IEEE 802.11g mode- chain 1	
Low CH	**Mid CH**
High CH	

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IEEE 802.11n HT20 mode- chain 1	
Low CH	**Mid CH**
High CH	

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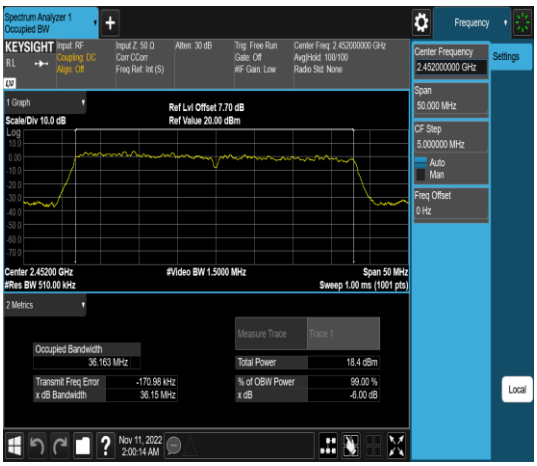
IEEE 802.11n HT40 mode- chain 1	
Low CH	**Mid CH**
High CH	
	

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IEEE 802.11ax HE20 mode- chain 1	
Low CH	**Mid CH**
High CH	

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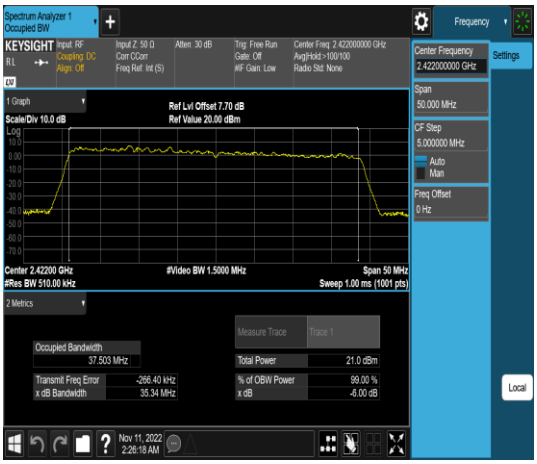
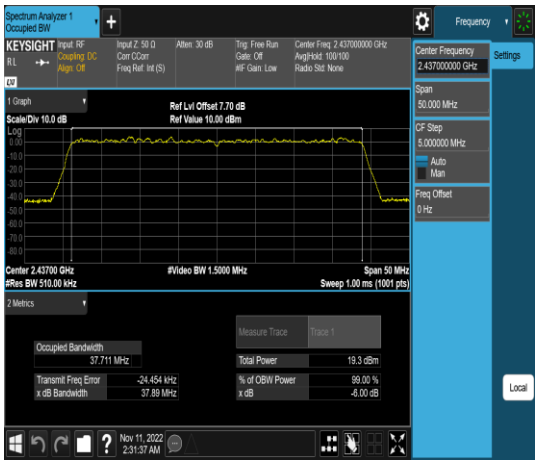
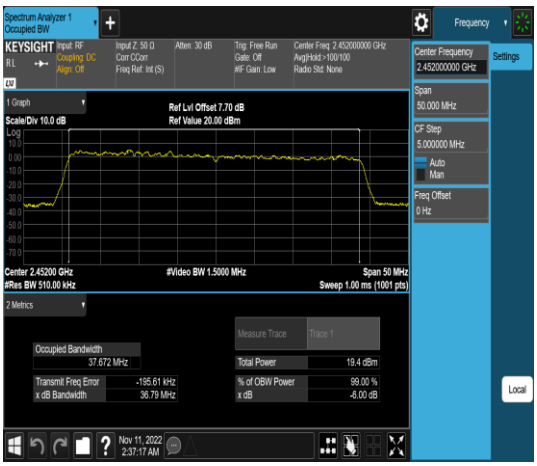
IEEE 802.11ax HE40 mode- chain 1	
Low CH	**Mid CH**
	
High CH	
	

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4.3 OUTPUT POWER MEASUREMENT

4.3.1 Test Limit

According to §15.247(b)

Peak output power：

For systems using digital modulation in the 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt(30 dBm) and the e.i.r.p. shall not exceed 4Watt(36 dBm), base on the use of antennas with directional gain not exceed 6 dBi If transmitting antennas of directional gain greater than 6dBi are used the peak output power the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

Limit	☒ Antenna not exceed 6 dBi：30dBm ☐ Antenna with DG greater than 6 dBi： [Limit = 30 – (DG – 6)] ☐ Point-to-point operation：

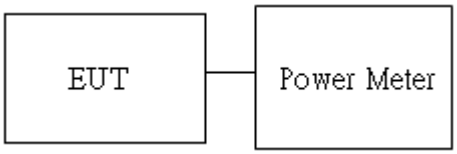
Average output power：For reporting purposes only.

4.3.2 Test Procedure

Test method Refer as ANSI C63.10:2013.

1. The EUT RF output connected to the power meter by RF cable.
2. Setting maximum power transmit of EUT.
3. The path loss was compensated to the results for each measurement.
4. Measure and record the result of Peak output power and Average output power. in the test report.

4.3.3 Test Setup



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4.3.4 Test Result

Temperature: 24.2 ~ 25.2℃ **Test date:** November 10 ~ 11, 2022

Humidity: 57 ~ 59% RH **Tested by:** David Li

Peak output power：

802.11b_2TX								
CH	**Freq. (MHz)**	**Data Rate**	**Power set**	**Peak Output Power (dBm)**		**Total Peak Output Power (dBm)**	**Limit (dBm)**	**RESULT**
				Ch0	**Ch1**			
1	2412	1	14.5	15.56	14.72	18.17	30.00	PASS
6	2437	1	14	15.54	14.89	18.24	30.00	PASS
11	2462	1	14.5	15.98	15.47	**18.74**	30.00	PASS

802.11g_2TX								
CH	**Freq. (MHz)**	**Data Rate**	**Power set**	**Peak Output Power (dBm)**		**Total Peak Output Power (dBm)**	**Limit (dBm)**	**RESULT**
				Ch0	**Ch1**			
1	2412	6	15	23.03	21.72	25.43	30.00	PASS
6	2437	6	15	23.12	21.78	25.51	30.00	PASS
11	2462	6	15.5	23.47	22.31	**25.94**	30.00	PASS

802.11n_HT20M_2TX								
CH	**Freq. (MHz)**	**Data Rate**	**Power set**	**Peak Output Power (dBm)**		**Total Peak Output Power (dBm)**	**Limit (dBm)**	**RESULT**
				Ch0	**Ch1**			
1	2412	MCS0	15	23.59	21.02	25.50	30.00	PASS
6	2437	MCS0	15.5	23.98	21.44	**25.90**	30.00	PASS
11	2462	MCS0	15.5	23.65	21.33	25.65	30.00	PASS

802.11n_HT40M_2TX								
CH	**Freq. (MHz)**	**Data Rate**	**Power set**	**Peak Output Power (dBm)**		**Total Peak Output Power (dBm)**	**Limit (dBm)**	**RESULT**
				Ch0	**Ch1**			
3	2422	MCS0	15	24.43	23.01	**26.79**	30.00	PASS
6	2437	MCS0	15	24.10	22.92	26.56	30.00	PASS
9	2452	MCS0	15	24.22	22.91	26.62	30.00	PASS

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802.11ac_VHT20M_2TX								
CH	Freq. (MHz)	Data Rate	Power set	Peak Output Power (dBm)		Total Peak Output Power (dBm)	Limit (dBm)	RESULT
				Ch0	Ch1			
1	2412	MCS0	15	24.21	23.13	26.71	30.00	PASS
6	2437	MCS0	15	24.35	23.11	26.78	30.00	PASS
11	2462	MCS0	15.5	24.31	23.47	**26.92**	30.00	PASS

