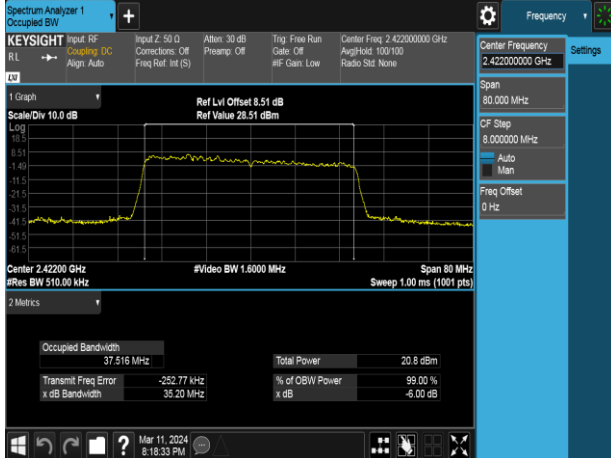
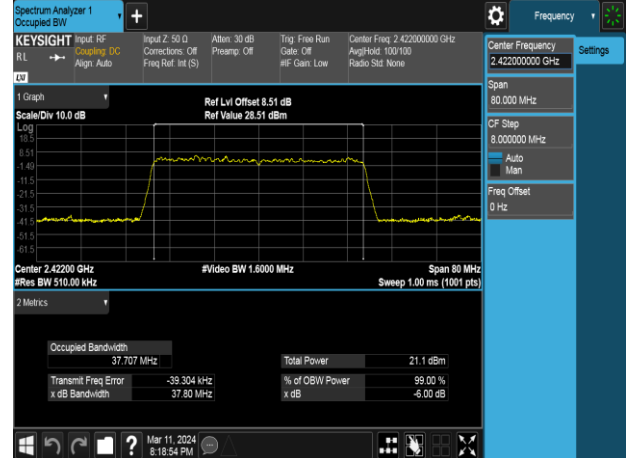


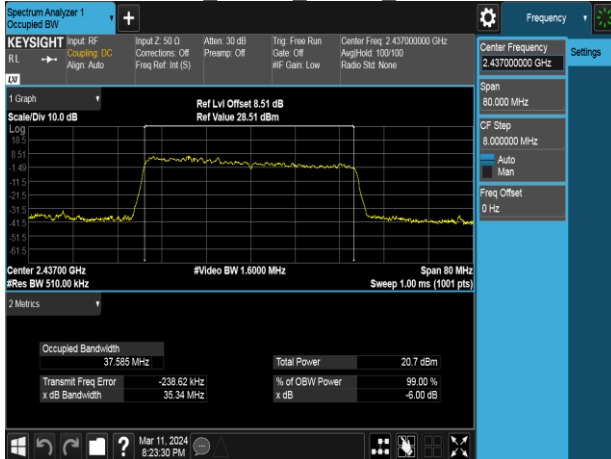
802.11ax 40MHz Chain0 2422MHz



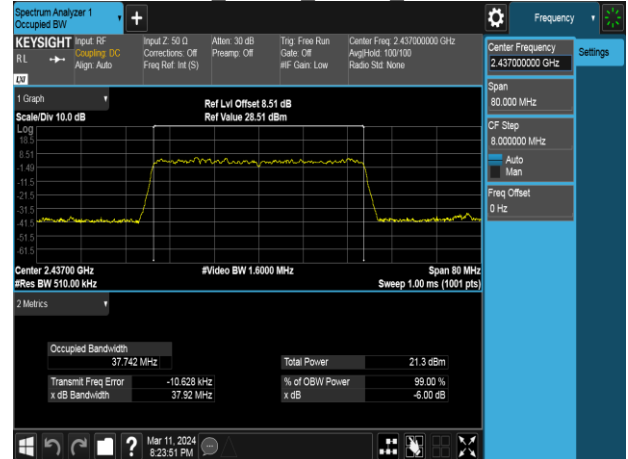
802.11ax 40MHz Chain1 2422MHz



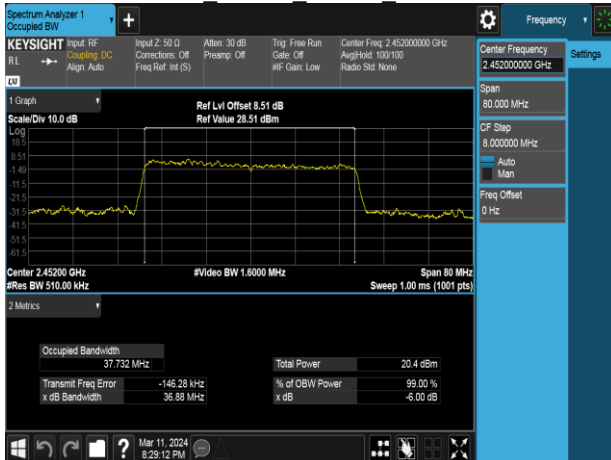
802.11ax 40MHz Chain0 2437MHz



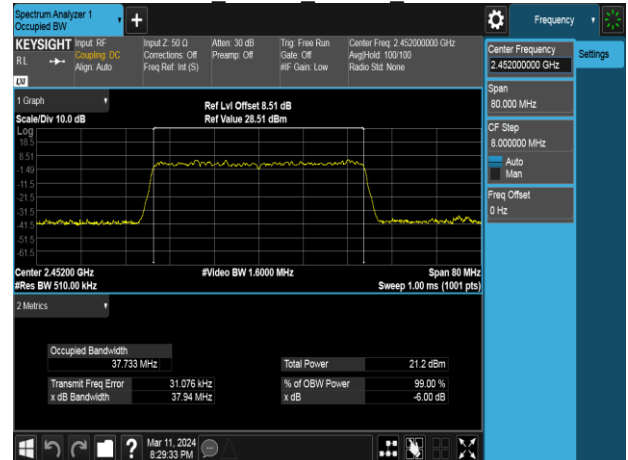
802.11ax 40MHz Chain1 2437MHz



802.11ax 40MHz Chain0 2452MHz



802.11ax 40MHz Chain1 2452MHz



### 4.3 OUTPUT POWER MEASUREMENT

#### 4.3.1 Test Limit

According to §15.247(b) and RSS-247 section 5.4(d)

**Peak output power :**

**For FCC:**

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.

**For IC:**

For DTSs employing digital modulation techniques operating in the bands 902-928 MHz and 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1 W. The e.i.r.p. shall not exceed 4 W, except as provided in section 5.4(e).

Limit	<input checked="" type="checkbox"/> Antenna not exceed 6 dBi : 30dBm <input type="checkbox"/> Antenna with DG greater than 6 dBi : [Limit = 30 – (DG – 6)] <input type="checkbox"/> Point-to-point operation :
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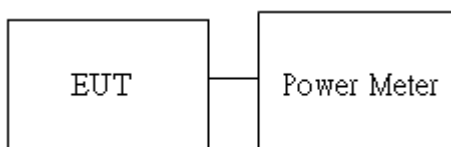
**Average output power :** For reporting purposes only.

