



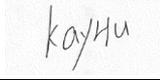
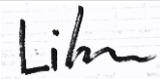
Appendix B

RF Test Data for BLE (Conducted Measurement)

Product Name: Magnetic Bluetooth headphone amplifier

Test Model: Tea

Environmental Conditions

Temperature:	21.1° C
Relative Humidity:	52.2%
ATM Pressure:	100.0 kPa
Test Engineer:	
Supervised by:	

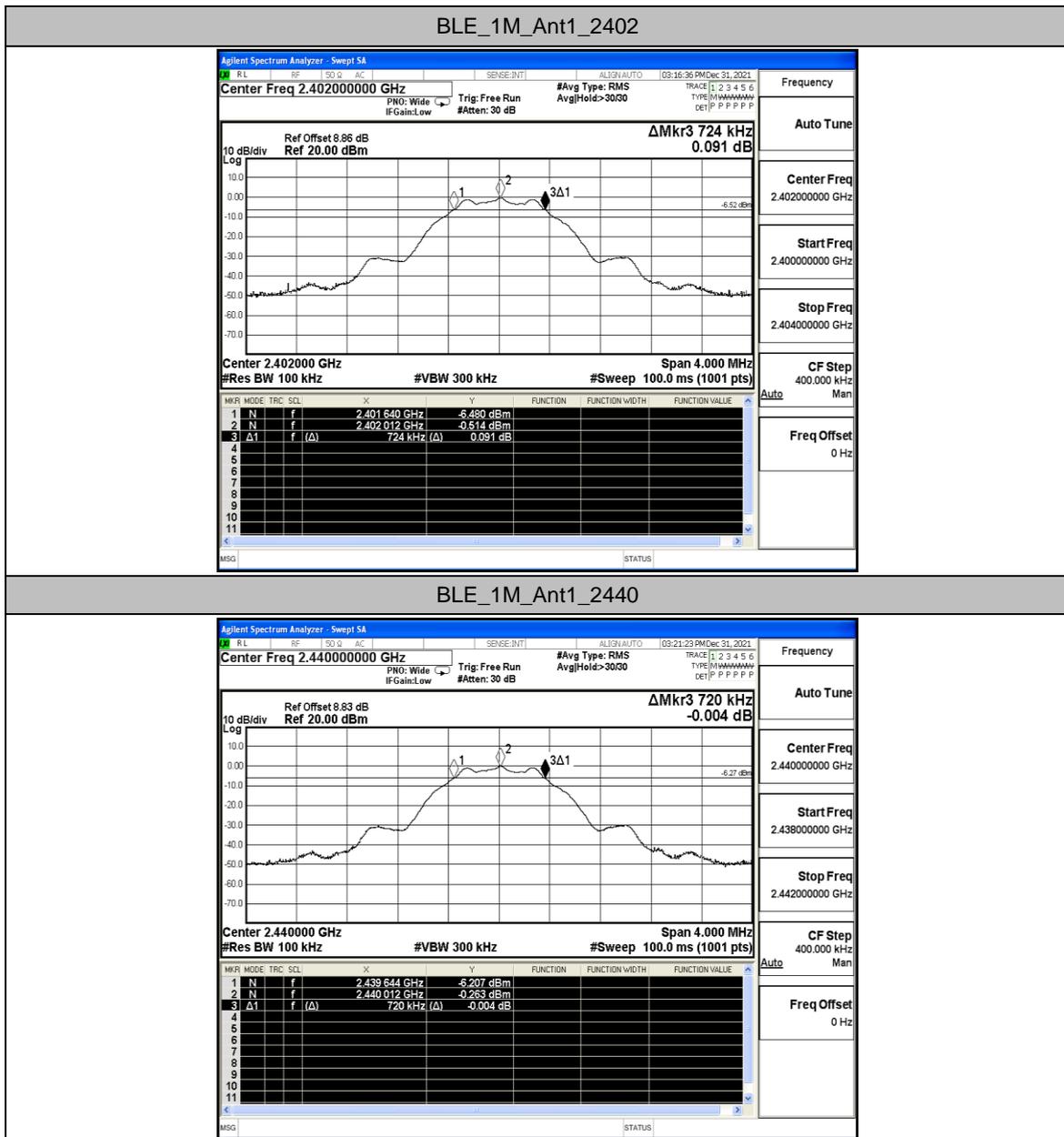


B.1 6dB Bandwidth

Test Result

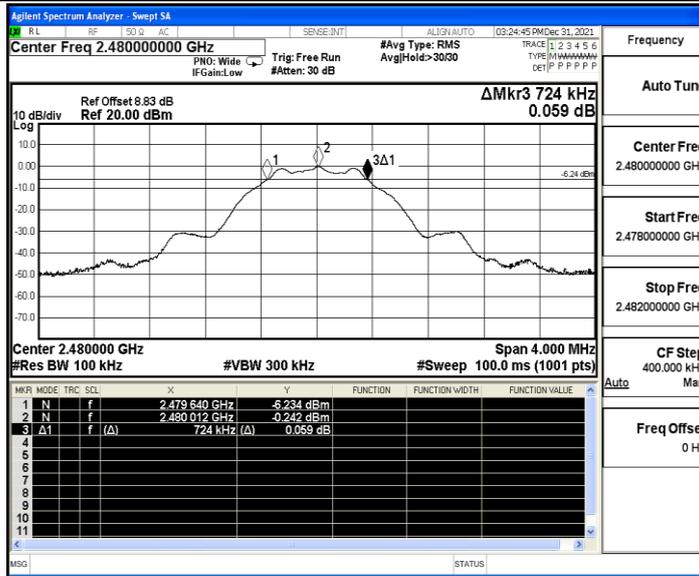
TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.724	2401.640	2402.364	0.5	PASS
		2440	0.720	2439.644	2440.364	0.5	PASS
		2480	0.724	2479.640	2480.364	0.5	PASS
BLE_2M	Ant1	2402	1.252	2401.352	2402.604	0.5	PASS
		2440	1.256	2439.348	2440.604	0.5	PASS
		2480	1.256	2479.344	2480.600	0.5	PASS

Test Graphs

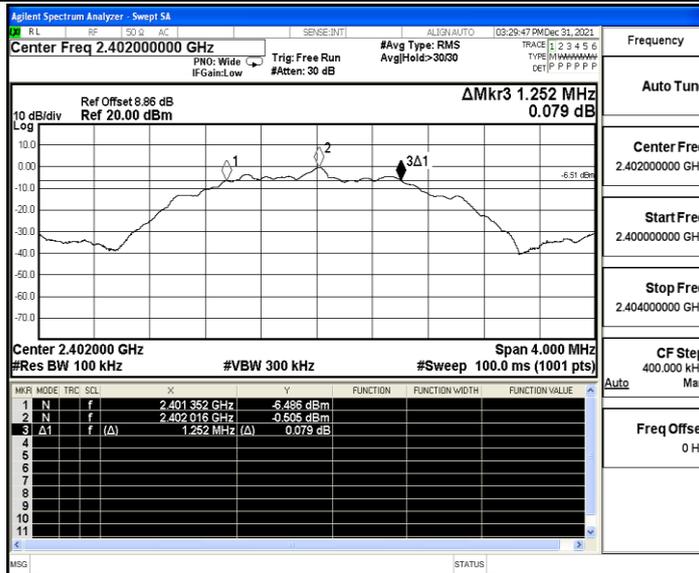




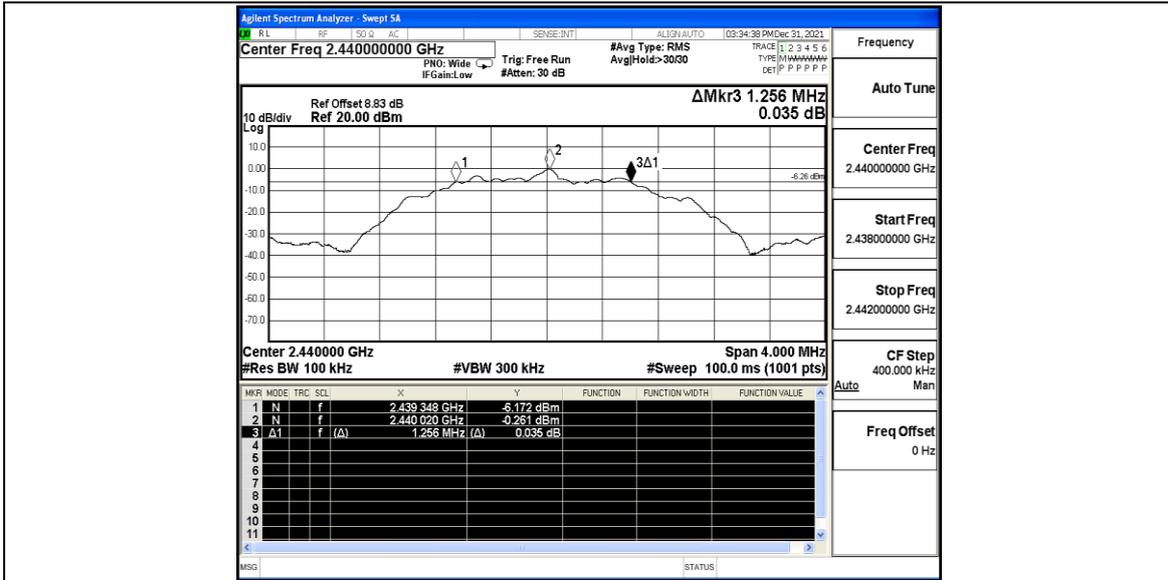
BLE_1M_Ant1_2480



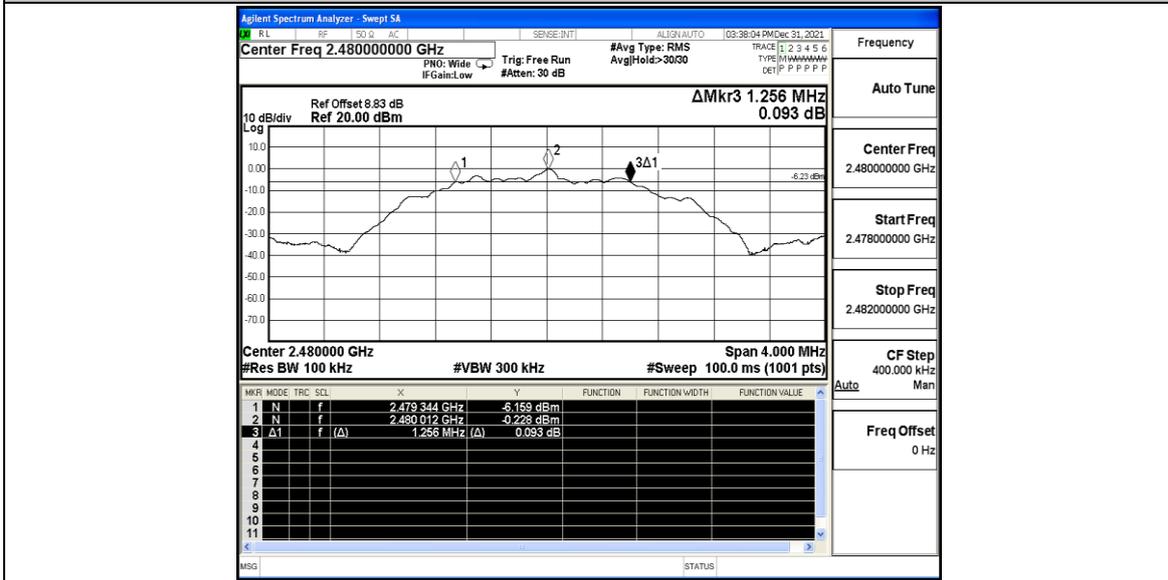
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



