

RF Test Report

Applicant : Emplus Technologies, Inc
Product Type : Dual Band AC2600 Access Point
Trade Name : emplus
Model Number : WAP373-C
Applicable Standard : FCC 47 CFR PART 15 SUBPART C
ANSI C63.10:2013
Receive Date : May 30, 2019
Test Period : Jun. 15 ~ Jul. 09, 2019
Issue Date : Jul. 15, 2019

Issue by

A Test Lab Techno Corp.
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Taiwan Accreditation Foundation accreditation number: 1330
Test Firm MRA designation number: TW0010

Note:

- 1.The test results are valid only for samples provided by customers and under the test conditions described in this report.
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- 3.The relevant information is provided by customers in this test report. According to the correctness, appropriateness or completeness of the information provided by the customer, if there is any doubt or error in the information which affects the validity of the test results, the laboratory does not take the responsibility.



Revision History

Rev.	Issue Date	Revisions	Revised By
00	Jul. 15, 2019	Initial Issue	Tobey Cheng

Verification of Compliance

Issued Date: Jul. 15, 2019

Applicant : Emplus Technologies, Inc

Product Type : Dual Band AC2600 Access Point

Trade Name : emplus

Model Number : WAP373-C

FCC ID : 2AL6XWAP373

EUT Rated Voltage : DC 12 V, 2 A

Test Voltage : 120 Vac / 60 Hz

Applicable Standard : FCC 47 CFR PART 15 SUBPART C
ANSI C63.10:2013

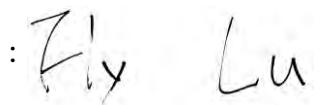
Test Result : Complied

Performing Lab. : A Test Lab Techno Corp.
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Taiwan Accreditation Foundation accreditation number: 1330
<http://www.atl-lab.com.tw/e-index.htm>



A Test Lab Techno Corp. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by A Test Lab Techno Corp. based on interpretations and/or observations of test results. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Approved By
(Manager)

: 
(Fly Lu)

Reviewed By
(Testing Engineer)

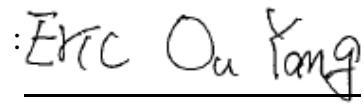
: 
(Eric Ou Yang)

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1 General Information

1.1. Summary of Test Result

Standard	Item	Result	Remark
15.207	AC Power Conducted Emission	PASS	----
15.247(d)	Transmitter Radiated Emissions	PASS	----
15.247(b)(3)	Max. Output Power	PASS	----
15.247(a)(2)	6 dB RF Bandwidth	PASS	----
15.247(e)	Maximum Power Spectral Density	PASS	----
15.247(d)	Out of Band Conducted Spurious Emission	PASS	----
15.203	Antenna Requirement	PASS	----

Standard	Description
CFR47, Part 15, Subpart C	Intentional Radiators
ANSI C63. 10: 2013	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices
KDB 558074 D01 15.247 Meas Guidance v05r02	GUIDANCE FOR COMPLIANCE MEASUREMENTS ON DIGITAL TRANSMISSION SYSTEM, FREQUENCY HOPPING SPREAD SPECTRUM SYSTEM, AND HYBRID SYSTEM DEVICES OPERATING UNDER SECTION 15.247 OF THE FCC RULES
KDB 662911 D01 v02r01	Emissions Testing of Transmitters with Multiple Outputs in the Same Band (e.g., MIMO, Smart Antenna, etc)

1.2. Measurement Uncertainty

Test Item	Frequency Range	Uncertainty (dB)
Conducted Emission	150 kHz ~ 30 MHz	2.8
Radiated Emission	9 kHz ~ 30 MHz	1.7
	30 MHz ~ 1000 MHz	5.7
	1000 MHz ~ 18000 MHz	5.6
	18000 MHz ~ 26500 MHz	4.9
	26500 MHz ~ 40000 MHz	4.8
Conducted Output Power	+0.27 dB / -0.28 dB	
RF Bandwidth	4.96 %	
Power Spectral Density	+0.71 dB / -0.77 dB	

Decision Rule

- Uncertainty is not included.
- Uncertainty is included.

2 EUT Description

Applicant	Emplus Technologies, Inc Bld B, 10F, No.209 Nangang Rd., Taipei City, Taiwan			
Manufacturer	Emplus Technologies, Inc Bld B, 10F, No.209 Nangang Rd., Taipei City, Taiwan			
Product Type	Dual Band AC2600 Access Point			
Trade Name	emplus			
Model Number	WAP373-C			
FCC ID	2AL6XWAP373			
Operate Freq. Band	Frequency Range (MHz)	Modulation	Channel Bandwidth	Data Rate 400 / 800 GI (ns)
IEEE 802.11b	2412 ~ 2462	DSSS	20 MHz	Up to 11 Mbps
IEEE 802.11g	2412 ~ 2462	OFDM	20 MHz	Up to 54 Mbps
IEEE 802.11n 2.4 GHz 20 MHz	2412 ~ 2462	OFDM (64QAM/256QAM)	20 MHz	Up to 346.8 Mbps
IEEE 802.11n 2.4 GHz 40 MHz	2422 ~ 2452	OFDM (64QAM/256QAM)	40 MHz	Up to 800 Mbps
Antenna information	ANT	Model Number	Type	Max. Gain (dBi)
Antenna information	ANT-0	5718A0346300	PIFA Antenna	2.86
	ANT-1	5718A0347300	PIFA Antenna	3.12
	ANT-2	5718A0348300	PIFA Antenna	3.14
	ANT-3	5718A0349300	PIFA Antenna	3.29
Antenna Delivery	See section 3.1			
Operate Temp. Range	0 ~ +50 °C			

Frequency Band	Max. RF Output Power (W)
IEEE 802.11b	0.243
IEEE 802.11g	0.163
IEEE 802.11n 2.4 GHz 20 MHz (64QAM)	0.151
IEEE 802.11n 2.4 GHz 40 MHz (64QAM)	0.173
IEEE 802.11n 2.4 GHz 20 MHz (256QAM)	0.159
IEEE 802.11n 2.4 GHz 40 MHz (256QAM)	0.182

Beamforming on

Frequency Band	Max. RF Output Power (W)
IEEE 802.11n 2.4 GHz 20 MHz (256QAM)	0.036
IEEE 802.11n 2.4 GHz 40 MHz (256QAM)	0.041

3 Test Methodology

3.1. Mode of Operation

Decision of Test ATL has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Test Mode
Mode 1: Transmit mode
Mode 2: IEEE 802.11b Continuous TX mode
Mode 3: IEEE 802.11g Continuous TX mode
Mode 4: IEEE 802.11n 2.4 GHz 20 MHz (64QAM) Continuous TX mode
Mode 5: IEEE 802.11n 2.4 GHz 40 MHz (64QAM) Continuous TX mode
Mode 6: IEEE 802.11n 2.4 GHz 20 MHz (256QAM) Continuous TX mode
Mode 7: IEEE 802.11n 2.4 GHz 40 MHz (256QAM) Continuous TX mode

Software used to control the EUT for staying in continuous transmitting mode was programmed.

After verification, all tests were carried out with the worst case test modes.

Note: Investigation has been done on all the possible configurations for searching the worst cases (256QAM covers 64QAM). The table is a list of the test modes show in this test report.

Test Mode	ANT-0	ANT-1	ANT-2	ANT-3	ANT-0+1+2+3
Mode 2	V	V	V	V	V
Mode 3	V	V	V	V	V
Mode 4	V	V	V	V	V
Mode 5	V	V	V	V	V
Mode 6	V	V	V	V	V
Mode 7	V	V	V	V	V

Test Mode	Antenna Delivery	Data Rate (Mbps)	Test Channel
Mode 2	4TX / 4RX (CDD)	1	1, 6, 11
Mode 3	4TX / 4RX (CDD)	6	1, 6, 11
Mode 4	4TX / 4RX (STBC)	26	1, 6, 11
Mode 5	4TX / 4RX (STBC)	54	3, 6, 9
Mode 6	4TX / 4RX (STBC/Beamforming on)	26	1, 6, 11
Mode 7	4TX / 4RX (STBC/Beamforming on)	54	3, 6, 9

Duty cycle

Test Mode	Frequency (MHz)	on time (ms)	on+off time (ms)	Duty cycle	Duty Factor (dB)	1/T Minimum VBW (kHz)
Mode 2	2412.0	10.000	10.000	1.000	0.000	0.010
Mode 3	2412.0	2.080	2.130	0.977	0.103	0.481
Mode 6	2412.0	5.025	5.070	0.991	0.039	0.010
Mode 7	2422.0	2.450	2.490	0.984	0.070	0.010

Beamforming on

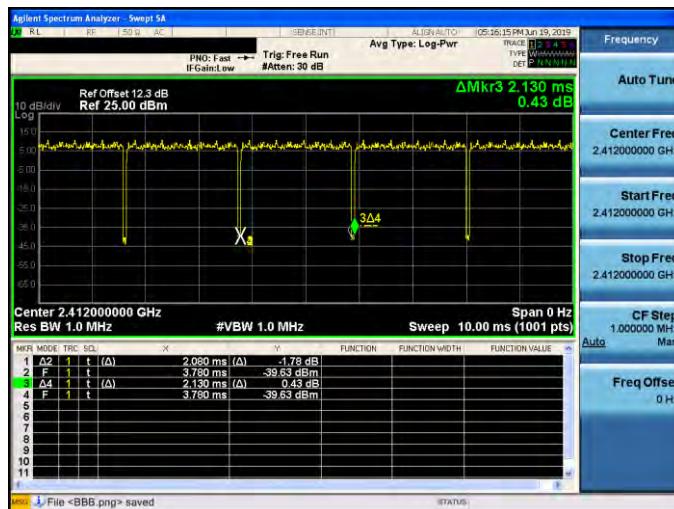
Test Mode	Frequency (MHz)	on time (ms)	on+off time (ms)	Duty cycle	Duty Factor (dB)	1/T Minimum VBW (kHz)
Mode 6	2412.0	5.025	5.070	0.991	0.039	0.010
Mode 7	2422.0	2.450	2.490	0.984	0.070	0.010

Duty Cycle Graphs

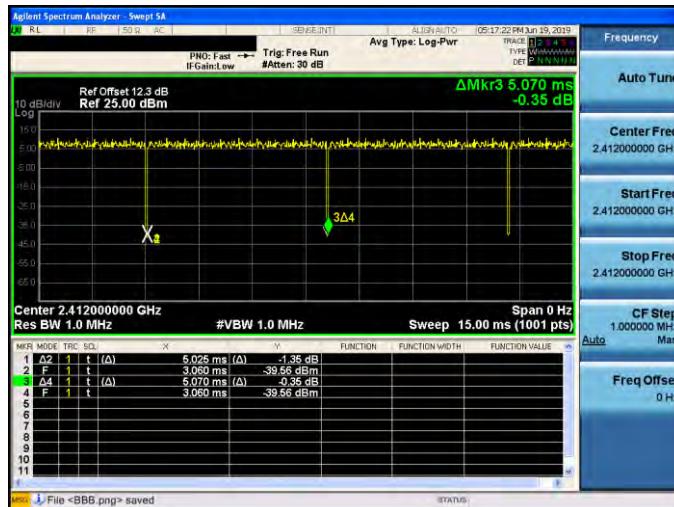
Mode 2: IEEE 802.11b Continuous TX mode



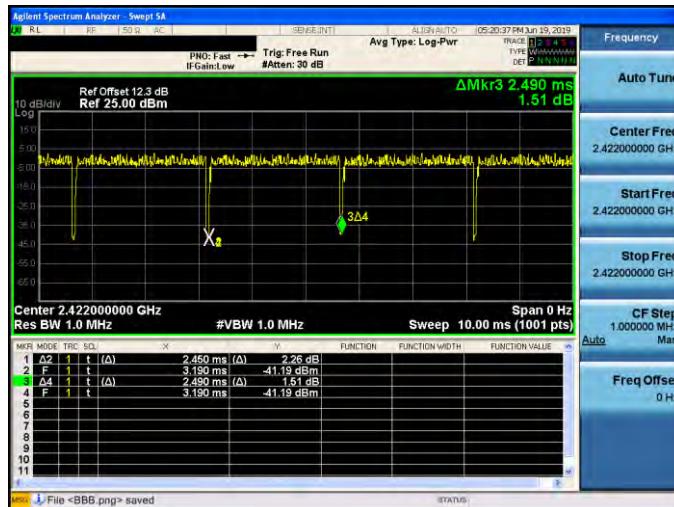
Mode 3: IEEE 802.11g Continuous TX mode



Mode 6: IEEE 802.11n 2.4 GHz 20 MHz (256QAM) Continuous TX mode

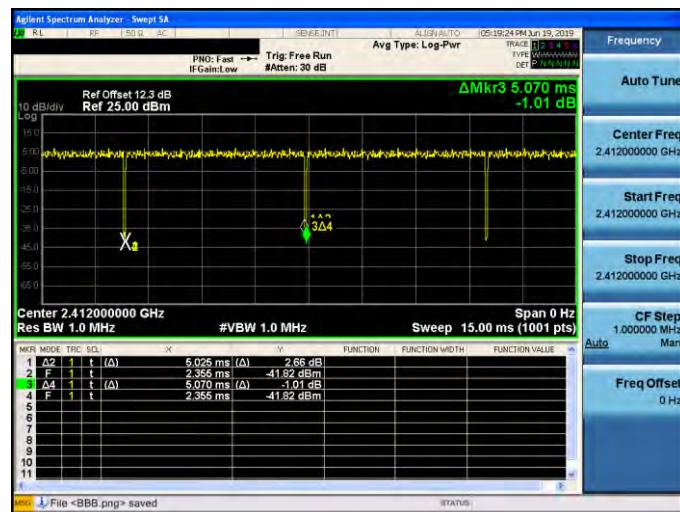


Mode 7: IEEE 802.11n 2.4 GHz 40 MHz (256QAM) Continuous TX mode

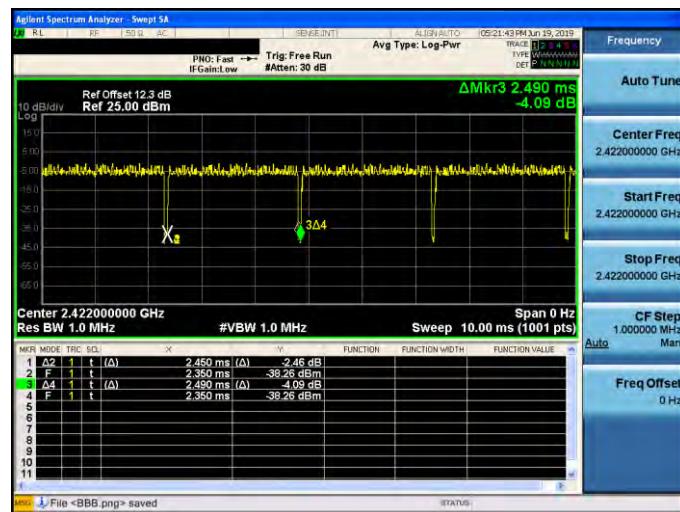


Beamforming on

Mode 6: IEEE 802.11n 2.4 GHz 20 MHz (256QAM) Continuous TX mode



Mode 7: IEEE 802.11n 2.4 GHz 40 MHz (256QAM) Continuous TX mode



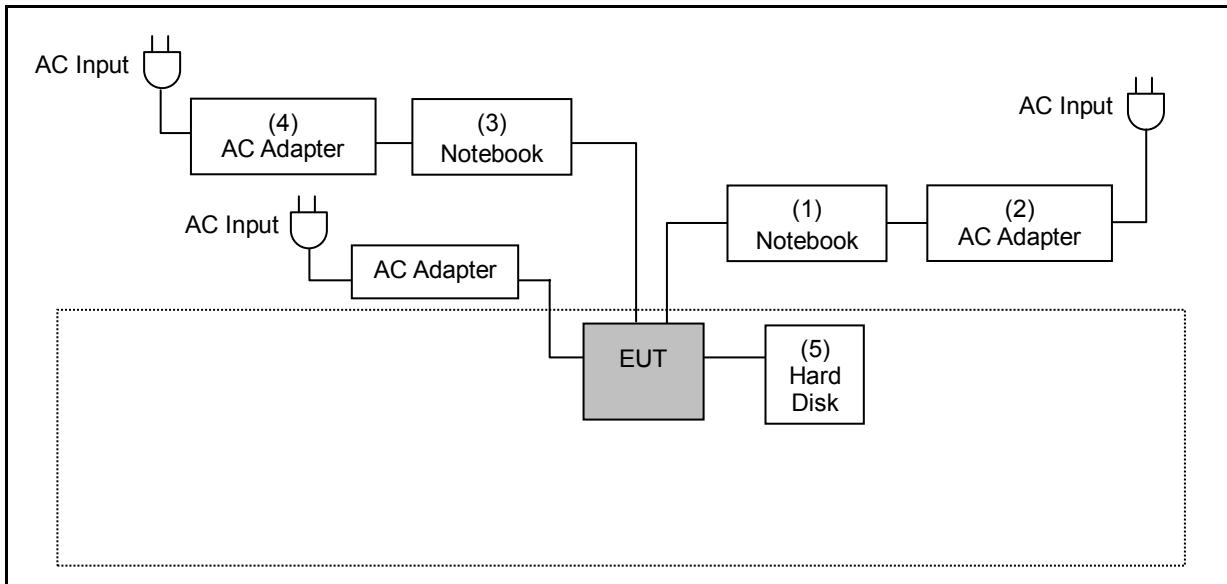
3.2. EUT Test Step

1.	Setup the EUT shown on “Configuration of Test System Details”.
2.	Turn on the power of all equipment.
3.	Turn on TX function
4.	EUT run test program.

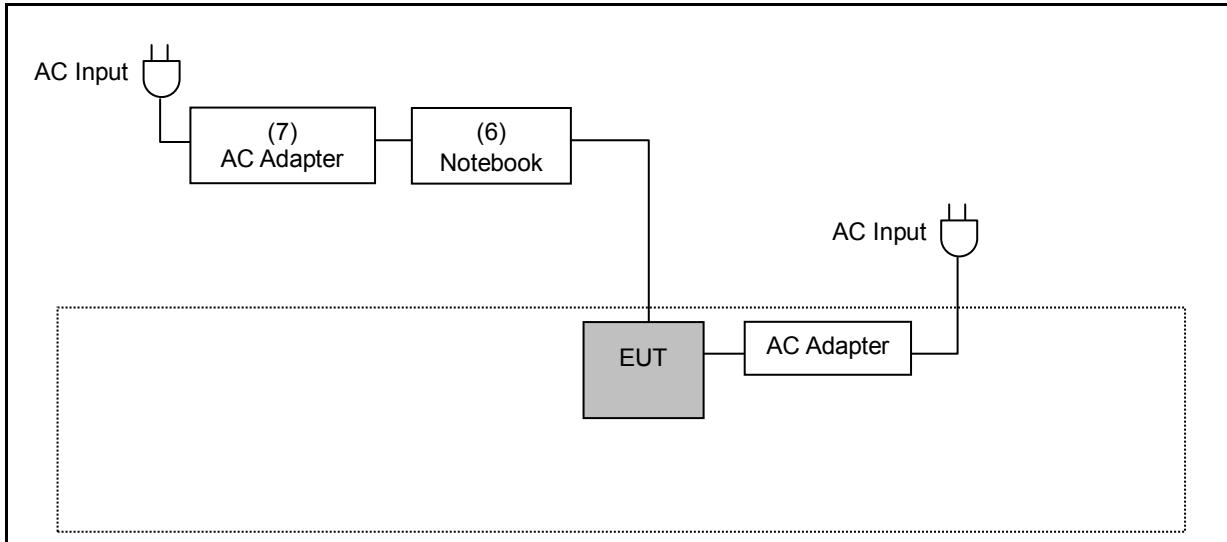
Measurement Software			
No.	Description	Software	Version
1	Conducted Emission	EZ EMC	1.1.4.3
2	Radiated Emission	EZ EMC	1.1.4.4

3.3. Configuration of Test System Details

Conducted Emissions



Radiated Emission



Devices Description

Product		Manufacturer	Model Number	Serial Number	Power Cord
(1)	Notebook	DELL	LATITUDE E6440	5HZBD72	---
(2)	AC Adapter	DELL	HA65NM130	---	Non-Shielded, 1.7 m
(3)	Notebook	DELL	LATITUDE E6440	48GBD72	---
(4)	AC Adapter	DELL	HA65NM130	---	Non-Shielded, 1.7 m
(5)	Hard Disk	Transend	TS1TSJ25A3K-RU	D72654-0611	---
(6)	Notebook	DELL	LATITUDE E6440	5HZBD72	---
(7)	AC Adapter	DELL	HA65NM130	---	Non-Shielded, 0.8 m

3.4. Test Instruments

For Conducted Emission

Test Period: Jul. 09, 2019

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
Test Receiver	R&S	ESCI	100367	05/23/2019	1 year
LISN	R&S	ENV216	101040	04/03/2019	1 year
LISN	R&S	ENV216	101041	03/28/2019	1 year
RF Cable	Woken	00100D1380194M	TE-02-03	05/23/2019	1 year

For Radiated Emissions

Test Period: Jun. 15, 2019

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
Spectrum Analyzer (10 Hz~44 GHz)	Keysight	N9010A	MY52221312	01/14/2019	1 year
Pre Amplifier (1~26.5 GHz)	Agilent	8449B	3008A02237	10/16/2018	1 year
Pre Amplifier (100 kHz~1.3 GHz)	Agilent	8447D	2944A11119	01/14/2019	1 year
Broadband Antenna	Schwarzbeck	VULB9168	416	10/19/2018	1 year
Horn Antenna (1~18 GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	9120D-550	08/23/2018	1 year
Horn Antenna (18~40 GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA9170	9170-320	08/07/2018	1 year
Loop Antenna	COM-POWER CORPORATION	AL-130	121014	03/29/2019	1 year
RF Cable	EMCI	EMC104-N -N-6000	TE01-1	02/20/2019	1 year
Microwave Cable	EMCI	EMC104-SM -SM-13000	170814	10/30/2018	1 year
Microwave Cable	EMCI	EMC102-KM -KM-14000	151001	02/20/2019	1 year
Microwave Cable	EMCI	EMC102-KM -KM-14000	151001	02/20/2017	1 year

Note: N.C.R. = No Calibration Request.

For Conducted

Test Period: Jun. 19 ~ Jun. 27, 2019

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
Spectrum Analyzer (20 Hz~26.5 GHz)	Agilent	N9020A	US47520902	09/25/2018	1 year
Power Sensor	Anritsu	MA2411B	1126022	08/29/2018	1 year
Power Meter	Anritsu	ML2495A	1135009	08/29/2018	1 year

Note: N.C.R. = No Calibration Request.

3.5. Test Site Environment

Items	Required (IEC 60068-1)	Actual
Temperature (°C)	15-35	26
Humidity (%RH)	25-75	60
Barometric pressure (mbar)	860-1060	990

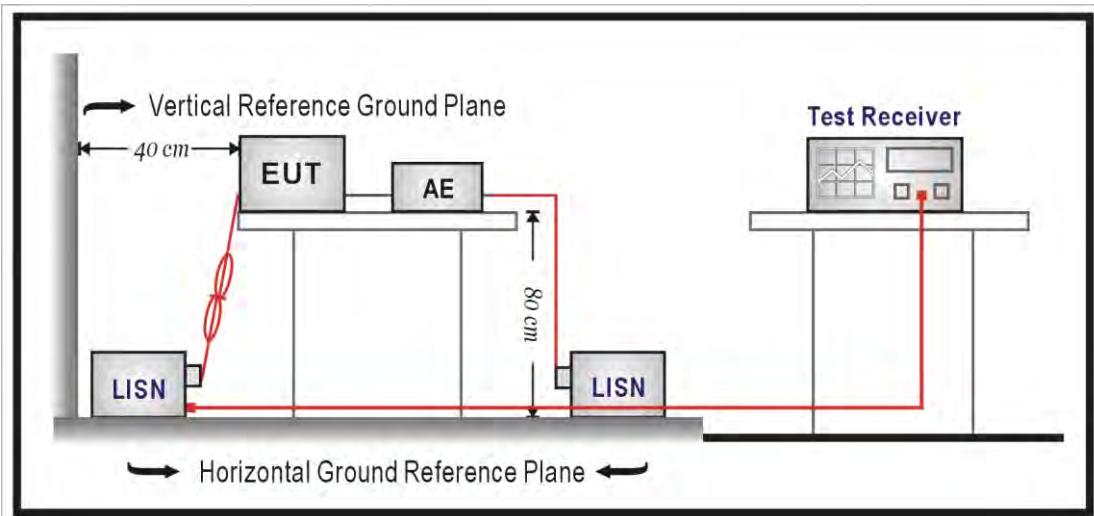
4 Measurement Procedure

4.1. AC Power Line Conducted Emission Measurement

■ Limit

Frequency (MHz)	Quasi-peak	Average
0.15 - 0.5	66 to 56	56 to 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

■ Test Setup



■ Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a $50 \Omega//50 \mu\text{H}$ coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a $50 \Omega//50 \mu\text{H}$ coupling impedance with 50 ohm termination.

Tabletop device shall be placed on a non-conducting platform, of nominal size 1 m by 1.5 m, raised 80 cm above the reference ground plane. The wall of screened room shall be located 40 cm to the rear of the EUT. Other surfaces of tabletop or floor standing EUT shall be at least 80 cm from any other ground conducting surface including one or more LISNs. For floor-standing device shall be placed under the EUT with a 12 mm insulating material.

Conducted emissions were investigated over the frequency range from 0.15 MHz to 30 MHz using a resolution bandwidth of 9 kHz. The equipment under test (EUT) shall be meet the limits in section 4.1, as applicable, including the average limit and the quasi-peak limit when using respectively, an average detector and quasi-peak detector measured in accordance with the methods described of related standard. When all of peak value were complied with quasi-peak and average limit from 150 kHz to 30 MHz then quasi-peak and average measurement was unnecessary.

The AMN shall be placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for AMNs mounted on top of the ground reference plane. This distance is between the closest points of the AMN and the EUT. All other units of the EUT and associated equipment shall be at least 0.8 m from the AMN. If the mains power cable is longer than 1 m then the cable shall be folded back and forth at the centre of the lead to form a bundle no longer than 0.4 m. All of interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 cm to 40 cm long. All of EUT and AE shall be separate place more than 0.1 m. All 50Ω ports of the LISN shall be resistively terminated into 50Ω loads when not connected to the measuring instrument.

If the reading of the measuring receiver shows fluctuations close to the limit, the reading shall be observed for at least 15 s at each measurement frequency; the higher reading shall be recorded with the exception of any brief isolated high reading which shall be ignored.

4.2. Radiated Emission Measurement

■ Limit

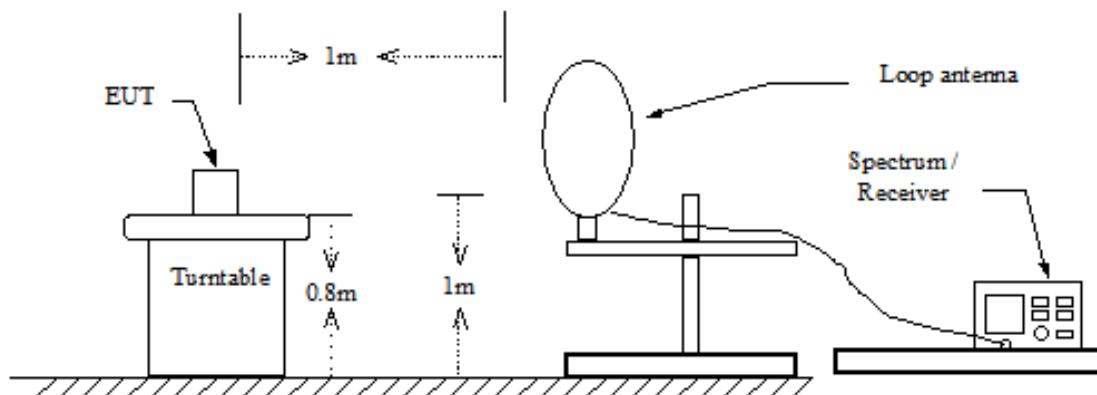
According to §15.209(a), except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (μ V/m at meter)	Measurement Distance (meters)
0.009 – 0.490	2400 / F (kHz)	300
0.490 – 1.705	24000 / F (kHz)	30
1.705 – 30.0	30	30
30 - 88	100**	3
88-216	150**	3
216-960	200**	3
Above 960	500	3

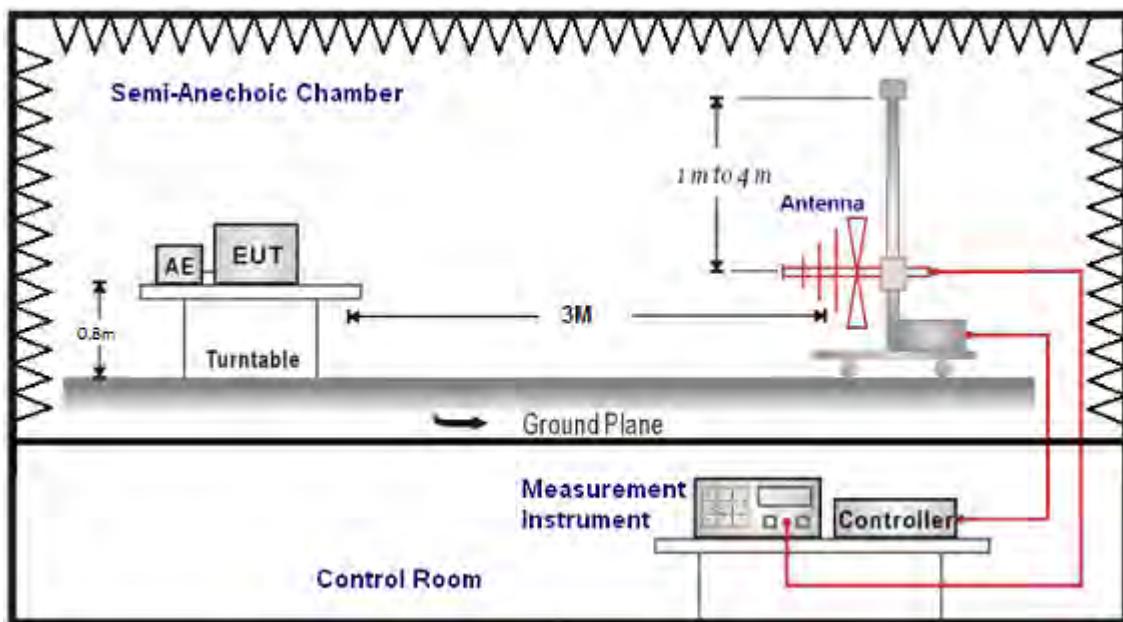
** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

■ Setup

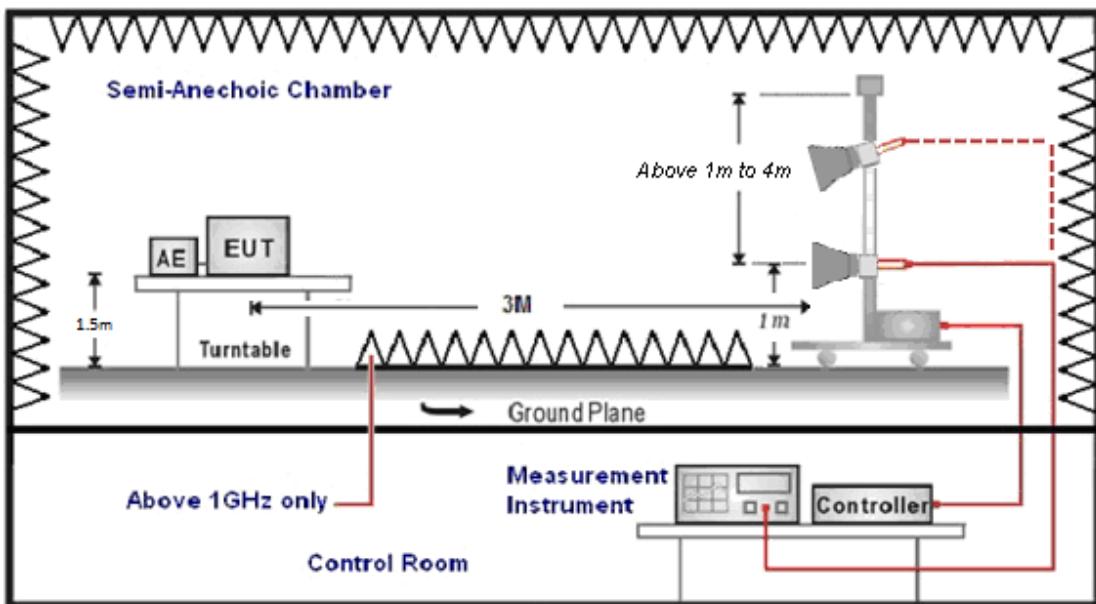
9 kHz ~ 30 MHz



Below 1 GHz



Above 1 GHz



■ Test Procedure

Final radiation measurements were made on a three-meter, Semi Anechoic Chamber. The EUT system was placed on a nonconductive turntable which is 0.8 or 1.5 meters height, top surface 1.0 x 1.5 meter. The spectrum was examined from 250 MHz to 2.5 GHz in order to cover the whole spectrum below 10th harmonic which could generate from the EUT. During the test, EUT was set to transmit continuously & Measurements spectrum range from 9 kHz to 26.5 GHz is investigated.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, and then the video bandwidth is set to 3 MHz for peak measurements and 10 Hz for average measurements when Duty cycle >0.98 / 1/T for average measurements when Duty cycle <0.98. A nonconductive material surrounded the EUT to supporting the EUT for standing on tree orthogonal planes. At each condition, the EUT was rotated 360 degrees, and the antenna was raised and lowered from one to four meters to find the maximum emission levels. Measurements were taken using both horizontal and vertical antenna polarization.

