TEST REPORT

FCC UNII Test for SM-X400
Certification

APPLICANT
SAMSUNG Electronics Co., Ltd.

REPORT NO.
HCT-RF-2506-FC102

DATE OF ISSUE
June 25, 2025

Tested by
Sang Hoon Lee

Technical Manager
Jong Seok Lee

HCT CO., LTD.
BongJai Huh / CEO

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HCT CO., LTD. 2-6, 73, 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Republic of Korea Tel. +82 31 645 6300 Fax. +82 31 645 6401

HCT CO.,LTD.
2-6, 73, 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Republic of Korea
Tel. +82 31 645 6300 Fax. +82 31 645 6401

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Applicant	SAMSUNG Electronics Co., Ltd. 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
Product Name Model Name	Tablet SM-X400
FCC ID	A3LSMX400
Date of Test	May 7, 2025 ~ June 19, 2025
FCC Classification	Unlicensed National Information Infrastructure(NII)
Test Standard Used	FCC Rule Part(s): Part 15.407
Test Results	PASS
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)

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REVISION HISTORY

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

Revision No.	Date of Issue	Description
0	June 25, 2025	Initial Release

Notice

Content

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 laboratory is not accredited for the test results marked *.
Information provided by the applicant is marked **.
Test results provided by external providers are marked ***.

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).

Data referencing : UNII Report (FCC ID: A3LSMX406B, Report No. HCT-RF-2506-FC088)

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1. GENERAL INFORMATION

EUT DESCRIPTION

Model	SM-X400	
Additional Model	-	
EUT Type	Tablet	
Power Supply	DC 3.86 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
	U-NII-4	20 MHz BW : 5845 - 5885 40 MHz BW : 5835 - 5875 80 MHz BW : 5855
Straddle channel	Supported	
TDWR Band	Supported	
Dynamic Frequency Selection	Slave without radar detection	
Antenna Specification	Type: Metal	
Serial number	Conducted : R32Y40015BR Radiated : R32Y40010ZK	

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ANTENNA CONFIGURATIONS

1. Antenna configuration

Configurations	SISO		MIMO	
	Ant.1	Ant.2	CDD	SDM
802.11a	X	O	O	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

2.This device supports simultaneous transmission operation, which allows for two channels to operate independent of one another in the 2.4 GHz and 5 GHz bands simultaneously on each antenna.

Simultaneous transmission Scenario	5 GHz WiFi Ant.1	5 GHz WiFi Ant.2	BT	Test Case
Bluetooth + 5 GHz WiFi MIMO	on	on	on	Scenario1

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2. Directional Gain Calculation

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

$$\text{Directional Gain(CDD)} = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\{\sum_{k=1}^{N_{ANT}} g_{j,k}\}^2}{N_{ANT}}\right]$$

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

Band	Ant Gain (dBi)		N_{ANT}/ N_{ss}	Directional Gain (dBi)	
	ANT1	ANT2		CDD	SDM
UNII 1	-4.10	-6.70	2 / 2	-2.29	-4.10
UNII 2A	-4.60	-7.00		-2.71	-4.60
UNII 2C	-4.10	-5.30		-1.67	-4.10
UNII 3	-4.30	-4.70		-1.49	-4.30
UNII 4	-5.20	-4.90		-2.04	-4.90

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) = $10 \cdot \log(((10^{(\text{ANT1 Gain}/20)}+10^{(\text{ANT2 Gain}/20)})^2)/2)$ dBi

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

Sample Calculation (Conducted Power, MIMO):

Ex) ANT1 : 11.58 dBm ANT2 : 12.08 dBm

ANT1 + ANT 2 = 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) ANT1 : 15.35 dBm , ANT2 : 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

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2. MAXIMUM OUTPUT POWER

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

Band	Mode	MIMO (Ant.1+ Ant.2)					
		Ant.1 Power		Ant.2 Power		Ant.1 + Ant.2 Power	
		(dBm)	(W)	(dBm)	(W)	(dBm)	(W)
UNII1	802.11a	16.20	0.042	15.88	0.039	19.05	0.080
	802.11n (HT20)	15.99	0.040	15.73	0.037	18.87	0.077
	802.11n (HT40)	13.60	0.023	12.59	0.018	16.13	0.041
	802.11ac (VHT20)	15.23	0.033	15.24	0.033	18.25	0.067
	802.11ac (VHT40)	13.60	0.023	12.66	0.018	16.16	0.041
	802.11ac (VHT80)	11.70	0.015	11.22	0.013	14.47	0.028
UNII2A	802.11a	16.01	0.040	15.71	0.037	18.87	0.077
	802.11n (HT20)	14.99	0.032	14.61	0.029	17.81	0.060
	802.11n (HT40)	12.65	0.018	12.57	0.018	15.62	0.036
	802.11ac (VHT20)	15.00	0.032	14.59	0.029	17.81	0.060
	802.11ac (VHT40)	12.97	0.020	12.52	0.018	15.76	0.038
	802.11ac (VHT80)	11.92	0.016	10.89	0.012	14.45	0.028
UNII2C	802.11a	16.12	0.041	15.62	0.036	18.89	0.077
	802.11n (HT20)	16.07	0.040	15.27	0.034	18.70	0.074
	802.11n (HT40)	13.70	0.023	13.04	0.020	16.39	0.044
	802.11ac (VHT20)	16.10	0.041	15.29	0.034	18.72	0.075
	802.11ac (VHT40)	13.68	0.023	13.09	0.020	16.40	0.044
	802.11ac (VHT80)	11.38	0.014	10.64	0.012	14.03	0.025
UNII3	802.11a	16.71	0.047	15.63	0.037	19.22	0.083
	802.11n (HT20)	16.03	0.040	15.34	0.034	18.71	0.074
	802.11n (HT40)	13.80	0.024	13.70	0.023	16.76	0.047
	802.11ac (VHT20)	16.04	0.040	15.32	0.034	18.71	0.074
	802.11ac (VHT40)	13.73	0.024	13.72	0.024	16.74	0.047
	802.11ac (VHT80)	11.55	0.014	11.24	0.013	14.41	0.028
UNII4 (Conducted For inf.)	802.11a	16.10	0.041	15.67	0.037	18.90	0.078
	802.11n (HT20)	15.74	0.038	15.31	0.034	18.54	0.071
	802.11n (HT40)	13.86	0.024	13.45	0.022	16.67	0.046
	802.11ac (VHT20)	15.74	0.038	15.29	0.034	18.53	0.071
	802.11ac (VHT40)	13.91	0.025	13.45	0.022	16.70	0.047
	802.11ac (VHT80)	11.46	0.014	10.60	0.011	14.06	0.025

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Band	Mode	MIMO(Ant.1+ Ant.2) (EIRP)											
		Ant.1 Power				Ant.2 Power				(Ant.1 + Ant.2) Power			
		(dBm)	ANT Gain(dBi)	EIRP (dBm)	(W)	(dBm)	ANT Gain(dBi)	EIRP (dBm)	(W)	(dBm)	ANT Gain(dBi)	EIRP (dBm)	(W)
UNII4 (EIRP)	802.11a	16.10	-5.20	10.90	0.012	15.67	-4.90	10.77	0.012	18.90	-2.04	16.86	0.049
	802.11n (HT20)	15.74	-5.20	10.54	0.011	15.31	-4.90	10.41	0.011	18.54	-4.90	13.64	0.023
	802.11n (HT40)	13.86	-5.20	8.66	0.007	13.45	-4.90	8.55	0.007	16.67	-4.90	11.77	0.015
	802.11ac (VHT20)	15.74	-5.20	10.54	0.011	15.29	-4.90	10.39	0.011	18.53	-4.90	13.63	0.023
	802.11ac (VHT40)	13.91	-5.20	8.71	0.007	13.45	-4.90	8.55	0.007	16.70	-4.90	11.80	0.015
	802.11ac (VHT80)	11.46	-5.20	6.26	0.004	10.60	-4.90	5.70	0.004	14.06	-4.90	9.16	0.008

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3. TEST METHODOLOGY

The measurement procedure described in FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01 dated December 14, 2017 entitled "Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices Part15, Subpart E" and ANSI C63.10(Version : 2013) 'the American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices' were used in the measurement. Additionally, for U-NII-4 band, use the following measurement procedure KDB 291074 D02 EMC Measurement v01

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)

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DESCRIPTION OF TEST MODES

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

4. INSTRUMENT CALIBRATION

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

5. FACILITIES AND ACCREDITATIONS

5.1 FACILITIES

The SAC(Semi-Anechoic Chamber) and conducted measurement facility used to collect the radiated data are located at the 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA. The site is constructed in conformance with the requirements of ANSI C63.4. (Version :2014) and CISPR Publication 22.
Detailed description of test facility was submitted to the Commission and accepted dated March 11, 2024 (Registration Number: KR0032).

5.2 EQUIPMENT

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

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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 (±kHz)
X dB, 99% Bandwidth	95 (Confidence level about 95 %, *k=2*)
Frequency stability	28 (Confidence level about 95 %, *k=2*)

Parameter	Expanded Uncertainty (±dB)
Conducted Disturbance (150 kHz ~ 30 MHz)	1.54 (Confidence level about 95 %, *k=2*)
Conducted Output Power(Power Meter)	0.54 (Confidence level about 95 %, k=2)
Conducted Output Power(Signal Analyzer)	0.68 (Confidence level about 95 %, k=2)
Power Spectral Density	1.03 (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)	5.68 (Confidence level about 95 %, *k*=2)
Radiated Disturbance (1 GHz ~ 18 GHz)	5.75 (Confidence level about 95 %, *k*=2)
Radiated Disturbance (18 GHz ~ 40 GHz)	5.82 (Confidence level about 95 %, *k*=2)

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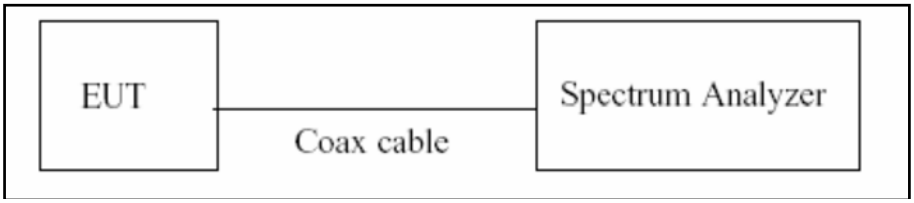
8. DESCRIPTION OF TESTS

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)

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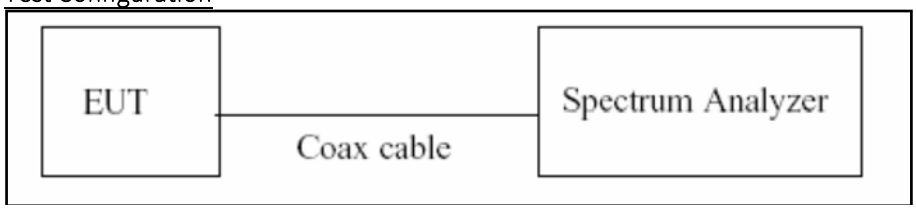
8.2. 6 dB Bandwidth & 26 dB Bandwidth

Limit

Within the 5.725-5.85 GHz(NII-3) & 5.85-5.925 GHz(NII-4) band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

Test Configuration



Test Procedure (26 dB Bandwidth)

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

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

Test Procedure (6 dB Bandwidth)

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

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

Note:

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

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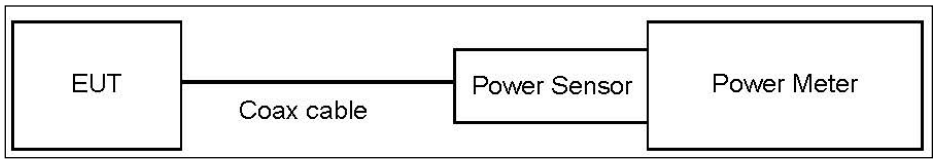
8.3. Output Power Measurement

Limit

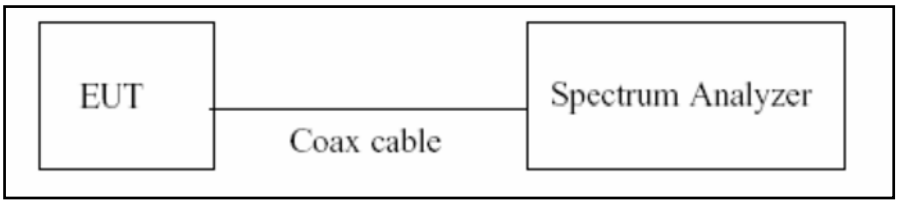
Band	Limit
UNII 1	- Master : Not exceed 1 W(=30 dBm) - Slave : Not exceed 250 mW(=23.98 dBm)
UNII 2A, 2C	Not exceed the lesser of 250 mW or 11 dBm + 10 log B, (where B is the 26 dB emission bandwidth in megahertz.)
UNII 3	Not exceed 1 W(=30 dBm)
UNII 4	EIRP 30 dBm

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.

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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 Values are not plot data.
   The power results in plot is already including the actual values of loss for the attenuator and cable combination.
2. Actual value of loss for the attenuator and cable combination is below table.

Band	Loss(dB)
UNII 1	22.08
UNII 2A	22.08
UNII 2C	22.08
UNII 3&4	22.08

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

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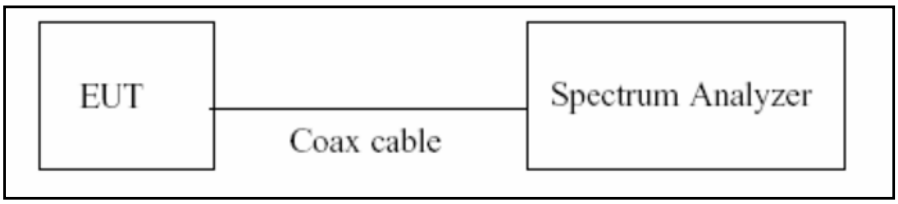
8.4. Power Spectral Density

Limit

Band	Limit
UNII 1	11 dBm/MHz
UNII 2A, 2C	11 dBm/MHz
UNII 3	30 dBm/500 kHz
UNII 4	EIRP 14 dBm/MHz

Test Configuration



Test Procedure

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

1. Set span to encompass the entire emission bandwidth(EBW) of the signal.
2. RBW = 1 MHz(510 kHz for UNII 3)
   ➔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.

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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	22.08
UNII 2A	22.08
UNII 2C	22.08
UNII 3&4	22.08

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

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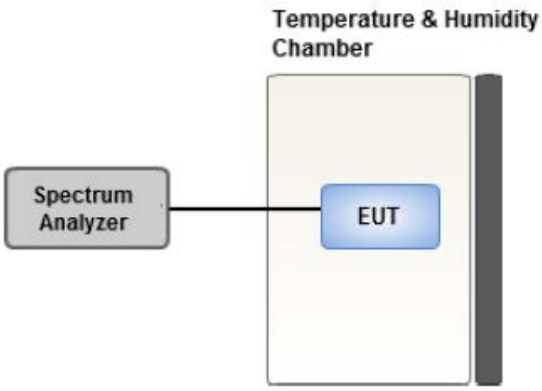
8.5. Frequency Stability

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.

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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

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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. UNII 4: [Low Channel O.O.B.E] measured with a Peak detector

   For a client device or indoor access point or subordinate device, all emissions below 5.725 GHz shall not exceed an e.i.r.p. of −27 dBm/MHz at 5.65 GHz increasing linearly to 10 dBm/MHz at 5.7 GHz, and from 5.7 GHz increasing linearly to a level of 15.6 dBm/MHz at 5.72 GHz, and from 5.72 GHz increasing linearly to a level of 27 dBm/MHz at 5.725 GHz.

   [High Channel O.O.B.E] measured with an RMS detector

   For a client device, all emissions at or above 5.895 GHz shall not exceed an e.i.r.p. of −5 dBm/MHz and shall decrease linearly to an e.i.r.p. of −27 dBm/MHz at or above 5.925 GHz.

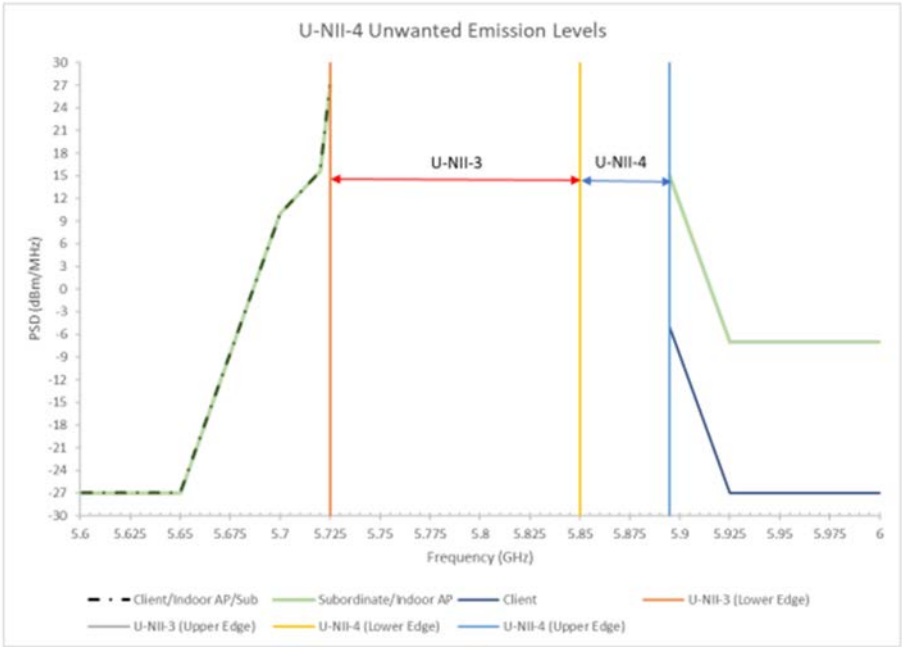

Figure 1. Out of Band Emission Mask of U-NII Devices Operating in the 5.850-5.895 GHz Band

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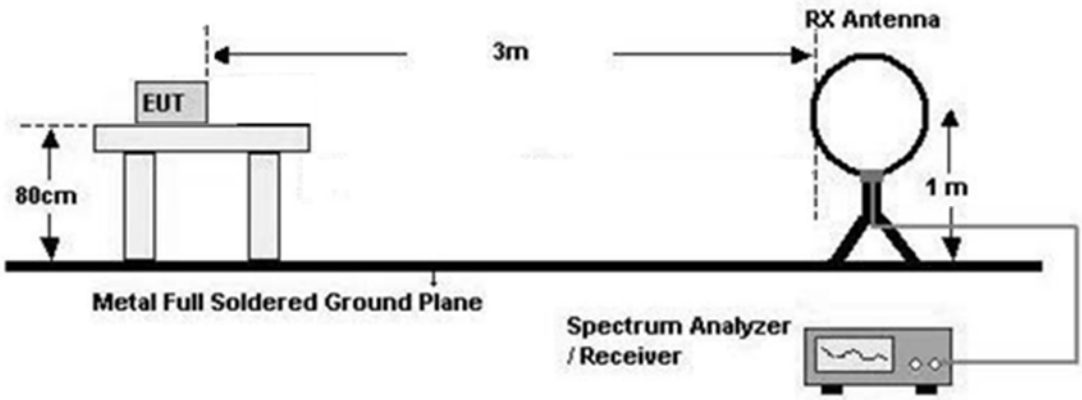
5. All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR must not exceed the limits shown in Section 15.209.

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



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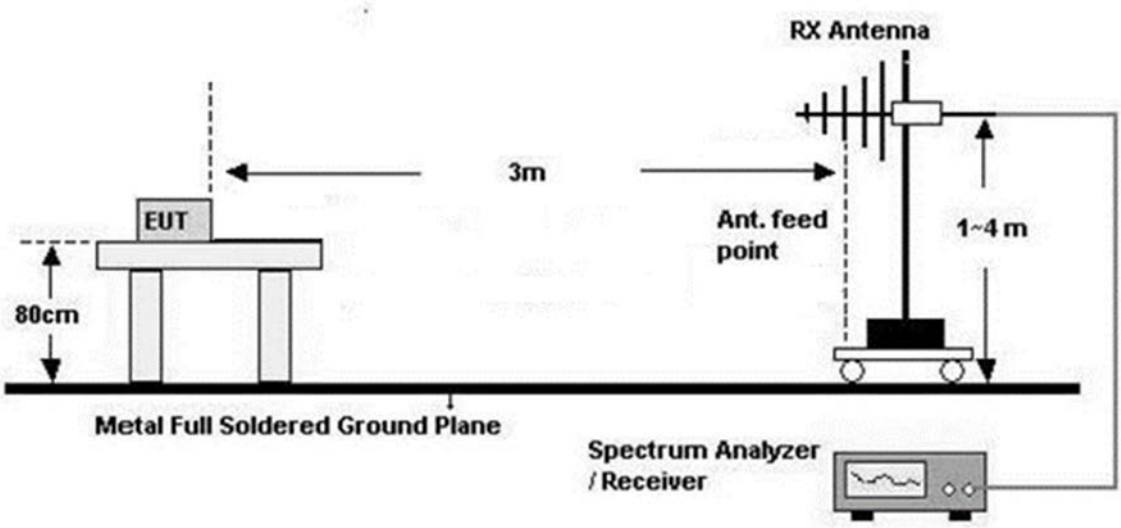
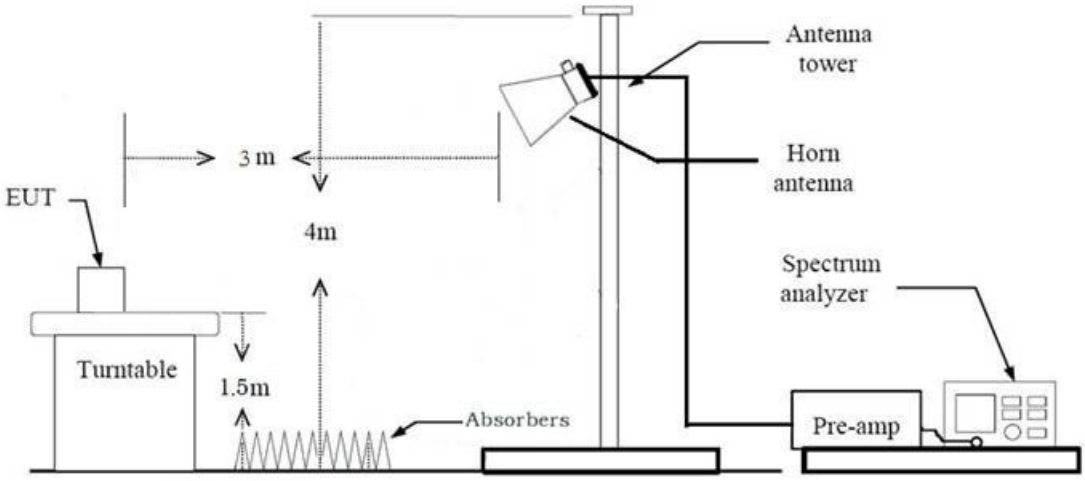
30 MHz - 1 GHz



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 detecting antenna.
5. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
6. Distance Correction Factor(0.009 MHz – 0.490 MHz) =40log(3 m/300 m)= - 80 dB
   Measurement Distance : 3 m
7. Distance Correction Factor(0.490 MHz – 30 MHz) =40log(3 m/30 m)= - 40 dB

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Measurement Distance : 3 m

8. Spectrum Setting

- Frequency Range = 9 kHz ~ 30 MHz
- Detector = 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 detecting antenna.
5. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
6. Spectrum Setting

(1) Measurement Type(Peak):

- Measured Frequency Range : 30 MHz – 1 GHz
- Detector = Peak
- Trace = Max Hold
- RBW = 100 kHz
- VBW ≥ 3 x RBW

(2) Measurement Type(Quasi-peak):

- Measured Frequency Range : 30 MHz – 1 GHz
- Detector = Quasi-Peak
- RBW = 120 kHz

※In general, (1) is used mainly

7.Total = Measured Value + Antenna Factor(A.F) + Cable Loss(C.L)

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8. Measurement value only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.