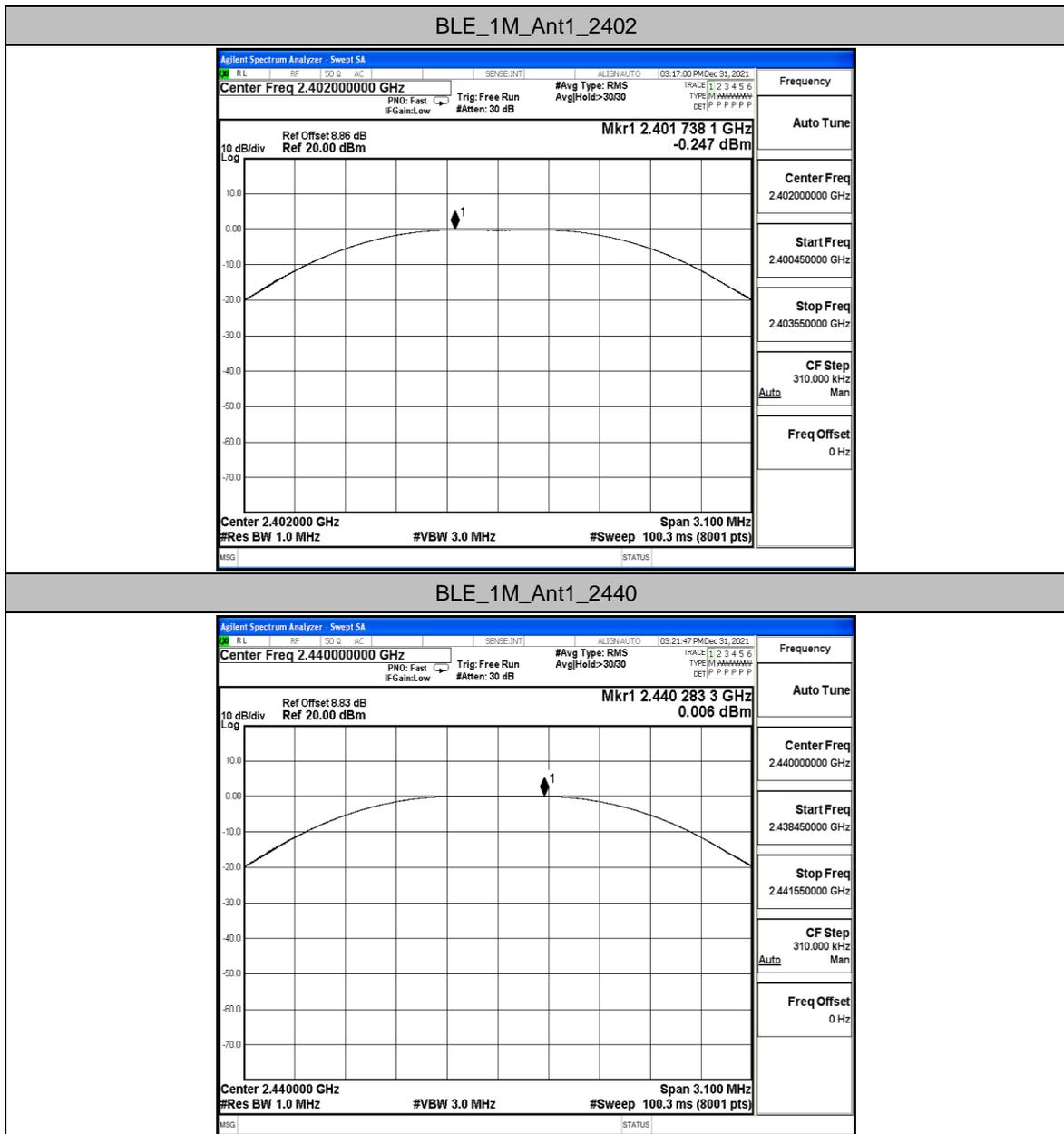


B.2 Maximum conducted output power

Test Result

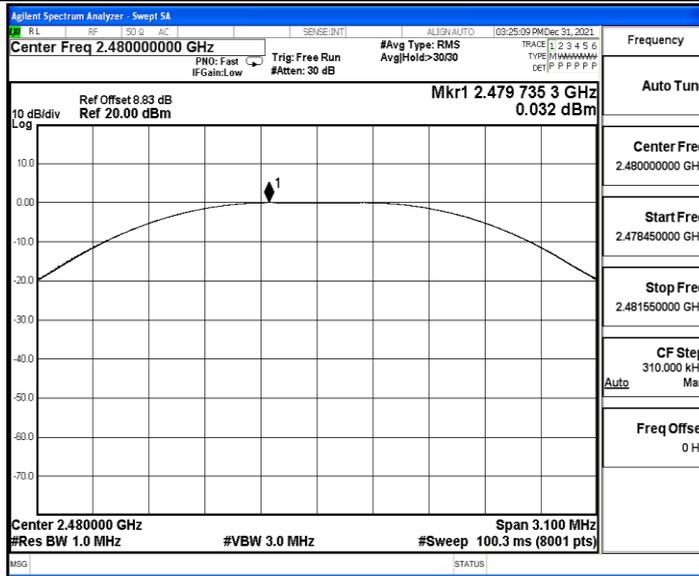
TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	-0.25	≤30	PASS
		2440	0.01	≤30	PASS
		2480	0.03	≤30	PASS
BLE_2M	Ant1	2402	-0.15	≤30	PASS
		2440	0.12	≤30	PASS
		2480	0.15	≤30	PASS

Test Graphs

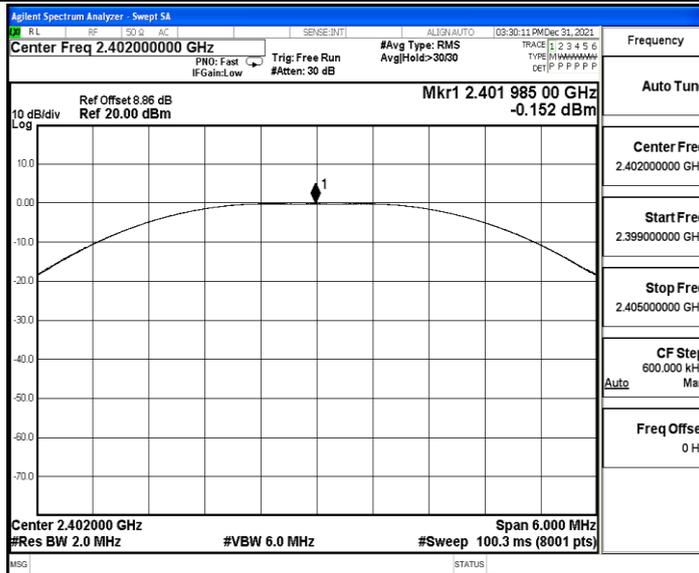




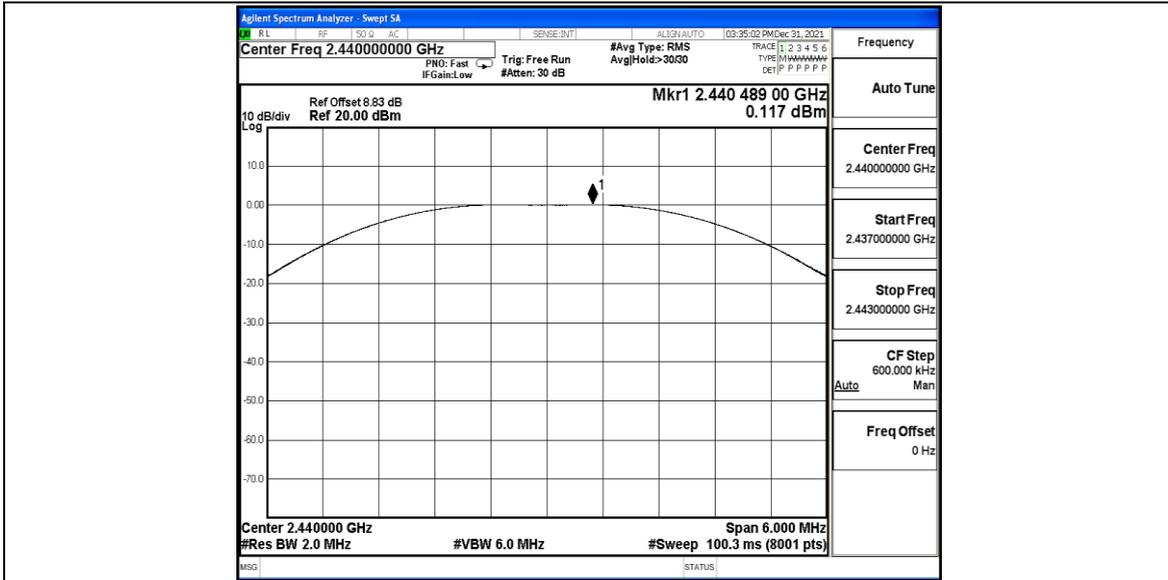
BLE_1M_Ant1_2480



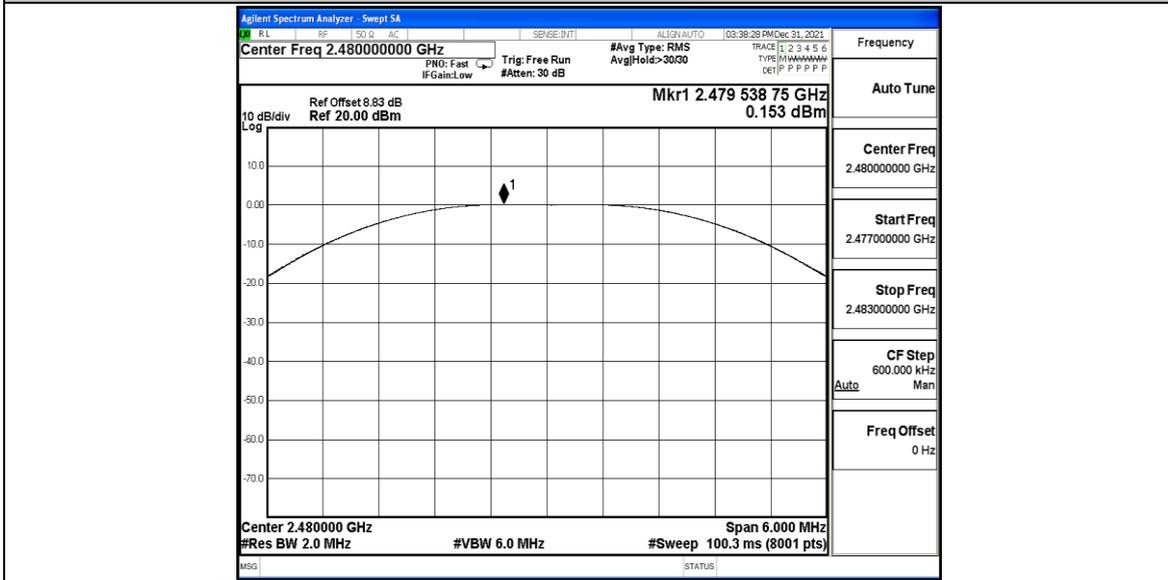
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



