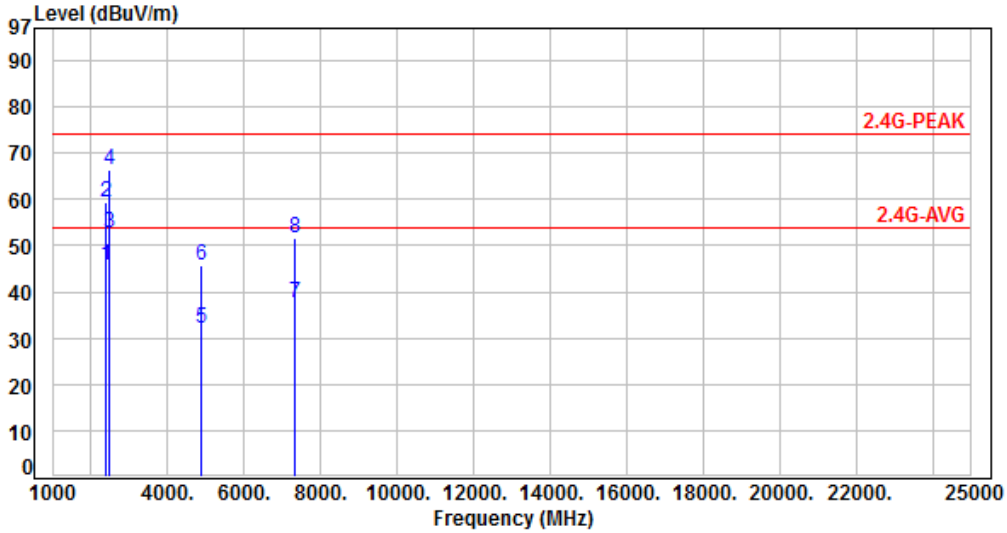
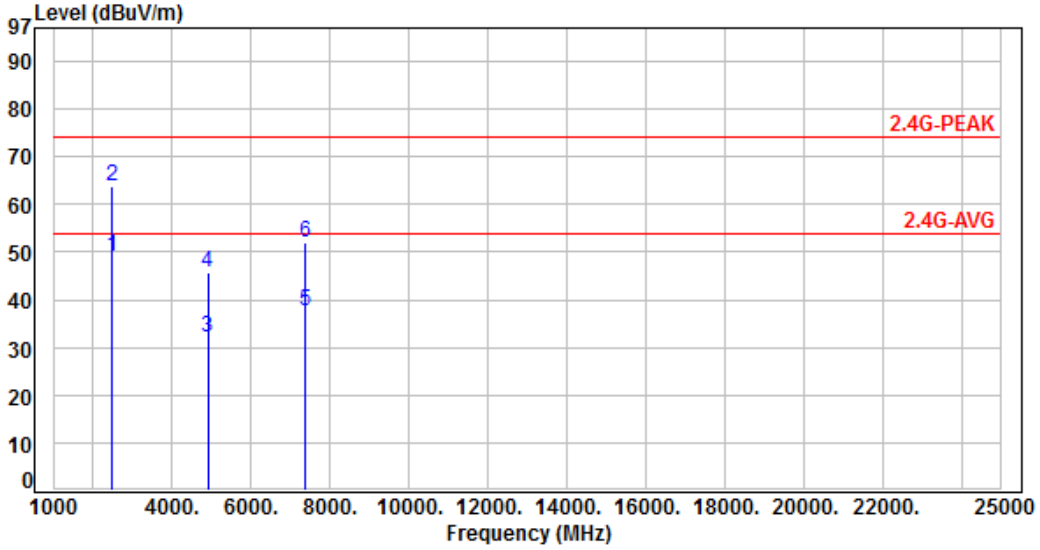
Power	:	AC 120V / 60HZ	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 8, CH06		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-2.89	48.76	45.87	54.00	-8.13	Average	210	305	P
2	2390.00	-2.89	62.37	59.48	74.00	-14.52	Peak	210	305	P
3	2483.50	-2.66	55.33	52.67	54.00	-1.33	Average	100	75	P
4	2483.50	-2.66	69.20	66.54	74.00	-7.46	Peak	100	75	P
5	4874.00	4.89	27.25	32.14	54.00	-21.86	Average	100	211	P
6	4874.00	4.89	40.83	45.72	74.00	-28.28	Peak	100	211	P
7	7311.00	9.81	27.92	37.73	54.00	-16.27	Average	100	200	P
8	7311.00	9.81	41.89	51.70	74.00	-22.30	Peak	100	200	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

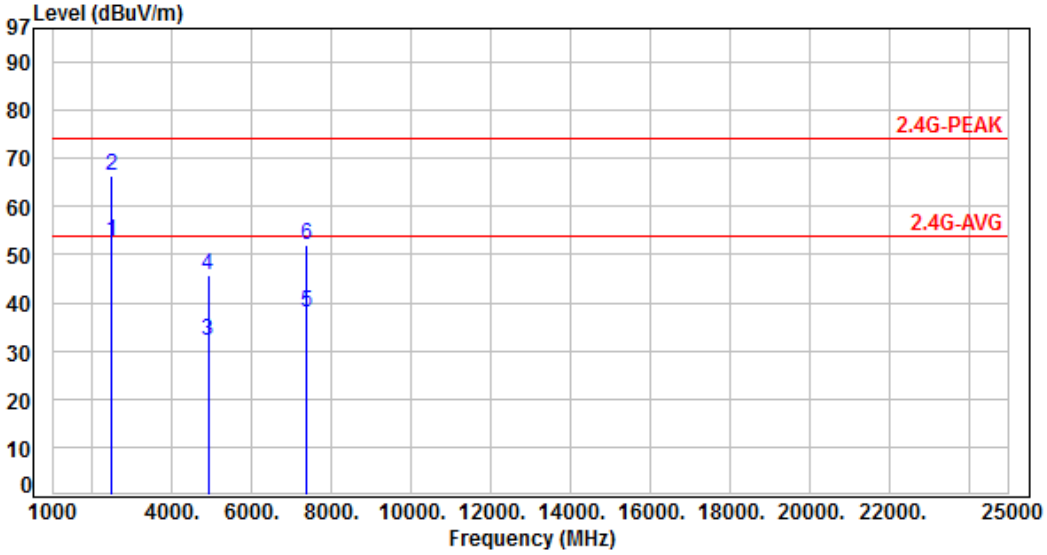
Power	:	AC 120V / 60HZ	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 8, CH09		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2483.50	-2.66	51.70	49.04	54.00	-4.96	Average	100	255	P
2	2483.50	-2.66	66.40	63.74	74.00	-10.26	Peak	100	255	P
3	4904.00	4.99	27.25	32.24	54.00	-21.76	Average	100	155	P
4	4904.00	4.99	40.64	45.63	74.00	-28.37	Peak	100	155	P
5	7356.00	9.91	27.87	37.78	54.00	-16.22	Average	100	63	P
6	7356.00	9.91	42.01	51.92	74.00	-22.08	Peak	100	63	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

Power	:	AC 120V / 60HZ	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 8, CH09		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2483.50	-2.66	55.49	52.83	54.00	-1.17	Average	250	65	P
2	2483.50	-2.66	69.17	66.51	74.00	-7.49	Peak	250	65	P
3	4904.00	4.99	27.07	32.06	54.00	-21.94	Average	100	273	P
4	4904.00	4.99	40.68	45.67	74.00	-28.33	Peak	100	273	P
5	7356.00	9.91	27.90	37.81	54.00	-16.19	Average	100	107	P
6	7356.00	9.91	42.20	52.11	74.00	-21.89	Peak	100	107	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

6.7 Restricted Bands of Operation

Only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.09000 – 0.11000	16.42000 – 16.42300	399.9 – 410.0	4.500 – 5.250
0.49500 – 0.505**	16.69475 – 16.69525	608.0 – 614.0	5.350 – 5.460
2.17350 – 2.19050	16.80425 – 16.80475	960.0 – 1240.0	7.250 – 7.750
4.12500 – 4.12800	25.50000 – 25.67000	1300.0 – 1427.0	8.025 – 8.500
4.17725 – 4.17775	37.50000 – 38.25000	1435.0 – 1626.5	9.000 – 9.200
4.20725 – 4.20775	73.00000 – 74.60000	1645.5 – 1646.5	9.300 – 9.500
6.21500 – 6.21800	74.80000 – 75.20000	1660.0 – 1710.0	10.600 – 12.700
6.26775 – 6.26825	108.00000 – 121.94000	1718.8 – 1722.2	13.250 – 13.400
6.31175 – 6.31225	123.00000 – 138.00000	2200.0 – 2300.0	14.470 – 14.500
8.29100 – 8.29400	149.90000 – 150.05000	2310.0 – 2390.0	15.350 – 16.200
8.36200 – 8.36600	156.52475 – 156.52525	2483.5 – 2500.0	17.700 – 21.400
8.37625 – 8.38675	156.70000 – 156.90000	2655.0 – 2900.0	22.010 – 23.120
8.41425 – 8.41475	162.01250 – 167.17000	3260.0 – 3267.0	23.600 – 24.000
12.29000 – 12.29300	167.72000 – 173.20000	3332.0 – 3339.0	31.200 – 31.800
12.51975 – 12.52025	240.00000 – 285.00000	3345.8 – 3358.0	36.430 – 36.500
12.57675 – 12.57725	322.00000 – 335.40000	3600.0 – 4400.0	Above 38.6
13.36000 – 13.41000			

**: Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz

7. Test of Conducted Spurious Emission

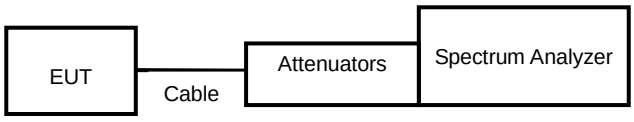
7.1 Test Limit

Below –30dB of the highest emission level of operating band (In 100 kHz Resolution Bandwidth)

7.2 Test Procedure

a. The transmitter output was connected to the spectrum analyzer via a low loss cable.
b. Set RBW of spectrum analyzer to 100 KHz and VBW of spectrum analyzer to 300 KHz with convenient frequency span including 100 KHz bandwidth from band edge.
c. Peak conducted output power measured within any 100 kHz outside the authorized frequency band shall be attenuated by at least 30dB relative to the maximum measured in-band peak PSD level.
d. The band edges was measured and recorded.