#### 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



### 4.3.4 Test Result

Temperature: 16.6 ~ 23.8°C

Test date: January 23 ~ March 11, 2024

Humidity: 49 ~ 66% RH

Tested by: Marco Chan

#### Peak & Average output power :

802.11b_2TX								
CH	Freq. (MHz)	Data Rate	Power Setting	Peak Output Power (dBm)		Total Peak Output Power (dBm)	Limit (dBm)	RESULT
				Ch0	Ch1			
1	2412	1	17.5	17.14	17.28	20.22	30.00	PASS
6	2437	1	18.5	17.42	17.90	<b>20.68</b>	30.00	PASS
11	2462	1	18.5	17.37	17.46	20.43	30.00	PASS
802.11b_2TX								
CH	Freq. (MHz)	Data Rate	Power Setting	Avg. Output Power (dBm)		Total Avg. Output Power (dBm)	Limit (dBm)	RESULT
				Ch0	Ch1			
1	2412	1	17.5	15.36	15.55	18.47	30.00	PASS
6	2437	1	18.5	15.25	15.82	<b>18.56</b>	30.00	PASS
11	2462	1	18.5	15.03	15.59	18.33	30.00	PASS

802.11g_2TX								
CH	Freq. (MHz)	Data Rate	Power Setting	Peak Output Power (dBm)		Total Peak Output Power (dBm)	Limit (dBm)	RESULT
				Ch0	Ch1			
1	2412	6	18	24.23	25.04	27.66	30.00	PASS
6	2437	6	18.5	24.68	25.12	<b>27.92</b>	30.00	PASS
11	2462	6	19	24.50	25.03	27.78	30.00	PASS
802.11g_2TX								
CH	Freq. (MHz)	Data Rate	Power Setting	Avg. Output Power (dBm)		Total Avg. Output Power (dBm)	Limit (dBm)	RESULT
				Ch0	Ch1			
1	2412	6	18	14.73	15.48	18.13	30.00	PASS
6	2437	6	18.5	14.99	15.42	<b>18.22</b>	30.00	PASS
11	2462	6	19	14.68	15.46	18.10	30.00	PASS

802.11n_HT20M_2TX								
CH	Freq. (MHz)	Data Rate	Power Setting	Peak Output Power (dBm)		Total Peak Output Power (dBm)	Limit (dBm)	RESULT
				Ch0	Ch1			
1	2412	MCS0	16	22.95	25.15	27.20	30.00	PASS
6	2437	MCS0	17	23.15	25.15	<b>27.27</b>	30.00	PASS
11	2462	MCS0	17.5	23.06	25.04	27.17	30.00	PASS

802.11n_HT20M_2TX								
CH	Freq. (MHz)	Data Rate	Power Setting	Avg. Output Power (dBm)		Total Avg. Output Power (dBm)	Limit (dBm)	RESULT
				Ch0	Ch1			
1	2412	MCS0	16	14.25	15.13	17.72	30.00	PASS
6	2437	MCS0	17	14.44	15.01	17.74	30.00	PASS
11	2462	MCS0	17.5	14.37	15.11	<b>17.76</b>	30.00	PASS

802.11n_HT40M_2TX								
CH	Freq. (MHz)	Data Rate	Power Setting	Peak Output Power (dBm)		Total Peak Output Power (dBm)	Limit (dBm)	RESULT
				Ch0	Ch1			
3	2422	MCS0	15	23.64	24.22	26.95	30.00	PASS
6	2437	MCS0	15.5	23.52	24.34	<b>26.96</b>	30.00	PASS
9	2452	MCS0	16	23.49	24.15	26.84	30.00	PASS

802.11n_HT40M_2TX								
CH	Freq. (MHz)	Data Rate	Power Setting	Avg. Output Power (dBm)		Total Avg. Output Power (dBm)	Limit (dBm)	RESULT
				Ch0	Ch1			
3	2422	MCS0	15	13.44	14.07	16.78	30.00	PASS
6	2437	MCS0	15.5	13.48	14.41	<b>16.98</b>	30.00	PASS
9	2452	MCS0	16	13.33	14.20	16.80	30.00	PASS

802.11ac_VHT20M_2TX								
CH	Freq. (MHz)	Data Rate	Power Setting	Peak Output Power (dBm)		Total Peak Output Power (dBm)	Limit (dBm)	RESULT
				Ch0	Ch1			
1	2412	MCS0	17.5	25.00	25.63	28.34	30.00	PASS
6	2437	MCS0	18	25.10	25.64	28.39	30.00	PASS
11	2462	MCS0	19	25.14	25.75	<b>28.47</b>	30.00	PASS

802.11ac_VHT20M_2TX								
CH	Freq. (MHz)	Data Rate	Power Setting	Avg. Output Power (dBm)		Total Avg. Output Power (dBm)	Limit (dBm)	RESULT
				Ch0	Ch1			
1	2412	MCS0	17.5	14.83	15.49	<b>18.18</b>	30.00	PASS
6	2437	MCS0	18	14.71	15.35	18.05	30.00	PASS
11	2462	MCS0	19	14.83	15.43	18.15	30.00	PASS

802.11ac_VHT40M_2TX								
CH	Freq. (MHz)	Data Rate	Power Setting	Peak Output Power (dBm)		Total Peak Output Power (dBm)	Limit (dBm)	RESULT
				Ch0	Ch1			
3	2422	MCS0	16	23.91	24.68	27.32	30.00	PASS
6	2437	MCS0	16.5	24.07	24.97	27.55	30.00	PASS
9	2452	MCS0	17	24.43	24.98	<b>27.72</b>	30.00	PASS

802.11ac_VHT40M_2TX								
CH	Freq. (MHz)	Data Rate	Power Setting	Avg. Output Power (dBm)		Total Avg. Output Power (dBm)	Limit (dBm)	RESULT
				Ch0	Ch1			
3	2422	MCS0	16	14.10	14.42	<b>17.28</b>	30.00	PASS
6	2437	MCS0	16.5	13.76	14.50	17.16	30.00	PASS
9	2452	MCS0	17	13.87	14.46	17.19	30.00	PASS

Report No.: TMWK2401000128KR

802.11ax_HE20M_2TX									
CH	Freq. (MHz)	Data Rate	RU Config	Power Setting	Peak Output Power (dBm)		Total Peak Output Power (dBm)	Limit (dBm)	RESULT
					Ch0	Ch1			
1	2412	MCS0	full	17	24.42	25.25	27.87	30.00	PASS
			26/0	17	24.25	25.36	27.85	30.00	PASS
			52/37	16	23.72	25.02	27.43	30.00	PASS
			106/53	16	24.22	25.24	27.77	30.00	PASS
6	2437	MCS0	full	18	24.55	25.22	<b>27.91</b>	30.00	PASS
11	2462	MCS0	full	18.5	24.50	25.06	27.80	30.00	PASS
			26/8	17	23.38	25.42	27.53	30.00	PASS
			52/40	17	23.64	25.15	27.47	30.00	PASS
			106/54	16.5	23.56	25.51	27.65	30.00	PASS
802.11ax_HE20M_2TX									
CH	Freq. (MHz)	Data Rate	RU Config	Power Setting	Avg. Output Power (dBm)		Total Avg. Output Power (dBm)	Limit (dBm)	RESULT
					Ch0	Ch1			
1	2412	MCS0	full	17	14.66	15.46	<b>18.09</b>	30.00	PASS
			26/0	17	13.35	14.81	17.16	30.00	PASS
			52/37	16	14.00	15.55	17.85	30.00	PASS
			106/53	16	14.50	15.13	17.84	30.00	PASS
6	2437	MCS0	full	18	14.63	15.39	18.04	30.00	PASS
11	2462	MCS0	full	18.5	14.61	15.31	17.98	30.00	PASS
			26/8	17	11.45	12.63	15.09	30.00	PASS
			52/40	17	14.20	14.39	17.30	30.00	PASS
			106/54	16.5	13.32	13.73	16.54	30.00	PASS

802.11ax_HE40M_2TX									
CH	Freq. (MHz)	Data Rate	RU Config	Power Setting	Peak Output Power (dBm)		Total Peak Output Power (dBm)	Limit (dBm)	RESULT
					Ch0	Ch1			
3	2422	MCS0	full	15.5	23.79	24.39	27.11	30.00	PASS
			242/61	15	23.71	24.22	26.98	30.00	PASS
6	2437	MCS0	full	16	23.81	24.46	<b>27.16</b>	30.00	PASS
9	2452	MCS0	full	16.5	23.63	24.20	26.93	30.00	PASS
			242/62	15.5	23.05	23.82	26.46	30.00	PASS
802.11ax_HE40M_2TX									
CH	Freq. (MHz)	Data Rate	RU Config	Power Setting	Avg. Output Power (dBm)		Total Avg. Output Power (dBm)	Limit (dBm)	RESULT
					Ch0	Ch1			
3	2422	MCS0	full	15.5	13.73	14.39	17.08	30.00	PASS
			242/61	15	13.65	14.35	17.03	30.00	PASS
6	2437	MCS0	full	16	13.74	14.52	<b>17.16</b>	30.00	PASS
9	2452	MCS0	full	16.5	13.68	14.28	17.00	30.00	PASS
			242/62	15.5	13.05	13.94	16.53	30.00	PASS