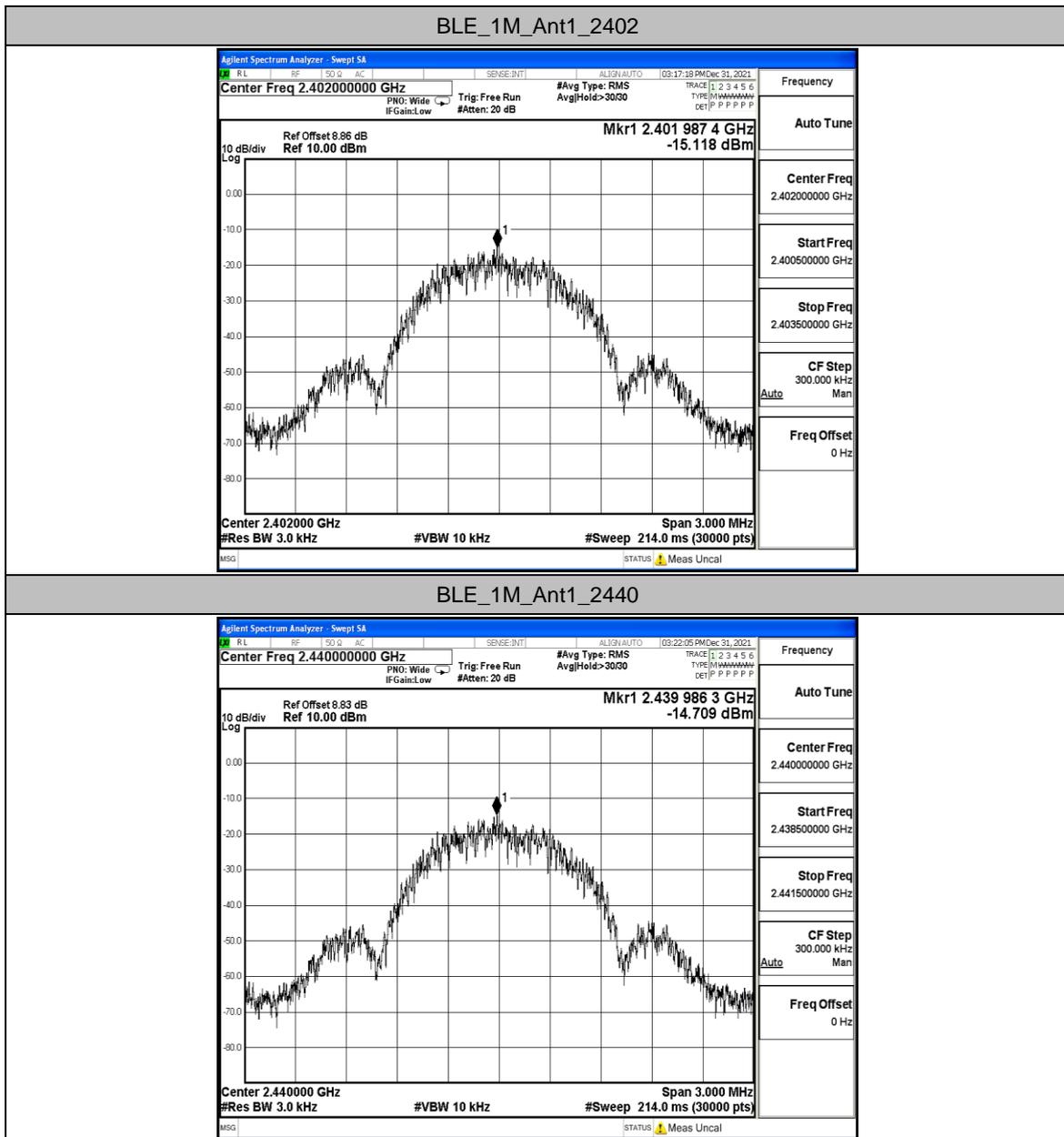


B.3 Maximum power spectral density

Test Result

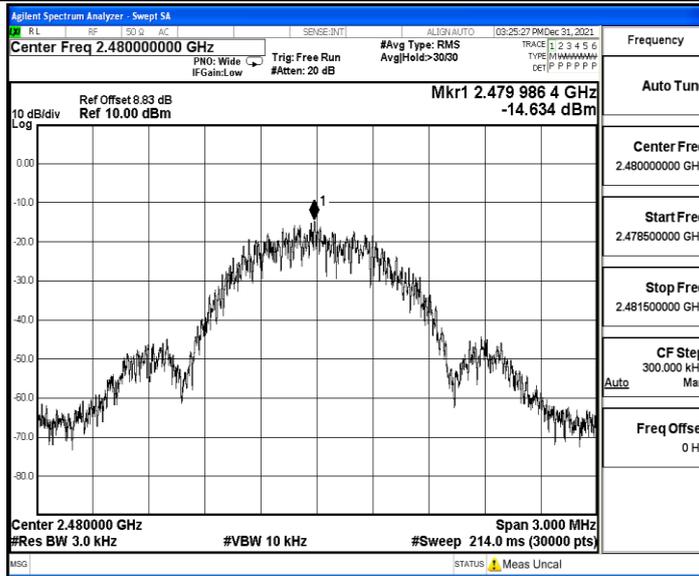
TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-15.12	≤8.00	PASS
		2440	-14.71	≤8.00	PASS
		2480	-14.63	≤8.00	PASS
BLE_2M	Ant1	2402	-17.67	≤8.00	PASS
		2440	-17.3	≤8.00	PASS
		2480	-17.34	≤8.00	PASS

Test Graphs

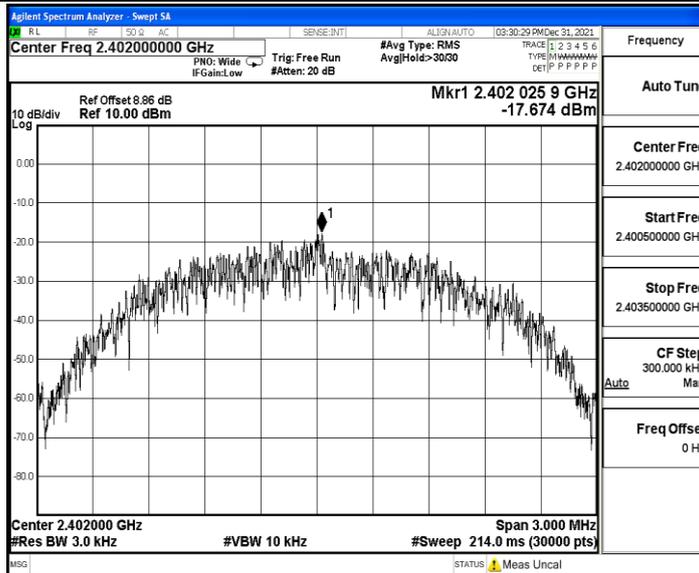




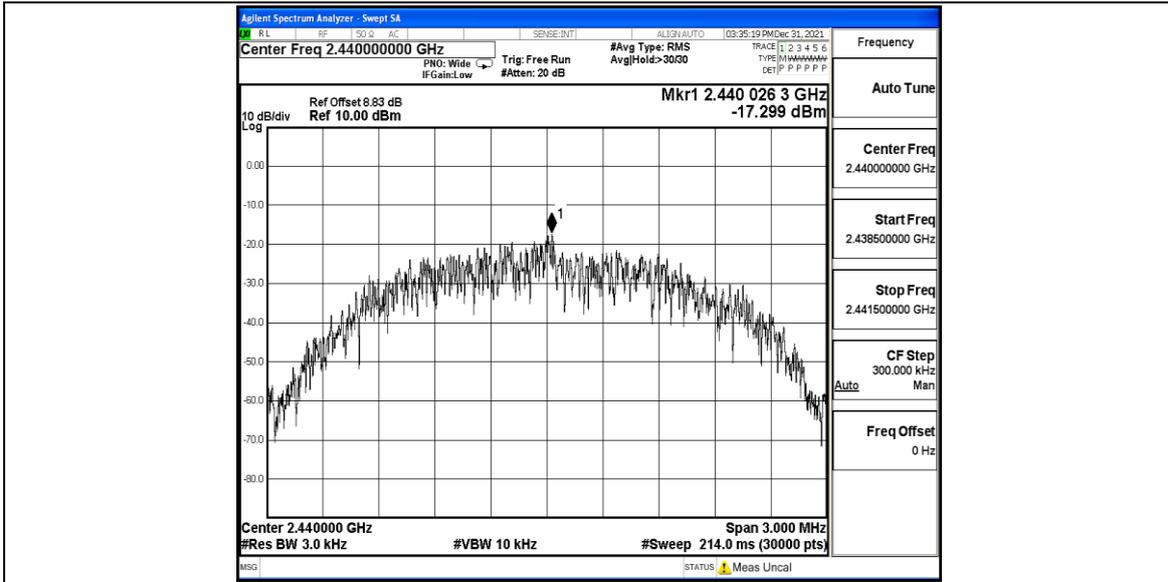
BLE_1M_Ant1_2480



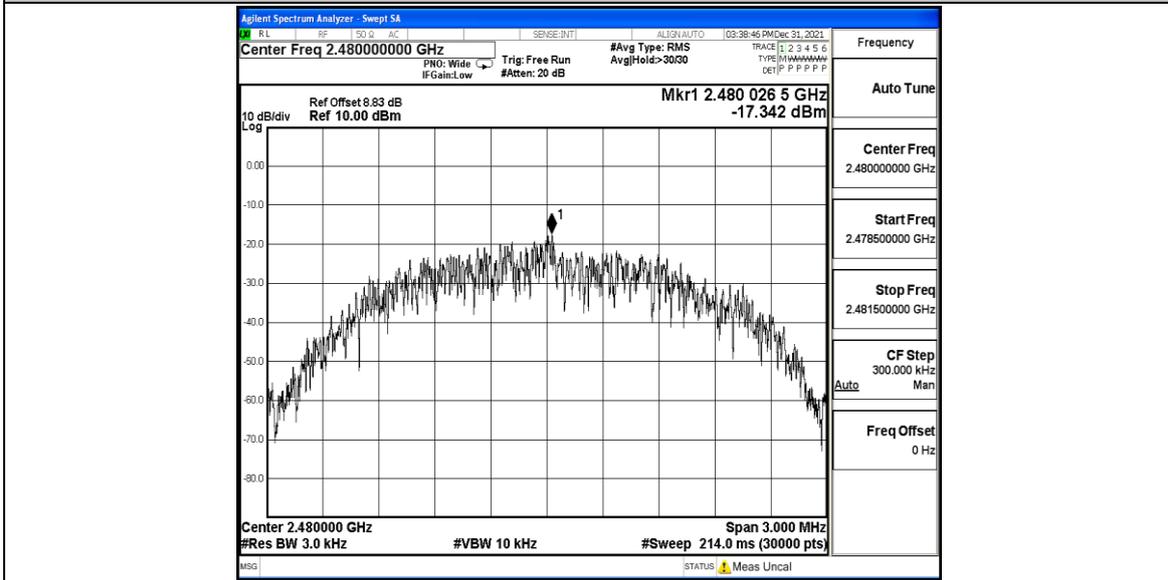
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