7.3 Test Setup Layout



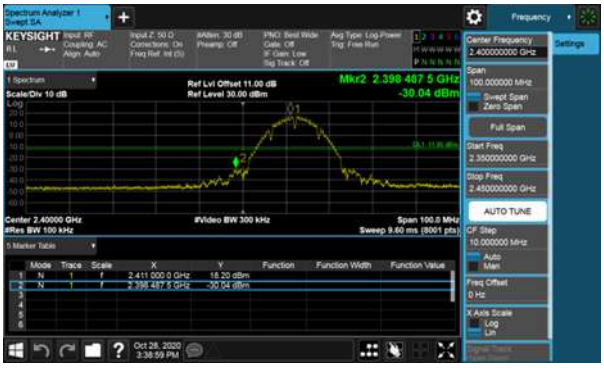
7.4 Test Result and Data

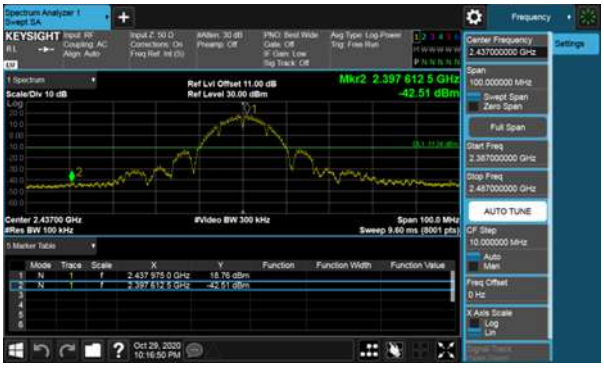
Note: Test plots refers to the following pages.

ANT A:

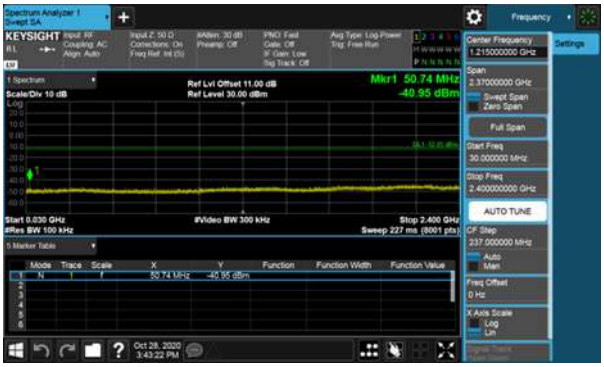
Modulation Type: 802.11b, CH 01

Modulation Type: 802.11b, CH 06





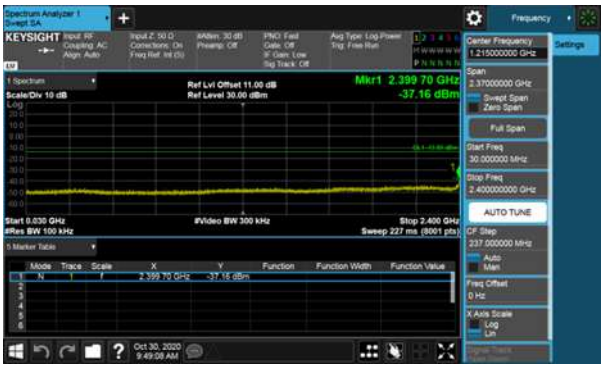
ANT A:
Modulation Type: 802.11b, CH 11

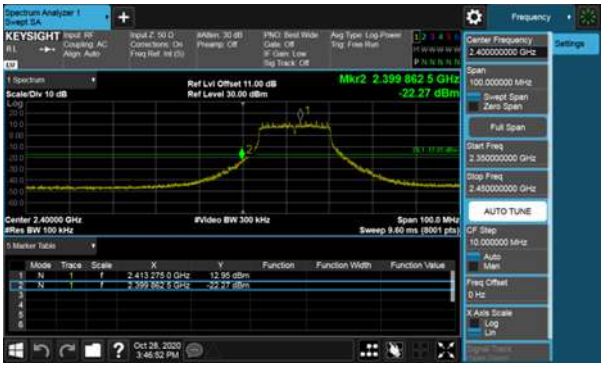


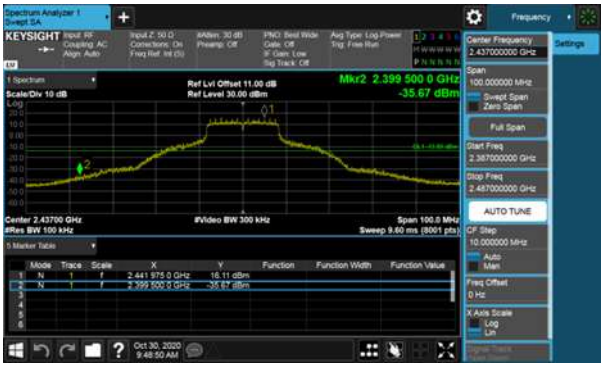
ANT A:

Modulation Type: 802.11g, CH 01

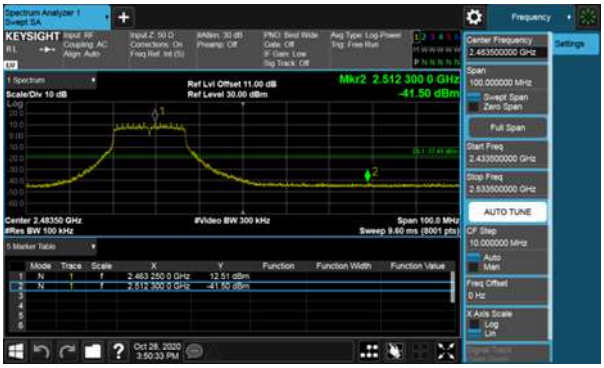
Modulation Type: 802.11g, CH 06







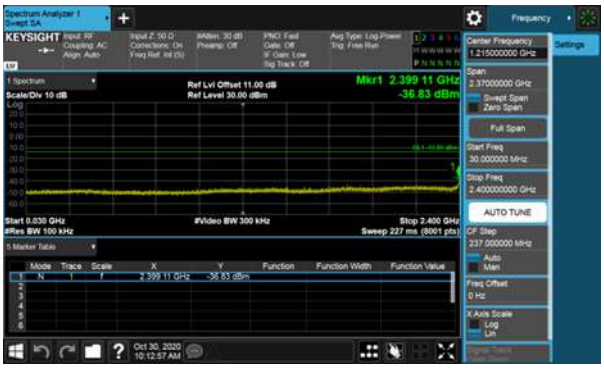
ANT A:
Modulation Type: 802.11g, CH 11

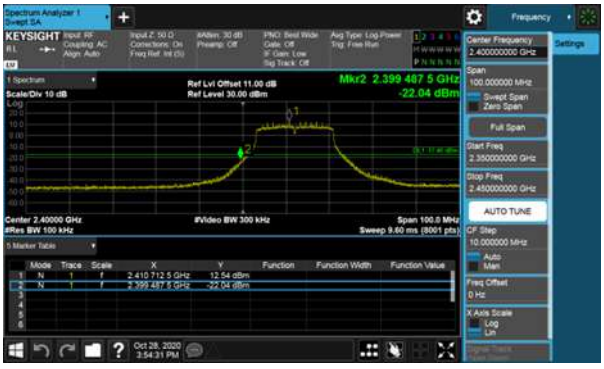


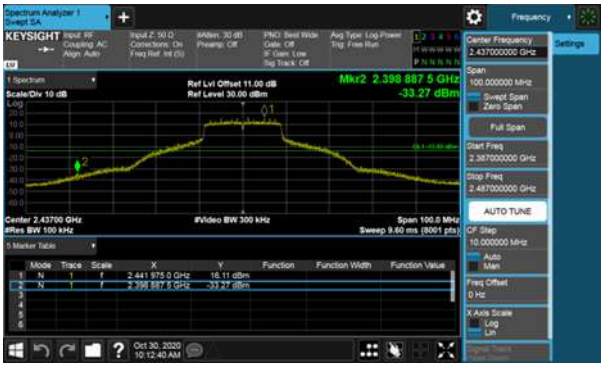
ANT A:

Modulation Type: VHT20, CH01

Modulation Type: VHT20, CH06

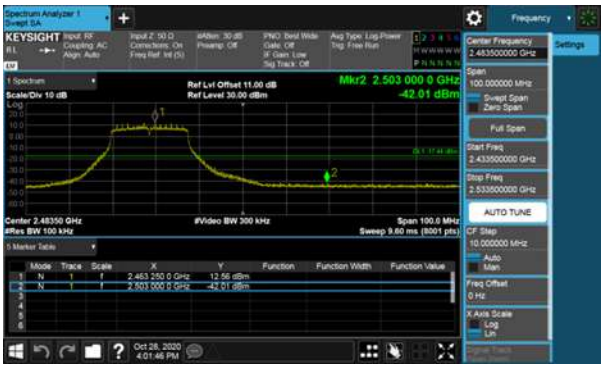






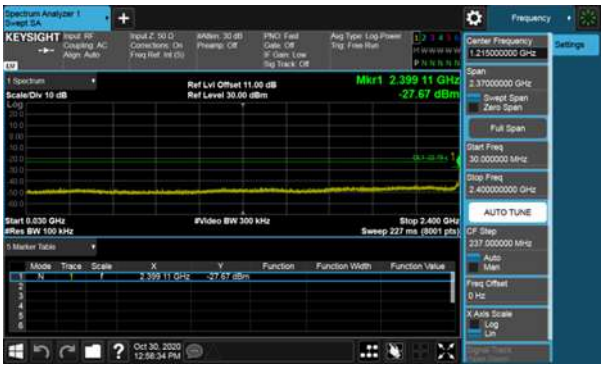
ANT A:

Modulation Type: VHT20, CH11

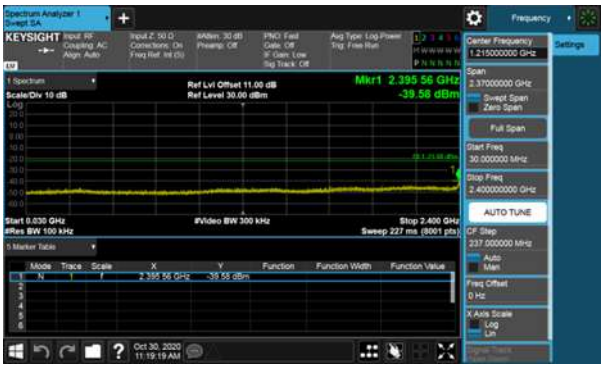


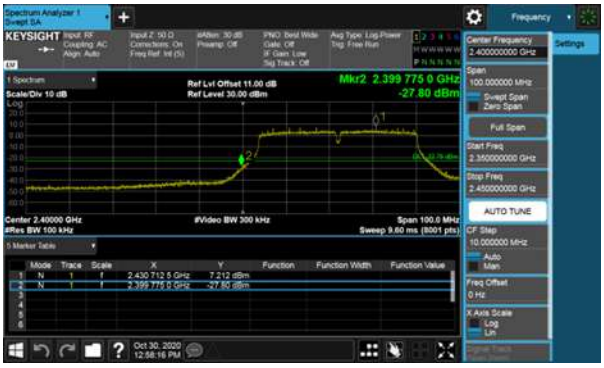
ANT A:

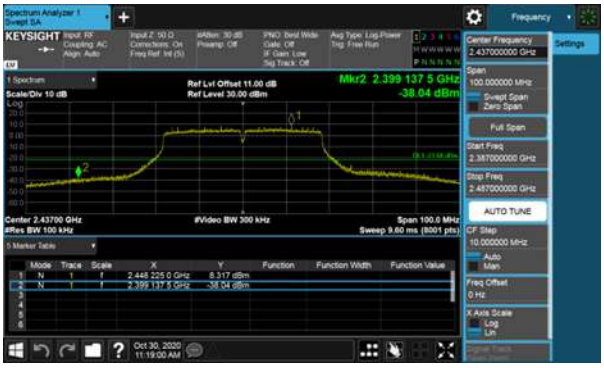
Modulation Type: VHT40, CH03

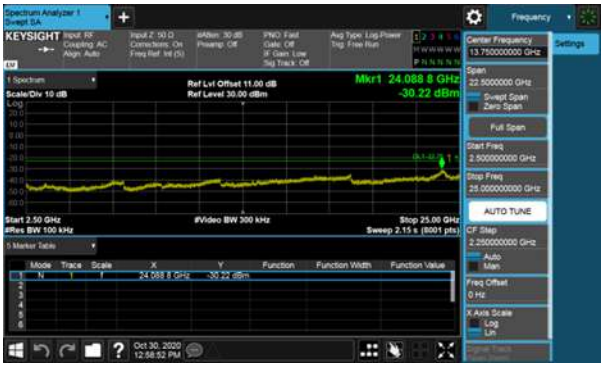


Modulation Type: VHT40, CH06









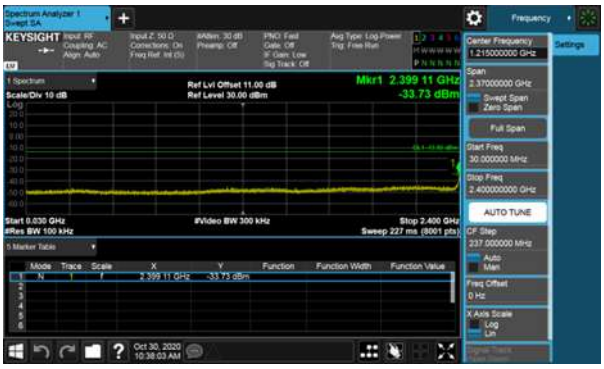
ANT A:

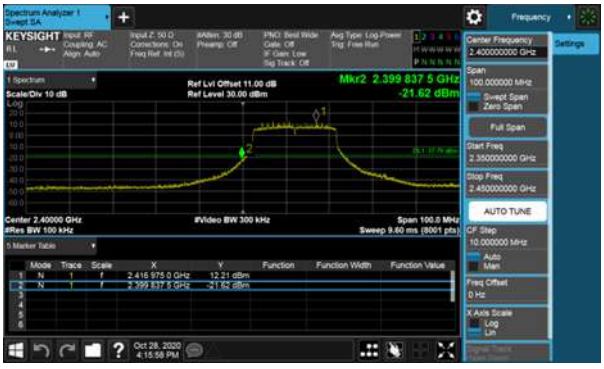
Modulation Type: VHT40, CH09

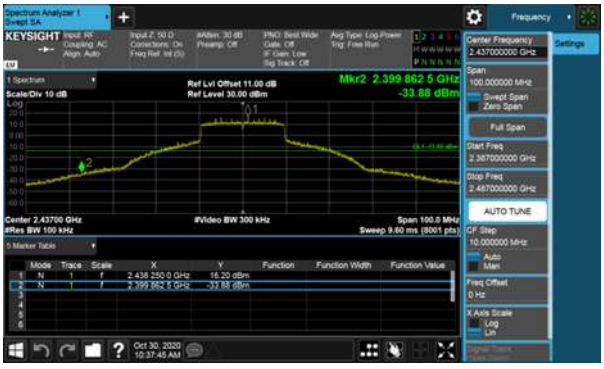
ANT A:

Modulation Type: 802.11ax HE20, CH01

Modulation Type: 802.11ax HE20, CH06





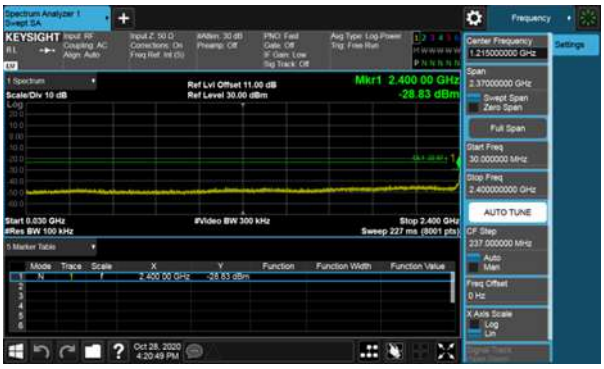


ANT A:

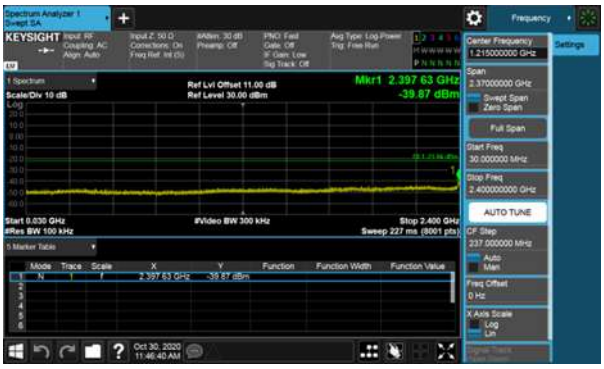
Modulation Type: 802.11ax HE20, CH11

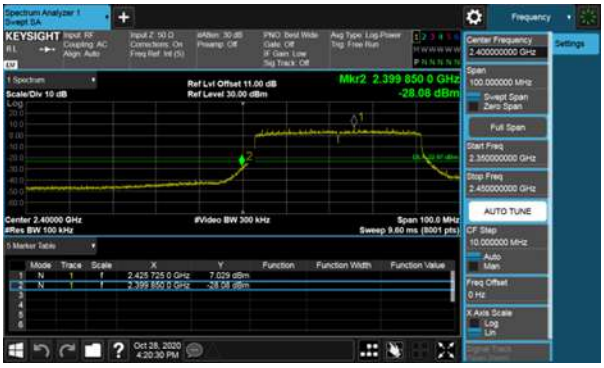
ANT A:

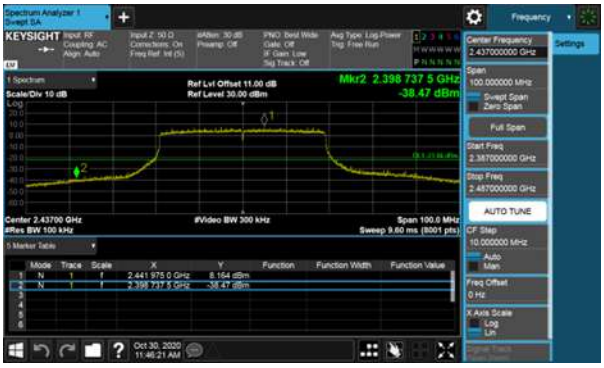
Modulation Type: 802.11ax HE40, CH03



Modulation Type: 802.11ax HE40, CH06





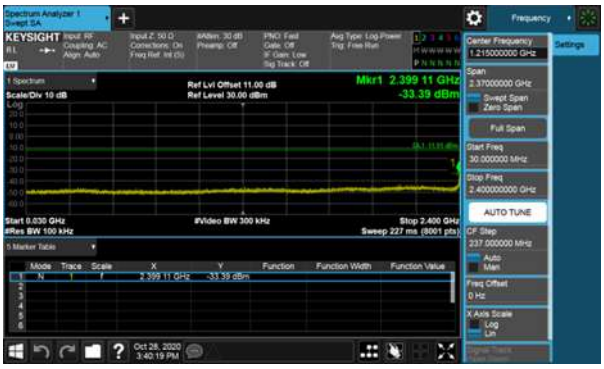


ANT A:

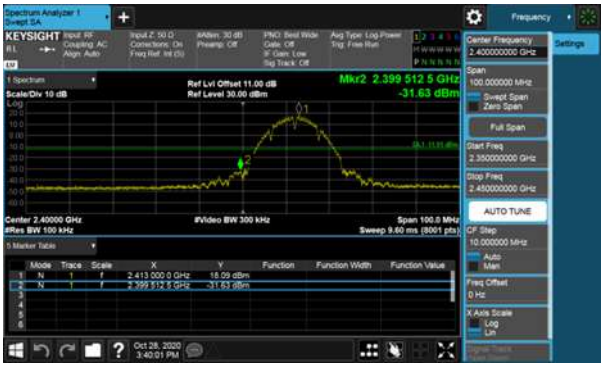
Modulation Type: 802.11ax HE40, CH09

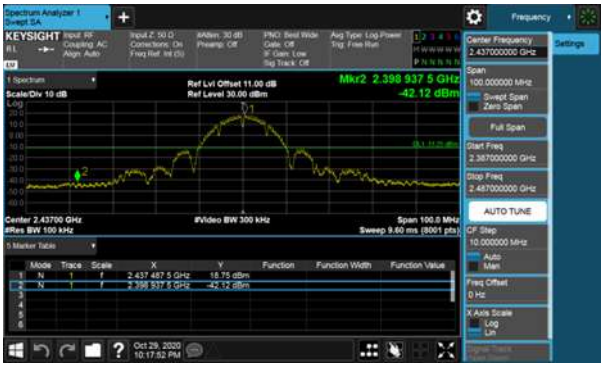
ANT B:

Modulation Type: 802.11b, CH 01

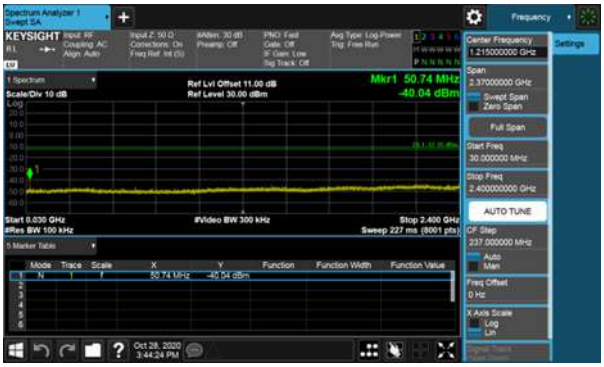


Modulation Type: 802.11b, CH 06





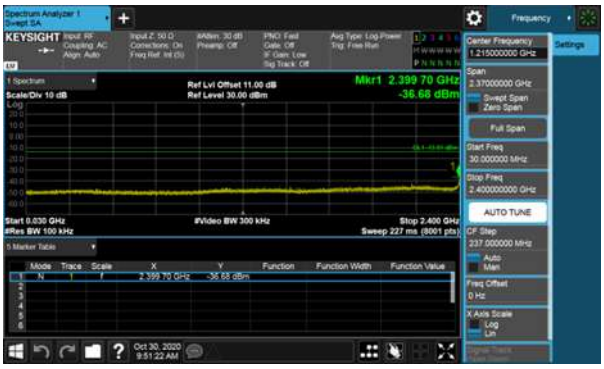
ANT B:
Modulation Type: 802.11b, CH 11

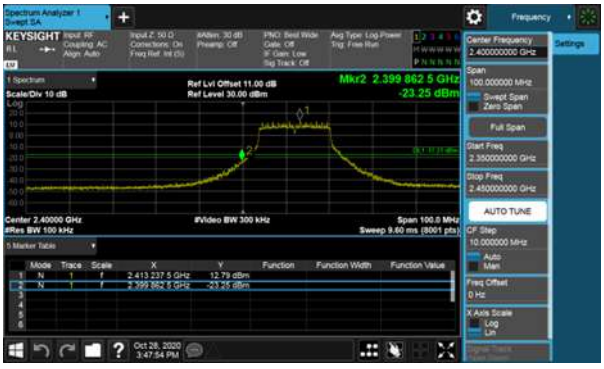


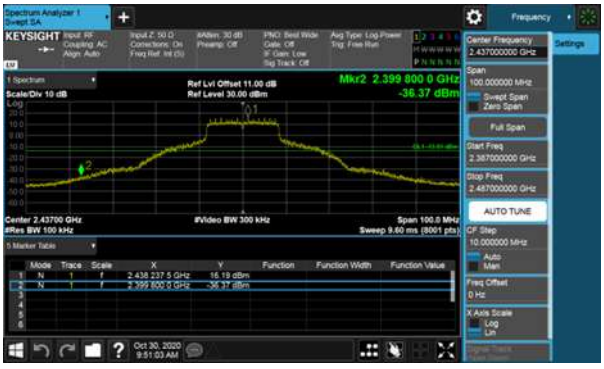
ANT B:

Modulation Type: 802.11g, CH 01

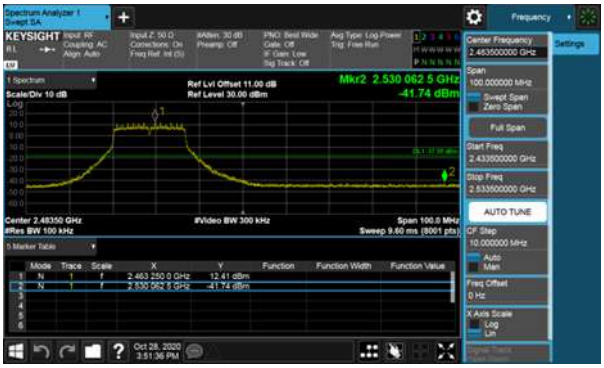
Modulation Type: 802.11g, CH 06







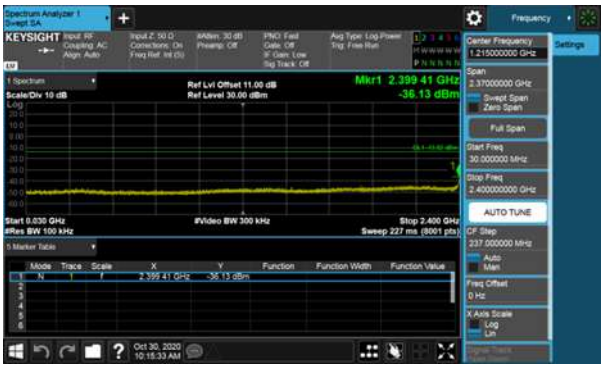
ANT B:
Modulation Type: 802.11g, CH 11

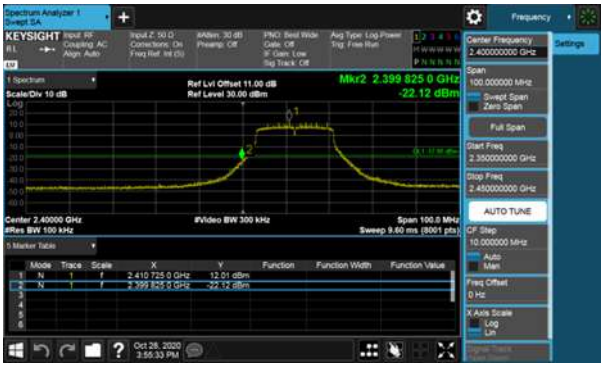


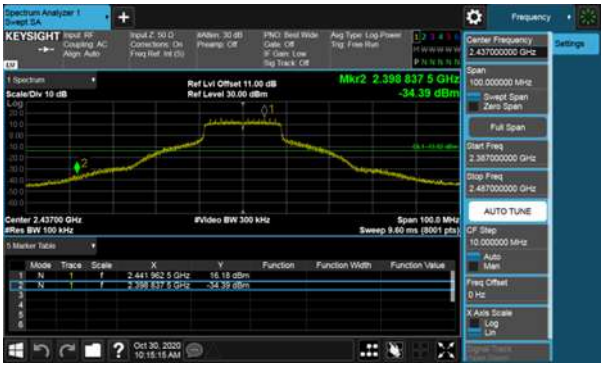
ANT B:

Modulation Type: VHT20, CH01

Modulation Type: VHT20, CH06





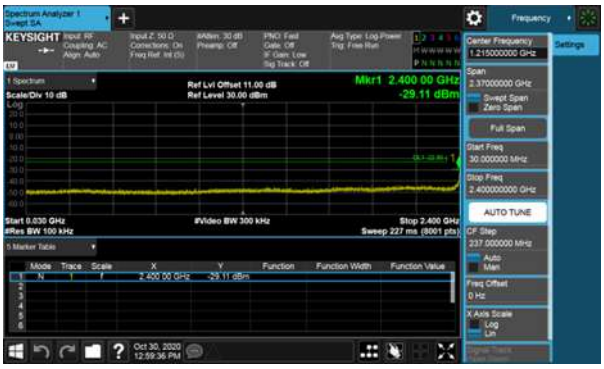


ANT B:

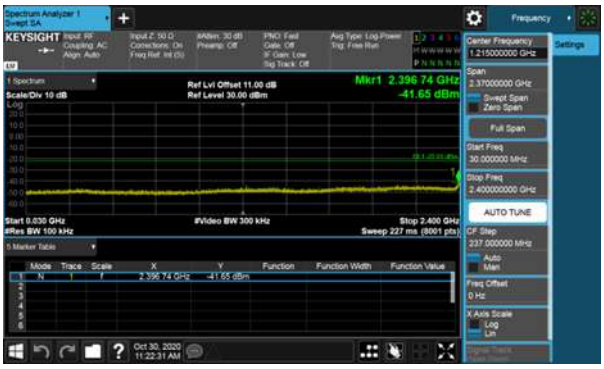
Modulation Type: VHT20, CH11

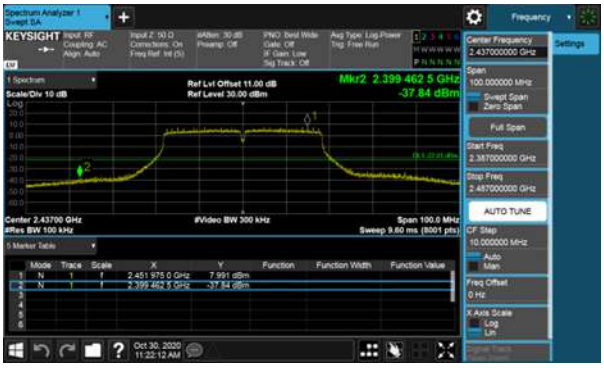
ANT B:

Modulation Type: VHT40, CH03



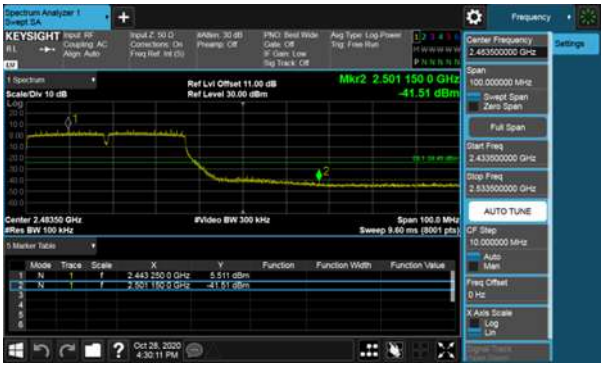
Modulation Type: VHT40, CH06





ANT B:

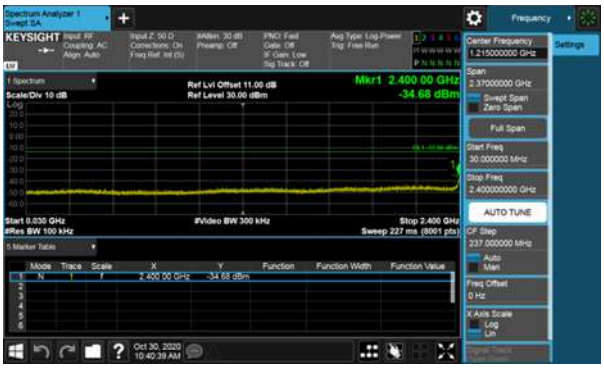
Modulation Type: VHT40, CH09

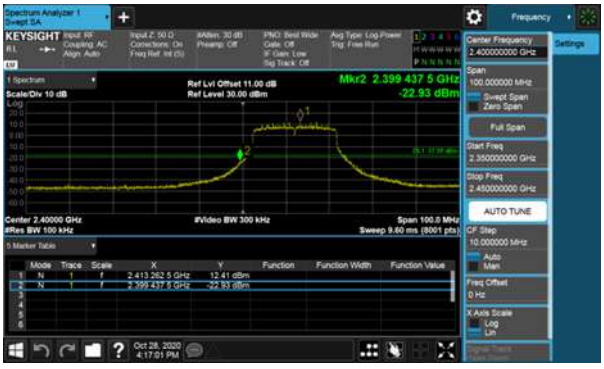


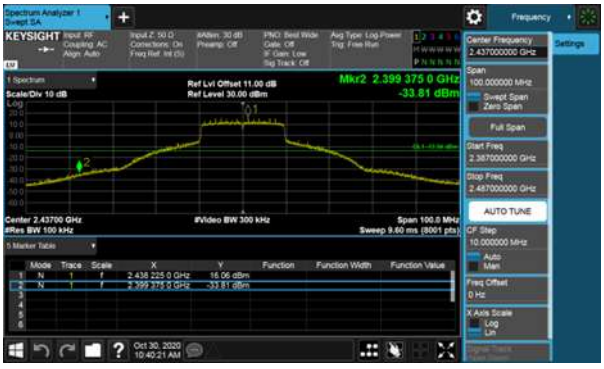
ANT B:

Modulation Type: 802.11ax HE20, CH01

Modulation Type: 802.11ax HE20, CH06





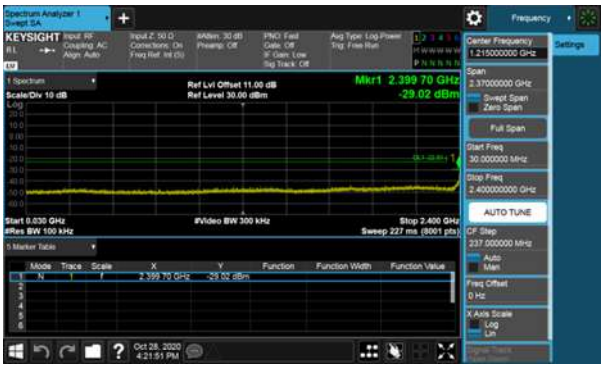


ANT B:

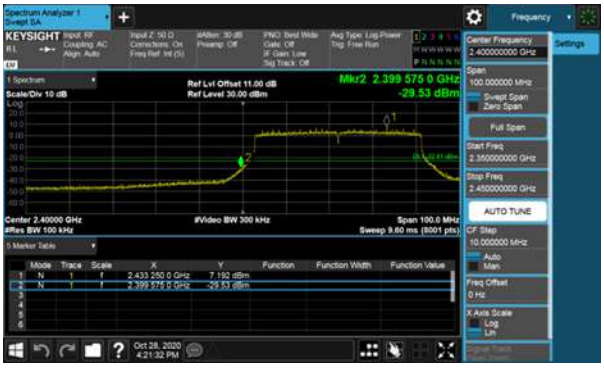
Modulation Type: 802.11ax HE20, CH11

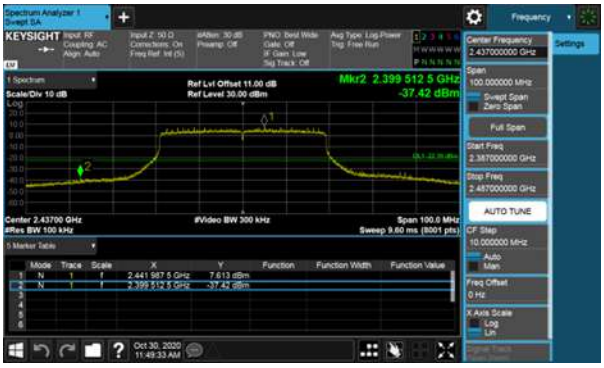
ANT B:

Modulation Type: 802.11ax HE40, CH03



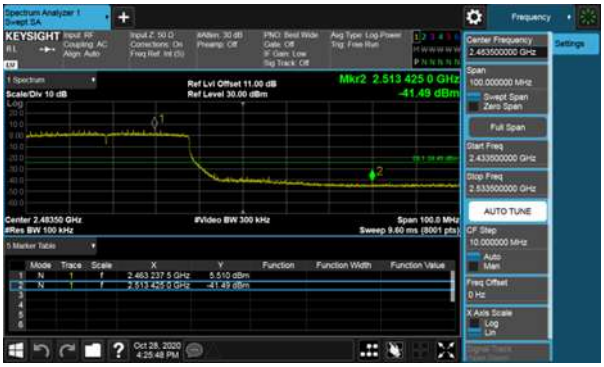
Modulation Type: 802.11ax HE40, CH06





ANT B:

Modulation Type: 802.11ax HE40, CH09



8. On Time, Duty Cycle and Measurement methods

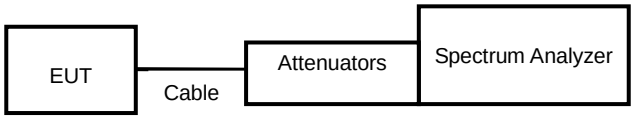
8.1 Test Limit

None; for reporting purposes only.

8.2 Test Procedure

Zero-Span Spectrum Analyzer Method.

8.3 Test Setup Layout



8.4 Test Result and Data

Modulation Type	On Time (ms)	Period Time (ms)	Duty Cycle (%)
11b,1M	0.69	1.21	57.02%
11g,6M	1.98	2.11	93.84%
VHT20	5.42	5.66	95.76%
VHT40	5.42	5.82	93.13%
11ax HT20	5.44	5.74	94.77%
11ax HT40	5.44	5.80	93.79%

Modulation Type: 802.11b(1Mbps)

Modulation Type: 802.11g(6Mbps)

Modulation Type: VHT20(6.5Mbps)

Modulation Type: VHT40(13.5Mbps)

Modulation Type: 802.11ax HE20(7.3Mbps)

Modulation Type: 802.11ax HE40(14.6Mbps)

9. 6dB & 99% Bandwidth Measurement Data

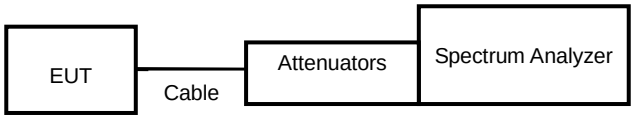
9.1 Test Limit

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

9.2 Test Procedures

a. The transmitter output was connected to the spectrum analyzer.
b. Set RBW of spectrum analyzer to 100 KHz and VBW to 300 KHz.
c. The 6 dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6 dB.
d. The 6dB Bandwidth was measured and recorded.

9.3 Test Setup Layout



9.4 Test Result and Data (6dB Bandwidth)

Modulation Type	Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Limit (MHz)
			ANT A	ANT B	
11b	1	2412	8.07	8.07	0.5
	6	2437	9.03	9.54	0.5
	11	2462	8.07	8.07	0.5
11g	1	2412	15.87	15.87	0.5
	6	2437	15.48	16.29	0.5
	11	2462	15.45	15.45	0.5
VHT20	1	2412	16.38	15.93	0.5
	6	2437	17.22	16.62	0.5
	11	2462	16.44	16.29	0.5
VHT40	3	2422	35.70	36.06	0.5
	6	2437	35.70	35.58	0.5
	9	2452	35.70	35.70	0.5
11ax HE20	1	2412	18.54	17.94	0.5
	6	2437	18.48	18.54	0.5
	11	2462	18.63	18.12	0.5
11ax HE40	3	2422	37.74	37.56	0.5
	6	2437	37.68	37.74	0.5
	9	2452	37.50	37.50	0.5

9.5 Test Result and Data (99% Bandwidth)

Modulation Type	Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	
			ANT A	ANT B
11b	1	2412	13.74	13.60
	6	2437	15.07	15.18
	11	2462	13.52	13.51
11g	1	2412	16.47	16.45
	6	2437	18.39	17.76
	11	2462	16.45	16.44
VHT20	1	2412	17.62	17.62
	6	2437	19.02	19.00
	11	2462	17.63	17.62
VHT40	3	2422	36.24	36.26
	6	2437	36.28	36.27
	9	2452	36.25	36.26
11ax HE20	1	2412	18.95	18.90
	6	2437	19.35	19.34
	11	2462	18.97	18.92
11ax HE40	3	2422	37.93	37.92
	6	2437	37.95	37.90
	9	2452	37.93	37.91

