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

FCC UNII REPORT

Certification

Applicant Name:
SAMSUNG Electronics Co., Ltd.

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

Date of Issue:
January 05, 2022

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

Report No.: HCT-RF-2201-FC023

FCC ID:	**A3LSMA536V**
APPLICANT:	**SAMSUNG Electronics Co., Ltd.**

Model:	SM-A536V
EUT Type:	Mobile phone
Modulation type	OFDM
FCC Classification:	Unlicensed National Information Infrastructure(NII)
FCC Rule Part(s):	Part 15.407

Engineering Statement:

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

REVIEWED BY

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

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

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

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

Version

TEST REPORT NO.	DATE	DESCRIPTION
HCT-RF-2201-FC023	January 05, 2022	- First Approval Report

Table of Contents

1. GENERAL INFORMATION

EUT DESCRIPTION

Model	SM-A536V	
Additional Model	-	
EUT Type	Mobile phone	
Power Supply	DC 4.20 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	November 05, 2021 ~ January 05, 2022	
Serial number	Radiated: R3CRA0X73GW Conducted: R3CRA0KM0NM	

2. MAXIMUM OUTPUT POWER

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

Band	Mode	Power	
		(dBm)	(W)
UNII1	802.11a	18.29	0.068
	802.11n (HT20)	18.29	0.068
	802.11n (HT40)	17.81	0.060
	802.11ac (VHT20)	17.43	0.055
	802.11ac (VHT40)	17.81	0.060
	802.11ac (VHT80)	13.50	0.022
UNII2A	802.11a	18.97	0.079
	802.11n (HT20)	18.34	0.068
	802.11n (HT40)	17.94	0.062
	802.11ac (VHT20)	17.18	0.052
	802.11ac (VHT40)	17.96	0.063
	802.11ac (VHT80)	12.68	0.019
UNII2C	802.11a	18.53	0.071
	802.11n (HT20)	18.24	0.067
	802.11n (HT40)	17.14	0.052
	802.11ac (VHT20)	17.48	0.056
	802.11ac (VHT40)	17.31	0.054
	802.11ac (VHT80)	13.53	0.023
UNII3	802.11a	18.05	0.064
	802.11n (HT20)	18.12	0.065
	802.11n (HT40)	17.31	0.054
	802.11ac (VHT20)	17.50	0.056
	802.11ac (VHT40)	17.52	0.057
	802.11ac (VHT80)	13.39	0.022

3. TEST METHODOLOGY

The measurement procedure described in FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01 dated December 14, 2017 entitled “Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices Part15, Subpart E” and ANSI C63.10(Version : 2013) ‘the American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices’ were used in the measurement. Additionally, for U-NII-4 band, use the following measurement procedure KDB 291074 U-NII-4 5.9 Band DR01-44460

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.

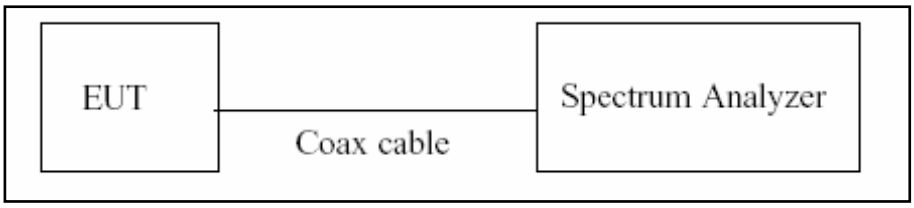
The measurement data shown herein meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

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.

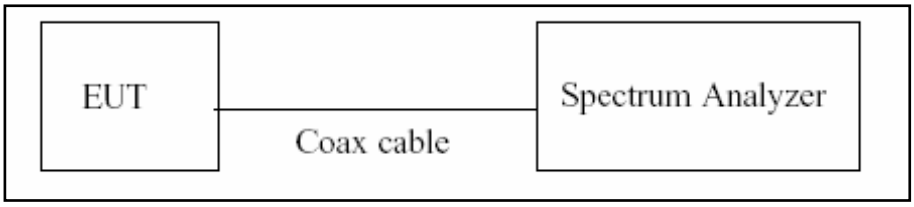
1. RBW = 8 MHz (the largest availble value)
2. VBW = 8 MHz (≥ RBW)
3. SPAN = 0 Hz
4. Detector = Peak
5. Number of points in sweep > 100
6. Trace mode = Clear write
7. Measure T_{total} and T_{on}
8. Calculate Duty Cycle = T_{on}/ T_{total} and Duty Cycle Factor = 10log(1/Duty Cycle)

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.

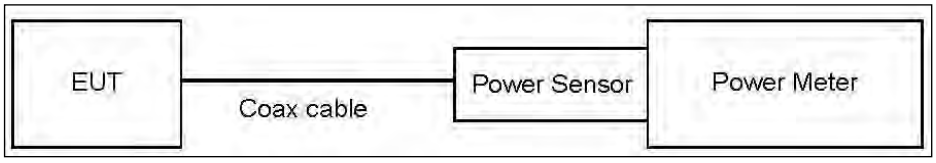
8.3. Output Power Measurement

Limit

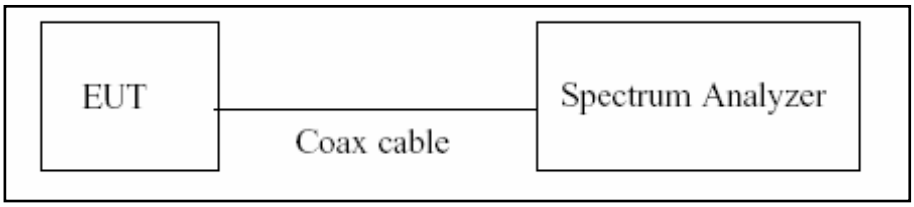
Band	Limit
UNII 1	- Master : Not exceed 1 W(=30 dBm) - Slave : Not exceed 250 mW(=23.98 dBm)
UNII 2A, 2C	Not exceed the lesser of 250 mW or 11 dBm + 10 log B, (where B is the 26 dB emission bandwidth in megahertz.)
UNII 3	Not exceed 1 W(=30 dBm)

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 Levels are not plot data.
   The power results in plot is already including the actual values of loss for the attenuator and cable combination.
2. Spectrum offset
   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	10.80
UNII 2A	10.80
UNII 2C	10.80
UNII 3	10.80

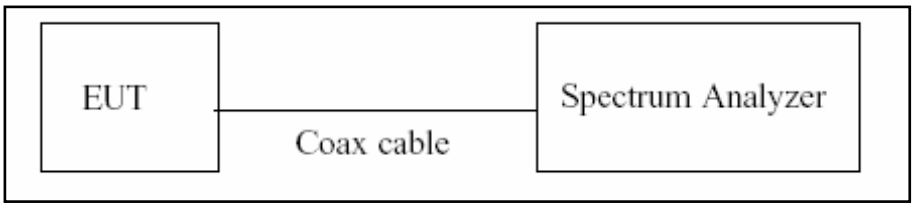
(Actual value of loss for the attenuator and cable combination)

8.4. Power Spectral Density

Limit

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

Test Configuration



Test Procedure

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

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

Sample Calculation

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

Note

1. Spectrum Measured Levels are not plot data.
   The PSD results in plot is already including the actual values of loss for the attenuator and cable combination.
2. Spectrum offset
   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	10.80
UNII 2A	10.80
UNII 2C	10.80
UNII 3	10.80

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

8.5. 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

8.6. Radiated Test

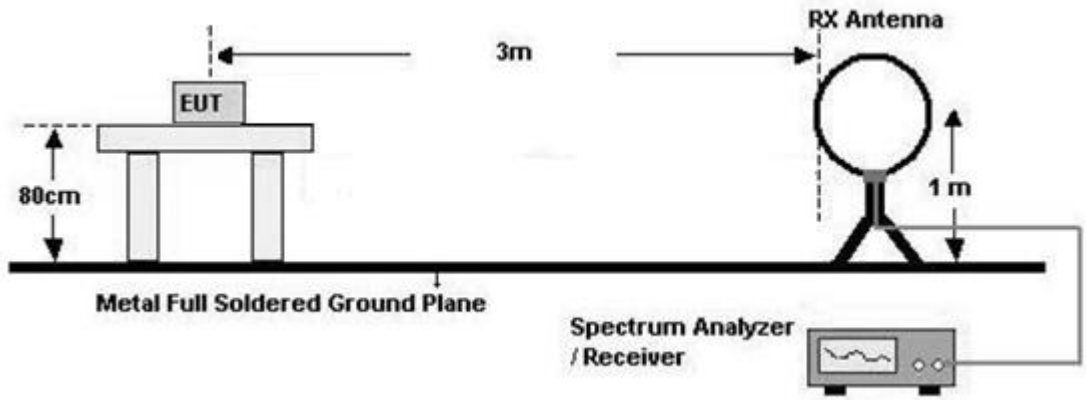
Limit

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.

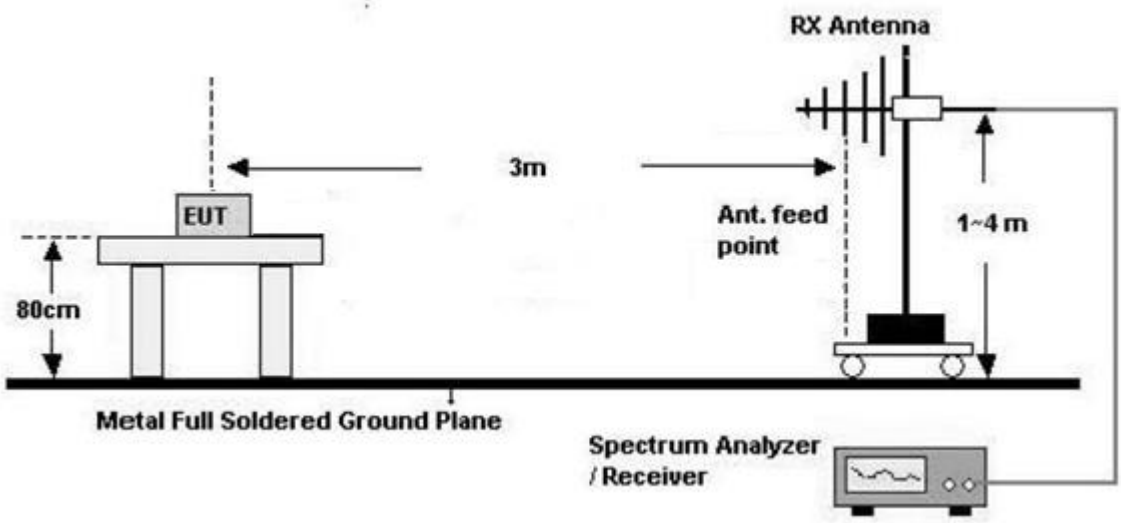
Frequency (MHz)	Field Strength (μV/m)	Measurement Distance (m)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Test Configuration

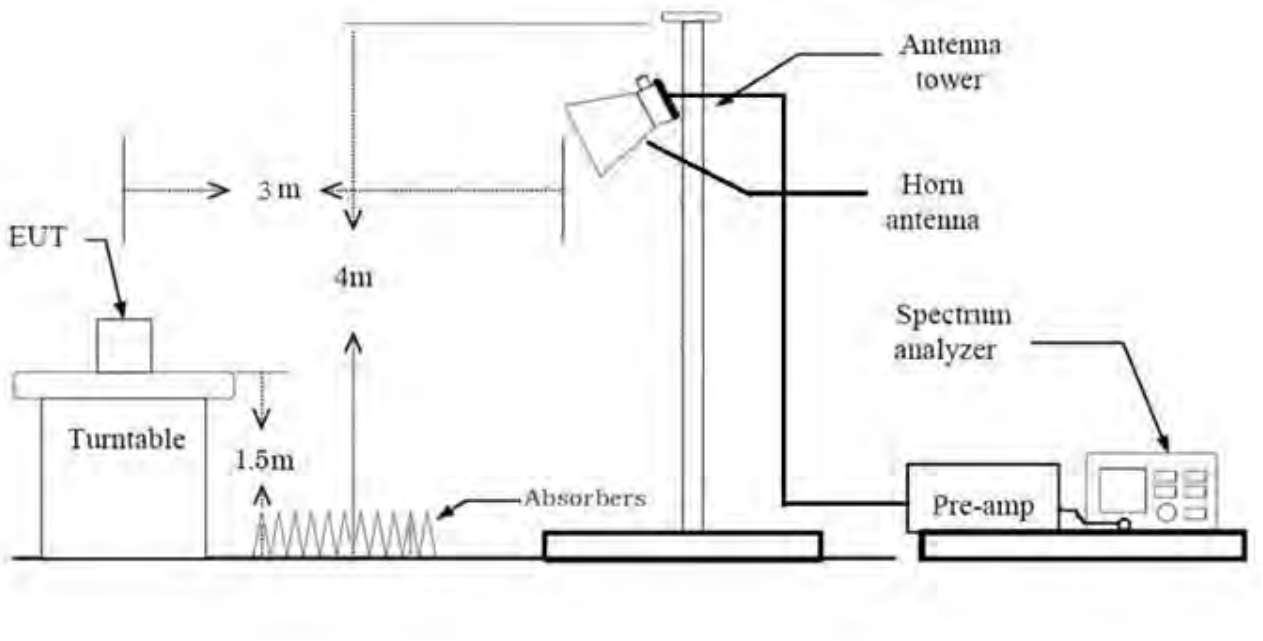
Below 30 MHz



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	0.921	0.356	1000
802.11n(HT20)	MCS0	0.926	0.332	1000
802.11n(HT40)	MCS0	0.851	0.702	2000
802.11ac(VHT20)	MCS0	0.914	0.392	1000
802.11ac(VHT40)	MCS0	0.868	0.617	2000
802.11ac(VHT80)	MCS0	0.722	1.413	5000

8.7. Worst case configuration and mode

Radiated test

1. All modes of operation were investigated and the worst case configuration results are reported.
   - Mode : Stand alone, Stand alone + External accessories(Earphone, etc)
   - Worstcase : Stand alone
2. EUT Axis
   - Radiated Spurious Emissions : X, Y, Z
   - Radiated Restricted Band Edge : X, Y
3. All datarate of operation were investigated and the worst case datarate results are reported.
   - 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_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

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, Z
3. The following tables show the worst case configurations determined during testing.

Description	Bluetooth Emission	5 GHz Emission
Antenna	WIFI/BT	WIFI/BT
Channel	78	64
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)(UNII-3)		PASS
Maximum Conducted Output Power	§15.407(a)(1),(2),(3)	< 250 mW(5150-5250 MHz) < 250 mW or 11+10log$_{10}$ (BW) dBm (5250-5350 MHz) < 250 mW or 11+10log$_{10}$ (BW) dBm (5470-5725 MHz) <1 W (5725-5850 MHz)		PASS
Maximum EIRP Output Power	§15.407(a)(1)(3)(iii)	< EIRP 30dBm (5850-5895 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
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 8.6 (UNII 3)	Radiated	PASS
General Field Strength Limits(Restricted Bands and Radiated Emission Limits)	15.205, 15.407(b)(9),(10)	Emissions in restricted bands must meet the radiated limits detailed in 15.209		PASS

10. TEST RESULT

10.1 DUTY CYCLE

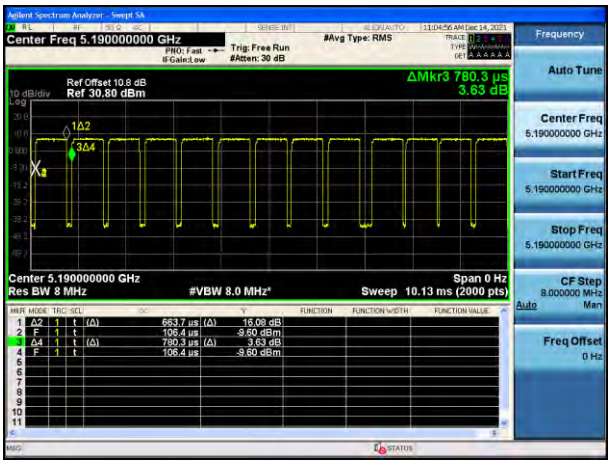
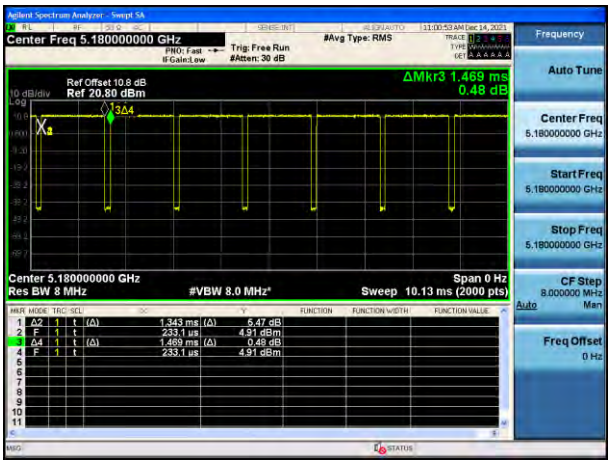
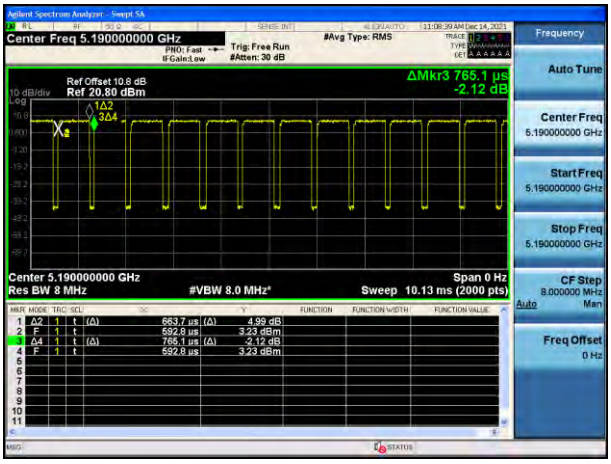
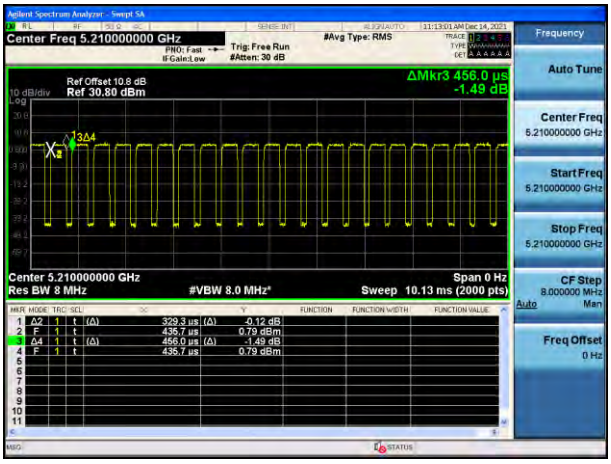
Mode	Data Rate (Mbps)	T_{on} (ms)	T_{total} (ms)	Duty Cycle	Duty Cycle Factor (dB)
802.11a	6	1.424	1.545	0.921	0.356
	9	0.963	1.079	0.892	0.496
	12	0.725	0.831	0.872	0.595
	18	0.486	0.588	0.828	0.822
	24	0.370	0.491	0.753	1.234
	36	0.253	0.375	0.676	1.703
	48	0.193	0.319	0.603	2.196
	54	0.182	0.314	0.581	2.361

Mode	MCS Index	T_{on} (ms)	T_{total} (ms)	Duty Cycle	Duty Cycle Factor (dB)
802.11n (HT20)	0	1.338	1.444	0.926	0.332
	1	0.684	0.785	0.871	0.600
	2	0.471	0.583	0.809	0.922
	3	0.360	0.461	0.780	1.078
	4	0.253	0.370	0.685	1.644
	5	0.198	0.319	0.619	2.083
	6	0.182	0.299	0.610	2.145
	7	0.167	0.294	0.569	2.449
802.11n (HT40)	0	0.664	0.780	0.851	0.702
	1	0.350	0.456	0.767	1.154
	2	0.243	0.365	0.667	1.761
	3	0.198	0.314	0.629	2.013
	4	0.142	0.242	0.586	2.325
	5	0.115	0.224	0.514	2.894
	6	0.107	0.215	0.500	3.012
	7	0.101	0.218	0.465	3.324

Mode	MCS Index	T_{on} (ms)	T_{total} (ms)	Duty Cycle	Duty Cycle Factor(dB)
802.11ac (VHT20)	0	1.343	1.469	0.914	0.392
	1	0.689	0.801	0.861	0.651
	2	0.476	0.583	0.817	0.876
	3	0.365	0.476	0.766	1.158
	4	0.258	0.385	0.671	1.732
	5	0.203	0.339	0.597	2.240
	6	0.187	0.324	0.578	2.380
	7	0.172	0.299	0.576	2.394
	8	0.147	0.279	0.527	2.780
802.11ac (VHT40)	0	0.664	0.765	0.868	0.617
	1	0.355	0.481	0.737	1.326
	2	0.248	0.370	0.671	1.731
	3	0.198	0.324	0.609	2.151
	4	0.147	0.258	0.569	2.452
	5	0.118	0.226	0.522	2.822
	6	0.110	0.218	0.505	2.971
	7	0.101	0.203	0.500	3.010
	8	0.096	0.203	0.475	3.233
	9	0.091	0.208	0.439	3.575
802.11ac (VHT80)	0	0.329	0.456	0.722	1.413
	1	0.187	0.294	0.638	1.952
	2	0.142	0.248	0.571	2.430
	3	0.111	0.223	0.500	3.010
	4	0.091	0.203	0.450	3.468
	5	0.080	0.178	0.448	3.486
	6	0.075	0.175	0.430	3.667
	7	0.069	0.169	0.409	3.883
	8	0.067	0.167	0.404	3.939
	9	0.063	0.163	0.387	4.122

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 [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5180	36	21.03	16.538
5200	40	20.38	16.485
5240	48	20.32	16.488
5260	52	20.21	16.472
5300	60	20.09	16.453
5320	64	20.36	16.451
5500	100	20.13	16.469
5600	120	19.97	16.451
5720	144	20.20	16.467
5745	149	20.30	16.491
5785	157	20.22	16.471
5825	165	20.42	16.476

802.11n(HT20) Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5180	36	20.80	17.628
5200	40	20.80	17.580
5240	48	20.71	17.601
5260	52	20.94	17.597
5300	60	20.85	17.614
5320	64	20.70	17.588
5500	100	20.74	17.595
5600	120	21.11	17.595
5720	144	20.65	17.596
5745	149	20.69	17.605
5785	157	21.19	17.607
5825	165	21.56	17.591

802.11n(HT40) Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5190	38	41.26	36.155
5230	46	41.16	36.226
5270	54	41.21	36.188
5310	62	41.38	36.254
5510	102	41.23	36.145
5590	118	41.38	36.180
5710	142	41.50	36.213
5755	151	41.07	36.203
5795	159	41.60	36.225

802.11ac(VHT20) Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5180	36	20.74	17.609
5200	40	20.93	17.595
5240	48	20.94	17.590
5260	52	20.96	17.598
5300	60	20.65	17.614
5320	64	20.85	17.586
5500	100	21.00	17.601
5600	120	20.58	17.600
5720	144	20.98	17.592
5745	149	21.14	17.605
5785	157	21.47	17.584
5825	165	20.90	17.585

