

Case No. : <u>GTS20231208004-1-15</u>	
Ambient Condition: <u>23</u> °C, <u>48</u> %RH	
According Standard: ■Part15C	
Test Date: <u>2024.1.3</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	0.696	2401.648	2402.344	0.5	PASS
		2440	0.732	2439.632	2440.364	0.5	PASS
		2480	0.692	2479.644	2480.336	0.5	PASS

BT 2LE

TestMode	Antenna	Freq(MHz)	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE	Ant1	2402	1.120	2401.436	2402.556	0.5	PASS
		2440	1.156	2439.440	2440.596	0.5	PASS
		2480	1.148	2479.440	2480.588	0.5	PASS

BT LE(S2)

TestMode	Antenna	Freq(MHz)	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE	Ant1	2402	0.664	2401.672	2402.336	0.5	PASS
		2440	0.704	2439.640	2440.344	0.5	PASS
		2480	0.692	2479.656	2480.348	0.5	PASS

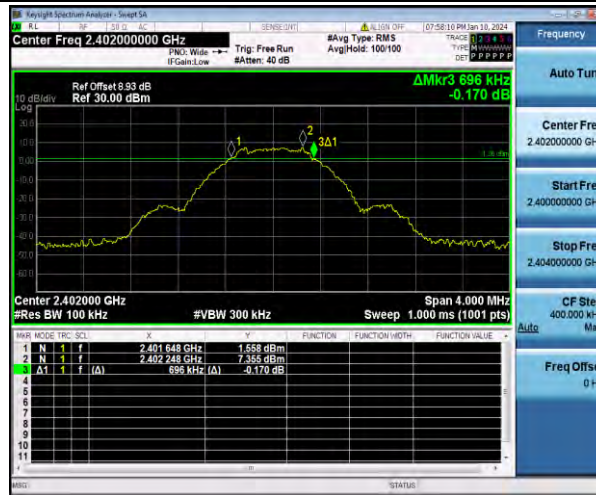
BT LE(S8)

TestMode	Antenna	Freq(MHz)	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE	Ant1	2402	0.676	2401.660	2402.336	0.5	PASS
		2440	0.700	2439.644	2440.344	0.5	PASS
		2480	0.680	2479.656	2480.336	0.5	PASS

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)

BLE_Ant1_2402



BLE_Ant1_2440



BLE_Ant1_2480



BT LE(S8)

BLE_Ant1_2402



BLE_Ant1_2440



BLE_Ant1_2480



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	1.0325	2401.4846	2402.5171	---	---
		2440	1.0473	2439.4750	2440.5223	---	---
		2480	1.0178	2479.4936	2480.5114	---	---

BT 2LE

TestMode	Antenna	Freq(MHz)	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE	Ant1	2402	2.0545	2400.9944	2403.0489	---	---
		2440	2.0503	2438.9899	2441.0402	---	---
		2480	2.0561	2478.9904	2481.0465	---	---

BT LE(S2)

TestMode	Antenna	Freq(MHz)	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE	Ant1	2402	1.0158	2401.4882	2402.5040	---	---
		2440	1.0292	2439.4809	2440.5101	---	---
		2480	1.0157	2479.4858	2480.5015	---	---

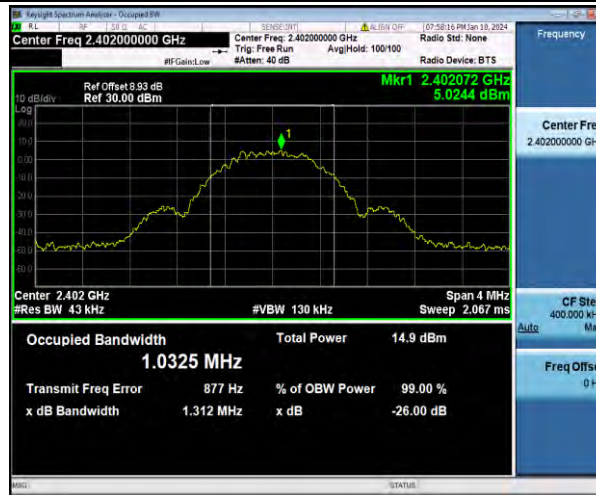
BT LE(S8)

TestMode	Antenna	Freq(MHz)	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE	Ant1	2402	1.0528	2401.4723	2402.5251	---	---
		2440	1.0579	2439.4707	2440.5286	---	---
		2480	1.0563	2479.4707	2480.5270	---	---

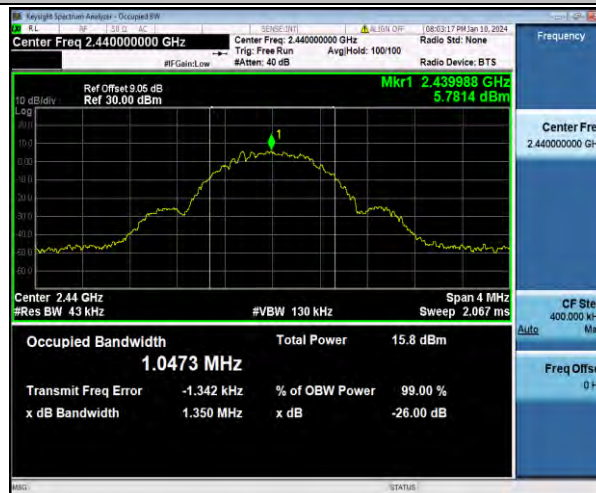
Test Graphs

BT LE

BLE_Ant1_2402



BLE_Ant1_2440



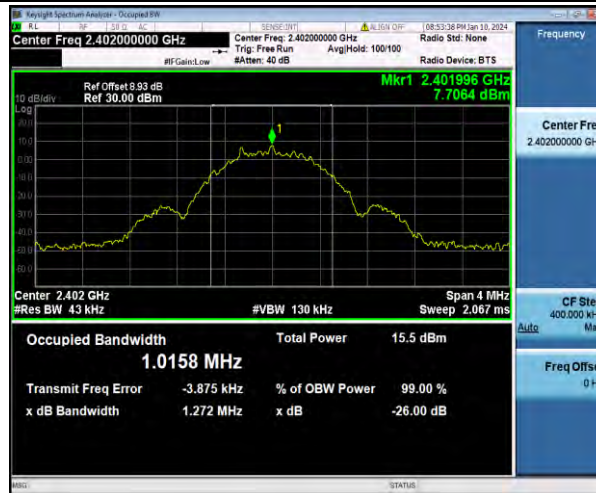
BLE_Ant1_2480



BT 2LE**BLE_Ant1_2402****BLE_Ant1_2440****BLE_Ant1_2480**

BT LE(S2)

BLE_Ant1_2402



BLE_Ant1_2440



BLE_Ant1_2480



BT LE(S8)**BLE_Ant1_2402****BLE_Ant1_2440****BLE_Ant1_2480**

Appendix B.3: Maximum conducted output power

Test Result Peak

BT LE

TestMode	Antenna	Freq(MHz)	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
BLE	Ant1	2402	8.45	≤30	PASS
		2440	9.42	≤30	PASS
		2480	9.17	≤30	PASS

