

Case No. : <u>GTS20231208004-1-63</u>	
Ambient Condition: <u>22</u> °C, <u>48</u> %RH	
According Standard: ■Part15C	
Test Date: <u>2024.2.28</u>	Test Engineer: <u>Evan ouyang</u>

Appendix B.1: DTS Bandwidth

Test Result

BT LE

TestMode	Antenna	Freq(MHz)	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE	Ant1	2402	0.660	2401.652	2402.312	0.5	PASS
		2440	0.652	2439.656	2440.308	0.5	PASS
		2480	0.680	2479.636	2480.316	0.5	PASS

BT 2LE

TestMode	Antenna	Freq(MHz)	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE	Ant1	2402	1.156	2401.404	2402.560	0.5	PASS
		2440	1.212	2439.348	2440.560	0.5	PASS
		2480	1.200	2479.356	2480.556	0.5	PASS

BT LE(S2)

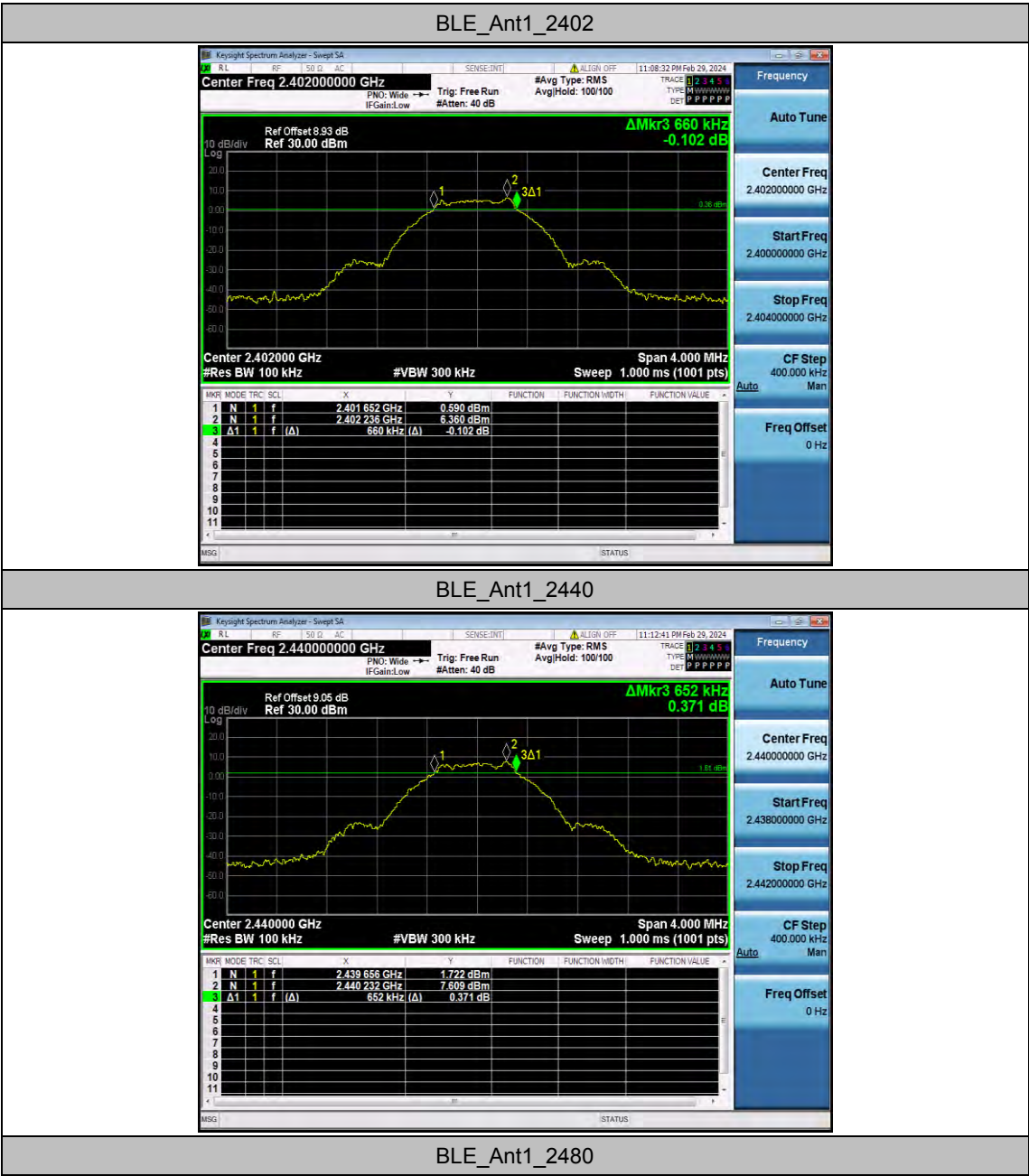
TestMode	Antenna	Freq(MHz)	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE	Ant1	2402	0.688	2401.656	2402.344	0.5	PASS
		2440	0.660	2439.660	2440.320	0.5	PASS
		2480	0.648	2479.664	2480.312	0.5	PASS

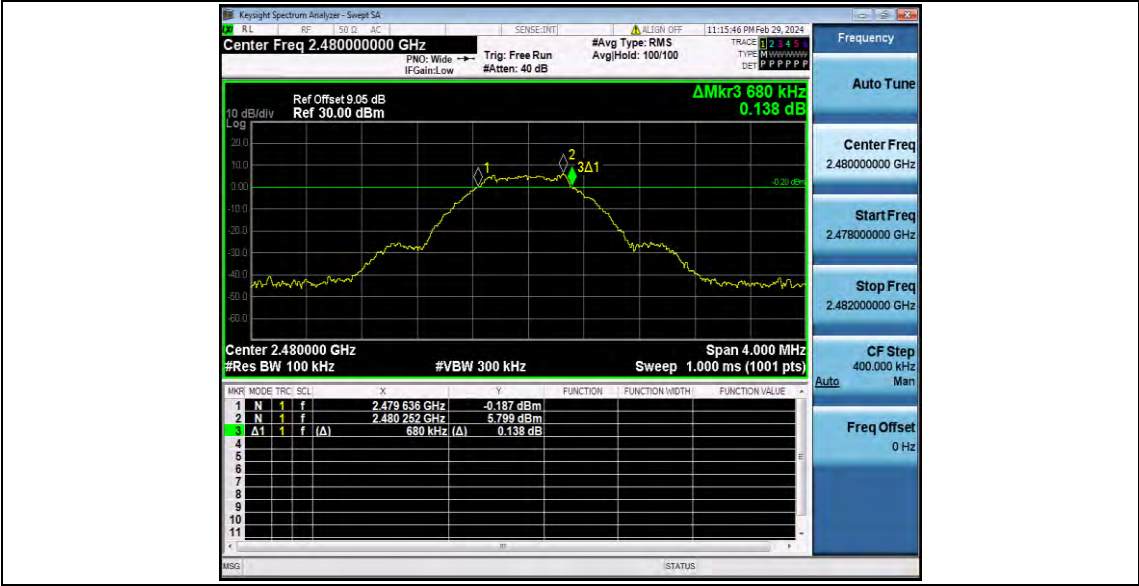
BT LE(S8)

TestMode	Antenna	Freq(MHz)	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE	Ant1	2402	0.672	2401.652	2402.324	0.5	PASS
		2440	0.688	2439.644	2440.332	0.5	PASS
		2480	0.672	2479.652	2480.324	0.5	PASS

Test Graphs

BT LE





BT 2LE

BLE_Ant1_2402



BLE_Ant1_2440



BLE_Ant1_2480



BT LE(S2)



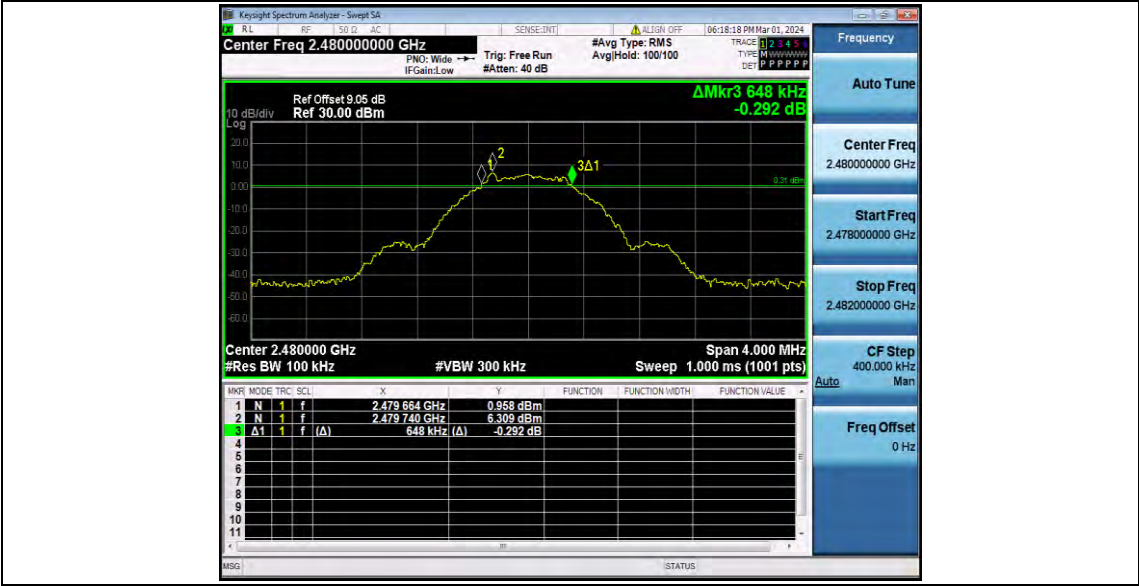
BLE_Ant1_2440

Frequency

Auto Tune

Center Freq
2.440000000 GHzStart Freq
2.438000000 GHzStop Freq
2.442000000 GHzCF Step
400.000 kHz
ManFreq Offset
0 Hz

BLE_Ant1_2480



BT LE(S8)



Appendix B.2: Occupied Channel Bandwidth

Test Result

BT LE

TestMode	Antenna	Freq(MHz)	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE	Ant1	2402	1.0290	2401.4726	2402.5016	---	---
		2440	1.0303	2439.4772	2440.5075	---	---
		2480	1.0396	2479.4691	2480.5087	---	---

BT 2LE

TestMode	Antenna	Freq(MHz)	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE	Ant1	2402	2.0560	2400.9868	2403.0428	---	---
		2440	2.0587	2438.9821	2441.0408	---	---
		2480	2.0539	2478.9779	2481.0318	---	---

BT LE(S2)

TestMode	Antenna	Freq(MHz)	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE	Ant1	2402	1.0302	2401.4722	2402.5024	---	---
		2440	1.0203	2439.4827	2440.5030	---	---
		2480	1.0199	2479.4708	2480.4907	---	---

BT LE(S8)

TestMode	Antenna	Freq(MHz)	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE	Ant1	2402	1.0558	2401.4613	2402.5171	---	---
		2440	1.0609	2439.4570	2440.5179	---	---
		2480	1.0525	2479.4608	2480.5133	---	---

