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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:
May 16, 2022

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

Report No.: HCT-RF-2205-FC050

FCC ID:	**A3LSMG736U**
APPLICANT:	**SAMSUNG Electronics Co., Ltd.**
Model:	SM-G736U
Additional Model:	SM-G736U1
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 : Woong Jin Kim
Engineer of Telecommunication Testing Center

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

This test results were applied only to the test methods required by the standard.

This laboratory is not accredited for the test results marked *.
The above Test Report is the accredited test result by (KS Q) ISO/IEC 17025 and KOLAS(Korea Laboratory Accreditation Scheme), which signed the ILAC-MRA. (HCT Accreditation No.: KT197)

Version

TEST REPORT NO.	DATE	DESCRIPTION
HCT-RF-2205-FC050	May 16, 2022	- First Approval Report

Table of Contents

1. GENERAL INFORMATION

EUT DESCRIPTION

Model	SM-G736U	
Additional Model	SM-G736U1	
EUT Type	Mobile Phone	
Power Supply	DC 3.86 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 : 5570
	U-NII-2C	20 MHz BW : 5500 - 5720 40 MHz BW : 5510 - 5710 80 MHz BW : 5530 – 5690
	U-NII-3	20 MHz BW : 5745 - 5825 40 MHz BW : 5755 - 5795 80 MHz BW : 5775
Straddle channel	Supported	
TDWR Band	Supported	
Dynamic Frequency Selection	Slave without radar detection	
Date(s) of Tests	March 30, 2022 ~ May 13, 2022	
Serial number	Radiated: R3CT30RY5WR Conducted: R3CT30RX81X	

ANTENNA CONFIGURATIONS

1. Antenna configuration

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

(5) SISO test was performed for the MIMO test result.

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

DBS	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
Bluetooth ANT.1 + 6 GHz WiFi MIMO					on	on	on	
Bluetooth ANT.1 + 5GHz WiFi MIMO			on	on	-	-	on	-

3. Directional Gain Calculation

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

Directional gain =

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

Band	Ant Gain (dBi)		N_{ANT}/ N_{ss}	Directional Gain (dBi)
UNII 1	ANT1	-1.40	2 / 2	1.97
	ANT2	-0.70		
UNII 2A	ANT1	-1.30	2 / 2	2.17
	ANT2	-0.40		
UNII 2C	ANT1	-0.40	2 / 2	2.61
	ANT2	-0.40		
UNII 3	ANT1	0.40	2 / 2	3.12
	ANT2	-0.20		

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

Sample MIMO Calculation:

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 e.i.r.p Power Spectral Density Calculation:

Ex) Ant 1 : -8.45 dBi Ant 2 : -7.99 dBi

e.i.r.p Power Spectral Density(dBm) = Power spectral Density(dBm) + Ant Gain (dBi)

14.88 dBm+-5.21 dBi = 9.67 dBm

2. MAXIMUM OUTPUT POWER

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

Band	Mode	Ant.1 Power		Ant.2 Power		MIMO Ant.1 + Ant.2 Power	
		(dBm)	(W)	(dBm)	(W)	(dBm)	(W)
UNII1	802.11a	15.66	0.037	15.35	0.034	18.52	0.071
	802.11n (HT20)	15.72	0.037	15.42	0.035	18.58	0.072
	802.11n (HT40)	14.99	0.032	14.31	0.027	17.67	0.058
	802.11ac (VHT20)	15.72	0.037	15.25	0.033	18.50	0.071
	802.11ac (VHT40)	14.99	0.032	14.27	0.027	17.65	0.058
	802.11ac (VHT80)	10.99	0.013	9.89	0.010	13.48	0.022
UNII2A	802.11a	16.16	0.041	16.95	0.050	19.56	0.090
	802.11n (HT20)	16.27	0.042	16.99	0.050	19.65	0.092
	802.11n (HT40)	14.26	0.027	14.99	0.032	17.65	0.058
	802.11ac (VHT20)	15.06	0.032	15.86	0.039	18.49	0.071
	802.11ac (VHT40)	14.28	0.027	14.99	0.032	17.66	0.058
	802.11ac (VHT80)	10.27	0.011	10.52	0.011	13.41	0.022
UNII2C	802.11a	15.96	0.039	15.70	0.037	18.74	0.075
	802.11n (HT20)	16.05	0.040	15.77	0.038	18.82	0.076
	802.11n (HT40)	14.19	0.026	13.78	0.024	16.86	0.049
	802.11ac (VHT20)	14.98	0.031	14.64	0.029	17.73	0.059
	802.11ac (VHT40)	14.18	0.026	13.80	0.024	16.87	0.049
	802.11ac (VHT80)	12.28	0.017	11.31	0.014	14.81	0.030
UNII3	802.11a	16.12	0.041	15.41	0.035	18.79	0.076
	802.11n (HT20)	16.17	0.041	15.45	0.035	18.84	0.077
	802.11n (HT40)	14.31	0.027	13.51	0.022	16.94	0.049
	802.11ac (VHT20)	15.14	0.033	14.38	0.027	17.79	0.060
	802.11ac (VHT40)	14.26	0.027	13.51	0.022	16.91	0.049
	802.11ac (VHT80)	9.62	0.009	9.05	0.008	12.36	0.017

802.11ac (VHT160)

Band	Mode	Ant.1 Power		Ant.2 Power		MIMO Ant.1 + Ant.2 Power	
		(dBm)	(W)	(dBm)	(W)	(dBm)	(W)
UNII1-2A	802.11ac (VHT160)	-2.08	0.001	-0.05	0.001	2.06	0.002
UNII2C		11.78	0.015	11.04	0.013	14.43	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.

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 April 02, 2018 (Registration Number: KR0032).

5.2 EQUIPMENT

Radiated emissions are measured with one or more of the following types of Linearly polarized antennas: tuned dipole, bi-conical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak 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.

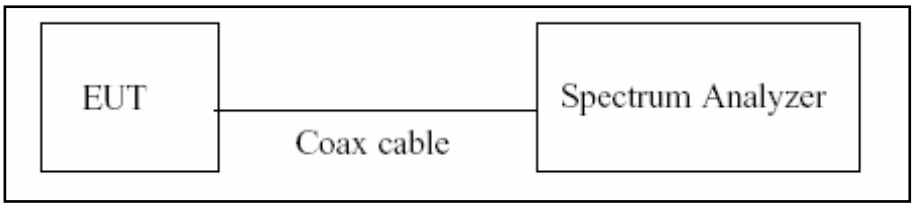
The measurement data shown herein meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Parameter	Expanded Uncertainty (dB)
Conducted Disturbance (150 kHz ~ 30 MHz)	2.00 (Confidence level about 95 %, k=2)
Radiated Disturbance (9 kHz ~ 30 MHz)	4.40 (Confidence level about 95 %, k=2)
Radiated Disturbance (30 MHz ~ 1 GHz)	5.74 (Confidence level about 95 %, k=2)
Radiated Disturbance (1 GHz ~ 18 GHz)	5.51 (Confidence level about 95 %, k=2)
Radiated Disturbance (18 GHz ~ 40 GHz)	5.92 (Confidence level about 95 %, k=2)
Radiated Disturbance (Above 40 GHz)	5.48 (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.

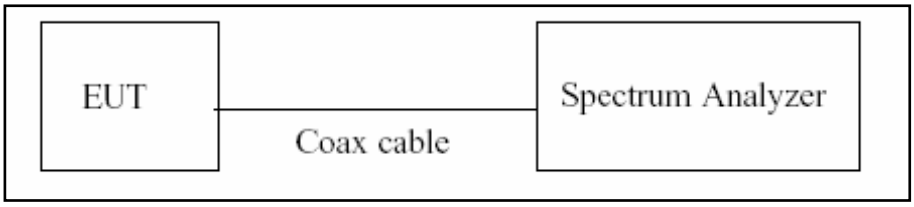
1. RBW = 8 MHz (the largest availble value)
2. VBW = 8 MHz (≥ RBW)
3. SPAN = 0 Hz
4. Detector = Peak
5. Number of points in sweep > 100
6. Trace mode = Clear write
7. Measure T_{total} and T_{on}
8. Calculate Duty Cycle = T_{on}/ T_{total} and Duty Cycle Factor = 10log(1/Duty Cycle)

8.2. 6 dB Bandwidth & 26 dB Bandwidth

Limit

Within the 5.725-5.85 GHz(NII-3), 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.

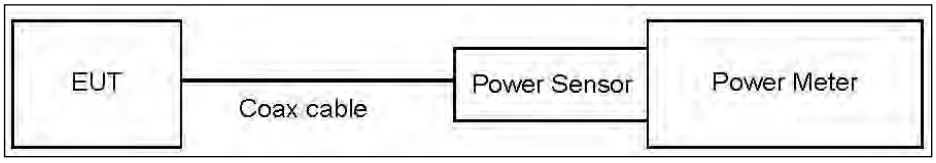
8.3. Output Power Measurement

Limit

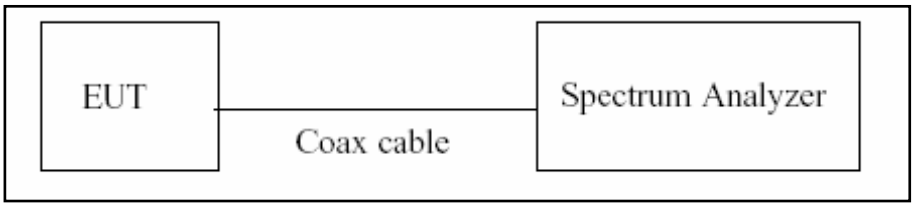
Band	Limit
UNII 1	- Master : Not exceed 1 W(=30 dBm) - Slave : Not exceed 250 mW(=23.98 dBm)
UNII 2A, 2C	Not exceed the lesser of 250 mW or 11 dBm + 10 log B, (where B is the 99% emission bandwidth in megahertz.)
UNII 3	Not exceed 1 W(=30 dBm)

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. Spectrum offset
   Ant.1: Loss = Attenuator loss(20 dB) + Cable loss + EUT cable Loss (0.82 dB)
   Ant.2: Loss = Attenuator loss(20 dB) + Cable loss
3. Actual value of loss for the attenuator and cable combination is below table.

Band	Ant.1 Loss(dB)	Ant.2 Loss(dB)
UNII 1	21.64	20.82
UNII 2A	21.64	20.82
UNII 2C	21.64	20.82
UNII 3	21.64	20.82

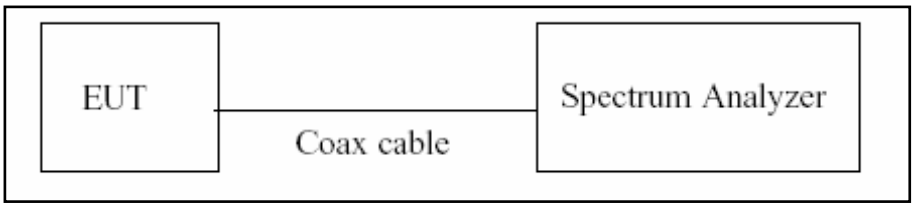
(Actual value of loss for the attenuator and cable combination)

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

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)
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. Spectrum offset
   Ant.1: Loss = Attenuator loss(20 dB) + Cable loss + EUT cable Loss (0.82 dB)
   Ant.2: Loss = Attenuator loss(20 dB) + Cable loss
3. Actual value of loss for the attenuator and cable combination is below table.

Band	Ant.1 Loss(dB)	Ant.2 Loss(dB)
UNII 1	21.64	20.82
UNII 2A	21.64	20.82
UNII 2C	21.64	20.82
UNII 3	21.64	20.82

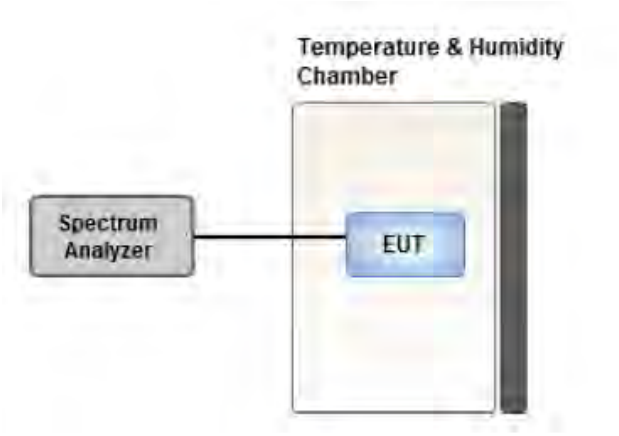
(Actual value of loss for the attenuator and cable combination)

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

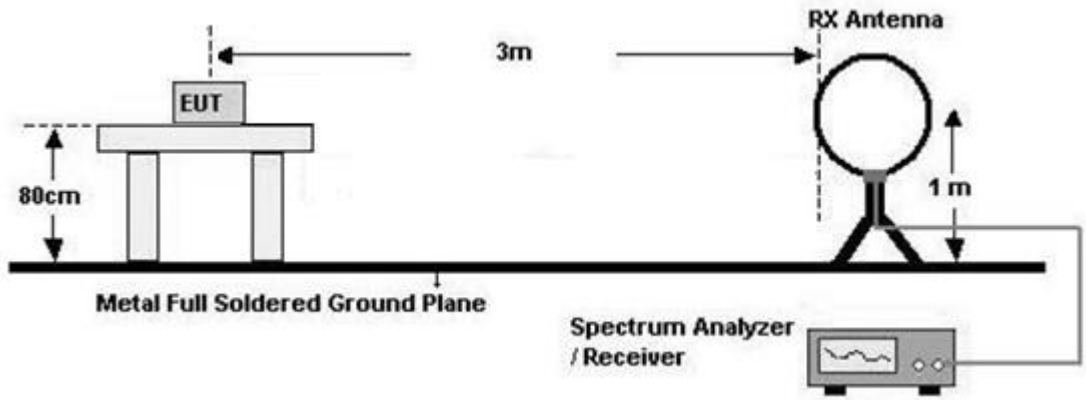
Limit

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. 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.

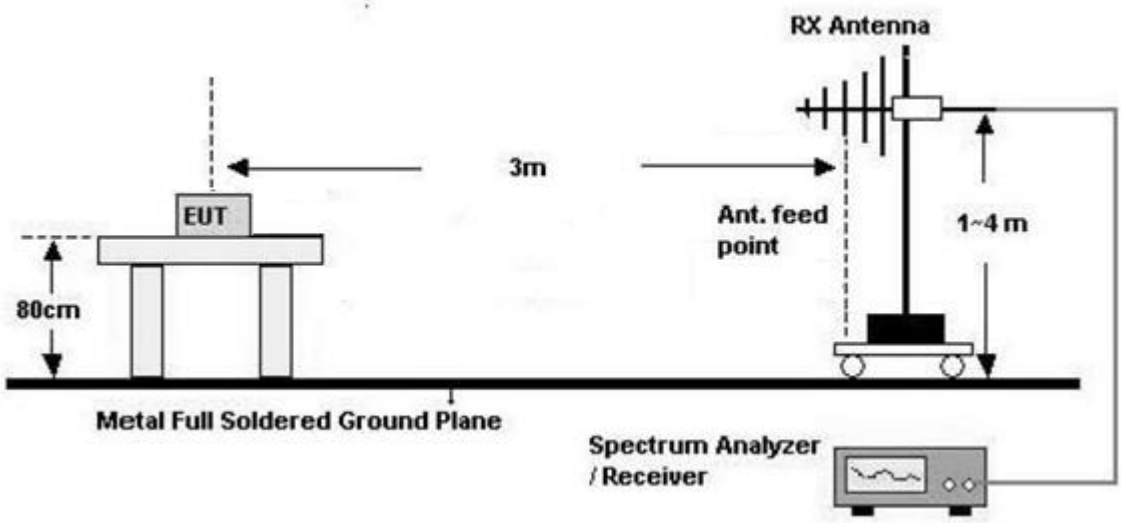
Frequency (MHz)	Field Strength (μV/m)	Measurement Distance (m)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Test Configuration

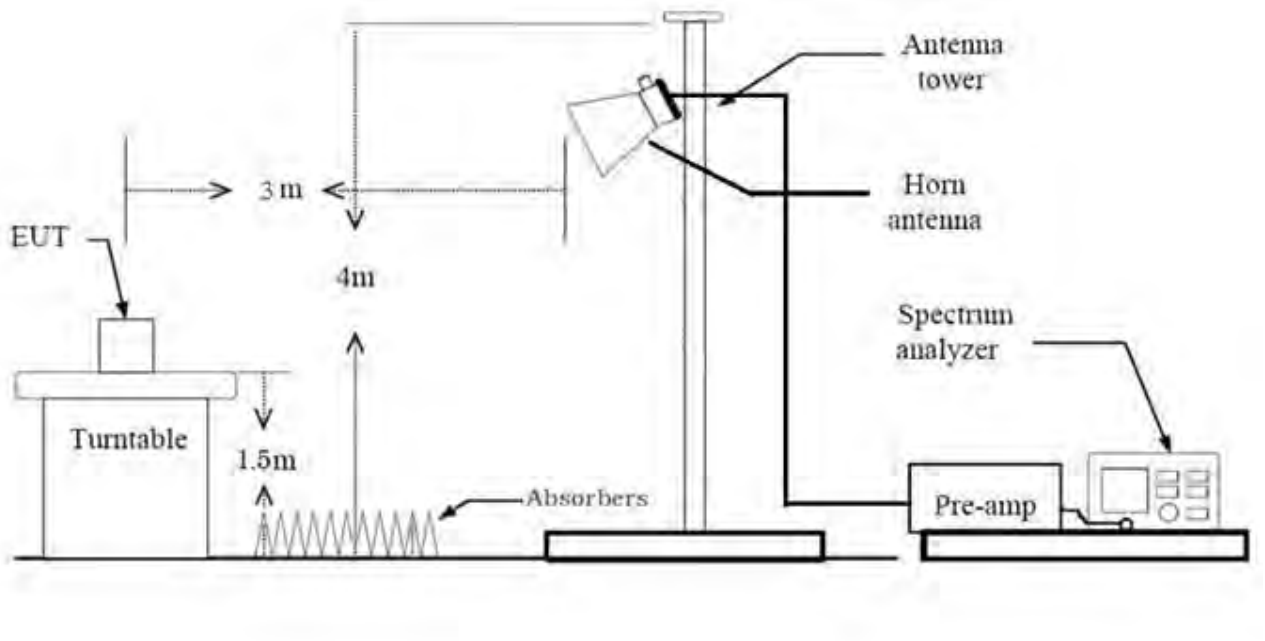
Below 30 MHz



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

Test Procedure of Radiated Restricted Band Edge

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

   (2) Measurement Type(Average, G.6.d in KDB 789033 v02r01):
   - RBW = 1 MHz
   - VBW(Duty cycle ≥ 98 %) = 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 = Measured Value + Antenna Factor(A.F) + Cable Loss(C.L) - Amp Gain(A.G) + Attenuator(ATT) + Distance Factor(D.F)

The actual setting value of VBW

Mode	Worst Data rate (Mbps)	Duty Cycle	Duty Cycle Factor (dB)	The actual setting value of VBW (Hz)
802.11a	6	0.938	0.277	1000
802.11n(HT20)	MCS0	0.925	0.339	1000
802.11n(HT40)	MCS0	0.865	0.629	3000
802.11ac(VHT20)	MCS0	0.929	0.321	1000
802.11ac(VHT40)	MCS0	0.866	0.624	3000
802.11ac(VHT80)	MCS0	0.765	1.161	5000
802.11ac(VHT160)	MCS0	0.646	1.899	10000

8.8. Worst case configuration and mode

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 : X, Y, Z
   - Radiated Restricted Band Edge : X, Y
3. All datarate of operation were investigated and the worst case datarate results are reported.
   - Mode : Ant.1(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.
     (Worstcase : 802.11a_6Mbps, UNII1 HT20 ~ VHT160)
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
6. SM-G736U, SM-G736U1 were tested and the worst case results are reported.

(Worst case : SM-G736U)

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, etc)
   - Worstcase : Stand alone
2. EUT Axis
   - Radiated Spurious Emissions : Z
3. Test case

DBS	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
Bluetooth ANT.1 + 6 GHz WiFi MIMO					on	on	on	
Bluetooth ANT.1 + 5GHz WiFi MIMO			on	on	-	-	on	Case 1

Note : Test case 1 Result refer to the SM-G736U [BT, UNII ax] Test Report.

AC Power line Conducted Emissions

1. All modes of operation were investigated and the worst case configuration results are reported.
   - Mode : Stand alone + External accessories(Earphone,etc) + Travel Adapter,
     Stand alone + Tr avel Adapter
   - Worstcase : Stand alone + Travel Adapter
2. SM-G736U, SM-G736U1 were tested and the worst case results are reported.

(Worst case : SM-G736U)

Conducted test

1. All datarate of operation were investigated and the worst case datarate results are reported.
2. SM-G736U, SM-G736U1 were tested and the worst case results are reported.

(Worst case : SM-G736U)

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)		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)		
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)		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)(9)	<FCC 15.207 limits		PASS
Undesirable Emissions	§15.407(b) (1),(2),(3),(4)	<-27 dBm/MHz EIRP (UNII1, 2A, 2C) cf. Section 8.6 (UNII 3)	Radiated	PASS
General Field Strength Limits(Restricted Bands and Radiated Emission Limits)	15.205, 15.407(b)(9),(10)	Emissions in restricted bands must meet the radiated limits detailed in 15.209		PASS

10. TEST RESULT

10.1 DUTY CYCLE

Mode	Data Rate (Mbps)	T_{on} (ms)	T_{total} (ms)	Duty Cycle	Duty Cycle Factor(dB)
802.11a	6	1.464	1.561	0.938	0.277
	9	0.983	1.079	0.911	0.406
	12	0.745	0.841	0.886	0.528
	18	0.502	0.603	0.832	0.799
	24	0.380	0.481	0.789	1.027
	36	0.263	0.365	0.722	1.413
	48	0.203	0.299	0.678	1.688
	54	0.187	0.284	0.661	1.800

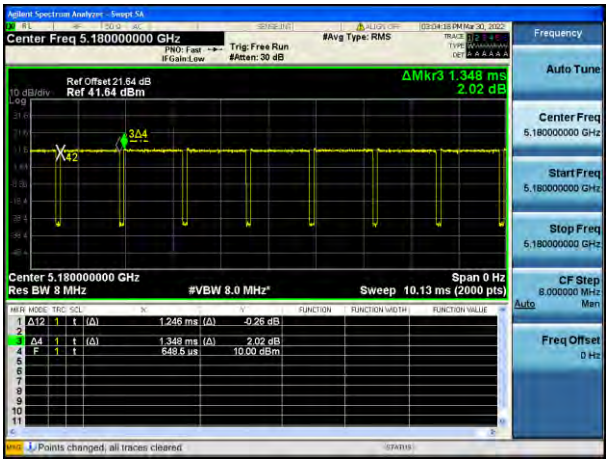
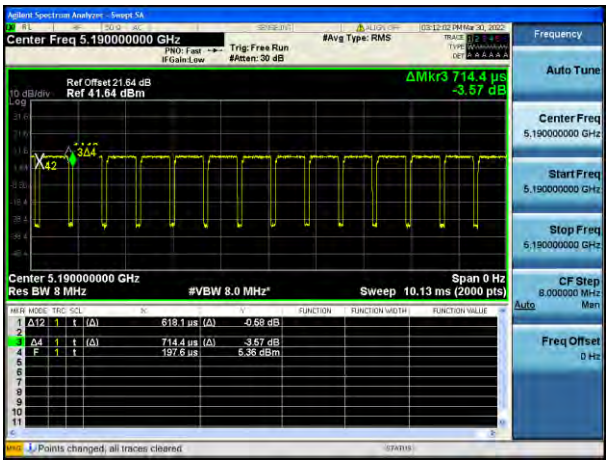
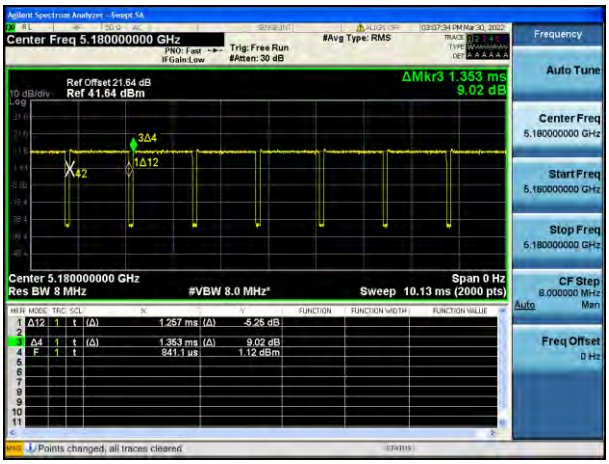
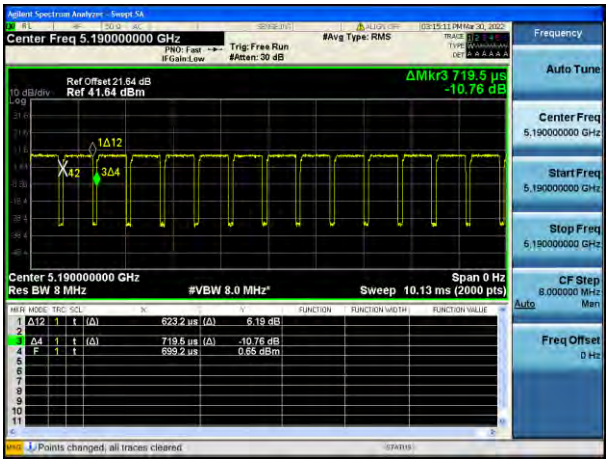
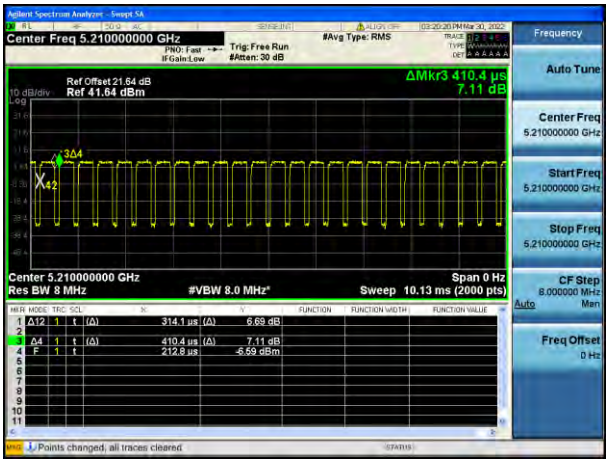
Mode	MCS Index	T_{on} (ms)	T_{total} (ms)	Duty Cycle	Duty Cycle Factor(dB)
802.11n (HT20)	0	1.246	1.348	0.925	0.339
	1	0.649	0.745	0.871	0.601
	2	0.436	0.537	0.811	0.908
	3	0.339	0.441	0.770	1.134
	4	0.238	0.334	0.712	1.474
	5	0.187	0.289	0.649	1.877
	6	0.172	0.269	0.642	1.928
	7	0.162	0.258	0.627	2.024
802.11n (HT40)	0	0.618	0.714	0.865	0.629
	1	0.324	0.426	0.762	1.181
	2	0.233	0.329	0.708	1.502
	3	0.187	0.284	0.661	1.800
	4	0.132	0.233	0.565	2.478
	5	0.111	0.213	0.524	2.808
	6	0.101	0.203	0.500	3.010
	7	0.096	0.193	0.500	3.010