BT 2LE

TestMode	Antenna	Freq(MHz)	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
BLE	Ant1	2402	8.33	≤30	PASS
		2440	9.27	≤30	PASS
		2480	9.00	≤30	PASS

BT LE(S2)

TestMode	Antenna	Freq(MHz)	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
BLE	Ant1	2402	8.43	≤30	PASS
		2440	9.37	≤30	PASS
		2480	9.11	≤30	PASS

BT LE(S8)

TestMode	Antenna	Freq(MHz)	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
BLE	Ant1	2402	8.45	≤30	PASS
		2440	9.43	≤30	PASS
		2480	9.15	≤30	PASS

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	-7.80	≤8.00	PASS
		2440	-5.68	≤8.00	PASS
		2480	-6.48	≤8.00	PASS

BT 2LE

TestMode	Antenna	Freq(MHz)	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE	Ant1	2402	-11.16	≤8.00	PASS
		2440	-9.97	≤8.00	PASS
		2480	-10.37	≤8.00	PASS

BT LE(S2)

TestMode	Antenna	Freq(MHz)	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE	Ant1	2402	1.86	≤8.00	PASS
		2440	2.87	≤8.00	PASS
		2480	2.51	≤8.00	PASS

BT LE(S8)

TestMode	Antenna	Freq(MHz)	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE	Ant1	2402	2.00	≤8.00	PASS
		2440	3.15	≤8.00	PASS
		2480	2.77	≤8.00	PASS

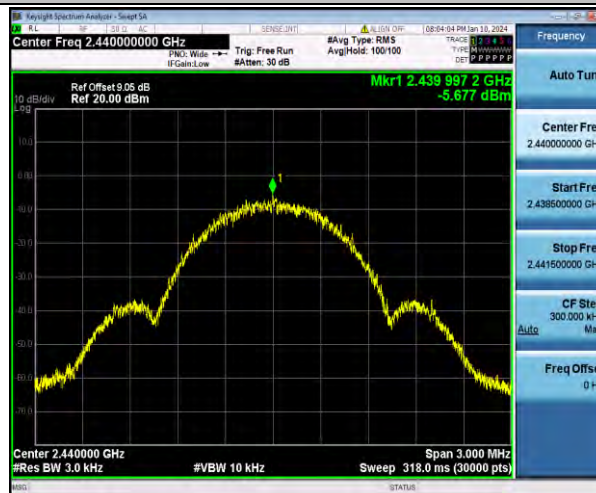
Test Graphs

BT LE

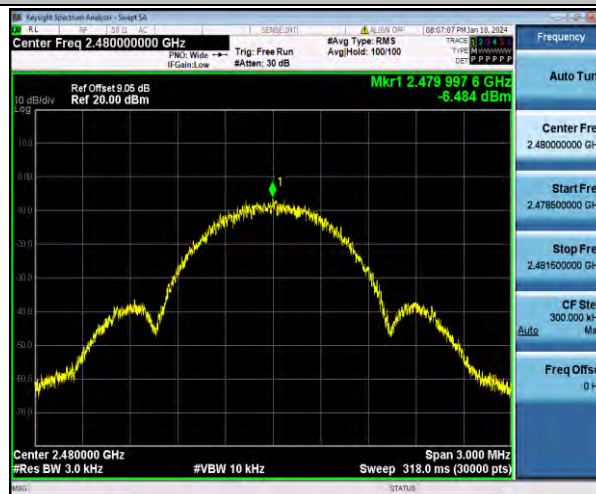
BLE_Ant1_2402



BLE_Ant1_2440



BLE_Ant1_2480



BT 2LE

BLE_Ant1_2402



BLE_Ant1_2440



BLE_Ant1_2480

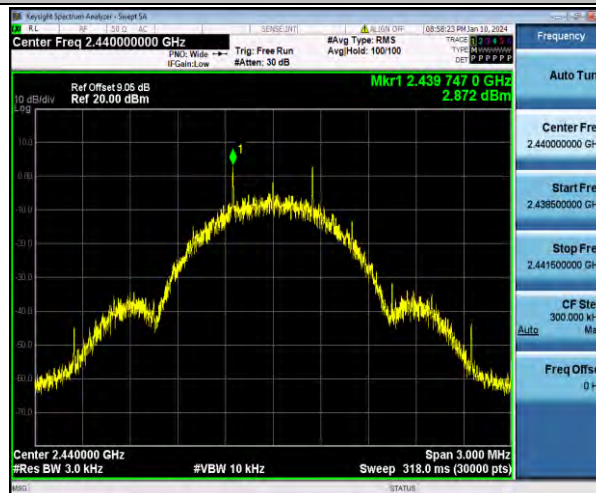


BT LE(S2)

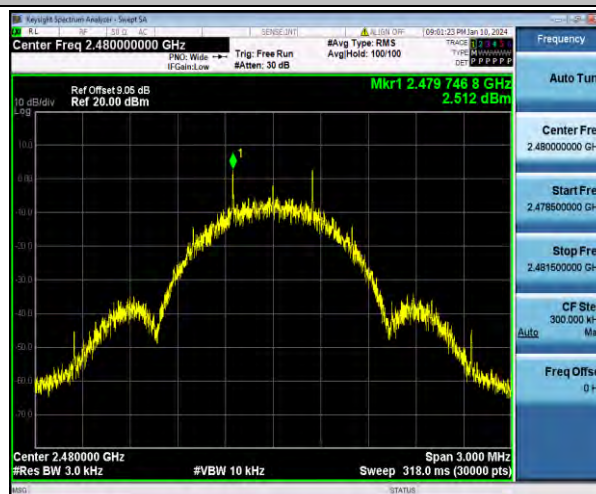
BLE_Ant1_2402



BLE_Ant1_2440



BLE_Ant1_2480



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	8.16	-48.03	≤ -11.85	PASS
		High	2480	8.90	-49.76	≤ -11.1	PASS

BT 2LE

TestMode	Antenna	ChName	Freq(MHz)	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE	Ant1	Low	2402	7.05	-27.94	≤ -12.95	PASS
		High	2480	7.90	-49.39	≤ -12.1	PASS

BT LE(S2)

TestMode	Antenna	ChName	Freq(MHz)	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE	Ant1	Low	2402	8.11	-47.8	≤ -11.89	PASS
		High	2480	8.63	-49.05	≤ -11.37	PASS

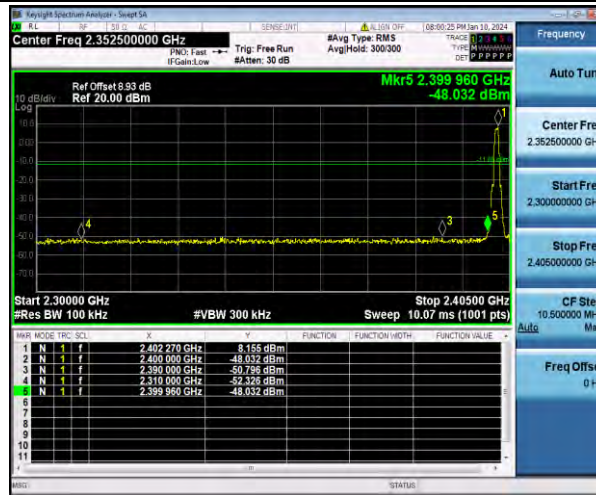
BT LE(S8)

