74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA
TEL: +82-31-645-6300 FAX: +82-31-645-6401

FCC UNII REPORT

Certification

Applicant Name:
SAMSUNG Electronics Co., Ltd.

Address:
129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea

Date of Issue:
October 17, 2023

Test Site/Location:
74, Seoicheon-ro 578 beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383 KOREA

Report No.: HCT-RF-2310-FC055

FCC ID:	**A3LSMS926B**
APPLICANT:	**SAMSUNG Electronics Co., Ltd.**
Model:	SM-S926B/DS
Additional Model:	SM-S926B
EUT Type:	Mobile phone
Modulation type	OFDM
FCC Classification:	Unlicensed National Information Infrastructure(NII)
FCC Rule Part(s):	Part 15.407

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.

REVIEWED BY

Report prepared by : Kyung Jun Woo
Engineer of Telecommunication Testing Center

Report approved by : Jong Seok Lee
Manager of Telecommunication Testing Center

The result shown in this test report refer only to the sample(s) tested unless otherwise stated.
This test results were applied only to the test methods required by the standard.

Test Report Statement:
The above Test Report is not related to the accredited test result by (KS Q) ISO/IEC 17025 and KOLAS(Korea Laboratory Accreditation Scheme), which signed the ILAC-MRA.

Version

TEST REPORT NO.	DATE	DESCRIPTION
HCT-RF-2310-FC055	October 17, 2023	- First Approval Report

Table of Contents

1. GENERAL INFORMATION

EUT DESCRIPTION

Model	SM-S926B/DS	
Additional Model	SM-S926B	
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	
Date(s) of Tests	August 30, 2023 ~ October 13, 2023	
Serial number	Radiated: R3CW70NE10P Conducted : 7414f9c84c0f7ece	

□

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 + 5 GHz WiFi MIMO	on	on	on	on					Scenario1
2.4 GHz WiFi MIMO + 6 GHz WiFi MIMO	on	on			on	on			
Bluetooth ANT.1 + 2.4 GHz WiFi ANT.2 + 5 GHz WiFi MIMO		on	on	on			on		Scenario2
Bluetooth ANT.1 + 2.4 GHz WiFi ANT.2 + 6 GHz WiFi MIMO		on			on	on	on		
Dual Bluetooth + 5 GHz WiFi MIMO			on	on			on	on	Scenario3
Dual Bluetooth + 6 GHz WiFi MIMO					on	on	on	on	

3. Directional Gain Calculation

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

Directional gain(CDD) =

$$\bullet \quad DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$$

Directional gain(SDM) = $G_{max} + 10 \cdot \log(N_{ANT}/ N_{ss})$,

Band	Ant Gain (dBi)		N_{ANT}/ N_{ss}	Directional Gain CDD (dBi)	Directional Gain SDM (dBi)
	ANT1	ANT2			
UNII 1	-5.14	-5.33	CDD 2 / 1 SDM 2 / 2	-2.22	-5.14
UNII 2A	-4.32	-4.76		-1.53	-4.32
UNII 2C	-3.65	-6.28		-1.86	-3.65
UNII 3	-4.06	-5.53		-1.75	-4.06
UNII 4	-4.49	-5.25		-1.85	-4.49

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) = $10 \cdot \log(((10^{(ANT1\ Gain/20)}+10^{(ANT2\ Gain/20)})^2)/2)$ dBi

Directional gain(SDM) = $G_{max} + 10 \cdot \log(N_{ANT}/ N_{ss})$,

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(Ant1+Ant2)					
		Ant.1 Power		Ant.2 Power		Ant.1 + Ant.2 Power	
		(dBm)	(W)	(dBm)	(W)	(dBm)	(W)
UNII1	802.11a	15.41	0.035	15.03	0.032	18.23	0.067
	802.11n (HT20)	15.53	0.036	15.36	0.034	18.46	0.070
	802.11n (HT40)	14.59	0.029	14.20	0.026	17.41	0.055
	802.11ac (VHT20)	15.35	0.034	15.41	0.035	18.39	0.069
	802.11ac (VHT40)	14.76	0.030	14.20	0.026	17.50	0.056
	802.11ac (VHT80)	13.79	0.024	13.49	0.022	16.65	0.046
UNII2A	802.11a	14.78	0.030	15.55	0.036	18.19	0.066
	802.11n (HT20)	15.09	0.032	15.45	0.035	18.29	0.067
	802.11n (HT40)	14.05	0.025	14.67	0.029	17.38	0.055
	802.11ac (VHT20)	14.96	0.031	15.53	0.036	18.26	0.067
	802.11ac (VHT40)	14.21	0.026	14.70	0.029	17.47	0.056
	802.11ac (VHT80)	13.42	0.022	13.65	0.023	16.55	0.045
UNII2C	802.11a	15.25	0.033	15.38	0.035	18.32	0.068
	802.11n (HT20)	14.90	0.031	15.47	0.035	18.21	0.066
	802.11n (HT40)	13.95	0.025	14.49	0.028	17.24	0.053
	802.11ac (VHT20)	14.81	0.030	15.52	0.036	18.19	0.066
	802.11ac (VHT40)	14.12	0.026	14.50	0.028	17.32	0.054
	802.11ac (VHT80)	13.19	0.021	13.48	0.022	16.35	0.043
UNII3	802.11a	14.60	0.029	15.12	0.032	17.88	0.061
	802.11n (HT20)	14.63	0.029	15.19	0.033	17.93	0.062
	802.11n (HT40)	13.89	0.024	14.18	0.026	17.05	0.051
	802.11ac (VHT20)	14.50	0.028	15.19	0.033	17.87	0.061
	802.11ac (VHT40)	14.03	0.025	14.17	0.026	17.11	0.051
	802.11ac (VHT80)	13.19	0.021	13.33	0.022	16.27	0.042
UNII4 (Conducted For inf.)	802.11a	15.45	0.035	15.31	0.034	18.39	0.069
	802.11n (HT20)	15.54	0.036	15.36	0.034	18.46	0.070
	802.11n (HT40)	14.49	0.028	14.60	0.029	17.55	0.057
	802.11ac (VHT20)	15.56	0.036	15.38	0.035	18.48	0.070
	802.11ac (VHT40)	14.46	0.028	14.53	0.028	17.50	0.056
	802.11ac (VHT80)	13.67	0.023	13.64	0.023	16.67	0.046
UNII1-2A	802.11ac (VHT160)	12.94	0.020	13.32	0.021	16.15	0.041
UNII2C	802.11ac (VHT160)	12.42	0.017	13.17	0.021	15.82	0.038
UNII3&4	802.11ac (VHT160)	13.42	0.022	13.18	0.021	16.31	0.043

Band	Mode	MIMO_CDD(Ant1+Ant2) (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	15.45	-4.49	10.96	0.012	15.31	-5.25	10.06	0.010	18.39	-1.85	16.54	0.045
	802.11n (HT20)	15.54	-4.49	11.05	0.013	15.36	-5.25	10.11	0.010	18.46	-1.85	16.61	0.046
	802.11n (HT40)	14.49	-4.49	10.00	0.010	14.60	-5.25	9.35	0.009	17.55	-1.85	15.70	0.037
	802.11ac (VHT20)	15.56	-4.49	11.07	0.013	15.38	-5.25	10.13	0.010	18.48	-1.85	16.63	0.046
	802.11ac (VHT40)	14.46	-4.49	9.97	0.010	14.53	-5.25	9.28	0.008	17.50	-1.85	15.65	0.037
	802.11ac (VHT80)	13.67	-4.49	9.18	0.008	13.64	-5.25	8.39	0.007	16.67	-1.85	14.82	0.030
	802.11ac (VHT160)	13.42	-4.49	8.93	0.008	13.18	-5.25	7.93	0.006	16.31	-1.85	14.46	0.028

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 detector 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 31, 2022 (CAB identifier: 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 detectors 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.

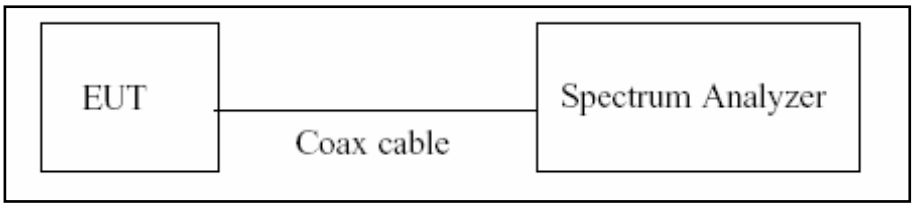
The measurement data shown herein meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Parameter	Expanded Uncertainty (dB)
Conducted Disturbance (150 kHz ~ 30 MHz)	1.90 (Confidence level about 95 %, k=2)
Radiated Disturbance (9 kHz ~ 30 MHz)	4.14 (Confidence level about 95 %, k=2)
Radiated Disturbance (30 MHz ~ 1 GHz)	5.82 (Confidence level about 95 %, k=2)
Radiated Disturbance (1 GHz ~ 18 GHz)	5.74 (Confidence level about 95 %, k=2)
Radiated Disturbance (18 GHz ~ 40 GHz)	5.76 (Confidence level about 95 %, k=2)
Radiated Disturbance (Above 40 GHz)	5.52 (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.

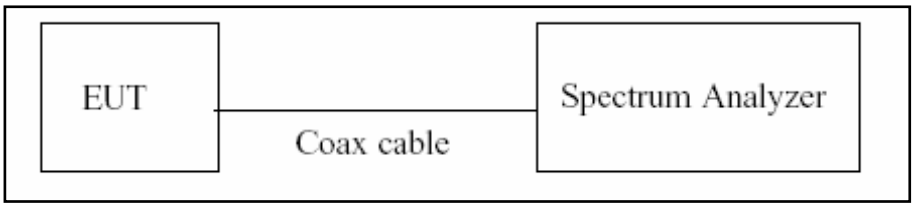
1. RBW = 8 MHz (the largest availble value)
2. VBW = 8 MHz (≥ RBW)
3. SPAN = 0 Hz
4. Detector = Peak
5. Number of points in sweep > 100
6. Trace mode = Clear write
7. Measure T_{total} and T_{on}
8. Calculate Duty Cycle = T_{on}/ T_{total} and Duty Cycle Factor = 10log(1/Duty Cycle)

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.

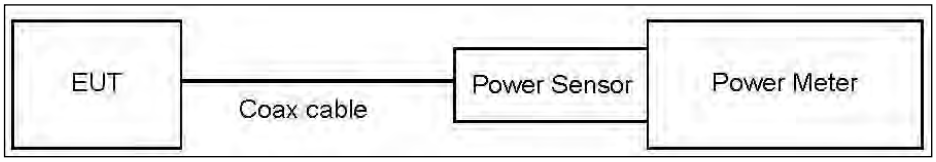
8.3. Output Power Measurement

Limit

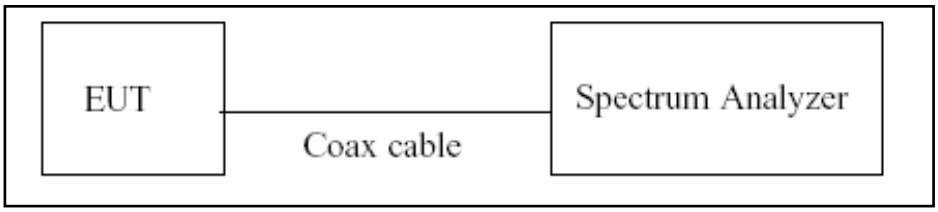
Band	Limit
UNII 1	- Master : Not exceed 1 W(=30 dBm) - Slave : Not exceed 250 mW(=23.98 dBm)
UNII 2A, 2C	Not exceed the lesser of 250 mW or 11 dBm + 10 log B, (where B is the 26 dB emission bandwidth in megahertz.)
UNII 3	Not exceed 1 W(=30 dBm)
UNII 4	EIRP 30 dBm

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. Detector = 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	12.62	12.86
UNII 2A	12.62	12.86
UNII 2C	12.62	12.86
UNII 3&4	12.62	12.86

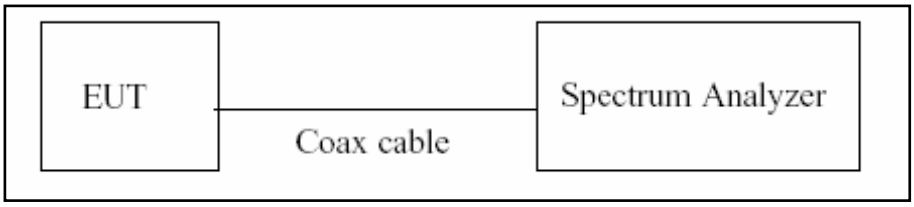
(Actual value of loss for the attenuator and cable combination)

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. Detector = RMS(i.e., power averaging), if available. Otherwise, use sample detector 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	12.62	12.86
UNII 2A	12.62	12.86
UNII 2C	12.62	12.86
UNII 3&4	12.62	12.86

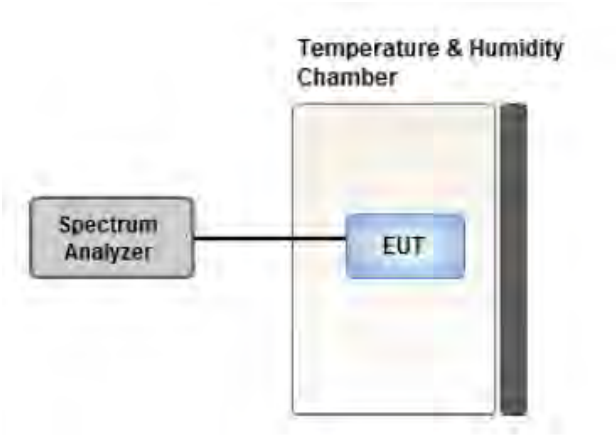
(Actual value of loss for the attenuator and cable combination)

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 ℃ and 50 ℃.
2. The temperature was incremented by 10 ℃ 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. Detectors : Quasi Peak and Average Detector.

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 an 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.

