

FCC / IC UNII REPORT

Certification

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Date of Issue:
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Location:
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Report No.: HCT-RF-1902-FI010-R1

FCC ID:	BJEIR12PT
IC:	2703H-IR12PT
APPLICANT:	LG Electronics Inc.

Model: IR12PT
EUT Type: DISPLAY ASM-VIDEO-RSID1
Modulation type OFDM
FCC Classification: Unlicensed National Information Infrastructure(UNII)
FCC Rule Part(s): Part 15.407
ISED Rule Part(s): RSS-247 Issue 2 (February 2017), RSS-Gen Issue 5(April 2018)

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 / IC Rules under normal use and maintenance.



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Manager of Telecommunication testing center

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Version

TEST REPORT NO.	DATE	DESCRIPTION
HCT-RF-1902-FI010	February 11, 2019	- First Approval Report
HCT-RF-1902-FI010-R1	February 27, 2019	- Changed the antenna name on page 4 (Ant 1 => Internal)

Table of Contents

1. GENERAL INFORMATION	4
EUT DESCRIPTION.....	4
ANTENNA CONFIGURATIONS	5
2. MAXIMUM OUTPUT POWER.....	7
3. TEST METHODOLOGY	9
EUT CONFIGURATION	9
EUT EXERCISE	9
GENERAL TEST PROCEDURES	9
DESCRIPTION OF TEST MODES	9
4. INSTRUMENT CALIBRATION.....	10
5. FACILITIES AND ACCREDITATIONS	10
5.1 FACILITIES	10
5.2 EQUIPMENT	10
6. ANTENNA REQUIREMENTS	10
7. MEASUREMENT UNCERTAINTY	11
8. DESCRIPTION OF TESTS	12
9. SUMMARY OF TEST RESULTS	33
9.1 FCC Part	33
9.2 IC Part	34
10. TEST RESULT	35
10.1 DUTY CYCLE.....	35
10.2 26DB BANDWIDTH	40
10.3 6DB BANDWIDTH	58
10.4 OUTPUT POWER MEASUREMENT.....	64
10.4.1 Maximum Conducted Output Power	64
10.4.2 Maximum E.I.R.P (Only IC)	70
10.5 POWER SPECTRAL DENSITY	75
10.6 FREQUENCY STABILITY.	88
10.6.1 20MHz BW	88
10.6.2 40MHz BW	104
10.6.3 80MHz BW	120
10.7 RADIATED SPURIOUS EMISSIONS	136
10.8 RADIATED RESTRICTED BAND EDGE	180
10.9 RECEIVER SPURIOUS EMISSIONS	204
11. LIST OF TEST EQUIPMENT	205
12. ANNEX A_ TEST SETUP PHOTO.....	207

1. GENERAL INFORMATION

EUT DESCRIPTION

Model	IR12PT	
EUT Type	DISPLAY ASM-VIDEO-RSID1	
Power Supply	DC 12.00 V	
Modulation Type	OFDM : 802.11a, 802.11n, 802.11ac	
Frequency Range (MHz)	UNII 1	20MHz BW : 5180 - 5240 40MHz BW : 5190 - 5230 80MHz BW : 5210
	UNII 3	20MHz BW : 5745 - 5825 40MHz BW : 5755 - 5795 80MHz BW : 5775
Antenna Type	Ant 1: Internal Antenna Ant 2: Internal Antenna	
Antenna Peak gain (dBi)	UNII 1 : 8.12(Ant1)/ 6.67 (Ant2) UNII 3 : 7.40(Ant1)/ 7.87(Ant2)	
Straddle channel	Supported	
TDWR Band	Not Supported	
Dynamic Frequency Selection	Not Supported	
Date(s) of Tests	January 09, 2019 ~ January 01, 2019	
PMN (Product Marketing Number)	DISPLAY ASM-VIDEO-RSID1	
HVIN (Hardware Version Identification Number)	IR12PT	
FVIN (Firmware Version Identification Number)	9.40.94.6	
HMN (Host Marketing Name)	N/A	

ANTENNA CONFIGURATIONS

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

Configurations	SISO		SDM	CDD
	Ant1	Ant2	Ant1 + Ant2	Ant1 + Ant2
802.11a	O	O	X	X
802.11n(HT20)	O	O	O	X
802.11n(HT40)	O	O	O	X
802.11ac(VHT20)	O	O	O	X
802.11ac(VHT40)	O	O	O	X
802.11ac(VHT80)	O	O	O	X

Note:

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

2. Directional Gain Calculation

According to KDB 662911 D01 Multiple Transmitter Output v02r01 F) 2) e) (iii)

Directional gain = $G_{ANT\ MAX} + 10 \log(N_{ANT}/N_{SS})$ dBi

($N_{ANT} = 2$, $N_{SS} = 2$, $G_{ANT\ MAX}$ is the gain of the antenna having the highest gain)

Band	Ant Gain (dBi)		N_{ANT}/N_{SS}	Directional Gain (= $G_{ANT\ MAX} + 10 \log(N_{ANT}/N_{SS})$) (dBi)
UNII 1	Ant 1	8.12	2 / 2	8.12
	Ant 2	6.67		
UNII 3	Ant 1	7.4	2 / 2	7.87
	Ant 2	7.87		

3. Power Level Setting

Mode	Channel	Ant1(=Internal)	Ant2(=Internal)	Ant1 + Ant2
802.11a	36	6	7	N/A
	40			
	48			
	149	17	18	
	157			
	165			
802.11n_20MHz	36	6	7	3
	40			
	48			
	149	17	17	17
	157			
	165			
802.11n_40MHz	38	7	7	3
	46			
	151	18	18	18
	159			
802.11ac_20MHz	36	6	7	3
	40			
	48			
	149	17	18	17
	157			
	165			
802.1ac_40MHz	38	7	7	3
	46			
	151	18	18	18
	159			
802.1ac_80MHz	42	7	7	3
	155	18	18	18

2. MAXIMUM OUTPUT POWER

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

Band	Mode	SISO		MIMO
		Ant1 Power (dBm)	Ant2 Power (dBm)	Ant1 + Ant2 Power (dBm)
UNII1	802.11a	6.194	7.794	-
	802.11n (HT20)	6.034	7.741	6.61
	802.11n (HT40)	6.232	7.465	6.24
	802.11ac (VHT20)	6.087	7.763	6.61
	802.11ac (VHT40)	6.364	7.326	5.76
	802.11ac (VHT80)	6.178	7.319	6.62
UNII3	802.11a	17.683	17.913	-
	802.11n (HT20)	17.637	17.896	20.77
	802.11n (HT40)	18.412	17.240	21.69
	802.11ac (VHT20)	17.401	17.792	20.33
	802.11ac (VHT40)	18.575	17.406	21.63
	802.11ac (VHT80)	18.082	17.118	21.03

Band	Mode	SISO		MIMO
		Ant1 Power (W)	Ant2 Power (W)	Ant1 + Ant2 Power (W)
UNII1	802.11a	0.0042	0.0060	-
	802.11n (HT20)	0.0040	0.0059	0.0046
	802.11n (HT40)	0.0042	0.0056	0.0042
	802.11ac (VHT20)	0.0041	0.0060	0.0046
	802.11ac (VHT40)	0.0043	0.0054	0.0038
	802.11ac (VHT80)	0.0041	0.0054	0.0046
UNII3	802.11a	0.0587	0.0619	-
	802.11n (HT20)	0.0580	0.0616	0.1194
	802.11n (HT40)	0.0694	0.0530	0.1476
	802.11ac (VHT20)	0.0550	0.0601	0.1079
	802.11ac (VHT40)	0.0720	0.0550	0.1455
	802.11ac (VHT80)	0.0643	0.0515	0.1268

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 / RSS-Gen issue 5, RSS-247 issue 2.

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 3.75 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 8 of ANSI C63.10. (Version: 2013)

Conducted Antenna Terminal

See Section from 8.1 to 8.4.(KDB 789033 D02 v02r01)

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).

For ISSED, test facility was accepted dated July 30, 2018(Registration Number: 5944A-5)

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."

* The antennas of this E.U.T are permanently attached.

* The E.U.T Complies with the requirement of §15.203, §15.407 / RSS-Gen

7. MEASUREMENT UNCERTAINTY

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

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

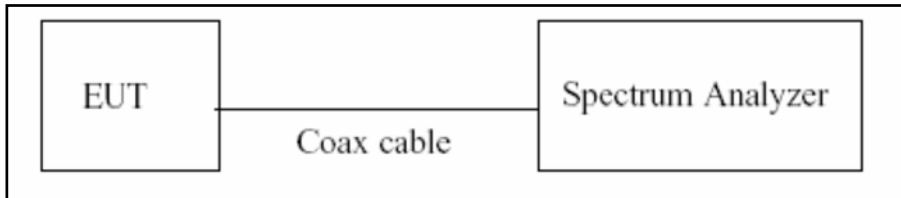
The measurement data shown herein meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Parameter	Expanded Uncertainty ($\pm$ 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)	5.71

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.

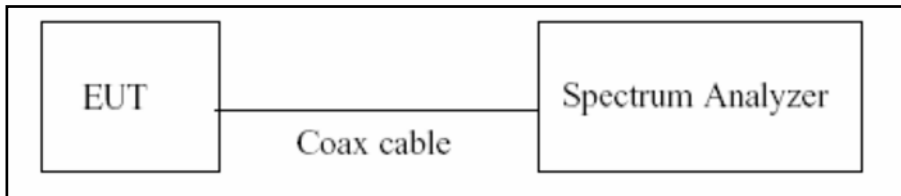
1. RBW = 8 MHz (the largest available value)
2. VBW = 8 MHz ($\geq$ RBW)
3. SPAN = 0 Hz
4. Detector = Peak
5. Number of points in sweep > 100
6. Trace mode = Clear write
7. Measure T_{total} and T_{on}
8. Calculate Duty Cycle = $T_{\text{on}} / T_{\text{total}}$ and Duty Cycle Factor = $10 \cdot \log(1/\text{Duty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

8.2. Bandwidth Measurement

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

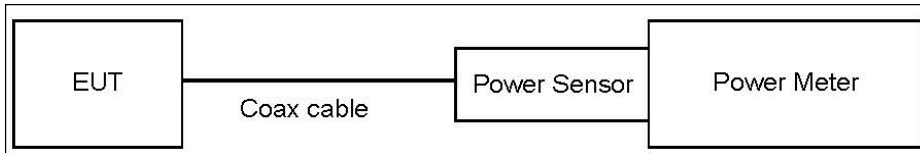
Limit

Band	FCC Limit
UNII 1	- Master : Not exceed 1 W(=30dBm) - Slave : Not exceed 250 mW(=23.98 dBm)
UNII 3	Not exceed 1 W(=30dBm)

Band	IC Limit
UNII 1	Maximum e.i.r.p. shall not exceed 30 mW(=14.77dBm) Or $1.76 + 10 \log_{10}(BW)$ dBm (where B is the 26 dB emission bandwidth in megahertz.)
UNII 3	Not exceed 1 W(=30dBm)

Test Configuration

Power Meter



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.

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 + Cable loss

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

Band	Loss(dB)
UNII 1 , UNII 3	20.63(Ant1 , Ant2)

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

■ Limit Calculation (For FCC)

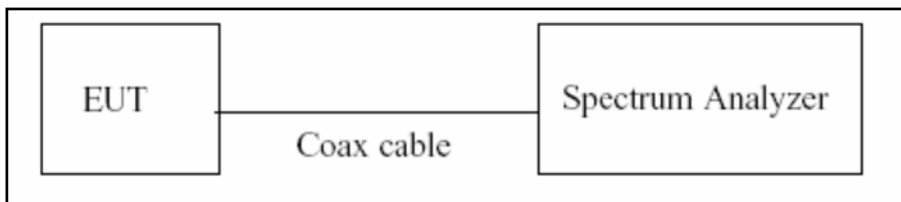
Operating Mode	Band	Mode	Operating Ant.	Ant. Gain (dBi)	Limit (dBm)
SISO	UNII 1	802.11a/n/ac	Ant 1	8.12	21.86
			Ant 2	6.67	23.31
	UNII 3		Ant 1	7.4	28.6
			Ant 2	7.87	22.13
MIMO	UNII 1	802.11n/ac	Ant 1 & 2	8.12	21.86
	UNII 3			7.87	22.13

8.4. Power Spectral Density

Limit

Band	Limit
UNII 1	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 $\geq$ 3 MHz
4. Number of points in sweep $\geq 2 \times \text{span} / \text{RBW}$.
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

$$\text{Total PSD(dBm)} = \text{Reading Value(dBm)} + \text{ATT loss(dB)} + \text{Cable loss(dB)} + \text{Duty Cycle Factor(dB)}$$

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 + Cable loss

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

Band	Loss(dB)
UNII 1 , UNII 3	20.63(Ant1 , Ant2)

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

■ Limit Calculation

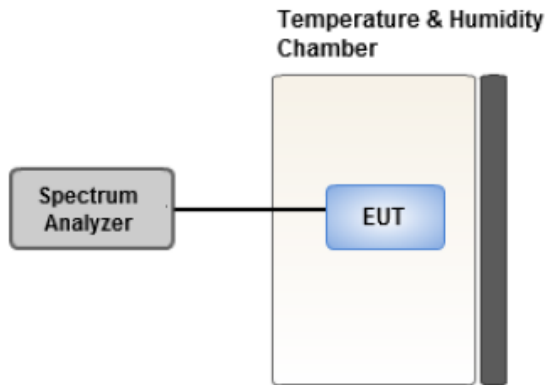
Operating Mode	Band	Mode	Operating Ant.	Ant. Gain (dBi)	Limit (dBm)
SISO	UNII 1	802.11a/n/ac	Ant 1	8.12	8.88
			Ant 2	6.67	10.33
	UNII 3		Ant 1	7.4	28.6
			Ant 2	7.87	22.13
MIMO	UNII 1	802.11n/ac	Ant 1 & 2	8.12	8.88
	UNII 3			7.87	22.13

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.

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 μ H/50 ohms line impedance stabilization network (LISN).

Frequency Range (MHz)	Limits (dB μ V)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56*	56 to 46*
0.50 to 5	56	46
5 to 30	60	50

*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

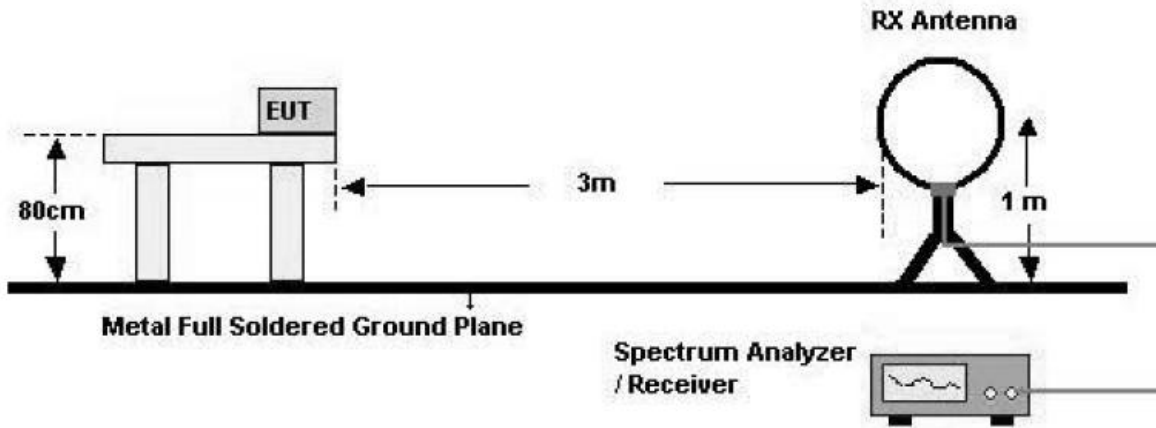
Limit

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.

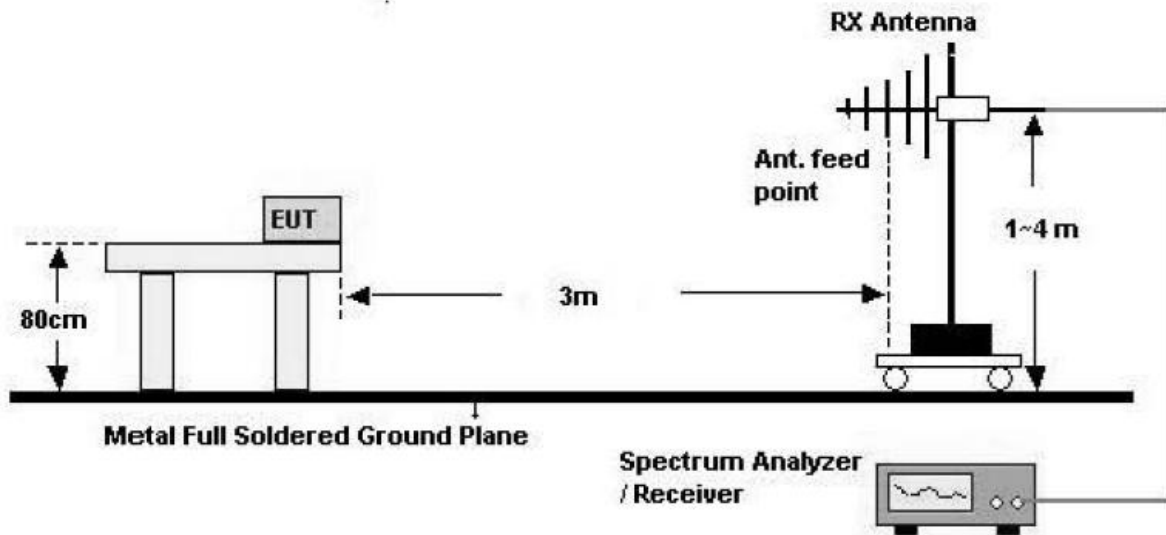
Frequency (MHz)	Field Strength (uV/m)	Measurement Distance (m)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Test Configuration

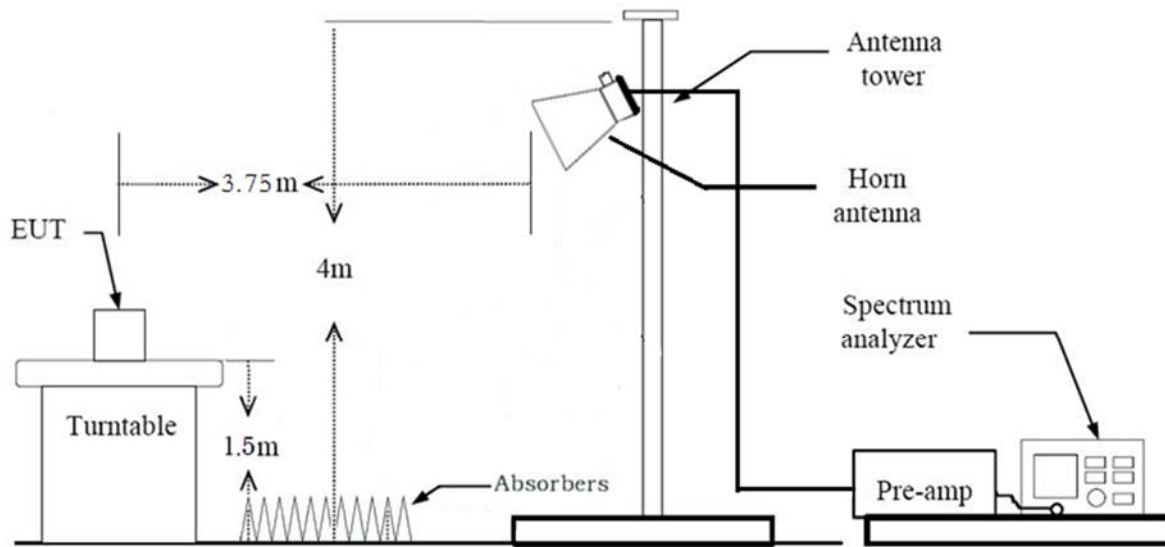
Below 30 MHz



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 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) = $40 \cdot \log(3 \text{ m}/300 \text{ m}) = -80 \text{ dB}$
Measurement Distance : 3 m
7. Distance Correction Factor(0.490 MHz – 30 MHz) = $40 \cdot \log(3 \text{ m}/30 \text{ m}) = -40 \text{ dB}$
Measurement Distance : 3 m
8. Spectrum Setting
 - Frequency Range = 9 kHz ~ 30 MHz
 - Detector = Peak
 - Trace = Maxhold
 - RBW = 9 kHz
 - VBW $\geq 3 \cdot \text{RBW}$
9. Total = Reading Value + Antenna Factor(A.F) + Cable Loss(C.L) + Distance Factor(D.F)
10. The test results for below 30 MHz is correlated to an open site.
The result on OATS is about 2 dB higher than semi-anechoic chamber(10 m chamber)

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. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
4. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
5. Spectrum Setting

(1) Measurement Type(Peak):

- Measured Frequency Range : 30 MHz – 1 GHz
- Detector = Peak
- Trace = Maxhold
- RBW = 100 kHz
- VBW $\geq$ 3*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

6. Total = Reading Value + Antenna Factor(A.F) + Cable Loss(C.L)

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 3.75 m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
5. According to SVSWR requirement in ANSI 63.4-2014, We performed the radiated test at 3.75 m distance from center of turn table. So, we applied the distance factor(reference distance : 3 m).
*Distance extrapolation factor = $20 \cdot \log(\text{test distance} / \text{specific distance})$ (dB)
6. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
7. Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
8. The unit was tested with its standard battery.

9. 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.

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

11. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency

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 3.75 m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
5. According to SVSWR requirement in ANSI 63.4-2014, We performed the radiated test at 3.75 m distance from center of turn table. So, we applied the distance factor(reference distance : 3 m).
*Distance extrapolation factor = $20 \cdot \log (\text{test distance} / \text{specific distance})$ (dB)
6. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
7. Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
8. The unit was tested with its standard battery.
9. 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) = $\text{VBW} \leq \text{RBW}/100$ (i.e., 10 kHz) but not less than 10 Hz.
- VBW(Duty cycle is < 98 percent) = $\text{VBW} \geq 1/T$, 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.

10. Measured Frequency Range :

- 4500MHz ~ 5150MHz
- 5350MHz ~ 5460MHz
- 5460MHz ~ 5470MHz
- (75 MHz or more below the 5725MHz) ~ 5725MHz
- 5850MHz ~ (75 MHz or more above the 5850MHz)

11. Total = Reading Value + Antenna Factor(A.F) + Cable Loss(C.L) - Amp Gain(G) + 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)
a	6	0.93373494	0.298	1000
802.11n(HT20)	MCS0	0.93014204	0.315	1000
802.11n(HT40)	MCS0	0.86820084	0.614	3000
802.11ac(VHT20)	MCS0	0.93055786	0.313	1000
802.11ac(VHT40)	MCS0	0.85732882	0.669	3000
802.11ac(VHT80)	MCS0	0.76587393	1.158	10000

8.8. Receiver Spurious Emissions**Limit**

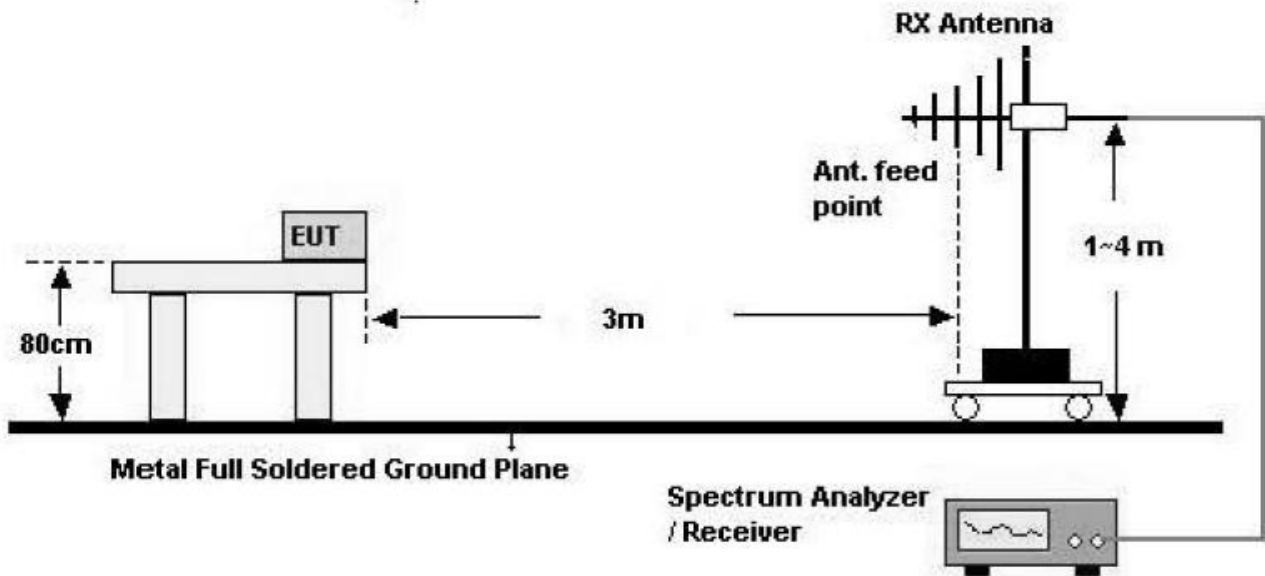
Frequency (MHz)	Field Strength (uV/m)	Measurement Distance (m)
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Note:

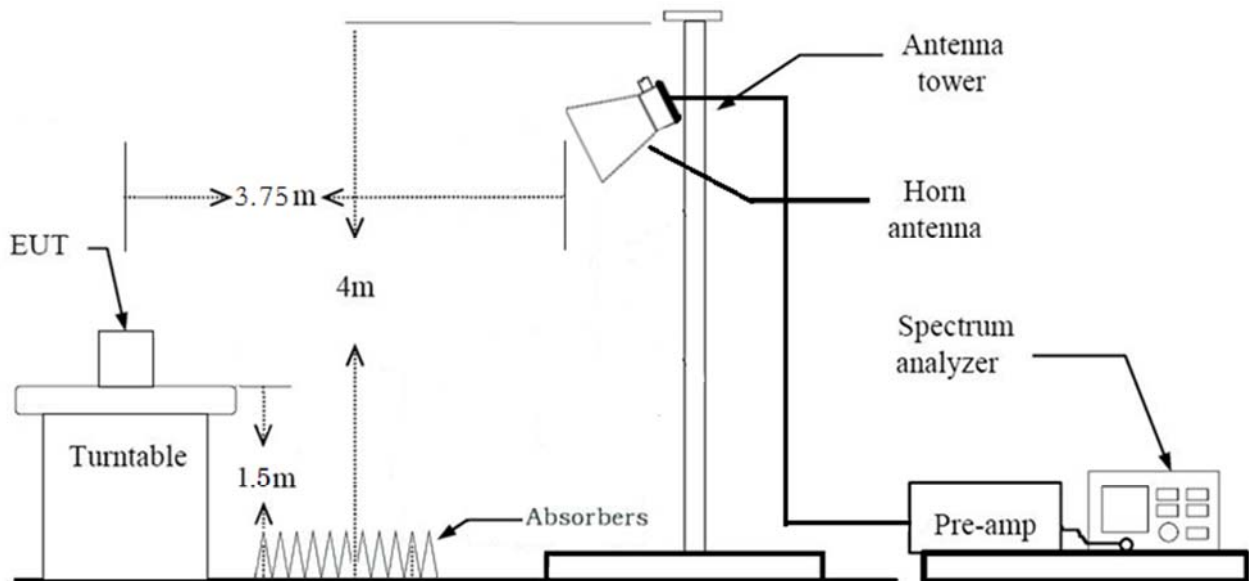
Measurements for compliance with the limits in table may be performed at distances other than 3 metres.

Test Configuration

30 MHz - 1 GHz



Above 1 GHz



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 3.75 m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
5. According to SVSWR requirement in ANSI 63.4-2014, We performed the radiated test at 3.75 m distance from center of turn table. So, we applied the distance factor(reference distance : 3 m).
*Distance extrapolation factor = $20 \cdot \log (\text{test distance} / \text{specific distance})$ (dB)
6. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
7. Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
8. The unit was tested with its standard battery.
9. Spectrum Setting
 - (1) Measurement Type(Peak):
 - Measured Frequency Range : 1 GHz – 25 GHz
 - Detector = Peak
 - Trace = Maxhold
 - RBW = 1 MHz
 - VBW $\geq 3 \cdot \text{RBW}$
 - (2) Measurement Type(Average):
 - We performed using a reduced video BW method was done with the analyzer in linear mode
 - Measured Frequency Range : 1 GHz – 25 GHz
 - Detector = Peak
 - Trace = Maxhold
 - RBW = 1 MHz
 - VBW $\geq 1/\tau$ Hz, where τ = pulse width in secondsThe actual setting value of VBW = 1 kHz
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.
11. Total = Reading Value + Antenna Factor(A.F) + Cable Loss(C.L) - Amp Gain(G) + Distance Factor(D.F)

8.9. Worst case configuration and mode

Radiated test

1. All modes of operation were investigated and the worst case configuration results are reported.
2. All configurations of antenna were investigated and the worst case configuration results are reported.
 - Mode : Ant1(SISO), Ant2(SISO), Ant1+Ant2(SDM)
 - Worstcase : Ant1(SISO), Ant2(SISO)
3. EUT Axis
 - Radiated Spurious Emissions : Y
 - Radiated Restricted Band Edge : Z
4. All datarate of operation were investigated and the worst case datarate results are reported
 - 802.11a : 6Mbps
 - 802.11n : MCS0
 - 802.11ac : MCS0

AC Power line Conducted Emissions

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

Conducted test

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

[Ant1]

- 802.11a : 9Mbps
- 802.11n(HT20) : MCS2
- 802.11n(HT40) : MCS4
- 802.11ac(VHT20) : MCS1
- 802.11ac(VHT40) : MCS9
- 802.11ac(VHT80) : MCS8

[Ant2]

- 802.11a : 12Mbps
- 802.11n(HT20) : MCS2
- 802.11n(HT40) : MCS4
- 802.11ac(VHT20) : MCS1
- 802.11ac(VHT40) : MCS9
- 802.11ac(VHT80) : MCS8

[Ant1+2]

- 802.11n(HT20) : MCS2
- 802.11n(HT40) : MCS4
- 802.11ac(VHT20) : MCS1 (=MCS0NSS2)
- 802.11ac(VHT40) : MCS9 (=MCS0NSS2)
- 802.11ac(VHT80) : MCS8 (=MCS0NSS2)

2. SISO & MIMO(Multiple spatial streams) were tested and the worst case results are reported.

- Mode : Ant1(SISO), Ant2(SISO), Ant1+Ant2(SDM)
- Worstcase : Ant1(SISO), Ant2(SISO),

9. SUMMARY OF TEST RESULTS

9.1 FCC Part

Test Description	FCC Part Section(s)	Test Limit	Test Condition	Test Result
26dB Bandwidth	§15.407 (for Power Measurement)	N/A	Conducted	PASS
6 dB Bandwidth	§15.407(e)	>500 kHz (5725-5850 MHz)		PASS
Maximum Conducted Output Power	§15.407(a)(1)	< 250 mW(5150-5250 MHz) < 250 mW or 11+10 log log ₁₀ (BW) dBm (5250-5350 MHz) < 250 mW or 11+10 log log ₁₀ (BW) dBm (5470-5725 MHz) <1 W(5725-5850 MHz)		PASS
Peak Power Spectral Density	§15.407(a)(1),(5)	<11 dBm/ MHz (5150-5250 MHz) <11 dBm/ MHz (5250-5350 MHz) <11 dBm/ MHz (5470-5725 MHz) <30 dBm/500 kHz(5725-5850 MHz)		PASS
Frequency Stability	§15.407(g) §2.1055	Maintained within the band		PASS
Transmit Power Control (TPC)	§15.407(h)(1)	The U-NII device is required to have the capability to operate at least 6 dB below the mean EIRP value of 30 dBm.		N/A (See Note1)
AC Conducted Emissions 150 kHz-30 MHz	15.207	<FCC 15.207 limits		N/A (See Note2)
Undesirable Emissions	§15.407(b)	<-27 dBm/MHz EIRP (UNII1, 2A, 2C) cf. Section 8.7 (UNII 3)	Radiated	PASS
General Field Strength Limits(Restricted Bands and Radiated Emission Limits)	15.205, 15.407(b)(5), (6)	Emissions in restricted bands must meet the radiated limits detailed in 15.209		PASS

Note:

1. TPC mechanism is not required for systems with an e.i.r.p. of less than 500 mW
2. We don't perform powerline conducted emission test. Because this EUT is used with vehicle.