**EIRP Power :**

802.11b_2TX									
CH	Freq. (MHz)	Data Rate	Avg. Output Power (dBm)		Total Avg. Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	RESULT
			Ch0	Ch1					
1	2412	1	15.36	15.55	18.47	-4.35	14.12	36	PASS
6	2437	1	15.25	15.82	18.56	-4.35	<b>14.20</b>	36	PASS
11	2462	1	15.03	15.59	18.33	-4.35	13.98	36	PASS

802.11g_2TX									
CH	Freq. (MHz)	Data Rate	Avg. Output Power (dBm)		Total Avg. Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	RESULT
			Ch0	Ch1					
1	2412	6	14.73	15.48	18.13	-4.35	13.78	36	PASS
6	2437	6	14.99	15.42	18.22	-4.35	<b>13.87</b>	36	PASS
11	2462	6	14.68	15.46	18.10	-4.35	13.75	36	PASS

802.11n_HT20M_2TX									
CH	Freq. (MHz)	Data Rate	Avg. Output Power (dBm)		Total Avg. Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	RESULT
			Ch0	Ch1					
1	2412	MCS0	14.25	15.13	17.72	-4.35	13.37	36	PASS
6	2437	MCS0	14.44	15.01	17.74	-4.35	13.39	36	PASS
11	2462	MCS0	14.37	15.11	17.76	-4.35	<b>13.41</b>	36	PASS

802.11n_HT40M_2TX									
CH	Freq. (MHz)	Data Rate	Avg. Output Power (dBm)		Total Avg. Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	RESULT
			Ch0	Ch1					
3	2422	MCS0	13.44	14.07	16.78	-4.35	12.43	36	PASS
6	2437	MCS0	13.48	14.41	16.98	-4.35	<b>12.63</b>	36	PASS
9	2452	MCS0	13.33	14.20	16.80	-4.35	12.45	36	PASS

802.11ac_VHT20M_2TX									
CH	Freq. (MHz)	Data Rate	Avg. Output Power (dBm)		Total Avg. Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	RESULT
			Ch0	Ch1					
1	2412	MCS0	14.83	15.49	18.18	-4.35	<b>13.83</b>	36	PASS
6	2437	MCS0	14.71	15.35	18.05	-4.35	13.70	36	PASS
11	2462	MCS0	14.83	15.43	18.15	-4.35	13.79	36	PASS

802.11ac_VHT40M_2TX									
CH	Freq. (MHz)	Data Rate	Avg. Output Power (dBm)		Total Avg. Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	RESULT
			Ch0	Ch1					
3	2422	MCS0	14.10	14.42	17.28	-4.35	<b>12.92</b>	36	PASS
6	2437	MCS0	13.76	14.50	17.16	-4.35	12.81	36	PASS
9	2452	MCS0	13.87	14.46	17.19	-4.35	12.84	36	PASS

802.11ax_HE20M_2TX										
CH	Freq. (MHz)	Data Rate	RU Config	Avg. Output Power (dBm)		Total Avg. Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit	RESULT
				Ch0	Ch1					
1	2412	MCS0	full	14.66	15.46	18.09	-4.35	<b>13.74</b>	36	PASS
			26/0	13.35	14.81	17.16	-4.35	12.80	36	PASS
			52/37	14.00	15.55	17.85	-4.35	13.50	36	PASS
			106/53	14.50	15.13	17.84	-4.35	13.49	36	PASS
6	2437	MCS0	full	14.63	15.39	18.04	-4.35	13.68	36	PASS
11	2462	MCS0	full	14.61	15.31	17.98	-4.35	13.63	36	PASS
			26/8	11.45	12.63	15.09	-4.35	10.74	36	PASS
			52/40	14.20	14.39	17.30	-4.35	12.95	36	PASS
			106/54	13.32	13.73	16.54	-4.35	12.19	36	PASS

802.11ax_HE40M_2TX										
CH	Freq. (MHz)	Data Rate	RU Config	Avg. Output Power (dBm)		Total Avg. Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit	RESULT
				Ch0	Ch1					
3	2422	MCS0	full	13.73	14.39	17.08	-4.35	12.73	36	PASS
			242/61	13.65	14.35	17.03	-4.35	12.68	36	PASS
6	2437	MCS0	full	13.74	14.52	17.16	-4.35	<b>12.80</b>	36	PASS
9	2452	MCS0	full	13.68	14.28	17.00	-4.35	12.64	36	PASS
			242/62	13.05	13.94	16.53	-4.35	12.18	36	PASS

## 4.4 POWER SPECTRAL DENSITY

### 4.4.1 Test Limit

According to §15.247(e) and RSS-247 section 5.2(b)

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.

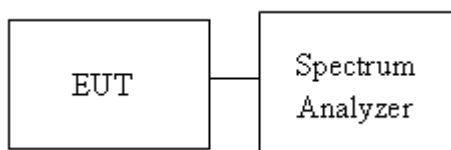
Limit	<input checked="" type="checkbox"/> Antenna not exceed 6 dBi : 8dBm <input type="checkbox"/> Antenna with DG greater than 6 dBi : [ Limit = 8 – (DG – 6) ] <input type="checkbox"/> Point-to-point operation :
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### 4.4.2 Test Procedure

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



### 4.4.4 Test Result

**Temperature:** 16.6 ~ 23.8°C

**Test date:** January 23 ~ March 11, 2024

**Humidity:** 49 ~ 66% RH

**Tested by:** Marco Chan

POWER DENSITY 802.11b					
Freq. (MHz)	Ch0 PSD	Ch1 PSD	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
2412	-9.72	-9.29	-6.49	8.00	PASS
2437	-9.03	-9.04	-6.02	8.00	PASS
2462	-10	-9.74	-6.86	8.00	PASS

POWER DENSITY 802.11g					
Freq. (MHz)	Ch0 PSD	Ch1 PSD	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
2412	-11.9	-11.6	-8.75	8.00	PASS
2437	-11.9	-12.2	-9.07	8.00	PASS
2462	-13.7	-12.6	-10.10	8.00	PASS

POWER DENSITY 802.11ac VHT20					
Freq. (MHz)	Ch0 PSD	Ch1 PSD	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
2412	-11.5	-11.5	-8.50	8.00	PASS
2437	-12.1	-11	-8.49	8.00	PASS
2462	-11.7	-11.5	-8.56	8.00	PASS

POWER DENSITY 802.11ac VHT40					
Freq. (MHz)	Ch0 PSD	Ch1 PSD	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
2422	-14.7	-15.6	-12.15	8.00	PASS
2437	-14.5	-14.1	-11.26	8.00	PASS
2452	-15.7	-15	-12.34	8.00	PASS

POWER DENSITY 802.11ax HE20						
Freq. (MHz)	RU Config	Ch0 PSD	Ch1 PSD	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
2412	full	-12.9	-12.2	-9.53	8.00	PASS
2437	full	-12.5	-11.7	-9.07	8.00	PASS
2462	full	-13.6	-12.2	-9.83	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	-14.7	-16.9	-12.62	8.00	PASS
2437	full	-14.9	-16.7	-12.72	8.00	PASS
2452	full	-15.3	-16.4	-12.77	8.00	PASS