SCHWARZBECK MESS-ELEKTRONIK Biconilog Antenna at 3 Meter and the SCHWARZBECK Double Ridged Guide Antenna was used in frequencies 1 –26.5 GHz at a distance of 3 meter. The antenna at an angle toward the source of the emission. All test results were extrapolated to equivalent signal at 3 meters utilizing an inverse linear distance extrapolation Factor (20 dB/decade).

For testing above 1 GHz, the emission level of the EUT in peak mode was 20 dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

Appropriate preamplifiers were used for improving sensitivity and precautions were taken to avoid overloading or desensitizing the spectrum analyzer. No post – detector video filters were used in the test.

The spectrum analyzer's 6 dB bandwidth was set to 1 MHz, and the analyzer was operated in the peak detection mode, for frequencies both below and up 1 GHz. The average levels were obtained by subtracting the duty cycle correction factor from the peak readings.

The following procedures were used to convert the emission levels measured in decibels referenced to 1 microvolt (dB_{uV}) into field intensity in micro volts pre meter (uV/m).

The actual field intensity in decibels referenced to 1 microvolt in to field intensity in micro colts per meter (dB_{uV/m}).

The actual field intensity in dBuV/m is determined by algebraically adding the measured reading in dBuV, the antenna factor (dB), and cable loss (dB) and Subtracting the gain of preamplifier (dB) is auto calculate in spectrum analyzer.

$$(1) \text{ Amplitude (dBuV/m)} = \text{FI (dBuV)} + \text{AF (dBuV)} + \text{CL (dBuV)} - \text{Gain (dB)}$$

FI= Reading of the field intensity.

AF= Antenna factor.

CL= Cable loss.

P.S Amplitude is auto calculate in spectrum analyzer.

$$(2) \text{ Actual Amplitude (dBuV/m)} = \text{Amplitude (dBuV)} - \text{Dis(dB)}$$

The FCC specified emission limits were calculated according the EUT operating frequency and by following linear interpolation equations:

(a) For fundamental frequency : Transmitter Output < +30 dBm

(b) For spurious frequency : Spurious emission limits = fundamental emission limit /10

Data of measurement within this frequency range without mark in the table above means the reading of emissions are attenuated more than 20 dB below the permissible limits or the field strength is too small to be measured.

4.3. Maximum Conducted Output Power Measurement

■ Limit

For systems using digital modulation in the 2400-2483.5 MHz, the limit for maximum output power is 30 dBm.

And According to 15.247 (b), if transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

IEEE 802.11b / IEEE 802.11g / IEEE 802.11n 2.4 GHz 20 MHz (64QAM) / IEEE 802.11n 2.4 GHz 40 MHz (64QAM) /
IEEE 802.11n 2.4 GHz 20 MHz (256QAM) / IEEE 802.11n 2.4 GHz 40 MHz (256QAM)

* CDD : Directional= G_{ANT} : 3.11 dBi > 6 dBi

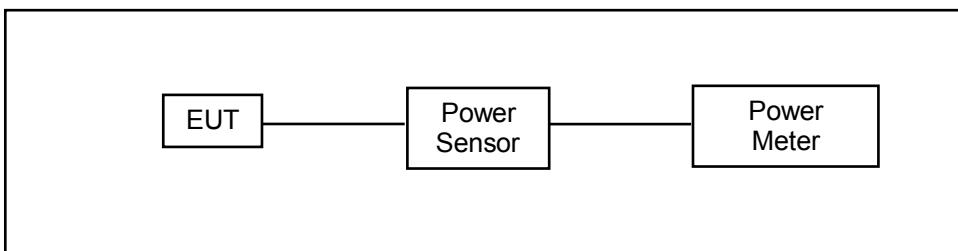
Beamforming on :

IEEE 802.11n 2.4 GHz 20 MHz (256QAM) / IEEE 802.11n 2.4 GHz 40 MHz (256QAM)

* Directional Gain = $10 \cdot \log \{ [10^{(G1/20)} + 10^{(G2/20)} + \dots + 10^{(Gn/20)}]^2 / N_{ANT} \} = 9.12 \text{ dBi} > 6 \text{ dBi}$

* Power Limit = 30 - 3.12 = 26.88 dBm

■ Test Setup



■ Test Procedure

The testing follows the Measurement Procedure of ANSI C63.10:2013 section 11.9.2.3.2 Method AVGPM.

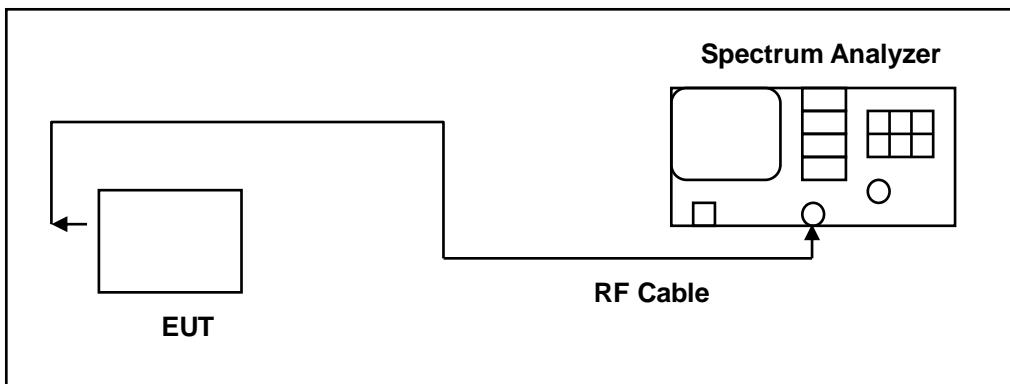
The tests below are run with the EUT's transmitter set at high power in TX mode. The EUT is needed to force selection of output power level and channel number. While testing, EUT was set to transmit continuously. Remove the Subjective device's antenna and connect the RF output port to power sensor.

4.4. 6 dB RF Bandwidth Measurement

- Limit

6 dB RF Bandwidth: Systems using digital modulation techniques may operate in the 2400–2483.5 MHz bands. The minimum 6 dB band-width shall be at least 500 kHz.

- Test Setup



- Test Procedure

The EUT tested to DTS test procedure of ANSI C63.10:2013 section 11.8.2 option2 for compliance to FCC 47CFR 15.247 requirements.

6 dB RF Bandwidth: The antenna port of the EUT was connected to the input of a spectrum analyzer. Analyzer RBW was set to 100 kHz. For each RF output channel investigated, the spectrum analyzer center frequency was set to the channel carrier. A peak output reading was taken, a DISPLAY line was drawn 6 dB lower than peak level. The 6 dB bandwidth was determined from where the channel output spectrum intersected the display line.

The test was performed at 3 channels (Channel low, middle, high)

4.5. Maximum Power Spectral Density Measurement

■ Limit

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

IEEE 802.11b / IEEE 802.11g

* Directional Gain = $10^{\log\{[10^{(G1/20)}+10^{(G2/20)}+\dots+10^{(Gn/20)}]^2/NANT\}} = 9.12 \text{ dBi} > 6 \text{ dBi}$

* Conducted Power Spectral Density Limit = $8 - 3.12 = 4.88 \text{ dBm/MHz}$

IEEE 802.11n 2.4 GHz 20 MHz (256QAM) / IEEE 802.11n 2.4 GHz 40 MHz (256QAM)

* Directional Gain = $10^{\log\{[10^{(G1/10)}+10^{(G2/10)}+\dots+10^{(Gn/10)}]^2/NANT\}} = 3.11 \text{ dBi} < 6 \text{ dBi}$

* Conducted Power Spectral Density Limit = 8 dBm/MHz

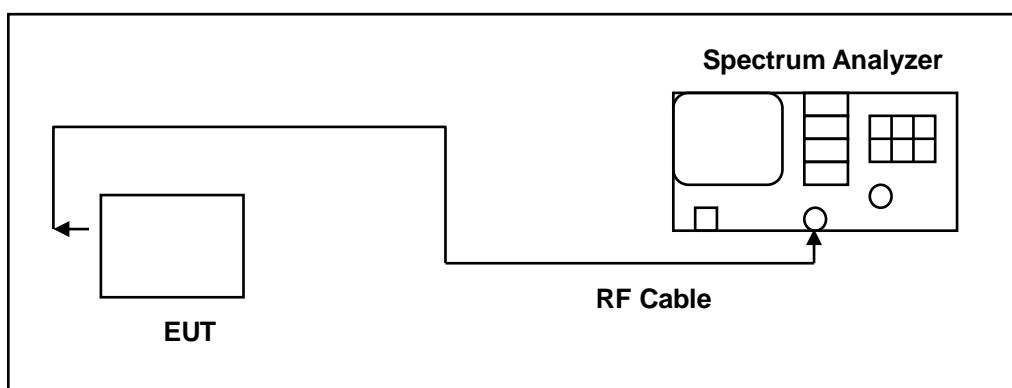
Beamforming on :

IEEE 802.11n 2.4 GHz 20 MHz (256QAM) / IEEE 802.11n 2.4 GHz 40 MHz (256QAM)

* Directional Gain = $10^{\log\{[10^{(G1/20)}+10^{(G2/20)}+\dots+10^{(Gn/20)}]^2/NANT\}} = 9.12 \text{ dBi} > 6 \text{ dBi}$

* Conducted Power Spectral Density Limit = $8 - 3.12 = 4.88 \text{ dBm/MHz}$

■ Test Setup



■ Test Procedure

The EUT tested to DTS test procedure of ANSI C63.10:2013 section 11.10.2 Method PKPSD for compliance to FCC 47CFR 15.247 requirements.

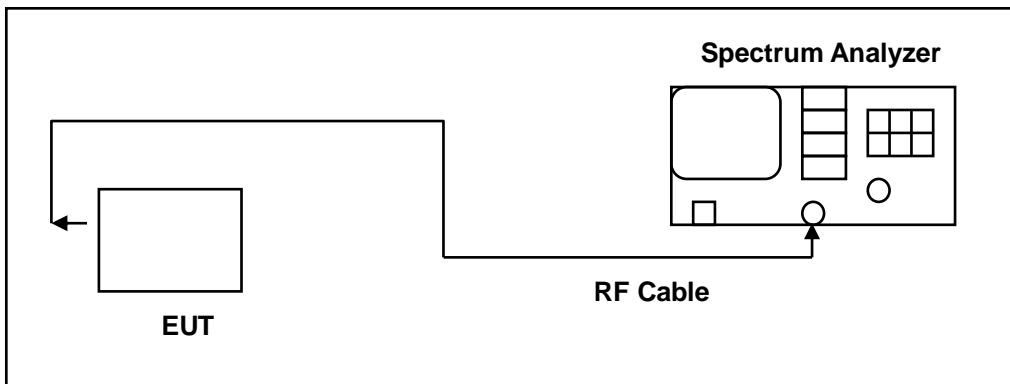
1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS bandwidth.
3. Set the RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
4. Set the VBW $\geq 3 \times \text{RBW}$.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level within the RBW.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

4.6. Out of Band Conducted Emissions Measurement

■ Limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 30 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power

■ Test Setup



■ Test Procedure

In any 100 kHz bandwidth outside the EUT pass band, the RF power produced by the modulation products of the spreading sequence, the information sequence, and the carrier frequency shall be at least 30 dB below that of the maximum in-band 100 kHz emission, antenna output of the EUT was coupled directly to spectrum analyzer; if an external attenuator and/or cable was used, these losses are compensated for with the analyzer OFFSET function. All other types of emissions from the EUT shall meet the general limits for radiated frequencies outside the pass band. The test was performed at 3 channels.

4.7. Antenna Measurement

■ Limit

For intentional device, according to 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And According to 15.247 (b), if transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

■ Antenna Description

See section 2 – antenna information.

■ Directional Gain Calculated

For Maximum Conducted Output Power

$$\text{Directional Gain} = 10 \cdot \log \{ [10^{(G1/10)} + 10^{(G2/10)} + \dots + 10^{(Gn/10)}] / NANT \}$$

Operate Freq. Band	Directional Gain (dBi)
IEEE 802.11b	3.11
IEEE 802.11g	3.11
IEEE 802.11n 2.4 GHz 20 MHz (64QAM)	3.11
IEEE 802.11n 2.4 GHz 40 MHz (64QAM)	3.11
IEEE 802.11n 2.4 GHz 20 MHz (256QAM)	3.11
IEEE 802.11n 2.4 GHz 40 MHz (256QAM)	3.11

Beamforming on

$$\text{Directional Gain} = 10 \cdot \log \{ [10^{(G1/20)} + 10^{(G2/20)} + \dots + 10^{(Gn/20)}]^2 / NANT \}$$

Operate Freq. Band	Directional Gain (dBi)
IEEE 802.11n 2.4 GHz 20 MHz (256QAM)	9.12
IEEE 802.11n 2.4 GHz 40 MHz (256QAM)	9.12

For Maximum Power Density

Directional Gain = $10^{\log\{[10^{(G1/20)}+10^{(G2/20)}+\dots+10^{(Gn/20)}]^2/NANT\}}$ = 9.12 dBi > 6 dBi

Directional Gain = $10^{\log\{[10^{(G1/10)}+10^{(G2/10)}+\dots+10^{(Gn/10)}]/NANT\}}$ = 3.11 dBi < 6 dBi

Operate Freq. Band	Directional Gain (dBi)
IEEE 802.11b	9.12
IEEE 802.11g	9.12
IEEE 802.11n 2.4 GHz 20 MHz (256QAM)	3.11
IEEE 802.11n 2.4 GHz 40 MHz (256QAM)	3.11

Beamforming on

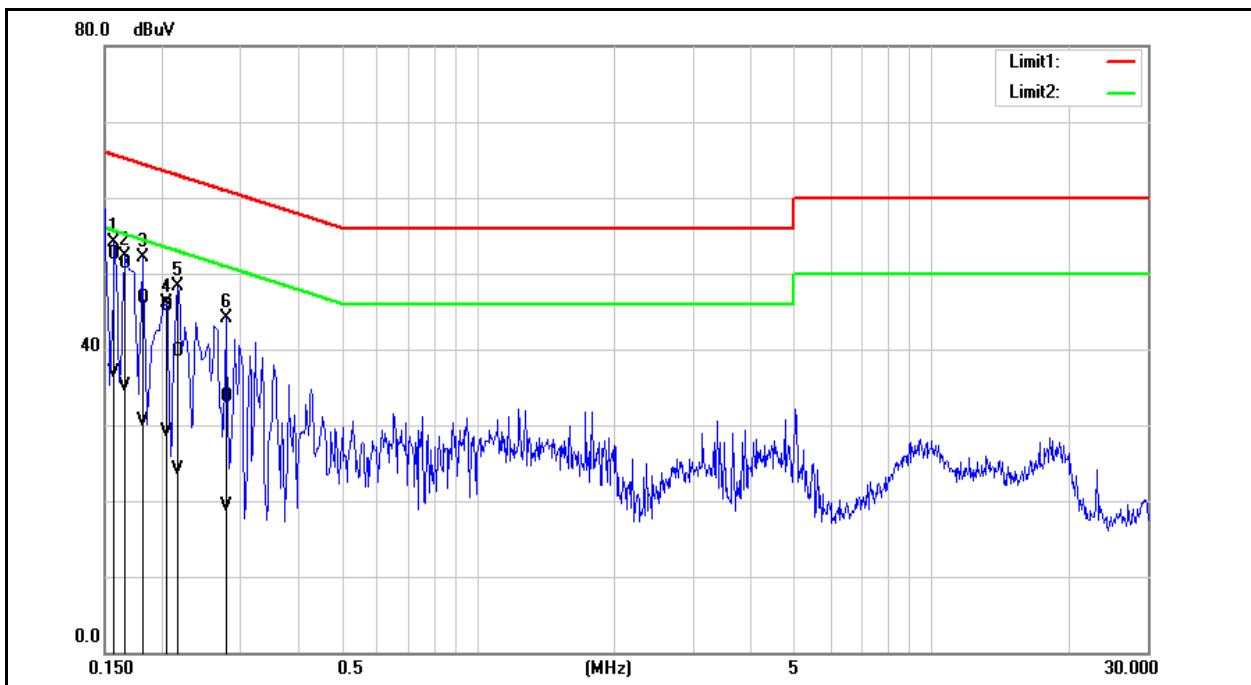
Directional Gain = $10^{\log\{[10^{(G1/20)}+10^{(G2/20)}+\dots+10^{(Gn/20)}]^2/NANT\}}$

Operate Freq. Band	Directional Gain (dBi)
IEEE 802.11n 2.4 GHz 20 MHz (256QAM)	9.12
IEEE 802.11n 2.4 GHz 40 MHz (256QAM)	9.12

5 Test Results

Annex A. Conducted Emission

Standard:	FCC Part 15.247	Line:	L1
Test item:	Conducted Emission	Power:	AC 120 V/60 Hz
Mode:	Mode 1	Temp.(°C)/Hum.(%RH):	26(°C)/60 %RH
Description:			

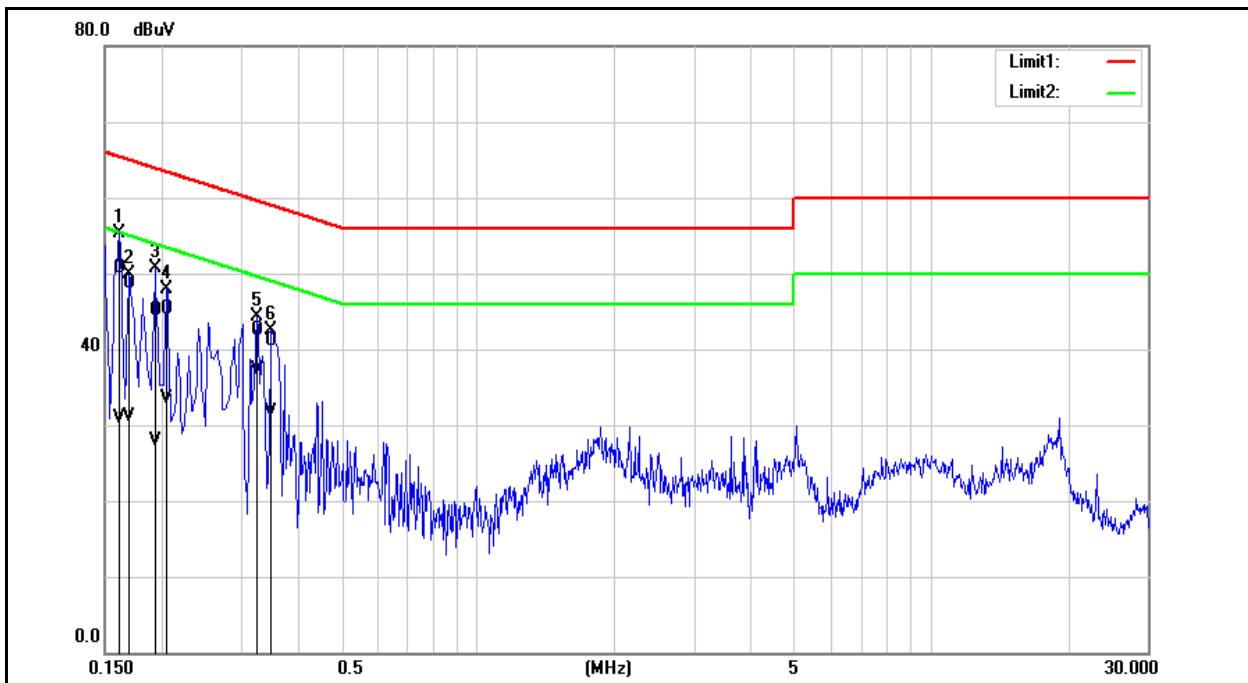


No.	Frequency (MHz)	QP reading (dBuV)	Avg reading (dBuV)	Correction factor (dB)	QP result (dBuV)	Avg result (dBuV)	QP limit (dBuV)	Avg limit (dBuV)	QP margin (dB)	Avg margin (dB)	Remark
1	0.1580	42.84	27.23	9.65	52.49	36.88	65.57	55.57	-13.08	-18.69	Pass
2	0.1660	41.61	25.53	9.65	51.26	35.18	65.16	55.16	-13.90	-19.98	Pass
3	0.1820	37.04	20.88	9.64	46.68	30.52	64.39	54.39	-17.71	-23.87	Pass
4	0.2060	35.97	19.50	9.64	45.61	29.14	63.37	53.37	-17.76	-24.23	Pass
5	0.2180	30.10	14.38	9.64	39.74	24.02	62.89	52.89	-23.15	-28.87	Pass
6	0.2780	24.10	9.59	9.65	33.75	19.24	60.88	50.88	-27.13	-31.64	Pass

Note: 1. Result (dBuV) = Correction factor (dB) + Reading(dBuV).

2. Correction factor (dB) = Cable loss (dB) + L.I.S.N. factor (dB).

Standard:	FCC Part 15.247	Line:	N
Test item:	Conducted Emission	Power:	AC 120 V/60 Hz
Mode:	Mode 1	Temp.(°C)/Hum.(%RH):	26(°C)/60 %RH
Description:			



No.	Frequency (MHz)	QP reading (dBuV)	AVG reading (dBuV)	Correction factor (dB)	QP result (dBuV)	AVG result (dBuV)	QP limit (dBuV)	AVG limit (dBuV)	QP margin (dB)	AVG margin (dB)	Remark
1	0.1620	41.07	21.30	9.68	50.75	30.98	65.36	55.36	-14.61	-24.38	Pass
2	0.1700	39.05	21.48	9.68	48.73	31.16	64.96	54.96	-16.23	-23.80	Pass
3	0.1940	35.47	18.32	9.67	45.14	27.99	63.86	53.86	-18.72	-25.87	Pass
4	0.2060	35.68	23.75	9.67	45.35	33.42	63.37	53.37	-18.02	-19.95	Pass
5	0.3260	32.77	27.68	9.68	42.45	37.36	59.55	49.55	-17.10	-12.19	Pass
6	0.3500	31.51	21.97	9.68	41.19	31.65	58.96	48.96	-17.77	-17.31	Pass

Note: 1. Result (dBuV) = Correction factor (dB) + Reading(dBuV).

2. Correction factor (dB) = Cable loss (dB) + L.I.S.N. factor (dB).

Annex B. Conducted Test Results

Maximum Conducted Output Power Measurement

ANT-0					
Test Mode	Frequency (MHz)	Data Rate	Average Output Power		
			Measurement Results		Limit
			dBm	W	dBm
Mode 2	2412	1 M	17.01	0.050	≤ 30
	2437		17.05	0.051	≤ 30
	2462		17.45	0.056	≤ 30
Mode 3	2412	6 M	15.40	0.035	≤ 30
	2437		15.36	0.034	≤ 30
	2462		15.10	0.032	≤ 30
Mode 4	2412	26 M	14.86	0.031	≤ 30
	2437		14.74	0.030	≤ 30
	2462		13.32	0.021	≤ 30
Mode 5	2422	54 M	13.09	0.020	≤ 30
	2437		15.40	0.035	≤ 30
	2452		12.60	0.018	≤ 30
Mode 6	2412	26 M	15.33	0.034	≤ 30
	2437		15.16	0.033	≤ 30
	2462		13.75	0.024	≤ 30
Mode 7	2422	54 M	13.51	0.022	≤ 30
	2437		15.89	0.039	≤ 30
	2452		13.01	0.020	≤ 30

Note: The relevant measured result has the offset with cable loss already.

ANT-1					
Test Mode	Frequency (MHz)	Data Rate	Average Output Power		
			Measurement Results		Limit
			dBm	W	dBm
Mode 2	2412	1 M	17.75	0.060	≤ 30
	2437		17.87	0.061	≤ 30
	2462		17.67	0.058	≤ 30
Mode 3	2412	6 M	15.84	0.038	≤ 30
	2437		15.73	0.037	≤ 30
	2462		16.12	0.041	≤ 30
Mode 4	2412	26 M	15.85	0.038	≤ 30
	2437		15.56	0.036	≤ 30
	2462		14.48	0.028	≤ 30
Mode 5	2422	54 M	13.90	0.025	≤ 30
	2437		16.27	0.042	≤ 30
	2452		13.45	0.022	≤ 30
Mode 6	2412	26 M	15.97	0.040	≤ 30
	2437		15.69	0.037	≤ 30
	2462		14.59	0.029	≤ 30
Mode 7	2422	54 M	14.02	0.025	≤ 30
	2437		16.40	0.044	≤ 30
	2452		13.59	0.023	≤ 30

Note: The relevant measured result has the offset with cable loss already.

ANT-2					
Test Mode	Frequency (MHz)	Data Rate	Average Output Power		
			Measurement Results		Limit
			dBm	W	dBm
Mode 2	2412	1 M	18.11	0.065	≤ 30
	2437		18.15	0.065	≤ 30
	2462		18.16	0.065	≤ 30
Mode 3	2412	6 M	16.64	0.046	≤ 30
	2437		16.38	0.043	≤ 30
	2462		15.80	0.038	≤ 30
Mode 4	2412	26 M	16.33	0.043	≤ 30
	2437		16.02	0.040	≤ 30
	2462		14.29	0.027	≤ 30
Mode 5	2422	54 M	14.37	0.027	≤ 30
	2437		16.81	0.048	≤ 30
	2452		13.63	0.023	≤ 30
Mode 6	2412	26 M	16.40	0.044	≤ 30
	2437		16.16	0.041	≤ 30
	2462		14.35	0.027	≤ 30
Mode 7	2422	54 M	14.50	0.028	≤ 30
	2437		16.98	0.050	≤ 30
	2452		13.71	0.023	≤ 30

Note: The relevant measured result has the offset with cable loss already.

ANT-3					
Test Mode	Frequency (MHz)	Data Rate	Average Output Power		
			Measurement Results		Limit
			dBm	W	dBm
Mode 2	2412	1 M	17.91	0.062	≤ 30
	2437		17.57	0.057	≤ 30
	2462		18.03	0.064	≤ 30
Mode 3	2412	6 M	16.44	0.044	≤ 30
	2437		16.28	0.042	≤ 30
	2462		16.05	0.040	≤ 30
Mode 4	2412	26 M	15.95	0.039	≤ 30
	2437		15.87	0.039	≤ 30
	2462		14.44	0.028	≤ 30
Mode 5	2422	54 M	14.25	0.027	≤ 30
	2437		16.82	0.048	≤ 30
	2452		13.76	0.024	≤ 30
Mode 6	2412	26 M	16.17	0.041	≤ 30
	2437		16.07	0.040	≤ 30
	2462		14.54	0.028	≤ 30
Mode 7	2422	54 M	14.34	0.027	≤ 30
	2437		16.96	0.050	≤ 30
	2452		13.84	0.024	≤ 30

Note: The relevant measured result has the offset with cable loss already.