802.11ac_VHT40M_2TX								
CH	Freq. (MHz)	Data Rate	Power set	Peak Output Power (dBm)		Total Peak Output Power (dBm)	Limit (dBm)	RESULT
				Ch0	Ch1			
3	2422	MCS0	14.5	24.22	22.87	26.61	30.00	PASS
6	2437	MCS0	14.5	24.33	22.94	26.70	30.00	PASS
9	2452	MCS0	15	24.49	23.61	**27.08**	30.00	PASS

802.11ax_HE20M_2TX									
CH	Freq. (MHz)	Data Rate	RU Config	Power set	Peak Output Power (dBm)		Total Peak Output Power (dBm)	Limit (dBm)	RESULT
					Ch0	Ch1			
1	2412	MCS0	full	15	23.12	22.10	25.65	30.00	PASS
			26/0	15	21.75	20.21	24.06	30.00	PASS
			52/37	15	22.90	21.97	25.47	30.00	PASS
			106/53	15	23.01	22.06	25.57	30.00	PASS
6	2437	MCS0	full	15	23.28	22.07	25.73	30.00	PASS
11	2462	MCS0	full	15.5	23.50	22.48	26.03	30.00	PASS
			26/8	15	21.92	20.86	24.43	30.00	PASS
			52/40	15	22.88	21.86	25.41	30.00	PASS
			106/54	15	23.67	22.75	**26.24**	30.00	PASS

802.11ax_HE40M_2TX									
CH	Freq. (MHz)	Data Rate	RU Config	Power set	Peak Output Power (dBm)		Total Peak Output Power (dBm)	Limit (dBm)	RESULT
					Ch0	Ch1			
3	2422	MCS0	full	15	23.95	22.91	26.47	30.00	PASS
			242/61	14.5	23.33	22.25	25.83	30.00	PASS
6	2437	MCS0	full	14.5	23.59	22.21	25.96	30.00	PASS
9	2452	MCS0	full	15	24.09	22.79	**26.50**	30.00	PASS
			242/62	15	23.85	22.43	26.21	30.00	PASS

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Average output power：

802.11b_2TX								
CH	Freq. (MHz)	Data Rate	Power set	Avg. Output Power (dBm)		Total Avg. Output Power (dBm)	Limit (dBm)	RESULT
				Ch0	Ch1			
1	2412	1	14.5	13.61	12.78	16.23	30.00	PASS
6	2437	1	14	13.56	12.79	16.20	30.00	PASS
11	2462	1	14.5	13.64	12.85	**16.27**	30.00	PASS

802.11g_2TX								
CH	Freq. (MHz)	Data Rate	Power set	Avg. Output Power (dBm)		Total Avg. Output Power (dBm)	Limit (dBm)	RESULT
				Ch0	Ch1			
1	2412	6	15	13.56	12.31	16.02	30.00	PASS
6	2437	6	15	13.53	12.24	15.97	30.00	PASS
11	2462	6	15.5	13.72	12.57	**16.22**	30.00	PASS

802.11n_HT20M_2TX								
CH	Freq. (MHz)	Data Rate	Power set	Avg. Output Power (dBm)		Total Avg. Output Power (dBm)	Limit (dBm)	RESULT
				Ch0	Ch1			
1	2412	MCS0	15	13.57	12.43	16.10	30.00	PASS
6	2437	MCS0	15.5	13.90	12.55	**16.34**	30.00	PASS
11	2462	MCS0	15.5	13.75	12.76	**16.34**	30.00	PASS

802.11n_HT40M_2TX								
CH	Freq. (MHz)	Data Rate	Power set	Avg. Output Power (dBm)		Total Avg. Output Power (dBm)	Limit (dBm)	RESULT
				Ch0	Ch1			
3	2422	MCS0	15	13.89	12.57	**16.38**	30.00	PASS
6	2437	MCS0	15	13.80	12.41	16.26	30.00	PASS
9	2452	MCS0	15	13.89	12.56	**16.38**	30.00	PASS

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802.11ac_VHT20M_2TX

CH	Freq. (MHz)	Data Rate	Power set	Avg. Output Power (dBm)		Total Avg. Output Power (dBm)	Limit (dBm)	RESULT
				Ch0	Ch1			
1	2412	MCS0	15	13.53	12.31	16.00	30.00	PASS
6	2437	MCS0	15	13.67	12.28	16.07	30.00	PASS
11	2462	MCS0	15.5	13.57	12.65	**16.17**	30.00	PASS

802.11ac_VHT40M_2TX

CH	Freq. (MHz)	Data Rate	Power set	Avg. Output Power (dBm)		Total Avg. Output Power (dBm)	Limit (dBm)	RESULT
				Ch0	Ch1			
3	2422	MCS0	14.5	13.48	12.16	15.93	30.00	PASS
6	2437	MCS0	14.5	13.51	12.07	15.91	30.00	PASS
9	2452	MCS0	15	13.81	12.56	**16.29**	30.00	PASS

802.11ax_HE20M_2TX

CH	Freq. (MHz)	Data Rate	RU Config	Power set	Avg. Output Power (dBm)		Total Avg. Output Power (dBm)	Limit (dBm)	RESULT
					Ch0	Ch1			
1	2412	MCS0	full	15	13.53	12.40	16.04	30.00	PASS
			26/0	15	11.19	10.16	13.75	30.00	PASS
			52/37	15	13.13	12.05	15.66	30.00	PASS
			106/53	15	13.48	12.27	15.96	30.00	PASS
6	2437	MCS0	full	15	13.49	12.22	15.94	30.00	PASS
11	2462	MCS0	full	15.5	13.56	12.61	**16.15**	30.00	PASS
			26/8	15	10.87	10.01	13.50	30.00	PASS
			52/40	15	12.83	11.86	15.41	30.00	PASS
			106/54	15	13.24	12.11	15.75	30.00	PASS

802.11ax_HE40M_2TX

CH	Freq. (MHz)	Data Rate	RU Config	Power set	Avg. Output Power (dBm)		Total Avg. Output Power (dBm)	Limit (dBm)	RESULT
					Ch0	Ch1			
3	2422	MCS0	full	15	13.92	12.60	**16.38**	30.00	PASS
			242/61	14.5	13.72	12.38	16.17	30.00	PASS
6	2437	MCS0	full	14.5	13.51	12.06	15.92	30.00	PASS
9	2452	MCS0	full	15	13.70	12.46	16.19	30.00	PASS
			242/62	15	13.68	12.35	16.14	30.00	PASS

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4.4 POWER SPECTRAL DENSITY

4.4.1 Test Limit

According to §15.247(e)

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

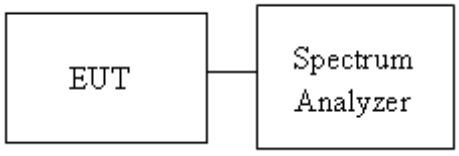
Limit	☒ Antenna not exceed 6 dBi：8dBm ☐ Antenna with DG greater than 6 dBi： [Limit = 8 – (DG – 6)] ☐ Point-to-point operation：

4.4.2 Test Procedure

Test method Refer as ANSI C63.10:2013,

1. The EUT RF output connected to the spectrum analyzer by RF cable.
2. Setting maximum power transmit of EUT
3. SA set RBW = 3kHz, VBW = 10kHz, Span = 1.5 times DTS Bandwidth (6 dB BW), Detector = Peak, Sweep Time = Auto and Trace = Max hold.
4. The path loss and Duty Factor were compensated to the results for each measurement by SA.
5. Mark the maximum level.
6. Measure and record the result of power spectral density. in the test report.

