

TEST REPORT

FCC/IC UNII Test for WC1NP8

Class II Permissive Change

APPLICANT

LG Electronics Inc.

REPORT NO.

HCT-RF-2004-FI008

DATE OF ISSUE

April 20, 2020

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Additional Model
-

Applicant	LG Electronics Inc. 222, LG-ro, Jinwi-myeon, Pyeongtaek-si, Gyeonggi-do, Korea
EUT Type Model Name	RF Module WC1NP8
FCC ID	BEJ-WC1NP8
IC	2703H-WC1NP8
Modulation type	OFDM
FCC Classification	Unlicensed National Information Infrastructure(NII)
FCC Rule Part(s)	Part 15.407
IC Rule Part(s)	RSS-247 Issue 2 (February 2017) RSS-Gen Issue 5_Amendment 1 (March 2019)

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

Tested by
Jin Gwan Lee

(signature)

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Jong Seok Lee

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HCT CO., LTD.
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REVISION HISTORY

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

Revision No.	Date of Issue	Description
0	April 20, 2020	Initial Release

The result shown in this test report refer only to the sample(s) tested unless otherwise stated.

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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1. GENERAL INFORMATION

EUT DESCRIPTION

Model	WC1NP8	
Additional Model	-	
EUT Type	RF Module	
Radiation Sample Serial Number	7440BE91957A	
Conducted Sample Serial Number	7440BE91963A	
Power Supply	DC 3.45 V	
Modulation Type	OFDM : 802.11a, 802.11n	
Frequency Range (MHz)	U-NII-2A	20MHz BW : 5260 - 5320 40MHz BW : 5270 - 5310
	U-NII-2C	20MHz BW : 5500 - 5720 40MHz BW : 5510 - 5710
Antenna type	FPCB Antenna	
Antenna Peak Gain	Ant.1: -2.28 dBi(UNII 2A)/ -0.58 dBi(UNII 2C) Ant.2: -1.86 dBi(UNII 2A)/ -0.85 dBi(UNII 2C)	
Straddle channel	Supported	
TDWR Band	Not Supported	
Dynamic Frequency Selection	Slave without radar detection	
Date(s) of Tests	February 26, 2020 ~ April 02, 2020	
PMN (Product Marketing Number)	WC1NP8	
HVIN (Hardware Version Identification Number)	WC1NP8	
FVIN (Firmware Version Identification Number)	V1.1	
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	O
802.11n(HT20)	O	O	O	O
802.11n(HT40)	O	O	O	O

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

Directional gain = $10 \times \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N]$ dBi

Band	Ant Gain (dBi)		Directional Gain = $10 \times \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N]$ dBi
UNII 2A	Ant1(Aux)	-1.21	2.11
	Ant2(Main)	-0.60	
UNII 2C	Ant1(Aux)	-0.58	2.30
	Ant2(Main)	-0.85	

2. MAXIMUM OUTPUT POWER

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

Band	Mode	SISO				MIMO	
		Ant1 Power		Ant2 Power		Ant 1 + Ant 2 Power	
		(dBm)	(W)	(dBm)	(W)	(dBm)	(W)
UNII2A	802.11a	14.22	0.026	14.07	0.026	17.15	0.052
	802.11n (HT20)	14.07	0.026	13.89	0.024	16.94	0.049
	802.11n (HT40)	15.05	0.032	15.29	0.034	18.18	0.066
UNII2C	802.11a	16.68	0.047	16.18	0.042	19.08	0.081
	802.11n (HT20)	16.48	0.044	15.68	0.037	19.08	0.081
	802.11n (HT40)	16.79	0.048	15.34	0.034	18.99	0.079

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 6.6.5 of ANSI C63.10. (Version: 2013)

DESCRIPTION OF TEST MODES

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

4. INSTRUMENT CALIBRATION

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

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

5. FACILITIES AND ACCREDITATIONS

5.1 FACILITIES

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

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

For ISCED, test facility was accepted dated February 14, 2019 (CAB identifier: KR0032).

5.2 EQUIPMENT

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

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

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

6. ANTENNA REQUIREMENTS

According to FCC 47 CFR § 15.203, § 15.407:

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

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

7. MEASUREMENT UNCERTAINTY

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

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

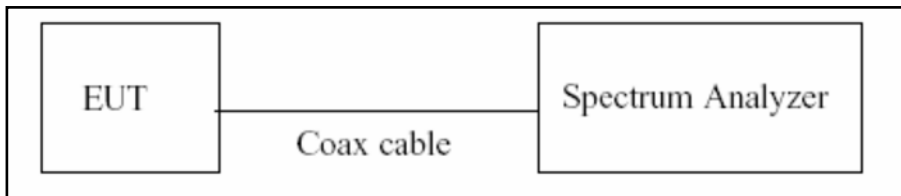
The measurement data shown herein meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

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

8. DESCRIPTION OF TESTS

8.1. Duty Cycle

Test Configuration



Test Procedure

The transmitter output is connected to the Spectrum Analyzer.

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

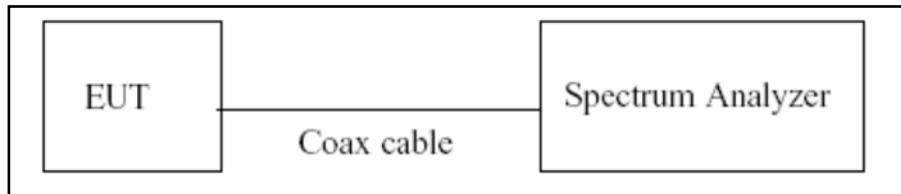
1. RBW = 8 MHz (the largest available value)
2. VBW = 8 MHz ($\geq$ RBW)
3. SPAN = 0 Hz
4. Detector = Peak
5. Number of points in sweep > 100
6. Trace mode = Clear write
7. Measure T_{total} and T_{on}
8. Calculate Duty Cycle = T_{on} / T_{total} and Duty Cycle Factor = $10\log(1/\text{Duty Cycle})$

8.2. 6dB Bandwidth & 26dB Bandwidth & 99 % Bandwidth

Limit

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

Test Configuration



Test Procedure(26dB Bandwidth)

The transmitter output is connected to the Spectrum Analyzer.

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

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

Test Procedure (6dB Bandwidth)

The transmitter output is connected to the Spectrum Analyzer.

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

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

Note:

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

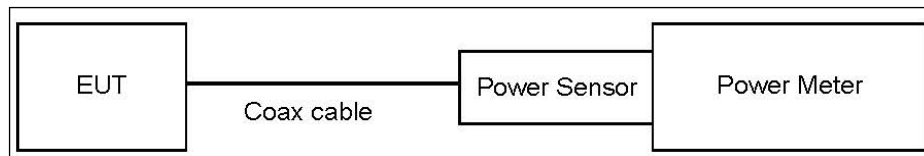
8.3. Output Power Measurement

Limit

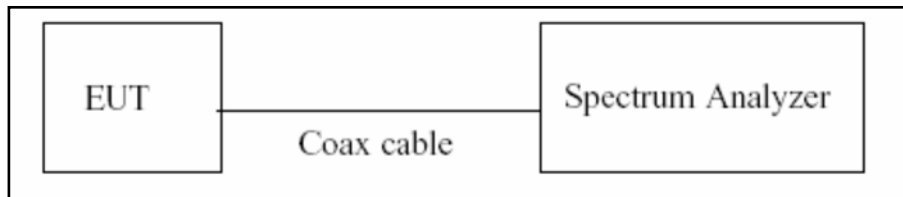
Band	Limit
UNII 2A, 2C	Not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, (where B is the 26 dB emission bandwidth in megahertz.)

Test Configuration

Power Meter



Spectrum Analyzer(Only Straddle Channel)



Test Procedure(Power Meter)

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

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

Test Procedure(Spectrum Analyzer)

The transmitter output is connected to the Spectrum Analyzer.

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

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

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

Sample Calculation

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

Note

1. Spectrum reading values are not plot data.

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

2. Spectrum offset = Attenuator loss(20 dB) + Cable loss(1ea)

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

Band	Loss(dB)
UNII 2A	22.5
UNII 2C	22.5

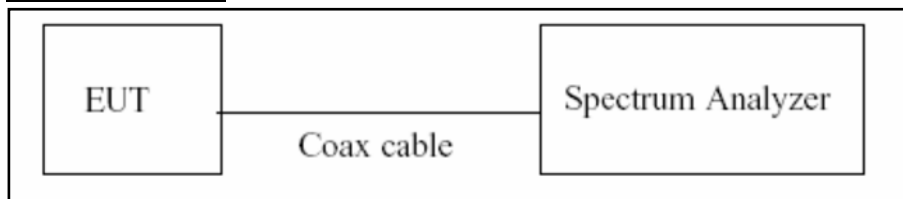
(Actual value of loss for the attenuator and cable combination)

8.4. Power Spectral Density

Limit

Band	Limit
UNII 2A, 2C	11 dBm/MHz

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 x span/RBW.
5. Sweep time = auto.
6. Detector = RMS(i.e., power averaging), if available. Otherwise, use sample detector mode.
7. Do not use sweep triggering. Allow the sweep to “free run”.
8. Trace average at least 100 traces in power averaging(RMS) mode
9. Use the peak search function on the spectrum analyzer to find the peak of the spectrum.
10. If Method SA-2 was used, add $10 \log(1/x)$, where x is the duty cycle, to the peak of the spectrum.

Sample Calculation

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

Note

1. Spectrum reading values are not plot data.

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

2. Spectrum offset = Attenuator loss(20 dB) + Cable loss(1ea)

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

Band	Loss(dB)
UNII 2A	22.5
UNII 2C	22.5

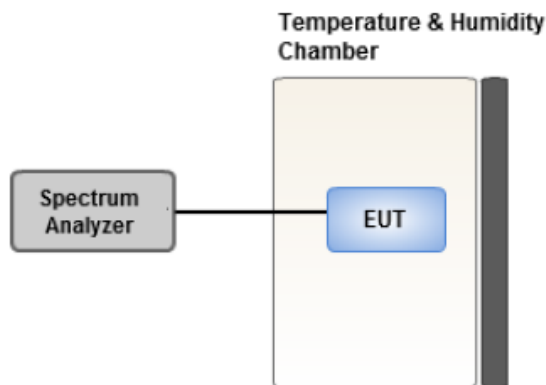
(Actual value of loss for the attenuator and cable combination)

8.5. Frequency Stability

Limit

Maintained within the band

Test Configuration



Test Procedure

1. The EUT was placed inside an environmental chamber as the temperature in the chamber was varied between -30 °C and 50 °C.
2. The temperature was incremented by 10 °C intervals and the unit was allowed to stabilize at each temperature before each measurement. The center frequency of the transmitting channel was evaluated at each temperature and the frequency deviation from the channel's center frequency was recorded.
3. The primary supply voltage is varied from 85% to 104% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.
4. While maintaining a constant temperature inside the environmental chamber, turn the EUT ON and record the operating frequency at startup, and at 2 minutes, 5 minutes, and 10 minutes after the EUT is energized. Four measurements in total are made.

8.6. AC Power line Conducted Emissions

Limit

For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 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 ^(a)	56 to 46 ^(a)
0.50 to 5	56	46
5 to 30	60	50

^(a)Decreases with the logarithm of the frequency.

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

Test Configuration

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

Test Procedure

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

Sample Calculation

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

8.7. Radiated Test

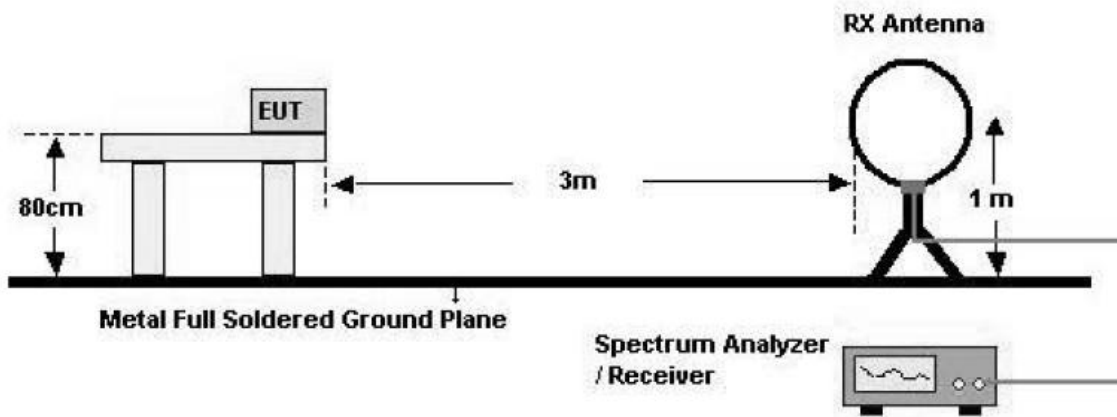
Limit

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.

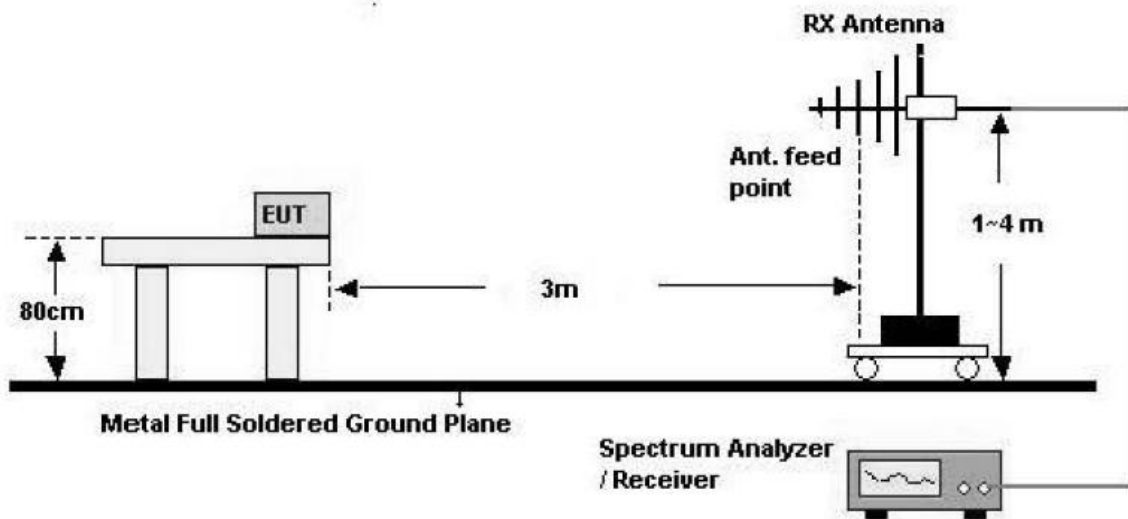
Frequency (MHz)	Field Strength (uV/m)	Measurement Distance (m)
0.009 – 0.490	$2400/F(\text{kHz})$	300
0.490 – 1.705	$24000/F(\text{kHz})$	30
1.705 – 30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Test Configuration

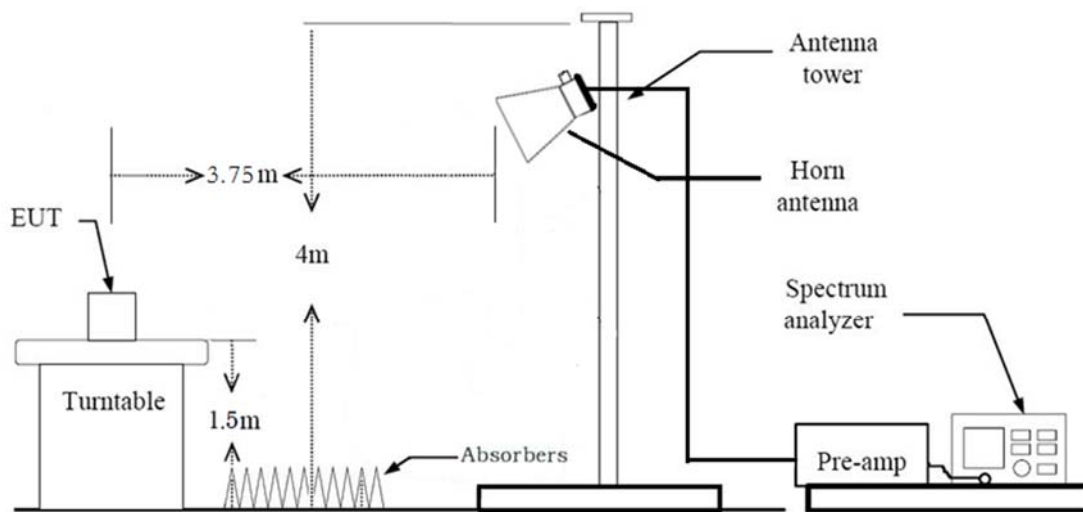
Below 30 MHz



30 MHz - 1 GHz



Above 1 GHz



Test Procedure of Radiated spurious emissions(Below 30 MHz)

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

KDB 414788 OFS and Chamber Correlation Justification

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

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

Test Procedure of Radiated spurious emissions(Below 1GHz)

1. The EUT was placed on a non-conductive table located on semi-anechoic chamber.
2. The EUT is placed on a turntable, which is 0.8m above ground plane.
3. 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 $\geq 3 \times$ RBW
 - (2) Measurement Type(Quasi-peak):
 - Measured Frequency Range : 30 MHz – 1 GHz
 - Detector = Quasi-Peak
 - RBW = 120 kHzIn general, (1) is used mainly
6. Total = Reading Value + Antenna Factor(A.F) + Cable Loss(C.L)
7. Measurement value only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.

Test Procedure of Radiated spurious emissions (Above 1 GHz)

1. The EUT is placed on a turntable, which is 1.5 m above ground plane.
2. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
3. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
4. EUT is set 3.75 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 = $20\log(\text{test distance} / \text{specific distance})$ (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. 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 = $20\log(\text{test distance} / \text{specific distance})$ (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)
802.11a	6	0.936	0.288	1000
802.11n(HT20)	MCS 0	0.930	0.314	1000
802.11n(HT40)	MCS 0	0.873	0.590	3000

8.8. Receiver Spurious Emissions

Limit

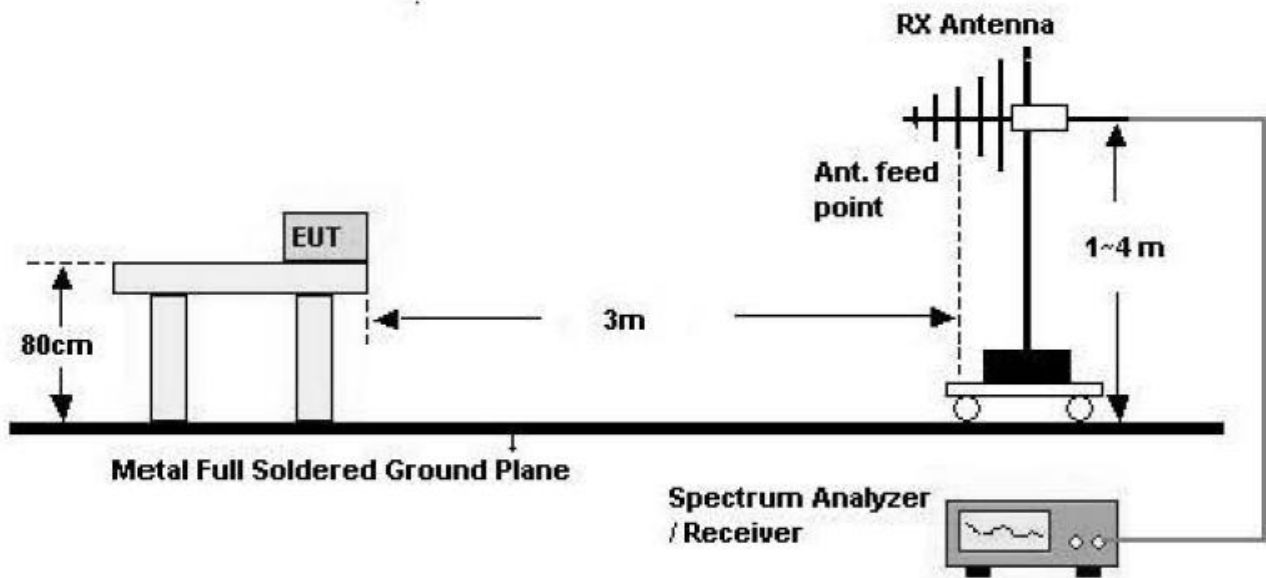
Frequency (MHz)	Field Strength (uV/m)	Measurement Distance (m)
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Note:

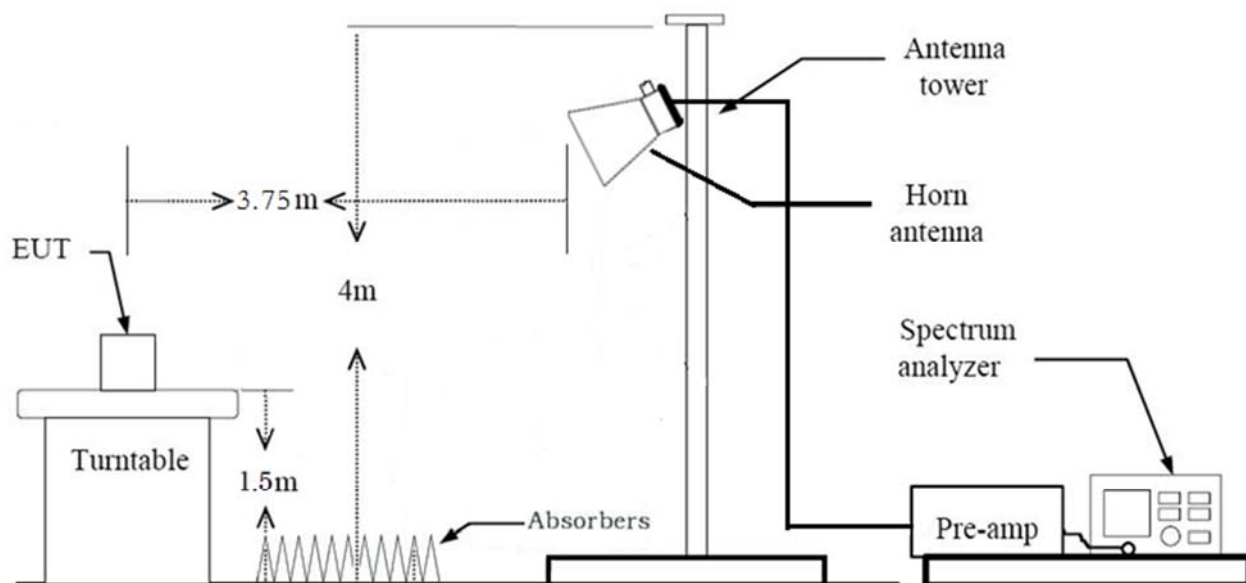
Measurements for compliance with the limits in table may be performed at distances other than 3 metres.