Mode	MCS Index	T_{on} (ms)	T_{total} (ms)	Duty Cycle	Duty Cycle Factor(dB)
802.11ac (VHT20)	0	1.257	1.353	0.929	0.321
	1	0.643	0.745	0.864	0.635
	2	0.441	0.542	0.813	0.899
	3	0.345	0.441	0.782	1.070
	4	0.243	0.339	0.716	1.448
	5	0.193	0.289	0.667	1.761
	6	0.177	0.274	0.648	1.883
	7	0.162	0.258	0.627	2.024
	8	0.142	0.238	0.596	2.249
802.11ac (VHT40)	0	0.623	0.719	0.866	0.624
	1	0.329	0.431	0.765	1.165
	2	0.233	0.334	0.697	1.568
	3	0.187	0.284	0.661	1.800
	4	0.137	0.238	0.574	2.407
	5	0.117	0.213	0.548	2.615
	6	0.106	0.208	0.512	2.906
	7	0.101	0.198	0.513	2.900
	8	0.091	0.187	0.486	3.129
	9	0.086	0.182	0.472	3.259
802.11ac (VHT80)	0	0.314	0.410	0.765	1.161
	1	0.177	0.274	0.648	1.883
	2	0.132	0.228	0.578	2.382
	3	0.106	0.203	0.525	2.798
	4	0.091	0.187	0.486	3.129
	5	0.076	0.172	0.441	3.554
	6	0.072	0.168	0.426	3.703
	7	0.071	0.167	0.424	3.724
	8	0.064	0.161	0.400	3.985
	9	0.064	0.160	0.398	4.000

Mode	MCS Index	T_{on} (ms)	T_{total} (ms)	Duty Cycle	Duty Cycle Factor(dB)
802.11ac (VHT160)	0	0.176	0.272	0.646	1.899
	1	0.107	0.204	0.524	2.803
	2	0.087	0.184	0.472	3.257
	3	0.076	0.172	0.442	3.542
	4	0.063	0.160	0.396	4.025
	5	0.060	0.156	0.382	4.175
	6	0.055	0.152	0.365	4.373
	7	0.055	0.152	0.365	4.373
	8	0.052	0.148	0.349	4.567
	9	0.052	0.148	0.349	4.567

Note:

In order to simplify the report, attached plots were only 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	20.32	16.409
5200	40	19.89	16.391
5240	48	20.37	16.380
5260	52	19.81	16.392
5300	60	19.15	16.382
5320	64	19.71	16.392
5500	100	19.40	16.378
5600	120	19.82	16.392
5720	144	18.76	16.372
5745	149	19.90	16.380
5785	157	19.73	16.383
5825	165	19.67	16.401

802.11n(HT20) Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5180	36	20.28	17.584
5200	40	20.32	17.588
5240	48	20.33	17.600
5260	52	20.36	17.573
5300	60	20.08	17.595
5320	64	20.71	17.579
5500	100	20.43	17.582
5600	120	20.36	17.564
5720	144	20.46	17.579
5745	149	20.80	17.564
5785	157	20.22	17.580
5825	165	20.25	17.591

802.11n(HT40) Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5190	38	40.40	36.051
5230	46	40.36	36.008
5270	54	39.63	36.036
5310	62	39.95	36.078
5510	102	39.82	36.052
5590	118	39.69	36.024
5710	142	39.75	36.013
5755	151	39.83	36.036
5795	159	40.00	36.069

802.11ac(VHT20) Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5180	36	20.61	17.569
5200	40	20.58	17.574
5240	48	20.03	17.571
5260	52	20.61	17.581
5300	60	20.57	17.599
5320	64	20.17	17.611
5500	100	20.40	17.577
5600	120	20.18	17.593
5720	144	20.11	17.586
5745	149	20.61	17.593
5785	157	20.22	17.598
5825	165	20.23	17.582

802.11ac(VHT40) Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5190	38	40.07	36.058
5230	46	39.89	36.066
5270	54	40.11	36.073
5310	62	40.02	36.128
5510	102	40.06	36.067
5590	118	40.03	36.048
5710	142	40.03	36.011
5755	151	39.56	36.005
5795	159	40.22	36.071

802.11ac(VHT80) Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5210	42	81.68	75.553
5290	58	82.29	75.557
5530	106	82.14	75.522
5610	122	81.57	75.541
5690	138	81.55	75.531
5775	155	81.51	75.533

802.11ac(VHT160) Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5250	50	164.9	154.62
5570	114	165.2	154.56

[Ant.2]

802.11a Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5180	36	19.54	16.382
5200	40	19.91	16.383
5240	48	19.69	16.394
5260	52	19.14	16.377
5300	60	19.59	16.378
5320	64	19.46	16.371
5500	100	19.70	16.397
5600	120	19.57	16.389
5720	144	19.27	16.369
5745	149	19.85	16.378
5785	157	19.38	16.375
5825	165	19.36	16.367

802.11n(HT20) Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5180	36	20.48	17.580
5200	40	20.54	17.579
5240	48	20.12	17.590
5260	52	20.47	17.585
5300	60	20.33	17.586
5320	64	20.43	17.571
5500	100	20.52	17.586
5600	120	20.45	17.586
5720	144	20.81	17.597
5745	149	20.76	17.591
5785	157	20.35	17.581
5825	165	20.51	17.591

802.11n(HT40) Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5190	38	40.33	36.051
5230	46	40.06	36.017
5270	54	39.86	36.042
5310	62	39.63	36.043
5510	102	39.91	36.050
5590	118	39.75	36.028
5710	142	39.98	36.036
5755	151	39.99	35.984
5795	159	40.20	36.075

802.11ac(VHT20) Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5180	36	20.70	17.596
5200	40	20.56	17.567
5240	48	20.63	17.588
5260	52	20.47	17.586
5300	60	20.43	17.576
5320	64	20.09	17.578
5500	100	20.38	17.586
5600	120	20.42	17.581
5720	144	20.13	17.565
5745	149	20.57	17.587
5785	157	20.24	17.580
5825	165	19.99	17.595

802.11ac(VHT40) Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5190	38	39.79	36.060
5230	46	40.01	36.026
5270	54	39.97	36.009
5310	62	40.06	36.050
5510	102	39.58	36.070
5590	118	39.60	36.048
5710	142	39.72	36.033
5755	151	40.29	36.059
5795	159	39.81	36.044

802.11ac(VHT80) Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5210	42	81.34	75.530
5290	58	81.74	75.483
5530	106	82.27	75.515
5610	122	81.62	75.535
5690	138	81.55	75.518
5775	155	81.73	75.550

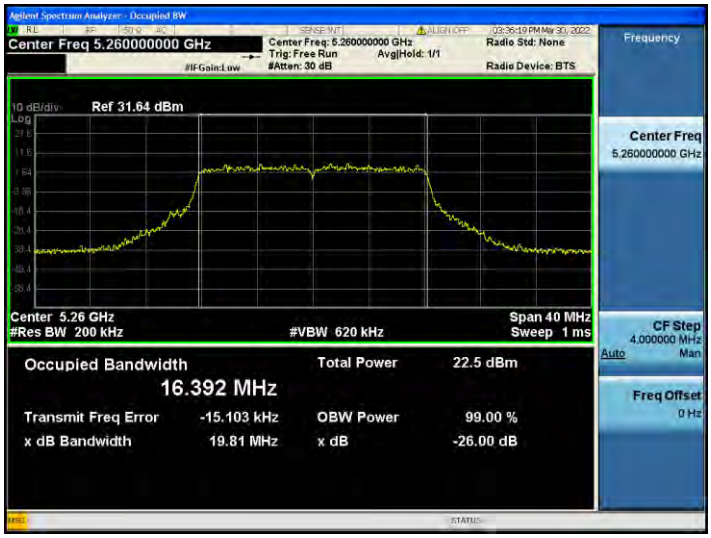
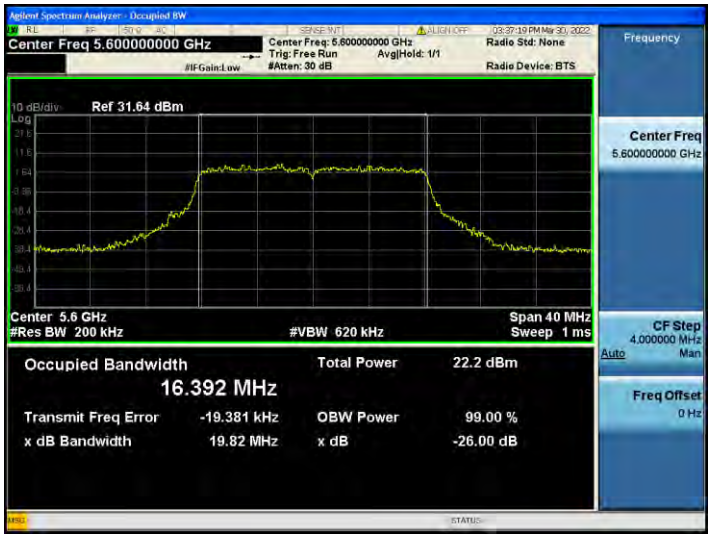
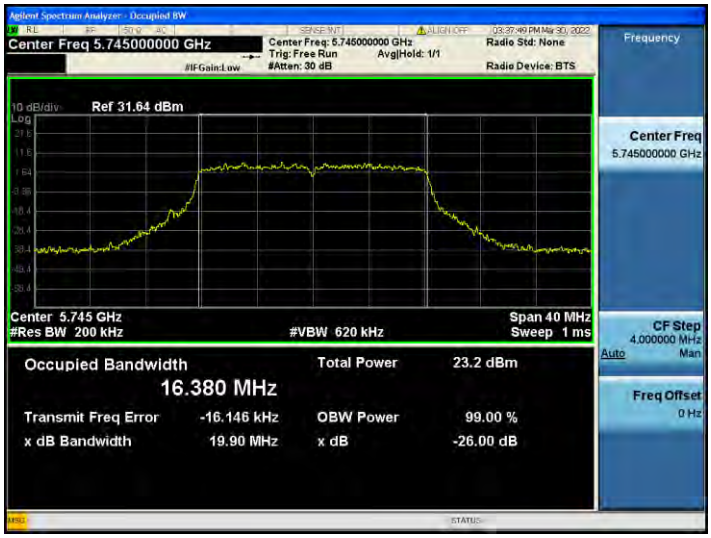
802.11ac(VHT160) Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5250	50	165.2	154.36
5570	114	164.8	154.44

[Ant.1]

▣ Test Plots(802.11a)

Note:

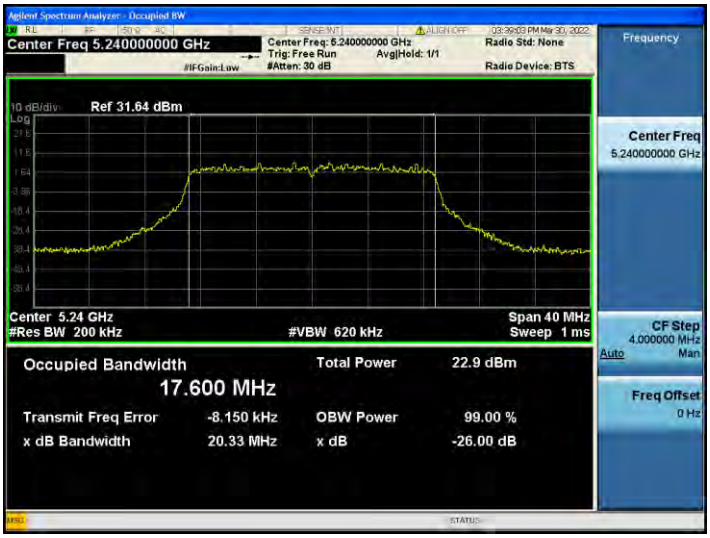
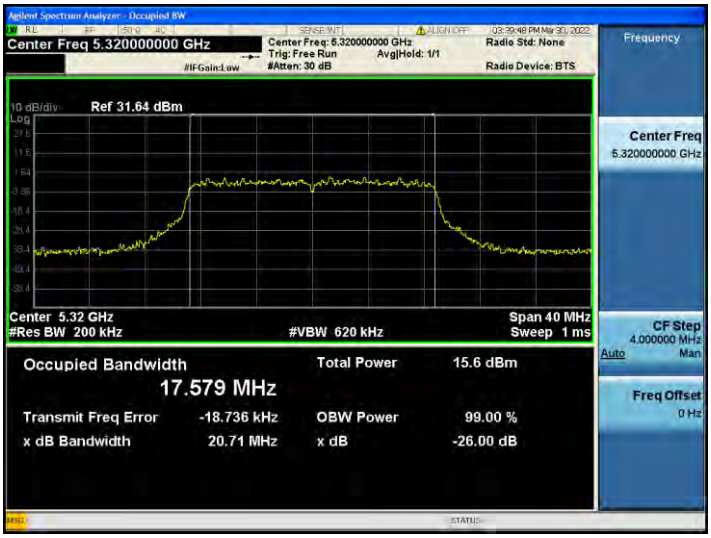
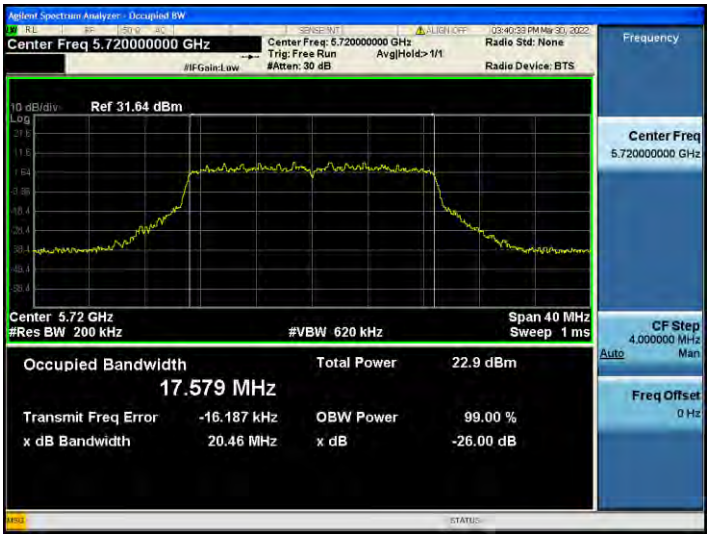
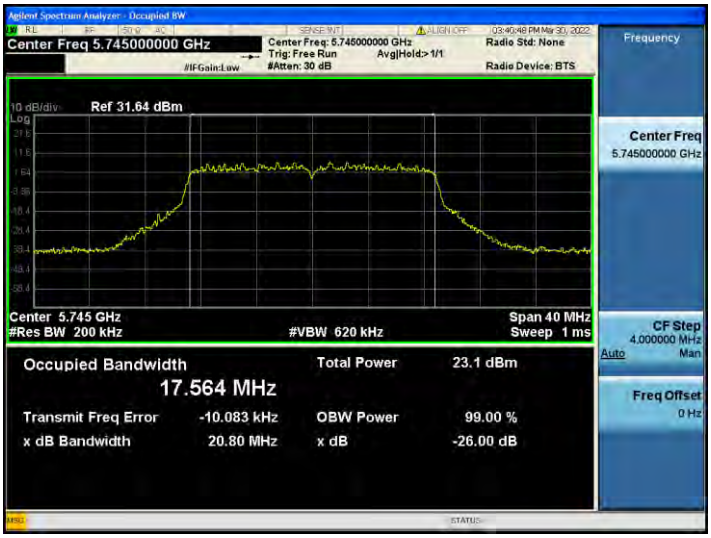
In order to simplify the report, attached plots were only the most wide channel.

802.11a UNII 1 BAND 26 dB Bandwidth (CH 48)	802.11a UNII 2A BAND 26 dB Bandwidth (CH 52)
	
802.11a UNII 2C BAND 26 dB Bandwidth (CH 120)	**802.11a UNII 3 BAND 26 dB Bandwidth (CH 149)**
	

▣ Test Plots(802.11n(HT20))

Note:

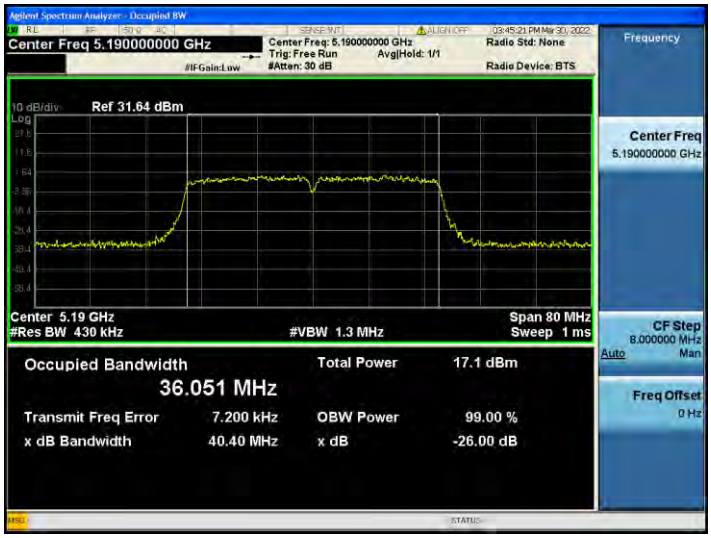
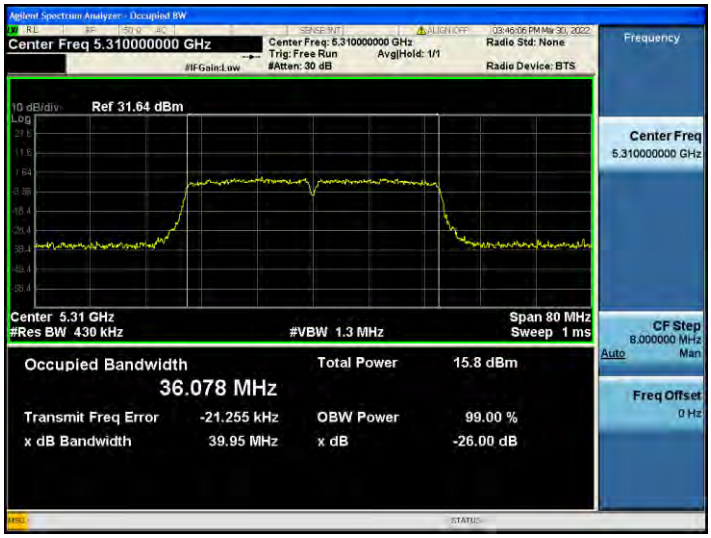
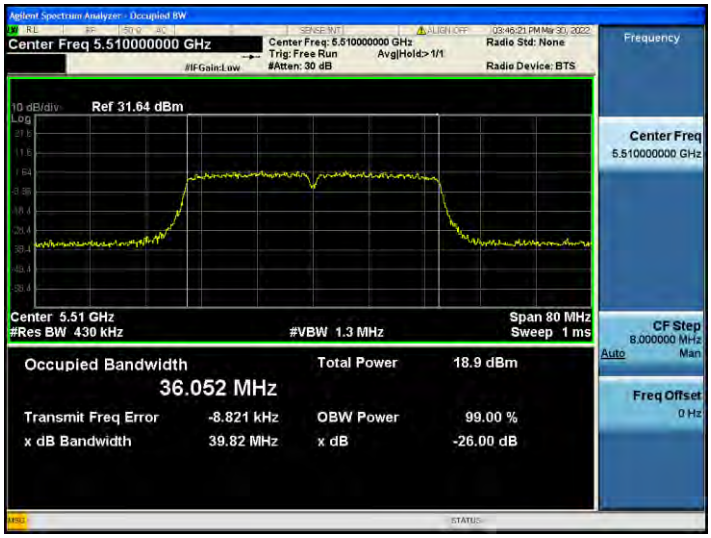
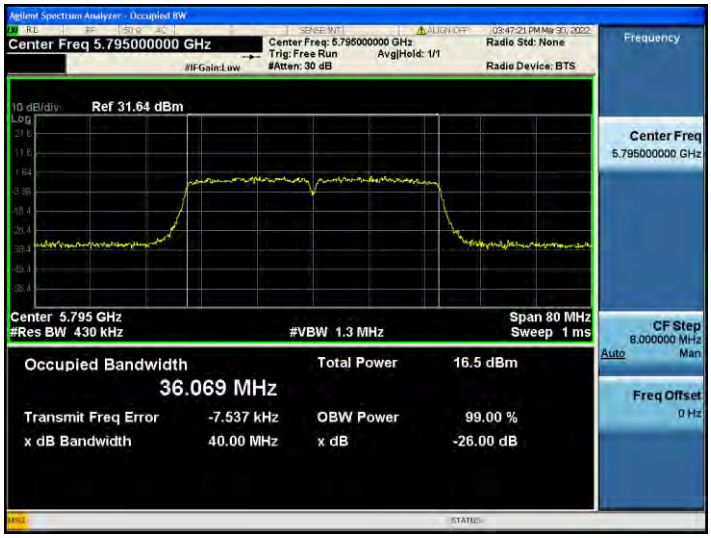
In order to simplify the report, attached plots were only the most wide channel.

802.11n_HT20 UNII 1 BAND 26 dB Bandwidth(CH 48)	802.11n_HT20 UNII 2A BAND 26 dB Bandwidth(CH 64)
	
802.11n_HT20 UNII 2C BAND 26 dB Bandwidth(CH 144)	**802.11n_HT20 UNII 3 BAND 26 dB Bandwidth(CH 149)**
	

▣ Test Plots(802.11n(HT40))

Note:

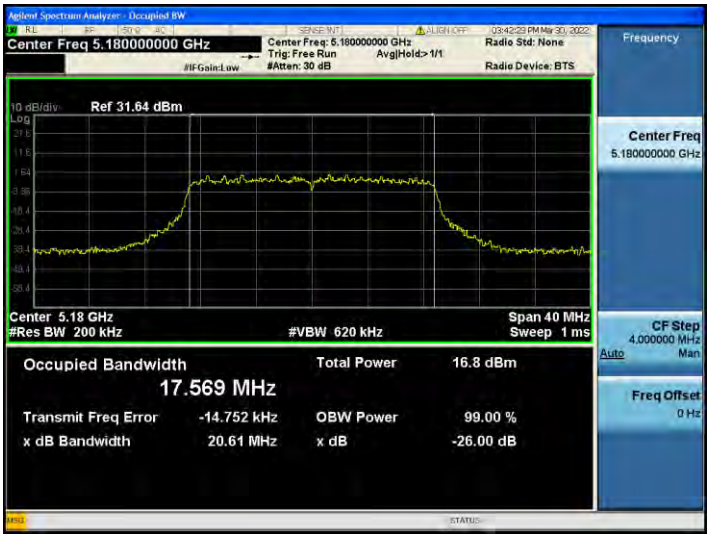
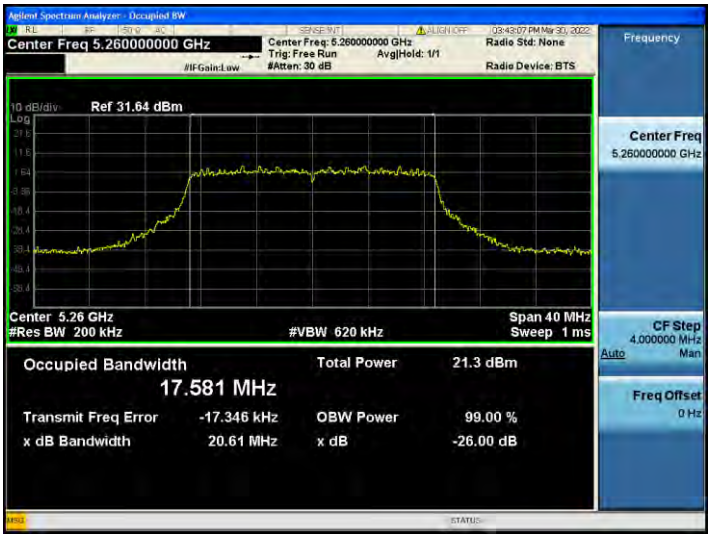
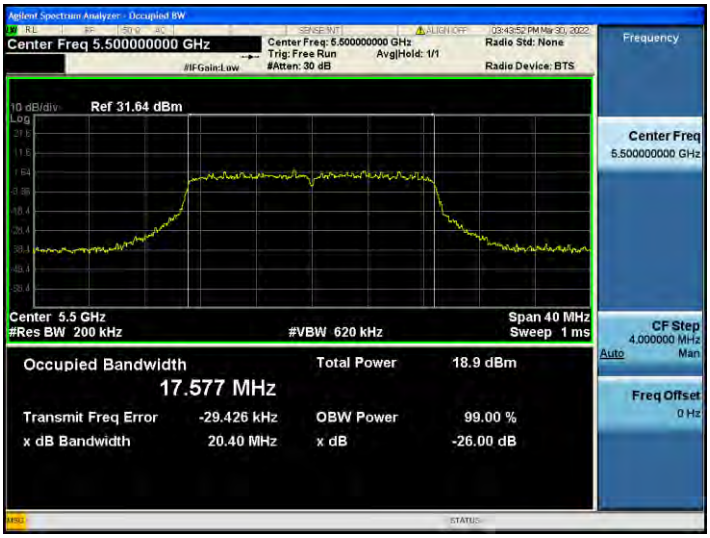
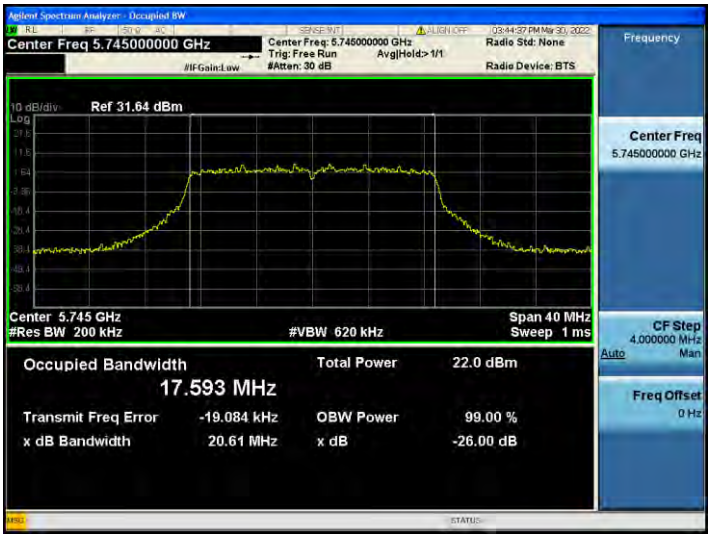
In order to simplify the report, attached plots were only the most wide channel.

