TEST REPORT

FCC UNII Test for TFBMEEBN6FU
Certification

APPLICANT
LG Electronics Inc.

REPORT NO.
HCT-RF-2507-FC080-R3

DATE OF ISSUE
September 1, 2025

Tested by
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Accredited by KOLAS, Republic of KOREA

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Additional Model
TFBMEEBN6FR, TFBMNENN0FN

Applicant	LG Electronics Inc. 128, Yeoui-daero, Yeongdeungpo-gu, Seoul, Republic of Korea
Product Name Model Name	Telematics TFBMEEBN6FU
FCC ID	2BO3LTFBMEEBN6FU
Date of Test	March 14, 2025~ July 11, 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)

REVISION HISTORY

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

Revision No.	Date of Issue	Description
0	July 17, 2025	Initial Release
1	August 04, 2025	Added Note on page 6.
2	August 06, 2025	Revised BTLE Antenna information (Ant.3 → Ant.1)
3	September 01, 2025	Added the Radiated Emissions test method

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 This test report provides test result(s) under the scope accredited by the Korea Laboratory Accreditation Scheme (KOLAS), which signed the ILAC-MRA. (KOLAS (KS Q ISO/IEC 17025) Accreditation No. KT197)

CONTENTS

1. GENERAL INFORMATION

EUT DESCRIPTION

Model	TFBMEEBN6FU	
Additional Model	TFBMEEBN6FR, TFBMNENN0FN	
EUT Type	Telematics	
Power Supply	DC 12.0 V	
Modulation Type	OFDM : 802.11a, 802.11n, 802.11ac	
Frequency Range (MHz)	U-NII-1	20 MHz BW : 5180 - 5240 40 MHz BW : 5190 - 5230 80 MHz BW : 5210
	U-NII-2A	20 MHz BW : 5260 - 5320 40 MHz BW : 5270 - 5310 80 MHz BW : 5290
	U-NII-2C	20 MHz BW : 5500 - 5720 40 MHz BW : 5510 - 5710 80 MHz BW : 5530 – 5690
	U-NII-3	20 MHz BW : 5745 - 5825 40 MHz BW : 5755 - 5795 80 MHz BW : 5775
Straddle channel	Supported	
TDWR Band	Supported	
Dynamic Frequency Selection	Slave without radar detection	
Antenna Specification	ANT 1 & ANT 2 Type : Shark Fin ANT 3 Type : Carrier + Metal Press	
Serial number	Conducted : 0000009075 Radiated : 0000009072	

ANTENNA CONFIGURATIONS

1. Antenna configuration

Configurations	SISO			MIMO	
	Ant.1	Ant.2	Ant.3	CDD	SDM
802.11a	X	X	O	O	X
802.11n	X	X	O	O	O
802.11ac	X	X	O	O	O

Note:

(1) O = Support, X = Not Support

(2) SISO = Single Input Single Output

(3) SDM = Spatial Diversity Multiplexing

(4) CDD = Cyclic Delay Diversity

(5) MIMO = MIMO(Ant.1 + Ant.2), MIMO(Ant.1 + Ant.3)

2.This device supports simultaneous transmission operation, which allows for two channels to operate independent of one another in the 5 GHz and 6GHz Bands simultaneously on each antenna.

Simultaneous transmission Scenario	WWAN	5 GHz WiFi Ant.1	5 GHz WiFi Ant.2	5 GHz WiFi Ant.3	6 GHz WiFi Ant.1	6 GHz WiFi Ant.2	6 GHz WiFi Ant.3	BT LE Ant.1	Test Case
Bluetooth LE + 5 GHz WiFi MIMO + WWAN	on	on	on	-	-	-	-	on	Scenario1
Bluetooth LE + 6 GHz WiFi MIMO + WWAN	on	on	-	on	-	-	-	on	-
Bluetooth LE + 5 GHz WiFi MIMO + WWAN	on	-	-	-	on	on		on	Scenario2
Bluetooth LE + 6 GHz WiFi MIMO + WWAN	on	-	-	-	on	-	on	on	-

Note : TFBMNENN0FN does not support WWAN.

3. 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})

[US-5A7F527]

Band	Ant Gain (dBi)		N_{ANT}/ N_{ss}	Directional Gain (dBi)	
	ANT1	ANT2		CDD	SDM
UNII 1	8.18	7.73	2 / 2	10.97	8.18
UNII 2A	6.78	7.95		10.39	7.95
UNII 2C	7.82	5.40		9.70	7.82
UNII 3	8.67	6.15		10.51	8.67

Band	Ant Gain (dBi)		N_{ANT}/ N_{ss}	Directional Gain (dBi)	
	ANT1	ANT3		CDD	SDM
UNII 1	8.18	4.15	2 / 2	9.41	8.18
UNII 2A	6.78	4.15		8.57	6.78
UNII 2C	7.82	3.17		8.81	7.82
UNII 3	8.67	0.78		8.60	8.67

[ROW-5A7F528]

Band	Ant Gain (dBi)		N_{ANT}/ N_{ss}	Directional Gain (dBi)	
	ANT1	ANT2		CDD	SDM
UNII 1	7.65	7.04	2 / 2	10.36	7.65
UNII 2A	6.16	7.07		9.64	7.07
UNII 2C	7.60	6.01		9.85	7.60
UNII 3	8.64	6.21		10.52	8.64

Band	Ant Gain (dBi)		N_{ANT}/ N_{ss}	Directional Gain (dBi)	
	ANT1	ANT3		CDD	SDM
UNII 1	7.65	4.15	2 / 2	9.09	7.65
UNII 2A	6.16	4.15		8.22	6.16
UNII 2C	7.60	3.17		8.67	7.60
UNII 3	8.64	0.78		8.58	8.64

[NC-5A7F529]

Band	Ant Gain (dBi)		N_{ANT}/ N_{ss}	Directional Gain (dBi)	
	ANT1	ANT2		CDD	SDM
UNII 1	8.03	8.72	2 / 2	11.39	8.72
UNII 2A	9.19	8.49		11.86	9.19
UNII 2C	8.28	6.26		10.34	8.28
UNII 3	8.10	5.54		9.92	8.10

Band	Ant Gain (dBi)		N_{ANT}/ N_{ss}	Directional Gain (dBi)	
	ANT1	ANT3		CDD	SDM
UNII 1	8.03	4.15	2 / 2	9.32	8.03
UNII 2A	9.19	4.15		10.04	9.19
UNII 2C	8.28	3.17		9.11	8.28
UNII 3	8.10	0.78		8.20	8.10

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.

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

$$\text{Directional gain(SDM)} = G_{max} + 10 \cdot \text{LOG}(N_{ANT}/ N_{ss})$$

Sample Calculation (Conducted Power, MIMO):

Ex) Ant 1 : 11.58 dBm Ant 2 : 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

2. MAXIMUM OUTPUT POWER

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

Band	Mode	SISO_Ant. 3	
		(dBm)	(W)
UNII1	802.11a	3.07	0.002
	802.11n (HT20)	2.68	0.002
	802.11n (HT40)	2.80	0.002
	802.11ac (VHT20)	2.65	0.002
	802.11ac (VHT40)	2.86	0.002
	802.11ac (VHT80)	2.18	0.002
UNII2A	802.11a	2.94	0.002
	802.11n (HT20)	2.54	0.002
	802.11n (HT40)	3.49	0.002
	802.11ac (VHT20)	2.54	0.002
	802.11ac (VHT40)	3.60	0.002
	802.11ac (VHT80)	3.21	0.002
UNII2C	802.11a	3.98	0.003
	802.11n (HT20)	3.68	0.002
	802.11n (HT40)	4.29	0.003
	802.11ac (VHT20)	3.68	0.002
	802.11ac (VHT40)	4.33	0.003
	802.11ac (VHT80)	3.69	0.002
UNII3	802.11a	4.76	0.003
	802.11n (HT20)	4.46	0.003
	802.11n (HT40)	4.89	0.003
	802.11ac (VHT20)	4.44	0.003
	802.11ac (VHT40)	5.03	0.003
	802.11ac (VHT80)	4.34	0.003

Band	Mode	MIMO_CDD(Ant.1+ Ant.2) & (Ant.1+ Ant.3) Power					
		Ant. 1		Ant. 2 & Ant. 3		Ant.1 + Ant.2 & Ant.1 + Ant.3	
		(dBm)	(W)	(dBm)	(W)	(dBm)	(W)
UNII1	802.11a	-1.87	0.001	-1.26	0.001	1.46	0.001
	802.11n (HT20)	-2.04	0.001	-1.34	0.001	1.33	0.001
	802.11n (HT40)	-1.63	0.001	-0.97	0.001	1.72	0.001
	802.11ac (VHT20)	-2.02	0.001	-1.24	0.001	1.40	0.001
	802.11ac (VHT40)	-1.56	0.001	-0.71	0.001	1.90	0.002
	802.11ac (VHT80)	-2.05	0.001	-1.30	0.001	1.35	0.001
UNII2A	802.11a	-2.06	0.001	-1.08	0.001	1.47	0.001
	802.11n (HT20)	-2.30	0.001	-1.08	0.001	1.36	0.001
	802.11n (HT40)	-1.48	0.001	-0.65	0.001	1.97	0.002
	802.11ac (VHT20)	-2.23	0.001	-1.04	0.001	1.42	0.001
	802.11ac (VHT40)	-1.79	0.001	-0.42	0.001	1.96	0.002
	802.11ac (VHT80)	-1.67	0.001	-0.61	0.001	1.90	0.002
UNII2C	802.11a	-0.23	0.001	1.39	0.001	3.67	0.002
	802.11n (HT20)	-0.87	0.001	1.97	0.002	3.79	0.002
	802.11n (HT40)	-0.25	0.001	2.26	0.002	4.19	0.003
	802.11ac (VHT20)	-0.70	0.001	1.97	0.002	3.85	0.002
	802.11ac (VHT40)	-0.19	0.001	2.13	0.002	4.13	0.003
	802.11ac (VHT80)	-1.20	0.001	1.66	0.001	3.47	0.002
UNII3	802.11a	0.74	0.001	2.27	0.002	4.58	0.003
	802.11n (HT20)	0.43	0.001	2.75	0.002	4.75	0.003
	802.11n (HT40)	-0.24	0.001	3.16	0.002	4.79	0.003
	802.11ac (VHT20)	0.53	0.001	2.89	0.002	4.88	0.003
	802.11ac (VHT40)	-0.29	0.001	3.26	0.002	4.85	0.003
	802.11ac (VHT80)	-0.13	0.001	2.56	0.002	4.43	0.003

3. TEST METHODOLOGY

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

EUT CONFIGURATION

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

EUT EXERCISE

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

GENERAL TEST PROCEDURES

Conducted Emissions

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

Radiated Emissions

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

DESCRIPTION OF TEST MODES

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

4. INSTRUMENT CALIBRATION

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

5. FACILITIES AND ACCREDITATIONS

5.1 FACILITIES

The SAC(Semi-Anechoic Chamber) and conducted measurement facility used to collect the radiated data are located at the 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Republic 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."

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.

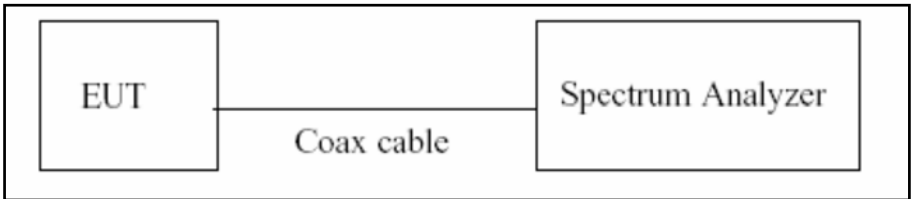
Parameter	Expanded Uncertainty (±kHz)
X dB, 99% Bandwidth	95 (Confidence level about 95 %, *k*=2)
Frequency stability	28 (Confidence level about 95 %, *k*=2)

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)

8. DESCRIPTION OF TESTS

8.1. Duty Cycle

Test Configuration



Test Procedure

The transmitter output is connected to the Spectrum Analyzer.

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

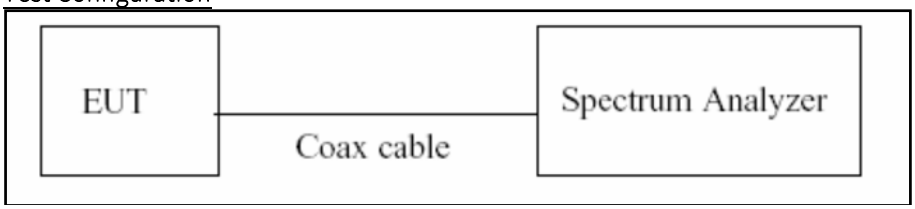
1. RBW = 8 MHz (the largest availble value)
2. VBW = 8 MHz (≥ RBW)
3. SPAN = 0 Hz
4. Measurement Typeor = Peak
5. Number of points in sweep > 100
6. Trace mode = Clear write
7. Measure T_{total} and T_{on}
8. Calculate Duty Cycle = T_{on}/ T_{total} and Duty Cycle Factor = 10log(1/Duty Cycle)

8.2. 6 dB Bandwidth & 26 dB Bandwidth

Limit

Within the 5.725-5.85 GHz(NII-3) 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.

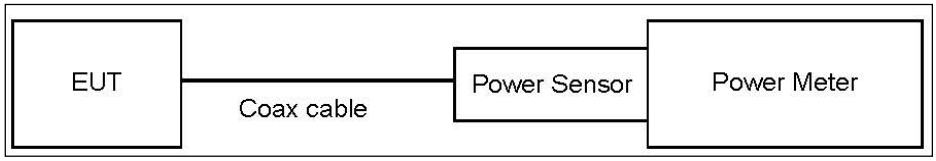
8.3. Output Power Measurement

Limit

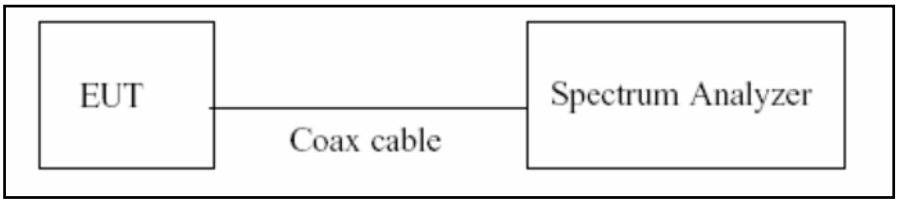
Band	Limit
UNII 1	- Master : Not exceed 1 W(=30 dBm) - Slave : Not exceed 250 mW(=23.98 dBm)
UNII 2A, 2C	Not exceed the lesser of 250 mW or 11 dBm + 10 log B, (where B is the 26 dB emission bandwidth in megahertz.)
UNII 3	Not exceed 1 W(=30 dBm)

Test Configuration

Power Meter



Spectrum Analyzer(Only Straddle Channel)



Test Procedure(Power Meter)

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

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

Test Procedure (Spectrum Analyzer)

The transmitter output is connected to the Spectrum Analyzer.

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

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

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

Sample Calculation

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

Note

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

Band	Ant.1 Loss(dB)	Ant.2 & 3 Loss(dB)
UNII 1	12.86	11.46
UNII 2A	12.86	11.46
UNII 2C	12.86	11.46
UNII 3	12.86	11.46

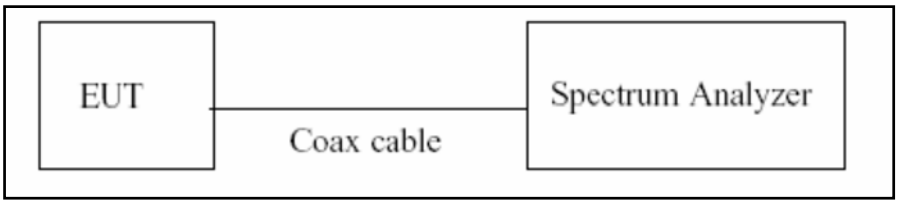
(Actual value of loss for the attenuator and cable combination)

8.4. Power Spectral Density

Limit

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

Test Configuration



Test Procedure

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

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

Sample Calculation

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

Note

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

Band	Ant.1 Loss(dB)	Ant.2 & 3 Loss(dB)
UNII 1	12.86	11.46
UNII 2A	12.86	11.46
UNII 2C	12.86	11.46
UNII 3	12.86	11.46

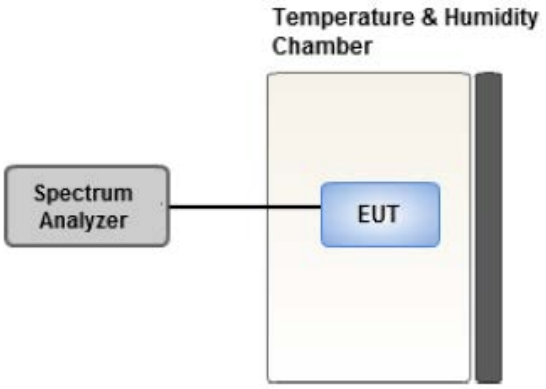
(Actual value of loss for the attenuator and cable combination)

8.5. Frequency Stability

Limit

Maintained within the band

Test Configuration



Test Procedure

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

8.6. AC Power line Conducted Emissions

Limit

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

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

[a]Decreases with the logarithm of the frequency.