Test Configuration

30 MHz - 1 GHz



Above 1 GHz



Test Procedure of Receiver 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 $\geq 3 \times$ RBW
 - (2) Measurement Type(Quasi-peak):
 - Measured Frequency Range : 30 MHz – 1 GHz
 - Detector = Quasi-Peak
 - RBW = 120 kHz
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 = $20 \log (\text{test distance} / \text{specific distance})$ (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 $\geq 3 \times$ 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 seconds

The 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(CDD,SDM)
 - Worstcase : Ant1+Ant2(CDD)
3. EUT Axis
 - Radiated Spurious Emissions : Z
 - 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
5. All position of loop antenna were investigated and the test result is a no critical peak found at all positions.
 - Position : Horizontal, Vertical, Parallel to the ground plane

AC Power line Conducted Emissions

1. All modes of operation were investigated and the worst case configuration results are reported.
 - Mode : Stand alone + Notebook

Conducted test

1. All datarate of operation were investigated and the worst case datarate results are reported.
2. SISO & MIMO were tested and the all case results are reported.
 - Mode : Ant1(SISO), Ant2(SISO), Ant1+Ant2(CDD)

9. SUMMARY OF TEST RESULTS

FCC

Test Description	FCC Part Section(s)	Test Limit	Test Condition	Test Result
26dB Bandwidth	§ 15.407 (for Power Measurement)	N/A	Conducted	PASS
6 dB Bandwidth	§ 15.407(e)	>500 kHz (5725-5850 MHz)		PASS
Maximum Conducted Output Power	§ 15.407(a)(1)	< 250 mW(5150-5250 MHz) < 250 mW or 11+10 log log ₁₀ (BW) dBm (5250-5350 MHz) < 250 mW or 11+10 log log ₁₀ (BW) dBm (5470-5725 MHz) <1 W(5725-5850 MHz)		PASS
Peak Power Spectral Density	§ 15.407(a)(1),(5)	<11 dBm/ MHz (5150-5250 MHz) <11 dBm/ MHz (5250-5350 MHz) <11 dBm/ MHz (5470-5725 MHz) <30 dBm/500 kHz(5725-5850 MHz)		PASS
Frequency Stability	§ 15.407(g) § 2.1055	Maintained within the band		PASS
AC Conducted Emissions 150 kHz-30 MHz	15.207	<FCC 15.207 limits		PASS
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

IC

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,	RSS-247, 6.2	< 250 mW or $11+10 \log_{10}$ (BW) dBm (5470-5600, 5650-5725 MHz) Whichever power is less		PASS
	RSS-247, 6.2.4.1	<1 W (5725-5850 MHz)		
Maximum e.i.r.p	RSS-247, 6.2	< 30 mW or $1.76+10 \log_{10}$ (BW) dBm (5150-5250 MHz) < 30 mW or $1.76+10 \log_{10}$ (BW) dBm (5250-5350 MHz) < 1 W or $17+10 \log_{10}$ (BW) dBm (5470-5725 MHz) Whichever power is less		PASS
Power Spectral Density	RSS-247 6.2	<10 dBm/ MHz(e.i.r.p.) (5150-5250 MHz) <11 dBm/MHz(Conducted) (5250-5350 MHz, 5470-5600 MHz, 5650-5725 MHz)		PASS
	RSS-247, 6.2.4.1	<30 dBm/500 kHz(Conducted) (5725-5850 MHz)		
Frequency Stability	RSS-GEN 8.11	should be kept within at least the central 80% of its permitted operating frequency band in order to minimize the possibility of out-of-band operation.		PASS
AC Conducted Emissions 150 kHz-30 MHz	RSS-GEN, 8.8	RSS-GEN section 8.8 table 4		PASS
Undesirable Emissions	RSS-247, 6.2.1.2	26 dBc at 5250~5350 MHz (5150~5350 MHz)		PASS
	RSS-247, 6.2	<-27 dBm/ MHz EIRP (5150-5350 MHz, 5470-5725 MHz)	RADIATED	PASS
	RSS-247, 6.2.4.2	cf. Section 9.8.1 (UNII 3)		
General Field Strength Limits(Restricted Bands and Radiated Emission Limits)	RSS-Gen, 8.9 RSS-Gen, 8.10	RSS-Gen section 8.9 table 5, 6 section 8.10 table 7		PASS
Receiver Spurious Emissions	RSS-GEN, 5 RSS-GEN, 7.3	RSS-GEN section 7.3 table 3		PASS

10. TEST RESULT

10.1 DUTY CYCLE

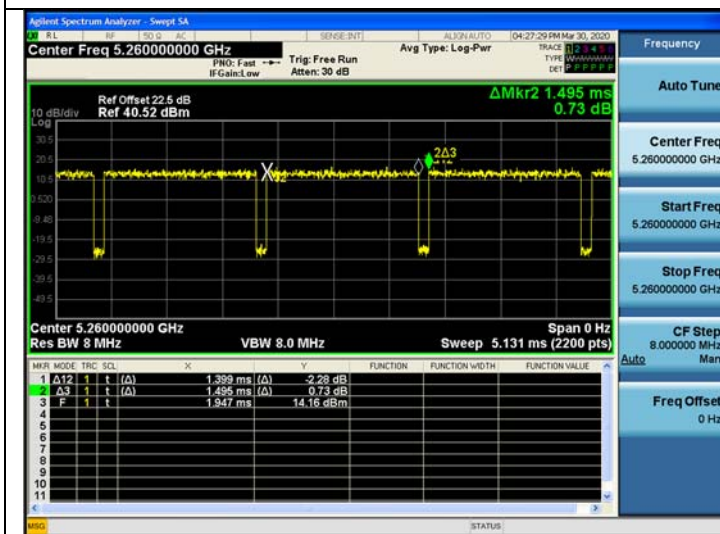
Mode	Data Rate (Mbps)	T _{on} (ms)	T _{total} (ms)	Duty Cycle	Duty Cycle Factor(dB)
802.11a	6	1.399	1.495	0.936	0.288
	9	0.939	1.036	0.906	0.427
	12	0.712	0.807	0.882	0.544
	18	0.481	0.581	0.828	0.818
	24	0.367	0.463	0.793	1.007
	36	0.252	0.348	0.724	1.401
	48	0.196	0.293	0.669	1.744
	54	0.176	0.273	0.643	1.918

Mode	MCS Index	T _{on} (ms)	T _{total} (ms)	Duty Cycle	Duty Cycle Factor(dB)
802.11n (HT20)	0	1.308	1.406	0.930	0.314
	1	0.672	0.767	0.876	0.575
	2	0.460	0.556	0.827	0.823
	3	0.356	0.456	0.780	1.080
	4	0.248	0.343	0.723	1.410
	5	0.196	0.291	0.672	1.725
	6	0.180	0.275	0.654	1.842
	7	0.164	0.259	0.631	1.997
802.11n (HT40)	0	0.648	0.743	0.873	0.590
	1	0.344	0.439	0.783	1.062
	2	0.240	0.335	0.716	1.448
	3	0.192	0.287	0.668	1.755
	4	0.140	0.235	0.597	2.237
	5	0.116	0.210	0.550	2.599
	6	0.104	0.199	0.521	2.828
	7	0.100	0.194	0.514	2.889

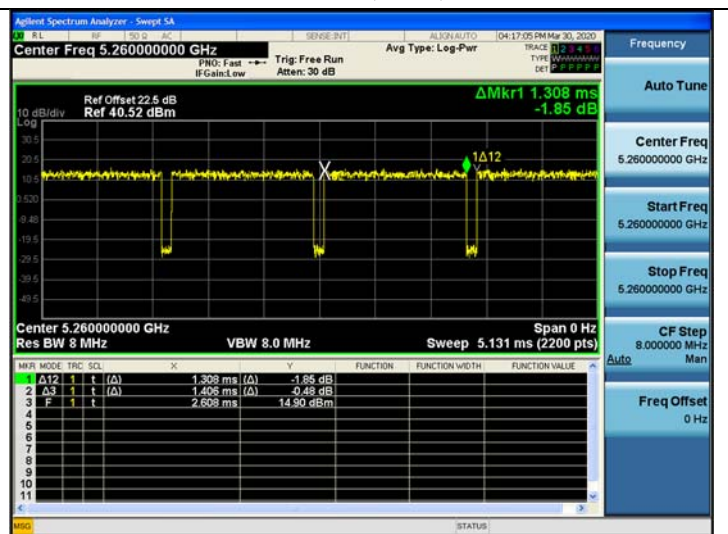
Note:

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

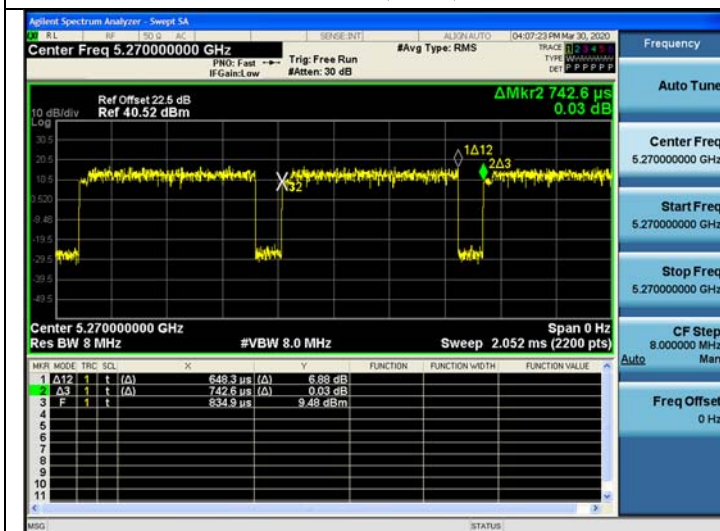
802.11a



802.11n(HT20)



802.11n(HT40)



10.2 26dB BANDWIDTH

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

Straddle channel data were added in section 10.7.1.

[ANT1]

802.11a Mode		26dB Bandwidth [MHz]	99% bandwidth [MHz]
Frequency [MHz]	Channel No.		
5260	52	20.42	16.310
5300	60	19.52	16.348
5320	64	20.26	16.308
5500	100	21.26	16.377
5580	116	23.17	16.372
5720	144	20.56	16.338

802.11n(HT20) Mode		26dB Bandwidth [MHz]	99% bandwidth [MHz]
Frequency [MHz]	Channel No.		
5260	52	20.89	17.427
5300	60	19.77	17.425
5320	64	20.36	17.457
5500	100	21.68	17.508
5580	116	20.54	17.495
5720	144	20.91	17.463

802.11n(HT40) Mode		26dB Bandwidth [MHz]	99% bandwidth [MHz]
Frequency [MHz]	Channel No.		
5270	54	41.70	35.981
5310	62	41.85	35.882
5510	102	41.99	35.813
5550	110	42.67	35.965
5710	142	42.55	35.949

[ANT2]

802.11a Mode		26dB Bandwidth [MHz]	99% bandwidth [MHz]
Frequency [MHz]	Channel No.		
5260	52	20.68	16.318
5300	60	20.51	16.294
5320	64	19.95	16.297
5500	100	20.67	16.347
5580	116	21.06	16.348
5720	144	20.55	16.329

802.11n(HT20) Mode		26dB Bandwidth [MHz]	99% bandwidth [MHz]
Frequency [MHz]	Channel No.		
5260	52	20.98	17.461
5300	60	20.42	17.407
5320	64	20.20	17.387
5500	100	21.64	17.487
5580	116	20.91	17.452
5720	144	20.21	17.447

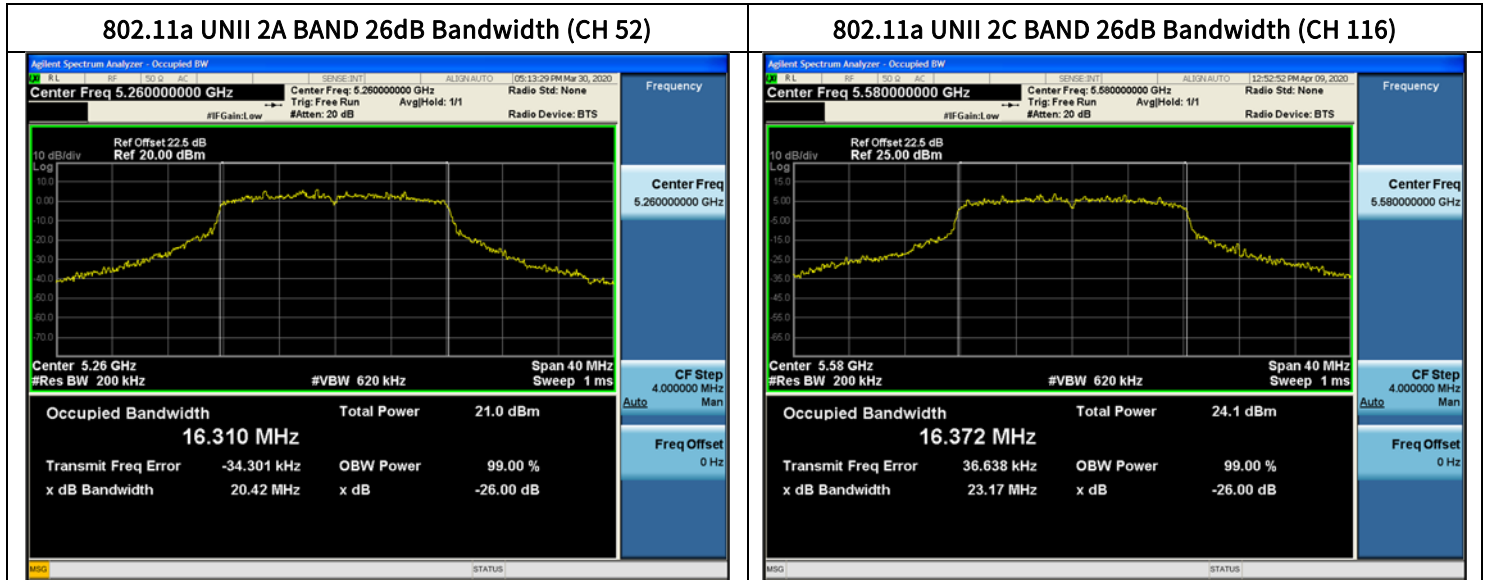
802.11n(HT40) Mode		26dB Bandwidth [MHz]	99% bandwidth [MHz]
Frequency [MHz]	Channel No.		
5270	54	41.95	35.863
5310	62	41.60	35.805
5510	102	42.31	35.817
5550	110	42.50	35.896
5710	142	42.55	35.864

[ANT1]

■ Test Plots(802.11a)

Note:

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

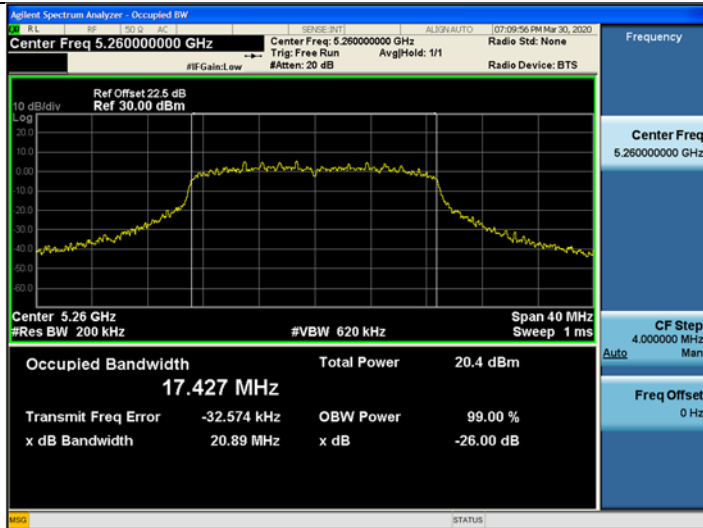


■ Test Plots(802.11n(HT20))

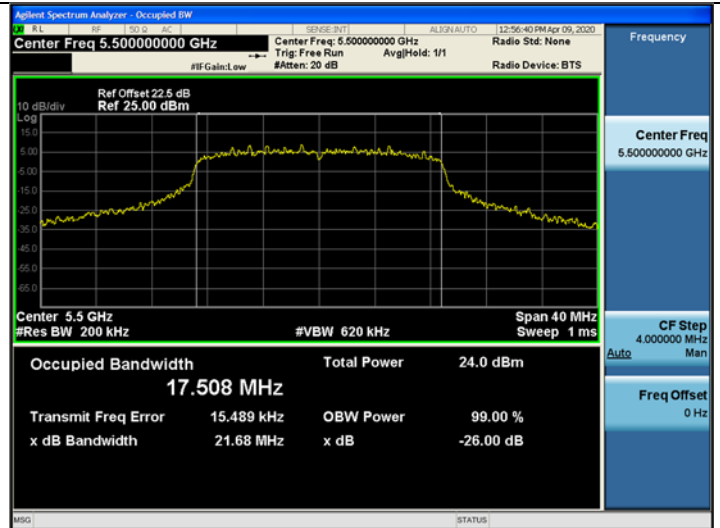
Note:

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

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



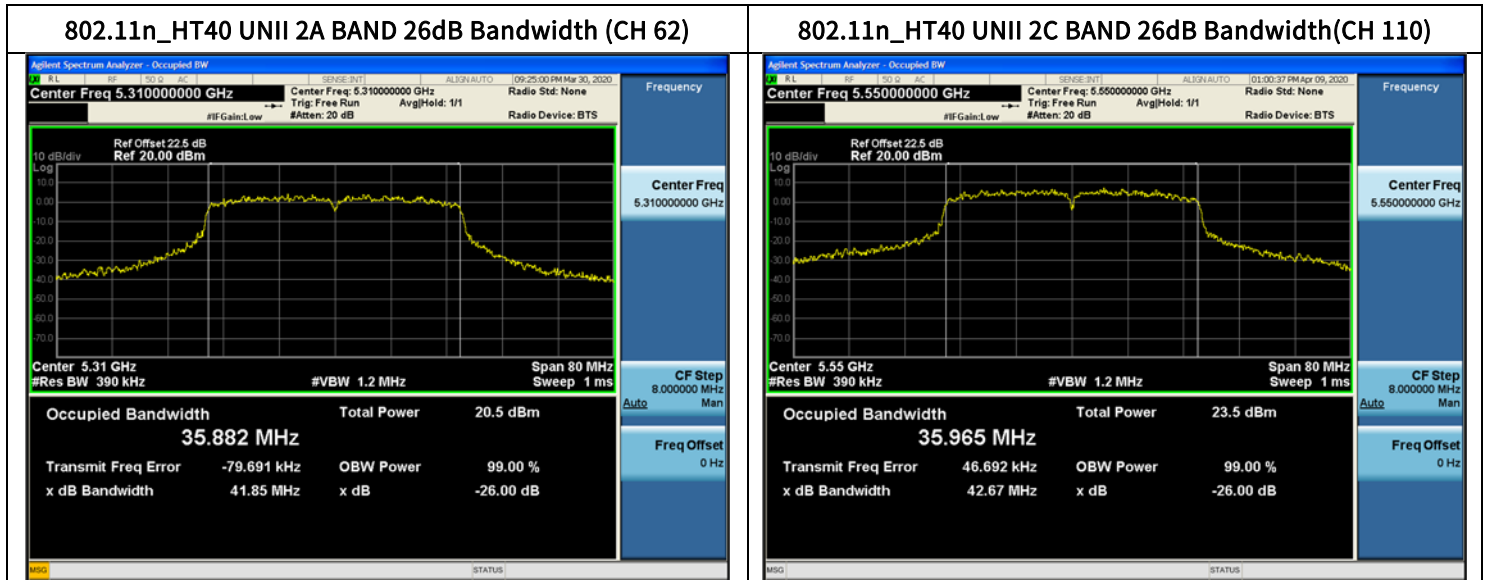
802.11n_HT20 UNII 2C BAND 26dB Bandwidth(CH 100)



■ Test Plots(802.11n(HT40))

Note:

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

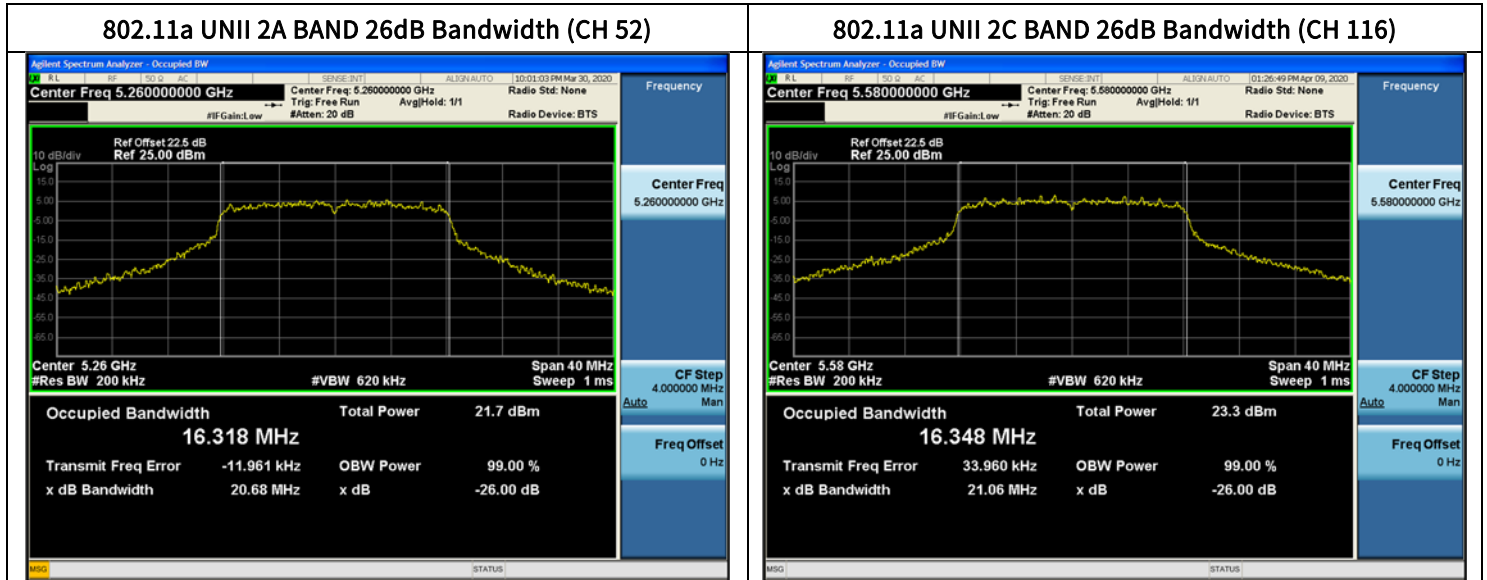


[ANT2]

■ Test Plots(802.11a)

Note:

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

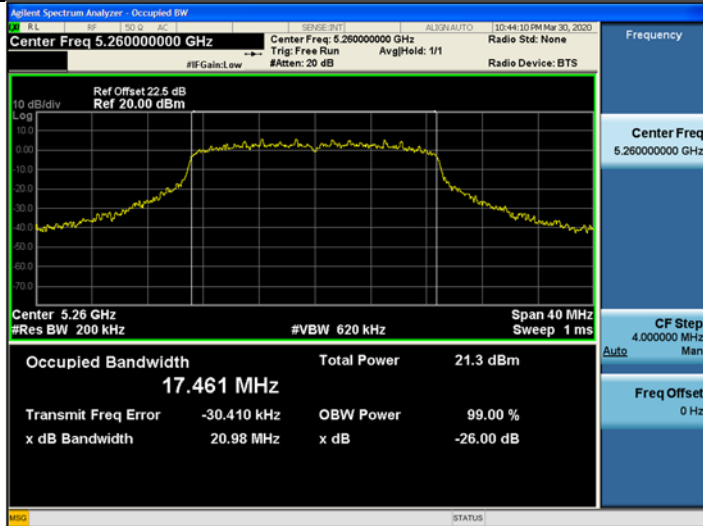


■ Test Plots(802.11n(HT20))

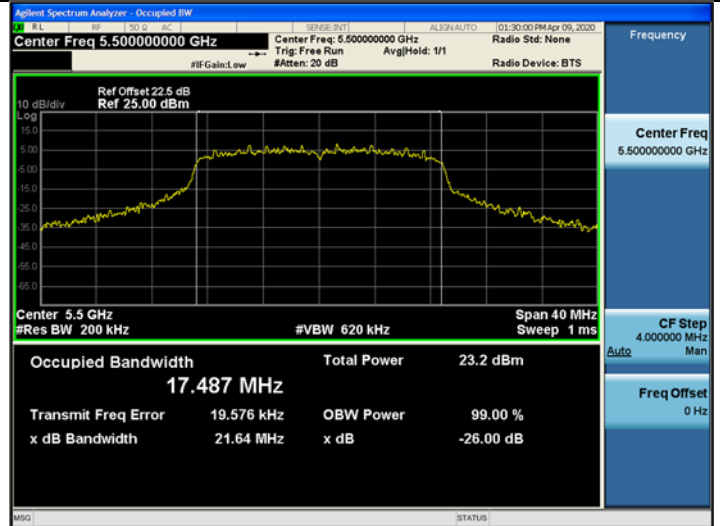
Note:

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

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



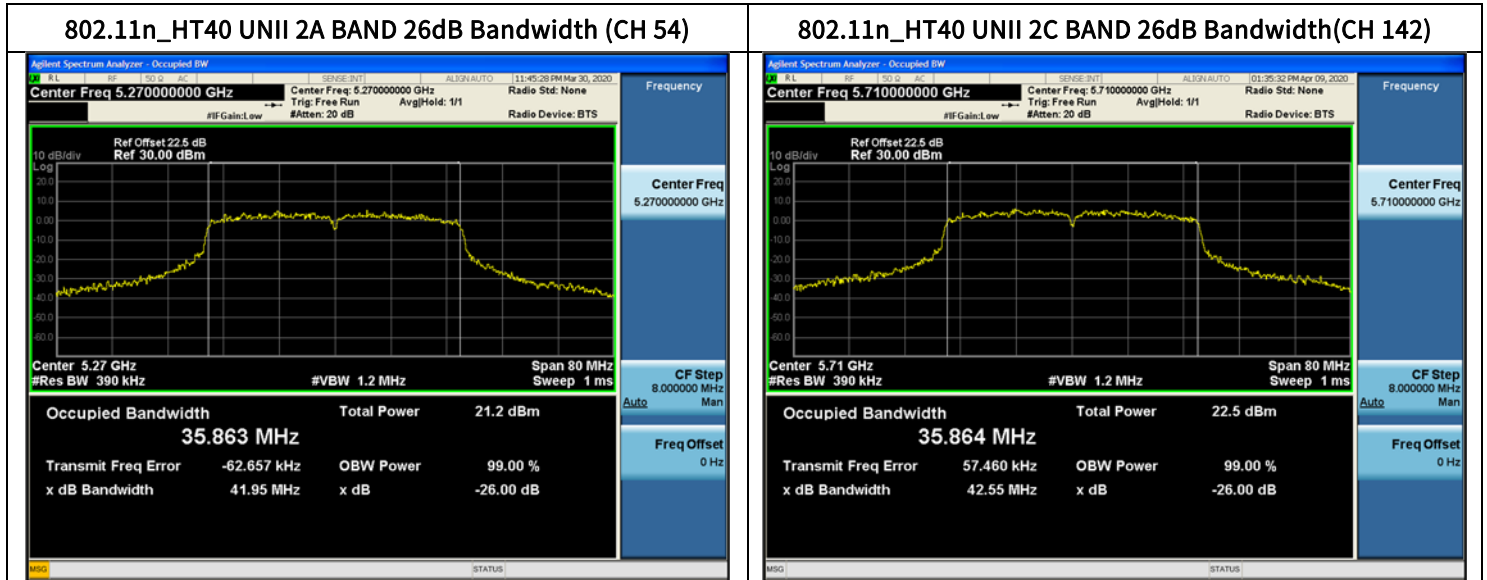
802.11n_HT20 UNII 2C BAND 26dB Bandwidth(CH 100)



Test Plots(802.11n(HT40))

Note:

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



10.3 OUTPUT POWER MEASUREMENT

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

Straddle channel data were added in section 10.7.3.

