ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

Applicant:	ASUSTeK COMPUTER INC. 1F., No. 15, Lide Rd., Beitou Dist., Taipei City 112, Taiwan
Product Name:	ASUS Phone (Mobile Phone)
Brand Name:	ASUS
Model No.:	ASUS_I003D
Model Difference:	N/A
Report Number:	ER/2020/30079
FCC ID:	MSQI003D
IC:	3568A-I003D
FCC Rule Part:	§15.247, Cat: DTS
IC RSS:	RSS-247 issue 2 Feb 2017
Issue Date:	Aug. 17, 2020
Date of Test:	May 06, 2020 ~ Jun. 29, 2020
Date of EUT Received:	May 06, 2020

We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. Central RF Lab The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10:2013 and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits.
The test results of this report relate only to the tested sample identified in this report.

Approved By: Jazz Huang

Jazz Huang / Asst. Supervisor

Testing Laboratory
3702

Revision History

Report Number	Revision	Description	Issue Date	Remark
ER/2020/30079	Rev.00	Original.	Aug. 17, 2020	Revised By: Karen Huang

Note:

1、 Disclaimer
Antenna information is provided by the applicant, test results of this report are applicable to the sample EUT received.

Table of Contents

1 GENERAL INFORMATION

1.1 Product description

Product Name:	ASUS Phone (Mobile Phone)	
Brand Name:	ASUS	
Model No.:	ASUS_I003D	
Model Difference:	N/A	
Hardware Version:	R2.0B	
Software Version:	Android Q	
AJ dongle:	Model No.: F370002, Supplier: MEILU	
Fan Dongle:	Model No.: I003, Supplier: ASUS	
USB Cable:	Model No.: LA9U2015-CS-R, Supplier: ASAP	
Power Supply:	3.85Vdc from Rechargeable Li-polymer Battery or 5V / 9V / 12V / 15V / 20V from AC/DC Adapter	
	Battery:	Model No.: C11P1903, Supplier: SCUD
	Adapter:	Model No.: A299-200150U-US, Supplier: AOHAI

Wi-Fi 802.11	Frequency Range	Channels	Rated Power (dBm)	Modulation Technology
b	2412-2462	11	22.63	DSSS,
g			26.56	OFDM, OFDMA
n_HT20 ax_HE20			HE: 27.88 (MIMO)	
n_HT40 ax_HE40	2422-2452	7	HE: 26.75 (MIMO)	
Modulation type:	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 1024QAM for OFDMA in 802.11ax only			
Transistion Rate	802.11 b: 1/2/5.5/11 Mbps 802.11 g: 6/9/12/18/24/36/48/54 Mbps 802.11 n_20MHz: 6.5 – 144.4Mbps 802.11 n_40MHz: 13.5 – 300.0Mbps 802.11 ax_HE20MHz: 8 –286.8 Mbps 802.11 ax_HE40MHz: 17.2 -573.5 Mbps			

1.2 Antenna Designation

Wi-Fi					
Antenna Type	Supplier	Antenna Part No.	Freq. (MHz)	Peak Antenna Gain (dBi)	Worst Antenna Gain
PIFA	N/A	Ant4	2412~2462	-1.0	V
		Ant5		-1.8	V
		Ant6		-2.0	
Note: Pre-scanned was done on the above 3 antennas, the peak gain -1.0dBi results higher emission. Therefore, the completed set of measurement was done on the antenna to be presented on this test report.					

For MIMO mode, higher antenna gains are chosen to ensure higher directional gain is evaluated as below.

Transmission Chain	Antenna Part No.	Freq. (MHz)	Peak Antenna Gain (dBi)	Directional Gain (dBi)
Chain0	Ant4	2412~2462	-1.0	1.63
Chain1	Ant5		-1.8	

1.3 Test Methodology of Applied Standards

FCC Part 15, Subpart C §15.247
FCC KDB 558074 D01 15.247 Meas Guidance v05r02
FCC KDB 662911 D01 Multiple Transmitter Output v02r01
RSS-247 issue 2 Feb. 2017
RSS-Gen. issue 5, Amendment 1, March 2019
ANSI C63.10:2013

1.4 Test Facility

SGS Taiwan Ltd. Central RF Lab (TAF code 3702)

No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803

FCC Designation number: TW0027

ISED CAB identifier: TW3702

1.5 Special Accessories

There are no special accessories used while test was conducted.

1.6 Equipment Modifications

There was no modification incorporated into the EUT.

2 SYSTEM TEST CONFIGURATION

2.1 EUT Configuration

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

2.2 EUT Exercise

An engineering test mode (software/firmware) that applicant provided was utilized to manipulate the EUT into transmit, selection of the test channel, and modulation scheme.

2.3 Test Procedure

2.3.1 Conducted Emissions

The EUT is a placed on a table which is 0.8 m above ground plane. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz. The CISPR Quasi-Peak and Average detector mode is employed. The two LISNs provide 50uH/50 ohm of coupling impedance for the measuring instrument. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

2.3.2 Conducted Test (RF)

The active antenna port of the unlicensed wireless device is connected to the spectrum analyzer with attenuator to protect the instrumentation. If a second antenna port is available, it is tested at one operating frequency, with other port(s) appropriately terminated, to verify it has similar output characteristics as the fully tested port.

2.3.3 Radiated Emissions

The EUT is a placed on a turn table. For emissions testing at or below 1 GHz, the table height shall be 0.8 m above the reference ground plane. For emission measurements above 1 GHz, the table height shall be 1.5 m. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this transmitter (EUT) was rotated through three orthogonal axes and measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made “while keeping the antenna in the ‘cone of radiation’ from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response.” is still within the 3dB illumination BW of the measurement antenna.

2.4 Measurement Results Explanation Example

2.4.1 Radiated Emission Test Sites For Measurements From 9 kHz To 30 MHz

Radiated emission below 30MHz is measured in a 9m*9m*6m semi-anechoic chamber, the measurements correspond to those obtained at an open-field test site.
There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

2.4.2 For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuation factor between EUT conducted port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly EUT RF output level.

2.5 Configuration of Tested System

Fig. 2-1 Radiated Emission configuration

Fig. 2-2 Conducted (Antenna Port) Configuration Emission

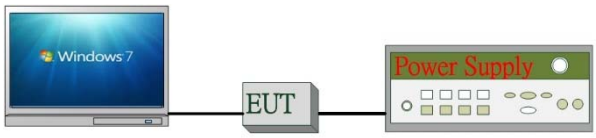


Fig 2-3 Conduction (AC Power Line) Radiated Emission

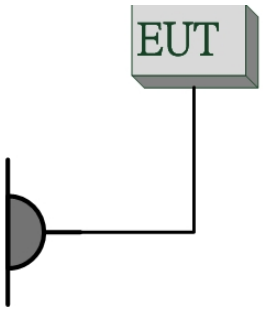


Table 2-1 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Data Cable	Power Cord
1.	WLAN Test Software	N/A	N/A	N/A	N/A	N/A
2.	Notebook	Lenovo	T440P	PB-02Y6RK	N/A	N/A
3.	DC Power Supply	Agilent	E3640A	MY40005907	N/A	N/A

3 SUMMARY OF TEST RESULTS

FCC Rules	IC Rules	Description Of Test	Result
§15.207(a)	RSS-Gen §8.8	AC Power Line Conducted Emission	Compliant
§15.247(b) (3)	RSS-247 §5.4 d	Peak Output Power	Compliant
§15.247(a)(2)	RSS-247 §5.2 a RSS-Gen §6.7	6dB & 99% Emission Bandwidth	Compliant
§15.205 §15.209 §15.247(d)	RSS-247 §5.5 RSS-Gen §8.10	Conducted Band Edge and Spurious Emission	Compliant
§15.205 §15.209 §15.247(d)	RSS-247 §5.5 RSS-Gen §8.9 RSS-Gen §8.10 RSS-Gen §6.13	Radiated Band Edge and Spurious Emission	Compliant
§15.247(e)	RSS-247 §5.2 b	Power Spectral Density	Compliant
§15.203 §15.247(b)	RSS- Gen §6.8	Antenna Requirement	Compliant

4 DESCRIPTION OF TEST MODES

4.1 Operated in 2400 ~ 2483.5MHz Band

11 channels are provided for 802.11b/g/n/ax 20M.

CHANNEL	FREQUENCY (MHz)
1	2412
2	2417
3	2422
4	2427
5	2432
6	2437
7	2442
8	2447
9	2452
10	2457
11	2462

9 channels are provided for 802.11n/ax 40M

CHANNEL	FREQUENCY (MHz)
3	2422
4	2427
5	2432
6	2437
7	2442
8	2447
9	2452

4.2 The Worst Test Modes and Channel Details

1. Test program used to control the EUT for staying in continuous transmitting and receiving mode is programmed.
2. WiFi signals can be transmitted from 4 antennas with 4 different modes, only one mode is available at any given time.
   1. Observations have been done for each mode and found that the ***Gaming Mode*** generates higher output power and emissions.
   2. The ***Gaming Mode*** is determined as the worst case scenario and the test results being demonstrated in this test report are based on the ***Gaming Mode***.
   3. Spot check has been done on radiated spurious emissions of Calling, Normal and Camera Mode and demonstrated in section **11.7.4** to **11.7.6** in this test report.
   4. Please refer to ***Antenna Location*** section of this report for antenna details.

Mode	Antenna
Calling Mode	Chain0 is adapted in Ant4 Chain1 is adapted in Ant6
Camera Mode	Chain0 is adapted in Ant6 Chain1 is adapted in Ant5
Normal Mode	Portrait: Chain0 is adapted in Ant4 Chain1 is adapted in Ant6 Landscape: Chain0 is adapted in Ant4 Chain1 is adapted in Ant5
Gaming Mode	Chain0 is adapted in Ant4 Chain1 is adapted in Ant5

3. Investigation has been done on all the possible configurations for searching the worst case. The gevin UE is pre-scanned among below modes.

Modulation	Transmission Chain				Single Transmission Spatial	Multiple Transmission Spatial
☒ 802.11 b	☒ Ch0	☒ Ch1	☐ Ch2	☐ Ch3	☒ 1TX	☒ 2TX
☒ 802.11 g	☒ Ch0	☒ Ch1	☐ Ch2	☐ Ch3	☒ 1TX	☒ 2TX
☒ 802.11 n	☒ Ch0	☒ Ch1	☐ Ch2	☐ Ch3	☒ SISO	☒ MIMO
☒ 802.11 ax	☒ Ch0	☒ Ch1	☐ Ch2	☐ Ch3	☒ SISO	☒ MIMO

4. Observations have been done for 802.11 ax available RU configurations below and found that the lowest, heighest and Full RU results higher emissions.

Only one RU can be enabled at any given time.

802.11ax	20MHz			
RU type	26-tone RU		52-tone RU	
RU index and subcarrier range	RU0	[-121: -96]	RU37	[-121: -70]
	RU1	[-95: -70]	RU38	[-68: -17]
	RU2	[-68: -43]	RU39	[17: 68]
	RU3	[-42: -17]	RU40	[70: 121]
	RU4	[-16: -4, 4: 16]	RU41	N/A
	RU5	[17: 42]	RU42	N/A
	RU6	[43: 68]	RU43	N/A
	RU7	[70: 95]	RU44	N/A
	RU8	[96: 121]	RU45	N/A
	RU9	N/A	RU46	N/A
	RU10	N/A	RU47	N/A
	RU11	N/A	RU48	N/A
	RU12	N/A	RU49	N/A
	RU13	N/A	RU50	N/A
	RU14	N/A	RU51	N/A
	RU15	N/A	RU52	N/A
	RU16	N/A		
	RU17	N/A	106-tone RU	
	RU18	N/A	RU53	[-122: -17]
	RU19	N/A	RU54	[17: 122]
	RU20	N/A	RU55	N/A
	RU21	N/A	RU56	N/A
	RU22	N/A	RU57	N/A
	RU23	N/A	RU58	N/A
	RU24	N/A	RU59	N/A
	RU25	N/A	RU60	N/A
	RU26	N/A		
	RU27	N/A	242-tone RU	
	RU28	N/A	RU61	[-122: -2, 2:122]
	RU29	N/A	RU62	N/A
	RU30	N/A	RU63	N/A
	RU31	N/A	RU64	N/A
	RU32	N/A		
	RU33	N/A		
	RU34	N/A		
	RU35	N/A		
	RU36	N/A		

802.11ax	40MHz			
RU type	26-tone RU		52-tone RU	
RU index and subcarrier range	RU0	[-243: -218]	RU37	[-243: -192]
	RU1	[-217: -192]	RU38	[-189: -138]
	RU2	[-189: -164]	RU39	[-109: -58]
	RU3	[-163: -138]	RU40	[-55: -4]
	RU4	[-136: -111]	RU41	[4: 55]
	RU5	[-109: -84]	RU42	[58: 109]
	RU6	[-83: -58]	RU43	[138: 189]
	RU7	[-55: -30]	RU44	[192: 243]
	RU8	[-29: -4]	RU45	N/A
	RU9	[4: 29]	RU46	N/A
	RU10	[30: 55]	RU47	N/A
	RU11	[58: 83]	RU48	N/A
	RU12	[84: 109]	RU49	N/A
	RU13	[111: 136]	RU50	N/A
	RU14	[138: 163]	RU51	N/A
	RU15	[164: 189]	RU52	N/A
	RU16	[192: 217]		
	RU17	[218: 243]	106-tone RU	
	RU18	N/A	RU53	[-243: -138]
	RU19	N/A	RU54	[-109: -4]
	RU20	N/A	RU55	[4: 109]
	RU21	N/A	RU56	[138: 243]
	RU22	N/A	RU57	N/A
	RU23	N/A	RU58	N/A
	RU24	N/A	RU59	N/A
	RU25	N/A	RU60	N/A
	RU26	N/A		
	RU27	N/A	242-tone RU	
	RU28	N/A	RU61	[-244: -3]
	RU29	N/A	RU62	[3: 244]
	RU30	N/A	RU63	N/A
	RU31	N/A	RU64	N/A
	RU32	N/A		
	RU33	N/A	484-tone RU	
	RU34	N/A	RU65	[-244: -3, 3: 244]
	RU35	N/A	RU66	N/A
	RU36	N/A		

5. Therefore, below summary is the modes of test configuration that yield the highest reading and generate the highest emission chosen to carry out the relevantly mandatory test items.

4.3 Radiated Emission Test:

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT
RADIATED EMISSION TEST (BELOW 1 GHz)					
802.11g	1 to 11	6	OFDM	6	2TX
802.11n 40M	3 to 9	6	OFDM	MCS8	MIMO
RADIATED EMISSION TEST (ABOVE 1 GHz)					
802.11b	1 to 11	1, 6, 11	DSSS	1	2TX
802.11g	1 to 11	1, 6, 11	OFDM	6	2TX
802.11n	1 to 11	1, 6, 11	OFDM	MCS 8	MIMO
802.11n	3 to 9	3, 6, 9	OFDM	MCS 8	MIMO

RADIATED EMISSION TEST (ABOVE 1 GHz)						
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	RU CONFIGURA-TION	DATA RATE (Mbps)	ANTENNA PORT
802.11ax HE20	1 to 11	1, 6, 11	OFDMA	FULL RU 26/0 52/37 106/53	MCS0	MIMO
802.11ax HE40	3 to 9	3, 6, 9		FULL RU 242/61	MCS0	MIMO

Note: Observation has been done on all RU configurations, the Full RU configuration yields higher emssions and average output power, and hence the radiated emission results are demonstrated in full RU configuration in this report.

RADIATED EMISSION *SPOT CHECK* (ABOVE 1 GHz) ***Calling Mode, Camera Mode, Normal Mode***						
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	TESTED CHANNEL	MODU-LATION	DATA RATE (Mbps)	ANTENNA PORT
802.11b	1 to 11	1, 6, 11	1	DSSS	1	2TX

RADIATED EMISSION *SPOT CHECK* (ABOVE 1 GHz) *Calling Mode, Camera Mode, Normal Mode*							
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	TESTED CHANNEL	MODULA-TION	RU CONFIGU-RATION	DATA RATE (Mbps)	AN-TENNA PORT
802.11ax_HE20	1 to 11	1, 6, 11	11	OFDMA	FULL RU	MCS0	MIMO

Note:

The field strength of radiation emission was measured as EUT stand-up position (H mode) and lie down position (E1, E2 mode) for 802.11b/g/n/ax WLAN Transmitter for channel Low, Mid and High, the worst case E2 position was reported.

4.4 Antenna Port Conducted Mesurement:

CONDUCTED TEST					
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT
802.11b	1 to 11	1, 6, 11	DSSS	1	2TX
802.11g	1 to 11	1, 6, 11	OFDM	6	2TX
802.11n 20M	1 to 11	1, 6, 11	OFDM	MCS 8	MIMO
802.11n 40M	3 to 9	3, 6, 9	OFDM	MCS 8	MIMO

CONDUCTED TEST						
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODU-LATION	RU CONFIGURATION	DATA RATE (Mbps)	ANTENNA PORT
802.11ax 20M	1 to 11	1, 6, 11	OFDMA	full 26/8 52/40 106/54	MCS 0	MIMO
802.11ax 40M	3 to 9	3, 6, 9		full 242/61	MCS 0	MIMO
Note: Observation has been done on all RU configurations, the Full RU configuration yields higher emssions and average output power, hence the conducted emssion results are demonstrated in full RU configuration in this report.						

Note: EUT serial number is L4AIGF000585XCH.

5 MEASUREMENT UNCERTAINTY

Test Items	Uncertainty
AC Power Line Conducted Emission	+/- 2.586 dB
Peak Output Power	+/- 0.84 dB
6dB Bandwidth	+/- 51.33 Hz
100 KHz Bandwidth Of Frequency Band Edges	+/- 0.84 dB
Peak Power Density	+/- 1.3 dB
Temperature	+/- 0.65 °C
Humidity	+/- 4.6 %
DC / AC Power Source	DC= +/- 0.13%, AC= +/- 0.2%

Radiated Spurious Emission Measurement Uncertainty	
Polarization: Vertical	9kHz~30MHz: +-2.3dB
	30MHz - 180MHz: +/- 3.37dB
	180MHz -417MHz: +/- 3.19dB
	0.417GHz-1GHz: +/- 3.19dB
	1GHz - 18GHz: +/- 4.04dB
	18GHz - 40GHz: +/- 4.04dB
Polarization: Horizontal	9kHz~30MHz: +-2.3dB
	30MHz - 167MHz: +/- 4.22dB
	167MHz -500MHz: +/- 3.44dB
	0.5GHz-1GHz: +/- 3.39dB
	1GHz - 18GHz: +/- 4.08dB
	18GHz - 40GHz: +/- 4.08dB

Note:

1. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.
2. The conformity assessment statement in this report is based solely on the test results, measurement uncertainty is excluded.