Test Procedure of Radiated spurious emissions (Above 1 GHz)

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

   (2) Measurement Type (Average, G.6.d in KDB 789033 v02r01):
   - RBW = 1 MHz
   - VBW(Duty cycle ≥ 98 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 detector mode.
   - Detector = Peak.
   - Sweep time = auto.
   - Trace mode = Max Hold.
   - Allow Max Hold to run for at least 50 traces if the transmitted signal is continuous or has at least 98 percent duty cycle. For lower duty cycles, increase the minimum number of traces by a factor of 1/x, where x is the duty cycle.
9. Measurement value only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered

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that's already beyond the background noise floor

10. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency
11. Distance extrapolation factor = 20log (test distance / specific distance) (dB)
12. Total = Measured Value + Antenna Factor(A.F) + Cable Loss(C.L) - Amp Gain(A.G) + Distance Factor(D.F)

Test Procedure of Radiated Restricted Band Edge

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

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

- RBW = 1 MHz
- VBW ≥ 3 MHz
- Detector = Peak
- Sweep Time = auto
- Trace mode = Max Hold
- Allow sweeps to continue until the trace stabilizes.
  Note that if the transmission is not continuous, the time required for the trace to stabilize will increase by a factor of approximately 1/x, where x is the duty cycle.

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

- RBW = 1 MHz
- VBW(Duty cycle ≥ 98 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 detector mode.
- Detector = Peak.
- Sweep time = auto.
- Trace mode = Max Hold.
- Allow Max Hold to run for at least 50 traces if the transmitted signal is continuous or has at least 98 percent duty cycle. For lower duty cycles, increase the minimum number of traces by a factor of 1/x, where x is the duty cycle.

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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	0.935	0.290	1 000
802.11n(HT20)	MCS0	0.930	0.315	1 000
802.11n(HT40)	MCS0	0.870	0.604	3 000
802.11ac(VHT20)	MCS0	0.931	0.308	1 000
802.11ac(VHT40)	MCS0	0.880	0.555	3 000
802.11ac(VHT80)	MCS0	0.770	1.135	5 000

The actual setting value of VBW(MIMO(Ant.1+ Ant.2))

Mode	Worst Data rate (Mbps)	Duty Cycle	Duty Cycle Factor (dB)	The actual setting value of VBW (Hz)
802.11a	6	0.935	0.290	1 000
802.11n(HT20)	MCS8	0.874	0.586	3 000
802.11n(HT40)	MCS8	0.783	1.065	3 000
802.11ac(VHT20)	MCS0	0.874	0.585	3 000
802.11ac(VHT40)	MCS0	0.782	1.068	3 000
802.11ac(VHT80)	MCS0	0.658	1.816	10 000

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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
   - Worstcase : Stand alone
2. All Antenna of operation were investigated and the worst case results are reported
   - Mode : SISO(Ant.2), MIMO_CDD(Ant.1+Ant.2), MIMO_SDM(Ant.1+Ant.2)
   - Worstcase : MIMO_CDD(Ant.1+Ant.2)
3. EUT Axis
   - Radiated Spurious Emissions : Z
   - Radiated Restricted Band Edge : X
4. All datarate of operation were investigated and the worst case datarate results are reported.
   - 802.11a : 6 Mbps [SISO(Ant.2), MIMO_CDD(Ant.1+Ant.2)]
   - 802.11n: MCS 0 [SISO(Ant.2)], MCS 8 [MIMO_SDM(Ant.1+Ant.2)]
   - 802.11ac: MCS 0 [SISO(Ant.2), MIMO_SDM(Ant.1+Ant.2)]
5. Radiated Spurious Emission
   - All modulation of operation were investigated and the worst case modulation results are reported.
   - 802.11a : 6 Mbps [SISO(Ant.2), MIMO_CDD(Ant.1+Ant.2)]
   - 802.11n: MCS 0 [SISO(Ant.2)], MCS 8 [MIMO_SDM(Ant.1+Ant.2)]
   - 802.11ac: MCS 0 [SISO(Ant.2), MIMO_SDM(Ant.1+Ant.2)]
   - Worst-case : 802.11a_6 Mbps [MIMO_CDD(Ant.1+Ant.2)]
6. 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(Simultaneous transmission Scenario)

1. Please refer to the [BT], [UNII ax] 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 + Travel Adapter,
     Stand alone + Travel Adapter
   - Worstcase : Stand alone + Travel Adapter

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9. SUMMARY OF TEST RESULTS & DATA REFERENCING

9.1. Test result

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) (5850-5895 MHz)(UNII-4)		PASS
Maximum Conducted Output Power	§ 15.407(a)(1),(2),(3)	< 250 mW(5150-5250 MHz) < 250 mW or 11+10log$_{10}$ (BW) dBm (5250-5350 MHz) < 250 mW or 11+10log$_{10}$ (BW) dBm (5470-5725 MHz) <1 W (5725-5850 MHz)		PASS
Maximum EIRP Output Power	§ 15.407(a)(3)(iii)	< EIRP 30dBm (5850-5895 MHz)		PASS
Maximum Power Spectral Density	§ 15.407(a)(1),(2),(3)	<11 dBm/ MHz (5150-5250 MHz) <11 dBm/ MHz (5250-5350 MHz) <11 dBm/ MHz (5470-5725 MHz) <30 dBm/500 kHz(5725-5850 MHz) < EIRP 14 dBm/MHz(5850-5895 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&4)	Radiated	PASS
General Field Strength Limits(Restricted Bands and Radiated Emission Limits)	15.205, 15.407(b)(9),(10)	Emissions in restricted bands must meet the radiated limits detailed in 15.209		PASS

Note:

1. UNII 2A, 2C: TPC mechanism is not required for systems with an e.i.r.p. of less than 500 mW.
2. The decision rule applies 'simple acceptance'

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9.2. Data Referencing

Equipment Class	Rule Part	Test item	Data Referencing	Comments
UNII (WLAN 5GHz)	§ 15.407 (for Power	26 dB Bandwidth	Y	-
	15.407(e)	6 dB Bandwidth	Y	-
	§ 15.407(a)(1),(2),(3)	Maximum Conducted output power	Y	Spot-check
	§ 15.407(a)(3)(iii)	Maximum EIRP Output Power	Y	-
	§ 15.407(a)(1),(2),(3)	Maximum Power Spectral Density	Y	-
	15.207 15.407(b)(8)	AC conducted Emission	Y	-
	§ 15.407(g) § 2.1055	Frequency Stability	Y	-
	§ 15.407(b) (1),(2),(3),(4) § 15.407(b)(5)(ii),(iii) § 15.35(b)	Undesirable Emissions	Y	Spot-check
	15.205, 15.407(b)(9),(10)	General Field Strength (Restricted bands and Radiated emission)	Y	Spot-check
	15.407(h)	DFS	Y	-

Spot-Check Result

1. Data was leveraged from model SM-X406B for the certification of SM-X400.
2. Please refer to the [FCC Evaluation] Report.

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10. TEST RESULT

10.1 DUTY CYCLE

[SISO]

Mode	Data Rate	T_{on} (ms)	T_{total} (ms)	Duty Cycle	Duty Cycle Factor (dB)
802.11a	6M	1.428	1.527	0.935	0.290
802.11n(HT20)	MCS0	1.336	1.437	0.930	0.315
802.11n(HT40)	MCS0	0.664	0.763	0.870	0.604
802.11ac(VHT20)	MCS0	1.344	1.443	0.931	0.308
802.11ac(VHT40)	MCS0	0.668	0.759	0.880	0.555
802.11ac(VHT80)	MCS0	0.332	0.432	0.770	1.135

[MIMO (Ant.1+ Ant.2)]

Mode	Data Rate	T_{on} (ms)	T_{total} (ms)	Duty Cycle	Duty Cycle Factor (dB)
802.11a	6M	1.428	1.527	0.935	0.290
802.11n(HT20)	MCS8	0.692	0.792	0.874	0.586
802.11n(HT40)	MCS8	0.357	0.456	0.783	1.065
802.11ac(VHT20)	MCS0	0.695	0.796	0.874	0.585
802.11ac(VHT40)	MCS0	0.360	0.460	0.782	1.068
802.11ac(VHT80)	MCS0	0.192	0.292	0.658	1.816

Note:

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

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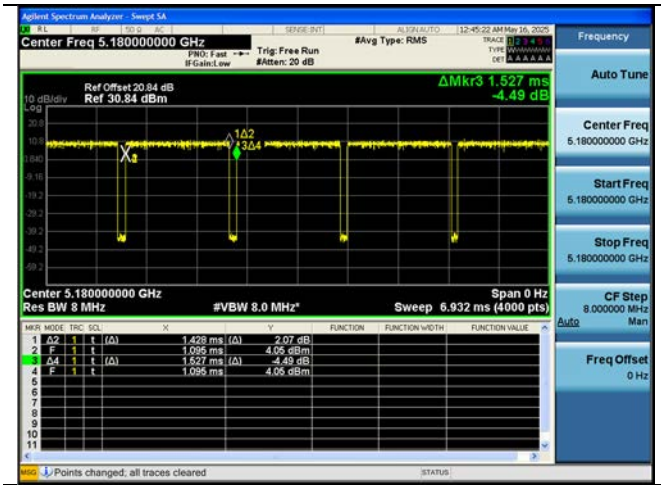
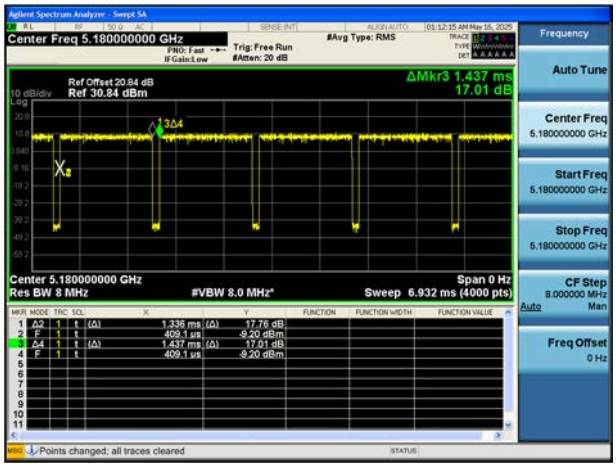
[SISO]

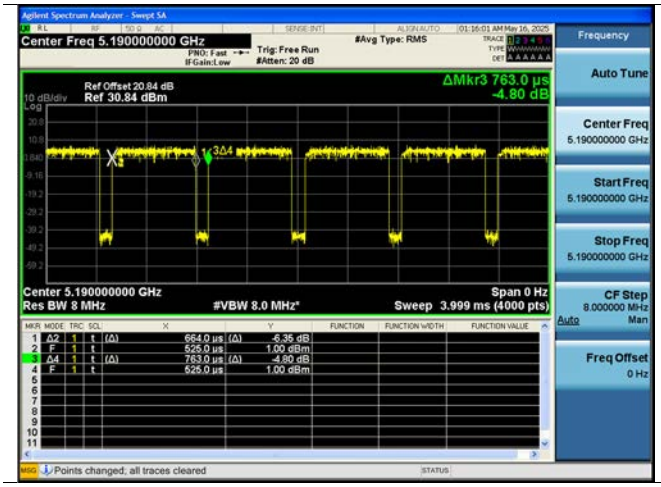
802.11a



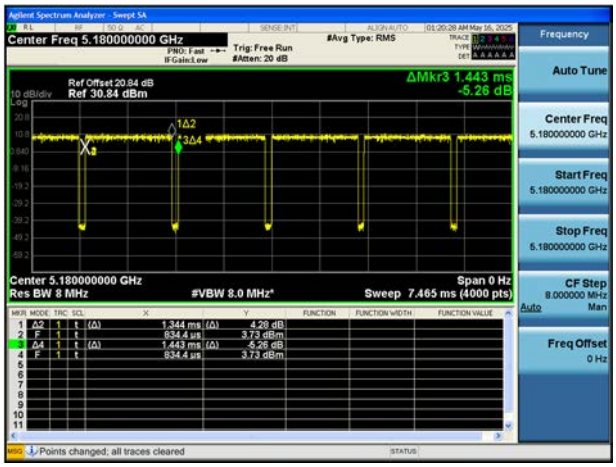
802.11n(HT20)



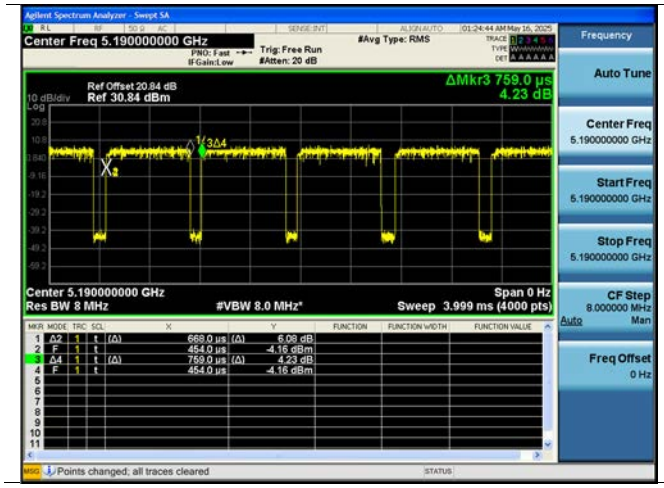
802.11n(HT40)



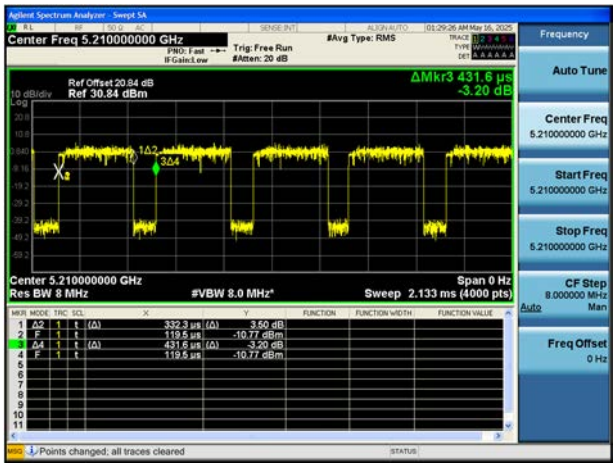
802.11ac(VHT20)



802.11ac(VHT40)



802.11ac(VHT80)



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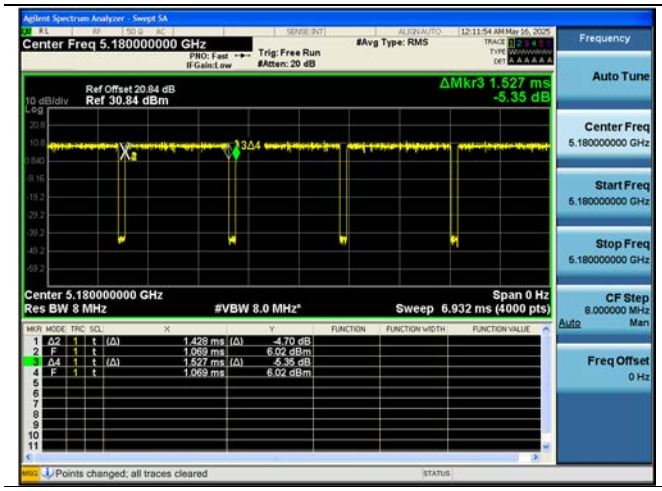
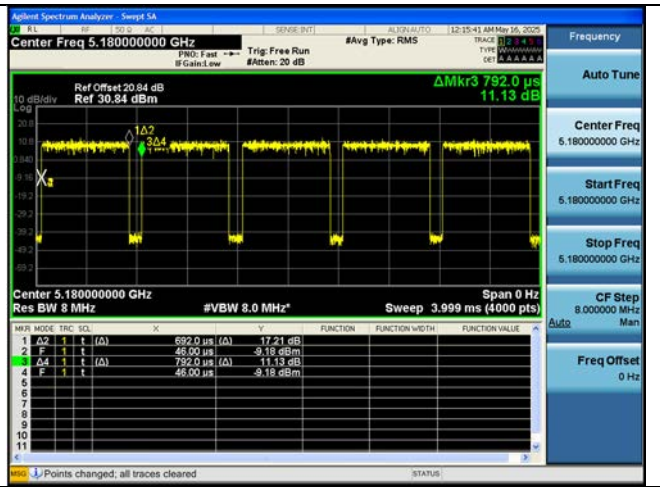
[MIMO (Ant.1+ Ant.2)]

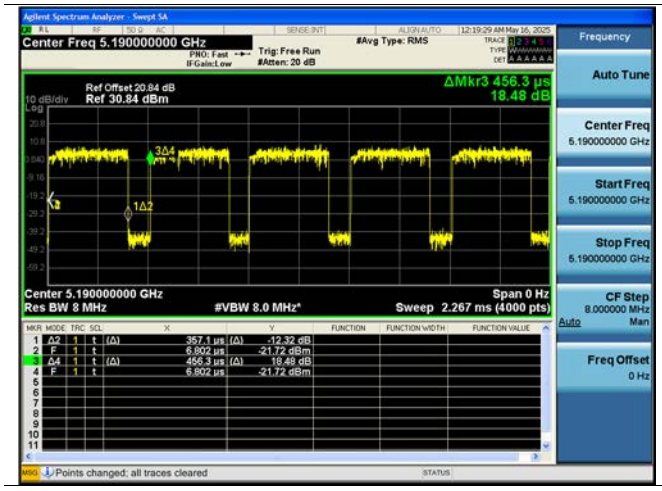
802.11a



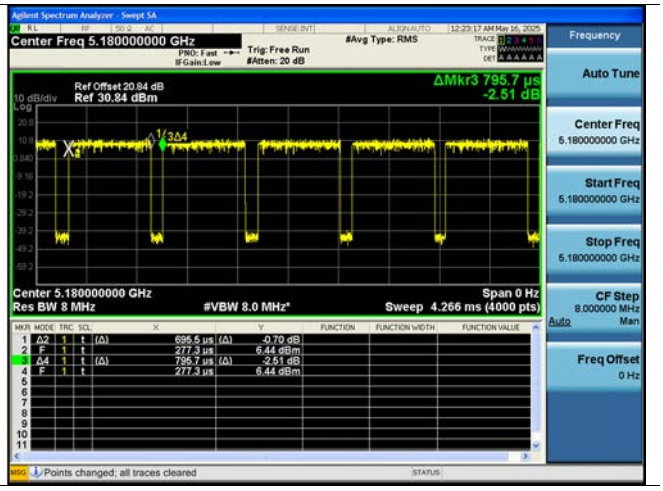
802.11n(HT20)



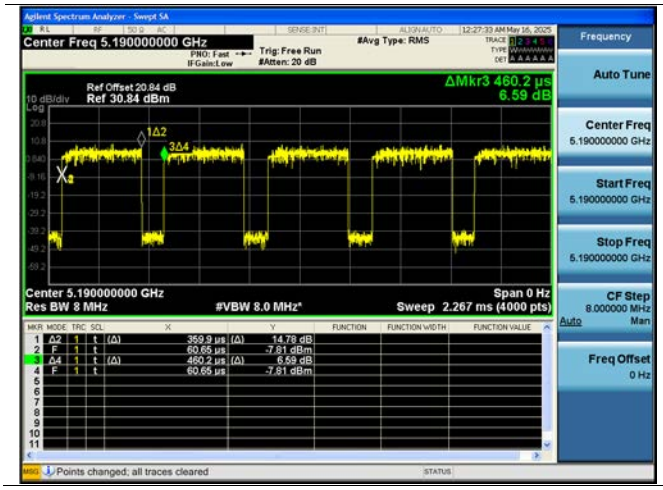
802.11n(HT40)



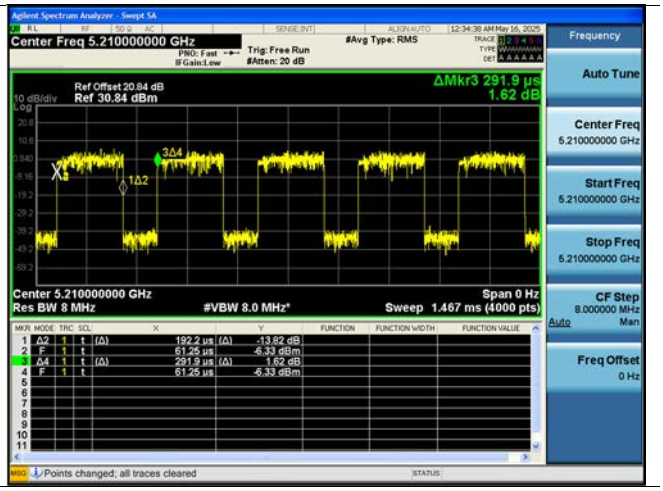
802.11ac(VHT20)



802.11ac(VHT40)



802.11ac(VHT80)



The report shall not be (partly) reproduced except in full without approval of the laboratory.