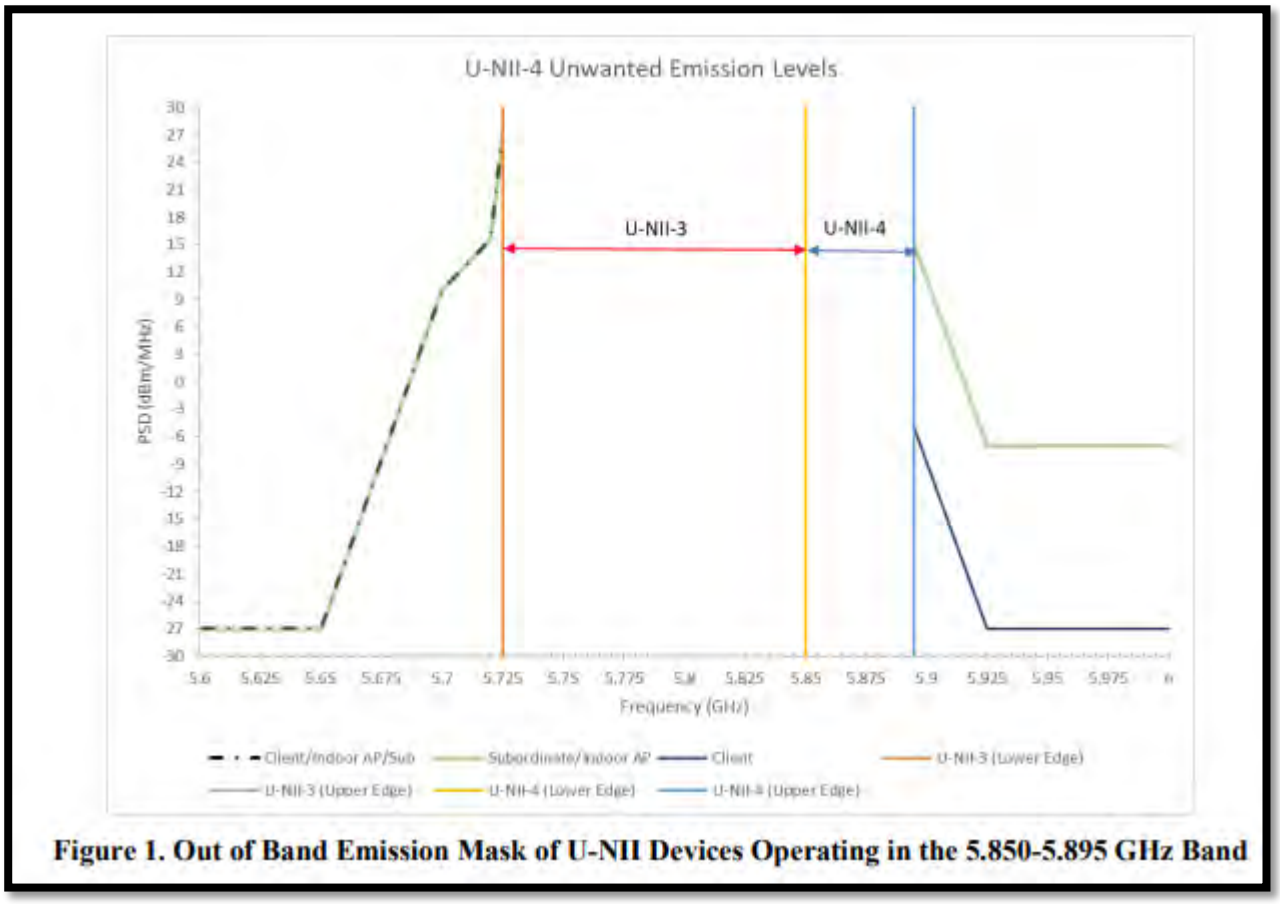


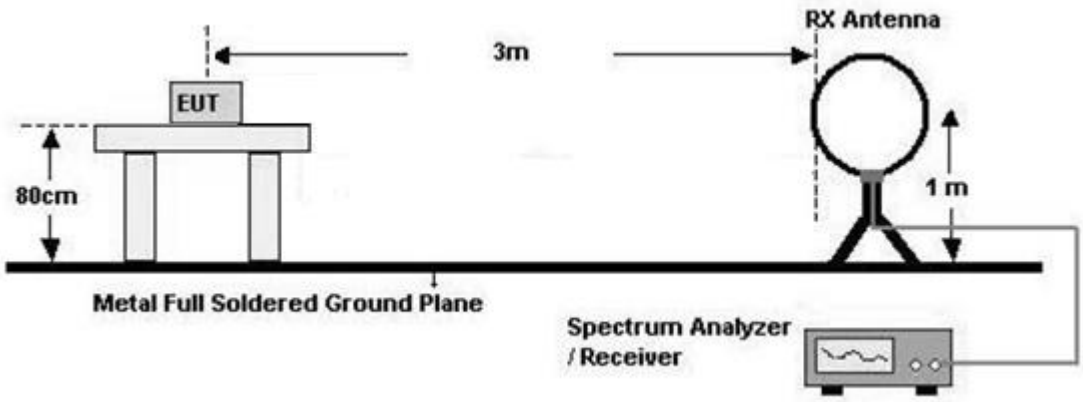
Figure 1. Out of Band Emission Mask of U-NII Devices Operating in the 5.850-5.895 GHz Band

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.

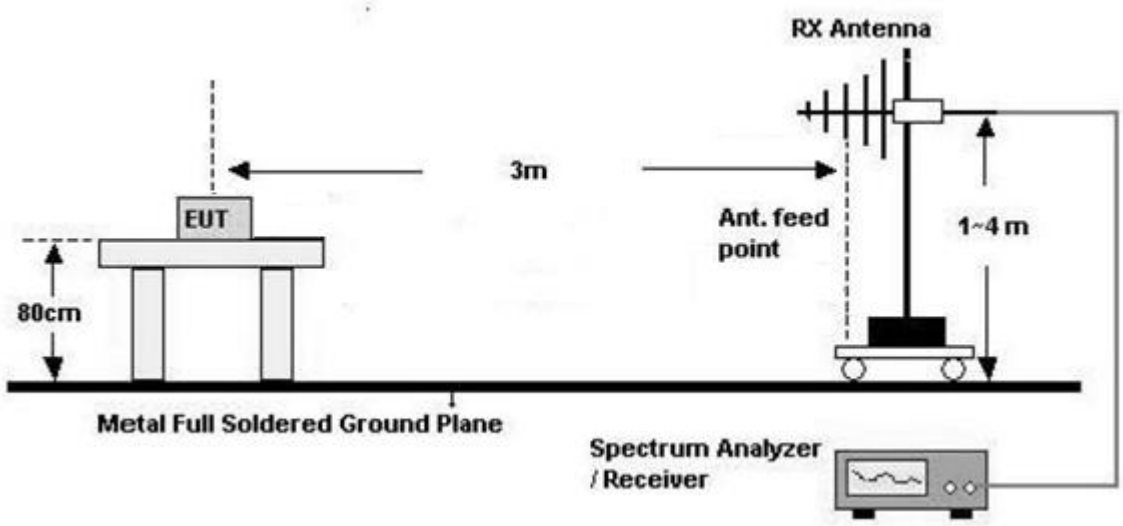
Frequency (MHz)	Field Strength (μV/m)	Measurement Distance (m)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Test Configuration

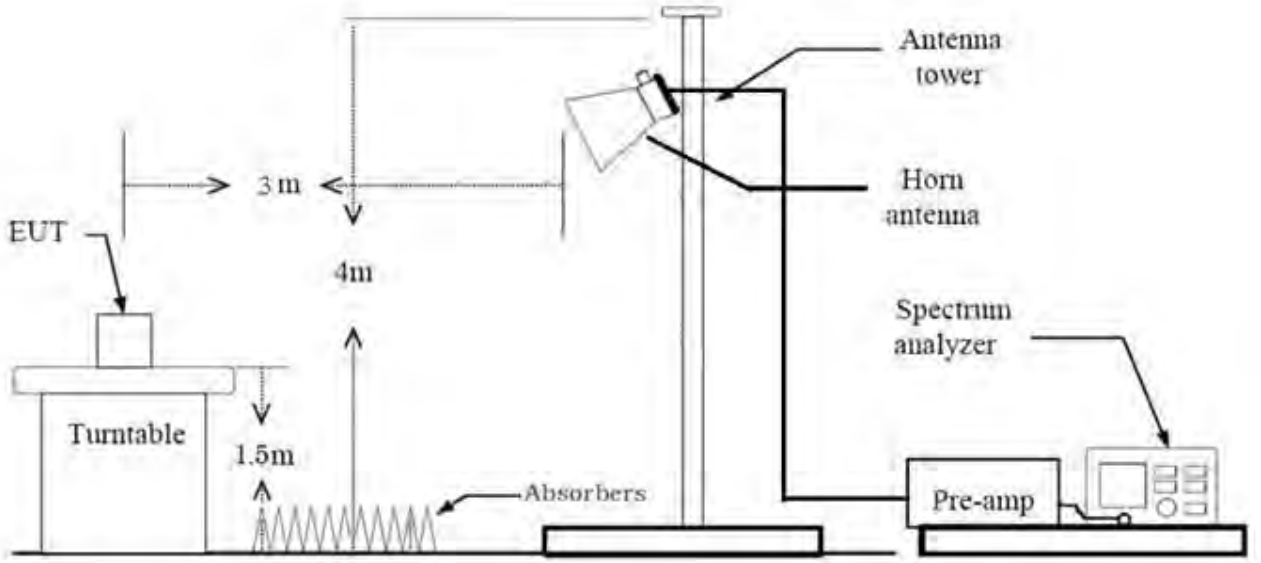
Below 30 MHz



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 0.8 m 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 = Maxhold
   - 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 0.8 m 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 = Maxhold
      - 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 %) = VBW ≤ RBW/100(i.e., 10 kHz) but not less than 10 Hz.
- VBW(Duty cycle is < 98 %) = 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 % duty cycle. For lower duty cycles, increase the minimym 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

(1)Measurement(Peak)

= Measured Value(Peak)

(2)Measurement(Avg)

= Measured Value (Avg)

- We apply to the offset in the range 1 GHz - 18 GHz.
- The offset = Antenna Factor(A.F) + Cable Loss(C.L) + Distance Factor(D.F) – Amp. Gain(A.G)

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 %) = VBW ≤ RBW/100(i.e., 10 kHz) but not less than 10 Hz.
   - VBW(Duty cycle is < 98 %) = 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 % duty cycle. For lower duty cycles, increase the minimym 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
   (1)Measurement(Peak)
   = Measured Value(Peak)
   (2)Measurement(Avg)
   = Measured Value (Avg)
   - We apply to the offset in the range 1 GHz - 18 GHz.
   - The offset = Antenna Factor(A.F) + Cable Loss(C.L) + Distance Factor(D.F) – Amp. Gain(A.G)

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	0.934	0.299	1000
802.11n(HT20)	MCS0	0.924	0.341	1000
802.11n(HT40)	MCS0	0.863	0.639	2000
802.11ac(VHT20)	MCS0	0.927	0.330	1000
802.11ac(VHT40)	MCS0	0.865	0.628	2000
802.11ac(VHT80)	MCS0	0.760	1.191	5000
802.11ac(VHT160)	MCS0	0.566	2.471	10000

8.8. Worst case configuration and mode

Conducted test

1. All datarate of operation were investigated and the worst case datarate results are reported.
2. SM-S926B/DS, SM-S926B were tested and the worst case results are reported.

(Worst case : SM-S926B/DS)

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. EUT Axis
   - Radiated Spurious Emissions : Y
   - Radiated Restricted Band Edge : Z
3. 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
4. Radiated Spurious Emission
   - All modulation of operation were investigated and the worst case modulation results are reported.

     Worst-case : 802.11a_6 Mbps
5. 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(DBS)

1. All modes of operation were investigated and the worst case configuration results are reported.
   - Mode : Stand alone, Stand alone + External accessories(Earphone, Keyboard, etc)
   - Worstcase : Stand alone
2. EUT Axis
   - Radiated Spurious Emissions : X
3. All of RSDB Scenario were investigated and the worst case configuration results are reported.

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 + 5 GHz WiFi MIMO	on	on	on	on					Scenario1
2.4 GHz WiFi MIMO + 6 GHz WiFi MIMO	on	on			on	on			
Bluetooth ANT.1 + 2.4 GHz WiFi ANT.2 + 5 GHz WiFi MIMO		on	on	on			on		Scenario2
Bluetooth ANT.1 + 2.4 GHz WiFi ANT.2 + 6 GHz WiFi MIMO		on			on	on	on		
Dual Bluetooth + 5 GHz WiFi MIMO			on	on			on	on	Scenario3
Dual Bluetooth + 6 GHz WiFi MIMO					on	on	on	on	

4. The RSDB mode test investigated both intermodulation and radiated spurious emissions.
   And the worst results were reported.
   - Worst result: Radiated spurious emissions
   - Intermodulation: No signals are generated.
   - Radiated spurious emissions: cf. Section 10.6.2.

5. The following tables show the worst case configurations determined during testing.

(Worst case: The lowest margin condition the channels and modes were selected for test.)

RSDB Scenario 1	Description	2.4GHz Emission	5 GHz Emission
2.4 GHz WiFi MIMO + 5 GHz WiFi MIMO	Antenna	Ant All	Ant All
	Channel	11	100
	Data Rate	1 Mbps	6 Mbps
	Mode	802.11b	802.11a

Note : DTS RSDB Data refer to [DTS] Test Report

RSDB Scenario 2	Description	Bluetooth Emission	2.4GHz Emission	5 GHz Emission
Bluetooth ANT.1 + 2.4 GHz WiFi ANT.2 + 5 GHz WiFi MIMO	Antenna	ANT1	ANT2	Ant All
	Channel	39	11	100
	Data Rate	1 Mbps	1 Mbps	6 Mbps
	Mode	GFSK	802.11b	802.11a

Note : DTS, BT RSDB Data refer to [DTS], [BT] Test Report

RSDB Scenario 3	Description	Bluetooth Emission	5 GHz Emission
Dual Bluetooth + 5 GHz WiFi MIMO	Antenna	Dual	Ant All
	Channel	0	100
	Data Rate	1 Mbps	6 Mbps
	Mode	GFSK	802.11a

Note : BT RSDB Data refer to [BT] Test Report

6. SM-S926B/DS, SM-S926B were tested and the worst case results are reported.

(Worst case : SM-S926B/DS)

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

2. SM-S926B/DS, SM-S926B were tested and the worst case results are reported.

(Worst case : SM-S926B/DS)

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	1.461	1.565	0.934	0.299
	9	0.985	1.084	0.909	0.415
	12	0.745	0.844	0.883	0.541
	18	0.507	0.603	0.840	0.755
	24	0.388	0.484	0.801	0.963
	36	0.266	0.365	0.729	1.372
	48	0.205	0.350	0.587	2.314
	54	0.185	0.347	0.533	2.734

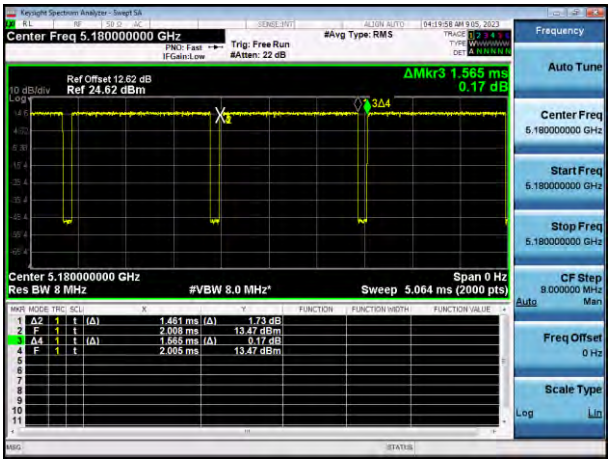
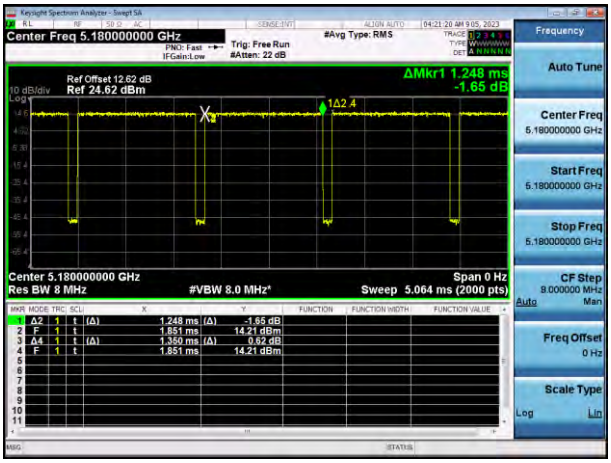
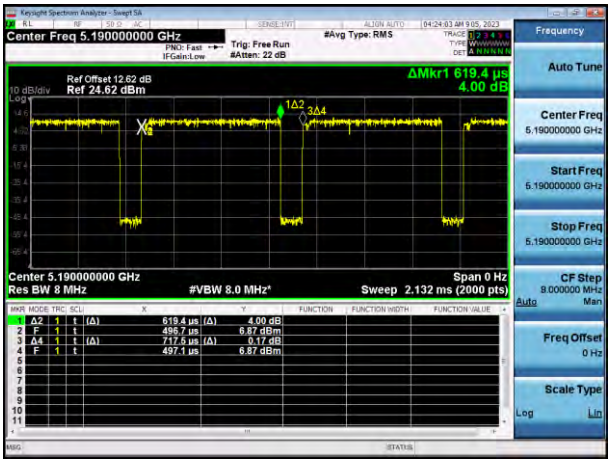
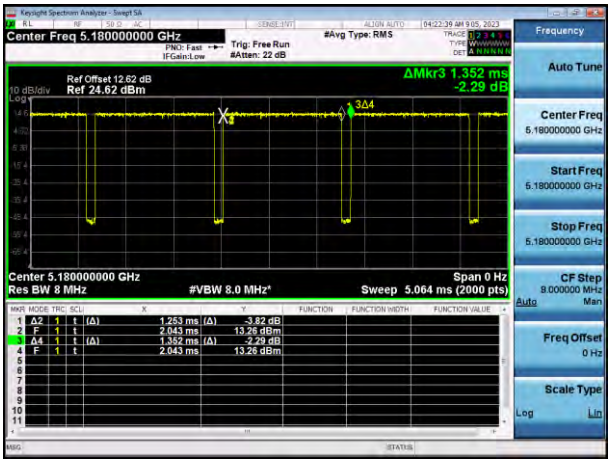
Mode	MCS Index	T_{on} (ms)	T_{total} (ms)	Duty Cycle	Duty Cycle Factor(dB)
802.11n (HT20)	0	1.248	1.350	0.924	0.341
	1	0.646	0.745	0.867	0.618
	2	0.441	0.540	0.817	0.878
	3	0.342	0.441	0.776	1.102
	4	0.243	0.347	0.701	1.544
	5	0.190	0.352	0.540	2.680
	6	0.175	0.352	0.496	3.042
	7	0.162	0.350	0.464	3.337
802.11n (HT40)	0	0.619	0.718	0.863	0.639
	1	0.327	0.426	0.768	1.147
	2	0.231	0.375	0.615	2.112
	3	0.182	0.372	0.490	3.100
	4	0.134	0.377	0.356	4.489
	5	0.111	0.372	0.299	5.239
	6	0.104	0.372	0.279	5.545
	7	0.096	0.375	0.257	5.905