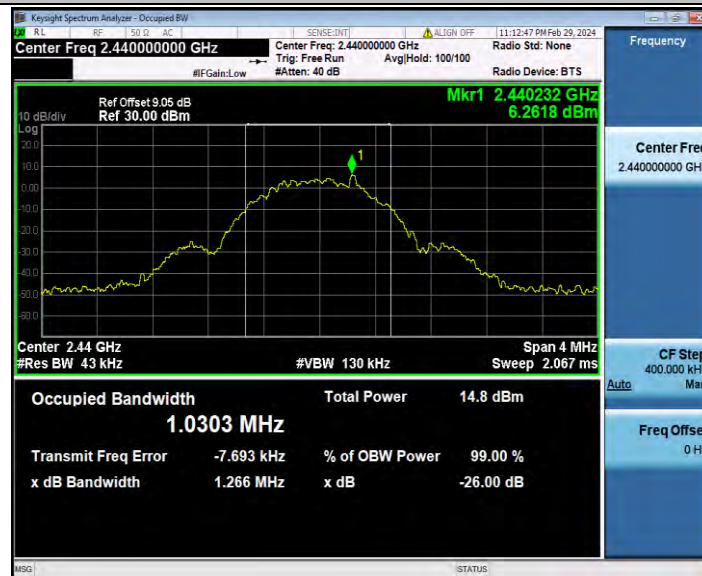
Test Graphs

BT LE

BLE_Ant1_2402



BLE_Ant1_2440



BLE_Ant1_2480



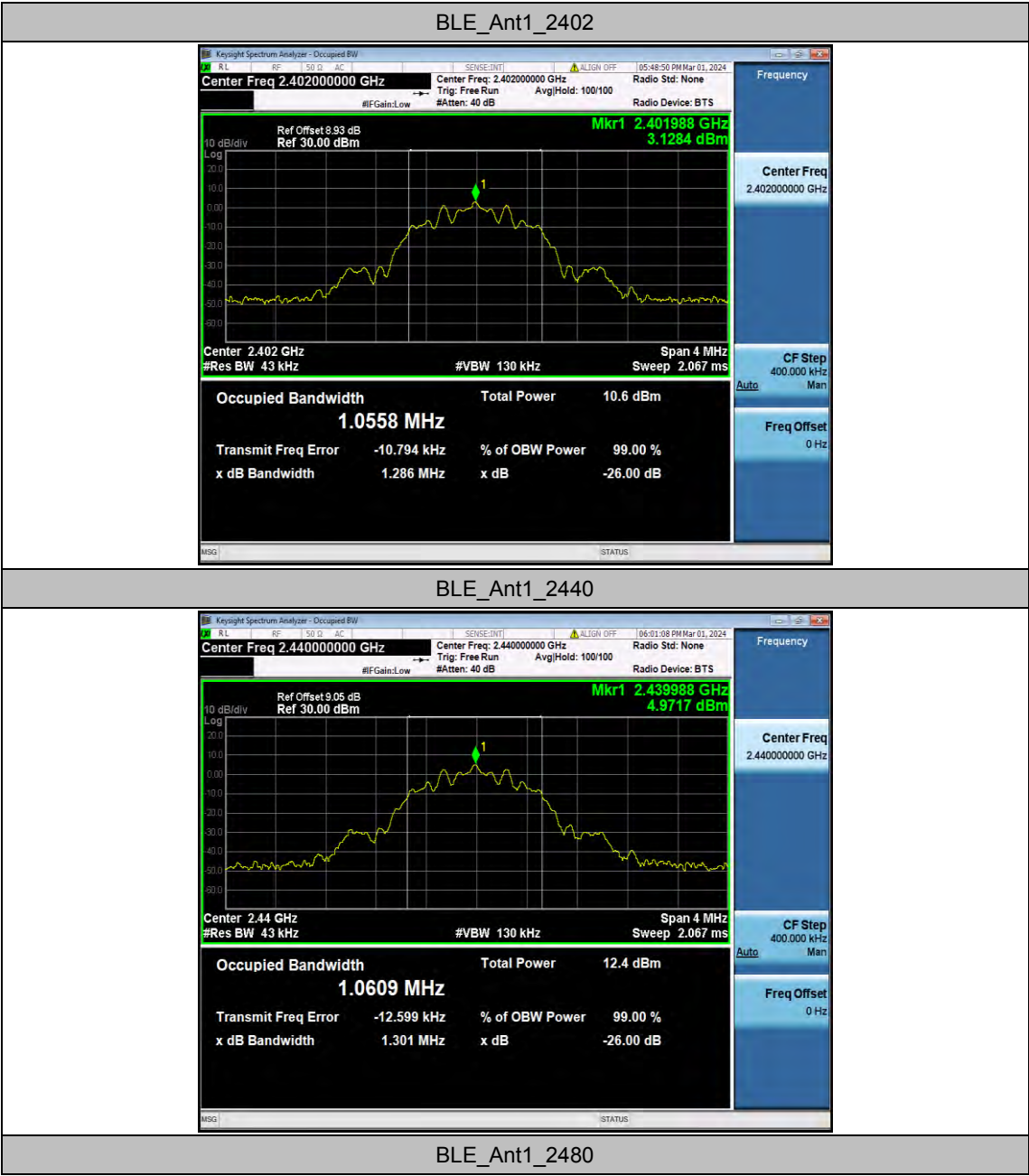
BT 2LE



BT LE(S2)



BT LE(S8)





Appendix B.3: Maximum conducted output power

Test Result

BT LE

TestMode	Antenna	Freq(MHz)	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
BLE	Ant1	2402	6.78	≤30	PASS
		2440	8.10	≤30	PASS
		2480	6.59	≤30	PASS

BT 2LE

TestMode	Antenna	Freq(MHz)	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
BLE	Ant1	2402	6.65	≤30	PASS
		2440	7.99	≤30	PASS
		2480	6.54	≤30	PASS

BT LE(S2)

TestMode	Antenna	Freq(MHz)	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
BLE	Ant1	2402	6.68	≤30	PASS
		2440	8.10	≤30	PASS
		2480	6.66	≤30	PASS

BT LE(S8)

TestMode	Antenna	Freq(MHz)	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
BLE	Ant1	2402	6.74	≤30	PASS
		2440	8.08	≤30	PASS
		2480	6.68	≤30	PASS

Note:

1.The Duty Cycle Factor and RBW Factor is compensated in the data.

Appendix B.4: Maximum power spectral density

Test Result

BT LE

TestMode	Antenna	Freq(MHz)	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE	Ant1	2402	-9.64	≤8.00	PASS
		2440	-7.61	≤8.00	PASS
		2480	-9.43	≤8.00	PASS

BT 2LE

TestMode	Antenna	Freq(MHz)	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE	Ant1	2402	-13.17	≤8.00	PASS
		2440	-11.64	≤8.00	PASS
		2480	-13.29	≤8.00	PASS

BT LE(S2)

TestMode	Antenna	Freq(MHz)	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE	Ant1	2402	-0.22	≤8.00	PASS
		2440	1.60	≤8.00	PASS
		2480	0.21	≤8.00	PASS

BT LE(S8)

TestMode	Antenna	Freq(MHz)	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE	Ant1	2402	0.26	≤8.00	PASS
		2440	1.71	≤8.00	PASS
		2480	0.23	≤8.00	PASS

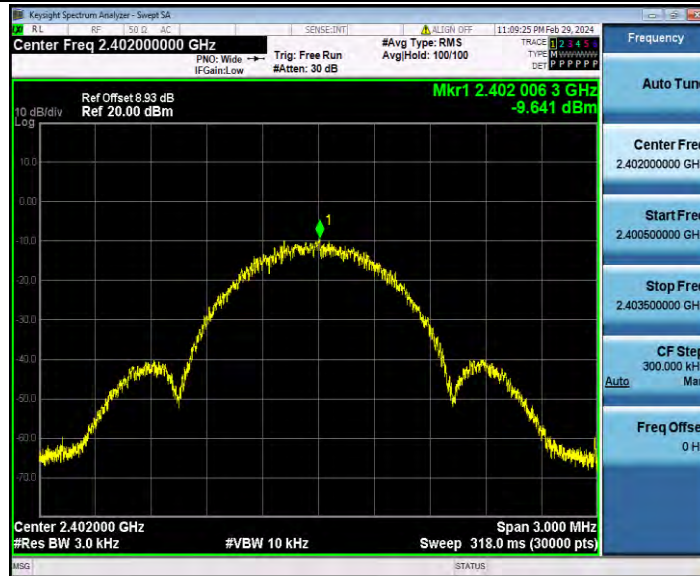
Note:

1. The Duty Cycle Factor and RBW Factor is compensated in the graph.

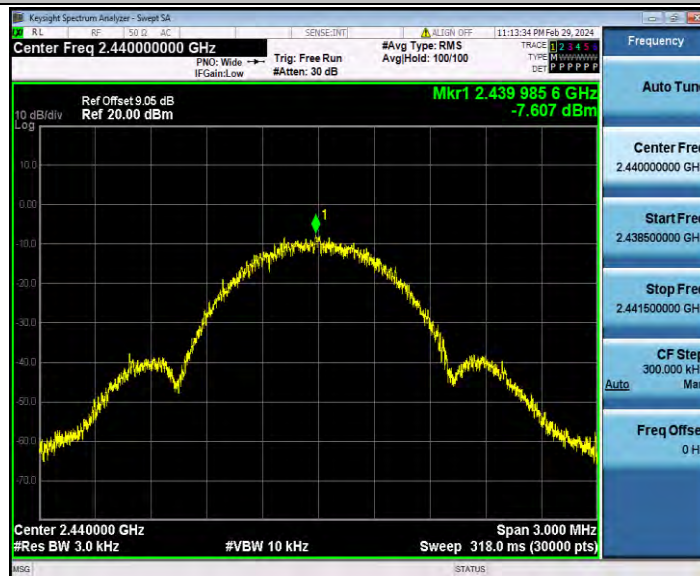
Test Graphs

BT LE

BLE_Ant1_2402



BLE_Ant1_2440



BLE_Ant1_2480



BT 2LE

BLE_Ant1_2402

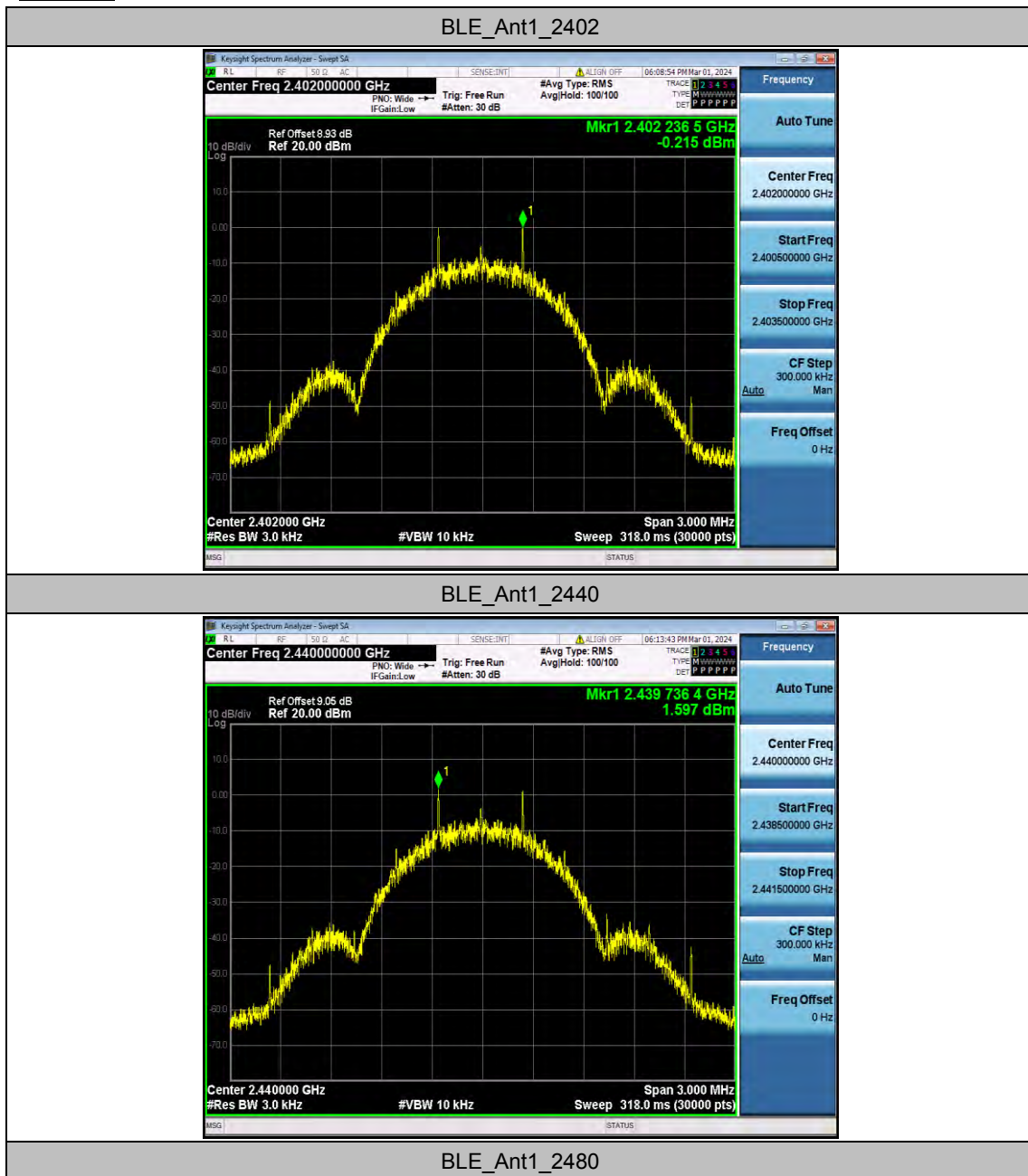


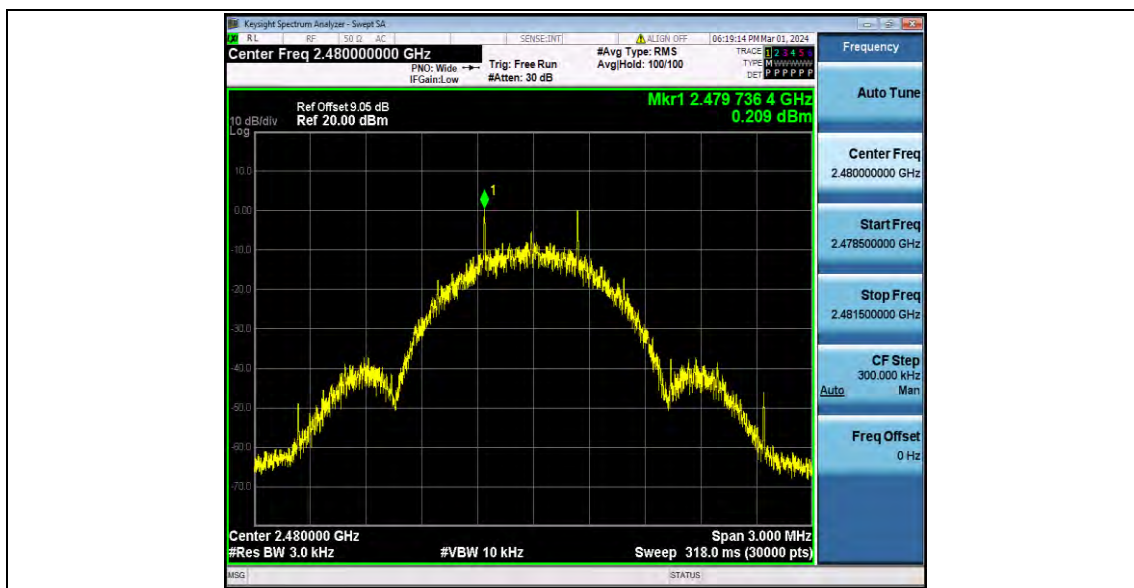
BLE_Ant1_2440



BLE_Ant1_2480



BT LE(S2)



BT LE(S8)

BLE_Ant1_2402



BLE_Ant1_2440



BLE_Ant1_2480



Appendix B.5: Band edge measurements

Test Result

BT LE

TestMode	Antenna	ChName	Freq (MHz)	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
BLE	Ant1	Low	2402	5.73	-49.78	≤ -14.27	PASS
		High	2480	6.20	-49.82	≤ -13.8	PASS

BT 2LE

TestMode	Antenna	ChName	Freq (MHz)	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
BLE	Ant1	Low	2402	5.40	-31.07	≤ -14.6	PASS
		High	2480	4.50	-49.43	≤ -15.5	PASS