6 CONDUCTED EMISSION TEST

6.1 Standard Applicable

Frequency range within 150kHz to 30MHz shall not exceed the Limit table as below.

Frequency range MHz	Limits dB(uV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50
Note 1.The lower limit shall apply at the transition frequencies 2.The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.		

6.2 Measurement Equipment Used

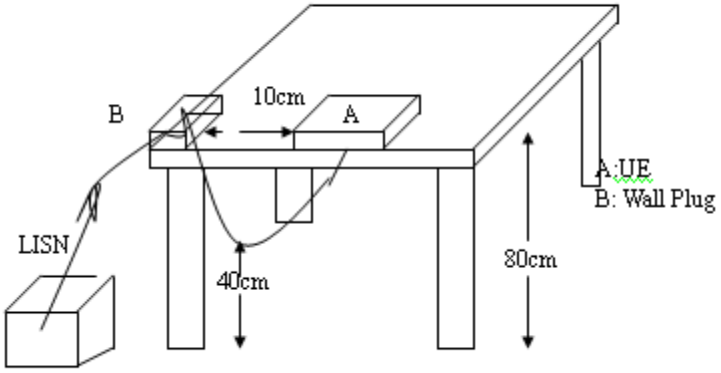
Conducted Emission Test Site					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
EMI Test Receiver	R&S	ESCI 7	100759	07/04/2019	07/03/2020
LISN	SCHWARZBECK	NSLK 8127	8127-465	04/09/2020	04/08/2021
Coaxial Cables	N/A	Coaxial Cable	161207	12/07/2019	12/06/2020
Test Software	audix	e3	Ver. 6.11-20180413	N.C.R	N.C.R

Note: N.C.R refers to Not Calibrated Required.

6.3 EUT Setup

1. The conducted emission tests were performed in the test site, using the setup in accordance with the ANSI 63.10:2013.
2. The AC/DC Power adaptor of EUT was plug-in LISN. The EUT was placed flushed with the rear of the table.
3. The LISN was connected with 120Vac/60Hz power source.

6.4 Test SET-UP (Block Diagram of Configuration)



6.5 Measurement Procedure

1. The EUT was placed on a table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all phases of power being supplied by given UE are completed

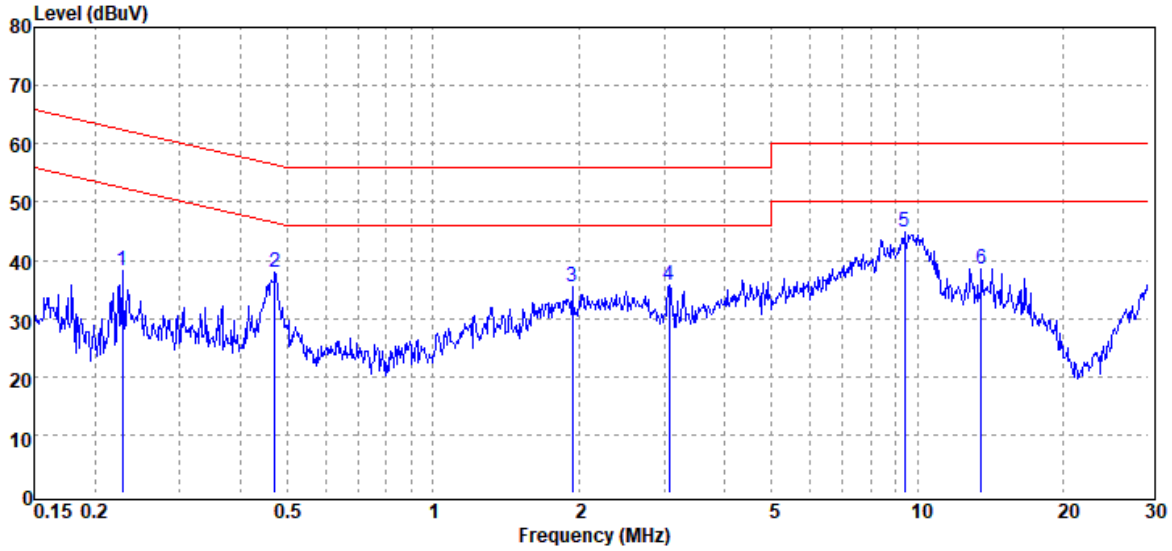
6.6 Measurement Result

Note: Refer to next page for measurement data and plots.

Note2: The * reveals the worst-case results that closet to the limit.

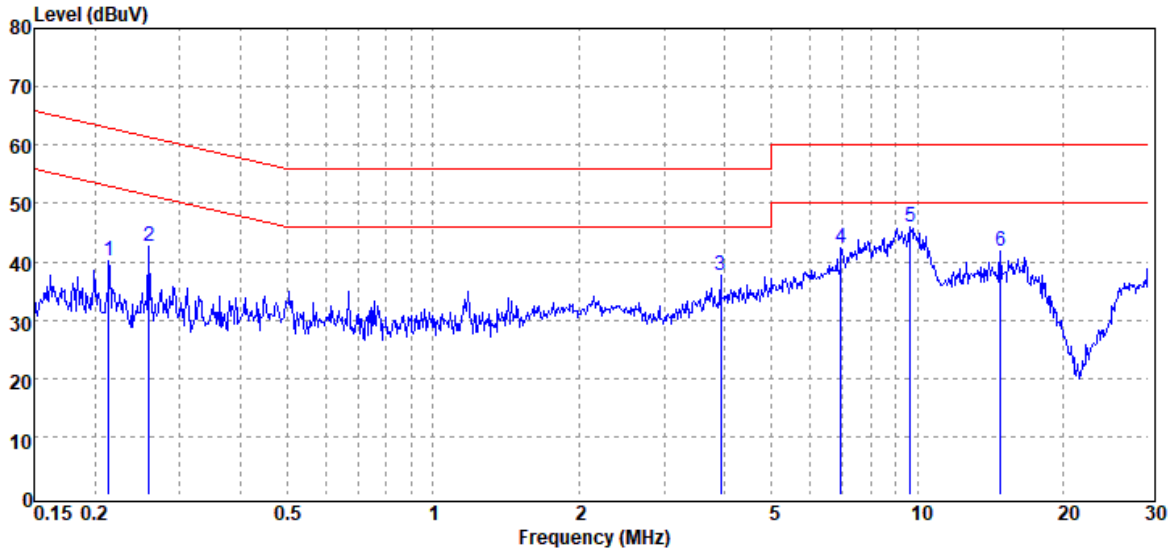
AC POWER LINE CONDUCTED EMISSION TEST DATA

Report Number	:ER-2020-30079	Test Site	:Conduction 6F
Test Mode	:WLAN 2.4G	Test Date	:2020-06-19
Power	:AC 120V/60Hz	Temp./Humi.	:25.6/62
Probe	:L	Engineer	:Neo
Note	:		



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV	dBµV	dB
0.23	Peak	36.03	2.14	38.17	62.52	-24.35
0.47	Peak	35.65	2.16	37.81	56.49	-18.68
1.94	Peak	33.26	2.26	35.52	56.00	-20.48
3.07	Peak	33.30	2.38	35.68	56.00	-20.32
9.40	Peak	42.14	2.80	44.94	60.00	-15.06
13.55	Peak	35.59	2.94	38.53	60.00	-21.47

Report Number	:ER-2020-30079	Test Site	:Conduction 6F
Test Mode	:WLAN 2.4G	Test Date	:2020-06-19
Power	:AC 120V/60Hz	Temp./Humi.	:25.6/62
Probe	:N	Engineer	:Neo
Note	:		



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV	dBµV	dB
0.21	Peak	37.93	2.21	40.14	63.05	-22.91
0.26	Peak	40.35	2.21	42.56	61.47	-18.91
3.92	Peak	35.14	2.40	37.54	56.00	-18.46
6.95	Peak	39.77	2.58	42.35	60.00	-17.65
9.65	Peak	43.14	2.69	45.83	60.00	-14.17
14.83	Peak	39.03	2.91	41.94	60.00	-18.06

7 DUTY CYCLE OF TEST SIGNAL

Pre-analysis Check: While conducting average power measurement, duty cycle of each mode shall be checked to ensure its duty cycle in order to compensate for the loss due to insufficient ratio of duty cycle. All duty cycle is pre-scanned, and result as obtained below shows only the most representative ones where duty cycle is conducted as the given transmission with given virtual operation that expresses the percentage.

7.1 Measurement Procedure:

1. Set span = Zero
2. RBW = 8MHz
3. VBW = 8MHz,
4. Detector = Peak

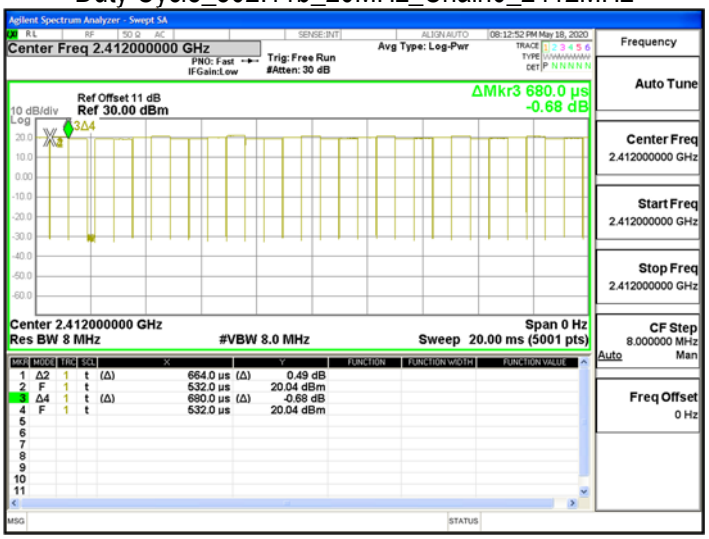
7.2 Duty Cycle:

	Duty Cycle (%) = Ton / (Ton+Toff)	Duty Factor (dB) =10*log (1/Duty Cycle)	1/T (kHz)	VBW setting (kHz)
802.11b	97.65	0.10	1.51	2.00
802.11g	99.15	0.04	0.51	0.01
802.11n_20	99.71	0.01	0.18	0.01
802.11n_40	99.71	0.01	0.18	0.01
802.11ax_20	99.71	0.01	0.18	0.01
802.11ax_40	99.71	0.01	0.18	0.01

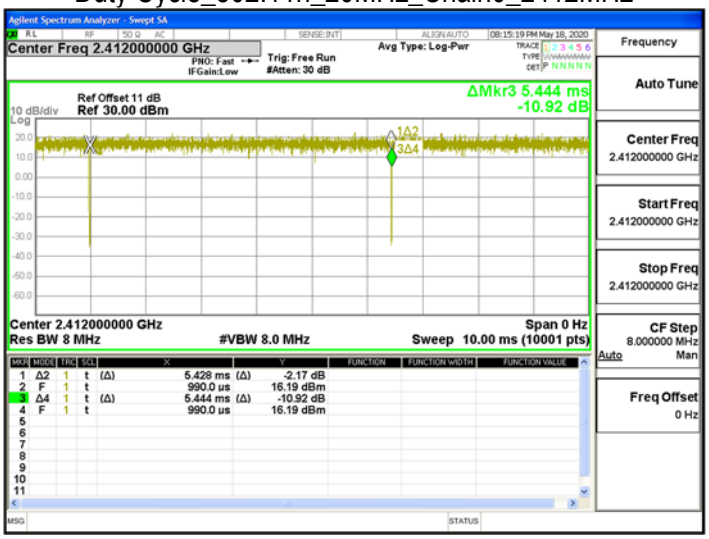
7.3 Duty Cycle test plots

Please refer to next page.

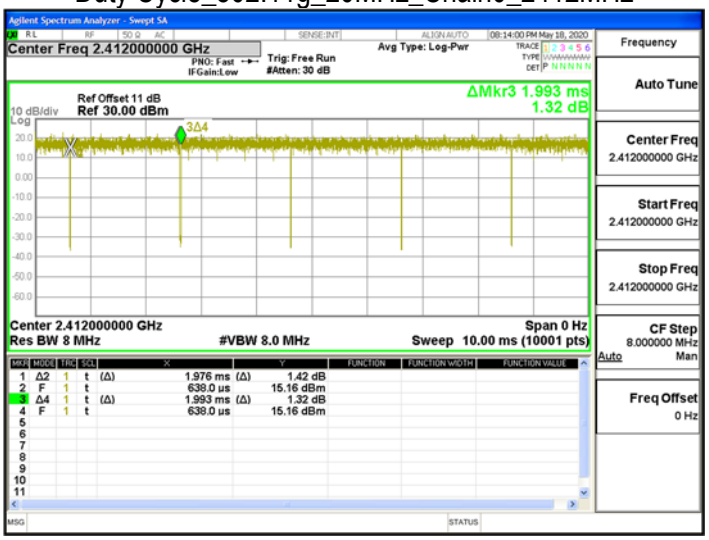
Duty Cycle_802.11b_20MHz_Chain0_2412MHz



Duty Cycle_802.11n_20MHz_Chain0_2412MHz

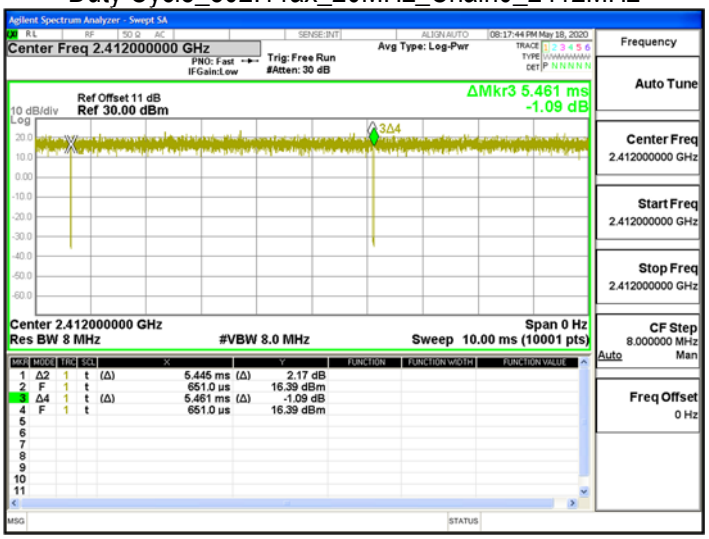


Duty Cycle_802.11g_20MHz_Chain0_2412MHz

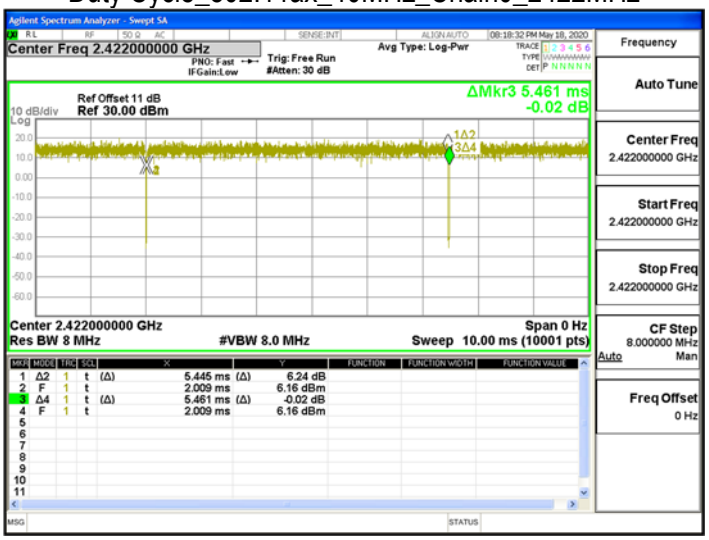


Duty Cycle_802.11n_40MHz_Chain0_2422MHz

Duty Cycle_802.11ax_20MHz_Chain0_2412MHz



Duty Cycle_802.11ax_40MHz_Chain0_2422MHz



8 PEAK OUTPUT POWER MEASUREMENT

8.1 Standard Applicable

For systems using digital modulation in the 2400-2483.5 MHz bands, the limit for peak output power is 1Watt.

If the transmitting antenna of directional gain greater than 6dBi are used the peak output power form the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the Antenna exceeds 6dBi.

In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of Antenna exceeds 6dBi.

8.2 As per section F. 2). e). (ii) of FCC KDB 662911 D01

If antenna gains are not equal and each transmit antenna is driven by only one spatial stream, directional gain may be calculated by either of the following formulas.

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

where

Each antenna is driven by no more than one spatial stream;
NSS = the number of independent spatial streams of data;
NANT = the total number of antennas
$g_{j,k}$ = / 20 10Gk if the kth antenna is being fed by spatial stream j, or zero if it is not;
G_k is the gain in dBi of the kth antenna.

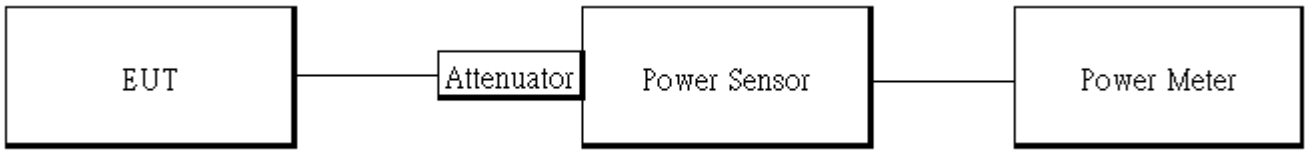
The antenna gain is not grater than 6 dBi. Therefore, reduction of power is not required.

8.3 Measurement Equipment Used

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Power Meter	Anritsu	ML2496A	1804001	02/20/2020	02/19/2021
Power Sensor	Anritsu	MA2411B	1726104	02/20/2020	02/19/2021
Power Sensor	Anritsu	MA2411B	1726107	02/20/2020	02/19/2021
DC Power Supply	Agilent	E3640A	MY40005907	10/22/2019	10/21/2020
Attenuator	Mini-Circuit	BW-S10W2+	2	01/02/2020	01/01/2021

8.4 Test Set-up

Power Meter:



8.5 Measurement Procedure

1. Place the EUT on the table and set it in transmitting mode.
2. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance .
3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the power meter.

   Power Meter:

   It is used as the auxiliary test equipment to conduct the output power measurement.
4. Record the max. Reading as observed from Spectrum or Power Meter.