TestMode	Antenna	ChName	Freq(MHz)	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE	Ant1	Low	2402	5.13	-46.3	≤ -14.87	PASS
		High	2480	6.05	-49.51	≤ -13.95	PASS

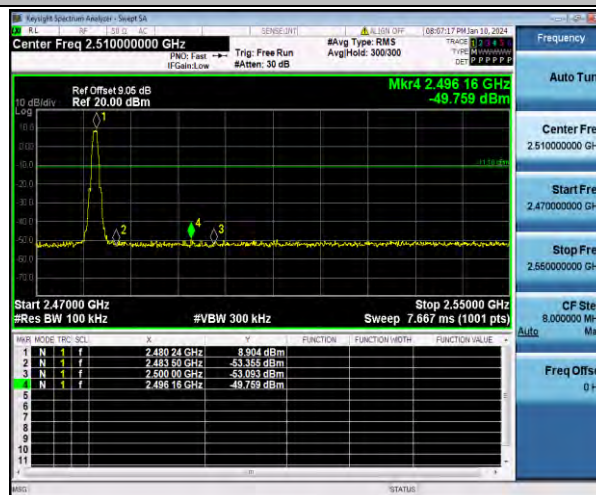
Test Graphs

BT LE

BLE_Ant1_Low_2402

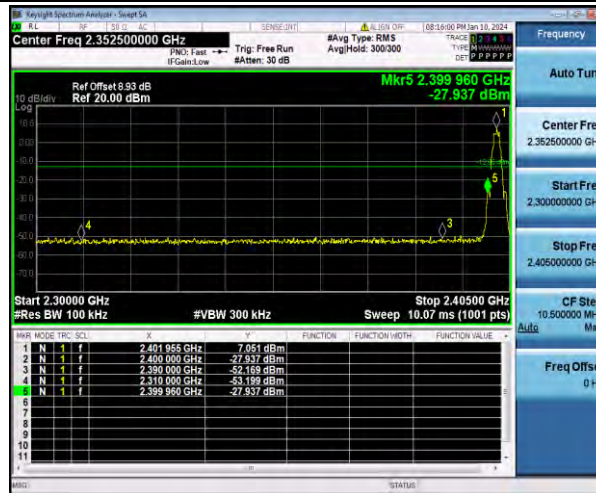


BLE_Ant1_High_2480

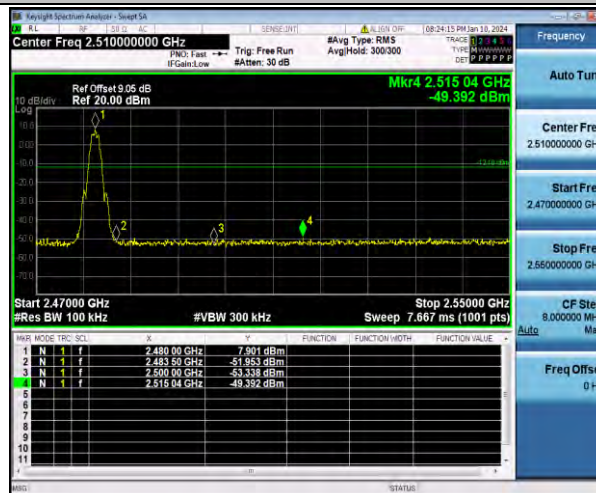


BT 2LE

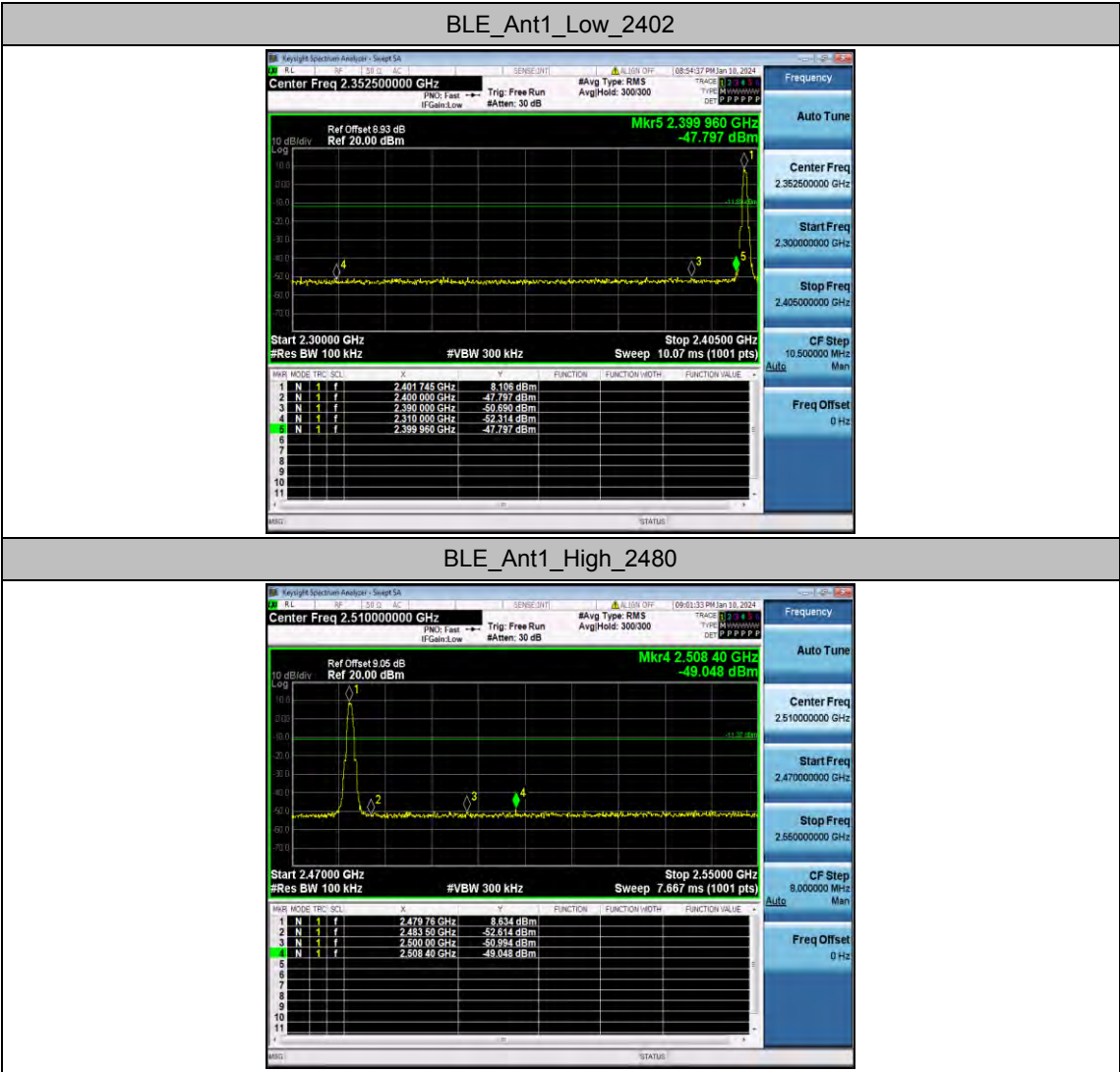
BLE_Ant1_Low_2402



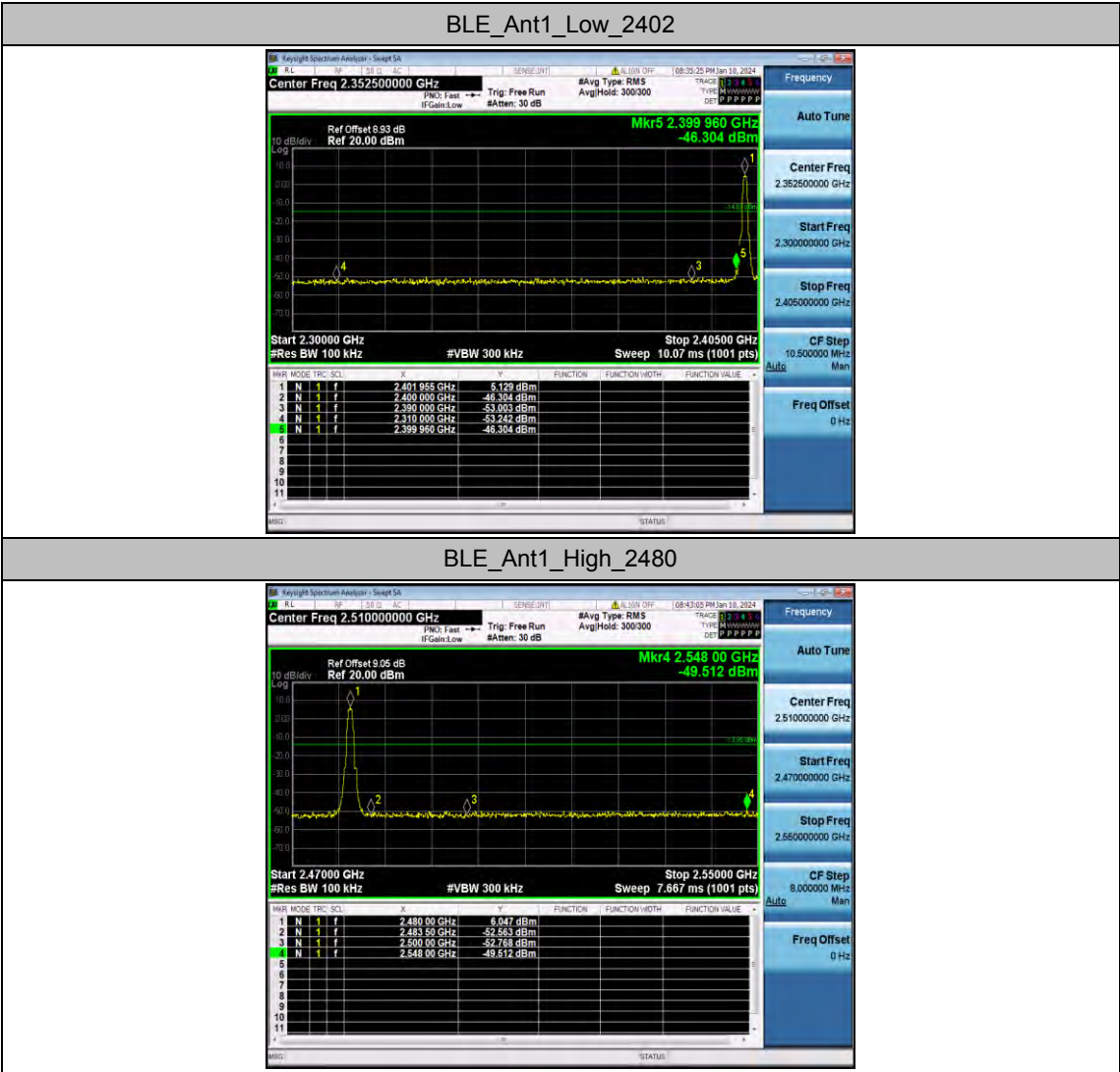
BLE_Ant1_High_2480



BT LE(S2)



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	6.91	6.91	---	PASS
			30~1000	6.91	-60.66	≤-13.09	PASS
			1000~26500	6.91	-48	≤-13.09	PASS
		2440	Reference	8.25	8.25	---	PASS
			30~1000	8.25	-60.49	≤-11.75	PASS
			1000~26500	8.25	-47.88	≤-11.75	PASS
		2480	Reference	8.02	8.02	---	PASS
			30~1000	8.02	-60.87	≤-11.98	PASS
			1000~26500	8.02	-46.04	≤-11.98	PASS

BT 2LE

TestMode	Antenna	Freq(MHz)	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE	Ant1	2402	Reference	7.18	7.18	---	PASS
			30~1000	7.18	-60.68	≤-12.82	PASS
			1000~26500	7.18	-48.08	≤-12.82	PASS