BT LE(S2)

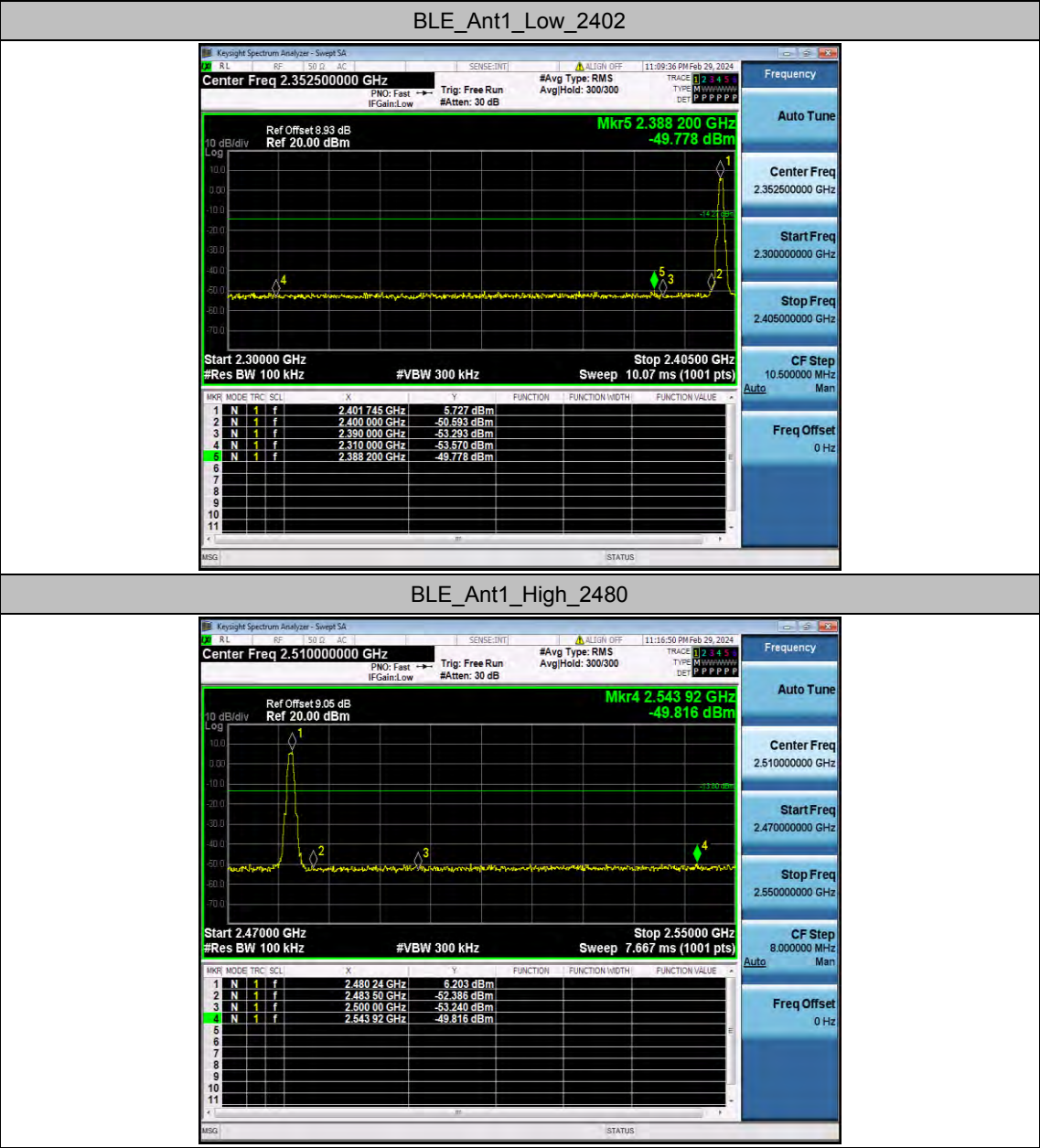
TestMode	Antenna	ChName	Freq (MHz)	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
BLE	Ant1	Low	2402	5.77	-49.79	≤ -14.23	PASS
		High	2480	6.07	-49.1	≤ -13.93	PASS

BT LE(S8)

TestMode	Antenna	ChName	Freq (MHz)	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
BLE	Ant1	Low	2402	3.29	-49.76	≤ -16.72	PASS
		High	2480	3.47	-49.62	≤ -16.53	PASS

Test Graphs

BT LE

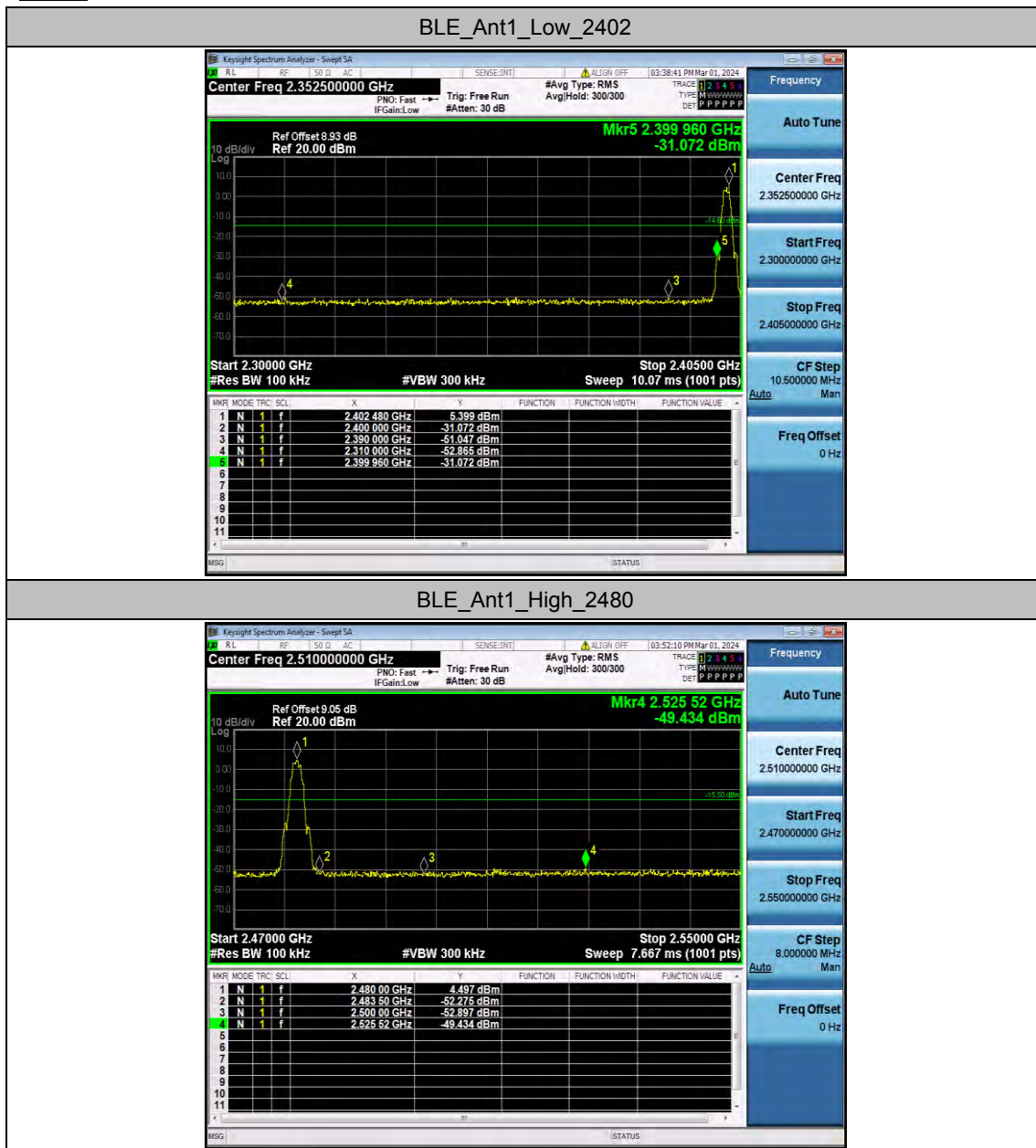


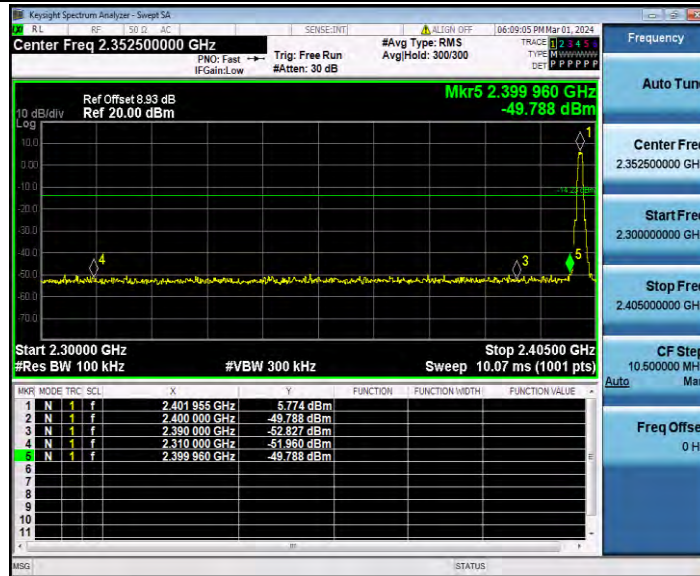
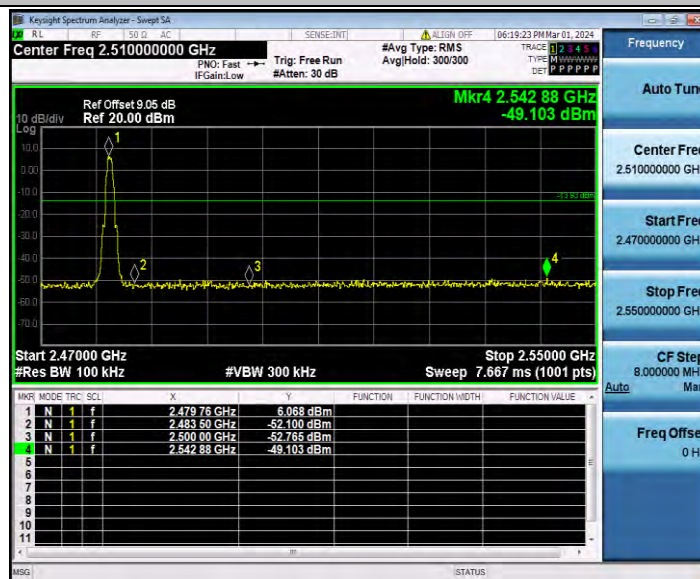
BLE_Ant1_High_2480

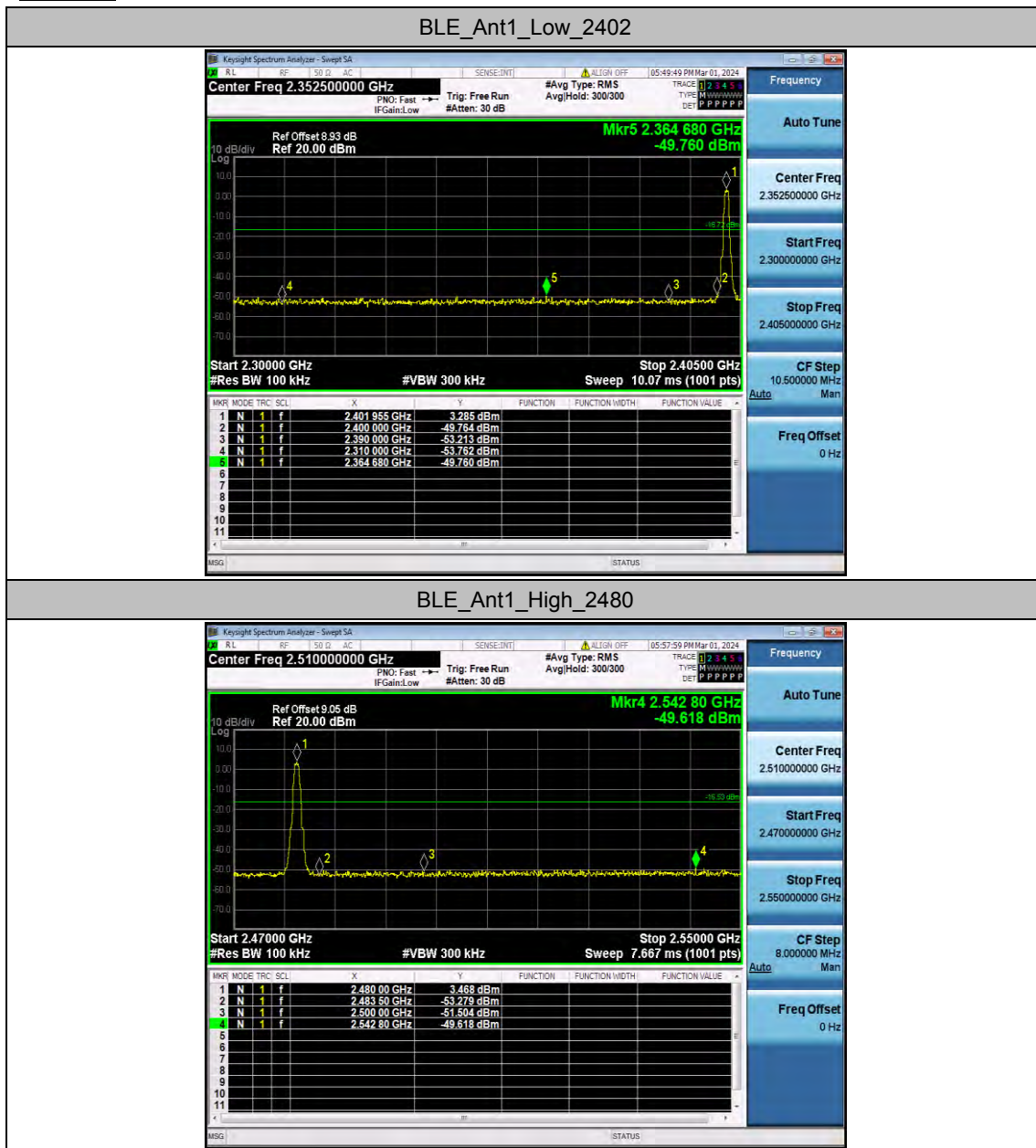
Frequency

Auto Tune

Center Freq
2.510000000 GHzStart Freq
2.470000000 GHzStop Freq
2.550000000 GHzCF Step
8.000000 MHzFreq Offset
0 Hz

