Appendix A

RF Test Data for BLE (Conducted Measurement)

Product Name: Bluetooth Module

Test Model: PRBMD02

Environmental Conditions

Temperature:	23.5° C
Relative Humidity:	52.2%
ATM Pressure:	100.0 kPa
Test Engineer:	Monkey Li
Supervised by:	Li Huan

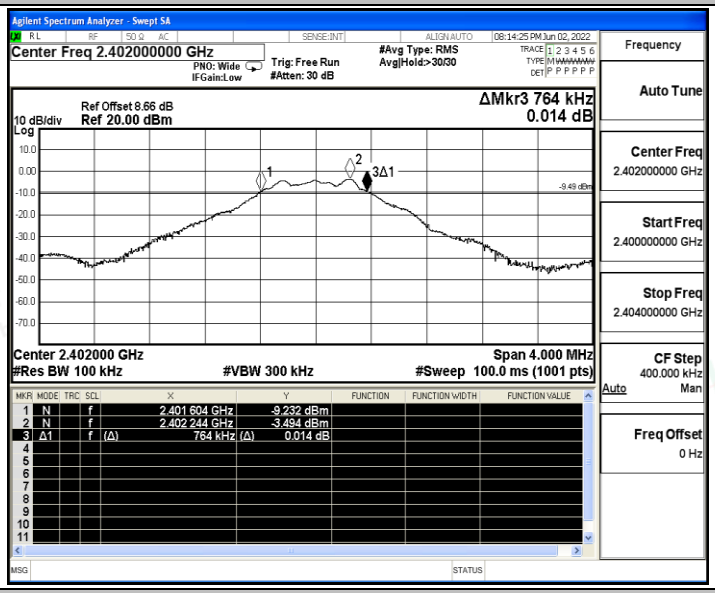
A.1 DTS Bandwidth

Test Result

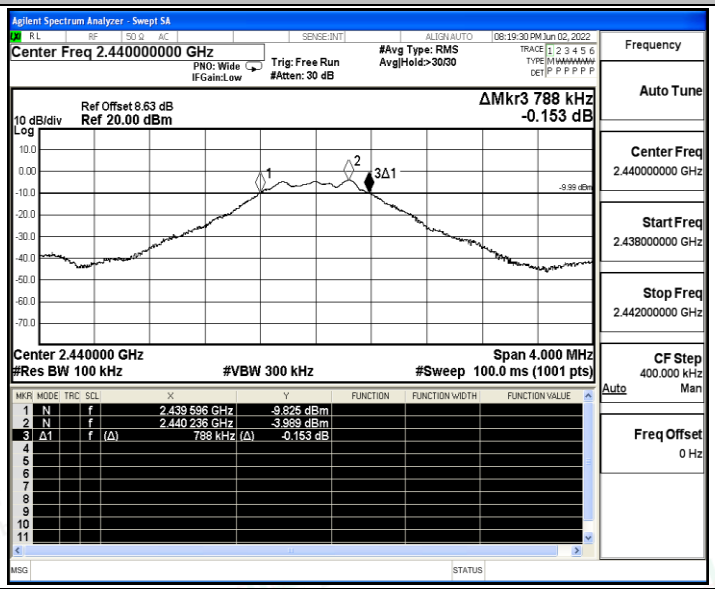
TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.764	2401.604	2402.368	0.5	PASS
		2440	0.788	2439.596	2440.384	0.5	PASS
		2480	0.804	2479.588	2480.392	0.5	PASS
BLE_2M	Ant1	2402	1.236	2401.344	2402.580	0.5	PASS
		2440	1.232	2439.348	2440.580	0.5	PASS
		2480	1.236	2479.344	2480.580	0.5	PASS

Test Graphs

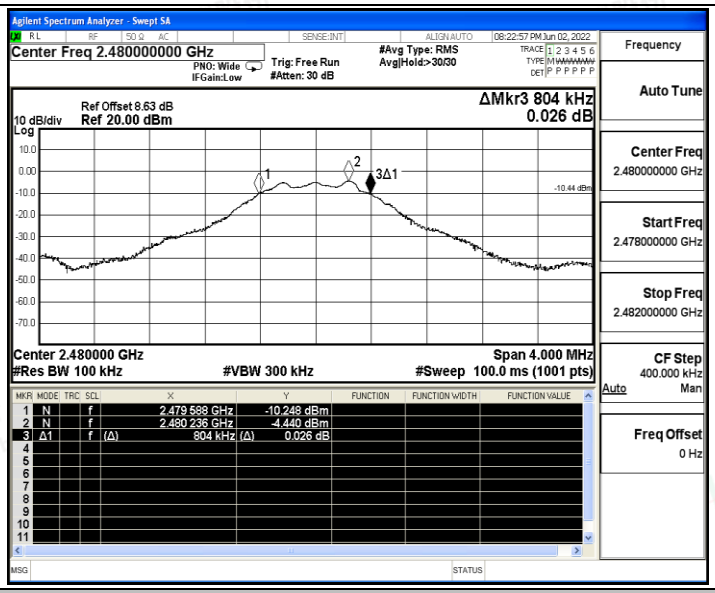
BLE_1M_Ant1_2402



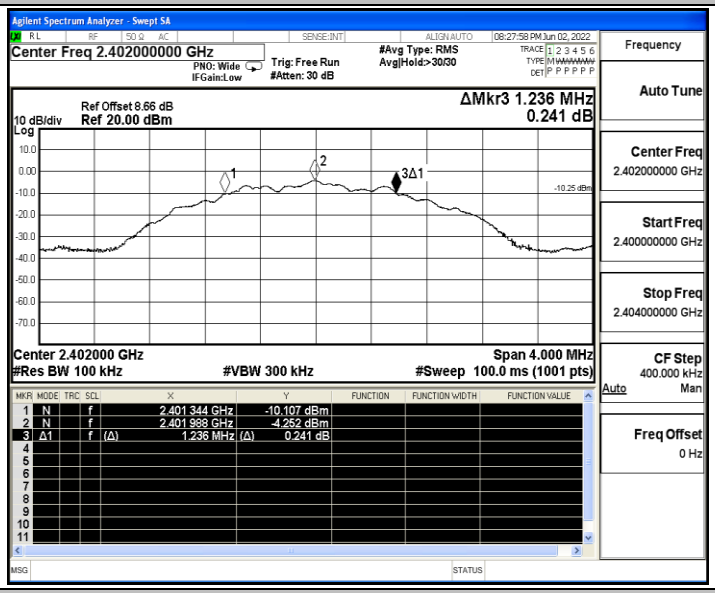
BLE_1M_Ant1_2440



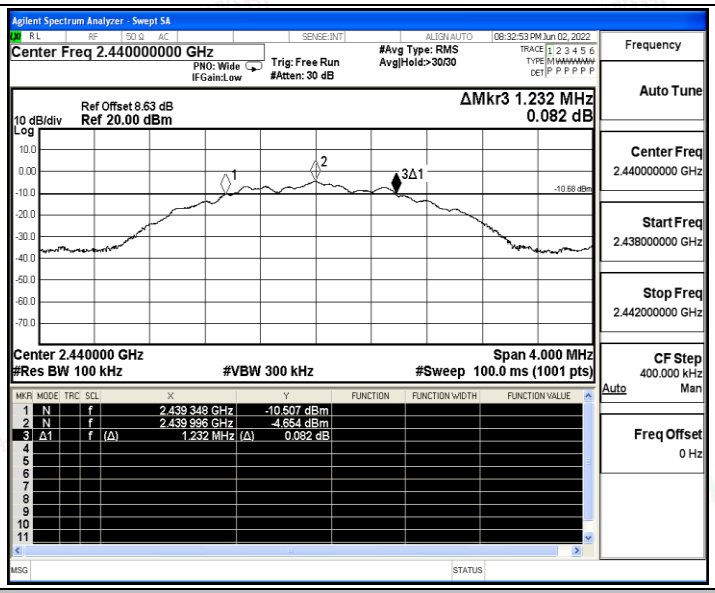
BLE_1M_Ant1_2480



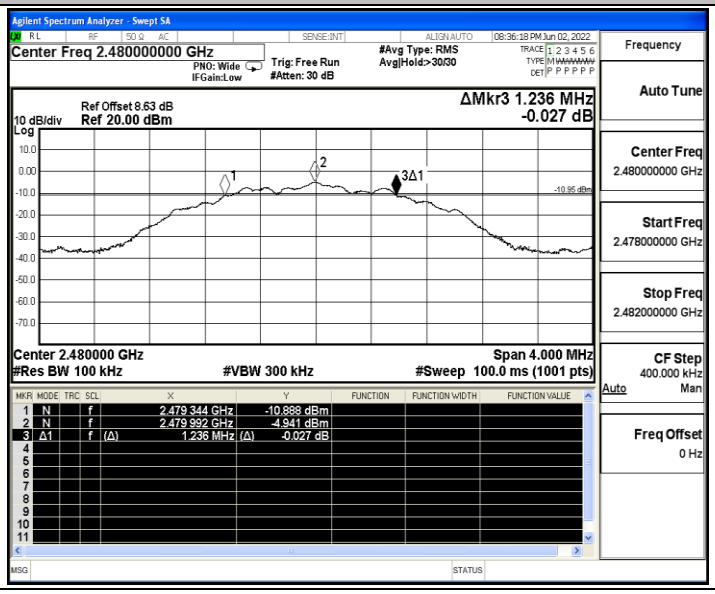
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



