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TEST REPORT

FCC UNII Test for SM-P620
Certification

APPLICANT
SAMSUNG Electronics Co., Ltd.

REPORT NO.
HCT-RF-2402-FC034

DATE OF ISSUE
February 20, 2024

Tested by
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Applicant	**SAMSUNG Electronics Co., Ltd.** 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
Eut Type Model Name	Tablet SM-P620
FCC ID	A3LSMP620
FCC Classification	Unlicensed National Information Infrastructure(NII)
FCC Rule Part(s)	Part 15.407
Location of Test	■ Permanent Testing Lab ☐ On Site Testing Lab (Address: 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Republic of Korea)

REVISION HISTORY

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

Revision No.	Date of Issue	Description
0	February 20, 2024	Initial Release

Notice

Content
According to the Evaluation report, all of the data contained herein is reused from the reference FCC ID : A3LSMP625 report.
Engineering Statement: The measurements shown in this report were made in accordance with the procedures indicated, and the emissions from this equipment were found to be within the limits applicable. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them. It is further stated that upon the basis of the measurements made, the equipment tested is capable of operation in accordance with the requirements of the FCC Rules under normal use and maintenance.
The results shown in this test report only apply to the sample(s), as received, provided by the applicant, unless otherwise stated. The test results have only been applied with the test methods required by the standard(s).
When confirmation of authenticity of this test report is required, please contact www.hct.co.kr
The test results in this test report are not associated with the ((KS Q) ISO/IEC 17025) accreditation by KOLAS (Korea Laboratory Accreditation Scheme) / A2LA (American Association for Laboratory Accreditation) that are under the ILAC (International Laboratory Accreditation Cooperation) Mutual Recognition Agreement (MRA).

CONTENTS

1. GENERAL INFORMATION

EUT DESCRIPTION

Model	SM-P620	
Additional Model	-	
EUT Type	Tablet	
Power Supply	DC 3.85 V	
Modulation Type	OFDM : 802.11a, 802.11n, 802.11ac	
Frequency Range (MHz)	U-NII-1	20 MHz BW : 5180 - 5240 40 MHz BW : 5190 - 5230 80 MHz BW : 5210
	U-NII-2A	20 MHz BW : 5260 - 5320 40 MHz BW : 5270 - 5310 80 MHz BW : 5290
	U-NII-2C	20 MHz BW : 5500 - 5720 40 MHz BW : 5510 - 5710 80 MHz BW : 5530 – 5690
	U-NII-3	20 MHz BW : 5745 - 5825 40 MHz BW : 5755 - 5795 80 MHz BW : 5775
Straddle channel	Supported	
TDWR Band	Supported	
Dynamic Frequency Selection	Slave without radar Measurement Typeion	
Antenna Specification	Type: Metal frame	
Date(s) of Tests	January 18, 2024 ~ February 19, 2024	
Serial number	Conducted : R32WC003BDA Radiated : R32WC0037EE	

ANTENNA CONFIGURATIONS

1. Antenna configuration

Configurations	SISO		MIMO	
	Ant.0	Ant.1	CDD	SDM
802.11a	X	O	X	X
802.11n	X	O	X	O
802.11ac	X	O	X	O

Note:

(1) O = Support, X = Not Support

(2) SISO = Single Input Single Output

(3) SDM = Spatial Diversity Multiplexing

(4) CDD = Cyclic Delay Diversity

3. Directional Gain Calculation

According to KDB 662911 D01 Multiple Transmitter Output v02r01 F) 2) f) (ii)

Directional gain(CDD) =

$$DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$$

Directional gain(SDM) = Gmax + 10 · log(N_{ANT}/ N_{ss}),

Band	Ant Gain (dBi)		N_{ANT}/ N_{ss}	Directional Gain SDM (dBi)
	ANT.0	ANT.1		
UNII 1	-4.98	-6.39	2 / 2	-4.98
UNII 2A	-5.12	-5.75		-5.12
UNII 2C	-5.09	-6.69		-5.09
UNII 3	-5.50	-6.03		-5.50

Note

According to Ansi C63.10-2013 section 14.4.3, the directional gain is calculated using the formula, where GN is the gain of the nth antenna and NANT is the total number of antennas used.

Directional gain(CDD) = $10 \cdot \log(((10^{(ANT.0\ Gain/20)}+10^{(ANT.1\ Gain/20)})^2)/2)$ dBi

Directional gain(SDM) = Gmax + 10 · log(N_{ANT}/ N_{ss}),

Sample Calculation (Conducted Power, MIMO):

Ex) Ant.0 : 11.58 dBm Ant.1 : 12.08 dBm

Ant.0 + Ant.1 = MIMO

(11.58 dBm + 12.08 dBm) = (14.387 mW + 16.143 mW) = 30.53 mW = 14.88 dBm

Sample Calculation (E.I.R.P & E.I.R.P Spectral Density, MIMO):

Ex) ANT.0 : 15.35 dBm , ANT.1 : 15.12 dBm, Directional Gain : 3 dBi

Conducted Power = (15.35 dBm + 15.12 dBm) = (34.276 mW + 32.508 mW) = 66.784 mW = 18.25 dBm

E.I.R.P = 18.25 dBm + 3 dBi = 21.25 dBm

2. MAXIMUM OUTPUT POWER

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

Band	Mode	SISO		MIMO_SDM(Ant.0+Ant.1)	
		ANT.1 Power		Ant.0 + Ant.1 Power	
		(dBm)	(W)	(dBm)	(W)
UNII1	802.11a	10.99	0.013	-	-
	802.11n (HT20)	11.23	0.013	13.52	0.022
	802.11n (HT40)	8.24	0.007	10.54	0.011
	802.11ac (VHT20)	11.15	0.013	13.55	0.023
	802.11ac (VHT40)	8.21	0.007	10.73	0.012
	802.11ac (VHT80)	4.04	0.003	6.50	0.004
UNII2A	802.11a	11.01	0.013	-	-
	802.11n (HT20)	11.32	0.014	13.69	0.023
	802.11n (HT40)	8.57	0.007	10.81	0.012
	802.11ac (VHT20)	11.31	0.014	13.74	0.024
	802.11ac (VHT40)	8.36	0.007	11.12	0.013
	802.11ac (VHT80)	4.71	0.003	7.37	0.005
UNII2C	802.11a	11.47	0.014	-	-
	802.11n (HT20)	11.79	0.015	14.04	0.025
	802.11n (HT40)	8.95	0.008	11.01	0.013
	802.11ac (VHT20)	11.50	0.014	13.69	0.023
	802.11ac (VHT40)	8.80	0.008	11.27	0.013
	802.11ac (VHT80)	5.02	0.003	7.32	0.005
UNII3	802.11a	11.48	0.014	-	-
	802.11n (HT20)	11.93	0.016	14.20	0.026
	802.11n (HT40)	8.68	0.007	10.97	0.013
	802.11ac (VHT20)	11.50	0.014	13.81	0.024
	802.11ac (VHT40)	8.64	0.007	11.12	0.013
	802.11ac (VHT80)	4.94	0.003	7.04	0.005

3. TEST METHODOLOGY

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

EUT CONFIGURATION

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

EUT EXERCISE

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

GENERAL TEST PROCEDURES

Conducted Emissions

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

Radiated Emissions

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

DESCRIPTION OF TEST MODES

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

4. INSTRUMENT CALIBRATION

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

5. FACILITIES AND ACCREDITATIONS

5.1 FACILITIES

The SAC(Semi-Anechoic Chamber) and conducted measurement facility used to collect the radiated data are located at the 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA. The site is constructed in conformance with the requirements of ANSI C63.4. (Version :2014) and CISPR Publication22.
Detailed description of test facility was submitted to the Commission and accepted dated March 31, 2022 (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 Measurement Typeors are used to perform radiated measurements.
Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers. Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.
All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

6. ANTENNA REQUIREMENTS

According to FCC 47 CFR § 15.203, § 15.407:

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

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

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

7. MEASUREMENT UNCERTAINTY

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

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

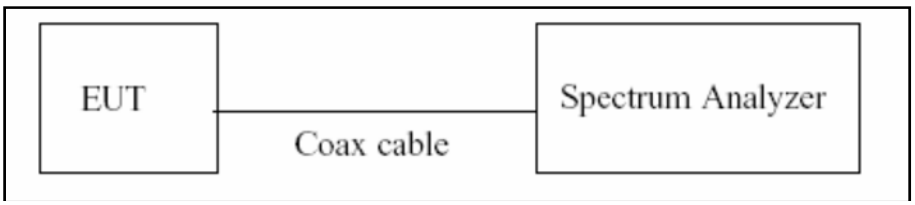
The measurement data shown herein meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Parameter	Expanded Uncertainty (dB)
Conducted Disturbance (150 kHz ~ 30 MHz)	1.98 (Confidence level about 95 %, k=2)
Radiated Disturbance (9 kHz ~ 30 MHz)	4.36 (Confidence level about 95 %, k=2)
Radiated Disturbance (30 MHz ~ 1 GHz)	5.70 (Confidence level about 95 %, k=2)
Radiated Disturbance (1 GHz ~ 18 GHz)	5.52 (Confidence level about 95 %, k=2)
Radiated Disturbance (18 GHz ~ 40 GHz)	5.66 (Confidence level about 95 %, k=2)
Radiated Disturbance (Above 40 GHz)	5.58 (Confidence level about 95 %, k=2)

8. DESCRIPTION OF TESTS

8.1. Duty Cycle

Test Configuration



Test Procedure

The transmitter output is connected to the Spectrum Analyzer.

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

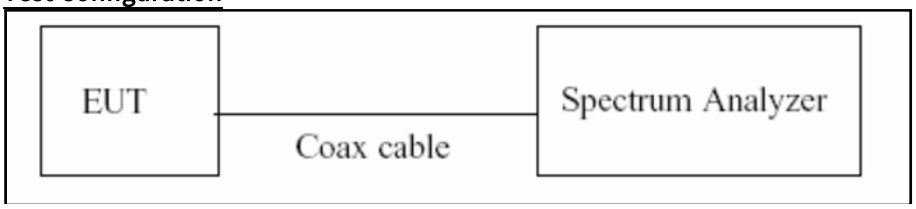
1. RBW = 8 MHz (the largest availble value)
2. VBW = 8 MHz (≥ RBW)
3. SPAN = 0 Hz
4. Measurement Typeor = Peak
5. Number of points in sweep > 100
6. Trace mode = Clear write
7. Measure T_{total} and T_{on}
8. Calculate Duty Cycle = T_{on}/ T_{total} and Duty Cycle Factor = 10log(1/Duty Cycle)

8.2. 6 dB Bandwidth & 26 dB Bandwidth

Limit

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

Test Configuration



Test Procedure(26 dB Bandwidth)

The transmitter output is connected to the Spectrum Analyzer.
We tested according to Procedure C.1 in KDB 789033 D02 v02r01.

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

Test Procedure (6 dB Bandwidth)

The transmitter output is connected to the Spectrum Analyzer.
We tested according to Procedure C.2 in KDB 789033 D02 v02r01.

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

Note:

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

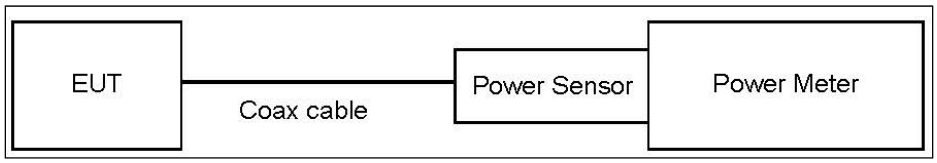
8.3. Output Power Measurement

Limit

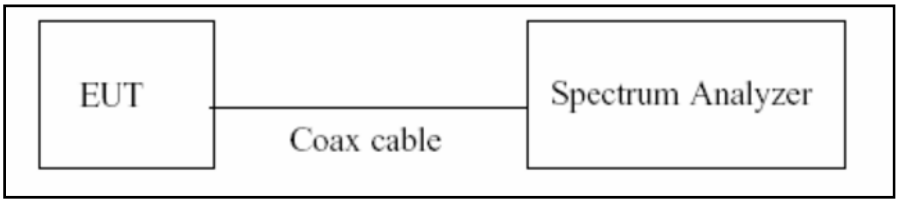
Band	Limit
UNII 1	- Master : Not exceed 1 W(=30 dBm) - Slave : Not exceed 250 mW(=23.98 dBm)
UNII 2A, 2C	Not exceed the lesser of 250 mW or 11 dBm + 10 log B, (where B is the 26 dB emission bandwidth in megahertz.)
UNII 3	Not exceed 1 W(=30 dBm)

Test Configuration

Power Meter



Spectrum Analyzer(Only Straddle Channel)



Test Procedure(Power Meter)

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

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

Test Procedure(Spectrum Analyzer)

The transmitter output is connected to the Spectrum Analyzer.

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

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

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

Sample Calculation

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

Note

1. Spectrum Measured Levels are not plot data.

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

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

Band	Loss(dB)
UNII 1	21.34
UNII 2A	21.34
UNII 2C	21.34
UNII 3	21.34

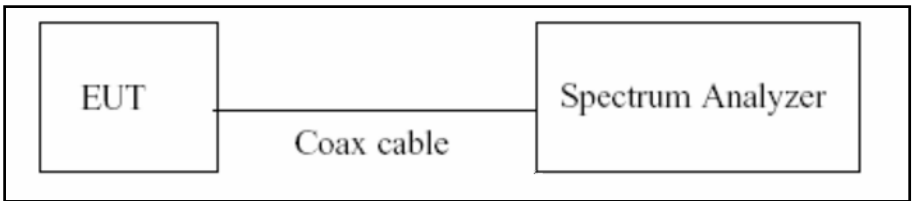
(Actual value of loss for the attenuator and cable combination)

8.4. Power Spectral Density

Limit

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

Test Configuration



Test Procedure

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

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

Sample Calculation

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

Note

1. Spectrum Measured Levels are not plot data.
   The PSD results in plot is already including the actual values of loss for the attenuator and cable combination.
2. Actual value of loss for the attenuator and cable combination is below table.

Band	Loss(dB)
UNII 1	21.34
UNII 2A	21.34
UNII 2C	21.34
UNII 3	21.34

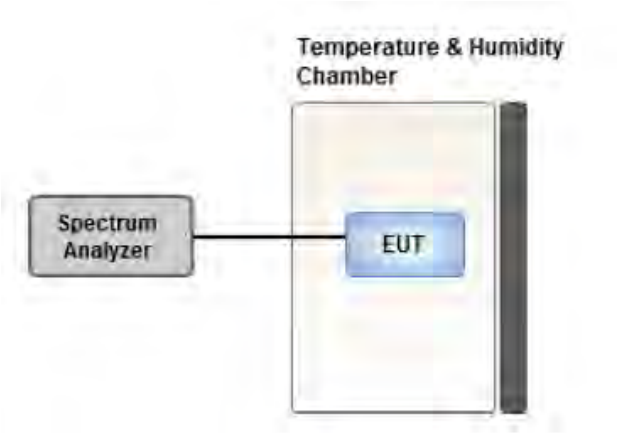
(Actual value of loss for the attenuator and cable combination)

8.5. Frequency Stability

Limit

Maintained within the band

Test Configuration



Test Procedure

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

8.6. AC Power line Conducted Emissions

Limit

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

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

[a]Decreases with the logarithm of the frequency.

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

Test Configuration

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

Test Procedure

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

Sample Calculation

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

8.7. Radiated Test

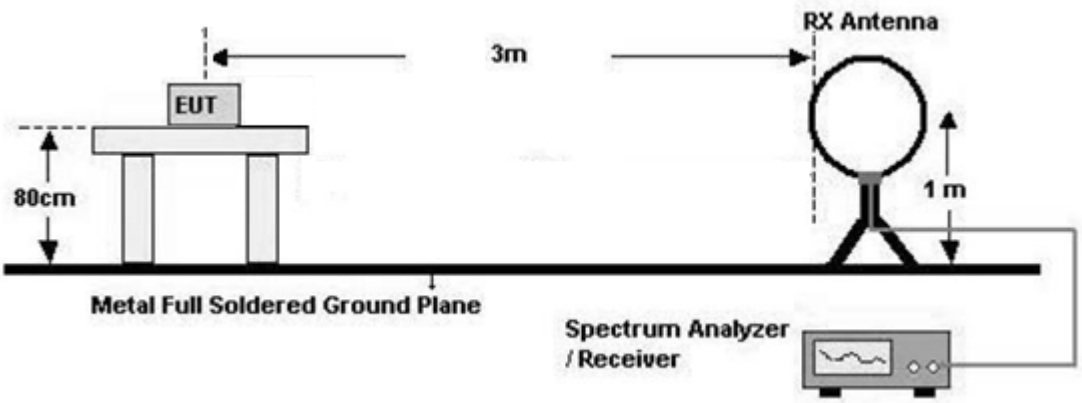
Limit

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

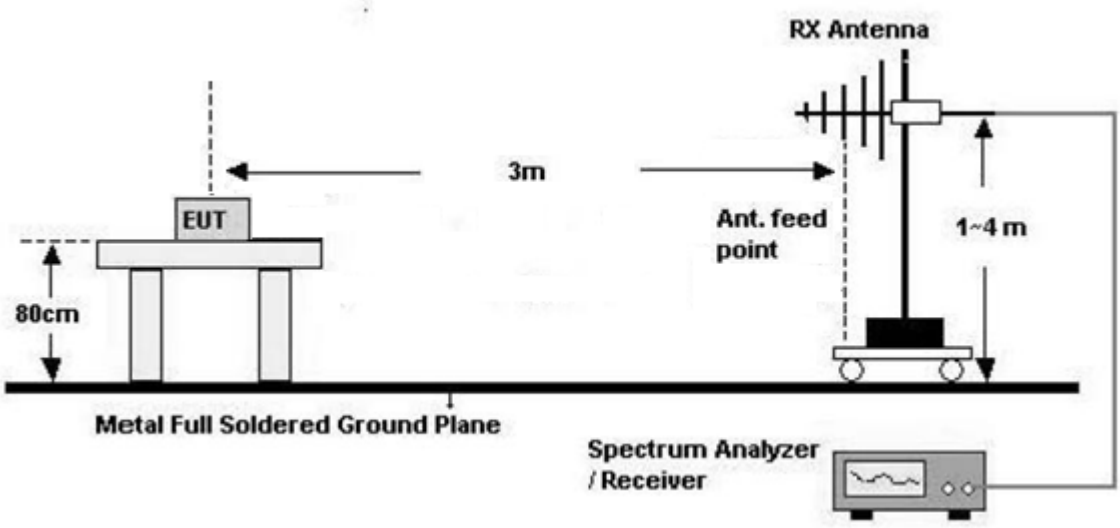
Frequency (MHz)	Field Strength (μV/m)	Measurement Distance (m)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Test Configuration

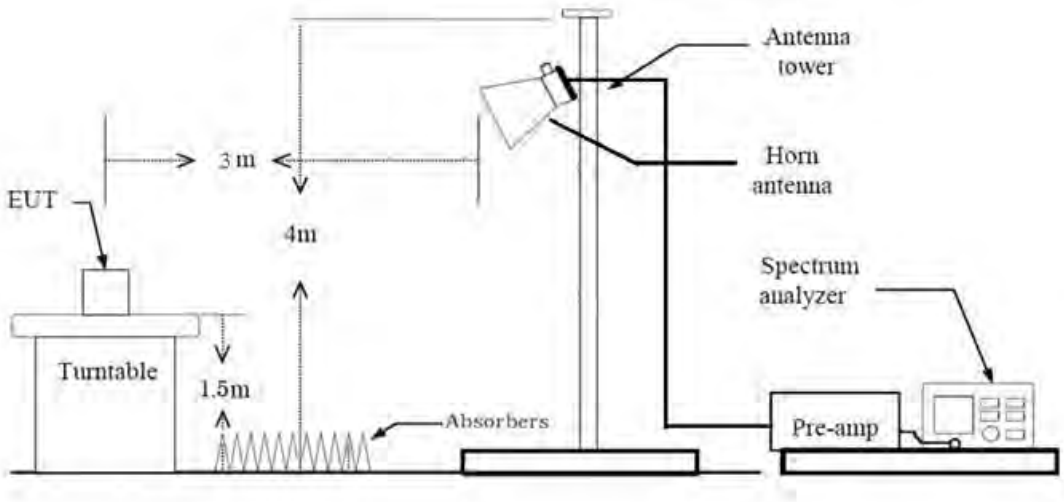
Below 30 MHz



30 MHz - 1 GHz



Above 1 GHz



Test Procedure of Radiated spurious emissions(Below 30 MHz)

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

KDB 414788 OFS and Chamber Correlation Justification

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

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

Test Procedure of Radiated spurious emissions(Below 1 GHz)

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

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

Test Procedure of Radiated spurious emissions (Above 1 GHz)

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

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

- RBW = 1 MHz
- VBW ≥ 3 MHz
- Measurement Typeor = Peak
- Sweep Time = auto
- Trace mode = Max Hold
- Allow sweeps to continue until the trace stabilizes.

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

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

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

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

Test Procedure of Radiated Restricted Band Edge

1. The EUT is placed on a turntable, which is 1.5 m above ground plane.
2. We have done x, y, z planes in EUT and horizontal and vertical polarization in Measurement Typeing antenna.
3. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
4. EUT is set 3 m away from the receiving antenna, which is varied from 1 m to 4 m to find out the highest emissions.
5. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
6. Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
7. The unit was tested with its standard battery.
8. Spectrum Setting
   (1) Measurement Type(Peak, G.5 in KDB 789033 v02r01):
   - RBW = 1 MHz
   - VBW ≥ 3 MHz
   - Measurement Typeor = Peak
   - Sweep Time = auto
   - Trace mode = Max Hold
   - Allow sweeps to continue until the trace stabilizes.
     Note that if the transmission is not continuous, the time required for the trace to stabilize will increase by a factor of approximately 1/x, where x is the duty cycle.

   (2) Measurement Type(Average, G.6.d in KDB 789033 v02r01):
   - RBW = 1 MHz
   - VBW(Duty cycle ≥ 98 percent) = VBW ≤ RBW/100(i.e., 10 kHz) but not less than 10 Hz.
   - VBW(Duty cycle is < 98 percent) = VBW ≥ 1/T, where T is the minimum transmission duration.
   - The analyzer is set to linear Measurement Typeor mode.
   - Measurement Typeor = Peak.
   - Sweep time = auto.
   - Trace mode = Max Hold.
   - Allow Max Hold to run for at least 50 traces if the transmitted signal is continuous or has at least 98 percent duty cycle. For lower duty cycles, increase the minimum number of traces by a factor of 1/x, where x is the duty cycle.

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

The actual setting value of VBW(SISO)

Mode	Worst Data rate (Mbps)	Duty Cycle	Duty Cycle Factor (dB)	The actual setting value of VBW (Hz)
802.11a	6	0.908	0.418	1 000
802.11n(HT20)	MCS0	0.898	0.467	1 000
802.11n(HT40)	MCS0	0.804	0.949	3 000
802.11ac(VHT20)	MCS0	0.888	0.516	1 000
802.11ac(VHT40)	MCS0	0.822	0.852	3 000
802.11ac(VHT80)	MCS0	0.662	1.794	5 000

The actual setting value of VBW(MIMO_SDM(Ant.0+Ant.1))

Mode	Worst Data rate (Mbps)	Duty Cycle	Duty Cycle Factor (dB)	The actual setting value of VBW (Hz)
802.11n(HT20)	MCS8	0.827	0.824	3 000
802.11n(HT40)	MCS8	0.716	1.452	3 000
802.11ac(VHT20)	MCS0	0.811	0.909	3 000
802.11ac(VHT40)	MCS0	0.679	1.679	3 000
802.11ac(VHT80)	MCS0	0.547	2.622	10 000

8.8. Worst case configuration and mode

Conducted test

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

Radiated test

1. All modes of operation were investigated and the worst case configuration results are reported.
   - Mode : Stand alone, Stand alone + External accessories (Earphone, etc)
   - Worstcase : Stand alone
2. EUT Axis
   - Radiated Spurious Emissions : Z
   - Radiated Restricted Band Edge : X
3. All datarate of operation were investigated and the worst case datarate results are reported.
   - Mode : SISO ANT.1, MIMO_SDM(Ant.0+Ant.1)
   - Worstcase :
     802.11a : 6 Mbps [SISO ANT.1]
     802.11n_HT20 : MCS8 [MIMO_SDM(Ant.0+Ant.1)]
     802.11ac_VHT20 : MCS0 [MIMO_SDM(Ant.0+Ant.1)]
     802.11n_HT40 : MCS8 [MIMO_SDM(Ant.0+Ant.1)]
     802.11ac_VHT40 : MCS0 [MIMO_SDM(Ant.0+Ant.1)]
     802.11ac_VHT80 : MCS0 [MIMO_SDM(Ant.0+Ant.1)]
4. Radiated Spurious Emission
   - All modulation of operation were investigated and the worst case modulation results are reported.
   - Worstcase :
     802.11a : 6 Mbps [UNII1~UNII3_SISO ANT.1]
     802.11n_HT20 : MCS8 [UNII1~UNII3_MIMO_SDM(Ant.0+Ant.1)]
     802.11ac_VHT20 : MCS0 [UNII1~UNII3_MIMO_SDM(Ant.0+Ant.1)]
     802.11n_HT40 : MCS8 [UNII3_MIMO_SDM(Ant.0+Ant.1)]
     802.11ac_VHT40 : MCS0 [UNII3_MIMO_SDM(Ant.0+Ant.1)]
     802.11ac_VHT80 : MCS0 [UNII3_MIMO_SDM(Ant.0+Ant.1)]
5. All position of loop antenna were investigated and the test result is a no critical peak found at all positions.
   - Position : Horizontal, Vertical, Parallel to the ground plane

Radiated test(DBS)

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

Description	Bluetooth Emission	5 GHz Emission
Antenna	WIFI/BT	WIFI/BT
Channel	78	165
Data Rate	1 Mbps	MCS0
Mode	GFSK: DH5	802.11ac_VHT20

Note : BT DBS Data refer to [BT] Test Report.

