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FCC UNII REPORT

Certification

Applicant Name:
SAMSUNG Electronics Co., Ltd.

Address:
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Date of Issue:
August 19, 2021

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

Report No.: HCT-RF-2108-FC009

FCC ID:	**A3LSMM526B**
APPLICANT:	**SAMSUNG Electronics Co., Ltd.**

Model:	SM-M526B/DS
EUT Type:	Mobile Phone
Modulation type	OFDM
FCC Classification:	Unlicensed National Information Infrastructure(NII)
FCC Rule Part(s):	Part 15.407

Engineering Statement:

The measurements shown in this report were made in accordance with the procedures indicated, and the emissions from this equipment were found to be within the limits applicable. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them. It is further stated that upon the basis of the measurements made, the equipment tested is capable of operation in accordance with the requirements of the FCC Rules under normal use and maintenance.

REVIEWED BY

Report prepared by : Woong Jin Kim
Engineer of Telecommunication Testing Center

Report approved by : Kwon Jeong
Manager of Telecommunication Testing Center

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

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

Version

TEST REPORT NO.	DATE	DESCRIPTION
HCT-RF-2108-FC009	August 19, 2021	- First Approval Report

Table of Contents

REVIEWED BY 2
1. GENERAL INFORMATION 5
EUT DESCRIPTION 5
2. MAXIMUM OUTPUT POWER 6
3. TEST METHODOLOGY 7
EUT CONFIGURATION 7
EUT EXERCISE 7
GENERAL TEST PROCEDURES 7
DESCRIPTION OF TEST MODES 7
4. INSTRUMENT CALIBRATION 8
5. FACILITIES AND ACCREDITATIONS 8
5.1 FACILITIES 8
5.2 EQUIPMENT 8
6. ANTENNA REQUIREMENTS 8
7. MEASUREMENT UNCERTAINTY 9
8. DESCRIPTION OF TESTS 10
9. SUMMARY OF TEST RESULTS 27
10. TEST RESULT 28
10.1 DUTY CYCLE 28
10.2 26 dB Bandwidth 31
10.3 6 dB BANDWIDTH 40
10.4 OUTPUT POWER MEASUREMENT 42
10.5 POWER SPECTRAL DENSITY 45
10.6 FREQUENCY STABILITY. 54
10.6.1 80 MHz BW 54
10.7 STRADDLE CHANNEL 70
10.7.1 26 dB Bandwidth 70
10.7.2 6 dB Bandwidth 73
10.7.3 Output Power 76
10.7.4 Power Spectral Density 79
10.8 RADIATED SPURIOUS EMISSIONS 82
10.9 RADIATED RESTRICTED BAND EDGE 91
10.10 POWERLINE CONDUCTED EMISSIONS 119
11. LIST OF TEST EQUIPMENT 123
12. ANNEX A_ TEST SETUP PHOTO 125

1. GENERAL INFORMATION

EUT DESCRIPTION

Model	SM-M526B/DS	
Additional Model	-	
EUT Type	Mobile Phone	
Power Supply	DC 3.86 V	
Modulation Type	OFDM : 802.11a, 802.11n, 802.11ac	
Frequency Range (MHz)	U-NII-1	20 MHz BW : 5180 - 5240 40 MHz BW : 5190 - 5230 80 MHz BW : 5210
	U-NII-2A	20 MHz BW : 5260 - 5320 40 MHz BW : 5270 - 5310 80 MHz BW : 5290
	U-NII-2C	20 MHz BW : 5500 - 5720 40 MHz BW : 5510 - 5710 80 MHz BW : 5530 – 5690
	U-NII-3	20 MHz BW : 5745 - 5825 40 MHz BW : 5755 - 5795 80 MHz BW : 5775
Straddle channel	Supported	
TDWR Band	Supported	
Dynamic Frequency Selection	Slave without radar detection	
Date(s) of Tests	July 20, 2021 ~ August 13, 2021	
Serial number	Radiated: RCR41328LB Conducted: R3CR41329HN	

2. MAXIMUM OUTPUT POWER

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

Band	Mode	Output Power	
		(dBm)	(W)
UNII1	802.11a	14.68	0.029
	802.11n (HT20)	14.88	0.031
	802.11n (HT40)	14.10	0.026
	802.11ac (VHT20)	14.71	0.030
	802.11ac (VHT40)	14.94	0.031
	802.11ac (VHT80)	12.91	0.020
UNII2A	802.11a	14.85	0.031
	802.11n (HT20)	14.82	0.030
	802.11n (HT40)	14.15	0.026
	802.11ac (VHT20)	14.88	0.031
	802.11ac (VHT40)	14.17	0.026
	802.11ac (VHT80)	12.86	0.019
UNII2C	802.11a	14.65	0.029
	802.11n (HT20)	14.46	0.028
	802.11n (HT40)	14.49	0.028
	802.11ac (VHT20)	14.56	0.029
	802.11ac (VHT40)	14.48	0.028
	802.11ac (VHT80)	13.51	0.022
UNII3	802.11a	14.55	0.029
	802.11n (HT20)	14.40	0.028
	802.11n (HT40)	14.97	0.031
	802.11ac (VHT20)	14.37	0.027
	802.11ac (VHT40)	14.82	0.030
	802.11ac (VHT80)	13.67	0.023

3. TEST METHODOLOGY

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

EUT CONFIGURATION

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

EUT EXERCISE

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

GENERAL TEST PROCEDURES

Conducted Emissions

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

Radiated Emissions

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

DESCRIPTION OF TEST MODES

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

4. INSTRUMENT CALIBRATION

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

5. FACILITIES AND ACCREDITATIONS

5.1 FACILITIES

The SAC(Semi-Anechoic Chamber) and conducted measurement facility used to collect the radiated data are located at the 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA. The site is constructed in conformance with the requirements of ANSI C63.4. (Version :2014) and CISPR Publication 22.
Detailed description of test facility was submitted to the Commission and accepted dated April 02, 2018 (Registration Number: KR0032).

5.2 EQUIPMENT

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

6. ANTENNA REQUIREMENTS

According to FCC 47 CFR §15.203, §15.407:

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

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

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

7. MEASUREMENT UNCERTAINTY

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

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

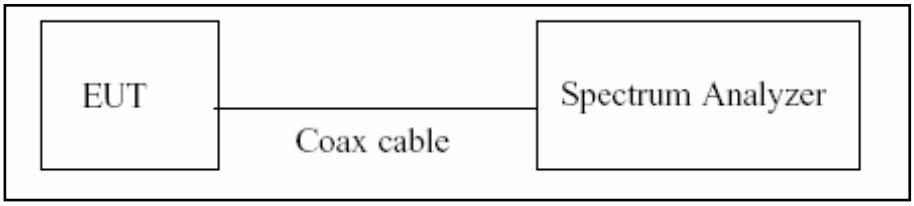
The measurement data shown herein meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Parameter	Expanded Uncertainty (dB)
Conducted Disturbance (150 kHz ~ 30 MHz)	1.82 (Confidence level about 95 %, k=2)
Radiated Disturbance (9 kHz ~ 30 MHz)	3.40 (Confidence level about 95 %, k=2)
Radiated Disturbance (30 MHz ~ 1 GHz)	4.80 (Confidence level about 95 %, k=2)
Radiated Disturbance (1 GHz ~ 18 GHz)	5.70 (Confidence level about 95 %, k=2)
Radiated Disturbance (18 GHz ~ 40 GHz)	5.05 (Confidence level about 95 %, k=2)

8. DESCRIPTION OF TESTS

8.1. Duty Cycle

Test Configuration



Test Procedure

The transmitter output is connected to the Spectrum Analyzer.

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

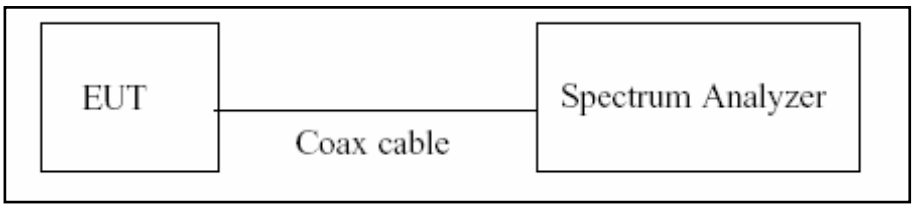
1. RBW = 8 MHz (the largest availble value)
2. VBW = 8 MHz (≥ RBW)
3. SPAN = 0 Hz
4. Detector = Peak
5. Number of points in sweep > 100
6. Trace mode = Clear write
7. Measure T_{total} and T_{on}
8. Calculate Duty Cycle = T_{on}/ T_{total} and Duty Cycle Factor = 10log(1/Duty Cycle)

8.2. 6 dB Bandwidth & 26 dB Bandwidth

Limit

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

Test Configuration



Test Procedure(26 dB Bandwidth)

The transmitter output is connected to the Spectrum Analyzer.

We tested according to Procedure C.1 in KDB 789033 D02 v02r01.

1. RBW = approximately 1 % of the emission bandwidth
2. VBW > RBW
3. Detector = Peak
4. Trace mode = max hold
5. Measure the maximum width of the emission that is 26 dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1 %.

Test Procedure (6 dB Bandwidth)

The transmitter output is connected to the Spectrum Analyzer.

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

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

Note:

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

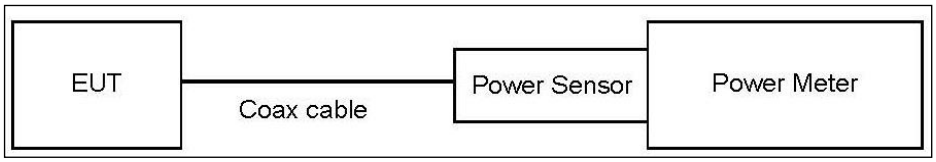
8.3. Output Power Measurement

Limit

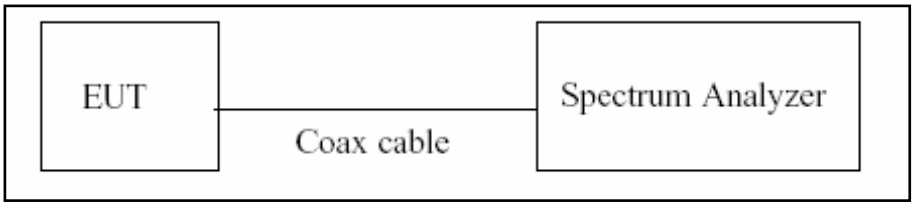
Band	Limit
UNII 1	- Master : Not exceed 1 W(=30 dBm) - Slave : Not exceed 250 mW(=23.98 dBm)
UNII 2A, 2C	Not exceed the lesser of 250 mW or 11 dBm + 10 log B, (where B is the 26 dB emission bandwidth in megahertz.)
UNII 3	Not exceed 1 W(=30 dBm)

Test Configuration

Power Meter



Spectrum Analyzer(Only Straddle Channel)



Test Procedure(Power Meter)

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

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

Test Procedure(Spectrum Analyzer)

The transmitter output is connected to the Spectrum Analyzer.