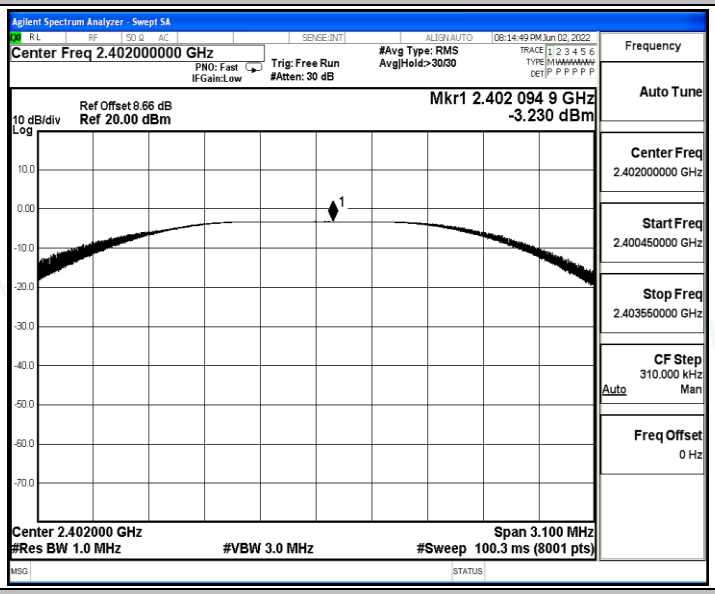
A.2 Maximum conducted output power

Test Result

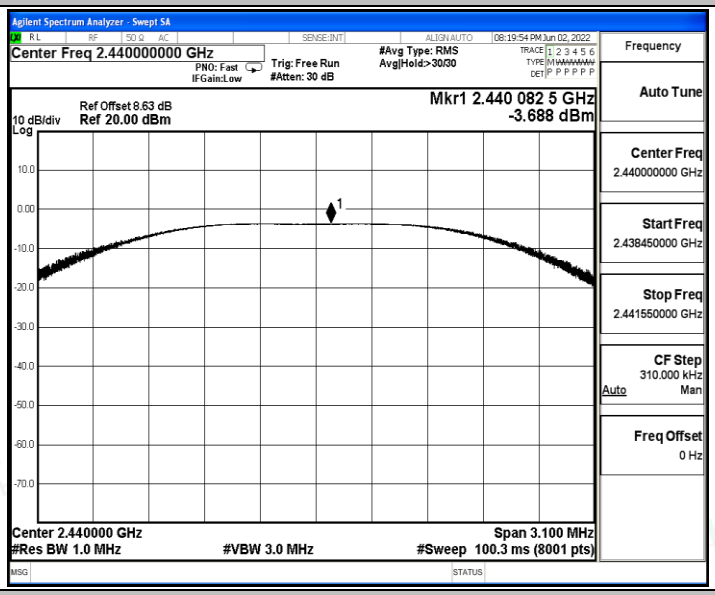
TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	-3.23	≤30	PASS
		2440	-3.69	≤30	PASS
		2480	-3.98	≤30	PASS
BLE_2M	Ant1	2402	-3.08	≤30	PASS
		2440	-3.59	≤30	PASS
		2480	-3.93	≤30	PASS

Test Graphs

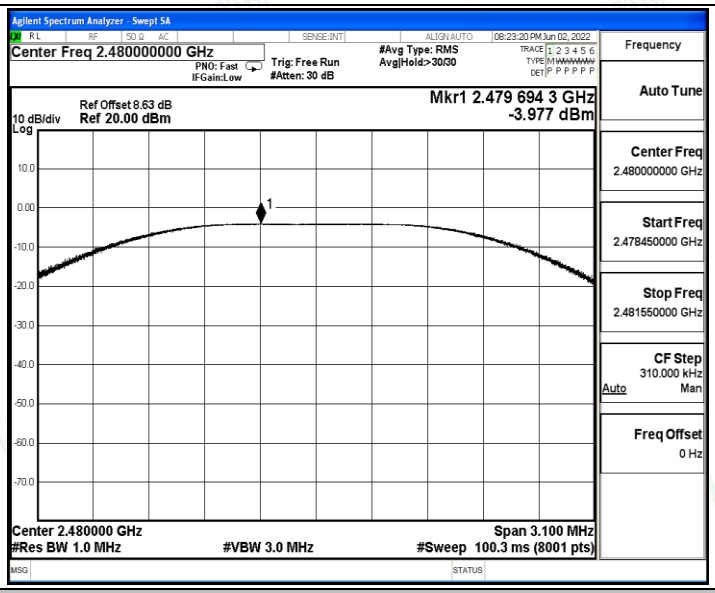
BLE_1M_Ant1_2402



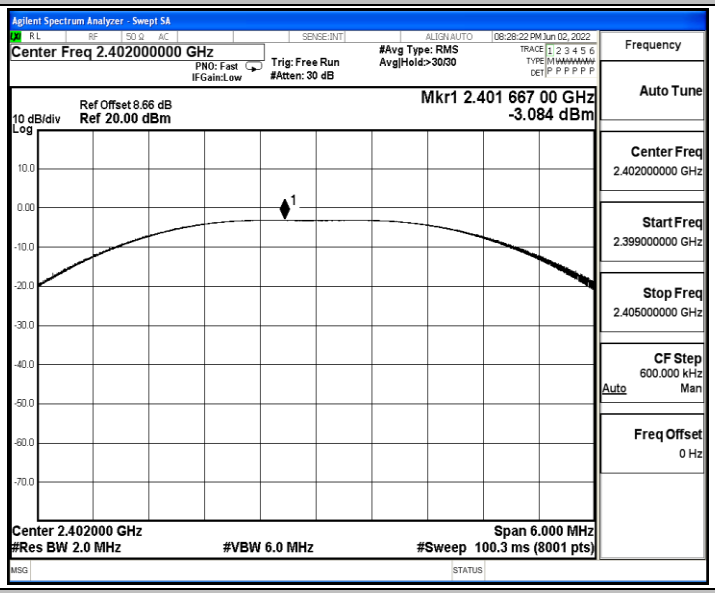
BLE_1M_Ant1_2440



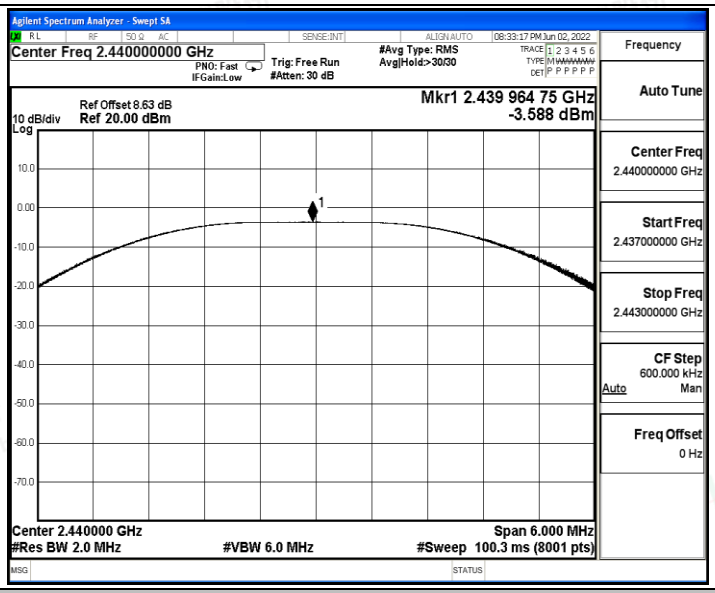
BLE_1M_Ant1_2480



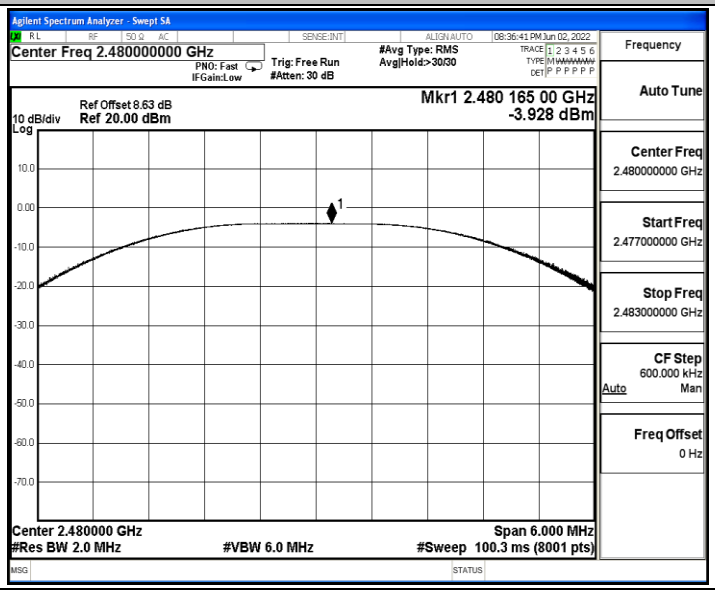
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



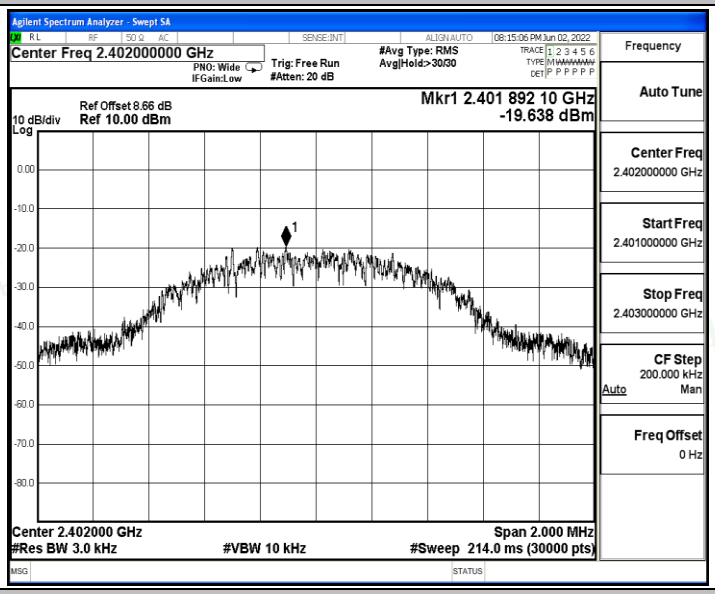
A.3 Maximum power spectral density

Test Result

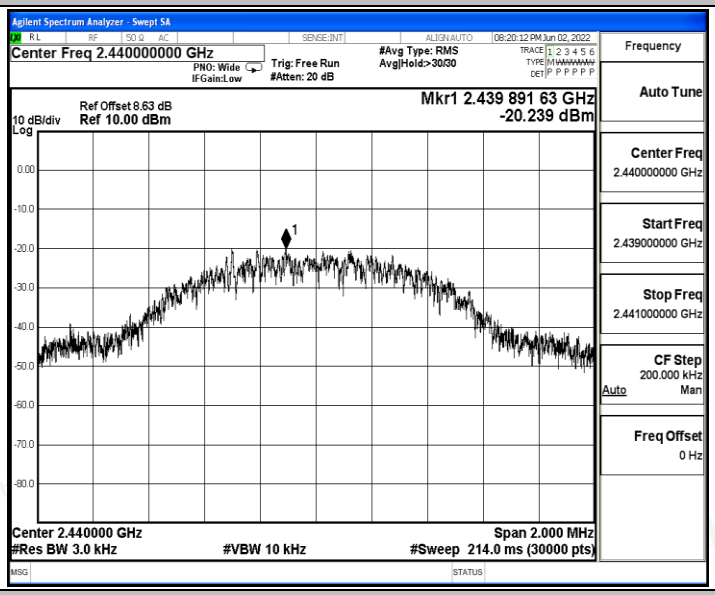
TestMode	Antenna	Channel	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-19.64	≤8.00	PASS
		2440	-20.24	≤8.00	PASS
		2480	-20.72	≤8.00	PASS
BLE_2M	Ant1	2402	-21.82	≤8.00	PASS
		2440	-22.45	≤8.00	PASS
		2480	-23.18	≤8.00	PASS