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

Test Configuration

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

Test Procedure

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

Sample Calculation

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

8.7. Radiated Test

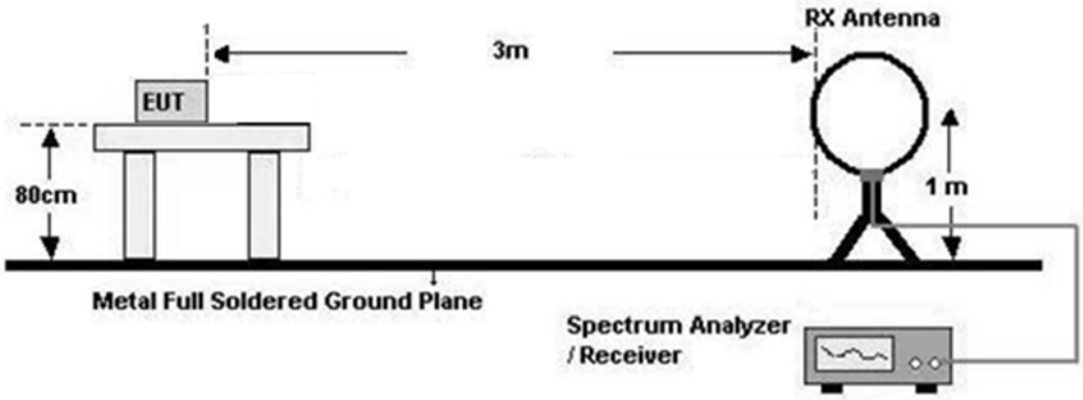
Limit

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

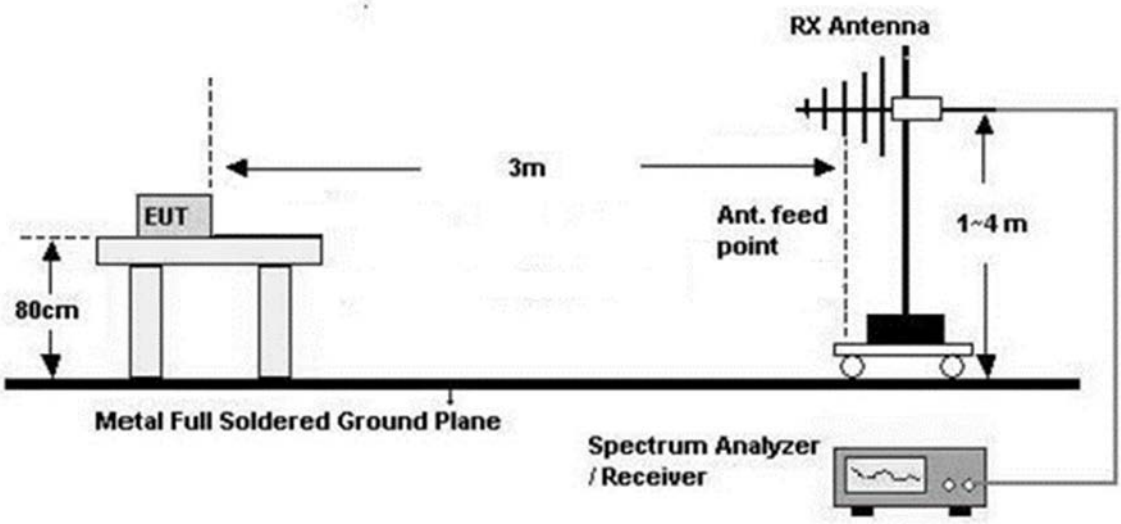
Frequency (MHz)	Field Strength (μV/m)	Measurement Distance (m)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Test Configuration

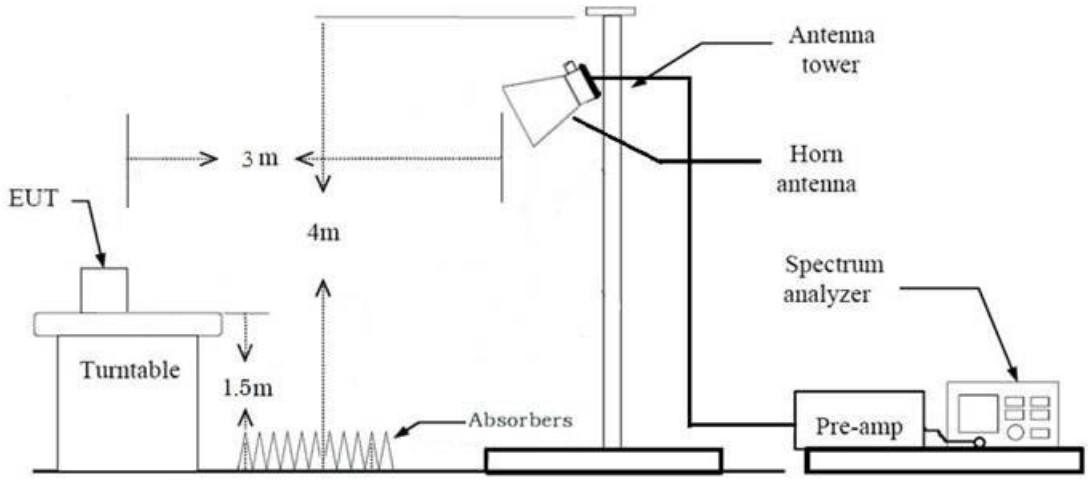
Below 30 MHz



30 MHz - 1 GHz



Above 1 GHz



Test Procedure of Radiated spurious emissions (Below 30 MHz)

Test Procedure : II.G in KDB 789033 v02r01

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
   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)

Test Procedure : II.G in KDB 789033 v02r01

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)
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)

Test Procedure : II.G in KDB 789033 v02r01

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. Spectrum Setting
   (1) Measurement Type (Peak) :
   - 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) :
   - 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.
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
9. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency
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) + Distance Factor(D.F)

Test Procedure of Radiated Restricted Band Edge

Test Procedure : II.G in KDB 789033 v02r01

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. Spectrum Setting
   (1) Measurement Type(Peak) :
   - 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) :
   - 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.

8. 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)

9. Distance extrapolation factor = 20log (test distance / specific distance) (dB)

10. Total

(1)Measurement(Peak)

= Measured Value(Peak)

(2)Measurement(Avg)

= Measured Value (Avg)

- We apply to the offset in the range 1 GHz - 18 GHz.
- The offset = Antenna Factor(A.F) + Cable Loss(C.L) + Distance Factor(D.F) – Amp. Gain(A.G) + Attenuator (ATT)

The actual setting value of VBW

Mode	Worst Data rate	Duty Cycle	Duty Cycle Factor (dB)	The actual setting value of VBW (Hz)
802.11a	6 Mbps	0.988	0.052	10 000
802.11n(HT20)	MCS 0	0.996	0.018	10 000
802.11n(HT40)	MCS 0	0.996	0.016	10 000
802.11ac(VHT20)	MCS 0	0.996	0.016	10 000
802.11ac(VHT40)	MCS 0	0.996	0.016	10 000
802.11ac(VHT80)	MCS 0	0.996	0.016	10 000

8.8. Worst case configuration and mode

Conducted test

1. All datarate of operation were investigated and the worst case datarate results are reported.
2. TFBMEEBN6FU, Additional Models were tested and the worst case results are reported. (Worst case : TFBMEEBN6FU)
3. Antenna 2 and Antenna 3 use the same antenna port. Therefore, conducted testing was performed only once.
4. The directional gain applied to adjustments of the conducted power and PSD limits for antenna gains exceeding 6 dBi was based on the worst-case antenna gain.

Radiated test

1. All modes of operation were investigated and the worst case configuration results are reported.
   - Mode : Stand alone
   - Worstcase : Stand alone
2. All Antenna of operation were investigated and the worst case results are reported
   - Mode : SISO(Ant.3), MIMO_CDD(Ant.1+Ant.2), MIMO_CDD(Ant.1+Ant.3)
   - Worstcase : MIMO_CDD(Ant.1+Ant.2), MIMO_CDD(Ant.1+Ant.3)
3. EUT Axis
   - Radiated Spurious Emissions : X
   - Radiated Restricted Band Edge : Z
4. All datarate of operation were investigated and the worst case datarate results are reported.
   - 802.11a : 6 Mbps
   - 802.11n_HT20 : MCS0
   - 802.11n_HT40 : MCS0
   - 802.11ac_VHT20 : MCS0
   - 802.11ac_VHT40 : MCS0
   - 802.11ac_VHT80 : MCS0
5. Radiated Spurious Emission
   - All modulation of operation were investigated and the worst case modulation results are reported.

   Worst-case : 802.11a_6 Mbps
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
7. TFBMEEBN6FU, Additional Models were tested and the worst case results are reported. (Worst case : TFBMNENN0FN)

Radiated test(Simultaneous transmission Scenario)

1. Please refer to the [BTLE], [UNII ax], [UNII 6G] Test Report.

AC Power line Conducted Emissions

1. We don't perform powerline conducted emission test. The device only employ battery power for operation.

9. SUMMARY OF TEST RESULTS

Test Description	FCC Part Section(s)	Test Limit	Test Condition	Test Result
26 dB Bandwidth	§ 15.407 (for Power Measurement)	N/A	Conducted	PASS
6 dB Bandwidth	§ 15.407(e)	>500 kHz (5725-5850 MHz)(UNII-3)		PASS
Maximum Conducted Output Power	§ 15.407(a)(1),(2),(3)	< 250 mW(5150-5250 MHz) < 250 mW or 11+10log$_{10}$ (BW) dBm (5250-5350 MHz) < 250 mW or 11+10log$_{10}$ (BW) dBm (5470-5725 MHz) <1 W (5725-5850 MHz)		PASS
Maximum Power Spectral Density	§ 15.407(a)(1),(2),(3)	<11 dBm/ MHz (5150-5250 MHz) <11 dBm/ MHz (5250-5350 MHz) <11 dBm/ MHz (5470-5725 MHz) <30 dBm/500 kHz(5725-5850 MHz)		PASS
Frequency Stability	§ 15.407(g) § 2.1055	Maintained within the band		PASS
AC Conducted Emissions 150 kHz-30 MHz	15.207 15.407(b)(8)	<FCC 15.207 limits		N/A (Note1)
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)	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. The device only employ battery power for operation
2. The decision rule applies 'simple acceptance'
3. UNII 2A, 2C: TPC mechanism is not required for systems with an e.i.r.p. of less than 500 mW.

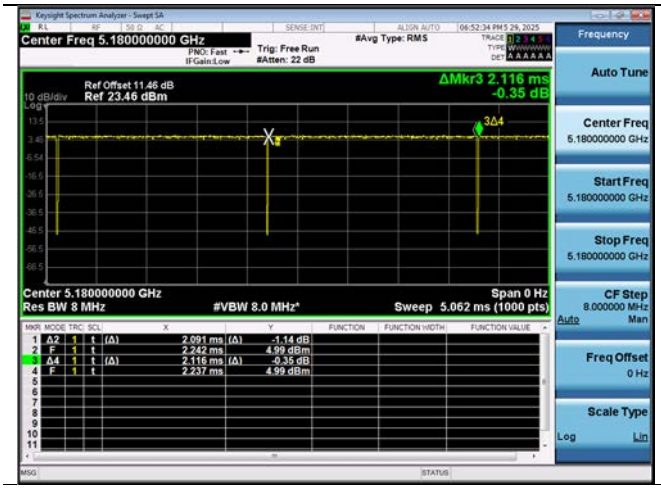
10. TEST RESULT

10.1 DUTY CYCLE

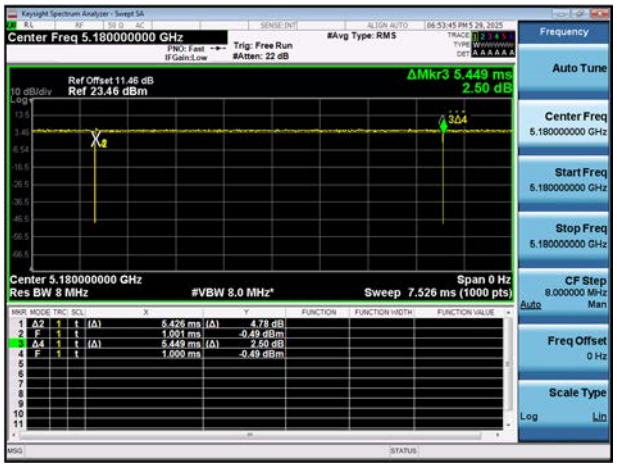
Mode	Data Rate (Mbps)	T_{on} (ms)	T_{total} (ms)	Duty Cycle	Duty Cycle Factor(dB)
802.11a	6M	2.091	2.116	0.988	0.052
802.11n(HT20)	MCS0	5.426	5.449	0.996	0.018
802.11n(HT40)	MCS0	5.431	5.451	0.996	0.016
802.11ac(VHT20)	MCS0	5.431	5.451	0.996	0.016
802.11ac(VHT40)	MCS0	5.431	5.451	0.996	0.016
802.11ac(VHT80)	MCS0	5.431	5.451	0.996	0.016

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

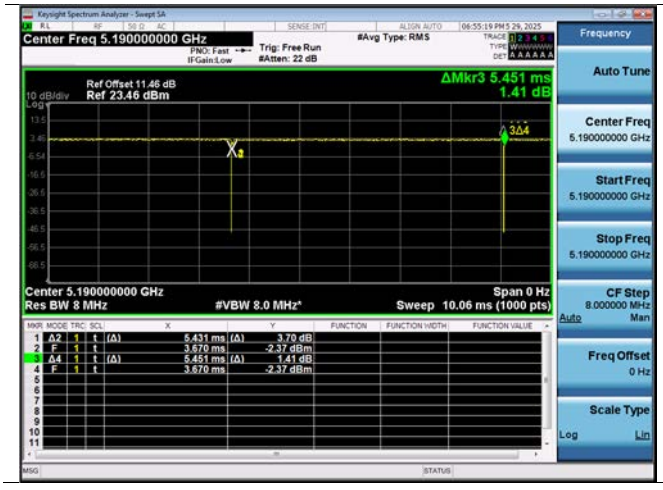
802.11a



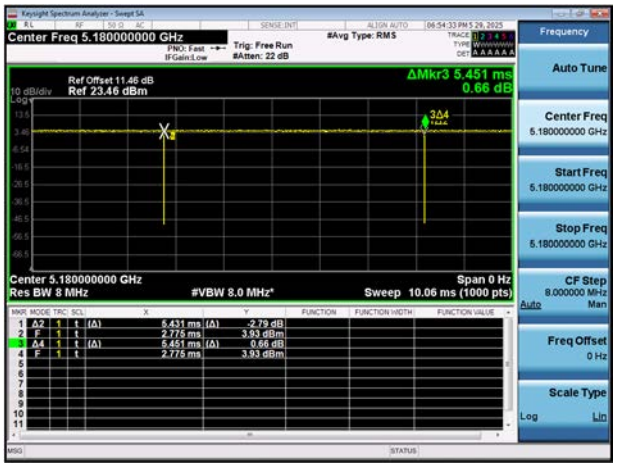
802.11n(HT20)

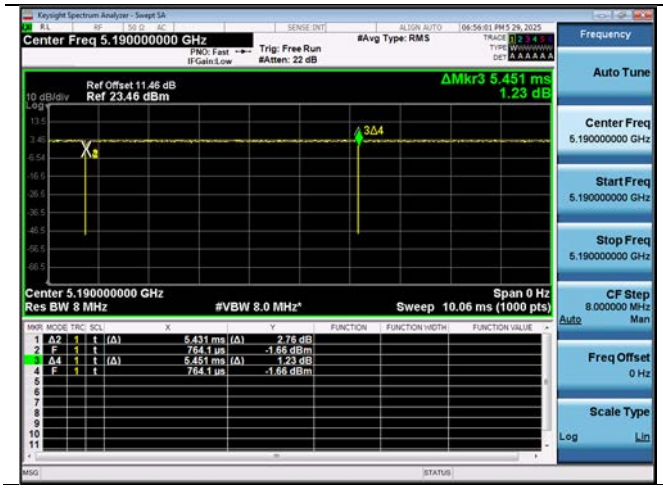
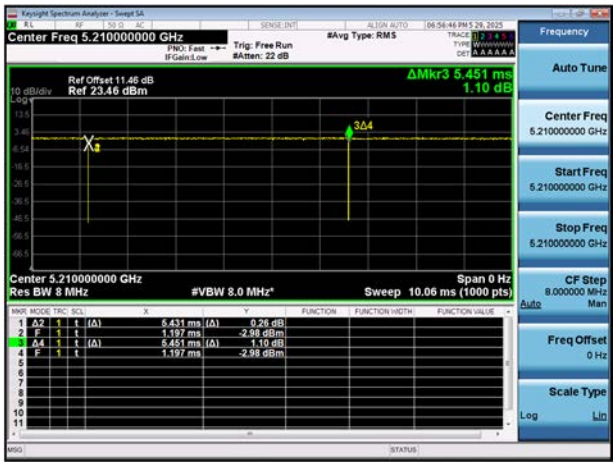


802.11n(HT40)



802.11ac(VHT20)



802.11ac(VHT40)	802.11ac(VHT80)
	

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.

