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TEST REPORT

FCC UNII Test for IL7FB
Certification

APPLICANT
LG Electronics Inc.

REPORT NO.
HCT-RF-2101-FC114

DATE OF ISSUE
January 28, 2021

Tested by
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Additional Model
-

Applicant	**LG Electronics Inc.** 222, LG-ro, Jinwi-myeon, Pyeongtaek-si, Gyeonggi-do, 451-713, Korea
Eut Type Model Name	Faceplate RADIO ASM-RECEIVER IL7FB
FCC ID	BEJIL7FB2
Modulation type	OFDM
FCC Classification	Unlicensed National Information Infrastructure(NII)
FCC Rule Part(s)	Part 15.407

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

REVISION HISTORY

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

Revision No.	Date of Issue	Description
0	January 28, 2021	Initial Release

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.

CONTENTS

1. GENERAL INFORMATION

EUT DESCRIPTION

Model	IL7FB	
Additional Model	-	
EUT Type	Faceplate RADIO ASM-RECEIVER	
Power Supply	DC 12.0 V	
Modulation Type	OFDM : 802.11a, 802.11n, 802.11ac	
Frequency Range (MHz)	U-NII-1	20MHz BW : 5180 - 5240 40MHz BW : 5190 - 5230 80MHz BW : 5210
	U-NII-2A	20MHz BW : 5260 - 5320 40MHz BW : 5270 - 5310 80MHz BW : 5290
	U-NII-2C	20MHz BW : 5500 - 5720 40MHz BW : 5510 - 5710 80MHz BW : 5530 – 5690
	U-NII-3	20MHz BW : 5745 - 5825 40MHz BW : 5755 - 5795 80MHz BW : 5775
Antenna Peak Gain	**Internal Antenna:** Peak Gain : 4.30 dBi (UNII 1) / 4.30 dBi(UNII 2A) / 4.70 dBi(UNII 2C) / 5.40 dBi(UNII 3) **External Antenna:** Peak Gain : 1.60 dBi (UNII 1) / 1.60 dBi(UNII 2A) / 1.40 dBi(UNII 2C) / 1.60 dBi(UNII 3)	
Straddle channel	Supported	
TDWR Band	Not Supported	
Dynamic Frequency Selection	Slave without radar detection	
Date(s) of Tests	December 11, 2020 ~ January 22, 2021	
EUT serial numbers	Conduction : 012023413 Radiation : 012023422	

ANTENNA CONFIGURATIONS

1. The device employs MIMO technology. Below are the possible configurations

Configurations	SISO		SDM	CDD
	Internal Ant	External Ant	Internal Ant + External Ant	Internal Ant + External Ant
802.11a	O	O	X	X
802.11n(HT20)	O	O	O	X
802.11n(HT40)	O	O	O	X
802.11ac(VHT20)	O	O	O	X
802.11ac(VHT40)	O	O	O	X
802.11ac(VHT80)	O	O	O	X

Note:

1. O = Support, X = Not Support
2. SISO = Single Input Single Output
3. SDM = Spatial Diversity Multiplexing
4. CDD = Cyclic Delay Diversity

2. MAXIMUM OUTPUT POWER

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

Band	Mode	SISO				MIMO (SDM)	
		Internal Ant Power		External Ant Power		Internal + External Power	
		(dBm)	(W)	(dBm)	(W)	(dBm)	(W)
UNII1	802.11a	6.99	0.005	13.00	0.020	-	-
	802.11n (HT20)	7.05	0.005	13.02	0.020	8.88	0.008
	802.11n (HT40)	6.60	0.005	12.27	0.017	8.04	0.006
	802.11ac (VHT20)	6.76	0.005	13.00	0.020	8.85	0.008
	802.11ac (VHT40)	6.06	0.004	12.21	0.017	8.04	0.006
	802.11ac (VHT80)	6.59	0.005	11.28	0.013	7.86	0.006
UNII2A	802.11a	6.48	0.004	12.16	0.016	-	-
	802.11n (HT20)	6.65	0.005	12.83	0.019	9.14	0.008
	802.11n (HT40)	6.17	0.004	12.32	0.017	8.07	0.006
	802.11ac (VHT20)	6.38	0.004	12.93	0.020	9.05	0.008
	802.11ac (VHT40)	5.76	0.004	12.14	0.016	8.12	0.006
	802.11ac (VHT80)	5.91	0.004	11.22	0.013	7.90	0.006
UNII2C	802.11a	17.15	0.052	20.49	0.112	-	-
	802.11n (HT20)	16.95	0.050	20.63	0.116	19.10	0.081
	802.11n (HT40)	15.99	0.040	20.62	0.115	18.76	0.075
	802.11ac (VHT20)	16.96	0.050	20.68	0.117	19.07	0.081
	802.11ac (VHT40)	15.29	0.034	20.52	0.113	18.73	0.075
	802.11ac (VHT80)	15.49	0.035	20.76	0.119	18.64	0.073
UNII3	802.11a	17.46	0.056	20.32	0.108	-	-
	802.11n (HT20)	17.35	0.054	20.29	0.107	21.67	0.147
	802.11n (HT40)	16.46	0.044	20.00	0.100	21.46	0.140
	802.11ac (VHT20)	17.31	0.054	20.32	0.108	21.61	0.145
	802.11ac (VHT40)	15.92	0.039	20.05	0.101	21.42	0.139
	802.11ac (VHT80)	16.15	0.041	18.92	0.078	20.79	0.120

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 30MHz 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 1GHz. Above 1GHz with 1.5m 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.

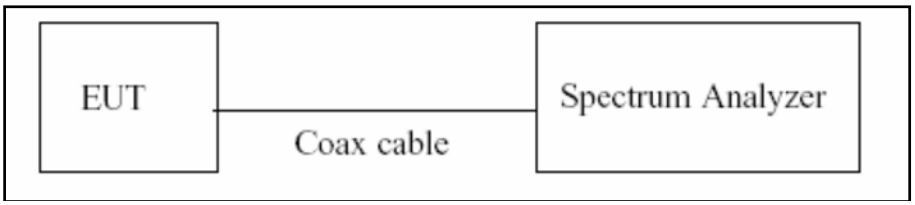
The measurement data shown herein meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance

Parameter	Expanded Uncertainty (±dB)
Conducted Disturbance (150 kHz ~ 30 MHz)	1.82
Radiated Disturbance (9 kHz ~ 30 MHz)	3.40
Radiated Disturbance (30 MHz ~ 1 GHz)	4.80
Radiated Disturbance (1 GHz ~ 18 GHz)	5.70
Radiated Disturbance (18 GHz ~ 40 GHz)	5.05

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.

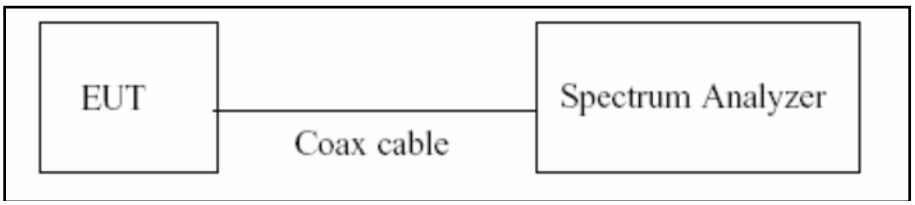
1. RBW = 8 MHz (the largest availble value)
2. VBW = 8 MHz (≥ RBW)
3. SPAN = 0 Hz
4. Detector = Peak
5. Number of points in sweep > 100
6. Trace mode = Clear write
7. Measure T_{total} and T_{on}
8. Calculate Duty Cycle = T_{on}/ T_{total} and Duty Cycle Factor = 10log(1/Duty Cycle)

8.2. 6dB Bandwidth & 26dB Bandwidth

Limit

Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

Test Configuration



Test Procedure(26dB 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 (6dB 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.

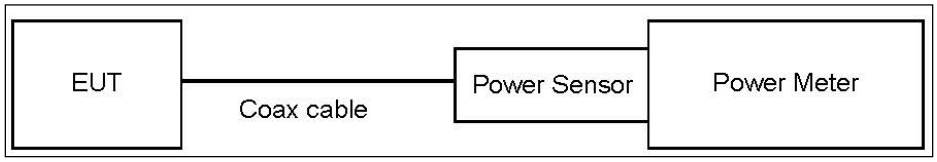
8.3. Output Power Measurement

Limit

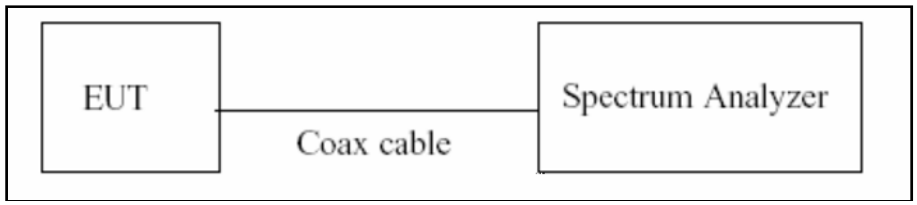
Band	Limit
UNII 1	- Master : Not exceed 1 W(=30dBm) - Slave : Not exceed 250 mW(=23.98 dBm)
UNII 2A, 2C	Not exceed the lesser of 250 mW or 11 dBm + 10 log B, (where B is the 26 dB emission bandwidth in megahertz.)
UNII 3	Not exceed 1 W(=30dBm)

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) = Reading Value(dBm) + ATT loss(dB) + Cable loss(dB) + Duty Cycle Factor(dB)

Note

1. Spectrum reading values 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 = Attenuator loss(20 dB) + Cable loss + EUT cable loss
3. Actual value of loss for the attenuator and cable combination is below table.

Band	Internal Loss(dB)
UNII 1	21.77
UNII 2A	21.77
UNII 2C	21.87
UNII 3	21.97

Band	External Loss(dB)
UNII 1	24.07
UNII 2A	24.07
UNII 2C	27.07
UNII 3	26.27

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

Limit & Ant Gain Calculation

Ant Gain

Band	Ant Gain (dBi)		N_{ANT}/ Nss	Directional Gain (= $G_{ANT\ MAX}$ + 10 log(N_{ANT}/N_{SS})) (dBi)
UNII 1	Internal	4.3	2 / 2	4.3
	External	1.6		
UNII 2A	Internal	4.3	2 / 2	4.3
	External	1.6		
UNII 2C	Internal	4.7	2 / 2	4.7
	External	1.4		
UNII 3	Internal	5.4	2 / 2	5.4
	External	1.6		

Operating mode

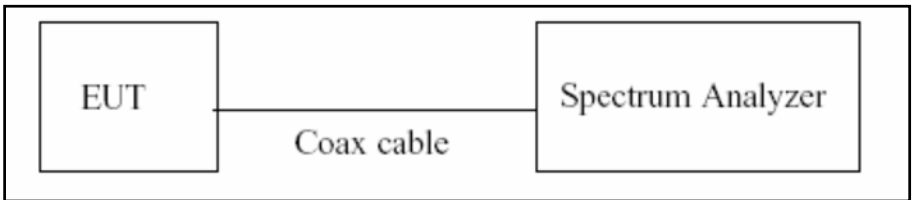
Mode	Operating Mode	Antenna
802.11a/n/ac	SISO	Internal Antenna
		External Antenna
802.11n(HT20)	MIMO	Internal Antenna + External Antenna
802.11ac(VHT20)		
802.11n(HT40)		
802.11ac(VHT40)		
802.11ac(VHT80)		

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) = Reading Value(dBm) + ATT loss(dB) + Cable loss(dB) + Duty Cycle Factor(dB)

Note

1. Spectrum reading values 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 = Attenuator loss(20 dB) + Cable loss
3. Actual value of loss for the attenuator and cable combination is below table.

Band	Internal Loss(dB)
UNII 1	21.77
UNII 2A	21.77
UNII 2C	21.87
UNII 3	21.97

Band	External Loss(dB)
UNII 1	24.07
UNII 2A	24.07
UNII 2C	27.07
UNII 3	26.27

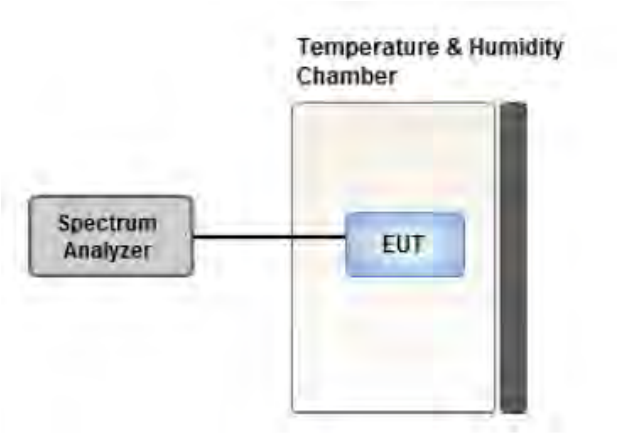
(Actual value of loss for the attenuator and cable combination)

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*	56 to 46*
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) = Reading 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.

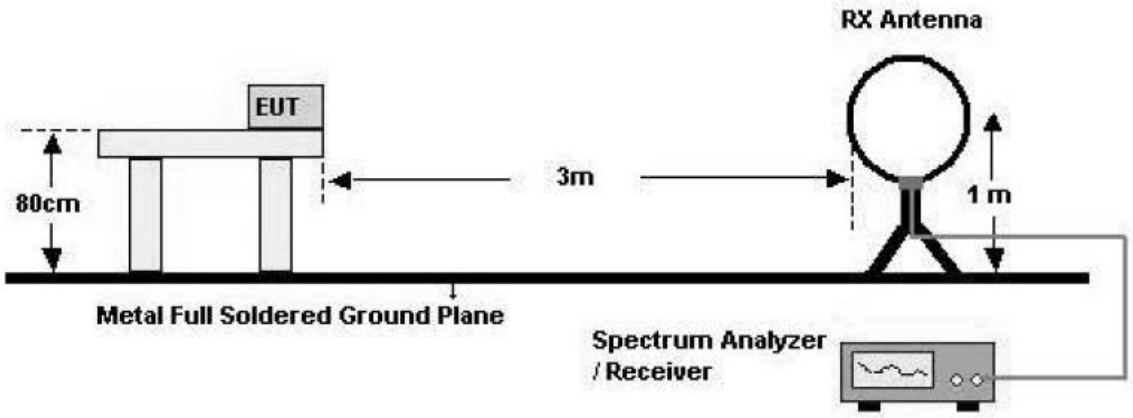
3. UNII 3: All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below 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.

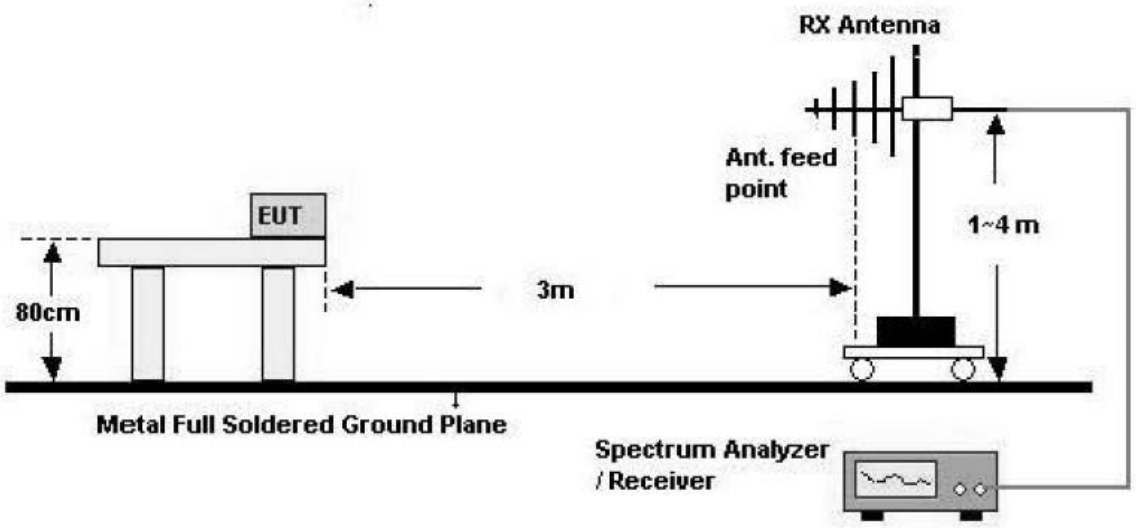
Frequency (MHz)	Field Strength (uV/m)	Measurement Distance (m)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Test Configuration

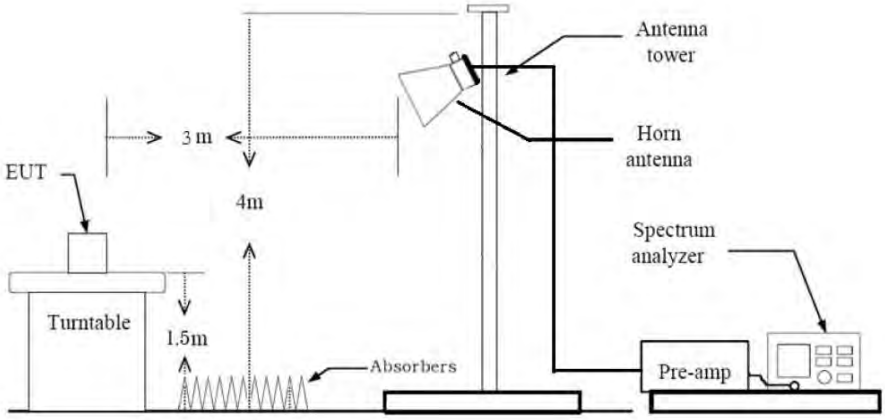
Below 30 MHz



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 3m from the EUT
3. The EUT is placed on a turntable, which is 0.8m above ground plane.
4. .We have done x, y, z planes in EUT and horizontal and vertical polarization and Parallel to the ground plane in detecting antenna.
5. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
6. Distance Correction Factor(0.009 MHz – 0.490 MHz) = 40log(3 m/300 m) = - 80 dB
   Measurement Distance : 3 m
7. Distance Correction Factor(0.490 MHz – 30 MHz) = 40log(3 m/30 m) = - 40 dB
   Measurement Distance : 3 m
8. Spectrum Setting
   - Frequency Range = 9 kHz ~ 30 MHz
   - Detector = Peak
   - Trace = Maxhold
   - RBW = 9 kHz
   - VBW ≥ 3 x RBW
9. Total = Reading 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 1GHz)

1. The EUT was placed on a non-conductive table located on semi-anechoic chamber.
2. The EUT is placed on a turntable, which is 0.8m above ground plane.
3. The Hybrid antenna was placed at a location 3m from the EUT, which is varied from 1m to 4m 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 = Reading 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 1m to 4m 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.c in KDB 789033 v02r01):

- RBW = 1 MHz
- VBW ≥ 3 MHz
- The analyzer is set to linear detector mode.
- Averaging type = power (*i.e.*, RMS)
- Sweep time = auto.
- Trace mode = average (at least 100 traces).
- If a specific emission is demonstrated to be continuous (100% duty cycle) rather than turning on and off with the transmit cycle, no duty cycle correction is required for that emission.

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 = Reading Value + Antenna Factor(A.F) + Cable Loss(C.L) - Amp Gain(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 1m to 4m 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.c in KDB 789033 v02r01):
   - RBW = 1 MHz
   - VBW ≥ 3 MHz
   - The analyzer is set to linear detector mode.
   - Averaging type = power (*i.e.*, RMS)
   - Sweep time = auto.
   - Trace mode = average (at least 100 traces).
   - If a specific emission is demonstrated to be continuous (100% duty cycle) rather than turning on and off with the transmit cycle, no duty cycle correction is required for that emission.
9. Measured Frequency Range :
   - 4500MHz ~ 5150MHz
   - 5350MHz ~ 5460MHz
   - 5460MHz ~ 5470MHz
   - (75 MHz or more below the 5725MHz) ~ 5725MHz

- 5850MHz ~ (75 MHz or more above the 5850MHz)

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

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

8.8. Worst case configuration and mode

Radiated test

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

2. All configurations of antenna were investigated and the worst case configuration results are reported.

- Mode : Internal Ant(SISO), External Ant(SISO), Internal Ant+ External Ant(MIMO SDM)
- Worstcase : External Ant(SISO)

3. EUT Axis

- Radiated Spurious Emissions : X
- Radiated Restricted Band Edge : X

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

- 802.11a : 6 Mbps
- 802.11n_HT20 : MCS0
- 802.11n_HT40 : MCS0
- 802.11ac_VHT20 : MCS0
- 802.11ac_VHT40 : MCS0
- 802.11ac_VHT80 : MCS0

4. Radiated Spurious Emission

All modulation of operation were investigated and the test results are worst case modulation of each mode.

(Worst case : 802.11a 6Mbps)

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

AC Power line Conducted Emissions

1. We don't perform powerline conducted emission test. Because this EUT is used with vehicle.

Conducted test

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

9. SUMMARY OF TEST RESULTS

Test Description	FCC Part Section(s)	Test Limit	Test Condition	Test Result
26dB Bandwidth	§ 15.407 (for Power Measurement)	N/A	Conducted	PASS
6 dB Bandwidth	§ 15.407(e)	>500 kHz (5725-5850 MHz)		PASS
Maximum Conducted Output Power	§ 15.407(a)(1)	< 250 mW(5150-5250 MHz) < 250 mW or 11+10 log $\log_{10}$ (BW) dBm (5250-5350 MHz) < 250 mW or 11+10 log $\log_{10}$ (BW) dBm (5470-5725 MHz) <1 W(5725-5850 MHz)		PASS
Peak Power Spectral Density	§ 15.407(a)(1),(5)	<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	<FCC 15.207 limits		N/A(#Note)
Undesirable Emissions	§ 15.407(b)	<-27 dBm/MHz EIRP (UNII1, 2A, 2C) cf. Section 8.7 (UNII 3)	Radiated	PASS
General Field Strength Limits(Restricted Bands and Radiated Emission Limits)	15.205, 15.407(b)(5), (6)	Emissions in restricted bands must meet the radiated limits detailed in 15.209		PASS

#Note: Not Tested.

10. TEST RESULT

10.1 DUTY CYCLE

[SISO]

Mode	Data Rate (Mbps)	T_{on} (ms)	T_{total} (ms)	Duty Cycle	Duty Cycle Factor(dB)
802.11a	6	2.065	2.165	0.954	0.205
	9	1.385	1.485	0.933	0.303
	12	1.041	1.143	0.911	0.406
	18	0.705	0.807	0.874	0.587
	24	0.534	0.636	0.840	0.759
	36	0.366	0.465	0.787	1.040
	48	0.276	0.378	0.730	1.366
	54	0.248	0.348	0.713	1.471

Mode	MCS Index	T_{on} (ms)	T_{total} (ms)	Duty Cycle	Duty Cycle Factor(dB)
802.11n (HT20)	0	1.920	2.020	0.950	0.221
	1	0.981	1.080	0.908	0.418
	2	0.663	0.765	0.867	0.621
	3	0.507	0.609	0.833	0.796
	4	0.353	0.454	0.777	1.096
	5	0.271	0.373	0.728	1.376
	6	0.248	0.350	0.711	1.484
	7	0.229	0.330	0.693	1.592
802.11n (HT40)	0	0.945	1.045	0.904	0.437
	1	0.492	0.593	0.829	0.814
	2	0.340	0.442	0.771	1.130
	3	0.264	0.365	0.723	1.411
	4	0.187	0.290	0.646	1.900
	5	0.152	0.253	0.600	2.218
	6	0.140	0.241	0.580	2.369
	7	0.127	0.229	0.557	2.541

Mode	MCS Index	T_{on} (ms)	T_{total} (ms)	Duty Cycle	Duty Cycle Factor(dB)
802.11ac (VHT20)	0	1.920	2.025	0.948	0.231
	1	0.990	1.089	0.909	0.414
	2	0.672	0.774	0.868	0.614
	3	0.516	0.618	0.835	0.783
	4	0.357	0.456	0.783	1.063
	5	0.280	0.382	0.733	1.349
	6	0.252	0.354	0.712	1.476
	7	0.232	0.334	0.695	1.583
	8	0.201	0.299	0.672	1.727
802.11ac (VHT40)	0	0.955	1.055	0.905	0.432
	1	0.496	0.598	0.829	0.812
	2	0.344	0.446	0.771	1.128
	3	0.268	0.370	0.724	1.401
	4	0.192	0.293	0.655	1.836
	5	0.156	0.257	0.607	2.168
	6	0.144	0.245	0.588	2.308
	7	0.132	0.233	0.567	2.468
	8	0.115	0.217	0.530	2.758
	9	0.112	0.213	0.526	2.792
802.11ac (VHT80)	0	0.460	0.560	0.821	0.854
	1	0.252	0.353	0.714	1.464
	2	0.180	0.281	0.641	1.934
	3	0.148	0.249	0.594	2.259
	4	0.112	0.213	0.526	2.792
	5	0.096	0.197	0.487	3.122
	6	0.088	0.189	0.466	3.320
	7	0.084	0.185	0.454	3.429
	8	0.076	0.178	0.427	3.696
	9	0.072	0.173	0.416	3.807

[MIMO]

Mode	MCS Index	T_{on} (ms)	T_{total} (ms)	Duty Cycle	Duty Cycle Factor(dB)
802.11n (HT20)	8	0.984	1.086	0.906	0.428
	9	0.512	0.613	0.835	0.784
	10	0.358	0.457	0.783	1.063
	11	0.276	0.377	0.732	1.357
	12	0.201	0.302	0.665	1.772
	13	0.160	0.261	0.612	2.134
	14	0.149	0.250	0.595	2.255
	15	0.137	0.238	0.574	2.409
802.11n (HT40)	8	0.489	0.597	0.819	0.867
	9	0.267	0.370	0.722	1.414
	10	0.192	0.293	0.654	1.841
	11	0.156	0.258	0.607	2.167
	12	0.115	0.218	0.528	2.772
	13	0.100	0.201	0.496	3.044
	14	0.092	0.194	0.475	3.229
	15	0.088	0.190	0.464	3.331

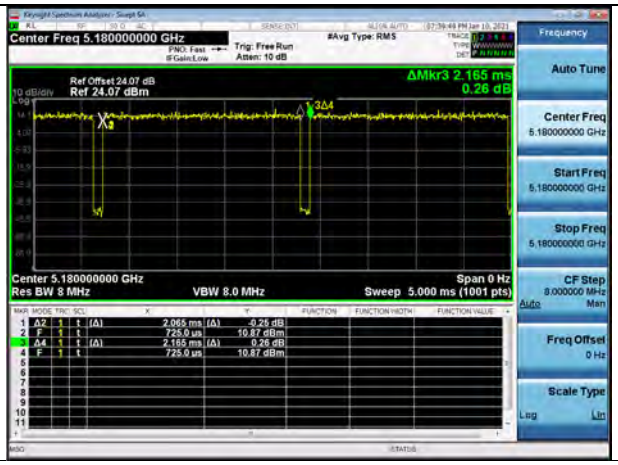
Mode	MCS Index	T_{on} (ms)	T_{total} (ms)	Duty Cycle	Duty Cycle Factor(dB)
802.11ac (VHT20)	9	0.993	1.092	0.909	0.413
	10	0.520	0.621	0.837	0.773
	11	0.360	0.462	0.781	1.075
	12	0.284	0.385	0.737	1.325
	13	0.204	0.305	0.668	1.750
	14	0.164	0.265	0.619	2.086
	15	0.152	0.254	0.599	2.223
	16	0.140	0.242	0.580	2.368
	17	0.124	0.225	0.552	2.584
802.11ac (VHT40)	10	0.495	0.600	0.825	0.835
	11	0.273	0.374	0.729	1.370
	12	0.196	0.298	0.660	1.806
	13	0.160	0.262	0.608	2.159
	14	0.120	0.222	0.538	2.692
	15	0.104	0.205	0.508	2.943
	16	0.097	0.198	0.490	3.099
	17	0.092	0.194	0.475	3.231
	18	0.084	0.185	0.455	3.424
	19	0.080	0.181	0.442	3.541
802.11ac (VHT80)	10	0.256	0.357	0.717	1.446
	11	0.152	0.253	0.600	2.218
	12	0.116	0.217	0.535	2.720
	13	0.100	0.202	0.496	3.043
	14	0.080	0.182	0.441	3.558
	15	0.072	0.173	0.416	3.807
	16	0.068	0.169	0.402	3.954
	17	0.068	0.170	0.401	3.967
	18	0.064	0.166	0.387	4.126
	19	0.060	0.161	0.373	4.287

Note:

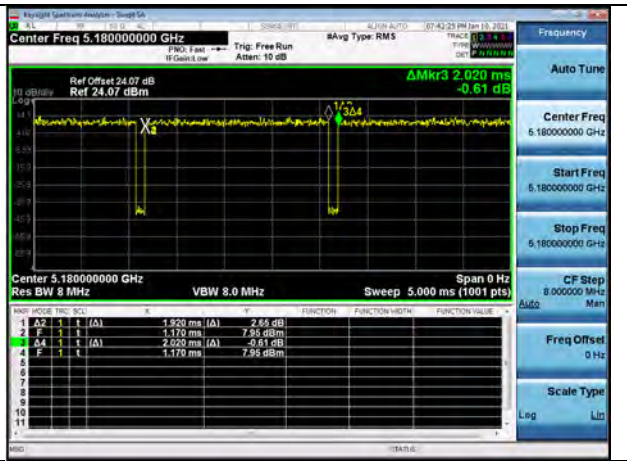
In order to simplify the report, attached plots were only lowest datarate.