Test Graphs

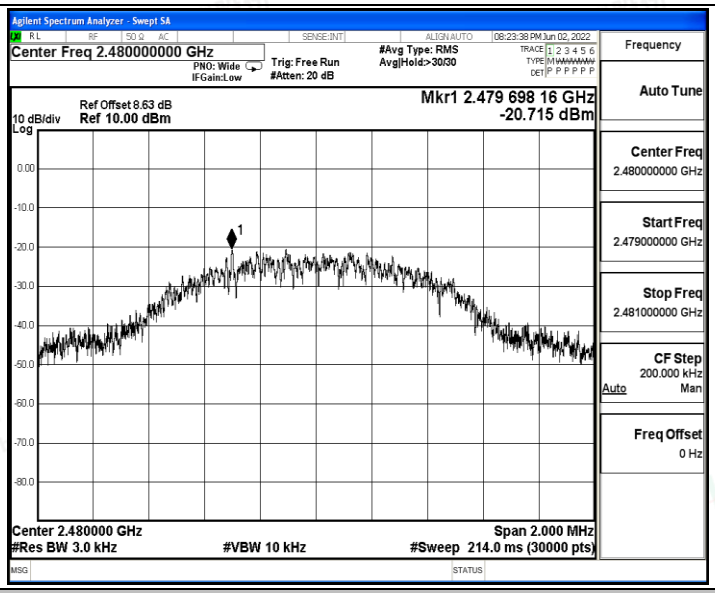
BLE_1M_Ant1_2402



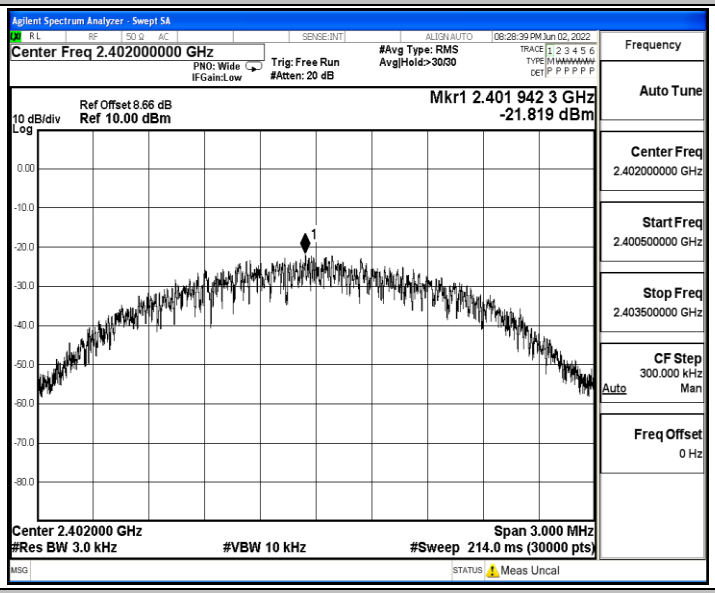
BLE_1M_Ant1_2440



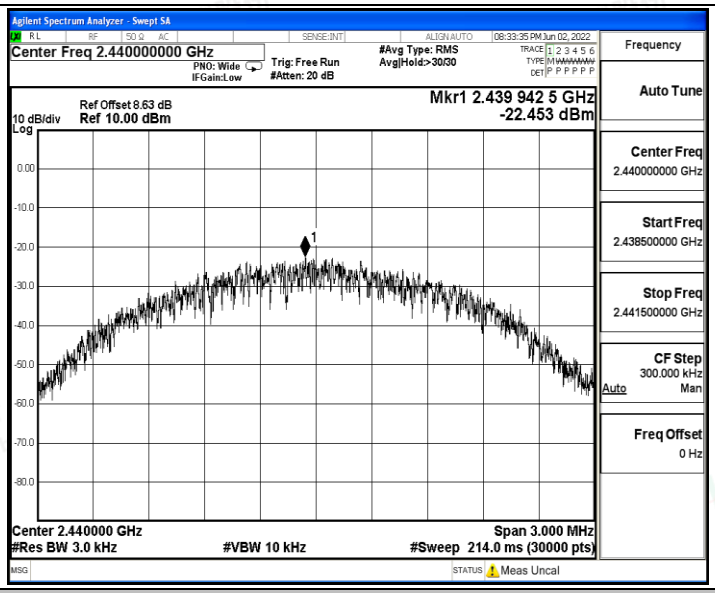
BLE_1M_Ant1_2480



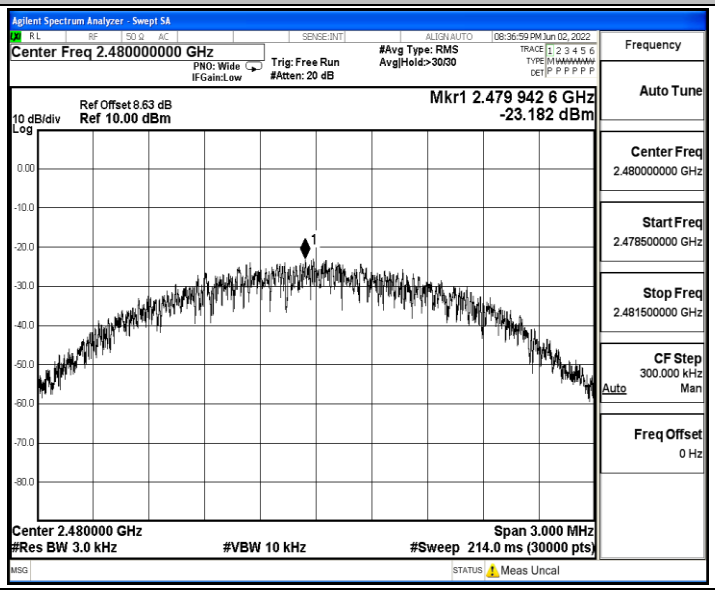
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



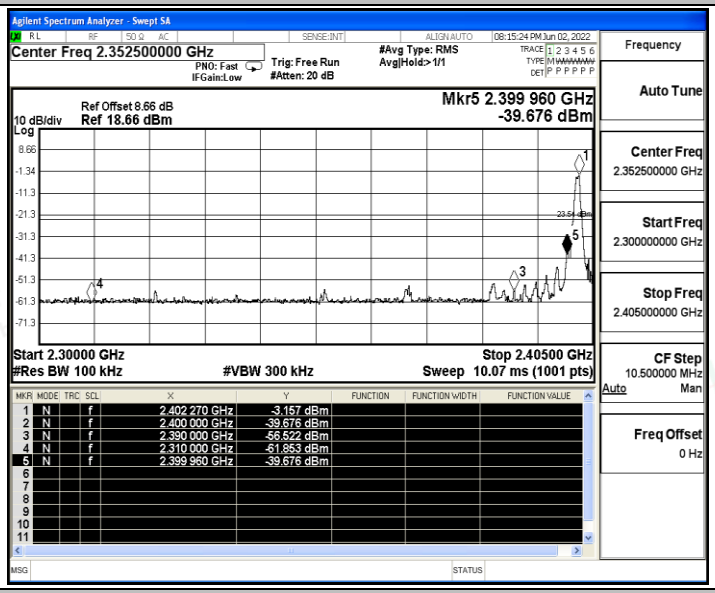
A.4 Band edge measurements

Test Result

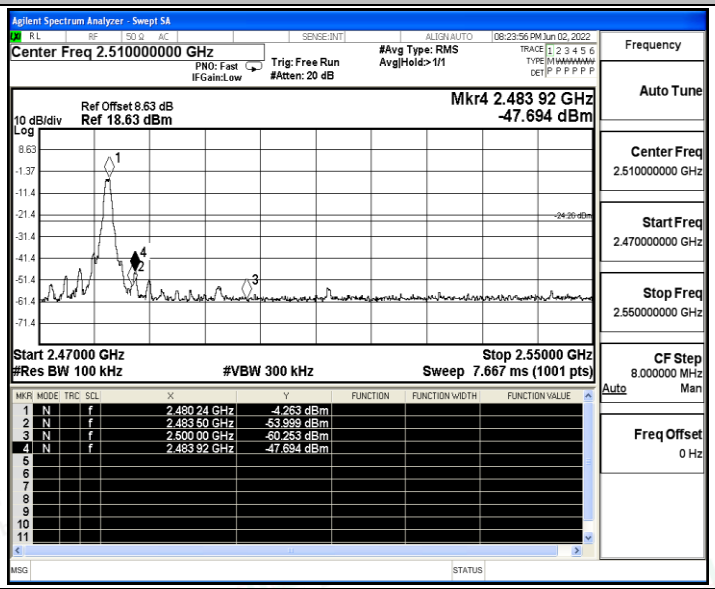
TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	-3.54	-39.68	≤-23.54	PASS
		High	2480	-4.26	-47.69	≤-24.26	PASS
BLE_2M	Ant1	Low	2402	-4.42	-36.17	≤-24.42	PASS
		High	2480	-5.02	-47.95	≤-25.02	PASS