ANT-0+1+2+3					
Test Mode	Frequency (MHz)	Data Rate	Average Output Power		
			Measurement Results		Limit
			dBm	W	dBm
Mode 2	2412	1 M	23.73	0.236	≤ 30
	2437		23.70	0.234	≤ 30
	2462		23.86	0.243	≤ 30
Mode 3	2412	6 M	22.13	0.163	≤ 30
	2437		21.98	0.158	≤ 30
	2462		21.81	0.152	≤ 30
Mode 4	2412	26 M	21.80	0.151	≤ 30
	2437		21.60	0.144	≤ 30
	2462		20.18	0.104	≤ 30
Mode 5	2422	54 M	19.95	0.099	≤ 30
	2437		22.38	0.173	≤ 30
	2452		19.40	0.087	≤ 30
Mode 6	2412	26 M	22.01	0.159	≤ 30
	2437		21.81	0.152	≤ 30
	2462		20.34	0.108	≤ 30
Mode 7	2422	54 M	20.13	0.103	≤ 30
	2437		22.60	0.182	≤ 30
	2452		19.57	0.091	≤ 30

Note: The relevant measured result has the offset with cable loss already.

Beamforming on

ANT-0					
Test Mode	Frequency (MHz)	Data Rate	Average Output Power		
			Measurement Results		Limit
			dBm	W	dBm
Mode 6	2412	26 M	8.90	0.008	≤ 26.87
	2437		8.64	0.007	≤ 26.87
	2462		7.53	0.006	≤ 26.87
Mode 7	2422	54 M	7.04	0.005	≤ 26.87
	2437		9.42	0.009	≤ 26.87
	2452		6.58	0.005	≤ 26.87

ANT-1					
Test Mode	Frequency (MHz)	Data Rate	Average Output Power		
			Measurement Results		Limit
			dBm	W	dBm
Mode 6	2412	26 M	9.62	0.009	≤ 26.87
	2437		9.25	0.008	≤ 26.87
	2462		8.21	0.007	≤ 26.87
Mode 7	2422	54 M	7.59	0.006	≤ 26.87
	2437		10.04	0.010	≤ 26.87
	2452		7.26	0.005	≤ 26.87

ANT-2					
Test Mode	Frequency (MHz)	Data Rate	Average Output Power		
			Measurement Results		Limit
			dBm	W	dBm
Mode 6	2412	26 M	10.05	0.010	≤ 26.87
	2437		9.78	0.010	≤ 26.87
	2462		8.25	0.007	≤ 26.87
Mode 7	2422	54 M	8.09	0.006	≤ 26.87
	2437		10.62	0.012	≤ 26.87
	2452		7.45	0.006	≤ 26.87

Note: The relevant measured result has the offset with cable loss already.

ANT-3					
Test Mode	Frequency (MHz)	Data Rate	Average Output Power		
			Measurement Results		Limit
			dBm	W	dBm
Mode 6	2412	26 M	9.71	0.009	≤ 26.87
	2437		9.64	0.009	≤ 26.87
	2462		8.11	0.006	≤ 26.87
Mode 7	2422	54 M	7.95	0.006	≤ 26.87
	2437		10.38	0.011	≤ 26.87
	2452		7.49	0.006	≤ 26.87

ANT-0+1+2+3					
Test Mode	Frequency (MHz)	Data Rate	Average Output Power		
			Measurement Results		Limit
			dBm	W	dBm
Mode 6	2412	26 M	15.61	0.036	≤ 26.87
	2437		15.37	0.034	≤ 26.87
	2462		14.06	0.025	≤ 26.87
Mode 7	2422	54 M	13.71	0.023	≤ 26.87
	2437		16.16	0.041	≤ 26.87
	2452		13.23	0.021	≤ 26.87

Note: The relevant measured result has the offset with cable loss already.

6 dB RF Bandwidth Measurement

Test Mode	Frequency (MHz)	Measurement (kHz)				Limit (kHz)
		ANT-0	ANT-1	ANT-2	ANT-3	
Mode 2	2412	8100	8085	8098	8096	≥ 500
	2437	8099	8099	8088	8096	≥ 500
	2462	8099	8098	8100	8099	≥ 500
Mode 3	2412	15730	15370	15470	16070	≥ 500
	2437	15730	15380	15480	16060	≥ 500
	2462	16060	15380	15480	16060	≥ 500
Mode 6	2412	16310	15500	16320	16300	≥ 500
	2437	16310	15500	16080	16330	≥ 500
	2462	16310	15490	16060	16330	≥ 500
Mode 7	2422	35140	35150	35130	35130	≥ 500
	2437	35140	35150	35130	35130	≥ 500
	2452	35140	35150	35140	35130	≥ 500

Beamforming on

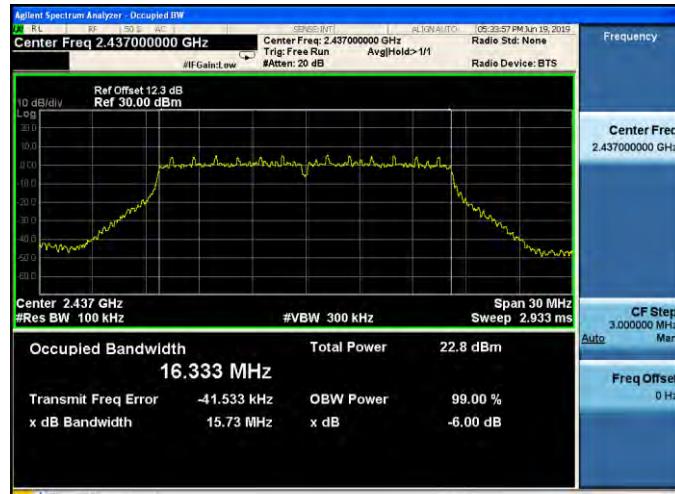
Test Mode	Frequency (MHz)	Measurement (kHz)				Limit (kHz)
		ANT-0	ANT-1	ANT-2	ANT-3	
Mode 6	2412	16850	16060	16350	16320	≥ 500
	2437	16940	15940	16320	16330	≥ 500
	2462	16840	16040	16680	16620	≥ 500
Mode 7	2422	35150	35150	35140	35120	≥ 500
	2437	35130	35140	35140	35140	≥ 500
	2452	35150	35150	35140	35140	≥ 500

■ Test Graphs

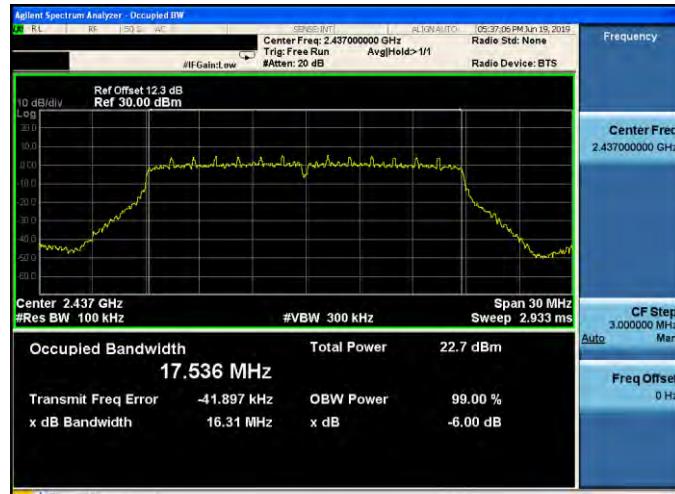
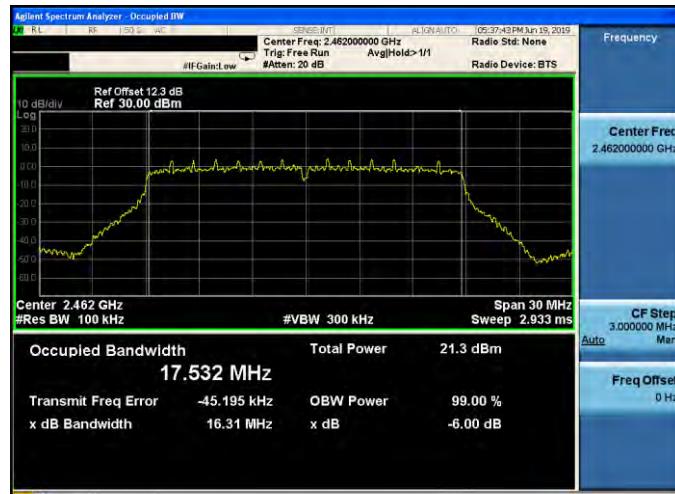
Mode 2: IEEE 802.11b Continuous TX mode_ANT-0



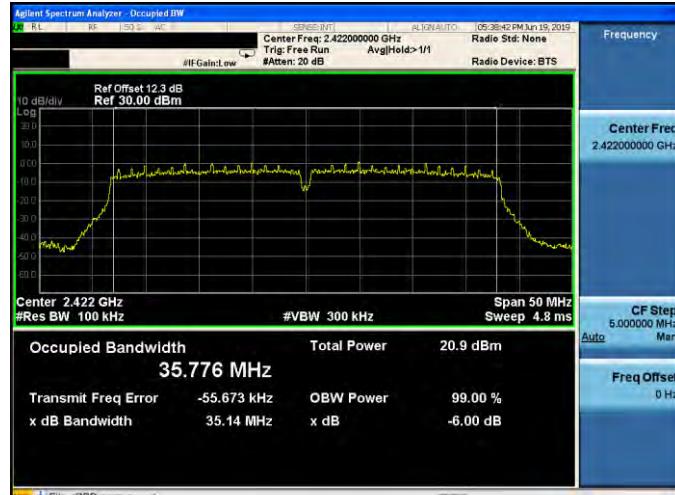
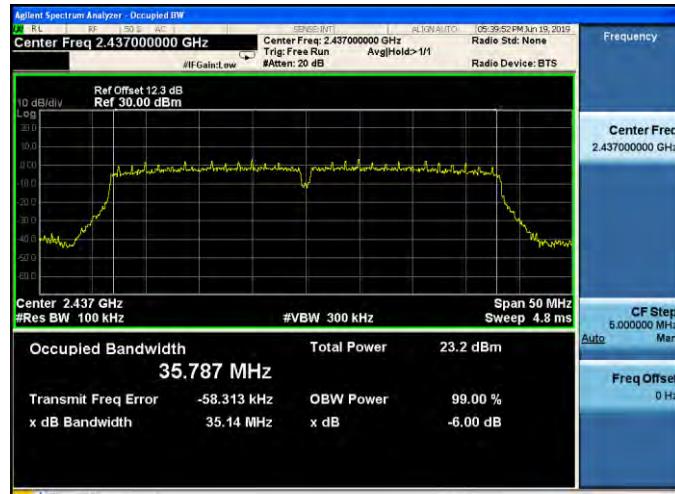
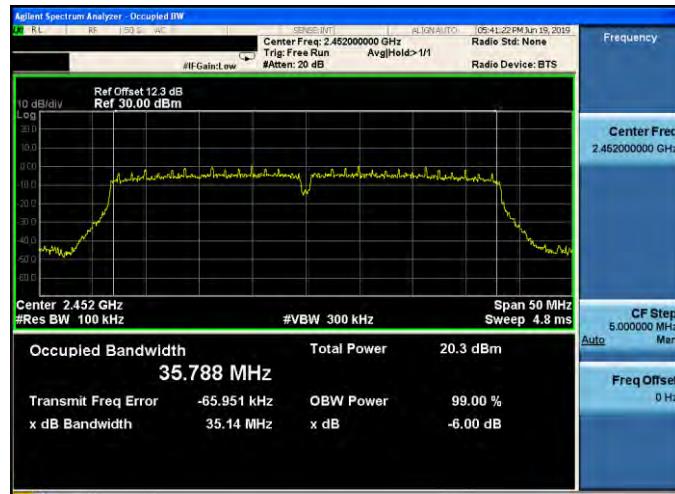
Mode 3: IEEE 802.11g Continuous TX mode_ANT-0

2412 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq: 2.412000000 GHz Trig: Free Run Avg Hold>1/1 Radio Std: None Radio Device: BTS</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm #VBW 300 kHz Span 30 MHz Sweep 2.933 ms</p> <p>Frequency: Center Freq 2.412000000 GHz CF Step 3.000000 MHz Auto Freq Offset 0 Hz</p> <p>Occupied Bandwidth: 16.331 MHz</p> <p>Total Power: 22.9 dBm</p> <p>Transmit Freq Error: -38.468 kHz OBW Power: 99.00 %</p> <p>x dB Bandwidth: 15.73 MHz x dB: -6.00 dB</p> <p>File <BBB.png> saved</p>
2437 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq: 2.437000000 GHz Trig: Free Run Avg Hold>1/1 Radio Std: None Radio Device: BTS</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm #VBW 300 kHz Span 30 MHz Sweep 2.933 ms</p> <p>Frequency: Center Freq 2.437000000 GHz CF Step 3.000000 MHz Auto Freq Offset 0 Hz</p> <p>Occupied Bandwidth: 16.333 MHz</p> <p>Total Power: 22.8 dBm</p> <p>Transmit Freq Error: -41.533 kHz OBW Power: 99.00 %</p> <p>x dB Bandwidth: 15.73 MHz x dB: -6.00 dB</p> <p>File <BBB.png> saved</p>
2462 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq: 2.462000000 GHz Trig: Free Run Avg Hold>1/1 Radio Std: None Radio Device: BTS</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm #VBW 300 kHz Span 30 MHz Sweep 2.933 ms</p> <p>Frequency: Center Freq 2.462000000 GHz CF Step 3.000000 MHz Auto Freq Offset 0 Hz</p> <p>Occupied Bandwidth: 16.333 MHz</p> <p>Total Power: 22.4 dBm</p> <p>Transmit Freq Error: -42.334 kHz OBW Power: 99.00 %</p> <p>x dB Bandwidth: 16.06 MHz x dB: -6.00 dB</p> <p>File <BBB.png> saved</p>

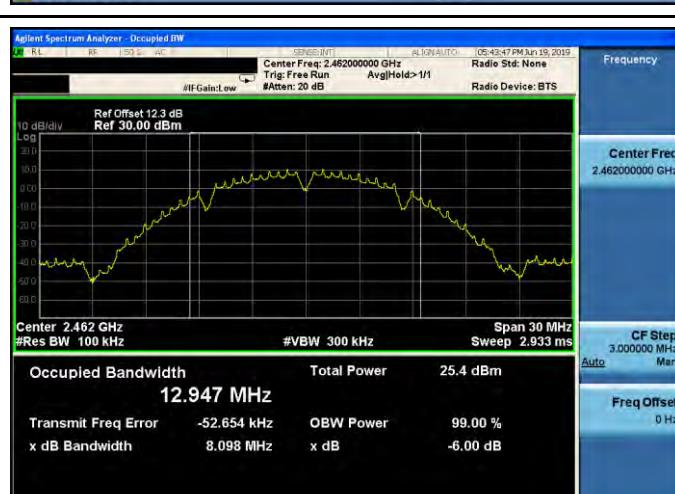
Mode 6: IEEE 802.11n 2.4 GHz 20 MHz (256QAM) Continuous TX mode _ANT-0

2412 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>REF: 30.00 dBm</p> <p>Center Freq: 2.412000000 GHz</p> <p>Trig: Free Run</p> <p>Avg/Hold>1/1</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>#IFGain:Low</p> <p>#Atten: 20 dB</p> <p>Frequency</p> <p>Center Freq 2.412000000 GHz</p> <p>CF Step 3.000000 MHz Auto</p> <p>Freq Offset 0 Hz</p> <p>10 dB/div</p> <p>Ref Offset 12.3 dB</p> <p>Ref 30.00 dBm</p> <p>Span 30 MHz</p> <p>Center 2.412 GHz</p> <p>#Res BW 100 kHz</p> <p>#VBW 300 kHz</p> <p>Sweep 2.933 ms</p> <p>Occupied Bandwidth 17.527 MHz</p> <p>Total Power 23.0 dBm</p> <p>Transmit Freq Error -39.814 kHz</p> <p>x dB Bandwidth 16.31 MHz</p> <p>OBW Power 99.00 %</p> <p>x dB -6.00 dB</p> <p>File <BBB.png> saved</p>
2437 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>REF: 30.00 dBm</p> <p>Center Freq: 2.437000000 GHz</p> <p>Trig: Free Run</p> <p>Avg/Hold>1/1</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>#IFGain:Low</p> <p>#Atten: 20 dB</p> <p>Frequency</p> <p>Center Freq 2.437000000 GHz</p> <p>CF Step 3.000000 MHz Auto</p> <p>Freq Offset 0 Hz</p> <p>10 dB/div</p> <p>Ref Offset 12.3 dB</p> <p>Ref 30.00 dBm</p> <p>Span 30 MHz</p> <p>Center 2.437 GHz</p> <p>#Res BW 100 kHz</p> <p>#VBW 300 kHz</p> <p>Sweep 2.933 ms</p> <p>Occupied Bandwidth 17.536 MHz</p> <p>Total Power 22.7 dBm</p> <p>Transmit Freq Error -41.897 kHz</p> <p>x dB Bandwidth 16.31 MHz</p> <p>OBW Power 99.00 %</p> <p>x dB -6.00 dB</p> <p>File <BBB.png> saved</p>
2462 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>REF: 30.00 dBm</p> <p>Center Freq: 2.462000000 GHz</p> <p>Trig: Free Run</p> <p>Avg/Hold>1/1</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>#IFGain:Low</p> <p>#Atten: 20 dB</p> <p>Frequency</p> <p>Center Freq 2.462000000 GHz</p> <p>CF Step 3.000000 MHz Auto</p> <p>Freq Offset 0 Hz</p> <p>10 dB/div</p> <p>Ref Offset 12.3 dB</p> <p>Ref 30.00 dBm</p> <p>Span 30 MHz</p> <p>Center 2.462 GHz</p> <p>#Res BW 100 kHz</p> <p>#VBW 300 kHz</p> <p>Sweep 2.933 ms</p> <p>Occupied Bandwidth 17.532 MHz</p> <p>Total Power 21.3 dBm</p> <p>Transmit Freq Error -45.195 kHz</p> <p>x dB Bandwidth 16.31 MHz</p> <p>OBW Power 99.00 %</p> <p>x dB -6.00 dB</p> <p>File <BBB.png> saved</p>

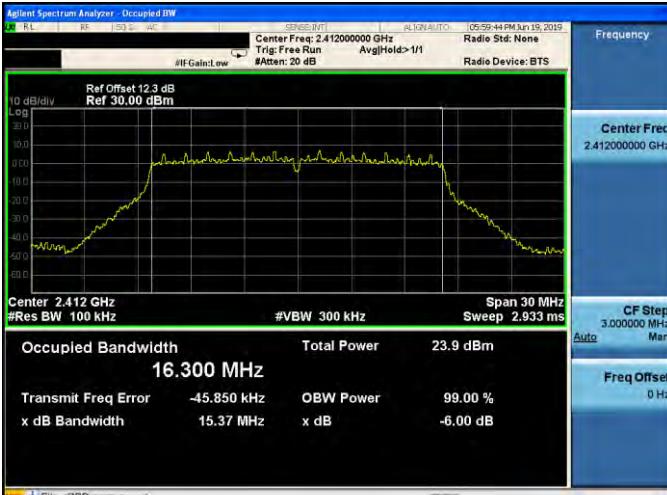
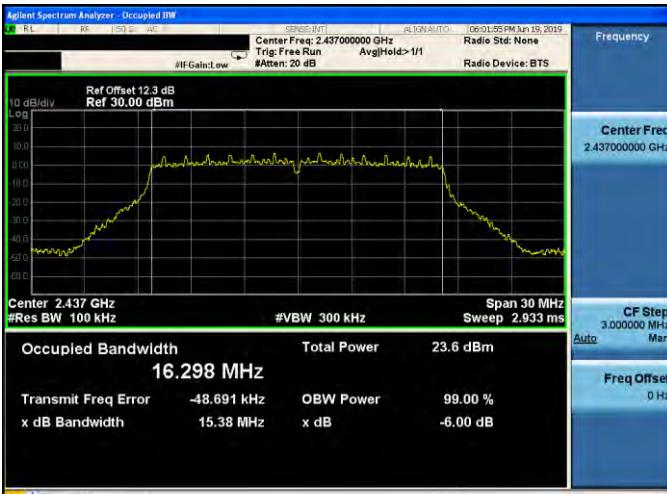
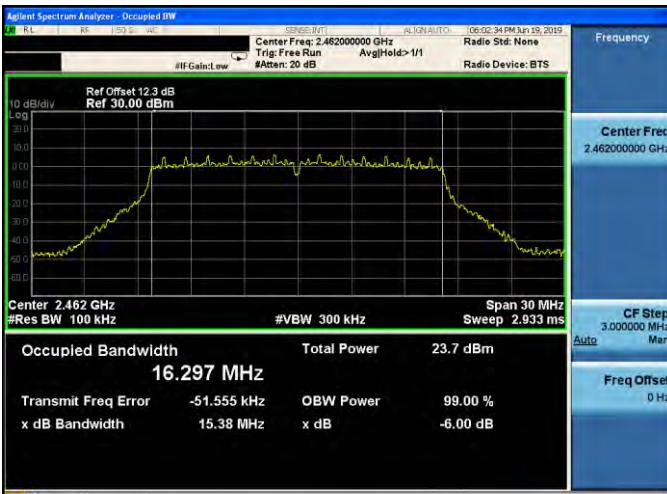
Mode 7: IEEE 802.11n 2.4 GHz 40 MHz (256QAM) Continuous TX mode _ANT-0

2422 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq: 2.422000000 GHz Trig: Free Run Avg/Hold>1/1 Radio Std: None Radio Device: BTS</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm #IF Gain:Low #Attenu: 20 dB</p> <p>Frequency: 2.422000000 GHz CF Step: 5.000000 MHz Auto Freq Offset: 0 Hz</p> <p>Span 50 MHz Sweep: 4.8 ms Center 2.422 GHz #Res BW: 100 kHz #VBW: 300 kHz</p> <p>Occupied Bandwidth: 35.776 MHz Total Power: 20.9 dBm</p> <p>Transmit Freq Error: -55.673 kHz OBW Power: 99.00 % x dB Bandwidth: 35.14 MHz x dB: -6.00 dB</p> <p>File <BBB.png> saved</p>
2437 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq: 2.437000000 GHz Trig: Free Run Avg/Hold>1/1 Radio Std: None Radio Device: BTS</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm #IF Gain:Low #Attenu: 20 dB</p> <p>Frequency: 2.437000000 GHz CF Step: 5.000000 MHz Auto Freq Offset: 0 Hz</p> <p>Span 50 MHz Sweep: 4.8 ms Center 2.437 GHz #Res BW: 100 kHz #VBW: 300 kHz</p> <p>Occupied Bandwidth: 35.787 MHz Total Power: 23.2 dBm</p> <p>Transmit Freq Error: -58.313 kHz OBW Power: 99.00 % x dB Bandwidth: 35.14 MHz x dB: -6.00 dB</p> <p>File <BBB.png> saved</p>
2452 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq: 2.452000000 GHz Trig: Free Run Avg/Hold>1/1 Radio Std: None Radio Device: BTS</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm #IF Gain:Low #Attenu: 20 dB</p> <p>Frequency: 2.452000000 GHz CF Step: 5.000000 MHz Auto Freq Offset: 0 Hz</p> <p>Span 50 MHz Sweep: 4.8 ms Center 2.452 GHz #Res BW: 100 kHz #VBW: 300 kHz</p> <p>Occupied Bandwidth: 35.788 MHz Total Power: 20.3 dBm</p> <p>Transmit Freq Error: -65.951 kHz OBW Power: 99.00 % x dB Bandwidth: 35.14 MHz x dB: -6.00 dB</p> <p>File <BBB.png> saved</p>

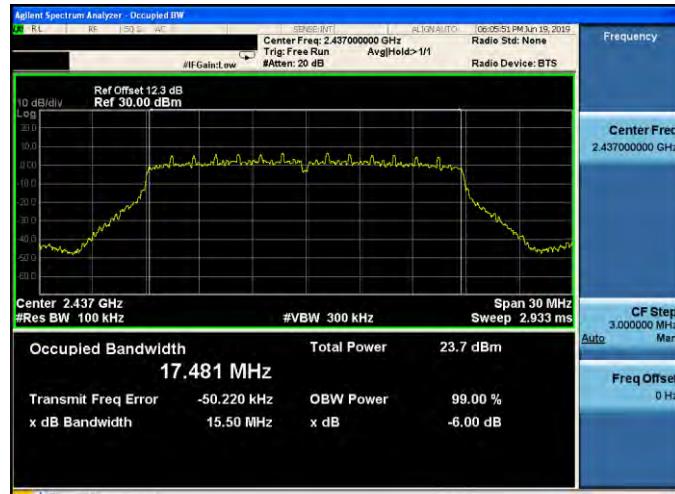
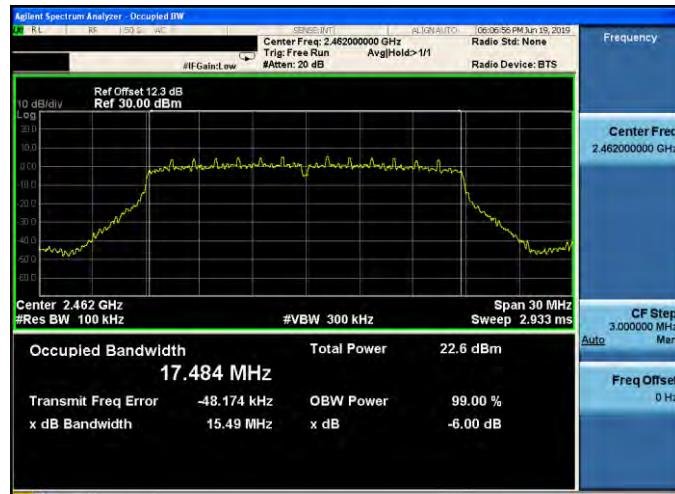
Mode 2: IEEE 802.11b Continuous TX mode_ANT-1

2412 MHz	 <p>Occupied Bandwidth 12.821 MHz</p> <p>Transmit Freq Error -51.733 kHz x dB Bandwidth 8.085 MHz</p> <p>Total Power 25.8 dBm OBW Power x dB -6.00 dB</p>
2437 MHz	 <p>Occupied Bandwidth 13.058 MHz</p> <p>Transmit Freq Error -44.063 kHz x dB Bandwidth 8.099 MHz</p> <p>Total Power 25.1 dBm OBW Power x dB -6.00 dB</p>
2462 MHz	 <p>Occupied Bandwidth 12.947 MHz</p> <p>Transmit Freq Error -52.654 kHz x dB Bandwidth 8.098 MHz</p> <p>Total Power 25.4 dBm OBW Power x dB -6.00 dB</p>

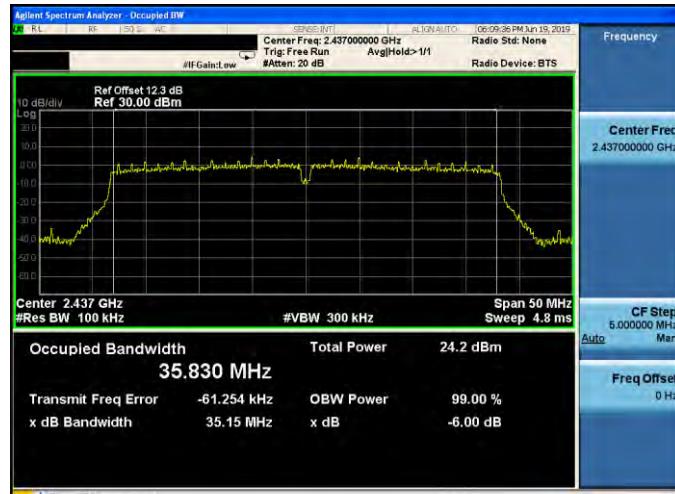
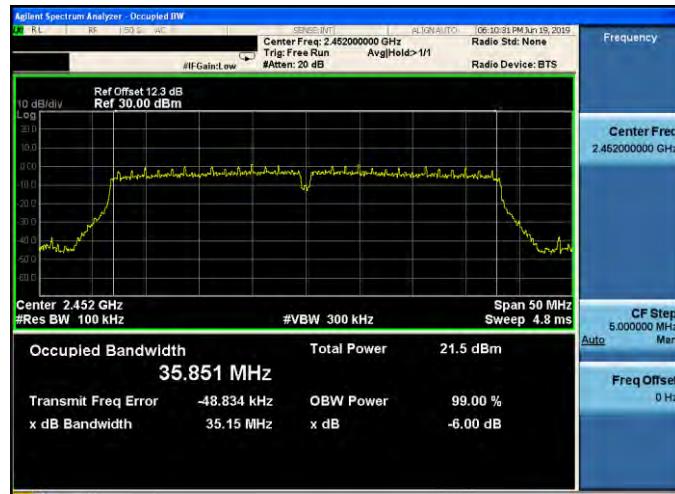
Mode 3: IEEE 802.11g Continuous TX mode_ANT-1

2412 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>SENSE INTL ALIGN AUTO 05:59:44 PM Jun 19, 2019</p> <p>Center Freq: 2.412000000 GHz Trig: Free Run Avg/Hold>1/1 Radio Std: None Radio Device: BTS</p> <p>#IFGain:Low #Atten: 20 dB</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm</p> <p>10 dB/div Log</p> <p>Span 30 MHz Sweep 2.933 ms</p> <p>Center 2.412 GHz #Res BW 100 kHz #VBW 300 kHz Total Power 23.9 dBm</p> <p>Occupied Bandwidth 16.300 MHz</p> <p>Transmit Freq Error -45.850 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 15.37 MHz x dB -6.00 dB</p> <p> File <BBB.png> saved </p>
2437 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>SENSE INTL ALIGN AUTO 06:01:55 PM Jun 19, 2019</p> <p>Center Freq: 2.437000000 GHz Trig: Free Run Avg/Hold>1/1 Radio Std: None Radio Device: BTS</p> <p>#IFGain:Low #Atten: 20 dB</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm</p> <p>10 dB/div Log</p> <p>Span 30 MHz Sweep 2.933 ms</p> <p>Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Total Power 23.6 dBm</p> <p>Occupied Bandwidth 16.298 MHz</p> <p>Transmit Freq Error -48.691 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 15.38 MHz x dB -6.00 dB</p> <p> File <BBB.png> saved </p>
2462 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>SENSE INTL ALIGN AUTO 06:02:34 PM Jun 19, 2019</p> <p>Center Freq: 2.462000000 GHz Trig: Free Run Avg/Hold>1/1 Radio Std: None Radio Device: BTS</p> <p>#IFGain:Low #Atten: 20 dB</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm</p> <p>10 dB/div Log</p> <p>Span 30 MHz Sweep 2.933 ms</p> <p>Center 2.462 GHz #Res BW 100 kHz #VBW 300 kHz Total Power 23.7 dBm</p> <p>Occupied Bandwidth 16.297 MHz</p> <p>Transmit Freq Error -51.555 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 15.38 MHz x dB -6.00 dB</p> <p> File <BBB.png> saved </p>