AC Power line Conducted Emissions

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

9. SUMMARY OF TEST RESULTS

Test Description	FCC Part Section(s)	Test Limit	Test Condition	Test Result
26 dB Bandwidth	§ 15.407 (for Power Measurement)	N/A	Conducted	PASS
6 dB Bandwidth	§ 15.407(e)	>500 kHz (5725-5850 MHz)(UNII-3)		PASS
Maximum Conducted Output Power	§ 15.407(a)(1),(2),(3)	< 250 mW(5150-5250 MHz) < 250 mW or 11+10log$_{10}$ (BW) dBm (5250-5350 MHz) < 250 mW or 11+10log$_{10}$ (BW) dBm (5470-5725 MHz) <1 W (5725-5850 MHz)		PASS
Maximum Power Spectral Density	§ 15.407(a)(1),(2),(3)	<11 dBm/ MHz (5150-5250 MHz) <11 dBm/ MHz (5250-5350 MHz) <11 dBm/ MHz (5470-5725 MHz) <30 dBm/500 kHz(5725-5850 MHz)		PASS
Frequency Stability	§ 15.407(g) § 2.1055	Maintained within the band		PASS
AC Conducted Emissions 150 kHz-30 MHz	15.207 15.407(b)(8)	<FCC 15.207 limits		PASS
Undesirable Emissions	§ 15.407(b) (1),(2),(3),(4) § 15.407(b)(5)(ii),(iii) § 15.35(b)	<-27 dBm/MHz EIRP (UNII1, 2A, 2C) cf. Section 8.6 (UNII 3)		PASS
General Field Strength Limits(Restricted Bands and Radiated Emission Limits)	15.205, 15.407(b)(9),(10)	Emissions in restricted bands must meet the radiated limits detailed in 15.209	Radiated	PASS

10. TEST RESULT

10.1 DUTY CYCLE

[SISO_ANT.1]

Mode	Data Rate (Mbps)	T_{on} (ms)	T_{total} (ms)	Duty Cycle	Duty Cycle Factor(dB)
802.11a	6	1.429	1.573	0.908	0.418
	9	0.960	1.112	0.863	0.638
	12	0.725	0.869	0.834	0.789
	18	0.494	0.628	0.786	1.044
	24	0.372	0.524	0.710	1.487
	36	0.256	0.400	0.639	1.943
	48	0.195	0.339	0.575	2.406
	54	0.180	0.307	0.587	2.315

Mode	MCS Index	T_{on} (ms)	T_{total} (ms)	Duty Cycle	Duty Cycle Factor(dB)
802.11n (HT20)	0	1.338	1.490	0.898	0.467
	1	0.687	0.839	0.819	0.869
	2	0.471	0.623	0.756	1.214
	3	0.365	0.524	0.696	1.576
	4	0.256	0.408	0.627	2.025
	5	0.200	0.352	0.568	2.454
	6	0.182	0.345	0.529	2.762
	7	0.167	0.319	0.524	2.808
802.11n (HT40)	0	0.664	0.826	0.804	0.949
	1	0.352	0.512	0.688	1.623
	2	0.248	0.400	0.620	2.074
	3	0.195	0.339	0.575	2.406
	4	0.142	0.304	0.467	3.310
	5	0.114	0.276	0.413	3.842
	6	0.109	0.261	0.417	3.794
	7	0.099	0.251	0.394	4.046

Mode	MCS Index	T_{on} (ms)	T_{total} (ms)	Duty Cycle	Duty Cycle Factor(dB)
802.11ac (VHT20)	0	1.345	1.515	0.888	0.516
	1	0.692	0.844	0.820	0.863
	2	0.476	0.636	0.749	1.255
	3	0.367	0.529	0.694	1.588
	4	0.258	0.410	0.630	2.009
	5	0.203	0.355	0.571	2.430
	6	0.187	0.339	0.552	2.579
	7	0.172	0.324	0.531	2.747
	8	0.152	0.304	0.500	3.010
802.11ac (VHT40)	0	0.666	0.811	0.822	0.852
	1	0.355	0.507	0.700	1.549
	2	0.251	0.413	0.607	2.166
	3	0.200	0.360	0.556	2.547
	4	0.149	0.302	0.496	3.047
	5	0.122	0.299	0.407	3.906
	6	0.114	0.266	0.429	3.680
	7	0.104	0.263	0.394	4.042
	8	0.095	0.231	0.412	3.849
	9	0.089	0.222	0.400	3.980
802.11ac (VHT80)	0	0.332	0.502	0.662	1.794
	1	0.187	0.385	0.487	3.126
	2	0.142	0.294	0.483	3.163
	3	0.117	0.258	0.451	3.458
	4	0.094	0.253	0.370	4.318
	5	0.081	0.233	0.348	4.586
	6	0.076	0.219	0.347	4.598
	7	0.072	0.207	0.350	4.564
	8	0.068	0.207	0.331	4.799
	9	0.063	0.207	0.307	5.133

[MIMO_SDM(Ant.0+Ant.1)]

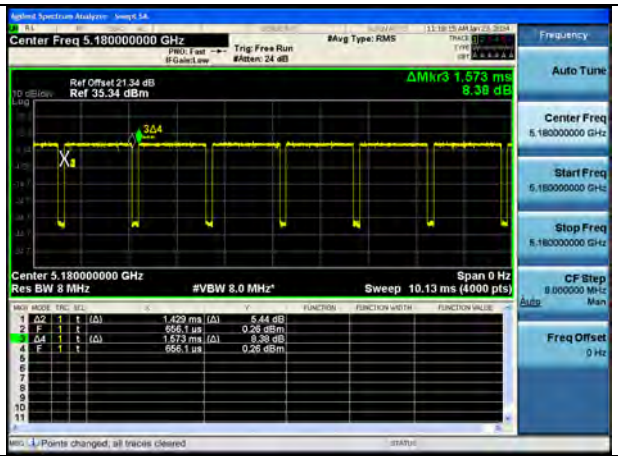
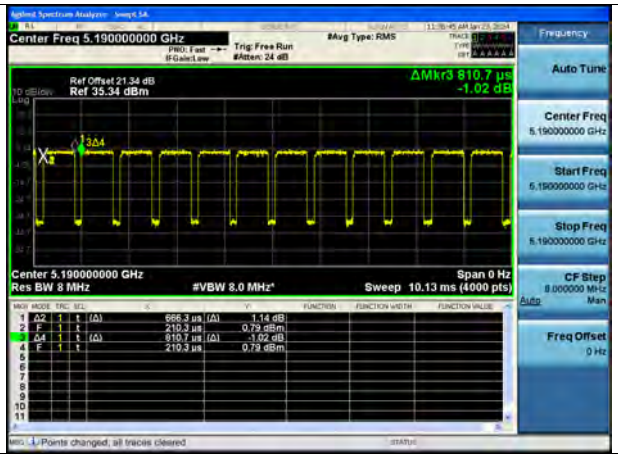
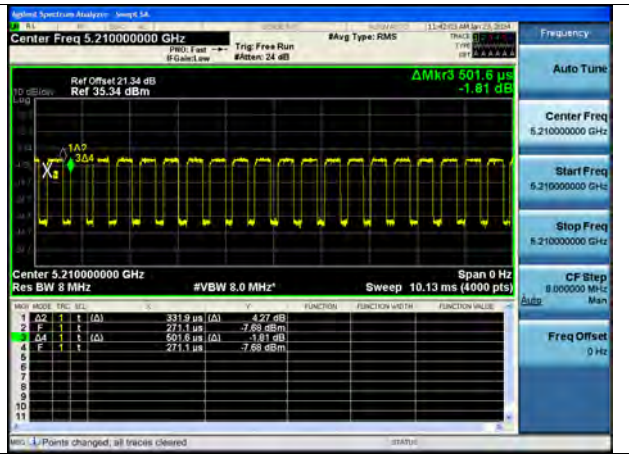
Mode	MCS Index	T_{on} (ms)	T_{total} (ms)	Duty Cycle	Duty Cycle Factor(dB)
802.11n(HT20)	MCS8	0.692	0.836	0.827	0.824
	MCS9	0.367	0.529	0.694	1.588
	MCS10	0.258	0.413	0.626	2.036
	MCS11	0.203	0.365	0.556	2.553
	MCS12	0.152	0.314	0.484	3.153
	MCS13	0.124	0.276	0.450	3.472
	MCS14	0.117	0.269	0.434	3.625
	MCS15	0.109	0.253	0.430	3.665
802.11n(HT40)	MCS8	0.357	0.499	0.716	1.452
	MCS9	0.200	0.370	0.541	2.667
	MCS10	0.147	0.319	0.460	3.369
	MCS11	0.122	0.274	0.444	3.522
	MCS12	0.096	0.248	0.388	4.114
	MCS13	0.081	0.242	0.335	4.749
	MCS14	0.073	0.228	0.322	4.918
	MCS15	0.071	0.198	0.359	4.449
802.11ac(VHT20)	MCS0	0.697	0.859	0.811	0.909
	MCS1	0.372	0.524	0.710	1.487
	MCS2	0.263	0.426	0.619	2.083
	MCS3	0.208	0.370	0.562	2.505
	MCS4	0.157	0.319	0.492	3.080
	MCS5	0.129	0.299	0.432	3.643
	MCS6	0.122	0.274	0.444	3.522
	MCS7	0.114	0.274	0.417	3.802
	MCS8	0.099	0.261	0.379	4.218
802.11ac(VHT40)	MCS0	0.360	0.529	0.679	1.679
	MCS1	0.203	0.355	0.571	2.430
	MCS2	0.152	0.304	0.500	3.010
	MCS3	0.124	0.286	0.434	3.629
	MCS4	0.101	0.271	0.374	4.273
	MCS5	0.084	0.236	0.355	4.500
	MCS6	0.081	0.233	0.348	4.586
	MCS7	0.076	0.222	0.343	4.650
	MCS8	0.071	0.217	0.327	4.848
	MCS9	0.068	0.212	0.323	4.903

Mode	MCS Index	T_{on} (ms)	T_{total} (ms)	Duty Cycle	Duty Cycle Factor(dB)
802.11ac(VHT80)	MCS0	0.193	0.352	0.547	2.622
	MCS1	0.119	0.281	0.423	3.732
	MCS2	0.096	0.266	0.362	4.414
	MCS3	0.084	0.236	0.355	4.500
	MCS4	0.071	0.226	0.314	5.033
	MCS5	0.063	0.225	0.281	5.515
	MCS6	0.063	0.225	0.281	5.515
	MCS7	0.058	0.212	0.275	5.599
	MCS8	0.058	0.212	0.275	5.599
	MCS9	0.056	0.199	0.280	5.525

Note:

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

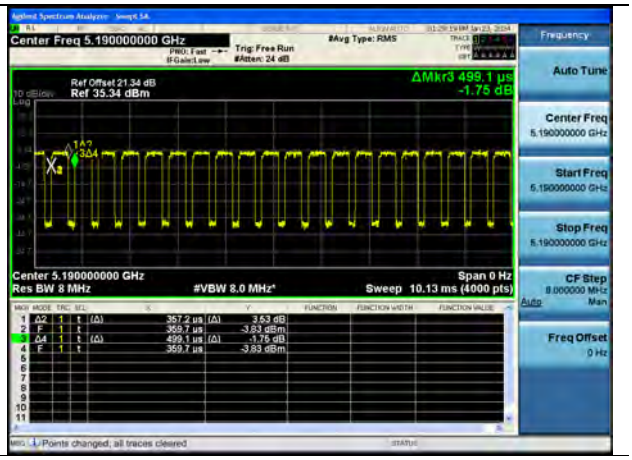
[SISO]

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

[MIMO]

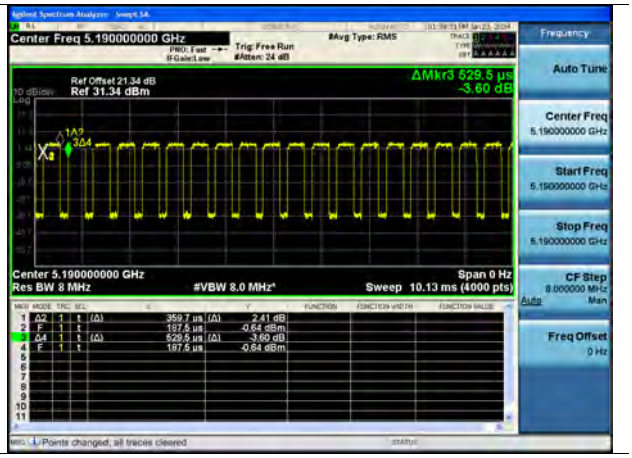
802.11n(HT20)

802.11n(HT40)

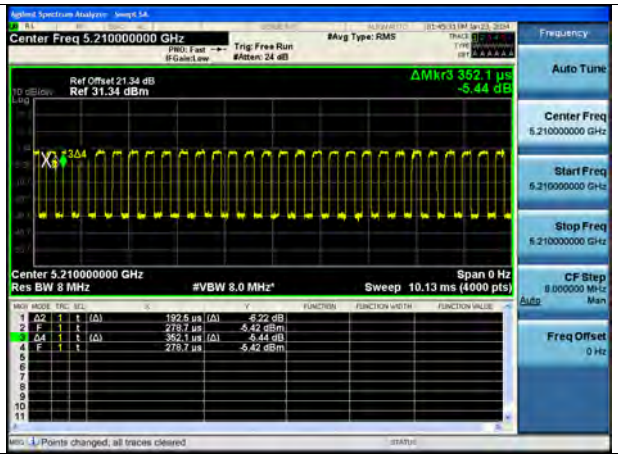


802.11ac(VHT20)

802.11ac(VHT40)



802.11ac(VHT80)



10.2 26 dB Bandwidth

Straddle channel data in the table below are for reporting purposes only. Straddle channel data were added in section 10.7.1.

[SISO_ANT.1]

802.11a Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5180	36	20.48	16.409
5200	40	20.31	16.422
5240	48	20.43	16.410
5260	52	20.68	16.410
5300	60	20.46	16.417
5320	64	20.61	16.385
5500	100	21.04	16.455
5600	120	22.95	16.527
5720	144	20.90	16.482
5745	149	21.03	16.469
5785	157	25.10	16.562
5825	165	22.97	16.499

802.11n(HT20) Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5180	36	21.15	17.527
5200	40	21.40	17.509
5240	48	20.74	17.510
5260	52	20.70	17.507
5300	60	20.93	17.534
5320	64	20.84	17.502
5500	100	22.40	17.543
5600	120	21.37	17.559
5720	144	21.86	17.548
5745	149	21.80	17.588
5785	157	22.20	17.548
5825	165	21.65	17.562

802.11ac(VHT20) Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5180	36	20.96	17.519
5200	40	20.85	17.534
5240	48	20.95	17.500
5260	52	21.14	17.517
5300	60	20.88	17.514
5320	64	20.92	17.498
5500	100	21.04	17.542
5600	120	21.15	17.552
5720	144	22.16	17.567
5745	149	23.77	17.568
5785	157	21.13	17.567
5825	165	21.26	17.555

802.11n(HT40) Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5190	38	41.06	36.064
5230	46	41.04	36.074
5270	54	41.01	36.074
5310	62	40.60	36.088
5510	102	40.89	36.098
5590	118	53.98	36.153
5710	142	41.36	36.088
5755	151	41.31	36.096
5795	159	40.89	36.146

802.11ac(VHT40) Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5190	38	41.24	36.111
5230	46	40.67	36.075
5270	54	41.09	36.061
5310	62	40.62	36.101
5510	102	42.04	36.138
5590	118	41.41	36.147
5710	142	41.34	36.143
5755	151	40.75	36.086
5795	159	41.20	36.097

802.11ac(VHT80) Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5210	42	92.14	76.330
5290	58	113.7	76.362
5530	106	120.4	76.321
5610	122	109.0	76.376
5690	138	86.48	76.283
5775	155	84.95	76.171

[MIMO_SDM(ANT.0)]

802.11n(HT20) Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5180	36	20.50	17.486
5200	40	20.55	17.502
5240	48	20.76	17.500
5260	52	20.36	17.497
5300	60	20.79	17.498
5320	64	20.47	17.513
5500	100	21.03	17.544
5600	120	20.80	17.555
5720	144	20.91	17.540
5745	149	21.06	17.530
5785	157	20.69	17.504
5825	165	20.60	17.497

802.11ac(VHT20) Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5180	36	20.54	17.526
5200	40	20.43	17.521
5240	48	20.55	17.522
5260	52	20.45	17.488
5300	60	20.42	17.522
5320	64	20.50	17.518
5500	100	20.87	17.547
5600	120	20.93	17.539
5720	144	20.79	17.512
5745	149	21.05	17.514
5785	157	20.61	17.491
5825	165	20.84	17.486

802.11n(HT40) Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5190	38	40.92	36.059
5230	46	40.42	35.995
5270	54	41.03	35.969
5310	62	40.95	35.985
5510	102	40.69	36.020
5590	118	40.75	36.026
5710	142	41.30	36.063
5755	151	40.35	35.982
5795	159	40.29	36.025

802.11ac(VHT40) Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5190	38	41.29	35.978
5230	46	41.17	35.996
5270	54	40.69	36.031
5310	62	40.66	36.057
5510	102	40.55	36.034
5590	118	41.03	36.043
5710	142	40.52	36.052
5755	151	40.45	35.984
5795	159	40.89	36.059

802.11ac(VHT80) Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5210	42	84.61	76.174
5290	58	85.21	76.129
5530	106	84.96	76.200
5610	122	86.15	76.213
5690	138	85.62	76.191
5775	155	85.61	76.162

[MIMO_SDM(ANT.1)]

802.11n(HT20) Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5180	36	20.55	17.523
5200	40	20.57	17.534
5240	48	20.50	17.501
5260	52	20.42	17.528
5300	60	20.84	17.529
5320	64	20.68	17.523
5500	100	23.05	17.601
5600	120	23.36	17.574
5720	144	22.09	17.577
5745	149	22.01	17.574
5785	157	21.67	17.563
5825	165	21.43	17.566

802.11ac(VHT20) Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5180	36	20.64	17.530
5200	40	20.69	17.520
5240	48	20.20	17.511
5260	52	20.54	17.496
5300	60	20.71	17.549
5320	64	20.52	17.523
5500	100	23.17	17.601
5600	120	22.70	17.584
5720	144	22.69	17.584
5745	149	21.90	17.573
5785	157	21.35	17.570
5825	165	22.91	17.571

802.11n(HT40) Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5190	38	40.34	36.044
5230	46	40.14	36.003
5270	54	40.47	36.055
5310	62	39.99	36.070
5510	102	40.36	36.170
5590	118	40.20	36.127
5710	142	40.08	36.120
5755	151	40.11	36.066
5795	159	41.79	36.080

802.11ac(VHT40) Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5190	38	39.72	36.055
5230	46	39.97	36.008
5270	54	40.29	36.079
5310	62	40.16	36.022
5510	102	40.42	36.147
5590	118	40.29	36.192
5710	142	40.46	36.070
5755	151	40.69	36.048
5795	159	40.61	36.084

802.11ac(VHT80) Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5210	42	93.03	76.042
5290	58	142.0	76.178
5530	106	105.2	76.119
5610	122	98.82	76.169
5690	138	102.8	76.109
5775	155	84.23	76.033

[SISO_ANT.1]

▣ Test Plots

Note:

In order to simplify the report, attached plots were only the widest channel per channel bandwidth.

802.11a 26 dB Bandwidth (CH 157)

802.11n(HT20) 26 dB Bandwidth (CH 100)

802.11ac(VHT20) 26 dB Bandwidth (CH 149)

802.11n(HT40) 26 dB Bandwidth (CH 118)

802.11ac(VHT40) 26 dB Bandwidth (CH 102)

802.11ac(VHT80) 26 dB Bandwidth (CH 106)

[MIMO_SDM(ANT.0)]

▣ Test Plots

Note:

In order to simplify the report, attached plots were only the widest channel per channel bandwidth.

802.11n(HT20) 26 dB Bandwidth (CH 149)

802.11ac(VHT20) 26 dB Bandwidth (CH 149)

802.11n(HT40) 26 dB Bandwidth (CH 142)

802.11ac(VHT40) 26 dB Bandwidth (CH 38)

802.11ac(VHT80) 26 dB Bandwidth (CH 122)

[MIMO_SDM(ANT.1)]

▣ Test Plots

Note:

In order to simplify the report, attached plots were only the widest channel per channel bandwidth.

802.11n(HT20) 26 dB Bandwidth (CH 120)

802.11ac(VHT20) 26 dB Bandwidth (CH 100)

802.11n(HT40) 26 dB Bandwidth (CH 159)

802.11ac(VHT40) 26 dB Bandwidth (CH 151)

802.11ac(VHT80) 26 dB Bandwidth (CH 58)

10.3 6 dB BANDWIDTH

[SISO_ANT.1]

Mode	Frequency [MHz]	Channel No.	6 dB Bandwidth [MHz]	Limit [MHz]
802.11a	5745	149	15.66	0.500
	5785	157	15.17	0.500
	5825	165	15.16	0.500

Mode	Frequency [MHz]	Channel No.	6 dB Bandwidth [MHz]	Limit [MHz]
802.11n(HT20)	5745	149	15.51	0.500
	5785	157	15.74	0.500
	5825	165	15.20	0.500

Mode	Frequency [MHz]	Channel No.	6 dB Bandwidth [MHz]	Limit [MHz]
802.11ac(VHT20)	5745	149	15.17	0.500
	5785	157	15.47	0.500
	5825	165	15.17	0.500

Mode	Frequency [MHz]	Channel No.	6 dB Bandwidth [MHz]	Limit [MHz]
802.11n(HT40)	5755	151	35.25	0.500
	5795	159	35.25	0.500

Mode	Frequency [MHz]	Channel No.	6 dB Bandwidth [MHz]	Limit [MHz]
802.11ac(VHT40)	5755	151	35.23	0.500
	5795	159	35.43	0.500

Mode	Frequency [MHz]	Channel No.	6 dB Bandwidth [MHz]	Limit [MHz]
802.11ac(VHT80)	5775	155	75.96	0.500

[MIMO_SDM(ANT.0)]

Mode	Frequency [MHz]	Channel No.	6 dB Bandwidth [MHz]	Limit [MHz]
802.11n(HT20)	5745	149	15.11	0.500
	5785	157	15.34	0.500
	5825	165	15.16	0.500

Mode	Frequency [MHz]	Channel No.	6 dB Bandwidth [MHz]	Limit [MHz]
802.11ac(VHT20)	5745	149	15.11	0.500
	5785	157	15.18	0.500
	5825	165	15.17	0.500

Mode	Frequency [MHz]	Channel No.	6 dB Bandwidth [MHz]	Limit [MHz]
802.11n(HT40)	5755	151	35.20	0.500
	5795	159	35.22	0.500

Mode	Frequency [MHz]	Channel No.	6 dB Bandwidth [MHz]	Limit [MHz]
802.11ac(VHT40)	5755	151	35.20	0.500
	5795	159	35.26	0.500

Mode	Frequency [MHz]	Channel No.	6 dB Bandwidth [MHz]	Limit [MHz]
802.11ac(VHT80)	5775	155	75.97	0.500

[MIMO_SDM(ANT.1)]

Mode	Frequency [MHz]	Channel No.	6 dB Bandwidth [MHz]	Limit [MHz]
802.11n(HT20)	5745	149	16.09	0.500
	5785	157	15.17	0.500
	5825	165	16.33	0.500

Mode	Frequency [MHz]	Channel No.	6 dB Bandwidth [MHz]	Limit [MHz]
802.11ac(VHT20)	5745	149	16.33	0.500
	5785	157	16.33	0.500
	5825	165	15.76	0.500

Mode	Frequency [MHz]	Channel No.	6 dB Bandwidth [MHz]	Limit [MHz]
802.11n(HT40)	5755	151	35.25	0.500
	5795	159	35.17	0.500

Mode	Frequency [MHz]	Channel No.	6 dB Bandwidth [MHz]	Limit [MHz]
802.11ac(VHT40)	5755	151	35.25	0.500
	5795	159	35.37	0.500

Mode	Frequency [MHz]	Channel No.	6 dB Bandwidth [MHz]	Limit [MHz]
802.11ac(VHT80)	5775	155	76.00	0.500

[SISO_ANT.1]

▣ Test Plots

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

802.11a (CH.165)

802.11n(HT20) (CH.165)

802.11ac(VHT20) (CH.165)

802.11n(HT40) (CH.151)

802.11ac(VHT40) (CH.151)

802.11ac(VHT80) (CH.155)

[MIMO_SDM(ANT.0)]

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

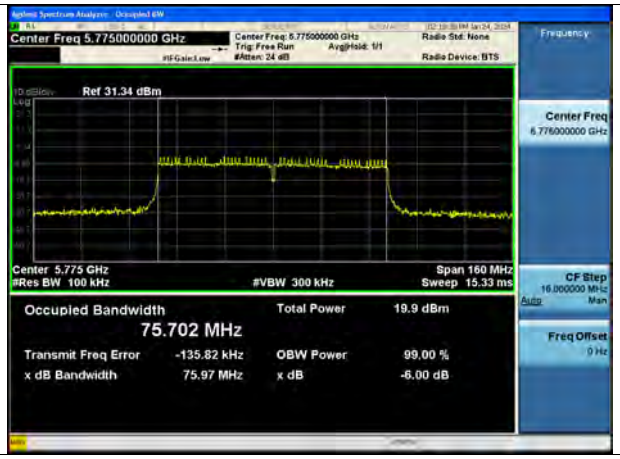
802.11n(HT20) (CH 149)

802.11ac(VHT20) (CH 149)

802.11n(HT40) (CH 151)

802.11ac(VHT40) (CH 151)

802.11ac(VHT80) (CH 155)



[MIMO_SDM(ANT.1)]

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

802.11n(HT20) (CH 157)

802.11ac(VHT20) (CH 165)

802.11n(HT40) (CH 159)

802.11ac(VHT40) (CH 151)

802.11ac(VHT80) (CH 155)

10.4 OUTPUT POWER MEASUREMENT

Straddle channel data in the table below are for reporting purposes only.
Straddle channel data were added in section 10.7.3.