4.4.3 Test Setup



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4.4.4 Test Result

Temperature:	24.2 ~ 25.2℃	**Test date:**	November 10 ~ 11, 2022
Humidity:	57 ~ 59% RH	**Tested by:**	David Li

POWER DENSITY 802.11b					
Freq. (MHz)	Ch0 PSD	Ch1 PSD	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
2412	-11.64	-12.01	-8.81	8.00	PASS
2437	-12.68	-12.55	-9.60	8.00	PASS
2462	-12.54	-12.85	-9.68	8.00	PASS

POWER DENSITY 802.11g					
Freq. (MHz)	Ch0 PSD	Ch1 PSD	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
2412	-14.02	-14.08	-11.04	8.00	PASS
2437	-15.64	-15.49	-12.55	8.00	PASS
2462	-14.35	-15.64	-11.94	8.00	PASS

POWER DENSITY 802.11n HT20					
Freq. (MHz)	Ch0 PSD	Ch1 PSD	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
2412	-13.14	-13.21	-10.16	8.00	PASS
2437	-13.57	-13.53	-10.54	8.00	PASS
2462	-13.95	-14.35	-11.14	8.00	PASS

POWER DENSITY 802.11n HT40					
Freq. (MHz)	Ch0 PSD	Ch1 PSD	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
2422	-15.93	-13.83	-11.74	8.00	PASS
2437	-16.18	-15.37	-12.75	8.00	PASS
2452	-16.20	-15.65	-12.91	8.00	PASS

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POWER DENSITY 802.11ax HE20						
Freq. (MHz)	RU Config	Ch0 PSD	Ch1 PSD	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
2412	full	-13.84	-14.33	-11.07	8.00	PASS
	26/0	-8.48	-7.59	-5.00	8.00	PASS
	52/37	-7.42	-8.87	-5.07	8.00	PASS
	106/53	-10.10	-11.13	-7.57	8.00	PASS
2437	full	-14.64	-15.10	-11.85	8.00	PASS
2462	full	-14.69	-15.60	-12.11	8.00	PASS
	26/8	-8.38	-10.91	-6.45	8.00	PASS
	52/40	-9.26	-9.74	-6.48	8.00	PASS
	106/54	-10.42	-12.90	-8.48	8.00	PASS

POWER DENSITY 802.11ax HE40						
Freq. (MHz)	RU Config	Ch0 PSD	Ch1 PSD	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
2422	full	-17.61	-15.70	-13.54	8.00	PASS
	242/61	-13.12	-14.91	-10.91	8.00	PASS
2437	full	-18.18	-18.65	-15.40	8.00	PASS
2452	full	-17.18	-16.78	-13.97	8.00	PASS
	242/62	-14.93	-14.83	-11.87	8.00	PASS

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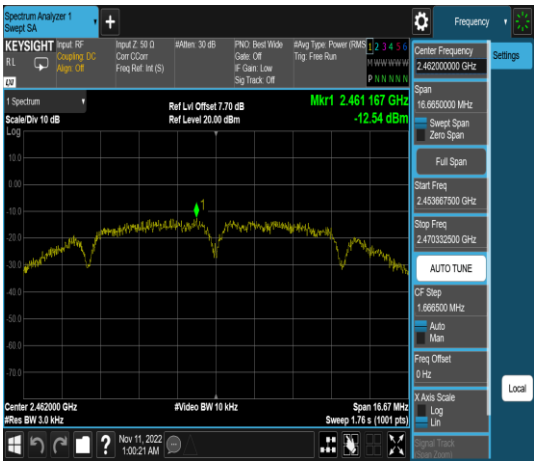
Test Data

IEEE 802.11b mode- chain 0	
Low CH	**Mid CH**
High CH	
	

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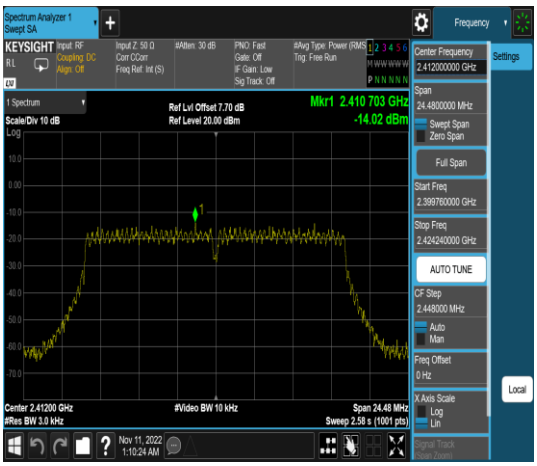
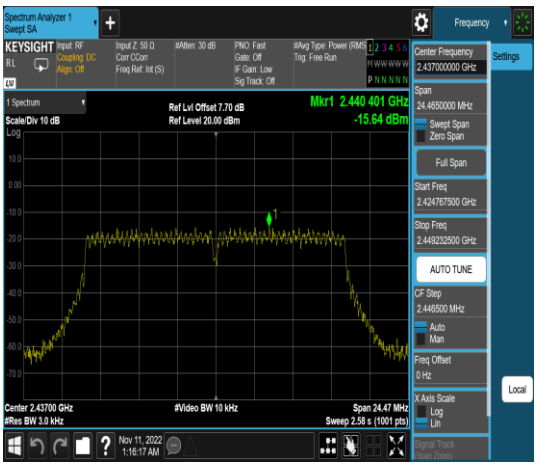
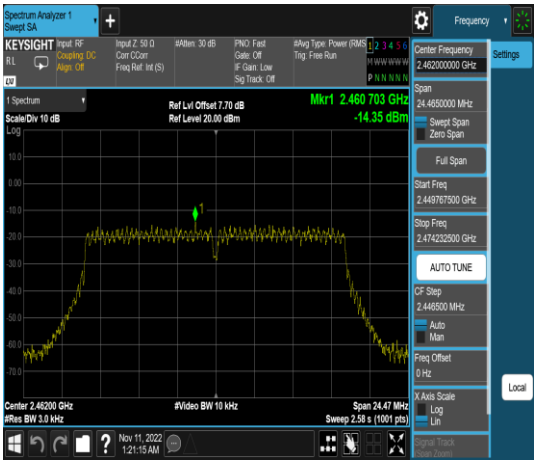
IEEE 802.11g mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

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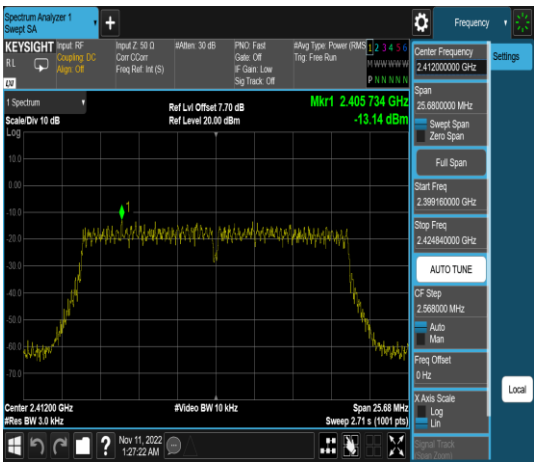
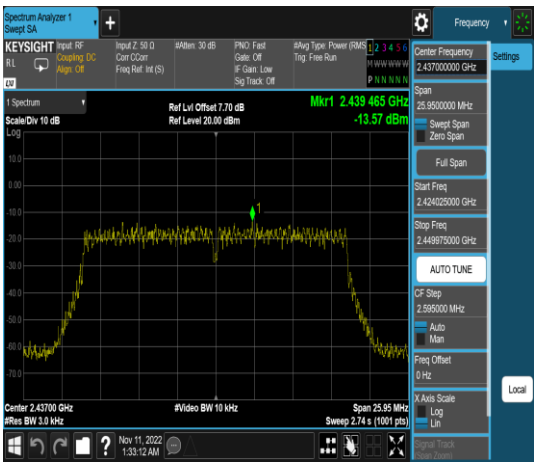
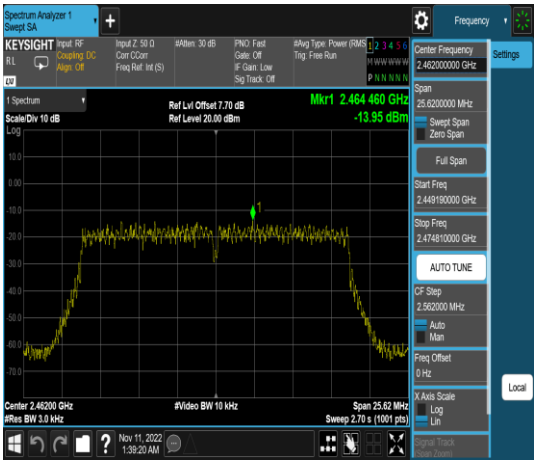
IEEE 802.11n HT20 mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