802.11n_HT40 UNII 1 BAND 26 dB Bandwidth(CH 38)	802.11n_HT40 UNII 2A BAND 26 dB Bandwidth (CH 62)
	
802.11n_HT40 UNII 2C BAND 26 dB Bandwidth(CH 102)	**802.11n_HT40 UNII 3 BAND 26 dB Bandwidth (CH 159)**
	

▣ Test Plots(802.11ac(VHT20))

Note:

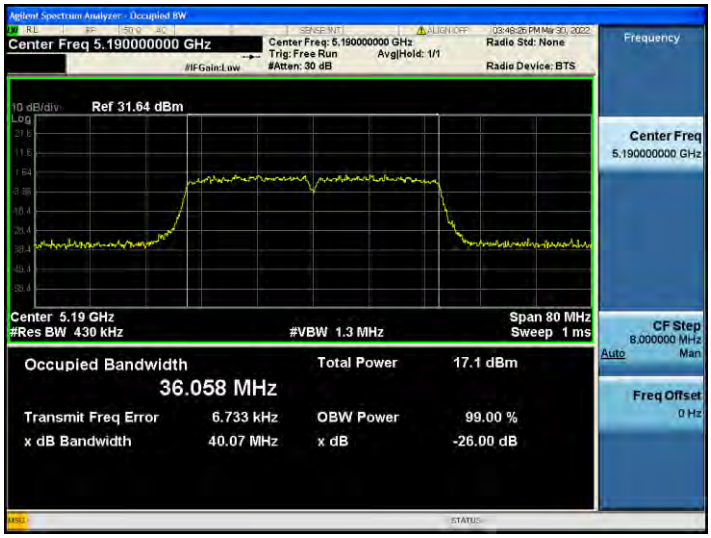
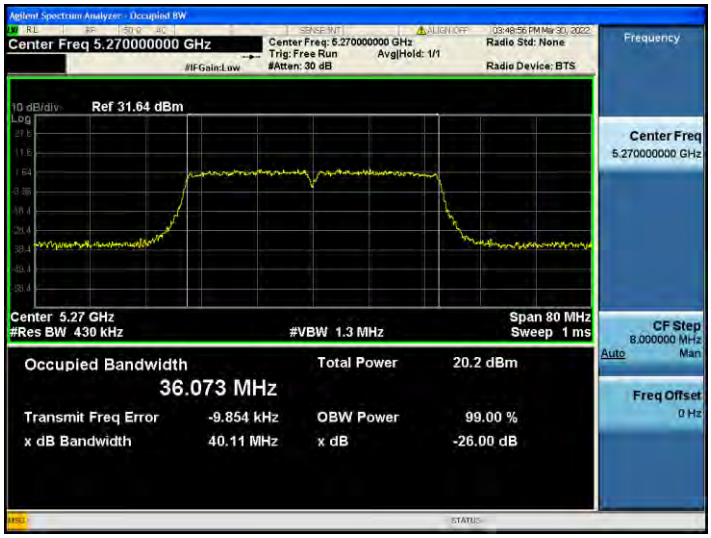
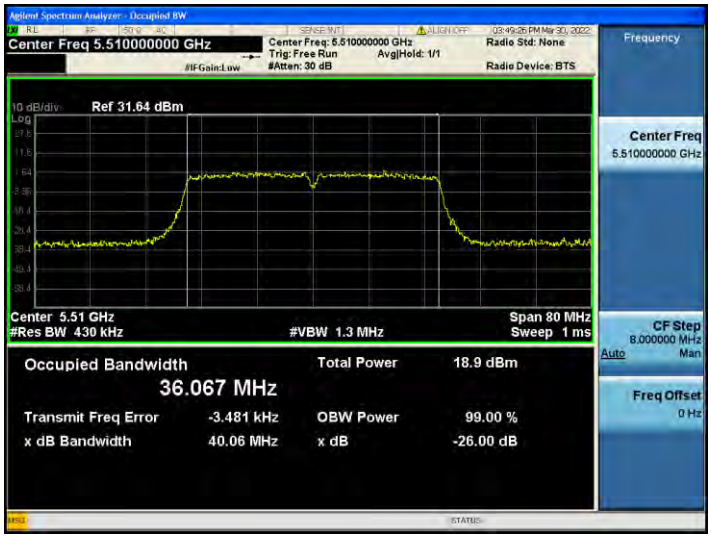
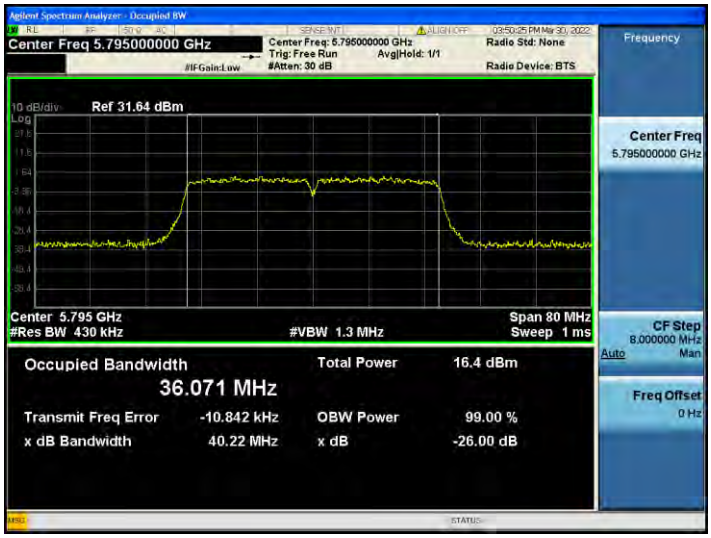
In order to simplify the report, attached plots were only the most wide channel.

802.11ac_VHT20 UNII 1 BAND 26 dB Bandwidth(CH 36)	802.11ac_VHT20 UNII 2A BAND 26 dB Bandwidth(CH 52)
	
802.11ac_VHT20 UNII 2C BAND 26 dB Bandwidth(CH 100)	**802.11ac_VHT20 UNII 3 BAND 26 dB Bandwidth(CH 149)**
	

▣ Test Plots(802.11ac(VHT40))

Note:

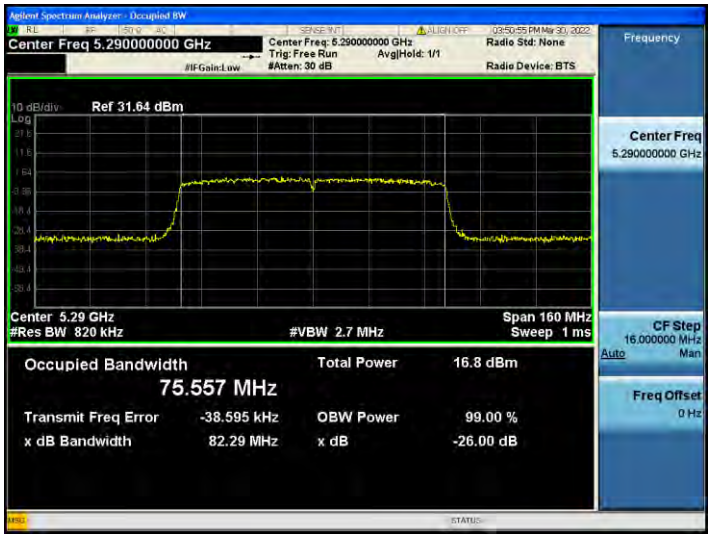
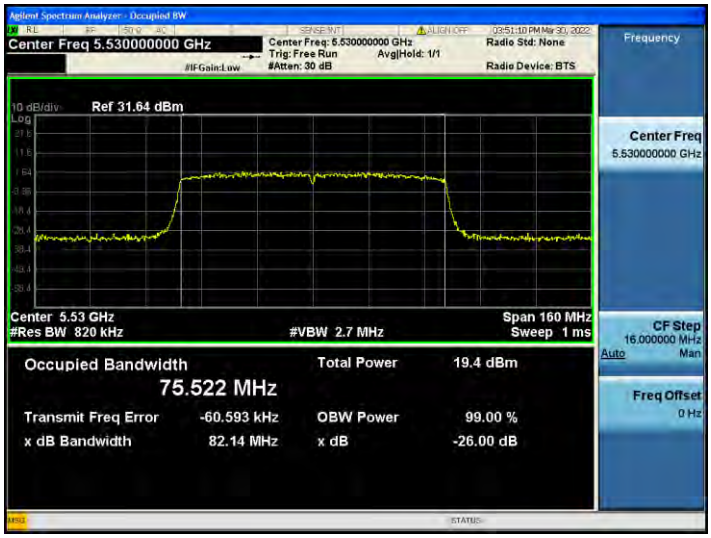
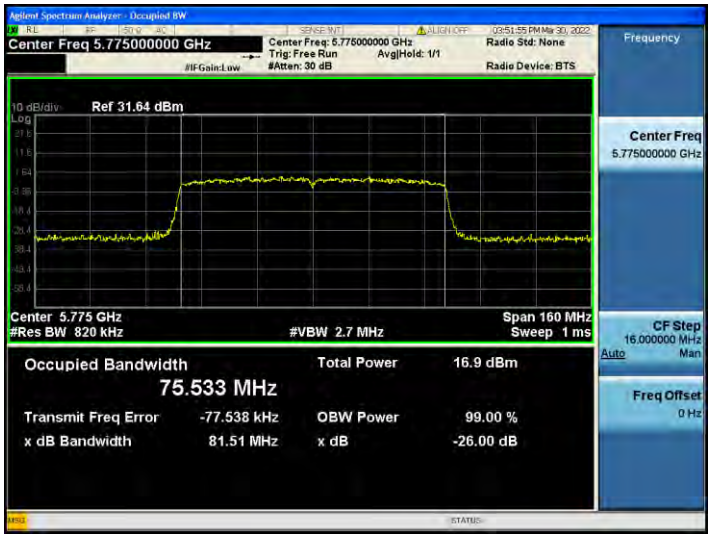
In order to simplify the report, attached plots were only the most wide channel.

802.11ac_VHT40 UNII 1 BAND 26 dB Bandwidth(CH 38)	802.11ac_VHT40 UNII 2A BAND 26 dB Bandwidth (CH 54)
	
802.11ac_VHT40 UNII 2C BAND 26 dB Bandwidth(CH 102)	**802.11ac_VHT40 UNII 3 BAND 26 dB Bandwidth (CH 159)**
	

▣ Test Plots(802.11ac(VHT80))

Note:

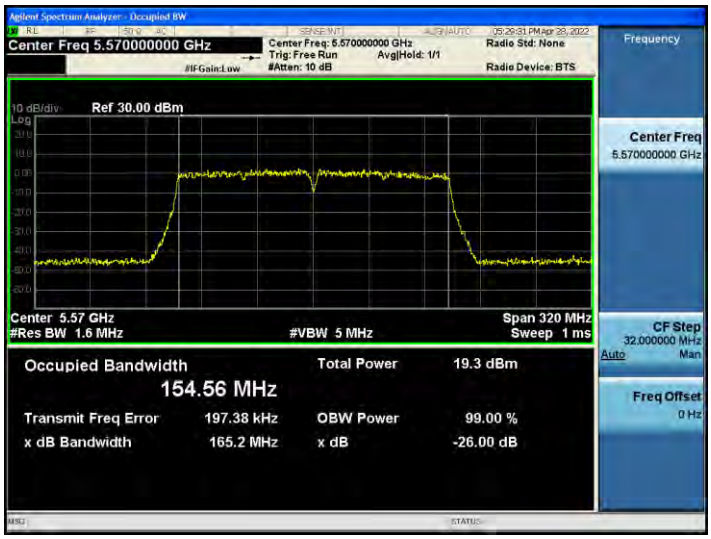
In order to simplify the report, attached plots were only the most wide channel.

802.11ac_VHT80 UNII 1 BAND 26 dB Bandwidth(CH 42)	802.11ac_VHT80 UNII 2A BAND 26 dB Bandwidth (CH 58)
	
802.11ac_VHT80 UNII 2C BAND 26 dB Bandwidth(CH 106)	**802.11ac_VHT80 UNII 3 BAND 26 dB Bandwidth (CH 155)**
	

▣ Test Plots(802.11ac(VHT160))

Note:

In order to simplify the report, attached plots were only the most wide channel.

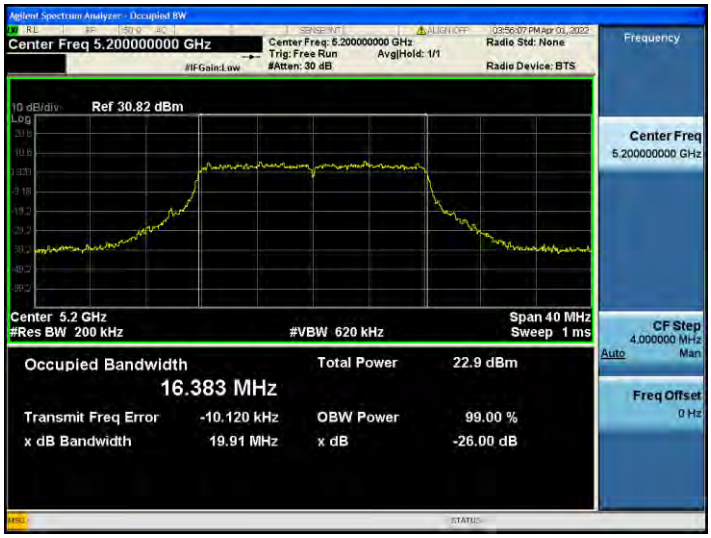
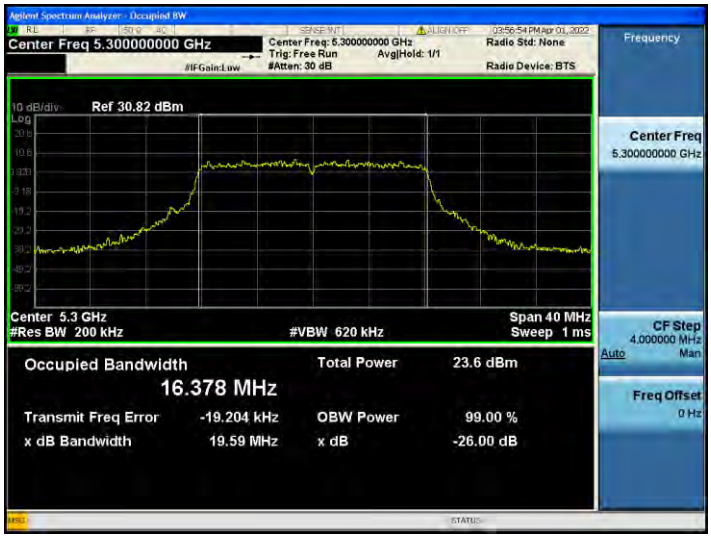
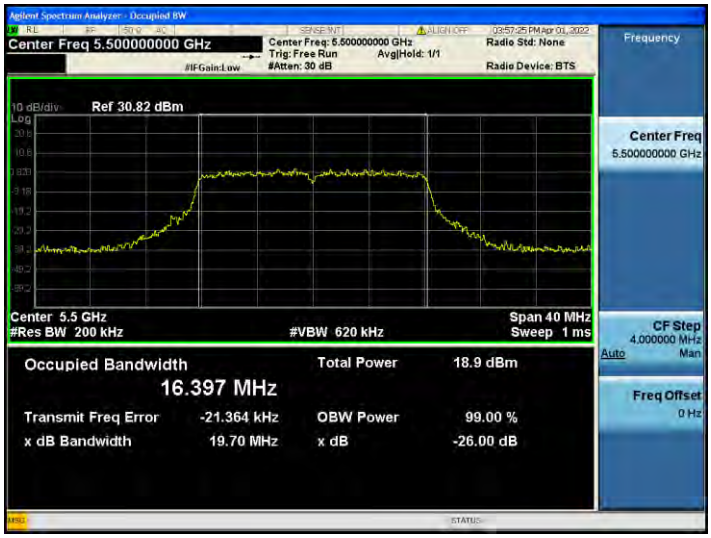
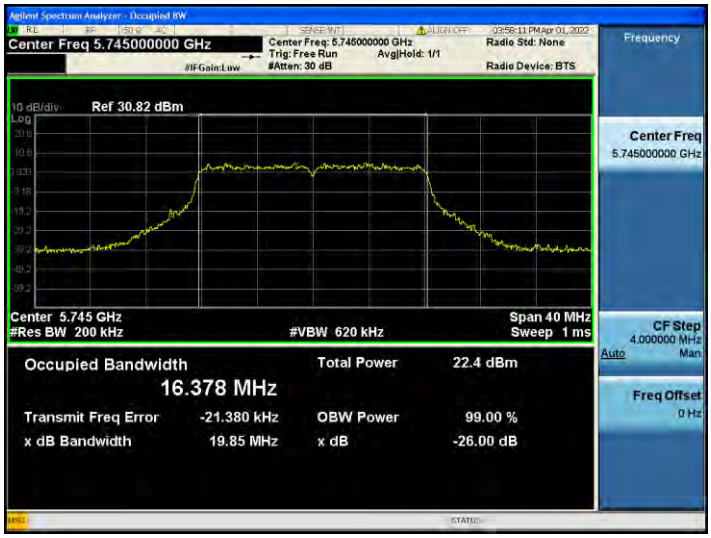
802.11ac_VHT160 UNII 1 BAND 26 dB Bandwidth(CH 50)	802.11ac_VHT160 UNII 2A BAND 26 dB Bandwidth (CH 114)
	

[Ant.2]

▣ Test Plots(802.11a)

Note:

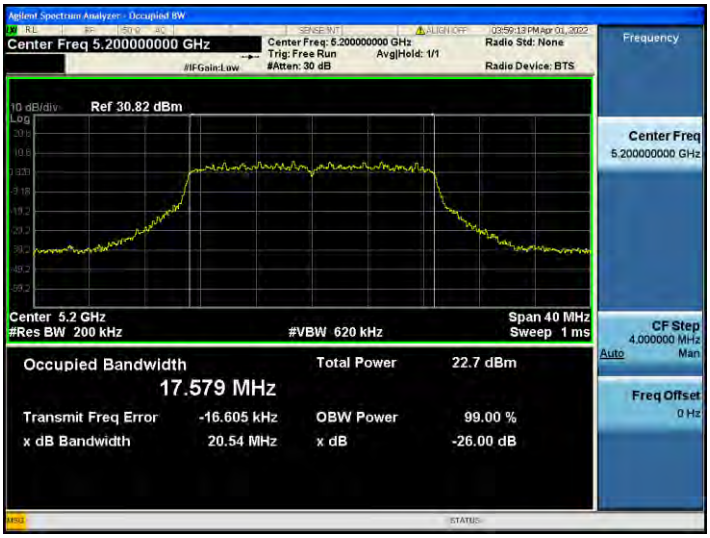
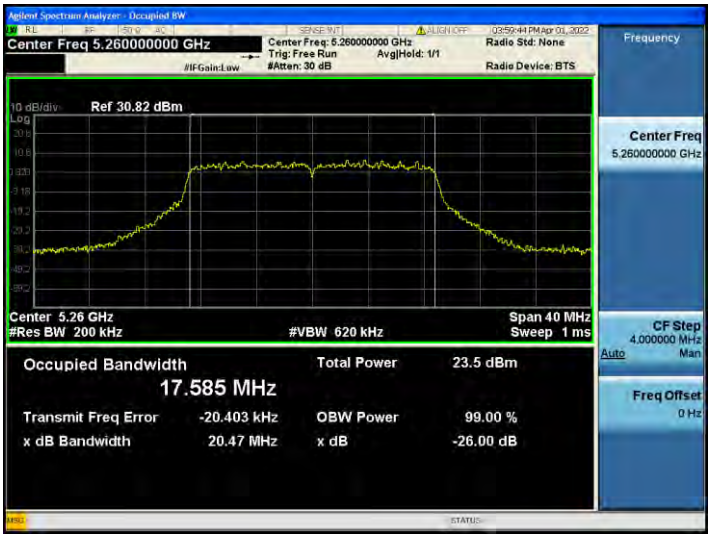
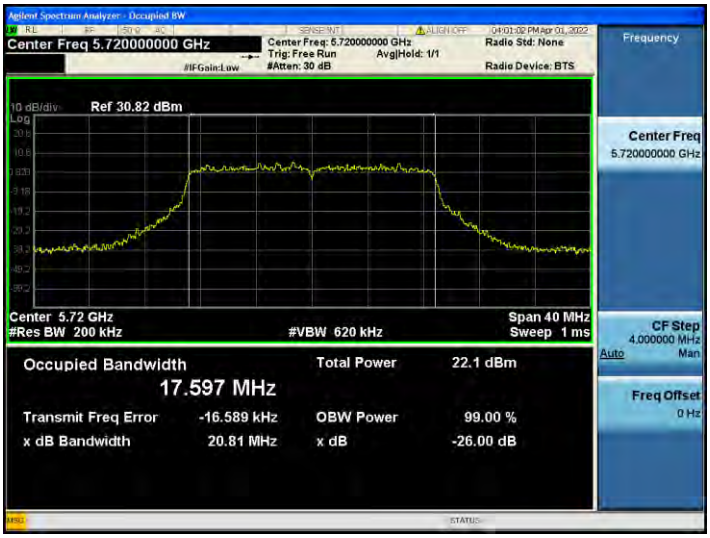
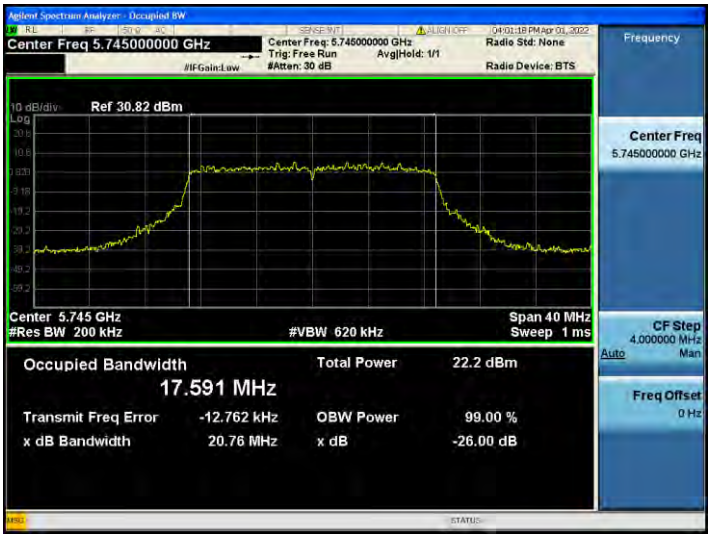
In order to simplify the report, attached plots were only the most wide channel.