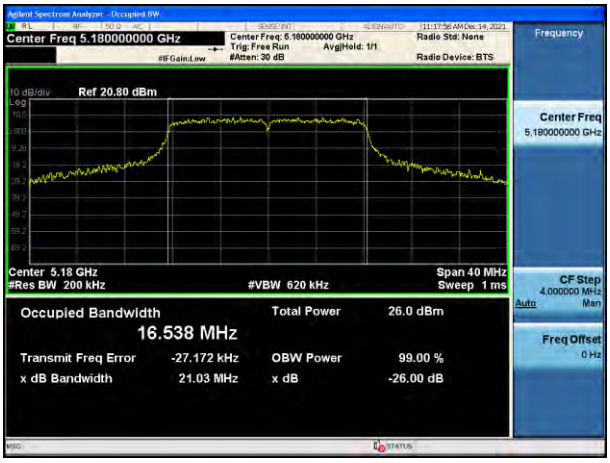
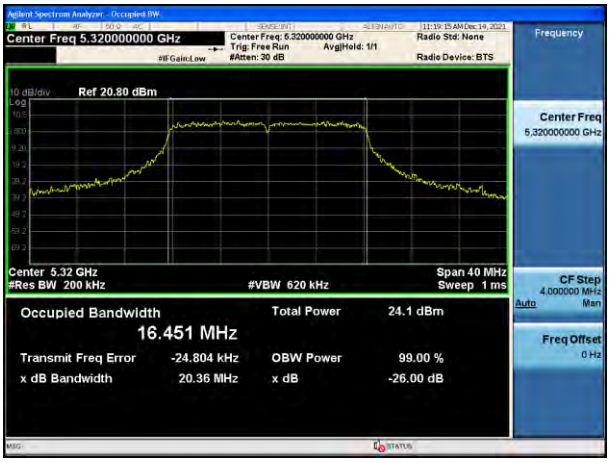
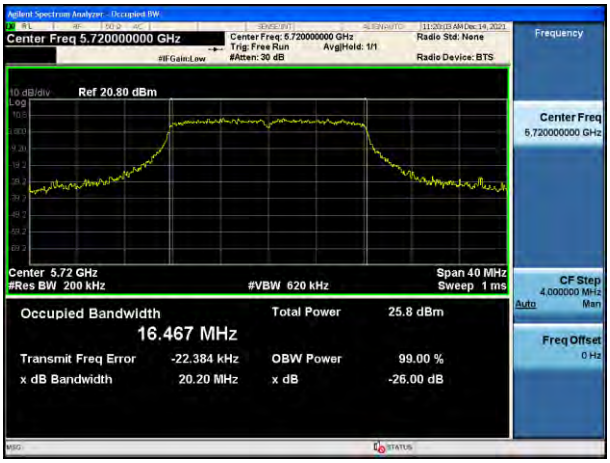
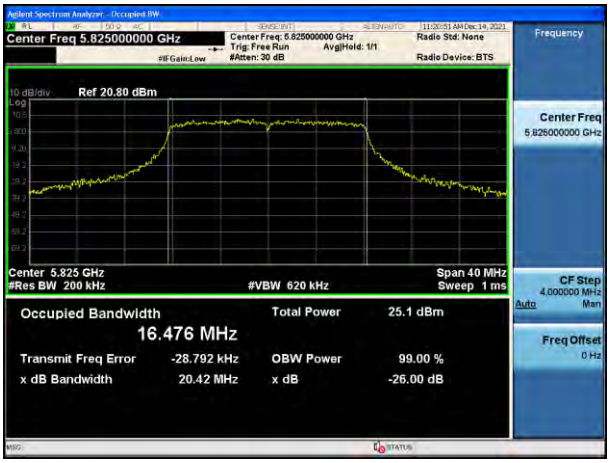
802.11ac(VHT40) Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5190	38	40.97	36.174
5230	46	41.31	36.282
5270	54	41.89	36.214
5310	62	41.03	36.140
5510	102	41.53	36.188
5590	118	41.34	36.158
5710	142	41.40	36.229
5755	151	40.99	36.194
5795	159	41.15	36.241

802.11ac(VHT80) Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5210	42	80.94	74.879
5290	58	81.20	74.857
5530	106	80.95	74.899
5610	122	80.86	74.847
5690	138	80.77	74.837
5775	155	80.95	74.822

▣ Test Plots(802.11a)

Note:

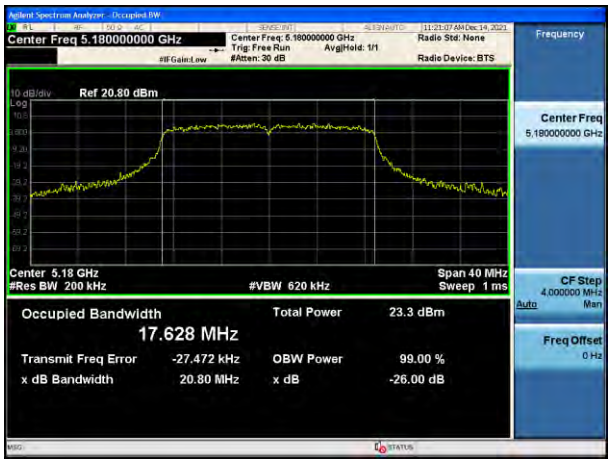
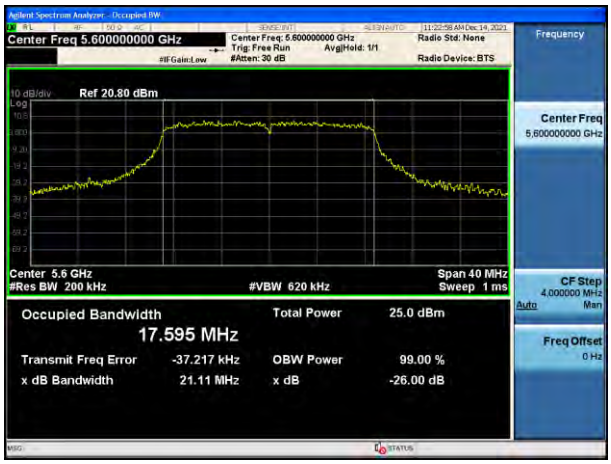
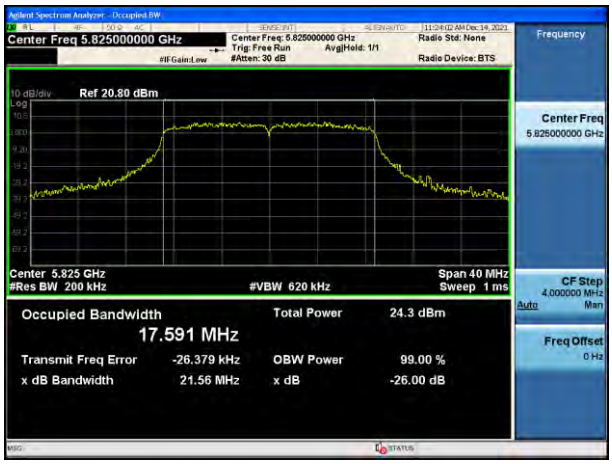
In order to simplify the report, attached plots were only the most wide channel.

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

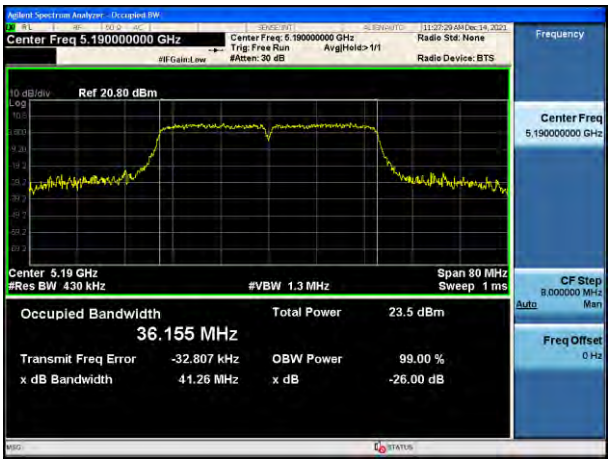
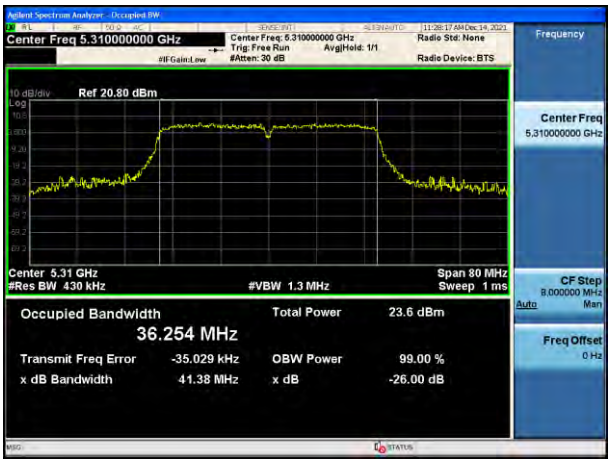
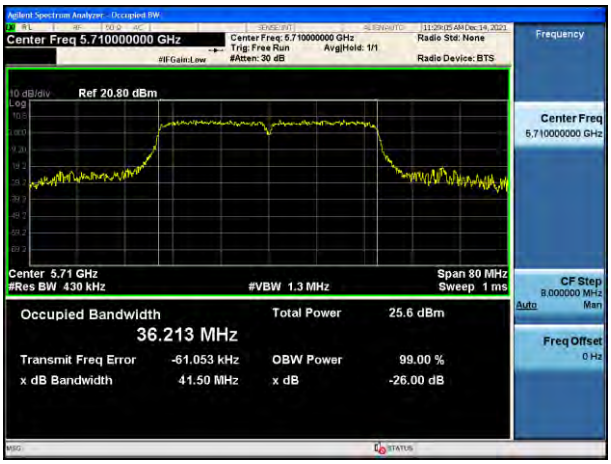
In order to simplify the report, attached plots were only the most wide channel.

802.11n_HT20 UNII 1 BAND 26 dB Bandwidth(CH 36)	802.11n_HT20 UNII 2A BAND 26 dB Bandwidth(CH 52)
	
802.11n_HT20 UNII 2C BAND 26 dB Bandwidth(CH 120)	**802.11n_HT20 UNII 3 BAND 26 dB Bandwidth(CH 165)**
	

▣ Test Plots(802.11n(HT40))

Note:

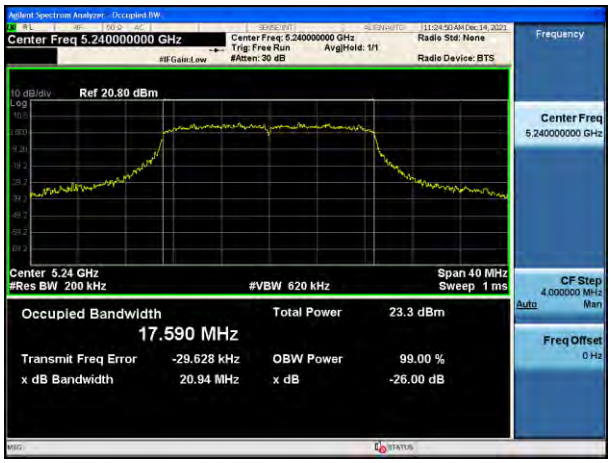
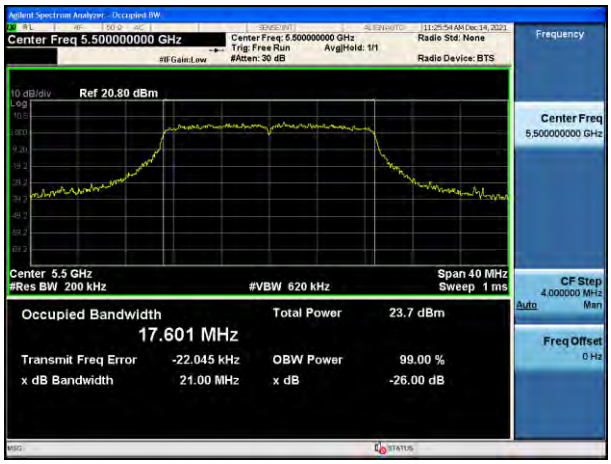
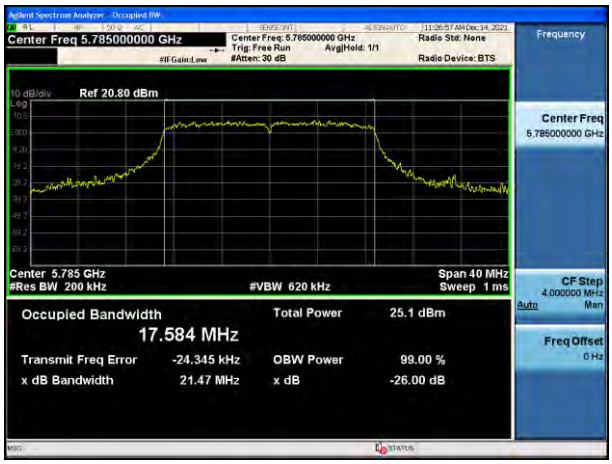
In order to simplify the report, attached plots were only the most wide channel.

802.11n_HT40 UNII 1 BAND 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 142)	**802.11n_HT40 UNII 3 BAND 26 dB Bandwidth (CH 159)**
	

▣ Test Plots(802.11ac(VHT20))

Note:

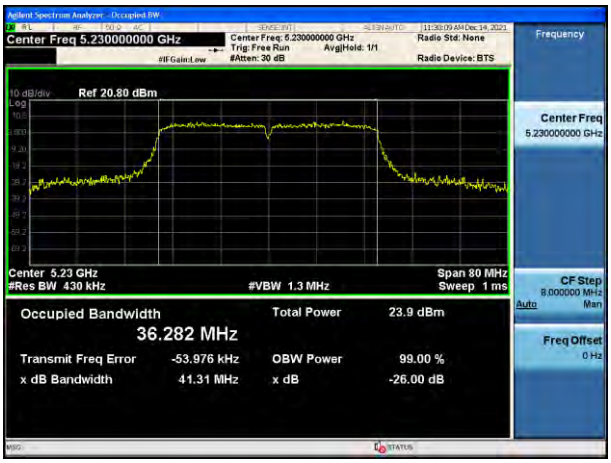
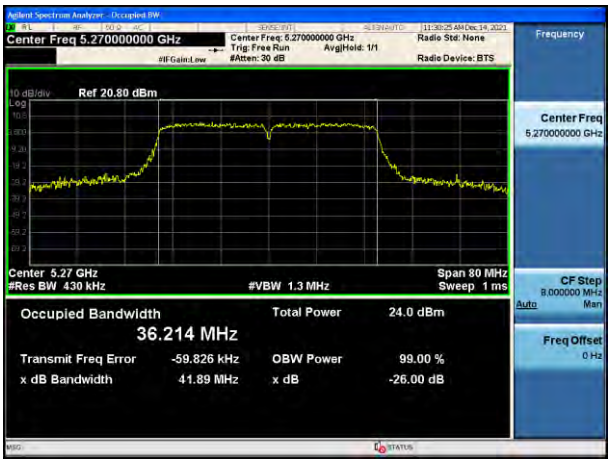
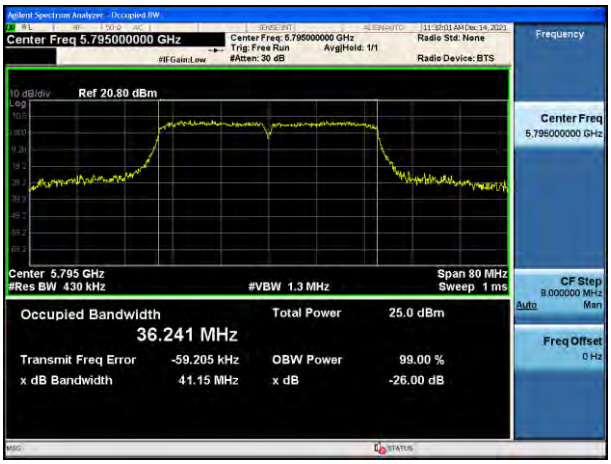
In order to simplify the report, attached plots were only the most wide channel.

802.11ac_VHT20 UNII 1 BAND 26 dB Bandwidth(CH 48)	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:

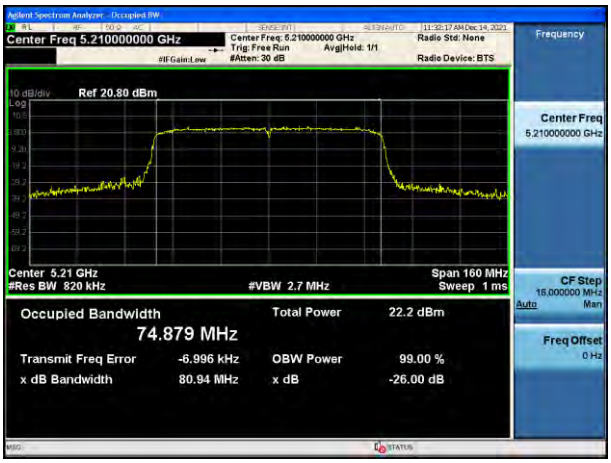
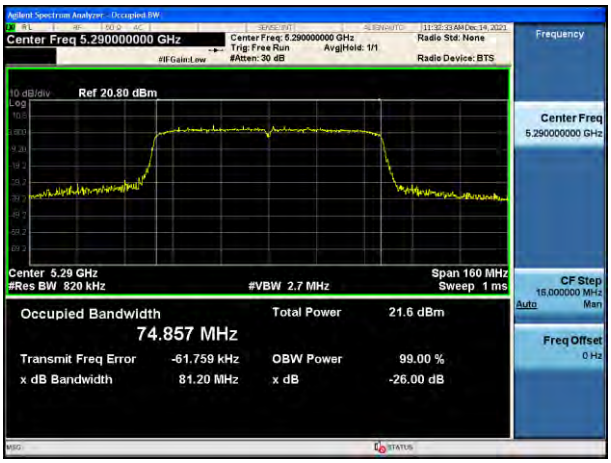
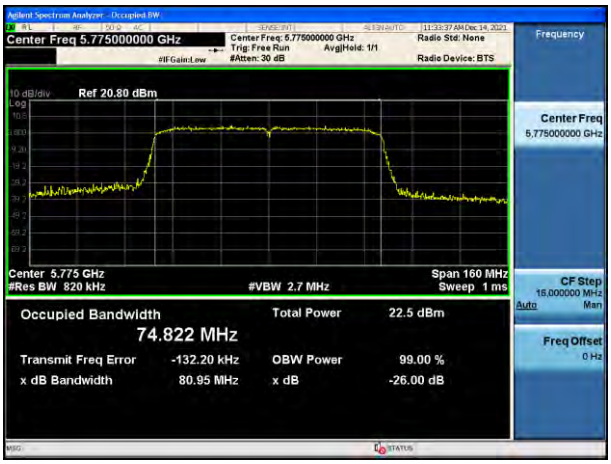
In order to simplify the report, attached plots were only the most wide channel.

802.11ac_VHT40 UNII 1 BAND 26 dB Bandwidth(CH 46)	802.11ac_VHT40 UNII 2A BAND 26 dB Bandwidth (CH 54)
	
802.11ac_VHT40 UNII 2C BAND 26 dB Bandwidth(CH 102)	**802.11ac_VHT40 UNII 3 BAND 26 dB Bandwidth (CH 159)**
	

▣ Test Plots(802.11ac(VHT80))

Note:

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

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

10.3 6 dB BANDWIDTH

802.11a Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	16.29	> 0.5	Pass
5785	157	16.38	> 0.5	Pass
5825	165	16.35	> 0.5	Pass

802.11n(HT20) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	17.33	> 0.5	Pass
5785	157	16.99	> 0.5	Pass
5825	165	17.57	> 0.5	Pass

802.11n(HT40) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5755	151	36.01	> 0.5	Pass
5795	159	36.05	> 0.5	Pass

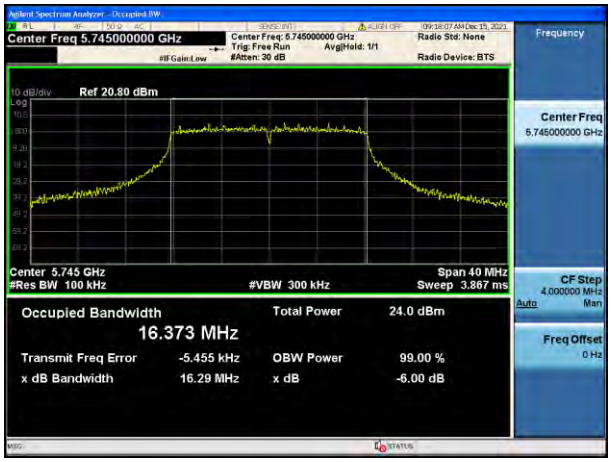
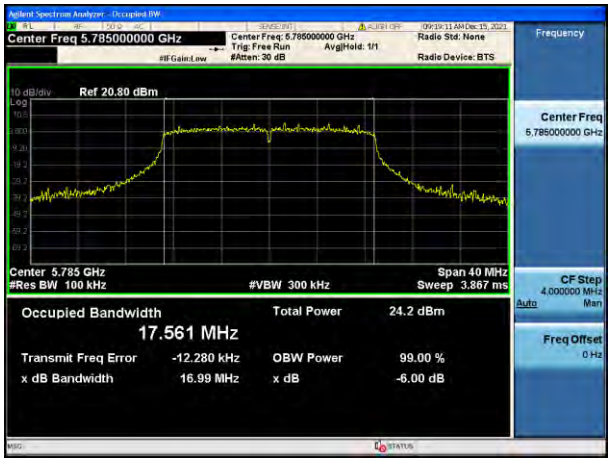
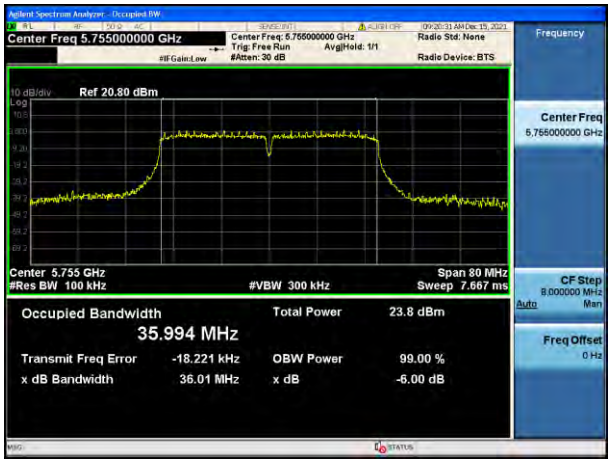
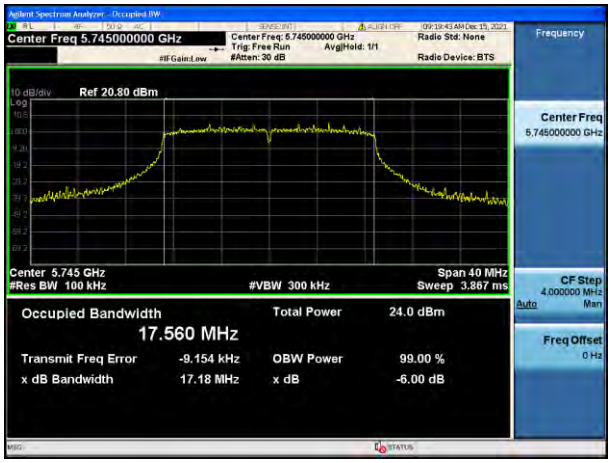
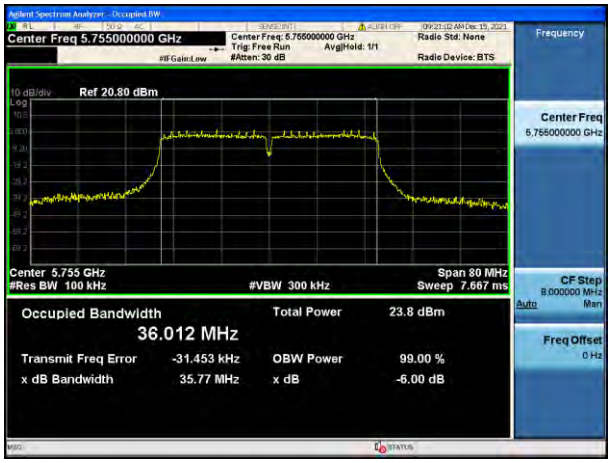
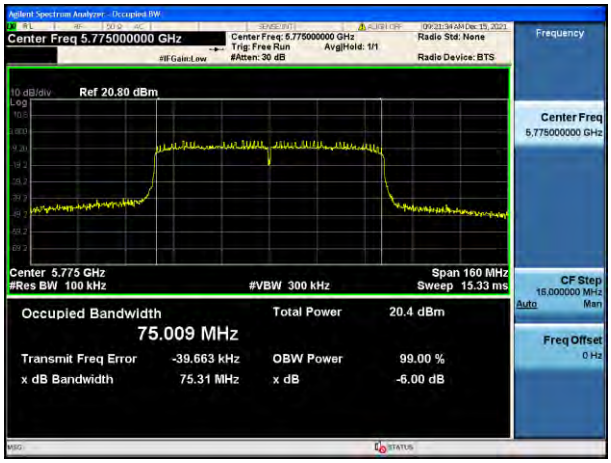
802.11ac(VHT20) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	17.18	> 0.5	Pass
5785	157	17.26	> 0.5	Pass
5825	165	17.50	> 0.5	Pass