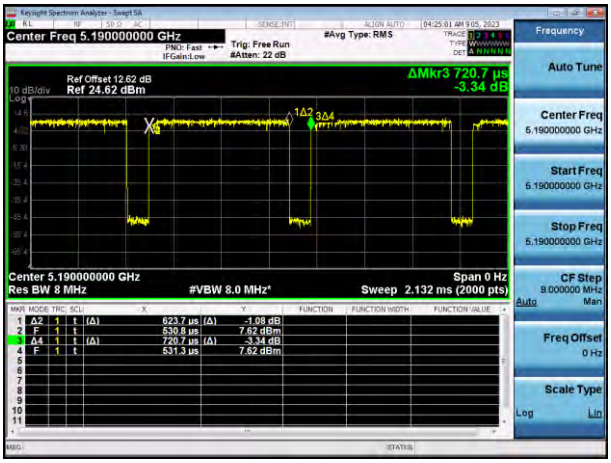
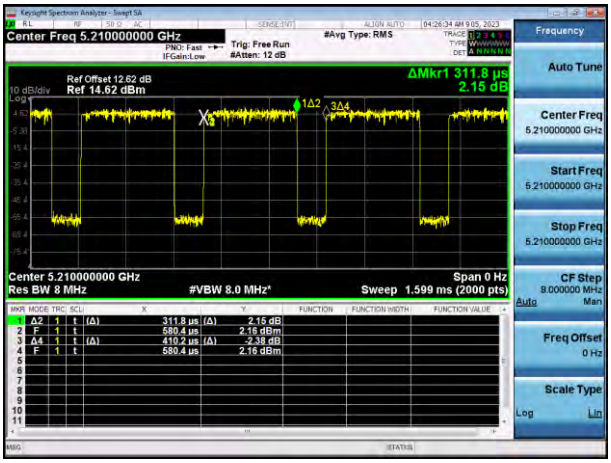
Mode	MCS Index	T_{on} (ms)	T_{total} (ms)	Duty Cycle	Duty Cycle Factor(dB)
802.11ac (VHT20)	0	1.253	1.352	0.927	0.330
	1	0.649	0.747	0.868	0.616
	2	0.446	0.545	0.819	0.869
	3	0.345	0.443	0.777	1.095
	4	0.246	0.352	0.698	1.562
	5	0.193	0.345	0.559	2.527
	6	0.175	0.357	0.489	3.104
	7	0.167	0.345	0.485	3.140
	8	0.144	0.342	0.422	3.745
802.11ac (VHT40)	0	0.624	0.721	0.865	0.628
	1	0.332	0.431	0.771	1.132
	2	0.236	0.370	0.637	1.959
	3	0.187	0.393	0.477	3.211
	4	0.139	0.400	0.348	4.583
	5	0.114	0.367	0.310	5.082
	6	0.109	0.367	0.297	5.279
	7	0.099	0.377	0.262	5.821
	8	0.094	0.370	0.253	5.962
	9	0.084	0.370	0.226	6.458
802.11ac (VHT80)	0	0.312	0.410	0.760	1.191
	1	0.196	0.329	0.595	2.254
	2	0.132	0.301	0.437	3.595
	3	0.109	0.296	0.368	4.347
	4	0.089	0.294	0.302	5.204
	5	0.079	0.301	0.261	5.842
	6	0.073	0.296	0.248	6.058
	7	0.068	0.291	0.235	6.293
	8	0.058	0.268	0.217	6.627
	9	0.057	0.266	0.214	6.690

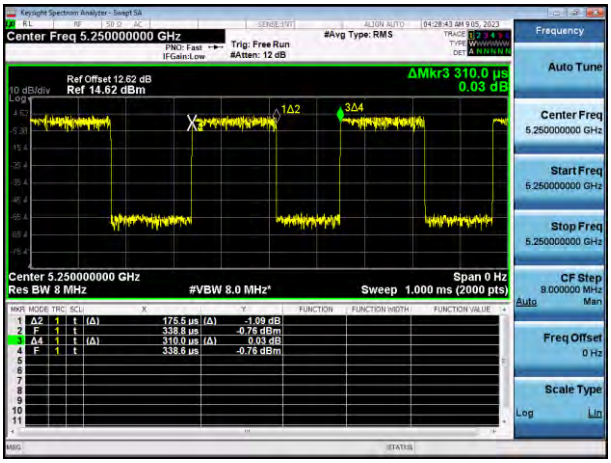
Mode	MCS Index	T_{on} (ms)	T_{total} (ms)	Duty Cycle	Duty Cycle Factor(dB)
802.11ac (VHT160)	0	0.176	0.310	0.566	2.471
	1	0.109	0.314	0.347	4.600
	2	0.089	0.319	0.278	5.563
	3	0.076	0.317	0.240	6.198
	4	0.066	0.314	0.210	6.784
	5	0.061	0.322	0.189	7.236
	6	0.058	0.318	0.183	7.370
	7	0.056	0.317	0.176	7.545
	8	0.051	0.306	0.166	7.794
	9	0.050	0.306	0.163	7.868

Note:

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

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]

802.11a Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5180	36	21.05	16.611
5200	40	20.99	16.637
5240	48	20.95	16.629
5260	52	21.04	16.627
5300	60	21.06	16.635
5320	64	20.88	16.609
5500	100	20.98	16.618
5600	120	21.37	16.625
5720	144	21.34	16.624
5745	149	21.06	16.624
5785	157	20.97	16.621
5825	165	21.03	16.625
5845	169	21.10	16.631
5865	173	20.91	16.631
5885	177	21.17	16.607

802.11n(HT20) Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5180	36	21.67	17.771
5200	40	21.39	17.782
5240	48	21.43	17.763
5260	52	21.62	17.767
5300	60	21.34	17.773
5320	64	21.37	17.760
5500	100	21.34	17.772
5600	120	21.43	17.769
5720	144	21.42	17.773
5745	149	21.39	17.765
5785	157	21.38	17.770
5825	165	21.76	17.790
5845	169	21.29	17.770
5865	173	21.50	17.777
5885	177	21.32	17.769

802.11ac(VHT20) Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5180	36	21.69	17.781
5200	40	21.17	17.777
5240	48	21.49	17.765
5260	52	21.10	17.778
5300	60	21.32	17.779
5320	64	21.44	17.782
5500	100	21.48	17.755
5600	120	21.37	17.775
5720	144	21.46	17.776
5745	149	21.07	17.775
5785	157	21.41	17.788
5825	165	21.59	17.776
5845	169	21.50	17.787
5865	173	21.42	17.788
5885	177	21.37	17.788

802.11n(HT40) Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5190	38	42.12	36.404
5230	46	42.15	36.401
5270	54	42.15	36.399
5310	62	42.17	36.389
5510	102	42.53	36.454
5590	118	42.50	36.416
5710	142	42.30	36.425
5755	151	42.46	36.409
5795	159	42.27	36.410
5835	167	42.23	36.434
5875	175	42.12	36.408

802.11ac(VHT40) Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5190	38	42.13	36.391
5230	46	42.23	36.392
5270	54	42.25	36.415
5310	62	42.32	36.398
5510	102	42.69	36.428
5590	118	42.63	36.427
5710	142	42.26	36.431
5755	151	42.40	36.413
5795	159	42.32	36.417
5835	167	41.96	36.402
5875	175	42.12	36.390

802.11ac(VHT80) Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5210	42	92.52	76.503
5290	58	92.57	76.450
5530	106	93.03	76.596
5610	122	92.25	76.600
5690	138	92.15	76.574
5775	155	93.08	76.591
5855	171	91.15	76.482

802.11ac(VHT160) Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5250	50	179.3	155.86
5570	114	176.2	155.78
5815	163	180.6	155.71

[Ant.2]

802.11a Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5180	36	21.00	16.660
5200	40	21.03	16.640
5240	48	21.03	16.638
5260	52	21.07	16.644
5300	60	20.99	16.644
5320	64	21.00	16.637
5500	100	21.20	16.636
5600	120	21.01	16.651
5720	144	20.98	16.623
5745	149	21.07	16.629
5785	157	20.96	16.628
5825	165	21.09	16.631
5845	169	21.06	16.624
5865	173	20.96	16.635
5885	177	20.99	16.629

802.11n(HT20) Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5180	36	21.42	17.785
5200	40	21.76	17.777
5240	48	21.50	17.781
5260	52	21.41	17.775
5300	60	21.38	17.771
5320	64	21.41	17.776
5500	100	21.50	17.770
5600	120	21.40	17.793
5720	144	21.41	17.786
5745	149	21.41	17.802
5785	157	21.52	17.779
5825	165	21.67	17.770
5845	169	21.46	17.773
5865	173	21.47	17.775
5885	177	21.43	17.778

802.11ac(VHT20) Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5180	36	21.51	17.791
5200	40	21.45	17.795
5240	48	21.48	17.778
5260	52	21.70	17.791
5300	60	21.46	17.786
5320	64	21.12	17.781
5500	100	21.37	17.789
5600	120	21.44	17.811
5720	144	21.76	17.784
5745	149	21.45	17.790
5785	157	21.41	17.794
5825	165	21.02	17.769
5845	169	21.35	17.777
5865	173	21.40	17.785
5885	177	21.66	17.789

802.11n(HT40) Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5190	38	42.50	36.404
5230	46	42.55	36.422
5270	54	42.66	36.420
5310	62	42.56	36.423
5510	102	42.57	36.423
5590	118	42.46	36.397
5710	142	42.66	36.401
5755	151	42.69	36.401
5795	159	42.74	36.407
5835	167	42.60	36.419
5875	175	42.71	36.405

802.11ac(VHT40) Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5190	38	42.48	36.447
5230	46	42.56	36.399
5270	54	42.58	36.423
5310	62	42.68	36.400
5510	102	42.20	36.416
5590	118	42.67	36.404
5710	142	42.43	36.421
5755	151	42.49	36.415
5795	159	42.38	36.398
5835	167	42.55	36.407
5875	175	42.41	36.416

802.11ac(VHT80) Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5210	42	92.94	76.657
5290	58	92.70	76.661
5530	106	92.79	76.673
5610	122	92.12	76.642
5690	138	92.88	76.669
5775	155	93.58	76.712
5855	171	92.52	76.617

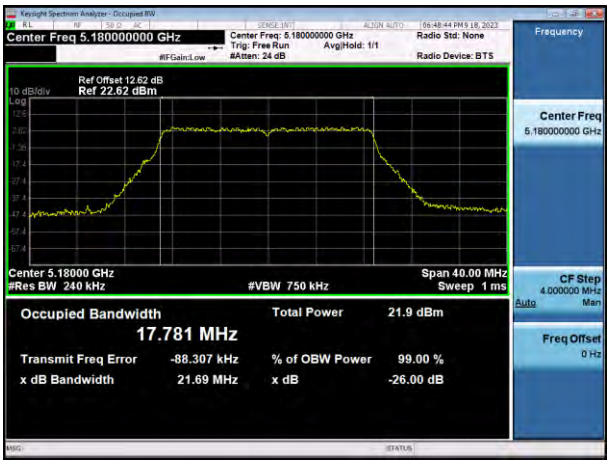
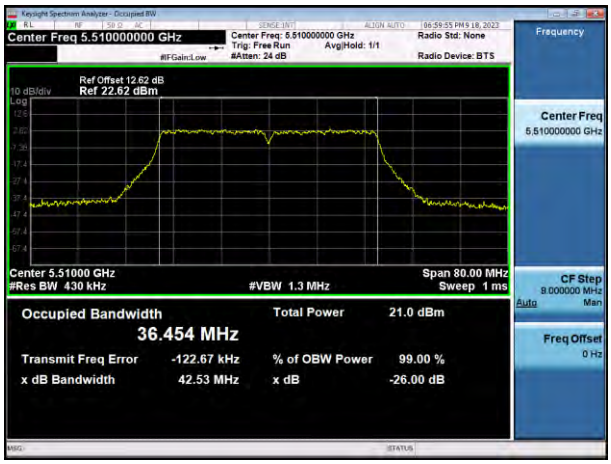
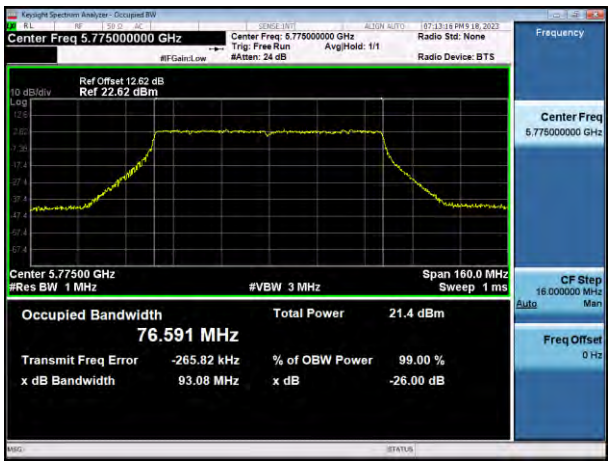
802.11ac(VHT160) Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5250	50	175.4	155.66
5570	114	182.3	155.89
5815	163	176.5	155.75

[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 120)	802.11n(HT20) 26 dB Bandwidth (CH 165)
	
802.11ac(VHT20) 26 dB Bandwidth (CH 36)	**802.11n(HT40) 26 dB Bandwidth (CH 102)**
	
802.11ac(VHT40) 26 dB Bandwidth (CH 102)	**802.11ac(VHT80) 26 dB Bandwidth (CH 155)**
	