 # Limit

(UNII 1) : 23.98 dBm
(UNII 2A, 2C) : 23.98 dBm or 11 dBm + 10 log B, (where B is the 26 dB emission bandwidth in megahertz.)
(UNII 3) : 30.00 dBm

[SISO_ANT.1]

Ant Total Power [dBm] = Measured Power [dBm] + Duty Cycle Factor [dB]

Frequency [MHz]	Channel No.	Worstcase Datarate	Mode(802.11)	Measured Power [dBm]	Duty Cyle Factor [dB]	Total Power [dBm]	Limit [dBm]
5180	36	6M	a	10.17	0.418	10.59	23.98
5200	40	6M	a	10.12	0.418	10.54	23.98
5240	48	6M	a	10.57	0.418	10.99	23.98
5260	52	6M	a	10.59	0.418	11.01	23.98
5300	60	6M	a	10.43	0.418	10.84	23.98
5320	64	6M	a	10.32	0.418	10.74	23.98
5500	100	6M	a	10.11	0.418	10.52	23.98
5600	120	6M	a	10.80	0.418	11.21	23.98
5720	144	6M	a	11.05	0.418	11.47	23.98
5745	149	6M	a	11.06	0.418	11.48	30.00
5785	157	6M	a	10.82	0.418	11.24	30.00
5825	165	6M	a	10.53	0.418	10.95	30.00

Frequency [MHz]	Channel No.	Worstcase Datarate	Mode(802.11)	Measured Power [dBm]	Duty Cyle Factor [dB]	Total Power [dBm]	Limit [dBm]
5180	36	MCS0	n20	10.76	0.467	11.23	23.98
5200	40	MCS0	n20	10.41	0.467	10.88	23.98
5240	48	MCS0	n20	10.60	0.467	11.07	23.98
5260	52	MCS0	n20	10.85	0.467	11.32	23.98
5300	60	MCS0	n20	10.61	0.467	11.07	23.98
5320	64	MCS0	n20	10.47	0.467	10.94	23.98
5500	100	MCS0	n20	10.44	0.467	10.90	23.98
5600	120	MCS0	n20	11.08	0.467	11.55	23.98
5720	144	MCS0	n20	11.32	0.467	11.79	23.98
5745	149	MCS0	n20	11.46	0.467	11.93	30.00
5785	157	MCS0	n20	11.03	0.467	11.50	30.00
5825	165	MCS0	n20	10.84	0.467	11.31	30.00

Frequency [MHz]	Channel No.	Worstcase Datarate	Mode(802.11)	Measured Power [dBm]	Duty Cyle Factor [dB]	Total Power [dBm]	Limit [dBm]
5180	36	MCS0	ac20	10.63	0.516	11.15	23.98
5200	40	MCS0	ac20	10.36	0.516	10.88	23.98
5240	48	MCS0	ac20	10.26	0.516	10.78	23.98
5260	52	MCS0	ac20	10.80	0.516	11.31	23.98
5300	60	MCS0	ac20	10.58	0.516	11.09	23.98
5320	64	MCS0	ac20	10.55	0.516	11.07	23.98
5500	100	MCS0	ac20	10.44	0.516	10.96	23.98
5600	120	MCS0	ac20	10.98	0.516	11.50	23.98
5720	144	MCS0	ac20	10.84	0.516	11.35	23.98
5745	149	MCS0	ac20	10.80	0.516	11.32	30.00
5785	157	MCS0	ac20	10.98	0.516	11.50	30.00
5825	165	MCS0	ac20	10.93	0.516	11.45	30.00

Frequency [MHz]	Channel No.	Worstcase Datarate	Mode(802.11)	Measured Power [dBm]	Duty Cyle Factor [dB]	Total Power [dBm]	Limit [dBm]
5190	38	MCS0	n40	7.07	0.949	8.02	23.98
5230	46	MCS0	n40	7.29	0.949	8.24	23.98
5270	54	MCS0	n40	7.62	0.949	8.57	23.98
5310	62	MCS0	n40	7.40	0.949	8.35	23.98
5510	102	MCS0	n40	7.53	0.949	8.48	23.98
5590	118	MCS0	n40	8.00	0.949	8.95	23.98
5710	142	MCS0	n40	7.91	0.949	8.86	23.98
5755	151	MCS0	n40	7.51	0.949	8.45	30.00
5795	159	MCS0	n40	7.73	0.949	8.68	30.00

Frequency [MHz]	Channel No.	Worstcase Datarate	Mode(802.11)	Measured Power [dBm]	Duty Cyle Factor [dB]	Total Power [dBm]	Limit [dBm]
5190	38	MCS0	ac40	7.06	0.852	7.91	23.98
5230	46	MCS0	ac40	7.35	0.852	8.21	23.98
5270	54	MCS0	ac40	7.51	0.852	8.36	23.98
5310	62	MCS0	ac40	7.35	0.852	8.21	23.98
5510	102	MCS0	ac40	7.61	0.852	8.46	23.98
5590	118	MCS0	ac40	7.94	0.852	8.80	23.98
5710	142	MCS0	ac40	7.86	0.852	8.72	23.98
5755	151	MCS0	ac40	7.52	0.852	8.37	30.00
5795	159	MCS0	ac40	7.79	0.852	8.64	30.00

Frequency [MHz]	Channel No.	Worstcase Datarate	Mode(802.11)	Measured Power [dBm]	Duty Cyle Factor [dB]	Total Power [dBm]	Limit [dBm]
5210	42	MCS0	ac80	2.24	1.794	4.04	23.98
5290	58	MCS0	ac80	2.92	1.794	4.71	23.98
5530	106	MCS0	ac80	2.52	1.794	4.32	23.98
5610	122	MCS0	ac80	3.22	1.794	5.02	23.98
5690	138	MCS0	ac80	2.87	1.794	4.67	23.98
5775	155	MCS0	ac80	3.14	1.794	4.94	30.00

[MIMO_SDM(Ant.0+Ant.1)]

Ant Total Power [dBm] = Measured Power [dBm] + Duty Cycle Factor [dB]

MIMO(Ant.0+Ant.1) Total Power [dBm] = Ant.0 Total Power [dBm] + Ant.1 Total Power [dBm]

Frequency [MHz]	Channel No.	Worstcase Datarate	Mode(802.11)	Ant.0 Measured Power [dBm] + Duty Cycle Factor[dB]	Ant.1 Measured Power [dBm] + Duty Cycle Factor[dB]	MIMO Total Power [dBm]	Limit [dBm]
5180	36	MCS8	n20	10.78	10.22	13.52	23.98
5200	40	MCS8	n20	10.23	10.02	13.14	23.98
5240	48	MCS8	n20	10.54	10.43	13.50	23.98
5260	52	MCS8	n20	10.68	10.68	13.69	23.98
5280	60	MCS8	n20	10.62	10.46	13.55	23.98
5320	64	MCS8	n20	10.43	10.34	13.40	23.98
5500	100	MCS8	n20	9.94	10.04	13.00	23.98
5600	120	MCS8	n20	10.69	10.71	13.71	23.98
5720	144	MCS8	n20	11.05	11.01	14.04	23.98
5745	149	MCS8	n20	11.25	11.12	14.20	30.00
5785	157	MCS8	n20	10.73	10.68	13.72	30.00
5825	165	MCS8	n20	10.63	10.49	13.57	30.00

Frequency [MHz]	Channel No.	Worstcase Datarate	Mode(802.11)	Ant.0 Measured Power [dBm] + Duty Cycle Factor[dB]	Ant.1 Measured Power [dBm] + Duty Cycle Factor[dB]	MIMO Total Power [dBm]	Limit [dBm]
5180	36	MCS0	ac20	10.55	10.53	13.55	23.98
5200	40	MCS0	ac20	10.39	10.25	13.33	23.98
5240	48	MCS0	ac20	10.21	10.08	13.16	23.98
5260	52	MCS0	ac20	10.76	10.70	13.74	23.98
5280	60	MCS0	ac20	10.51	10.44	13.49	23.98
5320	64	MCS0	ac20	10.49	10.43	13.47	23.98
5500	100	MCS0	ac20	9.75	9.83	12.80	23.98
5600	120	MCS0	ac20	10.56	10.80	13.69	23.98
5720	144	MCS0	ac20	10.55	10.54	13.55	23.98
5745	149	MCS0	ac20	10.70	10.74	13.73	30.00
5785	157	MCS0	ac20	10.68	10.93	13.81	30.00
5825	165	MCS0	ac20	10.59	10.55	13.58	30.00

Frequency [MHz]	Channel No.	Worstcase Datarate	Mode(802.11)	Ant.0 Measured Power [dBm] + Duty Cycle Factor[dB]	Ant.1 Measured Power [dBm] + Duty Cycle Factor[dB]	MIMO Total Power [dBm]	Limit [dBm]
5190	38	MCS8	n40	7.39	7.44	10.43	23.98
5230	46	MCS8	n40	7.54	7.53	10.54	23.98
5270	54	MCS8	n40	7.76	7.84	10.81	23.98
5310	62	MCS8	n40	7.55	7.55	10.56	23.98
5510	102	MCS8	n40	7.55	7.66	10.62	23.98
5590	118	MCS8	n40	8.00	8.00	11.01	23.98
5710	142	MCS8	n40	8.01	8.00	11.01	23.98
5755	151	MCS8	n40	7.86	7.71	10.80	23.98
5795	159	MCS8	n40	7.94	7.98	10.97	23.98

Frequency [MHz]	Channel No.	Worstcase Datarate	Mode(802.11)	Ant.0 Measured Power [dBm] + Duty Cycle Factor[dB]	Ant.1 Measured Power [dBm] + Duty Cycle Factor[dB]	MIMO Total Power [dBm]	Limit [dBm]
5190	38	MCS0	ac40	7.47	7.67	10.58	23.98
5230	46	MCS0	ac40	7.72	7.72	10.73	23.98
5270	54	MCS0	ac40	8.03	8.20	11.12	23.98
5310	62	MCS0	ac40	7.86	7.88	10.88	23.98
5510	102	MCS0	ac40	7.86	7.85	10.87	23.98
5590	118	MCS0	ac40	8.24	8.27	11.27	23.98
5710	142	MCS0	ac40	8.29	8.22	11.26	23.98
5755	151	MCS0	ac40	7.95	8.06	11.02	30.00
5795	159	MCS0	ac40	8.09	8.12	11.12	30.00

Frequency [MHz]	Channel No.	Worstcase Datarate	Mode(802.11)	Ant.0 Measured Power [dBm] + Duty Cycle Factor[dB]	Ant.1 Measured Power [dBm] + Duty Cycle Factor[dB]	MIMO Total Power [dBm]	Limit [dBm]
5210	42	MCS0	ac80	3.45	3.52	6.50	23.98
5290	58	MCS0	ac80	4.34	4.39	7.37	23.98
5530	106	MCS0	ac80	3.36	3.57	6.48	23.98
5610	122	MCS0	ac80	4.25	4.36	7.32	23.98
5690	138	MCS0	ac80	3.93	4.21	7.08	23.98
5775	155	MCS0	ac80	3.67	4.37	7.04	30.00

10.5 POWER SPECTRAL DENSITY

[SISO_ANT.1]

Ant Total PSD [dBm] = Measured PSD [dBm] + Duty Cycle Factor [dB]

Frequency [MHz]	Channel No.	Worstcase Datarate	Mode(802.11)	Measured PSD [dBm/MHz]	Duty Cyle Factor [dB]	Total PSD [dBm/MHz]	Limit
5180	36	6M	a	-0.324	0.418	0.094	11 dBm/MHz
5200	40	6M	a	-0.568	0.418	-0.150	11 dBm/MHz
5240	48	6M	a	-0.169	0.418	0.249	11 dBm/MHz
5260	52	6M	a	0.096	0.418	0.514	11 dBm/MHz
5300	60	6M	a	-0.273	0.418	0.145	11 dBm/MHz
5320	64	6M	a	-0.291	0.418	0.127	11 dBm/MHz
5500	100	6M	a	-0.443	0.418	-0.025	11 dBm/MHz
5600	120	6M	a	0.215	0.418	0.633	11 dBm/MHz
5720	144	6M	a	0.672	0.418	1.090	11 dBm/MHz
5745	149	6M	a	-2.237	0.418	-1.819	30 dBm/500kHz
5785	157	6M	a	-2.604	0.418	-2.186	30 dBm/500kHz
5825	165	6M	a	-2.823	0.418	-2.405	30 dBm/500kHz

Frequency [MHz]	Channel No.	Worstcase Datarate	Mode(802.11)	Measured PSD [dBm/MHz]	Duty Cyle Factor [dB]	Total PSD [dBm/MHz]	Limit
5180	36	MCS0	n20	-0.484	0.467	-0.017	11 dBm/MHz
5200	40	MCS0	n20	-0.074	0.467	0.393	11 dBm/MHz
5240	48	MCS0	n20	0.276	0.467	0.743	11 dBm/MHz
5260	52	MCS0	n20	0.226	0.467	0.693	11 dBm/MHz
5300	60	MCS0	n20	0.066	0.467	0.533	11 dBm/MHz
5320	64	MCS0	n20	-0.051	0.467	0.416	11 dBm/MHz
5500	100	MCS0	n20	-0.253	0.467	0.214	11 dBm/MHz
5600	120	MCS0	n20	0.634	0.467	1.101	11 dBm/MHz
5720	144	MCS0	n20	0.771	0.467	1.238	11 dBm/MHz
5745	149	MCS0	n20	-1.694	0.467	-1.227	30 dBm/500kHz
5785	157	MCS0	n20	-2.271	0.467	-1.804	30 dBm/500kHz
5825	165	MCS0	n20	-2.486	0.467	-2.019	30 dBm/500kHz

Frequency [MHz]	Channel No.	Worstcase Datarate	Mode(802.11)	Measured PSD [dBm/MHz]	Duty Cyle Factor [dB]	Total PSD [dBm/MHz]	Limit
5180	36	MCS0	ac20	0.027	0.516	0.543	11 dBm/MHz
5200	40	MCS0	ac20	-0.420	0.516	0.096	11 dBm/MHz
5240	48	MCS0	ac20	-0.485	0.516	0.031	11 dBm/MHz
5260	52	MCS0	ac20	0.134	0.516	0.650	11 dBm/MHz
5300	60	MCS0	ac20	0.174	0.516	0.690	11 dBm/MHz
5320	64	MCS0	ac20	-0.073	0.516	0.443	11 dBm/MHz
5500	100	MCS0	ac20	-0.300	0.516	0.216	11 dBm/MHz
5600	120	MCS0	ac20	0.428	0.516	0.944	11 dBm/MHz
5720	144	MCS0	ac20	0.393	0.516	0.909	11 dBm/MHz
5745	149	MCS0	ac20	-2.420	0.516	-1.904	30 dBm/500kHz
5785	157	MCS0	ac20	-2.153	0.516	-1.637	30 dBm/500kHz
5825	165	MCS0	ac20	-2.607	0.516	-2.091	30 dBm/500kHz

Frequency [MHz]	Channel No.	Worstcase Datarate	Mode(802.11)	Measured PSD [dBm/MHz]	Duty Cyle Factor [dB]	Total PSD [dBm/MHz]	Limit
5190	38	MCS0	n40	-6.769	0.949	-5.820	11 dBm/MHz
5230	46	MCS0	n40	-6.594	0.949	-5.645	11 dBm/MHz
5270	54	MCS0	n40	-6.038	0.949	-5.089	11 dBm/MHz
5310	62	MCS0	n40	-6.497	0.949	-5.548	11 dBm/MHz
5510	102	MCS0	n40	-5.997	0.949	-5.048	11 dBm/MHz
5590	118	MCS0	n40	-5.951	0.949	-5.002	11 dBm/MHz
5710	142	MCS0	n40	-5.877	0.949	-4.928	11 dBm/MHz
5755	151	MCS0	n40	-8.734	0.949	-7.785	30 dBm/500kHz
5795	159	MCS0	n40	-8.488	0.949	-7.539	30 dBm/500kHz

Frequency [MHz]	Channel No.	Worstcase Datarate	Mode(802.11)	Measured PSD [dBm/MHz]	Duty Cyle Factor [dB]	Total PSD [dBm/MHz]	Limit
5190	38	MCS0	ac40	-6.570	0.852	-5.718	11 dBm/MHz
5230	46	MCS0	ac40	-6.300	0.852	-5.448	11 dBm/MHz
5270	54	MCS0	ac40	-5.884	0.852	-5.032	11 dBm/MHz
5310	62	MCS0	ac40	-6.623	0.852	-5.771	11 dBm/MHz
5510	102	MCS0	ac40	-6.208	0.852	-5.356	11 dBm/MHz
5590	118	MCS0	ac40	-5.969	0.852	-5.117	11 dBm/MHz
5710	142	MCS0	ac40	-5.961	0.852	-5.109	11 dBm/MHz
5755	151	MCS0	ac40	-8.714	0.852	-7.862	30 dBm/500kHz
5795	159	MCS0	ac40	-8.679	0.852	-7.827	30 dBm/500kHz

Frequency [MHz]	Channel No.	Worstcase Datarate	Mode(802.11)	Measured PSD [dBm/MHz]	Duty Cyle Factor [dB]	Total PSD [dBm/MHz]	Limit
5210	42	MCS0	ac80	-15.054	1.794	-13.260	11 dBm/MHz
5290	58	MCS0	ac80	-14.396	1.794	-12.602	11 dBm/MHz
5530	106	MCS0	ac80	-14.916	1.794	-13.122	11 dBm/MHz
5610	122	MCS0	ac80	-14.220	1.794	-12.426	11 dBm/MHz
5690	138	MCS0	ac80	-14.181	1.794	-12.387	11 dBm/MHz
5775	155	MCS0	ac80	-16.565	1.794	-14.771	30 dBm/500kHz

[MIMO_SDM(Ant.0+Ant.1)]

Ant Total PSD [dBm] = Measured PSD [dBm] + Duty Cycle Factor [dB]

MIMO(Ant.0+Ant.1) Total PSD [dBm] = Ant.0 Total PSD [dBm] + Ant.1 Total PSD [dB]

Frequency [MHz]	Channel No.	Worstcase Datarate	Mode(802.11)	ANT.0 Measured PSD[dBm] + Duty Cycle Factor [dB]	ANT.1 Measured PSD[dBm] + Duty Cycle Factor [dB]	MIMO Total PSD [dBm]	Limit [dBm]
5180	36	MCS8	n20	-0.021	-0.431	2.789	11 dBm/MHz
5200	40	MCS8	n20	0.263	-0.454	2.929	11 dBm/MHz
5240	48	MCS8	n20	0.390	0.276	3.343	11 dBm/MHz
5260	52	MCS8	n20	-0.074	0.230	3.090	11 dBm/MHz
5280	60	MCS8	n20	-0.091	-0.162	2.883	11 dBm/MHz
5320	64	MCS8	n20	-0.421	-0.304	2.648	11 dBm/MHz
5500	100	MCS8	n20	-0.774	-0.992	2.128	11 dBm/MHz
5600	120	MCS8	n20	-0.454	0.075	2.828	11 dBm/MHz
5720	144	MCS8	n20	-0.084	0.490	3.222	11 dBm/MHz
5745	149	MCS8	n20	-2.682	-2.138	0.608	30 dBm/500kHz
5785	157	MCS8	n20	-2.722	-2.751	0.273	30 dBm/500kHz
5825	165	MCS8	n20	-3.192	-2.792	0.022	30 dBm/500kHz

Frequency [MHz]	Channel No.	Worstcase Datarate	Mode(802.11)	ANT.0 Measured PSD[dBm] + Duty Cycle Factor [dB]	ANT.1 Measured PSD[dBm] + Duty Cycle Factor [dB]	MIMO Total PSD [dBm]	Limit [dBm]
5180	36	MCS0	ac20	-0.082	-0.028	2.955	11 dBm/MHz
5200	40	MCS0	ac20	0.221	-0.164	3.043	11 dBm/MHz
5240	48	MCS0	ac20	-0.586	-0.411	2.512	11 dBm/MHz
5260	52	MCS0	ac20	0.115	-0.291	2.927	11 dBm/MHz
5280	60	MCS0	ac20	-0.211	0.261	3.041	11 dBm/MHz
5320	64	MCS0	ac20	-0.513	0.211	2.874	11 dBm/MHz
5500	100	MCS0	ac20	-0.631	-0.441	2.475	11 dBm/MHz
5600	120	MCS0	ac20	-0.464	0.196	2.888	11 dBm/MHz
5720	144	MCS0	ac20	-0.084	0.142	3.040	11 dBm/MHz
5745	149	MCS0	ac20	-3.016	-2.618	0.198	30 dBm/500kHz
5785	157	MCS0	ac20	-2.531	-2.347	0.572	30 dBm/500kHz
5825	165	MCS0	ac20	-2.740	-2.604	0.339	30 dBm/500kHz

Frequency [MHz]	Channel No.	Worstcase Datarate	Mode(802.11)	ANT.0 Measured PSD[dBm] + Duty Cycle Factor [dB]	ANT.1 Measured PSD[dBm] + Duty Cycle Factor [dB]	MIMO Total PSD [dBm]	Limit [dBm]
5190	38	MCS8	n40	-5.974	-6.716	-3.318	11 dBm/MHz
5230	46	MCS8	n40	-5.326	-6.339	-2.792	11 dBm/MHz
5270	54	MCS8	n40	-5.906	-5.979	-2.932	11 dBm/MHz
5310	62	MCS8	n40	-6.389	-5.942	-3.149	11 dBm/MHz
5510	102	MCS8	n40	-6.258	-6.539	-3.385	11 dBm/MHz
5590	118	MCS8	n40	-6.167	-5.776	-2.956	11 dBm/MHz
5710	142	MCS8	n40	-5.420	-5.580	-2.488	11 dBm/MHz
5755	151	MCS8	n40	-8.807	-8.406	-5.591	30 dBm/500kHz
5795	159	MCS8	n40	-8.098	-8.228	-5.152	30 dBm/500kHz

Frequency [MHz]	Channel No.	Worstcase Datarate	Mode(802.11)	ANT.0 Measured PSD[dBm] + Duty Cycle Factor [dB]	ANT.1 Measured PSD[dBm] + Duty Cycle Factor [dB]	MIMO Total PSD [dBm]	Limit [dBm]
5190	38	MCS0	ac40	-5.757	-6.052	-2.892	11 dBm/MHz
5230	46	MCS0	ac40	-5.273	-6.146	-2.678	11 dBm/MHz
5270	54	MCS0	ac40	-5.406	-5.651	-2.517	11 dBm/MHz
5310	62	MCS0	ac40	-5.783	-5.911	-2.837	11 dBm/MHz
5510	102	MCS0	ac40	-5.728	-5.999	-2.852	11 dBm/MHz
5590	118	MCS0	ac40	-5.683	-5.755	-2.709	11 dBm/MHz
5710	142	MCS0	ac40	-4.942	-5.318	-2.116	11 dBm/MHz
5755	151	MCS0	ac40	-8.421	-7.838	-5.110	30 dBm/500kHz
5795	159	MCS0	ac40	-7.787	-8.547	-5.141	30 dBm/500kHz

Frequency [MHz]	Channel No.	Worstcase Datarate	Mode(802.11)	ANT.0 Measured PSD[dBm] + Duty Cycle Factor [dB]	ANT.1 Measured PSD[dBm] + Duty Cycle Factor [dB]	MIMO Total PSD [dBm]	Limit [dBm]
5210	42	MCS0	ac80	-12.153	-13.824	-9.898	11 dBm/MHz
5290	58	MCS0	ac80	-12.483	-12.702	-9.581	11 dBm/MHz
5530	106	MCS0	ac80	-12.429	-13.410	-9.882	11 dBm/MHz
5610	122	MCS0	ac80	-11.472	-12.595	-8.987	11 dBm/MHz
5690	138	MCS0	ac80	-11.855	-13.245	-9.484	11 dBm/MHz
5775	155	MCS0	ac80	-15.503	-15.555	-12.519	30 dBm/500kHz

[SISO_ANT.1]

▣ Test Plots

Note:

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

802.11a UNII 1-2C (Ch.144)

802.11a UNII 3 (Ch.149)

802.11n(HT20) UNII 1-2C (Ch.144)

802.11 n(HT20) UNII 3 (Ch.149)

802.11ac(VHT20) UNII 1-2C (Ch.120)

802.11 ac(VHT20) UNII 3 (Ch.157)

802.11n(HT40) UNII 1-2C (Ch.142)	802.11n(HT40) UNII 3 (Ch.159)
	
802.11ac(VHT40) UNII 1-2C (Ch.54)	**802.11 ac(VHT40) UNII 3 (Ch.159)**
	
802.11ac(VHT80) UNII 1-2C (Ch.138)	**802.11 ac(VHT80) UNII 3 (Ch.155)**
	

[MIMO_SDM(Ant.0+Ant.1)]

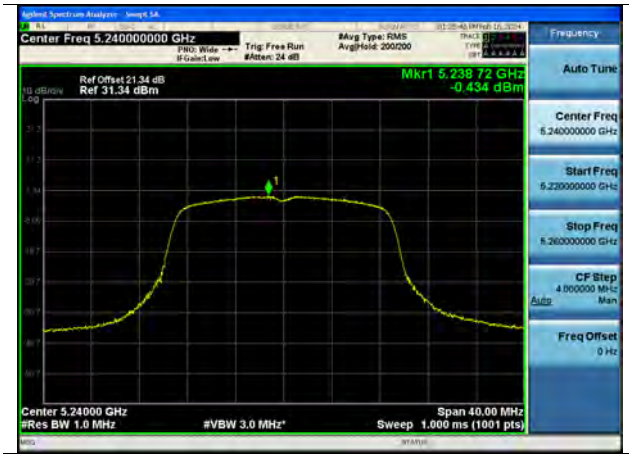
▣ Test Plots

Note:

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

ANT.0	ANT.1

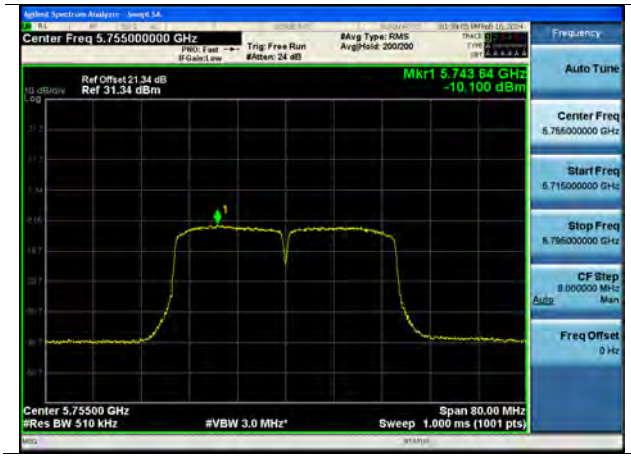
802.11n(HT20) UNII 1-2C (Ch.48)



802.11 n(HT20) UNII 3 (Ch.149)

ANT.0	ANT.1
802.11ac(VHT20) UNII 1-2C (Ch.40)	
	
802.11 ac(VHT20) UNII 3 (Ch.157)	
	

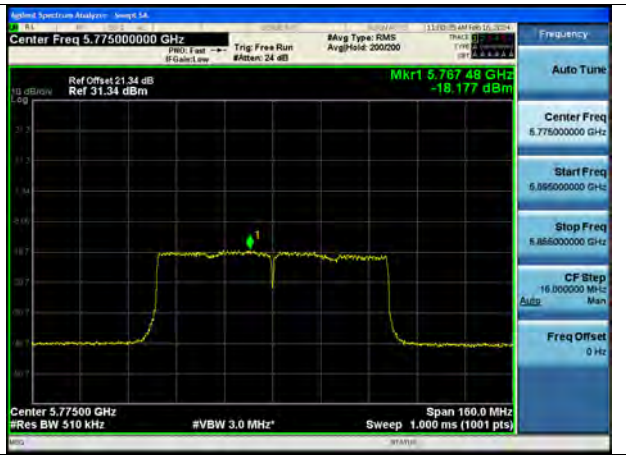
ANT.0	ANT.1
802.11n(HT40) UNII 1-2C (Ch.142)	
	
802.11 n(HT40) UNII 3 (Ch.159)	
	

ANT.0	ANT.1
802.11ac(VHT40) UNII 1-2C (Ch.142)	
	
802.11 ac(VHT40) UNII 3 (Ch.151)	
	

ANT.0	ANT.1

802.11ac(VHT80) UNII 1-2C (Ch.122)

802.11 ac(VHT80) UNII 3 (Ch.155)



10.6 FREQUENCY STABILITY

Note:

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

2. 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.