802.11a UNII 1 BAND 26 dB Bandwidth (CH 40)	802.11a UNII 2A BAND 26 dB Bandwidth (CH 60)
	
802.11a UNII 2C BAND 26 dB Bandwidth (CH 100)	**802.11a UNII 3 BAND 26 dB Bandwidth (CH 149)**
	

▣ Test Plots(802.11n(HT20))

Note:

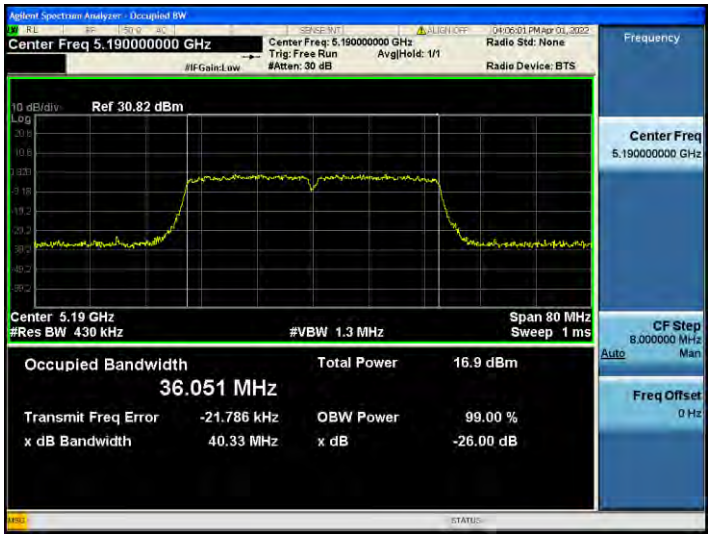
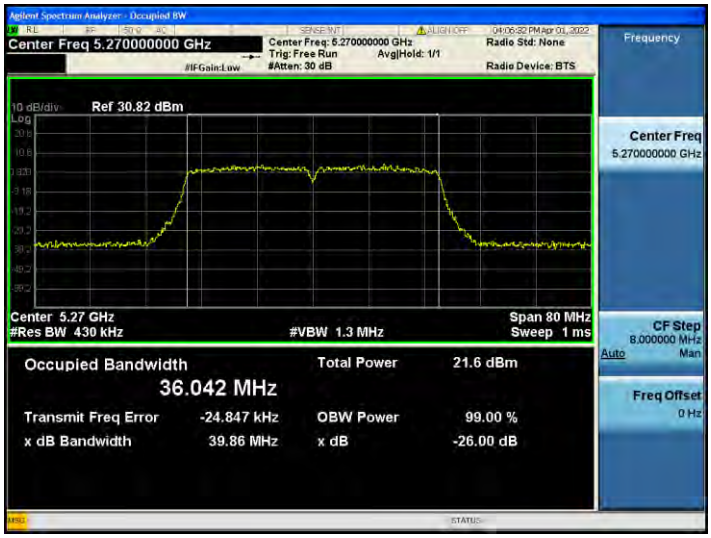
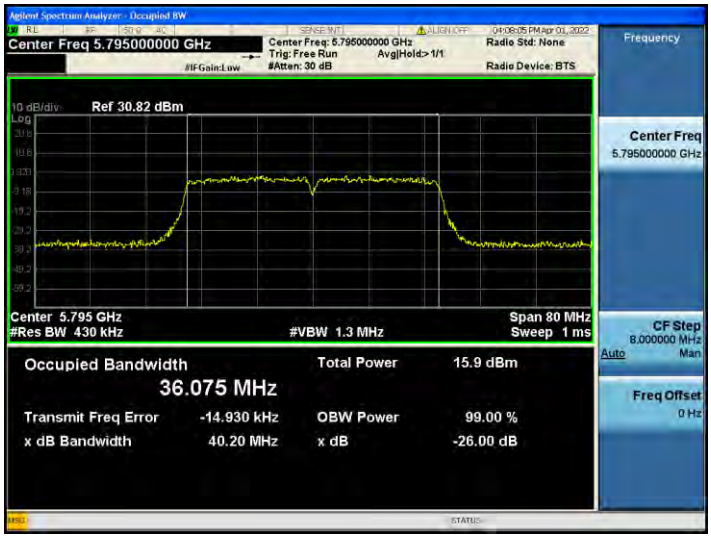
In order to simplify the report, attached plots were only the most wide channel.

802.11n_HT20 UNII 1 BAND 26 dB Bandwidth(CH 40)	802.11n_HT20 UNII 2A BAND 26 dB Bandwidth(CH 52)
	
802.11n_HT20 UNII 2C BAND 26 dB Bandwidth(CH 144)	**802.11n_HT20 UNII 3 BAND 26 dB Bandwidth(CH 149)**
	

▣ Test Plots(802.11n(HT40))

Note:

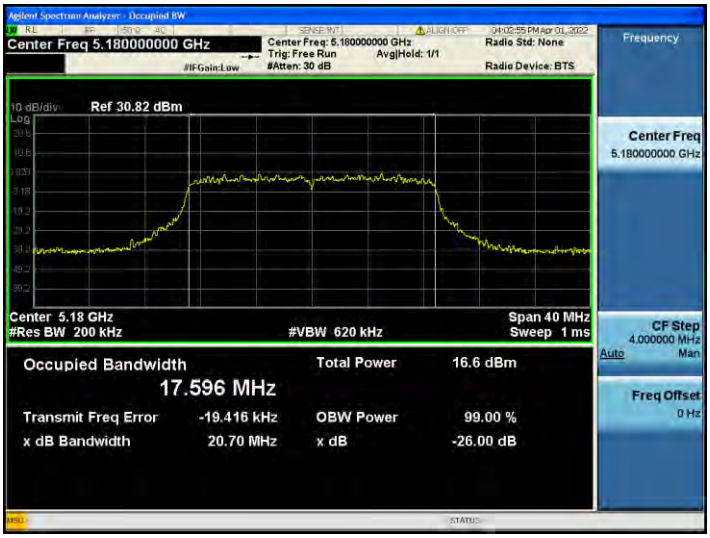
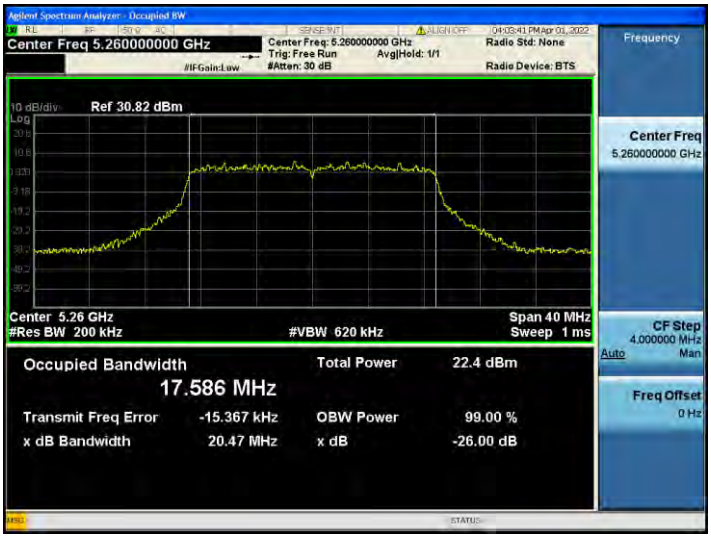
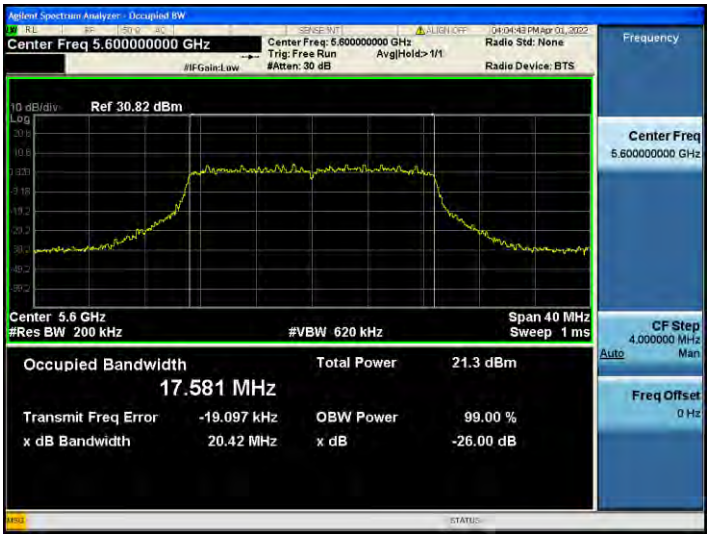
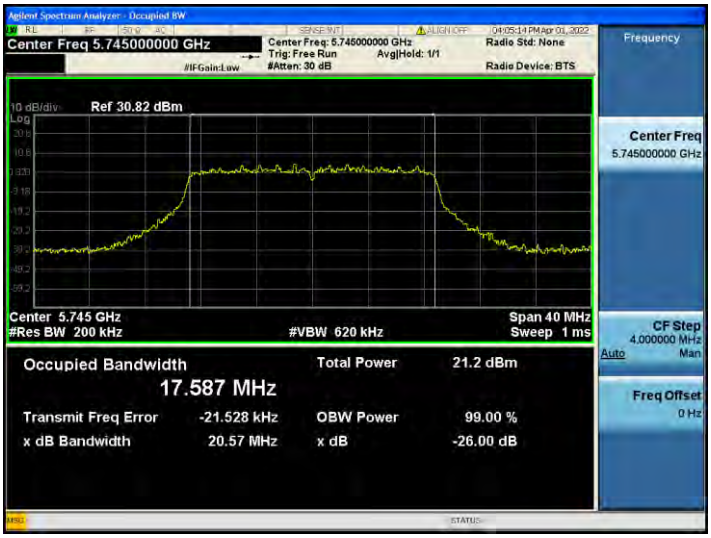
In order to simplify the report, attached plots were only the most wide channel.

802.11n_HT40 UNII 1 BAND 26 dB Bandwidth(CH 38)	802.11n_HT40 UNII 2A BAND 26 dB Bandwidth (CH 54)
	
802.11n_HT40 UNII 2C BAND 26 dB Bandwidth(CH 142)	**802.11n_HT40 UNII 3 BAND 26 dB Bandwidth (CH 159)**
	

▣ Test Plots(802.11ac(VHT20))

Note:

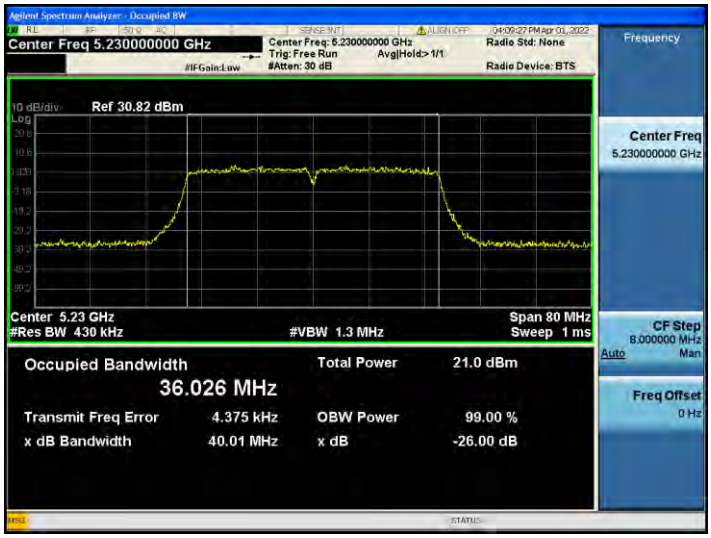
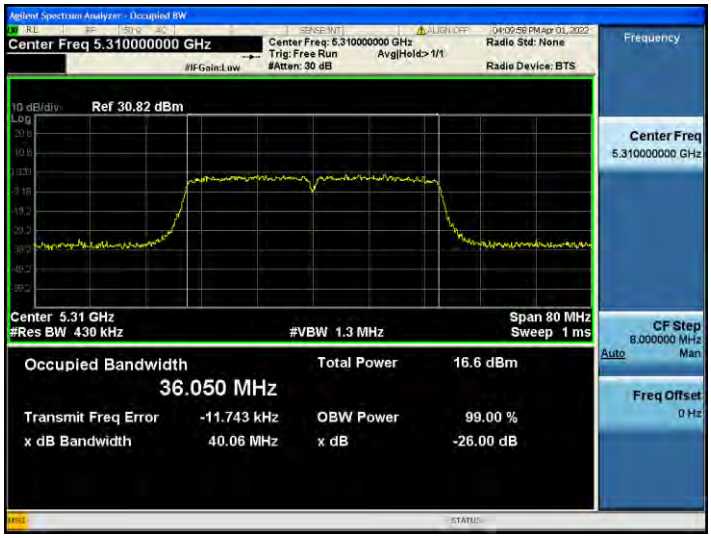
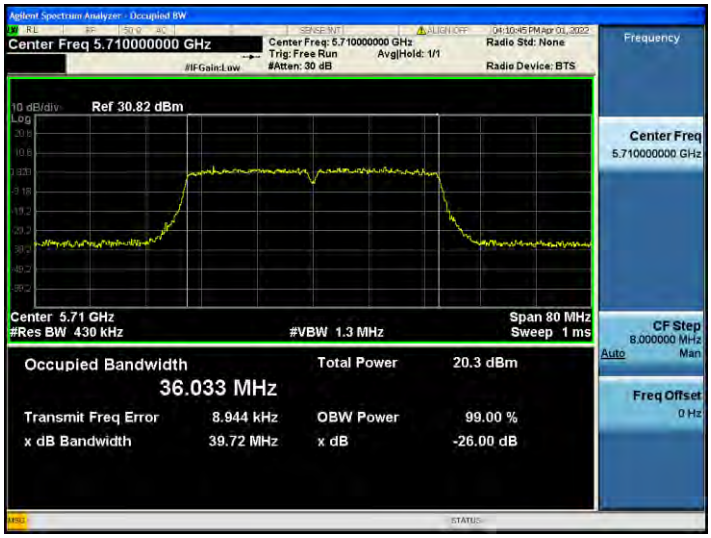
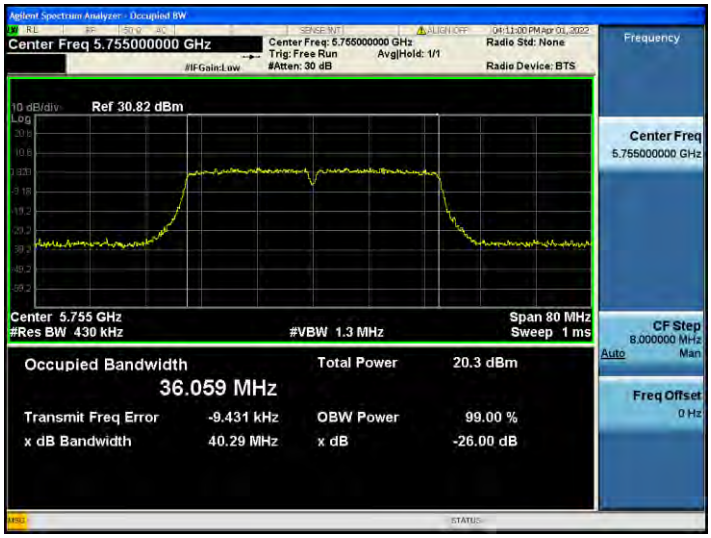
In order to simplify the report, attached plots were only the most wide channel.

802.11ac_VHT20 UNII 1 BAND 26 dB Bandwidth(CH 36)	802.11ac_VHT20 UNII 2A BAND 26 dB Bandwidth(CH 52)
	
802.11ac_VHT20 UNII 2C BAND 26 dB Bandwidth(CH 120)	**802.11ac_VHT20 UNII 3 BAND 26 dB Bandwidth(CH 149)**
	

▣ Test Plots(802.11ac(VHT40))

Note:

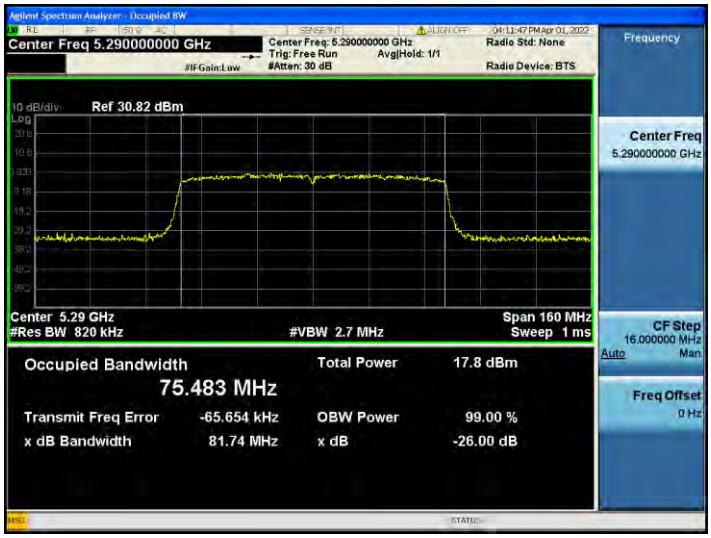
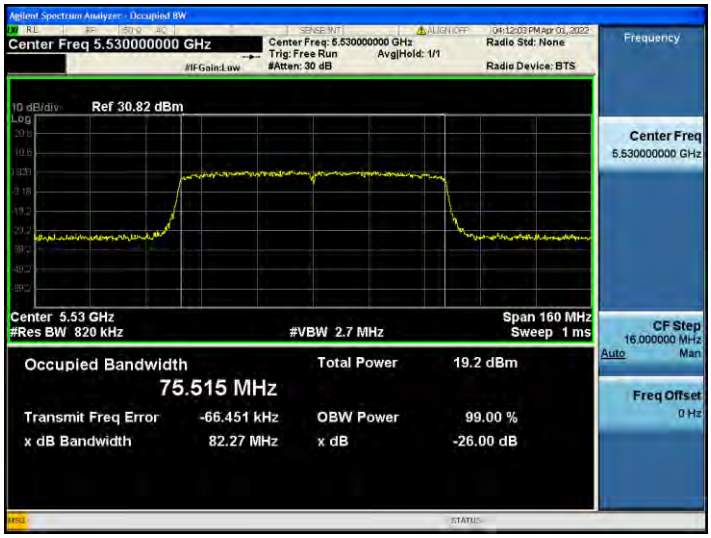
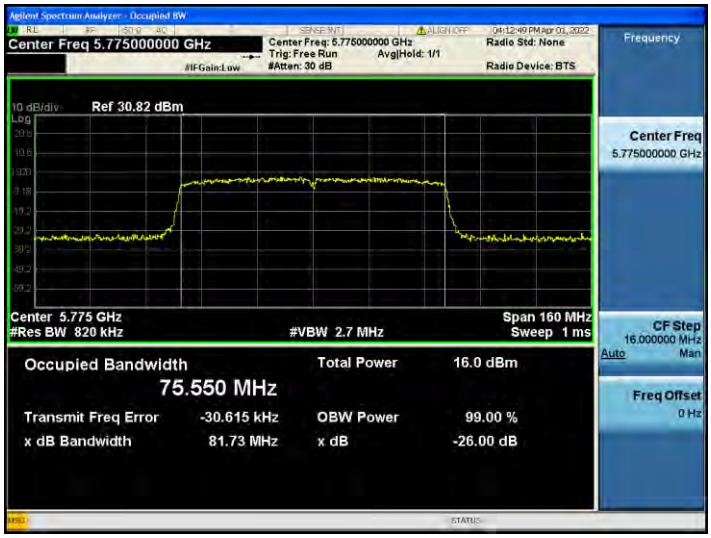
In order to simplify the report, attached plots were only the most wide channel.

802.11ac_VHT40 UNII 1 BAND 26 dB Bandwidth(CH 46)	802.11ac_VHT40 UNII 2A BAND 26 dB Bandwidth (CH 62)
	
802.11ac_VHT40 UNII 2C BAND 26 dB Bandwidth(CH 142)	**802.11ac_VHT40 UNII 3 BAND 26 dB Bandwidth (CH 151)**
	

▣ Test Plots(802.11ac(VHT80))

Note:

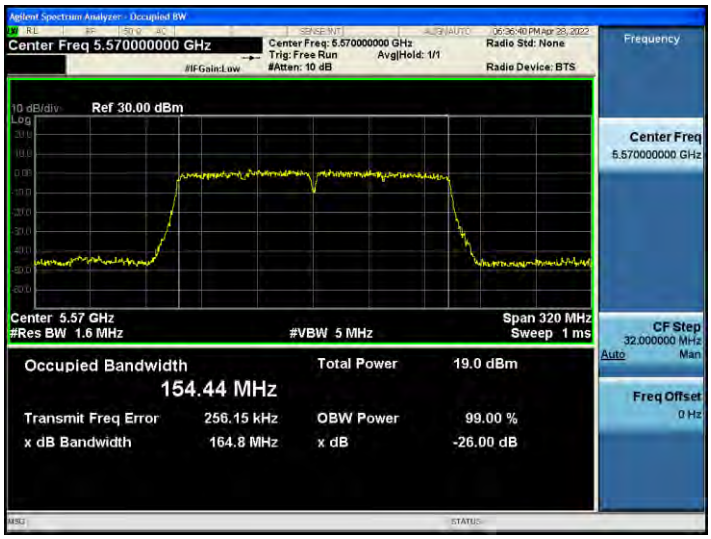
In order to simplify the report, attached plots were only the most wide channel.

802.11ac_VHT80 UNII 1 BAND 26 dB Bandwidth(CH 42)	802.11ac_VHT80 UNII 2A BAND 26 dB Bandwidth (CH 58)
	
802.11ac_VHT80 UNII 2C BAND 26 dB Bandwidth(CH 106)	**802.11ac_VHT80 UNII 3 BAND 26 dB Bandwidth (CH 155)**
	

▣ Test Plots(802.11ac(VHT160))

Note:

In order to simplify the report, attached plots were only the most wide channel.

802.11ac_VHT160 UNII 1 BAND 26 dB Bandwidth(CH 50)	802.11ac_VHT160 UNII 2A BAND 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	16.31	> 0.5	Pass
5785	157	15.81	> 0.5	Pass
5825	165	15.86	> 0.5	Pass

802.11n(HT20) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	16.33	> 0.5	Pass
5785	157	17.19	> 0.5	Pass
5825	165	16.81	> 0.5	Pass

802.11n(HT40) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5755	151	35.53	> 0.5	Pass
5795	159	35.33	> 0.5	Pass

802.11ac(VHT20) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	16.81	> 0.5	Pass
5785	157	16.80	> 0.5	Pass
5825	165	16.84	> 0.5	Pass

802.11ac(VHT40) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5755	151	35.42	> 0.5	Pass
5795	159	35.58	> 0.5	Pass

802.11ac(VHT80) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5775	155	75.34	> 0.5	Pass

[Ant.2]

802.11a Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	16.36	> 0.5	Pass
5785	157	15.86	> 0.5	Pass
5825	165	16.28	> 0.5	Pass

802.11n(HT20) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	16.83	> 0.5	Pass
5785	157	16.89	> 0.5	Pass
5825	165	16.58	> 0.5	Pass

802.11n(HT40) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5755	151	35.18	> 0.5	Pass
5795	159	35.19	> 0.5	Pass

802.11ac(VHT20) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	16.83	> 0.5	Pass
5785	157	16.87	> 0.5	Pass
5825	165	16.83	> 0.5	Pass

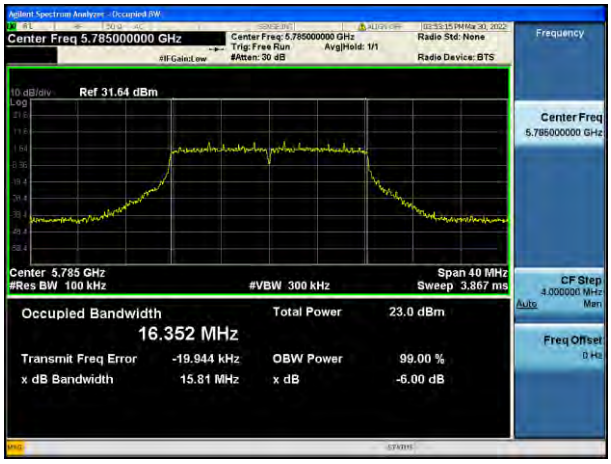
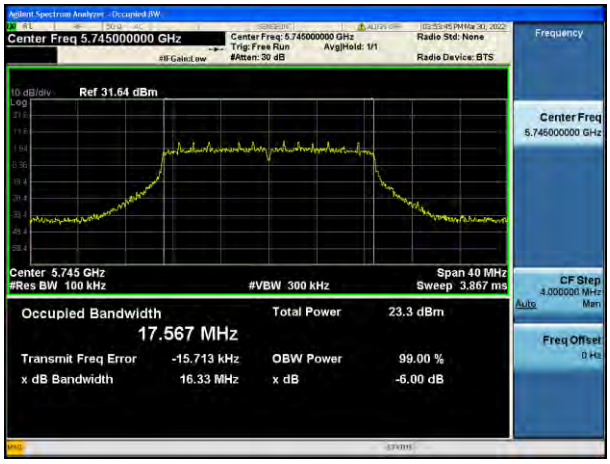
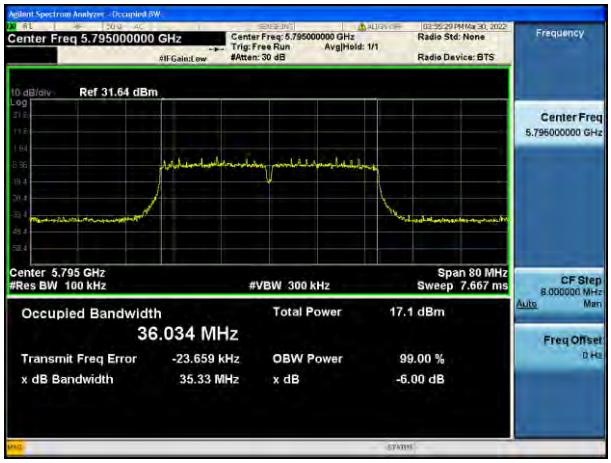
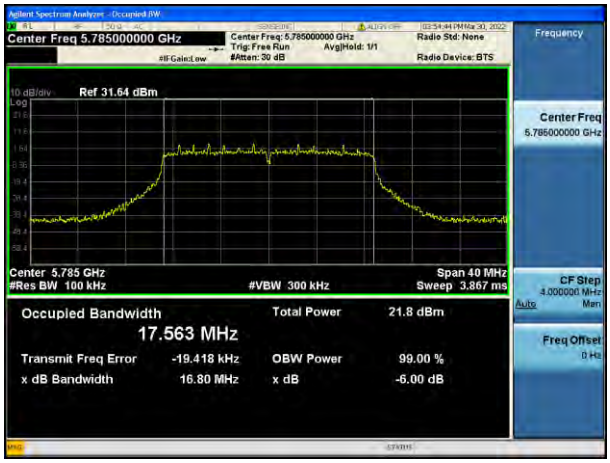
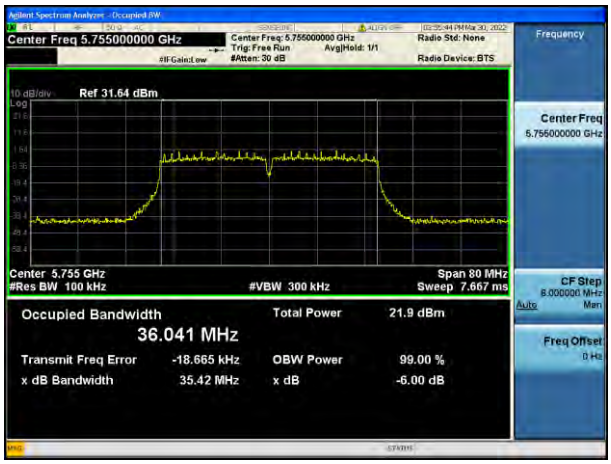
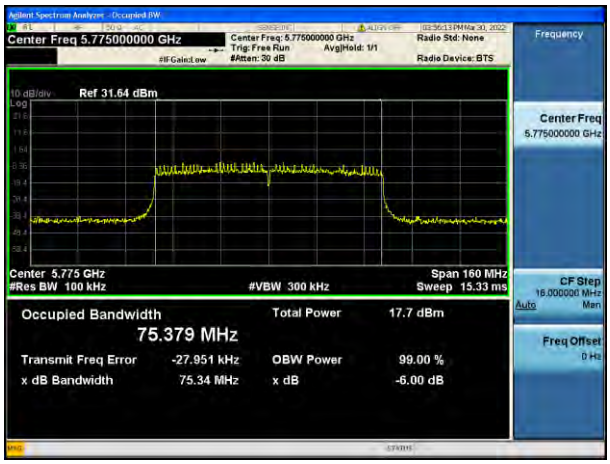
802.11ac(VHT40) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5755	151	35.25	> 0.5	Pass
5795	159	35.37	> 0.5	Pass