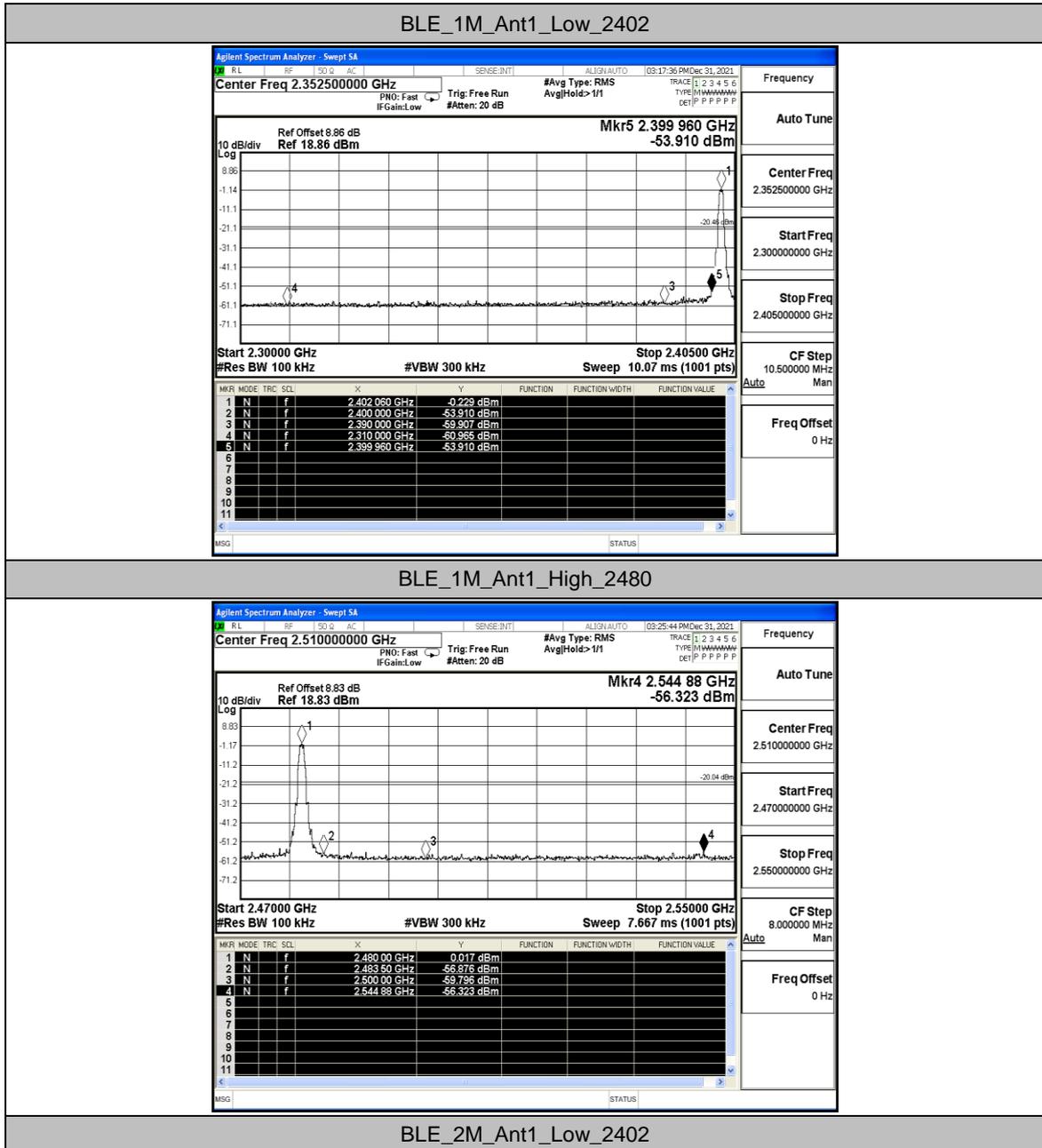


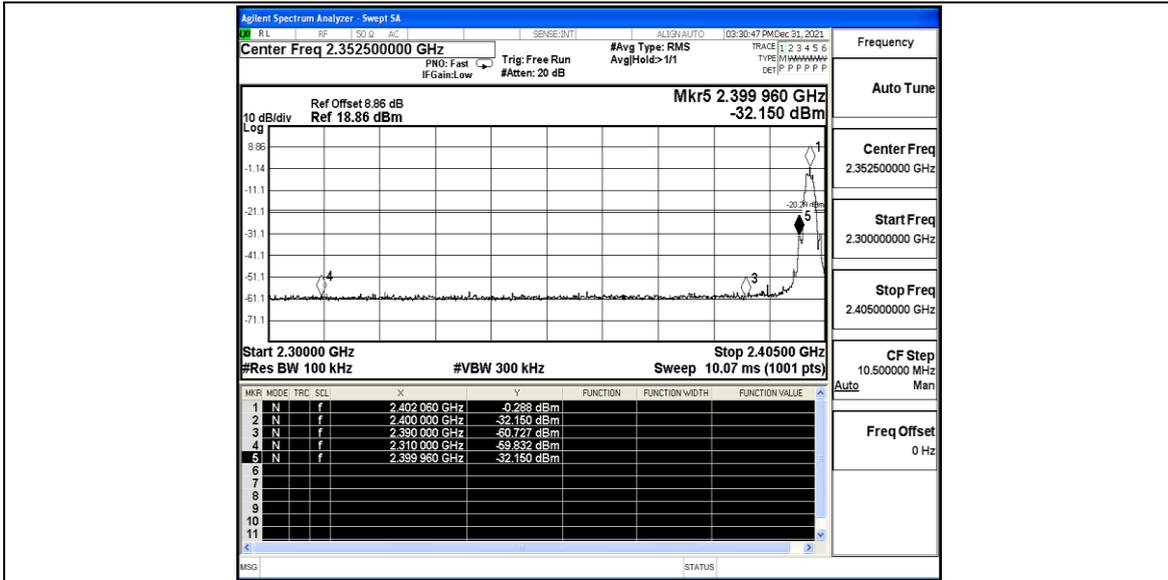
B.4 Band edge measurements

Test Result

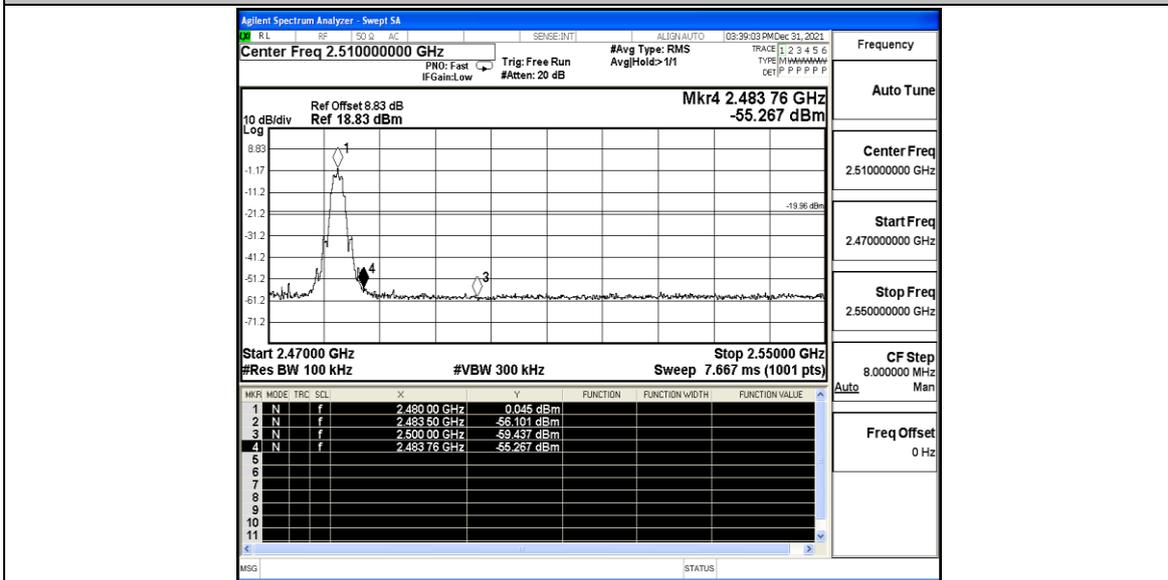
TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	-0.46	-53.91	≤-20.46	PASS
		High	2480	-0.04	-56.32	≤-20.04	PASS
BLE_2M	Ant1	Low	2402	-0.29	-32.28	≤-20.29	PASS
		High	2480	0.05	-55.27	≤-19.96	PASS