BT 2LE

BT LE(S2)**BLE_Ant1_Low_2402****BLE_Ant1_High_2480**

BT LE(S8)

Appendix B.6: Conducted Spurious Emission

Test Result

BT LE

TestMode	Antenna	Freq(MHz)	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE	Ant1	2402	Reference	6.25	6.25	---	PASS
			30~1000	6.25	-60.85	≤ -13.75	PASS
			1000~26500	6.25	-48.44	≤ -13.75	PASS
		2440	Reference	7.44	7.44	---	PASS
			30~1000	7.44	-60.92	≤ -12.56	PASS
			1000~26500	7.44	-48.1	≤ -12.56	PASS
		2480	Reference	5.31	5.31	---	PASS
			30~1000	5.31	-61.02	≤ -14.69	PASS
			1000~26500	5.31	-47.69	≤ -14.69	PASS

BT 2LE

TestMode	Antenna	Freq(MHz)	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE	Ant1	2402	Reference	4.73	4.73	---	PASS
			30~1000	4.73	-60.65	≤ -15.27	PASS
			1000~26500	4.73	-48.15	≤ -15.27	PASS
		2440	Reference	6.60	6.60	---	PASS
			30~1000	6.60	-60.36	≤ -13.4	PASS
			1000~26500	6.60	-47.28	≤ -13.4	PASS
		2480	Reference	3.75	3.75	---	PASS
			30~1000	3.75	-61.22	≤ -16.25	PASS
			1000~26500	3.75	-48.86	≤ -16.25	PASS

BT LE(S2)

TestMode	Antenna	Freq(MHz)	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE	Ant1	2402	Reference	5.66	5.66	---	PASS
			30~1000	5.66	-60.67	≤-14.34	PASS
			1000~26500	5.66	-48.1	≤-14.34	PASS
		2440	Reference	6.45	6.45	---	PASS
			30~1000	6.45	-60.72	≤-13.55	PASS
			1000~26500	6.45	-47.48	≤-13.55	PASS
		2480	Reference	5.74	5.74	---	PASS
			30~1000	5.74	-60.92	≤-14.26	PASS
			1000~26500	5.74	-47.78	≤-14.26	PASS

BT LE(S8)

TestMode	Antenna	Freq(MHz)	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE	Ant1	2402	Reference	3.24	3.24	---	PASS
			30~1000	3.24	-60.99	≤-16.76	PASS
			1000~26500	3.24	-47.61	≤-16.76	PASS
		2440	Reference	4.79	4.79	---	PASS
			30~1000	4.79	-60.21	≤-15.21	PASS
			1000~26500	4.79	-48.36	≤-15.21	PASS
		2480	Reference	3.26	3.26	---	PASS
			30~1000	3.26	-60.18	≤-16.74	PASS
			1000~26500	3.26	-48.11	≤-16.74	PASS