802.11ac(VHT80) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5775	155	75.37	> 0.5	Pass

[Ant.1]

▣ Test Plots

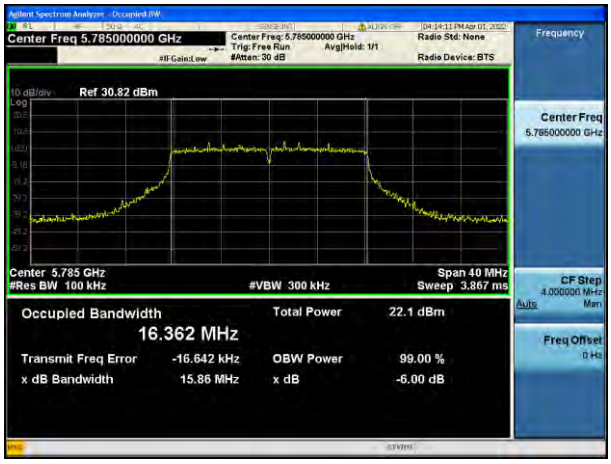
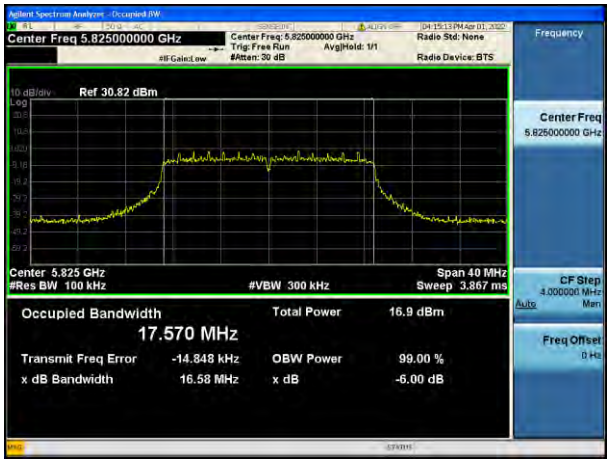
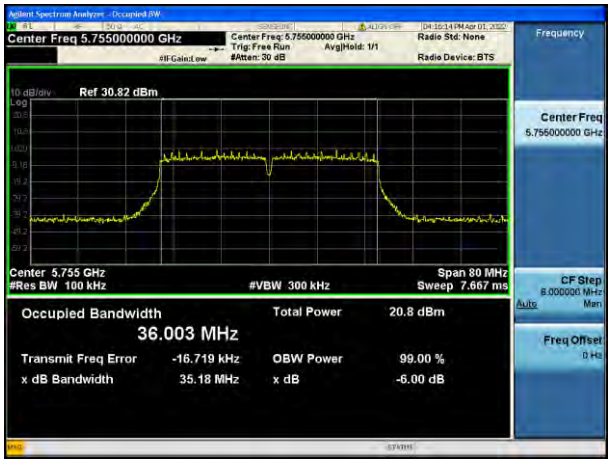
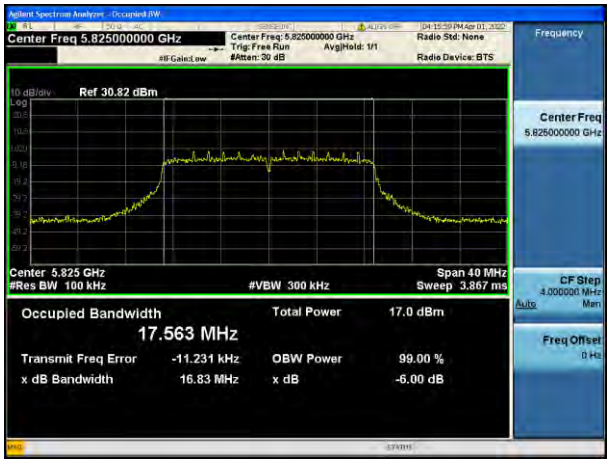
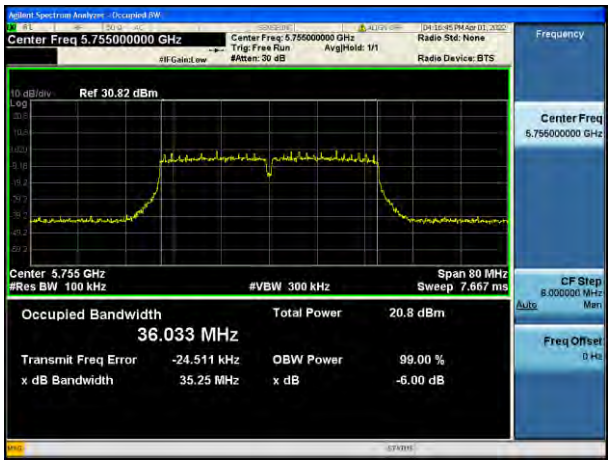
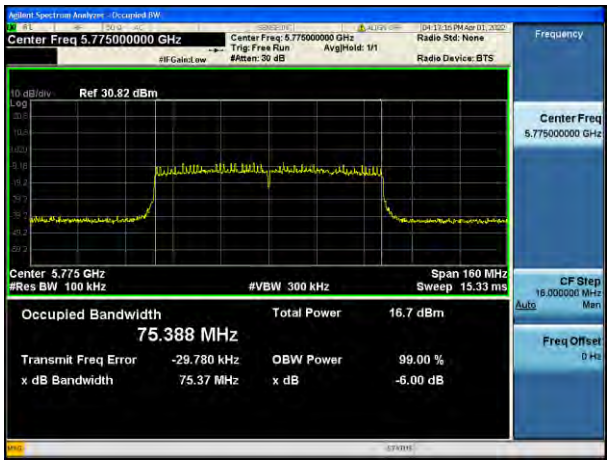
Note: In order to simplify the report, attached plots were only the most narrow channel.

802.11a (CH.157)	802.11n(HT20) (CH.149)
	
802.11n(HT40) (CH.159)	**802.11ac(VHT20) (CH.157)**
	
802.11ac(VHT40) (CH.151)	**802.11ac(VHT80) (CH.155)**
	

[Ant.2]

▣ Test Plots

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

802.11a (CH.157)	802.11n(HT20) (CH.165)
	
802.11n(HT40) (CH.151)	**802.11ac(VHT20) (CH.165)**
	
802.11ac(VHT40) (CH.151)	**802.11ac(VHT80) (CH.155)**
	

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

[Ant.1]

802.11a Mode		Measured Power [dBm]	Duty Cycle Factor [dB]	Total Power [dBm]	Limit [dBm]	Worstcase Datarate [Mbps]
Frequency [MHz]	Channel No.					
5180	36	9.46	1.027	10.49	23.98	24M
5200	40	14.56	1.027	15.58	23.98	24M
5240	48	14.64	1.027	15.66	23.98	24M
5260	52	15.09	1.027	16.12	23.82	24M
5300	60	15.13	1.027	16.16	23.82	24M
5320	64	8.72	1.027	9.75	23.82	24M
5500	100	12.23	1.027	13.26	23.73	24M
5600	120	14.74	1.027	15.77	23.73	24M
5720	144	14.94	1.027	15.96	23.73	24M
5745	149	15.10	1.027	16.12	30.00	24M
5785	157	14.77	1.027	15.79	30.00	24M
5825	165	8.32	1.027	9.34	30.00	24M

802.11n(20 MHz) Mode		Measured Power [dBm]	Duty Cycle Factor [dB]	Total Power [dBm]	Limit [dBm]	Worstcase MCS Index
Frequency [MHz]	Channel No.					
5180	36	8.77	1.877	10.65	23.98	MCS5
5200	40	13.78	1.877	15.66	23.98	MCS5
5240	48	13.85	1.877	15.72	23.98	MCS5
5260	52	14.39	1.877	16.27	23.98	MCS5
5300	60	14.36	1.877	16.24	23.98	MCS5
5320	64	7.98	1.877	9.86	23.98	MCS5
5500	100	11.41	1.877	13.28	23.98	MCS5
5600	120	13.98	1.877	15.86	23.98	MCS5
5720	144	14.18	1.877	16.05	23.98	MCS5
5745	149	14.29	1.877	16.17	30.00	MCS5
5785	157	13.98	1.877	15.86	30.00	MCS5
5825	165	7.57	1.877	9.45	30.00	MCS5

802.11n(40 MHz) Mode		Measured Power [dBm]	Duty Cycle Factor [dB]	Total Power [dBm]	Limit [dBm]	Worstcase MCS Index
Frequency [MHz]	Channel No.					
5190	38	9.60	1.181	10.78	23.98	MCS1
5230	46	13.81	1.181	14.99	23.98	MCS1
5270	54	13.08	1.181	14.26	23.98	MCS1
5310	62	8.85	1.181	10.03	23.98	MCS1
5510	102	12.20	1.181	13.38	23.98	MCS1
5590	118	12.75	1.181	13.93	23.98	MCS1
5710	142	13.01	1.181	14.19	23.98	MCS1
5755	151	13.13	1.181	14.31	30.00	MCS1
5795	159	8.33	1.181	9.51	30.00	MCS1

802.11ac(20 MHz) Mode		Measured Power [dBm]	Duty Cycle Factor [dB]	Total Power [dBm]	Limit [dBm]	Worstcase MCS Index
Frequency [MHz]	Channel No.					
5180	36	8.70	1.883	10.58	23.98	MCS6
5200	40	13.75	1.883	15.63	23.98	MCS6
5240	48	13.83	1.883	15.72	23.98	MCS6
5260	52	13.18	1.883	15.06	23.98	MCS6
5300	60	13.15	1.883	15.04	23.98	MCS6
5320	64	7.88	1.883	9.76	23.98	MCS6
5500	100	11.36	1.883	13.24	23.98	MCS6
5600	120	12.91	1.883	14.79	23.98	MCS6
5720	144	13.10	1.883	14.98	23.98	MCS6
5745	149	13.25	1.883	15.14	30.00	MCS6
5785	157	12.89	1.883	14.78	30.00	MCS6
5825	165	7.50	1.883	9.38	30.00	MCS6

802.11ac(40 MHz) Mode		Measured Power [dBm]	Duty Cycle Factor [dB]	Total Power [dBm]	Limit [dBm]	Worstcase MCS Index
Frequency [MHz]	Channel No.					
5190	38	9.71	1.165	10.87	23.98	MCS1
5230	46	13.83	1.165	14.99	23.98	MCS1
5270	54	13.11	1.165	14.28	23.98	MCS1
5310	62	8.87	1.165	10.04	23.98	MCS1
5510	102	12.19	1.165	13.36	23.98	MCS1
5590	118	12.74	1.165	13.90	23.98	MCS1
5710	142	13.01	1.165	14.18	23.98	MCS1
5755	151	13.09	1.165	14.26	30.00	MCS1
5795	159	8.33	1.165	9.49	30.00	MCS1

802.11ac(80 MHz) Mode		Measured Power [dBm]	Duty Cycle Factor [dB]	Total Power [dBm]	Limit [dBm]	Worstcase MCS Index
Frequency [MHz]	Channel No.					
5210	42	7.28	3.703	10.99	23.98	MCS6
5290	58	6.57	3.703	10.27	23.98	MCS6
5530	106	7.90	3.703	11.60	23.98	MCS6
5610	122	8.54	3.703	12.24	23.98	MCS6
5690	138	8.57	3.703	12.28	23.98	MCS6
5775	155	5.92	3.703	9.62	30.00	MCS6

802.11ac(160 MHz) Mode		Measured Power [dBm]	Duty Cycle Factor [dB]	Total Power [dBm]	Limit [dBm]	Worstcase MCS Index
Frequency [MHz]	Channel No.					
5250	50	-6.11	4.025	-2.08	23.98	MCS4
5570	114	7.75	4.025	11.78	23.98	MCS4

[Ant.2]

802.11a Mode		Measured Power [dBm]	Duty Cycle Factor [dB]	Total Power [dBm]	Limit [dBm]	Worstcase Datarate [Mbps]
Frequency [MHz]	Channel No.					
5180	36	9.10	1.027	10.12	23.98	24M
5200	40	14.10	1.027	15.12	23.98	24M
5240	48	14.32	1.027	15.35	23.98	24M
5260	52	15.92	1.027	16.95	23.82	24M
5300	60	15.86	1.027	16.89	23.82	24M
5320	64	8.89	1.027	9.91	23.82	24M
5500	100	11.40	1.027	12.43	23.85	24M
5600	120	14.67	1.027	15.70	23.85	24M
5720	144	14.40	1.027	15.43	23.85	24M
5745	149	14.38	1.027	15.41	30.00	24M
5785	157	14.25	1.027	15.28	30.00	24M
5825	165	9.08	1.027	10.10	30.00	24M

802.11n(20 MHz) Mode		Measured Power [dBm]	Duty Cycle Factor [dB]	Total Power [dBm]	Limit [dBm]	Worstcase MCS Index
Frequency [MHz]	Channel No.					
5180	36	8.39	1.877	10.27	23.98	MCS5
5200	40	13.35	1.877	15.23	23.98	MCS5
5240	48	13.54	1.877	15.42	23.98	MCS5
5260	52	15.11	1.877	16.99	23.98	MCS5
5300	60	15.11	1.877	16.98	23.98	MCS5
5320	64	8.08	1.877	9.96	23.98	MCS5
5500	100	10.65	1.877	12.52	23.98	MCS5
5600	120	13.90	1.877	15.77	23.98	MCS5
5720	144	13.58	1.877	15.46	23.98	MCS5
5745	149	13.58	1.877	15.45	30.00	MCS5
5785	157	13.40	1.877	15.27	30.00	MCS5
5825	165	7.98	1.877	9.86	30.00	MCS5

802.11n(40 MHz) Mode		Measured Power [dBm]	Duty Cycle Factor [dB]	Total Power [dBm]	Limit [dBm]	Worstcase MCS Index
Frequency [MHz]	Channel No.					
5190	38	9.20	1.181	10.38	23.98	MCS1
5230	46	13.13	1.181	14.31	23.98	MCS1
5270	54	13.81	1.181	14.99	23.98	MCS1
5310	62	8.88	1.181	10.06	23.98	MCS1
5510	102	11.31	1.181	12.49	23.98	MCS1
5590	118	12.60	1.181	13.78	23.98	MCS1
5710	142	12.29	1.181	13.48	23.98	MCS1
5755	151	12.33	1.181	13.51	30.00	MCS1
5795	159	7.85	1.181	9.03	30.00	MCS1

802.11ac(20 MHz) Mode		Measured Power [dBm]	Duty Cycle Factor [dB]	Total Power [dBm]	Limit [dBm]	Worstcase MCS Index
Frequency [MHz]	Channel No.					
5180	36	8.23	1.883	10.11	23.98	MCS6
5200	40	13.23	1.883	15.12	23.98	MCS6
5240	48	13.36	1.883	15.25	23.98	MCS6
5260	52	13.98	1.883	15.86	23.98	MCS6
5300	60	13.92	1.883	15.81	23.98	MCS6
5320	64	7.99	1.883	9.87	23.98	MCS6
5500	100	10.54	1.883	12.42	23.98	MCS6
5600	120	12.76	1.883	14.64	23.98	MCS6
5720	144	12.53	1.883	14.41	23.98	MCS6
5745	149	12.50	1.883	14.38	30.00	MCS6
5785	157	12.35	1.883	14.23	30.00	MCS6
5825	165	7.98	1.883	9.86	30.00	MCS6

802.11ac(40 MHz) Mode		Measured Power [dBm]	Duty Cycle Factor [dB]	Total Power [dBm]	Limit [dBm]	Worstcase MCS Index
Frequency [MHz]	Channel No.					
5190	38	9.21	1.165	10.37	23.98	MCS1
5230	46	13.10	1.165	14.27	23.98	MCS1
5270	54	13.83	1.165	14.99	23.98	MCS1
5310	62	8.89	1.165	10.06	23.98	MCS1
5510	102	11.35	1.165	12.51	23.98	MCS1
5590	118	12.64	1.165	13.80	23.98	MCS1
5710	142	12.35	1.165	13.51	23.98	MCS1
5755	151	12.35	1.165	13.51	30.00	MCS1
5795	159	7.92	1.165	9.08	30.00	MCS1

802.11ac(80 MHz) Mode		Measured Power [dBm]	Duty Cycle Factor [dB]	Total Power [dBm]	Limit [dBm]	Worstcase MCS Index
Frequency [MHz]	Channel No.					
5210	42	6.18	3.703	9.89	23.98	MCS6
5290	58	6.82	3.703	10.52	23.98	MCS6
5530	106	6.30	3.703	10.00	23.98	MCS6
5610	122	7.61	3.703	11.31	23.98	MCS6
5690	138	7.35	3.703	11.05	23.98	MCS6
5775	155	5.35	3.703	9.05	30.00	MCS6

802.11ac(160 MHz) Mode		Measured Power [dBm]	Duty Cycle Factor [dB]	Total Power [dBm]	Limit [dBm]	Worstcase MCS Index
Frequency [MHz]	Channel No.					
5250	50	-4.08	4.025	-0.05	23.98	MCS4
5570	114	7.01	4.025	11.04	23.98	MCS4

[MIMO]

802.11a Mode		Ant.1 Measured Power [dBm] + Duty Cycle Factor[dB]	Ant.2 Measured Power (dBm) + Duty Cycle Factor[dB]	MIMO Total Power [dBm]	Limit [dBm]	Worstcase Datarate [Mbps]
Frequency [MHz]	Channel No.					
5180	36	10.49	10.12	13.32	23.98	24M
5200	40	15.58	15.12	18.37	23.98	24M
5240	48	15.66	15.35	18.52	23.98	24M
5260	52	16.12	16.95	19.56	23.82	24M
5300	60	16.16	16.89	19.55	23.82	24M
5320	64	9.75	9.91	12.84	23.82	24M
5500	100	13.26	12.43	15.87	23.73	24M
5600	120	15.77	15.70	18.74	23.73	24M
5720	144	15.96	15.43	18.71	23.73	24M
5745	149	16.12	15.41	18.79	30.00	24M
5785	157	15.79	15.28	18.56	30.00	24M
5825	165	9.34	10.10	12.75	30.00	24M

802.11n(20 MHz) Mode		Ant.1 Measured Power [dBm] + Duty Cycle Factor[dB]	Ant.2 Measured Power (dBm) + Duty Cycle Factor[dB]	MIMO Total Power [dBm]	Limit [dBm]	Worstcase MCS INDEX
Frequency [MHz]	Channel No.					
5180	36	10.65	10.27	13.47	23.98	MCS5
5200	40	15.66	15.23	18.46	23.98	MCS5
5240	48	15.72	15.42	18.58	23.98	MCS5
5260	52	16.27	16.99	19.65	23.98	MCS5
5300	60	16.24	16.98	19.64	23.98	MCS5
5320	64	9.86	9.96	12.92	23.98	MCS5
5500	100	13.28	12.52	15.93	23.98	MCS5
5600	120	15.86	15.77	18.82	23.98	MCS5
5720	144	16.05	15.46	18.78	23.98	MCS5
5745	149	16.17	15.45	18.84	30.00	MCS5
5785	157	15.86	15.27	18.59	30.00	MCS5
5825	165	9.45	9.86	12.67	30.00	MCS5

802.11n(40 MHz) Mode		Ant.1 Measured Power [dBm] + Duty Cycle Factor[dB]	Ant.2 Measured Power (dBm) + Duty Cycle Factor[dB]	MIMO Total Power [dBm]	Limit [dBm]	Worstcase MCS INDEX
Frequency [MHz]	Channel No.					
5190	38	10.78	10.38	13.59	23.98	MCS1
5230	46	14.99	14.31	17.67	23.98	MCS1
5270	54	14.26	14.99	17.65	23.98	MCS1
5310	62	10.03	10.06	13.05	23.98	MCS1
5510	102	13.38	12.49	15.97	23.98	MCS1
5590	118	13.93	13.78	16.86	23.98	MCS1
5710	142	14.19	13.48	16.86	23.98	MCS1
5755	151	14.31	13.51	16.94	30.00	MCS1
5795	159	9.51	9.03	12.29	30.00	MCS1

802.11ac(20 MHz) Mode		Ant.1 Measured Power [dBm] + Duty Cycle Factor[dB]	Ant.2 Measured Power (dBm) + Duty Cycle Factor[dB]	MIMO Total Power [dBm]	Limit [dBm]	Worstcase MCS INDEX
Frequency [MHz]	Channel No.					
5180	36	10.58	10.11	13.36	23.98	MCS6
5200	40	15.63	15.12	18.39	23.98	MCS6
5240	48	15.72	15.25	18.50	23.98	MCS6
5260	52	15.06	15.86	18.49	23.98	MCS6
5300	60	15.04	15.81	18.45	23.98	MCS6
5320	64	9.76	9.87	12.83	23.98	MCS6
5500	100	13.24	12.42	15.86	23.98	MCS6
5600	120	14.79	14.64	17.73	23.98	MCS6
5720	144	14.98	14.41	17.72	23.98	MCS6
5745	149	15.14	14.38	17.79	30.00	MCS6
5785	157	14.78	14.23	17.52	30.00	MCS6
5825	165	9.38	9.86	12.64	30.00	MCS6

802.11ac(40 MHz) Mode		Ant.1 Measured Power [dBm] + Duty Cycle Factor[dB]	Ant.2 Measured Power (dBm) + Duty Cycle Factor[dB]	MIMO Total Power [dBm]	Limit [dBm]	Worstcase MCS INDEX
Frequency [MHz]	Channel No.					
5190	38	10.87	10.37	13.64	23.98	MCS1
5230	46	14.99	14.27	17.65	23.98	MCS1
5270	54	14.28	14.99	17.66	23.98	MCS1
5310	62	10.04	10.06	13.06	23.98	MCS1
5510	102	13.36	12.51	15.97	23.98	MCS1
5590	118	13.90	13.80	16.86	23.98	MCS1
5710	142	14.18	13.51	16.87	23.98	MCS1
5755	151	14.26	13.51	16.91	30.00	MCS1
5795	159	9.49	9.08	12.30	30.00	MCS1

802.11ac(80 MHz) Mode		Ant.1 Measured Power [dBm] + Duty Cycle Factor[dB]	Ant.2 Measured Power (dBm) + Duty Cycle Factor[dB]	MIMO Total Power [dBm]	Limit [dBm]	Worstcase MCS INDEX
Frequency [MHz]	Channel No.					
5210	42	10.99	9.89	13.48	23.98	MCS6
5290	58	10.27	10.52	13.41	23.98	MCS6
5530	106	11.60	10.00	13.88	23.98	MCS6
5610	122	12.24	11.31	14.81	23.98	MCS6
5690	138	12.28	11.05	14.72	23.98	MCS6
5775	155	9.62	9.05	12.36	30.00	MCS6

802.11ac(160 MHz) Mode		Ant.1 Measured Power [dBm] + Duty Cycle Factor[dB]	Ant.2 Measured Power (dBm) + Duty Cycle Factor[dB]	MIMO Total Power [dBm]	Limit [dBm]	Worstcase MCS INDEX
Frequency [MHz]	Channel No.					
5250	50	-2.08	-0.05	2.06	23.98	MCS4
5570	114	11.78	11.04	14.43	23.98	MCS4

10.5 POWER SPECTRAL DENSITY

[Ant.1]

802.11a Mode		Measured PSD [dBm]	Duty Cycle Factor [dB]	Total PSD [dBm/MHz]	Worstcase Datarate [Mbps]	Limit
Frequency [MHz]	Channel No.					
5180	36	-1.442	1.027	-0.415	24M	11 dBm/MHz
5200	40	3.992	1.027	5.019	24M	
5240	48	4.109	1.027	5.136	24M	
5260	52	4.452	1.027	5.479	24M	
5300	60	4.430	1.027	5.457	24M	
5320	64	-1.818	1.027	-0.791	24M	
5500	100	1.245	1.027	2.272	24M	
5600	120	3.858	1.027	4.885	24M	
5720	144	4.012	1.027	5.039	24M	
5745	149	1.742	1.027	2.769	24M	30 dBm/500 kHz
5785	157	1.268	1.027	2.295	24M	
5825	165	-5.097	1.027	-4.070	24M	

