

# FCC UNII REPORT

## Certification

<b>Applicant Name:</b> SAMSUNG Electronics Co., Ltd.	<b>Date of Issue:</b> August 07, 2020
<b>Address:</b> 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea	<b>Test Site/Location:</b> 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383 KOREA
	<b>Report No.:</b> HCT-RF-2008-FC004

**FCC ID:** A3LSMA315G

**APPLICANT:** SAMSUNG Electronics Co., Ltd.

According to the Evaluation report, all of the data contained herein is reused from the reference FCC ID : A3LSMA315GL report.

<b>Model:</b>	SM-A315G/DS
<b>Additional Model:</b>	SM-A315G
<b>EUT Type:</b>	Mobile Phone
<b>Modulation type</b>	OFDM
<b>FCC Classification:</b>	Unlicensed National Information Infrastructure(NII)
<b>FCC Rule Part(s):</b>	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.

Report No.: HCT-RF-2008-FC004

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REVIEWED BY



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Report prepared by : Jung Ki Lim  
Engineer of Telecommunication Testing Center

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Report approved by : Kwon Jeong  
Manager of Telecommunication Testing Center

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

This laboratory is not accredited for the test results marked \*.

The above Test Report is the accredited test result by (KS Q) ISO/IEC 17025 and KOLAS(Korea Laboratory Accreditation Scheme), which signed the ILAC-MRA. (HCT Accreditation No.: KT197)

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## Version

TEST REPORT NO.	DATE	DESCRIPTION
HCT-RF-2008-FC004	August 07, 2020	- First Approval Report

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## 1. GENERAL INFORMATION

### EUT DESCRIPTION

<b>Model</b>	SM-A315G/DS	
<b>Additional Model</b>	SM-A315G	
<b>EUT Type</b>	Mobile Phone	
<b>Power Supply</b>	DC 3.85 V	
<b>Battery Information</b>	Model: EB-BA315ABY Type: Li-ion Battery	
<b>Travel Adapter Information</b>	Model : EP-TA200 Manufacture: DONGYANG	
<b>Data Cable Information</b>	Model : EP-DR140ABE Manufacture: LUXSHARE	
<b>Ear-jack Information</b>	Model : EHS61ASFBE Manufacture: Cresyn	
<b>Modulation Type</b>	OFDM : 802.11a, 802.11n, 802.11ac	
<b>Frequency Range (MHz)</b>	U-NII-1	20MHz BW : 5180 - 5240 40MHz BW : 5190 - 5230 80MHz BW : 5210
	U-NII-2A	20MHz BW : 5260 - 5320 40MHz BW : 5270 - 5310 80MHz BW : 5290
	U-NII-2C	20MHz BW : 5500 - 5720 40MHz BW : 5510 - 5710 80MHz BW : 5530 - 5690
	U-NII-3	20MHz BW : 5745 - 5825 40MHz BW : 5755 - 5795 80MHz BW : 5775
<b>Antenna Specification</b>	Antenna type: FPCB Peak Gain : -1.80 dBi(UNII 1), -1.70 dBi(UNII 2A), -1.80 dBi(UNII 2C), -3.10 dBi(UNII 3)	
<b>Straddle channel</b>	Supported	
<b>TDWR Band</b>	Supported	
<b>Dynamic Frequency Selection</b>	Slave without radar detection	
<b>Date(s) of Tests</b>	February 03, 2020~ February 20, 2020	

**2. MAXIMUM OUTPUT POWER**

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

Band	Mode	RF Output Power	
		(dBm)	(W)
UNII1	802.11a	16.23	0.042
	802.11n (HT20)	15.02	0.032
	802.11n (HT40)	14.08	0.026
	802.11ac (VHT20)	14.99	0.032
	802.11ac (VHT40)	14.09	0.026
	802.11ac (VHT80)	12.26	0.017
UNII2A	802.11a	16.30	0.043
	802.11n (HT20)	15.12	0.032
	802.11n (HT40)	14.21	0.026
	802.11ac (VHT20)	15.10	0.032
	802.11ac (VHT40)	14.15	0.026
	802.11ac (VHT80)	12.28	0.017
UNII2C	802.11a	16.35	0.043
	802.11n (HT20)	15.20	0.033
	802.11n (HT40)	14.37	0.027
	802.11ac (VHT20)	15.23	0.033
	802.11ac (VHT40)	14.33	0.027
	802.11ac (VHT80)	13.51	0.022
UNII3	802.11a	15.72	0.037
	802.11n (HT20)	15.58	0.036
	802.11n (HT40)	14.58	0.029
	802.11ac (VHT20)	15.60	0.036
	802.11ac (VHT40)	14.49	0.028
	802.11ac (VHT80)	13.55	0.023

### **3. TEST METHODOLOGY**

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

#### **EUT CONFIGURATION**

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

#### **EUT EXERCISE**

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

#### **GENERAL TEST PROCEDURES**

##### **Conducted Emissions**

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

##### **Radiated Emissions**

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

#### **DESCRIPTION OF TEST MODES**

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

#### 4. INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment's, which is traceable to recognized national standards.

Especially, all antenna for measurement is calibrated in accordance with the requirements of C63.5 (Version : 2017).

#### 5. FACILITIES AND ACCREDITATIONS

##### 5.1 FACILITIES

The SAC(Semi-Anechoic Chamber) and conducted measurement facility used to collect the radiated data are located at the 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA. The site is constructed in conformance with the requirements of ANSI C63.4. (Version :2014) and CISPR Publication 22.

Detailed description of test facility was submitted to the Commission and accepted dated April 02, 2018 (Registration Number: KR0032).

##### 5.2 EQUIPMENT

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

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers. Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

#### 6. ANTENNA REQUIREMENTS

##### According to FCC 47 CFR §15.203, §15.407:

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

- (1) The antennas of this E.U.T are permanently attached.
- (2) The E.U.T Complies with the requirement of §15.203, §15.407



## 7. MEASUREMENT UNCERTAINTY

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

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

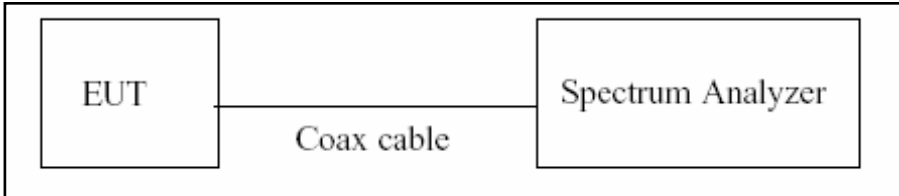
The measurement data shown herein meets or exceeds the  $U_{\text{CISPR}}$  measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

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

## 8. DESCRIPTION OF TESTS

### 8.1. Duty Cycle

#### Test Configuration



#### Test Procedure

The transmitter output is connected to the Spectrum Analyzer.

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

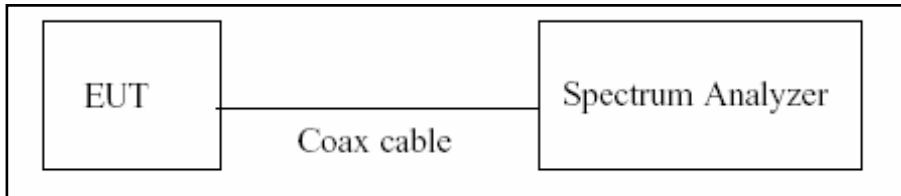
1. RBW = 8 MHz (the largest available value)
2. VBW = 8 MHz ( $\geq$  RBW)
3. SPAN = 0 Hz
4. Detector = Peak
5. Number of points in sweep > 100
6. Trace mode = Clear write
7. Measure  $T_{total}$  and  $T_{on}$
8. Calculate Duty Cycle =  $T_{on} / T_{total}$  and Duty Cycle Factor =  $10\log(1/\text{Duty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

## 8.2. 6dB Bandwidth & 26dB Bandwidth

### Limit

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

### Test Configuration



### Test Procedure(26dB Bandwidth)

The transmitter output is connected to the Spectrum Analyzer.

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

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

### Test Procedure (6dB Bandwidth)

The transmitter output is connected to the Spectrum Analyzer.

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

1. RBW = 100 kHz
2. VBW  $\geq 3 \times$  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 level measured in the fundamental emission.

### Note:

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

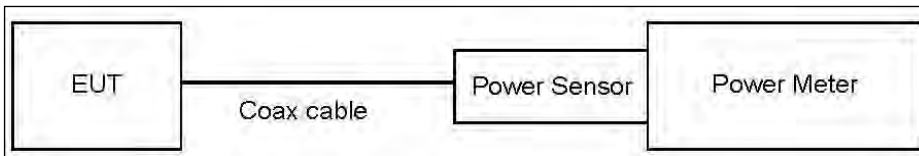
**8.3. Output Power Measurement**

**Limit**

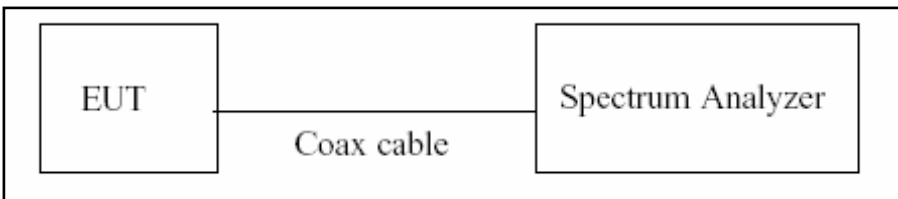
Band	Limit
UNII 1	- Master : Not exceed 1 W(=30dBm) - Slave : Not exceed 250 mW(=23.98 dBm)
UNII 2A, 2C	Not exceed the lesser of 250 mW or 11 dBm + 10 log B, (where B is the 26 dB emission bandwidth in megahertz.)
UNII 3	Not exceed 1 W(=30dBm)

**Test Configuration**

Power Meter



Spectrum Analyzer(Only Straddle Channel)



**Test Procedure(Power Meter)**

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

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

**Test Procedure(Spectrum Analyzer)**

The transmitter output is connected to the Spectrum Analyzer.

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

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

1. Measure the duty cycle.
2. Set span to encompass the 26 dB EBW of the signal.
3. RBW = 1 MHz.
4. VBW  $\geq$  3 MHz.
5. Number of points in sweep  $\geq$  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  $10\log(1/x)$ , where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times.

**Sample Calculation**

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

**Note**

1. Spectrum reading values are not plot data.

The power results in plot is already including the actual values of loss for the attenuator and cable combination.

2. Spectrum offset = Attenuator loss(10 dB) + Cable loss

3. Actual value of loss for the attenuator and cable combination is below table.

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

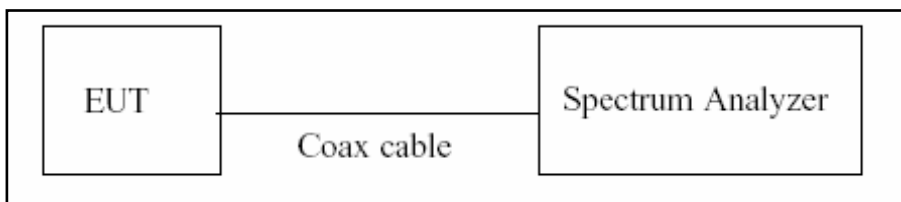
(Actual value of loss for the attenuator and cable combination)

**8.4. Power Spectral Density**

**Limit**

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

**Test Configuration**



**Test Procedure**

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

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

**Sample Calculation**

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

**Note**

1. Spectrum reading values are not plot data.

The PSD results in plot is already including the actual values of loss for the attenuator and cable combination.

2. Spectrum offset = Attenuator loss(10 dB) + Cable loss

3. Actual value of loss for the attenuator and cable combination is below table.

<b>Band</b>	<b>Loss(dB)</b>
UNII 1	10.73
UNII 2A	10.73
UNII 2C	10.73
UNII 3	10.73

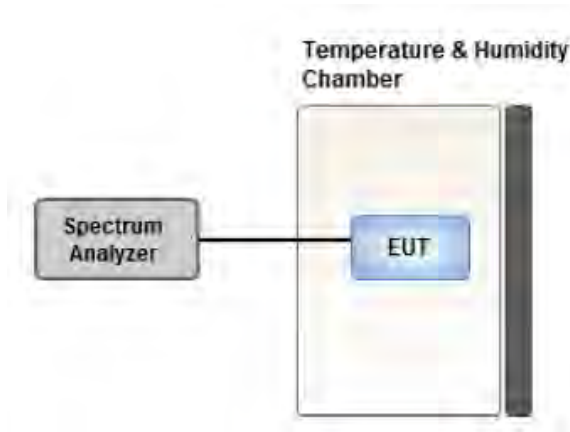
(Actual value of loss for the attenuator and cable combination)

## 8.5. Frequency Stability

### Limit

Maintained within the band

### Test Configuration



### Test Procedure

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



## 8.6. AC Power line Conducted Emissions

### Limit

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

Frequency Range (MHz)	Limits (dB $\mu$ V)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56 <sup>(a)</sup>	56 to 46 <sup>(a)</sup>
0.50 to 5	56	46
5 to 30	60	50

<sup>(a)</sup>Decreases with the logarithm of the frequency.

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

### Test Configuration

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

### Test Procedure

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

### Sample Calculation

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

**8.7. Radiated Test**

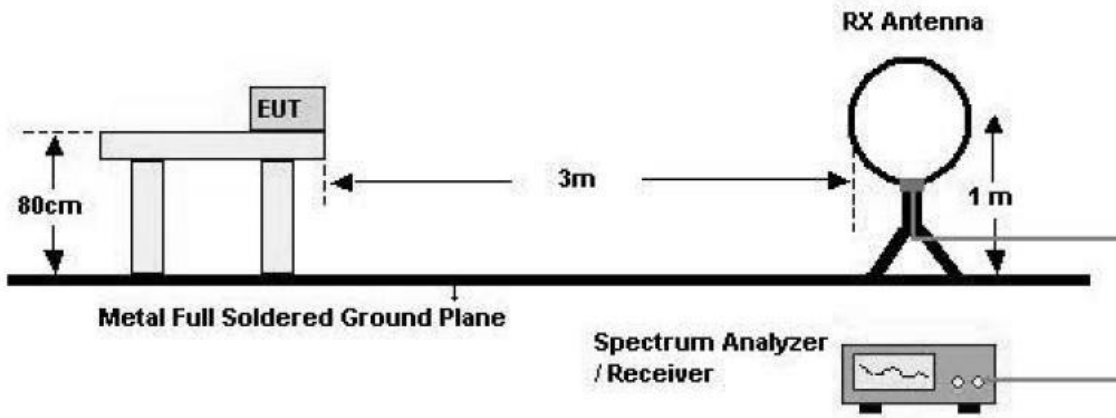
**Limit**

1. UNII 1: All emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz.
  
2. UNII 2A, 2C: All emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of -27 dBm/MHz.
  
3. UNII 3: All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.
  
4. All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR must not exceed the limits shown in Section 15.209.

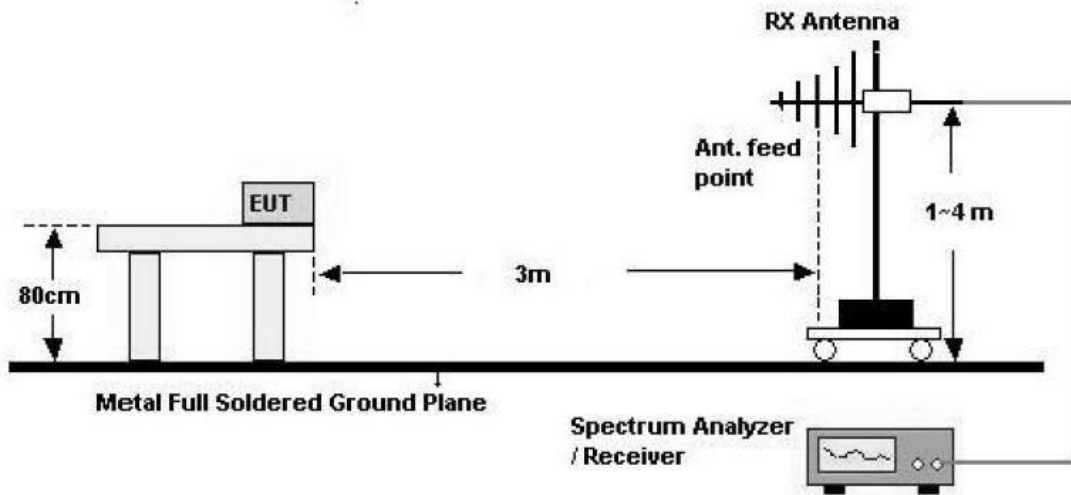
Frequency (MHz)	Field Strength (uV/m)	Measurement Distance (m)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

**Test Configuration**

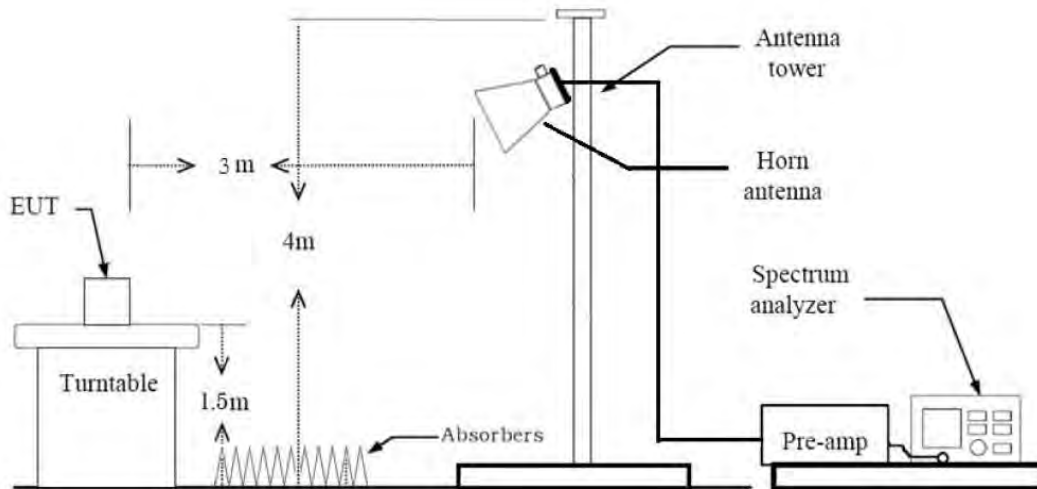
Below 30 MHz



30 MHz - 1 GHz



Above 1 GHz



**Test Procedure of Radiated spurious emissions(Below 30 MHz)**

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

**KDB 414788 OFS and Chamber Correlation Justification**

Base on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.

OFS and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

**Test Procedure of Radiated spurious emissions(Below 1GHz)**

1. The EUT was placed on a non-conductive table located on semi-anechoic chamber.
2. The EUT is placed on a turntable, which is 0.8m above ground plane.
3. The Hybrid antenna was placed at a location 3m from the EUT, which is varied from 1m to 4m to find out the highest emissions.
4. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
5. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
6. Spectrum Setting
  - (1) Measurement Type(Peak):
    - Measured Frequency Range : 30 MHz – 1 GHz
    - Detector = Peak
    - Trace = Maxhold
    - RBW = 100 kHz
    - VBW  $\geq$  3 x RBW
  - (2) Measurement Type(Quasi-peak):
    - Measured Frequency Range : 30 MHz – 1 GHz
    - Detector = Quasi-Peak
    - RBW = 120 kHz
- ※ In general, (1) is used mainly
7. Total = Reading Value + Antenna Factor(A.F) + Cable Loss(C.L)
8. Measurement value only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.

**Test Procedure of Radiated spurious emissions (Above 1 GHz)**

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

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

- RBW = 1 MHz
- VBW  $\geq$  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  $\geq$  98 percent) = VBW  $\leq$  RBW/100(i.e., 10 kHz) but not less than 10 Hz.
- VBW(Duty cycle is < 98 percent) = VBW  $\geq$   $1/T$ , 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 percent duty cycle. For lower duty cycles, increase the minimum 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 =  $20\log(\text{test distance} / \text{specific distance})$  (dB)
12. Total = Reading Value + Antenna Factor(A.F) + Cable Loss(C.L) - Amp Gain(G) + Distance Factor(D.F)

### **Test Procedure of Radiated Restricted Band Edge**

1. The EUT is placed on a turntable, which is 1.5 m above ground plane.
2. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
3. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
4. EUT is set 3 m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
5. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
6. Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
7. The unit was tested with its standard battery.
8. Spectrum Setting
  - (1) Measurement Type(Peak, G.5 in KDB 789033 v02r01):
    - RBW = 1 MHz
    - VBW  $\geq$  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  $\geq$  98 percent) =  $VBW \leq RBW/100$ (i.e., 10 kHz) but not less than 10 Hz.
    - VBW(Duty cycle is < 98 percent) =  $VBW \geq 1/T$ , 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 percent duty cycle. For lower duty cycles, increase the minimum 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 =  $20\log(\text{test distance} / \text{specific distance})$  (dB)

11. Total = Reading Value + Antenna Factor(A.F) + Cable Loss(C.L) - Amp Gain(G) + Attenuator  
+ 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	0.969	0.138	1000
802.11n(HT20)	MCS 0	0.967	0.148	1000
802.11n(HT40)	MCS 0	0.935	0.293	2000
802.11ac(VHT20)	MCS 0	0.967	0.146	1000
802.11ac(VHT40)	MCS 0	0.936	0.289	2000
802.11ac(VHT80)	MCS 0	0.883	0.540	5000



## 8.8. Worst case configuration and mode

### Radiated test

1. All modes of operation were investigated and the worst case configuration results are reported.
  - Mode : Stand alone, Stand alone + External accessories(Earphone, etc)
  - Worstcase : Stand alone
2. EUT Axis
  - Radiated Spurious Emissions : Y
  - Radiated Restricted Band Edge : Y
3. All datarate of operation were investigated and the worst case datarate results are reported
  - 802.11a : 6Mbps
  - 802.11n : MCS0
  - 802.11ac : MCS0
4. All position of loop antenna were investigated and the test result is a no critical peak found at all positions.
  - Position : Horizontal, Vertical, Parallel to the ground plane

### AC Power line Conducted Emissions

1. 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
26dB Bandwidth	§15.407 (for Power Measurement)	N/A	Conducted	PASS
6 dB Bandwidth	§15.407(e)	>500 kHz (5725-5850 MHz)		PASS
Maximum Conducted Output Power	§15.407(a)(1)	< 250 mW(5150-5250 MHz) < 250 mW or 11+10 log log <sub>10</sub> (BW) dBm (5250-5350 MHz) < 250 mW or 11+10 log log <sub>10</sub> (BW) dBm (5470-5725 MHz) <1 W(5725-5850 MHz)		PASS
Peak Power Spectral Density	§15.407(a)(1),(5)	<11 dBm/ MHz (5150-5250 MHz) <11 dBm/ MHz (5250-5350 MHz) <11 dBm/ MHz (5470-5725 MHz) <30 dBm/500 kHz(5725-5850 MHz)		PASS
Frequency Stability	§15.407(g) §2.1055	Maintained within the band		PASS
AC Conducted Emissions 150 kHz-30 MHz	15.207	<FCC 15.207 limits		PASS
Undesirable Emissions	§15.407(b)	<-27 dBm/MHz EIRP (UNII1, 2A, 2C) cf. Section 8.7 (UNII 3)		Radiated
General Field Strength Limits(Restricted Bands and Radiated Emission Limits)	15.205, 15.407(b)(5), (6)	Emissions in restricted bands must meet the radiated limits detailed in 15.209	PASS	

## 10. TEST RESULT

### 10.1 DUTY CYCLE

Mode	Data Rate (Mbps)	T <sub>on</sub> (ms)	T <sub>total</sub> (ms)	Duty Cycle	Duty Cycle Factor(dB)
802.11a	6	1.390	1.435	0.969	0.138
	9	0.940	0.980	0.959	0.181
	12	0.705	0.750	0.940	0.269
	18	0.480	0.525	0.914	0.389
	24	0.360	0.405	0.889	0.512
	36	0.253	0.297	0.852	0.696
	48	0.191	0.236	0.809	0.919
	54	0.176	0.220	0.800	0.969

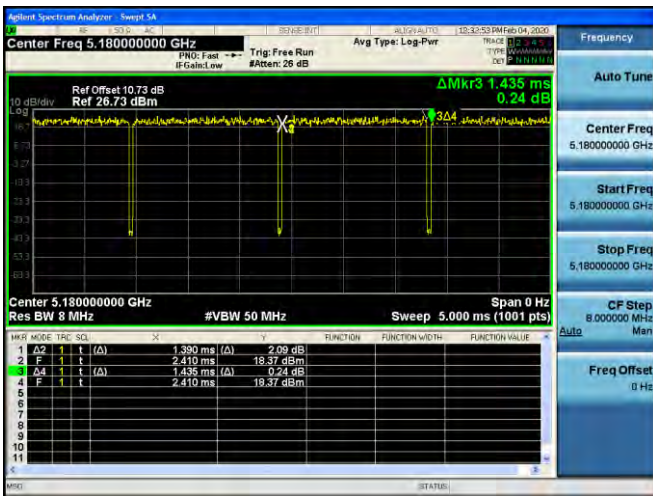
Mode	MCS Index	T <sub>on</sub> (ms)	T <sub>total</sub> (ms)	Duty Cycle	Duty Cycle Factor(dB)
802.11n (HT20)	0	1.300	1.345	0.967	0.148
	1	0.668	0.713	0.937	0.283
	2	0.460	0.504	0.913	0.397
	3	0.352	0.397	0.887	0.522
	4	0.248	0.292	0.849	0.709
	5	0.196	0.240	0.817	0.880
	6	0.179	0.223	0.803	0.955
	7	0.164	0.208	0.788	1.032
802.11n (HT40)	0	0.645	0.690	0.935	0.293
	1	0.344	0.388	0.887	0.523
	2	0.240	0.284	0.845	0.731
	3	0.192	0.236	0.814	0.896
	4	0.140	0.184	0.761	1.187
	5	0.117	0.161	0.727	1.386
	6	0.104	0.148	0.703	1.532
	7	0.100	0.144	0.694	1.584

Mode	MCS Index	T <sub>on</sub> (ms)	T <sub>total</sub> (ms)	Duty Cycle	Duty Cycle Factor(dB)
802.11ac (VHT20)	0	1.315	1.360	0.967	0.146
	1	0.675	0.720	0.938	0.280
	2	0.464	0.508	0.913	0.393
	3	0.360	0.404	0.891	0.501
	4	0.252	0.296	0.851	0.699
	5	0.200	0.244	0.820	0.864
	6	0.184	0.230	0.800	0.969
	7	0.168	0.212	0.792	1.010
	8	0.148	0.194	0.763	1.175
802.11ac (VHT40)	0	0.655	0.700	0.936	0.289
	1	0.345	0.390	0.885	0.532
	2	0.244	0.288	0.847	0.720
	3	0.196	0.240	0.817	0.880
	4	0.144	0.188	0.766	1.158
	5	0.120	0.164	0.732	1.357
	6	0.108	0.152	0.711	1.484
	7	0.104	0.148	0.703	1.532
	8	0.093	0.137	0.679	1.682
	9	0.089	0.133	0.669	1.745
802.11ac (VHT80)	0	0.325	0.368	0.883	0.540
	1	0.184	0.229	0.803	0.950
	2	0.136	0.180	0.756	1.217
	3	0.112	0.156	0.718	1.439
	4	0.088	0.132	0.667	1.761
	5	0.076	0.120	0.633	1.984
	6	0.073	0.117	0.624	2.049
	7	0.072	0.116	0.621	2.071
	8	0.064	0.108	0.593	2.272
	9	0.064	0.108	0.593	2.272