**** Note: The duty cycle factor is compensated to obtain the maximum value of measurement in average.***

8.6 Measurement Result

802.11b Ch0					
CH	Freq. (MHz)	Data Rate	Peak Output Power (dBm)	Limit (dBm)	RESULT
1	2412	1	22.55	30.00	PASS
6	2437	1	22.37	30.00	PASS
11	2462	1	22.52	30.00	PASS
802.11b Ch0					
CH	Freq. (MHz)	Data Rate	Max. Avg. Output include tune up tolerance Power	Limit (dBm)	RESULT
1	2412	1	19.85	30.00	PASS
6	2437	1	19.63	30.00	PASS
11	2462	1	19.80	30.00	PASS

802.11b Ch1					
CH	Freq. (MHz)	Data Rate	Peak Output Power (dBm)	Limit (dBm)	RESULT
1	2412	1	22.05	30.00	PASS
6	2437	1	22.01	30.00	PASS
11	2462	1	22.23	30.00	PASS
802.11b Ch1					
CH	Freq. (MHz)	Data Rate	Max. Avg. Output include tune up tolerance Power	Limit (dBm)	RESULT
1	2412	1	19.59	30.00	PASS
6	2437	1	19.69	30.00	PASS
11	2462	1	19.65	30.00	PASS

802.11b_2TX							
CH	Freq. (MHz)	Data Rate	Peak Output Power		Total Peak Output Power (dBm)	Limit (dBm)	RESULT
			CH 0	CH 1			
1	2412	1	20.04	19.15	22.63	30.00	PASS
6	2437	1	19.94	18.72	22.38	30.00	PASS
11	2462	1	19.98	18.68	22.39	30.00	PASS
802.11b_2TX							
CH	Freq. (MHz)	Data Rate	Avg. Output Power		Max. Avg. Output include tune up tolerance Power	Limit (dBm)	RESULT
			CH 0	CH 1			
1	2412	1	17.15	16.36	19.89	30.00	PASS
6	2437	1	17.10	16.22	19.80	30.00	PASS
11	2462	1	17.19	16.14	19.81	30.00	PASS

802.11g Ch0					
CH	Freq. (MHz)	Data Rate	Peak Output Power (dBm)	Limit (dBm)	RESULT
1	2412	6	24.01	30.00	PASS
6	2437	6	24.77	30.00	PASS
11	2462	6	23.95	30.00	PASS
802.11g Ch0					
CH	Freq. (MHz)	Data Rate	Max. Avg. Output include tune up tolerance Power (dBm)	Limit (dBm)	RESULT
1	2412	6	17.92	30.00	PASS
6	2437	6	19.52	30.00	PASS
11	2462	6	17.51	30.00	PASS

802.11g Ch1					
CH	Freq. (MHz)	Data Rate	Peak Output Power (dBm)	Limit (dBm)	RESULT
1	2412	6	24.02	30.00	PASS
6	2437	6	24.11	30.00	PASS
11	2462	6	23.83	30.00	PASS
802.11g Ch1					
CH	Freq. (MHz)	Data Rate	Max. Avg. Output include tune up tolerance Power (dBm)	Limit (dBm)	RESULT
1	2412	6	17.59	30.00	PASS
6	2437	6	19.51	30.00	PASS
11	2462	6	17.32	30.00	PASS

802.11g_2TX							
CH	Freq. (MHz)	Data Rate	Peak Output Power		Total Peak Output Power (dBm)	Limit (dBm)	RESULT
			CH 0	CH 1			
1	2412	6	23.76	23.26	26.53	30.00	PASS
6	2437	6	23.66	23.17	26.43	30.00	PASS
11	2462	6	23.85	23.23	26.56	30.00	PASS
802.11g_2TX							
CH	Freq. (MHz)	Data Rate	Avg. Output Power (dBm)		Max. Avg. Output include tune up tolerance Power (dBm)	Limit (dBm)	RESULT
			CH 0	CH 1			
1	2412	6	17.05	16.26	19.72	30.00	PASS
6	2437	6	17.07	16.06	19.64	30.00	PASS
11	2462	6	17.22	16.18	19.78	30.00	PASS

802.11n_HT20M Ch0					
CH	Freq. (MHz)	Data Rate	Peak Output Power (dBm)	Limit (dBm)	RESULT
1	2412	MCS0	24.15	30.00	PASS
6	2437	MCS0	24.81	30.00	PASS
11	2462	MCS0	23.60	30.00	PASS
802.11n_HT20M Ch0					
CH	Freq. (MHz)	Data Rate	Max. Avg. Output include tune up tolerance Power (dBm)	Limit (dBm)	RESULT
1	2412	MCS0	17.72	30.00	PASS
6	2437	MCS0	19.51	30.00	PASS
11	2462	MCS0	16.46	30.00	PASS

802.11n_HT20M Ch1					
CH	Freq. (MHz)	Data Rate	Peak Output Power (dBm)	Limit (dBm)	RESULT
1	2412	MCS0	24.11	30.00	PASS
6	2437	MCS0	24.18	30.00	PASS
11	2462	MCS0	23.21	30.00	PASS
802.11n_HT20M Ch1					
CH	Freq. (MHz)	Data Rate	Max. Avg. Output include tune up tolerance Power (dBm)	Limit (dBm)	RESULT
1	2412	MCS0	17.48	30.00	PASS
6	2437	MCS0	19.50	30.00	PASS
11	2462	MCS0	16.16	30.00	PASS

802.11n_HT20M MIMO							
CH	Freq. (MHz)	Data Rate	Peak Output Power		Total Peak Output Power (dBm)	Limit (dBm)	RESULT
			CH 0	CH 1			
1	2412	MCS8	24.05	24.00	27.04	30.00	PASS
6	2437	MCS8	24.01	22.89	26.50	30.00	PASS
11	2462	MCS8	23.85	23.21	26.55	30.00	PASS

802.11n_HT20M MIMO							
CH	Freq. (MHz)	Data Rate	Avg. Output Power (dBm)		Max. Avg. Output include tune up tolerance Power (dBm)	Limit (dBm)	RESULT
			CH 0	CH 1			
1	2412	MCS8	17.21	16.42	19.86	30.00	PASS
6	2437	MCS8	17.07	16.09	19.63	30.00	PASS
11	2462	MCS8	17.27	16.10	19.75	30.00	PASS

802.11ax_HE20M Ch0						
CH	Freq. (MHz)	Data Rate	RU Config	Peak Output Power (dBm)	Limit (dBm)	RESULT
1	2412	MCS0	full	24.21	30.00	PASS
			26/0	24.84	30.00	PASS
			52/37	24.86	30.00	PASS
			106/53	24.93	30.00	PASS
6	2437	MCS0	full	25.06	30.00	PASS
11	2462	MCS0	full	22.58	30.00	PASS
			26/8	24.82	30.00	PASS
			52/40	24.73	30.00	PASS
			106/54	23.32	30.00	PASS
802.11ax_HE20M Ch0						
CH	Freq. (MHz)	Data Rate	RU Config	Max. Avg. Output include tune up tolerance Power (dBm)	Limit (dBm)	RESULT
1	2412	MCS0	full	16.99	30.00	PASS
			26/0	16.38	30.00	PASS
			52/37	16.62	30.00	PASS
			106/53	16.45	30.00	PASS
6	2437	MCS0	full	19.54	30.00	PASS
11	2462	MCS0	full	15.87	30.00	PASS
			26/8	15.78	30.00	PASS
			52/40	15.81	30.00	PASS
			106/54	15.59	30.00	PASS

802.11ax_HE20M Ch1						
CH	Freq. (MHz)	Data Rate	RU Config	Peak Output Power (dBm)	Limit (dBm)	RESULT
1	2412	MCS0	full	24.15	30.00	PASS
			26/0	24.97	30.00	PASS
			52/37	24.93	30.00	PASS
			106/53	25.02	30.00	PASS
6	2437	MCS0	full	24.32	30.00	PASS
11	2462	MCS0	full	23.24	30.00	PASS
			26/8	24.85	30.00	PASS
			52/40	24.82	30.00	PASS
			106/54	23.51	30.00	PASS

802.11ax_HE20M Ch1						
CH	Freq. (MHz)	Data Rate	RU Config	Max. Avg. Output include tune up tolerance Power (dBm)	Limit (dBm)	RESULT
1	2412	MCS0	full	16.67	30.00	PASS
			26/0	16.41	30.00	PASS
			52/37	16.57	30.00	PASS
			106/53	16.53	30.00	PASS
6	2437	MCS0	full	19.51	30.00	PASS
11	2462	MCS0	full	15.79	30.00	PASS
			26/8	15.69	30.00	PASS
			52/40	15.72	30.00	PASS
			106/54	15.61	30.00	PASS

802.11ax_HE20M MIMO								
CH	Freq. (MHz)	Data Rate	RU Config	Peak Output Power		Total Peak Output Power (dBm)	Limit (dBm)	RESULT
				CH 0	CH 1			
1	2412	MCS0	full	24.07	23.94	27.02	30.00	PASS
			26/0	24.80	24.91	27.87	30.00	PASS
			52/37	24.76	24.85	27.82	30.00	PASS
			106/53	24.83	24.91	27.88	30.00	PASS
6	2437	MCS0	full	24.07	23.12	26.63	30.00	PASS
11	2462	MCS0	full	24.20	23.92	27.07	30.00	PASS
			26/8	24.66	24.47	27.58	30.00	PASS
			52/40	24.57	24.35	27.47	30.00	PASS
			106/54	24.62	24.67	27.66	30.00	PASS

802.11ax_HE20M MIMO								
CH	Freq. (MHz)	Data Rate	RU Config	Avg. Output Power (dBm)		Max. Avg. Output include tune up tolerance Power (dBm)	Limit (dBm)	RESULT
				CH 0	CH 1			
1	2412	MCS0	full	17.11	16.19	19.70	30.00	PASS
			26/0	16.45	16.27	19.38	30.00	PASS
			52/37	16.54	16.37	19.48	30.00	PASS
			106/53	16.45	16.22	19.36	30.00	PASS
6	2437	MCS0	full	17.06	16.09	19.62	30.00	PASS
11	2462	MCS0	full	17.32	16.11	19.78	30.00	PASS
			26/8	16.50	16.59	19.57	30.00	PASS
			52/40	16.38	16.45	19.44	30.00	PASS
			106/54	16.43	16.38	19.43	30.00	PASS

802.11n_HT40M Ch0					
CH	Freq. (MHz)	Data Rate	Peak Output Power (dBm)	Limit (dBm)	RESULT
3	2422	MCS0	23.87	30.00	PASS
6	2437	MCS0	24.07	30.00	PASS
9	2452	MCS0	21.82	30.00	PASS
802.11n_HT40M Ch0					
CH	Freq. (MHz)	Data Rate	Max. Avg. Output include tune up tolerance Power (dBm)	Limit (dBm)	RESULT
3	2422	MCS0	16.75	30.00	PASS
6	2437	MCS0	17.39	30.00	PASS
9	2452	MCS0	14.42	30.00	PASS

802.11n_HT40M Ch1					
CH	Freq. (MHz)	Data Rate	Peak Output Power (dBm)	Limit (dBm)	RESULT
3	2422	MCS0	23.02	30.00	PASS
6	2437	MCS0	23.40	30.00	PASS
9	2452	MCS0	21.10	30.00	PASS
802.11n_HT40M Ch1					
CH	Freq. (MHz)	Data Rate	Max. Avg. Output include tune up tolerance Power (dBm)	Limit (dBm)	RESULT
3	2422	MCS0	16.47	30.00	PASS
6	2437	MCS0	17.35	30.00	PASS
9	2452	MCS0	14.08	30.00	PASS

802.11n_HT40M MIMO							
CH	Freq. (MHz)	Data Rate	Peak Output Power		Total Peak Output Power (dBm)	Limit (dBm)	RESULT
			CH 0	CH 1			
3	2422	MCS8	24.03	23.14	26.62	30.00	PASS
6	2437	MCS8	23.81	22.74	26.32	30.00	PASS
9	2452	MCS8	24.05	23.11	26.62	30.00	PASS

802.11n_HT40M MIMO							
CH	Freq. (MHz)	Data Rate	Avg. Output Power (dBm)		Max. Avg. Output include tune up tolerance Power (dBm)	Limit (dBm)	RESULT
			CH 0	CH 1			
3	2422	MCS8	17.22	16.23	19.78	30.00	PASS
6	2437	MCS8	17.06	16.08	19.62	30.00	PASS
9	2452	MCS8	17.37	16.03	19.77	30.00	PASS

802.11ax_HE40M Ch0						
CH	Freq. (MHz)	Data Rate	RU Config	Peak Output Power (dBm)	Limit (dBm)	RESULT
3	2422	MCS0	full	24.05	30.00	PASS
			242/61	23.75	30.00	PASS
6	2437	MCS0	full	24.47	30.00	PASS
9	2452	MCS0	full	21.97	30.00	PASS
			242/62	22.74	30.00	PASS
802.11ax_HE40M Ch0						
CH	Freq. (MHz)	Data Rate	RU Config	Max. Avg. Output include tune up tolerance Power (dBm)	Limit (dBm)	RESULT
3	2422	MCS0	full	16.62	30.00	PASS
			242/61	16.03	30.00	PASS
6	2437	MCS0	full	17.27	30.00	PASS
9	2452	MCS0	full	14.26	30.00	PASS
			242/62	13.86	30.00	PASS

802.11ax_HE40M Ch1						
CH	Freq. (MHz)	Data Rate	RU Config	Peak Output Power (dBm)	Limit (dBm)	RESULT
3	2422	MCS0	full	23.52	30.00	PASS
			242/61	23.68	30.00	PASS
6	2437	MCS0	full	23.72	30.00	PASS
9	2452	MCS0	full	21.31	30.00	PASS
			242/62	22.62	30.00	PASS
802.11ax_HE40M Ch1						
CH	Freq. (MHz)	Data Rate	RU Config	Max. Avg. Output include tune up tolerance Power (dBm)	Limit (dBm)	RESULT
3	2422	MCS0	full	16.28	30.00	PASS
			242/61	15.97	30.00	PASS
6	2437	MCS0	full	17.27	30.00	PASS
9	2452	MCS0	full	13.88	30.00	PASS
			242/62	13.81	30.00	PASS

802.11ax_HE40M MIMO								
CH	Freq. (MHz)	Data Rate	RU Config	Peak Output Power		Total Peak Output Power (dBm)	Limit (dBm)	RESULT
				CH 0	CH 1			
3	2422	MCS0	full	24.23	22.85	26.60	30.00	PASS
			242/61	23.72	23.43	26.59	30.00	PASS
6	2437	MCS0	full	24.22	22.74	26.55	30.00	PASS
9	2452	MCS0	full	24.34	23.04	26.75	30.00	PASS
			242/62	22.82	22.79	25.82	30.00	PASS

802.11ax_HE40M MIMO								
CH	Freq. (MHz)	Data Rate	RU Config	Avg. Output Power (dBm)		Max. Avg. Output include tune up tolerance Power (dBm)	Limit (dBm)	RESULT
				CH 0	CH 1			
3	2422	MCS0	full	17.08	16.07	19.63	30.00	PASS
			242/61	16.55	16.41	19.50	30.00	PASS
6	2437	MCS0	full	16.93	15.99	19.51	30.00	PASS
9	2452	MCS0	full	17.17	16.02	19.66	30.00	PASS
			242/62	16.61	16.63	19.64	30.00	PASS

**** Note: The duty cycle factor is compensated to obtain the maximum value of measurement in average.***

9 6DB & 99% BANDWIDTH MEASUREMENT

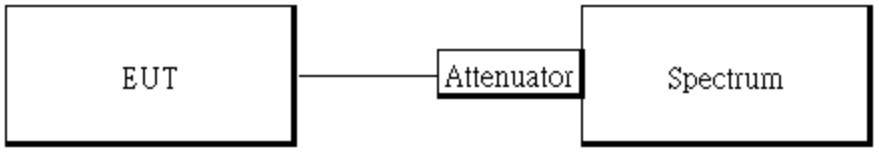
9.1 Standard Applicable

The minimum 6 dB bandwidth shall be at least 500 kHz.

9.2 Measurement Equipment Used

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
EXA Spectrum Analyzer	Agilent	N9010A	MY50420195	05/06/2020	05/05/2021
DC Power Supply	Agilent	E3640A	MY40005907	10/22/2019	10/21/2020
Attenuator	Mini-Circuit	BW-S10W2+	2	01/02/2020	01/01/2021
DC Block	Mini-Circuits	BLK-18-S+	1	01/02/2020	01/01/2021

9.3 Test Set-up



9.4 Measurement Procedure

1. Place the EUT on the table and set it in transmitting mode.
2. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance .
3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
4. Set the spectrum analyzer as
   RBW= 1 % to 5% of OBW ,
   VBW = 3 X RBW,
   Span= 2 to 5 times of the OBW,
   Sweep=auto,
   Detector = Peak, and Max hold for 20dB Bandwidth test.
5. Mark the peak frequency and –20dB (upper and lower) frequency
6. Set the spectrum analyzer as
   RBW= 1 % to 5% of 99% Bandwidth ,
   VBW ≥ 3 X RBW,
   Span= large enough to capture all products of the modulation process,
   Sweep=auto,
   Detector = Peak, and Max hold for 99% Bandwidth test.
7. Turn on the 99% bandwidth function, max reading.
8. Repeat above procedures until all frequency of interest measured was complete.

