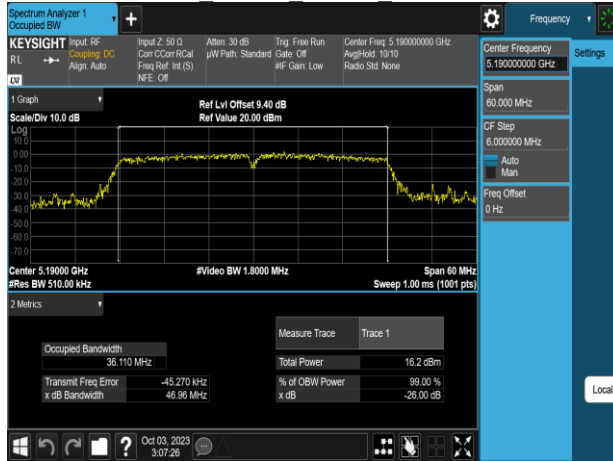
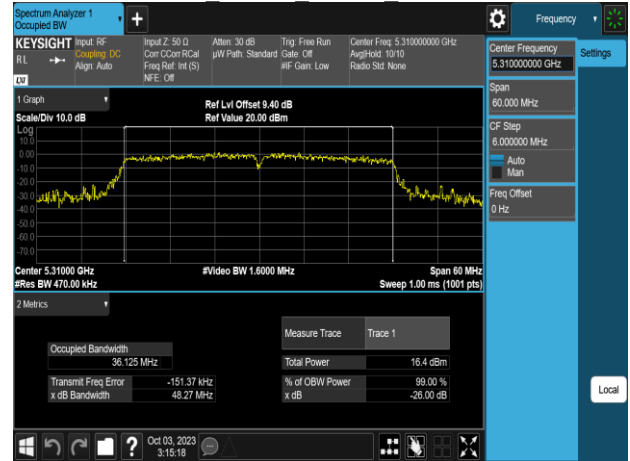