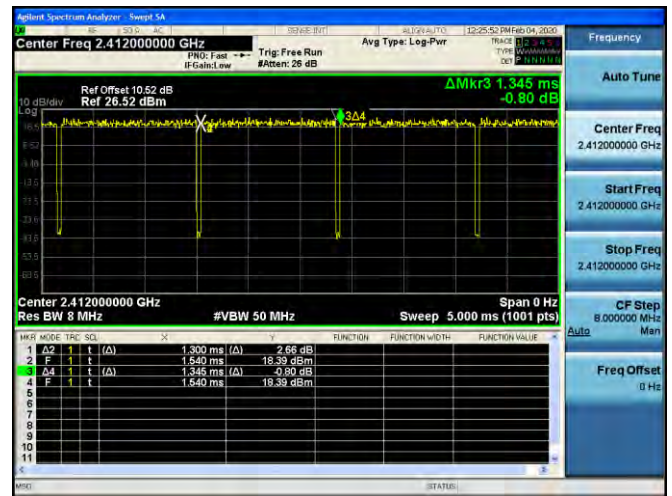
**Note:**

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

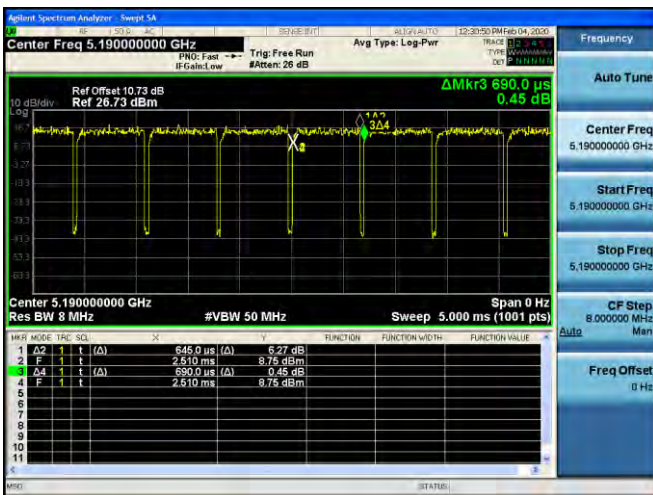
**802.11a**



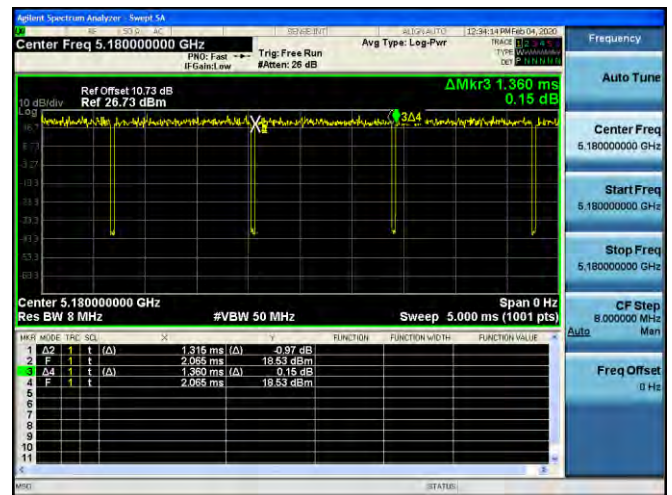
**802.11n(HT20)**



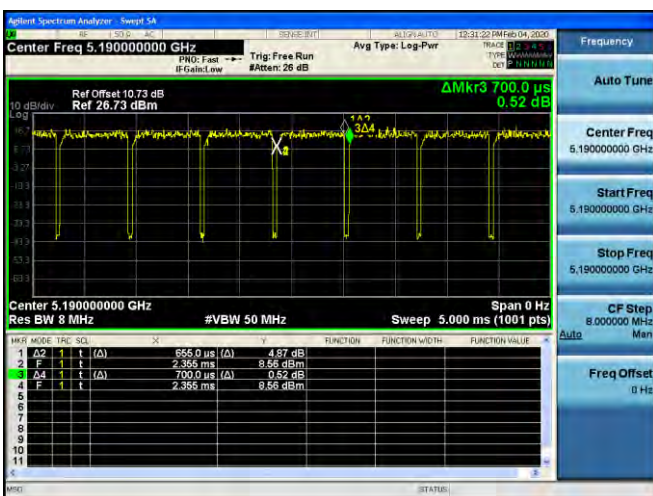
**802.11n(HT40)**



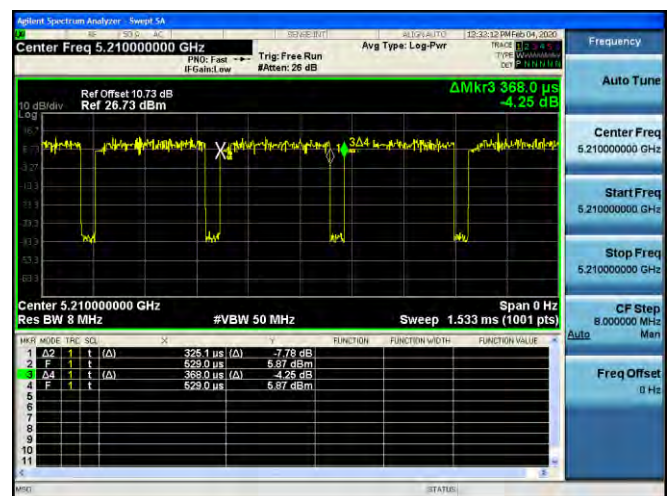
**802.11ac(VHT20)**



**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		26dB Bandwidth [MHz]	99% bandwidth [MHz]
Frequency [MHz]	Channel No.		
5180	36	20.56	16.474
5200	40	19.73	16.438
5240	48	19.69	16.468
5260	52	19.87	16.449
5300	60	19.76	16.490
5320	64	20.04	16.435
5500	100	19.54	16.434
5600	120	19.63	16.440
5720	144	23.56	16.480
5745	149	19.78	16.468
5785	157	19.72	16.497
5825	165	19.98	16.455

802.11n(HT20) Mode		26dB Bandwidth [MHz]	99% bandwidth [MHz]
Frequency [MHz]	Channel No.		
5180	36	20.00	17.576
5200	40	19.88	17.583
5240	48	20.12	17.589
5260	52	20.10	17.582
5300	60	20.00	17.577
5320	64	19.94	17.602
5500	100	20.11	17.553
5600	120	20.47	17.591
5720	144	20.16	17.608
5745	149	20.55	17.586
5785	157	20.21	17.573
5825	165	20.54	17.648

802.11n(HT40) Mode		26dB Bandwidth [MHz]	99% bandwidth [MHz]
Frequency [MHz]	Channel No.		
5190	38	40.06	36.044
5230	46	40.14	36.023
5270	54	40.23	35.997
5310	62	40.10	35.994
5510	102	40.35	35.997
5590	118	40.34	36.048
5710	142	40.71	36.042
5755	151	40.11	36.057
5795	159	40.72	36.049

802.11ac(VHT20) Mode		26dB Bandwidth [MHz]	99% bandwidth [MHz]
Frequency [MHz]	Channel No.		
5180	36	20.11	17.550
5200	40	20.06	17.552
5240	48	20.07	17.576
5260	52	20.06	17.567
5300	60	20.17	17.569
5320	64	20.21	17.582
5500	100	20.06	17.586
5600	120	19.81	17.593
5720	144	19.94	17.576
5745	149	19.96	17.578
5785	157	19.98	17.595
5825	165	20.19	17.613

802.11ac(VHT40) Mode		26dB Bandwidth [MHz]	99% bandwidth [MHz]
Frequency [MHz]	Channel No.		
5190	38	39.80	35.969
5230	46	40.10	35.969
5270	54	40.00	35.959
5310	62	39.93	35.934
5510	102	40.05	35.941
5590	118	40.15	35.996
5710	142	40.30	35.947
5755	151	40.09	36.017
5795	159	40.56	35.964

802.11ac(VHT80) Mode		26dB Bandwidth [MHz]	99% bandwidth [MHz]
Frequency [MHz]	Channel No.		
5210	42	80.35	75.183
5290	58	80.41	75.198
5530	106	80.53	75.139
5610	122	80.52	75.130
5690	138	80.46	75.174
5775	155	80.81	75.187

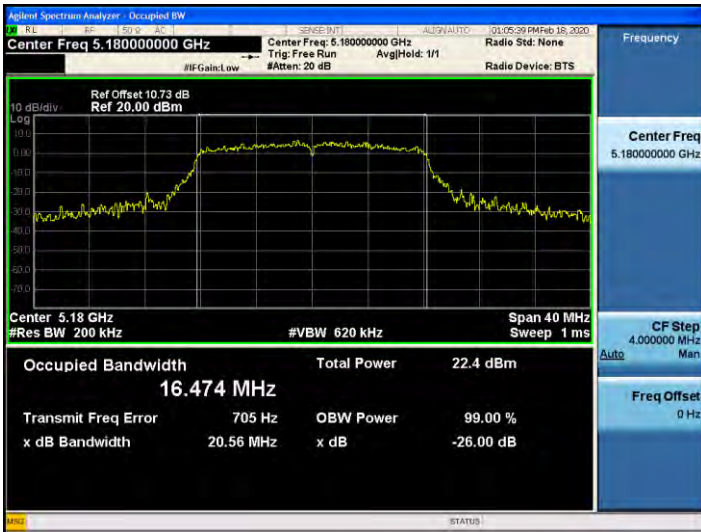


☐ Test Plots(802.11a)

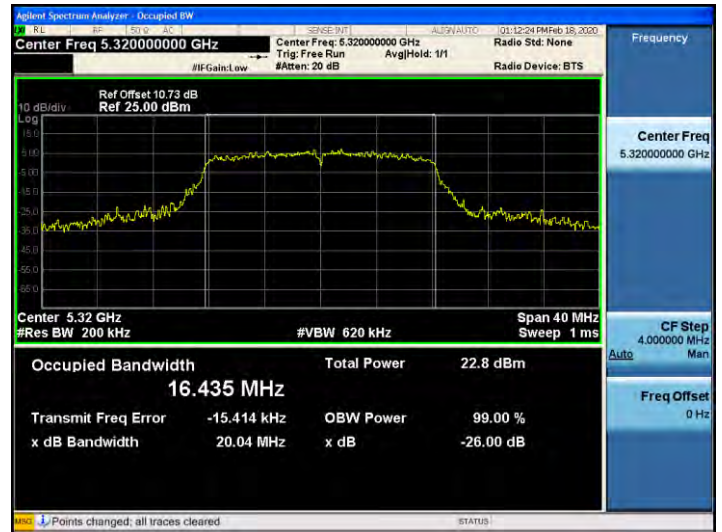
Note:

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

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



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



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



**802.11a UNII 3 BAND 26dB Bandwidth (CH 165)**

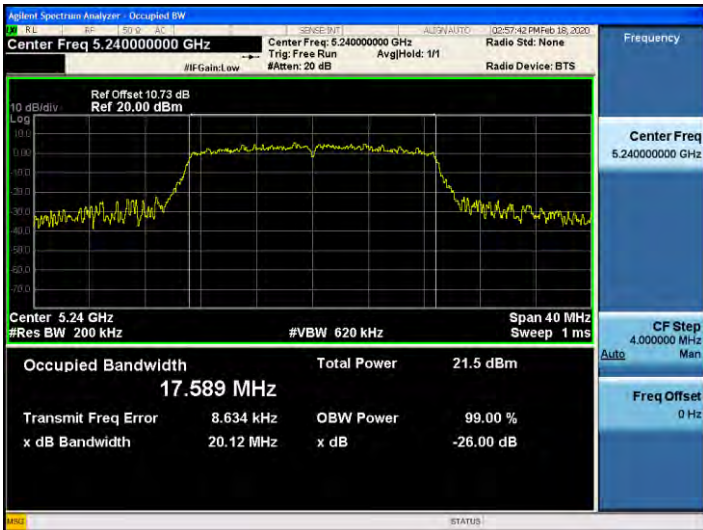


☐ Test Plots(802.11n(HT20))

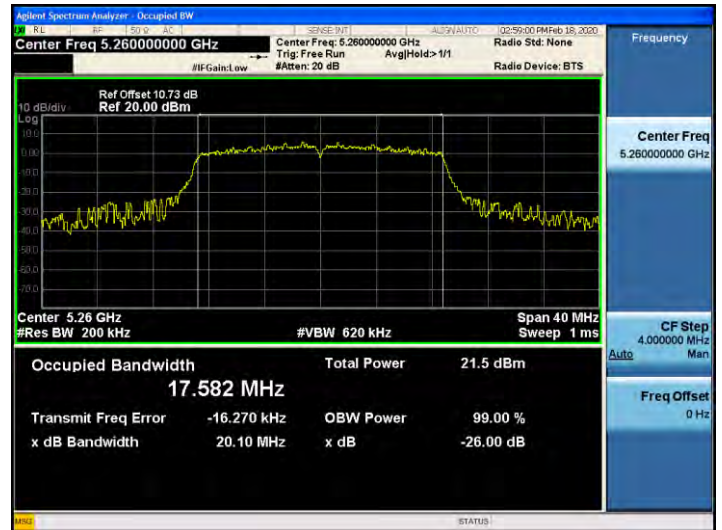
Note:

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

802.11n\_HT20 UNII 1 BAND 26dB Bandwidth(CH 48)



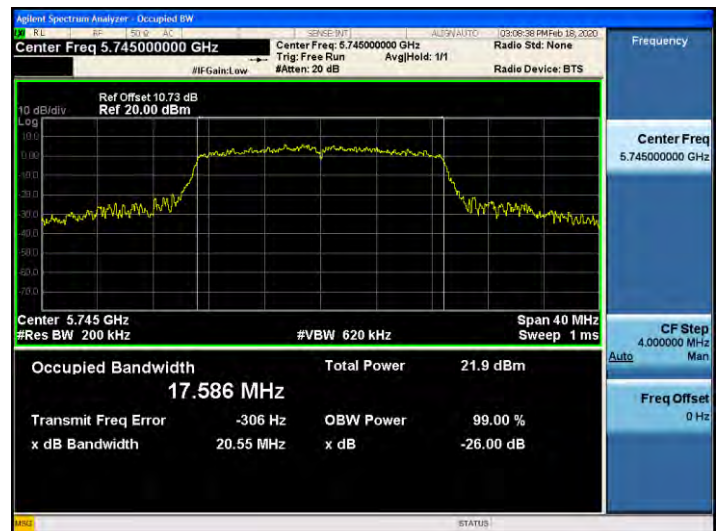
802.11n\_HT20 UNII 2A BAND 26dB Bandwidth(CH 52)



802.11n\_HT20 UNII 2C BAND 26dB Bandwidth(CH 120)



802.11n\_HT20 UNII 3 BAND 26dB Bandwidth(CH 149)

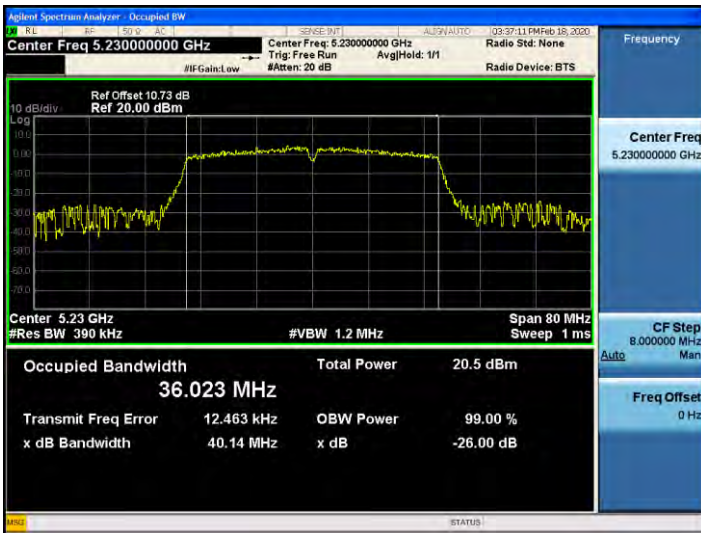


☐ Test Plots(802.11n(HT40))

Note:

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

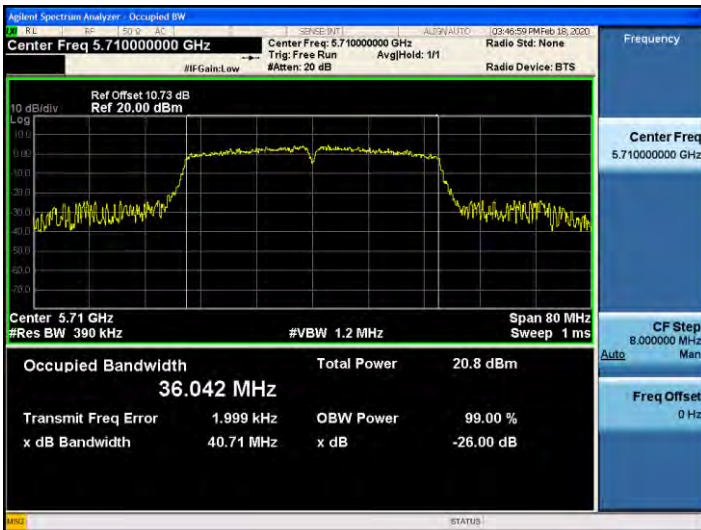
802.11n\_HT40 UNII 1 BAND 26dB Bandwidth(CH 46)



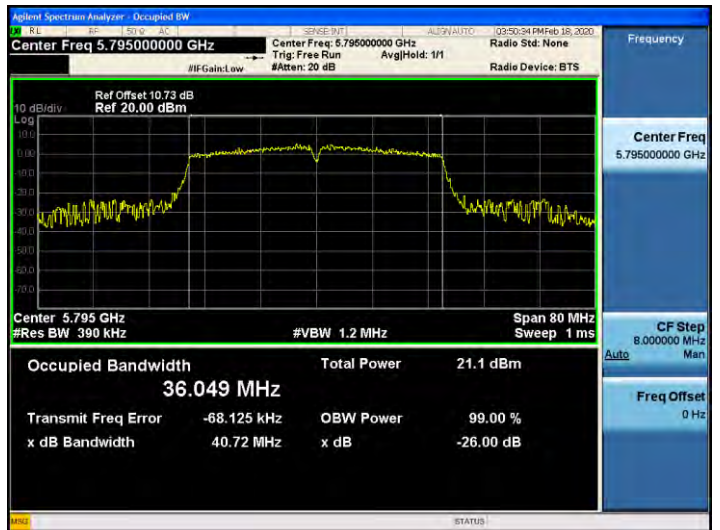
802.11n\_HT40 UNII 2A BAND 26dB Bandwidth (CH 54)



802.11n\_HT40 UNII 2C BAND 26dB Bandwidth(CH 142)



802.11n\_HT40 UNII 3 BAND 26dB Bandwidth (CH 159)

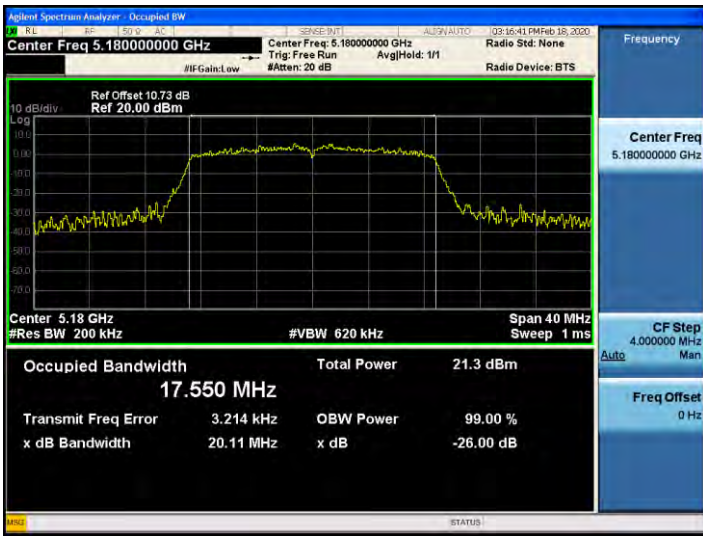


☐ Test Plots(802.11ac(VHT20))

Note:

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

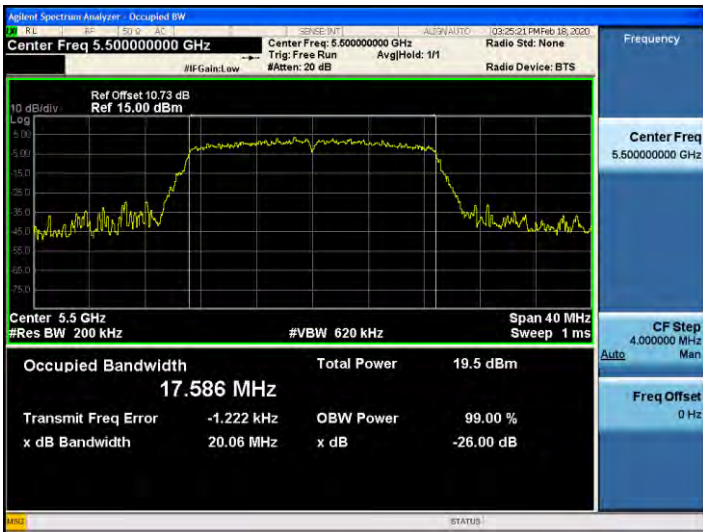
802.11ac\_VHT20 UNII 1 BAND 26dB Bandwidth(CH 36)



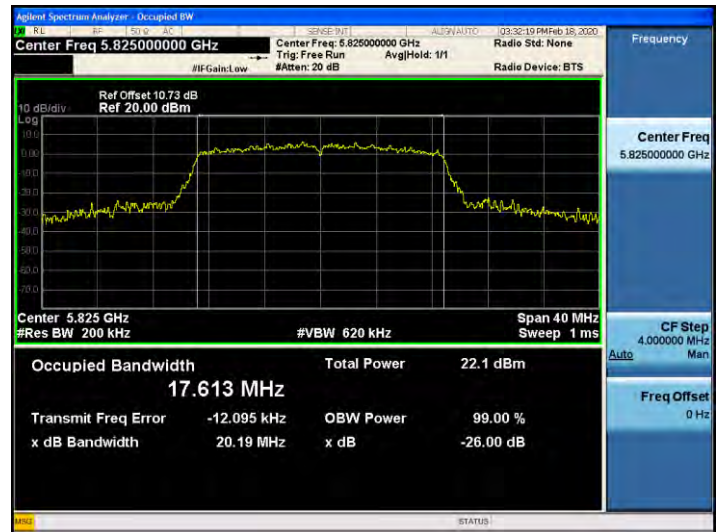
802.11ac\_VHT20 UNII 2A BAND 26dB Bandwidth(CH 64)



802.11ac\_VHT20 UNII 2C BAND 26dB Bandwidth(CH 100)



802.11ac\_VHT20 UNII 3 BAND 26dB Bandwidth(CH 165)



☐ Test Plots(802.11ac(VHT40))

Note:

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

802.11ac\_VHT40 UNII 1 BAND 26dB Bandwidth(CH 46)



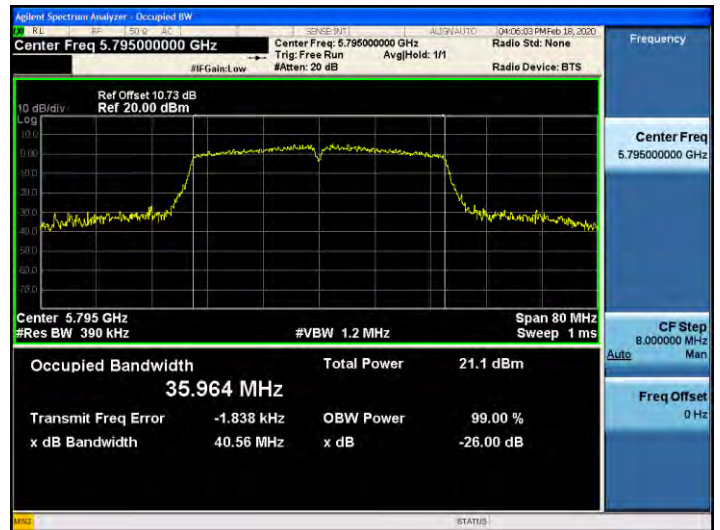
802.11ac\_VHT40 UNII 2A BAND 26dB Bandwidth (CH 54)



802.11ac\_VHT40 UNII 2C BAND 26dB Bandwidth(CH 142)



802.11ac\_VHT40 UNII 3 BAND 26dB Bandwidth (CH 159)

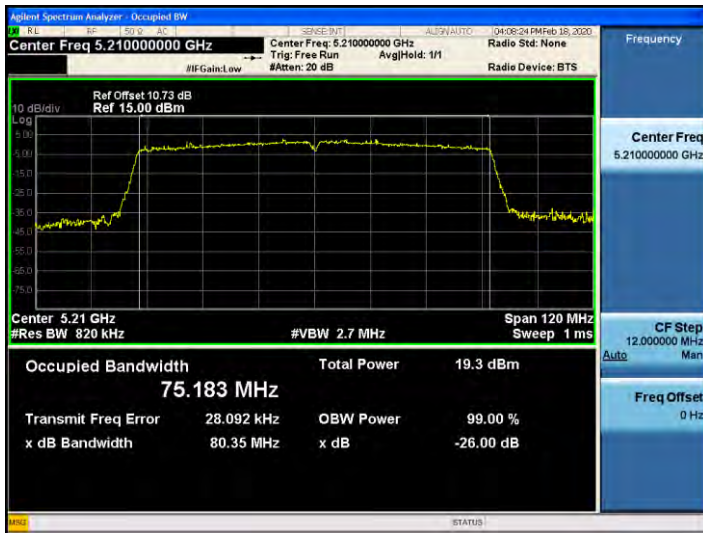


☐ Test Plots(802.11ac(VHT80))

Note:

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

802.11ac\_VHT80 UNII 1 BAND 26dB Bandwidth(CH 42)



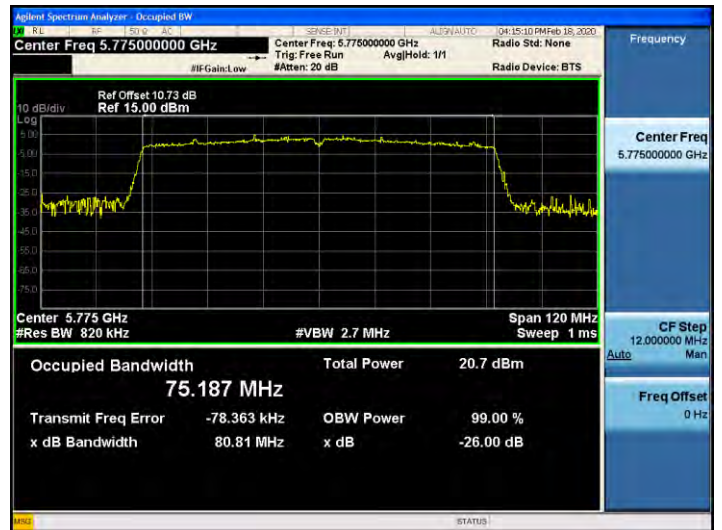
802.11ac\_VHT80 UNII 2A BAND 26dB Bandwidth (CH 58)



802.11ac\_VHT80 UNII 2C BAND 26dB Bandwidth(CH 106)



802.11ac\_VHT80 UNII 3 BAND 26dB Bandwidth (CH 155)



**10.3 6dB BANDWIDTH**

802.11a Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	14.70	> 0.5	Pass
5785	157	15.48	> 0.5	Pass
5825	165	14.72	> 0.5	Pass

802.11n(HT20) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	14.99	> 0.5	Pass
5785	157	15.14	> 0.5	Pass
5825	165	15.12	> 0.5	Pass

802.11n(HT40) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5755	151	33.91	> 0.5	Pass
5795	159	35.16	> 0.5	Pass

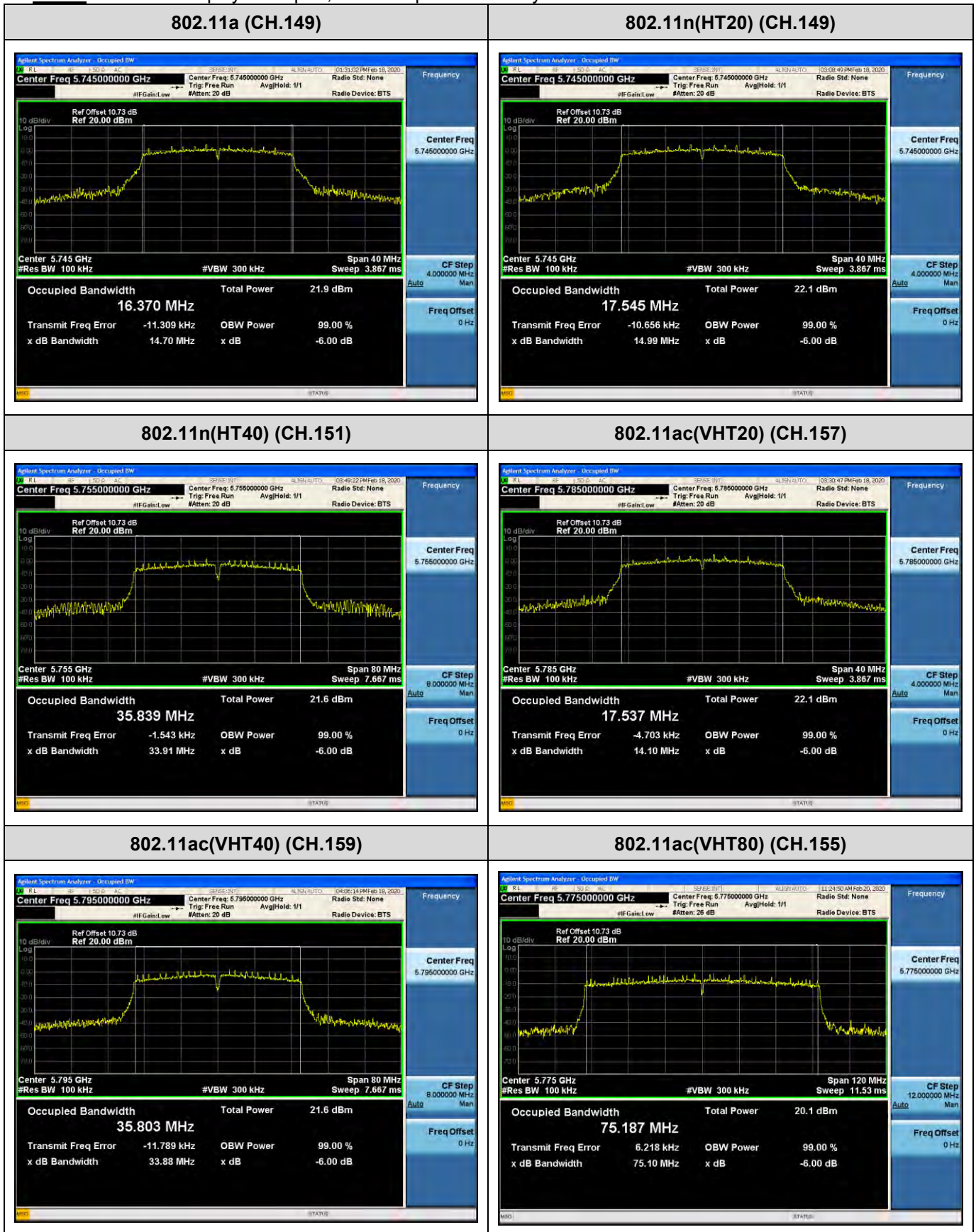
802.11ac(VHT20) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	15.03	> 0.5	Pass
5785	157	14.10	> 0.5	Pass
5825	165	15.11	> 0.5	Pass

802.11ac(VHT40) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5755	151	35.15	> 0.5	Pass
5795	159	33.88	> 0.5	Pass

802.11ac(VHT80) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5775	155	75.10	> 0.5	Pass

**Test Plots**

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





**10.4 OUTPUT POWER MEASUREMENT**

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

Straddle channel data were added in section 10.7.3.

