



Appendix B

RF Test Data for BLE (Conducted Measurement)

Product Name: Single Board Computer

Test Model: IEC-EDGE2-0432

Environmental Conditions

Temperature:	23.5° C
Relative Humidity:	52.2%
ATM Pressure:	100.0 kPa
Test Engineer:	Bill Zhu
Supervised by:	Li huan



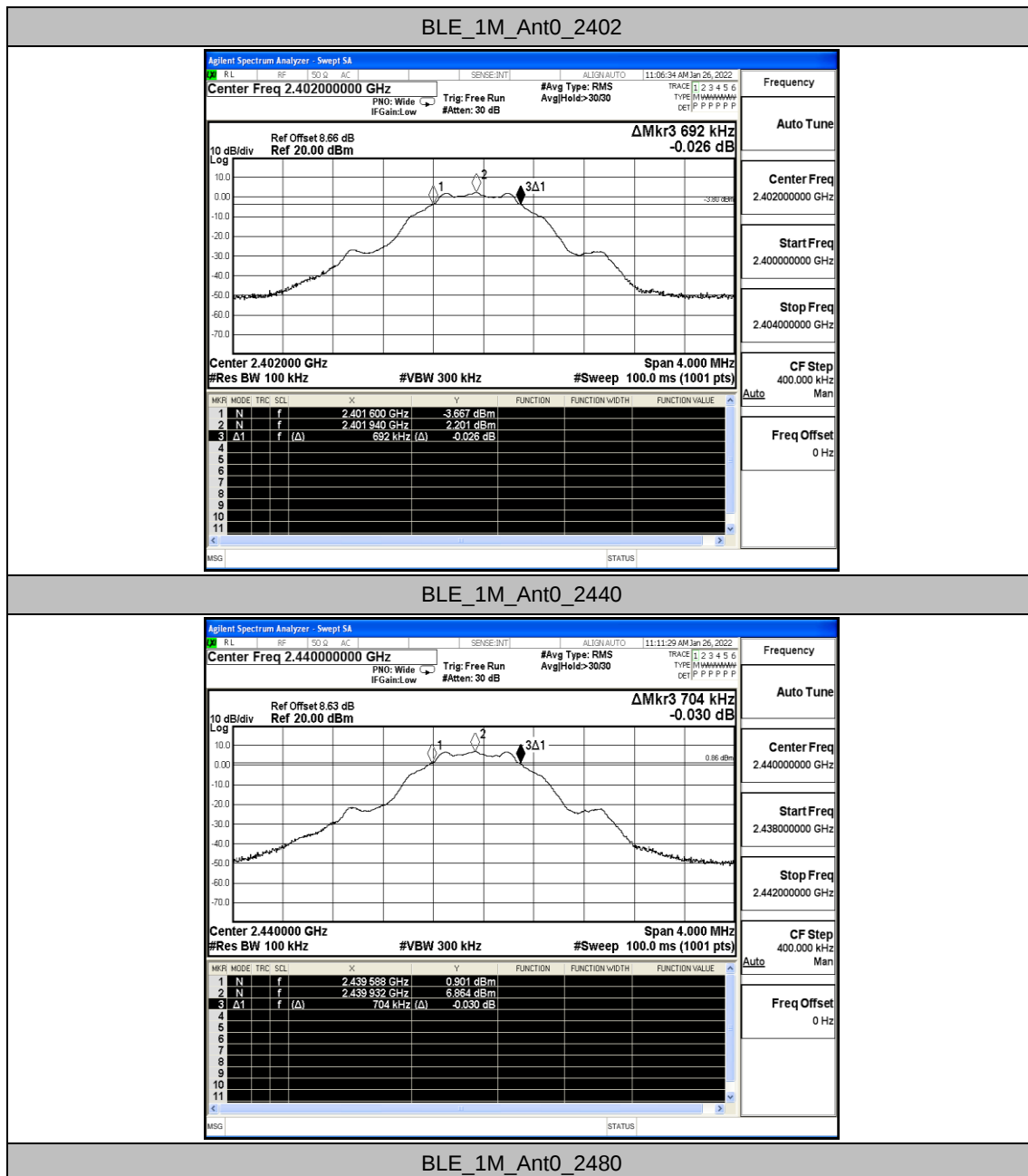
B.1 6dB Bandwidth

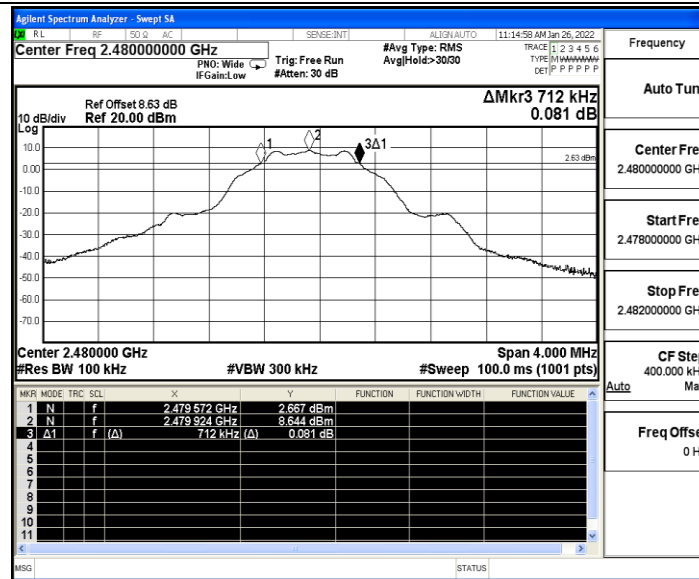
Test Result

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant0	2402	0.692	2401.600	2402.292	0.5	PASS
		2440	0.704	2439.588	2440.292	0.5	PASS
		2480	0.712	2479.572	2480.284	0.5	PASS
BLE_2M	Ant0	2402	1.244	2401.296	2402.540	0.5	PASS
		2440	1.244	2439.288	2440.532	0.5	PASS
		2480	1.244	2479.280	2480.524	0.5	PASS