6dB Bandwidth, ANT A
Modulation Type: 802.11b
CH01

Modulation Type: 802.11g
CH01

CH06

CH06

CH11

CH11

6dB Bandwidth, ANT A
Modulation Type: VHT20
CH01

Modulation Type: VHT40
CH03

CH06

CH06

CH11

CH09

6dB Bandwidth, ANT A

Modulation Type: 802.11ax HE20

CH01

Modulation Type: 802.11ax HE40

CH03

CH06

CH06

CH11

CH09

6dB Bandwidth, ANT B

Modulation Type: 802.11b

CH01

Modulation Type: 802.11g

CH01

CH06

CH06

CH11

CH11

6dB Bandwidth, ANT B
Modulation Type: VHT20
CH01

Modulation Type: VHT40
CH03

CH06

CH06

CH11

CH09

6dB Bandwidth, ANT B

Modulation Type: 802.11ax HE20

CH01

Modulation Type: 802.11ax HE40

CH03

CH06

CH06

CH11

CH09

99% Bandwidth, ANT A
Modulation Type: 802.11b
CH01

Modulation Type: 802.11g
CH01

CH06

CH06

CH11

CH11

99% Bandwidth, ANT A

Modulation Type: VHT20

CH01

Modulation Type: VHT40

CH03

CH06

CH06

CH11

CH09

99% Bandwidth, ANT A

Modulation Type: 802.11ax HE20

CH01

Modulation Type: 802.11ax HE40

CH03

CH06

CH06

CH11

CH09

99% Bandwidth, ANT B

Modulation Type: 802.11b

CH01

Modulation Type: 802.11g

CH01

CH06

CH06

CH11

CH11

99% Bandwidth, ANT B

Modulation Type: VHT20

CH01

Modulation Type: VHT40

CH03

CH06

CH06

CH11

CH09

99% Bandwidth, ANT B

Modulation Type: 802.11ax HE20

CH01

Modulation Type: 802.11ax HE40

CH03

CH06

CH06

CH11

CH09

10. Maximum Average Output Power

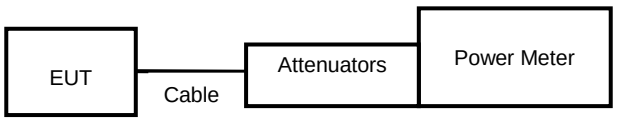
10.1 Test Limit

The Maximum Average Output Power Measurement is 30dBm.
If transmitting antennas of directional gain greater than 6 dBi are used, the average output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi

10.2 Test Procedures

The antenna port (RF output) of the EUT was connected to the input (RF input) of a power meter. Power was read directly from the meter and cable loss connection was added to the reading to obtain power at the EUT antenna terminal. The EUT Output Power was set to maximum to produce the worse case test result.

10.3 Test Setup Layout



10.4 Test Result and Data

Non-Beamforming

Setting	Modulation Mode	Channel	Frequency (MHz)	Conducted(average) output power (dBm)		Total AV power (dBm)	Total AV power (mW)	Power Limit (dBm)
				ANT A (J8)	ANT B (J1002)			
25	11b	1	2412	25.62	25.63	28.64	730.349	30.00
26		6	2437	26.60	26.95	**29.79**	952.538	30.00
25		11	2462	25.27	25.45	28.37	687.263	30.00
21.5	11g	1	2412	22.40	22.38	25.40	346.762	30.00
25		6	2437	25.51	25.57	28.55	716.210	30.00
21		11	2462	21.64	21.66	24.66	292.436	30.00
21	11n HT20	1	2412	21.63	21.58	24.62	289.426	30.00
25		6	2437	25.31	25.58	28.46	701.035	30.00
21		11	2462	21.32	21.34	24.34	271.663	30.00
19	11n HT40	3	2422	20.13	20.02	23.09	203.500	30.00
20		6	2437	21.34	21.19	24.28	267.667	30.00
17.5		9	2452	18.75	18.69	21.73	148.950	30.00
21	VHT20	1	2412	21.66	21.62	24.65	291.766	30.00
25		6	2437	25.36	25.61	28.50	707.473	30.00
21		11	2462	21.36	21.37	24.38	273.861	30.00
19	VHT40	3	2422	20.17	20.07	23.13	205.617	30.00
20		6	2437	21.39	21.23	24.32	270.460	30.00
17.5		9	2452	18.78	18.72	21.76	149.982	30.00
21	11ax HE20	1	2412	21.49	21.42	24.47	279.604	30.00
25		6	2437	25.22	25.28	28.26	669.947	30.00
21		11	2462	21.23	21.20	24.23	264.565	30.00
19	11ax HE40	3	2422	19.82	19.74	22.79	190.129	30.00
20		6	2437	21.02	20.83	23.94	247.533	30.00
17.5		9	2452	18.42	18.38	21.41	138.368	30.00

Beamforming

Modulation Mode	Channel	Frequency (MHz)	Conducted(average) output power (dBm)		Total AV power (dBm)	Total AV power (mW)	PowerLimit (dBm)
			ANT A (J8)	ANT B (J1002)			
11n HT20	1	2412	18.62	18.57	21.61	144.723	29.84
	6	2437	22.30	22.57	25.45	350.542	29.84
	11	2462	18.31	18.33	21.33	135.841	29.84
11n HT40	3	2422	17.12	17.01	20.08	101.757	29.84
	6	2437	18.33	18.18	21.27	133.843	29.84
	9	2452	15.74	15.68	18.72	74.480	29.84
VHT20	1	2412	18.65	18.61	21.64	145.893	29.84
	6	2437	22.35	22.60	25.49	353.761	29.84
	11	2462	18.35	18.36	21.37	136.940	29.84
VHT40	3	2422	17.16	17.06	20.12	102.816	29.84
	6	2437	18.38	18.22	21.31	135.240	29.84
	9	2452	15.77	15.71	18.75	74.996	29.84
11ax HE20	1	2412	18.48	18.41	21.46	139.812	29.84
	6	2437	22.21	22.27	25.25	334.997	29.84
	11	2462	18.22	18.19	21.22	132.292	29.84
11ax HE40	3	2422	16.81	16.73	19.78	95.071	29.84
	6	2437	18.01	17.82	20.93	123.775	29.84
	9	2452	15.41	15.37	18.40	69.189	29.84

11. Power Spectral Density

11.1 Test Limit

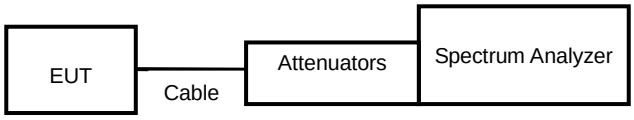
The Maximum of Power Spectral Density Measurement is 8dBm.

If transmitting antennas of directional gain greater than 6 dBi are used, the power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi

11.2 Test Procedures

Reference to KDB558074 DTS Meas Guidance v04 D01

11.3 Test Setup Layout



11.4 Test Result and Data

Modulation Type	Channel	Frequency (MHz)	Maximum Power Density of 3KHz Bandwidth(dBm)		Sum chain (dBm)	Duty Cycle CF(dB)	Total PSD (dBm)	Limit (dBm)
			ANT A	ANT B				
11b	1	2412	1.25	1.36	4.32	2.44	6.76	7.84
	6	2437	1.75	2.22	5.00	2.44	7.44	7.84
	11	2462	0.77	0.97	3.88	2.44	6.32	7.84
11g	1	2412	2.41	2.34	5.38	0.28	5.66	7.84
	6	2437	3.02	3.25	6.14	0.28	6.42	7.84
	11	2462	1.59	1.61	4.61	0.28	4.89	7.84
VHT20	1	2412	1.13	1.25	4.20	0.19	4.39	7.84
	6	2437	2.30	2.56	5.44	0.19	5.63	7.84
	11	2462	1.00	1.03	4.03	0.19	4.22	7.84
VHT40	3	2422	-3.11	-3.16	-0.12	0.31	0.19	7.84
	6	2437	-1.97	-2.11	0.97	0.31	1.28	7.84
	9	2452	-4.51	-4.71	-1.60	0.31	-1.29	7.84
11ax HE20	1	2412	-0.13	-0.19	2.85	0.23	3.08	7.84
	6	2437	3.43	3.55	6.50	0.23	6.73	7.84
	11	2462	-0.39	-0.43	2.60	0.23	2.83	7.84
11ax HE40	3	2422	-4.57	-4.58	-1.56	0.28	-1.28	7.84
	6	2437	-3.40	-3.53	-0.45	0.28	-0.17	7.84
	9	2452	-6.01	-6.00	-3.00	0.28	-2.72	7.84

ANT A:

Modulation Type: 802.11b

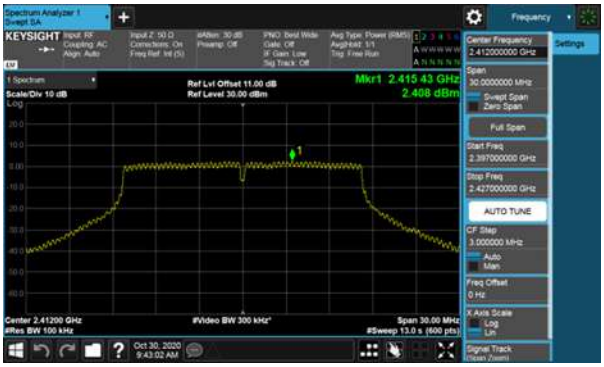
CH01

CH06

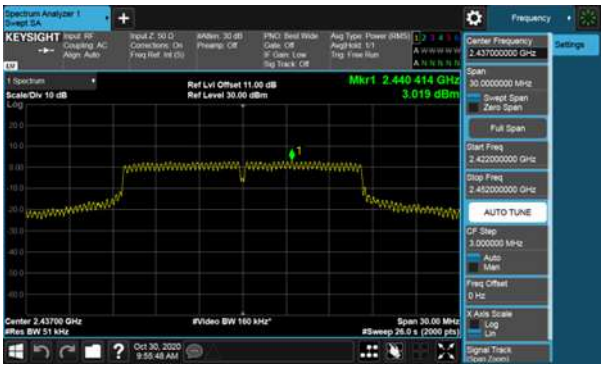
CH11

Modulation Type: 802.11g

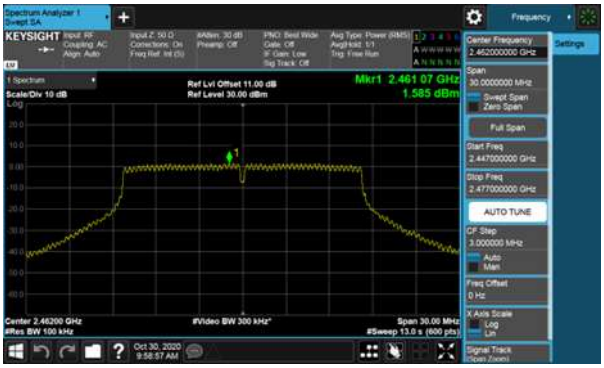
CH01



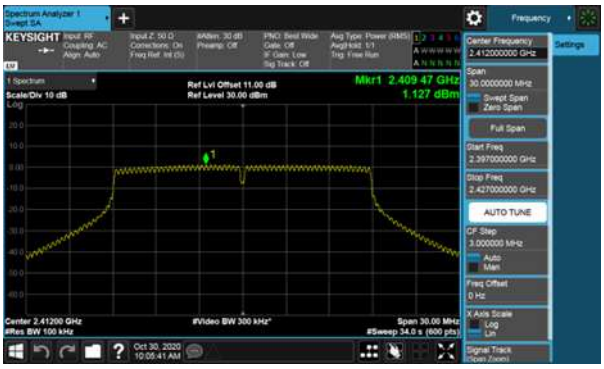
CH06



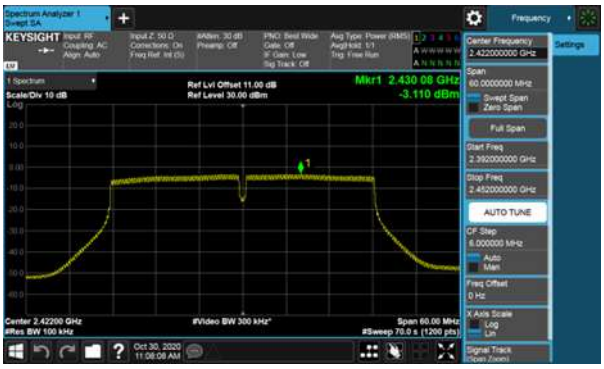
CH11



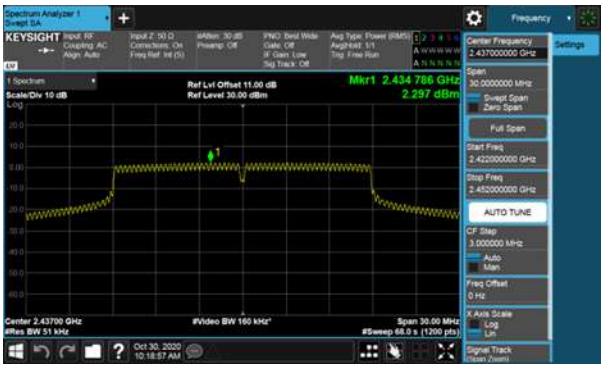
ANT A:
Modulation Type: VHT20
CH01



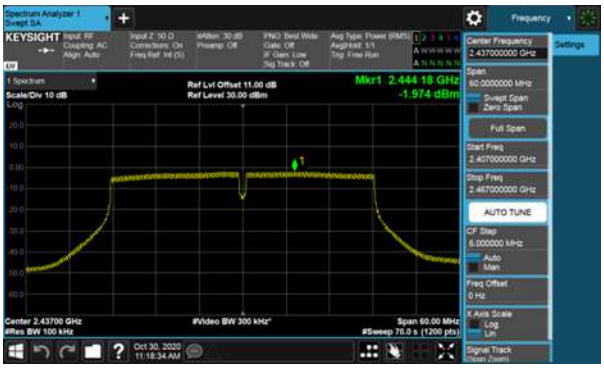
Modulation Type: VHT40
CH03



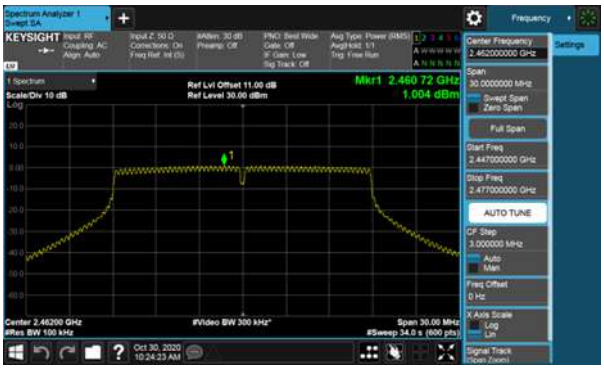
CH06



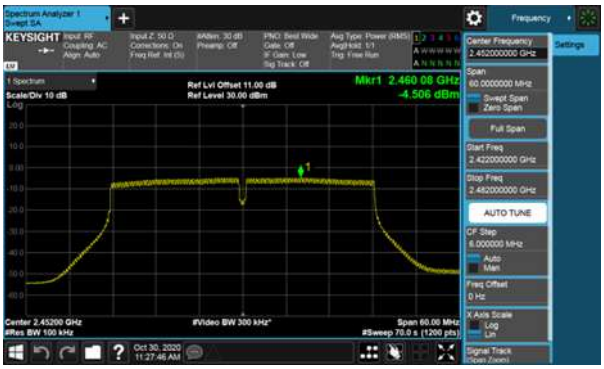
CH06



CH11



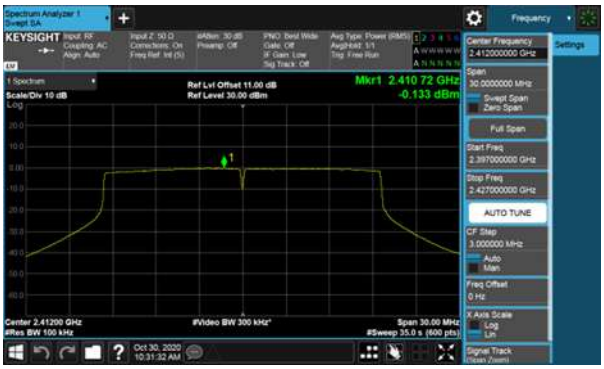
CH09



ANT A:

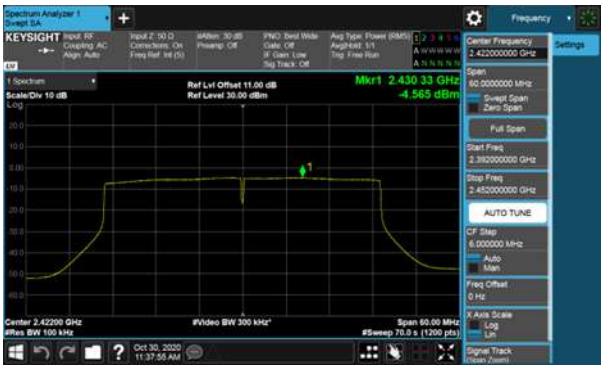
Modulation Type: 802.11ax HE20

CH01

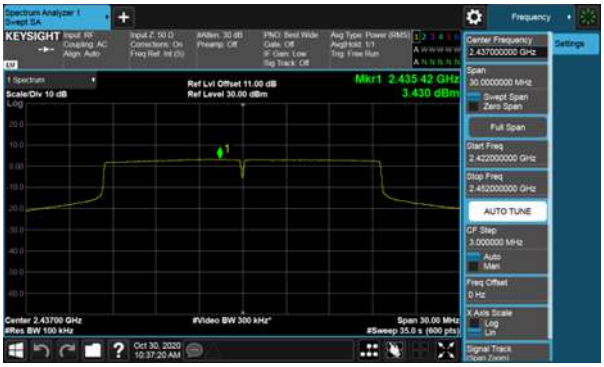


Modulation Type: 802.11ax HE40

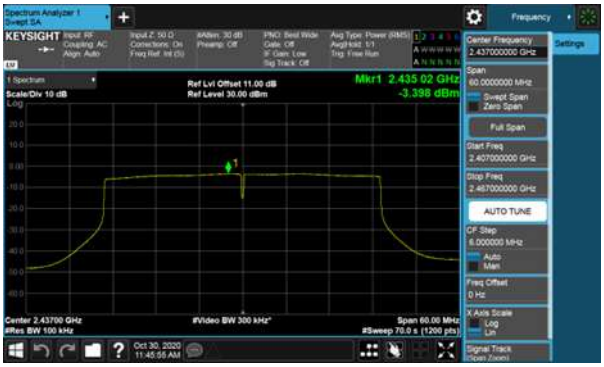
CH03



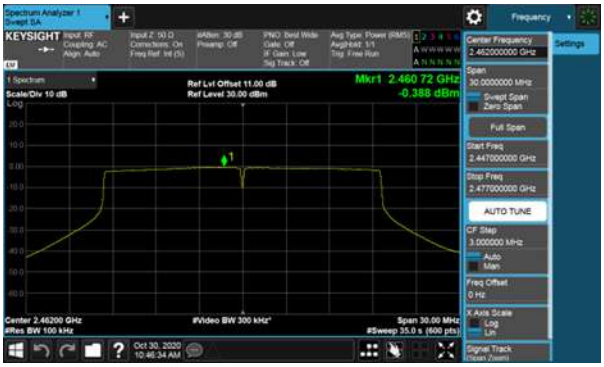
CH06



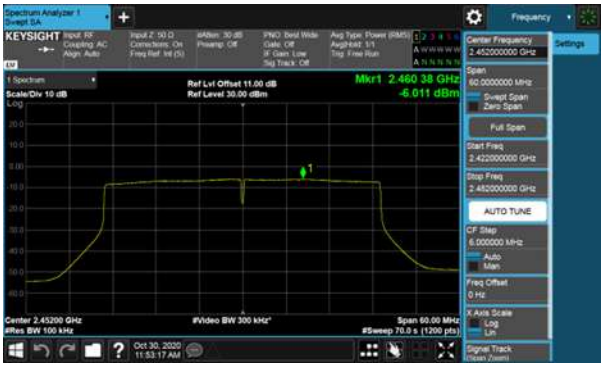
CH06



CH11



CH09



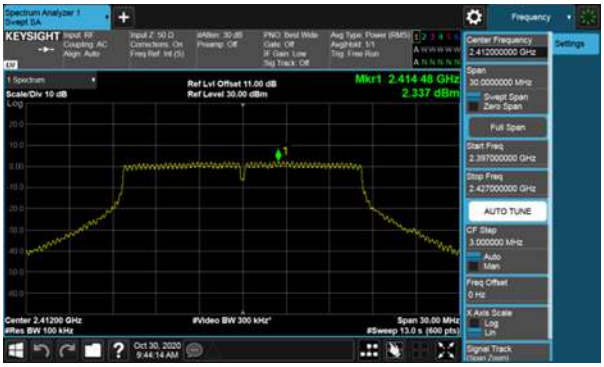
ANT B:

Modulation Type: 802.11b

CH01

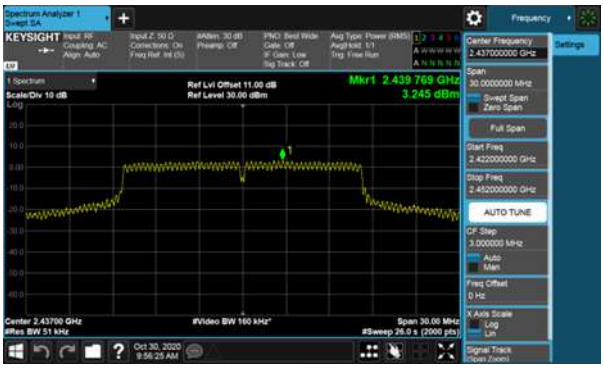
Modulation Type: 802.11g

CH01



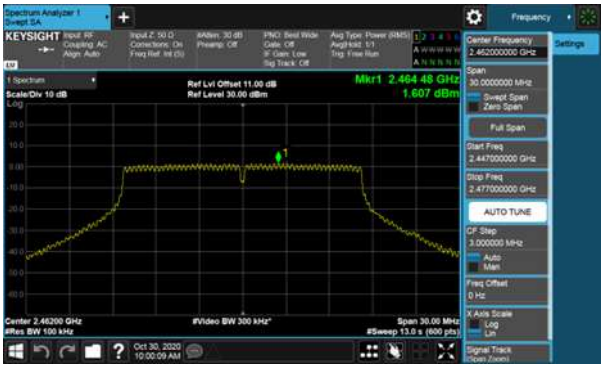
CH06

CH06

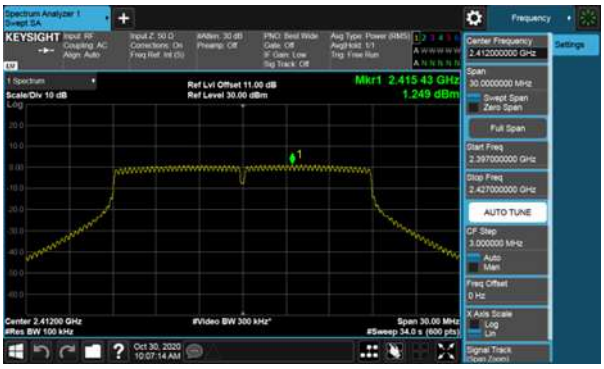


CH11

CH11



ANT B:
Modulation Type: VHT20
CH01



Modulation Type: VHT40
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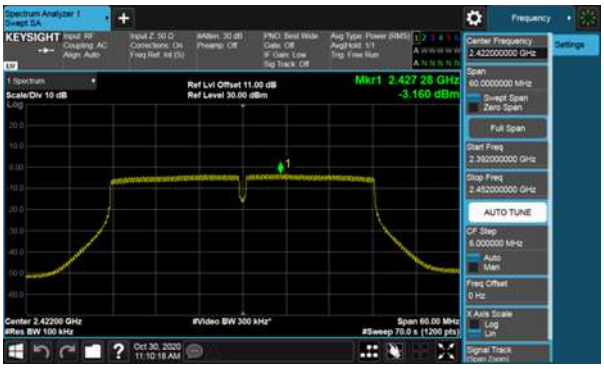
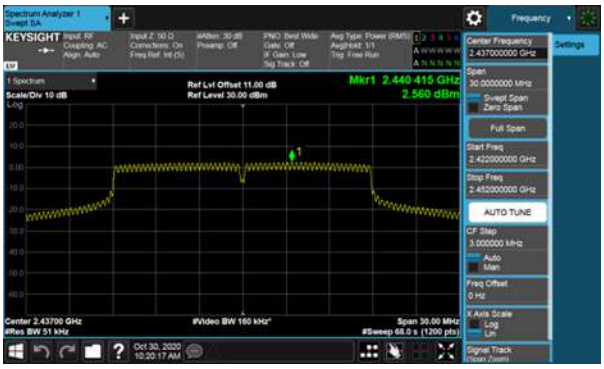


CH06



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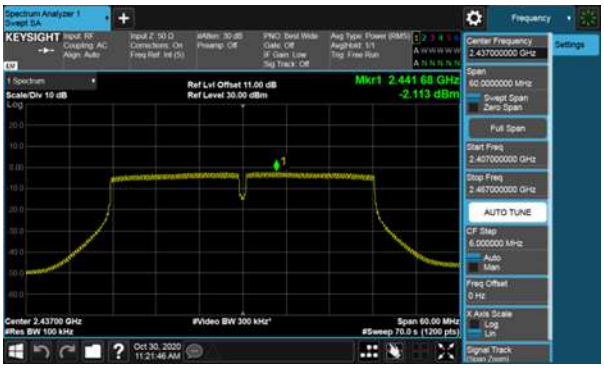
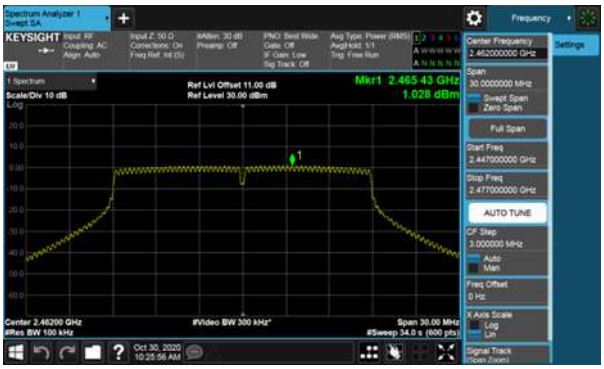
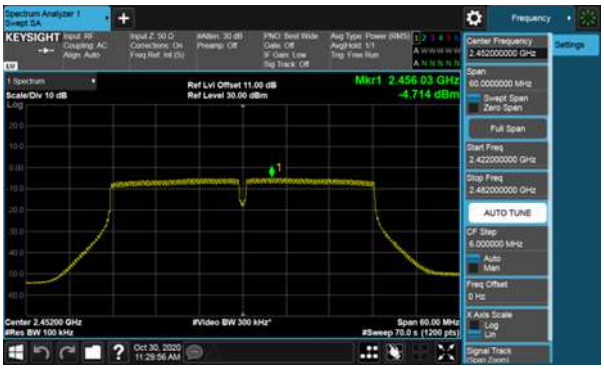


CH11



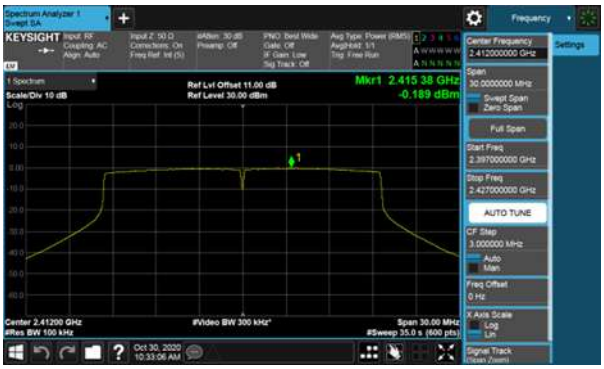
CH09



ANT B:

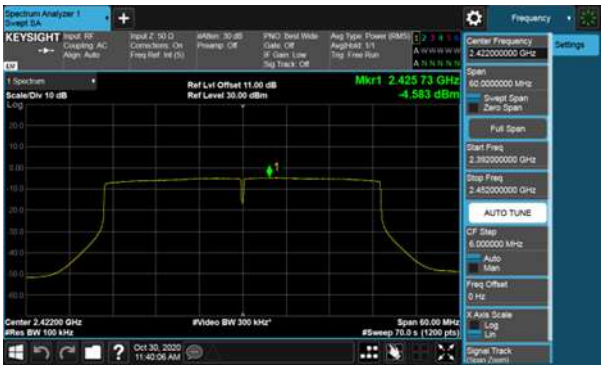
Modulation Type: 802.11ax HE20

CH01

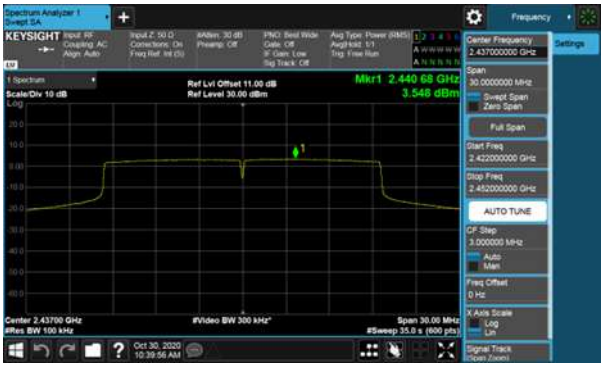


Modulation Type: 802.11ax HE40

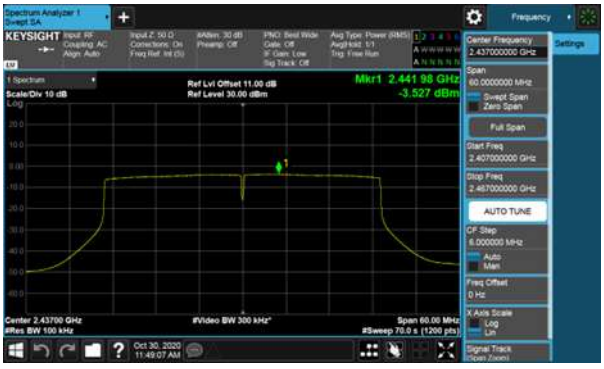
CH03



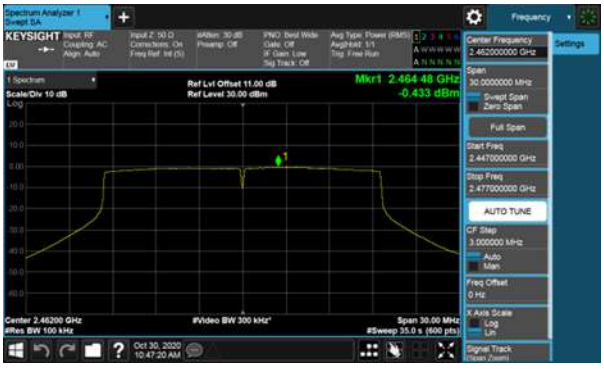
CH06



CH06



CH11



CH09