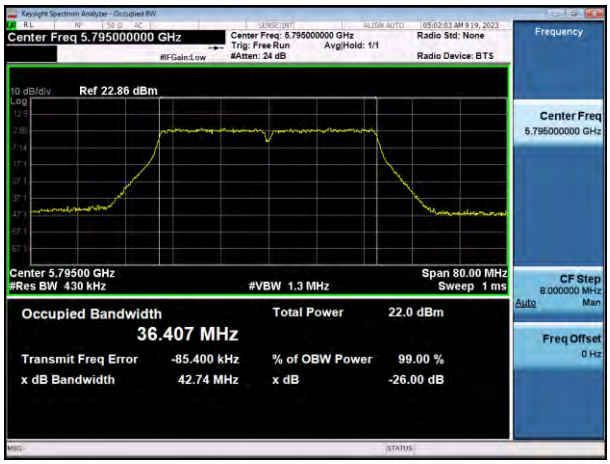
802.11ac(VHT160) 26 dB Bandwidth (CH 163)

[ANT. 2]

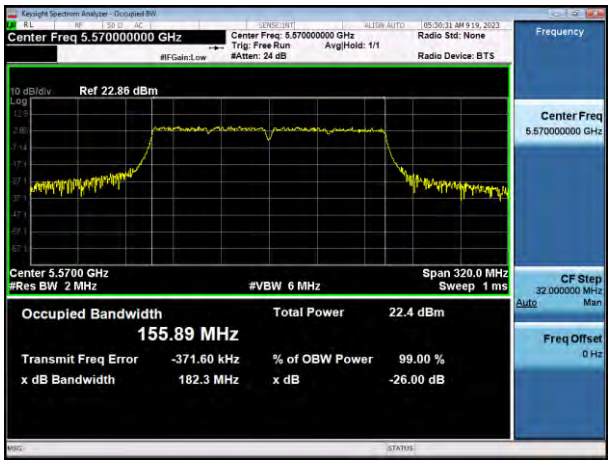
▣ Test Plots

Note:

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

802.11a 26 dB Bandwidth (CH 100)	802.11n(HT20) 26 dB Bandwidth (CH 40)
	
802.11ac(VHT20) 26 dB Bandwidth (CH 144)	**802.11n(HT40) 26 dB Bandwidth (CH 159)**
	
802.11ac(VHT40) 26 dB Bandwidth (CH 62)	**802.11ac(VHT80) 26 dB Bandwidth (CH 155)**
	

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



10.3 6 dB BANDWIDTH

[Ant.1]

802.11a Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	16.39	> 0.5	Pass
5785	157	16.39	> 0.5	Pass
5825	165	16.39	> 0.5	Pass
5845	169	16.39	> 0.5	Pass
5865	173	16.41	> 0.5	Pass
5885	177	16.37	> 0.5	Pass

802.11n(HT20) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	17.62	> 0.5	Pass
5785	157	17.63	> 0.5	Pass
5825	165	17.64	> 0.5	Pass
5845	169	17.63	> 0.5	Pass
5865	173	17.63	> 0.5	Pass
5885	177	17.63	> 0.5	Pass

802.11ac(VHT20) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	17.63	> 0.5	Pass
5785	157	17.63	> 0.5	Pass
5825	165	17.63	> 0.5	Pass
5845	169	17.62	> 0.5	Pass
5865	173	17.63	> 0.5	Pass
5885	177	17.63	> 0.5	Pass

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

802.11ac(VHT40) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5755	151	36.42	> 0.5	Pass
5795	159	36.43	> 0.5	Pass
5835	167	36.40	> 0.5	Pass
5875	175	36.43	> 0.5	Pass

802.11ac(VHT80) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5775	155	76.38	> 0.5	Pass
5855	171	76.44	> 0.5	Pass

802.11ac(VHT160) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5815	163	156.2	> 0.5	Pass

[Ant.2]

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

802.11n(HT20) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	17.64	> 0.5	Pass
5785	157	17.63	> 0.5	Pass
5825	165	17.63	> 0.5	Pass
5845	169	17.62	> 0.5	Pass
5865	173	17.62	> 0.5	Pass
5885	177	17.63	> 0.5	Pass

802.11ac(VHT20) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	17.61	> 0.5	Pass
5785	157	17.62	> 0.5	Pass
5825	165	17.63	> 0.5	Pass
5845	169	17.64	> 0.5	Pass
5865	173	17.62	> 0.5	Pass
5885	177	17.62	> 0.5	Pass

802.11n(HT40) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5755	151	36.43	> 0.5	Pass
5795	159	36.43	> 0.5	Pass
5835	167	36.41	> 0.5	Pass
5875	175	36.41	> 0.5	Pass

802.11ac(VHT40) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5755	151	36.43	> 0.5	Pass
5795	159	36.44	> 0.5	Pass
5835	167	36.42	> 0.5	Pass
5875	175	36.43	> 0.5	Pass

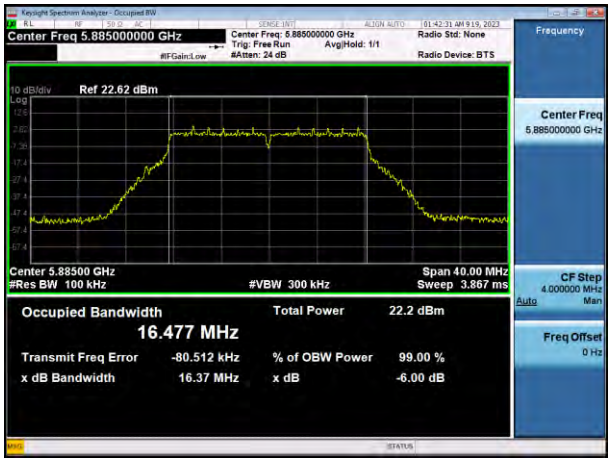
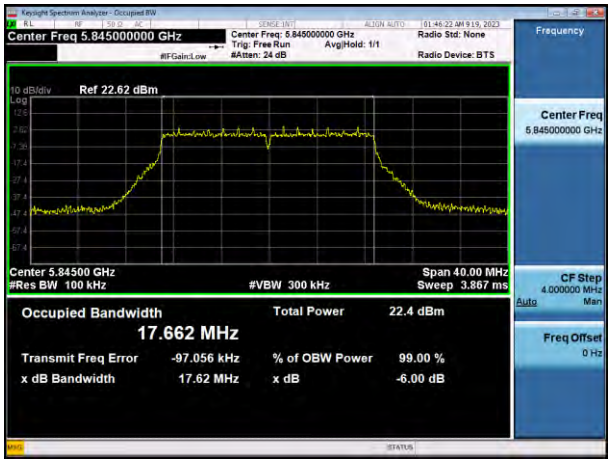
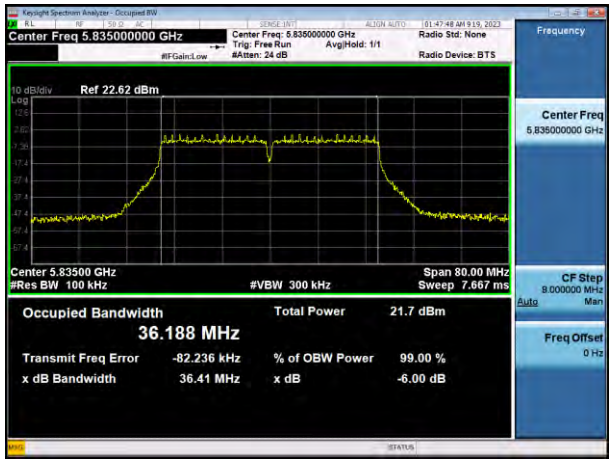
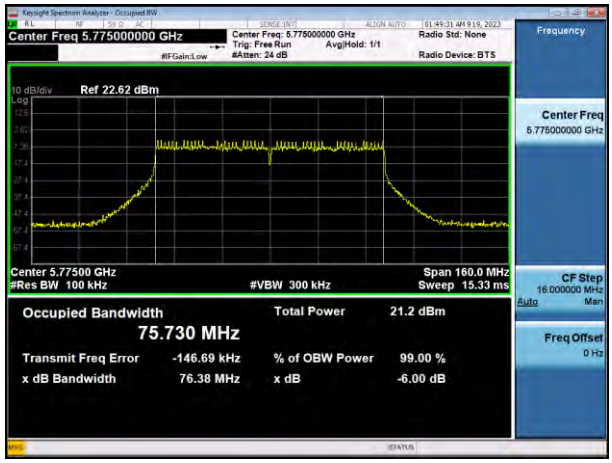
802.11ac(VHT80) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5775	155	76.44	> 0.5	Pass
5855	171	76.42	> 0.5	Pass

802.11ac(VHT160) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5815	163	156.1	> 0.5	Pass

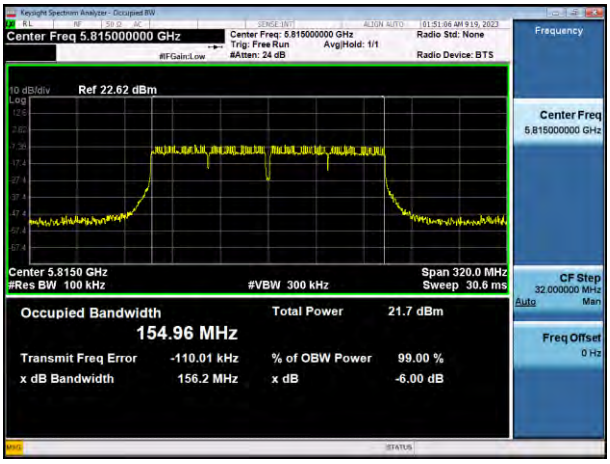
[ANT. 1]

▣ Test Plots

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

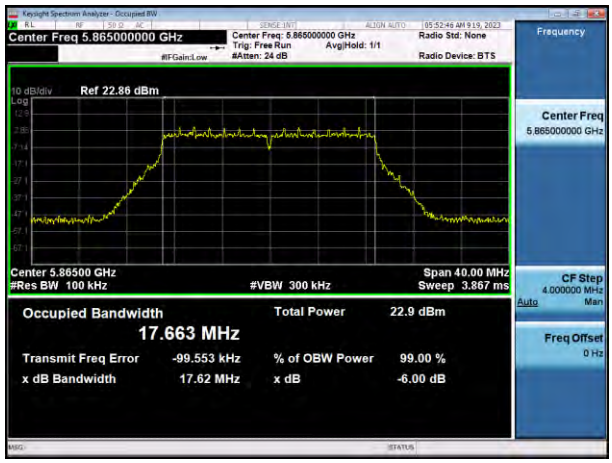
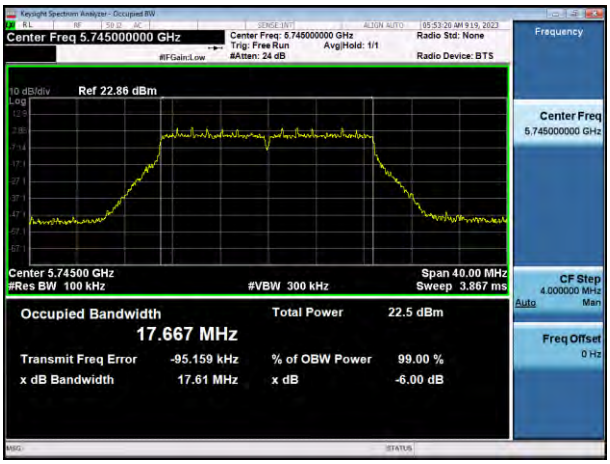
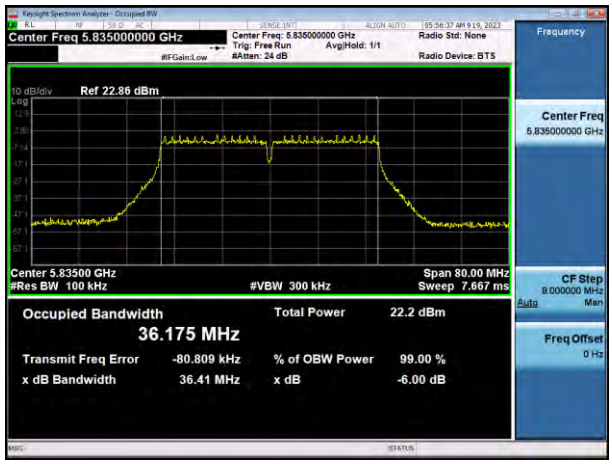
802.11a (CH.177)	802.11n(HT20) (CH.149)
	
802.11ac(VHT20) (CH.169)	**802.11n(HT40) (CH.167)**
	
802.11ac(VHT40) (CH.167)	**802.11ac(VHT80) (CH.155)**
	

802.11ac(VHT160) (CH.163)

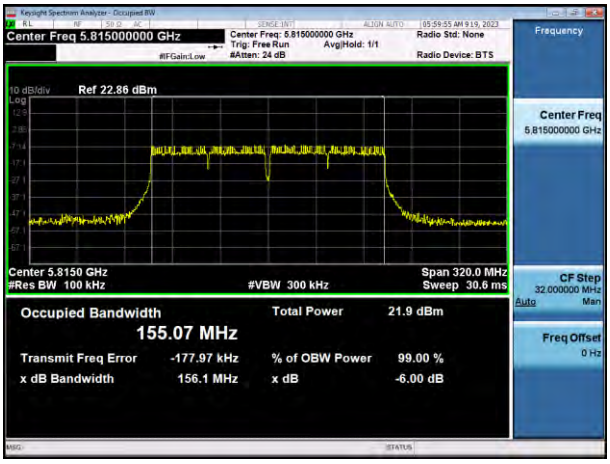


[ANT. 2]

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

802.11a (CH.177)	802.11n(HT20) (CH.173)
	
802.11ac(VHT20) (CH.149)	**802.11n(HT40) (CH.167)**
	
802.11ac(VHT40) (CH.167)	**802.11ac(VHT80) (CH.171)**
	

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(Ant1+Ant2)]

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

MIMO_CDD(Ant1+Ant2) 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.1 Measured Power [dBm] + Duty Cycle Factor[dB]	MIMO Total Power [dBm]	Directional Gain [dBi]	E.I.R.P [dBm]	Limit [dBm]
5180	36	6M	a	14.94	14.75	17.85	-	-	23.98
5200	40	6M	a	14.95	15.00	17.98	-	-	23.98
5240	48	6M	a	15.41	15.03	18.23	-	-	23.98
5260	52	6M	a	14.98	15.01	18.00	-	-	23.98
5280	56	6M	a	14.78	15.55	18.19	-	-	23.98
5320	64	6M	a	14.35	15.30	17.86	-	-	23.98
5500	100	6M	a	15.25	15.38	18.32	-	-	23.98
5600	120	6M	a	14.84	14.85	17.85	-	-	23.98
5720	144	6M	a	14.42	14.75	17.60	-	-	23.98
5745	149	6M	a	14.31	14.79	17.57	-	-	30.00
5785	157	6M	a	14.08	14.87	17.50	-	-	30.00
5825	165	6M	a	14.60	15.12	17.88	-	-	30.00
5845	169	6M	a	15.20	15.07	18.14	-1.85	16.29	EIRP ≤ 30dBm
5865	173	6M	a	15.04	15.10	18.08	-1.85	16.23	EIRP ≤ 30dBm
5885	177	6M	a	15.45	15.31	18.39	-1.85	16.54	EIRP ≤ 30dBm