[SISO_Ant.3]

Mode : 802.11a

BAND	Freq. [MHz]	CH.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
UNII1	5180	36	18.76	16.278
	5200	40	18.56	16.285
	5240	48	18.58	16.262
UNII2A	5260	52	18.63	16.287
	5300	60	18.87	16.263
	5320	64	18.67	16.273
UNII2C	5500	100	18.79	16.276
	5580	116	18.84	16.285
	5720	144	18.75	16.285
UNII3	5745	149	19.01	16.295
	5785	157	19.64	16.303
	5825	165	18.77	16.267

Mode : 802.11n(HT20)

BAND	Freq. [MHz]	CH.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
UNII1	5180	36	20.10	17.504
	5200	40	20.20	17.515
	5240	48	20.56	17.514
UNII2A	5260	52	19.82	17.513
	5300	60	19.96	17.461
	5320	64	20.03	17.507
UNII2C	5500	100	20.10	17.509
	5580	116	19.86	17.513
	5720	144	19.77	17.512
UNII3	5745	149	19.95	17.503
	5785	157	20.13	17.508
	5825	165	20.36	17.504

Mode : 802.11ac(VHT20)				
BAND	Freq. [MHz]	CH.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
UNII1	5180	36	19.97	17.507
	5200	40	20.55	17.485
	5240	48	20.31	17.505
UNII2A	5260	52	20.35	17.496
	5300	60	19.82	17.496
	5320	64	20.03	17.497
UNII2C	5500	100	20.17	17.509
	5580	116	19.77	17.499
	5720	144	20.08	17.503
UNII3	5745	149	20.40	17.508
	5785	157	20.59	17.521
	5825	165	19.84	17.492

Mode : 802.11n(HT40)				
BAND	Freq. [MHz]	CH.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
UNII1	5190	38	39.54	35.882
	5230	46	39.47	35.872
UNII2A	5270	54	39.44	35.870
	5310	62	39.70	35.897
UNII2C	5510	102	39.50	35.892
	5550	110	39.55	35.868
	5710	142	39.74	35.911
UNII3	5755	151	39.64	35.868
	5795	159	39.42	35.854

Mode : 802.11ac(VHT40)				
BAND	Freq. [MHz]	CH.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
UNII1	5190	38	39.82	35.920
	5230	46	39.34	35.908
UNII2A	5270	54	39.57	35.869
	5310	62	39.54	35.919
UNII2C	5510	102	39.67	35.911
	5550	110	39.49	35.886
	5710	142	39.44	35.908
UNII3	5755	151	39.40	35.919
	5795	159	39.83	35.898

Mode : 802.11ac(VHT80)				
BAND	Freq. [MHz]	CH.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
UNII1	5210	42	80.73	74.951
UNII2A	5290	58	80.59	74.917
UNII2C	5530	106	80.55	74.935
	5610	122	80.58	74.961
	5690	138	80.55	74.857
UNII3	5775	155	80.78	74.892

[MIMO_CDD(Ant1)]

Mode : 802.11a				
BAND	Freq. [MHz]	CH.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
UNII1	5180	36	18.42	16.273
	5200	40	18.64	16.280
	5240	48	19.46	16.277
UNII2A	5260	52	18.68	16.281
	5300	60	18.47	16.258
	5320	64	18.75	16.288
UNII2C	5500	100	18.54	16.269
	5580	116	18.69	16.277
	5720	144	18.44	16.271
UNII3	5745	149	18.57	16.276
	5785	157	18.69	16.288
	5825	165	18.83	16.271

Mode : 802.11n(HT20)				
BAND	Freq. [MHz]	CH.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
UNII1	5180	36	19.98	17.505
	5200	40	20.39	17.516
	5240	48	20.27	17.499
UNII2A	5260	52	20.45	17.503
	5300	60	19.98	17.516
	5320	64	20.07	17.514
UNII2C	5500	100	19.99	17.498
	5580	116	19.73	17.509
	5720	144	20.14	17.512
UNII3	5745	149	20.28	17.491
	5785	157	20.27	17.507
	5825	165	19.93	17.499

Mode : 802.11ac(VHT20)				
BAND	Freq. [MHz]	CH.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
UNII1	5180	36	19.98	17.521
	5200	40	19.91	17.478
	5240	48	20.03	17.521
UNII2A	5260	52	20.00	17.504
	5300	60	20.14	17.493
	5320	64	20.23	17.511
UNII2C	5500	100	20.05	17.501
	5580	116	20.00	17.509
	5720	144	20.07	17.491
UNII3	5745	149	19.74	17.502
	5785	157	19.80	17.501
	5825	165	20.08	17.522

Mode : 802.11n(HT40)				
BAND	Freq. [MHz]	CH.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
UNII1	5190	38	39.48	35.933
	5230	46	39.74	35.885
UNII2A	5270	54	39.58	35.897
	5310	62	39.63	35.891
UNII2C	5510	102	39.57	35.862
	5550	110	39.63	35.861
	5710	142	39.76	35.902
UNII3	5755	151	39.46	35.898
	5795	159	39.51	35.924

Mode : 802.11ac(VHT40)				
BAND	Freq. [MHz]	CH.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
UNII1	5190	38	39.38	35.937
	5230	46	39.71	35.928
UNII2A	5270	54	39.47	35.931
	5310	62	39.56	35.930
UNII2C	5510	102	40.12	35.915
	5550	110	39.54	35.946
	5710	142	39.74	35.906
UNII3	5755	151	39.68	35.886
	5795	159	39.63	35.941

Mode : 802.11ac(VHT80)				
BAND	Freq. [MHz]	CH.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
UNII1	5210	42	81.13	74.932
UNII2A	5290	58	80.51	74.969
UNII2C	5530	106	80.84	74.974
	5610	122	80.82	74.983
	5690	138	80.93	75.002
UNII3	5775	155	80.69	74.951

[MIMO_CDD(Ant2 & Ant3)]

Mode : 802.11a				
BAND	Freq. [MHz]	CH.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
UNII1	5180	36	19.46	16.269
	5200	40	18.44	16.282
	5240	48	19.71	16.293
UNII2A	5260	52	18.68	16.275
	5300	60	18.48	16.272
	5320	64	18.51	16.261
UNII2C	5500	100	18.41	16.285
	5580	116	18.91	16.260
	5720	144	18.58	16.269
UNII3	5745	149	18.71	16.277
	5785	157	18.79	16.298
	5825	165	18.83	16.272

Mode : 802.11n(HT20)				
BAND	Freq. [MHz]	CH.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
UNII1	5180	36	20.69	17.502
	5200	40	20.17	17.492
	5240	48	20.03	17.500
UNII2A	5260	52	20.09	17.498
	5300	60	20.58	17.507
	5320	64	20.08	17.510
UNII2C	5500	100	20.29	17.502
	5580	116	19.83	17.525
	5720	144	20.05	17.530
UNII3	5745	149	20.43	17.496
	5785	157	20.32	17.512
	5825	165	20.04	17.493

Mode : 802.11ac(VHT20)				
BAND	Freq. [MHz]	CH.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
UNII1	5180	36	20.33	17.491
	5200	40	20.03	17.485
	5240	48	19.90	17.482
UNII2A	5260	52	20.36	17.497
	5300	60	20.55	17.495
	5320	64	19.98	17.506
UNII2C	5500	100	19.99	17.535
	5580	116	20.17	17.505
	5720	144	19.72	17.493
UNII3	5745	149	20.19	17.503
	5785	157	20.02	17.483
	5825	165	20.04	17.511

Mode : 802.11n(HT40)				
BAND	Freq. [MHz]	CH.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
UNII1	5190	38	39.40	35.919
	5230	46	39.19	35.899
UNII2A	5270	54	39.48	35.883
	5310	62	39.12	35.908
UNII2C	5510	102	39.58	35.878
	5550	110	39.29	35.860
	5710	142	39.55	35.911
UNII3	5755	151	39.25	35.889
	5795	159	39.70	35.902

Mode : 802.11ac(VHT40)				
BAND	Freq. [MHz]	CH.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
UNII1	5190	38	39.48	35.934
	5230	46	39.52	35.897
UNII2A	5270	54	39.53	35.935
	5310	62	39.78	35.952
UNII2C	5510	102	39.56	35.942
	5550	110	39.52	35.868
	5710	142	39.46	35.904
UNII3	5755	151	39.47	35.927
	5795	159	39.68	35.928

Mode : 802.11ac(VHT80)				
BAND	Freq. [MHz]	CH.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
UNII1	5210	42	81.10	75.025
UNII2A	5290	58	80.55	74.953
UNII2C	5530	106	80.48	74.912
	5610	122	80.98	74.952
	5690	138	80.48	74.884
UNII3	5775	155	80.64	74.958

▣ Test Plots

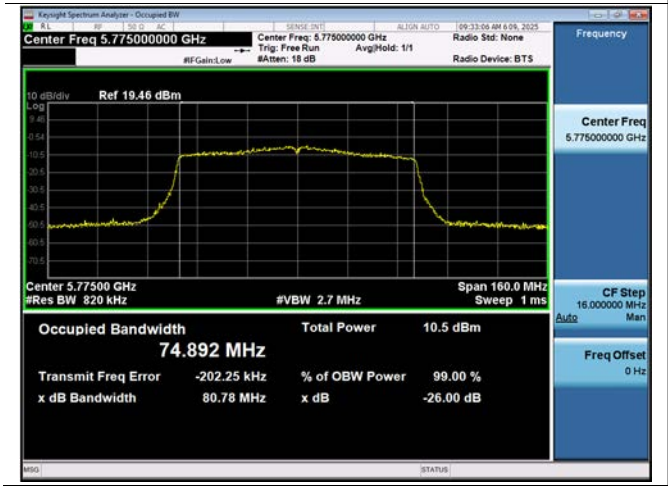
[SISO_Ant.3]

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

Bandwidth 20M, 802.11ac(VHT20) Ch.157

Bandwidth 40M, 802.11ac(VHT40) Ch.159

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



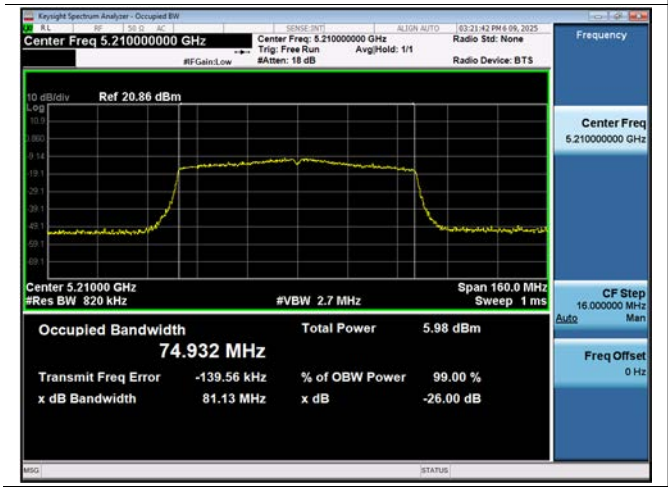
[MIMO_CDD(Ant1)]

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

Bandwidth 20M, 802.11n(HT20) Ch.52

Bandwidth 40M, 802.11ac(VHT40) Ch.102

Bandwidth 80M, 802.11ac(VHT80) Ch.42



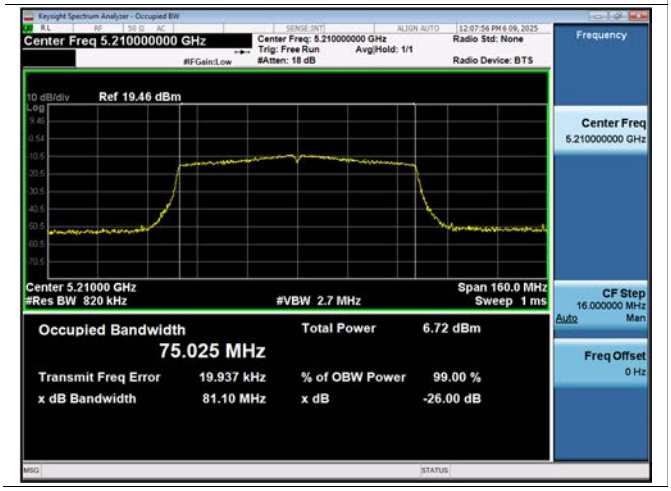
[MIMO_CDD(Ant2&Ant3)]

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, 802.11ac(VHT40) Ch.62

Bandwidth 80M, 802.11ac(VHT80) Ch.42



10.3 6 dB BANDWIDTH

[SISO_Ant.3]

Mode : 802.11a				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5745	149	14.51	> 0.5
	5785	157	15.16	> 0.5
	5825	165	15.16	> 0.5

Mode : 802.11n(HT20)				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5745	149	15.13	> 0.5
	5785	157	15.07	> 0.5
	5825	165	15.11	> 0.5

Mode : 802.11ac(VHT20)				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5745	149	15.12	> 0.5
	5785	157	15.09	> 0.5
	5825	165	15.03	> 0.5

Mode : 802.11n(HT40)				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5755	151	35.14	> 0.5
	5795	159	35.14	> 0.5

Mode : 802.11ac(VHT40)				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5755	151	35.55	> 0.5
	5795	159	33.84	> 0.5

Mode : 802.11ac(VHT80)				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5775	155	67.67	> 0.5

[MIMO_CDD(Ant1)]

Mode : 802.11a				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5745	149	15.16	> 0.5
	5785	157	15.55	> 0.5
	5825	165	15.15	> 0.5

Mode : 802.11n(HT20)				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5745	149	13.92	> 0.5
	5785	157	12.66	> 0.5
	5825	165	13.19	> 0.5

Mode : 802.11ac(VHT20)				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5745	149	13.82	> 0.5
	5785	157	12.94	> 0.5
	5825	165	15.10	> 0.5

Mode : 802.11n(HT40)				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5755	151	33.95	> 0.5
	5795	159	35.44	> 0.5

Mode : 802.11ac(VHT40)				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5755	151	33.82	> 0.5
	5795	159	33.07	> 0.5

Mode : 802.11ac(VHT80)				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5775	155	73.90	> 0.5

[MIMO_CDD(Ant2&Ant3)]

Mode : 802.11a				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5745	149	15.33	> 0.5
	5785	157	15.18	> 0.5
	5825	165	15.11	> 0.5

Mode : 802.11n(HT20)				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5745	149	14.97	> 0.5
	5785	157	14.98	> 0.5
	5825	165	15.49	> 0.5

Mode : 802.11ac(VHT20)				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5745	149	14.47	> 0.5
	5785	157	13.47	> 0.5
	5825	165	15.07	> 0.5

Mode : 802.11n(HT40)				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5755	151	35.15	> 0.5
	5795	159	35.29	> 0.5

Mode : 802.11ac(VHT40)				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5755	151	31.75	> 0.5
	5795	159	34.00	> 0.5

Mode : 802.11ac(VHT80)				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5775	155	56.53	> 0.5

▣ Test Plots

[SISO_Ant.3]

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

Bandwidth 20M, 802.11a Ch.149

Bandwidth 40M, 802.11ac(VHT40) Ch.159

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

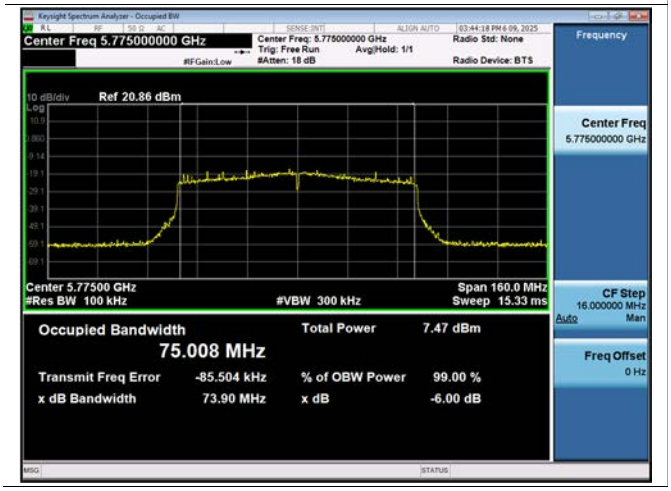
[MIMO_CDD(Ant1)]

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

Bandwidth 20M, 802.11n(HT20) Ch.157

Bandwidth 40M, 802.11ac(VHT40) Ch.159

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



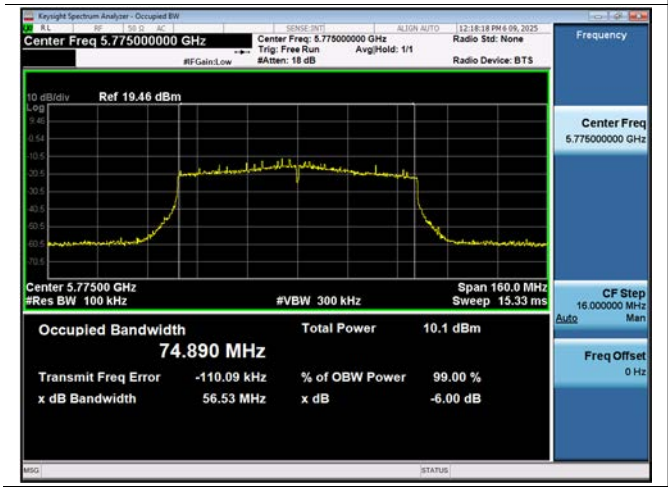
[MIMO_CDD(Ant2&Ant3)]

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

Bandwidth 20M, 802.11ac(VHT20) Ch.157

Bandwidth 40M, 802.11ac(VHT40) Ch.151

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



10.4 OUTPUT POWER MEASUREMENT

Note:

1. Straddle channel data in the table below are for reporting purposes only.
   Straddle channel data were added in section 10.7.3.
2. MIMO_CDD Total Power [dBm] = Ant.1 Total Power [dBm] + Ant. 2 & 3 Total Power [dBm]
3. Maximum conducted output power limit is reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

[SISO_Ant.3]

Mode : 802.11a

Band	Freq. [MHz]	CH.	Worstcase Datarate	Total Power [dBm]	Limit [dBm]
UNII1	5180	36	6M	2.19	23.98
	5200	40	6M	2.21	23.98
	5240	48	6M	3.07	23.98
UNII2A	5260	52	6M	2.94	23.70
	5300	60	6M	2.26	23.76
	5320	64	6M	2.44	23.71
UNII2C	5500	100	6M	3.85	23.74
	5580	116	6M	3.14	23.75
	5720	144	6M	3.98	23.73
UNII3	5745	149	6M	4.75	30.00
	5785	157	6M	4.76	30.00
	5825	165	6M	3.98	30.00

Mode : 802.11n(HT20)

Band	Freq. [MHz]	CH.	Worstcase Datarate	Total Power [dBm]	Limit [dBm]
UNII1	5180	36	MCS0	1.75	23.98
	5200	40	MCS0	1.78	23.98
	5240	48	MCS0	2.68	23.98
UNII2A	5260	52	MCS0	2.54	23.97
	5300	60	MCS0	1.87	23.98
	5320	64	MCS0	2.05	23.98
UNII2C	5500	100	MCS0	3.54	23.98
	5580	116	MCS0	2.83	23.98
	5720	144	MCS0	3.68	23.96
UNII3	5745	149	MCS0	4.46	30.00
	5785	157	MCS0	4.45	30.00
	5825	165	MCS0	3.69	30.00

Mode : 802.11ac(VHT20)					
Band	Freq. [MHz]	CH.	Worstcase Datarate	Total Power [dBm]	Limit [dBm]
UNII1	5180	36	MCS0	1.77	23.98
	5200	40	MCS0	1.78	23.98
	5240	48	MCS0	2.65	23.98
UNII2A	5260	52	MCS0	2.54	23.98
	5300	60	MCS0	1.87	23.97
	5320	64	MCS0	2.05	23.98
UNII2C	5500	100	MCS0	3.56	23.98
	5580	116	MCS0	2.82	23.96
	5720	144	MCS0	3.68	23.98
UNII3	5745	149	MCS0	4.44	30.00
	5785	157	MCS0	4.43	30.00
	5825	165	MCS0	3.65	30.00

Mode : 802.11n(HT40)					
Band	Freq. [MHz]	CH.	Worstcase Datarate	Total Power [dBm]	Limit [dBm]
UNII1	5190	38	MCS0	2.61	23.98
	5230	46	MCS0	2.80	23.98
UNII2A	5270	54	MCS0	3.49	23.98
	5310	62	MCS0	2.85	23.98
UNII2C	5510	102	MCS0	3.62	23.98
	5550	110	MCS0	4.29	23.98
	5710	142	MCS0	3.59	23.98
UNII3	5755	151	MCS0	3.47	30.00
	5795	159	MCS0	4.89	30.00

Mode : 802.11ac(VHT40)					
Band	Freq. [MHz]	CH.	Worstcase Datarate	Total Power [dBm]	Limit [dBm]
UNII1	5190	38	MCS0	2.69	23.98
	5230	46	MCS0	2.86	23.98
UNII2A	5270	54	MCS0	3.60	23.98
	5310	62	MCS0	2.74	23.98
UNII2C	5510	102	MCS0	3.66	23.98
	5550	110	MCS0	4.33	23.98
	5710	142	MCS0	3.75	23.98
UNII3	5755	151	MCS0	3.60	30.00
	5795	159	MCS0	5.03	30.00

Mode : 802.11ac(VHT80)					
Band	Freq. [MHz]	CH.	Worstcase Datarate	Total Power [dBm]	Limit [dBm]
UNII1	5210	42	MCS0	2.18	23.98
UNII2A	5290	58	MCS0	3.21	23.98
UNII2C	5530	106	MCS0	3.69	23.98
	5610	122	MCS0	2.76	23.98
	5690	138	MCS0	2.31	23.98
UNII3	5775	155	MCS0	4.34	30.00

[MIMO_CDD(Ant1+Ant2)]

Freq. [MHz]	CH.	Datarate	Mode (802.11)	Total Average Power [dBm]			Limit [dBm]
				ANT1	ANT2	MIMO	
5180	36	6M	a	-1.87	-1.26	1.46	18.59
5200	40	6M	a	-2.04	-1.21	1.41	18.59
5240	48	6M	a	-2.28	-0.94	1.45	18.59
5260	52	6M	a	-2.06	-1.08	1.47	17.86
5300	60	6M	a	-2.58	-1.03	1.27	17.81
5320	64	6M	a	-2.46	-0.90	1.40	17.82
5500	100	6M	a	-0.23	1.39	3.67	19.31
5580	116	6M	a	-0.66	1.25	3.41	19.38
5720	144	6M	a	-0.55	1.21	3.43	19.32
5745	149	6M	a	0.76	2.22	4.56	25.48
5785	157	6M	a	0.74	2.27	4.58	25.48
5825	165	6M	a	0.34	2.01	4.27	25.48

Freq. [MHz]	CH.	Datarate	Mode (802.11)	Total Average Power [dBm]			Limit [dBm]
				ANT1	ANT2	MIMO	
5180	36	MCS0	n20	-2.04	-1.34	1.33	18.59
5200	40	MCS0	n20	-2.19	-1.31	1.28	18.59
5240	48	MCS0	n20	-2.64	-1.06	1.23	18.59
5260	52	MCS0	n20	-2.30	-1.08	1.36	18.12
5300	60	MCS0	n20	-2.84	-1.25	1.04	18.12
5320	64	MCS0	n20	-2.71	-1.19	1.13	18.12
5500	100	MCS0	n20	-0.56	1.53	3.62	19.64
5580	116	MCS0	n20	-0.98	0.81	3.02	19.61
5720	144	MCS0	n20	-0.87	1.97	3.79	19.64
5745	149	MCS0	n20	0.42	2.63	4.67	25.48
5785	157	MCS0	n20	0.43	2.75	4.75	25.48
5825	165	MCS0	n20	-0.03	2.06	4.15	25.48

Freq. [MHz]	CH.	Datarate	Mode (802.11)	Total Average Power [dBm]			Limit [dBm]
				ANT1	ANT2	MIMO	
5180	36	MCS0	ac20	-1.98	-1.28	1.39	18.59
5200	40	MCS0	ac20	-2.02	-1.24	1.40	18.59
5240	48	MCS0	ac20	-2.46	-0.97	1.36	18.59
5260	52	MCS0	ac20	-2.23	-1.04	1.42	18.12
5300	60	MCS0	ac20	-2.73	-1.29	1.06	18.12
5320	64	MCS0	ac20	-2.59	-1.01	1.28	18.12
5500	100	MCS0	ac20	-0.48	1.63	3.71	19.64
5580	116	MCS0	ac20	-0.86	0.86	3.09	19.64
5720	144	MCS0	ac20	-0.70	1.97	3.85	19.61
5745	149	MCS0	ac20	0.56	2.78	4.82	25.48
5785	157	MCS0	ac20	0.53	2.89	4.88	25.48
5825	165	MCS0	ac20	0.10	2.16	4.26	25.48

Freq. [MHz]	CH.	Datarate	Mode (802.11)	Total Average Power [dBm]			Limit [dBm]
				ANT1	ANT2	MIMO	
5190	38	MCS0	n40	-1.63	-0.97	1.72	18.59
5230	46	MCS0	n40	-1.71	-1.12	1.61	18.59
5270	54	MCS0	n40	-1.48	-0.65	1.97	18.12
5310	62	MCS0	n40	-2.52	-1.25	1.17	18.12
5510	102	MCS0	n40	-0.47	1.53	3.65	19.64
5550	110	MCS0	n40	-0.25	2.26	4.19	19.64
5710	142	MCS0	n40	-0.92	1.66	3.57	19.64
5755	151	MCS0	n40	-0.21	1.65	3.83	25.48
5795	159	MCS0	n40	-0.24	3.16	4.79	25.48

Freq. [MHz]	CH.	Datarate	Mode (802.11)	Total Average Power [dBm]			Limit [dBm]
				ANT1	ANT2	MIMO	
5190	38	MCS0	ac40	-1.56	-0.71	1.90	18.59
5230	46	MCS0	ac40	-1.78	-0.78	1.76	18.59
5270	54	MCS0	ac40	-1.79	-0.42	1.96	18.12
5310	62	MCS0	ac40	-2.68	-0.96	1.27	18.12
5510	102	MCS0	ac40	-0.52	1.53	3.64	19.64
5550	110	MCS0	ac40	-0.19	2.13	4.13	19.64
5710	142	MCS0	ac40	-0.94	1.83	3.67	19.64
5755	151	MCS0	ac40	-0.30	2.01	4.02	25.48
5795	159	MCS0	ac40	-0.29	3.26	4.85	25.48

Freq. [MHz]	CH.	Datarate	Mode (802.11)	Total Average Power [dBm]			Limit [dBm]
				ANT1	ANT2	MIMO	
5210	42	MCS0	ac80	-2.05	-1.30	1.35	18.59
5290	58	MCS0	ac80	-1.67	-0.61	1.90	18.12
5530	106	MCS0	ac80	-0.64	0.76	3.13	19.64
5610	122	MCS0	ac80	-1.20	1.66	3.47	19.64
5690	138	MCS0	ac80	0.22	-0.19	3.03	19.64
5775	155	MCS0	ac80	-0.13	2.56	4.43	25.48

[MIMO_CDD(Ant1+Ant3)]

Freq. [MHz]	CH.	Datarate	Mode (802.11)	Total Average Power [dBm]			Limit [dBm]
				ANT1	ANT2	MIMO	
5180	36	6M	a	-1.87	-1.26	1.46	20.57
5200	40	6M	a	-2.04	-1.21	1.41	20.57
5240	48	6M	a	-2.28	-0.94	1.45	20.57
5260	52	6M	a	-2.06	-1.08	1.47	19.67
5300	60	6M	a	-2.58	-1.03	1.27	19.62
5320	64	6M	a	-2.46	-0.90	1.40	19.63
5500	100	6M	a	-0.23	1.39	3.67	20.54
5580	116	6M	a	-0.66	1.25	3.41	20.61
5720	144	6M	a	-0.55	1.21	3.43	20.55
5745	149	6M	a	0.76	2.22	4.56	27.40
5785	157	6M	a	0.74	2.27	4.58	27.40
5825	165	6M	a	0.34	2.01	4.27	27.40

Freq. [MHz]	CH.	Datarate	Mode (802.11)	Total Average Power [dBm]			Limit [dBm]
				ANT1	ANT2	MIMO	
5180	36	MCS0	n20	-2.04	-1.34	1.33	20.57
5200	40	MCS0	n20	-2.19	-1.31	1.28	20.57
5240	48	MCS0	n20	-2.64	-1.06	1.23	20.57
5260	52	MCS0	n20	-2.30	-1.08	1.36	19.94
5300	60	MCS0	n20	-2.84	-1.25	1.04	19.94
5320	64	MCS0	n20	-2.71	-1.19	1.13	19.94
5500	100	MCS0	n20	-0.56	1.53	3.62	20.87
5580	116	MCS0	n20	-0.98	0.81	3.02	20.84
5720	144	MCS0	n20	-0.87	1.97	3.79	20.87
5745	149	MCS0	n20	0.42	2.63	4.67	27.40
5785	157	MCS0	n20	0.43	2.75	4.75	27.40
5825	165	MCS0	n20	-0.03	2.06	4.15	27.40

Freq. [MHz]	CH.	Datarate	Mode (802.11)	Total Average Power [dBm]			Limit [dBm]
				ANT1	ANT2	MIMO	
5180	36	MCS0	ac20	-1.98	-1.28	1.39	20.57
5200	40	MCS0	ac20	-2.02	-1.24	1.40	20.57
5240	48	MCS0	ac20	-2.46	-0.97	1.36	20.57
5260	52	MCS0	ac20	-2.23	-1.04	1.42	19.94
5300	60	MCS0	ac20	-2.73	-1.29	1.06	19.94
5320	64	MCS0	ac20	-2.59	-1.01	1.28	19.94
5500	100	MCS0	ac20	-0.48	1.63	3.71	20.87
5580	116	MCS0	ac20	-0.86	0.86	3.09	20.87
5720	144	MCS0	ac20	-0.70	1.97	3.85	20.84
5745	149	MCS0	ac20	0.56	2.78	4.82	27.40
5785	157	MCS0	ac20	0.53	2.89	4.88	27.40
5825	165	MCS0	ac20	0.10	2.16	4.26	27.40

Freq. [MHz]	CH.	Datarate	Mode (802.11)	Total Average Power [dBm]			Limit [dBm]
				ANT1	ANT2	MIMO	
5190	38	MCS0	n40	-1.63	-0.97	1.72	20.57
5230	46	MCS0	n40	-1.71	-1.12	1.61	20.57
5270	54	MCS0	n40	-1.48	-0.65	1.97	19.94
5310	62	MCS0	n40	-2.52	-1.25	1.17	19.94
5510	102	MCS0	n40	-0.47	1.53	3.65	20.87
5550	110	MCS0	n40	-0.25	2.26	4.19	20.87
5710	142	MCS0	n40	-0.92	1.66	3.57	20.87
5755	151	MCS0	n40	-0.21	1.65	3.83	27.40
5795	159	MCS0	n40	-0.24	3.16	4.79	27.40

Freq. [MHz]	CH.	Datarate	Mode (802.11)	Total Average Power [dBm]			Limit [dBm]
				ANT1	ANT2	MIMO	
5190	38	MCS0	ac40	-1.56	-0.71	1.90	20.57
5230	46	MCS0	ac40	-1.78	-0.78	1.76	20.57
5270	54	MCS0	ac40	-1.79	-0.42	1.96	19.94
5310	62	MCS0	ac40	-2.68	-0.96	1.27	19.94
5510	102	MCS0	ac40	-0.52	1.53	3.64	20.87
5550	110	MCS0	ac40	-0.19	2.13	4.13	20.87
5710	142	MCS0	ac40	-0.94	1.83	3.67	20.87
5755	151	MCS0	ac40	-0.30	2.01	4.02	27.40
5795	159	MCS0	ac40	-0.29	3.26	4.85	27.40

Freq. [MHz]	CH.	Datarate	Mode (802.11)	Total Average Power [dBm]			Limit [dBm]
				ANT1	ANT2	MIMO	
5210	42	MCS0	ac80	-2.05	-1.30	1.35	20.57
5290	58	MCS0	ac80	-1.67	-0.61	1.90	19.94
5530	106	MCS0	ac80	-0.64	0.76	3.13	20.87
5610	122	MCS0	ac80	-1.20	1.66	3.47	20.87
5690	138	MCS0	ac80	0.22	-0.19	3.03	20.87
5775	155	MCS0	ac80	-0.13	2.56	4.43	27.40

10.5 POWER SPECTRAL DENSITY

Note:

1. MIMO_CDD Total PSD [dBm/MHz] = Ant.1 Total PSD [dBm/MHz] + Ant. 2 & 3 Total PSD [dBm/MHz]
2. Maximum power spectral density limit is reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

[SISO_Ant.3]

Mode : 802.11a					
Band	Freq. [MHz]	CH.	Worstcase Datarate	Total PSD [dBm/MHz]	Limit [dBm/MHz]
UNII1	5180	36	6M	-7.894	11.00
	5200	40	6M	-7.811	11.00
	5240	48	6M	-6.925	11.00
UNII2A	5260	52	6M	-6.990	11.00
	5300	60	6M	-7.655	11.00
	5320	64	6M	-7.483	11.00
UNII2C	5500	100	6M	-5.957	11.00
	5580	116	6M	-6.839	11.00
	5720	144	6M	-5.816	11.00
UNII3	5745	149	6M	-7.735	30 dBm/500kHz
	5785	157	6M	-7.644	30 dBm/500kHz
	5825	165	6M	-8.391	30 dBm/500kHz

Mode : 802.11n(HT20)					
Band	Freq. [MHz]	CH.	Worstcase Datarate	Total PSD [dBm/MHz]	Limit [dBm/MHz]
UNII1	5180	36	MCS0	-8.316	11.00
	5200	40	MCS0	-8.324	11.00
	5240	48	MCS0	-7.443	11.00
UNII2A	5260	52	MCS0	-7.412	11.00
	5300	60	MCS0	-8.138	11.00
	5320	64	MCS0	-7.983	11.00
UNII2C	5500	100	MCS0	-6.734	11.00
	5580	116	MCS0	-7.519	11.00
	5720	144	MCS0	-6.729	11.00
UNII3	5745	149	MCS0	-8.625	30 dBm/500kHz
	5785	157	MCS0	-8.614	30 dBm/500kHz
	5825	165	MCS0	-9.347	30 dBm/500kHz

