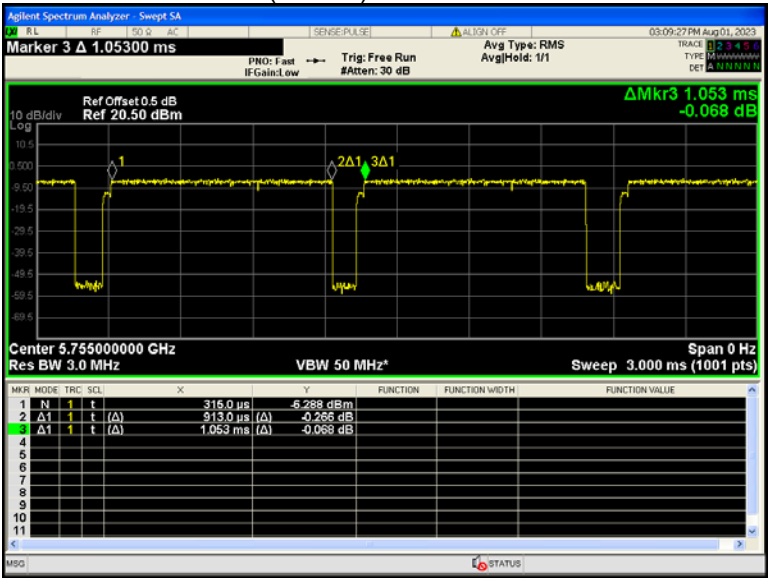
802.11n(HT40) U-NII-3 Low channel



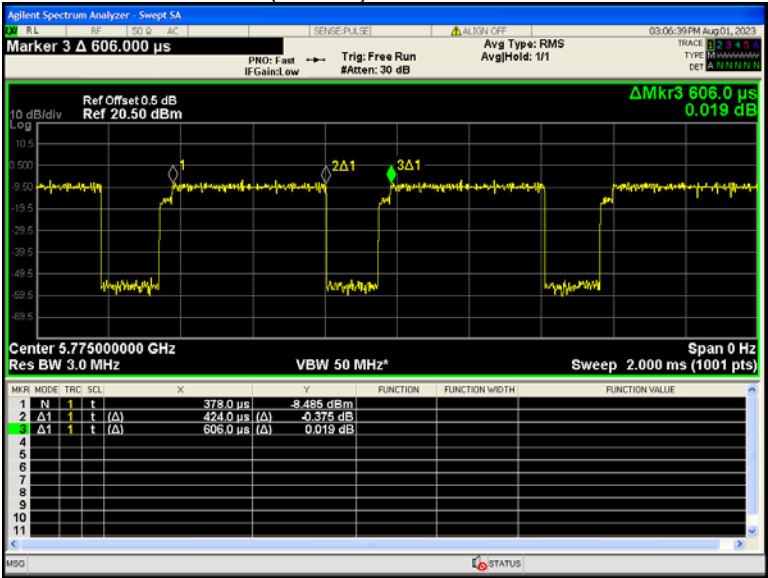
802.11ac(VHT20) U-NII-3 Low channel



802.11ac(VHT40) U-NII-3 Low channel



802.11ac(VHT80) U-NII-3 Low channel



8 Radiated Emissions

Test Requirement: FCC 47CFR Part 15 Section 15.209 & 15.407

Test Method: ANSI C63.10:2013

Test Result: PASS

Measurement Distance: 3m

Limit:

Frequency (MHz)	Field Strength		Field Strength Limit at 3m Measurement Distance	
	uV/m	Distance (m)	uV/m	dBuV/m
0.009 ~ 0.490	$2400/F(\text{kHz})$	300	$10000 * 2400/F(\text{kHz})$	$20\log^{(2400/F(\text{kHz}))} + 80$
0.490 ~ 1.705	$24000/F(\text{kHz})$	30	$100 * 24000/F(\text{kHz})$	$20\log^{(24000/F(\text{kHz}))} + 40$
1.705 ~ 30	30	30	$100 * 30$	$20\log^{(30)} + 40$
30 ~ 88	100	3	100	$20\log^{(100)}$
88 ~ 216	150	3	150	$20\log^{(150)}$
216 ~ 960	200	3	200	$20\log^{(200)}$
Above 960	500	3	500	$20\log^{(500)}$

8.1 EUT Operation

Operating Environment :

Temperature: 23.5 °C

Humidity: 52.1 % RH

Atmospheric Pressure: 101.2kPa

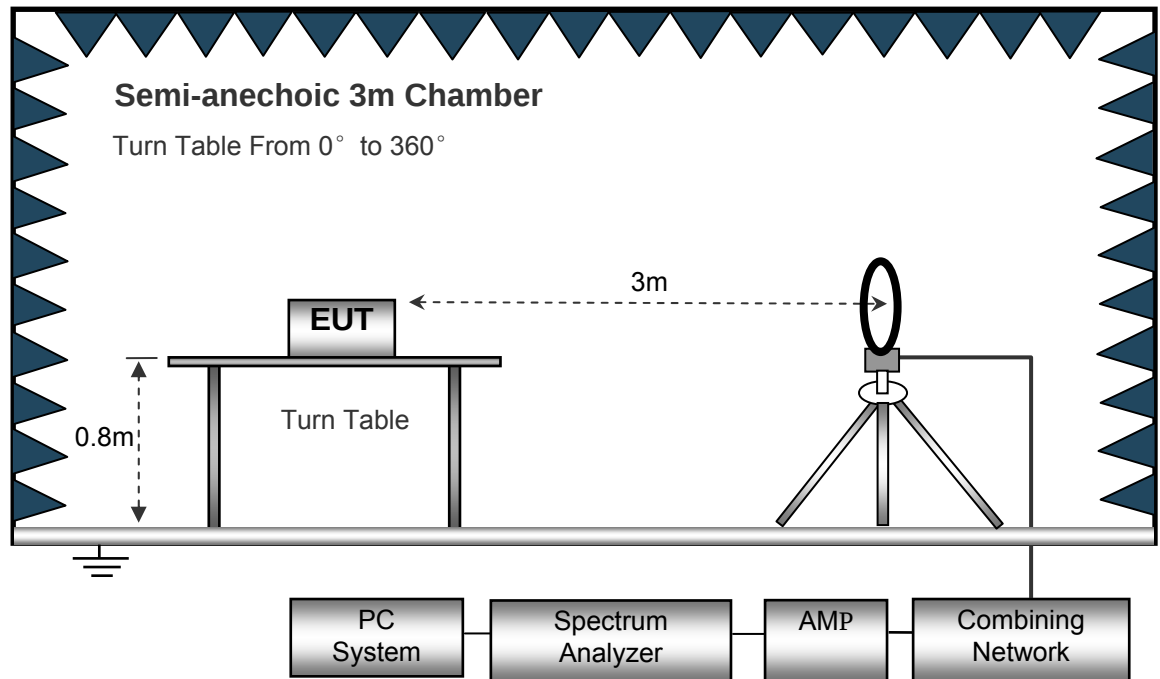
EUT Operation :

The test was performed in transmitting mode, the test data were shown in the report.

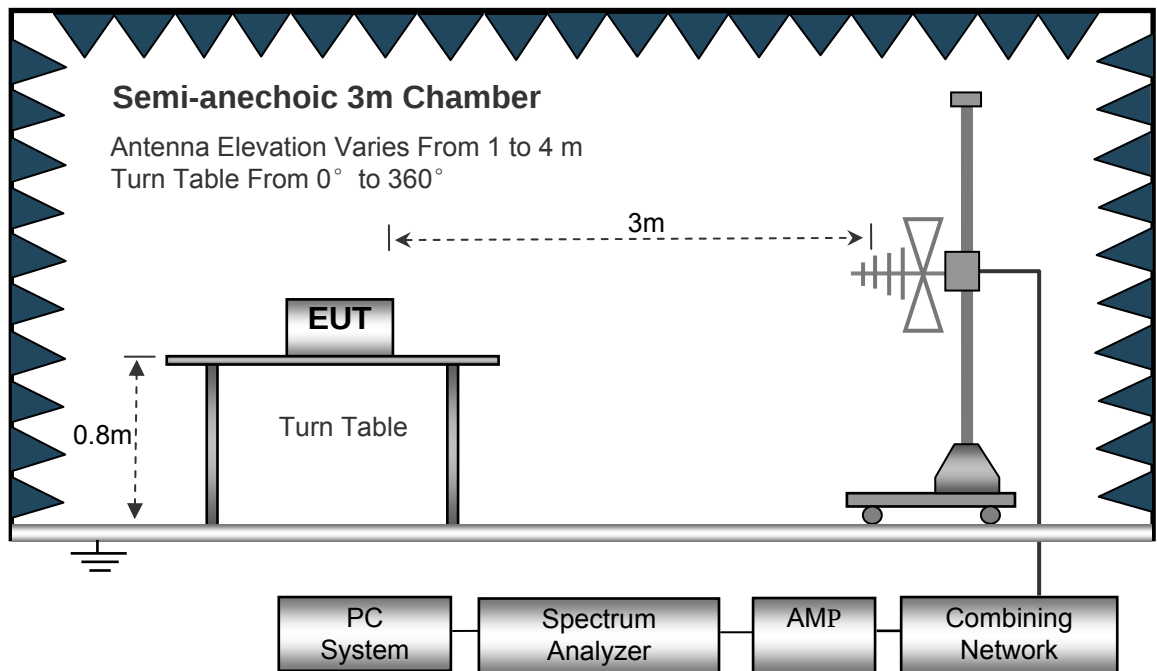
8.2 Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.10: 2013.

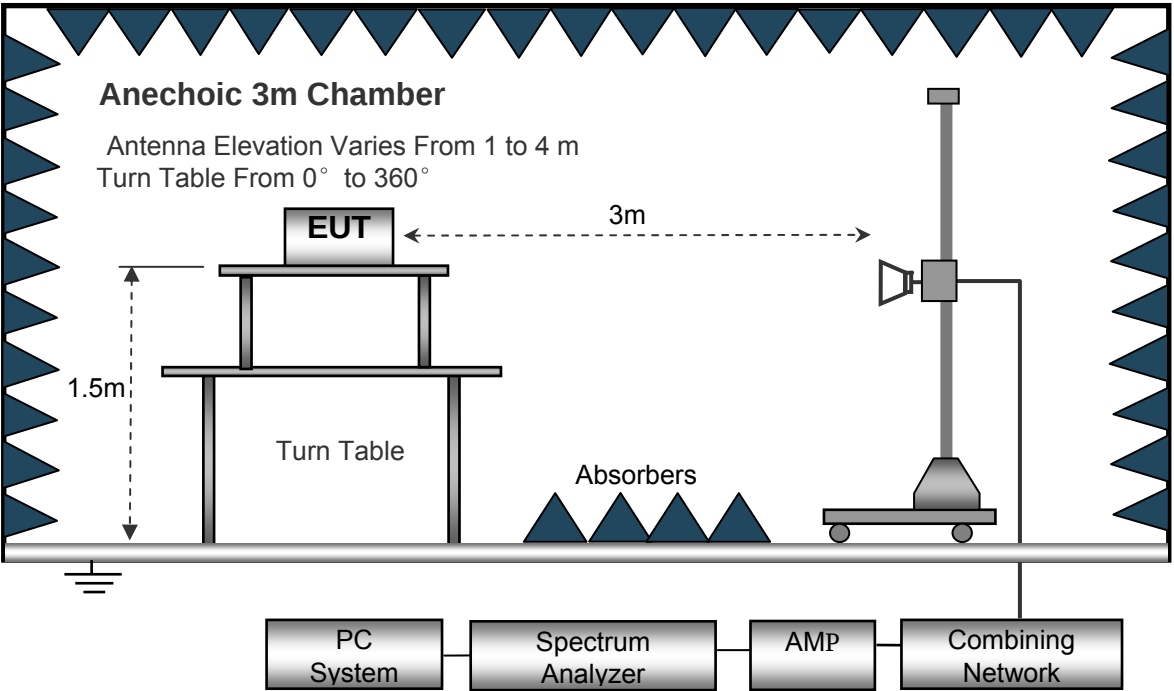
The test setup for emission measurement below 30MHz.



The test setup for emission measurement from 30 MHz to 1 GHz.



The test setup for emission measurement above 1 GHz.



8.3 Spectrum Analyzer Setup

Below 30MHz

Sweep Speed Auto
IF Bandwidth.....10kHz
Video Bandwidth.....10kHz
Resolution Bandwidth.....10kHz

30MHz ~ 1GHz

Sweep Speed Auto
DetectorPK
Resolution Bandwidth.....100kHz
Video Bandwidth.....300kHz

Above 1GHz

Sweep Speed Auto
DetectorPK
Resolution Bandwidth.....1MHz
Video Bandwidth.....3MHz
DetectorAve.
Resolution Bandwidth.....1MHz
Video Bandwidth.....10Hz

8.4 Test Procedure

1. The EUT is placed on a turntable, which is 0.8m above ground plane for below 1GHz and 1.5m for above 1GHz.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is moved from 1m to 4m to find out the maximum emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.
7. The radiation measurements are performed in X,Y and Z axis positioning(X denotes lying on the table, Y denotes side stand and Z denotes vertical stand),the worst condition was tested putting the eut in X axis,so the worst data were shown as follow.
8. A 2.4GHz high –pass filter is used during radiated emissions above 1GHz measurement.

8.5 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

$$\text{Corr. Ampl.} = \text{Indicated Reading} + \text{Antenna Factor} + \text{Cable Factor} - \text{Amplifier Gain}$$

The “Margin” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dB means the emission is 7dB below the maximum limit for Class B. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Corr. Ampl.} - \text{Limit}$$

8.6 Summary of Test Results

Test Frequency: 9KHz~30MHz

The measurements were more than 20 dB below the limit and not reported.

Test Frequency : 30MHz ~ 18GHz

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.407/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
802.11a U-NII-1 Low Channel 5180MHz									
231.58	36.35	QP	4	1.9	H	-11.62	24.73	46.00	-21.27
231.58	39.59	QP	1	1.6	V	-11.62	27.97	46.00	-18.03
4517.20	54.12	PK	203	1.9	H	-2.03	52.09	74.00	-21.91
4517.20	44.10	Ave	203	1.9	H	-2.03	42.07	54.00	-11.93
5126.83	53.25	PK	151	1.4	H	-1.02	52.23	74.00	-21.77
5126.83	44.63	Ave	151	1.4	H	-1.02	43.61	54.00	-10.39
10360.00	41.80	PK	67	1.8	H	5.33	47.13	74.00	-26.87
10360.00	37.60	Ave	67	1.8	H	5.33	42.93	54.00	-11.07
802.11a U-NII-1 Middle channel 5200MHz									
231.58	35.50	QP	304	2.0	H	-11.62	23.88	46.00	-22.12
231.58	40.75	QP	31	1.1	V	-11.62	29.13	46.00	-16.87
4538.00	55.14	PK	295	1.5	H	-1.94	53.20	74.00	-20.80
4538.00	44.62	Ave	295	1.5	H	-1.94	42.68	54.00	-11.32
5111.04	54.87	PK	70	1.9	H	-1.06	53.81	74.00	-20.19
5111.04	46.44	Ave	70	1.9	H	-1.06	45.38	54.00	-8.62
10400.00	41.78	PK	101	1.3	H	5.21	46.99	74.00	-27.01
10400.00	38.87	Ave	101	1.3	H	5.21	44.08	54.00	-9.92

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.407/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
802.11a U-NII-1 High channel 5240MHz									
231.58	36.67	QP	30	1.3	H	-11.62	25.05	46.00	-20.95
231.58	37.92	QP	130	1.7	V	-11.62	26.30	46.00	-19.70
4533.65	53.01	PK	137	1.8	H	-2.24	50.77	74.00	-23.23
4533.65	43.00	Ave	137	1.8	H	-2.24	40.76	54.00	-13.24
5123.47	55.17	PK	184	1.6	H	-1.09	54.08	74.00	-19.92
5123.47	46.30	Ave	184	1.6	H	-1.09	45.21	54.00	-8.79
10480.00	39.64	PK	333	1.3	H	5.14	44.78	74.00	-29.22
10480.00	36.32	Ave	333	1.3	H	5.14	41.46	54.00	-12.54
802.11a U-NII-3 Low Channel 5745MHz									
231.58	34.84	QP	282	1.8	H	-11.62	23.22	46.00	-22.78
231.58	42.49	QP	3	1.6	V	-11.62	30.87	46.00	-15.13
4520.04	52.77	PK	94	1.6	H	-2.06	50.71	74.00	-23.29
4520.04	43.00	Ave	94	1.6	H	-2.06	40.94	54.00	-13.06
5384.66	40.27	PK	200	1.5	H	5.93	46.20	74.00	-27.80
5384.66	36.82	Ave	200	1.5	H	5.93	42.75	54.00	-11.25
11490.00	46.97	PK	116	1.9	H	-1.25	45.72	74.00	-28.28
11490.00	39.16	Ave	116	1.9	H	-1.25	37.91	54.00	-16.09