9.5 6dB Bandwidth

802.11b Ch0

Freq. (MHz)	6dB BW (kHz)	Limit (kHz)	Result
2412	8098.00	> 500	PASS
2437	8105.00	> 500	PASS
2462	**8111.00**	> 500	PASS

802.11b Ch1

Freq. (MHz)	6dB BW (kHz)	Limit (kHz)	Result
2412	8087.00	> 500	PASS
2437	8111.00	> 500	PASS
2462	**8114.00**	> 500	PASS

802.11g Ch0

Freq. (MHz)	6dB BW (kHz)	Limit (kHz)	Result
2412	16040.00	> 500	PASS
2437	**16050.00**	> 500	PASS
2462	15750.00	> 500	PASS

802.11g Ch1

Freq. (MHz)	6dB BW (kHz)	Limit (kHz)	Result
2412	15150.00	> 500	PASS
2437	**15720.00**	> 500	PASS
2462	15150.00	> 500	PASS

802.11_n_HT20 Ch0

Freq. (MHz)	6dB BW (kHz)	Limit (kHz)	Result
2412	**17160.00**	> 500	PASS
2437	16940.00	> 500	PASS
2462	16180.00	> 500	PASS

802.11_n_HT20 Ch1

Freq. (MHz)	6dB BW (kHz)	Limit (kHz)	Result
2412	15090.00	> 500	PASS
2437	**16370.00**	> 500	PASS
2462	15730.00	> 500	PASS

802.11_ax_HE20 Ch0

Freq. (MHz)	**RU Config**	6dB BW (kHz)	Limit (kHz)	Result
2412	full	18190.00	> 500	PASS
2437	full	18260.00	> 500	PASS
2462	full	**18460.00**	> 500	PASS

802.11_ax_HE20 Ch1

Freq. (MHz)	**RU Config**	6dB BW (kHz)	Limit (kHz)	Result
2412	full	17990.00	> 500	PASS
2437	full	**18080.00**	> 500	PASS
2462	full	17840.00	> 500	PASS

802.11_n_HT40 Ch0

Freq. (MHz)	6dB BW (kHz)	Limit (kHz)	Result
2422	35350.00	> 500	PASS
2437	35310.00	> 500	PASS
2452	**35520.00**	> 500	PASS

802.11_n_HT40 Ch1

Freq. (MHz)	6dB BW (kHz)	Limit (kHz)	Result
2422	34780.00	> 500	PASS
2437	**35460.00**	> 500	PASS
2452	**35460.00**	> 500	PASS

802.11_ax_HE40 Ch0

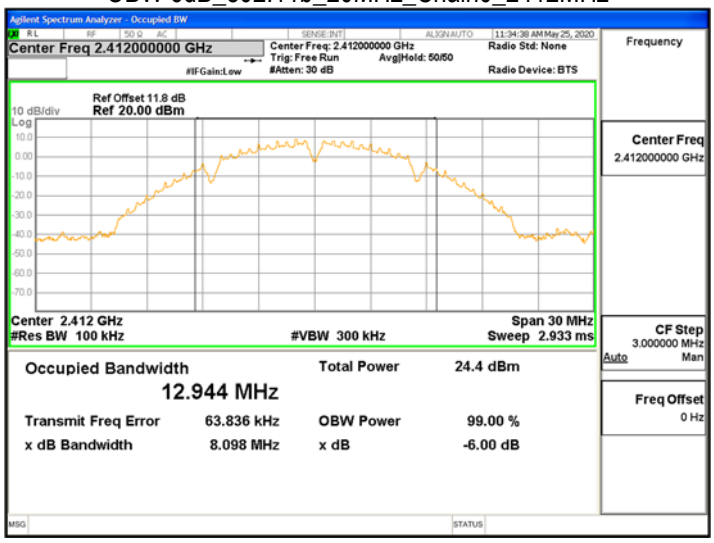
Freq. (MHz)	**RU Config**	6dB BW (kHz)	Limit (kHz)	Result
2422	full	37400.00	> 500	PASS
2437	full	37310.00	> 500	PASS
2452	full	**37480.00**	> 500	PASS

802.11_ax_HE40 Ch1

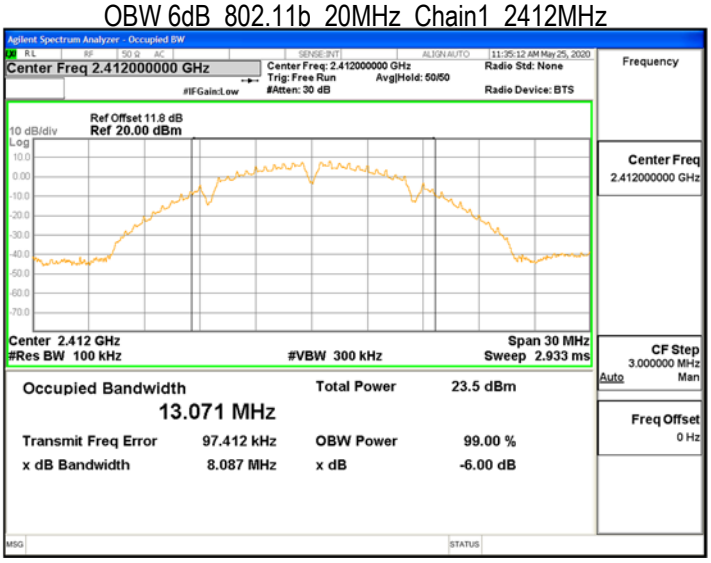
Freq. (MHz)	**RU Config**	6dB BW (kHz)	Limit (kHz)	Result
2422	full	35900.00	> 500	PASS
2437	full	**37330.00**	> 500	PASS
2452	full	36650.00	> 500	PASS