802.11n(20 MHz) Mode		Measured PSD [dBm]	Duty Cycle Factor [dB]	Total PSD [dBm/MHz]	Worstcase MCS Index	Limit
Frequency [MHz]	Channel No.					
5180	36	-1.836	1.877	0.041	MCS5	11 dBm/MHz
5200	40	3.246	1.877	5.123	MCS5	
5240	48	2.725	1.877	4.602	MCS5	
5260	52	3.073	1.877	4.950	MCS5	
5300	60	3.390	1.877	5.267	MCS5	
5320	64	-3.182	1.877	-1.305	MCS5	
5500	100	0.385	1.877	2.262	MCS5	
5600	120	3.052	1.877	4.929	MCS5	
5720	144	3.161	1.877	5.038	MCS5	
5745	149	0.597	1.877	2.474	MCS5	30 dBm/500 kHz
5785	157	0.238	1.877	2.115	MCS5	
5825	165	-5.937	1.877	-4.060	MCS5	

802.11n(40 MHz) Mode		Measured PSD [dBm]	Duty Cycle Factor [dB]	Total PSD [dBm/MHz]	Worstcase MCS Index	Limit
Frequency [MHz]	Channel No.					
5190	38	-4.612	1.181	-3.431	MCS1	11 dBm/MHz
5230	46	-0.199	1.181	0.982	MCS1	
5270	54	-1.090	1.181	0.091	MCS1	
5310	62	-5.201	1.181	-4.020	MCS1	
5510	102	-1.787	1.181	-0.606	MCS1	
5590	118	-1.360	1.181	-0.179	MCS1	
5710	142	-1.224	1.181	-0.043	MCS1	
5755	151	-3.603	1.181	-2.422	MCS1	30 dBm /500 kHz
5795	159	-8.498	1.181	-7.317	MCS1	

802.11ac(20 MHz) Mode		Measured PSD [dBm]	Duty Cycle Factor [dB]	Total PSD [dBm/MHz]	Worstcase MCS Index	Limit
Frequency [MHz]	Channel No.					
5180	36	-2.210	1.883	-0.327	MCS6	11 dBm/MHz
5200	40	2.838	1.883	4.721	MCS6	
5240	48	2.844	1.883	4.727	MCS6	
5260	52	2.165	1.883	4.048	MCS6	
5300	60	1.909	1.883	3.792	MCS6	
5320	64	-3.132	1.883	-1.249	MCS6	
5500	100	0.293	1.883	2.176	MCS6	
5600	120	1.948	1.883	3.831	MCS6	
5720	144	2.247	1.883	4.130	MCS6	
5745	149	0.382	1.883	2.265	MCS6	30 dBm/500 kHz
5785	157	-0.535	1.883	1.348	MCS6	
5825	165	-6.009	1.883	-4.126	MCS6	

802.11ac(40 MHz) Mode		Measured PSD [dBm]	Duty Cycle Factor [dB]	Total PSD [dBm/MHz]	Worstcase MCS Index	Limit
Frequency [MHz]	Channel No.					
5190	38	-4.588	1.165	-3.423	MCS1	11 dBm/MHz
5230	46	0.001	1.165	1.166	MCS1	
5270	54	-1.114	1.165	0.051	MCS1	
5310	62	-5.421	1.165	-4.256	MCS1	
5510	102	-1.683	1.165	-0.518	MCS1	
5590	118	-1.379	1.165	-0.214	MCS1	
5710	142	-1.300	1.165	-0.135	MCS1	
5755	151	-3.769	1.165	-2.604	MCS1	30 dBm/500 kHz
5795	159	-8.630	1.165	-7.465	MCS1	

802.11ac(80 MHz) Mode		Measured PSD [dBm]	Duty Cycle Factor [dB]	Total PSD [dBm/MHz]	Worstcase MCS Index	Limit
Frequency [MHz]	Channel No.					
5210	42	-9.376	3.703	-5.673	MCS6	11 dBm/MHz
5290	58	-10.328	3.703	-6.625	MCS6	
5530	106	-8.687	3.703	-4.984	MCS6	
5610	122	-8.521	3.703	-4.818	MCS6	
5690	138	-8.517	3.703	-4.814	MCS6	
5775	155	-13.514	3.703	-9.811	MCS6	30 dBm/500 kHz

802.11ac(160 MHz) Mode		Measured PSD [dBm]	Duty Cycle Factor [dB]	Total PSD [dBm/MHz]	Worstcase MCS Index	Limit
Frequency [MHz]	Channel No.					
5250	50	-24.800	4.025	-20.775	MCS4	11 dBm/MHz
5570	114	-10.624	4.025	-6.599	MCS4	

[Ant.2]

802.11a Mode		Measured PSD [dBm]	Duty Cycle Factor [dB]	Total PSD [dBm/MHz]	Worstcase Datarate [Mbps]	Limit
Frequency [MHz]	Channel No.					
5180	36	-1.552	1.027	-0.525	24M	11 dBm/MHz
5200	40	3.349	1.027	4.376	24M	
5240	48	3.532	1.027	4.559	24M	
5260	52	5.091	1.027	6.118	24M	
5300	60	5.135	1.027	6.162	24M	
5320	64	-1.776	1.027	-0.749	24M	
5500	100	0.437	1.027	1.464	24M	
5600	120	3.889	1.027	4.916	24M	
5720	144	3.503	1.027	4.530	24M	
5745	149	0.657	1.027	1.684	24M	30 dBm/500 kHz
5785	157	0.935	1.027	1.962	24M	
5825	165	-4.869	1.027	-3.842	24M	

802.11n(20 MHz) Mode		Measured PSD [dBm]	Duty Cycle Factor [dB]	Total PSD [dBm/MHz]	Worstcase MCS Index	Limit
Frequency [MHz]	Channel No.					
5180	36	-2.713	1.877	-0.836	MCS5	11 dBm/MHz
5200	40	2.400	1.877	4.277	MCS5	
5240	48	2.585	1.877	4.462	MCS5	
5260	52	4.374	1.877	6.251	MCS5	
5300	60	3.889	1.877	5.766	MCS5	
5320	64	-2.998	1.877	-1.121	MCS5	
5500	100	-0.413	1.877	1.464	MCS5	
5600	120	3.011	1.877	4.888	MCS5	
5720	144	2.542	1.877	4.419	MCS5	
5745	149	-0.197	1.877	1.680	MCS5	30 dBm/500 kHz
5785	157	-0.264	1.877	1.613	MCS5	
5825	165	-5.817	1.877	-3.940	MCS5	

802.11n(40 MHz) Mode		Measured PSD [dBm]	Duty Cycle Factor [dB]	Total PSD [dBm/MHz]	Worstcase MCS Index	Limit
Frequency [MHz]	Channel No.					
5190	38	-5.069	1.181	-3.888	MCS1	11 dBm/MHz
5230	46	-1.019	1.181	0.162	MCS1	
5270	54	-0.350	1.181	0.831	MCS1	
5310	62	-5.199	1.181	-4.018	MCS1	
5510	102	-2.861	1.181	-1.680	MCS1	
5590	118	-1.585	1.181	-0.404	MCS1	
5710	142	-1.956	1.181	-0.775	MCS1	
5755	151	-4.355	1.181	-3.174	MCS1	30 dBm /500 kHz
5795	159	-9.113	1.181	-7.932	MCS1	

802.11ac(20 MHz) Mode		Measured PSD [dBm]	Duty Cycle Factor [dB]	Total PSD [dBm/MHz]	Worstcase MCS Index	Limit
Frequency [MHz]	Channel No.					
5180	36	-2.477	1.883	-0.594	MCS6	11 dBm/MHz
5200	40	2.319	1.883	4.202	MCS6	
5240	48	2.650	1.883	4.533	MCS6	
5260	52	3.151	1.883	5.034	MCS6	
5300	60	2.675	1.883	4.558	MCS6	
5320	64	-3.039	1.883	-1.156	MCS6	
5500	100	-0.324	1.883	1.559	MCS6	
5600	120	1.948	1.883	3.831	MCS6	
5720	144	1.447	1.883	3.330	MCS6	
5745	149	-1.203	1.883	0.680	MCS6	30 dBm/500 kHz
5785	157	-1.148	1.883	0.735	MCS6	
5825	165	-5.381	1.883	-3.498	MCS6	

802.11ac(40 MHz) Mode		Measured PSD [dBm]	Duty Cycle Factor [dB]	Total PSD [dBm/MHz]	Worstcase MCS Index	Limit
Frequency [MHz]	Channel No.					
5190	38	-5.049	1.165	-3.884	MCS1	11 dBm/MHz
5230	46	-0.969	1.165	0.196	MCS1	
5270	54	-0.377	1.165	0.788	MCS1	
5310	62	-5.236	1.165	-4.071	MCS1	
5510	102	-2.741	1.165	-1.576	MCS1	
5590	118	-1.594	1.165	-0.429	MCS1	
5710	142	-1.845	1.165	-0.680	MCS1	
5755	151	-4.679	1.165	-3.514	MCS1	30 dBm/500 kHz
5795	159	-8.938	1.165	-7.773	MCS1	

802.11ac(80 MHz) Mode		Measured PSD [dBm]	Duty Cycle Factor [dB]	Total PSD [dBm/MHz]	Worstcase MCS Index	Limit
Frequency [MHz]	Channel No.					
5210	42	-10.010	3.703	-6.307	MCS6	11 dBm/MHz
5290	58	-9.695	3.703	-5.992	MCS6	
5530	106	-10.273	3.703	-6.570	MCS6	
5610	122	-9.217	3.703	-5.514	MCS6	
5690	138	-9.814	3.703	-6.111	MCS6	
5775	155	-13.401	3.703	-9.698	MCS6	30 dBm/500 kHz

802.11ac(160 MHz) Mode		Measured PSD [dBm]	Duty Cycle Factor [dB]	Total PSD [dBm/MHz]	Worstcase MCS Index	Limit
Frequency [MHz]	Channel No.					
5250	50	-22.246	4.025	-18.221	MCS4	11 dBm/MHz
5570	114	-11.159	4.025	-7.134	MCS4	

[MIMO]

802.11a Mode		ANT.1 Measured PSD[dBm] + Duty Cycle Factor [dB]	ANT.2 Measured PSD[dBm] + Duty Cycle Factor [dB]	MIMO Total PSD [dBm/MHz]	Worstcase Datarate [Mbps]	Limit
Frequency [MHz]	Channel No.					
5180	36	-0.415	-0.525	2.540	24M	11 dBm/MHz
5200	40	5.019	4.376	7.719	24M	
5240	48	5.136	4.559	7.867	24M	
5260	52	5.479	6.118	8.820	24M	
5300	60	5.457	6.162	8.834	24M	
5320	64	-0.791	-0.749	2.240	24M	
5500	100	2.272	1.464	4.897	24M	
5600	120	4.885	4.916	7.910	24M	
5720	144	5.039	4.530	7.802	24M	
5745	149	2.769	1.684	5.270	24M	30 dBm/500 kHz
5785	157	2.295	1.962	5.142	24M	
5825	165	-4.070	-3.842	-0.945	24M	

802.11n(20 MHz) Mode		ANT.1 Measured PSD[dBm] + Duty Cycle Factor [dB]	ANT.2 Measured PSD[dBm] + Duty Cycle Factor [dB]	MIMO Total PSD [dBm/MHz]	Worstcase MCS Index	Limit
Frequency [MHz]	Channel No.					
5180	36	0.041	-0.836	2.635	MCS5	11 dBm/MHz
5200	40	5.123	4.277	7.731	MCS5	
5240	48	4.602	4.462	7.543	MCS5	
5260	52	4.950	6.251	8.659	MCS5	
5300	60	5.267	5.766	8.534	MCS5	
5320	64	-1.305	-1.121	1.798	MCS5	
5500	100	2.262	1.464	4.891	MCS5	
5600	120	4.929	4.888	7.919	MCS5	
5720	144	5.038	4.419	7.750	MCS5	
5745	149	2.474	1.680	5.105	MCS5	30 dBm/500 kHz
5785	157	2.115	1.613	4.881	MCS5	
5825	165	-4.060	-3.940	-0.990	MCS5	

802.11n(40 MHz) Mode		ANT.1 Measured PSD[dBm] + Duty Cycle Factor [dB]	ANT.2 Measured PSD[dBm] + Duty Cycle Factor [dB]	MIMO Total PSD [dBm/MHz]	Worstcase MCS Index	Limit
Frequency [MHz]	Channel No.					
5190	38	-3.431	-3.888	-0.643	MCS1	11 dBm/MHz
5230	46	0.982	0.162	3.602	MCS1	
5270	54	0.091	0.831	3.487	MCS1	
5310	62	-4.020	-4.018	-1.009	MCS1	
5510	102	-0.606	-1.680	1.900	MCS1	
5590	118	-0.179	-0.404	2.720	MCS1	
5710	142	-0.043	-0.775	2.617	MCS1	
5755	151	-2.422	-3.174	0.229	MCS1	30 dBm/500 kHz
5795	159	-7.317	-7.932	-4.603	MCS1	

802.11ac(20 MHz) Mode		ANT.1 Measured PSD[dBm] + Duty Cycle Factor [dB]	ANT.2 Measured PSD[dBm] + Duty Cycle Factor [dB]	MIMO Total PSD [dBm/MHz]	Worstcase MCS Index	Limit
Frequency [MHz]	Channel No.					
5180	36	-0.327	-0.594	2.552	MCS6	11 dBm/MHz
5200	40	4.721	4.202	7.480	MCS6	
5240	48	4.727	4.533	7.642	MCS6	
5260	52	4.048	5.034	7.579	MCS6	
5300	60	3.792	4.558	7.202	MCS6	
5320	64	-1.249	-1.156	1.808	MCS6	
5500	100	2.176	1.559	4.889	MCS6	
5600	120	3.831	3.831	6.842	MCS6	
5720	144	4.130	3.330	6.759	MCS6	
5745	149	2.265	0.680	4.555	MCS6	30 dBm/500 kHz
5785	157	1.348	0.735	4.063	MCS6	
5825	165	-4.126	-3.498	-0.790	MCS6	

802.11ac(40 MHz) Mode		ANT.1 Measured PSD[dBm] + Duty Cycle Factor [dB]	ANT.2 Measured PSD[dBm] + Duty Cycle Factor [dB]	MIMO Total PSD [dBm/MHz]	Worstcase MCS Index	Limit
Frequency [MHz]	Channel No.					
5190	38	-3.423	-3.884	-0.637	MCS1	11 dBm/MHz
5230	46	1.166	0.196	3.718	MCS1	
5270	54	0.051	0.788	3.445	MCS1	
5310	62	-4.256	-4.071	-1.152	MCS1	
5510	102	-0.518	-1.576	1.996	MCS1	
5590	118	-0.214	-0.429	2.690	MCS1	
5710	142	-0.135	-0.680	2.611	MCS1	
5755	151	-2.604	-3.514	-0.025	MCS1	30 dBm/500 kHz
5795	159	-7.465	-7.773	-4.606	MCS1	

802.11ac(80 MHz) Mode		ANT.1 Measured PSD[dBm] + Duty Cycle Factor [dB]	ANT.2 Measured PSD[dBm] + Duty Cycle Factor [dB]	MIMO Total PSD [dBm/MHz]	Worstcase MCS Index	Limit
Frequency [MHz]	Channel No.					
5210	42	-5.673	-6.307	-2.968	MCS6	11 dBm/MHz
5290	58	-6.625	-5.992	-3.287	MCS6	
5530	106	-4.984	-6.570	-2.695	MCS6	
5610	122	-4.818	-5.514	-2.142	MCS6	
5690	138	-4.814	-6.111	-2.404	MCS6	
5775	155	-9.811	-9.698	-6.744	MCS6	30 dBm/500 kHz

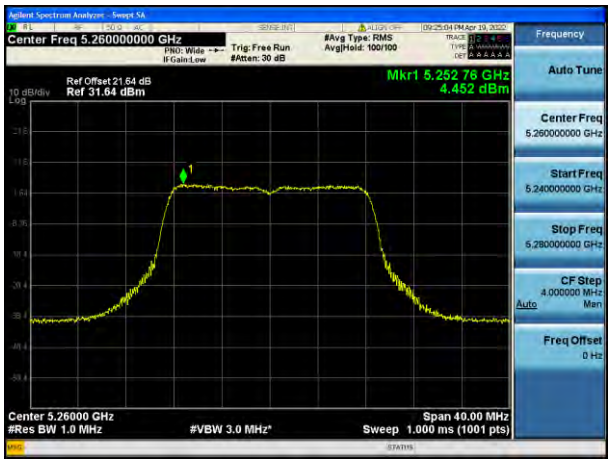
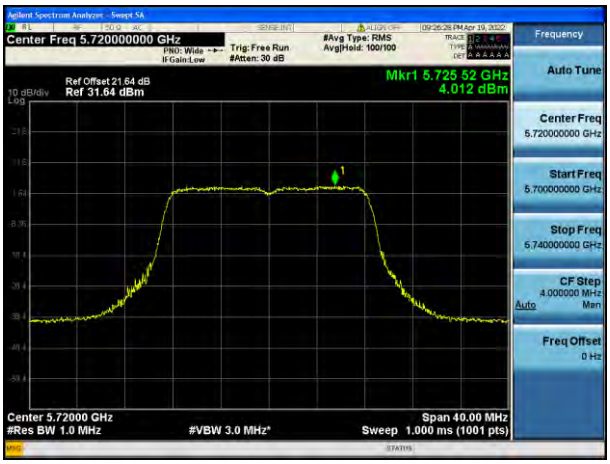
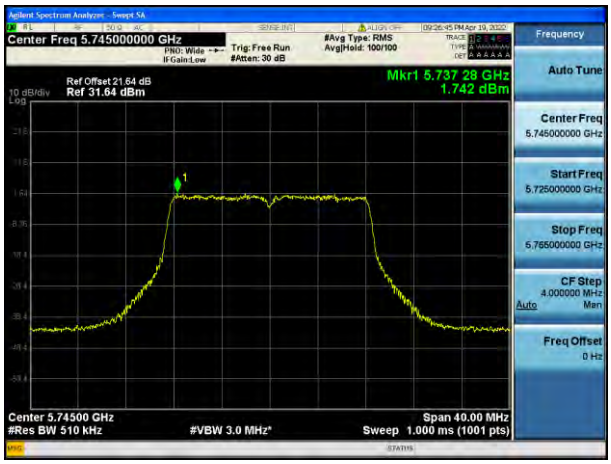
802.11ac(160 MHz) Mode		ANT.1 Measured PSD[dBm] + Duty Cycle Factor [dB]	ANT.2 Measured PSD[dBm] + Duty Cycle Factor [dB]	MIMO Total PSD [dBm/MHz]	Worstcase MCS Index	Limit
Frequency [MHz]	Channel No.					
5250	50	-20.775	-18.221	-16.303	MCS4	11 dBm/MHz
5570	114	-6.599	-7.134	-3.848	MCS4	

[Ant.1]

▣ Test Plots(802.11a)

Note:

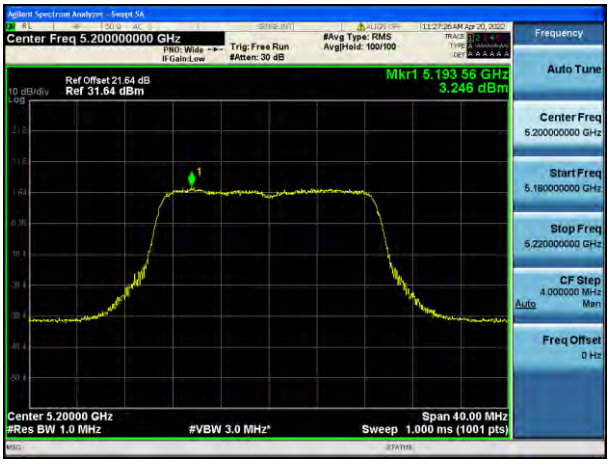
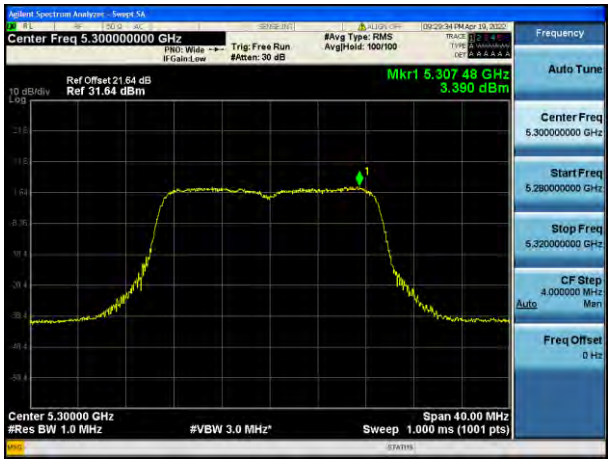
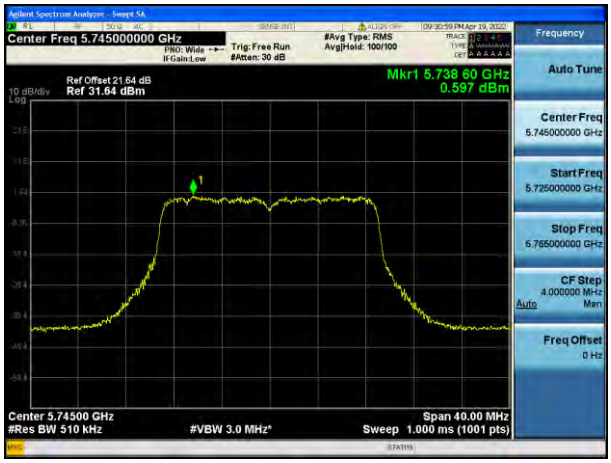
In order to simplify the report, attached plots were only channel of highest power.

UNII 1 (Ch. 48)	UNII 2A (Ch. 52)
	
UNII 2C (Ch. 144)	**UNII 3 (Ch. 149)**
	

▣ Test Plots(802.11n(HT20))

Note:

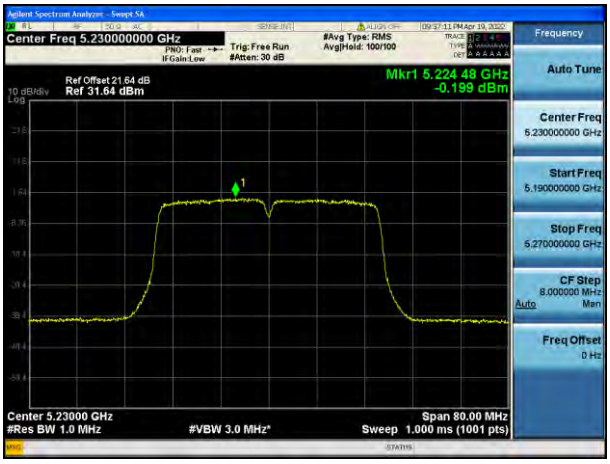
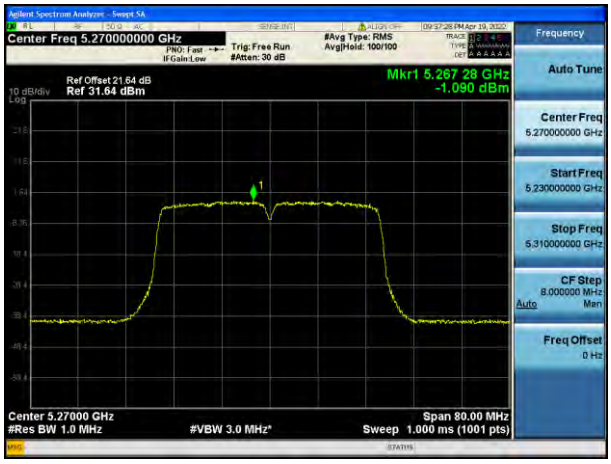
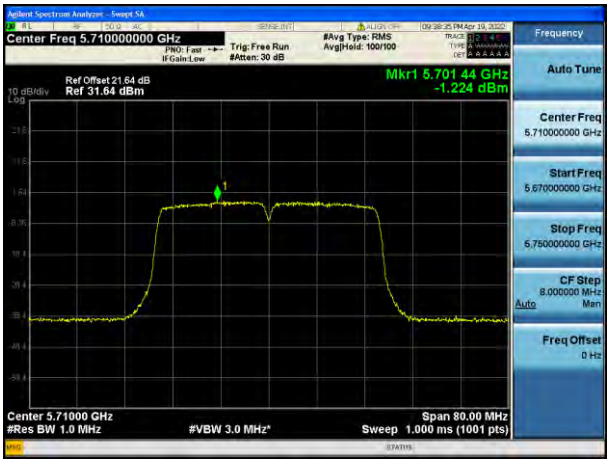
In order to simplify the report, attached plots were only channel of highest power.