9.2 IC Part

Test Description	IC Part Section(s)	Test Limit	Test Condition	Test Result
99% Bandwidth	RSS-GEN, 6.7	N/A	CONDUCTED	PASS
6 dB Bandwidth	RSS-247, 6.2.4.1	> 500 kHz (5725~5850 MHz)		PASS
Maximum Conducted Output Power, & Maximum e.i.r.p	RSS-247, 6.2	- Maximum e.i.r.p. shall not exceed 30 mW(=14.77dBm) or $1.76 + 10 \log_{10}(BW)$,dBm (5150-5350 MHz) < 250 mW or $11+10 \log_{10} (BW)$ dBm (5470-5725 MHz) <1 W(5725-5850 MHz)		PASS
Transmit Power Control (TPC)	RSS-247, 6.2.2.1	- at least 3 dB below the maximum permitted e.i.r.p. of 30 mW. (5150-5350 MHz) - The U-NII device is required to have the capability to operate at least 6 dB below the mean EIRP value of 30 dBm. (5470-5725 MHz)		N/A (See Note1)
Power Spectral Density	RSS-247 6.2	<11 dBm/ MHz (5150-5250 MHz) <11 dBm/ MHz (5250-5350 MHz) <11 dBm/ MHz (5470-5725 MHz) <30 dBm/500 kHz(5725-5850 MHz)		PASS
AC Conducted Emissions 150 kHz-30 MHz	RSS-GEN, 8.8	cf. Section 8.6		N/A (See Note2)
Undesirable Emissions	RSS-247 6.2	<-27 dBm/MHz EIRP (UNII1, 2A, 2C) - cf. Section 8.7 (UNII 3)	RADIATED	PASS
General Field Strength Limits(Restricted Bands and Radiated Emission Limits)	RSS-GEN, 8.9	cf. Section 8.7		PASS
Receiver Spurious Emissions	RSS-GEN, 7	cf. Section 8.8		PASS

Note:

1. TPC mechanism is not required for systems with an e.i.r.p. of less than 500 mW
2. We don't perform powerline conducted emission test. Because this EUT is used with vehicle.

10. TEST RESULT

10.1 DUTY CYCLE

Mode	Data Rate (Mbps)	Duty Cycle	Duty Cycle Factor (dB)
802.11a	6	0.934	0.298
	9	0.905	0.435
	12	0.878	0.566
	18	0.830	0.808
	24	0.787	1.040
	36	0.718	1.439
	48	0.659	1.809
	54	0.640	1.938

Mode	MCS Index	Duty Cycle	Duty Cycle Factor (dB)
802.11n(HT20)	0	0.930	0.315
	1	0.872	0.595
	2	0.824	0.843
	3	0.782	1.067
	4	0.717	1.447
	5	0.664	1.781
	6	0.644	1.912
	7	0.624	2.046
	8	0.871	0.600
	9	0.783	1.061
	10	0.720	1.427
	11	0.667	1.757
	12	0.601	2.212
	13	0.549	2.602
	14	0.535	2.720
	15	0.517	2.863

Mode	MCS Index	Duty Cycle	Duty Cycle Factor (dB)
802.11n(HT40)	0	0.868	0.614
	1	0.776	1.100
	2	0.710	1.485
	3	0.661	1.801
	4	0.586	2.322
	5	0.541	2.669
	6	0.517	2.866
	7	0.496	3.042
	8	0.777	1.095
	9	0.663	1.783
	10	0.592	2.273
	11	0.538	2.694
	12	0.485	3.144
	13	0.435	3.617
	14	0.423	3.736
	15	0.415	3.823

Mode	MCS Index	Duty Cycle	Duty Cycle Factor (dB)
802.11ac(VHT20)	0	0.931	0.313
	1	0.872	0.593
	2	0.824	0.838
	3	0.784	1.058
	4	0.719	1.430
	5	0.668	1.749
	6	0.648	1.881
	7	0.629	2.010
	8	0.600	2.218
	9 (=MCS0NSS2)	0.873	0.590
	10 (=MCS1NSS2)	0.781	1.076
	11 (=MCS2NSS2)	0.721	1.424
	12 (=MCS3NSS2)	0.673	1.719
	13 (=MCS4NSS2)	0.603	2.196
	14 (=MCS5NSS2)	0.557	2.538
	15 (=MCS6NSS2)	0.542	2.660
	16 (=MCS7NSS2)	0.525	2.802
	17 (=MCS8NSS2)	0.496	3.049
	18 (=MCS9NSS2)	0.873	0.590

Mode	MCS Index	Duty Cycle	Duty Cycle Factor (dB)
802.11ac(VHT40)	0	0.857	0.669
	1	0.776	1.100
	2	0.711	1.482
	3	0.660	1.801
	4	0.593	2.269
	5	0.539	2.680
	6	0.522	2.821
	7	0.506	2.958
	8	0.484	3.155
	9	0.460	3.370
	10 (=MCS0NSS2)	0.780	1.077
	11 (=MCS1NSS2)	0.668	1.754
	12 (=MCS2NSS2)	0.599	2.226
	13 (=MCS3NSS2)	0.550	2.595
	14 (=MCS4NSS2)	0.496	3.043
	15 (=MCS5NSS2)	0.454	3.432
	16 (=MCS6NSS2)	0.442	3.546
	17 (=MCS7NSS2)	0.427	3.693
	18 (=MCS8NSS2)	0.415	3.815
	19 (=MCS9NSS2)	0.401	3.963

Mode	MCS Index	Duty Cycle	Duty Cycle Factor (dB)
802.11ac(VHT80)	0	0.766	1.158
	1	0.649	1.879
	2	0.578	2.384
	3	0.532	2.739
	4	0.476	3.225
	5	0.441	3.555
	6	0.429	3.678
	7	0.416	3.810
	8	0.401	3.972
	9	0.386	4.129
	10 (=MCS0NSS2)	0.654	1.843
	11 (=MCS1NSS2)	0.542	2.660
	12 (=MCS2NSS2)	0.483	3.158
	13 (=MCS3NSS2)	0.450	3.469
	14 (=MCS4NSS2)	0.411	3.864
	15 (=MCS5NSS2)	0.387	4.128
	16 (=MCS6NSS2)	0.385	4.148
	17 (=MCS7NSS2)	0.370	4.319
	18 (=MCS8NSS2)	0.367	4.355
	19 (=MCS9NSS2)	0.355	4.498

10.2 26DB BANDWIDTH

[Ant1]

802.11a Mode		26dB Bandwidth [MHz]	99% bandwidth [MHz]
Frequency [MHz]	Channel No.		
5180	36	21.08	16.623
5200	40	21.01	16.652
5240	48	21.14	16.611
5745	149	28.23	16.965
5785	157	29.37	17.041
5825	165	28.54	17.096

802.11n(HT20) Mode		26dB Bandwidth [MHz]	99% bandwidth [MHz]
Frequency [MHz]	Channel No.		
5180	36	21.30	17.795
5200	40	21.11	17.816
5240	48	21.33	17.787
5745	149	26.41	18.018
5785	157	30.63	18.063
5825	165	29.36	18.116

802.11n(HT40) Mode		26dB Bandwidth [MHz]	99% bandwidth [MHz]
Frequency [MHz]	Channel No.		
5190	38	39.74	36.079
5230	46	39.29	36.061
5755	151	70.98	36.905
5795	159	72.61	37.161

802.11ac(VHT20) Mode		26dB Bandwidth [MHz]	99% bandwidth [MHz]
Frequency [MHz]	Channel No.		
5180	36	21.28	17.761
5200	40	21.21	17.789
5240	48	21.30	17.742
5745	149	29.05	18.057
5785	157	29.58	18.109
5825	165	30.26	18.085

802.11ac(VHT40) Mode		26dB Bandwidth [MHz]	99% bandwidth [MHz]
Frequency [MHz]	Channel No.		
5190	38	39.28	36.117
5230	46	39.77	36.097
5755	151	66.62	36.942
5795	159	66.86	36.998

802.11ac(VHT80) Mode		26dB Bandwidth [MHz]	99% bandwidth [MHz]
Frequency [MHz]	Channel No.		
5210	42	81.10	75.533
5775	155	120.00	76.172

■ Test Plots(802.11a)

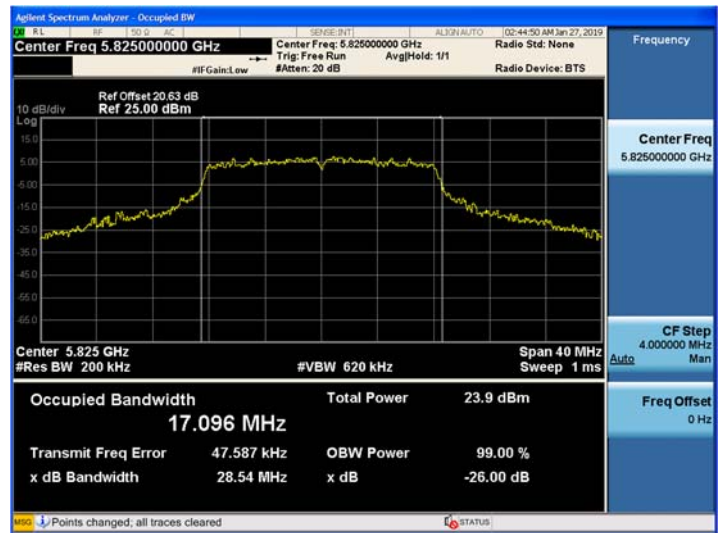
Note:

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

802.11a UNII 1 BAND 26dB Bandwidth (CH 40)



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

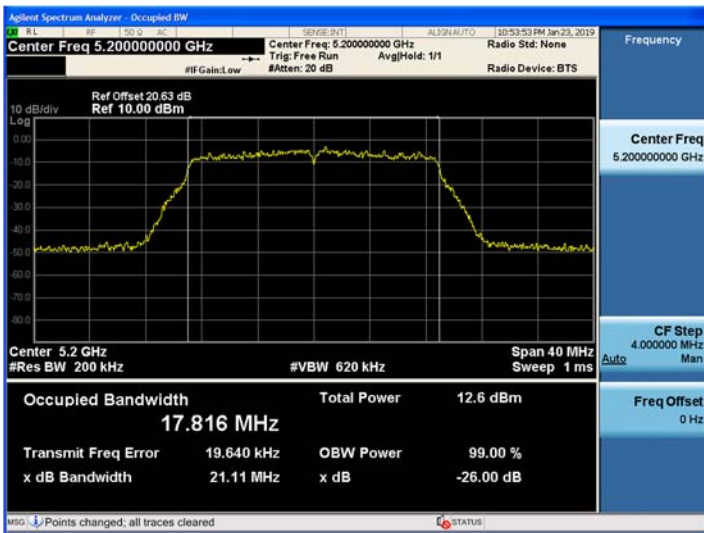


■ Test Plots(802.11n(HT20))

Note:

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

802.11n_HT20 UNII 1 BAND 26dB Bandwidth(CH 40)



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

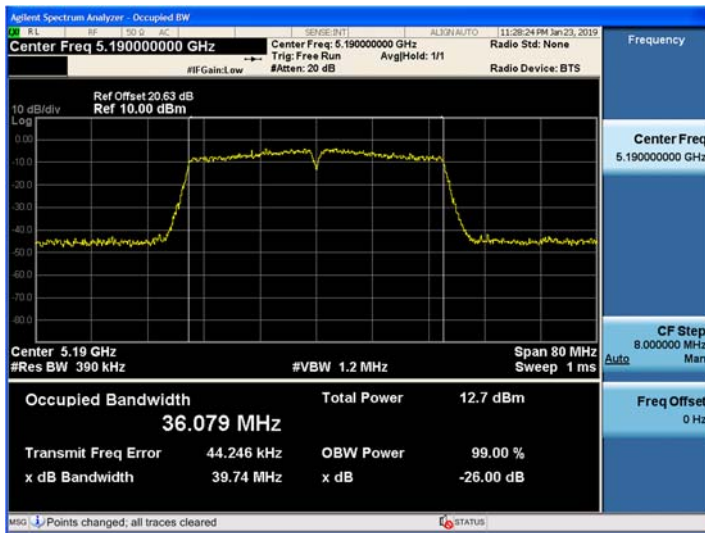


■ Test Plots(802.11n(HT40))

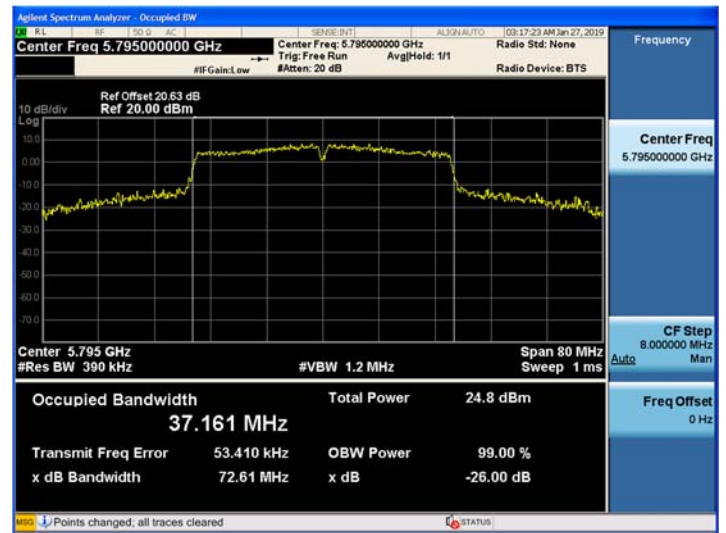
Note:

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

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



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

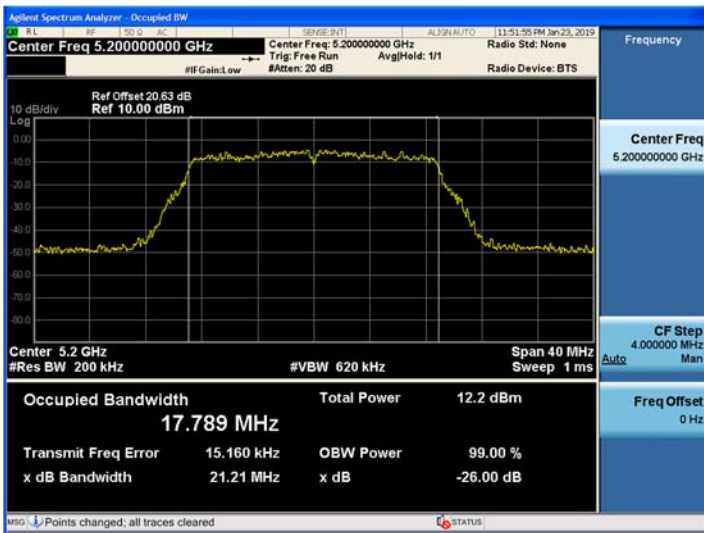


■ Test Plots(802.11ac(VHT20))

Note:

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

802.11ac_VHT20 UNII 1 BAND 26dB Bandwidth(CH 40)



802.11ac_VHT20 UNII 3 BAND 26dB Bandwidth(CH 157)

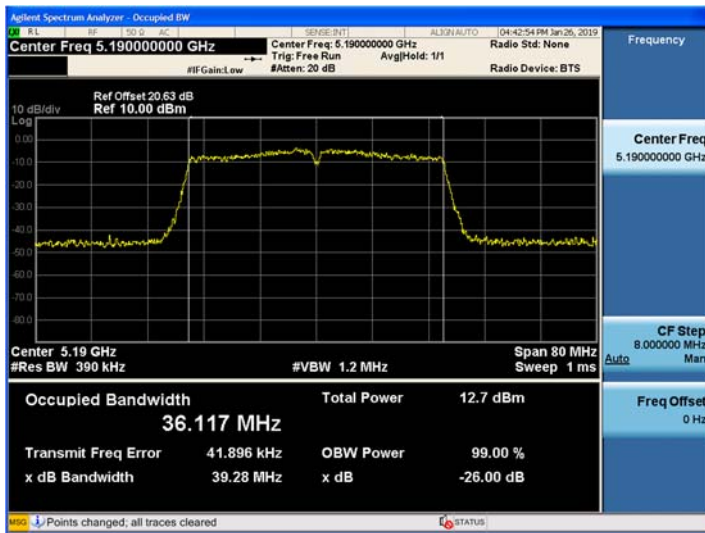


■ Test Plots(802.11ac(VHT40))

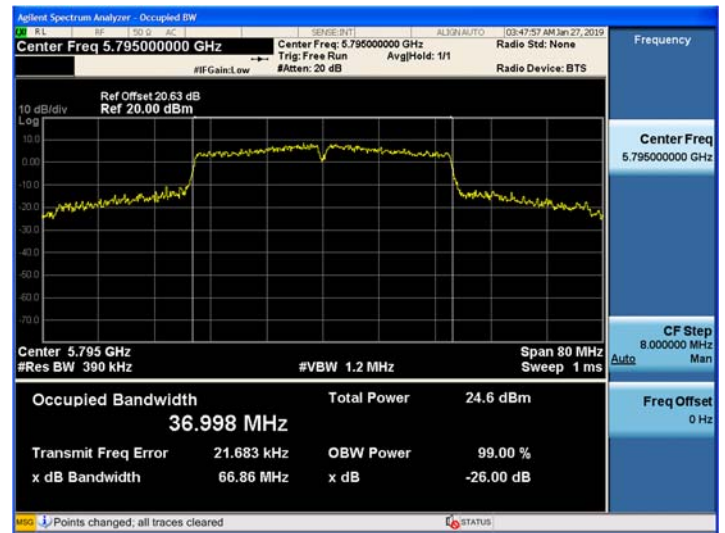
Note:

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

802.11ac_VHT40 UNII 1 BAND 26dB Bandwidth(CH 38)



802.11ac_VHT40 UNII 3 BAND 26dB Bandwidth (CH 159)



■ Test Plots(802.11ac(VHT80))

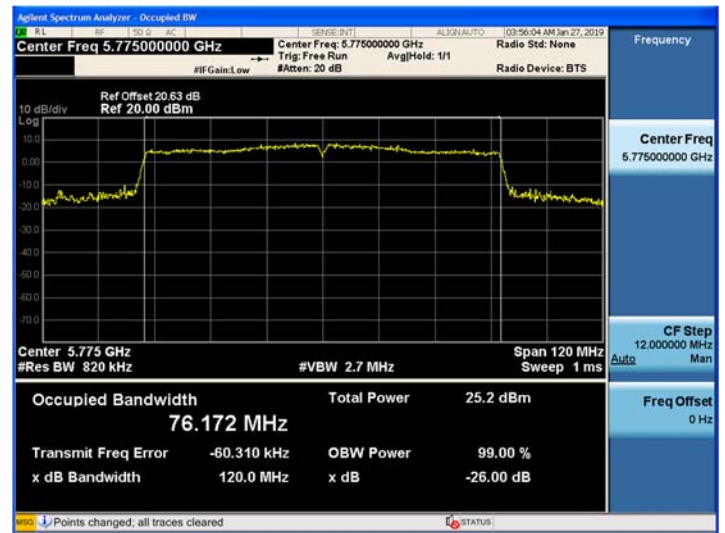
Note:

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 3 BAND 26dB Bandwidth (CH 155)



[Ant2]

802.11a Mode		26dB Bandwidth [MHz]	99% bandwidth [MHz]
Frequency [MHz]	Channel No.		
5180	36	20.98	16.640
5200	40	21.00	16.611
5240	48	20.95	16.626
5745	149	30.76	17.956
5785	157	31.40	18.376
5825	165	31.51	18.559

802.11n(HT20) Mode		26dB Bandwidth [MHz]	99% bandwidth [MHz]
Frequency [MHz]	Channel No.		
5180	36	21.28	17.745
5200	40	21.32	17.791
5240	48	21.47	17.758
5745	149	32.29	18.452
5785	157	34.24	18.772
5825	165	31.17	18.996

802.11n(HT40) Mode		26dB Bandwidth [MHz]	99% bandwidth [MHz]
Frequency [MHz]	Channel No.		
5190	38	39.41	36.091
5230	46	39.62	36.100
5755	151	67.23	36.648
5795	159	71.43	36.850

802.11ac(VHT20) Mode		26dB Bandwidth [MHz]	99% bandwidth [MHz]
Frequency [MHz]	Channel No.		
5180	36	21.16	17.777
5200	40	21.43	17.746
5240	48	21.32	17.773
5745	149	31.14	18.501
5785	157	33.16	18.692
5825	165	34.51	18.994

802.11ac(VHT40) Mode		26dB Bandwidth [MHz]	99% bandwidth [MHz]
Frequency [MHz]	Channel No.		
5190	38	39.29	36.112
5230	46	39.43	36.025
5755	151	67.18	36.604
5795	159	63.62	36.716

802.11ac(VHT80) Mode		26dB Bandwidth [MHz]	99% bandwidth [MHz]
Frequency [MHz]	Channel No.		
5210	42	81.64	75.501
5775	155	119.34	76.247

■ 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 3 BAND 26dB Bandwidth (CH 165)

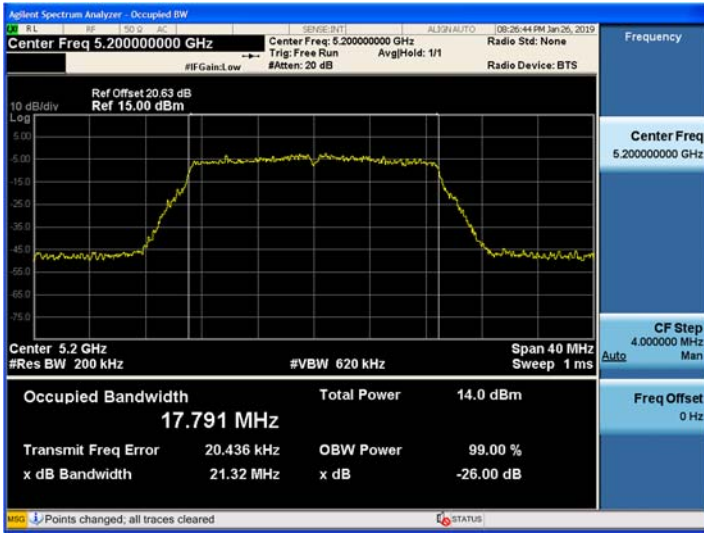


■ Test Plots(802.11n(HT20))

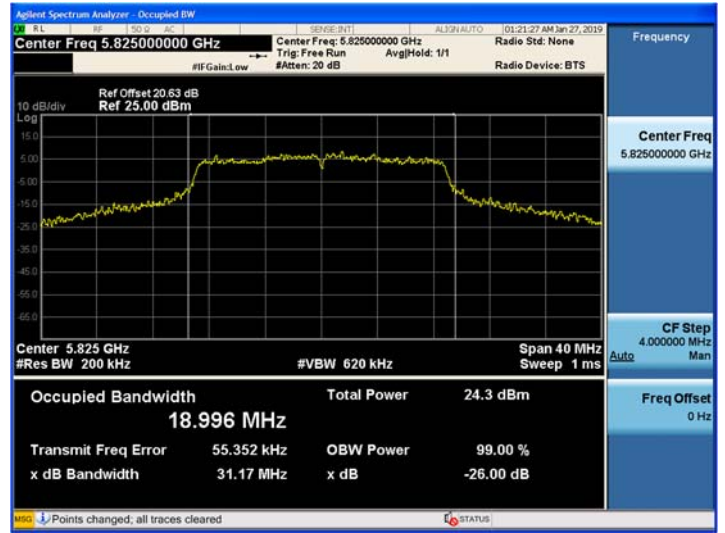
Note:

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

802.11n_HT20 UNII 1 BAND 26dB Bandwidth(CH 40)



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

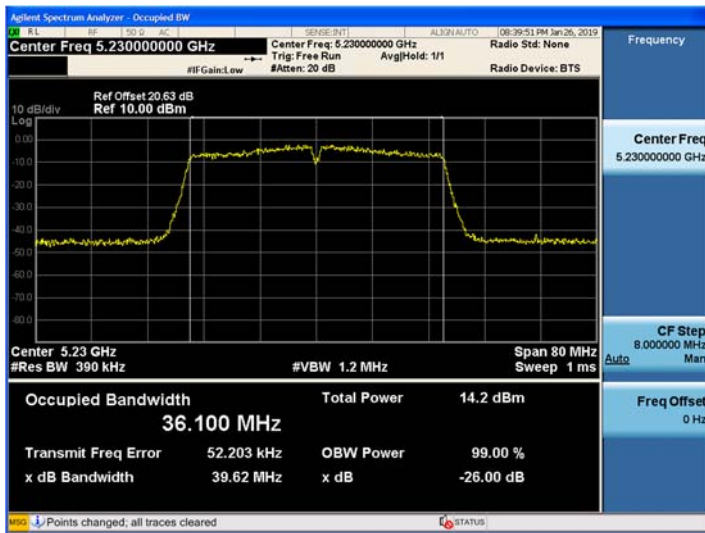


■ Test Plots(802.11n(HT40))

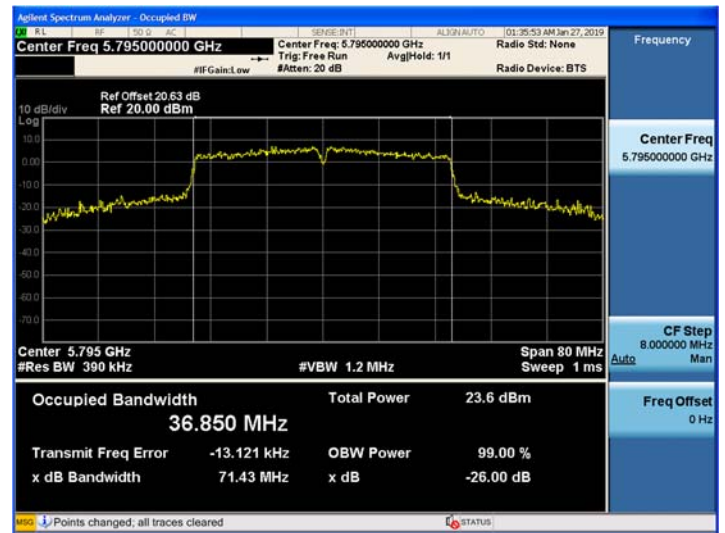
Note:

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

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



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

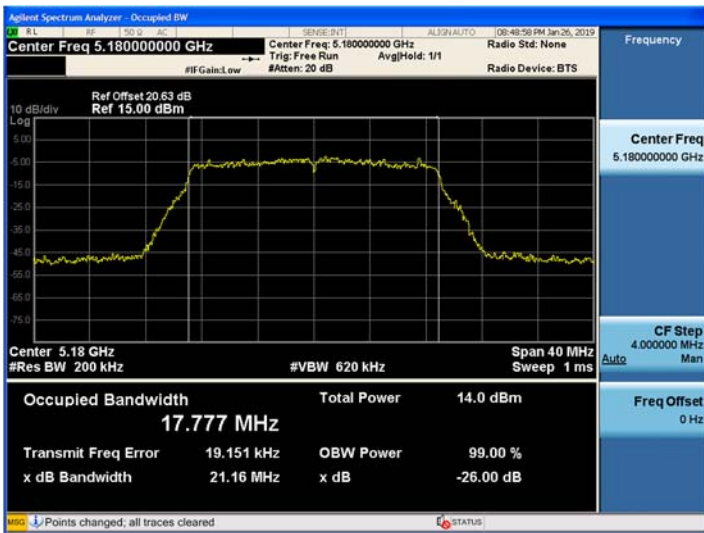


■ Test Plots(802.11ac(VHT20))

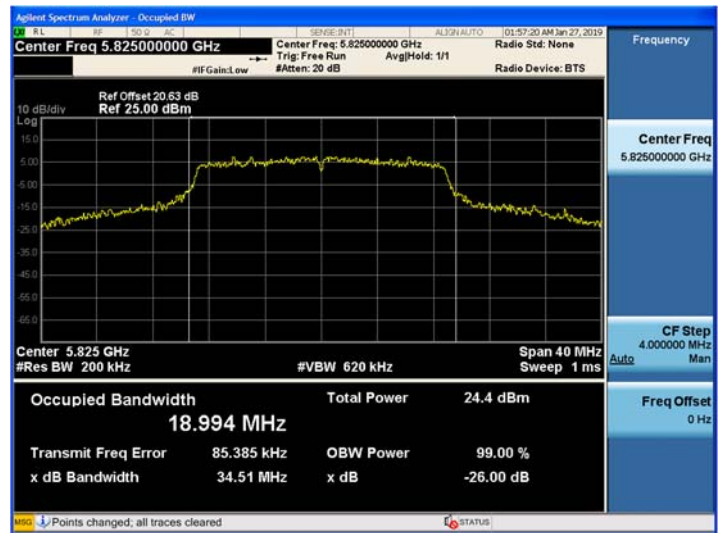
Note:

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 3 BAND 26dB Bandwidth(CH 165)

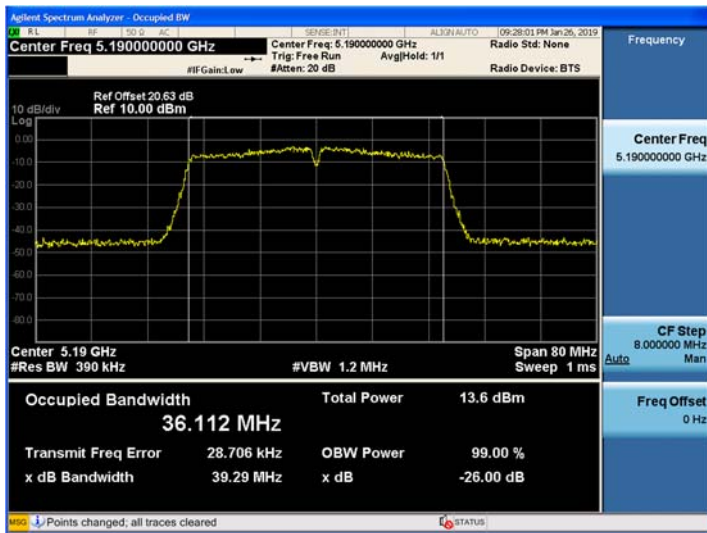


■ Test Plots(802.11ac(VHT40))

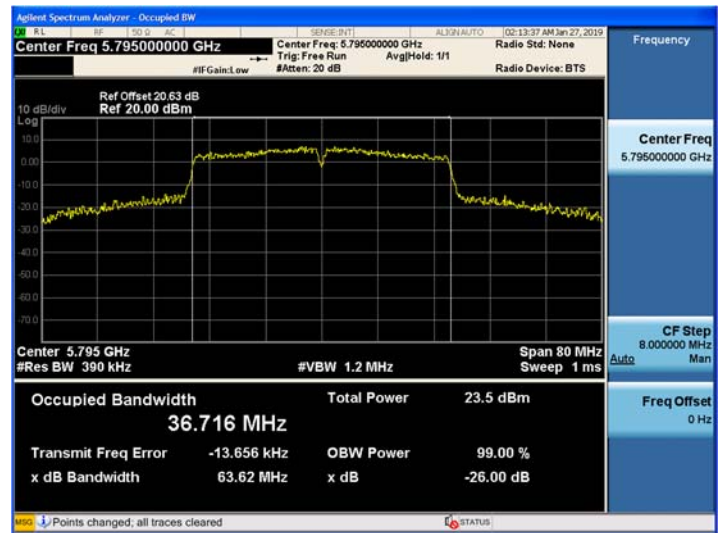
Note:

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

802.11ac_VHT40 UNII 1 BAND 26dB Bandwidth(CH 38)



802.11ac_VHT40 UNII 3 BAND 26dB Bandwidth (CH 159)



■ Test Plots(802.11ac(VHT80))

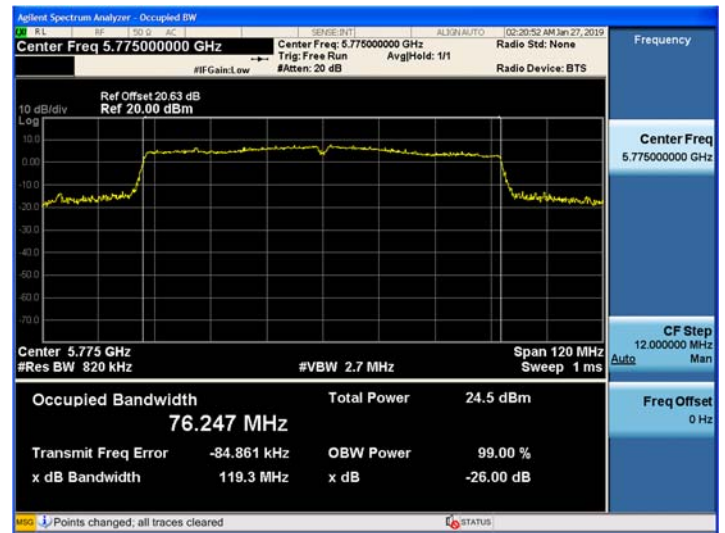
Note:

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 3 BAND 26dB Bandwidth (CH 155)



10.3 6DB BANDWIDTH

[Ant1]

802.11a Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	16.37	> 0.5	Pass
5785	157	16.35	> 0.5	Pass
5825	165	16.30	> 0.5	Pass

802.11n(HT20) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	17.62	> 0.5	Pass
5785	157	17.58	> 0.5	Pass
5825	165	17.56	> 0.5	Pass

802.11n(HT40) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5755	151	35.83	> 0.5	Pass
5795	159	35.59	> 0.5	Pass

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

802.11ac(VHT40) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5755	151	35.54	> 0.5	Pass
5795	159	35.52	> 0.5	Pass