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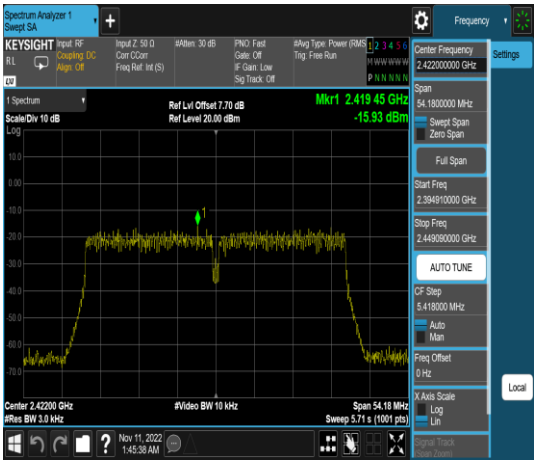
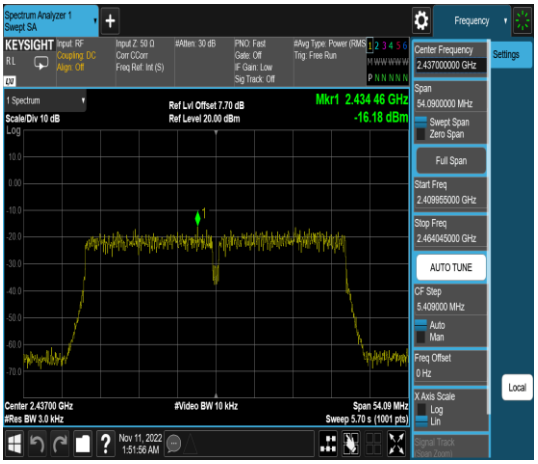
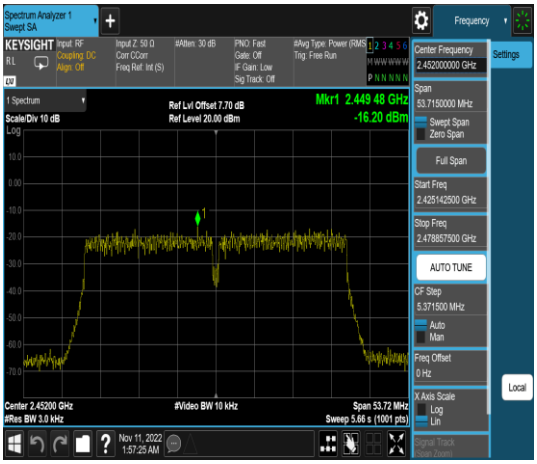
IEEE 802.11n HT40 mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

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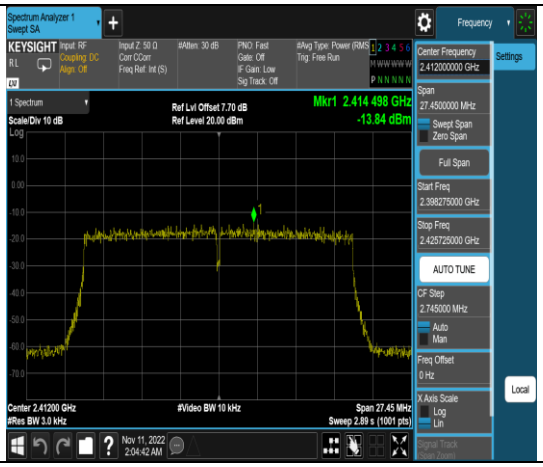
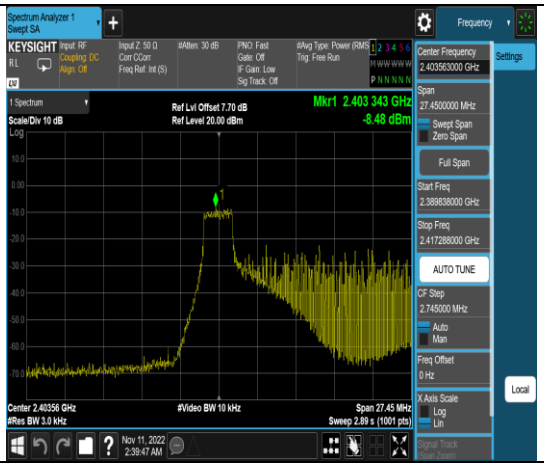
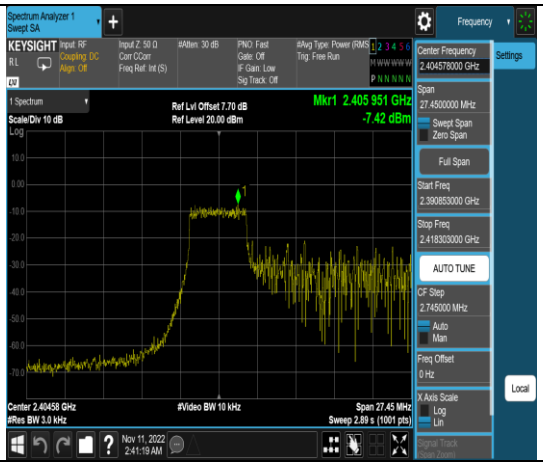
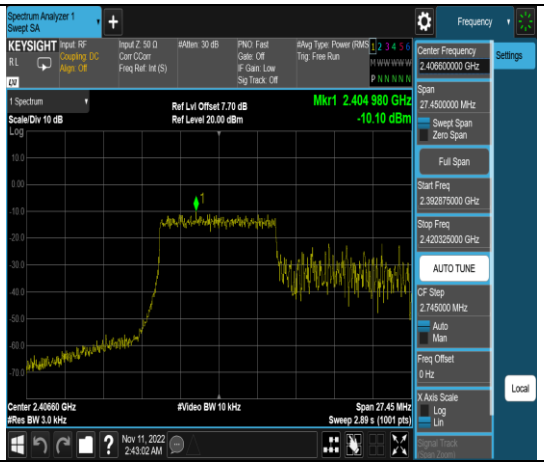
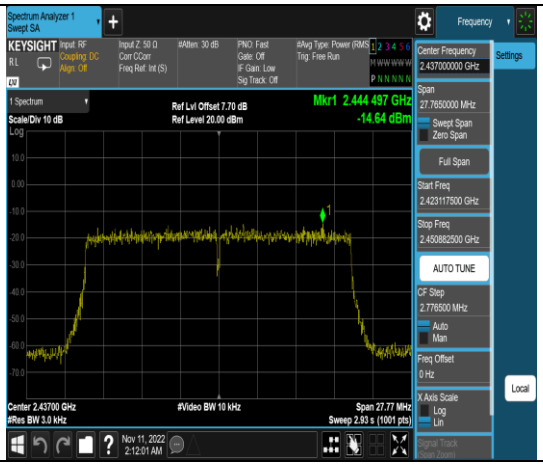
IEEE 802.11ax HE20 mode- chain 0	
Low CH full	**Low CH 26/0**
	