802.11ac(VHT40) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5755	151	35.77	> 0.5	Pass
5795	159	36.09	> 0.5	Pass

802.11ac(VHT80) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5775	155	75.31	> 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.157)
	
802.11n(HT40) (CH.151)	**802.11ac(VHT20) (CH.149)**
	
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		Measured Power [dBm]	Duty Cycle Factor [dB]	Total Power [dBm]	Limit [dBm]	Worstcase Datarate [Mbps]
Frequency [MHz]	Channel No.					
5180	36	16.59	1.703	18.29	23.98	36M
5200	40	16.52	1.703	18.23	23.98	36M
5240	48	16.49	1.703	18.19	23.98	36M
5260	52	16.58	1.703	18.28	23.98	36M
5300	60	16.64	1.703	18.34	23.98	36M
5320	64	17.27	1.703	18.97	23.98	36M
5500	100	13.76	1.703	15.46	23.98	36M
5600	120	16.46	1.703	18.16	23.98	36M
5720	144	16.83	1.703	18.53	23.98	36M
5745	149	16.35	1.703	18.05	30.00	36M
5785	157	16.05	1.703	17.75	30.00	36M
5825	165	16.03	1.703	17.73	30.00	36M

802.11n(20 MHz) Mode		Measured Power [dBm]	Duty Cycle Factor [dB]	Total Power [dBm]	Limit [dBm]	Worstcase MCS Index
Frequency [MHz]	Channel No.					
5180	36	16.65	1.644	18.29	23.98	MCS4
5200	40	16.52	1.644	18.16	23.98	MCS4
5240	48	16.63	1.644	18.28	23.98	MCS4
5260	52	16.45	1.644	18.09	23.98	MCS4
5300	60	16.70	1.644	18.34	23.98	MCS4
5320	64	16.35	1.644	17.99	23.98	MCS4
5500	100	12.65	1.644	14.29	23.98	MCS4
5600	120	16.21	1.644	17.85	23.98	MCS4
5720	144	16.60	1.644	18.24	23.98	MCS4
5745	149	16.48	1.644	18.12	30.00	MCS4
5785	157	16.31	1.644	17.95	30.00	MCS4
5825	165	15.95	1.644	17.59	30.00	MCS4

802.11n(40 MHz) Mode		Measured Power [dBm]	Duty Cycle Factor [dB]	Total Power [dBm]	Limit [dBm]	Worstcase MCS Index
Frequency [MHz]	Channel No.					
5190	38	12.10	2.013	14.11	23.98	MCS3
5230	46	15.80	2.013	17.81	23.98	MCS3
5270	54	15.93	2.013	17.94	23.98	MCS3
5310	62	11.84	2.013	13.85	23.98	MCS3
5510	102	12.51	2.013	14.52	23.98	MCS3
5590	118	15.06	2.013	17.07	23.98	MCS3
5710	142	15.13	2.013	17.14	23.98	MCS3
5755	151	15.11	2.013	17.12	30.00	MCS3
5795	159	15.30	2.013	17.31	30.00	MCS3

802.11ac(20 MHz) Mode		Measured Power [dBm]	Duty Cycle Factor [dB]	Total Power [dBm]	Limit [dBm]	Worstcase MCS Index
Frequency [MHz]	Channel No.					
5180	36	15.70	1.732	17.43	23.98	MCS4
5200	40	15.54	1.732	17.27	23.98	MCS4
5240	48	15.36	1.732	17.10	23.98	MCS4
5260	52	15.34	1.732	17.07	23.98	MCS4
5300	60	15.44	1.732	17.18	23.98	MCS4
5320	64	15.21	1.732	16.94	23.98	MCS4
5500	100	12.76	1.732	14.49	23.98	MCS4
5600	120	15.44	1.732	17.17	23.98	MCS4
5720	144	15.75	1.732	17.48	23.98	MCS4
5745	149	15.77	1.732	17.50	30.00	MCS4
5785	157	15.44	1.732	17.17	30.00	MCS4
5825	165	15.48	1.732	17.21	30.00	MCS4

802.11ac(40 MHz) Mode		Measured Power [dBm]	Duty Cycle Factor [dB]	Total Power [dBm]	Limit [dBm]	Worstcase MCS Index
Frequency [MHz]	Channel No.					
5190	38	12.30	2.151	14.45	23.98	MCS3
5230	46	15.65	2.151	17.81	23.98	MCS3
5270	54	15.81	2.151	17.96	23.98	MCS3
5310	62	12.09	2.151	14.24	23.98	MCS3
5510	102	12.10	2.151	14.25	23.98	MCS3
5590	118	15.16	2.151	17.31	23.98	MCS3
5710	142	15.10	2.151	17.25	23.98	MCS3
5755	151	15.18	2.151	17.33	30.00	MCS3
5795	159	15.37	2.151	17.52	30.00	MCS3

802.11ac(80 MHz) Mode		Measured Power [dBm]	Duty Cycle Factor [dB]	Total Power [dBm]	Limit [dBm]	Worstcase MCS Index
Frequency [MHz]	Channel No.					
5210	42	9.62	3.883	13.50	23.98	MCS7
5290	58	8.80	3.883	12.68	23.98	MCS7
5530	106	8.43	3.883	12.31	23.98	MCS7
5610	122	9.53	3.883	13.41	23.98	MCS7
5690	138	9.65	3.883	13.53	23.98	MCS7
5775	155	9.51	3.883	13.39	30.00	MCS7

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	6.551	1.703	8.254	36M	11 dBm/MHz
5200	40	6.117	1.703	7.820	36M	
5240	48	6.330	1.703	8.033	36M	
5260	52	6.274	1.703	7.977	36M	
5300	60	6.393	1.703	8.096	36M	
5320	64	6.249	1.703	7.952	36M	
5500	100	2.039	1.703	3.742	36M	
5600	120	6.260	1.703	7.963	36M	
5720	144	6.744	1.703	8.447	36M	
5745	149	3.155	1.703	4.858	36M	30 dBm/500 kHz
5785	157	2.921	1.703	4.624	36M	
5825	165	3.614	1.703	5.317	36M	

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	5.672	1.644	7.316	MCS4	11 dBm/MHz
5200	40	6.552	1.644	8.196	MCS4	
5240	48	6.218	1.644	7.862	MCS4	
5260	52	6.102	1.644	7.746	MCS4	
5300	60	6.321	1.644	7.965	MCS4	
5320	64	6.067	1.644	7.711	MCS4	
5500	100	1.984	1.644	3.628	MCS4	
5600	120	5.615	1.644	7.259	MCS4	
5720	144	6.474	1.644	8.118	MCS4	
5745	149	2.851	1.644	4.495	MCS4	30 dBm/500 kHz
5785	157	2.623	1.644	4.267	MCS4	
5825	165	2.922	1.644	4.566	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	-1.270	2.013	0.743	MCS3	11 dBm/MHz
5230	46	2.321	2.013	4.334	MCS3	
5270	54	2.380	2.013	4.393	MCS3	
5310	62	-2.029	2.013	-0.016	MCS3	
5510	102	-1.405	2.013	0.608	MCS3	
5590	118	1.183	2.013	3.196	MCS3	
5710	142	1.349	2.013	3.362	MCS3	
5755	151	-1.434	2.013	0.579	MCS3	30 dBm /500 kHz
5795	159	-1.586	2.013	0.427	MCS3	

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	5.176	1.732	6.908	MCS4	11 dBm/MHz
5200	40	4.917	1.732	6.649	MCS4	
5240	48	5.297	1.732	7.029	MCS4	
5260	52	5.309	1.732	7.041	MCS4	
5300	60	4.973	1.732	6.705	MCS4	
5320	64	5.274	1.732	7.006	MCS4	
5500	100	1.965	1.732	3.697	MCS4	
5600	120	4.537	1.732	6.269	MCS4	
5720	144	4.977	1.732	6.709	MCS4	
5745	149	2.694	1.732	4.426	MCS4	30 dBm/500 kHz
5785	157	2.472	1.732	4.204	MCS4	
5825	165	2.702	1.732	4.434	MCS4	

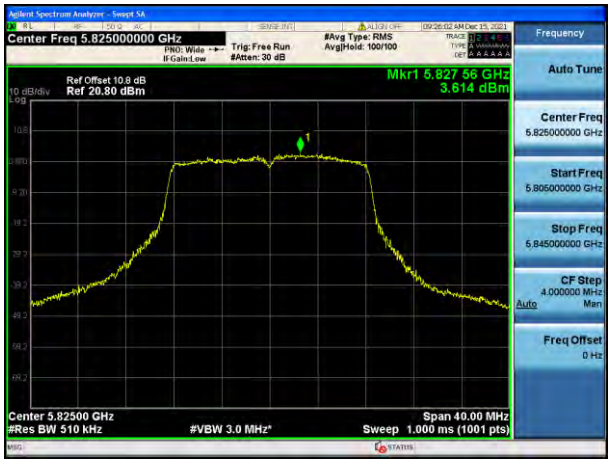
802.11ac(40 MHz) Mode		Measured PSD [dBm]	Duty Cycle Factor [dB]	Total PSD [dBm]	Worstcase MCS Index	Limit
Frequency [MHz]	Channel No.					
5190	38	-1.189	2.151	0.962	MCS3	11 dBm/MHz
5230	46	2.213	2.151	4.364	MCS3	
5270	54	1.795	2.151	3.946	MCS3	
5310	62	-2.058	2.151	0.093	MCS3	
5510	102	-1.192	2.151	0.959	MCS3	
5590	118	1.376	2.151	3.527	MCS3	
5710	142	1.314	2.151	3.465	MCS3	
5755	151	-1.259	2.151	0.892	MCS3	30 dBm/500 kHz
5795	159	-0.518	2.151	1.633	MCS3	

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	-7.356	3.883	-3.473	MCS7	11 dBm/MHz
5290	58	-8.102	3.883	-4.219	MCS7	
5530	106	-8.360	3.883	-4.477	MCS7	
5610	122	-7.218	3.883	-3.335	MCS7	
5690	138	-6.509	3.883	-2.626	MCS7	
5775	155	-9.824	3.883	-5.941	MCS7	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. 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. 40)	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:

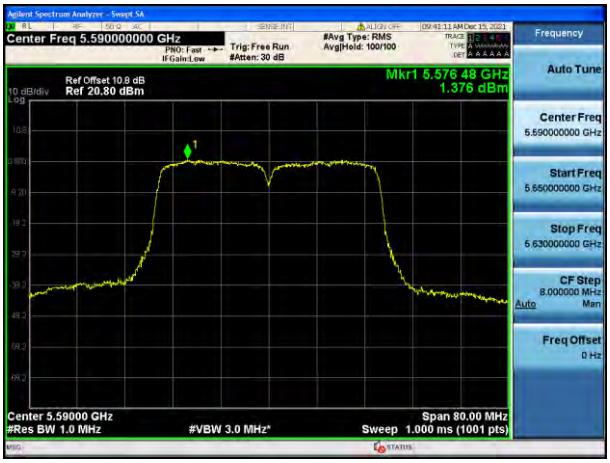
In order to simplify the report, attached plots were only channel of highest power.

UNII 1 (Ch. 48)	UNII 2A (Ch. 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. 46)	UNII 2A (Ch. 54)
	
UNII 2C (Ch. 118)	**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)**
	

10.6 STRADDLE CHANNEL

10.6.1 26 dB Bandwidth

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	26 dB Bandwidth [MHz]
802.11a	UNII 2C	5720	144	5710.00	15.00
802.11n(HT20)				5709.72	15.28
802.11ac(VHT20)				5709.64	15.36
802.11a	UNII 3	5720	144	5730.00	5.00
802.11n(HT20)				5730.12	5.12
802.11ac(VHT20)				5730.20	5.20

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	26 dB Bandwidth [MHz]
802.11n(HT40)	UNII 2C	5710	142	5689.60	35.40
802.11ac(VHT40)				5690.00	35.00
802.11n(HT40)	UNII 3	5710	142	5730.40	5.40
802.11ac(VHT40)				5730.32	5.32

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	26 dB Bandwidth [MHz]
802.11ac(VHT80)	UNII 2C	5690	138	5649.68	75.32
	UNII 3	5690	138	5730.16	5.16

Note:

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

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

▣ Test Plots (26 dB Bandwidth)

802.11a UNII Band	802.11n(HT20) UNII Band
	

802.11ac(VHT20) UNII Band


▣ Test Plots (26 dB Bandwidth)

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

802.11ac(VHT80) UNII Band


10.6.2 6 dB Bandwidth

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
802.11a	UNII 3	5720	144	5728.24	3.24	> 0.5
802.11n(HT20)				5728.56	3.56	> 0.5
802.11ac(VHT20)				5728.84	3.84	> 0.5

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
802.11n(HT40)	UNII 3	5710	142	5728.24	3.24	> 0.5
802.11ac(VHT40)				5728.24	3.24	> 0.5

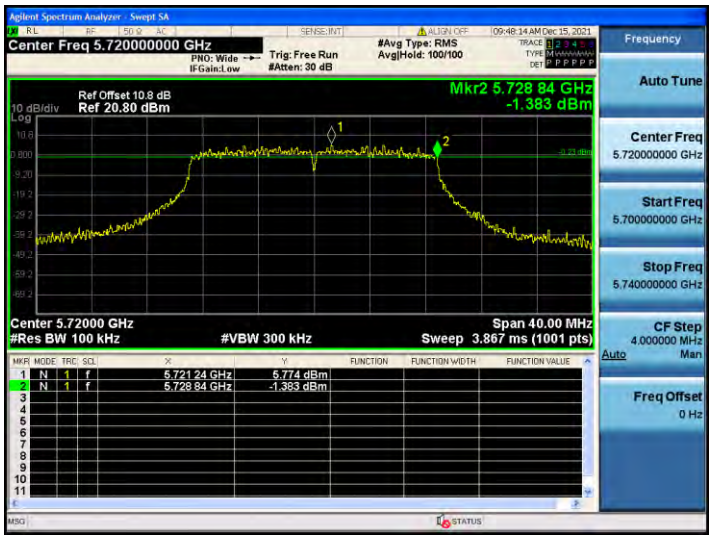
Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
802.11ac(VHT80)	UNII 3	5690	138	5727.60	2.60	> 0.5

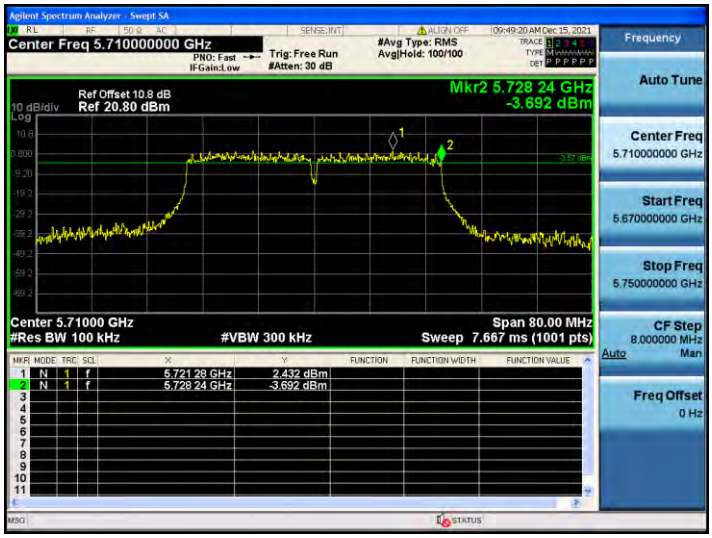
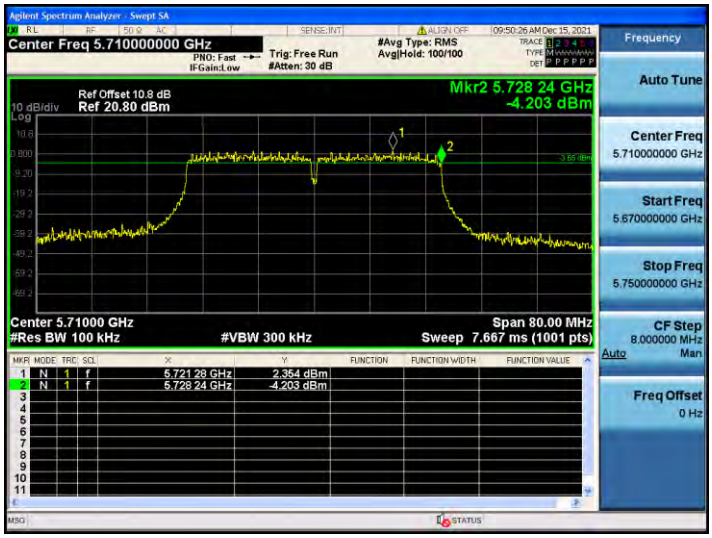
Note:

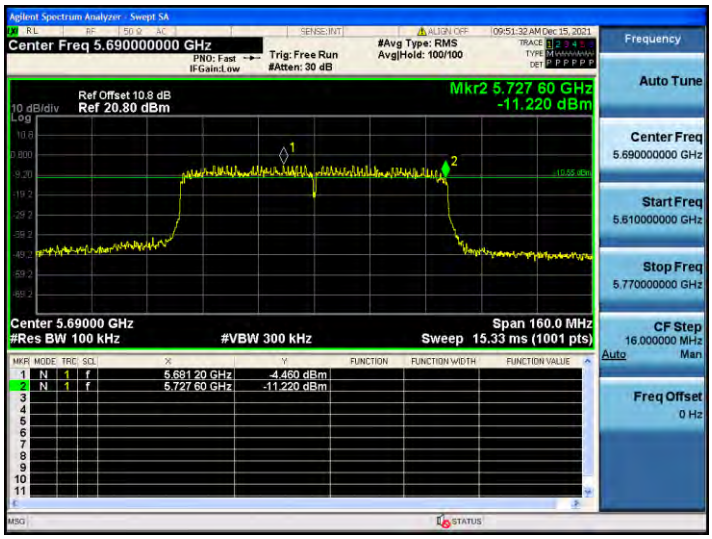
6 dB Bandwidth = Measured Frequency[MHz] – 5725MHz

▣ Test Plots(UNII 3 Band 6 dB Bandwidth)

802.11a CH.144	802.11n_HT20 CH.144
	

802.11ac_VHT20 CH.144


802.11n_HT40 CH.142	802.11ac_VHT40 CH.142
	

802.11ac_VHT80 CH.138


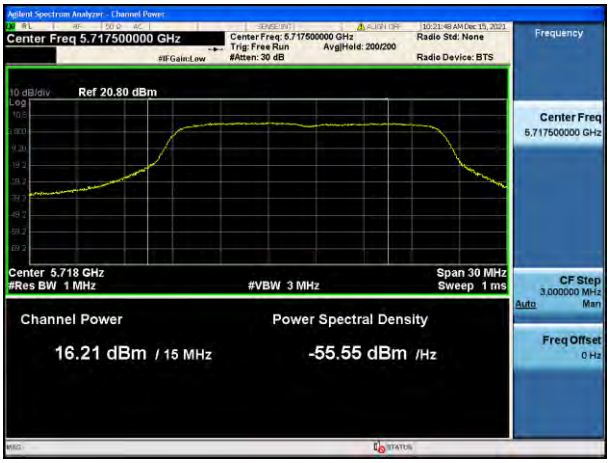
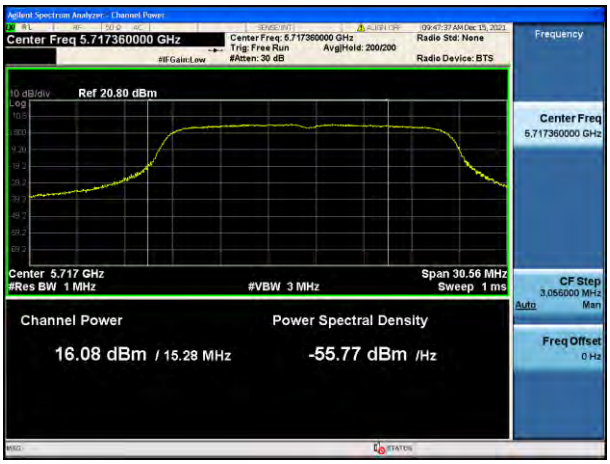
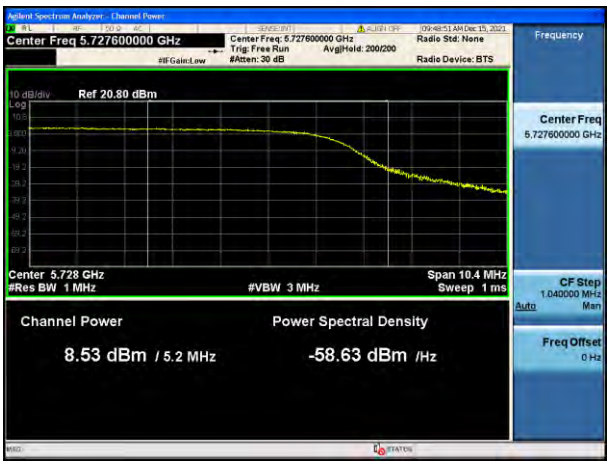
10.6.3 Output Power