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.407/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
802.11a U-NII-3 middle channel 5785MHz									
231.58	37.94	QP	205	1.4	H	-11.62	26.32	46.00	-19.68
231.58	42.46	QP	66	1.4	V	-11.62	30.84	46.00	-15.16
4507.71	54.18	PK	52	1.3	H	-2.03	52.15	74.00	-21.85
4507.71	40.90	Ave	52	1.3	H	-2.03	38.87	54.00	-15.13
5377.15	40.79	PK	59	1.7	H	5.81	46.60	74.00	-27.40
5377.15	38.27	Ave	59	1.7	H	5.81	44.08	54.00	-9.92
11570.00	46.97	PK	260	1.9	H	-1.22	45.75	74.00	-28.25
11570.00	38.80	Ave	260	1.9	H	-1.22	37.58	54.00	-16.42
802.11a U-NII-3 High channel 5825MHz									
231.58	37.36	QP	170	1.9	H	-11.62	25.74	46.00	-20.26
231.58	38.61	QP	66	1.2	V	-11.62	26.99	46.00	-19.01
4530.66	51.73	PK	308	1.7	H	-1.84	49.89	74.00	-24.11
4530.66	45.78	Ave	308	1.7	H	-1.84	43.94	54.00	-10.06
5389.51	42.86	PK	49	1.8	H	5.84	48.70	74.00	-25.30
5389.51	35.50	Ave	49	1.8	H	5.84	41.34	54.00	-12.66
11650.00	46.23	PK	322	1.4	H	-1.30	44.93	74.00	-29.07
11650.00	39.53	Ave	322	1.4	H	-1.30	38.23	54.00	-15.77

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.407/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
802.11n(HT20) U-NII-1 Low Channel 5180MHz									
231.58	37.82	QP	107	1.3	H	-11.62	26.20	46.00	-19.80
231.58	43.27	QP	156	1.4	V	-11.62	31.65	46.00	-14.35
4514.30	53.95	PK	48	1.5	H	-2.14	51.81	74.00	-22.19
4514.30	42.98	Ave	48	1.5	H	-2.14	40.84	54.00	-13.16
5127.63	46.71	PK	331	1.5	H	-1.06	45.65	74.00	-28.35
5127.63	38.71	Ave	331	1.5	H	-1.06	37.65	54.00	-16.35
10360.00	41.21	PK	211	1.1	H	5.33	46.54	74.00	-27.46
10360.00	36.66	Ave	211	1.1	H	5.33	41.99	54.00	-12.01
802.11n(HT20) U-NII-1 Middle channel 5200MHz									
231.58	36.16	QP	301	1.2	H	-11.62	24.54	46.00	-21.46
231.58	40.86	QP	344	1.5	V	-11.62	29.24	46.00	-16.76
4528.31	53.26	PK	285	1.8	H	-2.12	51.14	74.00	-22.86
4528.31	42.58	Ave	285	1.8	H	-2.12	40.46	54.00	-13.54
5112.66	47.73	PK	24	1.1	H	-1.06	46.67	74.00	-27.33
5112.66	40.89	Ave	24	1.1	H	-1.06	39.83	54.00	-14.17
10400.00	41.42	PK	354	1.7	H	5.21	46.63	74.00	-27.37
10400.00	36.63	Ave	354	1.7	H	5.21	41.84	54.00	-12.16

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.407/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
802.11n(HT20) U-NII-1 High channel 5240MHz									
231.58	40.46	QP	96	1.4	H	-11.62	28.84	46.00	-17.16
231.58	37.54	QP	169	1.5	V	-11.62	25.92	46.00	-20.08
4512.50	52.06	PK	239	1.7	H	-1.96	50.10	74.00	-23.90
4512.50	47.54	Ave	239	1.7	H	-1.96	45.58	54.00	-8.42
5119.99	47.04	PK	313	1.3	H	-1.06	45.98	74.00	-28.02
5119.99	36.71	Ave	313	1.3	H	-1.06	35.65	54.00	-18.35
10480.00	40.43	PK	335	1.7	H	5.14	45.57	74.00	-28.43
10480.00	38.07	Ave	335	1.7	H	5.14	43.21	54.00	-10.79
802.11n(HT20) U-NII-3 Low Channel 5745MHz									
231.58	36.63	QP	39	1.4	H	-11.62	25.01	46.00	-20.99
231.58	48.09	QP	25	1.4	V	-11.62	36.47	46.00	-9.53
4531.48	46.42	PK	53	1.9	H	-2.06	44.36	74.00	-29.64
4531.48	48.46	Ave	53	1.9	H	-2.06	46.40	54.00	-7.60
5387.11	34.92	PK	103	1.5	H	5.93	40.85	74.00	-33.15
5387.11	37.47	Ave	103	1.5	H	5.93	43.40	54.00	-10.60
11490.00	46.81	PK	349	1.6	H	-1.25	45.56	74.00	-28.44
11490.00	38.18	Ave	349	1.6	H	-1.25	36.93	54.00	-17.07

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.407/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
802.11n(HT20) U-NII-3 middle channel 5785MHz									
231.58	34.36	QP	124	1.6	H	-11.62	22.74	46.00	-23.26
231.58	45.45	QP	301	1.8	V	-11.62	33.83	46.00	-12.17
4506.46	41.30	PK	111	1.6	H	-2.03	39.27	74.00	-34.73
4506.46	46.77	Ave	111	1.6	H	-2.03	44.74	54.00	-9.26
5376.26	38.73	PK	321	1.1	H	5.81	44.54	74.00	-29.46
5376.26	38.11	Ave	321	1.1	H	5.81	43.92	54.00	-10.08
11570.00	46.47	PK	227	1.0	H	-1.22	45.25	74.00	-28.75
11570.00	38.22	Ave	227	1.0	H	-1.22	37.00	54.00	-17.00
802.11n(HT20) U-NII-3 High channel 5825MHz									
231.58	35.49	QP	132	1.1	H	-11.62	23.87	46.00	-22.13
231.58	45.53	QP	110	1.4	V	-11.62	33.91	46.00	-12.09
4534.32	41.12	PK	276	1.4	H	-1.84	39.28	74.00	-34.72
4534.32	48.10	Ave	276	1.4	H	-1.84	46.26	54.00	-7.74
5359.48	38.31	PK	80	1.1	H	5.84	44.15	74.00	-29.85
5359.48	40.27	Ave	80	1.1	H	5.84	46.11	54.00	-7.89
11650.00	46.91	PK	174	1.8	H	-1.30	45.61	74.00	-28.39
11650.00	38.68	Ave	174	1.8	H	-1.30	37.38	54.00	-16.62

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.407/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
802.11ac(VHT20) U-NII-1 Low Channel 5180MHz									
231.58	36.90	QP	317	1.5	H	-11.62	25.28	46.00	-20.72
231.58	41.02	QP	262	1.5	V	-11.62	29.40	46.00	-16.60
4529.42	47.37	PK	253	1.1	H	-1.86	45.51	74.00	-28.49
4529.42	38.12	Ave	253	1.1	H	-1.86	36.26	54.00	-17.74
5146.96	34.60	PK	307	1.8	H	-1.06	33.54	74.00	-40.46
5146.96	32.89	Ave	307	1.8	H	-1.06	31.83	54.00	-22.17
10360.00	46.99	PK	343	1.3	H	5.33	52.32	74.00	-21.68
10360.00	37.65	Ave	343	1.3	H	5.33	42.98	54.00	-11.02
802.11ac(VHT20) U-NII-1 Middle channel 5200MHz									
231.58	37.69	QP	184	1.9	H	-11.62	26.07	46.00	-19.93
231.58	41.67	QP	323	1.0	V	-11.62	30.05	46.00	-15.95
4530.83	48.20	PK	23	1.3	H	-1.82	46.38	74.00	-27.62
4530.83	38.93	Ave	23	1.3	H	-1.82	37.11	54.00	-16.89
5141.17	35.50	PK	323	1.3	H	-1.06	34.44	74.00	-39.56
5141.17	33.36	Ave	323	1.3	H	-1.06	32.30	54.00	-21.70
10400.00	40.91	PK	2	1.3	H	5.21	46.12	74.00	-27.88
10400.00	37.38	Ave	2	1.3	H	5.21	42.59	54.00	-11.41

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.407/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
802.11ac(VHT20) U-NII-1 High channel 5240MHz									
231.58	38.46	QP	5	1.3	H	-11.62	26.84	46.00	-19.16
231.58	42.05	QP	133	2.0	V	-11.62	30.43	46.00	-15.57
4506.08	47.34	PK	287	1.1	H	-1.81	45.53	74.00	-28.47
4506.08	39.88	Ave	287	1.1	H	-1.81	38.07	54.00	-15.93
5112.54	36.42	PK	216	1.3	H	-1.06	35.36	74.00	-38.64
5112.54	32.38	Ave	216	1.3	H	-1.06	31.32	54.00	-22.68
10480.00	41.08	PK	340	1.4	H	5.14	46.22	74.00	-27.78
10480.00	37.75	Ave	340	1.4	H	5.14	42.89	54.00	-11.11
802.11ac(VHT20) U-NII-3 Low Channel 5745MHz									
231.58	33.94	QP	159	1.4	H	-11.62	22.32	46.00	-23.68
231.58	38.03	QP	204	1.7	V	-11.62	26.41	46.00	-19.59
4504.30	42.52	PK	106	1.3	H	-1.92	40.60	74.00	-33.40
4504.30	34.10	Ave	106	1.3	H	-1.92	32.18	54.00	-21.82
5351.19	40.10	PK	233	1.9	H	5.93	46.03	74.00	-27.97
5351.19	34.42	Ave	233	1.9	H	5.93	40.35	54.00	-13.65
11490.00	45.76	PK	36	1.4	H	-1.03	44.73	74.00	-29.27
11490.00	38.02	Ave	36	1.4	H	-1.03	36.99	54.00	-17.01

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.407/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
802.11ac(VHT20) U-NII-3 middle channel 5785MHz									
231.58	37.16	QP	19	1.5	H	-11.62	25.54	46.00	-20.46
231.58	42.20	QP	269	1.3	V	-11.62	30.58	46.00	-15.42
4522.89	43.29	PK	323	1.3	H	-1.97	41.32	74.00	-32.68
4522.89	38.48	Ave	323	1.3	H	-1.97	36.51	54.00	-17.49
5358.94	41.43	PK	306	1.7	H	5.81	47.24	74.00	-26.76
5358.94	37.71	Ave	306	1.7	H	5.81	43.52	54.00	-10.48
11570.00	45.39	PK	144	1.8	H	-1.05	44.34	74.00	-29.66
11570.00	38.93	Ave	144	1.8	H	-1.05	37.88	54.00	-16.12
802.11ac(VHT20) U-NII-3 High channel 5825MHz									
231.58	36.32	QP	280	1.0	H	-11.62	24.70	46.00	-21.30
231.58	42.57	QP	292	2.0	V	-11.62	30.95	46.00	-15.05
4532.55	42.45	PK	107	1.9	H	-1.88	40.57	74.00	-33.43
4532.55	37.83	Ave	107	1.9	H	-1.88	35.95	54.00	-18.05
5380.43	41.56	PK	101	1.5	H	5.84	47.40	74.00	-26.60
5380.43	36.21	Ave	101	1.5	H	5.84	42.05	54.00	-11.95
11650.00	45.18	PK	331	1.3	H	-1.06	44.12	74.00	-29.88
11650.00	38.03	Ave	331	1.3	H	-1.06	36.97	54.00	-17.03

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.407/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
802.11n(HT40) U-NII-1 Low Channel 5190MHz									
231.58	35.81	QP	231	1.3	H	-11.62	24.19	46.00	-21.81
231.58	42.93	QP	51	1.2	V	-11.62	31.31	46.00	-14.69
4513.12	39.66	PK	64	1.0	H	-1.89	37.77	74.00	-36.23
4513.12	36.19	Ave	64	1.0	H	-1.89	34.30	54.00	-19.70
5111.31	44.73	PK	112	1.6	H	-1.06	43.67	74.00	-30.33
5111.31	37.98	Ave	112	1.6	H	-1.06	36.92	54.00	-17.08
10380.00	39.75	PK	304	1.7	H	5.26	45.01	74.00	-28.99
10380.00	34.26	Ave	304	1.7	H	5.26	39.52	54.00	-14.48
802.11n(HT40) U-NII-1 High channel 5230MHz									
231.58	33.77	QP	1	1.6	H	-11.62	22.15	46.00	-23.85
231.58	44.05	QP	317	1.5	V	-11.62	32.43	46.00	-13.57
4507.56	42.09	PK	219	1.8	H	-1.94	40.15	74.00	-33.85
4507.56	35.93	Ave	219	1.8	H	-1.94	33.99	54.00	-20.01
5140.25	49.69	PK	139	1.8	H	-1.06	48.63	74.00	-25.37
5140.25	38.18	Ave	139	1.8	H	-1.06	37.12	54.00	-16.88
10460.00	42.59	PK	321	1.6	H	5.28	47.87	74.00	-26.13
10460.00	37.37	Ave	321	1.6	H	5.28	42.65	54.00	-11.35

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.407/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
802.11n(HT40) U-NII-3 Low Channel 5755MHz									
231.58	34.05	QP	304	1.2	H	-11.62	22.43	46.00	-23.57
231.58	43.31	QP	299	1.4	V	-11.62	31.69	46.00	-14.31
4515.31	40.11	PK	102	1.1	H	-1.96	38.15	74.00	-35.85
4515.31	33.02	Ave	102	1.1	H	-1.96	31.06	54.00	-22.94
5373.36	40.70	PK	11	1.6	H	5.88	46.58	74.00	-27.42
5373.36	35.74	Ave	11	1.6	H	5.88	41.62	54.00	-12.38
11510.00	46.25	PK	34	1.8	H	-1.01	45.24	74.00	-28.76
11510.00	39.49	Ave	34	1.8	H	-1.01	38.48	54.00	-15.52
802.11n(HT40) U-NII-3 High Channel 5795MHz									
231.58	34.42	QP	236	1.3	H	-11.62	22.80	46.00	-23.20
231.58	43.84	QP	47	1.4	V	-11.62	32.22	46.00	-13.78
4514.04	39.59	PK	259	1.8	H	-1.92	37.67	74.00	-36.33
4514.04	33.04	Ave	259	1.8	H	-1.92	31.12	54.00	-22.88
5373.11	42.66	PK	21	1.0	H	5.63	48.29	74.00	-25.71
5373.11	37.10	Ave	21	1.0	H	5.63	42.73	54.00	-11.27
11590.00	45.62	PK	53	1.6	H	-1.04	44.58	74.00	-29.42
11590.00	39.59	Ave	53	1.6	H	-1.04	38.55	54.00	-15.45

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.407/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
802.11ac(VHT40) U-NII-1 Low Channel 5190MHz									
231.58	36.20	QP	333	1.8	H	-11.62	24.58	46.00	-21.42
231.58	42.01	QP	315	1.0	V	-11.62	30.39	46.00	-15.61
4537.33	36.62	PK	266	1.8	H	-1.91	34.71	74.00	-39.29
4537.33	28.98	Ave	266	1.8	H	-1.91	27.07	54.00	-26.93
5145.43	46.49	PK	300	1.3	H	-1.06	45.43	74.00	-28.57
5145.43	37.15	Ave	300	1.3	H	-1.06	36.09	54.00	-17.91
10380.00	39.41	PK	18	1.6	H	5.26	44.67	74.00	-29.33
10380.00	35.60	Ave	18	1.6	H	5.26	40.86	54.00	-13.14
802.11ac(VHT40) U-NII-1 High channel 5230MHz									
231.58	37.32	QP	294	1.2	H	-11.62	25.70	46.00	-20.30
231.58	40.26	QP	334	1.4	V	-11.62	28.64	46.00	-17.36
4532.24	36.19	PK	275	1.4	H	-1.93	34.26	74.00	-39.74
4532.24	31.75	Ave	275	1.4	H	-1.93	29.82	54.00	-24.18
5123.92	46.52	PK	101	1.1	H	-1.06	45.46	74.00	-28.54
5123.92	38.73	Ave	101	1.1	H	-1.06	37.67	54.00	-16.33
10460.00	41.80	PK	212	1.9	H	5.28	47.08	74.00	-26.92
10460.00	38.09	Ave	212	1.9	H	5.28	43.37	54.00	-10.63