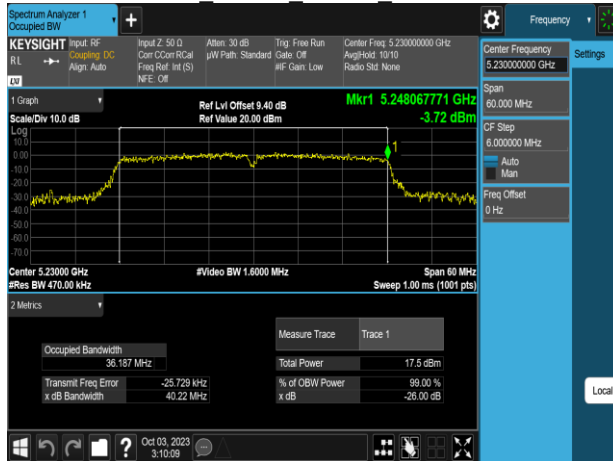
802.11n 40MHz Chain0 5190MHz



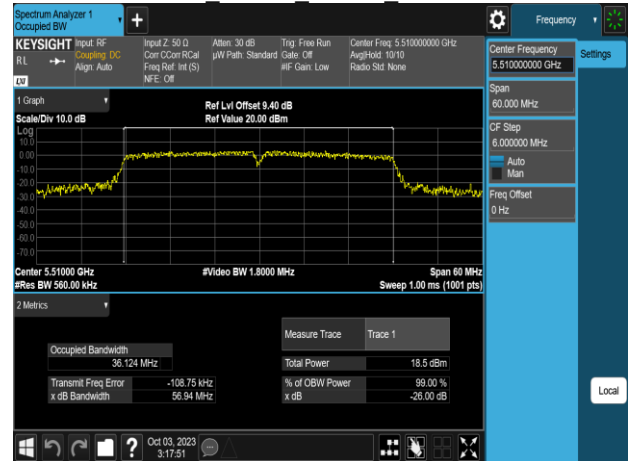
802.11n 40MHz Chain0 5310MHz



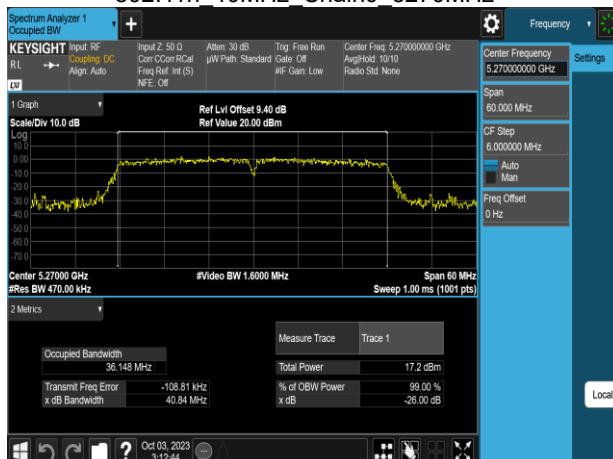
802.11n 40MHz Chain0 5230MHz



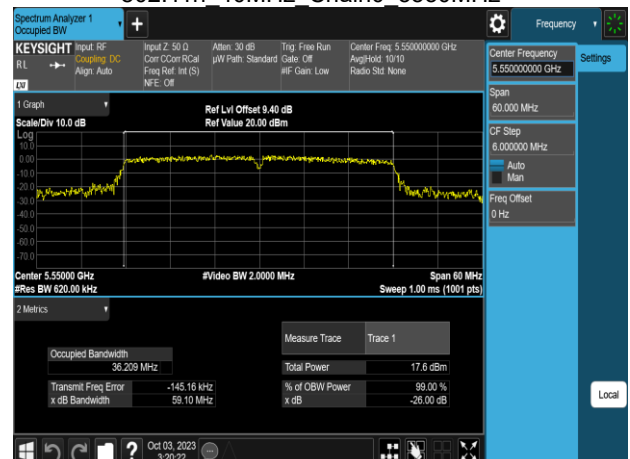
802.11n 40MHz Chain0 5510MHz



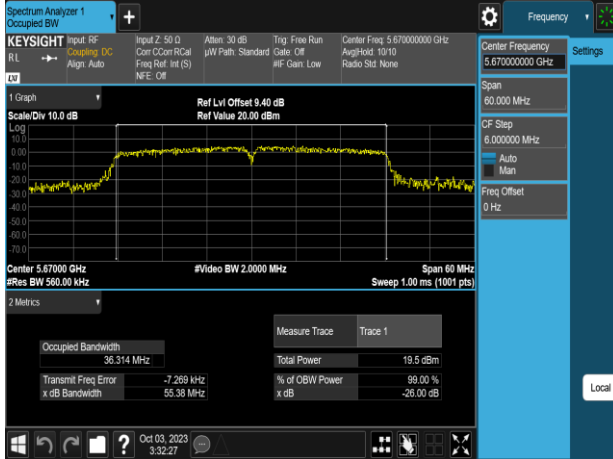
802.11n 40MHz Chain0 5270MHz



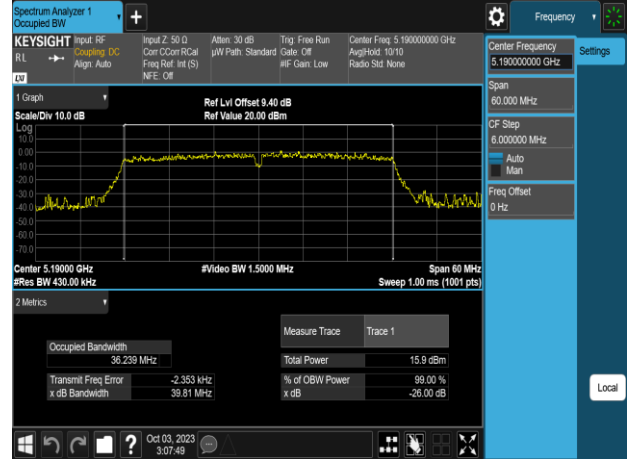
802.11n 40MHz Chain0 5550MHz



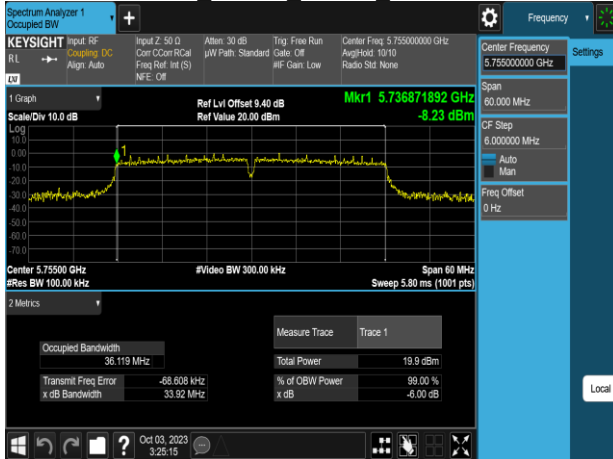
802.11n 40MHz Chain0 5670MHz



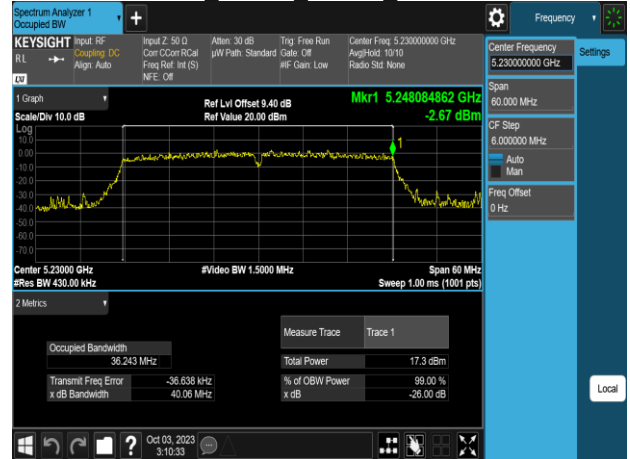
802.11n 40MHz Chain1 5190MHz



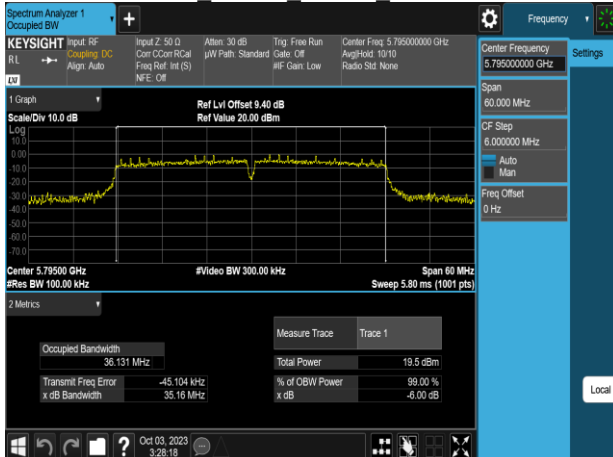
802.11n 40MHz Chain0 5755MHz



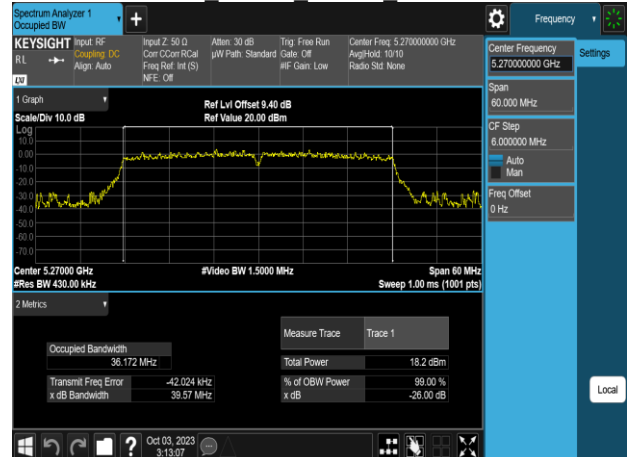
802.11n 40MHz Chain1 5230MHz



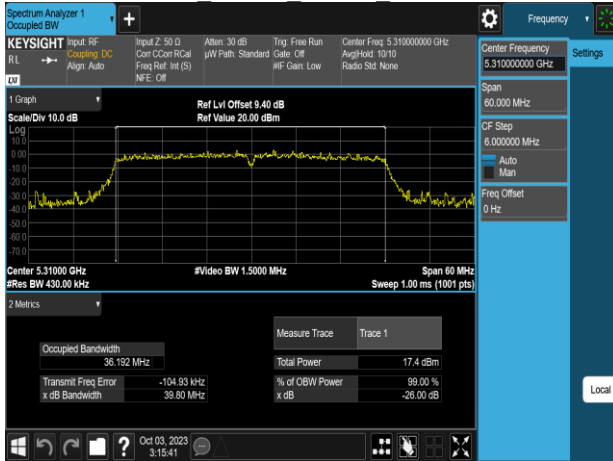
802.11n 40MHz Chain0 5795MHz



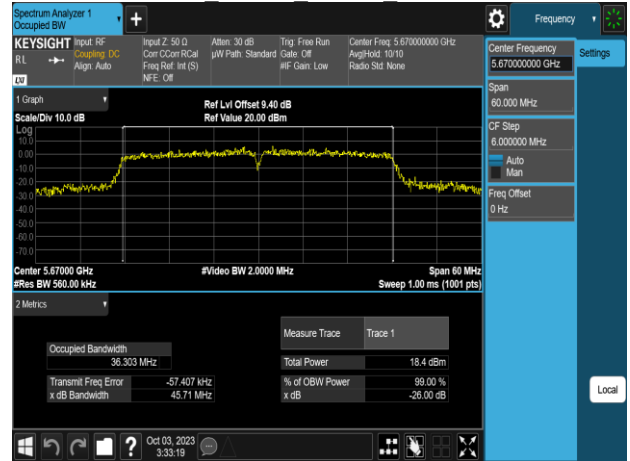
802.11n 40MHz Chain1 5270MHz



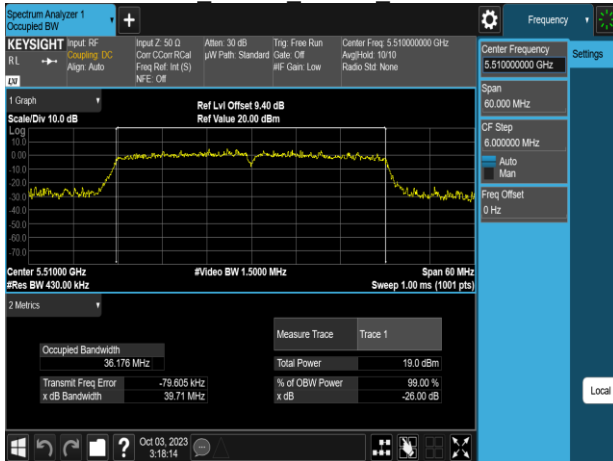
802.11n 40MHz Chain1 5310MHz



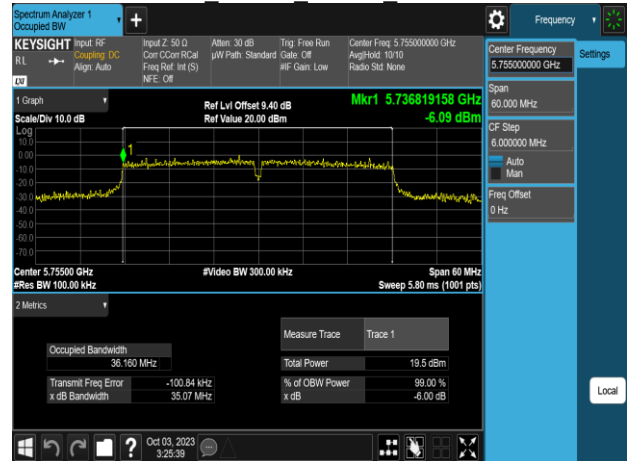
802.11n 40MHz Chain1 5670MHz



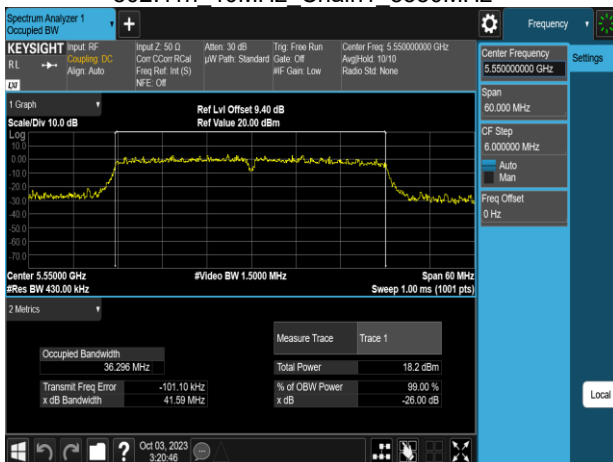
802.11n 40MHz Chain1 5510MHz



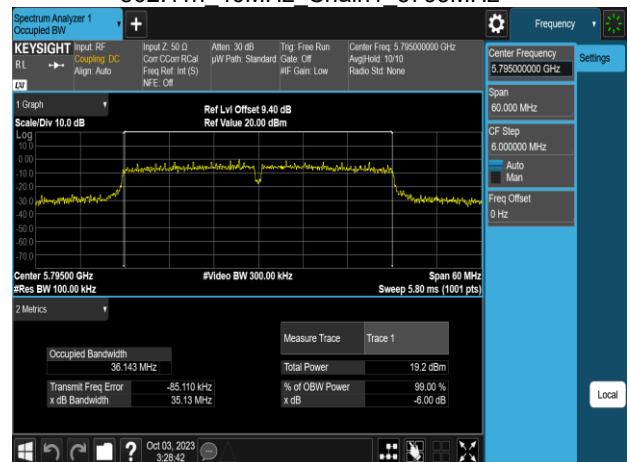
802.11n 40MHz Chain1 5755MHz



802.11n 40MHz Chain1 5550MHz



802.11n 40MHz Chain1 5795MHz

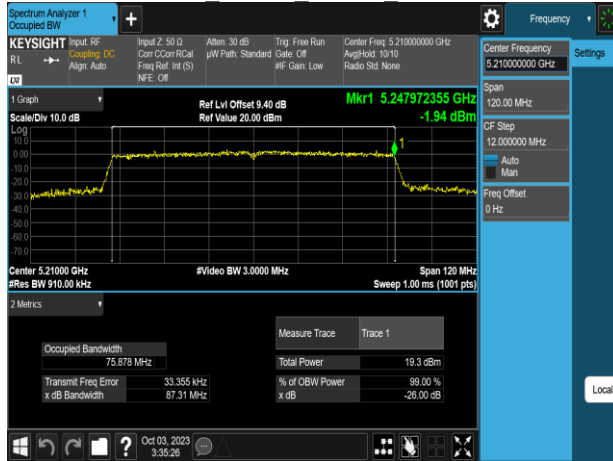




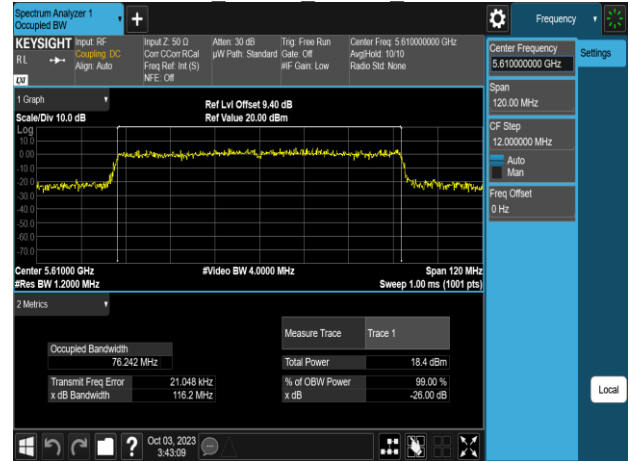
Report No.: TMWK2309003421KR

Page: 57 / 221
Rev.: 01

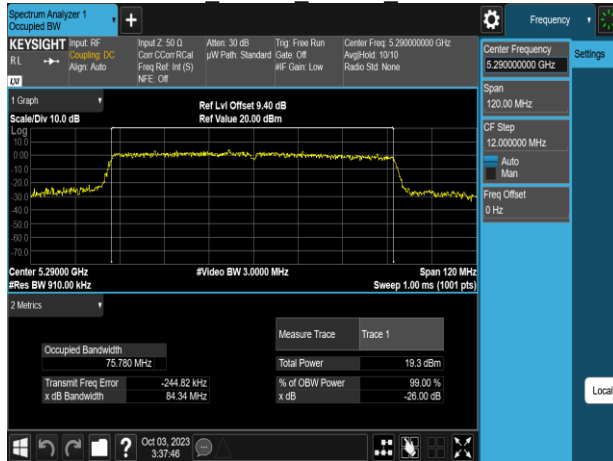
802.11ac 80MHz Chain0 5210MHz



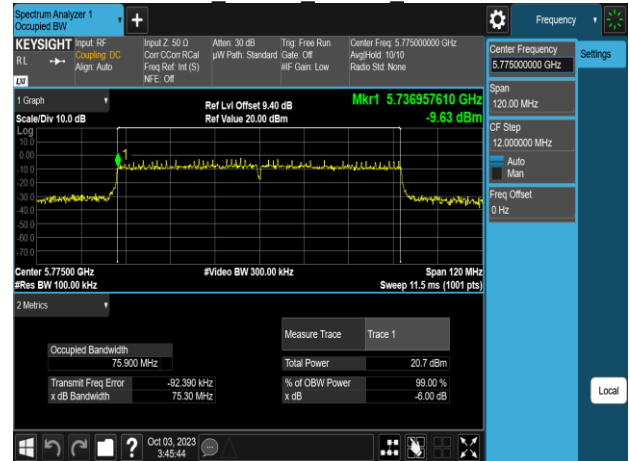
802.11ac 80MHz Chain0 5610MHz



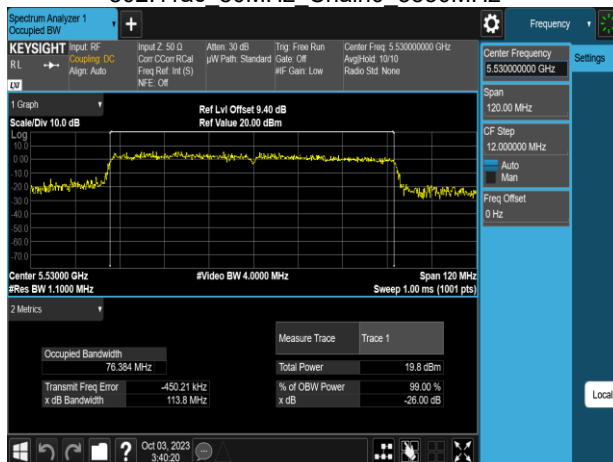
802.11ac 80MHz Chain0 5290MHz



802.11ac 80MHz Chain0 5775MHz



802.11ac 80MHz Chain0 5530MHz

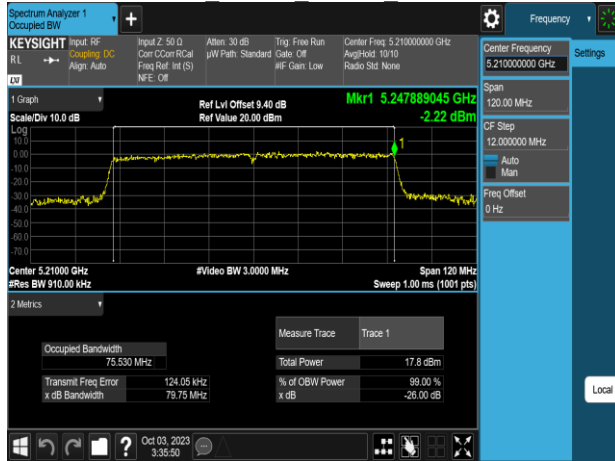




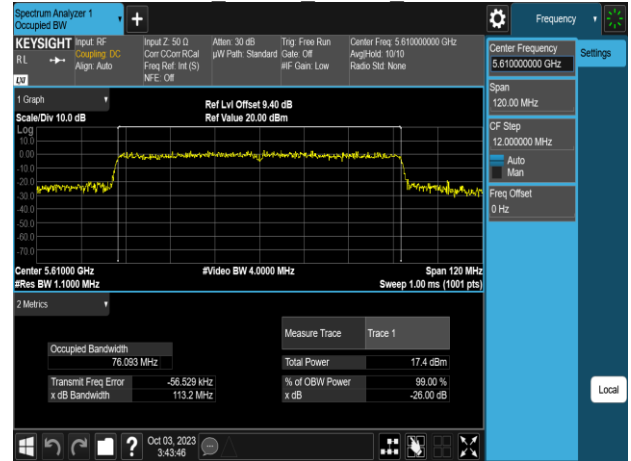
Report No.: TMWK2309003421KR

Page: 58 / 221
Rev.: 01

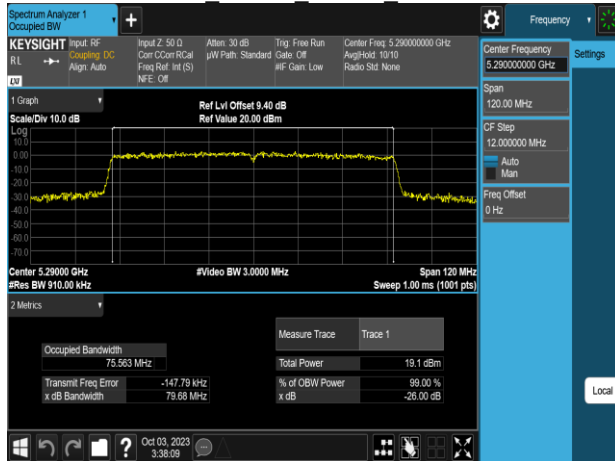
802.11ac 80MHz Chain1 5210MHz



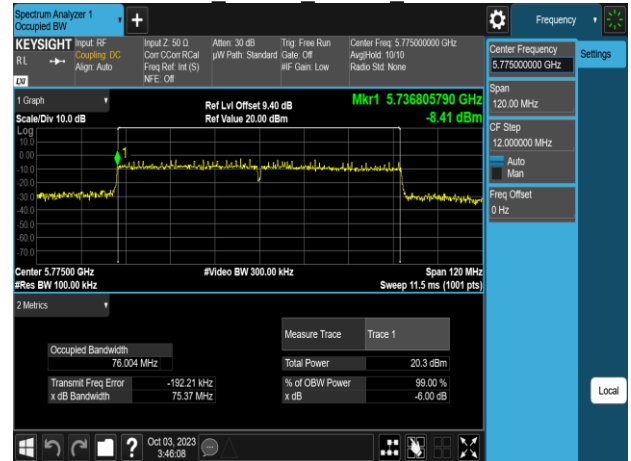
802.11ac 80MHz Chain1 5610MHz



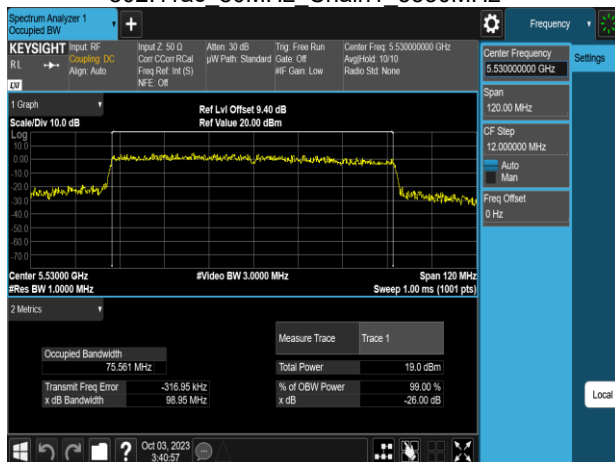
802.11ac 80MHz Chain1 5290MHz



802.11ac 80MHz Chain1 5775MHz



802.11ac 80MHz Chain1 5530MHz



4.3 OUTPUT POWER MEASUREMENT

4.3.1 Test Limit

According to §15.407 (a)(1), 15.407(a)(2) and 15.407(a)(3)

UNII-1 :

The maximum conducted output power over the frequency band of operation shall not exceed 250 mW (24 dBm), whichever power is less. B is the 99% emission bandwidth in megahertz, provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

UNII-2a and 2c:

the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

UNII-3:

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

UNII-1 Limit	☒ Antenna not exceed 6 dBi : 24dBm ☐ Antenna with DG greater than 6 dBi : [Limit = 24 – (DG – 6)]