10.6.1 80 MHz BW

[[MIMO_SDM(ANT.1)]]

Startup after the EUT is energized

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

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5210030.14	30.14
100%		-30	5210008.22	8.22
100%		-20	5210012.62	12.62
100%		-10	5210015.93	15.93
100%		0	5210020.62	20.62
100%		+10	5210026.09	26.09
100%		+30	5210037.84	37.84
100%		+40	5210041.06	41.06
100%		+50	5210058.61	58.61
High	4.40	+20	5210030.22	30.22
Low	3.65	+20	5210032.87	32.87

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

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5290030.58	30.58
100%		-30	5290007.22	7.22
100%		-20	5290014.11	14.11
100%		-10	5290019.10	19.10
100%		0	5290023.12	23.12
100%		+10	5290027.95	27.95
100%		+30	5290036.98	36.98
100%		+40	5290040.87	40.87
100%		+50	5290060.92	60.92
High	4.40	+20	5290032.87	32.87
Low	3.65	+20	5290031.25	31.25

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

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5530034.57	34.57
100%		-30	5530006.77	6.77
100%		-20	5530014.56	14.56
100%		-10	5530016.18	16.18
100%		0	5530023.97	23.97
100%		+10	5530028.13	28.13
100%		+30	5530040.72	40.72
100%		+40	5530040.84	40.84
100%		+50	5530058.47	58.47
High	4.40	+20	5530033.31	33.31
Low	3.65	+20	5530030.78	30.78

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

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5775035.93	35.93
100%		-30	5775010.86	10.86
100%		-20	5775010.22	10.22
100%		-10	5775016.64	16.64
100%		0	5775025.03	25.03
100%		+10	5775028.13	28.13
100%		+30	5775037.22	37.22
100%		+40	5775041.70	41.70
100%		+50	5775051.05	51.05
High	4.40	+20	5775030.92	30.92
Low	3.65	+20	5775032.21	32.21

2 minutes after the EUT is energized

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

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5210035.06	35.06
100%		-30	5210008.69	8.69
100%		-20	5210014.33	14.33
100%		-10	5210019.58	19.58
100%		0	5210023.07	23.07
100%		+10	5210028.83	28.83
100%		+30	5210039.13	39.13
100%		+40	5210046.51	46.51
100%		+50	5210060.68	60.68
High	4.40	+20	5210030.82	30.82
Low	3.65	+20	5210035.95	35.95

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

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5290030.85	30.85
100%		-30	5290008.73	8.73
100%		-20	5290015.40	15.40
100%		-10	5290020.44	20.44
100%		0	5290024.15	24.15
100%		+10	5290025.49	25.49
100%		+30	5290037.25	37.25
100%		+40	5290040.81	40.81
100%		+50	5290058.88	58.88
High	4.40	+20	5290034.42	34.42
Low	3.65	+20	5290035.74	35.74

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

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5530030.68	30.68
100%		-30	5530007.59	7.59
100%		-20	5530014.79	14.79
100%		-10	5530015.60	15.60
100%		0	5530021.45	21.45
100%		+10	5530028.05	28.05
100%		+30	5530036.85	36.85
100%		+40	5530044.30	44.30
100%		+50	5530050.35	50.35
High	4.40	+20	5530035.37	35.37
Low	3.65	+20	5530035.25	35.25

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

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5775032.72	32.72
100%		-30	5775005.93	5.93
100%		-20	5775013.71	13.71
100%		-10	5775016.12	16.12
100%		0	5775024.07	24.07
100%		+10	5775026.11	26.11
100%		+30	5775040.94	40.94
100%		+40	5775048.39	48.39
100%		+50	5775058.35	58.35
High	4.40	+20	5775032.86	32.86
Low	3.65	+20	5775031.50	31.50

5 minutes after the EUT is energized

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

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5210033.30	33.30
100%		-30	5210008.98	8.98
100%		-20	5210013.95	13.95
100%		-10	5210020.34	20.34
100%		0	5210025.48	25.48
100%		+10	5210029.69	29.69
100%		+30	5210035.79	35.79
100%		+40	5210040.35	40.35
100%		+50	5210054.51	54.51
High	4.40	+20	5210033.96	33.96
Low	3.65	+20	5210032.65	32.65

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

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5290034.45	34.45
100%		-30	5290006.75	6.75
100%		-20	5290013.47	13.47
100%		-10	5290016.21	16.21
100%		0	5290025.43	25.43
100%		+10	5290027.10	27.10
100%		+30	5290038.62	38.62
100%		+40	5290047.99	47.99
100%		+50	5290057.24	57.24
High	4.40	+20	5290032.14	32.14
Low	3.65	+20	5290035.63	35.63

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

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5530035.64	35.64
100%		-30	5530007.33	7.33
100%		-20	5530010.23	10.23
100%		-10	5530020.08	20.08
100%		0	5530022.15	22.15
100%		+10	5530029.56	29.56
100%		+30	5530037.56	37.56
100%		+40	5530042.36	42.36
100%		+50	5530060.26	60.26
High	4.40	+20	5530035.56	35.56
Low	3.65	+20	5530033.73	33.73

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

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5775032.38	32.38
100%		-30	5775008.10	8.10
100%		-20	5775013.99	13.99
100%		-10	5775015.47	15.47
100%		0	5775020.54	20.54
100%		+10	5775025.04	25.04
100%		+30	5775038.25	38.25
100%		+40	5775048.76	48.76
100%		+50	5775055.75	55.75
High	4.40	+20	5775033.87	33.87
Low	3.65	+20	5775033.09	33.09

10 minutes after the EUT is energized

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

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5210031.25	31.25
100%		-30	5210006.38	6.38
100%		-20	5210014.87	14.87
100%		-10	5210020.21	20.21
100%		0	5210023.35	23.35
100%		+10	5210026.64	26.64
100%		+30	5210038.29	38.29
100%		+40	5210043.55	43.55
100%		+50	5210056.07	56.07
High	4.40	+20	5210033.94	33.94
Low	3.65	+20	5210032.09	32.09

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

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5290034.62	34.62
100%		-30	5290007.58	7.58
100%		-20	5290012.16	12.16
100%		-10	5290017.40	17.40
100%		0	5290024.03	24.03
100%		+10	5290030.55	30.55
100%		+30	5290040.26	40.26
100%		+40	5290045.57	45.57
100%		+50	5290053.43	53.43
High	4.40	+20	5290032.12	32.12
Low	3.65	+20	5290031.39	31.39

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

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5530032.54	32.54
100%		-30	5530010.58	10.58
100%		-20	5530012.16	12.16
100%		-10	5530017.63	17.63
100%		0	5530025.70	25.70
100%		+10	5530025.13	25.13
100%		+30	5530035.89	35.89
100%		+40	5530048.25	48.25
100%		+50	5530057.14	57.14
High	4.40	+20	5530035.62	35.62
Low	3.65	+20	5530031.89	31.89

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

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5775034.47	34.47
100%		-30	5775007.54	7.54
100%		-20	5775013.22	13.22
100%		-10	5775019.88	19.88
100%		0	5775024.49	24.49
100%		+10	5775026.21	26.21
100%		+30	5775038.11	38.11
100%		+40	5775041.22	41.22
100%		+50	5775057.51	57.51
High	4.40	+20	5775032.25	32.25
Low	3.65	+20	5775031.40	31.40

10.7 STRADDLE CHANNEL

10.7.1 26 dB Bandwidth

[SISO_ANT.1]

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	26 dB Bandwidth [MHz]
802.11a	UNII 2C	5720	144	5709.92	15.08
802.11n(HT20)				5709.28	15.72
802.11ac(VHT20)				5709.40	15.60
802.11a	UNII 3	5720	144	5729.92	4.92
802.11n(HT20)				5730.56	5.56
802.11ac(VHT20)				5730.36	5.36

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	26 dB Bandwidth [MHz]
802.11n(HT40)	UNII 2C	5710	142	5689.28	35.72
802.11ac(VHT40)				5688.88	36.12
802.11n(HT40)	UNII 3	5710	142	5730.40	5.40
802.11ac(VHT40)				5730.16	5.16

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	26 dB Bandwidth [MHz]
802.11ac(VHT80)	UNII 2C	5690	138	5646.64	78.36
	UNII 3	5690	138	5733.84	8.84

Note:

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

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

[MIMO_SDM(ANT.0)]

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	26 dB Bandwidth [MHz]
802.11n(HT20)	UNII 2C	5720	144	5709.32	15.68
802.11ac(VHT20)				5709.64	15.36
802.11n(HT20)	UNII 3	5720	144	5730.24	5.24
802.11ac(VHT20)				5730.16	5.16

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	26 dB Bandwidth [MHz]
802.11n(HT40)	UNII 2C	5710	142	5689.60	35.40
802.11ac(VHT40)				5689.52	35.48
802.11n(HT40)	UNII 3	5710	142	5730.40	5.40
802.11ac(VHT40)				5730.48	5.48

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	26 dB Bandwidth [MHz]
802.11ac(VHT80)	UNII 2C	5690	138	5646.96	78.04
	UNII 3	5690	138	5732.40	7.40

Note:

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

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

[MIMO_SDM(ANT.1)]

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	26 dB Bandwidth [MHz]
802.11n(HT20)	UNII 2C	5720	144	5709.12	15.88
802.11ac(VHT20)				5709.32	15.68
802.11n(HT20)	UNII 3	5720	144	5730.36	5.36
802.11ac(VHT20)				5730.16	5.16

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	26 dB Bandwidth [MHz]
802.11n(HT40)	UNII 2C	5710	142	5690.08	34.92
802.11ac(VHT40)				5689.44	35.56
802.11n(HT40)	UNII 3	5710	142	5730.32	5.32
802.11ac(VHT40)				5729.92	4.92

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	26 dB Bandwidth [MHz]
802.11ac(VHT80)	UNII 2C	5690	138	5647.44	77.56
	UNII 3	5690	138	5732.72	7.72

Note:

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

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

[SISO_ANT.1]

▣ Test Plots (26 dB Bandwidth)

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

[MIMO_SDM(ANT.0)]

▣ Test Plots (26 dB Bandwidth)

802.11n(HT20) UNII Band

802.11ac(VHT20) UNII Band

802.11n(HT40) UNII Band

802.11ac(VHT40) UNII Band

802.11ac(VHT80) UNII Band

[MIMO_SDM(ANT.1)]

▣ Test Plots (26 dB Bandwidth)

802.11n(HT20) UNII Band

802.11ac(VHT20) UNII Band

802.11n(HT40) UNII Band

802.11ac(VHT40) UNII Band

802.11ac(VHT80) UNII Band

10.7.2 6 dB Bandwidth

[SISO_ANT.1]

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	6dB Bandwidth [MHz]	Limit [MHz]
802.11a	UNII3	5720	144	5727.56	2.56	> 0.5
802.11n(HT20)				5727.60	2.60	> 0.5
802.11ac(VHT20)				5727.60	2.60	> 0.5
802.11n(HT40)	UNII3	5710	142	5727.68	2.68	> 0.5
802.11ac(VHT40)				5727.68	2.68	> 0.5
802.11ac(VHT80)	UNII3	5690	138	5728.24	3.24	> 0.5

[MIMO_SDM(ANT.0)]

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	6dB Bandwidth [MHz]	Limit [MHz]
802.11n(HT20)	UNII3	5720	144	5727.60	2.60	> 0.5
802.11ac(VHT20)				5727.60	2.60	> 0.5
802.11n(HT40)	UNII3	5710	142	5727.68	2.68	> 0.5
802.11ac(VHT40)				5727.68	2.68	> 0.5
802.11ac(VHT80)	UNII3	5690	138	5728.08	3.08	> 0.5

[MIMO_SDM(ANT.1)]

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	6dB Bandwidth [MHz]	Limit [MHz]
802.11n(HT20)	UNII3	5720	144	5728.16	3.16	> 0.5
802.11ac(VHT20)				5728.20	3.20	> 0.5
802.11n(HT40)	UNII3	5710	142	5727.68	2.68	> 0.5
802.11ac(VHT40)				5727.68	2.68	> 0.5
802.11ac(VHT80)	UNII3	5690	138	5728.24	3.24	> 0.5

Note:

6 dB Bandwidth = Measured Frequency[MHz] – 5 725MHz

[SISO_ANT.1]

▣ Test Plots(UNII 3 Band 6 dB Bandwidth)

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

[MIMO_SDM(ANT.0)]

▣ Test Plots(UNII 3 Band 6 dB Bandwidth)

802.11n(HT20) UNII Band

802.11ac(VHT20) UNII Band

802.11n(HT40) UNII Band

802.11ac(VHT40) UNII Band

802.11ac(VHT80) UNII Band

[MIMO_SDM(ANT.1)]

▣ Test Plots(UNII 3 Band 6 dB Bandwidth)

802.11n(HT20) UNII Band

802.11ac(VHT20) UNII Band

802.11n(HT40) UNII Band

802.11ac(VHT40) UNII Band

802.11ac(VHT80) UNII Band

10.7.3 Output Power

[SISO_ANT.1]

Mode	Frequency [MHz]	Channel	Measured Power [dBm]	Duty Cycle Factor [dB]	Total Power [dBm]	Limit [dBm]	Worstcase Datarate
802.11a	5720 (UNII 2C Band)	144	10.28	0.418	10.70	22.78	6 Mbps
802.11n(HT20)			10.56	0.467	11.02	22.96	MCS0
802.11ac(VHT20)			10.10	0.516	10.61	22.93	MCS0
802.11a	5720 (UNII 3 Band)	144	2.77	0.418	3.19	30.00	6 Mbps
802.11n(HT20)			3.57	0.467	4.04	30.00	MCS0
802.11ac(VHT20)			3.04	0.516	3.56	30.00	MCS0

Mode	Frequency [MHz]	Channel	Measured Power [dBm]	Duty Cycle Factor [dB]	Total Power [dBm]	Limit [dBm]	Worstcase Datarate
802.11n(HT40)	5710 (UNII 2C Band)	142	7.76	0.949	8.71	23.98	MCS0
802.11ac(VHT40)			7.71	0.852	8.56	23.98	MCS0
802.11n(HT40)	5710 (UNII 3 Band)	142	-3.78	0.949	-2.83	30.00	MCS0
802.11ac(VHT40)			-3.82	0.852	-2.97	30.00	MCS0

Mode	Frequency [MHz]	Channel	Measured Power [dBm]	Duty Cycle Factor [dB]	Total Power [dBm]	Limit [dBm]	Worstcase Datarate
802.11ac(VHT80)	5690 (UNII 2C Band)	138	2.70	1.794	4.49	23.98	MCS0
	5690 (UNII 3 Band)	138	-10.91	1.794	-9.11	30.00	MCS0

[MIMO_SDM(ANT.0)]

Mode	Frequency [MHz]	Channel	Measured Power [dBm]	Duty Cycle Factor [dB]	Total Power [dBm]	Limit [dBm]	Worstcase Datarate
802.11n(HT20)	5720 (UNII 2C Band)	144	8.33	0.824	9.16	22.95	MCS8
802.11ac(VHT20)			8.27	0.909	9.18	22.86	MCS0
802.11n(HT20)	5720 (UNII 3 Band)	144	1.32	0.824	2.15	30.00	MCS8
802.11ac(VHT20)			1.22	0.909	2.13	30.00	MCS0

Mode	Frequency [MHz]	Channel	Measured Power [dBm]	Duty Cycle Factor [dB]	Total Power [dBm]	Limit [dBm]	Worstcase Datarate
802.11n(HT40)	5710 (UNII 2C Band)	142	6.55	1.452	8.00	23.98	MCS8
802.11ac(VHT40)			6.61	1.679	8.29	23.98	MCS0
802.11n(HT40)	5710 (UNII 3 Band)	142	-4.94	1.452	-3.49	30.00	MCS8
802.11ac(VHT40)			-4.88	1.679	-3.20	30.00	MCS0

Mode	Frequency [MHz]	Channel	Measured Power [dBm]	Duty Cycle Factor [dB]	Total Power [dBm]	Limit [dBm]	Worstcase Datarate
802.11ac(VHT80)	5690 (UNII 2C Band)	138	2.26	2.622	4.88	23.98	MCS0
	5690 (UNII 3 Band)	138	-11.45	2.622	-8.82	30.00	MCS0

[MIMO_SDM(ANT.1)]

Mode	Frequency [MHz]	Channel	Measured Power [dBm]	Duty Cycle Factor [dB]	Total Power [dBm]	Limit [dBm]	Worstcase Datarate
802.11n(HT20)	5720 (UNII 2C Band)	144	9.10	0.824	9.92	23.01	MCS8
802.11ac(VHT20)			8.86	0.909	9.76	22.95	MCS0
802.11n(HT20)	5720 (UNII 3 Band)	144	2.00	0.824	2.83	30.00	MCS8
802.11ac(VHT20)			1.73	0.909	2.64	30.00	MCS0

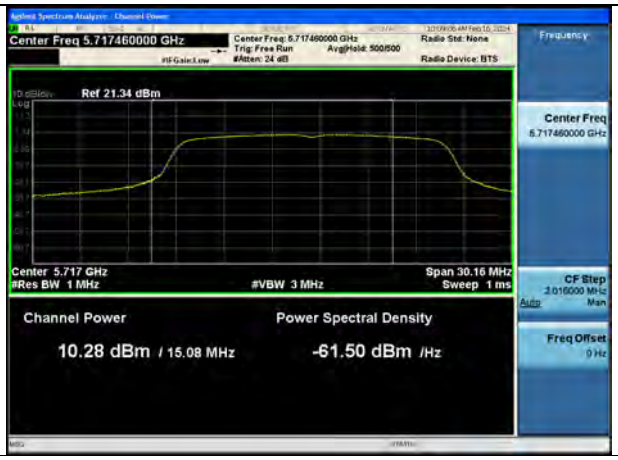
Mode	Frequency [MHz]	Channel	Measured Power [dBm]	Duty Cycle Factor [dB]	Total Power [dBm]	Limit [dBm]	Worstcase Datarate
802.11n(HT40)	5710 (UNII 2C Band)	142	6.19	1.452	7.64	23.98	MCS8
802.11ac(VHT40)			6.29	1.679	7.97	23.98	MCS0
802.11n(HT40)	5710 (UNII 3 Band)	142	-5.19	1.452	-3.74	30.00	MCS8
802.11ac(VHT40)			-5.22	1.679	-3.54	30.00	MCS0

Mode	Frequency [MHz]	Channel	Measured Power [dBm]	Duty Cycle Factor [dB]	Total Power [dBm]	Limit [dBm]	Worstcase Datarate
802.11ac(VHT80)	5690 (UNII 2C Band)	138	0.96	2.622	3.58	23.98	MCS0
	5690 (UNII 3 Band)	138	-12.33	2.622	-9.71	30.00	MCS0

[SISO_ANT.1]

▣ Test Plots

802.11a UNII 2C Band

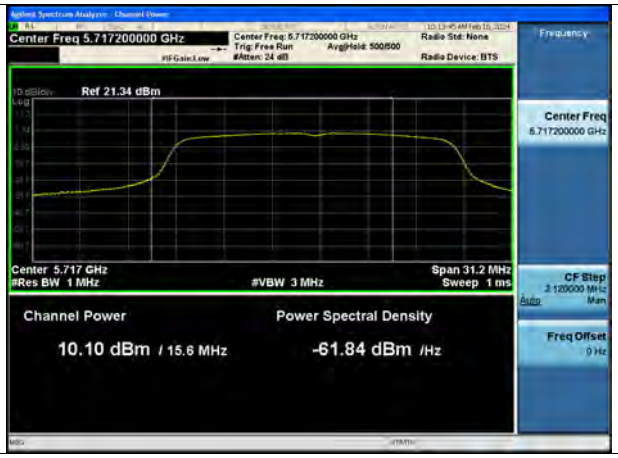


802.11a UNII 3 Band

802.11n(HT20) UNII 2C Band

802.11n(HT20) UNII 3 Band

802.11ac(VHT20) UNII 2C Band



802.11ac(VHT20) UNII 3 Band

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

[MIMO_SDM(ANT.0)]

▣ Test Plots

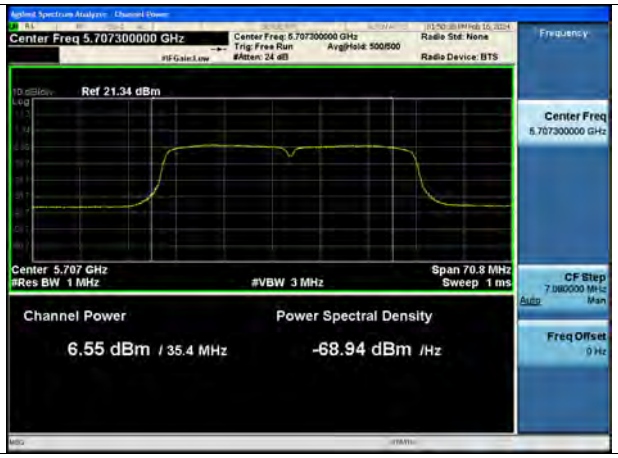
802.11n(HT20) UNII 2C Band

802.11n(HT20) UNII 3 Band

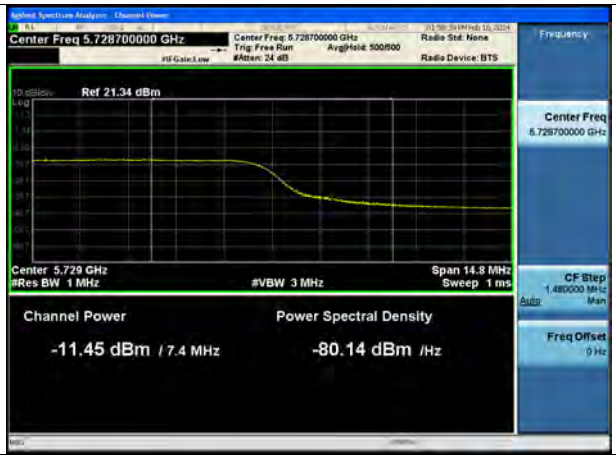
802.11ac(VHT20) UNII 2C Band

802.11ac(VHT20) UNII 3 Band

802.11n(HT40) UNII 2C Band



802.11n(HT40) UNII 3 Band

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

[MIMO_SDM(ANT.1)]