10.2 26 dB Bandwidth

Note:

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

[Ant.1]

Mode : 802.11a				
BAND	Freq. [MHz]	CH.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
UNII1	5180	36	20.69	16.567
	5200	40	21.10	16.565
	5240	48	21.05	16.578
UNII2A	5260	52	21.82	16.593
	5300	60	21.15	16.572
	5320	64	20.75	16.564
UNII2C	5500	100	20.56	16.567
	5580	116	20.58	16.545
	5720	144	21.01	16.582
UNII3	5745	149	20.60	16.550
	5785	157	21.19	16.548
	5825	165	20.93	16.567
UNII4	5845	169	21.31	16.587
	5865	173	21.19	16.582
	5885	177	22.18	16.585

Mode : 802.11n(HT20)				
BAND	Freq. [MHz]	CH.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
UNII1	5180	36	22.53	17.717
	5200	40	22.49	17.723
	5240	48	22.11	17.735
UNII2A	5260	52	22.51	17.724
	5300	60	22.30	17.703
	5320	64	21.94	17.712
UNII2C	5500	100	21.95	17.704
	5580	116	21.62	17.712
	5720	144	21.87	17.703
UNII3	5745	149	22.22	17.700
	5785	157	21.98	17.700
	5825	165	22.41	17.720
UNII4	5845	169	22.19	17.705
	5865	173	22.23	17.711
	5885	177	22.28	17.717

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Mode : 802.11ac(VHT20)				
BAND	Freq. [MHz]	CH.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
UNII1	5180	36	22.26	17.716
	5200	40	22.30	17.720
	5240	48	22.25	17.704
UNII2A	5260	52	22.43	17.717
	5300	60	21.75	17.686
	5320	64	21.84	17.701
UNII2C	5500	100	22.26	17.687
	5580	116	21.71	17.695
	5720	144	22.20	17.698
UNII3	5745	149	22.11	17.693
	5785	157	21.84	17.701
	5825	165	22.24	17.704
UNII4	5845	169	22.25	17.706
	5865	173	22.23	17.714
	5885	177	22.06	17.709

Mode : 802.11n(HT40)				
BAND	Freq. [MHz]	CH.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
UNII1	5190	38	42.35	36.401
	5230	46	42.07	36.371
UNII2A	5270	54	42.44	36.431
	5310	62	42.18	36.371
UNII2C	5510	102	42.58	36.399
	5550	110	42.40	36.399
	5710	142	42.37	36.400
UNII3	5755	151	42.75	36.372
	5795	159	42.28	36.345
UNII4	5835	167	42.38	36.356
	5875	175	42.12	36.425

Mode : 802.11ac(VHT40)				
BAND	Freq. [MHz]	CH.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
UNII1	5190	38	42.15	36.405
	5230	46	42.69	36.451
UNII2A	5270	54	42.14	36.374
	5310	62	42.02	36.412
UNII2C	5510	102	42.40	36.370
	5550	110	42.02	36.383
	5710	142	42.28	36.364
UNII3	5755	151	42.31	36.363
	5795	159	42.21	36.352
UNII4	5835	167	42.25	36.337
	5875	175	41.95	36.358

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Mode : 802.11ac(VHT80)				
BAND	Freq. [MHz]	CH.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
UNII1	5210	42	81.95	75.808
UNII2A	5290	58	81.46	75.889
UNII2C	5530	106	82.37	75.781
	5610	122	82.54	75.871
	5690	138	81.97	75.781
UNII3	5775	155	82.54	75.849
UNII4	5855	171	81.55	75.863

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[Ant.2]

Mode : 802.11a				
BAND	Freq. [MHz]	CH.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
UNII1	5180	36	20.93	16.577
	5200	40	20.87	16.572
	5240	48	21.34	16.586
UNII2A	5260	52	22.17	16.597
	5300	60	21.32	16.587
	5320	64	21.29	16.573
UNII2C	5500	100	20.87	16.556
	5580	116	21.02	16.559
	5720	144	20.69	16.550
UNII3	5745	149	21.02	16.538
	5785	157	20.43	16.548
	5825	165	20.94	16.567
UNII4	5845	169	21.11	16.567
	5865	173	20.96	16.547
	5885	177	21.26	16.551

Mode : 802.11n(HT20)				
BAND	Freq. [MHz]	CH.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
UNII1	5180	36	21.39	17.677
	5200	40	21.41	17.670
	5240	48	21.71	17.690
UNII2A	5260	52	22.01	17.683
	5300	60	21.49	17.668
	5320	64	21.59	17.663
UNII2C	5500	100	21.78	17.652
	5580	116	21.53	17.651
	5720	144	21.72	17.656
UNII3	5745	149	21.28	17.647
	5785	157	21.52	17.652
	5825	165	21.34	17.654
UNII4	5845	169	21.61	17.658
	5865	173	21.33	17.652
	5885	177	21.29	17.645

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Mode : 802.11ac(VHT20)				
BAND	Freq. [MHz]	CH.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
UNII1	5180	36	21.59	17.662
	5200	40	21.54	17.666
	5240	48	21.80	17.663
UNII2A	5260	52	21.61	17.669
	5300	60	21.37	17.670
	5320	64	21.85	17.665
UNII2C	5500	100	21.27	17.668
	5580	116	21.30	17.656
	5720	144	21.42	17.656
UNII3	5745	149	21.38	17.648
	5785	157	21.03	17.641
	5825	165	21.47	17.655
UNII4	5845	169	21.31	17.653
	5865	173	21.42	17.645
	5885	177	21.26	17.640

Mode : 802.11n(HT40)				
BAND	Freq. [MHz]	CH.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
UNII1	5190	38	41.63	36.309
	5230	46	41.93	36.295
UNII2A	5270	54	41.25	36.281
	5310	62	41.27	36.313
UNII2C	5510	102	41.46	36.315
	5550	110	42.00	36.308
	5710	142	41.00	36.277
UNII3	5755	151	41.28	36.272
	5795	159	40.83	36.302
UNII4	5835	167	41.16	36.264
	5875	175	41.31	36.228

Mode : 802.11ac(VHT40)				
BAND	Freq. [MHz]	CH.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
UNII1	5190	38	42.04	36.315
	5230	46	41.64	36.295
UNII2A	5270	54	41.09	36.321
	5310	62	41.10	36.308
UNII2C	5510	102	41.25	36.286
	5550	110	40.94	36.293
	5710	142	41.06	36.280
UNII3	5755	151	41.11	36.256
	5795	159	41.48	36.284
UNII4	5835	167	41.16	36.235
	5875	175	41.49	36.229

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Mode : 802.11ac(VHT80)				
BAND	Freq. [MHz]	CH.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
UNII1	5210	42	81.79	75.849
UNII2A	5290	58	81.37	75.700
UNII2C	5530	106	82.39	75.766
	5610	122	82.25	75.678
	5690	138	81.78	75.619
UNII3	5775	155	81.82	75.618
UNII4	5855	171	81.51	75.644

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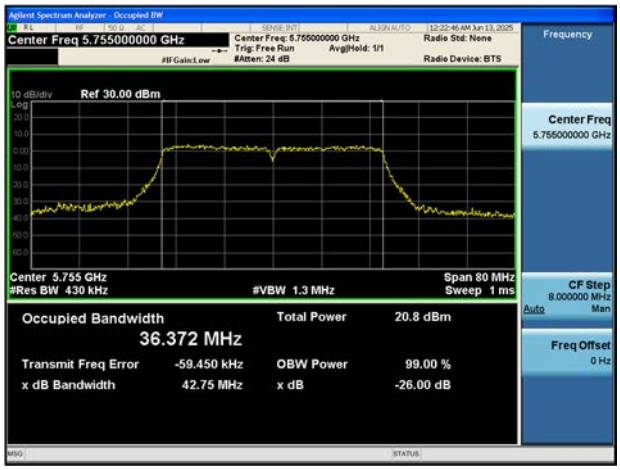
[ANT. 1]

▣ Test Plots

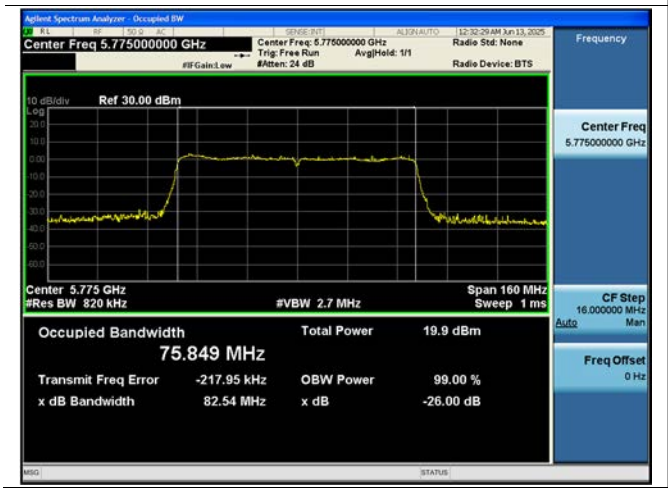
Note:In order to simplify the report, attached plots were only the widest channel per channel bandwidth.

Bandwidth 20M, 802.11n(HT20) Ch.36

Bandwidth 40M, 802.11n(HT40) Ch.151



Bandwidth 80M, 802.11ac(VHT80) Ch.155



The report shall not be (partly) reproduced except in full without approval of the laboratory.

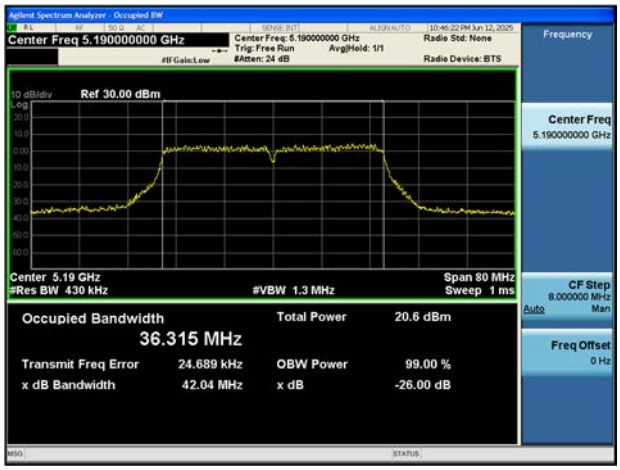
[ANT. 2]

▣ Test Plots

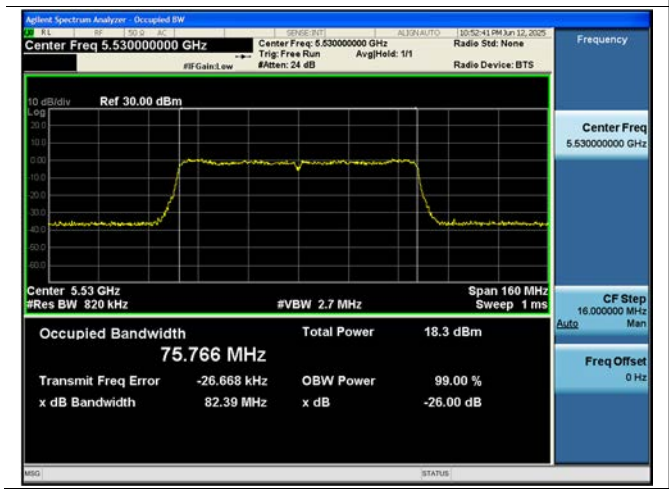
Note:In order to simplify the report, attached plots were only the widest channel per channel bandwidth.

Bandwidth 20M, 802.11a Ch.52

Bandwidth 40M, 802.11ac(VHT40) Ch.38



Bandwidth 80M, 802.11ac(VHT80) Ch.106



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10.3 6 dB BANDWIDTH

[Ant.1]

Mode : 802.11a				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5745	149	16.34	> 0.5
	5785	157	16.37	> 0.5
	5825	165	16.34	> 0.5
UNII4	5845	169	16.35	> 0.5
	5865	173	16.35	> 0.5
	5885	177	16.34	> 0.5

Mode : 802.11n(HT20)				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5745	149	17.53	> 0.5
	5785	157	17.54	> 0.5
	5825	165	17.52	> 0.5
UNII4	5845	169	17.52	> 0.5
	5865	173	17.54	> 0.5
	5885	177	17.53	> 0.5

Mode : 802.11ac(VHT20)				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5745	149	17.35	> 0.5
	5785	157	17.57	> 0.5
	5825	165	17.29	> 0.5
UNII4	5845	169	17.52	> 0.5
	5865	173	17.54	> 0.5
	5885	177	17.35	> 0.5

Mode : 802.11n(HT40)				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5755	151	36.04	> 0.5
	5795	159	36.10	> 0.5
UNII4	5835	167	36.09	> 0.5
	5875	175	35.78	> 0.5

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Mode : 802.11ac(VHT40)				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5755	151	36.28	> 0.5
	5795	159	35.76	> 0.5
UNII4	5835	167	35.76	> 0.5
	5875	175	35.77	> 0.5

Mode : 802.11ac(VHT80)				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5775	155	75.54	> 0.5
UNII4	5855	171	75.73	> 0.5

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[Ant.2]

Mode : 802.11a				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5745	149	16.36	> 0.5
	5785	157	16.35	> 0.5
	5825	165	16.37	> 0.5
UNII4	5845	169	16.37	> 0.5
	5865	173	16.33	> 0.5
	5885	177	16.34	> 0.5

Mode : 802.11n(HT20)				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5745	149	17.59	> 0.5
	5785	157	17.61	> 0.5
	5825	165	17.59	> 0.5
UNII4	5845	169	17.34	> 0.5
	5865	173	17.58	> 0.5
	5885	177	17.58	> 0.5

Mode : 802.11ac(VHT20)				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5745	149	17.59	> 0.5
	5785	157	17.59	> 0.5
	5825	165	17.58	> 0.5
UNII4	5845	169	17.33	> 0.5
	5865	173	17.58	> 0.5
	5885	177	17.55	> 0.5

Mode : 802.11n(HT40)				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5755	151	36.30	> 0.5
	5795	159	36.10	> 0.5
UNII4	5835	167	36.41	> 0.5
	5875	175	36.30	> 0.5

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Mode : 802.11ac(VHT40)				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5755	151	36.15	> 0.5
	5795	159	36.40	> 0.5
UNII4	5835	167	36.37	> 0.5
	5875	175	36.34	> 0.5

Mode : 802.11ac(VHT80)				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5775	155	75.92	> 0.5
UNII4	5855	171	75.83	> 0.5

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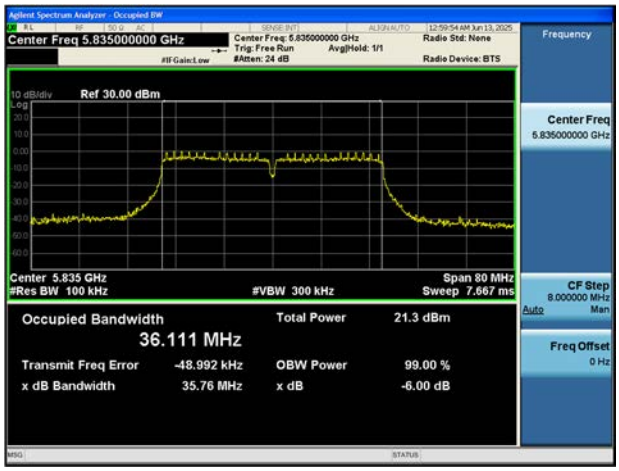
[ANT. 1]

▣ Test Plots

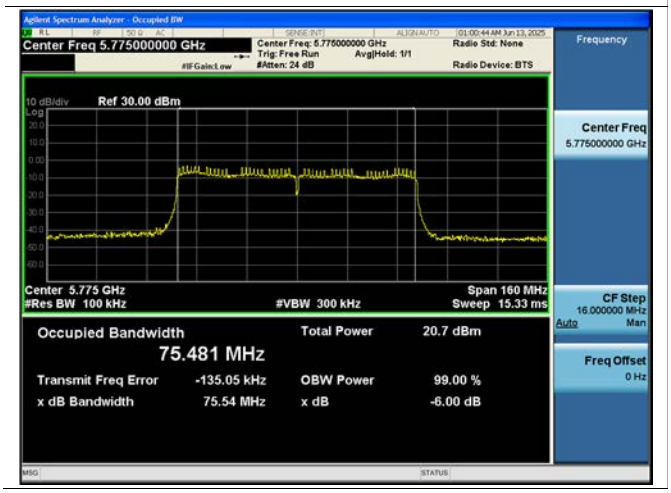
Note: In order to simplify the report, attached plots were only the narrowest channel.

Bandwidth 20M, 802.11a Ch.177

Bandwidth 40M, 802.11ac(VHT40) Ch.167



Bandwidth 80M, 802.11ac(VHT80) Ch.155



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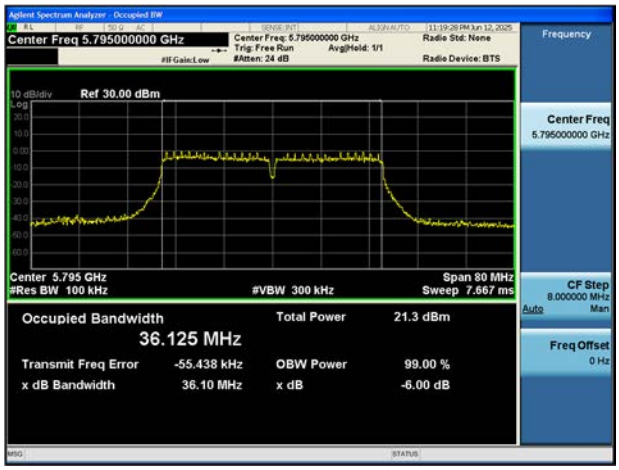
[ANT. 2]

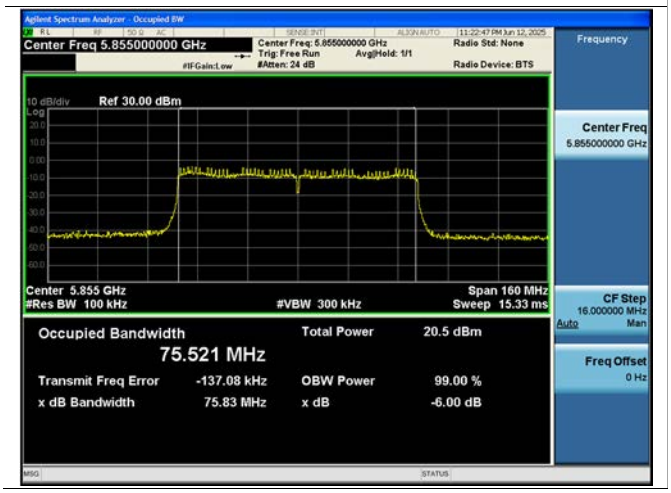
Note: In order to simplify the report, attached plots were only the narrowest channel.

Bandwidth 20M, 802.11a Ch.173

Bandwidth 40M, 802.11n(HT40) Ch.159



Bandwidth 80M, 802.11ac(VHT80) Ch.171



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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
(UNII 4) : EIRP 30.0 dBm/MHz
(UNII 3&4) : Worst limit 30.00 dBm ➔ UNII 4 Band Antenna Gain Negative
Ant Total Power [dBm] = Measured Power [dBm] + Duty Cycle Factor [dB]
MIMO(Ant.1+ Ant.2) Total Power [dBm] = Ant.1 Total Power [dBm] + Ant.2 Total Power [dBm]
Max EIRP = Total Power [dBm] + Directional Gain [dBi]

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[SISO(Ant.2)]

Mode : 802.11a									
Band	Freq. [MHz]	CH.	Worstcase Datarate	Measured Power [dBm]	Duty cycle Fcator [dB]	Total Power [dBm]	Antenna Gain [dBi]	e.i.r.p [dBm]	Limit [dBm]
UNII1	5180	36	6M	15.27	0.29	15.56	-	-	23.98
	5200	40	6M	14.85	0.29	15.14	-	-	23.98
	5240	48	6M	15.49	0.29	15.78	-	-	23.98
UNII2A	5260	52	6M	15.30	0.29	15.59	-	-	23.98
	5300	60	6M	14.66	0.29	14.95	-	-	23.98
	5320	64	6M	14.24	0.29	14.53	-	-	23.98
UNII2C	5500	100	6M	14.25	0.29	14.55	-	-	23.98
	5580	116	6M	14.67	0.29	14.96	-	-	23.98
	5720	144	6M	15.27	0.29	15.57	-	-	23.98
UNII3	5745	149	6M	14.76	0.29	15.05	-	-	30.00
	5785	157	6M	14.93	0.29	15.22	-	-	30.00
	5825	165	6M	15.25	0.29	15.54	-	-	30.00
UNII4	5825	169	6M	15.28	0.29	15.57	-4.90	10.67	30dBm/EIRP
	5825	173	6M	15.39	0.29	15.68	-4.90	10.78	30dBm/EIRP
	5825	177	6M	15.40	0.29	15.69	-4.90	10.79	30dBm/EIRP

Mode : 802.11n(HT20)									
Band	Freq. [MHz]	CH.	Worstcase Datarate	Measured Power [dBm]	Duty cycle Fcator [dB]	Total Power [dBm]	Antenna Gain [dBi]	e.i.r.p [dBm]	Limit [dBm]
UNII1	5180	36	MCS0	15.18	0.31	15.50	-	-	23.98
	5200	40	MCS0	14.79	0.31	15.10	-	-	23.98
	5240	48	MCS0	15.44	0.31	15.76	-	-	23.98
UNII2A	5260	52	MCS0	14.30	0.31	14.61	-	-	23.98
	5300	60	MCS0	14.69	0.31	15.00	-	-	23.98
	5320	64	MCS0	14.55	0.31	14.87	-	-	23.98
UNII2C	5500	100	MCS0	14.30	0.31	14.62	-	-	23.98
	5580	116	MCS0	14.44	0.31	14.75	-	-	23.98
	5720	144	MCS0	15.18	0.31	15.50	-	-	23.98
UNII3	5745	149	MCS0	14.69	0.31	15.00	-	-	30.00
	5785	157	MCS0	14.56	0.31	14.87	-	-	30.00
	5825	165	MCS0	15.18	0.31	15.49	-	-	30.00
UNII4	5825	169	MCS0	15.22	0.31	15.53	-4.90	10.63	30dBm/EIRP
	5825	173	MCS0	15.27	0.31	15.59	-4.90	10.69	30dBm/EIRP
	5825	177	MCS0	15.28	0.31	15.60	-4.90	10.70	30dBm/EIRP

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Mode : 802.11ac(VHT20)									
Band	Freq. [MHz]	CH.	Worstcase Datarate	Measured Power [dBm]	Duty cycle Fcator [dB]	Total Power [dBm]	Antenna Gain [dBi]	e.i.r.p [dBm]	Limit [dBm]
UNII1	5180	36	MCS0	15.18	0.31	15.49	-	-	23.98
	5200	40	MCS0	14.84	0.31	15.15	-	-	23.98
	5240	48	MCS0	14.52	0.31	14.82	-	-	23.98
UNII2A	5260	52	MCS0	14.33	0.31	14.64	-	-	23.98
	5300	60	MCS0	14.65	0.31	14.96	-	-	23.98
	5320	64	MCS0	14.53	0.31	14.84	-	-	23.98
UNII2C	5500	100	MCS0	14.29	0.31	14.60	-	-	23.98
	5580	116	MCS0	14.43	0.31	14.74	-	-	23.98
	5720	144	MCS0	15.12	0.31	15.43	-	-	23.98
UNII3	5745	149	MCS0	14.59	0.31	14.90	-	-	30.00
	5785	157	MCS0	14.80	0.31	15.11	-	-	30.00
	5825	165	MCS0	15.17	0.31	15.48	-	-	30.00
UNII4	5825	169	MCS0	15.12	0.31	15.43	-4.90	10.53	30dBm/EIRP
	5825	173	MCS0	15.25	0.31	15.56	-4.90	10.66	30dBm/EIRP
	5825	177	MCS0	15.26	0.31	15.57	-4.90	10.67	30dBm/EIRP

Mode : 802.11n(HT40)									
Band	Freq. [MHz]	CH.	Worstcase Datarate	Measured Power [dBm]	Duty cycle Fcator [dB]	Total Power [dBm]	Antenna Gain [dBi]	e.i.r.p [dBm]	Limit [dBm]
UNII1	5190	38	MCS0	10.51	0.60	11.11	-	-	23.98
	5230	46	MCS0	12.22	0.60	12.82	-	-	23.98
UNII2A	5270	54	MCS0	11.97	0.60	12.58	-	-	23.98
	5310	62	MCS0	12.02	0.60	12.62	-	-	23.98
UNII2C	5510	102	MCS0	11.45	0.60	12.05	-	-	23.98
	5550	110	MCS0	12.38	0.60	12.99	-	-	23.98
	5710	142	MCS0	12.58	0.60	13.19	-	-	23.98
UNII3	5755	151	MCS0	13.11	0.60	13.71	-	-	30.00
	5795	159	MCS0	13.03	0.60	13.64	-	-	30.00
UNII4	5755	167	MCS0	13.03	0.60	13.63	-4.90	8.73	30dBm/EIRP
	5795	175	MCS0	12.72	0.60	13.32	-4.90	8.42	30dBm/EIRP

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Mode : 802.11ac(VHT40)									
Band	Freq. [MHz]	CH.	Worstcase Datarate	Measured Power [dBm]	Duty cycle Fcator [dB]	Total Power [dBm]	Antenna Gain [dBi]	e.i.r.p [dBm]	Limit [dBm]
UNII1	5190	38	MCS0	10.47	0.55	11.03	-	-	23.98
	5230	46	MCS0	12.22	0.55	12.77	-	-	23.98
UNII2A	5270	54	MCS0	11.99	0.55	12.54	-	-	23.98
	5310	62	MCS0	11.97	0.55	12.53	-	-	23.98
UNII2C	5510	102	MCS0	11.45	0.55	12.01	-	-	23.98
	5550	110	MCS0	12.38	0.55	12.94	-	-	23.98
	5710	142	MCS0	12.58	0.55	13.14	-	-	23.98
UNII3	5755	151	MCS0	13.12	0.55	13.67	-	-	30.00
	5795	159	MCS0	13.03	0.55	13.58	-	-	30.00
UNII4	5755	167	MCS0	13.04	0.55	13.59	-4.90	8.69	30dBm/EIRP
	5795	175	MCS0	12.71	0.55	13.26	-4.90	8.36	30dBm/EIRP

Mode : 802.11ac(VHT80)									
Band	Freq. [MHz]	CH.	Worstcase Datarate	Measured Power [dBm]	Duty cycle Fcator [dB]	Total Power [dBm]	Antenna Gain [dBi]	e.i.r.p [dBm]	Limit [dBm]
UNII1	5210	42	MCS0	10.30	1.135	11.43	-	-	23.98
UNII2A	5290	58	MCS0	9.91	1.135	11.04	-	-	23.98
UNII2C	5530	106	MCS0	9.34	1.135	10.48	-	-	23.98
	5610	122	MCS0	9.07	1.135	10.21	-	-	23.98
	5690	138	MCS0	9.68	1.135	10.82	-	-	23.98
UNII3	5775	155	MCS0	10.06	1.135	11.20	-	-	30.00
UNII4	5775	171	MCS0	10.07	1.135	11.21	-4.90	6.31	30dBm/EIRP

