TEST REPORT

FCC UNII Test for SM-F741B
Certification

APPLICANT
SAMSUNG Electronics Co., Ltd.

REPORT NO.
HCT-RF-2405-FC027

DATE OF ISSUE
May 3, 2024

Tested by
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TEST REPORT

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May 03, 2024

Applicant	**SAMSUNG Electronics Co., Ltd.** 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
Product Name Model Name	Mobile Phone SM-F741B
FCC ID	A3LSMF741B
Date of Test	February 23, 2024 ~ April 26, 2024
FCC Classification	Unlicensed National Information Infrastructure(NII)
Test Standard Used	FCC Rule Part(s): Part 15.407
Test Results	PASS
Location of Test	■ Permanent Testing Lab ☐ On Site Testing Lab (Address: 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Republic of Korea)

REVISION HISTORY

The revision history for this test report is shown in table.

Revision No.	Date of Issue	Description
0	May 03, 2024	Initial Release

Notice

Content
According to the Evaluation report, all of the data contained herein is reused from the reference FCC ID : A3LSMF741U report.
Engineering Statement: The measurements shown in this report were made in accordance with the procedures indicated, and the emissions from this equipment were found to be within the limits applicable. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them. It is further stated that upon the basis of the measurements made, the equipment tested is capable of operation in accordance with the requirements of the FCC Rules under normal use and maintenance.
The laboratory is not accredited for the test results marked *. Information provided by the applicant is marked **. Test results provided by external providers are marked ***.
The results shown in this test report only apply to the sample(s), as received, provided by the applicant, unless otherwise stated. The test results have only been applied with the test methods required by the standard(s).
When confirmation of authenticity of this test report is required, please contact www.hct.co.kr
The test results in this test report are not associated with the ((KS Q) ISO/IEC 17025) accreditation by KOLAS (Korea Laboratory Accreditation Scheme) / A2LA (American Association for Laboratory Accreditation) that are under the ILAC (International Laboratory Accreditation Cooperation) Mutual Recognition Agreement (MRA).

CONTENTS

1. GENERAL INFORMATION

EUT DESCRIPTION

Model	SM-F741B	
Additional Model	-	
EUT Type	Mobile Phone	
Power Supply	DC 3.88 V	
Modulation Type	OFDM : 802.11a, 802.11n, 802.11ac	
Frequency Range (MHz)	U-NII-1	20 MHz BW : 5180 - 5240 40 MHz BW : 5190 - 5230 80 MHz BW : 5210 160 MHz BW : 5250
	U-NII-2A	20 MHz BW : 5260 - 5320 40 MHz BW : 5270 - 5310 80 MHz BW : 5290 160 MHz BW : 5250
	U-NII-2C	20 MHz BW : 5500 - 5720 40 MHz BW : 5510 - 5710 80 MHz BW : 5530 – 5690 160 MHz BW : 5570
	U-NII-3	20 MHz BW : 5745 - 5825 40 MHz BW : 5755 - 5795 80 MHz BW : 5775 160 MHz BW : 5815
	U-NII-4	20 MHz BW : 5845 - 5885 40 MHz BW : 5835 - 5875 80 MHz BW : 5855 160 MHz BW : 5815
Straddle channel	Supported	
TDWR Band	Supported	
Dynamic Frequency Selection	Slave without radar detection	
Antenna Specification	Type: Metal	
Serial number	Conducted : 7b58367d3c507ece Radiated : R3CX20KJSQR	

ANTENNA CONFIGURATIONS

1. Antenna configuration

Configurations	SISO		MIMO	
	Ant.1	Ant.2	CDD	SDM
802.11a	O	O	O	X
802.11n	O	O	O	O
802.11ac	O	O	O	O

Note:

(1) O = Support, X = Not Support

(2) SISO = Single Input Single Output

(3) SDM = Spatial Diversity Multiplexing

(4) CDD = Cyclic Delay Diversity

2.This device supports simultaneous transmission operation, which allows for two channels to operate independent of one another in the 2.4 GHz and 5 GHz or 6GHz Bands simultaneously on each antenna.

RSDB Scenario	2.4 GHz WiFi Ant.1	2.4 GHz WiFi Ant.2	5 GHz WiFi Ant.1	5 GHz WiFi Ant.2	6 GHz WiFi Ant.1	6 GHz WiFi Ant.2	Bluetooth Ant.1	Bluetooth Ant.2	Test Case
2.4 GHz WiFi MIMO + 6 GHz WiFi MIMO	on	on			on	on			
2.4 GHz WiFi MIMO + 5 GHz WiFi MIMO	on	on	on	on					Scenario1
Dual Bluetooth + 5 GHz WiFi MIMO			on	on			on	on	Scenario2
Dual Bluetooth + 6 GHz WiFi MIMO					on	on	on	on	Scenario3
Bluetooth ANT.1 + 2.4 GHz WiFi ANT.2 + 5 GHz WiFi MIMO		on	on	on			on		Scenario4
Bluetooth ANT.1 + 2.4 GHz WiFi ANT.2 + 6 GHz WiFi MIMO		on			on	on	on		

3. Directional Gain Calculation

According to KDB 662911 D01 Multiple Transmitter Output v02r01 F) 2) e) (iii), f) ii)

$$\text{Directional Gain(CDD)} = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\{\sum_{k=1}^{N_{ANT}} g_{j,k}\}^2}{N_{ANT}}\right]$$

Directional gain(SDM) = Gmax + 10·LOG(N_{ANT}/ N_{ss})

Band	Ant Gain (dBi)		N_{ANT}/ N_{ss}	Directional Gain (dBi)	
	ANT1	ANT2		CDD	SDM
UNII 1	-4.60	-6.32	2 / 2	-2.41	-4.60
UNII 2A	-5.10	-6.19		-2.62	-5.10
UNII 2C	-5.43	-6.37		-2.88	-5.43
UNII 3	-6.22	-7.11		-3.64	-6.22
UNII 4	-5.58	-7.08		-3.29	-5.58

Note

According to Ansi C63.10-2013 section 14.4.3, the directional gain is calculated using the formula, where GN is the gain of the nth antenna and NANT is the total number of antennas used.

Directional gain(CDD) = 10·log(((10$^{(ANT1\ Gain/20)}$+10$^{(ANT2\ Gain/20)}$)^2)/2) dBi

Directional gain(SDM) = Gmax + 10·LOG(N_{ANT}/ N_{ss})

Sample Calculation (Conducted Power, MIMO):

Ex) Ant 1 : 11.58 dBm Ant 2 : 12.08 dBm

Ant1 + Ant 2 = MIMO

(11.58 dBm + 12.08 dBm) = (14.387 mW + 16.143 mW) = 30.53 mW = 14.88 dBm

Sample Calculation (E.I.R.P & E.I.R.P Spectral Density, MIMO):

Ex) ANT1 : 15.35 dBm , ANT2 : 15.12 dBm, Directional Gain : 3 dBi

Conducted Power = (15.35 dBm + 15.12 dBm) = (34.276 mW + 32.508 mW) = 66.784 mW = 18.25 dBm

E.I.R.P = 18.25 dBm + 3 dBi = 21.25 dBm

2. MAXIMUM OUTPUT POWER

The transmitter has a maximum total conducted average output power as follows:

Band	Mode	MIMO_CDD(Ant.1+ Ant.2)					
		Ant.1 Power		Ant.2 Power		Ant.1 + Ant.2 Power	
		(dBm)	(W)	(dBm)	(W)	(dBm)	(W)
UNII1	802.11a	15.37	0.034	15.35	0.034	18.37	0.069
	802.11n (HT20)	15.59	0.036	15.60	0.036	18.61	0.073
	802.11n (HT40)	13.54	0.023	13.53	0.023	16.55	0.045
	802.11ac (VHT20)	15.30	0.034	15.20	0.033	18.26	0.067
	802.11ac (VHT40)	13.56	0.023	13.56	0.023	16.57	0.045
	802.11ac (VHT80)	13.12	0.020	13.01	0.020	16.08	0.041
UNII2A	802.11a	15.14	0.033	15.68	0.037	18.43	0.070
	802.11n (HT20)	15.19	0.033	15.90	0.039	18.57	0.072
	802.11n (HT40)	13.21	0.021	13.92	0.025	16.59	0.046
	802.11ac (VHT20)	15.01	0.032	15.53	0.036	18.29	0.067
	802.11ac (VHT40)	13.27	0.021	13.89	0.024	16.60	0.046
	802.11ac (VHT80)	12.82	0.019	13.42	0.022	16.14	0.041
UNII2C	802.11a	15.43	0.035	15.98	0.040	18.72	0.075
	802.11n (HT20)	15.81	0.038	15.97	0.040	18.90	0.078
	802.11n (HT40)	13.54	0.023	14.24	0.027	16.91	0.049
	802.11ac (VHT20)	15.48	0.035	15.98	0.040	18.74	0.075
	802.11ac (VHT40)	13.52	0.022	14.25	0.027	16.91	0.049
	802.11ac (VHT80)	12.65	0.018	13.39	0.022	16.04	0.040
UNII3	802.11a	15.24	0.033	15.57	0.036	18.42	0.069
	802.11n (HT20)	15.70	0.037	15.81	0.038	18.77	0.075
	802.11n (HT40)	13.57	0.023	13.76	0.024	16.68	0.047
	802.11ac (VHT20)	15.32	0.034	15.34	0.034	18.34	0.068
	802.11ac (VHT40)	13.58	0.023	13.76	0.024	16.68	0.047
	802.11ac (VHT80)	12.91	0.020	12.84	0.019	15.89	0.039
UNII4 (Conducted For inf.)	802.11a	15.59	0.036	14.90	0.031	18.27	0.067
	802.11n (HT20)	15.91	0.039	15.28	0.034	18.62	0.073
	802.11n (HT40)	14.08	0.026	13.13	0.021	16.64	0.046
	802.11ac (VHT20)	15.55	0.036	14.87	0.031	18.24	0.067
	802.11ac (VHT40)	13.88	0.024	13.39	0.022	16.65	0.046
	802.11ac (VHT80)	13.58	0.023	12.85	0.019	16.24	0.042
UNII1-2A	802.11ac (VHT160)	11.41	0.014	11.35	0.014	14.39	0.027
UNII2C	802.11ac (VHT160)	11.13	0.013	12.68	0.019	14.99	0.032
UNII3&4	802.11ac (VHT160)	12.50	0.018	11.90	0.015	15.22	0.033

Band	Mode	MIMO_CDD(Ant.1+ Ant.2) (EIRP)											
		Ant.1 Power				Ant.2 Power				(Ant.1 + Ant.2) Power			
		(dBm)	ANT Gain(dBi)	EIRP (dBm)	(W)	(dBm)	ANT Gain(dBi)	EIRP (dBm)	(W)	(dBm)	ANT Gain(dBi)	EIRP (dBm)	(W)
UNII4 (E.I.R.P)	802.11a	15.59	-5.58	10.01	0.010	14.90	-7.08	7.82	0.006	18.27	-3.29	14.98	0.031
	802.11n (HT20)	15.91	-5.58	10.33	0.011	15.28	-7.08	8.20	0.007	18.62	-3.29	15.33	0.034
	802.11n (HT40)	14.08	-5.58	8.50	0.007	13.13	-7.08	6.05	0.004	16.64	-3.29	13.36	0.022
	802.11ac (VHT20)	15.55	-5.58	9.97	0.010	14.87	-7.08	7.79	0.006	18.24	-3.29	14.95	0.031
	802.11ac (VHT40)	13.88	-5.58	8.30	0.007	13.39	-7.08	6.31	0.004	16.65	-3.29	13.36	0.022
	802.11ac (VHT80)	13.58	-5.58	8.00	0.006	12.85	-7.08	5.77	0.004	16.24	-3.29	12.96	0.020
	802.11ac (VHT160)	12.50	-5.58	6.92	0.005	11.90	-7.08	4.82	0.003	15.22	-3.29	11.93	0.016

3. TEST METHODOLOGY

The measurement procedure described in FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01 dated December 14, 2017 entitled “Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices Part15, Subpart E” and ANSI C63.10(Version : 2013) ‘the American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices’ were used in the measurement. Additionally, for U-NII-4 band, use the following measurement procedure KDB 291074 D02 EMC Measurement v01

EUT CONFIGURATION

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

EUT EXERCISE

The EUT was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements. According to its specifications, the EUT must comply with the requirements of the Section 15.207, 15.209 and 15.407 under the FCC Rules Part 15 Subpart E.

GENERAL TEST PROCEDURES

Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 6.2 of ANSI C63.10. (Version :2013) Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-peak and average Measurement Typeor modes.

Radiated Emissions

The EUT is placed on a turn table, which is 0.8 m above ground plane below 1 GHz. Above 1 GHz with 1.5 m using absorbers between the EUT and receive antenna. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3 m away from the receiving antenna, which varied from 1 m to 4 m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter (EUT) was rotated through three orthogonal axes according to the requirements in Section 6.6.5 of ANSI C63.10. (Version: 2013)

DESCRIPTION OF TEST MODES

The EUT has been tested under operating condition. Test program used to control the EUT for staying in continuous transmitting and receiving mode is programmed.

4. INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment's, which is traceable to recognized national standards.
Especially, all antenna for measurement is calibrated in accordance with the requirements of C63.5 (Version : 2017).

5. FACILITIES AND ACCREDITATIONS

5.1 FACILITIES

The SAC(Semi-Anechoic Chamber) and conducted measurement facility used to collect the radiated data are located at the 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA. The site is constructed in conformance with the requirements of ANSI C63.4. (Version :2014) and CISPR Publication 22.
Detailed description of test facility was submitted to the Commission and accepted dated March 11, 2024 (Registration Number: KR0032).

5.2 EQUIPMENT

Radiated emissions are measured with one or more of the following types of Linearly polarized antennas: tuned dipole, bi-conical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak Measurement Typeors are used to perform radiated measurements.
Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers. Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.
All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

6. AntENNA REQUIREMENTS

According to FCC 47 CFR § 15.203, § 15.407:

"An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section."

(1) The antennas of this E.U.T are permanently attached.

(2) The E.U.T Complies with the requirement of § 15.203, § 15.407

7. MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.10-2013.

All measurement uncertainty values are shown with a coverage factor of $k = 2$ to indicate a 95 % level of confidence.

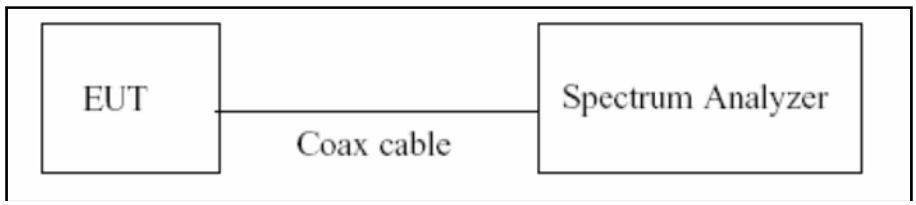
The measurement data shown herein meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Parameter	Expanded Uncertainty (dB)
Conducted Disturbance (150 kHz ~ 30 MHz)	1.98 (Confidence level about 95 %, k=2)
Radiated Disturbance (9 kHz ~ 30 MHz)	4.36 (Confidence level about 95 %, k=2)
Radiated Disturbance (30 MHz ~ 1 GHz)	5.70 (Confidence level about 95 %, k=2)
Radiated Disturbance (1 GHz ~ 18 GHz)	5.52 (Confidence level about 95 %, k=2)
Radiated Disturbance (18 GHz ~ 40 GHz)	5.66 (Confidence level about 95 %, k=2)
Radiated Disturbance (Above 40 GHz)	5.58 (Confidence level about 95 %, k=2)

8. DESCRIPTION OF TESTS

8.1. Duty Cycle

Test Configuration



Test Procedure

The transmitter output is connected to the Spectrum Analyzer.

We tested according to Procedure B.2 in KDB 789033 D02 v02r01.

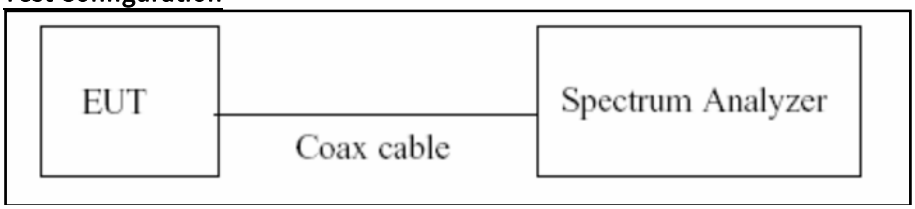
1. RBW = 8 MHz (the largest availble value)
2. VBW = 8 MHz (≥ RBW)
3. SPAN = 0 Hz
4. Measurement Typeor = Peak
5. Number of points in sweep > 100
6. Trace mode = Clear write
7. Measure T_{total} and T_{on}
8. Calculate Duty Cycle = T_{on}/ T_{total} and Duty Cycle Factor = 10log(1/Duty Cycle)

8.2. 6 dB Bandwidth & 26 dB Bandwidth

Limit

Within the 5.725-5.85 GHz(NII-3) & 5.85-5.925 GHz(NII-4) band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

Test Configuration



Test Procedure(26 dB Bandwidth)

The transmitter output is connected to the Spectrum Analyzer.
We tested according to Procedure C.1 in KDB 789033 D02 v02r01.

1. RBW = approximately 1 % of the emission bandwidth
2. 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 %.

Test Procedure (6 dB Bandwidth)

The transmitter output is connected to the Spectrum Analyzer.
We tested according to Procedure C.2 in KDB 789033 D02 v02r01.

1. RBW = 100 kHz
2. VBW ≥ 3 x RBW
3. Detector = Peak
4. Trace mode = max hold
5. Allow the trace to stabilize
6. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points(upper and lower frequencies) that are attenuated by 6 dB relative to the maximum lever measured in the fundamental emission.

Note:

1. We tested X dB bandwidth using the automatic bandwidth measurement capability of a spectrum analyzer.
2. DFS test channels should be defined. So, we performed the OBW test to prove that no part of the fundamental emissions of any channels belong to UNII1 and UNII3 band for DFS.
3. The 26 dB bandwidth is used to determine the conducted power limits.

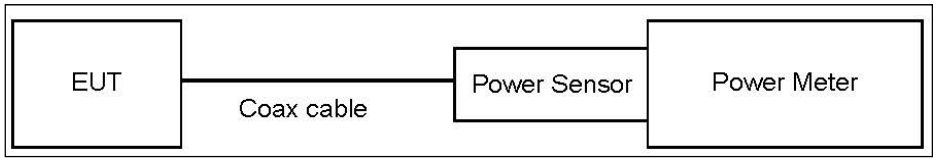
8.3. Output Power Measurement

Limit

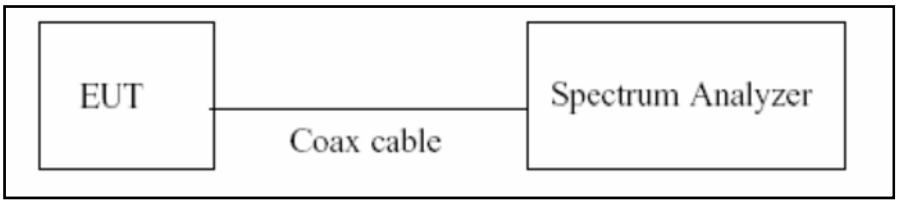
Band	Limit
UNII 1	- Master : Not exceed 1 W(=30 dBm) - Slave : Not exceed 250 mW(=23.98 dBm)
UNII 2A, 2C	Not exceed the lesser of 250 mW or 11 dBm + 10 log B, (where B is the 26 dB emission bandwidth in megahertz.)
UNII 3	Not exceed 1 W(=30 dBm)
UNII 4	EIRP 30 dBm

Test Configuration

Power Meter



Spectrum Analyzer(Only Straddle Channel)



Test Procedure(Power Meter)

We tested according to Procedure E.3.a in KDB 789033 D02 v02r01.

1. Measure the duty cycle.
2. Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.
3. Add 10 log (1/x), where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times.

Test Procedure(Spectrum Analyzer)

The transmitter output is connected to the Spectrum Analyzer.

We use the spectrum analyzer's integrated band power measurement function.

We tested according to Procedure E.2.d) in KDB 789033 D02 v02r01.

1. Measure the duty cycle.
2. Set span to encompass the 26 dB EBW of the signal.
3. RBW = 1 MHz.
4. VBW ≥ 3 MHz.
5. Number of points in sweep ≥ 2 x span/RBW.
6. Sweep time = auto.
7. Measurement Typeor = RMS.
8. Do not use sweep triggering. Allow the sweep to "free run".
9. Trace average at least 100 traces in power averaging(RMS) mode
10. Integrated bandwidth = OBW
11. Add 10log(1/x), where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times.

Sample Calculation

Total Power(dBm) = Measured Value(dBm) + ATT loss(dB) + Cable loss(dB) + Duty Cycle Factor(dB)

Note

1. Spectrum Measured Levels are not plot data.

   The power results in plot is already including the actual values of loss for the attenuator and cable combination.

2. Actual value of loss for the attenuator and cable combination is below table.

Band	Ant.1 Loss(dB)	Ant.2 Loss(dB)
UNII 1	21.34	20.84
UNII 2A	21.34	20.84
UNII 2C	21.34	20.84
UNII 3&4	21.34	20.84

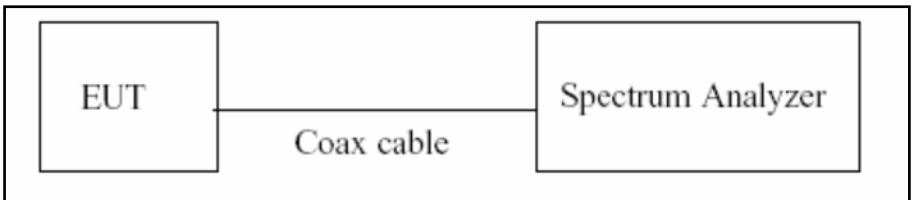
(Actual value of loss for the attenuator and cable combination)

8.4. Power Spectral Density

Limit

Band	Limit
UNII 1	11 dBm/MHz
UNII 2A, 2C	11 dBm/MHz
UNII 3	30 dBm/500 kHz
UNII 4	EIRP 14 dBm/MHz

Test Configuration



Test Procedure

We tested according to Procedure F in KDB 789033 D02 v02r01.

1. Set span to encompass the entire emission bandwidth(EBW) of the signal.
2. RBW = 1 MHz(510 kHz for UNII 3)
   ➔For portion within the NII-3 be used RBW 510kHz
3. VBW ≥ 3 MHz
4. Number of points in sweep ≥ 2 x span/RBW.
5. Sweep time = auto.
6. Measurement Typeor = RMS(i.e., power averaging), if available. Otherwise, use sample Measurement Typeor mode.
7. Do not use sweep triggering. Allow the sweep to “free run”.
8. Trace average at least 100 traces in power averaging(RMS) mode
9. Use the peak search function on the spectrum analyzer to find the peak of the spectrum.
10. If Method SA-2 was used, add 10 log(1/x), where x is the duty cycle, to the peak of the spectrum.

Sample Calculation

Total PSD(dBm) = Measured Value(dBm) + ATT loss(dB) + Cable loss(dB) + Duty Cycle Factor(dB)

Note

1. Spectrum Measured Levels are not plot data.
   The PSD results in plot is already including the actual values of loss for the attenuator and cable combination.
2. Actual value of loss for the attenuator and cable combination is below table.