## Test Data

802.11b 20MHz Chain0 2412MHz



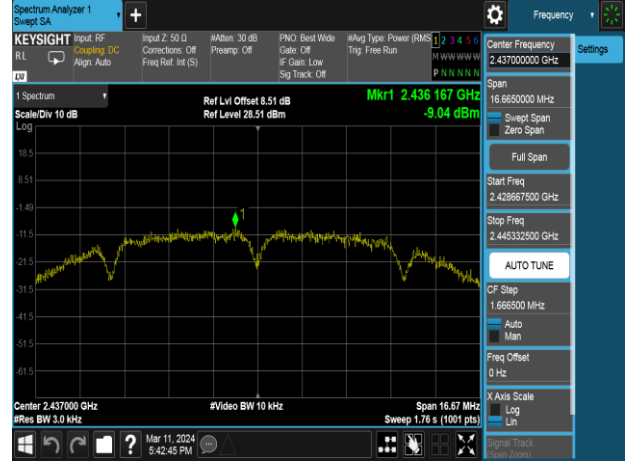
802.11b 20MHz Chain1 2412MHz



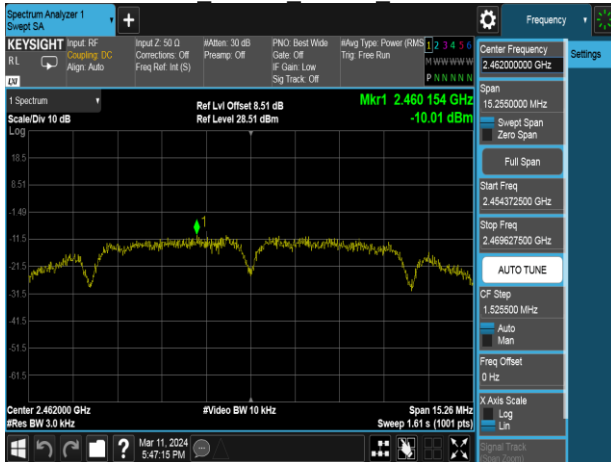
802.11b 20MHz Chain0 2437MHz



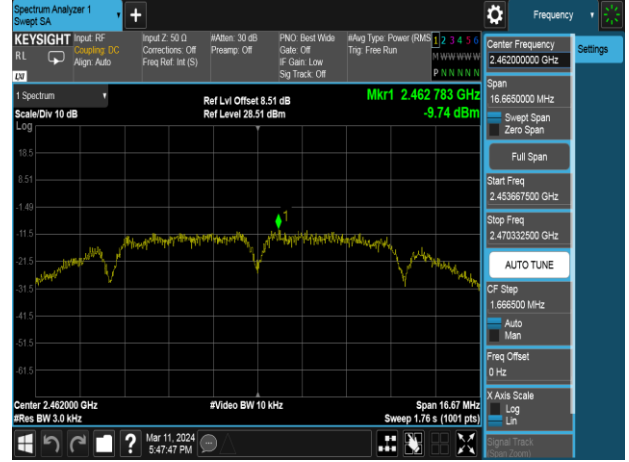
802.11b 20MHz Chain1 2437MHz



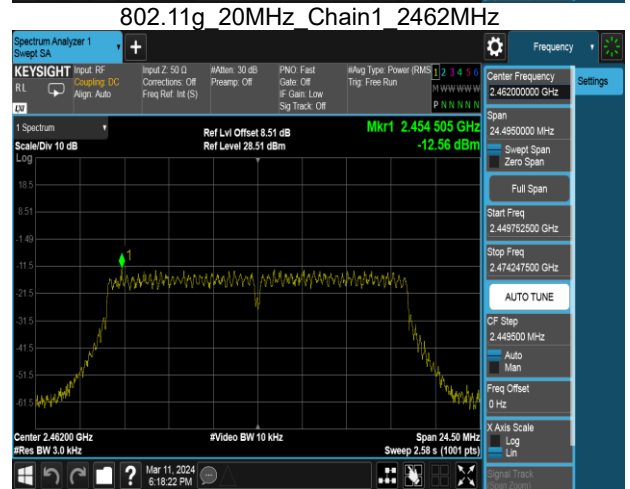
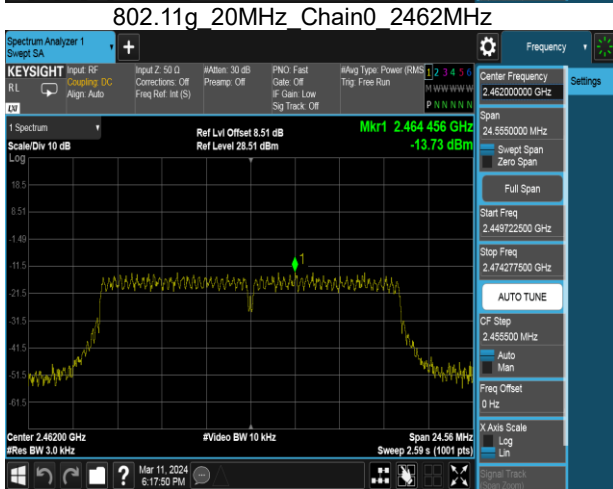
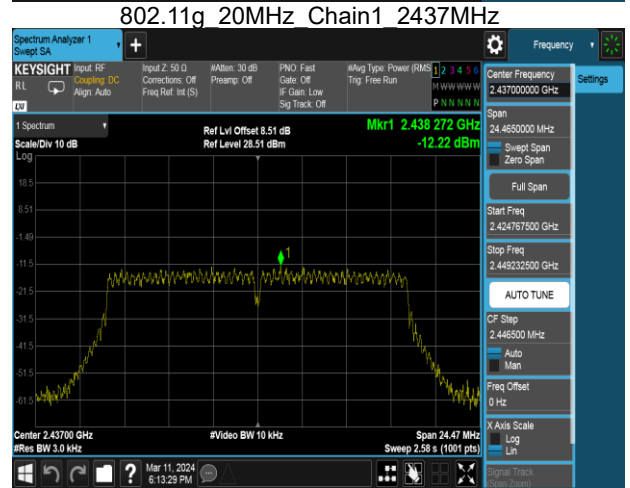
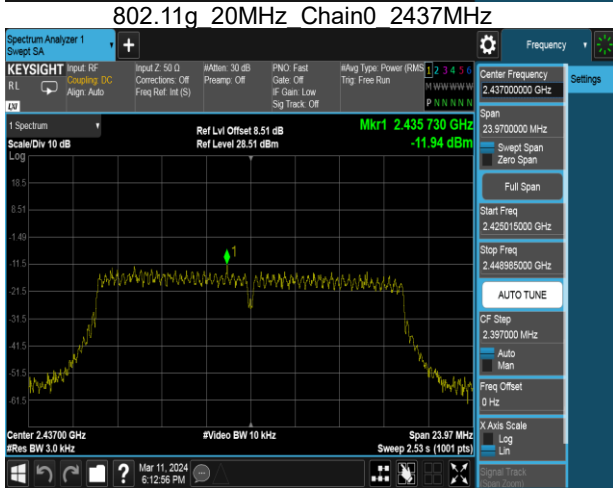
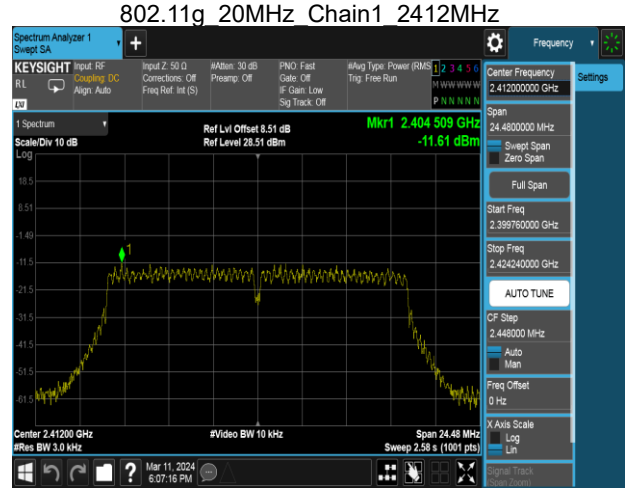
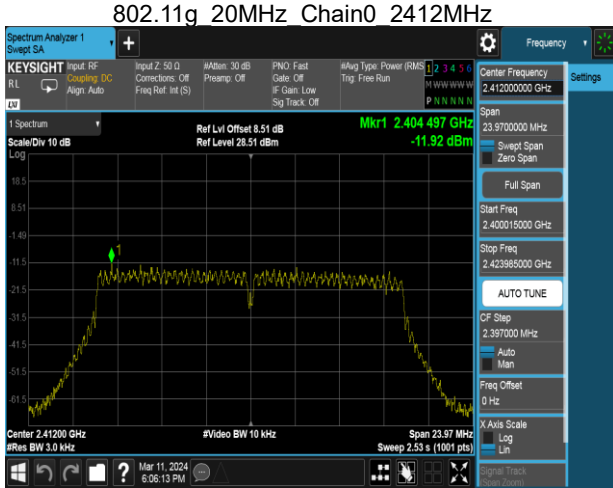
802.11b 20MHz Chain0 2462MHz