Test Graphs

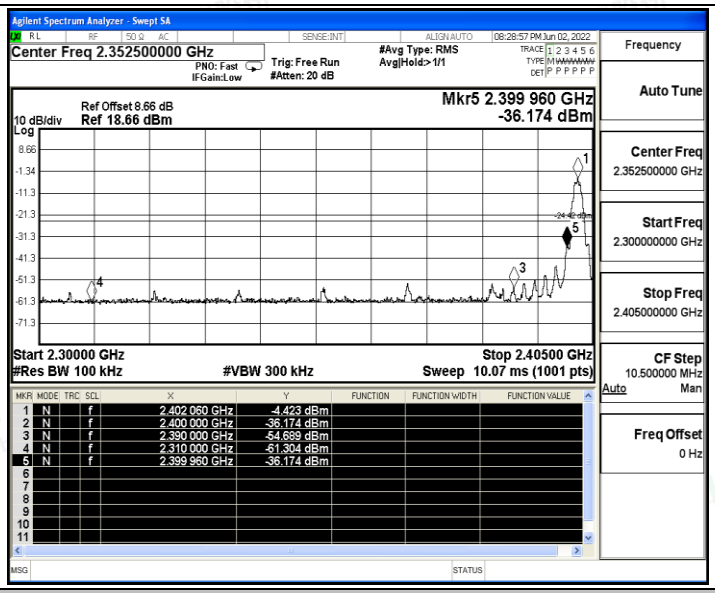
BLE_1M_Ant1_Low_2402



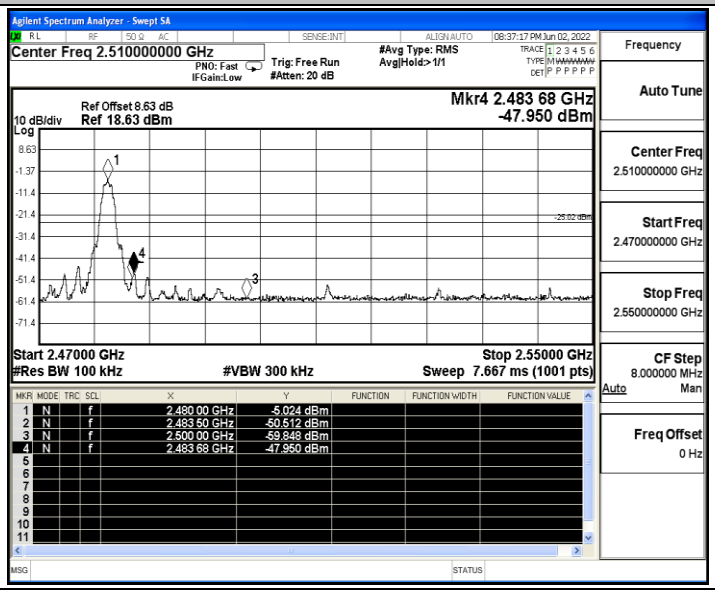
BLE_1M_Ant1_High_2480



BLE_2M_Ant1_Low_2402



BLE_2M_Ant1_High_2480



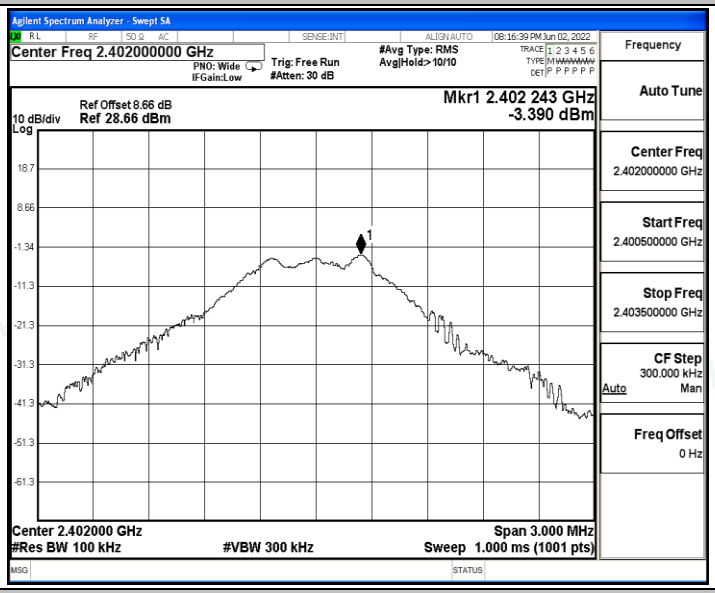
A.5 Conducted Spurious Emission

Test Result

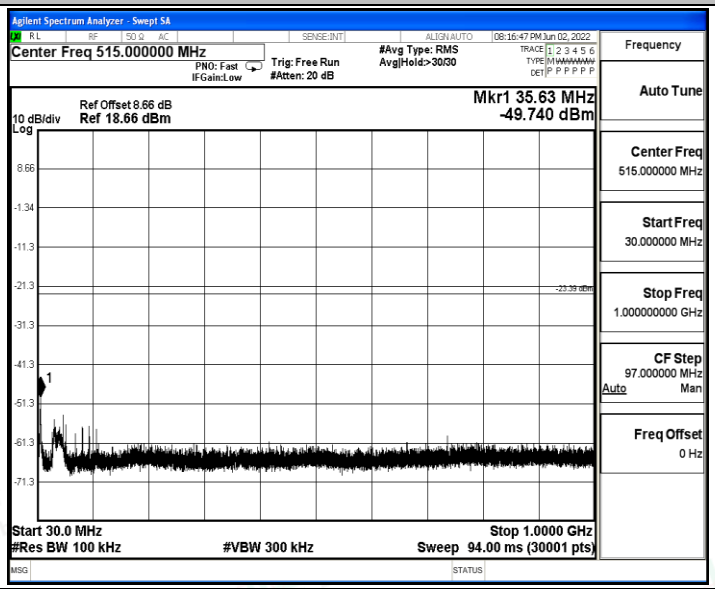
TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	-3.39	-3.39	---	PASS
			30~1000	-3.39	-49.74	≤-23.39	PASS
			1000~26500	-3.39	-46.13	≤-23.39	PASS
		2440	Reference	-3.94	-3.94	---	PASS
			30~1000	-3.94	-49.76	≤-23.94	PASS
			1000~26500	-3.94	-46.01	≤-23.94	PASS
		2480	Reference	-4.83	-4.83	---	PASS
			30~1000	-4.83	-48.78	≤-24.83	PASS
			1000~26500	-4.83	-46.15	≤-24.83	PASS
BLE_2M	Ant1	2402	Reference	-4.33	-4.33	---	PASS
			30~1000	-4.33	-48.68	≤-24.33	PASS
			1000~26500	-4.33	-38.19	≤-24.33	PASS
		2440	Reference	-4.75	-4.75	---	PASS
			30~1000	-4.75	-49.24	≤-24.75	PASS
			1000~26500	-4.75	-45.3	≤-24.75	PASS
		2480	Reference	-5.03	-5.03	---	PASS
			30~1000	-5.03	-49.63	≤-25.03	PASS
			1000~26500	-5.03	-45.97	≤-25.03	PASS