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.407/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
802.11ac(VHT40) U-NII-3 Low Channel 5755MHz									
231.58	37.01	QP	286	1.7	H	-11.62	25.39	46.00	-20.61
231.58	39.09	QP	73	1.5	V	-11.62	27.47	46.00	-18.53
4505.03	35.00	PK	247	1.2	H	-1.92	33.08	74.00	-40.92
4505.03	30.68	Ave	247	1.2	H	-1.92	28.76	54.00	-25.24
5355.30	39.34	PK	297	1.6	H	5.88	45.22	74.00	-28.78
5355.30	35.07	Ave	297	1.6	H	5.88	40.95	54.00	-13.05
11510.00	45.48	PK	179	1.1	H	-1.07	44.41	74.00	-29.59
11510.00	37.10	Ave	179	1.1	H	-1.07	36.03	54.00	-17.97
802.11ac(VHT40) U-NII-3 High Channel 5795MHz									
231.58	37.82	QP	190	1.2	H	-11.62	26.20	46.00	-19.80
231.58	40.05	QP	6	1.1	V	-11.62	28.43	46.00	-17.57
4535.18	35.52	PK	300	1.8	H	-1.86	33.66	74.00	-40.34
4535.18	30.86	Ave	300	1.8	H	-1.86	29.00	54.00	-25.00
5379.35	41.57	PK	146	1.4	H	5.63	47.20	74.00	-26.80
5379.35	37.34	Ave	146	1.4	H	5.63	42.97	54.00	-11.03
11590.00	46.25	PK	78	1.2	H	-1.03	45.22	74.00	-28.78
11590.00	38.57	Ave	78	1.2	H	-1.03	37.54	54.00	-16.46

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.407/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
802.11ac(VHT80) U-NII-1 Low Channel 5210MHz									
231.58	40.23	QP	339	1.4	H	-11.62	28.61	46.00	-17.39
231.58	35.78	QP	345	1.4	V	-11.62	24.16	46.00	-21.84
4504.84	31.50	PK	279	1.7	H	-1.88	29.62	74.00	-44.38
4504.84	41.30	Ave	279	1.7	H	-1.88	39.42	54.00	-14.58
5128.45	38.53	PK	210	1.2	H	-1.06	37.47	74.00	-36.53
5128.45	47.14	Ave	210	1.2	H	-1.06	46.08	54.00	-7.92
10420.00	42.74	PK	299	1.1	H	4.65	47.39	74.00	-26.61
10420.00	37.12	Ave	299	1.1	H	4.65	41.77	54.00	-12.23
802.11ac(VHT80) U-NII-3 Low channel 5775MHz									
231.58	36.26	QP	317	1.8	H	-11.62	24.64	46.00	-21.36
231.58	31.84	QP	332	1.3	V	-11.62	20.22	46.00	-25.78
4538.69	40.67	PK	306	1.9	H	-1.85	38.82	74.00	-35.18
4538.69	41.93	Ave	306	1.9	H	-1.85	40.08	54.00	-13.92
5381.35	42.39	PK	319	1.5	H	4.83	47.22	74.00	-26.78
5381.35	37.62	Ave	319	1.5	H	4.83	42.45	54.00	-11.55
11550.00	45.56	PK	266	1.2	H	-1.14	44.42	74.00	-29.58
11550.00	38.00	Ave	266	1.2	H	-1.14	36.86	54.00	-17.14

Test Frequency: 12GHz~40GHz

The measurements were more than 20 dB below the limit and not reported.

9 Band Edge

Test Requirement:	FCC 47CFR Part 15 Section 15.407
Test Method:	ANSI C63.10 2013
Test Limit:	For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27dBm/MHz. For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz. For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz. For transmitters operating in the 5.725-5.85 GHz band: (i) 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. (ii) Devices certified before March 2, 2017 with antenna gain greater than 10 dBi may demonstrate compliance with the emission limits in §15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease by March 2, 2018. Devices certified before March 2, 2018 with antenna gain of 10 dBi or less may demonstrate compliance with the emission limits in §15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease before March 2, 2020.
Test Result:	PASS

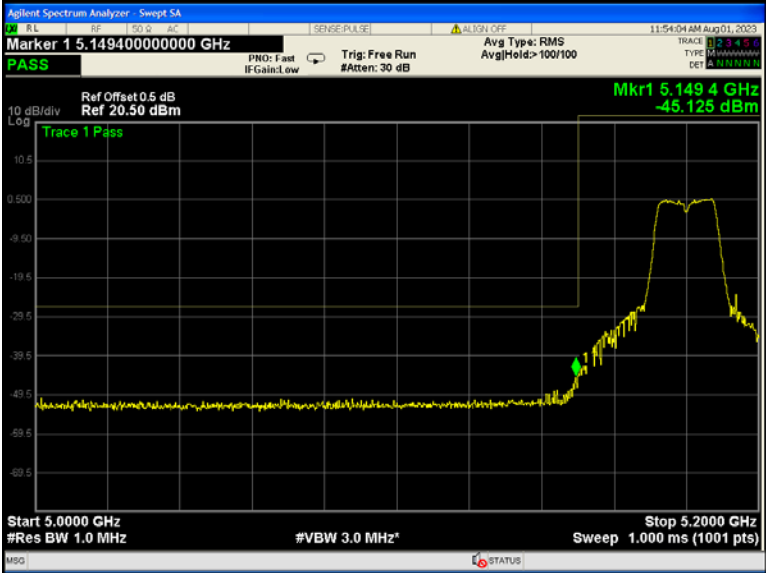
9.1 Test Produce

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW to 100 kHz and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

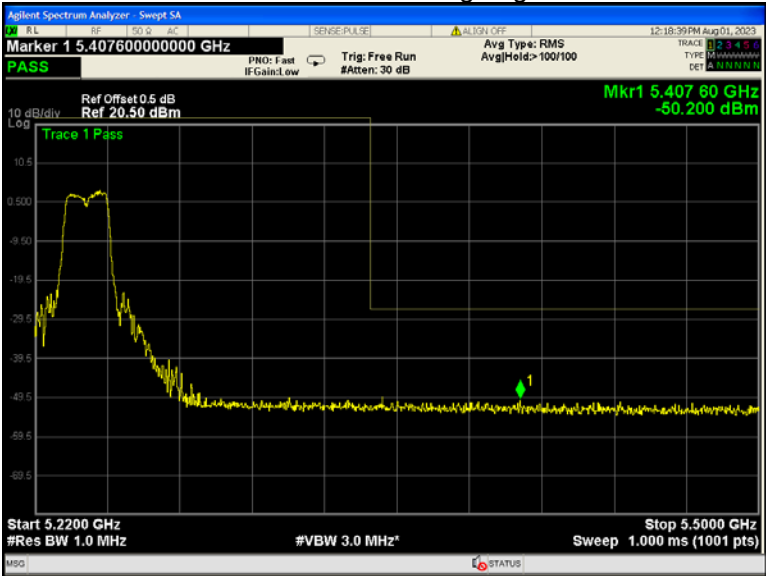
9.2 Test Result

Test result plots shown as follows:

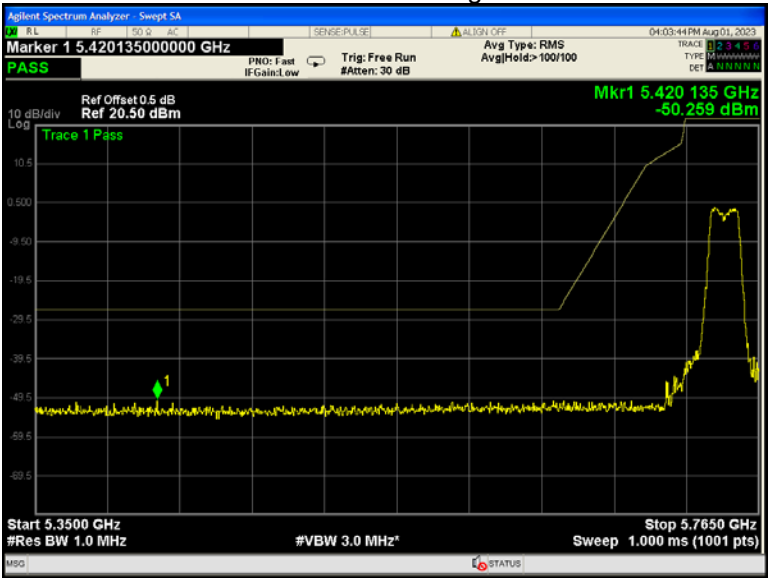
802.11a U-NII-1 Band edge-left side



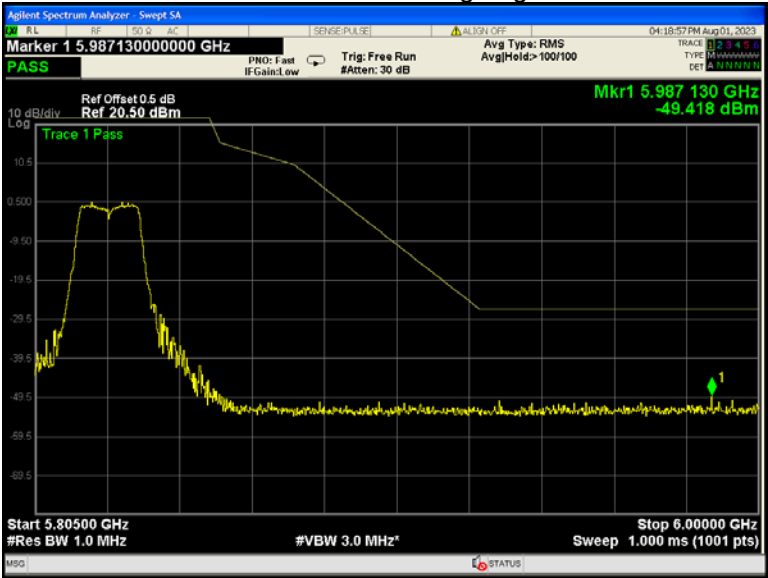
802.11a U-NII-1 Band edge-right side



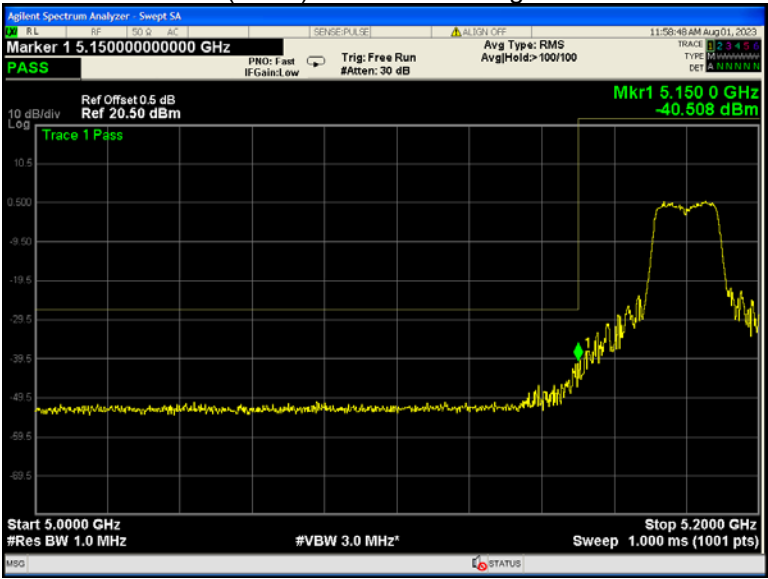
802.11a U-NII-3 Band edge-left side



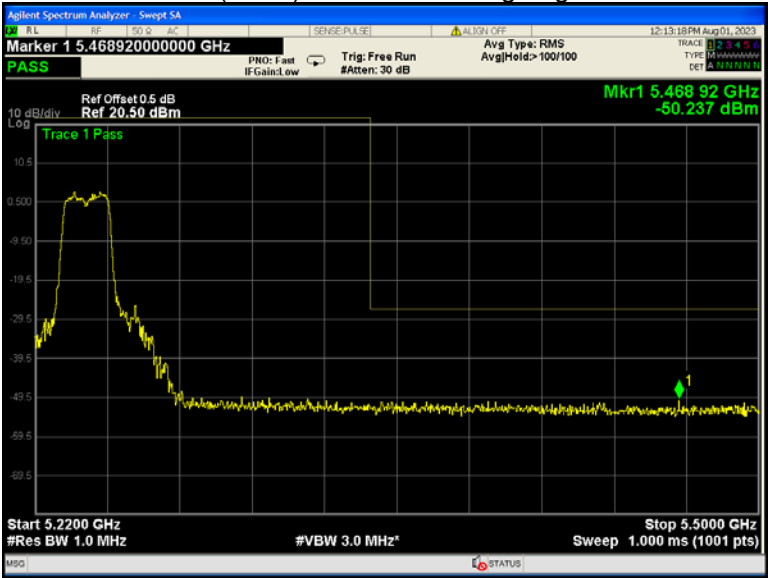
802.11a U-NII-3 Band edge-right side



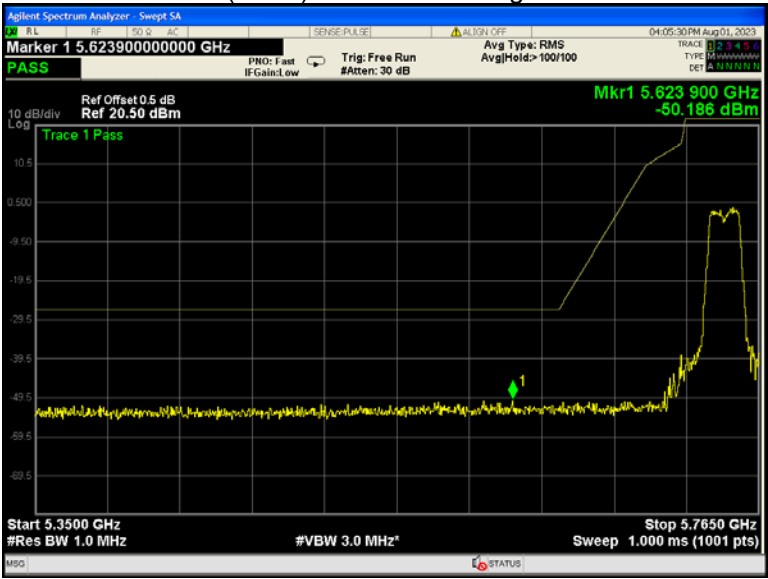
802.11n(HT20) U-NII-1 Band edge-left side



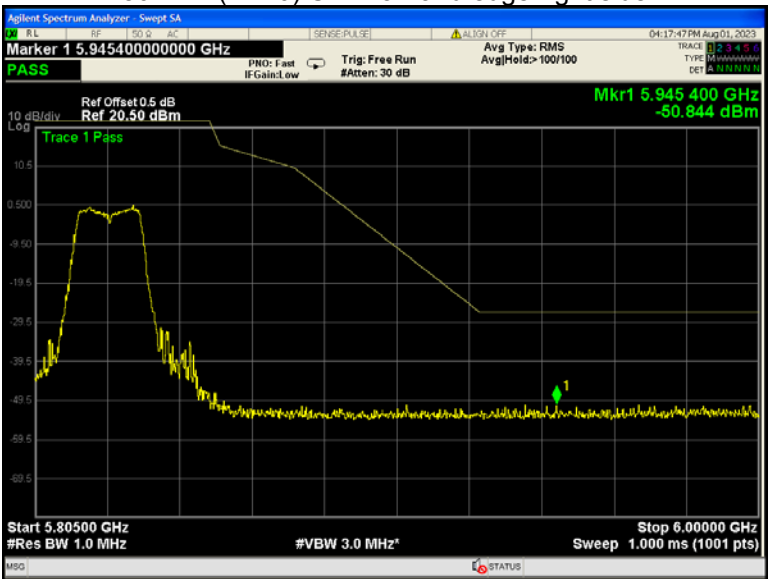
802.11n(HT20) U-NII-1 Band edge-right side



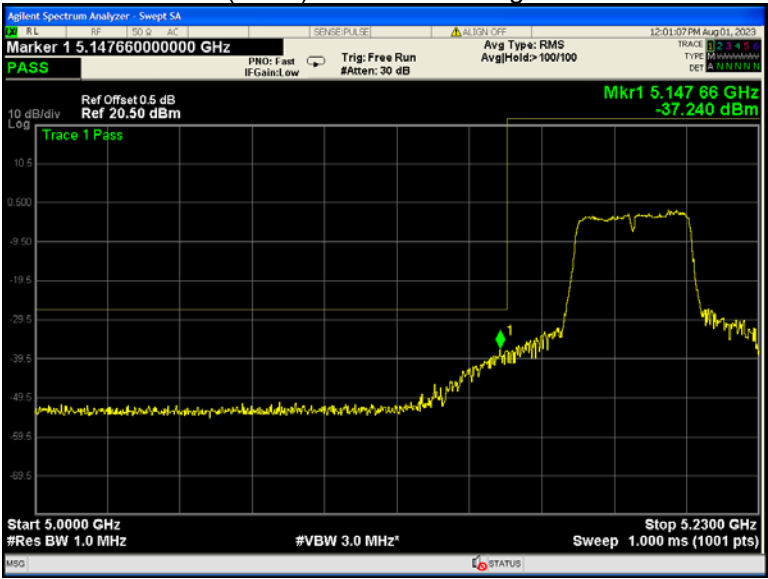
802.11n(HT20) U-NII-3 Band edge-left side