Band	Ant.1 Loss(dB)	Ant.2 Loss(dB)
UNII 1	21.34	20.84
UNII 2A	21.34	20.84
UNII 2C	21.34	20.84
UNII 3&4	21.34	20.84

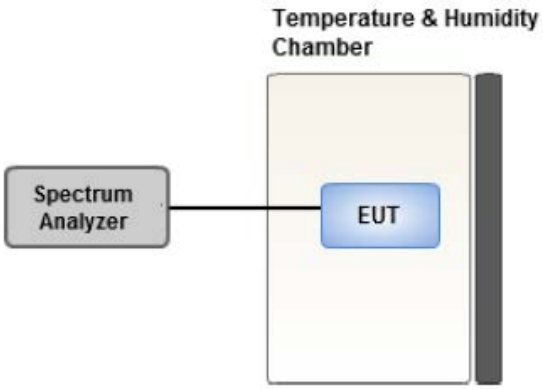
(Actual value of loss for the attenuator and cable combination)

8.5. Frequency Stability

Limit

Maintained within the band

Test Configuration



Test Procedure

1. The EUT was placed inside an environmental chamber as the temperature in the chamber was varied between -30 °C and 50 °C.
2. The temperature was incremented by 10 °C intervals and the unit was allowed to stabilize at each temperature before each measurement. The center frequency of the transmitting channel was evaluated at each temperature and the frequency deviation from the channel's center frequency was recorded.
3. The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battety operating end point which shall be specified by the manufacturer.
4. While maintaining a constant temperature inside the environmental chamber, turn the EUT ON
   and record the operating frequency at startup, and at 2 minutes, 5 minutes, and 10 minutes after
   the EUT is energized. Four measurements in total are made.

8.6. AC Power line Conducted Emissions

Limit

For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 μH/50 ohms line impedance stabilization network (LISN).

Frequency Range (MHz)	Limits (dBμV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56[a]	56 to 46[a]
0.50 to 5	56	46
5 to 30	60	50

[a]Decreases with the logarithm of the frequency.

Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line (LINE and NEUTRAL) and ground at the power terminals.

Test Configuration

See test photographs attached in Annex A for the actual connections between EUT and support equipment.

Test Procedure

1. The EUT is placed on a wooden table 80 cm above the reference ground plane.
2. The EUT is connected via LISN to a test power supply.
3. The measurement results are obtained as described below:
4. Measurement Typeors : Quasi Peak and Average Measurement Typeor.

Sample Calculation

Quasi-peak(Final Result) = Measured Value + Correction Factor

8.7. Radiated Test

Limit

1. UNII 1: All emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of −27 dBm/MHz.
2. UNII 2A, 2C: All emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of −27 dBm/MHz.
3. UNII 3: 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.
4. UNII 4: [Low Channel O.O.B.E] measured with a Peak detector

   For a client device or indoor access point or subordinate device, all emissions below 5.725 GHz shall not exceed an e.i.r.p. of −27 dBm/MHz at 5.65 GHz increasing linearly to 10 dBm/MHz at 5.7 GHz, and from 5.7 GHz increasing linearly to a level of 15.6 dBm/MHz at 5.72 GHz, and from 5.72 GHz increasing linearly to a level of 27 dBm/MHz at 5.725 GHz.

   [High Channel O.O.B.E] measured with an RMS detector

   For a client device, all emissions at or above 5.895 GHz shall not exceed an e.i.r.p. of −5 dBm/MHz and shall decrease linearly to an e.i.r.p. of −27 dBm/MHz at or above 5.925 GHz.

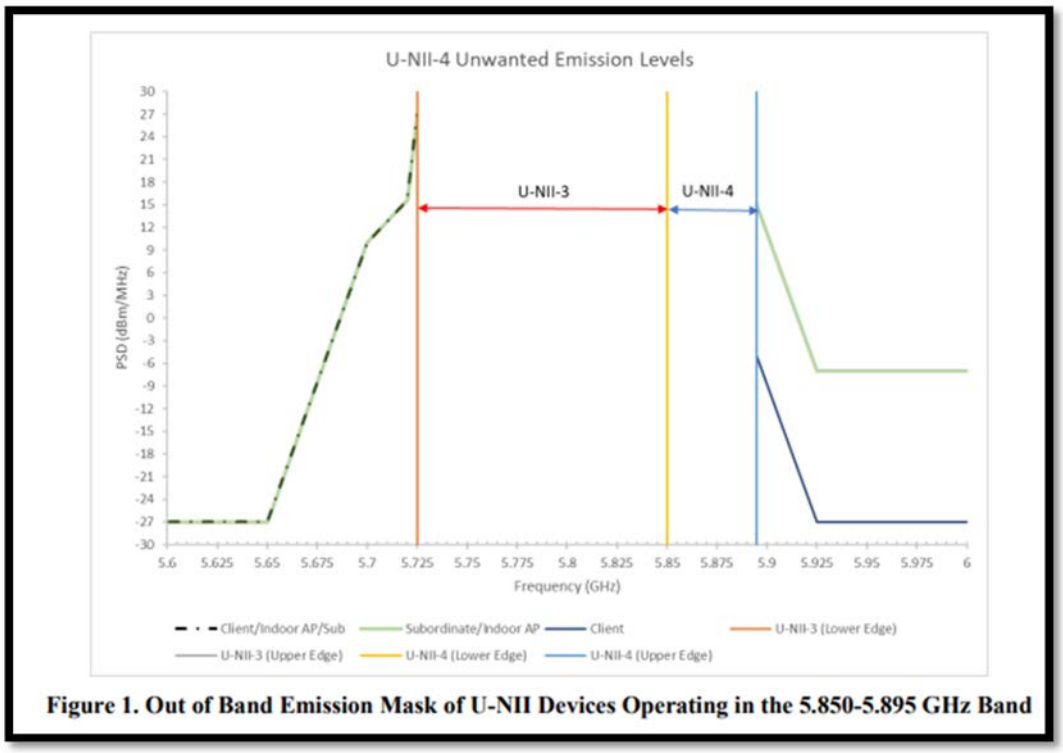


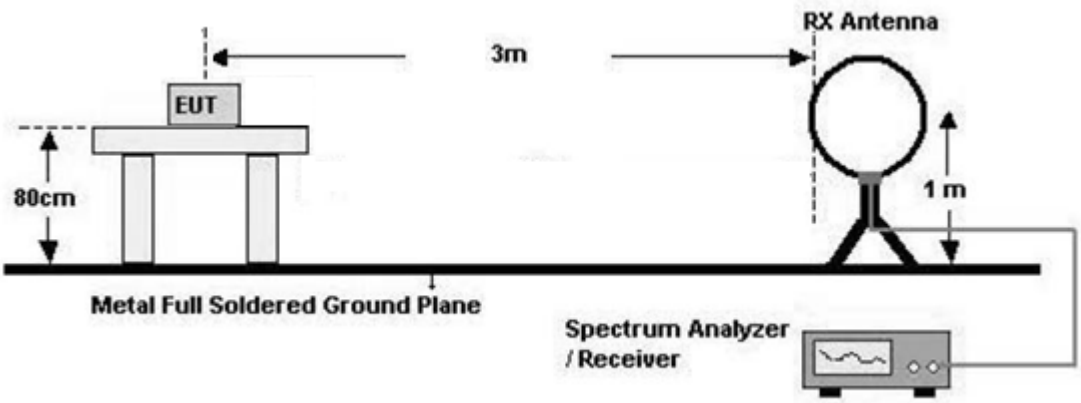
Figure 1. Out of Band Emission Mask of U-NII Devices Operating in the 5.850-5.895 GHz Band

5. All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR must not exceed the limits shown in Section 15.209.

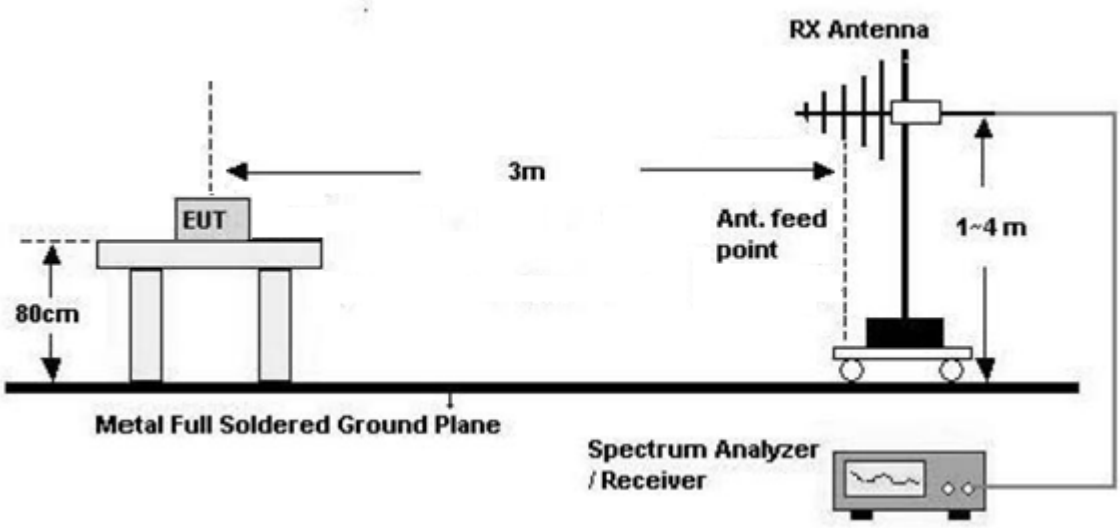
Frequency (MHz)	Field Strength (μV/m)	Measurement Distance (m)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Test Configuration

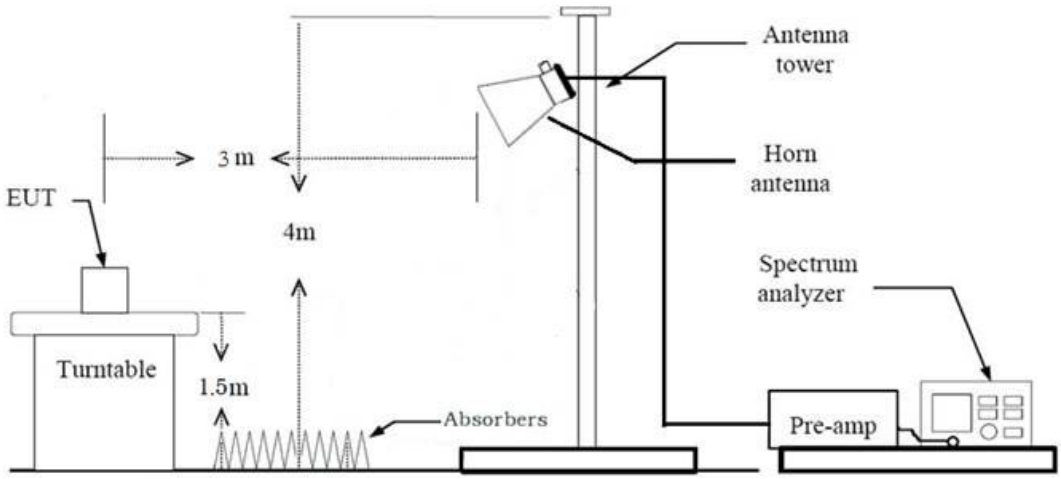
Below 30 MHz



30 MHz - 1 GHz



Above 1 GHz



Test Procedure of Radiated spurious emissions(Below 30 MHz)

1. The EUT was placed on a non-conductive table located on semi-anechoic chamber.
2. The loop antenna was placed at a location 3 m from the EUT
3. The EUT is placed on a turntable, which is 0.8m above ground plane.
4. .We have done x, y, z planes in EUT and horizontal and vertical polarization and Parallel to the ground plane in detecting antenna.
5. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
6. Distance Correction Factor(0.009 MHz – 0.490 MHz) =40log(3 m/300 m)= - 80 dB
   Measurement Distance : 3 m
7. Distance Correction Factor(0.490 MHz – 30 MHz) =40log(3 m/30 m)= - 40 dB
   Measurement Distance : 3 m
8. Spectrum Setting
   - Frequency Range = 9 kHz ~ 30 MHz
   - Detector = Peak
   - Trace = Max Hold
   - RBW = 9 kHz
   - VBW ≥ 3 x RBW
9. Total = Measured Value + Antenna Factor(A.F) + Cable Loss(C.L) + Distance Factor(D.F)
10. Measurement value only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.

KDB 414788 OFS and Chamber Correlation Justification

Base on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.

OFS and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

Test Procedure of Radiated spurious emissions(Below 1 GHz)

1. The EUT was placed on a non-conductive table located on semi-anechoic chamber.
2. The EUT is placed on a turntable, which is 0.8m above ground plane.
3. The Hybrid antenna was placed at a location 3 m from the EUT, which is varied from 1 m to 4 m to find out the highest emissions.
4. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
5. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
6. Spectrum Setting
   (1) Measurement Type(Peak):
      - Measured Frequency Range : 30 MHz – 1 GHz
      - Detector = Peak
      - Trace = Max Hold
      - RBW = 100 kHz
      - VBW ≥ 3 x RBW
   (2) Measurement Type(Quasi-peak):
      - Measured Frequency Range : 30 MHz – 1 GHz
      - Detector = Quasi-Peak
      - RBW = 120 kHz
   ※In general, (1) is used mainly
7. Total = Measured Value + Antenna Factor(A.F) + Cable Loss(C.L)
8. Measurement value only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.

Test Procedure of Radiated spurious emissions (Above 1 GHz)

1. The EUT is placed on a turntable, which is 1.5 m above ground plane.
2. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
3. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
4. EUT is set 3 m away from the receiving antenna, which is varied from 1 m to 4 m to find out the highest emissions.
5. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
6. Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
7. The unit was tested with its standard battery.
8. Spectrum Setting

(1) Measurement Type (Peak, G.5 in KDB 789033 v02r01):

- RBW = 1 MHz
- VBW ≥ 3 MHz
- Detector = Peak
- Sweep Time = auto
- Trace mode = Max Hold
- Allow sweeps to continue until the trace stabilizes.

Note that if the transmission is not continuous, the time required for the trace to stabilize will increase by a factor of approximately 1/x, where x is the duty cycle.

(2) Measurement Type (Average, G.6.d in KDB 789033 v02r01):

- RBW = 1 MHz
- VBW(Duty cycle ≥ 98 percent) = VBW ≤ RBW/100(i.e., 10 kHz) but not less than 10 Hz.
- VBW(Duty cycle is < 98 percent) = VBW ≥ 1/T, where T is the minimum transmission duration.
- The analyzer is set to linear detector mode.
- Detector = Peak.
- Sweep time = auto.
- Trace mode = Max Hold.
- Allow Max Hold to run for at least 50 traces if the transmitted signal is continuous or has at least 98 percent duty cycle. For lower duty cycles, increase the minimum number of traces by a factor of 1/x, where x is the duty cycle.

9. Measurement value only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor
10. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency
11. Distance extrapolation factor = 20log (test distance / specific distance) (dB)
12. Total = Measured Value + Antenna Factor(A.F) + Cable Loss(C.L) - Amp Gain(A.G) + Distance Factor(D.F)

Test Procedure of Radiated Restricted Band Edge

1. The EUT is placed on a turntable, which is 1.5 m above ground plane.
2. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
3. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
4. EUT is set 3 m away from the receiving antenna, which is varied from 1 m to 4 m to find out the highest emissions.
5. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
6. Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
7. The unit was tested with its standard battery.
8. Spectrum Setting
   (1) Measurement Type(Peak, G.5 in KDB 789033 v02r01):
   - RBW = 1 MHz
   - VBW ≥ 3 MHz
   - Detector = Peak
   - Sweep Time = auto
   - Trace mode = Max Hold
   - Allow sweeps to continue until the trace stabilizes.
     Note that if the transmission is not continuous, the time required for the trace to stabilize will increase by a factor of approximately 1/x, where x is the duty cycle.

   (2) Measurement Type(Average, G.6.d in KDB 789033 v02r01):
   - RBW = 1 MHz
   - VBW(Duty cycle ≥ 98 percent) = VBW ≤ RBW/100(i.e., 10 kHz) but not less than 10 Hz.
   - VBW(Duty cycle is < 98 percent) = VBW ≥ 1/T, where T is the minimum transmission duration.
   - The analyzer is set to linear detector mode.
   - Detector = Peak.
   - Sweep time = auto.
   - Trace mode = Max Hold.
   - Allow Max Hold to run for at least 50 traces if the transmitted signal is continuous or has at least 98 percent duty cycle. For lower duty cycles, increase the minimum number of traces by a factor of 1/x, where x is the duty cycle.

9. Measured Frequency Range :
   - 4 500 MHz ~ 5 150 MHz
   - 5 350 MHz ~ 5 460 MHz
   - 5 460 MHz ~ 5 470 MHz
   - (75 MHz or more below the 5 725 MHz) ~ 5 725 MHz
   - 5 850 MHz ~ (75 MHz or more above the 5 850 MHz)

10. Distance extrapolation factor = 20log (test distance / specific distance) (dB)

11. Total = Measured Value + Antenna Factor(A.F) + Cable Loss(C.L) - Amp Gain(A.G) + Attenuator(ATT) + Distance Factor(D.F)

The actual setting value of VBW

Mode	Worst Data rate (Mbps)	Duty Cycle	Duty Cycle Factor (dB)	The actual setting value of VBW (Hz)
802.11a	6	0.937	0.284	1 000
802.11n(HT20)	MCS0	0.925	0.339	1 000
802.11n(HT40)	MCS0	0.863	0.642	3 000
802.11ac(VHT20)	MCS0	0.927	0.330	1 000
802.11ac(VHT40)	MCS0	0.863	0.639	3 000
802.11ac(VHT80)	MCS0	0.765	1.161	5 000
802.11ac(VHT160)	MCS0	0.717	1.442	5 000

8.8. Worst case configuration and mode

Conducted test

1. All datarate of operation were investigated and the worst case datarate results are reported.

Radiated test

1. All modes of operation were investigated and the worst case configuration results are reported.
   - Mode : Stand alone, Stand alone + External accessories(Earphone, etc)
   - Worstcase : Stand alone
2. The EUT was tested in three modes(Open, Half-open, Closed), the worst case configuration results are reported.
   - Radiated Spurious Emissions Worst case : Open mode, Half-open, Closed
   - Radiated Restricted Band Edge : Open mode
3. EUT Axis
   - Radiated Spurious Emissions : Y
   - Radiated Restricted Band Edge : X
4. All datarate of operation were investigated and the worst case datarate results are reported.
   - Mode : SISO, Ant.1+Ant.2(SDM), Ant.1+Ant.2(CDD)
   - Worstcase : Ant.1+Ant.2(CDD)
   - 802.11a : 6 Mbps
   - 802.11n_HT20 : MCS0
   - 802.11n_HT40 : MCS0
   - 802.11ac_VHT20 : MCS0
   - 802.11ac_VHT40 : MCS0
   - 802.11ac_VHT80 : MCS0
   - 802.11ac_VHT160: MCS0

5. Radiated Spurious Emission

- All modulation of operation were investigated and the worst case modulation results are reported.
- Worstcase :

EUT Mode	Mode
Open mode	- 802.11a : 6 Mbps UNII1~4 - 802.11n_HT20 : MCS0 UNII1~4 - 802.11n_HT40 : MCS0 UNII3~4 - 802.11ac_VHT20 : MCS0 UNII1~4 - 802.11ac_VHT40 : MCS0 UNII3~4 - 802.11ac_VHT80 : MCS0 UNII3~4 - 802.11ac_VHT160: MCS0 UNII3~4
Half-open mode	- 802.11a : 6 Mbps UNII1~4
Closed mode	

6. All position of loop antenna were investigated and the test result is a no critical peak found at all positions.
- Position: Horizontal, Vertical, Parallel to the ground plane

Radiated test(RSDB)

1. Please refer to the [DTS ax], [BT], [UNII ax], [UNII 6e] Test Report.

AC Power line Conducted Emissions

1. All modes of operation were investigated and the worst case configuration results are reported.
- Mode : Stand alone + External accessories (Earphone,etc) + Travel Adapter,
  Stand alone + Travel Adapter
- Worstcase : Stand alone + Travel Adapter

9. SUMMARY OF TEST RESULTS

Test Description	FCC Part Section(s)	Test Limit	Test Condition	Test Result
26 dB Bandwidth	§ 15.407 (for Power Measurement)	N/A	Conducted	PASS
6 dB Bandwidth	§ 15.407(e)	>500 kHz (5725-5850 MHz)(UNII-3) (5850-5895 MHz)(UNII-4)		PASS
Maximum Conducted Output Power	§ 15.407(a)(1),(2),(3)	< 250 mW(5150-5250 MHz) < 250 mW or 11+10log$_{10}$ (BW) dBm (5250-5350 MHz) < 250 mW or 11+10log$_{10}$ (BW) dBm (5470-5725 MHz) <1 W (5725-5850 MHz)		PASS
Maximum EIRP Output Power	§ 15.407(a)(1)(3)(iii)	< EIRP 30dBm (5850-5925 MHz)		PASS
Maximum Power Spectral Density	§ 15.407(a)(1),(2),(3)	<11 dBm/ MHz (5150-5250 MHz) <11 dBm/ MHz (5250-5350 MHz) <11 dBm/ MHz (5470-5725 MHz) <30 dBm/500 kHz(5725-5850 MHz) < EIRP 14 dBm/MHz(5850-5895 MHz)		PASS
Frequency Stability	§ 15.407(g) § 2.1055	Maintained within the band		PASS
AC Conducted Emissions 150 kHz-30 MHz	15.207 15.407(b)(8)	<FCC 15.207 limits		PASS
Undesirable Emissions	§ 15.407(b) (1),(2),(3),(4) § 15.407(b)(5)(ii),(iii) § 15.35(b)	<-27 dBm/MHz EIRP (UNII1, 2A, 2C) cf. Section 8.6 (UNII 3&4)	Radiated	PASS
General Field Strength Limits(Restricted Bands and Radiated Emission Limits)	15.205, 15.407(b)(9),(10)	Emissions in restricted bands must meet the radiated limits detailed in 15.209		PASS

10. TEST RESULT

10.1 DUTY CYCLE

Mode	Data Rate (Mbps)	T_{on} (ms)	T_{total} (ms)	Duty Cycle	Duty Cycle Factor(dB)
802.11a	6	1.464	1.563	0.937	0.284
	9	0.985	1.084	0.909	0.415
	12	0.742	0.844	0.880	0.556
	18	0.502	0.603	0.832	0.799
	24	0.385	0.484	0.796	0.992
	36	0.263	0.362	0.727	1.383
	48	0.205	0.347	0.591	2.282
	54	0.185	0.337	0.549	2.605