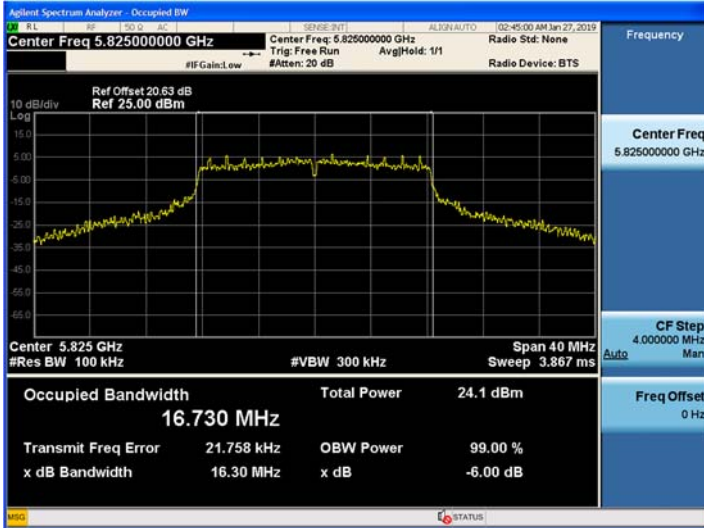
802.11ac(VHT80) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5775	155	75.31	> 0.5	Pass

■ Test Plots

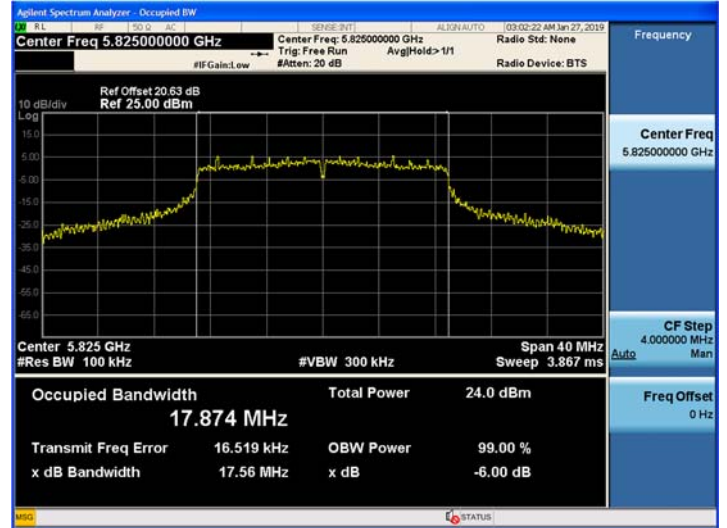
Note:

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

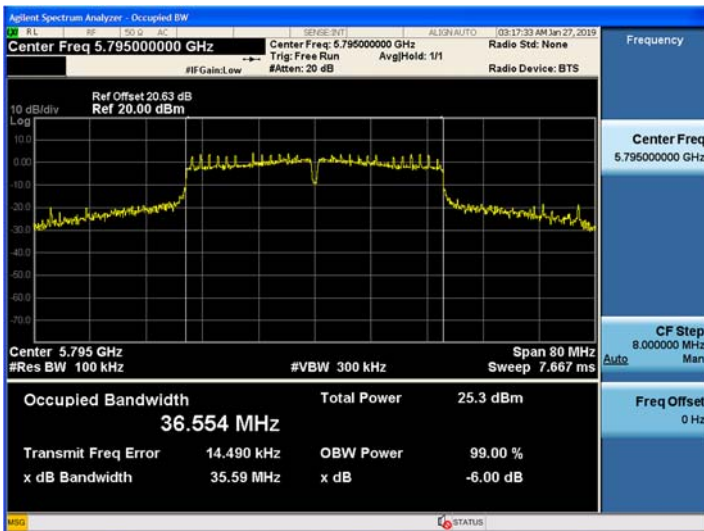
802.11a (CH.165)



802.11n(HT20) (CH.165)



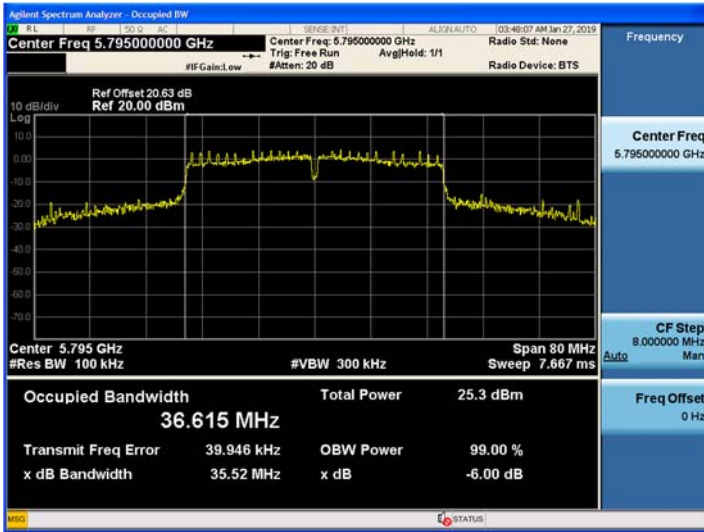
802.11n(HT40) (CH.159)



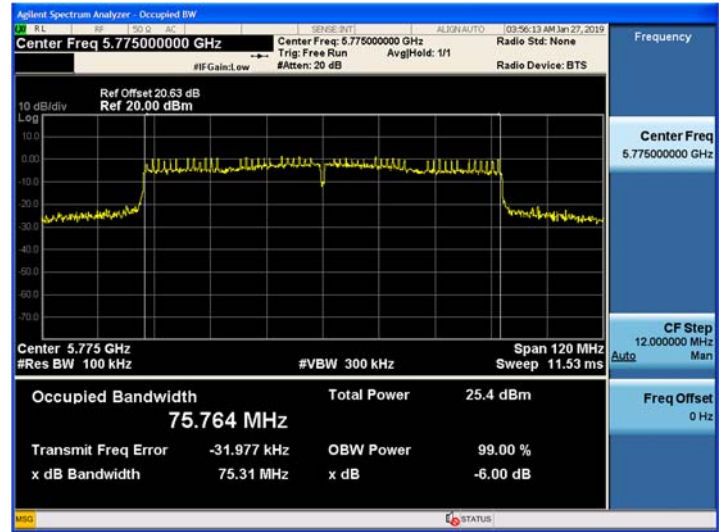
802.11ac(VHT20) (CH.157)



802.11ac(VHT40) (CH.159)



802.11ac(VHT80) (CH.155)



[Ant2]

802.11a Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	16.36	> 0.5	Pass
5785	157	16.06	> 0.5	Pass
5825	165	16.34	> 0.5	Pass

802.11n(HT20) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	17.07	> 0.5	Pass
5785	157	17.56	> 0.5	Pass
5825	165	17.37	> 0.5	Pass

802.11n(HT40) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5755	151	35.60	> 0.5	Pass
5795	159	35.46	> 0.5	Pass

802.11ac(VHT20) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	17.19	> 0.5	Pass
5785	157	17.20	> 0.5	Pass
5825	165	17.04	> 0.5	Pass

802.11ac(VHT40) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5755	151	35.84	> 0.5	Pass
5795	159	35.21	> 0.5	Pass

802.11ac(VHT80) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5775	155	75.49	> 0.5	Pass

Test Plots

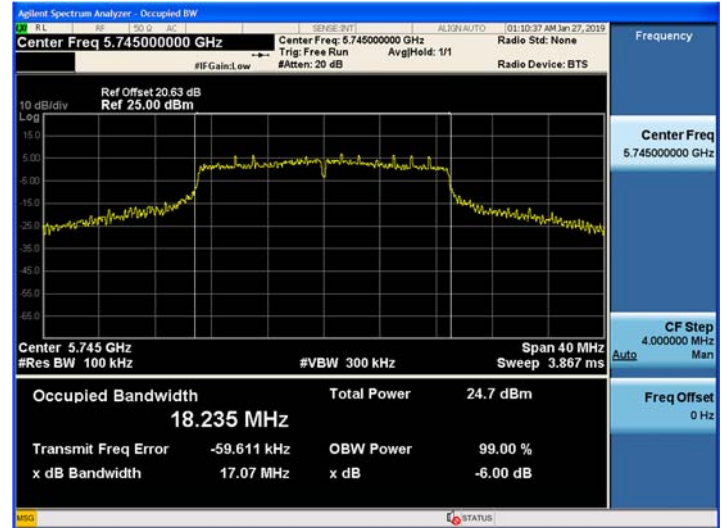
Note:

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

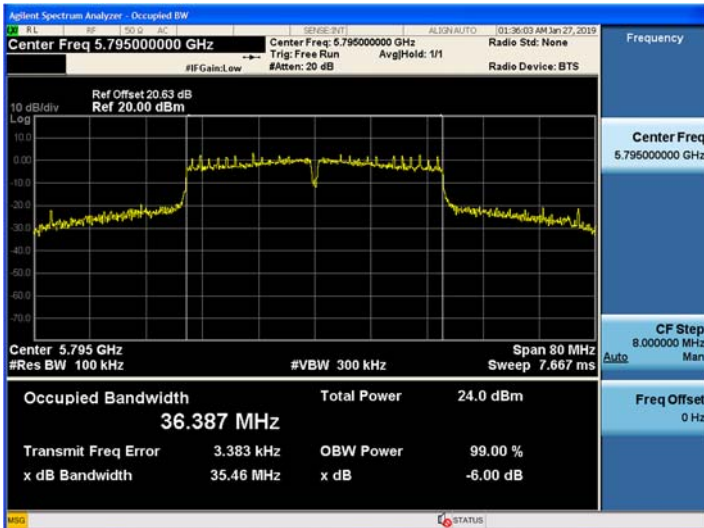
802.11a (CH.157)



802.11n(HT20) (CH.149)



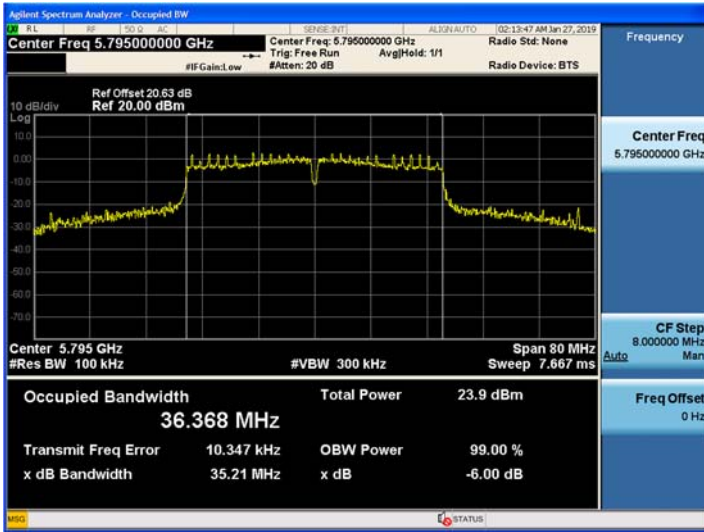
802.11n(HT40) (CH.159)



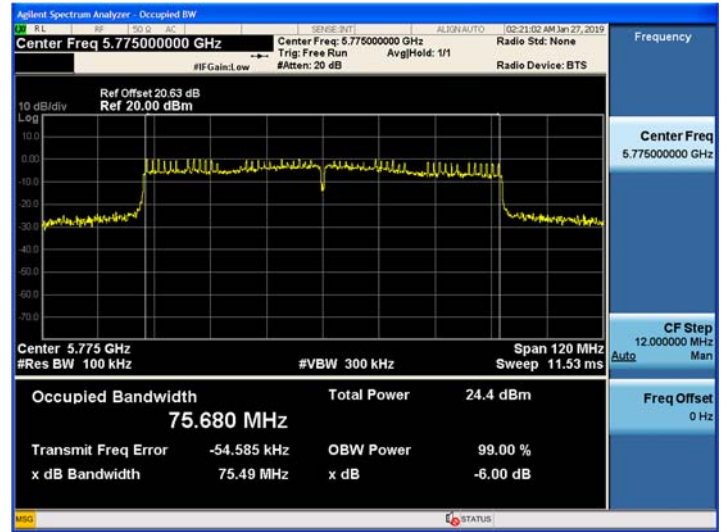
802.11ac(VHT20) (CH.165)



802.11ac(VHT40) (CH.159)



802.11ac(VHT80) (CH.155)



10.4 OUTPUT POWER MEASUREMENT

10.4.1 Maximum Conducted Output Power

[Ant1]

802.11a Mode		Measured Power [dBm]	Duty Cycle Factor (dB)	Total Power [dBm]	Limit (dBm)
Frequency [MHz]	Channel No.				
5180	36	5.76	0.435	6.20	21.86
5200	40	5.44	0.435	5.88	21.86
5240	48	5.58	0.435	6.02	21.86
5745	149	17.25	0.435	17.69	28.6
5785	157	16.69	0.435	17.13	28.6
5825	165	16.88	0.435	17.32	28.6

802.11n(20MHz) Mode		Measured Power [dBm]	Duty Cycle Factor (dB)	Total Power [dBm]	Limit (dBm)
Frequency [MHz]	Channel No.				
5180	36	5.19	0.843	6.03	21.86
5200	40	5.03	0.843	5.87	21.86
5240	48	5.01	0.843	5.85	21.86
5745	149	16.79	0.843	17.63	28.6
5785	157	16.22	0.843	17.06	28.6
5825	165	16.53	0.843	17.37	28.6

802.11n(40MHz) Mode		Measured Power [dBm]	Duty Cycle Factor (dB)	Total Power [dBm]	Limit (dBm)
Frequency [MHz]	Channel No.				
5190	38	3.66	2.322	5.98	21.86
5230	46	3.91	2.322	6.23	21.86
5755	151	16.09	2.322	18.41	28.6
5795	159	15.65	2.322	17.97	28.6

802.11ac(20MHz) Mode		Measured Power [dBm]	Duty Cycle Factor (dB)	Total Power [dBm]	Limit (dBm)
Frequency [MHz]	Channel No.				
5180	36	5.40	0.593	5.99	21.86
5200	40	5.35	0.593	5.94	21.86
5240	48	5.49	0.593	6.08	21.86
5745	149	16.81	0.593	17.40	28.6
5785	157	16.55	0.593	17.14	28.6
5825	165	16.74	0.593	17.33	28.6

802.11ac(40MHz) Mode		Measured Power [dBm]	Duty Cycle Factor (dB)	Total Power [dBm]	Limit (dBm)
Frequency [MHz]	Channel No.				
5190	38	2.82	3.370	6.19	21.86
5230	46	2.99	3.370	6.36	21.86
5755	151	15.21	3.370	18.58	28.6
5795	159	14.79	3.370	18.16	28.6

802.11ac(80MHz) Mode		Measured Power [dBm]	Duty Cycle Factor (dB)	Total Power [dBm]	Limit (dBm)
Frequency [MHz]	Channel No.				
5210	42	2.21	3.972	6.18	21.86
5775	155	14.11	3.972	18.08	28.6

[Ant2]

802.11a Mode		Measured Power [dBm]	Duty Cycle Factor (dB)	Total Power [dBm]	Limit (dBm)
Frequency [MHz]	Channel No.				
5180	36	7.00	0.566	7.57	23.31
5200	40	7.11	0.566	7.68	23.31
5240	48	7.23	0.566	7.80	23.31
5745	149	17.35	0.566	17.92	28.13
5785	157	16.94	0.566	17.51	28.13
5825	165	17.17	0.566	17.74	28.13

802.11n(20MHz) Mode		Measured Power [dBm]	Duty Cycle Factor (dB)	Total Power [dBm]	Limit (dBm)
Frequency [MHz]	Channel No.				
5180	36	6.40	0.843	7.24	23.31
5200	40	6.58	0.843	7.42	23.31
5240	48	6.90	0.843	7.74	23.31
5745	149	17.05	0.843	17.89	28.13
5785	157	16.67	0.843	17.51	28.13
5825	165	16.87	0.843	17.71	28.13

802.11n(40MHz) Mode		Measured Power [dBm]	Duty Cycle Factor (dB)	Total Power [dBm]	Limit (dBm)
Frequency [MHz]	Channel No.				
5190	38	4.73	2.322	7.05	23.31
5230	46	5.14	2.322	7.46	23.31
5755	151	14.92	2.322	17.24	28.13
5795	159	14.66	2.322	16.98	28.13

802.11ac(20MHz) Mode		Measured Power [dBm]	Duty Cycle Factor (dB)	Total Power [dBm]	Limit (dBm)
Frequency [MHz]	Channel No.				
5180	36	7.01	0.593	7.60	23.31
5200	40	6.95	0.593	7.54	23.31
5240	48	7.17	0.593	7.76	23.31
5745	149	17.20	0.593	17.79	28.13
5785	157	16.83	0.593	17.42	28.13
5825	165	17.11	0.593	17.70	28.13

802.11ac(40MHz) Mode		Measured Power [dBm]	Duty Cycle Factor (dB)	Total Power [dBm]	Limit (dBm)
Frequency [MHz]	Channel No.				
5190	38	3.82	3.370	7.19	23.31
5230	46	3.96	3.370	7.33	23.31
5755	151	14.04	3.370	17.41	28.13
5795	159	13.57	3.370	16.94	28.13

802.11ac(80MHz) Mode		Measured Power [dBm]	Duty Cycle Factor (dB)	Total Power [dBm]	Limit (dBm)
Frequency [MHz]	Channel No.				
5210	42	3.35	3.972	7.32	23.31
5775	155	13.15	3.972	17.12	28.13

[MIMO]

802.11n(20MHz) Mode		Duty Cycle Factor (dB)	Total Power [dBm]			Limit (dBm)
Frequency [MHz]	Channel No.		SISO (Ant 1)	SISO (Ant 2)	MIMO (Ant 1+2)	
5180	36	1.420	1.39	1.95	6.11	21.86
5200	40	1.420	1.84	2.30	6.51	21.86
5240	48	1.420	1.70	1.89	6.23	21.86
5745	149	1.420	16.79	15.83	20.77	28.13
5785	157	1.420	16.22	15.40	20.26	28.13
5825	165	1.420	16.53	15.73	20.58	28.13

802.11n(40MHz) Mode		Duty Cycle Factor (dB)	Total Power [dBm]			Limit (dBm)
Frequency [MHz]	Channel No.		SISO (Ant 1)	SISO (Ant 2)	MIMO (Ant 1+2)	
5190	38	3.140	-0.60	0.40	6.08	21.86
5230	46	3.140	-0.90	0.90	6.24	21.86
5755	151	3.140	16.09	14.92	21.69	28.13
5795	159	3.140	15.65	14.66	21.33	28.13

802.11ac(20MHz) Mode		Duty Cycle Factor (dB)	Total Power [dBm]			Limit (dBm)
Frequency [MHz]	Channel No.		SISO (Ant 1)	SISO (Ant 2)	MIMO (Ant 1+2)	
5180	36	0.590	2.40	2.72	6.16	21.86
5200	40	0.590	2.34	2.66	6.10	21.86
5240	48	0.590	3.00	3.02	6.61	21.86
5745	149	0.590	17.25	16.13	20.33	28.13
5785	157	0.590	16.67	15.71	19.82	28.13
5825	165	0.590	16.94	15.90	20.05	28.13

802.11ac(40MHz) Mode		Duty Cycle Factor (dB)	Total Power [dBm]			Limit (dBm)
Frequency [MHz]	Channel No.		SISO (Ant 1)	SISO (Ant 2)	MIMO (Ant 1+2)	
5190	38	3.960	-1.80	-1.50	5.32	21.86
5230	46	3.960	-1.54	-0.90	5.76	21.86
5755	151	3.960	15.21	14.04	21.63	28.13
5795	159	3.960	14.79	13.57	21.19	28.13

802.11ac(80MHz) Mode		Duty Cycle Factor (dB)	Total Power [dBm]			Limit (dBm)
Frequency [MHz]	Channel No.		SISO (Ant 1)	SISO (Ant 2)	MIMO (Ant 1+2)	
5210	42	4.360	-1.34	-0.23	6.62	21.86
5775	155	4.360	14.11	13.15	21.03	28.13

10.4.2 Maximum E.I.R.P (Only IC)

[Ant1]

802.11a Mode		Conducted Output Power [dBm]	Peak Ant Gain (dBi)	E.I.R.P (UNII 1)	
Frequency [MHz]	Channel No.			Cond Power (UNII3) [dBm]	Limit (dBm)
5180	36	6.19	8.12	14.31	14.77
5200	40	5.88	8.12	14.00	14.77
5240	48	6.02	8.12	14.14	14.77

802.11n(20MHz) Mode		Conducted Output Power [dBm]	Peak Ant Gain (dBi)	E.I.R.P [dBm]	Limit (dBm)
Frequency [MHz]	Channel No.				
5180	36	6.03	8.12	14.15	14.77
5200	40	5.87	8.12	13.99	14.77
5240	48	5.85	8.12	13.97	14.77

802.11n(40MHz) Mode		Conducted Output Power [dBm]	Peak Ant Gain (dBi)	E.I.R.P [dBm]	Limit (dBm)
Frequency [MHz]	Channel No.				
5190	38	5.98	8.12	14.10	14.77
5230	46	6.23	8.12	14.35	14.77

802.11ac(20MHz) Mode		Conducted Output Power [dBm]	Peak Ant Gain (dBi)	E.I.R.P [dBm]	Limit (dBm)
Frequency [MHz]	Channel No.				
5180	36	6.00	8.12	14.12	14.77
5200	40	5.94	8.12	14.06	14.77
5240	48	6.09	8.12	14.21	14.77

802.11ac(40MHz) Mode		Conducted Output Power [dBm]	Peak Ant Gain (dBi)	E.I.R.P [dBm]	Limit (dBm)
Frequency [MHz]	Channel No.				
5190	38	6.19	8.12	14.31	14.77
5230	46	6.36	8.12	14.48	14.77

802.11ac(80MHz) Mode		Conducted Output Power [dBm]	Peak Ant Gain (dBi)	E.I.R.P [dBm]	Limit (dBm)
Frequency [MHz]	Channel No.				
5210	42	6.18	8.12	14.30	14.77

[Ant2]

802.11a Mode		Conducted Output Power [dBm]	Peak Ant Gain (dBi)	E.I.R.P [dBm]	Limit (dBm)
Frequency [MHz]	Channel No.				
5180	36	7.57	6.67	14.24	14.77
5200	40	7.68	6.67	14.35	14.77
5240	48	7.79	6.67	14.46	14.77

802.11n(20MHz) Mode		Conducted Output Power [dBm]	Peak Ant Gain (dBi)	E.I.R.P [dBm]	Limit (dBm)
Frequency [MHz]	Channel No.				
5180	36	7.24	6.67	13.91	14.77
5200	40	7.43	6.67	14.10	14.77
5240	48	7.74	6.67	14.41	14.77

802.11n(40MHz) Mode		Conducted Output Power [dBm]	Peak Ant Gain (dBi)	E.I.R.P [dBm]	Limit (dBm)
Frequency [MHz]	Channel No.				
5190	38	7.05	6.67	13.72	14.77
5230	46	7.46	6.67	14.13	14.77

802.11ac(20MHz) Mode		Conducted Output Power [dBm]	Peak Ant Gain (dBi)	E.I.R.P [dBm]	Limit (dBm)
Frequency [MHz]	Channel No.				
5180	36	7.60	6.67	14.27	14.77
5200	40	7.54	6.67	14.21	14.77
5240	48	7.76	6.67	14.43	14.77

802.11ac(40MHz) Mode		Conducted Output Power [dBm]	Peak Ant Gain (dBi)	E.I.R.P [dBm]	Limit (dBm)
Frequency [MHz]	Channel No.				
5190	38	7.19	6.67	13.86	14.77
5230	46	7.33	6.67	14.00	14.77

802.11ac(80MHz) Mode		Conducted Output Power [dBm]	Peak Ant Gain (dBi)	E.I.R.P [dBm]	Limit (dBm)
Frequency [MHz]	Channel No.				
5210	42	7.32	6.67	13.99	14.77

[MIMO]

802.11n(20MHz) Mode		Conducted Output Power [dBm]	Peak Ant Gain (dBi)	E.I.R.P [dBm]	Limit (dBm)
Frequency [MHz]	Channel No.				
5180	36	6.11	8.12	14.23	14.77
5200	40	6.51	8.12	14.63	14.77
5240	48	6.23	8.12	14.35	14.77

802.11n(40MHz) Mode		Conducted Output Power [dBm]	Peak Ant Gain (dBi)	E.I.R.P [dBm]	Limit (dBm)
Frequency [MHz]	Channel No.				
5190	38	6.08	8.12	14.2	14.77
5230	46	6.24	8.12	14.36	14.77

802.11ac(20MHz) Mode		Conducted Output Power [dBm]	Peak Ant Gain (dBi)	E.I.R.P [dBm]	Limit (dBm)
Frequency [MHz]	Channel No.				
5180	36	6.16	8.12	14.28	14.77
5200	40	6.10	8.12	14.22	14.77
5240	48	6.61	8.12	14.73	14.77

802.11ac(40MHz) Mode		Conducted Output Power [dBm]	Peak Ant Gain (dBi)	E.I.R.P [dBm]	Limit (dBm)
Frequency [MHz]	Channel No.				
5190	38	5.32	8.12	13.44	14.77
5230	46	5.76	8.12	13.88	14.77

802.11ac(80MHz) Mode		Conducted Output Power [dBm]	Peak Ant Gain (dBi)	E.I.R.P [dBm]	Limit (dBm)
Frequency [MHz]	Channel No.				
5210	42	6.62	8.12	14.74	14.77

10.5 POWER SPECTRAL DENSITY

[ANT1]

802.11a Mode		Measured PSD [dBm]	Duty Cycle Factor (dB)	Total PSD [dBm]	Limit (dBm)
Frequency [MHz]	Channel No.				
5180	36	-4.493	0.435	-4.058	8.88
5200	40	-4.722	0.435	-4.287	8.88
5240	48	-3.826	0.435	-3.391	8.88
5745	149	4.133	0.435	4.568	28.6
5785	157	3.771	0.435	4.206	28.6
5825	165	3.727	0.435	4.162	28.6

802.11n(20MHz) Mode		Measured PSD [dBm]	Duty Cycle Factor (dB)	Total PSD [dBm]	Limit (dBm)
Frequency [MHz]	Channel No.				
5180	36	-4.933	0.843	-4.090	8.88
5200	40	-5.060	0.843	-4.217	8.88
5240	48	-7.427	0.843	-6.584	8.88
5745	149	4.178	0.843	5.021	28.6
5785	157	1.246	0.843	2.089	28.6
5825	165	3.525	0.843	4.368	28.6

802.11n(40MHz) Mode		Measured PSD [dBm]	Duty Cycle Factor (dB)	Total PSD [dBm]	Limit (dBm)
Frequency [MHz]	Channel No.				
5190	38	-9.473	2.322	-7.151	8.88
5230	46	-8.145	2.322	-5.823	8.88
5755	151	0.264	2.322	2.586	28.6
5795	159	0.591	2.322	2.913	28.6

802.11ac(20MHz) Mode		Measured PSD [dBm]	Duty Cycle Factor (dB)	Total PSD [dBm]	Limit (dBm)
Frequency [MHz]	Channel No.				
5180	36	-5.118	0.593	-4.525	8.88
5200	40	-5.225	0.593	-4.632	8.88
5240	48	-4.626	0.593	-4.033	8.88
5745	149	4.155	0.593	4.748	28.6
5785	157	3.507	0.593	4.100	28.6
5825	165	3.508	0.593	4.101	28.6

802.11ac(40MHz) Mode		Measured PSD [dBm]	Duty Cycle Factor (dB)	Total PSD [dBm]	Limit (dBm)
Frequency [MHz]	Channel No.				
5190	38	-8.951	3.370	-5.581	8.88
5230	46	-9.741	3.370	-6.371	8.88
5755	151	0.007	3.370	3.377	28.6
5795	159	-0.761	3.370	2.609	28.6

802.11ac(80MHz) Mode		Measured PSD [dBm]	Duty Cycle Factor (dB)	Total PSD [dBm]	Limit (dBm)
Frequency [MHz]	Channel No.				
5210	42	-14.212	3.972	-10.240	8.88
5775	155	-5.050	3.972	-1.078	28.6

[ANT2]

802.11a Mode		Measured PSD [dBm]	Duty Cycle Factor (dB)	Total PSD [dBm]	Limit (dBm)
Frequency [MHz]	Channel No.				
5180	36	-3.106	0.566	-2.540	10.33
5200	40	-2.849	0.566	-2.283	10.33
5240	48	-2.705	0.566	-2.139	10.33
5745	149	4.465	0.566	5.031	28.13
5785	157	3.961	0.566	4.527	28.13
5825	165	4.708	0.566	5.274	28.13

802.11n(20MHz) Mode		Measured PSD [dBm]	Duty Cycle Factor (dB)	Total PSD [dBm]	Limit (dBm)
Frequency [MHz]	Channel No.				
5180	36	-3.379	0.843	-2.536	10.33
5200	40	-3.226	0.843	-2.383	10.33
5240	48	-2.757	0.843	-1.914	10.33
5745	149	4.294	0.843	5.137	28.13
5785	157	3.738	0.843	4.581	28.13
5825	165	3.649	0.843	4.492	28.13

802.11n(40MHz) Mode		Measured PSD [dBm]	Duty Cycle Factor (dB)	Total PSD [dBm]	Limit (dBm)
Frequency [MHz]	Channel No.				
5190	38	-7.766	2.322	-5.444	10.33
5230	46	-8.043	2.322	-5.721	10.33
5755	151	0.011	2.322	2.333	28.13
5795	159	-0.543	2.322	1.779	28.13

802.11ac(20MHz) Mode		Measured PSD [dBm]	Duty Cycle Factor (dB)	Total PSD [dBm]	Limit (dBm)
Frequency [MHz]	Channel No.				
5180	36	-3.267	0.593	-2.674	10.33
5200	40	-3.439	0.593	-2.846	10.33
5240	48	-2.754	0.593	-2.161	10.33
5745	149	2.035	0.593	2.628	28.13
5785	157	1.911	0.593	2.504	28.13
5825	165	2.188	0.593	2.781	28.13

802.11ac(40MHz) Mode		Measured PSD [dBm]	Duty Cycle Factor (dB)	Total PSD [dBm]	Limit (dBm)
Frequency [MHz]	Channel No.				
5190	38	-8.789	3.370	-5.419	10.33
5230	46	-8.653	3.370	-5.283	10.33
5755	151	0.090	3.370	3.460	28.13
5795	159	0.083	3.370	3.453	28.13

802.11ac(80MHz) Mode		Measured PSD [dBm]	Duty Cycle Factor (dB)	Total PSD [dBm]	Limit (dBm)
Frequency [MHz]	Channel No.				
5210	42	-10.769	3.972	-6.797	10.33
5775	155	-4.001	3.972	-0.029	28.13

[MIMO]

802.11n(HT20)		Duty Cycle Factor (dB)	Total PSD [dBm]			Limit (dBm)
Frequency [MHz]	Channel No.		SISO (Ant 1)	SISO (Ant 2)	MIMO (Ant 1+2)	
5180	36	0.840	-9.483	-8.857	-5.308	8.88
5200	40	0.840	-9.252	-7.120	-4.206	8.88
5240	48	0.840	-7.335	-6.808	-3.213	8.88
5745	149	0.840	4.178	2.989	7.474	28.13
5785	157	0.840	1.246	2.888	5.994	28.13
5825	165	0.840	3.525	3.088	7.162	28.13

802.11n(HT40)		Duty Cycle Factor (dB)	Total PSD [dBm]			Limit (dBm)
Frequency [MHz]	Channel No.		SISO (Ant 1)	SISO (Ant 2)	MIMO (Ant 1+2)	
5190	38	2.320	-12.896	-12.108	-7.154	11.00
5230	46	2.320	-13.029	-11.237	-6.711	11.00
5755	151	2.320	0.264	0.011	5.470	30.00
5795	159	2.320	0.591	-0.543	5.391	30.00

802.11ac(VHT20)		Duty Cycle Factor (dB)	Total PSD [dBm]			Limit (dBm)
Frequency [MHz]	Channel No.		SISO (Ant 1)	SISO (Ant 2)	MIMO (Ant 1+2)	
5180	36	0.310	-7.524	-6.781	-3.816	8.88
5200	40	0.310	-7.248	-6.642	-3.614	8.88
5240	48	0.310	-7.338	-6.695	-3.684	8.88
5745	149	0.310	4.155	3.264	7.053	28.13
5785	157	0.310	3.507	2.663	6.426	28.13
5825	165	0.310	3.508	2.936	6.552	28.13

802.11ac(VHT40)		Duty Cycle Factor (dB)	Total PSD [dBm]			Limit (dBm)
Frequency [MHz]	Channel No.		SISO (Ant 1)	SISO (Ant 2)	MIMO (Ant 1+2)	
5190	38	3.370	-12.508	-9.394	-4.297	8.88
5230	46	3.370	-12.520	-9.336	-4.262	8.88
5755	151	3.370	0.007	0.090	6.429	28.13
5795	159	3.370	-0.761	0.083	6.062	28.13

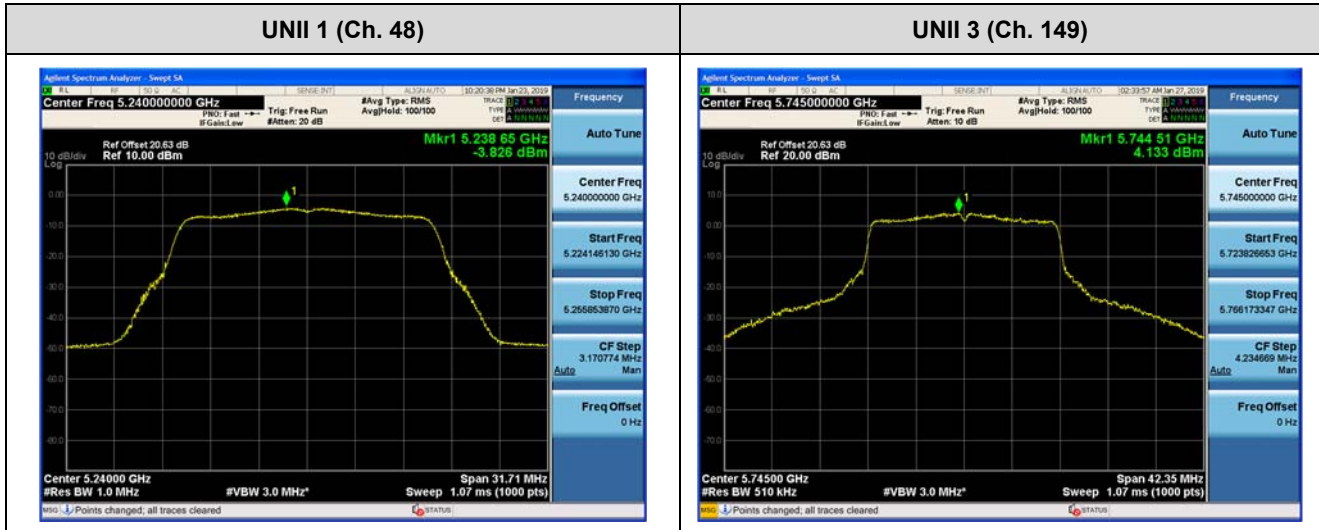
802.11ac(VHT80)		Duty Cycle Factor (dB)	Total PSD [dBm]			Limit (dBm)
Frequency [MHz]	Channel No.		SISO (Ant 1)	SISO (Ant 2)	MIMO (Ant 1+2)	
5210	42	3.970	-17.089	-15.654	-9.332	8.88
5775	155	3.970	-5.050	-4.001	2.486	28.13

[Ant1]

■ Test Plots(802.11a)

Note:

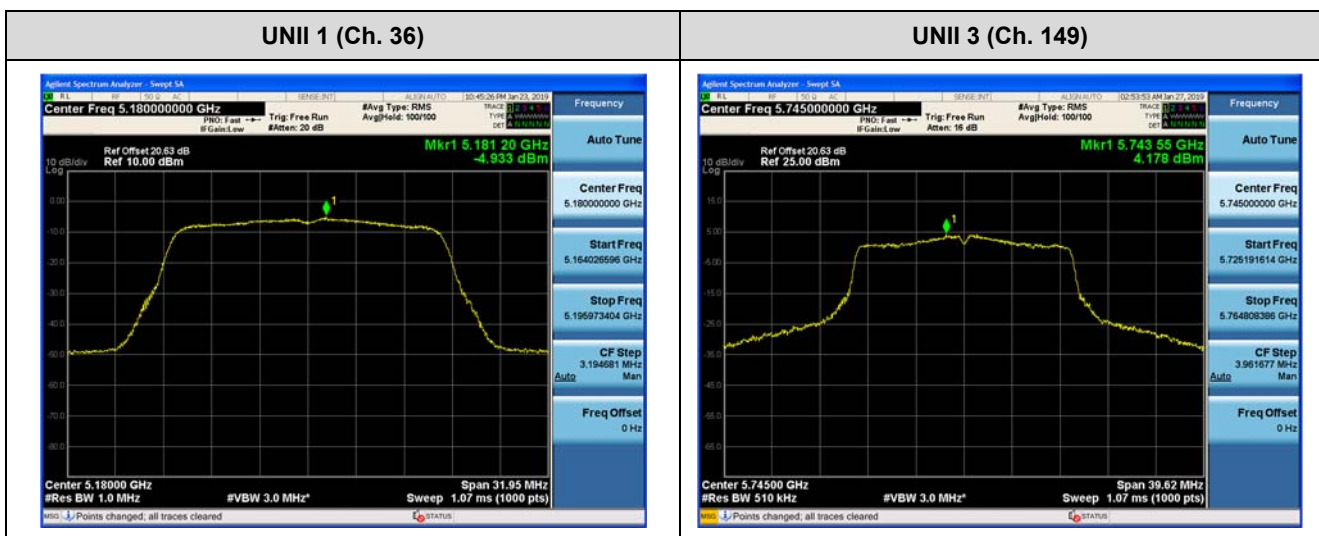
In order to simplify the report, attached plots were only channel of highest power.