[Ant1]

802.11a Mode			Rate (Mbps)	SISO Measured Conducted output power (dBm)				
Band	Frequency [MHz]	Channel No.		Ant 1 Measured Power	Duty Factor	Ant 1 Total Power (dBm)	Power Level Setting	Limit (dBm)
UNII 2A	5260	52	6	13.72	0.29	14.01	12	22.90
			9	13.69	0.43	14.11		22.90
			12	13.67	0.54	14.22		22.90
			18	12.97	0.82	13.79		22.90
			24	11.23	1.01	12.24		22.90
			36	10.89	1.40	12.29		22.90
			48	10.77	1.74	12.51		22.90
			54	10.59	1.92	12.50		22.90
	5300	60	6	12.01	0.29	12.30	10	22.90
			9	12.01	0.43	12.43		22.90
			12	11.92	0.54	12.46		22.90
			18	11.23	0.82	12.05		22.90
			24	9.42	1.01	10.42		22.90
			36	9.20	1.40	10.60		22.90
			48	8.99	1.74	10.73		22.90
			54	8.82	1.92	10.74		22.90
	5320	64	6	13.27	0.29	13.56	11	22.90
			9	13.23	0.43	13.66		22.90
			12	13.08	0.54	13.62		22.90
			18	12.30	0.82	13.12		22.90
			24	10.54	1.01	11.54		22.90
			36	10.28	1.40	11.68		22.90
			48	10.01	1.74	11.76		22.90
			54	9.91	1.92	11.83		22.90

802.11a Mode			Rate (Mbps)	SISO Measured E.I.R.P (dBm)				
Band	Frequency [MHz]	Channel No.		Ant 1 Total Power (dBm)	Peak Ant Gain (dBi)	E.I.R.P (dBm)	Power Level Setting	E.I.R.P Limit (dBm)
UNII 2A	5260	52	6	14.01	-1.21	12.80	12	30
			9	14.11	-1.21	12.90		30
			12	14.22	-1.21	13.01		30
			18	13.79	-1.21	12.58		30
			24	12.24	-1.21	11.03		30
			36	12.29	-1.21	11.08		30
			48	12.51	-1.21	11.30		30
			54	12.50	-1.21	11.29		30
	5300	60	6	12.30	-1.21	11.09	10	30
			9	12.43	-1.21	11.22		30
			12	12.46	-1.21	11.25		30
			18	12.05	-1.21	10.84		30
			24	10.42	-1.21	9.21		30
			36	10.60	-1.21	9.39		30
			48	10.73	-1.21	9.52		30
			54	10.74	-1.21	9.53		30
	5320	64	6	13.56	-1.21	12.35	11	30
			9	13.66	-1.21	12.45		30
			12	13.62	-1.21	12.41		30
			18	13.12	-1.21	11.91		30
			24	11.54	-1.21	10.33		30
			36	11.68	-1.21	10.47		30
			48	11.76	-1.21	10.55		30
			54	11.83	-1.21	10.62		30

802.11a Mode			Rate (Mbps)	SISO Measured Conducted output power (dBm)				
Band	Frequency [MHz]	Channel No.		Ant 1 Measured Power	Duty Factor	Ant 1 Total Power (dBm)	Power Level Setting	Limit (dBm)
UNII 2C	5500	100	6	15.88	0.29	16.17	14	22.88
			9	15.63	0.43	16.05		22.88
			12	15.56	0.54	16.10		22.88
			18	15.37	0.82	16.19		22.88
			24	13.44	1.01	14.45		22.88
			36	13.36	1.40	14.76		22.88
			48	13.11	1.74	14.85		22.88
			54	12.96	1.92	14.88		22.88
	5580	116	6	15.64	0.29	15.93	15	22.88
			9	15.52	0.43	15.94		22.88
			12	15.40	0.54	15.94		22.88
			18	15.14	0.82	15.95		22.88
			24	13.40	1.01	14.41		22.88
			36	13.27	1.40	14.67		22.88
			48	13.12	1.74	14.87		22.88
			54	12.87	1.92	14.78		22.88
	5720	144	6	15.76	0.29	16.05	13	22.88
			9	16.05	0.43	16.48		22.88
			12	15.75	0.54	16.29		22.88
			18	15.86	0.82	16.68		22.88
			24	14.17	1.01	15.17		22.88
			36	13.95	1.40	15.36		22.88
			48	13.84	1.74	15.58		22.88
			54	13.69	1.92	15.61		22.88

802.11a Mode			Rate (Mbps)	SISO Measured E.I.R.P (dBm)				
Band	Frequency [MHz]	Channel No.		Ant 1 Total Power (dBm)	Peak Ant Gain (dBi)	E.I.R.P (dBm)	Power Level Setting	E.I.R.P Limit (dBm)
UNII 2C	5500	100	6	16.17	-0.58	15.59	14	30
			9	16.05	-0.58	15.47		30
			12	16.10	-0.58	15.52		30
			18	16.19	-0.58	15.61		30
			24	14.45	-0.58	13.87		30
			36	14.76	-0.58	14.18		30
			48	14.85	-0.58	14.27		30
			54	14.88	-0.58	14.30		30
	5580	116	6	15.93	-0.58	15.35	15	30
			9	15.94	-0.58	15.36		30
			12	15.94	-0.58	15.36		30
			18	15.95	-0.58	15.37		30
			24	14.41	-0.58	13.83		30
			36	14.67	-0.58	14.09		30
			48	14.87	-0.58	14.29		30
			54	14.78	-0.58	14.20		30
	5720	144	6	16.05	-0.58	15.47	13	30
			9	16.48	-0.58	15.90		30
			12	16.29	-0.58	15.71		30
			18	16.68	-0.58	16.10		30
			24	15.17	-0.58	14.59		30
			36	15.36	-0.58	14.78		30
			48	15.58	-0.58	15.00		30
			54	15.61	-0.58	15.03		30

802.11n(20MHz) Mode			MCS Index	SISO Measured Conducted output power (dBm)				
Band	Frequency [MHz]	Channel No.		Ant 1 Measured Power	Duty Factor	Ant 1 Total Power (dBm)	Power Level Setting	Limit (dBm)
UNII 2A	5260	52	0	13.66	0.31	13.98	12	22.90
			1	13.34	0.58	13.91		22.90
			2	12.79	0.82	13.61		22.90
			3	10.96	1.08	12.04		22.90
			4	10.72	1.41	12.13		22.90
			5	10.54	1.72	12.27		22.90
			6	10.49	1.84	12.33		22.90
			7	10.25	2.00	12.25		22.90
	5300	60	0	13.27	0.31	13.59	11	22.90
			1	13.02	0.58	13.60		22.90
			2	12.40	0.82	13.22		22.90
			3	10.60	1.08	11.68		22.90
			4	10.21	1.41	11.62		22.90
			5	9.96	1.72	11.69		22.90
			6	9.91	1.84	11.75		22.90
			7	9.79	2.00	11.79		22.90
	5320	64	0	13.61	0.31	13.92	12	22.90
			1	13.50	0.58	14.07		22.90
			2	12.97	0.82	13.80		22.90
			3	11.29	1.08	12.37		22.90
			4	11.19	1.41	12.60		22.90
			5	10.89	1.72	12.62		22.90
			6	10.63	1.84	12.47		22.90
			7	10.49	2.00	12.49		22.90

802.11n(20MHz) Mode			MCS Index	SISO Measured E.I.R.P (dBm)				
Band	Frequency [MHz]	Channel No.		Ant 1 Total Power (dBm)	Peak Ant Gain (dBi)	E.I.R.P (dBm)	Power Level Setting	E.I.R.P Limit (dBm)
UNII 2A	5260	52	0	13.98	-1.21	12.77	12	30
			1	13.91	-1.21	12.70		30
			2	13.61	-1.21	12.40		30
			3	12.04	-1.21	10.83		30
			4	12.13	-1.21	10.92		30
			5	12.27	-1.21	11.06		30
			6	12.33	-1.21	11.12		30
			7	12.25	-1.21	11.04		30
	5300	60	0	13.59	-1.21	12.38	11	30
			1	13.60	-1.21	12.39		30
			2	13.22	-1.21	12.01		30
			3	11.68	-1.21	10.47		30
			4	11.62	-1.21	10.41		30
			5	11.69	-1.21	10.48		30
			6	11.75	-1.21	10.54		30
			7	11.79	-1.21	10.58		30
	5320	64	0	13.92	-1.21	12.71	12	30
			1	14.07	-1.21	12.86		30
			2	13.80	-1.21	12.59		30
			3	12.37	-1.21	11.16		30
			4	12.60	-1.21	11.39		30
			5	12.62	-1.21	11.41		30
			6	12.47	-1.21	11.26		30
			7	12.49	-1.21	11.28		30

802.11n(20MHz) Mode			MCS Index	SISO Measured Conducted output power (dBm)				
Band	Frequency [MHz]	Channel No.		Ant 1 Measured Power	Duty Factor	Ant 1 Total Power (dBm)	Power Level Setting	Limit (dBm)
UNII 2C	5500	100	0	16.07	0.31	16.39	15	22.88
			1	15.77	0.58	16.35		22.88
			2	15.30	0.82	16.13		22.88
			3	14.12	1.08	15.20		22.88
			4	13.91	1.41	15.32		22.88
			5	13.74	1.72	15.46		22.88
			6	13.49	1.84	15.33		22.88
			7	13.47	2.00	15.47		22.88
	5580	116	0	16.09	0.31	16.41	15	22.88
			1	15.91	0.58	16.48		22.88
			2	15.55	0.82	16.37		22.88
			3	14.29	1.08	15.37		22.88
			4	14.11	1.41	15.52		22.88
			5	13.84	1.72	15.57		22.88
			6	13.78	1.84	15.62		22.88
			7	13.57	2.00	15.57		22.88
	5720	144	0	15.64	0.31	15.95	13	22.88
			1	15.46	0.58	16.04		22.88
			2	15.24	0.82	16.06		22.88
			3	14.26	1.08	15.34		22.88
			4	13.99	1.41	15.40		22.88
			5	13.70	1.72	15.43		22.88
			6	13.56	1.84	15.40		22.88
			7	13.41	2.00	15.41		22.88

802.11n(20MHz) Mode			MCS Index	SISO Measured E.I.R.P (dBm)				
Band	Frequency [MHz]	Channel No.		Ant 1 Total Power (dBm)	Peak Ant Gain (dBi)	E.I.R.P (dBm)	Power Level Setting	E.I.R.P Limit (dBm)
UNII 2C	5500	100	0	16.39	-0.58	15.81	15	30
			1	16.35	-0.58	15.77		30
			2	16.13	-0.58	15.55		30
			3	15.20	-0.58	14.62		30
			4	15.32	-0.58	14.74		30
			5	15.46	-0.58	14.88		30
			6	15.33	-0.58	14.75		30
			7	15.47	-0.58	14.89		30
	5580	116	0	16.41	-0.58	15.83	15	30
			1	16.48	-0.58	15.90		30
			2	16.37	-0.58	15.79		30
			3	15.37	-0.58	14.79		30
			4	15.52	-0.58	14.94		30
			5	15.57	-0.58	14.99		30
			6	15.62	-0.58	15.04		30
			7	15.57	-0.58	14.99		30
	5720	144	0	15.95	-0.58	15.37	13	30
			1	16.04	-0.58	15.46		30
			2	16.06	-0.58	15.48		30
			3	15.34	-0.58	14.76		30
			4	15.40	-0.58	14.82		30
			5	15.43	-0.58	14.85		30
			6	15.40	-0.58	14.82		30
			7	15.41	-0.58	14.83		30

802.11n(40MHz) Mode			MCS Index	SISO Measured Conducted output power (dBm)				
Band	Frequency [MHz]	Channel No.		Ant 1 Measured Power	Duty Factor	Ant 1 Total Power (dBm)	Power Level Setting	Limit (dBm)
UNII 2A	5270	54	0	14.14	0.59	14.73	13	22.90
			1	13.99	1.06	15.05		22.90
			2	13.11	1.45	14.56		22.90
			3	11.51	1.75	13.27		22.90
			4	11.11	2.24	13.35		22.90
			5	10.84	2.60	13.44		22.90
			6	10.67	2.83	13.50		22.90
			7	10.56	2.89	13.44		22.90
	5310	62	0	13.07	0.59	13.66	11	22.90
			1	12.63	1.06	13.69		22.90
			2	11.88	1.45	13.32		22.90
			3	9.93	1.75	11.68		22.90
			4	9.54	2.24	11.77		22.90
			5	9.12	2.60	11.72		22.90
			6	9.11	2.83	11.94		22.90
			7	8.92	2.89	11.81		22.90

802.11n(40MHz) Mode			MCS Index	SISO Measured E.I.R.P (dBm)				
Band	Frequency [MHz]	Channel No.		Ant 1 Total Power (dBm)	Peak Ant Gain (dBi)	E.I.R.P (dBm)	Power Level Setting	E.I.R.P Limit (dBm)
UNII 2A	5270	54	0	14.73	-1.21	13.52	13	30
			1	15.05	-1.21	13.84		30
			2	14.56	-1.21	13.35		30
			3	13.27	-1.21	12.06		30
			4	13.35	-1.21	12.14		30
			5	13.44	-1.21	12.23		30
			6	13.50	-1.21	12.29		30
			7	13.44	-1.21	12.23		30
	5310	62	0	13.66	-1.21	12.45	11	30
			1	13.69	-1.21	12.48		30
			2	13.32	-1.21	12.11		30
			3	11.68	-1.21	10.47		30
			4	11.77	-1.21	10.56		30
			5	11.72	-1.21	10.51		30
			6	11.94	-1.21	10.73		30
			7	11.81	-1.21	10.60		30

802.11n(40MHz) Mode			MCS Index	SISO Measured Conducted output power (dBm)				
Band	Frequency [MHz]	Channel No.		Ant 1 Measured Power	Duty Factor	Ant 1 Total Power (dBm)	Power Level Setting	Limit (dBm)
UNII 2C	5510	102	0	13.53	0.59	14.12	12	22.88
			1	13.36	1.06	14.42		22.88
			2	12.50	1.45	13.95		22.88
			3	10.82	1.75	12.58		22.88
			4	10.38	2.24	12.62		22.88
			5	9.92	2.60	12.52		22.88
			6	9.89	2.83	12.72		22.88
			7	9.64	2.89	12.53		22.88
	5550	110	0	15.53	0.59	16.12	15	22.88
			1	15.54	1.06	16.60		22.88
			2	14.82	1.45	16.27		22.88
			3	13.65	1.75	15.40		22.88
			4	13.38	2.24	15.62		22.88
			5	13.08	2.60	15.68		22.88
			6	13.07	2.83	15.90		22.88
			7	12.83	2.89	15.72		22.88
	5710	142	0	15.99	0.59	16.58	14	22.88
			1	15.73	1.06	16.79		22.88
			2	15.12	1.45	16.57		22.88
			3	14.22	1.75	15.97		22.88
			4	13.90	2.24	16.14		22.88
			5	13.51	2.60	16.11		22.88
			6	13.51	2.83	16.34		22.88
			7	13.36	2.89	16.25		22.88

802.11n(40MHz) Mode			MCS Index	SISO Measured E.I.R.P (dBm)				
Band	Frequency [MHz]	Channel No.		Ant 1 Total Power (dBm)	Peak Ant Gain (dBi)	E.I.R.P (dBm)	Power Level Setting	E.I.R.P Limit (dBm)
UNII 2C	5510	102	0	14.12	-0.58	13.54	12	30
			1	14.42	-0.58	13.84		30
			2	13.95	-0.58	13.37		30
			3	12.58	-0.58	12.00		30
			4	12.62	-0.58	12.04		30
			5	12.52	-0.58	11.94		30
			6	12.72	-0.58	12.14		30
			7	12.53	-0.58	11.95		30
	5550	110	0	16.12	-0.58	15.54	15	30
			1	16.60	-0.58	16.02		30
			2	16.27	-0.58	15.69		30
			3	15.40	-0.58	14.82		30
			4	15.62	-0.58	15.04		30
			5	15.68	-0.58	15.10		30
			6	15.90	-0.58	15.32		30
			7	15.72	-0.58	15.14		30
	5710	142	0	16.58	-0.58	16.00	14	30
			1	16.79	-0.58	16.21		30
			2	16.57	-0.58	15.99		30
			3	15.97	-0.58	15.39		30
			4	16.14	-0.58	15.56		30
			5	16.11	-0.58	15.53		30
			6	16.34	-0.58	15.76		30
			7	16.25	-0.58	15.67		30

802.11a Mode			Rate (Mbps)	SISO Measured Conducted output power (dBm)				
Band	Frequency [MHz]	Channel No.		Ant 2 Measured Power	Duty Factor	Ant 2 Total Power (dBm)	Power Level Setting	Limit (dBm)
UNII 2A	5260	52	6	13.72	0.29	14.01	12	22.90
			9	13.65	0.43	14.07		22.90
			12	13.51	0.54	14.06		22.90
			18	12.74	0.82	13.56		22.90
			24	11.05	1.01	12.06		22.90
			36	10.77	1.40	12.17		22.90
			48	10.56	1.74	12.30		22.90
			54	10.45	1.92	12.37		22.90
	5300	60	6	10.88	0.29	11.17	10	22.90
			9	10.75	0.43	11.18		22.90
			12	10.75	0.54	11.29		22.90
			18	10.22	0.82	11.04		22.90
			24	8.34	1.01	9.35		22.90
			36	8.03	1.40	9.44		22.90
			48	8.04	1.74	9.78		22.90
			54	7.91	1.92	9.83		22.90
	5320	64	6	12.16	0.29	12.45	11	22.90
			9	11.97	0.43	12.40		22.90
			12	11.93	0.54	12.47		22.90
			18	11.04	0.82	11.86		22.90
			24	9.34	1.01	10.35		22.90
			36	9.04	1.40	10.45		22.90
			48	9.00	1.74	10.75		22.90
			54	8.91	1.92	10.82		22.90

802.11a Mode			Rate (Mbps)	SISO Measured E.I.R.P (dBm)				
Band	Frequency [MHz]	Channel No.		Ant 2 Total Power (dBm)	Peak Ant Gain (dBi)	E.I.R.P (dBm)	Power Level Setting	E.I.R.P Limit (dBm)
UNII 2A	5260	52	6	14.01	-0.60	13.41	12	30
			9	14.07	-0.60	13.47		30
			12	14.06	-0.60	13.46		30
			18	13.56	-0.60	12.96		30
			24	12.06	-0.60	11.46		30
			36	12.17	-0.60	11.57		30
			48	12.30	-0.60	11.70		30
			54	12.37	-0.60	11.77		30
	5300	60	6	11.17	-0.60	10.57	10	30
			9	11.18	-0.60	10.58		30
			12	11.29	-0.60	10.69		30
			18	11.04	-0.60	10.44		30
			24	9.35	-0.60	8.75		30
			36	9.44	-0.60	8.84		30
			48	9.78	-0.60	9.18		30
			54	9.83	-0.60	9.23		30
	5320	64	6	12.45	-0.60	11.85	11	30
			9	12.40	-0.60	11.80		30
			12	12.47	-0.60	11.87		30
			18	11.86	-0.60	11.26		30
			24	10.35	-0.60	9.75		30
			36	10.45	-0.60	9.85		30
			48	10.75	-0.60	10.15		30
			54	10.82	-0.60	10.22		30

802.11a Mode			Rate (Mbps)	SISO Measured Conducted output power (dBm)				
Band	Frequency [MHz]	Channel No.		Ant 2 Measured Power	Duty Factor	Ant 2 Total Power (dBm)	Power Level Setting	Limit (dBm)
UNII 2C	5500	100	6	14.41	0.29	14.70	14	22.88
			9	15.03	0.43	15.46		22.88
			12	14.70	0.54	15.24		22.88
			18	15.12	0.82	15.94		22.88
			24	14.18	1.01	15.19		22.88
			36	13.89	1.40	15.29		22.88
			48	13.80	1.74	15.55		22.88
			54	13.67	1.92	15.59		22.88
	5580	116	6	15.62	0.29	15.91	15	22.88
			9	15.51	0.43	15.94		22.88
			12	15.49	0.54	16.03		22.88
			18	15.37	0.82	16.18		22.88
			24	13.67	1.01	14.68		22.88
			36	13.38	1.40	14.78		22.88
			48	13.29	1.74	15.04		22.88
			54	13.16	1.92	15.08		22.88
	5720	144	6	14.90	0.29	15.19	13	22.88
			9	14.82	0.43	15.25		22.88
			12	14.72	0.54	15.26		22.88
			18	14.52	0.82	15.34		22.88
			24	12.98	1.01	13.98		22.88
			36	12.79	1.40	14.19		22.88
			48	12.56	1.74	14.30		22.88
			54	12.46	1.92	14.38		22.88

802.11a Mode			Rate (Mbps)	SISO Measured E.I.R.P (dBm)				
Band	Frequency [MHz]	Channel No.		Ant 2 Total Power (dBm)	Peak Ant Gain (dBi)	E.I.R.P (dBm)	Power Level Setting	E.I.R.P Limit (dBm)
UNII 2C	5500	100	6	14.70	-0.85	13.85	14	30
			9	15.46	-0.85	14.61		30
			12	15.24	-0.85	14.39		30
			18	15.94	-0.85	15.09		30
			24	15.19	-0.85	14.34		30
			36	15.29	-0.85	14.44		30
			48	15.55	-0.85	14.70		30
			54	15.59	-0.85	14.74		30
	5580	116	6	15.91	-0.85	15.06	15	30
			9	15.94	-0.85	15.09		30
			12	16.03	-0.85	15.18		30
			18	16.18	-0.85	15.33		30
			24	14.68	-0.85	13.83		30
			36	14.78	-0.85	13.93		30
			48	15.04	-0.85	14.19		30
			54	15.08	-0.85	14.23		30
	5720	144	6	15.19	-0.85	14.34	13	30
			9	15.25	-0.85	14.40		30
			12	15.26	-0.85	14.41		30
			18	15.34	-0.85	14.49		30
			24	13.98	-0.85	13.13		30
			36	14.19	-0.85	13.34		30
			48	14.30	-0.85	13.45		30
			54	14.38	-0.85	13.53		30