[SISO]

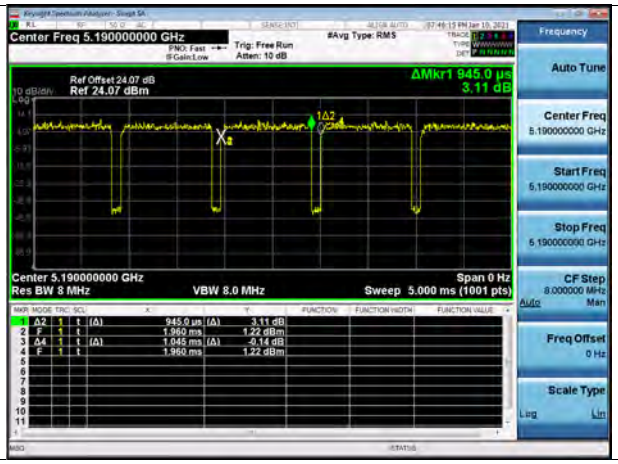
802.11a



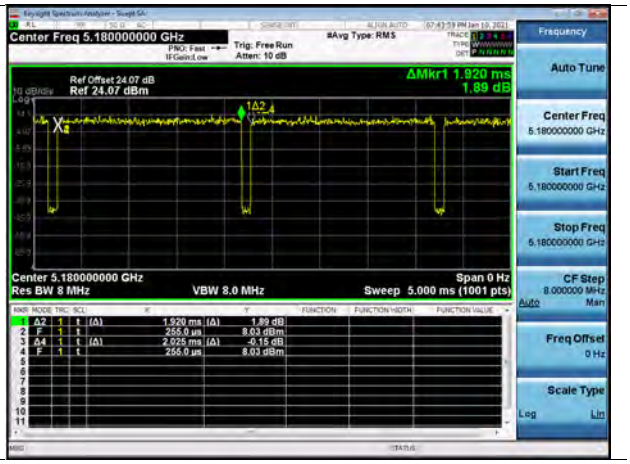
802.11n(HT20)



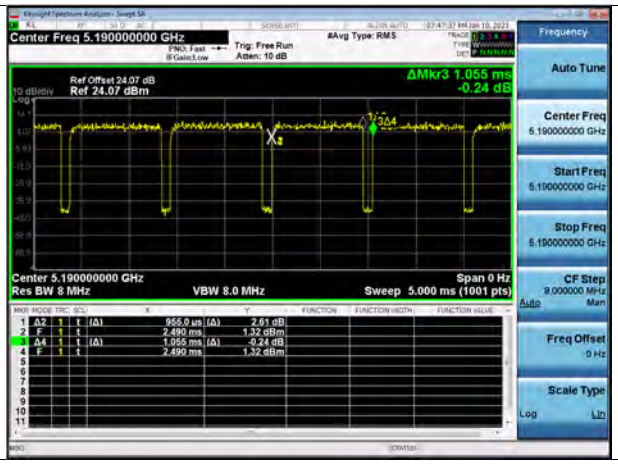
802.11n(HT40)



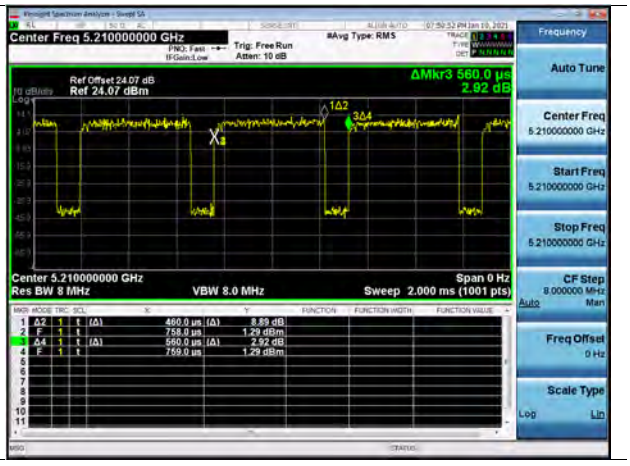
802.11ac(VHT20)



802.11ac(VHT40)

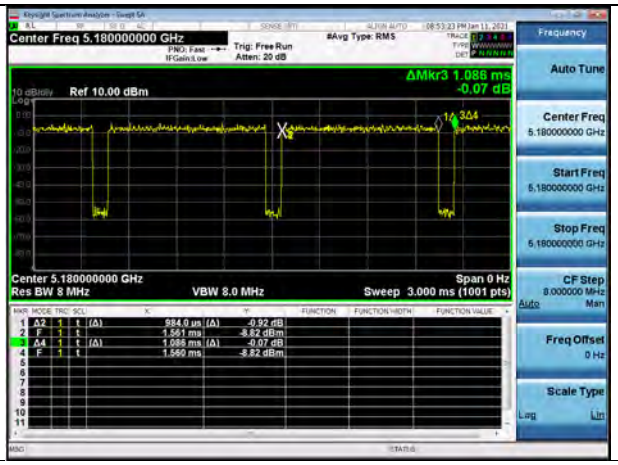


802.11ac(VHT80)

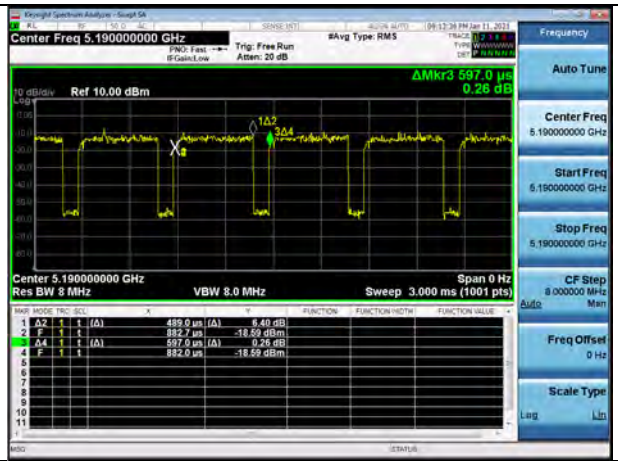


[MIMO]

802.11n(HT20)

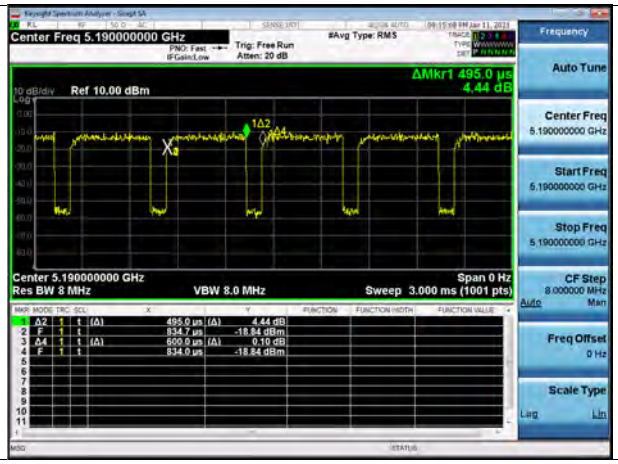


802.11n(HT40)

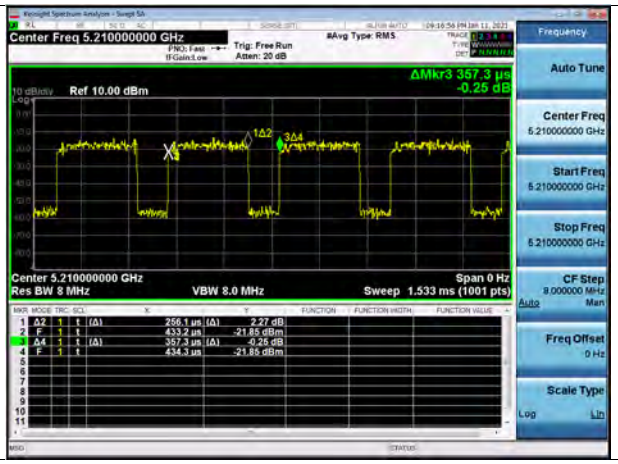


802.11ac(VHT20)

802.11ac(VHT40)



802.11ac(VHT80)



10.2 26DB BANDWIDTH

[Internal ANT_SISO]

802.11a Mode		26dB Bandwidth [MHz]	99% bandwidth [MHz]
Frequency [MHz]	Channel No.		
5180	36	21.08	16.560
5200	40	21.04	16.562
5240	48	20.91	16.516
5260	52	21.21	16.574
5300	60	21.16	16.562
5320	64	21.21	16.533
5500	100	21.06	16.569
5580	116	28.10	17.041
5720	144	29.59	17.639
5745	149	29.47	17.242
5785	157	28.28	17.292
5825	165	29.74	17.089

802.11n(HT20) Mode		26dB Bandwidth [MHz]	99% bandwidth [MHz]
Frequency [MHz]	Channel No.		
5180	36	21.13	17.699
5200	40	21.17	17.806
5240	48	21.31	17.727
5260	52	21.32	17.728
5300	60	21.20	17.729
5320	64	21.12	17.760
5500	100	21.61	17.769
5580	116	28.73	17.944
5720	144	29.93	18.208
5745	149	30.11	18.248
5785	157	29.15	18.077
5825	165	30.12	18.170

802.11n(HT40) Mode		26dB Bandwidth [MHz]	99% bandwidth [MHz]
Frequency [MHz]	Channel No.		
5190	38	39.22	36.163
5230	46	39.28	36.106
5270	54	39.42	36.104
5310	62	39.36	36.168
5510	102	39.11	36.140
5550	110	57.18	36.372
5710	142	58.42	36.544
5755	151	66.92	36.493
5795	159	63.67	36.544

802.11ac(VHT20) Mode		26dB Bandwidth [MHz]	99% bandwidth [MHz]
Frequency [MHz]	Channel No.		
5180	36	21.27	17.692
5200	40	21.23	17.682
5240	48	21.14	17.693
5260	52	21.26	17.763
5300	60	21.36	17.717
5320	64	21.06	17.725
5500	100	21.44	17.741
5580	116	30.48	18.288
5720	144	31.52	18.158
5745	149	33.03	18.110
5785	157	30.81	18.075
5825	165	31.82	18.075

802.11ac(VHT40) Mode		26dB Bandwidth [MHz]	99% bandwidth [MHz]
Frequency [MHz]	Channel No.		
5190	38	39.19	36.085
5230	46	39.36	36.130
5270	54	38.94	36.079
5310	62	39.30	36.142
5510	102	39.34	36.103
5550	110	48.95	36.314
5710	142	57.90	36.652
5755	151	60.29	36.517
5795	159	60.26	36.440

802.11ac(VHT80) Mode		26dB Bandwidth [MHz]	99% bandwidth [MHz]
Frequency [MHz]	Channel No.		
5210	42	80.91	75.859
5290	58	81.54	75.931
5530	106	80.77	75.705
5690	138	119.22	76.455
5775	155	118.70	76.207

[External ANT_SISO]

802.11a Mode		26dB Bandwidth [MHz]	99% bandwidth [MHz]
Frequency [MHz]	Channel No.		
5180	36	21.47	16.561
5200	40	21.31	16.588
5240	48	21.23	16.576
5260	52	21.14	16.558
5300	60	21.38	16.529
5320	64	21.41	16.640
5500	100	22.13	16.653
5580	116	22.10	16.631
5720	144	24.33	16.817
5745	149	32.19	18.344
5785	157	33.93	19.439
5825	165	31.37	17.552

802.11n(HT20) Mode		26dB Bandwidth [MHz]	99% bandwidth [MHz]
Frequency [MHz]	Channel No.		
5180	36	21.39	17.738
5200	40	21.29	17.730
5240	48	21.21	17.729
5260	52	21.17	17.747
5300	60	21.31	17.745
5320	64	21.37	17.807
5500	100	23.38	17.900
5580	116	21.74	17.797
5720	144	21.81	17.847
5745	149	30.89	18.490
5785	157	38.23	19.066
5825	165	37.78	19.666

802.11n(HT40) Mode		26dB Bandwidth [MHz]	99% bandwidth [MHz]
Frequency [MHz]	Channel No.		
5190	38	39.46	36.158
5230	46	39.28	36.080
5270	54	39.11	36.042
5310	62	38.84	36.122
5510	102	39.36	36.155
5550	110	51.97	36.412
5710	142	53.19	36.344
5755	151	60.89	36.859
5795	159	75.43	39.374

802.11ac(VHT20) Mode		26dB Bandwidth [MHz]	99% bandwidth [MHz]
Frequency [MHz]	Channel No.		
5180	36	21.31	17.714
5200	40	21.18	17.726
5240	48	21.13	17.743
5260	52	21.24	17.734
5300	60	21.34	17.802
5320	64	21.31	17.721
5500	100	27.36	17.912
5580	116	22.16	17.792
5720	144	23.64	17.824
5745	149	32.35	18.313
5785	157	35.93	20.237
5825	165	36.04	19.818

802.11ac(VHT40) Mode		26dB Bandwidth [MHz]	99% bandwidth [MHz]
Frequency [MHz]	Channel No.		
5190	38	39.06	36.156
5230	46	39.32	36.138
5270	54	38.96	36.178
5310	62	39.33	36.148
5510	102	39.43	36.174
5550	110	47.57	36.320
5710	142	51.01	36.329
5755	151	61.01	36.730
5795	159	75.02	38.363

802.11ac(VHT80) Mode		26dB Bandwidth [MHz]	99% bandwidth [MHz]
Frequency [MHz]	Channel No.		
5210	42	81.08	76.019
5290	58	80.92	75.768
5530	106	81.22	75.793
5690	138	89.78	76.058
5775	155	118.48	76.315

[Internal ANT_MIMO]

802.11n(HT20) Mode		26dB Bandwidth [MHz]	99% bandwidth [MHz]
Frequency [MHz]	Channel No.		
5180	36	21.22	17.698
5200	40	21.23	17.694
5240	48	21.12	17.695
5260	52	21.58	17.715
5300	60	21.22	17.694
5320	64	21.10	17.714
5500	100	21.13	17.726
5580	116	21.42	17.734
5720	144	21.17	17.748
5745	149	29.65	18.061
5785	157	27.84	18.033
5825	165	29.40	18.096

802.11n(HT40) Mode		26dB Bandwidth [MHz]	99% bandwidth [MHz]
Frequency [MHz]	Channel No.		
5190	38	39.24	36.161
5230	46	39.13	36.056
5270	54	39.10	36.143
5310	62	39.44	36.146
5510	102	39.12	36.184
5550	110	39.32	36.083
5710	142	40.08	36.184
5755	151	39.49	36.247
5795	159	39.15	36.207

802.11ac(VHT20) Mode		26dB Bandwidth [MHz]	99% bandwidth [MHz]
Frequency [MHz]	Channel No.		
5180	36	21.10	17.702
5200	40	21.15	17.723
5240	48	21.08	17.710
5260	52	21.15	17.685
5300	60	21.14	17.678
5320	64	21.09	17.696
5500	100	21.00	17.715
5580	116	21.25	17.723
5720	144	21.36	17.748
5745	149	28.31	18.041
5785	157	28.71	18.041
5825	165	30.00	18.052

802.11ac(VHT40) Mode		26dB Bandwidth [MHz]	99% bandwidth [MHz]
Frequency [MHz]	Channel No.		
5190	38	39.01	36.108
5230	46	39.21	36.105
5270	54	39.44	36.175
5310	62	39.57	36.154
5510	102	39.55	36.217
5550	110	39.42	36.194
5710	142	39.71	36.241
5755	151	63.11	36.640
5795	159	62.94	36.584

802.11ac(VHT80) Mode		26dB Bandwidth [MHz]	99% bandwidth [MHz]
Frequency [MHz]	Channel No.		
5210	42	80.35	75.585
5290	58	81.21	75.973
5530	106	81.33	75.681
5690	138	81.74	75.740
5775	155	108.91	76.009

[External ANT_MIMO]

802.11n(HT20) Mode		26dB Bandwidth [MHz]	99% bandwidth [MHz]
Frequency [MHz]	Channel No.		
5180	36	21.35	17.716
5200	40	21.07	17.754
5240	48	21.10	17.743
5260	52	21.17	17.721
5300	60	21.27	17.703
5320	64	21.17	17.715
5500	100	21.21	17.736
5580	116	21.32	17.735
5720	144	21.55	17.713
5745	149	33.65	18.308
5785	157	37.85	19.084
5825	165	38.60	19.846

802.11n(HT40) Mode		26dB Bandwidth [MHz]	99% bandwidth [MHz]
Frequency [MHz]	Channel No.		
5190	38	39.28	36.140
5230	46	38.93	36.076
5270	54	38.78	36.107
5310	62	39.43	36.150
5510	102	39.35	36.076
5550	110	39.08	36.175
5710	142	39.26	36.160
5755	151	75.32	37.298
5795	159	75.76	40.148

802.11ac(VHT20) Mode		26dB Bandwidth [MHz]	99% bandwidth [MHz]
Frequency [MHz]	Channel No.		
5180	36	21.23	17.706
5200	40	21.30	17.711
5240	48	20.99	17.691
5260	52	21.21	17.808
5300	60	21.32	17.773
5320	64	21.02	17.754
5500	100	21.52	17.717
5580	116	21.26	17.727
5720	144	21.43	17.712
5745	149	31.10	18.290
5785	157	36.06	18.770
5825	165	35.14	19.990

802.11ac(VHT40) Mode		26dB Bandwidth [MHz]	99% bandwidth [MHz]
Frequency [MHz]	Channel No.		
5190	38	39.22	36.173
5230	46	39.38	36.123
5270	54	39.09	36.121
5310	62	39.35	36.226
5510	102	38.95	36.132
5550	110	39.27	36.134
5710	142	39.02	36.091
5755	151	66.62	36.844
5795	159	76.30	38.981

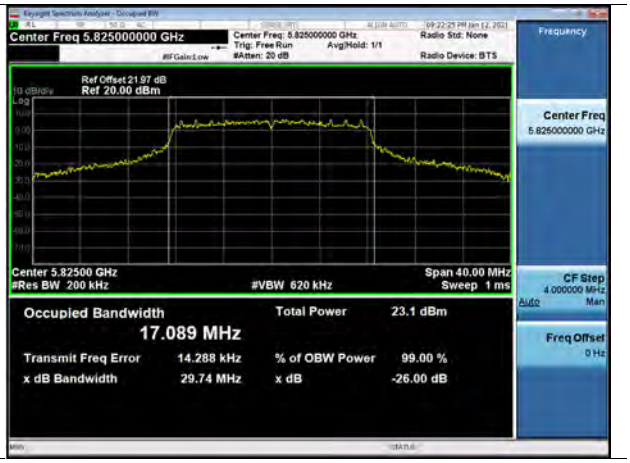
802.11ac(VHT80) Mode		26dB Bandwidth [MHz]	99% bandwidth [MHz]
Frequency [MHz]	Channel No.		
5210	42	80.43	75.981
5290	58	80.68	75.882
5530	106	80.43	75.861
5690	138	80.12	75.751
5775	155	117.62	76.290

[Internal ANT_SISO]

▣ Test Plots(802.11a)

Note:

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

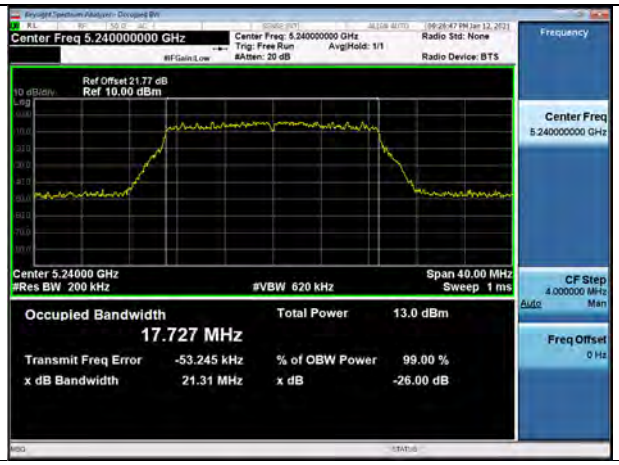
802.11a UNII 1 BAND 26dB Bandwidth (CH 36)	802.11a UNII 2A BAND 26dB Bandwidth (CH 52)
	
802.11a UNII 2C BAND 26dB Bandwidth (CH144)	802.11a UNII 3 BAND 26dB Bandwidth (CH 165)
	

▣ Test Plots(802.11n(HT20))

Note:

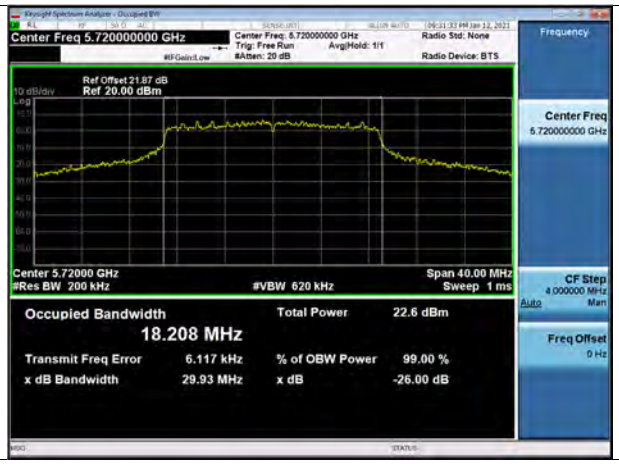
In order to simplify the report, attached plots were only the most wide channel.

802.11n_HT20 UNII 1 BAND 26dB Bandwidth(CH 48)

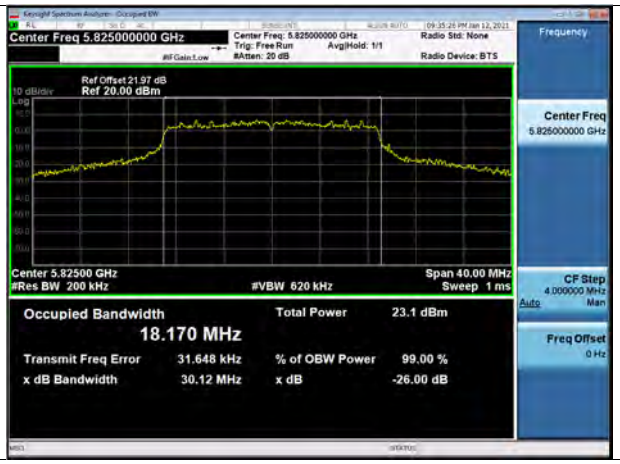


802.11n_HT20 UNII 2A BAND 26dB Bandwidth(CH 52)

802.11n_HT20 UNII 2C BAND 26dB Bandwidth(CH 144)



802.11n_HT20 UNII 3 BAND 26dB Bandwidth(CH 165)

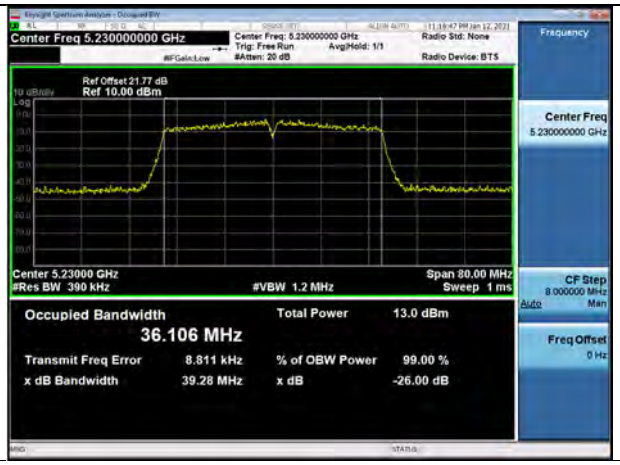


▣ Test Plots(802.11n(HT40))

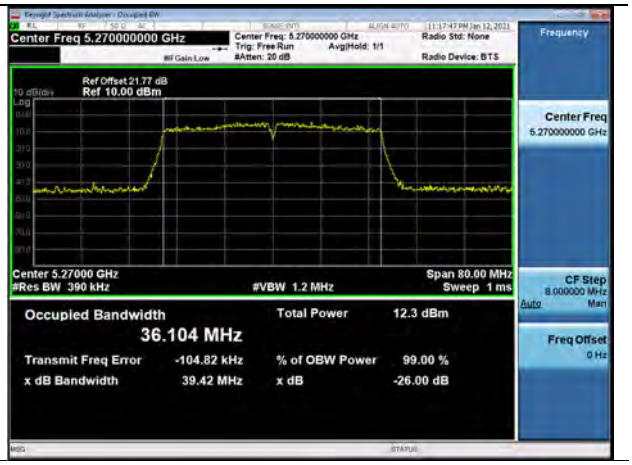
Note:

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

802.11n_HT40 UNII 1 BAND 26dB Bandwidth(CH 46)



802.11n_HT40 UNII 2A BAND 26dB Bandwidth (CH 54)



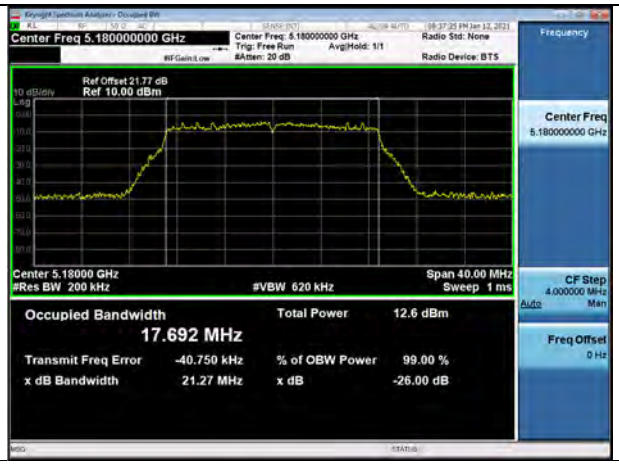
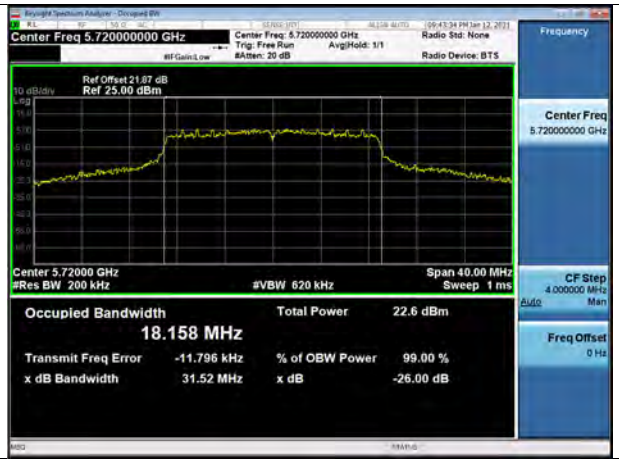
802.11n_HT40 UNII 2C BAND 26dB Bandwidth(CH 142)

802.11n_HT40 UNII 3 BAND 26dB Bandwidth (CH 151)

▣ Test Plots(802.11ac(VHT20))

Note:

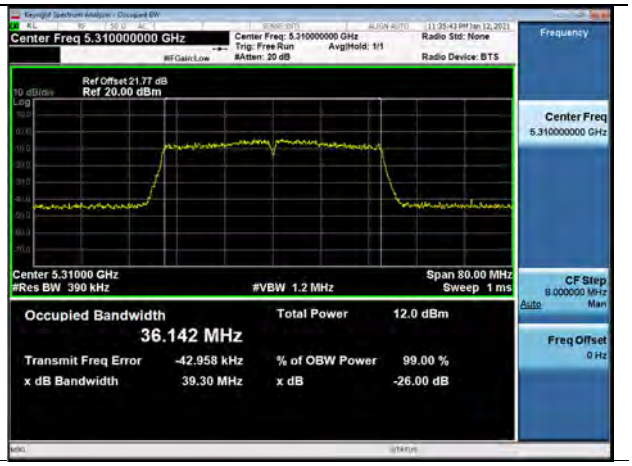
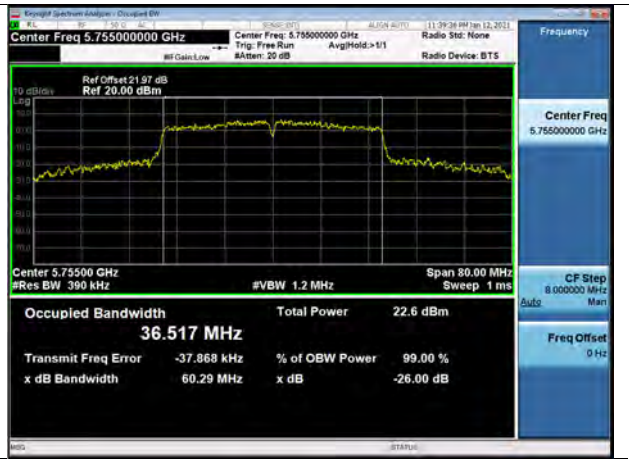
In order to simplify the report, attached plots were only the most wide channel.