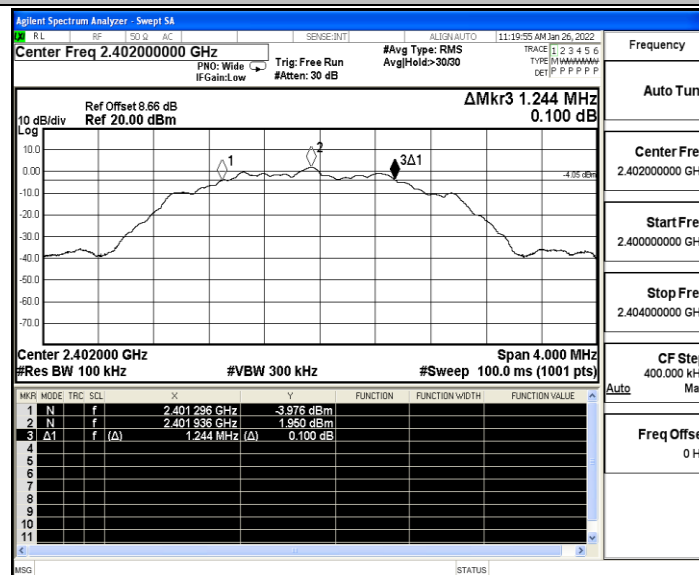


Test Graphs

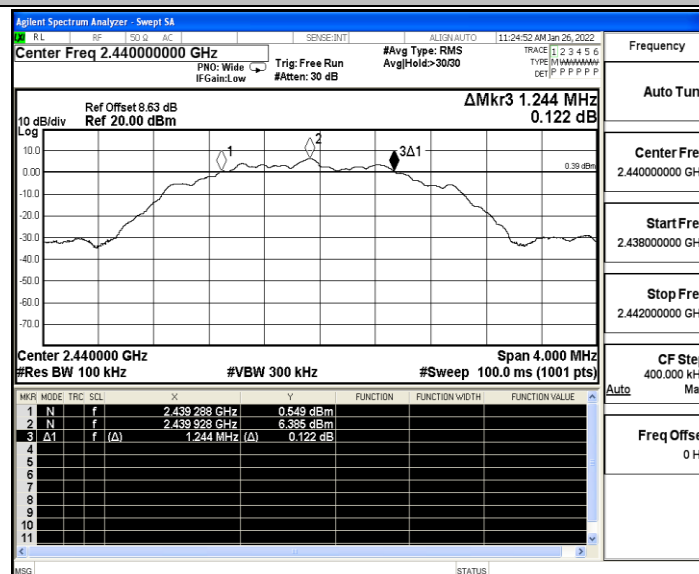




BLE_2M_Ant0_2402

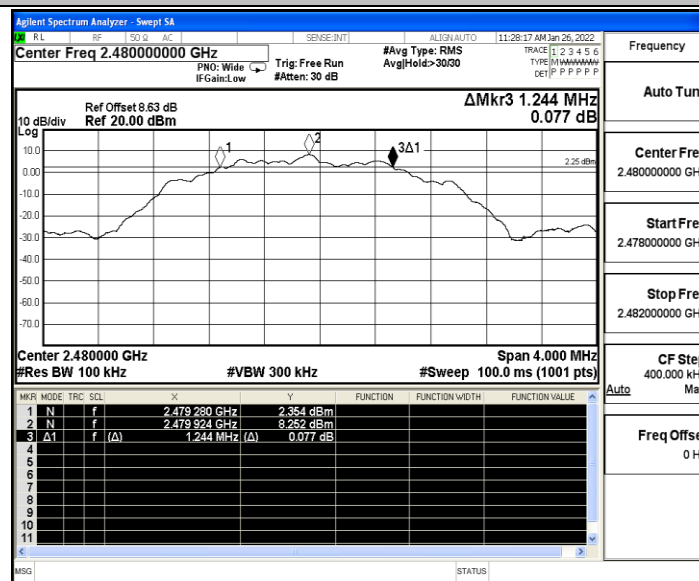


BLE_2M_Ant0_2440





BLE_2M_Ant0_2480





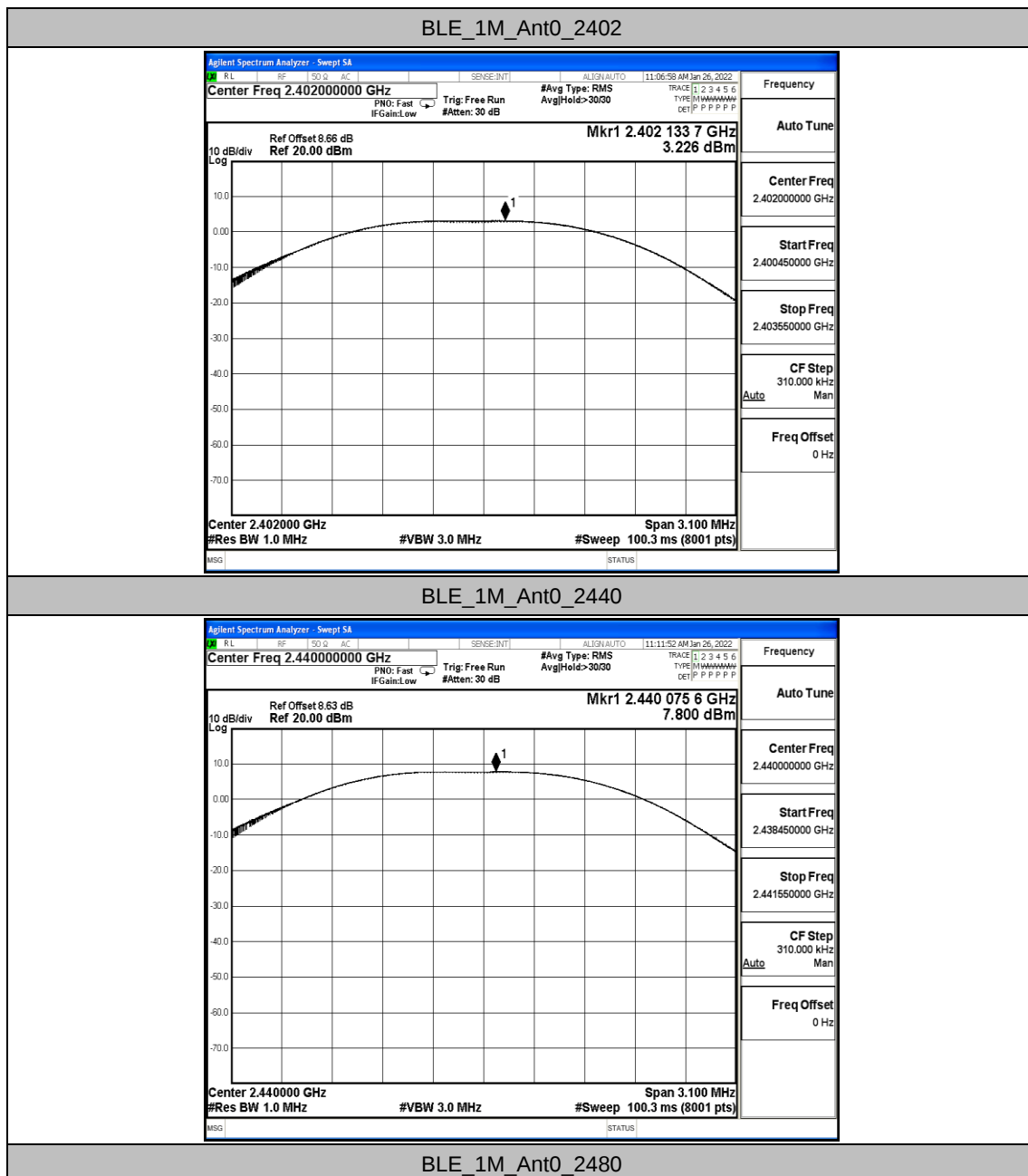
B.2 Maximum conducted output power

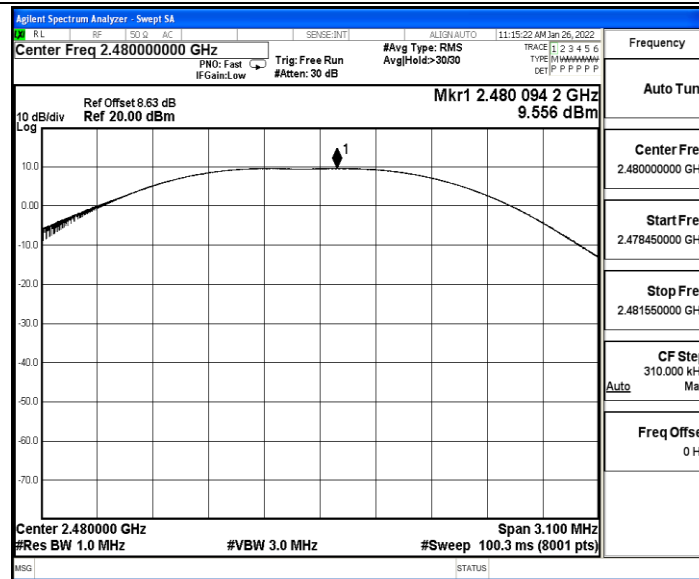
Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant0	2402	3.23	≤30	PASS
		2440	7.8	≤30	PASS
		2480	9.56	≤30	PASS
BLE_2M	Ant0	2402	3.64	≤30	PASS
		2440	7.99	≤30	PASS
		2480	9.67	≤30	PASS