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[MIMO(Ant.1+ Ant.2)]

Freq. [MHz]	CH.	Datarate	Mode (802.11)	Total Average Power [dBm]			Ant.1 Gain	Ant.2 Gain	Directional Gain	Max EIRP	Limit
				ANT1	ANT2	MIMO	[dBi]	[dBi]	[dBi]	[dBm]	[dBm]
5180	36	6M	a	15.56	15.69	18.64	-	-	-	-	23.98
5200	40	6M	a	15.42	15.23	18.34	-	-	-	-	23.98
5240	48	6M	a	16.20	15.88	19.05	-	-	-	-	23.98
5260	52	6M	a	16.01	15.71	18.87	-	-	-	-	23.98
5300	60	6M	a	15.30	15.11	18.21	-	-	-	-	23.98
5320	64	6M	a	15.42	14.70	18.08	-	-	-	-	23.98
5500	100	6M	a	15.82	14.63	18.27	-	-	-	-	23.98
5580	116	6M	a	15.31	14.88	18.11	-	-	-	-	23.98
5720	144	6M	a	16.12	15.62	18.89	-	-	-	-	23.98
5745	149	6M	a	15.06	15.15	18.11	-	-	-	-	30.00
5785	157	6M	a	15.20	15.01	18.12	-	-	-	-	30.00
5825	165	6M	a	16.71	15.63	19.22	-	-	-	-	30.00
5845	169	6M	a	16.10	15.67	18.90	-5.20	-4.90	-2.04	16.86	30 EIRP
5865	173	6M	a	15.96	15.71	18.85	-5.20	-4.90	-2.04	16.81	30 EIRP
5885	177	6M	a	15.94	15.71	18.84	-5.20	-4.90	-2.04	16.80	30 EIRP

Freq. [MHz]	CH.	Datarate	Mode (802.11)	Total Average Power [dBm]			Ant.1 Gain	Ant.2 Gain	Directional Gain	Max EIRP	Limit
				ANT1	ANT2	MIMO	[dBi]	[dBi]	[dBi]	[dBm]	[dBm]
5180	36	MCS8	n20	15.26	15.30	18.29	-	-	-	-	23.98
5200	40	MCS8	n20	15.35	15.01	18.20	-	-	-	-	23.98
5240	48	MCS8	n20	15.99	15.73	18.87	-	-	-	-	23.98
5260	52	MCS8	n20	14.99	14.61	17.81	-	-	-	-	23.98
5300	60	MCS8	n20	14.85	14.52	17.70	-	-	-	-	23.98
5320	64	MCS8	n20	14.78	14.34	17.58	-	-	-	-	23.98
5500	100	MCS8	n20	15.46	14.35	17.95	-	-	-	-	23.98
5580	116	MCS8	n20	14.81	14.78	17.81	-	-	-	-	23.98
5720	144	MCS8	n20	16.07	15.27	18.70	-	-	-	-	23.98
5745	149	MCS8	n20	14.60	14.76	17.69	-	-	-	-	30.00
5785	157	MCS8	n20	14.81	14.93	17.88	-	-	-	-	30.00
5825	165	MCS8	n20	16.03	15.34	18.71	-	-	-	-	30.00
5845	169	MCS8	n20	15.74	15.31	18.54	-5.20	-4.90	-4.90	13.64	30 EIRP
5865	173	MCS8	n20	15.73	15.30	18.53	-5.20	-4.90	-4.90	13.63	30 EIRP
5885	177	MCS8	n20	15.72	15.27	18.51	-5.20	-4.90	-4.90	13.61	30 EIRP

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Freq. [MHz]	CH.	Datarate	Mode (802.11)	Total Average Power [dBm]			Ant.1 Gain	Ant.2 Gain	Directional Gain	Max EIRP	Limit
				ANT1	ANT2	MIMO	[dBi]	[dBi]	[dBi]	[dBm]	[dBm]
5180	36	MCS0	ac20	15.23	15.24	18.25	-	-	-	-	23.98
5200	40	MCS0	ac20	15.36	15.05	18.22	-	-	-	-	23.98
5240	48	MCS0	ac20	15.01	14.85	17.94	-	-	-	-	23.98
5260	52	MCS0	ac20	15.00	14.59	17.81	-	-	-	-	23.98
5300	60	MCS0	ac20	14.80	14.42	17.62	-	-	-	-	23.98
5320	64	MCS0	ac20	14.79	14.31	17.56	-	-	-	-	23.98
5500	100	MCS0	ac20	15.47	14.33	17.95	-	-	-	-	23.98
5580	116	MCS0	ac20	14.85	14.79	17.83	-	-	-	-	23.98
5720	144	MCS0	ac20	16.10	15.29	18.72	-	-	-	-	23.98
5745	149	MCS0	ac20	14.65	14.85	17.76	-	-	-	-	30.00
5785	157	MCS0	ac20	14.77	14.86	17.82	-	-	-	-	30.00
5825	165	MCS0	ac20	16.04	15.32	18.71	-	-	-	-	30.00
5845	169	MCS0	ac20	15.63	15.32	18.49	-5.20	-4.90	-4.90	13.59	30 EIRP
5865	173	MCS0	ac20	15.74	15.29	18.53	-5.20	-4.90	-4.90	13.63	30 EIRP
5885	177	MCS0	ac20	15.68	15.21	18.46	-5.20	-4.90	-4.90	13.56	30 EIRP

Freq. [MHz]	CH.	Datarate	Mode (802.11)	Total Average Power [dBm]			Ant.1 Gain	Ant.2 Gain	Directional Gain	Max EIRP	Limit
				ANT1	ANT2	MIMO	[dBi]	[dBi]	[dBi]	[dBm]	[dBm]
5190	38	MCS8	n40	12.05	11.18	14.65	-	-	-	-	23.98
5230	46	MCS8	n40	13.60	12.59	16.13	-	-	-	-	23.98
5270	54	MCS8	n40	12.70	12.33	15.53	-	-	-	-	23.98
5310	62	MCS8	n40	12.65	12.57	15.62	-	-	-	-	23.98
5510	102	MCS8	n40	13.09	12.00	15.59	-	-	-	-	23.98
5550	110	MCS8	n40	13.25	12.89	16.08	-	-	-	-	23.98
5710	142	MCS8	n40	13.70	13.04	16.39	-	-	-	-	23.98
5755	151	MCS8	n40	13.80	13.70	16.76	-	-	-	-	30.00
5795	159	MCS8	n40	13.84	13.41	16.64	-	-	-	-	30.00
5835	167	MCS8	n40	13.86	13.45	16.67	-5.20	-4.90	-4.90	11.77	30 EIRP
5875	175	MCS8	n40	13.52	13.10	16.32	-5.20	-4.90	-4.90	11.42	30 EIRP

Freq. [MHz]	CH.	Datarate	Mode (802.11)	Total Average Power [dBm]			Ant.1 Gain	Ant.2 Gain	Directional Gain	Max EIRP	Limit
				ANT1	ANT2	MIMO	[dBi]	[dBi]	[dBi]	[dBm]	[dBm]
5190	38	MCS0	ac40	12.00	11.11	14.59	-	-	-	-	23.98
5230	46	MCS0	ac40	13.60	12.66	16.16	-	-	-	-	23.98
5270	54	MCS0	ac40	12.70	12.37	15.54	-	-	-	-	23.98
5310	62	MCS0	ac40	12.97	12.52	15.76	-	-	-	-	23.98
5510	102	MCS0	ac40	13.11	12.08	15.64	-	-	-	-	23.98
5550	110	MCS0	ac40	13.26	12.95	16.12	-	-	-	-	23.98
5710	142	MCS0	ac40	13.68	13.09	16.40	-	-	-	-	23.98
5755	151	MCS0	ac40	13.73	13.72	16.74	-	-	-	-	30.00
5795	159	MCS0	ac40	13.79	13.45	16.63	-	-	-	-	30.00
5835	167	MCS0	ac40	13.91	13.45	16.70	-5.20	-4.90	-4.90	11.80	30 EIRP
5875	175	MCS0	ac40	13.55	13.01	16.29	-5.20	-4.90	-4.90	11.39	30 EIRP

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Freq. [MHz]	CH.	Datarate	Mode (802.11)	Total Average Power [dBm]			Ant.1 Gain	Ant.2 Gain	Directional Gain	Max EIRP	Limit
				ANT1	ANT2	MIMO	[dBi]	[dBi]	[dBi]	[dBm]	[dBm]
5210	42	MCS0	ac80	11.70	11.22	14.47	-	-	-	-	23.98
5290	58	MCS0	ac80	11.92	10.89	14.45	-	-	-	-	23.98
5530	106	MCS0	ac80	11.36	10.38	13.91	-	-	-	-	23.98
5610	122	MCS0	ac80	11.21	9.99	13.65	-	-	-	-	23.98
5690	138	MCS0	ac80	11.38	10.64	14.03	-	-	-	-	23.98
5775	155	MCS0	ac80	11.55	11.24	14.41	-	-	-	-	30.00
5855	171	MCS0	ac80	11.46	10.60	14.06	-5.20	-4.90	-4.90	9.16	30 EIRP

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10.5 POWER SPECTRAL DENSITY

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

MIMO(Ant.1+ Ant.2)Total PSD [dBm/MHz] = Ant.1 Total PSD [dBm/MHz] + Ant.2 Total PSD [dB]

Max EIRP = Total PSD [dBm/MHz] + Directional Gain [dBi]

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[SISO(Ant.2)]

Mode : 802.11a									
Band	Freq. [MHz]	CH.	Worstcase Datarate	Measured PSD [dBm/MHz]	Duty cycle Fcator [dB]	Total PSD [dBm/MHz]	Antenna Gain [dBi]	e.i.r.p [dBm/MHz]	Limit [dBm/MHz]
UNII1	5180	36	6M	4.034	0.290	4.324	-	-	11
	5200	40	6M	4.027	0.290	4.317	-	-	11
	5240	48	6M	4.585	0.290	4.875	-	-	11
UNII2A	5260	52	6M	4.604	0.290	4.894	-	-	11
	5300	60	6M	3.720	0.290	4.010	-	-	11
	5320	64	6M	3.627	0.290	3.917	-	-	11
UNII2C	5500	100	6M	3.266	0.290	3.556	-	-	11
	5580	116	6M	3.675	0.290	3.965	-	-	11
	5720	144	6M	4.412	0.290	4.702	-	-	11
UNII3	5745	149	6M	1.108	0.290	1.398	-	-	30 dBm/500kHz
	5785	157	6M	1.219	0.290	1.509	-	-	30 dBm/500kHz
	5825	165	6M	1.764	0.290	2.054	-	-	30 dBm/500kHz
UNII4	5845	169	6M	4.278	0.290	4.568	-4.90	-0.332	14 EIRP
	5865	173	6M	4.288	0.290	4.578	-4.90	-0.322	14 EIRP
	5885	177	6M	4.268	0.290	4.558	-4.90	-0.342	14 EIRP

Mode : 802.11n(HT20)									
Band	Freq. [MHz]	CH.	Worstcase Datarate	Measured PSD [dBm/MHz]	Duty cycle Fcator [dB]	Total PSD [dBm/MHz]	Antenna Gain [dBi]	e.i.r.p [dBm/MHz]	Limit [dBm/MHz]
UNII1	5180	36	MCS0	3.818	0.315	4.133	-	-	11
	5200	40	MCS0	3.679	0.315	3.994	-	-	11
	5240	48	MCS0	4.351	0.315	4.666	-	-	11
UNII2A	5260	52	MCS0	3.315	0.315	3.630	-	-	11
	5300	60	MCS0	3.513	0.315	3.828	-	-	11
	5320	64	MCS0	3.430	0.315	3.745	-	-	11
UNII2C	5500	100	MCS0	3.329	0.315	3.644	-	-	11
	5580	116	MCS0	3.234	0.315	3.549	-	-	11
	5720	144	MCS0	4.085	0.315	4.400	-	-	11
UNII3	5745	149	MCS0	0.819	0.315	1.134	-	-	30 dBm/500kHz
	5785	157	MCS0	0.965	0.315	1.280	-	-	30 dBm/500kHz
	5825	165	MCS0	1.316	0.315	1.631	-	-	30 dBm/500kHz
UNII4	5845	169	MCS0	4.104	0.315	4.419	-4.90	-0.481	14 EIRP
	5865	173	MCS0	3.867	0.315	4.182	-4.90	-0.718	14 EIRP
	5885	177	MCS0	4.052	0.315	4.367	-4.90	-0.533	14 EIRP

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Mode : 802.11ac(VHT20)									
Band	Freq. [MHz]	CH.	Worstcase Datarate	Measured PSD [dBm/MHz]	Duty cycle Fcator [dB]	Total PSD [dBm/MHz]	Antenna Gain [dBi]	e.i.r.p [dBm/MHz]	Limit [dBm/MHz]
UNII1	5180	36	MCS0	4.054	0.308	4.362	-	-	11
	5200	40	MCS0	3.764	0.308	4.072	-	-	11
	5240	48	MCS0	3.598	0.308	3.906	-	-	11
UNII2A	5260	52	MCS0	3.438	0.308	3.746	-	-	11
	5300	60	MCS0	3.732	0.308	4.040	-	-	11
	5320	64	MCS0	3.329	0.308	3.637	-	-	11
UNII2C	5500	100	MCS0	2.786	0.308	3.094	-	-	11
	5580	116	MCS0	3.277	0.308	3.585	-	-	11
	5720	144	MCS0	4.285	0.308	4.593	-	-	11
UNII3	5745	149	MCS0	0.885	0.308	1.193	-	-	30 dBm/500kHz
	5785	157	MCS0	1.174	0.308	1.482	-	-	30 dBm/500kHz
	5825	165	MCS0	1.316	0.308	1.624	-	-	30 dBm/500kHz
UNII4	5845	169	MCS0	3.844	0.308	4.152	-4.90	-0.748	14 EIRP
	5865	173	MCS0	3.916	0.308	4.224	-4.90	-0.676	14 EIRP
	5885	177	MCS0	3.910	0.308	4.218	-4.90	-0.682	14 EIRP

Mode : 802.11n(HT40)									
Band	Freq. [MHz]	CH.	Worstcase Datarate	Measured PSD [dBm/MHz]	Duty cycle Fcator [dB]	Total PSD [dBm/MHz]	Antenna Gain [dBi]	e.i.r.p [dBm/MHz]	Limit [dBm/MHz]
UNII1	5190	38	MCS0	-3.430	0.604	-2.826	-	-	11
	5230	46	MCS0	-1.299	0.604	-0.695	-	-	11
UNII2A	5270	54	MCS0	-1.829	0.604	-1.225	-	-	11
	5310	62	MCS0	-1.252	0.604	-0.648	-	-	11
UNII2C	5510	102	MCS0	-2.119	0.604	-1.515	-	-	11
	5550	110	MCS0	-1.508	0.604	-0.904	-	-	11
	5710	142	MCS0	-1.257	0.604	-0.653	-	-	11
UNII3	5755	151	MCS0	-3.455	0.604	-2.851	-	-	30 dBm/500kHz
	5795	159	MCS0	-3.178	0.604	-2.574	-	-	30 dBm/500kHz
UNII4	5835	167	MCS0	-0.773	0.604	-0.169	-4.90	-5.069	14 EIRP
	5875	175	MCS0	-1.539	0.604	-0.935	-4.90	-5.835	14 EIRP

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Mode : 802.11ac(VHT40)									
Band	Freq. [MHz]	CH.	Worstcase Datarate	Measured PSD [dBm/MHz]	Duty cycle Fcator [dB]	Total PSD [dBm/MHz]	Antenna Gain [dBi]	e.i.r.p [dBm/MHz]	Limit [dBm/MHz]
UNII1	5190	38	MCS0	-3.373	0.555	-2.818	-	-	11
	5230	46	MCS0	-1.601	0.555	-1.046	-	-	11
UNII2A	5270	54	MCS0	-1.827	0.555	-1.272	-	-	11
	5310	62	MCS0	-1.928	0.555	-1.373	-	-	11
UNII2C	5510	102	MCS0	-2.755	0.555	-2.200	-	-	11
	5550	110	MCS0	-1.698	0.555	-1.143	-	-	11
	5710	142	MCS0	-1.220	0.555	-0.665	-	-	11
UNII3	5755	151	MCS0	-3.426	0.555	-2.871	-	-	30 dBm/500kHz
	5795	159	MCS0	-3.477	0.555	-2.922	-	-	30 dBm/500kHz
UNII4	5835	167	MCS0	-0.954	0.555	-0.399	-4.90	-5.299	14 EIRP
	5875	175	MCS0	-0.973	0.555	-0.418	-4.90	-5.318	14 EIRP

Mode : 802.11ac(VHT80)									
Band	Freq. [MHz]	CH.	Worstcase Datarate	Measured PSD [dBm/MHz]	Duty cycle Fcator [dB]	Total PSD [dBm/MHz]	Antenna Gain [dBi]	e.i.r.p [dBm/MHz]	Limit [dBm/MHz]
UNII1	5210	42	MCS0	-5.818	1.135	-4.683	-	-	11
UNII2A	5290	58	MCS0	-5.454	1.135	-4.319	-	-	11
UNII2C	5530	106	MCS0	-7.532	1.135	-6.397	-	-	11
	5610	122	MCS0	-7.842	1.135	-6.707	-	-	11
	5690	138	MCS0	-6.978	1.135	-5.843	-	-	11
UNII3	5775	155	MCS0	-9.791	1.135	-8.656	-	-	30 dBm/500kHz
UNII4	5855	171	MCS0	-6.387	1.135	-5.252	-4.90	-10.152	14 EIRP

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[MIMO(Ant.1+ Ant.2)]

Freq. [MHz]	CH.	Datarate	Mode (802.11)	Total Power Spectral Density [dBm/MHz]			Ant.1 Gain	Ant.2 Gain	Directional Gain	Max EIRP	Limit
				ANT1	ANT2	MIMO	[dBi]	[dBi]	[dBi]	[dBm/MHz]	[dBm/MHz]
5180	36	6M	a	4.152	4.337	7.256	-	-	-	-	11.00
5200	40	6M	a	4.601	4.147	7.391	-	-	-	-	11.00
5240	48	6M	a	4.999	4.822	7.922	-	-	-	-	11.00
5260	52	6M	a	5.150	4.599	7.894	-	-	-	-	11.00
5300	60	6M	a	4.365	4.303	7.345	-	-	-	-	11.00
5320	64	6M	a	4.379	3.721	7.073	-	-	-	-	11.00
5500	100	6M	a	4.832	3.253	7.125	-	-	-	-	11.00
5580	116	6M	a	4.470	3.868	7.190	-	-	-	-	11.00
5720	144	6M	a	5.273	5.079	8.188	-	-	-	-	11.00
5745	149	6M	a	1.663	1.288	4.490	-	-	-	-	30 dBm/500kHz
5785	157	6M	a	1.656	1.549	4.614	-	-	-	-	30 dBm/500kHz
5825	165	6M	a	2.645	2.076	5.381	-	-	-	-	30 dBm/500kHz
5845	169	6M	a	5.132	4.646	7.907	-5.20	-4.90	-2.04	5.868	14 EIRP
5865	173	6M	a	4.988	4.373	7.702	-5.20	-4.90	-2.04	5.664	14 EIRP
5885	177	6M	a	5.229	4.591	7.932	-5.20	-4.90	-2.04	5.894	14 EIRP

Freq. [MHz]	CH.	Datarate	Mode (802.11)	Total Power Spectral Density [dBm/MHz]			Ant.1 Gain	Ant.2 Gain	Directional Gain	Max EIRP	Limit
				ANT1	ANT2	MIMO	[dBi]	[dBi]	[dBi]	[dBm/MHz]	[dBm/MHz]
5180	36	MCS8	n20	4.164	4.041	7.113	-	-	-	-	11.00
5200	40	MCS8	n20	4.625	3.885	7.281	-	-	-	-	11.00
5240	48	MCS8	n20	4.806	4.489	7.661	-	-	-	-	11.00
5260	52	MCS8	n20	3.943	3.278	6.634	-	-	-	-	11.00
5300	60	MCS8	n20	3.860	3.031	6.476	-	-	-	-	11.00
5320	64	MCS8	n20	3.414	3.015	6.230	-	-	-	-	11.00
5500	100	MCS8	n20	4.292	2.907	6.665	-	-	-	-	11.00
5580	116	MCS8	n20	4.116	3.422	6.793	-	-	-	-	11.00
5720	144	MCS8	n20	4.953	4.530	7.757	-	-	-	-	11.00
5745	149	MCS8	n20	0.803	0.856	3.840	-	-	-	-	30 dBm/500kHz
5785	157	MCS8	n20	1.268	0.742	4.023	-	-	-	-	30 dBm/500kHz
5825	165	MCS8	n20	2.213	1.700	4.975	-	-	-	-	30 dBm/500kHz
5845	169	MCS8	n20	4.522	4.619	7.581	-5.20	-4.90	-4.90	2.681	14 EIRP
5865	173	MCS8	n20	4.604	3.751	7.209	-5.20	-4.90	-4.90	2.309	14 EIRP
5885	177	MCS8	n20	4.692	4.017	7.378	-5.20	-4.90	-4.90	2.478	14 EIRP

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Freq. [MHz]	CH.	Datarate	Mode (802.11)	Total Power Spectral Density [dBm/MHz]			Ant.1 Gain	Ant.2 Gain	Directional Gain	Max EIRP	Limit
				ANT1	ANT2	MIMO	[dBi]	[dBi]	[dBi]	[dBm/MHz]	[dBm/MHz]
5180	36	MCS0	ac20	3.994	3.982	6.998	-	-	-	-	11.00
5200	40	MCS0	ac20	4.631	3.803	7.247	-	-	-	-	11.00
5240	48	MCS0	ac20	3.990	3.391	6.711	-	-	-	-	11.00
5260	52	MCS0	ac20	3.755	3.364	6.574	-	-	-	-	11.00
5300	60	MCS0	ac20	3.657	3.462	6.571	-	-	-	-	11.00
5320	64	MCS0	ac20	3.940	3.343	6.662	-	-	-	-	11.00
5500	100	MCS0	ac20	4.226	3.052	6.689	-	-	-	-	11.00
5580	116	MCS0	ac20	4.062	3.305	6.710	-	-	-	-	11.00
5720	144	MCS0	ac20	4.783	4.349	7.582	-	-	-	-	11.00
5745	149	MCS0	ac20	0.799	0.877	3.848	-	-	-	-	30 dBm/500kHz
5785	157	MCS0	ac20	0.924	1.019	3.982	-	-	-	-	30 dBm/500kHz
5825	165	MCS0	ac20	2.052	1.621	4.852	-	-	-	-	30 dBm/500kHz
5845	169	MCS0	ac20	4.757	4.426	7.605	-5.20	-4.90	-4.90	2.705	14 EIRP
5865	173	MCS0	ac20	4.586	3.946	7.288	-5.20	-4.90	-4.90	2.388	14 EIRP
5885	177	MCS0	ac20	4.659	4.154	7.424	-5.20	-4.90	-4.90	2.524	14 EIRP

Freq. [MHz]	CH.	Datarate	Mode (802.11)	Total Power Spectral Density [dBm/MHz]			Ant.1 Gain	Ant.2 Gain	Directional Gain	Max EIRP	Limit
				ANT1	ANT2	MIMO	[dBi]	[dBi]	[dBi]	[dBm/MHz]	[dBm/MHz]
5190	38	MCS8	n40	-1.295	-2.513	1.148	-	-	-	-	11.00
5230	46	MCS8	n40	0.286	-1.141	2.641	-	-	-	-	11.00
5270	54	MCS8	n40	-0.799	-1.377	1.931	-	-	-	-	11.00
5310	62	MCS8	n40	-0.802	-1.186	2.020	-	-	-	-	11.00
5510	102	MCS8	n40	-0.796	-2.169	1.581	-	-	-	-	11.00
5550	110	MCS8	n40	-0.245	-1.250	2.291	-	-	-	-	11.00
5710	142	MCS8	n40	0.289	-0.973	2.714	-	-	-	-	11.00
5755	151	MCS8	n40	-2.561	-2.888	0.288	-	-	-	-	30 dBm/500kHz
5795	159	MCS8	n40	-2.842	-3.173	0.006	-	-	-	-	30 dBm/500kHz
5835	167	MCS8	n40	0.041	-0.545	2.768	-5.20	-4.90	-4.90	-2.132	14 EIRP
5875	175	MCS8	n40	-0.130	-0.320	2.786	-5.20	-4.90	-4.90	-2.114	14 EIRP