802.11a Mode		Power Level Setting	Measured Power [dBm]	Duty Cycle Factor (dB)	Total Power [dBm]	Limit (dBm)
Frequency [MHz]	Channel No.					
5180	36	16	15.24	0.696	15.94	23.98
5200	40	16	15.52	0.512	16.03	23.98
5240	48	16	16.09	0.138	16.23	23.98
5260	52	16	15.91	0.389	16.30	23.98
5300	60	16	16.13	0.138	16.27	23.98
5320	64	16	16.15	0.138	16.29	23.98
5500	100	13	13.11	0.138	13.25	23.98
5600	120	16	16.05	0.269	16.32	23.98
5720	144	16	16.26	0.138	16.40	23.98
5745	149	15	15.11	0.389	15.50	30.00
5785	157	15	15.49	0.138	15.63	30.00
5825	165	15	15.45	0.269	15.72	30.00

802.11n(20MHz) Mode		Power Level Setting	Measured Power [dBm]	Duty Cycle Factor (dB)	Total Power [dBm]	Limit (dBm)
Frequency [MHz]	Channel No.					
5180	36	15	14.66	0.148	14.81	23.98
5200	40	15	14.66	0.148	14.81	23.98
5240	48	15	14.74	0.283	15.02	23.98
5260	52	15	14.81	0.283	15.09	23.98
5300	60	15	14.81	0.283	15.09	23.98
5320	64	15	14.72	0.397	15.12	23.98
5500	100	13	12.84	0.148	12.99	23.98
5600	120	15	14.85	0.283	15.13	23.98
5720	144	15	15.05	0.148	15.20	23.98
5745	149	15	14.97	0.283	15.25	30.00
5785	157	15	15.29	0.148	15.44	30.00
5825	165	15	15.43	0.148	15.58	30.00

802.11n(40MHz) Mode		Power Level Setting	Measured Power [dBm]	Duty Cycle Factor (dB)	Total Power [dBm]	Limit (dBm)
Frequency [MHz]	Channel No.					
5190	38	14	13.77	0.293	14.06	23.98
5230	46	14	13.79	0.293	14.08	23.98
5270	54	14	13.92	0.293	14.21	23.98
5310	62	13	12.85	0.293	13.14	23.98
5510	102	11	10.65	0.523	11.17	23.98
5590	118	14	14.08	0.293	14.37	23.98
5710	142	14	13.78	0.523	14.30	23.98
5755	151	14	13.92	0.523	14.44	30.00
5795	159	14	13.85	0.731	14.58	30.00

802.11ac(20MHz) Mode		Power Level Setting	Measured Power [dBm]	Duty Cycle Factor (dB)	Total Power [dBm]	Limit (dBm)
Frequency [MHz]	Channel No.					
5180	36	15	14.39	0.280	14.67	23.98
5200	40	15	14.39	0.393	14.78	23.98
5240	48	15	14.84	0.146	14.99	23.98
5260	52	15	14.12	0.969	15.09	23.98
5300	60	15	14.38	0.699	15.08	23.98
5320	64	15	14.71	0.393	15.10	23.98
5500	100	13	12.84	0.146	12.99	23.98
5600	120	15	14.19	0.969	15.16	23.98
5720	144	15	15.08	0.146	15.23	23.98
5745	149	15	14.37	0.969	15.34	30.00
5785	157	15	14.33	1.175	15.51	30.00
5825	165	15	14.42	1.175	15.60	30.00

802.11ac(40MHz) Mode		Power Level Setting	Measured Power [dBm]	Duty Cycle Factor (dB)	Total Power [dBm]	Limit (dBm)
Frequency [MHz]	Channel No.					
5190	38	14	13.19	0.720	13.91	23.98
5230	46	14	13.21	0.880	14.09	23.98
5270	54	14	13.86	0.289	14.15	23.98
5310	62	13	12.87	0.289	13.16	23.98
5510	102	11	10.51	0.532	11.04	23.98
5590	118	14	13.61	0.720	14.33	23.98
5710	142	14	14.02	0.289	14.31	23.98
5755	151	14	13.69	0.720	14.41	30.00
5795	159	14	13.96	0.532	14.49	30.00

802.11ac(80MHz) Mode		Power Level Setting	Measured Power [dBm]	Duty Cycle Factor (dB)	Total Power [dBm]	Limit (dBm)
Frequency [MHz]	Channel No.					
5210	42	12	11.31	0.950	12.26	23.98
5290	58	12	10.84	1.439	12.28	23.98
5530	106	10	9.75	0.540	10.29	23.98
5610	122	13	12.97	0.540	13.51	23.98
5690	138	13	12.49	0.950	13.44	23.98
5775	155	13	12.60	0.950	13.55	30.00

**10.5 POWER SPECTRAL DENSITY**

802.11a Mode		Measured PSD [dBm]	Duty Cycle Factor (dB)	Total PSD [dBm]	Limit
Frequency [MHz]	Channel No.				
5180	36	5.151	0.696	5.847	11 dBm/MHz
5200	40	5.563	0.512	6.075	
5240	48	5.960	0.138	6.098	
5260	52	5.862	0.389	6.251	
5300	60	6.169	0.138	6.307	
5320	64	6.270	0.138	6.408	
5500	100	2.986	0.138	3.124	
5600	120	5.957	0.269	6.226	
5720	144	5.916	0.138	6.054	
5745	149	2.055	0.389	2.444	30 dBm/500kHz
5785	157	2.531	0.138	2.669	
5825	165	2.604	0.269	2.873	

802.11n(20MHz) Mode		Measured PSD [dBm]	Duty Cycle Factor (dB)	Total PSD [dBm]	Limit
Frequency [MHz]	Channel No.				
5180	36	4.114	0.148	4.262	11 dBm/MHz
5200	40	4.226	0.148	4.374	
5240	48	4.552	0.283	4.835	
5260	52	4.707	0.283	4.990	
5300	60	4.659	0.283	4.942	
5320	64	4.294	0.397	4.691	
5500	100	2.615	0.148	2.763	
5600	120	4.878	0.283	5.161	
5720	144	5.021	0.148	5.169	
5745	149	1.914	0.283	2.197	30 dBm/500kHz z
5785	157	2.362	0.148	2.510	
5825	165	2.542	0.148	2.690	

802.11n(40MHz) Mode		Measured PSD [dBm]	Duty Cycle Factor (dB)	Total PSD [dBm]	Limit
Frequency [MHz]	Channel No.				
5190	38	0.390	0.293	0.683	11 dBm/MHz
5230	46	0.566	0.293	0.859	
5270	54	0.698	0.293	0.991	
5310	62	-0.224	0.293	0.069	
5510	102	-2.761	0.523	-2.238	
5590	118	0.902	0.293	1.195	
5710	142	0.905	0.523	1.428	
5755	151	-1.992	0.523	-1.469	30 dBm /500kHz
5795	159	-2.048	0.731	-1.317	

802.11ac(20MHz) Mode		Measured PSD [dBm]	Duty Cycle Factor (dB)	Total PSD [dBm]	Limit
Frequency [MHz]	Channel No.				
5180	36	4.300	0.280	4.580	11 dBm/MHz
5200	40	4.134	0.393	4.527	
5240	48	4.698	0.146	4.844	
5260	52	3.898	0.969	4.867	
5300	60	4.331	0.699	5.030	
5320	64	4.314	0.393	4.707	
5500	100	2.505	0.146	2.651	
5600	120	4.078	0.969	5.047	
5720	144	4.739	0.146	4.885	
5745	149	1.519	0.969	2.488	
5785	157	1.558	1.175	2.733	30 dBm/500kHz
5825	165	1.760	1.175	2.935	

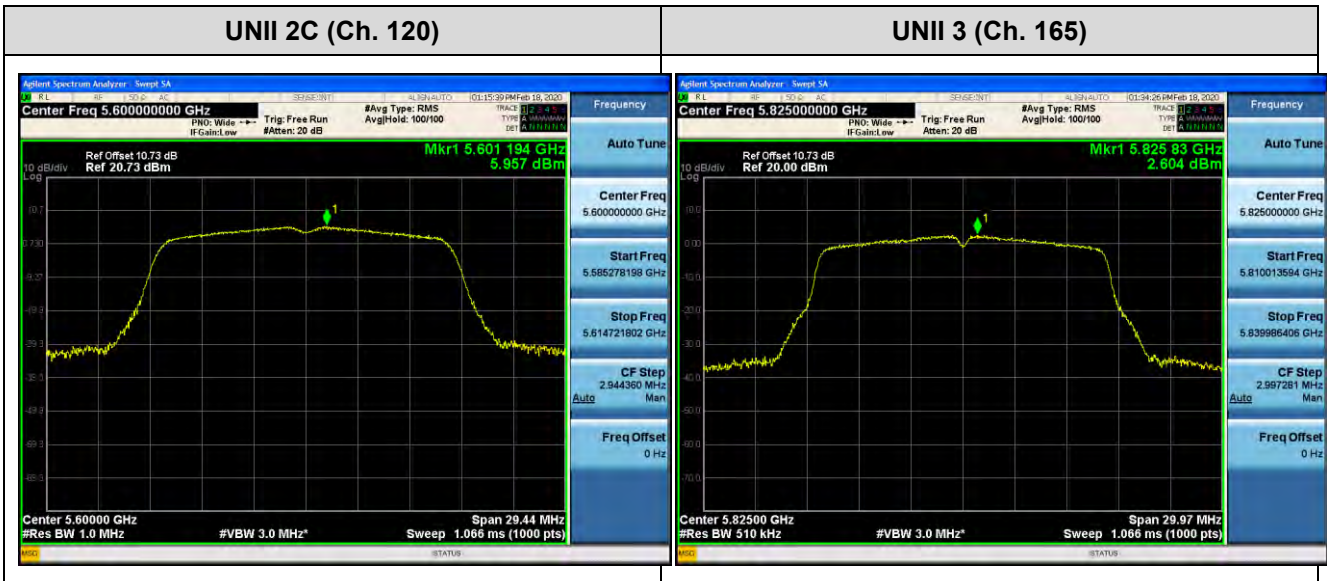
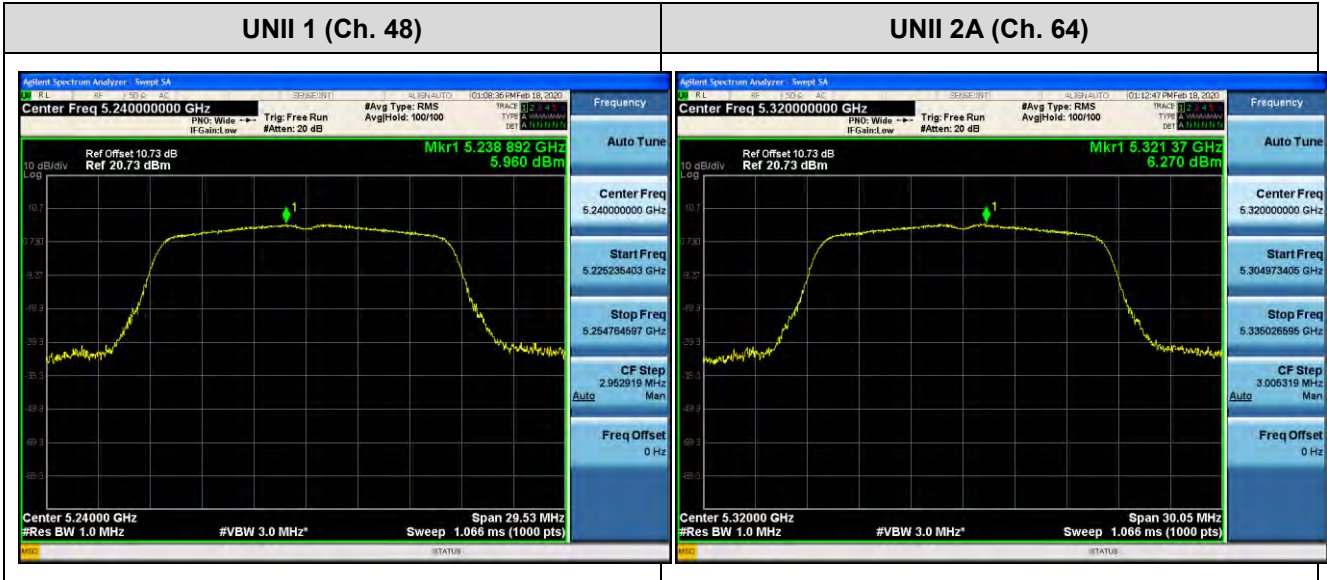
802.11ac(40MHz) Mode		Measured PSD [dBm]	Duty Cycle Factor (dB)	Total PSD [dBm]	Limit
Frequency [MHz]	Channel No.				
5190	38	-0.129	0.720	0.591	11 dBm/MHz
5230	46	-0.026	0.880	0.854	
5270	54	0.732	0.289	1.021	
5310	62	-0.177	0.289	0.112	
5510	102	-2.678	0.532	-2.146	
5590	118	0.442	0.720	1.162	
5710	142	0.774	0.289	1.063	
5755	151	-2.258	0.720	-1.538	30 dBm/500kHz
5795	159	-1.707	0.532	-1.175	

802.11ac(80MHz) Mode		Measured PSD [dBm]	Duty Cycle Factor (dB)	Total PSD [dBm]	Limit
Frequency [MHz]	Channel No.				
5210	42	-5.350	0.950	-4.400	11 dBm/MHz
5290	58	-5.315	1.439	-3.876	
5530	106	-6.729	0.540	-6.189	
5610	122	-3.555	0.540	-3.015	
5690	138	-3.707	0.950	-2.757	
5775	155	-6.369	0.950	-5.419	30 dBm/500kHz

Test Plots(802.11a)

Note:

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



▣ Test Plots(802.11n(HT20))

Note:

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





☐ Test Plots(802.11n(HT40))

Note:

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



☐ Test Plots(802.11ac(VHT20))

Note:

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



☐ Test Plots(802.11ac(VHT40))

Note:

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



☐ Test Plots(802.11ac(VHT80))

Note:

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



**10.6 FREQUENCY STABILITY.**

**10.6.1 80MHz BW**

**Startup after the EUT is energized**

OPERATING BAND: UNII Band 1  
 OPERATING FREQUENCY: 5,210,000,000 Hz  
 CHANNEL: 42  
 REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5210086.58	86.58
100%		-30	5210094.93	94.93
100%		-20	5210045.23	45.23
100%		-10	5210007.12	7.12
100%		0	5210051.85	51.85
100%		+10	5210023.04	23.04
100%		+30	5210036.12	36.12
100%		+40	5210083.90	83.90
100%		+50	5210037.52	37.52
End.Point	3.5	+20	5210035.82	35.82

**Note:**

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

OPERATING BAND: UNII Band 2A  
 OPERATING FREQUENCY: 5,290,000,000 Hz  
 CHANNEL: 58  
 REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5290012.99	12.99
100%		-30	5290090.69	90.69
100%		-20	5290057.58	57.58
100%		-10	5290065.53	65.53
100%		0	5290021.54	21.54
100%		+10	5290043.57	43.57
100%		+30	5290076.07	76.07
100%		+40	5290067.02	67.02
100%		+50	5290064.74	64.74
End.Point	3.5	+20	5290071.62	71.62

**Note:**

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

OPERATING BAND: UNII Band 2C  
 OPERATING FREQUENCY: 5,530,000,000 Hz  
 CHANNEL: 106  
 REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5530090.47	90.47
100%		-30	5530026.69	26.69
100%		-20	5530041.39	41.39
100%		-10	5530099.18	99.18
100%		0	5530002.84	2.84
100%		+10	5530082.52	82.52
100%		+30	5530087.17	87.17
100%		+40	5530029.49	29.49
100%		+50	5530014.89	14.89
End.Point	3.5	+20	5530067.88	67.88

**Note:**

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

OPERATING BAND: UNII Band 3  
 OPERATING FREQUENCY: 5,775,000,000 Hz  
 CHANNEL: 155  
 REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5775014.55	14.55
100%		-30	5775037.46	37.46
100%		-20	5775016.57	16.57
100%		-10	5775092.97	92.97
100%		0	5775042.75	42.75
100%		+10	5775025.36	25.36
100%		+30	5775004.22	4.22
100%		+40	5775070.09	70.09
100%		+50	5775067.05	67.05
End.Point	3.5	+20	5775077.48	77.48

**Note:**

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



**2 minutes after the EUT is energized**

OPERATING BAND: UNII Band 1  
 OPERATING FREQUENCY: 5,210,000,000 Hz  
 CHANNEL: 42  
 REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5210031.21	31.21
100%		-30	5210010.69	10.69
100%		-20	5210029.54	29.54
100%		-10	5210048.52	48.52
100%		0	5210008.75	8.75
100%		+10	5210093.46	93.46
100%		+30	5210096.75	96.75
100%		+40	5210081.71	81.71
100%		+50	5210027.90	27.90
End.Point		3.5	+20	5210077.78

**Note:**

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

OPERATING BAND: UNII Band 2A  
 OPERATING FREQUENCY: 5,290,000,000 Hz  
 CHANNEL: 58  
 REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5290002.35	2.35
100%		-30	5290013.04	13.04
100%		-20	5290001.08	1.08
100%		-10	5290013.08	13.08
100%		0	5290039.62	39.62
100%		+10	5290022.26	22.26
100%		+30	5290083.09	83.09
100%		+40	5290026.77	26.77
100%		+50	5290049.86	49.86
End.Point	3.5	+20	5290077.77	77.77

**Note:**

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

OPERATING BAND: UNII Band 2C  
 OPERATING FREQUENCY: 5,530,000,000 Hz  
 CHANNEL: 106  
 REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5530087.35	87.35
100%		-30	5530032.12	32.12
100%		-20	5530067.83	67.83
100%		-10	5530034.80	34.8
100%		0	5530042.98	42.98
100%		+10	5530002.73	2.73
100%		+30	5530050.46	50.46
100%		+40	5530075.83	75.83
100%		+50	5530020.48	20.48
End.Point	3.5	+20	5530073.45	73.45

**Note:**

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

OPERATING BAND: UNII Band 3  
 OPERATING FREQUENCY: 5,775,000,000 Hz  
 CHANNEL: 155  
 REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5775002.52	2.52
100%		-30	5775099.68	99.68
100%		-20	5775002.07	2.07
100%		-10	5775007.15	7.15
100%		0	5775082.81	82.81
100%		+10	5775027.31	27.31
100%		+30	5775056.27	56.27
100%		+40	5775047.34	47.34
100%		+50	5775078.68	78.68
End.Point	3.5	+20	5775083.55	83.55

**Note:**

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

**5 minutes after the EUT is energized**

OPERATING BAND: UNII Band 1  
 OPERATING FREQUENCY: 5,210,000,000 Hz  
 CHANNEL: 42  
 REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5210046.73	46.73
100%		-30	5210075.55	75.55
100%		-20	5210090.29	90.29
100%		-10	5210061.10	61.10
100%		0	5210081.58	81.58
100%		+10	5210042.88	42.88
100%		+30	5210025.27	25.27
100%		+40	5210099.37	99.37
100%		+50	5210007.87	7.87
End.Point	3.5	+20	5210096.18	96.18

**Note:**

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

OPERATING BAND: UNII Band 2A  
 OPERATING FREQUENCY: 5,290,000,000 Hz  
 CHANNEL: 58  
 REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5290047.06	47.06
100%		-30	5290032.95	32.95
100%		-20	5290054.68	54.68
100%		-10	5290094.40	94.40
100%		0	5290008.94	8.94
100%		+10	5290032.39	32.39
100%		+30	5290028.28	28.28
100%		+40	5290021.14	21.14
100%		+50	5290017.16	17.16
End.Point	3.5	+20	5290003.86	3.86

**Note:**

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

OPERATING BAND: UNII Band 2C  
 OPERATING FREQUENCY: 5,530,000,000 Hz  
 CHANNEL: 106  
 REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5530061.03	61.03
100%		-30	5530090.17	90.17
100%		-20	5530022.42	22.42
100%		-10	5530084.90	84.9
100%		0	5530045.33	45.33
100%		+10	5530032.96	32.96
100%		+30	5530091.45	91.45
100%		+40	5530019.92	19.92
100%		+50	5530081.75	81.75
End.Point	3.5	+20	5530088.23	88.23

**Note:**

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

OPERATING BAND: UNII Band 3  
 OPERATING FREQUENCY: 5,775,000,000 Hz  
 CHANNEL: 155  
 REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5775025.61	25.61
100%		-30	5775029.92	29.92
100%		-20	5775057.64	57.64
100%		-10	5775066.86	66.86
100%		0	5775046.64	46.64
100%		+10	5775076.32	76.32
100%		+30	5775035.60	35.60
100%		+40	5775063.31	63.31
100%		+50	5775033.45	33.45
End.Point	3.5	+20	5775038.04	38.04

**Note:**

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



**10 minutes after the EUT is energized**

OPERATING BAND: UNII Band 1  
 OPERATING FREQUENCY: 5,210,000,000 Hz  
 CHANNEL: 42  
 REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5210033.39	33.39
100%		-30	5210071.54	71.54
100%		-20	5210001.24	1.24
100%		-10	5210057.52	57.52
100%		0	5210096.59	96.59
100%		+10	5210083.64	83.64
100%		+30	5210066.52	66.52
100%		+40	5210035.77	35.77
100%		+50	5210096.38	96.38
End.Point	3.5	+20	5210029.75	29.75

**Note:**

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

OPERATING BAND: UNII Band 2A  
 OPERATING FREQUENCY: 5,290,000,000 Hz  
 CHANNEL: 58  
 REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5290083.59	83.59
100%		-30	5290019.88	19.88
100%		-20	5290061.20	61.2
100%		-10	5290061.51	61.51
100%		0	5290048.25	48.25
100%		+10	5290032.60	32.6
100%		+30	5290088.57	88.57
100%		+40	5290038.98	38.98
100%		+50	5290029.56	29.56
End.Point	3.5	+20	5290053.92	53.92

**Note:**

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

OPERATING BAND: UNII Band 2C  
 OPERATING FREQUENCY: 5,530,000,000 Hz  
 CHANNEL: 106  
 REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5530064.99	64.99
100%		-30	5530043.43	43.43
100%		-20	5530038.12	38.12
100%		-10	5530012.44	12.44
100%		0	5530025.85	25.85
100%		+10	5530047.96	47.96
100%		+30	5530080.80	80.80
100%		+40	5530066.55	66.55
100%		+50	5530030.73	30.73
End.Point	3.5	+20	5530091.49	91.49

**Note:**

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

OPERATING BAND: UNII Band 3  
 OPERATING FREQUENCY: 5,775,000,000 Hz  
 CHANNEL: 155  
 REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5775073.45	73.45
100%		-30	5775092.04	92.04
100%		-20	5775092.44	92.44
100%		-10	5775010.72	10.72
100%		0	5775074.91	74.91
100%		+10	5775069.13	69.13
100%		+30	5775067.81	67.81
100%		+40	5775099.30	99.30
100%		+50	5775046.18	46.18
End.Point	3.5	+20	5775080.18	80.18

**Note:**

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

**10.7 STRADDLE CHANNEL**

**10.7.1 26dB Bandwidth**

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	26dB Bandwidth [MHz]
802.11a	UNII 2C	5720	144	5710.32	14.68
802.11n(HT20)				5710.00	15.00
802.11ac(VHT20)				5710.12	14.88
802.11a	UNII 3	5720	144	5729.88	4.88
802.11n(HT20)				5730.04	5.04
802.11ac(VHT20)				5730.00	5.00

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	26dB Bandwidth [MHz]
802.11n(HT40)	UNII 2C	5710	142	5690.08	34.92
802.11ac(VHT40)				5690.00	35.00
802.11n(HT40)	UNII 3	5710	142	5729.84	4.84
802.11ac(VHT40)				5730.00	5.00

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	26dB Bandwidth [MHz]
802.11ac(VHT80)	UNII 2C	5690	138	5650.04	74.96
	UNII 3	5690	138	5729.72	4.72

**Note:**

[UNII 2C] 26dB Bandwidth = 5725MHz - Measured Frequency[MHz]

[UNII 3C] 26dB Bandwidth = Measured Frequency[MHz] -5725MHz

Test Plots (26dB Bandwidth)

802.11a UNII Band



802.11n(HT20) UNII Band



802.11ac(VHT20) UNII Band



☐ Test Plots (26dB Bandwidth)

**802.11n(HT40) UNII Band**



**802.11ac(VHT40) UNII Band**



**802.11ac(VHT80) UNII Band**



**10.7.2 6dB Bandwidth**

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	6dB Bandwidth [MHz]	Limit [MHz]
802.11a	UNII 3	5720	144	5727.56	2.56	> 0.5
802.11n(HT20)				5727.56	2.56	> 0.5
802.11ac(VHT20)				5727.52	2.52	> 0.5

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	6dB Bandwidth [MHz]	Limit [MHz]
802.11n(HT40)	UNII 3	5710	142	5727.52	2.52	> 0.5
802.11ac(VHT40)				5727.52	2.52	> 0.5

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	6dB Bandwidth [MHz]	Limit [MHz]
802.11ac(VHT80)	UNII 3	5690	138	5727.52	2.52	> 0.5

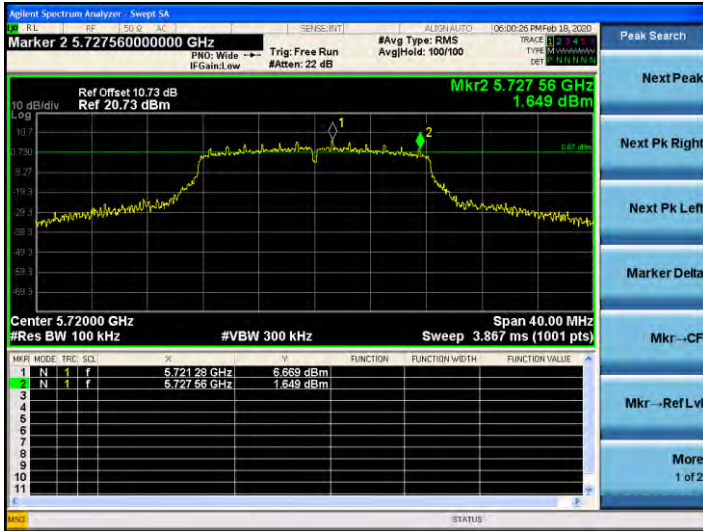
**Note:**

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



☐ Test Plots(UNII 3 Band 6dB Bandwidth)

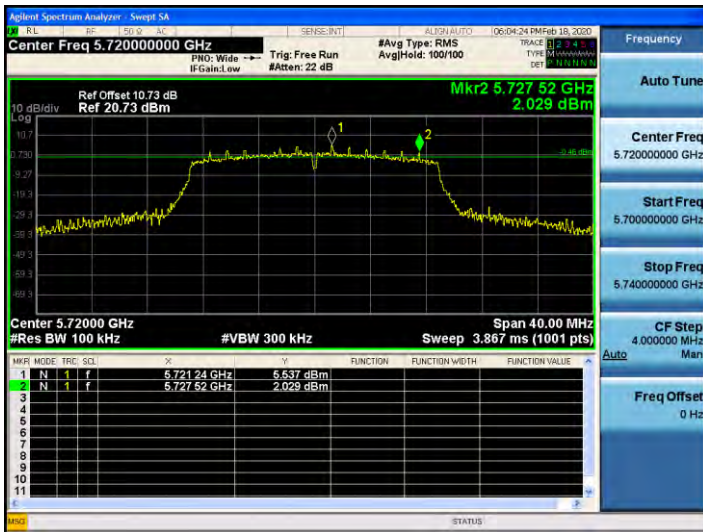
802.11a CH.144



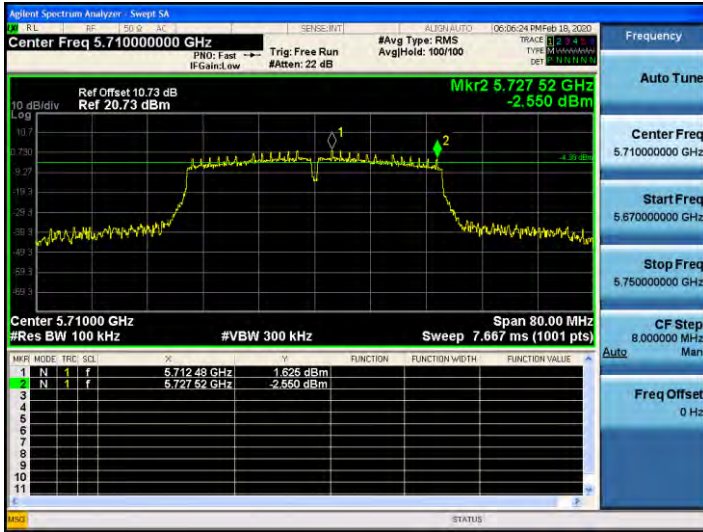
802.11n\_HT20 CH.144



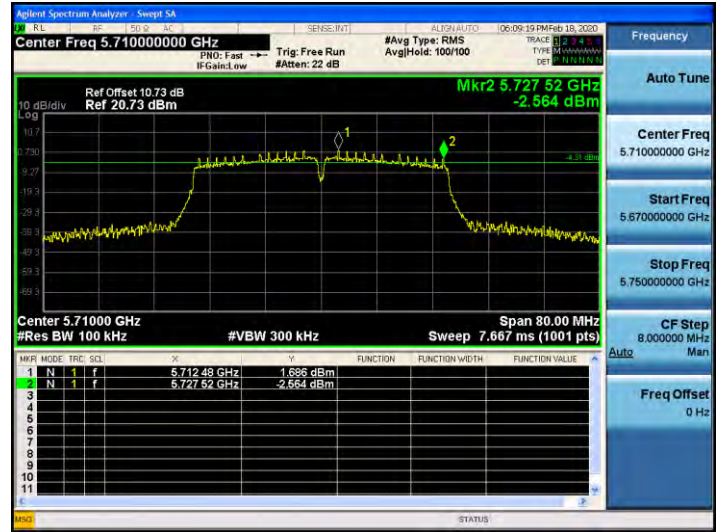
802.11ac\_VHT20 CH.144



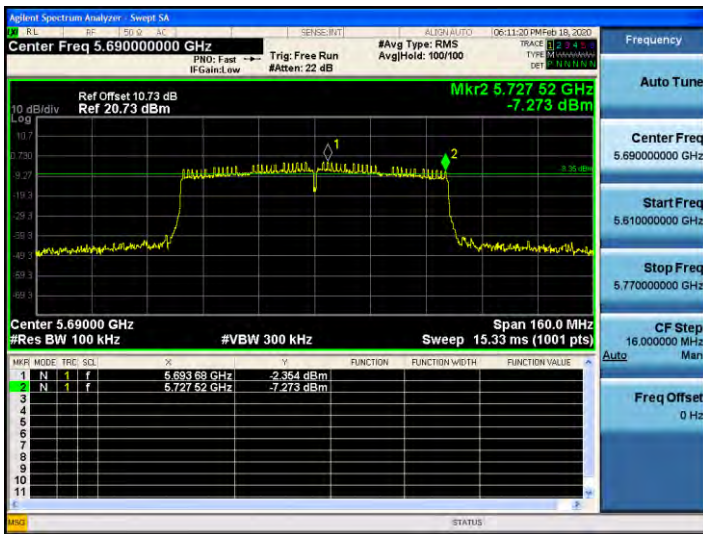
802.11n\_HT40 CH.142



802.11ac\_VHT40 CH.142



802.11ac\_VHT80 CH.138



**10.7.3 Output Power**

Mode	Frequency [MHz]	Channel	Measured Power (dBm)	Duty Cycle Factor (dB)	Total Power (dBm)	Limit (dBm)
802.11a	5720 (UNII 2C Band)	144	15.65	0.138	15.79	22.67
802.11n(HT20)			14.44	0.148	14.59	22.76
802.11ac(VHT20)			14.42	0.146	14.57	22.73
802.11a	5720 (UNII 3 Band)	144	7.95	0.138	8.09	30.00
802.11n(HT20)			7.18	0.148	7.33	30.00
802.11ac(VHT20)			7.16	0.146	7.31	30.00