		2440	Reference	8.18	8.18	---	PASS
			30~1000	8.18	-59.85	≤-11.82	PASS
			1000~26500	8.18	-47.54	≤-11.82	PASS
		2480	Reference	5.47	5.47	---	PASS
			30~1000	5.47	-60.74	≤-14.53	PASS
			1000~26500	5.47	-47.27	≤-14.53	PASS

BT LE(S2)

TestMode	Antenna	Freq(MHz)	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE	Ant1	2402	Reference	7.60	7.60	---	PASS
			30~1000	7.60	-60.47	≤-12.4	PASS
			1000~26500	7.60	-47.08	≤-12.4	PASS
		2440	Reference	8.27	8.27	---	PASS
			30~1000	8.27	-60.83	≤-11.73	PASS
			1000~26500	8.27	-47.19	≤-11.73	PASS
		2480	Reference	7.68	7.68	---	PASS
			30~1000	7.68	-60.8	≤-12.32	PASS
			1000~26500	7.68	-45.46	≤-12.32	PASS

BT LE(S8)

TestMode	Antenna	Freq(MHz)	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE	Ant1	2402	Reference	4.99	4.99	---	PASS
			30~1000	4.99	-60.91	≤-15.01	PASS
			1000~26500	4.99	-47.39	≤-15.01	PASS
		2440	Reference	5.97	5.97	---	PASS
			30~1000	5.97	-60.19	≤-14.03	PASS
			1000~26500	5.97	-47.67	≤-14.03	PASS
		2480	Reference	5.68	5.68	---	PASS
			30~1000	5.68	-60.88	≤-14.32	PASS
			1000~26500	5.68	-47.3	≤-14.32	PASS