UNII-2a/2c Limit	☒ Antenna not exceed 6 dBi : 24dBm ☐ Antenna with DG greater than 6 dBi : [Limit = 24 – (DG – 6)]
UNII-3 Limit	☒ Antenna not exceed 6 dBi : 30dBm ☐ Antenna with DG greater than 6 dBi : [Limit = 30 – (DG – 6)]

According to RSS-247 section 6.2.1.1, section 6.2.2.1, section 6.2.3.1 and section 6.2.4.1

UNII-1 :

For OEM devices installed in vehicles, the maximum e.i.r.p. shall not exceed 30 mW or $1.76 + 10 \log_{10} B$, dBm, whichever is less. Devices shall implement transmitter power control (TPC) in order to have the capability to operate at least 3 dB below the maximum permitted e.i.r.p. of 30 mW.

For other devices, the maximum e.i.r.p. shall not exceed 200 mW or $10 + 10 \log_{10} B$, dBm, whichever power is less. B is the 99% emission bandwidth in megahertz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

UNII-2a and 2c:

For OEM devices installed in vehicles, the maximum e.i.r.p. shall not exceed 30 mW or $1.76 + 10 \log_{10} B$, dBm, whichever is less. Devices shall implement TPC in order to have the capability to operate at least 3 dB below the maximum permitted e.i.r.p. of 30 mW.

Devices, other than devices installed in vehicles, shall comply with the following:

The maximum conducted output power shall not exceed 250 mW or $11 + 10 \log_{10} B$, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band;

The maximum e.i.r.p. shall not exceed 1.0 W or $17 + 10 \log_{10} B$, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

UNII-2c (5470-5600 MHz and 5650-5725 MHz)

The maximum conducted output power shall not exceed 250 mW or $11 + 10 \log_{10} B$, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.

The maximum e.i.r.p. shall not exceed 1.0 W or $17 + 10 \log_{10} B$, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

UNII-3:

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

UNII-1 Limit	☒ 200mW or $10 + 10 \log_{10} B$ for IC ☐ Antenna with DG greater than 6 dBi : [Limit = $30 - (DG - 6)$]
UNII-2a/2c Limit	☒ 250 mW or $11 + 10 \log_{10} B$ for IC ☐ Antenna with DG greater than 6 dBi : [Limit = $24 - (DG - 6)$]
UNII-3 Limit	☐ Antenna not exceed 6 dBi : 30dBm ☒ Antenna with DG greater than 6 dBi : [Limit = $30 - (DG - 6)$]

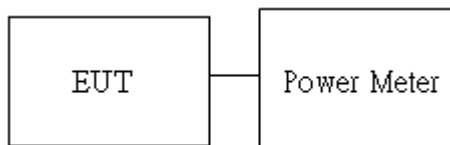
4.3.2 Test Procedure

Test method Refer as KDB 789033 D02, Section E.3.b for BW 20MHz, 40MHz and 80MHz, E.2.b for BW 160MHz.

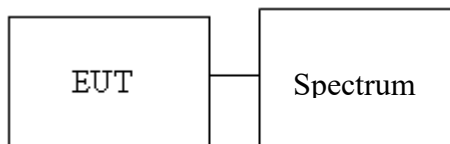
1. The EUT RF output connected to the power meter or spectrum by RF cable.
2. Setting maximum power transmit of EUT.
3. The path loss was compensated to the results for each measurement.
4. Measure and record the result of Average output power. in the test report.