Mode	Frequency [MHz]	Channel	Measured Power (dBm)	Duty Cycle Factor (dB)	Total Power (dBm)	Limit (dBm)
802.11n(HT40)	5710 (UNII 2C Band)	142	13.55	0.523	14.07	23.98
802.11ac(VHT40)			13.97	0.532	14.50	23.98
802.11n(HT40)	5710 (UNII 3 Band)	142	0.95	0.523	1.47	30.00
802.11ac(VHT40)			1.34	0.532	1.87	30.00

Mode	Frequency [MHz]	Channel	Measured Power (dBm)	Duty Cycle Factor (dB)	Total Power (dBm)	Limit (dBm)
802.11ac(VHT80)	5690 (UNII 2C Band)	138	12.49	0.950	13.44	23.98
	5690 (UNII 3 Band)	138	3.62	0.950	4.57	30.00

☐ Test Plots

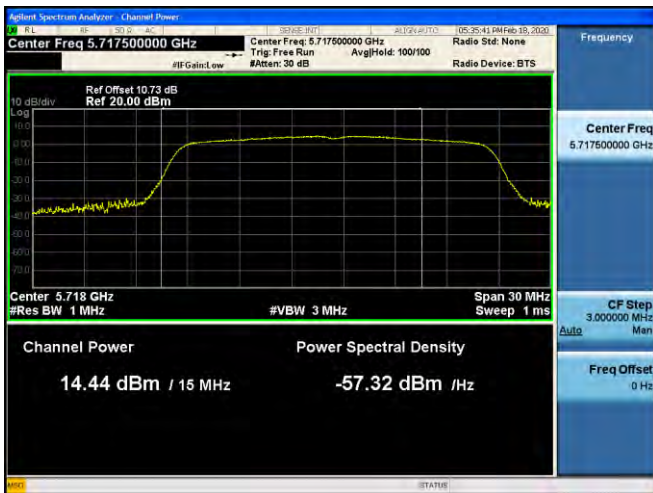
**802.11a UNII 2C Band**



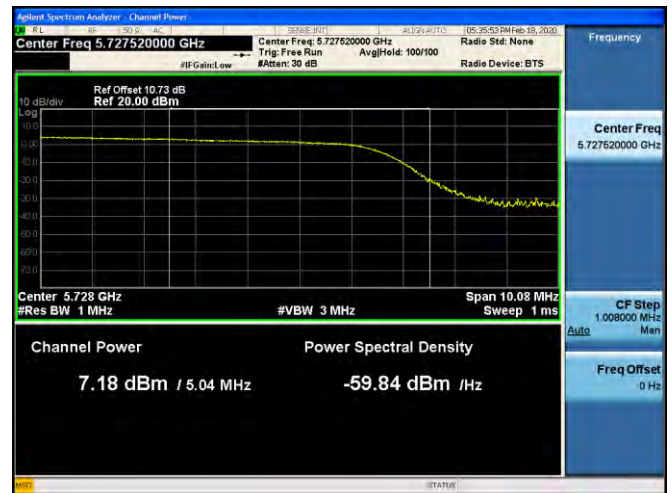
**802.11a UNII 3 Band**



**802.11n(HT20) UNII 2C Band**



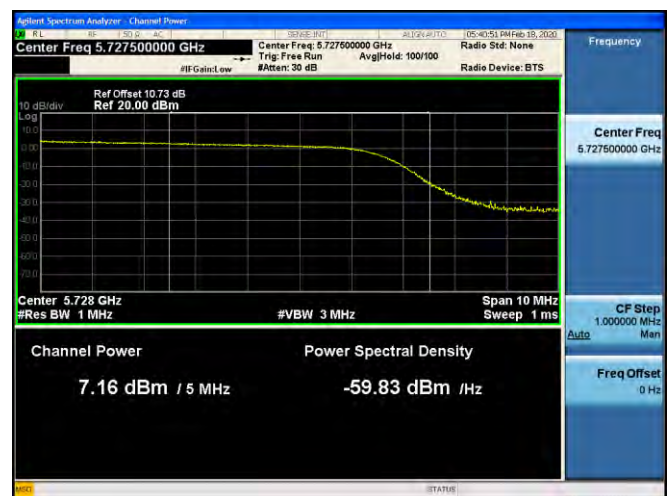
**802.11n(HT20) UNII 3 Band**



**802.11ac(VHT20) UNII 2C Band**



**802.11ac(VHT20) UNII 3 Band**



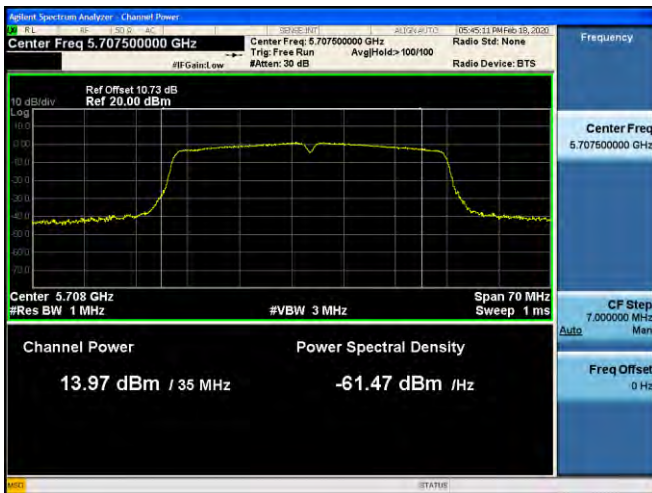
**802.11n(HT40) UNII 2C Band**



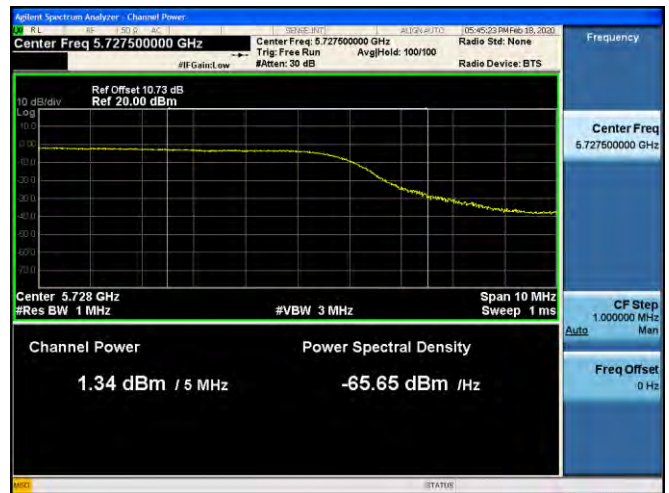
**802.11n(HT40) UNII 3 Band**



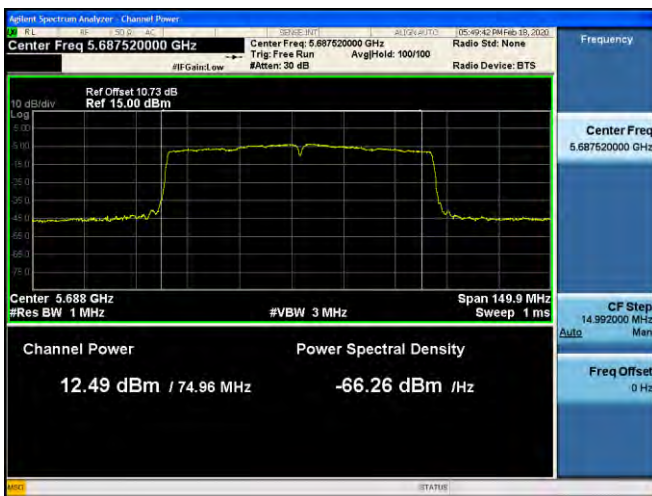
**802.11ac(VHT40) UNII 2C Band**



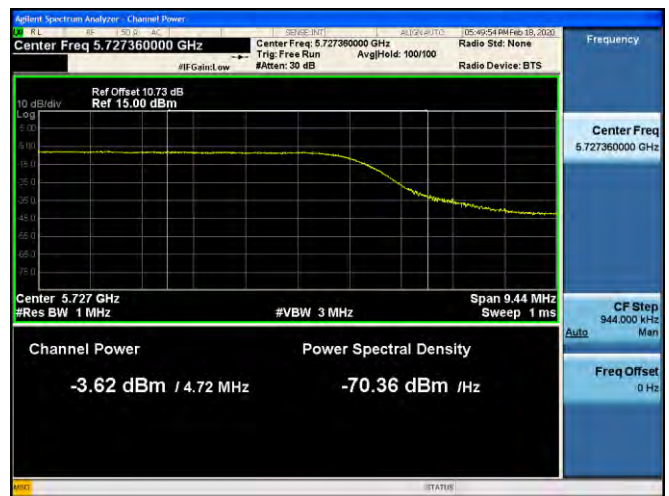
**802.11ac(VHT40) UNII 3 Band**



**802.11ac(VHT80) UNII 2C Band**



**802.11ac(VHT80) UNII 3 Band**



**10.7.4 Power Spectral Density**

Mode	Frequency [MHz]	Channel	Measured Density (dBm)	Duty Cycle Factor (dB)	Total PSD (dBm)	Limit (dBm)
802.11a	5720 (UNII 2C Band)	144	6.229	0.138	6.367	11.00
802.11n(HT20)			4.986	0.148	5.134	11.00
802.11ac(VHT20)			4.943	0.146	5.089	11.00
802.11a	5720 (UNII 3 Band)	144	1.459	0.138	1.597	30.00
802.11n(HT20)			0.421	0.148	0.569	30.00
802.11ac(VHT20)			0.070	0.146	0.216	30.00

Mode	Frequency [MHz]	Channel	Measured Density (dBm)	Duty Cycle Factor (dB)	Total PSD (dBm)	Limit (dBm)
802.11n(HT40)	5710 (UNII 2C Band)	142	0.492	0.523	1.015	11.00
802.11ac(VHT40)			1.071	0.532	1.603	11.00
802.11n(HT40)	5710 (UNII 3 Band)	142	-5.836	0.523	-5.313	30.00
802.11ac(VHT40)			-5.654	0.532	-5.122	30.00

Mode	Frequency [MHz]	Channel	Measured Density (dBm)	Duty Cycle Factor (dB)	Total PSD (dBm)	Limit (dBm)
802.11ac(VHT80)	5690 (UNII 2C Band)	138	-3.658	0.950	-2.708	11.00
	5690 (UNII 3 Band)	138	-10.650	0.950	-9.700	30.00

☐ 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



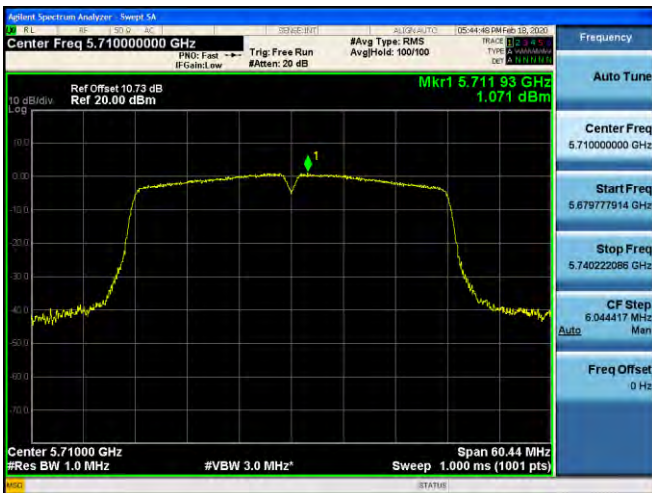
**802.11n(HT40) UNII 2C Band**



**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**





**10.8 RADIATED SPURIOUS EMISSIONS**

**Frequency Range : 9 kHz – 30MHz**

Frequency	Reading	Ant. factor	Cable loss	Ant. POL	Total	Limit	Margin
MHz	dBuV/m	dBm/m	dBm	(H/V)	dBuV/m	dBuV/m	dB
No Critical peaks found							

**Note:**

1. The reading 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 =  $40\log(\text{specific distance} / \text{test distance})$  (dB)
3. Limit line = specific Limits (dBuV) + Distance extrapolation factor

**Frequency Range : Below 1 GHz**

Frequency	Reading	Ant. factor	Cable loss	Ant. POL	Total	Limit	Margin
MHz	dBuV/m	dBm/m	dBm	(H/V)	dBuV/m	dBuV/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]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10360	54.22	-3.29	V	50.93	68.20	17.27	PK
15540	52.48	-3.24	V	49.24	73.98	24.74	PK
15540	39.23	-3.24	V	35.99	53.98	17.99	AV
10360	54.75	-3.29	H	51.46	68.20	16.74	PK
15540	52.60	-3.24	H	49.36	73.98	24.62	PK
15540	39.49	-3.24	H	36.25	53.98	17.73	AV

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

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10400	55.52	-2.43	V	53.09	68.20	15.11	PK
15600	52.11	-2.90	V	49.21	73.98	24.77	PK
15600	39.42	-2.90	V	36.52	53.98	17.46	AV
10400	55.64	-2.43	H	53.21	68.20	14.99	PK
15600	52.87	-2.90	H	49.97	73.98	24.01	PK
15600	39.62	-2.90	H	36.72	53.98	17.26	AV

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

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10480	54.29	-2.37	V	51.92	68.20	16.28	PK
15720	52.64	-3.03	V	49.61	73.98	24.37	PK
15720	39.45	-3.03	V	36.42	53.98	17.56	AV
10480	55.01	-2.37	H	52.64	68.20	15.56	PK
15720	52.71	-3.03	H	49.68	73.98	24.30	PK
15720	39.56	-3.03	H	36.53	53.98	17.45	AV

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

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10520	54.29	-2.40	V	51.89	68.20	16.31	PK
15780	51.85	-2.92	V	48.93	73.98	25.05	PK
15780	38.99	-2.92	V	36.07	53.98	17.91	AV
10520	54.91	-2.40	H	52.51	68.20	15.69	PK
15780	52.20	-2.92	H	49.28	73.98	24.70	PK
15780	39.15	-2.92	H	36.23	53.98	17.75	AV

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

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10600	55.06	-2.20	V	52.86	73.98	21.12	PK
10600	41.57	-2.20	V	39.37	53.98	14.61	AV
15900	51.55	-2.90	V	48.65	73.98	25.33	PK
15900	38.42	-2.90	V	35.52	53.98	18.46	AV
10600	55.28	-2.20	H	53.08	73.98	20.90	PK
10600	42.04	-2.20	H	39.84	53.98	14.14	AV
15900	51.72	-2.90	H	48.82	73.98	25.16	PK
15900	38.65	-2.90	H	35.75	53.98	18.23	AV

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

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10640	54.12	-2.52	V	51.60	73.98	22.38	PK
10640	41.13	-2.52	V	38.61	53.98	15.37	AV
15960	52.85	-3.40	V	49.45	73.98	24.53	PK
15960	39.42	-3.40	V	36.02	53.98	17.96	AV
10640	55.12	-2.52	H	52.60	73.98	21.38	PK
10640	41.39	-2.52	H	38.87	53.98	15.11	AV
15960	53.01	-3.40	H	49.61	73.98	24.37	PK
15960	39.76	-3.40	H	36.36	53.98	17.62	AV

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

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11000	56.47	-1.76	V	54.71	73.98	19.27	PK
11000	42.62	-1.76	V	40.86	53.98	13.12	AV
16500	51.98	-1.31	V	50.67	68.20	17.53	PK
11000	57.23	-1.76	H	55.47	73.98	18.51	PK
11000	42.71	-1.76	H	40.95	53.98	13.03	AV
16500	51.99	-1.31	H	50.68	68.20	17.52	PK

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

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11200	59.04	-2.21	V	56.83	73.98	17.15	PK
11200	45.34	-2.21	V	43.13	53.98	10.85	AV
16800	51.62	0.69	V	52.31	68.20	15.89	PK
11200	60.54	-2.21	H	58.33	73.98	15.65	PK
11200	46.04	-2.21	H	43.83	53.98	10.15	AV
16800	51.79	0.69	H	52.48	68.20	15.72	PK

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

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11440	60.05	-2.12	V	57.93	73.98	16.05	PK
11440	45.72	-2.12	V	43.60	53.98	10.38	AV
17160	52.03	1.29	V	53.32	68.20	14.88	PK
11440	59.37	-2.12	H	57.25	73.98	16.73	PK
11440	45.06	-2.12	H	42.94	53.98	11.04	AV
17160	52.12	1.29	H	53.41	68.20	14.79	PK

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

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11490	57.75	-2.83	V	54.92	73.98	19.06	PK
11490	43.84	-2.83	V	41.01	53.98	12.97	AV
17235	52.55	1.75	V	54.30	68.20	13.91	PK
11490	57.18	-2.83	H	54.35	73.98	19.63	PK
11490	43.01	-2.83	H	40.18	53.98	13.80	AV
17235	52.42	1.75	H	54.17	68.20	14.04	PK

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

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11570	57.39	-2.62	V	54.77	73.98	19.21	PK
11570	43.11	-2.62	V	40.49	53.98	13.49	AV
17355	52.21	2.90	V	55.11	68.20	13.10	PK
11570	57.42	-2.62	H	54.80	73.98	19.18	PK
11570	42.96	-2.62	H	40.34	53.98	13.64	AV
17355	52.11	2.90	H	55.01	68.20	13.20	PK

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

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11650	56.51	-2.26	V	54.25	73.98	19.73	PK
11650	42.82	-2.26	V	40.56	53.98	13.42	AV
17475	52.45	4.60	V	57.05	68.20	11.15	PK
11650	56.59	-2.26	H	54.33	73.98	19.65	PK
11650	43.23	-2.26	H	40.97	53.98	13.01	AV
17475	52.32	4.60	H	56.92	68.20	11.28	PK

Band : UNII 1  
 Operation Mode: 802.11 n(HT20)  
 Transfer MCS Index: MCS0  
 Operating Frequency 5180 MHz  
 Channel No. 36 Ch

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10360	54.44	-3.29	V	51.15	68.20	17.05	PK
15540	52.52	-3.24	V	49.28	73.98	24.70	PK
15540	39.11	-3.24	V	35.87	53.98	18.11	AV
10360	54.55	-3.29	H	51.26	68.20	16.94	PK
15540	52.70	-3.24	H	49.46	73.98	24.52	PK
15540	39.25	-3.24	H	36.01	53.98	17.97	AV

Band : UNII 1  
 Operation Mode: 802.11 n(HT20)  
 Transfer MCS Index: MCS0  
 Operating Frequency 5200 MHz  
 Channel No. 40 Ch

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10400	54.92	-2.43	V	52.49	68.20	15.71	PK
15600	52.11	-2.90	V	49.21	73.98	24.77	PK
15600	39.22	-2.90	V	36.32	53.98	17.66	AV
10400	54.70	-2.43	H	52.27	68.20	15.93	PK
15600	52.29	-2.90	H	49.39	73.98	24.59	PK
15600	39.39	-2.90	H	36.49	53.98	17.49	AV



Band : UNII 1  
 Operation Mode: 802.11 n(HT20)  
 Transfer MCS Index: MCS0  
 Operating Frequency 5240 MHz  
 Channel No. 48 Ch

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10480	54.10	-2.37	V	51.73	68.20	16.47	PK
15720	52.11	-3.03	V	49.08	73.98	24.90	PK
15720	38.82	-3.03	V	35.79	53.98	18.19	AV
10480	54.91	-2.37	H	52.54	68.20	15.66	PK
15720	52.50	-3.03	H	49.47	73.98	24.51	PK
15720	39.15	-3.03	H	36.12	53.98	17.86	AV

Band : UNII 2A  
 Operation Mode: 802.11 n(HT20)  
 Transfer MCS Index: MCS0  
 Operating Frequency 5260 MHz  
 Channel No. 52 Ch

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10520	53.86	-2.40	V	51.46	68.20	16.74	PK
15780	51.98	-2.92	V	49.06	73.98	24.92	PK
15780	38.52	-2.92	V	35.60	53.98	18.38	AV
10520	54.12	-2.40	H	51.72	68.20	16.48	PK
15780	52.22	-2.92	H	49.30	73.98	24.68	PK
15780	38.96	-2.92	H	36.04	53.98	17.94	AV

Band : UNII 2A  
 Operation Mode: 802.11 n(HT20)  
 Transfer MCS Index: MCS0  
 Operating Frequency 5300 MHz  
 Channel No. 60 Ch

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10600	54.89	-2.20	V	52.69	73.98	21.29	PK
10600	41.32	-2.20	V	39.12	53.98	14.86	AV
15900	51.32	-2.90	V	48.42	73.98	25.56	PK
15900	38.11	-2.90	V	35.21	53.98	18.77	AV
10600	54.51	-2.20	H	52.31	73.98	21.67	PK
10600	41.51	-2.20	H	39.31	53.98	14.67	AV
15900	51.84	-2.90	H	48.94	73.98	25.04	PK
15900	38.32	-2.90	H	35.42	53.98	18.56	AV

Band : UNII 2A  
 Operation Mode: 802.11 n(HT20)  
 Transfer MCS Index: MCS0  
 Operating Frequency 5320 MHz  
 Channel No. 64 Ch

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10640	54.02	-2.52	V	51.50	73.98	22.48	PK
10640	40.77	-2.52	V	38.25	53.98	15.73	AV
15960	52.13	-3.40	V	48.73	73.98	25.25	PK
15960	39.51	-3.40	V	36.11	53.98	17.87	AV
10640	54.15	-2.52	H	51.63	73.98	22.35	PK
10640	40.94	-2.52	H	38.42	53.98	15.56	AV
15960	52.50	-3.40	H	49.10	73.98	24.88	PK
15960	39.70	-3.40	H	36.30	53.98	17.68	AV

Band : UNII 2C  
 Operation Mode: 802.11 n(HT20)  
 Transfer MCS Index: MCS0  
 Operating Frequency 5500 MHz  
 Channel No. 100 Ch

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11000	55.45	-1.76	V	53.69	73.98	20.29	PK
11000	41.41	-1.76	V	39.65	53.98	14.33	AV
16500	51.62	-1.31	V	50.31	68.20	17.89	PK
11000	56.87	-1.76	H	55.11	73.98	18.87	PK
11000	42.58	-1.76	H	40.82	53.98	13.16	AV
16500	51.82	-1.31	H	50.51	68.20	17.69	PK

Band : UNII 2C  
 Operation Mode: 802.11 n(HT20)  
 Transfer MCS Index: MCS0  
 Operating Frequency 5600 MHz  
 Channel No. 120 Ch

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11200	57.42	-2.21	V	55.21	73.98	18.77	PK
11200	44.09	-2.21	V	41.88	53.98	12.10	AV
16800	51.03	0.69	V	51.72	68.20	16.48	PK
11200	58.40	-2.21	H	56.19	73.98	17.79	PK
11200	44.43	-2.21	H	42.22	53.98	11.76	AV
16800	51.22	0.69	H	51.91	68.20	16.29	PK

Band : UNII 2C  
 Operation Mode: 802.11 n(HT20)  
 Transfer MCS Index: MCS0  
 Operating Frequency 5720 MHz  
 Channel No. 144 Ch

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11440	58.43	-2.12	V	56.31	73.98	17.67	PK
11440	43.91	-2.12	V	41.79	53.98	12.19	AV
17160	52.11	1.29	V	53.40	68.20	14.80	PK
11440	57.98	-2.12	H	55.86	73.98	18.12	PK
11440	43.76	-2.12	H	41.64	53.98	12.34	AV
17160	52.22	1.29	H	53.51	68.20	14.69	PK

Band : UNII 3  
 Operation Mode: 802.11 n(HT20)  
 Transfer MCS Index: MCS0  
 Operating Frequency 5745MHz  
 Channel No. 149 Ch

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11490	57.34	-2.83	V	54.51	73.98	19.47	PK
11490	43.58	-2.83	V	40.75	53.98	13.23	AV
17235	52.22	1.75	V	53.97	68.20	14.24	PK
11490	56.91	-2.83	H	54.08	73.98	19.90	PK
11490	42.98	-2.83	H	40.15	53.98	13.83	AV
17235	52.37	1.75	H	54.12	68.20	14.09	PK

Band : UNII 3  
 Operation Mode: 802.11 n(HT20)  
 Transfer MCS Index: MCS0  
 Operating Frequency 5785 MHz  
 Channel No. 157 Ch

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11570	56.48	-2.62	V	53.86	73.98	20.12	PK
11570	42.61	-2.62	V	39.99	53.98	13.99	AV
17355	51.98	2.90	V	54.88	68.20	13.33	PK
11570	56.49	-2.62	H	53.87	73.98	20.11	PK
11570	42.83	-2.62	H	40.21	53.98	13.77	AV
17355	52.02	2.90	H	54.92	68.20	13.29	PK

Band : UNII 3  
 Operation Mode: 802.11 n(HT20)  
 Transfer MCS Index: MCS0  
 Operating Frequency 5825 MHz  
 Channel No. 165 Ch

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11650	56.22	-2.26	V	53.96	73.98	20.02	PK
11650	42.41	-2.26	V	40.15	53.98	13.83	AV
17475	51.91	4.60	V	56.51	68.20	11.69	PK
11650	56.93	-2.26	H	54.67	73.98	19.31	PK
11650	42.80	-2.26	H	40.54	53.98	13.44	AV
17475	52.52	4.60	H	57.12	68.20	11.08	PK

Band : UNII 1  
 Operation Mode: 802.11 ac(VHT20)  
 Transfer MCS Index: MCS0  
 Operating Frequency 5180 MHz  
 Channel No. 36 Ch

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10360	54.50	-3.29	V	51.21	68.20	16.99	PK
15540	52.14	-3.24	V	48.90	73.98	25.08	PK
15540	39.12	-3.24	V	35.88	53.98	18.10	AV
10360	54.44	-3.29	H	51.15	68.20	17.05	PK
15540	52.48	-3.24	H	49.24	73.98	24.74	PK
15540	39.46	-3.24	H	36.22	53.98	17.76	AV

Band : UNII 1  
 Operation Mode: 802.11 ac(VHT20)  
 Transfer MCS Index: MCS0  
 Operating Frequency 5200 MHz  
 Channel No. 40 Ch

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10400	54.21	-2.43	V	51.78	68.20	16.42	PK
15600	52.11	-2.90	V	49.21	73.98	24.77	PK
15600	39.12	-2.90	V	36.22	53.98	17.76	AV
10400	54.38	-2.43	H	51.95	68.20	16.25	PK
15600	52.25	-2.90	H	49.35	73.98	24.63	PK
15600	39.34	-2.90	H	36.44	53.98	17.54	AV

Band : UNII 1  
 Operation Mode: 802.11 ac(VHT20)  
 Transfer MCS Index: MCS0  
 Operating Frequency 5240 MHz  
 Channel No. 48 Ch

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10480	54.34	-2.37	V	51.97	68.20	16.23	PK
15720	52.08	-3.03	V	49.05	73.98	24.93	PK
15720	39.11	-3.03	V	36.08	53.98	17.90	AV
10480	54.25	-2.37	H	51.88	68.20	16.32	PK
15720	52.18	-3.03	H	49.15	73.98	24.83	PK
15720	39.27	-3.03	H	36.24	53.98	17.74	AV

Band : UNII 2A  
 Operation Mode: 802.11 ac(VHT20)  
 Transfer MCS Index: MCS0  
 Operating Frequency 5260MHz  
 Channel No. 52 Ch

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10520	53.70	-2.40	V	51.30	68.20	16.90	PK
15780	52.12	-2.92	V	49.20	73.98	24.78	PK
15780	38.88	-2.92	V	35.96	53.98	18.02	AV
10520	54.27	-2.40	H	51.87	68.20	16.33	PK
15780	52.43	-2.92	H	49.51	73.98	24.47	PK
15780	39.05	-2.92	H	36.13	53.98	17.85	AV

Band : UNII 2A  
 Operation Mode: 802.11 ac(VHT20)  
 Transfer MCS Index: MCS0  
 Operating Frequency 5300 MHz  
 Channel No. 60 Ch

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10600	54.61	-2.20	V	52.41	73.98	21.57	PK
10600	41.43	-2.20	V	39.23	53.98	14.75	AV
15900	51.98	-2.90	V	49.08	73.98	24.90	PK
15900	38.85	-2.90	V	35.95	53.98	18.03	AV
10600	54.21	-2.20	H	52.01	73.98	21.97	PK
10600	41.48	-2.20	H	39.28	53.98	14.70	AV
15900	52.12	-2.90	H	49.22	73.98	24.76	PK
15900	39.07	-2.90	H	36.17	53.98	17.81	AV

Band : UNII 2A  
 Operation Mode: 802.11 ac(VHT20)  
 Transfer MCS Index: MCS0  
 Operating Frequency 5320 MHz  
 Channel No. 64 Ch

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10640	54.11	-2.52	V	51.59	73.98	22.39	PK
10640	40.56	-2.52	V	38.04	53.98	15.94	AV
15960	52.52	-3.40	V	49.12	73.98	24.86	PK
15960	39.42	-3.40	V	36.02	53.98	17.96	AV
10640	54.32	-2.52	H	51.80	73.98	22.18	PK
10640	40.88	-2.52	H	38.36	53.98	15.62	AV
15960	52.77	-3.40	H	49.37	73.98	24.61	PK
15960	39.57	-3.40	H	36.17	53.98	17.81	AV



Band : UNII 2C  
 Operation Mode: 802.11 ac(VHT20)  
 Transfer MCS Index: MCS0  
 Operating Frequency 5500 MHz  
 Channel No. 100 Ch