Frequency [MHz]	Channel No.	Worstcase Datarate	Mode(802.11)	Ant.1 Measured Power [dBm] + Duty Cycle Factor[dB]	Ant.1 Measured Power [dBm] + Duty Cycle Factor[dB]	MIMO Total Power [dBm]	Directional Gain [dBi]	E.I.R.P [dBm]	Limit [dBm]
5180	36	MCS0	n20	15.09	15.00	18.06	-	-	23.98
5200	40	MCS0	n20	15.10	15.23	18.18	-	-	23.98
5240	48	MCS0	n20	15.53	15.36	18.46	-	-	23.98
5260	52	MCS0	n20	15.09	15.45	18.29	-	-	23.98
5280	56	MCS0	n20	14.87	15.56	18.24	-	-	23.98
5320	64	MCS0	n20	14.54	15.49	18.05	-	-	23.98
5500	100	MCS0	n20	14.90	15.47	18.21	-	-	23.98
5600	120	MCS0	n20	14.93	14.91	17.93	-	-	23.98
5720	144	MCS0	n20	14.58	14.72	17.66	-	-	23.98
5745	149	MCS0	n20	14.48	14.78	17.64	-	-	30.00
5785	157	MCS0	n20	14.33	14.93	17.65	-	-	30.00
5825	165	MCS0	n20	14.63	15.19	17.93	-	-	30.00
5845	169	MCS0	n20	15.30	15.20	18.26	-1.85	16.41	EIRP ≤ 30dBm
5865	173	MCS0	n20	15.41	14.86	18.16	-1.85	16.31	EIRP ≤ 30dBm
5885	177	MCS0	n20	15.54	15.36	18.46	-1.85	16.61	EIRP ≤ 30dBm

Frequency [MHz]	Channel No.	Worstcase Datarate	Mode(802.11)	Ant.1 Measured Power [dBm] + Duty Cycle Factor[dB]	Ant.1 Measured Power [dBm] + Duty Cycle Factor[dB]	MIMO Total Power [dBm]	Directional Gain [dBi]	E.I.R.P [dBm]	Limit [dBm]
5180	36	MCS0	ac20	14.98	15.08	18.04	-	-	23.98
5200	40	MCS0	ac20	14.92	15.31	18.13	-	-	23.98
5240	48	MCS0	ac20	15.35	15.41	18.39	-	-	23.98
5260	52	MCS0	ac20	14.96	15.53	18.26	-	-	23.98
5280	56	MCS0	ac20	14.74	15.64	18.22	-	-	23.98
5320	64	MCS0	ac20	14.48	15.48	18.02	-	-	23.98
5500	100	MCS0	ac20	14.81	15.52	18.19	-	-	23.98
5600	120	MCS0	ac20	14.80	14.97	17.90	-	-	23.98
5720	144	MCS0	ac20	14.43	14.94	17.70	-	-	23.98
5745	149	MCS0	ac20	14.26	14.85	17.58	-	-	30.00
5785	157	MCS0	ac20	14.23	15.08	17.69	-	-	30.00
5825	165	MCS0	ac20	14.50	15.19	17.87	-	-	30.00
5845	169	MCS0	ac20	15.25	15.18	18.23	-1.85	16.38	EIRP ≤ 30dBm
5865	173	MCS0	ac20	15.42	14.79	18.13	-1.85	16.28	EIRP ≤ 30dBm
5885	177	MCS0	ac20	15.56	15.38	18.48	-1.85	16.63	EIRP ≤ 30dBm

Frequency [MHz]	Channel No.	Worstcase Datarate	Mode(802.11)	Ant.1 Measured Power [dBm] + Duty Cycle Factor[dB]	Ant.1 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	14.04	13.97	17.01	-	-	23.98
5230	46	MCS0	n40	14.59	14.20	17.41	-	-	23.98
5270	54	MCS0	n40	14.05	14.67	17.38	-	-	23.98
5310	62	MCS0	n40	13.83	14.46	17.17	-	-	23.98
5510	102	MCS0	n40	13.95	14.49	17.24	-	-	23.98
5590	118	MCS0	n40	13.55	14.12	16.85	-	-	23.98
5710	142	MCS0	n40	13.84	13.64	16.75	-	-	23.98
5755	151	MCS0	n40	13.84	14.19	17.03	-	-	30.00
5795	159	MCS0	n40	13.89	14.18	17.05	-	-	30.00
5835	167	MCS0	n40	14.46	14.41	17.44	-1.85	15.59	EIRP ≤ 30dBm
5875	175	MCS0	n40	14.49	14.60	17.55	-1.85	15.70	EIRP ≤ 30dBm

Frequency [MHz]	Channel No.	Worstcase Datarate	Mode(802.11)	Ant.1 Measured Power [dBm] + Duty Cycle Factor[dB]	Ant.1 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	14.16	14.00	17.09	-	-	23.98
5230	46	MCS0	ac40	14.76	14.20	17.50	-	-	23.98
5270	54	MCS0	ac40	14.21	14.70	17.47	-	-	23.98
5310	62	MCS0	ac40	14.03	14.48	17.27	-	-	23.98
5510	102	MCS0	ac40	14.12	14.50	17.32	-	-	23.98
5590	118	MCS0	ac40	13.79	14.25	17.03	-	-	23.98
5710	142	MCS0	ac40	13.84	13.60	16.73	-	-	23.98
5755	151	MCS0	ac40	13.96	14.16	17.07	-	-	30.00
5795	159	MCS0	ac40	14.03	14.17	17.11	-	-	30.00
5835	167	MCS0	ac40	14.47	14.38	17.43	-1.85	15.58	EIRP ≤ 30dBm
5875	175	MCS0	ac40	14.46	14.53	17.50	-1.85	15.65	EIRP ≤ 30dBm

Frequency [MHz]	Channel No.	Worstcase Datarate	Mode(802.11)	Ant.1 Measured Power [dBm] + Duty Cycle Factor[dB]	Ant.1 Measured Power [dBm] + Duty Cycle Factor[dB]	MIMO Total Power [dBm]	Directional Gain [dBi]	E.I.R.P [dBm]	Limit [dBm]
5210	42	MCS0	ac80	13.79	13.49	16.65	-	-	23.98
5290	58	MCS0	ac80	13.42	13.65	16.55	-	-	23.98
5530	106	MCS0	ac80	13.19	13.48	16.35	-	-	23.98
5610	122	MCS0	ac80	13.05	13.34	16.21	-	-	23.98
5690	138	MCS0	ac80	13.20	13.28	16.25	-	-	23.98
5775	155	MCS0	ac80	13.19	13.33	16.27	-	-	30.00
5855	171	MCS0	ac80	13.67	13.64	16.67	-1.85	14.82	EIRP ≤ 30dBm

Frequency [MHz]	Channel No.	Worstcase Datarate	Mode(802.11)	Ant.1 Measured Power [dBm] + Duty Cycle Factor[dB]	Ant.1 Measured Power [dBm] + Duty Cycle Factor[dB]	MIMO Total Power [dBm]	Directional Gain [dBi]	E.I.R.P [dBm]	Limit [dBm]
5250	50	MCS0	ac160	12.94	13.32	16.15	-	-	23.98
5570	114	MCS0	ac160	12.42	13.17	15.82	-	-	23.98
5815	163	MCS0	ac160	13.42	13.18	16.31	-1.85	14.46	EIRP ≤ 30dBm

10.5 POWER SPECTRAL DENSITY

[MIMO_CDD(Ant1+Ant2)]

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

MIMO_CDD(Ant1+Ant2) 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	6M	a	3.338	3.272	6.315	-	-	11 dBm/MHz
5200	40	6M	a	3.434	3.560	6.507	-	-	11 dBm/MHz
5240	48	6M	a	3.939	3.468	6.720	-	-	11 dBm/MHz
5260	52	6M	a	3.428	3.620	6.535	-	-	11 dBm/MHz
5280	56	6M	a	3.294	3.586	6.452	-	-	11 dBm/MHz
5320	64	6M	a	2.743	3.674	6.243	-	-	11 dBm/MHz
5500	100	6M	a	3.065	3.665	6.385	-	-	11 dBm/MHz
5600	120	6M	a	2.993	3.147	6.081	-	-	11 dBm/MHz
5720	144	6M	a	3.308	3.784	6.562	-	-	11 dBm/MHz
5745	149	6M	a	0.584	0.842	3.725	-	-	30 dBm/500kHz
5785	157	6M	a	0.508	0.857	3.696	-	-	30 dBm/500kHz
5825	165	6M	a	0.372	1.074	3.747	-	-	30 dBm/500kHz
5845	169	6M	a	3.417	4.055	6.758	-1.85	4.908	14 dBm/EIRP
5865	173	6M	a	3.593	3.982	6.802	-1.85	4.952	14 dBm/EIRP
5885	177	6M	a	3.728	4.205	6.983	-1.85	5.133	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	MCS0	n20	2.857	3.003	5.941	-	-	11 dBm/MHz
5200	40	MCS0	n20	2.891	3.265	6.093	-	-	11 dBm/MHz
5240	48	MCS0	n20	3.270	3.270	6.280	-	-	11 dBm/MHz
5260	52	MCS0	n20	2.928	3.259	6.107	-	-	11 dBm/MHz
5280	56	MCS0	n20	2.622	3.316	5.993	-	-	11 dBm/MHz
5320	64	MCS0	n20	2.138	3.351	5.797	-	-	11 dBm/MHz
5500	100	MCS0	n20	2.475	3.373	5.958	-	-	11 dBm/MHz
5600	120	MCS0	n20	2.446	3.053	5.771	-	-	11 dBm/MHz
5720	144	MCS0	n20	2.756	3.433	6.118	-	-	11 dBm/MHz
5745	149	MCS0	n20	-0.079	0.613	3.291	-	-	30 dBm/500kHz
5785	157	MCS0	n20	-0.167	0.608	3.248	-	-	30 dBm/500kHz
5825	165	MCS0	n20	0.230	0.857	3.565	-	-	30 dBm/500kHz
5845	169	MCS0	n20	3.269	3.738	6.520	-1.85	4.670	14 dBm/EIRP
5865	173	MCS0	n20	3.398	3.689	6.556	-1.85	4.706	14 dBm/EIRP
5885	177	MCS0	n20	3.657	4.066	6.877	-1.85	5.027	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	MCS0	ac20	2.875	3.030	5.964	-	-	11 dBm/MHz
5200	40	MCS0	ac20	2.839	3.238	6.054	-	-	11 dBm/MHz
5240	48	MCS0	ac20	3.374	3.219	6.308	-	-	11 dBm/MHz
5260	52	MCS0	ac20	2.938	3.316	6.142	-	-	11 dBm/MHz
5280	56	MCS0	ac20	2.731	3.328	6.050	-	-	11 dBm/MHz
5320	64	MCS0	ac20	2.138	3.406	5.829	-	-	11 dBm/MHz
5500	100	MCS0	ac20	2.439	3.482	6.002	-	-	11 dBm/MHz
5600	120	MCS0	ac20	2.531	3.028	5.797	-	-	11 dBm/MHz
5720	144	MCS0	ac20	2.851	3.436	6.164	-	-	11 dBm/MHz
5745	149	MCS0	ac20	0.035	0.493	3.281	-	-	30 dBm/500kHz
5785	157	MCS0	ac20	-0.161	0.549	3.219	-	-	30 dBm/500kHz
5825	165	MCS0	ac20	0.306	0.851	3.598	-	-	30 dBm/500kHz
5845	169	MCS0	ac20	3.273	3.721	6.513	-1.85	4.663	14 dBm/EIRP
5865	173	MCS0	ac20	3.518	3.732	6.637	-1.85	4.787	14 dBm/EIRP
5885	177	MCS0	ac20	3.696	4.065	6.895	-1.85	5.045	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	-0.910	-0.604	2.256	-	-	11 dBm/MHz
5230	46	MCS0	n40	-0.322	-0.566	2.568	-	-	11 dBm/MHz
5270	54	MCS0	n40	-0.886	0.026	2.604	-	-	11 dBm/MHz
5310	62	MCS0	n40	-1.153	-0.274	2.319	-	-	11 dBm/MHz
5510	102	MCS0	n40	-1.301	-0.229	2.278	-	-	11 dBm/MHz
5590	118	MCS0	n40	-1.656	-0.458	1.994	-	-	11 dBm/MHz
5710	142	MCS0	n40	-1.229	-0.669	2.070	-	-	11 dBm/MHz
5755	151	MCS0	n40	-3.998	-2.879	-0.393	-	-	30 dBm/500kHz
5795	159	MCS0	n40	-3.814	-2.692	-0.207	-	-	30 dBm/500kHz
5835	167	MCS0	n40	-0.661	0.365	2.892	-1.85	1.042	14 dBm/EIRP
5875	175	MCS0	n40	-0.422	0.443	3.042	-1.85	1.192	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	-0.972	-0.591	2.233	-	-	11 dBm/MHz
5230	46	MCS0	ac40	-0.359	-0.425	2.618	-	-	11 dBm/MHz
5270	54	MCS0	ac40	-0.894	-0.073	2.546	-	-	11 dBm/MHz
5310	62	MCS0	ac40	-1.160	-0.318	2.291	-	-	11 dBm/MHz
5510	102	MCS0	ac40	-1.316	-0.206	2.284	-	-	11 dBm/MHz
5590	118	MCS0	ac40	-1.674	-0.452	1.990	-	-	11 dBm/MHz
5710	142	MCS0	ac40	-1.314	-0.704	2.012	-	-	11 dBm/MHz
5755	151	MCS0	ac40	-4.080	-2.871	-0.423	-	-	30 dBm/500kHz
5795	159	MCS0	ac40	-3.839	-2.806	-0.282	-	-	30 dBm/500kHz
5835	167	MCS0	ac40	-0.713	0.294	2.830	-1.85	0.980	14 dBm/EIRP
5875	175	MCS0	ac40	-0.419	0.302	2.967	-1.85	1.117	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	MCS0	ac80	-4.060	-4.116	-1.077	-	-	11 dBm/MHz
5290	58	MCS0	ac80	-4.788	-4.016	-1.374	-	-	11 dBm/MHz
5530	106	MCS0	ac80	-5.367	-4.217	-1.744	-	-	11 dBm/MHz
5610	122	MCS0	ac80	-5.360	-4.221	-1.743	-	-	11 dBm/MHz
5690	138	MCS0	ac80	-4.965	-4.558	-1.746	-	-	11 dBm/MHz
5775	155	MCS0	ac80	-7.364	-6.505	-3.903	-	-	30 dBm/500kHz
5855	171	MCS0	ac80	-4.337	-3.719	-1.007	-1.85	-2.857	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	MCS0	ac160	-7.813	-7.330	-4.555	-	-	11 dBm/MHz
5570	114	MCS0	ac160	-8.604	-7.158	-4.811	-	-	11 dBm/MHz
5815	163	MCS0	ac160	-7.530	-7.278	-4.392	-1.85	-6.242	14 dBm/EIRP

[MIMO_CDD(Ant1+Ant2)]

▣ 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. 48)	
	
802.11a UNII 3 (Ch. 165)	
	
802.11a UNII 4 (Ch. 177)	
	

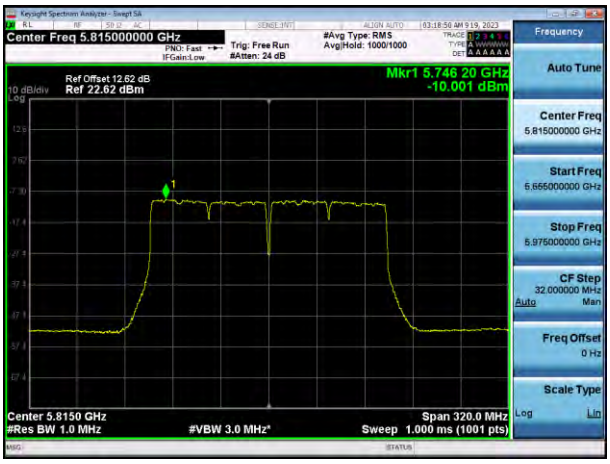
ANT. 1	ANT. 2
802.11n(HT20) UNII 1-2C (Ch. 48)	
	
802.11 n(HT20) UNII 3 (Ch. 165)	
	
802.11 n(HT20) UNII 4 (Ch. 177)	
	

ANT. 1	ANT. 2
802.11ac(VHT20) UNII 1-2C (Ch. 48)	
	
802.11 ac(VHT20) UNII 3 (Ch. 165)	
	
802.11 ac(VHT20) UNII 4 (Ch. 177)	
	

ANT. 1	ANT. 2
802.11n(HT40) UNII 1-2C (Ch. 54)	
	
802.11 n(HT40) UNII 3 (Ch. 159)	
	
802.11 n(HT40) UNII 4 (Ch. 175)	
	

ANT. 1	ANT. 2
802.11ac(VHT40) UNII 1-2C (Ch. 46)	
	
802.11 ac(VHT40) UNII 3 (Ch. 159)	
	
802.11 ac(VHT40) UNII 4 (Ch. 175)	
	

ANT. 1	ANT. 2
802.11ac(VHT80) UNII 1-2C (Ch. 42)	
	
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. 50)	
	
802.11 ac(VHT160) UNII 3-4 (Ch. 163)	
	

10.6 FREQUENCY STABILITY

Note:

All modes of operation were investigated and the worst case configuration results are reported.