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

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

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

Sample Calculation

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

Note

1. Spectrum Measured Value 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
   Loss = Attenuator loss(10 dB) + Cable loss
3. Actual value of loss for the attenuator and cable combination is below table.

Band	Loss(dB)
UNII 1	10.73
UNII 2A	10.73
UNII 2C	10.73
UNII 3	10.73

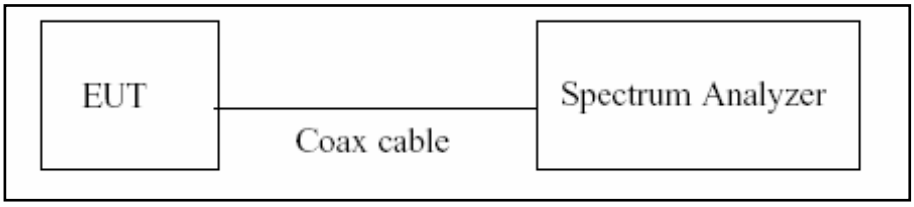
(Actual value of loss for the attenuator and cable combination)

8.4. Power Spectral Density

Limit

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

Test Configuration



Test Procedure

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

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

Sample Calculation

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

Note

1. Spectrum Measured Value 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
   Loss = Attenuator loss(10 dB) + Cable loss
3. Actual value of loss for the attenuator and cable combination is below table.

Band	Loss(dB)
UNII 1	10.73
UNII 2A	10.73
UNII 2C	10.73
UNII 3	10.73

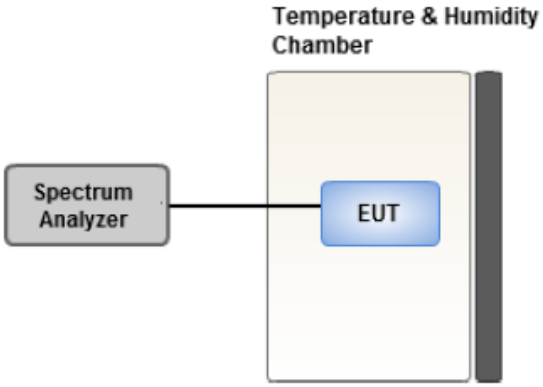
(Actual value of loss for the attenuator and cable combination)

8.5. Frequency Stability

Limit

Maintained within the band

Test Configuration



Test Procedure

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

8.6. AC Power line Conducted Emissions

Limit

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

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

[(a)]Decreases with the logarithm of the frequency.

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

Test Configuration

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

Test Procedure

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

Sample Calculation

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

8.7. Radiated Test

Limit

1. UNII 1: All emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of −27 dBm/MHz.

2. UNII 2A, 2C: All emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of −27 dBm/MHz.

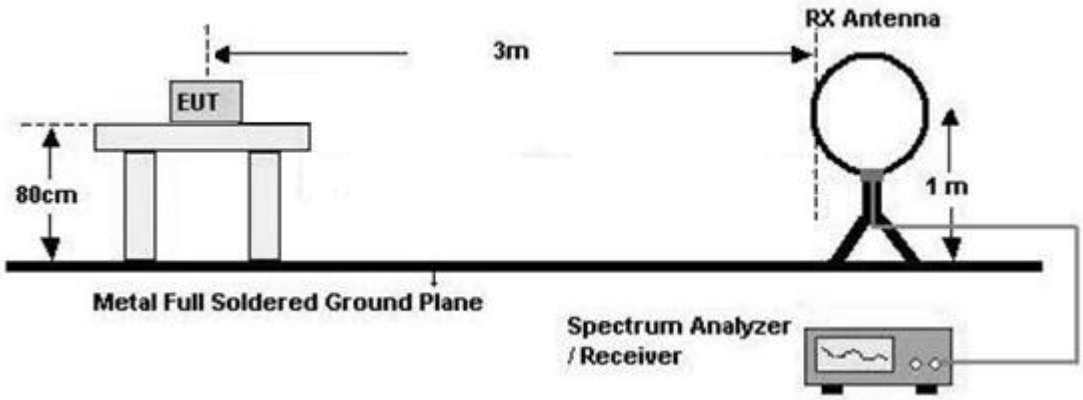
3. UNII 3: All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below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

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

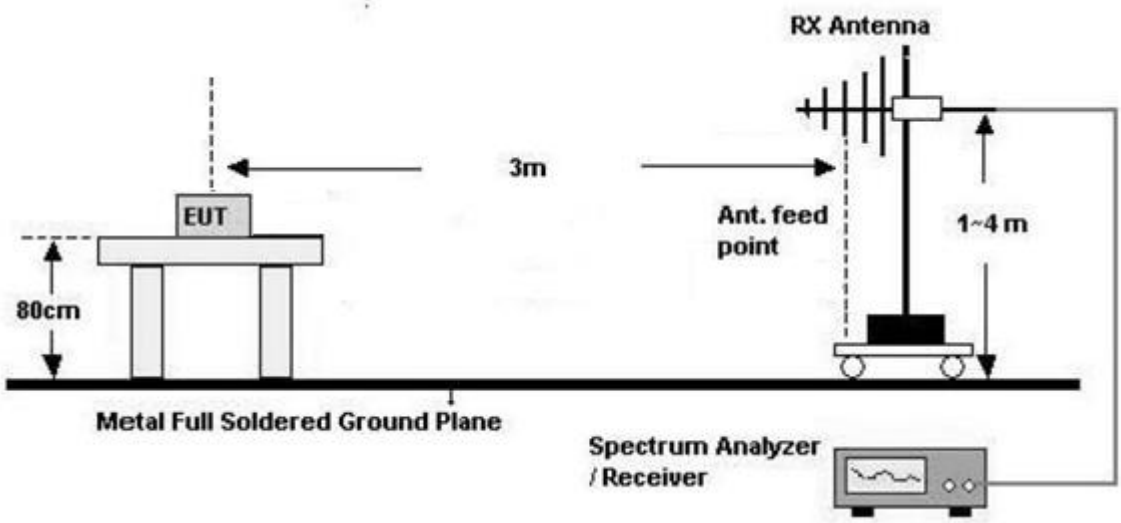
Frequency (MHz)	Field Strength (μV/m)	Measurement Distance (m)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Test Configuration

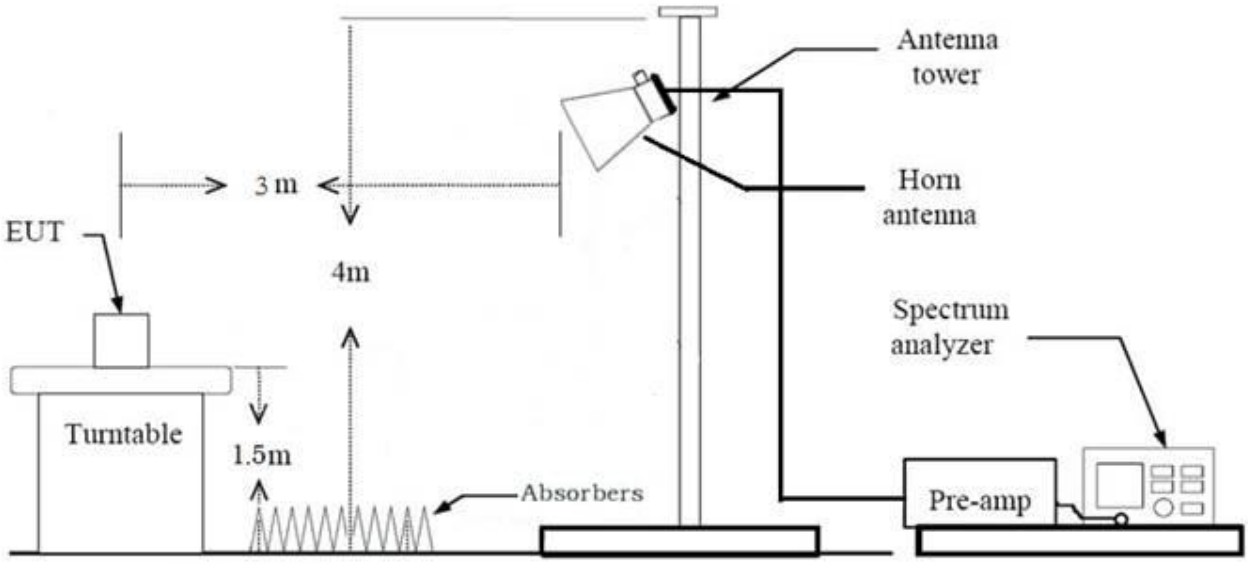
Below 30 MHz



30 MHz - 1 GHz



Above 1 GHz



Test Procedure of Radiated spurious emissions(Below 30 MHz)

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

KDB 414788 OFS and Chamber Correlation Justification

Base on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.
OFS and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

Test Procedure of Radiated spurious emissions(Below 1 GHz)

1. The EUT was placed on a non-conductive table located on semi-anechoic chamber.
2. The EUT is placed on a turntable, which is 0.8 m above ground plane.
3. The Hybrid antenna was placed at a location 3 m from the EUT, which is varied from 1 m to 4 m to find out the highest emissions.
4. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
5. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
6. Spectrum Setting
   (1) Measurement Type(Peak):
      - Measured Frequency Range : 30 MHz – 1 GHz
      - Detector = Peak
      - Trace = Maxhold
      - RBW = 100 kHz
      - VBW ≥ 3 x RBW
   (2) Measurement Type(Quasi-peak):
      - Measured Frequency Range : 30 MHz – 1 GHz
      - Detector = Quasi-Peak
      - RBW = 120 kHz

   ※In general, (1) is used mainly
7. Total = Measured Value + Antenna Factor(A.F) + Cable Loss(C.L)
8. Measurement value only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.

Test Procedure of Radiated spurious emissions (Above 1 GHz)

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

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

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

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

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

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

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

Test Procedure of Radiated Restricted Band Edge

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

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

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

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

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

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

9. Measured Frequency Range :
   - 4 500 MHz ~ 5 150 MHz
   - 5 350 MHz ~ 5 460 MHz
   - 5 460 MHz ~ 5 470 MHz
   - (75 MHz or more below the 5 725 MHz) ~ 5 725 MHz
   - 5 850 MHz ~ (75 MHz or more above the 5 850 MHz)
10. Distance extrapolation factor = 20log (test distance / specific distance) (dB)
11. Total = Measured Value + Antenna Factor(A.F) + Cable Loss(C.L) - Amp Gain(A.G) + Attenuator(ATT) + Distance Factor(D.F)

The actual setting value of VBW

Mode	Worst Data rate (Mbps)	Duty Cycle	Duty Cycle Factor (dB)	The actual setting value of VBW (Hz)
802.11a	6	0.938	0.277	1000
802.11n(HT20)	MCS0	0.925	0.339	1000
802.11n(HT40)	MCS0	0.865	0.629	2000
802.11ac(VHT20)	MCS0	0.925	0.339	1000
802.11ac(VHT40)	MCS0	0.866	0.624	2000
802.11ac(VHT80)	MCS0	0.765	1.161	5000

8.8. Worst case configuration and mode

Radiated test

1. All modes of operation were investigated and the worst case configuration results are reported.
   - Mode : Stand alone, Stand alone + External accessories(Earphone, etc)
   - Worstcase : Stand alone
2. EUT Axis
   - Radiated Spurious Emissions : Y
   - Radiated Restricted Band Edge : Y
3. 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 worst case modulation results are reported.
     (Worstcase : 802.11a_6 Mbps)
5. All position of loop antenna were investigated and the test result is a no critical peak found at all positions.
   - Position : Horizontal, Vertical, Parallel to the ground plane
6. We were performed the RSE test in condition of co-location. There has no significant emission raised.
   - WWAN+WLAN 5 GHz+BT

Radiated test(DBS)

1. All modes of operation were investigated and the worst case configuration results are reported.
   - Mode : Stand alone, Stand alone + External accessories(Earphone, etc)
   - Worstcase : Stand alone
2. EUT Axis
   - Radiated Spurious Emissions : Y
3. The following tables show the worst case configurations determined during testing.

