TEST REPORT

CTK Co., Ltd.
(Ho-dong), 113, Yejik-ro, Cheoin-gu,
Yongin-si, Gyeonggi-do, Korea
Tel: +82-31-339-9970
Fax: +82-31-624-9501

Report No.: CTK-2021-03416

1. Client

◦ Name : Samsung Electronics Co Ltd

◦ Address : 19 Chapin Rd, Building D. Pine Brook, New Jersey, United States

◦ Date of Receipt : 2021-06-28

2. Manufacturer

◦ Name : Samsung Electronics Co., Ltd.

◦ Address : 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea

3. Use of Report : For FCC Conformance / ISED Conformance

4. Test Sample / Model: Wi-Fi/BT Transceiver / WCA942M

5. Date of Test : 2020-11-05 to 2020-11-20, 2021-08-04 to 2021-09-16

6. Test Standard(method) used : FCC 47 CFR part 15 subpart C 15.247
RSS-247 & RSS-Gen

7. Testing Environment: Temp.: (23 ± 1) ℃, Humidity: (50 ± 3) % R.H.

8. Test Results : Compliance

The results shown in this test report refer only to the sample(s) tested unless otherwise stated. This Test Report cannot be reproduced, except in full.

Affirmation	Tested by Ji-Hye, Kim: (Signature)	Technical Manager Won-Jae, Hwang: (Signature)

2021-09-17

Republic of KOREA **CTK Co., Ltd.**

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REPORT REVISION HISTORY

Date	Revision	Page No
2020-11-20	Issued (CTK-2020-04546)	all
2021-09-17	Issued (CTK-2021-03416) Added RU combinations and assignments in 802.11ax	all

CONTENTS

1. General Product Description

1.1 Client Information

Company	Samsung Electronics Co., Ltd.
Contact Point	129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea
Contact Person	Name : Youngjoong Noh E-mail : monk.noh@samsung.com Tel : +82-277-0598 Fax : -

1.2 Product Information

FCC ID	A3LWCA942M
ISED	649E-WCA942M
Product Description	Wi-Fi/BT Transceiver
Model name	WCA942M
Variant Model name	-
Operating Frequency	2 412 MHz – 2 472 MHz
RF Output Power	802.11b : 18.88 dBm (77.27 mW) 802.11g : 17.58 dBm (57.28 mW) 802.11n_HT20 : 16.88 dBm (48.75 mW) 802.11ax_HE20 : 17.47 dBm (55.85 mW)
Antenna Specification	Antenna type : Chip Antenna Peak Gain : -2.31 dBi (ANT1), -0.52 dBi (ANT2)
Number of channels	13 (802.11b/g/n_HT20/ax_HE20)
Type of Modulation	802.11b : DSSS 802.11g/n : OFDM 802.11ax : OFDMA
Data Rate	802.11b : 11 / 5.5 / 2 / 1 Mbps 802.11g : 54 / 48 / 36 / 24 / 18 / 12 / 9 / 6 Mbps 802.11n: up to 144 Mbps 802.11ax: up to 286 Mbps
Power Source	DC 5 V
Hardware Rev	V4.0
Software Rev	FC2

1.3 Peripheral Devices

Device	Manufacturer	Model No.	Serial No.
Note Computer	HP	15-bs563TU	CND7253QPR
AC/DC Adapter	HP	HSTNN-LA40	-

1.4 Model Differences

Not applicable

2. Facility and Accreditations

2.1 Test Facility

The measurement facility is located at (Ho-dong), 113, Yejik-ro, Cheoin-gu, Yong-in-si, Gyeonggi-do, Korea.

2.2 Laboratory Accreditations and Listings

Country	Agency	Registration Number
USA	FCC	805871
CANADA	ISED	8737A-2
KOREA	NRRA	KR0025

2.3 Calibration Details of Equipment Used for Measurement

Test equipment and test accessories are calibrated on regular basis. The maximum time between calibrations is one year or what is recommended by the manufacturer, whichever is less. All test equipment calibrations are traceable to the Korea Research Institute of Standards and Science (KRISS), therefore, all test data recorded in this report is traceable to KRISS.

3. Test Specifications

3.1 Standards

FCC Part Section(s)	Requirement(s)	Status (Note 1)	Test Condition
15.247(a)	6 dB Bandwidth	C	Conducted
15.247(b)	Maximum Output Power	C	
15.247(d)	Conducted Spurious emission	C	
15.247(d)	Unwanted Emission(Conducted)	C	
15.247(e)	Transmitter Power Spectral Density	C	
15.209	Radiated Emissions	C	Radiated
15.207	AC Conducted Emissions	C	Line Conducted
Note 1: C=Complies NC=Not Complies NT=Not Tested NA=Not Applicable			
Note 2: The data in this test report are traceable to the national or international standards.			
Note 3: The sample was tested according to the following specification: FCC Part 15.247			
Note 4: The tests were performed according to the method of measurements prescribed in KDB No.558074, ANSI C63.10-2013			

ISED Part Section(s)	Requirement(s)	Status (Note 1)	Test Condition
RSS-247 5.2(a)	6 dB Bandwidth	C	Conducted
RSS-247 5.4(d)	Maximum Output Power	C	
RSS-247 5.5	Conducted Spurious emission	C	
RSS-247 5.5	Unwanted Emission(Conducted)	C	
RSS-247 5.2(b)	Transmitter Power Spectral Density	C	
RSS-Gen 6.13	Radiated Emissions	C	Radiated
RSS-Gen 8.8	AC Conducted Emissions	C	Line Conducted
Note 1: C=Complies NC=Not Complies NT=Not Tested NA=Not Applicable			
Note 2: The data in this test report are traceable to the national or international standards.			
Note 3: The sample was tested according to the following specification: RSS-247, RSS-GEN			
Note 4: The tests were performed according to the method of measurements prescribed in ANSI C63.10-2013			

3.2 Mode of operation during the test

The EUT is operated in a manner representative of the typical of the equipments.
During at testing, system components were manipulated within the confines of typical usage to maximize each emission. All modulation modes were tests.
The results are only attached worst cases.

The Output power for the 802.11 ax mode were investigated between all different tones, and we found that the highest tone had the highest output power and lowest tone had the highest PSD readings. Therefore, full testing was performed on both the highest and lowest tones.

Test Frequency

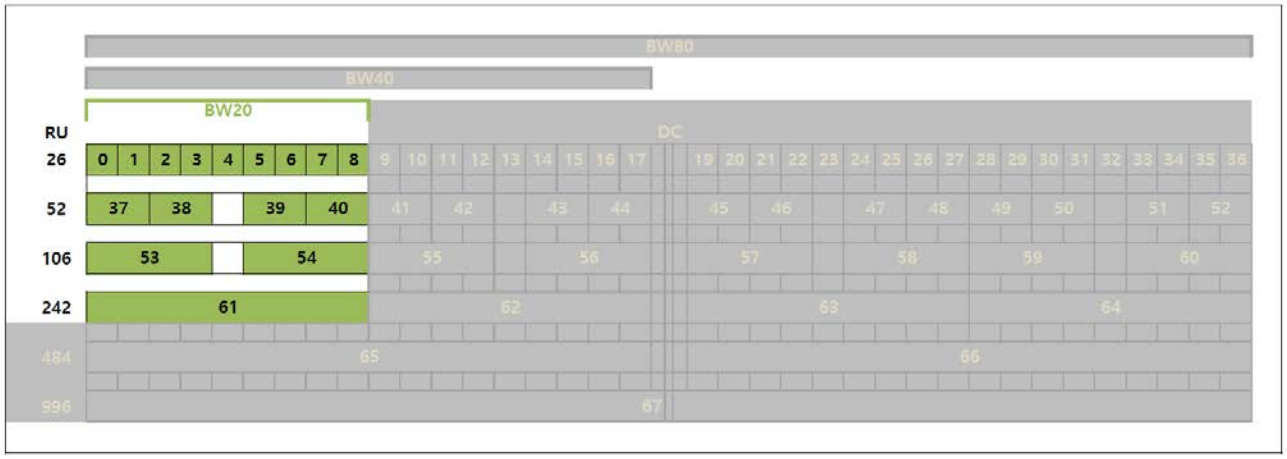
802.11b/g/n_HT20/ax_HE20

Low	Mid	High
2 412 MHz	2 442 MHz	2 472 MHz

Test mode and Duty Cycle

Test mode	Modulation	Data rate	Duty Cycle	Duty Cycle Factor
802.11b	DSSS	1 Mbps	99.7 %	-
802.11g	OFDM	6 Mbps	97.2 %	0.12 dB
802.11n_HT20	OFDM	MCS 0	97.0 %	0.13 dB
802.11ax_HE20_SU	OFDMA	MCS 0	93.2 %	0.31 dB
802.11ax_HE20_26T			94.7 %	0.24 dB
802.11ax_HE20_52T			94.4 %	0.25 dB
802.11ax_HE20_106T			94.7 %	0.23 dB

802.11ax RU Locations in BW 20 MHz



Test RU Index for Tones

Mode	Tones	RU Index	
802.11ax_HE20	26T	Low	0
		Mid	4
		High	8
	52T	Low	37
		Mid	39
		High	40
	106T	Low	53
		Mid	-
		High	54
	242T / SU	61 / NA	61 / NA

Full RU(Resource Unit) 242T mode and SU(Single Unit) mode have no difference in physical waveform. This Report has been reported the SU(Single Unit) mode with worst output power.

3.3 Device Modifications

The following modifications were necessary for compliance:

Not applicable

3.4 Maximum Measurement Uncertainty

The value of the measurement uncertainty for the measurement of each parameter.
Coverage factor k = 2, Confidence levels of 95 %

Description	Uncertainty
Conducted RF Output Power	1.5 dB (C.L.: Approx. 95 %, k = 2)
Power Spectral Density	1.5 dB (C.L.: Approx. 95 %, k = 2)
Occupied Bandwidth	0.1 MHz (C.L.: Approx. 95 %, k = 2)
Unwanted Emission(conducted)	3.0 dB (C.L.: Approx. 95 %, k = 2)
Radiated Emissions (9 kHz to 30 MHz)	1.16 dB (C.L.: Approx. 95 %, k = 2)
Radiated Emissions (f ≤ 1 GHz)	4.54 dB (C.L.: Approx. 95 %, k = 2)
Radiated Emissions (f > 1 GHz)	4.98 dB (C.L.: Approx. 95 %, k = 2)

3.5 Test Software

Conducted Test	Ics Pro Ver. 6.0.3
Radiated Test	TOYO EMI software EP5RE Ver. 6.0.1.0
Line Conducted Test	ESCI7, ESCI3 : EMC32 Ver. 8.50.0 ESR7 : EMC32 Ver. 8.53.0

4. Technical Characteristic Test

4.1 6dB Bandwidth

Test Procedures

KDB 558074 - Section 8.2
ANSI C63.10-2013 - Section 11.8.2
RSS-Gen – Section 6.7

Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

Test Procedures

ANSI C63.10-2013 - Section 6.9
RSS-Gen – Section 6.7

The occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5% of the total mean power of the given emission.
Use the 99% power bandwidth function of the instrument and report the measured bandwidth.