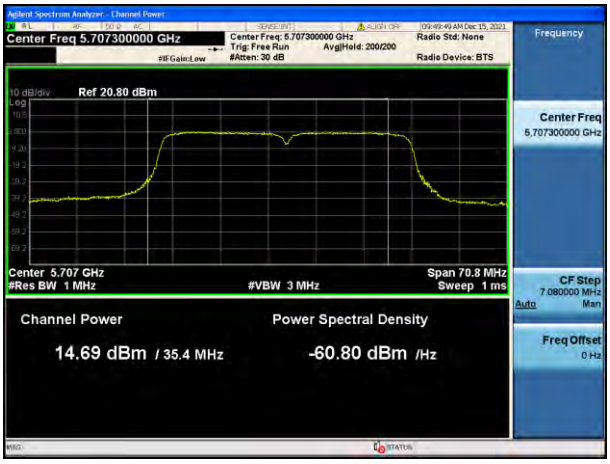
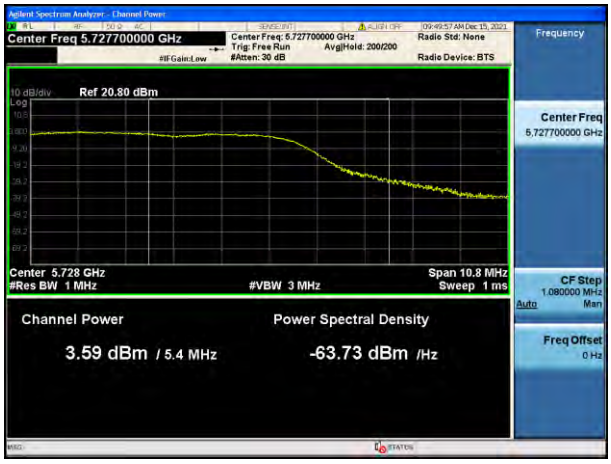
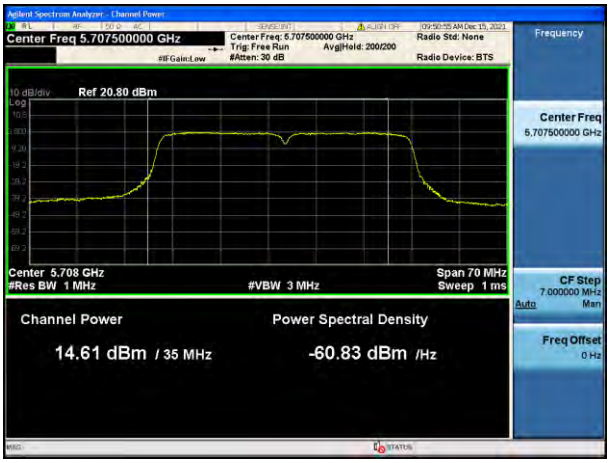
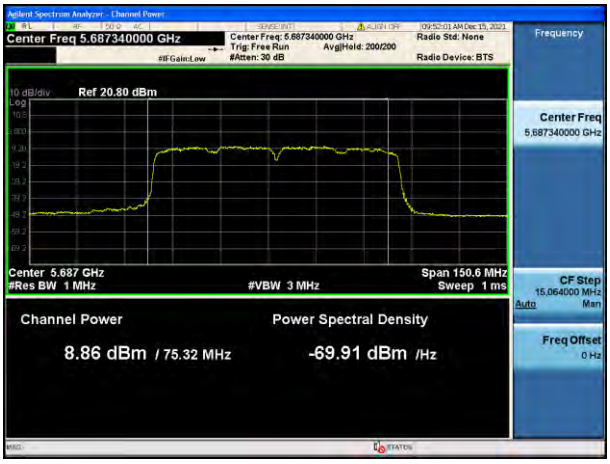
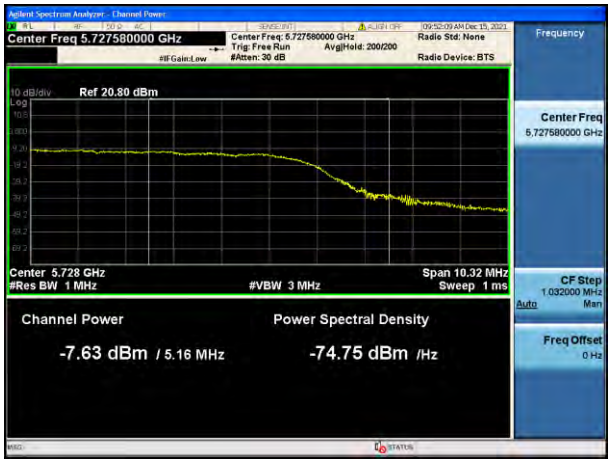
Mode	Frequency [MHz]	Channel	Measured Power [dBm]	Duty Cycle Factor [dB]	Total Power [dBm]	Limit [dBm]	Worstcase Datarate
802.11a	5720 (UNII 2C Band)	144	16.21	1.703	17.92	22.76	36 Mbps
802.11n(HT20)			16.08	1.644	17.72	22.84	MCS4
802.11ac(VHT20)			14.88	1.732	16.62	22.86	MCS4
802.11a	5720 (UNII 3 Band)	144	10.12	1.703	11.82	30.00	36 Mbps
802.11n(HT20)			9.65	1.644	11.29	30.00	MCS4
802.11ac(VHT20)			8.53	1.732	10.26	30.00	MCS4

Mode	Frequency [MHz]	Channel	Measured Power [dBm]	Duty Cycle Factor [dB]	Total Power [dBm]	Limit [dBm]	Worstcase Datarate
802.11n(HT40)	5710 (UNII 2C Band)	142	14.69	2.013	16.70	23.98	MCS3
802.11ac(VHT40)			14.61	2.151	16.76	23.98	MCS3
802.11n(HT40)	5710 (UNII 3 Band)	142	3.59	2.013	5.60	30.00	MCS3
802.11ac(VHT40)			3.61	2.151	5.76	30.00	MCS3

Mode	Frequency [MHz]	Channel	Measured Power [dBm]	Duty Cycle Factor [dB]	Total Power [dBm]	Limit [dBm]	Worstcase Datarate
802.11ac(VHT80)	5690 (UNII 2C Band)	138	8.86	3.883	12.74	23.98	MCS7
	5690 (UNII 3 Band)	138	-7.63	3.883	-3.75	30.00	MCS7

▣ Test Plots_

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

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

10.6.4 Power Spectral Density

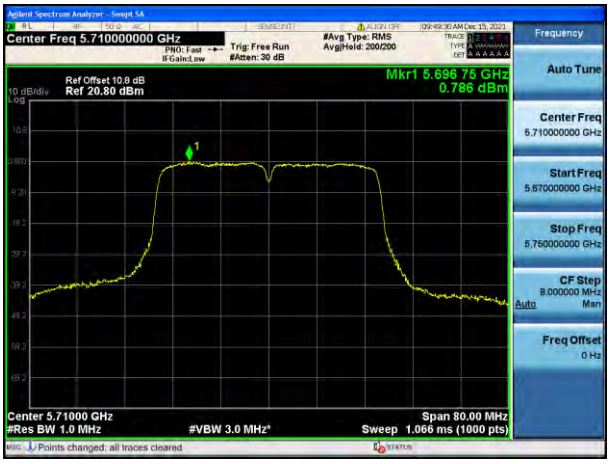
Mode	Frequency [MHz]	Channel	Measured Density [dBm]	Duty Cycle Factor [dB]	Total PSD [dBm]	Limit [dBm]	Worstcase Datarate
802.11a	5720 (UNII 2C Band)	144	6.229	1.703	7.931	11 dBm/ MHz	36 Mbps
802.11n(HT20)			5.988	1.644	7.631		MCS4
802.11ac(VHT20)			4.811	1.732	6.543		MCS4
802.11a	5720 (UNII 3 Band)	144	2.521	1.703	4.223	30 dBm/ 500 kHz	36 Mbps
802.11n(HT20)			2.546	1.644	4.189		MCS4
802.11ac(VHT20)			1.074	1.732	2.806		MCS4

Mode	Frequency [MHz]	Channel	Measured Density [dBm]	Duty Cycle Factor [dB]	Total PSD [dBm]	Limit [dBm]	Worstcase Datarate
802.11n(HT40)	5710 (UNII 2C Band)	142	0.786	2.013	2.800	11 dBm/ MHz	MCS3
802.11ac(VHT40)			0.974	2.151	3.125		MCS3
802.11n(HT40)	5710 (UNII 3 Band)	142	-2.471	2.013	-0.458	30 dBm/ 500 kHz	MCS3
802.11ac(VHT40)			-3.110	2.151	-0.959		MCS3

Mode	Frequency [MHz]	Channel	Measured Density [dBm]	Duty Cycle Factor [dB]	Total PSD [dBm]	Limit [dBm]	Worstcase Datarate
802.11ac(VHT80)	5690 (UNII 2C Band)	138	-7.764	3.883	-3.881	11 dBm/ MHz	MCS7
	5690 (UNII 3 Band)	138	-13.959	3.883	-10.077	30 dBm/ 500 kHz	MCS7

▣ Test Plots

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

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

10.7 RADIATED SPURIOUS EMISSIONS

Frequency Range : 9 kHz – 30 MHz

Frequency	Measured Value	CL+AF+DF-AG	POL	Total	Limit	Margin
[MHz]	[dBµV]	[dB/m]	[H/V]	[dBµV/m]	[dBµV/m]	[dB]
No Critical peaks found						

Note:

1. The Measured Value of emissions are attenuated more than 20 dB below the permissible limits or the field strength is too small to be measured.
2. Distance extrapolation factor = 40log (specific distance / test distance) (dB)
3. Limit line = specific Limits (dBµV) + Distance extrapolation factor

Frequency Range : Below 1 GHz

Frequency	Measured Value	A.F+C.L	POL	Total	Limit	Margin
[MHz]	[dBµV]	[dB/m]	[H/V]	[dBµV/m]	[dBµV/m]	[dB]
No Critical peaks found						

Note:

1. Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Quasi peak detector mode

Frequency Range : Above 1 GHz

Band :	UNII 1
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5180 MHz
Channel No.	36 Ch

Frequency [MHz]	Measured Value [dBµV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
10360	52.61	0.24	V	52.85	68.20	15.35	PK
15540	50.85	2.16	V	53.01	73.98	20.97	PK
15540	37.50	2.16	V	39.66	53.98	14.32	AV
10360	52.48	0.24	H	52.72	68.20	15.48	PK
15540	50.27	2.16	H	52.43	73.98	21.55	PK
15540	37.46	2.16	H	39.62	53.98	14.36	AV

Band :	UNII 1
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5200 MHz
Channel No.	40 Ch

Frequency [MHz]	Measured Value [dBµV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
10400	52.50	0.74	V	53.24	68.20	14.96	PK
15600	50.54	1.81	V	52.35	73.98	21.63	PK
15600	37.47	1.81	V	39.28	53.98	14.70	AV
10400	52.42	0.74	H	53.16	68.20	15.04	PK
15600	50.74	1.81	H	52.55	73.98	21.43	PK
15600	37.23	1.81	H	39.04	53.98	14.94	AV

Band :	UNII 1
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5240 MHz
Channel No.	48 Ch

Frequency [MHz]	Measured Value [dBµV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
10480	52.87	-0.25	V	52.62	68.20	15.58	PK
15720	50.83	1.16	V	51.99	73.98	21.99	PK
15720	37.40	1.16	V	38.56	53.98	15.42	AV
10480	53.78	-0.25	H	53.53	68.20	14.67	PK
15720	51.24	1.16	H	52.40	73.98	21.58	PK
15720	37.33	1.16	H	38.49	53.98	15.49	AV

Band :	UNII 2A
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5260 MHz
Channel No.	52 Ch

Frequency [MHz]	Measured Value [dBµV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
10520	54.26	-0.20	V	54.06	68.20	14.14	PK
15780	50.85	1.20	V	52.05	73.98	21.93	PK
15780	37.47	1.20	V	38.67	53.98	15.31	AV
10520	53.48	-0.20	H	53.28	68.20	14.92	PK
15780	50.81	1.20	H	52.01	73.98	21.97	PK
15780	37.54	1.20	H	38.74	53.98	15.24	AV

Band :	UNII 2A
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5300 MHz
Channel No.	60 Ch

Frequency [MHz]	Measured Value [dBµV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
10600	53.49	0.10	V	53.59	73.98	20.39	PK
10600	39.90	0.10	V	40.00	53.98	13.98	AV
15900	51.42	1.04	V	52.46	73.98	21.52	PK
15900	38.07	1.04	V	39.11	53.98	14.87	AV
10600	53.41	0.10	H	53.51	73.98	20.47	PK
10600	39.91	0.10	H	40.01	53.98	13.97	AV
15900	51.54	1.04	H	52.58	73.98	21.40	PK
15900	38.08	1.04	H	39.12	53.98	14.86	AV

Band :	UNII 2A
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5320 MHz
Channel No.	64 Ch

Frequency [MHz]	Measured Value [dBµV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
10640	54.55	0.35	V	54.90	73.98	19.08	PK
10640	41.25	0.35	V	41.60	53.98	12.38	AV
15960	51.27	1.12	V	52.39	73.98	21.59	PK
15960	37.94	1.12	V	39.06	53.98	14.92	AV
10640	54.02	0.35	H	54.37	73.98	19.61	PK
10640	40.98	0.35	H	41.33	53.98	12.65	AV
15960	51.48	1.12	H	52.60	73.98	21.38	PK
15960	38.11	1.12	H	39.23	53.98	14.75	AV

Band :	UNII 2C
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5500 MHz
Channel No.	100 Ch

Frequency [MHz]	Measured Value [dBµV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
11000	52.81	0.40	V	53.21	73.98	20.77	PK
11000	39.41	0.40	V	39.81	53.98	14.17	AV
16500	50.91	1.16	V	52.07	68.20	16.13	PK
11000	52.78	0.40	H	53.18	73.98	20.80	PK
11000	39.42	0.40	H	39.82	53.98	14.16	AV
16500	50.91	1.16	H	52.07	68.20	16.13	PK

Band :	UNII 2C
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5600 MHz
Channel No.	120 Ch

Frequency [MHz]	Measured Value [dBµV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
11200	52.45	-0.40	V	52.05	73.98	21.93	PK
11200	39.66	-0.40	V	39.26	53.98	14.72	AV
16800	51.40	0.65	V	52.05	68.20	16.15	PK
11200	52.22	-0.40	H	51.82	73.98	22.16	PK
11200	39.15	-0.40	H	38.75	53.98	15.23	AV
16800	51.31	0.65	H	51.96	68.20	16.24	PK

Band :	UNII 2C
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5720 MHz
Channel No.	144 Ch

Frequency [MHz]	Measured Value [dBµV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
11440	53.01	0.14	V	53.15	73.98	20.83	PK
11440	39.63	0.14	V	39.77	53.98	14.21	AV
17160	51.27	1.35	V	52.62	68.20	15.58	PK
11440	52.54	0.14	H	52.68	73.98	21.30	PK
11440	39.73	0.14	H	39.87	53.98	14.11	AV
17160	50.98	1.35	H	52.33	68.20	15.87	PK

Band :	UNII 3
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5745MHz
Channel No.	149 Ch

Frequency [MHz]	Measured Value [dBµV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
11490	52.41	-0.14	V	52.27	73.98	21.71	PK
11490	39.27	-0.14	V	39.13	53.98	14.85	AV
17235	51.76	1.61	V	53.37	68.20	14.83	PK
11490	52.41	-0.14	H	52.27	73.98	21.71	PK
11490	39.25	-0.14	H	39.11	53.98	14.87	AV
17235	51.50	1.61	H	53.11	68.20	15.09	PK

Band :	UNII 3
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5785 MHz
Channel No.	157 Ch

Frequency [MHz]	Measured Value [dBµV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
11570	52.95	0.07	V	53.02	73.98	20.96	PK
11570	39.23	0.07	V	39.30	53.98	14.68	AV
17355	50.76	1.69	V	52.45	68.20	15.75	PK
11570	52.36	0.07	H	52.43	73.98	21.55	PK
11570	39.40	0.07	H	39.47	53.98	14.51	AV
17355	51.88	1.69	H	53.57	68.20	14.63	PK

Band :	UNII 3
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5825 MHz
Channel No.	165 Ch

Frequency [MHz]	Measured Value [dBµV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
11650	52.65	-0.70	V	51.95	73.98	22.03	PK
11650	39.67	-0.70	V	38.97	53.98	15.01	AV
17475	50.51	2.65	V	53.16	68.20	15.04	PK
11650	53.10	-0.70	H	52.40	73.98	21.58	PK
11650	39.40	-0.70	H	38.70	53.98	15.28	AV
17475	51.10	2.65	H	53.75	68.20	14.45	PK

[DBS Mode]

WLAN/BT Ant : 802.11a 6 Mbps ch.64 & Bluetooth Ch. 78 (GFSK)

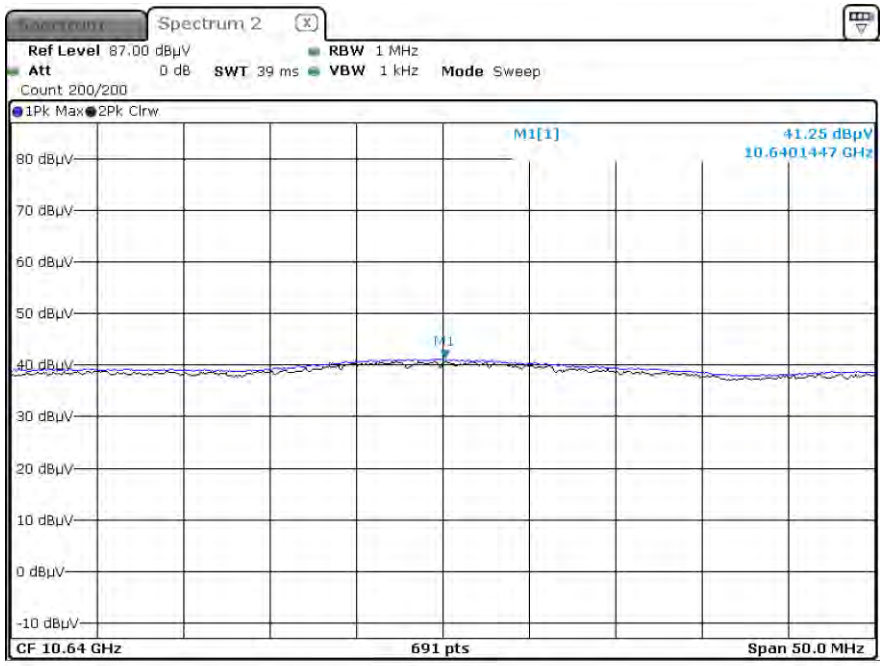
Frequency [MHz]	Measured Value [dBµV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
10640	53.27	0.35	V	53.62	73.98	20.36	PK
10640	40.15	0.35	V	40.50	53.98	13.48	AV
15960	50.90	1.12	V	52.02	73.98	21.96	PK
15960	37.44	1.12	V	38.56	53.98	15.42	AV
10640	52.95	0.35	H	53.30	73.98	20.68	PK
10640	39.95	0.35	H	40.30	53.98	13.68	AV
15960	50.78	1.12	H	51.90	73.98	22.08	PK
15960	37.32	1.12	H	38.44	53.98	15.54	AV

Note :

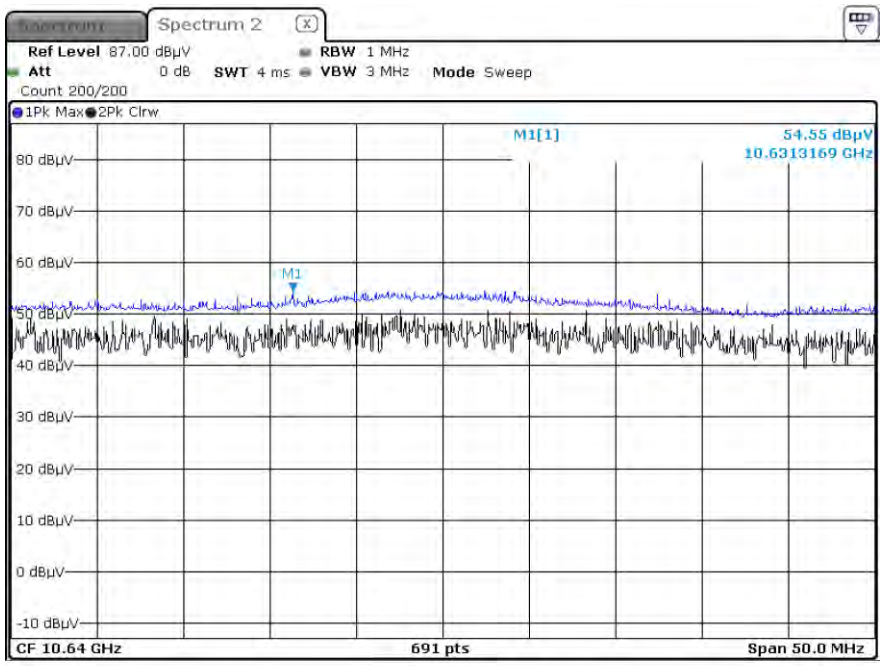
BT DBS Data refer to BT Test Report.

▣ Test Plots

Average Result (802.11a, Ch.64 2nd Harmonic, X-V)



Peak Result (802.11a, Ch.64 2nd Harmonic, X-V)



Note:

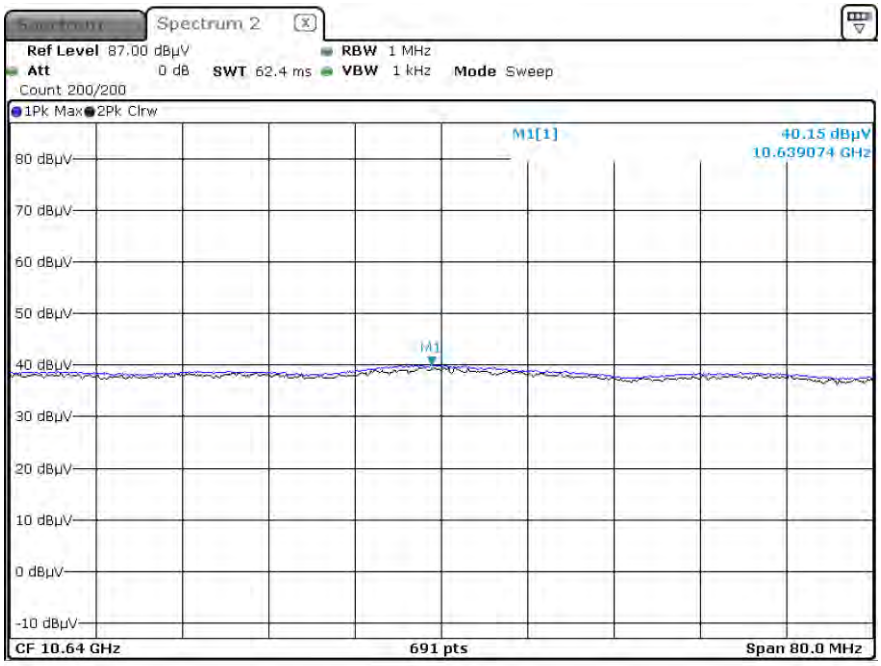
Only the worst case plots for Radiated Spurious Emissions.