Description	Bluetooth Emission	5 GHz Emission
Antenna	WIFI/BT	WIFI/BT
Channel	0	36
Data Rate	1 Mbps	6 Mbps
Mode	GFSK : DH5	802.11a

AC Power line Conducted Emissions

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

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
26 dB 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),(2),(3)	< 250 mW(5150-5250 MHz) < 250 mW or 11+10log$_{10}$ (BW) dBm (5250-5350 MHz) < 250 mW or 11+10log$_{10}$ (BW) dBm (5470-5725 MHz) <1 W(5725-5850 MHz)		PASS
Maximum Power Spectral Density	§15.407(a)(1),(2),(3)	<11 dBm/ MHz (5150-5250 MHz) <11 dBm/ MHz (5250-5350 MHz) <11 dBm/ MHz (5470-5725 MHz) <30 dBm/500 kHz(5725-5850 MHz)		PASS
Frequency Stability	§15.407(g) §2.1055	Maintained within the band		PASS
AC Conducted Emissions 150 kHz-30 MHz	15.207 15.407(b)(8)	<FCC 15.207 limits		PASS
Undesirable Emissions	§15.407(b) (1),(2),(3),(4)	<-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)(9),(10)	Emissions in restricted bands must meet the radiated limits detailed in 15.209		PASS

10. TEST RESULT

10.1 DUTY CYCLE

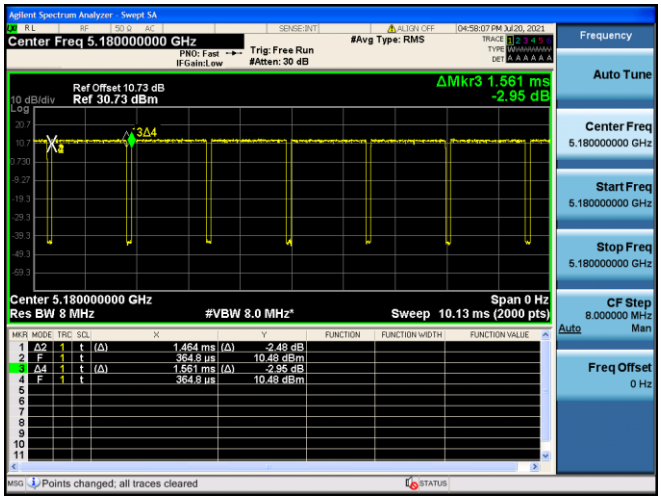
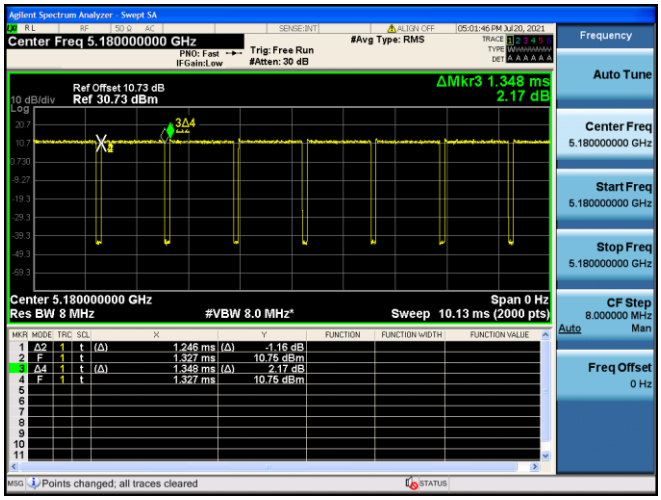
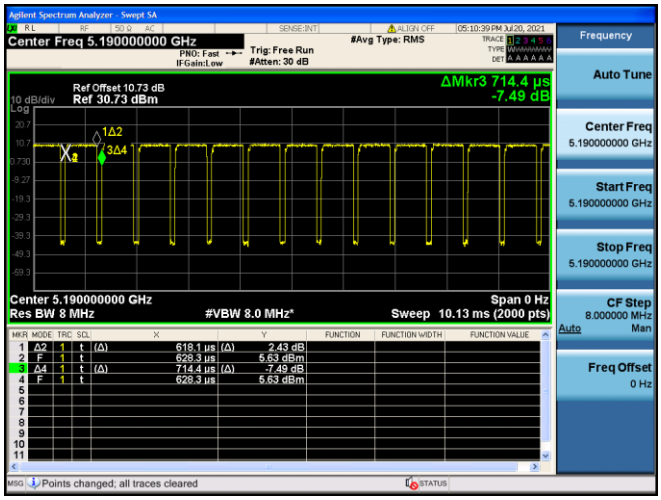
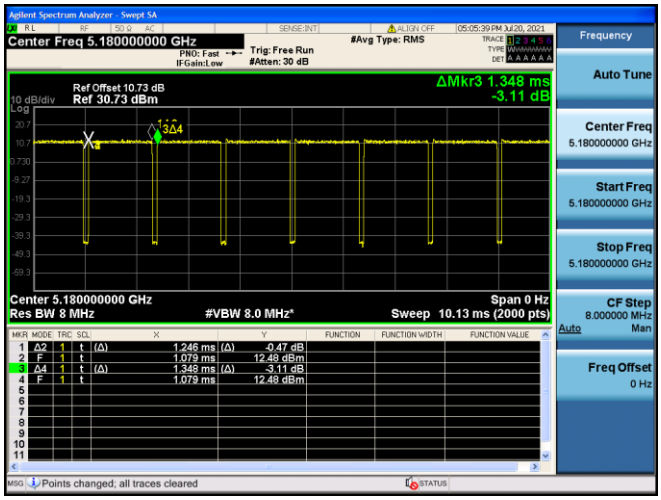
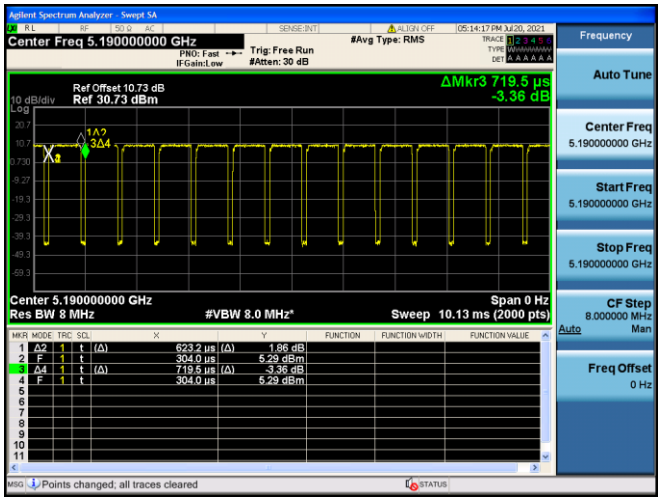
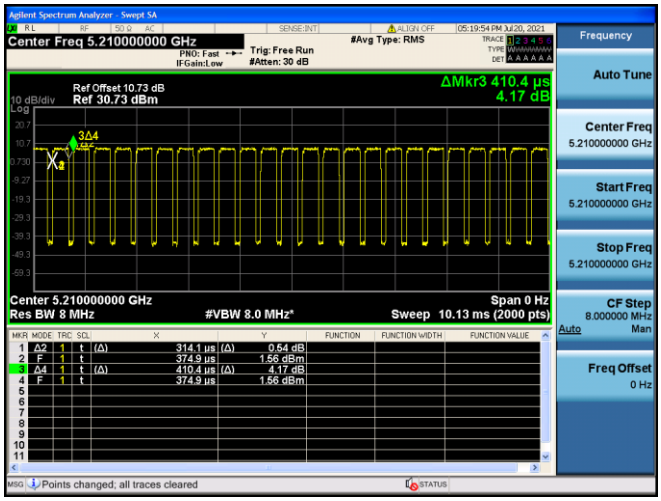
Mode	Data Rate (Mbps)	T_{on} (ms)	T_{total} (ms)	Duty Cycle	Duty Cycle Factor (dB)
802.11a	6	1.464	1.561	0.938	0.277
	9	0.983	1.084	0.907	0.426
	12	0.745	0.841	0.886	0.528
	18	0.502	0.603	0.832	0.799
	24	0.385	0.481	0.800	0.969
	36	0.263	0.365	0.722	1.413
	48	0.203	0.304	0.667	1.761
	54	0.182	0.279	0.655	1.841

Mode	MCS Index	T_{on} (ms)	T_{total} (ms)	Duty Cycle	Duty Cycle Factor (dB)
802.11n (HT20)	0	1.246	1.348	0.925	0.339
	1	0.649	0.745	0.871	0.601
	2	0.441	0.537	0.821	0.858
	3	0.339	0.436	0.779	1.084
	4	0.243	0.339	0.716	1.448
	5	0.193	0.289	0.667	1.761
	6	0.172	0.269	0.642	1.928
	7	0.157	0.258	0.608	2.162
802.11n (HT40)	0	0.618	0.714	0.865	0.629
	1	0.324	0.426	0.762	1.181
	2	0.233	0.329	0.708	1.502
	3	0.182	0.279	0.655	1.841
	4	0.132	0.233	0.565	2.478
	5	0.111	0.208	0.537	2.704
	6	0.106	0.203	0.525	2.798
	7	0.096	0.198	0.487	3.123

Mode	MCS Index	T_{on} (ms)	T_{total} (ms)	Duty Cycle	Duty Cycle Factor (dB)
802.11ac (VHT20)	0	1.246	1.348	0.925	0.339
	1	0.643	0.745	0.864	0.635
	2	0.441	0.542	0.813	0.899
	3	0.345	0.441	0.782	1.070
	4	0.243	0.339	0.716	1.448
	5	0.193	0.289	0.667	1.761
	6	0.177	0.274	0.648	1.883
	7	0.167	0.263	0.635	1.975
	8	0.147	0.243	0.604	2.188
802.11ac (VHT40)	0	0.623	0.720	0.866	0.624
	1	0.334	0.431	0.776	1.099
	2	0.238	0.334	0.712	1.474
	3	0.187	0.284	0.661	1.800
	4	0.142	0.238	0.596	2.249
	5	0.117	0.213	0.548	2.615
	6	0.106	0.203	0.525	2.798
	7	0.096	0.198	0.487	3.123
	8	0.091	0.187	0.486	3.129
	9	0.086	0.182	0.472	3.259
802.11ac (VHT80)	0	0.314	0.410	0.765	1.161
	1	0.172	0.269	0.642	1.928
	2	0.132	0.228	0.578	2.382
	3	0.111	0.208	0.537	2.704
	4	0.091	0.187	0.486	3.129
	5	0.076	0.172	0.441	3.554
	6	0.076	0.172	0.441	3.554
	7	0.071	0.167	0.424	3.724
	8	0.066	0.162	0.406	3.912
	9	0.066	0.162	0.406	3.912

Note:

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

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

10.2 26 dB Bandwidth

Straddle channel data in the table below are for reporting purposes only.