▣ Test Plots

802.11n(HT20) UNII 2C Band

802.11n(HT20) UNII 3 Band

802.11ac(VHT20) UNII 2C Band

802.11ac(VHT20) UNII 3 Band

802.11n(HT40) UNII 2C Band

802.11n(HT40) UNII 3 Band

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

10.7.4 Power Spectral Density

[SISO_ANT.1]

Mode	Frequency [MHz]	Channel	Measured Density [dBm]	Duty Cycle Factor [dB]	Total PSD [dBm]	Limit [dBm]	Worstcase Datarate
802.11a	5720 (UNII 2C Band)	144	0.459	0.418	0.877	11 dBm/ MHz	6 Mbps
802.11n(HT20)			0.579	0.467	1.047		MCS0
802.11ac(VHT20)			-0.204	0.516	0.312		MCS0
802.11a	5720 (UNII 3 Band)	144	-4.050	0.418	-3.632	30 dBm/ 500 kHz	6 Mbps
802.11n(HT20)			-3.554	0.467	-3.087		MCS0
802.11ac(VHT20)			-4.147	0.516	-3.631		MCS0

Mode	Frequency [MHz]	Channel	Measured Density [dBm]	Duty Cycle Factor [dB]	Total PSD [dBm]	Limit [dBm]	Worstcase Datarate
802.11n(HT40)	5710 (UNII 2C Band)	142	-6.073	0.949	-5.124	11 dBm/ MHz	MCS0
802.11ac(VHT40)			-5.976	0.852	-5.124		MCS0
802.11n(HT40)	5710 (UNII 3 Band)	142	-10.568	0.949	-9.619	30 dBm/500 kHz	MCS0
802.11ac(VHT40)			-10.543	0.852	-9.691		MCS0

Mode	Frequency [MHz]	Channel	Measured Density [dBm]	Duty Cycle Factor [dB]	Total PSD [dBm]	Limit [dBm]	Worstcase Datarate
802.11ac(VHT80)	5690 (UNII 2C Band)	138	-14.870	1.794	-13.076	11 dBm/ MHz	MCS0
	5690 (UNII 3 Band)	138	-18.568	1.794	-16.774	30 dBm/500 kHz	MCS0

[MIMO_SDM(ANT.0)]

Mode	Frequency [MHz]	Channel	Measured Density [dBm]	Duty Cycle Factor [dB]	Total PSD [dBm]	Limit [dBm]	Worstcase Datarate
802.11n(HT20)	5720 (UNII 2C Band)	144	-1.466	0.824	-0.643	11 dBm/ MHz	MCS8
802.11ac(VHT20)			-1.487	0.909	-0.578		MCS0
802.11n(HT20)	5720 (UNII 3 Band)	144	-6.050	0.824	-5.226	30 dBm/ 500 kHz	MCS8
802.11ac(VHT20)			-6.415	0.909	-5.506		MCS0

Mode	Frequency [MHz]	Channel	Measured Density [dBm]	Duty Cycle Factor [dB]	Total PSD [dBm]	Limit [dBm]	Worstcase Datarate
802.11n(HT40)	5710 (UNII 2C Band)	142	-7.190	1.452	-5.737	11 dBm/ MHz	MCS8
802.11ac(VHT40)			-6.837	1.679	-5.159		MCS0
802.11n(HT40)	5710 (UNII 3 Band)	142	-12.018	1.452	-10.57	30 dB m/500 kHz	MCS8
802.11ac(VHT40)			-11.457	1.679	-9.78		MCS0

Mode	Frequency [MHz]	Channel	Measured Density [dBm]	Duty Cycle Factor [dB]	Total PSD [dBm]	Limit [dBm]	Worstcase Datarate
802.11ac(VHT80)	5690 (UNII 2C Band)	138	-14.744	2.622	-12.122	11 dBm/ MHz	MCS0
	5690 (UNII 3 Band)	138	-19.721	2.622	-17.099	30 dB m/500 kHz	MCS0

[MIMO_SDM(ANT.1)]

Mode	Frequency [MHz]	Channel	Measured Density [dBm]	Duty Cycle Factor [dB]	Total PSD [dBm]	Limit [dBm]	Worstcase Datarate
802.11n(HT20)	5720 (UNII 2C Band)	144	-0.785	0.824	0.039	11 dBm/ MHz	MCS8
802.11ac(VHT20)			-1.237	0.909	-0.328		MCS0
802.11n(HT20)	5720 (UNII 3 Band)	144	-4.971	0.824	-4.147	30 dBm/ 500 kHz	MCS8
802.11ac(VHT20)			-5.044	0.909	-4.135		MCS0

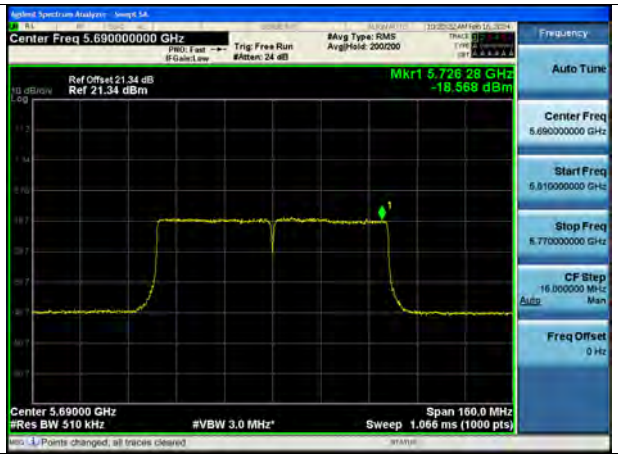
Mode	Frequency [MHz]	Channel	Measured Density [dBm]	Duty Cycle Factor [dB]	Total PSD [dBm]	Limit [dBm]	Worstcase Datarate
802.11n(HT40)	5710 (UNII 2C Band)	142	-7.320	1.452	-5.868	11 dBm/ MHz	MCS8
802.11ac(VHT40)			-7.300	1.679	-5.621		MCS0
802.11n(HT40)	5710 (UNII 3 Band)	142	-11.913	1.452	-10.460	30 dB m/500 kHz	MCS8
802.11ac(VHT40)			-12.181	1.679	-10.502		MCS0

Mode	Frequency [MHz]	Channel	Measured Density [dBm]	Duty Cycle Factor [dB]	Total PSD [dBm]	Limit [dBm]	Worstcase Datarate
802.11ac(VHT80)	5690 (UNII 2C Band)	138	-16.303	2.622	-13.681	11 dBm/ MHz	MCS0
	5690 (UNII 3 Band)	138	-19.766	2.622	-17.144	30 dB m/500 kHz	MCS0

[SISO_ANT.1]

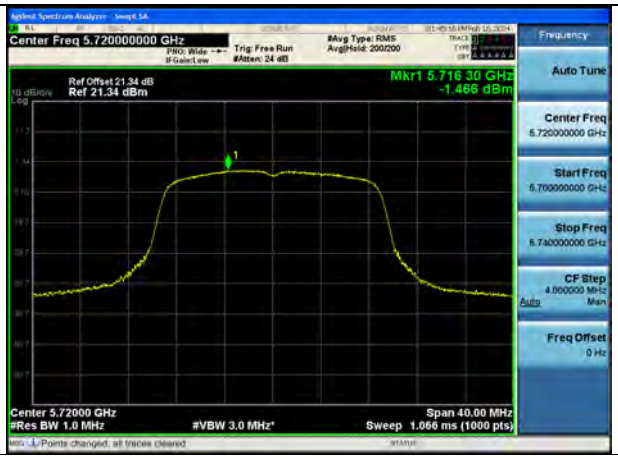
▣ Test Plots

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

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

[MIMO_SDM(ANT.0)]

▣ Test Plots

802.11n(HT20) UNII 2C Band	802.11n(HT20) UNII 3 Band
	
802.11ac(VHT20) UNII 2C Band	**802.11ac(VHT20) UNII 3 Band**
	
802.11n(HT40) UNII 2C Band	**802.11n(HT40) UNII 3 Band**
	

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

[MIMO_SDM(ANT.1)]

▣ Test Plots

802.11n(HT20) UNII 2C Band	802.11n(HT20) UNII 3 Band
	
802.11ac(VHT20) UNII 2C Band	**802.11ac(VHT20) UNII 3 Band**
	
802.11n(HT40) UNII 2C Band	**802.11n(HT40) UNII 3 Band**
	

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

10.8 RADIATED SPURIOUS EMISSIONS

Frequency Range : 9 kHz – 30 MHz

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

Note:

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

Frequency Range : Below 1 GHz

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

Note:

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

Frequency Range : Above 1 GHz

[SISO_ANT.1]

Band :	UNII 1		Operation Mode : 802.11a				
CH.36	5180 MHz		Transfer Rate : 6Mbps				
Frequency [MHz]	Measured value [dBµV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
10360	46.45	7.94	V	54.39	68.20	13.81	PK
15540	40.47	13.08	V	53.55	73.98	20.43	PK
15540	27.48	13.08	V	40.56	53.98	13.42	AV
10360	44.75	7.94	H	52.69	68.20	15.51	PK
15540	40.30	13.08	H	53.38	73.98	20.60	PK
15540	27.12	13.08	H	40.20	53.98	13.78	AV

Band :	UNII 1		Operation Mode : 802.11a				
CH.40	5200 MHz		Transfer Rate : 6Mbps				
Frequency [MHz]	Measured value [dBµV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
10400	47.03	7.89	V	54.92	68.20	13.28	PK
15600	40.75	13.09	V	53.84	73.98	20.14	PK
15600	27.19	13.09	V	40.28	53.98	13.70	AV
10400	45.36	7.89	H	53.25	68.20	14.95	PK
15600	40.42	13.09	H	53.51	73.98	20.47	PK
15600	26.99	13.09	H	40.08	53.98	13.90	AV

Band :	UNII 1		Operation Mode : 802.11a				
CH.48	5240 MHz		Transfer Rate : 6Mbps				
Frequency [MHz]	Measured value [dBµV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
10480	43.96	8.23	V	52.19	68.20	16.01	PK
15720	40.26	13.40	V	53.66	73.98	20.32	PK
15720	27.17	13.40	V	40.57	53.98	13.41	AV
10480	44.11	8.23	H	52.34	68.20	15.86	PK
15720	40.30	13.40	H	53.70	73.98	20.28	PK
15720	27.27	13.40	H	40.67	53.98	13.31	AV

Band :	UNII 2A		Operation Mode : 802.11a				
CH.52	5260	MHz	Transfer Rate : 6Mbps				
Frequency	Measured value	CL+AF+DF-AG	ANT. POL	Total	Limit	Margin	Measurement Type
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	
10520	44.05	8.82	V	52.87	68.20	15.33	PK
15780	41.08	13.53	V	54.61	73.98	19.37	PK
15780	27.28	13.53	V	40.81	53.98	13.17	AV
10520	43.99	8.82	H	52.81	68.20	15.39	PK
15780	41.03	13.53	H	54.56	73.98	19.42	PK
15780	27.25	13.53	H	40.78	53.98	13.20	AV

Band :	UNII 2A		Operation Mode : 802.11a				
CH.60	5300	MHz	Transfer Rate : 6Mbps				
Frequency	Measured value	CL+AF+DF-AG	ANT. POL	Total	Limit	Margin	Measurement Type
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	
10600	43.40	9.44	V	52.84	73.98	21.14	PK
10600	30.88	9.44	V	40.32	53.98	13.66	AV
15900	41.31	13.06	V	54.37	73.98	19.61	PK
15900	27.77	13.06	V	40.83	53.98	13.15	AV
10600	43.13	9.44	H	52.57	73.98	21.41	PK
10600	30.13	9.44	H	39.57	53.98	14.41	AV
15900	40.96	13.06	H	54.02	73.98	19.96	PK
15900	27.68	13.06	H	40.74	53.98	13.24	AV

Band :	UNII 2A		Operation Mode : 802.11a				
CH.64	5320	MHz	Transfer Rate : 6Mbps				
Frequency	Measured value	CL+AF+DF-AG	ANT. POL	Total	Limit	Margin	Measurement Type
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	
10640	44.01	9.48	V	53.49	73.98	20.49	PK
10640	30.47	9.48	V	39.95	53.98	14.03	AV
15960	41.27	12.65	V	53.92	73.98	20.06	PK
15960	27.87	12.65	V	40.52	53.98	13.46	AV
10640	42.94	9.48	H	52.42	73.98	21.56	PK
10640	29.83	9.48	H	39.31	53.98	14.67	AV
15960	40.61	12.65	H	53.26	73.98	20.72	PK
15960	27.67	12.65	H	40.32	53.98	13.66	AV

Band :	UNII 2C		Operation Mode : 802.11a				
CH.100	5500	MHz	Transfer Rate : 6Mbps				
Frequency	Measured value	CL+AF+DF-AG	ANT. POL	Total	Limit	Margin	Measurement Type
[MHz]	[dBµV]	[dB/m]	[H/V]	[dBµV/m]	[dBµV/m]	[dB]	
11000	43.31	9.40	V	52.71	73.98	21.27	PK
11000	29.84	9.40	V	39.24	53.98	14.74	AV
16500	41.51	11.61	V	53.12	68.20	15.08	PK
11000	42.73	9.40	H	52.13	73.98	21.85	PK
11000	29.52	9.40	H	38.92	53.98	15.06	AV
16500	42.52	11.61	H	54.13	68.20	14.07	PK

Band :	UNII 2C		Operation Mode : 802.11a				
CH.120	5600	MHz	Transfer Rate : 6Mbps				
Frequency	Measured value	CL+AF+DF-AG	ANT. POL	Total	Limit	Margin	Measurement Type
[MHz]	[dBµV]	[dB/m]	[H/V]	[dBµV/m]	[dBµV/m]	[dB]	
11200	43.40	9.91	V	53.31	73.98	20.67	PK
11200	30.55	9.91	V	40.46	53.98	13.52	AV
16800	41.76	11.21	V	52.97	68.20	15.23	PK
11200	43.09	9.91	H	53.00	73.98	20.98	PK
11200	30.24	9.91	H	40.15	53.98	13.83	AV
16800	41.70	11.21	H	52.91	68.20	15.29	PK

Band :	UNII 2C		Operation Mode : 802.11a				
CH.144	5720	MHz	Transfer Rate : 6Mbps				
Frequency	Measured value	CL+AF+DF-AG	ANT. POL	Total	Limit	Margin	Measurement Type
[MHz]	[dBµV]	[dB/m]	[H/V]	[dBµV/m]	[dBµV/m]	[dB]	
11440	42.62	10.51	V	53.13	73.98	20.85	PK
11440	29.11	10.51	V	39.62	53.98	14.36	AV
17160	41.60	11.74	V	53.34	68.20	14.86	PK
11440	42.41	10.51	H	52.92	73.98	21.06	PK
11440	29.12	10.51	H	39.63	53.98	14.35	AV
17160	41.12	11.74	H	52.86	68.20	15.34	PK

Band :	UNII 3		Operation Mode : 802.11a				
CH.149	5745	MHz	Transfer Rate : 6Mbps				
Frequency	Measured value	CL+AF+DF-AG	ANT. POL	Total	Limit	Margin	Measurement Type
[MHz]	[dBµV]	[dB/m]	[H/V]	[dBµV/m]	[dBµV/m]	[dB]	
11490	42.38	10.26	V	52.64	73.98	21.34	PK
11490	29.17	10.26	V	39.43	53.98	14.55	AV
17235	41.02	12.32	V	53.34	68.20	14.86	PK
11490	42.15	10.26	H	52.41	73.98	21.57	PK
11490	29.18	10.26	H	39.44	53.98	14.54	AV
17235	41.01	12.32	H	53.33	68.20	14.87	PK

Band :	UNII 3		Operation Mode : 802.11a				
CH.157	5785	MHz	Transfer Rate : 6Mbps				
Frequency	Measured value	CL+AF+DF-AG	ANT. POL	Total	Limit	Margin	Measurement Type
[MHz]	[dBµV]	[dB/m]	[H/V]	[dBµV/m]	[dBµV/m]	[dB]	
11570	43.07	9.44	V	52.51	73.98	21.47	PK
11570	30.27	9.44	V	39.71	53.98	14.27	AV
17355	40.91	12.88	V	53.79	68.20	14.41	PK
11570	42.70	9.44	H	52.14	73.98	21.84	PK
11570	29.73	9.44	H	39.17	53.98	14.81	AV
17355	41.37	12.88	H	54.25	68.20	13.95	PK

Band :	UNII 3		Operation Mode : 802.11a				
CH.165	5825	MHz	Transfer Rate : 6Mbps				
Frequency	Measured value	CL+AF+DF-AG	ANT. POL	Total	Limit	Margin	Measurement Type
[MHz]	[dBµV]	[dB/m]	[H/V]	[dBµV/m]	[dBµV/m]	[dB]	
11650	43.38	9.43	V	52.81	73.98	21.17	PK
11650	30.46	9.43	V	39.89	53.98	14.09	AV
17475	41.25	13.82	V	55.07	68.20	13.13	PK
11650	43.19	9.43	H	52.62	73.98	21.36	PK
11650	30.43	9.43	H	39.86	53.98	14.12	AV
17475	40.31	13.82	H	54.13	68.20	14.07	PK

[MIMO_SDM(Ant.0+Ant.1)]

Band :	UNII 1		Operation Mode : 802.11n_HT20				
CH.36	5180 MHz		Transfer MCS Index : MCS8				
Frequency [MHz]	Measured value [dBµV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
10360	45.26	7.94	V	53.20	68.20	15.00	PK
15540	40.36	13.08	V	53.44	73.98	20.54	PK
15540	27.11	13.08	V	40.19	53.98	13.79	AV
10360	44.31	7.94	H	52.25	68.20	15.95	PK
15540	40.21	13.08	H	53.29	73.98	20.69	PK
15540	27.19	13.08	H	40.27	53.98	13.71	AV

Band :	UNII 1		Operation Mode : 802.11n_HT20				
CH.40	5200 MHz		Transfer MCS Index : MCS8				
Frequency [MHz]	Measured value [dBµV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
10400	45.96	7.89	V	53.85	68.20	14.35	PK
15600	40.14	13.09	V	53.23	73.98	20.75	PK
15600	27.18	13.09	V	40.27	53.98	13.71	AV
10400	44.17	7.89	H	52.06	68.20	16.14	PK
15600	40.27	13.09	H	53.36	73.98	20.62	PK
15600	26.94	13.09	H	40.03	53.98	13.95	AV

Band :	UNII 1		Operation Mode : 802.11n_HT20				
CH.48	5240 MHz		Transfer MCS Index : MCS8				
Frequency [MHz]	Measured value [dBµV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
10480	45.97	8.23	V	54.20	68.20	14.00	PK
15720	40.25	13.40	V	53.65	73.98	20.33	PK
15720	27.15	13.40	V	40.55	53.98	13.43	AV
10480	43.98	8.23	H	52.21	68.20	15.99	PK
15720	40.32	13.40	H	53.72	73.98	20.26	PK
15720	26.70	13.40	H	40.10	53.98	13.88	AV

Band :	UNII 2A		Operation Mode : 802.11n_HT20				
CH.52	5260 MHz		Transfer MCS Index : MCS8				
Frequency [MHz]	Measured value [dBμV]	CL+AF+DF-AG [dB]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
10520	44.03	8.82	V	52.85	68.20	15.35	PK
15780	40.51	13.53	V	54.04	73.98	19.94	PK
15780	27.28	13.53	V	40.81	53.98	13.17	AV
10520	43.78	8.82	H	52.60	68.20	15.60	PK
15780	40.97	13.53	H	54.50	73.98	19.48	PK
15780	27.28	13.53	H	40.81	53.98	13.17	AV

Band :	UNII 2A		Operation Mode : 802.11n_HT20				
CH.60	5300 MHz		Transfer MCS Index : MCS8				
Frequency [MHz]	Measured value [dBμV]	CL+AF+DF-AG [dB]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
10600	43.57	9.44	V	53.01	73.98	20.97	PK
10600	30.92	9.44	V	40.36	53.98	13.62	AV
15900	41.15	13.06	V	54.21	73.98	19.77	PK
15900	27.76	13.06	V	40.82	53.98	13.16	AV
10600	43.92	9.44	H	53.36	73.98	20.62	PK
10600	30.82	9.44	H	40.26	53.98	13.72	AV
15900	41.43	13.06	H	54.49	73.98	19.49	PK
15900	27.60	13.06	H	40.66	53.98	13.32	AV

Band :	UNII 2A		Operation Mode : 802.11n_HT20				
CH.64	5320 MHz		Transfer MCS Index : MCS8				
Frequency [MHz]	Measured value [dBμV]	CL+AF+DF-AG [dB]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
10640	43.62	9.48	V	53.10	73.98	20.88	PK
10640	30.78	9.48	V	40.26	53.98	13.72	AV
15960	40.97	12.65	V	53.62	73.98	20.36	PK
15960	27.86	12.65	V	40.51	53.98	13.47	AV
10640	43.30	9.48	H	52.78	73.98	21.20	PK
10640	30.42	9.48	H	39.90	53.98	14.08	AV
15960	41.61	12.65	H	54.26	73.98	19.72	PK
15960	27.62	12.65	H	40.27	53.98	13.71	AV

Band :	UNII 2C		Operation Mode : 802.11n_HT20				
CH.100	5500 MHz		Transfer MCS Index : MCS8				
Frequency [MHz]	Measured value [dBμV]	CL+AF+DF-AG [dB]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11000	45.35	9.40	V	54.75	73.98	19.23	PK
11000	31.44	9.40	V	40.84	53.98	13.14	AV
16500	41.57	11.61	V	53.18	68.20	15.02	PK
11000	44.67	9.40	H	54.07	73.98	19.91	PK
11000	31.41	9.40	H	40.81	53.98	13.17	AV
16500	41.55	11.61	H	53.16	68.20	15.04	PK

Band :	UNII 2C		Operation Mode : 802.11n_HT20				
CH.120	5600 MHz		Transfer MCS Index : MCS8				
Frequency [MHz]	Measured value [dBμV]	CL+AF+DF-AG [dB]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11200	45.43	9.91	V	55.34	73.98	18.64	PK
11200	30.89	9.91	V	40.80	53.98	13.18	AV
16800	41.89	11.21	V	53.10	68.20	15.10	PK
11200	44.69	9.91	H	54.60	73.98	19.38	PK
11200	30.88	9.91	H	40.79	53.98	13.19	AV
16800	41.21	11.21	H	52.42	68.20	15.78	PK

Band :	UNII 2C		Operation Mode : 802.11n_HT20				
CH.144	5720 MHz		Transfer MCS Index : MCS8				
Frequency [MHz]	Measured value [dBμV]	CL+AF+DF-AG [dB]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11440	42.42	10.51	V	52.93	73.98	21.05	PK
11440	29.72	10.51	V	40.23	53.98	13.75	AV
17160	41.58	11.74	V	53.32	68.20	14.88	PK
11440	42.40	10.51	H	52.91	73.98	21.07	PK
11440	29.04	10.51	H	39.55	53.98	14.43	AV
17160	41.26	11.74	H	53.00	68.20	15.20	PK

Band :	UNII 3		Operation Mode : 802.11n_HT20				
CH.149	5745 MHz		Transfer MCS Index : MCS8				
Frequency [MHz]	Measured value [dBμV]	CL+AF+DF-AG [dB]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11490	42.63	10.26	V	52.89	73.98	21.09	PK
11490	29.45	10.26	V	39.71	53.98	14.27	AV
17235	41.15	12.32	V	53.47	68.20	14.73	PK
11490	42.61	10.26	H	52.87	73.98	21.11	PK
11490	29.08	10.26	H	39.34	53.98	14.64	AV
17235	40.93	12.32	H	53.25	68.20	14.95	PK

Band :	UNII 3		Operation Mode : 802.11n_HT20				
CH.157	5785 MHz		Transfer MCS Index : MCS8				
Frequency [MHz]	Measured value [dBμV]	CL+AF+DF-AG [dB]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11570	43.75	9.44	V	53.19	73.98	20.79	PK
11570	29.95	9.44	V	39.39	53.98	14.59	AV
17355	41.27	12.88	V	54.15	68.20	14.05	PK
11570	42.84	9.44	H	52.28	73.98	21.70	PK
11570	29.89	9.44	H	39.33	53.98	14.65	AV
17355	40.93	12.88	H	53.81	68.20	14.39	PK

Band :	UNII 3		Operation Mode : 802.11n_HT20				
CH.165	5825 MHz		Transfer MCS Index : MCS8				
Frequency [MHz]	Measured value [dBμV]	CL+AF+DF-AG [dB]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11650	43.76	9.43	V	53.19	73.98	20.79	PK
11650	30.71	9.43	V	40.14	53.98	13.84	AV
17475	41.26	13.82	V	55.08	68.20	13.12	PK
11650	43.59	9.43	H	53.02	73.98	20.96	PK
11650	31.33	9.43	H	40.76	53.98	13.22	AV
17475	40.98	13.82	H	54.80	68.20	13.40	PK

Band :	UNII 1		Operation Mode : 802.11ac_VHT20				
CH.36	5180 MHz		Transfer MCS Index : MCS0				
Frequency [MHz]	Measured value [dBµV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
10360	45.60	7.94	V	53.54	68.20	14.66	PK
15540	40.07	13.08	V	53.15	73.98	20.83	PK
15540	27.74	13.08	V	40.82	53.98	13.16	AV
10360	44.33	7.94	H	52.27	68.20	15.93	PK
15540	39.89	13.08	H	52.97	73.98	21.01	PK
15540	27.06	13.08	H	40.14	53.98	13.84	AV