[DBS Mode]

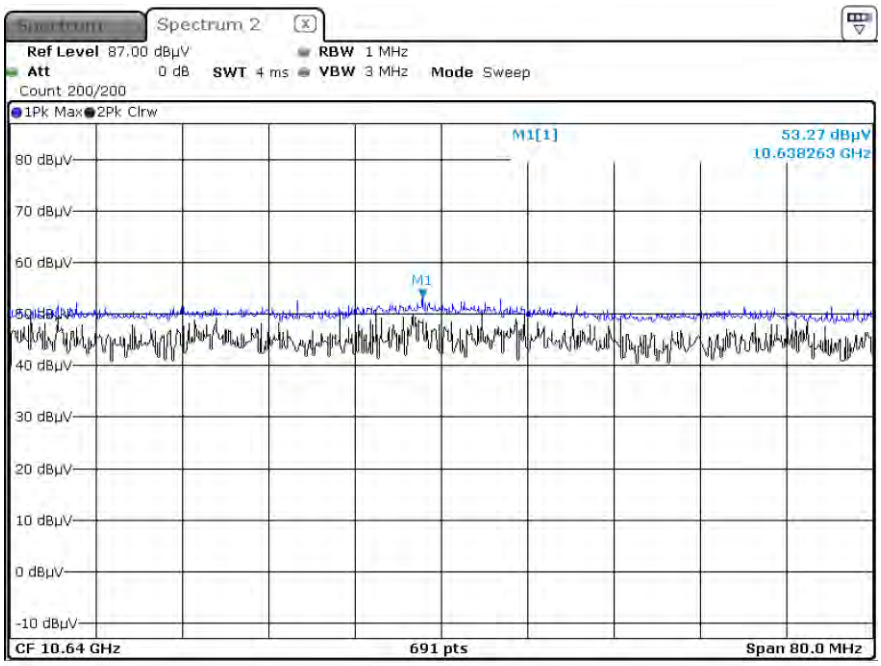
WLAN/BT Ant : 802.11a 6 Mbps ch.64 & Bluetooth Ch. 78 (GFSK)

▣ Test Plots

Average Result (2nd Harmonic, Z-V)



Peak Result (2nd Harmonic, Z-V)



Note:

Only the worst case plots for Radiated Spurious Emissions.

10.8 RADIATED RESTRICTED BAND EDGE

Band :	UNII 1
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5180 MHz
Channel No.	36 Ch

Frequency [MHz]	Measured Value [dBµV]	A.F+C.L-A.G+ATT+D.F [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
5150	53.79	13.63	H	67.42	73.98	6.56	PK
5150	35.24	13.63	H	48.87	53.98	5.11	AV
5150	53.57	13.63	V	67.20	73.98	6.78	PK
5150	35.12	13.63	V	48.75	53.98	5.23	AV

Band :	UNII 2A
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5320 MHz
Channel No.	64 Ch

Frequency [MHz]	Measured Value [dBµV]	A.F+C.L-A.G+ATT+D.F [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
5350	50.53	14.13	H	64.66	73.98	9.32	PK
5350	34.44	14.13	H	48.57	53.98	5.41	AV
5350	50.32	14.13	V	64.45	73.98	9.53	PK
5350	34.12	14.13	V	48.25	53.98	5.73	AV

Band :	UNII 2C
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5500 MHz
Channel No.	100 Ch

Frequency [MHz]	Measured Value [dBµV]	A.F+C.L-A.G+ATT+D.F [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
5460	48.77	14.77	H	63.54	73.98	10.44	PK
5460	34.13	14.77	H	48.90	53.98	5.08	AV
5470	50.62	15.12	H	65.74	68.20	2.46	PK
5460	48.45	14.77	V	63.22	73.98	10.76	PK
5460	34.01	14.77	V	48.78	53.98	5.20	AV
5470	50.25	15.12	V	65.37	68.20	2.83	PK

Band :	UNII 1
Operation Mode:	802.11 n_HT20
Transfer MCS Index:	0
Operating Frequency	5180 MHz
Channel No.	36 Ch

Frequency [MHz]	Measured Value [dBµV]	A.F+C.L-A.G+ATT+D.F [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
5150	50.50	13.63	H	64.13	73.98	9.85	PK
5150	35.49	13.63	H	49.12	53.98	4.86	AV
5150	50.11	13.63	V	63.74	73.98	10.24	PK
5150	35.23	13.63	V	48.86	53.98	5.12	AV

Band :	UNII 2A
Operation Mode:	802.11 n_HT20
Transfer MCS Index:	0
Operating Frequency	5320 MHz
Channel No.	64 Ch

Frequency [MHz]	Measured Value [dBµV]	A.F+C.L-A.G+ATT+D.F [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
5350	50.51	14.13	H	64.64	73.98	9.34	PK
5350	34.58	14.13	H	48.71	53.98	5.27	AV
5350	50.14	14.13	V	64.27	73.98	9.71	PK
5350	34.32	14.13	V	48.45	53.98	5.53	AV

Band :	UNII 2C
Operation Mode:	802.11 n_HT20
Transfer MCS Index:	0
Operating Frequency	5500 MHz
Channel No.	100 Ch

Frequency [MHz]	Measured Value [dBµV]	A.F+C.L-A.G+ATT+D.F [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
5460	48.75	14.77	H	63.52	73.98	10.46	PK
5460	33.75	14.77	H	48.52	53.98	5.46	AV
5470	50.30	15.12	H	65.42	68.20	2.78	PK
5460	48.62	14.77	V	63.39	73.98	10.59	PK
5460	33.54	14.77	V	48.31	53.98	5.67	AV
5470	49.99	15.12	V	65.11	68.20	3.09	PK

Band :	UNII 1
Operation Mode:	802.11 ac_VHT20
Transfer MCS Index:	0
Operating Frequency	5180 MHz
Channel No.	36 Ch

Frequency [MHz]	Measured Value [dBµV]	A.F+C.L-A.G+ATT+D.F [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
5150	53.25	13.63	H	66.88	73.98	7.10	PK
5150	35.75	13.63	H	49.38	53.98	4.60	AV
5150	52.98	13.63	V	66.61	73.98	7.37	PK
5150	35.64	13.63	V	49.27	53.98	4.71	AV

Band :	UNII 2A
Operation Mode:	802.11 ac_VHT20
Transfer MCS Index:	0
Operating Frequency	5320 MHz
Channel No.	64 Ch

Frequency [MHz]	Measured Value [dBµV]	A.F+C.L-A.G+ATT+D.F [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
5350	49.70	14.13	H	63.83	73.98	10.15	PK
5350	34.89	14.13	H	49.02	53.98	4.96	AV
5350	49.01	14.13	V	63.14	73.98	10.84	PK
5350	34.67	14.13	V	48.80	53.98	5.18	AV

Band :	UNII 2C
Operation Mode:	802.11 ac_VHT20
Transfer MCS Index:	0
Operating Frequency	5500 MHz
Channel No.	100 Ch

Frequency [MHz]	Measured Value [dBµV]	A.F+C.L-A.G+ATT+D.F [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
5460	48.52	14.77	H	63.29	73.98	10.69	PK
5460	33.73	14.77	H	48.50	53.98	5.48	AV
5470	49.60	15.12	H	64.72	68.20	3.48	PK
5460	48.15	14.77	V	62.92	73.98	11.06	PK
5460	33.49	14.77	V	48.26	53.98	5.72	AV
5470	48.97	15.12	V	64.09	68.20	4.11	PK

Band :	UNII 1
Operation Mode:	802.11 n_HT40
Transfer MCS Index:	0
Operating Frequency	5190 MHz
Channel No.	38 Ch

Frequency [MHz]	Measured Value [dBµV]	A.F+C.L-A.G+ATT+D.F [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
5150	49.50	13.63	H	63.13	73.98	10.85	PK
5150	37.39	13.63	H	51.02	53.98	2.96	AV
5150	49.22	13.63	V	62.85	73.98	11.13	PK
5150	37.15	13.63	V	50.78	53.98	3.20	AV

Band :	UNII 2A
Operation Mode:	802.11 n_HT40
Transfer MCS Index:	0
Operating Frequency	5310 MHz
Channel No.	62 Ch

Frequency [MHz]	Measured Value [dBµV]	A.F+C.L-A.G+ATT+D.F [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
5350	52.25	14.13	H	66.38	73.98	7.60	PK
5350	36.25	14.13	H	50.38	53.98	3.60	AV
5350	51.98	14.13	V	66.11	73.98	7.87	PK
5350	35.96	14.13	V	50.09	53.98	3.89	AV

Band :	UNII 2C
Operation Mode:	802.11 n_HT40
Transfer MCS Index:	0
Operating Frequency	5510 MHz
Channel No.	102 Ch

Frequency [MHz]	Measured Value [dBµV]	A.F+C.L-A.G+ATT+D.F [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
5460	47.99	14.77	H	62.76	73.98	11.22	PK
5460	33.96	14.77	H	48.73	53.98	5.25	AV
5470	50.01	15.12	H	65.13	68.20	3.07	PK
5460	47.59	14.77	V	62.36	73.98	11.62	PK
5460	33.78	14.77	V	48.55	53.98	5.43	AV
5470	49.68	15.12	V	64.8	68.20	3.40	PK

Band :	UNII 1
Operation Mode:	802.11 ac_VHT40
Transfer MCS Index:	0
Operating Frequency	5190 MHz
Channel No.	38 Ch

Frequency [MHz]	Measured Value [dBµV]	A.F+C.L-A.G+ATT+D.F [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
5150	48.08	13.63	H	61.71	73.98	12.27	PK
5150	37.42	13.63	H	51.05	53.98	2.93	AV
5150	47.85	13.63	V	61.48	73.98	12.50	PK
5150	37.11	13.63	V	50.74	53.98	3.24	AV

Band :	UNII 2A
Operation Mode:	802.11 ac_VHT40
Transfer MCS Index:	0
Operating Frequency	5310 MHz
Channel No.	62 Ch

Frequency [MHz]	Measured Value [dBµV]	A.F+C.L-A.G+ATT+D.F [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
5350	52.24	14.13	H	66.37	73.98	7.61	PK
5350	37.12	14.13	H	51.25	53.98	2.73	AV
5350	51.99	14.13	V	66.12	73.98	7.86	PK
5350	36.94	14.13	V	51.07	53.98	2.91	AV

Band :	UNII 2C
Operation Mode:	802.11 ac_VHT40
Transfer MCS Index:	0
Operating Frequency	5510 MHz
Channel No.	102 Ch

Frequency [MHz]	Measured Value [dBµV]	A.F+C.L-A.G+ATT+D.F [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
5460	47.97	14.77	H	62.74	73.98	11.24	PK
5460	33.81	14.77	H	48.58	53.98	5.40	AV
5470	50.40	15.12	H	65.52	68.20	2.68	PK
5460	47.75	14.77	V	62.52	73.98	11.46	PK
5460	33.62	14.77	V	48.39	53.98	5.59	AV
5470	49.75	15.12	V	64.87	68.20	3.33	PK

Band :	UNII 1
Operation Mode:	802.11 ac_VHT80
Transfer MCS Index:	0
Operating Frequency	5210 MHz
Channel No.	42 Ch

Frequency [MHz]	Measured Value [dBµV]	A.F+C.L-A.G+ATT+D.F [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
5150	50.96	13.63	H	64.59	73.98	9.39	PK
5150	37.30	13.63	H	50.93	53.98	3.05	AV
5150	50.15	13.63	V	63.78	73.98	10.20	PK
5150	36.88	13.63	V	50.51	53.98	3.47	AV

Band :	UNII 2A
Operation Mode:	802.11 ac_VHT80
Transfer MCS Index:	0
Operating Frequency	5290 MHz
Channel No.	58 Ch

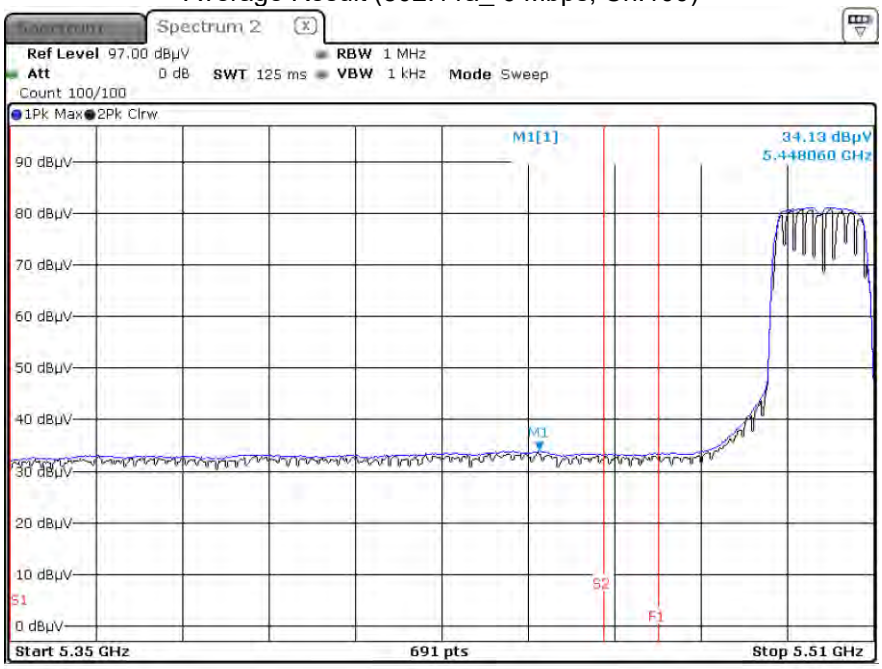
Frequency [MHz]	Measured Value [dBµV]	A.F+C.L-A.G+ATT+D.F [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
5350	51.29	14.13	H	65.42	73.98	8.56	PK
5350	37.48	14.13	H	51.61	53.98	2.37	AV
5350	50.89	14.13	V	65.02	73.98	8.96	PK
5350	37.11	14.13	V	51.24	53.98	2.74	AV

Band :	UNII 2C
Operation Mode:	802.11 ac_VHT80
Transfer MCS Index:	0
Operating Frequency	5530 MHz
Channel No.	106 Ch

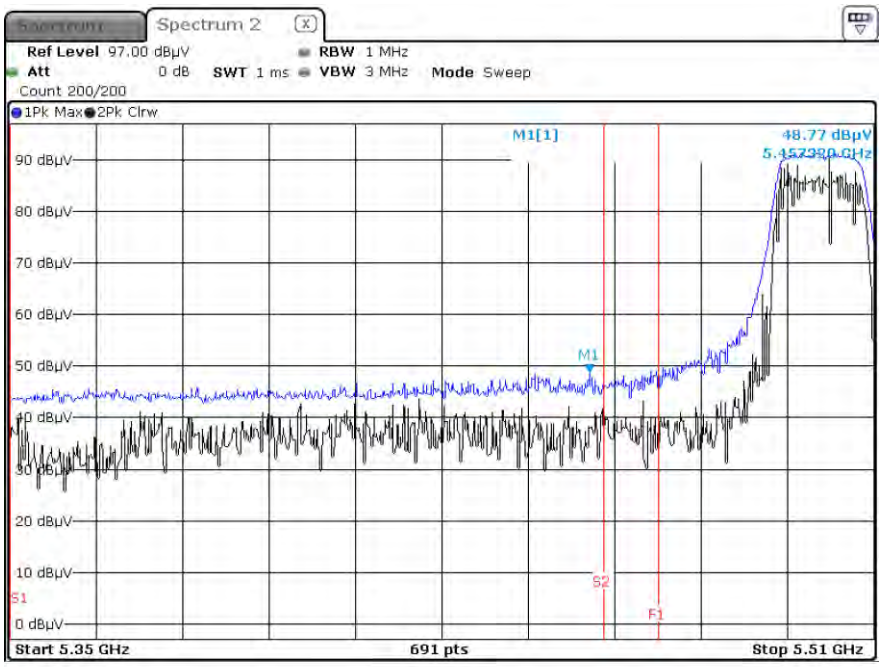
Frequency [MHz]	Measured Value [dBµV]	A.F+C.L-A.G+ATT+D.F [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
5460	46.25	14.77	H	61.02	73.98	12.96	PK
5460	33.47	14.77	H	48.24	53.98	5.74	AV
5470	48.29	15.12	H	63.41	68.20	4.79	PK
5460	45.82	14.77	V	60.59	73.98	13.39	PK
5460	33.21	14.77	V	47.98	53.98	6.00	AV
5470	47.96	15.12	V	63.08	68.20	5.12	PK

▣ Test Plots(UNII 1, 2A, 2C)_(X-H)

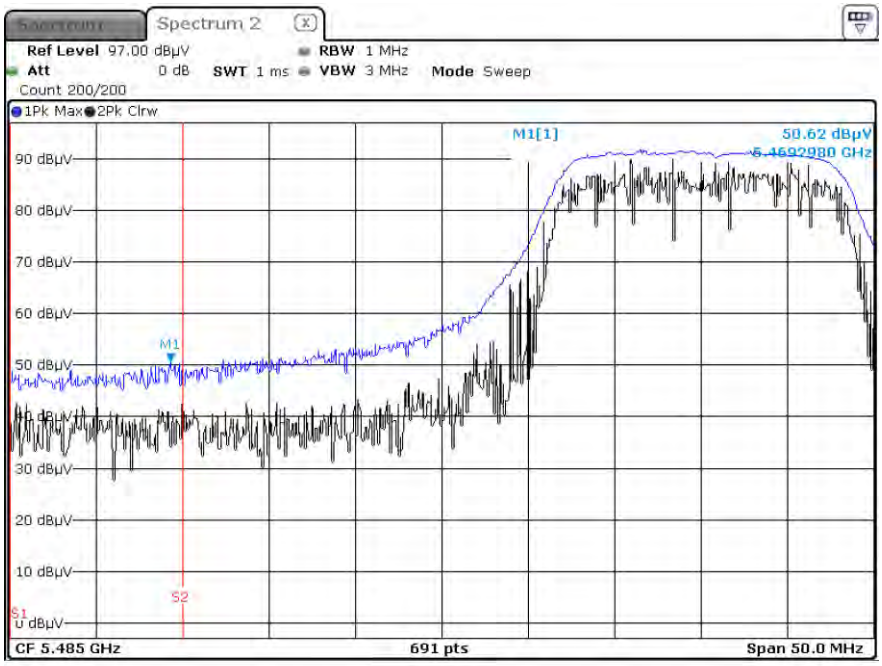
Average Result (802.11a_ 6 Mbps, Ch.100)



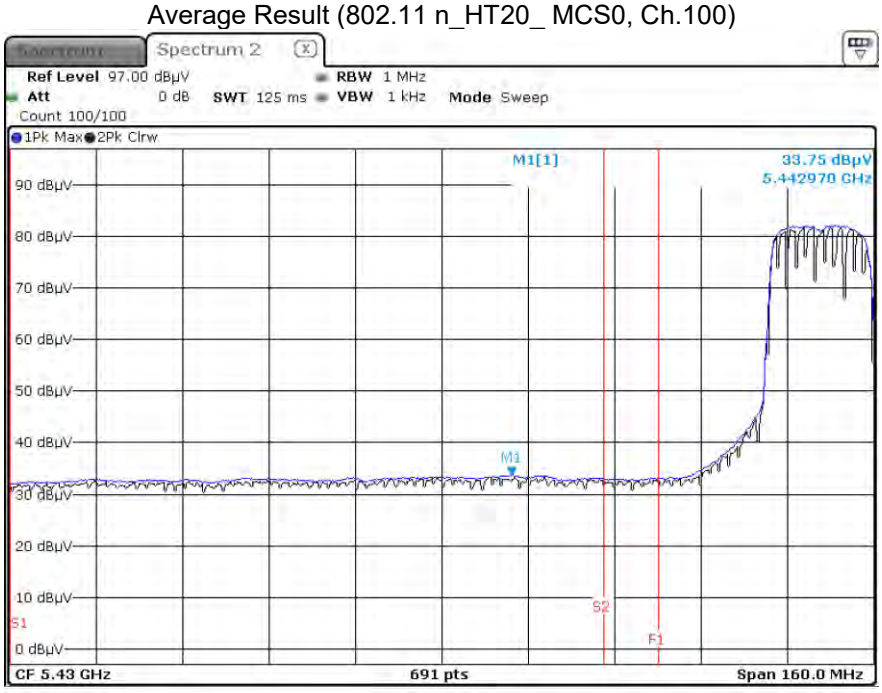
Peak Result (802.11a_ 6 Mbps, Ch.100)



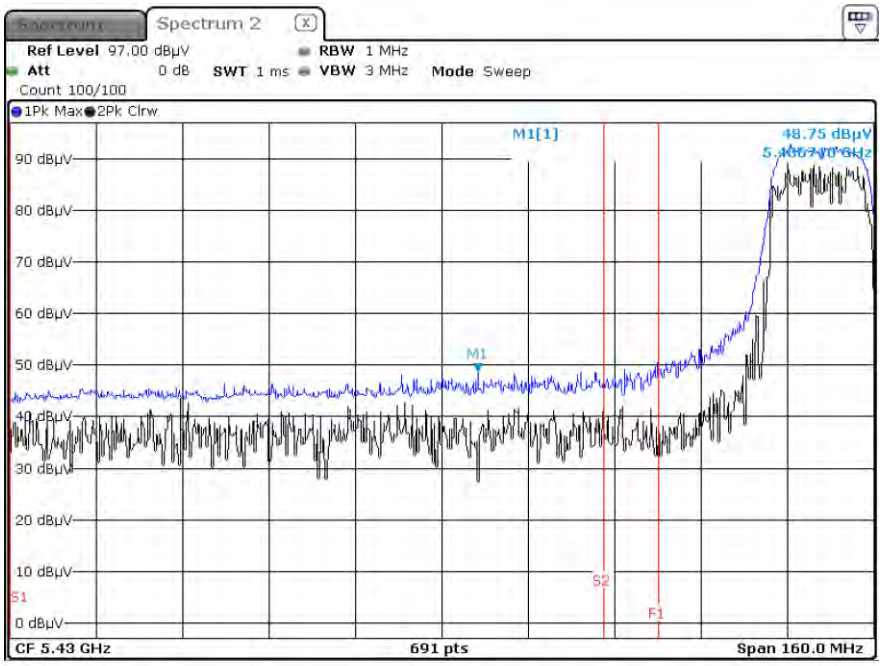
Peak Result (802.11a_ 6 Mbps, Ch.100)



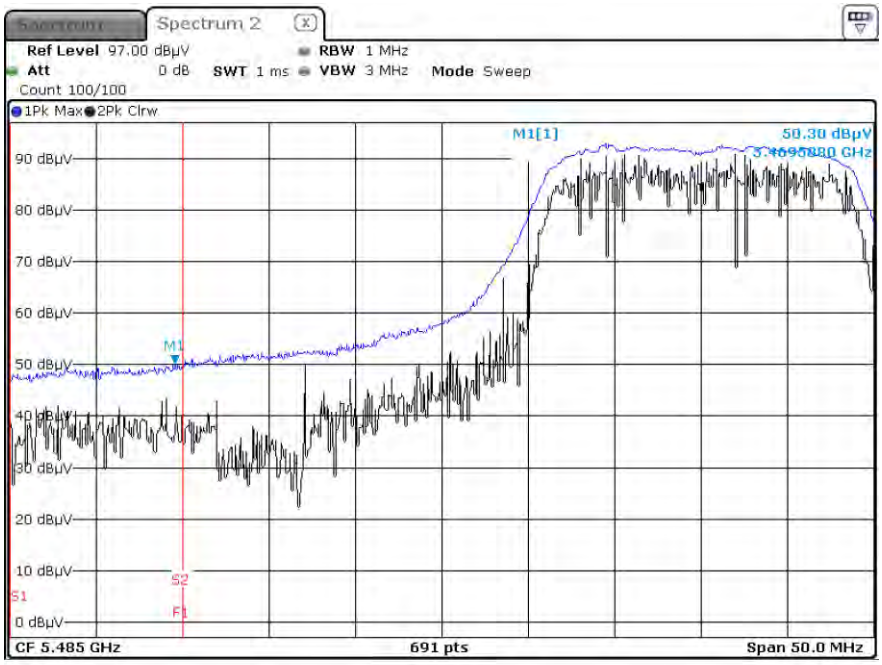
Average Result (802.11 n_HT20_ MCS0, Ch.100)