■ Test Plots(802.11n(HT20))

Note:

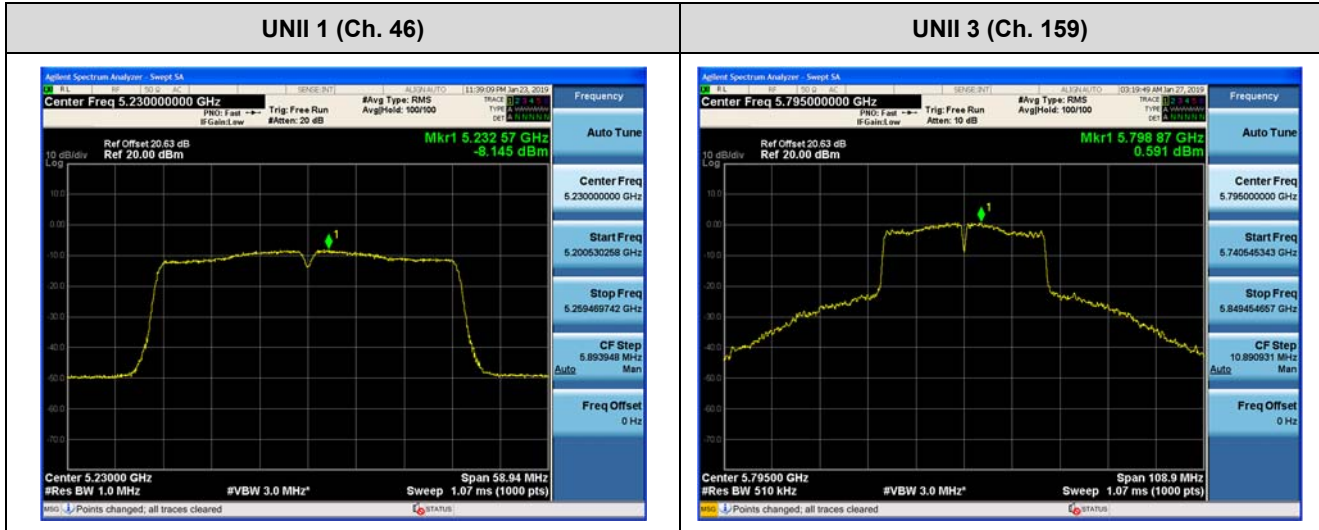
In order to simplify the report, attached plots were only channel of highest power.



■ Test Plots(802.11n(HT40))

Note:

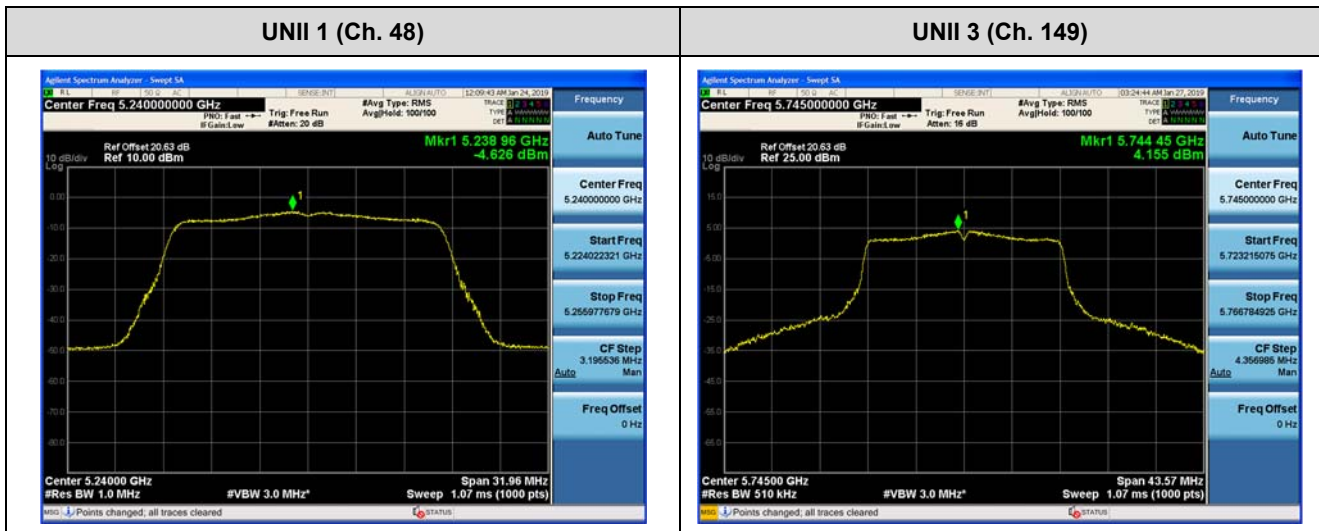
In order to simplify the report, attached plots were only channel of highest power.



■ Test Plots(802.11ac(VHT20))

Note:

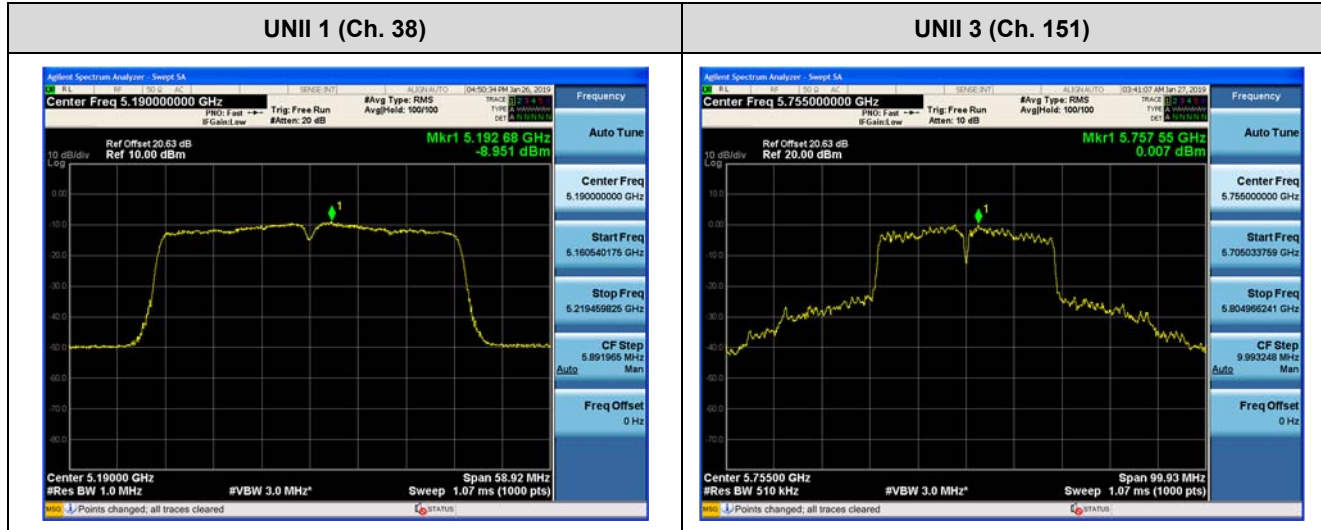
In order to simplify the report, attached plots were only channel of highest power.



■ 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.

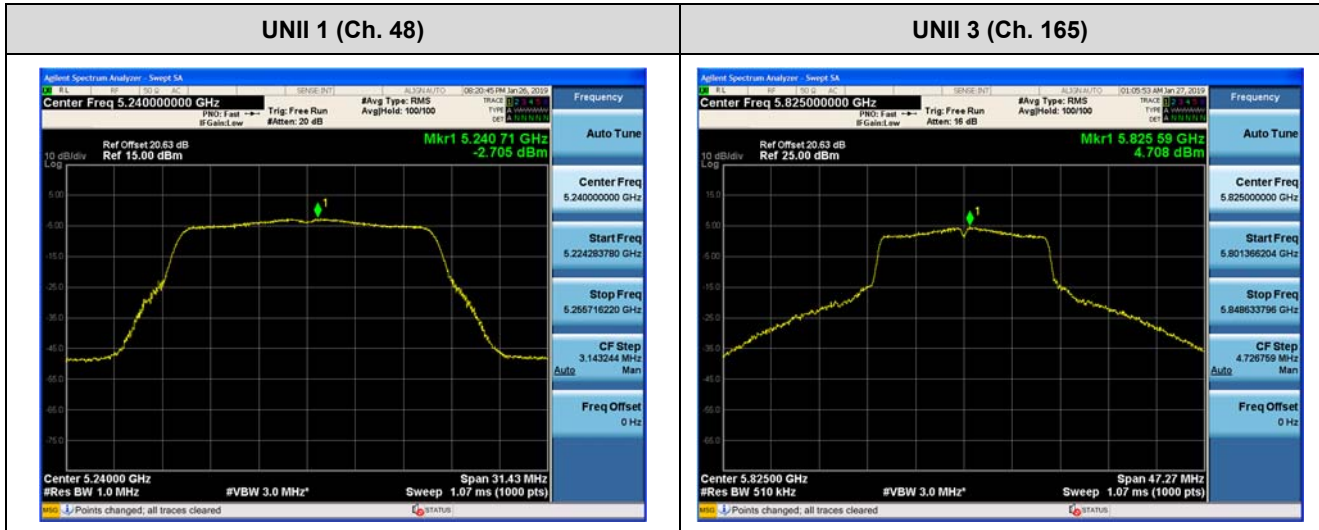


[Ant2]

■ Test Plots(802.11a)

Note:

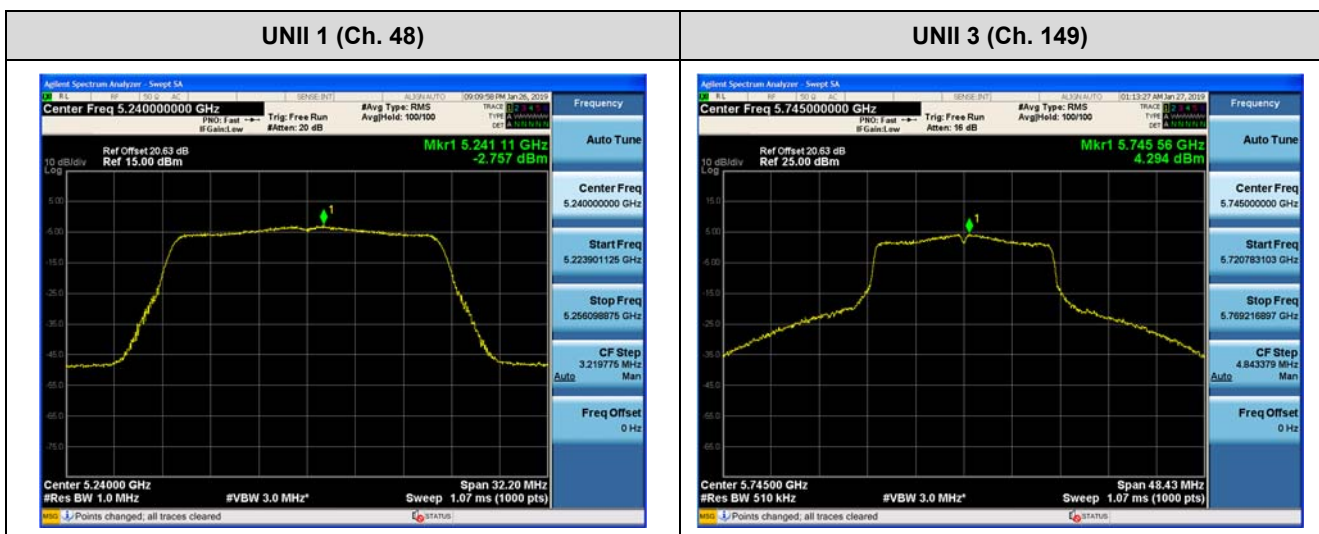
In order to simplify the report, attached plots were only channel of highest power.



■ Test Plots(802.11n(HT20))

Note:

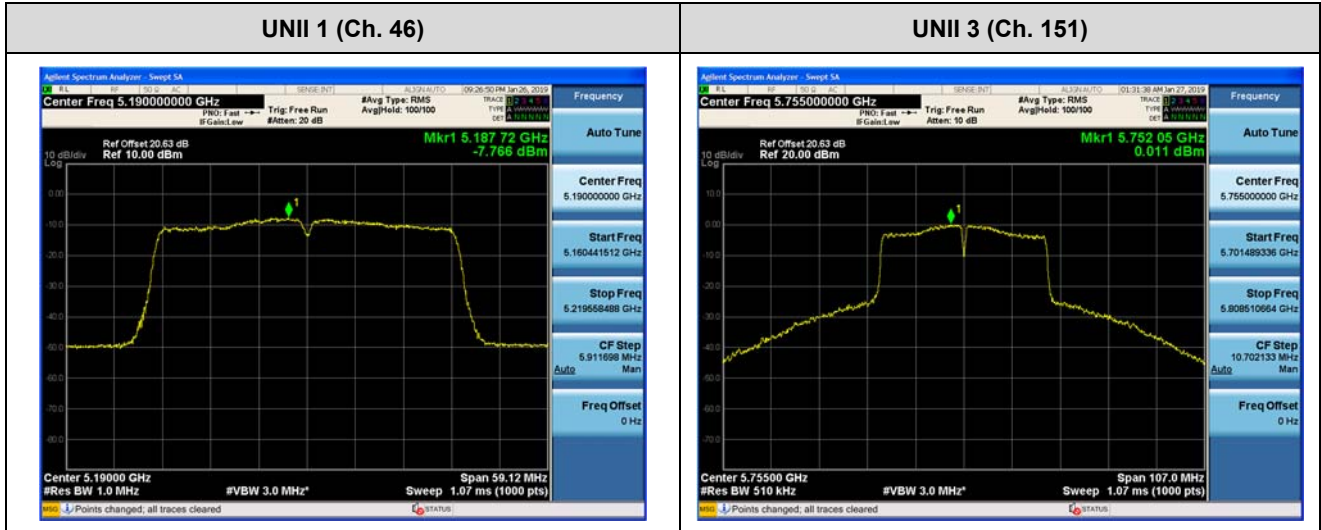
In order to simplify the report, attached plots were only channel of highest power.



■ Test Plots(802.11n(HT40))

Note:

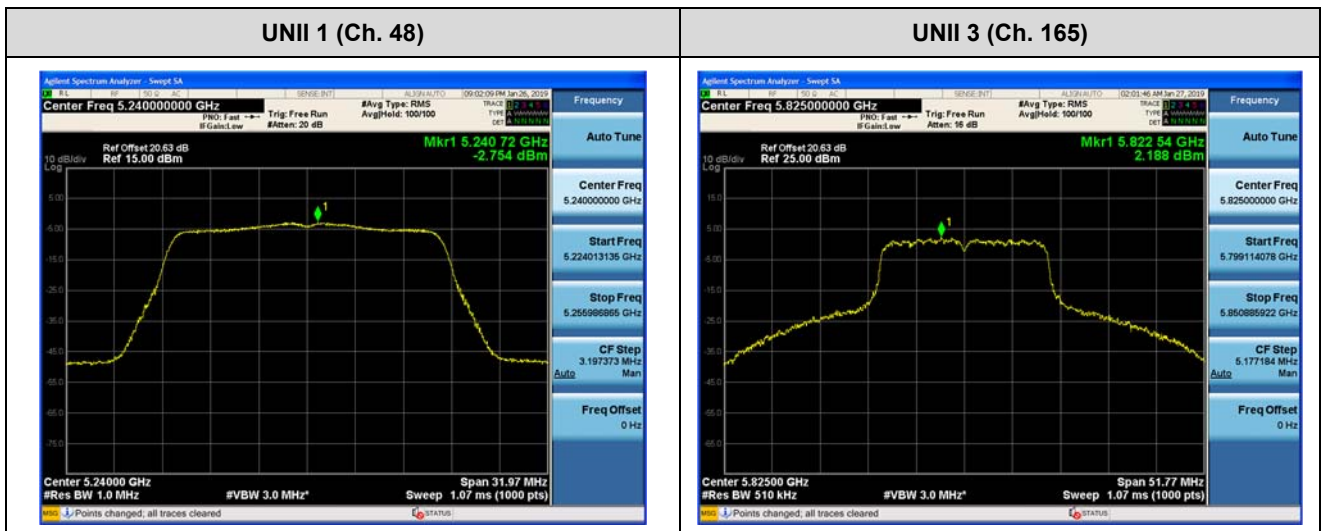
In order to simplify the report, attached plots were only channel of highest power.



■ Test Plots(802.11ac(VHT20))

Note:

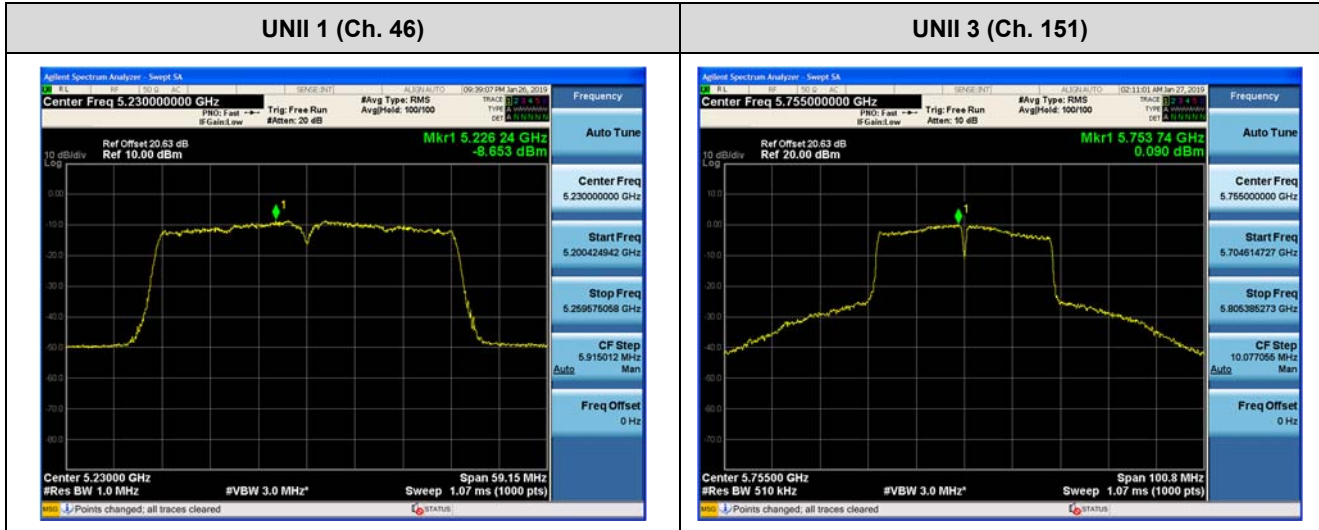
In order to simplify the report, attached plots were only channel of highest power.



■ Test Plots(802.11ac(VHT40))

Note:

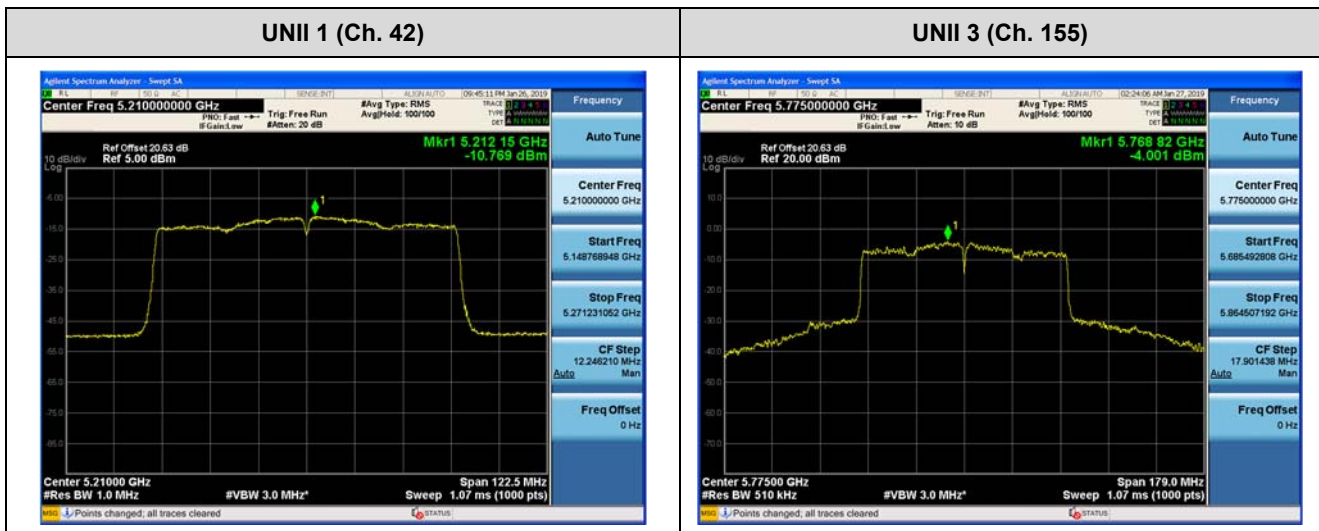
In order to simplify the report, attached plots were only channel of highest power.



■ 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 20MHz BW

[Ant1]

Startup after the EUT is energized

OPERATING BAND:	UNII Band 1
OPERATING FREQUENCY:	5,180,000,000 Hz
CHANNEL:	36
REFERENCE VOLTAGE:	12.0 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5180070.29	70.29
100%		-30	5180074.04	74.04
100%		-20	5180009.88	9.88
100%		-10	5180059.43	59.43
100%		0	5180067.67	67.67
100%		10	5180068.85	68.85
100%		30	5180094.10	94.10
100%		40	5180017.80	17.80
100%		50	5180027.74	27.74
Max.	16.0	20	5180032.82	32.82
Min.	9.0	20	5180059.81	59.81

Note:

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

OPERATING BAND: UNII Band 3
 OPERATING FREQUENCY: 5,745,000,000 Hz
 CHANNEL: 149
 REFERENCE VOLTAGE: 12.0 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5745059.99	59.99
100%		-30	5745006.51	6.51
100%		-20	5745030.05	30.05
100%		-10	5745064.19	64.19
100%		0	5745002.24	2.24
100%		10	5745025.96	25.96
100%		30	5745068.94	68.94
100%		40	5745070.67	70.67
100%		50	5745066.94	66.94
Max.	16.0	20	5745050.24	50.24
Min.	9.0	20	5745064.54	64.54

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: 5,180,000,000 Hz
CHANNEL: 36
REFERENCE VOLTAGE: 12.0 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5180048.03	48.03
100%		-30	5180083.36	83.36
100%		-20	5180046.13	46.13
100%		-10	5180067.98	67.98
100%		0	5180037.55	37.55
100%		10	5180024.20	24.20
100%		30	5180098.83	98.83
100%		40	5180075.85	75.85
100%		50	5180063.93	63.93
Max.	16.0	20	5180095.98	95.98
Min.	9.0	20	5180003.87	3.87

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: 5,745,000,000 Hz
CHANNEL: 149
REFERENCE VOLTAGE: 12.0 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5745092.74	92.74
100%		-30	5745037.94	37.94
100%		-20	5745017.98	17.98
100%		-10	5745031.62	31.62
100%		0	5745060.12	60.12
100%		10	5745040.74	40.74
100%		30	5745035.40	35.40
100%		40	5745040.15	40.15
100%		50	5745094.14	94.14
Max.	16.0	20	5745007.03	7.03
Min.	9.0	20	5745024.78	24.78

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.

5 minutes after the EUT is energized

OPERATING BAND: UNII Band 1
 OPERATING FREQUENCY: 5,180,000,000 Hz
 CHANNEL: 36
 REFERENCE VOLTAGE: 12.0 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5180077.59	77.59
100%		-30	5180067.16	67.16
100%		-20	5180045.90	45.90
100%		-10	5180077.88	77.88
100%		0	5180059.34	59.34
100%		10	5180088.21	88.21
100%		30	5180067.95	67.95
100%		40	5180070.44	70.44
100%		50	5180056.91	56.91
Max.	16.0	20	5180068.82	68.82
Min.	9.0	20	5180039.99	39.99

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: 5,745,000,000 Hz
CHANNEL: 149
REFERENCE VOLTAGE: 12.0 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5745036.59	36.59
100%		-30	5745006.10	6.10
100%		-20	5745014.45	14.45
100%		-10	5745018.60	18.60
100%		0	5745035.82	35.82
100%		10	5745074.42	74.42
100%		30	5745068.72	68.72
100%		40	5745048.86	48.86
100%		50	5745091.50	91.50
Max.	16.0	20	5745024.10	24.10
Min.	9.0	20	5745081.52	81.52

Note:

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

10 minutes after the EUT is energized

OPERATING BAND: UNII Band 1
 OPERATING FREQUENCY: 5,180,000,000 Hz
 CHANNEL: 36
 REFERENCE VOLTAGE: 12.0 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5180099.85	99.85
100%		-30	5180064.70	64.70
100%		-20	5180041.63	41.63
100%		-10	5180076.41	76.41
100%		0	5180029.67	29.67
100%		10	5180045.79	45.79
100%		30	5180014.08	14.08
100%		40	5180065.41	65.41
100%		50	5180028.03	28.03
Max.	16.0	20	5180008.17	8.17
Min.	9.0	20	5180009.80	9.80

Note:

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

OPERATING BAND: UNII Band 3
OPERATING FREQUENCY: 5,745,000,000 Hz
CHANNEL: 149
REFERENCE VOLTAGE: 12.0 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5745068.07	68.07
100%		-30	5745061.69	61.69
100%		-20	5745048.14	48.14
100%		-10	5745098.94	98.94
100%		0	5745090.09	90.09
100%		10	5745068.21	68.21
100%		30	5745035.60	35.60
100%		40	5745043.85	43.85
100%		50	5745049.46	49.46
Max.	16.0	20	5745014.14	14.14
Min.	9.0	20	5745058.14	58.14

Note:

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

[Ant2]

Startup after the EUT is energized

OPERATING BAND: UNII Band 1
OPERATING FREQUENCY: 5,180,000,000 Hz
CHANNEL: 36
REFERENCE VOLTAGE: 12.0 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5180083.19	83.19
100%		-30	5180053.19	53.19
100%		-20	5180014.23	14.23
100%		-10	5180019.44	19.44
100%		0	5180028.46	28.46
100%		10	5180011.12	11.12
100%		30	5180048.22	48.22
100%		40	5180045.89	45.89
100%		50	5180099.62	99.62
Max.	16.0	20	5180075.23	75.23
Min.	9.0	20	5180019.49	19.49

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:	5,745,000,000 Hz
CHANNEL:	149
REFERENCE VOLTAGE:	12.0 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5745042.82	42.82
100%		-30	5745050.39	50.39
100%		-20	5745018.22	18.22
100%		-10	5745029.11	29.11
100%		0	5745066.68	66.68
100%		10	5745058.68	58.68
100%		30	5745069.02	69.02
100%		40	5745074.37	74.37
100%		50	5745023.70	23.70
Max.	16.0	20	5745037.18	37.18
Min.	9.0	20	5745046.89	46.89

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: 5,180,000,000 Hz
 CHANNEL: 36
 REFERENCE VOLTAGE: 12.0 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5180086.55	86.55
100%		-30	5180034.05	34.05
100%		-20	5180043.12	43.12
100%		-10	5180014.05	14.05
100%		0	5180057.03	57.03
100%		10	5180029.83	29.83
100%		30	5180086.73	86.73
100%		40	5180062.76	62.76
100%		50	5180068.10	68.10
Max.	16.0	20	5180013.65	13.65
Min.	9.0	20	5180081.39	81.39

Note:

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

OPERATING BAND:	UNII Band 3
OPERATING FREQUENCY:	5,745,000,000 Hz
CHANNEL:	149
REFERENCE VOLTAGE:	12.0 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5745069.81	69.81
100%		-30	5745060.16	60.16
100%		-20	5745082.89	82.89
100%		-10	5745092.99	92.99
100%		0	5745033.58	33.58
100%		10	5745067.48	67.48
100%		30	5745091.39	91.39
100%		40	5745017.24	17.24
100%		50	5745007.64	7.64
Max.	16.0	20	5745032.94	32.94
Min.	9.0	20	5745041.22	41.22

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: 5,180,000,000 Hz
CHANNEL: 36
REFERENCE VOLTAGE: 12.0 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5180061.67	61.67
100%		-30	5180067.23	67.23
100%		-20	5180041.02	41.02
100%		-10	5180021.62	21.62
100%		0	5180098.11	98.11
100%		10	5180045.66	45.66
100%		30	5180082.71	82.71
100%		40	5180096.28	96.28
100%		50	5180055.76	55.76
Max.	16.0	20	5180030.70	30.70
Min.	9.0	20	5180080.70	80.70

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: 5,745,000,000 Hz
CHANNEL: 149
REFERENCE VOLTAGE: 12.0 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5745036.66	36.66
100%		-30	5745024.66	24.66
100%		-20	5745018.53	18.53
100%		-10	5745020.76	20.76
100%		0	5745069.20	69.20
100%		10	5745035.78	35.78
100%		30	5745098.47	98.47
100%		40	5745062.82	62.82
100%		50	5745087.62	87.62
Max.	9.0	20	5745063.70	63.70
Min.	16.0	20	5745046.29	46.29

Note:

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

10 minutes after the EUT is energized

OPERATING BAND: UNII Band 1
 OPERATING FREQUENCY: 5,180,000,000 Hz
 CHANNEL: 36
 REFERENCE VOLTAGE: 12.0 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5180025.29	25.29
100%		-30	5180092.62	92.62
100%		-20	5180096.07	96.07
100%		-10	5180063.71	63.71
100%		0	5180070.46	70.46
100%		10	5180050.37	50.37
100%		30	5180015.27	15.27
100%		40	5180031.21	31.21
100%		50	5180047.11	47.11
Max.	16.0	20	5180043.41	43.41
Min.	9.0	20	5180020.79	20.79

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: 5,745,000,000 Hz
CHANNEL: 149
REFERENCE VOLTAGE: 12.0 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5745019.60	19.60
100%		-30	5745024.26	24.26
100%		-20	5745022.08	22.08
100%		-10	5745011.17	11.17
100%		0	5745095.53	95.53
100%		10	5745039.25	39.25
100%		30	5745008.44	8.44
100%		40	5745022.64	22.64
100%		50	5745019.27	19.27
Max.	16.0	20	5745020.48	20.48
Min.	9.0	20	5745050.63	50.63

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.