802.11ac_VHT20 UNII 1 BAND 26dB Bandwidth(CH 36)	802.11ac_VHT20 UNII 2A BAND 26dB Bandwidth(CH 60)
	
802.11ac_VHT20 UNII 2C BAND 26dB Bandwidth(CH 144)	802.11ac_VHT20 UNII 3 BAND 26dB Bandwidth(CH 149)
	

▣ Test Plots(802.11ac(VHT40))

Note:

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

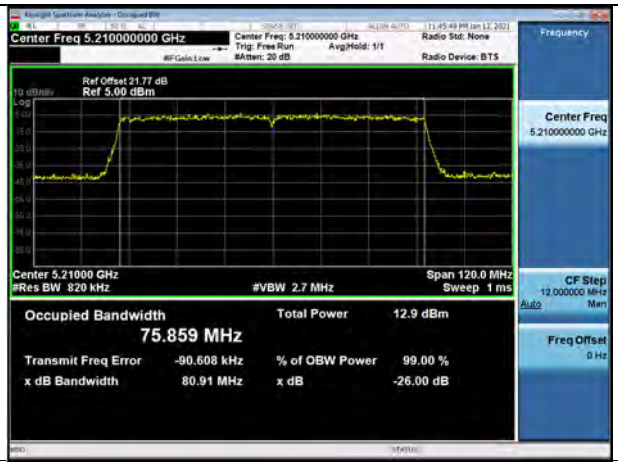
802.11ac_VHT40 UNII 1 BAND 26dB Bandwidth(CH 46)	802.11ac_VHT40 UNII 2A BAND 26dB Bandwidth (CH 62)
	
802.11ac_VHT40 UNII 2C BAND 26dB Bandwidth(CH 142)	802.11ac_VHT40 UNII 3 BAND 26dB Bandwidth (CH 151)
	

▣ Test Plots(802.11ac(VHT80))

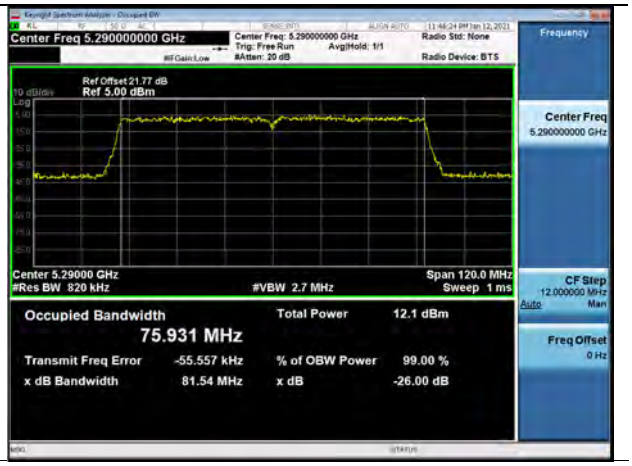
Note:

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

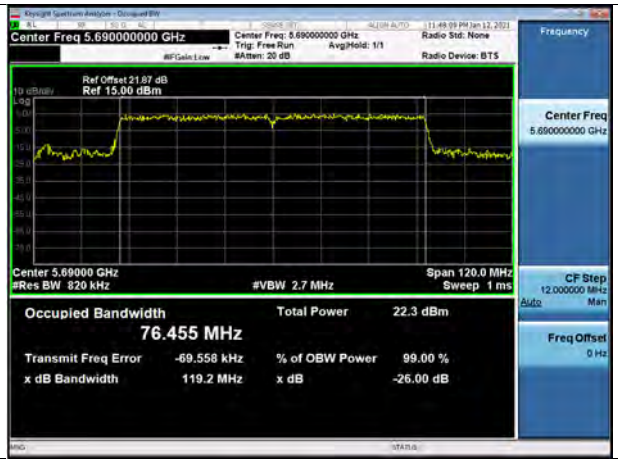
802.11ac_VHT80 UNII 1 BAND 26dB Bandwidth(CH 42)



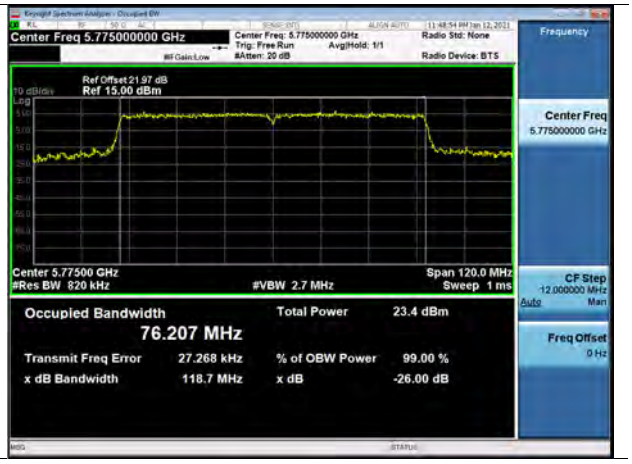
802.11ac_VHT80 UNII 2A BAND 26dB Bandwidth (CH 58)



802.11ac_VHT80 UNII 2C BAND 26dB Bandwidth(CH 138)



802.11ac_VHT80 UNII 3 BAND 26dB Bandwidth (CH 155)



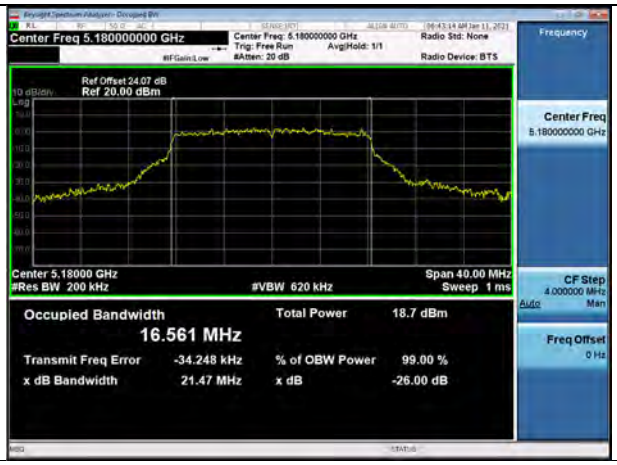
[External ANT_SISO]

▣ Test Plots(802.11a)

Note:

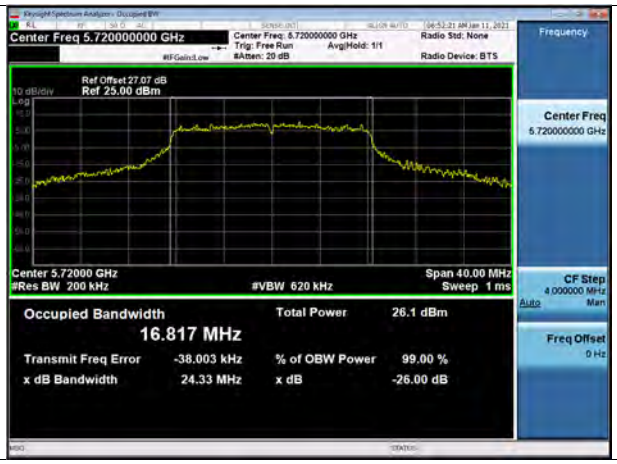
In order to simplify the report, attached plots were only the most wide channel.

802.11a UNII 1 BAND 26dB Bandwidth (CH 36)



802.11a UNII 2A BAND 26dB Bandwidth (CH 64)

802.11a UNII 2C BAND 26dB Bandwidth (CH144)



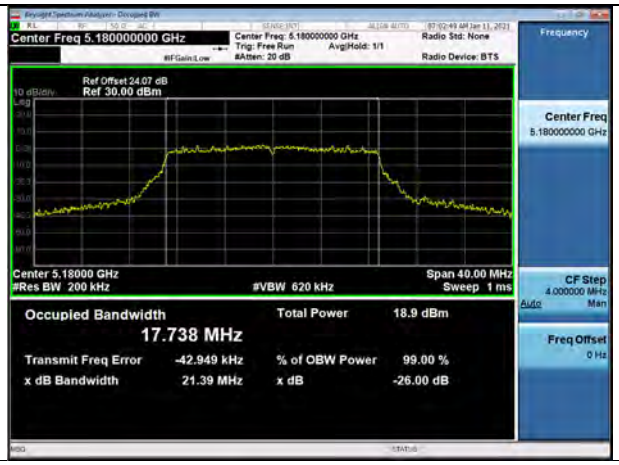
802.11a UNII 3 BAND 26dB Bandwidth (CH 157)

▣ Test Plots(802.11n(HT20))

Note:

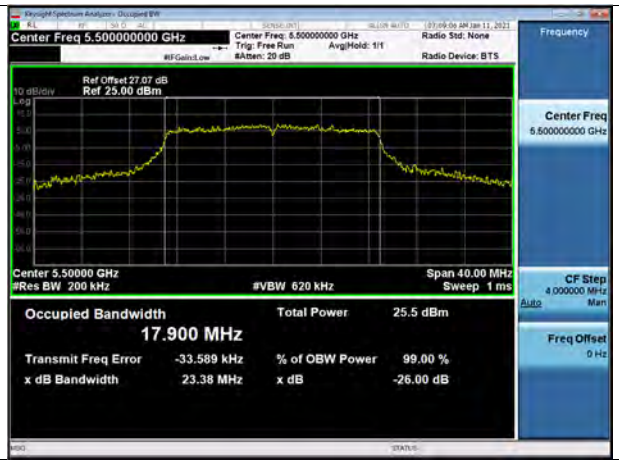
In order to simplify the report, attached plots were only the most wide channel.

802.11n_HT20 UNII 1 BAND 26dB Bandwidth(CH 36)

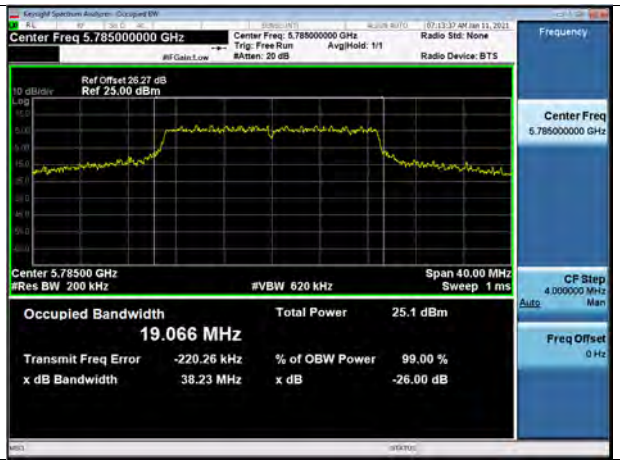


802.11n_HT20 UNII 2A BAND 26dB Bandwidth(CH 64)

802.11n_HT20 UNII 2C BAND 26dB Bandwidth(CH 100)



802.11n_HT20 UNII 3 BAND 26dB Bandwidth(CH 157)



▣ 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 26dB Bandwidth(CH 38)

802.11n_HT40 UNII 2A BAND 26dB Bandwidth (CH 54)

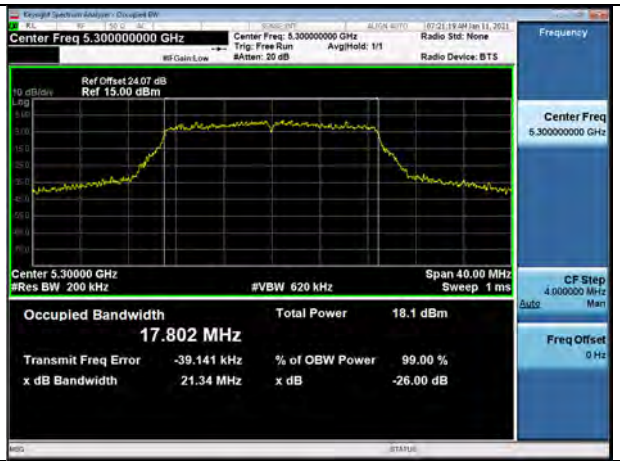
802.11n_HT40 UNII 2C BAND 26dB Bandwidth(CH 142)

802.11n_HT40 UNII 3 BAND 26dB Bandwidth (CH 159)

▣ Test Plots(802.11ac(VHT20))

Note:

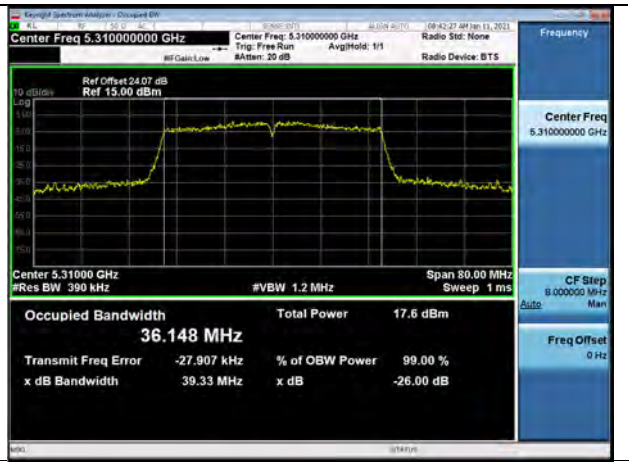
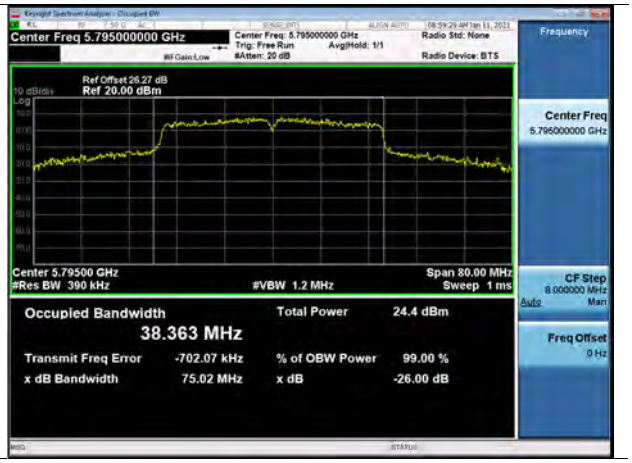
In order to simplify the report, attached plots were only the most wide channel.

802.11ac_VHT20 UNII 1 BAND 26dB Bandwidth(CH 36)	802.11ac_VHT20 UNII 2A BAND 26dB Bandwidth(CH 60)
	
802.11ac_VHT20 UNII 2C BAND 26dB Bandwidth(CH 100)	802.11ac_VHT20 UNII 3 BAND 26dB Bandwidth(CH 165)
	

▣ Test Plots(802.11ac(VHT40))

Note:

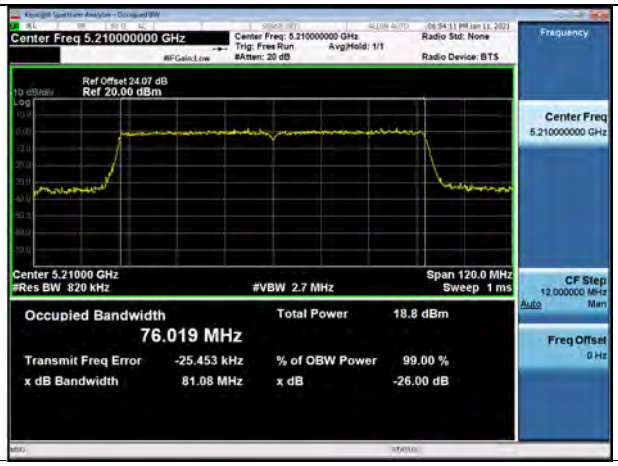
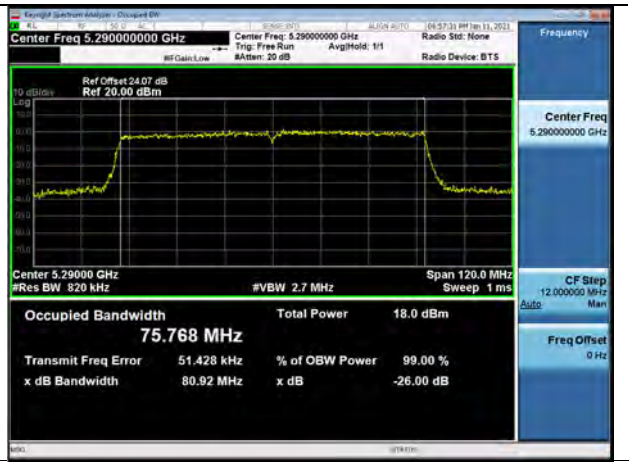
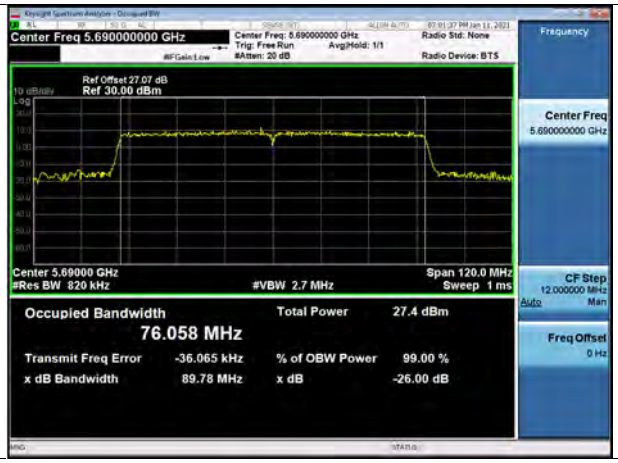
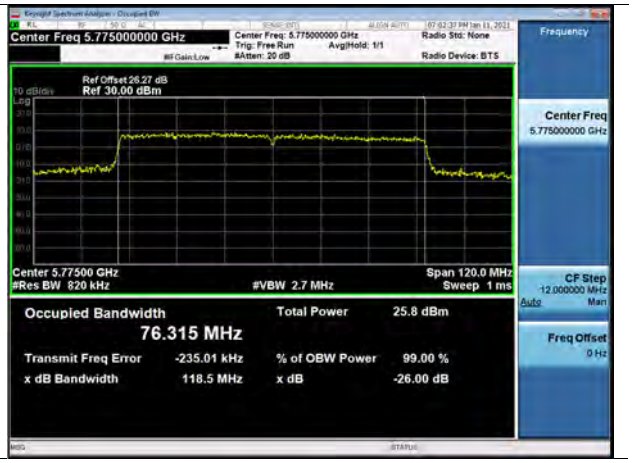
In order to simplify the report, attached plots were only the most wide channel.

802.11ac_VHT40 UNII 1 BAND 26dB Bandwidth(CH 46)	802.11ac_VHT40 UNII 2A BAND 26dB Bandwidth (CH 62)
	
802.11ac_VHT40 UNII 2C BAND 26dB Bandwidth(CH 142)	802.11ac_VHT40 UNII 3 BAND 26dB Bandwidth (CH 159)
	

▣ Test Plots(802.11ac(VHT80))

Note:

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

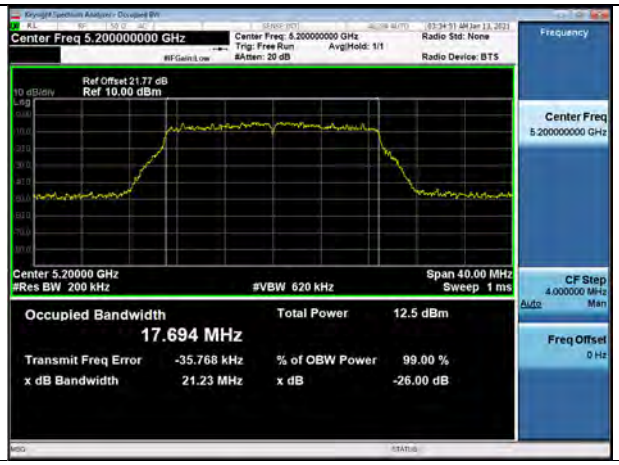
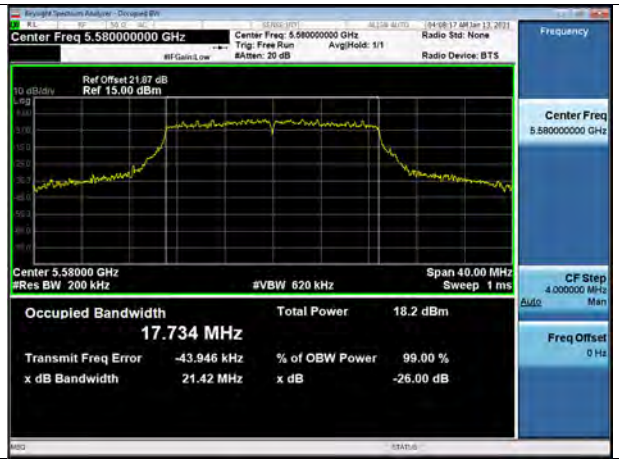
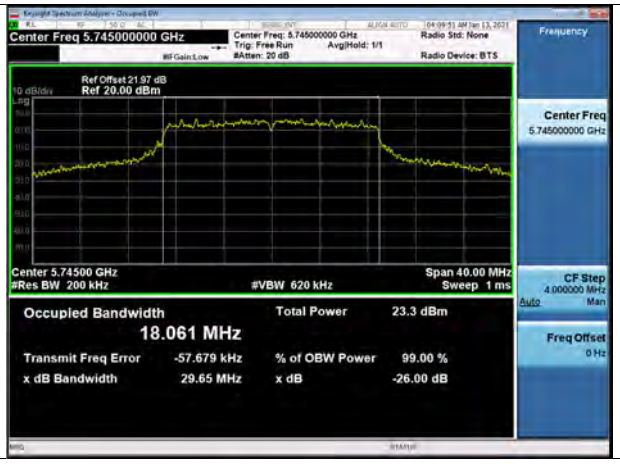
802.11ac_VHT80 UNII 1 BAND 26dB Bandwidth(CH 42)	802.11ac_VHT80 UNII 2A BAND 26dB Bandwidth (CH 58)
	
802.11ac_VHT80 UNII 2C BAND 26dB Bandwidth(CH 138)	802.11ac_VHT80 UNII 3 BAND 26dB Bandwidth (CH 155)
	

[Internal ANT_MIMO]

▣ 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 26dB Bandwidth(CH 40)	802.11n_HT20 UNII 2A BAND 26dB Bandwidth(CH 52)
	
802.11n_HT20 UNII 2C BAND 26dB Bandwidth(CH 116)	802.11n_HT20 UNII 3 BAND 26dB 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 26dB Bandwidth(CH 38)

802.11n_HT40 UNII 2A BAND 26dB Bandwidth (CH 62)

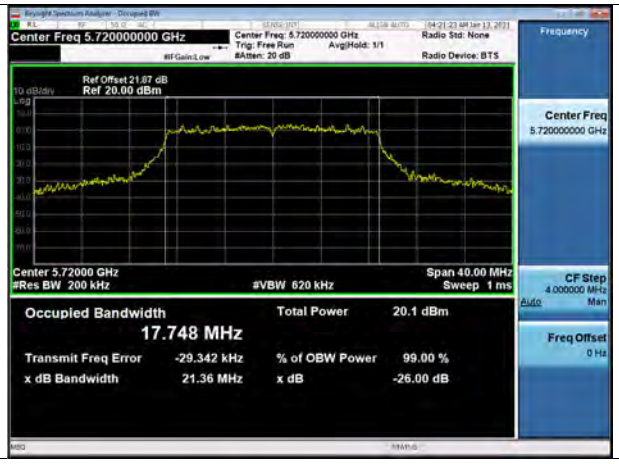
802.11n_HT40 UNII 2C BAND 26dB Bandwidth(CH 142)

802.11n_HT40 UNII 3 BAND 26dB Bandwidth (CH 151)

▣ Test Plots(802.11ac(VHT20))

Note:

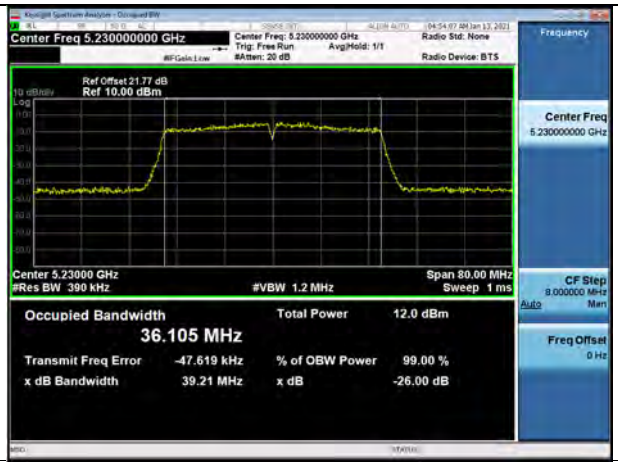
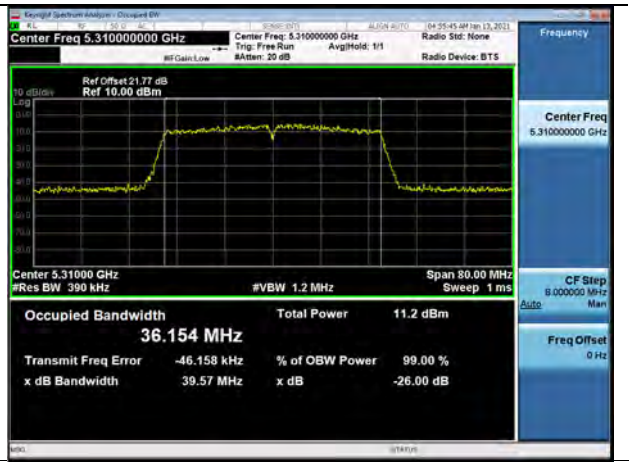
In order to simplify the report, attached plots were only the most wide channel.