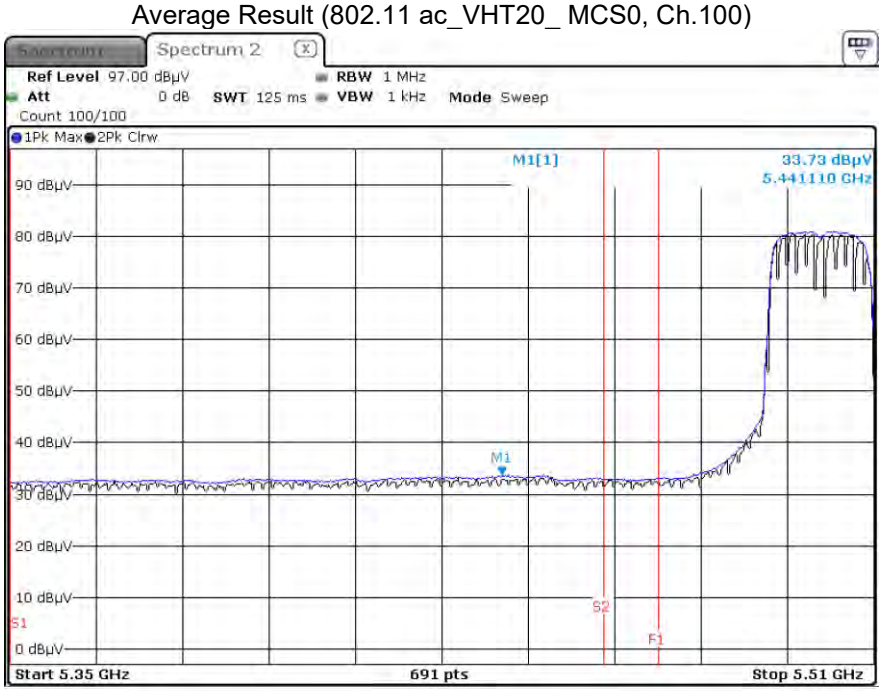
Peak Result (802.11 n_HT20_ MCS0, Ch.100)



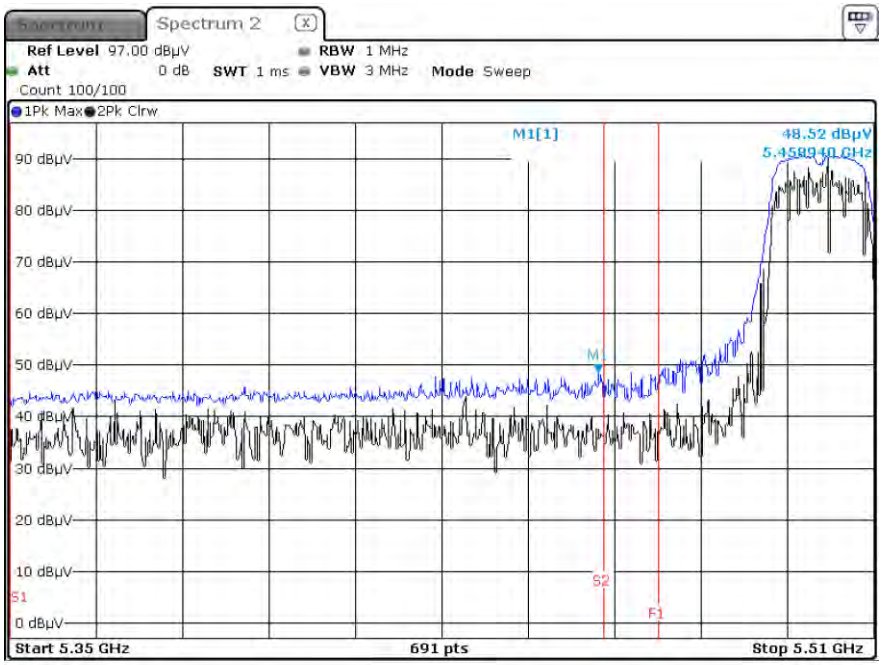
Peak Result (802.11 n_HT20_ MCS0, Ch.100)



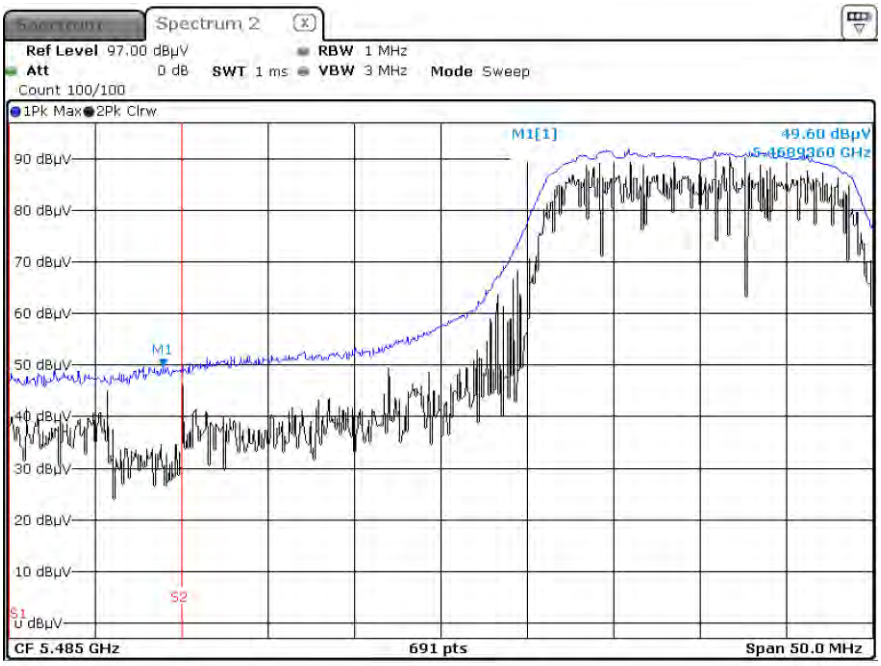
Average Result (802.11 ac_VHT20_ MCS0, Ch.100)



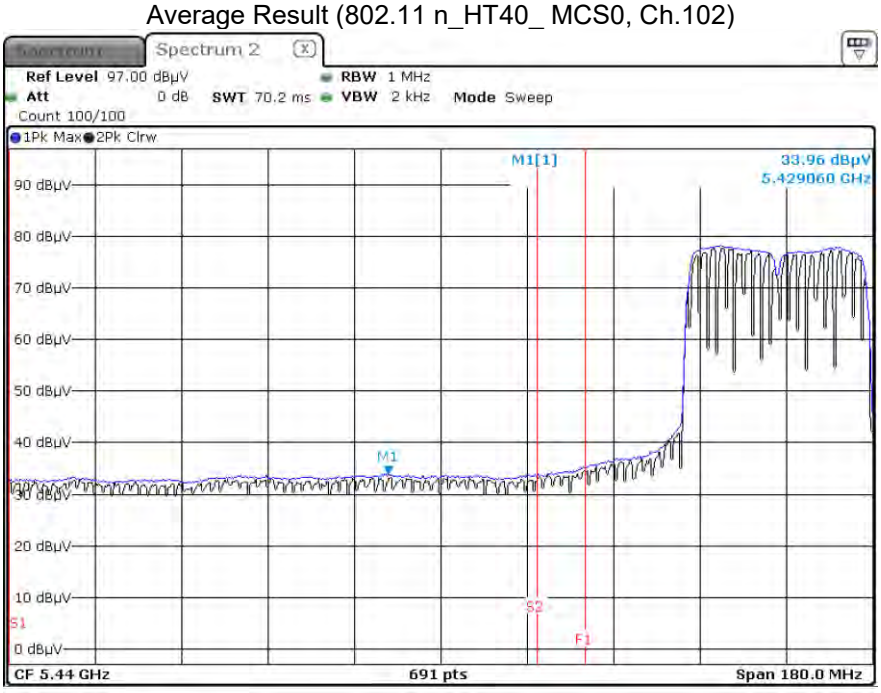
Peak Result (802.11 ac_VHT20_ MCS0, Ch.100)



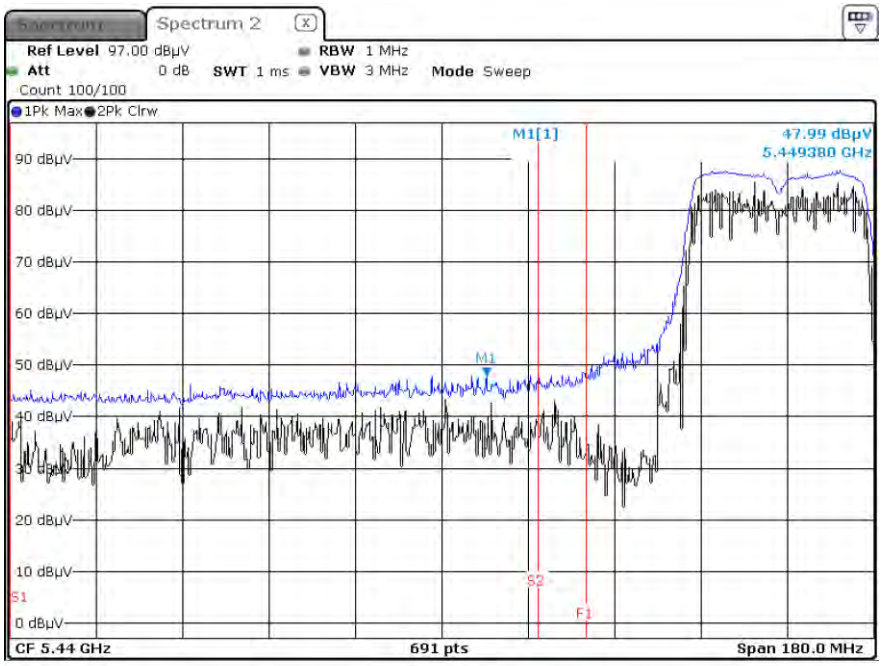
Peak Result (802.11 ac_VHT20_ MCS0, Ch.100)



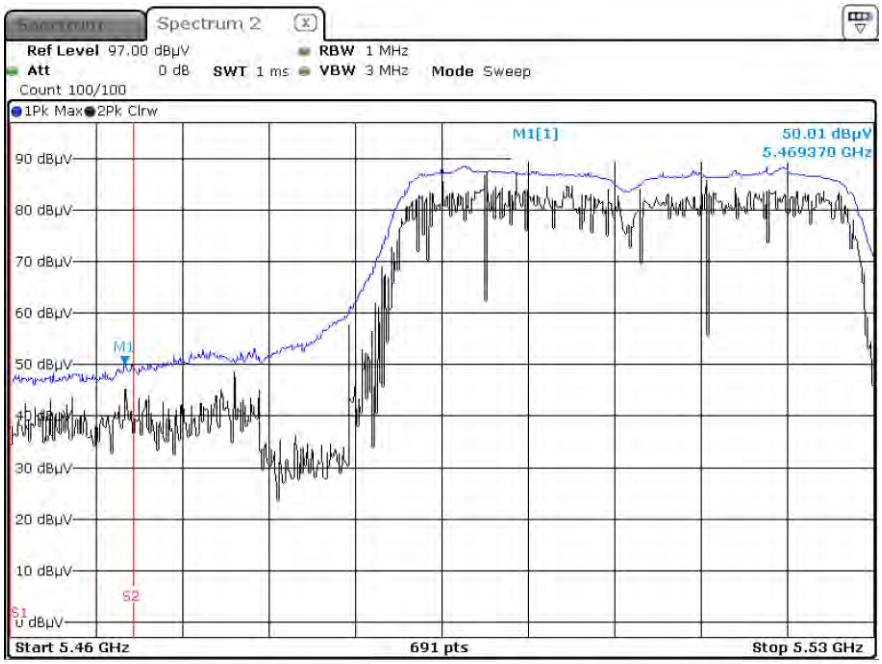
Average Result (802.11 n_HT40_ MCS0, Ch.102)



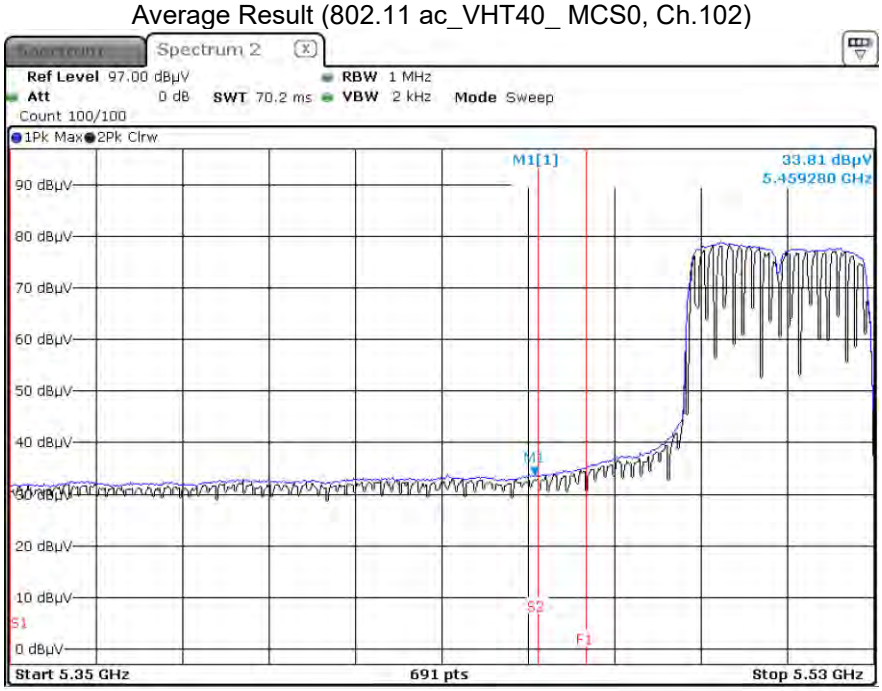
Peak Result (802.11 n_HT40_ MCS0, Ch.102)



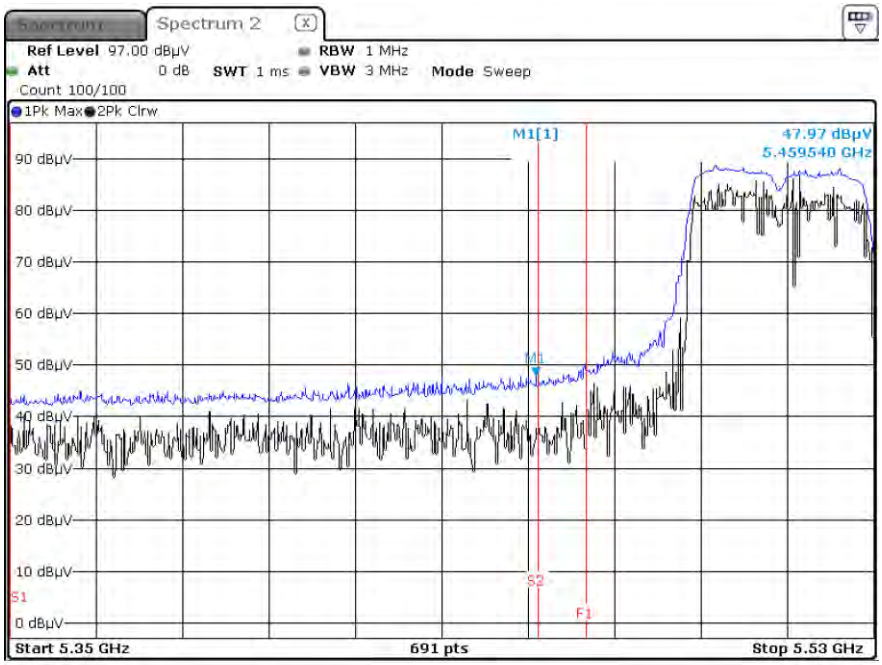
Peak Result (802.11 n_HT40_ MCS0, Ch.102)



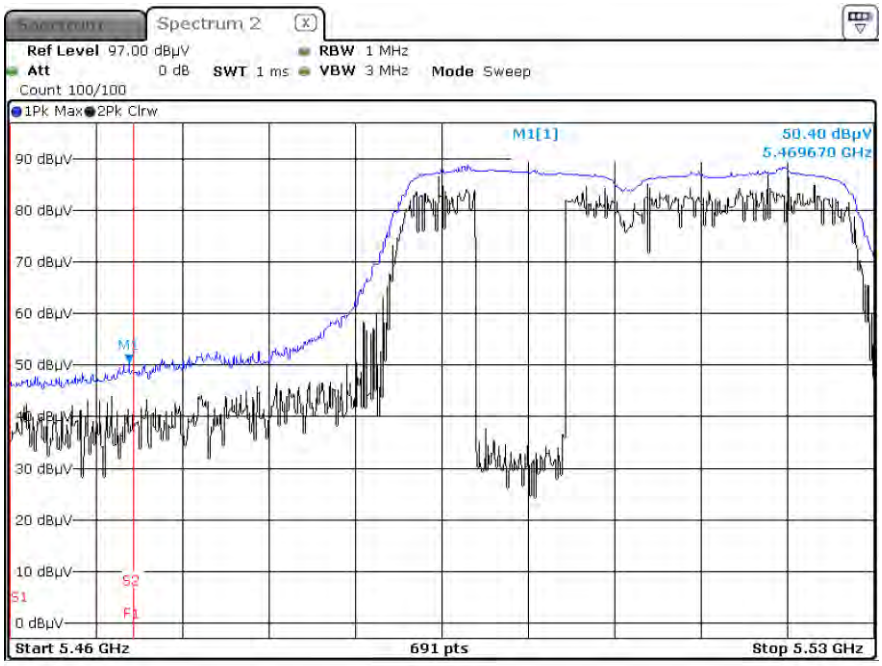
Average Result (802.11 ac_VHT40_ MCS0, Ch.102)



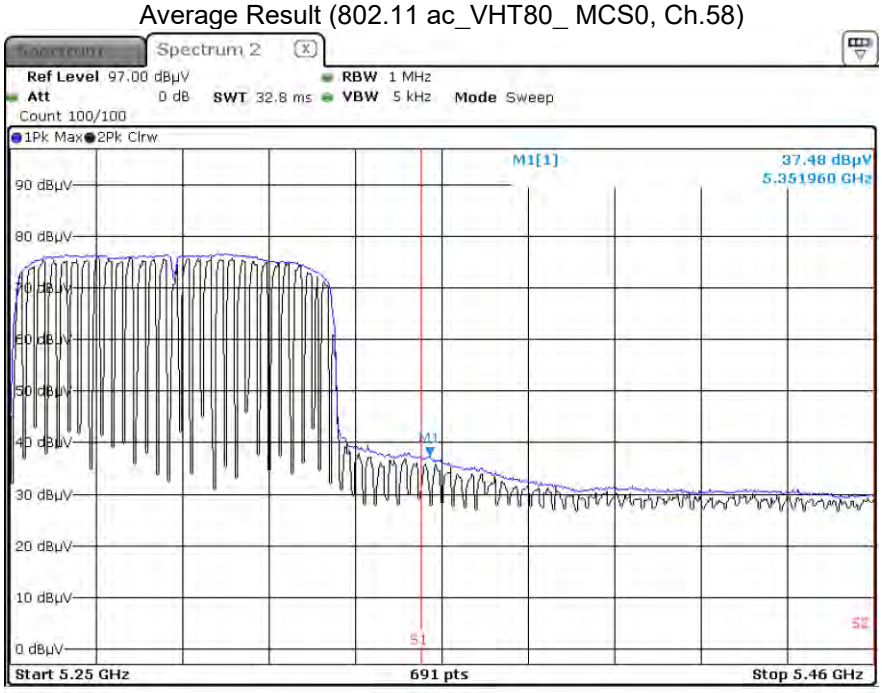
Peak Result (802.11 ac_VHT40_ MCS0, Ch.102)



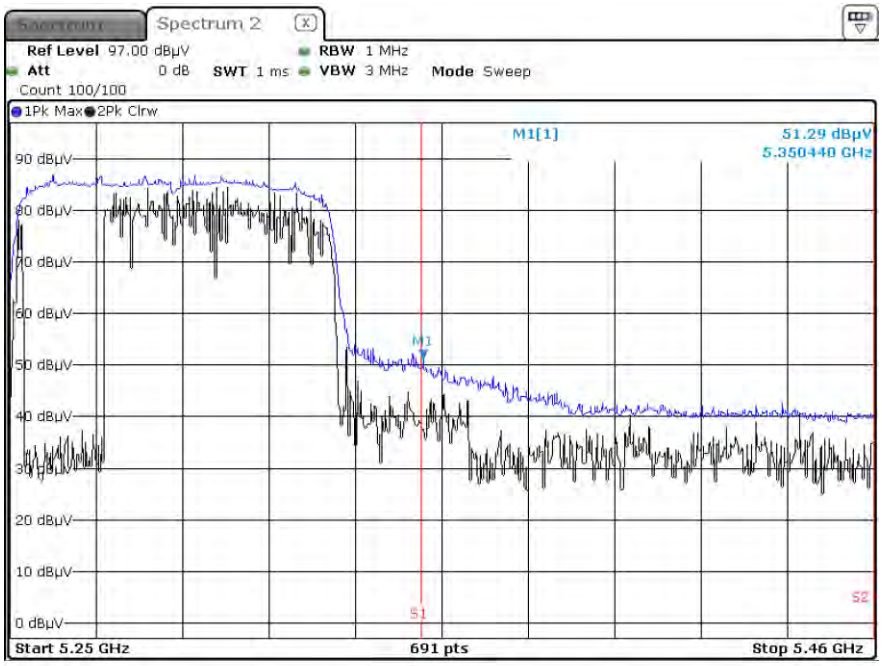
Peak Result (802.11 ac_VHT40_ MCS0, Ch.102)



Average Result (802.11 ac_VHT80_ MCS0, Ch.58)



Peak Result (802.11 ac_VHT80_ MCS0, Ch.58)

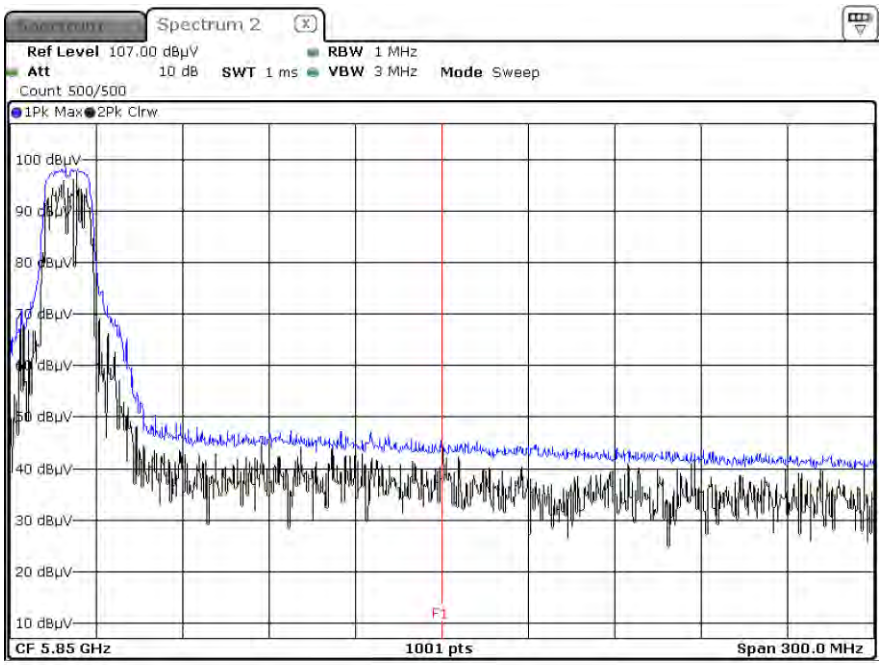


Note:

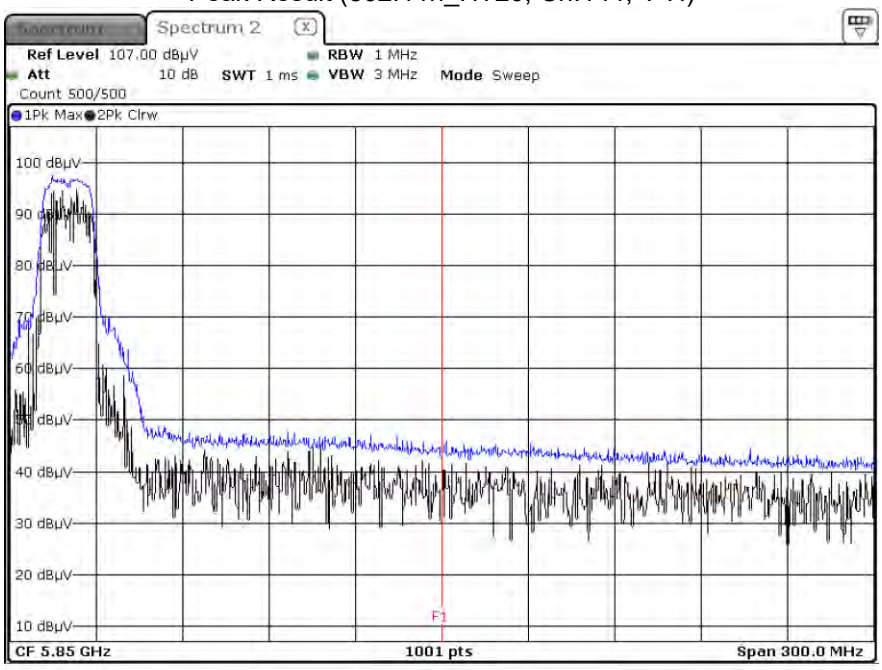
Only the worst case plots for Radiated Restricted Band Edge.