Low CH 52/37	**Low CH 106/53**
	
Mid CH full	
	

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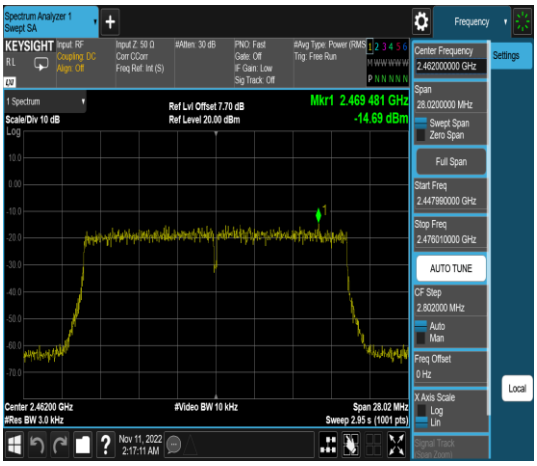
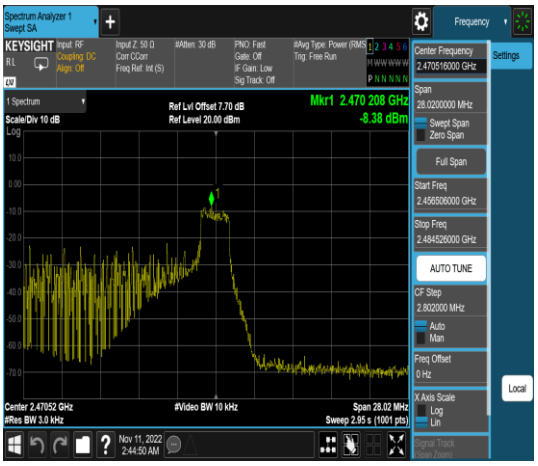
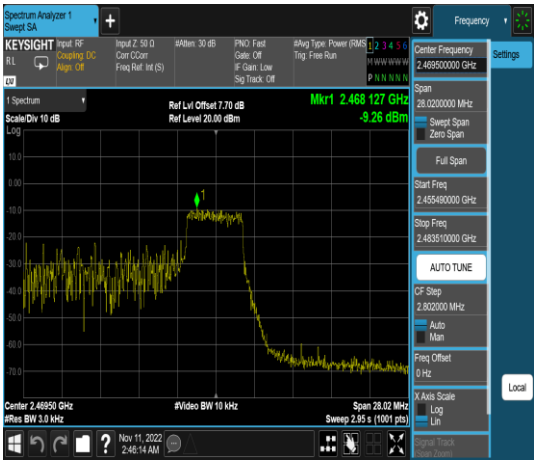
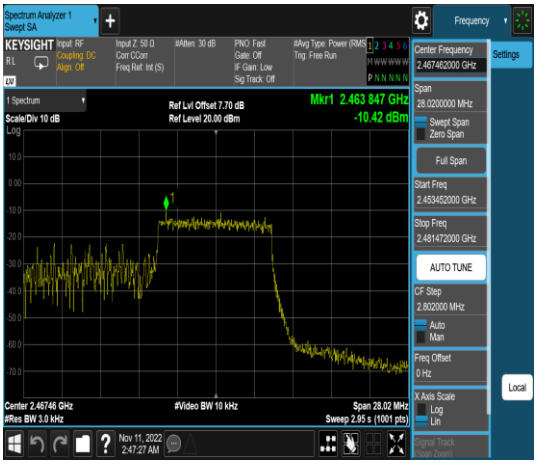
High CH full	High CH 26/8
	
High CH 52/40	**High CH 106/54**
	

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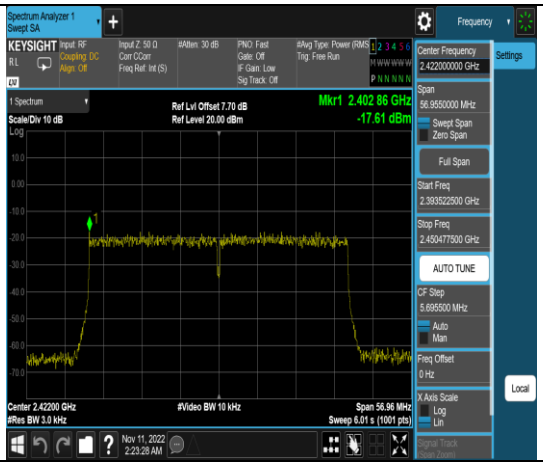
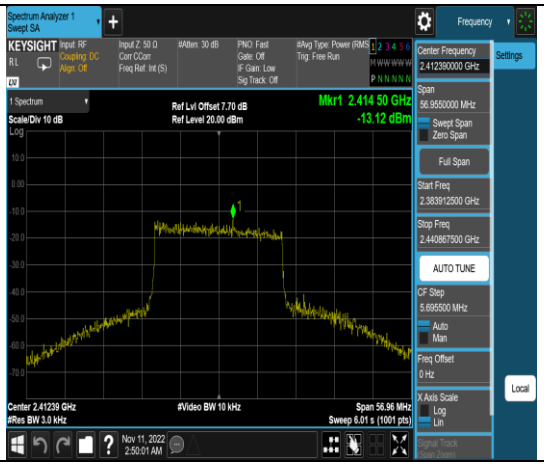
IEEE 802.11ax HE40 mode- chain 0