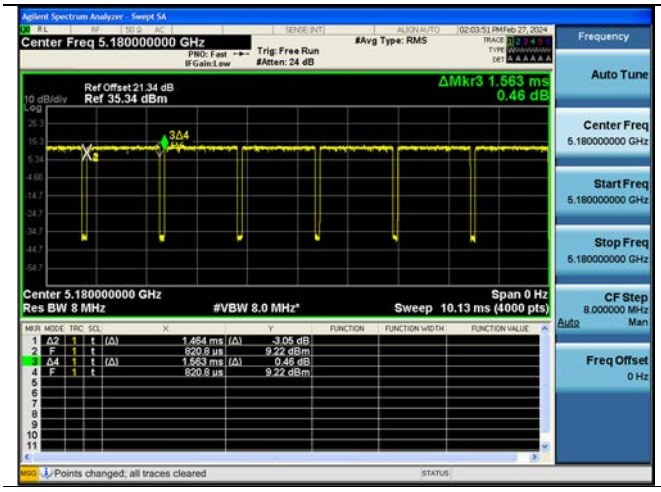
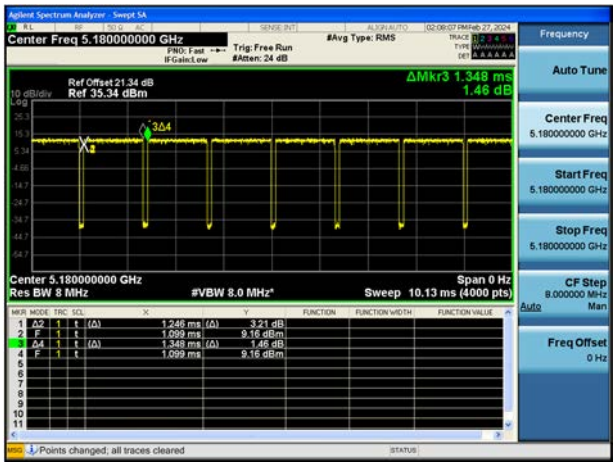
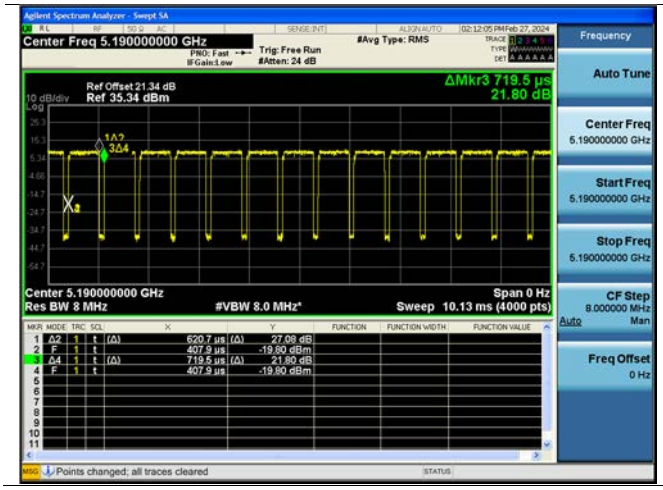
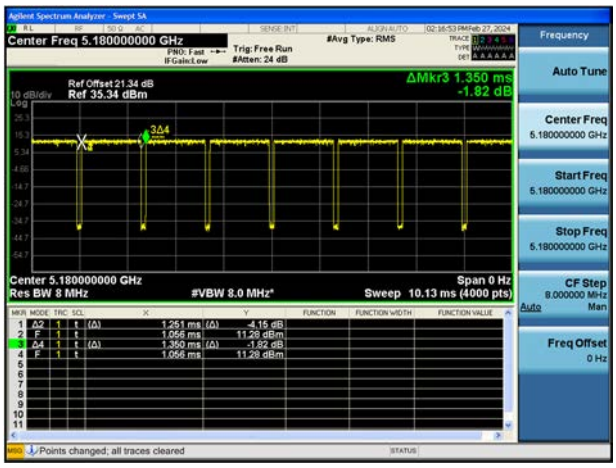
Mode	MCS Index	T_{on} (ms)	T_{total} (ms)	Duty Cycle	Duty Cycle Factor(dB)
802.11n (HT20)	0	1.246	1.348	0.925	0.339
	1	0.646	0.745	0.867	0.618
	2	0.441	0.540	0.817	0.878
	3	0.339	0.441	0.770	1.134
	4	0.238	0.393	0.606	2.172
	5	0.187	0.350	0.535	2.716
	6	0.172	0.343	0.502	2.994
	7	0.160	0.340	0.469	3.285
802.11n (HT40)	0	0.621	0.719	0.863	0.642
	1	0.329	0.426	0.774	1.114
	2	0.233	0.385	0.605	2.181
	3	0.185	0.372	0.497	3.040
	4	0.137	0.372	0.367	4.349
	5	0.111	0.372	0.299	5.239
	6	0.104	0.372	0.279	5.545
	7	0.096	0.365	0.264	5.786

Mode	MCS Index	T_{on} (ms)	T_{total} (ms)	Duty Cycle	Duty Cycle Factor(dB)
802.11ac (VHT20)	0	1.251	1.350	0.927	0.330
	1	0.646	0.747	0.864	0.633
	2	0.443	0.542	0.818	0.874
	3	0.347	0.443	0.783	1.063
	4	0.243	0.355	0.686	1.639
	5	0.193	0.354	0.543	2.651
	6	0.175	0.347	0.504	2.979
	7	0.165	0.344	0.479	3.199
	8	0.147	0.342	0.429	3.673
802.11ac (VHT40)	0	0.623	0.722	0.863	0.639
	1	0.334	0.431	0.776	1.099
	2	0.236	0.379	0.621	2.067
	3	0.187	0.377	0.497	3.040
	4	0.139	0.376	0.371	4.311
	5	0.117	0.376	0.310	5.087
	6	0.109	0.370	0.294	5.315
	7	0.101	0.370	0.274	5.629
	8	0.091	0.370	0.246	6.086
	9	0.084	0.370	0.226	6.464
802.11ac (VHT80)	0	0.314	0.410	0.765	1.161
	1	0.253	0.351	0.722	1.417
	2	0.253	0.351	0.722	1.417
	3	0.236	0.334	0.705	1.521
	4	0.193	0.303	0.635	1.971
	5	0.167	0.303	0.552	2.583
	6	0.160	0.303	0.527	2.786
	7	0.157	0.300	0.524	2.809
	8	0.144	0.300	0.481	3.174
	9	0.139	0.300	0.465	3.329

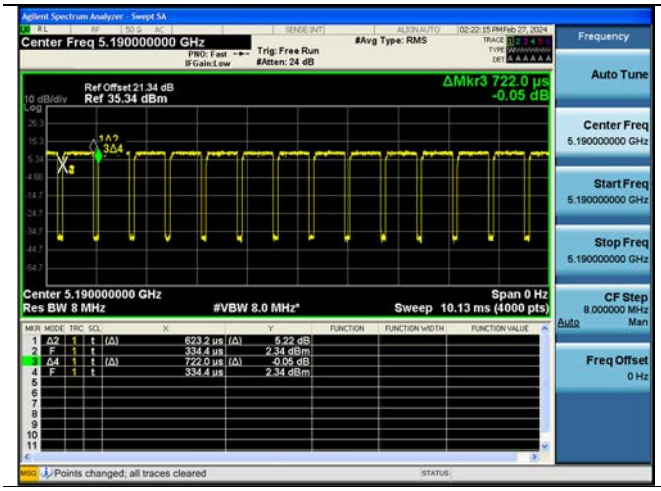
Mode	MCS Index	T_{on} (ms)	T_{total} (ms)	Duty Cycle	Duty Cycle Factor(dB)
802.11ac (VHT160)	0	0.251	0.350	0.717	1.442
	1	0.238	0.335	0.711	1.484
	2	0.193	0.326	0.591	2.281
	3	0.167	0.321	0.521	2.829
	4	0.144	0.317	0.456	3.411
	5	0.134	0.317	0.424	3.727
	6	0.132	0.317	0.416	3.810
	7	0.127	0.317	0.400	3.980
	8	0.124	0.317	0.392	4.068
	9	0.122	0.317	0.384	4.157

Note:

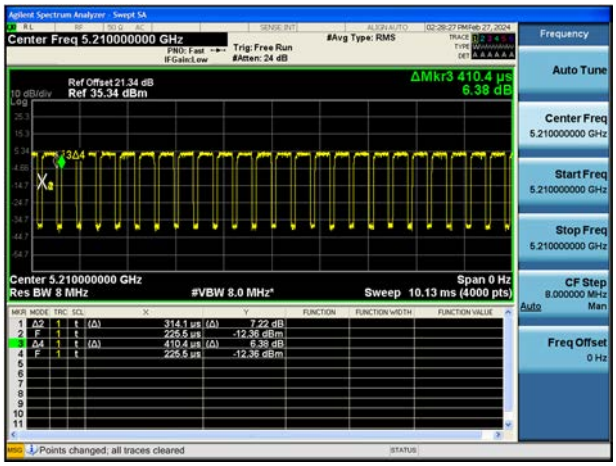
In order to simplify the report, attached plots were only the lowest data rate.

802.11a	802.11n(HT20)
	
802.11n(HT40)	**802.11ac(VHT20)**
	

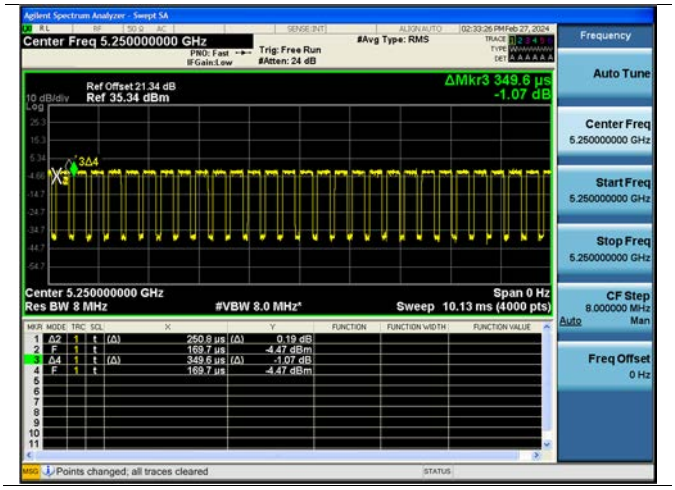
802.11ac(VHT40)



802.11ac(VHT80)



802.11ac(VHT160)



10.2 26 dB Bandwidth

Straddle channel data in the table below are for reporting purposes only. Straddle channel data were added in section 10.7.1.

[Ant.1]

Mode	Frequency [MHz]	Channel No.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
802.11a	5180	36	20.98	16.587
	5200	40	21.10	16.573
	5240	48	20.80	16.602
	5260	52	20.95	16.580
	5300	60	21.04	16.604
	5320	64	20.92	16.587
	5500	100	20.77	16.563
	5600	120	20.99	16.592
	5720	144	21.05	16.572
	5745	149	20.87	16.537
	5785	157	20.84	16.575
	5825	165	20.97	16.591
	5845	169	20.65	16.570
	5865	173	20.89	16.555
	5885	177	20.67	16.575

Mode	Frequency [MHz]	Channel No.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
802.11n (HT20)	5180	36	21.33	17.719
	5200	40	20.98	17.732
	5240	48	21.15	17.722
	5260	52	21.38	17.727
	5300	60	21.07	17.740
	5320	64	21.01	17.718
	5500	100	21.51	17.728
	5600	120	21.38	17.724
	5720	144	21.26	17.728
	5745	149	20.92	17.733
	5785	157	21.12	17.733
	5825	165	20.94	17.720
	5845	169	21.29	17.715
	5865	173	21.02	17.738
	5885	177	21.27	17.727

Mode	Frequency [MHz]	Channel No.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
802.11ac (VHT20)	5180	36	21.27	17.747
	5200	40	21.05	17.720
	5240	48	21.27	17.726
	5260	52	20.91	17.722
	5300	60	21.05	17.742
	5320	64	21.32	17.740
	5500	100	21.02	17.735
	5600	120	21.01	17.711
	5720	144	21.02	17.726
	5745	149	21.07	17.739
	5785	157	20.86	17.736
	5825	165	21.41	17.741
	5845	169	20.99	17.736
	5865	173	21.32	17.720
	5885	177	20.97	17.715

Mode	Frequency [MHz]	Channel No.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
802.11n (HT40)	5190	38	42.28	36.430
	5230	46	41.72	36.338
	5270	54	41.90	36.380
	5310	62	42.08	36.348
	5510	102	42.23	36.377
	5590	118	42.25	36.400
	5710	142	41.97	36.388
	5755	151	42.22	36.360
	5795	159	41.96	36.391
	5835	167	41.91	36.377
	5875	175	42.30	36.352

Mode	Frequency [MHz]	Channel No.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
802.11ac (VHT40)	5190	38	41.89	36.401
	5230	46	42.17	36.370
	5270	54	42.32	36.379
	5310	62	41.71	36.377
	5510	102	42.37	36.414
	5590	118	42.01	36.385
	5710	142	42.24	36.391
	5755	151	42.11	36.391
	5795	159	42.14	36.394
	5835	167	42.03	36.332
	5875	175	41.98	36.384

Mode	Frequency [MHz]	Channel No.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
802.11ac (VHT80)	5210	42	91.77	76.418
	5290	58	91.49	76.397
	5530	106	91.70	76.502
	5610	122	92.11	76.497
	5690	138	91.60	76.327
	5775	155	93.18	76.442
	5855	171	92.52	76.400

Mode	Frequency [MHz]	Channel No.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
802.11ac (VHT160)	5250	50	175.3	155.44
	5570	114	176.1	155.72
	5815	163	174.4	155.50

[Ant.2]

Mode	Frequency [MHz]	Channel No.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
802.11a	5180	36	21.05	16.577
	5200	40	20.56	16.582
	5240	48	20.91	16.568
	5260	52	20.62	16.571
	5300	60	20.95	16.573
	5320	64	21.00	16.600
	5500	100	20.81	16.579
	5600	120	20.81	16.585
	5720	144	20.83	16.584
	5745	149	21.04	16.591
	5785	157	20.87	16.585
	5825	165	20.92	16.573
	5845	169	20.83	16.581
	5865	173	21.07	16.583
	5885	177	21.11	16.615

Mode	Frequency [MHz]	Channel No.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
802.11n (HT20)	5180	36	21.01	17.728
	5200	40	20.96	17.717
	5240	48	21.03	17.711
	5260	52	21.29	17.735
	5300	60	21.01	17.738
	5320	64	21.34	17.754
	5500	100	21.25	17.724
	5600	120	20.93	17.725
	5720	144	21.80	17.715
	5745	149	20.97	17.736
	5785	157	21.07	17.765
	5825	165	20.98	17.740
	5845	169	21.12	17.756
	5865	173	21.15	17.733
	5885	177	21.01	17.734

Mode	Frequency [MHz]	Channel No.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
802.11ac (VHT20)	5180	36	20.99	17.743
	5200	40	21.29	17.727
	5240	48	20.77	17.739
	5260	52	21.01	17.731
	5300	60	21.18	17.731
	5320	64	21.30	17.739
	5500	100	20.97	17.739
	5600	120	20.85	17.745
	5720	144	21.12	17.723
	5745	149	21.04	17.758
	5785	157	21.23	17.732
	5825	165	20.94	17.738
	5845	169	20.92	17.751
	5865	173	21.02	17.742
	5885	177	21.02	17.747

Mode	Frequency [MHz]	Channel No.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
802.11n (HT40)	5190	38	42.27	36.411
	5230	46	42.16	36.387
	5270	54	42.46	36.390
	5310	62	42.18	36.370
	5510	102	42.29	36.399
	5590	118	42.33	36.417
	5710	142	42.17	36.419
	5755	151	42.37	36.426
	5795	159	42.16	36.405
	5835	167	42.01	36.384
	5875	175	41.94	36.411

Mode	Frequency [MHz]	Channel No.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
802.11ac (VHT40)	5190	38	41.98	36.405
	5230	46	42.42	36.366
	5270	54	42.10	36.397
	5310	62	42.10	36.422
	5510	102	42.09	36.399
	5590	118	42.28	36.379
	5710	142	42.68	36.393
	5755	151	42.54	36.409
	5795	159	42.17	36.435
	5835	167	41.97	36.399
	5875	175	42.30	36.402

Mode	Frequency [MHz]	Channel No.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
802.11ac (VHT80)	5210	42	92.24	76.339
	5290	58	92.37	76.295
	5530	106	92.56	76.382
	5610	122	90.87	76.353
	5690	138	90.35	76.335
	5775	155	91.08	76.274
	5855	171	91.27	76.345

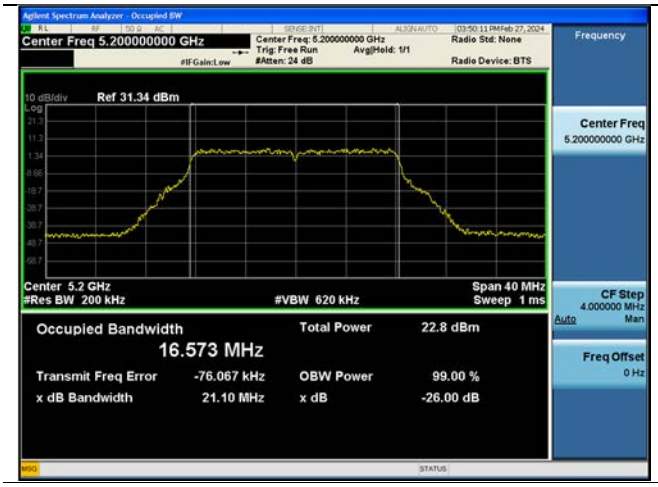
Mode	Frequency [MHz]	Channel No.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
802.11ac (VHT160)	5250	50	174.9	155.57
	5570	114	175.2	155.58
	5815	163	174.8	155.59

[ANT. 1]

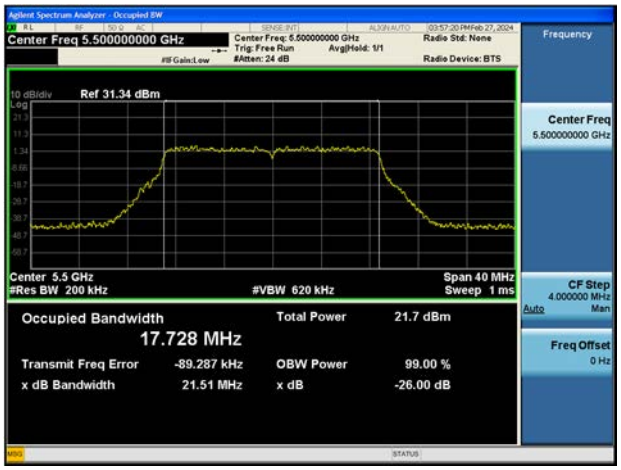
☑ Test Plots

Note:In order to simplify the report, attached plots were only the widest channel per channel bandwidth.

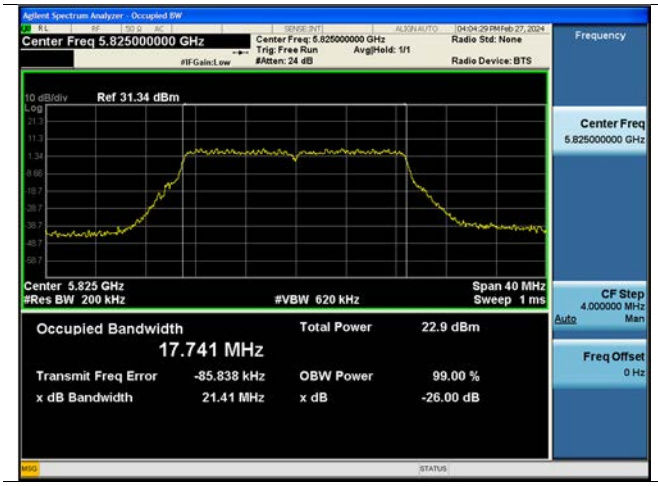
802.11a 26 dB Bandwidth (CH 40)



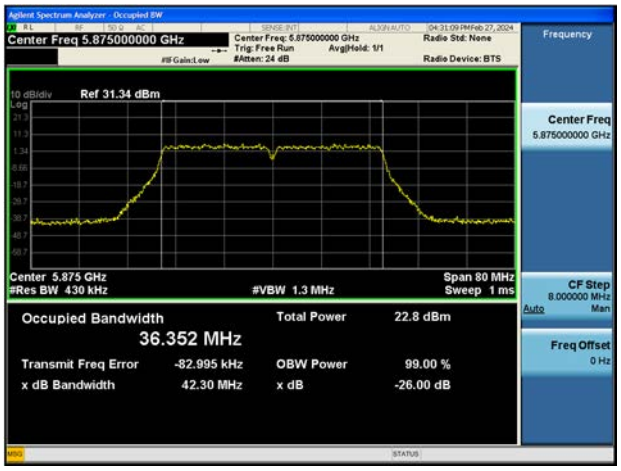
802.11n(HT20) 26 dB Bandwidth (CH 100)



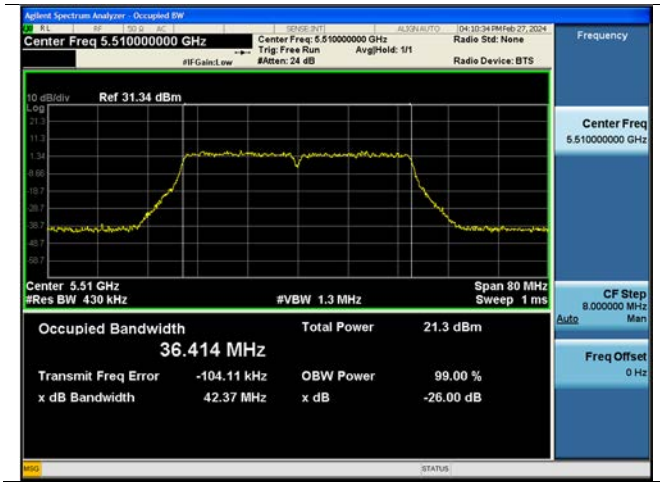
802.11ac(VHT20) 26 dB Bandwidth (CH 165)



802.11n(HT40) 26 dB Bandwidth (CH 175)

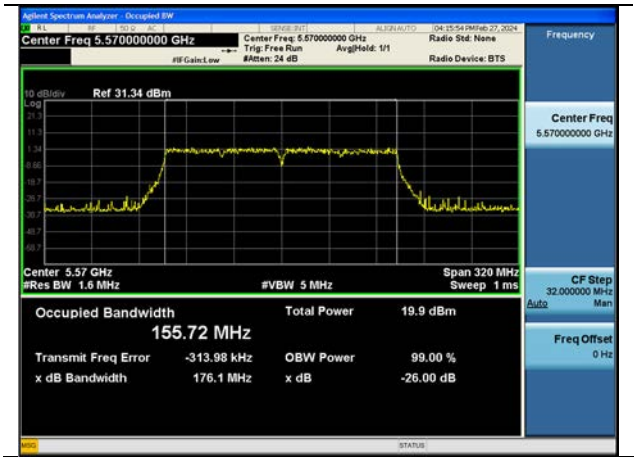


802.11ac(VHT40) 26 dB Bandwidth (CH 102)



802.11ac(VHT80) 26 dB Bandwidth (CH 155)

802.11ac(VHT160) 26 dB Bandwidth (CH 114)



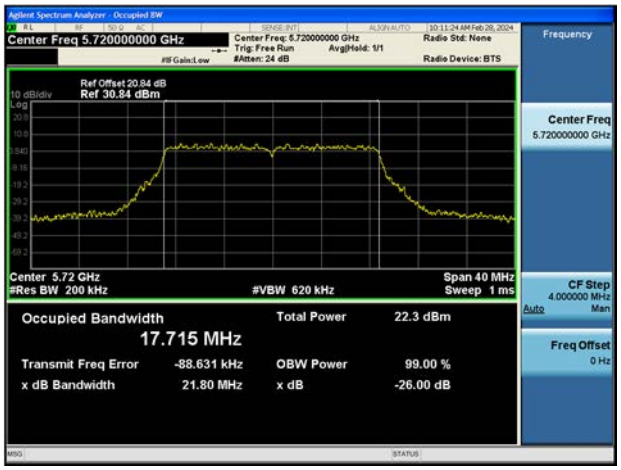
[ANT. 2]

▣ Test Plots

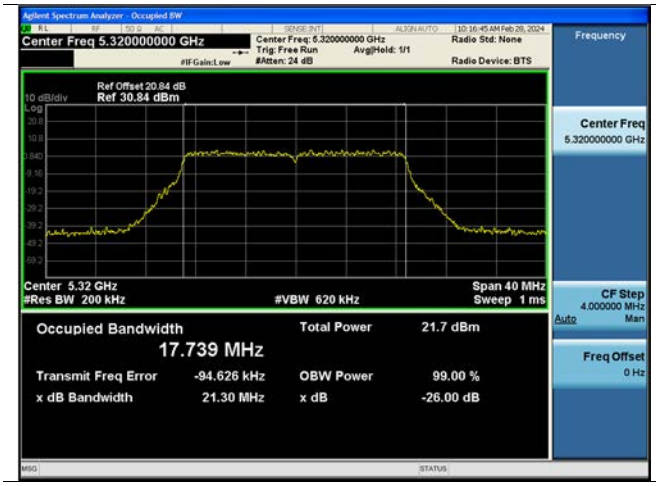
Note:In order to simplify the report, attached plots were only the widest channel per channel bandwidth.