Test Graphs

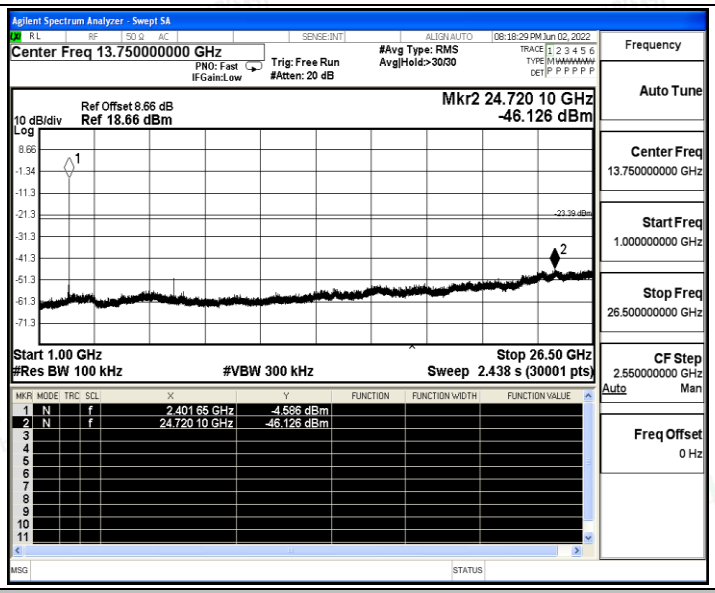
BLE_1M_Ant1_2402_0~Reference



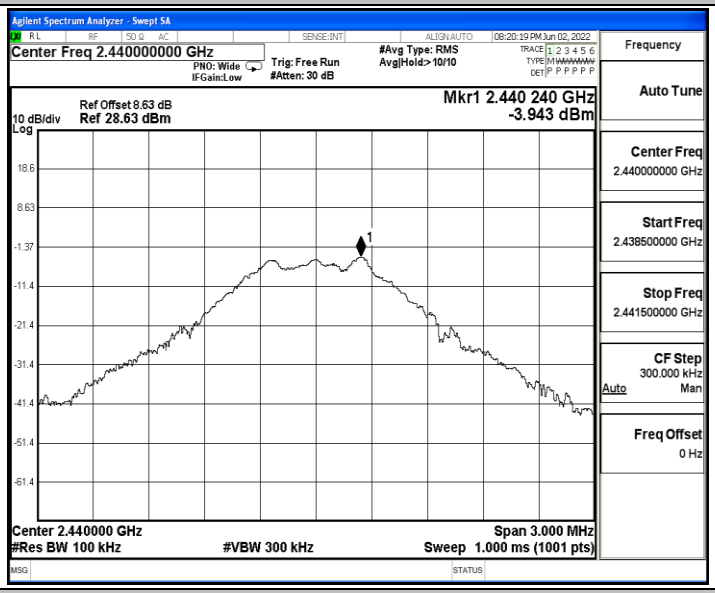
BLE_1M_Ant1_2402_30~1000



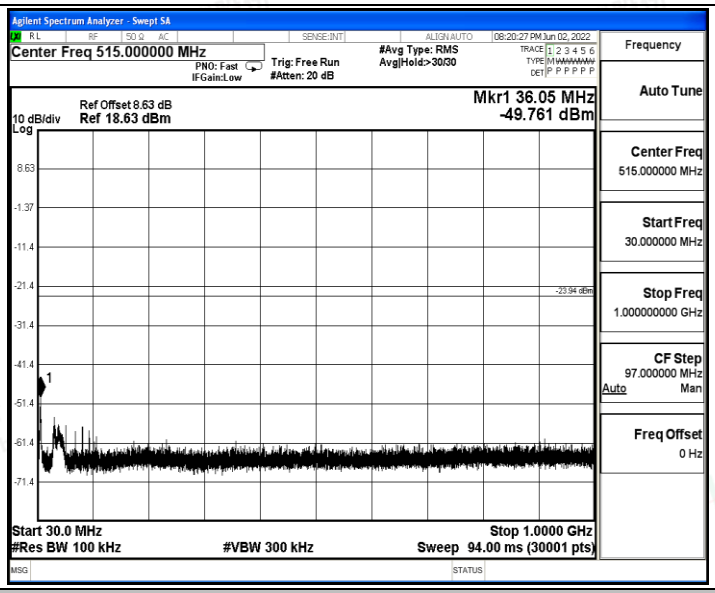
BLE_1M_Ant1_2402_1000~26500



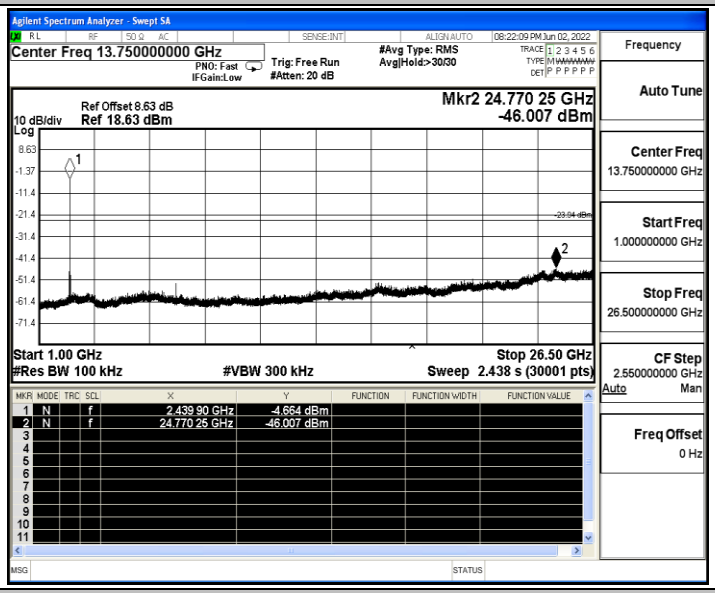
BLE_1M_Ant1_2440_0~Reference



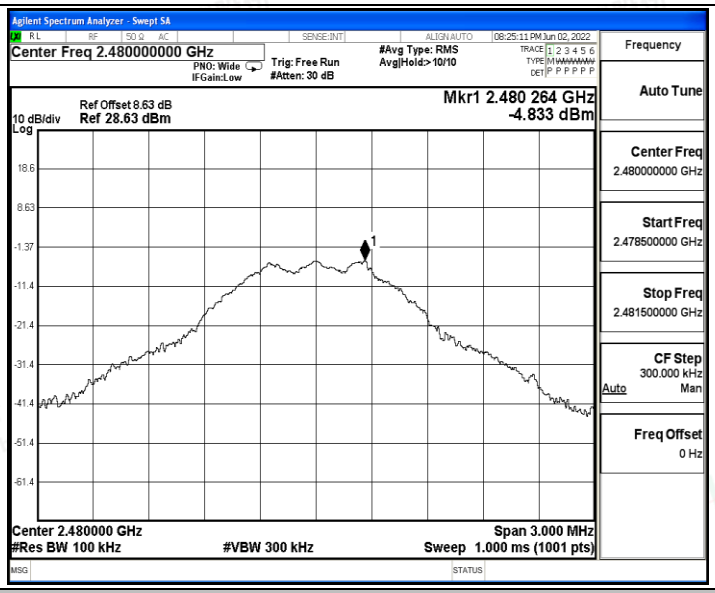
BLE_1M_Ant1_2440_30~1000



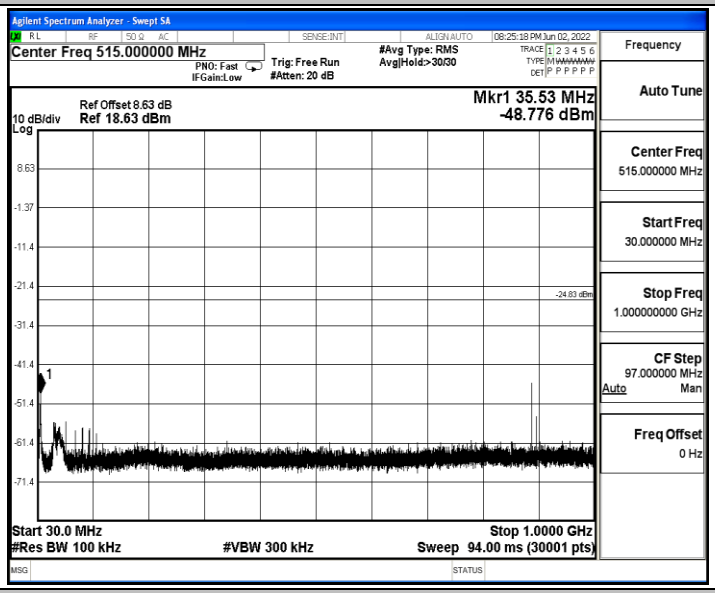
BLE_1M_Ant1_2440_1000~26500



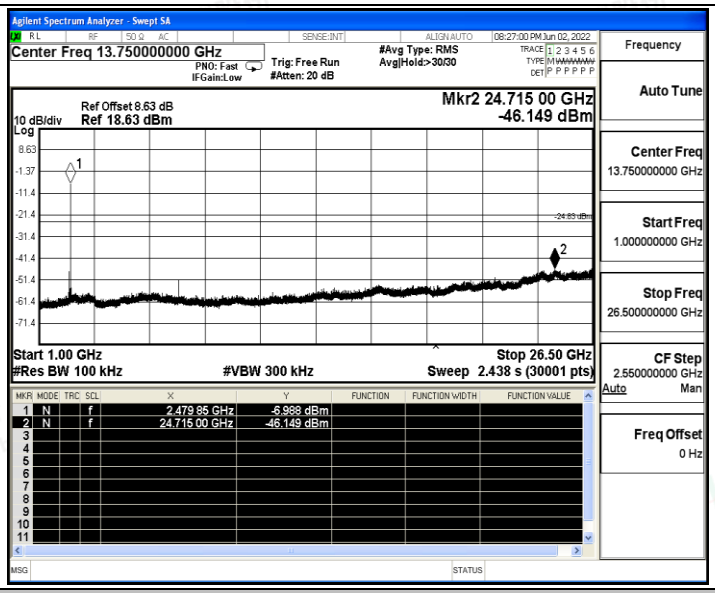
BLE_1M_Ant1_2480_0~Reference



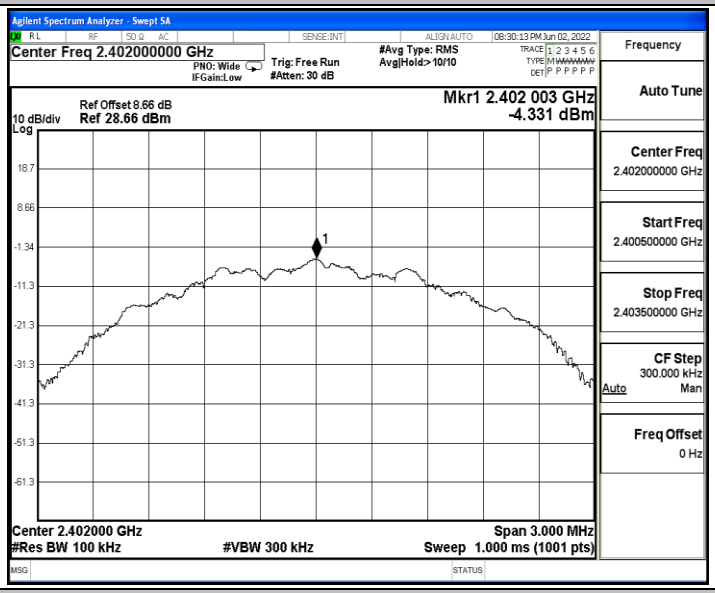
BLE_1M_Ant1_2480_30~1000



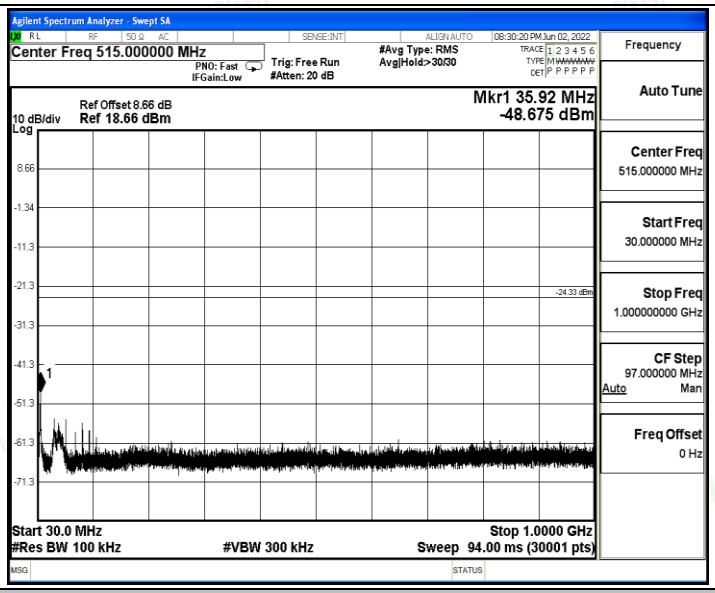
BLE_1M_Ant1_2480_1000~26500



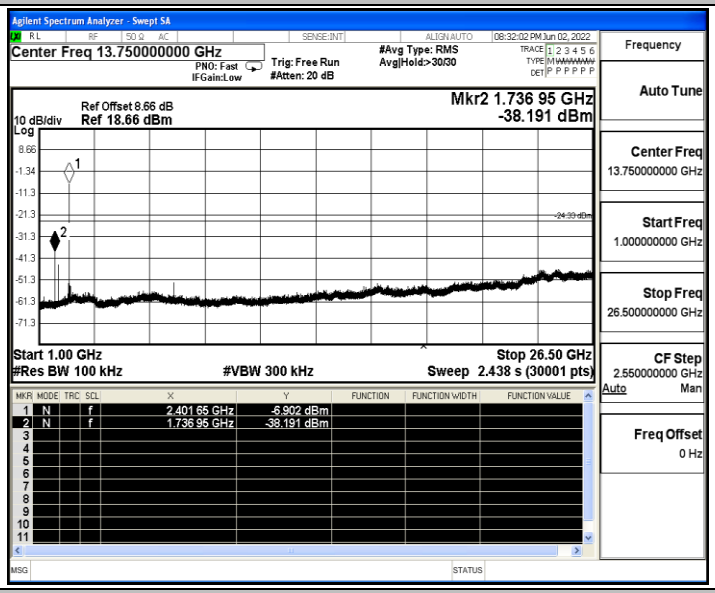
BLE_2M_Ant1_2402_0~Reference



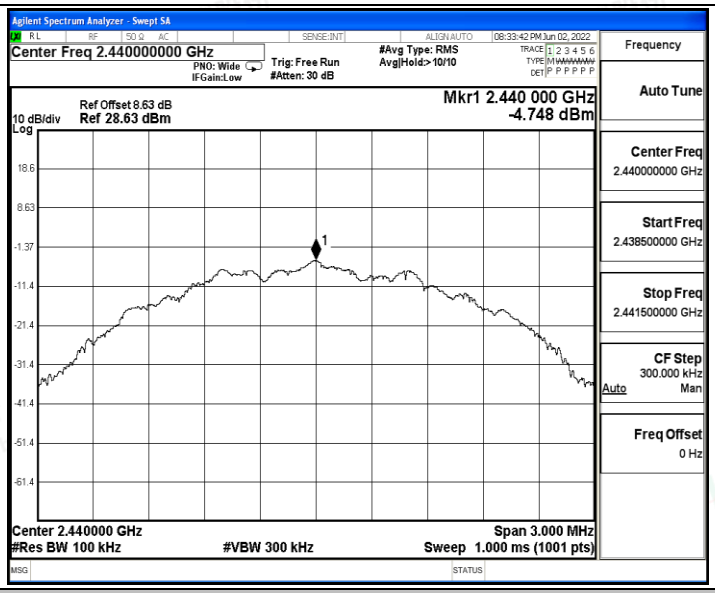
BLE_2M_Ant1_2402_30~1000



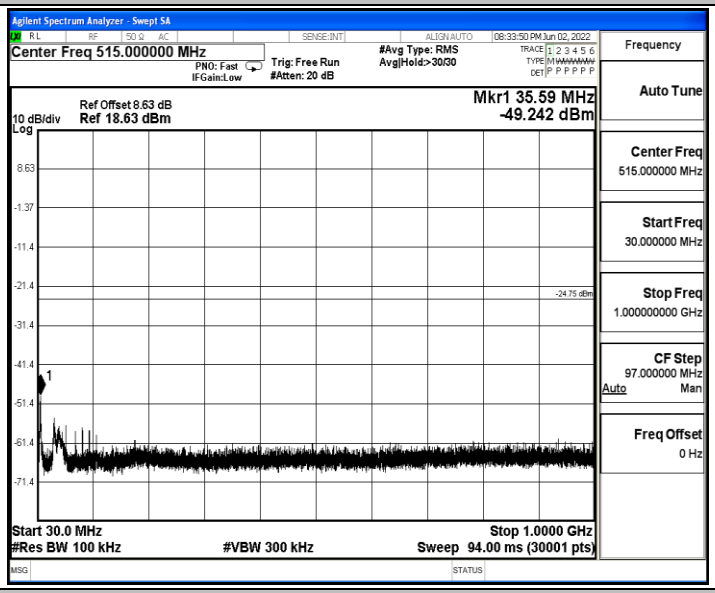
BLE_2M_Ant1_2402_1000~26500