Test Graphs





BLE_2M_Ant1_High_2480





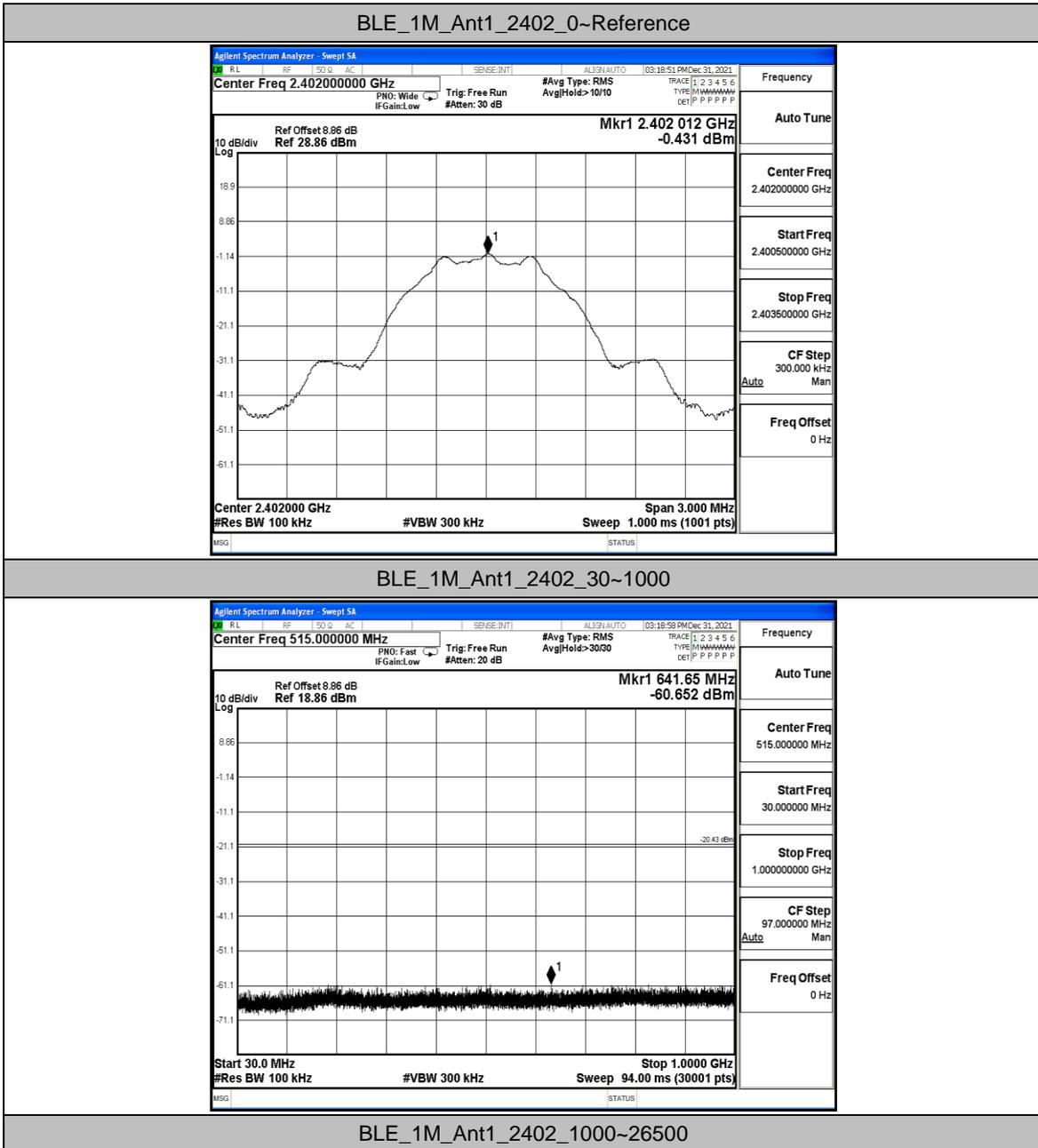
B.5 Conducted Spurious Emission

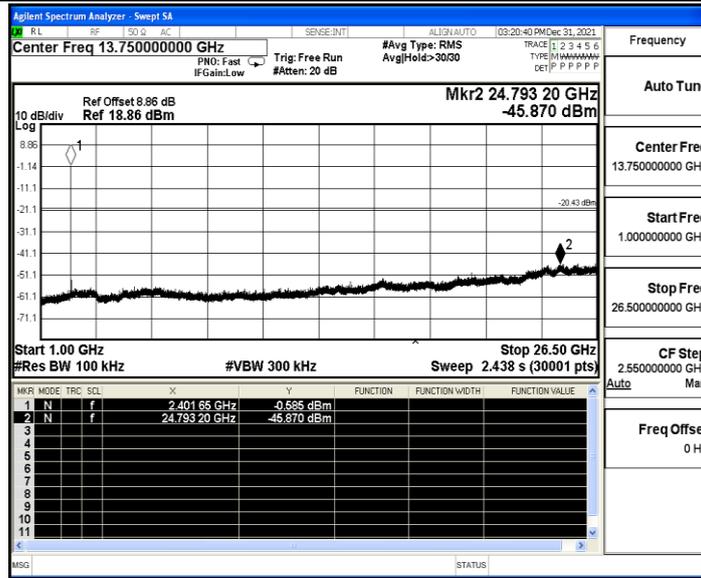
Test Result

TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	-0.43	-0.43	---	PASS
			30~1000	-0.43	-60.65	≤-20.43	PASS
			1000~26500	-0.43	-45.87	≤-20.43	PASS
		2440	Reference	-0.21	-0.21	---	PASS
			30~1000	-0.21	-59.91	≤-20.21	PASS
			1000~26500	-0.21	-45.46	≤-20.21	PASS
		2480	Reference	-0.21	-0.21	---	PASS
			30~1000	-0.21	-60.11	≤-20.21	PASS
			1000~26500	-0.21	-45.9	≤-20.21	PASS
BLE_2M	Ant1	2402	Reference	-0.43	-0.43	---	PASS
			30~1000	-0.43	-60.31	≤-20.43	PASS
			1000~26500	-0.43	-45.61	≤-20.43	PASS
		2440	Reference	-0.19	-0.19	---	PASS
			30~1000	-0.19	-60.5	≤-20.19	PASS
			1000~26500	-0.19	-45.37	≤-20.19	PASS
		2480	Reference	-0.15	-0.15	---	PASS
			30~1000	-0.15	-58.2	≤-20.15	PASS
			1000~26500	-0.15	-45.01	≤-20.15	PASS