Mode : 802.11ac(VHT20)					
Band	Freq. [MHz]	CH.	Worstcase Datarate	Total PSD [dBm/MHz]	Limit [dBm/MHz]
UNII1	5180	36	MCS0	-8.479	11.00
	5200	40	MCS0	-8.429	11.00
	5240	48	MCS0	-7.612	11.00
UNII2A	5260	52	MCS0	-7.646	11.00
	5300	60	MCS0	-8.303	11.00
	5320	64	MCS0	-8.168	11.00
UNII2C	5500	100	MCS0	-6.665	11.00
	5580	116	MCS0	-7.455	11.00
	5720	144	MCS0	-6.598	11.00
UNII3	5745	149	MCS0	-8.593	30 dBm/500kHz
	5785	157	MCS0	-8.584	30 dBm/500kHz
	5825	165	MCS0	-9.296	30 dBm/500kHz

Mode : 802.11n(HT40)					
Band	Freq. [MHz]	CH.	Worstcase Datarate	Total PSD [dBm/MHz]	Limit [dBm/MHz]
UNII1	5190	38	MCS0	-10.415	11.00
	5230	46	MCS0	-10.371	11.00
UNII2A	5270	54	MCS0	-9.643	11.00
	5310	62	MCS0	-10.216	11.00
UNII2C	5510	102	MCS0	-9.569	11.00
	5550	110	MCS0	-8.648	11.00
	5710	142	MCS0	-9.628	11.00
UNII3	5755	151	MCS0	-12.457	30 dBm/500kHz
	5795	159	MCS0	-11.041	30 dBm/500kHz

Mode : 802.11ac(VHT40)					
Band	Freq. [MHz]	CH.	Worstcase Datarate	Total PSD [dBm/MHz]	Limit [dBm/MHz]
UNII1	5190	38	MCS0	-10.468	11.00
	5230	46	MCS0	-10.499	11.00
UNII2A	5270	54	MCS0	-9.802	11.00
	5310	62	MCS0	-10.350	11.00
UNII2C	5510	102	MCS0	-9.575	11.00
	5550	110	MCS0	-8.662	11.00
	5710	142	MCS0	-9.715	11.00
UNII3	5755	151	MCS0	-12.525	30 dBm/500kHz
	5795	159	MCS0	-11.075	30 dBm/500kHz

Mode : 802.11ac(VHT80)					
Band	Freq. [MHz]	CH.	Worstcase Datarate	Total PSD [dBm/MHz]	Limit [dBm/MHz]
UNII1	5210	42	MCS0	-13.491	11.00
UNII2A	5290	58	MCS0	-12.601	11.00
UNII2C	5530	106	MCS0	-11.925	11.00
	5610	122	MCS0	-13.137	11.00
	5690	138	MCS0	-13.425	11.00
UNII3	5775	155	MCS0	-14.397	30 dBm/500kHz

[MIMO_CDD(Ant1+Ant2)]

Freq. [MHz]	CH.	Datarate	Mode (802.11)	Total Power Spectral Density [dBm/MHz]			Limit
				ANT1	ANT2	MIMO	[dBm/MHz]
5180	36	6M	a	-11.513	-11.078	-8.280	5.61
5200	40	6M	a	-11.717	-11.115	-8.395	5.61
5240	48	6M	a	-12.276	-10.760	-8.442	5.61
5260	52	6M	a	-11.988	-10.851	-8.372	5.14
5300	60	6M	a	-12.473	-11.058	-8.698	5.14
5320	64	6M	a	-12.400	-10.924	-8.589	5.14
5500	100	6M	a	-10.185	-8.076	-5.993	6.66
5580	116	6M	a	-10.464	-8.789	-6.536	6.66
5720	144	6M	a	-10.559	-7.873	-6.001	6.66
5745	149	6M	a	-12.094	-9.736	-7.747	25.48 dBm/500kHz
5785	157	6M	a	-12.037	-9.677	-7.688	25.48 dBm/500kHz
5825	165	6M	a	-12.392	-10.365	-8.251	25.48 dBm/500kHz

Freq. [MHz]	CH.	Datarate	Mode (802.11)	Total Power Spectral Density [dBm/MHz]			Limit
				ANT1	ANT2	MIMO	[dBm/MHz]
5180	36	MCS0	n20	-12.070	-11.657	-8.848	5.61
5200	40	MCS0	n20	-12.298	-11.629	-8.940	5.61
5240	48	MCS0	n20	-12.794	-11.344	-8.998	5.61
5260	52	MCS0	n20	-12.619	-11.354	-8.930	5.14
5300	60	MCS0	n20	-13.039	-11.580	-9.238	5.14
5320	64	MCS0	n20	-13.007	-11.408	-9.124	5.14
5500	100	MCS0	n20	-10.906	-8.671	-6.636	6.66
5580	116	MCS0	n20	-11.200	-9.390	-7.191	6.66
5720	144	MCS0	n20	-11.327	-8.546	-6.707	6.66
5745	149	MCS0	n20	-12.744	-10.432	-8.426	25.48 dBm/500kHz
5785	157	MCS0	n20	-12.812	-10.226	-8.319	25.48 dBm/500kHz
5825	165	MCS0	n20	-13.059	-11.000	-8.898	25.48 dBm/500kHz

Freq. [MHz]	CH.	Datarate	Mode (802.11)	Total Power Spectral Density [dBm/MHz]			Limit
				ANT1	ANT2	MIMO	[dBm/MHz]
5180	36	MCS0	ac20	-12.257	-11.602	-8.907	5.61
5200	40	MCS0	ac20	-12.246	-11.602	-8.902	5.61
5240	48	MCS0	ac20	-12.833	-11.374	-9.032	5.61
5260	52	MCS0	ac20	-12.572	-11.437	-8.957	5.14
5300	60	MCS0	ac20	-13.171	-11.660	-9.340	5.14
5320	64	MCS0	ac20	-12.999	-11.547	-9.202	5.14
5500	100	MCS0	ac20	-10.944	-8.603	-6.607	6.66
5580	116	MCS0	ac20	-11.301	-9.342	-7.202	6.66
5720	144	MCS0	ac20	-11.381	-8.480	-6.682	6.66
5745	149	MCS0	ac20	-12.753	-10.382	-8.397	25.48 dBm/500kHz
5785	157	MCS0	ac20	-12.714	-10.222	-8.281	25.48 dBm/500kHz
5825	165	MCS0	ac20	-13.109	-11.039	-8.942	25.48 dBm/500kHz

Freq. [MHz]	CH.	Datarate	Mode (802.11)	Total Power Spectral Density [dBm/MHz]			Limit [dBm/MHz]
				ANT1	ANT2	MIMO	
5190	38	MCS0	n40	-14.694	-14.266	-11.464	5.61
5230	46	MCS0	n40	-14.936	-14.213	-11.549	5.61
5270	54	MCS0	n40	-14.417	-13.418	-10.879	5.14
5310	62	MCS0	n40	-15.267	-14.074	-11.619	5.14
5510	102	MCS0	n40	-13.990	-11.467	-9.538	6.66
5550	110	MCS0	n40	-13.623	-10.669	-8.889	6.66
5710	142	MCS0	n40	-14.275	-11.542	-9.687	6.66
5755	151	MCS0	n40	-16.569	-14.326	-12.294	25.48 dBm/500kHz
5795	159	MCS0	n40	-16.750	-12.739	-11.287	25.48 dBm/500kHz

Freq. [MHz]	CH.	Datarate	Mode (802.11)	Total Power Spectral Density [dBm/MHz]			Limit [dBm/MHz]
				ANT1	ANT2	MIMO	
5190	38	MCS0	ac40	-14.767	-14.264	-11.498	5.61
5230	46	MCS0	ac40	-14.924	-14.235	-11.556	5.61
5270	54	MCS0	ac40	-14.540	-13.444	-10.947	5.14
5310	62	MCS0	ac40	-15.147	-14.109	-11.587	5.14
5510	102	MCS0	ac40	-14.137	-11.566	-9.654	6.66
5550	110	MCS0	ac40	-13.716	-10.722	-8.956	6.66
5710	142	MCS0	ac40	-14.535	-11.581	-9.801	6.66
5755	151	MCS0	ac40	-16.722	-14.272	-12.316	25.48 dBm/500kHz
5795	159	MCS0	ac40	-16.624	-12.896	-11.361	25.48 dBm/500kHz

Freq. [MHz]	CH.	Datarate	Mode (802.11)	Total Power Spectral Density [dBm/MHz]			Limit [dBm/MHz]
				ANT1	ANT2	MIMO	
5210	42	MCS0	ac80	-17.853	-17.263	-14.538	5.61
5290	58	MCS0	ac80	-17.170	-16.137	-13.613	5.14
5530	106	MCS0	ac80	-16.595	-13.881	-12.019	6.66
5610	122	MCS0	ac80	-16.846	-15.002	-12.817	6.66
5690	138	MCS0	ac80	-15.737	-15.387	-12.548	6.66
5775	155	MCS0	ac80	-18.826	-16.155	-14.278	25.48 dBm/500kHz

[MIMO_CDD(Ant1+Ant3)]

Freq. [MHz]	CH.	Datarate	Mode (802.11)	Total Power Spectral Density [dBm/MHz]			Limit
				ANT1	ANT2	MIMO	[dBm/MHz]
5180	36	6M	a	-11.513	-11.078	-8.280	7.59
5200	40	6M	a	-11.717	-11.115	-8.395	7.59
5240	48	6M	a	-12.276	-10.760	-8.442	7.59
5260	52	6M	a	-11.988	-10.851	-8.372	6.96
5300	60	6M	a	-12.473	-11.058	-8.698	6.96
5320	64	6M	a	-12.400	-10.924	-8.589	6.96
5500	100	6M	a	-10.185	-8.076	-5.993	7.89
5580	116	6M	a	-10.464	-8.789	-6.536	7.89
5720	144	6M	a	-10.559	-7.873	-6.001	7.89
5745	149	6M	a	-12.094	-9.736	-7.747	27.40 dBm/500kHz
5785	157	6M	a	-12.037	-9.677	-7.688	27.40 dBm/500kHz
5825	165	6M	a	-12.392	-10.365	-8.251	27.40 dBm/500kHz

Freq. [MHz]	CH.	Datarate	Mode (802.11)	Total Power Spectral Density [dBm/MHz]			Limit
				ANT1	ANT2	MIMO	[dBm/MHz]
5180	36	MCS0	n20	-12.070	-11.657	-8.848	7.59
5200	40	MCS0	n20	-12.298	-11.629	-8.940	7.59
5240	48	MCS0	n20	-12.794	-11.344	-8.998	7.59
5260	52	MCS0	n20	-12.619	-11.354	-8.930	6.96
5300	60	MCS0	n20	-13.039	-11.580	-9.238	6.96
5320	64	MCS0	n20	-13.007	-11.408	-9.124	6.96
5500	100	MCS0	n20	-10.906	-8.671	-6.636	7.89
5580	116	MCS0	n20	-11.200	-9.390	-7.191	7.89
5720	144	MCS0	n20	-11.327	-8.546	-6.707	7.89
5745	149	MCS0	n20	-12.744	-10.432	-8.426	27.40 dBm/500kHz
5785	157	MCS0	n20	-12.812	-10.226	-8.319	27.40 dBm/500kHz
5825	165	MCS0	n20	-13.059	-11.000	-8.898	27.40 dBm/500kHz

Freq. [MHz]	CH.	Datarate	Mode (802.11)	Total Power Spectral Density [dBm/MHz]			Limit
				ANT1	ANT2	MIMO	[dBm/MHz]
5180	36	MCS0	ac20	-12.257	-11.602	-8.907	7.59
5200	40	MCS0	ac20	-12.246	-11.602	-8.902	7.59
5240	48	MCS0	ac20	-12.833	-11.374	-9.032	7.59
5260	52	MCS0	ac20	-12.572	-11.437	-8.957	6.96
5300	60	MCS0	ac20	-13.171	-11.660	-9.340	6.96
5320	64	MCS0	ac20	-12.999	-11.547	-9.202	6.96
5500	100	MCS0	ac20	-10.944	-8.603	-6.607	7.89
5580	116	MCS0	ac20	-11.301	-9.342	-7.202	7.89
5720	144	MCS0	ac20	-11.381	-8.480	-6.682	7.89
5745	149	MCS0	ac20	-12.753	-10.382	-8.397	27.40 dBm/500kHz
5785	157	MCS0	ac20	-12.714	-10.222	-8.281	27.40 dBm/500kHz
5825	165	MCS0	ac20	-13.109	-11.039	-8.942	27.40 dBm/500kHz

Freq. [MHz]	CH.	Datarate	Mode (802.11)	Total Power Spectral Density [dBm/MHz]			Limit [dBm/MHz]
				ANT1	ANT2	MIMO	
5190	38	MCS0	n40	-14.694	-14.266	-11.464	7.59
5230	46	MCS0	n40	-14.936	-14.213	-11.549	7.59
5270	54	MCS0	n40	-14.417	-13.418	-10.879	6.96
5310	62	MCS0	n40	-15.267	-14.074	-11.619	6.96
5510	102	MCS0	n40	-13.990	-11.467	-9.538	7.89
5550	110	MCS0	n40	-13.623	-10.669	-8.889	7.89
5710	142	MCS0	n40	-14.275	-11.542	-9.687	7.89
5755	151	MCS0	n40	-16.569	-14.326	-12.294	27.40 dBm/500kHz
5795	159	MCS0	n40	-16.750	-12.739	-11.287	27.40 dBm/500kHz

Freq. [MHz]	CH.	Datarate	Mode (802.11)	Total Power Spectral Density [dBm/MHz]			Limit [dBm/MHz]
				ANT1	ANT2	MIMO	
5190	38	MCS0	ac40	-14.767	-14.264	-11.498	7.59
5230	46	MCS0	ac40	-14.924	-14.235	-11.556	7.59
5270	54	MCS0	ac40	-14.540	-13.444	-10.947	6.96
5310	62	MCS0	ac40	-15.147	-14.109	-11.587	6.96
5510	102	MCS0	ac40	-14.137	-11.566	-9.654	7.89
5550	110	MCS0	ac40	-13.716	-10.722	-8.956	7.89
5710	142	MCS0	ac40	-14.535	-11.581	-9.801	7.89
5755	151	MCS0	ac40	-16.722	-14.272	-12.316	27.40 dBm/500kHz
5795	159	MCS0	ac40	-16.624	-12.896	-11.361	27.40 dBm/500kHz

Freq. [MHz]	CH.	Datarate	Mode (802.11)	Total Power Spectral Density [dBm/MHz]			Limit [dBm/MHz]
				ANT1	ANT2	MIMO	
5210	42	MCS0	ac80	-17.853	-17.263	-14.538	7.59
5290	58	MCS0	ac80	-17.170	-16.137	-13.613	6.96
5530	106	MCS0	ac80	-16.595	-13.881	-12.019	7.89
5610	122	MCS0	ac80	-16.846	-15.002	-12.817	7.89
5690	138	MCS0	ac80	-15.737	-15.387	-12.548	7.89
5775	155	MCS0	ac80	-18.826	-16.155	-14.278	27.40 dBm/500kHz

▣ Test Plots

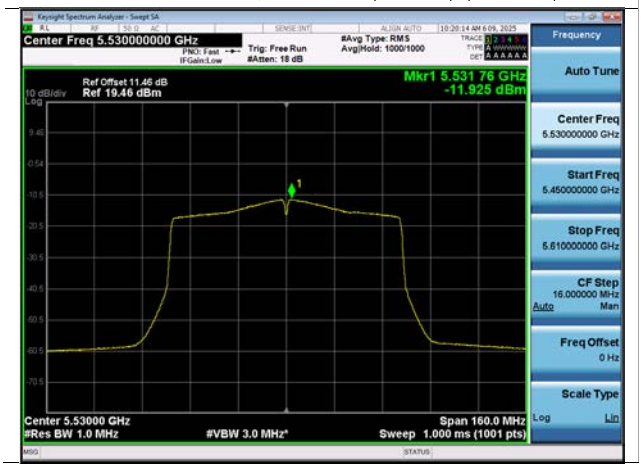
Note: In order to simplify the report, attached plots were only channel of the highest PSD.