Freq. [MHz]	CH.	Datarate	Mode (802.11)	Total Power Spectral Density [dBm/MHz]			Ant.1 Gain	Ant.2 Gain	Directional Gain	Max EIRP	Limit
				ANT1	ANT2	MIMO	[dBi]	[dBi]	[dBi]	[dBm/MHz]	[dBm/MHz]
5190	38	MCS0	ac40	-1.853	-2.430	0.878	-	-	-	-	11.00
5230	46	MCS0	ac40	0.236	-1.145	2.610	-	-	-	-	11.00
5270	54	MCS0	ac40	-0.558	-1.170	2.157	-	-	-	-	11.00
5310	62	MCS0	ac40	-0.638	-1.212	2.095	-	-	-	-	11.00
5510	102	MCS0	ac40	-1.142	-1.973	1.472	-	-	-	-	11.00
5550	110	MCS0	ac40	-0.610	-1.172	2.128	-	-	-	-	11.00
5710	142	MCS0	ac40	0.119	-0.783	2.701	-	-	-	-	11.00
5755	151	MCS0	ac40	-3.046	-2.396	0.301	-	-	-	-	30 dBm/500kHz
5795	159	MCS0	ac40	-2.483	-3.260	0.156	-	-	-	-	30 dBm/500kHz
5835	167	MCS0	ac40	-0.142	-0.026	2.927	-5.20	-4.90	-4.90	-1.973	14 EIRP
5875	175	MCS0	ac40	-0.680	-0.171	2.592	-5.20	-4.90	-4.90	-2.308	14 EIRP

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Freq. [MHz]	CH.	Datarate	Mode (802.11)	Total Power Spectral Density [dBm/MHz]			Ant.1 Gain	Ant.2 Gain	Directional Gain	Max EIRP	Limit
				ANT1	ANT2	MIMO	[dBi]	[dBi]	[dBi]	[dBm/MHz]	[dBm/MHz]
5210	42	MCS0	ac80	-5.045	-4.353	-1.675	-	-	-	-	11.00
5290	58	MCS0	ac80	-3.891	-4.485	-1.168	-	-	-	-	11.00
5530	106	MCS0	ac80	-4.706	-6.066	-2.323	-	-	-	-	11.00
5610	122	MCS0	ac80	-5.055	-6.983	-2.903	-	-	-	-	11.00
5690	138	MCS0	ac80	-5.393	-6.625	-2.955	-	-	-	-	11.00
5775	155	MCS0	ac80	-7.348	-8.127	-4.710	-	-	-	-	30 dBm/500kHz
5855	171	MCS0	ac80	-4.240	-5.443	-1.790	-5.20	-4.90	-4.90	-6.690	14 EIRP

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▣ Test Plots

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

[MIMO(Ant.1+ Ant.2)]

ANT. 1	ANT. 2

Bandwidth 20M, 802.11a(Ch. 144)

Bandwidth 40M, 802.11ac(VHT40) (Ch. 167)

Bandwidth 80M, 802.11ac(VHT80) (Ch. 58)

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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.

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10.6.1 80 MHz BW

[MIMO(Ant1+Ant2)]

REFERENCE VOLTAGE: 3.86 VDC

Startup after the EUT is energized

OPERATING BAND:			UNII Band 1		UNII Band 2A		UNII Band 2C	
OPERATING FREQUENCY:			5,210,000,000 Hz		5,290,000,000 Hz		5, 530,000,000 Hz	
CHANNEL:			42		58		106	
Voltage	Power	Temp.	Frequency	Frequency Error	Frequency	Frequency Error	Frequency	Frequency Error
(%)	(VDC)	(°C)	(kHz)	(kHz)	(kHz)	(kHz)	(kHz)	(kHz)
100%	3.86	+20(Ref)	5210055.90	55.90	5290052.76	52.76	5530052.78	52.78
100%		-30	5210057.77	57.77	5290057.25	57.25	5530056.25	56.25
100%		-20	5210055.71	55.71	5290058.39	58.39	5530056.14	56.14
100%		-10	5210053.56	53.56	5290055.67	55.67	5530054.85	54.85
100%		0	5210050.98	50.98	5290050.73	50.73	5530051.50	51.50
100%		+10	5210050.05	50.05	5290055.99	55.99	5530050.87	50.87
100%		+30	5210060.73	60.73	5290060.78	60.78	5530056.10	56.10
100%		+40	5210065.56	65.56	5290061.26	61.26	5530062.08	62.08
100%		+50	5210070.59	70.59	5290069.02	69.02	5530069.14	69.14
High	4.25	+20	5210053.32	53.32	5290050.10	50.10	5530053.25	53.25
End Point	2.75	+20	5210063.81	63.81	5290065.36	65.36	5530063.27	63.27

OPERATING BAND:			UNII Band 3		UNII Band 4	
OPERATING FREQUENCY:			5,775,000,000 Hz		5,855,000,000 Hz	
CHANNEL:			155		171	
Voltage	Power	Temp.	Frequency	Frequency Error	Frequency	Frequency Error
(%)	(VDC)	(°C)	(kHz)	(kHz)	(kHz)	(kHz)
100%	3.86	+20(Ref)	5775055.11	55.11	5855054.77	54.77
100%		-30	5775057.22	57.22	5855056.89	56.89
100%		-20	5775055.59	55.59	5855057.75	57.75
100%		-10	5775053.62	53.62	5855051.47	51.47
100%		0	5775054.62	54.62	5855051.63	51.63
100%		+10	5775054.54	54.54	5855053.07	53.07
100%		+30	5775057.23	57.23	5855055.48	55.48
100%		+40	5775061.71	61.71	5855061.05	61.05
100%		+50	5775066.63	66.63	5855069.20	69.20
High	4.25	+20	5775051.08	51.08	5855052.29	52.29
End Point	2.75	+20	5775064.59	64.59	5855062.06	62.06

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2 minutes after the EUT is energized

OPERATING BAND:			UNII Band 1		UNII Band 2A		UNII Band 2C	
OPERATING FREQUENCY:			5,210,000,000 Hz		5,290,000,000 Hz		5, 530,000,000 Hz	
CHANNEL:			42		58		106	
Voltage	Power	Temp.	Frequency	Frequency Error	Frequency	Frequency Error	Frequency	Frequency Error
(%)	(VDC)	(°C)	(kHz)	(kHz)	(kHz)	(kHz)	(kHz)	(kHz)
100%	3.86	+20(Ref)	5210054.32	54.32	5290055.54	55.54	5530054.95	54.95
100%		-30	5210058.79	58.79	5290060.87	60.87	5530056.41	56.41
100%		-20	5210056.47	56.47	5290057.58	57.58	5530055.14	55.14
100%		-10	5210055.70	55.70	5290055.61	55.61	5530054.76	54.76
100%		0	5210054.32	54.32	5290052.94	52.94	5530051.93	51.93
100%		+10	5210054.67	54.67	5290052.48	52.48	5530054.44	54.44
100%		+30	5210055.79	55.79	5290059.95	59.95	5530060.25	60.25
100%		+40	5210065.67	65.67	5290062.71	62.71	5530064.80	64.80
100%		+50	5210068.07	68.07	5290067.70	67.70	5530069.07	69.07
High	4.25	+20	5210052.53	52.53	5290053.03	53.03	5530055.20	55.20
End Point	2.75	+20	5210061.81	61.81	5290061.93	61.93	5530061.44	61.44

OPERATING BAND:			UNII Band 3		UNII Band 4	
OPERATING FREQUENCY:			5,775,000,000 Hz		5,855,000,000 Hz	
CHANNEL:			155		171	
Voltage	Power	Temp.	Frequency	Frequency Error	Frequency	Frequency Error
(%)	(VDC)	(°C)	(kHz)	(kHz)	(kHz)	(kHz)
100%	3.86	+20(Ref)	5775055.78	55.78	5855054.60	54.60
100%		-30	5775058.35	58.35	5855060.59	60.59
100%		-20	5775059.79	59.79	5855055.53	55.53
100%		-10	5775051.30	51.30	5855055.66	55.66
100%		0	5775055.59	55.59	5855055.29	55.29
100%		+10	5775050.04	50.04	5855053.33	53.33
100%		+30	5775056.79	56.79	5855057.89	57.89
100%		+40	5775060.07	60.07	5855062.68	62.68
100%		+50	5775066.09	66.09	5855068.35	68.35
High	4.25	+20	5775055.83	55.83	5855055.08	55.08
End Point	2.75	+20	5775061.59	61.59	5855063.84	63.84

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5 minutes after the EUT is energized

OPERATING BAND:			UNII Band 1		UNII Band 2A		UNII Band 2C	
OPERATING FREQUENCY:			5,210,000,000 Hz		5,290,000,000 Hz		5, 530,000,000 Hz	
CHANNEL:			42		58		106	
Voltage	Power	Temp.	Frequency	Frequency Error	Frequency	Frequency Error	Frequency	Frequency Error
(%)	(VDC)	(°C)	(kHz)	(kHz)	(kHz)	(kHz)	(kHz)	(kHz)
100%	3.86	+20(Ref)	5210050.10	50.10	5290054.72	54.72	5530051.36	51.36
100%		-30	5210060.50	60.50	5290059.79	59.79	5530060.40	60.40
100%		-20	5210055.85	55.85	5290059.80	59.80	5530058.89	58.89
100%		-10	5210051.75	51.75	5290053.94	53.94	5530053.96	53.96
100%		0	5210051.72	51.72	5290050.25	50.25	5530055.42	55.42
100%		+10	5210050.28	50.28	5290050.06	50.06	5530050.15	50.15
100%		+30	5210058.56	58.56	5290057.37	57.37	5530058.68	58.68
100%		+40	5210063.05	63.05	5290060.58	60.58	5530063.26	63.26
100%		+50	5210070.81	70.81	5290065.45	65.45	5530070.62	70.62
High	4.25	+20	5210053.56	53.56	5290055.14	55.14	5530050.55	50.55
End Point	2.75	+20	5210065.51	65.51	5290060.63	60.63	5530062.67	62.67

OPERATING BAND:			UNII Band 3		UNII Band 4	
OPERATING FREQUENCY:			5,775,000,000 Hz		5,855,000,000 Hz	
CHANNEL:			155		171	
Voltage	Power	Temp.	Frequency	Frequency Error	Frequency	Frequency Error
(%)	(VDC)	(°C)	(kHz)	(kHz)	(kHz)	(kHz)
100%	3.86	+20(Ref)	5775055.41	55.41	5855050.37	50.37
100%		-30	5775059.05	59.05	5855058.74	58.74
100%		-20	5775060.47	60.47	5855060.75	60.75
100%		-10	5775054.32	54.32	5855053.92	53.92
100%		0	5775053.42	53.42	5855055.22	55.22
100%		+10	5775050.59	50.59	5855053.31	53.31
100%		+30	5775059.11	59.11	5855058.47	58.47
100%		+40	5775065.55	65.55	5855062.08	62.08
100%		+50	5775067.82	67.82	5855070.25	70.25
High	4.25	+20	5775050.32	50.32	5855050.72	50.72
End Point	2.75	+20	5775063.64	63.64	5855063.57	63.57

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10 minutes after the EUT is energized

OPERATING BAND:			UNII Band 1		UNII Band 2A		UNII Band 2C	
OPERATING FREQUENCY:			5,210,000,000 Hz		5,290,000,000 Hz		5, 530,000,000 Hz	
CHANNEL:			42		58		106	
Voltage	Power	Temp.	Frequency	Frequency Error	Frequency	Frequency Error	Frequency	Frequency Error
(%)	(VDC)	(°C)	(kHz)	(kHz)	(kHz)	(kHz)	(kHz)	(kHz)
100%	3.86	+20(Ref)	5210050.41	50.41	5290050.71	50.71	5530050.74	50.74
100%		-30	5210055.82	55.82	5290056.38	56.38	5530057.74	57.74
100%		-20	5210059.24	59.24	5290060.30	60.30	5530057.10	57.10
100%		-10	5210051.19	51.19	5290053.46	53.46	5530051.79	51.79
100%		0	5210054.56	54.56	5290054.34	54.34	5530054.02	54.02
100%		+10	5210053.92	53.92	5290054.29	54.29	5530050.79	50.79
100%		+30	5210055.04	55.04	5290058.18	58.18	5530057.16	57.16
100%		+40	5210061.89	61.89	5290060.44	60.44	5530061.76	61.76
100%		+50	5210065.58	65.58	5290067.10	67.10	5530065.93	65.93
High	4.25	+20	5210052.17	52.17	5290051.58	51.58	5530052.34	52.34
End Point	2.75	+20	5210062.27	62.27	5290060.80	60.80	5530063.25	63.25

OPERATING BAND:			UNII Band 3		UNII Band 4	
OPERATING FREQUENCY:			5,775,000,000 Hz		5,855,000,000 Hz	
CHANNEL:			155		171	
Voltage	Power	Temp.	Frequency	Frequency Error	Frequency	Frequency Error
(%)	(VDC)	(°C)	(kHz)	(kHz)	(kHz)	(kHz)
100%	3.86	+20(Ref)	5775055.49	55.49	5855055.59	55.59
100%		-30	5775060.71	60.71	5855060.43	60.43
100%		-20	5775059.30	59.30	5855057.90	57.90
100%		-10	5775055.84	55.84	5855055.40	55.40
100%		0	5775051.53	51.53	5855051.29	51.29
100%		+10	5775053.23	53.23	5855050.11	50.11
100%		+30	5775056.93	56.93	5855056.54	56.54
100%		+40	5775063.29	63.29	5855064.65	64.65
100%		+50	5775067.76	67.76	5855066.57	66.57
High	4.25	+20	5775052.80	52.80	5855053.29	53.29
End Point	2.75	+20	5775060.84	60.84	5855062.59	62.59

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10.7 STRADDLE CHANNEL

Test Description	Note
26 dB Bandwidth	1. [UNII 2C] 26 dB Bandwidth = 5725 MHz - Measured Frequency[MHz] 2. [UNII 3] 26 dB Bandwidth = Measured Frequency[MHz] -5725 MHz
6 dB Bandwidth	1. 6 dB Bandwidth = Measured Frequency[MHz] – 5725 MHz 2. Limit : > 0.5 MHz
Output Power	1. Limit(UNII2C) : 23.98 dBm or 11 dBm + 10 log B, (where B is the 26 dB emission bandwidth in megahertz.) 2. Limit(UNII 3) : 30.00 dBm 3. Total Power (dBm) = Measured Value (dBm) + Duty Cycle Factor (dB)
Power Spectral Density	1. Limit(UNII 2C) : 11.0 dBm/MHz 2. Limit(UNII 3) : 30.0 dBm/500kHz 3. Total PSD (dBm) = Measured Value (dBm) + Duty Cycle Factor (dB)

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[SISO(Ant.2)]

Mode	Band	Freq. [MHz]	CH.	26dB BW [MHz]	6dB BW [MHz]	Total Power [dBm]	Limit [dBm]	Total PSD [dBm]	Limit [dBm/MHz]
802.11a	UNII2C	5720	144	15.24	-	14.74	22.83	4.544	11
802.11n(HT20)				16.08	-	14.59	23.06	4.122	11
802.11ac(VHT20)				16.12	-	14.59	23.07	4.116	11
802.11a	UNII3	5720	144	5.28	3.16	8.12	30.00	0.974	30 dBm/500kHz
802.11n(HT20)				6.00	3.56	8.41	30.00	0.643	30 dBm/500kHz
802.11ac(VHT20)				5.84	3.56	8.39	30.00	0.767	30 dBm/500kHz

Mode	Band	Freq. [MHz]	Channel	26dB BW [MHz]	6dB BW [MHz]	Total Power [dBm]	Limit [dBm]	Total PSD [dBm]	Limit [dBm/MHz]
802.11n(HT40)	UNII2C	5710	142	36.36	-	12.82	23.98	-0.677	11
802.11ac(VHT40)				36.60	-	12.70	23.98	-0.708	11
802.11n(HT40)	UNII3	5710	142	5.72	2.92	2.46	30.00	-4.591	30 dBm/500kHz
802.11ac(VHT40)				5.96	2.92	2.29	30.00	-4.767	30 dBm/500kHz

Mode	Band	Freq. [MHz]	Channel	26dB BW [MHz]	6dB BW [MHz]	Total Power [dBm]	Limit [dBm]	Total PSD [dBm]	Limit [dBm/MHz]
802.11ac(VHT80)	UNII2C	5690	138	76.76	-	10.22	23.98	-6.091	11
802.11ac(VHT80)	UNII3	5690	138	6.12	2.76	-3.13	30.00	-10.187	30 dBm/500kHz

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[MIMO(Ant.1)]

Mode	Band	Freq. [MHz]	CH.	26dB BW [MHz]	6dB BW [MHz]	Total Power [dBm]	Limit [dBm]	Total PSD [dBm]	Limit [dBm/MHz]
802.11a	UNII2C	5720	144	15.32	-	15.31	22.85	5.099	11
802.11n(HT20)				16.48	-	14.46	23.17	4.207	11
802.11ac(VHT20)				16.28	-	14.50	23.12	4.029	11
802.11a	UNII3	5720	144	5.40	3.16	8.63	30.00	1.535	30 dBm/500kHz
802.11n(HT20)				5.76	3.76	8.31	30.00	0.622	30 dBm/500kHz
802.11ac(VHT20)				5.88	3.76	8.33	30.00	0.555	30 dBm/500kHz

Mode	Band	Freq. [MHz]	Channel	26dB BW [MHz]	6dB BW [MHz]	Total Power [dBm]	Limit [dBm]	Total PSD [dBm]	Limit [dBm/MHz]
802.11n(HT40)	UNII2C	5710	142	36.36	-	13.20	23.98	-0.505	11
802.11ac(VHT40)				36.44	-	13.19	23.98	-0.432	11
802.11n(HT40)	UNII3	5710	142	6.28	3.00	2.74	30.00	-4.233	30 dBm/500kHz
802.11ac(VHT40)				5.88	3.00	2.73	30.00	-4.396	30 dBm/500kHz

Mode	Band	Freq. [MHz]	Channel	26dB BW [MHz]	6dB BW [MHz]	Total Power [dBm]	Limit [dBm]	Total PSD [dBm]	Limit [dBm/MHz]
802.11ac(VHT80)	UNII2C	5690	138	76.12	-	10.89	23.98	-5.353	11
802.11ac(VHT80)	UNII3	5690	138	5.64	2.76	-2.96	30.00	-10.477	30 dBm/500kHz

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[MIMO(Ant.2)]

Mode	Band	Freq. [MHz]	CH.	26dB BW [MHz]	6dB BW [MHz]	Total Power [dBm]	Limit [dBm]	Total PSD [dBm]	Limit [dBm/MHz]
802.11a	UNII2C	5720	144	15.32	-	15.01	22.85	4.681	11
802.11n(HT20)				15.76	-	14.28	22.98	3.919	11
802.11ac(VHT20)				15.88	-	14.33	23.01	3.847	11
802.11a	UNII3	5720	144	5.40	3.16	8.40	30.00	1.248	30 dBm/500kHz
802.11n(HT20)				5.64	3.80	8.12	30.00	0.550	30 dBm/500kHz
802.11ac(VHT20)				5.60	3.80	8.13	30.00	0.429	30 dBm/500kHz

Mode	Band	Freq. [MHz]	Channel	26dB BW [MHz]	6dB BW [MHz]	Total Power [dBm]	Limit [dBm]	Total PSD [dBm]	Limit [dBm/MHz]
802.11n(HT40)	UNII2C	5710	142	35.64	-	13.07	23.98	-0.155	11
802.11ac(VHT40)				35.64	-	13.08	23.98	-0.498	11
802.11n(HT40)	UNII3	5710	142	5.40	3.24	2.68	30.00	-4.667	30 dBm/500kHz
802.11ac(VHT40)				5.72	3.24	2.61	30.00	-4.590	30 dBm/500kHz

Mode	Band	Freq. [MHz]	Channel	26dB BW [MHz]	6dB BW [MHz]	Total Power [dBm]	Limit [dBm]	Total PSD [dBm]	Limit [dBm/MHz]
802.11ac(VHT80)	UNII2C	5690	138	76.28	-	10.15	23.98	-6.436	11
802.11ac(VHT80)	UNII3	5690	138	5.96	2.76	-3.52	30.00	-10.525	30 dBm/500kHz

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▣ Test Plots (26 dB Bandwidth)

[MIMO(Ant.1)]

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

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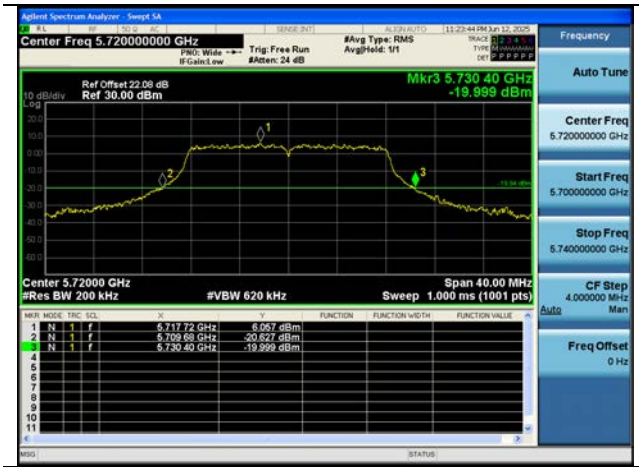
[MIMO(Ant.2)]

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

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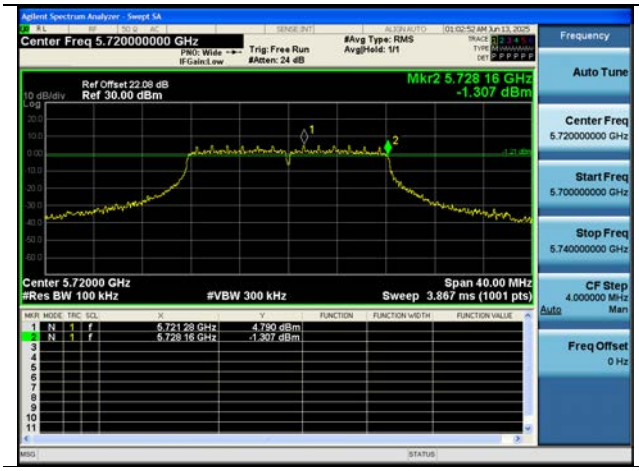
▣ Test Plots(UNII 3 Band 6 dB Bandwidth)

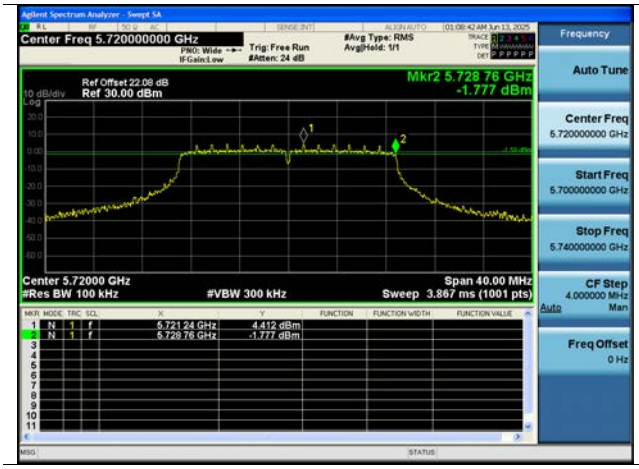
[MIMO(Ant.1)]