Band :	UNII 1		Operation Mode : 802.11ac_VHT20				
CH.40	5200 MHz		Transfer MCS Index : MCS0				
Frequency [MHz]	Measured value [dBµV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
10400	45.21	7.89	V	53.10	68.20	15.10	PK
15600	40.31	13.09	V	53.40	73.98	20.58	PK
15600	27.43	13.09	V	40.52	53.98	13.46	AV
10400	44.26	7.89	H	52.15	68.20	16.05	PK
15600	40.39	13.09	H	53.48	73.98	20.50	PK
15600	27.09	13.09	H	40.18	53.98	13.80	AV

Band :	UNII 1		Operation Mode : 802.11ac_VHT20				
CH.48	5240 MHz		Transfer MCS Index : MCS0				
Frequency [MHz]	Measured value [dBµV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
10480	44.98	8.23	V	53.21	68.20	14.99	PK
15720	40.66	13.40	V	54.06	73.98	19.92	PK
15720	27.16	13.40	V	40.56	53.98	13.42	AV
10480	44.32	8.23	H	52.55	68.20	15.65	PK
15720	40.42	13.40	H	53.82	73.98	20.16	PK
15720	26.79	13.40	H	40.19	53.98	13.79	AV

Band :	UNII 2A		Operation Mode : 802.11ac_VHT20				
CH.52	5260 MHz		Transfer MCS Index : MCS0				
Frequency [MHz]	Measured value [dBμV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
10520	43.78	8.82	V	52.60	68.20	15.60	PK
15780	40.78	13.53	V	54.31	73.98	19.67	PK
15780	27.22	13.53	V	40.75	53.98	13.23	AV
10520	43.97	8.82	H	52.79	68.20	15.41	PK
15780	41.08	13.53	H	54.61	73.98	19.37	PK
15780	27.32	13.53	H	40.85	53.98	13.13	AV

Band :	UNII 2A		Operation Mode : 802.11ac_VHT20				
CH.60	5300 MHz		Transfer MCS Index : MCS0				
Frequency [MHz]	Measured value [dBμV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
10600	43.59	9.44	V	53.03	73.98	20.95	PK
10600	30.92	9.44	V	40.36	53.98	13.62	AV
15900	40.87	13.06	V	53.93	73.98	20.05	PK
15900	27.81	13.06	V	40.87	53.98	13.11	AV
10600	42.84	9.44	H	52.28	73.98	21.70	PK
10600	30.68	9.44	H	40.12	53.98	13.86	AV
15900	40.85	13.06	H	53.91	73.98	20.07	PK
15900	27.80	13.06	H	40.86	53.98	13.12	AV

Band :	UNII 2A		Operation Mode : 802.11ac_VHT20				
CH.64	5320 MHz		Transfer MCS Index : MCS0				
Frequency [MHz]	Measured value [dBμV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
10640	43.08	9.48	V	52.56	73.98	21.42	PK
10640	30.76	9.48	V	40.24	53.98	13.74	AV
15960	41.23	12.65	V	53.88	73.98	20.10	PK
15960	27.81	12.65	V	40.46	53.98	13.52	AV
10640	42.97	9.48	H	52.45	73.98	21.53	PK
10640	30.35	9.48	H	39.83	53.98	14.15	AV
15960	40.77	12.65	H	53.42	73.98	20.56	PK
15960	27.58	12.65	H	40.23	53.98	13.75	AV

Band :	UNII 2C		Operation Mode : 802.11ac_VHT20				
CH.100	5500 MHz		Transfer MCS Index : MCS0				
Frequency [MHz]	Measured value [dBμV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11000	45.63	9.40	V	55.03	73.98	18.95	PK
11000	31.43	9.40	V	40.83	53.98	13.15	AV
16500	41.94	11.61	V	53.55	68.20	14.65	PK
11000	44.47	9.40	H	53.87	73.98	20.11	PK
11000	31.38	9.40	H	40.78	53.98	13.20	AV
16500	41.95	11.61	H	53.56	68.20	14.64	PK

Band :	UNII 2C		Operation Mode : 802.11ac_VHT20				
CH.120	5600 MHz		Transfer MCS Index : MCS0				
Frequency [MHz]	Measured value [dBμV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11200	44.27	9.91	V	54.18	73.98	19.80	PK
11200	30.88	9.91	V	40.79	53.98	13.19	AV
16800	42.21	11.21	V	53.42	68.20	14.78	PK
11200	44.21	9.91	H	54.12	73.98	19.86	PK
11200	30.77	9.91	H	40.68	53.98	13.30	AV
16800	41.66	11.21	H	52.87	68.20	15.33	PK

Band :	UNII 2C		Operation Mode : 802.11ac_VHT20				
CH.144	5720 MHz		Transfer MCS Index : MCS0				
Frequency [MHz]	Measured value [dBμV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11440	43.22	10.51	V	53.73	73.98	20.25	PK
11440	30.32	10.51	V	40.83	53.98	13.15	AV
17160	41.13	11.74	V	52.87	68.20	15.33	PK
11440	41.91	10.51	H	52.42	73.98	21.56	PK
11440	29.43	10.51	H	39.94	53.98	14.04	AV
17160	41.17	11.74	H	52.91	68.20	15.29	PK

Band :	UNII 3		Operation Mode : 802.11ac_VHT20				
CH.149	5745 MHz		Transfer MCS Index : MCS0				
Frequency [MHz]	Measured value [dBμV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11490	42.35	10.26	V	52.61	73.98	21.37	PK
11490	30.59	10.26	V	40.85	53.98	13.13	AV
17235	41.96	12.32	V	54.28	68.20	13.92	PK
11490	42.74	10.26	H	53.00	73.98	20.98	PK
11490	29.40	10.26	H	39.66	53.98	14.32	AV
17235	40.93	12.32	H	53.25	68.20	14.95	PK

Band :	UNII 3		Operation Mode : 802.11ac_VHT20				
CH.157	5785 MHz		Transfer MCS Index : MCS0				
Frequency [MHz]	Measured value [dBμV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11570	42.85	9.44	V	52.29	73.98	21.69	PK
11570	30.57	9.44	V	40.01	53.98	13.97	AV
17355	41.42	12.88	V	54.30	68.20	13.90	PK
11570	43.07	9.44	H	52.51	73.98	21.47	PK
11570	29.85	9.44	H	39.29	53.98	14.69	AV
17355	41.40	12.88	H	54.28	68.20	13.92	PK

Band :	UNII 3		Operation Mode : 802.11ac_VHT20				
CH.165	5825 MHz		Transfer MCS Index : MCS0				
Frequency [MHz]	Measured value [dBμV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11650	45.13	9.43	V	54.56	73.98	19.42	PK
11650	30.86	9.43	V	40.29	53.98	13.69	AV
17475	41.27	13.82	V	55.09	68.20	13.11	PK
11650	44.23	9.43	H	53.66	73.98	20.32	PK
11650	31.45	9.43	H	40.88	53.98	13.10	AV
17475	40.82	13.82	H	54.64	68.20	13.56	PK

Band :	UNII 3		Operation Mode : 802.11n_HT40				
CH.151	5755 MHz		Transfer MCS Index : MCS8				
Frequency [MHz]	Measured value [dBµV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
11510	42.57	10.15	V	52.72	73.98	21.26	PK
11510	29.65	10.15	V	39.80	53.98	14.18	AV
17265	40.92	12.24	V	53.16	68.20	15.04	PK
11510	42.32	10.15	H	52.47	73.98	21.51	PK
11510	29.55	10.15	H	39.70	53.98	14.28	AV
17265	40.82	12.24	H	53.06	68.20	15.14	PK

Band :	UNII 3		Operation Mode : 802.11n_HT40				
CH.159	5795 MHz		Transfer MCS Index : MCS8				
Frequency [MHz]	Measured value [dBµV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
11590	42.71	9.55	V	52.26	73.98	21.72	PK
11590	30.02	9.55	V	39.57	53.98	14.41	AV
17385	41.66	13.09	V	54.75	68.20	13.45	PK
11590	42.95	9.55	H	52.50	73.98	21.48	PK
11590	30.20	9.55	H	39.75	53.98	14.23	AV
17385	41.51	13.09	H	54.60	68.20	13.60	PK

Band :	UNII 3		Operation Mode : 802.11ac_VHT40				
CH.151	5755 MHz		Transfer MCS Index : MCS0				
Frequency [MHz]	Measured value [dBµV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
11510	42.62	10.15	V	52.77	73.98	21.21	PK
11510	29.55	10.15	V	39.70	53.98	14.28	AV
17265	40.95	12.24	V	53.19	68.20	15.01	PK
11510	42.51	10.15	H	52.66	73.98	21.32	PK
11510	29.42	10.15	H	39.57	53.98	14.41	AV
17265	40.88	12.24	H	53.12	68.20	15.08	PK

Band :	UNII 3		Operation Mode : 802.11ac_VHT40				
CH.159	5795 MHz		Transfer MCS Index : MCS0				
Frequency [MHz]	Measured value [dBμV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11590	42.22	9.55	V	51.77	73.98	22.21	PK
11590	29.62	9.55	V	39.17	53.98	14.81	AV
17385	41.35	13.09	V	54.44	68.20	13.76	PK
11590	42.55	9.55	H	52.10	73.98	21.88	PK
11590	29.88	9.55	H	39.43	53.98	14.55	AV
17385	41.21	13.09	H	54.30	68.20	13.90	PK

Band :	UNII 3		Operation Mode : 802.11ac_VHT80				
CH.155	5775 MHz		Transfer MCS Index : MCS0				
Frequency [MHz]	Measured value [dBμV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11550	41.89	9.72	V	51.61	73.98	22.37	PK
11550	30.85	9.72	V	40.57	53.98	13.41	AV
17325	40.94	12.69	V	53.63	68.20	14.57	PK
11550	42.05	9.72	H	51.77	73.98	22.21	PK
11550	30.99	9.72	H	40.71	53.98	13.27	AV
17325	40.88	12.69	H	53.57	68.20	14.63	PK

[DBS]

Bluetooth_Ch.78_GFSK + MIMO WLAN_5 GHz_802.11ac_VHT20_Ch.165_MCS0

Frequency [MHz]	Measured value [dBμV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11650	42.93	9.43	V	52.36	73.98	21.62	PK
11650	31.08	9.43	V	40.51	53.98	13.47	AV
17475	40.75	13.82	V	54.57	68.20	13.63	PK
11650	42.51	9.43	H	51.94	73.98	22.04	PK
11650	30.62	9.43	H	40.05	53.98	13.93	AV
17475	40.55	13.82	H	54.37	68.20	13.83	PK

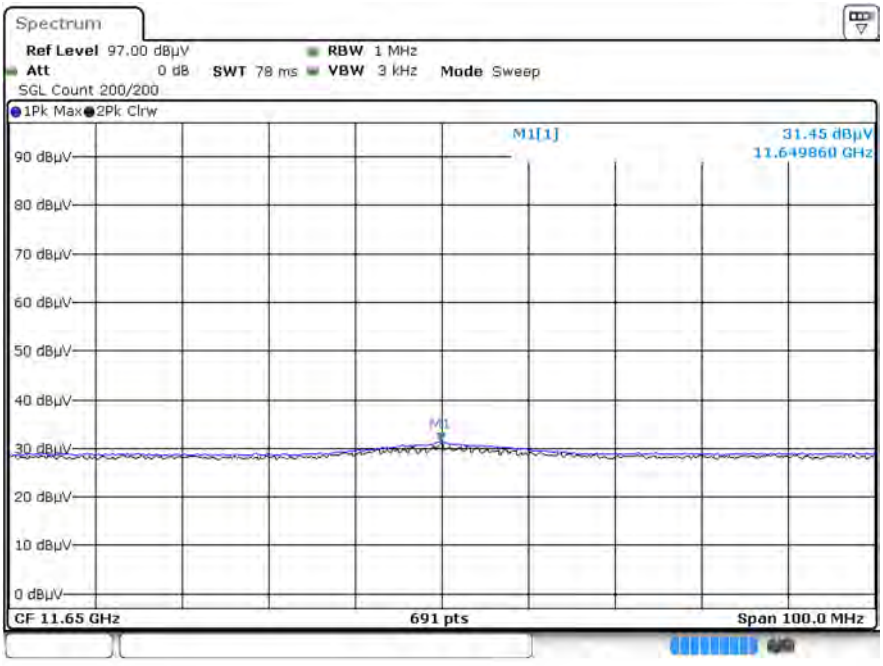
Note :

1. BT DBS data refer to [BT] Test Report.

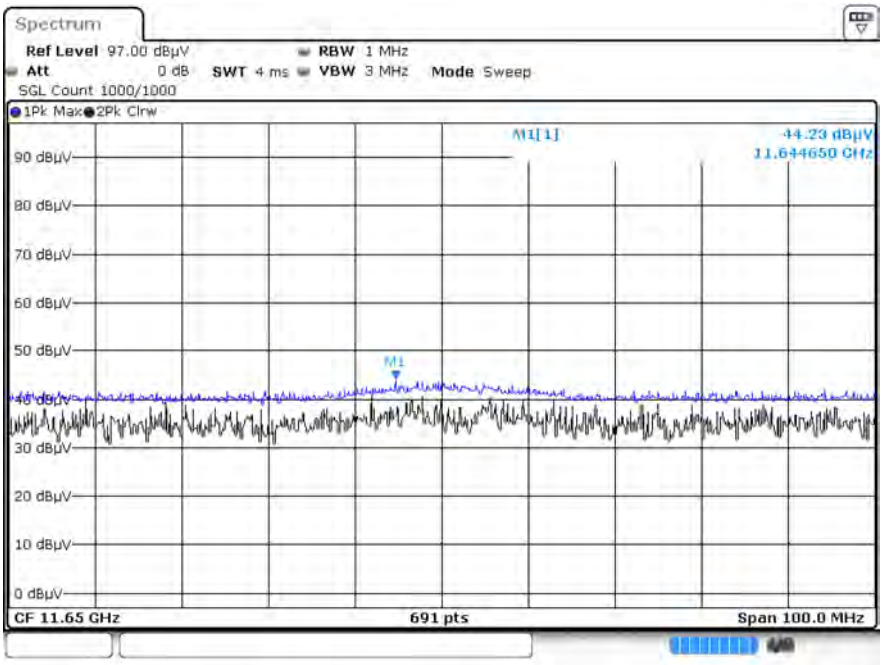
▣ Test Plots

[MIMO_SDM(Ant.0+Ant.1)]

Radiated Spurious Emissions plot – Average Result (802.11ac_VHT20, Ch.165 Spurious Emissions, 2nd)



Radiated Spurious Emissions plot – Peak Result (802.11ac_VHT20, Ch.165 Spurious Emissions, 2nd)



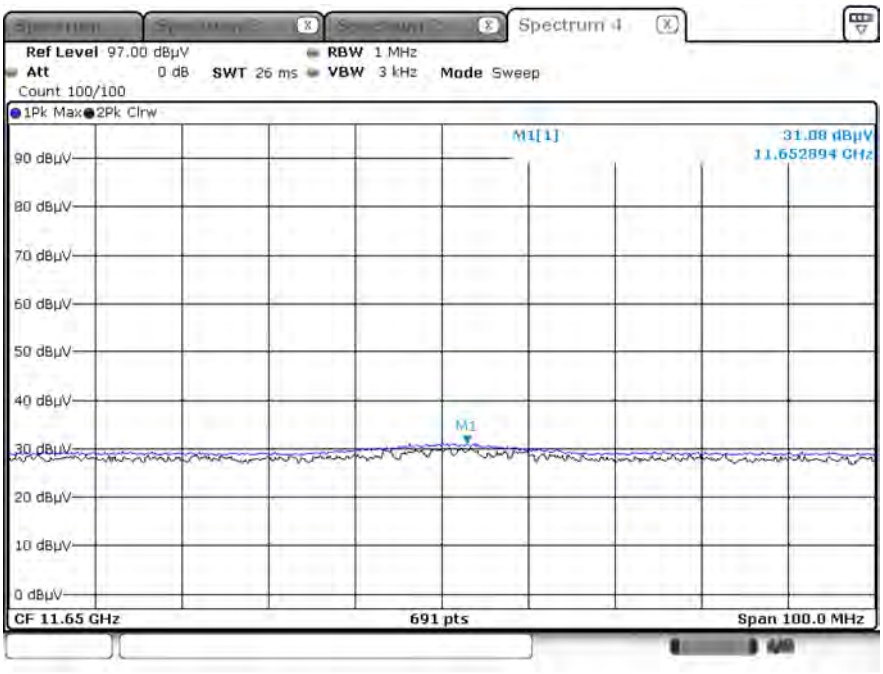
Note:

Only the worst case plots for Radiated Spurious Emissions.

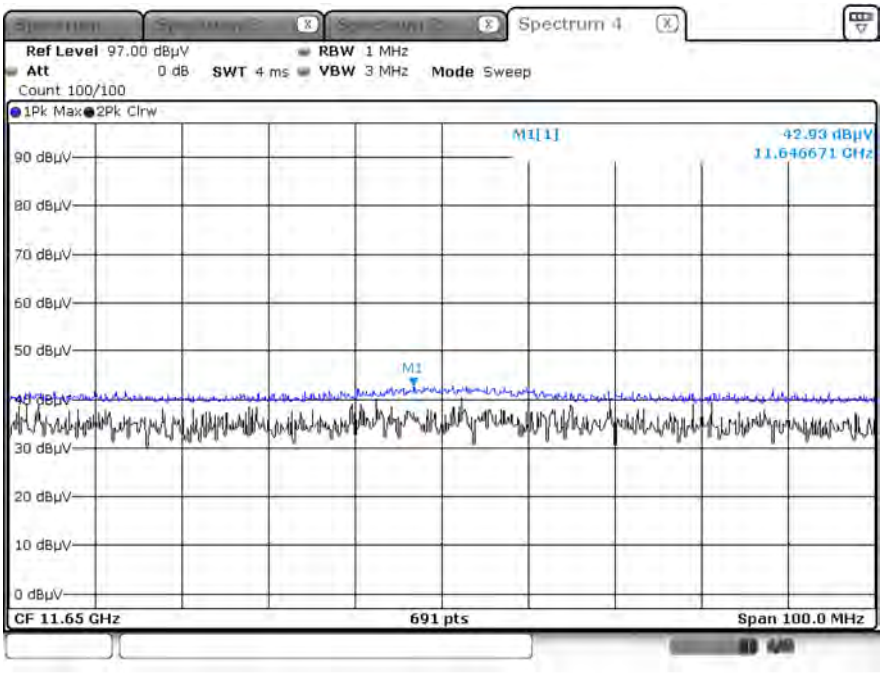
[DBS]

Bluetooth_Ch.78_GFSK DH5 + MIMO WLAN_5 GHz_802.11ac_VHT20_Ch.165_MCS0

Radiated Spurious Emissions plot – Average Result (Spurious Emissions, 2nd)



Radiated Spurious Emissions plot – Peak Result (Spurious Emissions, 2nd)



Note:

Only the worst case plots for Radiated Spurious Emissions.

10.9 RADIATED RESTRICTED BAND EDGE

[SISO_ANT.1]

Operation Mode: 802.11a(6 Mbps)

Band	UNII 1
Operating Frequency	5180 MHz
Channel No.	36 Ch

Frequency	Measured Value	CL+AF+DF-AG+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
5150	45.53	15.74	H	61.27	73.98	12.71	PK
5150	31.39	15.74	H	47.13	53.98	6.85	AV
5150	45.32	15.74	V	61.06	73.98	12.92	PK
5150	31.02	15.74	V	46.76	53.98	7.22	AV

Band	UNII 2A
Operating Frequency	5320 MHz
Channel No.	64 Ch

Frequency	Measured Value	CL+AF+DF-AG+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
5350	46.58	15.63	H	62.21	73.98	11.77	PK
5350	31.60	15.63	H	47.23	53.98	6.75	AV
5350	46.22	15.63	V	61.85	73.98	12.13	PK
5350	31.02	15.63	V	46.65	53.98	7.33	AV

Band	UNII 2C
Operating Frequency	5500 MHz
Channel No.	100 Ch

Frequency	Measured Value	CL+AF+DF-AG+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
5460	46.23	16.15	H	62.38	73.98	11.60	PK
5460	30.97	16.15	H	47.12	53.98	6.86	AV
# 5470	46.84	16.15	H	62.99	68.20	5.21	PK
5460	46.02	16.15	V	62.17	73.98	11.81	PK
5460	30.71	16.15	V	46.86	53.98	7.12	AV
# 5470	46.32	16.15	V	62.47	68.20	5.73	PK

Note : # Integration method Used (KDB 789033 D02 v02r01 Section 3) d) (ii)

[MIMO_SDM(Ant.0+Ant.1)]

Operation Mode: 802.11n (HT20) (MCS8)

Band	UNII 1
Operating Frequency	5180 MHz
Channel No.	36 Ch

Frequency	Measured Value	CL+AF+DF-AG+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBµV]	[dB]	[H/V]	[dBµV/m]	[dBµV/m]	[dB]	Type
5150	49.21	15.74	H	64.95	73.98	9.03	PK
5150	32.50	15.74	H	48.24	53.98	5.74	AV
5150	48.95	15.74	V	64.69	73.98	9.29	PK
5150	32.00	15.74	V	47.74	53.98	6.24	AV

Band	UNII 2A
Operating Frequency	5320 MHz
Channel No.	64 Ch

Frequency	Measured Value	CL+AF+DF-AG+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBµV]	[dB]	[H/V]	[dBµV/m]	[dBµV/m]	[dB]	Type
5350	49.64	15.63	H	65.27	73.98	8.71	PK
5350	34.58	15.63	H	50.21	53.98	3.77	AV
5350	49.22	15.63	V	64.85	73.98	9.13	PK
5350	34.12	15.63	V	49.75	53.98	4.23	AV

Band	UNII 2C
Operating Frequency	5500 MHz
Channel No.	100 Ch

Frequency	Measured Value	CL+AF+DF-AG+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBµV]	[dB]	[H/V]	[dBµV/m]	[dBµV/m]	[dB]	Type
5460	48.59	16.15	H	64.74	73.98	9.24	PK
5460	32.26	16.15	H	48.41	53.98	5.57	AV
# 5470	46.93	16.15	H	63.08	68.20	5.12	PK
5460	48.22	16.15	V	64.37	73.98	9.61	PK
5460	32.05	16.15	V	48.20	53.98	5.78	AV
# 5470	46.51	16.15	V	62.66	68.20	5.54	PK

Note : # Integration method Used (KDB 789033 D02 v02r01 Section 3) d) (ii)

Operation Mode: 802.11ac (VHT20) (MCS0)

Band	UNII 1
Operating Frequency	5180 MHz
Channel No.	36 Ch

Frequency	Measured Value	CL+AF+DF-AG+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBµV]	[dB]	[H/V]	[dBµV/m]	[dBµV/m]	[dB]	Type
5150	46.64	15.74	H	62.38	73.98	11.60	PK
5150	32.85	15.74	H	48.59	53.98	5.39	AV
5150	46.22	15.74	V	61.96	73.98	12.02	PK
5150	32.41	15.74	V	48.15	53.98	5.83	AV

Band	UNII 2A
Operating Frequency	5320 MHz
Channel No.	64 Ch

Frequency	Measured Value	CL+AF+DF-AG+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBµV]	[dB]	[H/V]	[dBµV/m]	[dBµV/m]	[dB]	Type
5350	49.57	15.63	H	65.20	73.98	8.78	PK
5350	34.87	15.63	H	50.5	53.98	3.48	AV
5350	49.01	15.63	V	64.64	73.98	9.34	PK
5350	34.25	15.63	V	49.88	53.98	4.10	AV

Band	UNII 2C
Operating Frequency	5500 MHz
Channel No.	100 Ch

Frequency	Measured Value	CL+AF+DF-AG+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBµV]	[dB]	[H/V]	[dBµV/m]	[dBµV/m]	[dB]	Type
5460	50.82	16.15	H	66.97	73.98	7.01	PK
5460	33.72	16.15	H	49.87	53.98	4.11	AV
# 5470	47.24	16.15	H	63.39	68.20	4.81	PK
5460	50.24	16.15	V	66.39	73.98	7.59	PK
5460	33.41	16.15	V	49.56	53.98	4.42	AV
# 5470	46.89	16.15	V	63.04	68.20	5.16	PK

Note : # Integration method Used (KDB 789033 D02 v02r01 Section 3) d) (ii)

Operation Mode: 802.11n (HT40) (MCS8)

Band	UNII 1
Operating Frequency	5190 MHz
Channel No.	38 Ch

Frequency	Measured Value	CL+AF+DF-AG+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBµV]	[dB]	[H/V]	[dBµV/m]	[dBµV/m]	[dB]	Type
5150	44.15	15.74	H	59.89	73.98	14.09	PK
5150	32.33	15.74	H	48.07	53.98	5.91	AV
5150	44.02	15.74	V	59.76	73.98	14.22	PK
5150	31.98	15.74	V	47.72	53.98	6.26	AV

Band	UNII 2A
Operating Frequency	5310 MHz
Channel No.	62 Ch

Frequency	Measured Value	CL+AF+DF-AG+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBµV]	[dB]	[H/V]	[dBµV/m]	[dBµV/m]	[dB]	Type
5350	47.26	15.63	H	62.89	73.98	11.09	PK
5350	34.97	15.63	H	50.6	53.98	3.38	AV
5350	47.01	15.63	V	62.64	73.98	11.34	PK
5350	34.62	15.63	V	50.25	53.98	3.73	AV

Band	UNII 2C
Operating Frequency	5510 MHz
Channel No.	102 Ch

Frequency	Measured Value	CL+AF+DF-AG+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBµV]	[dB]	[H/V]	[dBµV/m]	[dBµV/m]	[dB]	Type
5460	48.38	16.15	H	64.53	73.98	9.45	PK
5460	31.82	16.15	H	47.97	53.98	6.01	AV
# 5470	47.13	16.15	H	63.28	68.20	4.92	PK
5460	43.12	16.15	V	59.27	73.98	14.71	PK
5460	31.55	16.15	V	47.70	53.98	6.28	AV
# 5470	46.85	16.15	V	63.00	68.20	5.20	PK