Mode 6: IEEE 802.11n 2.4 GHz 20 MHz (256QAM) Continuous TX mode _ANT-1

2412 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>SENSE INTL ALIGN AUTO 06:04:49 PM Jun 19, 2019</p> <p>Center Freq: 2.412000000 GHz Trig: Free Run Avg Hold>1/1 Radio Std: None Radio Device: BTS</p> <p>#IFGain:Low #Atten: 20 dB</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm Frequency</p> <p>10 dB/div Center Freq 2.412000000 GHz</p> <p>Span 30 MHz CF Step 3.000000 MHz Auto</p> <p>Sweep 2.933 ms Freq Offset 0 Hz</p> <p>Occupied Bandwidth: 17.486 MHz</p> <p>Total Power: 23.8 dBm</p> <p>Transmit Freq Error: -46.520 kHz OBW Power: 99.00 %</p> <p>x dB Bandwidth: 15.50 MHz x dB: -6.00 dB</p> <p>File <BBB.png> saved STATUS</p>
2437 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>SENSE INTL ALIGN AUTO 06:05:51 PM Jun 19, 2019</p> <p>Center Freq: 2.437000000 GHz Trig: Free Run Avg Hold>1/1 Radio Std: None Radio Device: BTS</p> <p>#IFGain:Low #Atten: 20 dB</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm Frequency</p> <p>10 dB/div Center Freq 2.437000000 GHz</p> <p>Span 30 MHz CF Step 3.000000 MHz Auto</p> <p>Sweep 2.933 ms Freq Offset 0 Hz</p> <p>Occupied Bandwidth: 17.481 MHz</p> <p>Total Power: 23.7 dBm</p> <p>Transmit Freq Error: -50.220 kHz OBW Power: 99.00 %</p> <p>x dB Bandwidth: 15.50 MHz x dB: -6.00 dB</p> <p>File <BBB.png> saved STATUS</p>
2462 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>SENSE INTL ALIGN AUTO 06:06:56 PM Jun 19, 2019</p> <p>Center Freq: 2.462000000 GHz Trig: Free Run Avg Hold>1/1 Radio Std: None Radio Device: BTS</p> <p>#IFGain:Low #Atten: 20 dB</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm Frequency</p> <p>10 dB/div Center Freq 2.462000000 GHz</p> <p>Span 30 MHz CF Step 3.000000 MHz Auto</p> <p>Sweep 2.933 ms Freq Offset 0 Hz</p> <p>Occupied Bandwidth: 17.484 MHz</p> <p>Total Power: 22.6 dBm</p> <p>Transmit Freq Error: -48.174 kHz OBW Power: 99.00 %</p> <p>x dB Bandwidth: 15.49 MHz x dB: -6.00 dB</p> <p>File <BBB.png> saved STATUS</p>

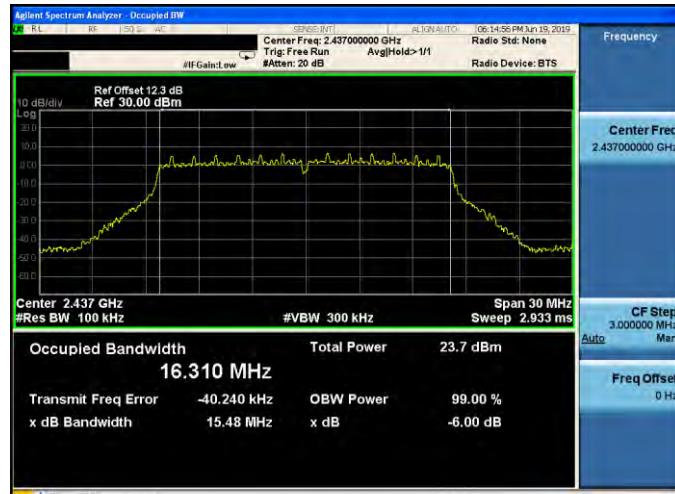
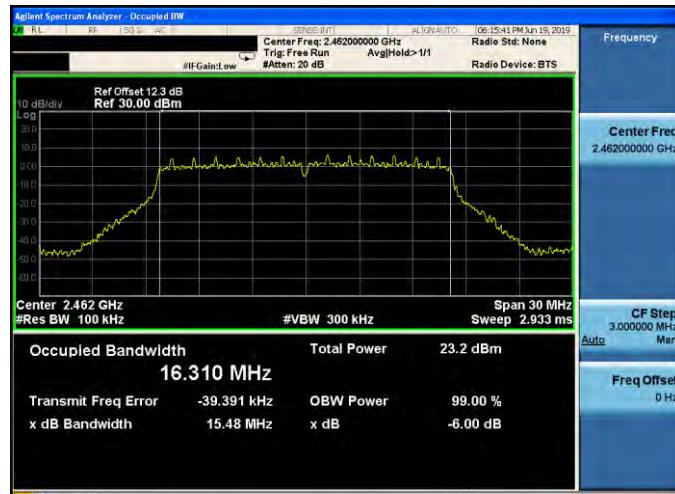
Mode 7: IEEE 802.11n 2.4 GHz 40 MHz (256QAM) Continuous TX mode _ANT-1

2422 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>SENSE INTL ALIGN AUTO 06:09:15 PM Jun 19, 2019</p> <p>Center Freq: 2.422000000 GHz Trig: Free Run Avg/Hold>1/1 Radio Std: None Radio Device: BTS</p> <p>#IFGain:Low #Atten: 20 dB</p> <p>Frequency: Center Freq 2.422000000 GHz</p> <p>CF Step 5.000000 MHz Auto</p> <p>Freq Offset 0 Hz</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm</p> <p>10 dB/div Log</p> <p>Span 50 MHz Sweep 4.8 ms</p> <p>Center 2.422 GHz #Res BW 100 kHz #VBW 300 kHz Total Power 22.0 dBm</p> <p>Occupied Bandwidth 35.824 MHz</p> <p>Transmit Freq Error -49.786 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 35.15 MHz x dB -6.00 dB</p> <p>File <BBB.png> saved</p>
2437 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>SENSE INTL ALIGN AUTO 06:09:36 PM Jun 19, 2019</p> <p>Center Freq: 2.437000000 GHz Trig: Free Run Avg/Hold>1/1 Radio Std: None Radio Device: BTS</p> <p>#IFGain:Low #Atten: 20 dB</p> <p>Frequency: Center Freq 2.437000000 GHz</p> <p>CF Step 5.000000 MHz Auto</p> <p>Freq Offset 0 Hz</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm</p> <p>10 dB/div Log</p> <p>Span 50 MHz Sweep 4.8 ms</p> <p>Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Total Power 24.2 dBm</p> <p>Occupied Bandwidth 35.830 MHz</p> <p>Transmit Freq Error -61.254 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 35.15 MHz x dB -6.00 dB</p> <p>File <BBB.png> saved</p>
2452 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>SENSE INTL ALIGN AUTO 06:10:31 PM Jun 19, 2019</p> <p>Center Freq: 2.452000000 GHz Trig: Free Run Avg/Hold>1/1 Radio Std: None Radio Device: BTS</p> <p>#IFGain:Low #Atten: 20 dB</p> <p>Frequency: Center Freq 2.452000000 GHz</p> <p>CF Step 5.000000 MHz Auto</p> <p>Freq Offset 0 Hz</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm</p> <p>10 dB/div Log</p> <p>Span 50 MHz Sweep 4.8 ms</p> <p>Center 2.452 GHz #Res BW 100 kHz #VBW 300 kHz Total Power 21.5 dBm</p> <p>Occupied Bandwidth 35.851 MHz</p> <p>Transmit Freq Error -48.834 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 35.15 MHz x dB -6.00 dB</p> <p>File <BBB.png> saved</p>

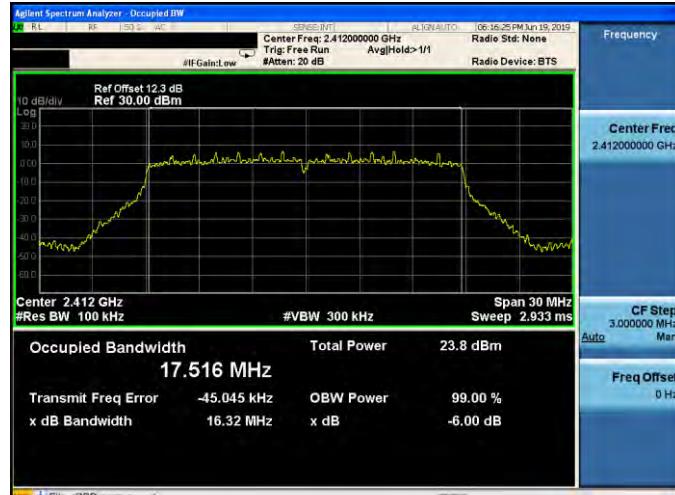
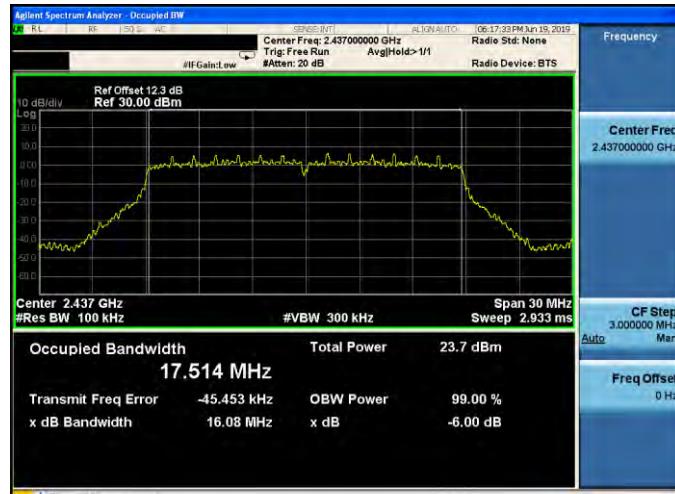
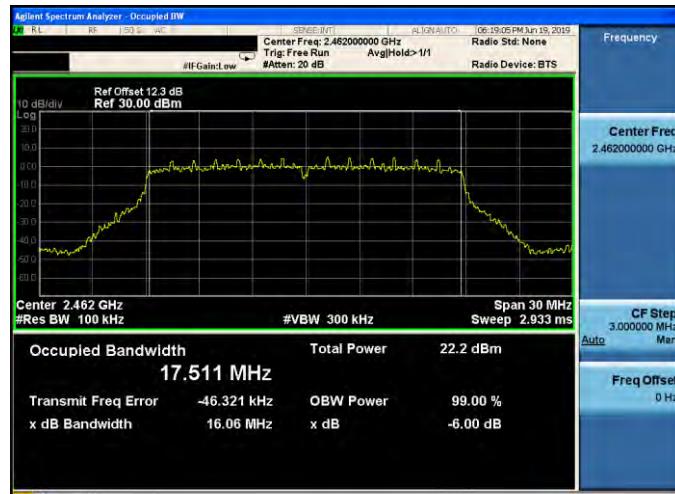
Mode 2: IEEE 802.11b Continuous TX mode_ANT-2

2412 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>SENSE INTL ALIGN AUTO 06:11:59PM Jun 19, 2019</p> <p>Center Freq: 2.412000000 GHz Trig: Free Run Avg Hold>1/1 Radio Std: None Radio Device: BTS</p> <p>#IFGain:Low #Attenuation: 20 dB</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm Frequency</p> <p>10 dB/div Center Freq 2.412000000 GHz</p> <p>Span 30 MHz CF Step 3.000000 MHz Auto</p> <p>#VBW 300 kHz Freq Offset 0 Hz Man</p> <p>Sweep 2.933 ms </p> <p>Occupied Bandwidth 13.033 MHz</p> <p>Total Power 25.2 dBm</p> <p>Transmit Freq Error -65.802 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 8.098 MHz x dB -6.00 dB</p> <p>File <BBB.png> saved STATUS</p>
2437 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>SENSE INTL ALIGN AUTO 06:12:40PM Jun 19, 2019</p> <p>Center Freq: 2.437000000 GHz Trig: Free Run Avg Hold>1/1 Radio Std: None Radio Device: BTS</p> <p>#IFGain:Low #Attenuation: 20 dB</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm Frequency</p> <p>10 dB/div Center Freq 2.437000000 GHz</p> <p>Span 30 MHz CF Step 3.000000 MHz Auto</p> <p>#VBW 300 kHz Freq Offset 0 Hz Man</p> <p>Sweep 2.933 ms </p> <p>Occupied Bandwidth 12.958 MHz</p> <p>Total Power 25.3 dBm</p> <p>Transmit Freq Error -25.510 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 8.088 MHz x dB -6.00 dB</p> <p>File <BBB.png> saved STATUS</p>
2462 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>SENSE INTL ALIGN AUTO 06:13:22PM Jun 19, 2019</p> <p>Center Freq: 2.462000000 GHz Trig: Free Run Avg Hold>1/1 Radio Std: None Radio Device: BTS</p> <p>#IFGain:Low #Attenuation: 20 dB</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm Frequency</p> <p>10 dB/div Center Freq 2.462000000 GHz</p> <p>Span 30 MHz CF Step 3.000000 MHz Auto</p> <p>#VBW 300 kHz Freq Offset 0 Hz Man</p> <p>Sweep 2.933 ms </p> <p>Occupied Bandwidth 13.156 MHz</p> <p>Total Power 25.1 dBm</p> <p>Transmit Freq Error -82.786 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 8.100 MHz x dB -6.00 dB</p> <p>File <BBB.png> saved STATUS</p>

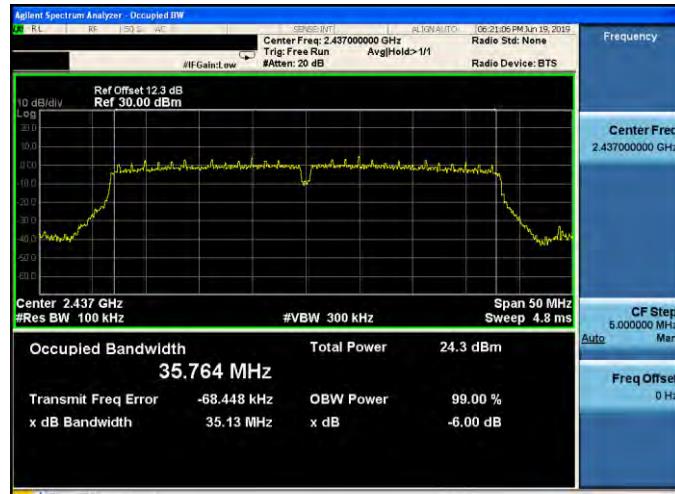
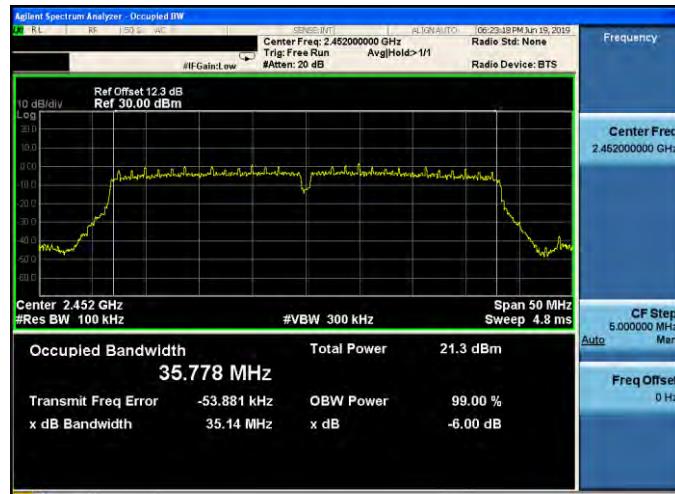
Mode 3: IEEE 802.11g Continuous TX mode_ANT-2

2412 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq: 2.412000000 GHz Trig: Free Run Avg/Hold>1/1 Radio Std: None Radio Device: BTS</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm #VBW 300 kHz Span 30 MHz Sweep 2.933 ms</p> <p>Occupied Bandwidth: 16.314 MHz</p> <p>Total Power: 23.9 dBm</p> <p>Transmit Freq Error: -41.998 kHz OBW Power: 99.00 %</p> <p>x dB Bandwidth: 15.47 MHz x dB: -6.00 dB</p> <p>File <BBB.png> saved</p>
2437 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq: 2.437000000 GHz Trig: Free Run Avg/Hold>1/1 Radio Std: None Radio Device: BTS</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm #VBW 300 kHz Span 30 MHz Sweep 2.933 ms</p> <p>Occupied Bandwidth: 16.310 MHz</p> <p>Total Power: 23.7 dBm</p> <p>Transmit Freq Error: -40.240 kHz OBW Power: 99.00 %</p> <p>x dB Bandwidth: 15.48 MHz x dB: -6.00 dB</p> <p>File <BBB.png> saved</p>
2462 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq: 2.462000000 GHz Trig: Free Run Avg/Hold>1/1 Radio Std: None Radio Device: BTS</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm #VBW 300 kHz Span 30 MHz Sweep 2.933 ms</p> <p>Occupied Bandwidth: 16.310 MHz</p> <p>Total Power: 23.2 dBm</p> <p>Transmit Freq Error: -39.391 kHz OBW Power: 99.00 %</p> <p>x dB Bandwidth: 15.48 MHz x dB: -6.00 dB</p> <p>File <BBB.png> saved</p>

Mode 6: IEEE 802.11n 2.4 GHz 20 MHz (256QAM) Continuous TX mode _ANT-2

2412 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>SENSE:INTL ALIGN:AUTO 06:16:29 PM Jun 19, 2019</p> <p>Center Freq: 2.412000000 GHz Trig: Free Run Avg Hold>1/1 Radio Std: None Radio Device: BTS</p> <p>#IFGain:Low #Atten: 20 dB</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm</p> <p>10 dB/div Log</p> <p>Span 30 MHz Sweep 2.933 ms</p> <p>Center 2.412 GHz #Res BW 100 kHz #VBW 300 kHz Total Power 23.8 dBm</p> <p>Occupied Bandwidth 17.516 MHz</p> <p>Transmit Freq Error -45.045 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 16.32 MHz x dB -6.00 dB</p> <p>File <BBB.png> saved STATUS</p>
2437 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>SENSE:INTL ALIGN:AUTO 06:17:33 PM Jun 19, 2019</p> <p>Center Freq: 2.437000000 GHz Trig: Free Run Avg Hold>1/1 Radio Std: None Radio Device: BTS</p> <p>#IFGain:Low #Atten: 20 dB</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm</p> <p>10 dB/div Log</p> <p>Span 30 MHz Sweep 2.933 ms</p> <p>Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Total Power 23.7 dBm</p> <p>Occupied Bandwidth 17.514 MHz</p> <p>Transmit Freq Error -45.453 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 16.08 MHz x dB -6.00 dB</p> <p>File <BBB.png> saved STATUS</p>
2462 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>SENSE:INTL ALIGN:AUTO 06:19:05 PM Jun 19, 2019</p> <p>Center Freq: 2.462000000 GHz Trig: Free Run Avg Hold>1/1 Radio Std: None Radio Device: BTS</p> <p>#IFGain:Low #Atten: 20 dB</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm</p> <p>10 dB/div Log</p> <p>Span 30 MHz Sweep 2.933 ms</p> <p>Center 2.462 GHz #Res BW 100 kHz #VBW 300 kHz Total Power 22.2 dBm</p> <p>Occupied Bandwidth 17.511 MHz</p> <p>Transmit Freq Error -46.321 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 16.06 MHz x dB -6.00 dB</p> <p>File <BBB.png> saved STATUS</p>

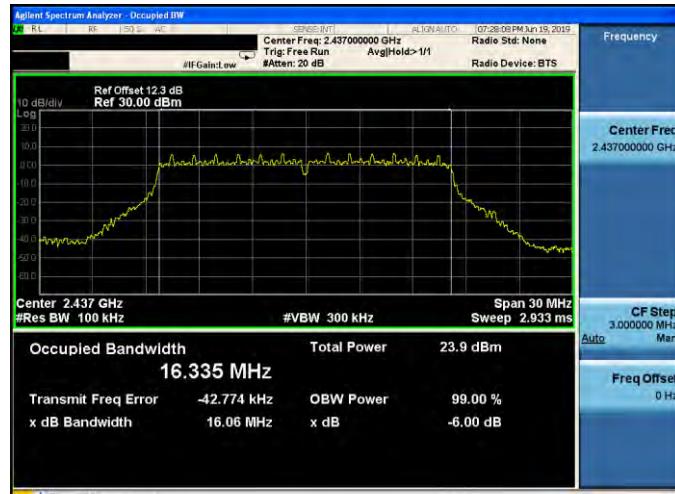
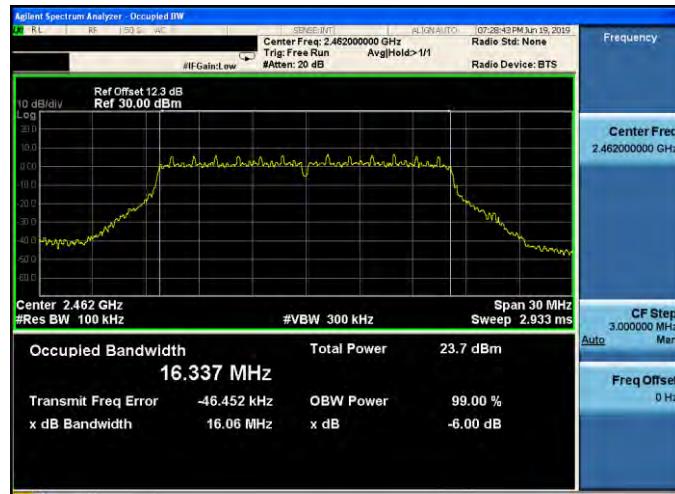
Mode 7: IEEE 802.11n 2.4 GHz 40 MHz (256QAM) Continuous TX mode _ANT-2

2422 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm</p> <p>Center Freq: 2.422000000 GHz Trig: Free Run Avg/Hold>1/1 Radio Std: None Radio Device: BTS</p> <p>#IFGain:Low #Atten: 20 dB</p> <p>Frequency: 2.422000000 GHz</p> <p>CF Step: 5.000000 MHz Auto</p> <p>Freq Offset: 0 Hz</p> <p>10 dB/div</p> <p>Span 50 MHz Sweep 4.8 ms</p> <p>Center 2.422 GHz #Res BW 100 kHz #VBW 300 kHz</p> <p>Occupied Bandwidth: 35.768 MHz</p> <p>Total Power: 21.9 dBm</p> <p>Transmit Freq Error: -58.094 kHz x dB Bandwidth: 35.13 MHz</p> <p>OBW Power: 99.00 % x dB: -6.00 dB</p> <p>File <BBB.png> saved</p>
2437 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm</p> <p>Center Freq: 2.437000000 GHz Trig: Free Run Avg/Hold>1/1 Radio Std: None Radio Device: BTS</p> <p>#IFGain:Low #Atten: 20 dB</p> <p>Frequency: 2.437000000 GHz</p> <p>CF Step: 5.000000 MHz Auto</p> <p>Freq Offset: 0 Hz</p> <p>10 dB/div</p> <p>Span 50 MHz Sweep 4.8 ms</p> <p>Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz</p> <p>Occupied Bandwidth: 35.764 MHz</p> <p>Total Power: 24.3 dBm</p> <p>Transmit Freq Error: -68.448 kHz x dB Bandwidth: 35.13 MHz</p> <p>OBW Power: 99.00 % x dB: -6.00 dB</p> <p>File <BBB.png> saved</p>
2452 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm</p> <p>Center Freq: 2.452000000 GHz Trig: Free Run Avg/Hold>1/1 Radio Std: None Radio Device: BTS</p> <p>#IFGain:Low #Atten: 20 dB</p> <p>Frequency: 2.452000000 GHz</p> <p>CF Step: 5.000000 MHz Auto</p> <p>Freq Offset: 0 Hz</p> <p>10 dB/div</p> <p>Span 50 MHz Sweep 4.8 ms</p> <p>Center 2.452 GHz #Res BW 100 kHz #VBW 300 kHz</p> <p>Occupied Bandwidth: 35.778 MHz</p> <p>Total Power: 21.3 dBm</p> <p>Transmit Freq Error: -53.881 kHz x dB Bandwidth: 35.14 MHz</p> <p>OBW Power: 99.00 % x dB: -6.00 dB</p> <p>File <BBB.png> saved</p>

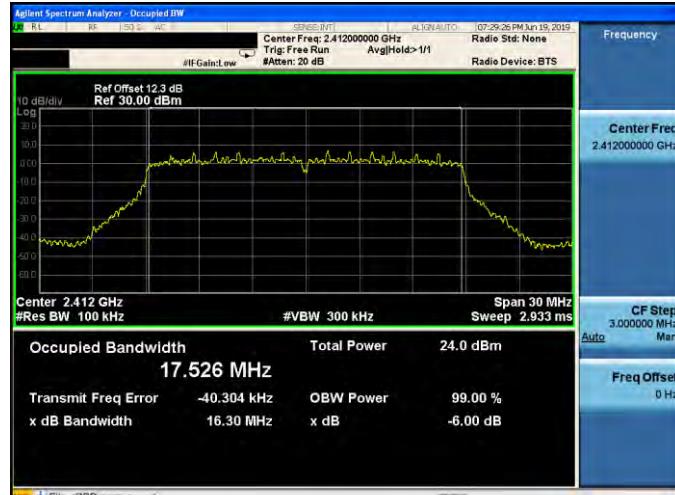
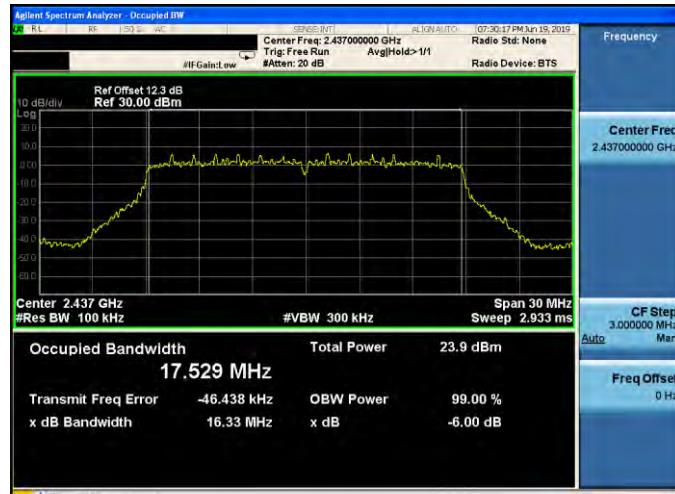
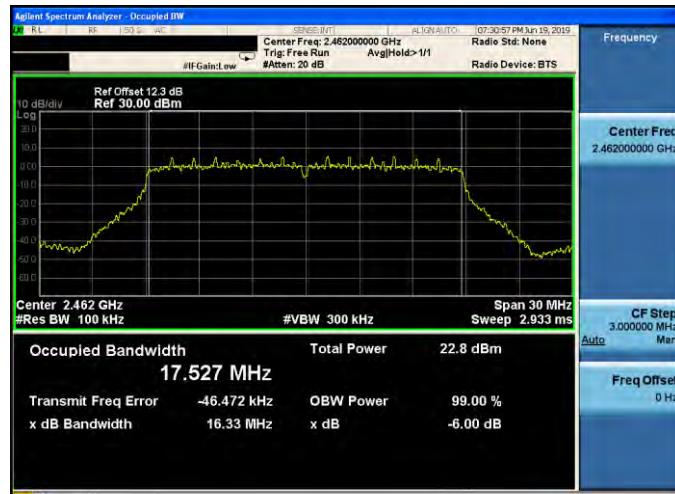
Mode 2: IEEE 802.11b Continuous TX mode_ANT-3

2412 MHz	 <p>Occupied Bandwidth 12.938 MHz</p> <p>Transmit Freq Error -22.002 kHz x dB Bandwidth 8.096 MHz</p> <p>Total Power 25.2 dBm OBW Power x dB -6.00 dB</p>
2437 MHz	 <p>Occupied Bandwidth 12.991 MHz</p> <p>Transmit Freq Error -44.799 kHz x dB Bandwidth 8.096 MHz</p> <p>Total Power 25.1 dBm OBW Power x dB -6.00 dB</p>
2462 MHz	 <p>Occupied Bandwidth 13.035 MHz</p> <p>Transmit Freq Error -35.650 kHz x dB Bandwidth 8.099 MHz</p> <p>Total Power 25.5 dBm OBW Power x dB -6.00 dB</p>

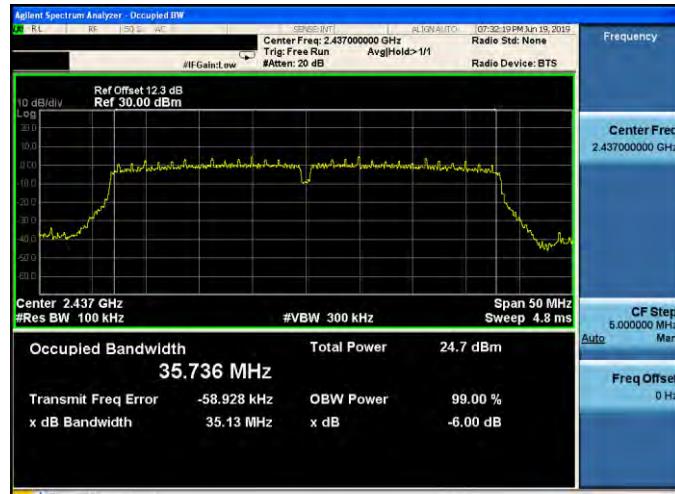
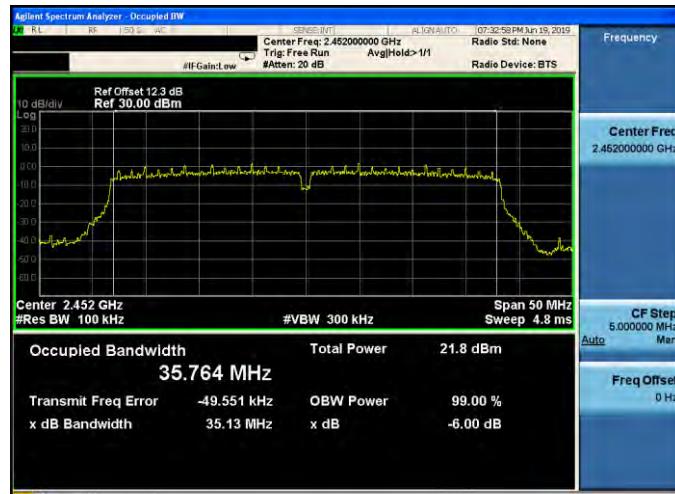
Mode 3: IEEE 802.11g Continuous TX mode_ANT-3