10.6.2 40MHz BW

[Ant1]

Startup after the EUT is energized

OPERATING BAND:	UNII Band 1
OPERATING FREQUENCY:	5,190,000,000 Hz
CHANNEL:	38
REFERENCE VOLTAGE:	12.0 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5190085.74	85.74
100%		-30	5190035.18	35.18
100%		-20	5190049.87	49.87
100%		-10	5190088.80	88.80
100%		0	5190086.08	86.08
100%		10	5190049.80	49.80
100%		30	5190019.15	19.15
100%		40	5190079.24	79.24
100%		50	5190085.25	85.25
Max.	16.0	20	5190063.07	63.07
Min.	9.0	20	5190047.38	47.38

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:	5,755,000,000 Hz
CHANNEL:	151
REFERENCE VOLTAGE:	12.0 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5755054.38	54.38
100%		-30	5755087.53	87.53
100%		-20	5755061.17	61.17
100%		-10	5755055.45	55.45
100%		0	5755060.95	60.95
100%		10	5755009.35	9.35
100%		30	5755083.63	83.63
100%		40	5755070.23	70.23
100%		50	5755054.58	54.58
Max.	16.0	20	5755019.14	19.14
Min.	9.0	20	5755076.15	76.15

Note:

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

2 minutes after the EUT is energized

OPERATING BAND: UNII Band 1
 OPERATING FREQUENCY: 5,190,000,000 Hz
 CHANNEL: 38
 REFERENCE VOLTAGE: 12.0 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5190025.31	25.31
100%		-30	5190008.09	8.09
100%		-20	5190084.35	84.35
100%		-10	5190013.20	13.20
100%		0	5190092.26	92.26
100%		10	5190063.97	63.97
100%		30	5190089.19	89.19
100%		40	5190052.98	52.98
100%		50	5190090.26	90.26
Max.	16.0	20	5190004.43	4.43
Min.	9.0	20	5190074.87	74.87

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: 5,755,000,000 Hz
CHANNEL: 151
REFERENCE VOLTAGE: 12.0 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5755030.14	30.14
100%		-30	5755099.14	99.14
100%		-20	5755059.61	59.61
100%		-10	5755080.27	80.27
100%		0	5755073.89	73.89
100%		10	5755019.03	19.03
100%		30	5755044.73	44.73
100%		40	5755010.66	10.66
100%		50	5755087.95	87.95
Max.	16.0	20	5755076.30	76.30
Min.	9.0	20	5755001.14	1.14

Note:

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

5 minutes after the EUT is energized

OPERATING BAND: UNII Band 1
OPERATING FREQUENCY: 5,190,000,000 Hz
CHANNEL: 38
REFERENCE VOLTAGE: 12.0 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5190095.43	95.43
100%		-30	5190028.19	28.19
100%		-20	5190089.21	89.21
100%		-10	5190093.20	93.20
100%		0	5190043.51	43.51
100%		10	5190090.40	90.40
100%		30	5190049.52	49.52
100%		40	5190089.31	89.31
100%		50	5190029.67	29.67
Max.	16.0	20	5190012.75	12.75
Min.	9.0	20	5190005.65	5.65

Note:

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

OPERATING BAND: UNII Band 3
OPERATING FREQUENCY: 5,755,000,000 Hz
CHANNEL: 151
REFERENCE VOLTAGE: 12.0 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5755046.87	46.87
100%		-30	5755023.27	23.27
100%		-20	5755057.39	57.39
100%		-10	5755084.93	84.93
100%		0	5755004.20	4.20
100%		10	5755097.55	97.55
100%		30	5755065.20	65.20
100%		40	5755056.70	56.70
100%		50	5755094.36	94.36
Max.	16.0	20	5755079.82	79.82
Min.	9.0	20	5755074.77	74.77

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.

10 minutes after the EUT is energized

OPERATING BAND: UNII Band 1
OPERATING FREQUENCY: 5,190,000,000 Hz
CHANNEL: 38
REFERENCE VOLTAGE: 12.0 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5190028.24	28.24
100%		-30	5190080.28	80.28
100%		-20	5190009.49	9.49
100%		-10	5190052.37	52.37
100%		0	5190079.86	79.86
100%		10	5190096.73	96.73
100%		30	5190070.46	70.46
100%		40	5190042.32	42.32
100%		50	5190021.21	21.21
Max.	16.0	20	5190057.17	57.17
Min.	9.0	20	5190031.92	31.92

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 3
OPERATING FREQUENCY: 5,755,000,000 Hz
CHANNEL: 151
REFERENCE VOLTAGE: 12.0 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5755017.25	17.25
100%		-30	5755048.14	48.14
100%		-20	5755068.92	68.92
100%		-10	5755090.07	90.07
100%		0	5755096.05	96.05
100%		10	5755014.41	14.41
100%		30	5755032.59	32.59
100%		40	5755040.24	40.24
100%		50	5755002.26	2.26
Max.	16.0	20	5755052.21	52.21
Min.	9.0	20	5755038.52	38.52

Note:

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

[Ant2]

Startup after the EUT is energized

OPERATING BAND: UNII Band 1
 OPERATING FREQUENCY: 5,190,000,000 Hz
 CHANNEL: 38
 REFERENCE VOLTAGE: 12.0 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5190019.96	19.96
100%		-30	5190071.15	71.15
100%		-20	5190065.29	65.29
100%		-10	5190016.47	16.47
100%		0	5190024.47	24.47
100%		10	5190045.83	45.83
100%		30	5190022.25	22.25
100%		40	5190027.75	27.75
100%		50	5190085.44	85.44
Max.	16.0	20	5190011.49	11.49
Min.	9.0	20	5190037.43	37.43

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: 5,755,000,000 Hz
CHANNEL: 151
REFERENCE VOLTAGE: 12.0 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5755079.99	79.99
100%		-30	5755052.38	52.38
100%		-20	5755081.33	81.33
100%		-10	5755096.53	96.53
100%		0	5755008.94	8.94
100%		10	5755020.34	20.34
100%		30	5755052.33	52.33
100%		40	5755004.64	4.64
100%		50	5755032.32	32.32
Max.	16.0	20	5755095.20	95.20
Min.	9.0	20	5755061.20	61.20

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: 5,190,000,000 Hz
 CHANNEL: 38
 REFERENCE VOLTAGE: 12.0 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5190061.22	61.22
100%		-30	5190039.43	39.43
100%		-20	5190062.19	62.19
100%		-10	5190062.17	62.17
100%		0	5190097.22	97.22
100%		10	5190065.88	65.88
100%		30	5190064.08	64.08
100%		40	5190060.92	60.92
100%		50	5190011.47	11.47
Max.	16.0	20	5190009.97	9.97
Min.	9.0	20	5190001.06	1.06

Note:

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

OPERATING BAND: UNII Band 3
OPERATING FREQUENCY: 5,755,000,000 Hz
CHANNEL: 151
REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5755038.77	38.77
100%		-30	5755090.87	90.87
100%		-20	5755007.88	7.88
100%		-10	5755091.11	91.11
100%		0	5755054.30	54.30
100%		10	5755056.88	56.88
100%		30	5755006.43	6.43
100%		40	5755043.32	43.32
100%		50	5755088.65	88.65
Max.	16.0	20	5755030.99	30.99
Min.	9.0	20	5755049.38	49.38

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: 5,190,000,000 Hz
 CHANNEL: 38
 REFERENCE VOLTAGE: 12.0 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5190035.76	35.76
100%		-30	5190095.25	95.25
100%		-20	5190095.26	95.26
100%		-10	5190045.75	45.75
100%		0	5190022.17	22.17
100%		10	5190079.07	79.07
100%		30	5190067.89	67.89
100%		40	5190062.88	62.88
100%		50	5190031.07	31.07
Max.	16.0	20	5190099.22	99.22
Min.	9.0	20	5190073.84	73.84

Note:

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

OPERATING BAND: UNII Band 3
OPERATING FREQUENCY: 5,755,000,000 Hz
CHANNEL: 151
REFERENCE VOLTAGE: 12.0 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5755096.31	96.31
100%		-30	5755071.49	71.49
100%		-20	5755001.81	1.81
100%		-10	5755002.56	2.56
100%		0	5755009.77	9.77
100%		10	5755019.93	19.93
100%		30	5755024.77	24.77
100%		40	5755017.09	17.09
100%		50	5755078.76	78.76
Max.	16.0	20	5755021.61	21.61
Min.	9.0	20	5755042.17	42.17

Note:

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

10 minutes after the EUT is energized

OPERATING BAND: UNII Band 1
OPERATING FREQUENCY: 5,190,000,000 Hz
CHANNEL: 38
REFERENCE VOLTAGE: 12.0 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5190017.55	17.55
100%		-30	5190081.64	81.64
100%		-20	5190083.02	83.02
100%		-10	5190026.90	26.90
100%		0	5190012.22	12.22
100%		10	5190078.08	78.08
100%		30	5190045.91	45.91
100%		40	5190083.13	83.13
100%		50	5190051.36	51.36
Max.	16.0	20	5190015.39	15.39
Min.	9.0	20	5190041.46	41.46

Note:

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

OPERATING BAND: UNII Band 3
OPERATING FREQUENCY: 5,755,000,000 Hz
CHANNEL: 151
REFERENCE VOLTAGE: 12.0 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5755082.70	82.70
100%		-30	5755058.25	58.25
100%		-20	5755062.20	62.20
100%		-10	5755070.85	70.85
100%		0	5755005.97	5.97
100%		10	5755022.13	22.13
100%		30	5755053.26	53.26
100%		40	5755079.25	79.25
100%		50	5755078.68	78.68
Max.	16.0	20	5755072.40	72.40
Min.	9.0	20	5755093.62	93.62

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.

10.6.3 80MHz BW

[Ant1]

Startup after the EUT is energized

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

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5210085.58	85.58
100%		-30	5210002.30	2.30
100%		-20	5210008.88	8.88
100%		-10	5210001.85	1.85
100%		0	5210060.28	60.28
100%		10	5210010.14	10.14
100%		30	5210032.20	32.20
100%		40	5210012.14	12.14
100%		50	5210005.38	5.38
Max.	16.0	20	5210051.44	51.44
Min.	9.0	20	5210082.59	82.59

Note:

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

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

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5775016.03	16.03
100%		-30	5775049.18	49.18
100%		-20	5775027.27	27.27
100%		-10	5775020.23	20.23
100%		0	5775008.39	8.39
100%		10	5775099.37	99.37
100%		30	5775063.20	63.20
100%		40	5775014.87	14.87
100%		50	5775095.09	95.09
Max.	16.0	20	5775072.60	72.60
Min.	9.0	20	5775083.81	83.81

Note:

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

2 minutes after the EUT is energized

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

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5210073.59	73.59
100%		-30	5210009.41	9.41
100%		-20	5210030.63	30.63
100%		-10	5210071.31	71.31
100%		0	5210013.81	13.81
100%		10	5210003.46	3.46
100%		30	5210057.35	57.35
100%		40	5210013.19	13.19
100%		50	5210088.39	88.39
Max.	16.0	20	5210058.75	58.75
Min.	9.0	20	5210005.38	5.38

Note:

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

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

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5775055.72	55.72
100%		-30	5775084.33	84.33
100%		-20	5775049.44	49.44
100%		-10	5775062.82	62.82
100%		0	5775060.29	60.29
100%		10	5775085.82	85.82
100%		30	5775043.98	43.98
100%		40	5775072.99	72.99
100%		50	5775034.49	34.49
Max.	16.0	20	5775024.19	24.19
Min.	9.0	20	5775011.18	11.18

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.

5 minutes after the EUT is energized

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

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5210008.17	8.17
100%		-30	5210083.22	83.22
100%		-20	5210031.39	31.39
100%		-10	5210064.73	64.73
100%		0	5210041.88	41.88
100%		10	5210059.22	59.22
100%		30	5210069.67	69.67
100%		40	5210047.25	47.25
100%		50	5210021.35	21.35
Max.	16.0	20	5210083.93	83.93
Min.	9.0	20	5210058.21	58.21

Note:

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

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

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5775055.58	55.58
100%		-30	5775097.23	97.23
100%		-20	5775006.16	6.16
100%		-10	5775041.12	41.12
100%		0	5775039.37	39.37
100%		10	5775068.41	68.41
100%		30	5775092.60	92.60
100%		40	5775020.30	20.30
100%		50	5775090.15	90.15
Max.	16.0	20	5775017.34	17.34
Min.	9.0	20	5775044.70	44.70

Note:

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

10 minutes after the EUT is energized

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

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5210086.82	86.82
100%		-30	5210047.91	47.91
100%		-20	5210071.29	71.29
100%		-10	5210018.60	18.60
100%		0	5210082.78	82.78
100%		10	5210013.28	13.28
100%		30	5210039.14	39.14
100%		40	5210031.87	31.87
100%		50	5210045.24	45.24
Max.	16.0	20	5210001.27	1.27
Min.	9.0	20	5210084.57	84.57

Note:

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

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

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5775077.79	77.79
100%		-30	5775001.25	1.25
100%		-20	5775066.41	66.41
100%		-10	5775080.56	80.56
100%		0	5775081.20	81.20
100%		10	5775009.52	9.52
100%		30	5775086.34	86.34
100%		40	5775076.57	76.57
100%		50	5775026.29	26.29
Max.	16.0	20	5775088.18	88.18
Min.	9.0	20	5775033.97	33.97

Note:

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

[Ant2]

Startup after the EUT is energized

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

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5210062.25	62.25
100%		-30	5210002.89	2.89
100%		-20	5210096.10	96.10
100%		-10	5210032.29	32.29
100%		0	5210074.94	74.94
100%		10	5210080.33	80.33
100%		30	5210034.27	34.27
100%		40	5210075.84	75.84
100%		50	5210004.22	4.22
Max.	16.0	20	5210094.23	94.23
Min.	9.0	20	5210078.89	78.89

Note:

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

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

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5775087.41	87.41
100%		-30	5775097.14	97.14
100%		-20	5775050.31	50.31
100%		-10	5775042.69	42.69
100%		0	5775081.75	81.75
100%		10	5775055.85	55.85
100%		30	5775018.37	18.37
100%		40	5775064.64	64.64
100%		50	5775001.71	1.71
Max.	16.0	20	5775084.19	84.19
Min.	9.0	20	5775074.72	74.72

Note:

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

2 minutes after the EUT is energized

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

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5210089.49	89.49
100%		-30	5210063.53	63.53
100%		-20	5210099.07	99.07
100%		-10	5210023.33	23.33
100%		0	5210004.81	4.81
100%		10	5210005.82	5.82
100%		30	5210090.41	90.41
100%		40	5210035.73	35.73
100%		50	5210074.85	74.85
Max.	16.0	20	5210056.56	56.56
Min.	9.0	20	5210027.86	27.86

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

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5775016.25	16.25
100%		-30	5775059.12	59.12
100%		-20	5775031.74	31.74
100%		-10	5775007.25	7.25
100%		0	5775021.78	21.78
100%		10	5775096.15	96.15
100%		30	5775095.55	95.55
100%		40	5775092.05	92.05
100%		50	5775035.69	35.69
Max.	16.0	20	5775013.70	13.70
Min.	9.0	20	5775033.42	33.42

Note:

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

5 minutes after the EUT is energized

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

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5210067.13	67.13
100%		-30	5210015.53	15.53
100%		-20	5210069.12	69.12
100%		-10	5210065.25	65.25
100%		0	5210090.93	90.93
100%		10	5210036.18	36.18
100%		30	5210050.42	50.42
100%		40	5210032.29	32.29
100%		50	5210029.37	29.37
Max.	16.0	20	5210082.06	82.06
Min.	9.0	20	5210060.68	60.68

Note:

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

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

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5775057.97	57.97
100%		-30	5775009.97	9.97
100%		-20	5775018.02	18.02
100%		-10	5775095.65	95.65
100%		0	5775051.35	51.35
100%		10	5775088.98	88.98
100%		30	5775009.53	9.53
100%		40	5775043.61	43.61
100%		50	5775097.30	97.30
Max.	16.0	20	5775060.53	60.53
Min.	9.0	20	5775039.47	39.47

Note:

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

10 minutes after the EUT is energized

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

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5210092.65	92.65
100%		-30	5210072.85	72.85
100%		-20	5210089.75	89.75
100%		-10	5210065.43	65.43
100%		0	5210095.62	95.62
100%		10	5210089.31	89.31
100%		30	5210044.87	44.87
100%		40	5210063.99	63.99
100%		50	5210086.18	86.18
Max.	16.0	20	5210092.57	92.57
Min.	9.0	20	5210089.88	89.88

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: 12.0 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5775091.80	91.80
100%		-30	5775080.07	80.07
100%		-20	5775019.44	19.44
100%		-10	5775080.26	80.26
100%		0	5775032.58	32.58
100%		10	5775092.48	92.48
100%		30	5775079.89	79.89
100%		40	5775023.97	23.97
100%		50	5775044.36	44.36
Max.	16.0	20	5775094.66	94.66
Min.	9.0	20	5775021.38	21.38

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 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 = $40 \cdot \log(\text{specific distance} / \text{test distance})$ (dB)
3. Limit line = specific Limits (dBuV) + Distance extrapolation factor
4. The test results for below 30 MHz is correlated to an open site.
The result on OATS is about 2 dB higher than semi-anechoic chamber(10 m chamber)

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

[ANT1]

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	51.96	4.10	V	56.06	68.20	12.14	PK
15540	48.26	5.36	V	53.62	73.98	20.36	PK
15540	33.86	5.36	V	39.22	53.98	14.76	AV
10360	52.16	4.10	H	56.26	68.20	11.94	PK
15540	48.45	5.36	H	53.81	73.98	20.17	PK
15540	34.01	5.36	H	39.37	53.98	14.61	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	52.16	3.87	V	56.03	68.20	12.17	PK
15600	47.59	4.75	V	52.34	73.98	21.64	PK
15600	33.96	4.75	V	38.71	53.98	15.27	AV
10400	52.24	3.87	H	56.11	68.20	12.09	PK
15600	47.79	4.75	H	52.54	73.98	21.44	PK
15600	34.22	4.75	H	38.97	53.98	15.01	AV

Report No.: HCT-RF-1902-FI010-R1

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	50.69	4.52	V	55.21	68.20	12.99	PK
15720	47.58	3.58	V	51.16	73.98	22.82	PK
15720	34.59	3.58	V	38.17	53.98	15.81	AV
10480	50.83	4.52	H	55.35	68.20	12.85	PK
15720	47.65	3.58	H	51.23	73.98	22.75	PK
15720	34.63	3.58	H	38.21	53.98	15.77	AV

Report No.: HCT-RF-1902-FI010-R1

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	51.69	4.10	V	55.79	68.20	12.41	PK
15540	47.69	5.36	V	53.05	73.98	20.93	PK
15540	33.86	5.36	V	39.22	53.98	14.76	AV
10360	51.80	4.10	H	55.90	68.20	12.30	PK
15540	47.72	5.36	H	53.08	73.98	20.90	PK
15540	33.93	5.36	H	39.29	53.98	14.69	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	51.76	3.87	V	55.63	68.20	12.57	PK
15600	47.51	4.75	V	52.26	73.98	21.72	PK
15600	33.93	4.75	V	38.68	53.98	15.30	AV
10400	51.86	3.87	H	55.73	68.20	12.47	PK
15600	47.56	4.75	H	52.31	73.98	21.67	PK
15600	34.12	4.75	H	38.87	53.98	15.11	AV

Report No.: HCT-RF-1902-FI010-R1

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	50.16	4.52	V	54.68	68.20	13.52	PK
15720	47.05	3.58	V	50.63	73.98	23.35	PK
15720	34.11	3.58	V	37.69	53.98	16.29	AV
10480	50.33	4.52	H	54.85	68.20	13.35	PK
15720	47.16	3.58	H	50.74	73.98	23.24	PK
15720	34.27	3.58	H	37.85	53.98	16.13	AV

Report No.: HCT-RF-1902-FI010-R1

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	51.19	4.10	V	55.29	68.20	12.91	PK
15540	47.56	5.36	V	52.92	73.98	21.06	PK
15540	33.79	5.36	V	39.15	53.98	14.83	AV
10360	51.22	4.10	H	55.32	68.20	12.88	PK
15540	47.64	5.36	H	53.00	73.98	20.98	PK
15540	33.85	5.36	H	39.21	53.98	14.77	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	51.57	3.87	V	55.44	68.20	12.76	PK
15600	47.62	4.75	V	52.37	73.98	21.61	PK
15600	34.28	4.75	V	39.03	53.98	14.95	AV
10400	51.69	3.87	H	55.56	68.20	12.64	PK
15600	47.88	4.75	H	52.63	73.98	21.35	PK
15600	34.36	4.75	H	39.11	53.98	14.87	AV

Report No.: HCT-RF-1902-FI010-R1

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	51.08	4.52	V	55.60	68.20	12.60	PK
15720	47.48	3.58	V	51.06	73.98	22.92	PK
15720	34.51	3.58	V	38.09	53.98	15.89	AV
10480	51.22	4.52	H	55.74	68.20	12.46	PK
15720	47.56	3.58	H	51.14	73.98	22.84	PK
15720	34.62	3.58	H	38.20	53.98	15.78	AV

Report No.: HCT-RF-1902-FI010-R1

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]	A.F.+C.L.-A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10380	51.94	4.09	V	56.03	68.20	12.17	PK
15570	47.95	4.73	V	52.68	73.98	21.30	PK
15570	34.15	4.73	V	38.88	53.98	15.10	AV
10380	52.08	4.09	H	56.17	68.20	12.03	PK
15570	48.02	4.73	H	52.75	73.98	21.23	PK
15570	34.61	4.73	H	39.34	53.98	14.64	AV

Band : UNII 1

Operation Mode: 802.11 n(HT40)

Transfer MCS Index: 0

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	51.60	4.54	V	56.14	68.20	12.06	PK
15690	48.58	3.69	V	52.27	73.98	21.71	PK
15690	34.27	3.69	V	37.96	53.98	16.02	AV
10460	51.57	4.54	H	56.11	68.20	12.09	PK
15690	48.49	3.69	H	52.18	73.98	21.80	PK
15690	34.44	3.69	H	38.13	53.98	15.85	AV

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]	A.F.+C.L.-A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10380	51.88	4.09	V	55.97	68.20	12.23	PK
15570	47.81	4.73	V	52.54	73.98	21.44	PK
15570	34.26	4.73	V	38.99	53.98	14.99	AV
10380	52.10	4.09	H	56.19	68.20	12.01	PK
15570	47.93	4.73	H	52.66	73.98	21.32	PK
15570	34.58	4.73	H	39.31	53.98	14.67	AV

Band : UNII 1

Operation Mode: 802.11 ac(VHT40)

Transfer MCS Index: 0

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	51.18	4.54	V	55.72	68.20	12.48	PK
15690	48.57	3.69	V	52.26	73.98	21.72	PK
15690	34.29	3.69	V	37.98	53.98	16.00	AV
10460	51.27	4.54	H	55.81	68.20	12.39	PK
15690	48.68	3.69	H	52.37	73.98	21.61	PK
15690	34.56	3.69	H	38.25	53.98	15.73	AV

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]	A.F.+C.L.-A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10420	51.13	3.79	V	54.92	68.20	13.28	PK
15630	48.25	4.02	V	52.27	73.98	21.71	PK
15630	34.86	4.02	V	38.88	53.98	15.10	AV
10420	51.28	3.79	H	55.07	68.20	13.13	PK
15630	48.35	4.02	H	52.37	73.98	21.61	PK
15630	35.22	4.02	H	39.24	53.98	14.74	AV

Report No.: HCT-RF-1902-FI010-R1

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	54.87	4.19	V	59.06	73.98	14.92	PK
11490	41.26	4.19	V	45.45	53.98	8.53	AV
17235	54.15	9.09	V	63.24	68.20	4.96	PK
11490	55.18	4.19	H	59.37	73.98	14.61	PK
11490	41.52	4.19	H	45.71	53.98	8.27	AV
17235	54.20	9.09	H	63.29	68.20	4.91	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	58.06	4.83	V	62.89	73.98	11.09	PK
11570	42.05	4.83	V	46.88	53.98	7.10	AV
17355	53.76	9.81	V	63.57	68.20	4.63	PK
11570	58.16	4.83	H	62.99	73.98	10.99	PK
11570	42.15	4.83	H	46.98	53.98	7.00	AV
17355	53.83	9.81	H	63.64	68.20	4.56	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	61.86	3.70	V	65.56	73.98	8.42	PK
11650	45.29	3.70	V	48.99	53.98	4.99	AV
17475	54.11	10.25	V	64.36	68.20	3.84	PK
11650	62.02	3.70	H	65.72	73.98	8.26	PK
11650	45.57	3.70	H	49.27	53.98	4.71	AV
17475	54.27	10.25	H	64.52	68.20	3.68	PK

Report No.: HCT-RF-1902-FI010-R1

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	55.97	4.19	V	60.16	73.98	13.82	PK
11490	40.84	4.19	V	45.03	53.98	8.95	AV
17235	52.69	9.09	V	61.78	68.20	6.42	PK
11490	56.20	4.19	H	60.39	73.98	13.59	PK
11490	40.92	4.19	H	45.11	53.98	8.87	AV
17235	52.94	9.09	H	62.03	68.20	6.17	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	58.44	4.83	V	63.27	73.98	10.71	PK
11570	41.05	4.83	V	45.88	53.98	8.10	AV
17355	53.48	9.81	V	63.29	68.20	4.91	PK
11570	58.74	4.83	H	63.57	73.98	10.41	PK
11570	41.41	4.83	H	46.24	53.98	7.74	AV
17355	53.62	9.81	H	63.43	68.20	4.77	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	62.79	3.70	V	66.49	73.98	7.49	PK
11650	45.05	3.70	V	48.75	53.98	5.23	AV
17475	53.29	10.25	V	63.54	68.20	4.66	PK
11650	63.42	3.70	H	67.12	73.98	6.86	PK
11650	45.23	3.70	H	48.93	53.98	5.05	AV
17475	53.83	10.25	H	64.08	68.20	4.12	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	54.96	4.19	V	59.15	73.98	14.83	PK
11490	40.58	4.19	V	44.77	53.98	9.21	AV
17235	53.75	9.09	V	62.84	68.20	5.36	PK
11490	55.30	4.19	H	59.49	73.98	14.49	PK
11490	40.67	4.19	H	44.86	53.98	9.12	AV
17235	53.97	9.09	H	63.06	68.20	5.14	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	59.05	4.83	V	63.88	73.98	10.10	PK
11570	41.18	4.83	V	46.01	53.98	7.97	AV
17355	53.46	9.81	V	63.27	68.20	4.93	PK
11570	59.14	4.83	H	63.97	73.98	10.01	PK
11570	41.27	4.83	H	46.10	53.98	7.88	AV
17355	53.75	9.81	H	63.56	68.20	4.64	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	62.84	3.70	V	66.54	73.98	7.44	PK
11650	44.84	3.70	V	48.54	53.98	5.44	AV
17475	53.15	10.25	V	63.40	68.20	4.80	PK
11650	63.50	3.70	H	67.20	73.98	6.78	PK
11650	44.90	3.70	H	48.60	53.98	5.38	AV
17475	53.58	10.25	H	63.83	68.20	4.37	PK

Report No.: HCT-RF-1902-FI010-R1

Band : UNII 3

Operation Mode: 802.11 n(HT40)

Transfer MCS Index: 0

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	52.68	4.20	V	56.88	73.98	17.10	PK
11510	39.86	4.20	V	44.06	53.98	9.92	AV
17265	51.97	9.64	V	61.61	68.20	6.59	PK
11510	53.10	4.20	H	57.30	73.98	16.68	PK
11510	40.11	4.20	H	44.31	53.98	9.67	AV
17265	52.20	9.64	H	61.84	68.20	6.36	PK

Band : UNII 3

Operation Mode: 802.11 n(HT40)

Transfer MCS Index: 0

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	55.45	4.91	V	60.36	73.98	13.62	PK
11590	41.46	4.91	V	46.37	53.98	7.61	AV
17385	49.99	10.20	V	60.19	68.20	8.01	PK
11590	55.64	4.91	H	60.55	73.98	13.43	PK
11590	41.58	4.91	H	46.49	53.98	7.49	AV
17385	50.96	10.20	H	61.16	68.20	7.04	PK

Report No.: HCT-RF-1902-FI010-R1

Band : UNII 3

Operation Mode: 802.11 ac(VHT40)

Transfer MCS Index: 0

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	53.05	4.20	V	57.25	73.98	16.73	PK
11510	39.84	4.20	V	44.04	53.98	9.94	AV
17265	51.95	9.64	V	61.59	68.20	6.61	PK
11510	53.18	4.20	H	57.38	73.98	16.60	PK
11510	39.95	4.20	H	44.15	53.98	9.83	AV
17265	52.17	9.64	H	61.81	68.20	6.39	PK

Band : UNII 3

Operation Mode: 802.11 ac(VHT40)

Transfer MCS Index: 0

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	55.39	4.91	V	60.30	73.98	13.68	PK
11590	41.19	4.91	V	46.10	53.98	7.88	AV
17385	50.94	10.20	V	61.14	68.20	7.06	PK
11590	55.49	4.91	H	60.40	73.98	13.58	PK
11590	41.29	4.91	H	46.20	53.98	7.78	AV
17385	51.05	10.20	H	61.25	68.20	6.95	PK

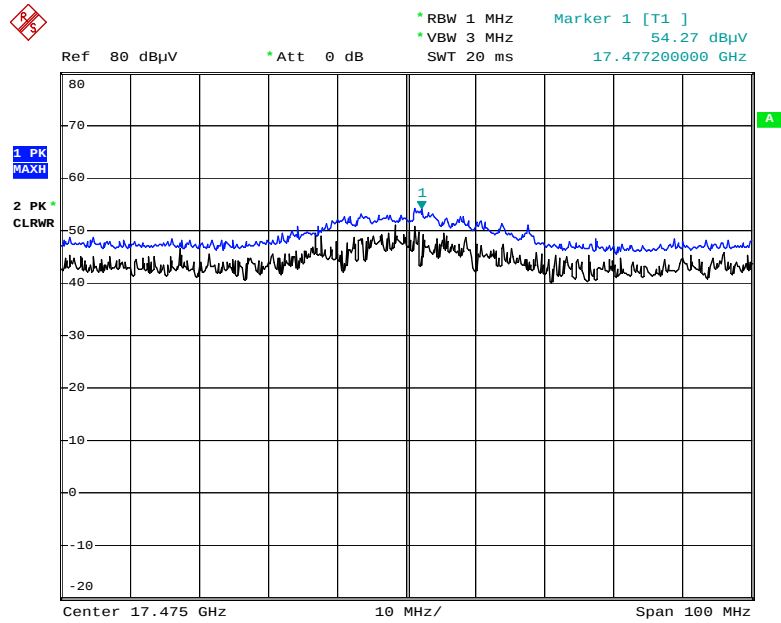
Report No.: HCT-RF-1902-FI010-R1

Band :	UNII 3
Operation Mode:	802.11 ac(VHT80)
Transfer MCS Index:	0
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	52.11	4.50	V	56.61	73.98	17.37	PK
11550	40.54	4.50	V	45.04	53.98	8.94	AV
17325	48.36	10.22	V	58.58	68.20	9.62	PK
11550	52.54	3.32	H	55.86	73.98	18.12	PK
11550	40.73	3.32	H	44.05	53.98	9.93	AV
17325	48.83	10.22	H	59.05	68.20	9.15	PK