802.11n(20MHz) Mode			MCS Index	SISO Measured Conducted output power (dBm)				
Band	Frequency [MHz]	Channel No.		Ant 2 Measured Power	Duty Factor	Ant 2 Total Power (dBm)	Power Level Setting	Limit (dBm)
UNII 2A	5260	52	0	13.57	0.31	13.89	12	22.90
			1	13.28	0.58	13.85		22.90
			2	12.67	0.82	13.49		22.90
			3	10.98	1.08	12.06		22.90
			4	10.94	1.41	12.35		22.90
			5	10.71	1.72	12.43		22.90
			6	10.66	1.84	12.50		22.90
			7	10.48	2.00	12.47		22.90
	5300	60	0	12.37	0.31	12.68	11	22.90
			1	12.05	0.58	12.63		22.90
			2	11.52	0.82	12.35		22.90
			3	9.61	1.08	10.69		22.90
			4	9.47	1.41	10.88		22.90
			5	9.18	1.72	10.91		22.90
			6	9.07	1.84	10.92		22.90
			7	9.03	2.00	11.02		22.90
	5320	64	0	13.17	0.31	13.49	12	22.90
			1	12.91	0.58	13.48		22.90
			2	12.37	0.82	13.20		22.90
			3	10.75	1.08	11.83		22.90
			4	10.45	1.41	11.86		22.90
			5	10.38	1.72	12.10		22.90
			6	10.33	1.84	12.17		22.90
			7	10.11	2.00	12.11		22.90

802.11n(20MHz) Mode			MCS Index	SISO Measured E.I.R.P (dBm)				
Band	Frequency [MHz]	Channel No.		Ant 2 Total Power (dBm)	Peak Ant Gain (dBi)	E.I.R.P (dBm)	Power Level Setting	E.I.R.P Limit (dBm)
UNII 2A	5260	52	0	13.89	-0.60	13.29	12	30
			1	13.85	-0.60	13.25		30
			2	13.49	-0.60	12.89		30
			3	12.06	-0.60	11.46		30
			4	12.35	-0.60	11.75		30
			5	12.43	-0.60	11.83		30
			6	12.50	-0.60	11.90		30
			7	12.47	-0.60	11.87		30
	5300	60	0	12.68	-0.60	12.08	11	30
			1	12.63	-0.60	12.03		30
			2	12.35	-0.60	11.75		30
			3	10.69	-0.60	10.09		30
			4	10.88	-0.60	10.28		30
			5	10.91	-0.60	10.31		30
			6	10.92	-0.60	10.32		30
			7	11.02	-0.60	10.42		30
	5320	64	0	13.49	-0.60	12.89	12	30
			1	13.48	-0.60	12.88		30
			2	13.20	-0.60	12.60		30
			3	11.83	-0.60	11.23		30
			4	11.86	-0.60	11.26		30
			5	12.10	-0.60	11.50		30
			6	12.17	-0.60	11.57		30
			7	12.11	-0.60	11.51		30

802.11n(20MHz) Mode			MCS Index	SISO Measured Conducted output power (dBm)				
Band	Frequency [MHz]	Channel No.		Ant 2 Measured Power	Duty Factor	Ant 2 Total Power (dBm)	Power Level Setting	Limit (dBm)
UNII 2C	5500	100	0	15.35	0.31	15.66	15	22.88
			1	15.11	0.58	15.68		22.88
			2	14.79	0.82	15.61		22.88
			3	13.73	1.08	14.81		22.88
			4	13.67	1.41	15.08		22.88
			5	13.35	1.72	15.07		22.88
			6	13.47	1.84	15.31		22.88
			7	13.17	2.00	15.17		22.88
	5580	116	0	15.18	0.31	15.49	15	22.88
			1	15.03	0.58	15.60		22.88
			2	14.53	0.82	15.36		22.88
			3	13.59	1.08	14.67		22.88
			4	13.41	1.41	14.82		22.88
			5	13.25	1.72	14.97		22.88
			6	13.21	1.84	15.06		22.88
			7	12.98	2.00	14.97		22.88
	5720	144	0	14.64	0.31	14.96	13	22.88
			1	14.84	0.58	15.42		22.88
			2	14.33	0.82	15.15		22.88
			3	13.49	1.08	14.57		22.88
			4	13.56	1.41	14.97		22.88
			5	13.30	1.72	15.03		22.88
			6	13.15	1.84	14.99		22.88
			7	12.89	2.00	14.89		22.88

802.11n(20MHz) Mode			MCS Index	SISO Measured E.I.R.P (dBm)				
Band	Frequency [MHz]	Channel No.		Ant 2 Total Power (dBm)	Peak Ant Gain (dBi)	E.I.R.P (dBm)	Power Level Setting	E.I.R.P Limit (dBm)
UNII 2C	5500	100	0	15.66	-0.85	14.81	15	30
			1	15.68	-0.85	14.83		30
			2	15.61	-0.85	14.76		30
			3	14.81	-0.85	13.96		30
			4	15.08	-0.85	14.23		30
			5	15.07	-0.85	14.22		30
			6	15.31	-0.85	14.46		30
			7	15.17	-0.85	14.32		30
	5580	116	0	15.49	-0.85	14.64	15	30
			1	15.60	-0.85	14.75		30
			2	15.36	-0.85	14.51		30
			3	14.67	-0.85	13.82		30
			4	14.82	-0.85	13.97		30
			5	14.97	-0.85	14.12		30
			6	15.06	-0.85	14.21		30
			7	14.97	-0.85	14.12		30
	5720	144	0	14.96	-0.85	14.11	13	30
			1	15.42	-0.85	14.57		30
			2	15.15	-0.85	14.30		30
			3	14.57	-0.85	13.72		30
			4	14.97	-0.85	14.12		30
			5	15.03	-0.85	14.18		30
			6	14.99	-0.85	14.14		30
			7	14.89	-0.85	14.04		30

802.11n(40MHz) Mode			MCS Index	SISO Measured Conducted output power (dBm)				
Band	Frequency [MHz]	Channel No.		Ant 2 Measured Power	Duty Factor	Ant 2 Total Power (dBm)	Power Level Setting	Limit (dBm)
UNII 2A	5270	54	0	14.33	0.59	14.92	13	22.90
			1	14.23	1.06	15.29		22.90
			2	13.31	1.45	14.76		22.90
			3	11.80	1.75	13.55		22.90
			4	11.25	2.24	13.49		22.90
			5	11.06	2.60	13.66		22.90
			6	10.87	2.83	13.70		22.90
			7	10.75	2.89	13.64		22.90
	5310	62	0	12.02	0.59	12.61	11	22.90
			1	11.66	1.06	12.72		22.90
			2	10.90	1.45	12.35		22.90
			3	9.14	1.75	10.89		22.90
			4	8.80	2.24	11.03		22.90
			5	8.56	2.60	11.15		22.90
			6	8.35	2.83	11.18		22.90
			7	8.27	2.89	11.16		22.90

802.11n(40MHz) Mode			MCS Index	SISO Measured E.I.R.P (dBm)				
Band	Frequency [MHz]	Channel No.		Ant 2 Total Power (dBm)	Peak Ant Gain (dBi)	E.I.R.P (dBm)	Power Level Setting	E.I.R.P Limit (dBm)
UNII 2A	5270	54	0	14.92	-0.60	14.32	13	30
			1	15.29	-0.60	14.69		30
			2	14.76	-0.60	14.16		30
			3	13.55	-0.60	12.95		30
			4	13.49	-0.60	12.89		30
			5	13.66	-0.60	13.06		30
			6	13.70	-0.60	13.10		30
			7	13.64	-0.60	13.04		30
	5310	62	0	12.61	-0.60	12.01	11	30
			1	12.72	-0.60	12.12		30
			2	12.35	-0.60	11.75		30
			3	10.89	-0.60	10.29		30
			4	11.03	-0.60	10.43		30
			5	11.15	-0.60	10.55		30
			6	11.18	-0.60	10.58		30
			7	11.16	-0.60	10.56		30

802.11n(40MHz) Mode			MCS Index	SISO Measured Conducted output power (dBm)				
Band	Frequency [MHz]	Channel No.		Ant 2 Measured Power	Duty Factor	Ant 2 Total Power (dBm)	Power Level Setting	Limit (dBm)
UNII 2C	5510	102	0	13.07	0.59	13.66	12	22.88
			1	12.68	1.06	13.74		22.88
			2	11.94	1.45	13.39		22.88
			3	10.27	1.75	12.03		22.88
			4	9.78	2.24	12.02		22.88
			5	9.55	2.60	12.15		22.88
			6	9.52	2.83	12.35		22.88
			7	9.53	2.89	12.41		22.88
	5550	110	0	14.75	0.59	15.34	15	22.88
			1	14.18	1.06	15.25		22.88
			2	13.47	1.45	14.92		22.88
			3	12.64	1.75	14.40		22.88
			4	12.30	2.24	14.54		22.88
			5	11.91	2.60	14.50		22.88
			6	12.11	2.83	14.94		22.88
			7	11.83	2.89	14.72		22.88
	5710	142	0	14.62	0.59	15.21	14	22.88
			1	13.81	1.06	14.87		22.88
			2	13.10	1.45	14.54		22.88
			3	12.45	1.75	14.20		22.88
			4	11.87	2.24	14.10		22.88
			5	11.92	2.60	14.52		22.88
			6	11.75	2.83	14.58		22.88
			7	11.40	2.89	14.29		22.88

802.11n(40MHz) Mode			MCS Index	SISO Measured E.I.R.P (dBm)				
Band	Frequency [MHz]	Channel No.		Ant 2 Total Power (dBm)	Peak Ant Gain (dBi)	E.I.R.P (dBm)	Power Level Setting	Limit (dBm)
UNII 2C	5510	102	0	13.66	-0.85	12.81	12	30
			1	13.74	-0.85	12.89		30
			2	13.39	-0.85	12.54		30
			3	12.03	-0.85	11.18		30
			4	12.02	-0.85	11.17		30
			5	12.15	-0.85	11.30		30
			6	12.35	-0.85	11.50		30
			7	12.41	-0.85	11.56		30
	5550	110	0	15.34	-0.85	14.49	15	30
			1	15.25	-0.85	14.40		30
			2	14.92	-0.85	14.07		30
			3	14.40	-0.85	13.55		30
			4	14.54	-0.85	13.69		30
			5	14.50	-0.85	13.65		30
			6	14.94	-0.85	14.09		30
			7	14.72	-0.85	13.87		30
	5710	142	0	15.21	-0.85	14.36	14	30
			1	14.87	-0.85	14.02		30
			2	14.54	-0.85	13.69		30
			3	14.20	-0.85	13.35		30
			4	14.10	-0.85	13.25		30
			5	14.52	-0.85	13.67		30
			6	14.58	-0.85	13.73		30
			7	14.29	-0.85	13.44		30

[MIMO]

802.11a Mode			Rate (Mbps)	MIMO Conducted output power (dBm) (CDD)			
Band	Frequency [MHz]	Channel No.		Ant 1 Total Power (dBm)	Ant 2 Total Power (dBm)	Ant 1 + Ant 2 MIMO	Limit (dBm)
UNII 2A	5260	52	6	14.01	14.01	17.02	22.90
			9	14.11	14.07	17.10	22.90
			12	14.22	14.06	17.15	22.90
			18	13.79	13.56	16.69	22.90
			24	12.24	12.06	15.16	22.90
			36	12.29	12.17	15.24	22.90
			48	12.51	12.30	15.42	22.90
			54	12.50	12.37	15.45	22.90
	5300	60	6	12.30	11.17	14.78	22.90
			9	12.43	11.18	14.86	22.90
			12	12.46	11.29	14.93	22.90
			18	12.05	11.04	14.59	22.90
			24	10.42	9.35	12.93	22.90
			36	10.60	9.44	13.07	22.90
			48	10.73	9.78	13.29	22.90
			54	10.74	9.83	13.32	22.90
	5320	64	6	13.56	12.45	16.05	22.90
			9	13.66	12.40	16.08	22.90
			12	13.62	12.47	16.10	22.90
			18	13.12	11.86	15.54	22.90
			24	11.54	10.35	14.00	22.90
			36	11.68	10.45	14.12	22.90
			48	11.76	10.75	14.29	22.90
			54	11.83	10.82	14.36	22.90

802.11a Mode			Rate (Mbps)	MIMO Measured E.I.R.P (dBm) (CDD)			
Band	Frequency [MHz]	Channel No.		Ant 1 + Ant 2 MIMO	Peak Ant Gain (dBi)	E.I.R.P (dBm)	Limit (dBm)
UNII 2A	5260	52	6	17.02	2.11	19.13	30
			9	17.10	2.11	19.22	30
			12	17.15	2.11	19.26	30
			18	16.69	2.11	18.80	30
			24	15.16	2.11	17.27	30
			36	15.24	2.11	17.35	30
			48	15.42	2.11	17.53	30
			54	15.45	2.11	17.56	30
	5300	60	6	14.78	2.11	16.89	30
			9	14.86	2.11	16.97	30
			12	14.93	2.11	17.04	30
			18	14.59	2.11	16.70	30
			24	12.93	2.11	15.04	30
			36	13.07	2.11	15.18	30
			48	13.29	2.11	15.40	30
			54	13.32	2.11	15.43	30
	5320	64	6	16.05	2.11	18.16	30
			9	16.08	2.11	18.19	30
			12	16.10	2.11	18.21	30
			18	15.54	2.11	17.66	30
			24	14.00	2.11	16.11	30
			36	14.12	2.11	16.23	30
			48	14.29	2.11	16.40	30
			54	14.36	2.11	16.47	30

802.11a Mode			Rate (Mbps)	MIMO Conducted output power (dBm) (CDD)			
Band	Frequency [MHz]	Channel No.		Ant 1 Total Power (dBm)	Ant 2 Total Power (dBm)	Ant 1 + Ant 2 MIMO	Limit (dBm)
UNII 2C	5500	100	6	16.17	14.70	18.51	22.88
			9	16.05	15.46	18.78	22.88
			12	16.10	15.24	18.70	22.88
			18	16.19	15.94	19.08	22.88
			24	14.45	15.19	17.85	22.88
			36	14.76	15.29	18.05	22.88
			48	14.85	15.55	18.22	22.88
			54	14.88	15.59	18.26	22.88
	5580	116	6	15.93	15.91	18.93	22.88
			9	15.94	15.94	18.95	22.88
			12	15.94	16.03	19.00	22.88
			18	15.95	16.18	19.08	22.88
			24	14.41	14.68	17.56	22.88
			36	14.67	14.78	17.74	22.88
			48	14.87	15.04	17.96	22.88
			54	14.78	15.08	17.94	22.88
	5720	144	6	16.05	15.19	18.65	22.88
			9	16.48	15.25	18.92	22.88
			12	16.29	15.26	18.82	22.88
			18	16.68	15.34	19.07	22.88
			24	15.17	13.98	17.63	22.88
			36	15.36	14.19	17.82	22.88
			48	15.58	14.30	18.00	22.88
			54	15.61	14.38	18.05	22.88

802.11a Mode			Rate (Mbps)	MIMO Measured E.I.R.P (dBm) (CDD)			
Band	Frequency [MHz]	Channel No.		Ant 1 + Ant 2 MIMO	Peak Ant Gain (dBi)	E.I.R.P (dBm)	Limit (dBm)
UNII 2C	5500	100	6	18.51	2.30	20.80	30
			9	18.78	2.30	21.07	30
			12	18.70	2.30	21.00	30
			18	19.08	2.30	21.37	30
			24	17.85	2.30	20.14	30
			36	18.05	2.30	20.34	30
			48	18.22	2.30	20.52	30
			54	18.26	2.30	20.55	30
	5580	116	6	18.93	2.30	21.22	30
			9	18.95	2.30	21.25	30
			12	19.00	2.30	21.29	30
			18	19.08	2.30	21.38	30
			24	17.56	2.30	19.86	30
			36	17.74	2.30	20.03	30
			48	17.96	2.30	20.26	30
			54	17.94	2.30	20.24	30
	5720	144	6	18.65	2.30	20.95	30
			9	18.92	2.30	21.21	30
			12	18.82	2.30	21.12	30
			18	19.07	2.30	21.37	30
			24	17.63	2.30	19.93	30
			36	17.82	2.30	20.12	30
			48	18.00	2.30	20.30	30
			54	18.05	2.30	20.34	30

802.11n(20MHz) Mode			MCS Index	MIMO Conducted output power (dBm) (CDD)			
Band	Frequency [MHz]	Channel No.		Ant 1 Total Power (dBm)	Ant 2 Total Power (dBm)	Ant 1 + Ant 2 MIMO	Limit (dBm)
UNII 2A	5260	52	0	13.98	13.89	16.94	22.90
			1	13.91	13.85	16.89	22.90
			2	13.61	13.49	16.56	22.90
			3	12.04	12.06	15.06	22.90
			4	12.13	12.35	15.25	22.90
			5	12.27	12.43	15.36	22.90
			6	12.33	12.50	15.43	22.90
			7	12.25	12.47	15.37	22.90
	5300	60	0	13.59	12.68	16.17	22.90
			1	13.60	12.63	16.15	22.90
			2	13.22	12.35	15.82	22.90
			3	11.68	10.69	14.23	22.90
			4	11.62	10.88	14.28	22.90
			5	11.69	10.91	14.33	22.90
			6	11.75	10.92	14.36	22.90
			7	11.79	11.02	14.43	22.90
	5320	64	0	13.92	13.49	16.72	22.90
			1	14.07	13.48	16.80	22.90
			2	13.80	13.20	16.52	22.90
			3	12.37	11.83	15.12	22.90
			4	12.60	11.86	15.26	22.90
			5	12.62	12.10	15.38	22.90
			6	12.47	12.17	15.34	22.90
			7	12.49	12.11	15.31	22.90

802.11n(20MHz) Mode			MCS Index	MIMO Measured E.I.R.P (dBm) (CDD)			
Band	Frequency [MHz]	Channel No.		Ant 1 + Ant 2 MIMO	Peak Ant Gain (dBi)	E.I.R.P (dBm)	Limit (dBm)
UNII 2A	5260	52	0	16.94	2.11	19.05	30
			1	16.89	2.11	19.00	30
			2	16.56	2.11	18.67	30
			3	15.06	2.11	17.17	30
			4	15.25	2.11	17.36	30
			5	15.36	2.11	17.47	30
			6	15.43	2.11	17.54	30
			7	15.37	2.11	17.48	30
	5300	60	0	16.17	2.11	18.28	30
			1	16.15	2.11	18.26	30
			2	15.82	2.11	17.93	30
			3	14.23	2.11	16.34	30
			4	14.28	2.11	16.39	30
			5	14.33	2.11	16.44	30
			6	14.36	2.11	16.48	30
			7	14.43	2.11	16.54	30
	5320	64	0	16.72	2.11	18.83	30
			1	16.80	2.11	18.91	30
			2	16.52	2.11	18.63	30
			3	15.12	2.11	17.23	30
			4	15.26	2.11	17.37	30
			5	15.38	2.11	17.49	30
			6	15.34	2.11	17.45	30
			7	15.31	2.11	17.42	30

802.11n(20MHz) Mode			MCS Index	MIMO Conducted output power (dBm) (CDD)			
Band	Frequency [MHz]	Channel No.		Ant 1 Total Power (dBm)	Ant 2 Total Power (dBm)	Ant 1 + Ant 2 MIMO	Limit (dBm)
UNII 2C	5500	100	0	16.39	15.66	19.05	22.88
			1	16.35	15.68	19.04	22.88
			2	16.13	15.61	18.89	22.88
			3	15.20	14.81	18.02	22.88
			4	15.32	15.08	18.21	22.88
			5	15.46	15.07	18.28	22.88
			6	15.33	15.31	18.33	22.88
			7	15.47	15.17	18.33	22.88
	5580	116	0	16.41	15.49	18.98	22.88
			1	16.48	15.60	19.08	22.88
			2	16.37	15.36	18.90	22.88
			3	15.37	14.67	18.05	22.88
			4	15.52	14.82	18.20	22.88
			5	15.57	14.97	18.29	22.88
			6	15.62	15.06	18.36	22.88
			7	15.57	14.97	18.29	22.88
	5720	144	0	15.95	14.96	18.49	22.88
			1	16.04	15.42	18.75	22.88
			2	16.06	15.15	18.64	22.88
			3	15.34	14.57	17.98	22.88
			4	15.40	14.97	18.20	22.88
			5	15.43	15.03	18.24	22.88
			6	15.40	14.99	18.21	22.88
			7	15.41	14.89	18.17	22.88

802.11n(20MHz) Mode			MCS Index	MIMO Measured E.I.R.P (dBm) (CDD)			
Band	Frequency [MHz]	Channel No.		Ant 1 + Ant 2 MIMO	Peak Ant Gain (dBi)	E.I.R.P (dBm)	Limit (dBm)
UNII 2C	5500	100	0	19.05	2.30	21.35	30
			1	19.04	2.30	21.34	30
			2	18.89	2.30	21.18	30
			3	18.02	2.30	20.32	30
			4	18.21	2.30	20.51	30
			5	18.28	2.30	20.58	30
			6	18.33	2.30	20.63	30
			7	18.33	2.30	20.63	30
	5580	116	0	18.98	2.30	21.28	30
			1	19.08	2.30	21.37	30
			2	18.90	2.30	21.20	30
			3	18.05	2.30	20.34	30
			4	18.20	2.30	20.49	30
			5	18.29	2.30	20.59	30
			6	18.36	2.30	20.65	30
			7	18.29	2.30	20.59	30
	5720	144	0	18.49	2.30	20.79	30
			1	18.75	2.30	21.05	30
			2	18.64	2.30	20.94	30
			3	17.98	2.30	20.28	30
			4	18.20	2.30	20.50	30
			5	18.24	2.30	20.54	30
			6	18.21	2.30	20.51	30
			7	18.17	2.30	20.46	30

802.11n(40MHz) Mode			MCS Index	MIMO Conducted output power (dBm) (CDD)			
Band	Frequency [MHz]	Channel No.		Ant 1 Total Power (dBm)	Ant 2 Total Power (dBm)	Ant 1 + Ant 2 MIMO	Limit (dBm)
UNII 2A	5270	54	0	14.73	14.92	17.84	23.98
			1	15.05	15.29	18.18	23.98
			2	14.56	14.76	17.67	23.98
			3	13.27	13.55	16.42	23.98
			4	13.35	13.49	16.43	23.98
			5	13.44	13.66	16.56	23.98
			6	13.50	13.70	16.61	23.98
			7	13.44	13.64	16.55	23.98
	5310	62	0	13.66	12.61	16.17	23.98
			1	13.69	12.72	16.24	23.98
			2	13.32	12.35	15.88	23.98
			3	11.68	10.89	14.32	23.98
			4	11.77	11.03	14.43	23.98
			5	11.72	11.15	14.46	23.98
			6	11.94	11.18	14.59	23.98
			7	11.81	11.16	14.51	23.98

802.11n(40MHz) Mode			MCS Index	MIMO Measured E.I.R.P (dBm) (CDD)			
Band	Frequency [MHz]	Channel No.		Ant 1 + Ant 2 MIMO	Peak Ant Gain (dBi)	E.I.R.P (dBm)	Limit (dBm)
UNII 2A	5270	54	0	17.84	2.11	19.95	23.98
			1	18.18	2.11	20.29	23.98
			2	17.67	2.11	19.78	23.98
			3	16.42	2.11	18.53	23.98
			4	16.43	2.11	18.54	23.98
			5	16.56	2.11	18.67	23.98
			6	16.61	2.11	18.72	23.98
			7	16.55	2.11	18.66	23.98
	5310	62	0	16.17	2.11	18.28	23.98
			1	16.24	2.11	18.35	23.98
			2	15.88	2.11	17.99	23.98
			3	14.32	2.11	16.43	23.98
			4	14.43	2.11	16.54	23.98
			5	14.46	2.11	16.57	23.98
			6	14.59	2.11	16.70	23.98
			7	14.51	2.11	16.62	23.98

802.11n(40MHz) Mode			MCS Index	MIMO Conducted output power (dBm) (CDD)			
Band	Frequency [MHz]	Channel No.		Ant 1 Total Power (dBm)	Ant 2 Total Power (dBm)	Ant 1 + Ant 2 MIMO	Limit (dBm)
UNII 2C	5510	102	0	14.12	13.66	16.91	23.98
			1	14.42	13.74	17.10	23.98
			2	13.95	13.39	16.69	23.98
			3	12.58	12.03	15.32	23.98
			4	12.62	12.02	15.34	23.98
			5	12.52	12.15	15.35	23.98
			6	12.72	12.35	15.55	23.98
			7	12.53	12.41	15.48	23.98
	5550	110	0	16.12	15.34	18.76	23.98
			1	16.60	15.25	18.99	23.98
			2	16.27	14.92	18.66	23.98
			3	15.40	14.40	17.94	23.98
			4	15.62	14.54	18.12	23.98
			5	15.68	14.50	18.14	23.98
			6	15.90	14.94	18.46	23.98
			7	15.72	14.72	18.26	23.98
	5710	142	0	16.58	15.21	18.96	23.98
			1	16.79	14.87	18.95	23.98
			2	16.57	14.54	18.68	23.98
			3	15.97	14.20	18.19	23.98
			4	16.14	14.10	18.25	23.98
			5	16.11	14.52	18.40	23.98
			6	16.34	14.58	18.56	23.98
			7	16.25	14.29	18.39	23.98