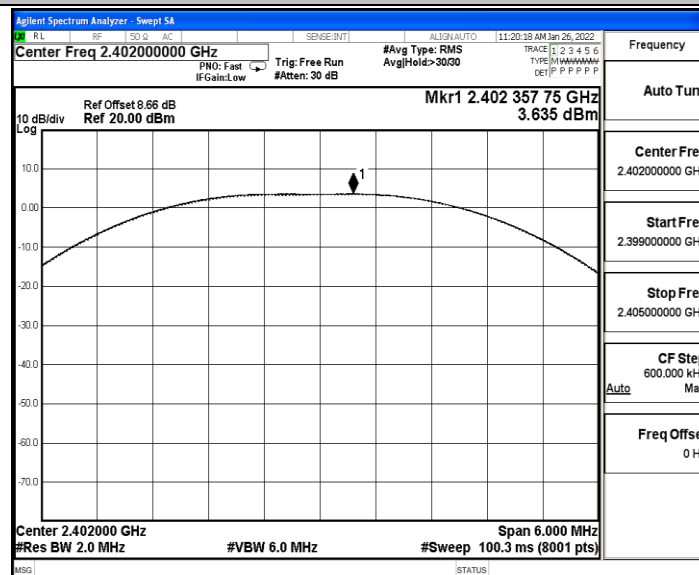


Test Graphs

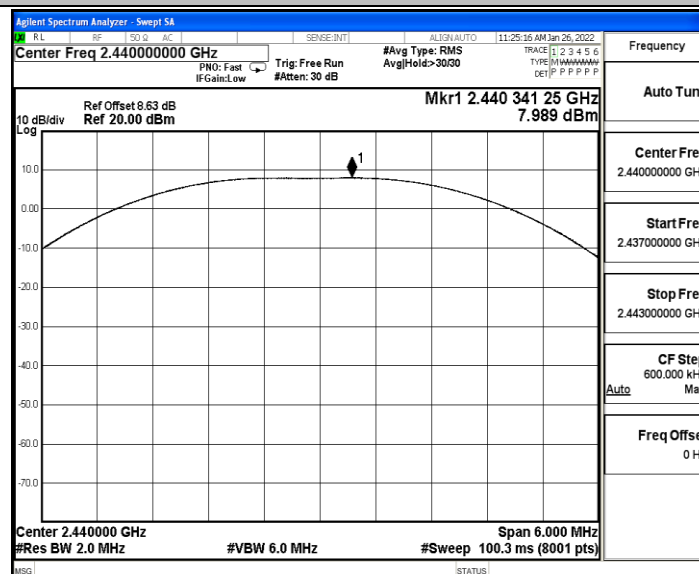




BLE_2M_Ant0_2402

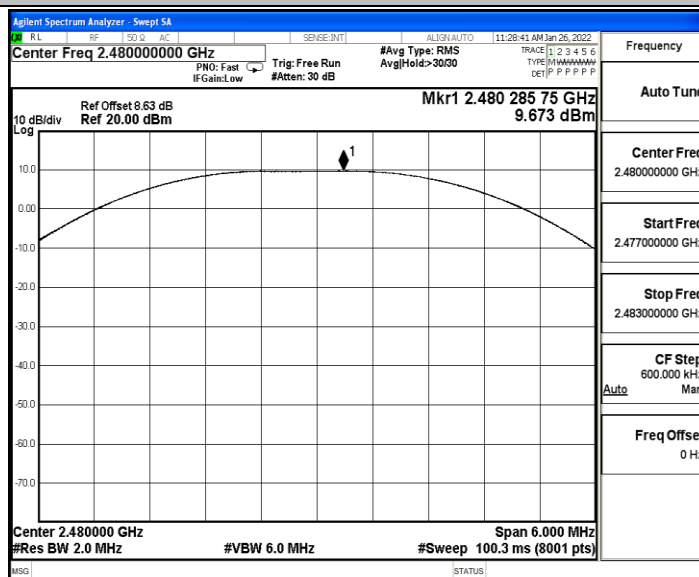


BLE_2M_Ant0_2440





BLE_2M_Ant0_2480





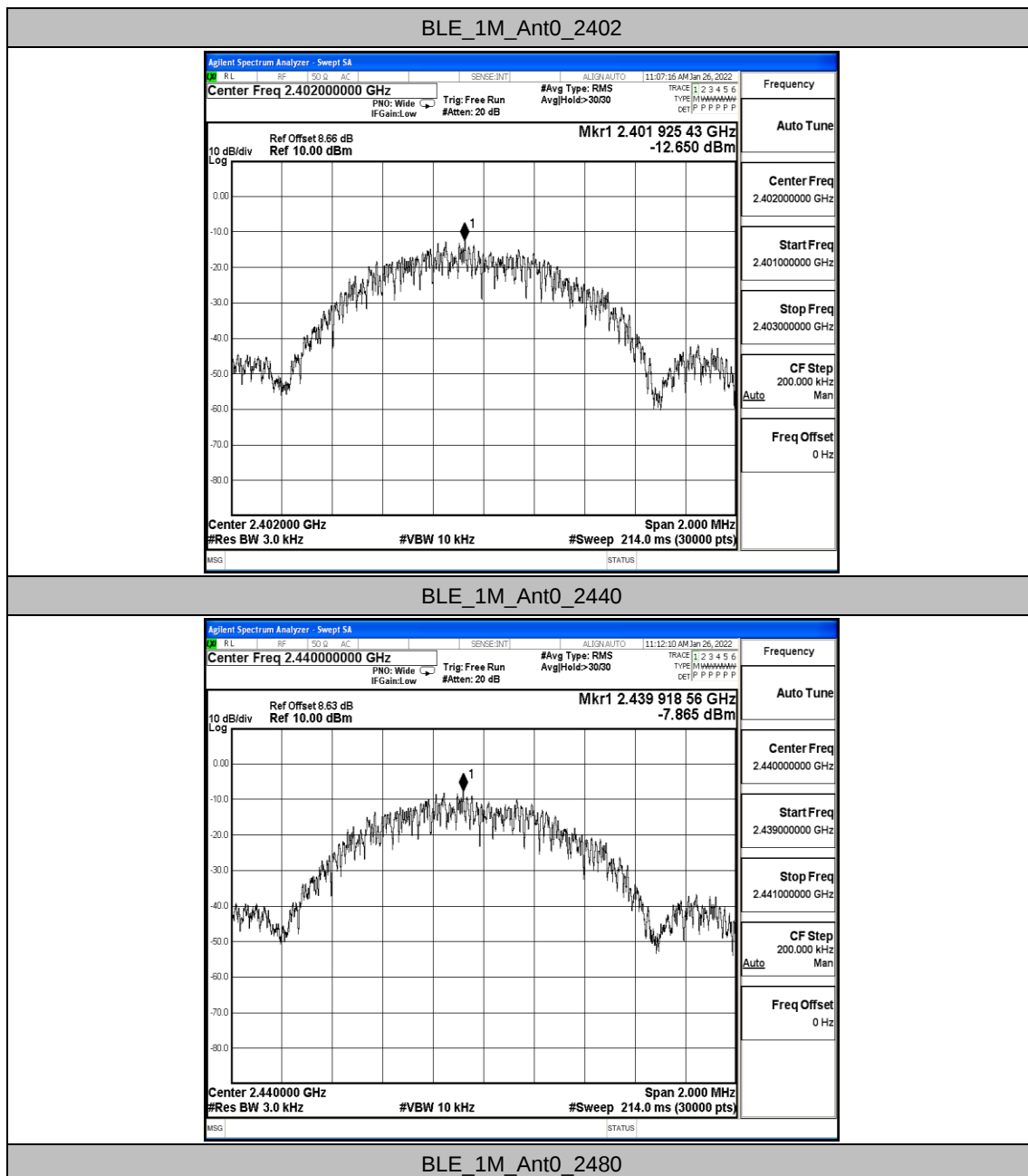
B.3 Maximum power spectral density

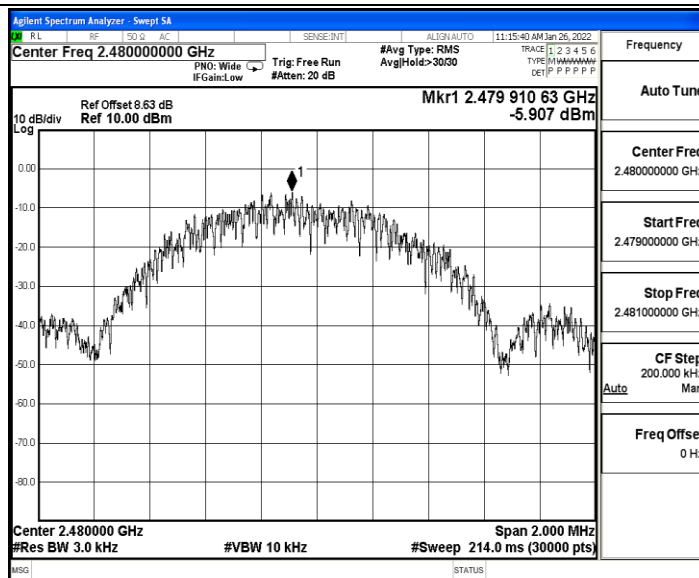
Test Result

TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant0	2402	-12.65	≤8.00	PASS
		2440	-7.87	≤8.00	PASS
		2480	-5.91	≤8.00	PASS
BLE_2M	Ant0	2402	-14.56	≤8.00	PASS
		2440	-10.12	≤8.00	PASS
		2480	-8.13	≤8.00	PASS