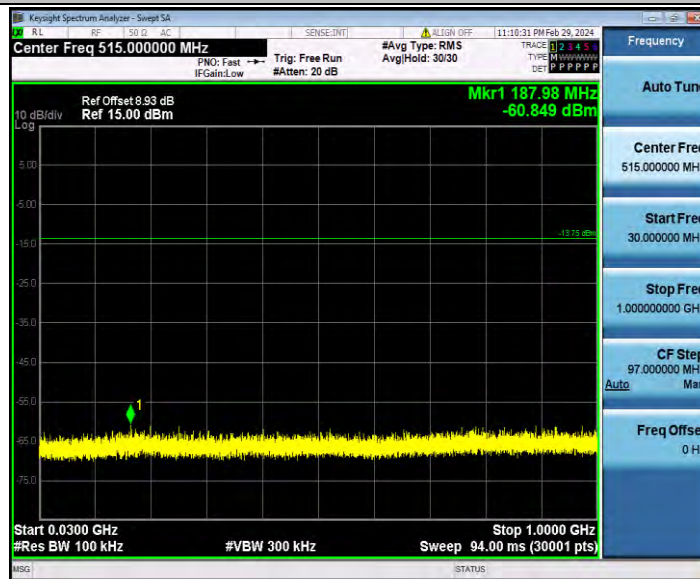
Test Graphs

BT LE

BLE_Ant1_2402_0~Reference



BLE_Ant1_2402_30~1000



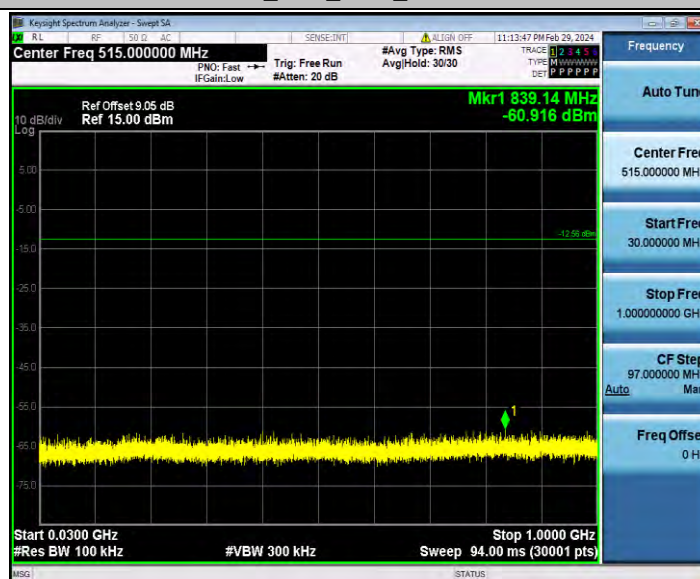
BLE_Ant1_2402_1000~26500



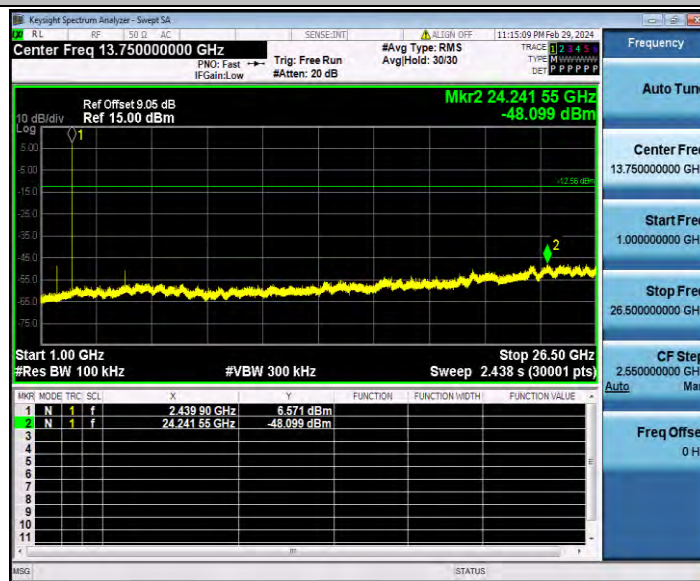
BLE_Ant1_2440_0~Reference



BLE_Ant1_2440_30~1000



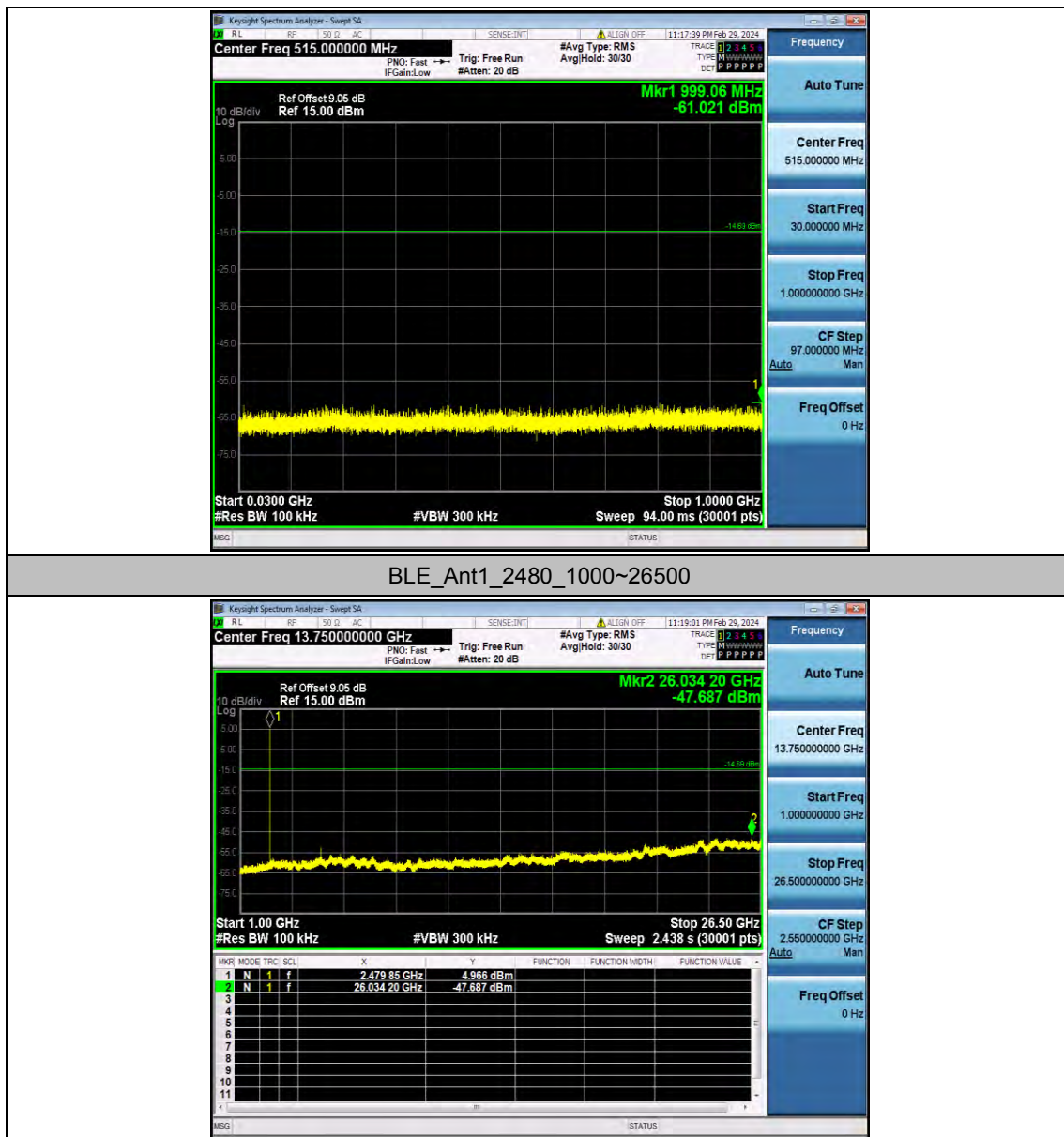
BLE_Ant1_2440_1000~26500



BLE_Ant1_2480_0~Reference



BLE_Ant1_2480_30~1000

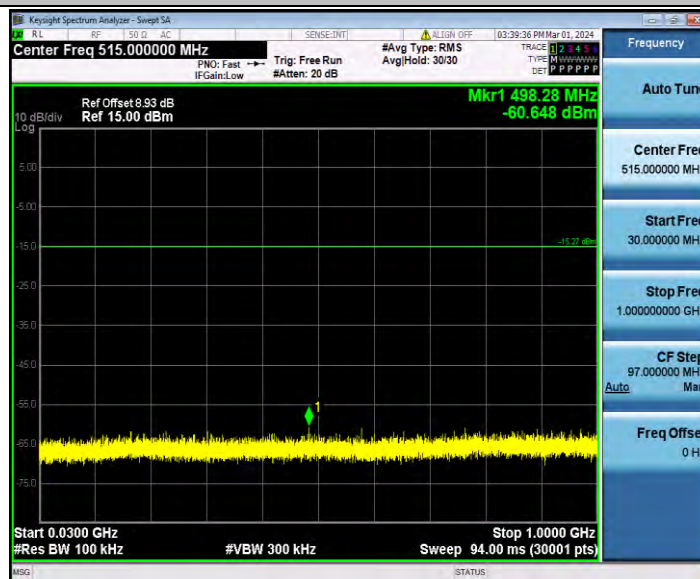


BT 2LE

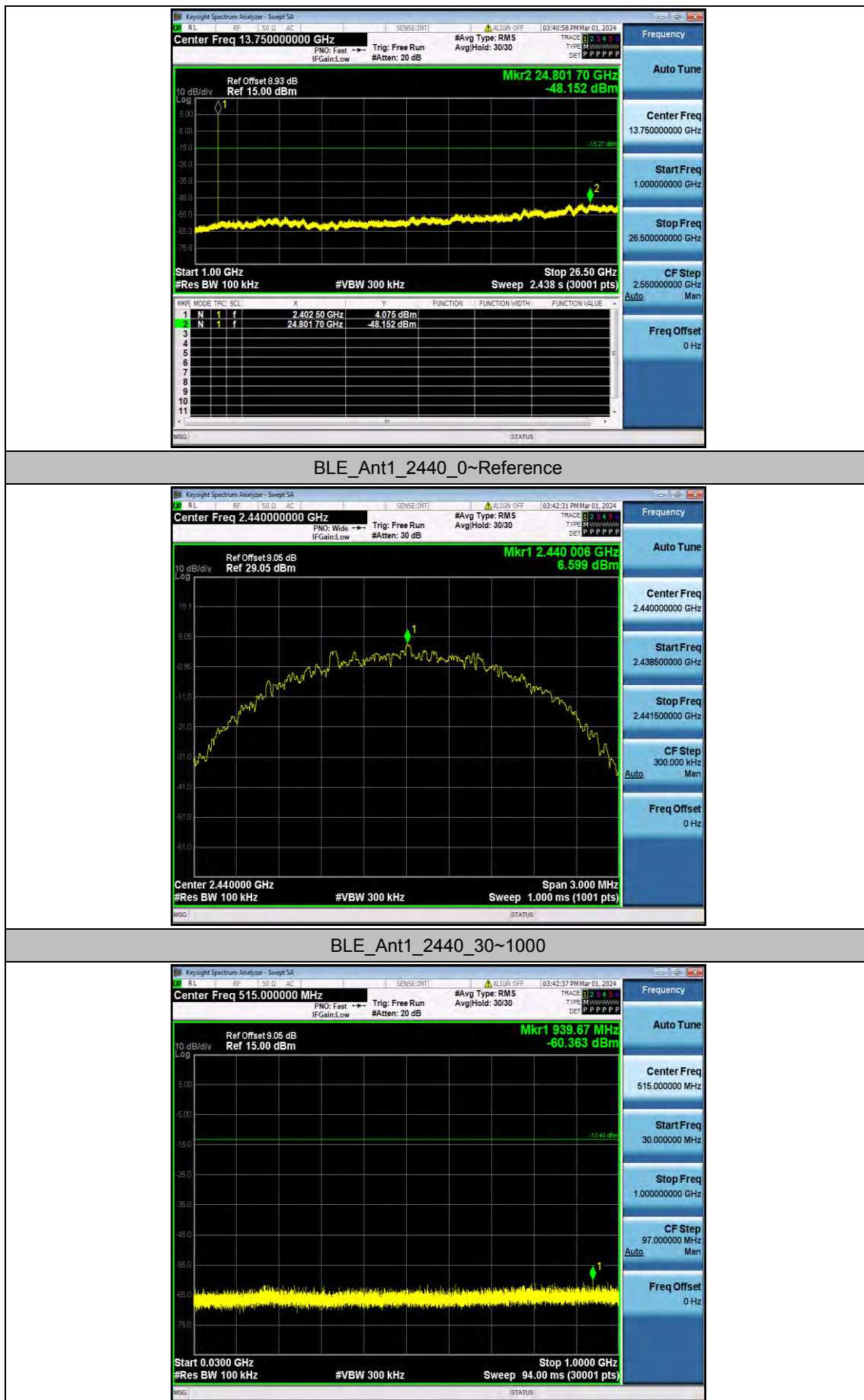
BLE_Ant1_2402_0~Reference



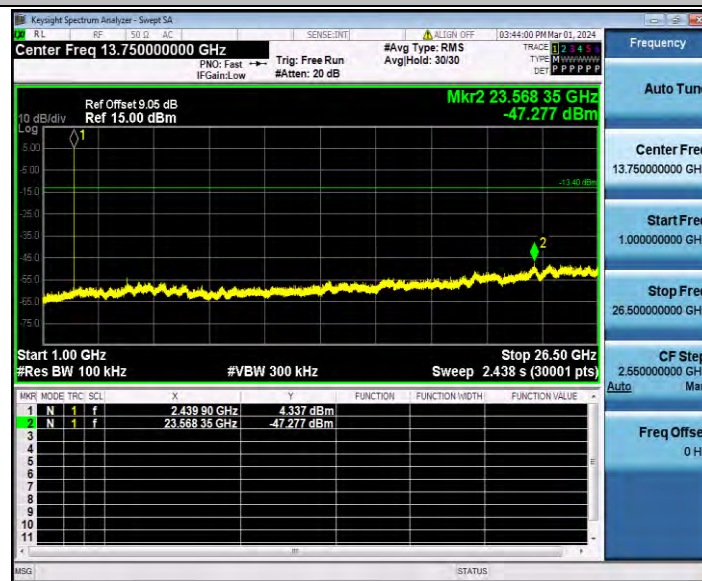
BLE_Ant1_2402_30~1000



BLE_Ant1_2402_1000~26500



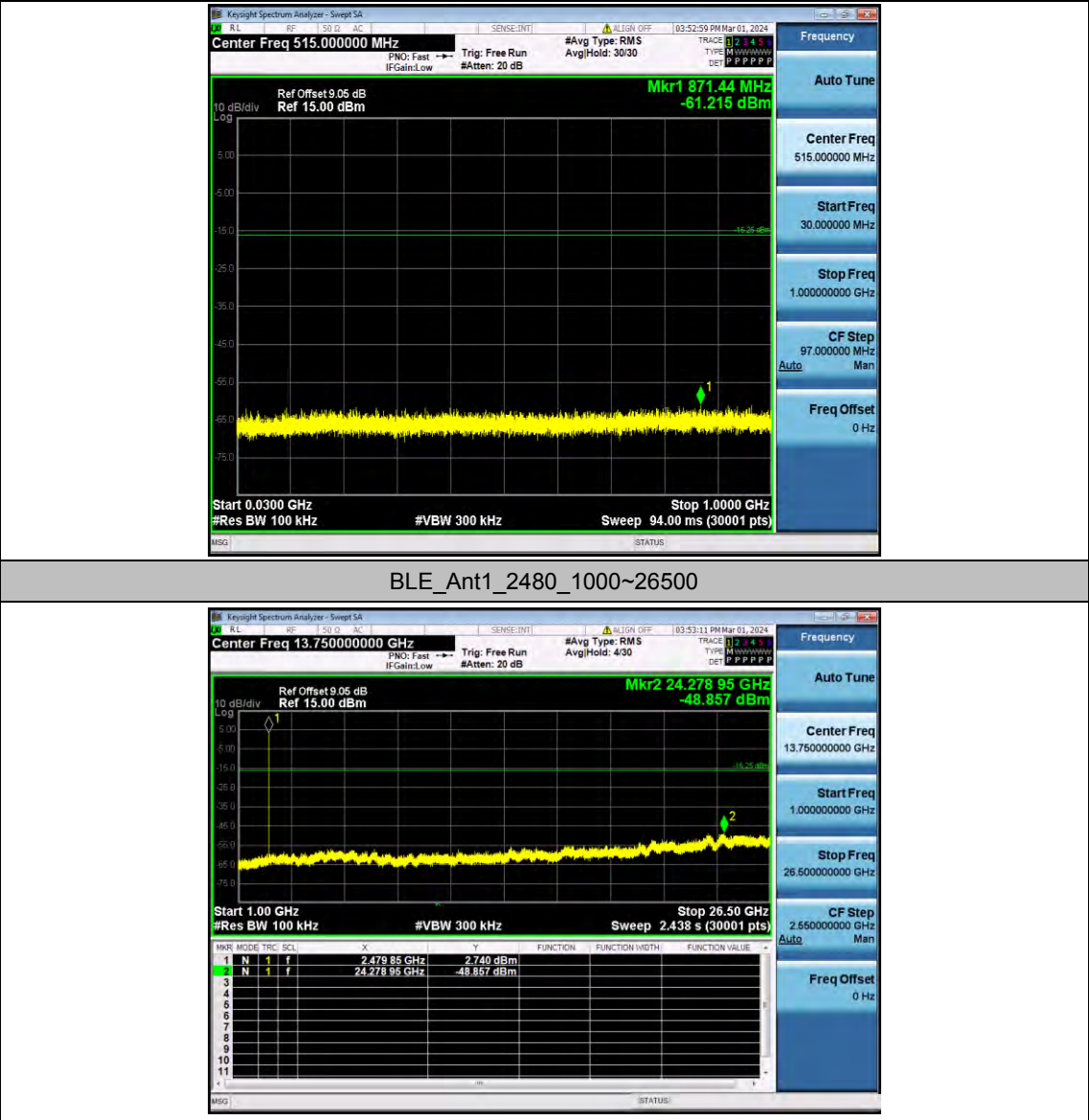
BLE_Ant1_2440_1000~26500



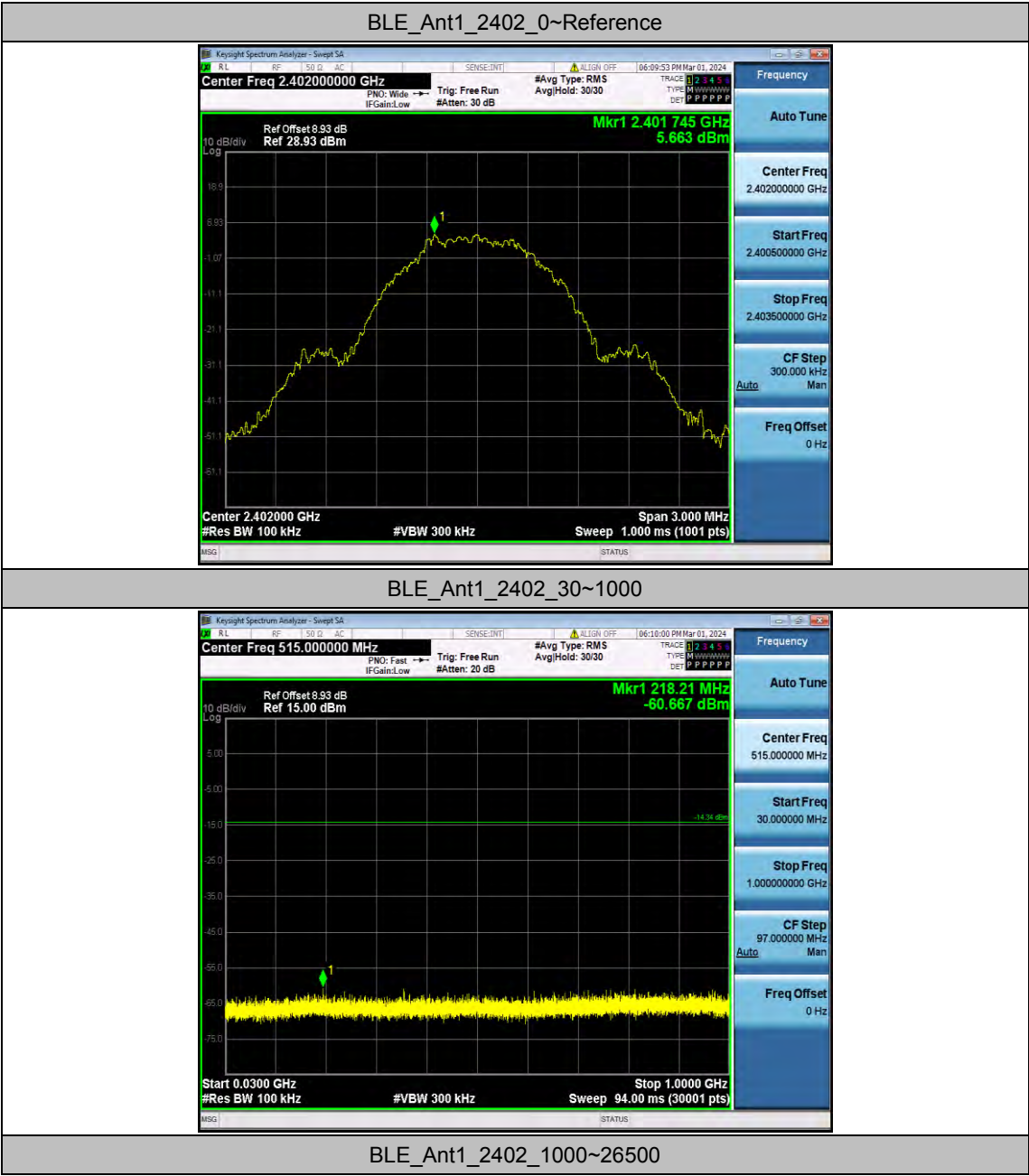
BLE_Ant1_2480_0~Reference

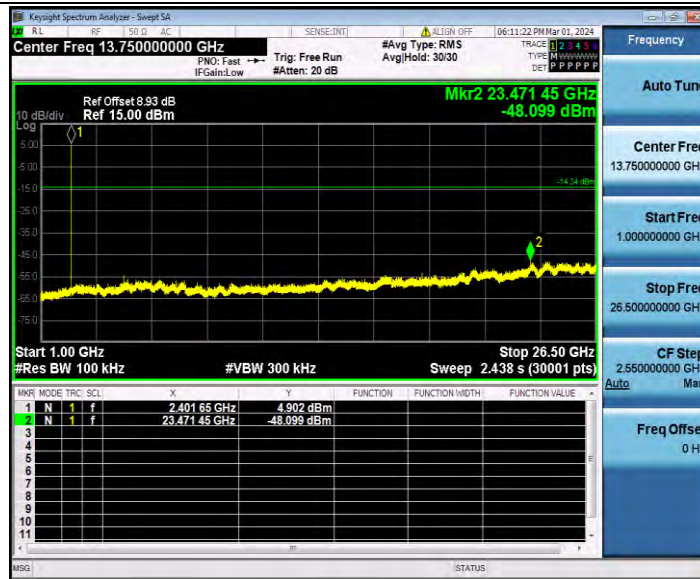


BLE_Ant1_2480_30~1000



BT LE(S2)