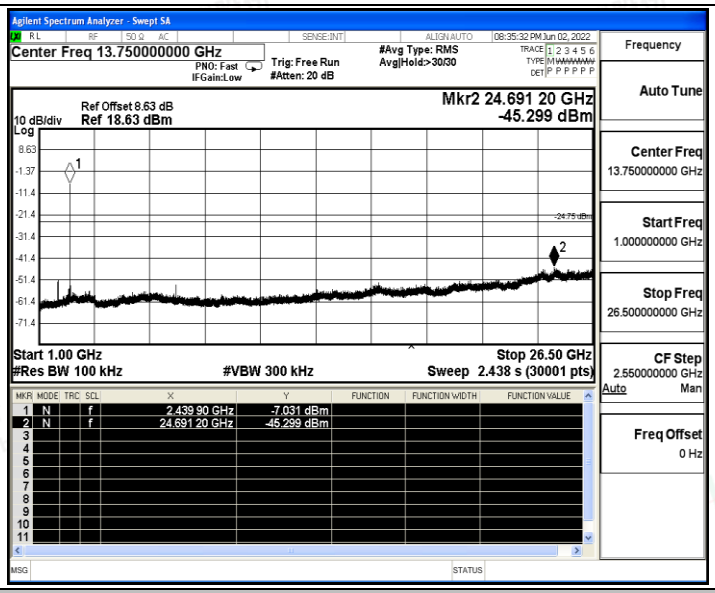
BLE_2M_Ant1_2440_0~Reference



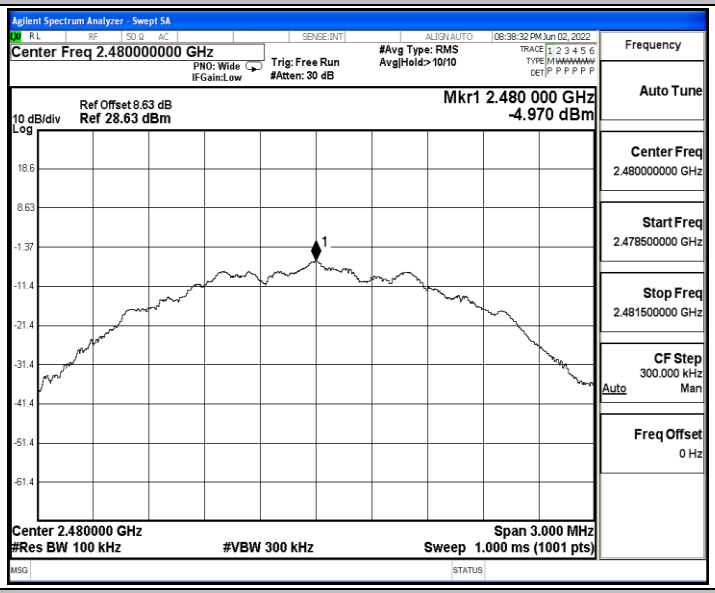
BLE_2M_Ant1_2440_30~1000



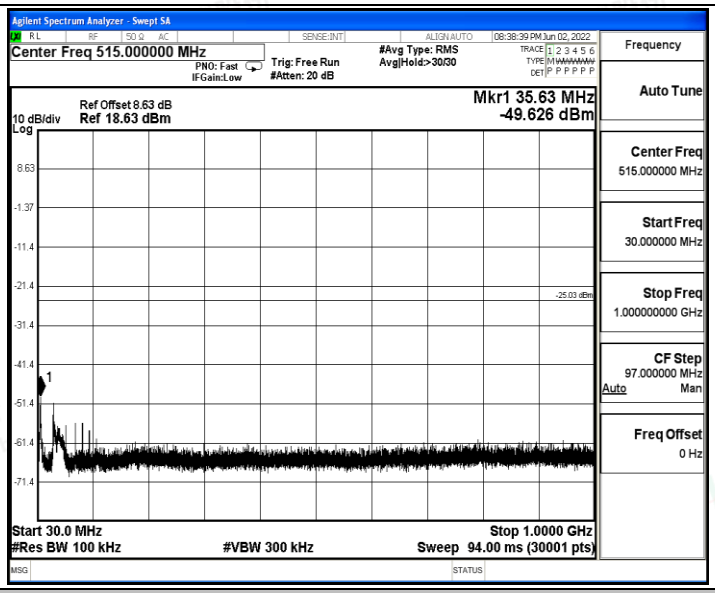
BLE_2M_Ant1_2440_1000~26500



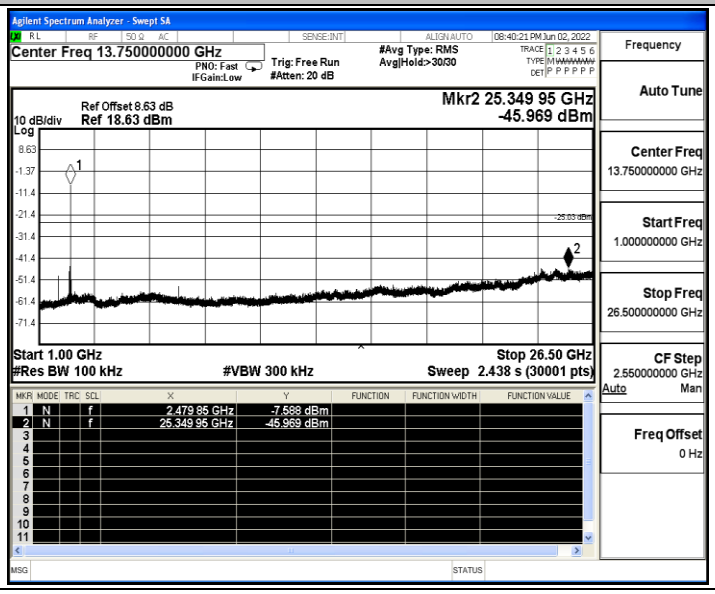
BLE_2M_Ant1_2480_0~Reference



BLE_2M_Ant1_2480_30~1000



BLE_2M_Ant1_2480_1000~26500



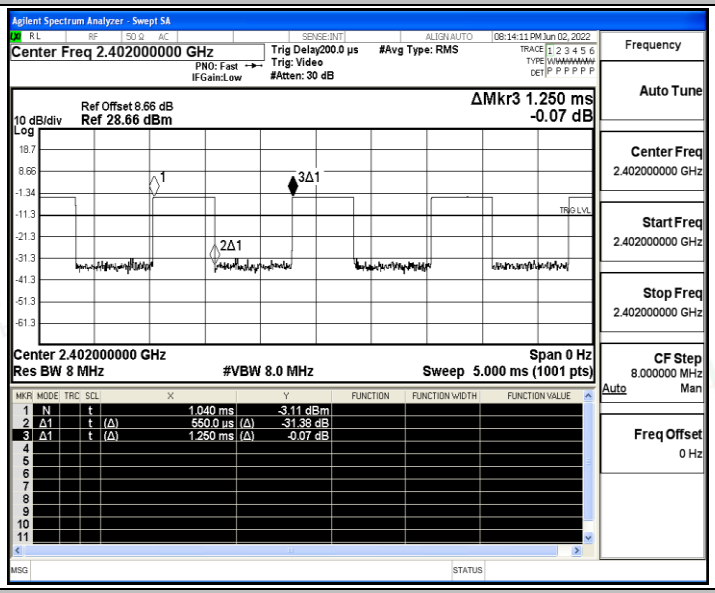
A.6 Duty Cycle

Test Result

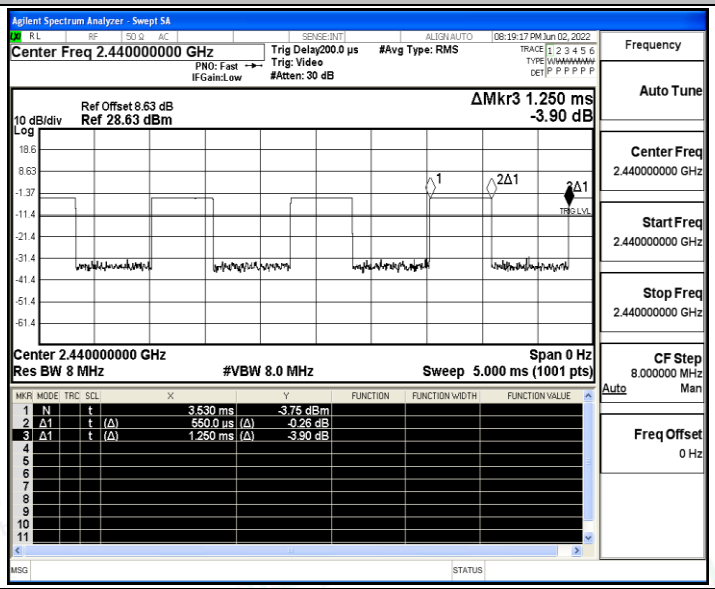
TestMode	Antenna	Channel	ON Time [ms]	Period [ms]	X	DC [%]	xFactor	1/T	Limit	Verdict
BLE_1M	Ant1	2402	0.55	1.25	0.4400	44.00	3.57	1.82	---	---
		2440	0.55	1.25	0.4400	44.00	3.57	1.82	---	---
		2480	0.55	1.25	0.4400	44.00	3.57	1.82	---	---
BLE_2M	Ant1	2402	0.28	0.63	0.4444	44.44	3.52	3.57	---	---
		2440	0.28	0.63	0.4444	44.44	3.52	3.57	---	---
		2480	0.28	0.63	0.4444	44.44	3.52	3.57	---	---