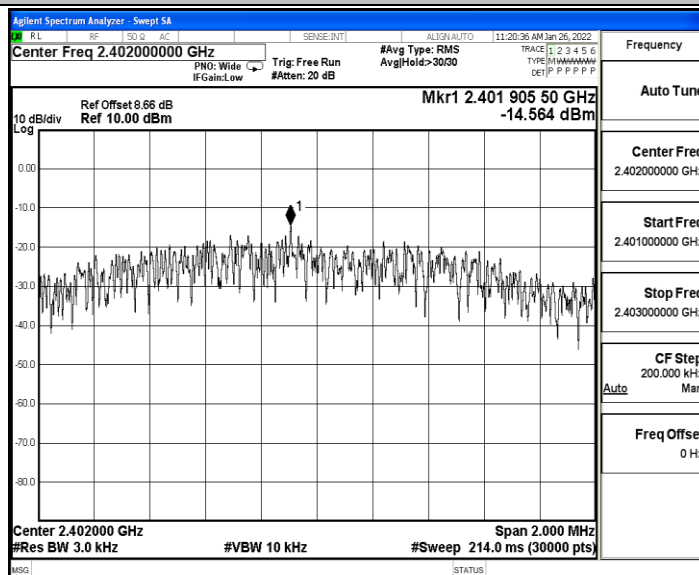


Test Graphs

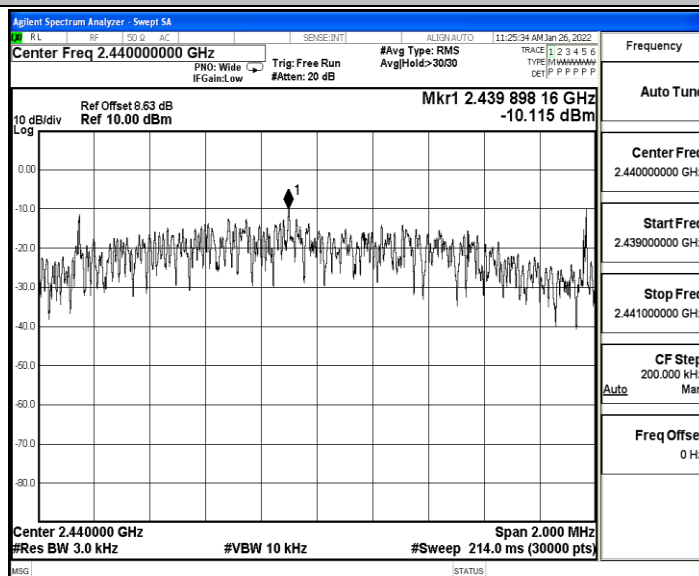




BLE_2M_Ant0_2402

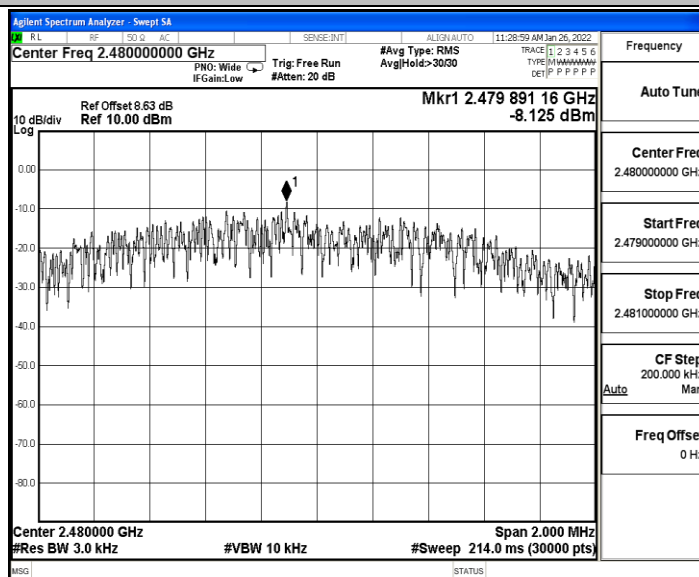


BLE_2M_Ant0_2440





BLE_2M_Ant0_2480



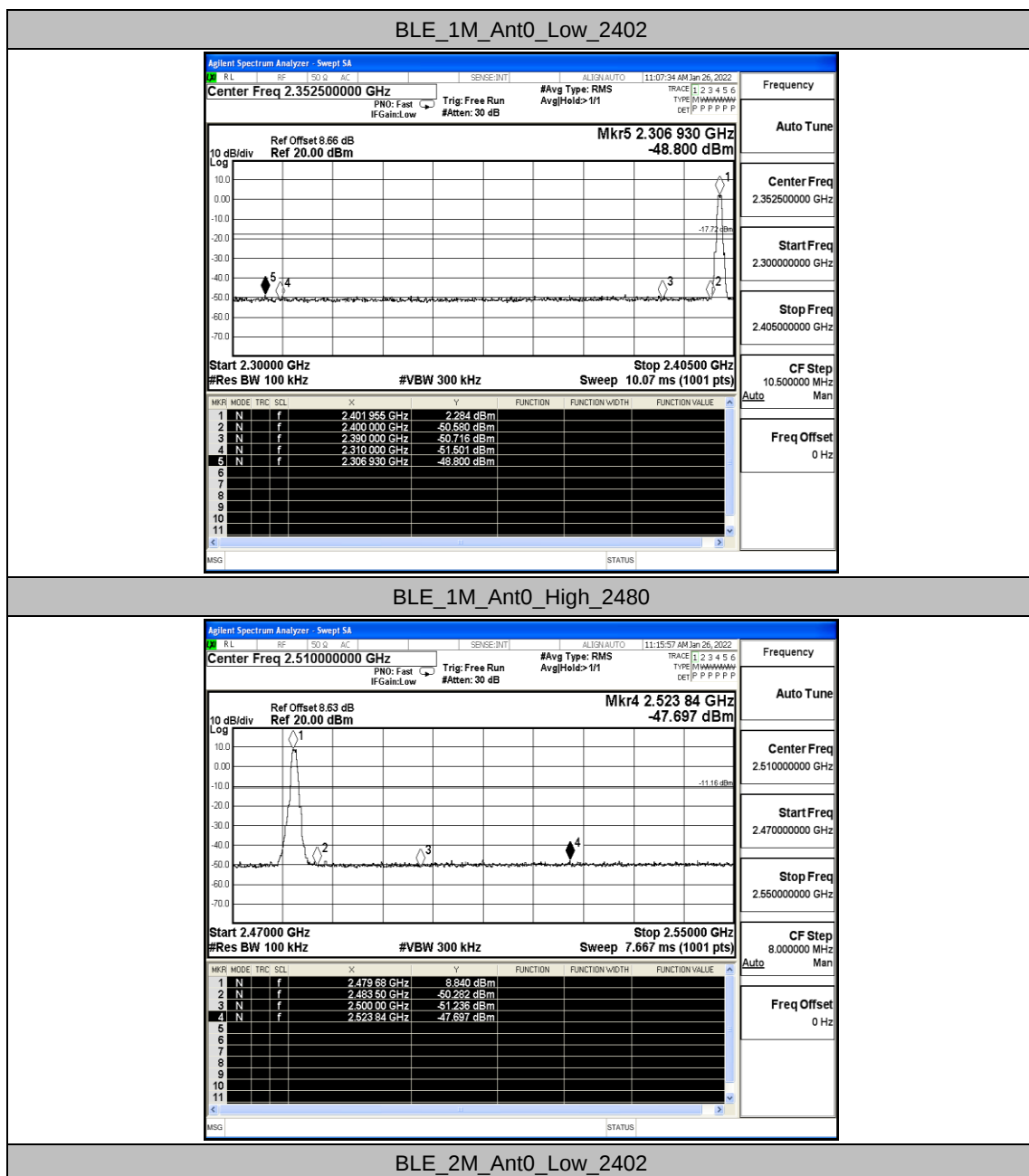


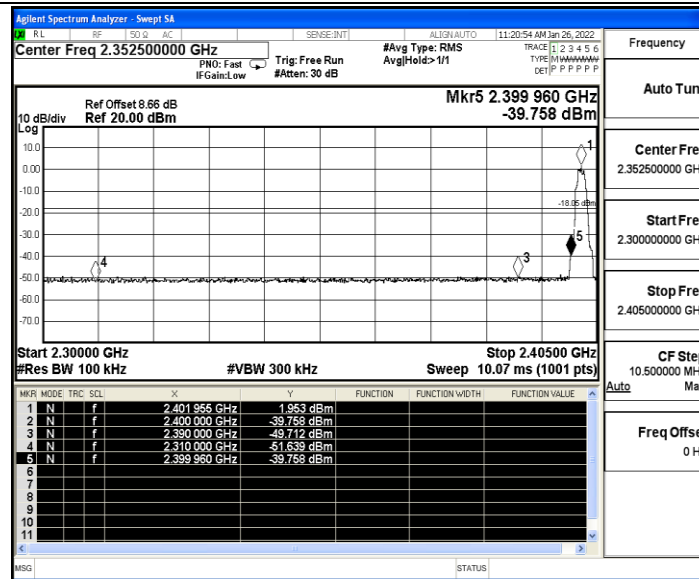
B.4 Band edge measurements

Test Result

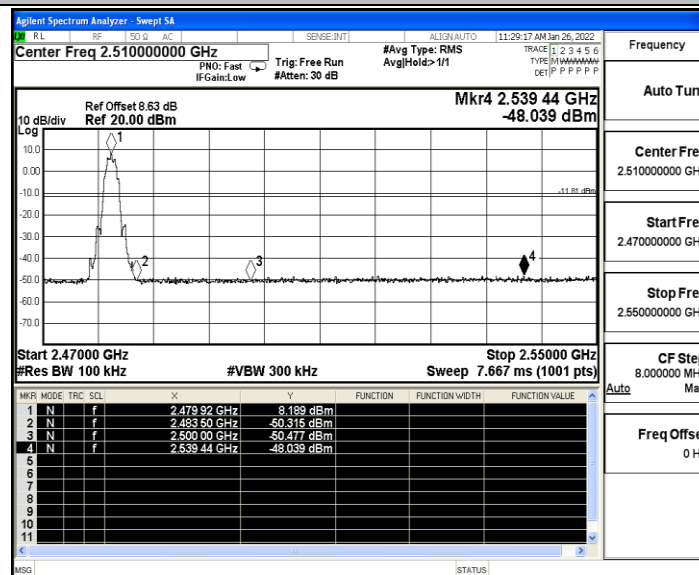
TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant0	Low	2402	2.28	-48.8	≤-17.72	PASS
		High	2480	8.84	-47.7	≤-11.16	PASS
BLE_2M	Ant0	Low	2402	1.95	-39.76	≤-18.05	PASS
		High	2480	8.19	-48.04	≤-11.81	PASS

Test Graphs





BLE_2M_Ant0_High_2480





B.5 Conducted Spurious Emission

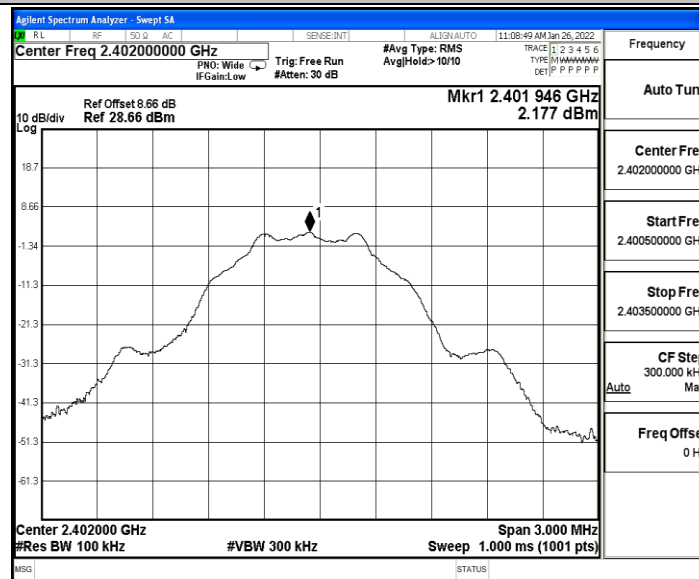
Test Result

TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant0	2402	Reference	2.18	2.18	---	PASS
			30~1000	2.18	-60.39	≤-17.82	PASS
			1000~26500	2.18	-45.43	≤-17.82	PASS
		2440	Reference	6.86	6.86	---	PASS
			30~1000	6.86	-58.89	≤-13.14	PASS
			1000~26500	6.86	-45.83	≤-13.14	PASS
		2480	Reference	8.64	8.64	---	PASS
			30~1000	8.64	-60.23	≤-11.36	PASS
			1000~26500	8.64	-45.58	≤-11.36	PASS
BLE_2M	Ant0	2402	Reference	1.95	1.95	---	PASS
			30~1000	1.95	-60.15	≤-18.05	PASS
			1000~26500	1.95	-45.11	≤-18.05	PASS
		2440	Reference	6.26	6.26	---	PASS
			30~1000	6.26	-60.71	≤-13.74	PASS
			1000~26500	6.26	-45.76	≤-13.74	PASS
		2480	Reference	8.17	8.17	---	PASS
			30~1000	8.17	-60.41	≤-11.83	PASS
			1000~26500	8.17	-46.26	≤-11.83	PASS