2412 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>SENSE INTL ALIGN AUTO 07:27:17PM Jun 19, 2019</p> <p>Center Freq: 2.412000000 GHz Trig: Free Run Avg Hold>1/1 Radio Std: None Radio Device: BTS</p> <p>#IFGain:Low #Atten: 20 dB</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm Frequency</p> <p>10 dB/div Center Freq 2.412000000 GHz</p> <p>Span 30 MHz CF Step 3.000000 MHz Auto</p> <p>#VBW 300 kHz Freq Offset 0 Hz Man</p> <p>Sweep 2.933 ms </p> <p>Occupied Bandwidth: 16.332 MHz</p> <p>Total Power: 24.1 dBm</p> <p>Transmit Freq Error: -37.004 kHz</p> <p>x dB Bandwidth: 16.07 MHz</p> <p>OBW Power: 99.00 %</p> <p>x dB: -6.00 dB</p> <p>File <BBB.png> saved</p>
2437 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>SENSE INTL ALIGN AUTO 07:28:09PM Jun 19, 2019</p> <p>Center Freq: 2.437000000 GHz Trig: Free Run Avg Hold>1/1 Radio Std: None Radio Device: BTS</p> <p>#IFGain:Low #Atten: 20 dB</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm Frequency</p> <p>10 dB/div Center Freq 2.437000000 GHz</p> <p>Span 30 MHz CF Step 3.000000 MHz Auto</p> <p>#VBW 300 kHz Freq Offset 0 Hz Man</p> <p>Sweep 2.933 ms </p> <p>Occupied Bandwidth: 16.335 MHz</p> <p>Total Power: 23.9 dBm</p> <p>Transmit Freq Error: -42.774 kHz</p> <p>x dB Bandwidth: 16.06 MHz</p> <p>OBW Power: 99.00 %</p> <p>x dB: -6.00 dB</p> <p>File <BBB.png> saved</p>
2462 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>SENSE INTL ALIGN AUTO 07:28:43PM Jun 19, 2019</p> <p>Center Freq: 2.462000000 GHz Trig: Free Run Avg Hold>1/1 Radio Std: None Radio Device: BTS</p> <p>#IFGain:Low #Atten: 20 dB</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm Frequency</p> <p>10 dB/div Center Freq 2.462000000 GHz</p> <p>Span 30 MHz CF Step 3.000000 MHz Auto</p> <p>#VBW 300 kHz Freq Offset 0 Hz Man</p> <p>Sweep 2.933 ms </p> <p>Occupied Bandwidth: 16.337 MHz</p> <p>Total Power: 23.7 dBm</p> <p>Transmit Freq Error: -46.452 kHz</p> <p>x dB Bandwidth: 16.06 MHz</p> <p>OBW Power: 99.00 %</p> <p>x dB: -6.00 dB</p> <p>File <BBB.png> saved</p>

Mode 6: IEEE 802.11n 2.4 GHz 20 MHz (256QAM) Continuous TX mode _ANT-3

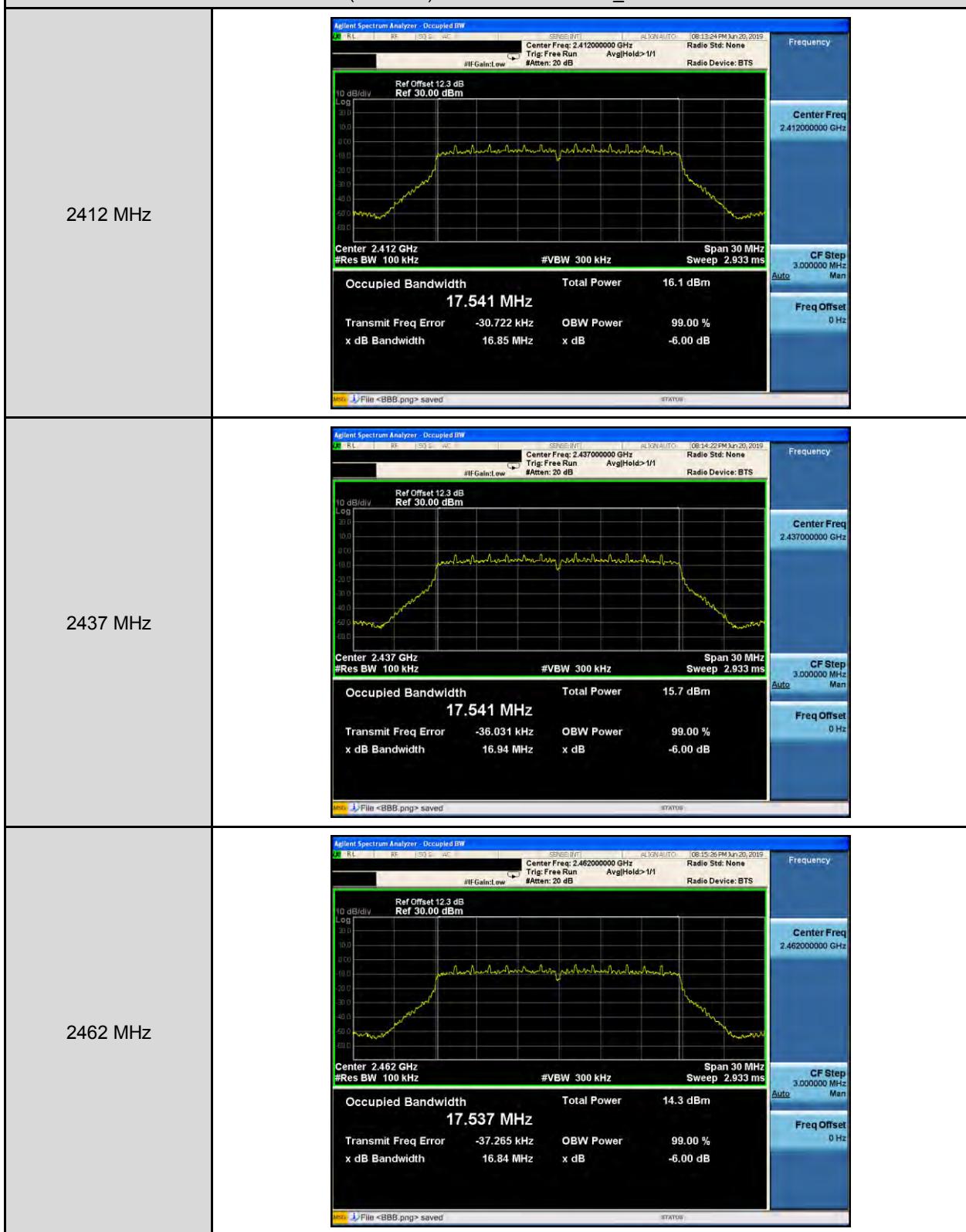
2412 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>SENSE INTL ALIGN AUTO 07-29-26 PM Jun 19, 2019</p> <p>Center Freq: 2.412000000 GHz Trig: Free Run Avg Hold>1/1 Radio Std: None Radio Device: BTS</p> <p>#IFGain:Low #Atten: 20 dB</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm Frequency</p> <p>10 dB/div Center Freq 2.412000000 GHz</p> <p>Span 30 MHz CF Step 3.000000 MHz Auto</p> <p>#VBW 300 kHz Freq Offset 0 Hz Man</p> <p>Sweep 2.933 ms </p> <p>Occupied Bandwidth 17.526 MHz Total Power 24.0 dBm</p> <p>Transmit Freq Error -40.304 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 16.30 MHz x dB -6.00 dB</p> <p>File <BBB.png> saved STATUS</p>
2437 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>SENSE INTL ALIGN AUTO 07-30-17 PM Jun 19, 2019</p> <p>Center Freq: 2.437000000 GHz Trig: Free Run Avg Hold>1/1 Radio Std: None Radio Device: BTS</p> <p>#IFGain:Low #Atten: 20 dB</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm Frequency</p> <p>10 dB/div Center Freq 2.437000000 GHz</p> <p>Span 30 MHz CF Step 3.000000 MHz Auto</p> <p>#VBW 300 kHz Freq Offset 0 Hz Man</p> <p>Sweep 2.933 ms </p> <p>Occupied Bandwidth 17.529 MHz Total Power 23.9 dBm</p> <p>Transmit Freq Error -46.438 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 16.33 MHz x dB -6.00 dB</p> <p>File <BBB.png> saved STATUS</p>
2462 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>SENSE INTL ALIGN AUTO 07-30-57 PM Jun 19, 2019</p> <p>Center Freq: 2.462000000 GHz Trig: Free Run Avg Hold>1/1 Radio Std: None Radio Device: BTS</p> <p>#IFGain:Low #Atten: 20 dB</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm Frequency</p> <p>10 dB/div Center Freq 2.462000000 GHz</p> <p>Span 30 MHz CF Step 3.000000 MHz Auto</p> <p>#VBW 300 kHz Freq Offset 0 Hz Man</p> <p>Sweep 2.933 ms </p> <p>Occupied Bandwidth 17.527 MHz Total Power 22.8 dBm</p> <p>Transmit Freq Error -46.472 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 16.33 MHz x dB -6.00 dB</p> <p>File <BBB.png> saved STATUS</p>

Mode 7: IEEE 802.11n 2.4 GHz 40 MHz (256QAM) Continuous TX mode _ANT-3

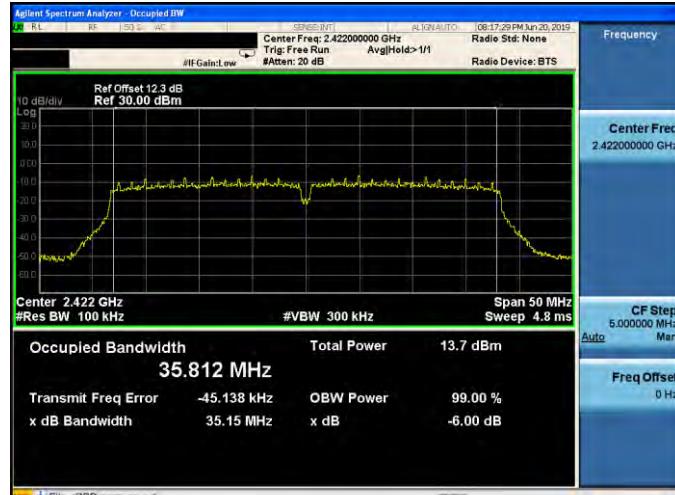
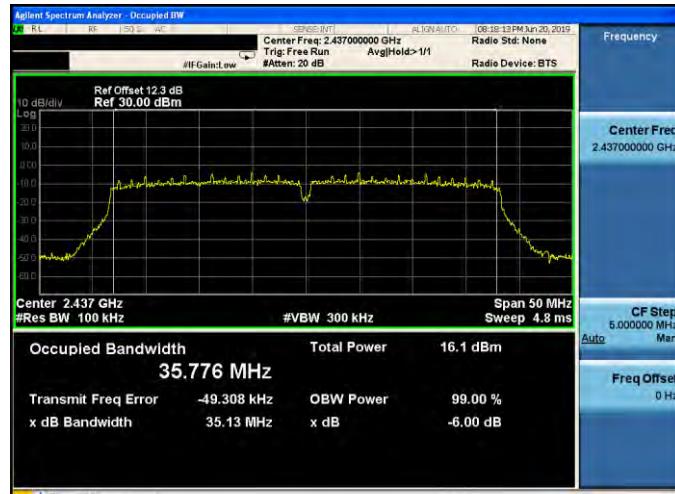
2422 MHz	 <p>35.760 MHz</p> <table border="1"> <thead> <tr> <th>Occupied Bandwidth</th> <th>Total Power</th> </tr> </thead> <tbody> <tr> <td>35.760 MHz</td> <td>22.1 dBm</td> </tr> </tbody> </table> <p>Transmit Freq Error: -42.139 kHz OBW Power: 99.00 % x dB Bandwidth: 35.13 MHz x dB: -6.00 dB</p>	Occupied Bandwidth	Total Power	35.760 MHz	22.1 dBm
Occupied Bandwidth	Total Power				
35.760 MHz	22.1 dBm				
2437 MHz	 <p>35.736 MHz</p> <table border="1"> <thead> <tr> <th>Occupied Bandwidth</th> <th>Total Power</th> </tr> </thead> <tbody> <tr> <td>35.736 MHz</td> <td>24.7 dBm</td> </tr> </tbody> </table> <p>Transmit Freq Error: -58.928 kHz OBW Power: 99.00 % x dB Bandwidth: 35.13 MHz x dB: -6.00 dB</p>	Occupied Bandwidth	Total Power	35.736 MHz	24.7 dBm
Occupied Bandwidth	Total Power				
35.736 MHz	24.7 dBm				
2452 MHz	 <p>35.764 MHz</p> <table border="1"> <thead> <tr> <th>Occupied Bandwidth</th> <th>Total Power</th> </tr> </thead> <tbody> <tr> <td>35.764 MHz</td> <td>21.8 dBm</td> </tr> </tbody> </table> <p>Transmit Freq Error: -49.551 kHz OBW Power: 99.00 % x dB Bandwidth: 35.13 MHz x dB: -6.00 dB</p>	Occupied Bandwidth	Total Power	35.764 MHz	21.8 dBm
Occupied Bandwidth	Total Power				
35.764 MHz	21.8 dBm				

Beamforming on

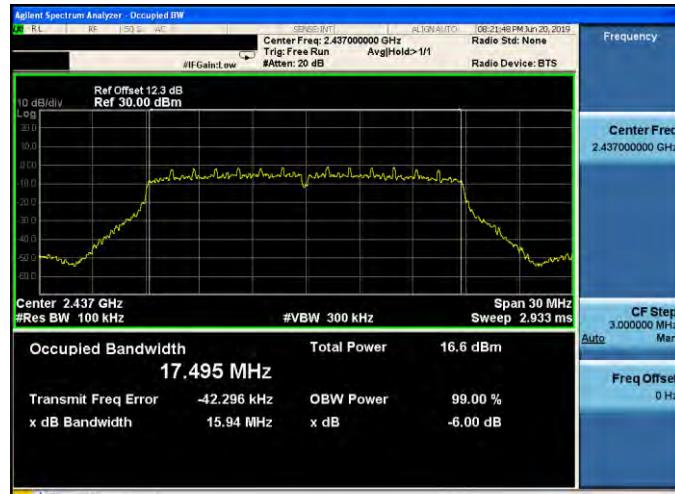
Mode 6: IEEE 802.11n 2.4 GHz 20 MHz (256QAM) Continuous TX mode _ANT-0



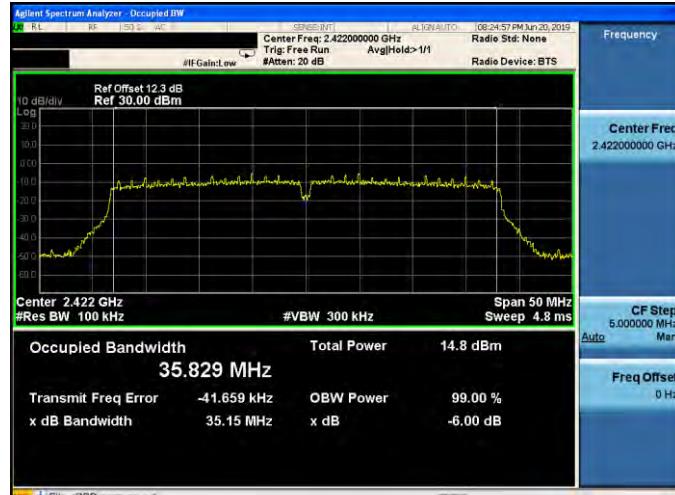
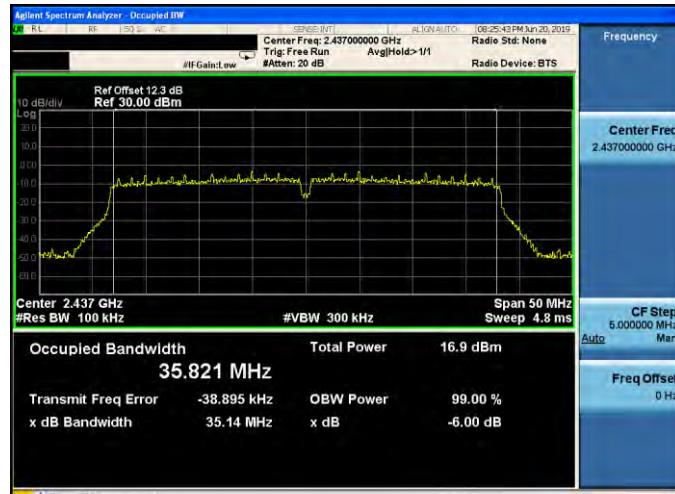
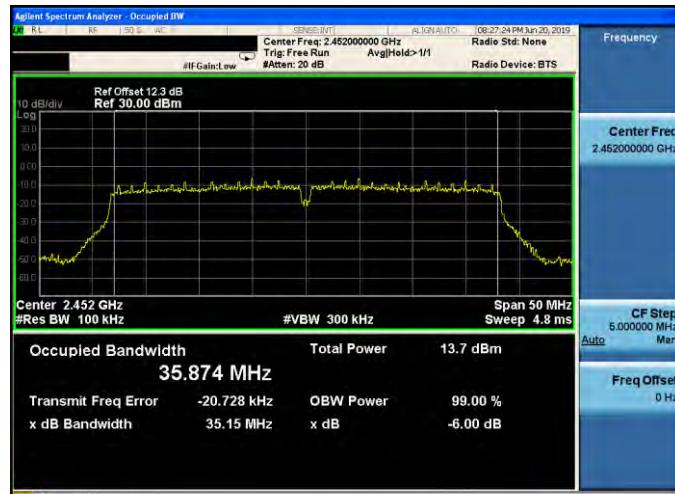
Mode 7: IEEE 802.11n 2.4 GHz 40 MHz (256QAM) Continuous TX mode _ANT-0

2422 MHz	 <p>Occupied Bandwidth 35.812 MHz</p> <p>Transmit Freq Error -45.138 kHz x dB Bandwidth 35.15 MHz</p> <p>Total Power 13.7 dBm OBW Power 99.00 % x dB -6.00 dB</p>
2437 MHz	 <p>Occupied Bandwidth 35.776 MHz</p> <p>Transmit Freq Error -49.308 kHz x dB Bandwidth 35.13 MHz</p> <p>Total Power 16.1 dBm OBW Power 99.00 % x dB -6.00 dB</p>
2452 MHz	 <p>Occupied Bandwidth 35.820 MHz</p> <p>Transmit Freq Error -34.994 kHz x dB Bandwidth 35.15 MHz</p> <p>Total Power 13.2 dBm OBW Power 99.00 % x dB -6.00 dB</p>

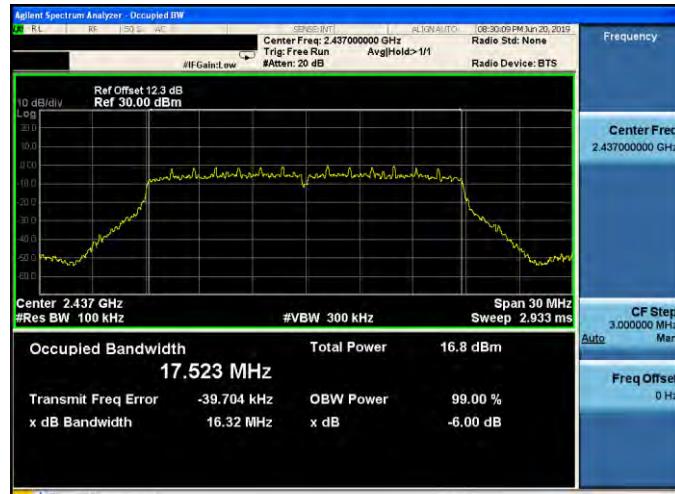
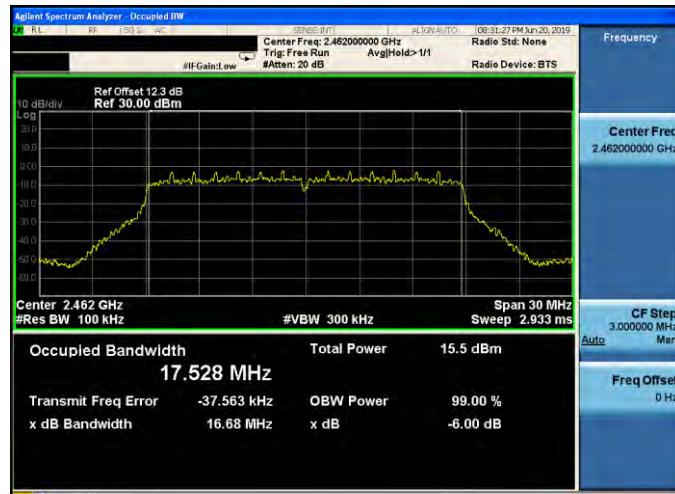
Mode 6: IEEE 802.11n 2.4 GHz 20 MHz (256QAM) Continuous TX mode _ANT-1

2412 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>SENSE INTL ALIGN AUTO 08:20:55 PM Jun 20, 2019</p> <p>Center Freq: 2.412000000 GHz Trig: Free Run Avg Hold>1/1 Radio Std: None Radio Device: BTS</p> <p>#IFGain:Low #Atten: 20 dB</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm Frequency</p> <p>10 dB/div Center Freq 2.412000000 GHz</p> <p>Span 30 MHz CF Step 3.000000 MHz Auto</p> <p>#Res BW 100 kHz #VBW 300 kHz Freq Offset 0 Hz</p> <p>Sweep 2.933 ms</p> <p>Occupied Bandwidth 17.491 MHz Total Power 17.0 dBm</p> <p>Transmit Freq Error -43.008 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 16.06 MHz x dB -6.00 dB</p> <p>File <BBB.png> saved STATUS</p>
2437 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>SENSE INTL ALIGN AUTO 08:21:48 PM Jun 20, 2019</p> <p>Center Freq: 2.437000000 GHz Trig: Free Run Avg Hold>1/1 Radio Std: None Radio Device: BTS</p> <p>#IFGain:Low #Atten: 20 dB</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm Frequency</p> <p>10 dB/div Center Freq 2.437000000 GHz</p> <p>Span 30 MHz CF Step 3.000000 MHz Auto</p> <p>#Res BW 100 kHz #VBW 300 kHz Freq Offset 0 Hz</p> <p>Sweep 2.933 ms</p> <p>Occupied Bandwidth 17.495 MHz Total Power 16.6 dBm</p> <p>Transmit Freq Error -42.296 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 15.94 MHz x dB -6.00 dB</p> <p>File <BBB.png> saved STATUS</p>
2462 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>SENSE INTL ALIGN AUTO 08:22:38 PM Jun 20, 2019</p> <p>Center Freq: 2.462000000 GHz Trig: Free Run Avg Hold>1/1 Radio Std: None Radio Device: BTS</p> <p>#IFGain:Low #Atten: 20 dB</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm Frequency</p> <p>10 dB/div Center Freq 2.462000000 GHz</p> <p>Span 30 MHz CF Step 3.000000 MHz Auto</p> <p>#Res BW 100 kHz #VBW 300 kHz Freq Offset 0 Hz</p> <p>Sweep 2.933 ms</p> <p>Occupied Bandwidth 17.503 MHz Total Power 15.3 dBm</p> <p>Transmit Freq Error -42.600 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 16.04 MHz x dB -6.00 dB</p> <p>File <BBB.png> saved STATUS</p>

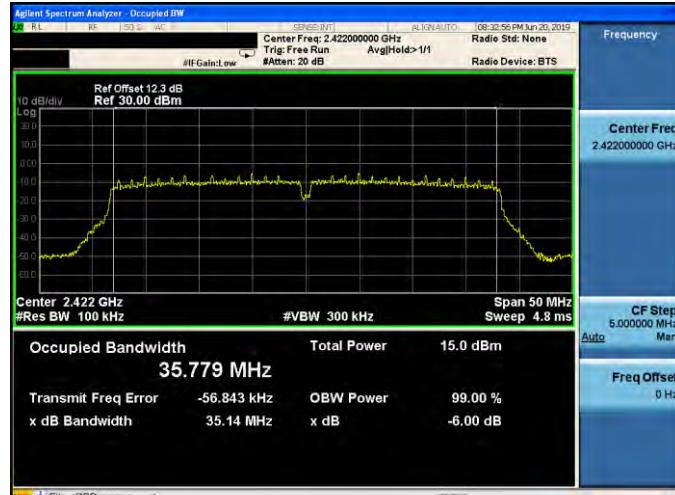
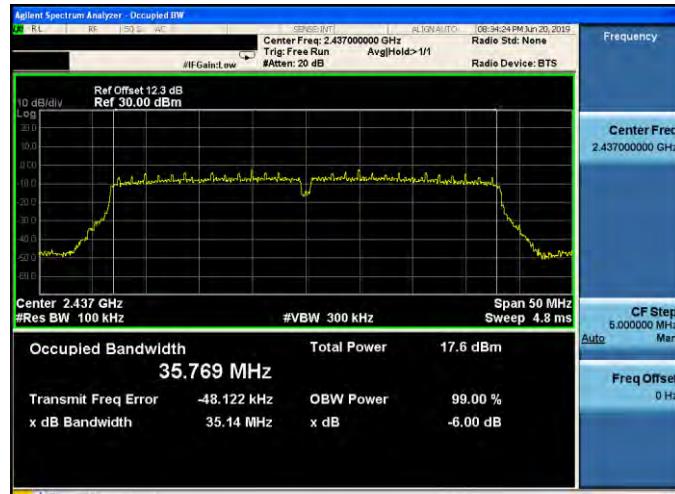
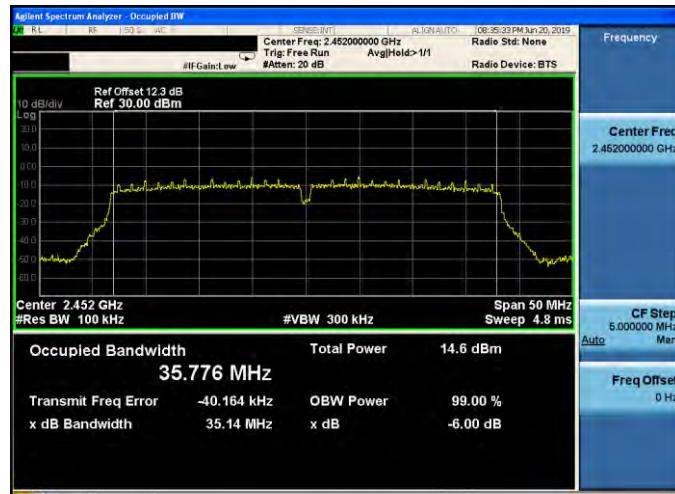
Mode 7: IEEE 802.11n 2.4 GHz 40 MHz (256QAM) Continuous TX mode _ANT-1

2422 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm</p> <p>Center Freq: 2.422000000 GHz Trig: Free Run Avg/Hold>1/1 Radio Std: None Radio Device: BTS</p> <p>#IFGain:Low #Atten: 20 dB</p> <p>Frequency Center Freq 2.422000000 GHz CF Step 5.000000 MHz Auto Freq Offset 0 Hz</p> <p>10 dB/div Log</p> <p>Span 50 MHz Sweep 4.8 ms</p> <p>Occupied Bandwidth Total Power 14.8 dBm 35.829 MHz</p> <p>Transmit Freq Error -41.659 kHz OBW Power 99.00 % x dB Bandwidth 35.15 MHz x dB -6.00 dB</p> <p>File <BBB.png> saved STATUS</p>
2437 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm</p> <p>Center Freq: 2.437000000 GHz Trig: Free Run Avg/Hold>1/1 Radio Std: None Radio Device: BTS</p> <p>#IFGain:Low #Atten: 20 dB</p> <p>Frequency Center Freq 2.437000000 GHz CF Step 5.000000 MHz Auto Freq Offset 0 Hz</p> <p>10 dB/div Log</p> <p>Span 50 MHz Sweep 4.8 ms</p> <p>Occupied Bandwidth Total Power 16.9 dBm 35.821 MHz</p> <p>Transmit Freq Error -38.895 kHz OBW Power 99.00 % x dB Bandwidth 35.14 MHz x dB -6.00 dB</p> <p>File <BBB.png> saved STATUS</p>
2452 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm</p> <p>Center Freq: 2.452000000 GHz Trig: Free Run Avg/Hold>1/1 Radio Std: None Radio Device: BTS</p> <p>#IFGain:Low #Atten: 20 dB</p> <p>Frequency Center Freq 2.452000000 GHz CF Step 5.000000 MHz Auto Freq Offset 0 Hz</p> <p>10 dB/div Log</p> <p>Span 50 MHz Sweep 4.8 ms</p> <p>Occupied Bandwidth Total Power 13.7 dBm 35.874 MHz</p> <p>Transmit Freq Error -20.728 kHz OBW Power 99.00 % x dB Bandwidth 35.15 MHz x dB -6.00 dB</p> <p>File <BBB.png> saved STATUS</p>