802.11ac_VHT20 UNII 1 BAND 26dB Bandwidth(CH 40)	802.11ac_VHT20 UNII 2A BAND 26dB Bandwidth(CH 52)
	
802.11ac_VHT20 UNII 2C BAND 26dB Bandwidth(CH 144)	802.11ac_VHT20 UNII 3 BAND 26dB Bandwidth(CH 165)
	

▣ Test Plots(802.11ac(VHT40))

Note:

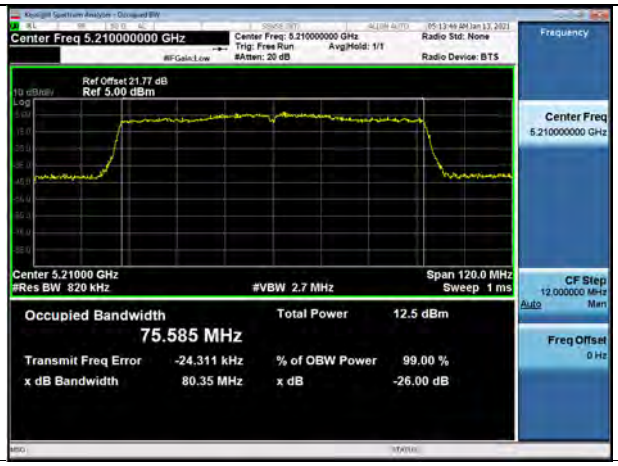
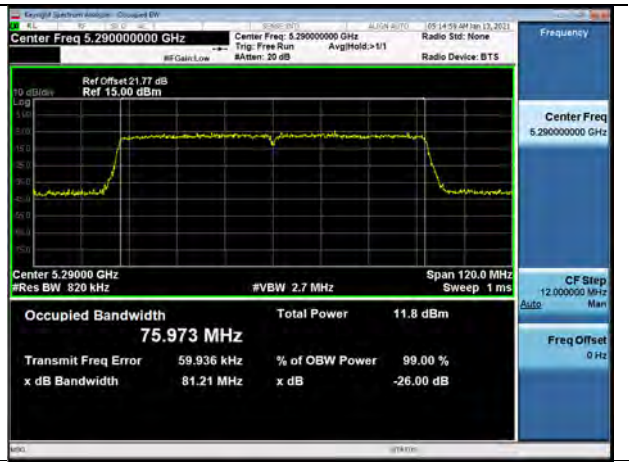
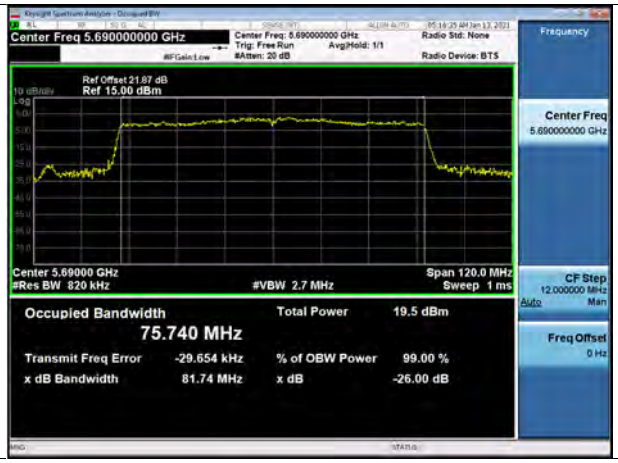
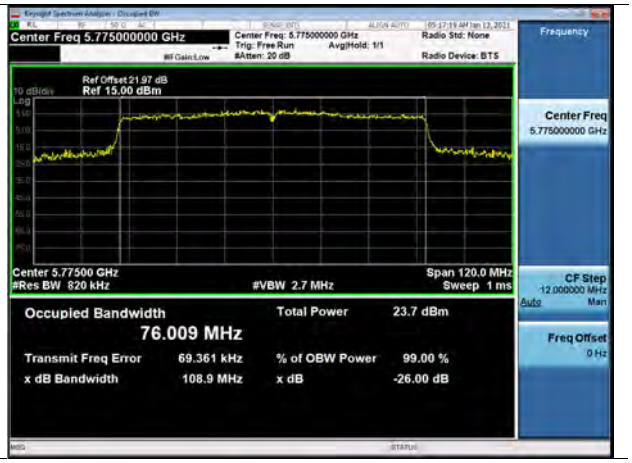
In order to simplify the report, attached plots were only the most wide channel.

802.11ac_VHT40 UNII 1 BAND 26dB Bandwidth(CH 46)	802.11ac_VHT40 UNII 2A BAND 26dB Bandwidth (CH 62)
	
802.11ac_VHT40 UNII 2C BAND 26dB Bandwidth(CH 142)	802.11ac_VHT40 UNII 3 BAND 26dB 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 26dB Bandwidth(CH 42)	802.11ac_VHT80 UNII 2A BAND 26dB Bandwidth (CH 58)
	
802.11ac_VHT80 UNII 2C BAND 26dB Bandwidth(CH 138)	802.11ac_VHT80 UNII 3 BAND 26dB Bandwidth (CH 155)
	

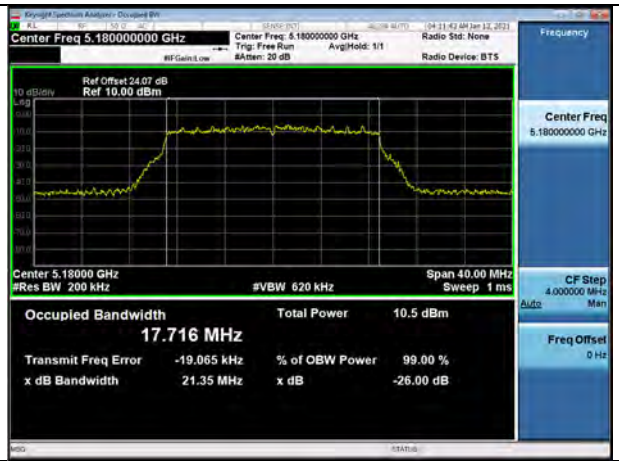
[External ANT_MIMO]

▣ Test Plots(802.11n(HT20))

Note:

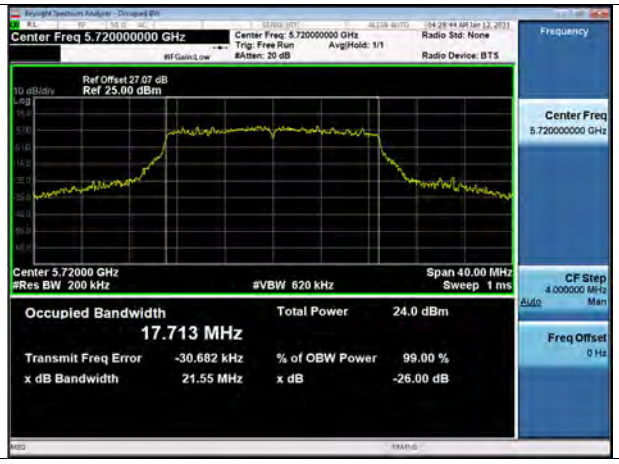
In order to simplify the report, attached plots were only the most wide channel.

802.11n_HT20 UNII 1 BAND 26dB Bandwidth(CH 36)

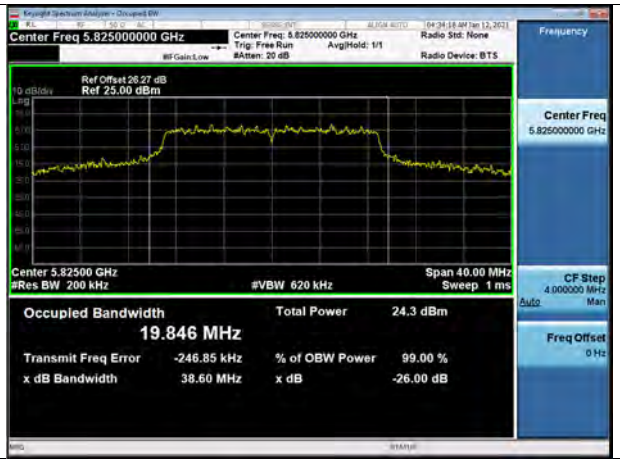


802.11n_HT20 UNII 2A BAND 26dB Bandwidth(CH 60)

802.11n_HT20 UNII 2C BAND 26dB Bandwidth(CH 144)



802.11n_HT20 UNII 3 BAND 26dB Bandwidth(CH 165)

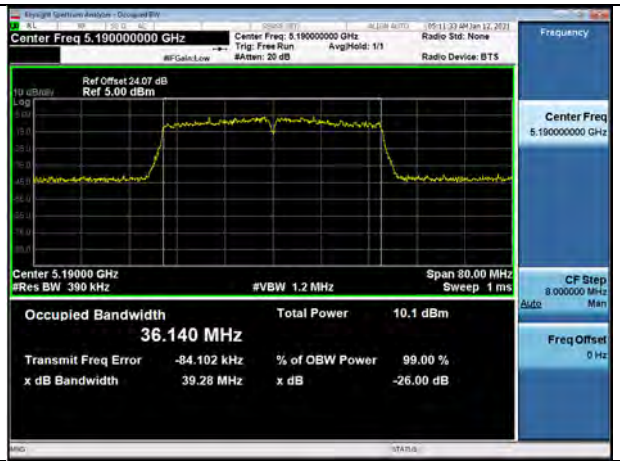


▣ Test Plots(802.11n(HT40))

Note:

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

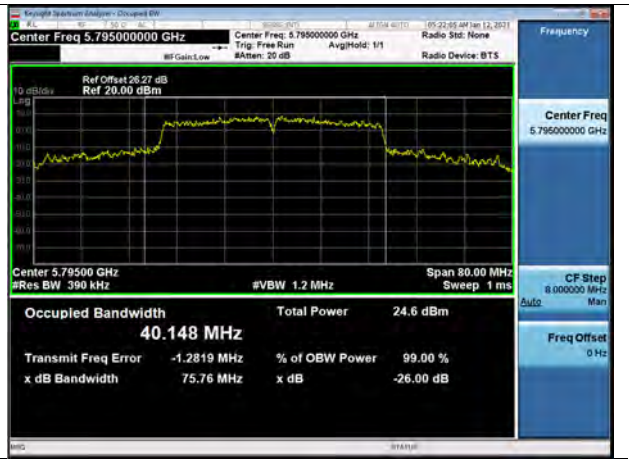
802.11n_HT40 UNII 1 BAND 26dB Bandwidth(CH 38)



802.11n_HT40 UNII 2A BAND 26dB Bandwidth (CH 62)

802.11n_HT40 UNII 2C BAND 26dB Bandwidth(CH 102)

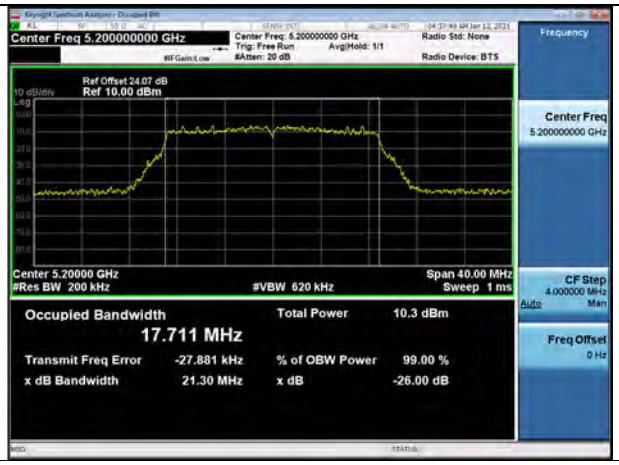
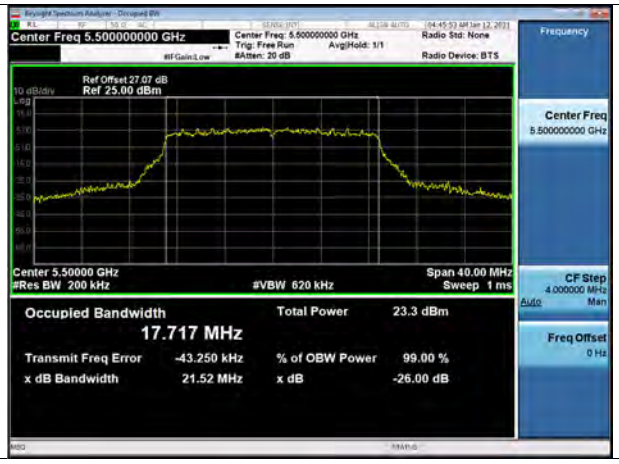
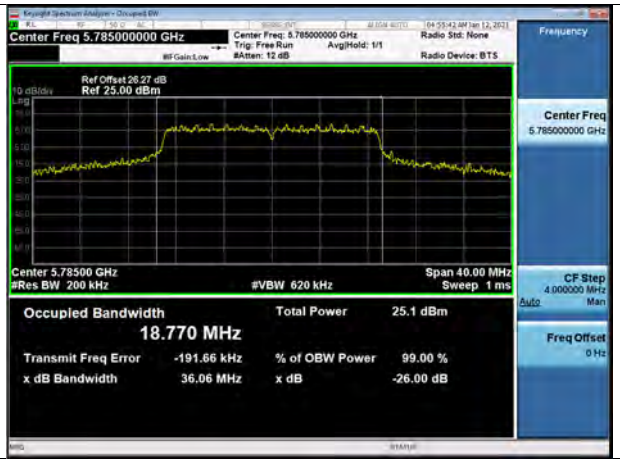
802.11n_HT40 UNII 3 BAND 26dB Bandwidth (CH 159)



▣ Test Plots(802.11ac(VHT20))

Note:

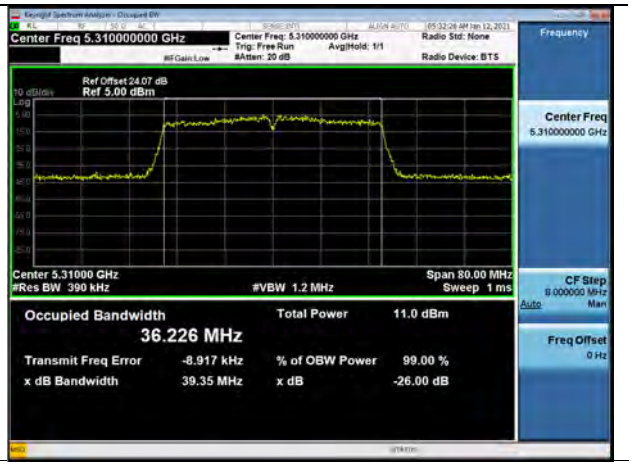
In order to simplify the report, attached plots were only the most wide channel.

802.11ac_VHT20 UNII 1 BAND 26dB Bandwidth(CH 40)	802.11ac_VHT20 UNII 2A BAND 26dB Bandwidth(CH 60)
	
802.11ac_VHT20 UNII 2C BAND 26dB Bandwidth(CH 100)	802.11ac_VHT20 UNII 3 BAND 26dB Bandwidth(CH 157)
	

▣ Test Plots(802.11ac(VHT40))

Note:

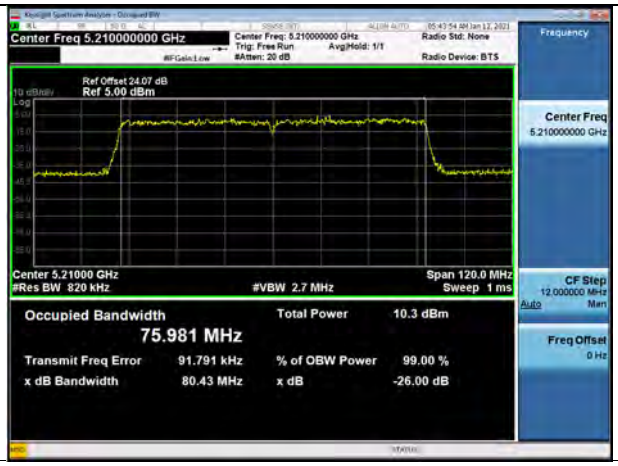
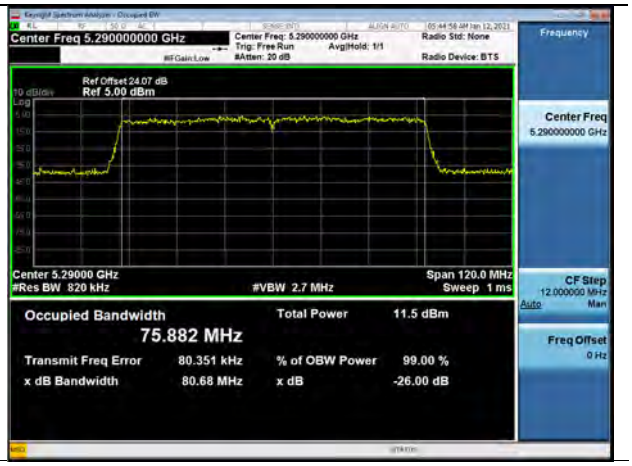
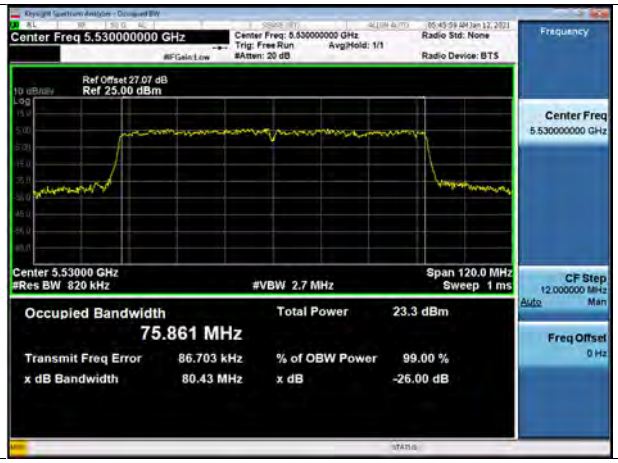
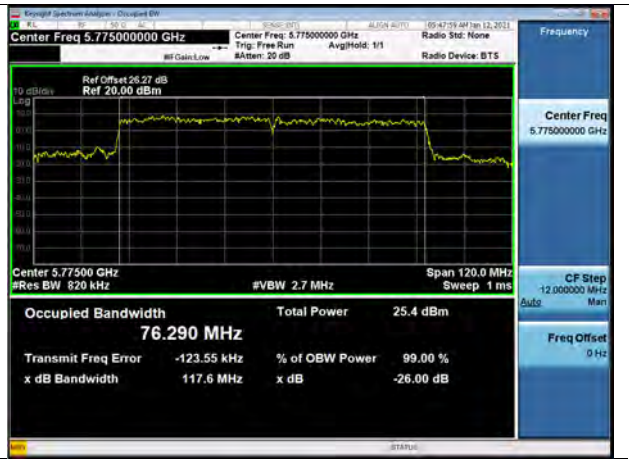
In order to simplify the report, attached plots were only the most wide channel.

802.11ac_VHT40 UNII 1 BAND 26dB Bandwidth(CH 46)	802.11ac_VHT40 UNII 2A BAND 26dB Bandwidth (CH 62)
	
802.11ac_VHT40 UNII 2C BAND 26dB Bandwidth(CH 110)	802.11ac_VHT40 UNII 3 BAND 26dB 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 26dB Bandwidth(CH 42)	802.11ac_VHT80 UNII 2A BAND 26dB Bandwidth (CH 58)
	
802.11ac_VHT80 UNII 2C BAND 26dB Bandwidth(CH 106)	802.11ac_VHT80 UNII 3 BAND 26dB Bandwidth (CH 155)
	

10.3 6DB BANDWIDTH

[Internal ANT_SISO]

802.11a Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	16.33	> 0.5	Pass
5785	157	16.33	> 0.5	Pass
5825	165	16.37	> 0.5	Pass

802.11n(HT20) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	17.56	> 0.5	Pass
5785	157	16.98	> 0.5	Pass
5825	165	17.24	> 0.5	Pass

802.11n(HT40) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5755	151	35.83	> 0.5	Pass
5795	159	36.10	> 0.5	Pass

802.11ac(VHT20) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	17.57	> 0.5	Pass
5785	157	17.56	> 0.5	Pass
5825	165	17.58	> 0.5	Pass

802.11ac(VHT40) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5755	151	36.02	> 0.5	Pass
5795	159	36.11	> 0.5	Pass

802.11ac(VHT80) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5775	155	76.33	> 0.5	Pass

[External ANT_SISO]

802.11a Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	16.34	> 0.5	Pass
5785	157	16.31	> 0.5	Pass
5825	165	16.05	> 0.5	Pass

802.11n(HT20) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	17.21	> 0.5	Pass
5785	157	17.71	> 0.5	Pass
5825	165	17.72	> 0.5	Pass

802.11n(HT40) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5755	151	35.80	> 0.5	Pass
5795	159	35.17	> 0.5	Pass

802.11ac(VHT20) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	17.56	> 0.5	Pass
5785	157	17.30	> 0.5	Pass
5825	165	16.55	> 0.5	Pass

802.11ac(VHT40) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5755	151	35.97	> 0.5	Pass
5795	159	36.02	> 0.5	Pass

802.11ac(VHT80) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5775	155	75.82	> 0.5	Pass

[Internal ANT_MIMO]

802.11n(HT20) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	16.99	> 0.5	Pass
5785	157	17.57	> 0.5	Pass
5825	165	16.94	> 0.5	Pass

802.11n(HT40) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5755	151	36.36	> 0.5	Pass
5795	159	36.29	> 0.5	Pass

802.11ac(VHT20) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	16.96	> 0.5	Pass
5785	157	17.28	> 0.5	Pass
5825	165	17.15	> 0.5	Pass

802.11ac(VHT40) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5755	151	35.47	> 0.5	Pass
5795	159	36.07	> 0.5	Pass

802.11ac(VHT80) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5775	155	75.33	> 0.5	Pass

[External ANT_MIMO]

802.11n(HT20) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	17.67	> 0.5	Pass
5785	157	17.69	> 0.5	Pass
5825	165	17.69	> 0.5	Pass

802.11n(HT40) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5755	151	35.62	> 0.5	Pass
5795	159	35.36	> 0.5	Pass

802.11ac(VHT20) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	17.73	> 0.5	Pass
5785	157	17.67	> 0.5	Pass
5825	165	17.24	> 0.5	Pass

802.11ac(VHT40) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5755	151	35.84	> 0.5	Pass
5795	159	35.96	> 0.5	Pass

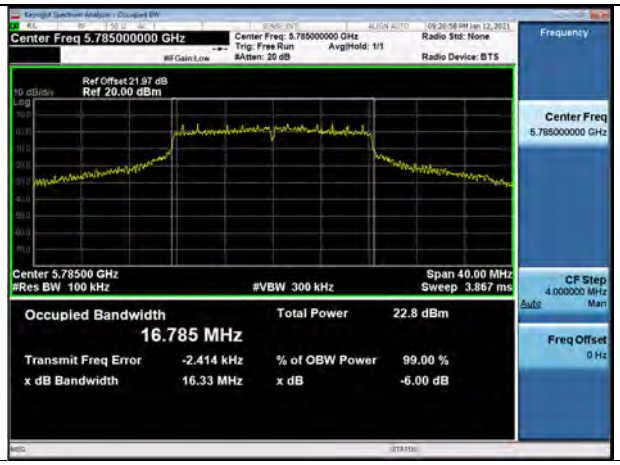
802.11ac(VHT80) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5775	155	75.44	> 0.5	Pass

[Internal ANT_SISO]

▣ Test Plots

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

802.11a (CH.157)

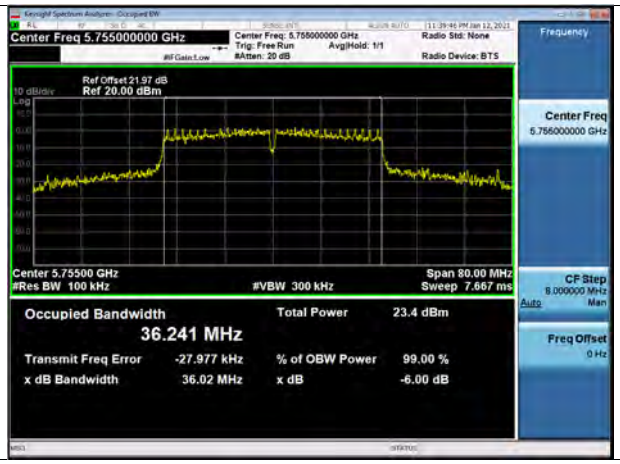


802.11n(HT20) (CH.157)

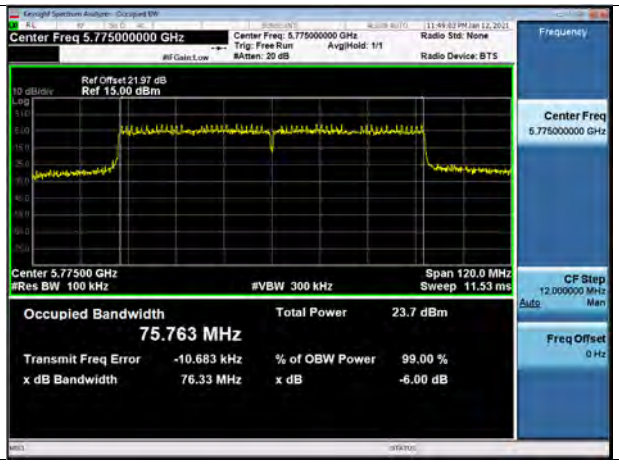
802.11n(HT40) (CH.151)

802.11ac(VHT20) (CH.157)

802.11ac(VHT40) (CH.151)



802.11ac(VHT80) (CH.155)



[External ANT_SISO]

▣ Test Plots

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

802.11a (CH.165)

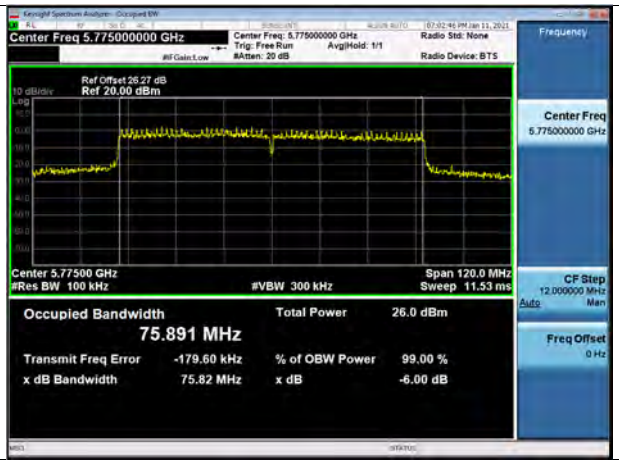
802.11n(HT20) (CH.149)