4.3.3 Test Setup

For BW 20MHz ,40MHz and 80MHz



For BW 160MHz





Report No.: TMWK2309003421KR

Page: 62 / 221
Rev.: 01

4.3.4 Test Result

Temperature: 23.4 ~ 26.6°C

Test date: October 2 ~ 5, 2023

Humidity: 53 ~ 58% RH

Tested by: David Li

Conducted output power :

For FCC:

802.11a_2TX

CH	Frequency (MHz)	Data Rate	Power set	Avg. POWER (dBm)		TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
				Ch0	Ch1				
36	5180	6	14.5	11.39	9.88	13.71	23.476	23.17	PASS
44	5220	6	14.5	12.27	10.61	14.52	28.345	23.17	PASS
48	5240	6	14.5	12.76	11.26	15.08	32.213	23.17	PASS
52	5260	6	14.5	12.56	11.74	15.18	32.925	23.17	PASS
60	5300	6	14.5	12.13	11.61	14.88	30.787	23.17	PASS
64	5320	6	14.5	11.75	11.18	14.48	28.056	23.17	PASS
100	5500	6	14	13.89	13.02	16.48	44.490	23.17	PASS
116	5580	6	13.5	12.46	11.40	14.97	31.392	23.17	PASS
140	5700	6	14.5	14.19	13.86	17.03	50.513	23.17	PASS
149	5745	6	14.5	14.29	13.72	17.02	50.353	29.19	PASS
157	5785	6	14.5	13.83	13.28	16.57	45.390	29.19	PASS
165	5825	6	14.5	13.88	13.27	16.59	45.621	29.19	PASS

802.11n_HT20_2TX

CH	Frequency (MHz)	Data Rate	Power set	Avg. POWER (dBm)		TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
				Ch0	Ch1				
36	5180	MCS0	15.5	11.39	10.30	13.89	24.497	23.17	PASS
44	5220	MCS0	15.5	12.37	10.93	14.72	29.658	23.17	PASS
48	5240	MCS0	15.5	12.84	11.55	15.25	33.533	23.17	PASS
52	5260	MCS0	15.5	12.53	11.96	15.27	33.623	23.17	PASS
60	5300	MCS0	15.5	12.04	11.79	14.93	31.109	23.17	PASS
64	5320	MCS0	15.5	11.75	11.25	14.52	28.309	23.17	PASS
100	5500	MCS0	14.5	13.58	12.83	16.23	42.007	23.17	PASS
116	5580	MCS0	14.5	12.44	11.81	15.15	32.722	23.17	PASS
140	5700	MCS0	15	13.60	13.49	16.56	45.262	23.17	PASS
149	5745	MCS0	15.5	14.04	13.93	17.00	50.088	29.19	PASS
157	5785	MCS0	15.5	13.77	13.39	16.60	45.669	29.19	PASS
165	5825	MCS0	15.5	13.80	13.44	16.64	46.087	29.19	PASS

802.11n_HT40_2TX

CH	Frequency (MHz)	Data Rate	Power set	Avg. POWER (dBm)		TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
				Ch0	Ch1				
38	5190	MCS0	13.5	9.20	7.58	11.48	14.051	23.17	PASS
46	5230	MCS0	15.5	12.42	10.74	14.67	29.328	23.17	PASS
54	5270	MCS0	15.5	12.13	11.54	14.86	30.599	23.17	PASS
62	5310	MCS0	14	10.07	9.15	12.65	18.393	23.17	PASS
102	5510	MCS0	12	10.48	9.55	13.05	20.193	23.17	PASS
110	5550	MCS0	14.5	12.57	11.77	15.20	33.117	23.17	PASS
134	5670	MCS0	14	13.26	12.02	15.70	37.121	23.17	PASS
151	5755	MCS0	15.5	13.93	13.56	16.76	47.436	29.19	PASS
159	5795	MCS0	15.5	13.64	13.12	16.40	43.650	29.19	PASS

802.11ac_VHT20_2TX

CH	Frequency (MHz)	Data Rate	Power set	Avg. POWER (dBm)		TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
				Ch0	Ch1				
36	5180	MCS0	15.5	11.36	10.24	13.85	24.261	23.17	PASS
44	5220	MCS0	15.5	12.32	10.85	14.66	29.242	23.17	PASS
48	5240	MCS0	15.5	12.78	11.50	15.20	33.114	23.17	PASS
52	5260	MCS0	15.5	12.50	11.93	15.24	33.400	23.17	PASS
60	5300	MCS0	15.5	11.97	11.74	14.87	30.688	23.17	PASS
64	5320	MCS0	15.5	11.69	11.19	14.46	27.928	23.17	PASS
100	5500	MCS0	14.5	13.53	12.77	16.18	41.493	23.17	PASS
116	5580	MCS0	14.5	12.37	11.76	15.09	32.276	23.17	PASS
140	5700	MCS0	15	13.56	13.45	16.52	44.859	23.17	PASS
149	5745	MCS0	15.5	13.98	13.88	16.94	49.470	29.19	PASS
157	5785	MCS0	15.5	13.72	13.35	16.55	45.207	29.19	PASS
165	5825	MCS0	15.5	13.76	13.39	16.59	45.625	29.19	PASS

802.11ac_VHT40_2TX

CH	Frequency (MHz)	Data Rate	Power set	Avg. POWER (dBm)		TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
				Ch0	Ch1				
38	5190	MCS0	13.5	9.15	7.56	11.44	13.919	23.17	PASS
46	5230	MCS0	15.5	12.39	10.68	14.63	29.022	23.17	PASS
54	5270	MCS0	15.5	12.06	11.50	14.80	30.183	23.17	PASS
62	5310	MCS0	14	10.05	9.13	12.62	18.293	23.17	PASS
102	5510	MCS0	12	10.46	9.53	13.03	20.084	23.17	PASS
110	5550	MCS0	14.5	12.54	11.75	15.17	32.897	23.17	PASS
134	5670	MCS0	14	13.24	11.99	15.67	36.884	23.17	PASS
151	5755	MCS0	15.5	13.88	13.52	16.71	46.907	29.19	PASS
159	5795	MCS0	15.5	13.57	13.08	16.34	43.058	29.19	PASS

802.11ac_VHT80_2TX

CH	Frequency (MHz)	Data Rate	Power set	Avg. POWER (dBm)		TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
				Ch0	Ch1				
42	5210	MCS0	9.5	5.56	3.71	7.74	5.944	23.17	PASS
58	5290	MCS0	13	9.02	8.24	11.66	14.640	23.17	PASS
106	5530	MCS0	12.5	9.89	9.09	12.52	17.849	23.17	PASS
122	5610	MCS0	14.5	12.56	11.52	15.08	32.202	23.17	PASS
155	5775	MCS0	16	14.07	13.61	16.85	48.461	29.19	PASS



Report No.: TMWK2309003421KR

Page: 64 / 221
Rev.: 01

For IC:

802.11a_2TX

CH	Frequency (MHz)	Data Rate	Power set	Avg. POWER (dBm)		TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
				Ch0	Ch1				
36	5180	6	13.5	10.28	8.94	12.67	18.482	23.17	PASS
44	5220	6	12	9.64	7.98	11.89	15.469	23.17	PASS
48	5240	6	12	10.17	8.69	12.50	17.777	23.17	PASS
52	5260	6	14.5	12.56	11.74	15.18	32.925	23.17	PASS
60	5300	6	14.5	12.13	11.61	14.88	30.787	23.17	PASS
64	5320	6	14.5	11.75	11.18	14.48	28.056	23.17	PASS
100	5500	6	14	13.89	13.02	16.48	44.490	23.17	PASS
116	5580	6	13.5	12.46	11.40	14.97	31.392	23.17	PASS
140	5700	6	14.5	14.19	13.86	17.03	50.513	23.17	PASS
149	5745	6	14.5	14.29	13.72	17.02	50.353	29.19	PASS
157	5785	6	14.5	13.83	13.28	16.57	45.390	29.19	PASS
165	5825	6	14.5	13.88	13.27	16.59	45.621	29.19	PASS

802.11n_HT20_2TX

CH	Frequency (MHz)	Data Rate	Power set	Avg. POWER (dBm)		TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
				Ch0	Ch1				
36	5180	MCS0	14.5	10.24	8.97	12.66	18.464	23.17	PASS
44	5220	MCS0	13	9.67	8.28	12.04	16.004	23.17	PASS
48	5240	MCS0	13	10.05	8.87	12.51	17.832	23.17	PASS
52	5260	MCS0	15.5	12.53	11.96	15.27	33.623	23.17	PASS
60	5300	MCS0	15.5	12.04	11.79	14.93	31.109	23.17	PASS
64	5320	MCS0	15.5	11.75	11.25	14.52	28.309	23.17	PASS
100	5500	MCS0	14.5	13.58	12.83	16.23	42.007	23.17	PASS
116	5580	MCS0	14.5	12.44	11.81	15.15	32.722	23.17	PASS
140	5700	MCS0	15	13.60	13.49	16.56	45.262	23.17	PASS
149	5745	MCS0	15.5	14.04	13.93	17.00	50.088	29.19	PASS
157	5785	MCS0	15.5	13.77	13.39	16.60	45.669	29.19	PASS
165	5825	MCS0	15.5	13.80	13.44	16.64	46.087	29.19	PASS

802.11n_HT40_2TX

CH	Frequency (MHz)	Data Rate	Power set	Avg. POWER (dBm)		TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
				Ch0	Ch1				
38	5190	MCS0	13.5	9.20	7.58	11.48	14.051	23.17	PASS
46	5230	MCS0	15.5	12.42	10.74	14.67	29.328	23.17	PASS
54	5270	MCS0	15.5	12.13	11.54	14.86	30.599	23.17	PASS
62	5310	MCS0	14	10.07	9.15	12.65	18.393	23.17	PASS
102	5510	MCS0	12	10.48	9.55	13.05	20.193	23.17	PASS
110	5550	MCS0	14.5	12.57	11.77	15.20	33.117	23.17	PASS
134	5670	MCS0	14	13.26	12.02	15.70	37.121	23.17	PASS
151	5755	MCS0	15.5	13.93	13.56	16.76	47.436	29.19	PASS
159	5795	MCS0	15.5	13.64	13.12	16.40	43.650	29.19	PASS

802.11ac_VHT20_2TX

CH	Frequency (MHz)	Data Rate	Power set	Avg. POWER (dBm)		TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
				Ch0	Ch1				
36	5180	MCS0	15.5	11.36	10.24	13.85	24.261	23.17	PASS
44	5220	MCS0	15.5	12.32	10.85	14.66	29.242	23.17	PASS
48	5240	MCS0	15.5	12.78	11.50	15.20	33.114	23.17	PASS
52	5260	MCS0	15.5	12.50	11.93	15.24	33.400	23.17	PASS
60	5300	MCS0	15.5	11.97	11.74	14.87	30.688	23.17	PASS
64	5320	MCS0	15.5	11.69	11.19	14.46	27.928	23.17	PASS
100	5500	MCS0	14.5	13.53	12.77	16.18	41.493	23.17	PASS
116	5580	MCS0	14.5	12.37	11.76	15.09	32.276	23.17	PASS
140	5700	MCS0	15	13.56	13.45	16.52	44.859	23.17	PASS
149	5745	MCS0	15.5	13.98	13.88	16.94	49.470	29.19	PASS
157	5785	MCS0	15.5	13.72	13.35	16.55	45.207	29.19	PASS
165	5825	MCS0	15.5	13.76	13.39	16.59	45.625	29.19	PASS

802.11ac_VHT40_2TX

CH	Frequency (MHz)	Data Rate	Power set	Avg. POWER (dBm)		TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
				Ch0	Ch1				
38	5190	MCS0	13.5	9.15	7.56	11.44	13.919	23.17	PASS
46	5230	MCS0	15.5	12.39	10.68	14.63	29.022	23.17	PASS
54	5270	MCS0	15.5	12.06	11.50	14.80	30.183	23.17	PASS
62	5310	MCS0	14	10.05	9.13	12.62	18.293	23.17	PASS
102	5510	MCS0	12	10.46	9.53	13.03	20.084	23.17	PASS
110	5550	MCS0	14.5	12.54	11.75	15.17	32.897	23.17	PASS
134	5670	MCS0	14	13.24	11.99	15.67	36.884	23.17	PASS
151	5755	MCS0	15.5	13.88	13.52	16.71	46.907	29.19	PASS
159	5795	MCS0	15.5	13.57	13.08	16.34	43.058	29.19	PASS