Refer to next page for plots

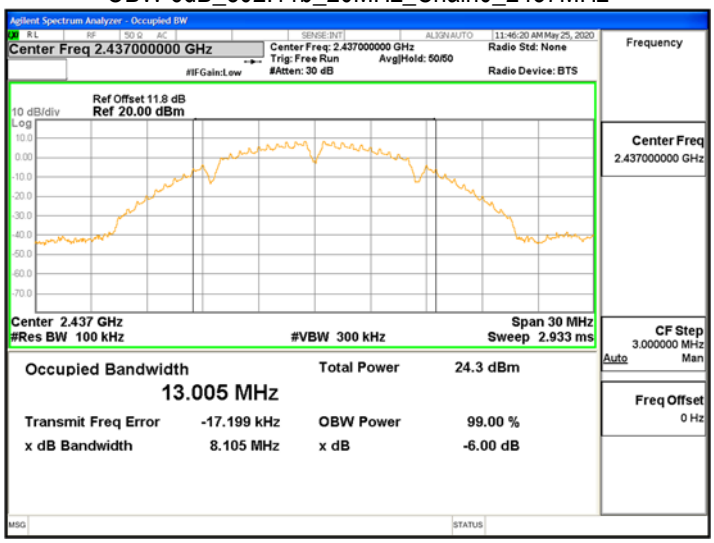
OBW 6dB_802.11b_20MHz_Chain0_2412MHz



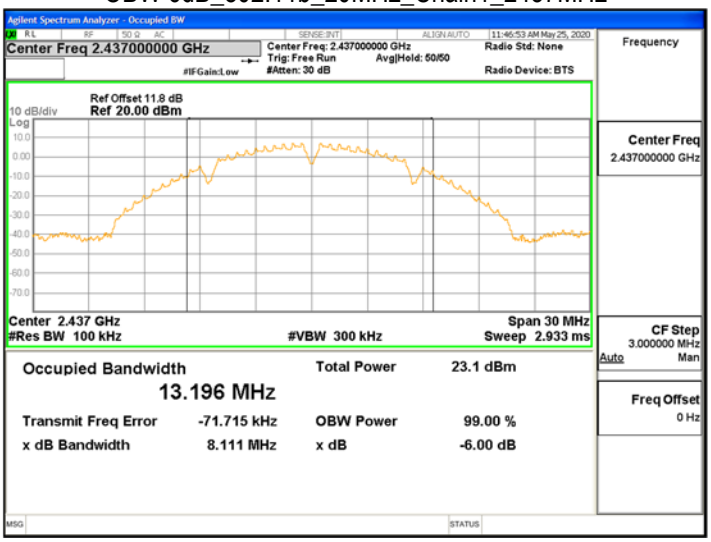
OBW 6dB_802.11b_20MHz_Chain1_2412MHz



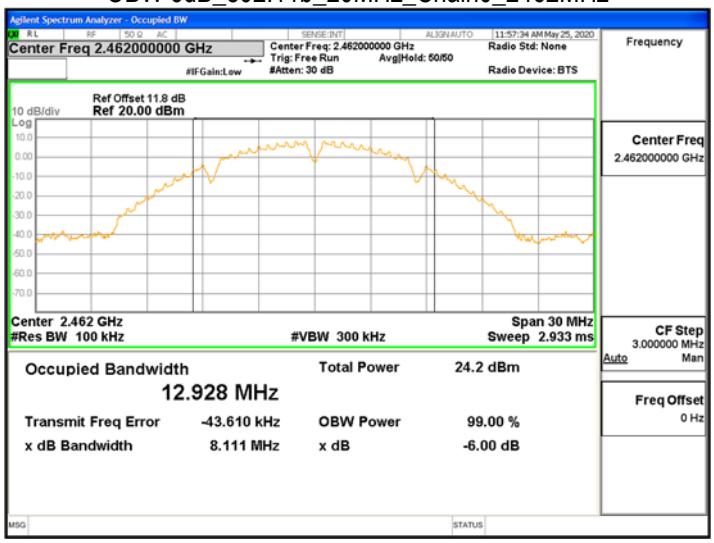
OBW 6dB_802.11b_20MHz_Chain0_2437MHz



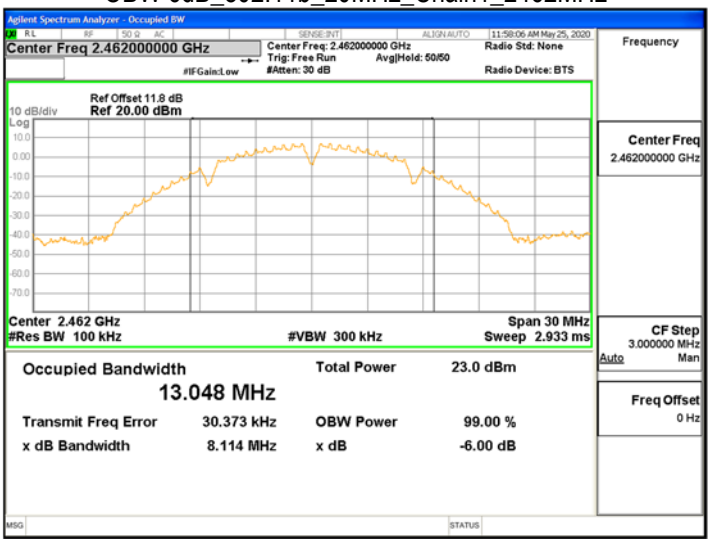
OBW 6dB_802.11b_20MHz_Chain1_2437MHz



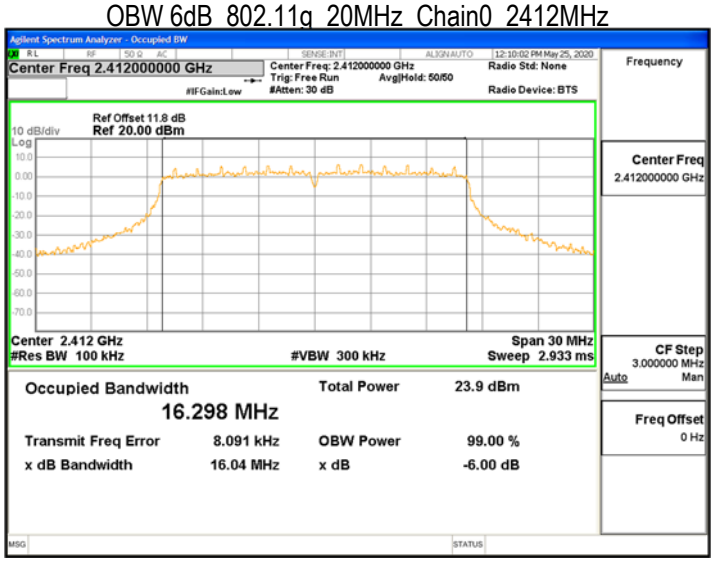
OBW 6dB_802.11b_20MHz_Chain0_2462MHz



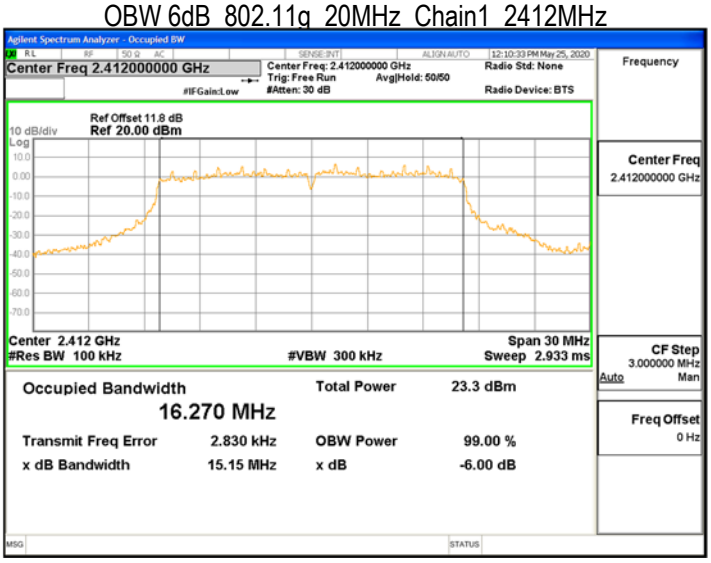
OBW 6dB_802.11b_20MHz_Chain1_2462MHz



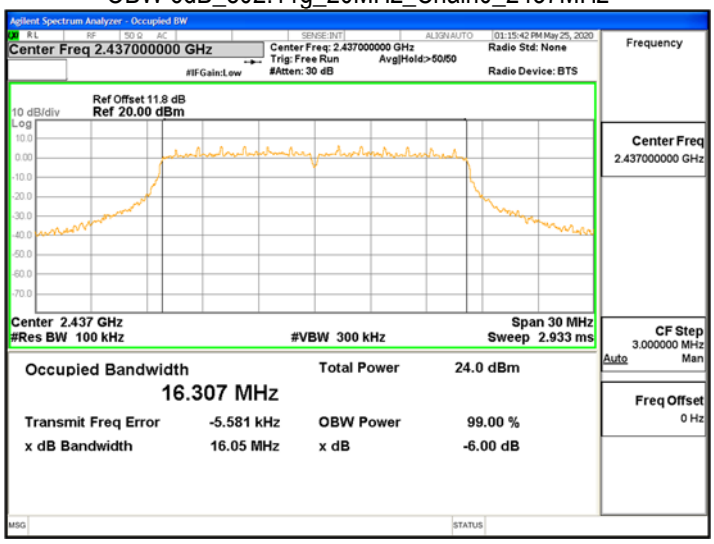
OBW 6dB_802.11g_20MHz_Chain0_2412MHz



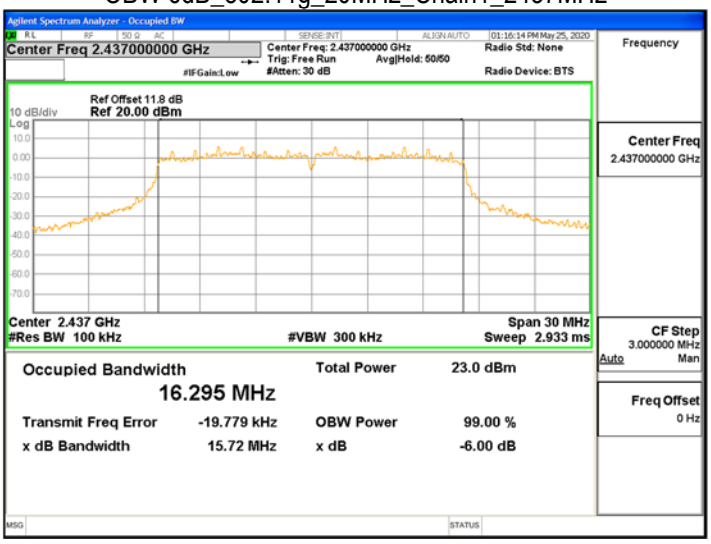
OBW 6dB_802.11g_20MHz_Chain1_2412MHz



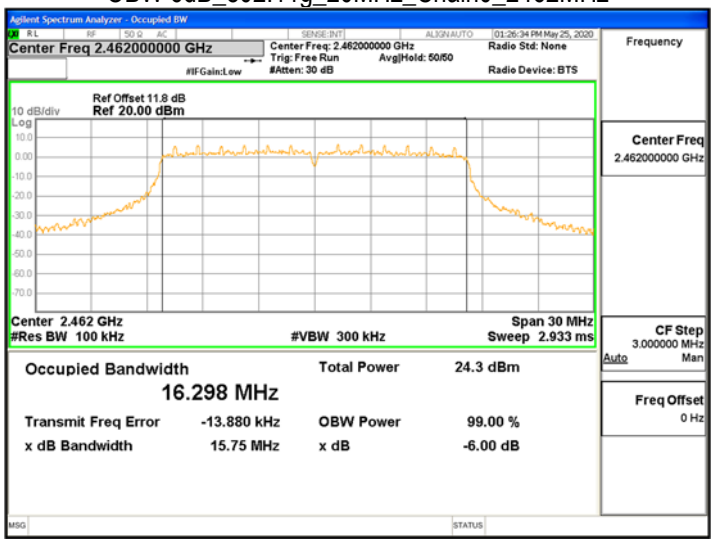
OBW 6dB_802.11g_20MHz_Chain0_2437MHz



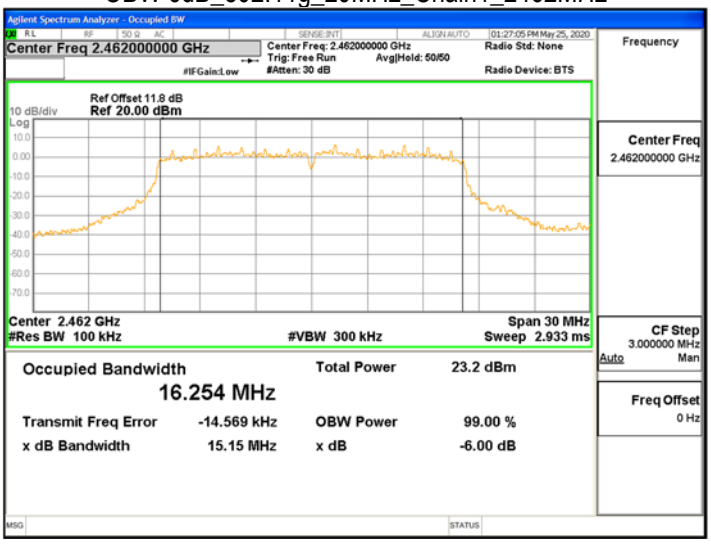
OBW 6dB_802.11g_20MHz_Chain1_2437MHz



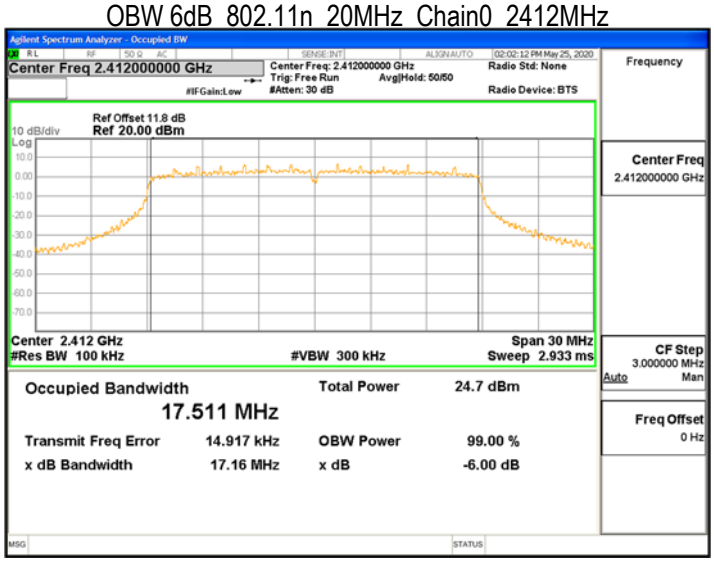
OBW 6dB_802.11g_20MHz_Chain0_2462MHz



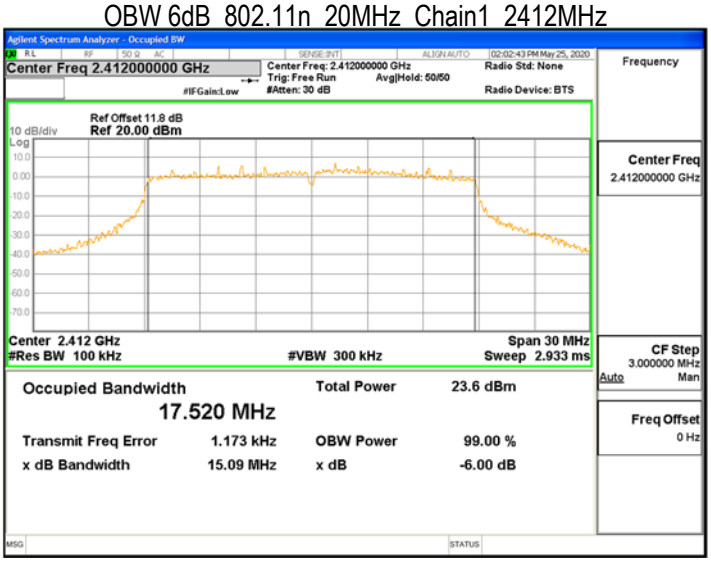
OBW 6dB_802.11g_20MHz_Chain1_2462MHz



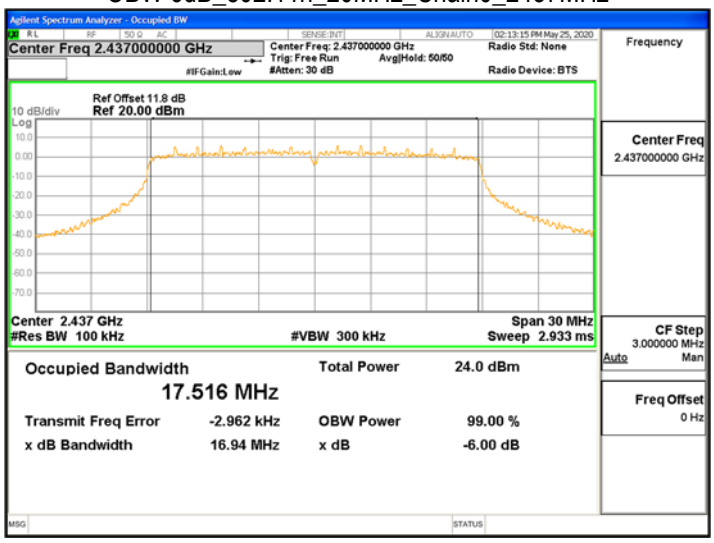
OBW 6dB_802.11n_20MHz_Chain0_2412MHz



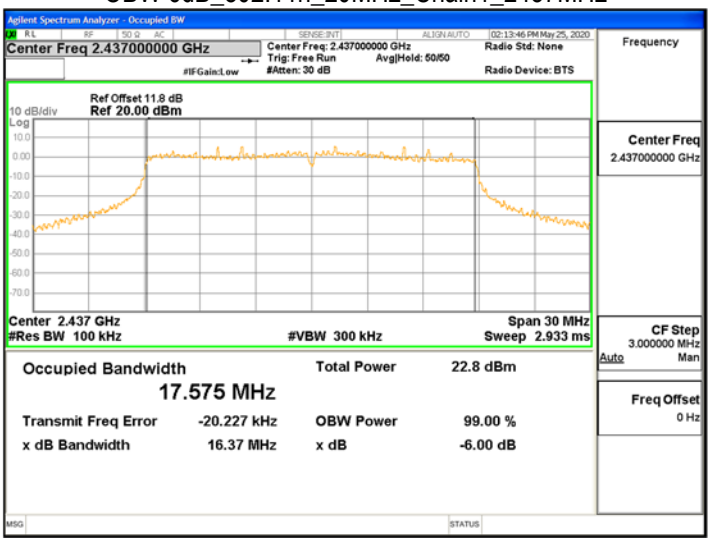
OBW 6dB_802.11n_20MHz_Chain1_2412MHz



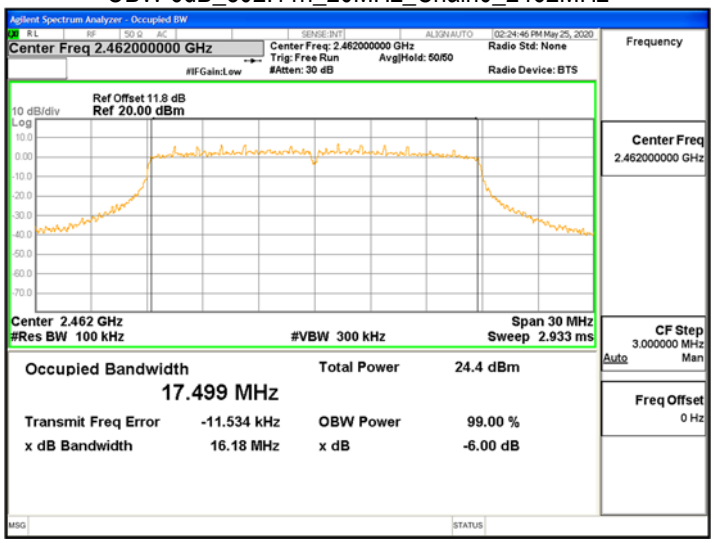
OBW 6dB_802.11n_20MHz_Chain0_2437MHz



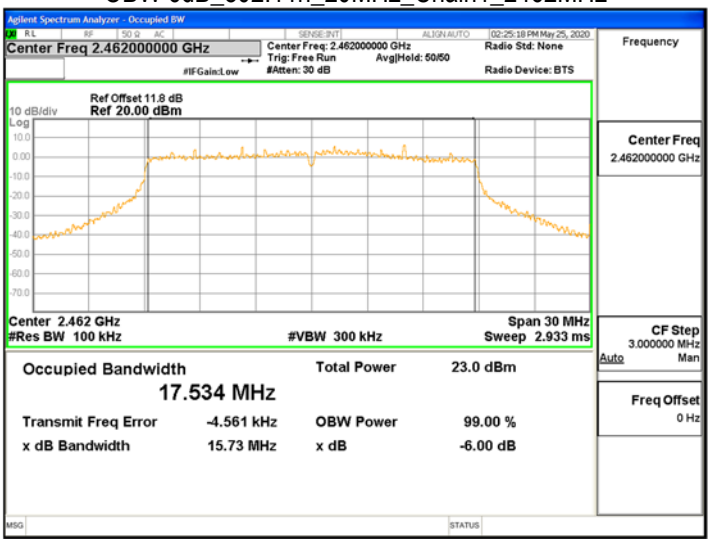
OBW 6dB_802.11n_20MHz_Chain1_2437MHz



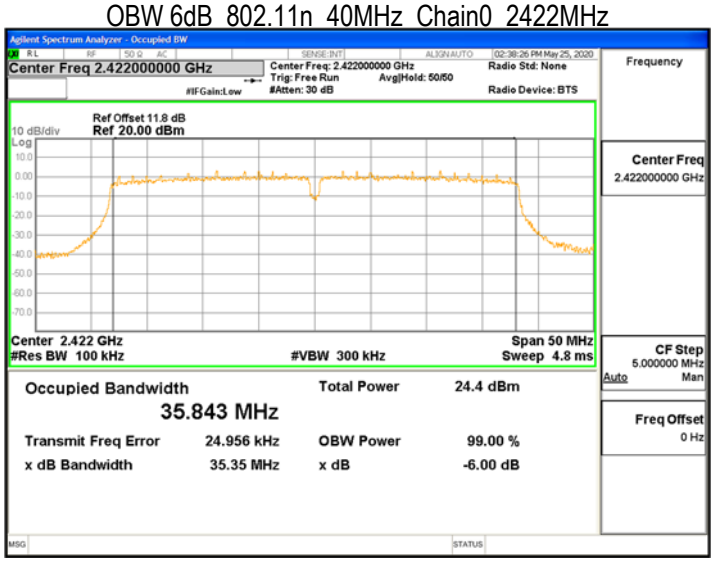
OBW 6dB_802.11n_20MHz_Chain0_2462MHz



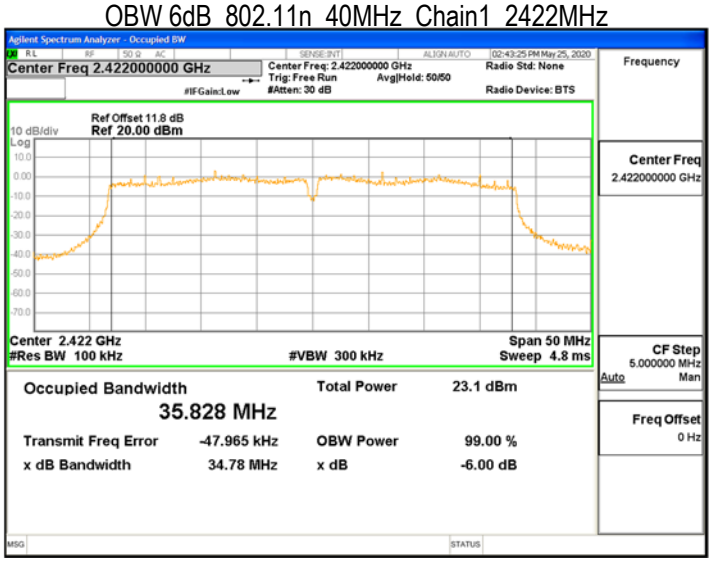
OBW 6dB_802.11n_20MHz_Chain1_2462MHz



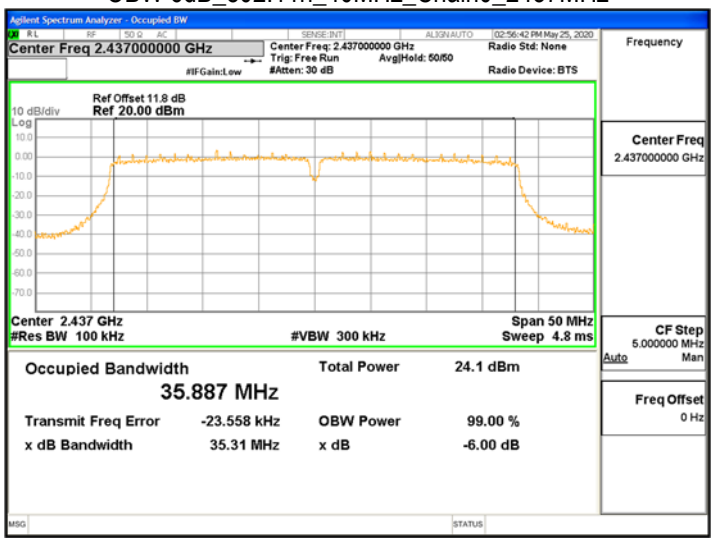
OBW 6dB_802.11n_40MHz_Chain0_2422MHz



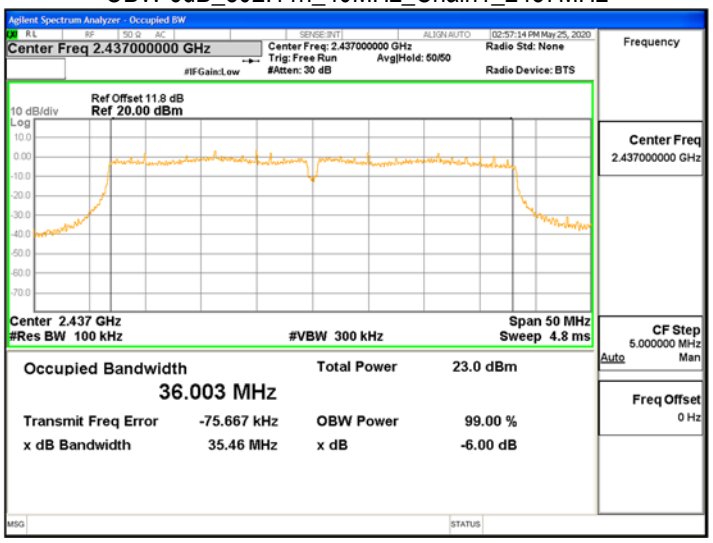
OBW 6dB_802.11n_40MHz_Chain1_2422MHz



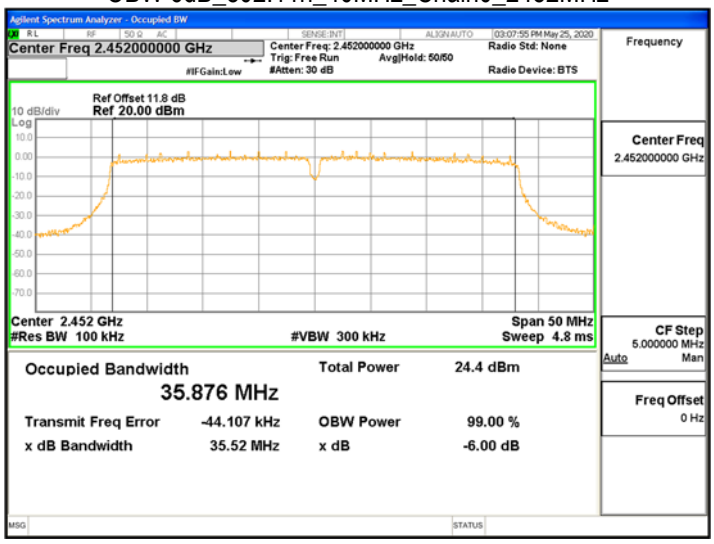
OBW 6dB_802.11n_40MHz_Chain0_2437MHz



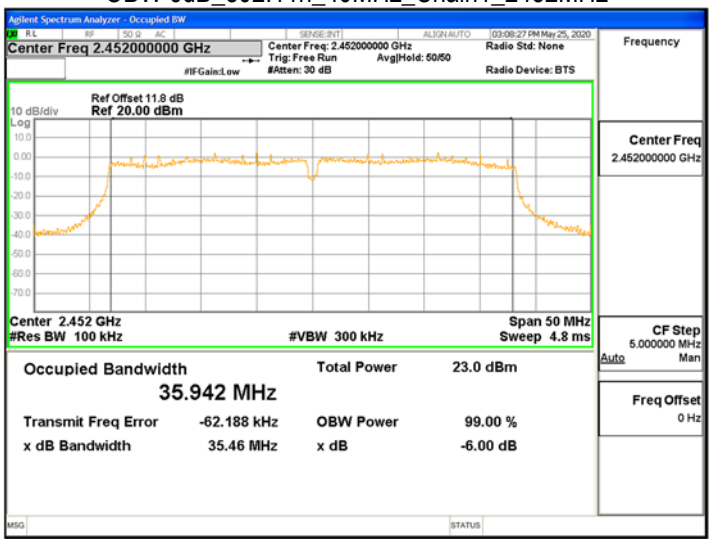
OBW 6dB_802.11n_40MHz_Chain1_2437MHz



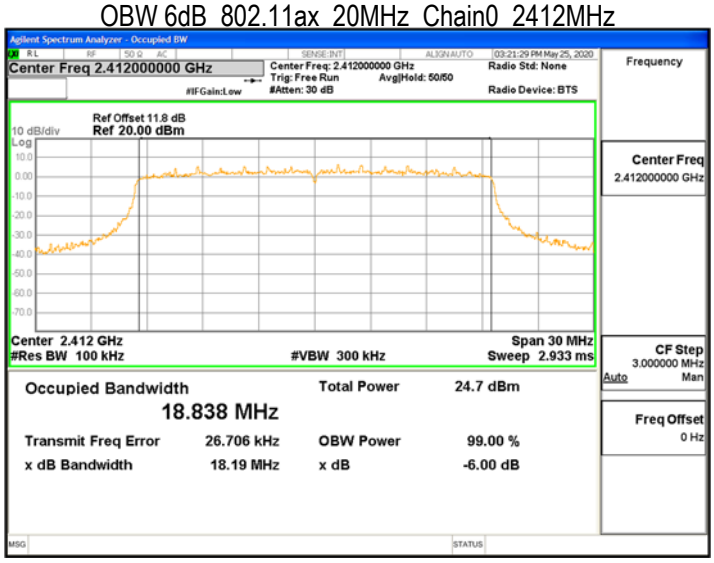
OBW 6dB_802.11n_40MHz_Chain0_2452MHz



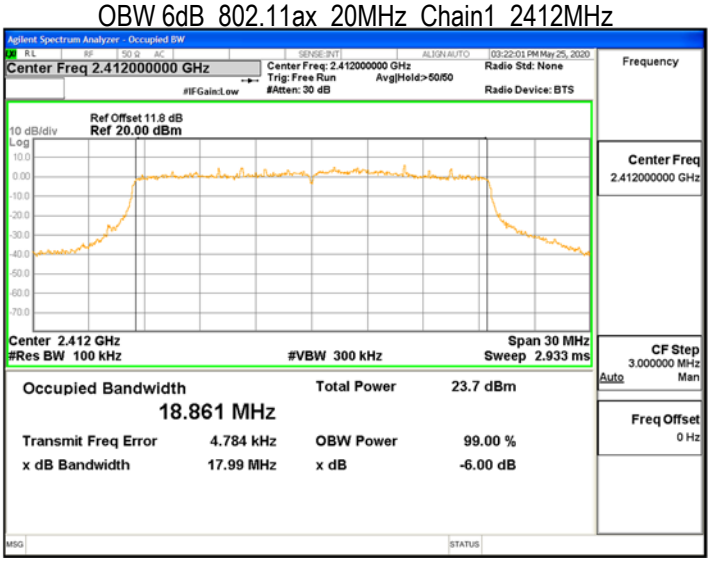
OBW 6dB_802.11n_40MHz_Chain1_2452MHz



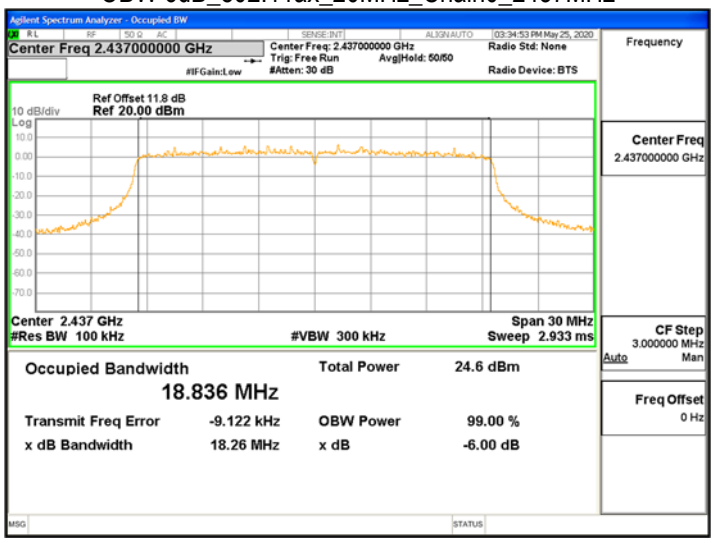