802.11a UNII Band

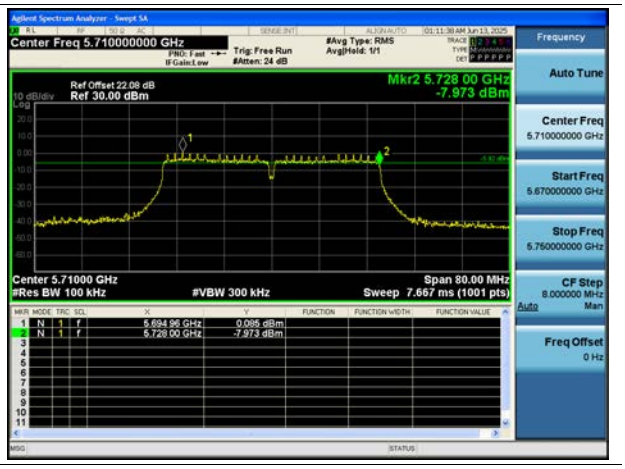


802.11n(HT20) UNII Band

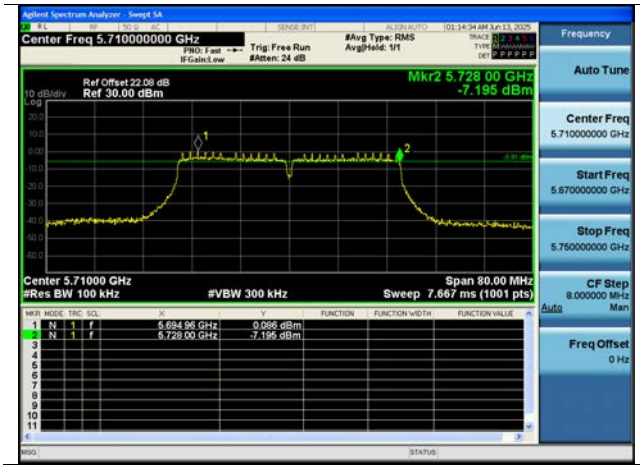
802.11ac(VHT20) UNII Band



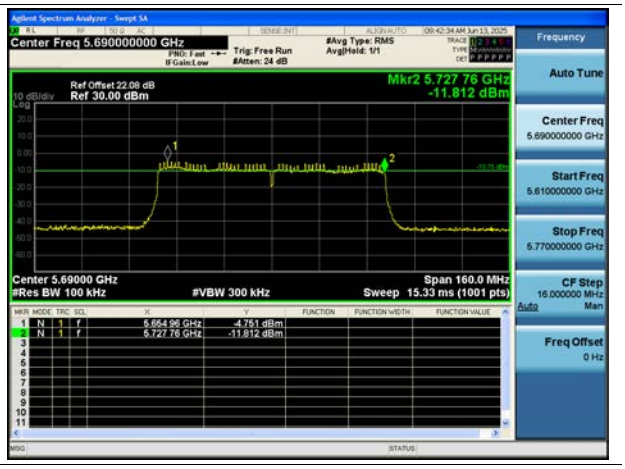
802.11n(HT40) UNII Band



802.11ac(VHT40) UNII Band



802.11ac(VHT80) UNII Band



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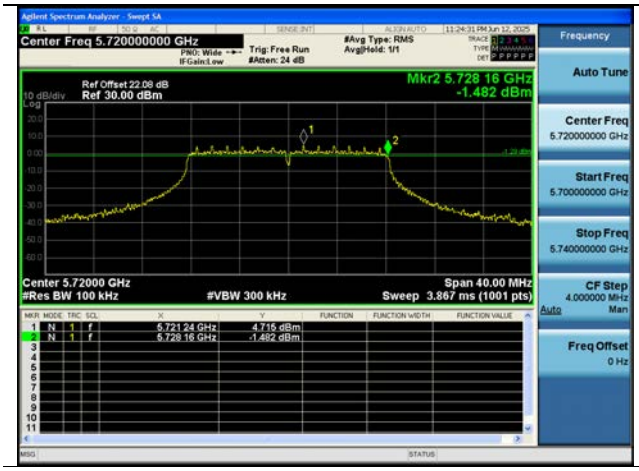
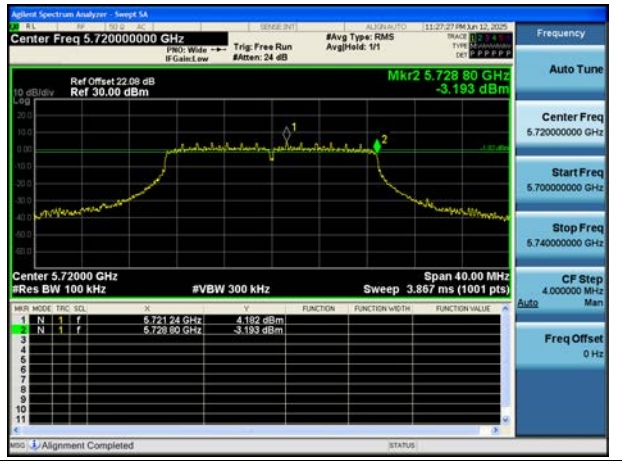
[MIMO(Ant.2)]

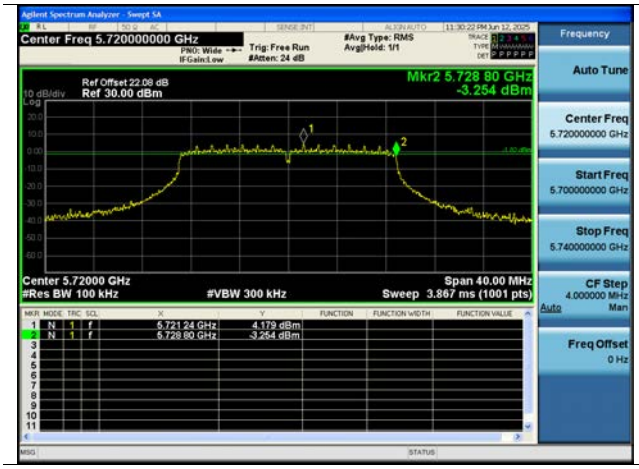
802.11a UNII Band



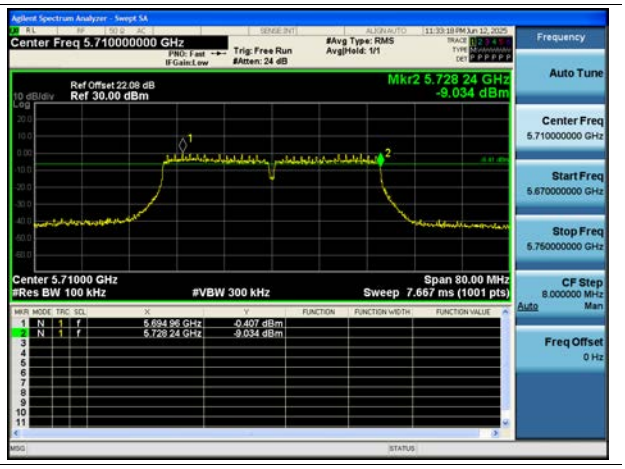
802.11n(HT20) UNII Band



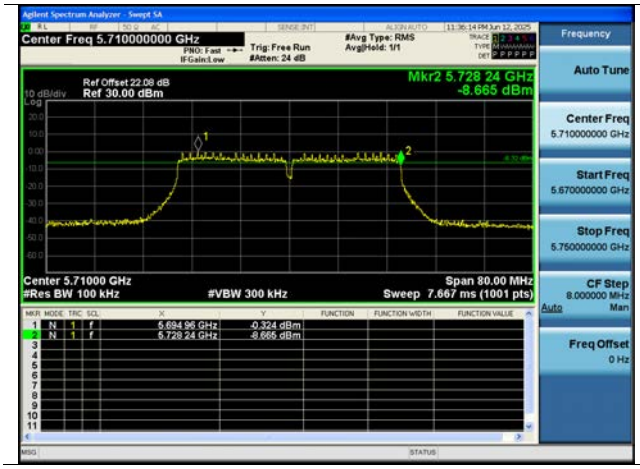
802.11ac(VHT20) UNII Band



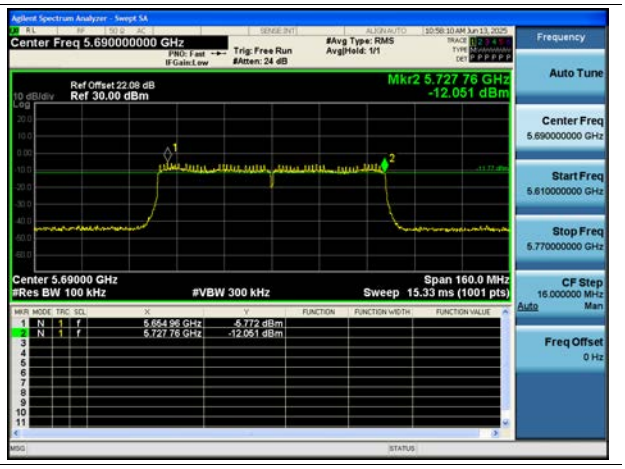
802.11n(HT40) UNII Band



802.11ac(VHT40) UNII Band



802.11ac(VHT80) UNII Band



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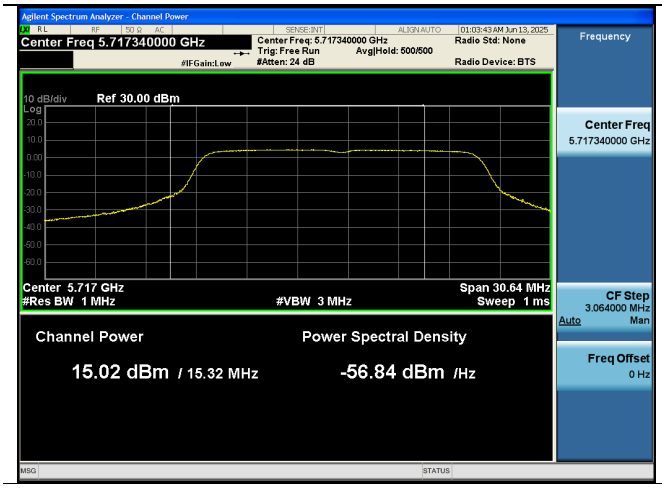
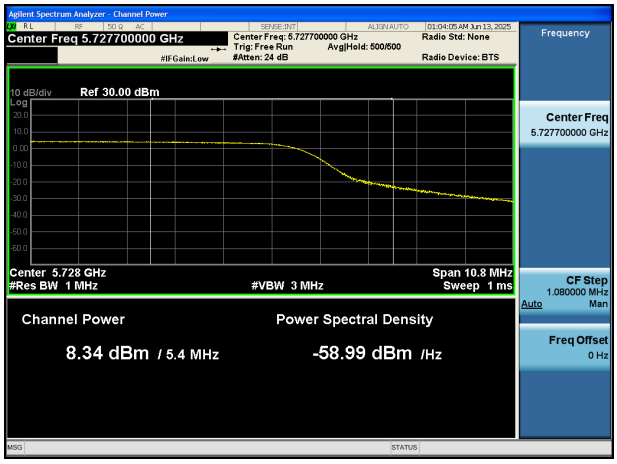
▣ Test Plots(Output Power)
[MIMO(Ant.1)]

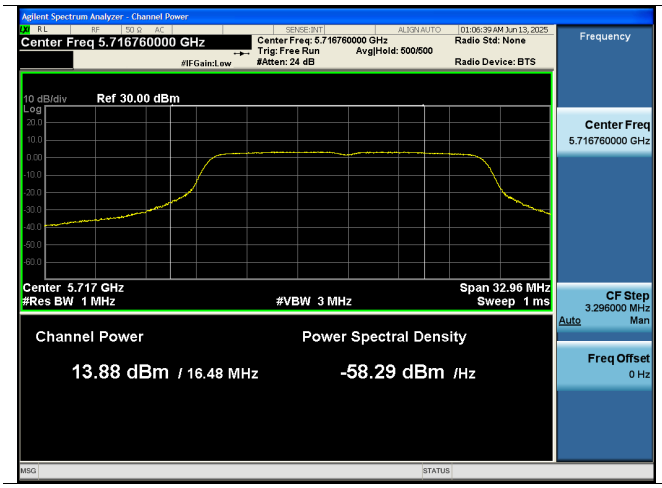
802.11a UNII 2C Band



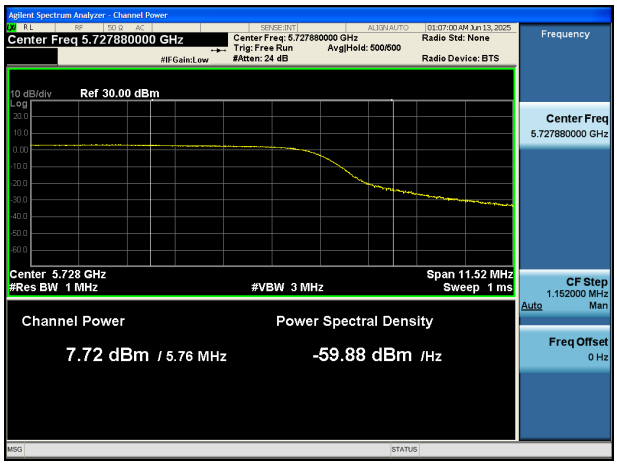
802.11a UNII 3 Band



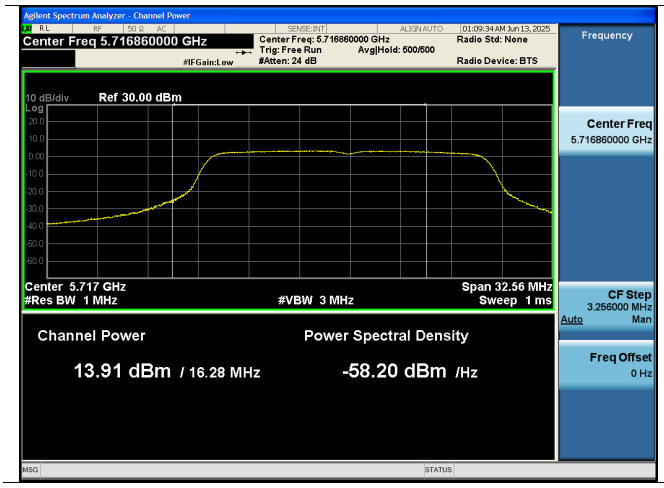
802.11n(HT20) UNII 2C Band



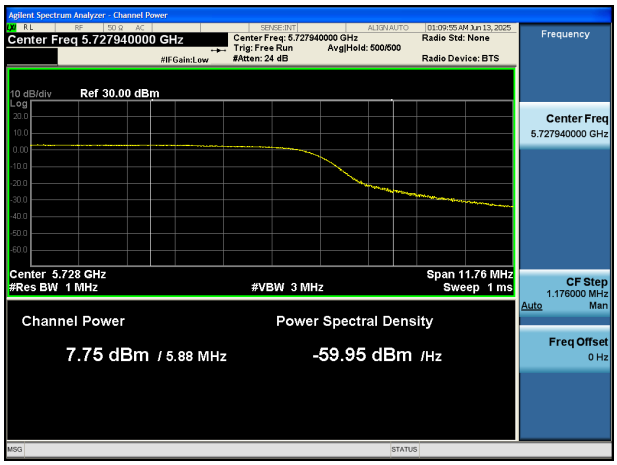
802.11n(HT20) UNII 3 Band



802.11ac(VHT20) UNII 2C Band



802.11ac(VHT20) UNII 3 Band



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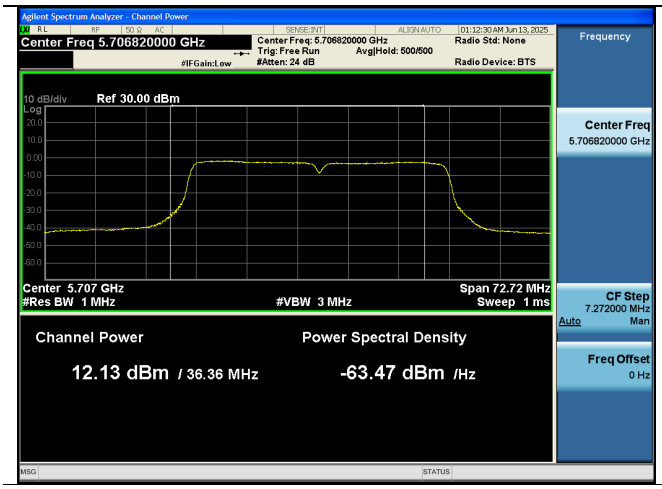
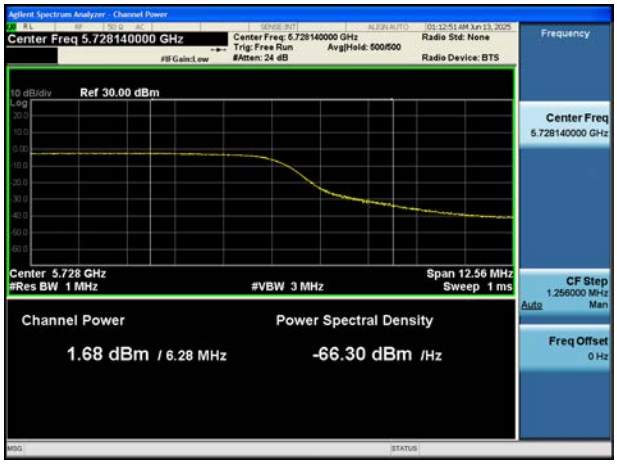
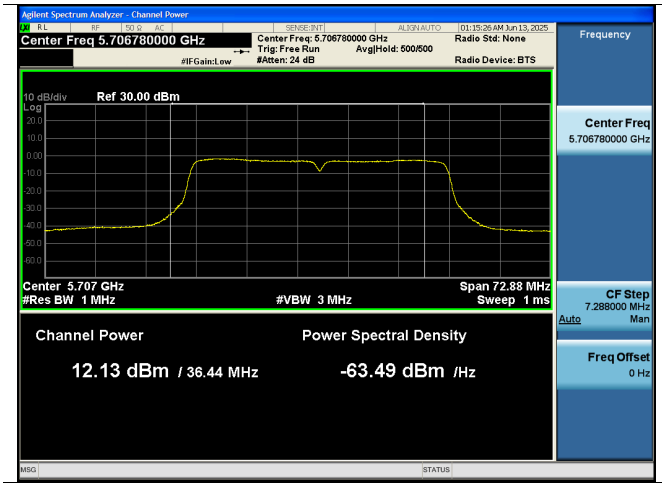
802.11n(HT40) UNII 2C Band



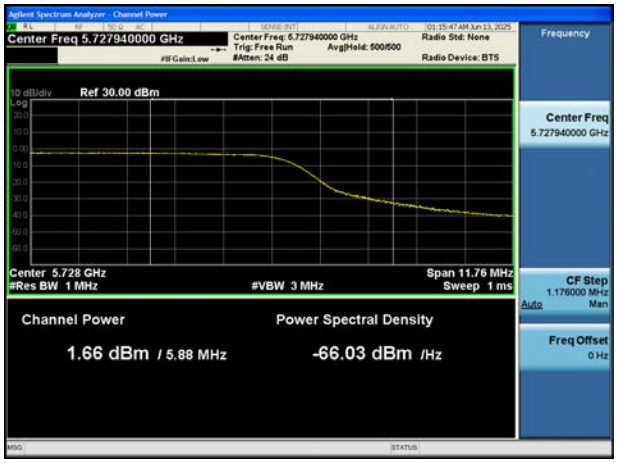
802.11n(HT40) UNII 3 Band



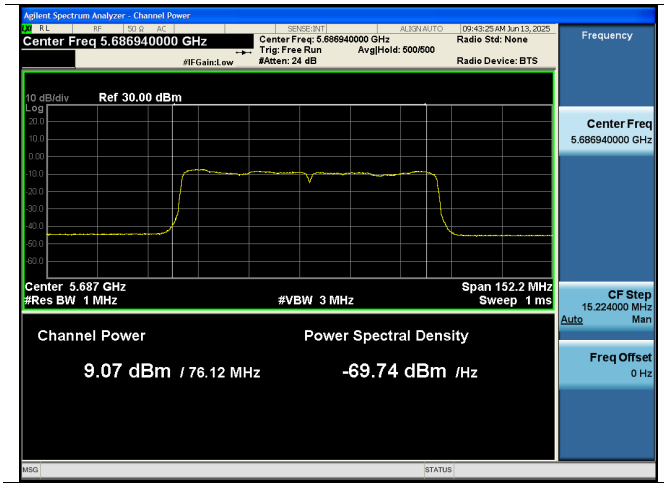
802.11ac(VHT40) UNII 2C Band



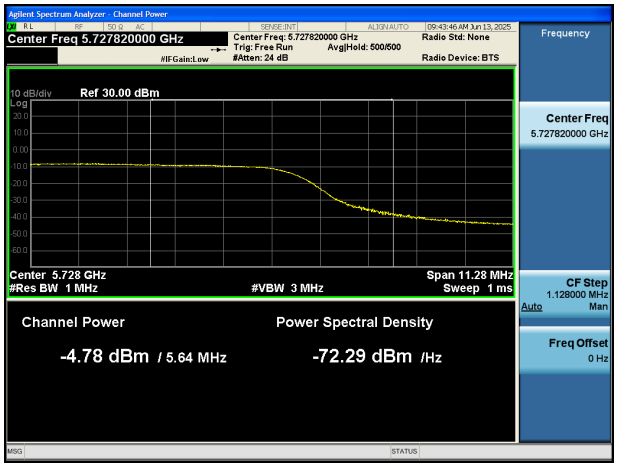
802.11ac(VHT40) UNII 3 Band



802.11ac(VHT80) UNII 2C Band



802.11ac(VHT80) UNII 3 Band



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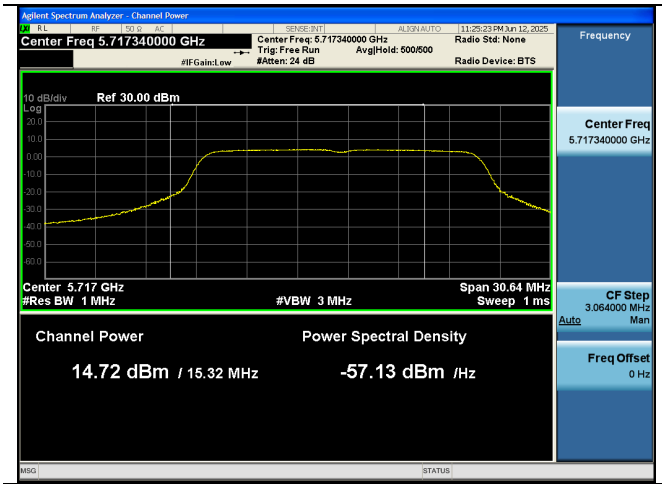
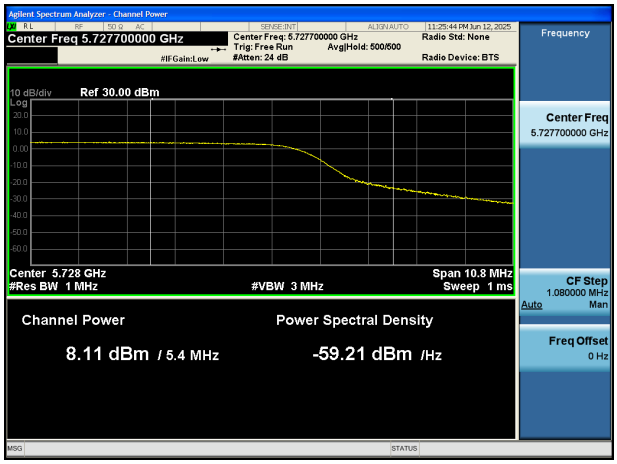
[MIMO(Ant.2)]