802.11ac_VHT80_2TX

CH	Frequency (MHz)	Data Rate	Power set	Avg. POWER (dBm)		TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
				Ch0	Ch1				
42	5210	MCS0	9.5	5.56	3.71	7.74	5.944	23.17	PASS
58	5290	MCS0	13	9.02	8.24	11.66	14.640	23.17	PASS
106	5530	MCS0	12.5	9.89	9.09	12.52	17.849	23.17	PASS
122	5610	MCS0	14.5	12.56	11.52	15.08	32.202	23.17	PASS
155	5775	MCS0	16	14.07	13.61	16.85	48.461	29.19	PASS



Report No.: TMWK2309003421KR

Page: 66 / 221
Rev.: 01

EIRP Power:

802.11a_2TX

CH	Frequency (MHz)	TOTAL POWER (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (mW)	REQUIRED LIMIT (dBm)	RESULT
36	5180	12.67	6.81	19.48	88.716	22.14	PASS
44	5220	11.89	6.81	18.70	74.131	22.13	PASS
48	5240	12.50	6.81	19.31	85.310	22.13	PASS
52	5260	15.18	6.81	21.99	158.125	29.13	PASS
60	5300	14.88	6.81	21.69	147.571	29.14	PASS
64	5320	14.48	6.81	21.29	134.586	29.14	PASS
100	5500	16.48	6.81	23.29	213.304	29.15	PASS
116	5580	14.97	6.81	21.78	150.661	29.17	PASS
140	5700	17.03	6.81	23.84	242.103	29.16	PASS

802.11n_HT20_2TX

CH	Frequency (MHz)	TOTAL POWER (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (mW)	REQUIRED LIMIT (dBm)	RESULT
36	5180	12.66	6.81	19.47	88.512	22.43	PASS
44	5220	12.04	6.81	18.85	76.736	22.44	PASS
48	5240	12.51	6.81	19.32	85.507	22.44	PASS
52	5260	15.27	6.81	22.08	161.436	29.44	PASS
60	5300	14.93	6.81	21.74	149.279	29.44	PASS
64	5320	14.52	6.81	21.33	135.831	29.44	PASS
100	5500	16.23	6.81	23.04	201.372	29.45	PASS
116	5580	15.15	6.81	21.96	157.036	29.46	PASS
140	5700	16.56	6.81	23.37	217.270	29.46	PASS

802.11n_HT40_2TX

CH	Frequency (MHz)	TOTAL POWER (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (mW)	REQUIRED LIMIT (dBm)	RESULT
38	5190	11.48	6.81	18.29	67.453	23.01	PASS
46	5230	14.67	6.81	21.48	140.605	23.01	PASS
54	5270	14.86	6.81	21.67	146.893	30	PASS
62	5310	12.65	6.81	19.46	88.308	30	PASS
102	5510	13.05	6.81	19.86	96.828	30	PASS
110	5550	15.20	6.81	22.01	158.855	30	PASS
134	5670	15.70	6.81	22.51	178.238	30	PASS



Report No.: TMWK2309003421KR

Page: 67 / 221
Rev.: 01

802.11ac_VHT20_2TX

CH	Frequency (MHz)	TOTAL POWER (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (mW)	REQUIRED LIMIT (dBm)	RESULT
36	5180	13.85	6.81	20.66	116.413	22.43	PASS
44	5220	14.66	6.81	21.47	140.281	22.44	PASS
48	5240	15.20	6.81	22.01	158.855	22.44	PASS
52	5260	15.24	6.81	22.05	160.325	29.44	PASS
60	5300	14.87	6.81	21.68	147.231	29.44	PASS
64	5320	14.46	6.81	21.27	133.968	29.44	PASS
100	5500	16.18	6.81	22.99	199.067	29.45	PASS
116	5580	15.09	6.81	21.90	154.882	29.46	PASS
140	5700	16.52	6.81	23.33	215.278	29.46	PASS

802.11ac_VHT40_2TX

CH	Frequency (MHz)	TOTAL POWER (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (mW)	REQUIRED LIMIT (dBm)	RESULT
38	5190	11.44	6.81	18.25	66.834	23.01	PASS
46	5230	14.63	6.81	21.44	139.316	23.01	PASS
54	5270	14.80	6.81	21.61	144.877	30	PASS
62	5310	12.62	6.81	19.43	87.700	30	PASS
102	5510	13.03	6.81	19.84	96.383	30	PASS
110	5550	15.17	6.81	21.98	157.761	30	PASS
134	5670	15.67	6.81	22.48	177.011	30	PASS

802.11ac_VHT80_2TX

CH	Frequency (MHz)	TOTAL POWER (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (mW)	REQUIRED LIMIT (dBm)	RESULT
42	5210	7.74	6.81	14.55	28.510	23.01	PASS
58	5290	11.66	6.81	18.47	70.307	30	PASS
106	5530	12.52	6.81	19.33	85.704	30	PASS



4.4 POWER SPECTRAL DENSITY

4.4.1 Test Limit

According to §15.407 (a)(1), 15.407(a)(2) and 15.407(a)(3) and RSS-247 section 6.2.1(1), section 6.2.2(1), section 6.2.3(1) and section 6.2.4(1)

UNII-1 :

FCC:

The maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band.

IC:

The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

UNII-2a and 2c:

The maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band.

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

UNII-3:

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

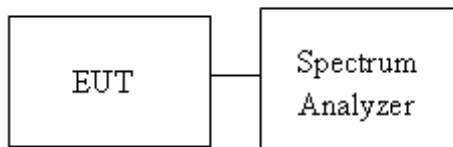
UNII-1 Limit	☒ Antenna not exceed 6 dBi : 11 dBm ☒ IC: 10dB/MHz ☐ Antenna with DG greater than 6 dBi : [Limit = 11 – (DG – 6)]
UNII-2a Limit	☒ Antenna not exceed 6 dBi : 11 dBm/MHz ☐ Antenna with DG greater than 6 dBi : [Limit = 11 – (DG – 6)]
UNII-2c Limit	☒ Antenna not exceed 6 dBi : 11 dBm/MHz ☐ Antenna with DG greater than 6 dBi : [Limit = 11 – (DG – 6)]
UNII-3 Limit	☒ Antenna not exceed 6 dBi : 30 dBm/500kHz ☐ Antenna with DG greater than 6 dBi : [Limit = 30 – (DG – 6) dBm/500kHz]

4.4.2 Test Procedure

Test method Refer as KDB 789033 D02

1. The EUT RF output connected to the spectrum analyzer by RF cable.
2. Setting maximum power transmit of EUT
3. UNII-1, UNII-2a and UNII-2c, SA set RBW = 1MHz, VBW = 3MHz and Detector = RMS, to measurement Power Density.
4. UNII-3, SA set RBW = 500kHz, VBW = 2MHz and Detector = RMS, to measurement Power Density
5. The path loss and Duty Factor were compensated to the results for each measurement by SA.
6. Mark the maximum level.
7. Measure and record the result of power spectral density. in the test report.

4.4.3 Test Setup



4.4.4 Test Result

Temperature: 23.4 ~ 26.6°C

Humidity: 53 ~ 58% RH

Test date: October 2 ~ 5, 2023

Tested by: David Li



Report No.: TMWK2309003421KR

Page: 70 / 221
Rev.: 01

POWER DENSITY 802.11a MODE							
Frequency (MHz)	Ch0 meas PSD (dBm/MHz)	Ch1 meas PSD (dBm/MHz)	Duty Factor (dB)	Total Corr'd PSD(dBm/MHz)		Limit	Margin (dB)
5180	0.300	-1.028	0.30	3.00		10.19 dBm/MHz	-7.19
5220	0.559	-1.433	0.30	2.99		10.19 dBm/MHz	-7.20
5240	0.415	-1.082	0.30	3.04		10.19 dBm/MHz	-7.15
5260	2.717	1.845	0.30	5.61		10.19 dBm/MHz	-4.58
5300	1.993	1.583	0.30	5.10		10.19 dBm/MHz	-5.09
5320	1.760	1.174	0.30	4.79		10.19 dBm/MHz	-5.40
5500	4.366	3.404	0.30	7.22		10.19 dBm/MHz	-2.97
5580	1.900	1.202	0.30	4.88		10.19 dBm/MHz	-5.31
5700	4.504	3.974	0.30	7.56		10.19 dBm/MHz	-2.63
Frequency (MHz)	Ch0 meas PSD (dBm/300kHz)	Ch1 meas PSD (dBm/300kHz)	Duty Factor (dB)	10log (500kHz/RBW) Factor(dB)	Total Corr'd PSD (dBm/500kHz)	Limit	Margin (dB)
5745	-0.090	-0.915	0.30	2.22	5.05	29.19 dBm/500kHz	-24.14
5785	-0.740	-1.686	0.30	2.22	4.34	29.19 dBm/500kHz	-24.85
5825	-0.719	-1.265	0.30	2.22	4.55	29.19 dBm/500kHz	-24.64
POWER DENSITY 802.11n HT20 MODE							
Frequency (MHz)	Ch0 meas PSD (dBm/MHz)	Ch1 meas PSD (dBm/MHz)	Duty Factor (dB)	Total Corr'd PSD(dBm/MHz)		Limit	Margin (dB)
5180	0.491	-0.908	0.32	3.18		10.19 dBm/MHz	-7.01
5220	0.164	-1.295	0.32	2.83		10.19 dBm/MHz	-7.36
5240	0.416	-0.929	0.32	3.13		10.19 dBm/MHz	-7.06
5260	2.761	2.396	0.32	5.91		10.19 dBm/MHz	-4.28
5300	2.001	1.807	0.32	5.24		10.19 dBm/MHz	-4.95
5320	1.537	1.281	0.32	4.74		10.19 dBm/MHz	-5.45
5500	3.464	3.061	0.32	6.60		10.19 dBm/MHz	-3.59
5580	1.799	1.547	0.32	5.01		10.19 dBm/MHz	-5.18
5700	3.935	3.831	0.32	7.21		10.19 dBm/MHz	-2.98
Frequency (MHz)	Ch0 meas PSD (dBm/300kHz)	Ch1 meas PSD (dBm/300kHz)	Duty Factor (dB)	10log (500kHz/RBW) Factor(dB)	Total Corr'd PSD (dBm/500kHz)	Limit	Margin (dB)
5745	-0.917	-1.106	0.32	2.22	4.54	29.19 dBm/500kHz	-24.65
5785	-1.869	-0.973	0.32	2.22	4.15	29.19 dBm/500kHz	-25.04
5825	-0.766	-1.608	0.32	2.22	4.38	29.19 dBm/500kHz	-24.81