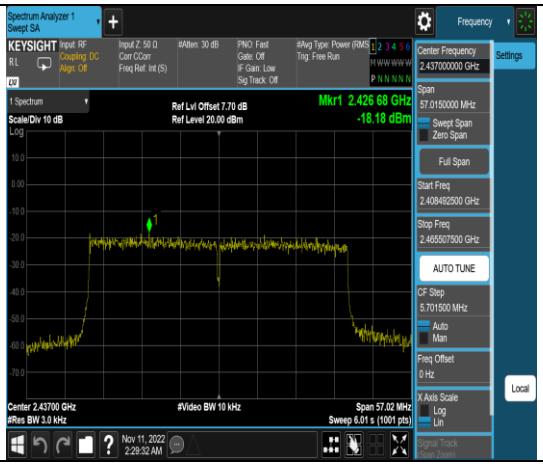
Low CH full



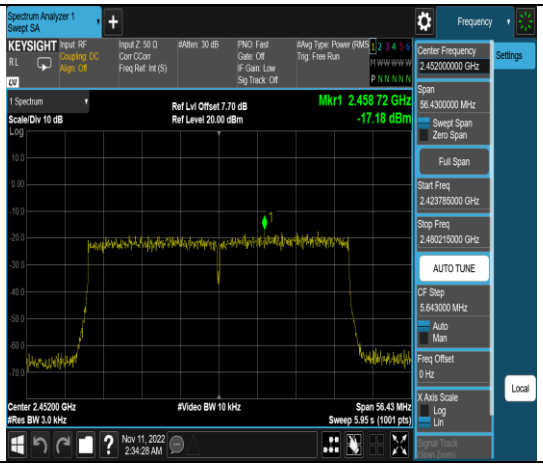
Low CH 242/61



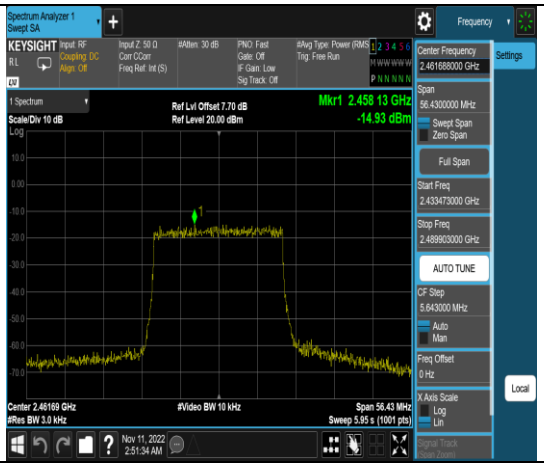
Mid CH full



High CH full



High CH 242/62



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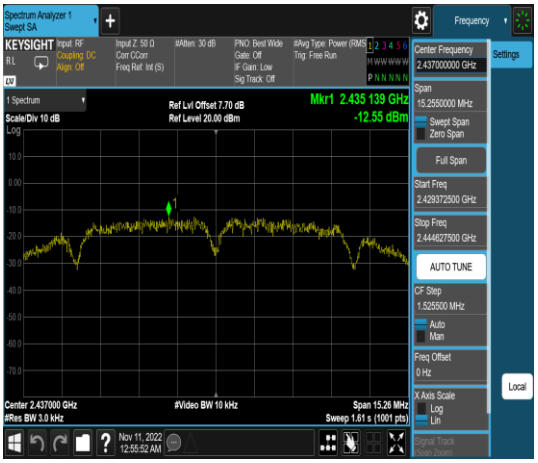
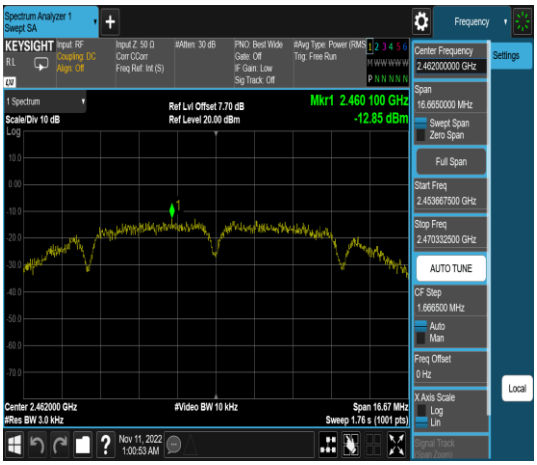
IEEE 802.11b mode- chain 1	
Low CH	**Mid CH**
	
High CH	
	

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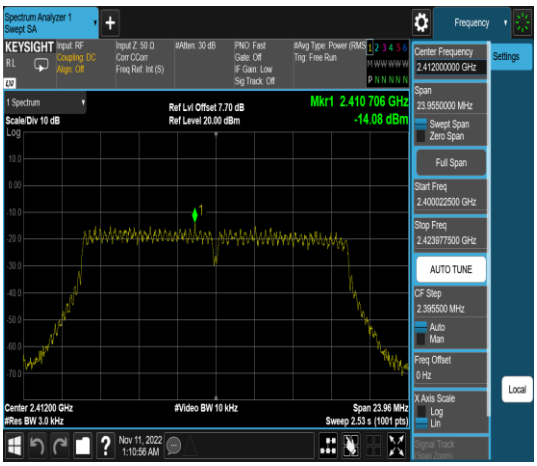
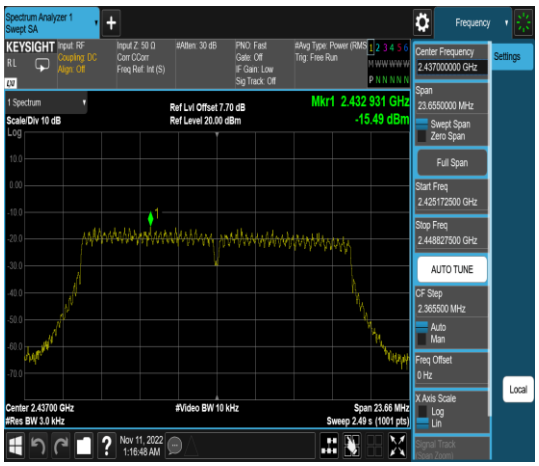
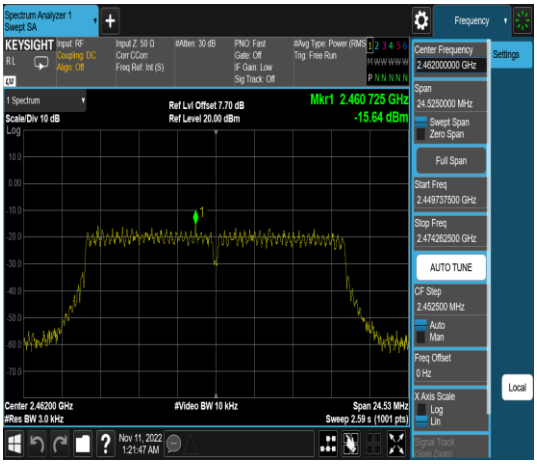
IEEE 802.11g mode- chain 1	
Low CH	**Mid CH**
	
High CH	
	

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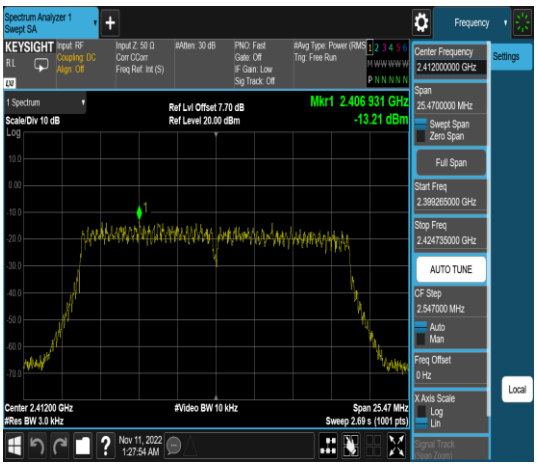
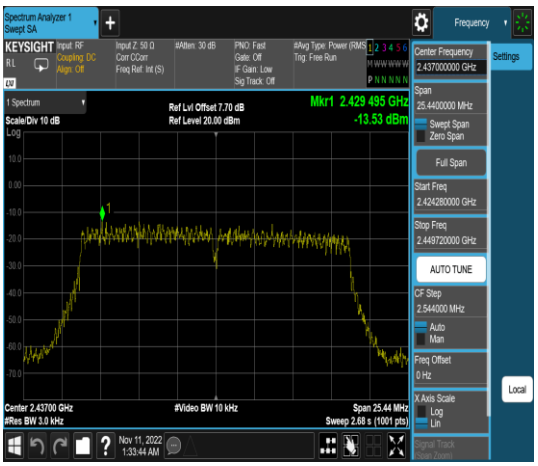
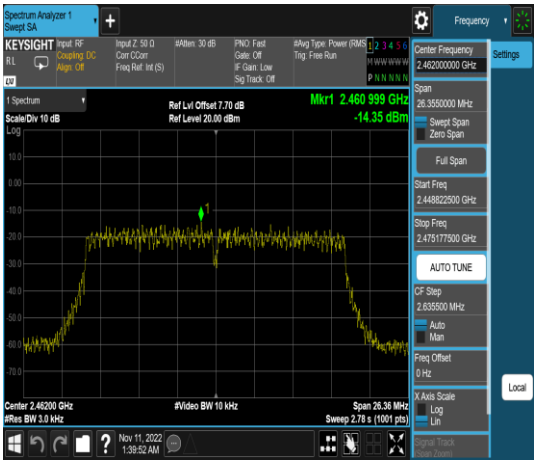
IEEE 802.11n HT20 mode- chain 1	
Low CH	**Mid CH**
	