802.11a 26 dB Bandwidth (CH 177)

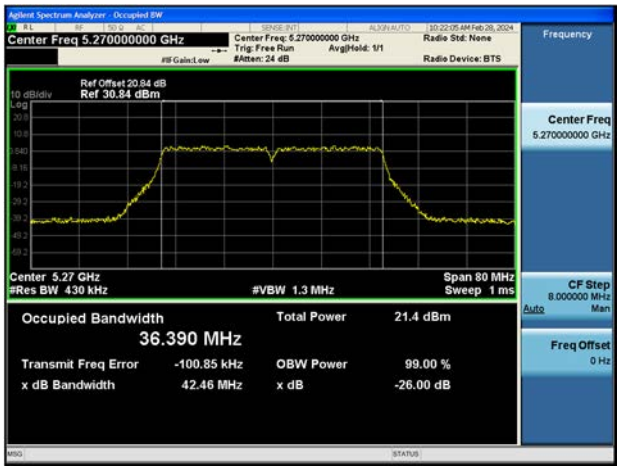
802.11n(HT20) 26 dB Bandwidth (CH 144)



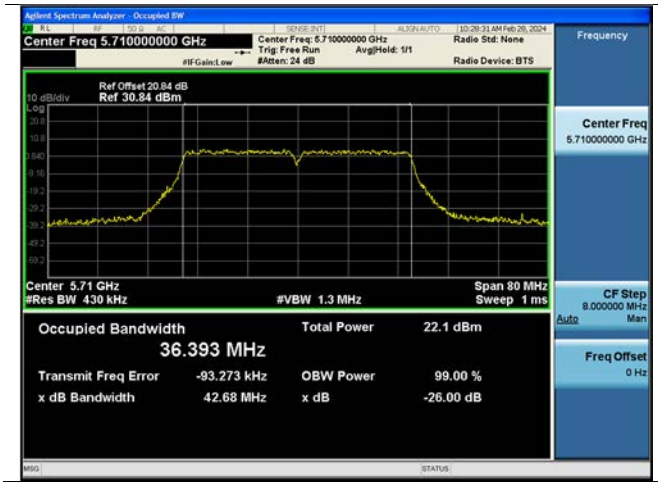
802.11ac(VHT20) 26 dB Bandwidth (CH 64)



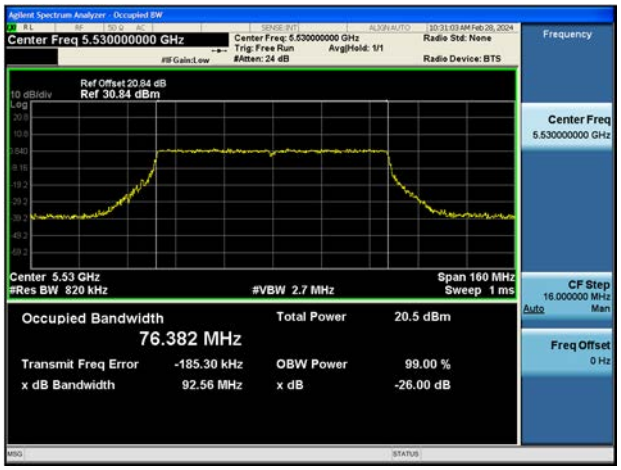
802.11n(HT40) 26 dB Bandwidth (CH 54)



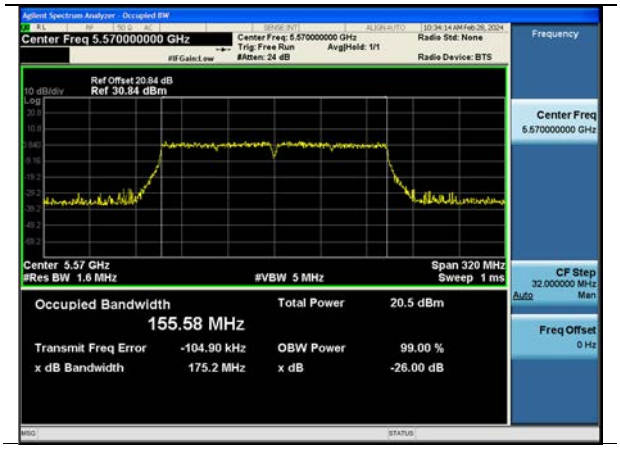
802.11ac(VHT40) 26 dB Bandwidth (CH 142)



802.11ac(VHT80) 26 dB Bandwidth (CH 106)



802.11ac(VHT160) 26 dB Bandwidth (CH 114)



10.3 6 dB BANDWIDTH

[Ant.1]

Mode	Frequency [MHz]	Channel No.	6 dB Bandwidth [MHz]	Limit [MHz]
802.11a	5745	149	16.42	> 0.5
	5785	157	16.40	> 0.5
	5825	165	16.39	> 0.5
	5845	169	16.41	> 0.5
	5865	173	16.41	> 0.5
	5885	177	16.40	> 0.5

Mode	Frequency [MHz]	Channel No.	6 dB Bandwidth [MHz]	Limit [MHz]
802.11n(HT20)	5745	149	17.64	> 0.5
	5785	157	17.64	> 0.5
	5825	165	17.65	> 0.5
	5845	169	17.64	> 0.5
	5865	173	17.64	> 0.5
	5885	177	17.64	> 0.5

Mode	Frequency [MHz]	Channel No.	6 dB Bandwidth [MHz]	Limit [MHz]
802.11ac(VHT20)	5745	149	17.65	> 0.5
	5785	157	17.64	> 0.5
	5825	165	17.65	> 0.5
	5845	169	17.64	> 0.5
	5865	173	17.64	> 0.5
	5885	177	17.64	> 0.5

Mode	Frequency [MHz]	Channel No.	6 dB Bandwidth [MHz]	Limit [MHz]
802.11n(HT40)	5755	151	36.41	> 0.5
	5795	159	36.42	> 0.5
	5835	167	36.43	> 0.5
	5875	175	36.44	> 0.5

Mode	Frequency [MHz]	Channel No.	6 dB Bandwidth [MHz]	Limit [MHz]
802.11ac(VHT40)	5755	151	36.43	> 0.5
	5795	159	36.42	> 0.5
	5835	167	36.43	> 0.5
	5875	175	36.42	> 0.5

Mode	Frequency [MHz]	Channel No.	6 dB Bandwidth [MHz]	Limit [MHz]
802.11ac(VHT80)	5775	155	76.47	> 0.5
802.11ac(VHT80)	5855	171	76.45	> 0.5

Mode	Frequency [MHz]	Channel No.	6 dB Bandwidth [MHz]	Limit [MHz]
802.11ac(VHT160)	5815	163	156.2	> 0.5

[Ant.2]

Mode	Frequency [MHz]	Channel No.	6 dB Bandwidth [MHz]	Limit [MHz]
802.11a	5745	149	16.39	> 0.5
	5785	157	16.40	> 0.5
	5825	165	16.39	> 0.5
	5845	169	16.39	> 0.5
	5865	173	16.41	> 0.5
	5885	177	16.39	> 0.5

Mode	Frequency [MHz]	Channel No.	6 dB Bandwidth [MHz]	Limit [MHz]
802.11n(HT20)	5745	149	17.64	> 0.5
	5785	157	17.64	> 0.5
	5825	165	17.65	> 0.5
	5845	169	17.63	> 0.5
	5865	173	17.63	> 0.5
	5885	177	17.64	> 0.5

Mode	Frequency [MHz]	Channel No.	6 dB Bandwidth [MHz]	Limit [MHz]
802.11ac(VHT20)	5745	149	17.64	> 0.5
	5785	157	17.64	> 0.5
	5825	165	17.63	> 0.5
	5845	169	17.63	> 0.5
	5865	173	17.63	> 0.5
	5885	177	17.64	> 0.5

Mode	Frequency [MHz]	Channel No.	6 dB Bandwidth [MHz]	Limit [MHz]
802.11n(HT40)	5755	151	36.44	> 0.5
	5795	159	36.44	> 0.5
	5835	167	36.42	> 0.5
	5875	175	36.44	> 0.5

Mode	Frequency [MHz]	Channel No.	6 dB Bandwidth [MHz]	Limit [MHz]
802.11ac(VHT40)	5755	151	36.43	> 0.5
	5795	159	36.43	> 0.5
	5835	167	36.44	> 0.5
	5875	175	36.45	> 0.5

Mode	Frequency [MHz]	Channel No.	6 dB Bandwidth [MHz]	Limit [MHz]
802.11ac(VHT80)	5775	155	76.42	> 0.5
802.11ac(VHT80)	5855	171	76.43	> 0.5

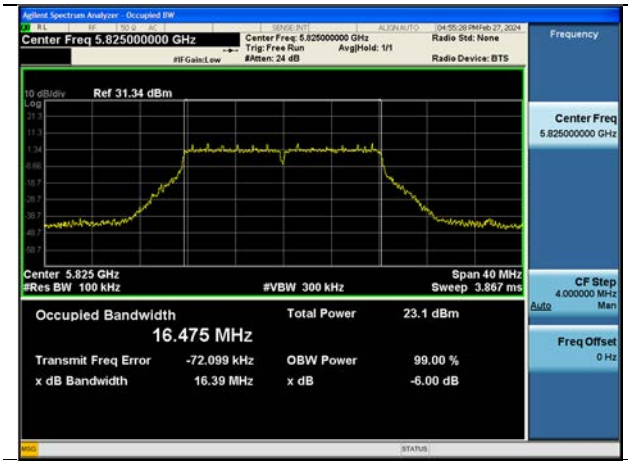
Mode	Frequency [MHz]	Channel No.	6 dB Bandwidth [MHz]	Limit [MHz]
802.11ac(VHT160)	5815	163	156.2	> 0.5

[ANT. 1]

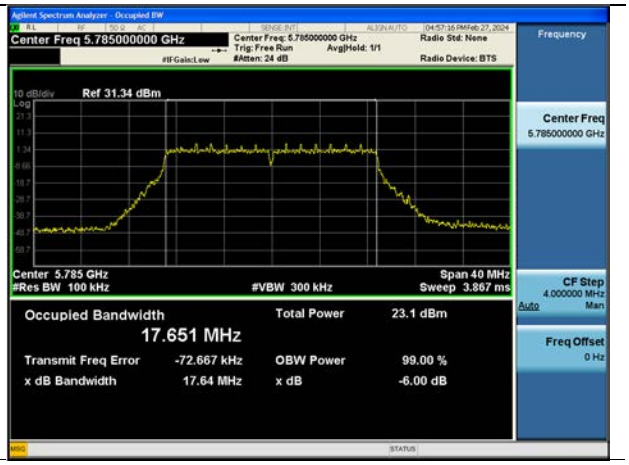
▣ Test Plots

Note: In order to simplify the report, attached plots were only the narrowest channel.

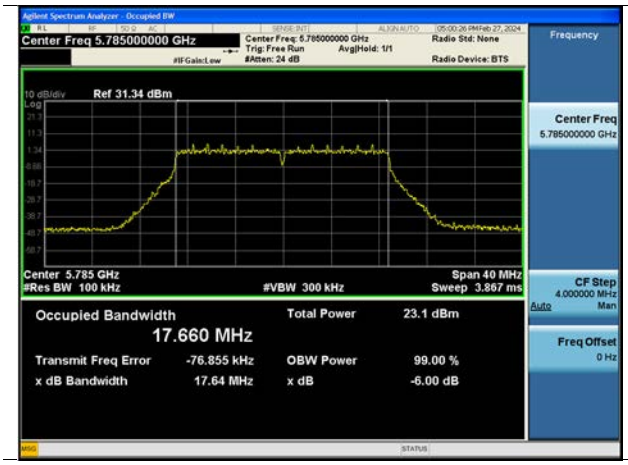
802.11a (CH.165)



802.11n(HT20) (CH.157)

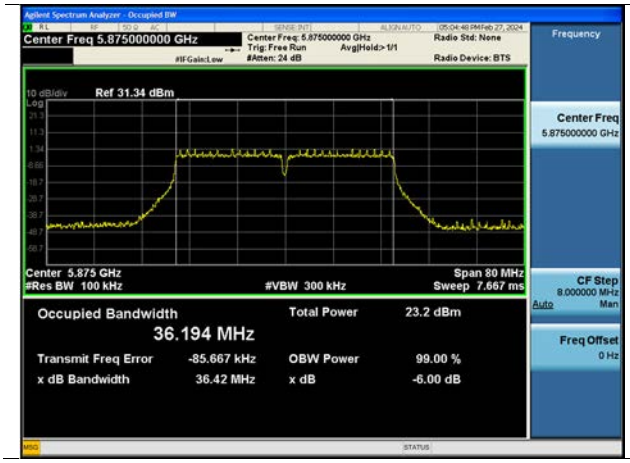


802.11ac(VHT20) (CH.157)

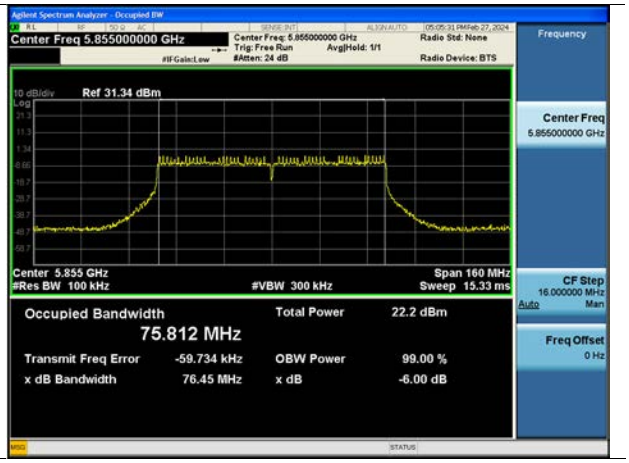


802.11n(HT40) (CH.151)

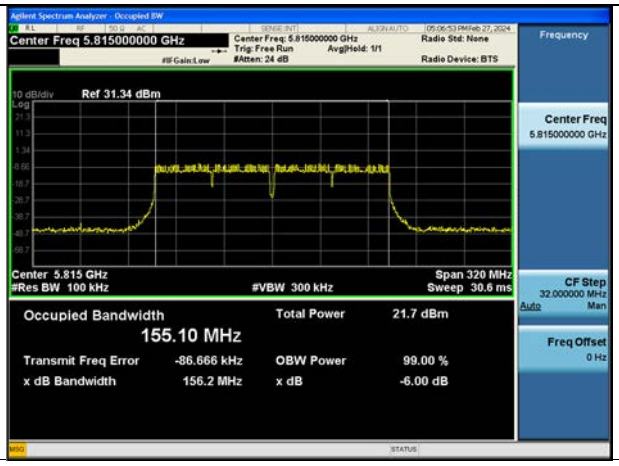
802.11ac(VHT40) (CH.175)



802.11ac(VHT80) (CH.171)



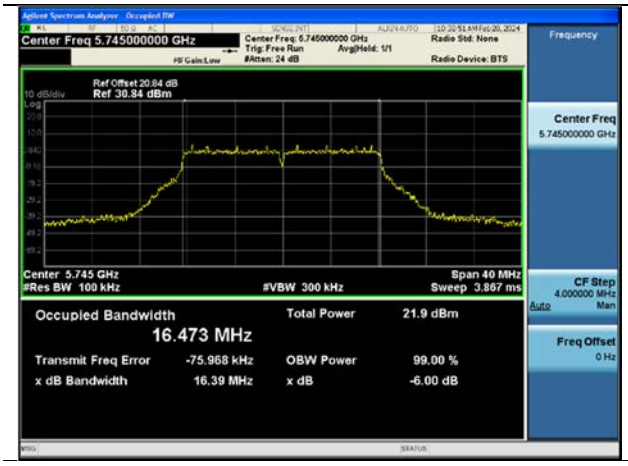
802.11ac(VHT160) (CH.163)



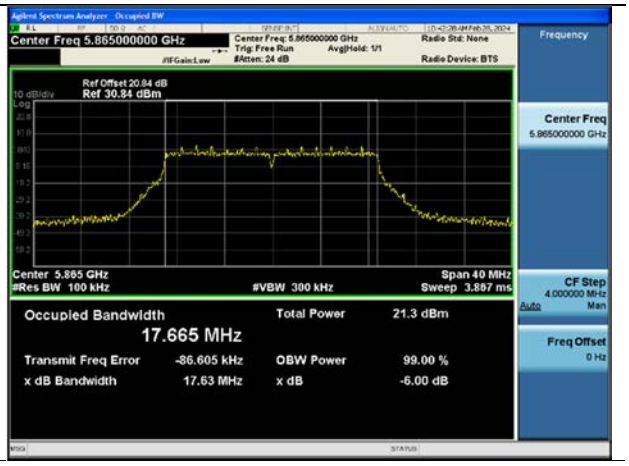
[ANT. 2]

Note: In order to simplify the report, attached plots were only the narrowest channel.

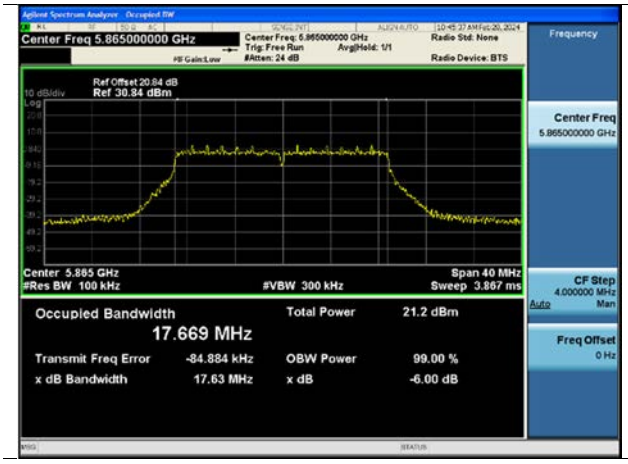
802.11a (CH.149)



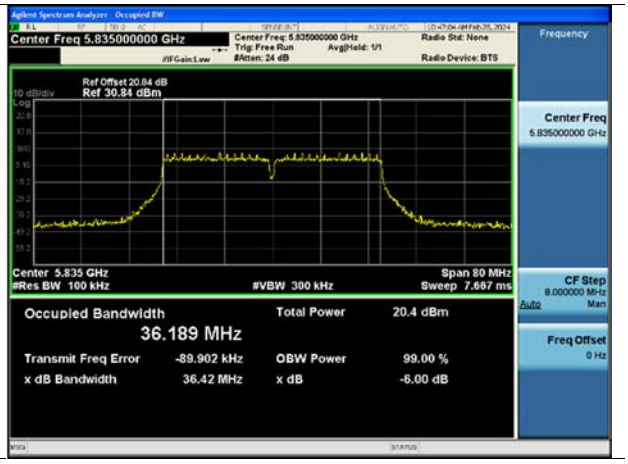
802.11n(HT20) (CH.173)



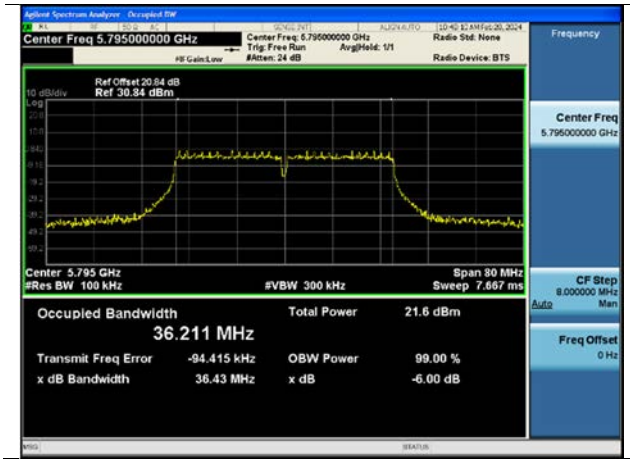
802.11ac(VHT20) (CH.173)



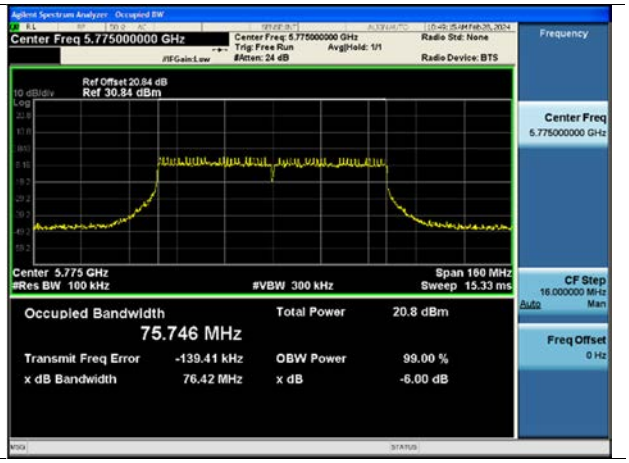
802.11n(HT40) (CH.167)



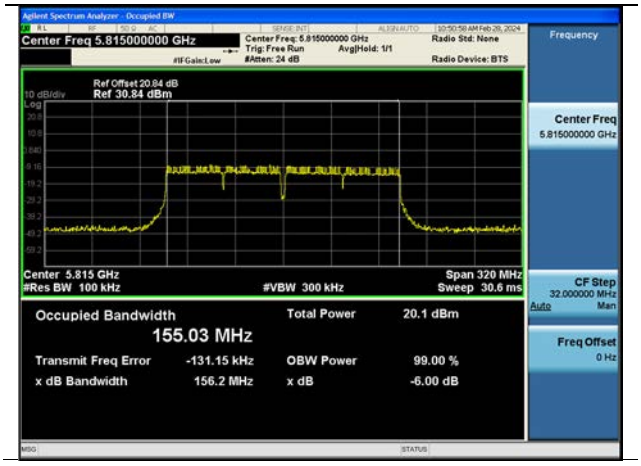
802.11ac(VHT40) (CH.159)



802.11ac(VHT80) (CH.155)



802.11ac(VHT160) (CH.163)



10.4 OUTPUT POWER MEASUREMENT

Straddle channel data in the table below are for reporting purposes only.
Straddle channel data were added in section 10.7.3.