802.11n(40MHz) Mode			MCS Index	MIMO Measured E.I.R.P (dBm) (CDD)			
Band	Frequency [MHz]	Channel No.		Ant 1 + Ant 2 MIMO	Peak Ant Gain (dBi)	E.I.R.P (dBm)	Limit (dBm)
UNII 2C	5510	102	0	16.91	2.30	19.20	23.98
			1	17.10	2.30	19.40	23.98
			2	16.69	2.30	18.99	23.98
			3	15.32	2.30	17.62	23.98
			4	15.34	2.30	17.64	23.98
			5	15.35	2.30	17.64	23.98
			6	15.55	2.30	17.85	23.98
			7	15.48	2.30	17.78	23.98
	5550	110	0	18.76	2.30	21.06	23.98
			1	18.99	2.30	21.28	23.98
			2	18.66	2.30	20.95	23.98
			3	17.94	2.30	20.24	23.98
			4	18.12	2.30	20.42	23.98
			5	18.14	2.30	20.44	23.98
			6	18.46	2.30	20.75	23.98
			7	18.26	2.30	20.56	23.98
	5710	142	0	18.96	2.30	21.26	23.98
			1	18.95	2.30	21.24	23.98
			2	18.68	2.30	20.98	23.98
			3	18.19	2.30	20.48	23.98
			4	18.25	2.30	20.55	23.98
			5	18.40	2.30	20.70	23.98
			6	18.56	2.30	20.85	23.98
			7	18.39	2.30	20.69	23.98

10.4 POWER SPECTRAL DENSITY

Frequency (MHz)	Channel No.	Mode	Test Result			
			Ant 1	Duty Factor	Ant 1 Total PSD	Limit (dBm)
5260	52	802.11a	3.475	0.544	4.019	11 dBm/MHz
5300	60		1.636	0.544	2.180	
5320	64		2.920	0.427	3.347	
5500	100		5.185	0.818	6.003	
5580	116		5.544	0.818	6.362	
5720	144		4.969	0.818	5.787	

Frequency (MHz)	Channel No.	Mode	Test Result			
			Ant 2	Duty Factor	Ant 2 Total PSD	Limit (dBm)
5260	52	802.11a	3.326	0.427	3.753	11 dBm/MHz
5300	60		0.645	0.544	1.189	
5320	64		1.644	0.544	2.188	
5500	100		3.861	0.818	4.679	
5580	116		4.920	0.818	5.738	
5720	144		3.752	0.818	4.570	

Frequency (MHz)	Channel No.	Mode	Test Result			
			Ant 1	Ant 2	Ant 1 + Ant 2 MIMO	Limit (dBm)
5260	52	802.11a	4.019	3.753	6.898	11 dBm/MHz
5300	60		2.180	1.189	4.723	
5320	64		3.347	2.188	5.816	
5500	100		6.003	4.679	8.402	
5580	116		6.362	5.738	9.072	
5720	144		5.787	4.570	8.232	

Frequency (MHz)	Channel No.	Mode	Test Result			
			Ant 1	Duty Factor	Ant 1 Total PSD	Limit (dBm)
5260	52	802.11n(20MHz)	3.019	0.314	3.333	11 dBm/MHz
5300	60		2.417	0.575	2.992	
5320	64		2.901	0.575	3.476	
5500	100		5.861	0.314	6.175	
5580	116		5.468	0.575	6.043	
5720	144		4.616	0.823	5.439	

Frequency (MHz)	Channel No.	Mode	Test Result			
			Ant 2	Duty Factor	Ant 2 Total PSD	Limit (dBm)
5260	52	802.11n(20MHz)	2.977	0.314	3.291	11 dBm/MHz
5300	60		1.754	0.314	2.068	
5320	64		2.720	0.314	3.034	
5500	100		4.715	0.575	5.290	
5580	116		4.706	0.575	5.281	
5720	144		4.070	0.575	4.645	

Frequency (MHz)	Channel No.	Mode	Test Result			
			Ant 1	Ant 2	Ant 1 + Ant 2 MIMO	Limit (dBm)
5260	52	802.11n(20MHz)	3.333	3.291	6.322	11 dBm/MHz
5300	60		2.992	2.068	5.565	
5320	64		3.476	3.034	6.271	
5500	100		6.175	5.290	8.765	
5580	116		6.043	5.281	8.689	
5720	144		5.439	4.645	8.071	

Frequency (MHz)	Channel No.	Mode	Test Result			
			Ant 1	Duty Factor	Ant 1 Total PSD	Limit (dBm)
5270	54	802.11n(40MHz)	0.459	1.062	1.521	11 dBm/MHz
5310	62		-0.991	1.062	0.071	
5510	102		-0.275	1.062	0.787	
5550	110		2.280	1.062	3.342	
5710	142		2.095	1.062	3.157	

Frequency (MHz)	Channel No.	Mode	Test Result			
			Ant 2	Duty Factor	Ant 2 Total PSD	Limit (dBm)
5270	54	802.11n(40MHz)	0.619	1.062	1.681	11 dBm/MHz
5310	62		-1.785	1.062	-0.723	
5510	102		-0.637	1.062	0.425	
5550	110		1.916	0.590	2.506	
5710	142		1.254	0.590	1.844	

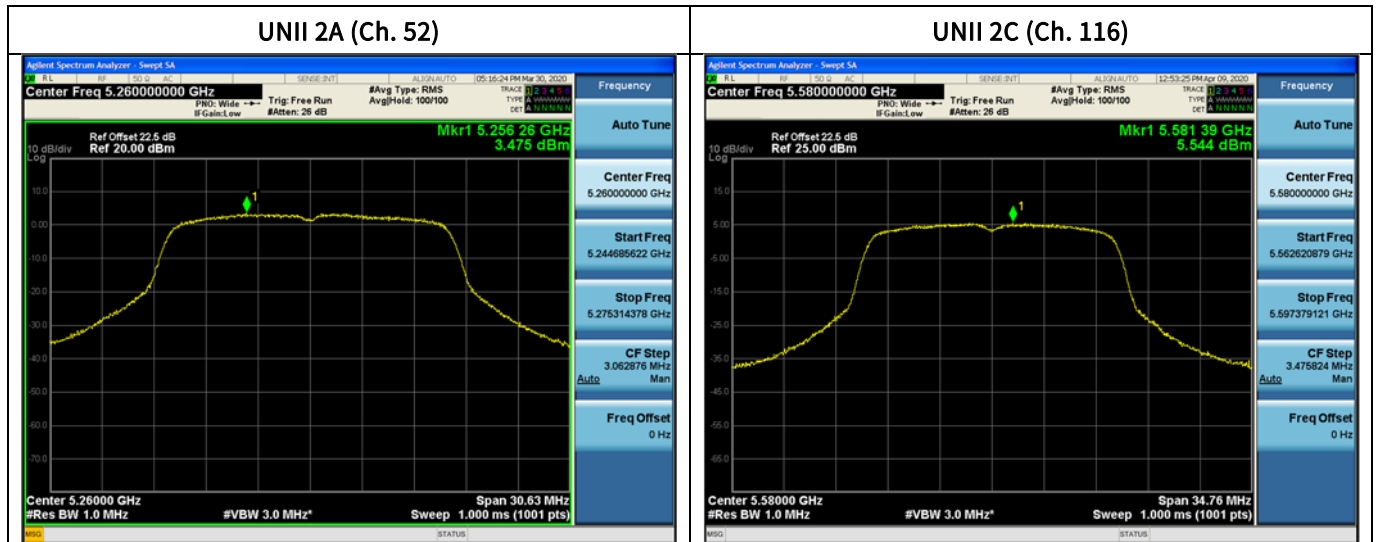
Frequency (MHz)	Channel No.	Mode	Test Result			
			Ant 1	Ant 2	Ant 1 + Ant 2 MIMO	Limit (dBm)
5270	54	802.11n(40MHz)	1.521	1.681	4.612	11 dBm/MHz
5310	62		0.071	-0.723	2.702	
5510	102		0.787	0.425	3.620	
5550	110		3.342	2.506	5.954	
5710	142		3.157	1.844	5.560	

[ANT1]

■ Test Plots(802.11a)

Note:

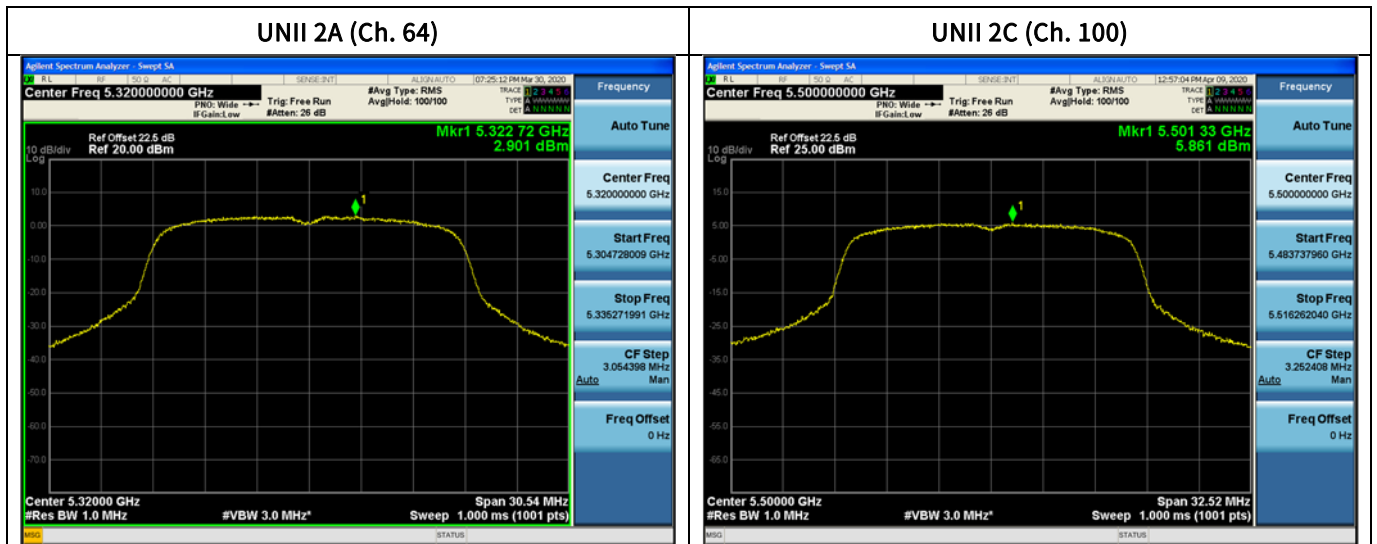
In order to simplify the report, attached plots were only channel of highest power.



Test Plots(802.11n(HT20))

Note:

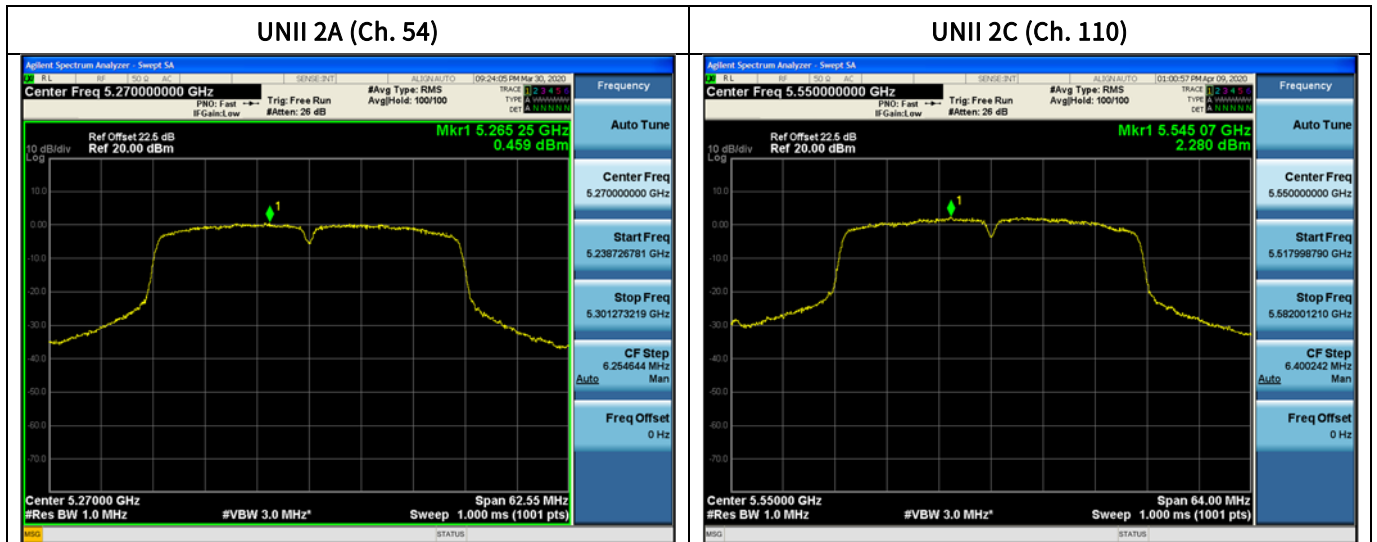
In order to simplify the report, attached plots were only channel of highest power.



Test Plots(802.11n(HT40))

Note:

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

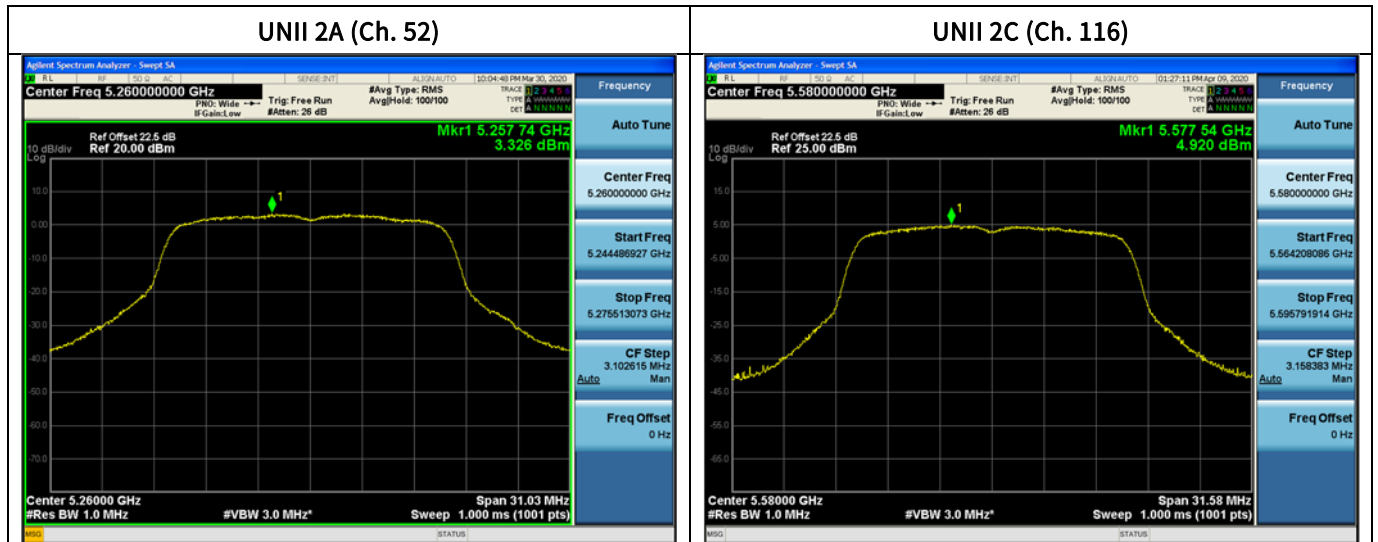


[ANT2]

■ Test Plots(802.11a)

Note:

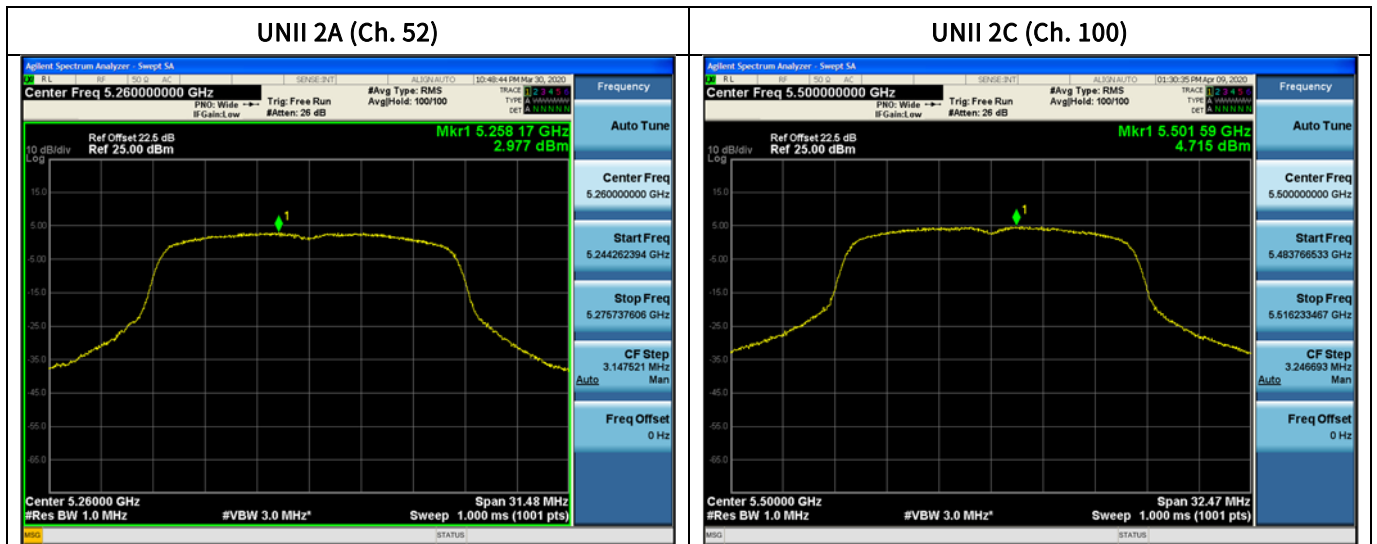
In order to simplify the report, attached plots were only channel of highest power.



Test Plots(802.11n(HT20))

Note:

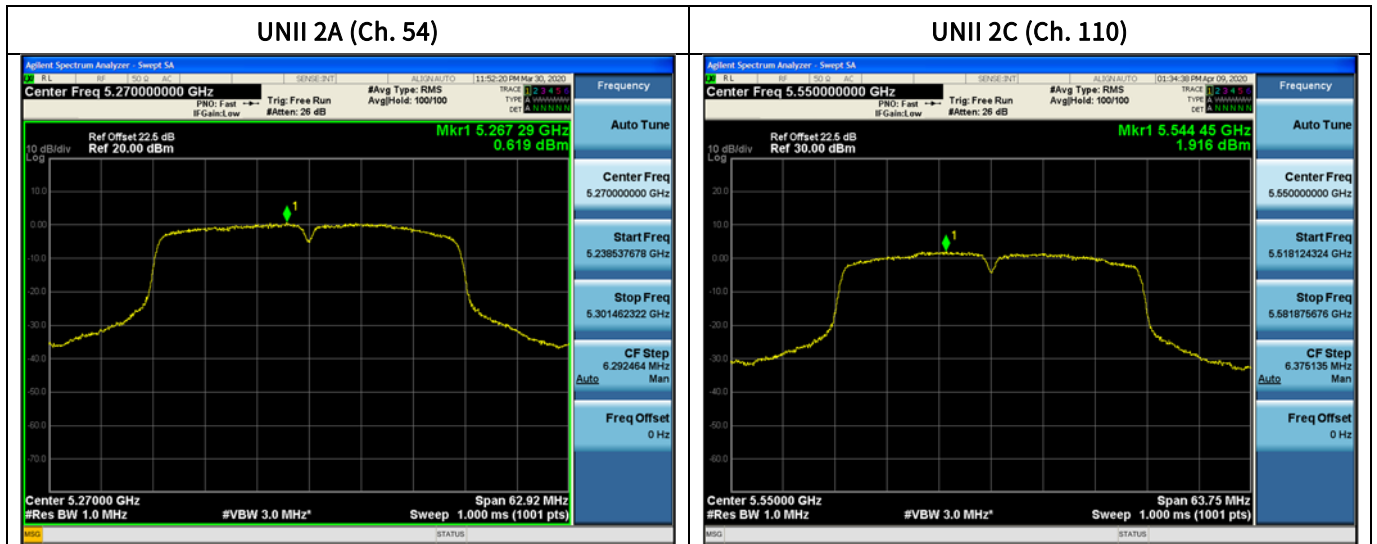
In order to simplify the report, attached plots were only channel of highest power.



Test Plots(802.11n(HT40))

Note:

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



10.5 FREQUENCY STABILITY.

10.5.1 40MHz BW

[ANT1]

Startup after the EUT is energized

OPERATING BAND: UNII Band 2A
 OPERATING FREQUENCY: 5,270,000,000 Hz
 CHANNEL: 54
 REFERENCE VOLTAGE: 3.45 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.45	+20(Ref)	5270028.06	28.06
100%		-30	5270086.37	86.37
100%		-20	5270018.63	18.63
100%		-10	5270087.30	87.3
100%		0	5270089.04	89.04
100%		+10	5270046.41	46.41
100%		+30	5270082.13	82.13
100%		+40	5270054.11	54.11
100%		+50	5270043.91	43.91
104%	3.60	+20	5270040.76	40.76
End. Point	3.35	+20	5270029.82	29.82

Note:

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

OPERATING BAND: UNII Band 2C
 OPERATING FREQUENCY: 5,510,000,000 Hz
 CHANNEL: 102
 REFERENCE VOLTAGE: 3.45 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.45	+20(Ref)	5510012.90	12.90
100%		-30	5510064.05	64.05
100%		-20	5510009.98	9.98
100%		-10	5510060.76	60.76
100%		0	5510086.05	86.05
100%		+10	5510024.79	24.79
100%		+30	5510011.61	11.61
100%		+40	5510065.32	65.32
100%		+50	5510011.56	11.56
104%	3.60	+20	5510078.05	78.05
End. Point	3.35	+20	5510032.74	32.74

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 2A
 OPERATING FREQUENCY: 5,270,000,000 Hz
 CHANNEL: 54
 REFERENCE VOLTAGE: 3.45 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.45	+20(Ref)	5270081.09	81.09
100%		-30	5270089.75	89.75
100%		-20	5270034.55	34.55
100%		-10	5270004.07	4.07
100%		0	5270050.47	50.47
100%		+10	5270039.31	39.31
100%		+30	5270047.99	47.99
100%		+40	5270004.30	4.3
100%		+50	5270018.51	18.51
104%	3.60	+20	5270082.23	82.23
End. Point	3.35	+20	5270021.82	21.82

Note:

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

OPERATING BAND: UNII Band 2C
 OPERATING FREQUENCY: 5,510,000,000 Hz
 CHANNEL: 102
 REFERENCE VOLTAGE: 3.45 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.45	+20(Ref)	5510065.78	65.78
100%		-30	5510081.12	81.12
100%		-20	5510027.97	27.97
100%		-10	5510071.61	71.61
100%		0	5510021.30	21.3
100%		+10	5510076.96	76.96
100%		+30	5510097.09	97.09
100%		+40	5510096.42	96.42
100%		+50	5510058.90	58.90
104%	3.60	+20	5510059.07	59.07
End. Point	3.35	+20	5510042.43	42.43

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.