802.11n(HT40) (CH.159)

802.11ac(VHT20) (CH.165)

802.11ac(VHT40) (CH.151)

802.11ac(VHT80) (CH.155)



[Internal ANT_MIMO]

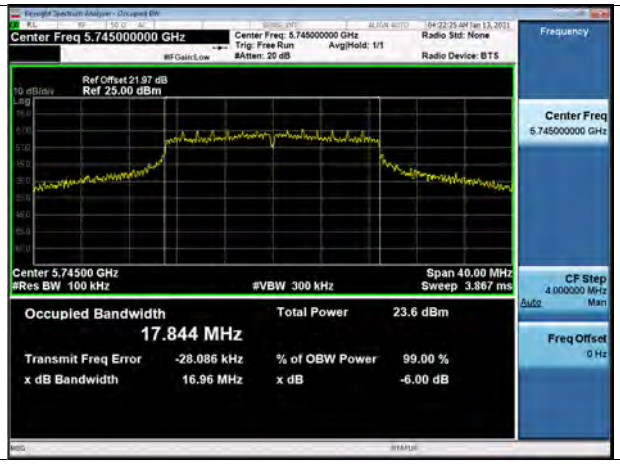
▣ Test Plots

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

802.11n(HT20) (CH.165)

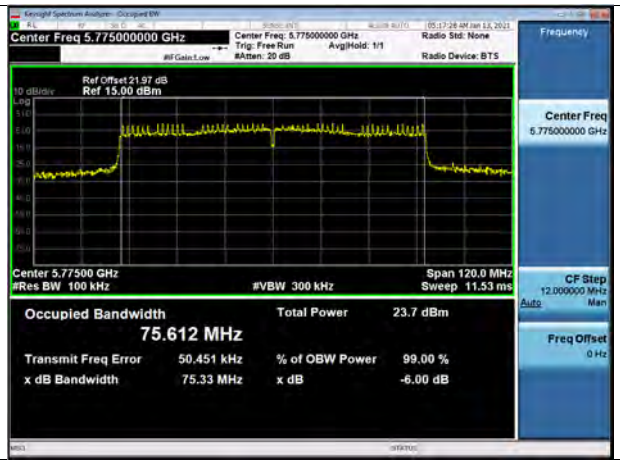
802.11n(HT40) (CH.159)

802.11ac(VHT20) (CH.149)



802.11ac(VHT40) (CH.151)

802.11ac(VHT80) (CH.155)



[External ANT_MIMO]

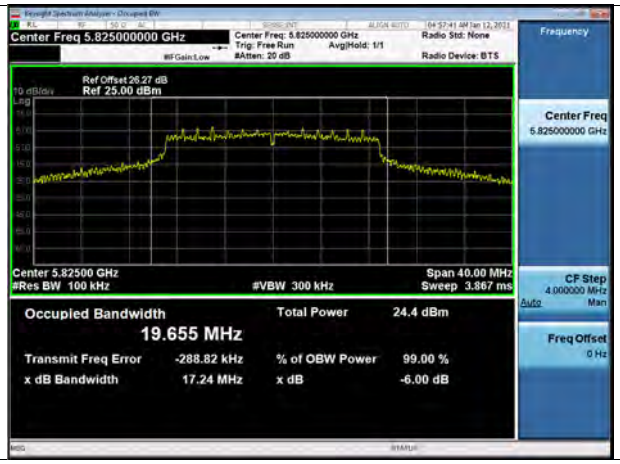
▣ Test Plots

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

802.11n(HT20) (CH.149)

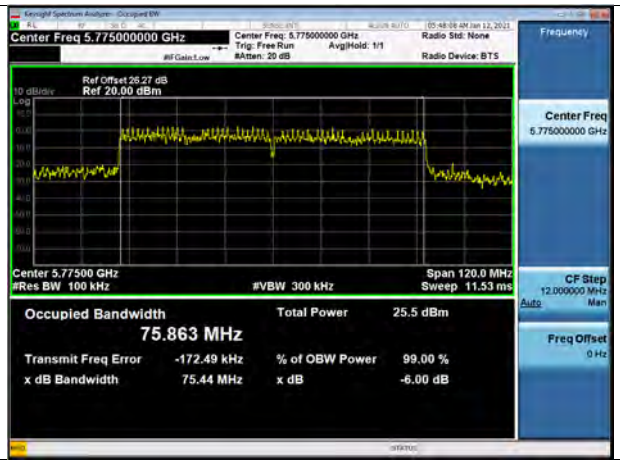
802.11n(HT40) (CH.159)

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.

[Internal ANT_SISO]

Limts (802.11a, 802.11n_HT20, 802.11ac_VHT20)

UNII-1	: Total Power < 23.98 dBm
UNII-2A	: Total Power < 23.98 dBm
UNII-2C	: Total Power < 23.98 dBm
UNII-3	: Total Power < 30.00 dBm

Limts (802.11n_HT40, 802.11ac_VHT40, 802.11ac_VHT80)

UNII-1	: Total Power < 23.98 dBm
UNII-2A	: Total Power < 23.98 dBm
UNII-2C	: Total Power < 23.98 dBm
UNII-3	: Total Power < 30.00 dBm

802.11a Mode		Power Level Setting	Measured Power [dBm]	Duty Cycle Factor (dB)	Total Power [dBm]	Limit (dBm)	Worstcase Datarate (Mbps)
Frequency [MHz]	Channel No.						
5180	36	8	6.58	0.41	6.99	23.98	12 Mbps
5200	40		6.49	0.41	6.90	23.98	12 Mbps
5240	48		6.44	0.41	6.85	23.98	12 Mbps
5260	52		6.07	0.41	6.48	23.98	12 Mbps
5300	60		5.78	0.41	6.19	23.98	12 Mbps
5320	64		5.68	0.41	6.09	23.98	12 Mbps
5500	100	17	12.70	0.41	13.11	23.98	12 Mbps
5580	116	18	14.64	0.41	15.05	23.98	12 Mbps
5720	144		16.74	0.41	17.15	23.98	12 Mbps
5745	149		16.72	0.41	17.13	30.00	12 Mbps
5785	157		16.84	0.41	17.25	30.00	12 Mbps
5825	165		17.05	0.41	17.46	30.00	12 Mbps

802.11n(20MHz) Mode		Power Level Setting	Measured Power [dBm]	Duty Cycle Factor (dB)	Total Power [dBm]	Limit (dBm)	Worstcase MCS Index
Frequency [MHz]	Channel No.						
5180	36	8	6.43	0.62	7.05	23.98	MCS2
5200	40		6.10	0.80	6.90	23.98	MCS3
5240	48		6.33	0.62	6.95	23.98	MCS2
5260	52		6.03	0.62	6.65	23.98	MCS2
5300	60		5.76	0.62	6.38	23.98	MCS2
5320	64		5.88	0.42	6.30	23.98	MCS1
5500	100	17	12.39	0.62	13.01	23.98	MCS2
5580	116	18	14.32	0.62	14.94	23.98	MCS2
5720	144		16.33	0.62	16.95	23.98	MCS2
5745	149		16.39	0.62	17.01	30.00	MCS2
5785	157		16.60	0.62	17.22	30.00	MCS2
5825	165		16.73	0.62	17.35	30.00	MCS2

802.11n(40MHz) Mode		Power Level Setting	Measured Power [dBm]	Duty Cycle Factor (dB)	Total Power [dBm]	Limit (dBm)	Worstcase MCS Index
Frequency [MHz]	Channel No.						
5190	38	8	4.50	1.90	6.40	23.98	MCS4
5230	46		4.70	1.90	6.60	23.98	MCS4
5270	54		3.71	2.37	6.08	23.98	MCS6
5310	62		3.95	2.22	6.17	23.98	MCS5
5510	102	15	8.79	1.90	10.69	23.98	MCS4
5550	110	18	12.15	1.90	14.05	23.98	MCS4
5710	142		14.58	1.41	15.99	23.98	MCS3
5755	151		14.23	1.90	16.13	30.00	MCS4
5795	159		14.56	1.90	16.46	30.00	MCS4

802.11ac(20MHz) Mode		Power Level Setting	Measured Power [dBm]	Duty Cycle Factor (dB)	Total Power [dBm]	Limit (dBm)	Worstcase MCS Index
Frequency [MHz]	Channel No.						
5180	36	8	6.05	0.61	6.66	23.98	MCS2
5200	40		6.25	0.41	6.66	23.98	MCS1
5240	48	16	6.15	0.61	6.76	23.98	MCS2
5260	52	8	6.15	0.23	6.38	23.98	MCS0
5300	60		5.50	0.61	6.11	23.98	MCS2
5320	64		5.44	0.61	6.05	23.98	MCS2
5500	100	17	12.48	0.61	13.09	23.98	MCS2
5580	116	18	14.80	0.23	15.03	23.98	MCS0
5720	144		16.35	0.61	16.96	23.98	MCS2
5745	149		16.48	0.61	17.09	30.00	MCS2
5785	157		16.55	0.61	17.16	30.00	MCS2
5825	165		16.70	0.61	17.31	30.00	MCS2

802.11ac(40MHz) Mode		Power Level Setting	Measured Power [dBm]	Duty Cycle Factor (dB)	Total Power [dBm]	Limit (dBm)	Worstcase MCS Index
Frequency [MHz]	Channel No.						
5190	38	8	5.05	0.81	5.86	23.98	MCS1
5230	46		4.93	1.13	6.06	23.98	MCS2
5270	54		3.00	2.76	5.76	23.98	MCS8
5310	62		3.41	2.17	5.58	23.98	MCS5
5510	102	15	10.01	0.43	10.44	23.98	MCS0
5550	110	18	13.66	0.43	14.09	23.98	MCS0
5710	142		13.89	1.40	15.29	23.98	MCS3
5755	151		12.91	2.76	15.67	30.00	MCS8
5795	159		13.75	2.17	15.92	30.00	MCS5

802.11ac(80MHz) Mode		Power Level Setting	Measured Power [dBm]	Duty Cycle Factor (dB)	Total Power [dBm]	Limit (dBm)	Worstcase MCS Index
Frequency [MHz]	Channel No.						
5210	42	8	2.89	3.70	6.59	23.98	MCS8
5290	58		2.21	3.70	5.91	23.98	MCS8
5530	106	15	8.42	2.26	10.68	23.98	MCS3
5690	138	18	11.79	3.70	15.49	23.98	MCS8
5775	155		13.89	2.26	16.15	30.00	MCS3

[External ANT_SISO]

Limts (802.11a, 802.11n_HT20, 802.11ac_VHT20)

UNII-1	: Total Power < 23.98 dBm
UNII-2A	: Total Power < 23.98 dBm
UNII-2C	: Total Power < 23.98 dBm
UNII-3	: Total Power < 30.00 dBm

Limts (802.11n_HT40, 802.11ac_VHT40, 802.11ac_VHT80)

UNII-1	: Total Power < 23.98 dBm
UNII-2A	: Total Power < 23.98 dBm
UNII-2C	: Total Power < 23.98 dBm
UNII-3	: Total Power < 30.00 dBm

802.11a Mode		Power Level Setting	Measured Power [dBm]	Duty Cycle Factor (dB)	Total Power [dBm]	Limit (dBm)	Worstcase Datarate (Mbps)
Frequency [MHz]	Channel No.						
5180	36	17	12.59	0.41	13.00	23.98	12 Mbps
5200	40		12.24	0.41	12.65	23.98	12 Mbps
5240	48	16	11.96	0.21	12.17	23.98	6 Mbps
5260	52	15	11.38	0.41	11.79	23.98	12 Mbps
5300	60		11.75	0.41	12.16	23.98	12 Mbps
5320	64	14	10.82	0.30	11.12	23.98	9 Mbps
5500	100	17	18.99	0.41	19.40	23.98	12 Mbps
5580	116		20.08	0.41	20.49	23.98	12 Mbps
5720	144		19.76	0.30	20.06	23.98	9 Mbps
5745	149	18	19.91	0.41	20.32	30.00	12 Mbps
5785	157		19.26	0.30	19.56	30.00	9 Mbps
5825	165	17	16.46	0.41	16.87	30.00	12 Mbps

802.11n(20MHz) Mode		Power Level Setting	Measured Power [dBm]	Duty Cycle Factor (dB)	Total Power [dBm]	Limit (dBm)	Worstcase MCS Index
Frequency [MHz]	Channel No.						
5180	36	17	12.60	0.42	13.02	23.98	MCS1
5200	40		12.35	0.42	12.77	23.98	MCS1
5240	48	16	10.91	0.42	11.33	23.98	MCS1
5260	52		11.24	1.59	12.83	23.98	MCS7
5300	60	15	11.43	0.62	12.05	23.98	MCS2
5320	64		10.22	1.59	11.81	23.98	MCS7
5500	100	17	19.39	0.22	19.61	23.98	MCS0
5580	116		20.01	0.62	20.63	23.98	MCS2
5720	144		19.51	0.62	20.13	23.98	MCS2
5745	149	18	19.67	0.62	20.29	30.00	MCS2
5785	157		17.21	1.38	18.59	30.00	MCS5
5825	165	17	15.25	0.62	15.87	30.00	MCS2

802.11n(40MHz) Mode		Power Level Setting	Measured Power [dBm]	Duty Cycle Factor (dB)	Total Power [dBm]	Limit (dBm)	Worstcase MCS Index
Frequency [MHz]	Channel No.						
5190	38	17	10.01	2.22	12.23	23.98	MCS5
5230	46		11.46	0.81	12.27	23.98	MCS1
5270	54	16	11.38	0.81	12.19	23.98	MCS1
5310	62		9.78	2.54	12.32	23.98	MCS7
5510	102	15	14.25	2.54	16.79	23.98	MCS7
5550	110	18	17.92	2.37	20.29	23.98	MCS6
5710	142		18.25	2.37	20.62	23.98	MCS6
5755	151		18.10	1.90	20.00	30.00	MCS4
5795	159		15.95	2.54	18.49	30.00	MCS7

802.11ac(20MHz) Mode		Power Level Setting	Measured Power [dBm]	Duty Cycle Factor (dB)	Total Power [dBm]	Limit (dBm)	Worstcase MCS Index
Frequency [MHz]	Channel No.						
5180	36	17	12.39	0.61	13.00	23.98	MCS2
5200	40		12.05	0.41	12.46	23.98	MCS1
5240	48	16	11.91	0.41	12.32	23.98	MCS1
5260	52		12.52	0.41	12.93	23.98	MCS1
5300	60	15	11.91	0.23	12.14	23.98	MCS0
5320	64	14	10.42	0.61	11.03	23.98	MCS2
5500	100	18	19.91	0.61	20.52	23.98	MCS2
5580	116	17	20.07	0.61	20.68	23.98	MCS2
5720	144		19.56	0.61	20.17	23.98	MCS2
5745	149	18	19.71	0.61	20.32	30.00	MCS2
5785	157		18.43	0.23	18.66	30.00	MCS0
5825	165	17	15.51	0.41	15.92	30.00	MCS1

802.11ac(40MHz) Mode		Power Level Setting	Measured Power [dBm]	Duty Cycle Factor (dB)	Total Power [dBm]	Limit (dBm)	Worstcase MCS Index
Frequency [MHz]	Channel No.						
5190	38	17	10.01	2.17	12.18	23.98	MCS5
5230	46		10.04	2.17	12.21	23.98	MCS5
5270	54	16	9.38	2.76	12.14	23.98	MCS8
5310	62	15	9.32	1.84	11.16	23.98	MCS4
5510	102		15.30	1.40	16.70	23.98	MCS3
5550	110	18	17.80	2.47	20.27	23.98	MCS7
5710	142		17.73	2.79	20.52	23.98	MCS9
5755	151		17.29	2.76	20.05	30.00	MCS8
5795	159		17.65	0.81	18.46	30.00	MCS1

802.11ac(80MHz) Mode		Power Level Setting	Measured Power [dBm]	Duty Cycle Factor (dB)	Total Power [dBm]	Limit (dBm)	Worstcase MCS Index
Frequency [MHz]	Channel No.						
5210	42	16	7.47	3.81	11.28	23.98	MCS9
5290	58	15	8.10	3.12	11.22	23.98	MCS5
5530	106		13.75	3.12	16.87	23.98	MCS5
5690	138	18	16.95	3.81	20.76	23.98	MCS9
5775	155		16.66	2.26	18.92	30.00	MCS3

[MIMO]

Limts (802.11n_HT20, 802.11ac_VHT20)

UNII-1	: Total Power < 23.98 dBm
UNII-2A	: Total Power < 23.98 dBm
UNII-2C	: Total Power < 23.98 dBm
UNII-3	: Total Power < 30.00 dBm

Limts (802.11n_HT40, 802.11ac_VHT40, 802.11ac_VHT80)

UNII-1	: Total Power < 23.98 dBm
UNII-2A	: Total Power < 23.98 dBm
UNII-2C	: Total Power < 23.98 dBm
UNII-3	: Total Power < 30.00 dBm

802.11n(20MHz) Mode		Duty Cycle Factor (dB)	Internal Antenna [dBm]	External Antenna [dBm]	Sum [dBm]	Result (dBm)	Limit (dBm)	Worstcase MCS Index
Frequency [MHz]	Channel No.							
5180	36	1.063	5.58	3.28	7.59	8.65	23.98	MCS10
5200	40	0.784	6.16	3.26	7.96	8.74	23.98	MCS9
5240	48	1.063	5.78	3.56	7.82	8.88	23.98	MCS10
5260	52	1.063	5.56	4.22	7.95	9.01	23.98	MCS10
5300	60	0.784	5.77	4.88	8.36	9.14	23.98	MCS9
5320	64	0.784	5.49	4.64	8.10	8.88	23.98	MCS9
5500	100	0.784	10.25	16.22	17.20	17.98	23.98	MCS9
5580	116	0.784	11.00	17.18	18.12	18.90	23.98	MCS9
5720	144	0.784	13.01	16.80	18.32	19.10	23.98	MCS9
5745	149	1.063	15.80	18.86	20.60	21.67	30.00	MCS10
5785	157	1.063	16.04	17.25	19.70	20.76	30.00	MCS10
5825	165	0.784	16.63	16.70	19.68	20.46	30.00	MCS9

802.11n(40MHz) Mode		Duty Cycle Factor (dB)	Internal Antenna [dBm]	External Antenna [dBm]	Sum [dBm]	Result (dBm)	Limit (dBm)	Worstcase MCS Index
Frequency [MHz]	Channel No.							
5190	38	2.772	3.33	0.84	5.27	8.04	23.98	MCS12
5230	46	2.772	3.42	0.63	5.26	8.03	23.98	MCS12
5270	54	3.044	2.42	1.58	5.03	8.07	23.98	MCS13
5310	62	1.414	3.92	3.33	6.65	8.06	23.98	MCS9
5510	102	1.414	9.33	15.11	16.13	17.54	23.98	MCS9
5550	110	3.229	8.11	13.70	14.76	17.99	23.98	MCS14
5710	142	2.772	10.86	14.40	15.99	18.76	23.98	MCS12
5755	151	2.772	13.88	16.94	18.68	21.46	30.00	MCS12
5795	159	2.772	14.35	15.48	17.96	20.73	30.00	MCS12

802.11ac(20MHz) Mode		Duty Cycle Factor (dB)	Internal Antenna [dBm]	External Antenna [dBm]	Sum [dBm]	Result (dBm)	Limit (dBm)	Worstcase MCS Index
Frequency [MHz]	Channel No.							
5180	36	1.075	5.57	3.40	7.63	8.70	23.98	MCS11
5200	40	1.075	5.66	3.08	7.57	8.64	23.98	MCS11
5240	48	1.075	5.69	3.59	7.78	8.85	23.98	MCS11
5260	52	1.075	5.28	4.27	7.81	8.89	23.98	MCS11
5300	60	1.075	5.31	4.60	7.98	9.05	23.98	MCS11
5320	64	1.075	5.26	4.25	7.79	8.87	23.98	MCS11
5500	100	0.773	10.12	16.70	17.56	18.34	23.98	MCS10
5580	116	0.773	10.90	17.21	18.12	18.90	23.98	MCS10
5720	144	1.075	12.68	16.48	17.99	19.07	23.98	MCS11
5745	149	1.075	15.78	18.77	20.54	21.61	30.00	MCS11
5785	157	1.075	15.84	17.15	19.55	20.63	30.00	MCS11
5825	165	1.075	16.11	16.36	19.25	20.32	30.00	MCS11

802.11ac(40MHz) Mode		Duty Cycle Factor (dB)	Internal Antenna [dBm]	External Antenna [dBm]	Sum [dBm]	Result (dBm)	Limit (dBm)	Worstcase MCS Index
Frequency [MHz]	Channel No.							
5190	38	2.943	3.17	0.40	5.01	7.96	23.98	MCS15
5230	46	2.692	3.36	1.00	5.35	8.04	23.98	MCS14
5270	54	1.806	3.72	2.84	6.31	8.12	23.98	MCS12
5310	62	1.806	3.51	2.98	6.26	8.07	23.98	MCS12
5510	102	2.692	8.13	13.85	14.88	17.57	23.98	MCS14
5550	110	1.806	9.85	15.01	16.17	17.97	23.98	MCS12
5710	142	3.541	10.16	13.55	15.19	18.73	23.98	MCS19
5755	151	3.541	13.06	16.14	17.88	21.42	30.00	MCS19
5795	159	2.692	14.06	15.50	17.85	20.54	30.00	MCS14

802.11ac(80MHz) Mode		Duty Cycle Factor (dB)	Internal Antenna [dBm]	External Antenna [dBm]	Sum [dBm]	Result (dBm)	Limit (dBm)	Worstcase MCS Index
Frequency [MHz]	Channel No.							
5210	42	3.967	1.93	-0.50	3.89	7.86	23.98	MCS17
5290	58	2.218	2.90	2.44	5.69	7.90	23.98	MCS11
5530	106	4.287	6.77	12.48	13.51	17.80	23.98	MCS19
5690	138	4.287	8.75	12.95	14.35	18.64	23.98	MCS19
5775	155	4.287	12.28	14.44	16.50	20.79	30.00	MCS19

10.5 POWER SPECTRAL DENSITY

[Internal ANT_SISO]

802.11a Mode		Measured PSD [dBm]	Duty Cycle Factor (dB)	Total PSD [dBm]	Limit
Frequency [MHz]	Channel No.				
5180	36	-4.026	0.406	-3.620	11 dBm/MHz
5200	40	-3.685	0.406	-3.279	
5240	48	-3.853	0.406	-3.447	
5260	52	-4.311	0.406	-3.905	
5300	60	-4.513	0.406	-4.107	
5320	64	-4.415	0.406	-4.009	
5500	100	2.039	0.406	2.445	
5580	116	3.663	0.406	4.069	
5720	144	5.781	0.406	6.187	
5745	149	2.904	0.406	3.310	30 dBm/500kHz
5785	157	3.284	0.406	3.690	
5825	165	3.364	0.406	3.770	

802.11n(20MHz) Mode		Measured PSD [dBm]	Duty Cycle Factor (dB)	Total PSD [dBm]	Limit
Frequency [MHz]	Channel No.				
5180	36	-4.598	0.621	-3.977	11 dBm/MHz
5200	40	-5.891	0.796	-5.095	
5240	48	-4.418	0.621	-3.797	
5260	52	-5.246	0.621	-4.625	
5300	60	-5.149	0.621	-4.528	
5320	64	-4.878	0.418	-4.460	
5500	100	1.815	0.621	2.436	
5580	116	3.169	0.621	3.790	
5720	144	5.221	0.621	5.842	
5745	149	2.849	0.621	3.470	30 dBm/500kHz
5785	157	2.670	0.621	3.291	
5825	165	3.200	0.621	3.821	

802.11n(40MHz) Mode		Measured PSD [dBm]	Duty Cycle Factor (dB)	Total PSD [dBm]	Limit
Frequency [MHz]	Channel No.				
5190	38	-8.900	1.900	-7.000	11 dBm/MHz
5230	46	-8.849	1.900	-6.949	
5270	54	-9.742	2.369	-7.373	
5310	62	-9.935	2.218	-7.717	
5510	102	-4.301	1.900	-2.401	
5510	110	-1.296	1.900	0.604	
5710	142	1.188	1.411	2.599	
5755	151	-1.696	1.900	0.204	30 dBm /500kHz
5795	159	-1.178	1.900	0.722	

802.11ac(20MHz) Mode		Measured PSD [dBm]	Duty Cycle Factor (dB)	Total PSD [dBm]	Limit
Frequency [MHz]	Channel No.				
5180	36	-4.085	0.614	-3.471	11 dBm/MHz
5200	40	-4.355	0.414	-3.941	
5240	48	-4.652	0.614	-4.038	
5260	52	-4.403	0.231	-4.172	
5300	60	-4.858	0.614	-4.244	
5320	64	-4.921	0.614	-4.307	
5500	100	1.683	0.614	2.297	
5580	116	3.784	0.231	4.015	
5720	144	5.030	0.614	5.644	
5745	149	2.586	0.614	3.200	30 dBm/500kHz
5785	157	2.817	0.614	3.431	
5825	165	2.996	0.614	3.610	

802.11ac(40MHz) Mode		Measured PSD [dBm]	Duty Cycle Factor (dB)	Total PSD [dBm]	Limit
Frequency [MHz]	Channel No.				
5190	38	-8.162	0.812	-7.350	11 dBm/MHz
5230	46	-8.400	1.128	-7.272	
5270	54	-10.491	2.758	-7.733	
5310	62	-10.131	2.168	-7.963	
5510	102	-3.614	0.432	-3.182	
5510	110	0.068	0.432	0.500	
5710	142	1.108	1.401	2.509	
5755	151	-2.107	2.758	0.651	30 dBm/500kHz
5795	159	-1.301	2.168	0.867	

802.11ac(80MHz) Mode		Measured PSD [dBm]	Duty Cycle Factor (dB)	Total PSD [dBm]	Limit
Frequency [MHz]	Channel No.				
5210	42	-14.593	3.696	-10.897	11 dBm/MHz
5290	58	-14.923	3.696	-11.227	
5530	106	-9.061	2.259	-6.802	
5690	138	-5.244	3.696	-1.548	
5775	155	-6.113	2.259	-3.854	30 dBm/500kHz

[External ANT_SISO]

802.11a Mode		Measured PSD [dBm]	Duty Cycle Factor (dB)	Total PSD [dBm]	Limit
Frequency [MHz]	Channel No.				
5180	36	1.786	0.406	2.192	11 dBm/MHz
5200	40	1.758	0.406	2.164	
5240	48	1.517	0.205	1.722	
5260	52	1.043	0.406	1.449	
5300	60	0.946	0.406	1.352	
5320	64	0.063	0.303	0.366	
5500	100	8.625	0.406	9.031	
5580	116	9.645	0.406	10.051	
5720	144	9.554	0.303	9.857	
5745	149	6.969	0.406	7.375	30 dBm/500kHz
5785	157	5.202	0.303	5.505	
5825	165	3.370	0.406	3.776	

802.11n(20MHz) Mode		Measured PSD [dBm]	Duty Cycle Factor (dB)	Total PSD [dBm]	Limit
Frequency [MHz]	Channel No.				
5180	36	1.799	0.418	2.217	11 dBm/MHz
5200	40	1.077	0.418	1.495	
5240	48	1.101	0.418	1.519	
5260	52	-0.458	1.592	1.134	
5300	60	0.806	0.621	1.427	
5320	64	-1.254	1.592	0.338	
5500	100	8.284	0.221	8.505	
5580	116	9.249	0.621	9.870	
5720	144	8.649	0.621	9.270	
5745	149	6.219	0.621	6.840	30 dBm/500kHz
5785	157	3.051	1.376	4.427	
5825	165	2.332	0.621	2.953	