 # Limit

(UNII 1) : 23.98 dBm
(UNII 2A, 2C) : 23.98 dBm or 11 dBm + 10 log B, (where B is the 26 dB emission bandwidth in megahertz.)
(UNII 3) : 30.00 dBm
(UNII 4) : EIRP 30.0 dBm/MHz
(UNII 3&4) : Worst limit 30.00 dBm ➔UNII 4 Band Antenna Gain Negative

[MIMO_CDD(Ant.1+ Ant.2)]

Ant Total Power [dBm] = Measured Power [dBm] + Duty Cycle Factor [dB]

MIMO_CDD(Ant.1+ Ant.2) Total Power [dBm] = Ant.1 Total Power [dBm] + Ant.2 Total Power [dBm]

Frequency [MHz]	Channel No.	Worstcase Datarate	Mode(802.11)	Ant.1 Measured Power [dBm] + Duty Cycle Factor[dB]	Ant.2 Measured Power [dBm] + Duty Cycle Factor[dB]	MIMO Total Power [dBm]	Directional Gain [dBi]	E.I.R.P [dBm]	Limit [dBm]
5180	36	18M	a	15.46	15.08	18.28	-	-	23.98
5200	40	18M	a	15.51	15.11	18.32	-	-	23.98
5240	48	18M	a	15.37	15.35	18.37	-	-	23.98
5260	52	18M	a	15.09	15.69	18.41	-	-	23.98
5300	60	18M	a	15.14	15.68	18.43	-	-	23.98
5320	64	18M	a	14.97	15.59	18.30	-	-	23.98
5500	100	18M	a	14.40	15.85	18.20	-	-	23.98
5600	120	18M	a	14.57	15.97	18.33	-	-	23.98
5720	144	18M	a	15.43	15.98	18.72	-	-	23.98
5745	149	18M	a	15.24	15.57	18.42	-	-	30.00
5785	157	18M	a	15.39	15.12	18.26	-	-	30.00
5825	165	18M	a	15.50	14.92	18.23	-	-	30.00
5845	169	18M	a	15.59	14.90	18.27	-3.29	14.98	EIRP ≤ 30dBm
5865	173	18M	a	15.56	14.66	18.15	-3.29	14.86	EIRP ≤ 30dBm
5885	177	18M	a	15.27	14.17	17.76	-3.29	14.48	EIRP ≤ 30dBm

Frequency [MHz]	Channel No.	Worstcase Datarate	Mode(802.11)	Ant.1 Measured Power [dBm] + Duty Cycle Factor[dB]	Ant.2 Measured Power [dBm] + Duty Cycle Factor[dB]	MIMO Total Power [dBm]	Directional Gain [dBi]	E.I.R.P [dBm]	Limit [dBm]
5180	36	MCS4	n20	15.64	15.32	18.49	-	-	23.98
5200	40	MCS4	n20	15.71	15.31	18.53	-	-	23.98
5240	48	MCS4	n20	15.59	15.60	18.61	-	-	23.98
5260	52	MCS4	n20	15.19	15.90	18.57	-	-	23.98
5300	60	MCS4	n20	15.24	15.78	18.53	-	-	23.98
5320	64	MCS4	n20	15.14	15.85	18.52	-	-	23.98
5500	100	MCS4	n20	14.57	15.98	18.34	-	-	23.98
5600	120	MCS4	n20	14.68	15.96	18.38	-	-	23.98
5720	144	MCS4	n20	15.81	15.97	18.90	-	-	23.98
5745	149	MCS4	n20	15.70	15.81	18.77	-	-	30.00
5785	157	MCS4	n20	15.71	15.40	18.57	-	-	30.00
5825	165	MCS4	n20	15.83	15.32	18.59	-	-	30.00
5845	169	MCS4	n20	15.91	15.28	18.62	-3.29	15.33	EIRP ≤ 30dBm
5865	173	MCS4	n20	15.89	15.08	18.51	-3.29	15.22	EIRP ≤ 30dBm
5885	177	MCS4	n20	15.61	14.58	18.14	-3.29	14.85	EIRP ≤ 30dBm

Frequency [MHz]	Channel No.	Worstcase Datarate	Mode(802.11)	Ant.1 Measured Power [dBm] + Duty Cycle Factor[dB]	Ant.2 Measured Power [dBm] + Duty Cycle Factor[dB]	MIMO Total Power [dBm]	Directional Gain [dBi]	E.I.R.P [dBm]	Limit [dBm]
5180	36	MCS5	ac20	15.30	14.98	18.15	-	-	23.98
5200	40	MCS5	ac20	15.35	15.05	18.21	-	-	23.98
5240	48	MCS5	ac20	15.30	15.20	18.26	-	-	23.98
5260	52	MCS5	ac20	14.92	15.51	18.24	-	-	23.98
5300	60	MCS5	ac20	15.01	15.53	18.29	-	-	23.98
5320	64	MCS5	ac20	14.82	15.44	18.15	-	-	23.98
5500	100	MCS5	ac20	14.14	15.64	17.97	-	-	23.98
5600	120	MCS5	ac20	14.33	15.88	18.18	-	-	23.98
5720	144	MCS5	ac20	15.48	15.98	18.74	-	-	23.98
5745	149	MCS5	ac20	15.32	15.34	18.34	-	-	30.00
5785	157	MCS5	ac20	15.43	15.14	18.30	-	-	30.00
5825	165	MCS5	ac20	15.47	14.94	18.22	-	-	30.00
5845	169	MCS5	ac20	15.55	14.87	18.24	-3.29	14.95	EIRP ≤ 30dBm
5865	173	MCS5	ac20	15.61	14.65	18.17	-3.29	14.88	EIRP ≤ 30dBm
5885	177	MCS5	ac20	15.33	14.18	17.81	-3.29	14.52	EIRP ≤ 30dBm

Frequency [MHz]	Channel No.	Worstcase Datarate	Mode(802.11)	Ant.1 Measured Power [dBm] + Duty Cycle Factor[dB]	Ant.2 Measured Power [dBm] + Duty Cycle Factor[dB]	MIMO Total Power [dBm]	Directional Gain [dBi]	E.I.R.P [dBm]	Limit [dBm]
5190	38	MCS0	n40	13.58	13.30	16.45	-	-	23.98
5230	46	MCS0	n40	13.54	13.53	16.55	-	-	23.98
5270	54	MCS0	n40	13.09	13.85	16.50	-	-	23.98
5310	62	MCS0	n40	13.21	13.92	16.59	-	-	23.98
5510	102	MCS0	n40	12.51	13.86	16.24	-	-	23.98
5590	118	MCS0	n40	12.56	13.99	16.35	-	-	23.98
5710	142	MCS0	n40	13.54	14.24	16.91	-	-	23.98
5755	151	MCS0	n40	13.57	13.76	16.68	-	-	30.00
5795	159	MCS0	n40	13.66	13.41	16.54	-	-	30.00
5835	167	MCS0	n40	13.88	13.35	16.63	-3.29	13.34	EIRP ≤ 30dBm
5875	175	MCS0	n40	14.08	13.13	16.64	-3.29	13.36	EIRP ≤ 30dBm

Frequency [MHz]	Channel No.	Worstcase Datarate	Mode(802.11)	Ant.1 Measured Power [dBm] + Duty Cycle Factor[dB]	Ant.2 Measured Power [dBm] + Duty Cycle Factor[dB]	MIMO Total Power [dBm]	Directional Gain [dBi]	E.I.R.P [dBm]	Limit [dBm]
5190	38	MCS0	ac40	13.54	13.23	16.40	-	-	23.98
5230	46	MCS0	ac40	13.56	13.56	16.57	-	-	23.98
5270	54	MCS0	ac40	13.15	13.85	16.52	-	-	23.98
5310	62	MCS0	ac40	13.27	13.89	16.60	-	-	23.98
5510	102	MCS0	ac40	12.53	13.87	16.26	-	-	23.98
5590	118	MCS0	ac40	12.56	14.04	16.38	-	-	23.98
5710	142	MCS0	ac40	13.52	14.25	16.91	-	-	23.98
5755	151	MCS0	ac40	13.58	13.76	16.68	-	-	30.00
5795	159	MCS0	ac40	13.65	13.42	16.54	-	-	30.00
5835	167	MCS0	ac40	13.88	13.39	16.65	-3.29	13.36	EIRP ≤ 30dBm
5875	175	MCS0	ac40	14.14	13.04	16.63	-3.29	13.35	EIRP ≤ 30dBm

Frequency [MHz]	Channel No.	Worstcase Datarate	Mode(802.11)	Ant.1 Measured Power [dBm] + Duty Cycle Factor[dB]	Ant.2 Measured Power [dBm] + Duty Cycle Factor[dB]	MIMO Total Power [dBm]	Directional Gain [dBi]	E.I.R.P [dBm]	Limit [dBm]
5210	42	MCS6	ac80	13.12	13.01	16.08	-	-	23.98
5290	58	MCS6	ac80	12.82	13.42	16.14	-	-	23.98
5530	106	MCS6	ac80	12.17	13.44	15.86	-	-	23.98
5610	122	MCS6	ac80	12.14	13.62	15.95	-	-	23.98
5690	138	MCS6	ac80	12.65	13.39	16.04	-	-	23.98
5775	155	MCS6	ac80	12.91	12.84	15.89	-	-	30.00
5855	171	MCS6	ac80	13.58	12.85	16.24	-3.29	12.96	EIRP ≤ 30dBm

Frequency [MHz]	Channel No.	Worstcase Datarate	Mode(802.11)	Ant.1 Measured Power [dBm] + Duty Cycle Factor[dB]	Ant.2 Measured Power [dBm] + Duty Cycle Factor[dB]	MIMO Total Power [dBm]	Directional Gain [dBi]	E.I.R.P [dBm]	Limit [dBm]
5250	50	MCS5	ac160	11.41	11.35	14.39	-	-	23.98
5570	114	MCS5	ac160	11.13	12.68	14.99	-	-	23.98
5815	163	MCS5	ac160	12.50	11.90	15.22	-3.29	11.93	EIRP ≤ 30dBm

10.5 POWER SPECTRAL DENSITY

[MIMO_CDD(Ant.1+ Ant.2)]

Ant Total PSD [dBm] = Measured PSD [dBm] + Duty Cycle Factor [dB]

MIMO_CDD(ANT.1+ ANT.2)Total PSD [dBm] = Ant.1 Total PSD [dBm] + Ant.2 Total PSD [dB]

Frequency [MHz]	Channel No.	Worstcase Datarate	Mode(802.11)	ANT.1 Measured PSD[dBm] + Duty Cycle Factor [dB]	ANT.2 Measured PSD[dBm] + Duty Cycle Factor [dB]	MIMO Total PSD [dBm]	Directional Gain [dBi]	E.I.R.P [dBm]	Limit [dBm]
5180	36	18M	a	3.880	3.791	6.846	-	-	11 dBm/MHz
5200	40	18M	a	3.815	3.717	6.777	-	-	11 dBm/MHz
5240	48	18M	a	3.777	4.026	6.914	-	-	11 dBm/MHz
5260	52	18M	a	3.392	4.231	6.842	-	-	11 dBm/MHz
5300	60	18M	a	3.443	4.260	6.881	-	-	11 dBm/MHz
5320	64	18M	a	3.389	4.214	6.831	-	-	11 dBm/MHz
5500	100	18M	a	2.705	4.437	6.667	-	-	11 dBm/MHz
5600	120	18M	a	3.184	4.676	7.004	-	-	11 dBm/MHz
5720	144	18M	a	4.126	4.720	7.444	-	-	11 dBm/MHz
5745	149	18M	a	1.305	1.357	4.341	-	-	30 dBm/500kHz
5785	157	18M	a	1.301	1.062	4.194	-	-	30 dBm/500kHz
5825	165	18M	a	1.746	0.908	4.358	-	-	30 dBm/500kHz
5845	169	18M	a	4.278	3.679	6.999	-3.29	3.712	14 dBm/EIRP
5865	173	18M	a	4.515	3.536	7.063	-3.29	3.776	14 dBm/EIRP
5885	177	18M	a	3.933	3.020	6.511	-3.29	3.224	14 dBm/EIRP

Frequency [MHz]	Channel No.	Worstcase Datarate	Mode(802.11)	ANT.1 Measured PSD[dBm] + Duty Cycle Factor [dB]	ANT.2 Measured PSD[dBm] + Duty Cycle Factor [dB]	MIMO Total PSD [dBm]	Directional Gain [dBi]	E.I.R.P [dBm]	Limit [dBm]
5180	36	MCS4	n20	4.604	3.945	7.297	-	-	11 dBm/MHz
5200	40	MCS4	n20	4.202	3.974	7.100	-	-	11 dBm/MHz
5240	48	MCS4	n20	4.381	4.665	7.536	-	-	11 dBm/MHz
5260	52	MCS4	n20	4.043	4.347	7.208	-	-	11 dBm/MHz
5300	60	MCS4	n20	4.041	4.431	7.251	-	-	11 dBm/MHz
5320	64	MCS4	n20	3.924	4.487	7.225	-	-	11 dBm/MHz
5500	100	MCS4	n20	3.338	4.931	7.217	-	-	11 dBm/MHz
5600	120	MCS4	n20	3.366	4.816	7.162	-	-	11 dBm/MHz
5720	144	MCS4	n20	4.562	5.124	7.862	-	-	11 dBm/MHz
5745	149	MCS4	n20	1.682	1.885	4.795	-	-	30 dBm/500kHz
5785	157	MCS4	n20	1.681	1.734	4.718	-	-	30 dBm/500kHz
5825	165	MCS4	n20	1.718	1.758	4.748	-	-	30 dBm/500kHz
5845	169	MCS4	n20	4.630	3.864	7.274	-3.29	3.987	14 dBm/EIRP
5865	173	MCS4	n20	4.578	3.723	7.182	-3.29	3.895	14 dBm/EIRP
5885	177	MCS4	n20	4.274	3.030	6.707	-3.29	3.420	14 dBm/EIRP

Frequency [MHz]	Channel No.	Worstcase Datarate	Mode(802.11)	ANT.1 Measured PSD[dBm] + Duty Cycle Factor [dB]	ANT.2 Measured PSD[dBm] + Duty Cycle Factor [dB]	MIMO Total PSD [dBm]	Directional Gain [dBi]	E.I.R.P [dBm]	Limit [dBm]
5180	36	MCS5	ac20	3.899	3.541	6.734	-	-	11 dBm/MHz
5200	40	MCS5	ac20	4.519	3.752	7.162	-	-	11 dBm/MHz
5240	48	MCS5	ac20	4.025	3.938	6.992	-	-	11 dBm/MHz
5260	52	MCS5	ac20	3.653	4.383	7.043	-	-	11 dBm/MHz
5300	60	MCS5	ac20	4.154	4.020	7.098	-	-	11 dBm/MHz
5320	64	MCS5	ac20	3.324	4.129	6.755	-	-	11 dBm/MHz
5500	100	MCS5	ac20	2.761	4.320	6.620	-	-	11 dBm/MHz
5600	120	MCS5	ac20	3.046	4.281	6.717	-	-	11 dBm/MHz
5720	144	MCS5	ac20	4.237	5.043	7.669	-	-	11 dBm/MHz
5745	149	MCS5	ac20	1.348	1.344	4.356	-	-	30 dBm/500kHz
5785	157	MCS5	ac20	1.796	1.864	4.840	-	-	30 dBm/500kHz
5825	165	MCS5	ac20	1.585	1.124	4.371	-	-	30 dBm/500kHz
5845	169	MCS5	ac20	4.578	3.658	7.152	-3.29	3.865	14 dBm/EIRP
5865	173	MCS5	ac20	4.350	3.230	6.836	-3.29	3.549	14 dBm/EIRP
5885	177	MCS5	ac20	4.209	2.839	6.588	-3.29	3.301	14 dBm/EIRP

Frequency [MHz]	Channel No.	Worstcase Datarate	Mode(802.11)	ANT.1 Measured PSD[dBm] + Duty Cycle Factor [dB]	ANT.2 Measured PSD[dBm] + Duty Cycle Factor [dB]	MIMO Total PSD [dBm]	Directional Gain [dBi]	E.I.R.P [dBm]	Limit [dBm]
5190	38	MCS0	n40	-0.794	-1.438	1.906	-	-	11 dBm/MHz
5230	46	MCS0	n40	-1.179	-1.151	1.845	-	-	11 dBm/MHz
5270	54	MCS0	n40	-1.457	-0.768	1.911	-	-	11 dBm/MHz
5310	62	MCS0	n40	-1.363	-0.698	1.992	-	-	11 dBm/MHz
5510	102	MCS0	n40	-2.023	-0.855	1.610	-	-	11 dBm/MHz
5590	118	MCS0	n40	-1.902	-0.561	1.830	-	-	11 dBm/MHz
5710	142	MCS0	n40	-1.162	-0.221	2.344	-	-	11 dBm/MHz
5755	151	MCS0	n40	-3.806	-3.563	-0.673	-	-	30 dBm/500kHz
5795	159	MCS0	n40	-3.568	-3.808	-0.677	-	-	30 dBm/500kHz
5835	167	MCS0	n40	-0.770	-1.085	2.085	-3.29	-1.202	14 dBm/EIRP
5875	175	MCS0	n40	-0.604	-1.496	1.983	-3.29	-1.304	14 dBm/EIRP

Frequency [MHz]	Channel No.	Worstcase Datarate	Mode(802.11)	ANT.1 Measured PSD[dBm] + Duty Cycle Factor [dB]	ANT.2 Measured PSD[dBm] + Duty Cycle Factor [dB]	MIMO Total PSD [dBm]	Directional Gain [dBi]	E.I.R.P [dBm]	Limit [dBm]
5190	38	MCS0	ac40	-1.235	-1.425	1.681	-	-	11 dBm/MHz
5230	46	MCS0	ac40	-1.195	-1.178	1.824	-	-	11 dBm/MHz
5270	54	MCS0	ac40	-1.457	-0.854	1.865	-	-	11 dBm/MHz
5310	62	MCS0	ac40	-1.439	-0.676	1.970	-	-	11 dBm/MHz
5510	102	MCS0	ac40	-1.998	-0.825	1.638	-	-	11 dBm/MHz
5590	118	MCS0	ac40	-1.930	-0.594	1.800	-	-	11 dBm/MHz
5710	142	MCS0	ac40	-1.072	-0.278	2.354	-	-	11 dBm/MHz
5755	151	MCS0	ac40	-3.862	-3.624	-0.731	-	-	30 dBm/500kHz
5795	159	MCS0	ac40	-3.864	-3.732	-0.787	-	-	30 dBm/500kHz
5835	167	MCS0	ac40	-0.877	-1.056	2.045	-3.29	-1.242	14 dBm/EIRP
5875	175	MCS0	ac40	-0.666	-1.530	1.934	-3.29	-1.353	14 dBm/EIRP

Frequency [MHz]	Channel No.	Worstcase Datarate	Mode(802.11)	ANT.1 Measured PSD[dBm] + Duty Cycle Factor [dB]	ANT.2 Measured PSD[dBm] + Duty Cycle Factor [dB]	MIMO Total PSD [dBm]	Directional Gain [dBi]	E.I.R.P [dBm]	Limit [dBm]
5210	42	MCS6	ac80	-3.997	-4.213	-1.094	-	-	11 dBm/MHz
5290	58	MCS6	ac80	-4.618	-3.789	-1.174	-	-	11 dBm/MHz
5530	106	MCS6	ac80	-4.867	-3.783	-1.281	-	-	11 dBm/MHz
5610	122	MCS6	ac80	-4.798	-3.483	-1.081	-	-	11 dBm/MHz
5690	138	MCS6	ac80	-4.281	-3.546	-0.888	-	-	11 dBm/MHz
5775	155	MCS6	ac80	-7.069	-7.062	-4.056	-	-	30 dBm/500kHz
5855	171	MCS6	ac80	-3.934	-4.127	-1.020	-3.29	-4.307	14 dBm/EIRP

Frequency [MHz]	Channel No.	Worstcase Datarate	Mode(802.11)	ANT.1 Measured PSD[dBm] + Duty Cycle Factor [dB]	ANT.2 Measured PSD[dBm] + Duty Cycle Factor [dB]	MIMO Total PSD [dBm]	Directional Gain [dBi]	E.I.R.P [dBm]	Limit [dBm]
5250	50	MCS5	ac160	-8.525	-9.064	-5.776	-	-	11 dBm/MHz
5570	114	MCS5	ac160	-9.315	-7.972	-5.582	-	-	11 dBm/MHz
5815	163	MCS5	ac160	-8.104	-8.255	-5.169	-3.29	-8.456	14 dBm/EIRP

[MIMO_CDD(Ant.1+ Ant.2)]

▣ Test Plots

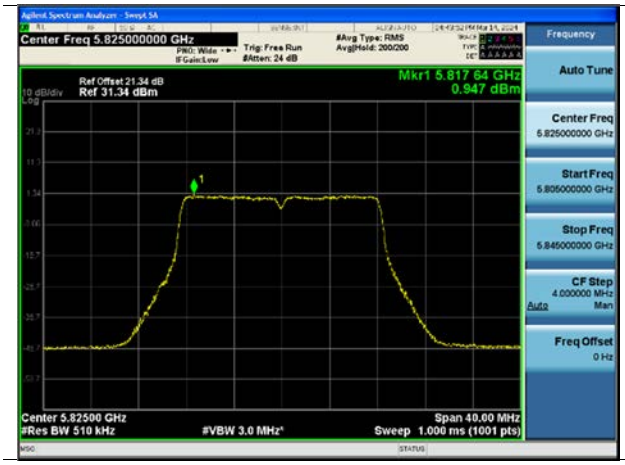
Note:

In order to simplify the report, attached plots were only channel of the highest PSD.