Report No.: TMWK2309003421KR

Page: 71 / 221
Rev.: 01

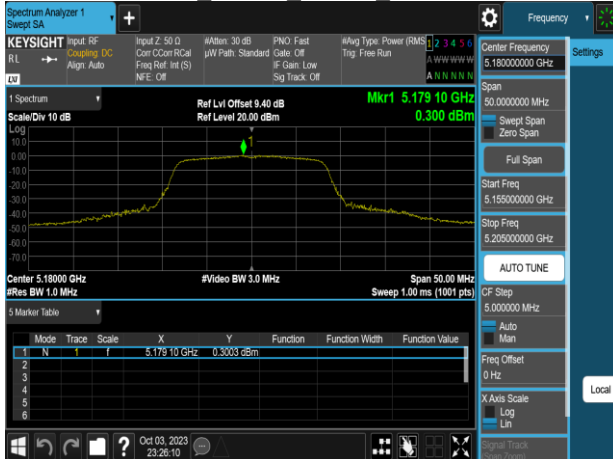
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Frequency (MHz)	Ch0 meas PSD (dBm/MHz)	Ch1 meas PSD (dBm/MHz)	Duty Factor (dB)	Total Corr'd PSD(dBm/MHz)		Limit	Margin (dB)
5190	-2.704	-4.055	0.61	0.29		10.19 dBm/MHz	-9.90
5230	-1.161	-3.079	0.61	1.61		10.19 dBm/MHz	-8.58
5270	-1.492	-2.148	0.61	1.81		10.19 dBm/MHz	-8.38
5310	-2.378	-2.662	0.61	1.10		10.19 dBm/MHz	-9.09
5510	0.013	-0.853	0.61	3.22		10.19 dBm/MHz	-6.97
5550	-1.160	-2.143	0.61	2.00		10.19 dBm/MHz	-8.19
5670	0.657	-0.608	0.61	3.69		10.19 dBm/MHz	-6.50
Frequency (MHz)	Ch0 meas PSD (dBm/300kHz)	Ch1 meas PSD (dBm/300kHz)	Duty Factor (dB)	10log (500kHz/RBW) Factor(dB)	Total Corr'd PSD (dBm/500kHz)	Limit	Margin (dB)
5755	-4.428	-4.938	0.61	2.22	1.16	29.19 dBm/500kHz	-28.03
5795	-5.117	-5.369	0.61	2.22	0.60	29.19 dBm/500kHz	-28.59

POWER DENSITY 802.11ac VHT80 MODE							
Frequency (MHz)	Ch0 meas PSD (dBm/MHz)	Ch1 meas PSD (dBm/MHz)	Duty Factor (dB)	Total Corr'd PSD(dBm/MHz)		Limit	Margin (dB)
5210	-5.203	-6.388	1.15	-1.59		10.19 dBm/MHz	-11.78
5290	-4.807	-5.680	1.15	-1.06		10.19 dBm/MHz	-11.25
5530	-3.039	-3.972	1.15	0.68		10.19 dBm/MHz	-9.51
5610	-5.182	-6.021	1.15	-1.42		10.19 dBm/MHz	-11.61
Frequency (MHz)	Ch0 meas PSD (dBm/300kHz)	Ch1 meas PSD (dBm/300kHz)	Duty Factor (dB)	10log (500kHz/RBW) Factor(dB)	Total Corr'd PSD (dBm/500kHz)	Limit	Margin (dB)
5775	-8.236	-8.702	1.15	2.22	-2.08	29.19 dBm/500kHz	-31.27

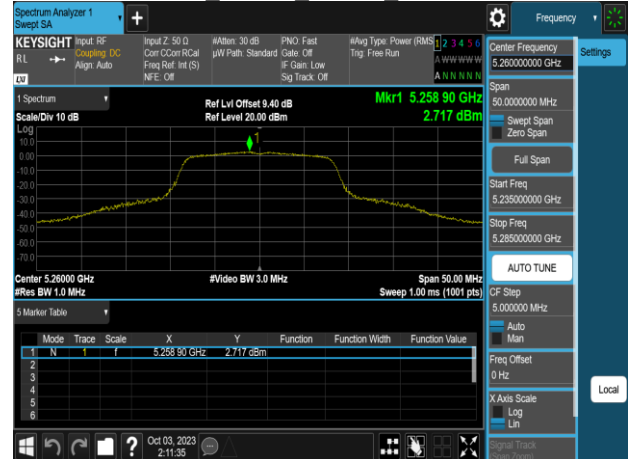
EIRP spectral density 802.11a MODE					
Freq. (MHz)	PSD (dBm)	Ant. Gain (dBi)	EIRP PSD (dBm)	Limit (dBm)	Margin (dB)
5180	2.997	6.81	9.81	10	-0.19
5220	2.987	6.81	9.80	10	-0.20
5240	3.041	6.81	9.85	10	-0.15
EIRP spectral density 802.11n HT20 MODE					
Freq. (MHz)	PSD (dBm)	Ant. Gain (dBi)	EIRP PSD (dBm)	Limit (dBm)	Margin (dB)
5180	3.178	6.81	9.99	10	-0.01
5220	2.826	6.81	9.64	10	-0.36
5240	3.126	6.81	9.94	10	-0.06
EIRP spectral density 802.11n HT40 MODE					
Freq. (MHz)	PSD (dBm)	Ant. Gain (dBi)	EIRP PSD (dBm)	Limit (dBm)	Margin (dB)
5190	0.293	6.81	7.10	10	-2.90
5230	1.605	6.81	8.42	10	-1.58
EIRP spectral density 802.11ac VHT80 MODE					
Freq. (MHz)	PSD (dBm)	Ant. Gain (dBi)	EIRP PSD (dBm)	Limit (dBm)	Margin (dB)
5210	-1.595	6.81	5.22	10	-4.78

Test Data

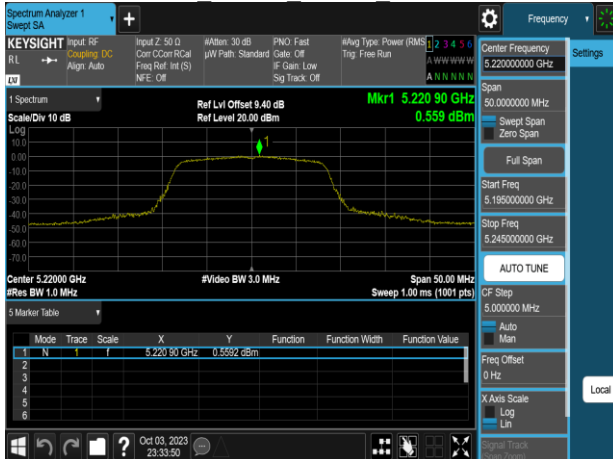
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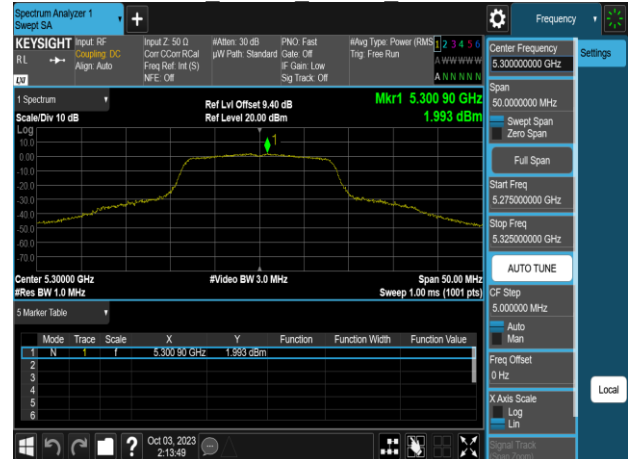
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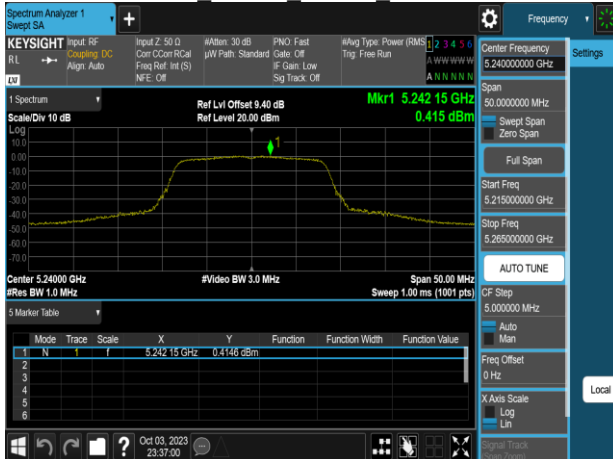
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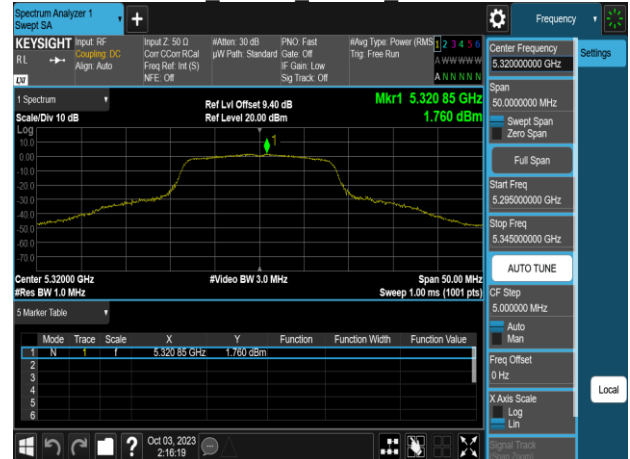
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802.11a 20MHz Chain0 5320MHz

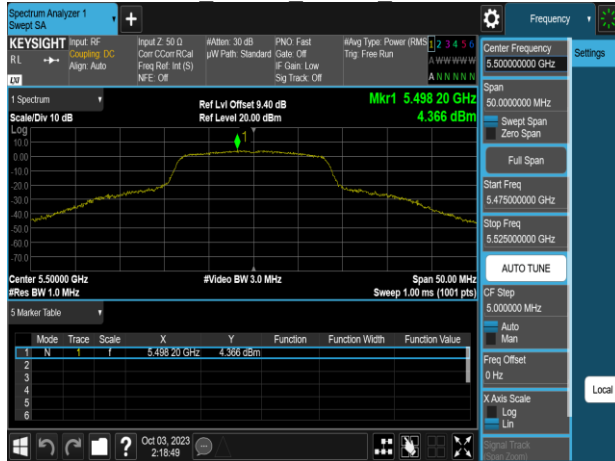




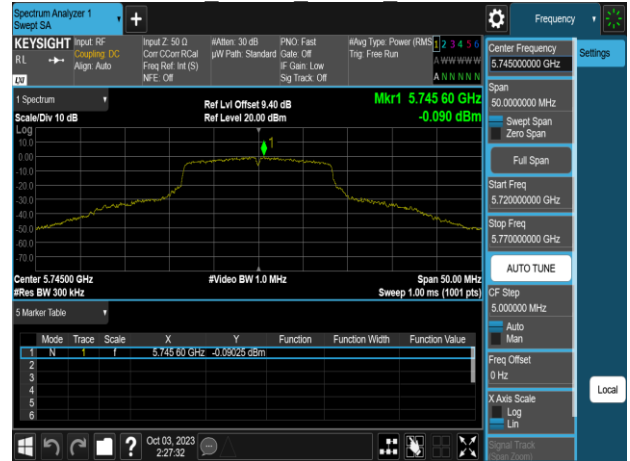
Report No.: TMWK2309003421KR

Page: 74 / 221
Rev.: 01

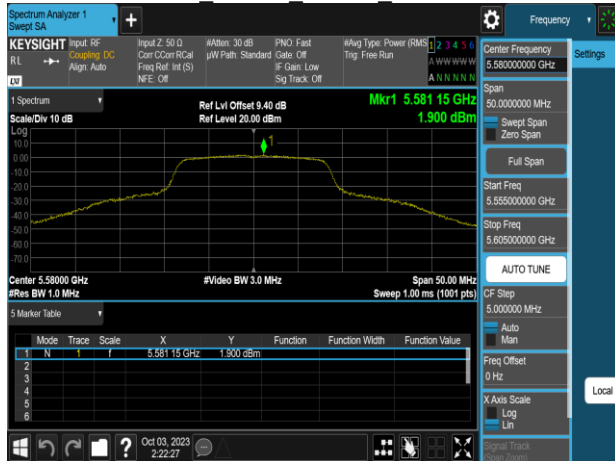
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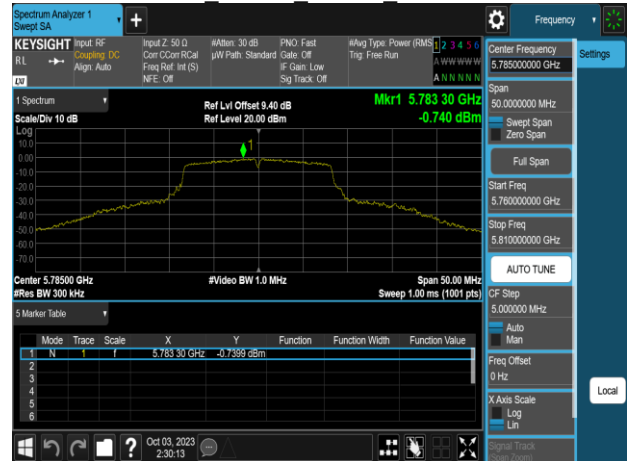
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802.11a 20MHz Chain0 5580MHz