High CH	
	

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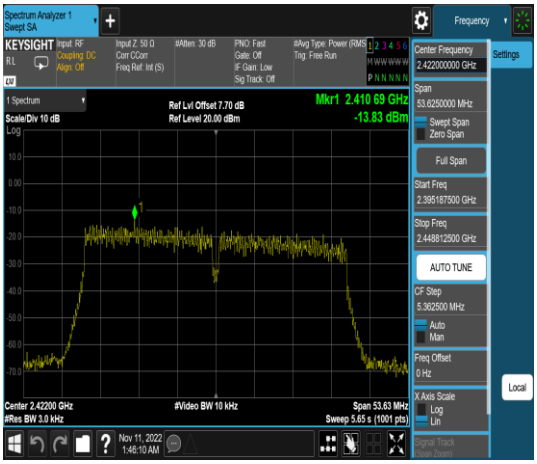
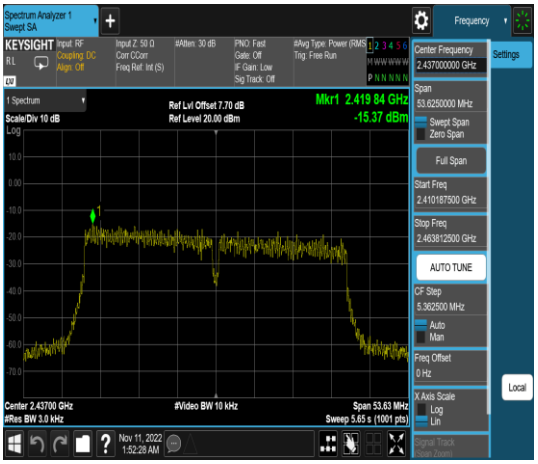
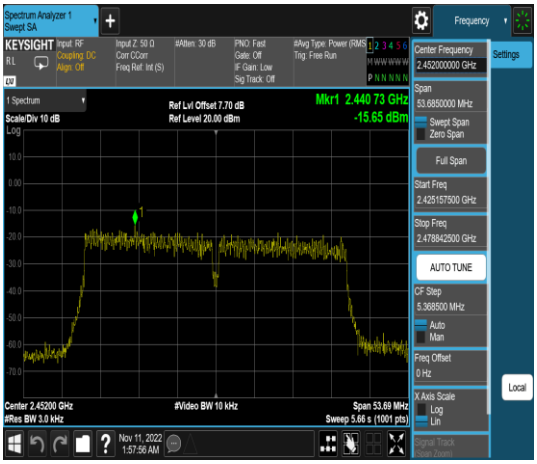
IEEE 802.11n HT40 mode- chain 1	
Low CH	**Mid CH**
	
High CH	
	

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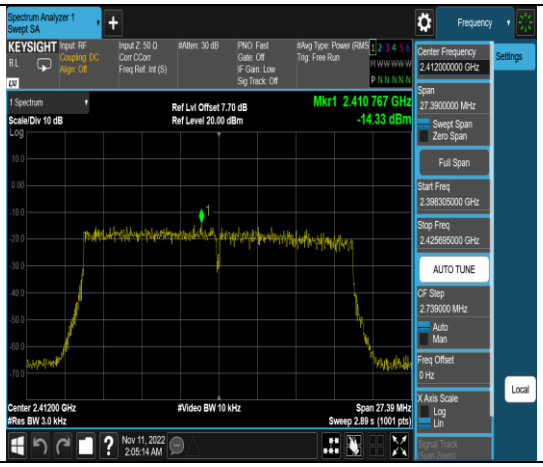
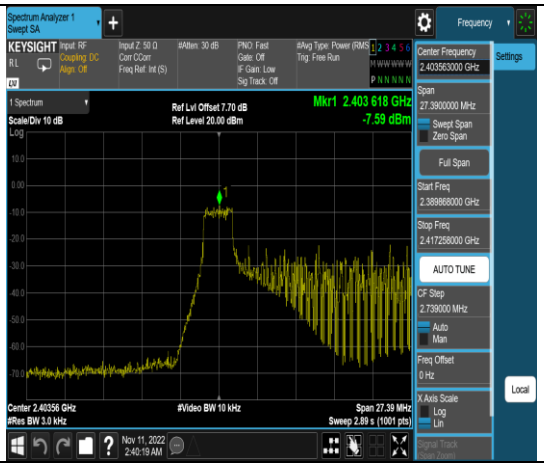
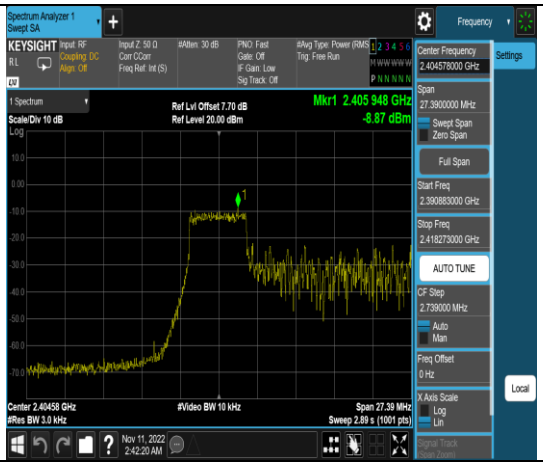
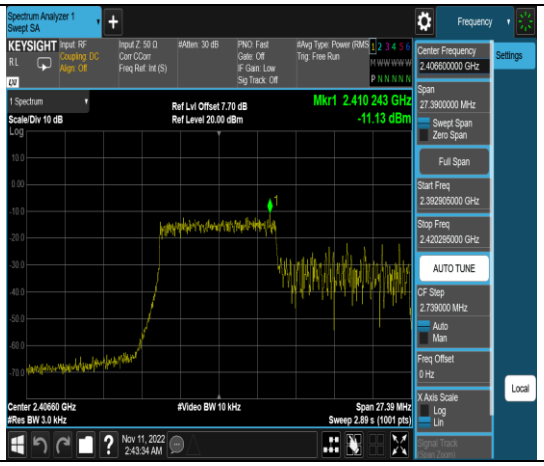
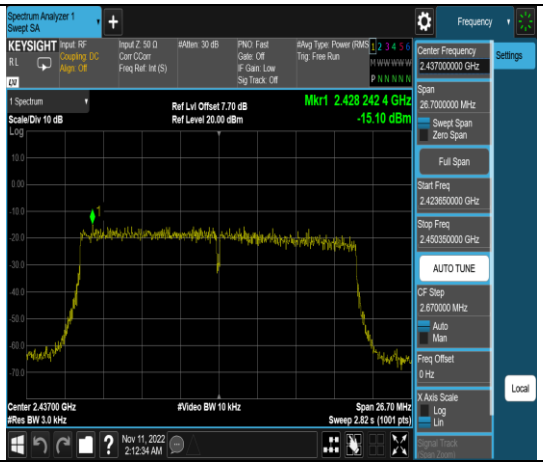
IEEE 802.11ax HE20 mode- chain 1	
Low CH full	**Low CH 26/0**
	