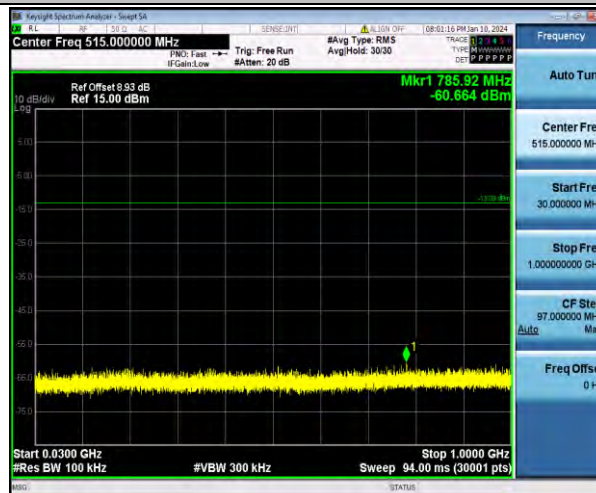
Test Graphs

BT LE

BLE_Ant1_2402_0~Reference



BLE_Ant1_2402_30~1000



BLE_Ant1_2402_1000~26500

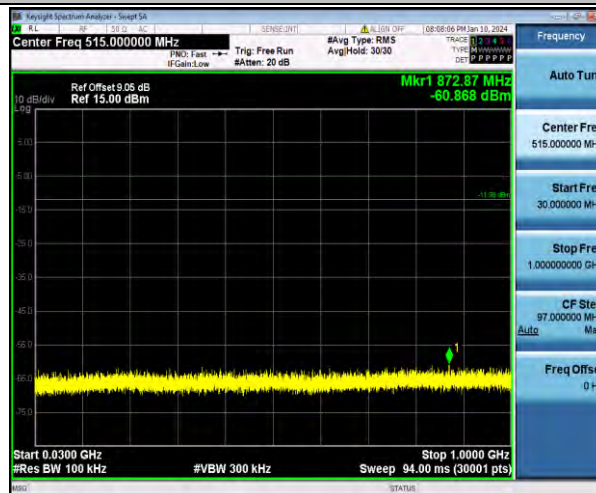




BLE_Ant1_2480_0~Reference

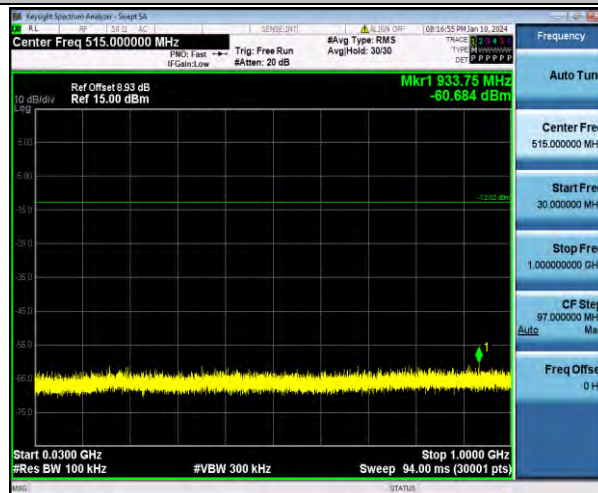


BLE_Ant1_2480_30~1000



BLE_Ant1_2480_1000~26500

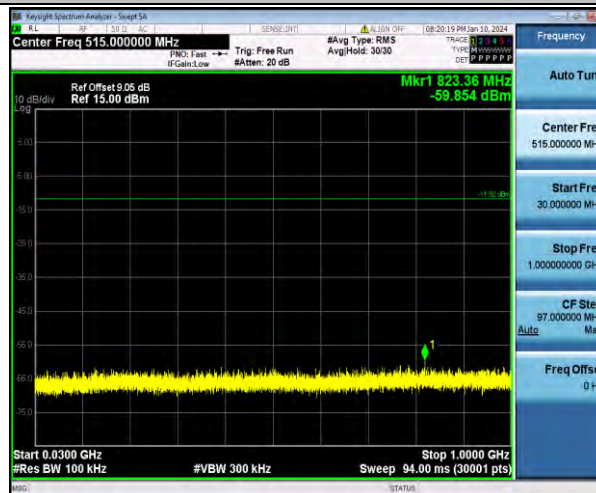


BT 2LE**BLE_Ant1_2402_0~Reference****BLE_Ant1_2402_30~1000****BLE_Ant1_2402_1000~26500**

BLE_Ant1_2440_0~Reference



BLE_Ant1_2440_30~1000



BLE_Ant1_2440_1000~26500



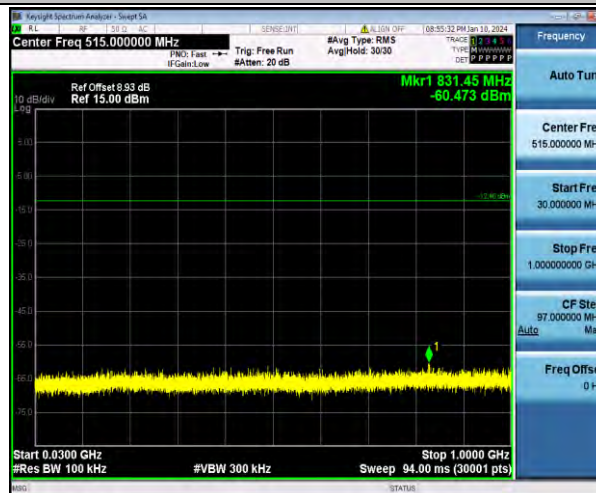


BT LE(S2)

BLE_Ant1_2402_0~Reference



BLE_Ant1_2402_30~1000



BLE_Ant1_2402_1000~26500

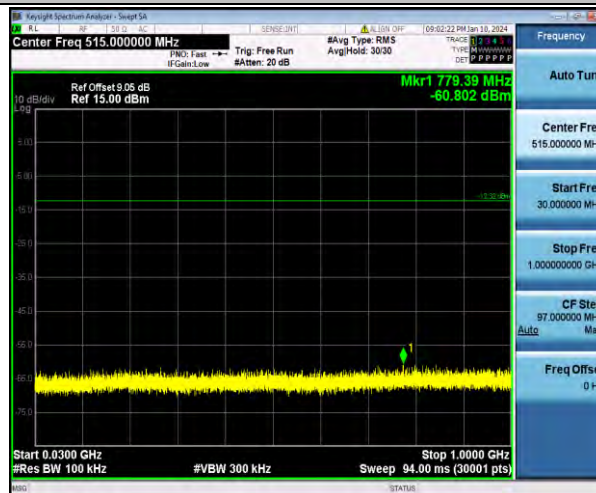




BLE_Ant1_2480_0~Reference



BLE_Ant1_2480_30~1000



BLE_Ant1_2480_1000~26500

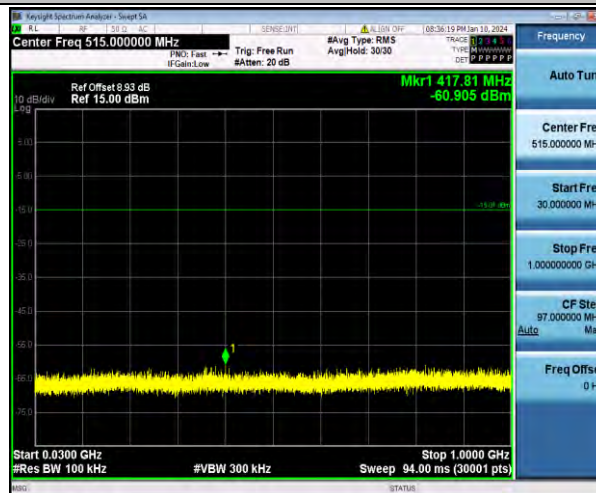


BT LE(S8)