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11000	55.57	-1.76	V	53.81	73.98	20.17	PK
11000	42.41	-1.76	V	40.65	53.98	13.33	AV
16500	51.48	-1.31	V	50.17	68.20	18.03	PK
11000	57.10	-1.76	H	55.34	73.98	18.64	PK
11000	42.61	-1.76	H	40.85	53.98	13.13	AV
16500	51.68	-1.31	H	50.37	68.20	17.83	PK

Band : UNII 2C  
 Operation Mode: 802.11 ac(VHT20)  
 Transfer MCS Index: MCS0  
 Operating Frequency 5600 MHz  
 Channel No. 120 Ch

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11200	57.45	-2.21	V	55.24	73.98	18.74	PK
11200	43.20	-2.21	V	40.99	53.98	12.99	AV
16800	51.11	0.69	V	51.80	68.20	16.40	PK
11200	58.20	-2.21	H	55.99	73.98	17.99	PK
11200	44.23	-2.21	H	42.02	53.98	11.96	AV
16800	51.32	0.69	H	52.01	68.20	16.19	PK

Band : UNII 2C  
 Operation Mode: 802.11 ac(VHT20)  
 Transfer MCS Index: MCS0  
 Operating Frequency 5720 MHz  
 Channel No. 144 Ch

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11440	58.15	-2.12	V	56.03	73.98	17.95	PK
11440	44.26	-2.12	V	42.14	53.98	11.84	AV
17160	51.32	1.29	V	52.61	68.20	15.59	PK
11440	57.82	-2.12	H	55.70	73.98	18.28	PK
11440	43.64	-2.12	H	41.52	53.98	12.46	AV
17160	51.48	1.29	H	52.77	68.20	15.43	PK

Band : UNII 3  
 Operation Mode: 802.11 ac(VHT20)  
 Transfer MCS Index: MCS0  
 Operating Frequency 5745MHz  
 Channel No. 149 Ch

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11490	58.76	-2.83	V	55.93	73.98	18.05	PK
11490	43.95	-2.83	V	41.12	53.98	12.86	AV
17235	51.55	1.75	V	53.30	68.20	14.91	PK
11490	56.74	-2.83	H	53.91	73.98	20.07	PK
11490	43.04	-2.83	H	40.21	53.98	13.77	AV
17235	51.77	1.75	H	53.52	68.20	14.69	PK

Band : UNII 3  
 Operation Mode: 802.11 ac(VHT20)  
 Transfer MCS Index: MCS0  
 Operating Frequency 5785 MHz  
 Channel No. 157 Ch

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11570	56.40	-2.62	V	53.78	73.98	20.20	PK
11570	42.68	-2.62	V	40.06	53.98	13.92	AV
17355	52.11	2.90	V	55.01	68.20	13.20	PK
11570	57.34	-2.62	H	54.72	73.98	19.26	PK
11570	42.77	-2.62	H	40.15	53.98	13.83	AV
17355	52.26	2.90	H	55.16	68.20	13.05	PK

Band : UNII 3  
 Operation Mode: 802.11 ac(VHT20)  
 Transfer MCS Index: MCS0  
 Operating Frequency 5825 MHz  
 Channel No. 165 Ch

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11650	55.97	-2.26	V	53.71	73.98	20.27	PK
11650	42.29	-2.26	V	40.03	53.98	13.95	AV
17475	52.18	4.60	V	56.78	68.20	11.42	PK
11650	56.20	-2.26	H	53.94	73.98	20.04	PK
11650	42.64	-2.26	H	40.38	53.98	13.60	AV
17475	52.42	4.60	H	57.02	68.20	11.18	PK

Band : UNII 1  
 Operation Mode: 802.11 n(HT40)  
 Transfer MCS Index: MCS0  
 Operating Frequency 5190 MHz  
 Channel No. 38 Ch

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10380	53.78	-3.13	V	50.65	68.20	17.55	PK
15570	52.01	-2.26	V	49.75	73.98	24.23	PK
15570	39.46	-2.26	V	37.20	53.98	16.78	AV
10380	54.61	-3.13	H	51.48	68.20	16.72	PK
15570	52.63	-2.26	H	50.37	73.98	23.61	PK
15570	39.71	-2.26	H	37.45	53.98	16.53	AV

Band : UNII 1  
 Operation Mode: 802.11 n(HT40)  
 Transfer MCS Index: MCS0  
 Operating Frequency 5230 MHz  
 Channel No. 46 Ch

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10460	53.17	-3.08	V	50.09	68.20	18.11	PK
15690	52.32	-3.24	V	49.08	73.98	24.90	PK
15690	39.53	-3.24	V	36.29	53.98	17.69	AV
10460	53.56	-3.08	H	50.48	68.20	17.72	PK
15690	52.46	-3.24	H	49.22	73.98	24.76	PK
15690	39.63	-3.24	H	36.39	53.98	17.59	AV

Band : UNII 2A  


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Operation Mode: 802.11 n(HT40)  


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Transfer MCS Index: MCS0  


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Operating Frequency 5270 MHz  


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Channel No. 54 Ch

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10540	53.21	-2.71	V	50.50	68.20	17.70	PK
15810	51.92	-2.77	V	49.15	73.98	24.83	PK
15810	38.98	-2.77	V	36.21	53.98	17.77	AV
10540	53.41	-2.71	H	50.70	68.20	17.50	PK
15810	52.17	-2.77	H	49.40	73.98	24.58	PK
15810	39.19	-2.77	H	36.42	53.98	17.56	AV

Band : UNII 2A  


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Operation Mode: 802.11 n(HT40)  


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Transfer MCS Index: MCS0  


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Operating Frequency 5310 MHz  


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Channel No. 62 Ch

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10620	53.62	-2.37	V	51.25	73.98	22.73	PK
10620	41.14	-2.37	V	38.77	53.98	15.21	AV
15930	52.45	-2.43	V	50.02	73.98	23.96	PK
15930	39.82	-2.43	V	37.39	53.98	16.59	AV
10620	53.50	-2.37	H	51.13	73.98	22.85	PK
10620	41.21	-2.37	H	38.84	53.98	15.14	AV
15930	52.60	-2.43	H	50.17	73.98	23.81	PK
15930	39.92	-2.43	H	37.49	53.98	16.49	AV

Band : UNII 2C  
 Operation Mode: 802.11 n(HT40)  
 Transfer MCS Index: MCS0  
 Operating Frequency 5510 MHz  
 Channel No. 102 Ch

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11020	53.38	-1.31	V	52.07	73.98	21.91	PK
11020	40.99	-1.31	V	39.68	53.98	14.30	AV
16530	52.22	-0.96	V	51.26	68.20	16.94	PK
11020	55.18	-1.31	H	53.87	73.98	20.11	PK
11020	42.38	-1.31	H	41.07	53.98	12.91	AV
16530	52.32	-0.96	H	51.36	68.20	16.84	PK

Band : UNII 2C  
 Operation Mode: 802.11 n(HT40)  
 Transfer MCS Index: MCS0  
 Operating Frequency 5590 MHz  
 Channel No. 118 Ch

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11180	55.37	-1.32	V	54.05	73.98	19.93	PK
11180	42.34	-1.32	V	41.02	53.98	12.96	AV
16770	50.98	-0.47	V	50.51	68.20	17.69	PK
11180	55.78	-1.32	H	54.46	73.98	19.52	PK
11180	42.50	-1.32	H	41.18	53.98	12.80	AV
16770	51.43	-0.47	H	50.96	68.20	17.24	PK

Band : UNII 2C  
 Operation Mode: 802.11 n(HT40)  
 Transfer MCS Index: MCS0  
 Operating Frequency 5710 MHz  
 Channel No. 142 Ch

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11420	55.62	-2.33	V	53.29	73.98	20.69	PK
11420	42.72	-2.33	V	40.39	53.98	13.59	AV
17130	51.94	2.04	V	53.98	68.20	14.22	PK
11420	55.48	-2.33	H	53.15	73.98	20.83	PK
11420	42.51	-2.33	H	40.18	53.98	13.80	AV
17130	52.13	2.04	H	54.17	68.20	14.03	PK

Band : UNII 3  
 Operation Mode: 802.11 n(HT40)  
 Transfer MCS Index: MCS0  
 Operating Frequency 5755 MHz  
 Channel No. 151 Ch

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11510	54.46	-2.25	V	52.21	73.98	21.77	PK
11510	41.83	-2.25	V	39.58	53.98	14.40	AV
17265	51.55	2.85	V	54.40	68.20	13.81	PK
11510	54.37	-2.25	H	52.12	73.98	21.86	PK
11510	41.65	-2.25	H	39.40	53.98	14.58	AV
17265	51.83	2.85	H	54.68	68.20	13.53	PK

Band : UNII 3  
 Operation Mode: 802.11 n(HT40)  
 Transfer MCS Index: MCS0  
 Operating Frequency 5795 MHz  
 Channel No. 159 Ch

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11590	53.49	-2.25	V	51.24	73.98	22.74	PK
11590	41.77	-2.25	V	39.52	53.98	14.46	AV
17385	51.44	3.54	V	54.98	68.20	13.22	PK
11590	53.95	-2.25	H	51.70	73.98	22.28	PK
11590	41.56	-2.25	H	39.31	53.98	14.67	AV
17385	51.56	3.54	H	55.10	68.20	13.10	PK

Band : UNII 1  
 Operation Mode: 802.11 ac(VHT40)  
 Transfer MCS Index: MCS0  
 Operating Frequency 5190 MHz  
 Channel No. 38 Ch

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10380	53.42	-3.13	V	50.29	68.20	17.91	PK
15570	51.98	-2.26	V	49.72	73.98	24.26	PK
15570	39.23	-2.26	V	36.97	53.98	17.01	AV
10380	53.95	-3.13	H	50.82	68.20	17.38	PK
15570	52.37	-2.26	H	50.11	73.98	23.87	PK
15570	39.51	-2.26	H	37.25	53.98	16.73	AV



Band : UNII 1  
Operation Mode: 802.11 ac(VHT40)  
Transfer MCS Index: MCS0  
Operating Frequency 5230 MHz  
Channel No. 46 Ch

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10460	53.42	-3.08	V	50.34	68.20	17.86	PK
15690	52.13	-3.24	V	48.89	73.98	25.09	PK
15690	39.55	-3.24	V	36.31	53.98	17.67	AV
10460	53.52	-3.08	H	50.44	68.20	17.76	PK
15690	52.31	-3.24	H	49.07	73.98	24.91	PK
15690	39.63	-3.24	H	36.39	53.98	17.59	AV

Band : UNII 2A  
Operation Mode: 802.11 ac(VHT40)  
Transfer MCS Index: MCS0  
Operating Frequency 5270 MHz  
Channel No. 54 Ch

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10540	53.03	-2.71	V	50.32	68.20	17.88	PK
15810	51.89	-2.77	V	49.12	73.98	24.86	PK
15810	38.85	-2.77	V	36.08	53.98	17.90	AV
10540	53.34	-2.71	H	50.63	68.20	17.57	PK
15810	52.11	-2.77	H	49.34	73.98	24.64	PK
15810	39.09	-2.77	H	36.32	53.98	17.66	AV

Band : UNII 2A  
 Operation Mode: 802.11 ac(VHT40)  
 Transfer MCS Index: MCS0  
 Operating Frequency 5310 MHz  
 Channel No. 62 Ch

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10620	54.56	-2.37	V	52.19	73.98	21.79	PK
10620	40.95	-2.37	V	38.58	53.98	15.40	AV
15930	52.51	-2.43	V	50.08	73.98	23.90	PK
15930	39.52	-2.43	V	37.09	53.98	16.89	AV
10620	53.64	-2.37	H	51.27	73.98	22.71	PK
10620	41.16	-2.37	H	38.79	53.98	15.19	AV
15930	52.79	-2.43	H	50.36	73.98	23.62	PK
15930	39.72	-2.43	H	37.29	53.98	16.69	AV

Band : UNII 2C  
 Operation Mode: 802.11 ac(VHT40)  
 Transfer MCS Index: MCS0  
 Operating Frequency 5510 MHz  
 Channel No. 102 Ch

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11020	53.49	-1.31	V	52.18	73.98	21.80	PK
11020	40.86	-1.31	V	39.55	53.98	14.43	AV
16530	52.62	-0.96	V	51.66	68.20	16.54	PK
11020	53.60	-1.31	H	52.29	73.98	21.69	PK
11020	40.96	-1.31	H	39.65	53.98	14.33	AV
16530	52.85	-0.96	H	51.89	68.20	16.31	PK

Band : UNII 2C  
 Operation Mode: 802.11 ac(VHT40)  
 Transfer MCS Index: MCS0  
 Operating Frequency 5590 MHz  
 Channel No. 118 Ch

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11180	55.03	-1.32	V	53.71	73.98	20.27	PK
11180	42.31	-1.32	V	40.99	53.98	12.99	AV
16770	50.86	-0.47	V	50.39	68.20	17.81	PK
11180	55.31	-1.32	H	53.99	73.98	19.99	PK
11180	42.42	-1.32	H	41.10	53.98	12.88	AV
16770	51.35	-0.47	H	50.88	68.20	17.32	PK

Band : UNII 2C  
 Operation Mode: 802.11 ac(VHT40)  
 Transfer MCS Index: MCS0  
 Operating Frequency 5710 MHz  
 Channel No. 142 Ch

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11420	55.42	-2.33	V	53.09	73.98	20.89	PK
11420	42.62	-2.33	V	40.29	53.98	13.69	AV
17130	51.98	2.04	V	54.02	68.20	14.18	PK
11420	54.65	-2.33	H	52.32	73.98	21.66	PK
11420	42.39	-2.33	H	40.06	53.98	13.92	AV
17130	52.16	2.04	H	54.20	68.20	14.00	PK

Band : UNII 3  
 Operation Mode: 802.11 ac(VHT40)  
 Transfer MCS Index: MCS0  
 Operating Frequency 5755 MHz  
 Channel No. 151 Ch

Frequency [MHz]	Reading [dBuV]	A.F.+C.L.- A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11510	54.44	-2.25	V	52.19	73.98	21.79	PK
11510	41.72	-2.25	V	39.47	53.98	14.51	AV
17265	51.32	2.85	V	54.17	68.20	14.04	PK
11510	54.01	-2.25	H	51.76	73.98	22.22	PK
11510	41.59	-2.25	H	39.34	53.98	14.64	AV
17265	51.59	2.85	H	54.44	68.20	13.77	PK

Band : UNII 3  
 Operation Mode: 802.11 ac(VHT40)  
 Transfer MCS Index: MCS0  
 Operating Frequency 5795 MHz  
 Channel No. 159 Ch

Frequency [MHz]	Reading [dBuV]	A.F.+C.L.- -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11590	53.22	-2.25	V	50.97	73.98	23.01	PK
11590	41.62	-2.25	V	39.37	53.98	14.61	AV
17385	51.39	3.54	V	54.93	68.20	13.27	PK
11590	53.75	-2.25	H	51.50	73.98	22.48	PK
11590	41.44	-2.25	H	39.19	53.98	14.79	AV
17385	51.45	3.54	H	54.99	68.20	13.21	PK

Band : UNII 1  
 Operation Mode: 802.11 ac(VHT80)  
 Transfer MCS Index: MCS0  
 Operating Frequency 5210 MHz  
 Channel No. 42 Ch

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10420	53.96	-2.34	V	51.62	68.20	16.58	PK
15630	52.55	-3.11	V	49.44	73.98	24.54	PK
15630	40.71	-3.11	V	37.60	53.98	16.38	AV
10420	53.61	-2.34	H	51.27	68.20	16.93	PK
15630	52.62	-3.11	H	49.51	73.98	24.47	PK
15630	40.81	-3.11	H	37.70	53.98	16.28	AV

Band : UNII 2A  
 Operation Mode: 802.11 ac(VHT80)  
 Transfer MCS Index: MCS0  
 Operating Frequency 5290 MHz  
 Channel No. 58 Ch

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10580	53.87	-2.26	V	51.61	68.20	16.59	PK
15870	52.02	-2.52	V	49.50	73.98	24.48	PK
15870	40.12	-2.52	V	37.60	53.98	16.38	AV
10580	53.41	-2.26	H	51.15	68.20	17.05	PK
15870	52.12	-2.52	H	49.60	73.98	24.38	PK
15870	40.24	-2.52	H	37.72	53.98	16.26	AV

Band : UNII 2C  
 Operation Mode: 802.11 ac(VHT80)  
 Transfer MCS Index: MCS0  
 Operating Frequency 5530 MHz  
 Channel No. 106 Ch

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11060	53.15	-1.57	V	51.58	73.98	22.40	PK
11060	41.61	-1.57	V	40.04	53.98	13.94	AV
16590	51.63	-1.06	V	50.57	68.20	17.63	PK
11060	53.38	-1.57	H	51.81	73.98	22.17	PK
11060	41.77	-1.57	H	40.20	53.98	13.78	AV
16590	51.77	-1.06	H	50.71	68.20	17.49	PK

Band : UNII 2C  
 Operation Mode: 802.11 ac(VHT80)  
 Transfer MCS Index: MCS0  
 Operating Frequency 5610 MHz  
 Channel No. 122 Ch

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11220	53.43	-2.60	V	50.83	73.98	23.15	PK
11220	41.23	-2.60	V	38.63	53.98	15.35	AV
16830	51.11	0.35	V	51.46	68.20	16.74	PK
11220	53.23	-2.60	H	50.63	73.98	23.35	PK
11220	41.43	-2.60	H	38.83	53.98	15.15	AV
16830	51.23	0.35	H	51.58	68.20	16.62	PK

Band : UNII 2C  
 Operation Mode: 802.11 ac(VHT80)  
 Transfer MCS Index: MCS0  
 Operating Frequency 5690 MHz  
 Channel No. 138 Ch

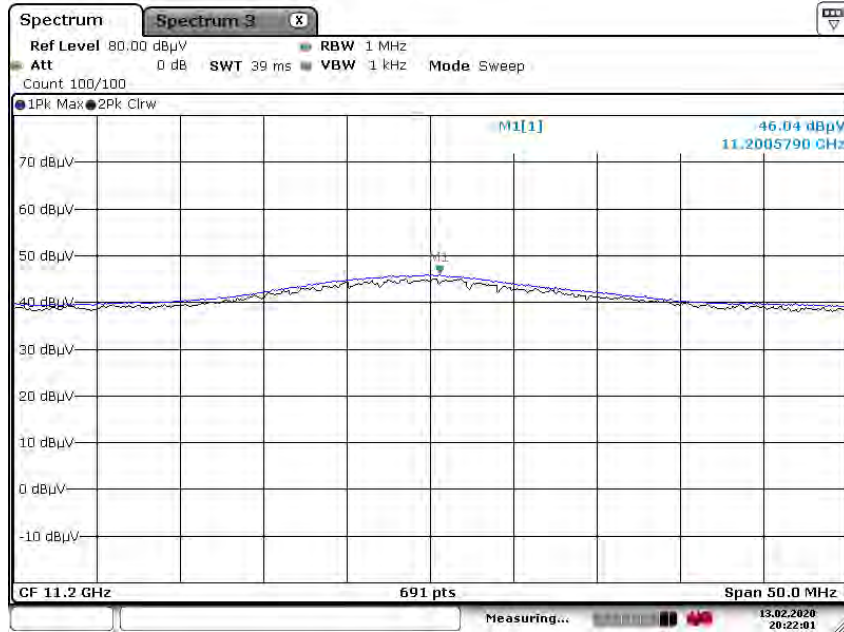
Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11380	54.18	-2.53	V	51.65	73.98	22.33	PK
11380	42.46	-2.53	V	39.93	53.98	14.05	AV
17070	51.42	1.26	V	52.68	68.20	15.52	PK
11380	54.61	-2.53	H	52.08	73.98	21.90	PK
11380	43.07	-2.53	H	40.54	53.98	13.44	AV
17070	51.61	1.26	H	52.87	68.20	15.33	PK

Band : UNII 3  
 Operation Mode: 802.11 ac(VHT80)  
 Transfer MCS Index: MCS0  
 Operating Frequency 5775 MHz  
 Channel No. 155 Ch

Frequency [MHz]	Reading [dBuV]	A.F.+C.L. -A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11550	53.82	-1.77	V	52.05	73.98	21.93	PK
11550	41.95	-1.77	V	40.18	53.98	13.80	AV
17325	51.62	3.11	V	54.73	68.20	13.48	PK
11550	54.15	-1.77	H	52.38	73.98	21.60	PK
11550	41.89	-1.77	H	40.12	53.98	13.86	AV
17325	51.86	3.11	H	54.97	68.20	13.24	PK

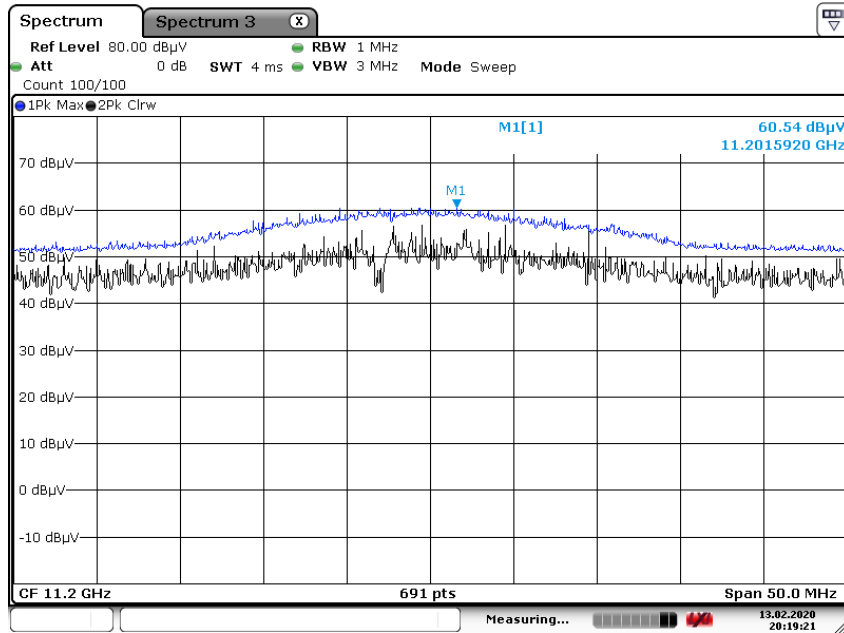
Test Plots

Average Reading (802.11a, Ch.120 2nd Harmonic, Y-H)



Date: 13.FEB.2020 20:22:01

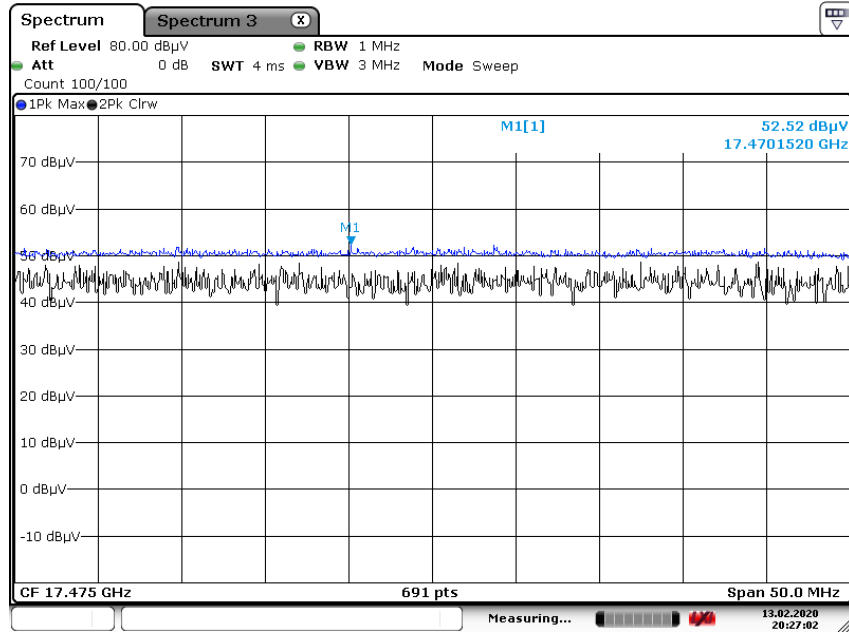
Peak Reading (802.11a, Ch.120 2nd Harmonic, Y-H)



Date: 13.FEB.2020 20:19:20

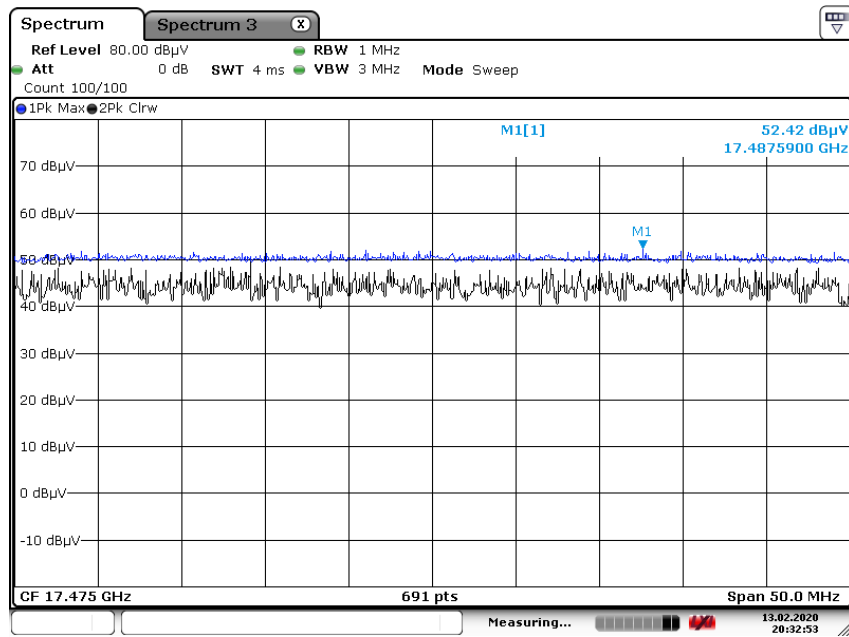


Peak Reading (802.11 n(HT20), Ch.165 3rd Harmonic, Y-H)



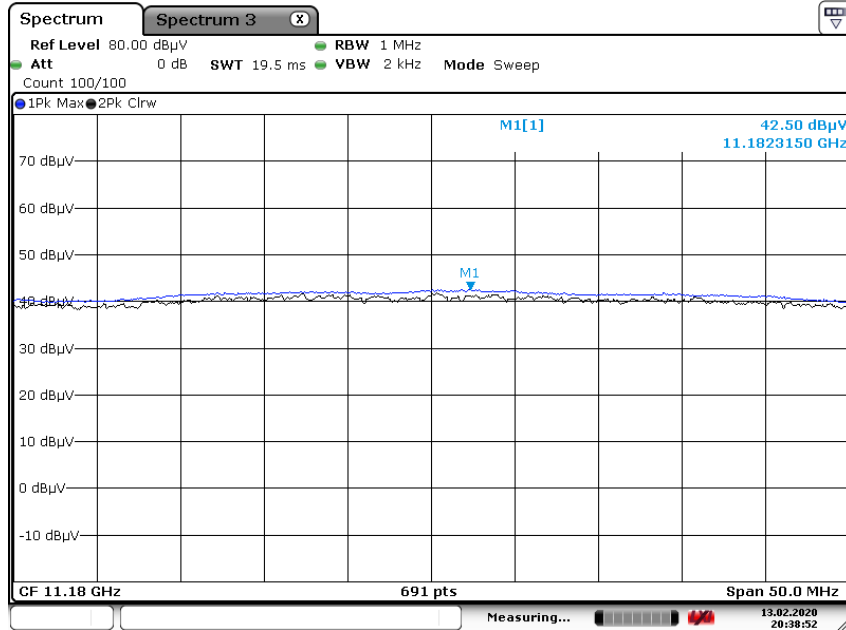
Date: 13.FEB.2020 20:27:02

Peak Reading (802.11 ac(VHT20), Ch.165 3rd Harmonic, Y-H)



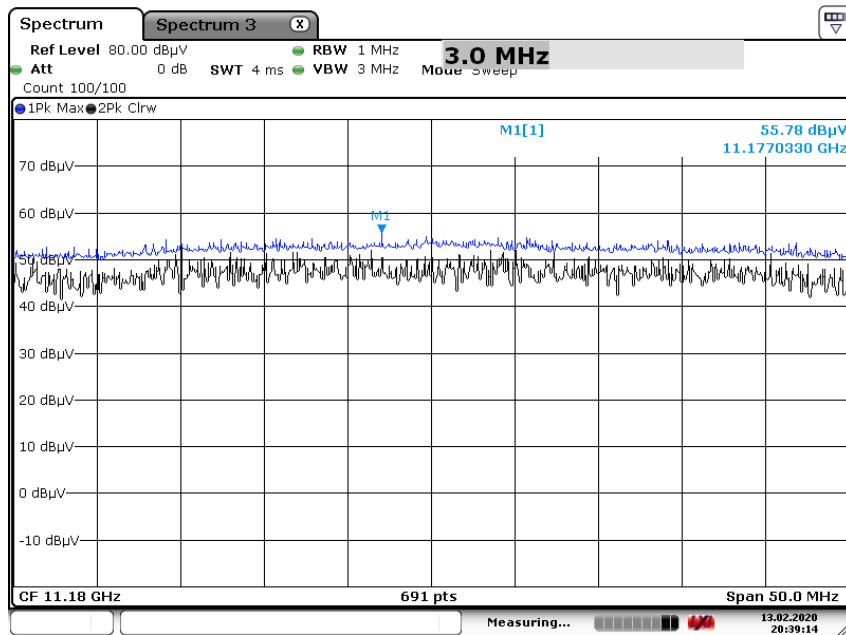
Date: 13.FEB.2020 20:32:53

Average Reading (802.11 n(HT40), Ch.118 2nd Harmonic, Y-H)