Straddle channel data were added in section 10.7.1.

802.11a Mode		26 dB Bandwidth	99 % bandwidth
Frequency [MHz]	Channel No.	[MHz]	[MHz]
5180	36	18.39	16.281
5200	40	19.29	16.302
5240	48	18.75	16.283
5260	52	18.42	16.292
5300	60	18.18	16.274
5320	64	18.46	16.263
5500	100	18.32	16.262
5600	120	18.46	16.263
5720	144	18.47	16.283
5745	149	18.41	16.277
5785	157	18.67	16.276
5825	165	19.47	16.281

802.11n(HT20) Mode		26 dB Bandwidth	99 % bandwidth
Frequency [MHz]	Channel No.	[MHz]	[MHz]
5180	36	19.64	17.487
5200	40	20.23	17.506
5240	48	20.25	17.481
5260	52	19.28	17.468
5300	60	19.43	17.486
5320	64	19.52	17.496
5500	100	19.64	17.489
5600	120	19.86	17.484
5720	144	19.62	17.496
5745	149	19.47	17.485
5785	157	19.82	17.467
5825	165	19.72	17.487

802.11n(HT40) Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5190	38	39.73	35.867
5230	46	39.28	35.896
5270	54	39.25	35.846
5310	62	39.70	35.888
5510	102	39.22	35.830
5590	118	39.30	35.859
5710	142	39.21	35.876
5755	151	39.26	35.828
5795	159	39.26	35.828

802.11ac(VHT20) Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5180	36	20.16	17.518
5200	40	19.61	17.500
5240	48	19.64	17.496
5260	52	19.78	17.449
5300	60	19.21	17.465
5320	64	19.50	17.504
5500	100	19.82	17.506
5600	120	19.42	17.458
5720	144	19.76	17.482
5745	149	19.55	17.495
5785	157	19.80	17.456
5825	165	19.76	17.498

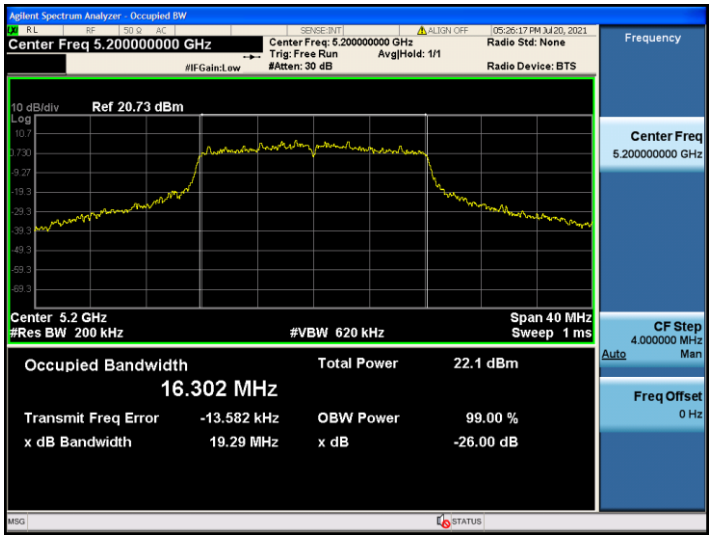
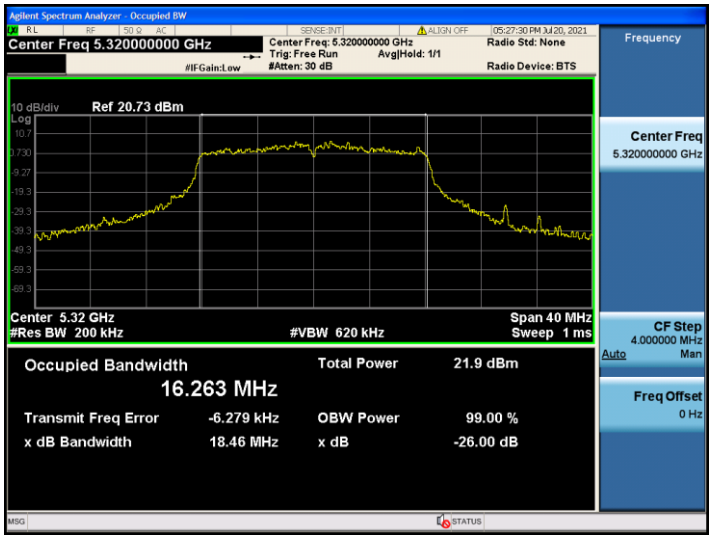
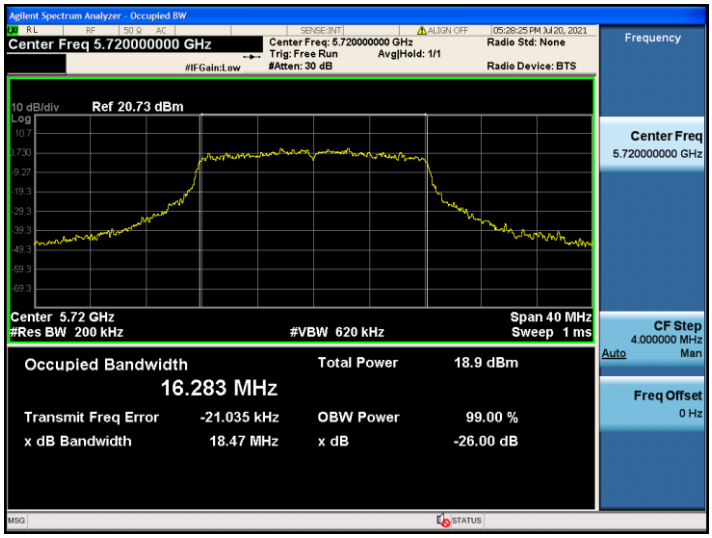
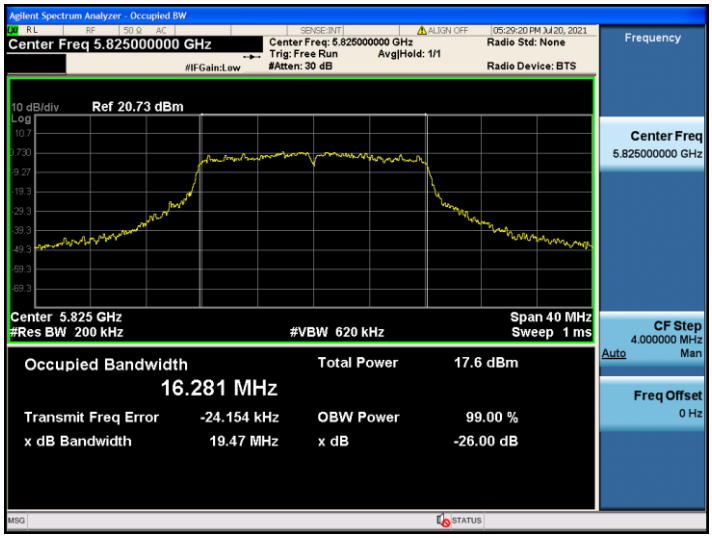
802.11ac(VHT40) Mode		26 dB Bandwidth	99 % bandwidth
Frequency [MHz]	Channel No.	[MHz]	[MHz]
5190	38	39.34	35.897
5230	46	39.86	35.924
5270	54	39.44	35.859
5310	62	39.93	35.894
5510	102	39.27	35.870
5590	118	39.15	35.826
5710	142	39.50	35.902
5755	151	39.36	35.843
5795	159	39.38	35.901

802.11ac(VHT80) Mode		26 dB Bandwidth	99 % bandwidth
Frequency [MHz]	Channel No.	[MHz]	[MHz]
5210	42	80.38	74.956
5290	58	79.86	74.993
5530	106	79.86	75.037
5610	122	79.91	75.023
5690	138	80.49	74.978
5775	155	79.76	75.000

▣ Test Plots(802.11a)

Note:

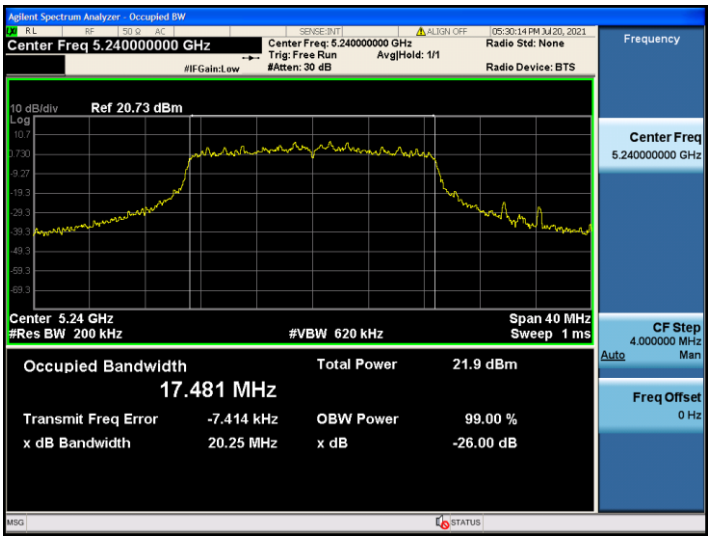
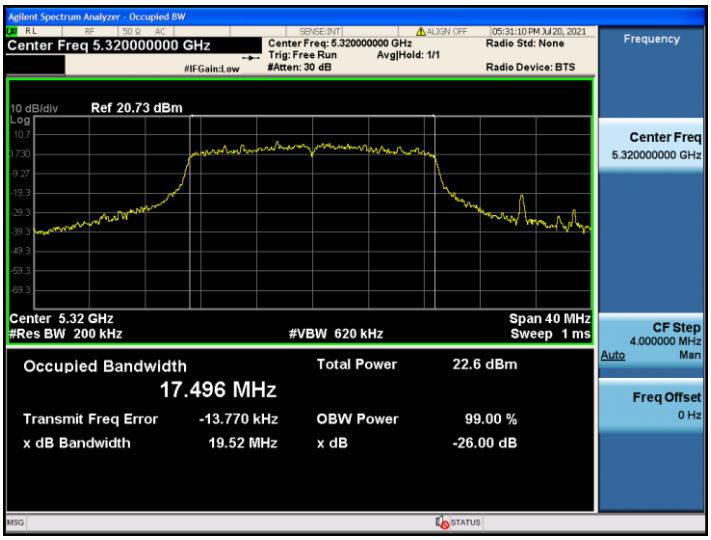
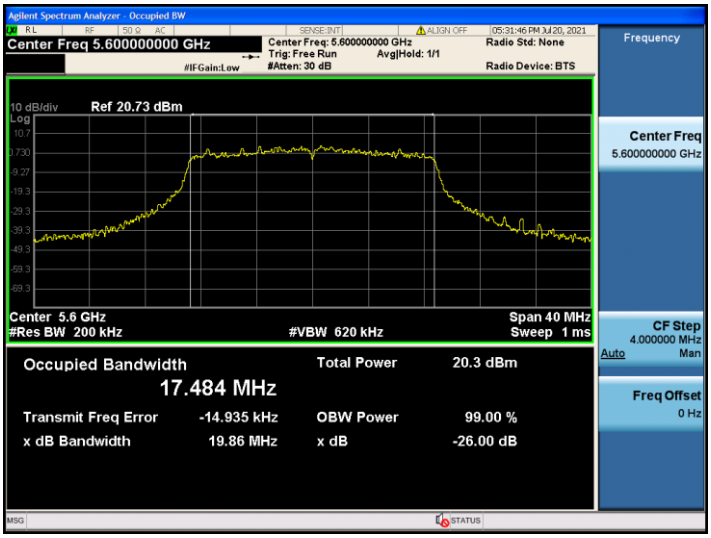
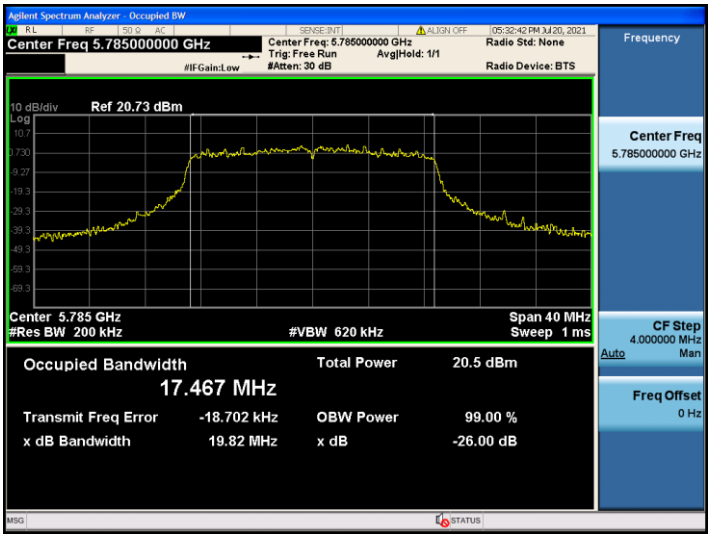
In order to simplify the report, attached plots were only the most wide channel.

802.11a UNII 1 BAND 26 dB Bandwidth (CH 40)	802.11a UNII 2A BAND 26 dB Bandwidth (CH 64)
	
802.11a UNII 2C BAND 26 dB Bandwidth (CH 144)	**802.11a UNII 3 BAND 26 dB Bandwidth (CH 165)**
	

▣ Test Plots(802.11n(HT20))

Note:

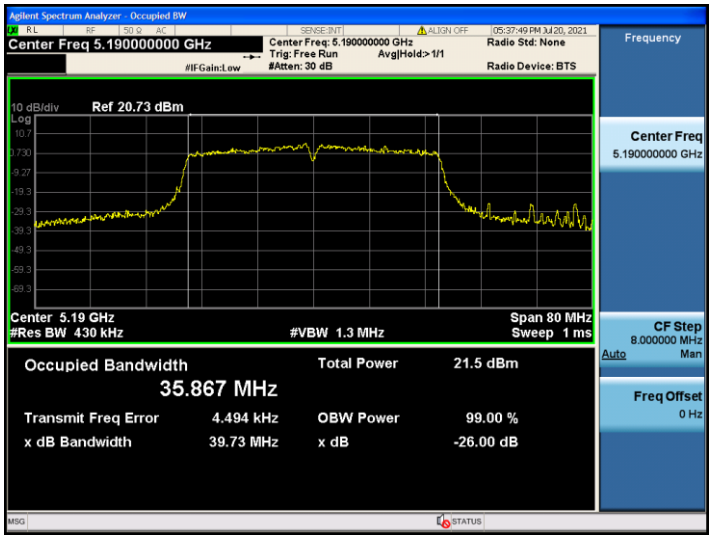
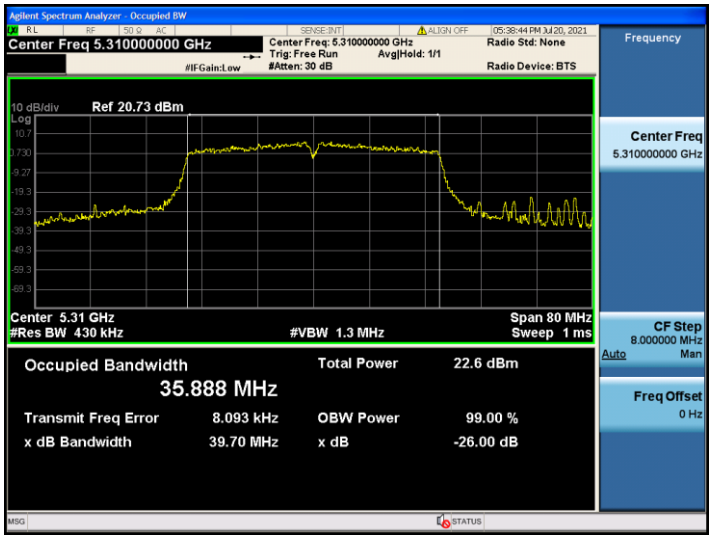
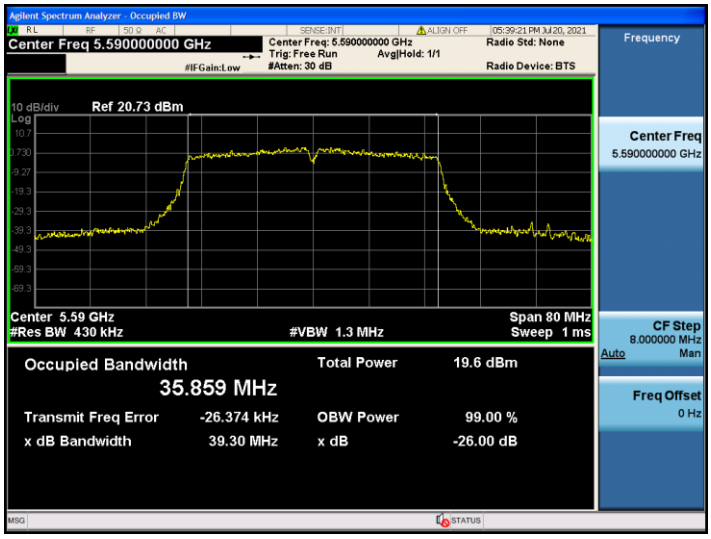
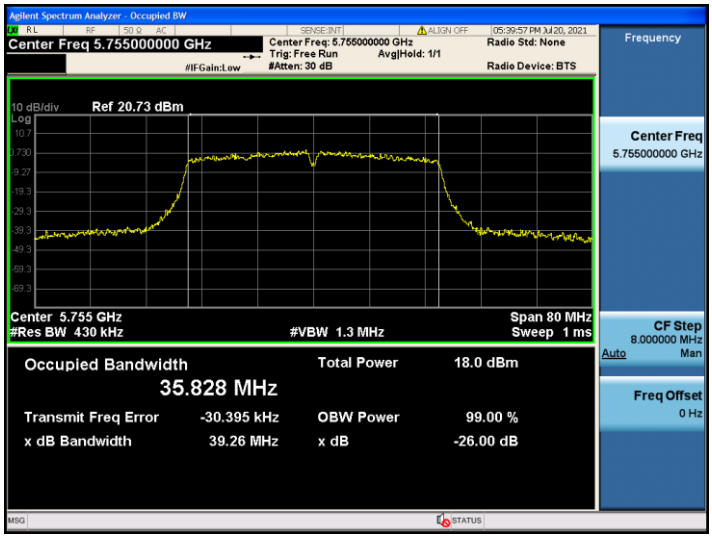
In order to simplify the report, attached plots were only the most wide channel.

802.11n_HT20 UNII 1 BAND 26 dB Bandwidth(CH 48)	802.11n_HT20 UNII 2A BAND 26 dB Bandwidth(CH 64)
	
802.11n_HT20 UNII 2C BAND 26 dB Bandwidth(CH 120)	**802.11n_HT20 UNII 3 BAND 26 dB Bandwidth(CH 157)**
	

▣ Test Plots(802.11n(HT40))

Note:

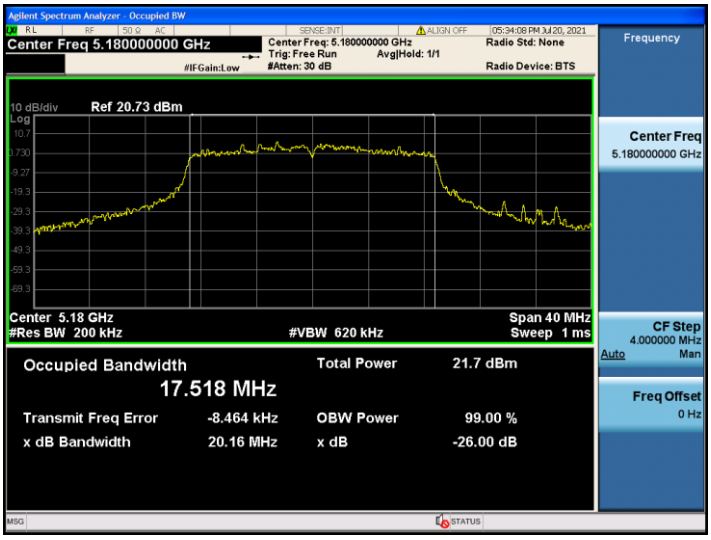
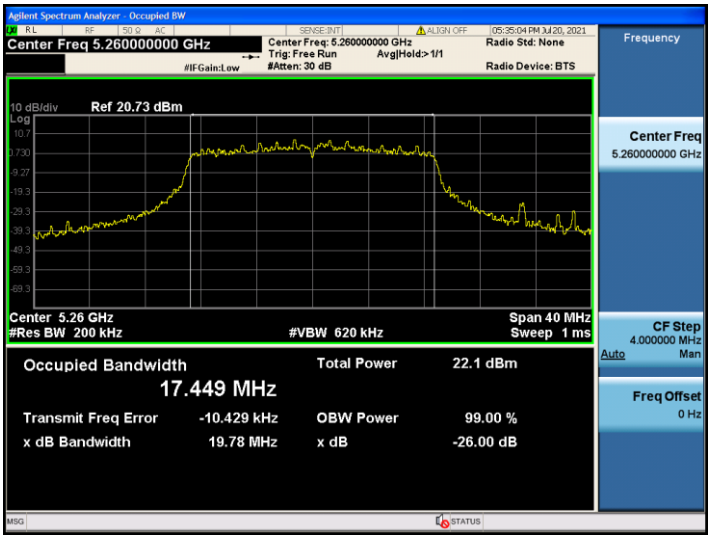
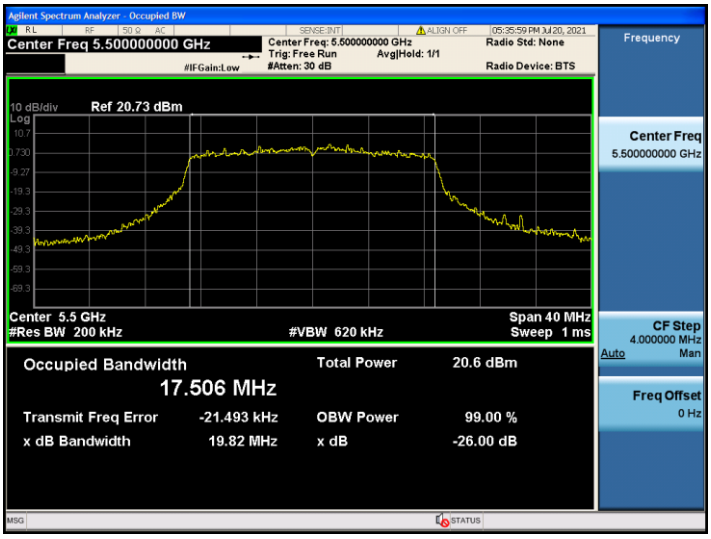
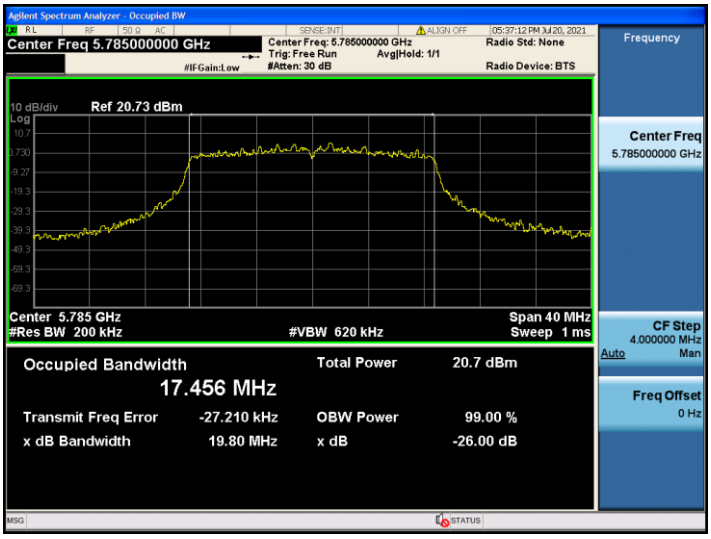
In order to simplify the report, attached plots were only the most wide channel.

802.11n_HT40 UNII 1 BAND 26 dB Bandwidth(CH 38)	802.11n_HT40 UNII 2A BAND 26 dB Bandwidth (CH 62)
	
802.11n_HT40 UNII 2C BAND 26 dB Bandwidth(CH 118)	**802.11n_HT40 UNII 3 BAND 26 dB Bandwidth (CH 151)**
	

▣ Test Plots(802.11ac(VHT20))

Note:

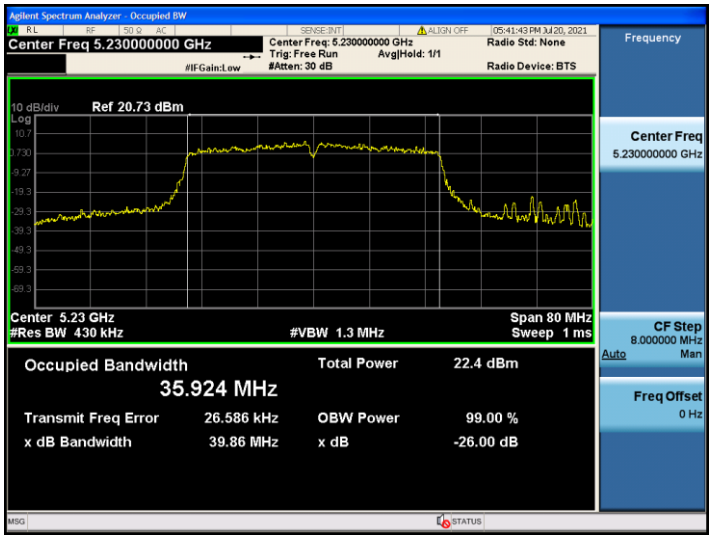
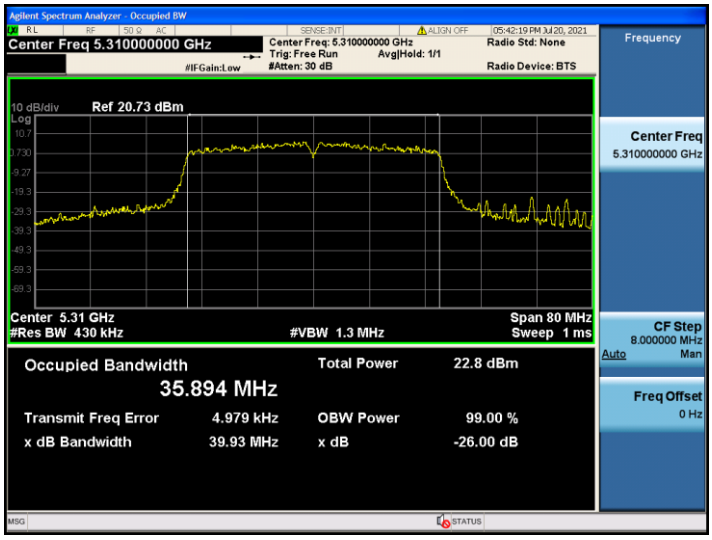
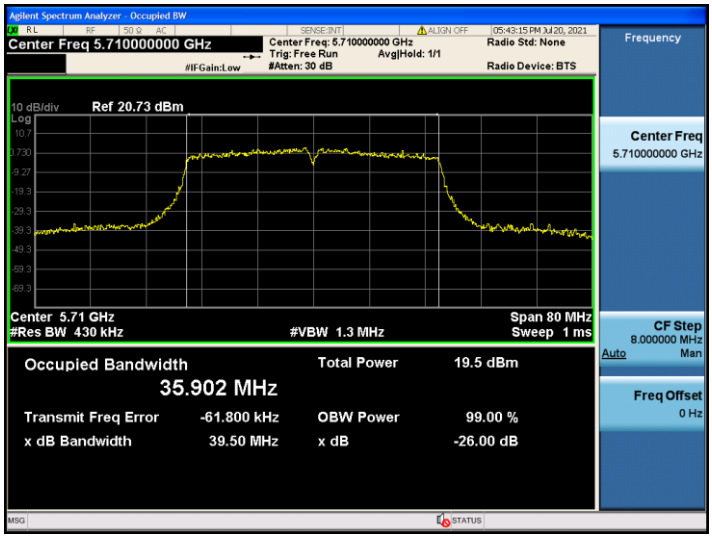
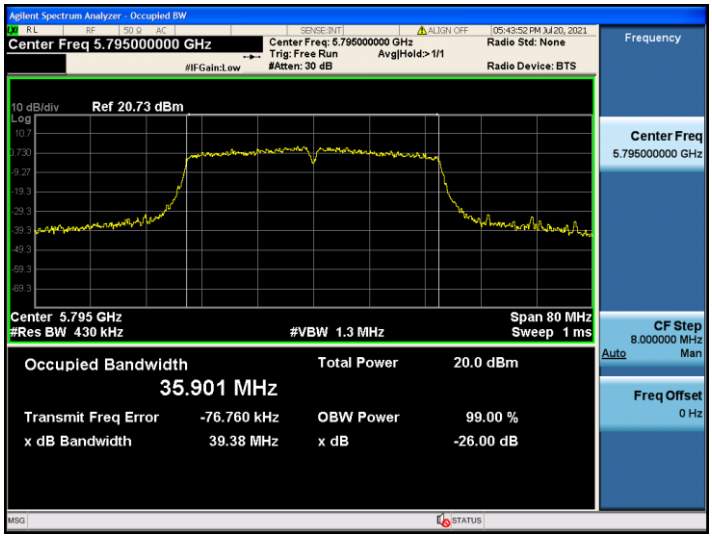
In order to simplify the report, attached plots were only the most wide channel.

802.11ac_VHT20 UNII 1 BAND 26 dB Bandwidth(CH 36)	802.11ac_VHT20 UNII 2A BAND 26 dB Bandwidth(CH 52)
	
802.11ac_VHT20 UNII 2C BAND 26 dB Bandwidth(CH 100)	**802.11ac_VHT20 UNII 3 BAND 26 dB Bandwidth(CH 157)**
	

▣ Test Plots(802.11ac(VHT40))

Note:

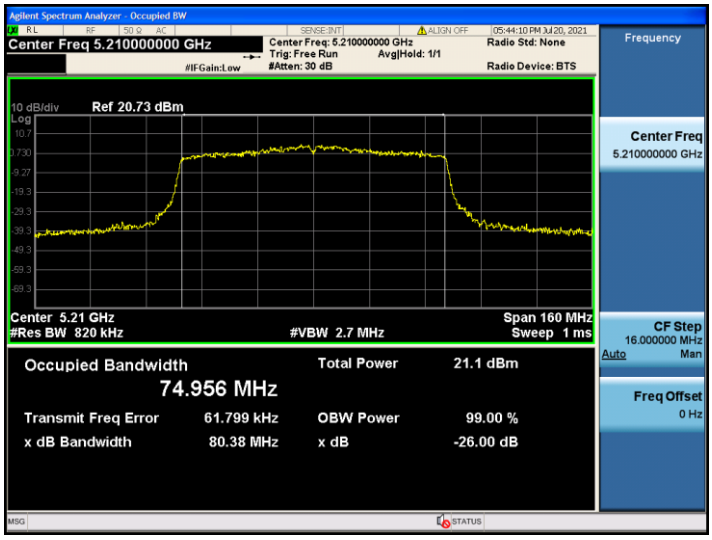
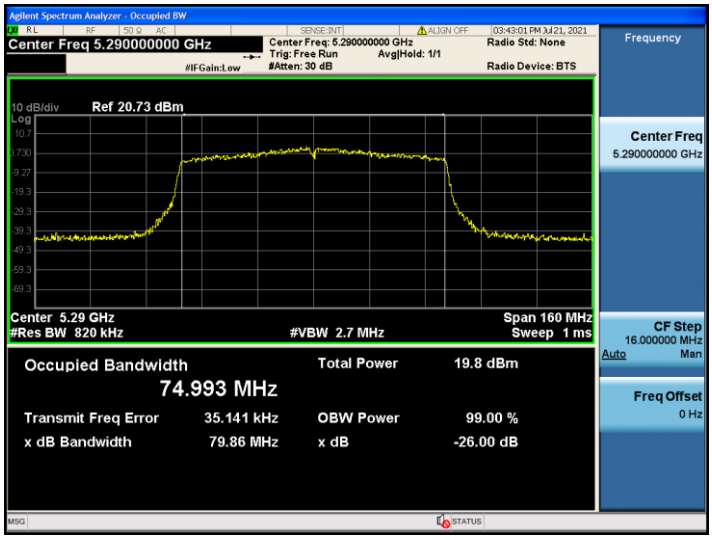
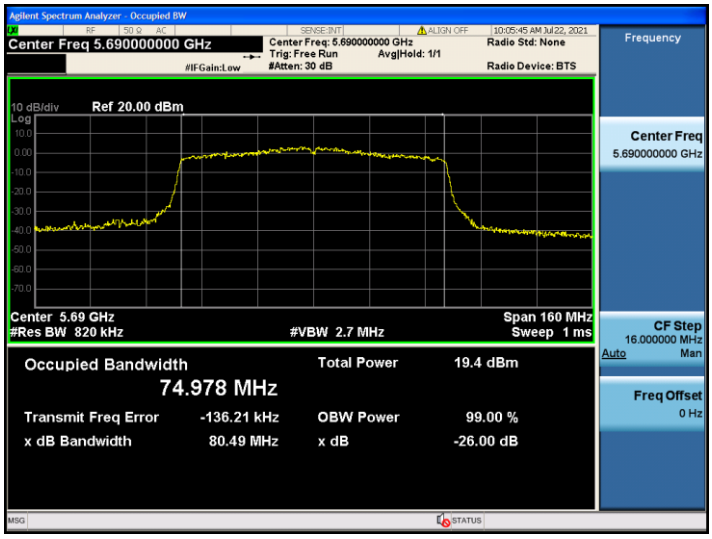
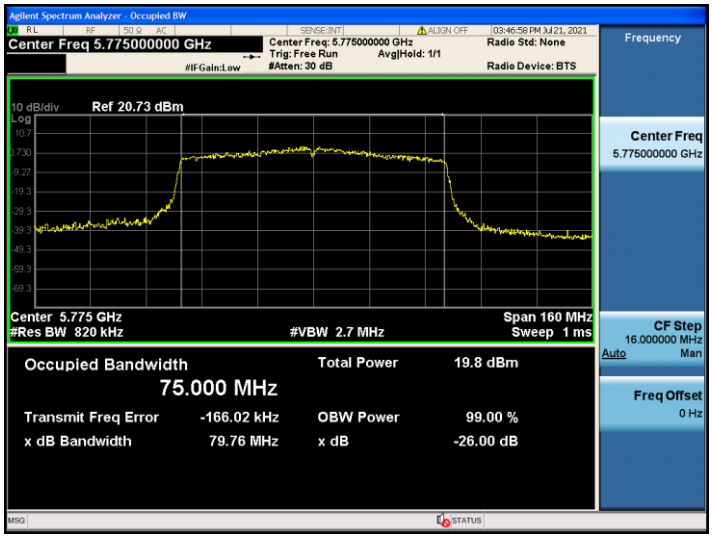
In order to simplify the report, attached plots were only the most wide channel.

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

▣ Test Plots(802.11ac(VHT80))

Note:

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

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

10.3 6 dB BANDWIDTH

802.11a Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	14.36	> 0.5	Pass
5785	157	15.17	> 0.5	Pass
5825	165	15.15	> 0.5	Pass

802.11n(HT20) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	15.12	> 0.5	Pass
5785	157	15.14	> 0.5	Pass
5825	165	15.00	> 0.5	Pass

802.11n(HT40) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5755	151	35.20	> 0.5	Pass
5795	159	35.15	> 0.5	Pass

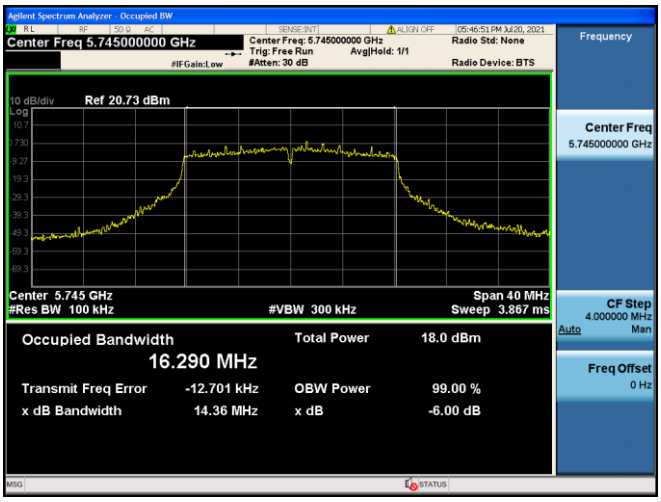
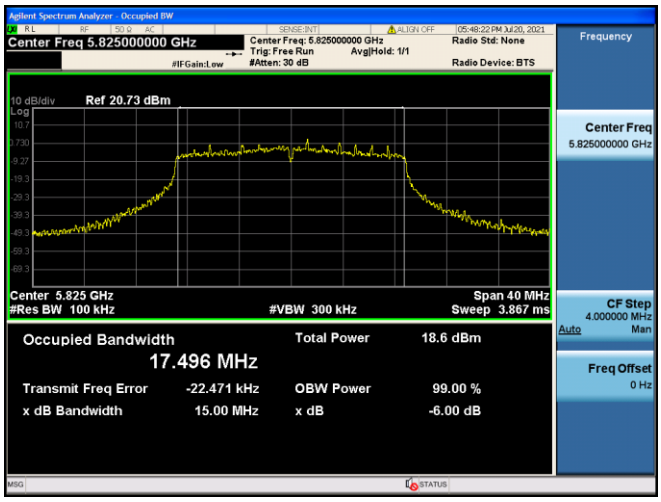
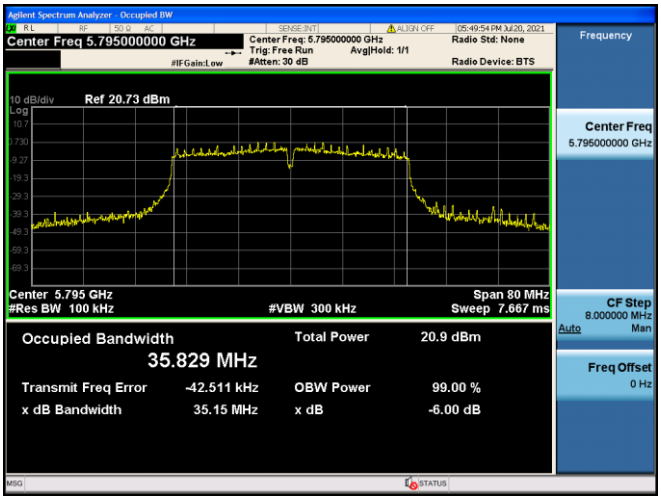
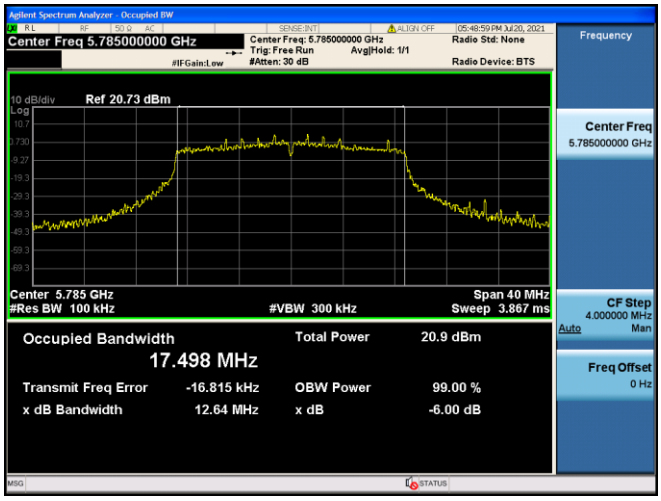
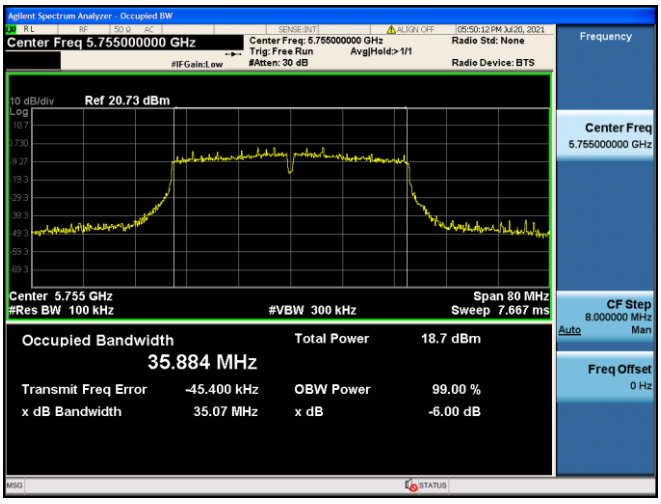
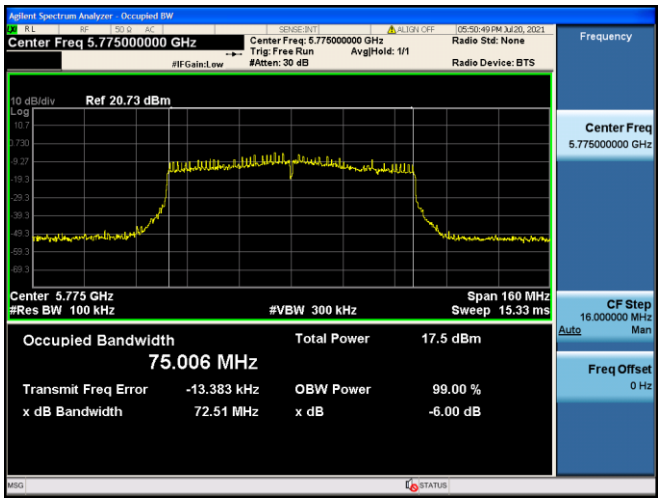
802.11ac(VHT20) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	13.83	> 0.5	Pass
5785	157	12.64	> 0.5	Pass
5825	165	13.86	> 0.5	Pass

802.11ac(VHT40) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5755	151	35.07	> 0.5	Pass
5795	159	35.11	> 0.5	Pass

802.11ac(VHT80) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5775	155	72.51	> 0.5	Pass

▣ Test Plots

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

802.11a (CH.149)	802.11n(HT20) (CH.165)
	
802.11n(HT40) (CH.159)	**802.11ac(VHT20) (CH.157)**
	
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.