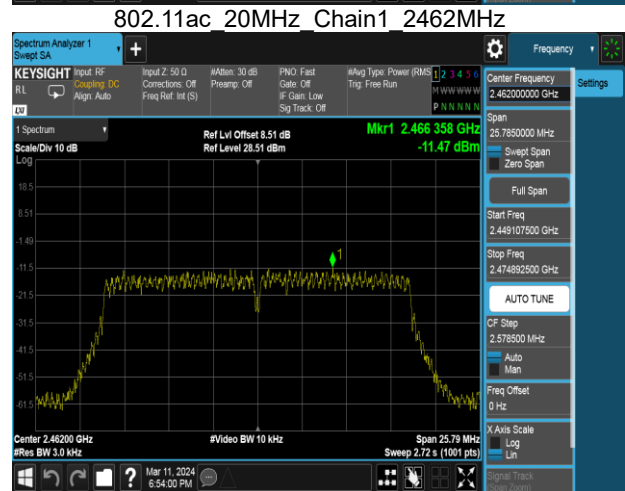
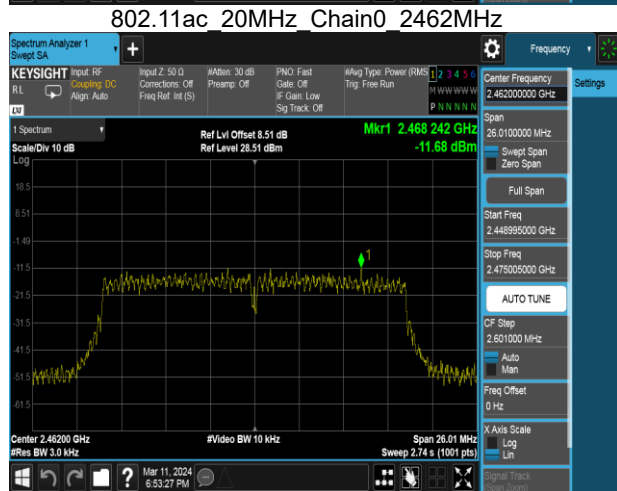
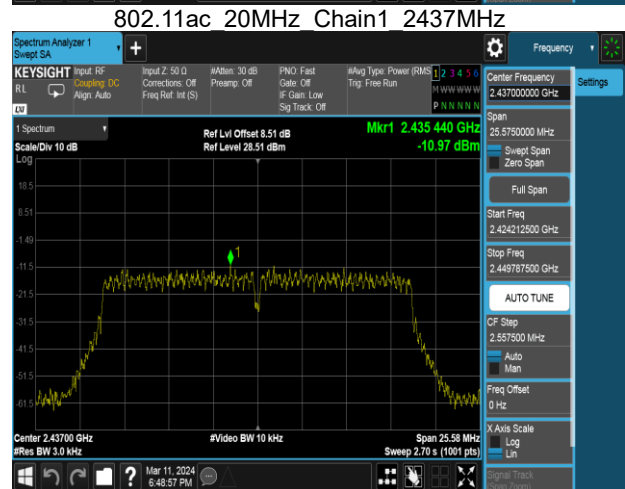
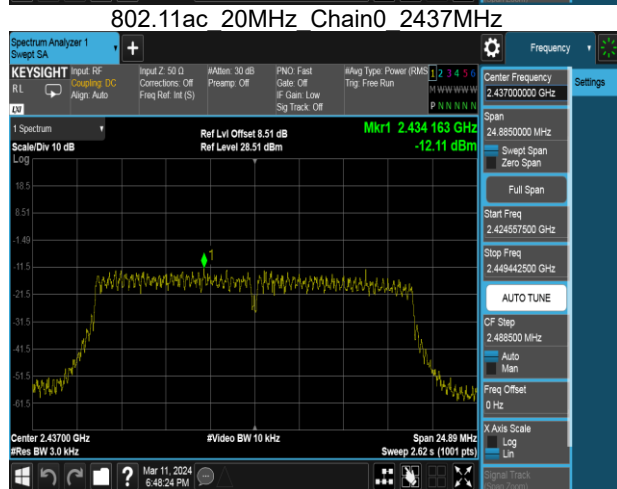
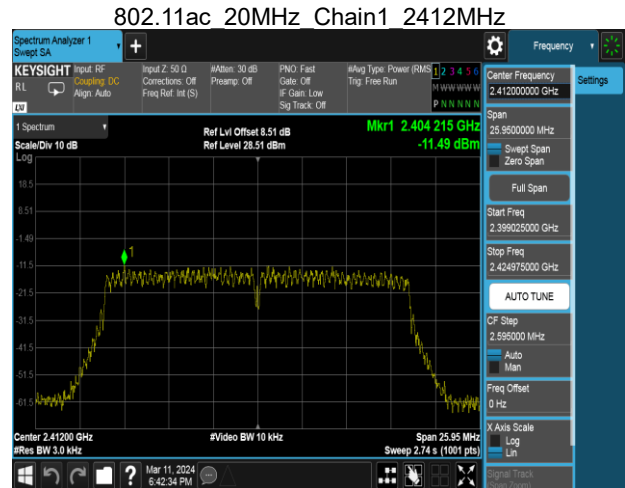
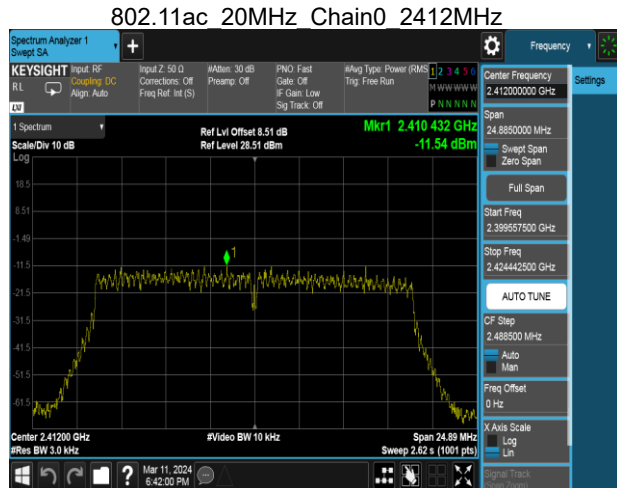
802.11b 20MHz Chain1 2462MHz