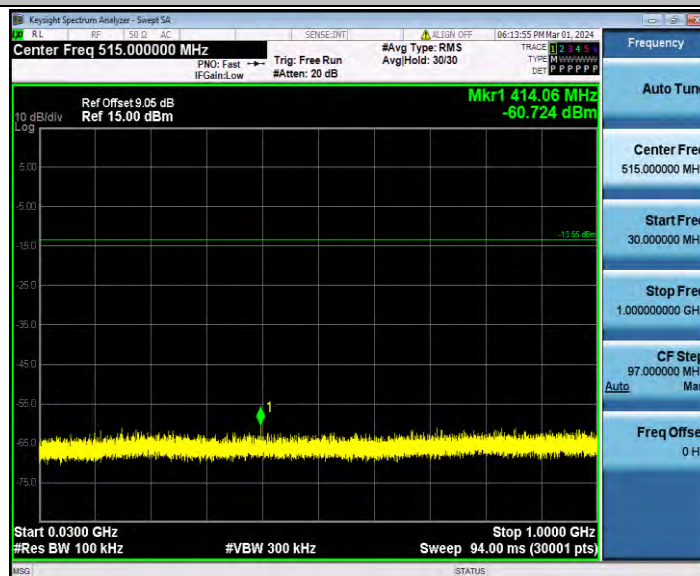




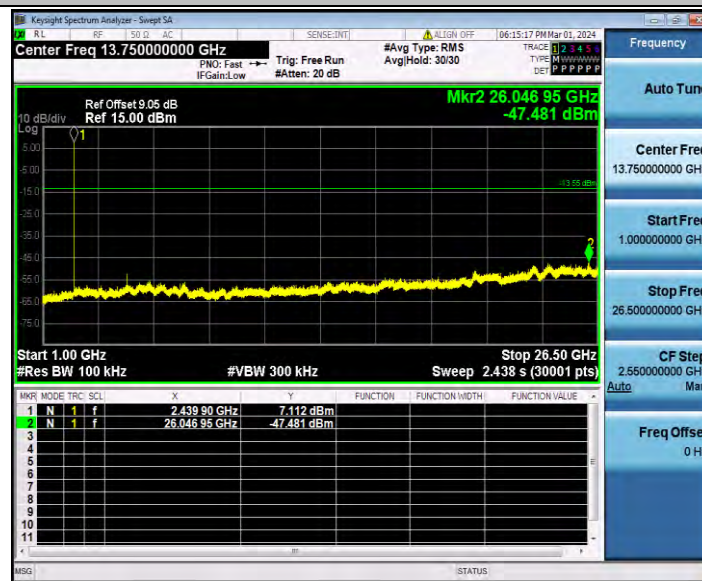
BLE_Ant1_2440_0~Reference



BLE_Ant1_2440_30~1000



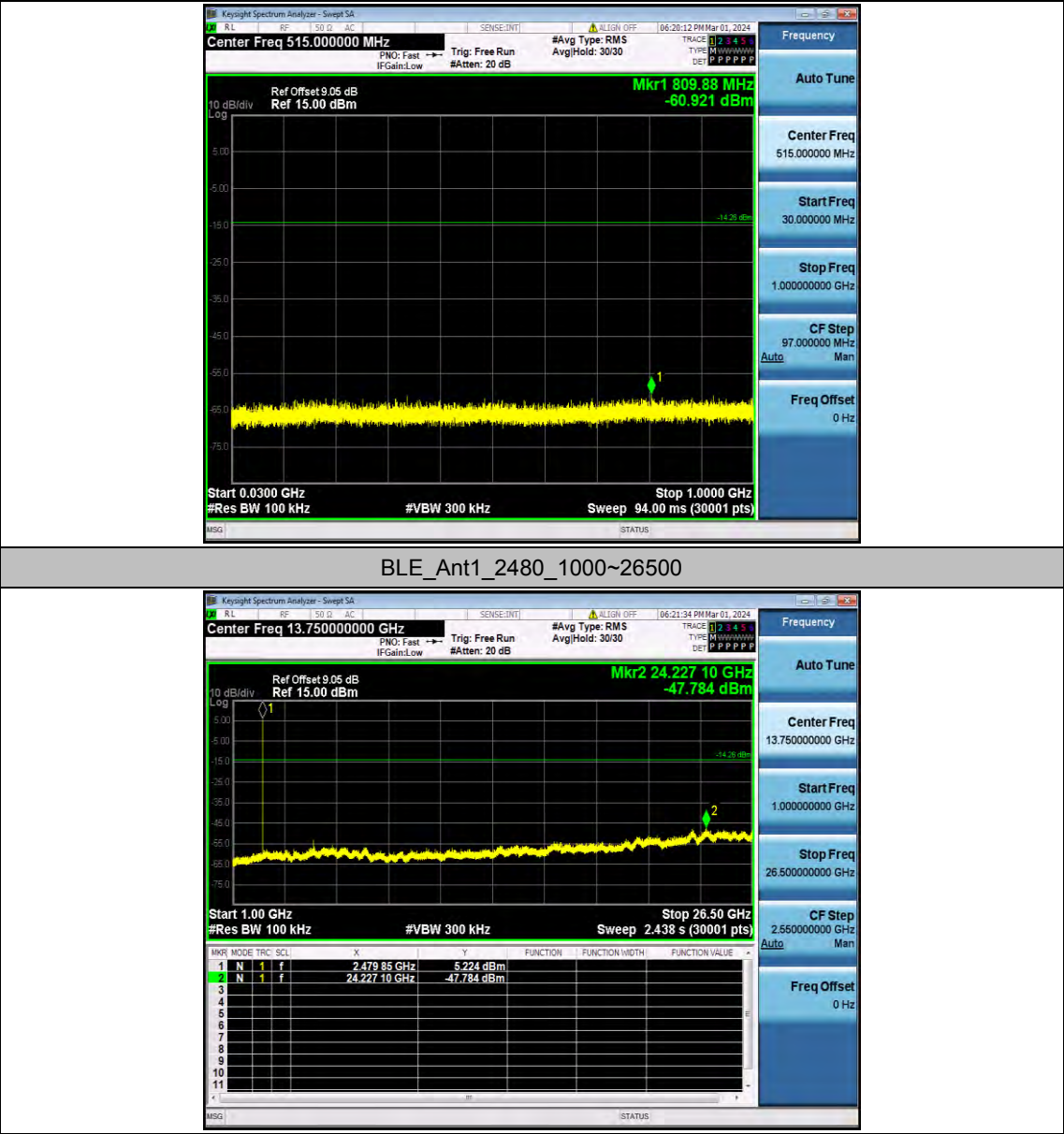
BLE_Ant1_2440_1000~26500



BLE_Ant1_2480_0~Reference



BLE_Ant1_2480_30~1000

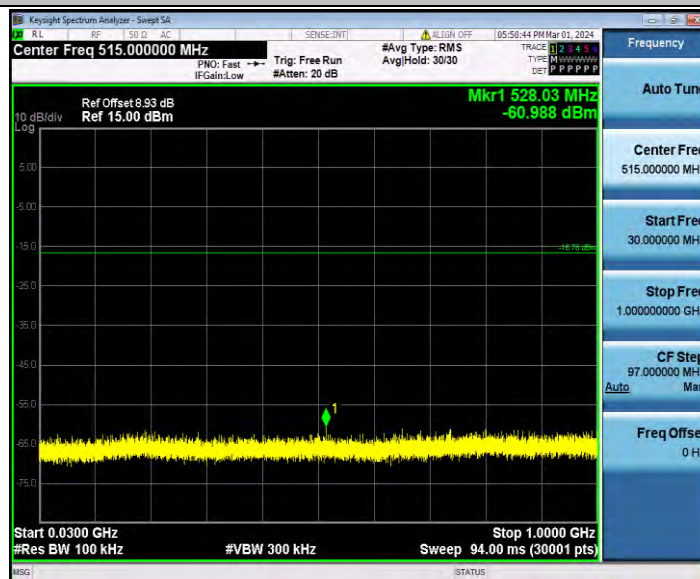


BT LE(S8)

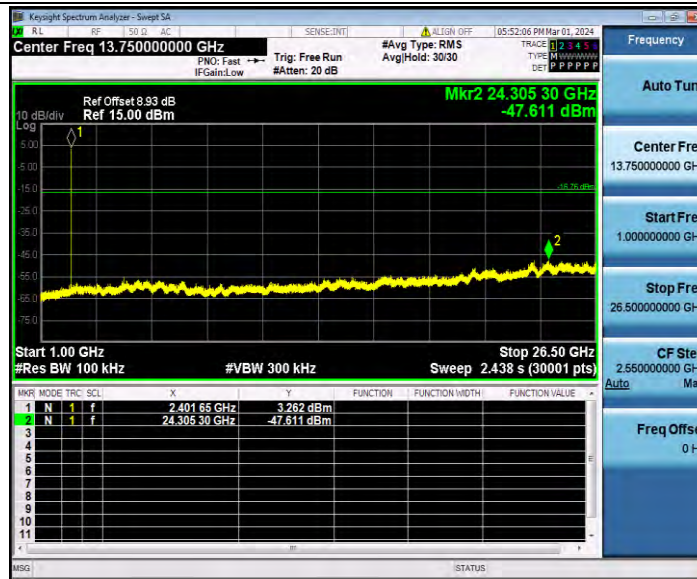
BLE_Ant1_2402_0~Reference



BLE_Ant1_2402_30~1000



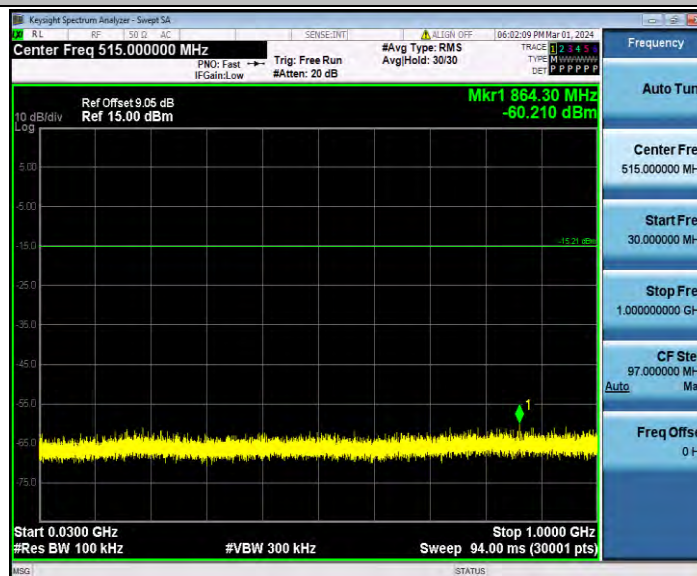
BLE_Ant1_2402_1000~26500



BLE_Ant1_2440_0~Reference



BLE_Ant1_2440_30~1000



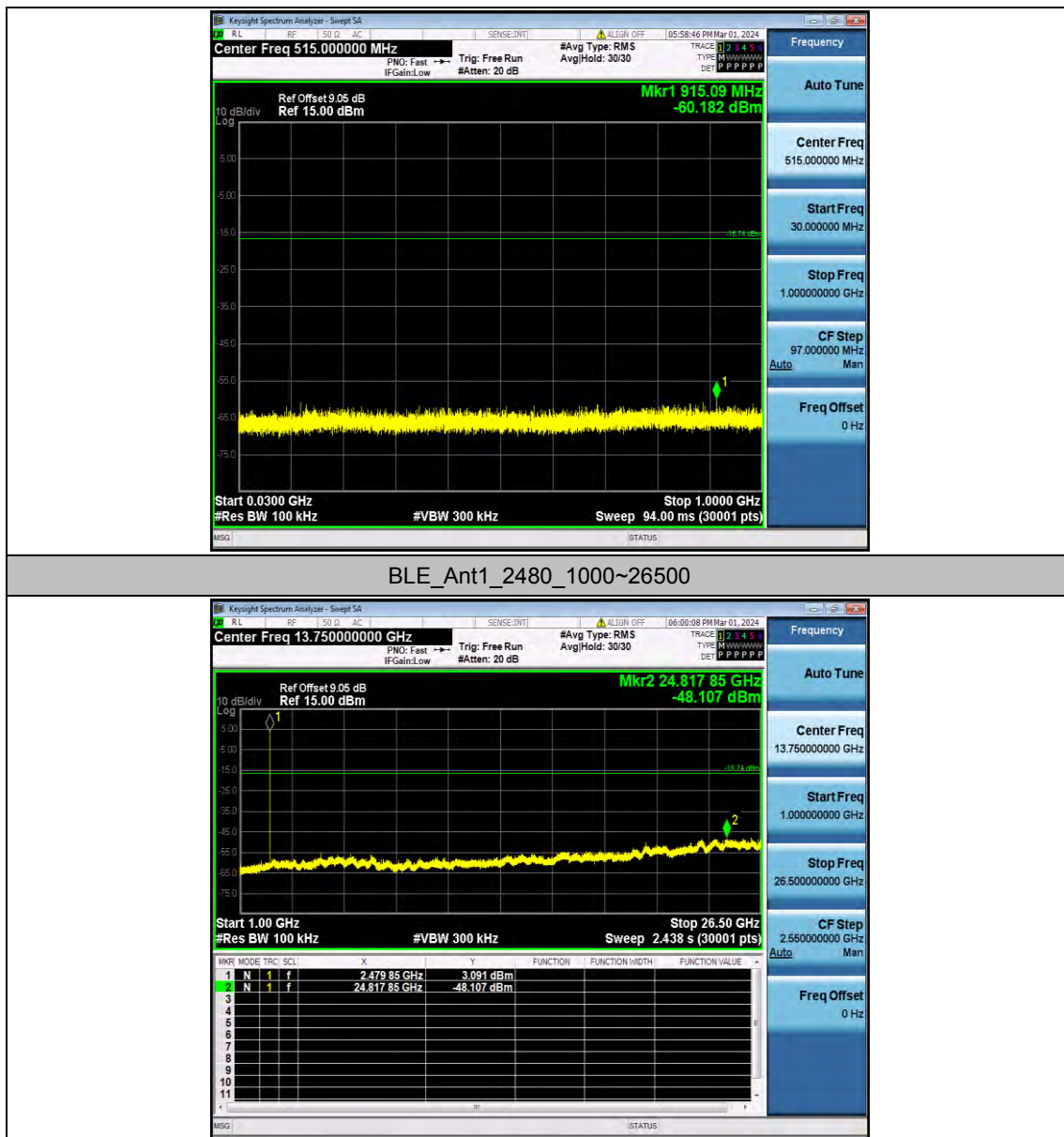
BLE_Ant1_2440_1000~26500



BLE_Ant1_2480_0~Reference



BLE_Ant1_2480_30~1000



Appendix B.7: Emissions in Restricted Bands

Test Result

BT LE

TestMode	Antenna	ChName	Freq (MHz)	Detector	Freq [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
BLE	Ant1	Low	2402	AV	2310.000	-49.34	≤-41.20	45.86	≤54	PASS
				AV	2384.210	-48.93	≤-41.20	46.27	≤54	PASS
				AV	2390.000	-49.06	≤-41.20	46.14	≤54	PASS
				Peak	2310.000	-42.2	≤-21.20	53.00	≤74	PASS
				Peak	2355.440	-37.9	≤-21.20	57.30	≤74	PASS
				Peak	2390.000	-42.33	≤-21.20	52.87	≤74	PASS
		High	2480	AV	2483.500	-46.83	≤-41.20	48.37	≤54	PASS
				AV	2483.520	-46.83	≤-41.20	48.37	≤54	PASS
				AV	2500.000	-48.77	≤-41.20	46.43	≤54	PASS
				Peak	2483.500	-41.34	≤-21.20	53.86	≤74	PASS
				Peak	2486.160	-39.36	≤-21.20	55.84	≤74	PASS
				Peak	2500.000	-42	≤-21.20	53.20	≤74	PASS