5 minutes after the EUT is energized

OPERATING BAND: UNII Band 2A
 OPERATING FREQUENCY: 5,270,000,000 Hz
 CHANNEL: 54
 REFERENCE VOLTAGE: 3.45 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.45	+20(Ref)	5270021.51	21.51
100%		-30	5270096.19	96.19
100%		-20	5270027.03	27.03
100%		-10	5270047.45	47.45
100%		0	5270010.39	10.39
100%		+10	5270051.42	51.42
100%		+30	5270009.66	9.66
100%		+40	5270057.92	57.92
100%		+50	5270047.78	47.78
104%	3.60	+20	5270079.24	79.24
End. Point	3.35	+20	5270094.41	94.41

Note:

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

OPERATING BAND: UNII Band 2C
 OPERATING FREQUENCY: 5,510,000,000 Hz
 CHANNEL: 102
 REFERENCE VOLTAGE: 3.45 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.45	+20(Ref)	5510038.52	38.52
100%		-30	5510024.37	24.37
100%		-20	5510037.63	37.63
100%		-10	5510036.24	36.24
100%		0	5510073.81	73.81
100%		+10	5510031.33	31.33
100%		+30	5510055.52	55.52
100%		+40	5510065.49	65.49
100%		+50	5510050.59	50.59
104%	3.60	+20	5510058.54	58.54
End. Point	3.35	+20	5510054.61	54.61

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 2A
 OPERATING FREQUENCY: 5,270,000,000 Hz
 CHANNEL: 54
 REFERENCE VOLTAGE: 3.45 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.45	+20(Ref)	5270093.56	93.56
100%		-30	5270006.50	6.50
100%		-20	5270070.48	70.48
100%		-10	5270043.92	43.92
100%		0	5270012.71	12.71
100%		+10	5270070.52	70.52
100%		+30	5270022.60	22.6
100%		+40	5270042.67	42.67
100%		+50	5270007.98	7.98
104%	3.60	+20	5270019.60	19.60
End. Point	3.35	+20	5270098.63	98.63

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.

OPERATING BAND: UNII Band 2C
 OPERATING FREQUENCY: 5,510,000,000 Hz
 CHANNEL: 102
 REFERENCE VOLTAGE: 3.45 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.45	+20(Ref)	5510019.04	19.04
100%		-30	5510019.95	19.95
100%		-20	5510005.63	5.63
100%		-10	5510085.81	85.81
100%		0	5510058.65	58.65
100%		+10	5510084.40	84.4
100%		+30	5510050.04	50.04
100%		+40	5510095.11	95.11
100%		+50	5510032.28	32.28
104%	3.60	+20	5510062.35	62.35
End. Point	3.35	+20	5510085.14	85.14

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 2A
 OPERATING FREQUENCY: 5,270,000,000 Hz
 CHANNEL: 54
 REFERENCE VOLTAGE: 3.45 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.45	+20(Ref)	5270064.35	64.35
100%		-30	5270099.78	99.78
100%		-20	5270004.66	4.66
100%		-10	5270026.69	26.69
100%		0	5270058.67	58.67
100%		+10	5270060.98	60.98
100%		+30	5270066.19	66.19
100%		+40	5270062.82	62.82
100%		+50	5270002.89	2.89
104%	3.60	+20	5270007.83	7.83
End. Point	3.35	+20	5270063.63	63.63

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.

OPERATING BAND: UNII Band 2C
 OPERATING FREQUENCY: 5,510,000,000 Hz
 CHANNEL: 102
 REFERENCE VOLTAGE: 3.45 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.45	+20(Ref)	5510039.48	39.48
100%		-30	5510077.79	77.79
100%		-20	5510074.94	74.94
100%		-10	5510052.47	52.47
100%		0	5510071.34	71.34
100%		+10	5510043.85	43.85
100%		+30	5510053.93	53.93
100%		+40	5510034.16	34.16
100%		+50	5510034.11	34.11
104%	3.60	+20	5510047.98	47.98
End. Point	3.35	+20	5510038.36	38.36

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 2A
 OPERATING FREQUENCY: 5,270,000,000 Hz
 CHANNEL: 54
 REFERENCE VOLTAGE: 3.45 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.45	+20(Ref)	5270070.19	70.19
100%		-30	5270060.77	60.77
100%		-20	5270003.40	3.4
100%		-10	5270009.63	9.63
100%		0	5270048.16	48.16
100%		+10	5270089.21	89.21
100%		+30	5270013.45	13.45
100%		+40	5270008.69	8.69
100%		+50	5270053.08	53.08
104%	3.60	+20	5270043.70	43.70
End. Point	3.35	+20	5270056.02	56.02

Note:

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

OPERATING BAND: UNII Band 2C
 OPERATING FREQUENCY: 5,510,000,000 Hz
 CHANNEL: 102
 REFERENCE VOLTAGE: 3.45 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.45	+20(Ref)	5510083.97	83.97
100%		-30	5510033.79	33.79
100%		-20	5510068.63	68.63
100%		-10	5510063.41	63.41
100%		0	5510049.27	49.27
100%		+10	5510020.25	20.25
100%		+30	5510074.79	74.79
100%		+40	5510039.97	39.97
100%		+50	5510044.77	44.77
104%	3.60	+20	5510049.48	49.48
End. Point	3.35	+20	5510093.50	93.5

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 2A
 OPERATING FREQUENCY: 5,270,000,000 Hz
 CHANNEL: 54
 REFERENCE VOLTAGE: 3.45 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.45	+20(Ref)	5270095.97	95.97
100%		-30	5270034.90	34.90
100%		-20	5270039.23	39.23
100%		-10	5270032.22	32.22
100%		0	5270091.37	91.37
100%		+10	5270046.18	46.18
100%		+30	5270017.87	17.87
100%		+40	5270089.94	89.94
100%		+50	5270032.71	32.71
104%	3.60	+20	5270023.16	23.16
End. Point	3.35	+20	5270091.60	91.6

Note:

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

OPERATING BAND: UNII Band 2C
 OPERATING FREQUENCY: 5,510,000,000 Hz
 CHANNEL: 102
 REFERENCE VOLTAGE: 3.45 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.45	+20(Ref)	5510094.29	94.29
100%		-30	5510032.81	32.81
100%		-20	5510032.32	32.32
100%		-10	5510081.47	81.47
100%		0	5510007.88	7.88
100%		+10	5510090.90	90.9
100%		+30	5510012.45	12.45
100%		+40	5510094.32	94.32
100%		+50	5510056.11	56.11
104%	3.60	+20	5510012.21	12.21
End. Point	3.35	+20	5510025.77	25.77

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 2A
 OPERATING FREQUENCY: 5,270,000,000 Hz
 CHANNEL: 54
 REFERENCE VOLTAGE: 3.45 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.45	+20(Ref)	5270048.47	48.47
100%		-30	5270031.75	31.75
100%		-20	5270037.09	37.09
100%		-10	5270081.46	81.46
100%		0	5270094.59	94.59
100%		+10	5270030.86	30.86
100%		+30	5270096.09	96.09
100%		+40	5270005.87	5.87
100%		+50	5270031.99	31.99
104%	3.60	+20	5270054.68	54.68
End. Point	3.35	+20	5270049.47	49.47

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.

OPERATING BAND: UNII Band 2C
 OPERATING FREQUENCY: 5,510,000,000 Hz
 CHANNEL: 102
 REFERENCE VOLTAGE: 3.45 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.45	+20(Ref)	5510001.62	1.62
100%		-30	5510059.12	59.12
100%		-20	5510090.27	90.27
100%		-10	5510062.09	62.09
100%		0	5510029.50	29.5
100%		+10	5510090.75	90.75
100%		+30	5510038.65	38.65
100%		+40	5510013.77	13.77
100%		+50	5510033.84	33.84
104%	3.60	+20	5510035.26	35.26
End. Point	3.35	+20	5510024.03	24.03

Note:

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

10.6 STRADDLE CHANNEL

10.6.1 26dB Bandwidth

[ANT1]

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	26dB Bandwidth [MHz]
802.11a	UNII 2C	5720	144	5710.60	14.40
802.11n(HT20)				5710.12	14.88
802.11a	UNII 3	5720	144	5729.24	4.24
802.11n(HT20)				5729.80	4.80

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	26dB Bandwidth [MHz]
802.11n(HT40)	UNII 2C	5710	142	5689.60	35.40
802.11n(HT40)	UNII 3	5710	142	5730.08	5.08

Note:

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

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

[ANT2]

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	26dB Bandwidth [MHz]
802.11a	UNII 2C	5720	144	5710.92	14.08
802.11n(HT20)				5709.88	15.12
802.11a	UNII 3	5720	144	5729.28	4.28
802.11n(HT20)				5730.16	5.16

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	26dB Bandwidth [MHz]
802.11n(HT40)	UNII 2C	5710	142	5689.76	35.24
802.11n(HT40)	UNII 3	5710	142	5730.24	5.24

Note:

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

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

[ANT1]

Test Plots (26dB Bandwidth)

802.11a UNII Band

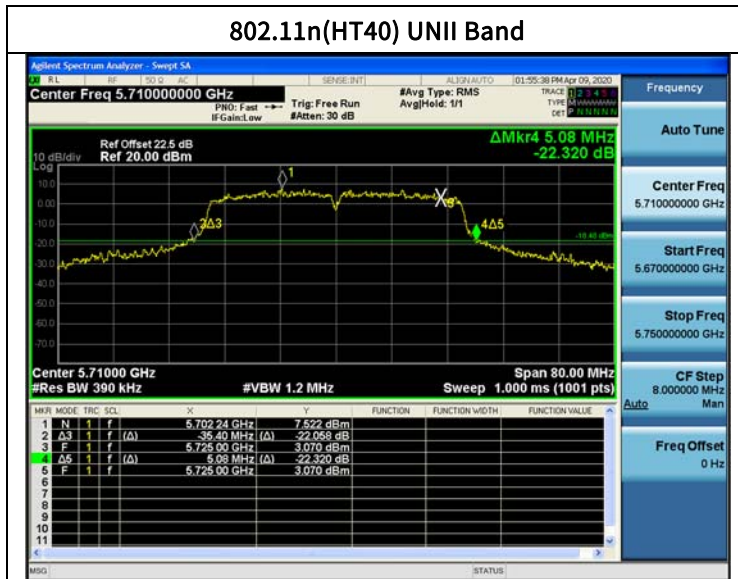


802.11n(HT20) UNII Band



Test Plots (26dB Bandwidth)

802.11n(HT40) UNII Band



[ANT2]

Test Plots (26dB Bandwidth)

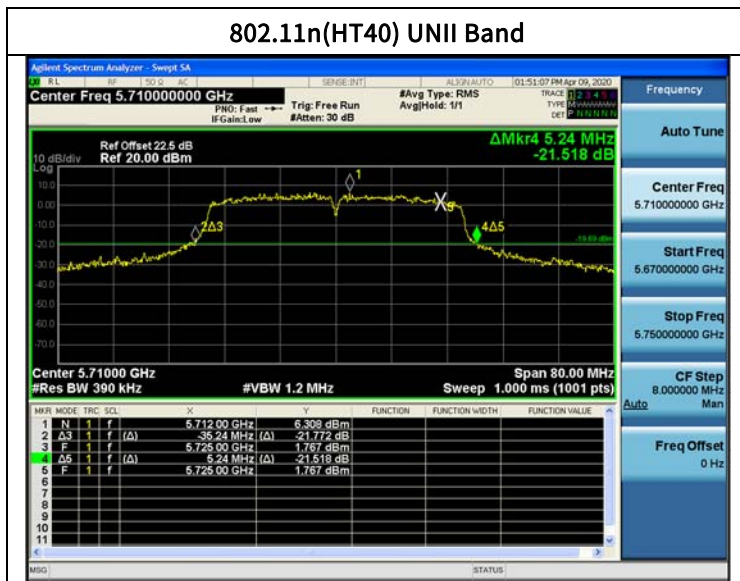
802.11a UNII Band



802.11n(HT20) UNII Band



Test Plots (26dB Bandwidth)



10.6.2 6dB Bandwidth

[ANT1]

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	6dB Bandwidth [MHz]	Limit [MHz]
802.11a	UNII 3	5720	144	5727.61	2.61	> 0.5
802.11n(HT20)				5727.60	2.60	> 0.5

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	6dB Bandwidth [MHz]	Limit [MHz]
802.11n(HT40)	UNII 3	5710	142	5727.60	2.60	> 0.5

Note:

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

[ANT2]

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	6dB Bandwidth [MHz]	Limit [MHz]
802.11a	UNII 3	5720	144	5727.60	2.60	> 0.5
802.11n(HT20)				5727.60	2.60	> 0.5

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	6dB Bandwidth [MHz]	Limit [MHz]
802.11n(HT40)	UNII 3	5710	142	5727.60	2.60	> 0.5

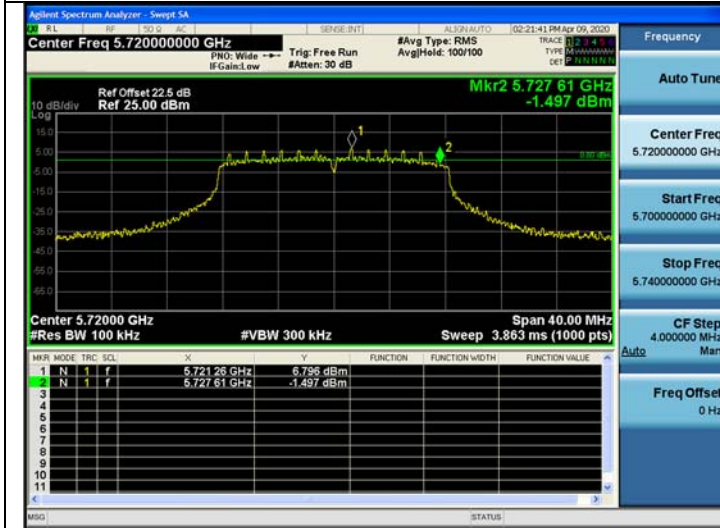
Note:

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

[ANT1]

Test Plots(UNII 3 Band 6dB Bandwidth)

802.11a CH.144



802.11n_HT20 CH.144



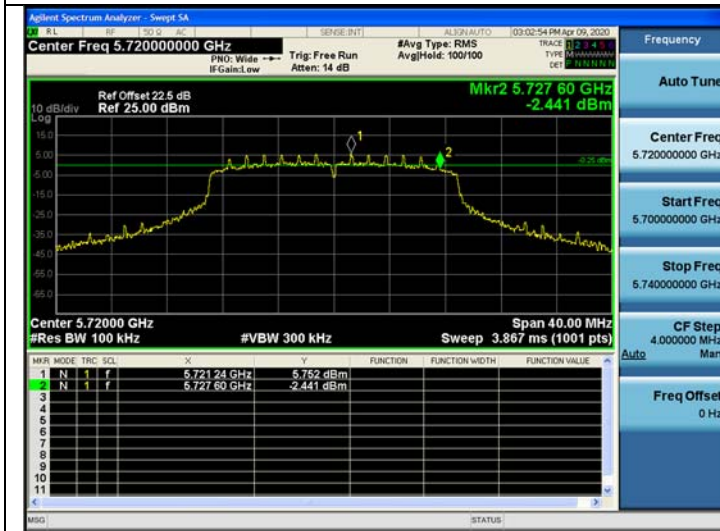
802.11n_HT40 CH.142



[ANT2]

Test Plots(UNII 3 Band 6dB Bandwidth)

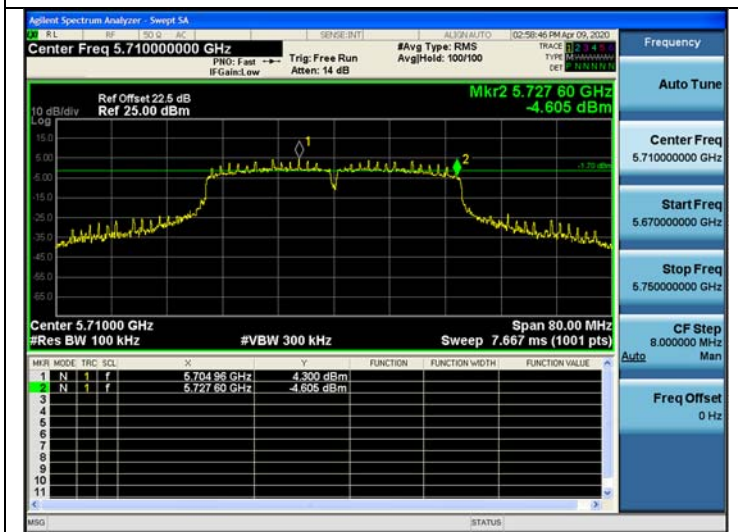
802.11a CH.144



802.11n_HT20 CH.144



802.11n_HT40 CH.142



10.6.3 Output Power

[ANT1]

Mode	Frequency [MHz]	Channel	Measured Power (dBm)	Duty Cycle Factor (dB)	Total Power (dBm)	Limit (dBm)
802.11a	5720 (UNII 2C Band)	144	14.61	0.818	15.43	22.58
802.11n(HT20)			14.35	0.823	15.17	22.73
802.11a	5720 (UNII 3 Band)	144	7.24	0.818	8.06	30.00
802.11n(HT20)			7.37	0.823	8.19	30.00

Mode	Frequency [MHz]	Channel	Measured Power (dBm)	Duty Cycle Factor (dB)	Total Power (dBm)	Limit (dBm)
802.11n(HT40)	5710 (UNII 2C Band)	142	15.66	1.062	16.72	23.98
802.11n(HT40)	5710 (UNII 3 Band)	142	3.27	1.062	4.33	30.00

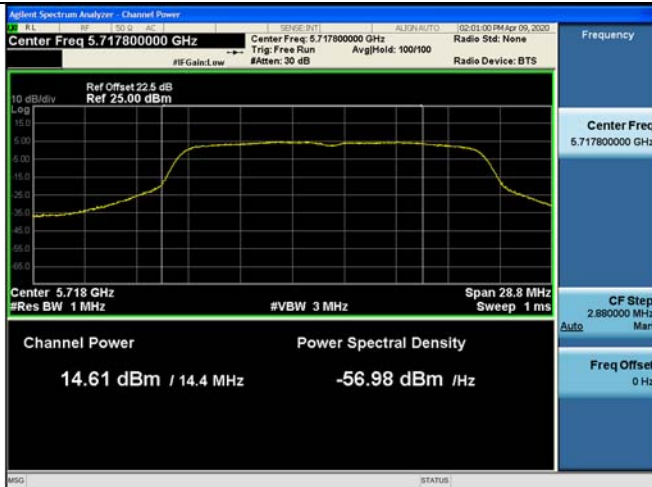
[ANT2]

Mode	Frequency [MHz]	Channel	Measured Power (dBm)	Duty Cycle Factor (dB)	Total Power (dBm)	Limit (dBm)
802.11a	5720	144	13.51	0.818	14.33	22.49
802.11n(HT20)	(UNII 2C Band)		13.48	0.575	14.06	22.80
802.11a	5720	144	6.04	0.818	6.86	30.00
802.11n(HT20)	(UNII 3 Band)		6.32	0.575	6.90	30.00

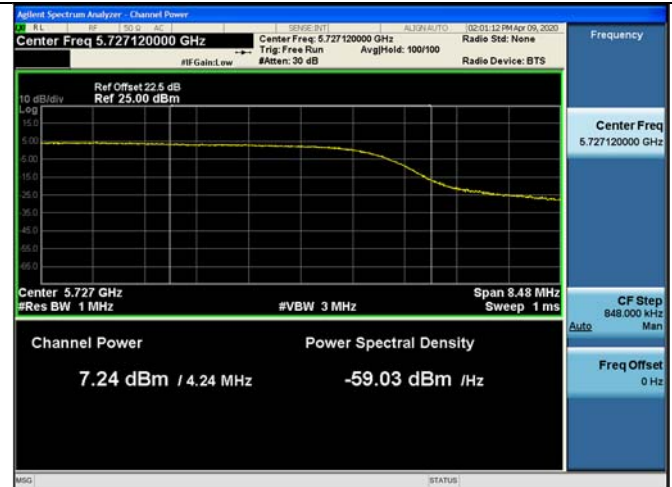
Mode	Frequency [MHz]	Channel	Measured Power (dBm)	Duty Cycle Factor (dB)	Total Power (dBm)	Limit (dBm)
802.11n(HT40)	5710 (UNII 2C Band)	142	14.65	1.062	15.71	23.98
802.11n(HT40)	5710 (UNII 3 Band)	142	2.06	1.062	3.12	30.00

Test Plots [ANT1]

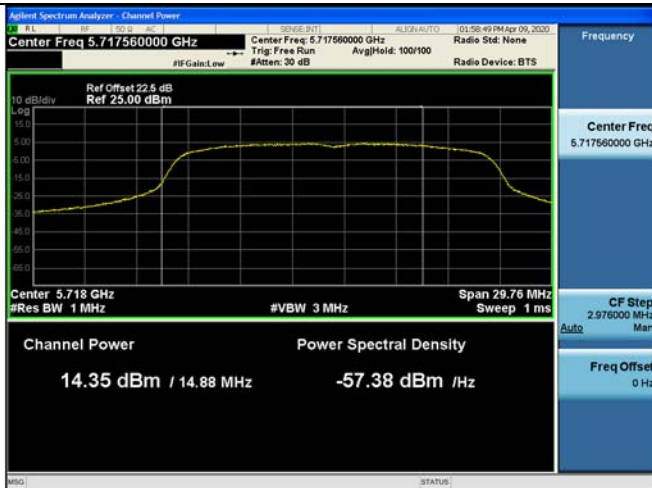
802.11a UNII 2C Band



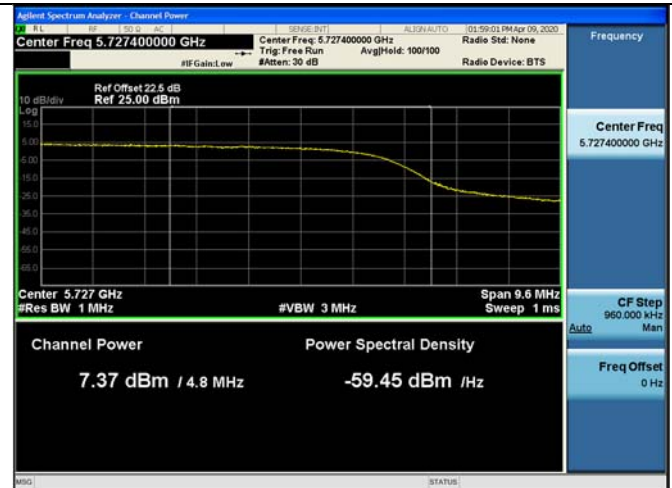
802.11a UNII 3 Band



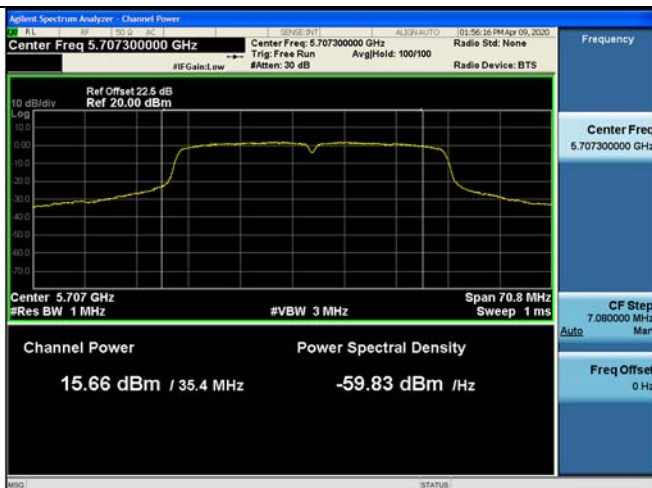
802.11n(HT20) UNII 2C Band



802.11n(HT20) UNII 3 Band



802.11n(HT40) UNII 2C Band

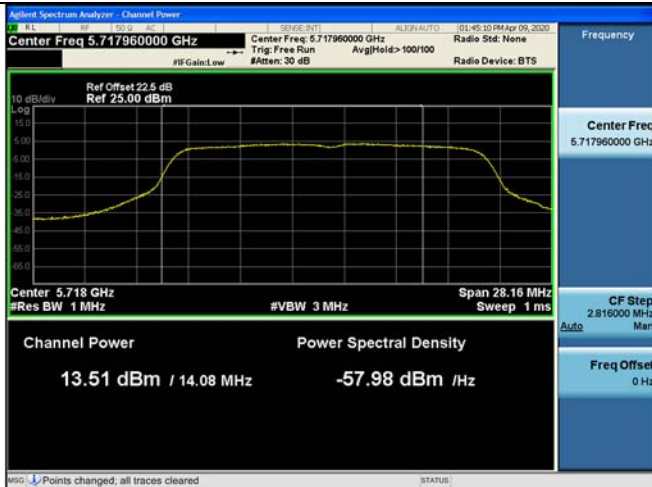


802.11n(HT40) UNII 3 Band

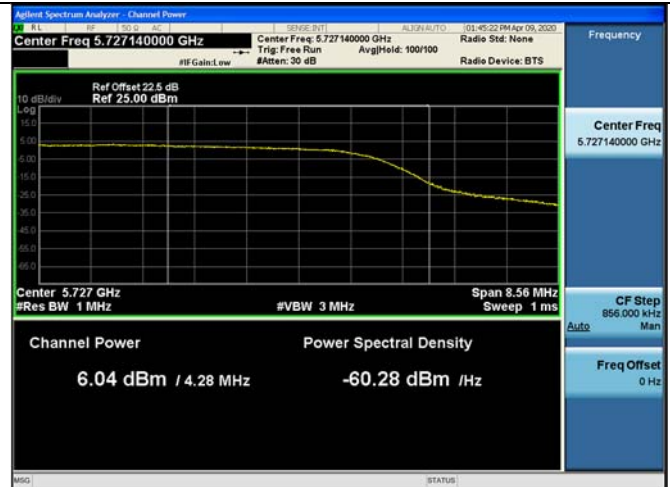


Test Plots [ANT2]