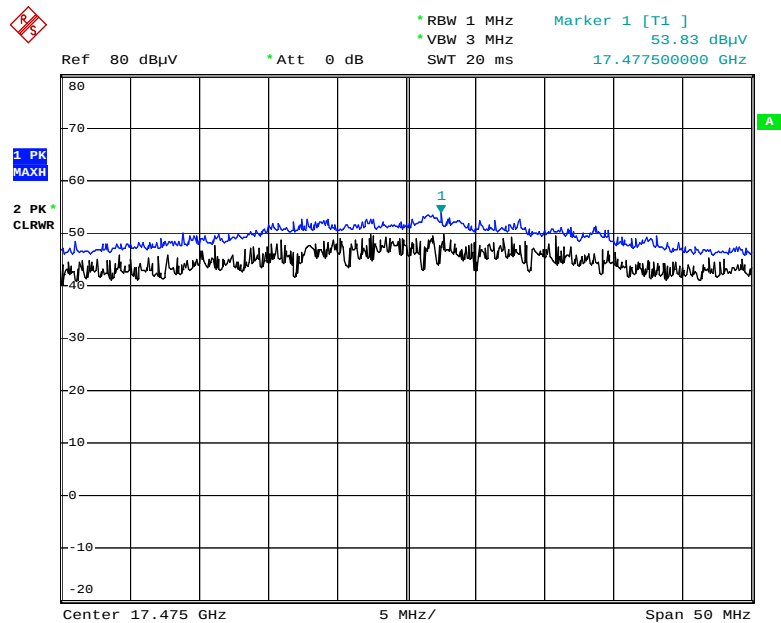
■ Test Plots

Peak Reading (802.11a, Ch.165 3rd Harmonic)



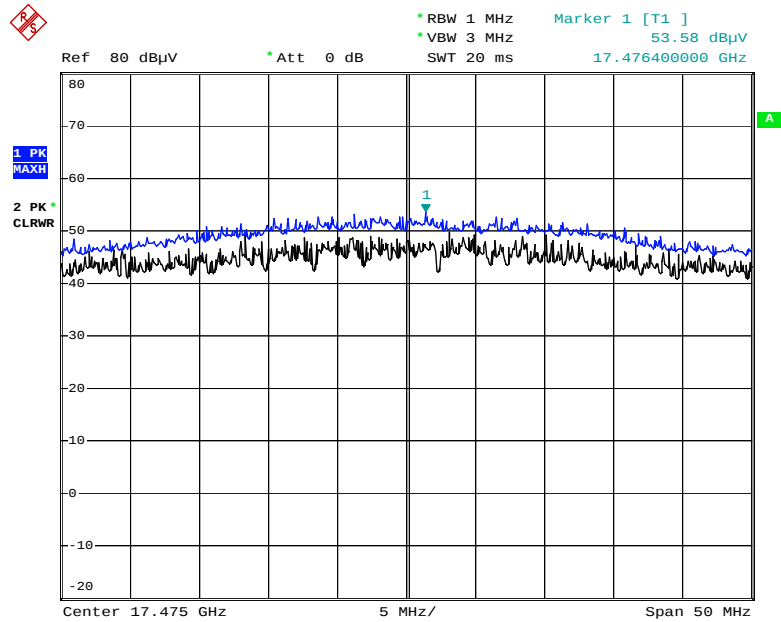
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Peak Reading (802.11n_HT20, Ch.165 3rd Harmonic)



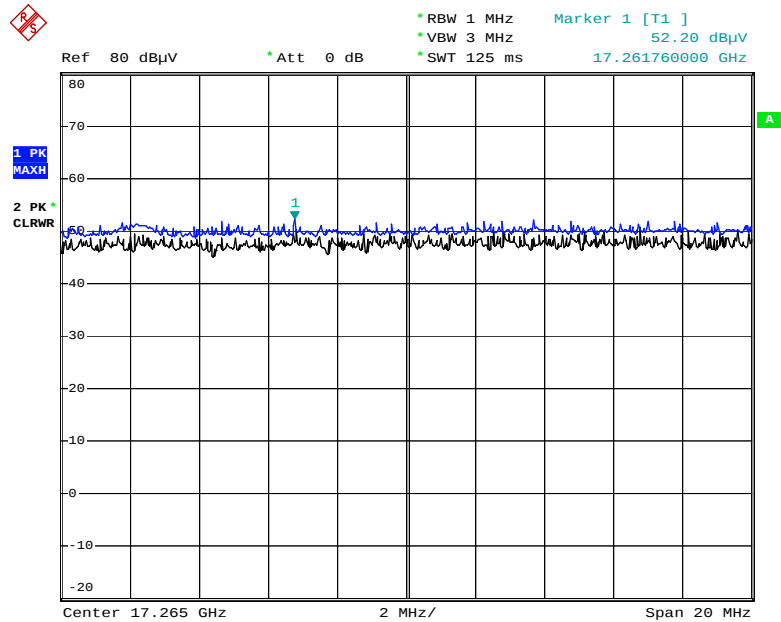
Date: 24.JAN.2019 12:21:00

Peak Reading (802.11ac_VHT20, Ch.165 3rd Harmonic)



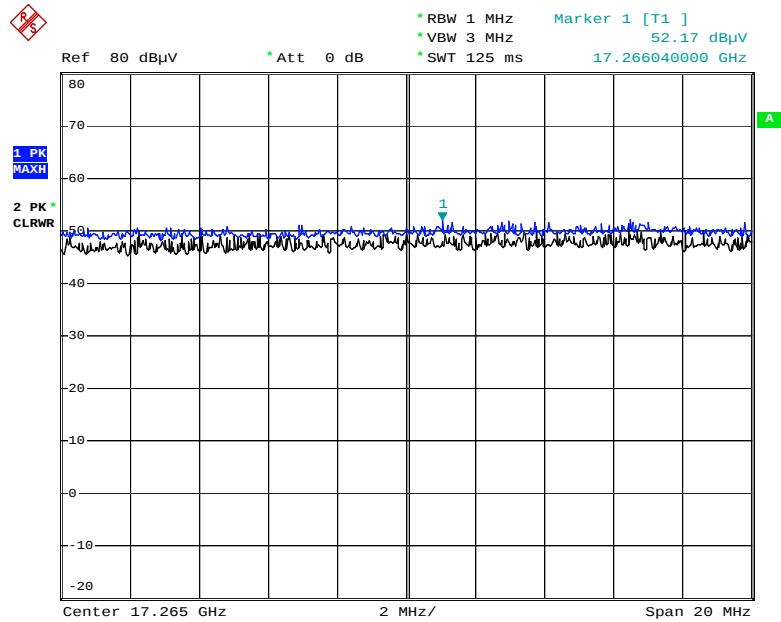
Date: 24.JAN.2019 12:22:40

Peak Reading (802.11n_HT40, Ch.151 3rd Harmonic)



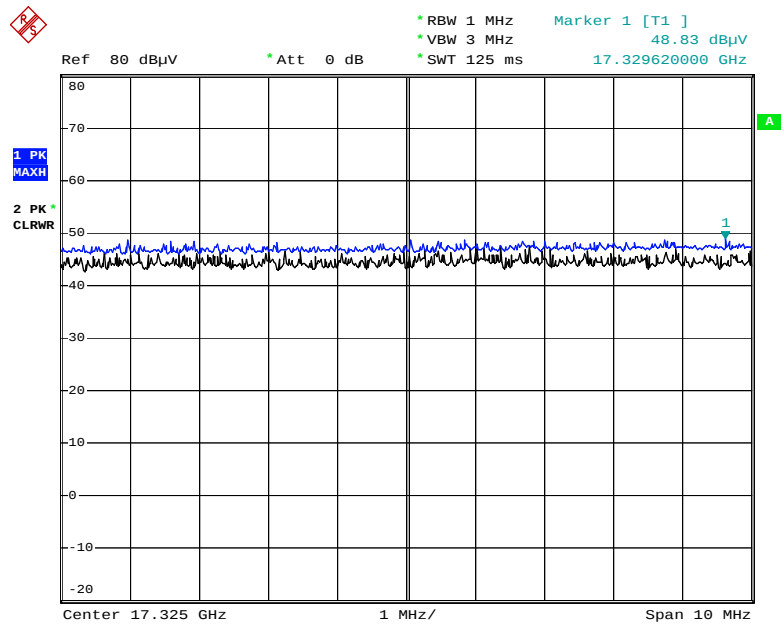
Date: 24.JAN.2019 12:57:36

Peak Reading (802.11ac_VHT40, Ch.151 3rd Harmonic)



Date: 24.JAN.2019 12:59:51

Peak Reading (802.11ac_VHT80, Ch.155 3rd Harmonic)



Date: 24.JAN.2019 13:02:38

Note : Only the worst case plots for Radiated Spurious Emissions.

[ANT2]

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	51.14	4.10	V	55.24	68.20	12.96	PK
15540	47.37	5.36	V	52.73	73.98	21.25	PK
15540	33.48	5.36	V	38.84	53.98	15.14	AV
10360	51.24	4.10	H	55.34	68.20	12.86	PK
15540	47.45	5.36	H	52.81	73.98	21.17	PK
15540	33.53	5.36	H	38.89	53.98	15.09	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	51.47	3.87	V	55.34	68.20	12.86	PK
15600	47.11	4.75	V	51.86	73.98	22.12	PK
15600	33.86	4.75	V	38.61	53.98	15.37	AV
10400	51.57	3.87	H	55.44	68.20	12.76	PK
15600	47.16	4.75	H	51.91	73.98	22.07	PK
15600	33.93	4.75	H	38.68	53.98	15.30	AV

Report No.: HCT-RF-1902-FI010-R1

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	50.77	4.52	V	55.29	68.20	12.91	PK
15720	47.46	3.58	V	51.04	73.98	22.94	PK
15720	34.51	3.58	V	38.09	53.98	15.89	AV
10480	50.79	4.52	H	55.31	68.20	12.89	PK
15720	47.58	3.58	H	51.16	73.98	22.82	PK
15720	34.59	3.58	H	38.17	53.98	15.81	AV

Band :	UNII 1
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Report No.: HCT-RF-1902-FI010-R1

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	51.41	4.10	V	55.51	68.20	12.69	PK
15540	47.66	5.36	V	53.02	73.98	20.96	PK
15540	33.97	5.36	V	39.33	53.98	14.65	AV
10360	51.64	4.10	H	55.74	68.20	12.46	PK
15540	47.86	5.36	H	53.22	73.98	20.76	PK
15540	34.10	5.36	H	39.46	53.98	14.52	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	51.70	3.87	V	55.57	68.20	12.63	PK
15600	47.13	4.75	V	51.88	73.98	22.10	PK
15600	33.95	4.75	V	38.70	53.98	15.28	AV
10400	51.93	3.87	H	55.80	68.20	12.40	PK
15600	47.16	4.75	H	51.91	73.98	22.07	PK
15600	34.05	4.75	H	38.80	53.98	15.18	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	50.86	4.52	V	55.38	68.20	12.82	PK
15720	47.14	3.58	V	50.72	73.98	23.26	PK
15720	34.05	3.58	V	37.63	53.98	16.35	AV
10480	51.04	4.52	H	55.56	68.20	12.64	PK
15720	47.23	3.58	H	50.81	73.98	23.17	PK
15720	34.17	3.58	H	37.75	53.98	16.23	AV

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	50.88	4.10	V	54.98	68.20	13.22	PK
15540	47.41	5.36	V	52.77	73.98	21.21	PK
15540	33.79	5.36	V	39.15	53.98	14.83	AV
10360	51.13	4.10	H	55.23	68.20	12.97	PK
15540	47.54	5.36	H	52.90	73.98	21.08	PK
15540	33.94	5.36	H	39.30	53.98	14.68	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	51.29	3.87	V	55.16	68.20	13.04	PK
15600	47.11	4.75	V	51.86	73.98	22.12	PK
15600	34.08	4.75	V	38.83	53.98	15.15	AV
10400	51.47	3.87	H	55.34	68.20	12.86	PK
15600	47.39	4.75	H	52.14	73.98	21.84	PK
15600	34.24	4.75	H	38.99	53.98	14.99	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	50.84	4.52	V	55.36	68.20	12.84	PK
15720	47.11	3.58	V	50.69	73.98	23.29	PK
15720	34.29	3.58	V	37.87	53.98	16.11	AV
10480	50.94	4.52	H	55.46	68.20	12.74	PK
15720	47.43	3.58	H	51.01	73.98	22.97	PK
15720	34.52	3.58	H	38.10	53.98	15.88	AV

Report No.: HCT-RF-1902-FI010-R1

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]	A.F.+C.L.-A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10380	51.06	4.09	V	55.15	68.20	13.05	PK
15570	47.42	4.73	V	52.15	73.98	21.83	PK
15570	34.18	4.73	V	38.91	53.98	15.07	AV
10380	51.16	4.09	H	55.25	68.20	12.95	PK
15570	47.54	4.73	H	52.27	73.98	21.71	PK
15570	34.23	4.73	H	38.96	53.98	15.02	AV

Band : UNII 1

Operation Mode: 802.11 n(HT40)

Transfer MCS Index: 0

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	51.13	4.54	V	55.67	68.20	12.53	PK
15690	48.28	3.69	V	51.97	73.98	22.01	PK
15690	34.11	3.69	V	37.80	53.98	16.18	AV
10460	51.22	4.54	H	55.76	68.20	12.44	PK
15690	48.56	3.69	H	52.25	73.98	21.73	PK
15690	34.27	3.69	H	37.96	53.98	16.02	AV

Report No.: HCT-RF-1902-FI010-R1

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]	A.F.+C.L.-A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10380	51.77	4.09	V	55.86	68.20	12.34	PK
15570	47.26	4.73	V	51.99	73.98	21.99	PK
15570	34.03	4.73	V	38.76	53.98	15.22	AV
10380	51.89	4.09	H	55.98	68.20	12.22	PK
15570	47.88	4.73	H	52.61	73.98	21.37	PK
15570	34.29	4.73	H	39.02	53.98	14.96	AV

Band : UNII 1

Operation Mode: 802.11 ac(VHT40)

Transfer MCS Index: 0

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	51.24	4.54	V	55.78	68.20	12.42	PK
15690	48.39	3.69	V	52.08	73.98	21.90	PK
15690	34.30	3.69	V	37.99	53.98	15.99	AV
10460	51.31	4.54	H	55.85	68.20	12.35	PK
15690	48.53	3.69	H	52.22	73.98	21.76	PK
15690	34.23	3.69	H	37.92	53.98	16.06	AV

Report No.: HCT-RF-1902-FI010-R1

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]	A.F.+C.L.-A.G+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10420	50.76	3.79	V	54.55	68.20	13.65	PK
15630	48.10	4.02	V	52.12	73.98	21.86	PK
15630	35.03	4.02	V	39.05	53.98	14.93	AV
10420	51.19	3.79	H	54.98	68.20	13.22	PK
15630	48.23	4.02	H	52.25	73.98	21.73	PK
15630	35.19	4.02	H	39.21	53.98	14.77	AV

Report No.: HCT-RF-1902-FI010-R1

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	61.42	4.19	V	65.61	73.98	8.37	PK
11490	45.94	4.19	V	50.13	53.98	3.85	AV
17235	52.43	9.09	V	61.52	68.20	6.68	PK
11490	61.82	4.19	H	66.01	73.98	7.97	PK
11490	46.04	4.19	H	50.23	53.98	3.75	AV
17235	52.54	9.09	H	61.63	68.20	6.57	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	60.57	4.83	V	65.40	73.98	8.58	PK
11570	44.58	4.83	V	49.41	53.98	4.57	AV
17355	53.49	9.81	V	63.30	68.20	4.90	PK
11570	60.69	4.83	H	65.52	73.98	8.46	PK
11570	44.67	4.83	H	49.50	53.98	4.48	AV
17355	53.69	9.81	H	63.50	68.20	4.70	PK

Report No.: HCT-RF-1902-FI010-R1

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	60.48	3.70	V	64.18	73.98	9.80	PK
11650	45.36	3.70	V	49.06	53.98	4.92	AV
17475	53.75	10.25	V	64.00	68.20	4.20	PK
11650	60.80	3.70	H	64.50	73.98	9.48	PK
11650	45.51	3.70	H	49.21	53.98	4.77	AV
17475	53.88	10.25	H	64.13	68.20	4.07	PK

Report No.: HCT-RF-1902-FI010-R1

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	61.64	4.19	V	65.83	73.98	8.15	PK
11490	45.84	4.19	V	50.03	53.98	3.95	AV
17235	52.94	9.09	V	62.03	68.20	6.17	PK
11490	61.73	4.19	H	65.92	73.98	8.06	PK
11490	45.98	4.19	H	50.17	53.98	3.81	AV
17235	53.26	9.09	H	62.35	68.20	5.85	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	60.11	4.83	V	64.94	73.98	9.04	PK
11570	44.18	4.83	V	49.01	53.98	4.97	AV
17355	54.06	9.81	V	63.87	68.20	4.33	PK
11570	60.31	4.83	H	65.14	73.98	8.84	PK
11570	44.34	4.83	H	49.17	53.98	4.81	AV
17355	54.21	9.81	H	64.02	68.20	4.18	PK

Report No.: HCT-RF-1902-FI010-R1

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	60.55	3.70	V	64.25	73.98	9.73	PK
11650	45.72	3.70	V	49.42	53.98	4.56	AV
17475	54.07	10.25	V	64.32	68.20	3.88	PK
11650	60.74	3.70	H	64.44	73.98	9.54	PK
11650	45.77	3.70	H	49.47	53.98	4.51	AV
17475	54.39	10.25	H	64.64	68.20	3.56	PK

Report No.: HCT-RF-1902-FI010-R1

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	61.99	4.19	V	66.18	73.98	7.80	PK
11490	45.05	4.19	V	49.24	53.98	4.74	AV
17235	52.72	9.09	V	61.81	68.20	6.39	PK
11490	62.07	4.19	H	66.26	73.98	7.72	PK
11490	45.15	4.19	H	49.34	53.98	4.64	AV
17235	52.82	9.09	H	61.91	68.20	6.29	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	60.39	4.83	V	65.22	73.98	8.76	PK
11570	44.72	4.83	V	49.55	53.98	4.43	AV
17355	52.97	9.81	V	62.78	68.20	5.42	PK
11570	60.53	4.83	H	65.36	73.98	8.62	PK
11570	44.85	4.83	H	49.68	53.98	4.30	AV
17355	53.03	9.81	H	62.84	68.20	5.36	PK

Report No.: HCT-RF-1902-FI010-R1

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	61.21	3.70	V	64.91	73.98	9.07	PK
11650	45.29	3.70	V	48.99	53.98	4.99	AV
17475	53.29	10.25	V	63.54	68.20	4.66	PK
11650	61.58	3.70	H	65.28	73.98	8.70	PK
11650	45.56	3.70	H	49.26	53.98	4.72	AV
17475	53.45	10.25	H	63.70	68.20	4.50	PK

Report No.: HCT-RF-1902-FI010-R1

Band : UNII 3

Operation Mode: 802.11 n(HT40)

Transfer MCS Index: 0

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	56.48	4.20	V	60.68	73.98	13.30	PK
11510	41.57	4.20	V	45.77	53.98	8.21	AV
17265	48.86	9.64	V	58.50	68.20	9.70	PK
11510	56.78	4.20	H	60.98	73.98	13.00	PK
11510	41.84	4.20	H	46.04	53.98	7.94	AV
17265	49.01	9.64	H	58.65	68.20	9.55	PK

Band : UNII 3

Operation Mode: 802.11 n(HT40)

Transfer MCS Index: 0

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	54.93	4.91	V	59.84	73.98	14.14	PK
11590	41.01	4.91	V	45.92	53.98	8.06	AV
17385	49.89	10.20	V	60.09	68.20	8.11	PK
11590	55.83	4.91	H	60.74	73.98	13.24	PK
11590	41.12	4.91	H	46.03	53.98	7.95	AV
17385	50.10	10.20	H	60.30	68.20	7.90	PK

Report No.: HCT-RF-1902-FI010-R1

Band : UNII 3
Operation Mode: 802.11 ac(VHT40)
Transfer MCS Index: 0
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	56.18	4.20	V	60.38	73.98	13.60	PK
11510	41.05	4.20	V	45.25	53.98	8.73	AV
17265	49.05	9.64	V	58.69	68.20	9.51	PK
11510	56.29	4.20	H	60.49	73.98	13.49	PK
11510	41.11	4.20	H	45.31	53.98	8.67	AV
17265	49.11	9.64	H	58.75	68.20	9.45	PK

Band : UNII 3
Operation Mode: 802.11 ac(VHT40)
Transfer MCS Index: 0
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	55.84	4.91	V	60.75	73.98	13.23	PK
11590	40.17	4.91	V	45.08	53.98	8.90	AV
17385	49.12	10.20	V	59.32	68.20	8.88	PK
11590	56.29	4.91	H	61.20	73.98	12.78	PK
11590	40.34	4.91	H	45.25	53.98	8.73	AV
17385	49.37	10.20	H	59.57	68.20	8.63	PK

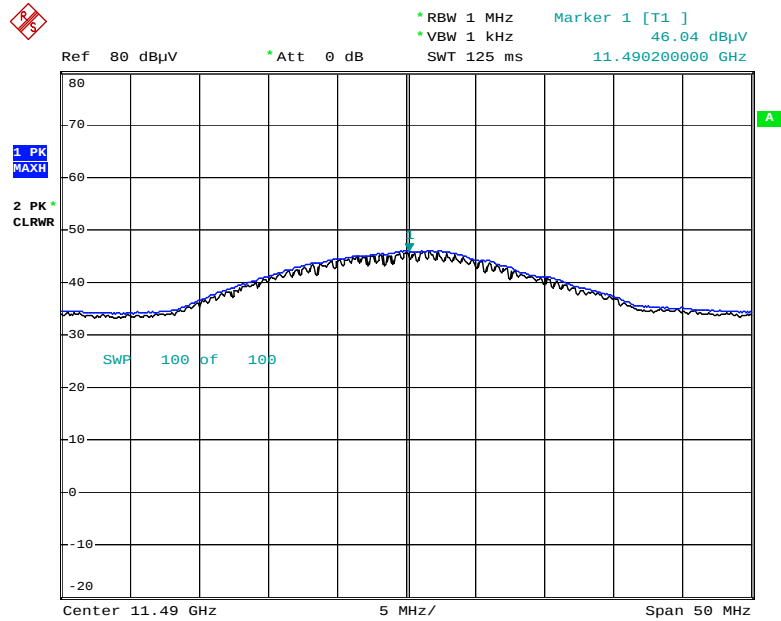
Report No.: HCT-RF-1902-FI010-R1

Band :	UNII 3
Operation Mode:	802.11 ac(VHT80)
Transfer MCS Index:	0
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	53.74	4.50	V	58.24	73.98	15.74	PK
11550	38.47	4.50	V	42.97	53.98	11.01	AV
17325	48.05	10.22	V	58.27	68.20	9.93	PK
11550	53.98	3.32	H	57.30	73.98	16.68	PK
11550	38.88	3.32	H	42.20	53.98	11.78	AV
17325	48.20	10.22	H	58.42	68.20	9.78	PK

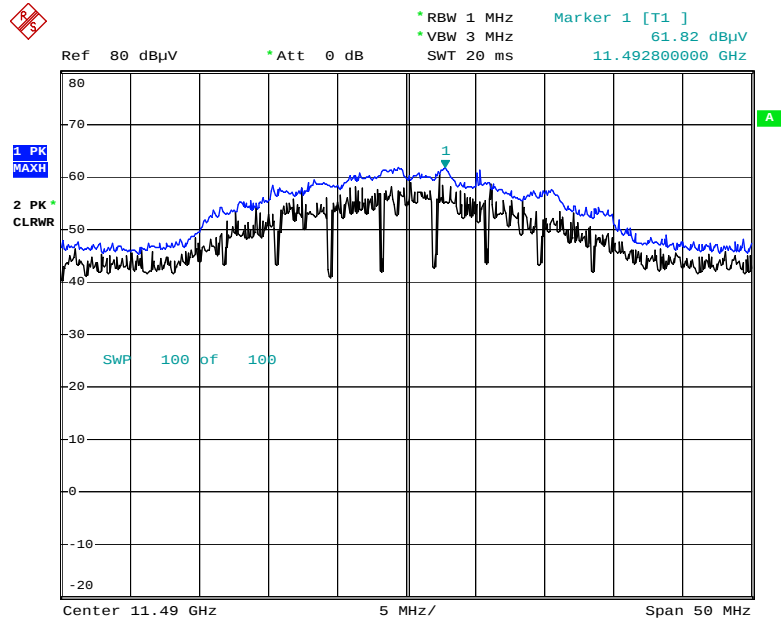
■ Test Plots

Average Reading (802.11a, Ch.149 2nd Harmonic)



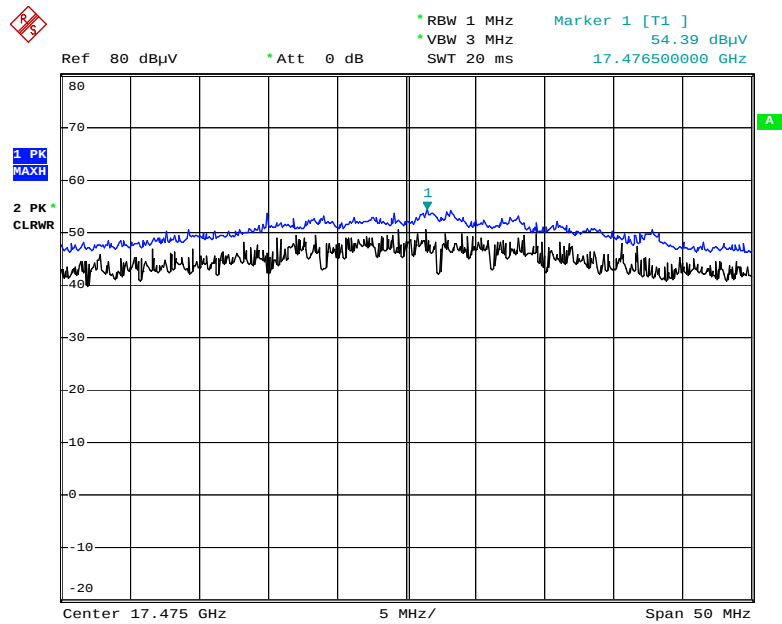
Date: 25.JAN.2019 08:24:31

Peak Reading (802.11a, Ch.149 2nd Harmonic)



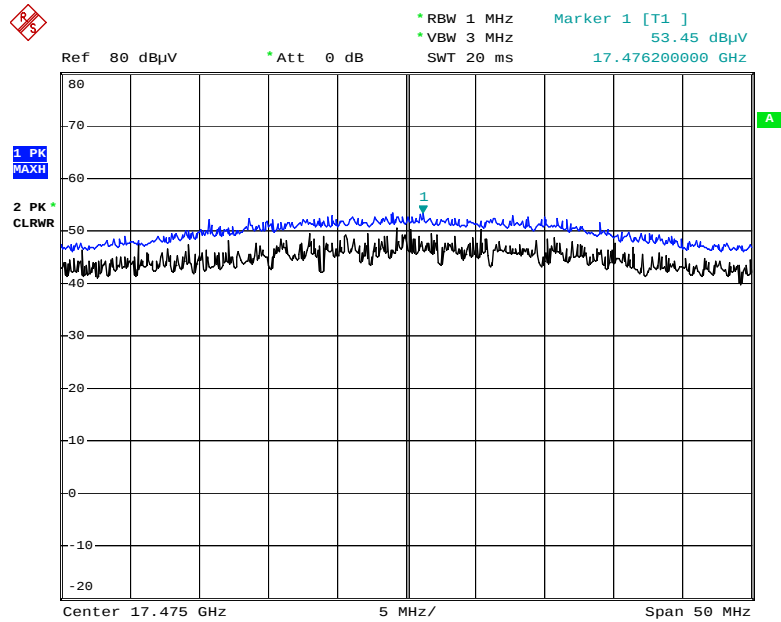
Date: 25.JAN.2019 08:25:19

Peak Reading (802.11n_HT20, Ch.165 3rd Harmonic)



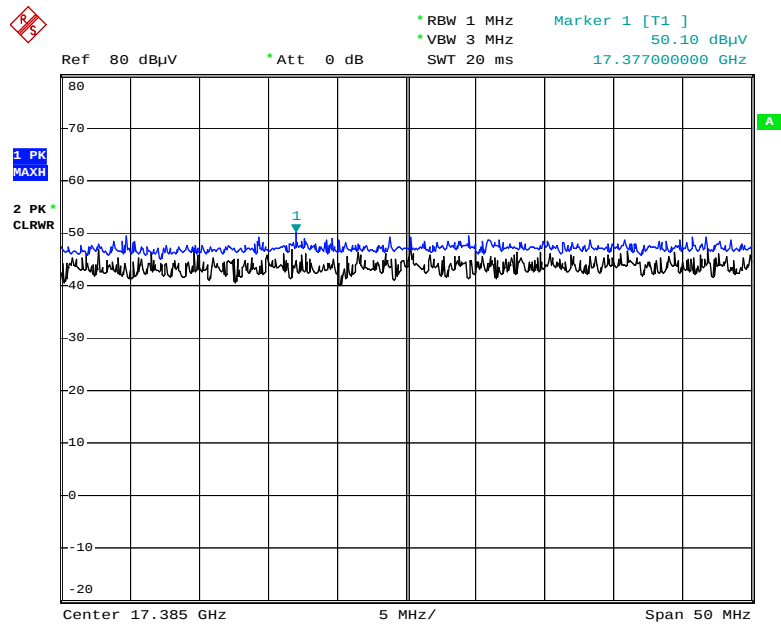
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Peak Reading (802.11ac_VHT20, Ch.165 3rd Harmonic)



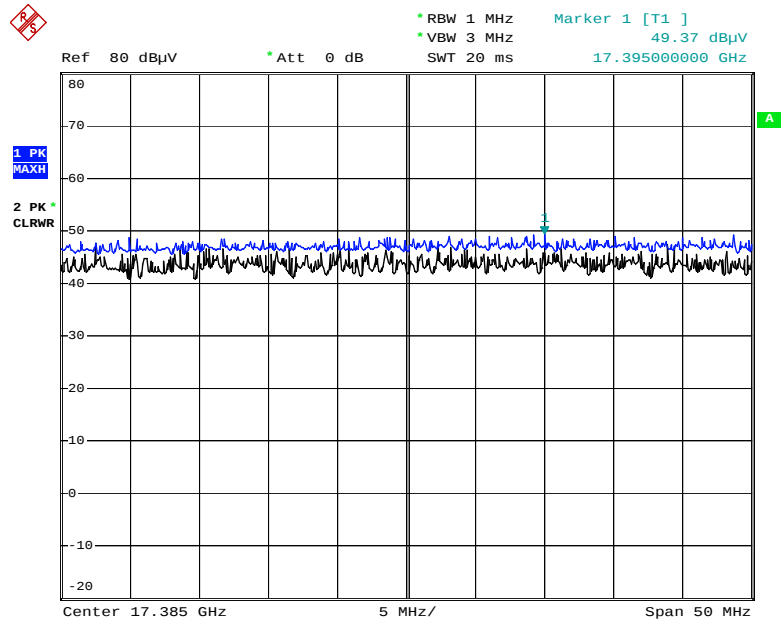
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Peak Reading (802.11n_HT40, Ch.159 3rd Harmonic)



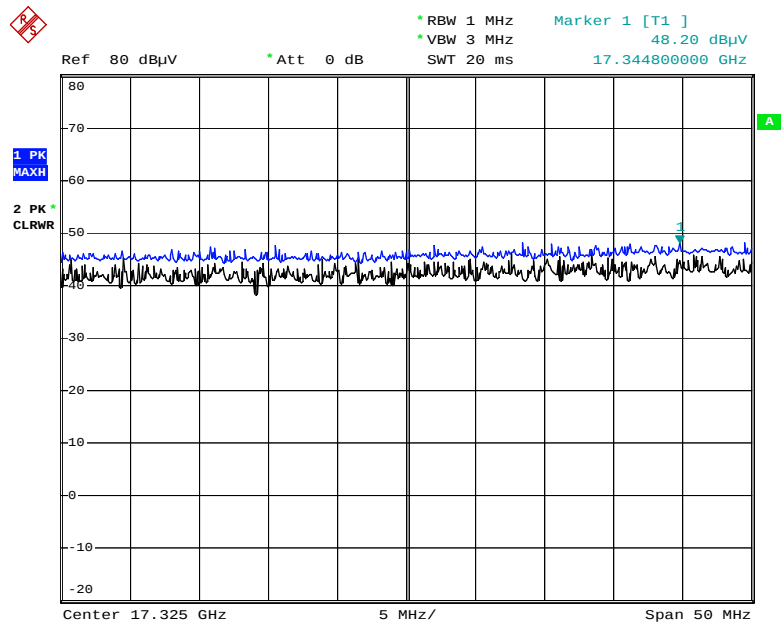
Date: 25.JAN.2019 07:07:53

Peak Reading (802.11ac_VHT40, Ch.159 3rd Harmonic)



Date: 25.JAN.2019 07:07:11

Peak Reading (802.11ac_VHT80, Ch.155 3rd Harmonic)



Date: 25.JAN.2019 07:09:49

Note : Only the worst case plots for Radiated Spurious Emissions.