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. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.88	+20(Ref)	5250089.12	89.12
100%		-30	5250016.12	16.12
100%		-20	5250020.79	20.79
100%		-10	5250048.87	48.87
100%		0	5250067.53	67.53
100%		+10	5250035.69	35.69
100%		+30	5250005.57	5.57
100%		+40	5250022.38	22.38
100%		+50	5250085.84	85.84
High	4.42	+20	5250060.18	60.18
Low	3.65	+20	5250031.97	31.97

Note:

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.

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

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.88	+20(Ref)	5570049.14	49.14
100%		-30	5570050.63	50.63
100%		-20	5570089.09	89.09
100%		-10	5570083.97	83.97
100%		0	5570052.52	52.52
100%		+10	5570002.85	2.85
100%		+30	5570059.84	59.84
100%		+40	5570089.16	89.16
100%		+50	5570057.33	57.33
High	4.42	+20	5570003.56	3.56
Low	3.65	+20	5570028.33	28.33

Note:

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.

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

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.88	+20(Ref)	5815036.82	36.82
100%		-30	5815013.25	13.25
100%		-20	5815045.90	45.9
100%		-10	5815075.08	75.08
100%		0	5815071.12	71.12
100%		+10	5815024.73	24.73
100%		+30	5815030.96	30.96
100%		+40	5815049.75	49.75
100%		+50	5815092.31	92.31
High	4.42	+20	5815087.16	87.16
Low	3.65	+20	5815036.74	36.74

Note:

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.

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. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.88	+20(Ref)	5250033.49	33.49
100%		-30	5250099.42	99.42
100%		-20	5250010.14	10.14
100%		-10	5250019.49	19.49
100%		0	5250057.55	57.55
100%		+10	5250016.76	16.76
100%		+30	5250008.73	8.73
100%		+40	5250030.92	30.92
100%		+50	5250056.58	56.58
High	4.42	+20	5250030.55	30.55
Low	3.65	+20	5250045.35	45.35

Note:

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.

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

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.88	+20(Ref)	5570025.86	25.86
100%		-30	5570066.97	66.97
100%		-20	5570026.41	26.41
100%		-10	5570036.83	36.83
100%		0	5570029.42	29.42
100%		+10	5570047.61	47.61
100%		+30	5570074.08	74.08
100%		+40	5570020.11	20.11
100%		+50	5570071.09	71.09
High	4.42	+20	5570051.64	51.64
Low	3.65	+20	5570003.04	3.04

Note:

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.

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

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.88	+20(Ref)	5815021.75	21.75
100%		-30	5815088.84	88.84
100%		-20	5815026.47	26.47
100%		-10	5815013.22	13.22
100%		0	5815097.56	97.56
100%		+10	5815051.53	51.53
100%		+30	5815037.41	37.41
100%		+40	5815072.17	72.17
100%		+50	5815031.34	31.34
High	4.42	+20	5815003.36	3.36
Low	3.65	+20	5815021.84	21.84

Note:

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.

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. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.88	+20(Ref)	5250066.49	66.49
100%		-30	5250023.96	23.96
100%		-20	5250036.29	36.29
100%		-10	5250068.25	68.25
100%		0	5250035.57	35.57
100%		+10	5250030.40	30.40
100%		+30	5250029.87	29.87
100%		+40	5250031.28	31.28
100%		+50	5250067.73	67.73
High	4.42	+20	5250016.47	16.47
Low	3.65	+20	5250085.16	85.16

Note:

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.

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

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.88	+20(Ref)	5570047.60	47.60
100%		-30	5570064.48	64.48
100%		-20	5570077.81	77.81
100%		-10	5570030.92	30.92
100%		0	5570059.30	59.3
100%		+10	5570074.52	74.52
100%		+30	5570022.09	22.09
100%		+40	5570091.76	91.76
100%		+50	5570076.55	76.55
High	4.42	+20	5570047.52	47.52
Low	3.65	+20	5570099.25	99.25

Note:

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.

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

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.88	+20(Ref)	5815097.25	97.25
100%		-30	5815002.45	2.45
100%		-20	5815014.86	14.86
100%		-10	5815012.85	12.85
100%		0	5815016.14	16.14
100%		+10	5815050.16	50.16
100%		+30	5815081.57	81.57
100%		+40	5815029.52	29.52
100%		+50	5815048.82	48.82
High	4.42	+20	5815075.08	75.08
Low	3.65	+20	5815050.27	50.27

Note:

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 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. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.88	+20(Ref)	5250050.55	11.02
100%		-30	5250088.99	99.55
100%		-20	5250088.95	58.63
100%		-10	5250045.69	39.19
100%		0	5250007.10	49.76
100%		+10	5250081.48	61.61
100%		+30	5250013.13	51.60
100%		+40	5250061.14	50.69
100%		+50	5250094.55	72.06
High	4.42	+20	5250099.37	30.82
Low	3.65	+20	5250047.66	9.11

Note:

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.

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

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.88	+20(Ref)	5570004.16	65.98
100%		-30	5570018.97	66.21
100%		-20	5570073.24	15.85
100%		-10	5570056.66	97.73
100%		0	5570066.13	27.8
100%		+10	5570012.67	90.72
100%		+30	5570057.78	52.45
100%		+40	5570012.64	91.14
100%		+50	5570011.44	90.48
High	4.42	+20	5250053.60	96.19
Low	3.65	+20	5250055.40	47.46

Note:

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.

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

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.88	+20(Ref)	5815025.22	47.99
100%		-30	5815080.35	4.29
100%		-20	5815094.92	95.45
100%		-10	5815025.61	96.24
100%		0	5815025.97	93.75
100%		+10	5815036.48	12.96
100%		+30	5815017.40	41.2
100%		+40	5815015.04	51.55
100%		+50	5815072.61	64.17
High	4.42	+20	5250027.83	44.06
Low	3.65	+20	5250039.80	94.56

Note:

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.

10.7 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	5709.08	15.92
802.11n(HT20)				5709.00	16.00
802.11ac(VHT20)				5708.96	16.04
802.11a	UNII 3	5720	144	5730.40	5.40
802.11n(HT20)				5730.48	5.48
802.11ac(VHT20)				5730.48	5.48

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	26 dB Bandwidth [MHz]
802.11n(HT40)	UNII 2C	5710	142	5688.40	36.60
802.11ac(VHT40)				5688.64	36.36
802.11n(HT40)	UNII 3	5710	142	5731.12	6.12
802.11ac(VHT40)				5731.36	6.36

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	26 dB Bandwidth [MHz]
802.11ac(VHT80)	UNII 2C	5690	138	5642.16	82.84
	UNII 3	5690	138	5736.08	11.08

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	5709.40	15.60
802.11n(HT20)				5709.04	15.96
802.11ac(VHT20)				5708.96	16.04
802.11a	UNII 3	5720	144	5730.40	5.40
802.11n(HT20)				5730.48	5.48
802.11ac(VHT20)				5730.60	5.60

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	26 dB Bandwidth [MHz]
802.11n(HT40)	UNII 2C	5710	142	5688.64	36.36
802.11ac(VHT40)				5688.64	36.36
802.11n(HT40)	UNII 3	5710	142	5731.12	6.12
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	5643.28	81.72
	UNII 3	5690	138	5735.92	10.92

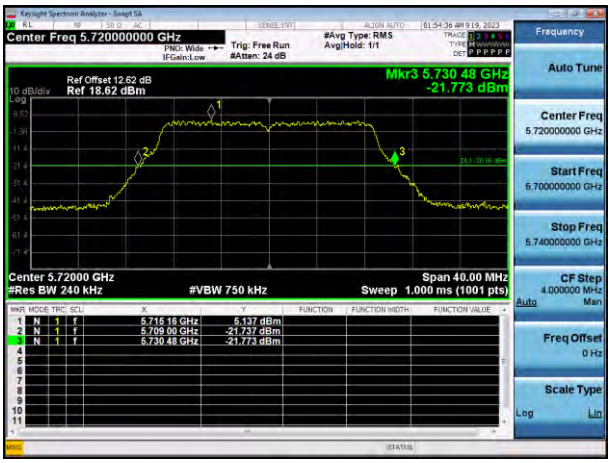
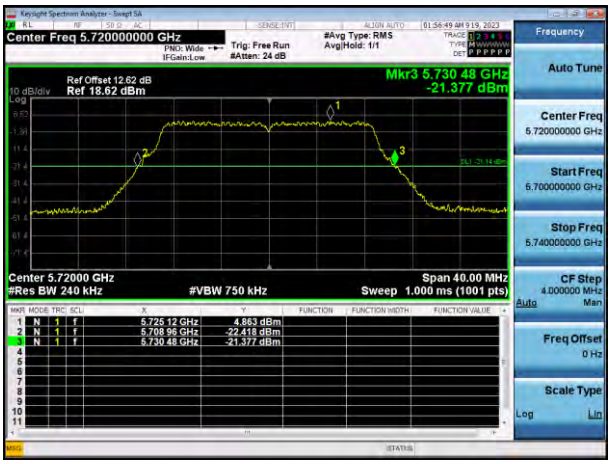
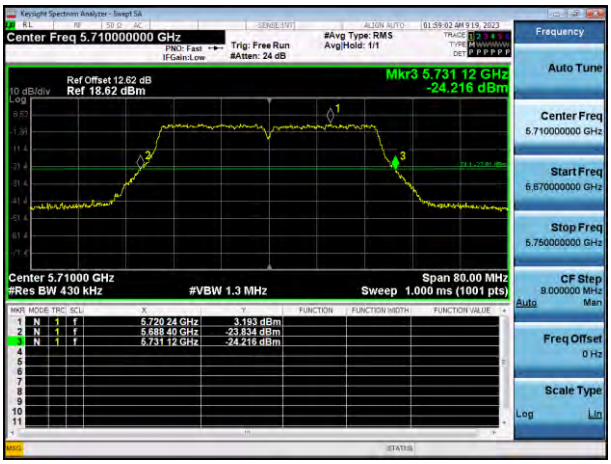
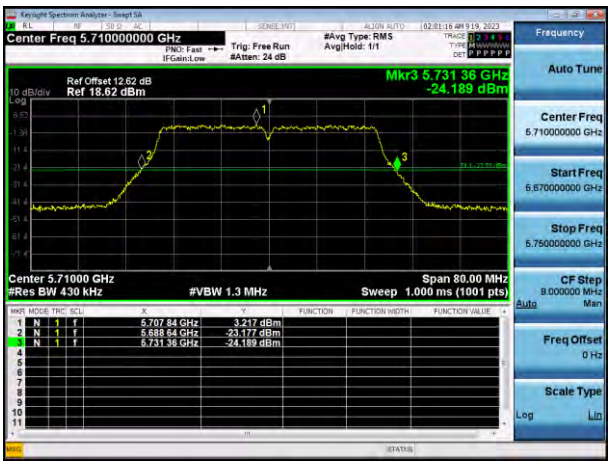
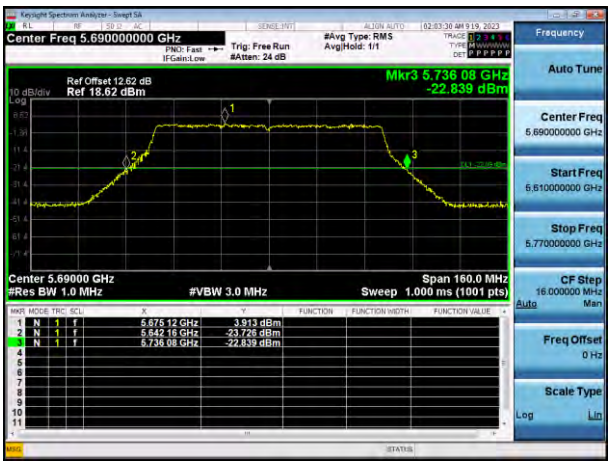
Note:

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

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

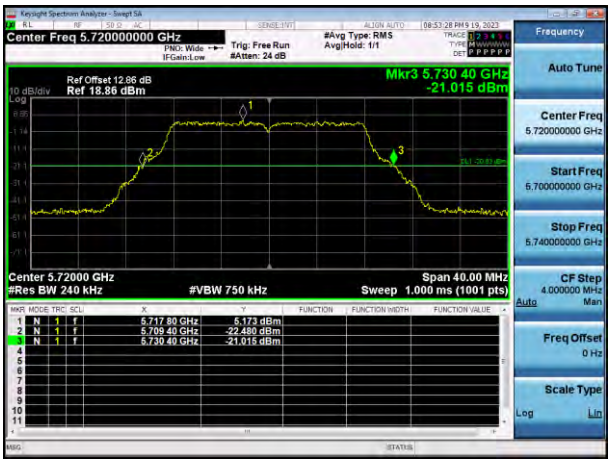
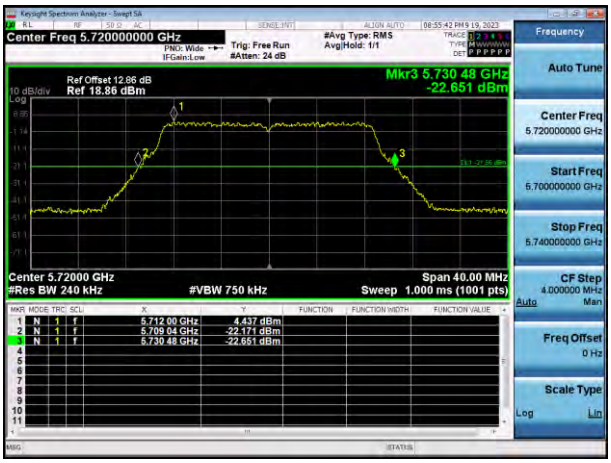
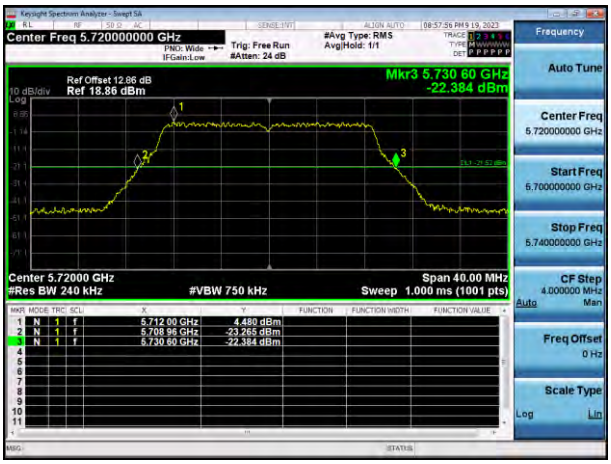
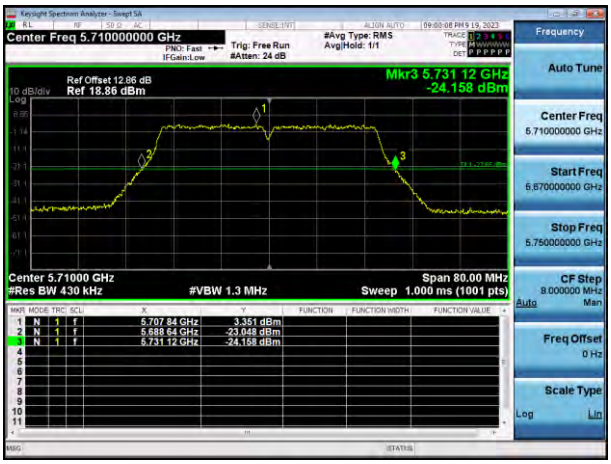
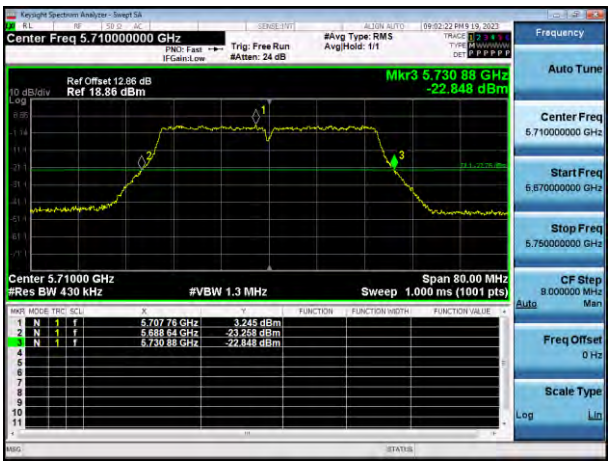
[ANT. 1]