Low CH 52/37	**Low CH 106/53**
	
Mid CH full	
	

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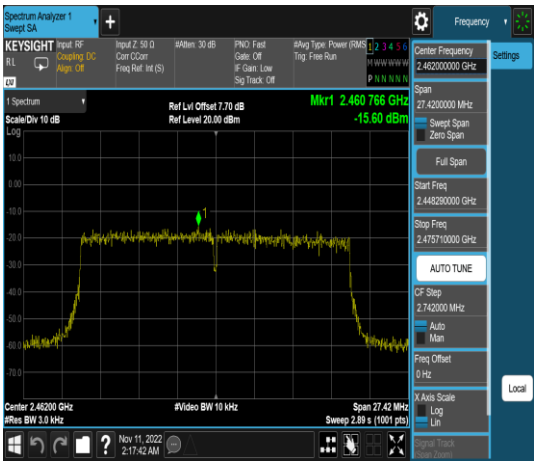
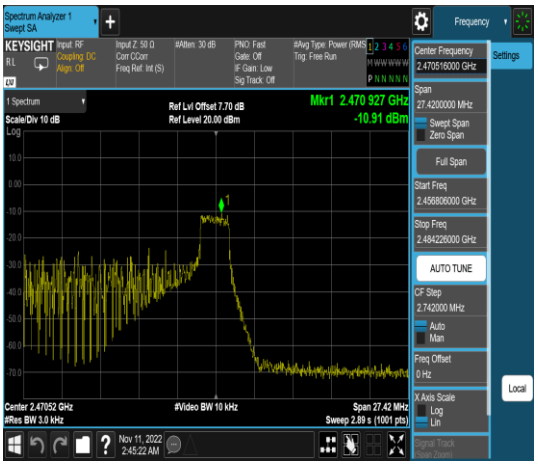
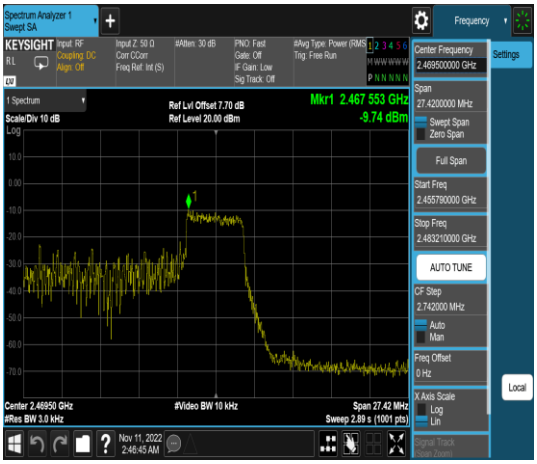
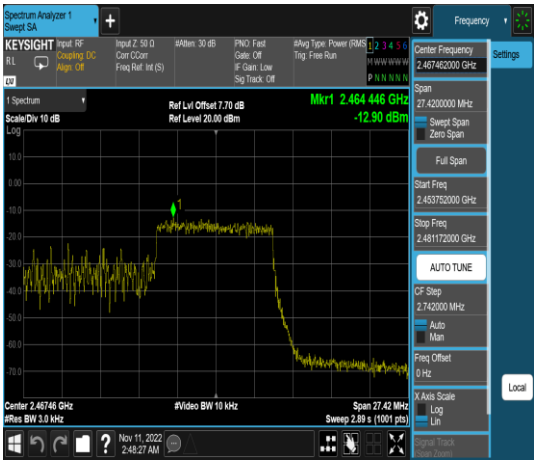
High CH full	High CH 26/8
	
High CH 52/40	**High CH 106/54**
	

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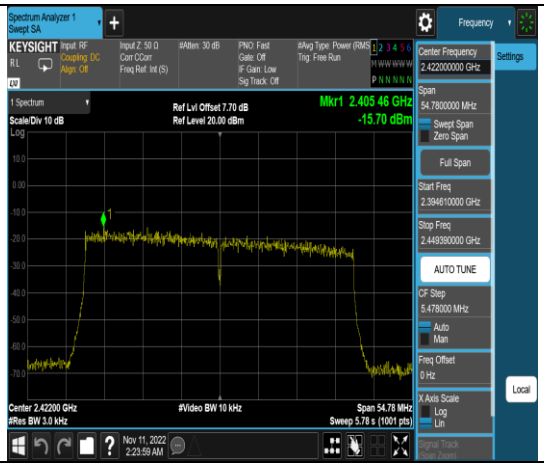
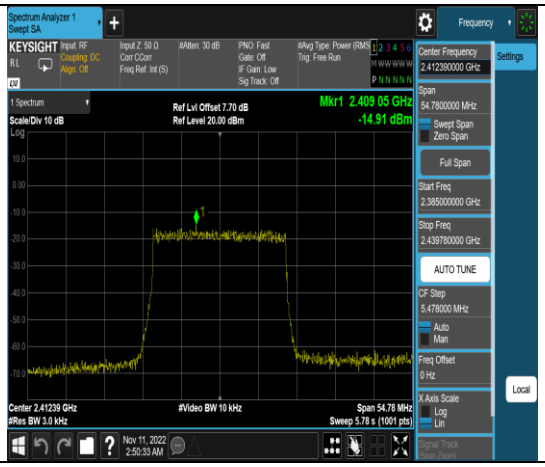
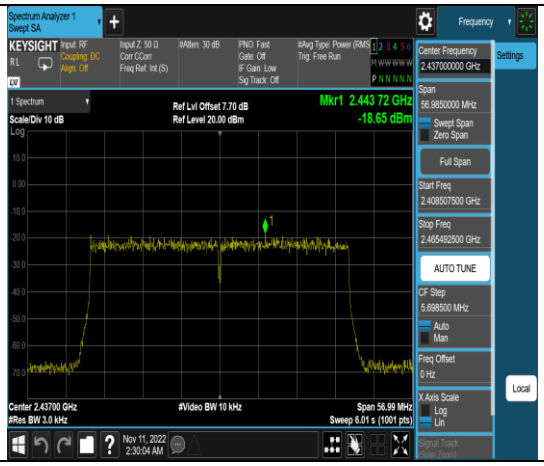
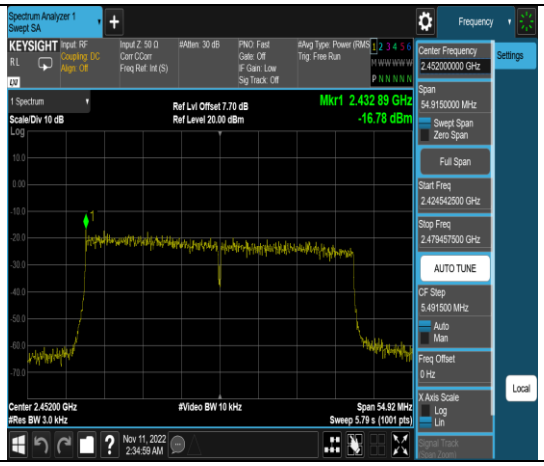
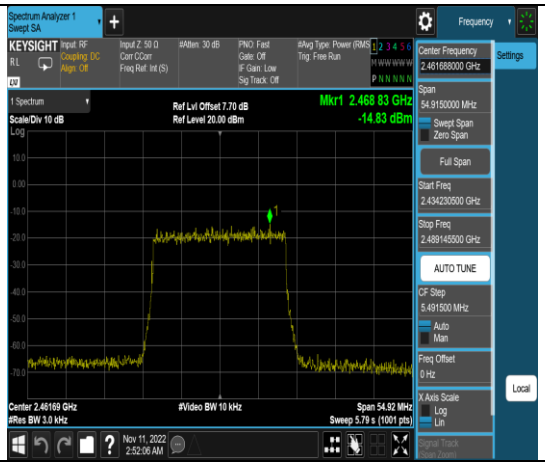
IEEE 802.11ax HE40 mode- chain 1	
Low CH full	**Low CH 242/61**
	
Mid CH full	
	
High CH full	**High CH 242/62**
	

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4.5 CONDUCTED BANDEDGE AND SPURIOUS EMISSION

4.5.1 Test Limit

According to §15.247(d), RSS-247 section 5.5,

In any 100 kHz bandwidth outside the authorized frequency band,

Non-restricted bands shall be attenuated at least 20 dB/30 dB relative to the maximum PSD level in 100 kHz by RF conducted or a radiated measurement which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a).

4.5.2 Test Procedure

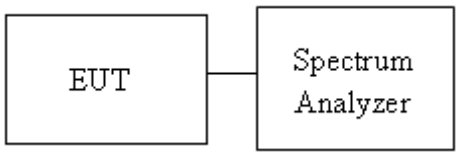
Test method Refer as ANSI C63.10:2013.

1. EUT RF output port connected to the SA by RF cable, and the path loss was compensated to result.

2. SA setting, RBW=100kHz, VBW=300kHz, Detector=Peak, Trace mode = max hold, SWT = Auto.

3. In any 100 kHz bandwidth outside the authorized frequency band, shall be attenuated at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when conducted power procedure is used. f the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

4.5.3 Test Setup



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