Date: 13.FEB.2020 20:38:53

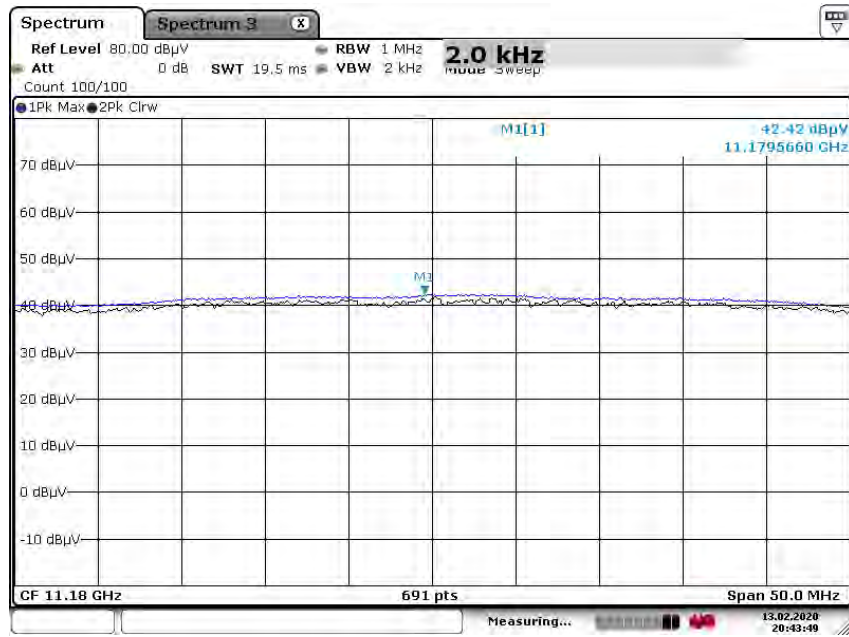
Peak Reading (802.11 n(HT40), Ch.118 2nd Harmonic, Y-H)



Date: 13.FEB.2020 20:39:15

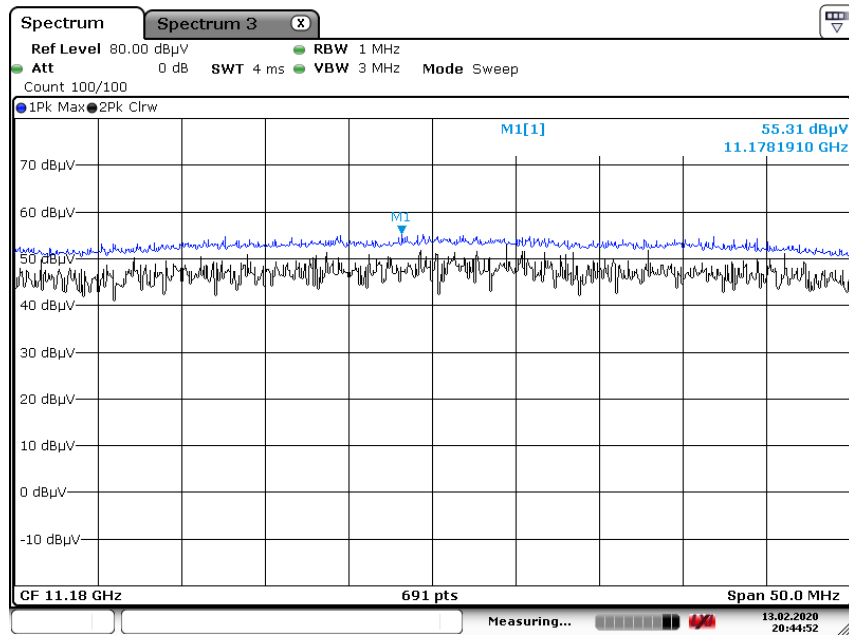
Peak Reading (802.11 n(HT40), Ch.118 3rd Harmonic, Y-H)

Average Reading (802.11 ac(VHT40), Ch.118 2nd Harmonic, Y-H)



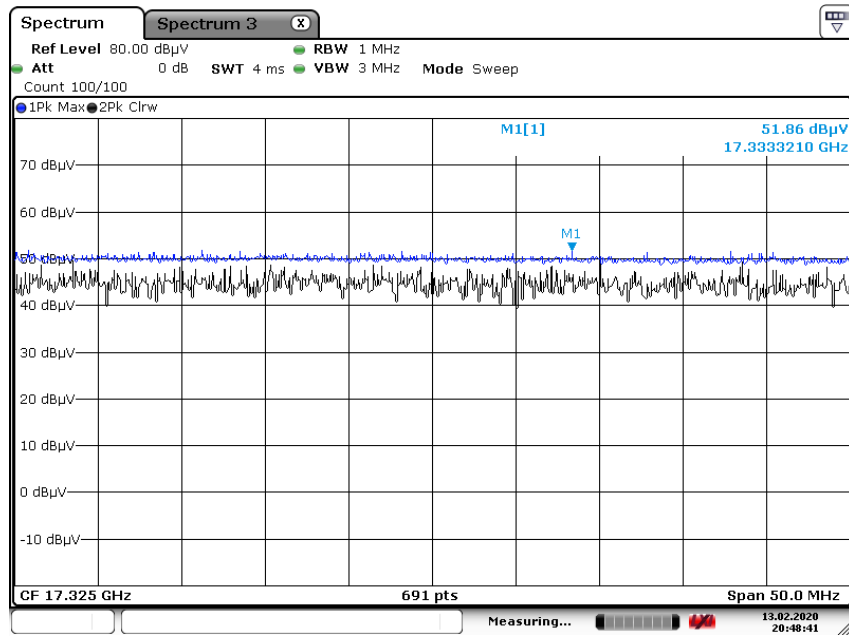
Date: 13.FEB.2020 20:43:50

Peak Reading (802.11 ac(VHT40), Ch.118 2nd Harmonic, Y-H)



Date: 13.FEB.2020 20:44:51

Peak Reading (802.11 ac(VHT80), Ch.155 3rd Harmonic, Y-H)



Date: 13.FEB.2020 20:48:41

**Note:**

Only the worst case plots for Radiated Spurious Emissions.

**10.9 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]	Reading dBuV	AN.+CL-AMP+ATT. +D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5150	63.40	3.37	H	66.77	73.98	7.21	PK
5150	44.71	3.37	H	48.08	53.98	5.90	AV
5150	63.52	3.37	V	66.89	73.98	7.09	PK
5150	44.14	3.37	V	47.51	53.98	6.47	AV

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

Frequency [MHz]	Reading dBuV	AN.+CL-AMP+ATT. +D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5350	64.02	3.99	H	68.01	73.98	5.97	PK
5350	44.04	3.99	H	48.03	53.98	5.95	AV
5350	65.12	3.99	V	69.11	73.98	4.87	PK
5350	43.96	3.99	V	47.95	53.98	6.03	AV

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

Frequency [MHz]	Reading DBuV	AN.+CL-AMP+ATT. +D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5460	53.01	5.03	H	58.04	73.98	15.94	PK
5460	39.25	5.03	H	44.28	53.98	9.70	AV
5470	58.18	5.34	H	63.52	68.20	4.68	PK
5460	52.62	5.03	V	57.65	73.98	16.33	PK
5460	39.11	5.03	V	44.14	53.98	9.84	AV
5470	58.02	5.34	V	63.36	68.20	4.84	PK

Band : UNII 1  
 Operation Mode: 802.11 n\_HT20  
 Transfer MCS Index: 0  
 Operating Frequency 5180 MHz  
 Channel No. 36 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-AMP+ATT. +D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5150	60.85	3.37	H	64.22	73.98	9.76	PK
5150	42.23	3.37	H	45.6	53.98	8.38	AV
5150	62.28	3.37	V	65.65	73.98	8.33	PK
5150	42.32	3.37	V	45.69	53.98	8.29	AV

Band : UNII 2A  
 Operation Mode: 802.11 n\_HT20  
 Transfer MCS Index: 0  
 Operating Frequency 5320 MHz  
 Channel No. 64 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-AMP+ATT. +D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5350	62.97	3.99	H	66.96	73.98	7.02	PK
5350	42.78	3.99	H	46.77	53.98	7.21	AV
5350	62.88	3.99	V	66.87	73.98	7.11	PK
5350	42.95	3.99	V	46.94	53.98	7.04	AV

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

Frequency [MHz]	Reading DBuV	AN.+CL-AMP+ATT. +D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5460	57.45	5.03	H	62.48	73.98	11.50	PK
5460	38.93	5.03	H	43.96	53.98	10.02	AV
5470	59.99	5.34	H	65.33	68.20	2.87	PK
5460	57.36	5.03	V	62.39	73.98	11.59	PK
5460	38.86	5.03	V	43.89	53.98	10.09	AV
5470	58.92	5.34	V	64.26	68.20	3.94	PK



Band : UNII 1  
 Operation Mode: 802.11 ac\_VHT20  
 Transfer MCS Index: 0  
 Operating Frequency 5180 MHz  
 Channel No. 36 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-AMP+ATT.		Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
		+D.F. [dB]	ANT. POL [H/V]				
5150	59.40	3.37	H	62.77	73.98	11.21	PK
5150	42.44	3.37	H	45.81	53.98	8.17	AV
5150	59.87	3.37	V	63.24	73.98	10.74	PK
5150	42.42	3.37	V	45.79	53.98	8.19	AV

Band : UNII 2A  
 Operation Mode: 802.11 ac\_VHT20  
 Transfer MCS Index: 0  
 Operating Frequency 5320 MHz  
 Channel No. 64 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-AMP+ATT.		Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
		+D.F. [dB]	ANT. POL [H/V]				
5350	62.21	3.99	H	66.20	73.98	7.78	PK
5350	42.65	3.99	H	46.64	53.98	7.34	AV
5350	61.96	3.99	V	65.95	73.98	8.03	PK
5350	42.64	3.99	V	46.63	53.98	7.35	AV

Band : UNII 2C  
 Operation Mode: 802.11 ac\_VHT20  
 Transfer MCS Index: 0  
 Operating Frequency 5500 MHz  
 Channel No. 100 Ch

Frequency [MHz]	Reading DBuV	AN.+CL-AMP+ATT. +D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5460	55.01	5.03	H	60.04	73.98	13.94	PK
5460	38.89	5.03	H	43.92	53.98	10.06	AV
5470	60.45	5.34	H	65.79	68.20	2.41	PK
5460	54.26	5.03	V	59.29	73.98	14.69	PK
5460	39.03	5.03	V	44.06	53.98	9.92	AV
5470	58.58	5.34	V	63.92	68.20	4.28	PK

Band : UNII 1  
 Operation Mode: 802.11 n\_HT40  
 Transfer MCS Index: 0  
 Operating Frequency 5190 MHz  
 Channel No. 38 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-AMP+ATT. +D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5150	66.93	3.37	H	70.30	73.98	3.68	PK
5150	45.72	3.37	H	49.09	53.98	4.89	AV
5150	67.02	3.37	V	70.39	73.98	3.59	PK
5150	45.88	3.37	V	49.25	53.98	4.73	AV

Band : UNII 1  
 Operation Mode: 802.11 n\_HT40  
 Transfer MCS Index: 0  
 Operating Frequency 5310 MHz  
 Channel No. 62 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-AMP+ATT. +D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5350	65.05	3.99	H	69.04	73.98	4.94	PK
5350	44.73	3.99	H	48.72	53.98	5.26	AV
5350	64.53	3.99	V	68.52	73.98	5.46	PK
5350	45.25	3.99	V	49.24	53.98	4.74	AV

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

Frequency [MHz]	Reading DBuV	AN.+CL-AMP+ATT. +D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5460	53.13	5.03	H	58.16	73.98	15.82	PK
5460	38.56	5.03	H	43.59	53.98	10.39	AV
5470	59.73	5.34	H	65.07	68.20	3.13	PK
5460	53.34	5.03	V	58.37	73.98	15.61	PK
5460	38.62	5.03	V	43.65	53.98	10.33	AV
5470	59.23	5.34	V	64.57	68.20	3.63	PK

Band : UNII 1  
 Operation Mode: 802.11 ac\_VHT40  
 Transfer MCS Index: 0  
 Operating Frequency 5190 MHz  
 Channel No. 38 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-AMP+ATT. +D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5150	63.19	3.37	H	66.56	73.98	7.42	PK
5150	45.70	3.37	H	49.07	53.98	4.91	AV
5150	62.42	3.37	V	65.79	73.98	8.19	PK
5150	45.81	3.37	V	49.18	53.98	4.80	AV

Band : UNII 2A  
 Operation Mode: 802.11 ac\_VHT40  
 Transfer MCS Index: 0  
 Operating Frequency 5310 MHz  
 Channel No. 62 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-AMP+ATT. +D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5350	63.92	3.99	H	67.91	73.98	6.07	PK
5350	45.04	3.99	H	49.03	53.98	4.95	AV
5350	64.02	3.99	V	68.01	73.98	5.97	PK
5350	44.88	3.99	V	48.87	53.98	5.11	AV

Band : UNII 2C  
 Operation Mode: 802.11 ac\_VHT40  
 Transfer MCS Index: 0  
 Operating Frequency 5510 MHz  
 Channel No. 102 Ch

Frequency [MHz]	Reading DBuV	AN.+CL-AMP+ATT. +D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5460	51.96	5.03	H	56.99	73.98	16.99	PK
5460	38.53	5.03	H	43.56	53.98	10.42	AV
5470	58.81	5.34	H	64.15	68.20	4.05	PK
5460	51.88	5.03	V	56.91	73.98	17.07	PK
5460	38.22	5.03	V	43.25	53.98	10.73	AV
5470	58.72	5.34	V	64.06	68.20	4.14	PK

Band : UNII 1  
 Operation Mode: 802.11 ac\_VHT80  
 Transfer MCS Index: 0  
 Operating Frequency 5210 MHz  
 Channel No. 42 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-AMP+ATT. +D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5150	61.22	3.37	H	64.59	73.98	9.39	PK
5150	46.23	3.37	H	49.6	53.98	4.38	AV
5150	61.16	3.37	V	64.53	73.98	9.45	PK
5150	45.43	3.37	V	48.8	53.98	5.18	AV

Band : UNII 2A  
 Operation Mode: 802.11 ac\_VHT80  
 Transfer MCS Index: 0  
 Operating Frequency 5290 MHz  
 Channel No. 58 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-AMP+ATT. +D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5350	64.76	3.99	H	68.75	73.98	5.23	PK
5350	47.10	3.99	H	51.09	53.98	2.89	AV
5350	64.47	3.99	V	68.46	73.98	5.52	PK
5350	46.92	3.99	V	50.91	53.98	3.07	AV

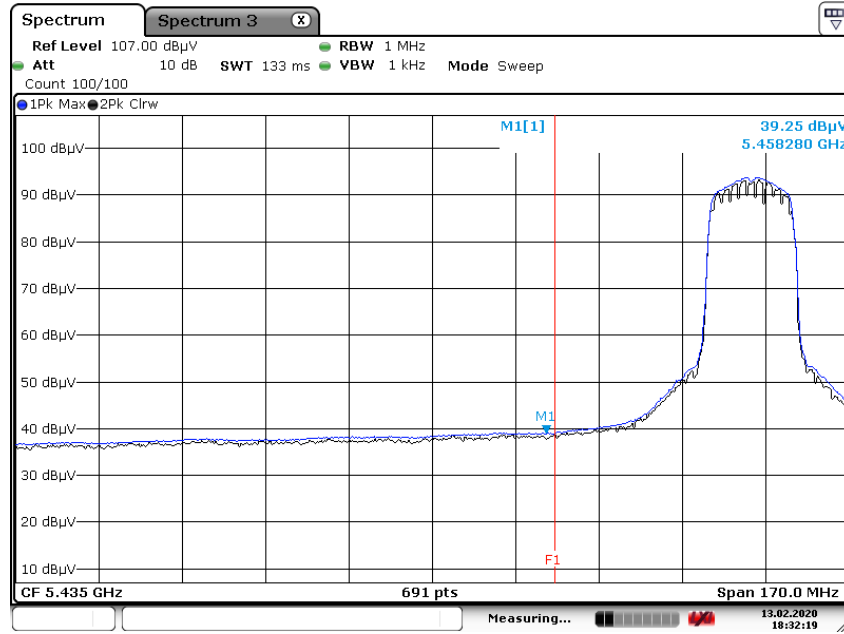
Band : UNII 2C  
 Operation Mode: 802.11 ac\_VHT80  
 Transfer MCS Index: 0  
 Operating Frequency 5530 MHz  
 Channel No. 106 Ch

Frequency [MHz]	Reading DBuV	AN.+CL-AMP+ATT. +D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5460	53.56	5.03	H	58.59	73.98	15.39	PK
5460	40.55	5.03	H	45.58	53.98	8.40	AV
5470	57.40	5.34	H	62.74	68.20	5.46	PK
5460	53.62	5.03	V	58.65	73.98	15.33	PK
5460	40.99	5.03	V	46.02	53.98	7.96	AV
5470	57.11	5.34	V	62.45	68.20	5.75	PK



Test Plots(UNII 1, 2A, 2C)

Average Reading (802.11 a\_6 Mbps, Ch.100, Y-H)



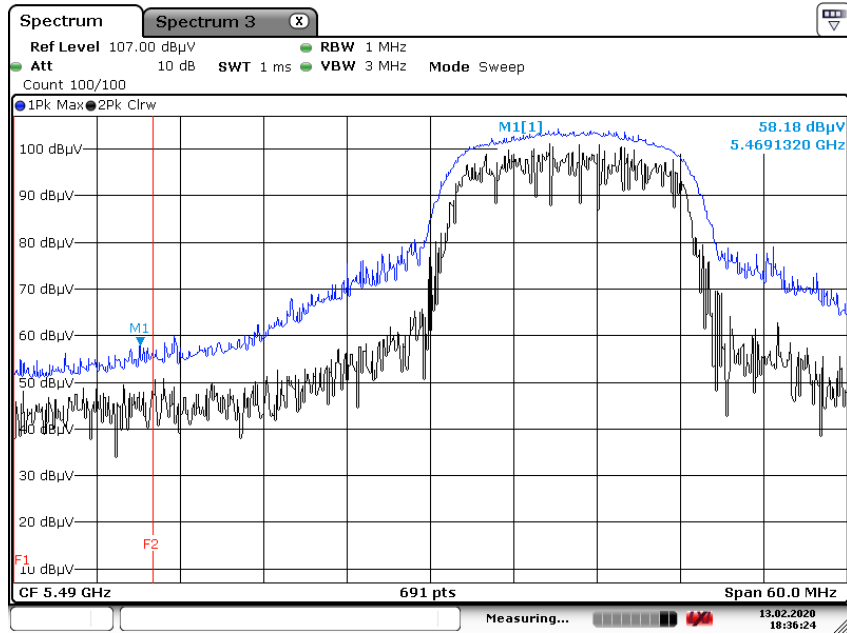
Date: 13.FEB.2020 18:32:19

Peak Reading (802.11 a\_6 Mbps, Ch.100, Y-H)



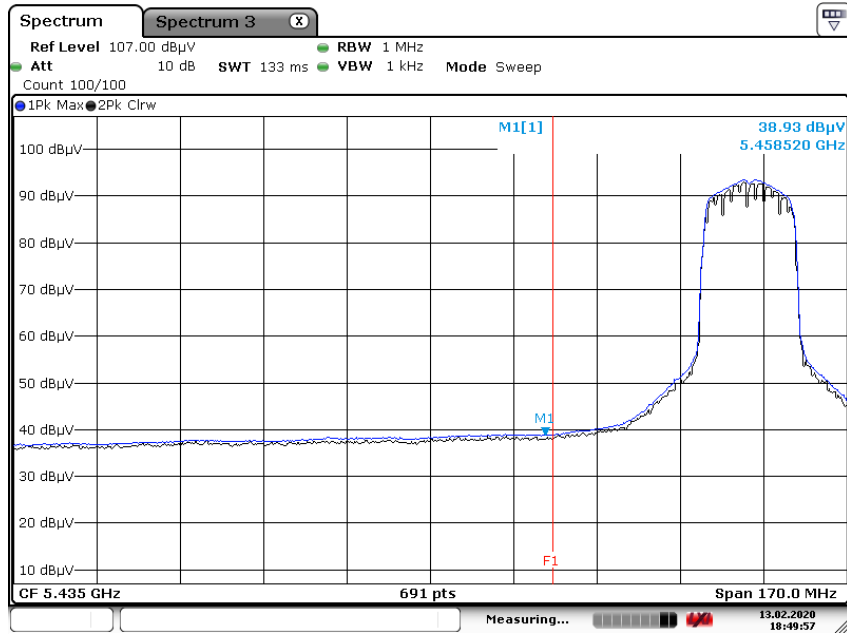
Date: 13.FEB.2020 18:33:52

Peak Reading (802.11 a\_6 Mbps, Ch.100, Y-H)



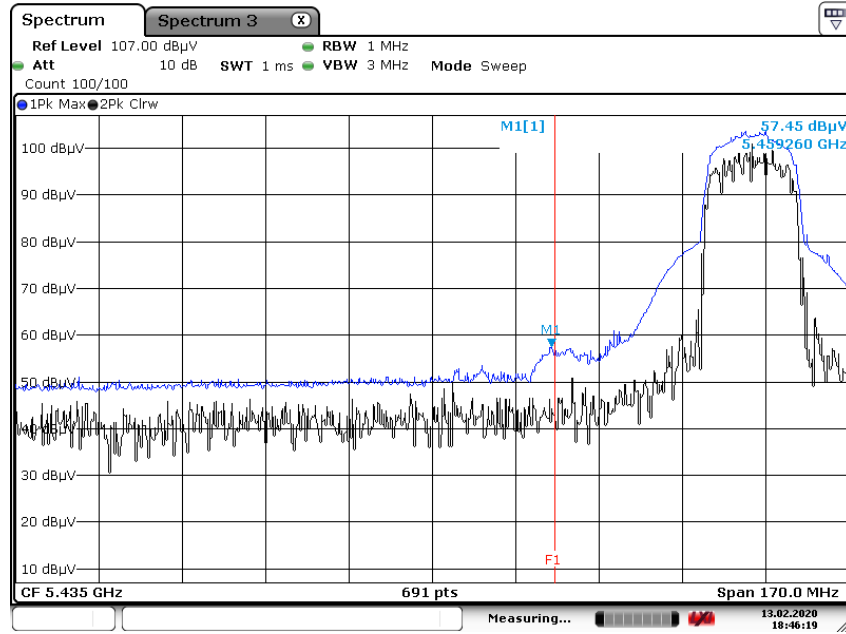
Date: 13.FEB.2020 18:36:24

Average Reading (802.11 n(HT20)\_MCS0, Ch.100, Y-H)



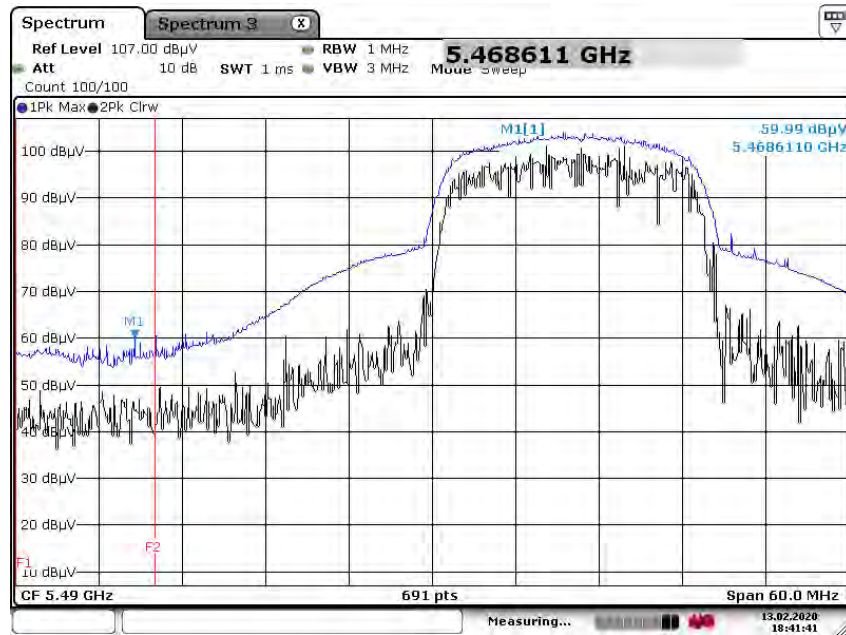
Date: 13.FEB.2020 18:49:57

Peak Reading (802.11 n(HT20)\_MCS0, Ch.100, Y-H)



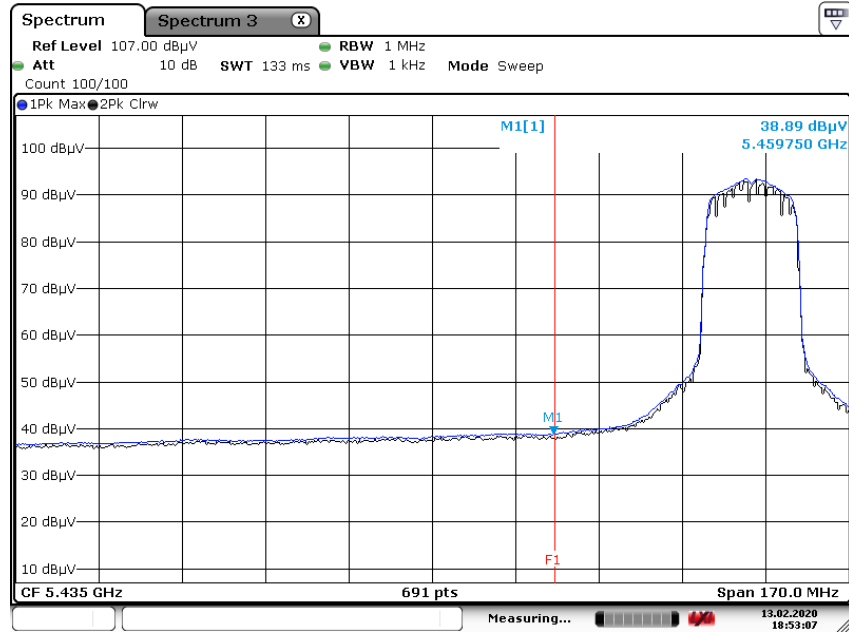
Date: 13.FEB.2020 18:46:19

Peak Reading (802.11 n(HT20)\_MCS0, Ch.100, Y-H)



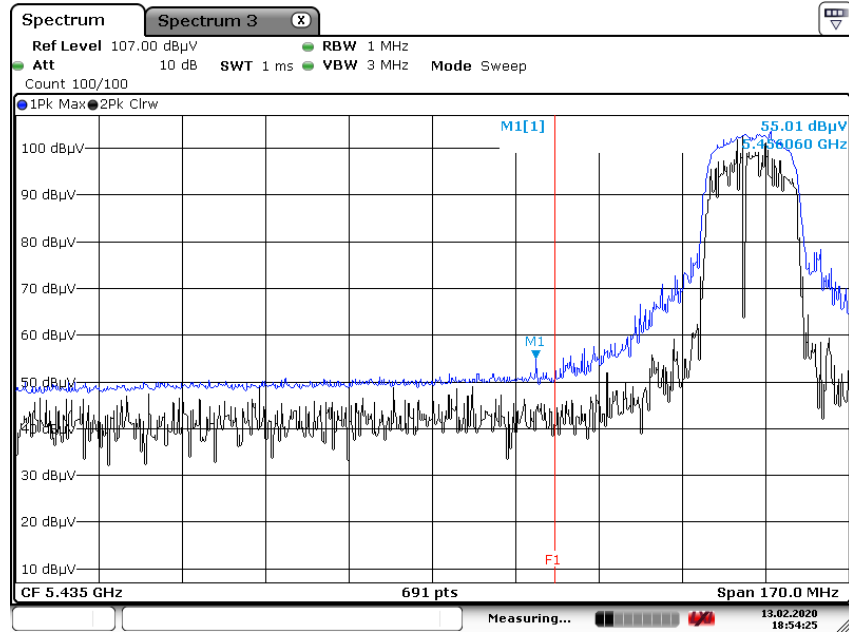
Date: 13.FEB.2020 18:41:41

Average Reading (802.11 ac(VHT20)\_MCS0, Ch.100, Y-H)



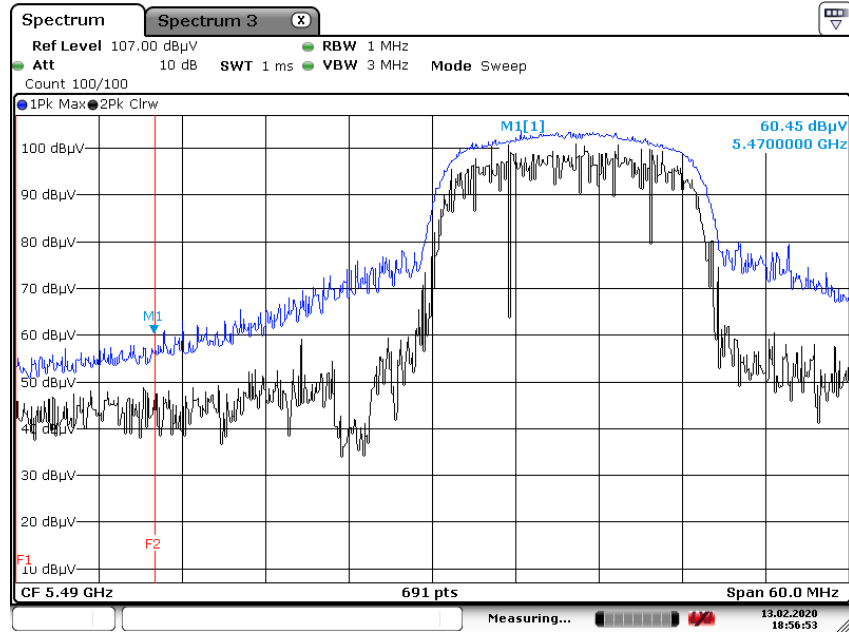
Date: 13.FEB.2020 18:53:06

Peak Reading (802.11 ac(VHT20)\_MCS0, Ch.100, Y-H)