▣ 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	5728.12	3.12	> 0.5
802.11n(HT20)				5728.72	3.72	> 0.5
802.11ac(VHT20)				5728.72	3.72	> 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	5728.24	3.24	> 0.5

[ANT. 2]

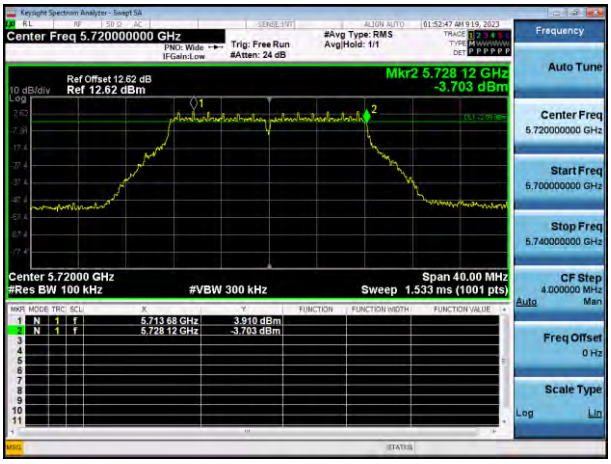
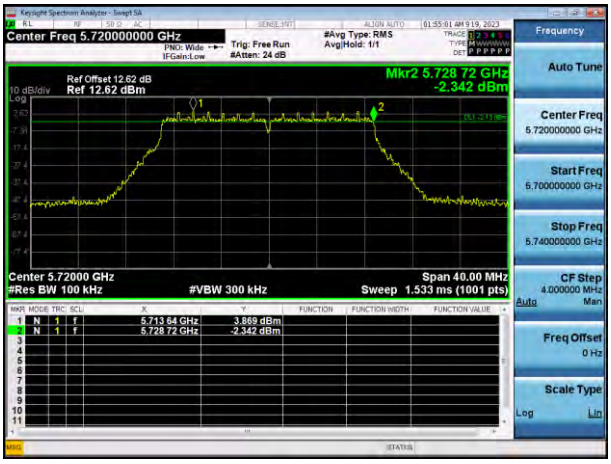
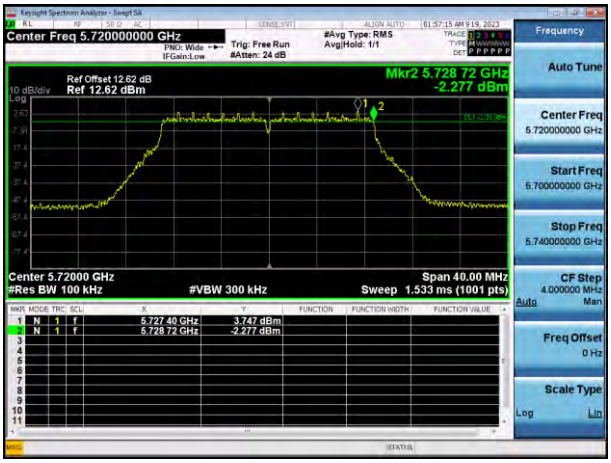
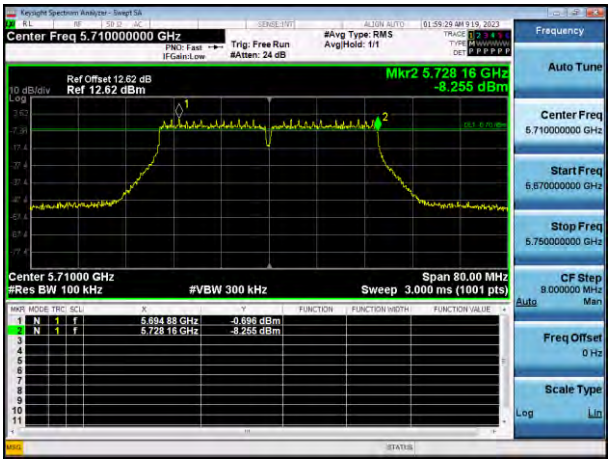
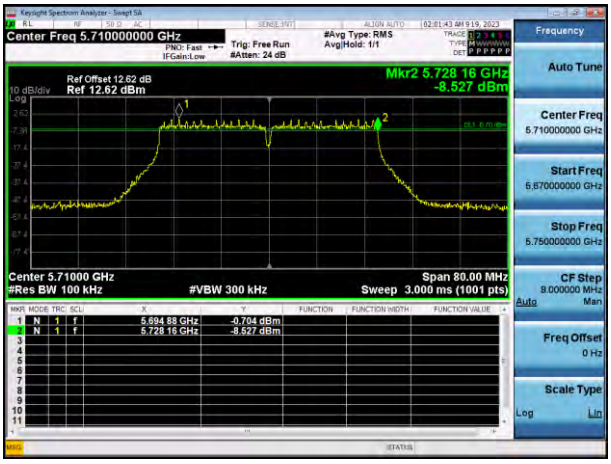
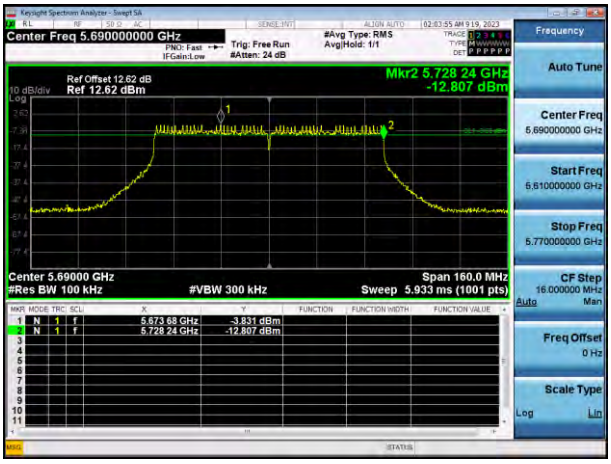
Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	6dB Bandwidth [MHz]	Limit [MHz]
802.11a	UNII3	5720	144	5728.12	3.12	> 0.5
802.11n(HT20)				5728.72	3.72	> 0.5
802.11ac(VHT20)				5728.72	3.72	> 0.5
802.11n(HT40)	UNII3	5710	142	5728.16	3.16	> 0.5
802.11ac(VHT40)				5728.16	3.16	> 0.5
802.11ac(VHT80)	UNII3	5690	138	5728.24	3.24	> 0.5

Note:

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

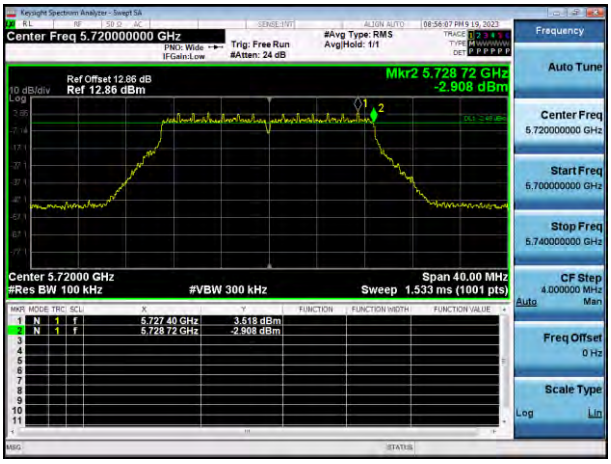
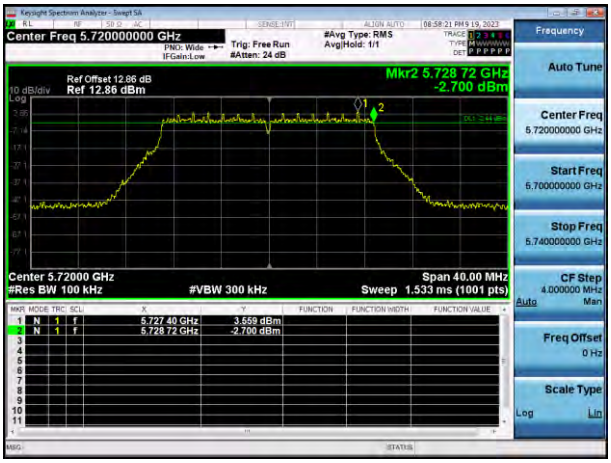
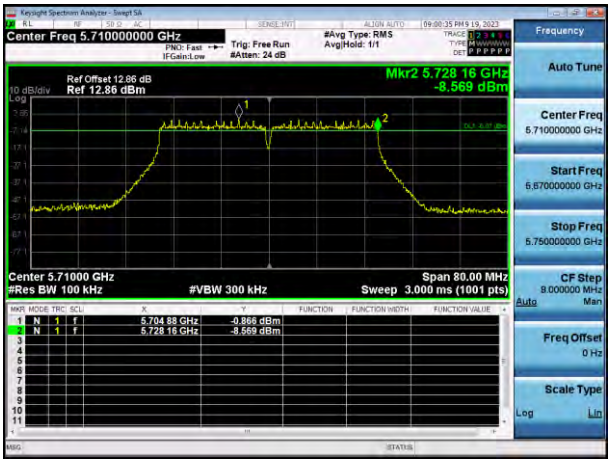
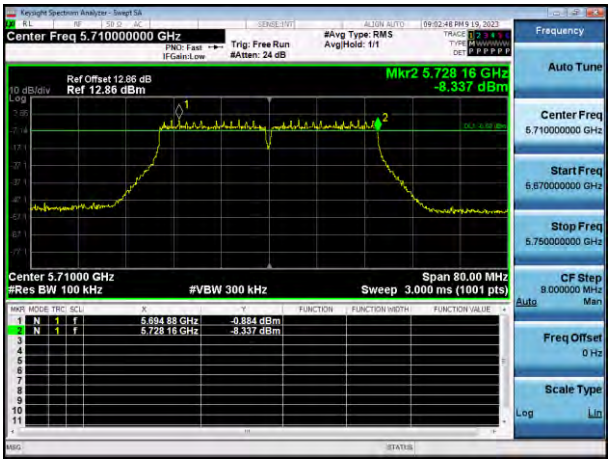
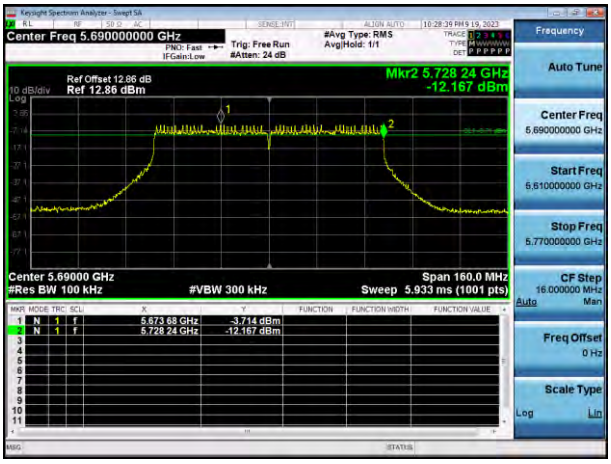
[ANT. 1]

▣ 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	13.67	0.299	13.96	23.02	6 Mbps
802.11n(HT20)			13.57	0.341	13.91	23.04	MCS0
802.11ac(VHT20)			13.55	0.330	13.88	23.05	MCS0
802.11a	5720 (UNII 3 Band)	144	7.58	0.299	7.88	30.00	6 Mbps
802.11n(HT20)			8.04	0.341	8.38	30.00	MCS0
802.11ac(VHT20)			8.05	0.330	8.38	30.00	MCS0

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	12.80	0.639	13.44	23.98	MCS0
802.11ac(VHT40)			12.80	0.628	13.43	23.98	MCS0
802.11n(HT40)	5710 (UNII 3 Band)	142	2.71	0.639	3.34	30.00	MCS0
802.11ac(VHT40)			2.70	0.628	3.32	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	11.67	1.191	12.86	23.98	MCS0
	5690 (UNII 3 Band)	138	-1.90	1.191	-0.70	30.00	MCS0

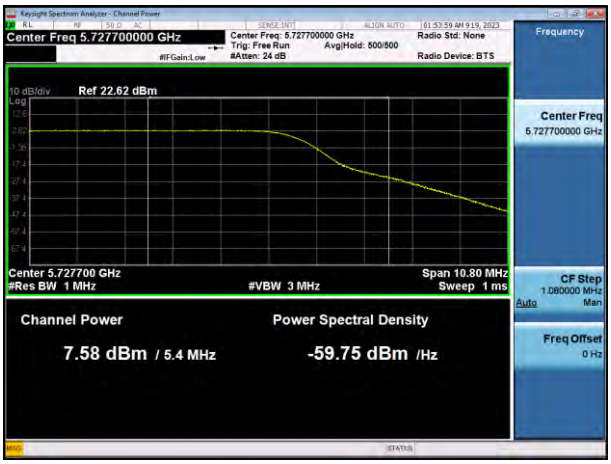
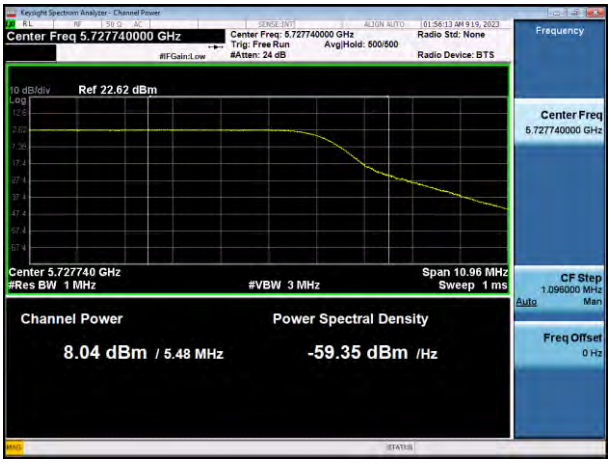
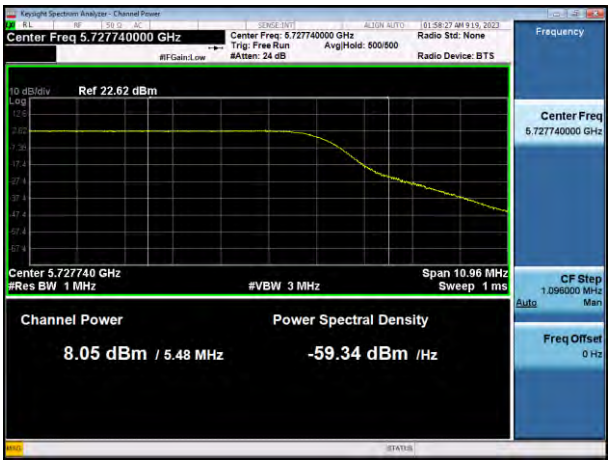
[ANT. 2]