Test Settings :

Center frequency = the highest, middle and the lowest channels

a) RBW = 100 kHz
b) VBW ≥ 3 x RBW
c) Detector = peak
d) Trace mode = Max hold
e) Sweep = auto couple
f) Allow trace to fully stabilize
g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

Minimum Standard :

6 dB Bandwidth	>	500kHz

Test Data :

ANT1

Mode	6 dB Bandwidth and 99 % Bandwidth (MHz)							
	802.11b		802.11g		802.11n_HT20		802.11ax_HE20_SU	
Frequency	6 dB	99 %	6 dB	99 %	6 dB	99 %	6 dB	99 %
2 412 MHz	8.10	12.80	15.16	16.33	15.73	17.52	17.80	18.76
2 442 MHz	8.10	12.64	16.29	16.51	17.18	17.77	17.72	18.94
2 472 MHz	8.09	12.61	15.16	16.32	15.72	17.52	17.77	18.77

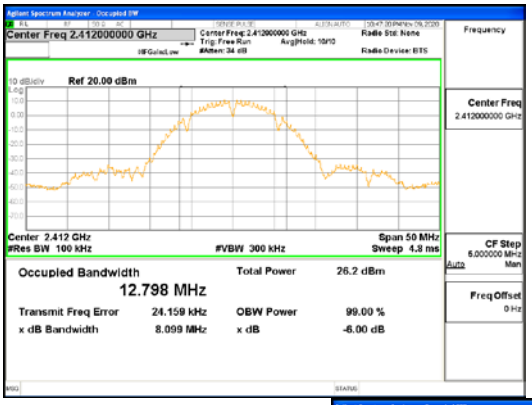
Mode		6 dB Bandwidth and 99 % Bandwidth (MHz)	
		802.11ax_HE20_26T	
Frequency	RU Index	6 dB	99 %
2 412 MHz	Low	2.12	17.91
	Mid	2.72	16.84
	High	2.17	18.00
2 442 MHz	Low	2.17	18.63
	Mid	2.73	17.12
	High	2.15	18.55
2 472 MHz	Low	2.16	18.06
	Mid	2.72	16.87
	High	2.15	17.97

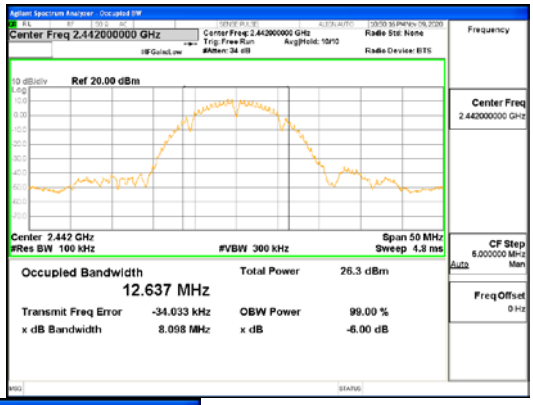
ANT2

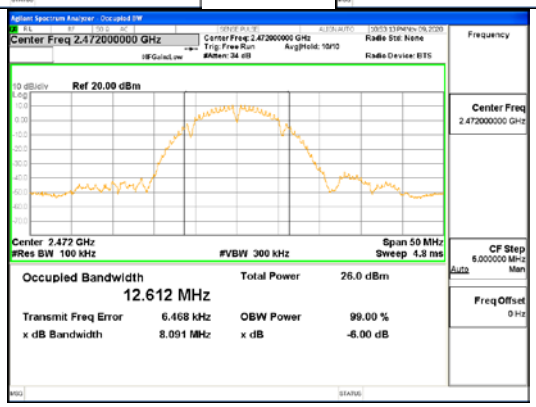
Mode	6 dB Bandwidth and 99 % Bandwidth (MHz)							
	802.11b		802.11g		802.11n_HT20		802.11ax_HE20_SU	
Frequency	6 dB	99 %	6 dB	99 %	6 dB	99 %	6 dB	99 %
2 412 MHz	8.09	12.85	15.17	16.33	15.16	17.50	18.03	18.76
2 442 MHz	8.10	12.70	15.63	16.57	15.21	17.77	18.17	18.95
2 472 MHz	8.10	12.63	15.18	16.34	15.18	17.51	18.17	18.75

Mode		6 dB Bandwidth and 99 % Bandwidth (MHz)	
		802.11ax_HE20_26T	
Frequency	RU Index	6 dB	99 %
2 412 MHz	Low	2.14	17.89
	Mid	2.68	16.79
	High	2.11	18.01
2 442 MHz	Low	2.16	18.52
	Mid	2.69	16.98
	High	2.14	18.40
2 472 MHz	Low	2.14	18.05
	Mid	2.70	16.94
	High	2.14	18.03

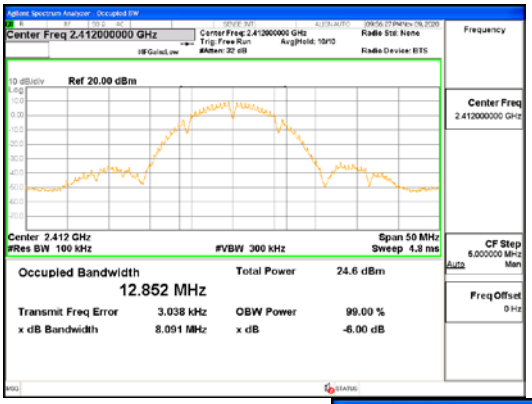
See next pages for actual measured spectrum plots.