Mode 6: IEEE 802.11n 2.4 GHz 20 MHz (256QAM) Continuous TX mode _ANT-2

2412 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>SENSE INTL ALIGN AUTO 08-29-09 PM Jun 20, 2019</p> <p>Center Freq: 2.412000000 GHz Trig: Free Run Avg Hold>1/1 Radio Std: None Radio Device: BTS</p> <p>#IFGain:Low #Atten: 20 dB</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm Frequency</p> <p>10 dB/div Center Freq 2.412000000 GHz</p> <p>Span 30 MHz CF Step 3.000000 MHz Auto</p> <p>Sweep 2.933 ms Freq Offset 0 Hz</p> <p>Occupied Bandwidth: 17.511 MHz Total Power: 17.3 dBm</p> <p>Transmit Freq Error: -41.378 kHz OBW Power: 99.00 %</p> <p>x dB Bandwidth: 16.35 MHz x dB: -6.00 dB</p> <p>File <BBB.png> saved STATUS</p>
2437 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>SENSE INTL ALIGN AUTO 08-30-09 PM Jun 20, 2019</p> <p>Center Freq: 2.437000000 GHz Trig: Free Run Avg Hold>1/1 Radio Std: None Radio Device: BTS</p> <p>#IFGain:Low #Atten: 20 dB</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm Frequency</p> <p>10 dB/div Center Freq 2.437000000 GHz</p> <p>Span 30 MHz CF Step 3.000000 MHz Auto</p> <p>Sweep 2.933 ms Freq Offset 0 Hz</p> <p>Occupied Bandwidth: 17.523 MHz Total Power: 16.8 dBm</p> <p>Transmit Freq Error: -39.704 kHz OBW Power: 99.00 %</p> <p>x dB Bandwidth: 16.32 MHz x dB: -6.00 dB</p> <p>File <BBB.png> saved STATUS</p>
2462 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>SENSE INTL ALIGN AUTO 08-31-27 PM Jun 20, 2019</p> <p>Center Freq: 2.462000000 GHz Trig: Free Run Avg Hold>1/1 Radio Std: None Radio Device: BTS</p> <p>#IFGain:Low #Atten: 20 dB</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm Frequency</p> <p>10 dB/div Center Freq 2.462000000 GHz</p> <p>Span 30 MHz CF Step 3.000000 MHz Auto</p> <p>Sweep 2.933 ms Freq Offset 0 Hz</p> <p>Occupied Bandwidth: 17.528 MHz Total Power: 15.5 dBm</p> <p>Transmit Freq Error: -37.563 kHz OBW Power: 99.00 %</p> <p>x dB Bandwidth: 16.68 MHz x dB: -6.00 dB</p> <p>File <BBB.png> saved STATUS</p>

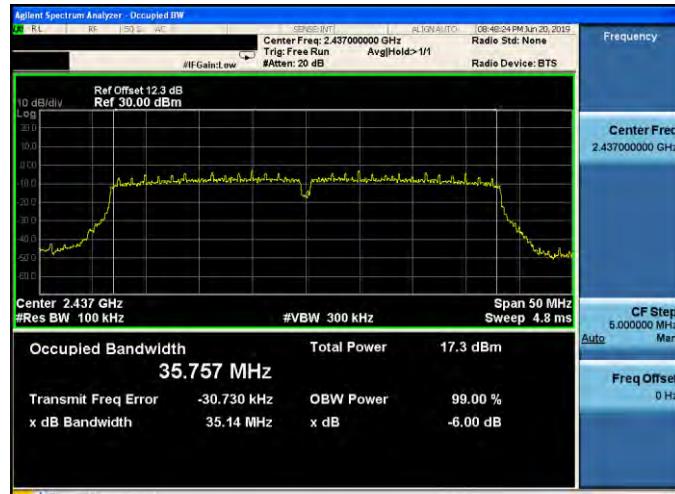
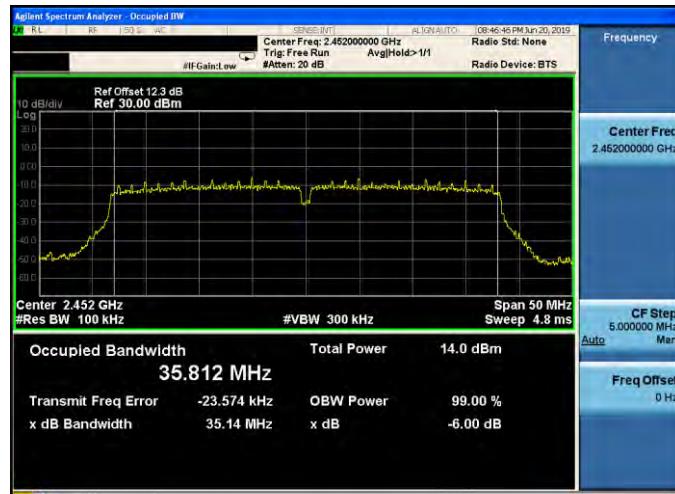
Mode 7: IEEE 802.11n 2.4 GHz 40 MHz (256QAM) Continuous TX mode _ANT-2

2422 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm</p> <p>Center Freq: 2.422000000 GHz Trig: Free Run Avg Hold>1/1 Radio Std: None Radio Device: BTS</p> <p>#IFGain:Low #Atten: 20 dB</p> <p>Frequency Center Freq 2.422000000 GHz CF Step 5.000000 MHz Man Freq Offset 0 Hz</p> <p>10 dB/div Log</p> <p>Span 50 MHz Sweep 4.8 ms</p> <p>Center 2.422 GHz #Res BW 100 kHz #VBW 300 kHz Total Power 15.0 dBm</p> <p>Occupied Bandwidth 35.779 MHz</p> <p>Transmit Freq Error -56.843 kHz OBW Power 99.00 % x dB Bandwidth 35.14 MHz x dB -6.00 dB</p> <p>File <BBB.png> saved STATUS</p>
2437 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm</p> <p>Center Freq: 2.437000000 GHz Trig: Free Run Avg Hold>1/1 Radio Std: None Radio Device: BTS</p> <p>#IFGain:Low #Atten: 20 dB</p> <p>Frequency Center Freq 2.437000000 GHz CF Step 5.000000 MHz Man Freq Offset 0 Hz</p> <p>10 dB/div Log</p> <p>Span 50 MHz Sweep 4.8 ms</p> <p>Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Total Power 17.6 dBm</p> <p>Occupied Bandwidth 35.769 MHz</p> <p>Transmit Freq Error -48.122 kHz OBW Power 99.00 % x dB Bandwidth 35.14 MHz x dB -6.00 dB</p> <p>File <BBB.png> saved STATUS</p>
2452 MHz	 <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm</p> <p>Center Freq: 2.452000000 GHz Trig: Free Run Avg Hold>1/1 Radio Std: None Radio Device: BTS</p> <p>#IFGain:Low #Atten: 20 dB</p> <p>Frequency Center Freq 2.452000000 GHz CF Step 5.000000 MHz Man Freq Offset 0 Hz</p> <p>10 dB/div Log</p> <p>Span 50 MHz Sweep 4.8 ms</p> <p>Center 2.452 GHz #Res BW 100 kHz #VBW 300 kHz Total Power 14.6 dBm</p> <p>Occupied Bandwidth 35.776 MHz</p> <p>Transmit Freq Error -40.164 kHz OBW Power 99.00 % x dB Bandwidth 35.14 MHz x dB -6.00 dB</p> <p>File <BBB.png> saved STATUS</p>

Mode 6: IEEE 802.11n 2.4 GHz 20 MHz (256QAM) Continuous TX mode _ANT-3

2412 MHz	 <p>Occupied Bandwidth 17.535 MHz</p> <table border="1"> <tr> <td>Transmit Freq Error</td> <td>-37.206 kHz</td> <td>OBW Power</td> <td>99.00 %</td> </tr> <tr> <td>x dB Bandwidth</td> <td>16.32 MHz</td> <td>x dB</td> <td>-6.00 dB</td> </tr> </table>	Transmit Freq Error	-37.206 kHz	OBW Power	99.00 %	x dB Bandwidth	16.32 MHz	x dB	-6.00 dB
Transmit Freq Error	-37.206 kHz	OBW Power	99.00 %						
x dB Bandwidth	16.32 MHz	x dB	-6.00 dB						
2437 MHz	 <p>Occupied Bandwidth 17.530 MHz</p> <table border="1"> <tr> <td>Transmit Freq Error</td> <td>-38.836 kHz</td> <td>OBW Power</td> <td>99.00 %</td> </tr> <tr> <td>x dB Bandwidth</td> <td>16.33 MHz</td> <td>x dB</td> <td>-6.00 dB</td> </tr> </table>	Transmit Freq Error	-38.836 kHz	OBW Power	99.00 %	x dB Bandwidth	16.33 MHz	x dB	-6.00 dB
Transmit Freq Error	-38.836 kHz	OBW Power	99.00 %						
x dB Bandwidth	16.33 MHz	x dB	-6.00 dB						
2462 MHz	 <p>Occupied Bandwidth 17.540 MHz</p> <table border="1"> <tr> <td>Transmit Freq Error</td> <td>-41.939 kHz</td> <td>OBW Power</td> <td>99.00 %</td> </tr> <tr> <td>x dB Bandwidth</td> <td>16.62 MHz</td> <td>x dB</td> <td>-6.00 dB</td> </tr> </table>	Transmit Freq Error	-41.939 kHz	OBW Power	99.00 %	x dB Bandwidth	16.62 MHz	x dB	-6.00 dB
Transmit Freq Error	-41.939 kHz	OBW Power	99.00 %						
x dB Bandwidth	16.62 MHz	x dB	-6.00 dB						

Mode 7: IEEE 802.11n 2.4 GHz 40 MHz (256QAM) Continuous TX mode _ANT-3

2422 MHz	 <p>35.758 MHz</p> <table border="1"> <thead> <tr> <th>Occupied Bandwidth</th> <th>Total Power</th> </tr> </thead> <tbody> <tr> <td>35.758 MHz</td> <td>14.8 dBm</td> </tr> </tbody> </table> <p>Transmit Freq Error: -28.902 kHz x dB Bandwidth: 35.12 MHz</p> <p>OBW Power: 99.00 % x dB: -6.00 dB</p>	Occupied Bandwidth	Total Power	35.758 MHz	14.8 dBm
Occupied Bandwidth	Total Power				
35.758 MHz	14.8 dBm				
2437 MHz	 <p>35.757 MHz</p> <table border="1"> <thead> <tr> <th>Occupied Bandwidth</th> <th>Total Power</th> </tr> </thead> <tbody> <tr> <td>35.757 MHz</td> <td>17.3 dBm</td> </tr> </tbody> </table> <p>Transmit Freq Error: -30.730 kHz x dB Bandwidth: 35.14 MHz</p> <p>OBW Power: 99.00 % x dB: -6.00 dB</p>	Occupied Bandwidth	Total Power	35.757 MHz	17.3 dBm
Occupied Bandwidth	Total Power				
35.757 MHz	17.3 dBm				
2452 MHz	 <p>35.812 MHz</p> <table border="1"> <thead> <tr> <th>Occupied Bandwidth</th> <th>Total Power</th> </tr> </thead> <tbody> <tr> <td>35.812 MHz</td> <td>14.0 dBm</td> </tr> </tbody> </table> <p>Transmit Freq Error: -23.574 kHz x dB Bandwidth: 35.14 MHz</p> <p>OBW Power: 99.00 % x dB: -6.00 dB</p>	Occupied Bandwidth	Total Power	35.812 MHz	14.0 dBm
Occupied Bandwidth	Total Power				
35.812 MHz	14.0 dBm				

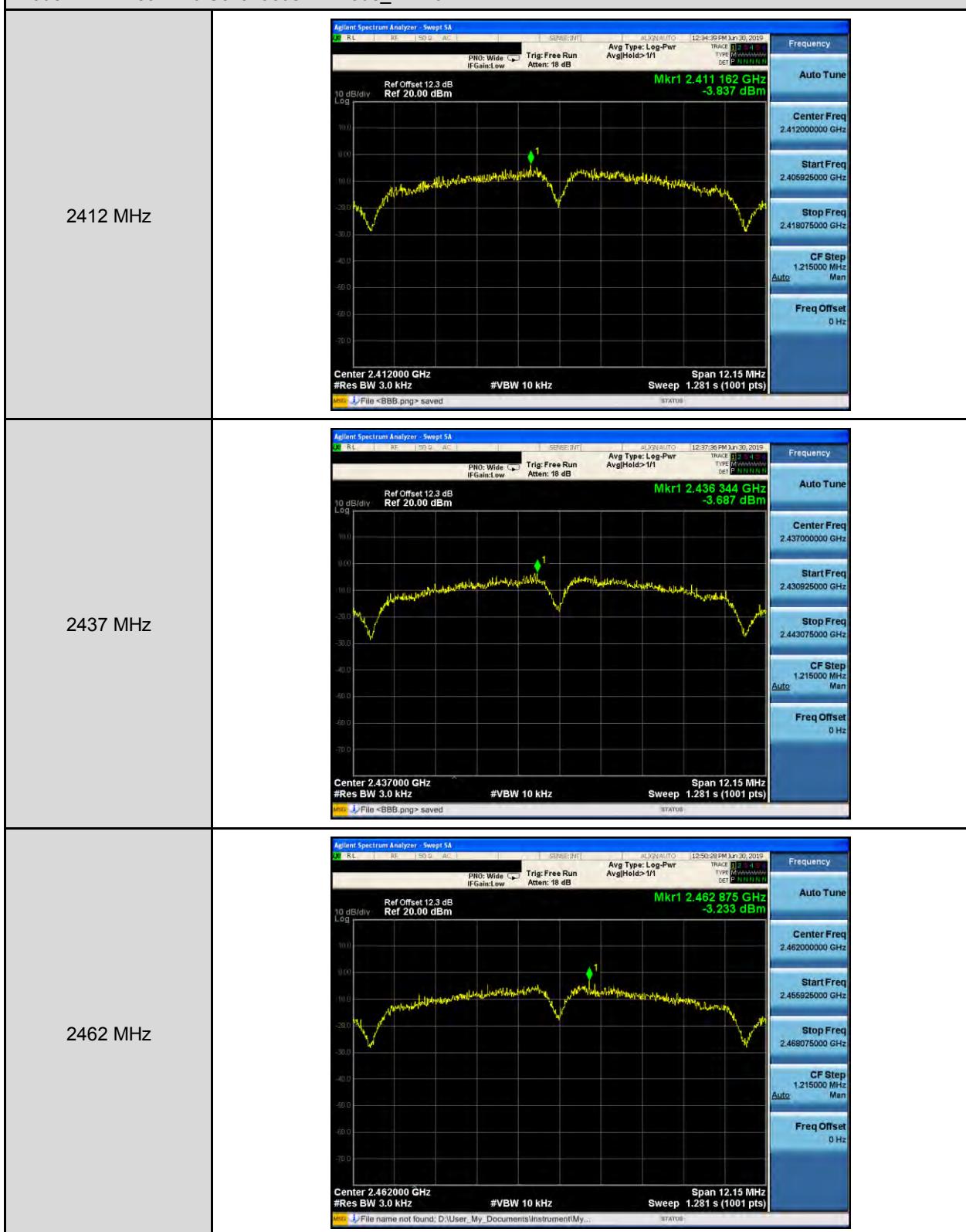
Maximum Power Spectral Density Measurement

Test Mode	Frequency (MHz)	Measurement (dBm/3 kHz)					Limit (dBm/ 3 kHz)
		ANT-0	ANT-1	ANT-2	ANT-3	ANT-0+1+2+3	
Mode 2	2412	-3.837	-3.629	-3.816	-3.864	2.235	≤ 4.88
	2437	-3.687	-2.947	-3.327	-3.498	2.664	≤ 4.88
	2462	-3.233	-3.097	-3.040	-3.206	2.877	≤ 4.88
Mode 3	2412	-10.648	-10.420	-9.973	-9.781	-4.171	≤ 4.88
	2437	-11.280	-10.462	-9.585	-9.634	-4.166	≤ 4.88
	2462	-11.315	-11.251	-10.357	-10.451	-4.801	≤ 4.88
Mode 6	2412	-11.287	-10.857	-10.830	-11.329	-5.049	≤ 8
	2437	-11.766	-11.038	-10.522	-11.070	-5.056	≤ 8
	2462	-13.373	-12.356	-12.107	-12.479	-6.533	≤ 8
Mode 7	2422	-15.534	-14.304	-14.675	-15.068	-8.851	≤ 8
	2437	-13.785	-12.964	-12.134	-12.823	-6.867	≤ 8
	2452	-15.749	-14.918	-14.994	-15.557	-9.269	≤ 8

Beamforming on

Test Mode	Frequency (MHz)	Measurement (dBm/3 kHz)					Limit (dBm/ 3 kHz)
		ANT-0	ANT-1	ANT-2	ANT-3	ANT-0+1+2+3	
Mode 6	2412	-17.093	-17.041	-16.631	-17.023	-10.922	≤ 4.88
	2437	-17.514	-17.733	-17.379	-17.488	-11.506	≤ 4.88
	2462	-19.207	-18.882	-18.151	-18.673	-12.691	≤ 4.88
Mode 7	2422	-21.195	-20.418	-20.987	-20.916	-14.849	≤ 4.88
	2437	-18.962	-18.608	-18.474	-18.581	-12.632	≤ 4.88
	2452	-21.893	-21.283	-21.505	-21.760	-15.583	≤ 4.88

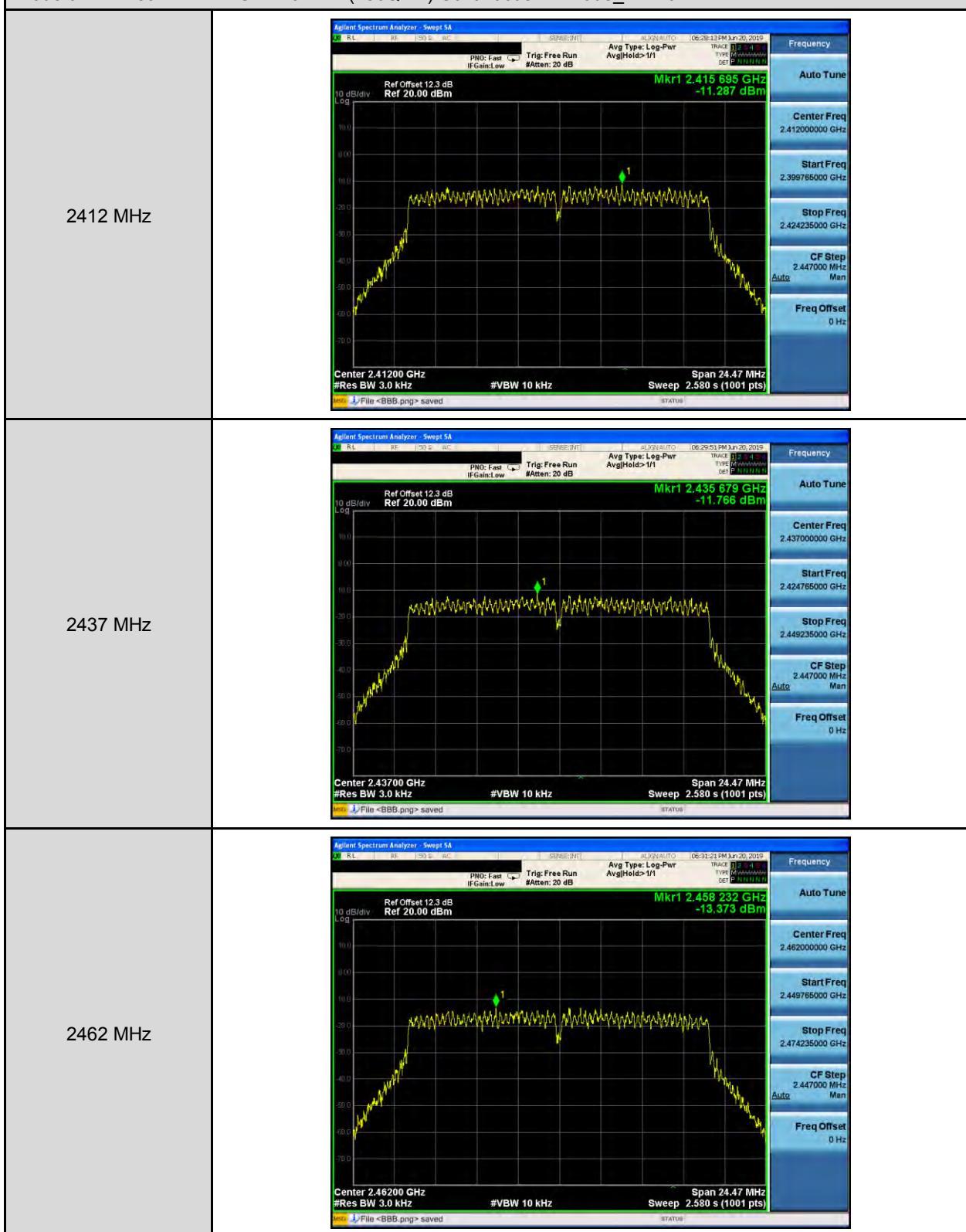
Mode 2: IEEE 802.11b Continuous TX mode_ANT-0



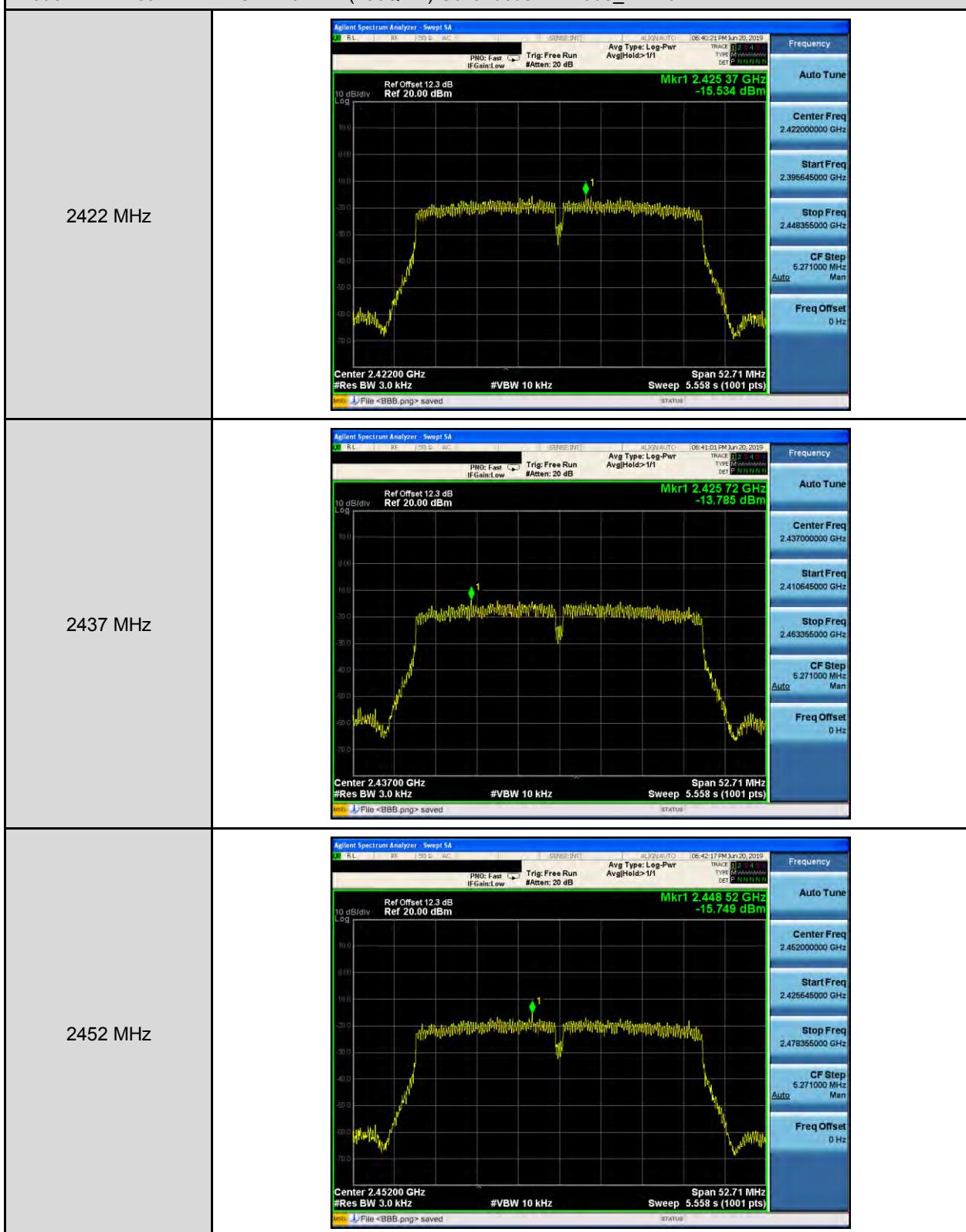
Mode 3: IEEE 802.11g Continuous TX mode_ANT-0



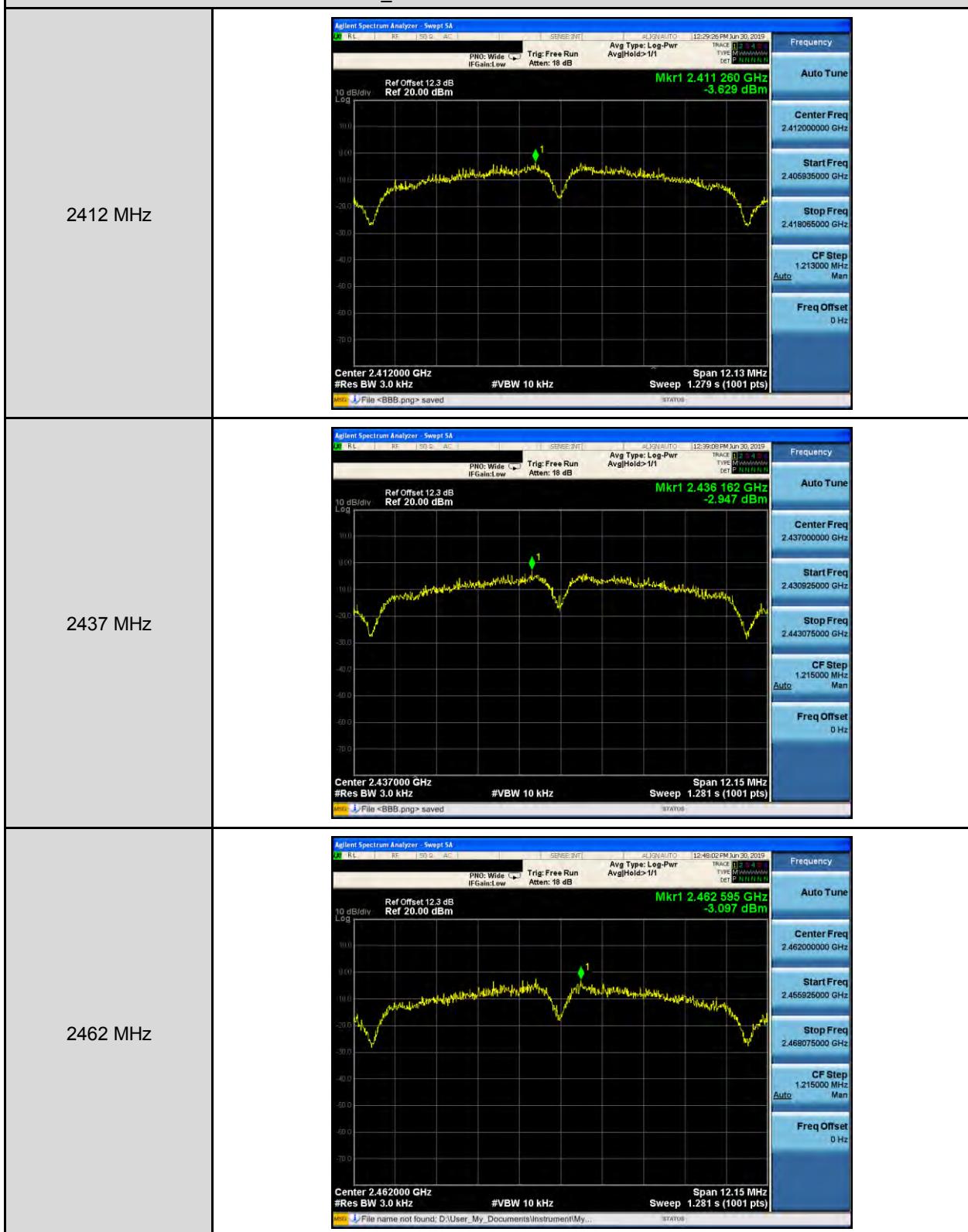
Mode 6: IEEE 802.11n 2.4 GHz 20 MHz (256QAM) Continuous TX mode _ANT-0



Mode 7: IEEE 802.11n 2.4 GHz 40 MHz (256QAM) Continuous TX mode _ANT-0



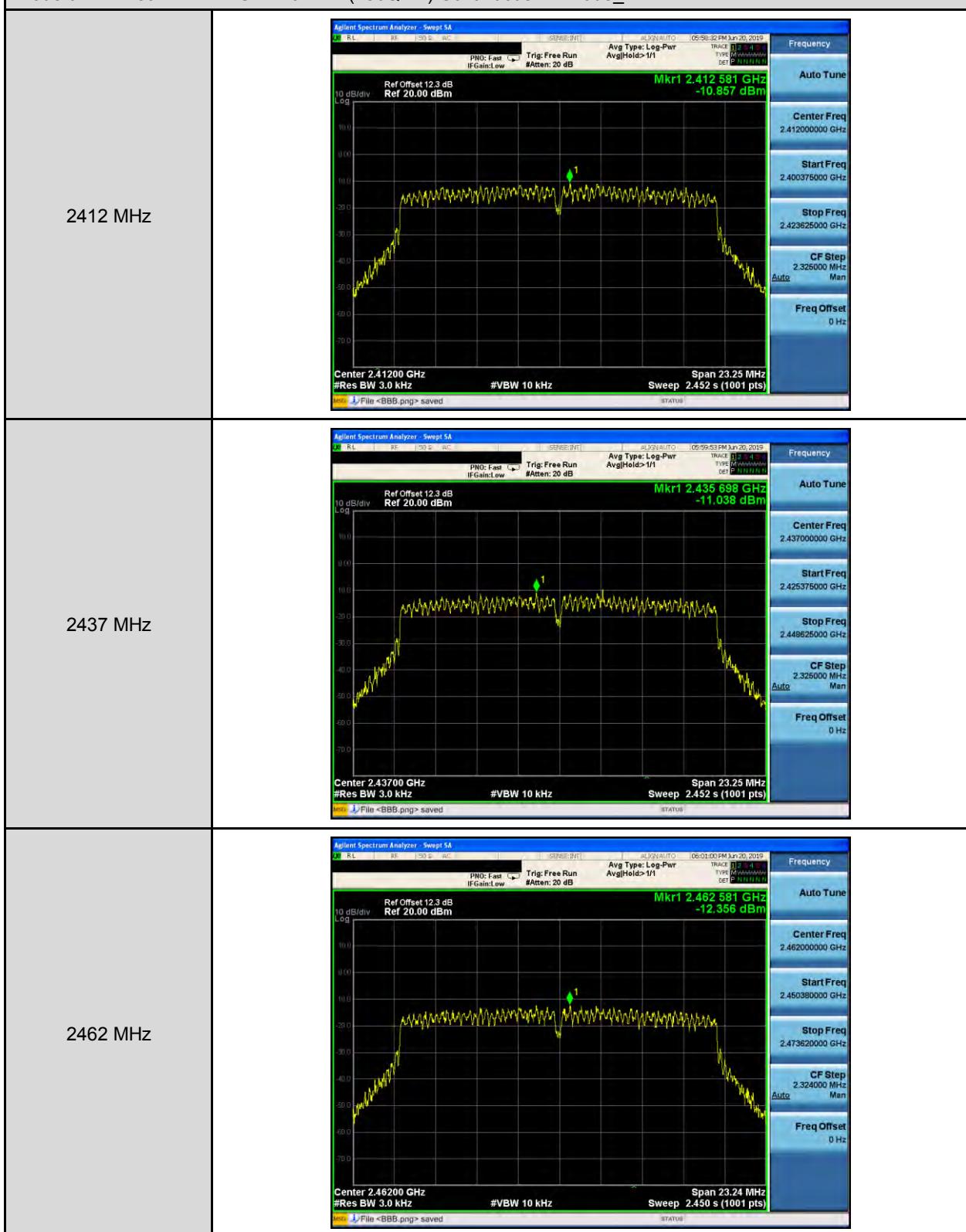
Mode 2: IEEE 802.11b Continuous TX mode_ANT-1