▣ Test Plots(Straddle Channel)

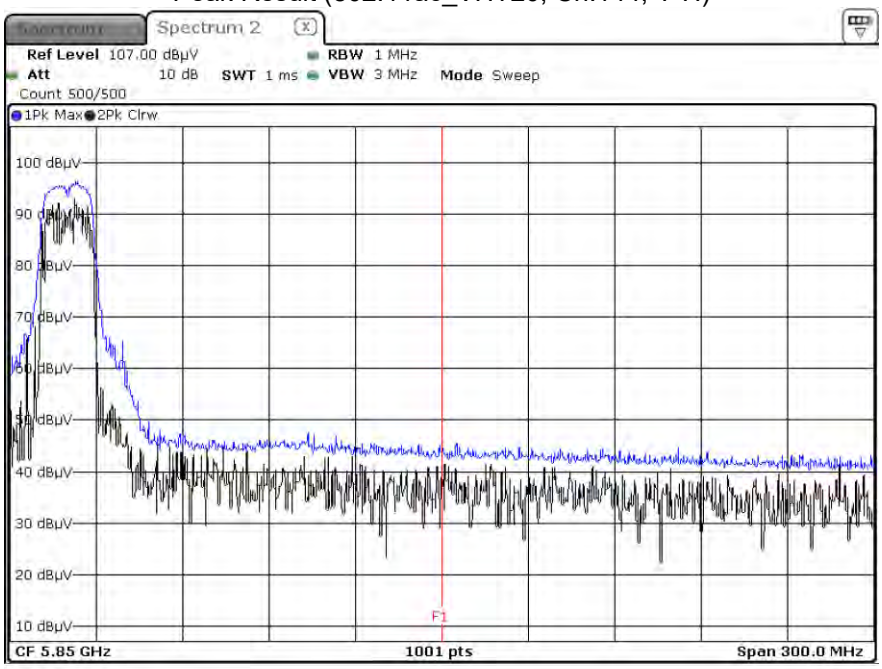
Peak Result (802.11a, Ch.144, Y-H)



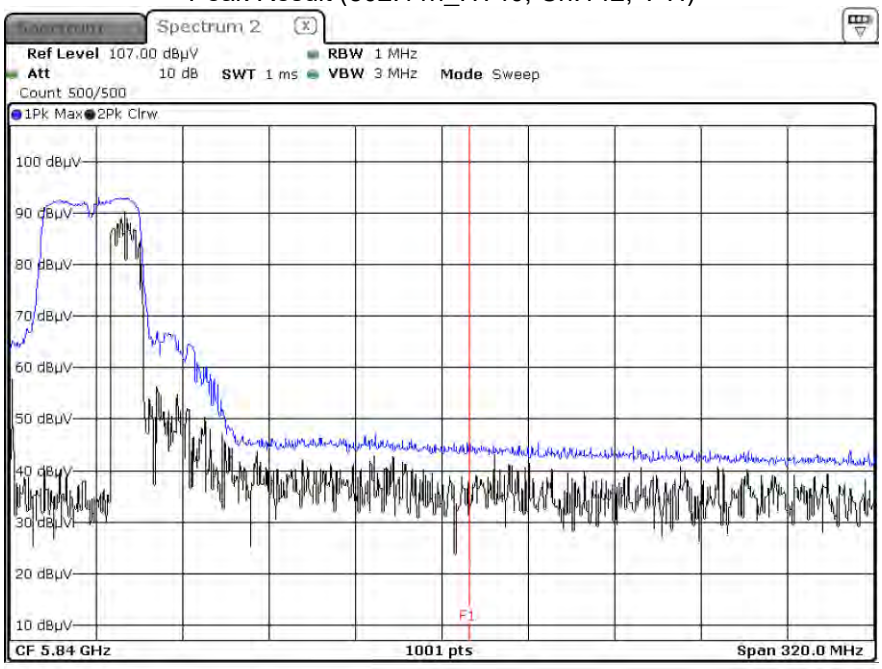
Peak Result (802.11n_HT20, Ch.144, Y-H)



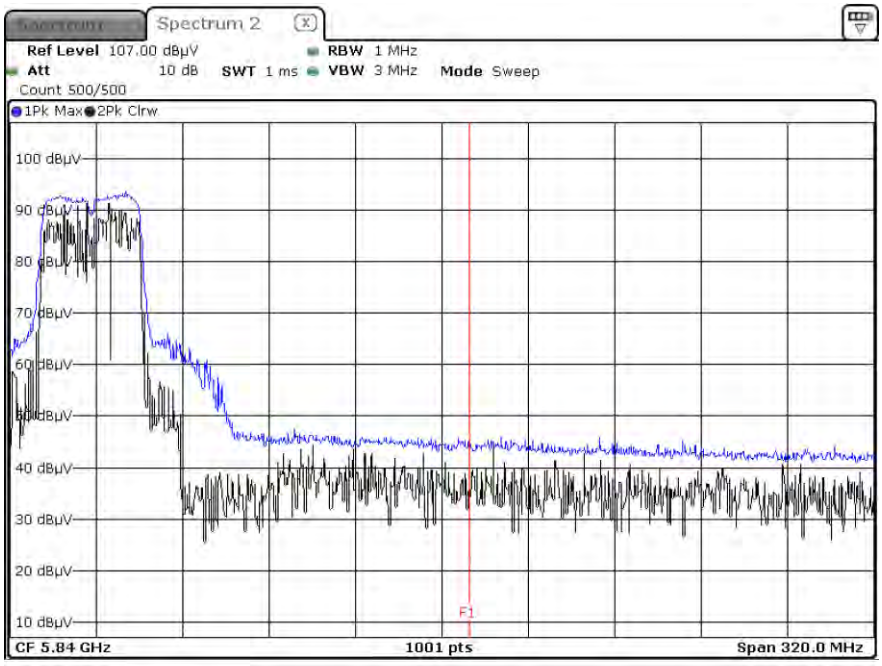
Peak Result (802.11ac_VHT20, Ch.144, Y-H)



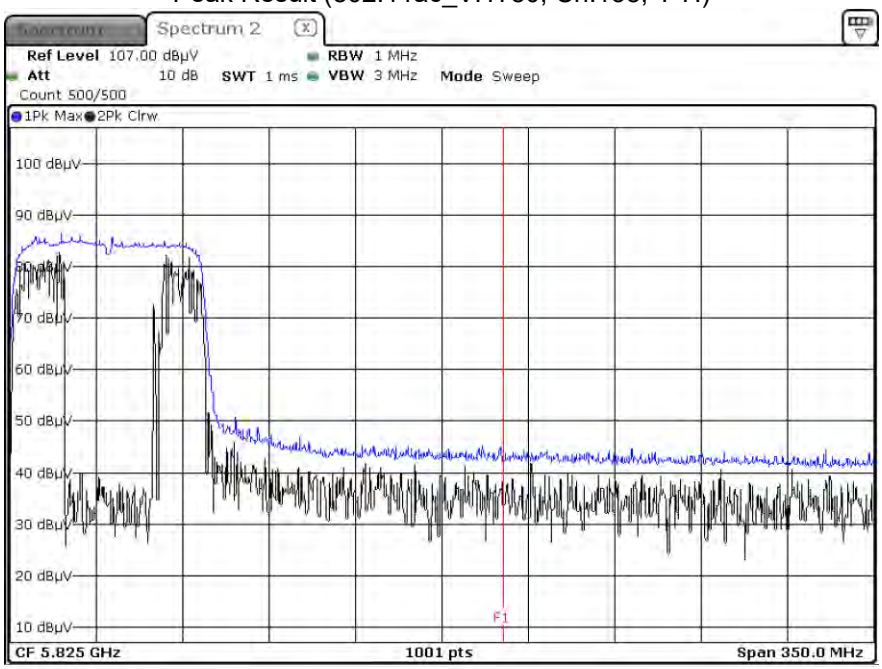
Peak Result (802.11n_HT40, Ch.142, Y-H)



Peak Result (802.11ac_VHT40, Ch.142, Y-H)



Peak Result (802.11ac_VHT80, Ch.138, Y-H)

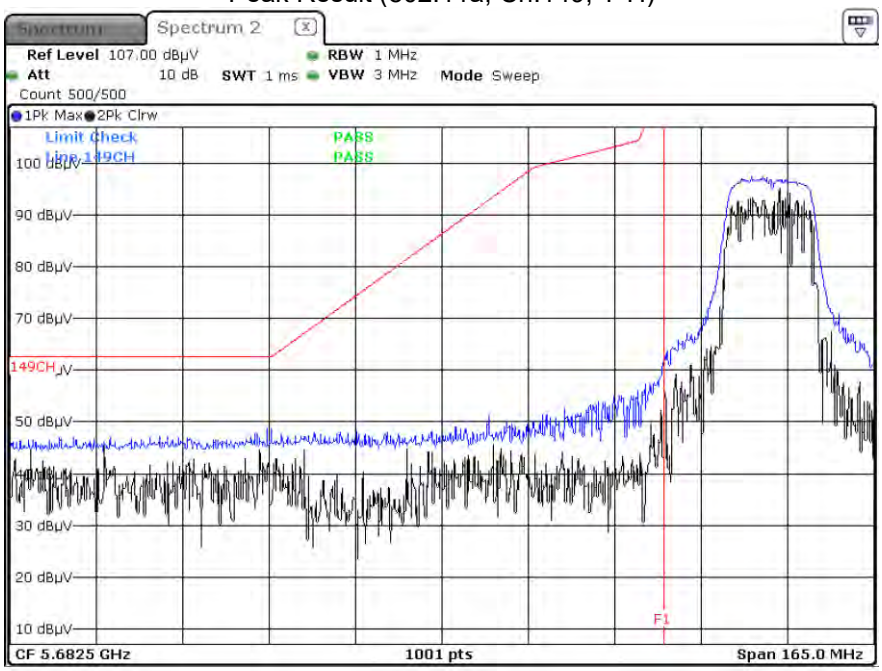


Note :

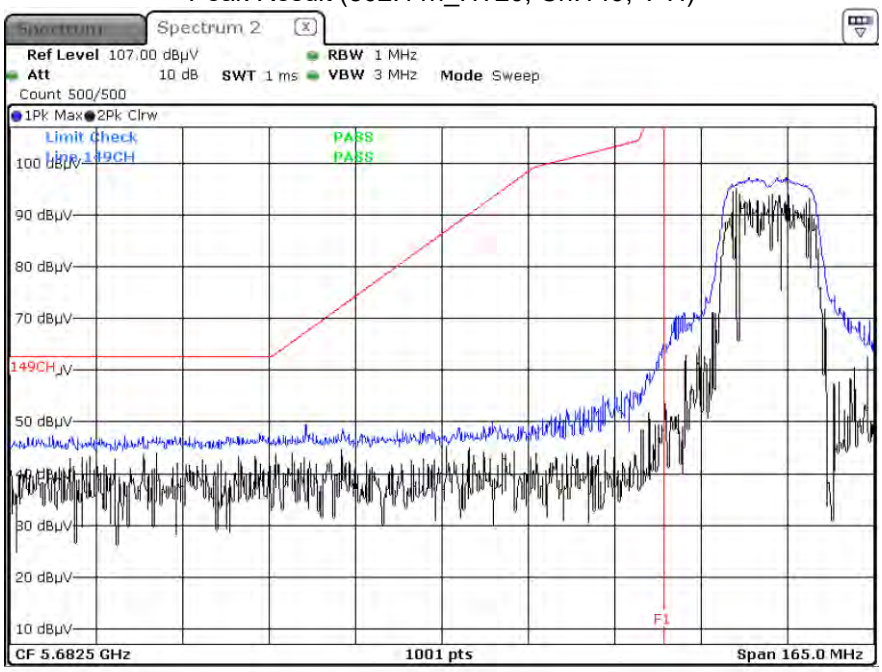
1. Only the worst case plots for Radiated Restricted Band Edge.
2. Red line : 5850 MHz
3. Ambient Noise (Because of ambient noise, We attached only the worst plot without a data table)

▣ Test Plots(UNII 3)

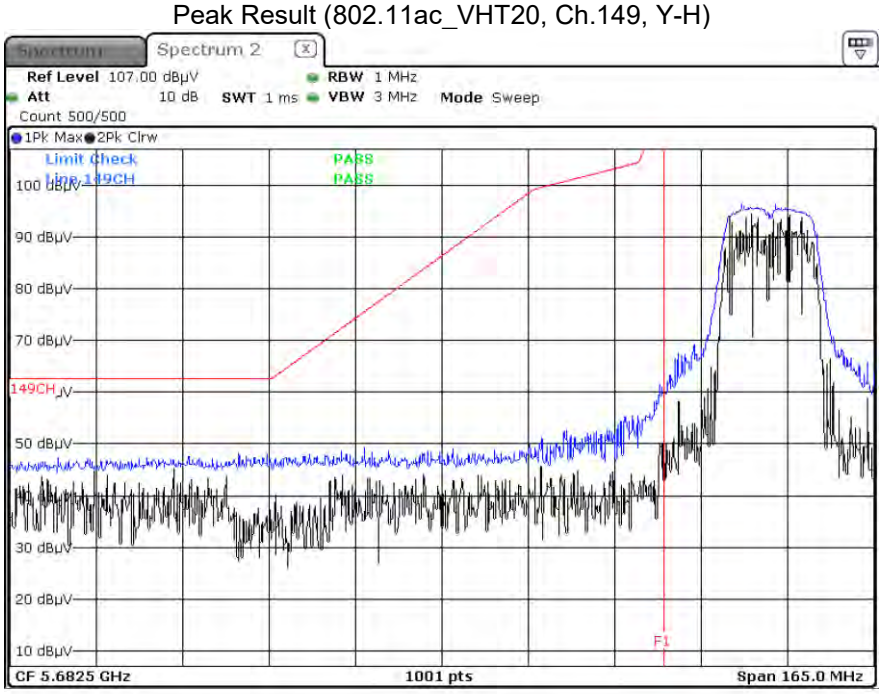
Peak Result (802.11a, Ch.149, Y-H)



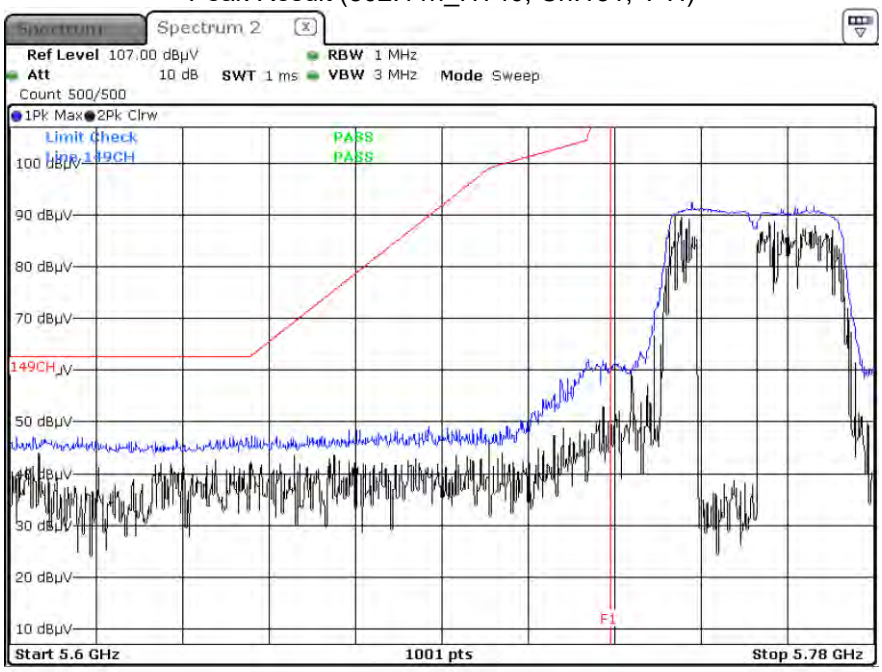
Peak Result (802.11n_HT20, Ch.149, Y-H)



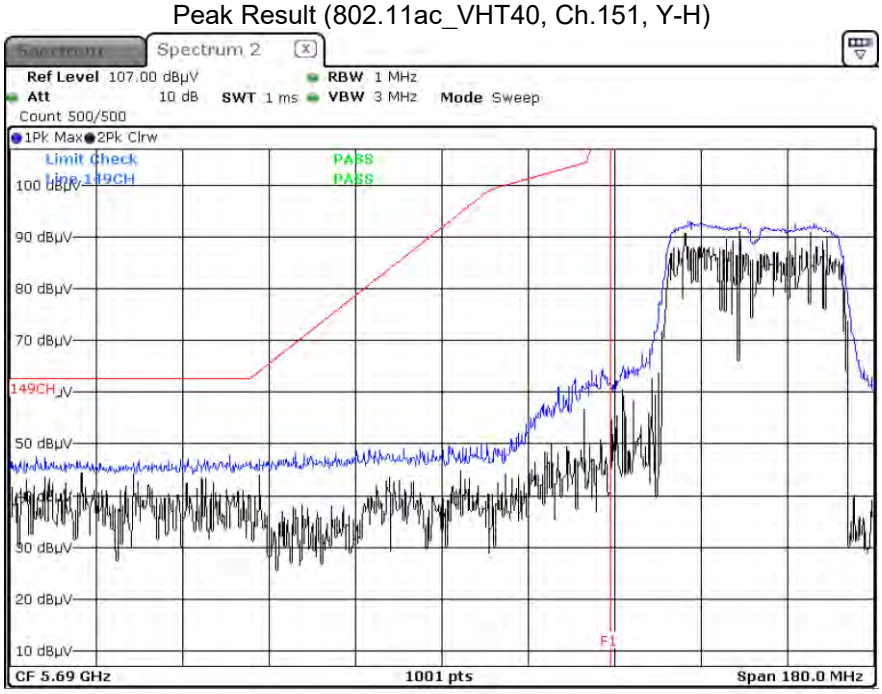
Peak Result (802.11ac_VHT20, Ch.149, Y-H)



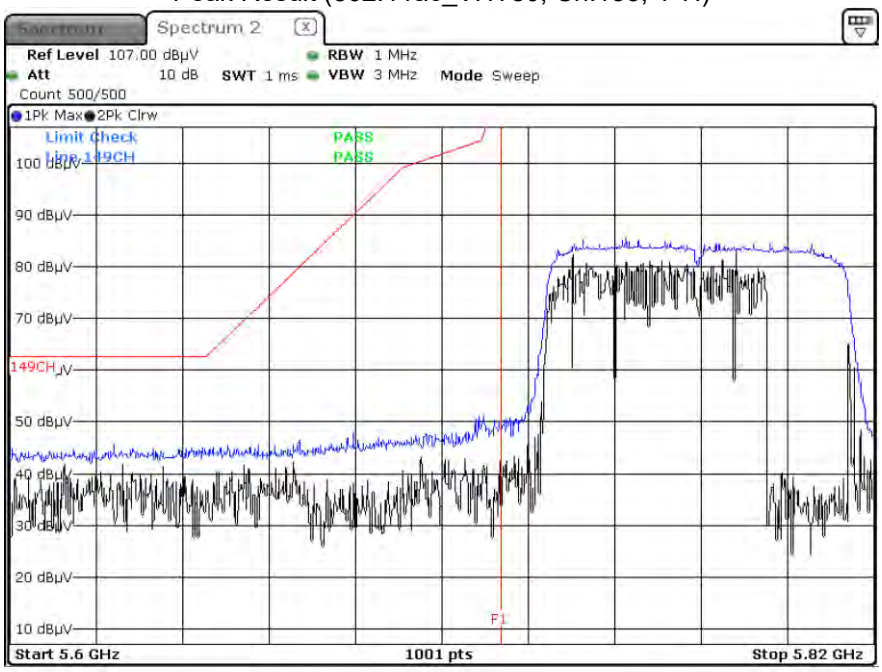
Peak Result (802.11n_HT40, Ch.151, Y-H)



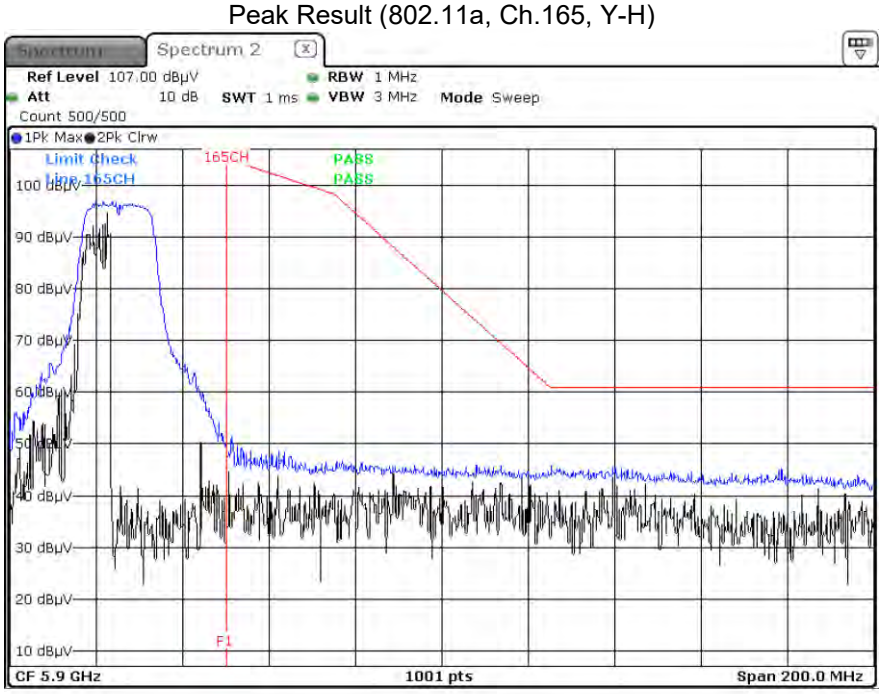
Peak Result (802.11ac_VHT40, Ch.151, Y-H)