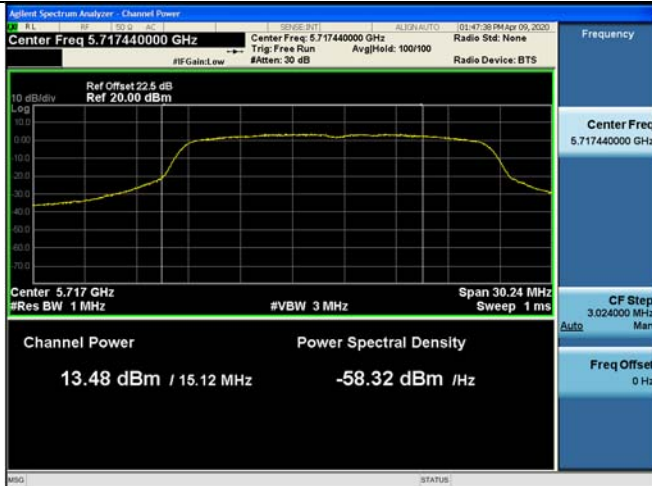
802.11a UNII 2C Band



802.11a UNII 3 Band



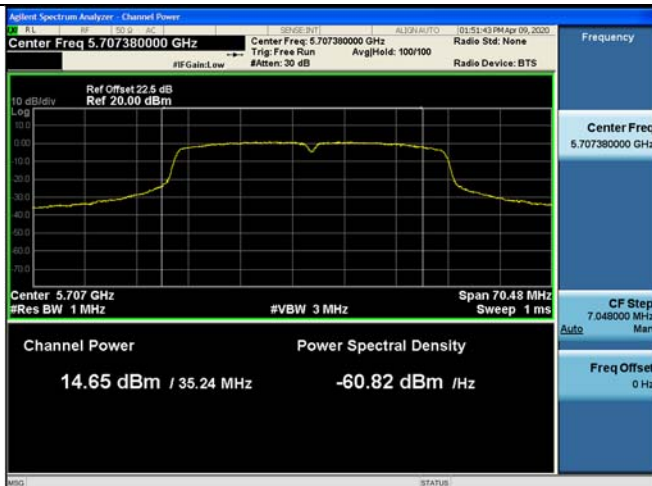
802.11n(HT20) UNII 2C Band



802.11n(HT20) UNII 3 Band



802.11n(HT40) UNII 2C Band



802.11n(HT40) UNII 3 Band



10.6.4 Power Spectral Density

[ANT1]

Mode	Frequency [MHz]	Channel	Measured Density (dBm)	Duty Cycle Factor (dB)	Total PSD (dBm)	Limit (dBm)
802.11a	5720 (UNII 2C Band)	144	4.866	0.818	5.684	11.00
802.11n(HT20)			4.537	0.823	5.360	11.00
802.11a	5720 (UNII 3 Band)	144	0.667	0.818	1.485	30.00
802.11n(HT20)			0.371	0.823	1.194	30.00

Mode	Frequency [MHz]	Channel	Measured Density (dBm)	Duty Cycle Factor (dB)	Total PSD (dBm)	Limit (dBm)
802.11n(HT40)	5710 (UNII 2C Band)	142	2.071	1.062	3.133	11.00
802.11n(HT40)	5710 (UNII 3 Band)	142	-3.487	1.062	-2.425	30.00

[ANT2]

Mode	Frequency [MHz]	Channel	Measured Density (dBm)	Duty Cycle Factor (dB)	Total PSD (dBm)	Limit (dBm)
802.11a	5720	144	3.724	0.818	4.542	11.00
802.11n(HT20)	(UNII 2C Band)		3.613	0.575	4.188	11.00
802.11a	5720	144	-0.194	0.818	0.624	30.00
802.11n(HT20)	(UNII 3 Band)		-0.259	0.575	0.316	30.00

Mode	Frequency [MHz]	Channel	Measured Density (dBm)	Duty Cycle Factor (dB)	Total PSD (dBm)	Limit (dBm)
802.11n(HT40)	5710 (UNII 2C Band)	142	1.340	1.062	2.402	11.00
802.11n(HT40)	5710 (UNII 3 Band)	142	-4.566	1.062	-3.504	30.00

Test Plots_[ANT1]

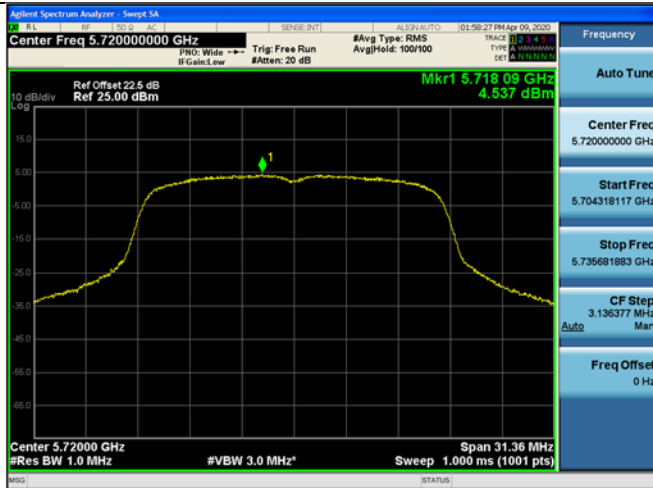
802.11a UNII 2C Band



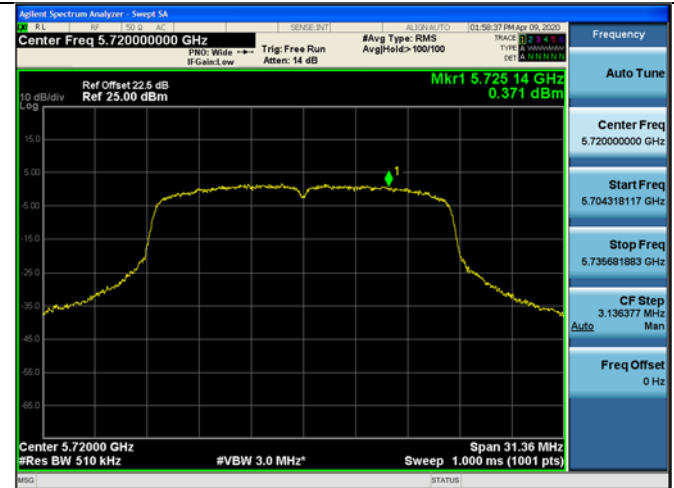
802.11a UNII 3 Band



802.11n(HT20) UNII 2C Band



802.11n(HT20) UNII 3 Band



802.11n(HT40) UNII 2C Band

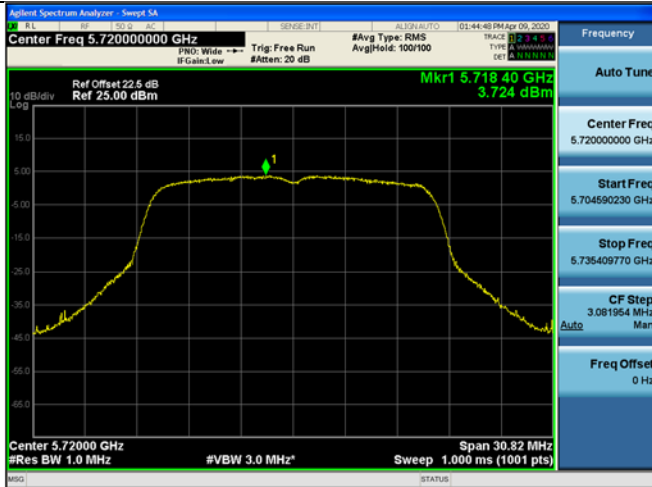


802.11n(HT40) UNII 3 Band



Test Plots [ANT2]

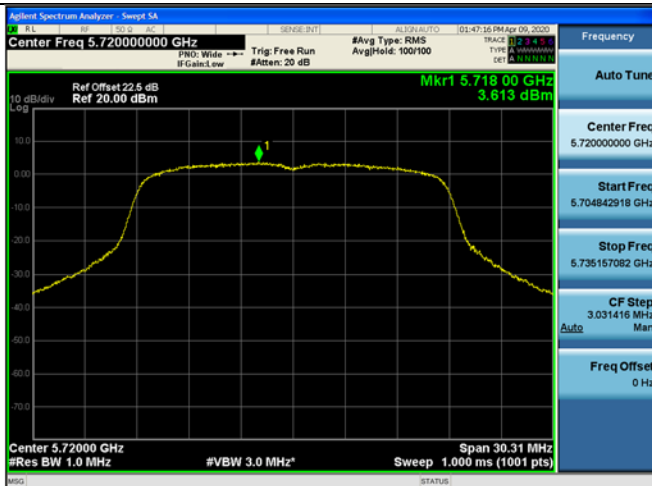
802.11a UNII 2C Band



802.11a UNII 3 Band



802.11n(HT20) UNII 2C Band



802.11n(HT20) UNII 3 Band



802.11n(HT40) UNII 2C Band



802.11n(HT40) UNII 3 Band



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

Frequency Range : Below 1 GHz

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

Note:

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

Frequency Range : Above 1 GHz

Band : UNII 2A

Operation Mode: 802.11 a

Transfer Rate: 6 Mbps

Operating Frequency 5260 MHz

Channel No. 52 Ch

Frequency [MHz]	Reading [dBuV]	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10520	55.03	4.58	V	59.61	68.20	8.59	PK
15780	46.28	4.55	V	50.83	73.98	23.15	PK
15780	32.45	4.55	V	37.00	53.98	16.98	AV
10520	59.91	4.58	H	64.49	68.20	3.71	PK
15780	46.85	4.55	H	51.40	73.98	22.58	PK
15780	32.84	4.55	H	37.39	53.98	16.59	AV

Band : UNII 2A

Operation Mode: 802.11 a

Transfer Rate: 6 Mbps

Operating Frequency 5300 MHz

Channel No. 60 Ch

Frequency [MHz]	Reading [dBuV]	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10600	58.36	4.79	V	63.15	73.98	10.83	PK
10600	41.29	4.79	V	46.08	53.98	7.90	AV
15900	46.02	5.29	V	51.31	73.98	22.67	PK
15900	32.33	5.29	V	37.62	53.98	16.36	AV
10600	59.24	4.79	H	64.03	73.98	9.95	PK
10600	44.50	4.79	H	49.29	53.98	4.69	AV
15900	46.03	5.29	H	51.32	73.98	22.66	PK
15900	32.38	5.29	H	37.67	53.98	16.31	AV

Band : UNII 2A

Operation Mode: 802.11 a

Transfer Rate: 6 Mbps

Operating Frequency 5320 MHz

Channel No. 64 Ch

Frequency [MHz]	Reading [dBuV]	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10640	59.35	4.82	V	64.17	73.98	9.81	PK
10640	42.84	4.82	V	47.66	53.98	6.32	AV
15960	46.96	4.71	V	51.67	73.98	22.31	PK
15960	33.25	4.71	V	37.96	53.98	16.02	AV
10640	60.24	4.82	H	65.06	73.98	8.92	PK
10640	45.31	4.82	H	50.13	53.98	3.85	AV
15960	47.82	4.71	H	52.53	73.98	21.45	PK
15960	33.29	4.71	H	38.00	53.98	15.98	AV

Band : UNII 2C

Operation Mode: 802.11 a

Transfer Rate: 6 Mbps

Operating Frequency 5500 MHz

Channel No. 100 Ch

Frequency [MHz]	Reading [dBuV]	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11000	55.60	4.61	V	60.21	73.98	13.77	PK
11000	42.20	4.61	V	46.81	53.98	7.17	AV
16500	56.78	7.08	V	63.86	68.20	4.34	PK
11000	58.92	4.61	H	63.53	73.98	10.45	PK
11000	45.14	4.61	H	49.75	53.98	4.23	AV
16500	57.56	7.08	H	64.64	68.20	3.56	PK

Band : UNII 2C

Operation Mode: 802.11 a

Transfer Rate: 6 Mbps

Operating Frequency 5600 MHz

Channel No. 120 Ch

Frequency [MHz]	Reading [dBuV]	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11160	52.38	4.37	V	56.75	73.98	17.23	PK
11160	38.69	4.37	V	43.06	53.98	10.92	AV
16740	52.69	8.84	V	61.53	68.20	6.67	PK
11160	54.74	4.37	H	59.11	73.98	14.87	PK
11160	40.68	4.37	H	45.05	53.98	8.93	AV
16740	55.53	8.84	H	64.37	68.20	3.83	PK

Band : UNII 2C

Operation Mode: 802.11 a

Transfer Rate: 6 Mbps

Operating Frequency 5720 MHz

Channel No. 144 Ch

Frequency [MHz]	Reading [dBuV]	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11440	52.94	4.60	V	57.54	73.98	16.44	PK
11440	38.76	4.60	V	43.36	53.98	10.62	AV
17160	47.35	9.39	V	56.74	68.20	11.46	PK
11440	56.11	4.60	H	60.71	73.98	13.27	PK
11440	42.09	4.60	H	46.69	53.98	7.29	AV
17160	51.98	9.39	H	61.37	68.20	6.83	PK

Band : UNII 2A

Operation Mode: 802.11 n(HT20)

Transfer MCS Index: MCS0

Operating Frequency 5260 MHz

Channel No. 52 Ch

Frequency [MHz]	Reading [dBuV]	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10520	59.06	4.58	V	63.64	68.20	4.56	PK
15780	48.33	4.55	V	52.88	73.98	21.10	PK
15780	33.52	4.55	V	38.07	53.98	15.91	AV
10520	59.08	4.58	H	63.66	68.20	4.54	PK
15780	45.44	4.55	H	49.99	73.98	23.99	PK
15780	31.80	4.55	H	36.35	53.98	17.63	AV

Band : UNII 2A

Operation Mode: 802.11 n(HT20)

Transfer MCS Index: MCS0

Operating Frequency 5300 MHz

Channel No. 60 Ch

Frequency [MHz]	Reading [dBuV]	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10600	58.71	4.79	V	63.50	73.98	10.48	PK
10600	43.55	4.79	V	48.34	53.98	5.64	AV
15900	44.01	5.29	V	49.30	73.98	24.68	PK
15900	31.42	5.29	V	36.71	53.98	17.27	AV
10600	60.85	4.79	H	65.64	73.98	8.34	PK
10600	45.89	4.79	H	50.68	53.98	3.30	AV
15900	45.18	5.29	H	50.47	73.98	23.51	PK
15900	31.51	5.29	H	36.80	53.98	17.18	AV

Band : UNII 2A

Operation Mode: 802.11 n(HT20)

Transfer MCS Index: MCS0

Operating Frequency 5320 MHz

Channel No. 64 Ch

Frequency [MHz]	Reading [dBuV]	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10640	58.98	4.82	V	63.80	73.98	10.18	PK
10640	43.19	4.82	V	48.01	53.98	5.97	AV
15960	45.21	4.71	V	49.92	73.98	24.06	PK
15960	31.78	4.71	V	36.49	53.98	17.49	AV
10640	61.76	4.82	H	66.58	73.98	7.40	PK
10640	45.47	4.82	H	50.29	53.98	3.69	AV
15960	46.58	4.71	H	51.29	73.98	22.69	PK
15960	32.61	4.71	H	37.32	53.98	16.66	AV

Band : UNII 2C

Operation Mode: 802.11 n(HT20)

Transfer MCS Index: MCS0

Operating Frequency 5500 MHz

Channel No. 100 Ch

Frequency [MHz]	Reading [dBuV]	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11000	57.13	4.61	V	61.74	73.98	12.24	PK
11000	41.66	4.61	V	46.27	53.98	7.71	AV
16500	57.87	7.08	V	64.95	68.20	3.25	PK
11000	60.08	4.61	H	64.69	73.98	9.29	PK
11000	43.36	4.61	H	47.97	53.98	6.01	AV
16500	56.37	7.08	H	63.45	68.20	4.75	PK

Band : UNII 2C

Operation Mode: 802.11 n(HT20)

Transfer MCS Index: MCS0

Operating Frequency 5600 MHz

Channel No. 120 Ch

Frequency [MHz]	Reading [dBuV]	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11160	46.39	4.37	V	50.76	73.98	23.22	PK
11160	34.28	4.37	V	38.65	53.98	15.33	AV
16740	53.21	8.84	V	62.05	68.20	6.15	PK
11160	48.83	4.37	H	53.20	73.98	20.78	PK
11160	35.67	4.37	H	40.04	53.98	13.94	AV
16740	54.32	8.84	H	63.16	68.20	5.04	PK

Band : UNII 2C

Operation Mode: 802.11 n(HT20)

Transfer MCS Index: MCS0

Operating Frequency 5720 MHz

Channel No. 144 Ch

Frequency [MHz]	Reading [dBuV]	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11440	52.14	4.60	V	56.74	73.98	17.24	PK
11440	37.99	4.60	V	42.59	53.98	11.39	AV
17160	47.25	9.39	V	56.64	68.20	11.56	PK
11440	55.78	4.60	H	60.38	73.98	13.60	PK
11440	40.51	4.60	H	45.11	53.98	8.87	AV
17160	52.59	9.39	H	61.98	68.20	6.22	PK

Band : UNII 2A

Operation Mode: 802.11 n(HT40)

Transfer MCS Index: MCS0

Operating Frequency 5270 MHz

Channel No. 54 Ch

Frequency [MHz]	Reading [dBuV]	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10540	56.58	4.68	V	61.26	68.20	6.94	PK
15810	46.67	5.20	V	51.87	73.98	22.11	PK
15810	33.96	5.20	V	39.16	53.98	14.82	AV
10540	59.21	4.68	H	63.89	68.20	4.31	PK
15810	45.73	5.20	H	50.93	73.98	23.05	PK
15810	33.84	5.20	H	39.04	53.98	14.94	AV

Band : UNII 2A

Operation Mode: 802.11 n(HT40)

Transfer MCS Index: MCS0

Operating Frequency 5310 MHz

Channel No. 62 Ch

Frequency [MHz]	Reading [dBuV]	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10620	56.27	5.37	V	61.64	73.98	12.34	PK
10620	43.01	5.37	V	48.38	53.98	5.60	AV
15930	43.19	4.96	V	48.15	73.98	25.83	PK
15930	31.39	4.96	V	36.35	53.98	17.63	AV
10620	57.31	5.37	H	62.68	73.98	11.30	PK
10620	44.84	5.37	H	50.21	53.98	3.77	AV
15930	45.26	4.96	H	50.22	73.98	23.76	PK
15930	32.57	4.96	H	37.53	53.98	16.45	AV

Band : UNII 2C

Operation Mode: 802.11 n(HT40)

Transfer MCS Index: MCS0

Operating Frequency 5510 MHz

Channel No. 102 Ch

Frequency [MHz]	Reading [dBuV]	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11020	47.28	4.84	V	52.12	73.98	21.86	PK
11020	38.36	4.84	V	43.20	53.98	10.78	AV
16530	45.79	7.31	V	53.10	68.20	15.10	PK
11020	48.03	4.84	H	52.87	73.98	21.11	PK
11020	39.67	4.84	H	44.51	53.98	9.47	AV
16530	45.95	7.31	H	53.26	68.20	14.94	PK

Band : UNII 2C

Operation Mode: 802.11 n(HT40)

Transfer MCS Index: MCS0

Operating Frequency 5550 MHz

Channel No. 110 Ch

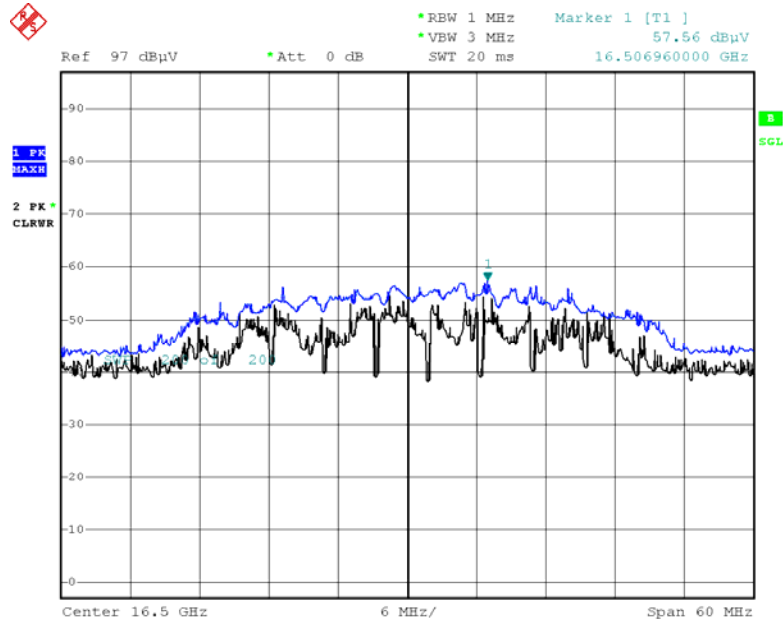
Frequency [MHz]	Reading [dBuV]	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11100	52.03	4.80	V	56.83	73.98	17.15	PK
11100	39.68	4.80	V	44.48	53.98	9.50	AV
16650	54.09	8.45	V	62.54	68.20	5.66	PK
11100	52.57	4.80	H	57.37	73.98	16.61	PK
11100	40.63	4.80	H	45.43	53.98	8.55	AV
16650	54.64	8.45	H	63.09	68.20	5.11	PK

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

Frequency [MHz]	Reading [dBuV]	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11420	51.01	4.88	V	55.89	73.98	18.09	PK
11420	37.32	4.88	V	42.20	53.98	11.78	AV
17130	49.75	9.05	V	58.80	68.20	9.40	PK
11420	52.92	4.88	H	57.80	73.98	16.18	PK
11420	40.12	4.88	H	45.00	53.98	8.98	AV
17130	51.09	9.05	H	60.14	68.20	8.06	PK

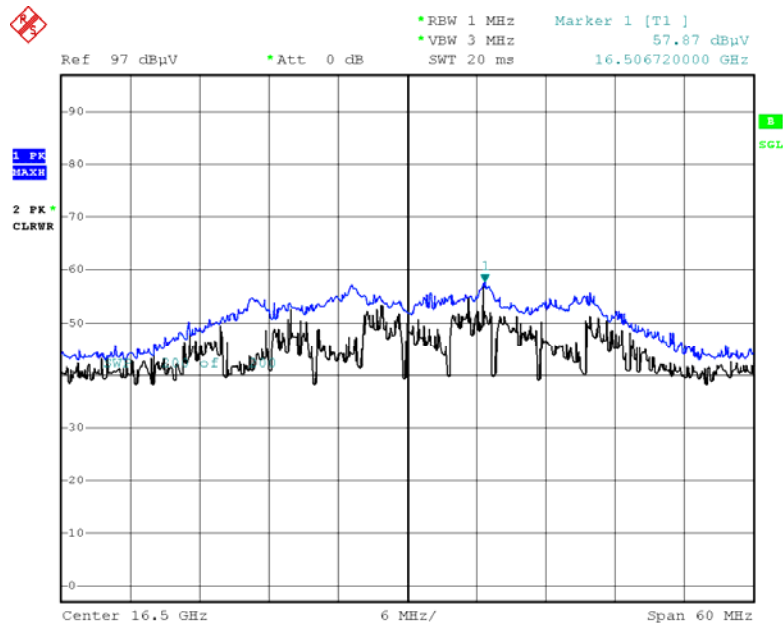
Test Plots

Peak Reading (802.11a, Ch.100 3rd Harmonic, Z-H)