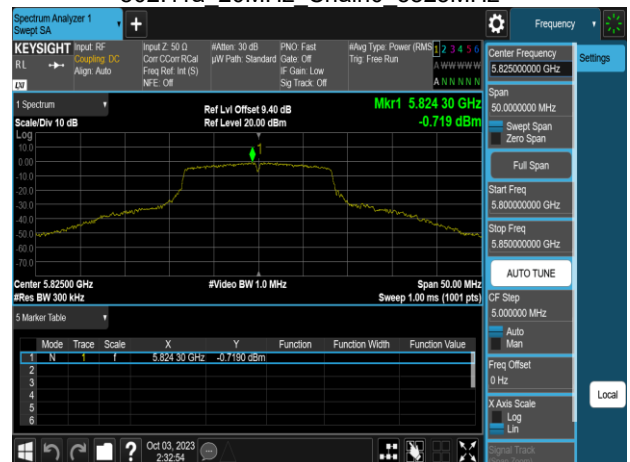
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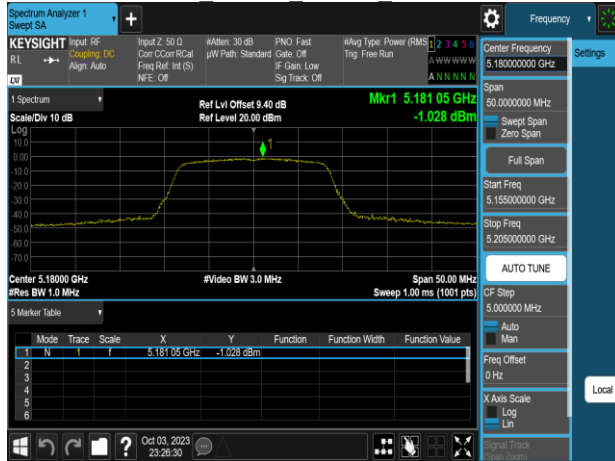
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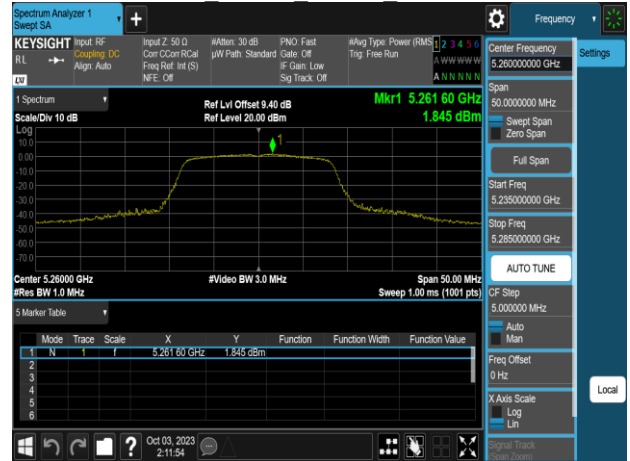
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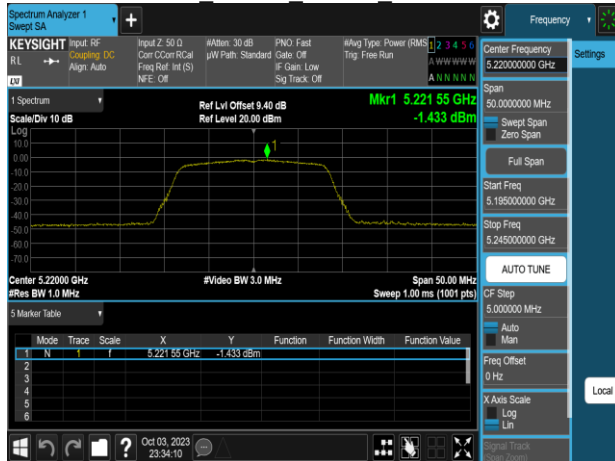
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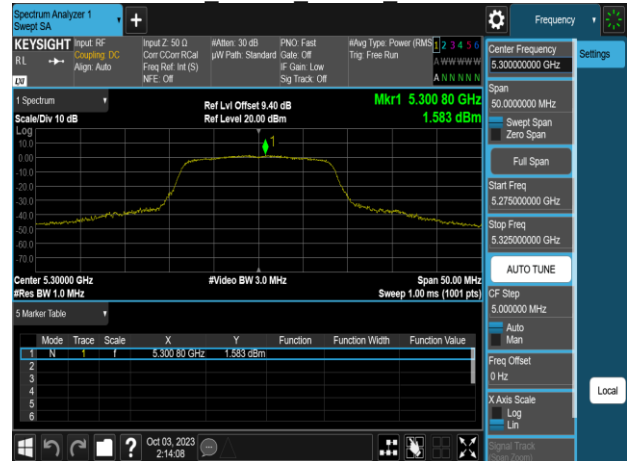
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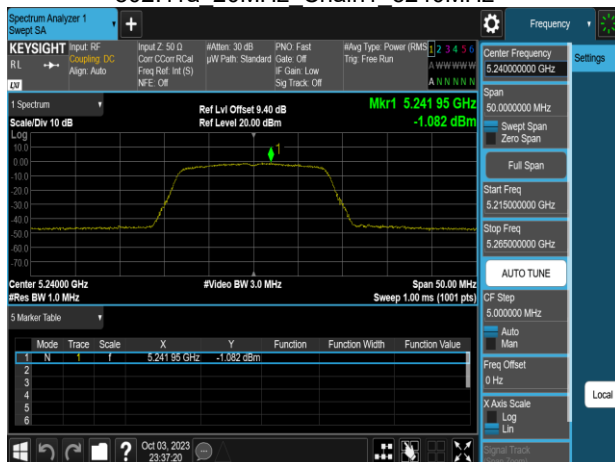
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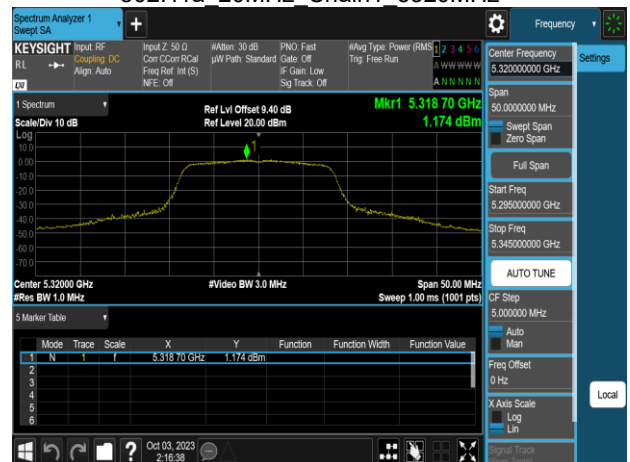
802.11a 20MHz Chain1 5300MHz



802.11a 20MHz Chain1 5240MHz



802.11a 20MHz Chain1 5320MHz





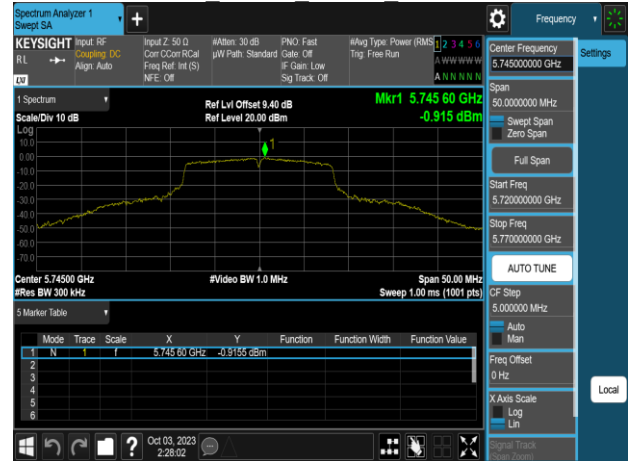
Report No.: TMWK2309003421KR

Page: 76 / 221
Rev.: 01

802.11a 20MHz Chain1 5500MHz



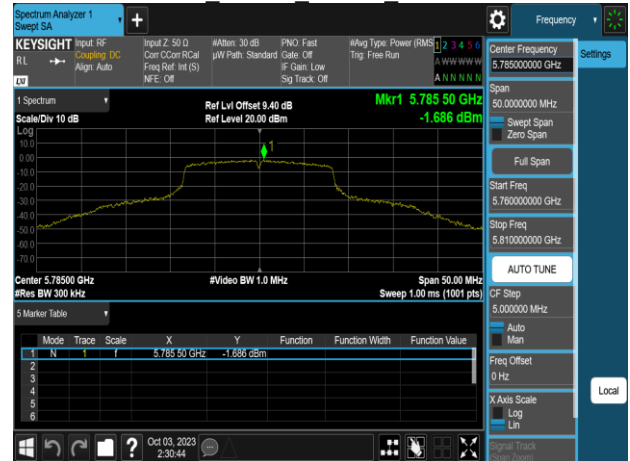
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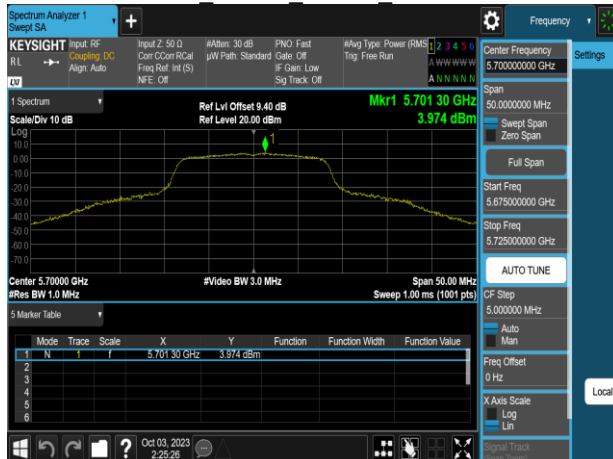
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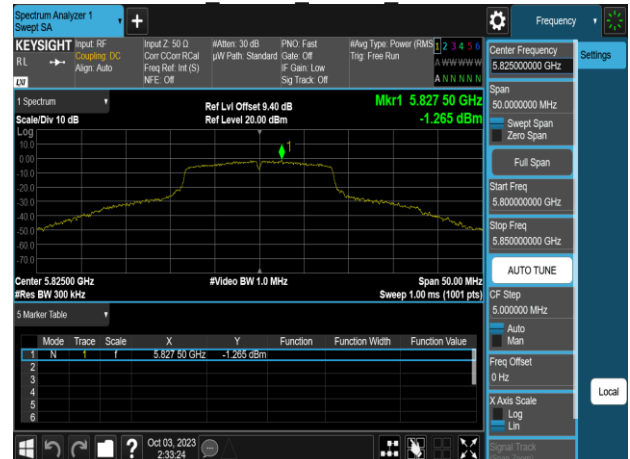
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802.11a 20MHz Chain1 5700MHz