10.8 RADIATED RESTRICTED BAND EDGE

[ANT1]

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	49.21	11.06	H	60.27	73.98	13.71	PK
5150	33.01	11.06	H	44.07	53.98	9.91	AV
5150	49.38	11.06	V	60.44	73.98	13.54	PK
5150	33.03	11.06	V	44.09	53.98	9.89	AV

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	47.02	11.06	H	58.08	73.98	15.90	PK
5150	33.08	11.06	H	44.14	53.98	9.84	AV
5150	47.10	11.06	V	58.16	73.98	15.82	PK
5150	33.16	11.06	V	44.22	53.98	9.76	AV

Report No.: HCT-RF-1902-FI010-R1

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. +D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5150	45.22	11.06	H	56.28	73.98	17.70	PK
5150	32.98	11.06	H	44.04	53.98	9.94	AV
5150	45.52	11.06	V	56.58	73.98	17.40	PK
5150	33.01	11.06	V	44.07	53.98	9.91	AV

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	44.38	11.06	H	55.44	73.98	18.54	PK
5150	32.01	11.06	H	43.07	53.98	10.91	AV
5150	44.47	11.06	V	55.53	73.98	18.45	PK
5150	32.18	11.06	V	43.24	53.98	10.74	AV

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

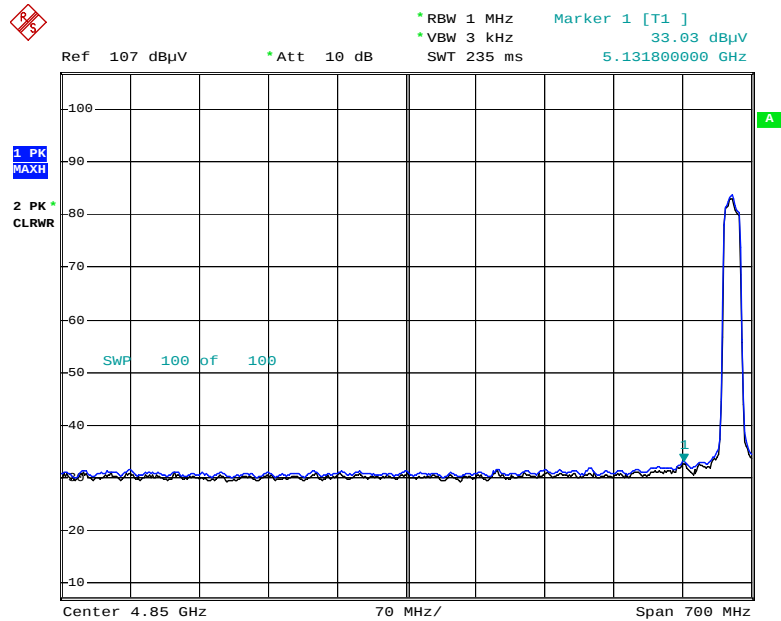
Frequency [MHz]	Reading dBuV	AN.+CL+AMP+ATT. +D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5150	44.35	11.06	H	55.41	73.98	18.57	PK
5150	32.14	11.06	H	43.20	53.98	10.78	AV
5150	44.46	11.06	V	55.52	73.98	18.46	PK
5150	32.20	11.06	V	43.26	53.98	10.72	AV

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	45.28	11.06	H	56.34	73.98	17.64	PK
5150	32.18	11.06	H	43.24	53.98	10.74	AV
5150	45.31	11.06	V	56.37	73.98	17.61	PK
5150	32.26	11.06	V	43.32	53.98	10.66	AV

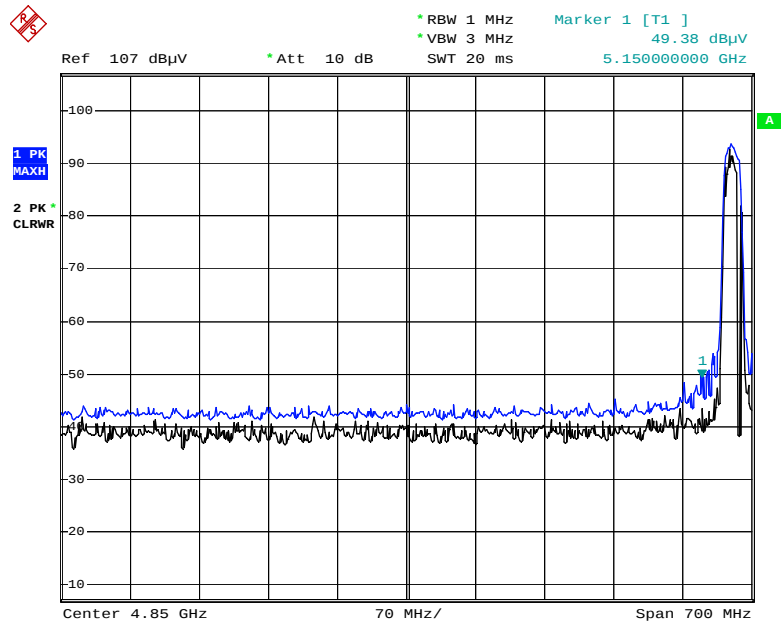
■ Test Plots(UNII 1)

Average Reading (802.11a, Ch.36)



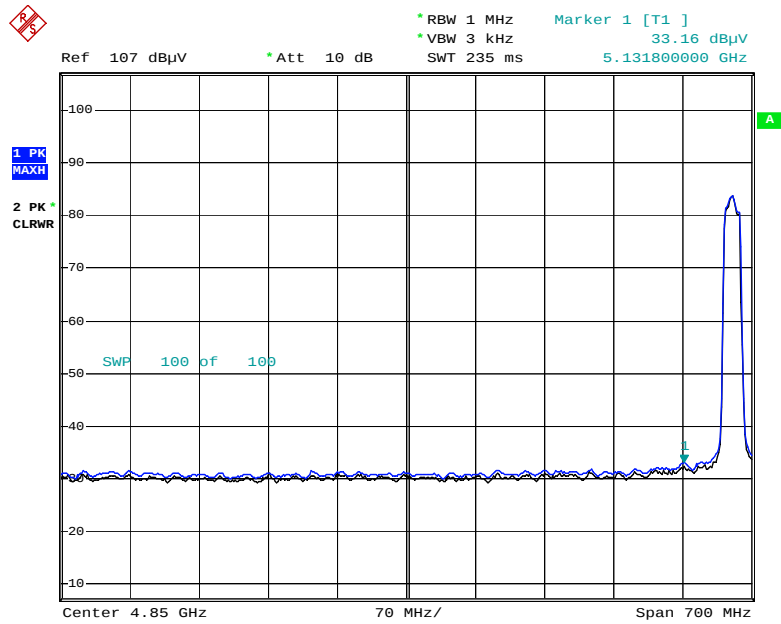
Date: 28.JAN.2019 11:18:40

Peak Reading (802.11a, Ch.36)



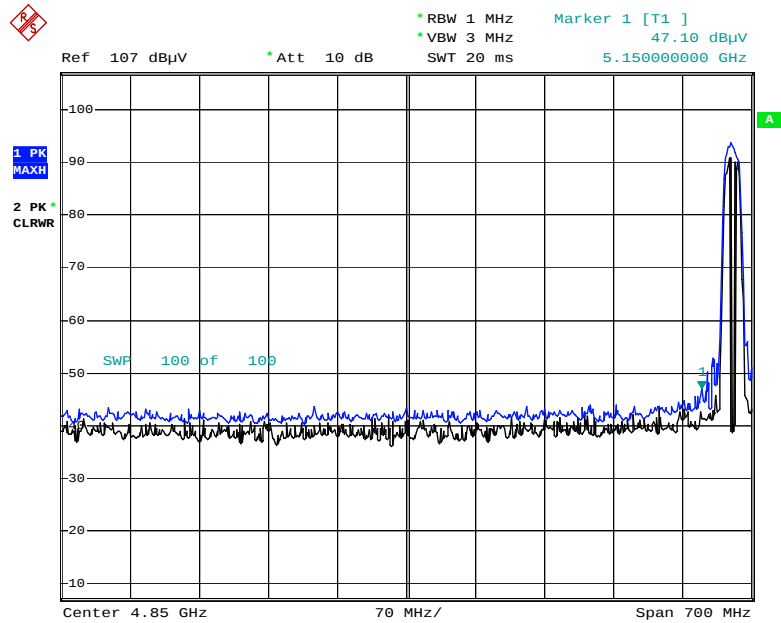
Date: 28.JAN.2019 11:17:22

Average Reading (802.11n_HT20, Ch.36)



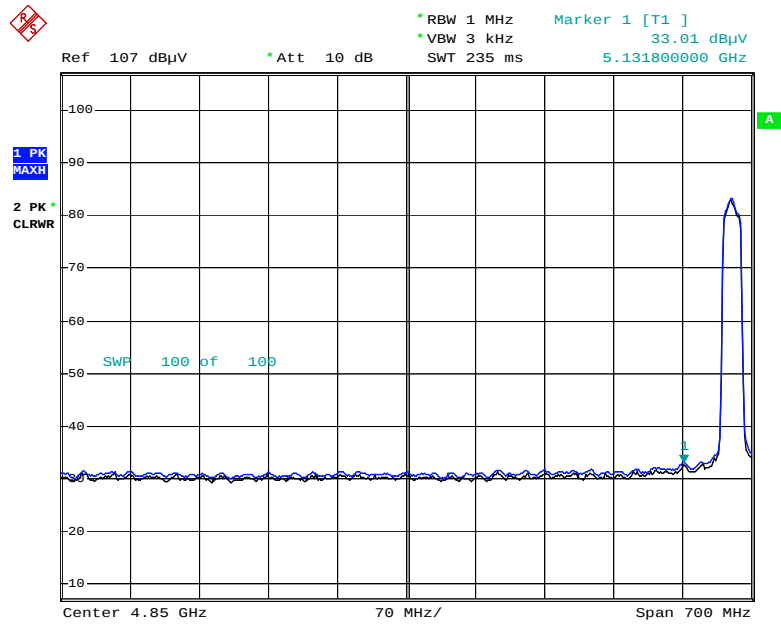
Date: 28.JAN.2019 11:21:46

Peak Reading (802.11n_HT20, Ch.36)



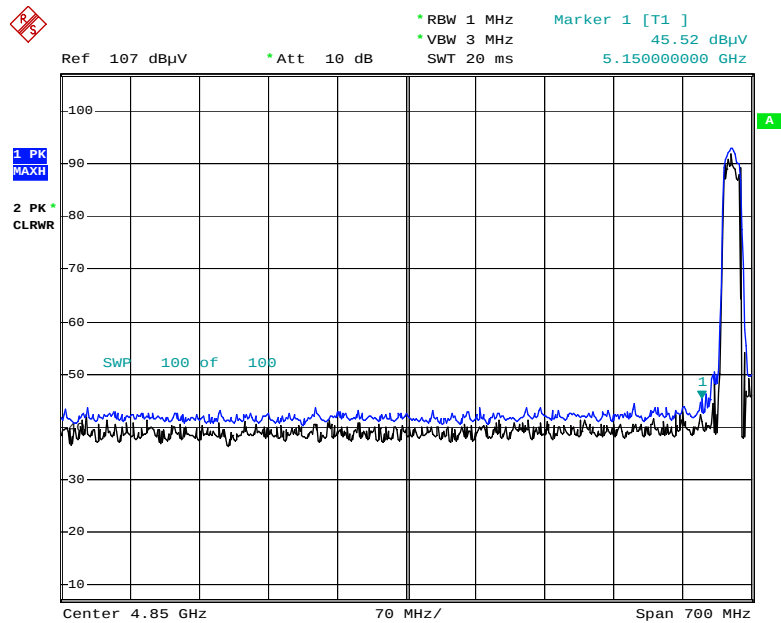
Date: 28.JAN.2019 11:22:30

Average Reading (802.11ac_VHT20, Ch.36)



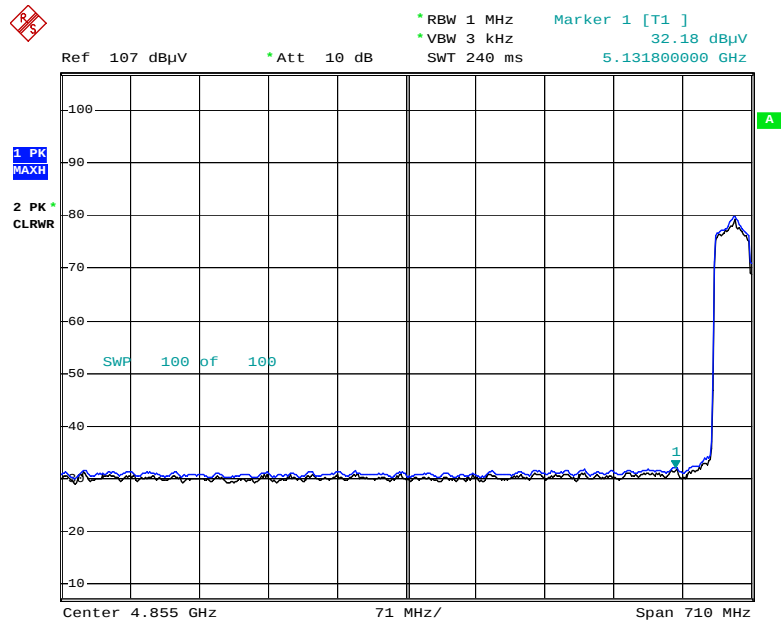
Date: 28.JAN.2019 11:36:19

Peak Reading (802.11ac_VHT20, Ch.36)



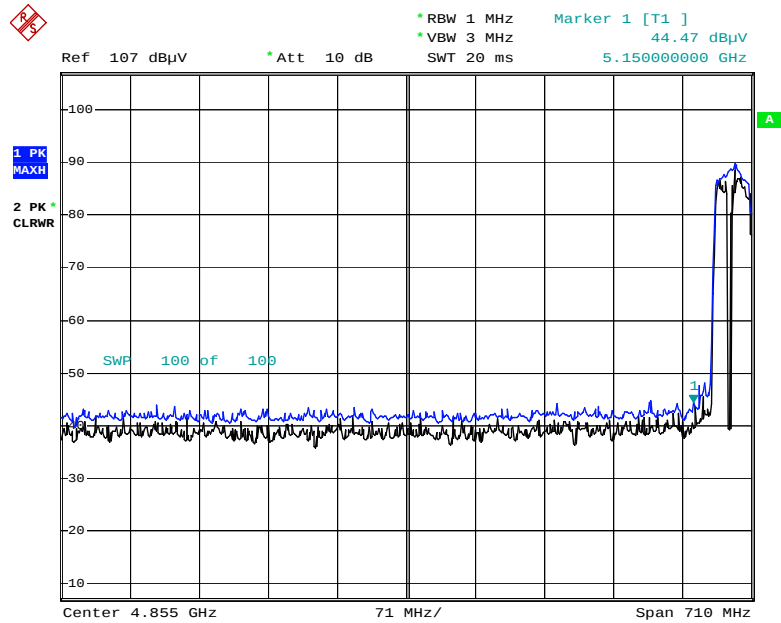
Date: 28.JAN.2019 11:34:58

Average Reading (802.11n_HT40, Ch.38)



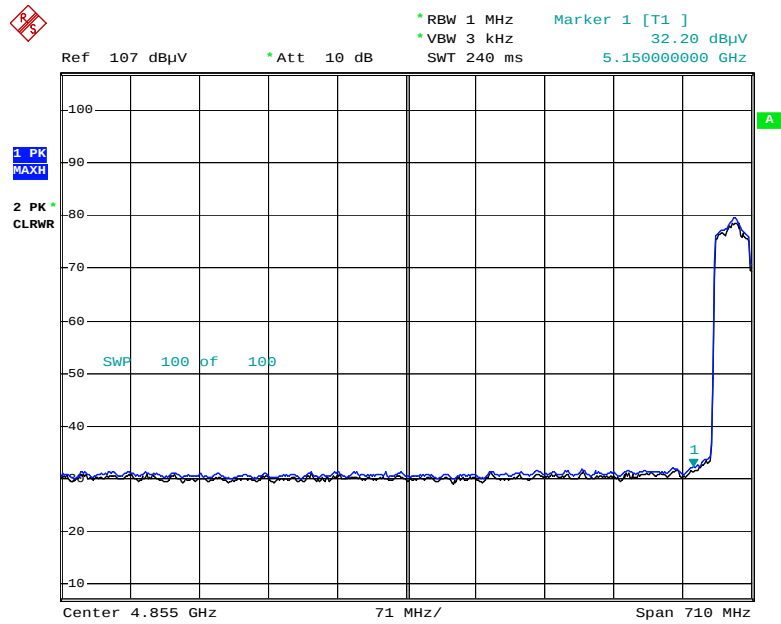
Date: 28.JAN.2019 11:40:03

Peak Reading (802.11n_HT40, Ch.38)



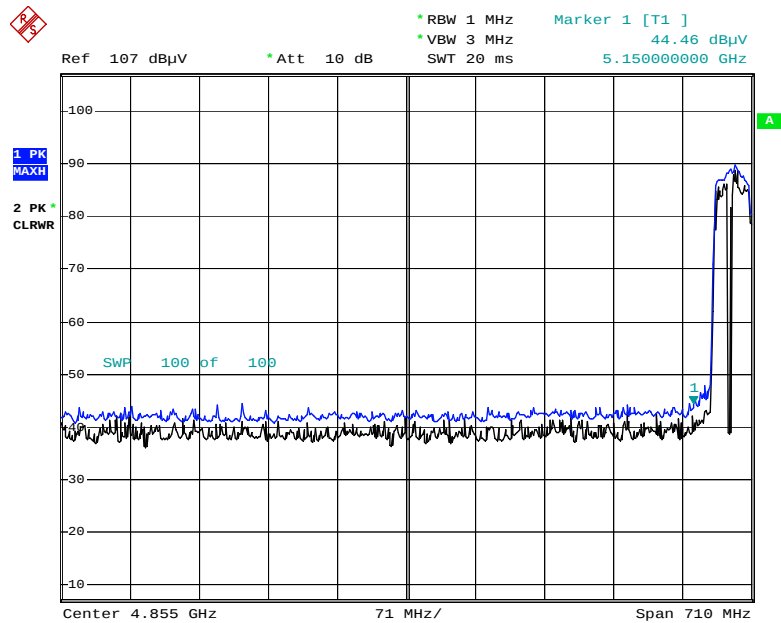
Date: 28.JAN.2019 11:41:08

Average Reading (802.11ac_VHT40, Ch.38)



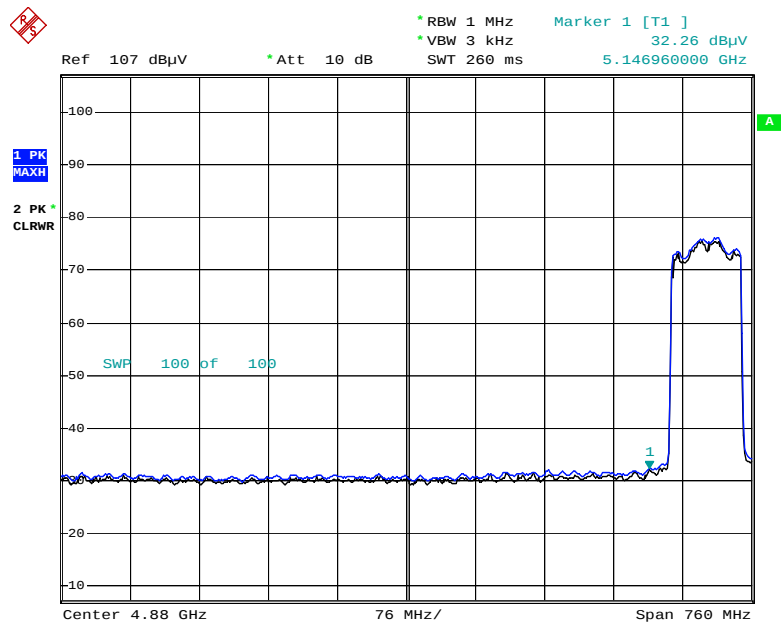
Date: 28.JAN.2019 11:44:06

Peak Reading (802.11ac_VHT40, Ch.38)



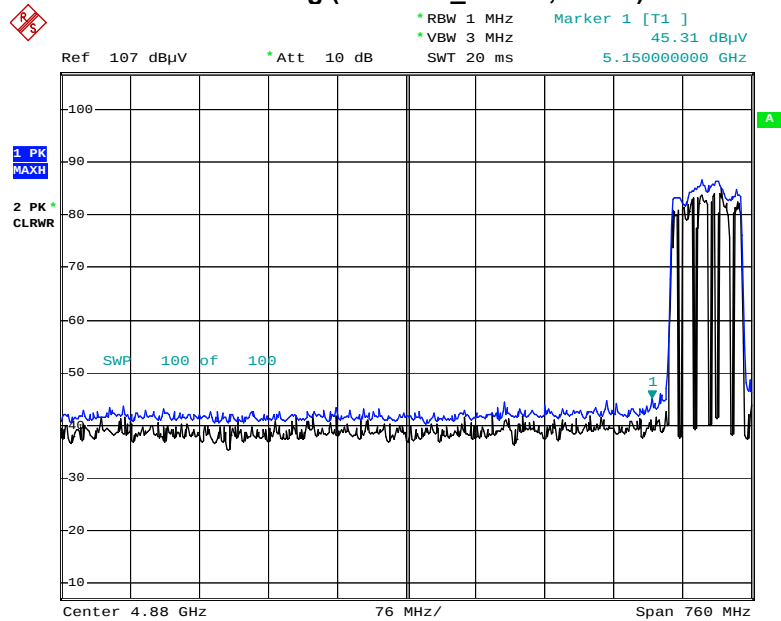
Date: 28.JAN.2019 11:42:30

Average Reading (802.11ac_VHT80, Ch.42)



Date: 28.JAN.2019 11:46:29

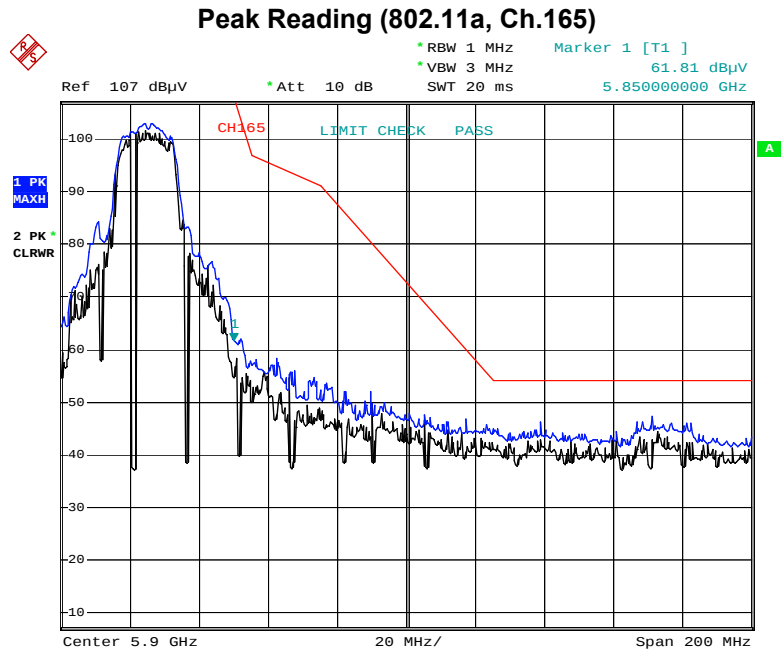
Peak Reading (802.11ac_VHT80, Ch.42)



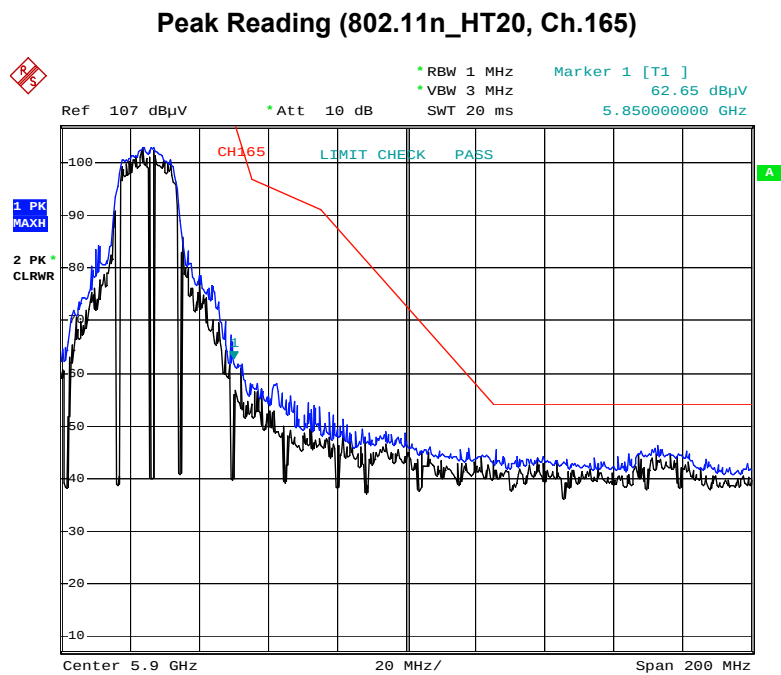
Date: 28.JAN.2019 11:48:09

Note : Only the worst case plots for Radiated Spurious Emissions.

■ Test Plots(UNII 3)

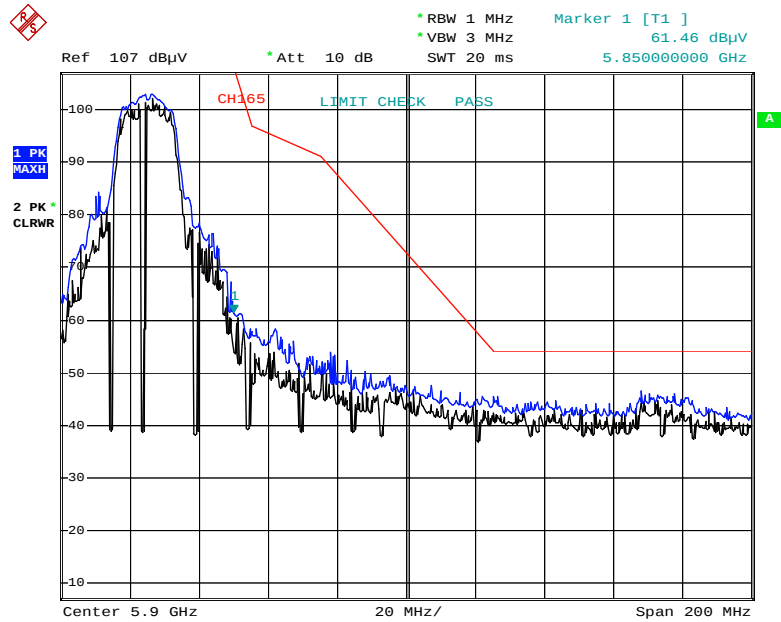


Date: 29.JAN.2019 06:43:52



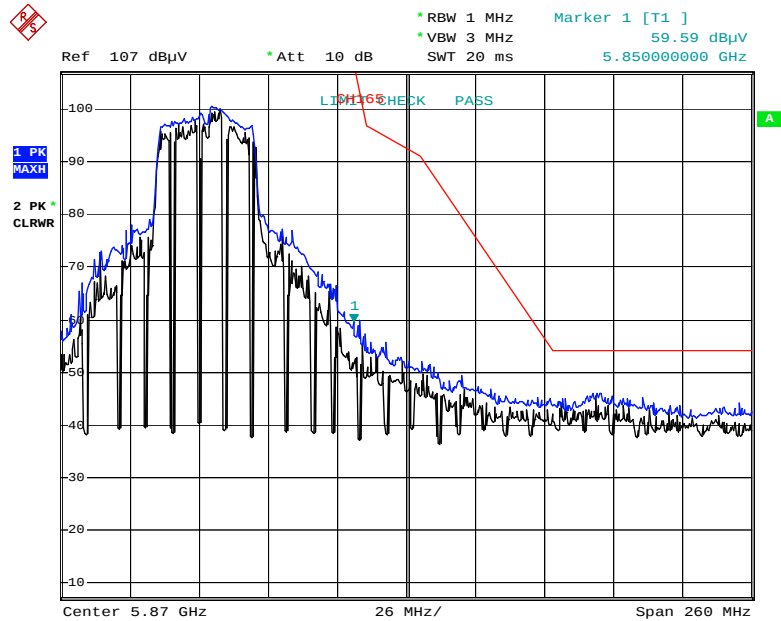
Date: 29.JAN.2019 06:44:20

Peak Reading (802.11ac_VHT20, Ch.165)



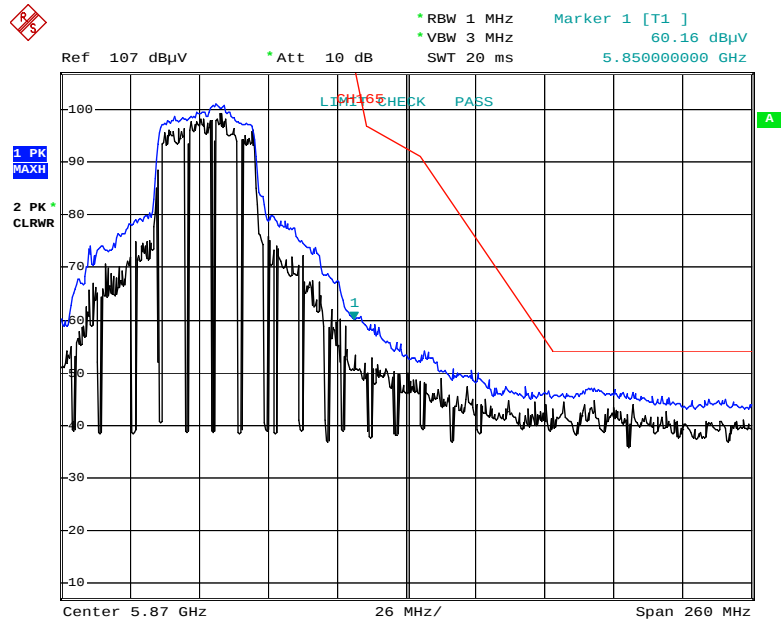
Date: 29.JAN.2019 06:44:43

Peak Reading (802.11n_HT40, Ch.159)



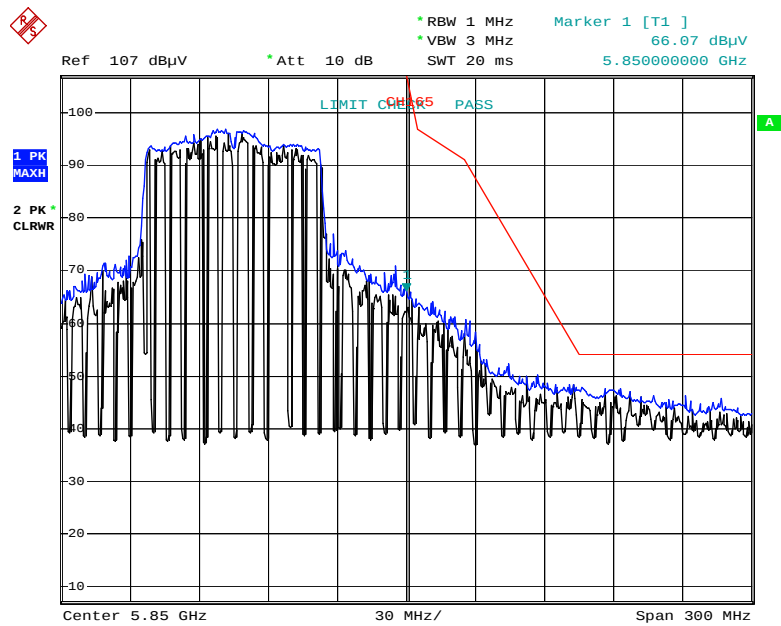
Date: 29.JAN.2019 06:42:46

Peak Reading (802.11ac_VHT40, Ch.159)



Date: 29.JAN.2019 06:42:26

Peak Reading (802.11ac_VHT80, Ch.155)



Date: 29.JAN.2019 06:20:33

[ANT2]

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	45.17	11.06	H	56.23	73.98	17.75	PK
5150	33.02	11.06	H	44.08	53.98	9.90	AV
5150	44.84	11.06	V	55.90	73.98	18.08	PK
5150	32.98	11.06	V	44.04	53.98	9.94	AV

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	44.95	11.06	H	56.01	73.98	17.97	PK
5150	33.14	11.06	H	44.20	53.98	9.78	AV
5150	44.82	11.06	V	55.88	73.98	18.10	PK
5150	33.07	11.06	V	44.13	53.98	9.85	AV

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. +D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5150	44.90	11.06	H	55.96	73.98	18.02	PK
5150	33.31	11.06	H	44.37	53.98	9.61	AV
5150	44.87	11.06	V	55.93	73.98	18.05	PK
5150	33.24	11.06	V	44.30	53.98	9.68	AV

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	45.01	11.06	H	56.07	73.98	17.91	PK
5150	32.90	11.06	H	43.96	53.98	10.02	AV
5150	44.79	11.06	V	55.85	73.98	18.13	PK
5150	32.75	11.06	V	43.81	53.98	10.17	AV

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

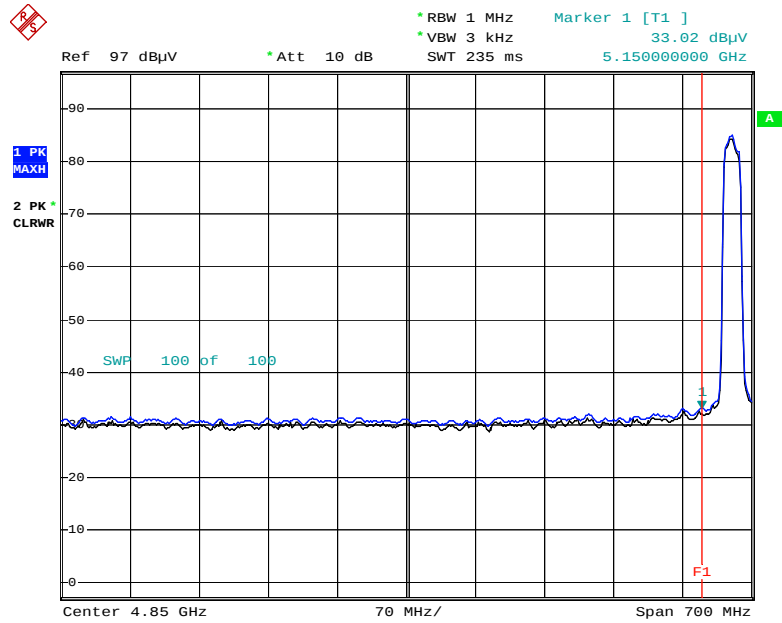
Frequency [MHz]	Reading dBuV	AN.+CL+AMP+ATT. +D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5150	44.33	11.06	H	55.39	73.98	18.59	PK
5150	32.96	11.06	H	44.02	53.98	9.96	AV
5150	44.17	11.06	V	55.23	73.98	18.75	PK
5150	32.88	11.06	V	43.94	53.98	10.04	AV