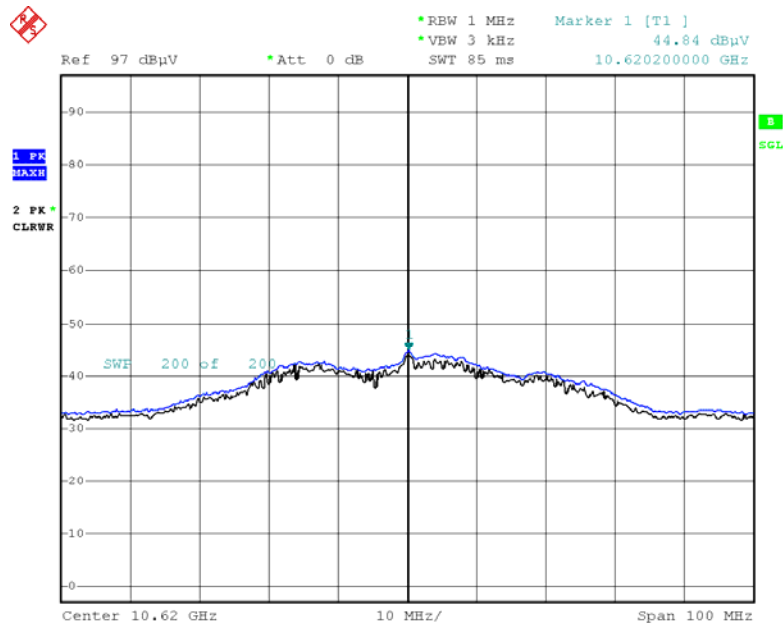
Date: 11.MAR.2020 06:25:16

Peak Reading (802.11 n(HT20), Ch.100 3rd Harmonic, Y-V)



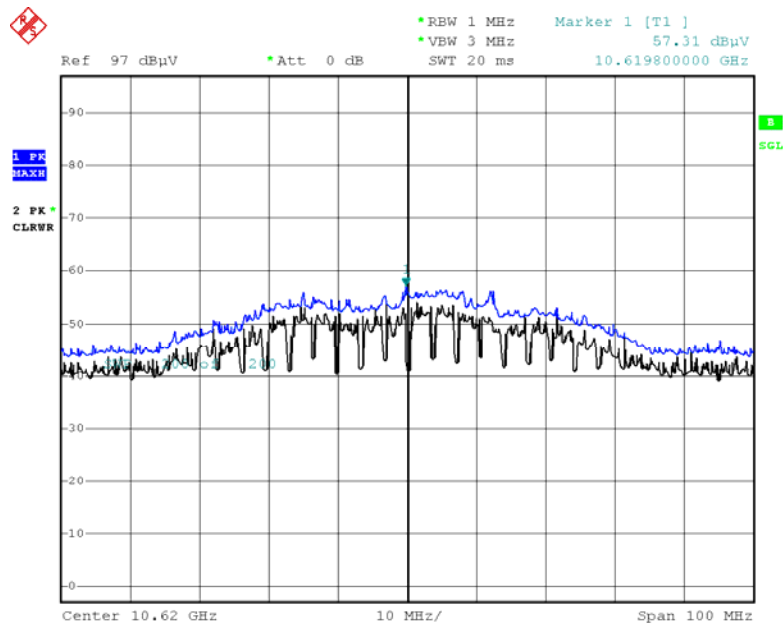
Date: 11.MAR.2020 07:08:45

Average Reading (802.11 n(HT40), Ch.62 2nd Harmonic, Z-H)



Date: 12.MAR.2020 07:26:05

Peak Reading (802.11 n(HT40), Ch.62 2nd Harmonic, Z-H)



Date: 12.MAR.2020 07:26:23

10.8 RADIATED RESTRICTED BAND EDGE

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

Frequency [MHz]	Reading dBuV	CL+AF+DF-AG [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5350	47.64	12.17	H	59.81	73.98	14.17	PK
5350	34.11	12.17	H	46.28	53.98	7.70	AV
5350	48.24	12.17	V	60.41	73.98	13.57	PK
5350	35.14	12.17	V	47.31	53.98	6.67	AV

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

Frequency [MHz]	Reading DBuV	CL+AF+DF-AG [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5460	42.46	12.57	H	55.03	73.98	18.95	PK
5460	29.94	12.57	H	42.51	53.98	11.47	AV
5470	45.91	12.75	H	58.66	68.20	9.54	PK
5460	43.77	12.57	V	56.34	73.98	17.64	PK
5460	30.44	12.57	V	43.01	53.98	10.97	AV
5470	46.43	12.75	V	59.18	68.20	9.02	PK

Band : UNII 2A

Operation Mode: 802.11 n_HT20

Transfer MCS Index: 0

Operating Frequency 5320 MHz

Channel No. 64 Ch

Frequency [MHz]	Reading dBuV	CL+AF+DF-AG [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5350	52.68	12.17	H	64.85	73.98	9.13	PK
5350	33.26	12.17	H	45.43	53.98	8.55	AV
5350	53.29	12.17	V	65.46	73.98	8.52	PK
5350	34.47	12.17	V	46.64	53.98	7.34	AV

Band : UNII 2C

Operation Mode: 802.11 n_HT20

Transfer MCS Index: 0

Operating Frequency 5500 MHz

Channel No. 100 Ch

Frequency [MHz]	Reading DBuV	CL+AF+DF-AG [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5460	45.87	12.57	H	58.44	73.98	15.54	PK
5460	30.28	12.57	H	42.85	53.98	11.13	AV
5470	48.92	12.75	H	61.67	68.20	6.53	PK
5460	46.58	12.57	V	59.15	73.98	14.83	PK
5460	30.31	12.57	V	42.88	53.98	11.10	AV
5470	49.38	12.75	V	62.13	68.20	6.07	PK

Band : UNII 2A

Operation Mode: 802.11 n_HT40

Transfer MCS Index: 0

Operating Frequency 5310 MHz

Channel No. 62 Ch

Frequency [MHz]	Reading dBuV	CL+AF+DF-AG [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5350	54.87	12.17	H	67.04	73.98	6.94	PK
5350	35.96	12.17	H	48.13	53.98	5.85	AV
5350	55.89	12.17	V	68.06	73.98	5.92	PK
5350	36.88	12.17	V	49.05	53.98	4.93	AV

Band : UNII 2C

Operation Mode: 802.11 n_HT40

Transfer MCS Index: 0

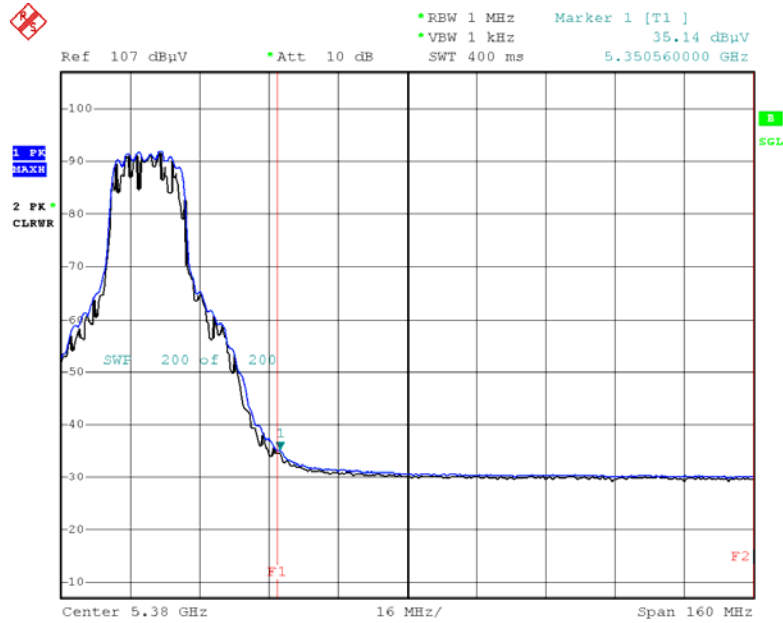
Operating Frequency 5510 MHz

Channel No. 102 Ch

Frequency [MHz]	Reading DBuV	CL+AF+DF-AG [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5460	50.27	12.57	H	62.84	73.98	11.14	PK
5460	30.33	12.57	H	42.90	53.98	11.08	AV
5470	52.07	12.75	H	64.82	68.20	3.38	PK
5460	50.93	12.57	V	63.50	73.98	10.48	PK
5460	30.46	12.57	V	43.03	53.98	10.95	AV
5470	52.17	12.75	V	64.92	68.20	3.28	PK

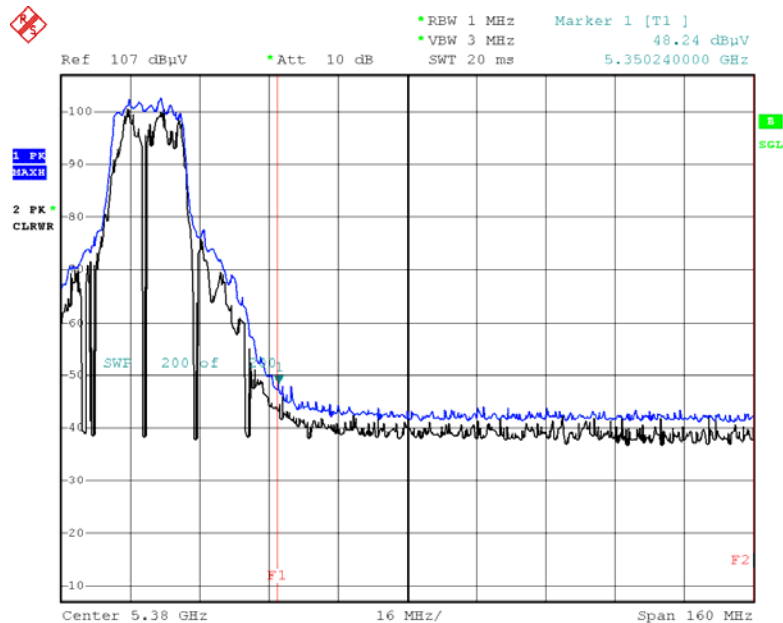
Test Plots(2A, 2C)

Average Reading (802.11a, Ch.64, Z-V)



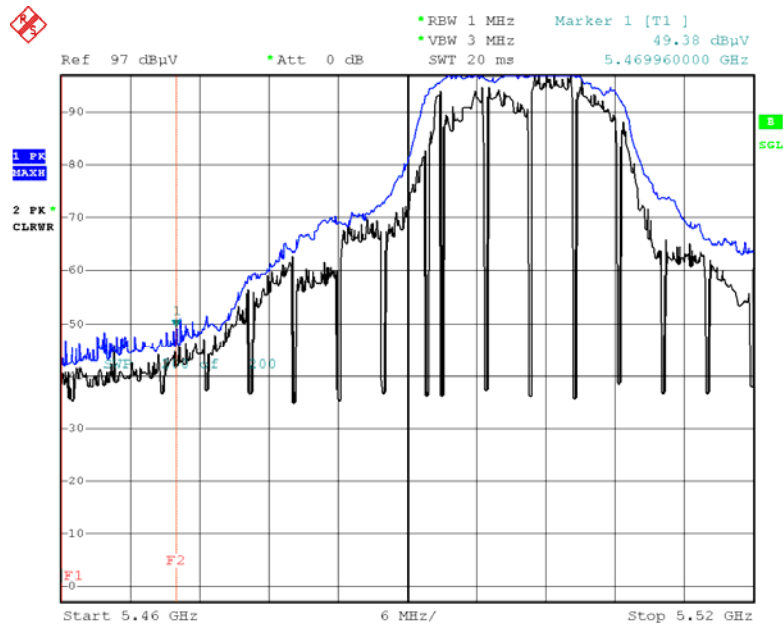
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Peak Reading (802.11a, Ch.64, Z-V)



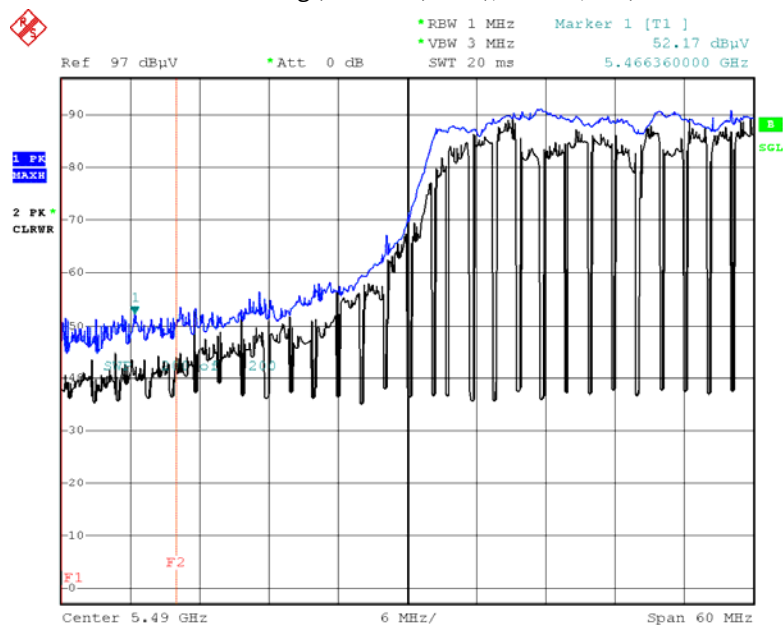
Date: 11.MAR.2020 03:13:15

Peak Reading (802.11 n(HT20), Ch.100, Z-V)



Date: 11.MAR.2020 03:36:11

Peak Reading (802.11 n(HT40), Ch.102, Z-V)



Date: 11.MAR.2020 04:18:27

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							

10.10 POWERLINE CONDUCTED EMISSIONS

Conducted Emissions (Line 1)

Test

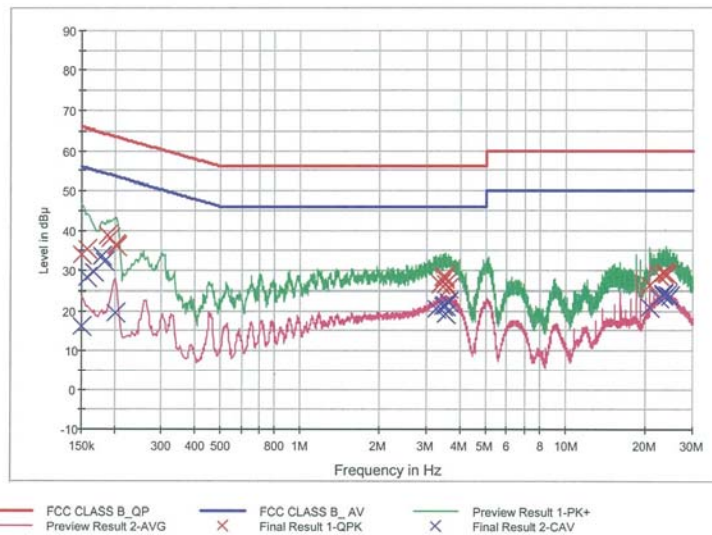
1 / 2

HCT TEST Report

Common Information

EUT: WC1NP8
 Manufacturer: LG Electronics Inc.
 Test Site: SHIELD ROOM
 Operating Conditions: WLAN_5G_L1

FCC CLASS B



Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	34.2	9.000	On	L1	9.7	31.8	66.0
0.158000	35.5	9.000	On	L1	9.7	30.1	65.6
0.188000	39.0	9.000	On	L1	9.7	25.2	64.1
0.192000	38.2	9.000	On	L1	9.7	25.7	63.9
0.200000	36.5	9.000	On	L1	9.7	27.1	63.6
0.204000	36.1	9.000	On	L1	9.7	27.3	63.4
3.372000	26.7	9.000	On	L1	9.8	29.3	56.0
3.428000	28.2	9.000	On	L1	9.8	27.8	56.0
3.488000	28.1	9.000	On	L1	9.8	27.9	56.0
3.492000	28.5	9.000	On	L1	9.8	27.5	56.0
3.546000	26.7	9.000	On	L1	9.8	29.3	56.0
3.624000	25.5	9.000	On	L1	9.8	30.5	56.0
20.616000	26.4	9.000	On	L1	10.0	33.6	60.0
20.620000	26.4	9.000	On	L1	10.0	33.6	60.0
22.512000	28.5	9.000	On	L1	10.0	31.5	60.0
23.284000	29.4	9.000	On	L1	10.0	30.6	60.0
23.772000	29.2	9.000	On	L1	10.0	30.8	60.0
24.036000	29.1	9.000	On	L1	10.0	30.9	60.0

2020-03-30

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Test

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Final Result 2

Frequency (MHz)	C Average (dBuV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.150000	16.2	9.000	On	L1	9.7	39.8	58.0
0.158000	28.2	9.000	On	L1	9.7	27.4	55.6
0.166000	29.6	9.000	On	L1	9.7	25.6	55.2
0.178000	33.6	9.000	On	L1	9.7	21.0	54.6
0.182000	32.4	9.000	On	L1	9.7	22.0	54.4
0.200000	19.4	9.000	On	L1	9.7	34.2	53.6
3.262000	20.5	9.000	On	L1	9.8	25.5	46.0
3.434000	21.1	9.000	On	L1	9.8	24.9	46.0
3.488000	21.4	9.000	On	L1	9.8	24.6	46.0
3.522000	21.3	9.000	On	L1	9.8	24.7	46.0
3.546000	19.3	9.000	On	L1	9.8	26.7	46.0
3.596000	22.1	9.000	On	L1	9.8	23.9	46.0
20.622000	20.9	9.000	On	L1	10.0	29.1	50.0
22.512000	23.3	9.000	On	L1	10.0	26.7	50.0
23.110000	24.0	9.000	On	L1	10.0	26.0	50.0
23.284000	24.1	9.000	On	L1	10.0	25.9	50.0
24.036000	23.9	9.000	On	L1	10.0	26.1	50.0
24.604000	23.5	9.000	On	L1	10.0	26.5	50.0

2020-03-30

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Conducted Emissions (Line 2)

Test

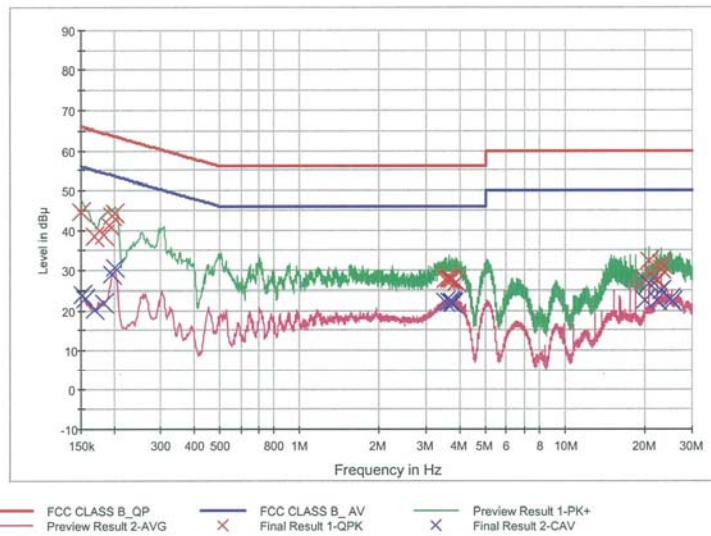
1 / 2

HCT TEST Report

Common Information

EUT: WC1NP8
 Manufacturer: LG Electronics Inc.
 Test Site: SHIELD ROOM
 Operating Conditions: WLAN_5G_N

FCC CLASS B



Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	44.6	9.000	On	N	9.7	21.4	66.0
0.168000	38.5	9.000	On	N	9.7	26.6	65.1
0.182000	38.9	9.000	On	N	9.7	25.5	64.4
0.192000	41.1	9.000	On	N	9.7	22.9	63.9
0.196000	43.6	9.000	On	N	9.7	20.1	63.8
0.202000	44.4	9.000	On	N	9.7	19.1	63.5
3.534000	27.7	9.000	On	N	9.8	28.3	56.0
3.574000	28.0	9.000	On	N	9.8	28.0	56.0
3.634000	28.0	9.000	On	N	9.8	28.0	56.0
3.648000	27.8	9.000	On	N	9.8	28.2	56.0
3.746000	27.5	9.000	On	N	9.8	28.5	56.0
3.866000	26.9	9.000	On	N	9.8	29.1	56.0
19.866000	27.6	9.000	On	N	10.0	32.4	60.0
20.626000	32.4	9.000	On	N	10.0	27.6	60.0
22.158000	27.6	9.000	On	N	10.0	32.4	60.0
22.164000	27.4	9.000	On	N	10.0	32.6	60.0
22.916000	31.7	9.000	On	N	10.0	28.3	60.0
22.920000	30.3	9.000	On	N	10.0	29.7	60.0

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Test

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Final Result 2

Frequency (MHz)	CAverage (dBuV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.152000	23.9	9.000	On	N	9.7	32.0	55.9
0.156000	22.7	9.000	On	N	9.7	32.9	55.7
0.168000	20.3	9.000	On	N	9.7	34.8	55.1
0.182000	21.9	9.000	On	N	9.7	32.5	54.4
0.196000	29.0	9.000	On	N	9.7	24.8	53.8
0.200000	30.7	9.000	On	N	9.7	22.9	53.6
3.534000	22.2	9.000	On	N	9.8	23.8	46.0
3.634000	22.3	9.000	On	N	9.8	23.7	46.0
3.648000	22.2	9.000	On	N	9.8	23.8	46.0
3.746000	21.9	9.000	On	N	9.8	24.1	46.0
3.760000	22.1	9.000	On	N	9.8	23.9	46.0
3.800000	21.9	9.000	On	N	9.8	24.1	46.0
19.866000	22.7	9.000	On	N	10.0	27.3	50.0
20.628000	26.5	9.000	On	N	10.0	23.5	50.0
22.160000	22.6	9.000	On	N	10.0	27.4	50.0
22.920000	24.9	9.000	On	N	10.0	25.1	50.0
24.816000	23.0	9.000	On	N	10.0	27.0	50.0
25.212000	22.1	9.000	On	N	10.0	27.9	50.0

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11. LIST OF TEST EQUIPMENT

Conducted Test

Manufacturer	Model / Equipment	Calibration Date	Calibration Interval	Serial No.
Rohde & Schwarz	ENV216 / LISN	09/11/2019	Annual	102245
Rohde & Schwarz	ESCI / Test Receiver	06/18/2019	Annual	100033
ESPAC	SU-642 / Temperature Chamber	03/18/2020	Annual	0093008124
Agilent	N9020A / Signal Analyzer	05/23/2019	Annual	MY51110085
Agilent	N9030A / Signal Analyzer	01/13/2020	Annual	MY49431210
Agilent	N1911A / Power Meter	09/10/2019	Annual	MY45101406
Agilent	N1921A / Power Sensor	09/06/2019	Annual	MY55220026
Agilent	87300B / Directional Coupler	11/11/2019	Annual	3116A03621
Hewlett Packard	11667B / Power Splitter	05/24/2019	Annual	05001
Hewlett Packard	E3632A / DC Power Supply	06/18/2019	Annual	KR75303960
Agilent	8493C / Attenuator(10 dB)	07/02/2019	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	05/16/2019	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	04/26/2019	Biennial	1513-175
Schwarzbeck	VULB 9160 / Hybrid Antenna	08/09/2018	Biennial	3368
Schwarzbeck	BBHA 9120D / Horn Antenna	11/18/2019	Biennial	9120D-1191
Schwarzbeck	BBHA9170 / Horn Antenna(15 GHz ~ 40 GHz)	11/29/2019	Biennial	BBHA9170541
Rohde & Schwarz	FSP(9 kHz ~ 30 GHz) / Spectrum Analyzer	09/11/2019	Annual	836650/016
Rohde & Schwarz	FSV40-N / Spectrum Analyzer	09/26/2019	Annual	101068-SZ
Wainwright Instruments	WRCJV2400/2483.5-2370/2520-60/12SS / Band Reject Filter	06/19/2019	Annual	2
Wainwright Instruments	WRCJV5100/5850-40/50-8EEK / Band Reject Filter	02/10/2020	Annual	1
CERNEX	CBLU1183540B-01/Broadband Bench Top LNA	12/24/2019	Annual	N/A
WEINSCHTEL	56-10 / Attenuator(10 dB)			
CERNEX	CBL06185030 / Broadband Low Noise Amplifier	12/24/2019	Annual	N/A
Api tech.	18B-03 / Attenuator (3 dB)			
Wainwright Instruments	WHKX10-2700-3000-18000-40SS / High Pass Filter	12/24/2019	Annual	N/A
Wainwright Instruments	WHKX8-6090-7000-18000-40SS / High Pass Filter	12/24/2019	Annual	N/A
T&M SYSTEM	COAXIAL ATTENUATOR / Thru	12/24/2019	Annual	N/A
CERNEX	CBL18265035 / Power Amplifier	12/26/2019	Annual	22966
CERNEX	CBL26405040 / Power Amplifier	06/18/2019	Annual	25956
TESCOM	TC-3000C / Bluetooth Tester	03/18/2020	Annual	3000C000276

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.

12. ANNEX A_ TEST SETUP PHOTO

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

No.	Description
1	HCT-RF-2004-FI008-P