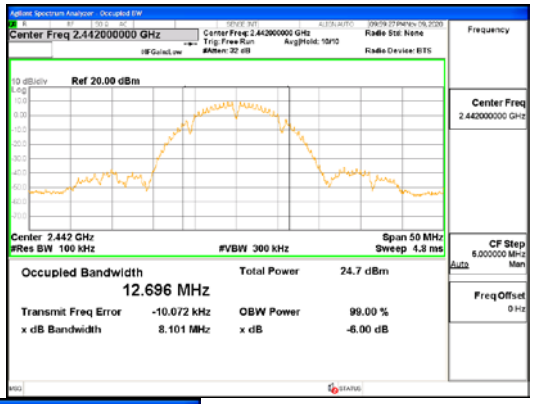


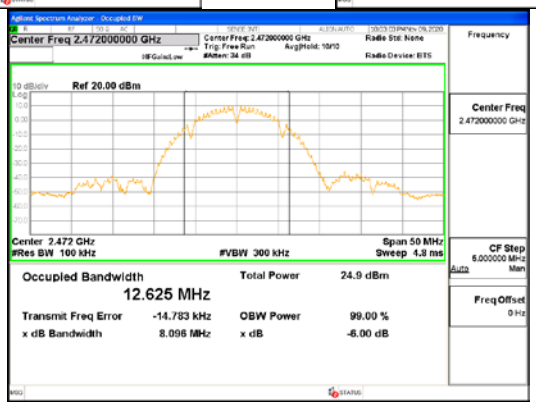




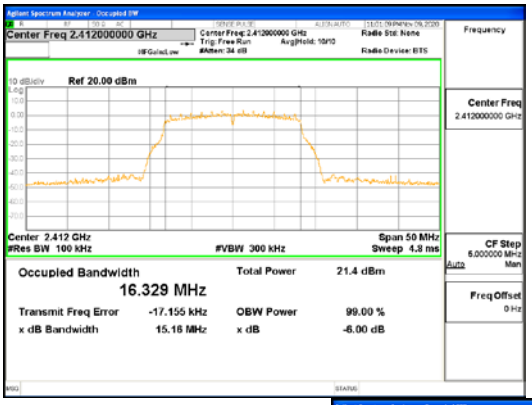
ANT1, 802.11b

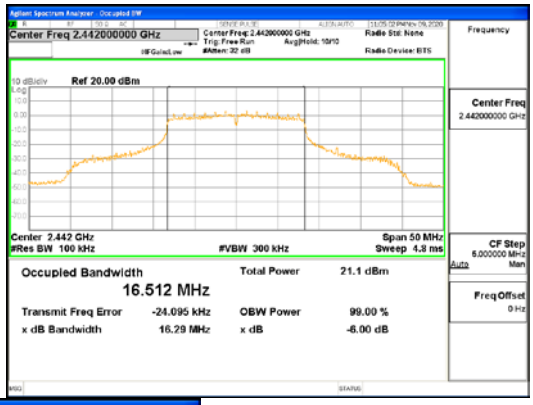


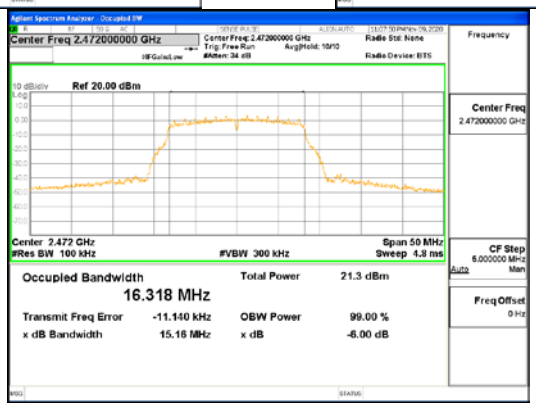




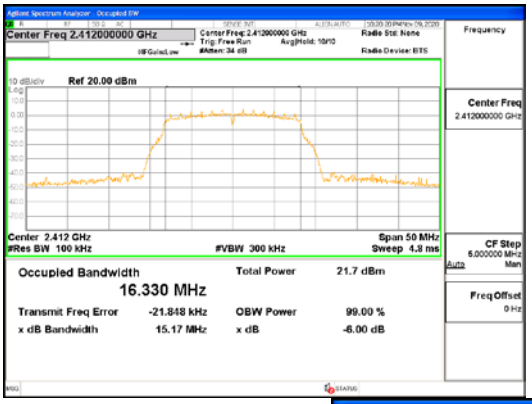
ANT2, 802.11b

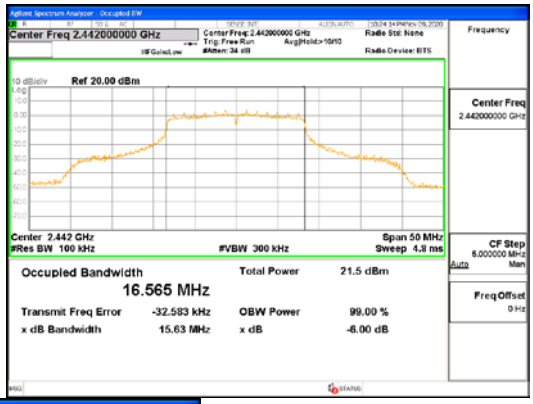


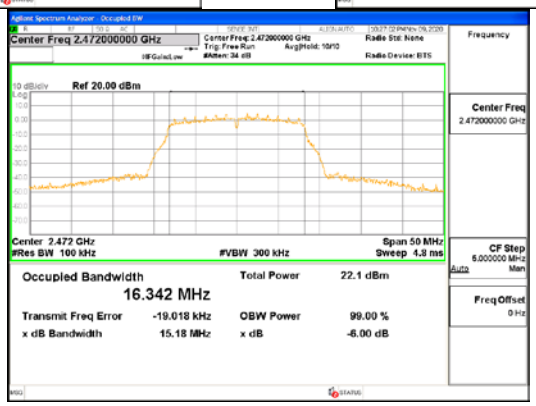




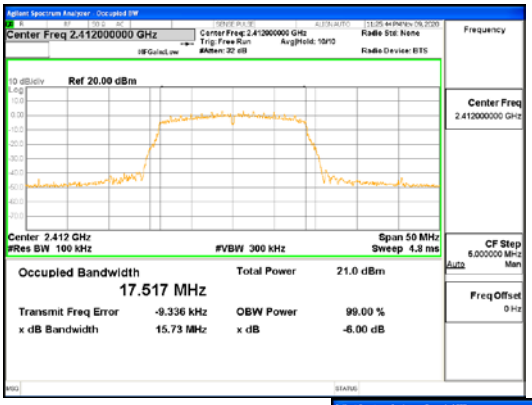
ANT1, 802.11g

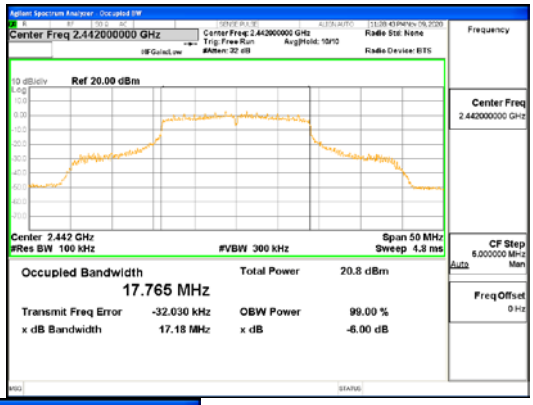


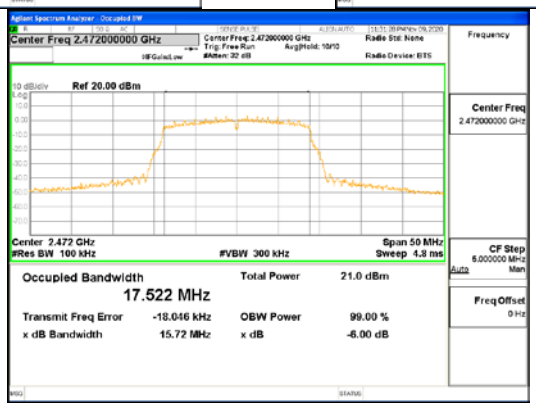




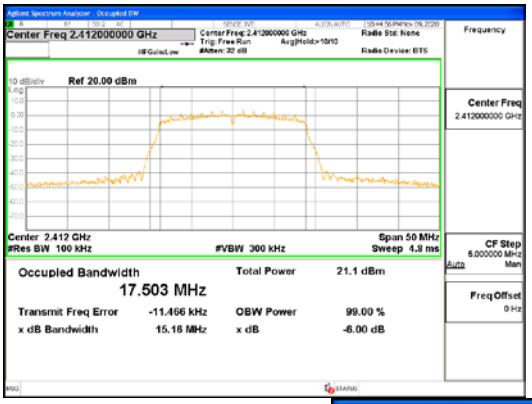
ANT2, 802.11g

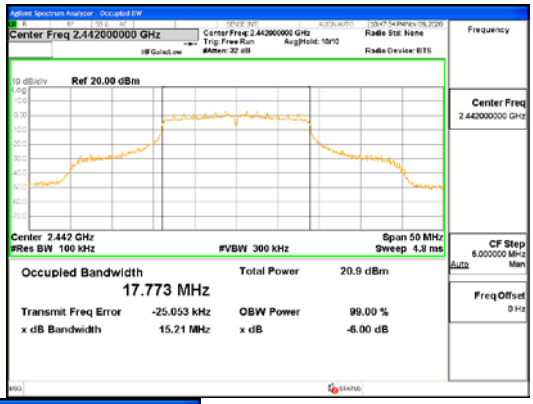


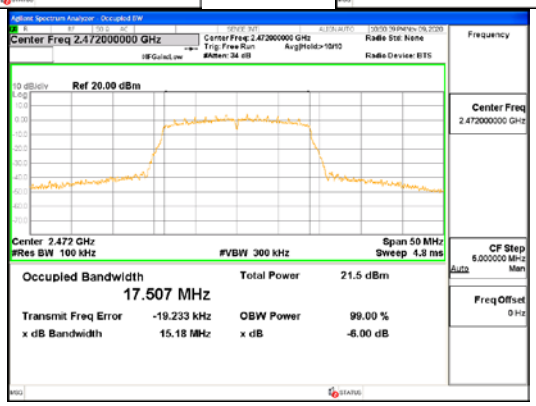




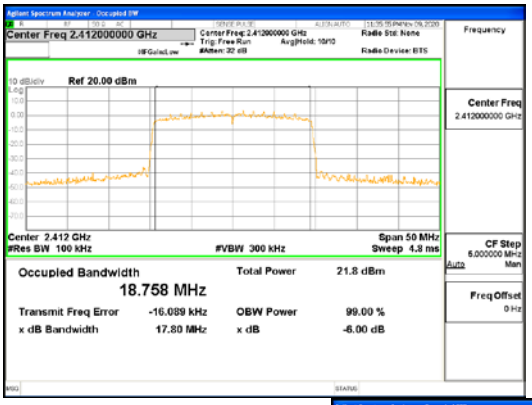
ANT1, 802.11n_HT20

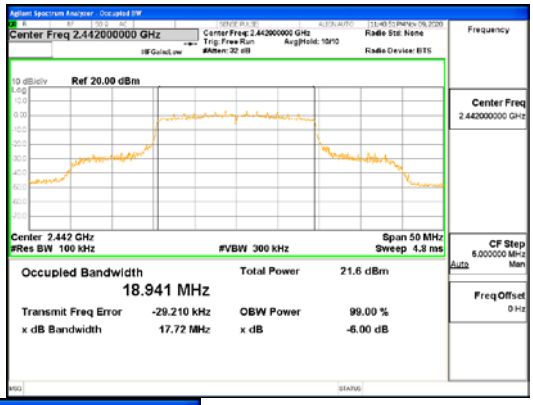


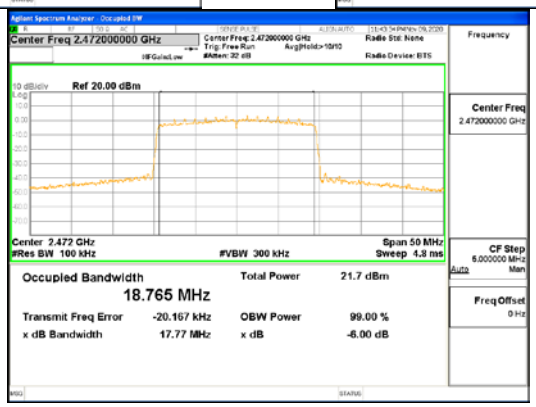




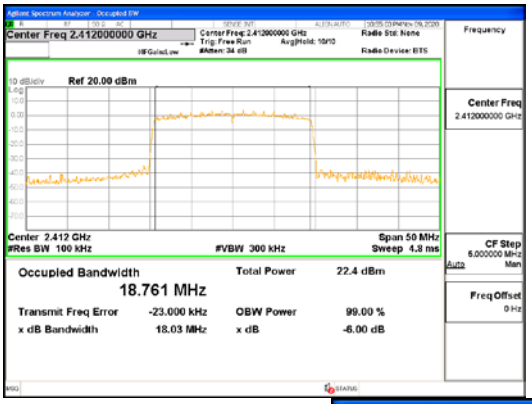
ANT2, 802.11n_HT20

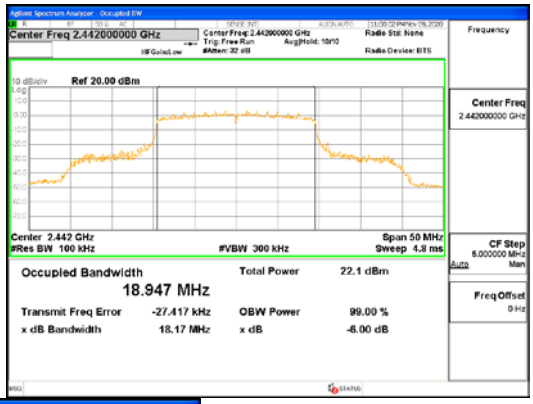


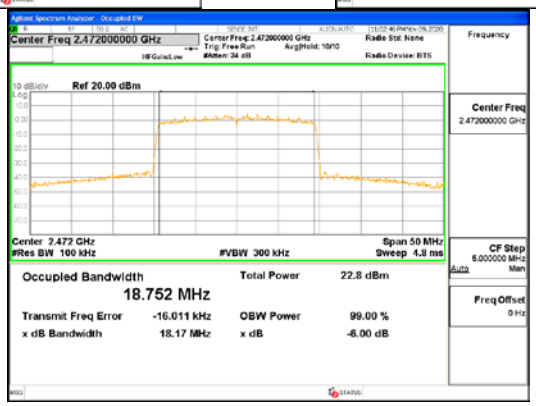




ANT1, 802.11ax_HE20_SU







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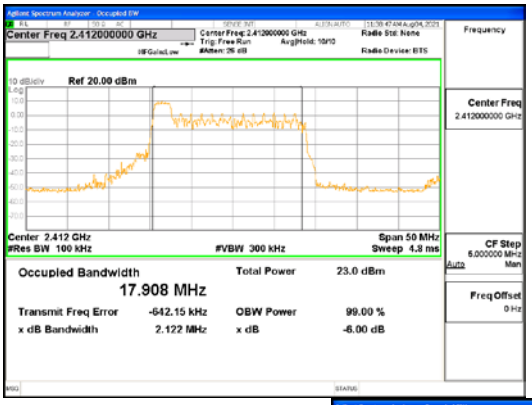
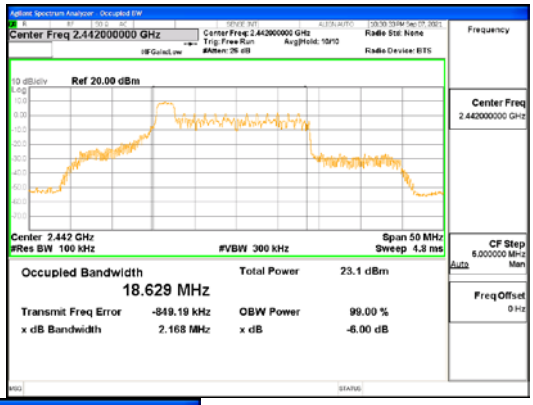
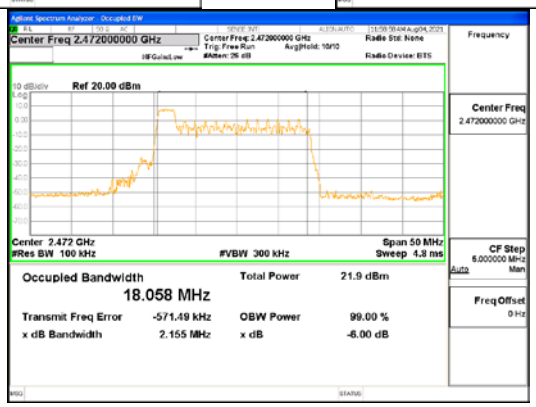
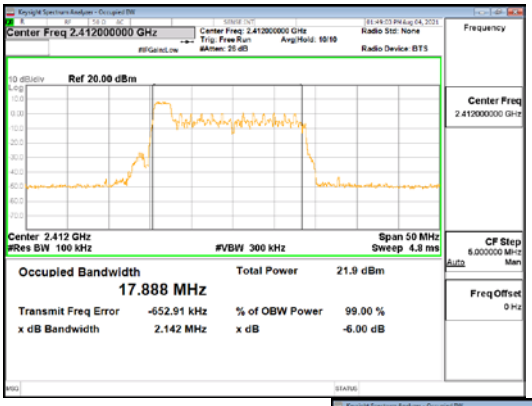
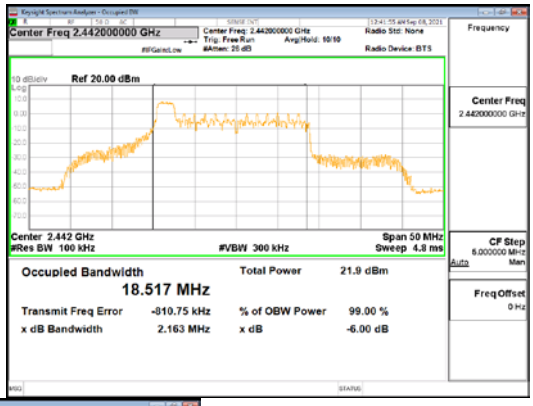


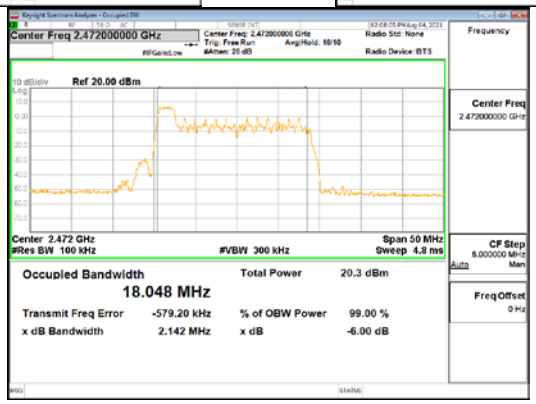




ANT1, 802.11ax_HE20_26T_Low







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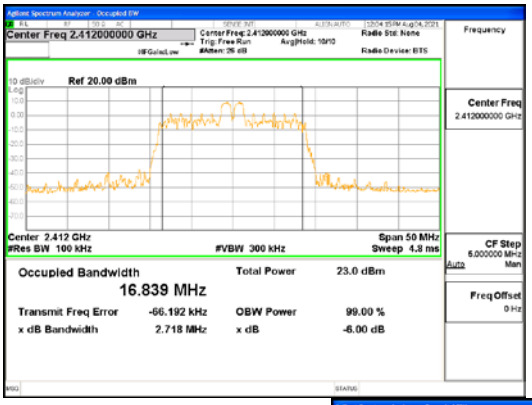
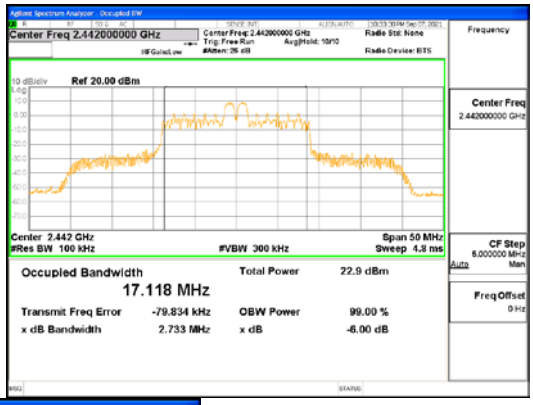
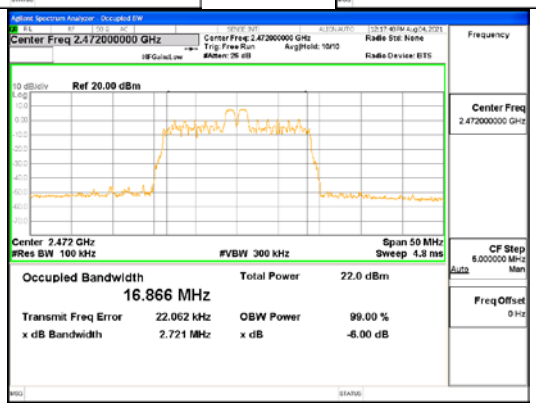
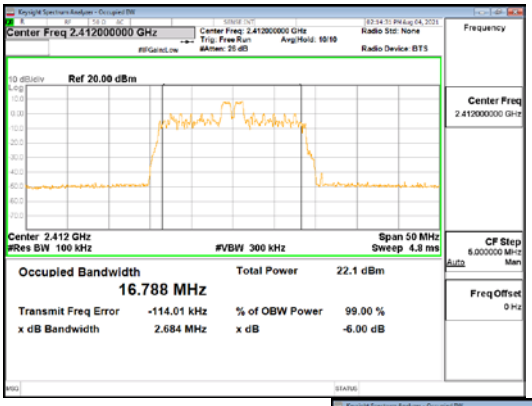
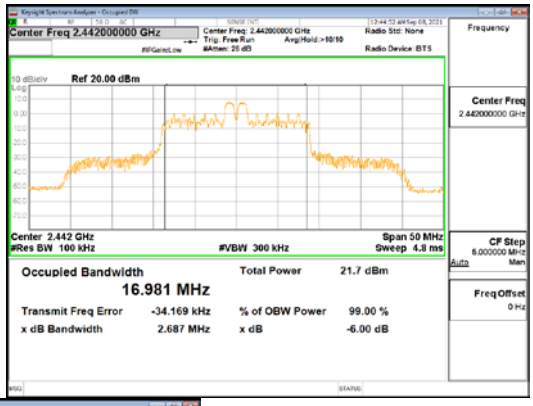