BT 2LE

TestMode	Antenna	ChName	Freq (MHz)	Detector	Freq [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
BLE	Ant1	Low	2402	AV	2310.000	-49.47	≤-41.20	45.73	≤54	PASS
				AV	2386.205	-49.03	≤-41.20	46.17	≤54	PASS
				AV	2390.000	-49.18	≤-41.20	46.02	≤54	PASS
				Peak	2310.000	-43.03	≤-21.20	52.17	≤74	PASS
				Peak	2381.165	-38.99	≤-21.20	56.21	≤74	PASS
				Peak	2390.000	-42.59	≤-21.20	52.61	≤74	PASS
		High	2480	AV	2483.500	-43.7	≤-41.20	51.50	≤54	PASS
				AV	2483.520	-43.7	≤-41.20	51.50	≤54	PASS
				AV	2500.000	-48.84	≤-41.20	46.36	≤54	PASS
				Peak	2483.500	-40.42	≤-21.20	54.78	≤74	PASS
				Peak	2499.440	-39.4	≤-21.20	55.80	≤74	PASS
				Peak	2500.000	-41.53	≤-21.20	53.67	≤74	PASS

BT LE(S2)

TestMode	Antenna	ChName	Freq (MHz)	Detector	Freq [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
BLE	Ant1	Low	2402	AV	2310.000	-49.51	≤-41.20	45.69	≤54	PASS
				AV	2384.735	-48.96	≤-41.20	46.24	≤54	PASS
				AV	2390.000	-49.05	≤-41.20	46.15	≤54	PASS
				Peak	2310.000	-40.89	≤-21.20	54.31	≤74	PASS
				Peak	2340.950	-39.65	≤-21.20	55.55	≤74	PASS
				Peak	2390.000	-43.19	≤-21.20	52.01	≤74	PASS
		High	2480	AV	2483.500	-46.61	≤-41.20	48.59	≤54	PASS
				AV	2483.520	-46.6	≤-41.20	48.60	≤54	PASS
				AV	2500.000	-48.82	≤-41.20	46.38	≤54	PASS
				Peak	2483.500	-42.59	≤-21.20	52.61	≤74	PASS
				Peak	2495.040	-38.71	≤-21.20	56.49	≤74	PASS
				Peak	2500.000	-42.44	≤-21.20	52.76	≤74	PASS

BT LE(S8)

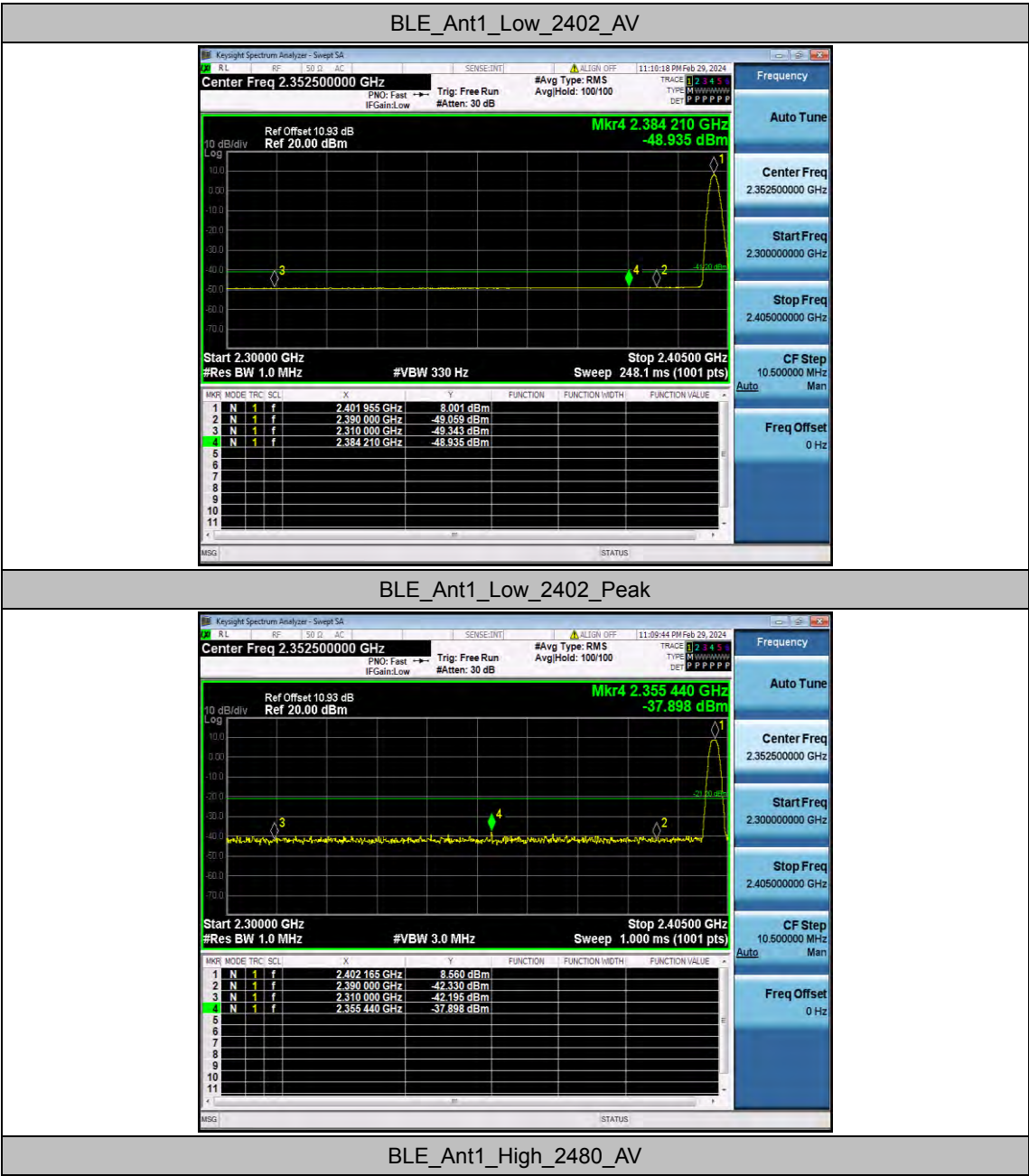
TestMode	Antenna	ChName	Freq (MHz)	Detector	Freq [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
BLE	Ant1	Low	2402	AV	2310.000	-49.27	≤-41.20	45.93	≤54	PASS
				AV	2388.620	-48.92	≤-41.20	46.28	≤54	PASS
				AV	2390.000	-49	≤-41.20	46.20	≤54	PASS
				Peak	2310.000	-40.97	≤-21.20	54.23	≤74	PASS
				Peak	2353.025	-38.86	≤-21.20	56.34	≤74	PASS
				Peak	2390.000	-41.11	≤-21.20	54.09	≤74	PASS
		High	2480	AV	2483.500	-46.42	≤-41.20	48.78	≤54	PASS
				AV	2483.520	-46.42	≤-41.20	48.78	≤54	PASS
				AV	2500.000	-48.79	≤-41.20	46.41	≤54	PASS
				Peak	2483.500	-41.33	≤-21.20	53.87	≤74	PASS
				Peak	2499.680	-38.98	≤-21.20	56.22	≤74	PASS
				Peak	2500.000	-42.49	≤-21.20	52.71	≤74	PASS

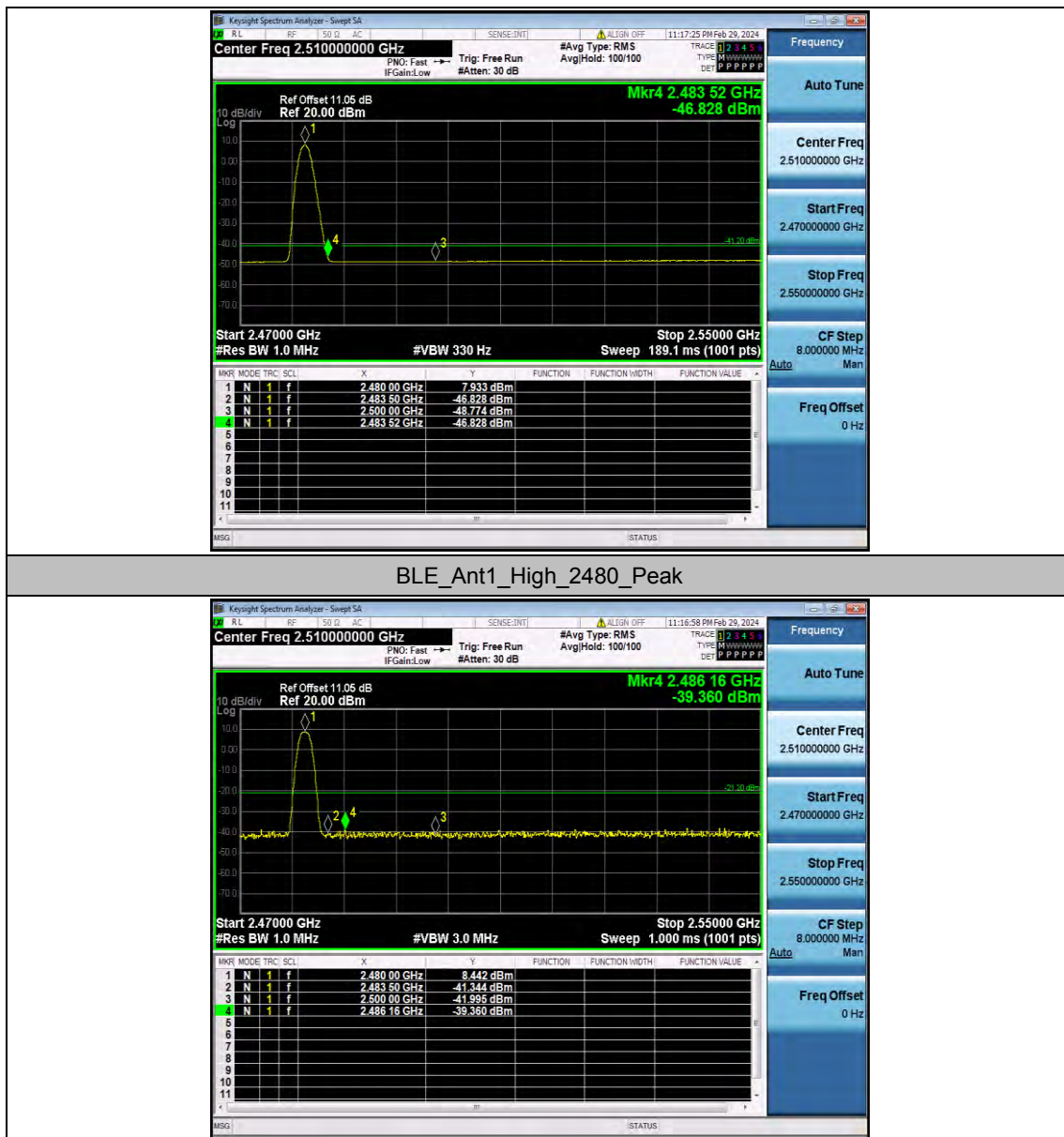
Note:

1. The Antenna Gain is compensated in the graph.
2. The Duty Cycle Factor and RBW Factor is compensated in the graph.
3. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