BLE_Ant1_2402_0~Reference



BLE_Ant1_2402_30~1000



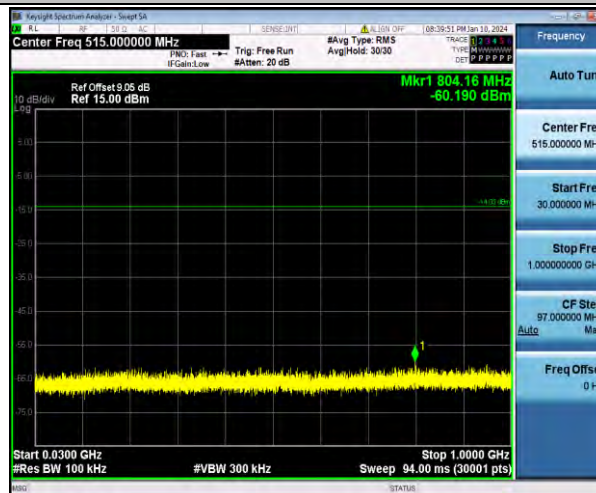
BLE_Ant1_2402_1000~26500



BLE_Ant1_2440_0~Reference



BLE_Ant1_2440_30~1000



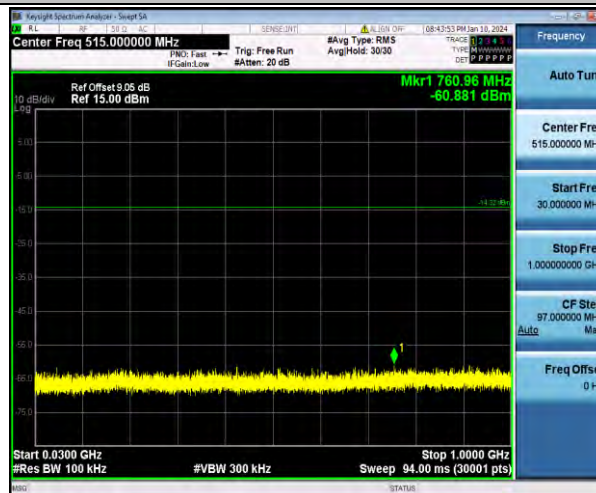
BLE_Ant1_2440_1000~26500



BLE_Ant1_2480_0~Reference



BLE_Ant1_2480_30~1000



BLE_Ant1_2480_1000~26500



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	-49.42	≤-41.20	45.78	≤54	PASS
				AV	2389.565	-48.85	≤-41.20	46.35	≤54	PASS
				AV	2390.000	-48.97	≤-41.20	46.23	≤54	PASS
				Peak	2310.000	-41.63	≤-21.20	53.57	≤74	PASS
				Peak	2324.780	-39.27	≤-21.20	55.93	≤74	PASS
				Peak	2390.000	-41.82	≤-21.20	53.38	≤74	PASS
		High	2480	AV	2483.500	-45.31	≤-41.20	49.89	≤54	PASS
				AV	2483.520	-45.31	≤-41.20	49.89	≤54	PASS
				AV	2500.000	-48.64	≤-41.20	46.56	≤54	PASS
				Peak	2483.500	-41.48	≤-21.20	53.72	≤74	PASS
				Peak	2490.320	-37.65	≤-21.20	57.55	≤74	PASS
				Peak	2500.000	-41.58	≤-21.20	53.62	≤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.

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	-49.26	≤-41.20	45.94	≤54	PASS
				AV	2389.670	-48.85	≤-41.20	46.35	≤54	PASS
				AV	2390.000	-48.99	≤-41.20	46.21	≤54	PASS
				Peak	2310.000	-40.73	≤-21.20	54.47	≤74	PASS
				Peak	2322.680	-38.73	≤-21.20	56.47	≤74	PASS
				Peak	2390.000	-41.28	≤-21.20	53.92	≤74	PASS
		High	2480	AV	2483.500	-41.31	≤-41.20	53.89	≤54	PASS
				AV	2483.520	-41.31	≤-41.20	53.89	≤54	PASS
				AV	2500.000	-48.71	≤-41.20	46.49	≤54	PASS
				Peak	2483.500	-38.8	≤-21.20	56.40	≤74	PASS
				Peak	2497.760	-38.4	≤-21.20	56.80	≤74	PASS
				Peak	2500.000	-42.2	≤-21.20	53.00	≤74	PASS

Note:

4. The Antenna Gain is compensated in the graph.
5. The Duty Cycle Factor and RBW Factor is compensated in the graph.
6. 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.

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	-49.45	≤-41.20	45.75	≤54	PASS
				AV	2385.260	-48.82	≤-41.20	46.38	≤54	PASS
				AV	2390.000	-48.92	≤-41.20	46.28	≤54	PASS
				Peak	2310.000	-42.29	≤-21.20	52.91	≤74	PASS
				Peak	2355.125	-37.71	≤-21.20	57.49	≤74	PASS
				Peak	2390.000	-42.16	≤-21.20	53.04	≤74	PASS
		High	2480	AV	2483.500	-45.1	≤-41.20	50.10	≤54	PASS
				AV	2483.520	-45.1	≤-41.20	50.10	≤54	PASS
				AV	2500.000	-48.76	≤-41.20	46.44	≤54	PASS
				Peak	2483.500	-41.47	≤-21.20	53.73	≤74	PASS
				Peak	2486.240	-39.52	≤-21.20	55.68	≤74	PASS
				Peak	2500.000	-41.51	≤-21.20	53.69	≤74	PASS

Note:

7. The Antenna Gain is compensated in the graph.
8. The Duty Cycle Factor and RBW Factor is compensated in the graph.
9. 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.

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	-49.37	≤-41.20	45.83	≤54	PASS
				AV	2389.145	-48.93	≤-41.20	46.27	≤54	PASS
				AV	2390.000	-49	≤-41.20	46.20	≤54	PASS
				Peak	2310.000	-44.63	≤-21.20	50.57	≤74	PASS
				Peak	2379.905	-39.03	≤-21.20	56.17	≤74	PASS
				Peak	2390.000	-41.19	≤-21.20	54.01	≤74	PASS
		High	2480	AV	2483.500	-44.96	≤-41.20	50.24	≤54	PASS
				AV	2483.520	-44.96	≤-41.20	50.24	≤54	PASS
				AV	2500.000	-48.66	≤-41.20	46.54	≤54	PASS
				Peak	2483.500	-40.41	≤-21.20	54.79	≤74	PASS
				Peak	2499.920	-39.66	≤-21.20	55.54	≤74	PASS
				Peak	2500.000	-39.4	≤-21.20	55.80	≤74	PASS

Note:

10. The Antenna Gain is compensated in the graph.

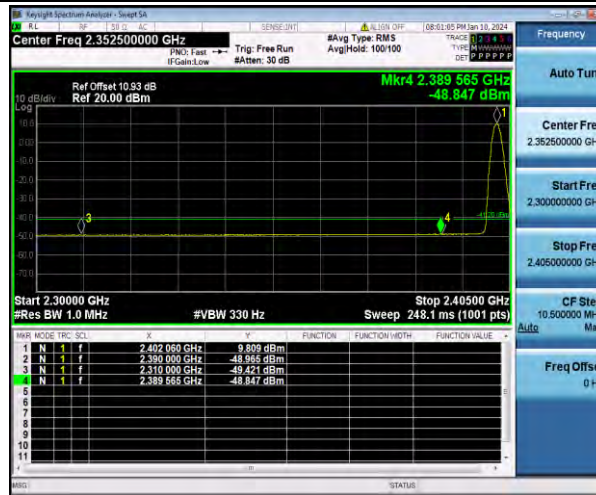
11. The Duty Cycle Factor and RBW Factor is compensated in the graph.