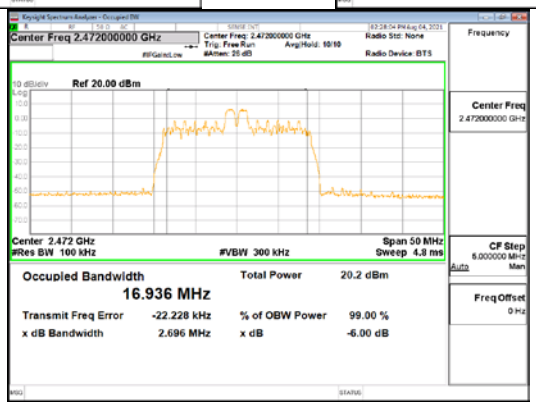




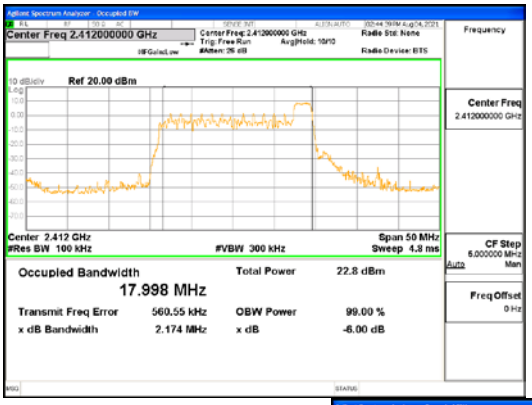
ANT1, 802.11ax_HE20_26T_Mid

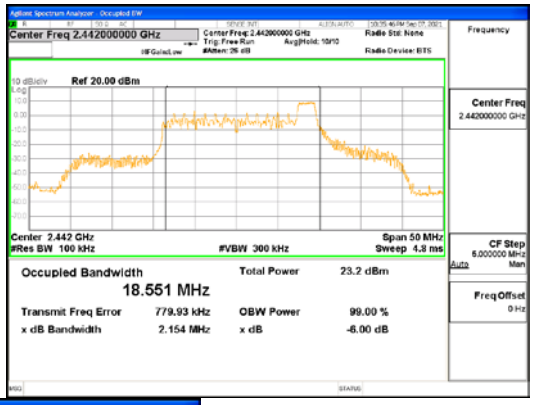


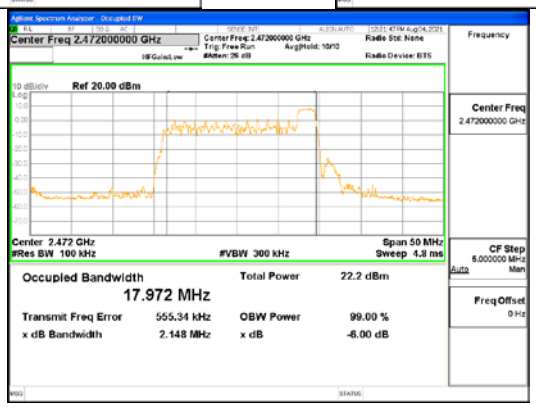




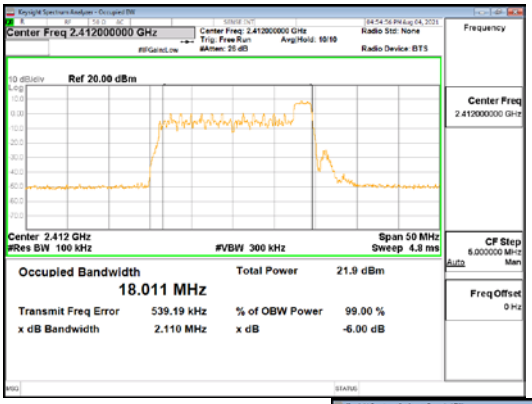
ANT2, 802.11ax_ HE20_26T_Mid

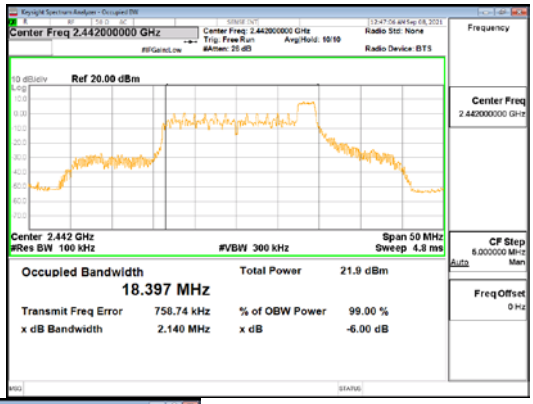


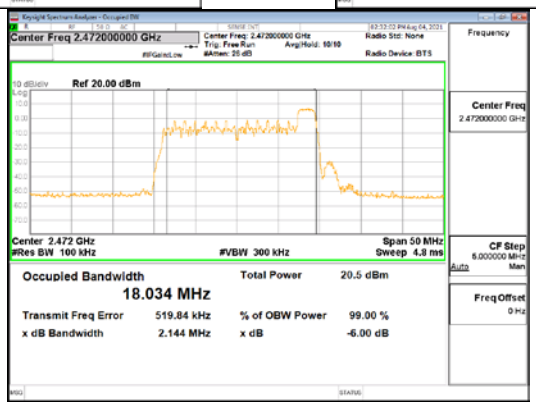




ANT1, 802.11ax_HE20_26T_High







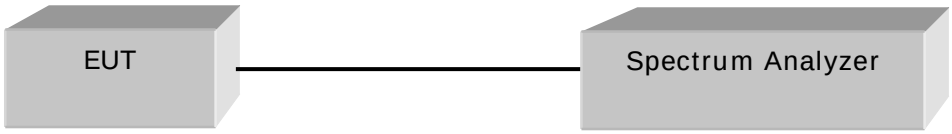
ANT2, 802.11ax_ HE20_26T_High

4.2 OUTPUT POWER

Test Procedures

KDB 558074 - Section 8.3.2.2 (Average Power)
ANSI C63.10-2013 - Section 11.9.2.2
KDB 662911 D01, D02 (Multiple Transmitter Output)

The transmitter output is connected to a spectrum analyzer and the analyzer's internal channel power integration function is used to integrate the power over a bandwidth greater than or equal to the 99% bandwidth.



Test Settings:

Center frequency = the highest, middle and the lowest channels

a) span ≥ 1.5 x OBW
b) RBW = 1 MHz
c) VBW ≥ 3 x RBW
d) Sweep time = auto
e) Detector = RMS
f) average at least 100
g) Duty cycle factor = 10log(1/x)

Test mode	Duty Cycle Factor (dB)
802.11b	0.00
802.11g	0.12
802.11n_HT20	0.13
802.11ax_HE20_SU	0.31
802.11ax_HE20_26T	0.24
802.11ax_HE20_52T	0.25
802.11ax_HE20_106T	0.23

Limit

Operating Mode	Mode	ANT Configuration	ANT Gain (dBi)	Limit (dBm)
SISO	802.11b/g/n/ax	ANT1	-2.31	30.00
SISO	802.11b/g/n/ax	ANT2	-0.52	30.00
MIMO (2Tx)	802.11g/n/ax	ANT1 + ANT2	1.69	30.00

Test Data :

ANT1

Test Mode	Frequency (MHz)	Measured Output Power (dBm)	Duty cycle Factor (dB)	Result Output Power (dBm)	Limit (dBm)	Margin (dB)
802.11b	2 412	18.85	0.00	18.85	30.00	11.15
	2 442	18.88	0.00	18.88	30.00	11.12
	2 472	18.64	0.00	18.64	30.00	11.36
802.11g	2 412	14.04	0.12	14.16	30.00	15.84
	2 442	13.69	0.12	13.81	30.00	16.19
	2 472	14.06	0.12	14.18	30.00	15.82
802.11n _HT20	2 412	13.33	0.13	13.46	30.00	16.54
	2 442	13.07	0.13	13.20	30.00	16.80
	2 472	13.32	0.13	13.45	30.00	16.55
802.11ax _HE20 _SU	2 412	13.77	0.31	14.08	30.00	15.92
	2 442	13.64	0.31	13.95	30.00	16.05
	2 472	13.63	0.31	13.94	30.00	16.06

Test Mode	Frequency (MHz)	RU Index	Measured Output Power (dBm)	Duty cycle Factor (dB)	Result Output Power (dBm)	Limit (dBm)	Margin (dB)
802.11ax _HE20 _26T	2 412	Low	12.31	0.24	12.55	30.00	17.45
		Mid	14.07	0.24	14.31	30.00	15.69
		High	12.57	0.24	12.81	30.00	17.19
	2 442	Low	13.17	0.24	13.41	30.00	16.59
		Mid	14.06	0.24	14.30	30.00	15.70
		High	13.42	0.24	13.66	30.00	16.34
	2 472	Low	11.45	0.24	11.69	30.00	18.31
		Mid	13.01	0.24	13.25	30.00	16.75
		High	11.80	0.24	12.04	30.00	17.96

802.11ax _HE20 _52T	2 412	Low	13.09	0.25	13.34	30.00	16.66
		Mid	13.61	0.25	13.86	30.00	16.14
		High	13.05	0.25	13.30	30.00	16.70
	2 442	Low	13.33	0.25	13.58	30.00	16.42
		Mid	14.16	0.25	14.41	30.00	15.59
		High	13.68	0.25	13.93	30.00	16.07
	2 472	Low	12.03	0.25	12.28	30.00	17.72
		Mid	12.85	0.25	13.10	30.00	16.90
		High	12.62	0.25	12.87	30.00	17.13
802.11ax _HE20 _106T	2 412	Low	13.65	0.23	13.88	30.00	16.12
		Mid	-	-	-	-	-
		High	13.58	0.23	13.81	30.00	16.19
	2 442	Low	13.69	0.23	13.92	30.00	16.08
		Mid	-	-	-	-	-
		High	13.74	0.23	13.97	30.00	16.03
	2 472	Low	12.43	0.23	12.66	30.00	17.34
		Mid	-	-	-	-	-
		High	12.99	0.23	13.22	30.00	16.78

ANT2

Test Mode	Frequency (MHz)	Measured Output Power (dBm)	Duty cycle Factor (dB)	Result Output Power (dBm)	Limit (dBm)	Margin (dB)
802.11b	2 412	17.19	0.00	17.19	30.00	12.81
	2 442	17.34	0.00	17.34	30.00	12.66
	2 472	17.51	0.00	17.51	30.00	12.49
802.11g	2 412	14.35	0.12	14.47	30.00	15.53
	2 442	14.23	0.12	14.35	30.00	15.65
	2 472	14.81	0.12	14.93	30.00	15.07
802.11n _HT20	2 412	13.68	0.13	13.81	30.00	16.19
	2 442	13.51	0.13	13.64	30.00	16.36
	2 472	14.12	0.13	14.25	30.00	15.75
802.11ax _HE20 _SU	2 412	13.91	0.31	14.22	30.00	15.78
	2 442	13.99	0.31	14.30	30.00	15.70
	2 472	14.62	0.31	14.93	30.00	15.07

Test Mode	Frequency (MHz)	RU Index	Measured Output Power (dBm)	Duty cycle Factor (dB)	Result Output Power (dBm)	Limit (dBm)	Margin (dB)
802.11ax_HE20_26T	2 412	Low	11.33	0.24	11.57	30.00	18.43
		Mid	12.73	0.24	12.97	30.00	17.03
		High	11.41	0.24	11.65	30.00	18.35
	2 442	Low	11.78	0.24	12.02	30.00	17.98
		Mid	12.73	0.24	12.97	30.00	17.03
		High	11.95	0.24	12.19	30.00	17.81
	2 472	Low	9.77	0.24	10.01	30.00	19.99
		Mid	11.15	0.24	11.39	30.00	18.61
		High	10.10	0.24	10.34	30.00	19.66
802.11ax_HE20_52T	2 412	Low	12.54	0.25	12.79	30.00	17.21
		Mid	12.60	0.25	12.85	30.00	17.15
		High	12.47	0.25	12.72	30.00	17.28
	2 442	Low	12.26	0.25	12.51	30.00	17.49
		Mid	12.90	0.25	13.15	30.00	16.85
		High	12.22	0.25	12.47	30.00	17.53
	2 472	Low	10.46	0.25	10.71	30.00	19.29
		Mid	10.82	0.25	11.07	30.00	18.93
		High	10.91	0.25	11.16	30.00	18.84
802.11ax_HE20_106T	2 412	Low	12.73	0.23	12.96	30.00	17.04
		Mid	-	-	-	-	-
		High	12.77	0.23	13.00	30.00	17.00
	2 442	Low	12.47	0.23	12.70	30.00	17.30
		Mid	-	-	-	-	-
		High	12.51	0.23	12.74	30.00	17.26
	2 472	Low	10.04	0.23	10.27	30.00	19.73
		Mid	-	-	-	-	-
		High	11.47	0.23	11.70	30.00	18.30