Test Graphs

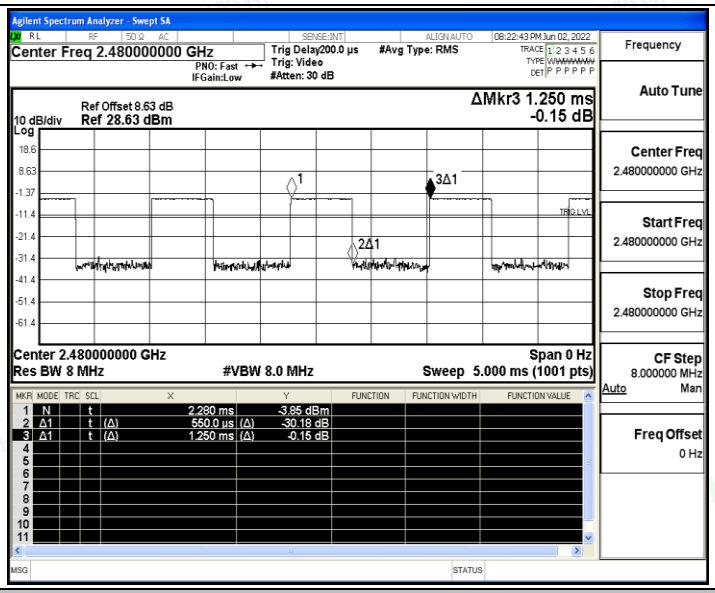
BLE_1M_Ant1_2402



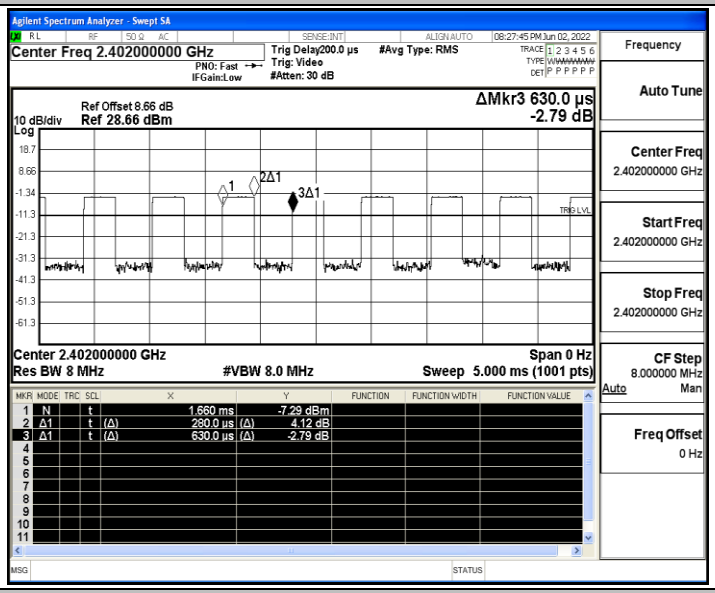
BLE_1M_Ant1_2440



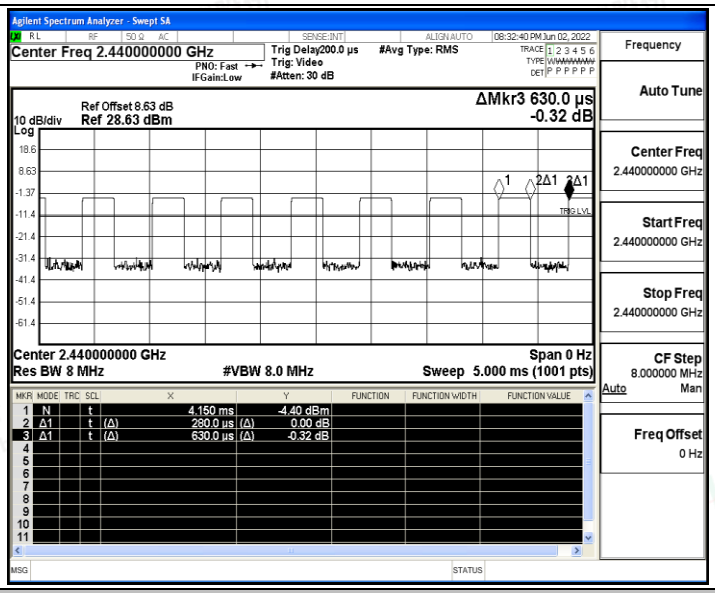
BLE_1M_Ant1_2480



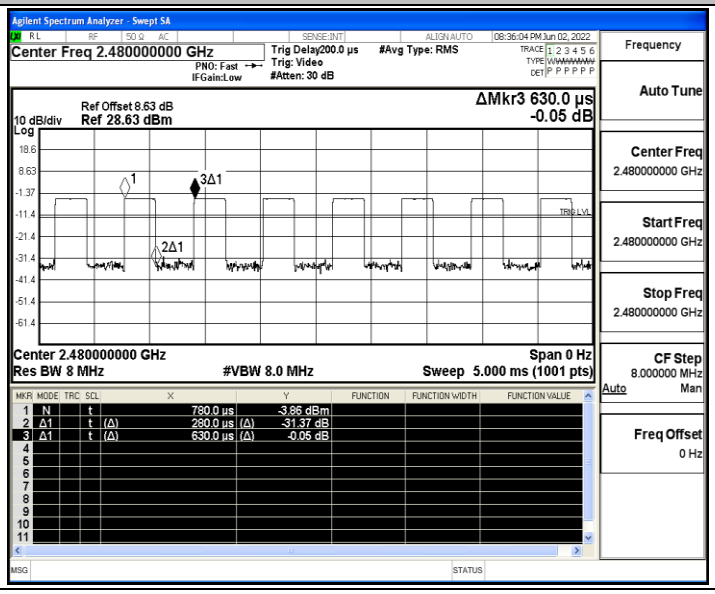
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



A.7 Emissions in Restricted Bands

Test Result

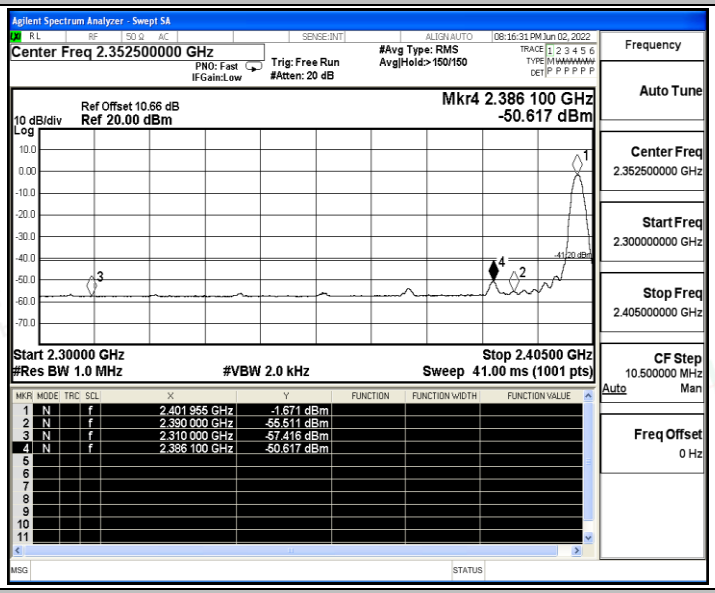
TestMode	Antenna	ChName	Channel	Detector	Freq. [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
BLE_1M	Ant1	Low	2402	AV	2310.000	-57.42	≤-41.20	37.78	≤54	PASS
				AV	2386.100	-50.62	≤-41.20	44.58	≤54	PASS
				AV	2390.000	-55.51	≤-41.20	39.69	≤54	PASS
				Peak	2310.000	-47.81	≤-21.20	47.39	≤74	PASS
				Peak	2389.775	-39.46	≤-21.20	55.74	≤74	PASS
				Peak	2390.000	-40.14	≤-21.20	55.06	≤74	PASS
		High	2480	AV	2483.500	-50.59	≤-41.20	44.61	≤54	PASS
				AV	2483.760	-49.98	≤-41.20	45.22	≤54	PASS
				AV	2500.000	-56.55	≤-41.20	38.65	≤54	PASS
				Peak	2483.500	-34.95	≤-21.20	60.25	≤74	PASS
				Peak	2483.840	-33.88	≤-21.20	61.32	≤74	PASS
				Peak	2500.000	-47.21	≤-21.20	47.99	≤74	PASS
BLE_2M	Ant1	Low	2402	AV	2310.000	-57.19	≤-41.20	38.01	≤54	PASS
				AV	2385.995	-51.36	≤-41.20	43.84	≤54	PASS
				AV	2390.000	-54.05	≤-41.20	41.15	≤54	PASS
				Peak	2310.000	-47.68	≤-21.20	47.52	≤74	PASS
				Peak	2370.140	-38.68	≤-21.20	56.52	≤74	PASS
				Peak	2390.000	-40.65	≤-21.20	54.55	≤74	PASS
		High	2480	AV	2483.500	-47.3	≤-41.20	47.90	≤54	PASS
				AV	2483.520	-47.3	≤-41.20	47.90	≤54	PASS
				AV	2500.000	-56.04	≤-41.20	39.16	≤54	PASS
				Peak	2483.500	-34.12	≤-21.20	61.08	≤74	PASS
				Peak	2483.680	-33.75	≤-21.20	61.45	≤74	PASS
				Peak	2500.000	-46.43	≤-21.20	48.77	≤74	PASS