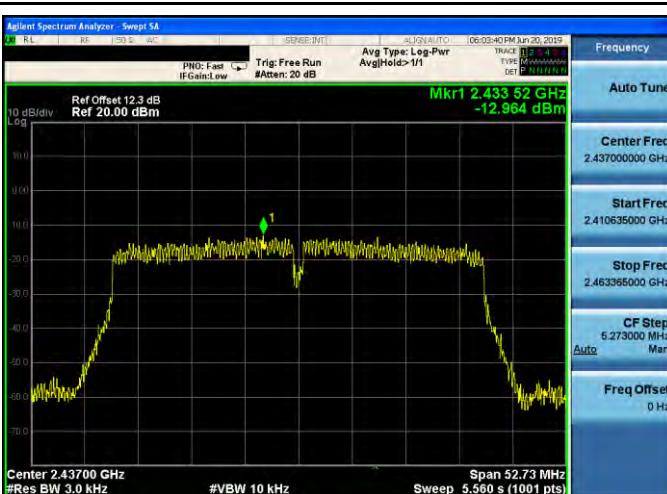
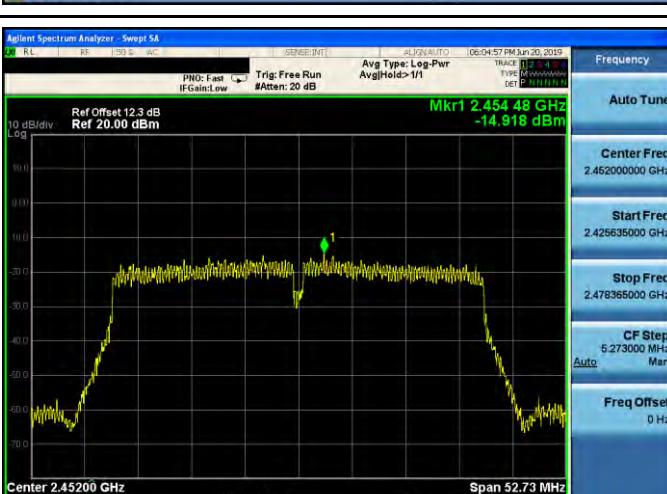
Mode 3: IEEE 802.11g Continuous TX mode_ANT-1



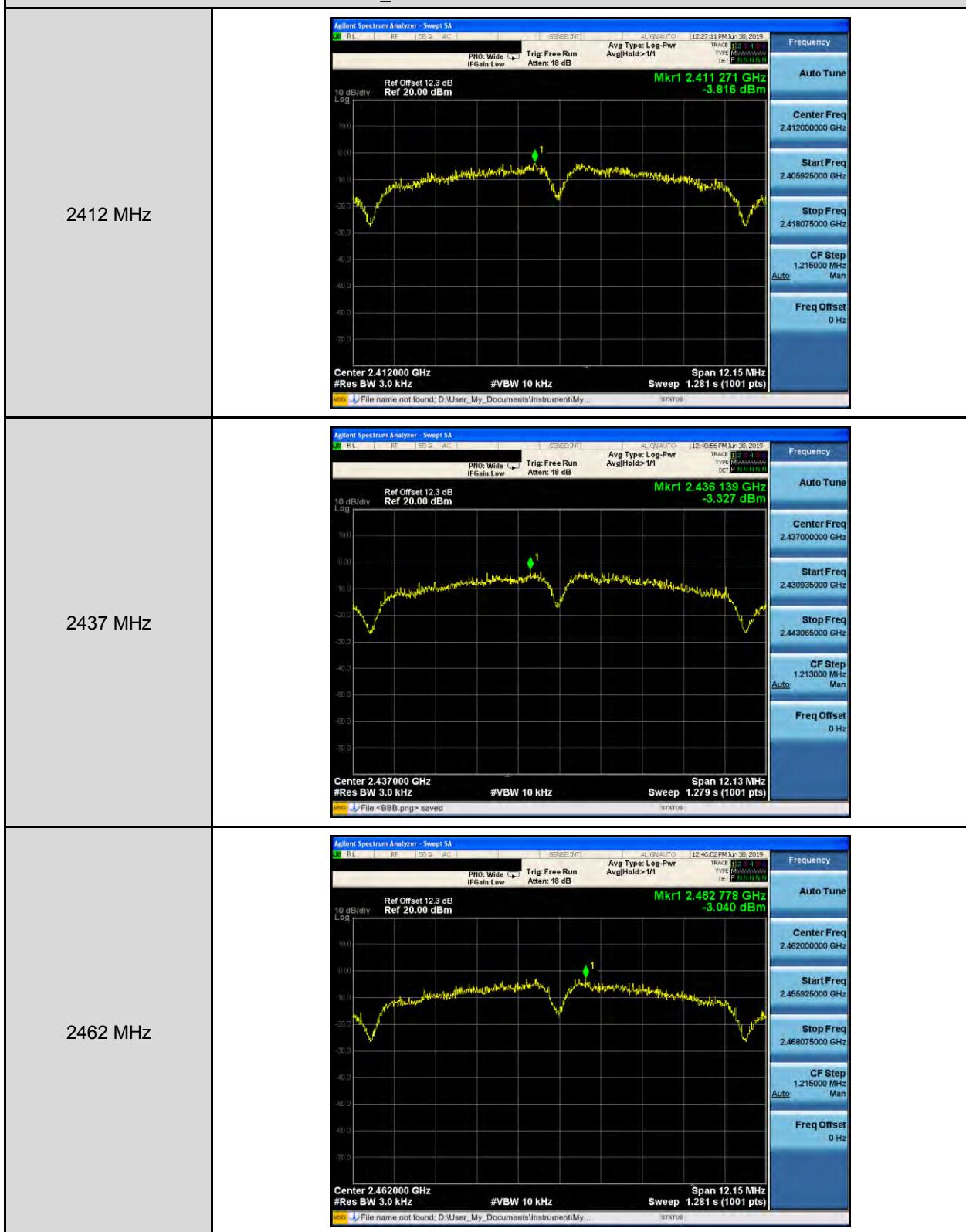
Mode 6: IEEE 802.11n 2.4 GHz 20 MHz (256QAM) Continuous TX mode _ANT-1



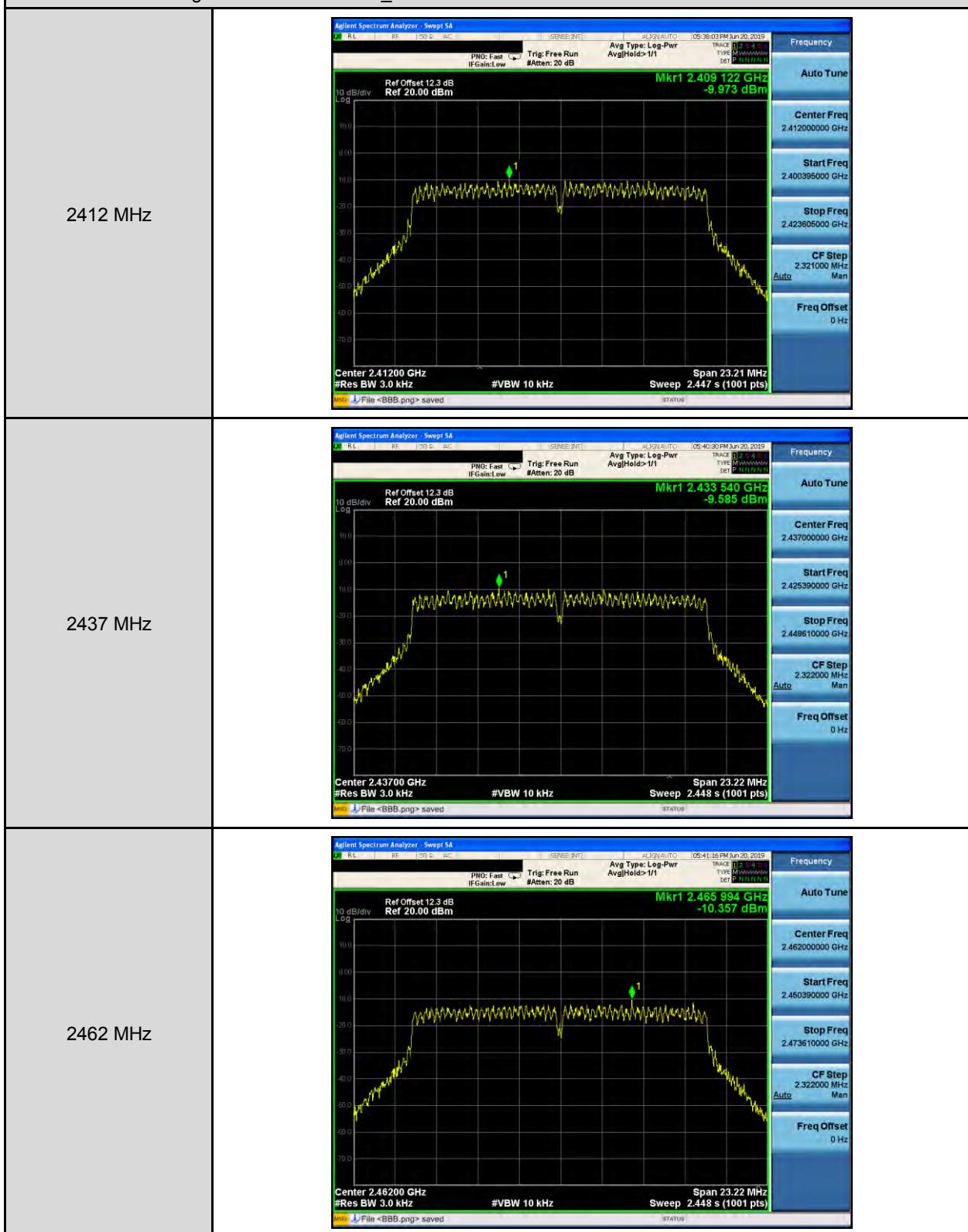
Mode 7: IEEE 802.11n 2.4 GHz 40 MHz (256QAM) Continuous TX mode _ANT-1

2422 MHz	 <p>Agilent Spectrum Analyzer - Swept SA</p> <p>Ref Offset 12.3 dB Ref 20.00 dBm</p> <p>Center 2.42200 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 52.73 MHz Sweep 5.560 s (1001 pts)</p> <p>Mkr1 2.418 52 GHz -14.304 dBm</p> <p>File <BBB.png> saved</p>
2437 MHz	 <p>Agilent Spectrum Analyzer - Swept SA</p> <p>Ref Offset 12.3 dB Ref 20.00 dBm</p> <p>Center 2.43700 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 52.73 MHz Sweep 5.560 s (1001 pts)</p> <p>Mkr1 2.433 52 GHz -12.964 dBm</p> <p>File <BBB.png> saved</p>
2452 MHz	 <p>Agilent Spectrum Analyzer - Swept SA</p> <p>Ref Offset 12.3 dB Ref 20.00 dBm</p> <p>Center 2.45200 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 52.73 MHz Sweep 5.560 s (1001 pts)</p> <p>Mkr1 2.454 48 GHz -14.918 dBm</p> <p>File <BBB.png> saved</p>

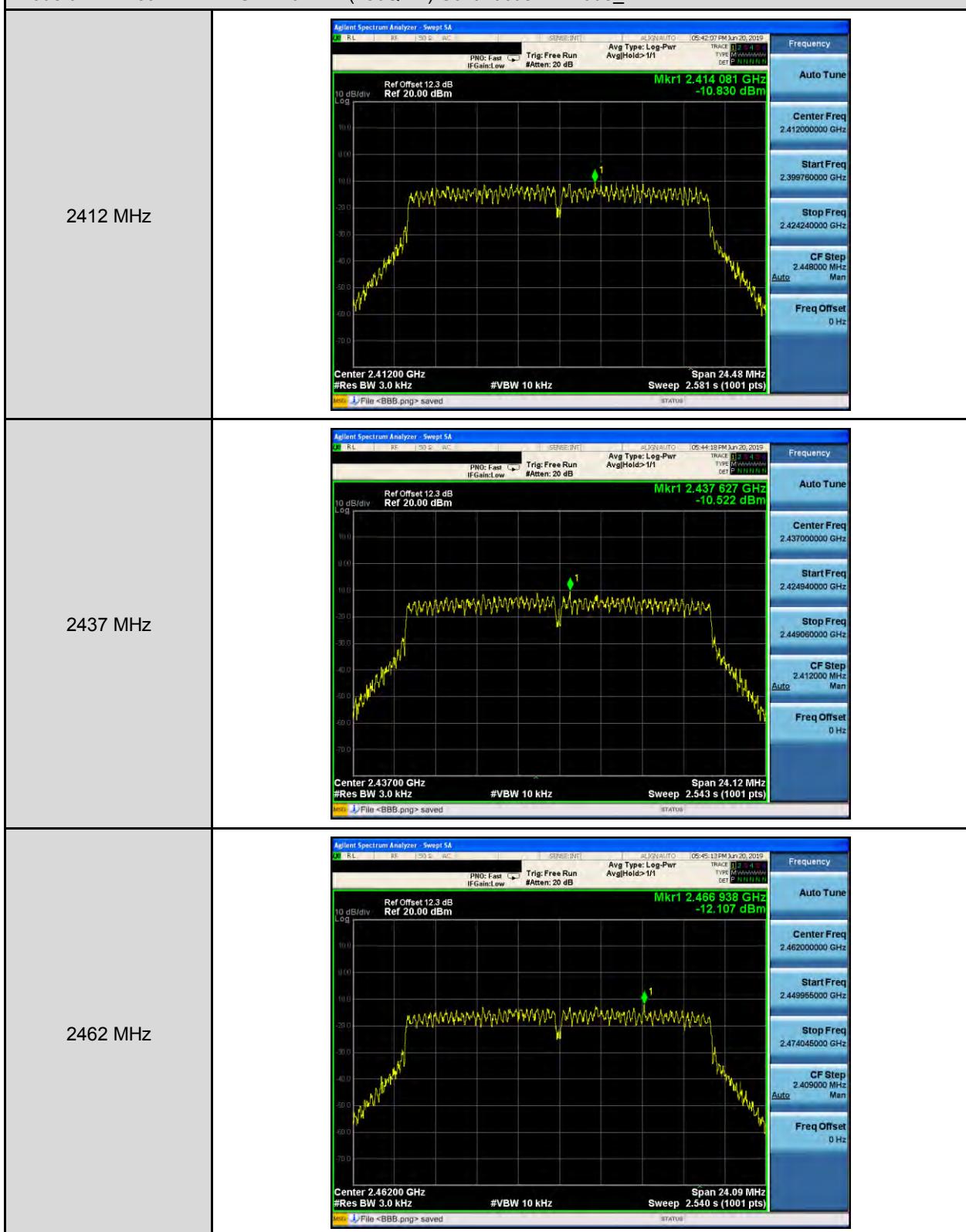
Mode 2: IEEE 802.11b Continuous TX mode_ANT-2



Mode 3: IEEE 802.11g Continuous TX mode_ANT-2



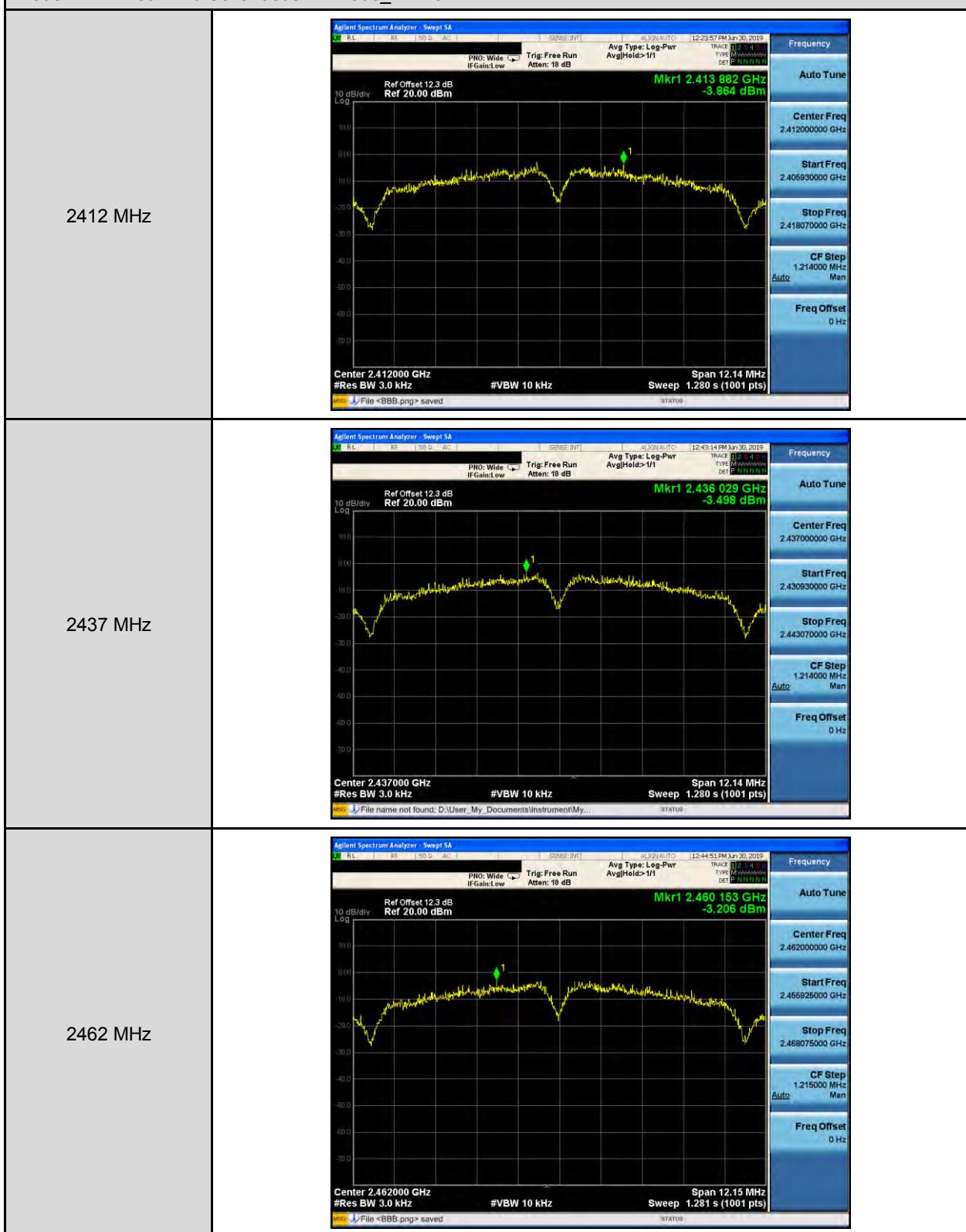
Mode 6: IEEE 802.11n 2.4 GHz 20 MHz (256QAM) Continuous TX mode _ANT-2



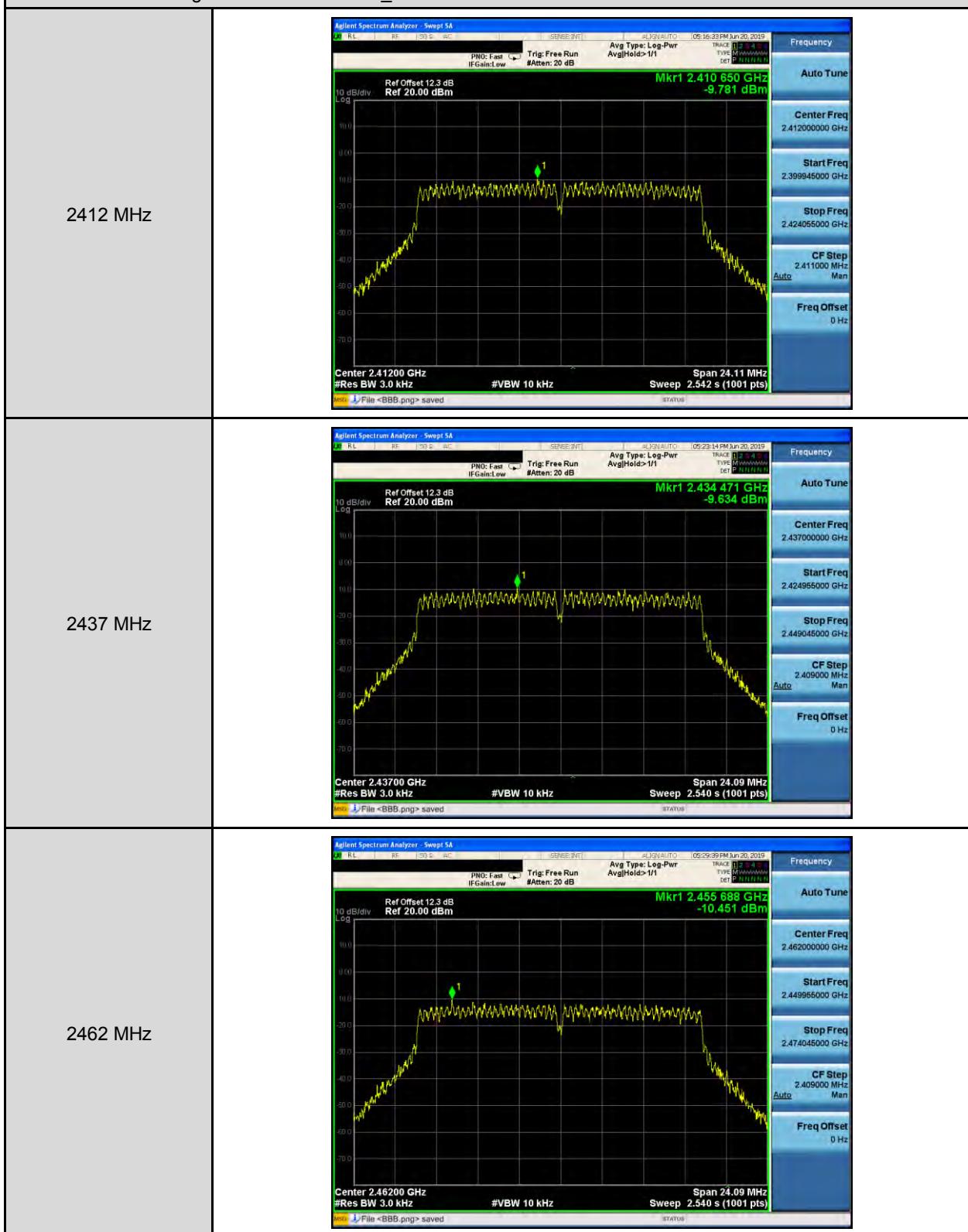
Mode 7: IEEE 802.11n 2.4 GHz 40 MHz (256QAM) Continuous TX mode _ANT-2



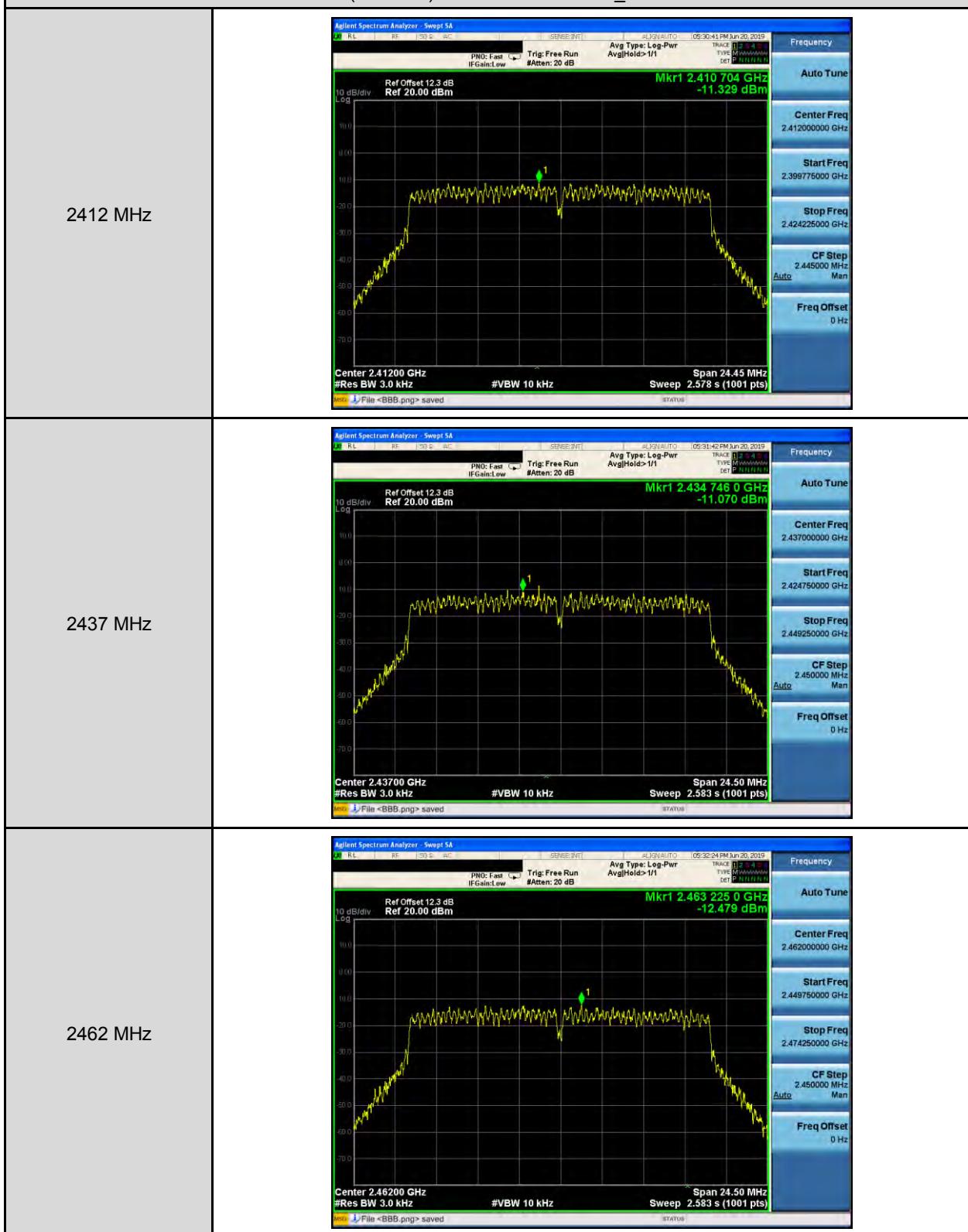
Mode 2: IEEE 802.11b Continuous TX mode_ANT-3



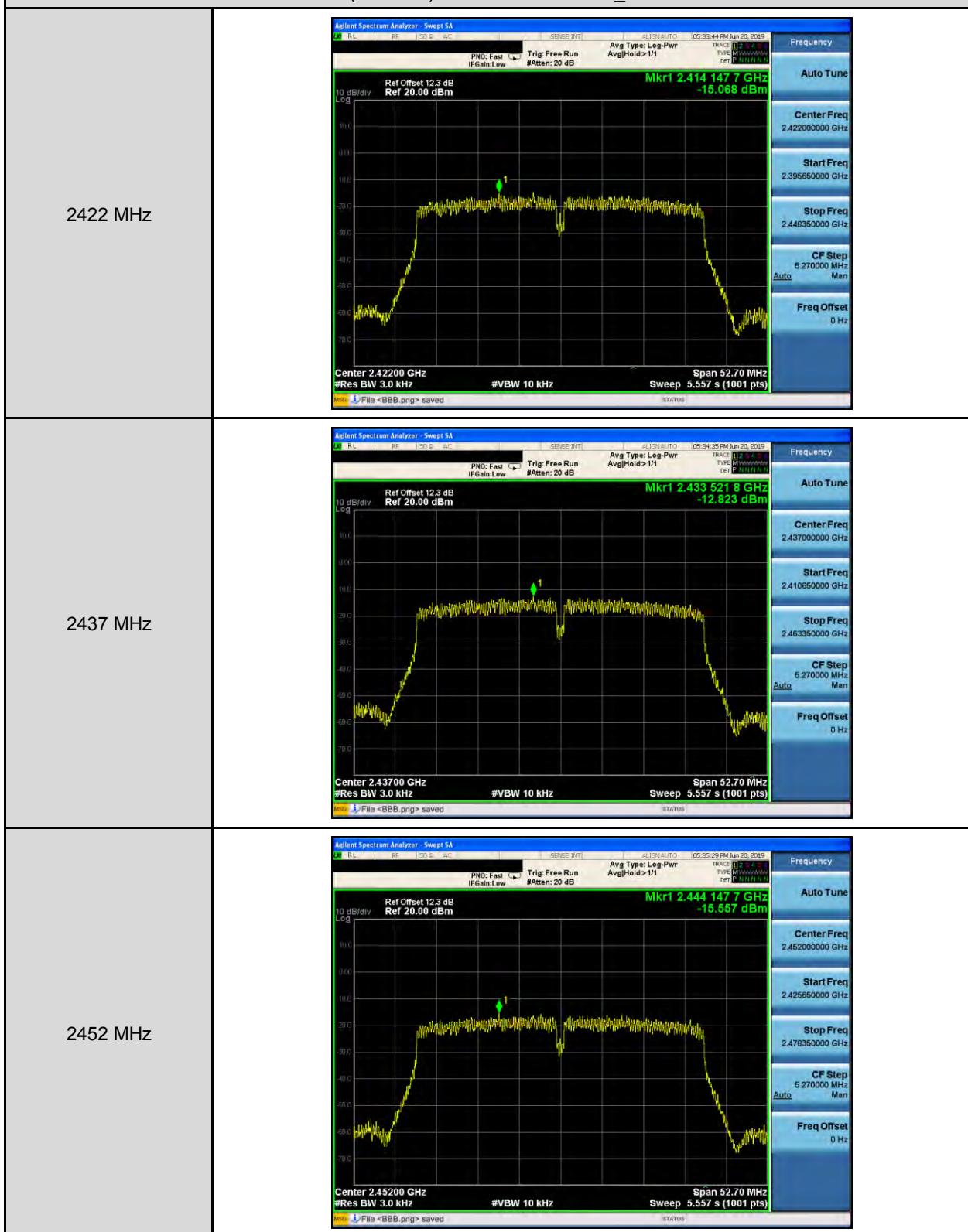
Mode 3: IEEE 802.11g Continuous TX mode_ANT-3