UNII 1 (Ch. 40)	UNII 2A (Ch. 60)
	
UNII 2C (Ch. 144)	**UNII 3 (Ch. 149)**
	

▣ Test Plots(802.11n(HT40))

Note:

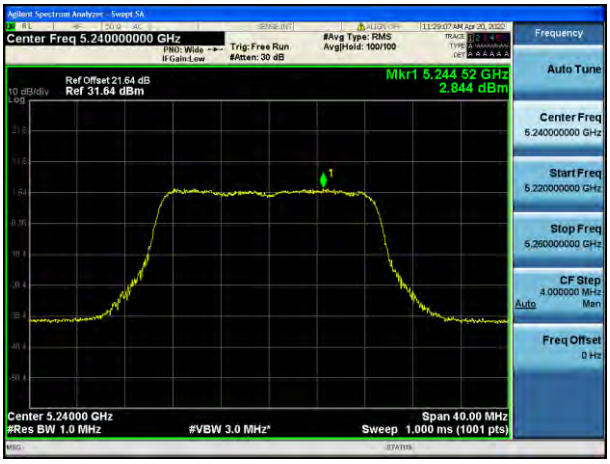
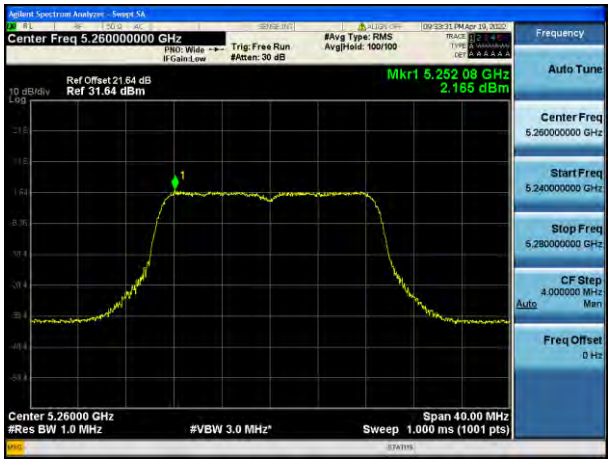
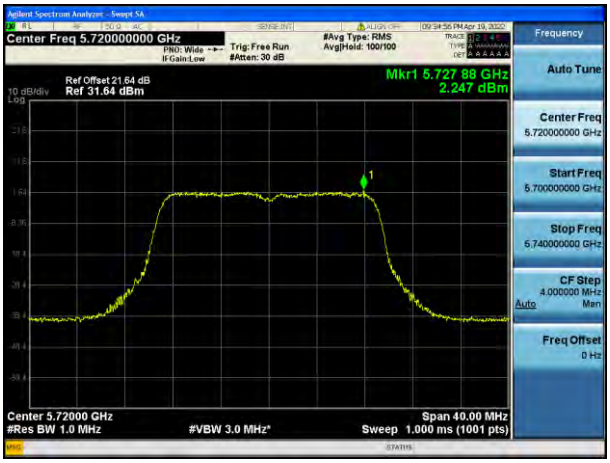
In order to simplify the report, attached plots were only channel of highest power.

UNII 1 (Ch. 46)	UNII 2A (Ch. 54)
	
UNII 2C (Ch. 142)	**UNII 3 (Ch. 151)**
	

▣ Test Plots(802.11ac(VHT20))

Note:

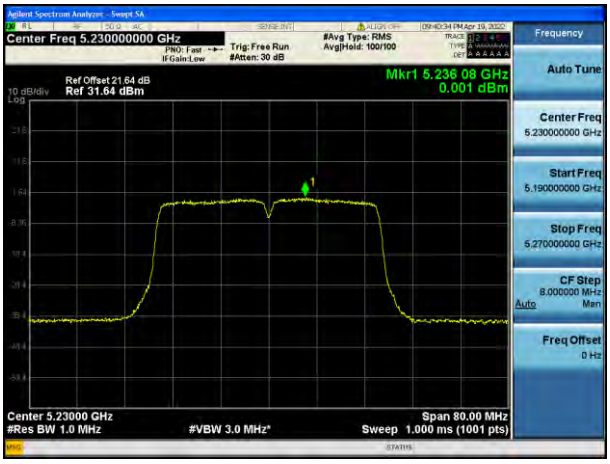
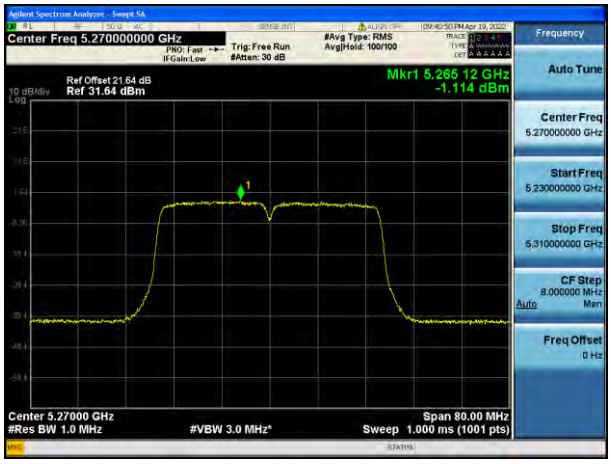
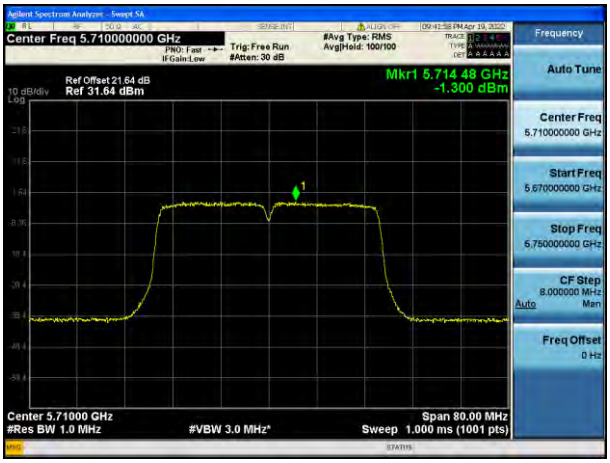
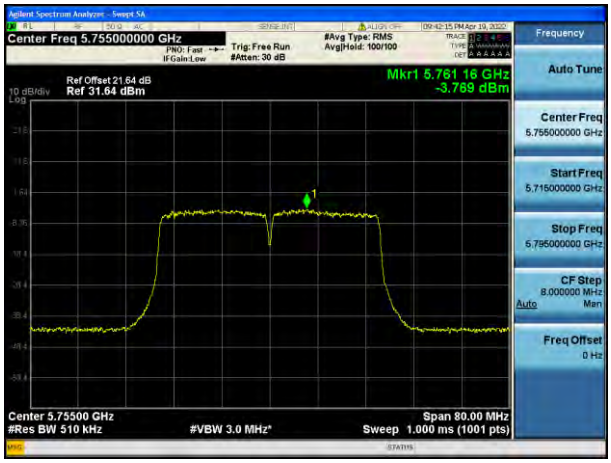
In order to simplify the report, attached plots were only channel of highest power.

UNII 1 (Ch. 48)	UNII 2A (Ch. 52)
	
UNII 2C (Ch. 144)	**UNII 3 (Ch. 149)**
	

▣ Test Plots(802.11ac(VHT40))

Note:

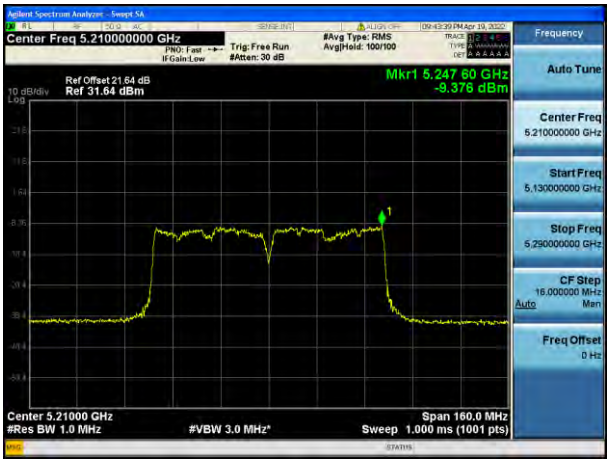
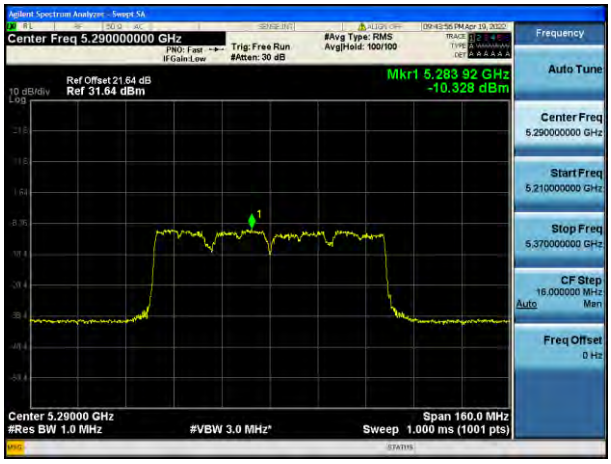
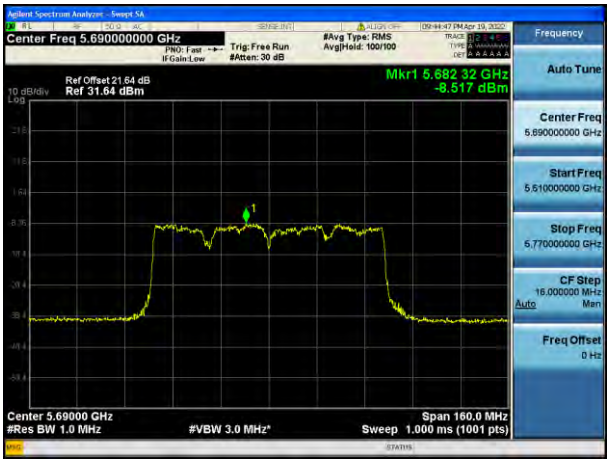
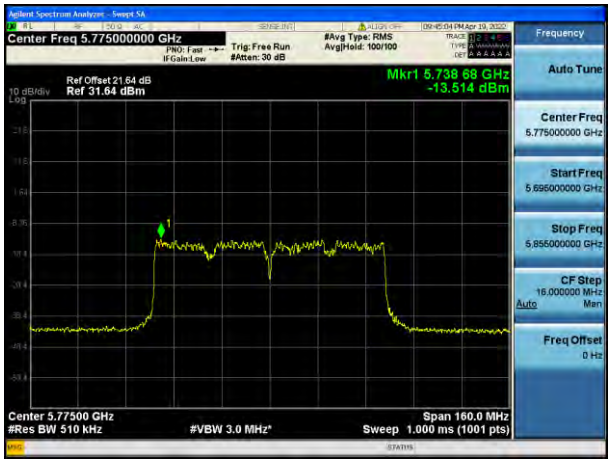
In order to simplify the report, attached plots were only channel of highest power.

UNII 1 (Ch. 46)	UNII 2A (Ch. 54)
	
UNII 2C (Ch. 142)	**UNII 3 (Ch. 151)**
	

▣ Test Plots(802.11ac(VHT80))

Note:

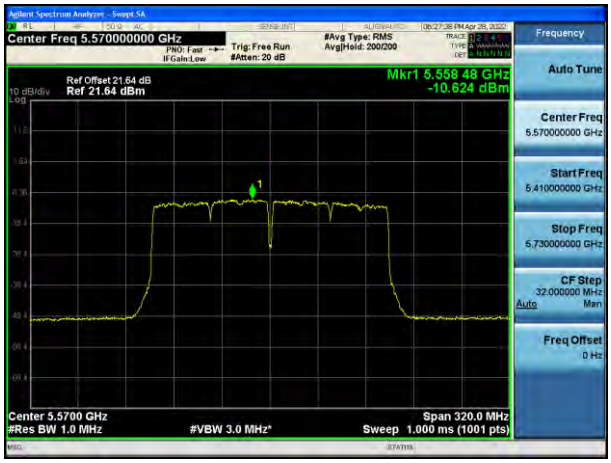
In order to simplify the report, attached plots were only channel of highest power.

UNII 1 (Ch. 42)	UNII 2A (Ch. 58)
	
UNII 2C (Ch. 138)	**UNII 3 (Ch. 155)**
	

▣ Test Plots(802.11ac(VHT160))

Note:

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

UNII 1 (Ch. 50)	UNII 2A (Ch. 114)
	

[Ant.2]

▣ Test Plots(802.11a)

Note:

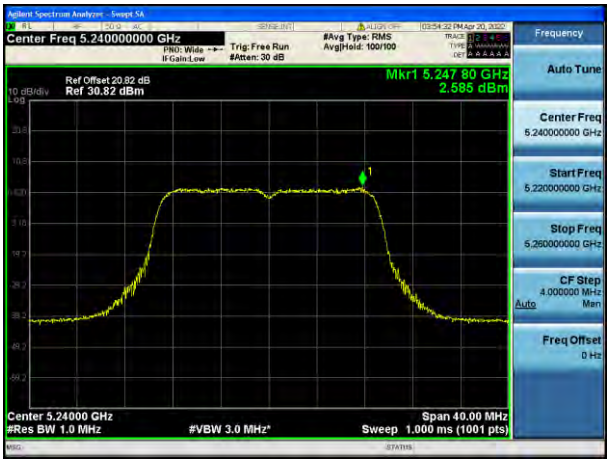
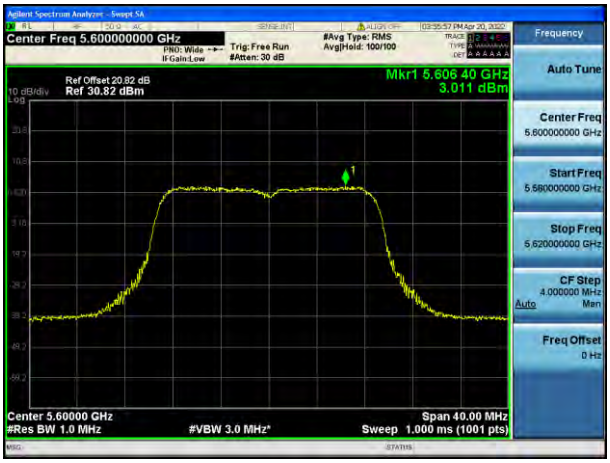
In order to simplify the report, attached plots were only channel of highest power.

UNII 1 (Ch. 48)	UNII 2A (Ch. 60)
	
UNII 2C (Ch. 120)	**UNII 3 (Ch. 157)**
	

▣ Test Plots(802.11n(HT20))

Note:

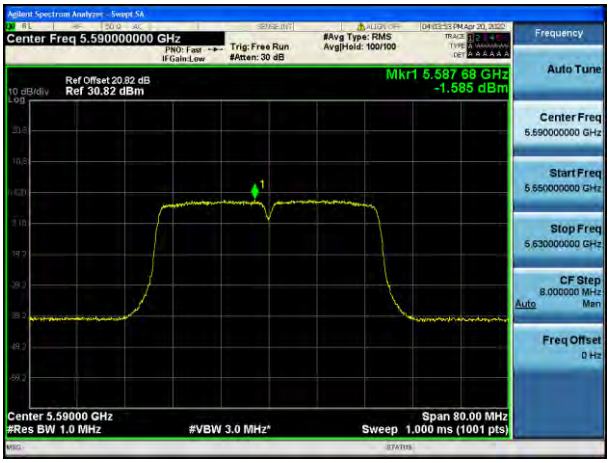
In order to simplify the report, attached plots were only channel of highest power.

UNII 1 (Ch. 48)	UNII 2A (Ch. 52)
	
UNII 2C (Ch. 120)	**UNII 3 (Ch. 149)**
	

▣ Test Plots(802.11n(HT40))

Note:

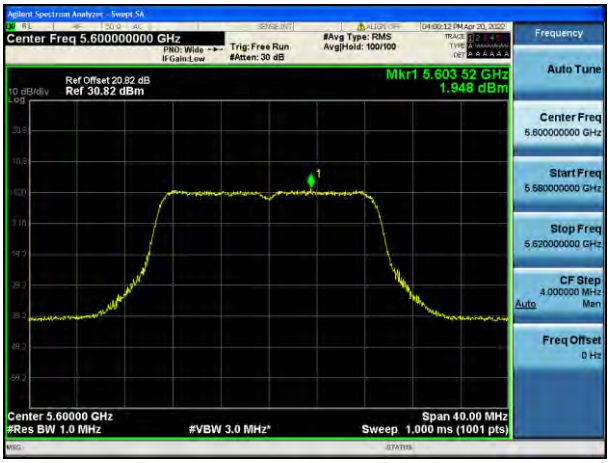
In order to simplify the report, attached plots were only channel of highest power.

UNII 1 (Ch. 46)	UNII 2A (Ch. 54)
	
UNII 2C (Ch. 118)	**UNII 3 (Ch. 151)**
	

▣ Test Plots(802.11ac(VHT20))

Note:

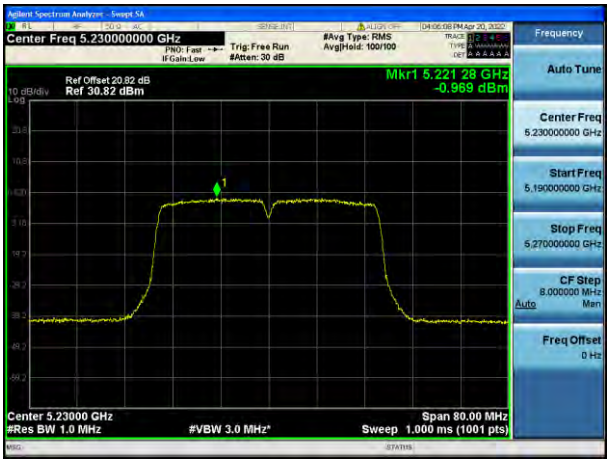
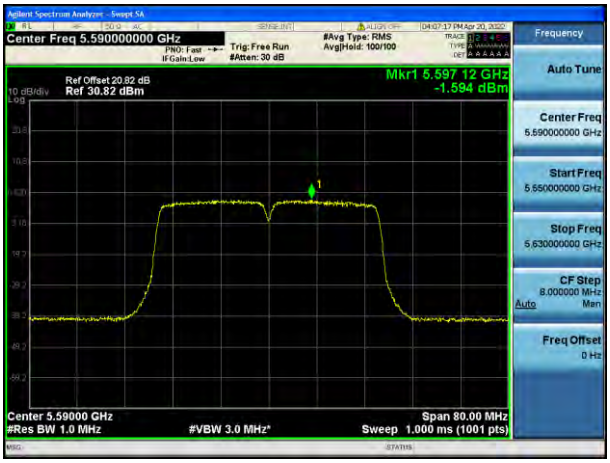
In order to simplify the report, attached plots were only channel of highest power.

UNII 1 (Ch. 48)	UNII 2A (Ch. 52)
	
UNII 2C (Ch. 120)	**UNII 3 (Ch. 157)**
	

▣ Test Plots(802.11ac(VHT40))

Note:

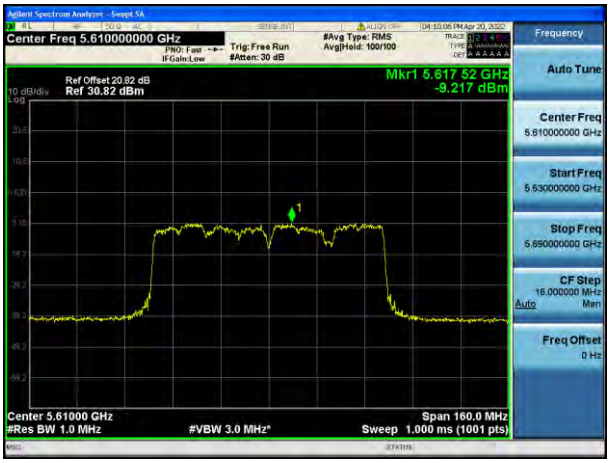
In order to simplify the report, attached plots were only channel of highest power.

UNII 1 (Ch. 46)	UNII 2A (Ch. 54)
	
UNII 2C (Ch. 118)	**UNII 3 (Ch. 151)**
	

▣ Test Plots(802.11ac(VHT80))

Note:

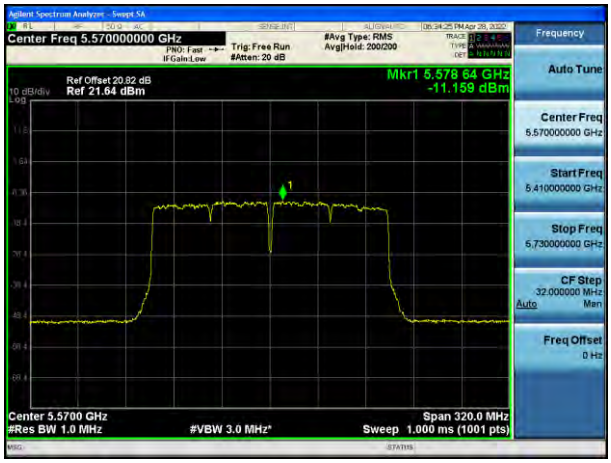
In order to simplify the report, attached plots were only channel of highest power.

UNII 1 (Ch. 42)	UNII 2A (Ch. 58)
	
UNII 2C (Ch. 122)	**UNII 3 (Ch. 155)**
	

▣ Test Plots(802.11ac(VHT160))

Note:

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

UNII 1 (Ch. 50)	UNII 2A (Ch. 114)
	

10.6 FREQUENCY STABILITY.

10.6.1 80 MHz BW

[Ant.1]

Startup after the EUT is energized

OPERATING BAND:	UNII Band 1
OPERATING FREQUENCY:	5,210,000,000 Hz
CHANNEL:	42
REFERENCE VOLTAGE:	3.86 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.86	+20(Ref)	5210044.78	44.78
100%		-30	5210064.51	64.51
100%		-20	5210061.54	61.54
100%		-10	5210055.62	55.62
100%		0	5210050.78	50.78
100%		+10	5210048.06	48.06
100%		+30	5210047.15	47.15
100%		+40	5210056.67	56.67
100%		+50	5210060.43	60.43
High	4.40	+20	5210062.54	62.54
Low	3.75	+20	5210063.33	63.33

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 2A
OPERATING FREQUENCY:	5,290,000,000 Hz
CHANNEL:	58
REFERENCE VOLTAGE:	3.86 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.86	+20(Ref)	5290043.22	43.22
100%		-30	5290062.14	62.14
100%		-20	5290059.14	59.14
100%		-10	5290052.29	52.29
100%		0	5290047.85	47.85
100%		+10	5290045.15	45.15
100%		+30	5290045.41	45.41
100%		+40	5290055.39	55.39
100%		+50	5290059.73	59.73
High	4.40	+20	5290061.56	61.56
Low	3.75	+20	5290061.75	61.75

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:	5,530,000,000 Hz
CHANNEL:	106
REFERENCE VOLTAGE:	3.86 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.86	+20(Ref)	5530046.71	46.71
100%		-30	5530066.95	66.95
100%		-20	5530064.84	64.84
100%		-10	5530059.17	59.17
100%		0	5530055.79	55.79
100%		+10	5530052.88	52.88
100%		+30	5530049.00	49.00
100%		+40	5530058.97	58.97
100%		+50	5530062.45	62.45
High	4.40	+20	5530064.19	64.19
Low	3.75	+20	5530066.45	66.45

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
OPERATING FREQUENCY:	5,775,000,000 Hz
CHANNEL:	155
REFERENCE VOLTAGE:	3.86 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.86	+20(Ref)	5775044.39	44.39
100%		-30	5775063.36	63.36
100%		-20	5775059.36	59.36
100%		-10	5775053.66	53.66
100%		0	5775049.32	49.32
100%		+10	5775045.46	45.46
100%		+30	5775046.57	46.57
100%		+40	5775054.75	54.75
100%		+50	5775059.50	59.50
High	4.40	+20	5775063.14	63.14
Low	3.75	+20	5775063.68	63.68

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
OPERATING FREQUENCY:	5,210,000,000 Hz
CHANNEL:	42
REFERENCE VOLTAGE:	3.86 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.86	+20(Ref)	5210047.30	47.30
100%		-30	5210067.22	67.22
100%		-20	5210065.00	65.00
100%		-10	5210058.44	58.44
100%		0	5210055.02	55.02
100%		+10	5210052.41	52.41
100%		+30	5210050.57	50.57
100%		+40	5210061.33	61.33
100%		+50	5210067.16	67.16
High	4.40	+20	5210067.13	67.13
Low	3.75	+20	5210066.30	66.30

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 2A
OPERATING FREQUENCY:	5,290,000,000 Hz
CHANNEL:	58
REFERENCE VOLTAGE:	3.86 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.86	+20(Ref)	5290050.22	50.22
100%		-30	5290069.70	69.70
100%		-20	5290066.32	66.32
100%		-10	5290060.50	60.50
100%		0	5290056.65	56.65
100%		+10	5290053.94	53.94
100%		+30	5290054.16	54.16
100%		+40	5290064.19	64.19
100%		+50	5290067.33	67.33
High	4.40	+20	5290067.36	67.36
Low	3.75	+20	5290068.39	68.39

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:	5,530,000,000 Hz
CHANNEL:	106
REFERENCE VOLTAGE:	3.86 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.86	+20(Ref)	5530046.24	46.24
100%		-30	5530065.37	65.37
100%		-20	5530061.96	61.96
100%		-10	5530055.14	55.14
100%		0	5530050.08	50.08
100%		+10	5530046.18	46.18
100%		+30	5530050.08	50.08
100%		+40	5530059.81	59.81
100%		+50	5530064.44	64.44
High	4.40	+20	5530064.87	64.87
Low	3.75	+20	5530065.46	65.46

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
OPERATING FREQUENCY:	5,775,000,000 Hz
CHANNEL:	155
REFERENCE VOLTAGE:	3.86 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.86	+20(Ref)	5775049.85	49.85
100%		-30	5775069.64	69.64
100%		-20	5775067.46	67.46
100%		-10	5775060.99	60.99
100%		0	5775057.37	57.37
100%		+10	5775054.38	54.38
100%		+30	5775053.04	53.04
100%		+40	5775063.61	63.61
100%		+50	5775067.17	67.17
High	4.40	+20	5775067.41	67.41
Low	3.75	+20	5775069.64	69.64

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
OPERATING FREQUENCY:	5,210,000,000 Hz
CHANNEL:	42
REFERENCE VOLTAGE:	3.86 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.86	+20(Ref)	5210052.08	52.08
100%		-30	5210072.23	72.23
100%		-20	5210068.94	68.94
100%		-10	5210063.00	63.00
100%		0	5210059.67	59.67
100%		+10	5210055.63	55.63
100%		+30	5210055.44	55.44
100%		+40	5210065.68	65.68
100%		+50	5210069.83	69.83
High	4.40	+20	5210070.23	70.23
Low	3.75	+20	5210069.08	69.08