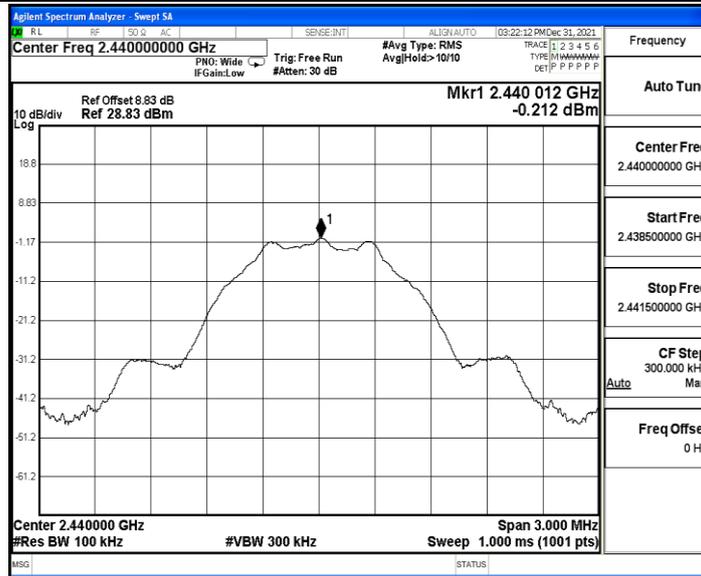


Test Graphs

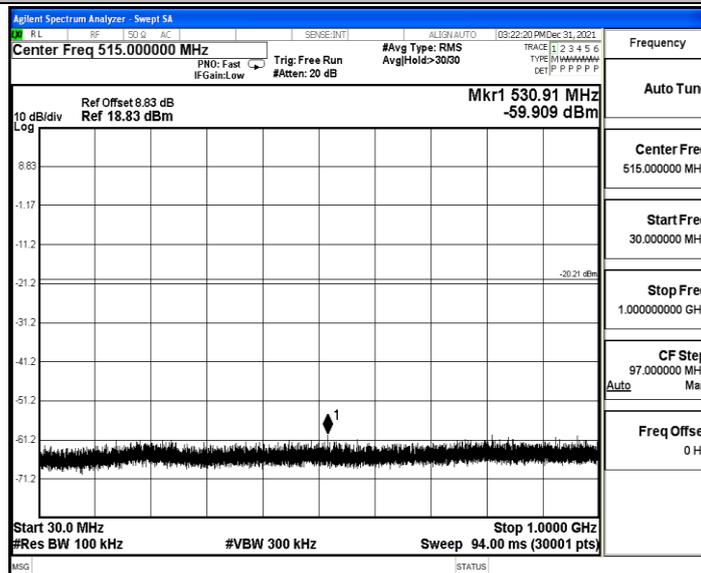




BLE_1M_Ant1_2440_0~Reference

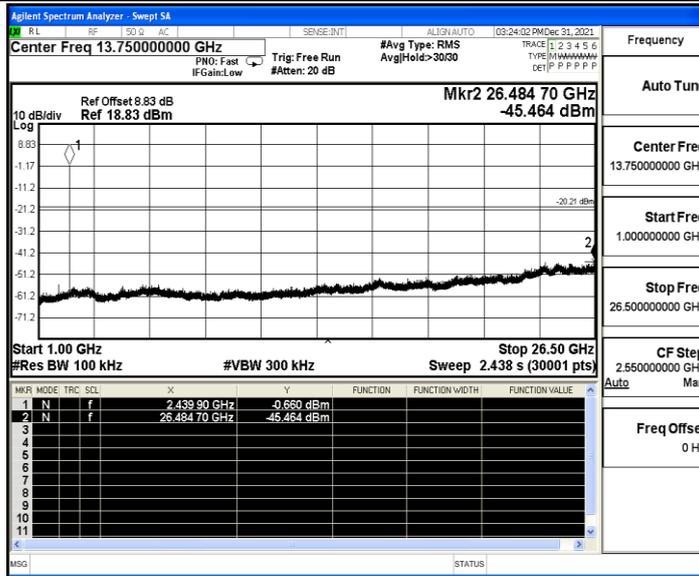


BLE_1M_Ant1_2440_30~1000

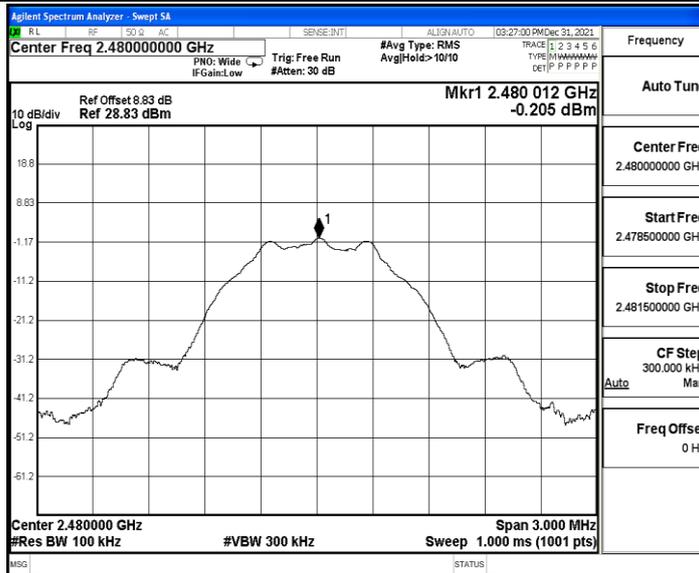




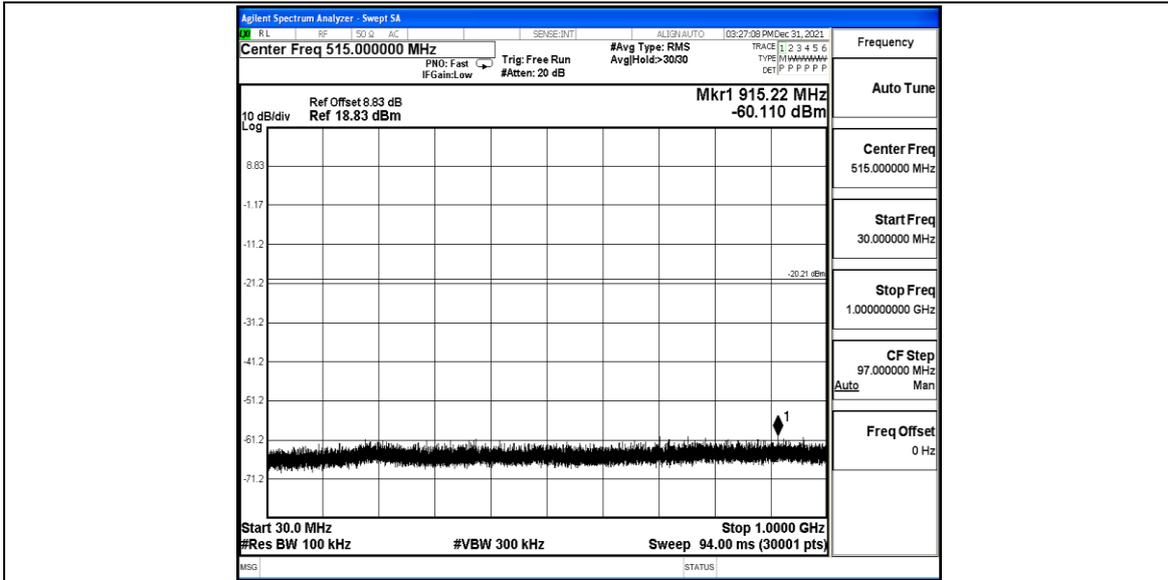
BLE_1M_Ant1_2440_1000~26500



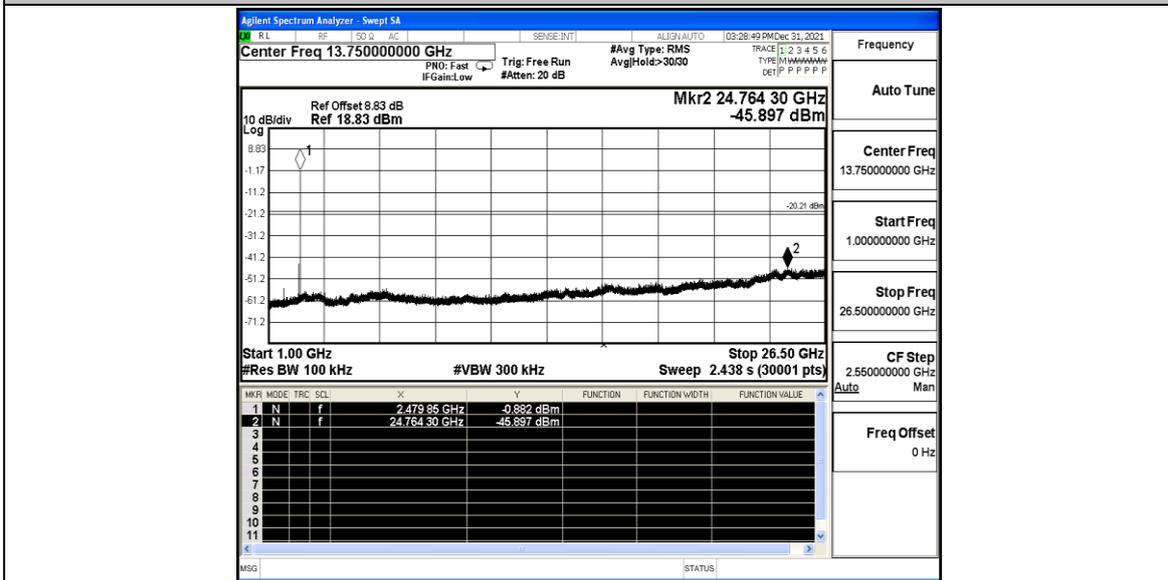
BLE_1M_Ant1_2480_0~Reference



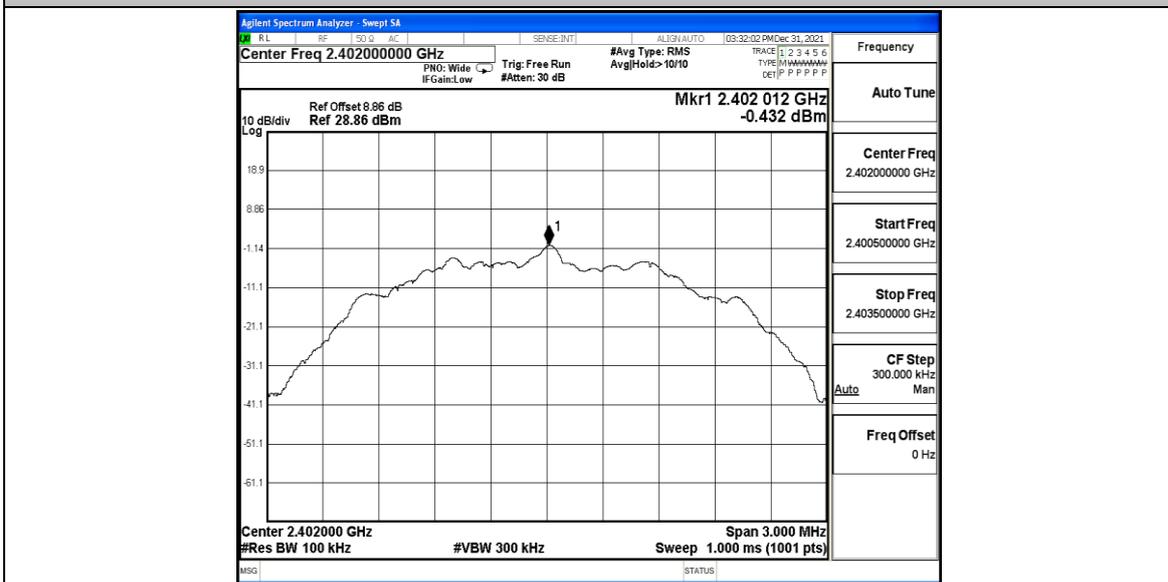
BLE_1M_Ant1_2480_30~1000



BLE_1M_Ant1_2480_1000~26500

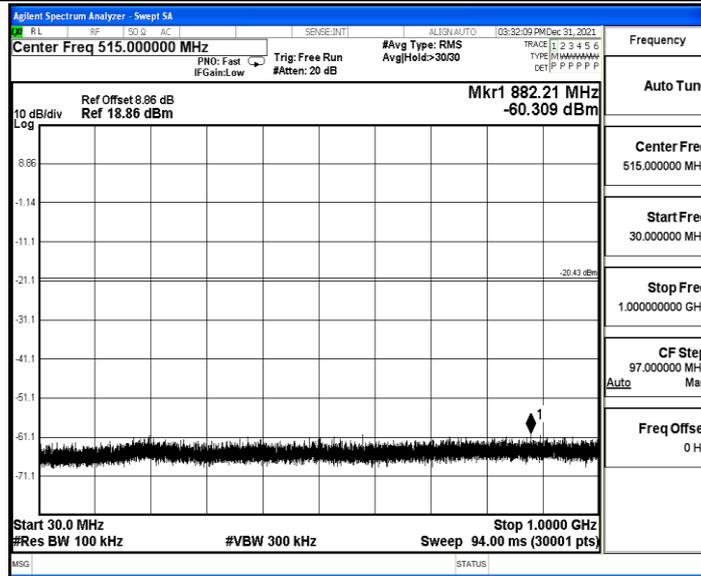


BLE_2M_Ant1_2402_0~Reference

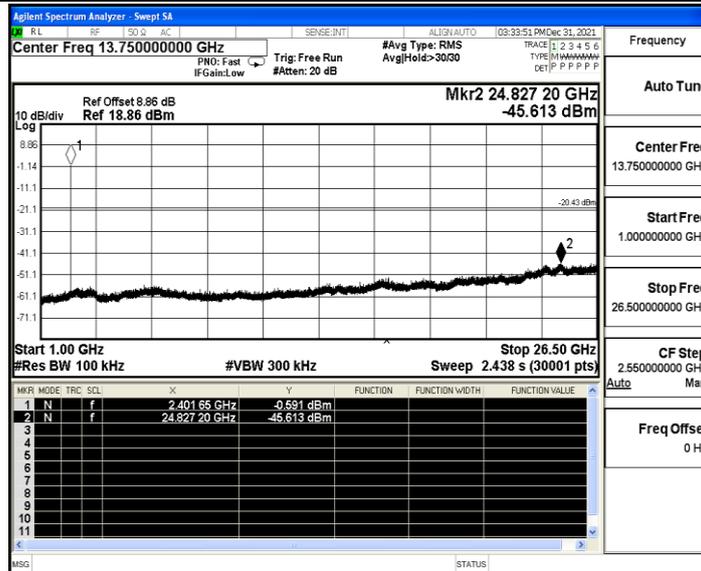




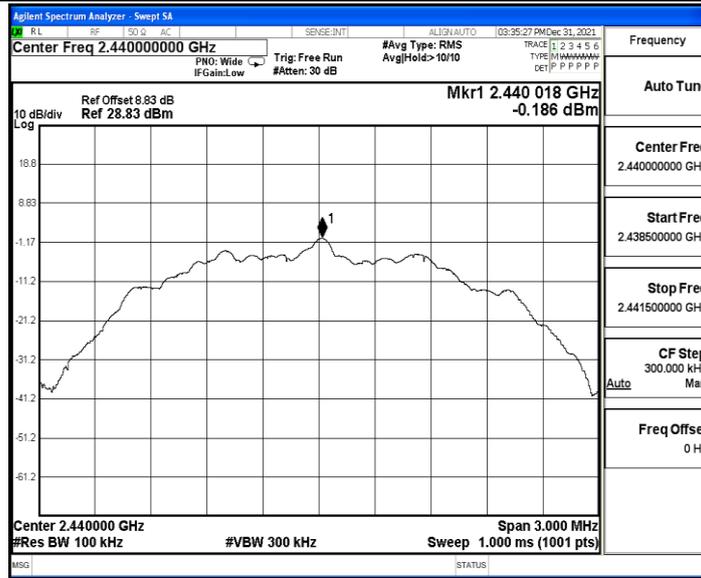
BLE_2M_Ant1_2402_30~1000



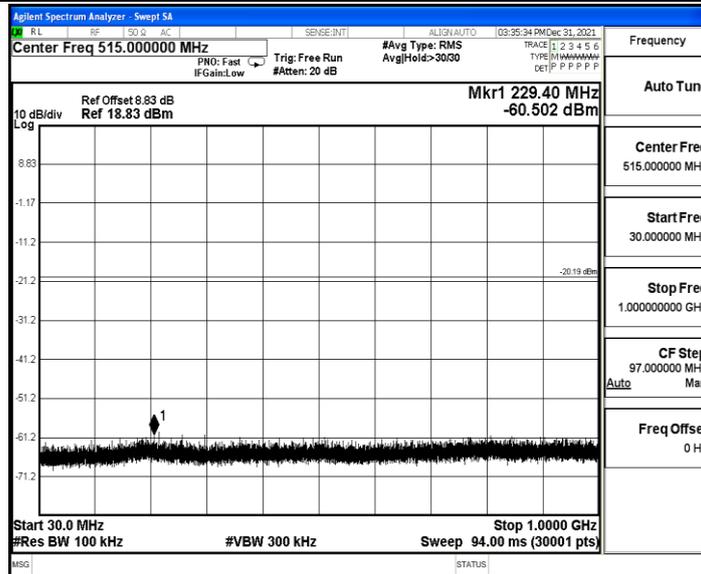
BLE_2M_Ant1_2402_1000~26500



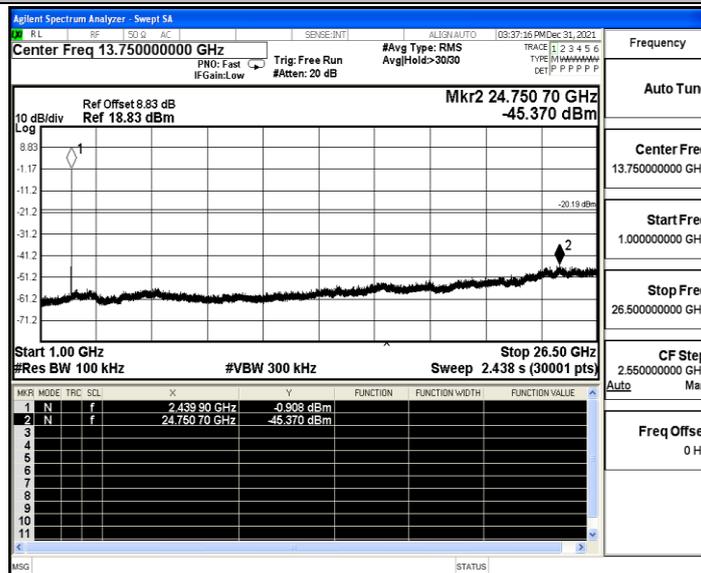