Note：

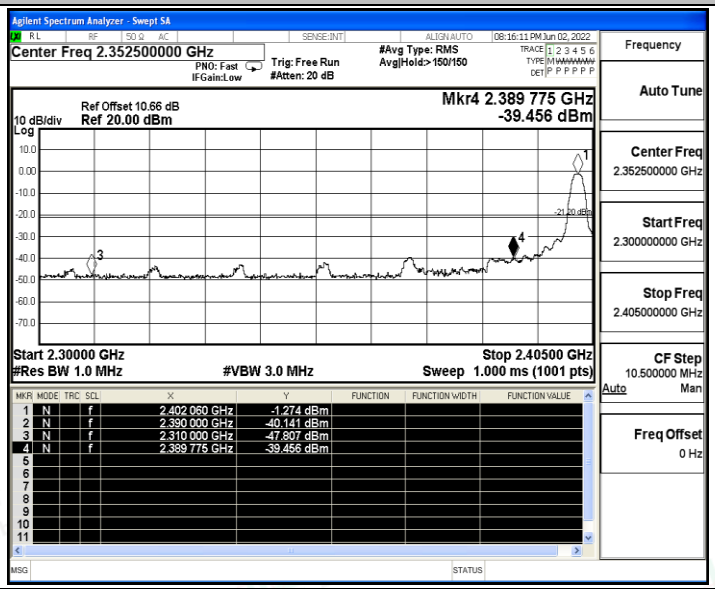
1. The Antenna Gain is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

Test Graphs

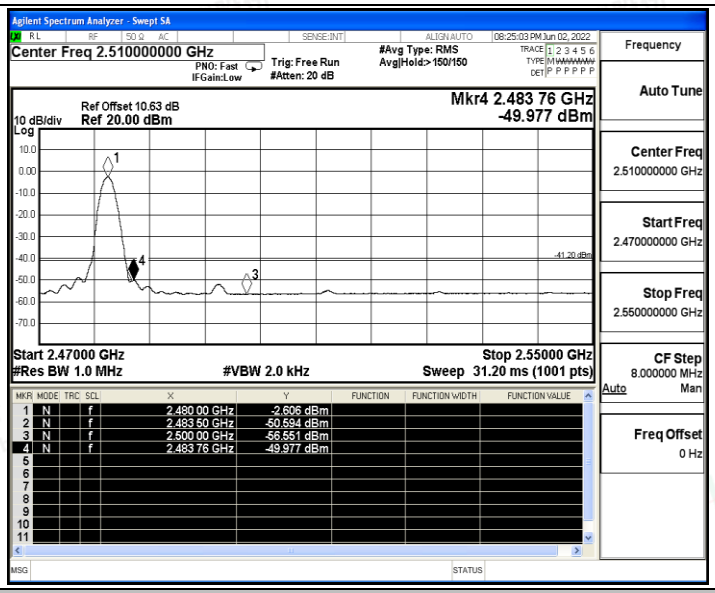
BLE_1M_Ant1_Low_2402_AV



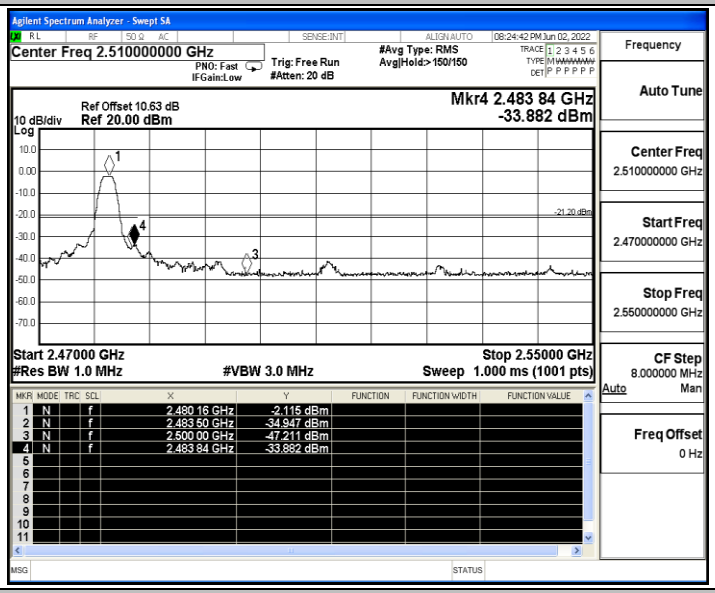
BLE_1M_Ant1_Low_2402_Peak



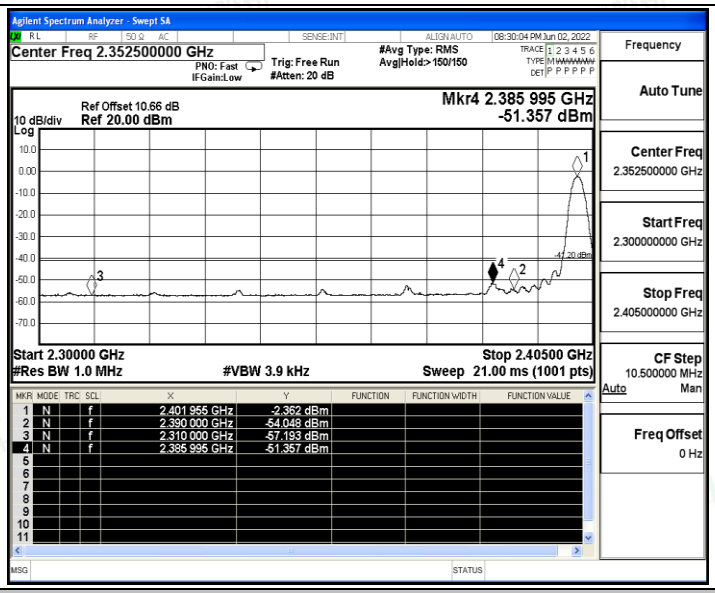
BLE_1M_Ant1_High_2480_AV



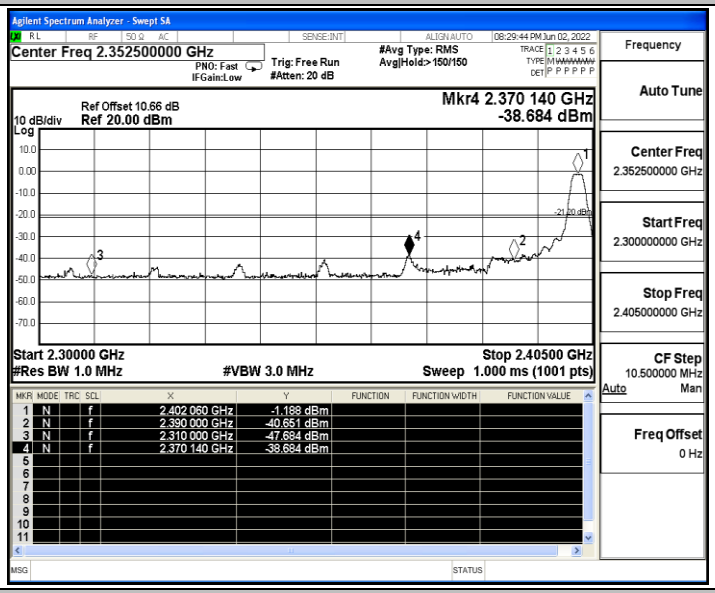
BLE_1M_Ant1_High_2480_Peak



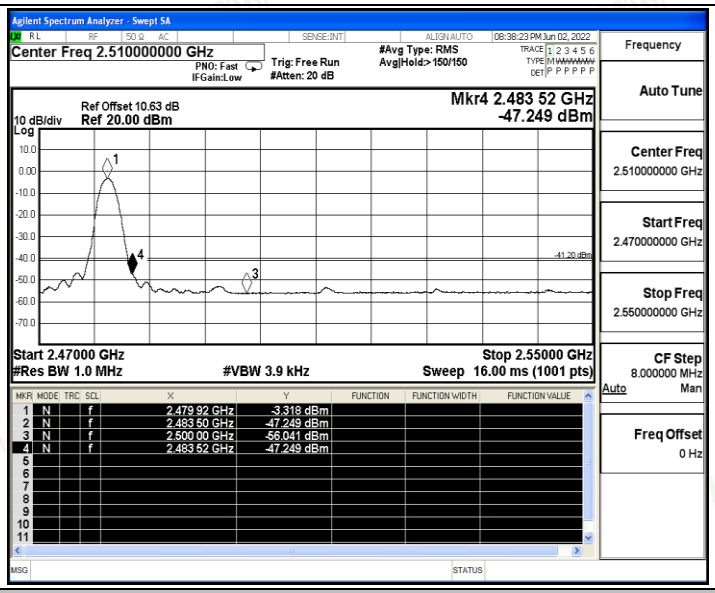
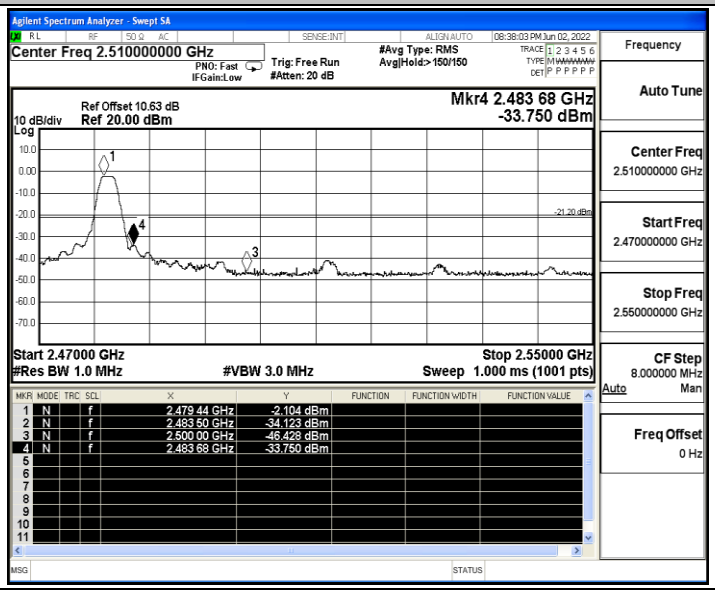
BLE_2M_Ant1_Low_2402_AV



BLE_2M_Ant1_Low_2402_Peak



BLE_2M_Ant1_High_2480_AV



BLE_2M_Ant1_High_2480_Peak