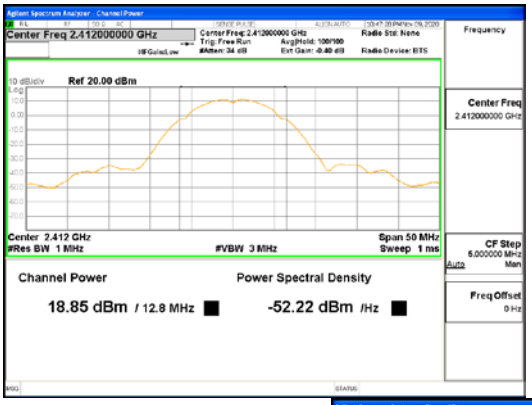
ANT1 + ANT2 (MIMO)

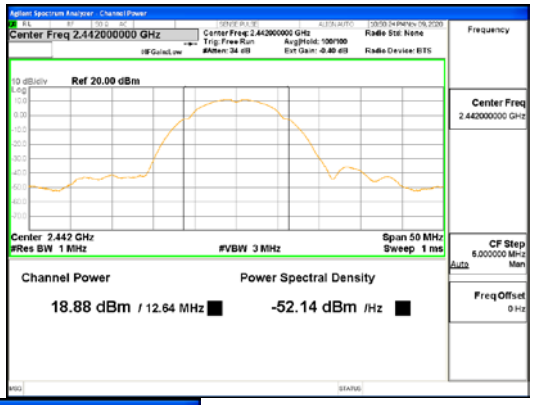
Test Mode	Frequency (MHz)	Measured Output Power (dBm)	Duty cycle Factor (dB)	Result Output Power (dBm)	Limit (dBm)	Margin (dB)
802.11g	2 412	17.21	0.12	17.33	30.00	12.67
	2 442	16.98	0.12	17.10	30.00	12.90
	2 472	17.46	0.12	17.58	30.00	12.42
802.11n _HT20	2 412	16.52	0.13	16.65	30.00	13.35
	2 442	16.31	0.13	16.44	30.00	13.56
	2 472	16.75	0.13	16.88	30.00	13.12
802.11ax _HE20 _SU	2 412	16.85	0.31	17.16	30.00	12.84
	2 442	16.83	0.31	17.14	30.00	12.86
	2 472	17.16	0.31	17.47	30.00	12.53

Test Mode	Frequency (MHz)	RU Index	Measured Output Power (dBm)	Duty cycle Factor (dB)	Result Output Power (dBm)	Limit (dBm)	Margin (dB)
802.11ax _HE20 _26T	2 412	Low	14.86	0.24	15.10	30.00	14.90
		Mid	16.46	0.24	16.70	30.00	13.30
		High	15.04	0.24	15.28	30.00	14.72
	2 442	Low	15.54	0.24	15.78	30.00	14.22
		Mid	16.46	0.24	16.70	30.00	13.30
		High	15.76	0.24	16.00	30.00	14.00
	2 472	Low	13.70	0.24	13.94	30.00	16.06
		Mid	15.19	0.24	15.43	30.00	14.57
		High	14.04	0.24	14.28	30.00	15.72
802.11ax _HE20 _52T	2 412	Low	15.83	0.25	16.08	30.00	13.92
		Mid	16.14	0.25	16.39	30.00	13.61
		High	15.78	0.25	16.03	30.00	13.97
	2 442	Low	15.84	0.25	16.09	30.00	13.91
		Mid	16.59	0.25	16.84	30.00	13.16
		High	16.02	0.25	16.27	30.00	13.73
	2 472	Low	14.33	0.25	14.58	30.00	15.42
		Mid	14.96	0.25	15.21	30.00	14.79
		High	14.86	0.25	15.11	30.00	14.89

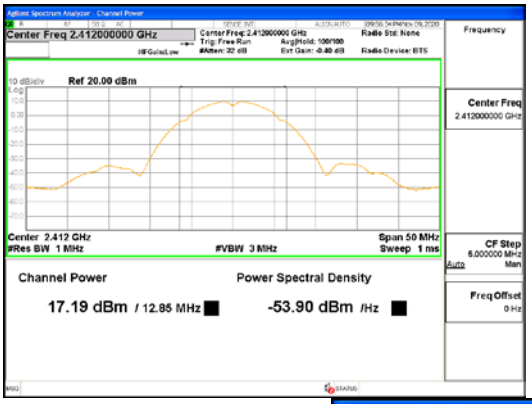
802.11ax _HE20 _106T	2 412	Low	16.22	0.23	16.45	30.00	13.55
		Mid	-	-	-	-	-
		High	16.20	0.23	16.43	30.00	13.57
	2 442	Low	16.13	0.23	16.36	30.00	13.64
		Mid	-	-	-	-	-
		High	16.18	0.23	16.41	30.00	13.59
	2 472	Low	14.41	0.23	14.64	30.00	15.36
		Mid	-	-	-	-	-
		High	15.31	0.23	15.54	30.00	14.46

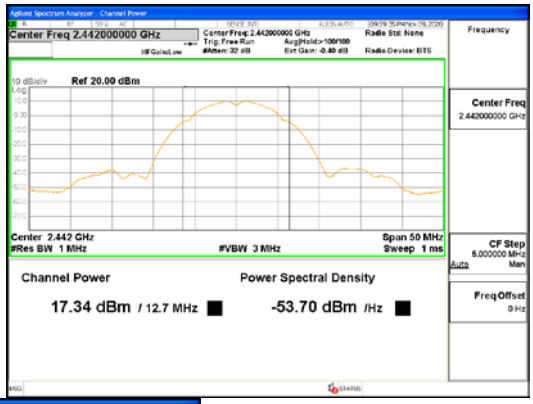
See next pages for actual measured spectrum plots.