[SISO_Ant.3]

Bandwidth 20M, 802.11a(Ch. 144)

Bandwidth 40M, 802.11n(HT40) (Ch. 110)

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



[MIMO_CDD(Ant1+Ant2)], [MIMO_CDD(Ant1+Ant3)]

ANT. 1	ANT. 2, ANT. 3

Bandwidth 20M, 802.11a(Ch. 100)

Bandwidth 40M, 802.11n(HT40) (Ch. 110)

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

10.6 FREQUENCY STABILITY

Note:

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

10.6.1 80 MHz BW

[MIMO_CDD(Ant1+Ant2)]

REFERENCE VOLTAGE: 12.00 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%	12.00	+20(Ref)	5210036.56	36.56	5290033.88	33.88	5530035.73	35.73
100%		-30	5210034.45	34.45	5290033.61	33.61	5530032.73	32.73
100%		-20	5210036.77	36.77	5290036.07	36.07	5530033.87	33.87
100%		-10	5210039.19	39.19	5290033.44	33.44	5530034.21	34.21
100%		0	5210043.79	43.79	5290040.65	40.65	5530048.83	48.83
100%		+10	5210047.91	47.91	5290048.90	48.90	5530046.86	46.86
100%		+30	5210068.79	68.79	5290053.77	53.77	5530064.02	64.02
100%		+40	5210061.75	61.75	5290063.26	63.26	5530050.15	50.15
100%		+50	5210076.00	76.00	5290068.32	68.32	5530061.73	61.73
High	18.00	+20	5210061.73	61.73	5290075.21	75.21	5530063.91	63.91
Low	6.00	+20	5210066.95	66.95	5290078.56	78.56	5530072.60	72.60

OPERATING BAND:		UNII Band 3		
OPERATING FREQUENCY:		5,775,000,000 Hz		
CHANNEL:		155		
Voltage	Power	Temp.	Frequency	Frequency Error
(%)	(VDC)	(°C)	(kHz)	(kHz)
100%	12.00	+20(Ref)	5775042.05	42.05
100%		-30	5775043.06	43.06
100%		-20	5775041.04	41.04
100%		-10	5775063.55	63.55
100%		0	5775064.08	64.08
100%		+10	5775069.22	69.22
100%		+30	5775068.38	68.38
100%		+40	5775065.08	65.08
100%		+50	5775067.08	67.08
High	18.00	+20	5775064.51	64.51
Low	6.00	+20	5775079.37	79.37

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%	12.00	+20(Ref)	5210030.70	30.70	5290031.95	31.95	5530033.57	33.57
100%		-30	5210034.64	34.64	5290038.87	38.87	5530031.14	31.14
100%		-20	5210037.34	37.34	5290033.91	33.91	5530031.64	31.64
100%		-10	5210038.52	38.52	5290033.21	33.21	5530037.09	37.09
100%		0	5210048.10	48.10	5290042.27	42.27	5530046.84	46.84
100%		+10	5210044.82	44.82	5290040.34	40.34	5530043.43	43.43
100%		+30	5210062.82	62.82	5290068.46	68.46	5530065.91	65.91
100%		+40	5210069.55	69.55	5290052.87	52.87	5530055.29	55.29
100%		+50	5210078.18	78.18	5290069.88	69.88	5530062.41	62.41
High	18.00	+20	5210065.09	65.09	5290070.57	70.57	5530060.76	60.76
Low	6.00	+20	5210068.22	68.22	5290077.98	77.98	5530066.77	66.77

OPERATING BAND:		UNII Band 3		
OPERATING FREQUENCY:		5,775,000,000 Hz		
CHANNEL:		155		
Voltage	Power	Temp.	Frequency	Frequency Error
(%)	(VDC)	(°C)	(kHz)	(kHz)
100%	12.00	+20(Ref)	5775044.02	44.02
100%		-30	5775047.37	47.37
100%		-20	5775049.82	49.82
100%		-10	5775063.17	63.17
100%		0	5775050.32	50.32
100%		+10	5775057.58	57.58
100%		+30	5775069.28	69.28
100%		+40	5775063.39	63.39
100%		+50	5775069.18	69.18
High	18.00	+20	5775069.13	69.13
Low	6.00	+20	5775061.11	61.11

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%	12.00	+20(Ref)	5210033.21	33.21	5290034.29	34.29	5530036.69	36.69
100%		-30	5210034.28	34.28	5290034.92	34.92	5530034.91	34.91
100%		-20	5210032.03	32.03	5290032.76	32.76	5530038.13	38.13
100%		-10	5210030.28	30.28	5290030.44	30.44	5530030.79	30.79
100%		0	5210048.61	48.61	5290047.18	47.18	5530046.96	46.96
100%		+10	5210040.71	40.71	5290042.00	42.00	5530044.06	44.06
100%		+30	5210058.52	58.52	5290065.79	65.79	5530059.68	59.68
100%		+40	5210053.96	53.96	5290068.24	68.24	5530059.12	59.12
100%		+50	5210071.36	71.36	5290062.51	62.51	5530060.74	60.74
High	18.00	+20	5210067.66	67.66	5290072.11	72.11	5530061.87	61.87
Low	6.00	+20	5210070.35	70.35	5290064.37	64.37	5530068.34	68.34

OPERATING BAND:		UNII Band 3		
OPERATING FREQUENCY:		5,775,000,000 Hz		
CHANNEL:		155		
Voltage	Power	Temp.	Frequency	Frequency Error
(%)	(VDC)	(°C)	(kHz)	(kHz)
100%	12.00	+20(Ref)	5775048.11	48.11
100%		-30	5775050.00	50.00
100%		-20	5775043.85	43.85
100%		-10	5775054.05	54.05
100%		0	5775068.74	68.74
100%		+10	5775051.56	51.56
100%		+30	5775059.19	59.19
100%		+40	5775062.42	62.42
100%		+50	5775060.88	60.88
High	18.00	+20	5775061.46	61.46
Low	6.00	+20	5775060.53	60.53

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%		+20(Ref)	5210034.17	34.17	5290031.73	31.73	5530034.63	34.63
100%		-30	5210039.87	39.87	5290034.67	34.67	5530033.11	33.11
100%		-20	5210034.98	34.98	5290035.83	35.83	5530035.21	35.21
100%		-10	5210038.48	38.48	5290031.50	31.50	5530032.88	32.88
100%	12.00	0	5210044.61	44.61	5290047.80	47.80	5530046.93	46.93
100%		+10	5210049.14	49.14	5290040.10	40.10	5530042.08	42.08
100%		+30	5210054.62	54.62	5290055.51	55.51	5530051.11	51.11
100%		+40	5210068.35	68.35	5290067.48	67.48	5530068.65	68.65
100%		+50	5210077.66	77.66	5290066.71	66.71	5530067.19	67.19
High	18.00	+20	5210064.54	64.54	5290061.79	61.79	5530060.99	60.99
Low	6.00	+20	5210073.74	73.74	5290073.87	73.87	5530063.82	63.82

OPERATING BAND:		UNII Band 3		
OPERATING FREQUENCY:		5,775,000,000 Hz		
CHANNEL:		155		
Voltage	Power	Temp.	Frequency	Frequency Error
(%)	(VDC)	(°C)	(kHz)	(kHz)
100%		+20(Ref)	5775045.39	45.39
100%		-30	5775046.67	46.67
100%		-20	5775045.69	45.69
100%		-10	5775050.06	50.06
100%	12.00	0	5775052.78	52.78
100%		+10	5775060.44	60.44
100%		+30	5775060.01	60.01
100%		+40	5775068.81	68.81
100%		+50	5775061.72	61.72
High	18.00	+20	5775077.97	77.97
Low	6.00	+20	5775069.80	69.80

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/MHz) = Measured Value (dBm/MHz) + Duty Cycle Factor (dB)

[SISO_Ant.3]

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	14.44	-	3.51	22.60	-5.562	11
802.11n(HT20)				15.16	-	2.89	22.81	-6.547	11
802.11ac(VHT20)				15.16	-	2.94	22.81	-6.360	11
802.11a	UNII3	5720	144	4.60	2.60	-4.19	30.00	-11.105	30 dBm/500kHz
802.11n(HT20)				5.04	2.60	-4.25	30.00	-11.973	30 dBm/500kHz
802.11ac(VHT20)				4.96	2.60	-4.21	30.00	-12.037	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	34.84	-	3.32	23.98	-9.420	11
802.11ac(VHT40)				35.08	-	3.19	23.98	-9.521	11
802.11n(HT40)	UNII3	5710	142	4.84	2.60	-8.61	30.00	-15.786	30 dBm/500kHz
802.11ac(VHT40)				4.84	2.60	-8.68	30.00	-16.096	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	75.48	-	1.98	23.98	-13.426	11
802.11ac(VHT80)	UNII3	5690	138	5.48	2.60	-14.44	30.00	-21.930	30 dBm/500kHz

[MIMO_CDD(Ant1)]

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	15.28	-	-1.28	22.84	-10.428	11
802.11n(HT20)				15.28	-	-1.74	22.84	-11.186	11
802.11ac(VHT20)				15.28	-	-1.75	22.84	-11.189	11
802.11a	UNII3	5720	144	4.32	2.60	-8.97	30.00	-16.055	30 dBm/500kHz
802.11n(HT20)				5.16	2.60	-8.89	30.00	-16.667	30 dBm/500kHz
802.11ac(VHT20)				5.40	2.60	-8.90	30.00	-16.677	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	35.16	-	-1.47	23.98	-14.067	11
802.11ac(VHT40)				34.92	-	-1.27	23.98	-14.109	11
802.11n(HT40)	UNII3	5710	142	5.00	2.52	-13.39	30.00	-20.623	30 dBm/500kHz
802.11ac(VHT40)				4.84	2.60	-13.20	30.00	-20.456	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	75.80	-	0.03	23.98	-15.493	11
802.11ac(VHT80)	UNII3	5690	138	5.48	2.60	-16.46	30.00	-23.785	30 dBm/500kHz

[MIMO_CDD(Ant2&Ant3)]

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	14.36	-	0.70	22.57	-8.656	11
802.11n(HT20)				15.28	-	1.04	22.84	-8.501	11
802.11ac(VHT20)				15.28	-	1.08	22.84	-8.327	11
802.11a	UNII3	5720	144	4.32	2.60	-7.03	30.00	-14.233	30 dBm/500kHz
802.11n(HT20)				5.04	2.60	-6.17	30.00	-13.836	30 dBm/500kHz
802.11ac(VHT20)				5.24	2.60	-6.15	30.00	-13.990	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	35.16	-	1.32	23.98	-11.303	11
802.11ac(VHT40)				35.32	-	1.30	23.98	-11.508	11
802.11n(HT40)	UNII3	5710	142	4.76	2.60	-10.78	30.00	-18.110	30 dBm/500kHz
802.11ac(VHT40)				4.92	2.60	-10.78	30.00	-18.131	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	75.80	-	-0.22	23.98	-15.480	11
802.11ac(VHT80)	UNII3	5690	138	5.96	2.60	-16.75	30.00	-24.208	30 dBm/500kHz

▣ Test Plots (26 dB Bandwidth)

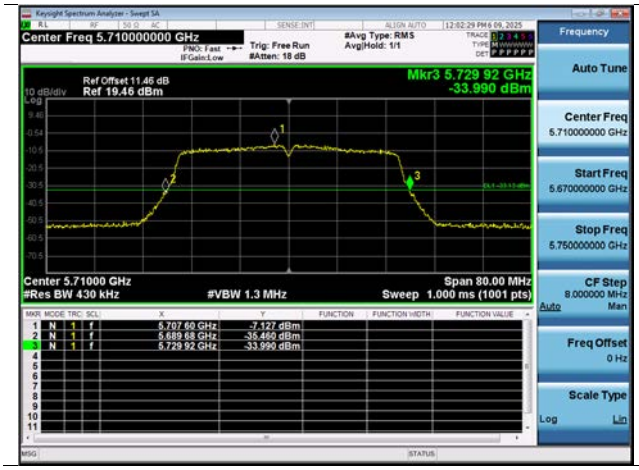
[SISO_Ant.3]

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

[MIMO_CDD(Ant1)]

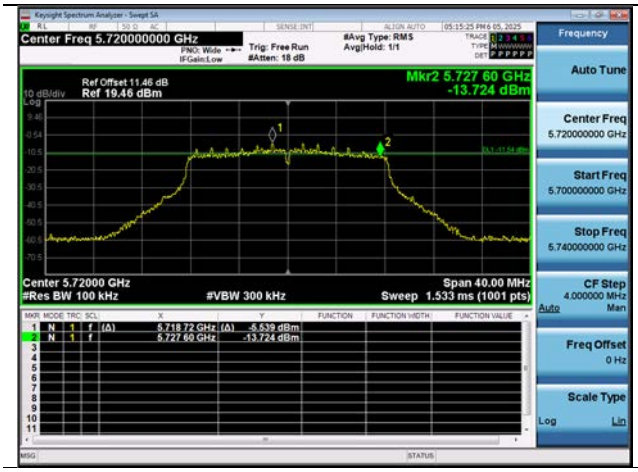
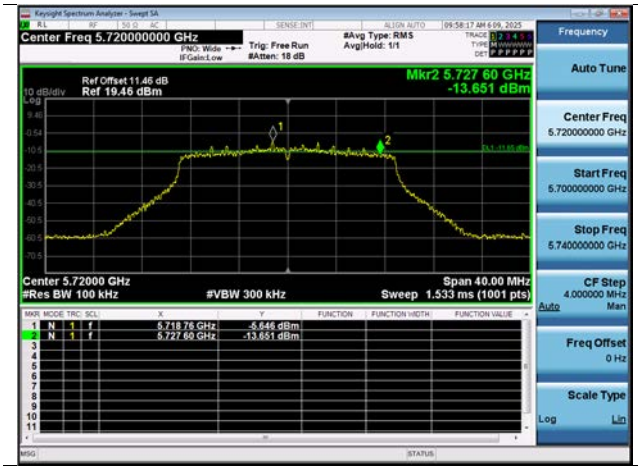
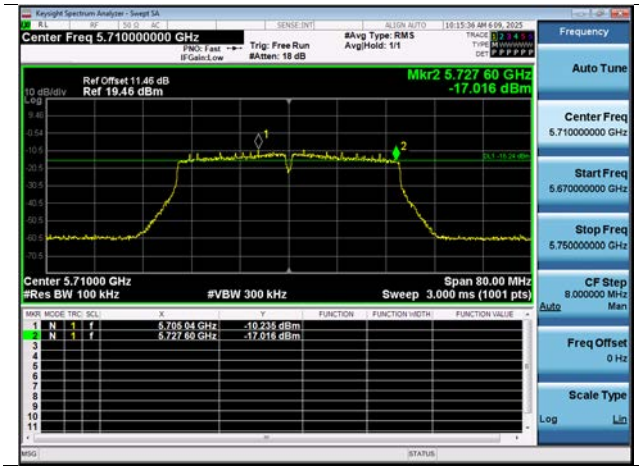
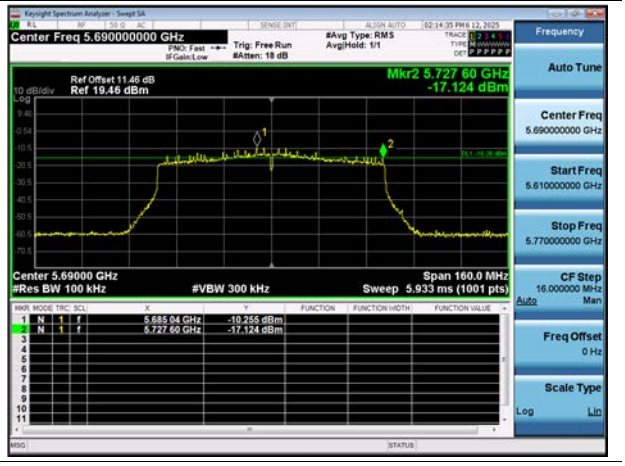
802.11a UNII Band	802.11n(HT20) UNII Band
	
802.11ac(VHT20) UNII Band	802.11n(HT40) UNII Band
	
802.11ac(VHT40) UNII Band	802.11ac(VHT80) UNII Band
	

[MIMO_CDD(Ant2&Ant3)]

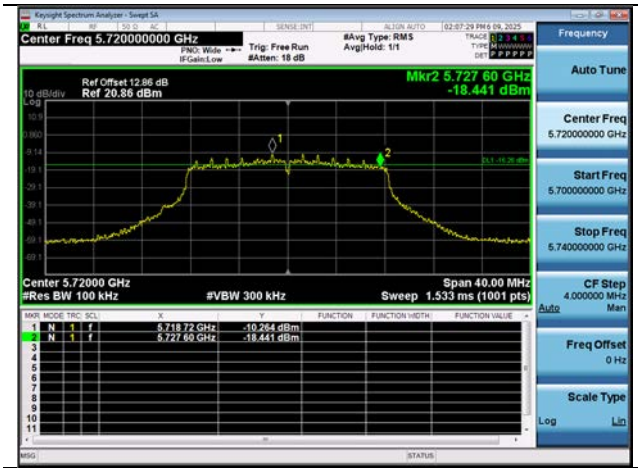
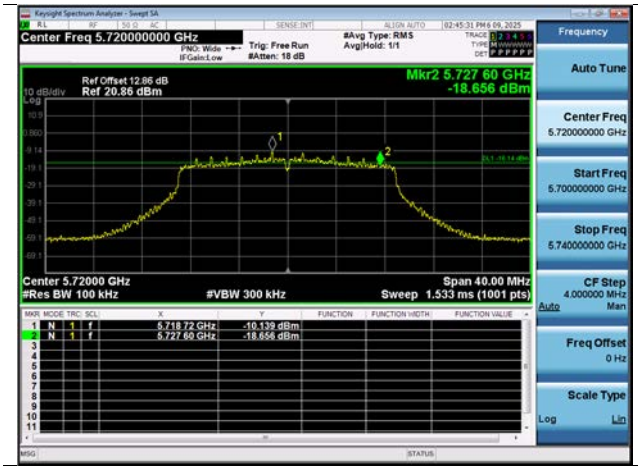
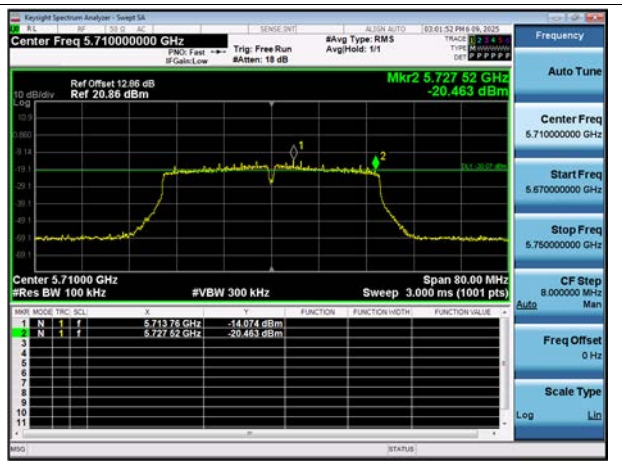
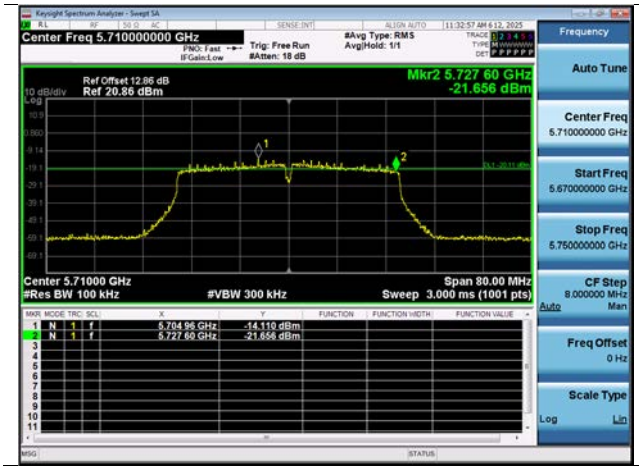
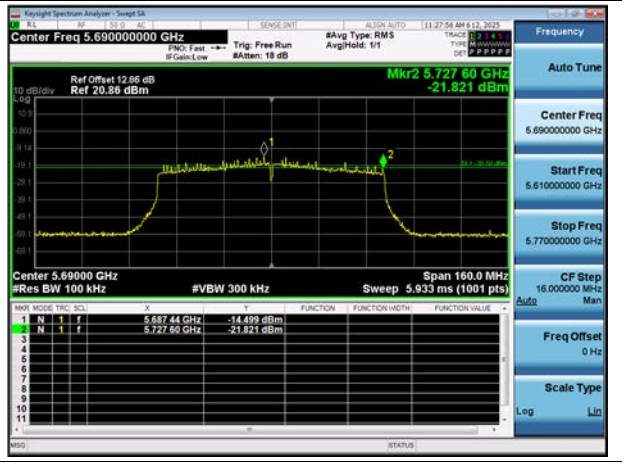
802.11a UNII Band	802.11n(HT20) UNII Band
	