BLE_2M_Ant1_2440_0~Reference



BLE_2M_Ant1_2440_30~1000

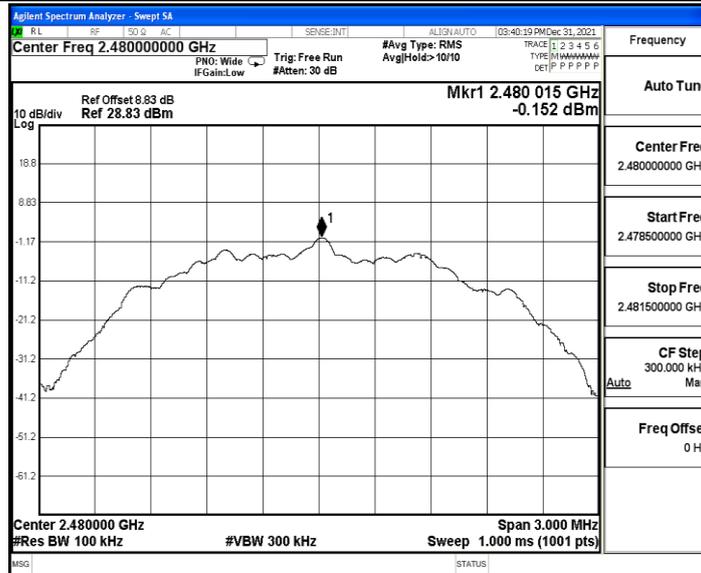


BLE_2M_Ant1_2440_1000~26500

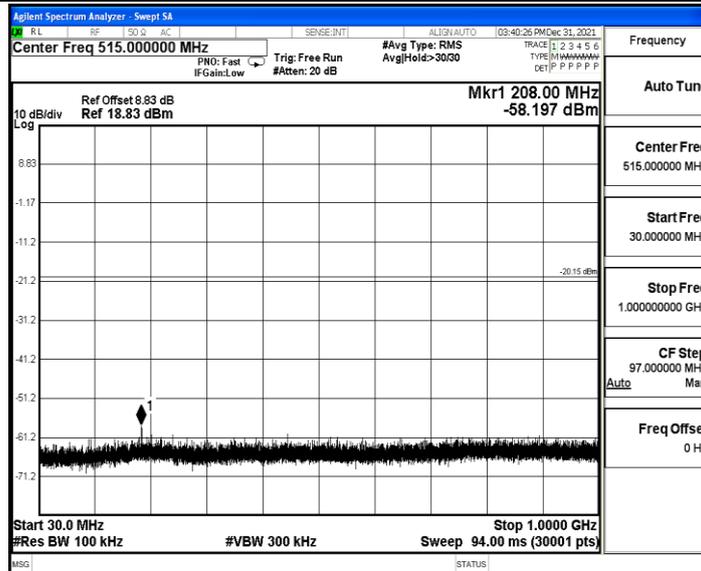




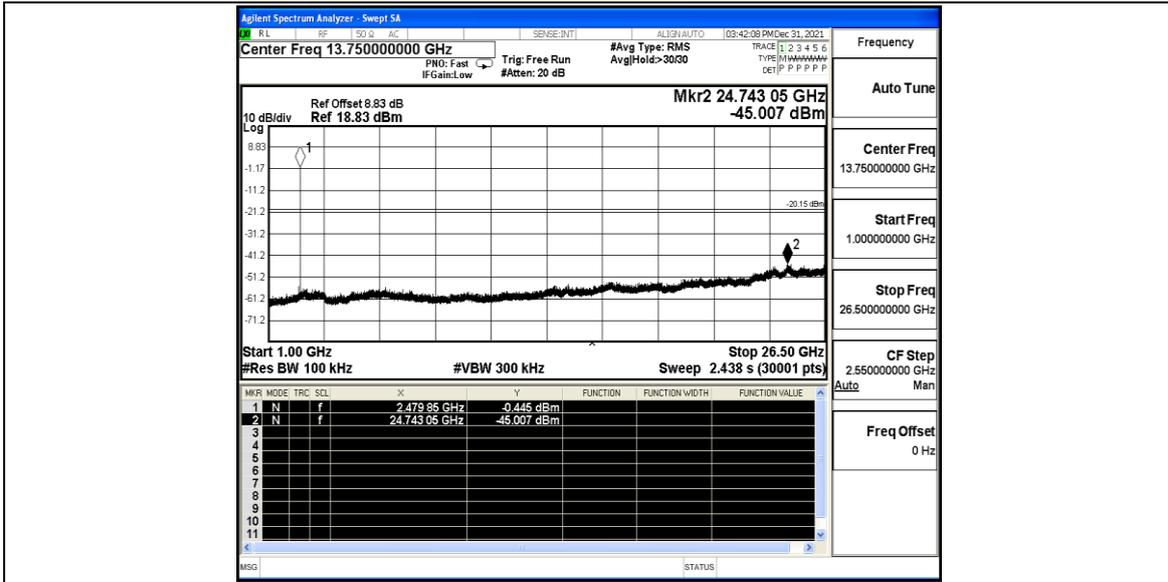
BLE_2M_Ant1_2480_0~Reference



BLE_2M_Ant1_2480_30~1000



BLE_2M_Ant1_2480_1000~26500



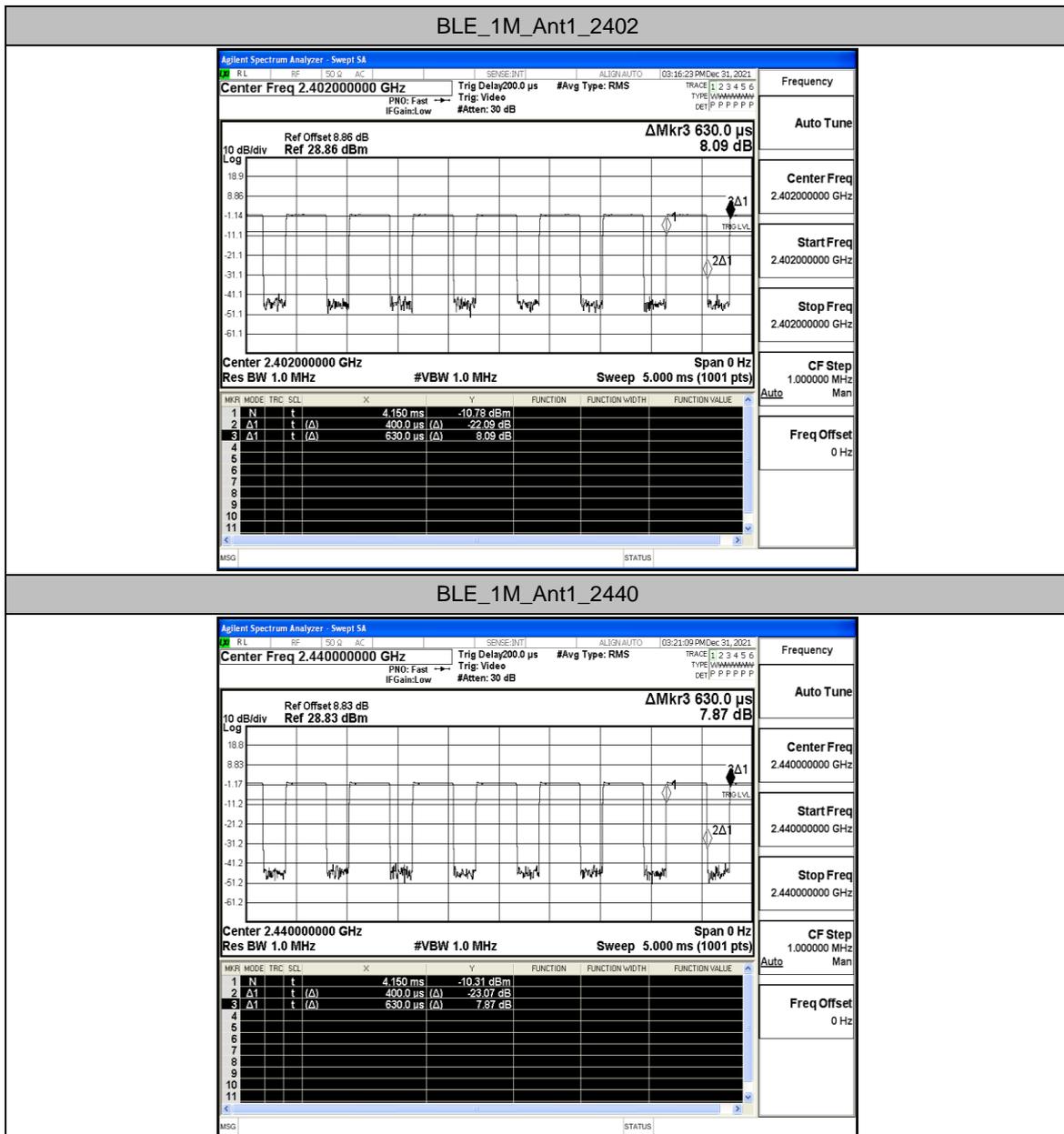


B.6 Duty Cycle

Test Result

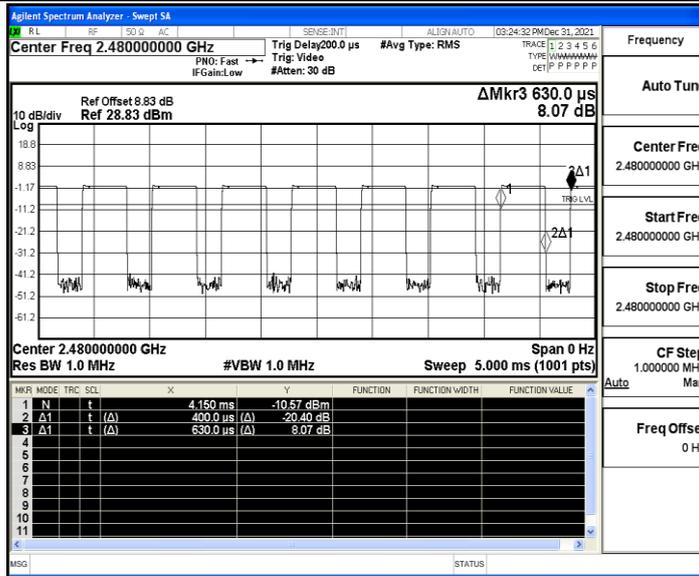
TestMode	Antenna	Channel	ON Time [ms]	Period [ms]	X	DC [%]	xFactor	Limit	Verdict
BLE_1M	Ant1	2402	0.40	0.63	0.6349	63.49	1.97	---	---
		2440	0.40	0.63	0.6349	63.49	1.97	---	---
		2480	0.40	0.63	0.6349	63.49	1.97	---	---
BLE_2M	Ant1	2402	0.21	0.62	0.3387	33.87	4.70	---	---
		2440	0.21	0.62	0.3387	33.87	4.70	---	---
		2480	0.21	0.62	0.3387	33.87	4.70	---	---