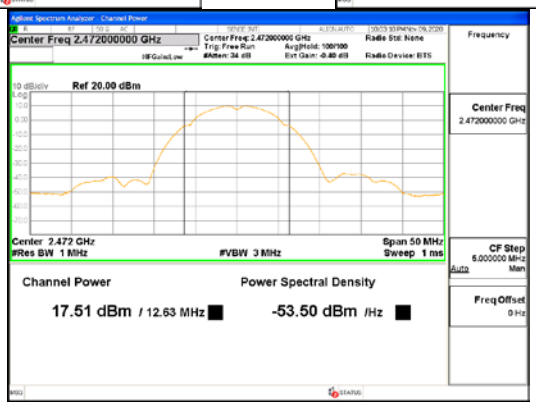




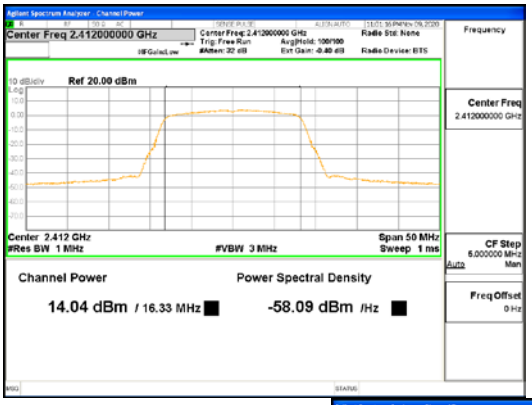
ANT1, 802.11b

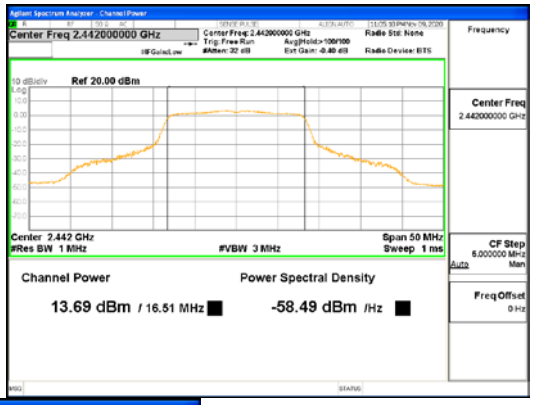




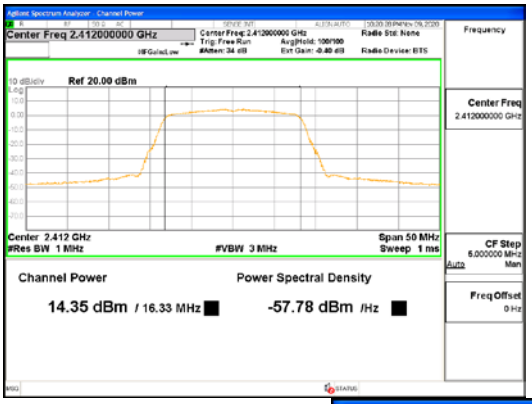


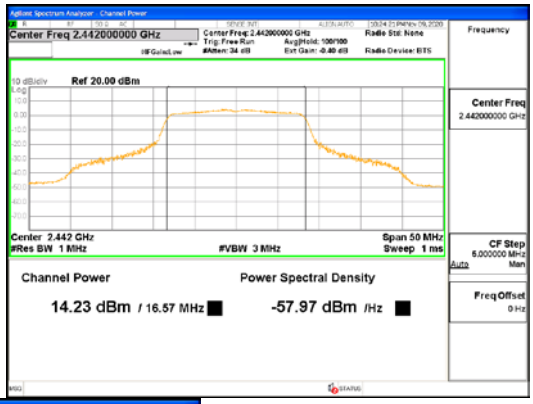
ANT2, 802.11b

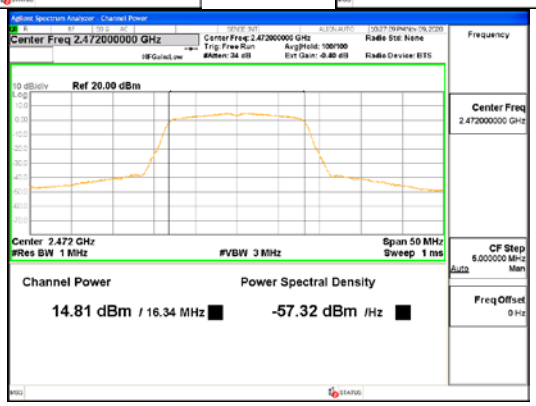




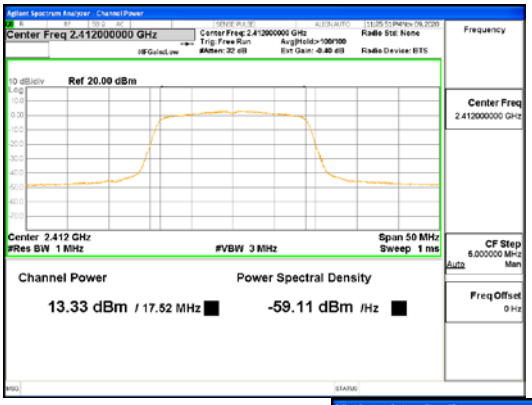
ANT1, 802.11g

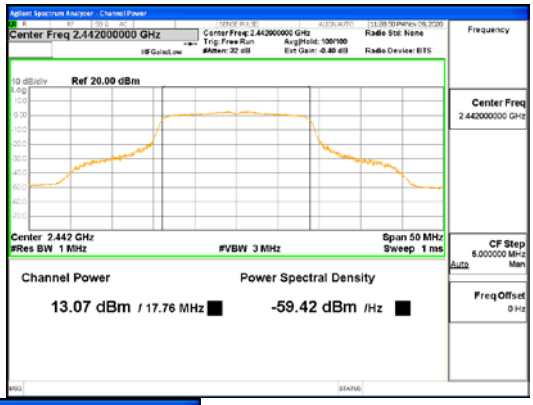




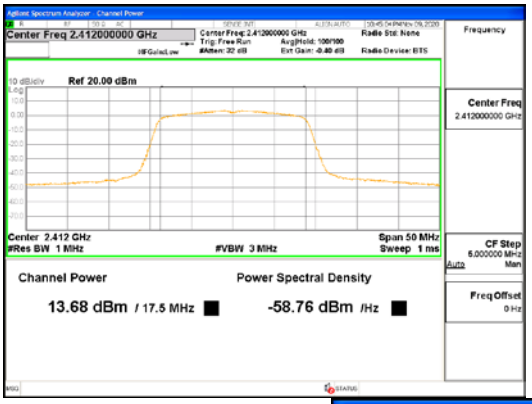


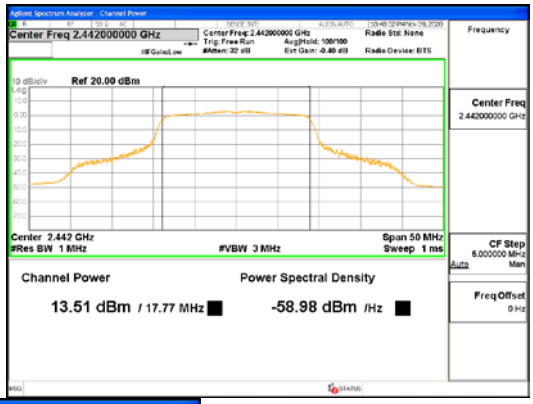
ANT2, 802.11g

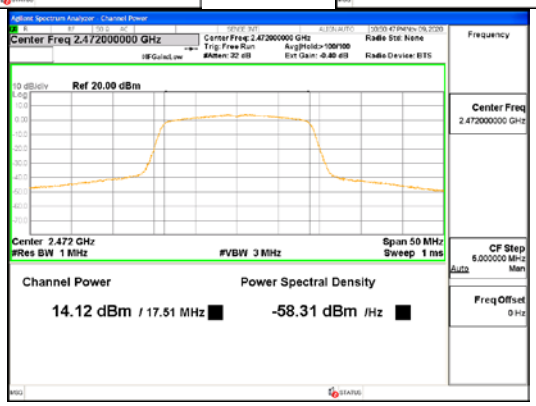




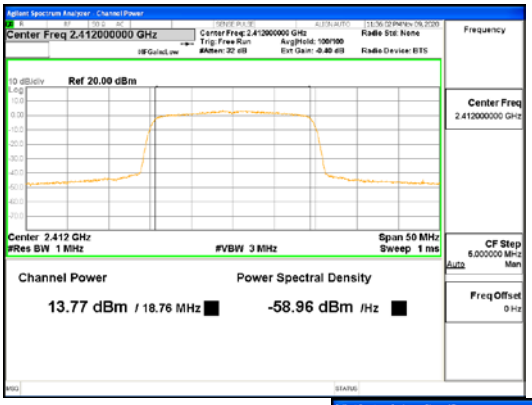
ANT1, 802.11n_HT20

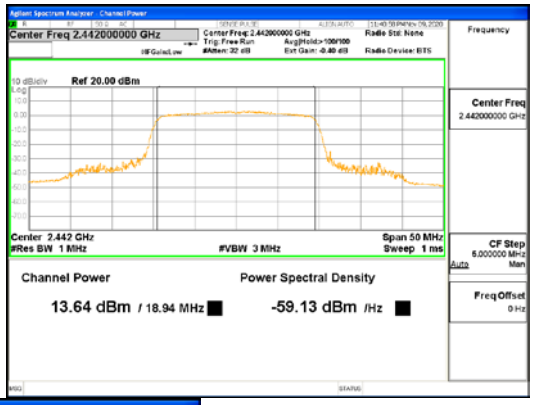




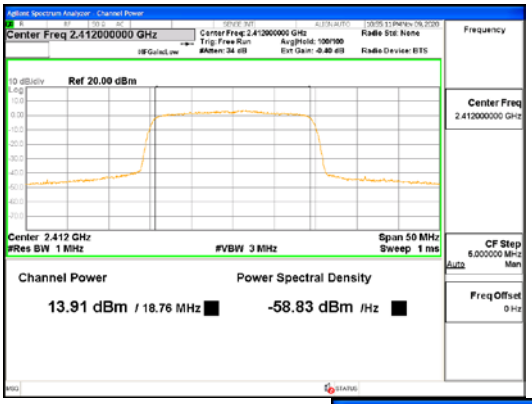


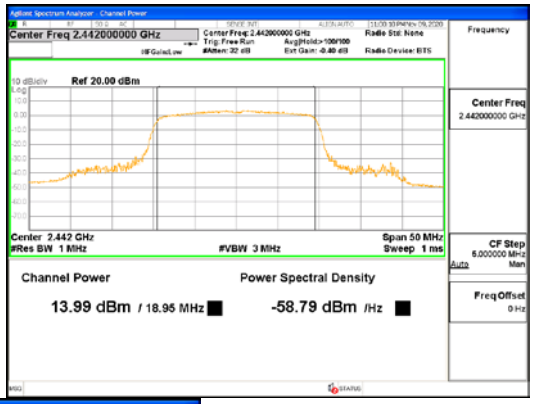
ANT2, 802.11n_HT20

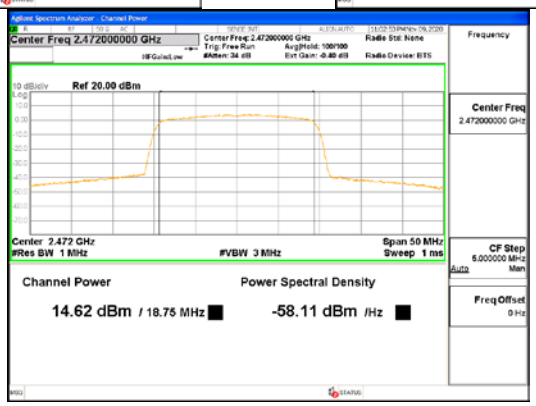




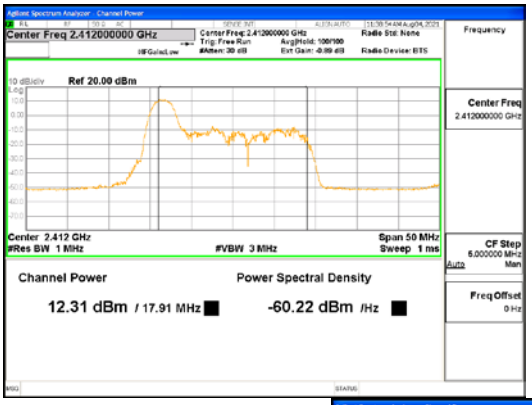
ANT1, 802.11ax_HE20_SU

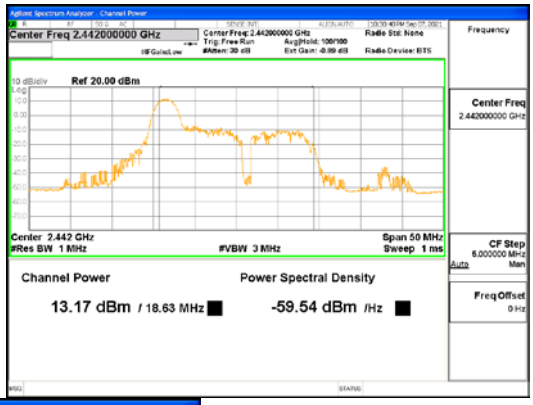


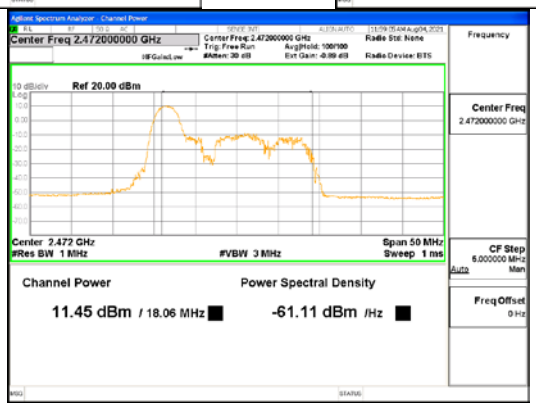




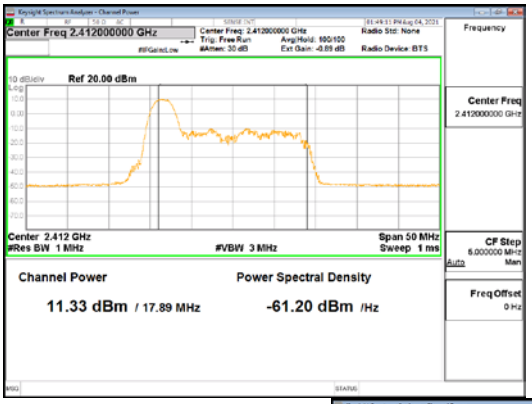
ANT2, 802.11ax_HE20_SU

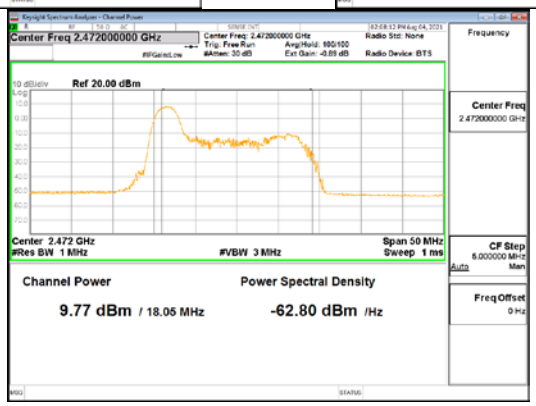




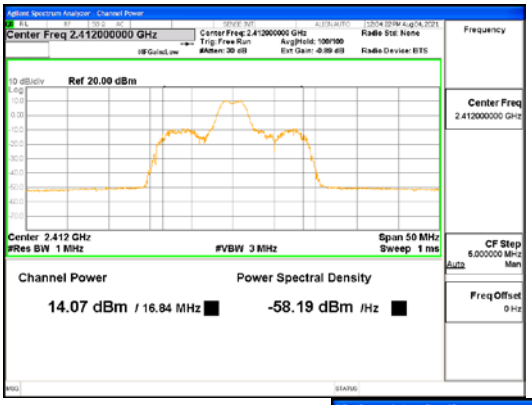


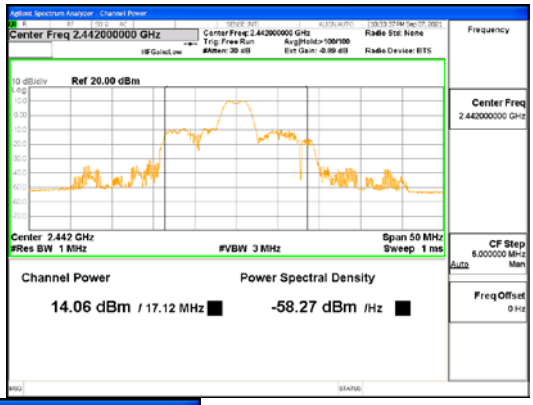
ANT1, 802.11ax_HE20_26T_Low

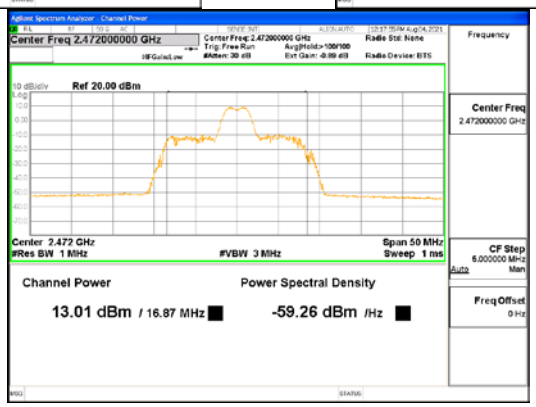




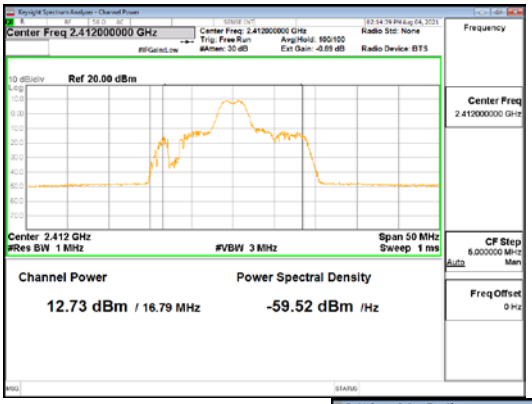
ANT2, 802.11ax_HE20_26T_Low

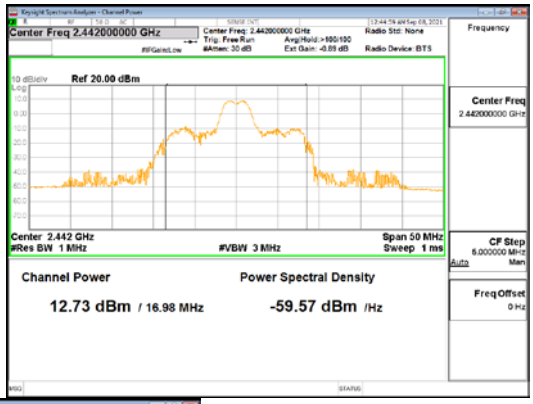


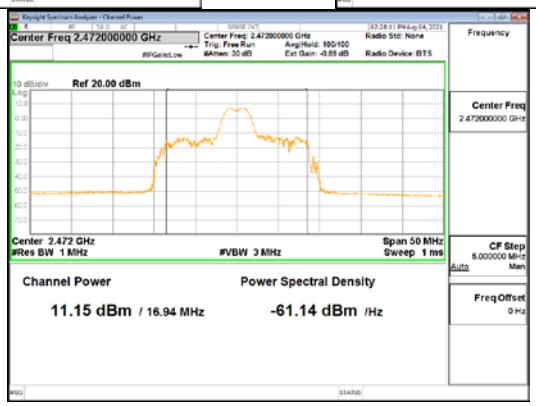




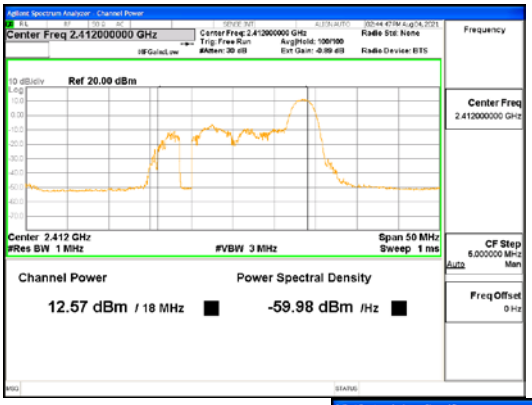
ANT1, 802.11ax_HE20_26T_Mid

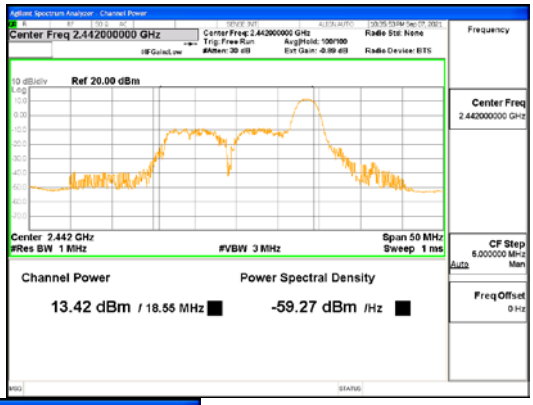




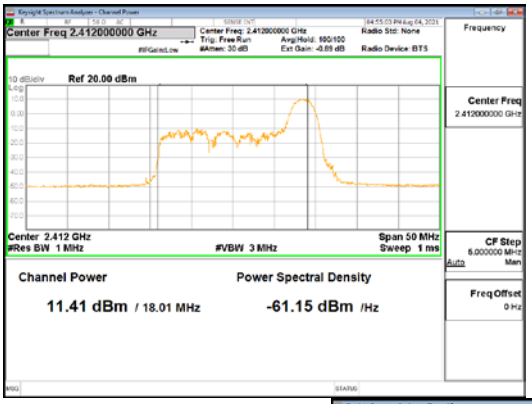


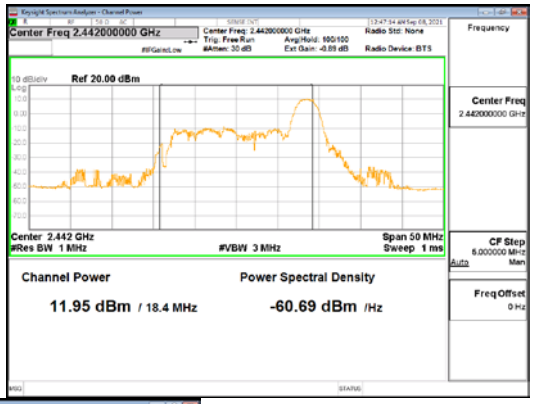
ANT2, 802.11ax_HE20_26T_Mid