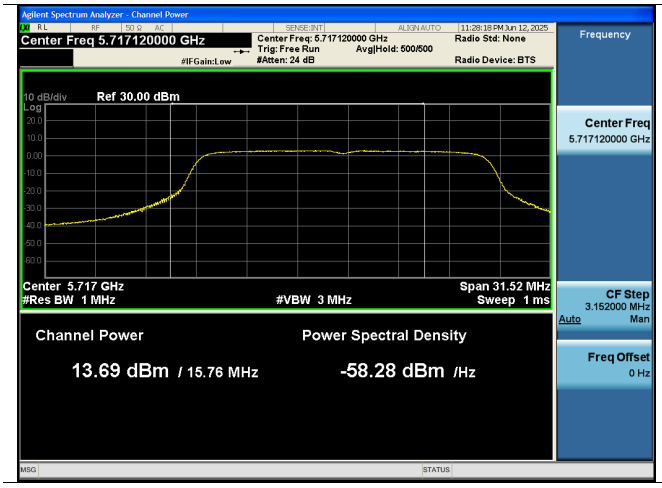
802.11a UNII 2C Band



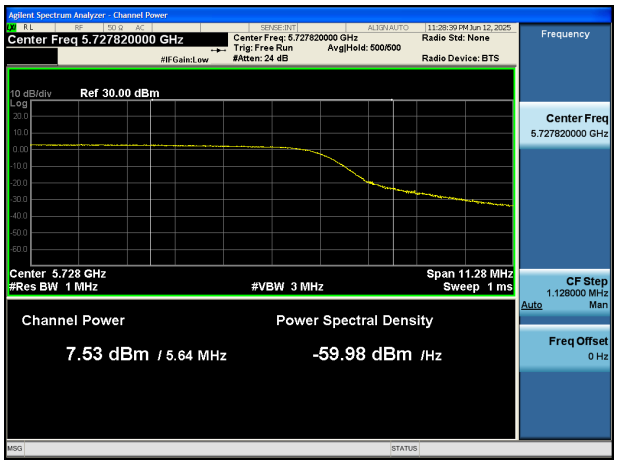
802.11a UNII 3 Band



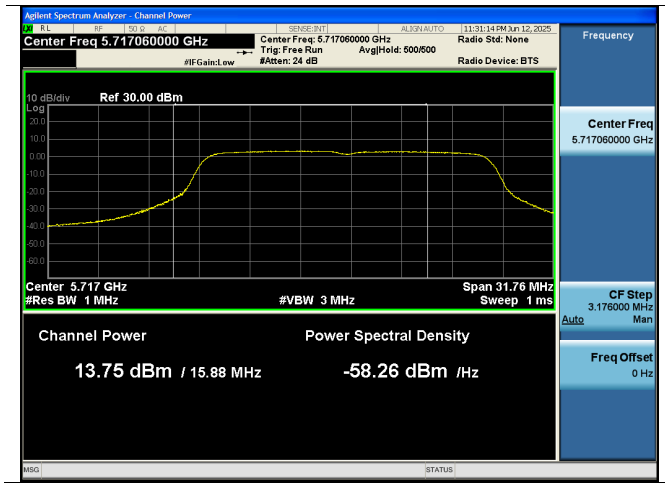
802.11n(HT20) UNII 2C Band



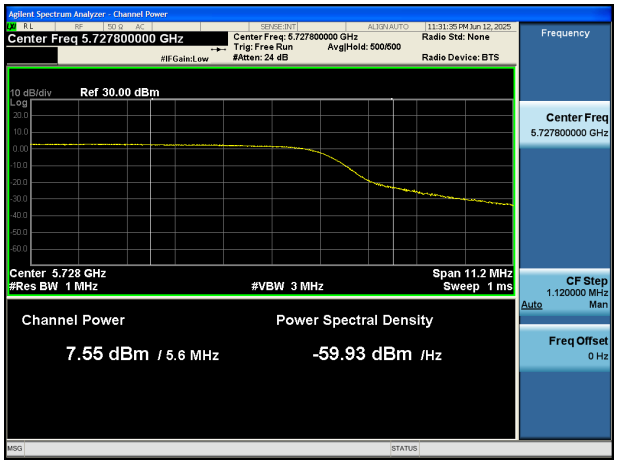
802.11n(HT20) UNII 3 Band



802.11ac(VHT20) UNII 2C Band



802.11ac(VHT20) UNII 3 Band



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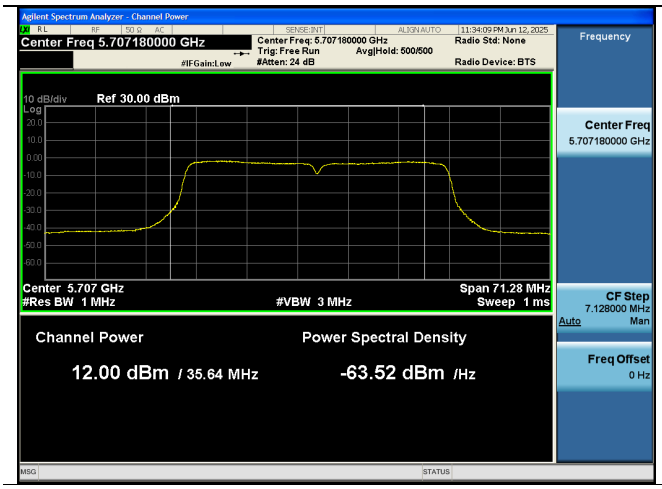
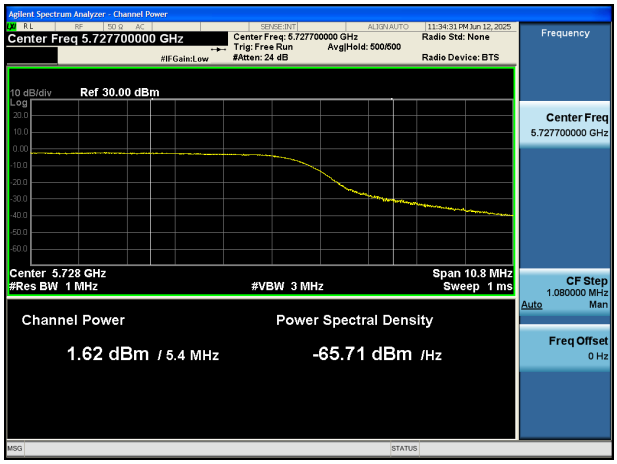
802.11n(HT40) UNII 2C Band



802.11n(HT40) UNII 3 Band



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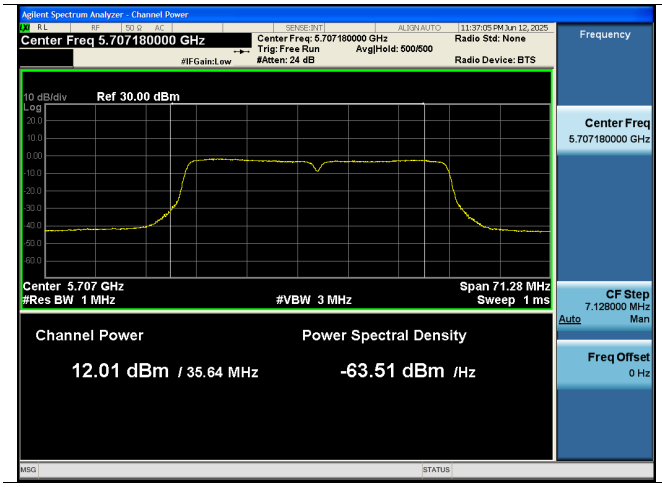
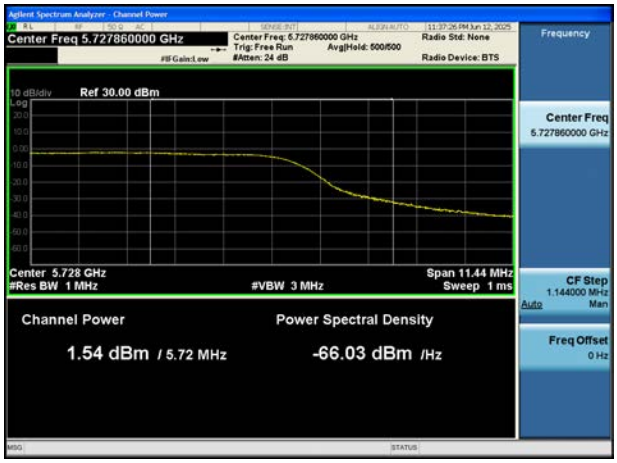
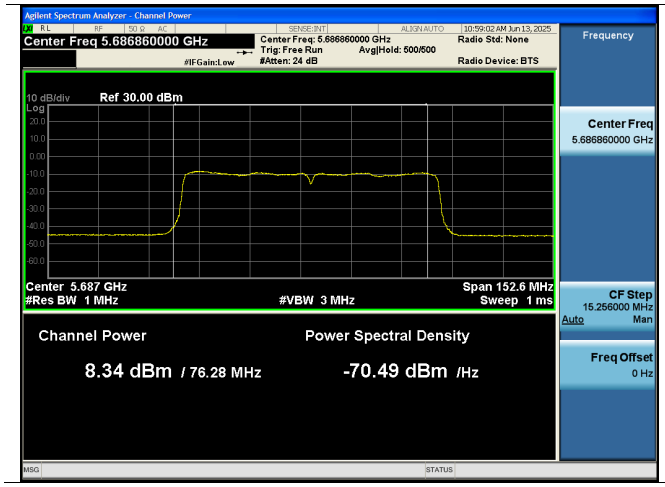


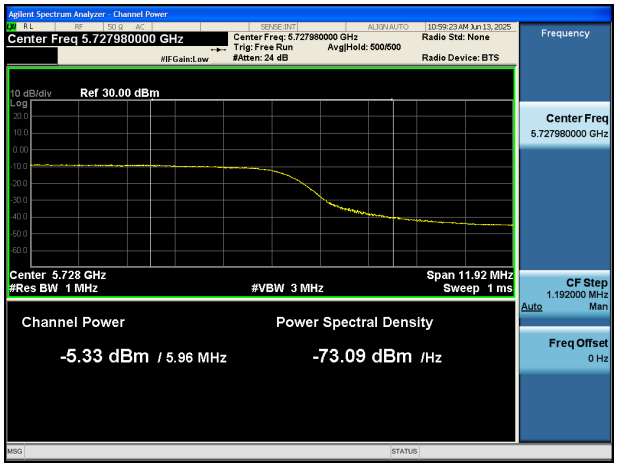
802.11ac(VHT40) UNII 3 Band



802.11ac(VHT80) UNII 2C Band



802.11ac(VHT80) UNII 3 Band



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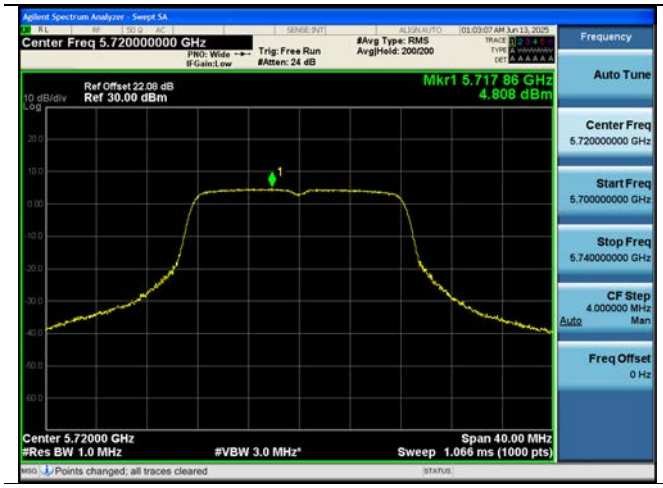
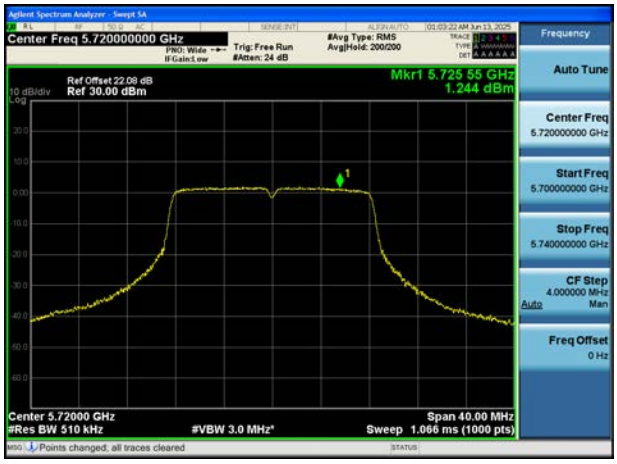
▣ Test Plots(Power Spectral Density)
[MIMO(Ant.1)]

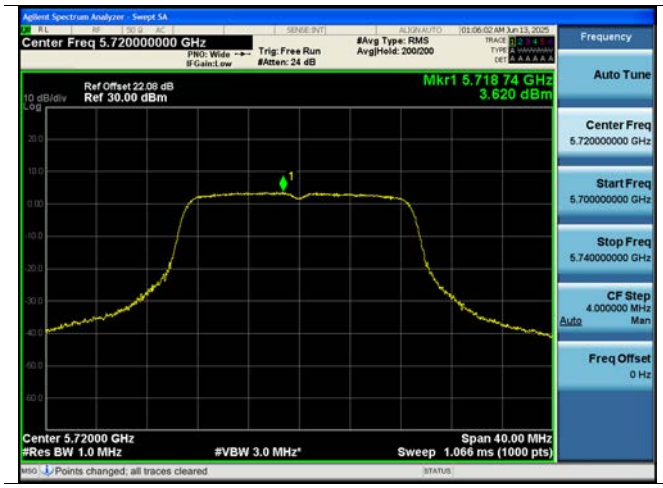
802.11a UNII 2C Band



802.11a UNII 3 Band



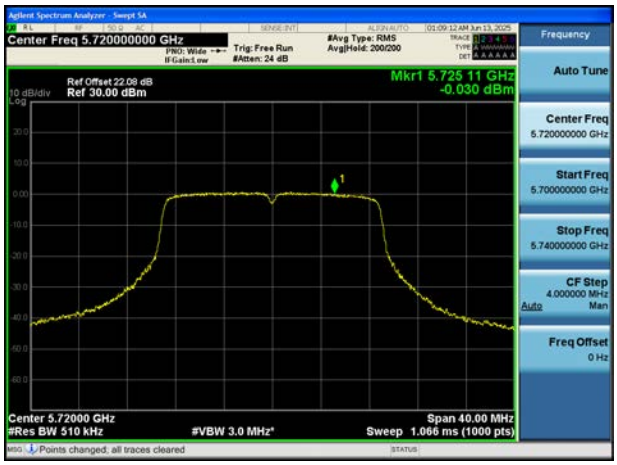
802.11n(HT20) UNII 2C Band



802.11n(HT20) UNII 3 Band

802.11ac(VHT20) UNII 2C Band

802.11ac(VHT20) UNII 3 Band



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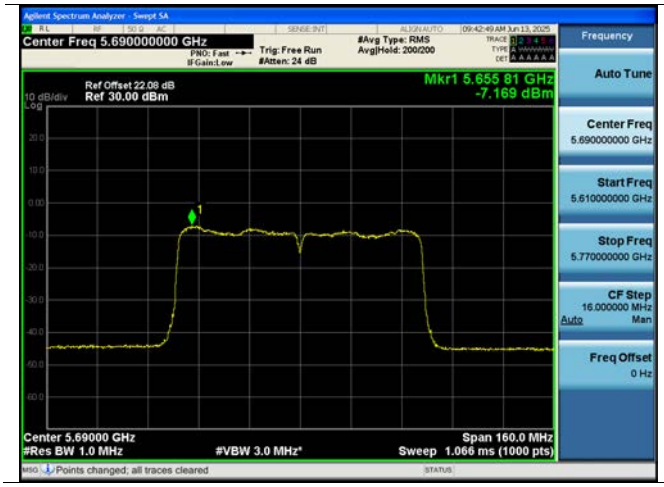
802.11n(HT40) UNII 2C Band

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

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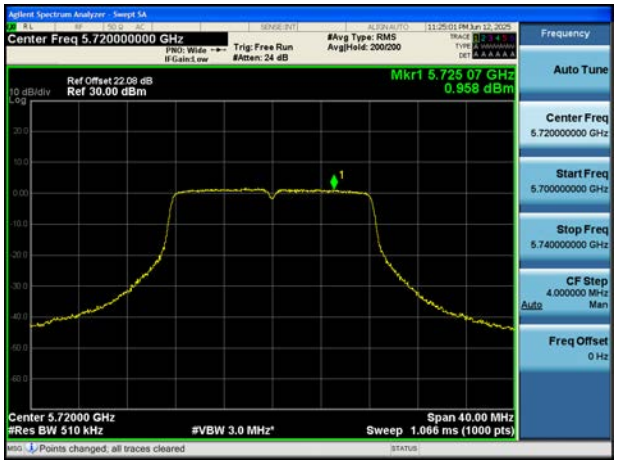
[MIMO(Ant.2)]

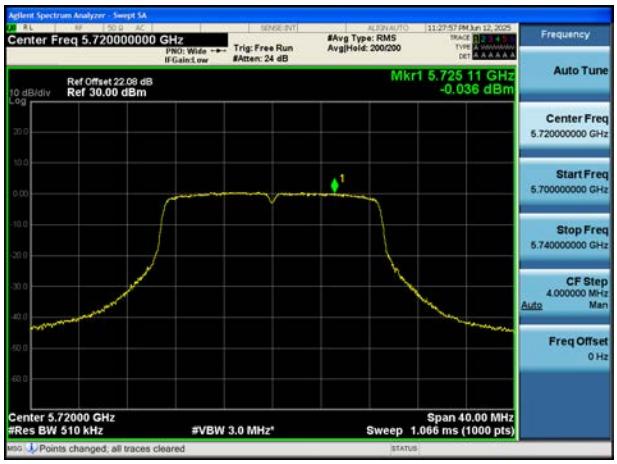
802.11a UNII 2C Band

802.11a UNII 3 Band

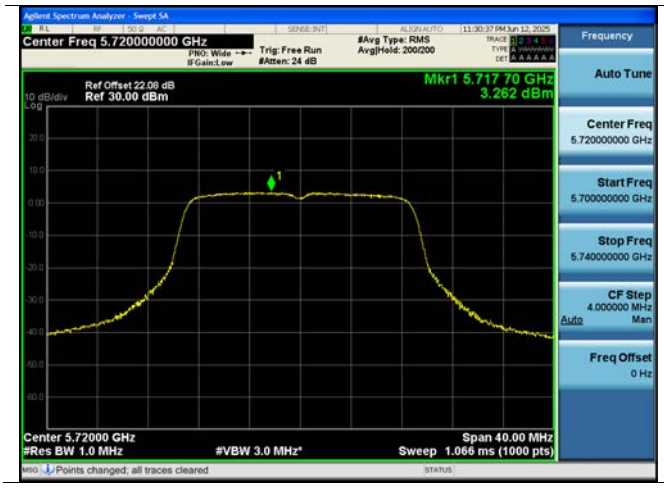


802.11n(HT20) UNII 2C Band

802.11n(HT20) UNII 3 Band



802.11ac(VHT20) UNII 2C Band



802.11ac(VHT20) UNII 3 Band

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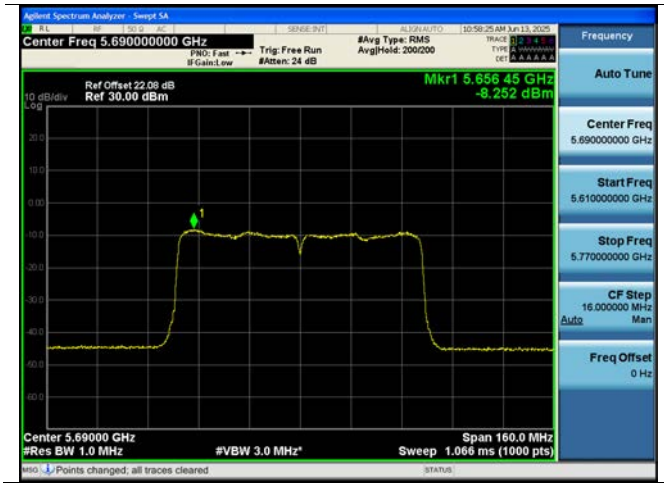
802.11n(HT40) UNII 2C Band

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

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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 detector mode

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Frequency Range : Above 1 GHz

[MIMO(Ant1+Ant2)]

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	44.52	7.59	V	52.11	68.20	16.09	PK
15540	39.97	12.73	V	52.70	73.98	21.28	PK
15540	28.03	12.73	V	40.76	53.98	13.22	AV
10360	44.90	7.59	H	52.49	68.20	15.71	PK
15540	40.52	12.73	H	53.25	73.98	20.73	PK
15540	28.14	12.73	H	40.87	53.98	13.11	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	44.41	8.11	V	52.52	68.20	15.68	PK
15600	40.13	12.87	V	53.00	73.98	20.98	PK
15600	27.94	12.87	V	40.81	53.98	13.17	AV
10400	44.44	8.11	H	52.55	68.20	15.65	PK
15600	40.54	12.87	H	53.41	73.98	20.57	PK
15600	27.98	12.87	H	40.85	53.98	13.13	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	44.74	8.38	V	53.12	68.20	15.08	PK
15720	40.08	13.27	V	53.35	73.98	20.63	PK
15720	27.62	13.27	V	40.89	53.98	13.09	AV
10480	44.03	8.38	H	52.41	68.20	15.79	PK
15720	40.01	13.27	H	53.28	73.98	20.70	PK
15720	27.63	13.27	H	40.90	53.98	13.08	AV

Band :	UNII 2A		Operation Mode :		802.11a		
CH.52	5260 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
10520	43.72	8.42	V	52.14	68.20	16.06	PK
15780	40.44	13.74	V	54.18	73.98	19.80	PK
15780	28.63	13.74	V	42.37	53.98	11.61	AV
10520	43.35	8.42	H	51.77	68.20	16.43	PK
15780	41.36	13.74	H	55.10	73.98	18.88	PK
15780	28.47	13.74	H	42.21	53.98	11.77	AV

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Band :	UNII 2A		Operation Mode :		802.11a		
CH.60	5300 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
10600	43.05	9.23	V	52.28	73.98	21.70	PK
10600	30.98	9.23	V	40.21	53.98	13.77	AV
15900	40.79	12.90	V	53.69	73.98	20.29	PK
15900	28.70	12.90	V	41.60	53.98	12.38	AV
10600	43.40	9.23	H	52.63	73.98	21.35	PK
10600	31.21	9.23	H	40.44	53.98	13.54	AV
15900	41.46	12.90	H	54.36	73.98	19.62	PK
15900	28.75	12.90	H	41.65	53.98	12.33	AV

Band :	UNII 2A		Operation Mode :		802.11a		
CH.64	5320 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
10640	43.45	9.53	V	52.98	73.98	21.00	PK
10640	31.03	9.53	V	40.56	53.98	13.42	AV
15960	40.94	13.03	V	53.97	73.98	20.01	PK
15960	28.45	13.03	V	41.48	53.98	12.50	AV
10640	42.96	9.53	H	52.49	73.98	21.49	PK
10640	31.05	9.53	H	40.58	53.98	13.40	AV
15960	40.71	13.03	H	53.74	73.98	20.24	PK
15960	28.47	13.03	H	41.50	53.98	12.48	AV

Band :	UNII 2C		Operation Mode :		802.11a		
CH.100	5500 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
11000	43.02	9.40	V	52.42	73.98	21.56	PK
11000	30.70	9.40	V	40.10	53.98	13.88	AV
16500	41.35	11.35	V	52.70	68.20	15.50	PK
11000	42.89	9.40	H	52.29	73.98	21.69	PK
11000	31.17	9.40	H	40.57	53.98	13.41	AV
16500	41.94	11.35	H	53.29	68.20	14.91	PK