ANT. 1	ANT. 2

802.11a UNII 1-2C (Ch. 144)

802.11a UNII 3 (Ch. 165)

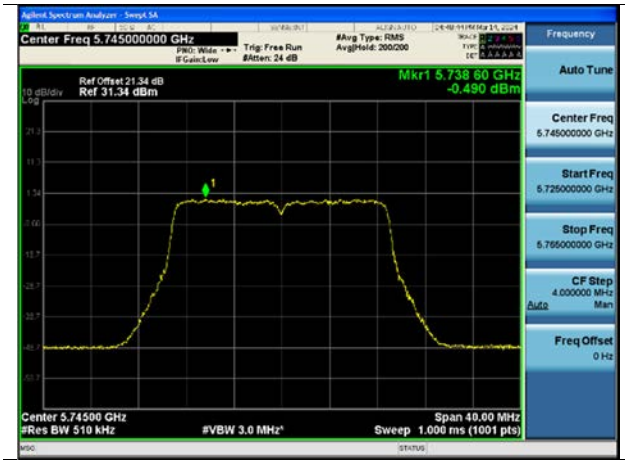


802.11a UNII 4 (Ch. 173)

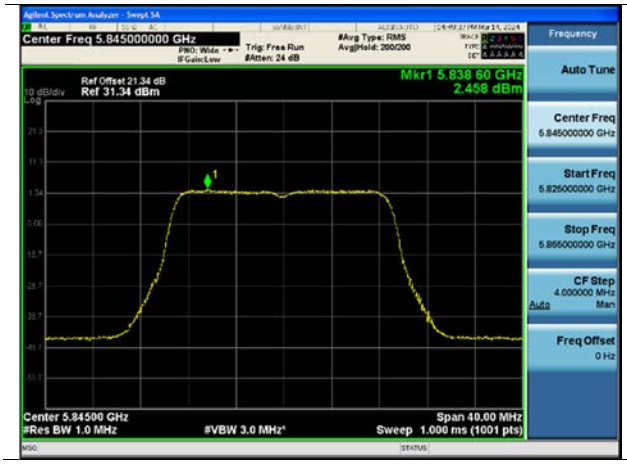
ANT. 1	ANT. 2

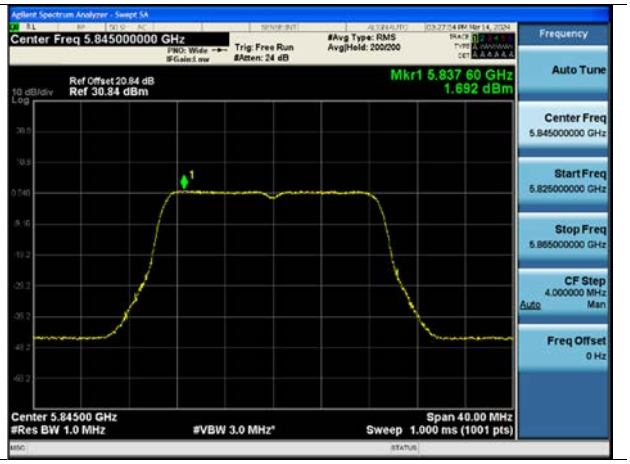
802.11n(HT20) UNII 1-2C (Ch. 144)

802.11 n(HT20) UNII 3 (Ch. 149)



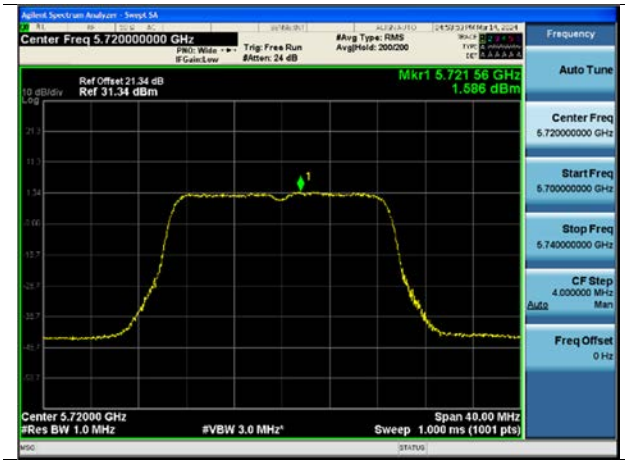
802.11 n(HT20) UNII 4 (Ch. 169)



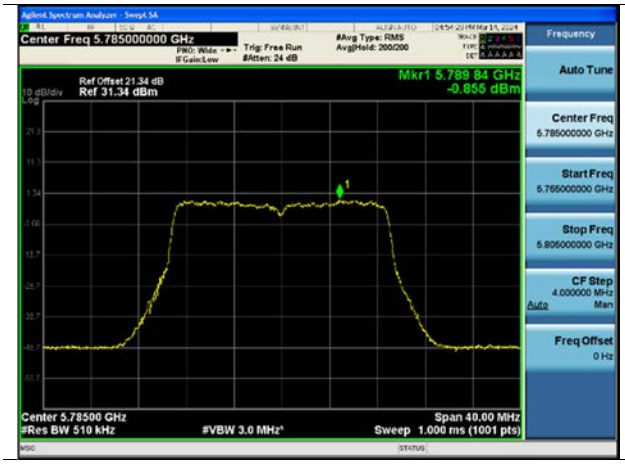


ANT. 1	ANT. 2

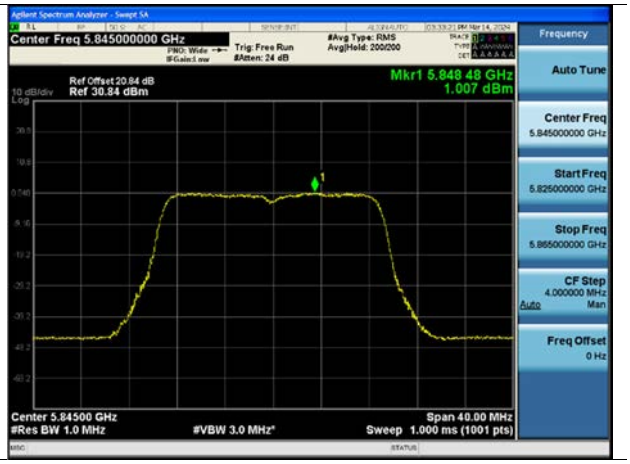
802.11ac(VHT20) UNII 1-2C (Ch. 144)



802.11 ac(VHT20) UNII 3 (Ch. 157)

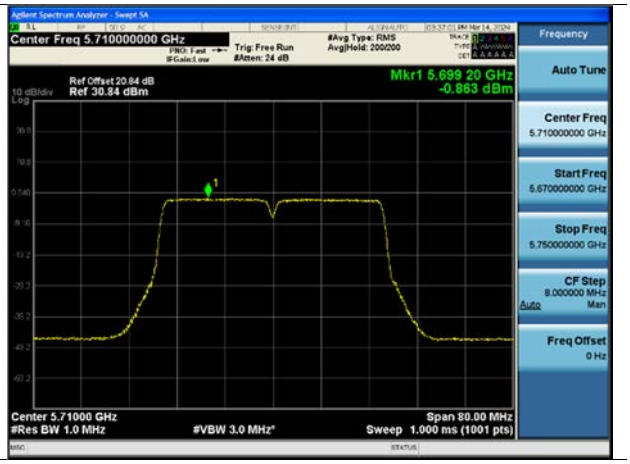


802.11 ac(VHT20) UNII 4 (Ch. 169)



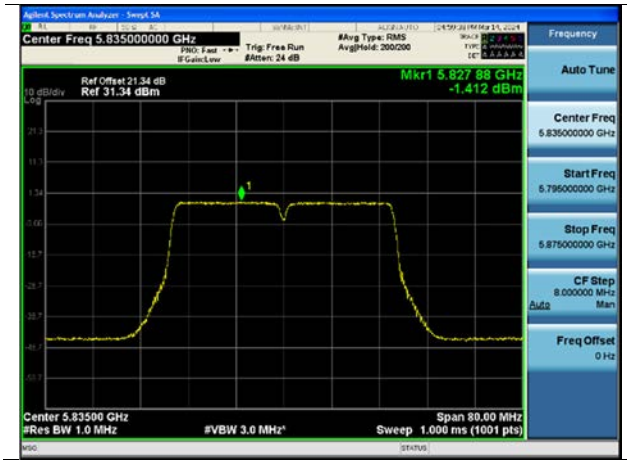
ANT. 1	ANT. 2

802.11n(HT40) UNII 1-2C (Ch. 142)



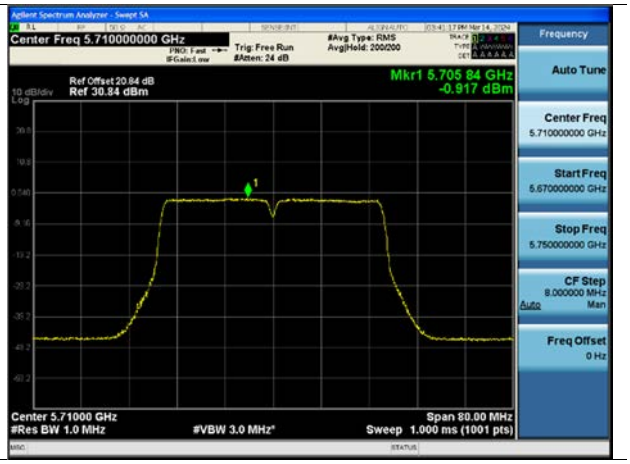
802.11 n(HT40) UNII 3 (Ch. 151)

802.11 n(HT40) UNII 4 (Ch. 167)

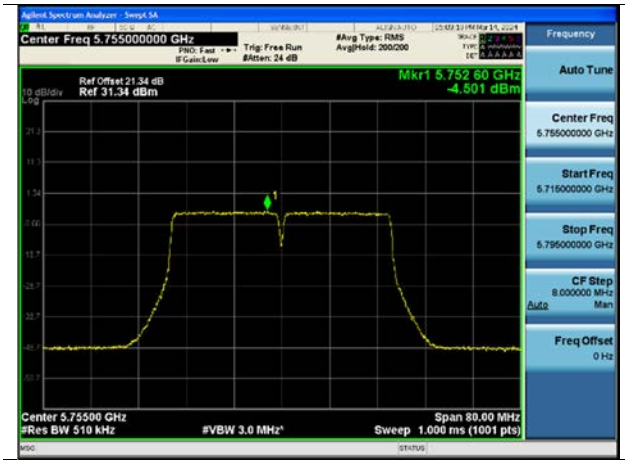


ANT. 1	ANT. 2

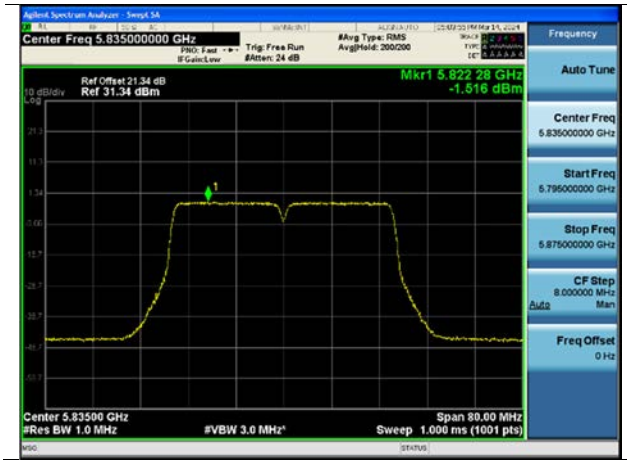
802.11ac(VHT40) UNII 1-2C (Ch. 142)



802.11 ac(VHT40) UNII 3 (Ch. 151)

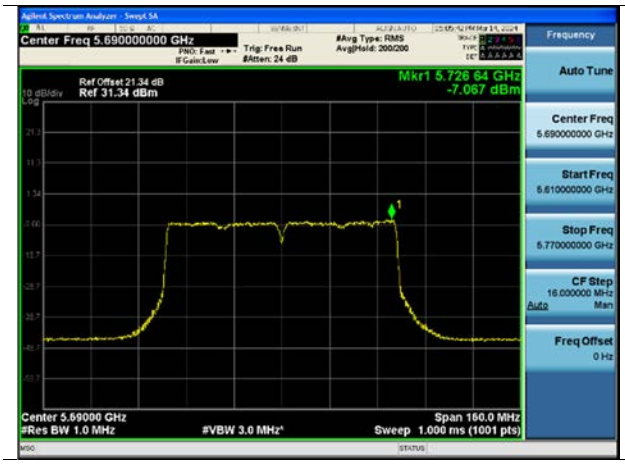


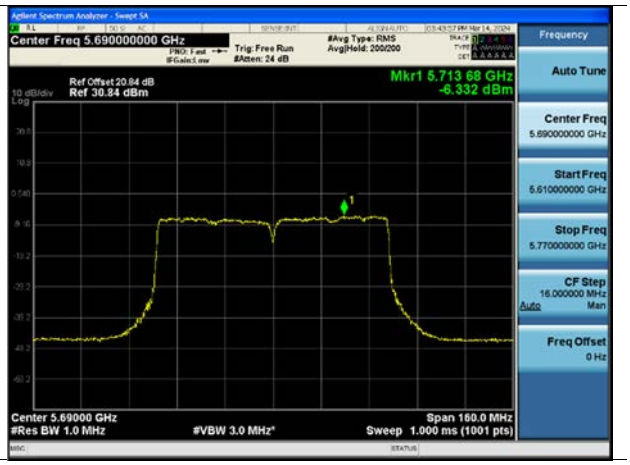
802.11 ac(VHT40) UNII 4 (Ch. 167)



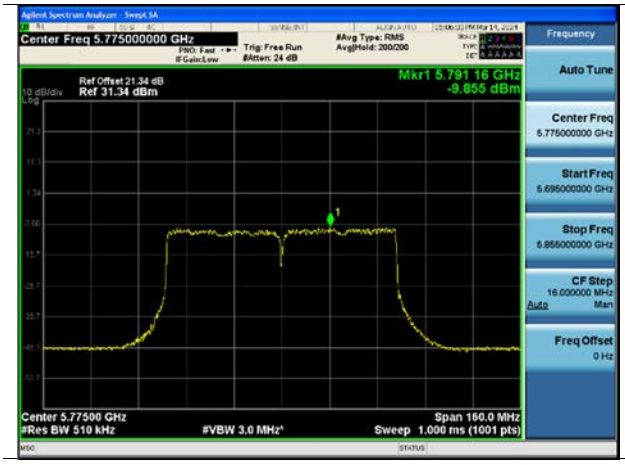
ANT. 1	ANT. 2

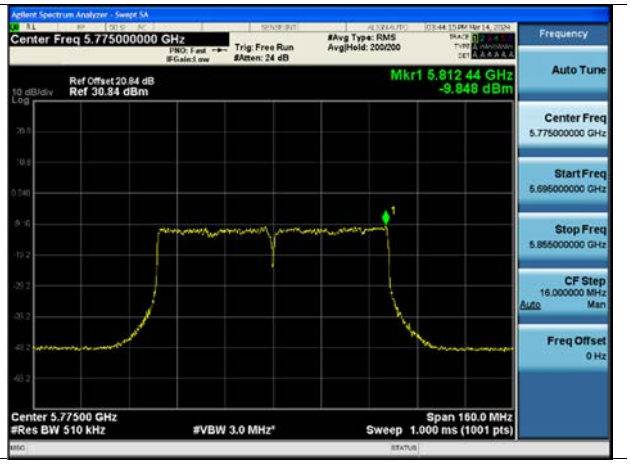
802.11ac(VHT80) UNII 1-2C (Ch. 138)



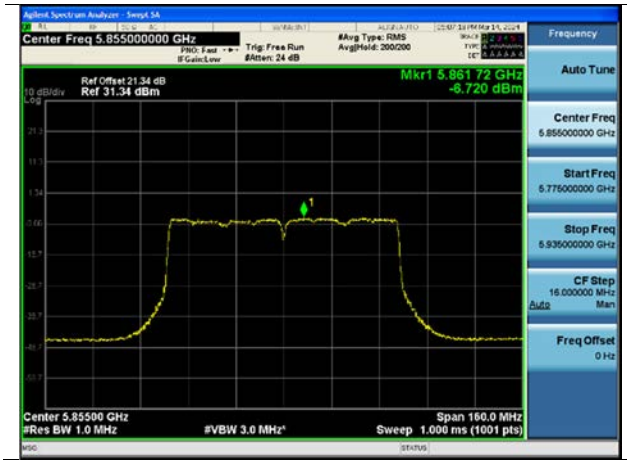


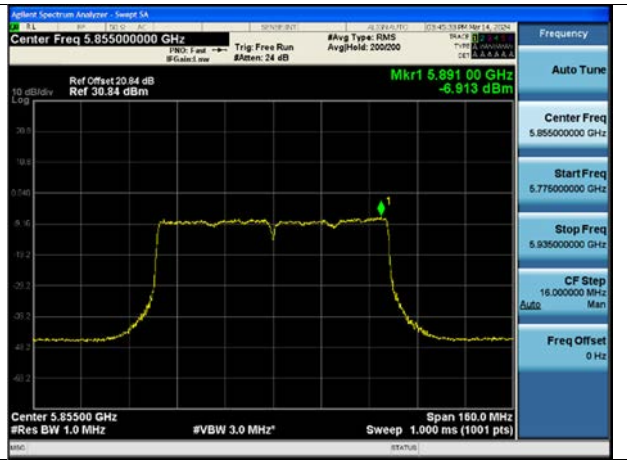
802.11 ac(VHT80) UNII 3 (Ch. 155)





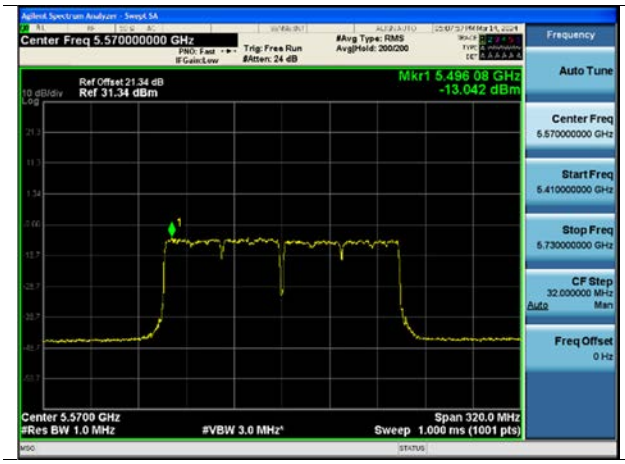
802.11 ac(VHT80) UNII 4 (Ch. 171)

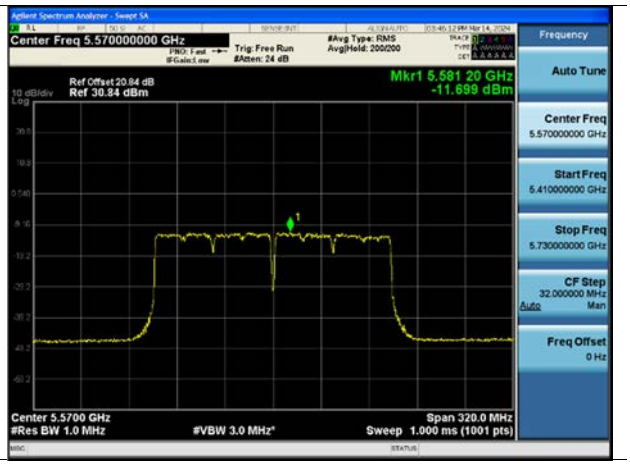




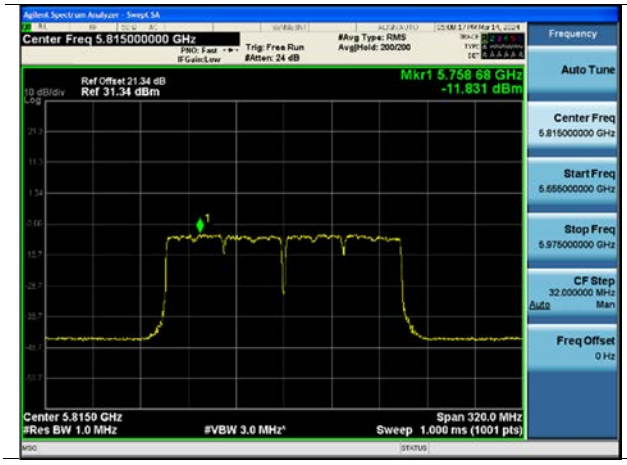
ANT. 1	ANT. 2

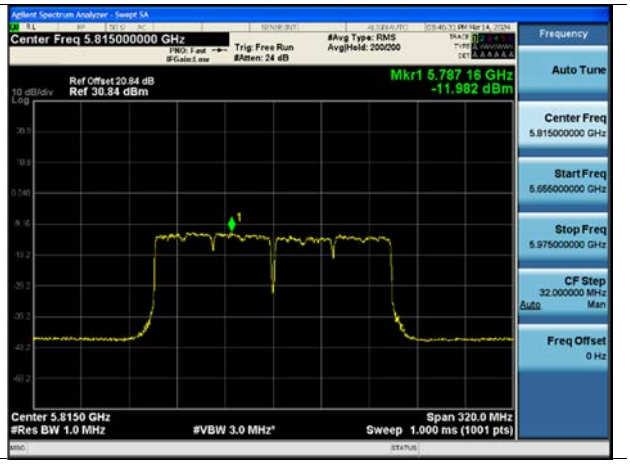
802.11ac(VHT160) UNII 1-2C (Ch. 114)





802.11 ac(VHT160) UNII 3-4 (Ch. 163)





10.6 FREQUENCY STABILITY

Note:

1. All modes of operation were investigated and the worst case configuration results are reported.
2. Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

10.6.1 802.11ac 160 MHz BW

[MIMO_CDD(Ant1+Ant2)]

Startup after the EUT is energized

OPERATING BAND:	UNII Band 1 & 2A
OPERATING FREQUENCY:	5,250,000,000 Hz
CHANNEL:	50
REFERENCE VOLTAGE:	3.88 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.88	+20(Ref)	5250034.74	34.74
100%		-30	5250010.25	10.25
100%		-20	5250013.73	13.73
100%		-10	5250016.64	16.64
100%		0	5250023.55	23.55
100%		+10	5250028.04	28.04
100%		+30	5250038.47	38.47
100%		+40	5250047.60	47.60
100%		+50	5250054.29	54.29
High	4.45	+20	5250034.44	34.44
Low	3.70	+20	5250030.51	30.51

OPERATING BAND:	UNII Band 2C
OPERATING FREQUENCY:	5,570,000,000 Hz
CHANNEL:	114
REFERENCE VOLTAGE:	3.88 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.88	+20(Ref)	5570033.04	33.04
100%		-30	5570008.53	8.53
100%		-20	5570012.94	12.94
100%		-10	5570019.65	19.65
100%		0	5570020.12	20.12
100%		+10	5570028.93	28.93
100%		+30	5570039.64	39.64
100%		+40	5570042.59	42.59
100%		+50	5570053.44	53.44
High	4.45	+20	5570035.86	35.86
Low	3.70	+20	5570033.67	33.67

OPERATING BAND:	UNII Band 3 & 4
OPERATING FREQUENCY:	5,815,000,000 Hz
CHANNEL:	163
REFERENCE VOLTAGE:	3.88 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.88	+20(Ref)	5815034.65	34.65
100%		-30	5815008.80	8.80
100%		-20	5815011.62	11.62
100%		-10	5815018.73	18.73
100%		0	5815020.39	20.39
100%		+10	5815027.37	27.37
100%		+30	5815037.68	37.68
100%		+40	5815045.98	45.98
100%		+50	5815056.92	56.92
High	4.45	+20	5815033.80	33.80
Low	3.70	+20	5815033.91	33.91

2 minutes after the EUT is energized

OPERATING BAND:	UNII Band 1 & 2A
OPERATING FREQUENCY:	5,250,000,000 Hz
CHANNEL:	50
REFERENCE VOLTAGE:	3.88 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.88	+20(Ref)	5250035.96	35.96
100%		-30	5250010.48	10.48
100%		-20	5250011.32	11.32
100%		-10	5250017.89	17.89
100%		0	5250025.99	25.99
100%		+10	5250029.69	29.69
100%		+30	5250036.45	36.45
100%		+40	5250047.16	47.16
100%		+50	5250059.25	59.25
High	4.45	+20	5250033.26	33.26
Low	3.70	+20	5250033.55	33.55

OPERATING BAND:	UNII Band 2C
OPERATING FREQUENCY:	5,570,000,000 Hz
CHANNEL:	114
REFERENCE VOLTAGE:	3.88 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.88	+20(Ref)	5570032.21	32.21
100%		-30	5570006.22	6.22
100%		-20	5570011.66	11.66
100%		-10	5570015.93	15.93
100%		0	5570024.29	24.29
100%		+10	5570028.70	28.70
100%		+30	5570039.60	39.60
100%		+40	5570041.85	41.85
100%		+50	5570058.83	58.83
High	4.45	+20	5570032.73	32.73
Low	3.70	+20	5570030.31	30.31

OPERATING BAND:	UNII Band 3 & 4
OPERATING FREQUENCY:	5,815,000,000 Hz
CHANNEL:	163
REFERENCE VOLTAGE:	3.88 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.88	+20(Ref)	5815032.14	32.14
100%		-30	5815005.68	5.68
100%		-20	5815014.15	14.15
100%		-10	5815019.38	19.38
100%		0	5815022.27	22.27
100%		+10	5815030.46	30.46
100%		+30	5815038.84	38.84
100%		+40	5815047.04	47.04
100%		+50	5815055.91	55.91
High	4.45	+20	5815030.40	30.40
Low	3.70	+20	5815030.20	30.20

5 minutes after the EUT is energized

OPERATING BAND:	UNII Band 1 & 2A
OPERATING FREQUENCY:	5,250,000,000 Hz
CHANNEL:	50
REFERENCE VOLTAGE:	3.88 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.88	+20(Ref)	5250033.78	33.78
100%		-30	5250008.42	8.42
100%		-20	5250010.59	10.59
100%		-10	5250017.21	17.21
100%		0	5250025.96	25.96
100%		+10	5250025.59	25.59
100%		+30	5250038.47	38.47
100%		+40	5250040.70	40.70
100%		+50	5250057.85	57.85
High	4.45	+20	5250031.55	31.55
Low	3.70	+20	5250033.83	33.83