Test Graphs

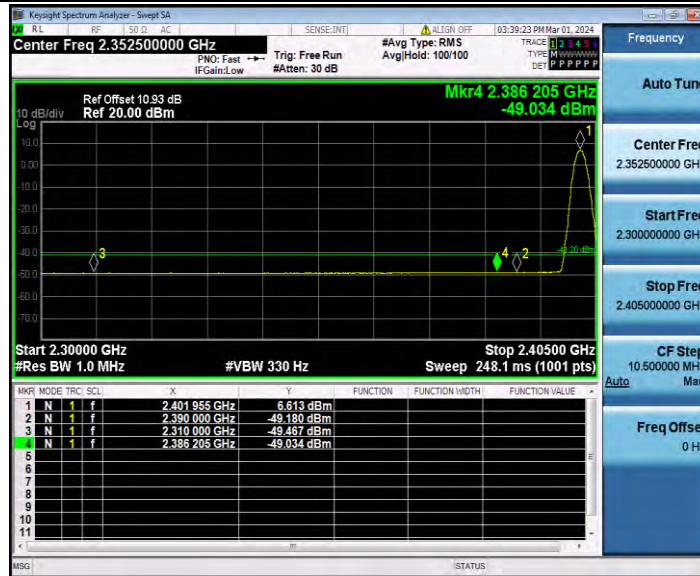
BT LE



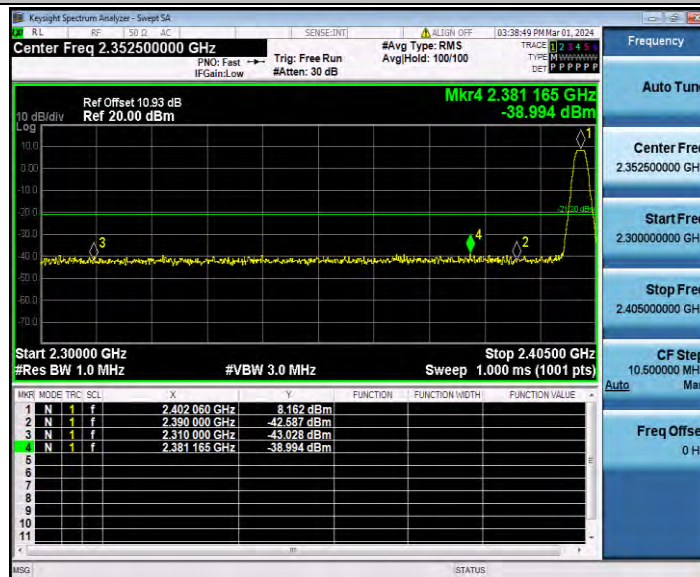


BT 2LE

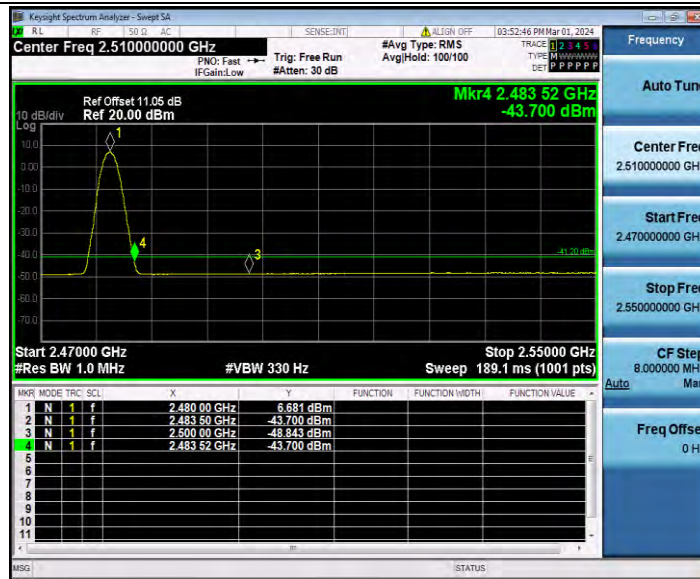
BLE_Ant1_Low_2402_AV



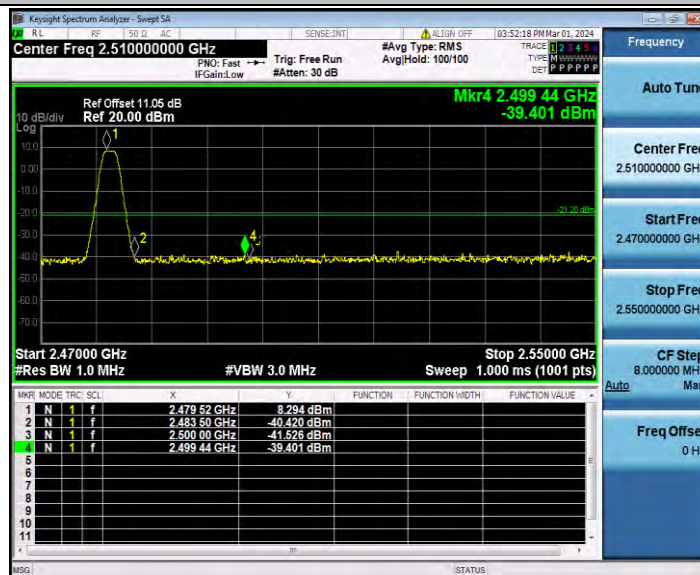
BLE_Ant1_Low_2402_Peak



BLE_Ant1_High_2480_AV

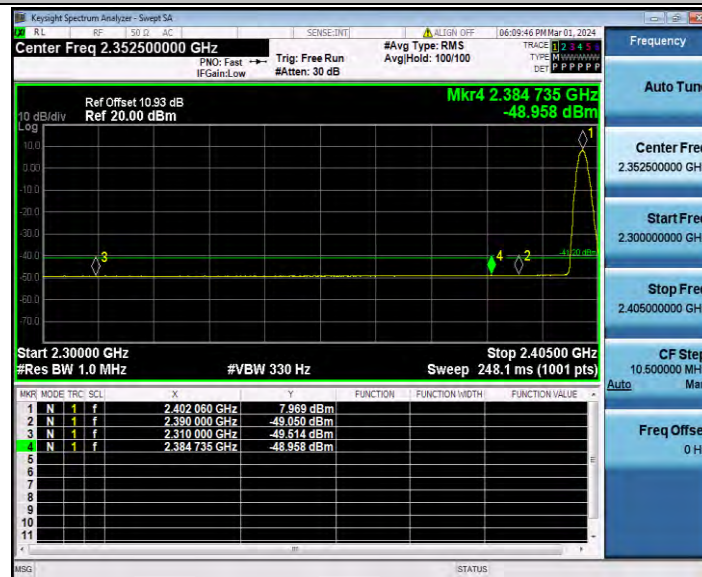


BLE_Ant1_High_2480_Peak

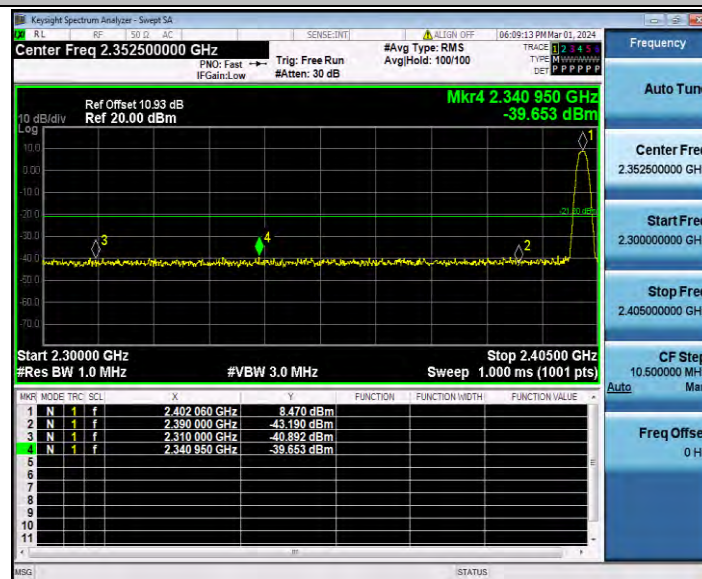


BT LE(S2)

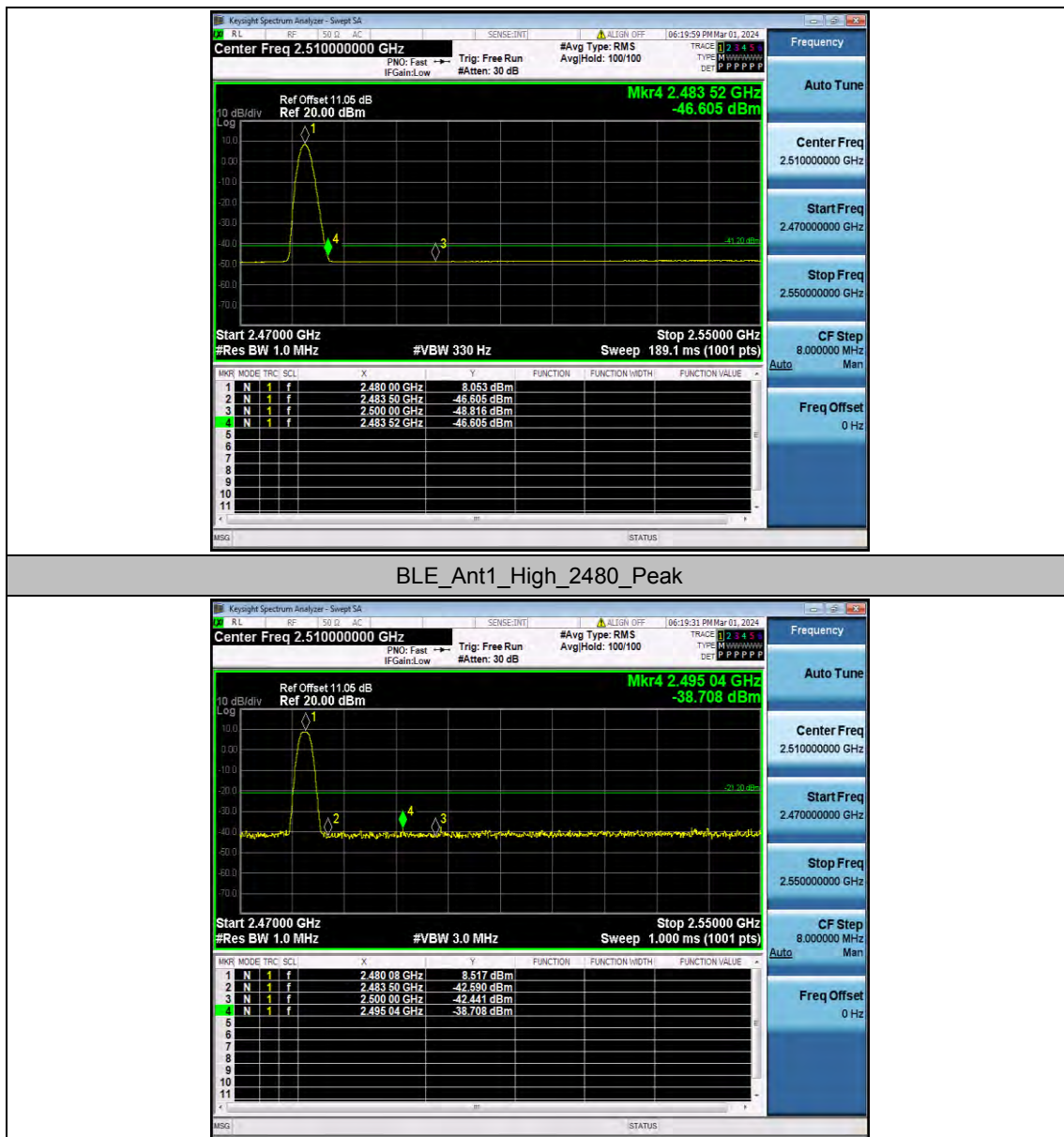
BLE_Ant1_Low_2402_AV



BLE_Ant1_Low_2402_Peak

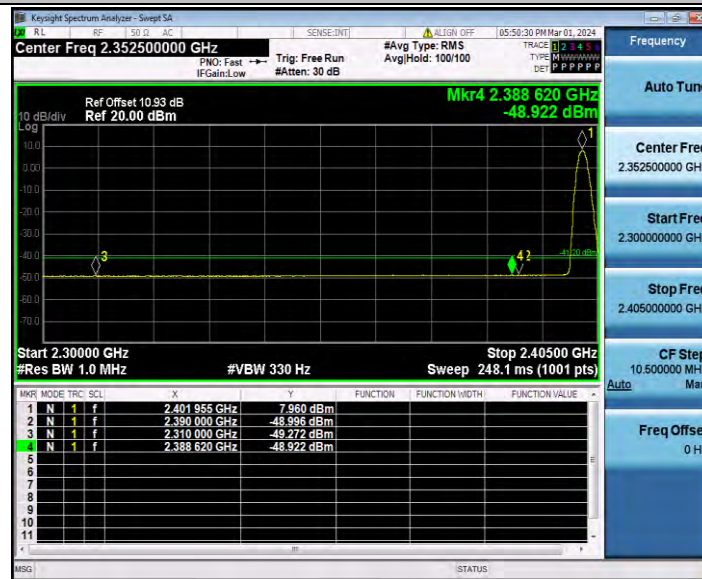


BLE_Ant1_High_2480_AV

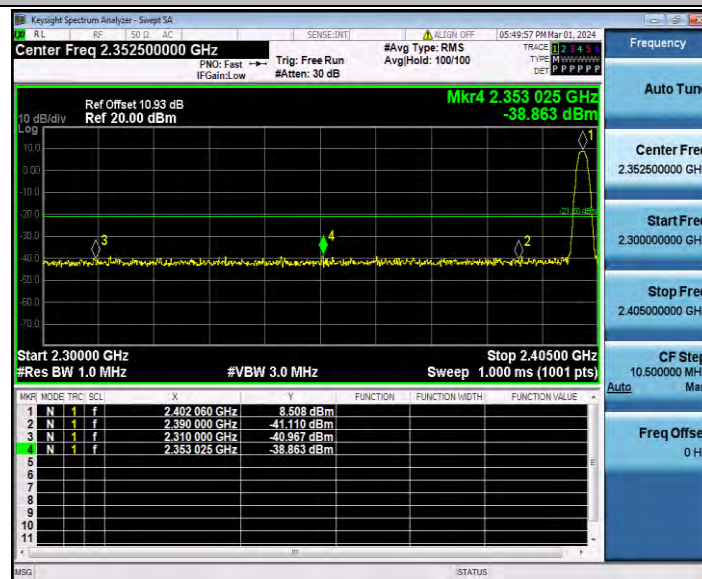


BT LE(S8)

BLE_Ant1_Low_2402_AV



BLE_Ant1_Low_2402_Peak



BLE_Ant1_High_2480_AV