802.11n(40MHz) Mode		Measured PSD [dBm]	Duty Cycle Factor (dB)	Total PSD [dBm]	Limit
Frequency [MHz]	Channel No.				
5190	38	-3.751	2.218	-1.533	11 dBm/MHz
5230	46	-2.413	0.814	-1.599	
5270	54	-2.611	0.814	-1.797	
5310	62	-4.051	2.541	-1.510	
5510	102	0.807	2.541	3.348	
5510	110	4.508	2.369	6.877	
5710	142	4.368	2.369	6.737	
5755	151	2.232	1.900	4.132	30 dBm /500kHz
5795	159	1.265	2.541	3.806	

802.11ac(20MHz) Mode		Measured PSD [dBm]	Duty Cycle Factor (dB)	Total PSD [dBm]	Limit
Frequency [MHz]	Channel No.				
5180	36	1.751	0.614	2.365	11 dBm/MHz
5200	40	1.215	0.414	1.629	
5240	48	0.879	0.414	1.293	
5260	52	1.749	0.414	2.163	
5300	60	0.915	0.231	1.146	
5320	64	-0.284	0.614	0.330	
5500	100	8.909	0.614	9.523	
5580	116	9.076	0.614	9.690	
5720	144	8.614	0.614	9.228	
5745	149	6.628	0.614	7.242	30 dBm/500kHz
5785	157	5.040	0.231	5.271	
5825	165	2.511	0.414	2.925	

802.11ac(40MHz) Mode		Measured PSD [dBm]	Duty Cycle Factor (dB)	Total PSD [dBm]	Limit
Frequency [MHz]	Channel No.				
5190	38	-3.272	2.168	-1.104	11 dBm/MHz
5230	46	-4.220	2.168	-2.052	
5270	54	-3.613	2.758	-0.855	
5310	62	-4.476	1.836	-2.640	
5510	102	1.644	1.401	3.045	
5510	110	3.833	2.468	6.301	
5710	142	4.163	2.792	6.955	
5755	151	1.544	2.758	4.302	30 dBm/500kHz
5795	159	1.412	0.812	2.224	

802.11ac(80MHz) Mode		Measured PSD [dBm]	Duty Cycle Factor (dB)	Total PSD [dBm]	Limit
Frequency [MHz]	Channel No.				
5210	42	-10.023	3.807	-6.216	11 dBm/MHz
5290	58	-8.442	3.122	-5.320	
5530	106	-3.392	3.122	-0.270	
5690	138	-0.449	3.807	3.358	
5775	155	-3.526	2.259	-1.267	30 dBm/500kHz

[MIMO]

802.11n(20MHz) Mode		Duty Cycle Factor (dB)	Internal Antenna [dBm]	External Antenna [dBm]	Sum [dBm]	Result (dBm)	Limit
Frequency [MHz]	Channel No.						
5180	36	1.063	-4.648	-6.589	-2.50	-1.44	11 dBm/MHz
5200	40	0.784	-4.875	-7.359	-2.93	-2.15	
5240	48	1.063	-4.852	-6.506	-2.59	-1.53	
5260	52	1.063	-5.578	-5.934	-2.74	-1.68	
5300	60	0.784	-5.298	-5.144	-2.21	-1.43	
5320	64	1.063	-5.537	-6.214	-2.85	-1.79	
5500	100	0.784	-0.315	5.700	6.67	7.45	
5580	116	0.784	0.601	6.800	7.73	8.52	
5720	144	0.784	3.012	6.422	8.05	8.84	
5745	149	2.134	2.703	3.982	6.40	8.53	30 dBm/500kHz
5785	157	2.409	2.919	2.581	5.76	8.17	
5825	165	2.255	3.026	1.366	5.29	7.54	

802.11n(40MHz) Mode		Duty Cycle Factor (dB)	Internal Antenna [dBm]	External Antenna [dBm]	Sum [dBm]	Result (dBm)	Limit
Frequency [MHz]	Channel No.						
5190	38	2.772	-10.100	-11.884	-7.89	-5.12	11 dBm/MHz
5230	46	3.229	-9.890	-12.876	-8.12	-4.89	
5270	54	3.229	-10.546	-11.001	-7.76	-4.53	
5310	62	2.772	-11.114	-9.773	-7.38	-4.61	
5510	102	3.331	-5.399	1.871	2.62	5.95	
5510	110	3.229	-4.261	1.339	2.40	5.62	
5710	142	3.044	-2.248	1.531	3.05	6.09	
5755	151	2.772	-4.894	1.434	2.34	5.11	30 dBm /500kHz
5795	159	2.772	-5.282	-0.806	0.52	3.29	

802.11ac(20MHz) Mode		Duty Cycle Factor (dB)	Internal Antenna [dBm]	External Antenna [dBm]	Sum [dBm]	Result (dBm)	Limit
Frequency [MHz]	Channel No.						
5180	36	1.075	-5.112	-6.690	-2.82	-1.74	11 dBm/MHz
5200	40	1.075	-4.941	-7.243	-2.93	-1.86	
5240	48	1.075	-4.736	-6.552	-2.54	-1.46	
5260	52	1.075	-5.290	-7.039	-3.07	-1.99	
5300	60	1.075	-5.282	-7.156	-3.11	-2.03	
5320	64	2.368	-6.097	-8.141	-3.99	-1.62	
5500	100	1.075	-0.416	5.342	6.36	7.44	
5580	116	1.075	0.232	6.813	7.68	8.75	
5720	144	1.075	2.167	6.432	7.81	8.89	
5745	149	2.584	3.023	3.943	6.52	9.10	30 dBm/500kHz
5785	157	2.368	3.030	3.199	6.13	8.49	
5825	165	1.075	3.495	3.653	6.59	7.66	

802.11ac(40MHz) Mode		Duty Cycle Factor (dB)	Internal Antenna [dBm]	External Antenna [dBm]	Sum [dBm]	Result (dBm)	Limit
Frequency [MHz]	Channel No.						
5190	38	3.231	-10.283	-12.508	-8.24	-5.01	11 dBm/MHz
5230	46	2.943	-10.409	-11.872	-8.07	-5.13	
5270	54	3.541	-9.806	-11.095	-7.39	-3.85	
5310	62	1.806	-9.777	-10.058	-6.90	-5.10	
5510	102	2.692	-3.758	2.005	3.03	5.72	
5510	110	2.943	-3.843	1.977	2.99	5.93	
5710	142	3.231	-1.687	0.987	2.86	6.09	
5755	151	3.541	-1.903	1.697	3.27	6.81	30 dBm/500kHz
5795	159	3.424	-1.717	0.852	2.77	6.19	

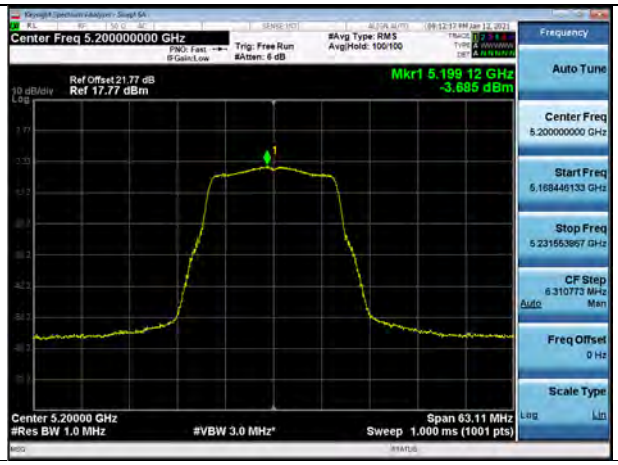
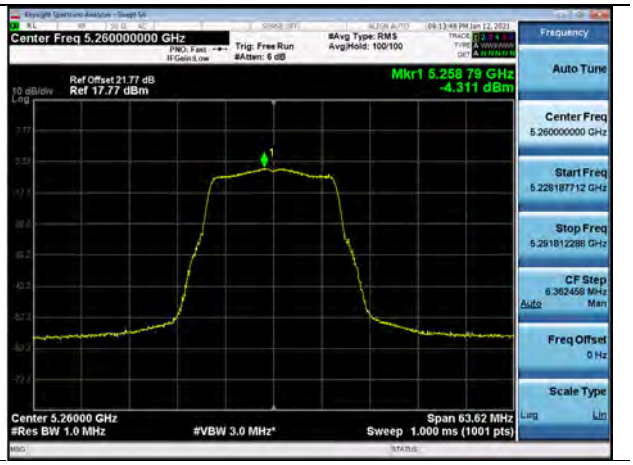
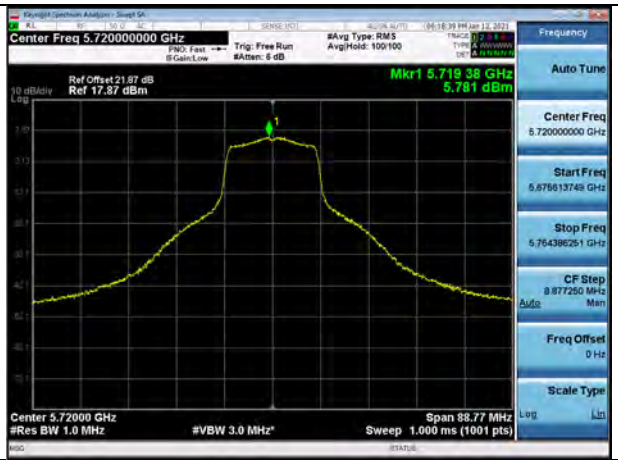
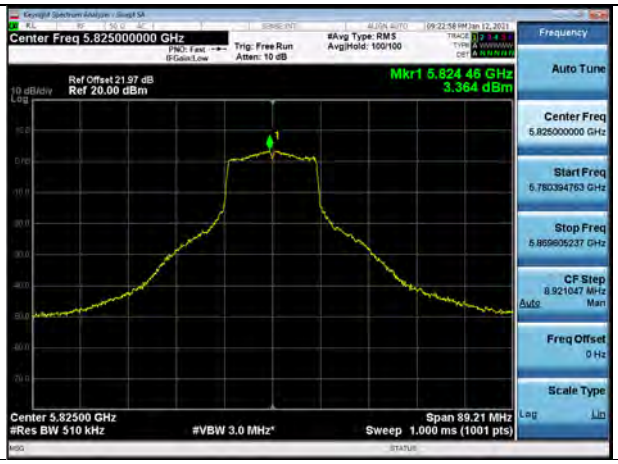
802.11ac(80MHz) Mode		Duty Cycle Factor (dB)	Internal Antenna [dBm]	External Antenna [dBm]	Sum [dBm]	Result (dBm)	Limit
Frequency [MHz]	Channel No.						
5210	42	3.967	-12.860	-17.209	-11.50	-7.53	11 dBm/MHz
5290	58	3.807	-15.274	-15.683	-12.46	-8.66	
5530	106	4.287	-9.582	-3.712	-2.71	1.57	
5690	138	4.287	-5.299	-3.487	-1.29	3.00	
5775	155	4.287	-4.951	-2.833	-0.75	3.53	30 dBm/500kHz

[Internal ANT_SISO]

▣ Test Plots(802.11a)

Note:

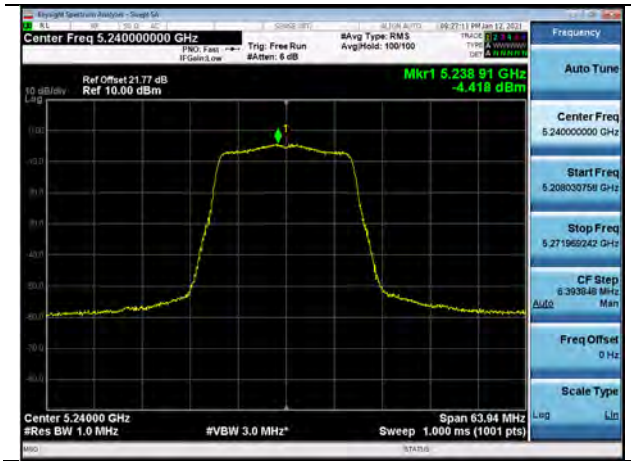
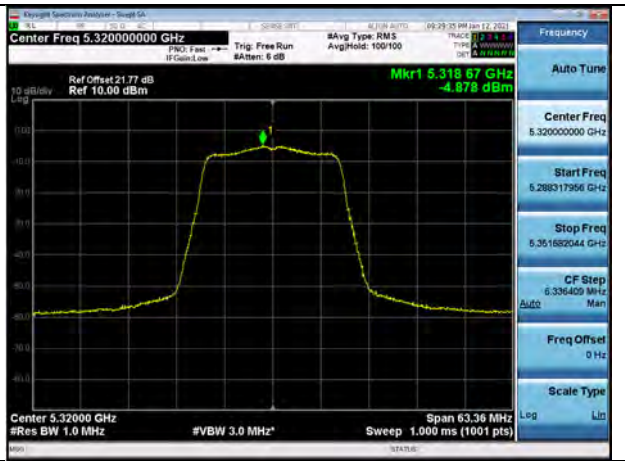
In order to simplify the report, attached plots were only channel of highest power.

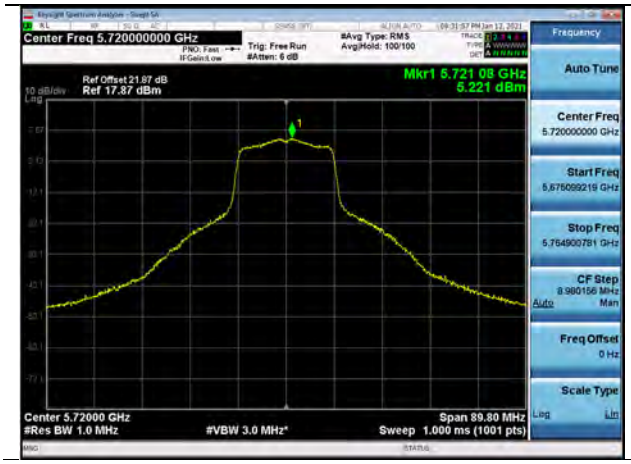
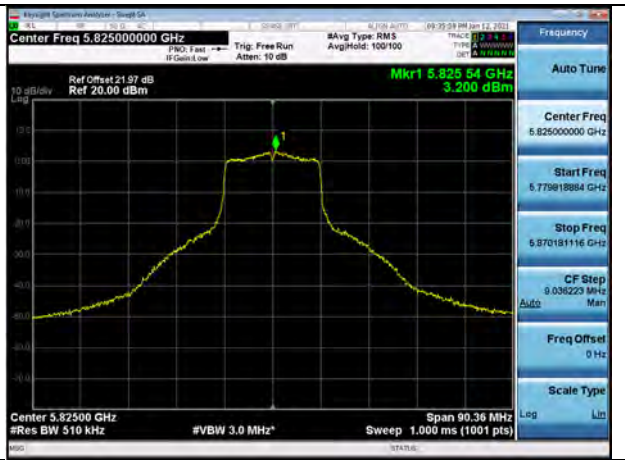
UNII 1 (Ch. 40)	UNII 2A (Ch. 52)
	
UNII 2C (Ch. 144)	UNII 3 (Ch. 165)
	

▣ Test Plots(802.11n(HT20))

Note:

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

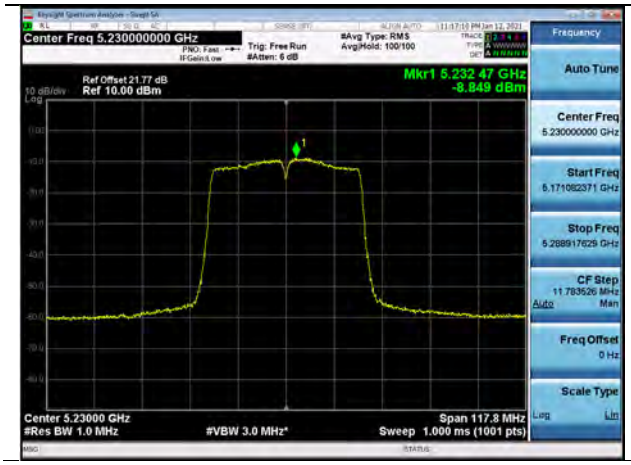
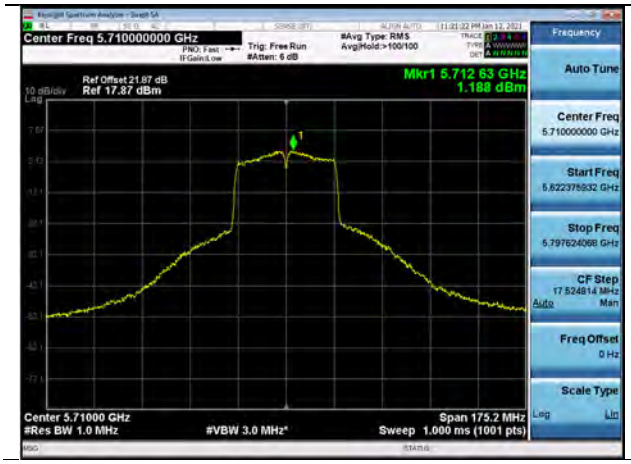
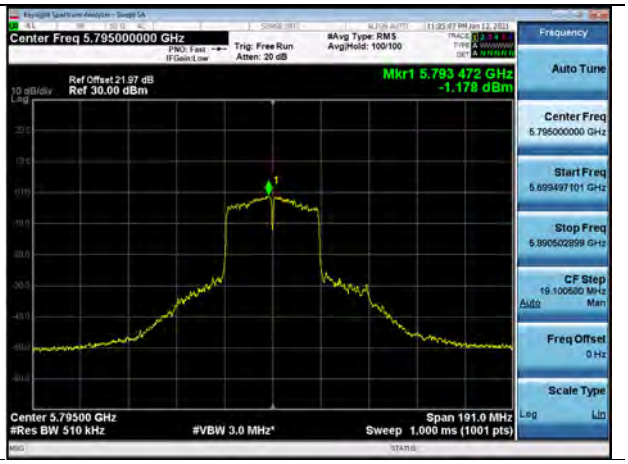
UNII 1 (Ch. 48)	UNII 2A (Ch. 64)
	

UNII 2C (Ch. 144)	UNII 3 (Ch. 165)
	

▣ Test Plots(802.11n(HT40))

Note:

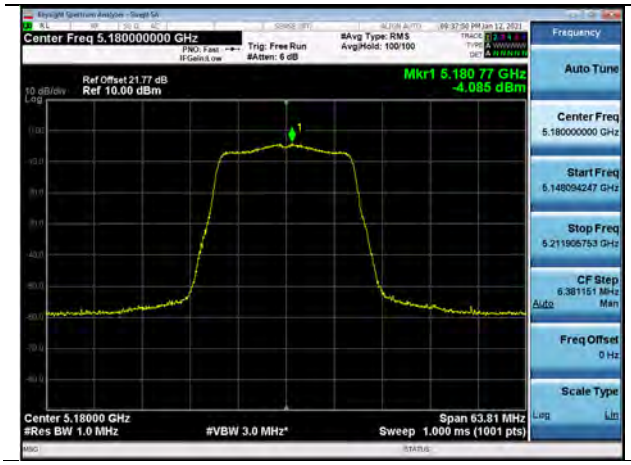
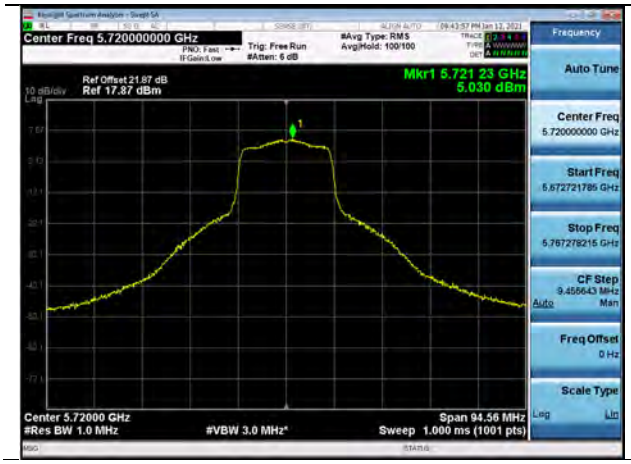
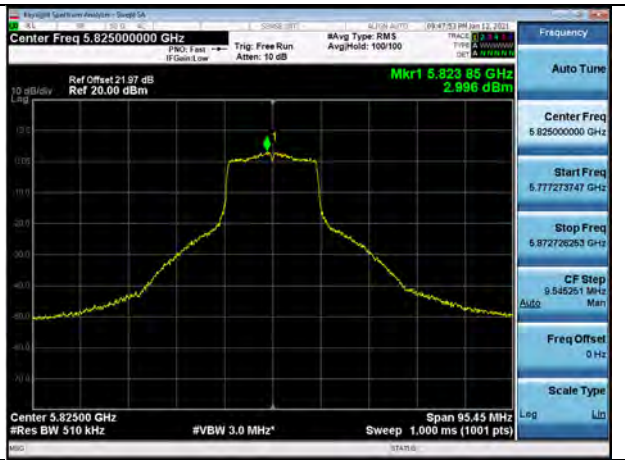
In order to simplify the report, attached plots were only channel of highest power.

UNII 1 (Ch. 46)	UNII 2A (Ch. 54)
	
UNII 2C (Ch. 142)	UNII 3 (Ch. 159)
	

▣ Test Plots(802.11ac(VHT20))

Note:

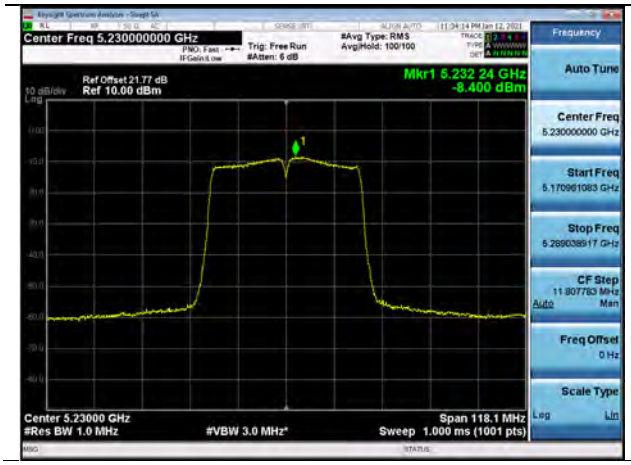
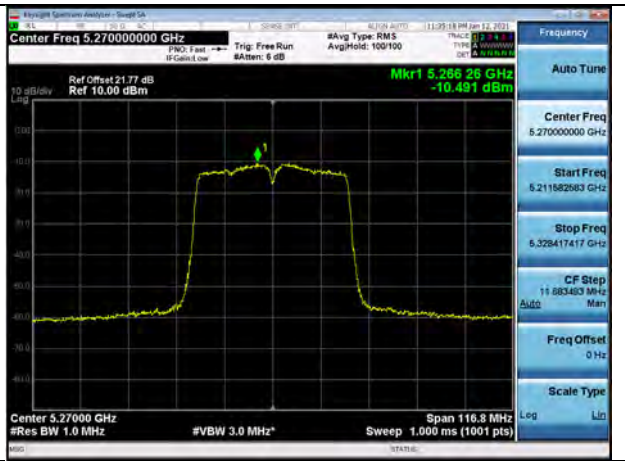
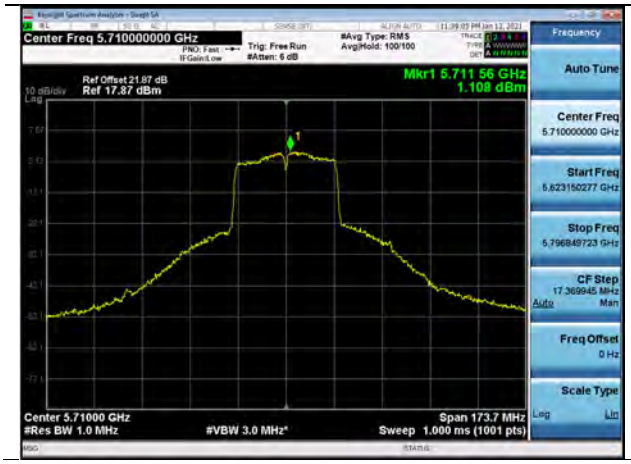
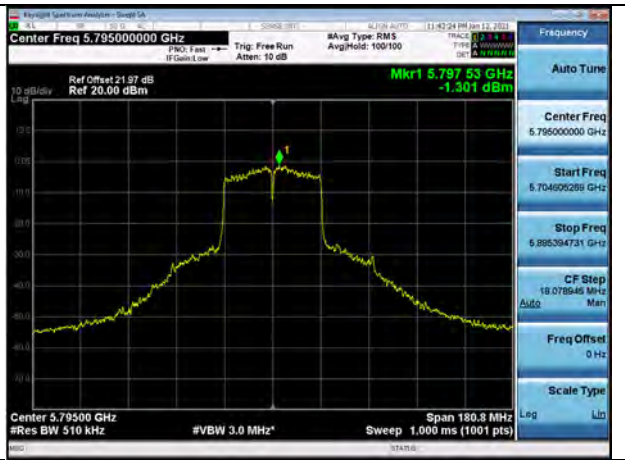
In order to simplify the report, attached plots were only channel of highest power.

UNII 1 (Ch. 36)	UNII 2A (Ch. 52)
	
UNII 2C (Ch. 144)	UNII 3 (Ch. 165)
	

▣ Test Plots(802.11ac(VHT40))

Note:

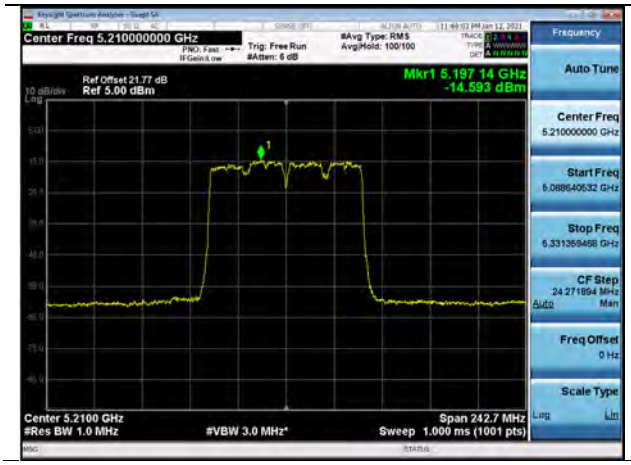
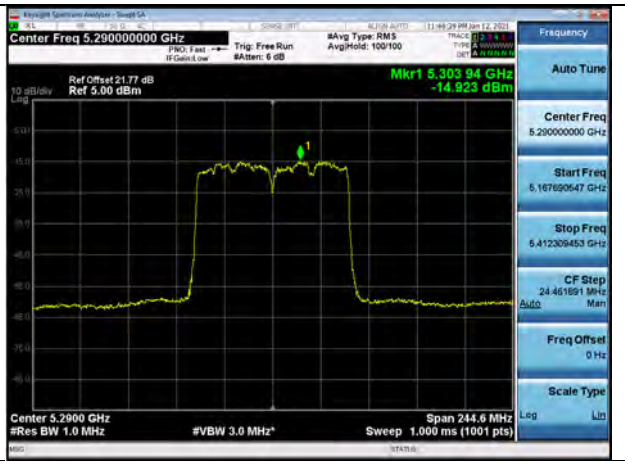
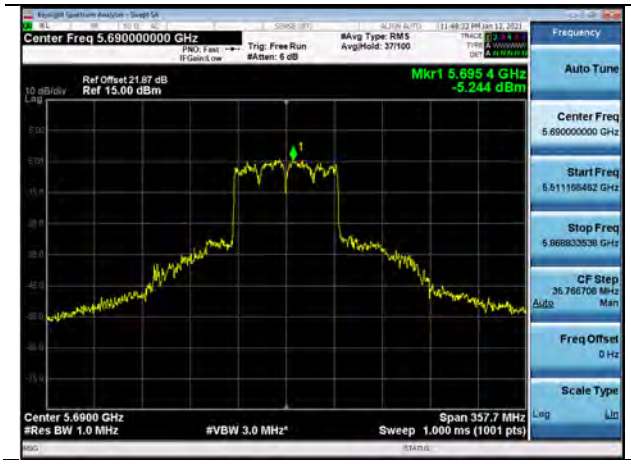
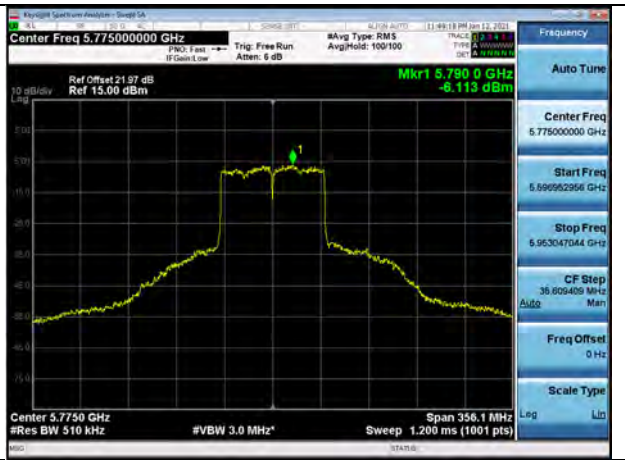
In order to simplify the report, attached plots were only channel of highest power.