802.11ac(VHT20) UNII Band	802.11n(HT40) UNII Band
	
802.11ac(VHT40) UNII Band	802.11ac(VHT80) UNII Band
	

▣ Test Plots(UNII 3 Band 6 dB Bandwidth)

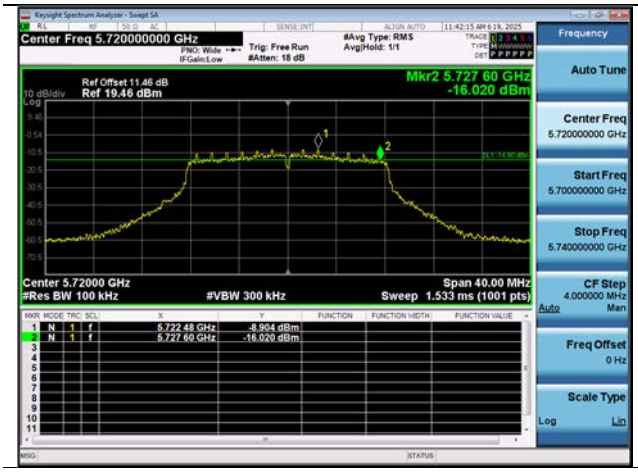
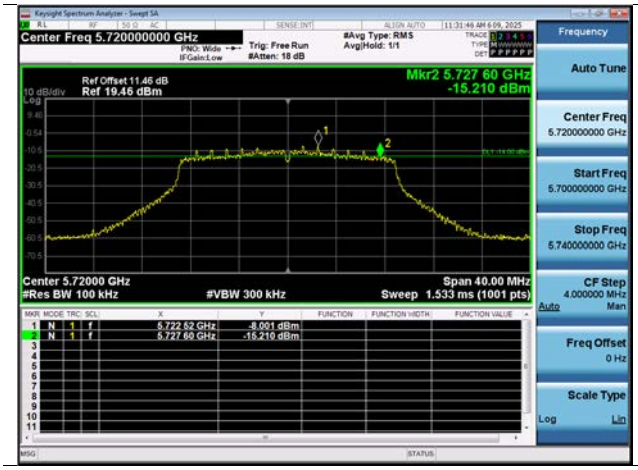
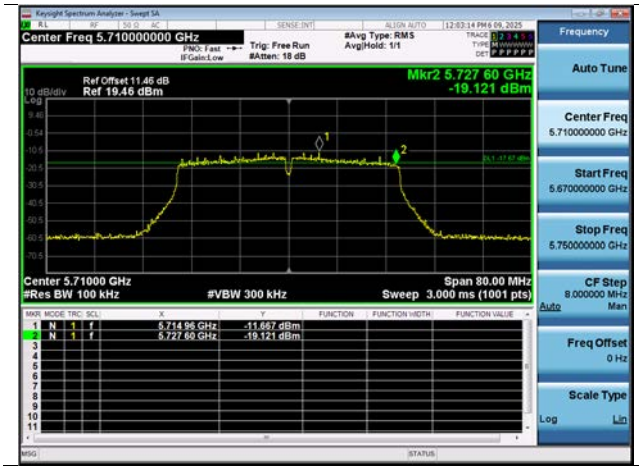
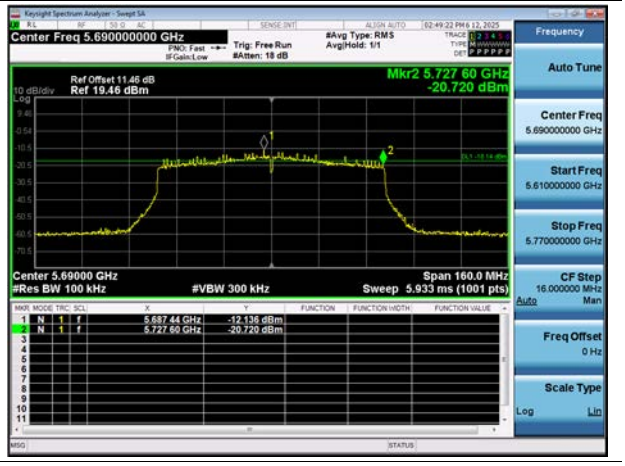
[SISO_Ant.3]

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

[MIMO_CDD(Ant1)]

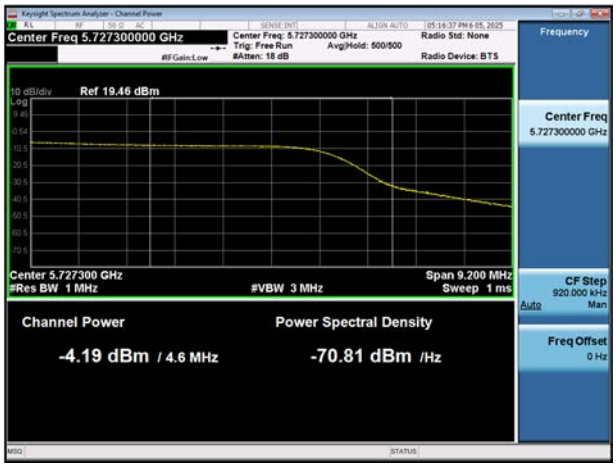
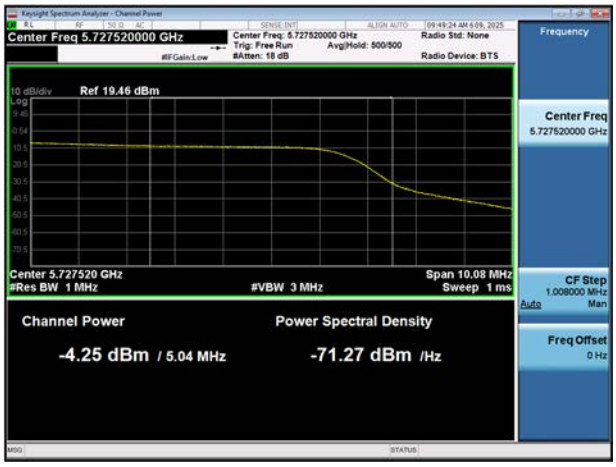
802.11a UNII Band	802.11n(HT20) UNII Band
	
802.11ac(VHT20) UNII Band	802.11n(HT40) UNII Band
	
802.11ac(VHT40) UNII Band	802.11ac(VHT80) UNII Band
	

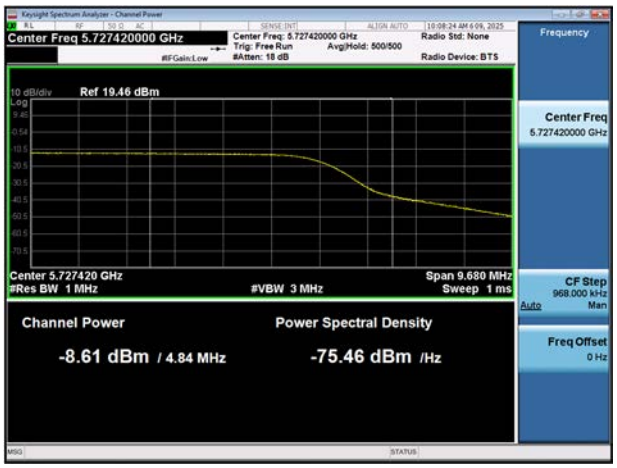
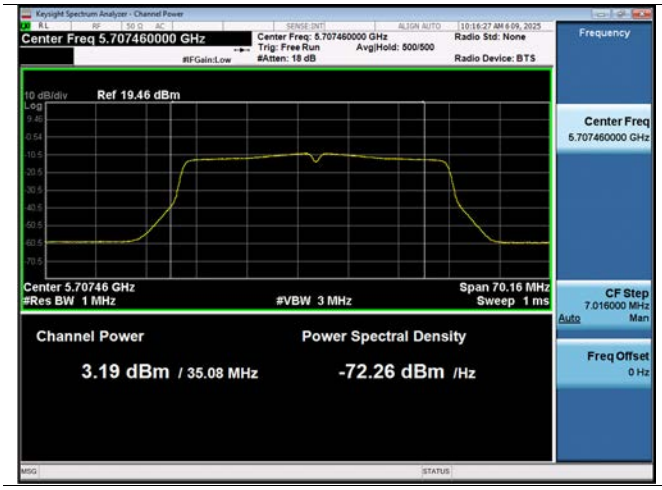
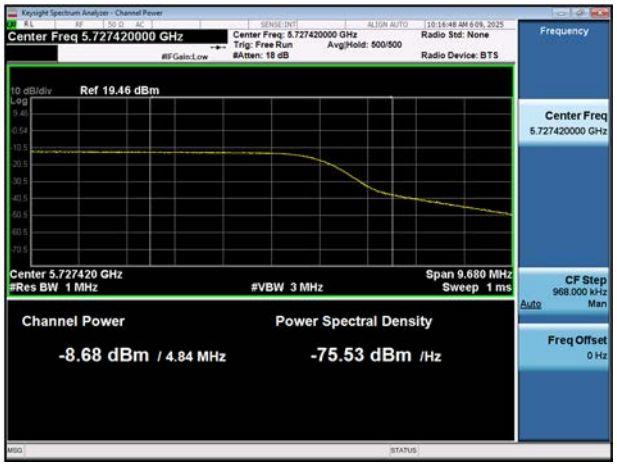
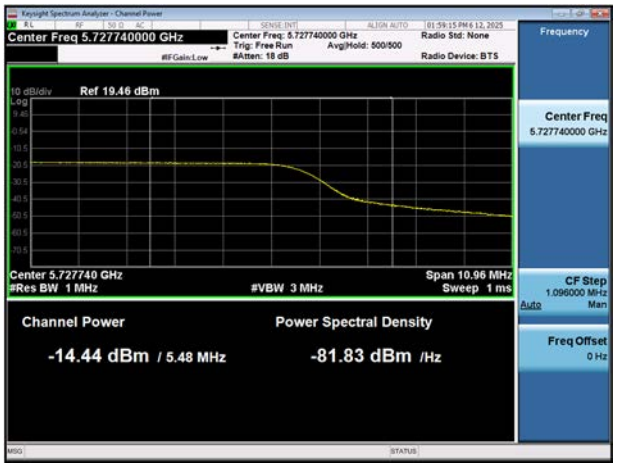
[MIMO_CDD(Ant2&Ant3)]

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
	

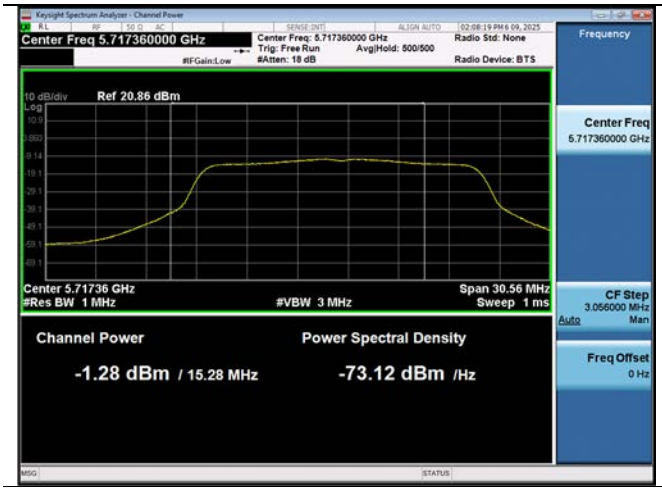
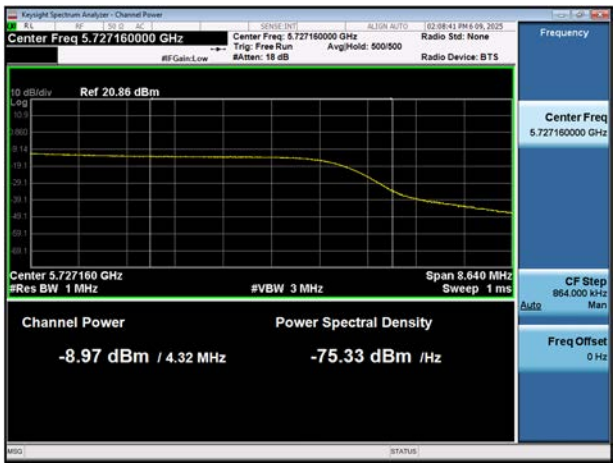
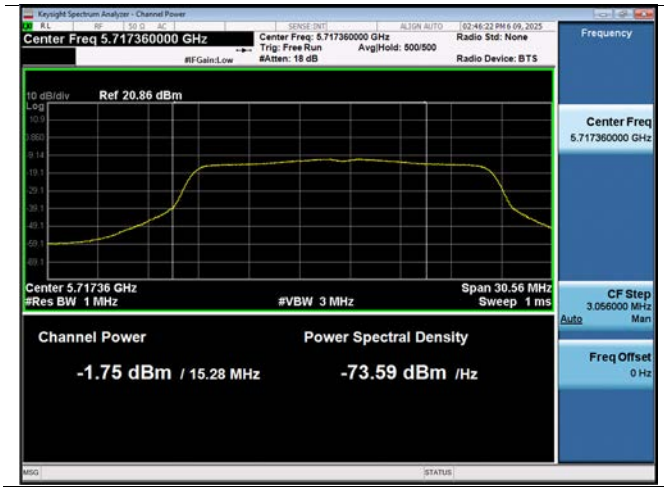
▣ Test Plots(Output Power)