Band :	UNII 2C		Operation Mode :		802.11a		
CH.116	5580 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
11160	42.22	9.75	V	51.97	73.98	22.01	PK
11160	30.50	9.75	V	40.25	53.98	13.73	AV
16740	41.55	11.40	V	52.95	68.20	15.25	PK
11160	42.37	9.75	H	52.12	73.98	21.86	PK
11160	30.30	9.75	H	40.05	53.98	13.93	AV
16740	41.64	11.40	H	53.04	68.20	15.16	PK

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Band :	UNII 2C		Operation Mode :		802.11a		
CH.144	5720 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
11440	42.05	10.41	V	52.46	73.98	21.52	PK
11440	29.55	10.41	V	39.96	53.98	14.02	AV
17160	41.62	11.47	V	53.09	68.20	15.11	PK
11440	42.22	10.41	H	52.63	73.98	21.35	PK
11440	29.39	10.41	H	39.80	53.98	14.18	AV
17160	43.94	11.47	H	55.41	68.20	12.79	PK

Band :	UNII 3		Operation Mode :		802.11a		
CH.149	5745 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
11490	42.26	10.36	V	52.62	73.98	21.36	PK
11490	29.67	10.36	V	40.03	53.98	13.95	AV
17235	40.94	12.16	V	53.10	68.20	15.10	PK
11490	42.03	10.36	H	52.39	73.98	21.59	PK
11490	29.59	10.36	H	39.95	53.98	14.03	AV
17235	41.03	12.16	H	53.19	68.20	15.01	PK

Band :	UNII 3		Operation Mode :		802.11a		
CH.157	5785 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
11570	41.79	9.49	V	51.28	73.98	22.70	PK
11570	30.07	9.49	V	39.56	53.98	14.42	AV
17355	41.00	12.52	V	53.52	68.20	14.68	PK
11570	42.42	9.49	H	51.91	73.98	22.07	PK
11570	29.88	9.49	H	39.37	53.98	14.61	AV
17355	40.72	12.52	H	53.24	68.20	14.96	PK

Band :	UNII 3		Operation Mode :		802.11a		
CH.165	5825 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
11650	42.21	9.49	V	51.70	73.98	22.28	PK
11650	29.86	9.49	V	39.35	53.98	14.63	AV
17475	40.80	13.55	V	54.35	68.20	13.85	PK
11650	42.76	9.49	H	52.25	73.98	21.73	PK
11650	30.03	9.49	H	39.52	53.98	14.46	AV
17475	40.61	13.55	H	54.16	68.20	14.04	PK

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Band :	UNII 4		Operation Mode :		802.11a		
CH.169	5845 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
11690	42.08	8.96	V	51.04	73.98	22.94	PK
11690	30.02	8.96	V	38.98	53.98	15.00	AV
17535	40.34	14.19	V	54.53	68.20	13.67	PK
11690	42.33	8.96	H	51.29	73.98	22.69	PK
11690	30.03	8.96	H	38.99	53.98	14.99	AV
17535	40.41	14.19	H	54.60	68.20	13.60	PK

Band :	UNII 4		Operation Mode :		802.11a		
CH.173	5865 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
11730	42.55	9.29	V	51.84	73.98	22.14	PK
11730	30.06	9.29	V	39.35	53.98	14.63	AV
17595	41.08	14.50	V	55.58	68.20	12.62	PK
11730	42.60	9.29	H	51.89	73.98	22.09	PK
11730	30.13	9.29	H	39.42	53.98	14.56	AV
17595	41.10	14.50	H	55.60	68.20	12.60	PK

Band :	UNII 4		Operation Mode :		802.11a		
CH.177	5885 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
11770	42.84	8.78	V	51.62	73.98	22.36	PK
11770	30.31	8.78	V	39.09	53.98	14.89	AV
17655	41.25	14.68	V	55.93	68.20	12.27	PK
11770	42.16	8.78	H	50.94	73.98	23.04	PK
11770	30.32	8.78	H	39.10	53.98	14.88	AV
17655	41.49	14.68	H	56.17	68.20	12.03	PK

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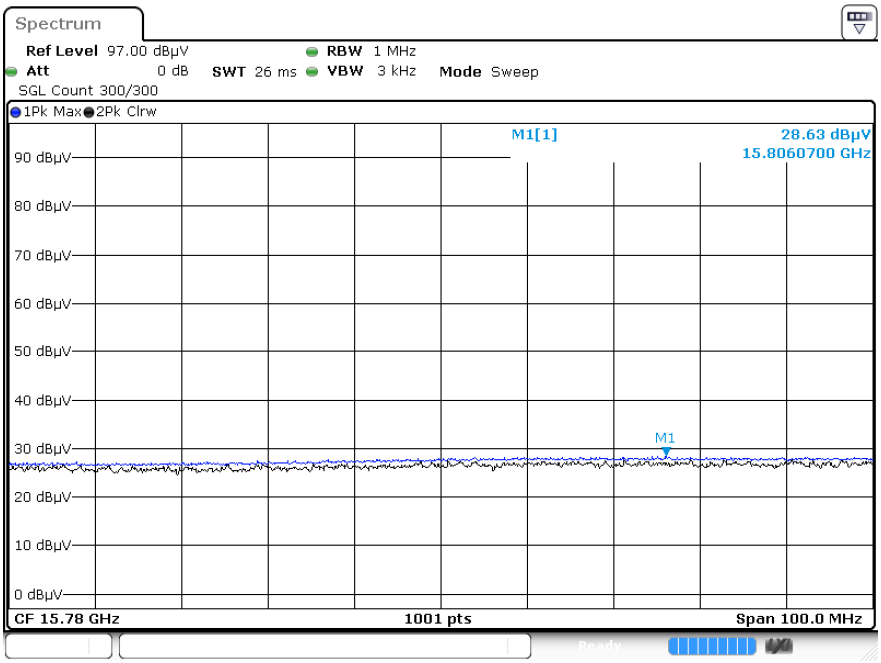
▣ Test Plots

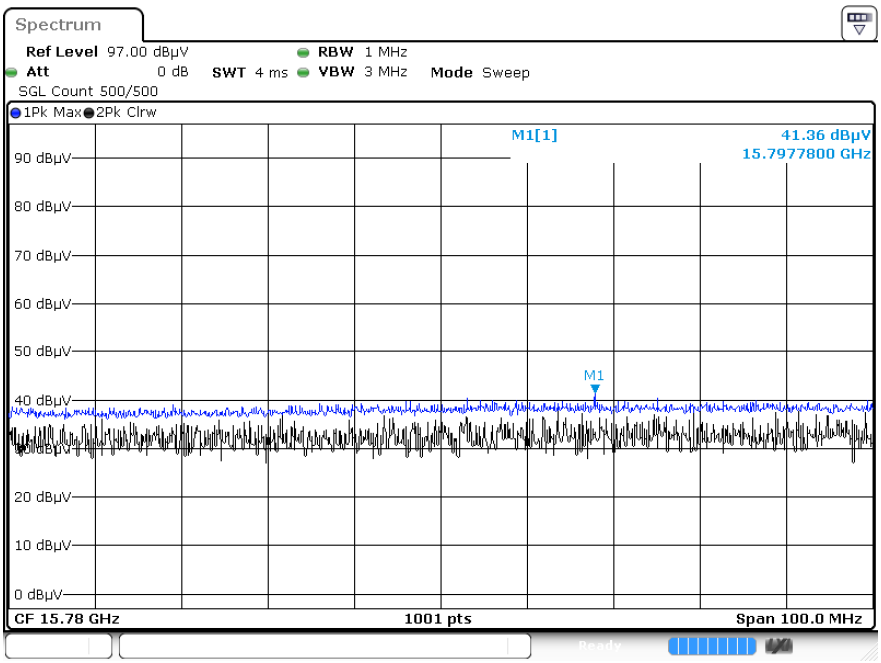
Note: Only the worst case plots for Radiated Spurious Emissions.

[MIMO(Ant1+Ant2)]

Radiated Spurious Emissions plot – Average Result (802.11a_Ch.52_Z-V)



Radiated Spurious Emissions plot – Peak Result (802.11a_Ch.52_ Z-H)



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10.9 RADIATED RESTRICTED BAND EDGE

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

[MIMO(Ant1+Ant2)]

802.11 a		Transfer Rate: 6 Mbps					
Channel	Ch.36	5180 MHz	UNII 1				
Frequency	Measured Value	C.L+A.F+D.F-A.G+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
5150	45.77	15.98	H	61.75	73.98	12.23	PK
5150	33.85	15.98	H	49.83	53.98	4.15	AV

802.11 a		Transfer Rate: 6 Mbps					
Channel	Ch. 64	5320 MHz	UNII 2A				
Frequency	Measured Value	C.L+A.F+D.F-A.G+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
5350	46.13	15.69	H	61.82	73.98	12.16	PK
5350	32.79	15.69	H	48.48	53.98	5.50	AV

802.11 a		Transfer Rate: 6 Mbps					
Channel	Ch. 100	5500 MHz	UNII 2C				
Frequency	Measured Value	C.L+A.F+D.F-A.G+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
5460	53.05	9.05	H	62.10	73.98	11.88	PK
5460	39.66	9.05	H	48.71	53.98	5.27	AV
5470	52.92	9.03	H	61.95	68.20	6.25	PK

802.11 n_HT20		Transfer MCS Index: MCS 8					
Channel	Ch. 36	5180 MHz	UNII 1				
Frequency	Measured Value	C.L+A.F+D.F-A.G+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
5150	48.97	15.98	H	64.95	73.98	9.03	PK
5150	34.99	15.98	H	50.97	53.98	3.01	AV

802.11 n_HT20		Transfer MCS Index: MCS 8					
Channel	Ch. 64	5320 MHz	UNII 2A				
Frequency	Measured Value	C.L+A.F+D.F-A.G+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
5350	46.34	15.69	H	62.03	73.98	11.95	PK
5350	33.95	15.69	H	49.64	53.98	4.34	AV

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802.11 n_HT20		Transfer MCS Index: MCS 8					
Channel	Ch. 100	5500 MHz	UNII 2C				
Frequency	Measured Value	C.L+A.F+D.F-A.G+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
5460	52.89	9.05	H	61.94	73.98	12.04	PK
5460	40.75	9.05	H	49.80	53.98	4.18	AV
5470	52.84	9.03	H	61.87	68.20	6.33	PK

802.11 ac_VHT20		Transfer MCS Index: MCS 0					
Channel	Ch. 36	5180 MHz	UNII 1				
Frequency	Measured Value	C.L+A.F+D.F-A.G+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
5150	48.96	15.98	H	64.94	73.98	9.04	PK
5150	34.98	15.98	H	50.96	53.98	3.02	AV

802.11 ac_VHT20		Transfer MCS Index: MCS 0					
Channel	Ch. 64	5320 MHz	UNII 2A				
Frequency	Measured Value	C.L+A.F+D.F-A.G+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
5350	46.30	15.69	H	61.99	73.98	11.99	PK
5350	33.99	15.69	H	49.68	53.98	4.30	AV

802.11 ac_VHT20		Transfer MCS Index: MCS 0					
Channel	Ch. 100	5500 MHz	UNII 2C				
Frequency	Measured Value	C.L+A.F+D.F-A.G+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
5460	52.70	9.05	H	61.75	73.98	12.23	PK
5460	40.77	9.05	H	49.82	53.98	4.16	AV
5470	53.72	9.03	H	62.75	68.20	5.45	PK

802.11 n_HT40		Transfer MCS Index: MCS 8					
Channel	Ch. 38	5190 MHz	UNII 1				
Frequency	Measured Value	C.L+A.F+D.F-A.G+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
5150	47.65	15.98	H	63.63	73.98	10.35	PK
5150	35.00	15.98	H	50.98	53.98	3.00	AV

802.11 n_HT40		Transfer MCS Index: MCS 8					
Channel	Ch. 62	5310 MHz	UNII 2A				
Frequency	Measured Value	C.L+A.F+D.F-A.G+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
5350	47.61	15.69	H	63.30	73.98	10.68	PK
5350	35.55	15.69	H	51.24	53.98	2.74	AV

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802.11 n_HT40		Transfer MCS Index: MCS 8					
Channel	Ch. 102	5510 MHz	UNII 2C				
Frequency	Measured Value	C.L+A.F+D.F-A.G+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
5460	45.12	16.12	H	61.24	73.98	12.74	PK
5460	32.28	16.12	H	48.40	53.98	5.58	AV
# 5470	47.35	16.12	H	63.47	68.20	4.73	PK

802.11 ac_VHT40		Transfer MCS Index: MCS 0					
Channel	Ch. 38	5190 MHz	UNII 1				
Frequency	Measured Value	C.L+A.F+D.F-A.G+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
5150	47.59	15.98	H	63.57	73.98	10.41	PK
5150	34.99	15.98	H	50.97	53.98	3.01	AV

802.11 ac_VHT40		Transfer MCS Index: MCS 0					
Channel	Ch. 62	5310 MHz	UNII 2A				
Frequency	Measured Value	C.L+A.F+D.F-A.G+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
5350	47.82	15.69	H	63.51	73.98	10.47	PK
5350	35.37	15.69	H	51.06	53.98	2.92	AV

802.11 ac_VHT40		Transfer MCS Index: MCS 0					
Channel	Ch. 102	5510 MHz	UNII 2C				
Frequency	Measured Value	C.L+A.F+D.F-A.G+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
5460	44.96	16.12	H	61.08	73.98	12.90	PK
5460	32.25	16.12	H	48.37	53.98	5.61	AV
# 5470	47.12	16.12	H	63.24	68.20	4.96	PK

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802.11 ac_VHT80		Transfer MCS Index: MCS 0					
Channel	Ch. 42	5210 MHz	UNII 1				
Frequency	Measured Value	C.L+A.F+D.F-A.G+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
5150	44.55	15.98	H	60.53	73.98	13.45	PK
5150	34.91	15.98	H	50.89	53.98	3.09	AV

802.11 ac_VHT80		Transfer MCS Index: MCS 0					
Channel	Ch. 58	5290 MHz	UNII 2A				
Frequency	Measured Value	C.L+A.F+D.F-A.G+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
5350	45.13	15.69	H	60.82	73.98	13.16	PK
5350	35.54	15.69	H	51.23	53.98	2.75	AV

802.11 ac_VHT80		Transfer MCS Index: MCS 0					
Channel	Ch. 106	5530 MHz	UNII 2C				
Frequency	Measured Value	C.L+A.F+D.F-A.G+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
5460	45.53	16.12	H	61.65	73.98	12.33	PK
5460	35.21	16.12	H	51.33	53.98	2.65	AV
5470	46.65	16.12	H	62.77	68.20	5.43	PK

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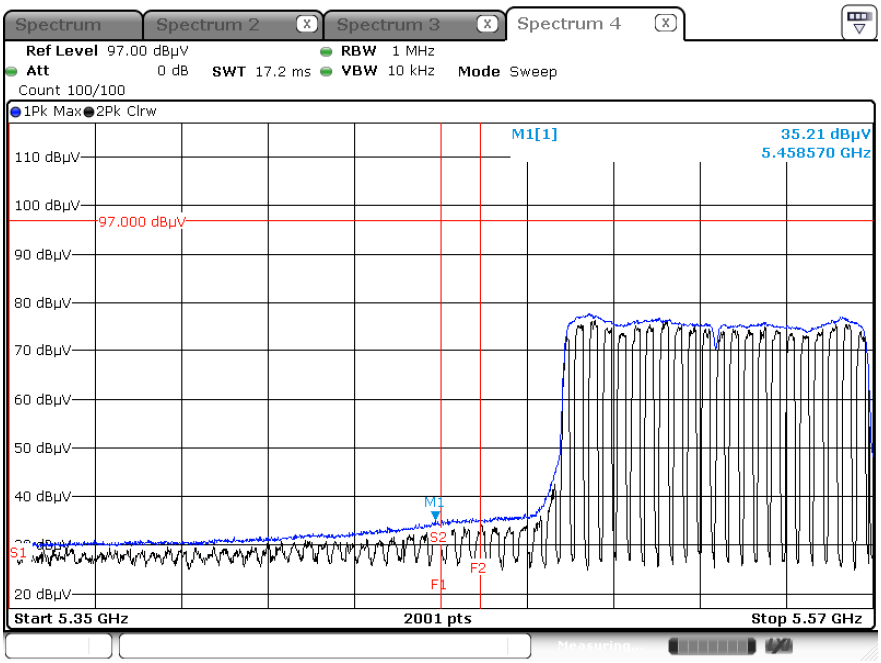
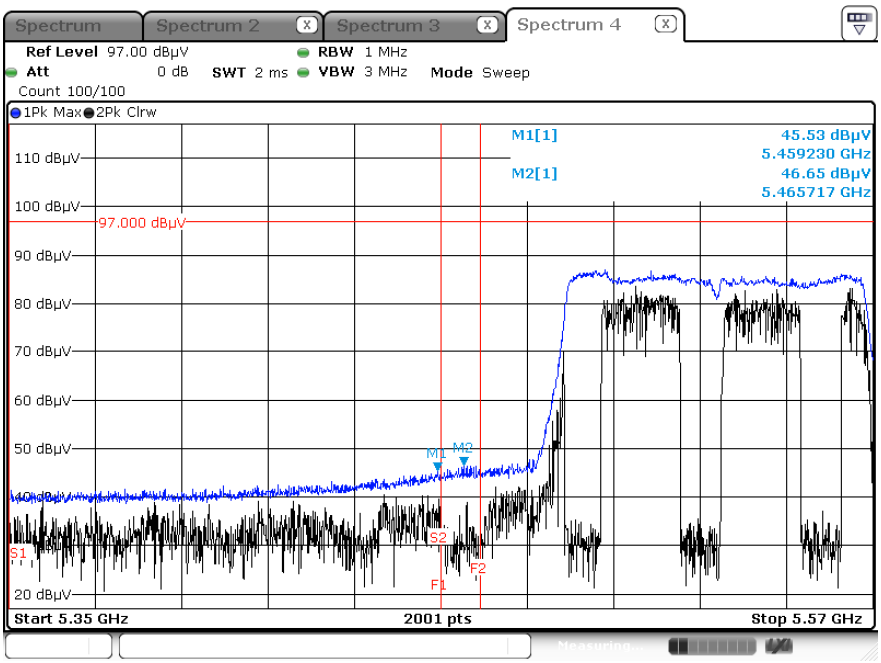
[MIMO(Ant1+Ant2)]

▣ 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.

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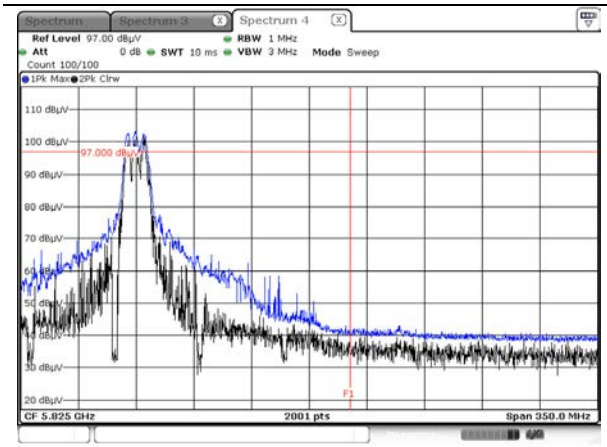
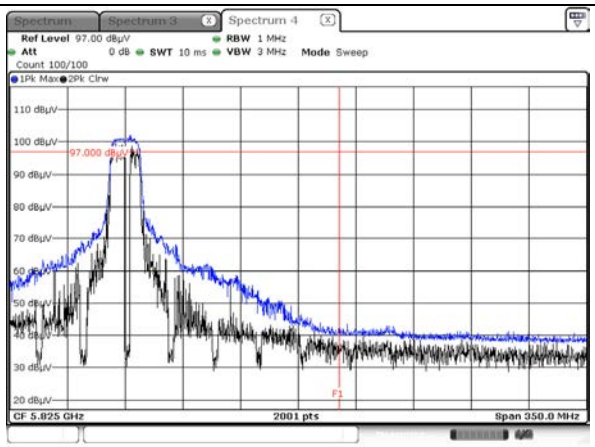
▣ Test Plots(Straddle Channel)

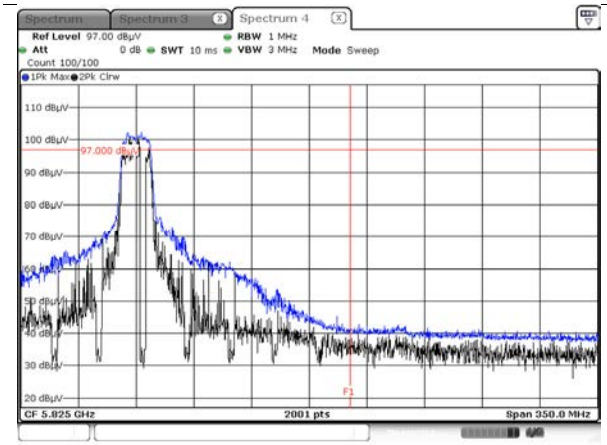
Peak Result (802.11a, Ch.144, Z-H)



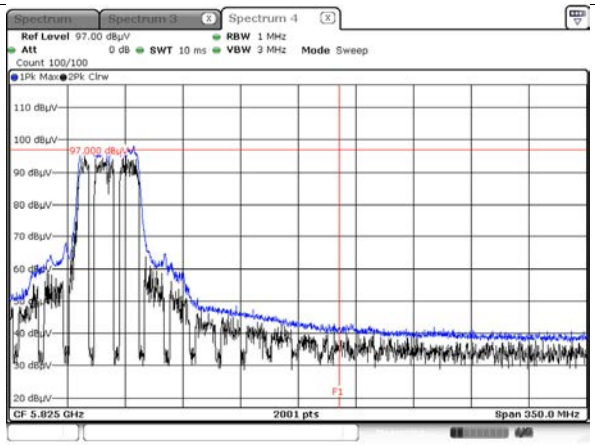
Peak Result (802.11n_HT20, Ch.144, Z-H)



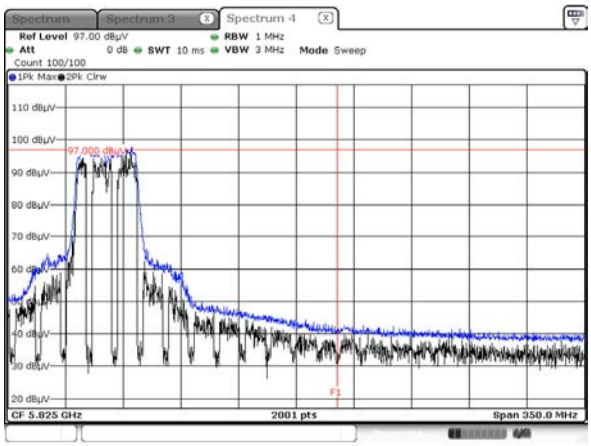
Peak Result (802.11ac_VHT20, Ch.144, Z-H)



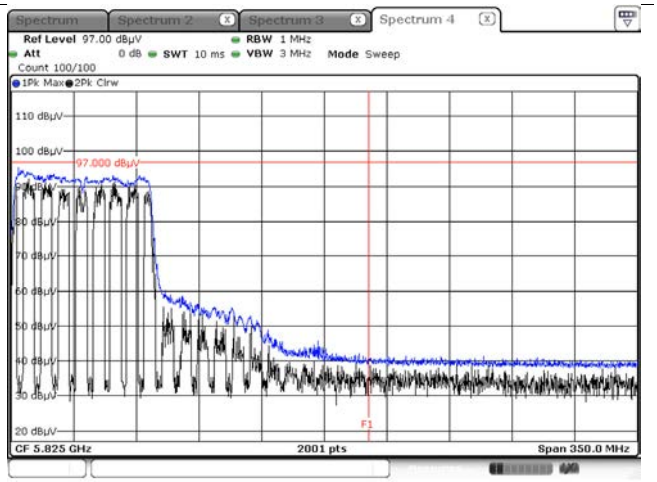
Peak Result (802.11n_HT40, Ch.142, Z-H)



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



Peak Result (802.11ac_VHT80, Ch.138, Z-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)

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