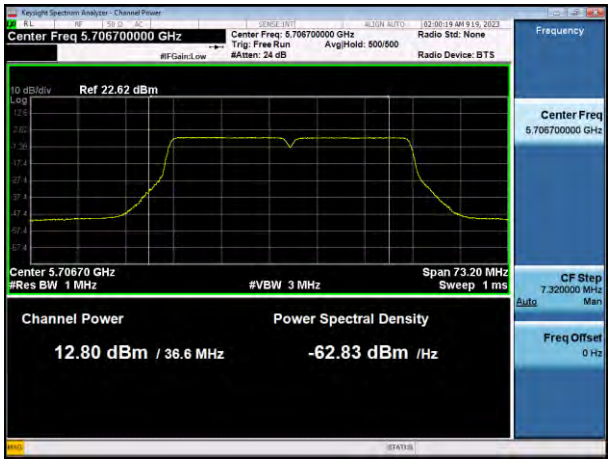
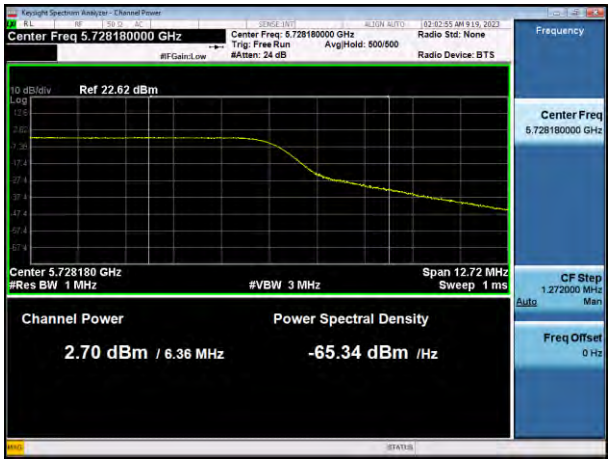
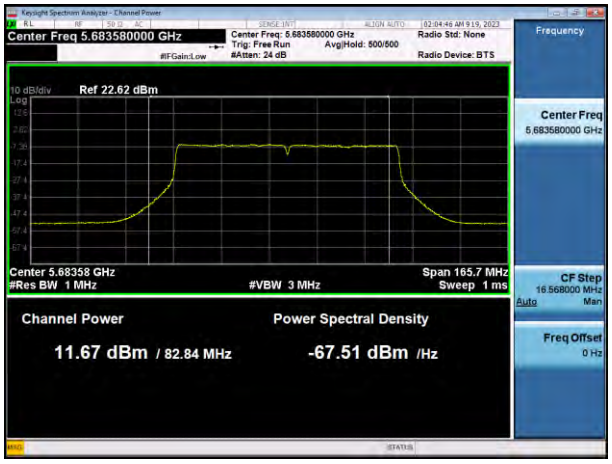
Mode	Frequency [MHz]	Channel	Measured Power [dBm]	Duty Cycle Factor [dB]	Total Power [dBm]	Limit [dBm]	Worstcase Datarate
802.11a	5720 (UNII 2C Band)	144	13.40	0.299	13.69	22.93	6 Mbps
802.11n(HT20)			13.30	0.341	13.64	23.03	MCS0
802.11ac(VHT20)			13.29	0.330	13.62	23.05	MCS0
802.11a	5720 (UNII 3 Band)	144	7.31	0.299	7.61	30.00	6 Mbps
802.11n(HT20)			7.78	0.341	8.12	30.00	MCS0
802.11ac(VHT20)			7.78	0.330	8.11	30.00	MCS0

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	12.70	0.639	13.34	23.98	MCS0
802.11ac(VHT40)			12.66	0.628	13.29	23.98	MCS0
802.11n(HT40)	5710 (UNII 3 Band)	142	2.68	0.639	3.32	30.00	MCS0
802.11ac(VHT40)			2.75	0.628	3.38	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	12.04	1.191	13.23	23.98	MCS0
	5690 (UNII 3 Band)	138	-1.30	1.191	-0.11	30.00	MCS0

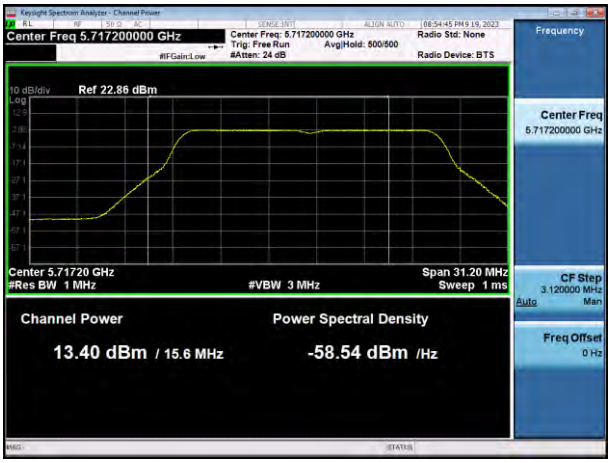
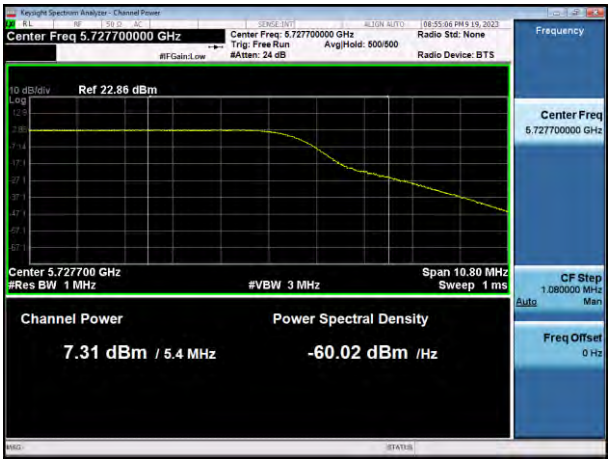
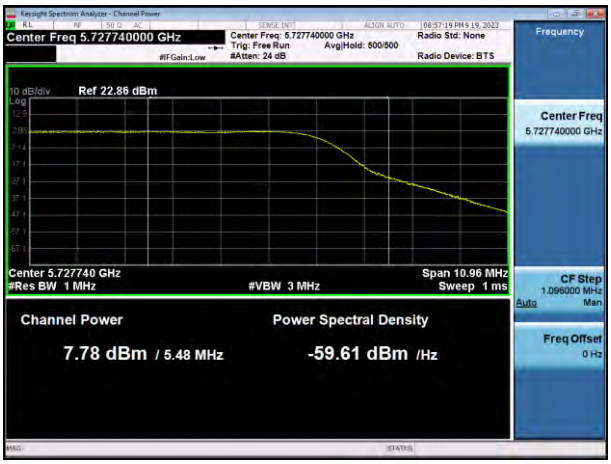
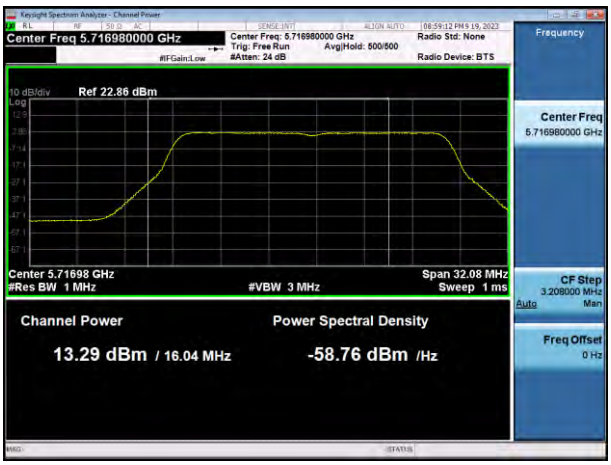
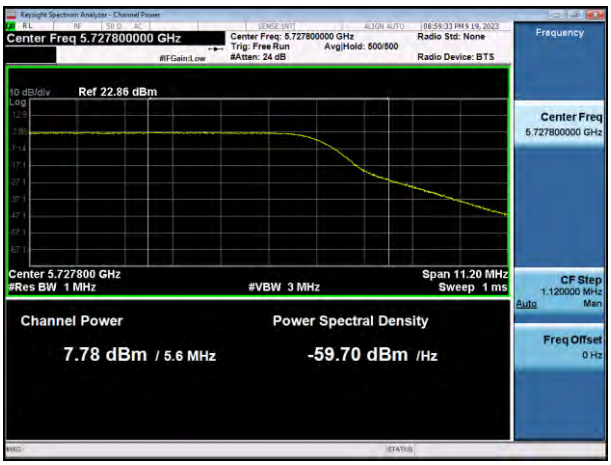
[ANT. 1]
▣ Test Plots

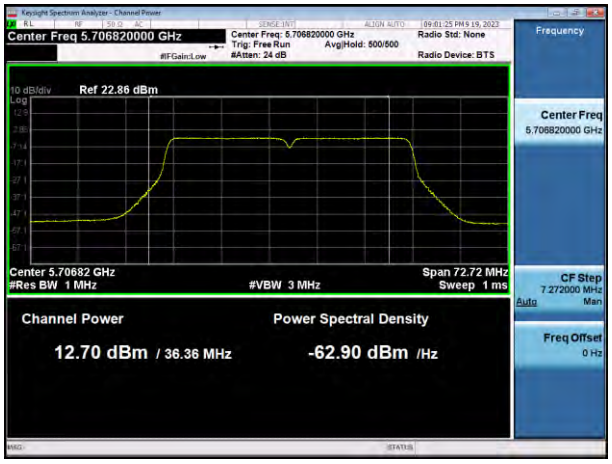
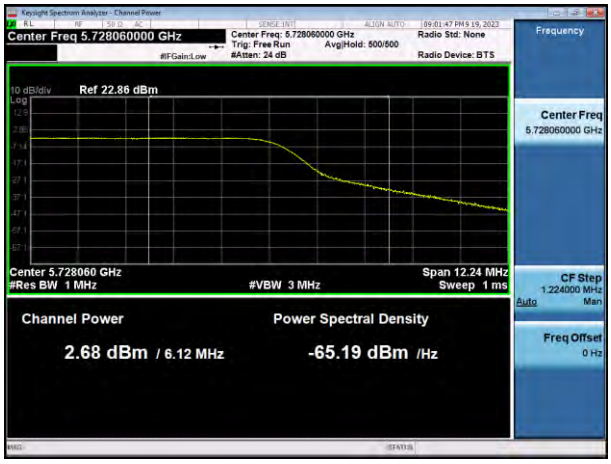
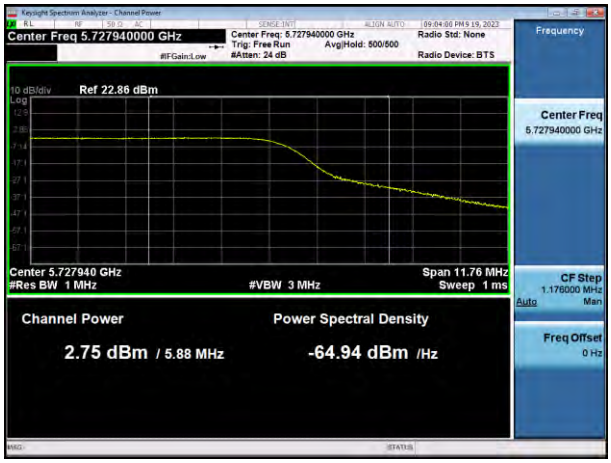
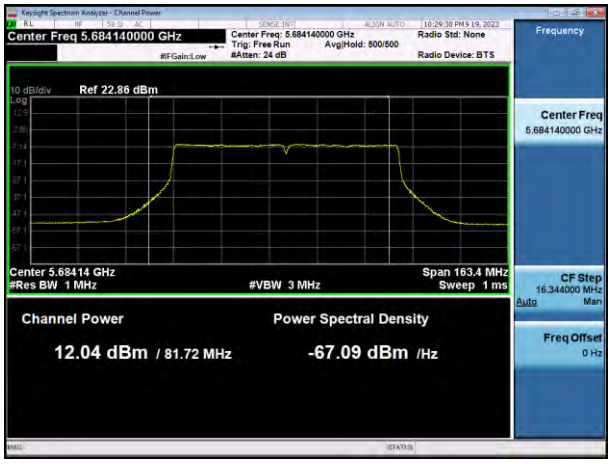
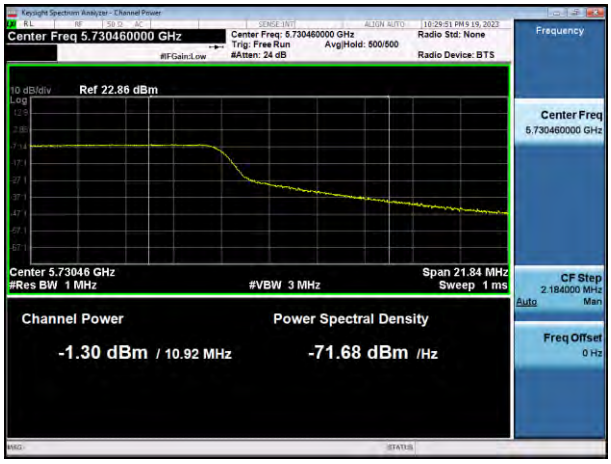
802.11a UNII 2C Band	802.11a UNII 3 Band
	
802.11n(HT20) UNII 2C Band	**802.11n(HT20) UNII 3 Band**
	
802.11ac(VHT20) UNII 2C Band	**802.11ac(VHT20) UNII 3 Band**
	

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	3.291	0.299	3.590	11 dBm/ MHz	6 Mbps
802.11n(HT20)			2.992	0.341	3.333		MCS0
802.11ac(VHT20)			2.922	0.330	3.253		MCS0
802.11a	5720 (UNII 3 Band)	144	0.374	0.299	0.673	30 dBm/ 500 kHz	6 Mbps
802.11n(HT20)			0.182	0.341	0.523		MCS0
802.11ac(VHT20)			0.334	0.330	0.664		MCS0

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	-1.487	0.639	-0.848	11 dBm/ MHz	MCS0
802.11ac(VHT40)			-1.318	0.628	-0.690		MCS0
802.11n(HT40)	5710 (UNII 3 Band)	142	-4.420	0.639	-3.781	30 dBm/ 500 kHz	MCS0
802.11ac(VHT40)			-4.792	0.628	-4.164		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	-5.781	1.191	-4.590	11 dBm/ MHz	MCS0
	5690 (UNII 3 Band)	138	-9.100	1.191	-7.908	30 dBm/ 500 kHz	MCS0

[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	2.898	0.299	3.197	11 dBm/ MHz	6 Mbps
802.11n(HT20)			2.754	0.341	3.095		MCS0
802.11ac(VHT20)			2.732	0.330	3.063		MCS0
802.11a	5720 (UNII 3 Band)	144	0.340	0.299	0.638	30 dBm/ 500 kHz	6 Mbps
802.11n(HT20)			-0.143	0.341	0.199		MCS0
802.11ac(VHT20)			-0.483	0.330	-0.152		MCS0

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	-1.492	0.639	-0.854	11 dBm/ MHz	MCS0
802.11ac(VHT40)			-1.555	0.628	-0.927		MCS0
802.11n(HT40)	5710 (UNII 3 Band)	142	-4.584	0.639	-3.945	30 dBm/ 500 kHz	MCS0
802.11ac(VHT40)			-4.501	0.628	-3.873		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	-5.454	1.191	-4.263	11 dBm/ MHz	MCS0
	5690 (UNII 3 Band)	138	-8.462	1.191	-7.271	30 dBm/ 500 kHz	MCS0

[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**