Note : # Integration method Used (KDB 789033 D02 v02r01 Section 3) d) (ii)

Operation Mode: 802.11ac (VHT40) (MCS0)

Band	UNII 1
Operating Frequency	5190 MHz
Channel No.	38 Ch

Frequency	Measured Value	CL+AF+DF-AG+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBµV]	[dB]	[H/V]	[dBµV/m]	[dBµV/m]	[dB]	Type
5150	46.49	15.74	H	62.23	73.98	11.75	PK
5150	32.87	15.74	H	48.61	53.98	5.37	AV
5150	46.22	15.74	V	61.96	73.98	12.02	PK
5150	32.55	15.74	V	48.29	53.98	5.69	AV

Band	UNII 2A
Operating Frequency	5310 MHz
Channel No.	62 Ch

Frequency	Measured Value	CL+AF+DF-AG+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBµV]	[dB]	[H/V]	[dBµV/m]	[dBµV/m]	[dB]	Type
5350	48.41	15.63	H	64.04	73.98	9.94	PK
5350	34.82	15.63	H	50.45	53.98	3.53	AV
5350	48.02	15.63	V	63.65	73.98	10.33	PK
5350	34.62	15.63	V	50.25	53.98	3.73	AV

Band	UNII 2C
Operating Frequency	5510 MHz
Channel No.	102 Ch

Frequency	Measured Value	CL+AF+DF-AG+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBµV]	[dB]	[H/V]	[dBµV/m]	[dBµV/m]	[dB]	Type
5460	48.75	16.15	H	64.90	73.98	9.08	PK
5460	32.75	16.15	H	48.90	53.98	5.08	AV
# 5470	48.05	16.15	H	64.2	68.20	4.00	PK
5460	48.22	16.15	V	64.37	73.98	9.61	PK
5460	32.12	16.15	V	48.27	53.98	5.71	AV
# 5470	47.52	16.15	V	63.67	68.20	4.53	PK

Note : # Integration method Used (KDB 789033 D02 v02r01 Section 3) d) (ii)

Operation Mode: 802.11ac (VHT80) (MCS0)

Band	UNII 1
Operating Frequency	5210 MHz
Channel No.	42 Ch

Frequency	Measured Value	CL+AF+DF-AG+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBµV]	[dB]	[H/V]	[dBµV/m]	[dBµV/m]	[dB]	Type
5150	46.14	15.74	H	61.88	73.98	12.10	PK
5150	35.16	15.74	H	50.9	53.98	3.08	AV
5150	45.95	15.74	V	61.69	73.98	12.29	PK
5150	34.85	15.74	V	50.59	53.98	3.39	AV

Band	UNII 2A
Operating Frequency	5290 MHz
Channel No.	58 Ch

Frequency	Measured Value	CL+AF+DF-AG+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBµV]	[dB]	[H/V]	[dBµV/m]	[dBµV/m]	[dB]	Type
5350	45.76	15.63	H	61.39	73.98	12.59	PK
5350	34.99	15.63	H	50.62	53.98	3.36	AV
5350	45.32	15.63	V	60.95	73.98	13.03	PK
5350	34.62	15.63	V	50.25	53.98	3.73	AV

Band	UNII 2C
Operating Frequency	5530 MHz
Channel No.	106 Ch

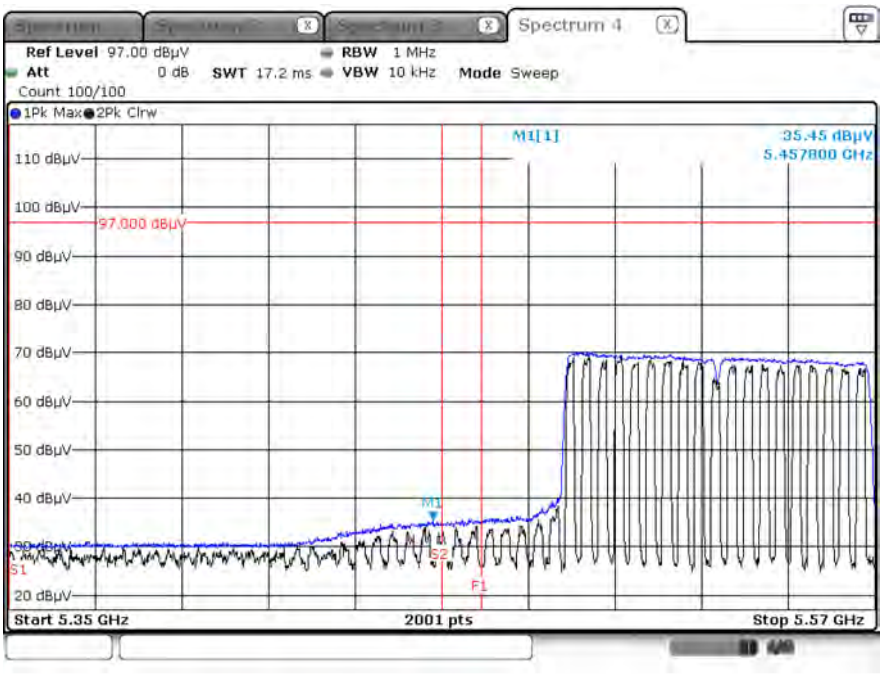
Frequency	Measured Value	CL+AF+DF-AG+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBµV]	[dB]	[H/V]	[dBµV/m]	[dBµV/m]	[dB]	Type
5460	49.26	16.15	H	65.41	73.98	8.57	PK
5460	35.45	16.15	H	51.60	53.98	2.38	AV
# 5470	44.00	16.15	H	60.15	68.20	8.05	PK
5460	48.89	16.15	V	65.04	73.98	8.94	PK
5460	35.12	16.15	V	51.27	53.98	2.71	AV
# 5470	43.89	16.15	V	60.04	68.20	8.16	PK

Note : # Integration method Used (KDB 789033 D02 v02r01 Section 3) d) (ii)

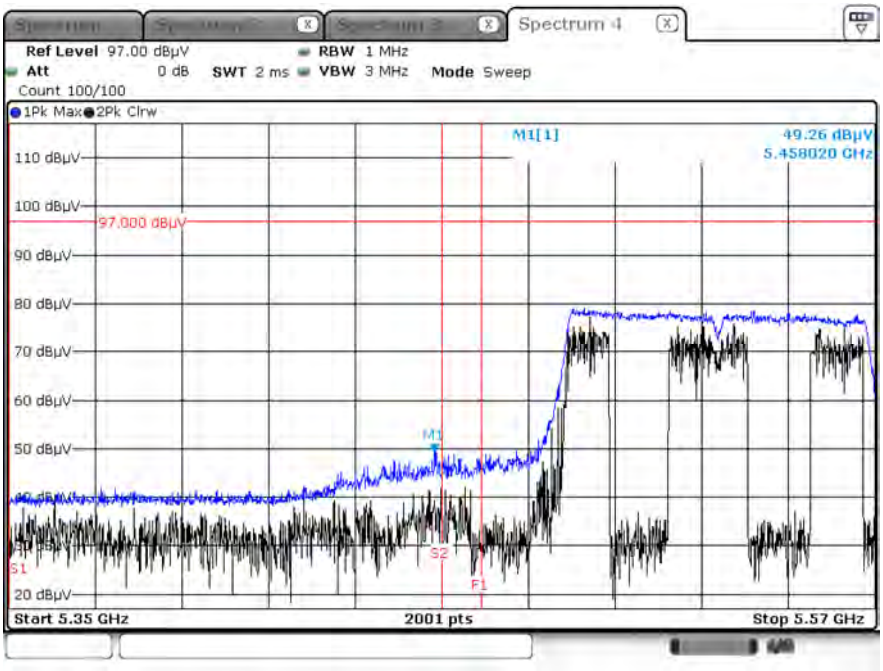
[MIMO_SDM(Ant.0+Ant.1)]

▣ Test Plots(UNII 1, 2A, 2C)

Average Result (802.11 ac_VHT80_ MCS0, Ch.106, X-H)



Peak Result (802.11 ac_VHT80_ MCS0, Ch.106, X-H)



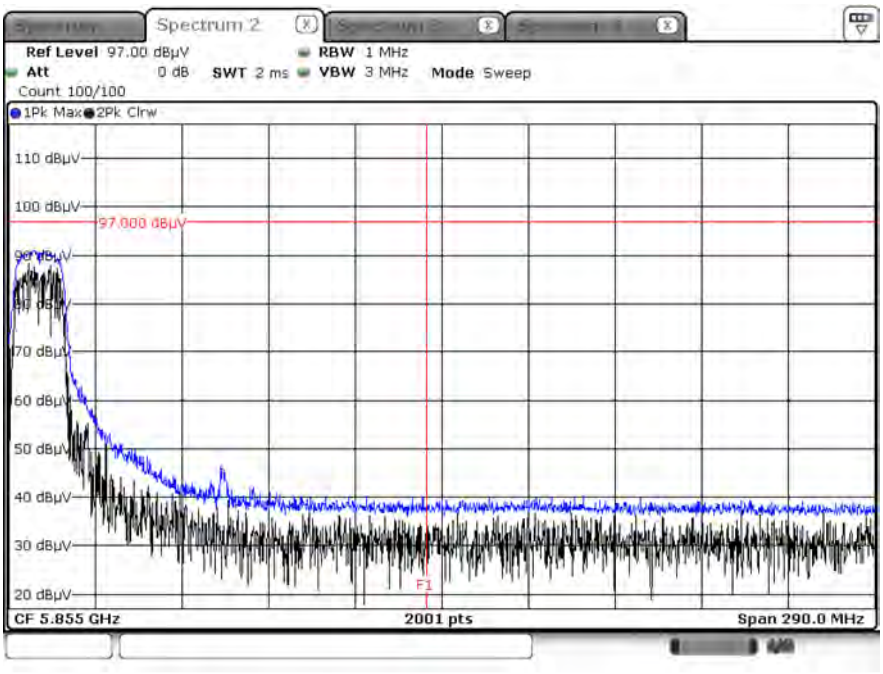
Note:

Only the worst case plots for Radiated Restricted Band Edge.

▣ Test Plots(Straddle Channel)

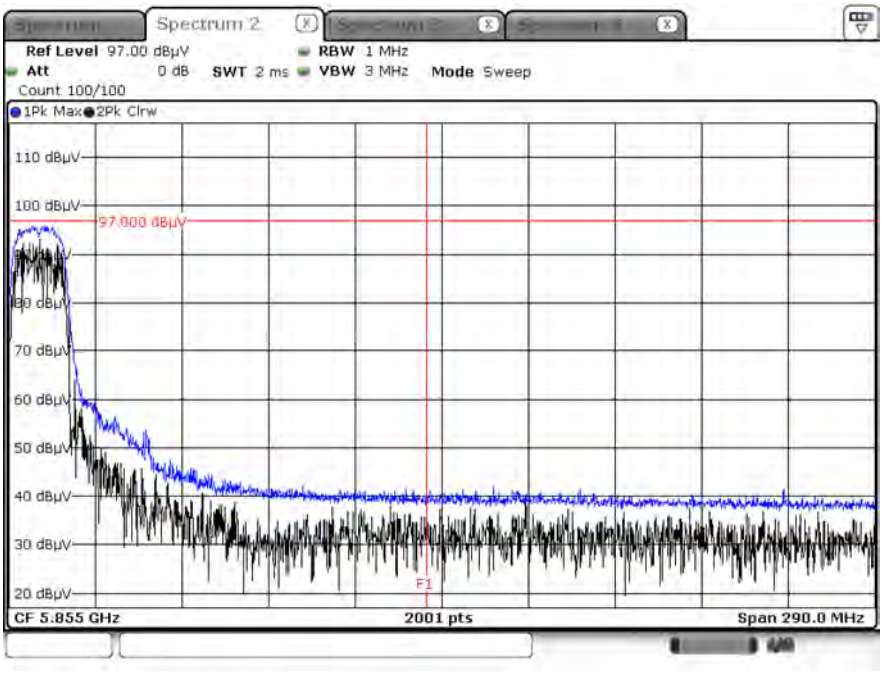
[SISO_ANT.1]

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

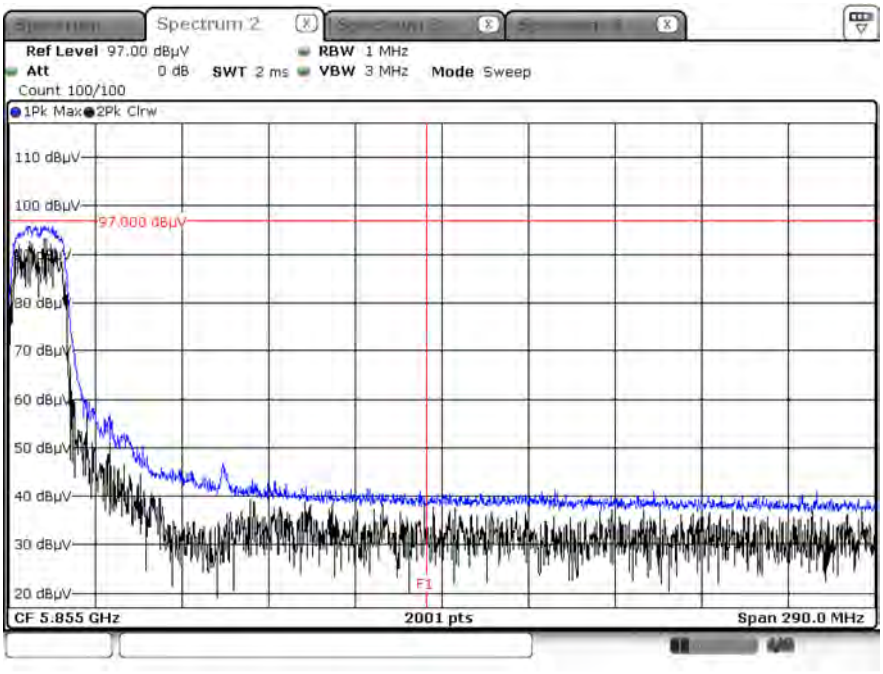


[MIMO_SDM(Ant.0+Ant.1)]

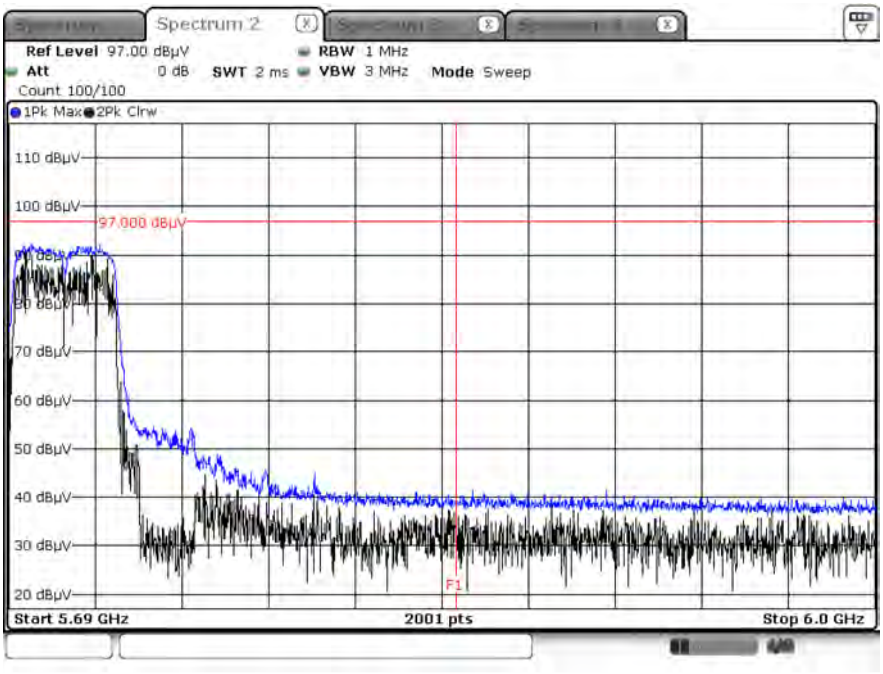
Peak Result (802.11n_HT20, Ch.144, X-H)



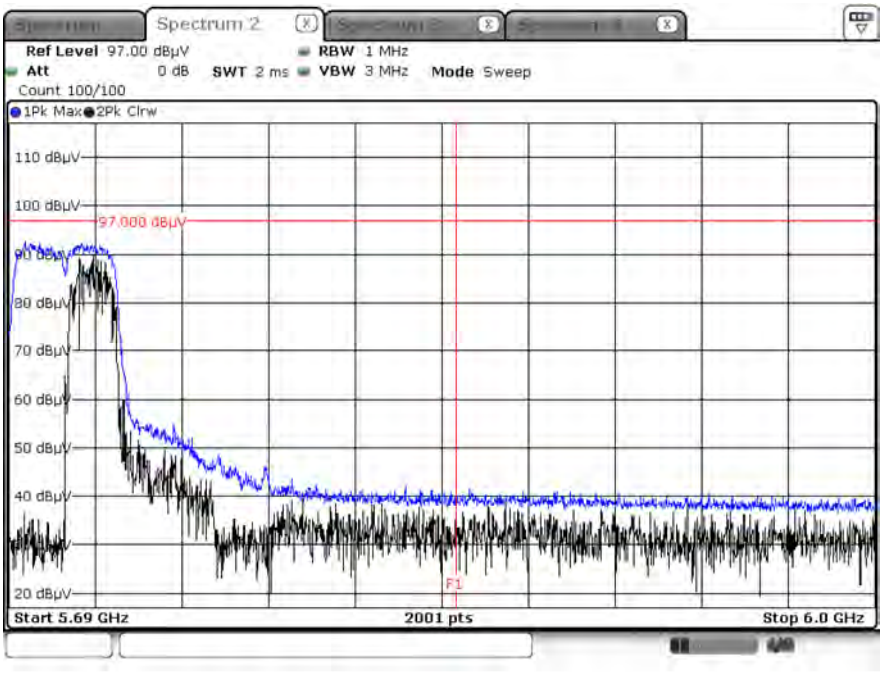
Peak Result (802.11ac_VHT20, Ch.144, X-H)



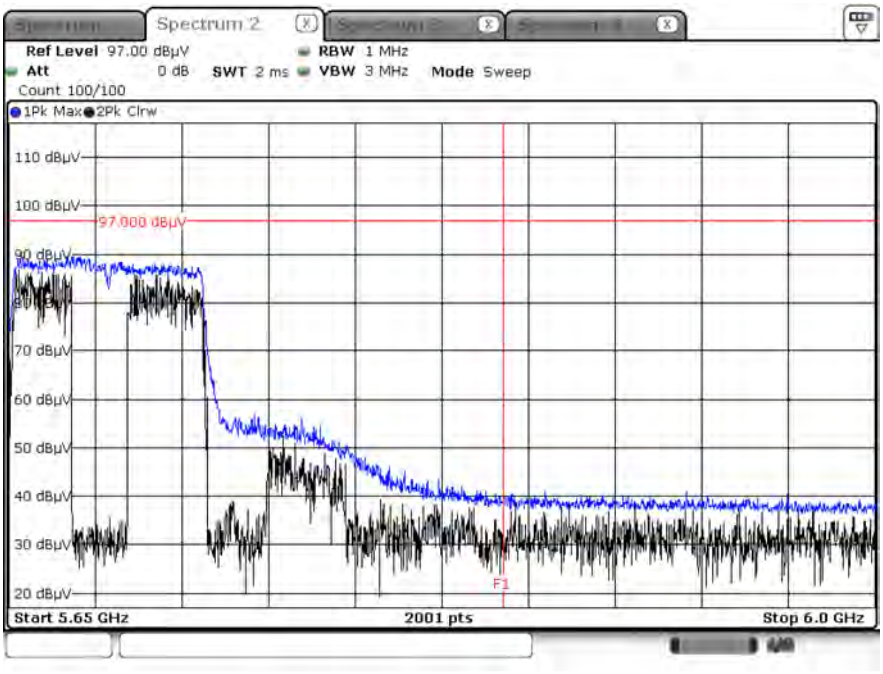
Peak Result (802.11n_HT40, Ch.142, X-H)



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



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



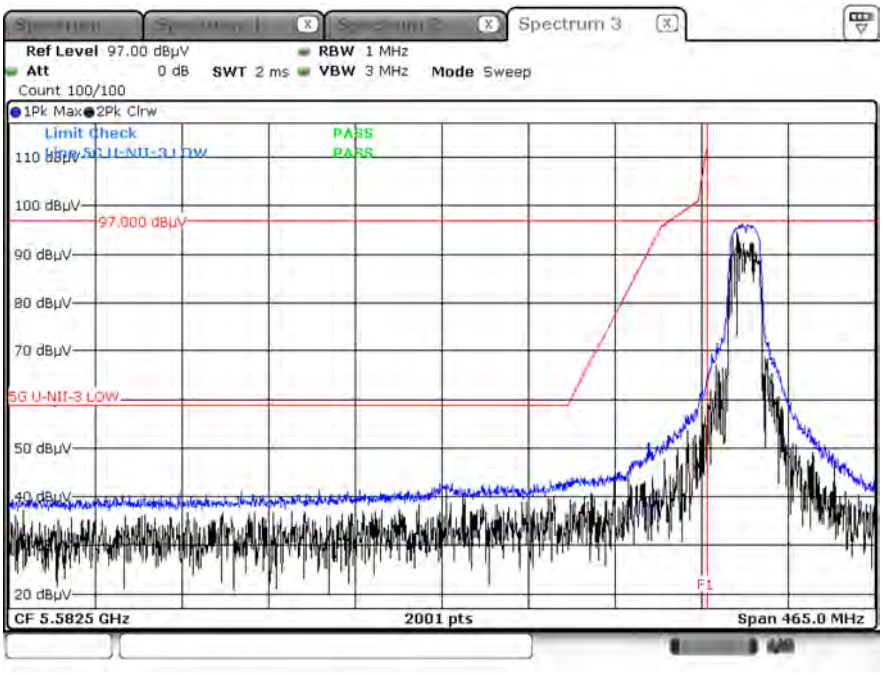
Note :

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

▣ Test Plots(UNII 3)

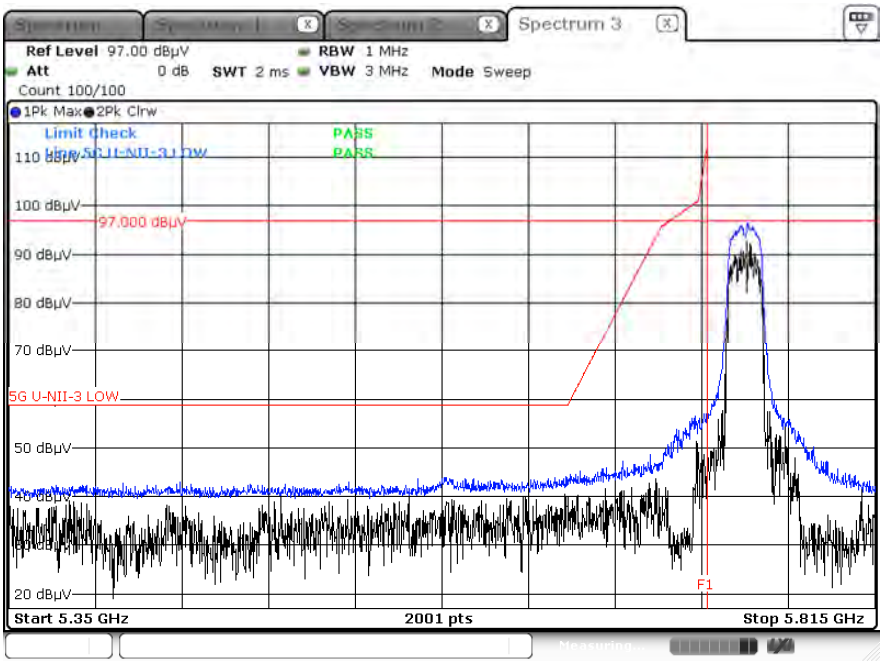
[SISO_ANT.1]

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

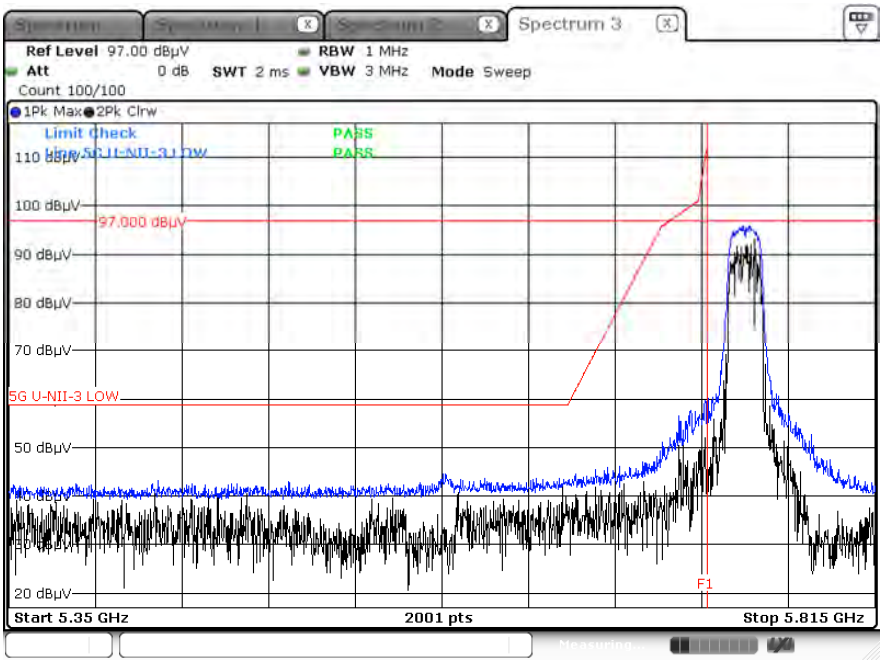


[MIMO_SDM(Ant.0+Ant.1)]