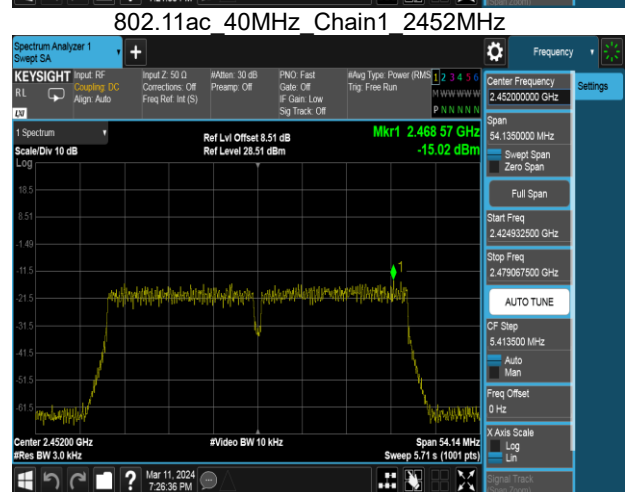
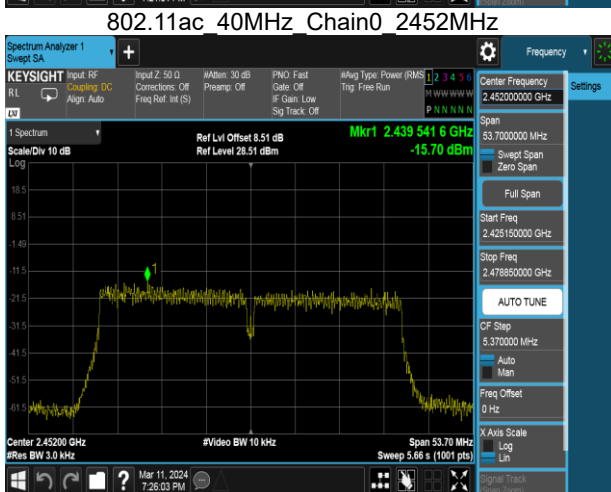
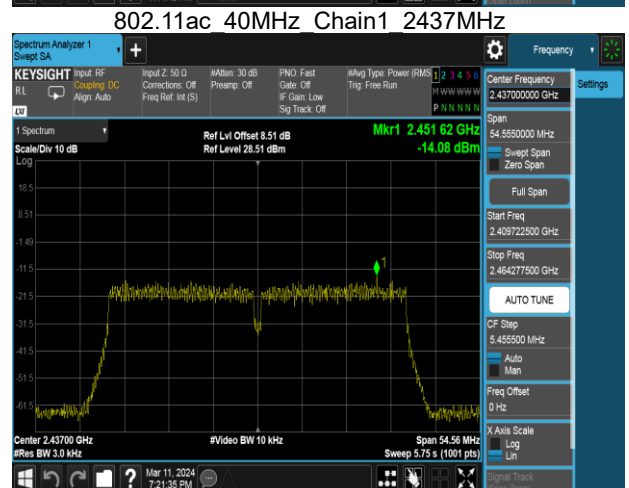
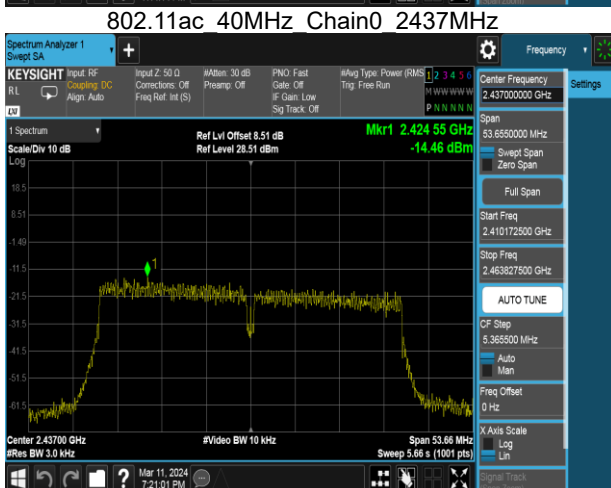
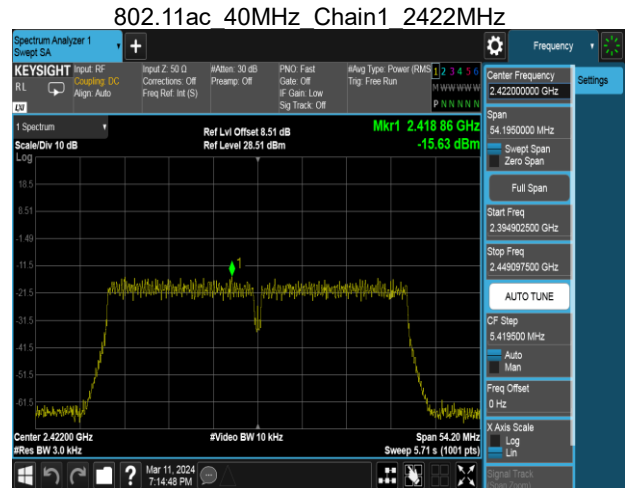
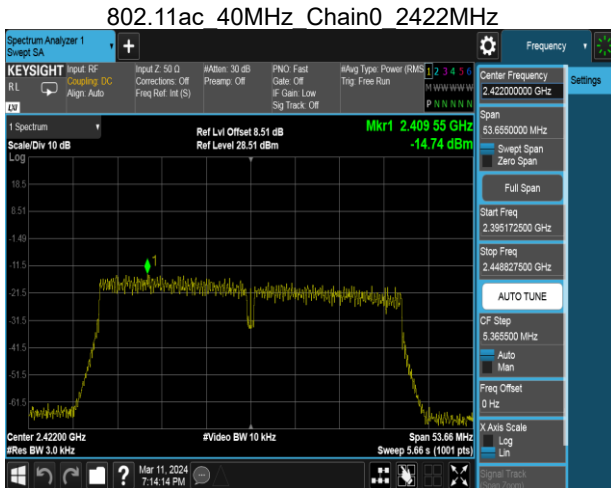
Report No.: TMWK2401000128KR



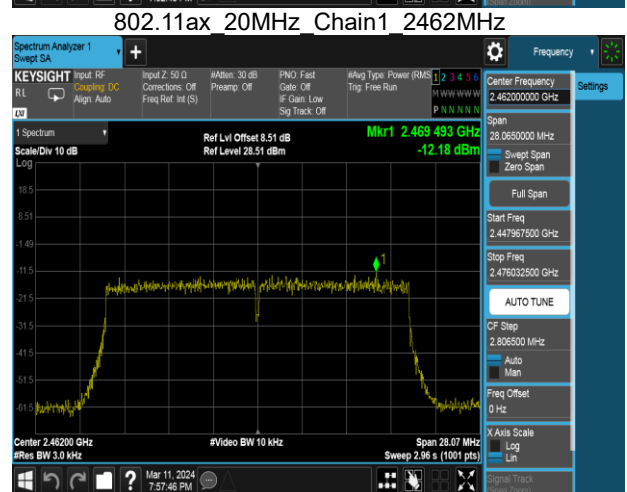
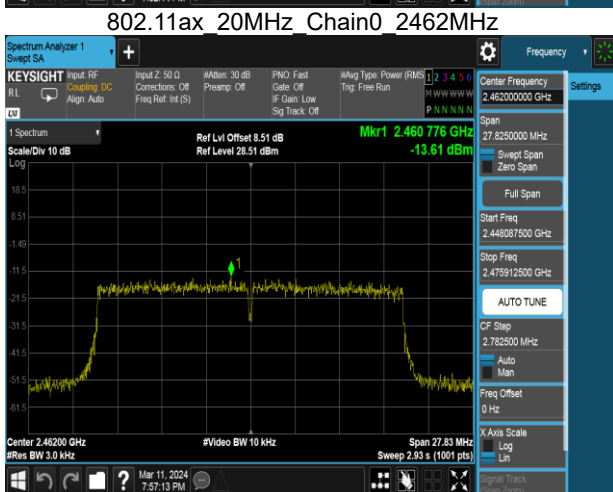
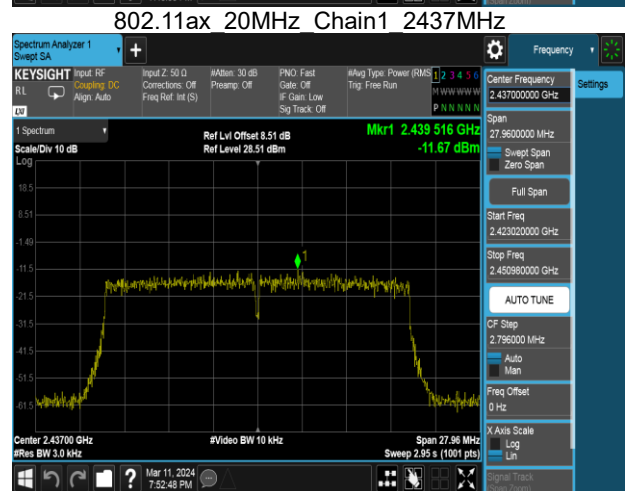
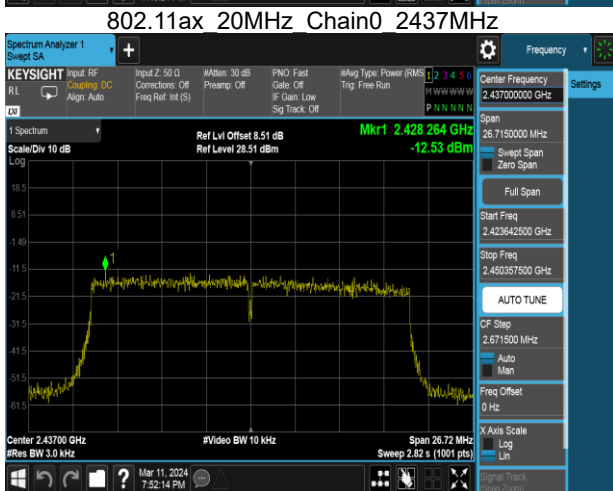
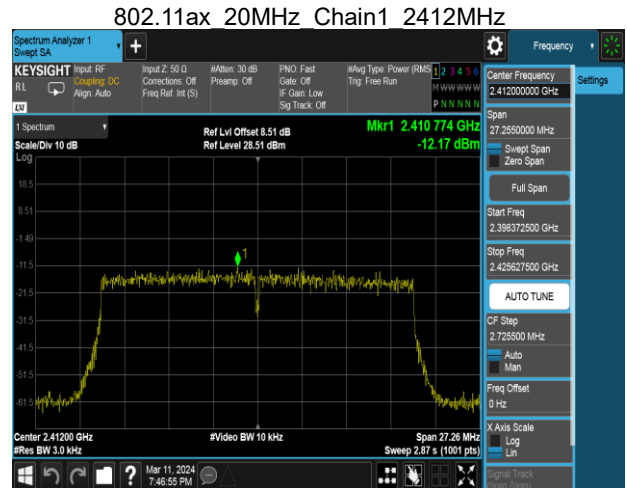
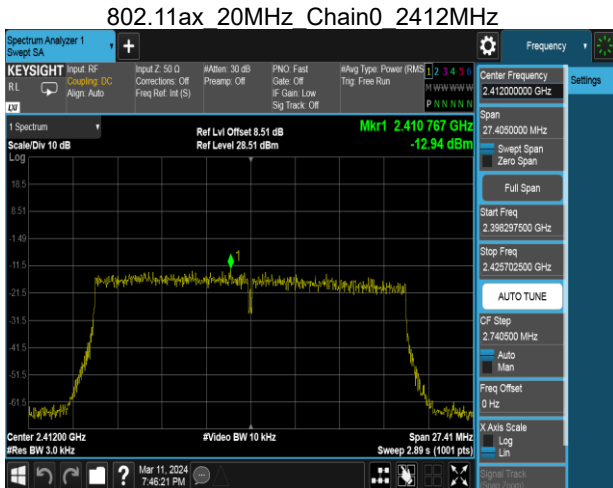