OBW 6dB_802.11ax_20MHz_Chain0_2412MHz



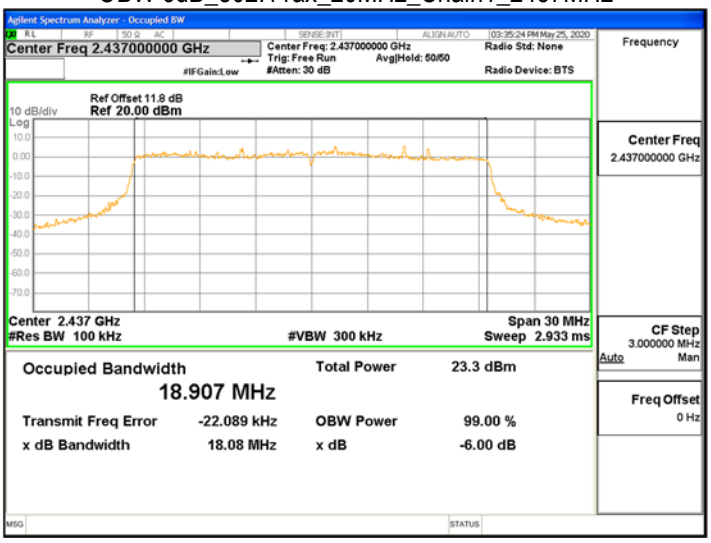
OBW 6dB_802.11ax_20MHz_Chain1_2412MHz



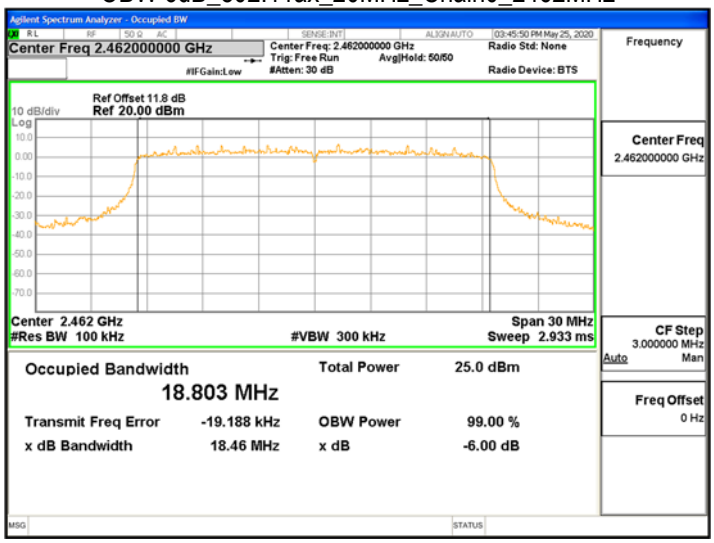
OBW 6dB_802.11ax_20MHz_Chain0_2437MHz



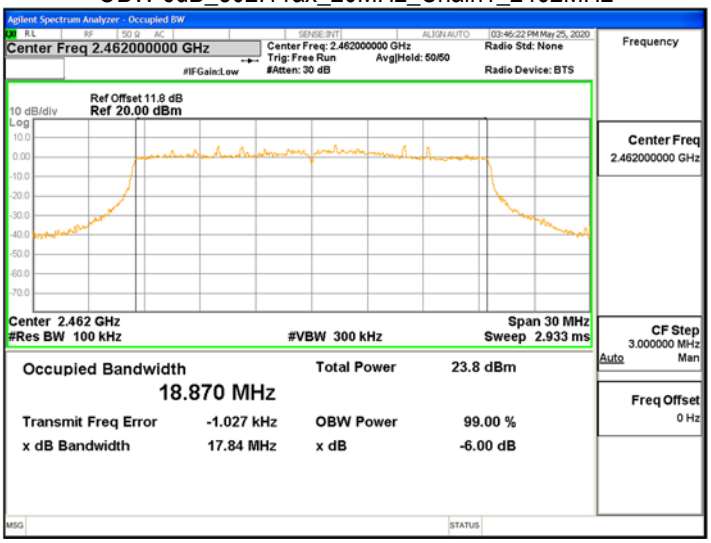
OBW 6dB_802.11ax_20MHz_Chain1_2437MHz



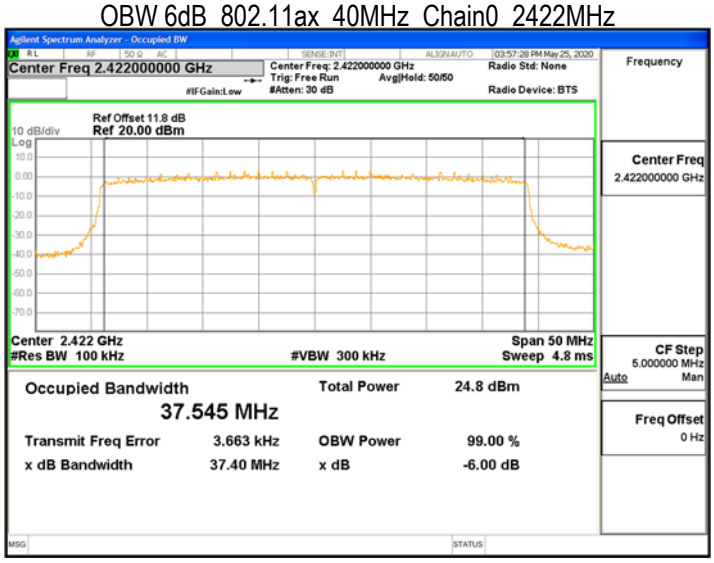
OBW 6dB_802.11ax_20MHz_Chain0_2462MHz



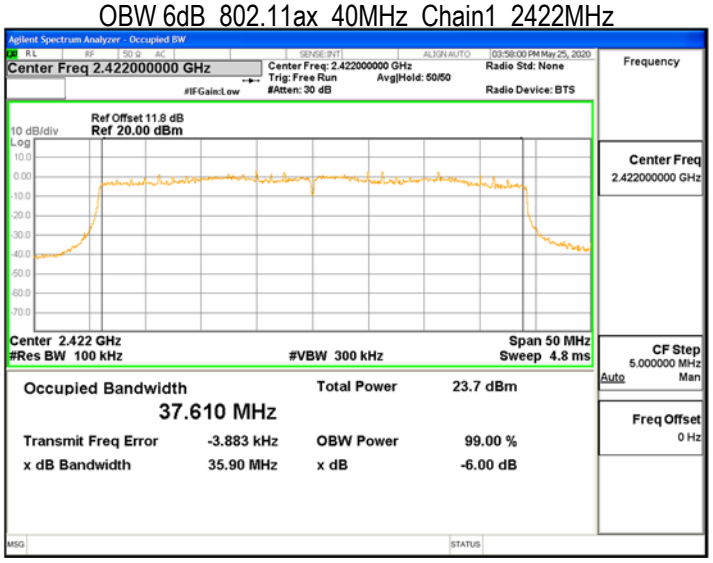
OBW 6dB_802.11ax_20MHz_Chain1_2462MHz



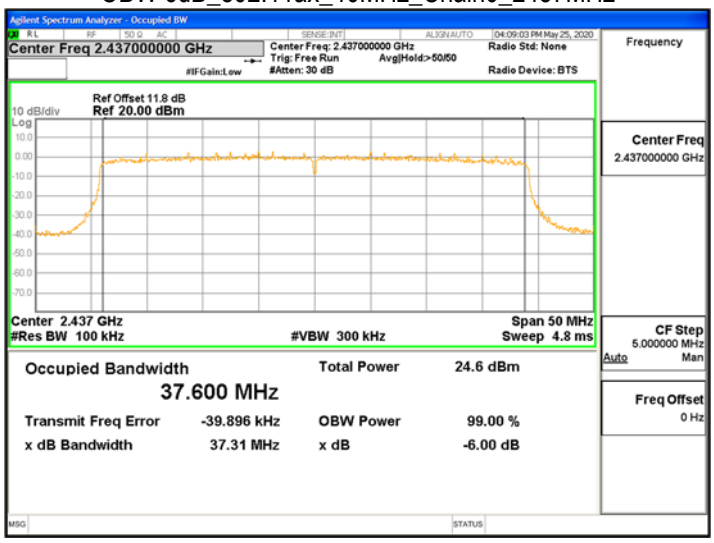
OBW 6dB_802.11ax_40MHz_Chain0_2422MHz



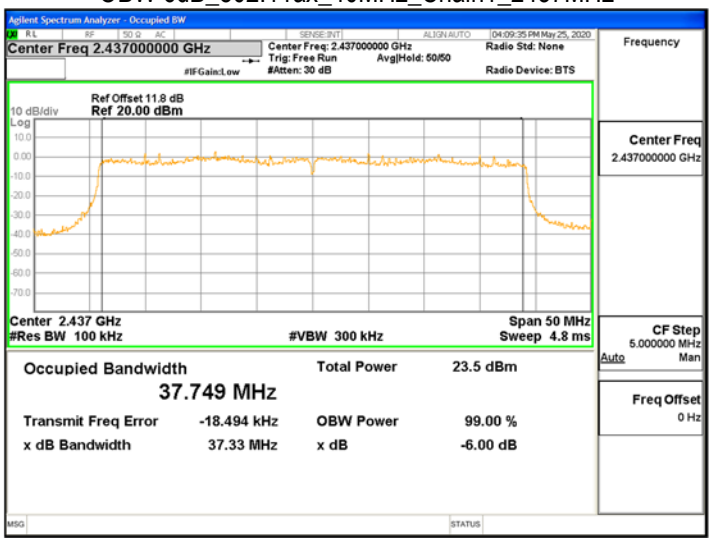
OBW 6dB_802.11ax_40MHz_Chain1_2422MHz



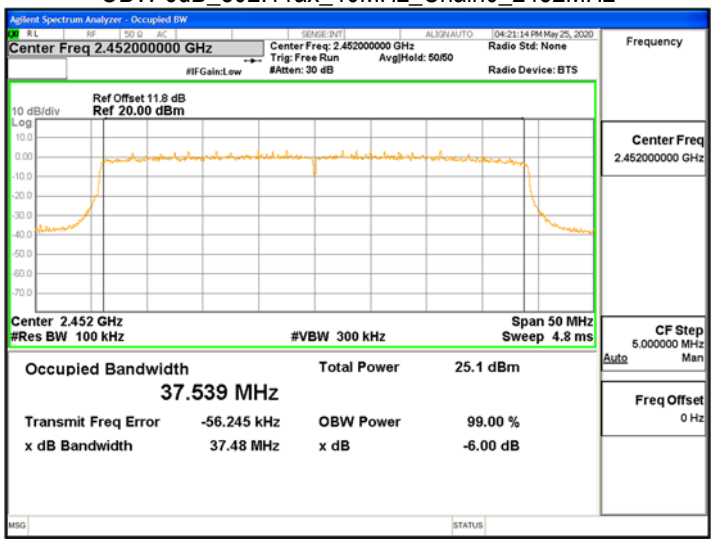
OBW 6dB_802.11ax_40MHz_Chain0_2437MHz



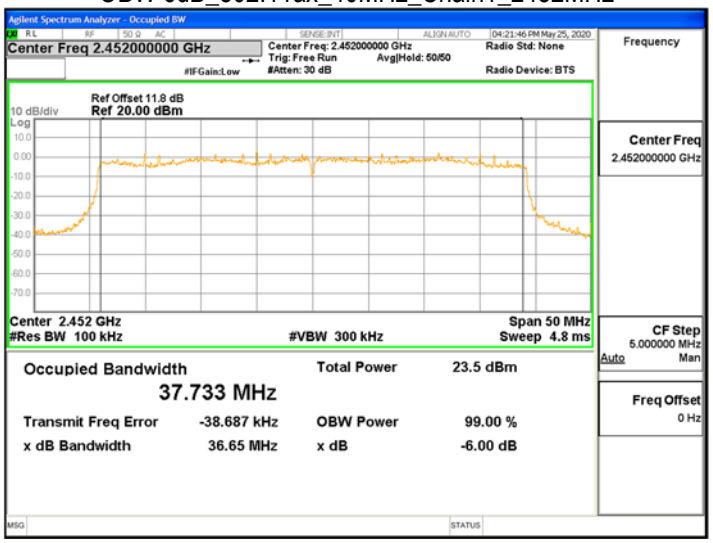
OBW 6dB_802.11ax_40MHz_Chain1_2437MHz



OBW 6dB_802.11ax_40MHz_Chain0_2452MHz



OBW 6dB_802.11ax_40MHz_Chain1_2452MHz



9.6 99% Bandwidth

802.11b Ch0		802.11b Ch1	
Freq. (MHz)	99% BW (MHz)	Freq. (MHz)	99% BW (MHz)
2412	12.984	2412	13.083
2437	13.066	2437	13.244
2462	12.972	2462	13.085

802.11g Ch0		802.11g Ch1	
Freq. (MHz)	99% BW (MHz)	Freq. (MHz)	99% BW (MHz)
2412	16.357	2412	16.293
2437	16.374	2437	16.34
2462	16.362	2462	16.268

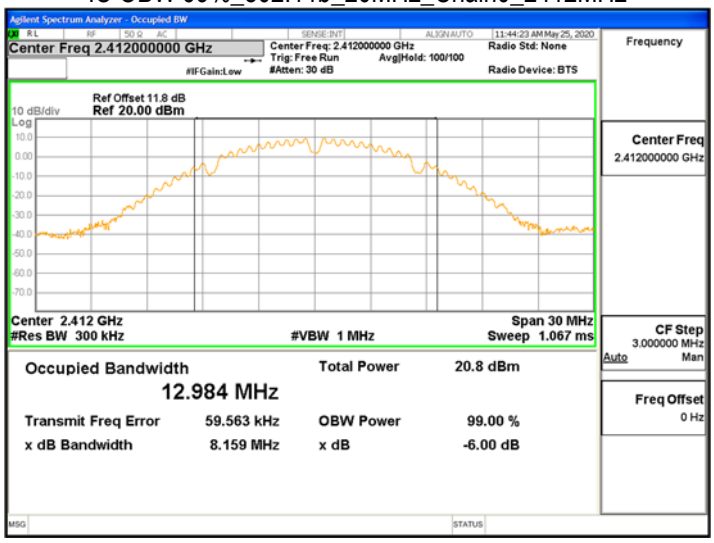
802.11n_HT20M Ch0		802.11n_HT20M Ch1	
Freq. (MHz)	99% BW (MHz)	Freq. (MHz)	99% BW (MHz)
2412	17.51	2412	17.524
2437	17.516	2437	17.604
2462	17.485	2462	17.551

802.11ax_HE20M Ch0			802.11ax_HE20M Ch1		
Freq. (MHz)	**RU Config**	99% BW (MHz)	Freq. (MHz)	**RU Config**	99% BW (MHz)
2412	full	18.867	2412	full	18.902
2437	full	18.869	2437	full	18.962
2462	full	18.857	2462	full	18.926

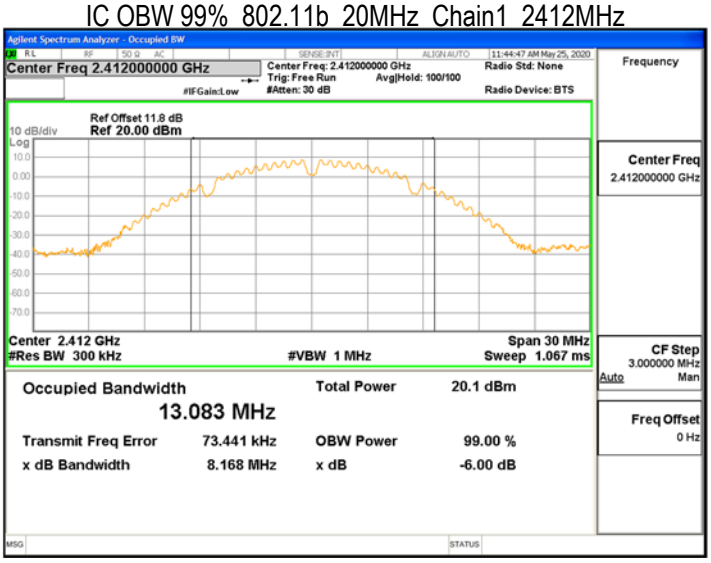
802.11n_HT40M Ch0		802.11n_HT40M Ch1	
Freq. (MHz)	99% BW (MHz)	Freq. (MHz)	99% BW (MHz)
2422	35.921	2422	35.853
2437	35.985	2437	36.099
2452	35.936	2452	35.996

802.11ax_HE40M Ch0			802.11ax_HE40M Ch1		
Freq. (MHz)	RU Config	99% BW (MHz)	Freq. (MHz)	RU Config	99% BW (MHz)
2422	full	37.624	2422	full	37.645
2437	full	37.678	2437	full	37.777
2452	full	37.626	2452	full	37.737