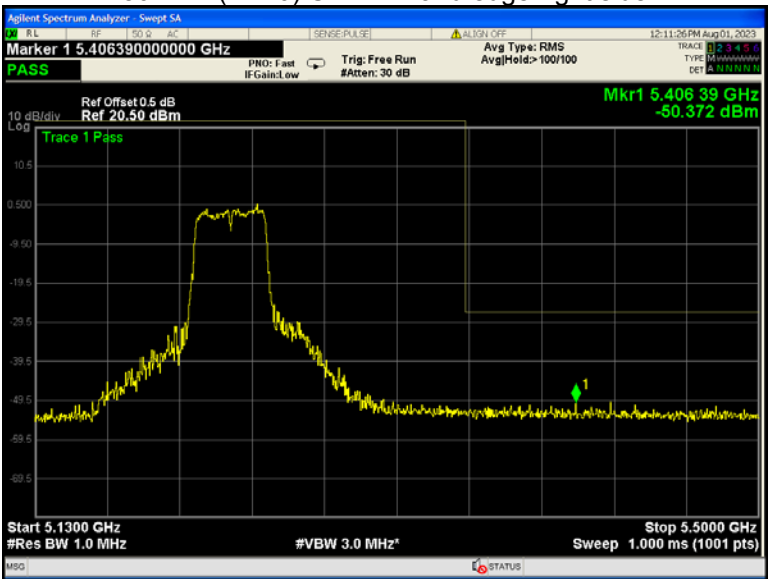
802.11n(HT20) U-NII-3 Band edge-right side



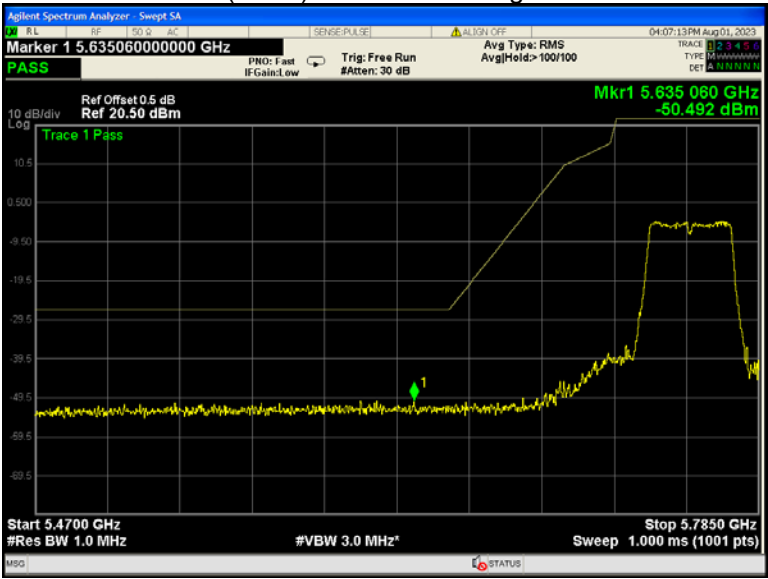
802.11n(HT40) U-NII-1 Band edge-left side



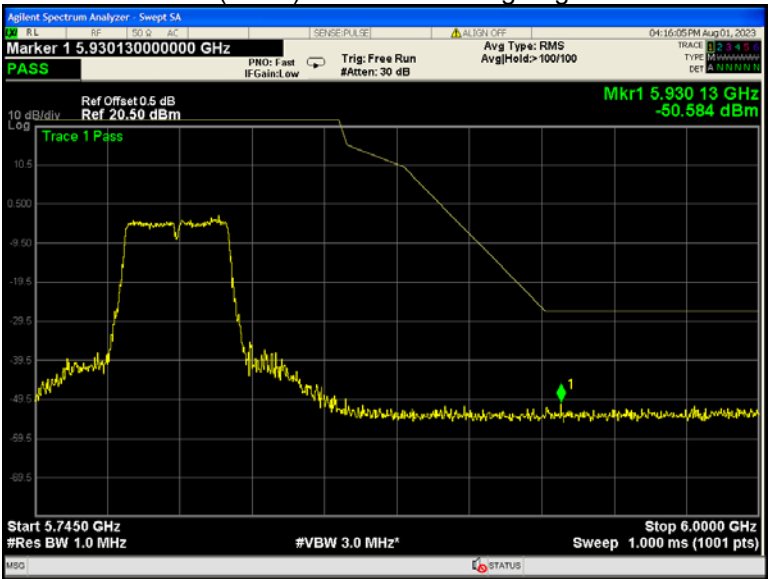
802.11n(HT40) U-NII-1 Band edge-right side



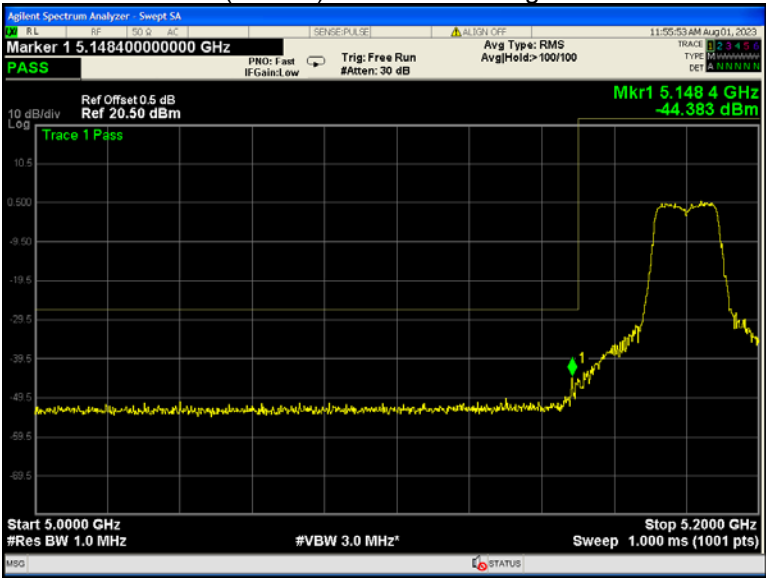
802.11n(HT40) U-NII-3 Band edge-left side



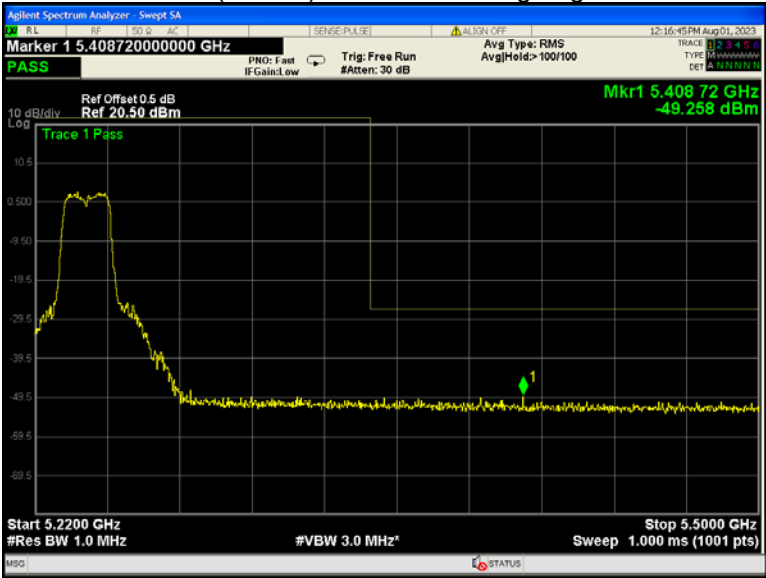
802.11n(HT40) U-NII-3 Band edge-right side



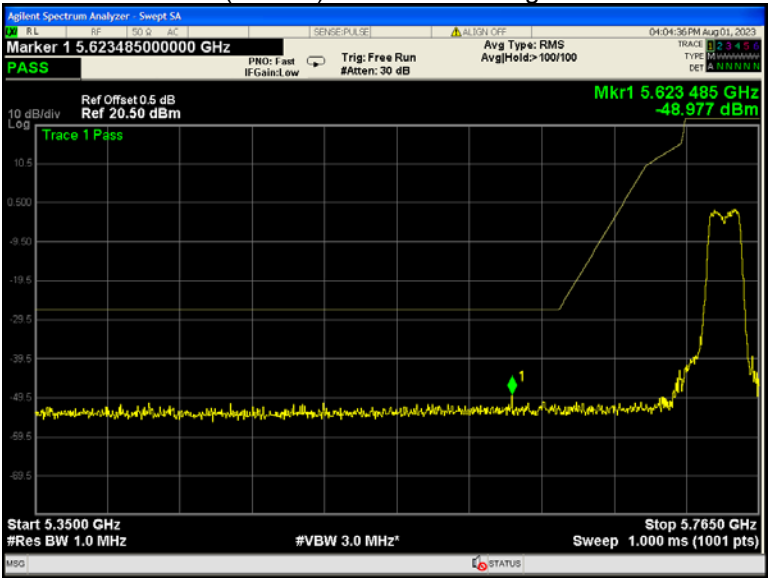
802.11ac(VHT20) U-NII-1 Band edge-left side



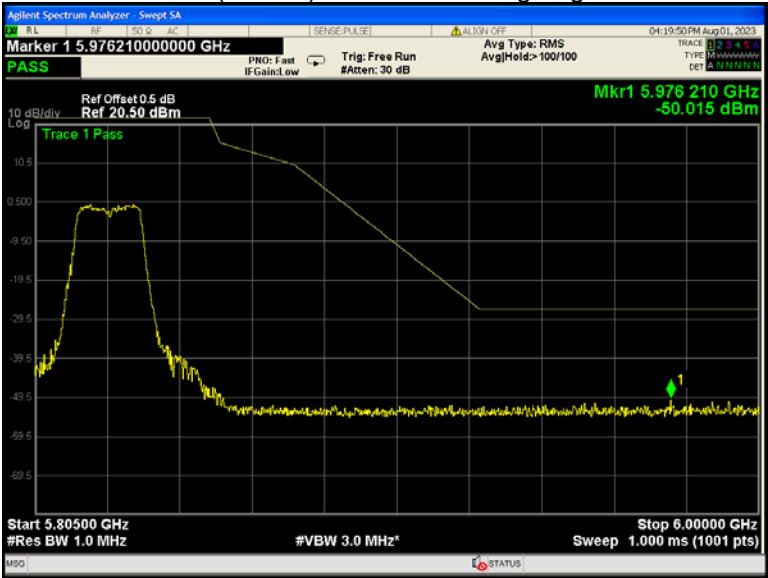
802.11ac(VHT20) U-NII-1 Band edge-right side



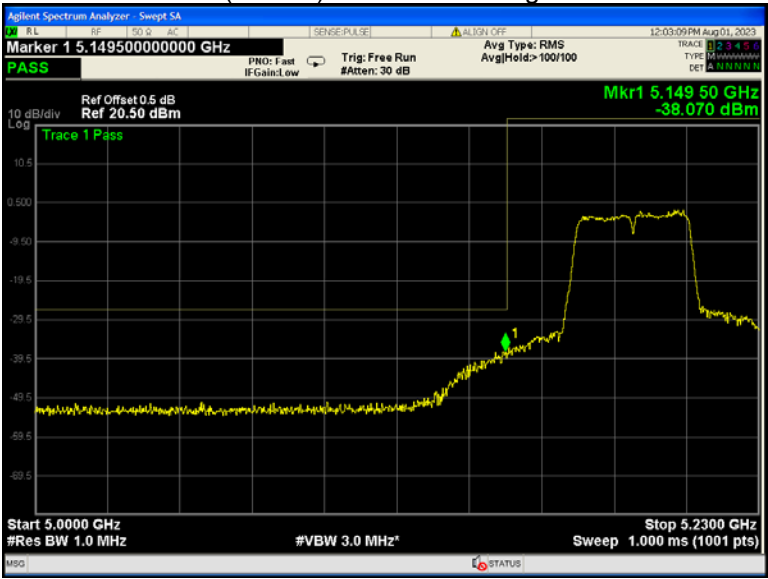
802.11ac(VHT20) U-NII-3 Band edge-left side



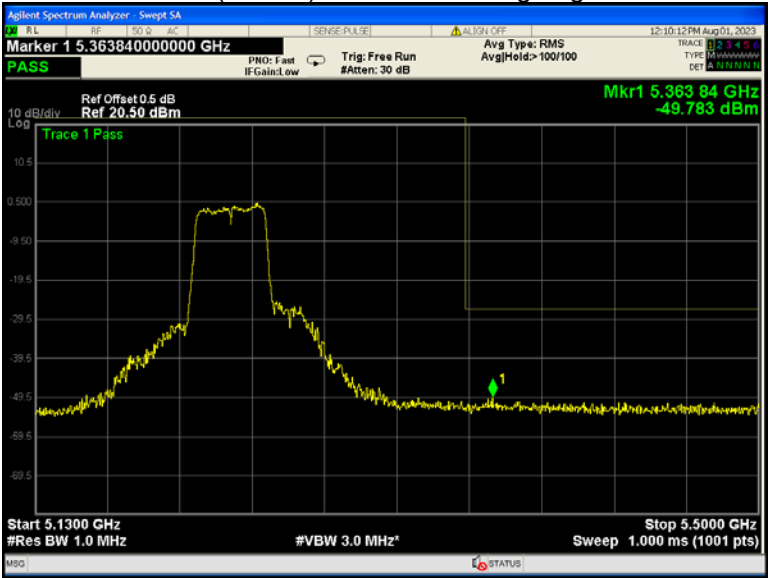
802.11ac(VHT20) U-NII-3 Band edge-right side



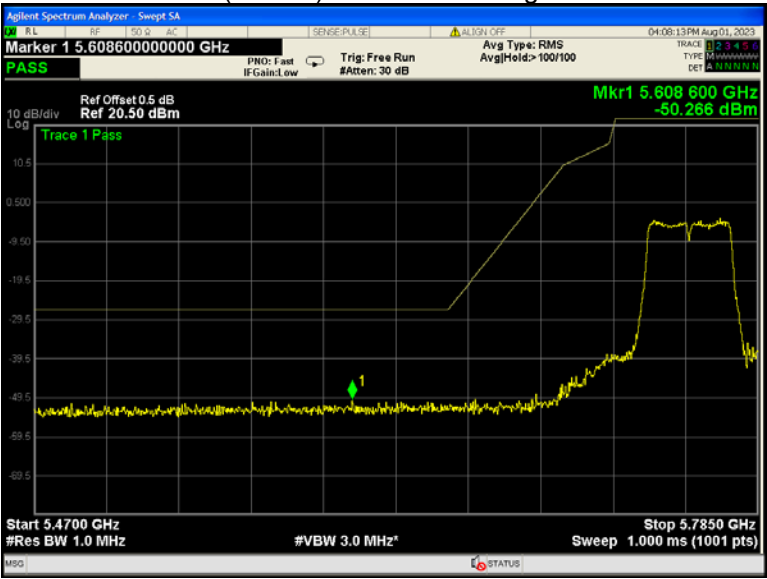
802.11ac(VHT40) U-NII-1 Band edge-left side



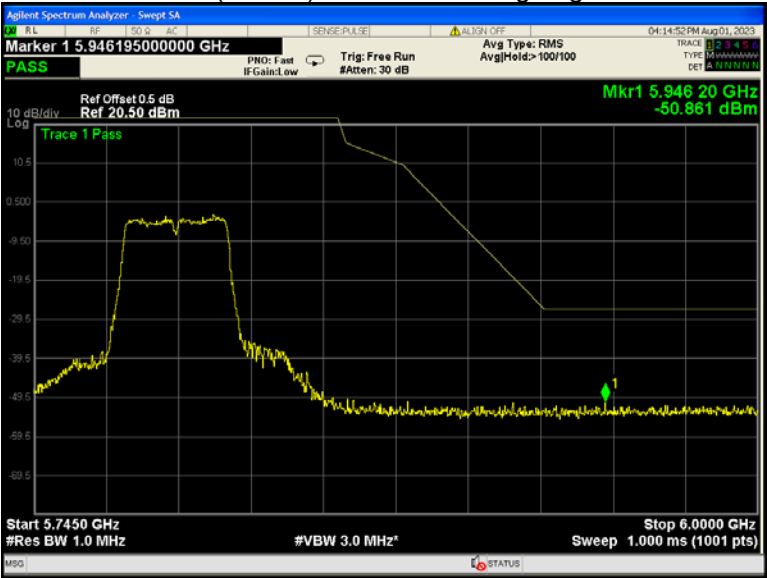
802.11ac(VHT40) U-NII-1 Band edge-right side