OPERATING BAND:	UNII Band 2C
OPERATING FREQUENCY:	5,570,000,000 Hz
CHANNEL:	114
REFERENCE VOLTAGE:	3.88 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.88	+20(Ref)	5570030.61	30.61
100%		-30	5570008.78	8.78
100%		-20	5570013.21	13.21
100%		-10	5570019.27	19.27
100%		0	5570021.44	21.44
100%		+10	5570025.83	25.83
100%		+30	5570036.79	36.79
100%		+40	5570042.82	42.82
100%		+50	5570059.61	59.61
High	4.45	+20	5570032.35	32.35
Low	3.70	+20	5570034.02	34.02

OPERATING BAND:	UNII Band 3 & 4
OPERATING FREQUENCY:	5,815,000,000 Hz
CHANNEL:	163
REFERENCE VOLTAGE:	3.88 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.88	+20(Ref)	5815032.03	32.03
100%		-30	5815005.26	5.26
100%		-20	5815010.80	10.80
100%		-10	5815018.15	18.15
100%		0	5815025.98	25.98
100%		+10	5815030.68	30.68
100%		+30	5815037.96	37.96
100%		+40	5815040.32	40.32
100%		+50	5815060.14	60.14
High	4.45	+20	5815030.49	30.49
Low	3.70	+20	5815035.24	35.24

10 minutes after the EUT is energized

OPERATING BAND:	UNII Band 1 & 2A
OPERATING FREQUENCY:	5,250,000,000 Hz
CHANNEL:	50
REFERENCE VOLTAGE:	3.88 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.88	+20(Ref)	5250035.58	35.58
100%		-30	5250005.38	5.38
100%		-20	5250015.69	15.69
100%		-10	5250017.45	17.45
100%		0	5250021.68	21.68
100%		+10	5250026.12	26.12
100%		+30	5250035.59	35.59
100%		+40	5250041.33	41.33
100%		+50	5250051.30	51.30
High	4.45	+20	5250031.58	31.58
Low	3.70	+20	5250030.44	30.44

OPERATING BAND:	UNII Band 2C
OPERATING FREQUENCY:	5,570,000,000 Hz
CHANNEL:	114
REFERENCE VOLTAGE:	3.88 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.88	+20(Ref)	5570034.97	34.97
100%		-30	5570007.24	7.24
100%		-20	5570011.41	11.41
100%		-10	5570020.60	20.60
100%		0	5570024.57	24.57
100%		+10	5570025.18	25.18
100%		+30	5570036.20	36.20
100%		+40	5570046.60	46.60
100%		+50	5570055.40	55.40
High	4.45	+20	5570033.64	33.64
Low	3.70	+20	5570031.69	31.69

OPERATING BAND:	UNII Band 3 & 4
OPERATING FREQUENCY:	5,815,000,000 Hz
CHANNEL:	163
REFERENCE VOLTAGE:	3.88 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.88	+20(Ref)	5815033.12	33.12
100%		-30	5815010.63	10.63
100%		-20	5815011.87	11.87
100%		-10	5815018.36	18.36
100%		0	5815020.86	20.86
100%		+10	5815025.56	25.56
100%		+30	5815038.72	38.72
100%		+40	5815042.81	42.81
100%		+50	5815055.50	55.50
High	4.45	+20	5815031.72	31.72
Low	3.70	+20	5815031.88	31.88

10.7 STRADDLE CHANNEL

10.7.1 26 dB Bandwidth

[ANT. 1]

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	26 dB Bandwidth [MHz]
802.11a	UNII 2C	5720	144	5709.84	15.16
802.11n(HT20)				5709.60	15.40
802.11ac(VHT20)				5709.68	15.32
802.11a	UNII 3	5720	144	5729.72	4.72
802.11n(HT20)				5730.16	5.16
802.11ac(VHT20)				5729.88	4.88

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	26 dB Bandwidth [MHz]
802.11n(HT40)	UNII 2C	5710	142	5688.80	36.20
802.11ac(VHT40)				5688.56	36.44
802.11n(HT40)	UNII 3	5710	142	5731.04	6.04
802.11ac(VHT40)				5731.04	6.04

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	26 dB Bandwidth [MHz]
802.11ac(VHT80)	UNII 2C	5690	138	5646.16	78.84
	UNII 3	5690	138	5734.80	9.80

Note:

[UNII 2C] 26 dB Bandwidth = 5 725 MHz - Measured Frequency[MHz]

[UNII 3C] 26 dB Bandwidth = Measured Frequency[MHz] – 5 725 MHz

[ANT. 2]

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	26 dB Bandwidth [MHz]
802.11a	UNII 2C	5720	144	5709.76	15.24
802.11n(HT20)				5709.44	15.56
802.11ac(VHT20)				5709.56	15.44
802.11a	UNII 3	5720	144	5729.64	4.64
802.11n(HT20)				5730.16	5.16
802.11ac(VHT20)				5730.00	5.00

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	26 dB Bandwidth [MHz]
802.11n(HT40)	UNII 2C	5710	142	5688.72	36.28
802.11ac(VHT40)				5688.64	36.36
802.11n(HT40)	UNII 3	5710	142	5730.96	5.96
802.11ac(VHT40)				5730.88	5.88

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	26 dB Bandwidth [MHz]
802.11ac(VHT80)	UNII 2C	5690	138	5646.16	78.84
	UNII 3	5690	138	5734.96	9.96

Note:

[UNII 2C] 26 dB Bandwidth = 5 725 MHz - Measured Frequency[MHz]

[UNII 3C] 26 dB Bandwidth = Measured Frequency[MHz] – 5 725 MHz

[ANT. 1]

▣ Test Plots (26 dB Bandwidth)

802.11a UNII Band	802.11n(HT20) UNII Band
	
802.11ac(VHT20) UNII Band	**802.11n(HT40) UNII Band**
	
802.11ac(VHT40) UNII Band	**802.11ac(VHT80) UNII Band**
	

[ANT. 2]

▣ Test Plots (26 dB Bandwidth)

802.11a UNII Band	802.11n(HT20) UNII Band
	
802.11ac(VHT20) UNII Band	**802.11n(HT40) UNII Band**
	
802.11ac(VHT40) UNII Band	**802.11ac(VHT80) UNII Band**
	

10.7.2 6 dB Bandwidth

[ANT. 1]

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	6dB Bandwidth [MHz]	Limit [MHz]
802.11a	UNII3	5720	144	5728.20	3.20	> 0.5
802.11n(HT20)				5728.84	3.84	> 0.5
802.11ac(VHT20)				5728.84	3.84	> 0.5
802.11n(HT40)	UNII3	5710	142	5728.16	3.16	> 0.5
802.11ac(VHT40)				5728.16	3.16	> 0.5
802.11ac(VHT80)	UNII3	5690	138	5728.40	3.40	> 0.5

[ANT. 2]

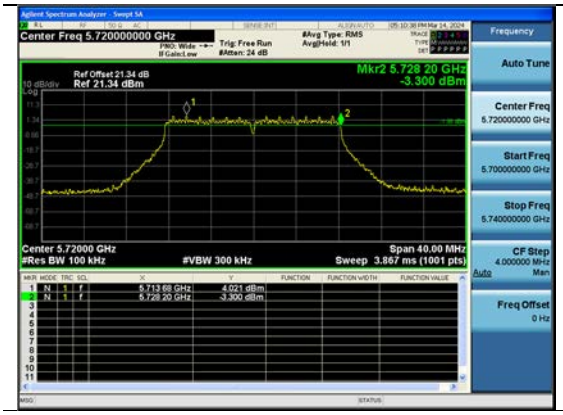
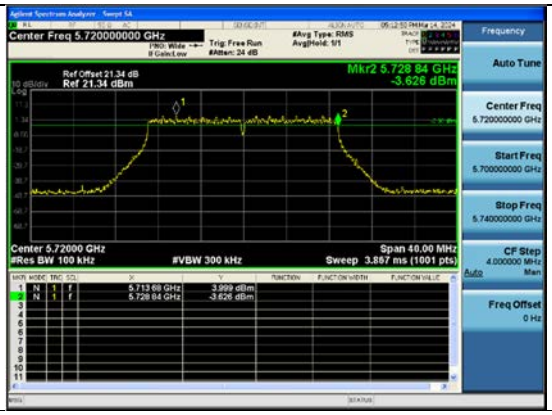
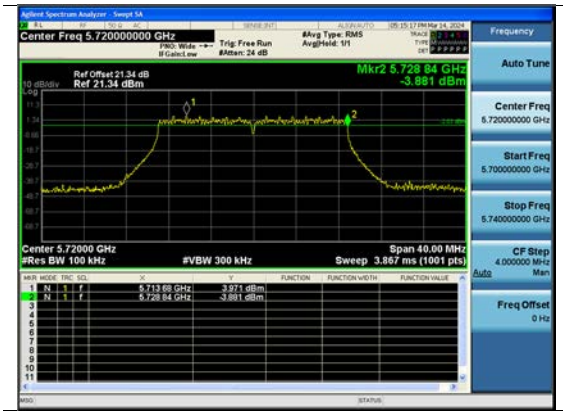
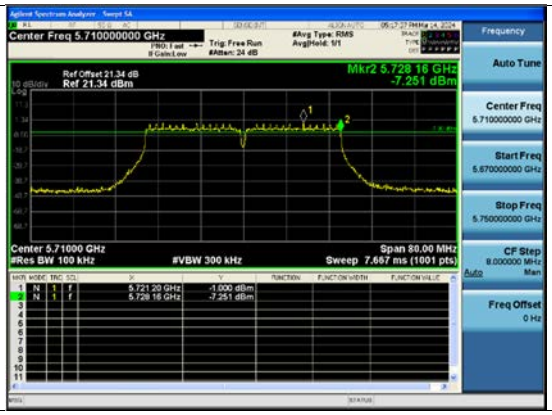
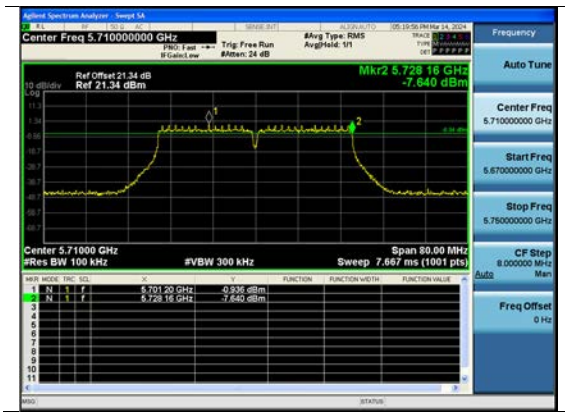
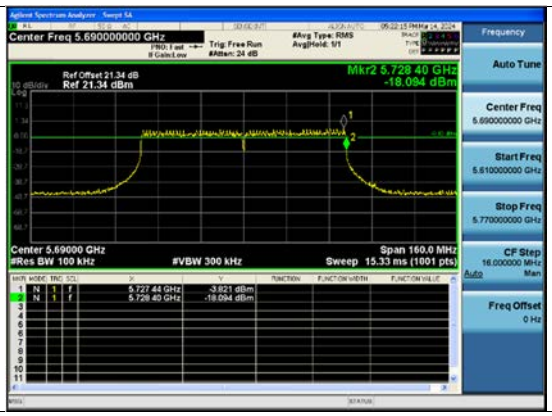
Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	6dB Bandwidth [MHz]	Limit [MHz]
802.11a	UNII3	5720	144	5728.20	3.20	> 0.5
802.11n(HT20)				5728.80	3.80	> 0.5
802.11ac(VHT20)				5728.80	3.80	> 0.5
802.11n(HT40)	UNII3	5710	142	5728.16	3.16	> 0.5
802.11ac(VHT40)				5728.16	3.16	> 0.5
802.11ac(VHT80)	UNII3	5690	138	5728.40	3.40	> 0.5

Note:

6 dB Bandwidth = Measured Frequency[MHz] – 5 725MHz

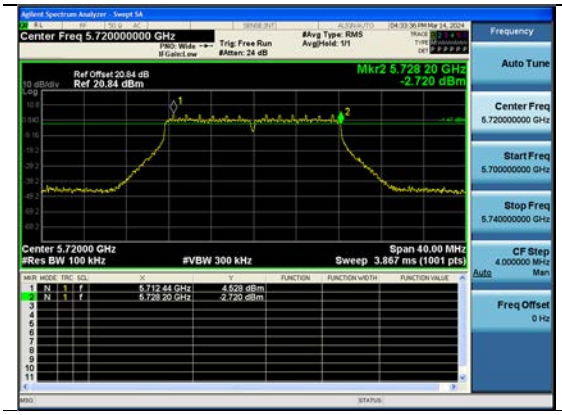
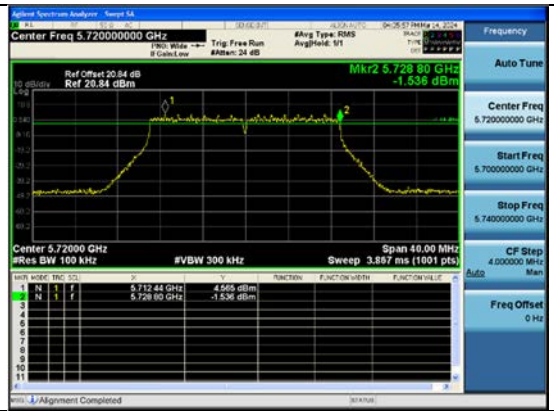
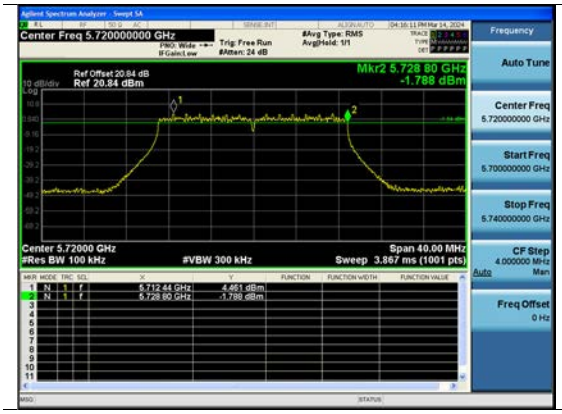
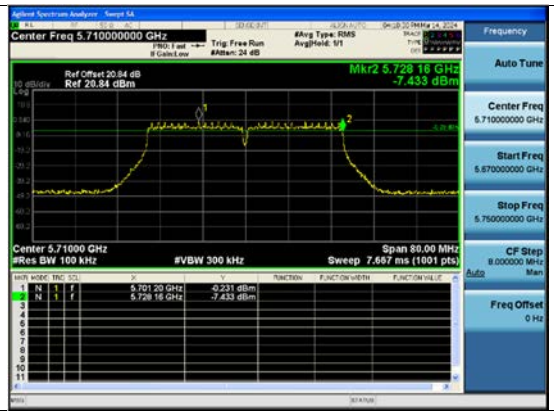
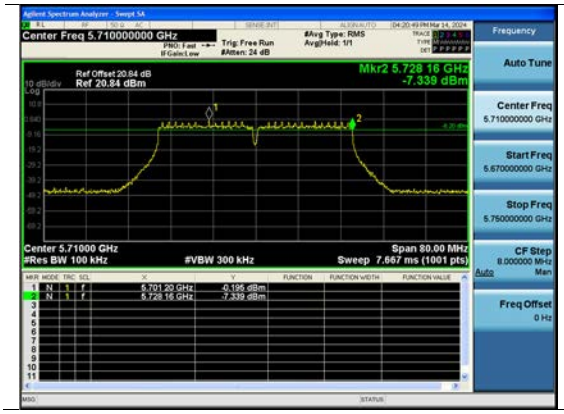
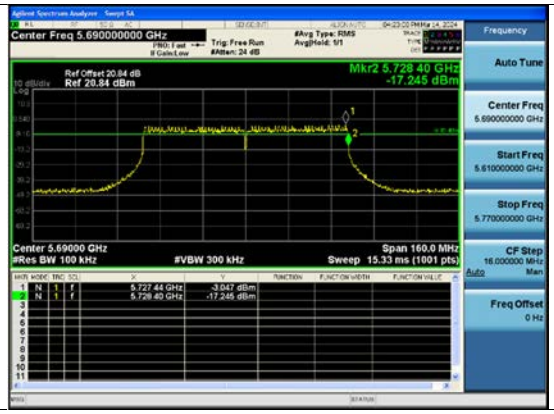
[ANT. 1]

▣ Test Plots(UNII 3 Band 6 dB Bandwidth)

802.11a UNII Band	802.11n(HT20) UNII Band
	
802.11ac(VHT20) UNII Band	**802.11n(HT40) UNII Band**
	
802.11ac(VHT40) UNII Band	**802.11ac(VHT80) UNII Band**
	

[ANT. 2]

▣ Test Plots(UNII 3 Band 6 dB Bandwidth)

802.11a UNII Band	802.11n(HT20) UNII Band
	
802.11ac(VHT20) UNII Band	**802.11n(HT40) UNII Band**
	
802.11ac(VHT40) UNII Band	**802.11ac(VHT80) UNII Band**
	

10.7.3 Output Power

[ANT. 1]

Mode	Frequency [MHz]	Channel	Measured Power [dBm]	Duty Cycle Factor [dB]	Total Power [dBm]	Limit [dBm]	Worstcase Datarate
802.11a	5720 (UNII 2C Band)	144	13.81	0.799	14.61	22.81	18 Mbps
802.11n(HT20)			12.60	2.172	14.77	22.88	MCS4
802.11ac(VHT20)			11.83	2.651	14.48	22.85	MCS5
802.11a	5720 (UNII 3 Band)	144	7.76	0.799	8.56	30.00	18 Mbps
802.11n(HT20)			7.12	2.172	9.29	30.00	MCS4
802.11ac(VHT20)			6.30	2.651	8.95	30.00	MCS5

Mode	Frequency [MHz]	Channel	Measured Power [dBm]	Duty Cycle Factor [dB]	Total Power [dBm]	Limit [dBm]	Worstcase Datarate
802.11n(HT40)	5710 (UNII 2C Band)	142	12.67	0.642	13.31	23.98	MCS0
802.11ac(VHT40)			12.61	0.639	13.25	23.98	MCS0
802.11n(HT40)	5710 (UNII 3 Band)	142	2.53	0.642	3.17	30.00	MCS0
802.11ac(VHT40)			2.46	0.639	3.10	30.00	MCS0

Mode	Frequency [MHz]	Channel	Measured Power [dBm]	Duty Cycle Factor [dB]	Total Power [dBm]	Limit [dBm]	Worstcase Datarate
802.11ac(VHT80)	5690 (UNII 2C Band)	138	9.78	2.786	12.56	23.98	MCS6
	5690 (UNII 3 Band)	138	-2.51	2.786	0.27	30.00	MCS6

[ANT. 2]

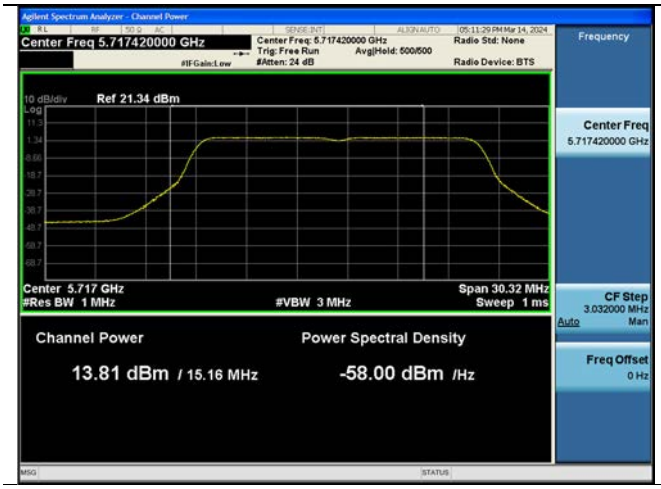
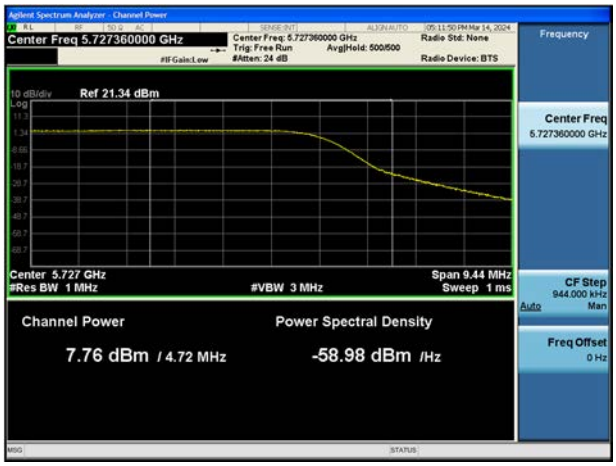
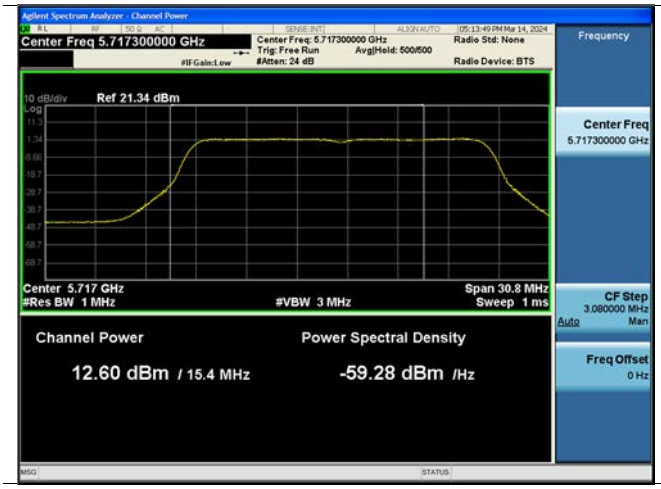
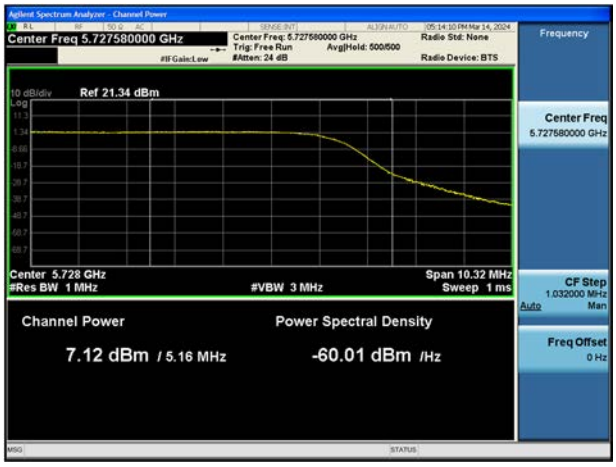
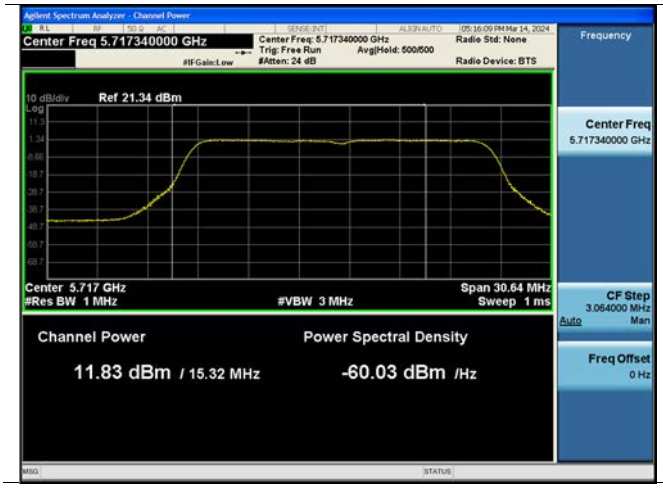
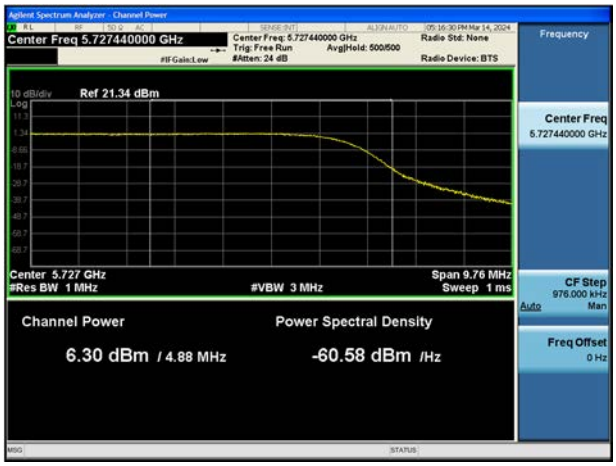
Mode	Frequency [MHz]	Channel	Measured Power [dBm]	Duty Cycle Factor [dB]	Total Power [dBm]	Limit [dBm]	Worstcase Datarate
802.11a	5720 (UNII 2C Band)	144	14.08	0.799	14.88	22.83	18 Mbps
802.11n(HT20)			12.85	2.172	15.02	22.92	MCS4
802.11ac(VHT20)			12.21	2.651	14.86	22.89	MCS5
802.11a	5720 (UNII 3 Band)	144	8.16	0.799	8.96	30.00	18 Mbps
802.11n(HT20)			6.81	2.172	8.98	30.00	MCS4
802.11ac(VHT20)			6.74	2.651	9.39	30.00	MCS5