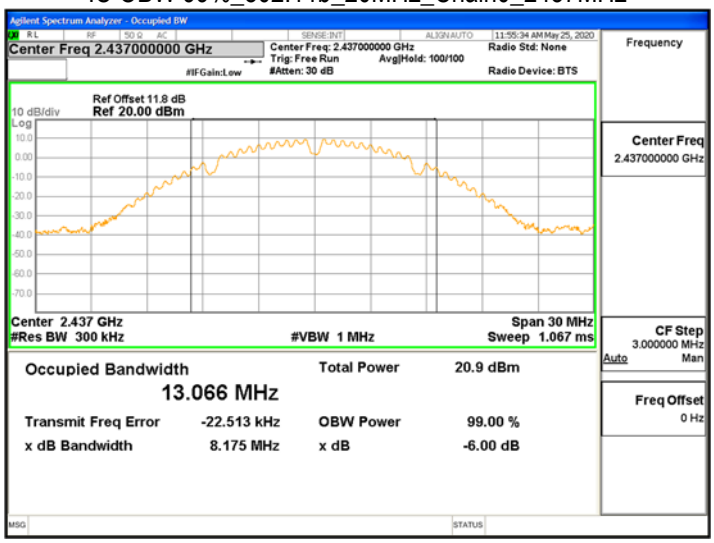
IC OBW 99%_802.11b_20MHz_Chain0_2412MHz



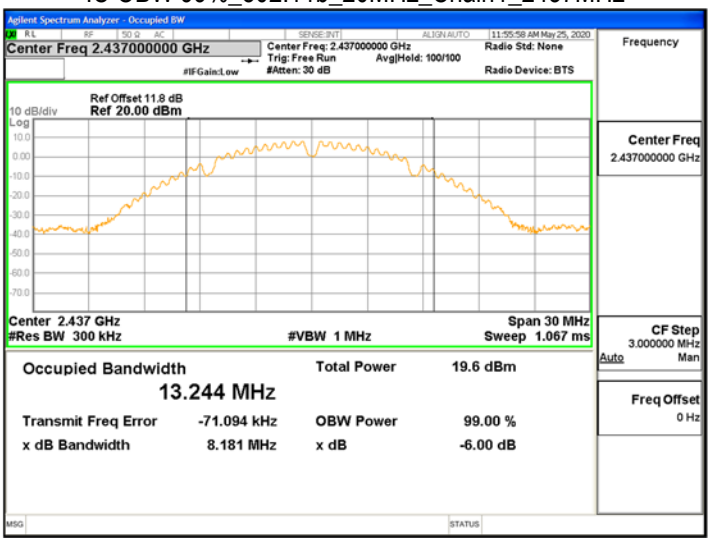
IC OBW 99%_802.11b_20MHz_Chain1_2412MHz



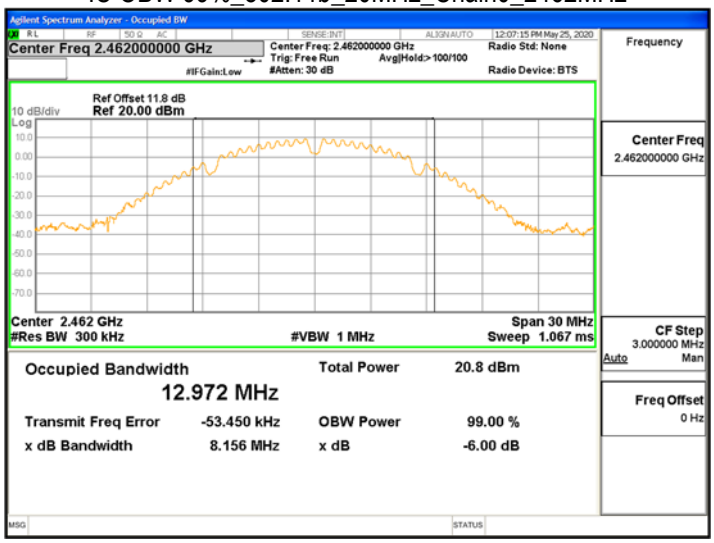
IC OBW 99%_802.11b_20MHz_Chain0_2437MHz



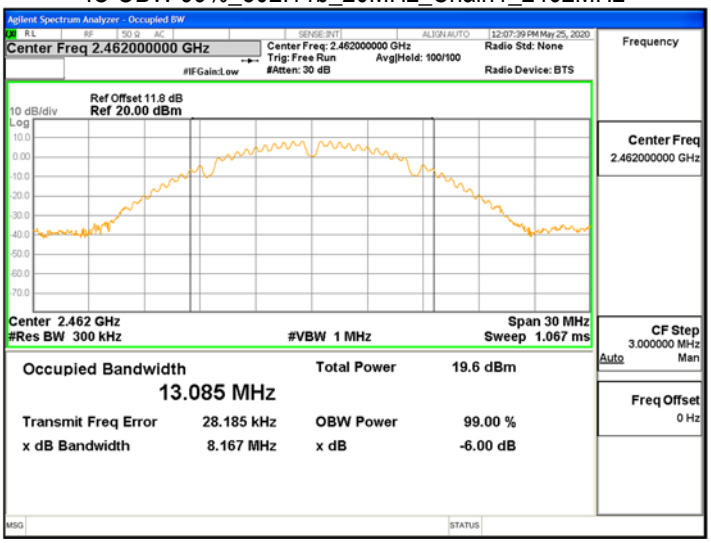
IC OBW 99%_802.11b_20MHz_Chain1_2437MHz



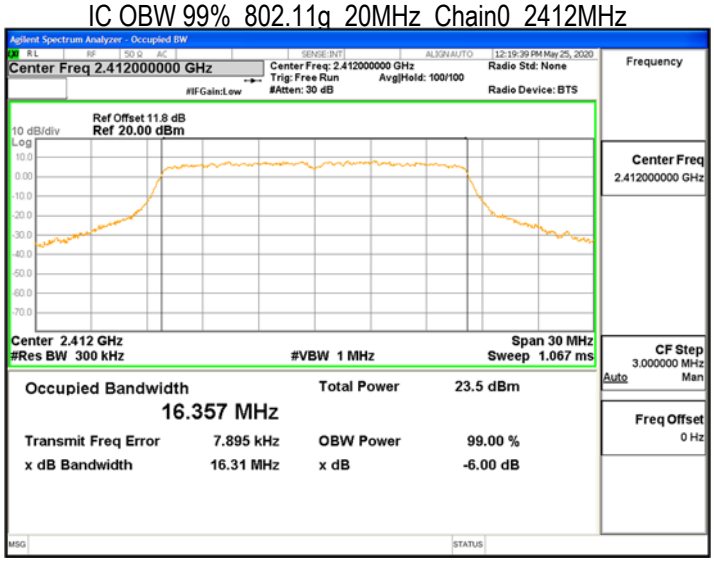
IC OBW 99%_802.11b_20MHz_Chain0_2462MHz



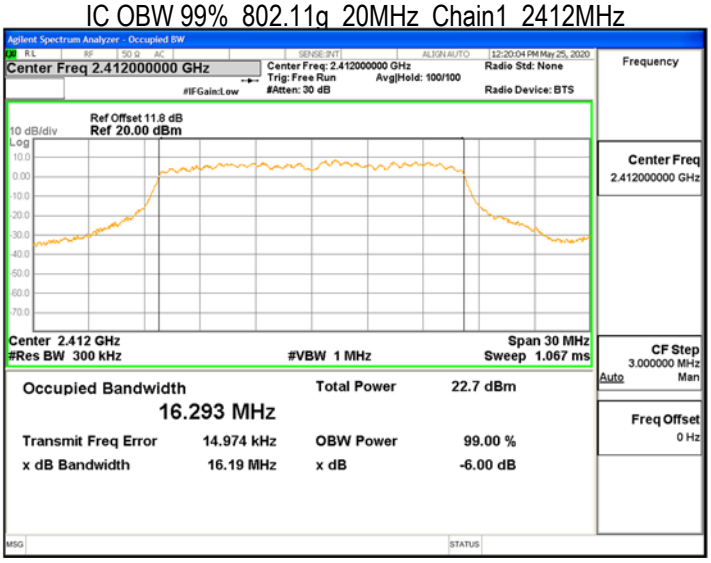
IC OBW 99%_802.11b_20MHz_Chain1_2462MHz



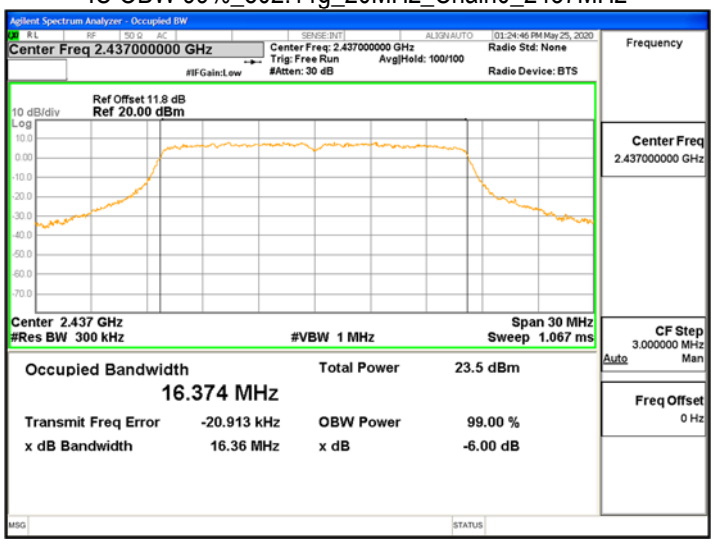
IC OBW 99%_802.11g_20MHz_Chain0_2412MHz



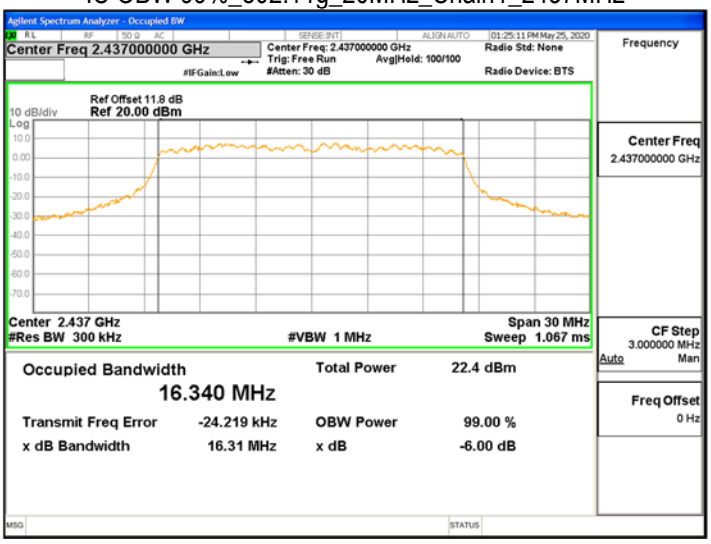
IC OBW 99%_802.11g_20MHz_Chain1_2412MHz



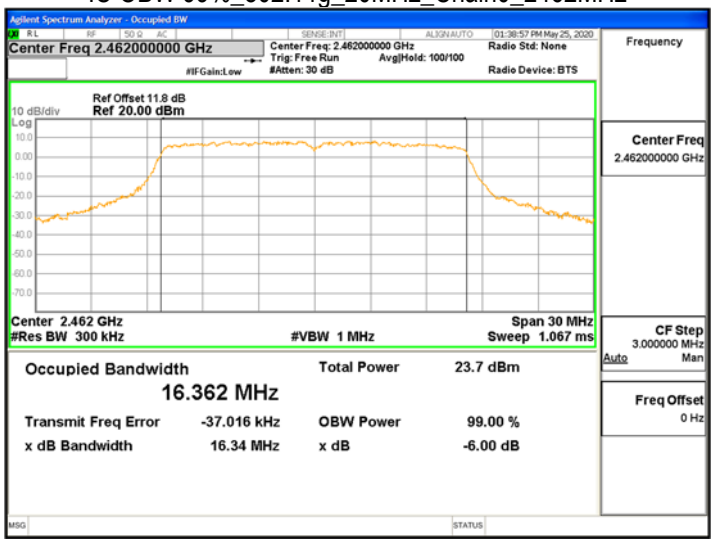
IC OBW 99%_802.11g_20MHz_Chain0_2437MHz



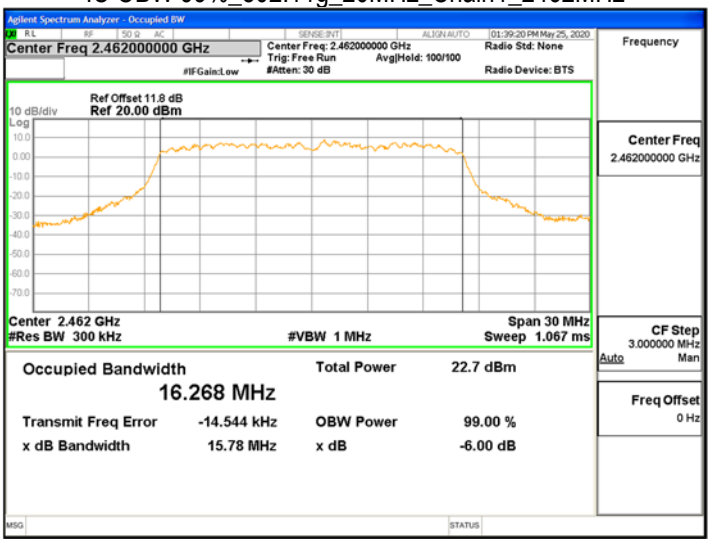
IC OBW 99%_802.11g_20MHz_Chain1_2437MHz



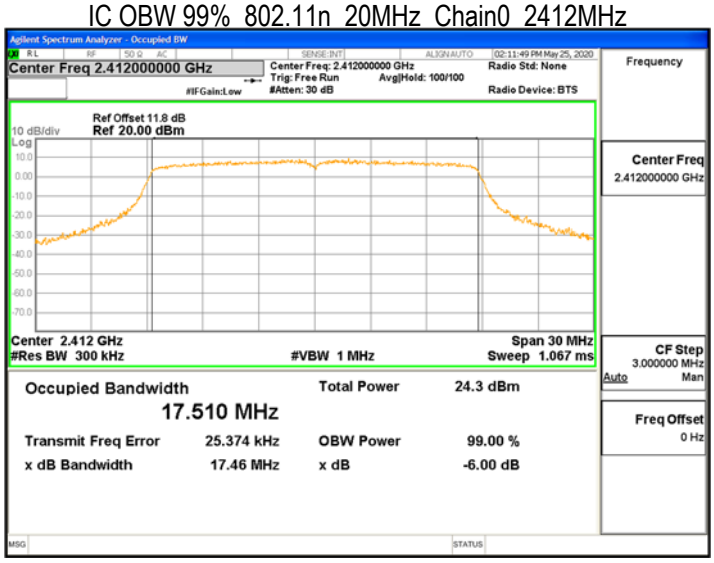
IC OBW 99%_802.11g_20MHz_Chain0_2462MHz



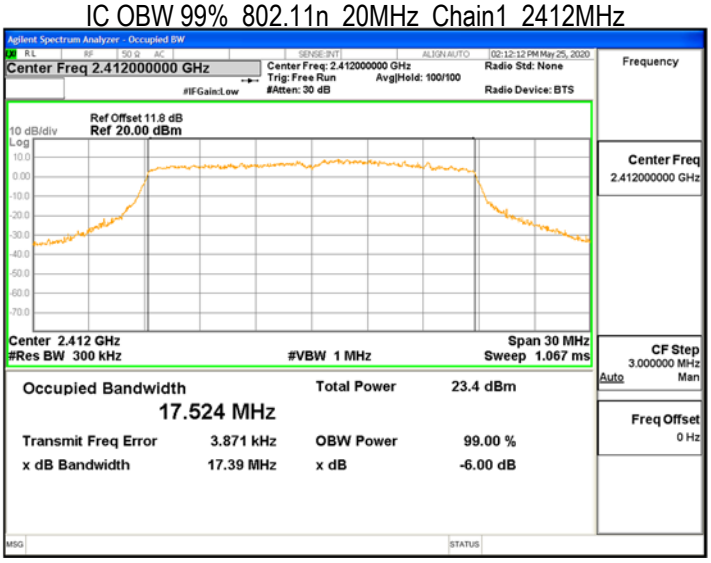
IC OBW 99%_802.11g_20MHz_Chain1_2462MHz



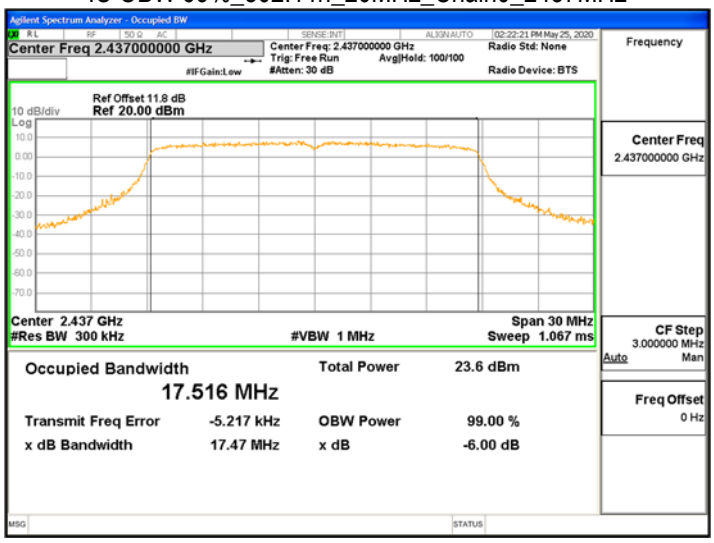
IC OBW 99%_802.11n_20MHz_Chain0_2412MHz



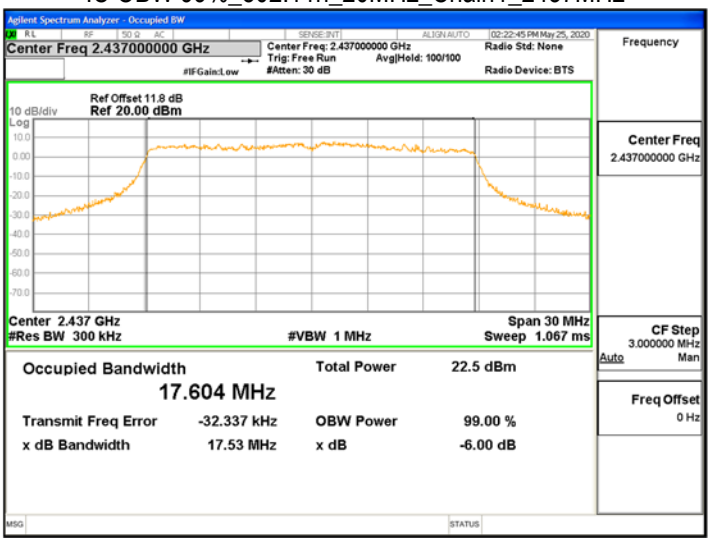
IC OBW 99%_802.11n_20MHz_Chain1_2412MHz



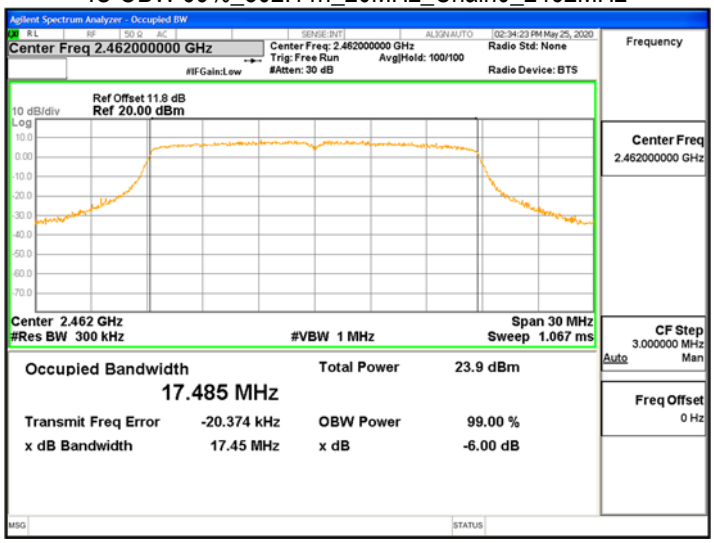