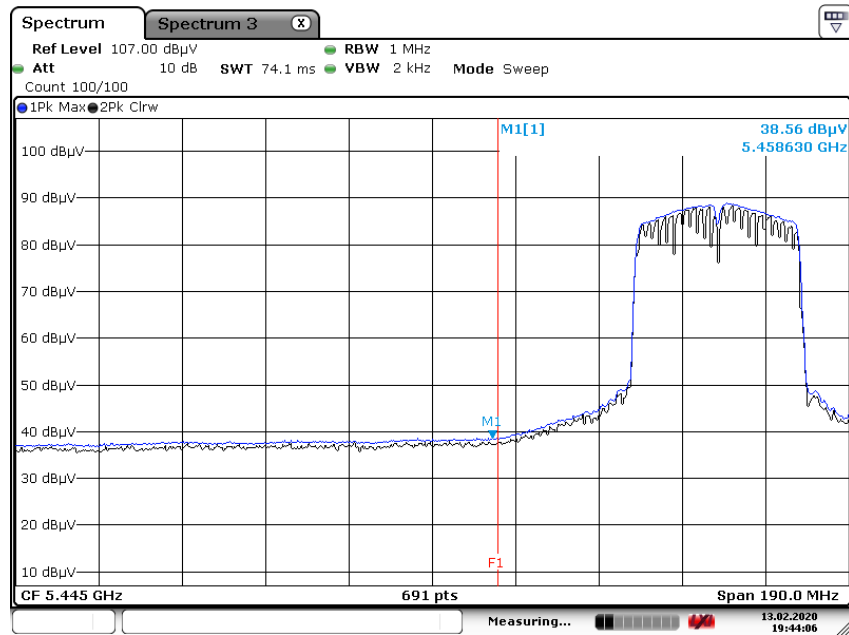
Date: 13.FEB.2020 18:54:26

Peak Reading (802.11 ac(VHT20)\_MCS0, Ch.100, Y-H)



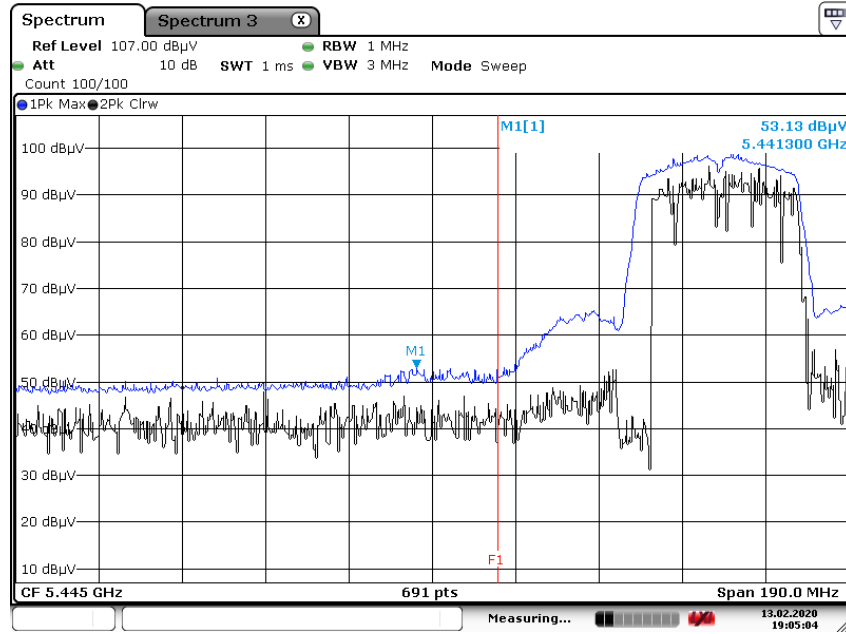
Date: 13.FEB.2020 18:56:54

Average Reading (802.11 n(HT40)\_MCS0, Ch.102, Y-H)



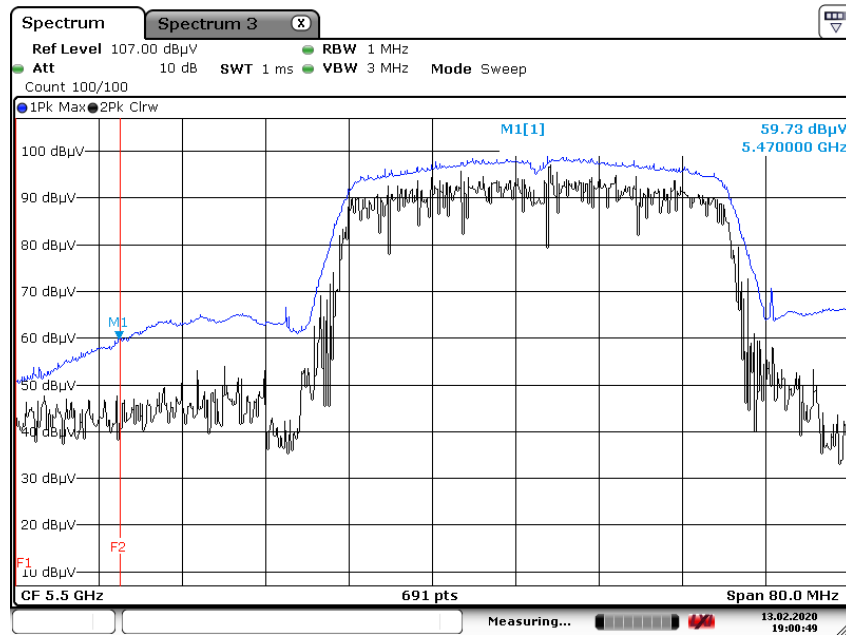
Date: 13.FEB.2020 19:44:07

Peak Reading (802.11 n(HT40)\_MCS0, Ch.102, Y-H)



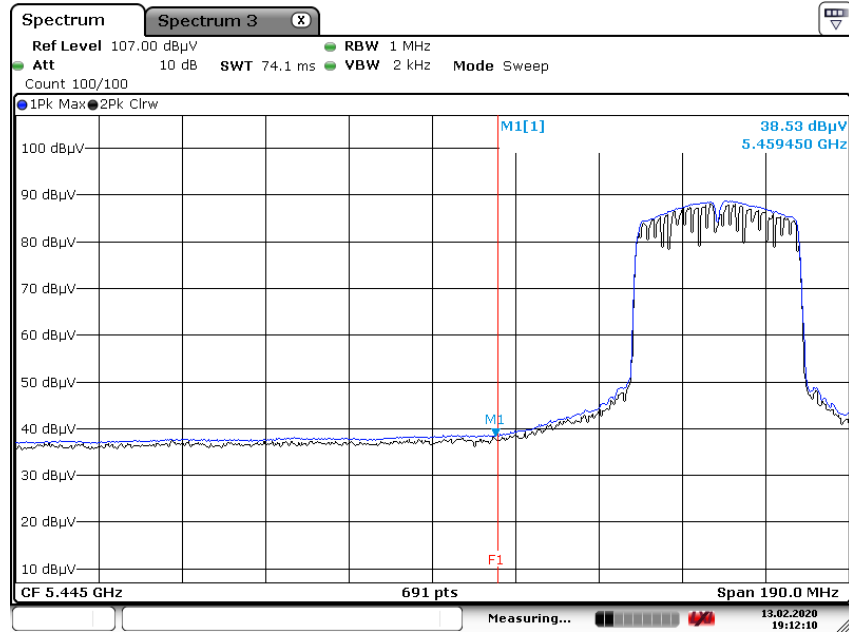
Date: 13.FEB.2020 19:05:04

Peak Reading (802.11 n(HT40)\_MCS0, Ch.102, Y-H)



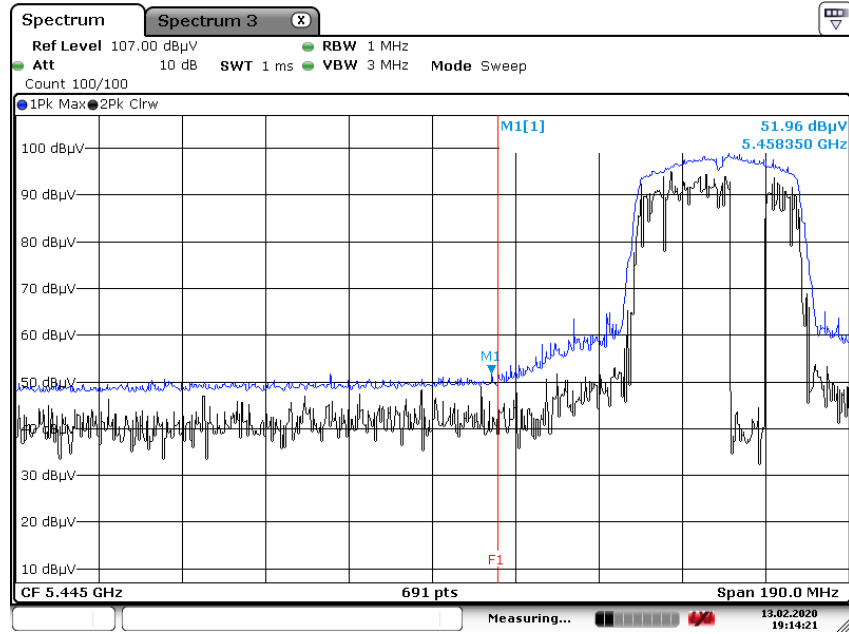
Date: 13.FEB.2020 19:00:50

Average Reading (802.11 ac(VHT40)\_MCS0, Ch.102, Y-H)



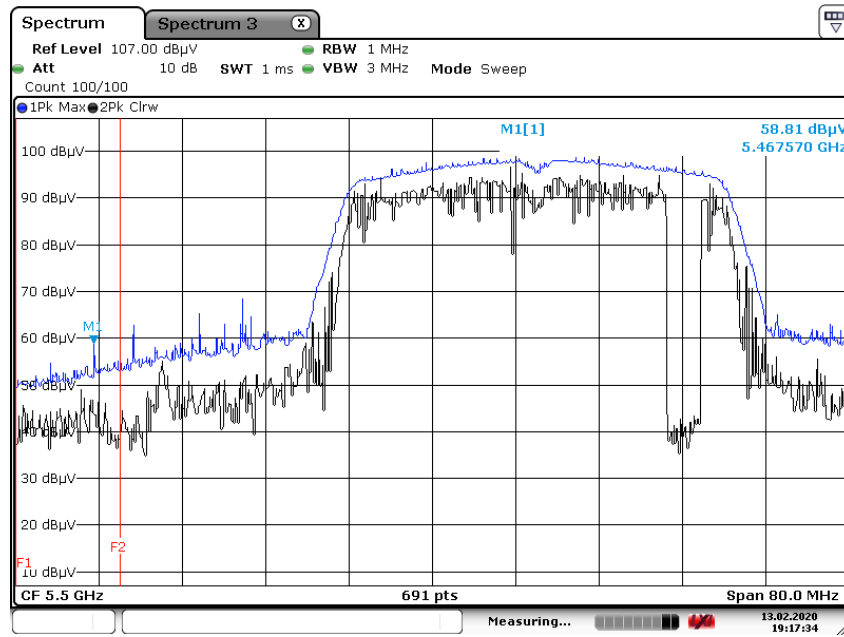
Date: 13.FEB.2020 19:12:10

Peak Reading (802.11 ac(VHT40)\_MCS0, Ch.102, Y-H)



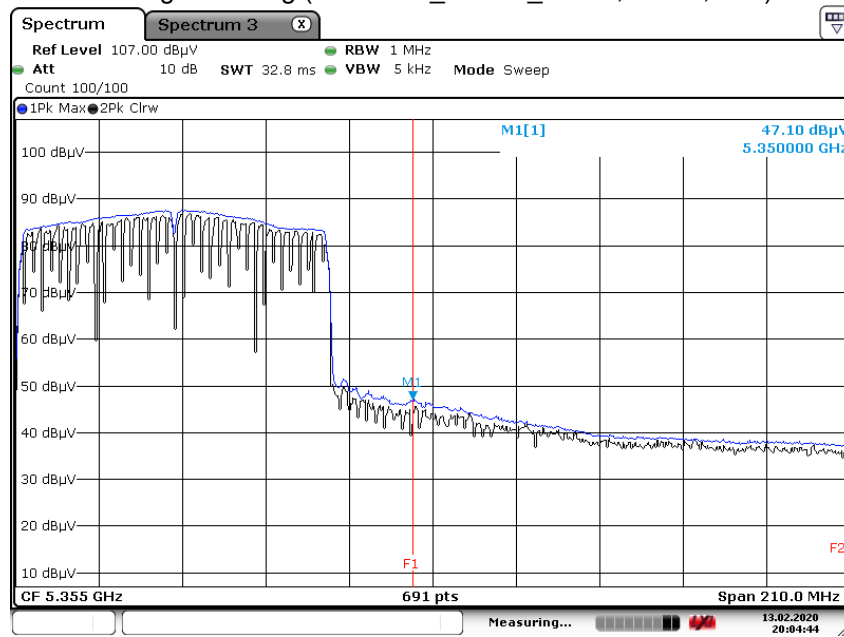
Date: 13.FEB.2020 19:14:21

Peak Reading (802.11 ac(VHT40)\_MCS0, Ch.102, Y-H)



Date: 13.FEB.2020 19:17:34

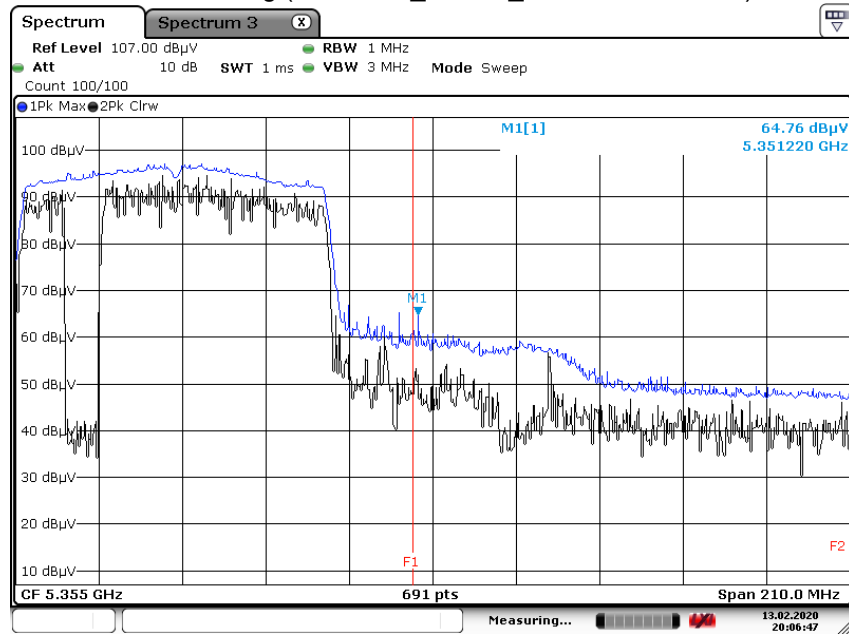
Average Reading (802.11 ac\_VHT80\_MCS0, Ch.58, Y-H)



Date: 13.FEB.2020 20:04:44



Peak Reading (802.11 ac\_VHT80\_MCS0, Ch.58, Y-H)



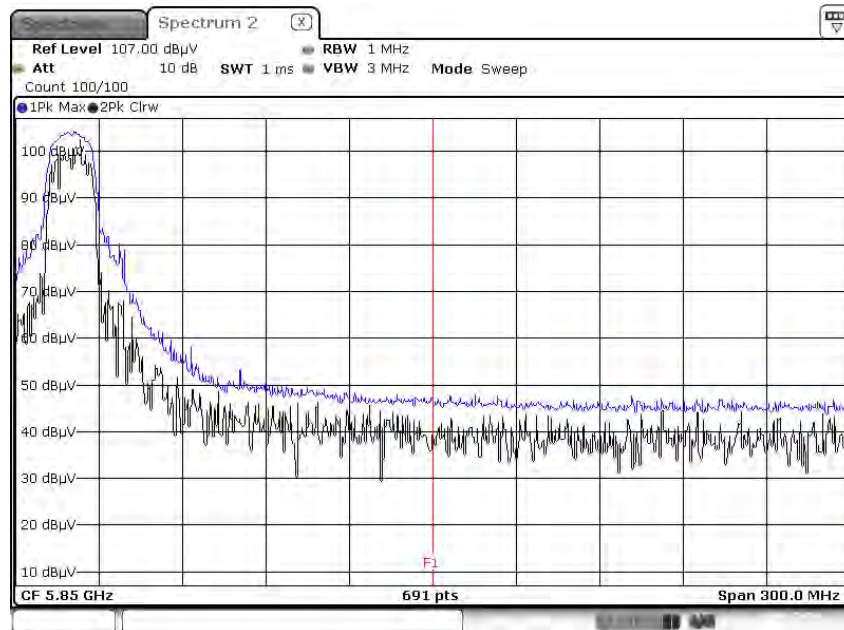
Date: 13.FEB.2020 20:06:46

**Note:**

Only the worst case plots for Radiated Restricted Band Edge.

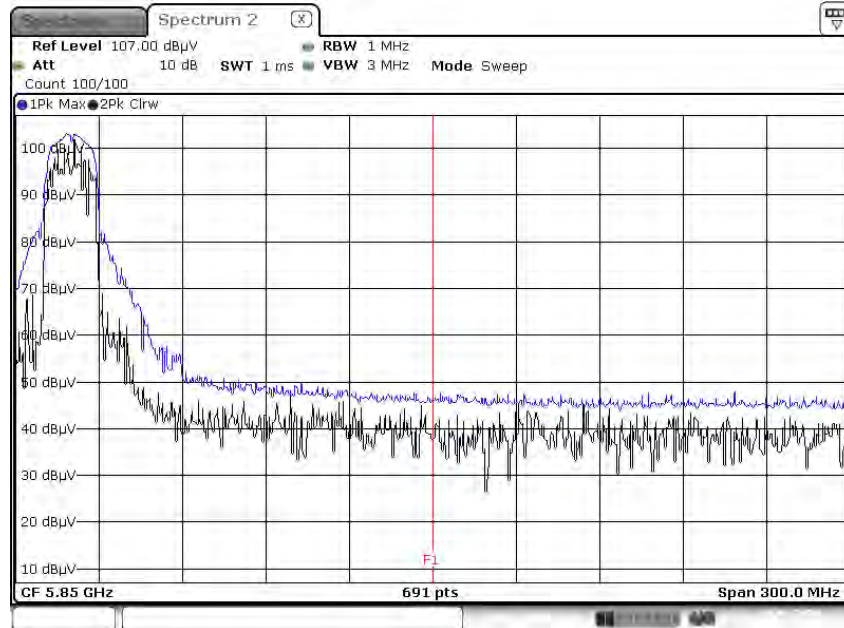
☑ Test Plots(Staraddle Channel)

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



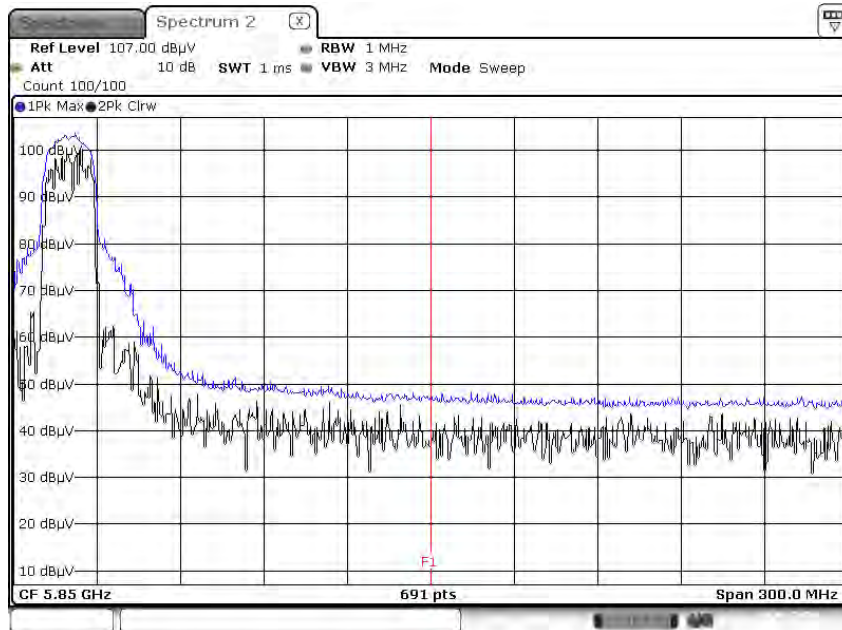
Date: 14.FEB.2020 09:48:23

**Peak Reading (802.11n\_HT20, Ch.144, Y-H)**



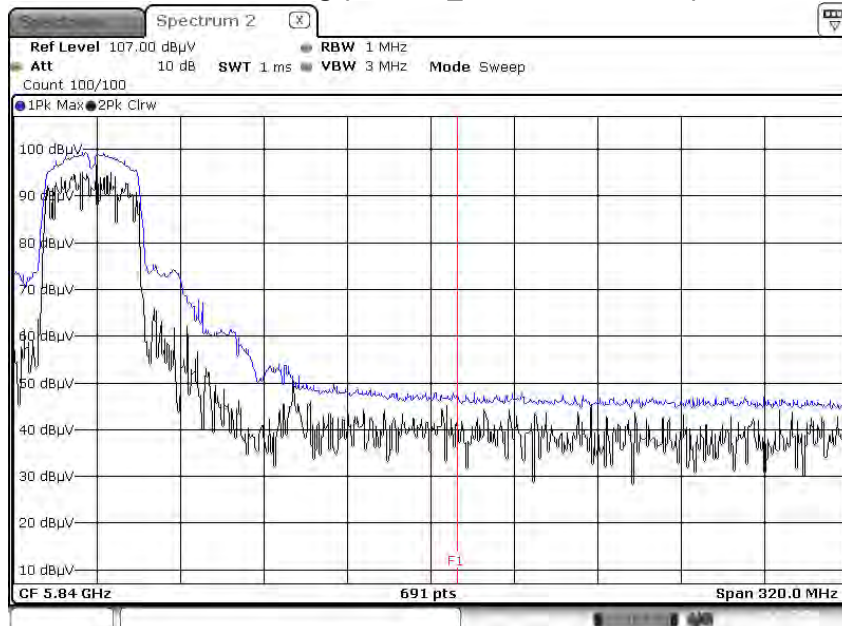
Date: 14.FEB.2020 09:49:56

**Peak Reading (802.11ac\_VHT20, Ch.144, Y-H)**



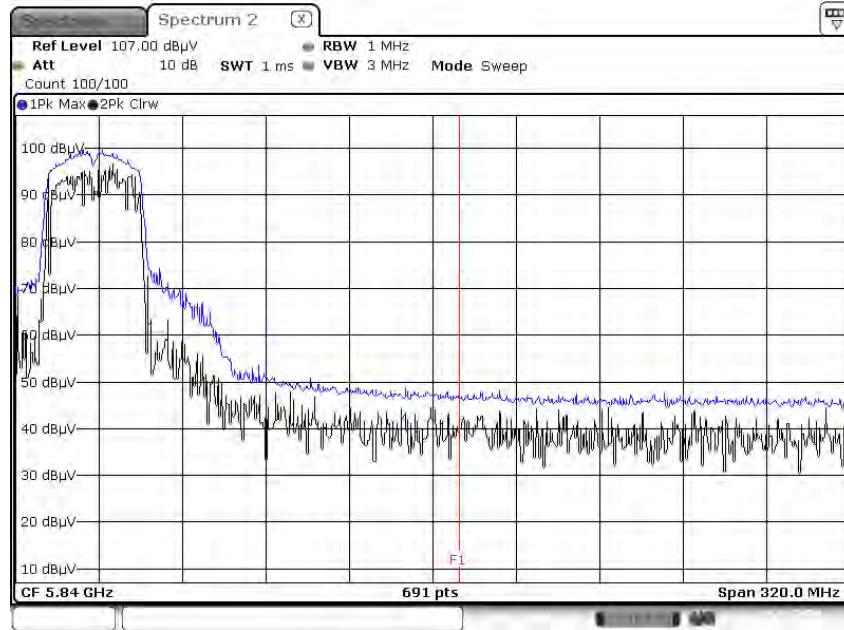
Date: 14.FEB.2020 09:52:33

**Peak Reading (802.11n\_HT40, Ch.142, Y-H)**



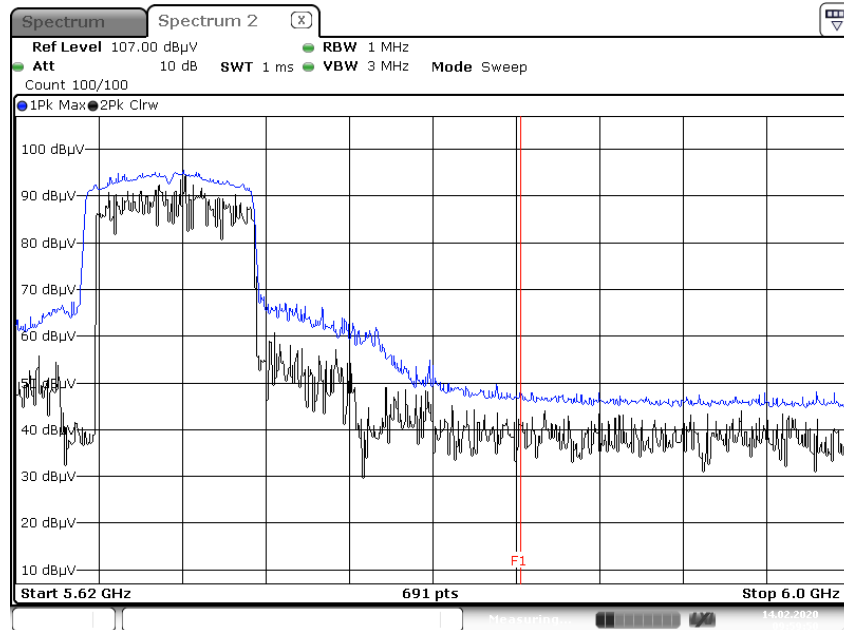
Date: 14.FEB.2020 09:55:14

**Peak Reading (802.11ac\_VHT40, Ch.142, Y-H)**



Date: 14.FEB.2020 09:56:47

**Peak Reading (802.11ac\_VHT80, Ch.138, Y-H)**



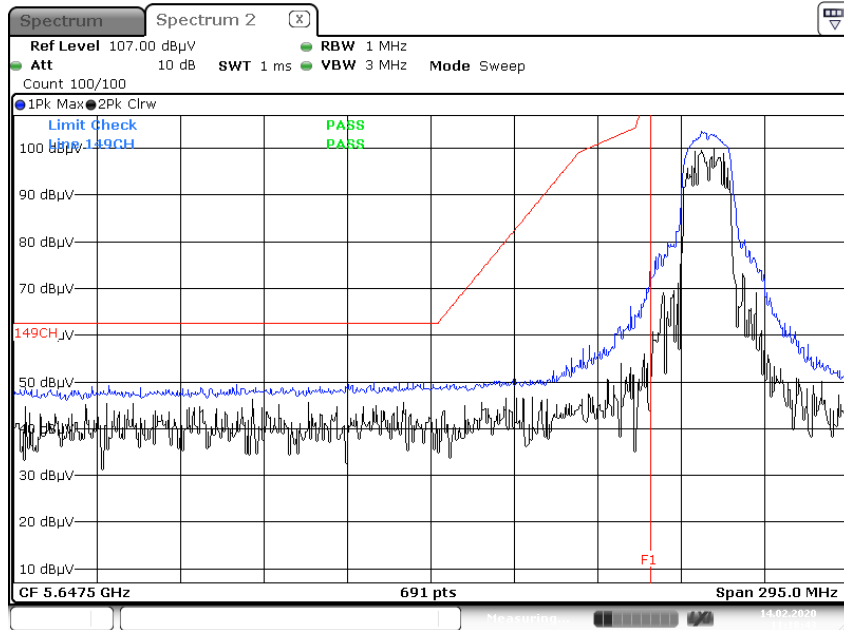
Date: 14.FEB.2020 09:59:50

**Note :**

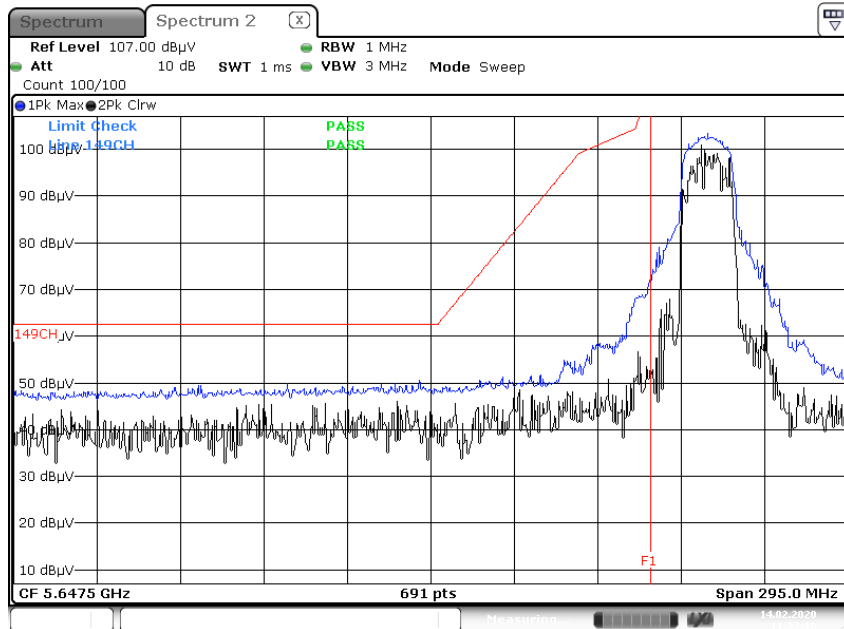
1. Only the worst case plots for Radiated Restricted Band Edge.
2. Red line : 5 850 MHz
3. Ambient Noise (Because of ambient noise, We attached only the worst plot without a data table)

Test Plots(UNII 3)