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	45.60	11.06	H	56.66	73.98	17.32	PK
5150	34.04	11.06	H	45.10	53.98	8.88	AV
5150	45.57	11.06	V	56.63	73.98	17.35	PK
5150	33.96	11.06	V	45.02	53.98	8.96	AV

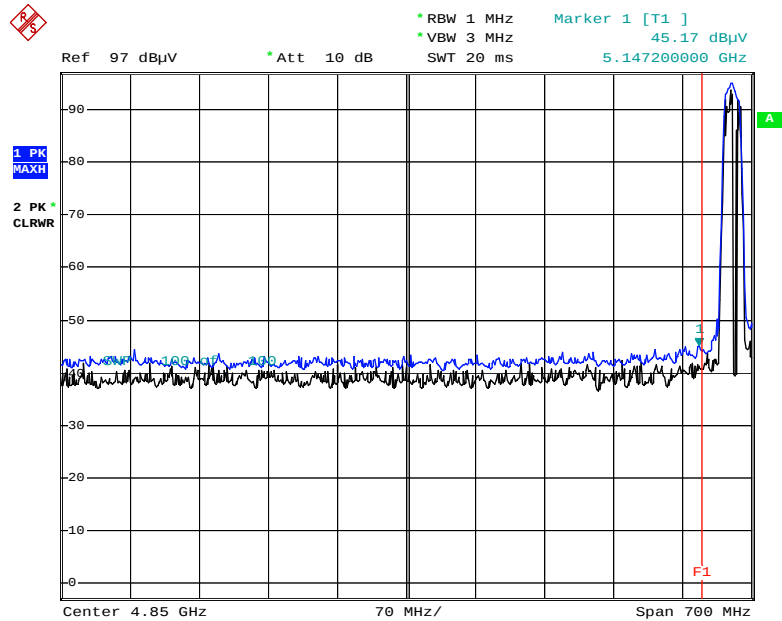
■ Test Plots(UNII 1)

Average Reading (802.11a, Ch.36)



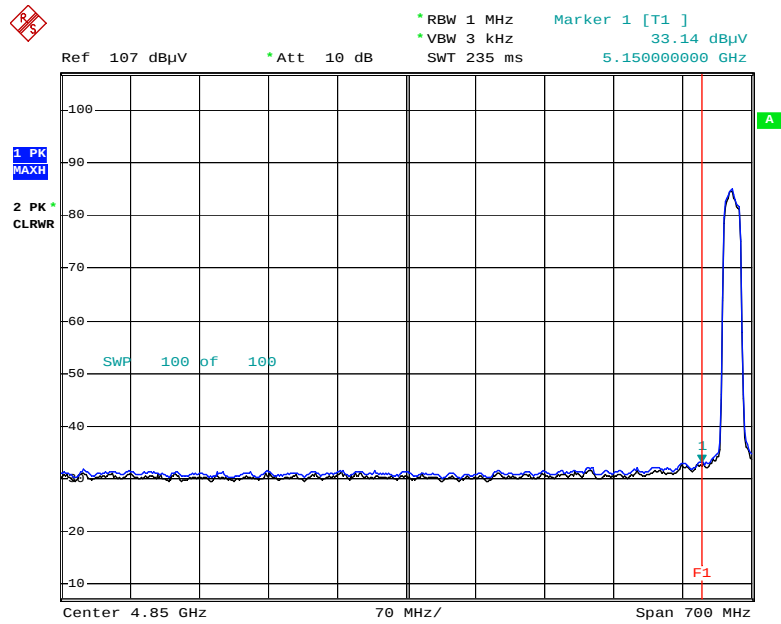
Date: 29.JAN.2019 06:55:29

Peak Reading (802.11a, Ch.36)



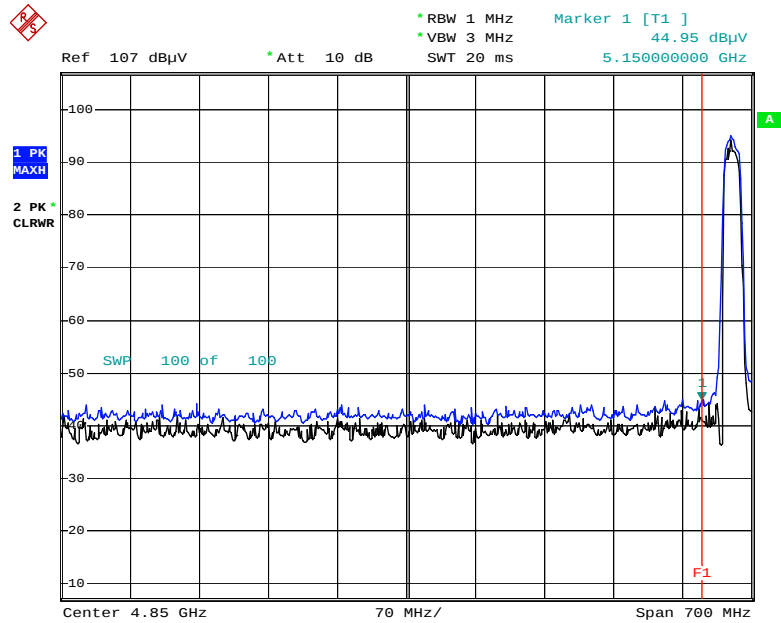
Date: 29.JAN.2019 06:56:25

Average Reading (802.11n_HT20, Ch.36)



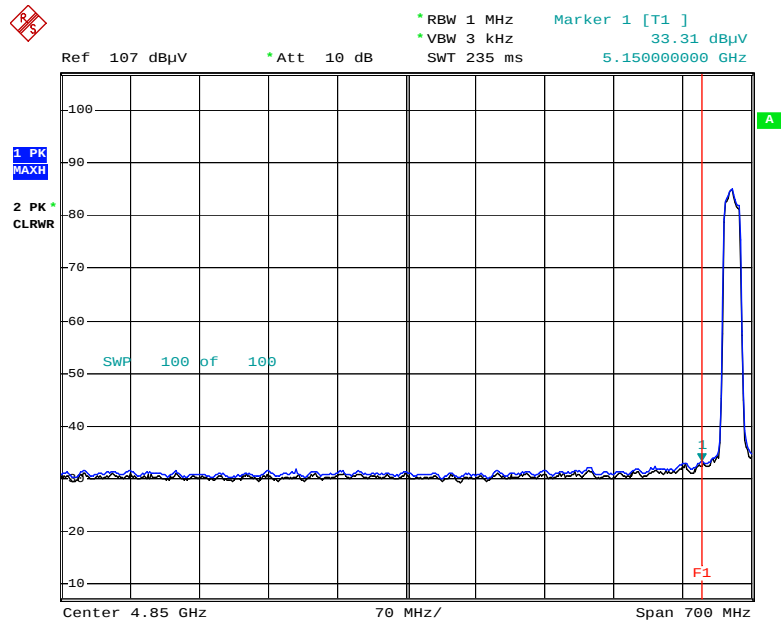
Date: 29.JAN.2019 06:59:17

Peak Reading (802.11n_HT20, Ch.36)



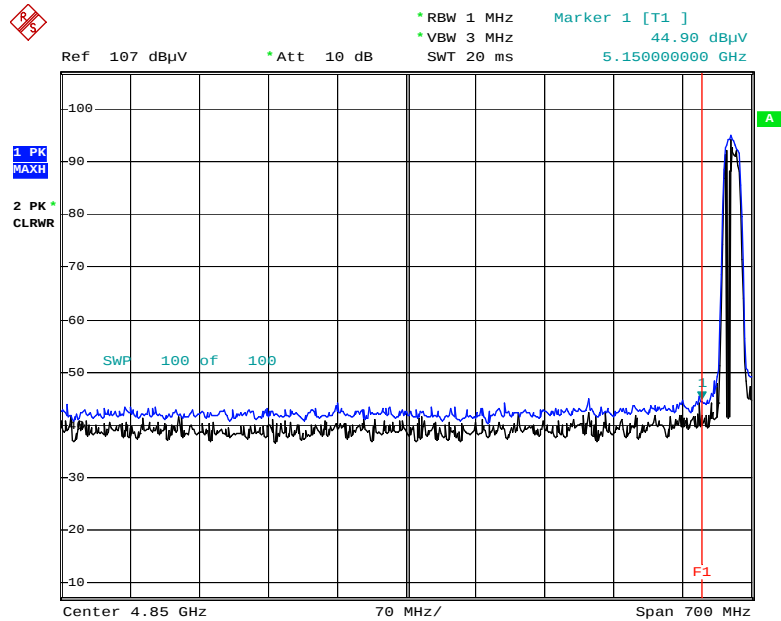
Date: 29.JAN.2019 06:58:15

Average Reading (802.11ac_VHT20, Ch.36)



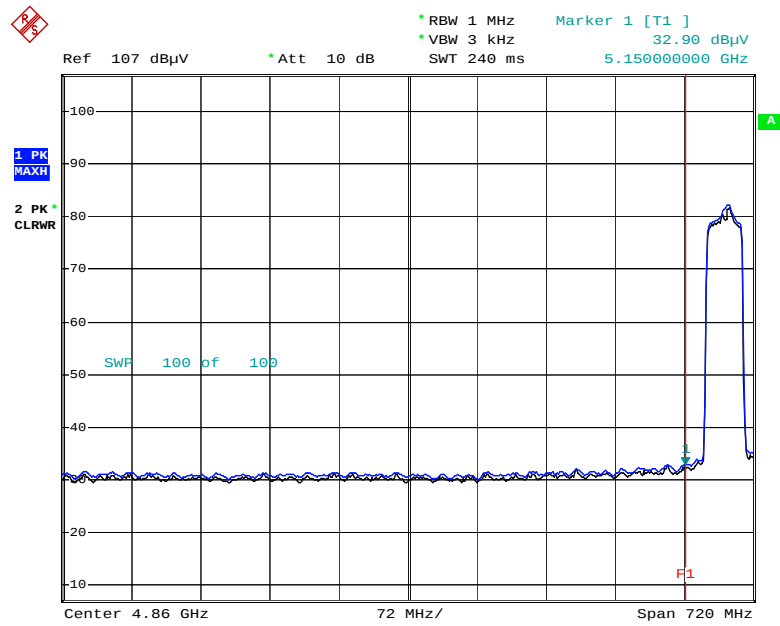
Date: 29.JAN.2019 06:59:56

Peak Reading (802.11ac_VHT20, Ch.36)



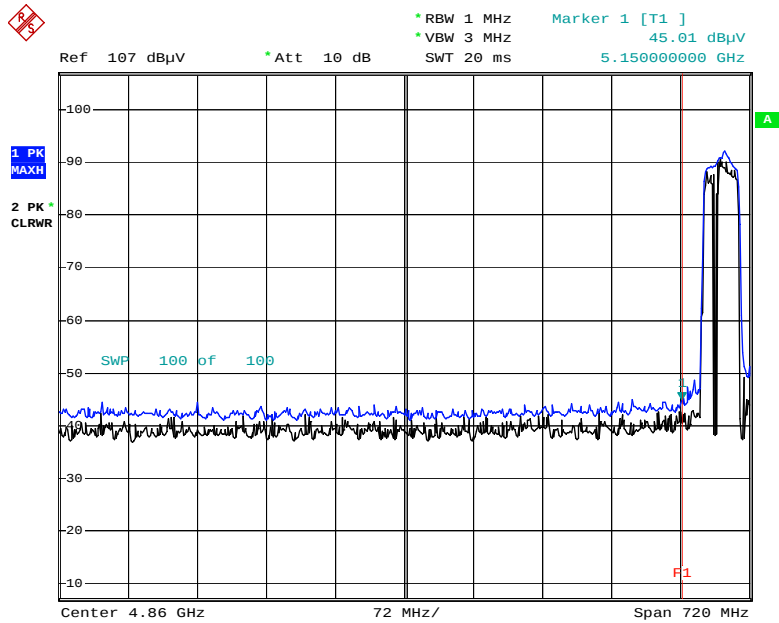
Date: 29.JAN.2019 07:00:43

Average Reading (802.11n_HT40, Ch.38)



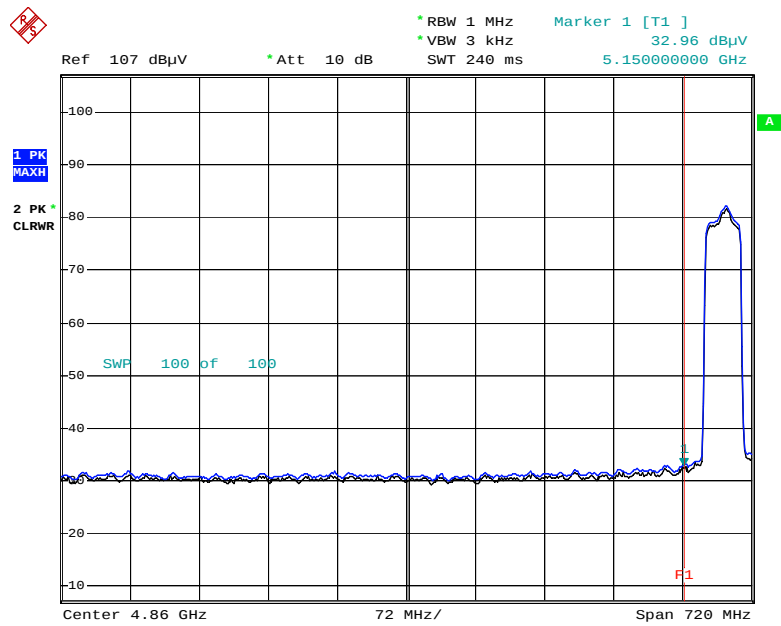
9 Date: 29.JAN.2019 07:04:11

Peak Reading (802.11n_HT40, Ch.38)



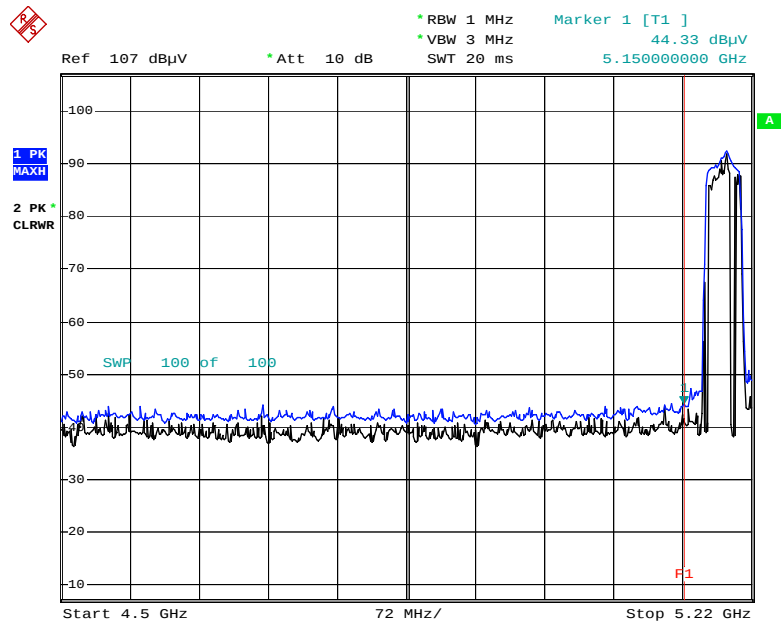
Date: 29.JAN.2019 07:05:22

Average Reading (802.11ac_VHT40, Ch.38)



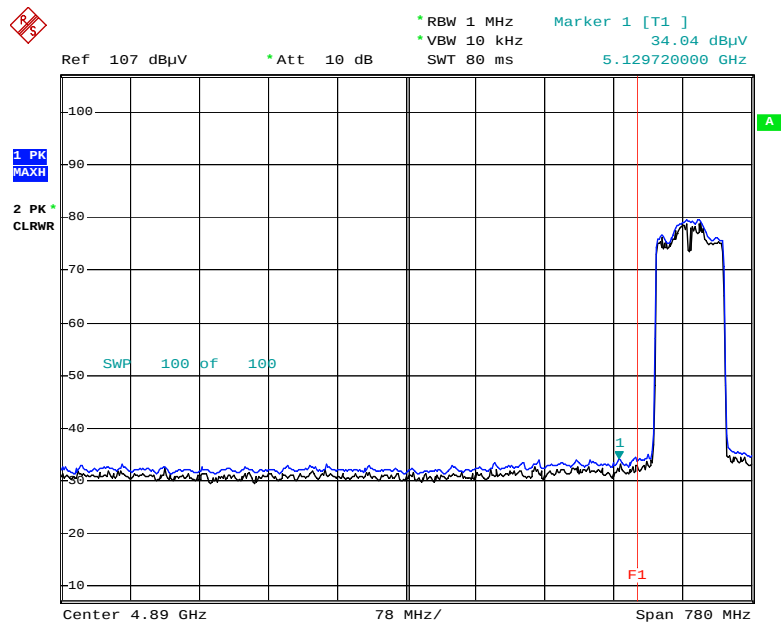
Date: 29.JAN.2019 07:03:04

Peak Reading (802.11ac_VHT40, Ch.38)



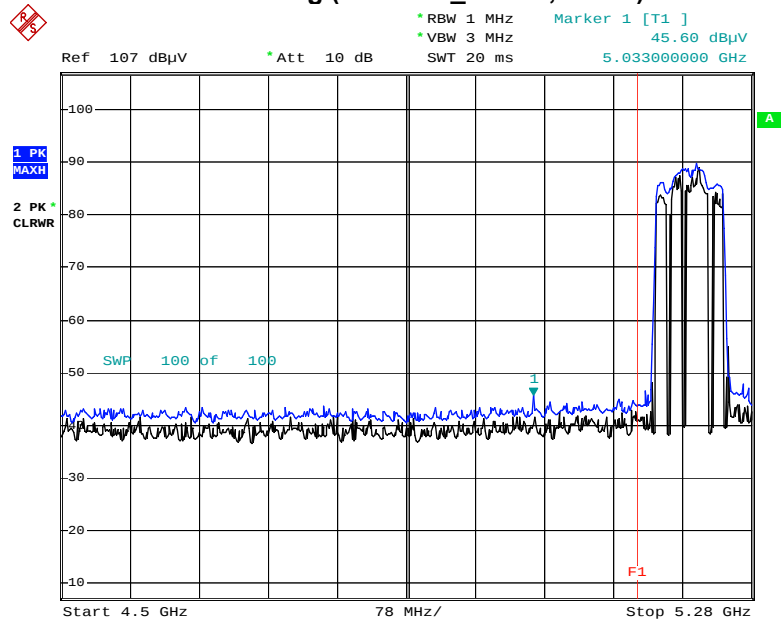
Date: 29.JAN.2019 07:01:51

Average Reading (802.11ac_VHT80, Ch.42)



Date: 29.JAN.2019 07:09:32

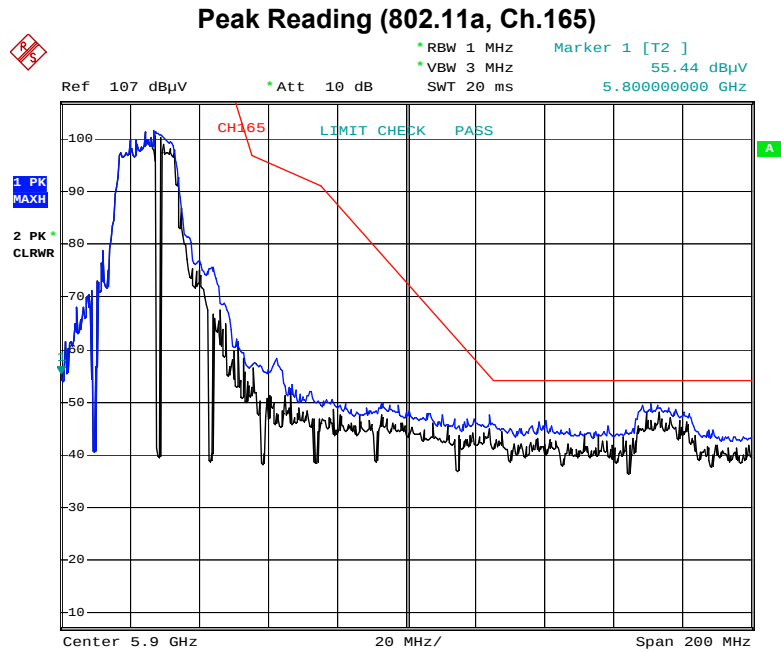
Peak Reading (802.11ac_VHT80, Ch.42)



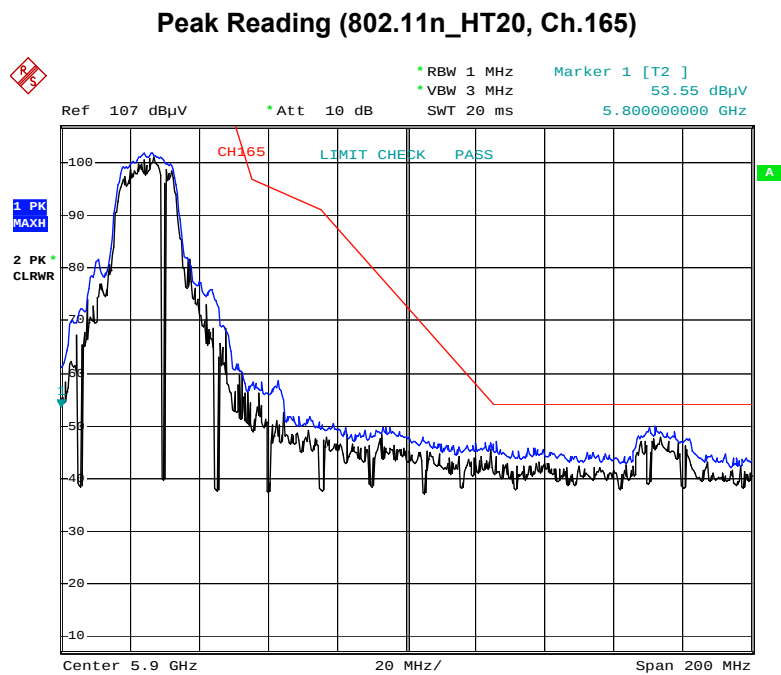
Date: 29.JAN.2019 07:06:37

Note : Only the worst case plots for Radiated Spurious Emissions.

■ Test Plots(UNII 3)

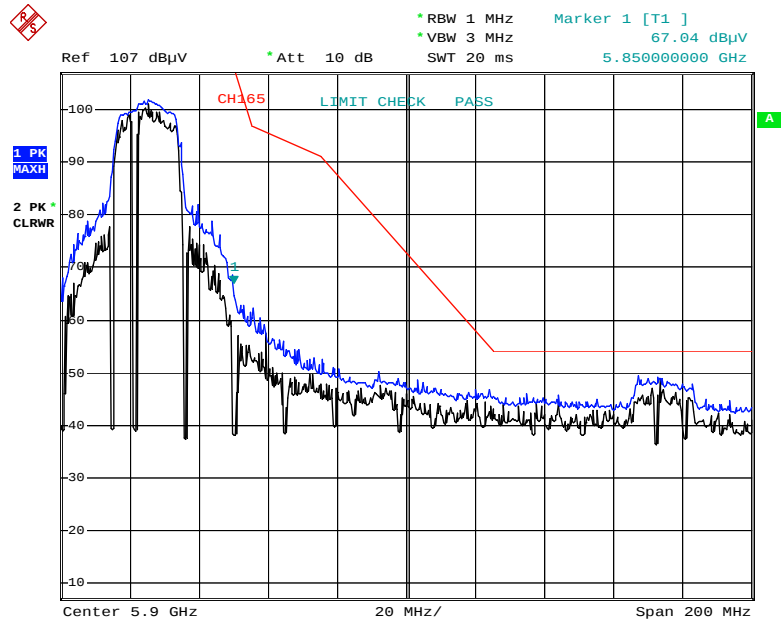


Date: 29.JAN.2019 05:54:41



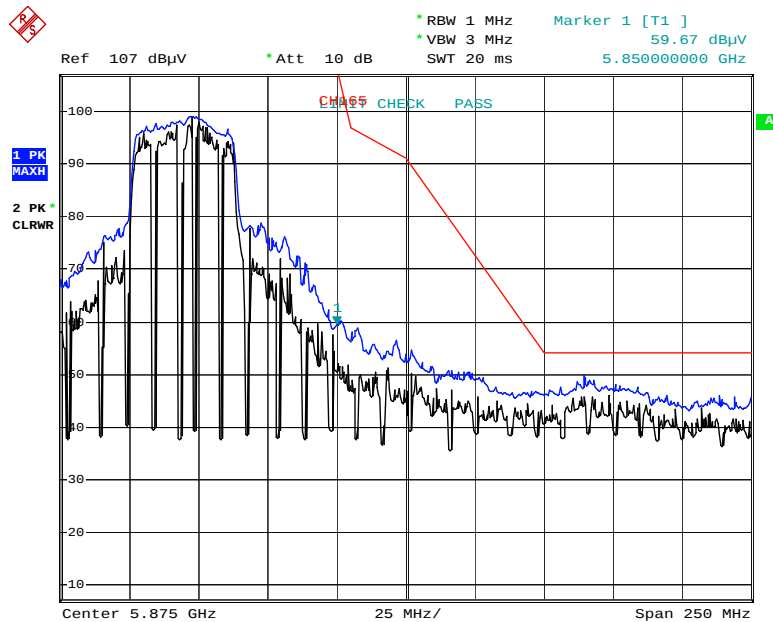
Date: 29.JAN.2019 05:57:59

Peak Reading (802.11ac_VHT20, Ch.165)



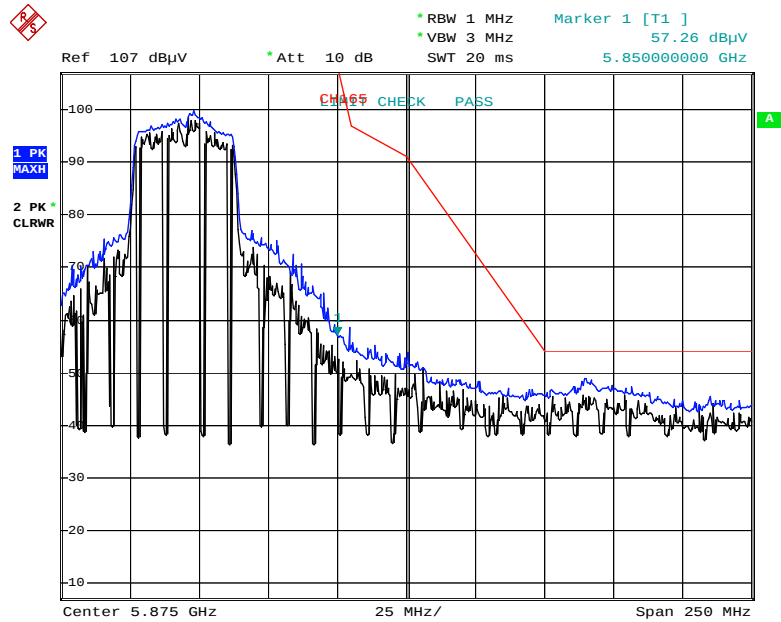
Date: 29.JAN.2019 06:01:17

Peak Reading (802.11n_HT40, Ch.159)



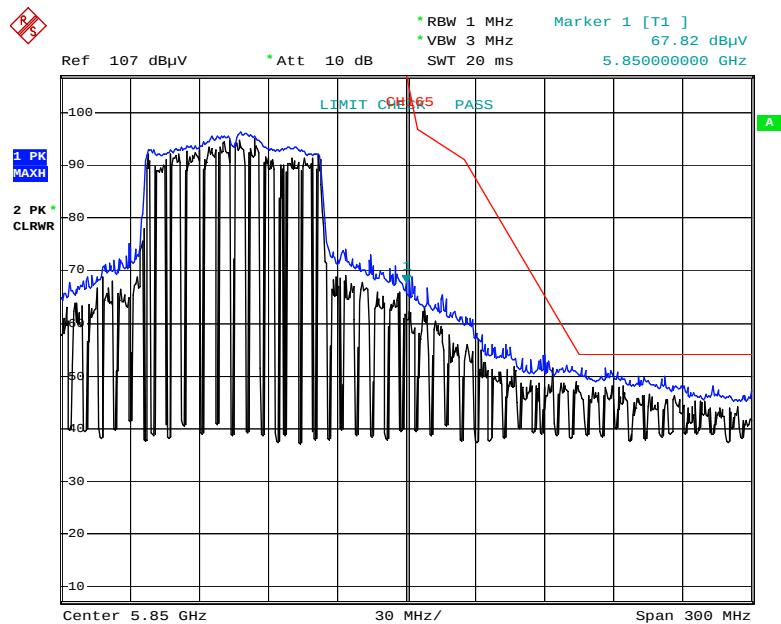
9Date: 29.JAN.2019 06:11:20

Peak Reading (802.11ac_VHT40, Ch.159)



Date: 29.JAN.2019 06:13:02

Peak Reading (802.11ac_VHT80, Ch.155)



Date: 29.JAN.2019 06:15:13

10.9 RECEIVER SPURIOUS EMISSIONS

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

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							

11. LIST OF TEST EQUIPMENT

Conducted Test

Manufacturer	Model / Equipment	Calibration Date	Calibration Interval	Serial No.
Rohde & Schwarz	ENV216 / LISN	12/12/2018	Annual	102245
Rohde & Schwarz	ESCI / Test Receiver	06/27/2018	Annual	100033
ESPACE	SU-642 / Temperature Chamber	03/30/2018	Annual	0093008124
Agilent	N9020A / Signal Analyzer	06/08/2018	Annual	MY51110085
Agilent	N9030A / Signal Analyzer	11/20/2018	Annual	MY49431210
Agilent	N1911A / Power Meter	04/16/2018	Annual	MY45100523
Agilent	N1921A / Power Sensor	04/16/2018	Annual	MY52260025
Agilent	87300B / Directional Coupler	11/20/2018	Annual	3116A03621
Hewlett Packard	11667B / Power Splitter	06/07/2018	Annual	05001
Hewlett Packard	E3632A / DC Power Supply	06/26/2018	Annual	KR75303960
Agilent	8493C / Attenuator(10 dB)	07/10/2018	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
Rohde & Schwarz	CBT / Bluetooth Tester	05/17/2018	Annual	100422

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
Emco	2090 / Controller	N/A	N/A	060520
Ets	Turn Table	N/A	N/A	N/A
Rohde & Schwarz	Loop Antenna	08/23/2018	Biennial	1513-175
Schwarzbeck	VULB 9160 / Hybrid Antenna	08/09/2018	Biennial	3368
Schwarzbeck	BBHA 9120D / Horn Antenna	11/21/2017	Biennial	9120D-1191
Schwarzbeck	BBHA9170 / Horn Antenna(15 GHz ~ 40 GHz)	12/04/2017	Biennial	BBHA9170541
Rohde & Schwarz	FSP(9 kHz ~ 30 GHz) / Spectrum Analyzer	09/19/2018	Annual	836650/016
Rohde & Schwarz	FSV40-N / Spectrum Analyzer	09/19/2018	Annual	101068-SZ
Wainwright Instruments	WHKX10-2700-3000-18000-40SS / High Pass Filter	01/03/2019	Annual	4
Wainwright Instruments	WHKX8-6090-7000-18000-40SS / High Pass Filter	01/03/2019	Annual	5
Wainwright Instruments	WRCJV2400/2483.5-2370/2520-60/12SS / Band Reject Filter	06/29/2018	Annual	2
Wainwright Instruments	WRCJV5100/5850-40/50-8EEK / Band Reject Filter	01/03/2019	Annual	2
Api tech.	18B-03 / Attenuator (3 dB)	06/07/2018	Annual	2
WEINSCHTEL	56-10 / Attenuator(10 dB)	10/10/2018	Annual	72316
CERNEX	CBLU1183540B-01/Broadband Bench Top LNA	01/03/2019	Annual	28549
CERNEX	CBL06185030 / Broadband Low Noise Amplifier	01/03/2019	Annual	24615
CERNEX	CBL18265035 / Power Amplifier	01/03/2019	Annual	22966
CERNEX	CBL26405040 / Power Amplifier	06/29/2018	Annual	25956
TESCOM	TC-3000C / Bluetooth Tester	03/27/2018	Annual	3000C000276

12. ANNEX A_ TEST SETUP PHOTO

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

No.	Description
1	HCT-RF-1902-FI008-P
2	HCT-RF-1902-FI009-P
3	HCT-RF-1902-FI010-P