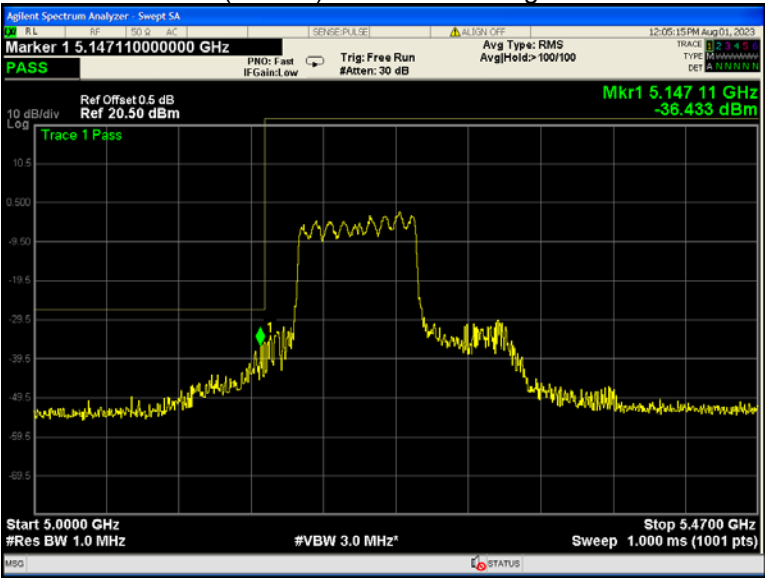
802.11ac(VHT40) U-NII-3 Band edge-left side



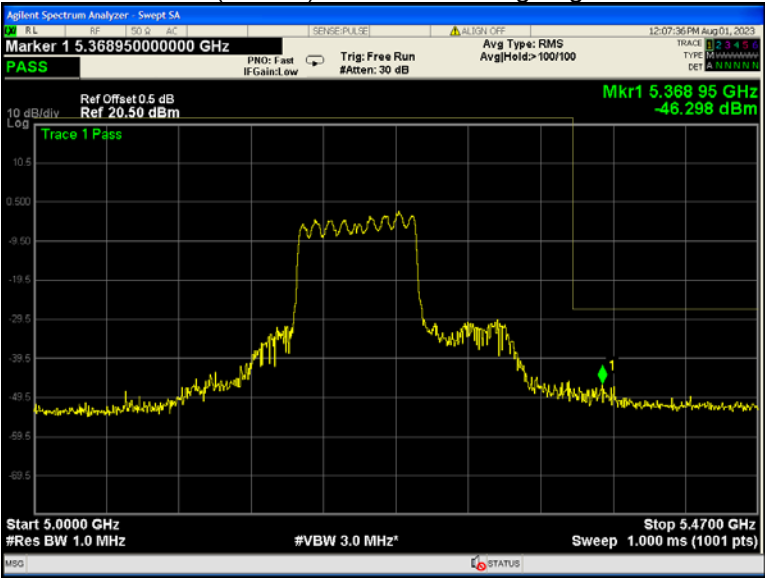
802.11ac(VHT40) U-NII-3 Band edge-right side



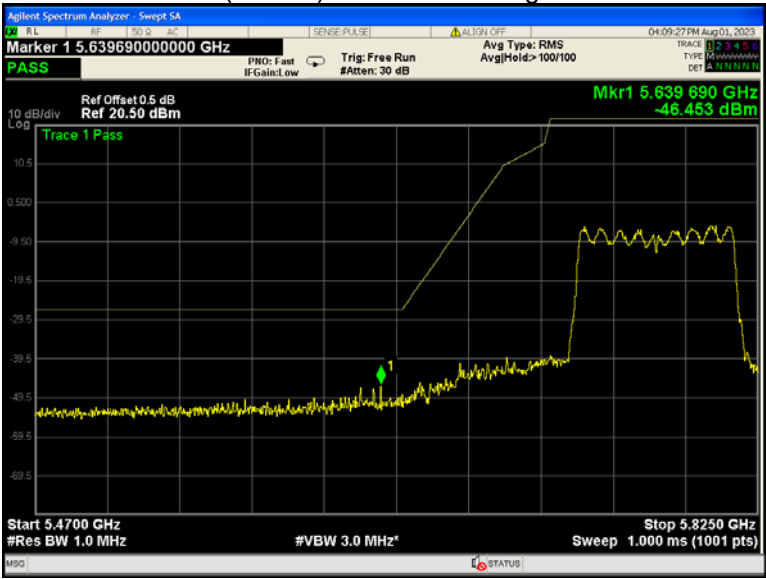
802.11ac(VHT80) U-NII-1 Band edge-left side



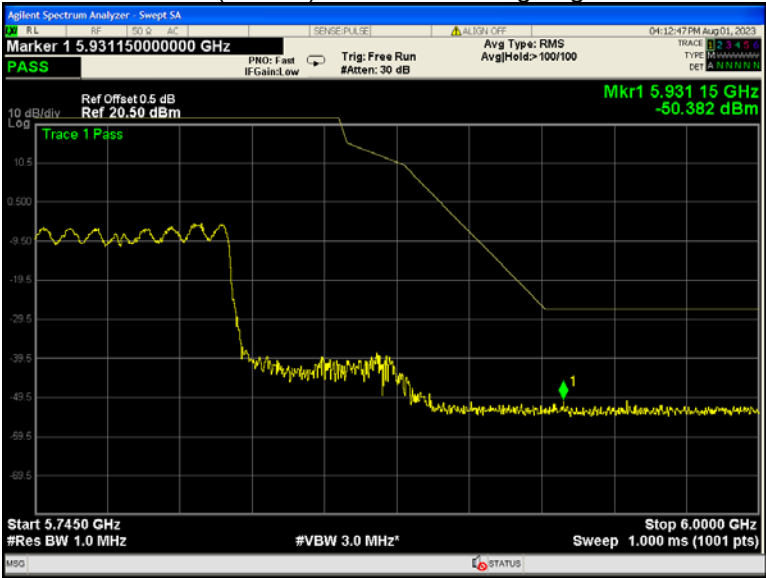
802.11ac(VHT80) U-NII-1 Band edge-right side



802.11ac(VHT80) U-NII-3 Band edge-left side



802.11ac(VHT80) U-NII-3 Band edge-right side



10 6 dB Bandwidth

Test Requirement:	FCC 47CFR Part 15 Section 15.407(e) KDB662911 D01 Multiple Transmitter Output v02r01
Test Method:	KDB789033 D02 General U-NII Test Procedures New Rules v02r01 Section C
Test Limit:	≥ 500 kHz
Test Result:	PASS

10.1 Test Procedure

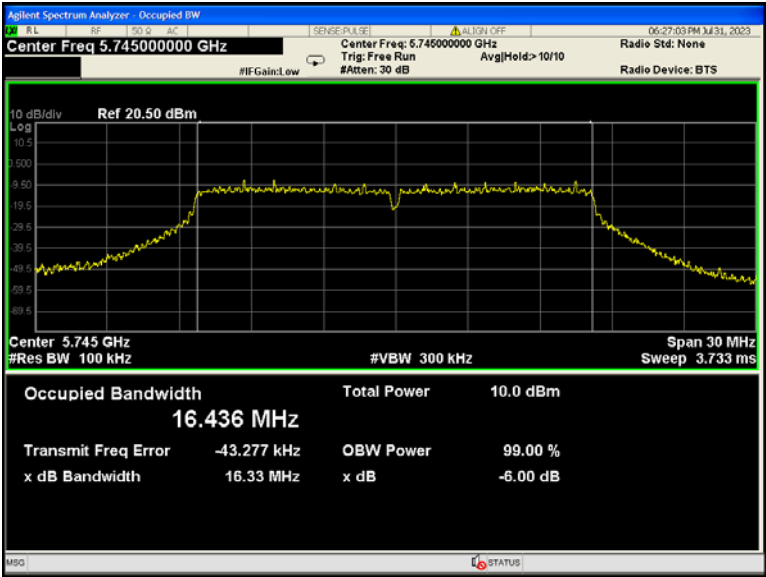
1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. Set the spectrum analyzer: RBW = 100kHz, VBW = 300kHz

10.2 Test Result

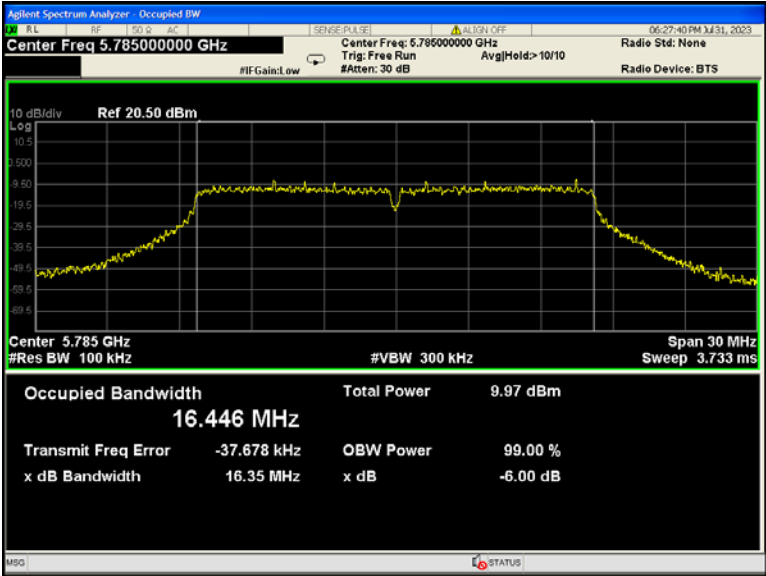
Band	Operation mode	6 dB Bandwidth (MHz)		
		Low	Middle	High
U-NII-3	802.11a	16.33	16.35	16.32
	802.11n(HT20)	16.90	17.17	17.28
	802.11n(HT40)	35.93	/	35.38
	802.11ac(VHT20)	17.56	17.50	17.54
	802.11ac(VHT40)	36.02	/	35.34
	802.11ac(VHT80)	75.38	/	/

Test result plots shown as follows:

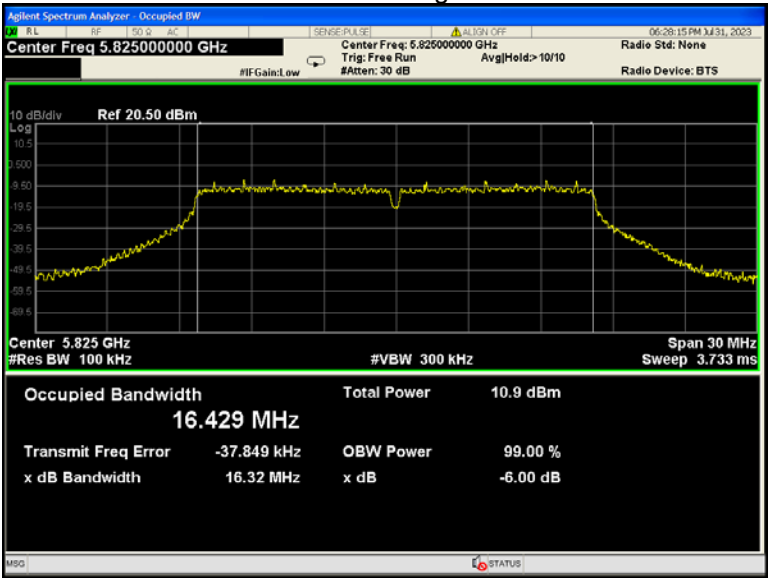
802.11a U-NII-3 Low channel



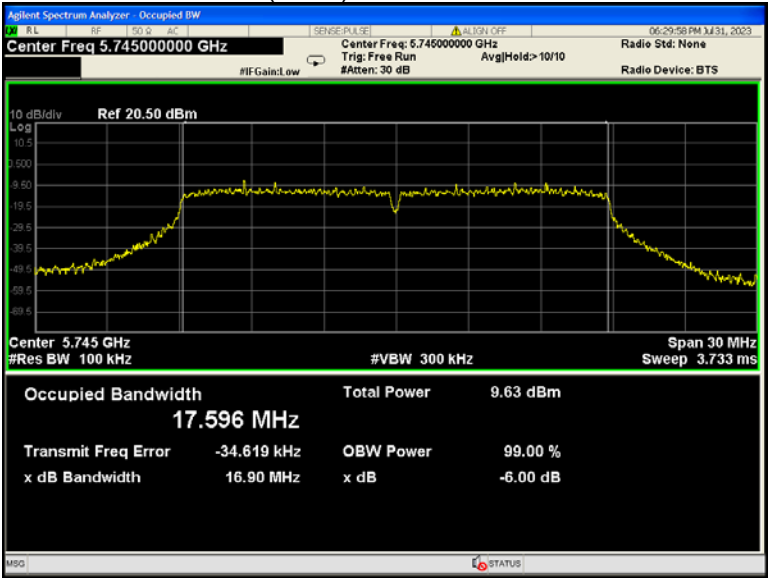
802.11a U-NII-3 Middle channel



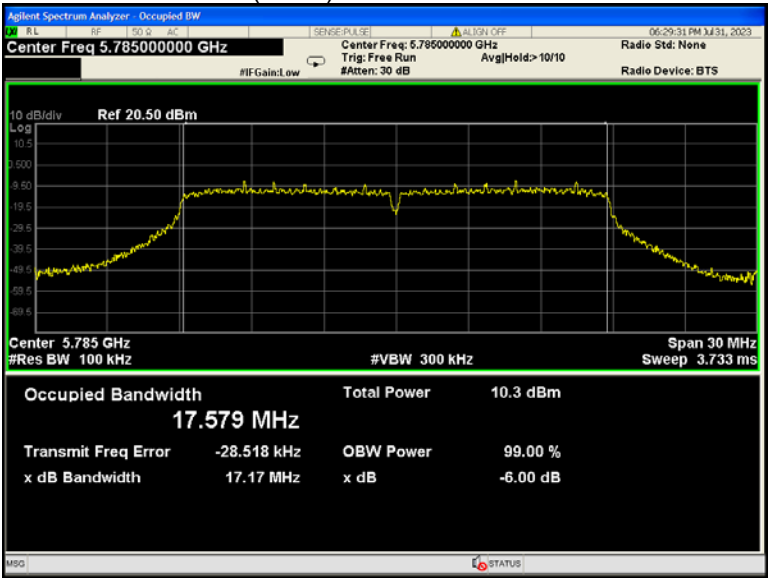
802.11a U-NII-3 High channel



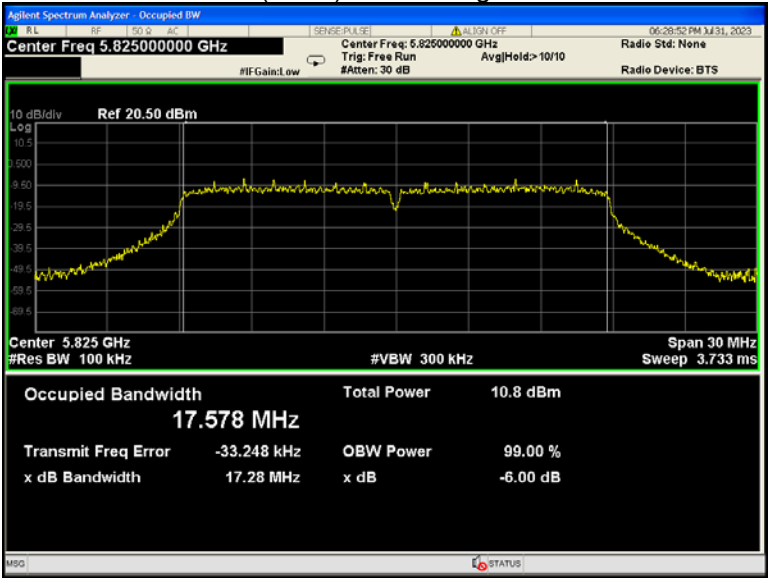
802.11n(HT20) U-NII-3 Low channel



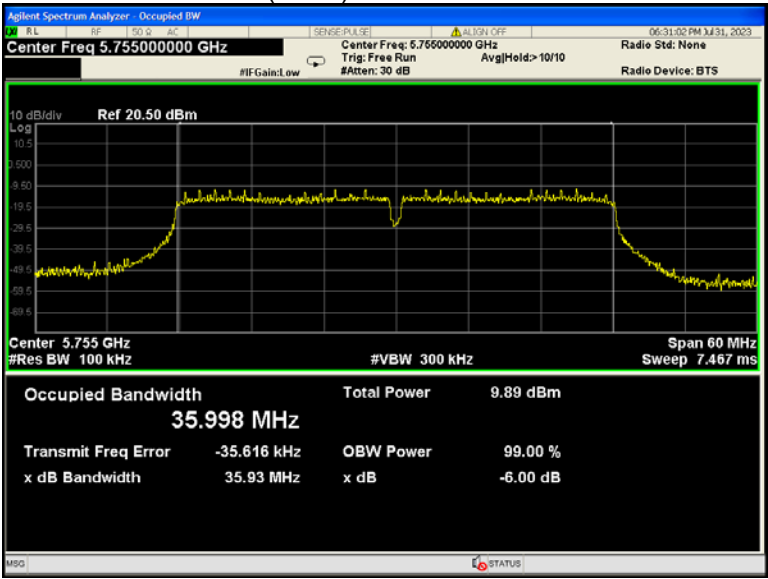
802.11n(HT20) U-NII-3 Middle channel



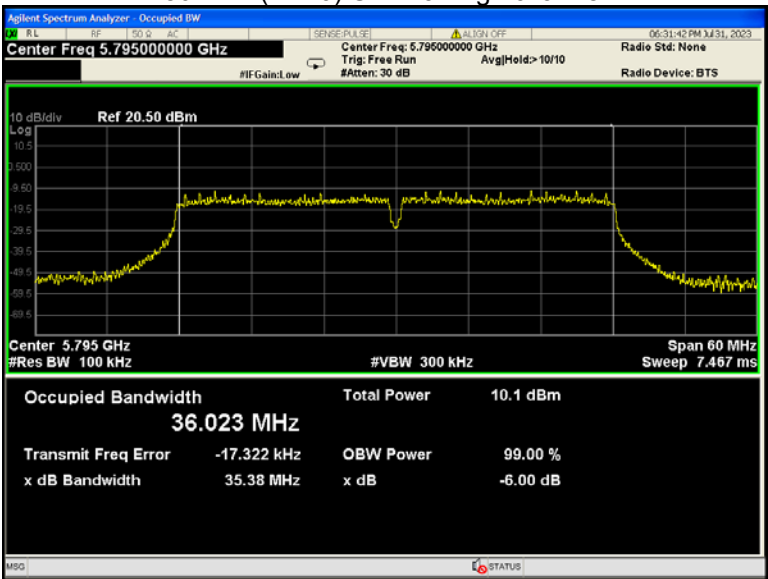
802.11n(HT20) U-NII-3 High channel



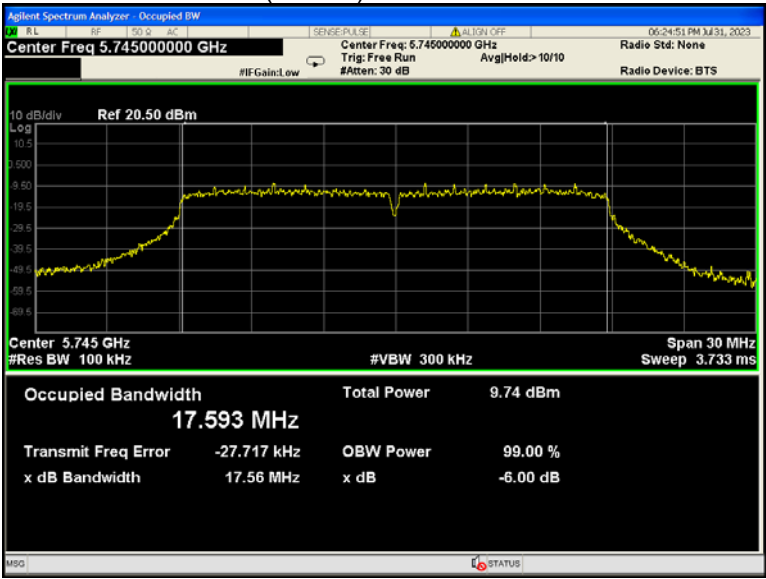
802.11n(HT40) U-NII-3 Low channel



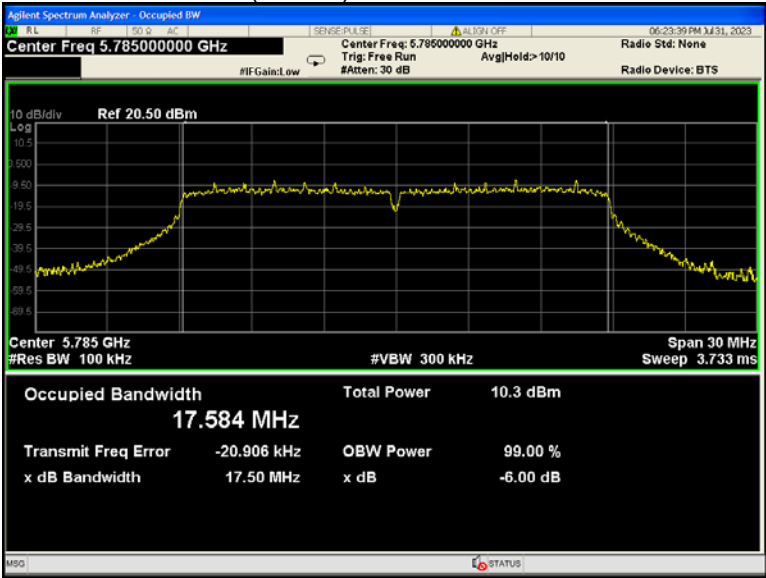
802.11n(HT40) U-NII-3 High channel



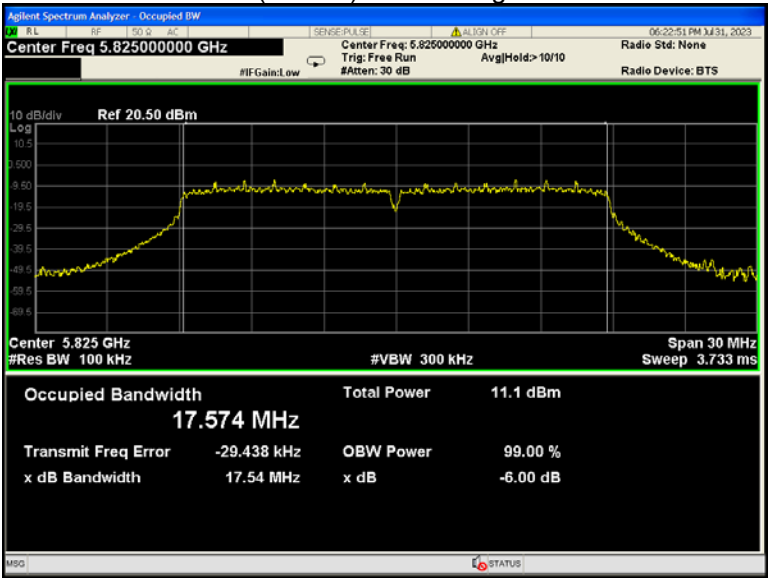
802.11ac(VHT20) U-NII-3 Low channel



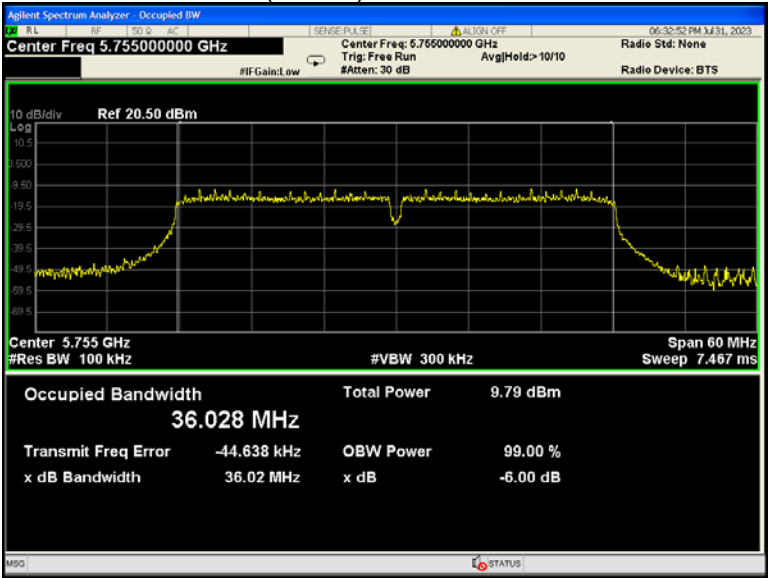
802.11ac(VHT20) U-NII-3 Middle channel



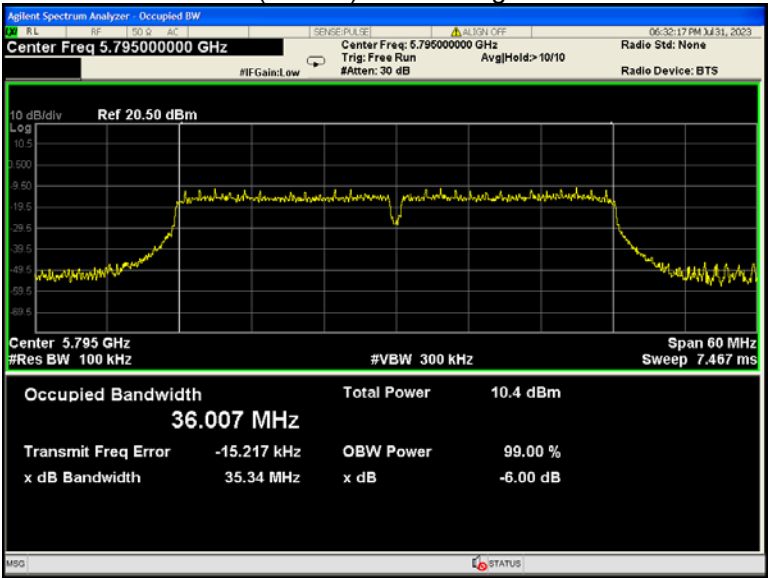
802.11ac(VHT20) U-NII-3 High channel



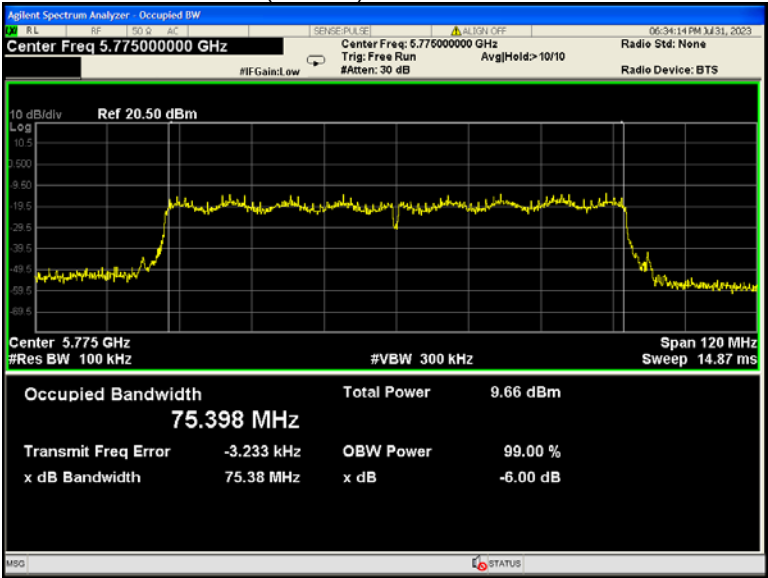
802.11ac(VHT40) U-NII-3 Low channel



802.11ac(VHT40) U-NII-3 High channel



802.11ac(VHT80) U-NII-3 Low channel



11 26 dB Bandwidth and 99% Occupied Bandwidth

Test Requirement:	FCC 47CFR Part 15 Section 15.407 (a) KDB662911 D01 Multiple Transmitter Output v02r01
Test Method:	KDB789033 D02 General U-NII Test Procedures New Rules v02r01 Section D
Test Limit:	No restriction limits
Test Result:	PASS

11.1 Test Procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. Set the spectrum analyzer: RBW = 1% to 5% of the OBW, VBW = 3x RBW

11.2 Test Result

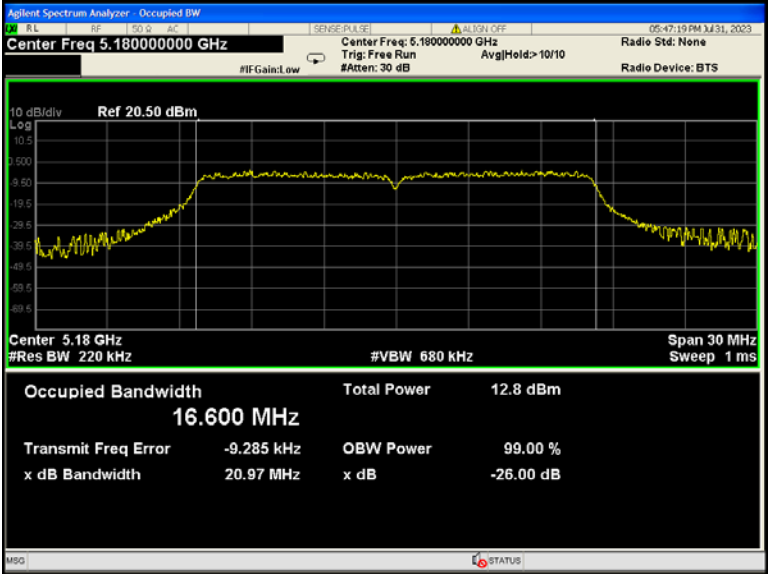
Band	Operation mode	26 dB Bandwidth (MHz)			99% Bandwidth (MHz)		
		Low	Middle	High	Low	Middle	High
U-NII-1	802.11a	20.97	21.90	21.41	16.600	16.621	16.620
	802.11n(HT20)	21.36	21.26	21.34	17.706	17.686	17.703
	802.11n(HT40)	41.17	/	41.28	36.126	/	36.111
	802.11ac(VHT20)	21.20	21.47	20.89	17.670	17.689	17.669
	802.11ac(VHT40)	41.20	/	40.94	36.095	/	36.101
	802.11ac(VHT80)	82.85	/	/	75.635	/	/

Band	Operation mode	99% Bandwidth (MHz)		
		Low	Middle	High
U-NII-3	802.11a	16.656	16.642	16.611
	802.11n(HT20)	17.656	17.641	17.626
	802.11n(HT40)	36.146	/	36.109
	802.11ac(VHT20)	17.641	17.763	17.633
	802.11ac(VHT40)	36.146	/	36.133
	802.11ac(VHT80)	75.600	/	/

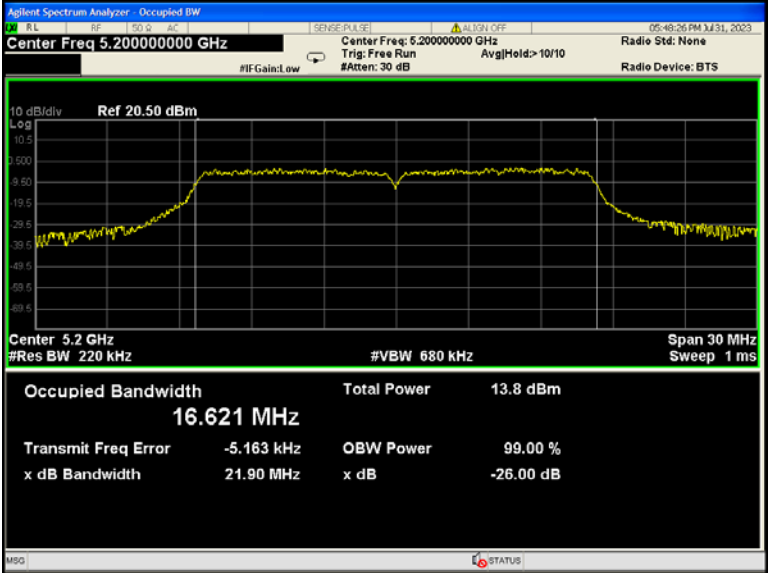
Test result plots shown as follows:

26 dB Bandwidth and 99% Occupied Bandwidth

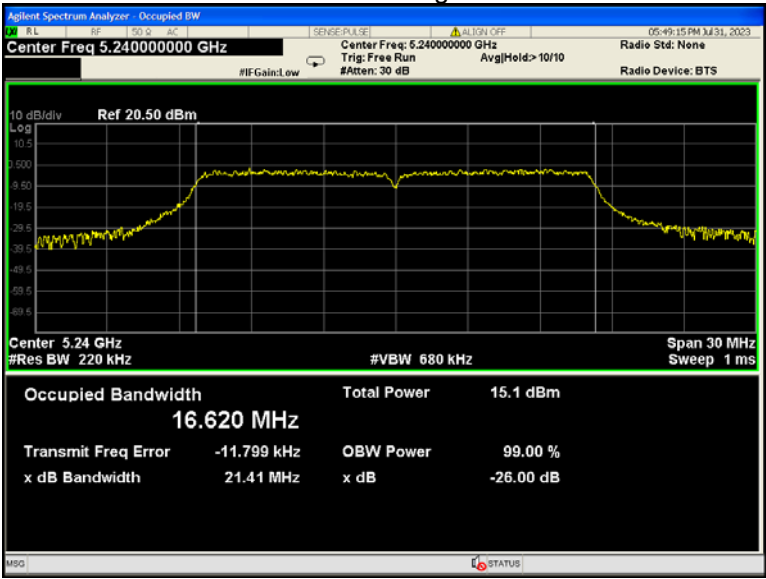
802.11a U-NII-1 Low channel



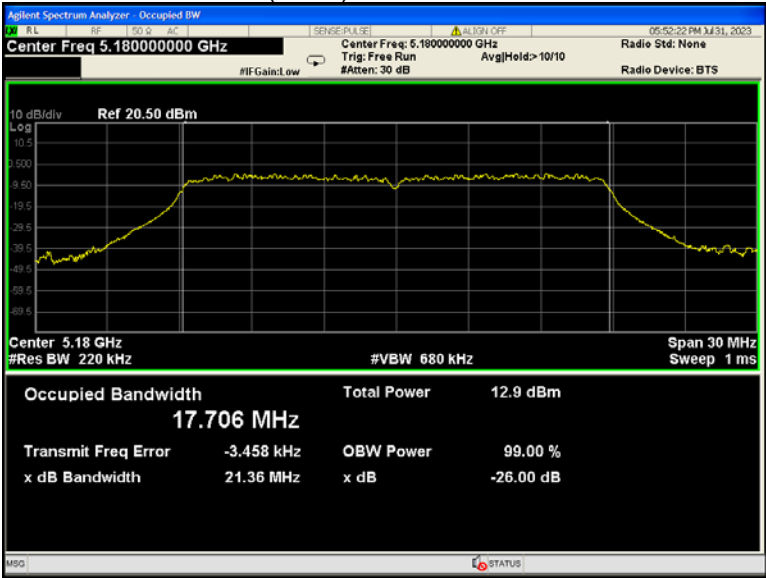
802.11a U-NII-1 Middle channel



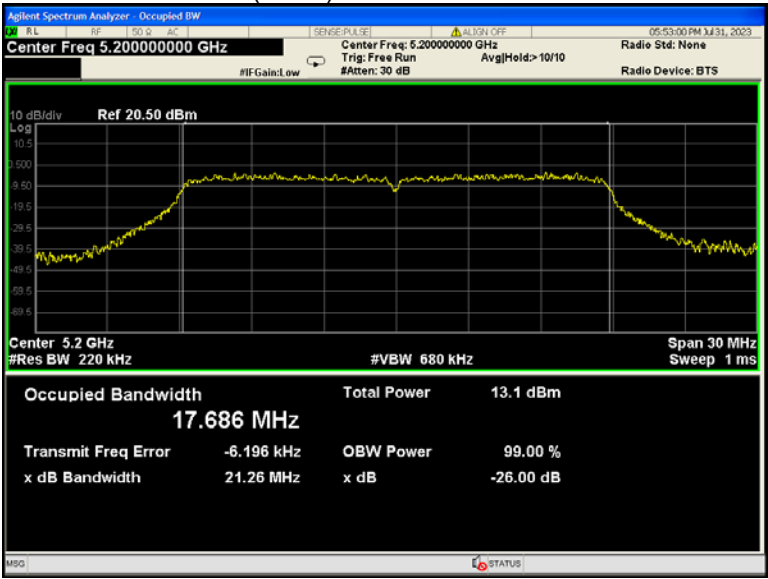
802.11a U-NII-1 High channel



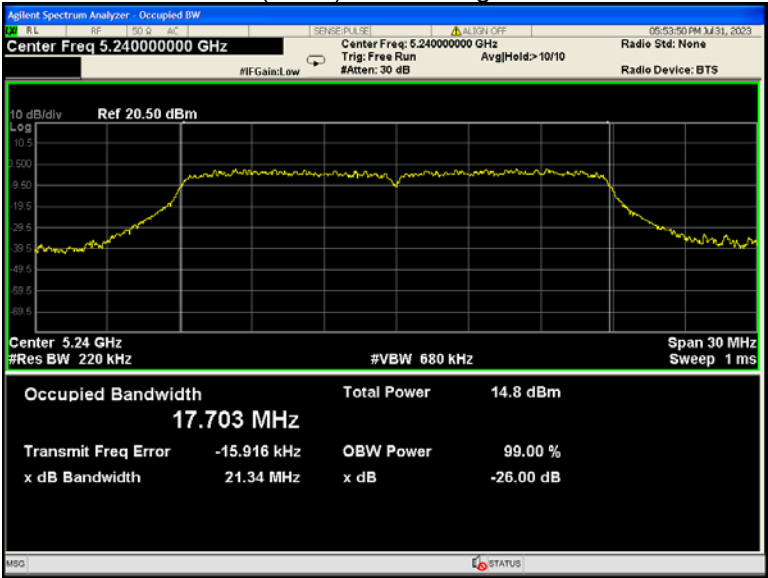
802.11n(HT20) U-NII-1 Low channel



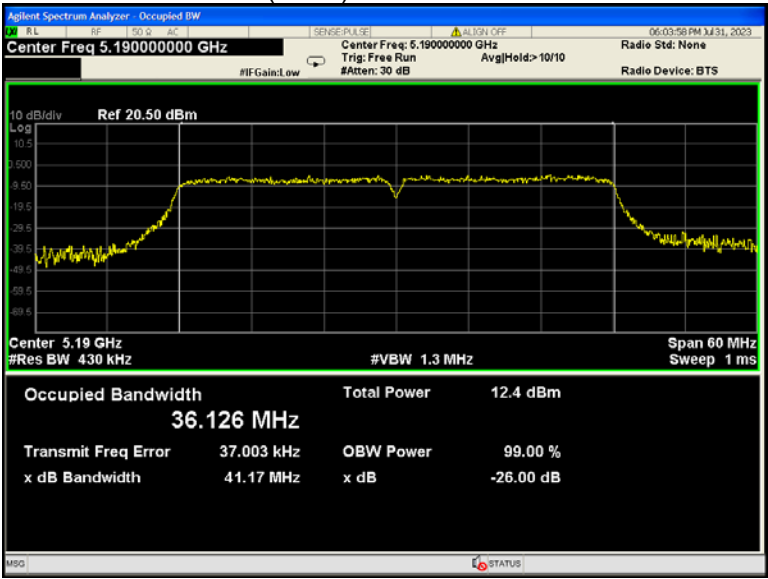
802.11n(HT20) U-NII-1 Middle channel



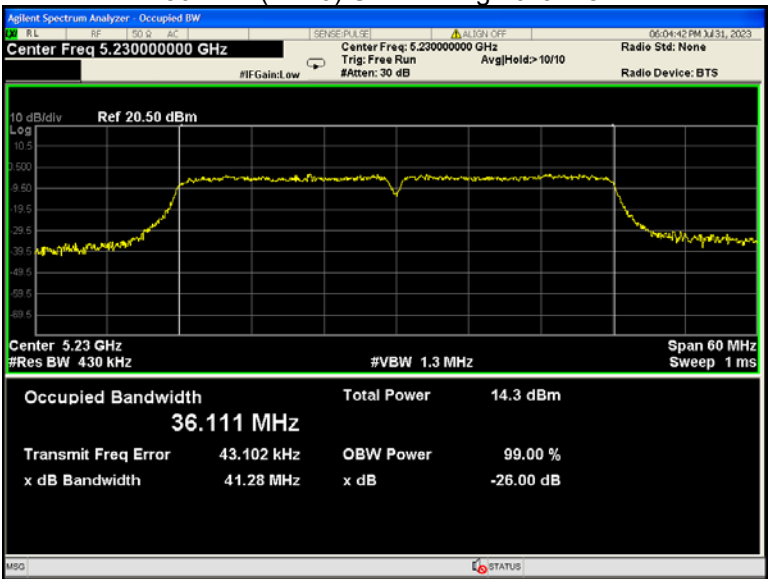
802.11n(HT20) U-NII-1 High channel



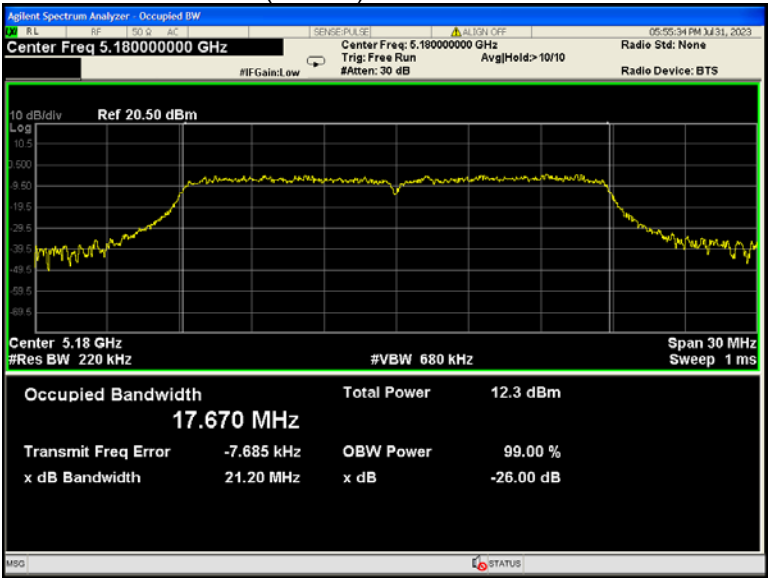
802.11n(HT40) U-NII-1 Low channel



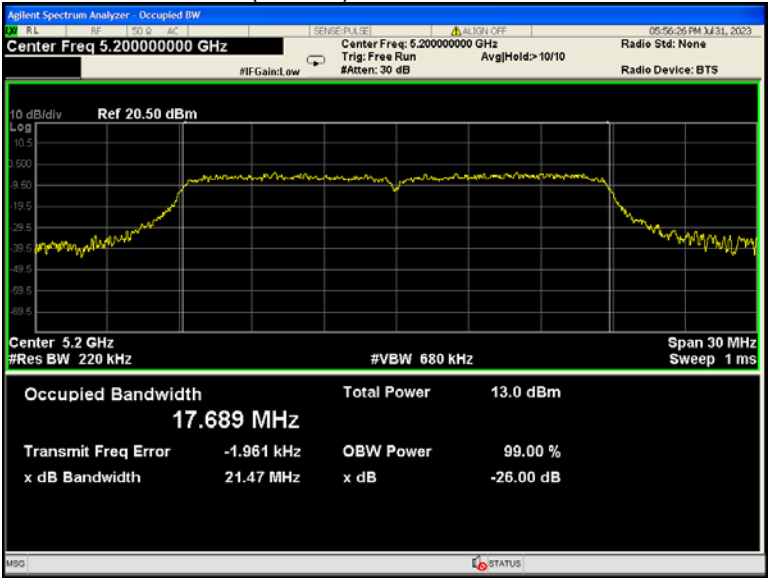
802.11n(HT40) U-NII-1 High channel



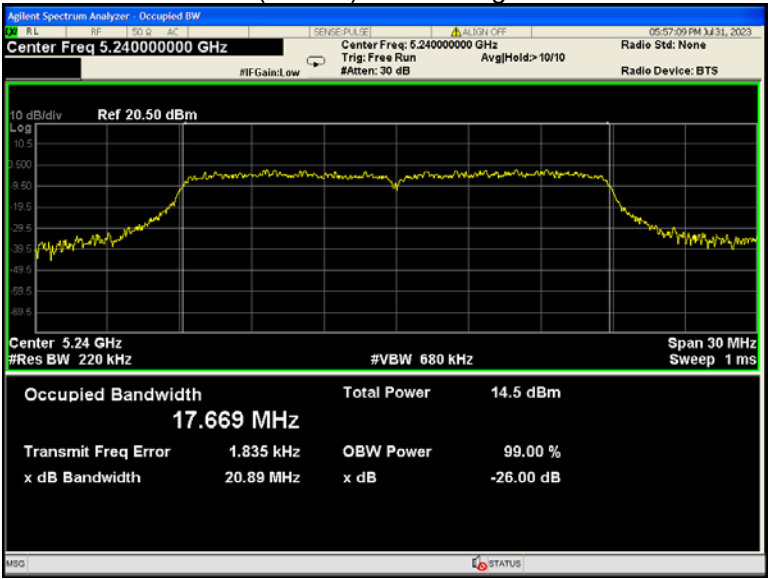
802.11ac(VHT20) U-NII-1 Low channel



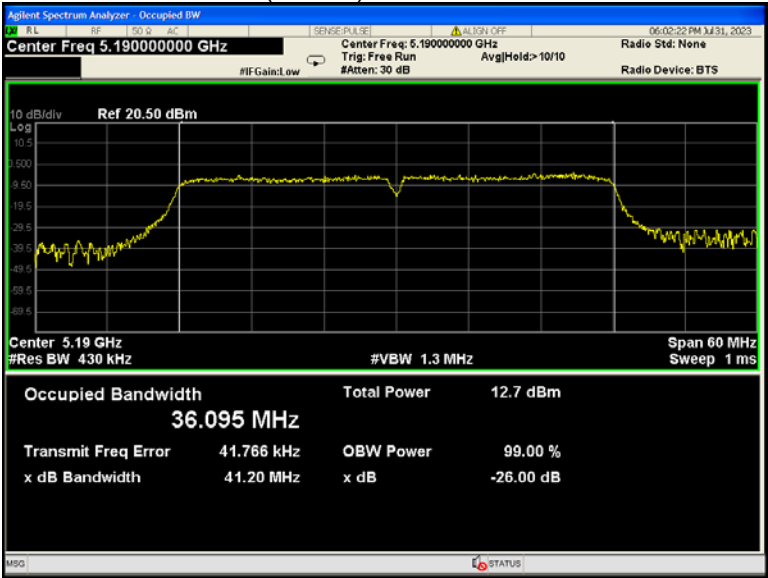
802.11ac(VHT20) U-NII-1 Middle channel



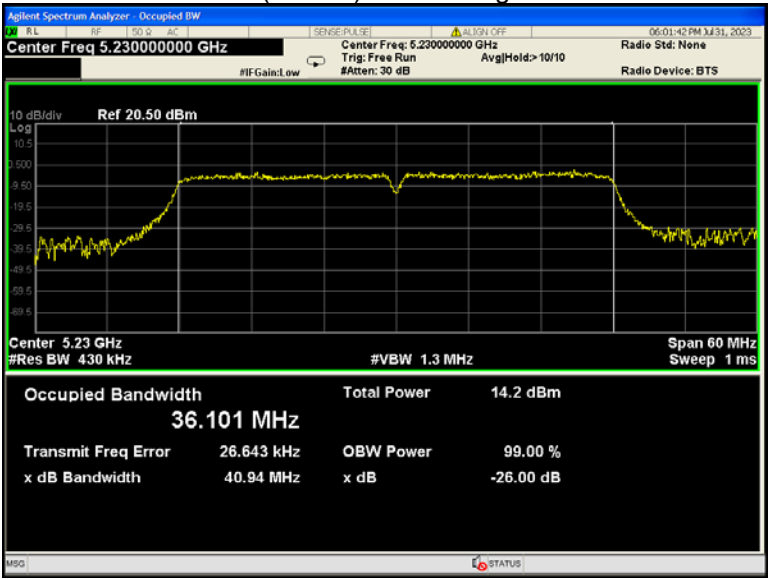
802.11ac(VHT20) U-NII-1 High channel



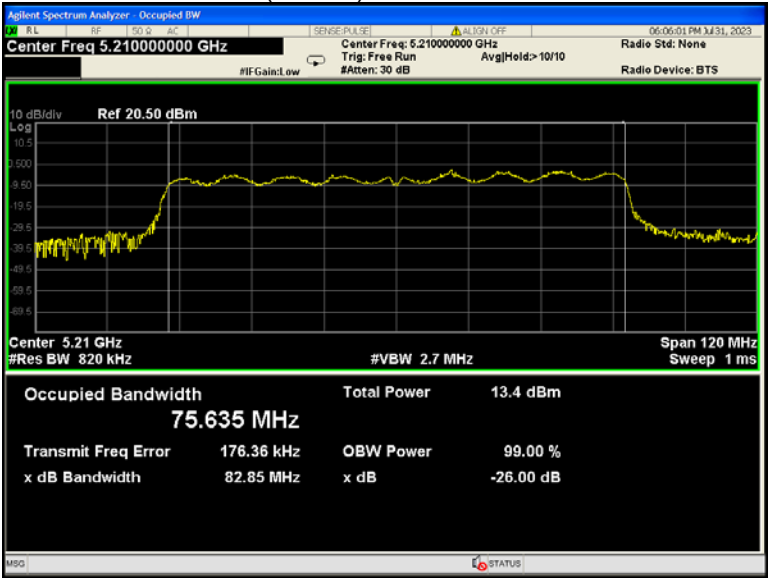
802.11ac(VHT40) U-NII-1 Low channel