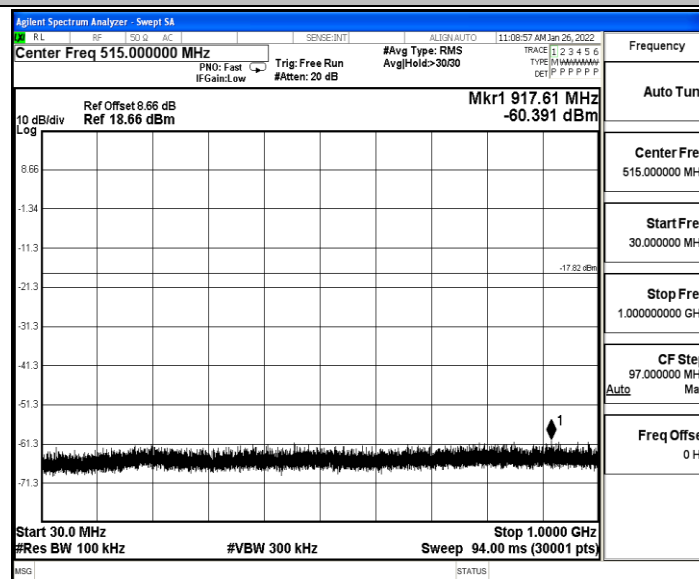


Test Graphs

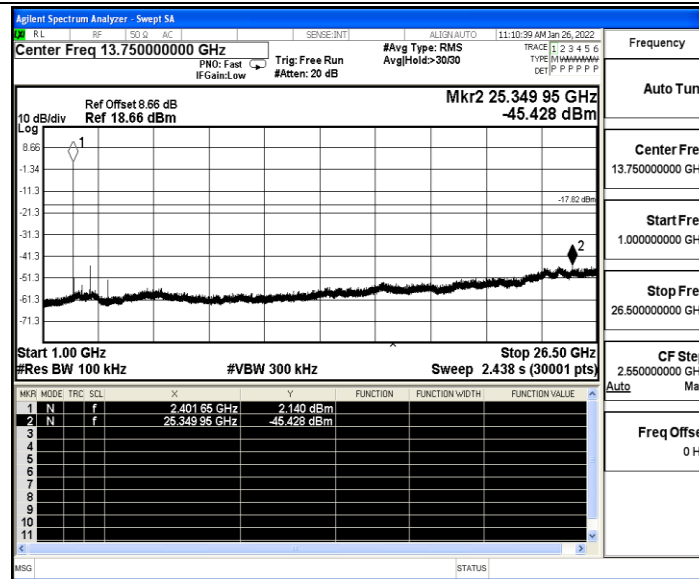
BLE_1M_Ant0_2402_0~Reference



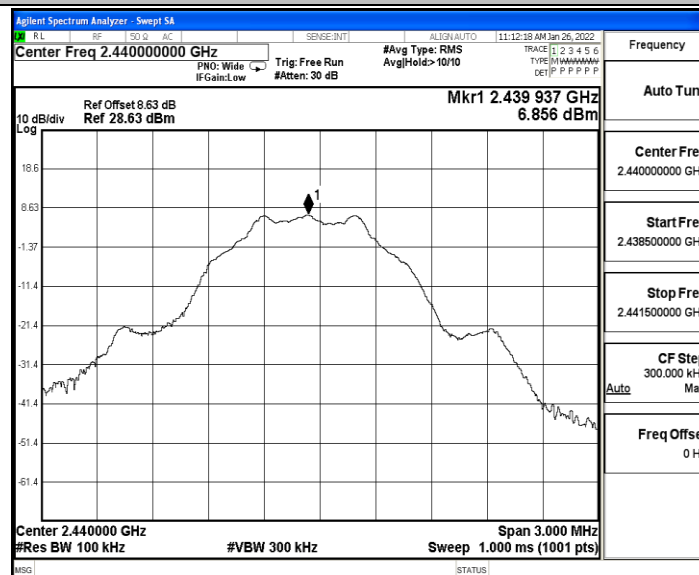
BLE_1M_Ant0_2402_30~1000



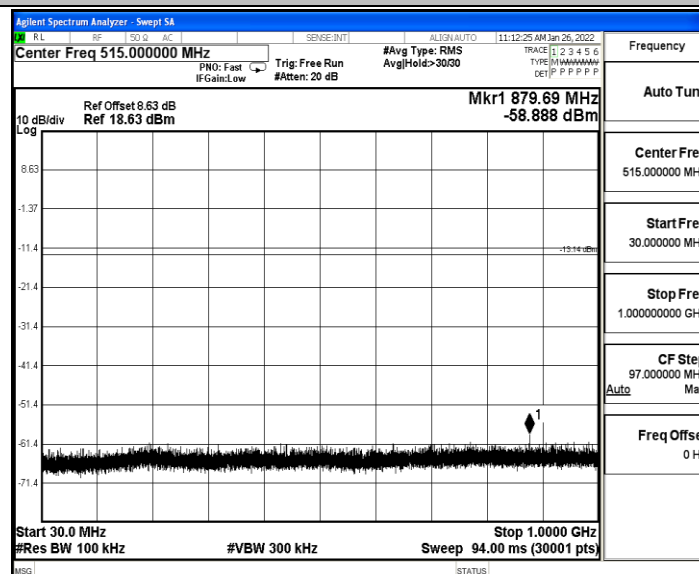
BLE_1M_Ant0_2402_1000~26500



BLE_1M_Ant0_2440_0~Reference

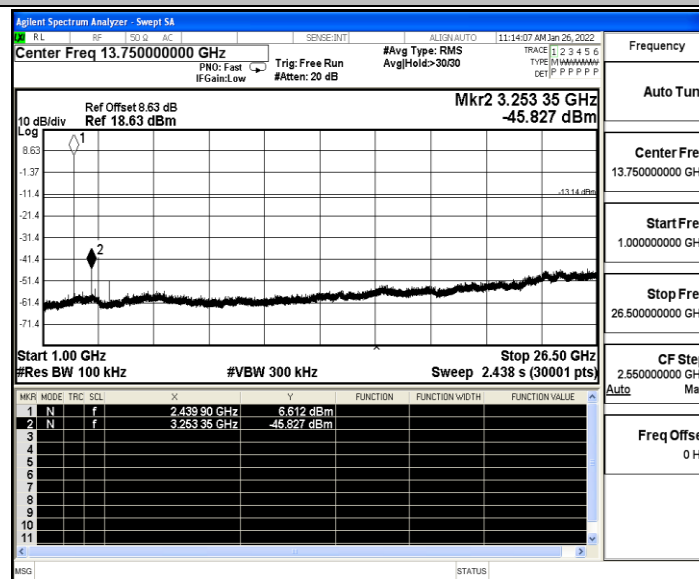


BLE_1M_Ant0_2440_30~1000

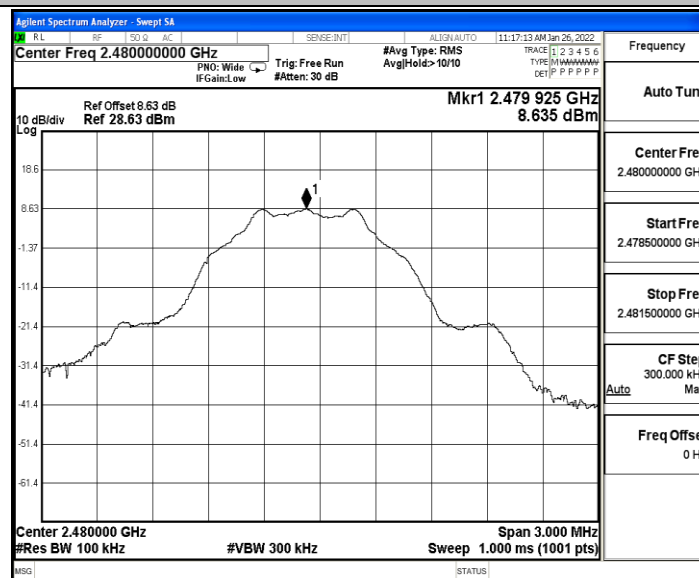




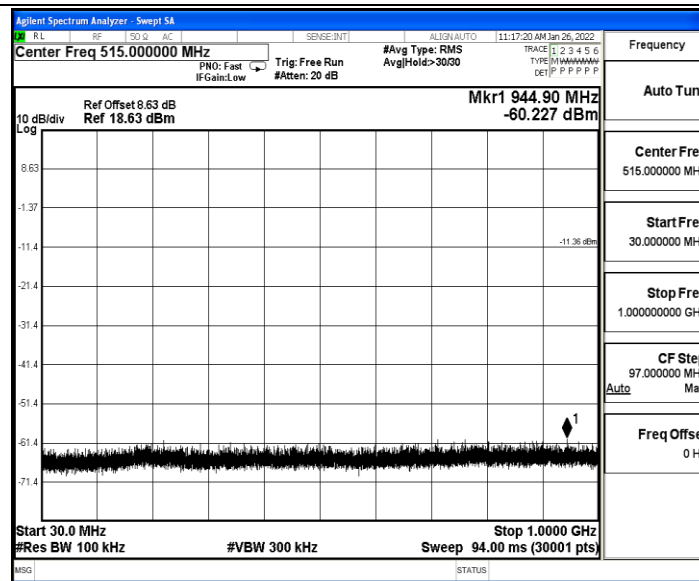
BLE_1M_Ant0_2440_1000~26500



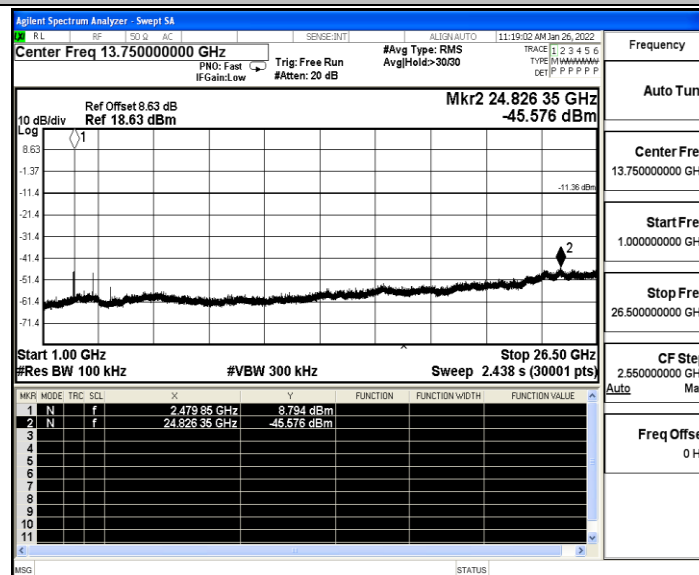
BLE_1M_Ant0_2480_0~Reference