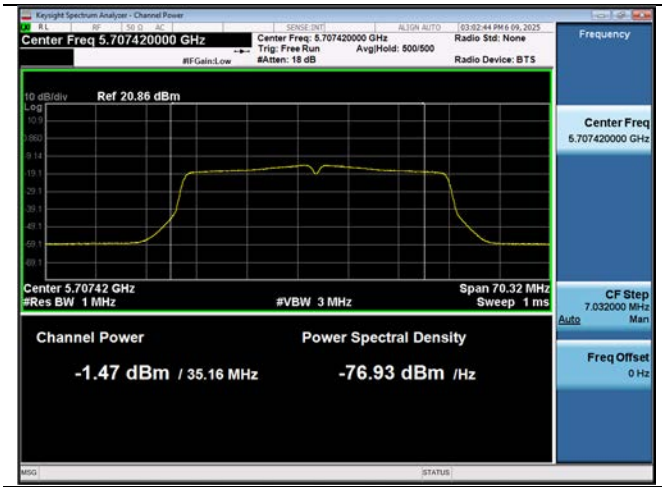
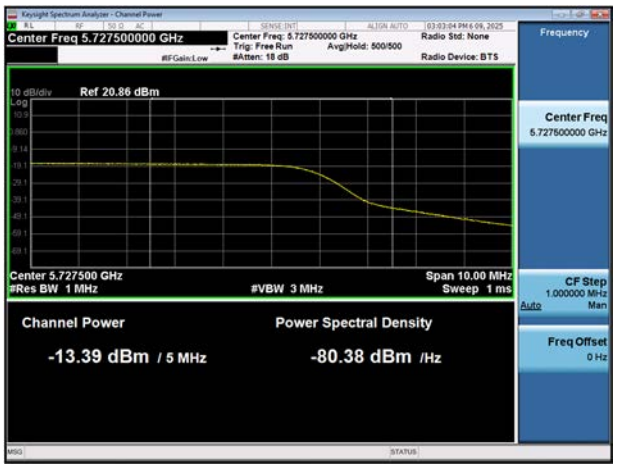
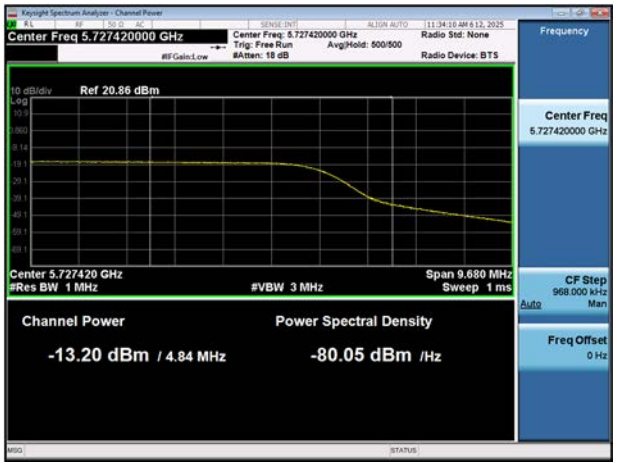
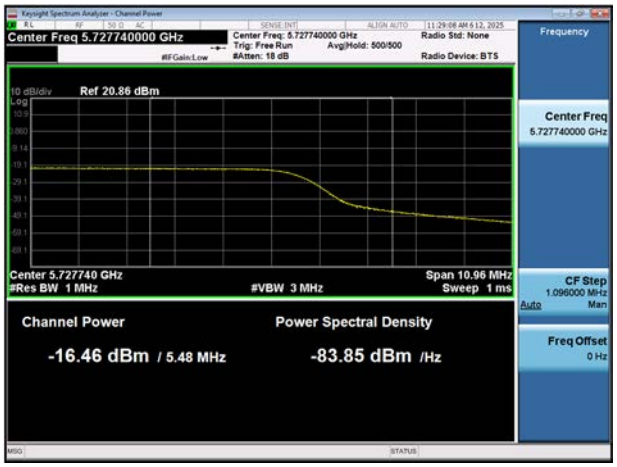
[SISO_Ant.3]

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

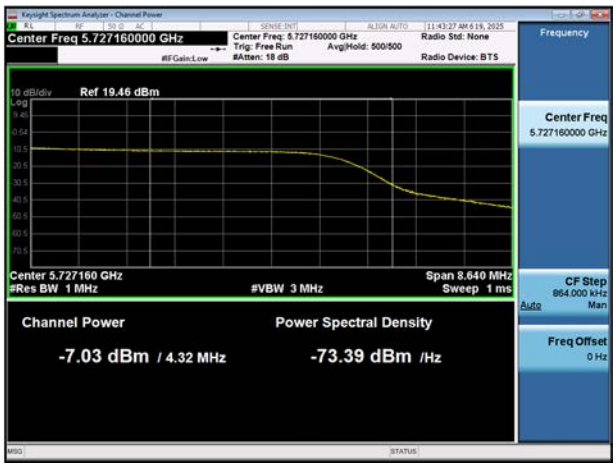
802.11n(HT40) UNII 2C Band	802.11n(HT40) UNII 3 Band
	
802.11ac(VHT40) UNII 2C Band	802.11ac(VHT40) UNII 3 Band
	
802.11ac(VHT80) UNII 2C Band	802.11ac(VHT80) UNII 3 Band
	

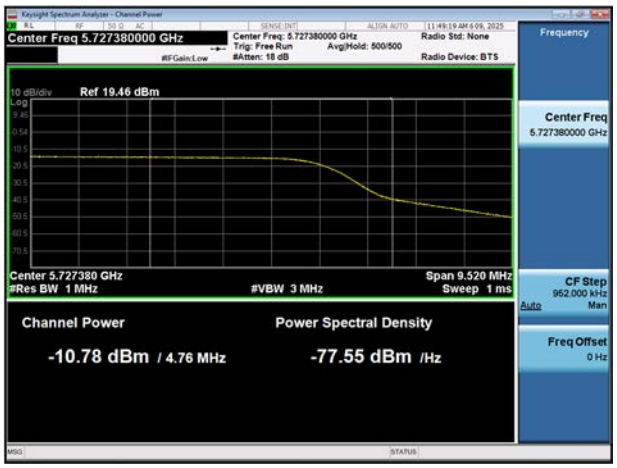
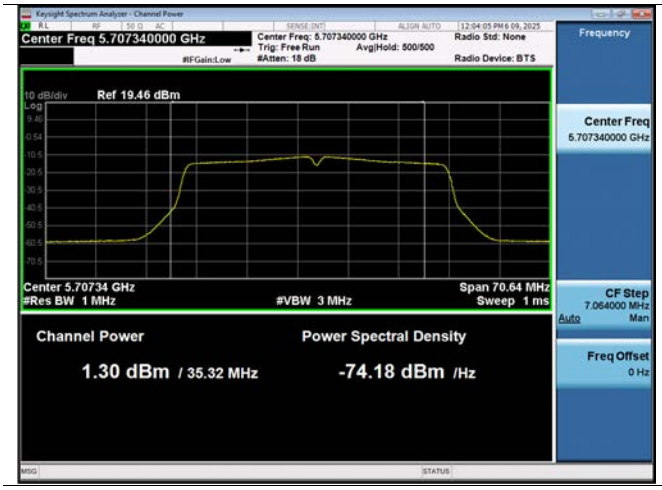
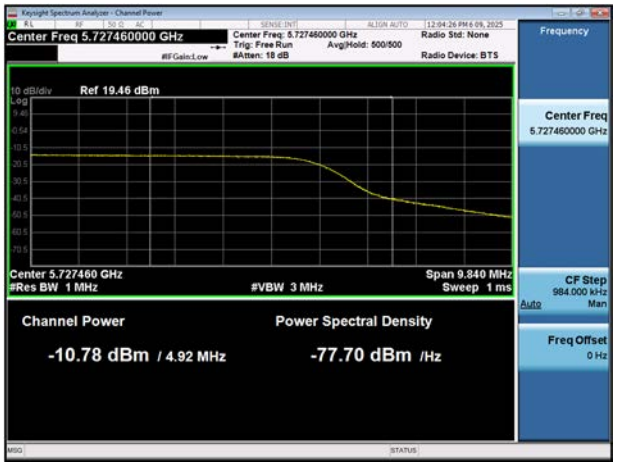
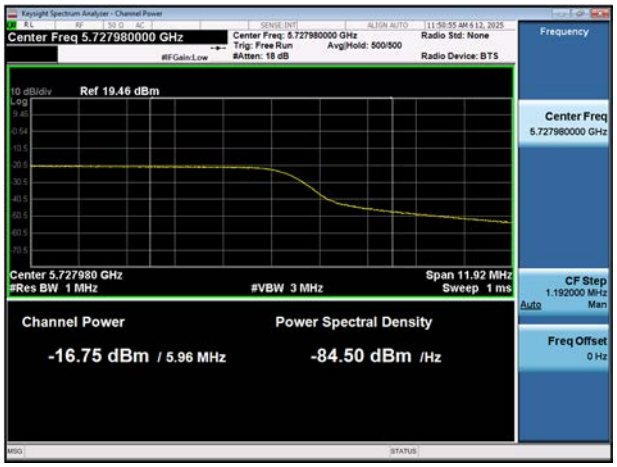
[MIMO_CDD(Ant1)]

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

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

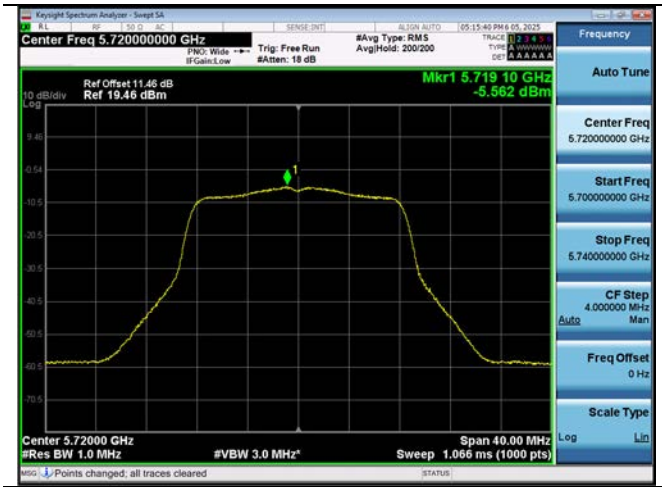
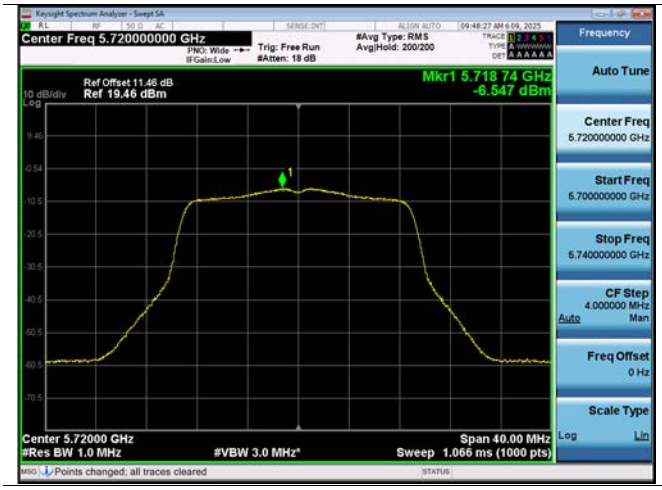
[MIMO_CDD(Ant2&Ant3)]

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

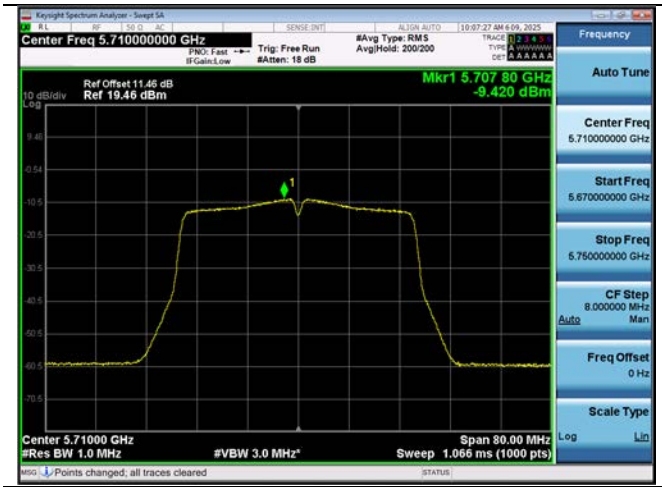
802.11n(HT40) UNII 2C Band	802.11n(HT40) UNII 3 Band
	
802.11ac(VHT40) UNII 2C Band	802.11ac(VHT40) UNII 3 Band
	
802.11ac(VHT80) UNII 2C Band	802.11ac(VHT80) UNII 3 Band
	

▣ Test Plots(Power Spectral Density)

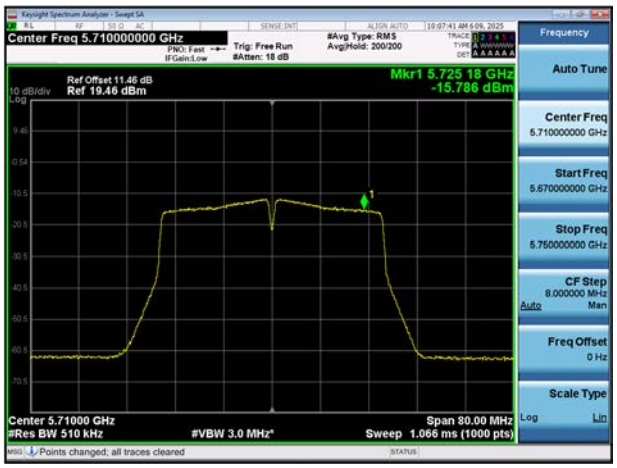
[SISO_Ant.3]

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

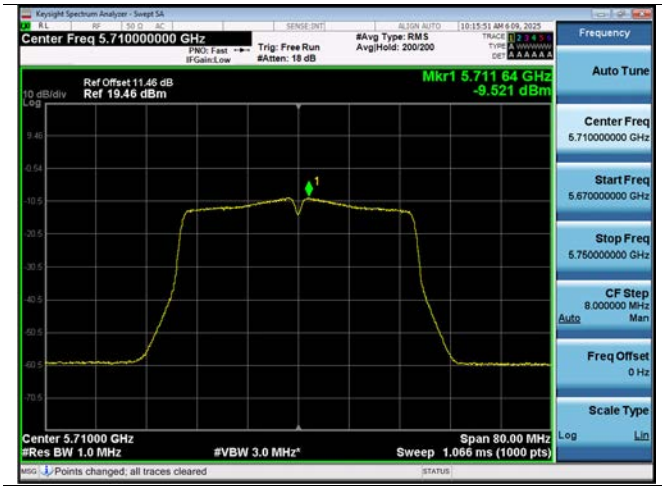
802.11n(HT40) UNII 2C Band



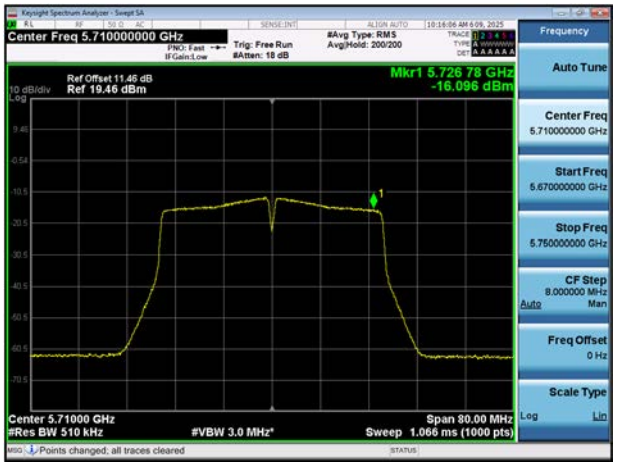
802.11n(HT40) UNII 3 Band



802.11ac(VHT40) UNII 2C Band



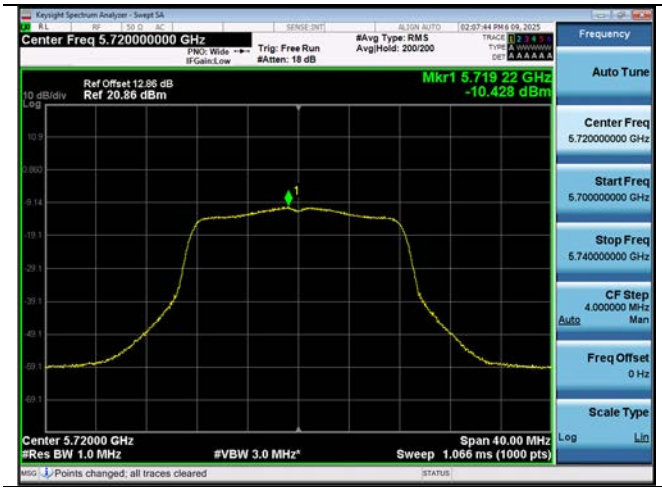
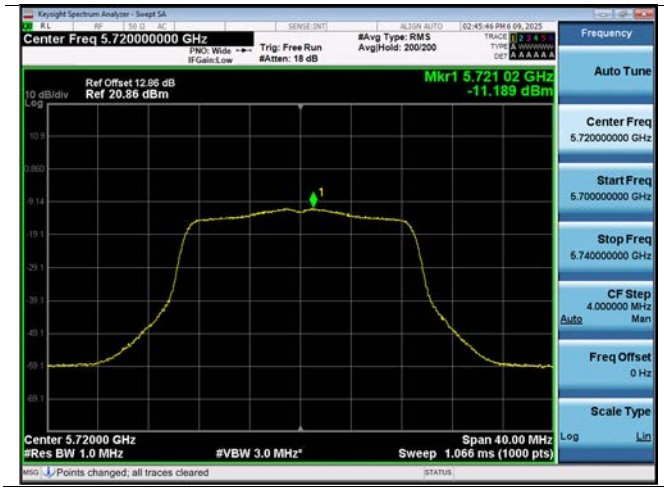
802.11ac(VHT40) UNII 3 Band

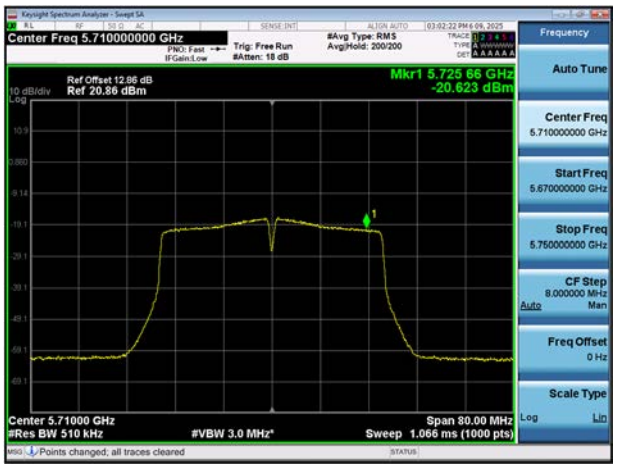


802.11ac(VHT80) UNII 2C Band

802.11ac(VHT80) UNII 3 Band

[MIMO_CDD(Ant1)]

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

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