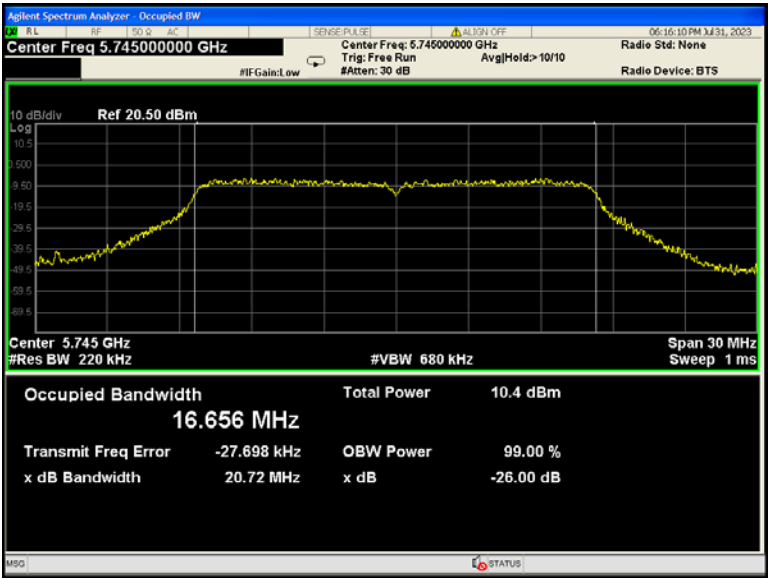
802.11 ac(VHT40) U-NII-1 High channel



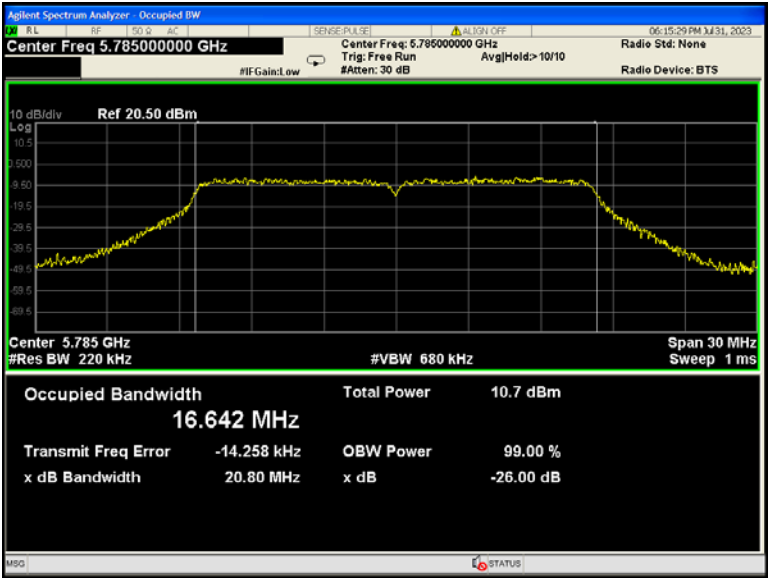
802.11ac(VHT80) U-NII-1 Low channel



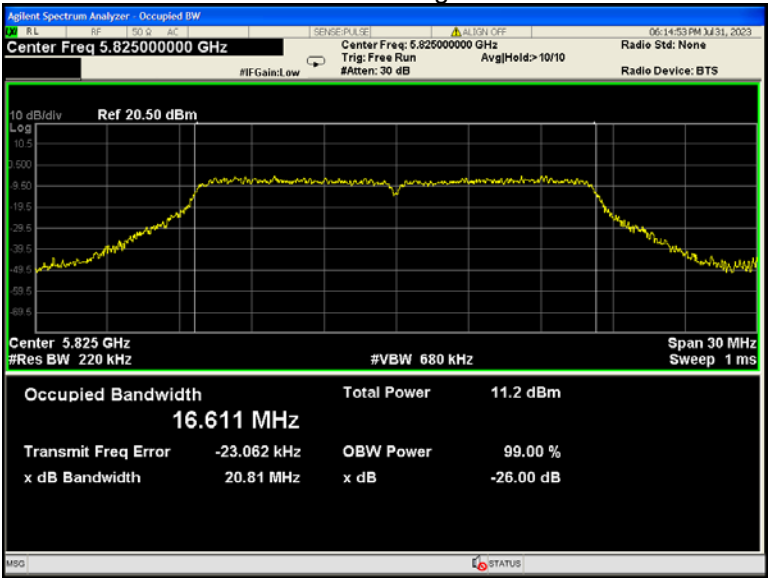
802.11a U-NII-3 Low channel



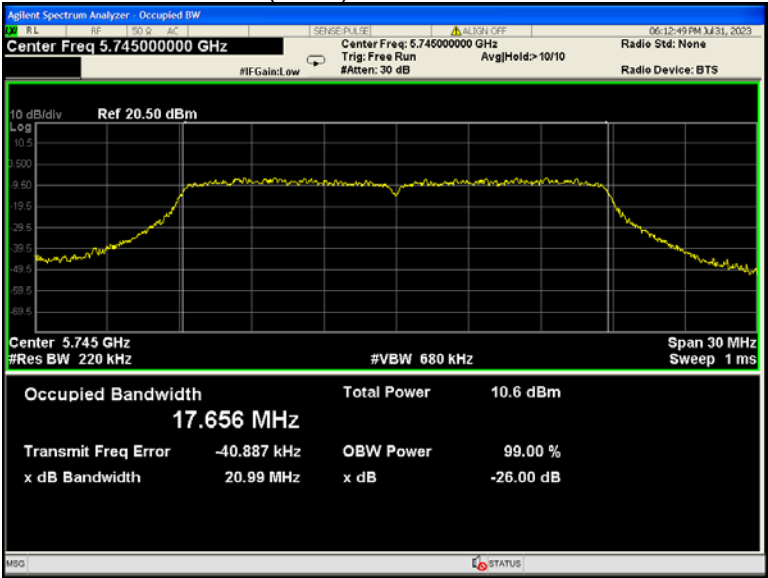
802.11a U-NII-3 Middle channel



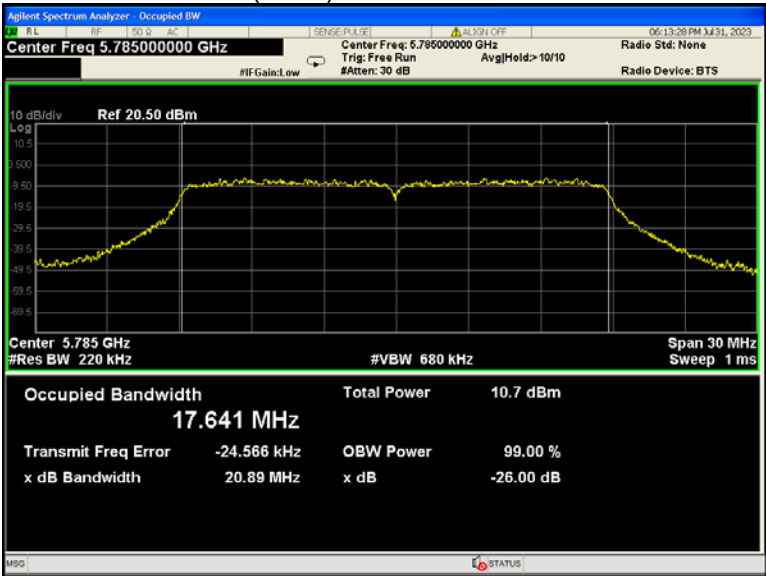
802.11a U-NII-3 High channel



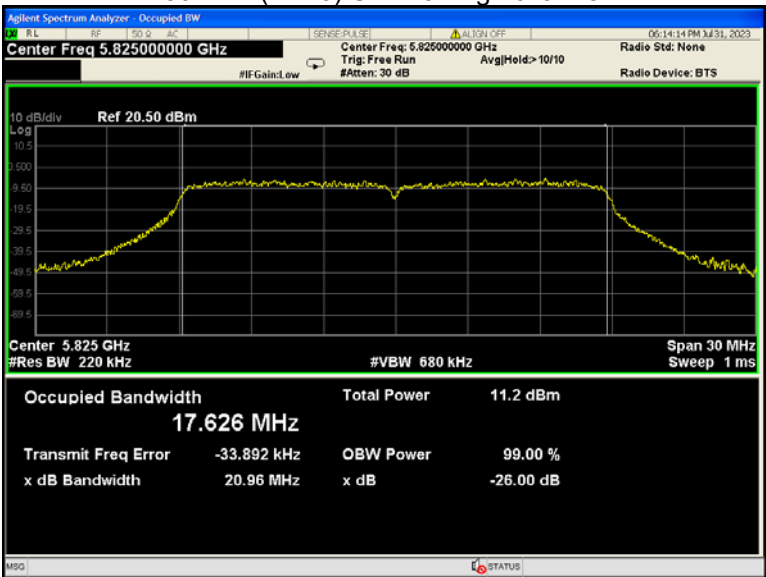
802.11n(HT20) U-NII-3 Low channel



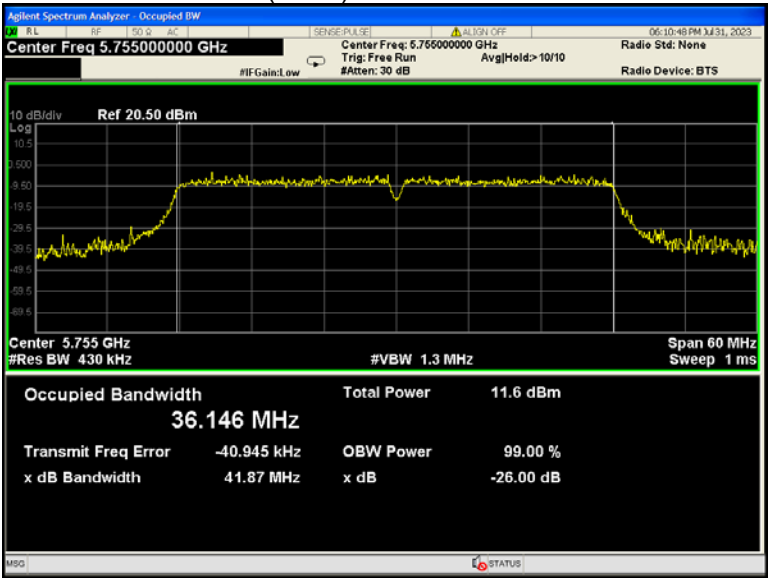
802.11n(HT20) U-NII-3 Middle channel



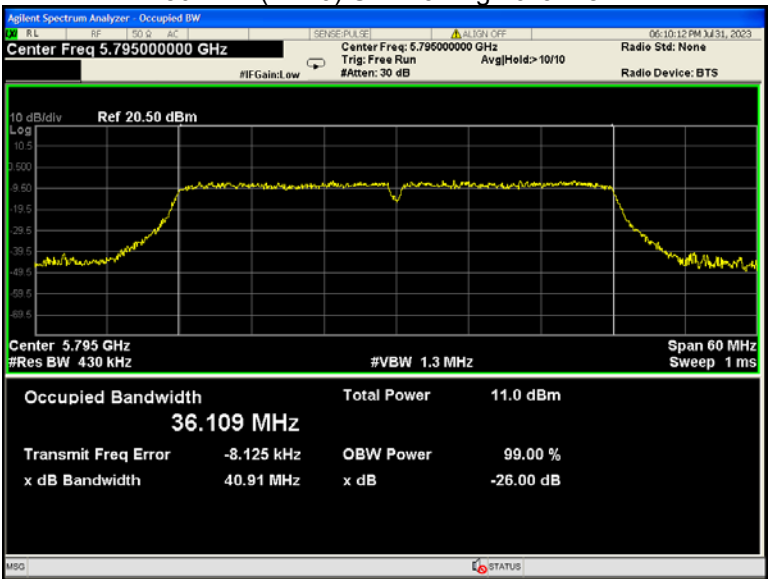
802.11n(HT20) U-NII-3 High channel



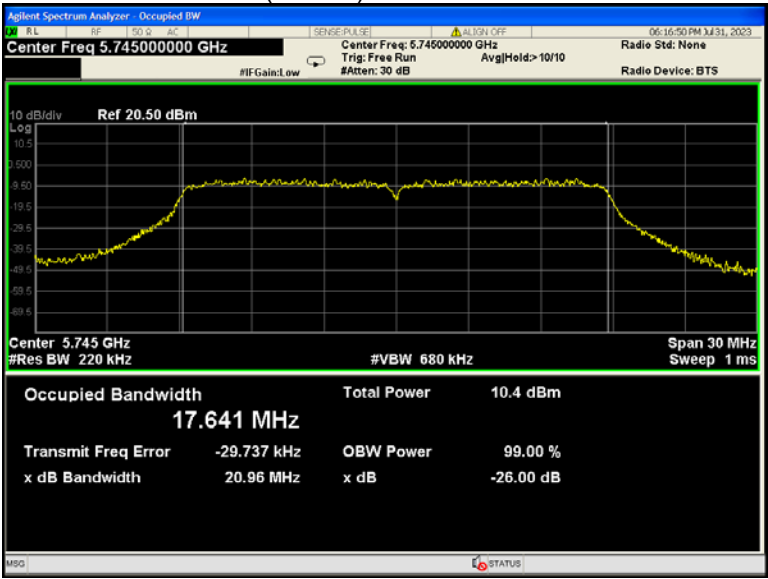
802.11n(HT40) U-NII-3 Low channel



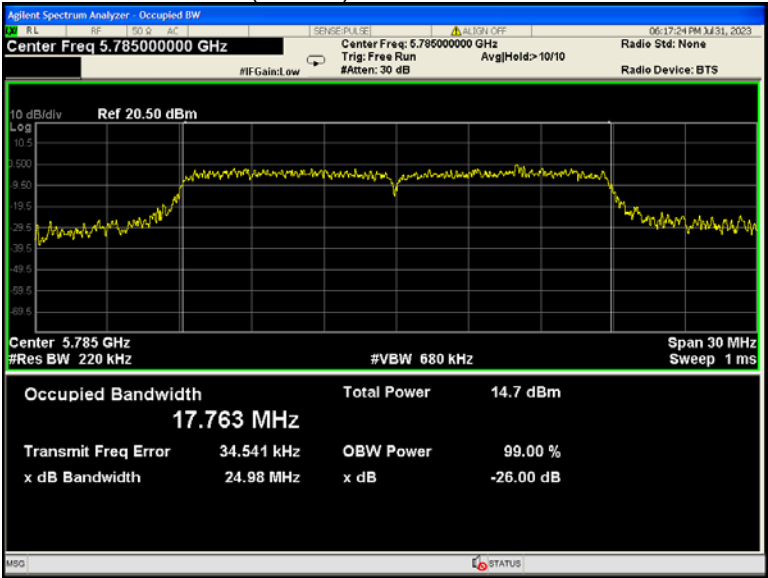
802.11n(HT40) U-NII-3 High channel



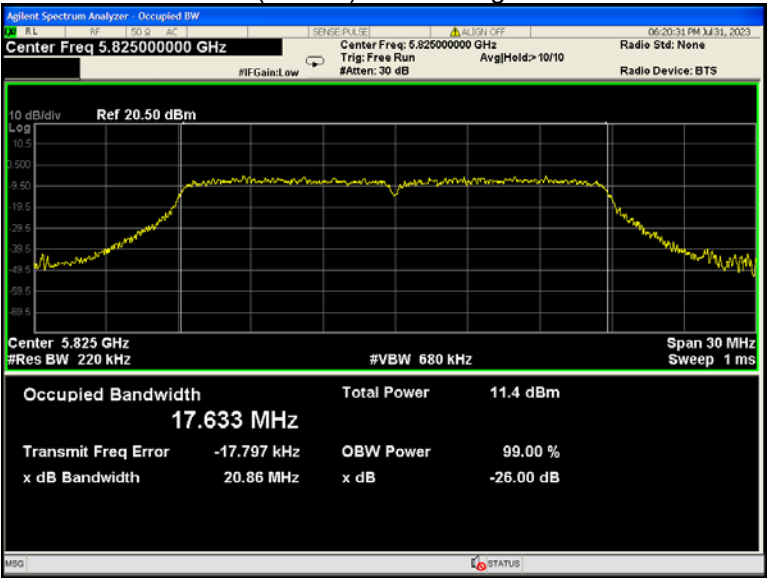
802.11ac(VHT20) U-NII-3 Low channel



802.11ac(VHT20) U-NII-3 Middle channel



802.11ac(VHT20) U-NII-3 High channel



802.11ac(VHT40) U-NII-3 Low channel