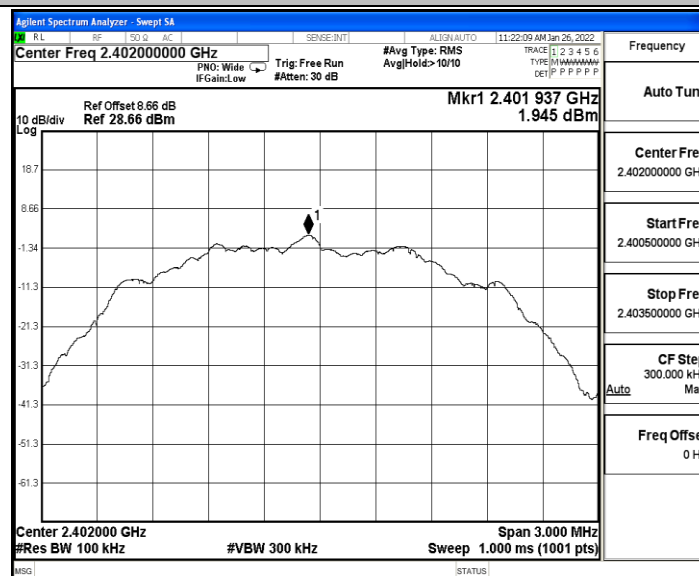
BLE_1M_Ant0_2480_30~1000



BLE_1M_Ant0_2480_1000~26500

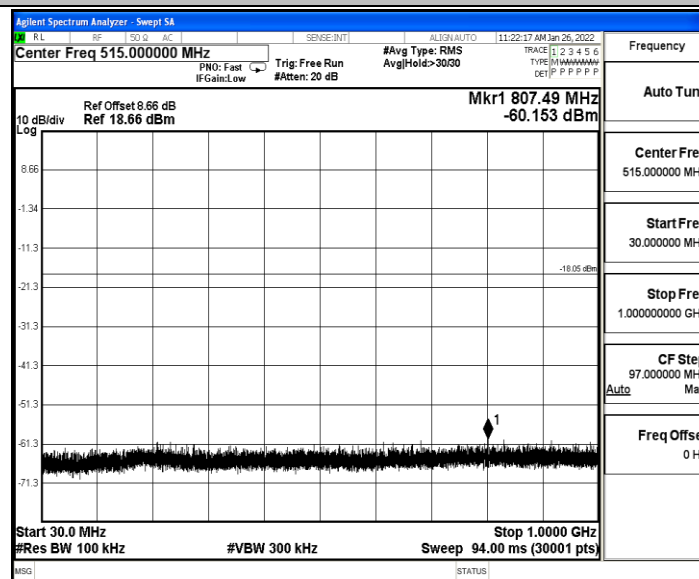


BLE_2M_Ant0_2402_0~Reference

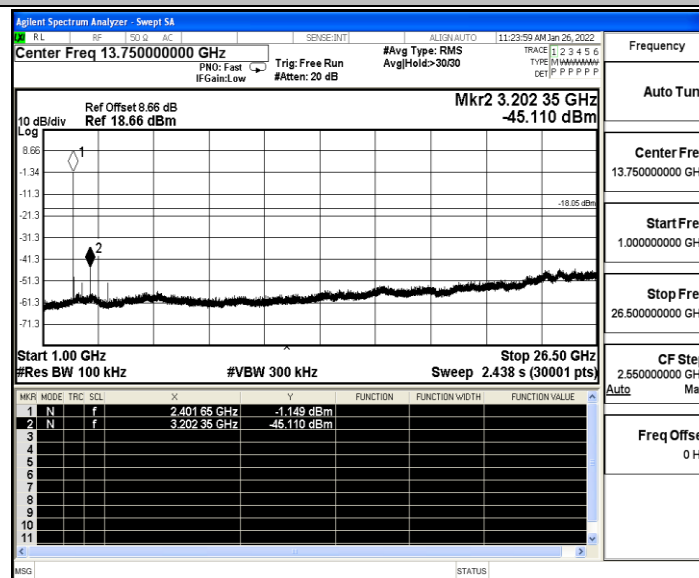




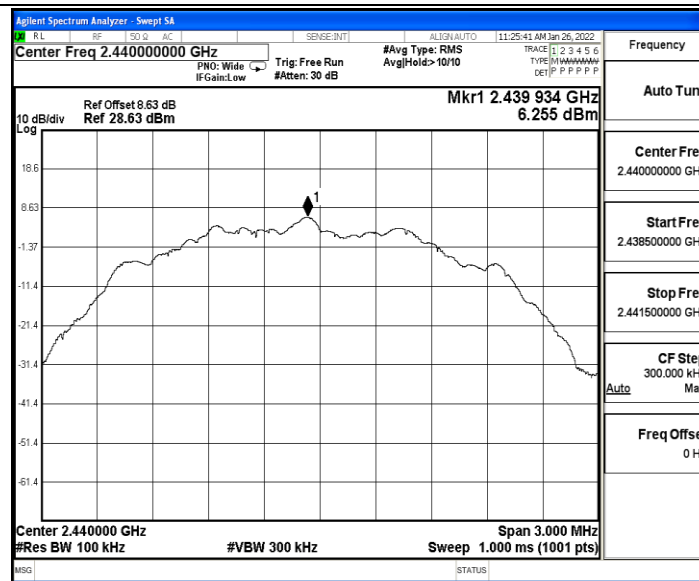
BLE_2M_Ant0_2402_30~1000



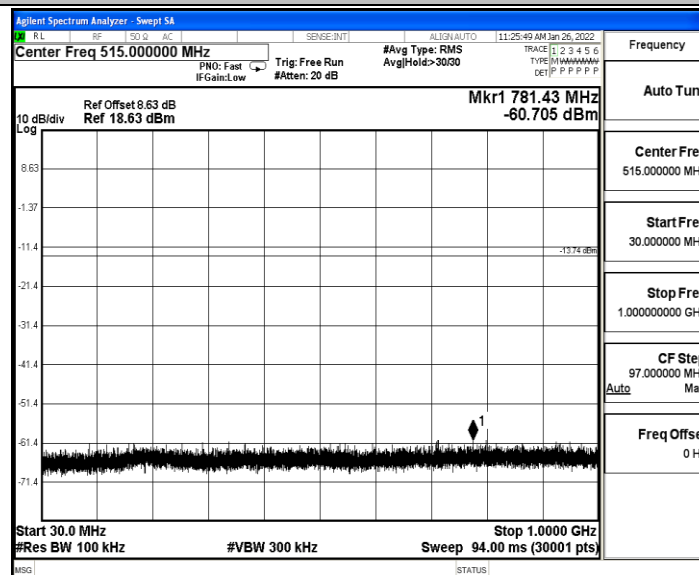
BLE_2M_Ant0_2402_1000~26500



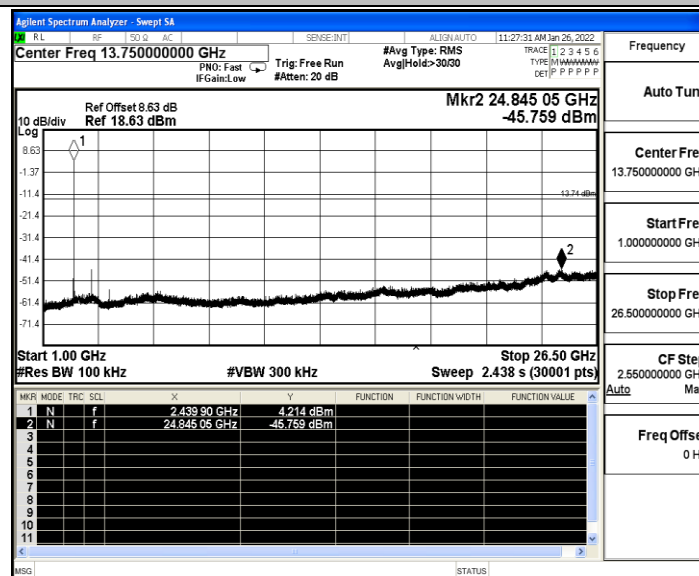
BLE_2M_Ant0_2440_0~Reference



BLE_2M_Ant0_2440_30~1000

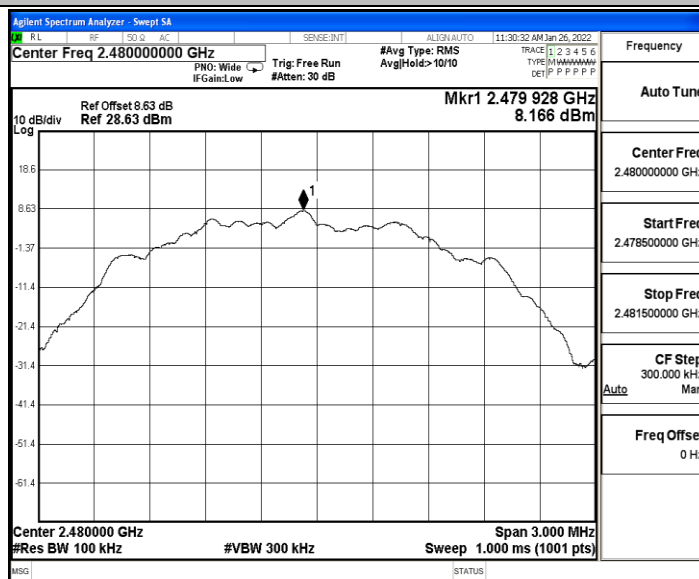


BLE_2M_Ant0_2440_1000~26500

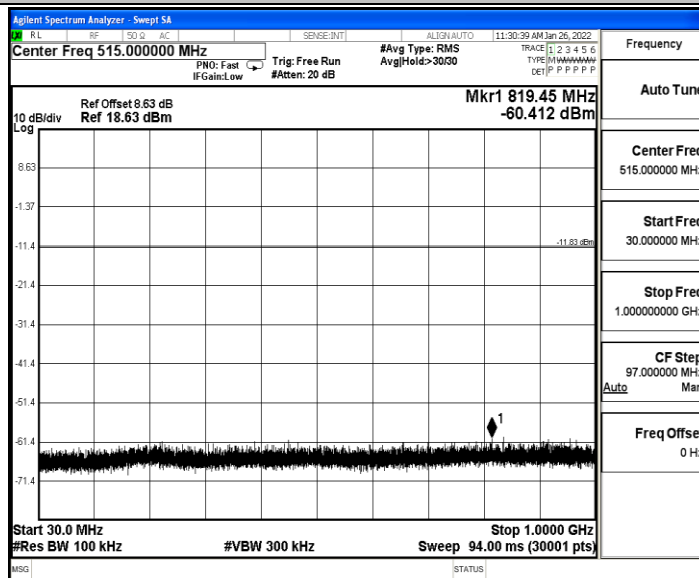




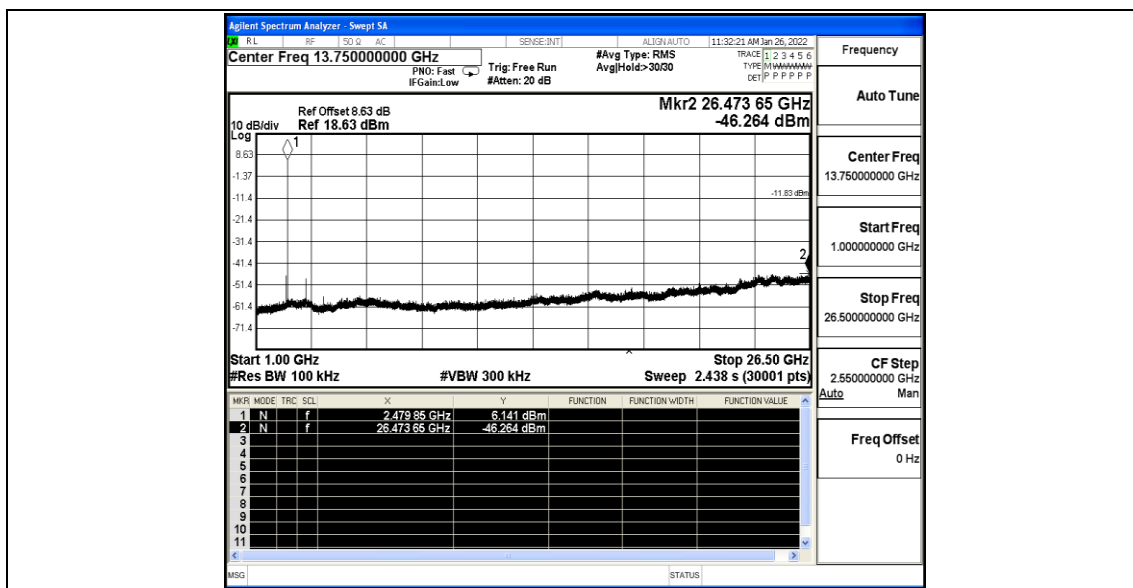