12. 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.

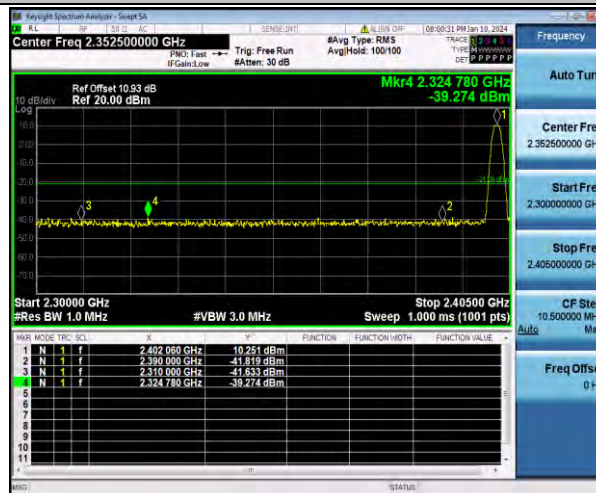
Test Graphs

BT LE

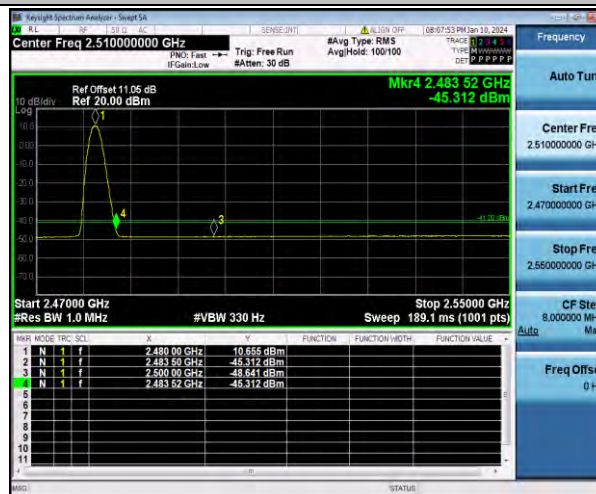
BLE_Ant1_Low_2402_AV

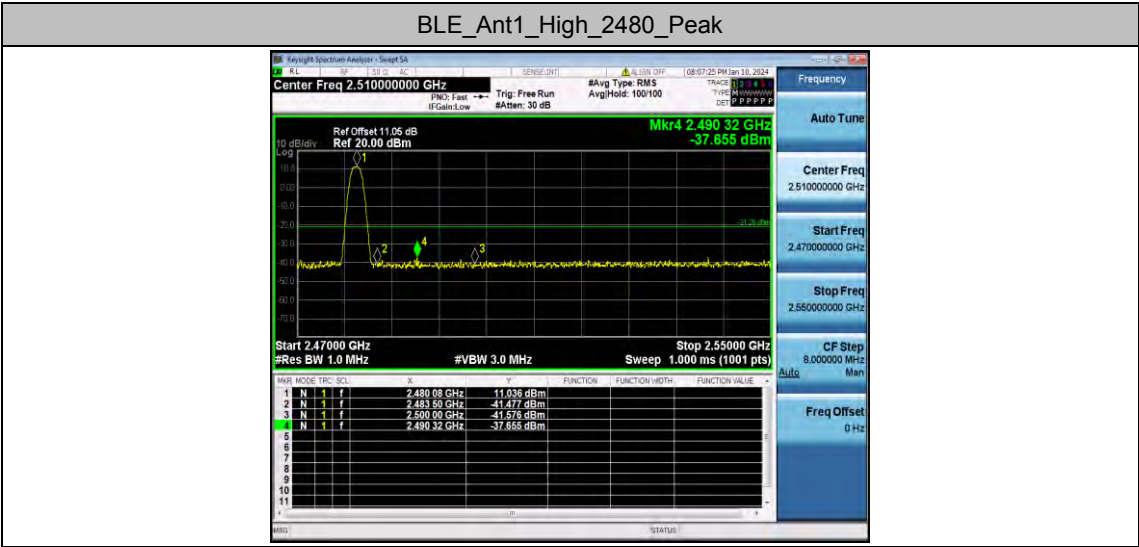


BLE_Ant1_Low_2402_Peak



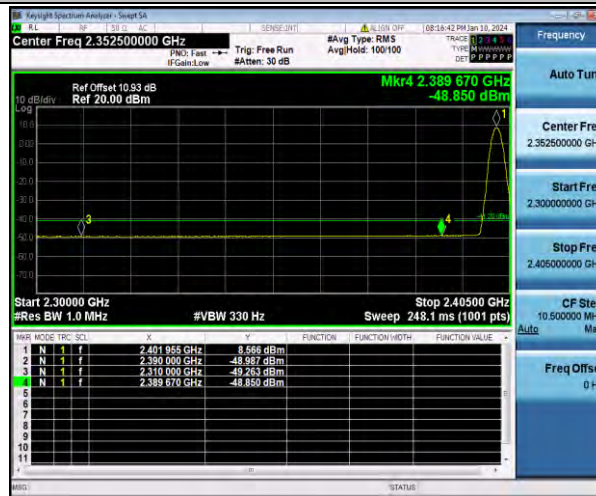
BLE_Ant1_High_2480_AV



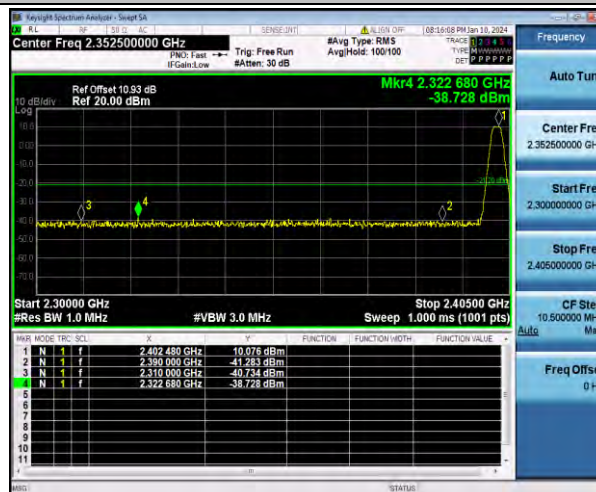


BT 2LE

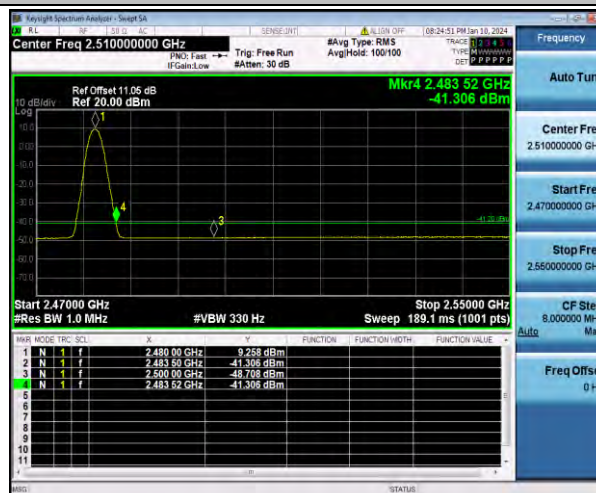
BLE_Ant1_Low_2402_AV