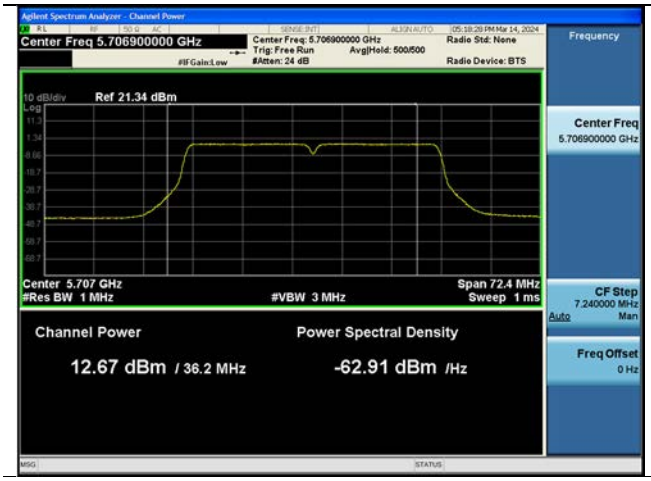
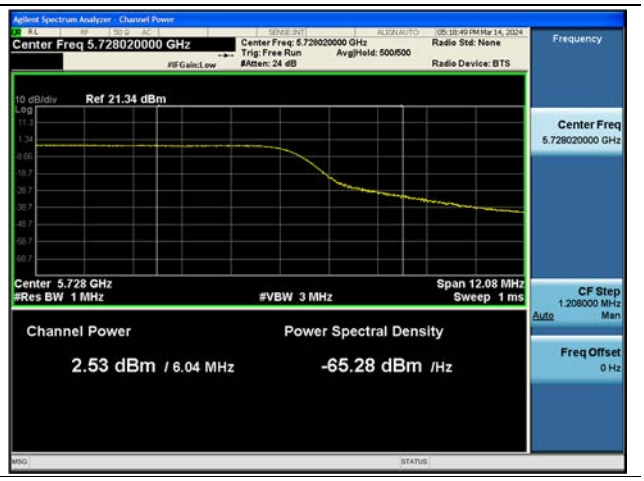
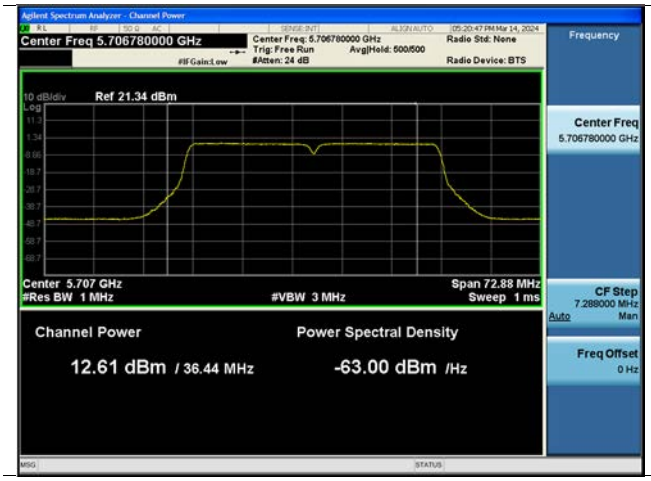
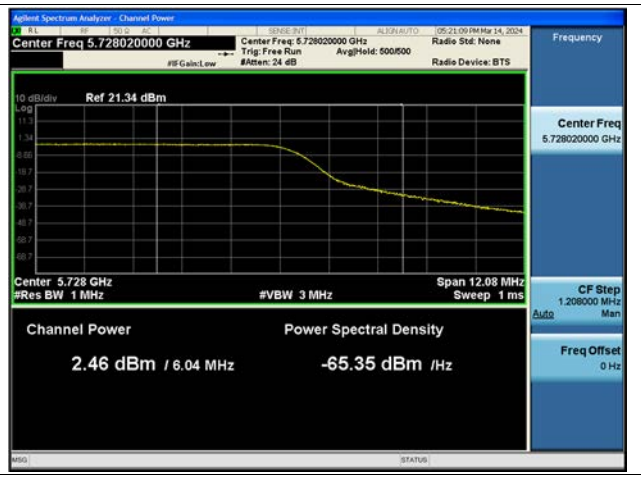
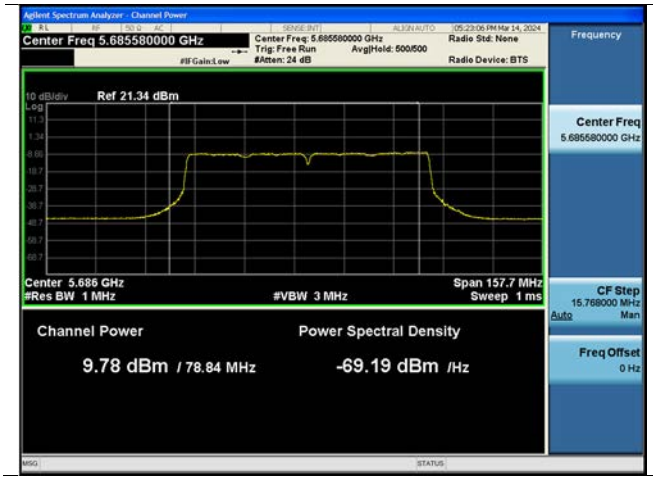
Mode	Frequency [MHz]	Channel	Measured Power [dBm]	Duty Cycle Factor [dB]	Total Power [dBm]	Limit [dBm]	Worstcase Datarate
802.11n(HT40)	5710 (UNII 2C Band)	142	13.31	0.642	13.95	23.98	MCS0
802.11ac(VHT40)			13.31	0.639	13.95	23.98	MCS0
802.11n(HT40)	5710 (UNII 3 Band)	142	3.00	0.642	3.64	30.00	MCS0
802.11ac(VHT40)			3.00	0.639	3.64	30.00	MCS0

Mode	Frequency [MHz]	Channel	Measured Power [dBm]	Duty Cycle Factor [dB]	Total Power [dBm]	Limit [dBm]	Worstcase Datarate
802.11ac(VHT80)	5690 (UNII 2C Band)	138	10.52	2.786	13.31	23.98	MCS6
	5690 (UNII 3 Band)	138	-1.47	2.786	1.32	30.00	MCS6

[ANT. 1]

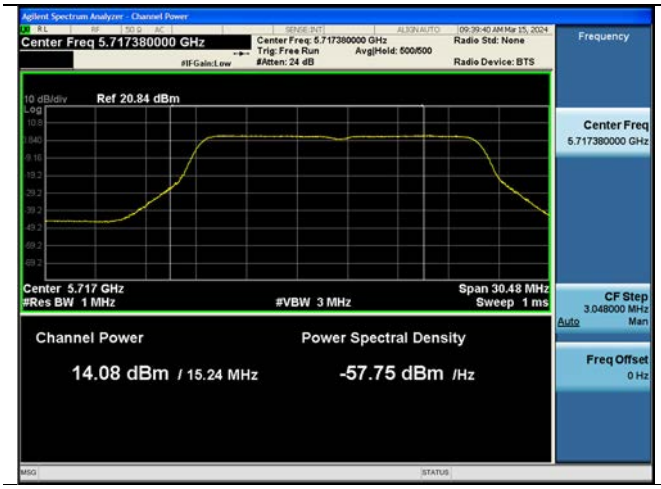
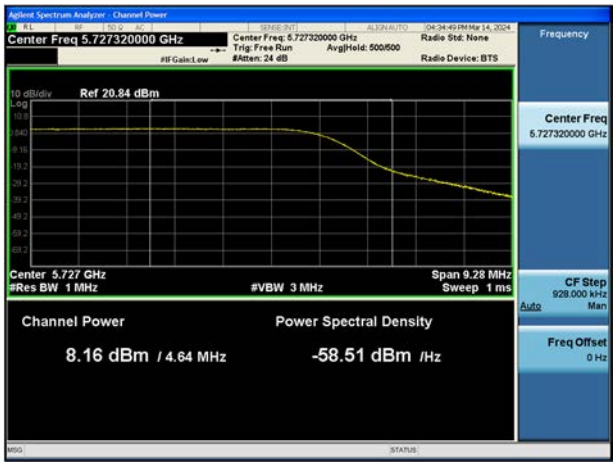
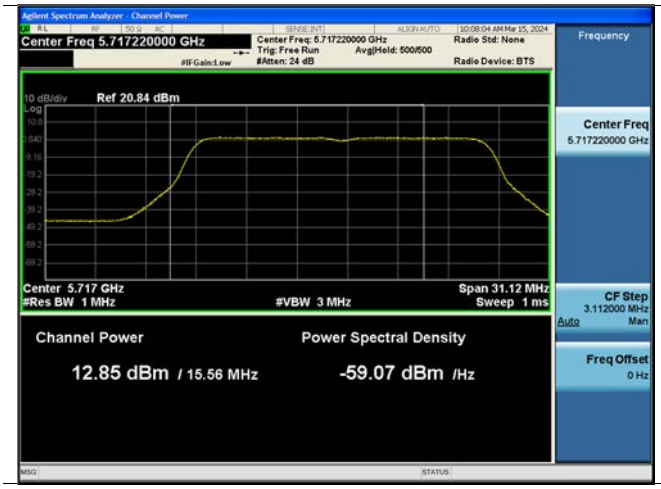
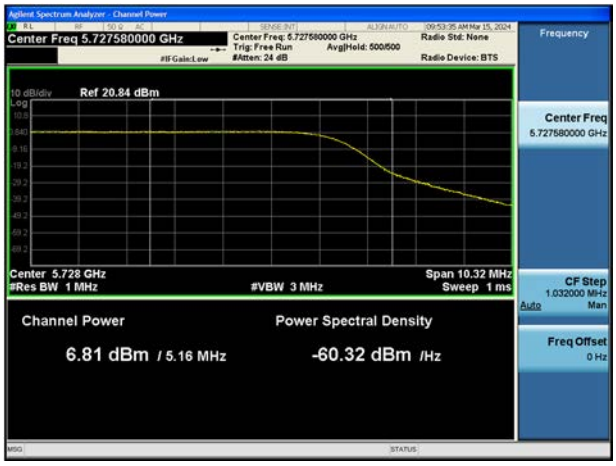
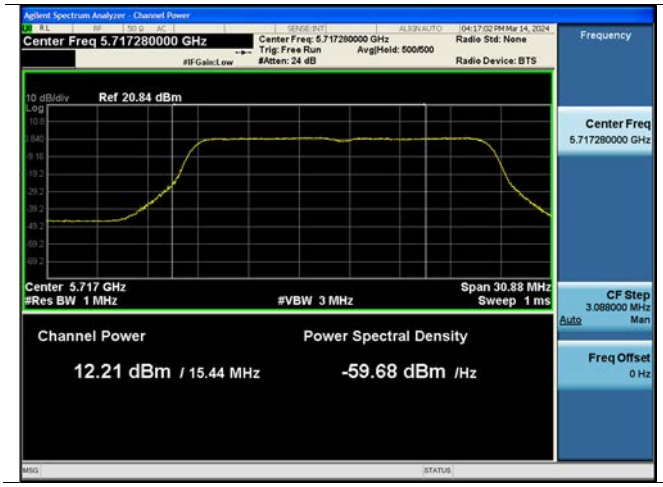
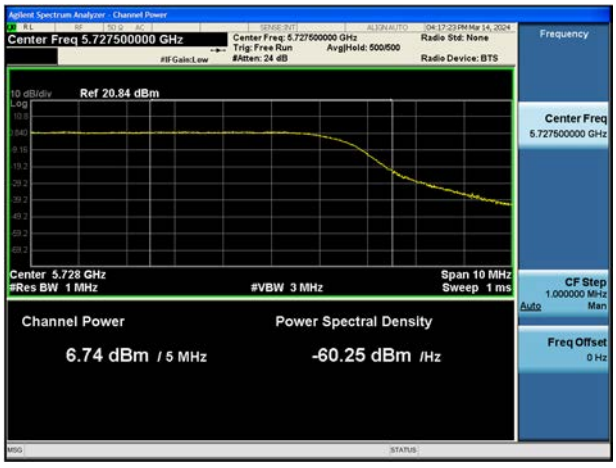
▣ Test Plots

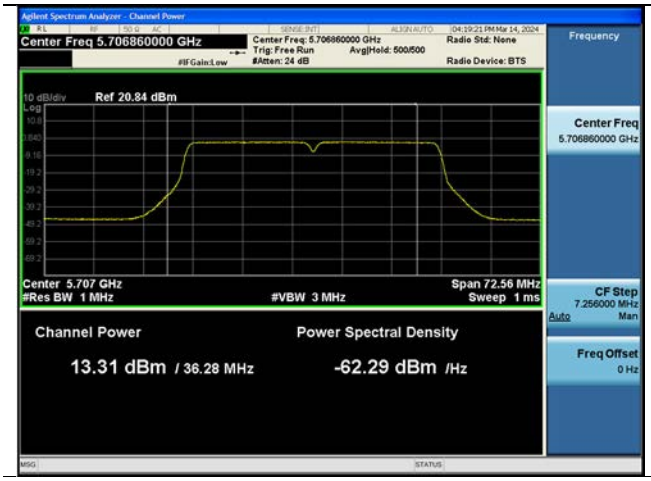
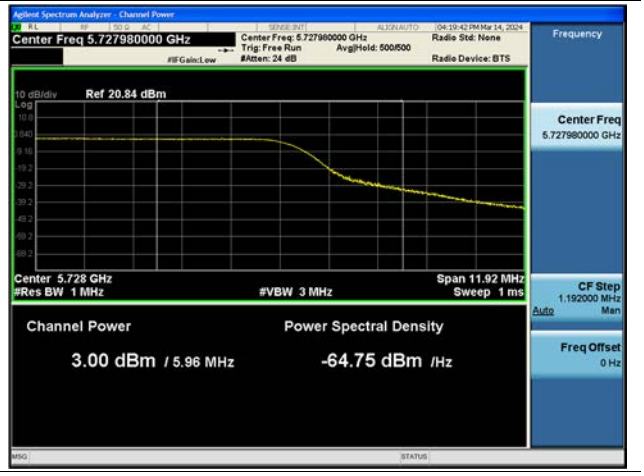
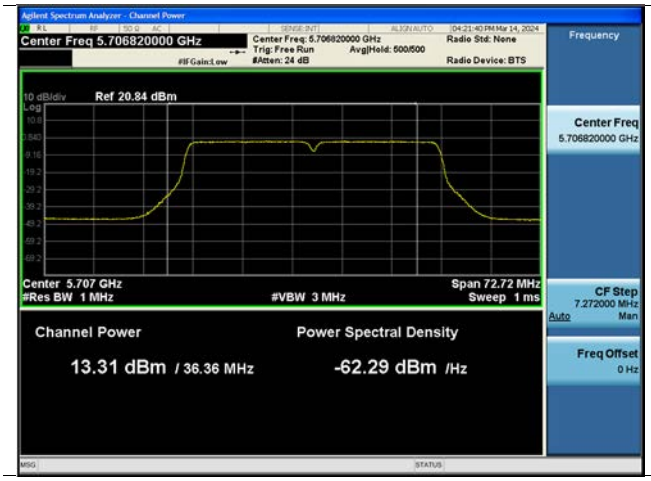
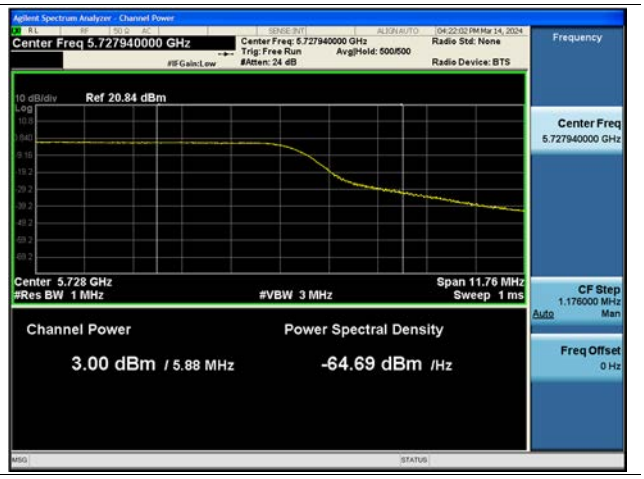
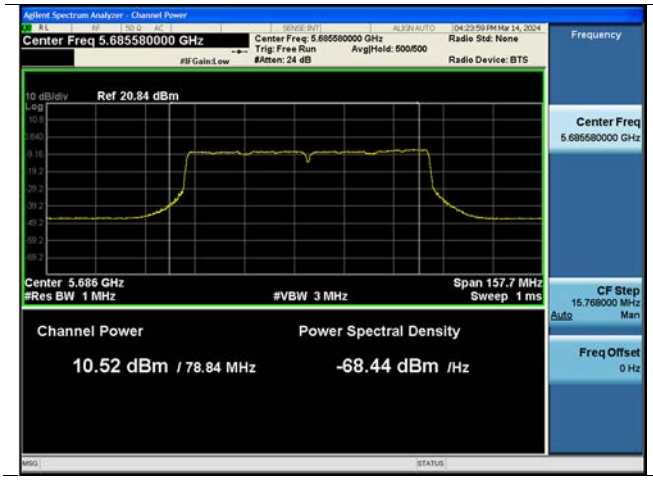
802.11a UNII 2C Band	802.11a UNII 3 Band
	
802.11n(HT20) UNII 2C Band	**802.11n(HT20) UNII 3 Band**
	
802.11ac(VHT20) UNII 2C Band	**802.11ac(VHT20) UNII 3 Band**
	

802.11n(HT40) UNII 2C Band	802.11n(HT40) UNII 3 Band
	
802.11ac(VHT40) UNII 2C Band	802.11ac(VHT40) UNII 3 Band
	
802.11ac(VHT80) UNII 2C Band	802.11ac(VHT80) UNII 3 Band
	

[ANT. 2]

▣ Test Plots

802.11a UNII 2C Band	802.11a UNII 3 Band
	
802.11n(HT20) UNII 2C Band	**802.11n(HT20) UNII 3 Band**
	
802.11ac(VHT20) UNII 2C Band	**802.11ac(VHT20) UNII 3 Band**
	

802.11n(HT40) UNII 2C Band	802.11n(HT40) UNII 3 Band
	
802.11ac(VHT40) UNII 2C Band	802.11ac(VHT40) UNII 3 Band
	
802.11ac(VHT80) UNII 2C Band	802.11ac(VHT80) UNII 3 Band
	

10.7.4 Power Spectral Density

[ANT. 1]

Mode	Frequency [MHz]	Channel	Measured Density [dBm]	Duty Cycle Factor [dB]	Total PSD [dBm]	Limit [dBm]	Worstcase Datarate
802.11a	5720 (UNII 2C Band)	144	3.372	0.799	4.171	11 dBm/ MHz	18 Mbps
802.11n(HT20)			2.310	2.172	4.482		MCS4
802.11ac(VHT20)			1.330	2.651	3.980		MCS5
802.11a	5720 (UNII 3 Band)	144	0.378	0.799	1.177	30 dBm/ 500 kHz	18 Mbps
802.11n(HT20)			-0.681	2.172	1.491		MCS4
802.11ac(VHT20)			-1.634	2.651	1.016		MCS5

Mode	Frequency [MHz]	Channel	Measured Density [dBm]	Duty Cycle Factor [dB]	Total PSD [dBm]	Limit [dBm]	Worstcase Datarate
802.11n(HT40)	5710 (UNII 2C Band)	142	-1.602	0.642	-0.960	11 dBm/ MHz	MCS0
802.11ac(VHT40)			-1.615	0.639	-0.976		MCS0
802.11n(HT40)	5710 (UNII 3 Band)	142	-4.809	0.642	-4.168	30 dB m/500 kHz	MCS0
802.11ac(VHT40)			-4.927	0.639	-4.288		MCS0

Mode	Frequency [MHz]	Channel	Measured Density [dBm]	Duty Cycle Factor [dB]	Total PSD [dBm]	Limit [dBm]	Worstcase Datarate
802.11ac(VHT80)	5690 (UNII 2C Band)	138	-7.426	2.786	-4.640	11 dBm/ MHz	MCS6
	5690 (UNII 3 Band)	138	-9.974	2.786	-7.188	30 dB m/500 kHz	MCS6

[ANT. 2]

Mode	Frequency [MHz]	Channel	Measured Density [dBm]	Duty Cycle Factor [dB]	Total PSD [dBm]	Limit [dBm]	Worstcase Datarate
802.11a	5720 (UNII 2C Band)	144	3.910	0.799	4.709	11 dBm/ MHz	18 Mbps
802.11n(HT20)			2.733	2.172	4.905		MCS4
802.11ac(VHT20)			1.959	2.651	4.610		MCS5
802.11a	5720 (UNII 3 Band)	144	0.991	0.799	1.791	30 dB m/500 kHz	18 Mbps
802.11n(HT20)			-0.227	2.172	1.945		MCS4
802.11ac(VHT20)			-0.693	2.651	1.958		MCS5

Mode	Frequency [MHz]	Channel	Measured Density [dBm]	Duty Cycle Factor [dB]	Total PSD [dBm]	Limit [dBm]	Worstcase Datarate
802.11n(HT40)	5710 (UNII 2C Band)	142	-0.907	0.642	-0.265	11 dBm/ MHz	MCS0
802.11ac(VHT40)			-0.981	0.639	-0.342		MCS0
802.11n(HT40)	5710 (UNII 3 Band)	142	-4.395	0.642	-3.754	30 dB m/500 kHz	MCS0
802.11ac(VHT40)			-4.316	0.639	-3.677		MCS0

Mode	Frequency [MHz]	Channel	Measured Density [dBm]	Duty Cycle Factor [dB]	Total PSD [dBm]	Limit [dBm]	Worstcase Datarate
802.11ac(VHT80)	5690 (UNII 2C Band)	138	-6.596	2.786	-3.810	11 dBm/ MHz	MCS6
	5690 (UNII 3 Band)	138	-8.979	2.786	-6.194	30 dB m/500 kHz	MCS6