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 2A
OPERATING FREQUENCY:	5,290,000,000 Hz
CHANNEL:	58
REFERENCE VOLTAGE:	3.86 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.86	+20(Ref)	5290053.67	53.67
100%		-30	5290073.93	73.93
100%		-20	5290071.45	71.45
100%		-10	5290065.61	65.61
100%		0	5290060.89	60.89
100%		+10	5290058.14	58.14
100%		+30	5290057.29	57.29
100%		+40	5290067.57	67.57
100%		+50	5290071.82	71.82
High	4.40	+20	5290071.92	71.92
Low	3.75	+20	5290072.46	72.46

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 2C
OPERATING FREQUENCY:	5,530,000,000 Hz
CHANNEL:	106
REFERENCE VOLTAGE:	3.86 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.86	+20(Ref)	5530055.21	55.21
100%		-30	5530074.58	74.58
100%		-20	5530070.70	70.70
100%		-10	5530065.31	65.31
100%		0	5530060.98	60.98
100%		+10	5530058.37	58.37
100%		+30	5530057.33	57.33
100%		+40	5530065.95	65.95
100%		+50	5530071.57	71.57
High	4.40	+20	5530074.83	74.83
Low	3.75	+20	5530073.16	73.16

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 3
OPERATING FREQUENCY:	5,775,000,000 Hz
CHANNEL:	155
REFERENCE VOLTAGE:	3.86 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.86	+20(Ref)	5775051.44	51.44
100%		-30	5775070.96	70.96
100%		-20	5775068.11	68.11
100%		-10	5775061.12	61.12
100%		0	5775056.05	56.05
100%		+10	5775053.63	53.63
100%		+30	5775055.50	55.50
100%		+40	5775064.10	64.10
100%		+50	5775067.30	67.30
High	4.40	+20	5775068.64	68.64
Low	3.75	+20	5775069.51	69.51

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
OPERATING FREQUENCY:	5,210,000,000 Hz
CHANNEL:	42
REFERENCE VOLTAGE:	3.86 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.86	+20(Ref)	5210057.52	57.52
100%		-30	5210077.93	77.93
100%		-20	5210075.19	75.19
100%		-10	5210068.75	68.75
100%		0	5210065.20	65.20
100%		+10	5210062.11	62.11
100%		+30	5210061.48	61.48
100%		+40	5210072.06	72.06
100%		+50	5210076.96	76.96
High	4.40	+20	5210076.42	76.42
Low	3.75	+20	5210075.23	75.23

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 2A
OPERATING FREQUENCY:	5,290,000,000 Hz
CHANNEL:	58
REFERENCE VOLTAGE:	3.86 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.86	+20(Ref)	5290055.46	55.46
100%		-30	5290074.73	74.73
100%		-20	5290070.94	70.94
100%		-10	5290065.39	65.39
100%		0	5290061.40	61.40
100%		+10	5290057.96	57.96
100%		+30	5290059.32	59.32
100%		+40	5290068.10	68.10
100%		+50	5290074.05	74.05
High	4.40	+20	5290075.41	75.41
Low	3.75	+20	5290072.58	72.58

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:	5,530,000,000 Hz
CHANNEL:	106
REFERENCE VOLTAGE:	3.86 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.86	+20(Ref)	5530058.41	58.41
100%		-30	5530078.78	78.78
100%		-20	5530075.47	75.47
100%		-10	5530069.76	69.76
100%		0	5530066.21	66.21
100%		+10	5530062.93	62.93
100%		+30	5530061.62	61.62
100%		+40	5530070.08	70.08
100%		+50	5530074.39	74.39
High	4.40	+20	5530076.72	76.72
Low	3.75	+20	5530078.26	78.26

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
OPERATING FREQUENCY:	5,775,000,000 Hz
CHANNEL:	155
REFERENCE VOLTAGE:	3.86 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.86	+20(Ref)	5775060.25	60.25
100%		-30	5775080.62	80.62
100%		-20	5775078.43	78.43
100%		-10	5775073.13	73.13
100%		0	5775068.65	68.65
100%		+10	5775064.92	64.92
100%		+30	5775063.57	63.57
100%		+40	5775072.48	72.48
100%		+50	5775078.49	78.49
High	4.40	+20	5775080.26	80.26
Low	3.75	+20	5775079.77	79.77

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.

[Ant.2]

Startup after the EUT is energized

OPERATING BAND:	UNII Band 1
OPERATING FREQUENCY:	5,210,000,000 Hz
CHANNEL:	42
REFERENCE VOLTAGE:	3.86 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.86	+20(Ref)	5210045.15	45.15
100%		-30	5210064.99	64.99
100%		-20	5210062.02	62.02
100%		-10	5210056.61	56.61
100%		0	5210052.42	52.42
100%		+10	5210049.04	49.04
100%		+30	5210047.70	47.70
100%		+40	5210057.94	57.94
100%		+50	5210061.29	61.29
High	4.40	+20	5210062.50	62.50
Low	3.75	+20	5210062.06	62.06

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 2A
OPERATING FREQUENCY:	5,290,000,000 Hz
CHANNEL:	58
REFERENCE VOLTAGE:	3.86 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.86	+20(Ref)	5290047.33	47.33
100%		-30	5290068.12	68.12
100%		-20	5290064.06	64.06
100%		-10	5290057.32	57.32
100%		0	5290053.96	53.96
100%		+10	5290050.89	50.89
100%		+30	5290050.88	50.88
100%		+40	5290059.67	59.67
100%		+50	5290064.09	64.09
High	4.40	+20	5290065.75	65.75
Low	3.75	+20	5290064.35	64.35

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:	5,530,000,000 Hz
CHANNEL:	106
REFERENCE VOLTAGE:	3.86 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.86	+20(Ref)	5530042.62	42.62
100%		-30	5530062.06	62.06
100%		-20	5530059.93	59.93
100%		-10	5530054.06	54.06
100%		0	5530049.68	49.68
100%		+10	5530046.64	46.64
100%		+30	5530046.64	46.64
100%		+40	5530056.17	56.17
100%		+50	5530060.61	60.61
High	4.40	+20	5530061.06	61.06
Low	3.75	+20	5530060.36	60.36

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
OPERATING FREQUENCY:	5,775,000,000 Hz
CHANNEL:	155
REFERENCE VOLTAGE:	3.86 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.86	+20(Ref)	5775046.05	46.05
100%		-30	5775065.10	65.10
100%		-20	5775062.34	62.34
100%		-10	5775056.21	56.21
100%		0	5775051.29	51.29
100%		+10	5775047.93	47.93
100%		+30	5775048.31	48.31
100%		+40	5775058.55	58.55
100%		+50	5775063.39	63.39
High	4.40	+20	5775064.89	64.89
Low	3.75	+20	5775065.51	65.51

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
OPERATING FREQUENCY:	5,210,000,000 Hz
CHANNEL:	42
REFERENCE VOLTAGE:	3.86 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.86	+20(Ref)	5210047.63	47.63
100%		-30	5210067.45	67.45
100%		-20	5210064.28	64.28
100%		-10	5210057.48	57.48
100%		0	5210052.79	52.79
100%		+10	5210048.71	48.71
100%		+30	5210050.09	50.09
100%		+40	5210059.68	59.68
100%		+50	5210063.50	63.50
High	4.40	+20	5210065.45	65.45
Low	3.75	+20	5210066.11	66.11

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 2A
OPERATING FREQUENCY:	5,290,000,000 Hz
CHANNEL:	58
REFERENCE VOLTAGE:	3.86 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.86	+20(Ref)	5290049.87	49.87
100%		-30	5290070.10	70.10
100%		-20	5290066.13	66.13
100%		-10	5290060.93	60.93
100%		0	5290055.96	55.96
100%		+10	5290052.18	52.18
100%		+30	5290053.73	53.73
100%		+40	5290062.56	62.56
100%		+50	5290067.43	67.43
High	4.40	+20	5290068.74	68.74
Low	3.75	+20	5290067.83	67.83

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:	5,530,000,000 Hz
CHANNEL:	106
REFERENCE VOLTAGE:	3.86 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.86	+20(Ref)	5530053.36	53.36
100%		-30	5530073.37	73.37
100%		-20	5530070.06	70.06
100%		-10	5530064.12	64.12
100%		0	5530060.12	60.12
100%		+10	5530057.13	57.13
100%		+30	5530055.81	55.81
100%		+40	5530064.85	64.85
100%		+50	5530069.87	69.87
High	4.40	+20	5530072.38	72.38
Low	3.75	+20	5530073.18	73.18

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
OPERATING FREQUENCY:	5,775,000,000 Hz
CHANNEL:	155
REFERENCE VOLTAGE:	3.86 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.86	+20(Ref)	5775050.49	50.49
100%		-30	5775070.72	70.72
100%		-20	5775067.50	67.50
100%		-10	5775061.92	61.92
100%		0	5775056.94	56.94
100%		+10	5775053.82	53.82
100%		+30	5775054.39	54.39
100%		+40	5775063.97	63.97
100%		+50	5775068.03	68.03
High	4.40	+20	5775068.55	68.55
Low	3.75	+20	5775068.10	68.10

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
OPERATING FREQUENCY:	5,210,000,000 Hz
CHANNEL:	42
REFERENCE VOLTAGE:	3.86 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.86	+20(Ref)	5210054.23	54.23
100%		-30	5210073.58	73.58
100%		-20	5210070.60	70.60
100%		-10	5210065.42	65.42
100%		0	5210061.03	61.03
100%		+10	5210058.27	58.27
100%		+30	5210056.92	56.92
100%		+40	5210064.83	64.83
100%		+50	5210068.88	68.88
High	4.40	+20	5210072.28	72.28
Low	3.75	+20	5210073.65	73.65

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 2A
OPERATING FREQUENCY:	5,290,000,000 Hz
CHANNEL:	58
REFERENCE VOLTAGE:	3.86 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.86	+20(Ref)	5290052.89	52.89
100%		-30	5290073.29	73.29
100%		-20	5290069.62	69.62
100%		-10	5290063.35	63.35
100%		0	5290059.09	59.09
100%		+10	5290055.43	55.43
100%		+30	5290055.22	55.22
100%		+40	5290065.12	65.12
100%		+50	5290068.70	68.70
High	4.40	+20	5290070.47	70.47
Low	3.75	+20	5290070.27	70.27

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.

OPERATING BAND:	UNII Band 2C
OPERATING FREQUENCY:	5,530,000,000 Hz
CHANNEL:	106
REFERENCE VOLTAGE:	3.86 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.86	+20(Ref)	5530056.18	56.18
100%		-30	5530075.24	75.24
100%		-20	5530071.43	71.43
100%		-10	5530065.32	65.32
100%		0	5530062.08	62.08
100%		+10	5530059.05	59.05
100%		+30	5530059.54	59.54
100%		+40	5530068.86	68.86
100%		+50	5530074.67	74.67
High	4.40	+20	5530075.99	75.99
Low	3.75	+20	5530075.33	75.33

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
OPERATING FREQUENCY:	5,775,000,000 Hz
CHANNEL:	155
REFERENCE VOLTAGE:	3.86 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.86	+20(Ref)	5775055.69	55.69
100%		-30	5775075.04	75.04
100%		-20	5775072.51	72.51
100%		-10	5775067.37	67.37
100%		0	5775063.95	63.95
100%		+10	5775060.56	60.56
100%		+30	5775057.82	57.82
100%		+40	5775067.13	67.13
100%		+50	5775071.70	71.70
High	4.40	+20	5775074.26	74.26
Low	3.75	+20	5775073.15	73.15

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
OPERATING FREQUENCY:	5,210,000,000 Hz
CHANNEL:	42
REFERENCE VOLTAGE:	3.86 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.86	+20(Ref)	5210057.54	57.54
100%		-30	5210077.00	77.00
100%		-20	5210074.18	74.18
100%		-10	5210067.56	67.56
100%		0	5210063.75	63.75
100%		+10	5210060.34	60.34
100%		+30	5210061.02	61.02
100%		+40	5210071.01	71.01
100%		+50	5210076.35	76.35
High	4.40	+20	5210076.88	76.88
Low	3.75	+20	5210077.29	77.29

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 2A
OPERATING FREQUENCY:	5,290,000,000 Hz
CHANNEL:	58
REFERENCE VOLTAGE:	3.86 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.86	+20(Ref)	5290056.14	56.14
100%		-30	5290075.71	75.71
100%		-20	5290072.02	72.02
100%		-10	5290065.24	65.24
100%		0	5290061.66	61.66
100%		+10	5290058.26	58.26
100%		+30	5290059.24	59.24
100%		+40	5290067.68	67.68
100%		+50	5290072.58	72.58
High	4.40	+20	5290075.04	75.04
Low	3.75	+20	5290075.80	75.80

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:	5,530,000,000 Hz
CHANNEL:	106
REFERENCE VOLTAGE:	3.86 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.86	+20(Ref)	5530060.11	60.11
100%		-30	5530079.15	79.15
100%		-20	5530075.84	75.84
100%		-10	5530069.52	69.52
100%		0	5530065.19	65.19
100%		+10	5530062.12	62.12
100%		+30	5530064.09	64.09
100%		+40	5530073.42	73.42
100%		+50	5530078.18	78.18
High	4.40	+20	5530078.87	78.87
Low	3.75	+20	5530078.30	78.30

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
OPERATING FREQUENCY:	5,775,000,000 Hz
CHANNEL:	155
REFERENCE VOLTAGE:	3.86 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.86	+20(Ref)	5775063.38	63.38
100%		-30	5775083.87	83.87
100%		-20	5775080.84	80.84
100%		-10	5775073.95	73.95
100%		0	5775070.50	70.50
100%		+10	5775068.35	68.35
100%		+30	5775066.27	66.27
100%		+40	5775075.10	75.10
100%		+50	5775079.02	79.02
High	4.40	+20	5775081.30	81.30
Low	3.75	+20	5775082.46	82.46

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.

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	5710.12	14.88
802.11n(HT20)				5709.56	15.44
802.11ac(VHT20)				5709.36	15.64
802.11a	UNII 3	5720	144	5729.64	4.64
802.11n(HT20)				5730.44	5.44
802.11ac(VHT20)				5730.32	5.32

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	26 dB Bandwidth [MHz]
802.11n(HT40)	UNII 2C	5710	142	5690.24	34.76
802.11ac(VHT40)				5690.00	35.00
802.11n(HT40)	UNII 3	5710	142	5729.76	4.76
802.11ac(VHT40)				5729.60	4.60

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	26 dB Bandwidth [MHz]
802.11ac(VHT80)	UNII 2C	5690	138	5645.52	79.48
	UNII 3	5690	138	5736.24	11.24

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	5709.96	15.04
802.11n(HT20)				5709.44	15.56
802.11ac(VHT20)				5709.40	15.60
802.11a	UNII 3	5720	144	5729.92	4.92
802.11n(HT20)				5730.32	5.32
802.11ac(VHT20)				5730.40	5.40

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	26 dB Bandwidth [MHz]
802.11n(HT40)	UNII 2C	5710	142	5690.00	35.00
802.11ac(VHT40)				5690.16	34.84
802.11n(HT40)	UNII 3	5710	142	5729.76	4.76
802.11ac(VHT40)				5729.76	4.76

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	26 dB Bandwidth [MHz]
802.11ac(VHT80)	UNII 2C	5690	138	5645.36	79.64
	UNII 3	5690	138	5736.24	11.24

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


▣ Test Plots (26 dB Bandwidth)

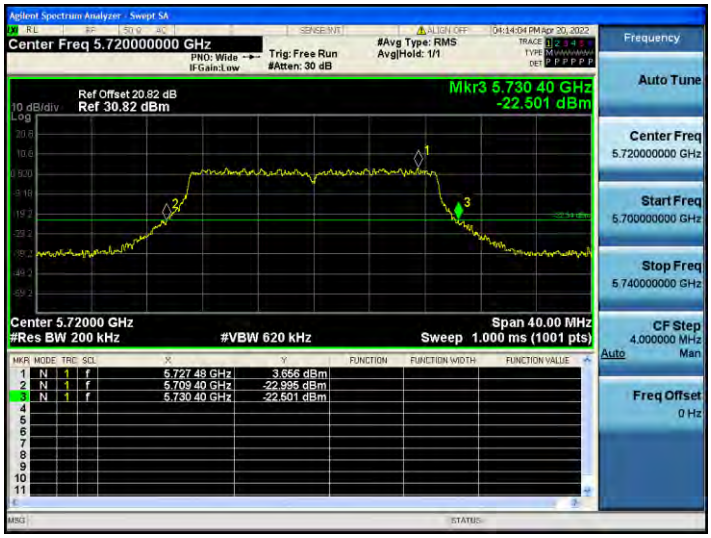
802.11n(HT40) UNII Band	802.11ac(VHT40) UNII Band
	

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


▣ Test Plots (26 dB Bandwidth)

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]	6 dB Bandwidth [MHz]	Limit [MHz]
802.11a	UNII 3	5720	144	5728.24	3.24	> 0.5
802.11n(HT20)				5728.88	3.88	> 0.5
802.11ac(VHT20)				5728.84	3.84	> 0.5

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
802.11n(HT40)	UNII 3	5710	142	5727.60	2.60	> 0.5
802.11ac(VHT40)				5727.84	2.84	> 0.5

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
802.11ac(VHT80)	UNII 3	5690	138	5728.40	3.40	> 0.5

Note:

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

[Ant.2]

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
802.11a	UNII 3	5720	144	5728.24	3.24	> 0.5
802.11n(HT20)				5728.88	3.88	> 0.5
802.11ac(VHT20)				5728.88	3.88	> 0.5

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
802.11n(HT40)	UNII 3	5710	142	5727.60	2.60	> 0.5
802.11ac(VHT40)				5727.84	2.84	> 0.5

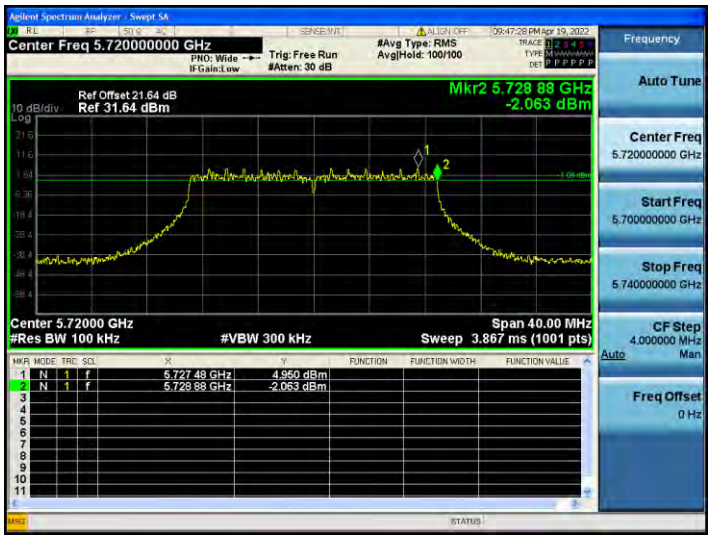
Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
802.11ac(VHT80)	UNII 3	5690	138	5728.40	3.40	> 0.5

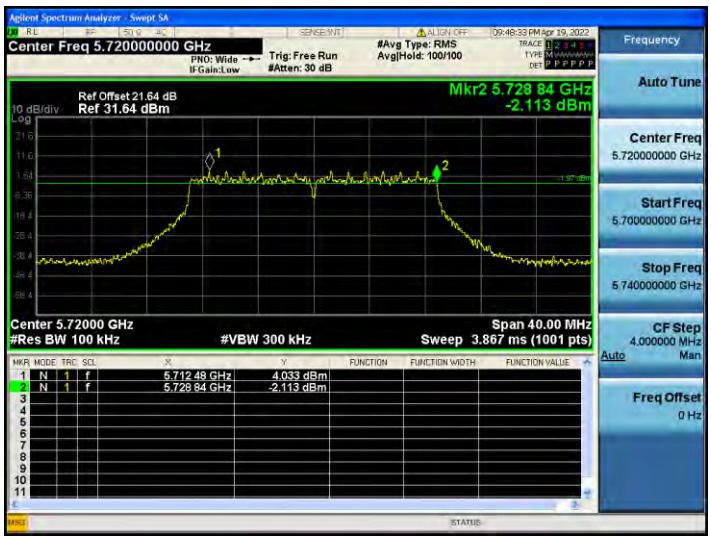
Note:

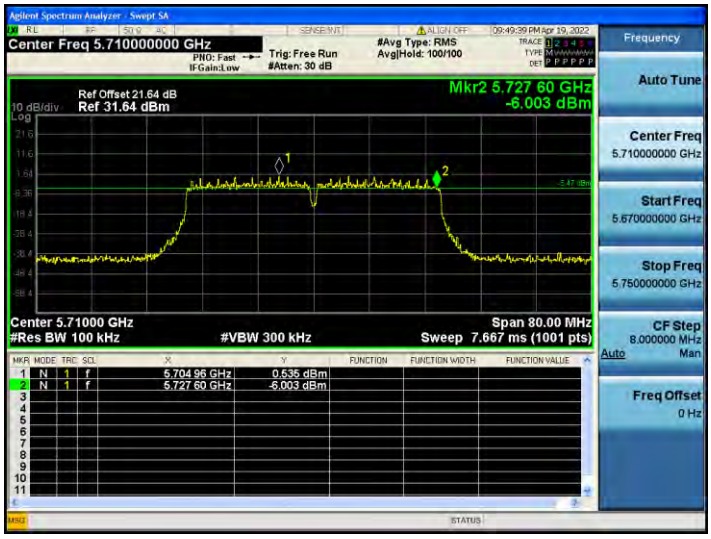
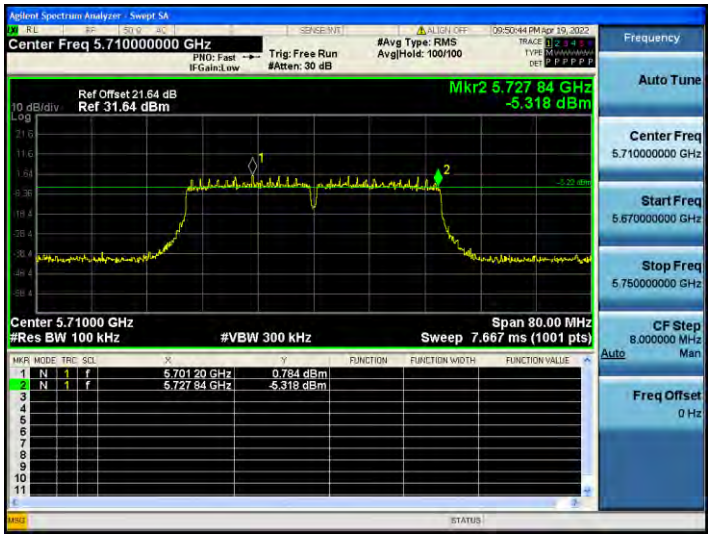
6 dB Bandwidth = Measured Frequency[MHz] – 5725MHz

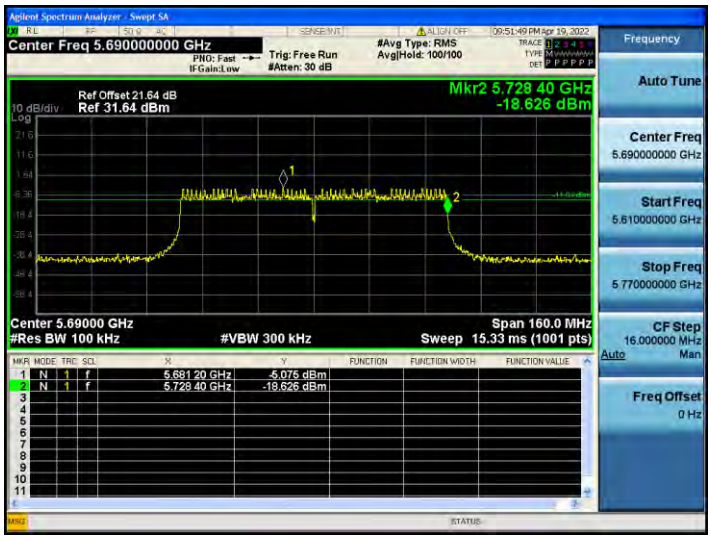
[Ant.1]

▣ Test Plots(UNII 3 Band 6 dB Bandwidth)

802.11a CH.144	802.11n_HT20 CH.144
	

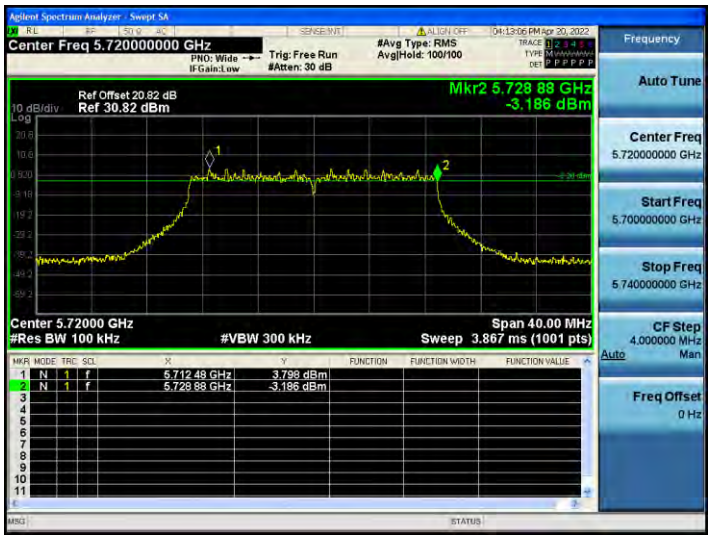
802.11ac_VHT20 CH.144


802.11n_HT40 CH.142	802.11ac_VHT40 CH.142
	

802.11ac_VHT80 CH.138


[Ant.2]

▣ Test Plots(UNII 3 Band 6 dB Bandwidth)

802.11a CH.144	802.11n_HT20 CH.144
	

802.11ac_VHT20 CH.144