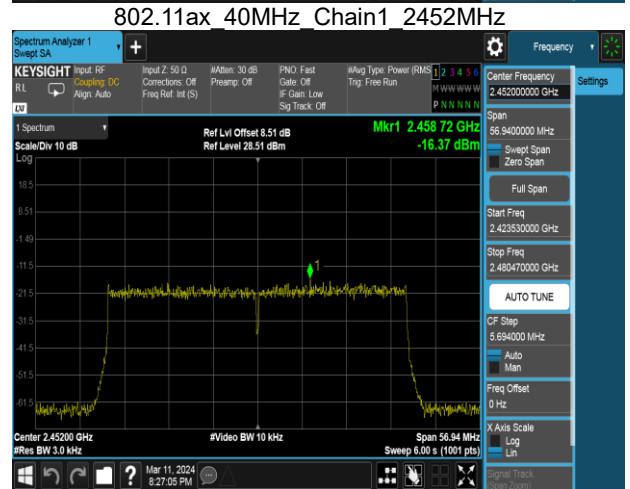
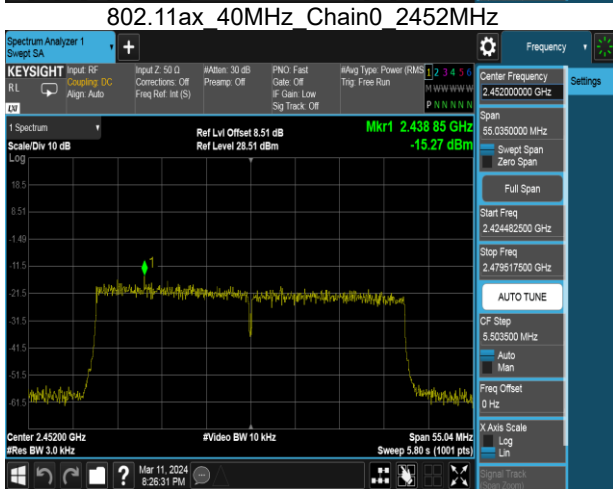
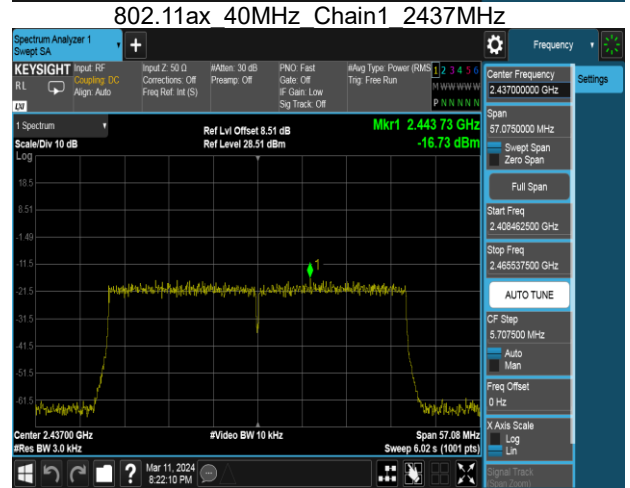
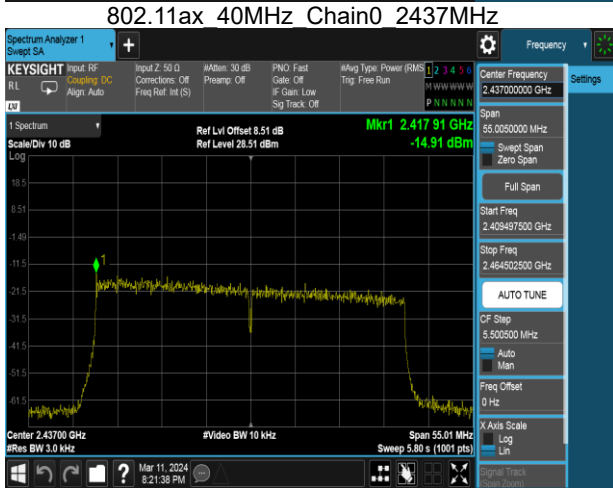
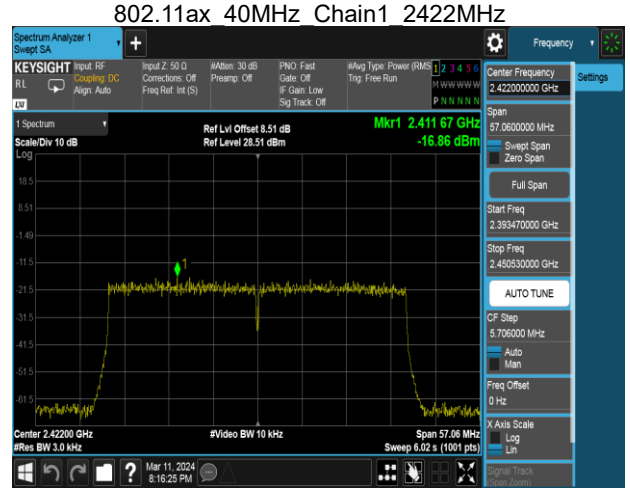
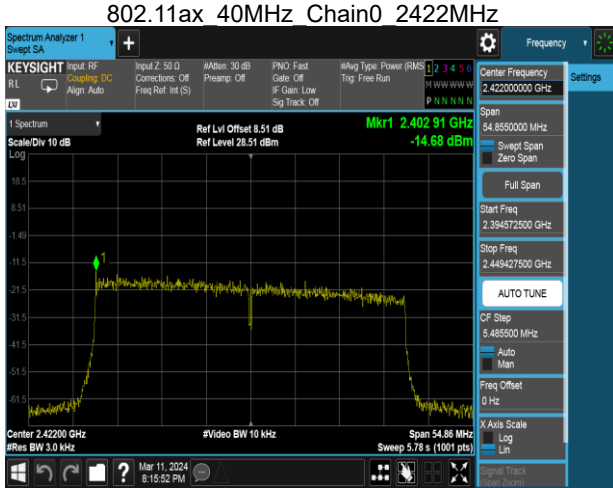


Report No.: TMWK2401000128KR



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## 4.5 CONDUCTED BANEDGE AND SPURIOUS EMISSION

### 4.5.1 Test Limit

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

In any 100 kHz bandwidth outside the authorized frequency band,

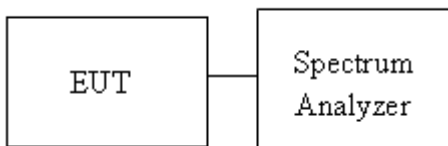
Non-restricted bands shall be attenuated at least 20 dB/30 dB relative to the maximum PSD level in 100 kHz by RF conducted or a radiated measurement which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a).