BLE_2M_Ant0_2480_0~Reference



BLE_2M_Ant0_2480_30~1000



BLE_2M_Ant0_2480_1000~26500





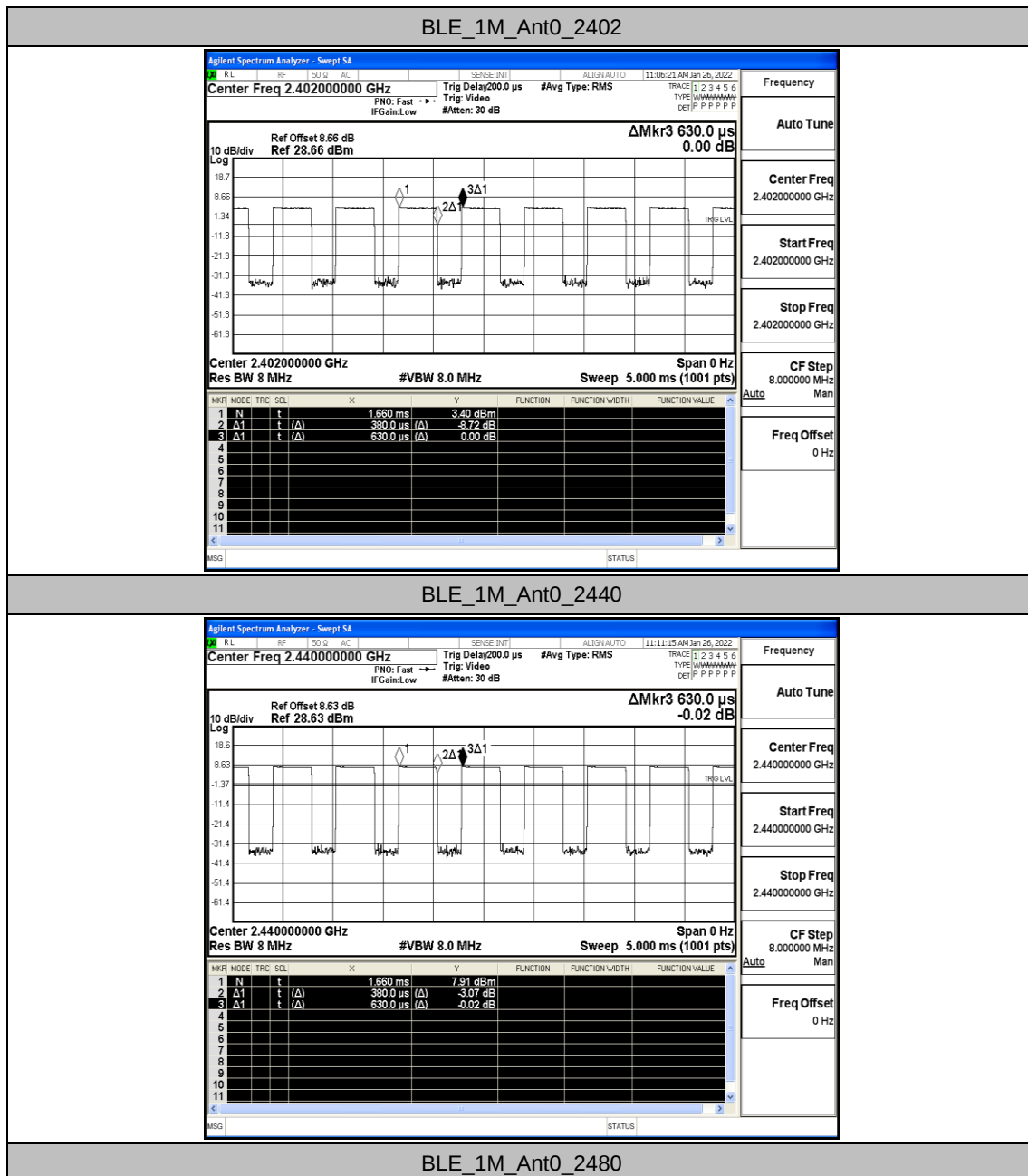
B.6 Duty Cycle

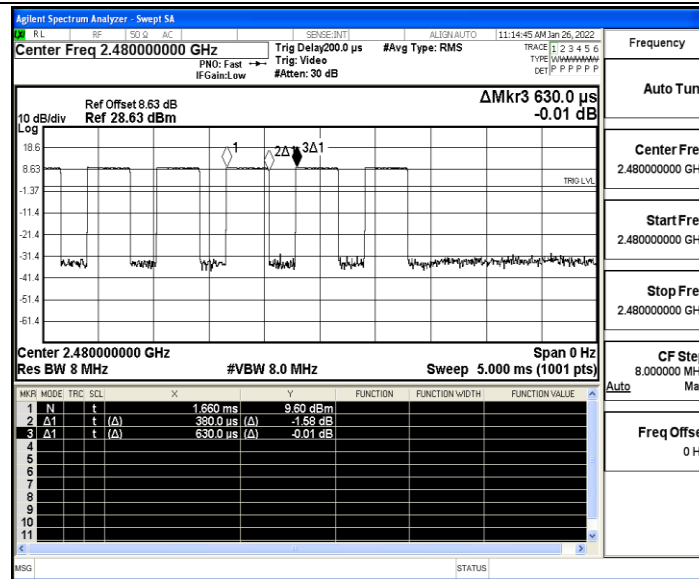
Test Result

TestMode	Antenna	Channel	ON Time [ms]	Period [ms]	X	DC [%]	xFactor	Limit	Verdict
BLE_1M	Ant0	2402	0.38	0.63	0.6032	60.32	2.20	---	---
		2440	0.38	0.63	0.6032	60.32	2.20	---	---
		2480	0.38	0.63	0.6032	60.32	2.20	---	---
BLE_2M	Ant0	2402	0.19	0.62	0.3065	30.65	5.14	---	---
		2440	0.20	0.63	0.3175	31.75	4.98	---	---
		2480	0.20	0.63	0.3175	31.75	4.98	---	---