IC OBW 99%_802.11n_20MHz_Chain0_2437MHz



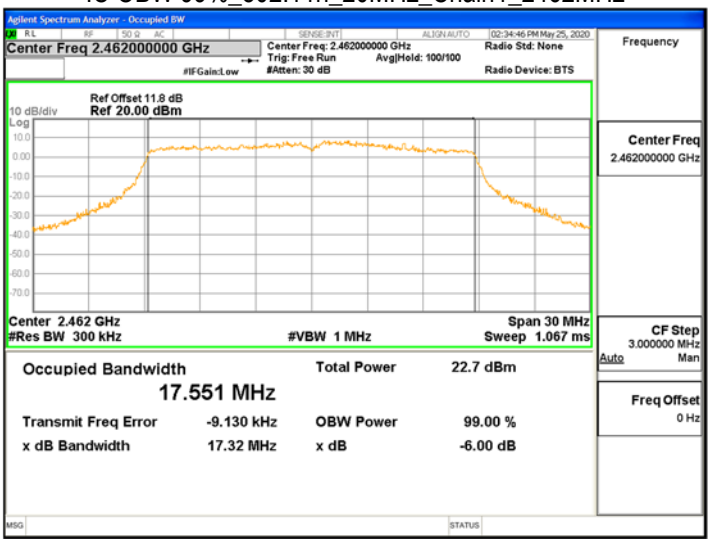
IC OBW 99%_802.11n_20MHz_Chain1_2437MHz



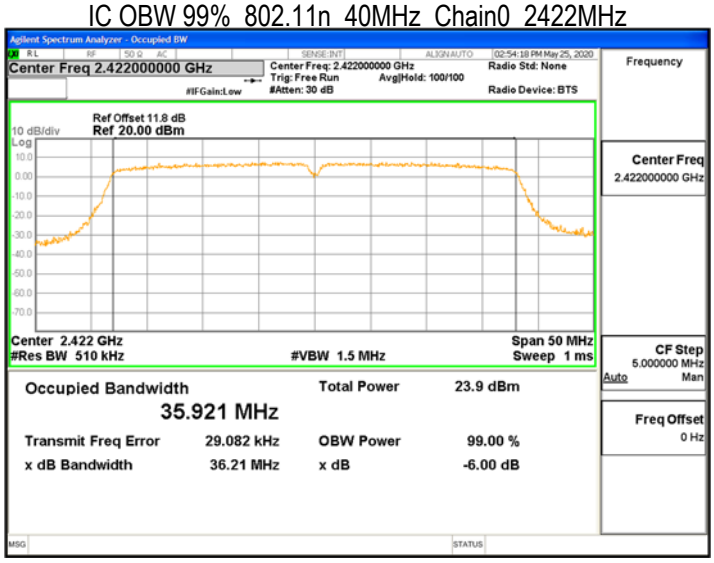
IC OBW 99%_802.11n_20MHz_Chain0_2462MHz



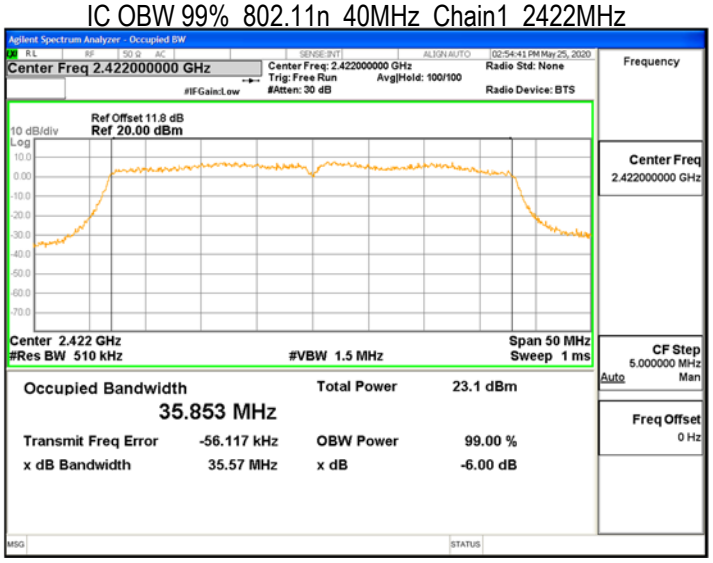
IC OBW 99%_802.11n_20MHz_Chain1_2462MHz



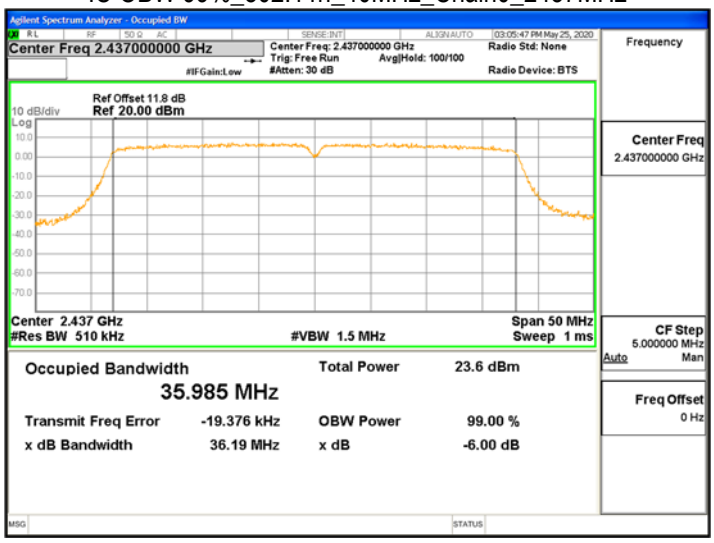
IC OBW 99%_802.11n_40MHz_Chain0_2422MHz



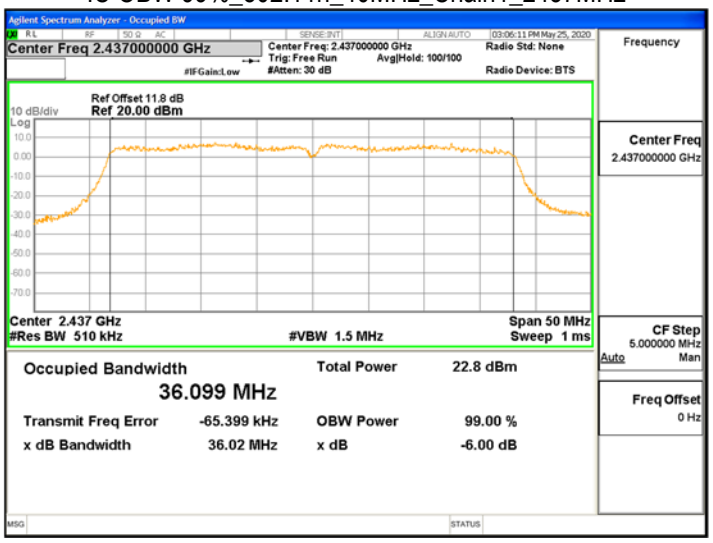
IC OBW 99%_802.11n_40MHz_Chain1_2422MHz



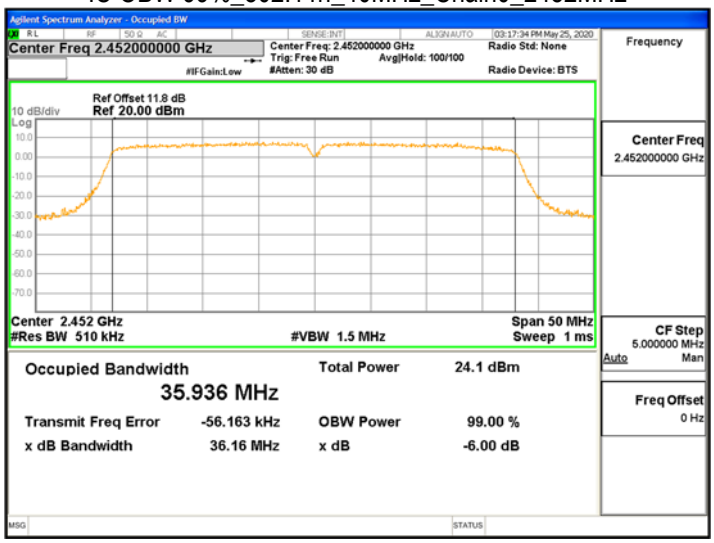
IC OBW 99%_802.11n_40MHz_Chain0_2437MHz



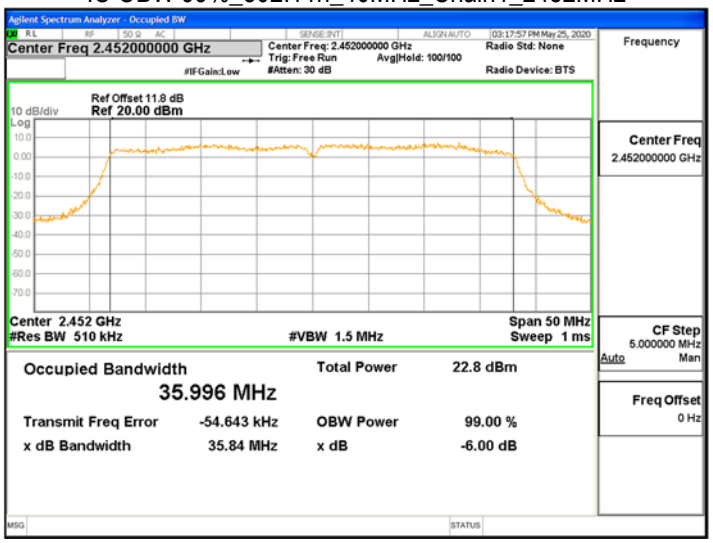
IC OBW 99%_802.11n_40MHz_Chain1_2437MHz



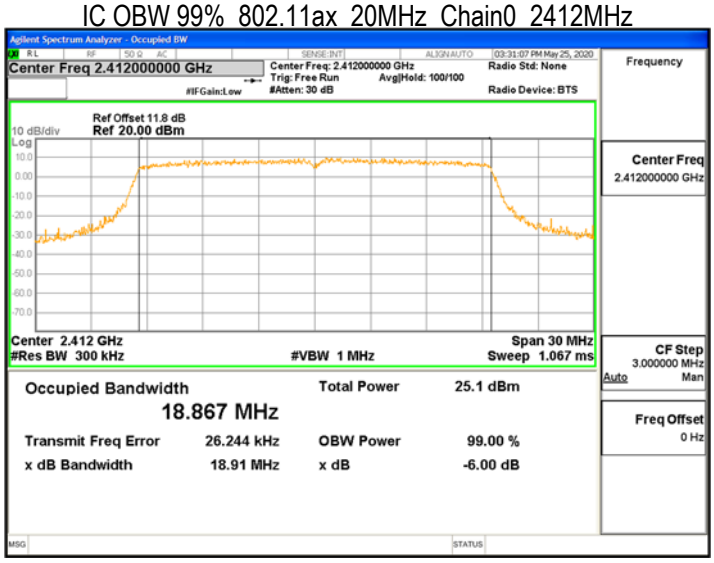
IC OBW 99%_802.11n_40MHz_Chain0_2452MHz



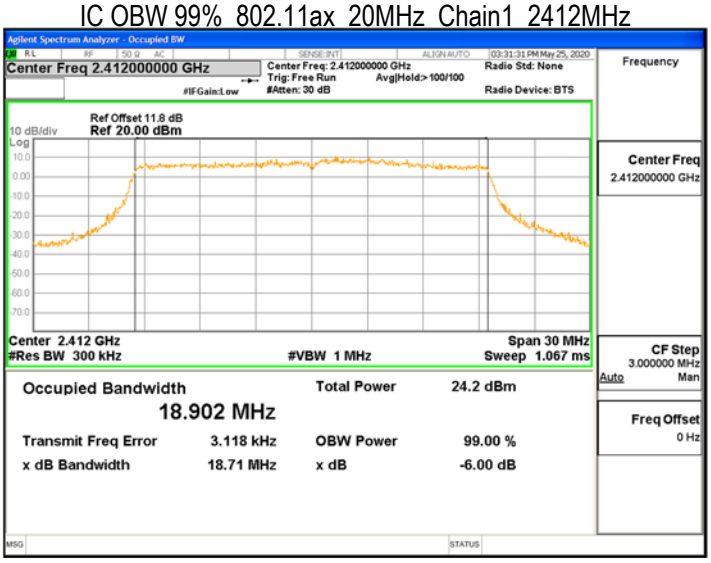
IC OBW 99%_802.11n_40MHz_Chain1_2452MHz



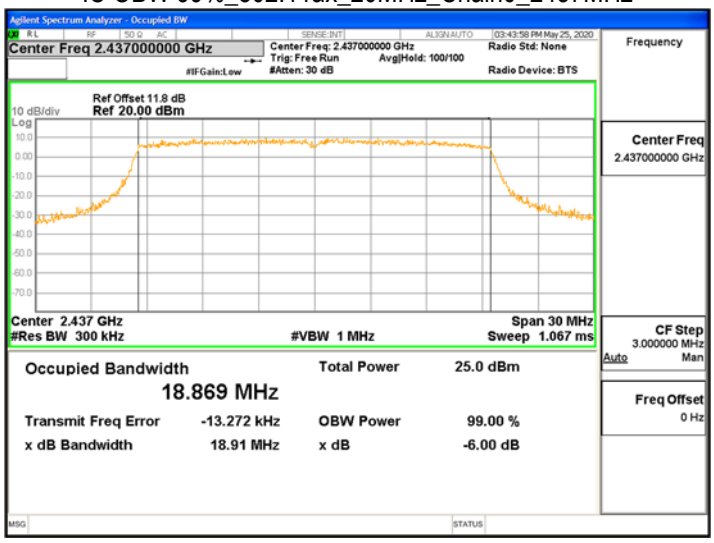
IC OBW 99%_802.11ax_20MHz_Chain0_2412MHz



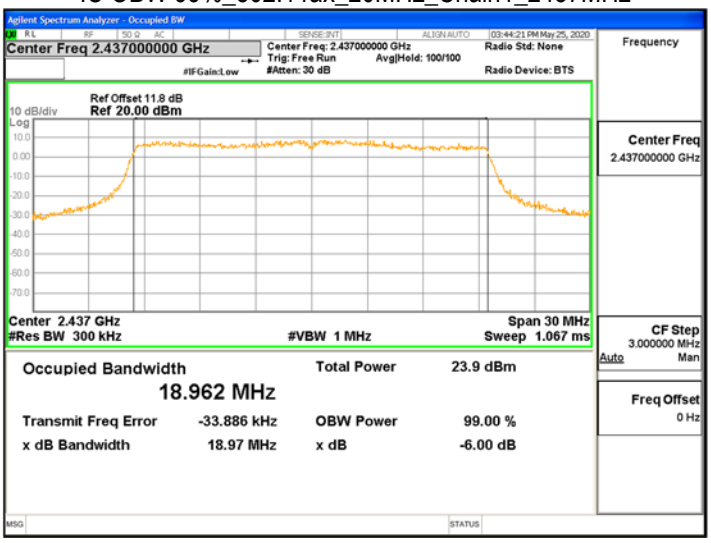
IC OBW 99%_802.11ax_20MHz_Chain1_2412MHz



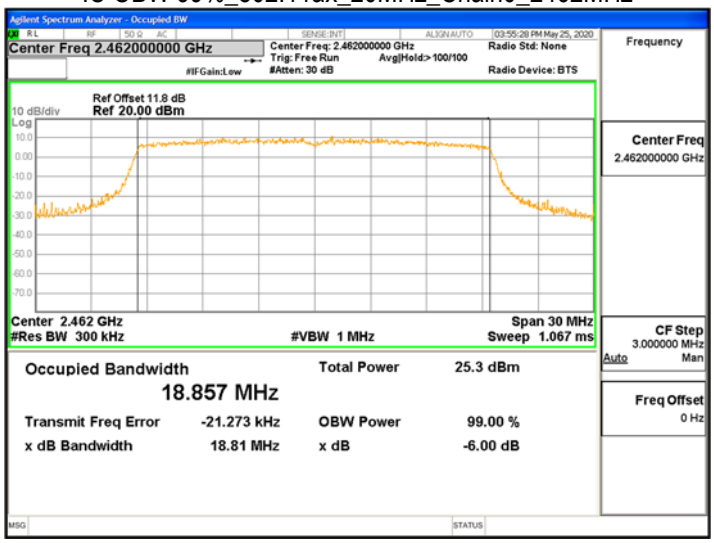
IC OBW 99%_802.11ax_20MHz_Chain0_2437MHz



IC OBW 99%_802.11ax_20MHz_Chain1_2437MHz



IC OBW 99%_802.11ax_20MHz_Chain0_2462MHz



IC OBW 99%_802.11ax_20MHz_Chain1_2462MHz