802.11a 20MHz Chain1 5825MHz

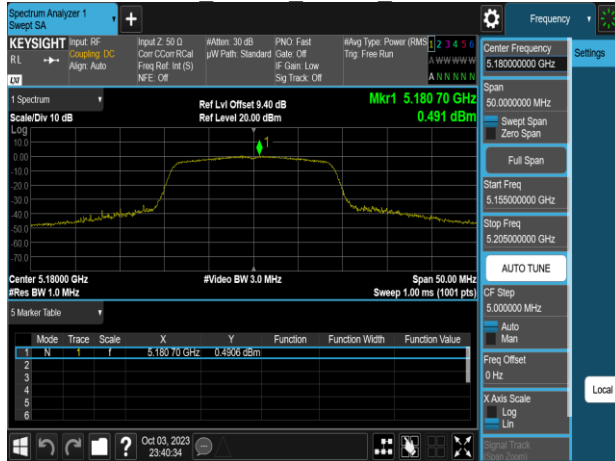




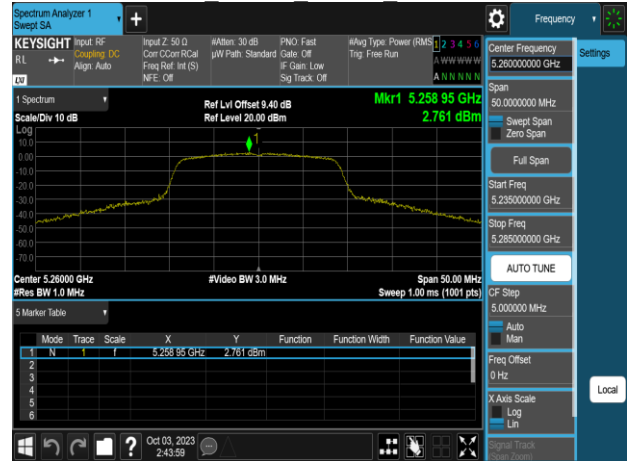
Report No.: TMWK2309003421KR

Page: 77 / 221
Rev.: 01

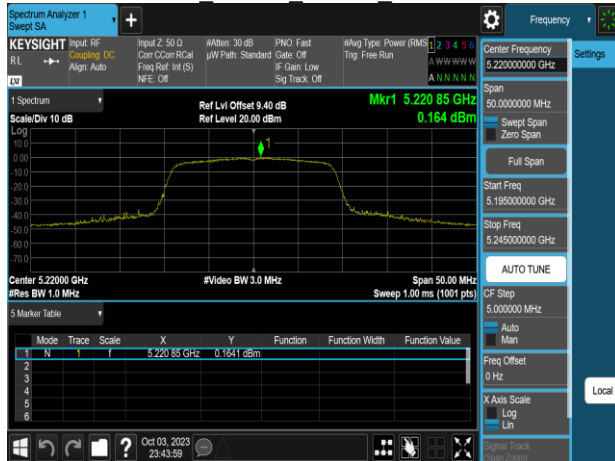
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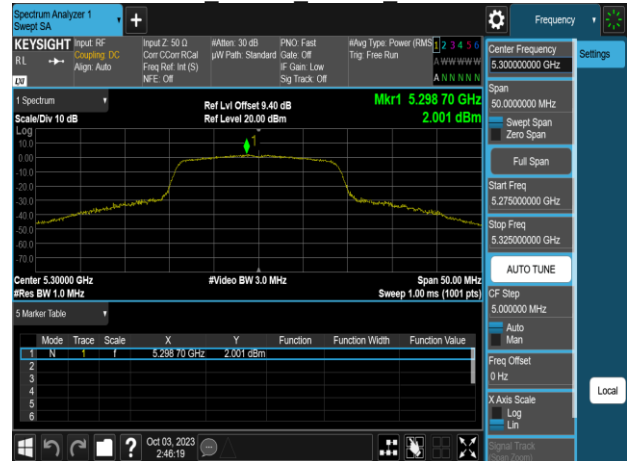
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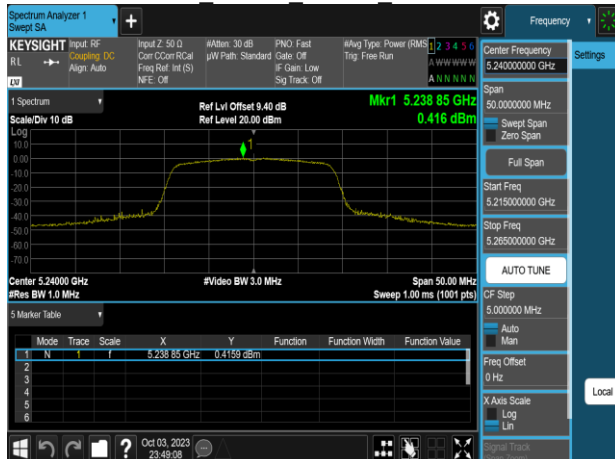
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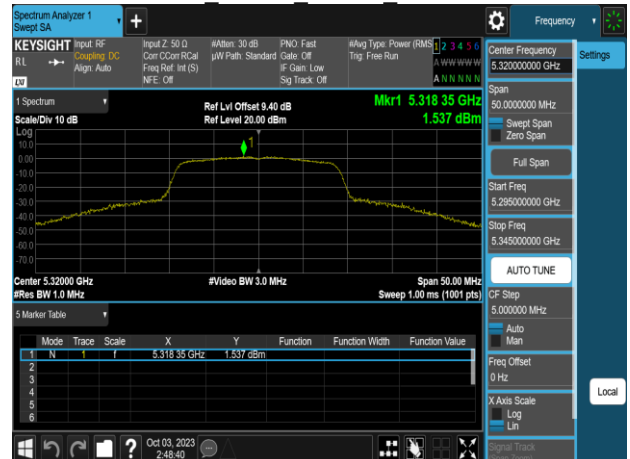
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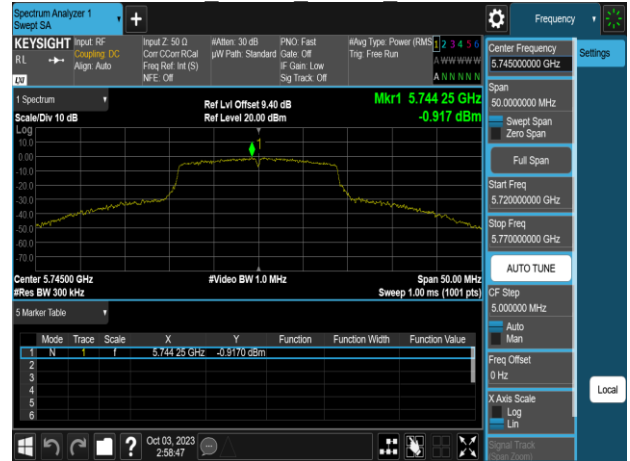
Report No.: TMWK2309003421KR

Page: 78 / 221
Rev.: 01

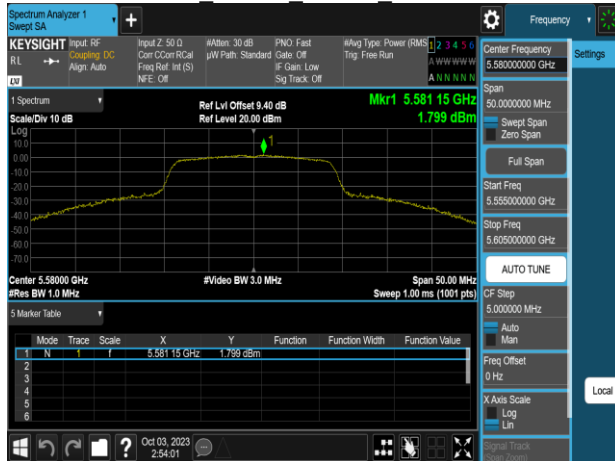
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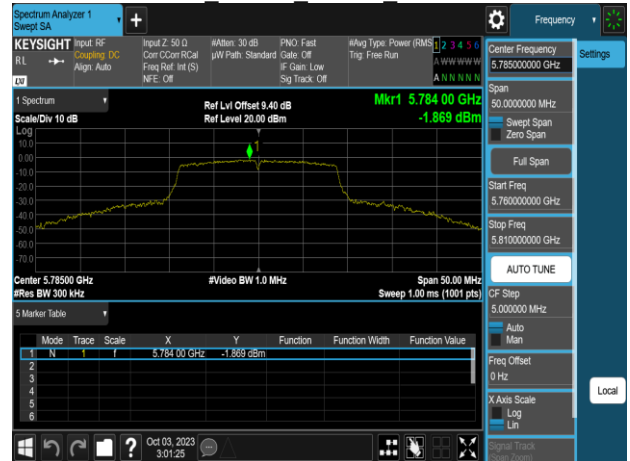
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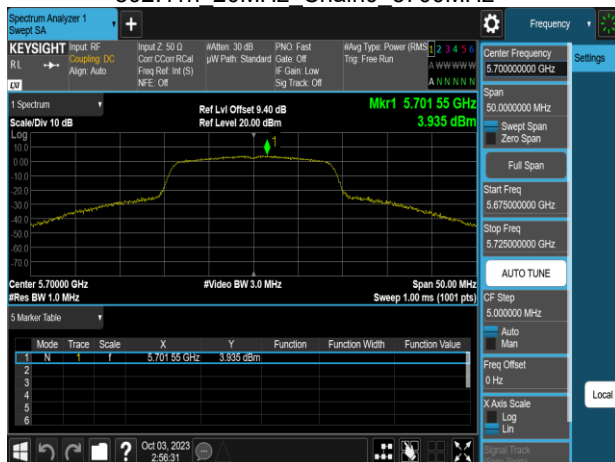
802.11n 20MHz Chain0 5580MHz



802.11n 20MHz Chain0 5785MHz



802.11n 20MHz Chain0 5700MHz



802.11n 20MHz Chain0 5825MHz