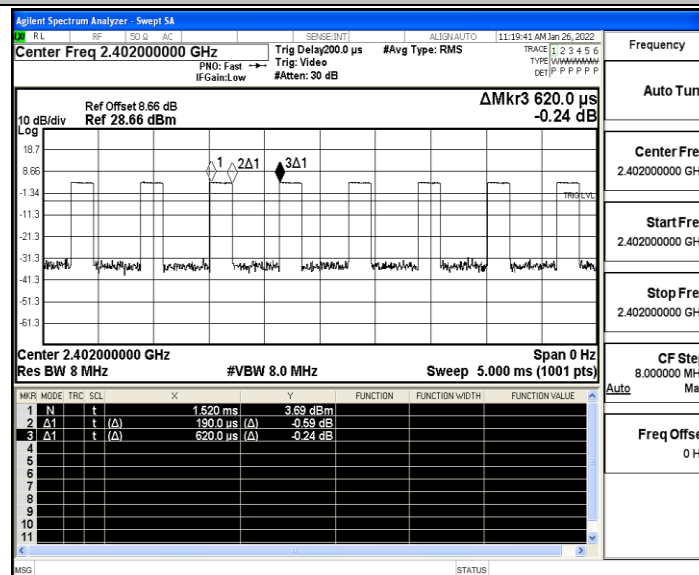


Test Graphs

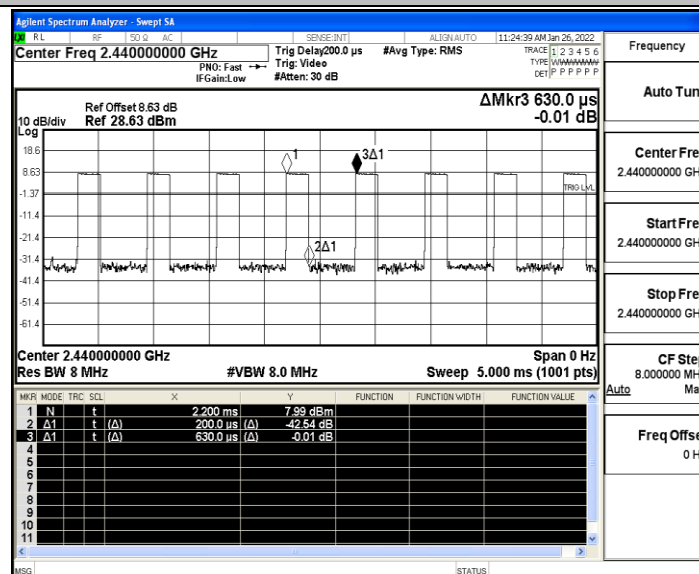




BLE_2M_Ant0_2402

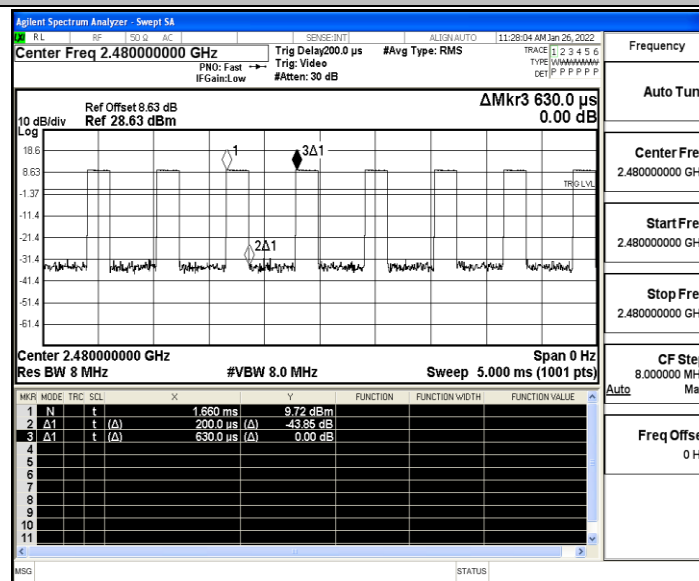


BLE_2M_Ant0_2440





BLE_2M_Ant0_2480





B.7 Emissions in Restricted Bands

Test Result

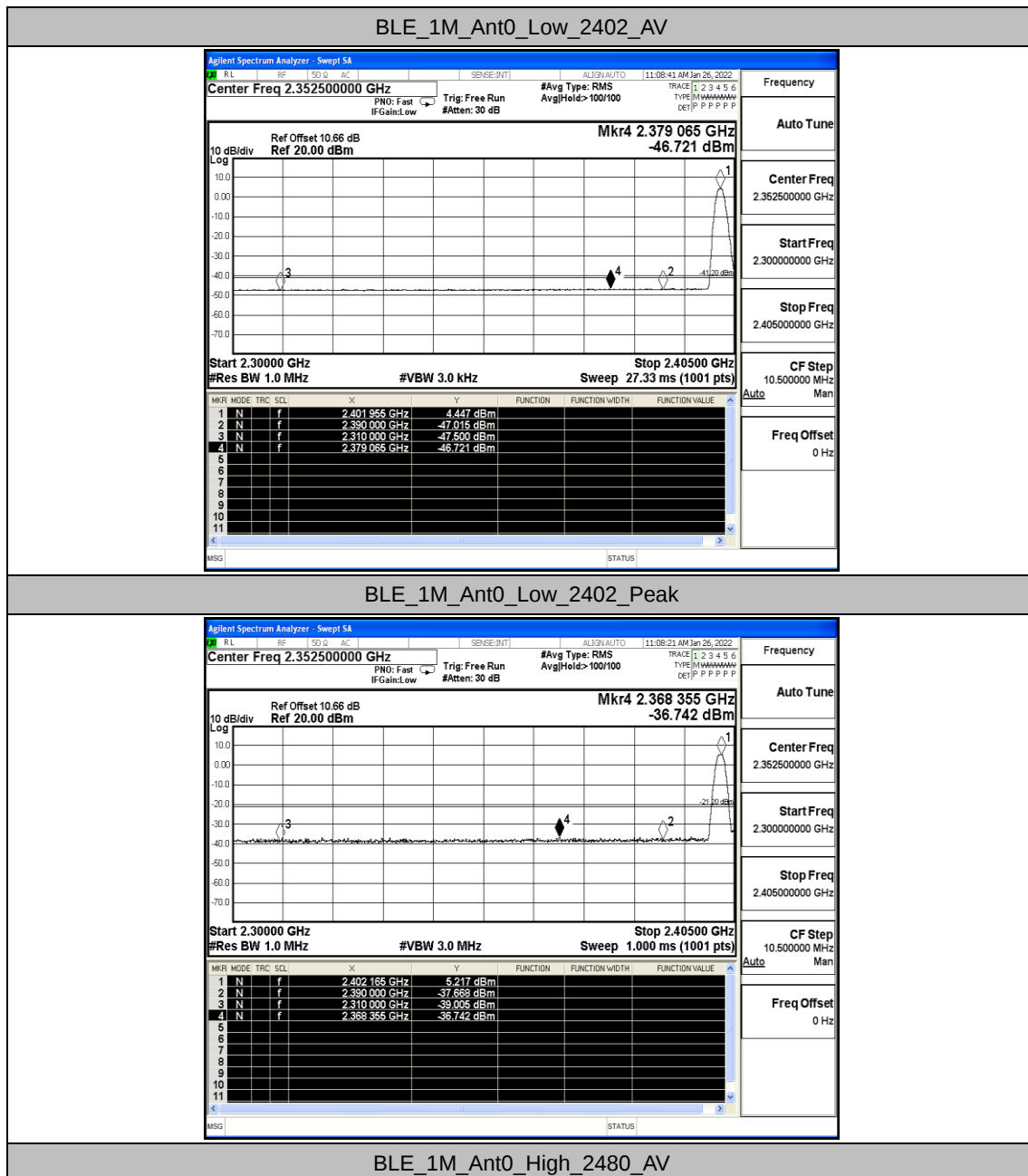
TestMode	Antenna	ChName	Channel	Detector	Freq. [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
BLE_1M	Ant0	Low	2402	AV	2310.000	-47.5	≤-41.20	47.70	≤54	PASS
				AV	2379.065	-46.72	≤-41.20	48.48	≤54	PASS
				AV	2390.000	-47.02	≤-41.20	48.18	≤54	PASS
				Peak	2310.000	-39.01	≤-21.20	56.19	≤74	PASS
				Peak	2368.355	-36.74	≤-21.20	58.46	≤74	PASS
				Peak	2390.000	-37.67	≤-21.20	57.53	≤74	PASS
		High	2480	AV	2483.500	-44.22	≤-41.20	50.98	≤54	PASS
				AV	2483.520	-44.22	≤-41.20	50.98	≤54	PASS
				AV	2500.000	-46.52	≤-41.20	48.68	≤54	PASS
				Peak	2483.500	-37.69	≤-21.20	57.51	≤74	PASS
				Peak	2499.360	-35.65	≤-21.20	59.55	≤74	PASS
				Peak	2500.000	-37.95	≤-21.20	57.25	≤74	PASS
BLE_2M	Ant0	Low	2402	AV	2310.000	-46.86	≤-41.20	48.34	≤54	PASS
				AV	2343.680	-45.92	≤-41.20	49.28	≤54	PASS
				AV	2390.000	-46.1	≤-41.20	49.10	≤54	PASS
				Peak	2310.000	-38.95	≤-21.20	56.25	≤74	PASS
				Peak	2366.465	-35.78	≤-21.20	59.42	≤74	PASS
				Peak	2390.000	-39.04	≤-21.20	56.16	≤74	PASS
		High	2480	AV	2483.500	-41.98	≤-41.20	53.22	≤54	PASS
				AV	2483.520	-41.98	≤-41.20	53.22	≤54	PASS
				AV	2500.000	-45.73	≤-41.20	49.47	≤54	PASS
				Peak	2483.500	-34.64	≤-21.20	60.56	≤74	PASS
				Peak	2483.600	-34.5	≤-21.20	60.70	≤74	PASS
				Peak	2500.000	-38.11	≤-21.20	57.09	≤74	PASS

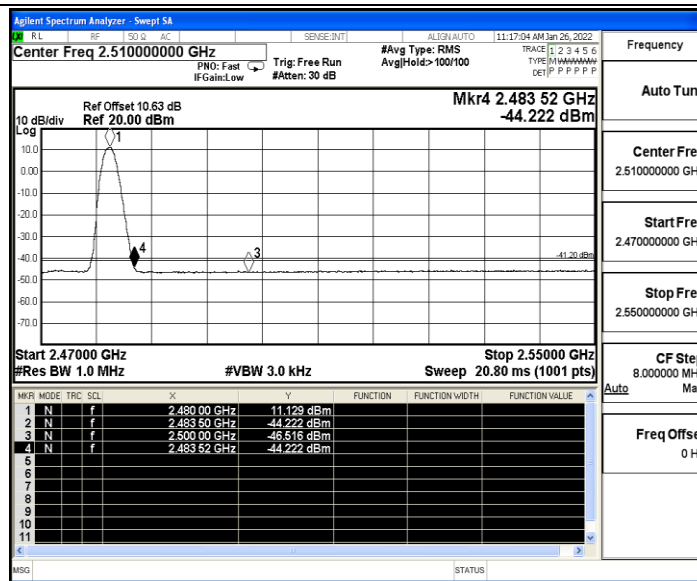
Note:

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.

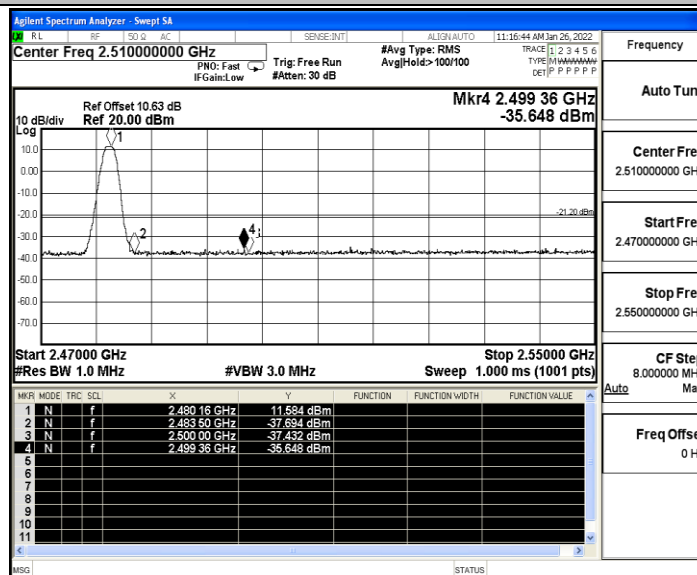


Test Graphs

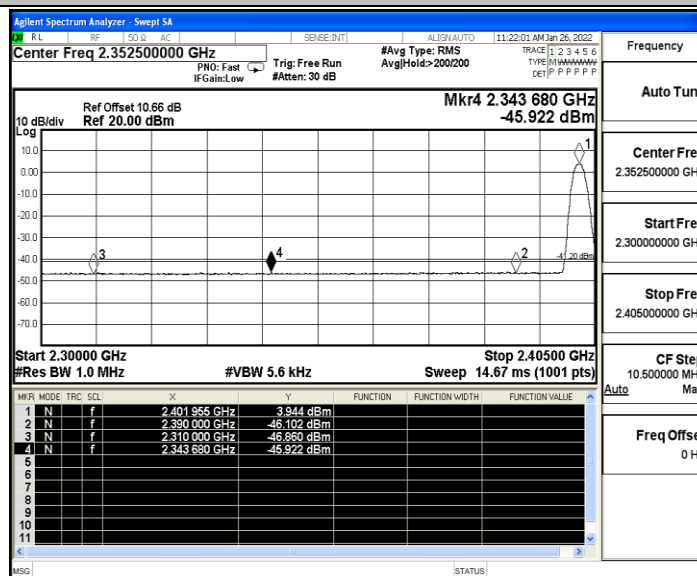




BLE_1M_Ant0_High_2480_Peak

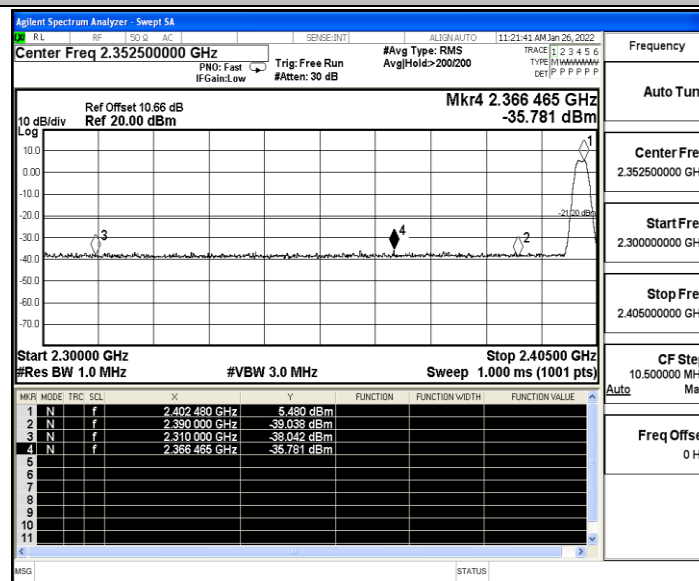


BLE_2M_Ant0_Low_2402_AV

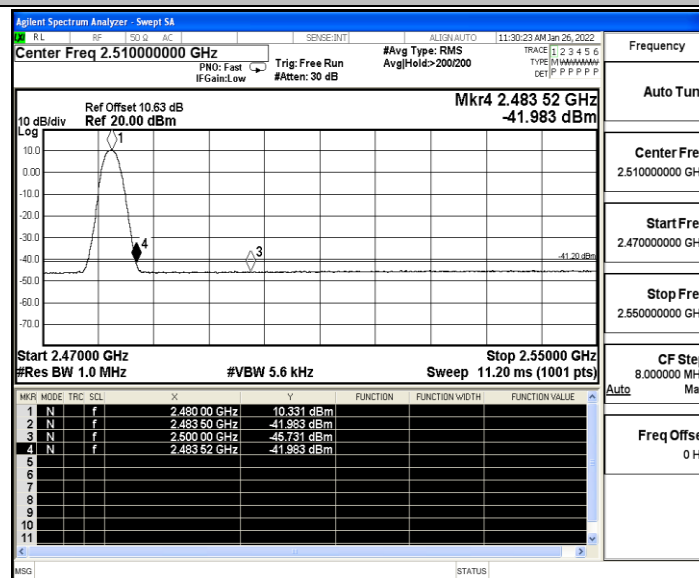




BLE_2M_Ant0_Low_2402_Peak



BLE_2M_Ant0_High_2480_AV



BLE_2M_Ant0_High_2480_Peak