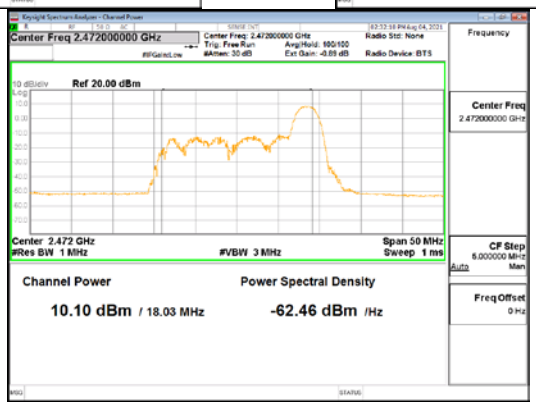




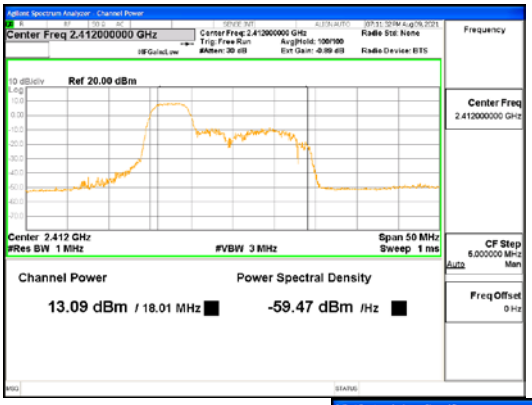
ANT1, 802.11ax_HE20_26T_High

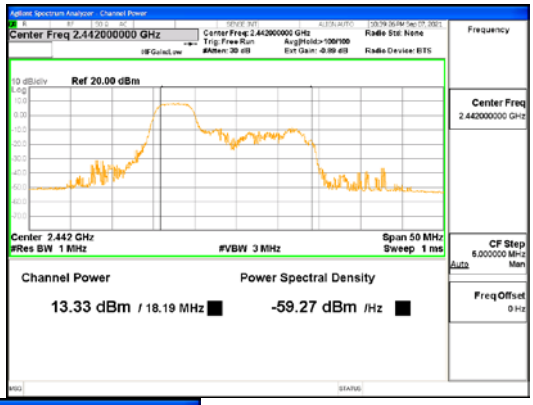


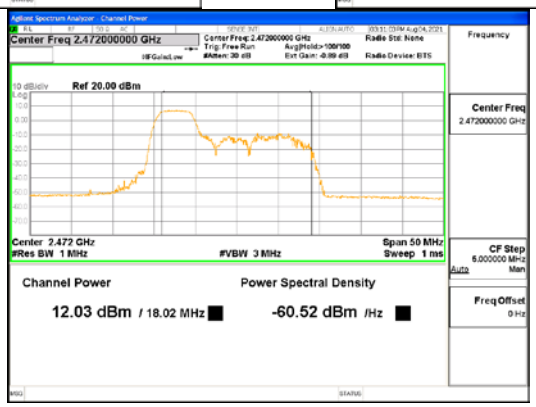




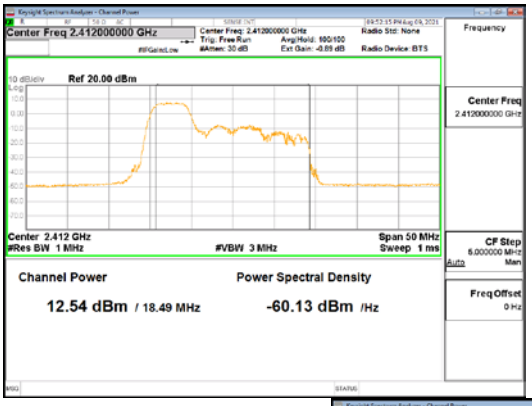
ANT2, 802.11ax_HE20_26T_High

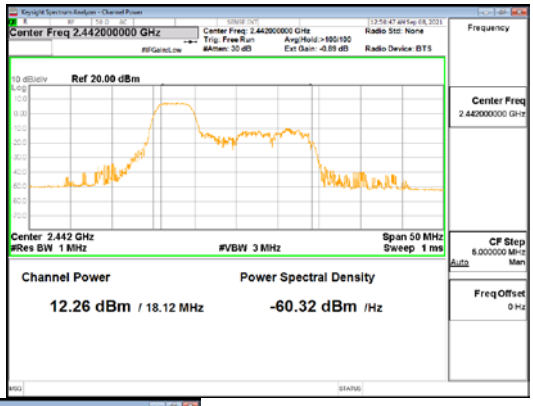


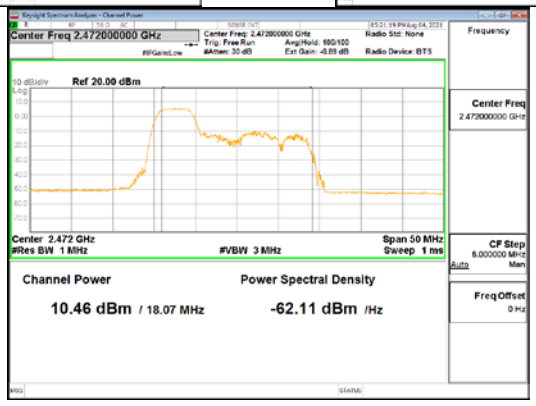




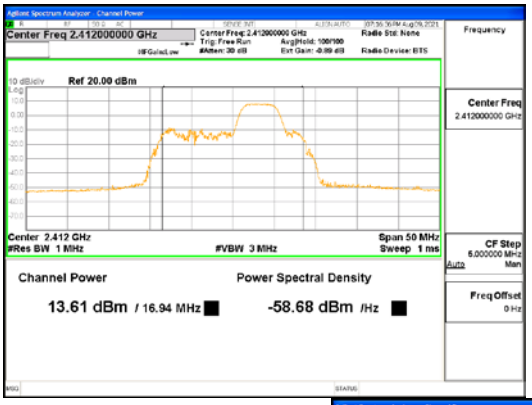
ANT1, 802.11ax_HE20_52T_Low

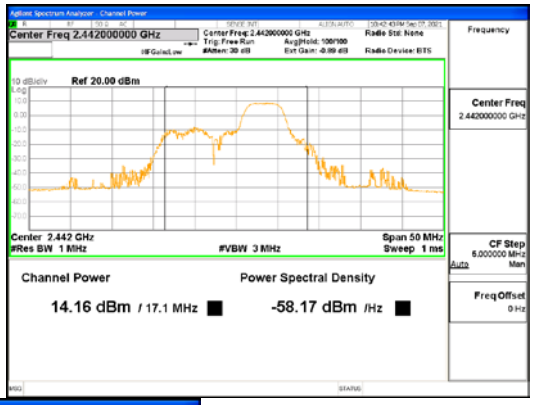


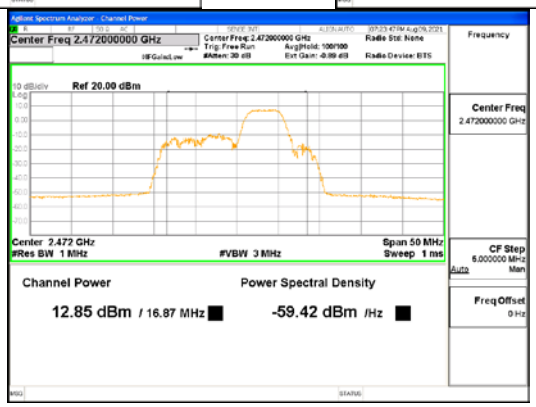




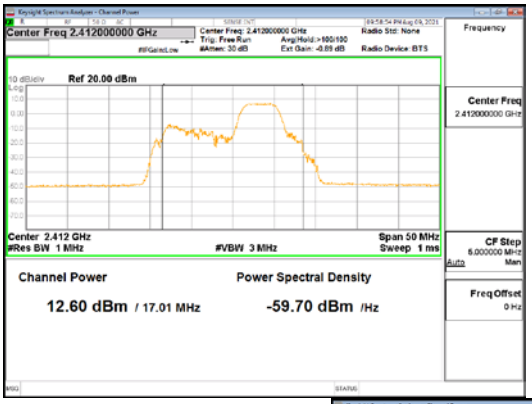
ANT2, 802.11ax_HE20_52T_Low

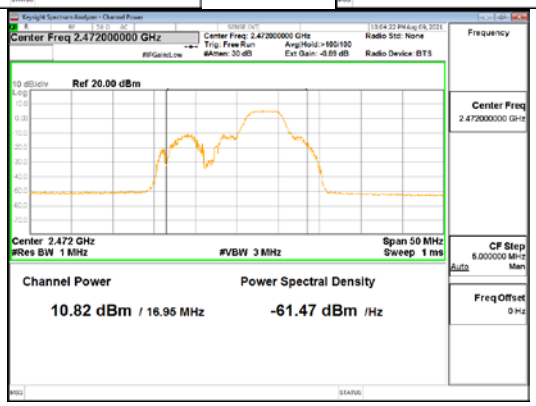




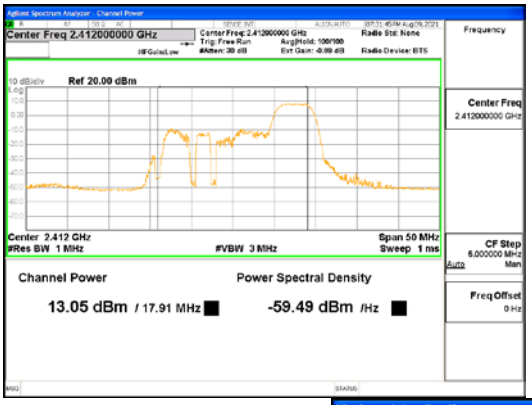


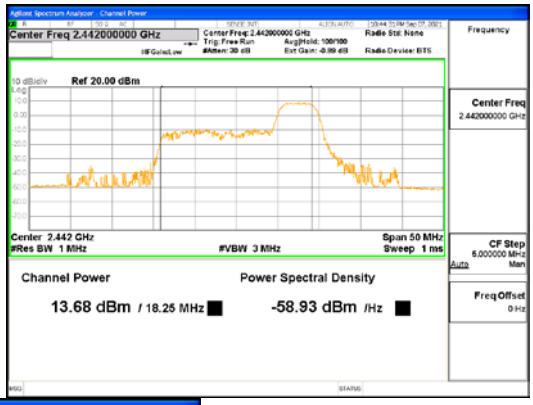
ANT1, 802.11ax_HE20_52T_Mid



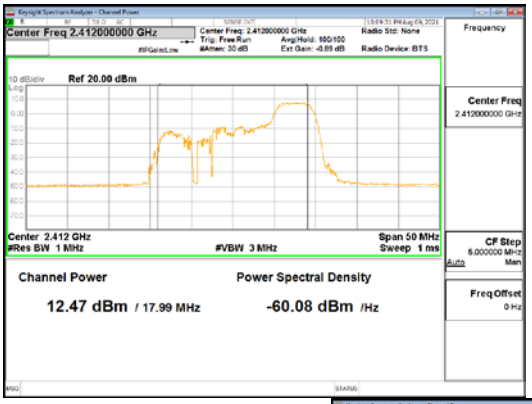


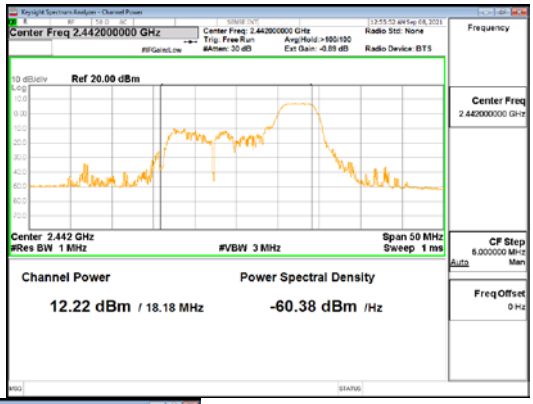
ANT2, 802.11ax_HE20_52T_Mid

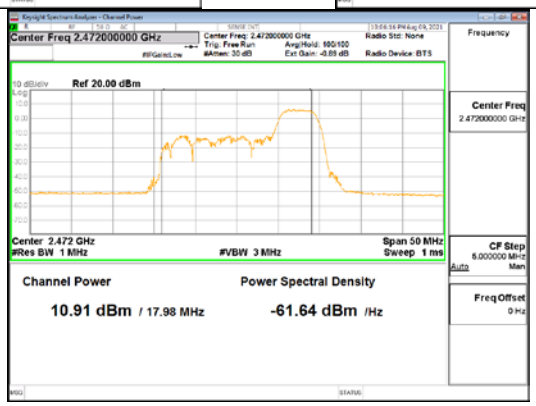




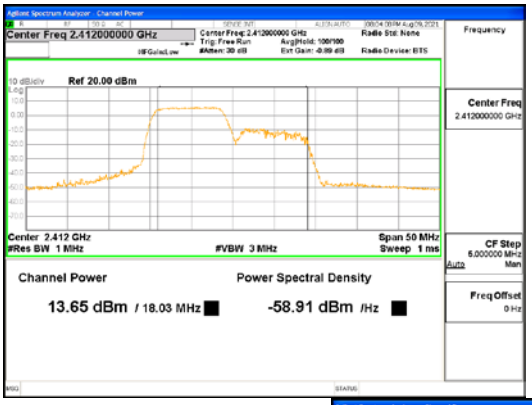
ANT1, 802.11ax_HE20_52T_High

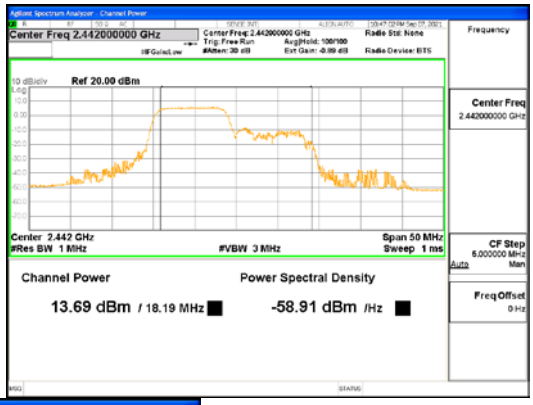


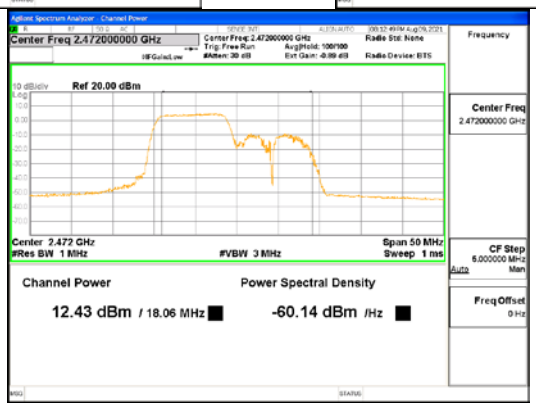




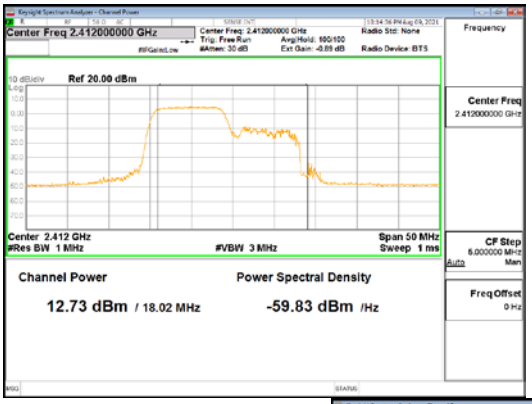
ANT2, 802.11ax_HE20_52T_High

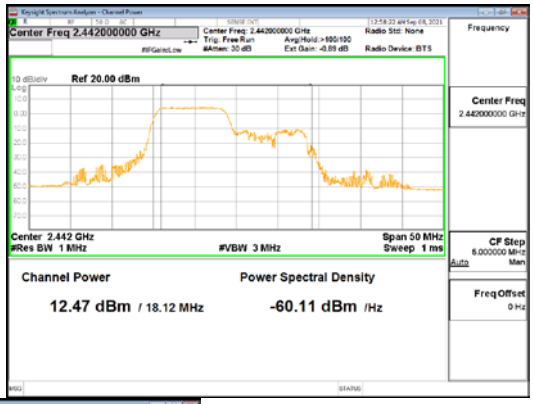


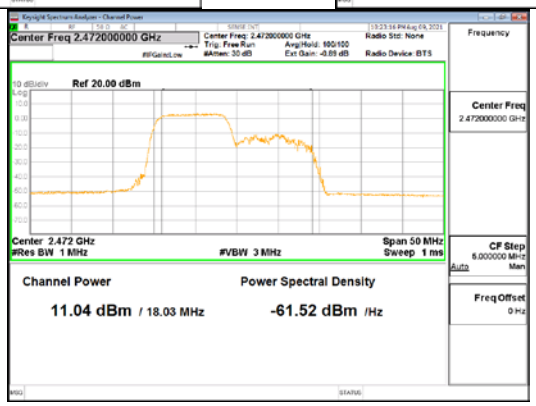




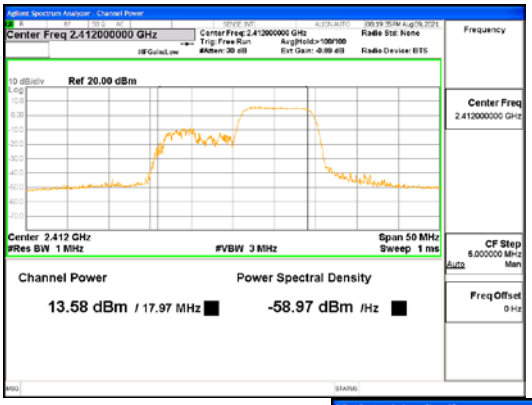
ANT1, 802.11ax_HE20_106T_Low

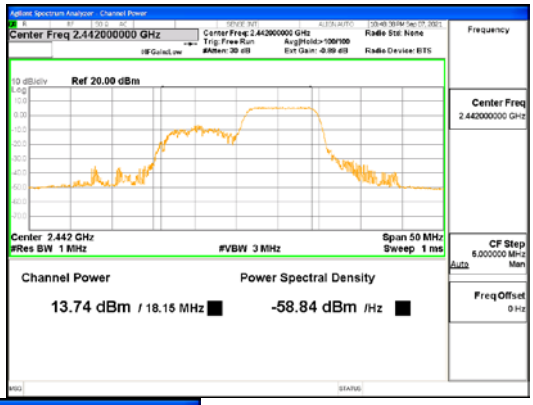


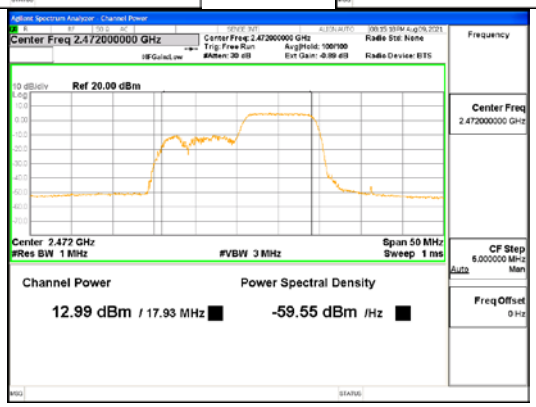




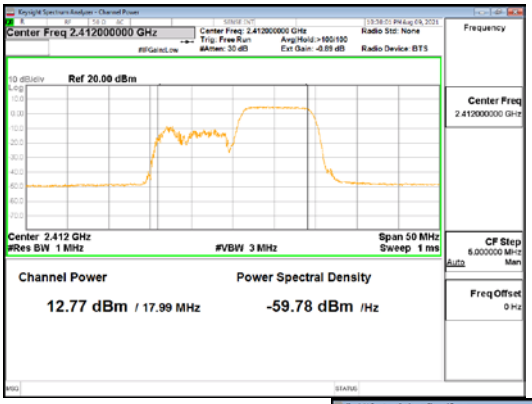
ANT2, 802.11ax_HE20_106T_Low

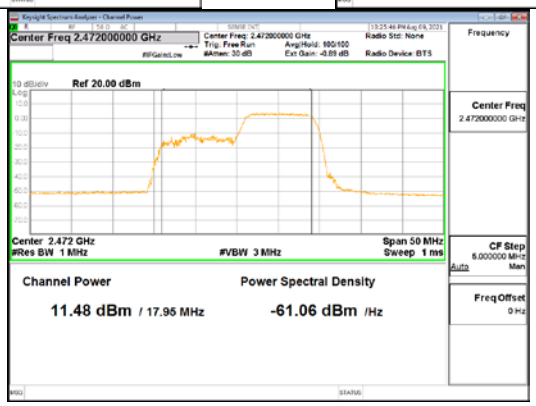






ANT1, 802.11ax_HE20_106T_High





ANT2, 802.11ax_HE20_106T_High