UNII 1 (Ch. 38)	UNII 2A (Ch. 62)
	
UNII 2C (Ch. 142)	**UNII 3 (Ch. 159)**
	

▣ Test Plots(802.11ac(VHT80))

Note:

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

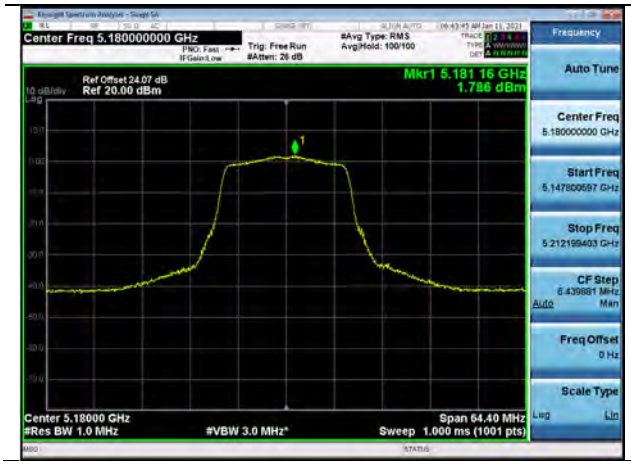
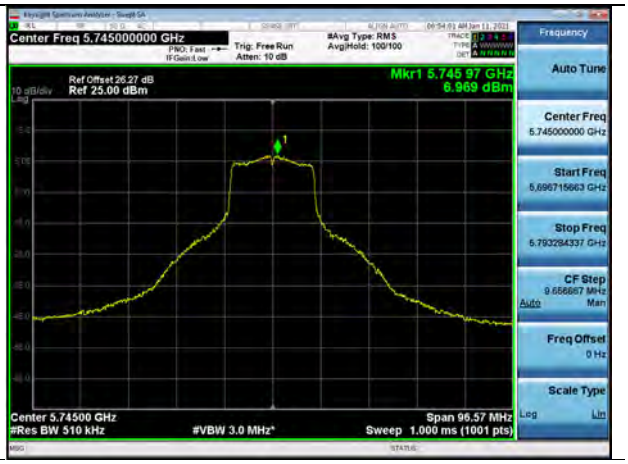
UNII 1 (Ch. 42)	UNII 2A (Ch. 58)
	
UNII 2C (Ch. 138)	UNII 3 (Ch. 155)
	

[External ANT_SISO]

▣ Test Plots(802.11a)

Note:

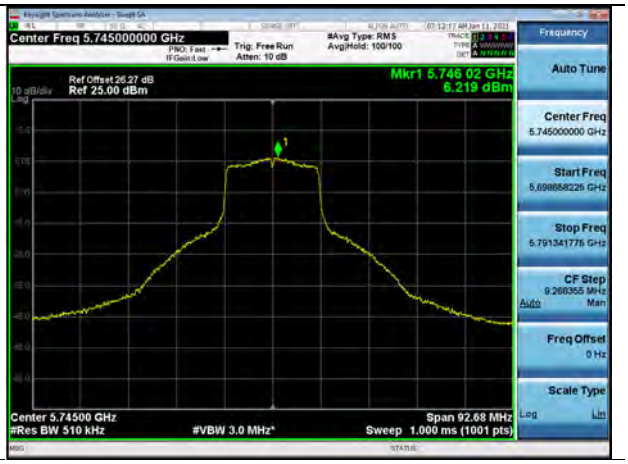
In order to simplify the report, attached plots were only channel of highest power.

UNII 1 (Ch. 36)	UNII 2A (Ch. 52)
	
UNII 2C (Ch. 116)	**UNII 3 (Ch. 149)**
	

▣ Test Plots(802.11n(HT20))

Note:

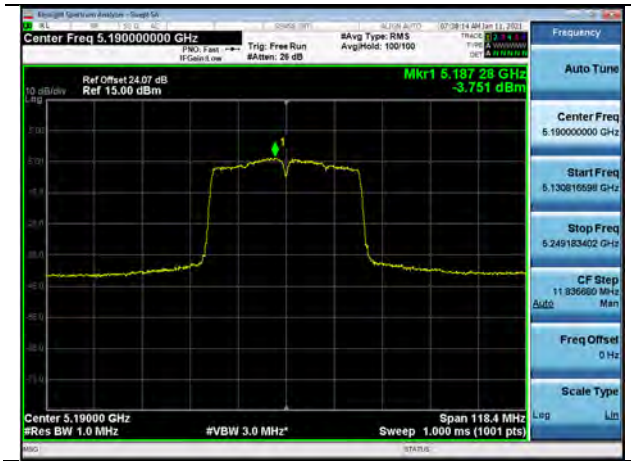
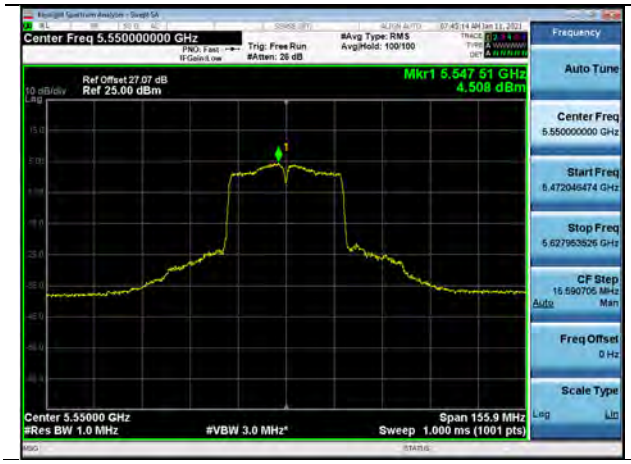
In order to simplify the report, attached plots were only channel of highest power.

UNII 1 (Ch. 36)	UNII 2A (Ch. 60)
	
UNII 2C (Ch. 116)	UNII 3 (Ch. 149)
	

▣ Test Plots(802.11n(HT40))

Note:

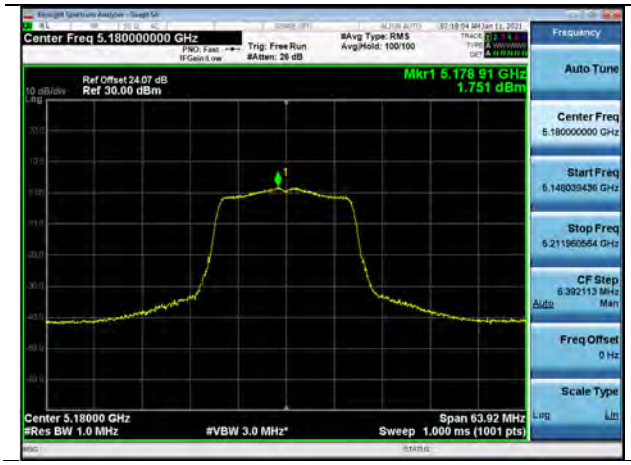
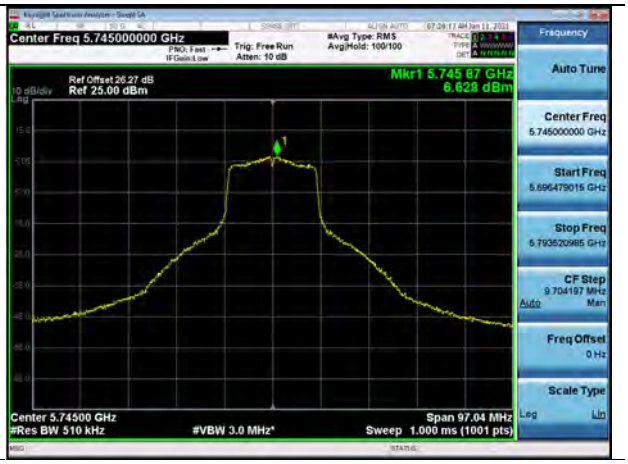
In order to simplify the report, attached plots were only channel of highest power.

UNII 1 (Ch. 46)	UNII 2A (Ch. 54)
	
UNII 2C (Ch. 110)	UNII 3 (Ch. 151)
	

▣ Test Plots(802.11ac(VHT20))

Note:

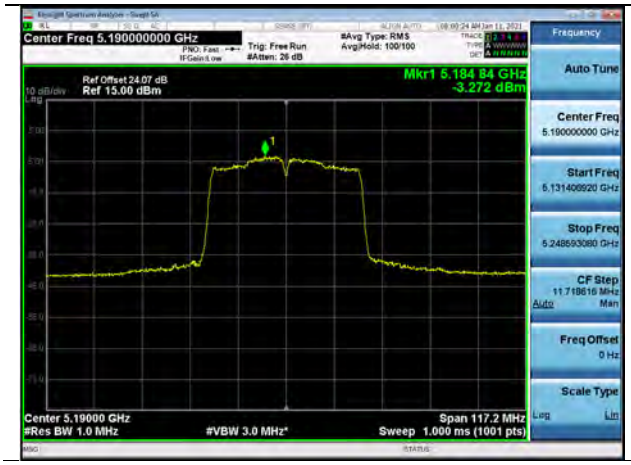
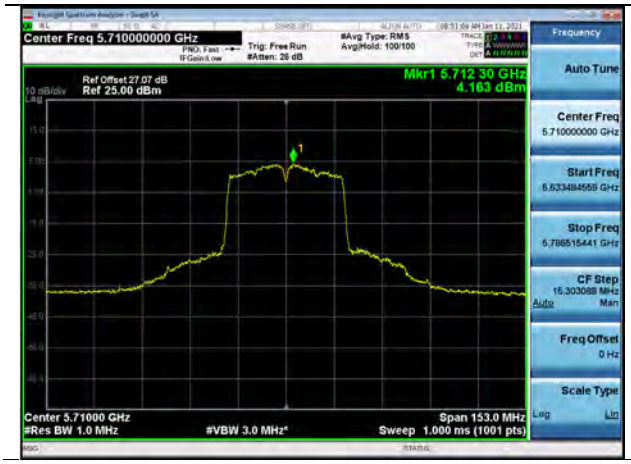
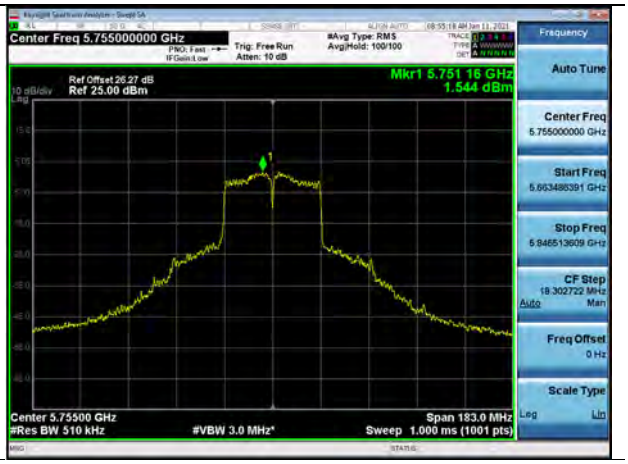
In order to simplify the report, attached plots were only channel of highest power.

UNII 1 (Ch. 36)	UNII 2A (Ch. 52)
	
UNII 2C (Ch. 116)	UNII 3 (Ch. 149)
	

▣ Test Plots(802.11ac(VHT40))

Note:

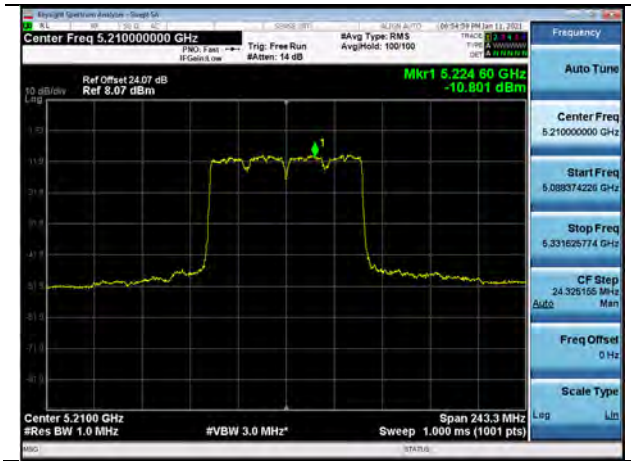
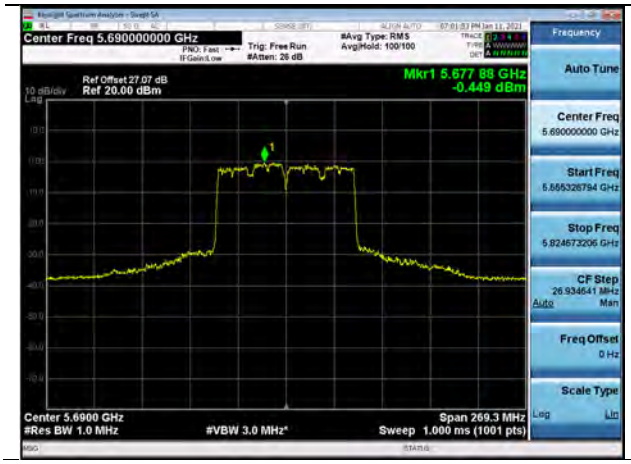
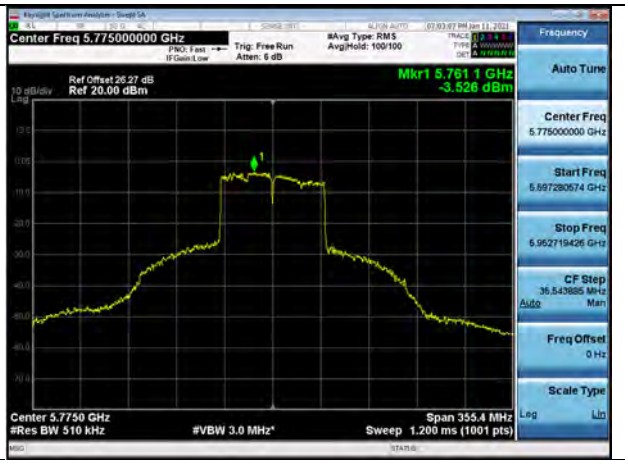
In order to simplify the report, attached plots were only channel of highest power.

UNII 1 (Ch. 38)	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.

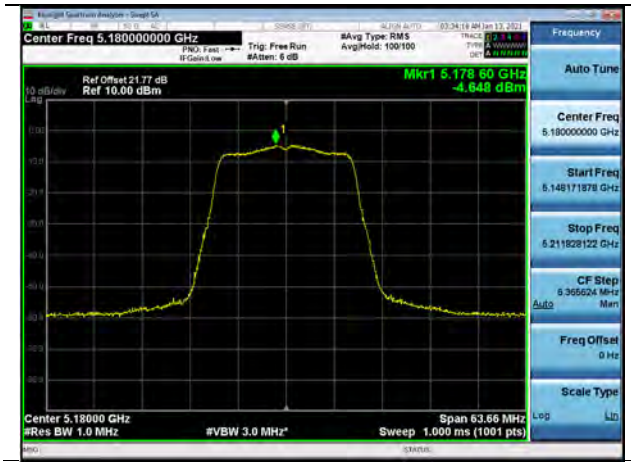
UNII 1 (Ch. 42)	UNII 2A (Ch. 58)
	
UNII 2C (Ch. 138)	UNII 3 (Ch. 155)
	

[Internal ANT_MIMO]

▣ Test Plots(802.11n(HT20))

Note:

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

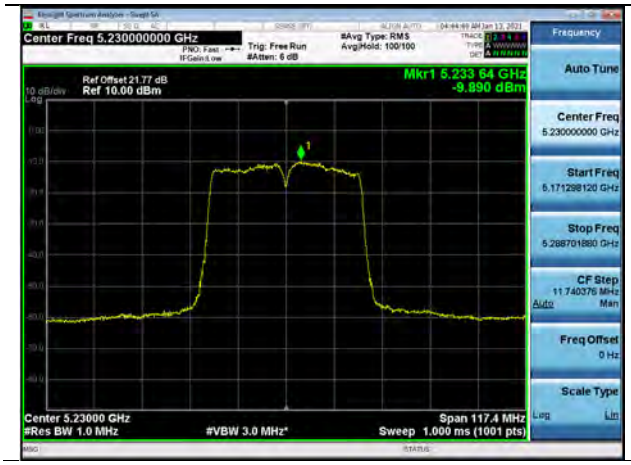
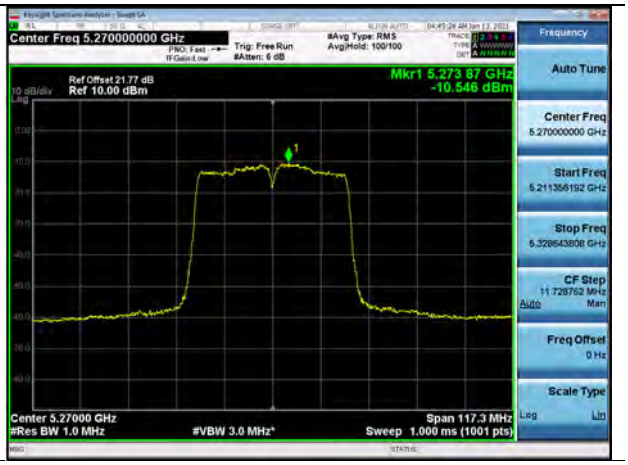
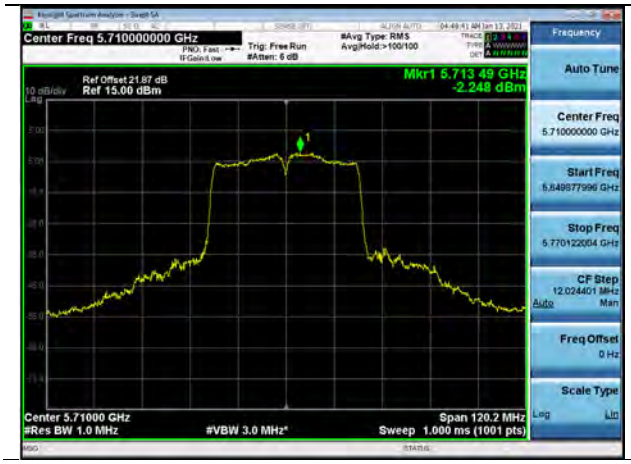
UNII 1 (Ch. 36)	UNII 2A (Ch. 60)
	

UNII 2C (Ch. 144)	UNII 3 (Ch. 165)
	

▣ Test Plots(802.11n(HT40))

Note:

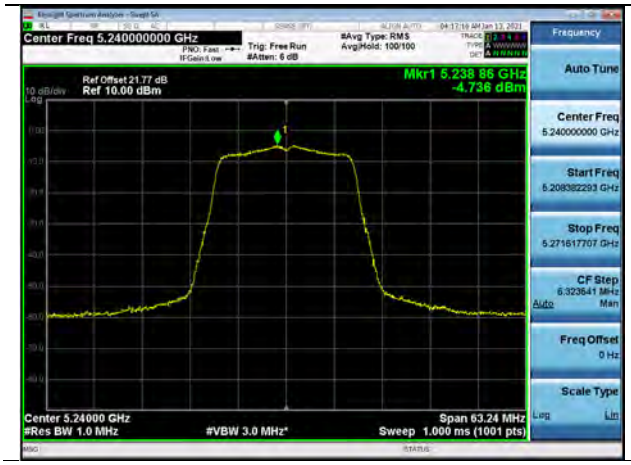
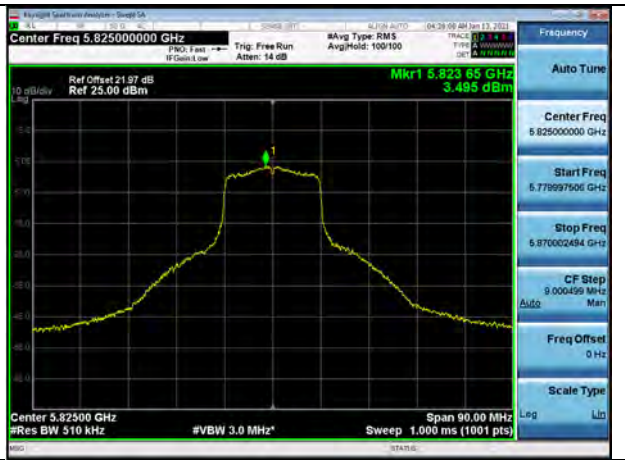
In order to simplify the report, attached plots were only channel of highest power.

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

▣ Test Plots(802.11ac(VHT20))

Note:

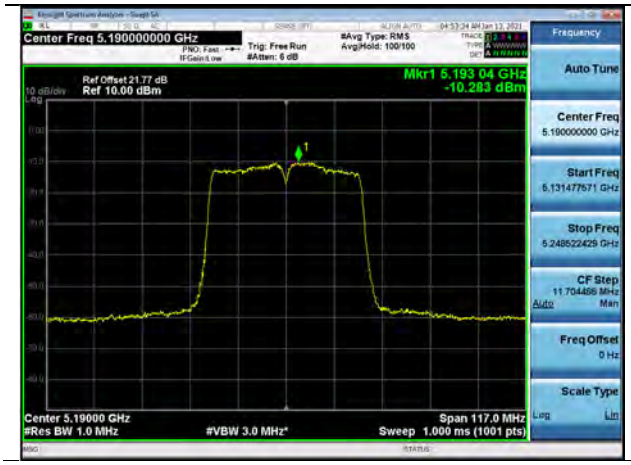
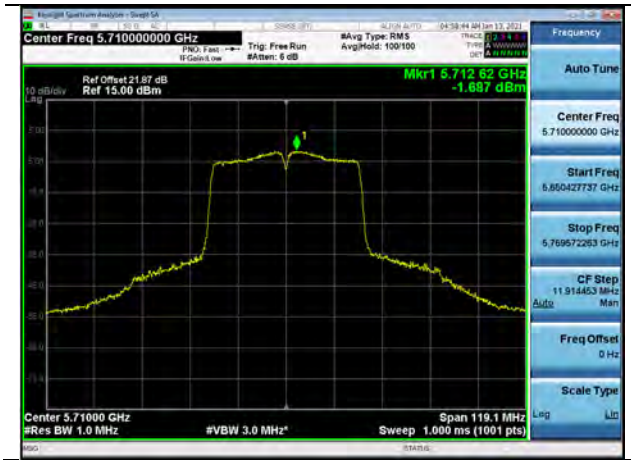
In order to simplify the report, attached plots were only channel of highest power.

UNII 1 (Ch. 48)	UNII 2A (Ch. 60)
	
UNII 2C (Ch. 144)	UNII 3 (Ch. 165)
	

▣ Test Plots(802.11ac(VHT40))

Note:

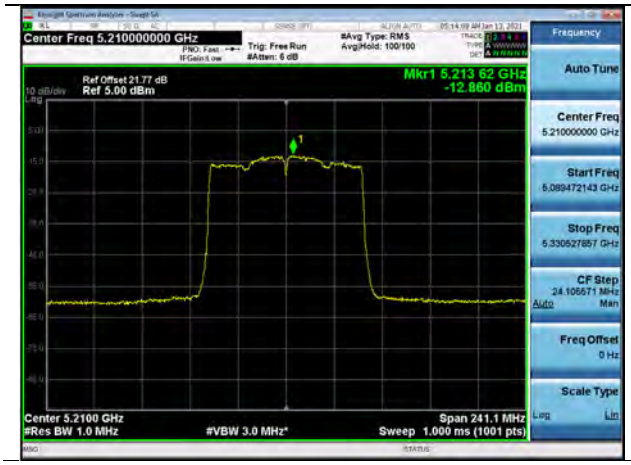
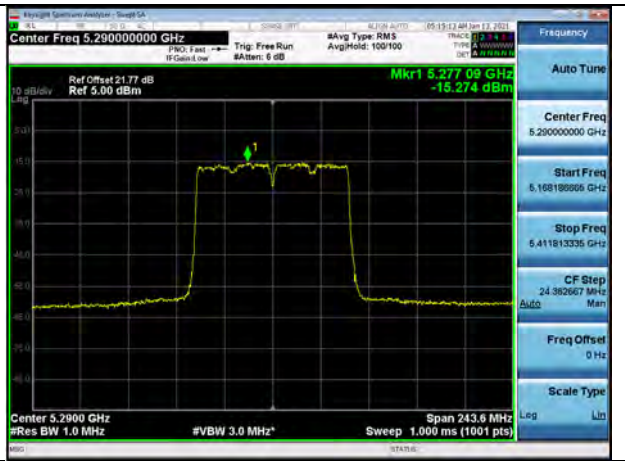
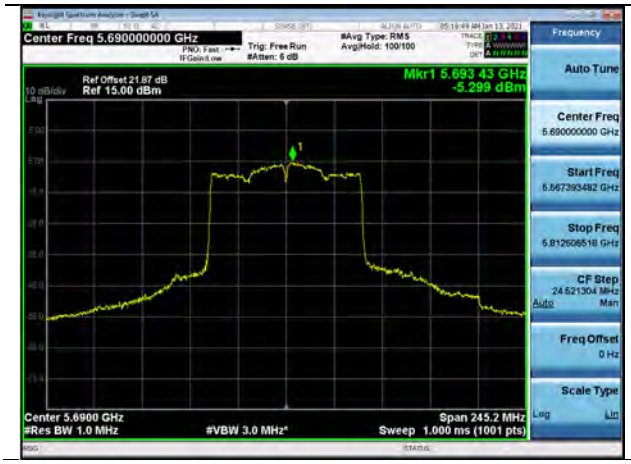
In order to simplify the report, attached plots were only channel of highest power.