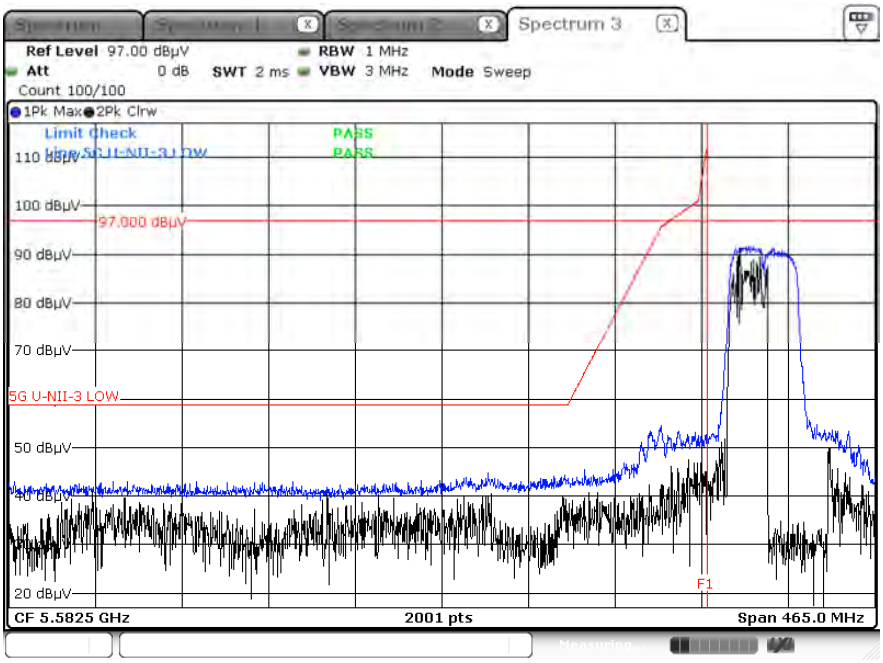
Peak Result (802.11n_HT20, Ch.149, X-H)



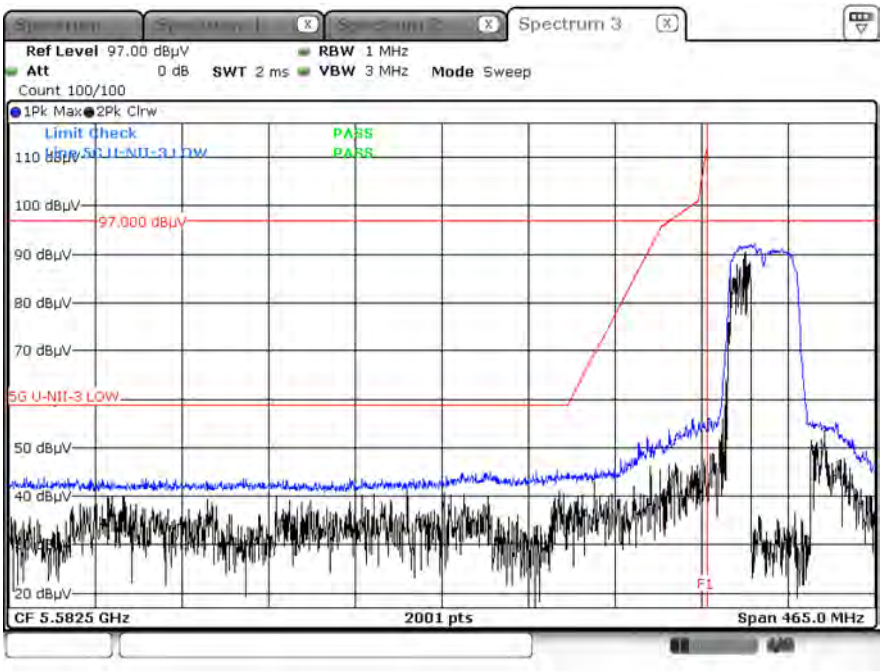
Peak Result (802.11ac_VHT20, Ch.149, X-H)



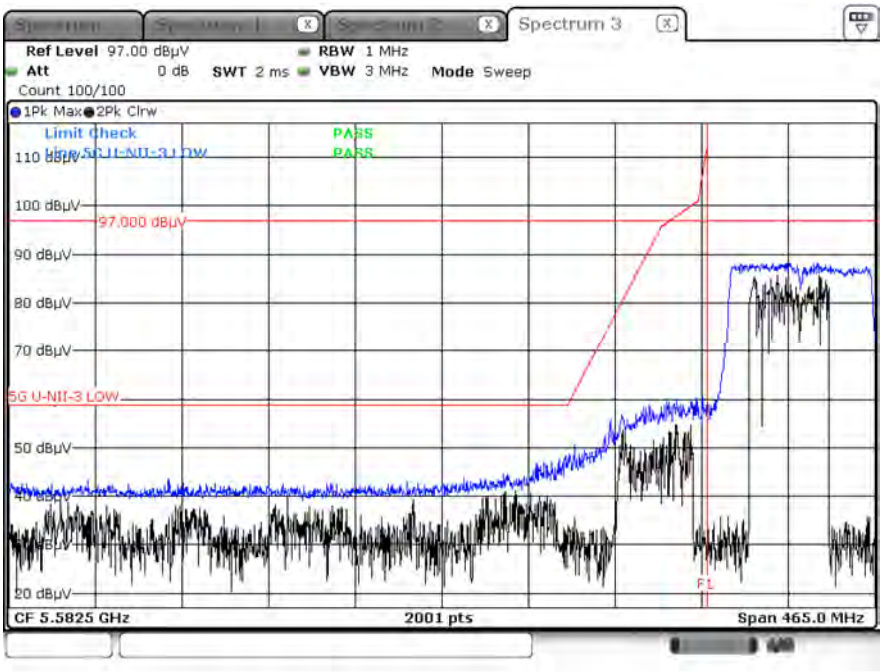
Peak Result (802.11n_HT40, Ch.151, X-H)



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

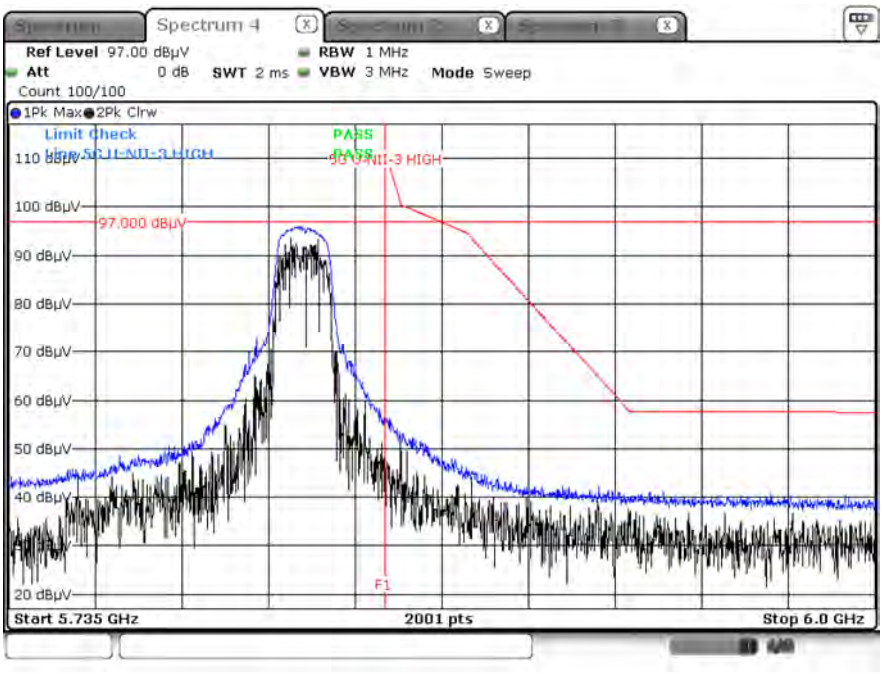


Peak Result (802.11ac_VHT80, Ch.155, X-H)



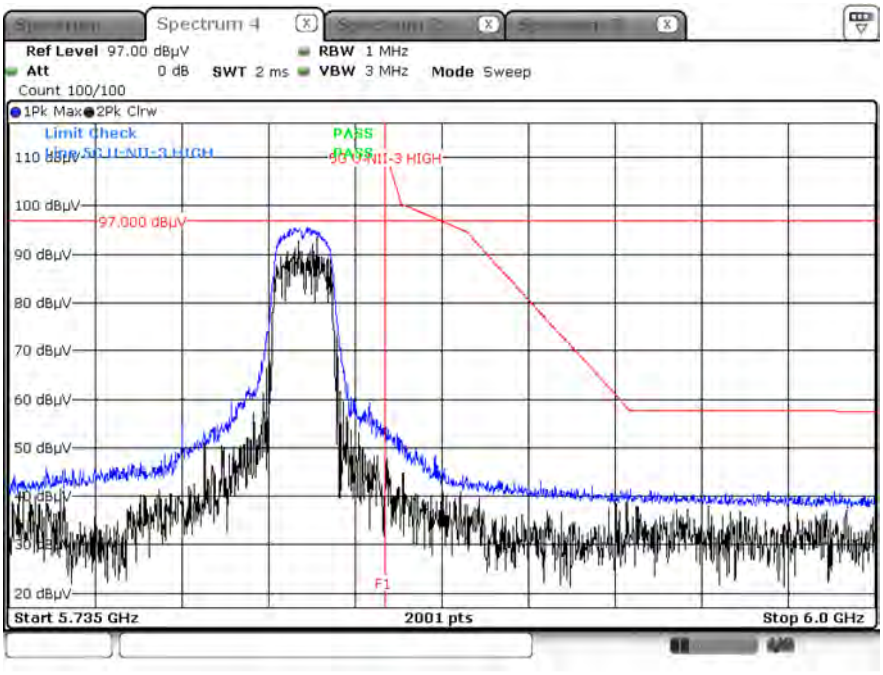
[SISO_ANT.1]

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

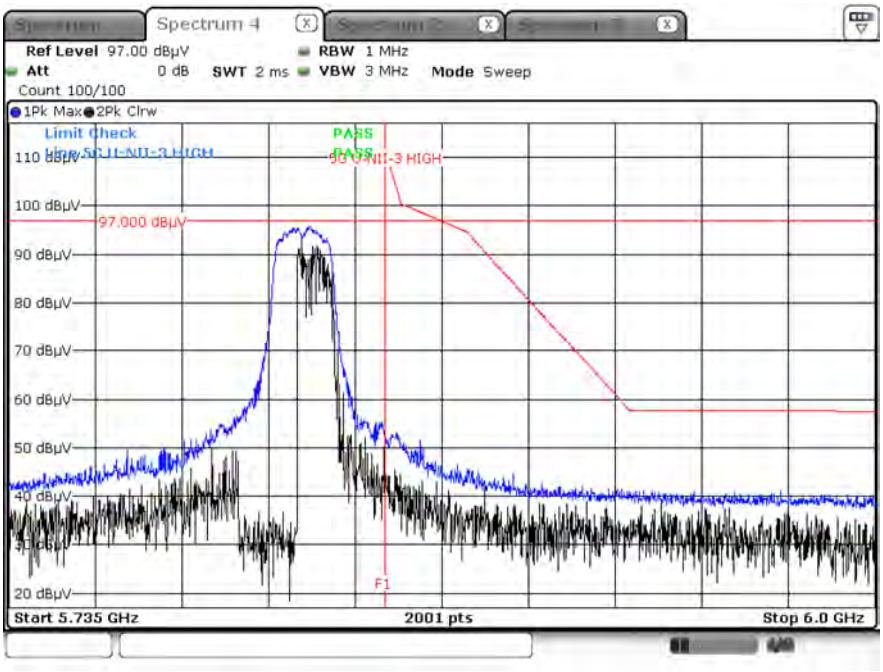


[MIMO_SDM(Ant.0+Ant.1)]

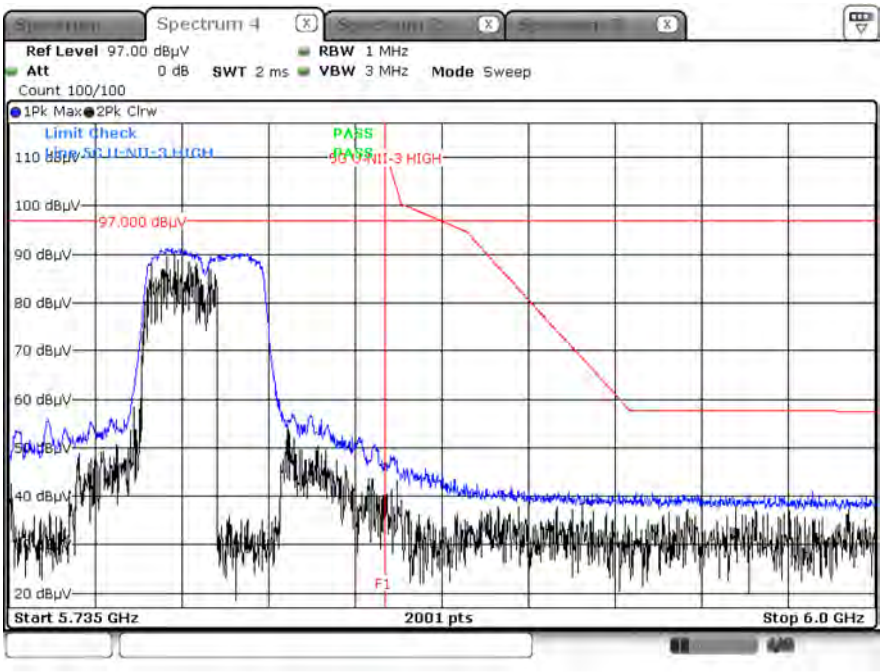
Peak Result (802.11n_HT20, Ch.165, X-H)



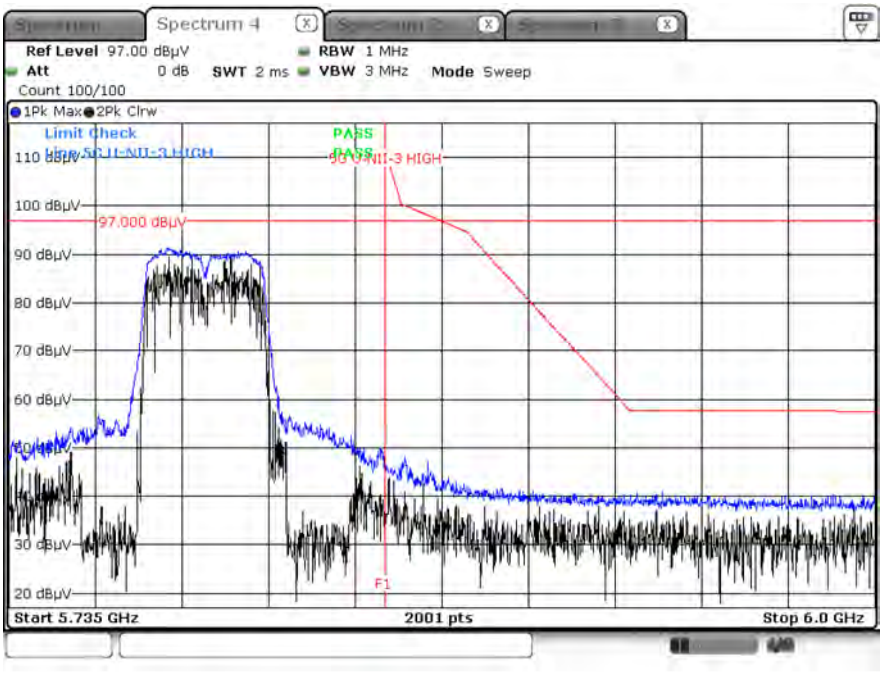
Peak Result (802.11ac_VHT20, Ch.165, X-H)



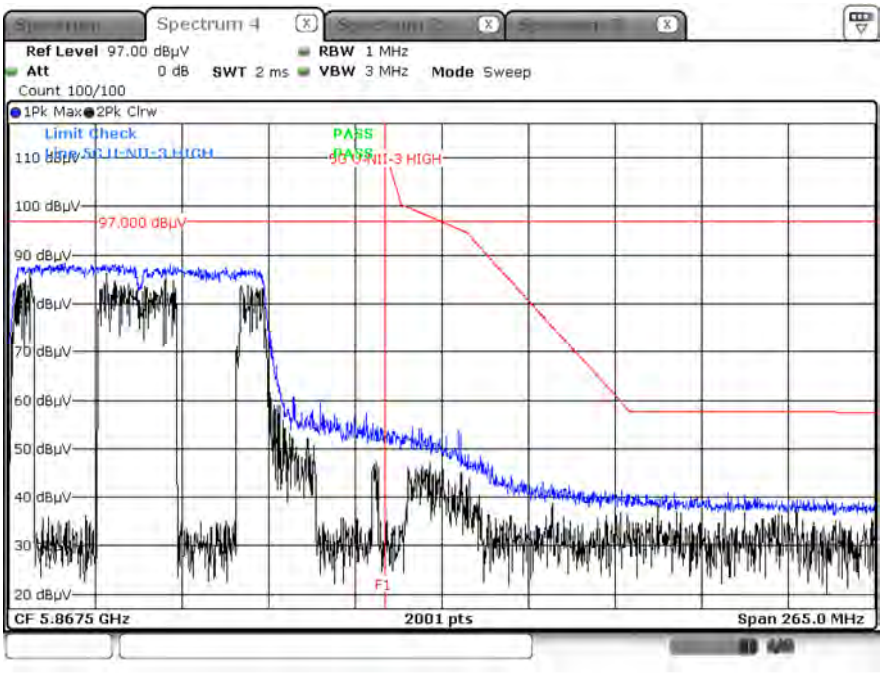
Peak Result (802.11n_HT40, Ch.159, X-H)



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



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



Note :

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

10.10 POWERLINE CONDUCTED EMISSIONS

Conducted Emissions

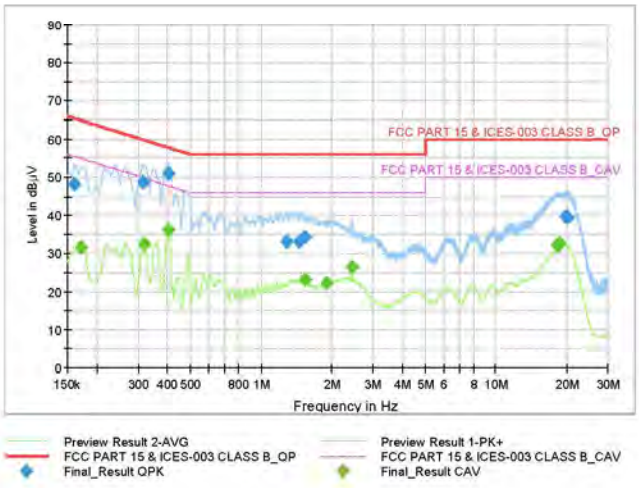
Test 1 / 2

Test Report

Common Information

EUT : SM-P625
Operating Conditions : 5G WLAN_Mode
Comment :

Full Spectrum



Final_Result_QPK

Frequency (MHz)	QuasiPeak (dBµV)	Limit (dBµV)	Margin (dB)	Bandwidth (kHz)	Line	Corr. (dB)
0.1613	48.01	65.40	17.39	9.000	L1	9.6
0.3165	48.63	59.80	11.17	9.000	L1	9.6
0.4043	50.82	57.77	6.95	9.000	N	9.7
1.2808	33.10	56.00	22.90	9.000	L1	9.7
1.4630	33.13	56.00	22.87	9.000	L1	9.7
1.5373	34.19	56.00	21.81	9.000	L1	9.7
19.8950	39.79	60.00	20.21	9.000	L1	10.4
19.9378	39.67	60.00	20.33	9.000	L1	10.4
20.2978	39.45	60.00	20.55	9.000	L1	10.4

2024-02-08 오전 9:34:47

Test 2 / 2

Final_Result_CAV

Frequency (MHz)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Bandwidth (kHz)	Line	Corr. (dB)
0.1725	31.46	54.84	23.38	9.000	N	9.6
0.3188	32.61	49.74	17.13	9.000	N	9.6
0.4043	36.03	47.77	11.74	9.000	N	9.7
1.5328	23.05	46.00	22.95	9.000	N	9.7
1.8973	22.30	46.00	23.70	9.000	N	9.7
2.4283	26.59	46.00	19.41	9.000	N	9.8
18.3133	32.29	50.00	17.71	9.000	N	10.5
18.4865	32.32	50.00	17.68	9.000	N	10.5
18.6170	32.45	50.00	17.55	9.000	N	10.5

2024-02-08 오전 9:34:47

11. LIST OF TEST EQUIPMENT

Conducted Test

Equipment	Model	Manufacturer	Serial No.	Due to Calibration	Calibration Interval
LISN	ENV216	Rohde & Schwarz	102245	08/02/2024	Annual
EMI Test Receiver	ESR	Rohde & Schwarz	101910	05/26/2024	Annual
Temperature Chamber	SU-642	ESPEC	0093008124	02/22/2024	Annual
Signal Analyzer	N9030A	Agilent	MY49432108	03/02/2024	Annual
Power Measurement Set	OSP 120	Rohde & Schwarz	101231	06/09/2024	Annual
Power Meter	N1911A	Agilent	MY45100523	03/06/2024	Annual
Power Sensor	N1921A	Agilent	MY57820067	03/06/2024	Annual
Directional Coupler	87300B	Agilent	3116A03621	10/30/2024	Annual
Power Splitter	11667B	Hewlett Packard	10545	02/06/2025	Annual
DC Power Supply	E3632A	Agilent	KR75303243	04/24/2024	Annual
Attenuator(10 dB)(DC-26.5 GHz)	8493C	HP	07560	06/12/2024	Annual
Attenuator(10 dB)(DC-26.5 GHz)	8493C	HP	08285	06/02/2024	Annual
Attenuator(20 dB)	18N-20dB	Rohde & Schwarz	8	03/08/2024	Annual
Software	EMC32	Rohde & Schwarz	N/A	N/A	N/A
FCC WLAN&BT&BLE Conducted Test Software v3.0	N/A	HCT CO., LTD.	N/A	N/A	N/A
Bluetooth Tester	CBT	Rohde & Schwarz	100752	01/03/2025	Annual

Note:

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

Radiated Test

Equipment	Model	Manufacturer	Serial No.	Due to Calibration	Calibration Interval
Controller(Antenna mast)	CO3000	Innco system	CO3000-4p	N/A	N/A
Antenna Position Tower	MA4640/800-XP-EP	Innco system	S1AM	08/03/2025	Biennial
EM1000 / Controller	EM1000	Audix	060520	N/A	N/A
Turn Table	N/A	Audix	N/A	N/A	N/A
Amp & Filter Bank Switch Controller	FBSM-01B	T&M system	TM19050002	N/A	N/A
Loop Antenna	1513	Schwarzbeck	1513-333	03/17/2024	Biennial
Hybrid Antenna	VULB 9168	Schwarzbeck	9168-0895	08/16/2024	Biennial
Horn Antenna	BBHA 9120D	Schwarzbeck	9120D-1300	01/03/2026	Biennial
Horn Antenna	BBHA 9120D	Schwarzbeck	9120D-2296	05/18/2024	Biennial
Horn Antenna(15 GHz ~ 40 GHz)	BBHA9170	Schwarzbeck	BBHA9170342	09/29/2024	Biennial
Spectrum Analyzer	FSV(10 Hz ~ 40 GHz)	Rohde & Schwarz	101055	05/12/2024	Annual
Band Reject Filter	WRCJV2400/2483.5-2370/2520-60/12SS	Wainwright Instruments	2	01/02/2025	Annual
Band Reject Filter	WRCJV12-4900-5100-5900-6100-50SS	Wainwright Instruments	5	06/12/2024	Annual
Band Reject Filter	WRCJV12-4900-5100-5900-6100-50SS	Wainwright Instruments	6	06/12/2024	Annual
High Pass Filter(7 GHz ~ 18 GHz)	WHKX10-7150-8000-18000-50SS	Wainwright Instruments	1	03/02/2024	Annual
Power Amplifier	CBL18265035	CERNEX	22966	11/17/2024	Annual
Power Amplifier	CBL26405040	CERNEX	25956	03/02/2024	Annual
Bluetooth Tester	TC-3000C	TESCOM	3000C000175	03/28/2024	Annual
RF Switching System	FMSR-05B (HPF(3~18GHz) + LNA1(1~18GHz))	T&M system	S1L1	01/02/2025	Annual
RF Switching System	FMSR -05B (ATT(10dB) + LNA1(1~18GHz))	T&M system	S1L2	01/02/2025	Annual
RF Switching System	FMSR -05B (ATT(3dB) + LNA1(1~18GHz))	T&M system	S1L3	01/02/2025	Annual
RF Switching System	FMSR -05B (LNA1(1~18GHz))	T&M system	S1L4	01/02/2025	Annual
RF Switching System	FMSR -05B (HPF(7~18GHz) + LNA2(6~18GHz))	T&M system	S1L5	01/02/2025	Annual
RF Switching System	FMSR -05B (Thru(30MHz ~ 18GHz))	T&M system	S1L6	01/02/2025	Annual

Note:

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

12. ANNEX A_ TEST SETUP PHOTO

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

No.	Description
1	HCT-RF-2402-FC034-P