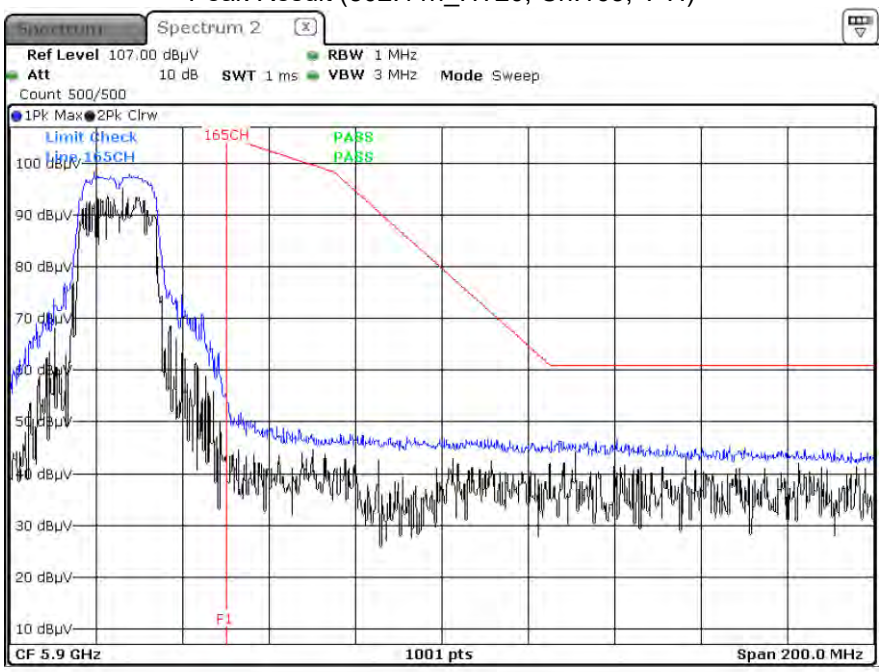
Peak Result (802.11ac_VHT80, Ch.155, Y-H)



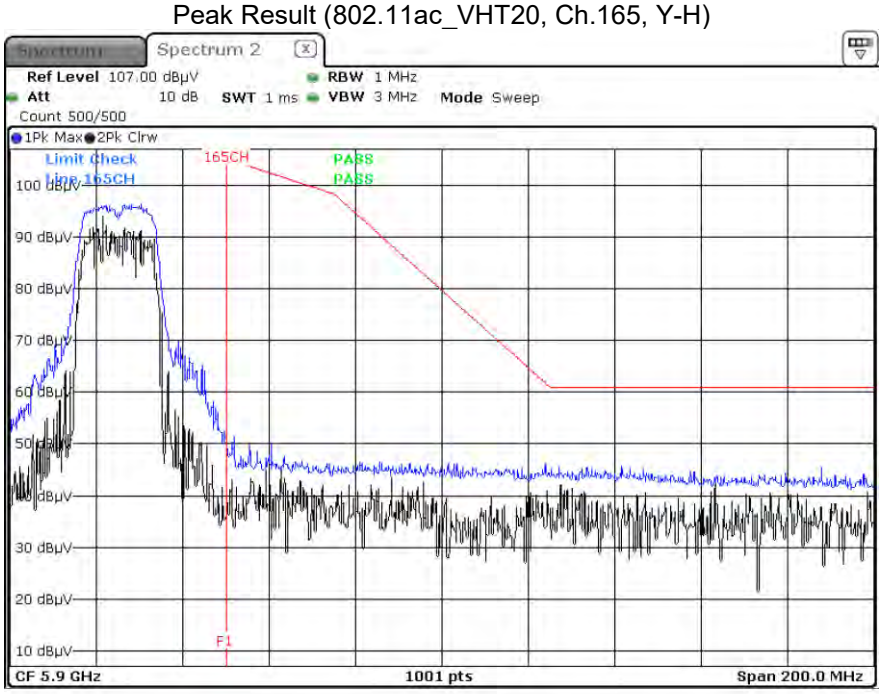
Peak Result (802.11a, Ch.165, Y-H)



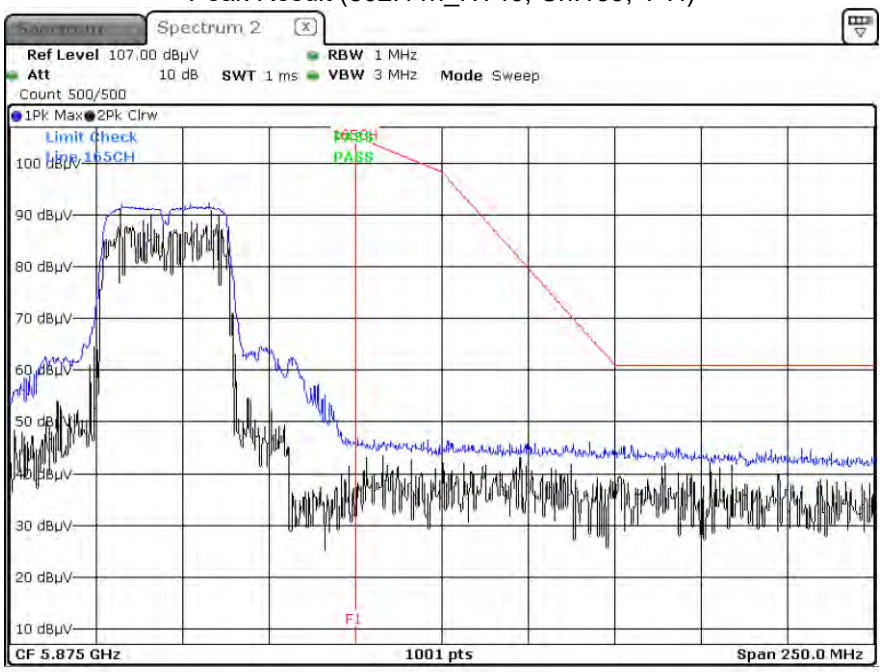
Peak Result (802.11n_HT20, Ch.165, Y-H)



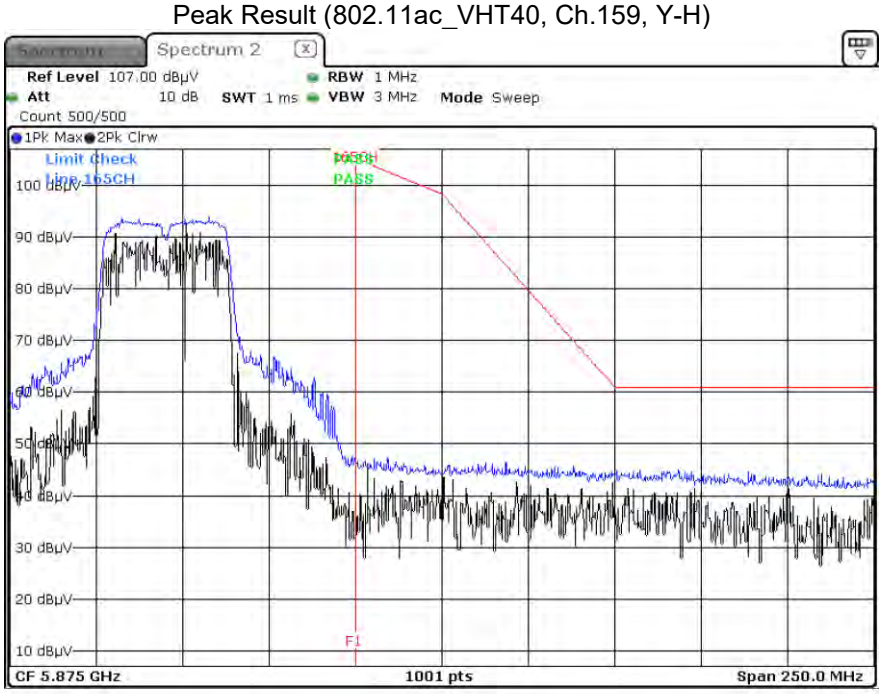
Peak Result (802.11ac_VHT20, Ch.165, Y-H)



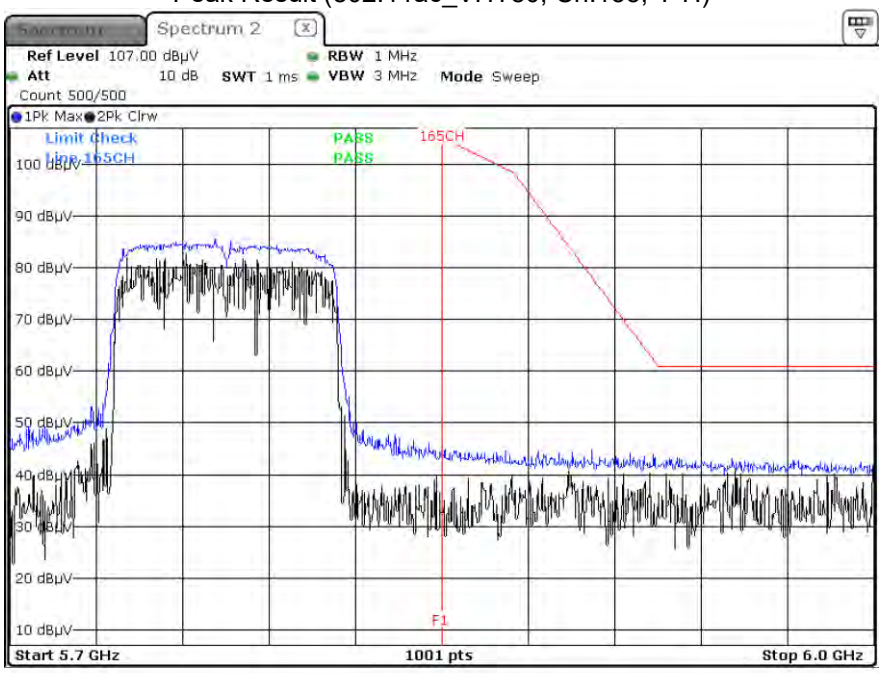
Peak Result (802.11n_HT40, Ch.159, Y-H)



Peak Result (802.11ac_VHT40, Ch.159, Y-H)



Peak Result (802.11ac_VHT80, Ch.155, Y-H)



Note :

1. Only the worst case plots for U-NII-3 Out of Band e.i.r.p Emission.
2. U-NII-3 Low & High Band Edge RedLine is Final Test Limit about factor value compensation.

10.9 POWERLINE CONDUCTED EMISSIONS

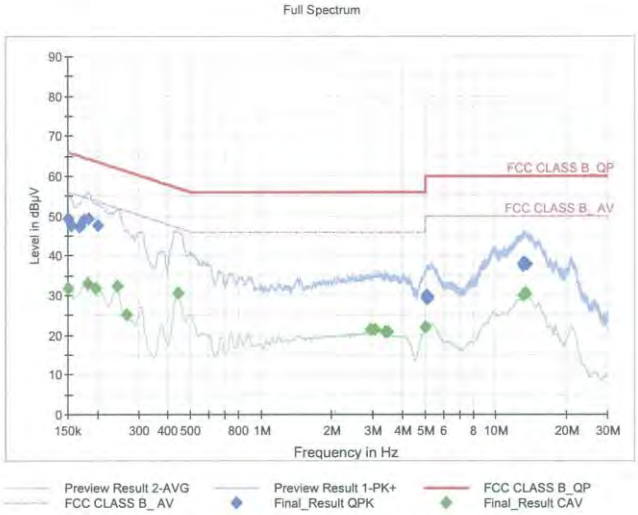
Conducted Emissions (Line 1)

5G L1 1 / 2

Test Report

Common Information

EUT :	SM-A536V
Manufacturer :	SAMSUNG
Test Site:	SHIELD ROOM
Operating Conditions :	5G L1
Operator Name:	
Comment:	



Final_Result_QPK

Frequency (MHz)	QuasiPeak	Limit (dBµV)	Margin	Bandwidth	Line	Filter	Corr. (dB)
0.1500	49.23	66.00	16.77	9.000	L1	OFF	9.6
0.1545	47.61	65.75	18.14	9.000	L1	OFF	9.6
0.1680	47.37	65.06	17.68	9.000	L1	OFF	9.6
0.1748	48.96	64.73	15.78	9.000	L1	OFF	9.6
0.1838	49.44	64.31	14.88	9.000	L1	OFF	9.6
0.2018	47.69	63.54	15.85	9.000	L1	OFF	9.6
5.0630	29.31	60.00	30.69	9.000	L1	OFF	9.9
5.0698	29.89	60.00	30.11	9.000	L1	OFF	9.9
5.0765	29.44	60.00	30.56	9.000	L1	OFF	9.9
5.0900	29.20	60.00	30.80	9.000	L1	OFF	9.9
5.1013	29.17	60.00	30.83	9.000	L1	OFF	9.9
5.1170	29.64	60.00	30.36	9.000	L1	OFF	9.9
13.0258	37.45	60.00	22.55	9.000	L1	OFF	10.1
13.1045	37.97	60.00	22.03	9.000	L1	OFF	10.1
13.2530	38.06	60.00	21.94	9.000	L1	OFF	10.2
13.3093	38.05	60.00	21.95	9.000	L1	OFF	10.2
13.3250	38.14	60.00	21.86	9.000	L1	OFF	10.2
13.4938	37.85	60.00	22.15	9.000	L1	OFF	10.2

Final_Result_CAV

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5G L1 2 / 2

Frequency (MHz)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.1500	31.72	56.00	24.28	9.000	L1	OFF	9.6
0.1815	32.81	54.42	21.60	9.000	L1	OFF	9.6
0.1973	31.75	53.73	21.97	9.000	L1	OFF	9.6
0.2423	32.19	52.02	19.83	9.000	L1	OFF	9.6
0.2670	24.98	51.21	26.23	9.000	L1	OFF	9.6
0.4403	30.63	47.06	16.43	9.000	L1	OFF	9.7
2.9345	21.24	46.00	24.76	9.000	L1	OFF	9.8
3.0695	21.24	46.00	24.76	9.000	L1	OFF	9.8
3.3778	20.81	46.00	25.19	9.000	L1	OFF	9.8
3.4430	20.74	46.00	25.26	9.000	L1	OFF	9.8
3.4588	20.71	46.00	25.29	9.000	L1	OFF	9.8
5.0000	21.99	46.00	24.01	9.000	L1	OFF	9.9
13.0235	29.94	50.00	20.06	9.000	L1	OFF	10.1
13.0685	29.97	50.00	20.03	9.000	L1	OFF	10.1
13.2530	30.26	50.00	19.74	9.000	L1	OFF	10.2
13.3228	30.45	50.00	19.55	9.000	L1	OFF	10.2
13.3340	30.37	50.00	19.63	9.000	L1	OFF	10.2
13.3813	30.28	50.00	19.72	9.000	L1	OFF	10.2

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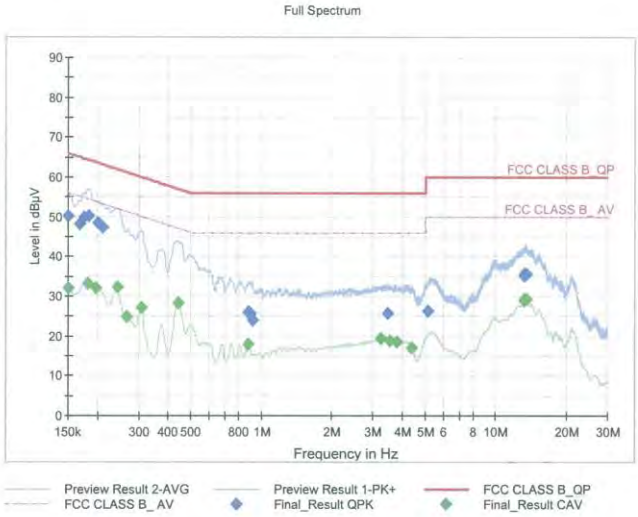
Conducted Emissions (Line 2)

5G N 1 / 2

Test Report

Common Information

EUT :	SM-A536V
Manufacturer :	SAMSUNG
Test Site:	SHIELD ROOM
Operating Conditions :	5G N
Operator Name:	
Comment:	



Final_Result_QPK

Frequency (MHz)	QuasiPeak	Limit (dBuV	Margin	Bandwidth	Line	Filter	Corr. (dB)
0.1500	50.32	66.00	15.68	9.000	N	OFF	9.6
0.1680	48.22	65.06	16.83	9.000	N	OFF	9.6
0.1748	49.90	64.73	14.84	9.000	N	OFF	9.6
0.1838	50.23	64.31	14.09	9.000	N	OFF	9.6
0.2018	48.58	63.54	14.96	9.000	N	OFF	9.6
0.2108	47.37	63.18	15.81	9.000	N	OFF	9.6
0.8803	25.91	56.00	30.09	9.000	N	OFF	9.7
0.8848	25.93	56.00	30.07	9.000	N	OFF	9.7
0.8960	25.63	56.00	30.37	9.000	N	OFF	9.7
0.9163	24.04	56.00	31.96	9.000	N	OFF	9.7
3.4745	25.61	56.00	30.39	9.000	N	OFF	9.8
5.1058	26.24	60.00	33.76	9.000	N	OFF	9.9
13.1518	35.08	60.00	24.92	9.000	N	OFF	10.2
13.2508	35.40	60.00	24.60	9.000	N	OFF	10.2
13.2688	35.53	60.00	24.47	9.000	N	OFF	10.2
13.2823	35.41	60.00	24.59	9.000	N	OFF	10.2
13.3070	35.31	60.00	24.69	9.000	N	OFF	10.2
13.4533	35.34	60.00	24.66	9.000	N	OFF	10.2

Final_Result_CAV

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5G N 2 / 2

Frequency (MHz)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.1500	32.13	56.00	23.87	9.000	N	OFF	9.6
0.1815	33.11	54.42	21.31	9.000	N	OFF	9.6
0.1973	31.94	53.73	21.79	9.000	N	OFF	9.6
0.2423	32.25	52.02	19.77	9.000	N	OFF	9.6
0.2670	24.86	51.21	26.35	9.000	N	OFF	9.6
0.3098	27.13	49.98	22.84	9.000	N	OFF	9.6
0.4403	28.29	47.06	18.77	9.000	N	OFF	9.7
0.8803	17.95	46.00	28.05	9.000	N	OFF	9.7
3.2225	19.19	46.00	26.81	9.000	N	OFF	9.8
3.5330	18.80	46.00	27.20	9.000	N	OFF	9.8
3.7783	18.41	46.00	27.60	9.000	N	OFF	9.8
4.3880	17.16	46.00	28.84	9.000	N	OFF	9.8
13.1518	28.91	50.00	21.09	9.000	N	OFF	10.2
13.2508	29.14	50.00	20.86	9.000	N	OFF	10.2
13.3048	29.06	50.00	20.94	9.000	N	OFF	10.2
13.3925	29.12	50.00	20.88	9.000	N	OFF	10.2
13.4060	29.13	50.00	20.87	9.000	N	OFF	10.2
13.4578	29.04	50.00	20.96	9.000	N	OFF	10.2

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11. LIST OF TEST EQUIPMENT

Conducted Test

Equipment	Model	Manufacturer	Serial No.	Due to Calibration	Calibration Interval
LISN	ENV216	Rohde & Schwarz	102245	08/23/2022	Annual
EMI Test Receiver	ESR	Rohde & Schwarz	101910	06/17/2022	Annual
Temperature Chamber	SU-642	ESPAC	0093008124	03/15/2022	Annual
Signal Analyzer	N9030A	Agilent	MY49431210	01/11/2022	Annual
Power Measurement Set	OSP 120	Rohde & Schwarz	101231	07/02/2022	Annual
Power Meter	N1911A	Agilent	MY45100523	04/08/2022	Annual
Power Sensor	N1921A	Keysight	MY57820067	04/08/2022	Annual
Directional Coupler	87300B	Agilent	3116A03621	11/02/2022	Annual
Power Splitter	11667B	Hewlett Packard	05001	05/20/2022	Annual
DC Power Supply	E3632A	Hewlett Packard	MY50360067	02/16/2022	Annual
Attenuator(10 dB)	8493C	Hewlett Packard	07560	06/18/2022	Annual
Software	EMC32	Rohde & Schwarz	N/A	N/A	N/A
FCC WLAN&BT&BLE Conducted Test Software v3.0	N/A	HCT CO., LTD.	N/A	N/A	N/A

Note:

1. Equipment listed above that calibrated during the testing period was set for test after the calibration.
2. Equipment listed above that has a calibration due date during the testing period, the testing is completed before equipment expiration date.

Radiated Test

Equipment	Model	Manufacturer	Serial No.	Due to Calibration	Calibration Interval
Controller(Antenna mast)	CO3000	Innco system	CO3000-4p	N/A	N/A
Antenna Position Tower	MA4640/800-XP-EP	Innco system	N/A	N/A	N/A
Controller	EM1000	Audix	060520	N/A	N/A
Turn Table	N/A	Audix	N/A	N/A	N/A
Loop Antenna	FMZB 1513	Rohde & Schwarz	1513-333	03/19/2022	Biennial
Hybrid Antenna	VULB 9168	Schwarzbeck	760	02/22/2023	Biennial
Horn Antenna	BBHA 9120D	Schwarzbeck	02299	05/19/2022	Biennial
Horn Antenna (15 GHz ~ 40 GHz)	BBHA9170	Schwarzbeck	BBHA9170541	11/16/2023	Biennial
Spectrum Analyzer	FSV40-N	Rohde & Schwarz	102168	07/05/2022	Annual
Signal Analyzer	N9030A	Agilent	MY49431210	01/11/2022	Annual
Band Reject Filter	WRCJV12-4900-5100-5900-6100-50SS	Wainwright Instruments	5	06/24/2022	Annual
Band Reject Filter	WRCJV12-4900-5100-5900-6100-50SS	Wainwright Instruments	6	06/24/2022	Annual
Band Reject Filter	WRCJV2400/2483.5-2370/2520-60/12SS	Wainwright Instruments	2	01/06/2022	Annual
Band Reject Filter	WRCJV5100/5850-40/50-8EEK	Wainwright Instruments	1	02/08/2022	Annual
High Pass Filter	WHK3.0/18G-10EF	Wainwright Instruments	8	02/03/2022	Annual
High Pass Filter	WHKX8-6090-7000-18000-40SS	Wainwright Instruments	25	02/03/2022	Annual
Attenuator (3 dB)	18B-03	Api tech.	1	02/03/2022	Annual
Attenuator(10 dB)	8493C-10	Agilent	08285	02/03/2022	Annual
Power Amplifier	CBLU1183540	CERNEX	22964	02/03/2022	Annual
Power Amplifier	CBL06185030	CERNEX	22965	02/03/2022	Annual
Power Amplifier	CBL18265035	CERNEX	22966	12/02/2022	Annual
Power Amplifier	CBL26405040	CERNEX	25956	03/23/2022	Annual

Note:

1. Equipment listed above that calibrated during the testing period was set for test after the calibration.
2. Equipment listed above that has a calibration due date during the testing period, the testing is completed before equipment expiration date.
3. Especially, all antenna for measurement is calibrated in accordance with the requirements of C63.5(Version : 2017).

12. ANNEX A_ TEST SETUP PHOTO

Please refer to test setup photo file no. as follows;

No.	Description
1	HCT-RF-2201-FC023-P