UNII 1 (Ch. 38)	UNII 2A (Ch. 62)
	
UNII 2C (Ch. 142)	UNII 3 (Ch. 159)
	

▣ Test Plots(802.11ac(VHT80))

Note:

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

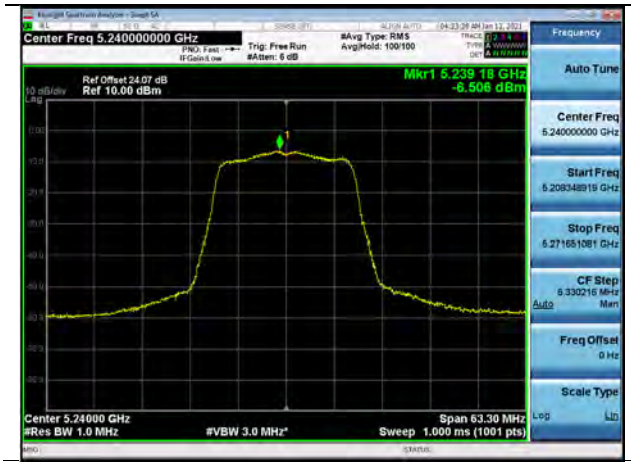
UNII 1 (Ch. 42)	UNII 2A (Ch. 58)
	
UNII 2C (Ch. 138)	UNII 3 (Ch. 155)
	

[External ANT_MIMO]

▣ Test Plots(802.11n(HT20))

Note:

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

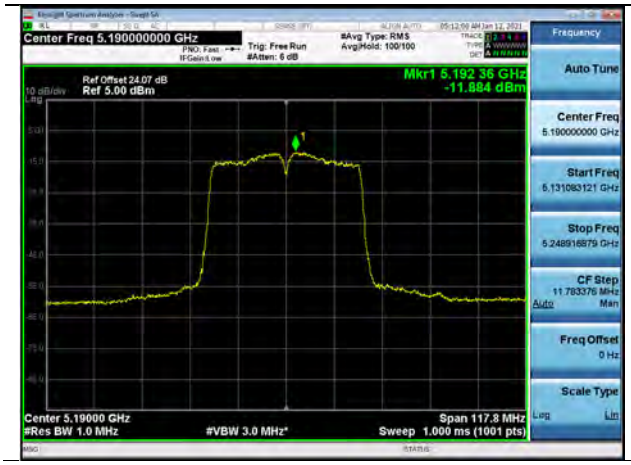
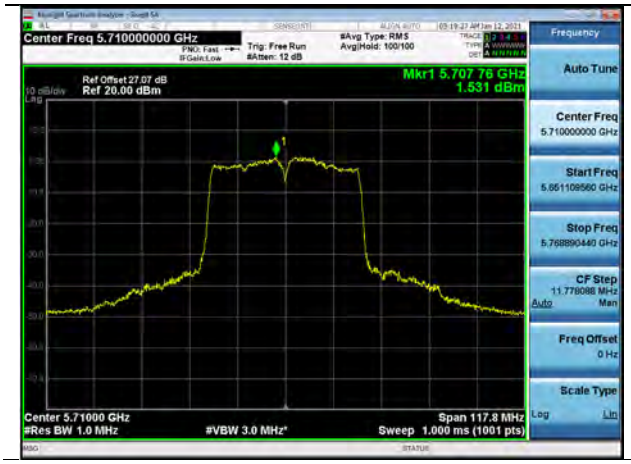
UNII 1 (Ch. 48)	UNII 2A (Ch. 60)
	

UNII 2C (Ch. 116)	UNII 3 (Ch. 149)
	

▣ Test Plots(802.11n(HT40))

Note:

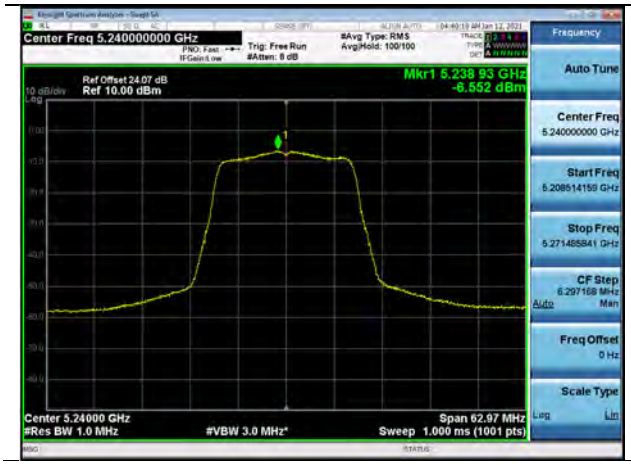
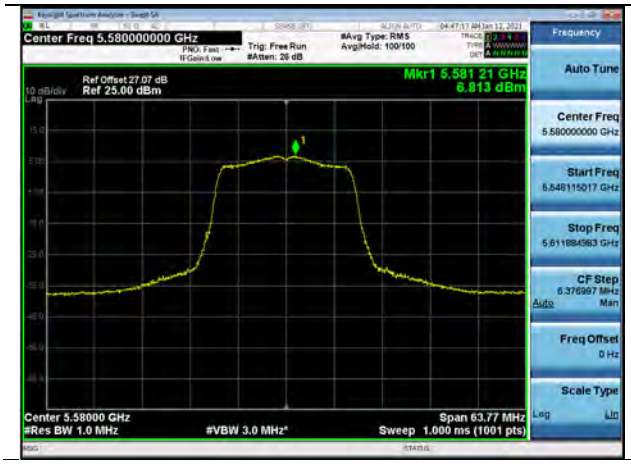
In order to simplify the report, attached plots were only channel of highest power.

UNII 1 (Ch. 38)	UNII 2A (Ch. 62)
	
UNII 2C (Ch. 102)	UNII 3 (Ch. 151)
	

▣ Test Plots(802.11ac(VHT20))

Note:

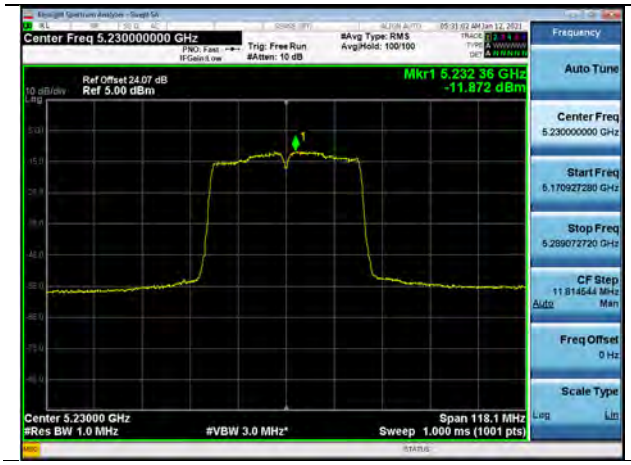
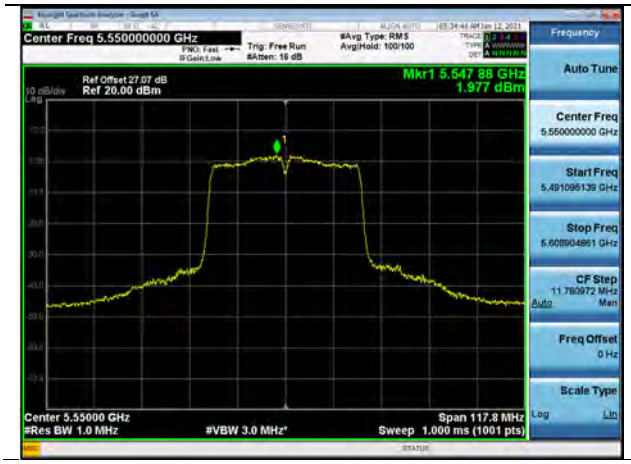
In order to simplify the report, attached plots were only channel of highest power.

UNII 1 (Ch. 48)	UNII 2A (Ch. 52)
	
UNII 2C (Ch. 116)	UNII 3 (Ch. 149)
	

▣ Test Plots(802.11ac(VHT40))

Note:

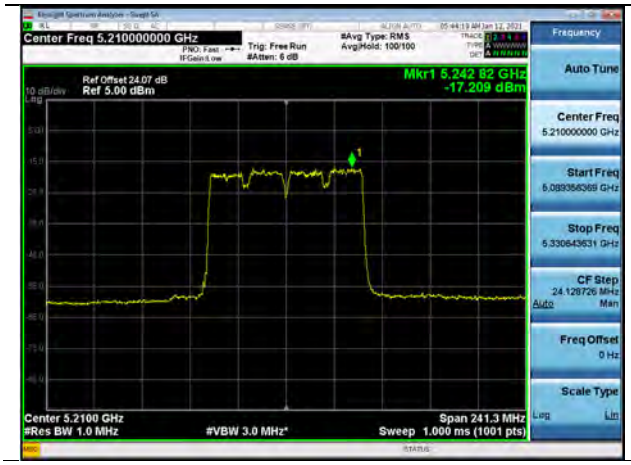
In order to simplify the report, attached plots were only channel of highest power.

UNII 1 (Ch. 46)	UNII 2A (Ch. 62)
	
UNII 2C (Ch. 102)	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)
	

10.6 FREQUENCY STABILITY.

10.6.1 80MHz BW

[Internal ANT_SISO]

Startup after the EUT is energized

OPERATING BAND:	UNII Band 1
OPERATING FREQUENCY:	5,210,000,000 Hz
CHANNEL:	42
REFERENCE VOLTAGE:	12.0 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	12	+20(Ref)	5210041.49	41.49
100%		-30	5210004.61	4.61
100%		-20	5210009.55	9.55
100%		-10	5210003.45	3.45
100%		0	5210070.41	70.41
100%		+10	5210085.39	85.39
100%		+30	5210086.07	86.07
100%		+40	5210099.03	99.03
100%		+50	5210087.29	87.29
Max	16.00	+20	5210031.88	31.88
Min	9.00	+20	5210035.49	35.49

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:	12.0 VDC

Voltage	Power	Temp.	Frequency	Frequency
(%)	(VDC)	(°C)	(kHz)	Error (kHz)
100%	12	+20(Ref)	5290052.54	52.54
100%		-30	5290091.23	91.23
100%		-20	5290062.62	62.62
100%		-10	5290027.04	27.04
100%		0	5290025.06	25.06
100%		+10	5290079.21	79.21
100%		+30	5290074.67	74.67
100%		+40	5290072.72	72.72
100%		+50	5290088.42	88.42
Max	16.00	+20	5210088.91	88.91
Min	9.00	+20	5210027.09	27.09

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:	12.0 VDC

Voltage	Power	Temp.	Frequency	Frequency
(%)	(VDC)	(°C)	(kHz)	Error (kHz)
100%	12	+20(Ref)	5530021.05	21.05
100%		-30	5530030.75	30.75
100%		-20	5530003.22	3.22
100%		-10	5530026.86	26.86
100%		0	5530053.20	53.2
100%		+10	5530045.72	45.72
100%		+30	5530091.50	91.5
100%		+40	5530006.36	6.36
100%		+50	5530009.17	9.17
Max	16.00	+20	5210054.07	54.07
Min	9.00	+20	5210003.66	3.66

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:	12.0 VDC

Voltage	Power	Temp.	Frequency	Frequency
(%)	(VDC)	(°C)	(kHz)	Error (kHz)
100%	12	+20(Ref)	5775023.43	23.43
100%		-30	5775084.77	84.77
100%		-20	5775073.36	73.36
100%		-10	5775035.11	35.11
100%		0	5775022.68	22.68
100%		+10	5775064.28	64.28
100%		+30	5775088.31	88.31
100%		+40	5775061.39	61.39
100%		+50	5775065.14	65.14
Max	16.00	+20	5210001.86	1.86
Min	9.00	+20	5210057.46	57.46

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.

2 minutes after the EUT is energized

OPERATING BAND:	UNII Band 1
OPERATING FREQUENCY:	5,210,000,000 Hz
CHANNEL:	42
REFERENCE VOLTAGE:	12.0 VDC

Voltage	Power	Temp.	Frequency	Frequency
(%)	(VDC)	(°C)	(kHz)	Error (kHz)
100%	12	+20(Ref)	5210046.41	46.41
100%		-30	5210061.55	61.55
100%		-20	5210023.45	23.45
100%		-10	5210084.49	84.49
100%		0	5210036.72	36.72
100%		+10	5210080.76	80.76
100%		+30	5210041.07	41.07
100%		+40	5210049.13	49.13
100%		+50	5210075.16	75.16
Max	16.00	+20	5210031.91	31.91
Min	9.00	+20	5210020.55	20.55

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:	12.0 VDC

Voltage	Power	Temp.	Frequency	Frequency
(%)	(VDC)	(°C)	(kHz)	Error (kHz)
100%	12	+20(Ref)	5290012.41	12.41
100%		-30	5290024.38	24.38
100%		-20	5290038.41	38.41
100%		-10	5290033.47	33.47
100%		0	5290017.22	17.22
100%		+10	5290054.88	54.88
100%		+30	5290050.03	50.03
100%		+40	5290058.61	58.61
100%		+50	5290082.44	82.44
Max	16.00	+20	5210085.79	85.79
Min	9.00	+20	5210062.81	62.81

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:	12.0 VDC

Voltage	Power	Temp.	Frequency	Frequency
(%)	(VDC)	(°C)	(kHz)	Error (kHz)
100%	12	+20(Ref)	5530020.63	20.63
100%		-30	5530066.13	66.13
100%		-20	5530087.65	87.65
100%		-10	5530033.39	33.39
100%		0	5530012.69	12.69
100%		+10	5530035.57	35.57
100%		+30	5530002.06	2.06
100%		+40	5530012.97	12.97
100%		+50	5530017.77	17.77
Max	16.00	+20	5210071.13	71.13
Min	9.00	+20	5210005.17	5.17

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:	12.0 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	12	+20(Ref)	5775071.25	71.25
100%		-30	5775085.49	85.49
100%		-20	5775041.08	41.08
100%		-10	5775093.95	93.95
100%		0	5775045.29	45.29
100%		+10	5775035.63	35.63
100%		+30	5775049.24	49.24
100%		+40	5775017.53	17.53
100%		+50	5775005.91	5.91
Max	16.00	+20	5210086.02	86.02
Min	9.00	+20	5210018.84	18.84

Note:

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

5 minutes after the EUT is energized

OPERATING BAND:	UNII Band 1
OPERATING FREQUENCY:	5,210,000,000 Hz
CHANNEL:	42
REFERENCE VOLTAGE:	12.0 VDC

Voltage	Power	Temp.	Frequency	Frequency
(%)	(VDC)	(°C)	(kHz)	Error (kHz)
100%	12	+20(Ref)	5210023.93	23.93
100%		-30	5210063.16	63.16
100%		-20	5210039.26	39.26
100%		-10	5210048.60	48.60
100%		0	5210045.04	45.04
100%		+10	5210007.35	7.35
100%		+30	5210035.56	35.56
100%		+40	5210019.65	19.65
100%		+50	5210088.38	88.38
Max	16.00	+20	5210050.65	50.65
Min	9.00	+20	5210052.03	52.03

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:	12.0 VDC

Voltage	Power	Temp.	Frequency	Frequency
(%)	(VDC)	(°C)	(kHz)	Error (kHz)
100%	12	+20(Ref)	5290035.09	35.09
100%		-30	5290052.28	52.28
100%		-20	5290086.28	86.28
100%		-10	5290033.63	33.63
100%		0	5290040.23	40.23
100%		+10	5290064.47	64.47
100%		+30	5290010.35	10.35
100%		+40	5290016.59	16.59
100%		+50	5290038.82	38.82
Max	16.00	+20	5210089.51	89.51
Min	9.00	+20	5210051.14	51.14

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:	12.0 VDC

Voltage	Power	Temp.	Frequency	Frequency
(%)	(VDC)	(°C)	(kHz)	Error (kHz)
100%	12	+20(Ref)	5530048.35	48.35
100%		-30	5530005.41	5.41
100%		-20	5530063.34	63.34
100%		-10	5530089.42	89.42
100%		0	5530019.78	19.78
100%		+10	5530034.44	34.44
100%		+30	5530035.70	35.7
100%		+40	5530090.05	90.05
100%		+50	5530095.29	95.29
Max	16.00	+20	5210032.99	32.99
Min	9.00	+20	5210038.80	38.80

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 3
OPERATING FREQUENCY:	5,775,000,000 Hz
CHANNEL:	155
REFERENCE VOLTAGE:	12.0 VDC

Voltage	Power	Temp.	Frequency	Frequency
(%)	(VDC)	(°C)	(kHz)	Error (kHz)
100%	12	+20(Ref)	5775099.28	99.28
100%		-30	5775078.31	78.31
100%		-20	5775052.32	52.32
100%		-10	5775080.26	80.26
100%		0	5775068.89	68.89
100%		+10	5775040.59	40.59
100%		+30	5775049.06	49.06
100%		+40	5775033.97	33.97
100%		+50	5775081.45	81.45
Max	16.00	+20	5210053.73	53.73
Min	9.00	+20	5210004.85	4.85

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:	12.0 VDC

Voltage	Power	Temp.	Frequency	Frequency
(%)	(VDC)	(°C)	(kHz)	Error (kHz)
100%	12	+20(Ref)	5210091.45	91.45
100%		-30	5210097.49	97.49
100%		-20	5210037.65	37.65
100%		-10	5210021.40	21.40
100%		0	5210069.45	69.45
100%		+10	5210063.16	63.16
100%		+30	5210076.71	76.71
100%		+40	5210024.04	24.04
100%		+50	5210092.28	92.28
Max	16.00	+20	5210019.87	19.87
Min	9.00	+20	5210022.60	22.60

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:	12.0 VDC

Voltage	Power	Temp.	Frequency	Frequency
(%)	(VDC)	(°C)	(kHz)	Error (kHz)
100%	12	+20(Ref)	5290052.79	52.79
100%		-30	5290026.90	26.90
100%		-20	5290038.23	38.23
100%		-10	5290003.52	3.52
100%		0	5290076.94	76.94
100%		+10	5290078.15	78.15
100%		+30	5290011.79	11.79
100%		+40	5290067.97	67.97
100%		+50	5290041.44	41.44
Max	16.00	+20	5210096.07	96.07
Min	9.00	+20	5210074.78	74.78

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:	12.0 VDC

Voltage	Power	Temp.	Frequency	Frequency
(%)	(VDC)	(°C)	(kHz)	Error (kHz)
100%	12	+20(Ref)	5530004.98	4.98
100%		-30	5530089.06	89.06
100%		-20	5530018.18	18.18
100%		-10	5530071.95	71.95
100%		0	5530052.79	52.79
100%		+10	5530083.57	83.57
100%		+30	5530056.92	56.92
100%		+40	5530094.74	94.74
100%		+50	5530048.60	48.60
Max	16.00	+20	5210095.80	95.8
Min	9.00	+20	5210066.14	66.14

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:	12.0 VDC

Voltage	Power	Temp.	Frequency	Frequency
(%)	(VDC)	(°C)	(kHz)	Error (kHz)
100%	12	+20(Ref)	5775051.30	51.30
100%		-30	5775089.89	89.89
100%		-20	5775085.78	85.78
100%		-10	5775065.14	65.14
100%		0	5775087.80	87.8
100%		+10	5775068.35	68.35
100%		+30	5775089.58	89.58
100%		+40	5775058.86	58.86
100%		+50	5775040.50	40.50
Max	16.00	+20	5210083.37	83.37
Min	9.00	+20	5210031.25	31.25

Note:

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

[External ANT_SISO]

Startup after the EUT is energized

OPERATING BAND:	UNII Band 1
OPERATING FREQUENCY:	5,210,000,000 Hz
CHANNEL:	42
REFERENCE VOLTAGE:	12.0 VDC

Voltage	Power	Temp.	Frequency	Frequency
(%)	(VDC)	(°C)	(kHz)	Error (kHz)
100%	12	+20(Ref)	5210051.03	51.03
100%		-30	5210048.70	48.70
100%		-20	5210037.46	37.46
100%		-10	5210005.55	5.55
100%		0	5210063.02	63.02
100%		+10	5210090.63	90.63
100%		+30	5210069.66	69.66
100%		+40	5210031.48	31.48
100%		+50	5210037.29	37.29
Max	16.00	+20	5210078.72	78.72
Min	9.00	+20	5210062.82	62.82

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:	12.0 VDC

Voltage	Power	Temp.	Frequency	Frequency
(%)	(VDC)	(°C)	(kHz)	Error (kHz)
100%	12	+20(Ref)	5290002.65	2.65
100%		-30	5290003.54	3.54
100%		-20	5290097.59	97.59
100%		-10	5290024.33	24.33
100%		0	5290059.37	59.37
100%		+10	5290004.17	4.17
100%		+30	5290001.81	1.81
100%		+40	5290019.45	19.45
100%		+50	5290022.32	22.32
Max	16.00	+20	5210025.49	25.49
Min	9.00	+20	5210065.48	65.48

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:	12.0 VDC

Voltage	Power	Temp.	Frequency	Frequency
(%)	(VDC)	(°C)	(kHz)	Error (kHz)
100%	12	+20(Ref)	5530016.44	16.44
100%		-30	5530066.10	66.10
100%		-20	5530086.80	86.80
100%		-10	5530049.86	49.86
100%		0	5530079.20	79.20
100%		+10	5530058.41	58.41
100%		+30	5530049.11	49.11
100%		+40	5530050.03	50.03
100%		+50	5530067.75	67.75
Max	16.00	+20	5210039.55	39.55
Min	9.00	+20	5210068.45	68.45

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:	12.0 VDC

Voltage	Power	Temp.	Frequency	Frequency
(%)	(VDC)	(°C)	(kHz)	Error (kHz)
100%	12	+20(Ref)	5775079.63	79.63
100%		-30	5775024.66	24.66
100%		-20	5775082.63	82.63
100%		-10	5775087.27	87.27
100%		0	5775037.34	37.34
100%		+10	5775089.25	89.25
100%		+30	5775005.30	5.30
100%		+40	5775077.62	77.62
100%		+50	5775048.92	48.92
Max	16.00	+20	5210054.93	54.93
Min	9.00	+20	5210038.68	38.68

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:	12.0 VDC

Voltage	Power	Temp.	Frequency	Frequency
(%)	(VDC)	(°C)	(kHz)	Error (kHz)
100%	12	+20(Ref)	5210014.55	14.55
100%		-30	5210046.49	46.49
100%		-20	5210087.37	87.37
100%		-10	5210053.94	53.94
100%		0	5210071.07	71.07
100%		+10	5210075.59	75.59
100%		+30	5210001.97	1.97
100%		+40	5210082.63	82.63
100%		+50	5210070.25	70.25
Max	16.00	+20	5210027.74	27.74
Min	9.00	+20	5210049.34	49.34

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:	12.0 VDC

Voltage	Power	Temp.	Frequency	Frequency
(%)	(VDC)	(°C)	(kHz)	Error (kHz)
100%	12	+20(Ref)	5290076.61	76.61
100%		-30	5290093.74	93.74
100%		-20	5290030.34	30.34
100%		-10	5290054.30	54.30
100%		0	5290007.78	7.78
100%		+10	5290085.77	85.77
100%		+30	5290009.72	9.72
100%		+40	5290031.95	31.95
100%		+50	5290058.43	58.43
Max	16.00	+20	5210094.14	94.14
Min	9.00	+20	5210003.16	3.16

Note:

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

OPERATING BAND:	UNII Band 2C
OPERATING FREQUENCY:	5,530,000,000 Hz
CHANNEL:	106
REFERENCE VOLTAGE:	12.0 VDC

Voltage	Power	Temp.	Frequency	Frequency
(%)	(VDC)	(°C)	(kHz)	Error (kHz)
100%	12	+20(Ref)	5530099.40	99.40
100%		-30	5530068.07	68.07
100%		-20	5530090.90	90.90
100%		-10	5530012.66	12.66
100%		0	5530004.02	4.02
100%		+10	5530042.88	42.88
100%		+30	5530012.85	12.85
100%		+40	5530017.06	17.06
100%		+50	5530022.08	22.08
Max	16.00	+20	5210088.43	88.43
Min	9.00	+20	5210026.83	26.83

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 3
OPERATING FREQUENCY:	5,775,000,000 Hz
CHANNEL:	155
REFERENCE VOLTAGE:	12.0 VDC

Voltage	Power	Temp.	Frequency	Frequency
(%)	(VDC)	(°C)	(kHz)	Error (kHz)
100%	12	+20(Ref)	5775008.39	8.39
100%		-30	5775051.14	51.14
100%		-20	5775029.43	29.43
100%		-10	5775079.20	79.20
100%		0	5775030.57	30.57
100%		+10	5775096.26	96.26
100%		+30	5775043.06	43.06
100%		+40	5775013.91	13.91
100%		+50	5775095.72	95.72
Max	16.00	+20	5210048.19	48.19
Min	9.00	+20	5210014.69	14.69

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:	12.0 VDC

Voltage	Power	Temp.	Frequency	Frequency
(%)	(VDC)	(°C)	(kHz)	Error (kHz)
100%	12	+20(Ref)	5210079.70	79.70
100%		-30	5210072.54	72.54
100%		-20	5210076.28	76.28
100%		-10	5210046.53	46.53
100%		0	5210070.42	70.42
100%		+10	5210023.47	23.47
100%		+30	5210042.92	42.92
100%		+40	5210034.92	34.92
100%		+50	5210013.07	13.07
Max	16.00	+20	5210003.47	3.47
Min	9.00	+20	5210045.52	45.52

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:	12.0 VDC

Voltage	Power	Temp.	Frequency	Frequency
(%)	(VDC)	(°C)	(kHz)	Error (kHz)
100%	12	+20(Ref)	5290053.02	53.02
100%		-30	5290076.77	76.77
100%		-20	5290093.63	93.63
100%		-10	5290069.50	69.50
100%		0	5290032.06	32.06
100%		+10	5290066.85	66.85
100%		+30	5290067.44	67.44
100%		+40	5290070.89	70.89
100%		+50	5290013.75	13.75
Max	16.00	+20	5210065.31	65.31
Min	9.00	+20	5210038.96	38.96

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:	12.0 VDC

Voltage	Power	Temp.	Frequency	Frequency
(%)	(VDC)	(°C)	(kHz)	Error (kHz)
100%	12	+20(Ref)	5530099.13	99.13
100%		-30	5530010.94	10.94
100%		-20	5530052.95	52.95
100%		-10	5530082.45	82.45
100%		0	5530083.20	83.20
100%		+10	5530027.62	27.62
100%		+30	5530053.18	53.18
100%		+40	5530090.27	90.27
100%		+50	5530074.74	74.74
Max	16.00	+20	5210074.52	74.52
Min	9.00	+20	5210003.97	3.97

Note:

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

OPERATING BAND:	UNII Band 3
OPERATING FREQUENCY:	5,775,000,000 Hz
CHANNEL:	155
REFERENCE VOLTAGE:	12.0 VDC

Voltage	Power	Temp.	Frequency	Frequency
(%)	(VDC)	(°C)	(kHz)	Error (kHz)
100%	12	+20(Ref)	5775024.84	24.84
100%		-30	5775058.06	58.06
100%		-20	5775045.31	45.31
100%		-10	5775078.20	78.20
100%		0	5775098.37	98.37
100%		+10	5775070.31	70.31
100%		+30	5775024.69	24.69
100%		+40	5775015.92	15.92
100%		+50	5775035.88	35.88
Max	16.00	+20	5210054.57	54.57
Min	9.00	+20	5210013.95	13.95

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:	12.0 VDC

Voltage	Power	Temp.	Frequency	Frequency
(%)	(VDC)	(°C)	(kHz)	Error (kHz)
100%	12	+20(Ref)	5210078.15	78.15
100%		-30	5210075.41	75.41
100%		-20	5210008.74	8.74
100%		-10	5210052.74	52.74
100%		0	5210046.48	46.48
100%		+10	5210033.30	33.30
100%		+30	5210001.24	1.24
100%		+40	5210099.33	99.33
100%		+50	5210074.20	74.20
Max	16.00	+20	5210099.25	99.25
Min	9.00	+20	5210034.32	34.32

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.