### 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. If 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



### 4.5.4 Test Result

#### Test Data

**Temperature:** 16.6 ~ 23.8°C

**Test date:** January 23 ~ March 11, 2024

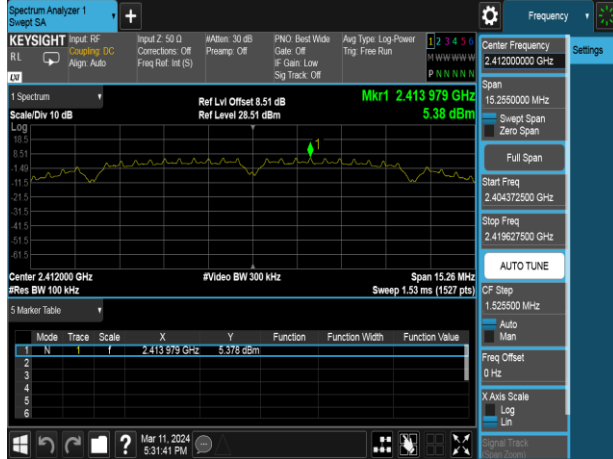
**Humidity:** 49 ~ 66% RH

**Tested by:** Marco Chan

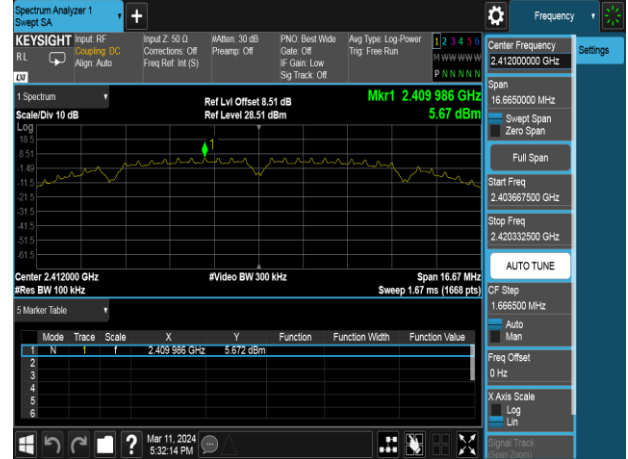
Report No.: TMWK2401000128KR

## Reference Level

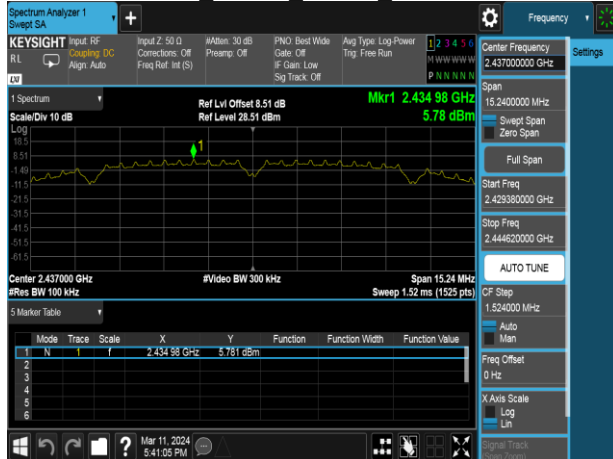
802.11b 20MHz Chain0 2412MHz



802.11b 20MHz Chain1 2412MHz



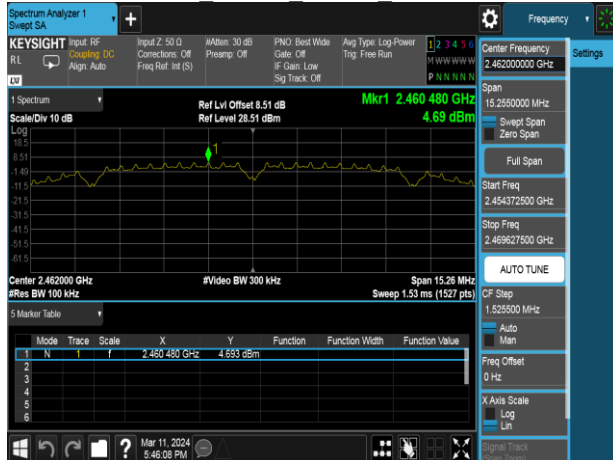
802.11b 20MHz Chain0 2437MHz



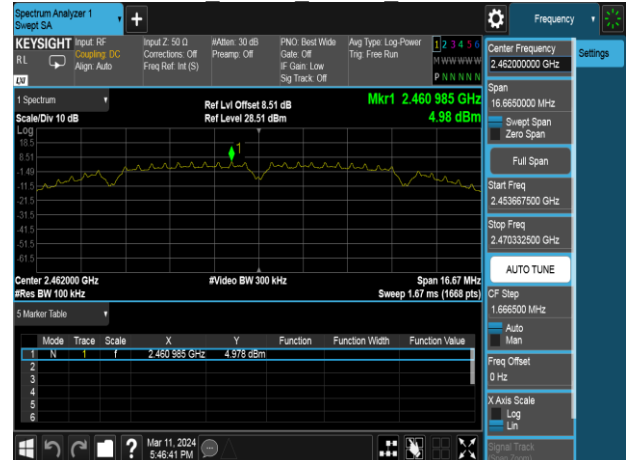
802.11b 20MHz Chain1 2437MHz



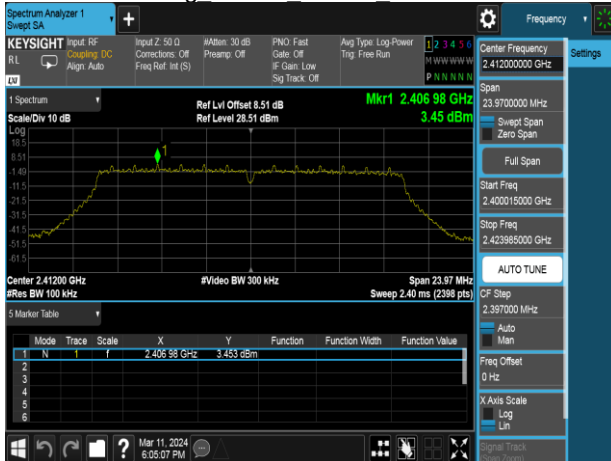
802.11b 20MHz Chain0 2462MHz



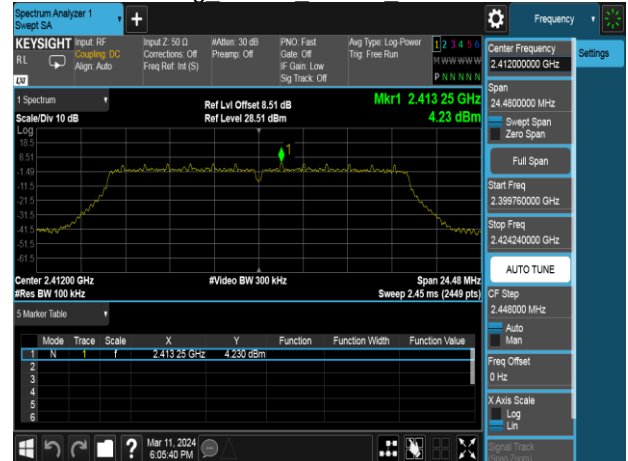
802.11b 20MHz Chain1 2462MHz



802.11g 20MHz Chain0 2412MHz



802.11g 20MHz Chain1 2412MHz



802.11g 20MHz Chain0 2437MHz



802.11g 20MHz Chain1 2437MHz



802.11g 20MHz Chain0 2462MHz



802.11g 20MHz Chain1 2462MHz