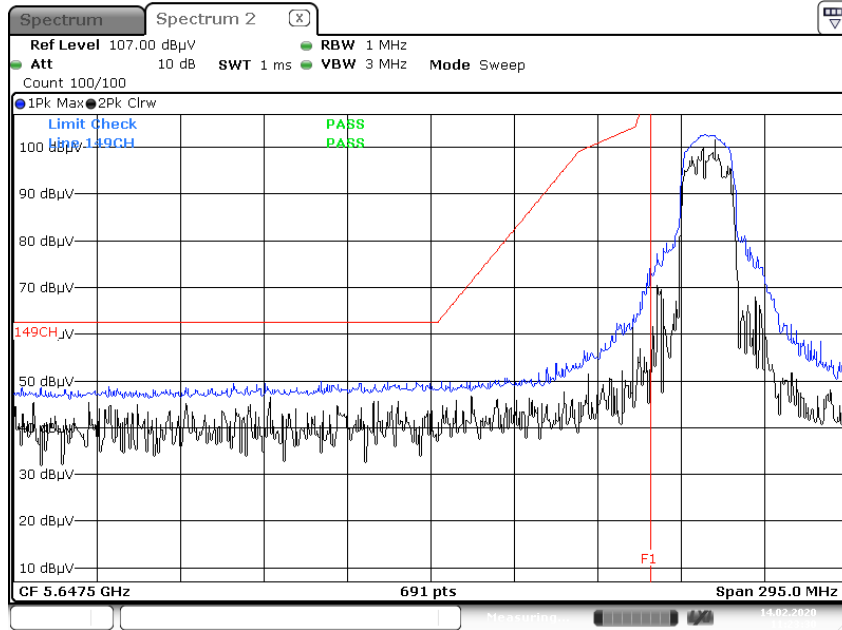
Peak Reading (802.11a, Ch.149, Y-H)



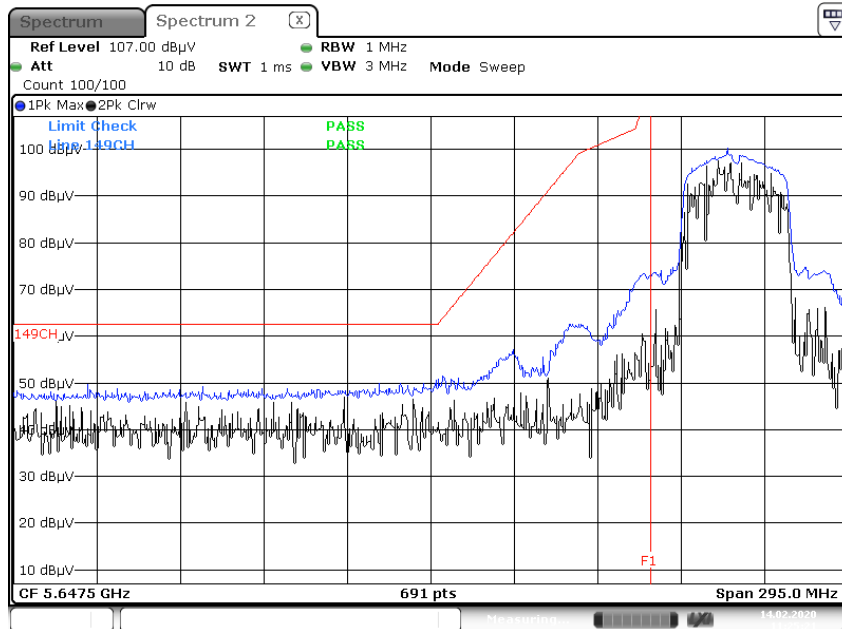
Peak Reading (802.11n\_HT20, Ch.149, Y-H)



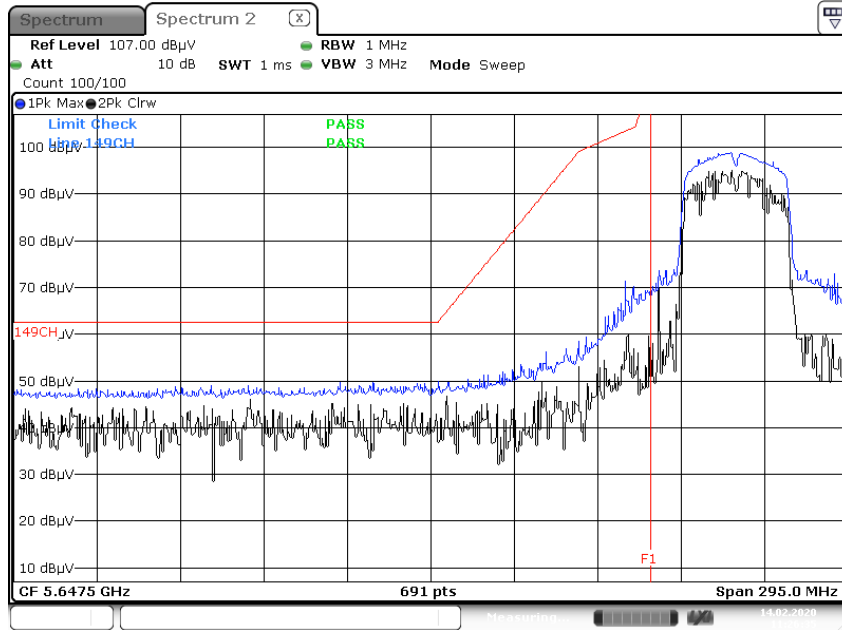
**Peak Reading (802.11ac\_VHT20, Ch.149, Y-H)**



**Peak Reading (802.11n\_HT40, Ch.151, Y-H)**

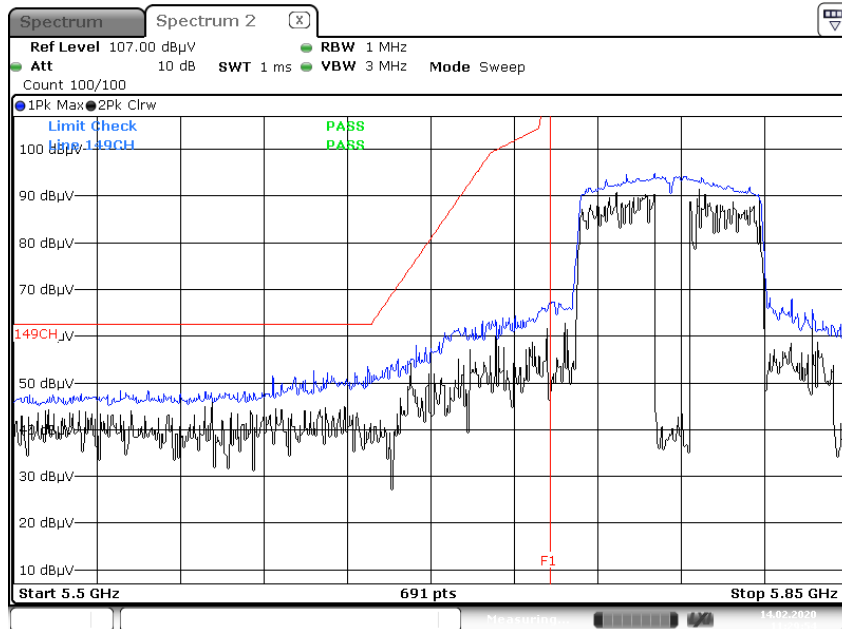


**Peak Reading (802.11ac\_VHT40, Ch.151, Y-H)**



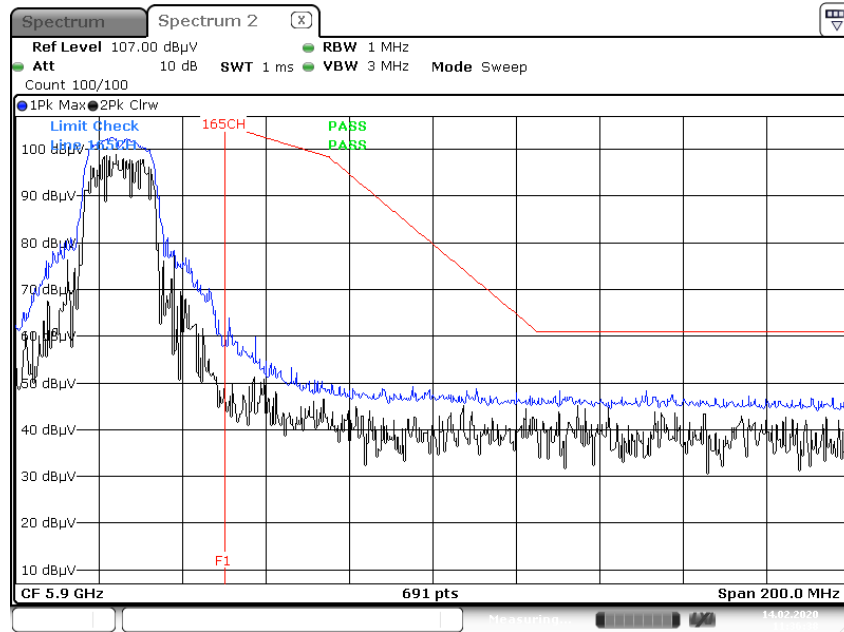
Date: 14.FEB.2020 11:26:35

**Peak Reading (802.11ac\_VHT80, Ch.155, Y-H)**



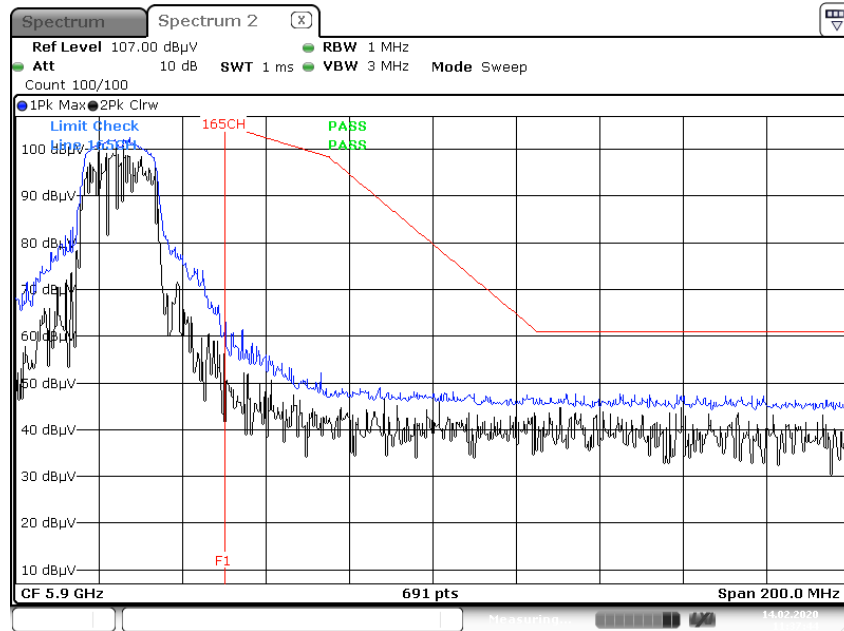
Date: 14.FEB.2020 11:29:54

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



Date: 14.FEB.2020 11:36:38

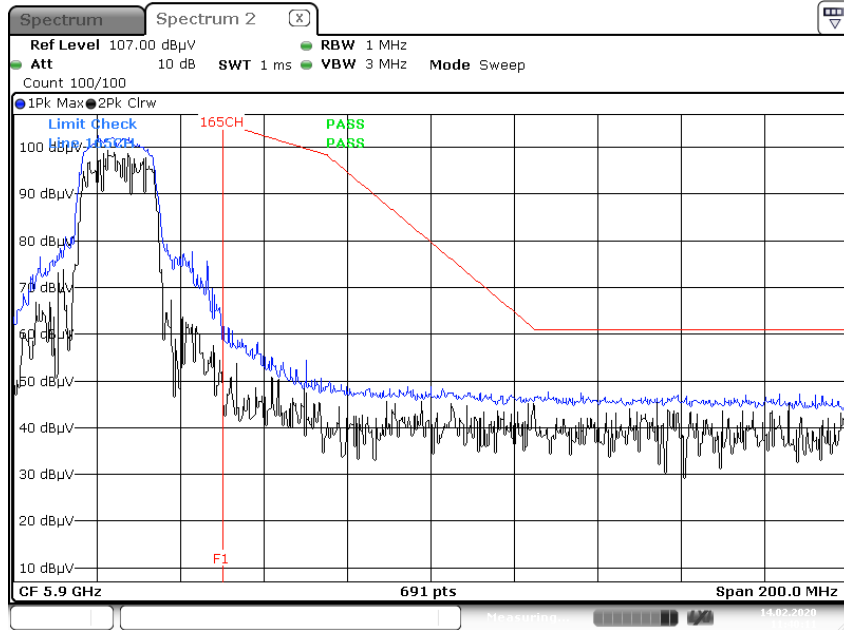
**Peak Reading (802.11n\_HT20, Ch.165, Y-H)**



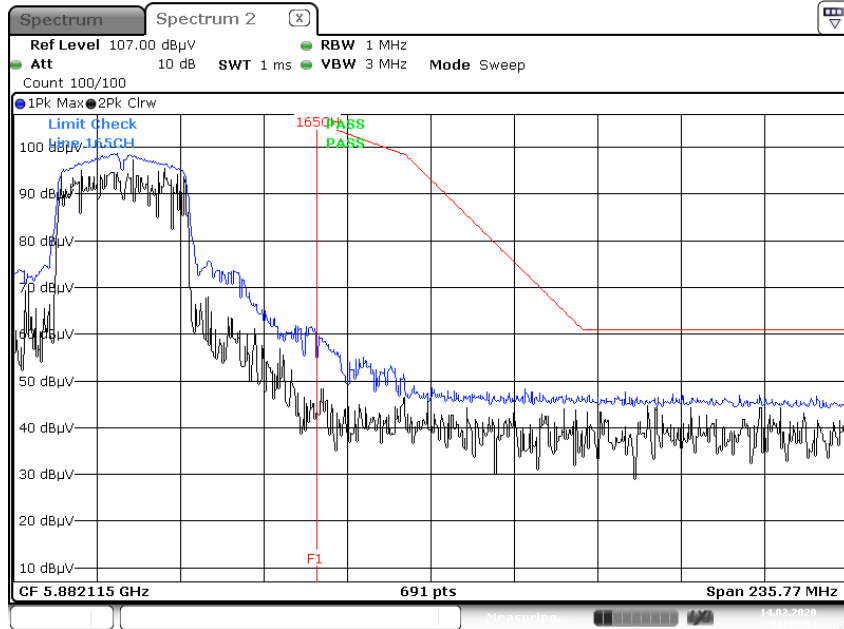
Date: 14.FEB.2020 11:37:44



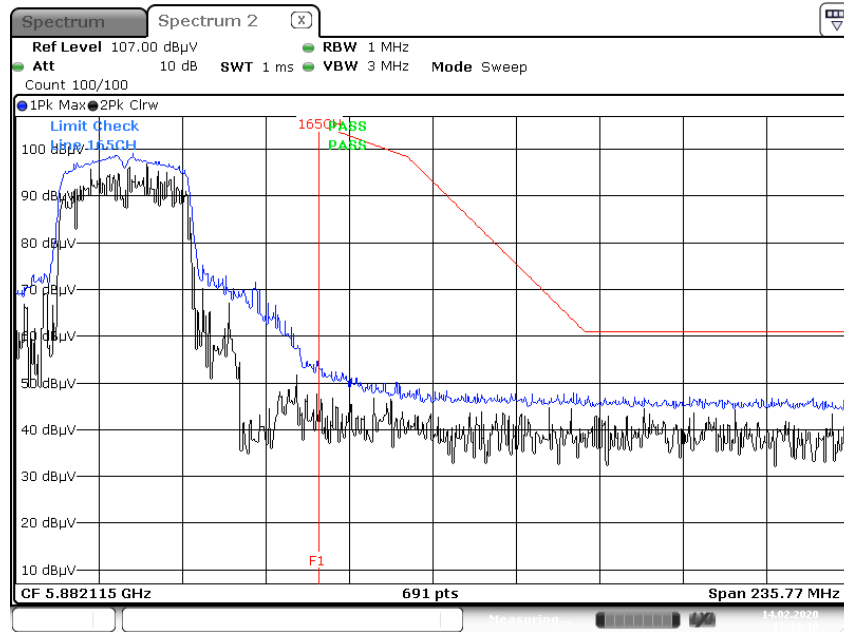
**Peak Reading (802.11ac\_VHT20, Ch.165, Y-H)**



**Peak Reading (802.11n\_HT40, Ch.159, Y-H)**

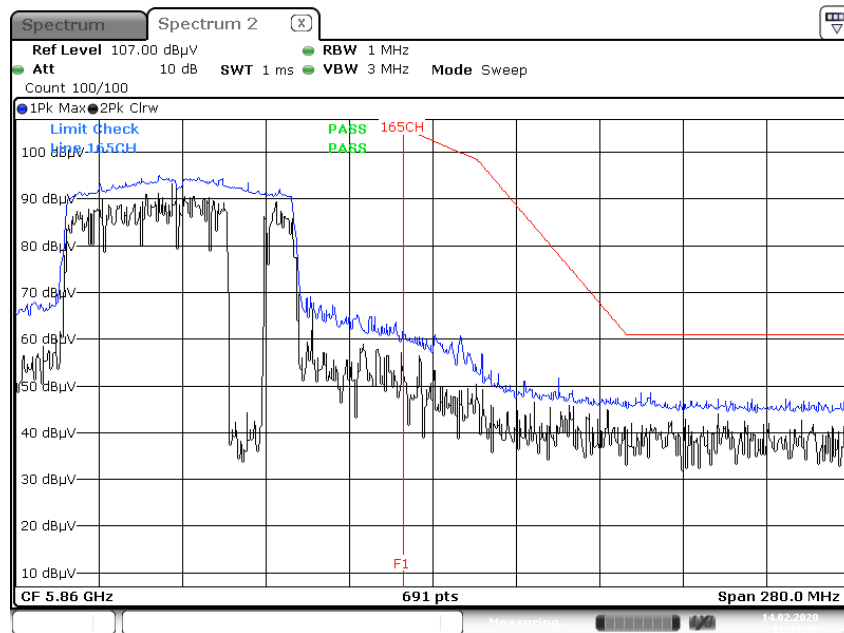


**Peak Reading (802.11ac\_VHT40, Ch.159, Y-H)**



Date: 14.FEB.2020 11:44:09

**Peak Reading (802.11ac\_VHT80, Ch.155, Y-H)**



Date: 14.FEB.2020 11:33:37

**10.10 POWERLINE CONDUCTED EMISSIONS**  
**Conducted Emissions (Line 1)**

Test

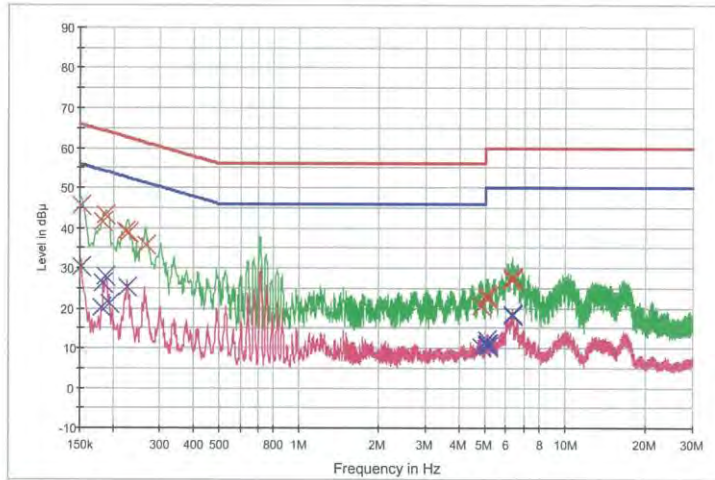
1 / 2

**HCT TEST Report**

**Common Information**

EUT: SM-A315G/DSL  
 Manufacturer: SAMSUNG  
 Test Site: SHIELD ROOM  
 Operating Conditions: WLAN 5G\_L1

FCC CLASS B\_Exten Cable



— FCC CLASS B\_QP      — FCC CLASS B\_AV      — Preview Result 1-PK+  
— Preview Result 2-AVG      X Final Result 1-QPK      X Final Result 2-CAV

**Final Result 1**

Frequency (MHz)	QuasiPeak (dBuV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.152000	45.6	9.000	Off	L1	9.8	20.3	65.9
0.184000	41.6	9.000	Off	L1	9.8	22.7	64.3
0.188000	43.1	9.000	Off	L1	9.8	21.0	64.1
0.222000	39.2	9.000	Off	L1	9.8	23.5	62.7
0.228000	38.7	9.000	Off	L1	9.8	23.9	62.5
0.266000	35.7	9.000	Off	L1	9.8	25.6	61.2
4.852000	20.4	9.000	Off	L1	10.0	35.6	56.0
5.072000	22.5	9.000	Off	L1	10.0	37.5	60.0
5.096000	23.2	9.000	Off	L1	10.0	36.8	60.0
5.116000	22.8	9.000	Off	L1	10.0	37.2	60.0
5.122000	22.9	9.000	Off	L1	10.0	37.1	60.0
5.148000	22.8	9.000	Off	L1	10.0	37.2	60.0
6.300000	27.7	9.000	Off	L1	10.1	32.3	60.0
6.322000	27.4	9.000	Off	L1	10.1	32.6	60.0
6.338000	27.5	9.000	Off	L1	10.1	32.5	60.0
6.346000	27.4	9.000	Off	L1	10.1	32.6	60.0
6.350000	27.3	9.000	Off	L1	10.1	32.7	60.0
6.356000	26.9	9.000	Off	L1	10.1	33.1	60.0

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**Final Result 2**

Frequency (MHz)	CAverage (dBuV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.152000	30.3	9.000	Off	L1	9.8	25.6	55.9
0.180000	20.1	9.000	Off	L1	9.8	34.4	54.5
0.184000	26.3	9.000	Off	L1	9.8	28.0	54.3
0.188000	28.1	9.000	Off	L1	9.8	26.1	54.1
0.194000	21.0	9.000	Off	L1	9.8	32.8	53.9
0.226000	25.3	9.000	Off	L1	9.8	27.3	52.6
4.852000	10.5	9.000	Off	L1	10.0	35.5	46.0
5.072000	11.0	9.000	Off	L1	10.0	39.0	50.0
5.086000	10.7	9.000	Off	L1	10.0	39.3	50.0
5.100000	12.0	9.000	Off	L1	10.0	38.0	50.0
5.122000	10.5	9.000	Off	L1	10.0	39.5	50.0
5.132000	10.9	9.000	Off	L1	10.0	39.1	50.0
6.300000	18.5	9.000	Off	L1	10.1	31.5	50.0
6.322000	18.3	9.000	Off	L1	10.1	31.7	50.0
6.338000	18.2	9.000	Off	L1	10.1	31.8	50.0
6.342000	18.2	9.000	Off	L1	10.1	31.8	50.0
6.346000	18.3	9.000	Off	L1	10.1	31.7	50.0
6.356000	18.0	9.000	Off	L1	10.1	32.0	50.0

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**Conducted Emissions (Line 2)**

Test

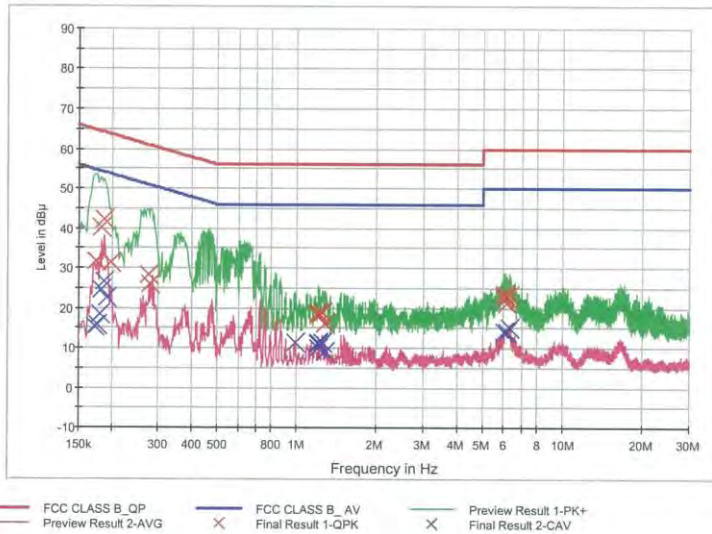
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**HCT TEST Report**

**Common Information**

EUT: SM-A315G/DSL  
 Manufacturer: SAMSUNG  
 Test Site: SHIELD ROOM  
 Operating Conditions: WLAN 5G\_N

FCC CLASS B\_Exten Cable



**Final Result 1**

Frequency (MHz)	QuasiPeak (dBμV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.174000	31.6	9.000	Off	N	9.8	33.1	64.8
0.184000	40.2	9.000	Off	N	9.8	24.1	64.3
0.188000	42.1	9.000	Off	N	9.8	22.1	64.1
0.198000	31.4	9.000	Off	N	9.8	32.3	63.7
0.274000	28.4	9.000	Off	N	9.8	32.6	61.0
0.280000	25.9	9.000	Off	N	9.8	34.9	60.8
1.202000	18.0	9.000	Off	N	9.8	38.0	56.0
1.206000	18.7	9.000	Off	N	9.8	37.3	56.0
1.210000	18.9	9.000	Off	N	9.8	37.1	56.0
1.216000	18.5	9.000	Off	N	9.8	37.5	56.0
1.246000	18.9	9.000	Off	N	9.8	37.1	56.0
1.282000	16.2	9.000	Off	N	9.8	39.8	56.0
6.044000	23.5	9.000	Off	N	10.1	36.5	60.0
6.070000	22.5	9.000	Off	N	10.1	37.5	60.0
6.080000	22.9	9.000	Off	N	10.1	37.1	60.0
6.152000	21.2	9.000	Off	N	10.1	38.8	60.0
6.330000	23.1	9.000	Off	N	10.1	36.9	60.0
6.354000	23.3	9.000	Off	N	10.1	36.7	60.0

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Test

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**Final Result 2**

Frequency (MHz)	CAverage (dBuV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.172000	15.3	9.000	Off	N	9.8	39.6	54.9
0.176000	15.8	9.000	Off	N	9.8	38.8	54.7
0.180000	18.6	9.000	Off	N	9.8	35.9	54.5
0.184000	24.7	9.000	Off	N	9.8	29.6	54.3
0.188000	26.7	9.000	Off	N	9.8	27.4	54.1
0.192000	22.7	9.000	Off	N	9.8	31.3	53.9
0.982000	11.4	9.000	Off	N	9.8	34.6	46.0
1.202000	9.9	9.000	Off	N	9.8	36.1	46.0
1.206000	10.9	9.000	Off	N	9.8	35.1	46.0
1.210000	11.4	9.000	Off	N	9.8	34.6	46.0
1.246000	11.4	9.000	Off	N	9.8	34.6	46.0
1.282000	9.0	9.000	Off	N	9.8	37.0	46.0
6.044000	14.0	9.000	Off	N	10.1	36.0	50.0
6.072000	14.0	9.000	Off	N	10.1	36.0	50.0
6.188000	14.1	9.000	Off	N	10.1	35.9	50.0
6.330000	15.1	9.000	Off	N	10.1	34.9	50.0
6.354000	15.2	9.000	Off	N	10.1	34.8	50.0
6.358000	15.0	9.000	Off	N	10.1	35.0	50.0

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## 11. LIST OF TEST EQUIPMENT

### Conducted Test

Manufacturer	Model / Equipment	Calibration Date	Calibration Interval	Serial No.
Rohde & Schwarz	ENV216 / LISN	09/11/2019	Annual	102245
Rohde & Schwarz	ESCI / Test Receiver	06/05/2020	Annual	100033
ESPACE	SU-642 / Temperature Chamber	03/18/2020	Annual	0093008124
Agilent	N9020A / Signal Analyzer	05/11/2020	Annual	MY51110085
Agilent	N9020A / Signal Analyzer	05/25/2020	Annual	MY52090906
Agilent	N9030A / Signal Analyzer	01/13/2020	Annual	MY49431210
Rohde & Schwarz	OSP 120 / Power Measurement Set	07/02/2020	Annual	101231
Agilent	N1911A / Power Meter	04/07/2020	Annual	MY45100523
Keysight	N1921A / Power Sensor	06/08/2020	Annual	MY57820067
Agilent	87300B / Directional Coupler	11/11/2019	Annual	3116A03621
Hewlett Packard	11667B / Power Splitter	05/25/2020	Annual	05001
Hewlett Packard	E3632A / DC Power Supply	06/12/2020	Annual	KR75303960
Agilent	8493C / Attenuator(10 dB)	06/26/2020	Annual	07560
Rohde & Schwarz	EMC32 / Software	N/A	N/A	N/A
HCT CO., LTD.	FCC WLAN&BT&BLE Conducted Test Software v3.0	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**

Manufacturer	Model / Equipment	Calibration Date	Calibration Interval	Serial No.
Innco system	CO3000 / Controller(Antenna mast)	N/A	N/A	CO3000-4p
Innco system	MA4640/800-XP-EP / Antenna Position Tower	N/A	N/A	N/A
Audix	EM1000 / Controller	N/A	N/A	060520
Audix	Turn Table	N/A	N/A	N/A
Rohde & Schwarz	Loop Antenna	04/26/2019	Biennial	1513-175
Schwarzbeck	VULB 9168 / Hybrid Antenna	03/22/2019	Biennial	760
Schwarzbeck	VULB 9160 / TRILOG Antenna	08/09/2018	Biennial	9160-3368
Schwarzbeck	BBHA 9120D / Horn Antenna	04/29/2019	Biennial	9120D-937
Schwarzbeck	BBHA9170 / Horn Antenna(15 GHz ~ 40 GHz)	11/29/2019	Biennial	BBHA9170541
Rohde & Schwarz	FSP(9 kHz ~ 30 GHz) / Spectrum Analyzer	04/27/2020	Annual	100854
Rohde & Schwarz	FSV40-N / Spectrum Analyzer	09/26/2019	Annual	101068-SZ
Agilent	N9020A / Signal Analyzer	05/11/2020	Annual	MY51110085
Wainwright Instruments	WRCJV2400/2483.5-2370/2520-60/12SS / Band Reject Filter	01/21/2020	Annual	2
Wainwright Instruments	WRCJV5100/5850-40/50-8EEK / Band Reject Filter	02/10/2020	Annual	1
Wainwright Instruments	WHK3.0/18G-10EF / High Pass Filter	03/02/2020	Annual	8
Wainwright Instruments	WHKX8-6090-7000-18000-40SS/ High Pass Filter	03/02/2020	Annual	25
Api tech.	18B-03 / Attenuator (3 dB)	03/02/2020	Annual	1
Agilent	8493C-10 / Attenuator(10 dB)	03/02/2020	Annual	08285
CERNEX	CBLU1183540 / Power Amplifier	03/02/2020	Annual	22964
CERNEX	CBL06185030 / Power Amplifier	03/02/2020	Annual	22965
CERNEX	CBL18265035 / Power Amplifier	12/26/2019	Annual	22966
CERNEX	CBL26405040 / Power Amplifier	03/23/2020	Annual	25956

**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-2008-FC004-P