4.3 Transmitter Power Spectral Density

Test Procedures

KDB 558074 - Section 8.4
ANSI C63.10-2013 - Section 11.10.2
KDB 662911 D01, D02 (Multiple Transmitter Output)

This procedure shall be used if maximum peak conducted output power was used to demonstrate compliance.

Test Settings:

Center frequency = the highest, middle and the lowest channels

a) RBW : 3 kHz ≤ RBW ≤ 100 kHz

b) VBW ≥ 3 x RBW

c) span ≥ 1.5 x DTS bandwidth

d) Sweep time = auto couple

e) Detector = peak

f) Trace mode= max hold

g) Allow trace to fully stabilize

h) Use the peak marker function to determine the maximum amplitude level within the RBW.

Limit

Operating Mode	Mode	ANT Configuration	ANT Gain (dBi)	Limit (dBm)
SISO	802.11b/g/n/ax	ANT1	-2.31	8.00
SISO	802.11b/g/n/ax	ANT2	-0.52	8.00
MIMO (2Tx)	802.11g/n/ax	ANT1 + ANT2	1.69	8.00

Test Data

ANT1

Test Mode	Frequency (MHz)	Measured Power Density (dBm)	Limit (dBm)	Margin(dB)
802.11b	2 412	-3.85	8.00	11.85
	2 442	-4.18	8.00	12.18
	2 472	-3.56	8.00	11.56
802.11g	2 412	-9.68	8.00	17.68
	2 442	-9.85	8.00	17.85
	2 472	-10.28	8.00	18.28
802.11n_HT20	2 412	-11.62	8.00	19.62
	2 442	-11.10	8.00	19.10
	2 472	-10.58	8.00	18.58
802.11ax_HE20_SU	2 412	-11.94	8.00	19.94
	2 442	-11.61	8.00	19.61
	2 472	-11.79	8.00	19.79

Test Mode	Frequency (MHz)	RU Index	Measured Power Density (dBm)	Limit (dBm)	Margin(dB)
802.11ax_HE20_26T	2 412	Low	-2.34	8.00	10.34
		Mid	-3.09	8.00	11.09
		High	-3.36	8.00	11.36
	2 442	Low	-2.23	8.00	10.23
		Mid	-1.88	8.00	9.88
		High	-3.09	8.00	11.09
	2 472	Low	-4.54	8.00	12.54
		Mid	-4.57	8.00	12.57
		High	-3.89	8.00	11.89