Mode 6: IEEE 802.11n 2.4 GHz 20 MHz (256QAM) Continuous TX mode _ANT-3

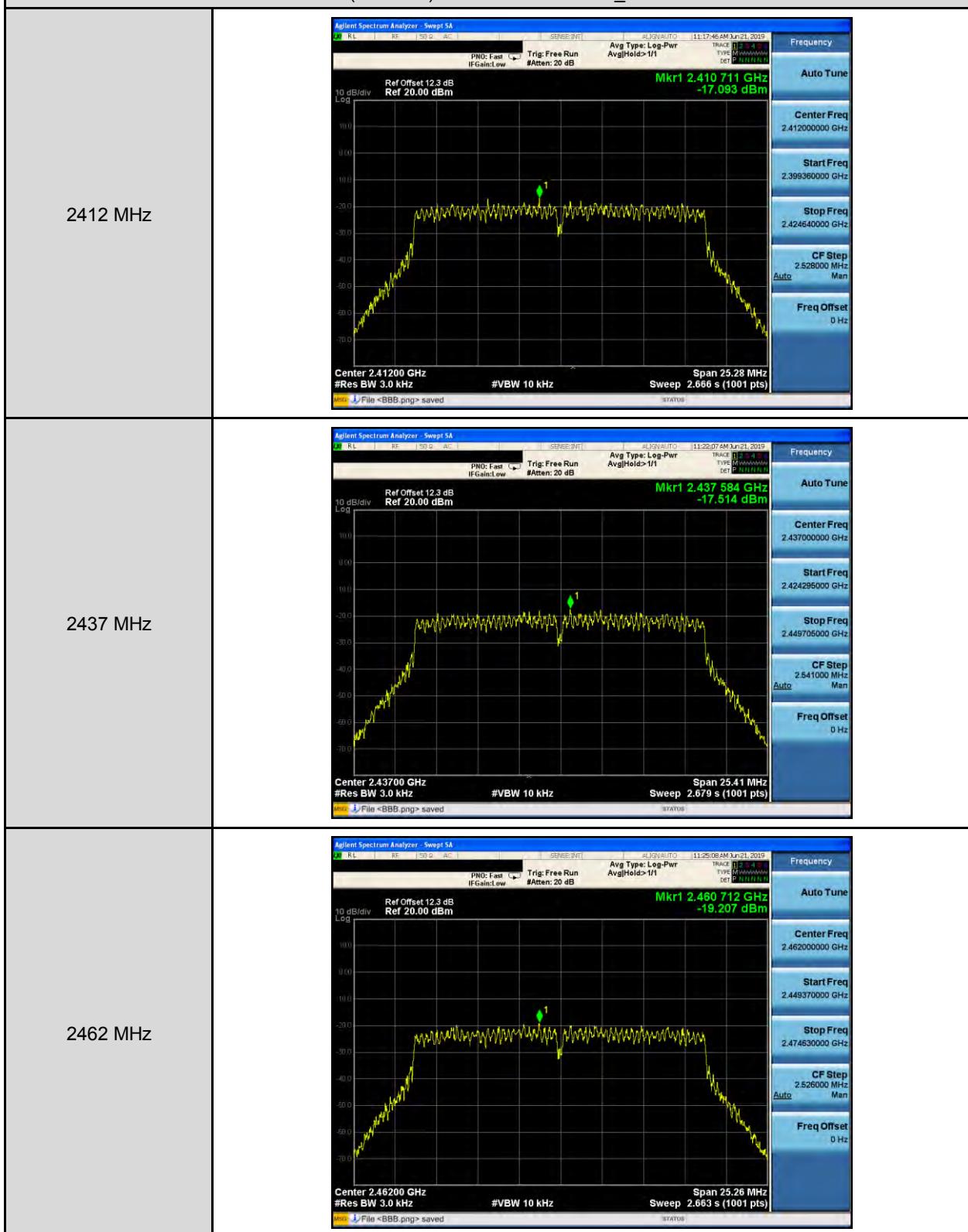


Mode 7: IEEE 802.11n 2.4 GHz 40 MHz (256QAM) Continuous TX mode _ANT-3

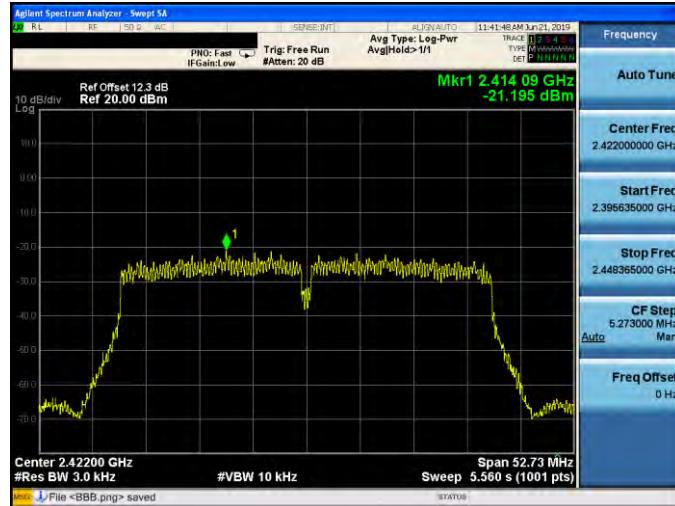
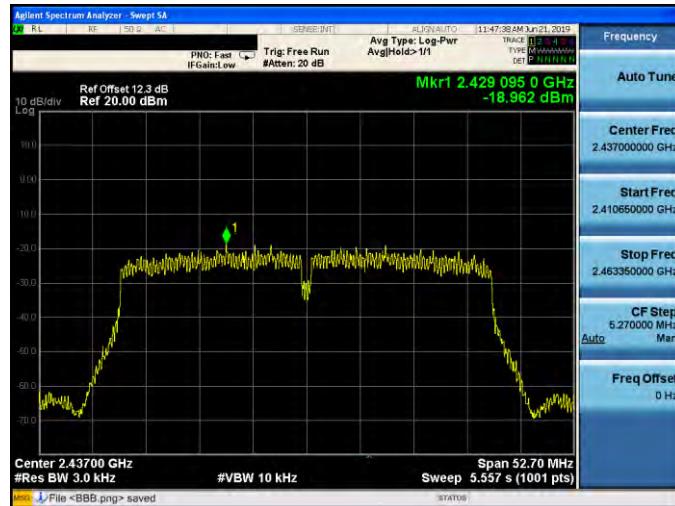
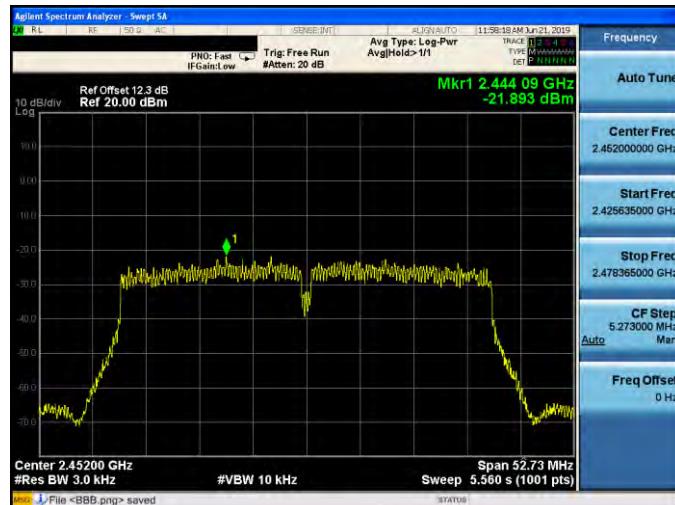


Beamforming on

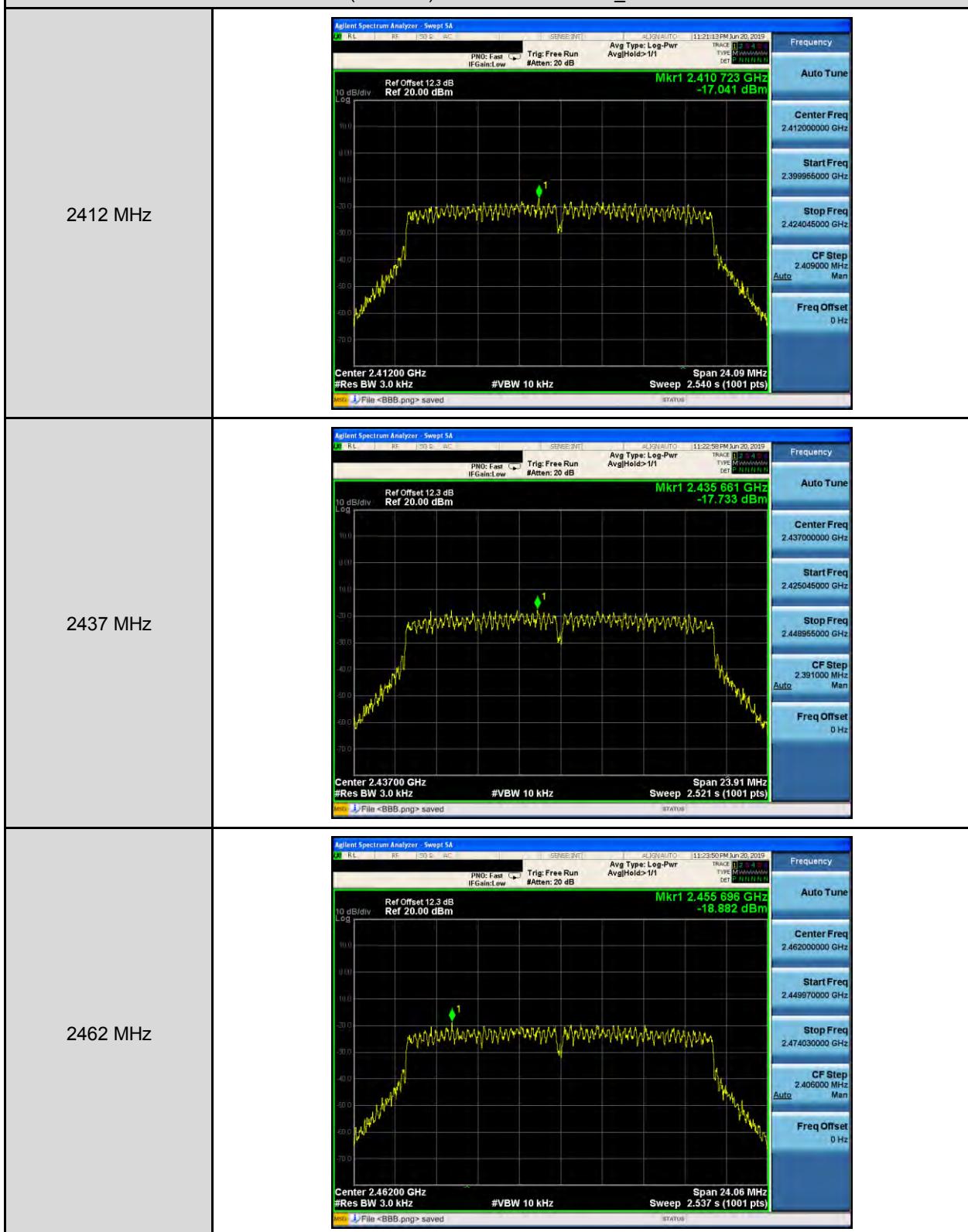
Mode 6: IEEE 802.11n 2.4 GHz 20 MHz (256QAM) Continuous TX mode _ANT-0



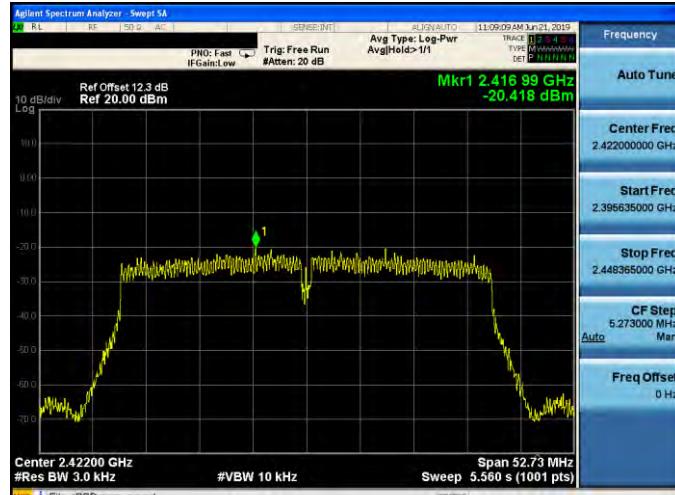
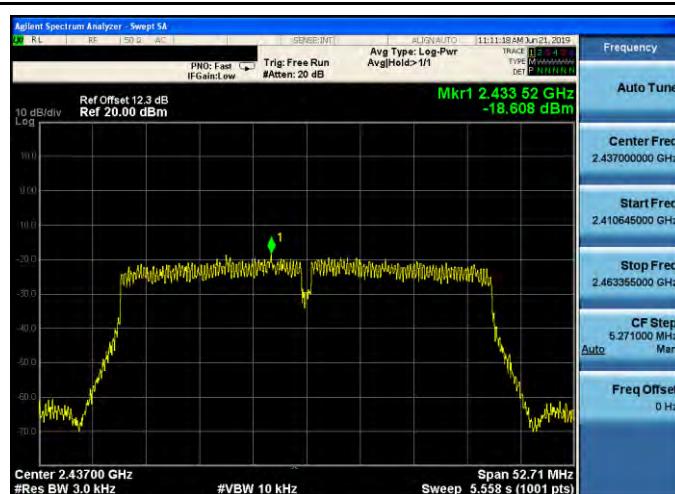
Mode 7: IEEE 802.11n 2.4 GHz 40 MHz (256QAM) Continuous TX mode _ANT-0

2422 MHz	 <p>Agilent Spectrum Analyzer - Sweep SA</p> <p>Ref Offset 12.3 dB Ref 20.00 dBm</p> <p>Mkr1 2.414 09 GHz -21.195 dBm</p> <p>Center 2.42200 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 52.73 MHz Sweep 5.560 s (1001 pts)</p> <p>File <BBB.png> saved</p>
2437 MHz	 <p>Agilent Spectrum Analyzer - Sweep SA</p> <p>Ref Offset 12.3 dB Ref 20.00 dBm</p> <p>Mkr1 2.429 095 0 GHz -18.962 dBm</p> <p>Center 2.43700 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 52.70 MHz Sweep 5.557 s (1001 pts)</p> <p>File <BBB.png> saved</p>
2452 MHz	 <p>Agilent Spectrum Analyzer - Sweep SA</p> <p>Ref Offset 12.3 dB Ref 20.00 dBm</p> <p>Mkr1 2.444 09 GHz -21.893 dBm</p> <p>Center 2.45200 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 52.73 MHz Sweep 5.560 s (1001 pts)</p> <p>File <BBB.png> saved</p>

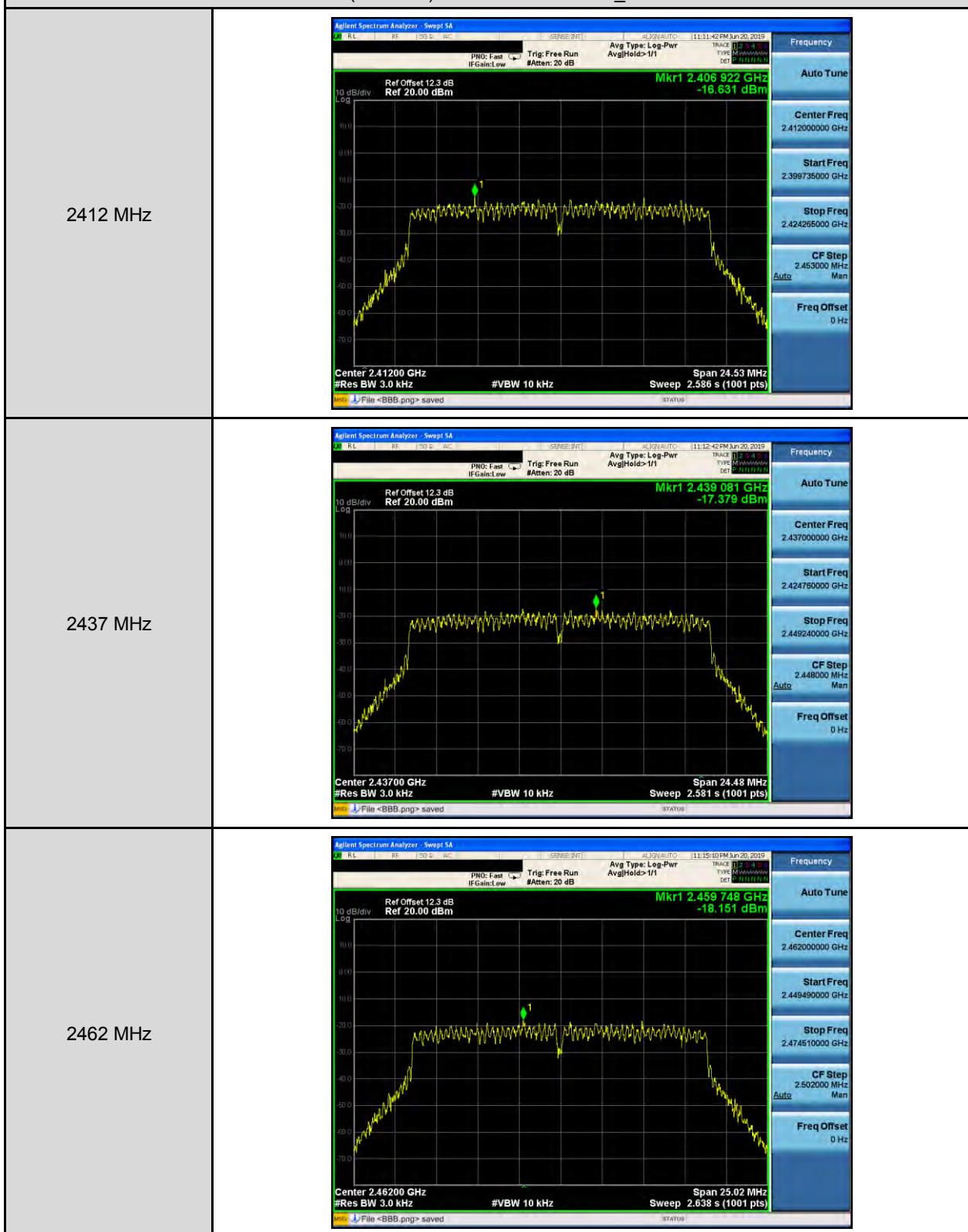
Mode 6: IEEE 802.11n 2.4 GHz 20 MHz (256QAM) Continuous TX mode _ANT-1



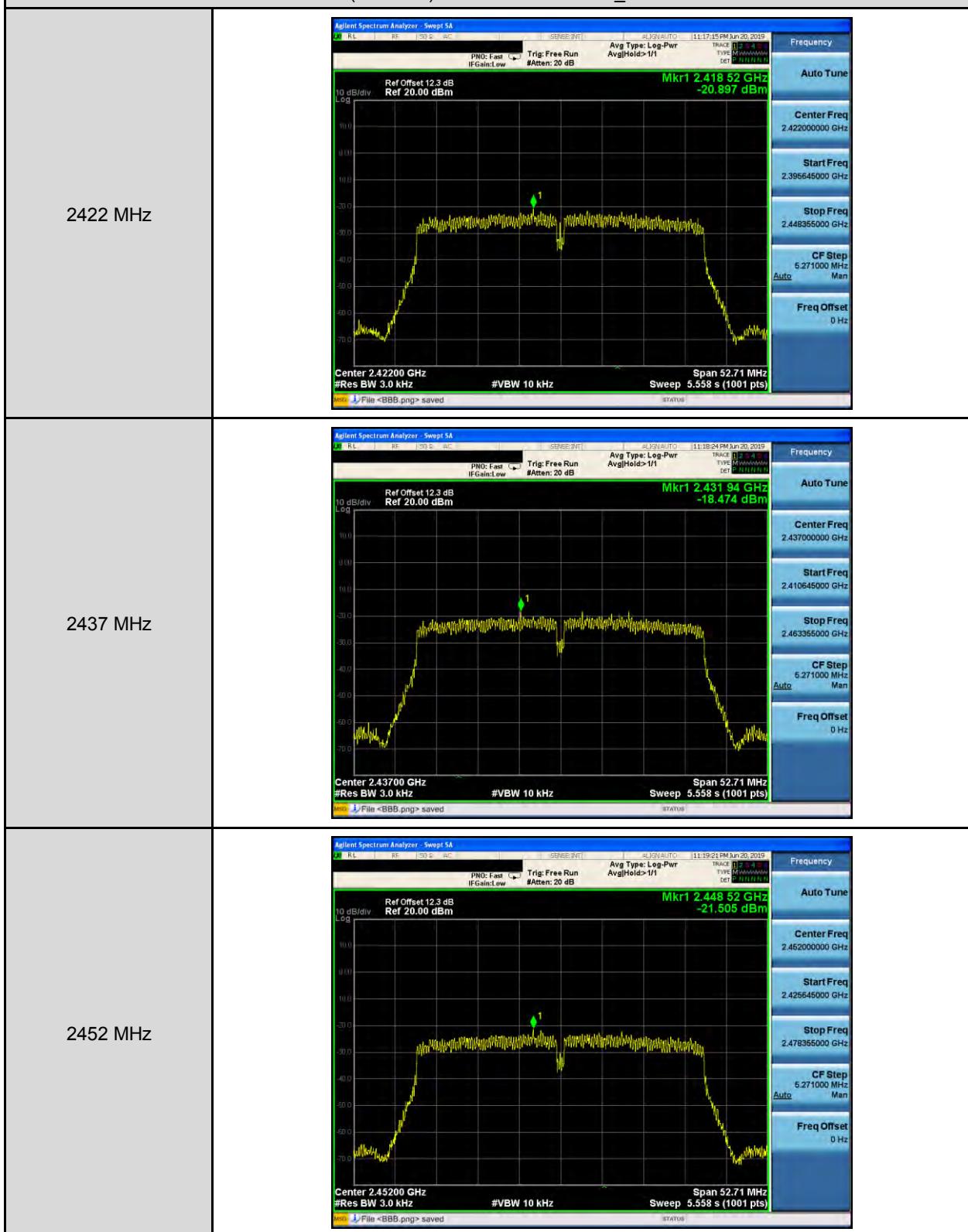
Mode 7: IEEE 802.11n 2.4 GHz 40 MHz (256QAM) Continuous TX mode _ANT-1

2422 MHz	 <p>Agilent Spectrum Analyzer - Swept SA</p> <p>Ref Offset 12.3 dB Ref 20.00 dBm</p> <p>Center 2.42200 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 52.73 MHz Sweep 5.560 s (1001 pts)</p> <p>Mkr1 2.416 89 GHz -20.418 dBm</p> <p>File <BBB.png> saved</p>
2437 MHz	 <p>Agilent Spectrum Analyzer - Swept SA</p> <p>Ref Offset 12.3 dB Ref 20.00 dBm</p> <p>Center 2.43700 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 52.71 MHz Sweep 5.558 s (1001 pts)</p> <p>Mkr1 2.433 52 GHz -18.608 dBm</p> <p>File <BBB.png> saved</p>
2452 MHz	 <p>Agilent Spectrum Analyzer - Swept SA</p> <p>Ref Offset 12.3 dB Ref 20.00 dBm</p> <p>Center 2.45200 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 52.73 MHz Sweep 5.560 s (1001 pts)</p> <p>Mkr1 2.448 52 GHz -21.283 dBm</p> <p>File <BBB.png> saved</p>

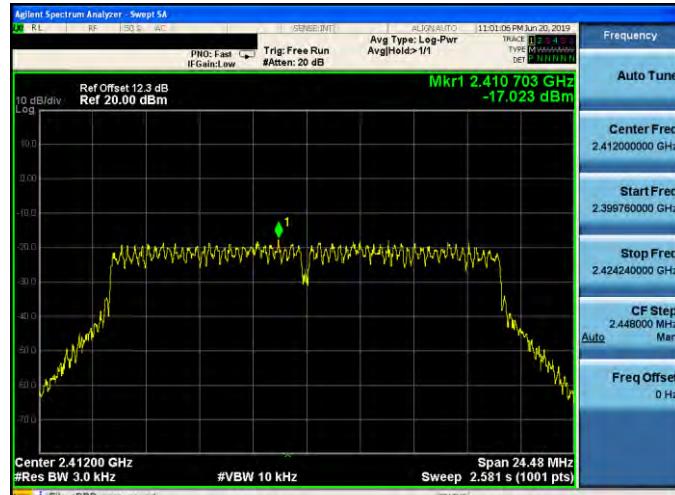
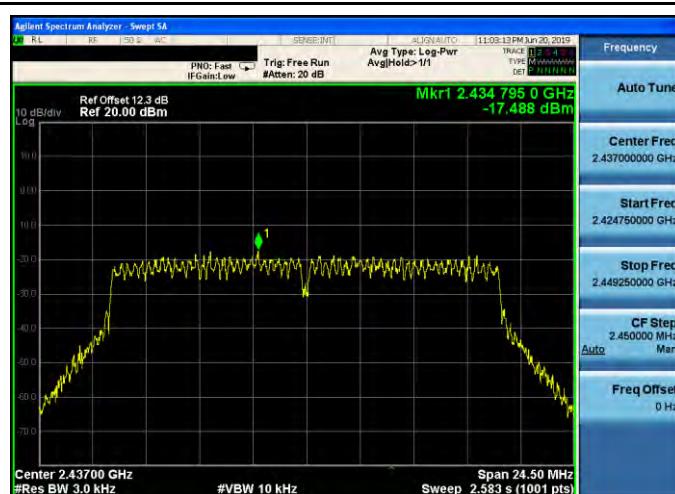
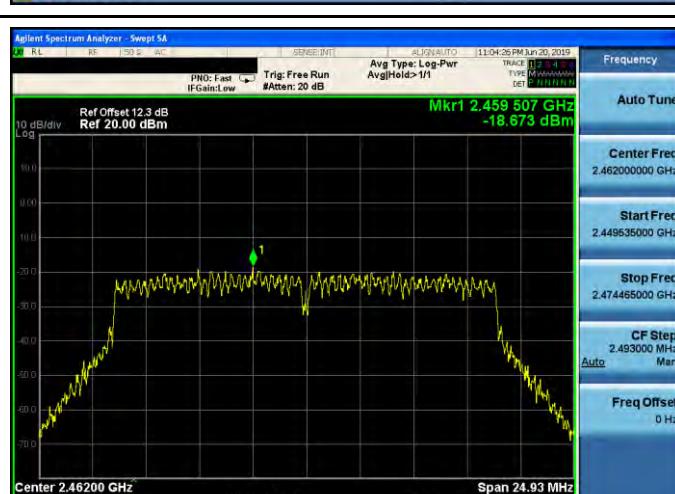
Mode 6: IEEE 802.11n 2.4 GHz 20 MHz (256QAM) Continuous TX mode _ANT-2



Mode 7: IEEE 802.11n 2.4 GHz 40 MHz (256QAM) Continuous TX mode _ANT-2



Mode 6: IEEE 802.11n 2.4 GHz 20 MHz (256QAM) Continuous TX mode _ANT-3

2412 MHz	 <p>Agilent Spectrum Analyzer - Sweep SA</p> <p>Ref Offset 12.3 dB Ref 20.00 dBm</p> <p>Center 2.41200 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 24.48 MHz Sweep 2.581 s (1001 pts)</p> <p>Mkr1 2.410 703 GHz -17.023 dBm</p> <p>Frequency Auto Tune Center Freq 2.41200000 GHz Start Freq 2.399760000 GHz Stop Freq 2.424240000 GHz CF Step 2.448000 MHz Auto Freq Offset 0 Hz</p>
2437 MHz	 <p>Agilent Spectrum Analyzer - Sweep SA</p> <p>Ref Offset 12.3 dB Ref 20.00 dBm</p> <p>Center 2.43700 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 24.50 MHz Sweep 2.583 s (1001 pts)</p> <p>Mkr1 2.434 795 GHz -17.488 dBm</p> <p>Frequency Auto Tune Center Freq 2.43700000 GHz Start Freq 2.424750000 GHz Stop Freq 2.449250000 GHz CF Step 2.460000 MHz Auto Freq Offset 0 Hz</p>
2462 MHz	 <p>Agilent Spectrum Analyzer - Sweep SA</p> <p>Ref Offset 12.3 dB Ref 20.00 dBm</p> <p>Center 2.46200 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 24.93 MHz Sweep 2.629 s (1001 pts)</p> <p>Mkr1 2.459 507 GHz -18.673 dBm</p> <p>Frequency Auto Tune Center Freq 2.46200000 GHz Start Freq 2.449535000 GHz Stop Freq 2.474465000 GHz CF Step 2.493000 MHz Auto Freq Offset 0 Hz</p>

Mode 7: IEEE 802.11n 2.4 GHz 40 MHz (256QAM) Continuous TX mode _ANT-3