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	15	13.88	0.799	14.68	23.98	18 M
5200	40	14	13.73	0.799	14.53	23.98	18 M
5240	48	15	13.85	0.799	14.65	23.98	18 M
5260	52	15	13.90	0.799	14.70	23.65	18 M
5300	60	14	14.05	0.799	14.85	23.60	18 M
5320	64	14	13.60	0.799	14.40	23.66	18 M
5500	100	15	13.17	0.799	13.97	23.63	18 M
5600	120	16	13.67	0.799	14.47	23.66	18 M
5720	144	17	13.85	0.799	14.65	23.67	18 M
5745	149	18	13.51	0.799	14.31	30.00	18 M
5785	157	16	13.75	0.799	14.55	30.00	18 M
5825	165	18	13.50	0.799	14.30	30.00	18 M

802.11n(20 MHz) 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	15	13.43	1.448	14.88	23.98	MCS4
5200	40	14	13.31	1.448	14.76	23.98	MCS4
5240	48	15	13.42	1.448	14.87	23.98	MCS4
5260	52	15	13.33	1.448	14.78	23.85	MCS4
5300	60	14	13.38	1.448	14.82	23.88	MCS4
5320	64	14	12.94	1.448	14.39	23.91	MCS4
5500	100	15	12.26	1.448	13.71	23.93	MCS4
5600	120	16	12.78	1.448	14.23	23.98	MCS4
5720	144	17	13.01	1.448	14.46	23.93	MCS4
5745	149	18	12.75	1.448	14.20	30.00	MCS4
5785	157	16	12.95	1.448	14.40	30.00	MCS4
5825	165	18	12.77	1.448	14.22	30.00	MCS4

802.11n(40 MHz) 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	14	12.92	1.181	14.10	23.98	MCS1
5230	46	13	12.64	1.181	13.82	23.98	MCS1
5270	54	14	12.97	1.181	14.15	23.98	MCS1
5310	62	13	12.97	1.181	14.15	23.98	MCS1
5510	102	14	12.42	1.181	13.60	23.98	MCS1
5590	118	16	13.31	1.181	14.49	23.98	MCS1
5710	142	16	13.07	1.181	14.25	23.98	MCS1
5755	151	17	12.66	1.181	13.84	30.00	MCS1
5795	159	16	13.79	1.181	14.97	30.00	MCS1

802.11ac(20 MHz) 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	15	12.82	1.883	14.71	23.98	MCS6
5200	40	14	12.65	1.883	14.53	23.98	MCS6
5240	48	15	12.73	1.883	14.61	23.98	MCS6
5260	52	15	12.82	1.883	14.71	23.96	MCS6
5300	60	14	13.00	1.883	14.88	23.83	MCS6
5320	64	14	12.47	1.883	14.35	23.90	MCS6
5500	100	15	11.87	1.883	13.76	23.97	MCS6
5600	120	16	12.32	1.883	14.20	23.88	MCS6
5720	144	17	12.68	1.883	14.56	23.96	MCS6
5745	149	18	12.35	1.883	14.23	30.00	MCS6
5785	157	16	12.49	1.883	14.37	30.00	MCS6
5825	165	18	12.25	1.883	14.13	30.00	MCS6

802.11ac(40 MHz) 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	14	12.67	1.099	13.77	23.98	MCS1
5230	46	14	13.84	1.099	14.94	23.98	MCS1
5270	54	14	13.05	1.099	14.15	23.98	MCS1
5310	62	13	13.07	1.099	14.17	23.98	MCS1
5510	102	14	12.44	1.099	13.54	23.98	MCS1
5590	118	16	13.38	1.099	14.48	23.98	MCS1
5710	142	16	13.12	1.099	14.22	23.98	MCS1
5755	151	17	12.66	1.099	13.76	30.00	MCS1
5795	159	16	13.73	1.099	14.82	30.00	MCS1

802.11ac(80 MHz) 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	12	10.98	1.928	12.91	23.98	MCS1
5290	58	12	10.93	1.928	12.86	23.98	MCS1
5530	106	13	10.38	1.928	12.31	23.98	MCS1
5610	122	15	11.58	1.928	13.51	23.98	MCS1
5690	138	16	11.21	1.928	13.13	23.98	MCS1
5775	155	17	11.74	1.928	13.67	30.00	MCS1

10.5 POWER SPECTRAL DENSITY

802.11a Mode		Measured PSD [dBm]	Duty Cycle Factor [dB]	Total PSD [dBm]	Worstcase Datarate [Mbps]	Limit
Frequency [MHz]	Channel No.					
5180	36	4.291	0.799	5.090	18 M	11 dBm/MHz
5200	40	4.123	0.799	4.922	18 M	
5240	48	3.965	0.799	4.764	18 M	
5260	52	4.009	0.799	4.808	18 M	
5300	60	4.599	0.799	5.398	18 M	
5320	64	4.019	0.799	4.818	18 M	
5500	100	3.456	0.799	4.255	18 M	
5600	120	3.927	0.799	4.726	18 M	
5720	144	3.803	0.799	4.602	18 M	
5745	149	1.165	0.799	1.964	18 M	30 dBm/500 kHz
5785	157	1.547	0.799	2.346	18 M	
5825	165	0.927	0.799	1.726	18 M	

802.11n(20 MHz) Mode		Measured PSD [dBm]	Duty Cycle Factor [dB]	Total PSD [dBm]	Worstcase MCS Index	Limit
Frequency [MHz]	Channel No.					
5180	36	1.978	1.448	3.426	MCS4	11 dBm/MHz
5200	40	2.020	1.448	3.468	MCS4	
5240	48	2.094	1.448	3.542	MCS4	
5260	52	2.262	1.448	3.710	MCS4	
5300	60	1.968	1.448	3.416	MCS4	
5320	64	1.599	1.448	3.047	MCS4	
5500	100	1.241	1.448	2.689	MCS4	
5600	120	1.362	1.448	2.810	MCS4	
5720	144	1.755	1.448	3.203	MCS4	
5745	149	-0.949	1.448	0.499	MCS4	30 dBm/500 kHz
5785	157	-0.969	1.448	0.479	MCS4	
5825	165	-0.973	1.448	0.475	MCS4	

802.11n(40 MHz) Mode		Measured PSD [dBm]	Duty Cycle Factor [dB]	Total PSD [dBm]	Worstcase MCS Index	Limit
Frequency [MHz]	Channel No.					
5190	38	-0.156	1.181	1.025	MCS1	11 dBm/MHz
5230	46	-0.228	1.181	0.953	MCS1	
5270	54	0.004	1.181	1.185	MCS1	
5310	62	-0.048	1.181	1.133	MCS1	
5510	102	-1.150	1.181	0.031	MCS1	
5590	118	0.310	1.181	1.491	MCS1	
5710	142	-0.002	1.181	1.179	MCS1	
5755	151	-3.558	1.181	-2.377	MCS1	30 dBm /500 kHz
5795	159	-2.184	1.181	-1.003	MCS1	

802.11ac(20 MHz) Mode		Measured PSD [dBm]	Duty Cycle Factor [dB]	Total PSD [dBm]	Worstcase MCS Index	Limit
Frequency [MHz]	Channel No.					
5180	36	1.366	1.883	3.249	MCS6	11 dBm/MHz
5200	40	1.818	1.883	3.701	MCS6	
5240	48	1.544	1.883	3.427	MCS6	
5260	52	1.745	1.883	3.628	MCS6	
5300	60	2.049	1.883	3.932	MCS6	
5320	64	1.481	1.883	3.364	MCS6	
5500	100	1.092	1.883	2.975	MCS6	
5600	120	1.448	1.883	3.331	MCS6	
5720	144	1.438	1.883	3.321	MCS6	
5745	149	-1.294	1.883	0.589	MCS6	30 dBm/500 kHz
5785	157	-0.774	1.883	1.109	MCS6	
5825	165	-1.435	1.883	0.448	MCS6	

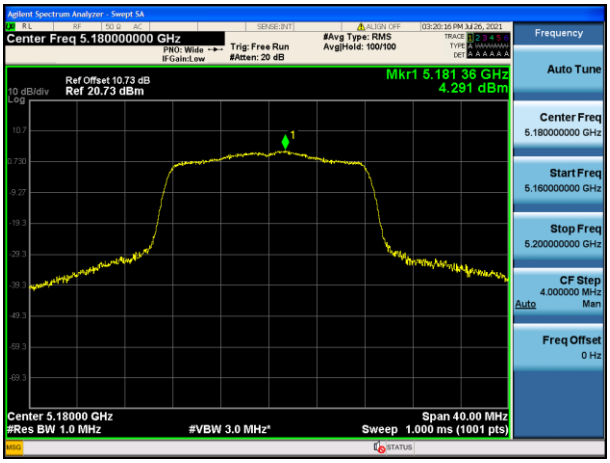
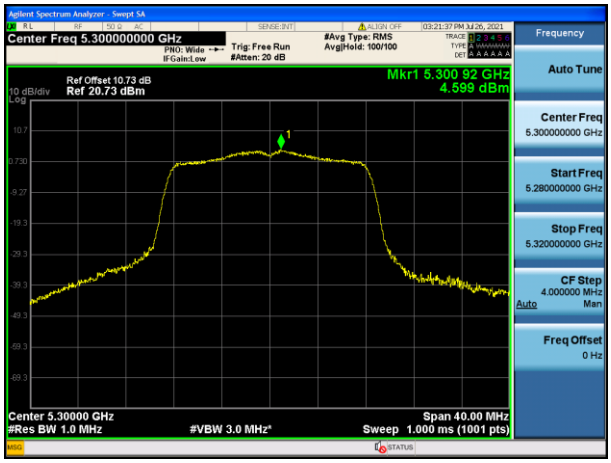
802.11ac(40 MHz) Mode		Measured PSD [dBm]	Duty Cycle Factor [dB]	Total PSD [dBm]	Worstcase MCS Index	Limit
Frequency [MHz]	Channel No.					
5190	38	-0.150	1.099	0.949	MCS1	11 dBm/MHz
5230	46	0.950	1.099	2.049	MCS1	
5270	54	-0.048	1.099	1.051	MCS1	
5310	62	0.099	1.099	1.198	MCS1	
5510	102	-0.442	1.099	0.657	MCS1	
5590	118	-0.037	1.099	1.062	MCS1	
5710	142	-0.344	1.099	0.755	MCS1	
5755	151	-3.623	1.099	-2.524	MCS1	30 dBm/500 kHz
5795	159	-1.985	1.099	-0.886	MCS1	

802.11ac(80 MHz) Mode		Measured PSD [dBm]	Duty Cycle Factor [dB]	Total PSD [dBm]	Worstcase MCS Index	Limit
Frequency [MHz]	Channel No.					
5210	42	-3.785	1.928	-1.857	MCS1	11 dBm/MHz
5290	58	-3.649	1.928	-1.721	MCS1	
5530	106	-4.756	1.928	-2.828	MCS1	
5610	122	-3.387	1.928	-1.459	MCS1	
5690	138	-3.167	1.928	-1.239	MCS1	
5775	155	-6.367	1.928	-4.439	MCS1	30 dBm/500 kHz

▣ 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. 60)
	

UNII 2C (Ch. 120)	UNII 3 (Ch. 157)