BLE_Ant1_Low_2402_Peak

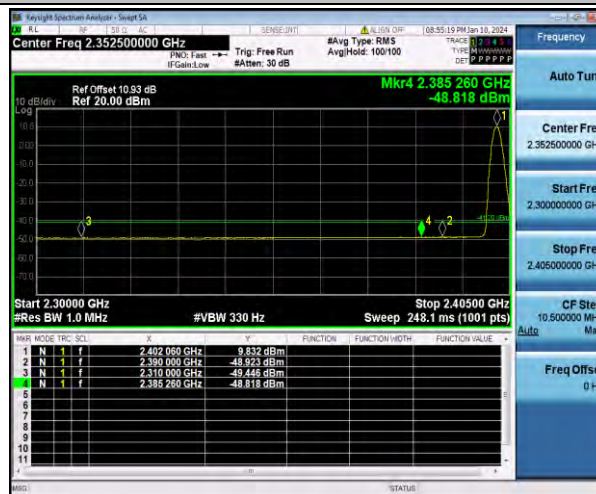


BLE_Ant1_High_2480_AV

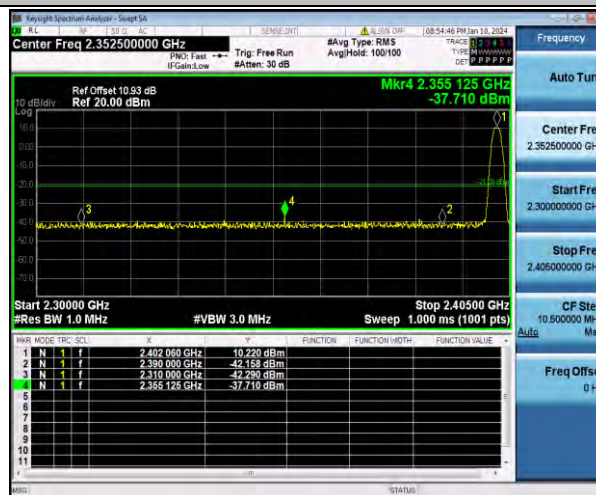


BT LE(S2)

BLE_Ant1_Low_2402_AV

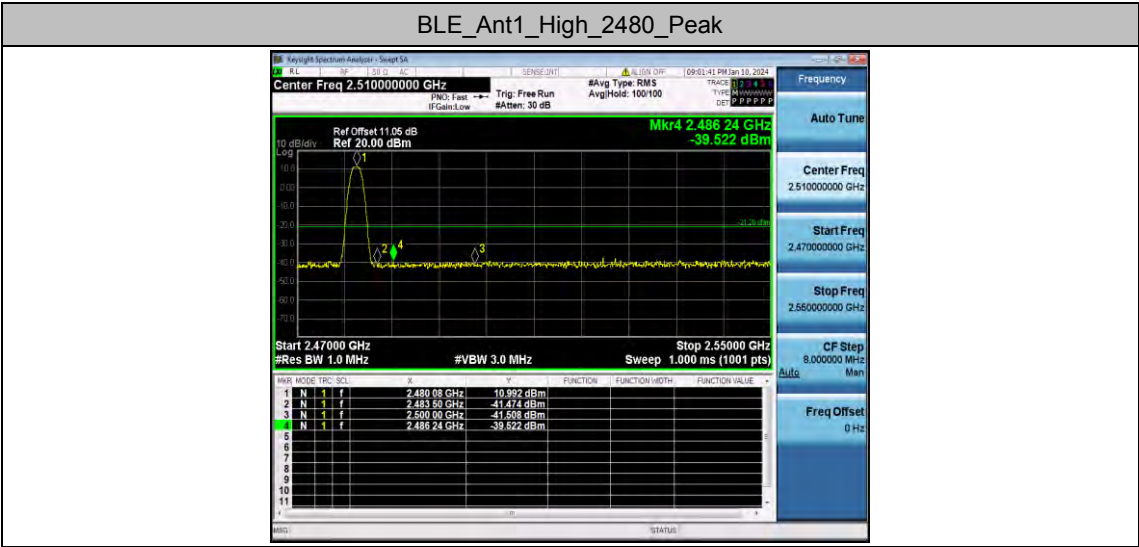


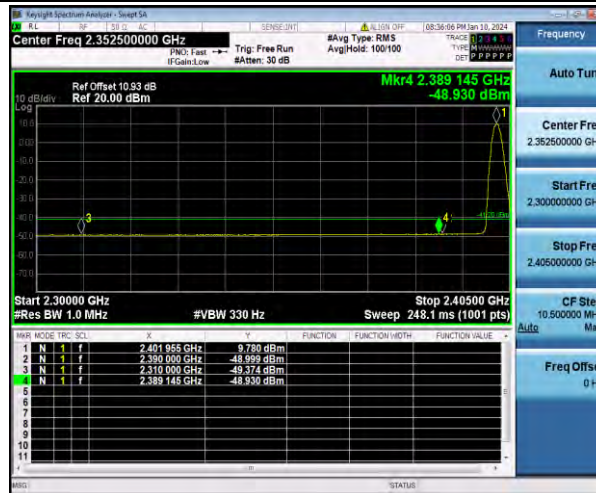
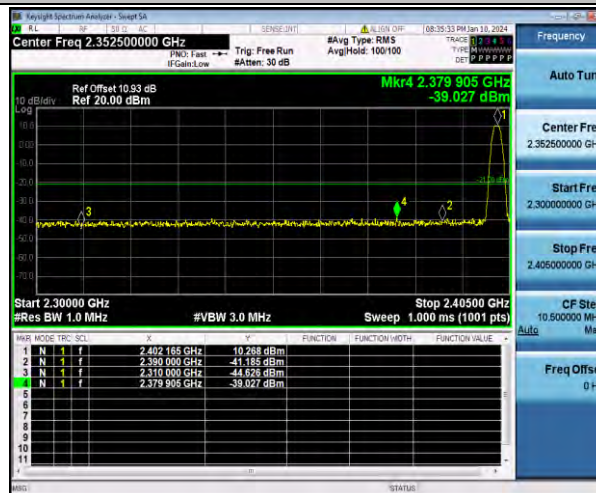
BLE_Ant1_Low_2402_Peak



BLE_Ant1_High_2480_AV





BT LE(S8)**BLE_Ant1_Low_2402_AV****BLE_Ant1_Low_2402_Peak****BLE_Ant1_High_2480_AV**