Test Graphs

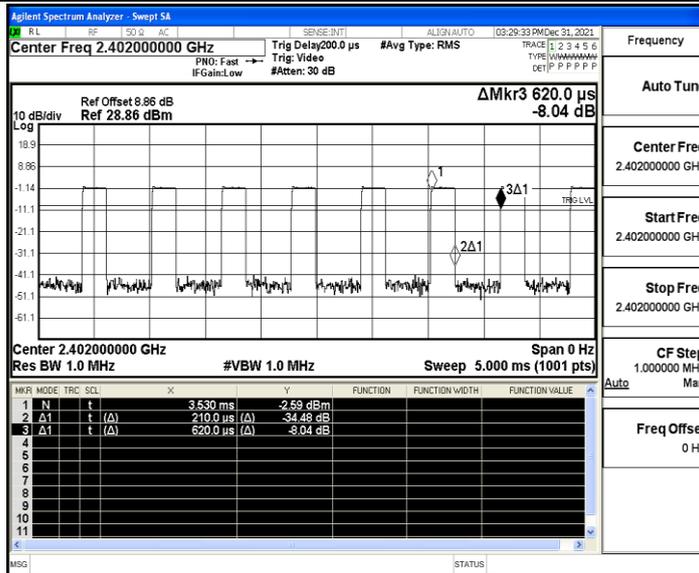




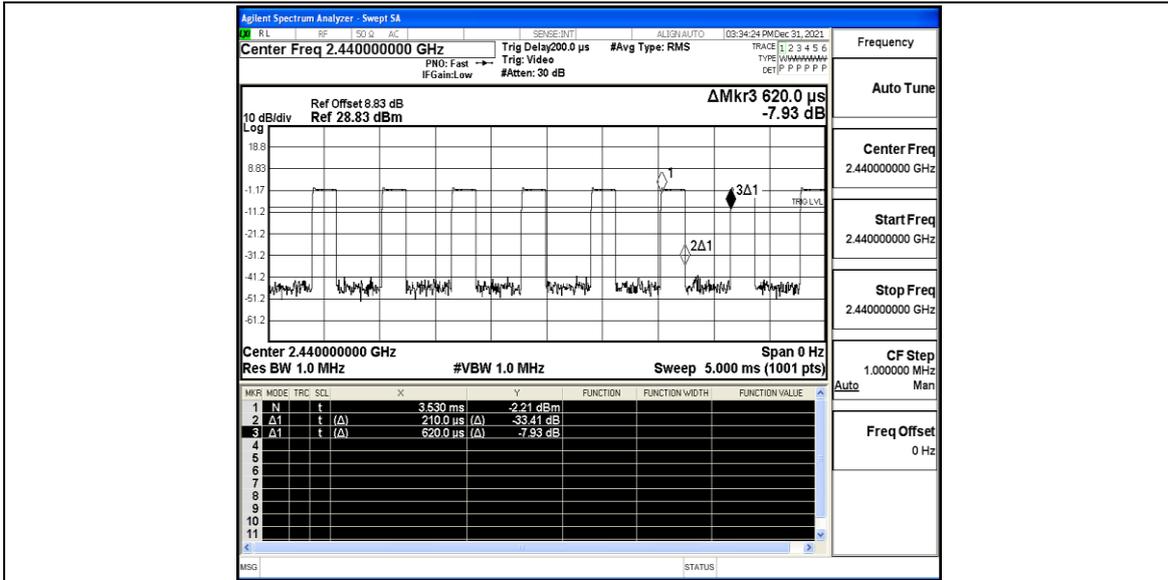
BLE_1M_Ant1_2480



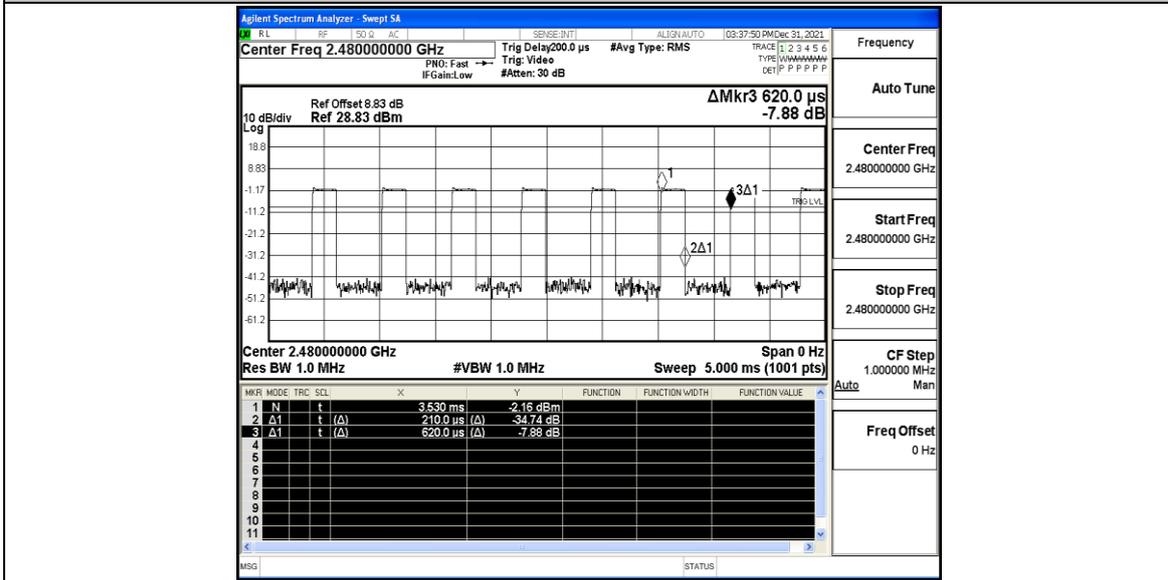
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480





B.7 Emissions in Restricted Bands

Test Result

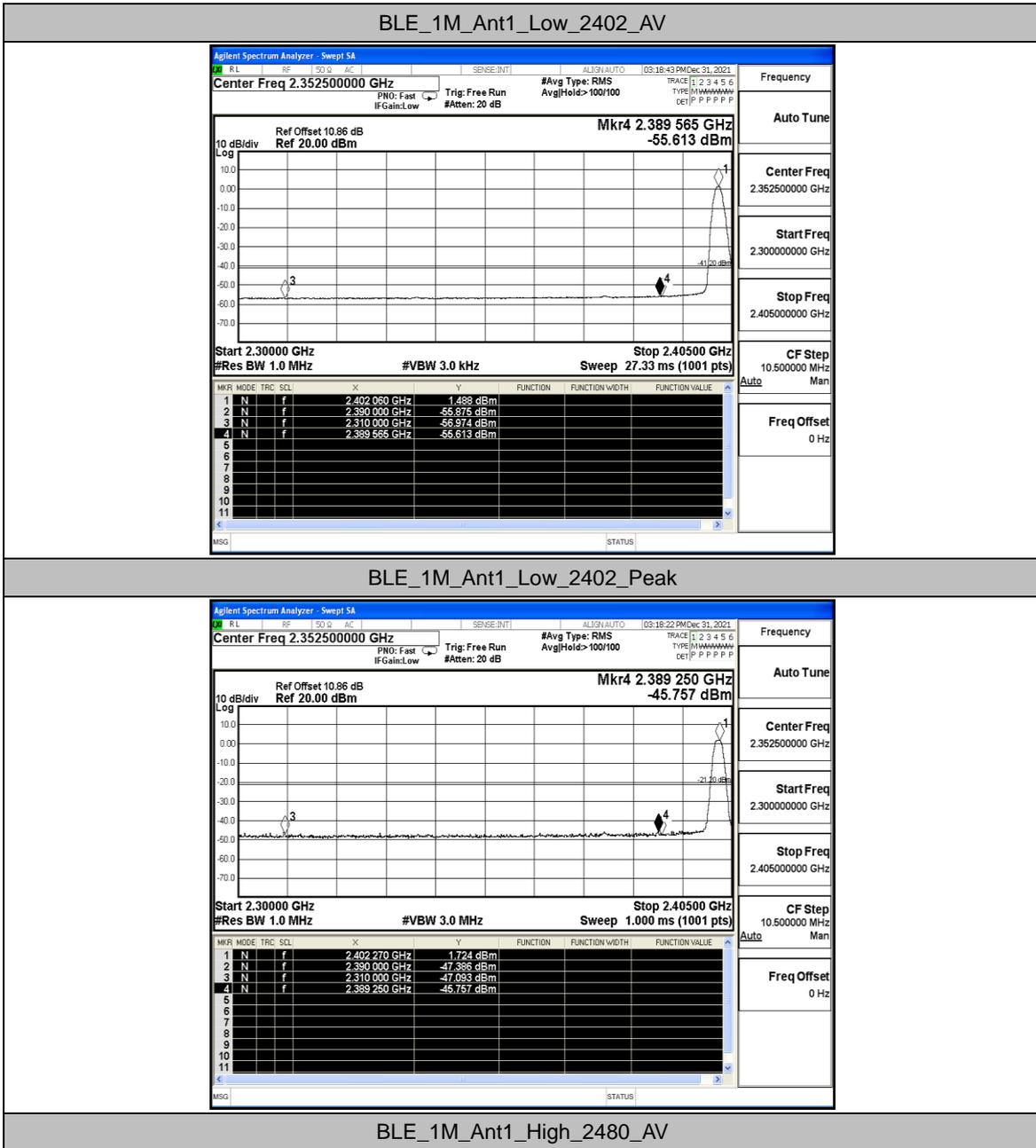
TestMode	Antenna	ChName	Channel	Detector	Freq. [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
BLE_1M	Ant1	Low	2402	AV	2310.000	-56.97	≤-41.20	38.23	≤54	PASS
				AV	2389.565	-55.61	≤-41.20	39.59	≤54	PASS
				AV	2390.000	-55.88	≤-41.20	39.32	≤54	PASS
				Peak	2310.000	-47.11	≤-21.20	48.09	≤74	PASS
				Peak	2389.250	-45.76	≤-21.20	49.44	≤74	PASS
				Peak	2390.000	-47.39	≤-21.20	47.81	≤74	PASS
		High	2480	AV	2483.500	-51.75	≤-41.20	43.45	≤54	PASS
				AV	2483.520	-51.75	≤-41.20	43.45	≤54	PASS
				AV	2500.000	-55.79	≤-41.20	39.41	≤54	PASS
				Peak	2483.500	-45.14	≤-21.20	50.06	≤74	PASS
				Peak	2485.760	-44.9	≤-21.20	50.30	≤74	PASS
				Peak	2500.000	-46.83	≤-21.20	48.37	≤74	PASS
BLE_2M	Ant1	Low	2402	AV	2310.000	-56.37	≤-41.20	38.83	≤54	PASS
				AV	2389.775	-55.34	≤-41.20	39.86	≤54	PASS
				AV	2390.000	-55.44	≤-41.20	39.76	≤54	PASS
				Peak	2310.000	-47.14	≤-21.20	48.06	≤74	PASS
				Peak	2337.695	-46.28	≤-21.20	48.92	≤74	PASS
				Peak	2390.000	-47.72	≤-21.20	47.48	≤74	PASS
		High	2480	AV	2483.500	-47.18	≤-41.20	48.02	≤54	PASS
				AV	2483.520	-47.18	≤-41.20	48.02	≤54	PASS
				AV	2500.000	-55.42	≤-41.20	39.78	≤54	PASS
				Peak	2483.500	-40.16	≤-21.20	55.04	≤74	PASS
				Peak	2483.520	-40.16	≤-21.20	55.04	≤74	PASS
				Peak	2500.000	-47.56	≤-21.20	47.64	≤74	PASS

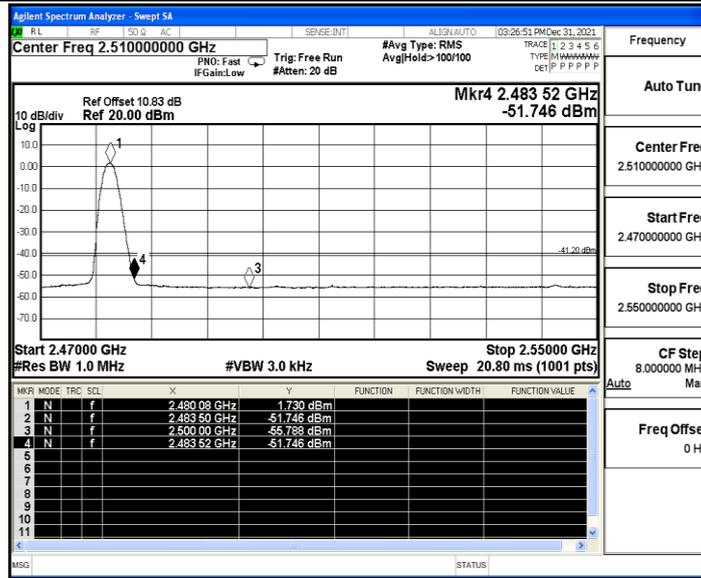
Note:

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.

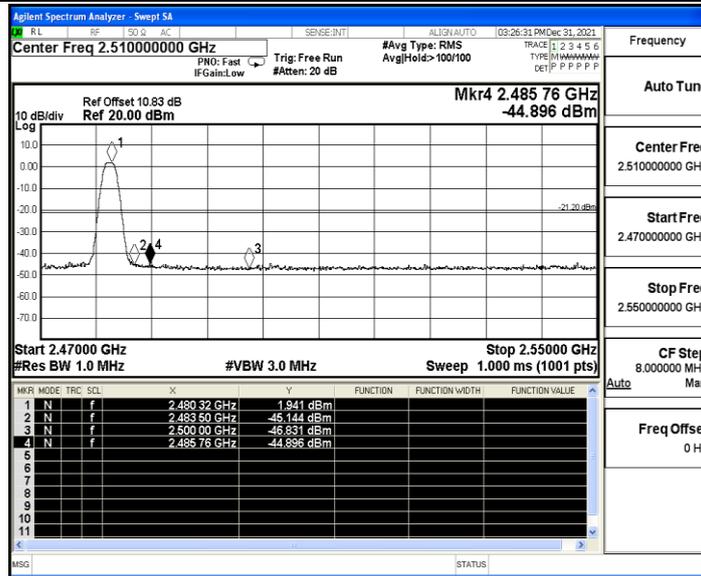


Test Graphs

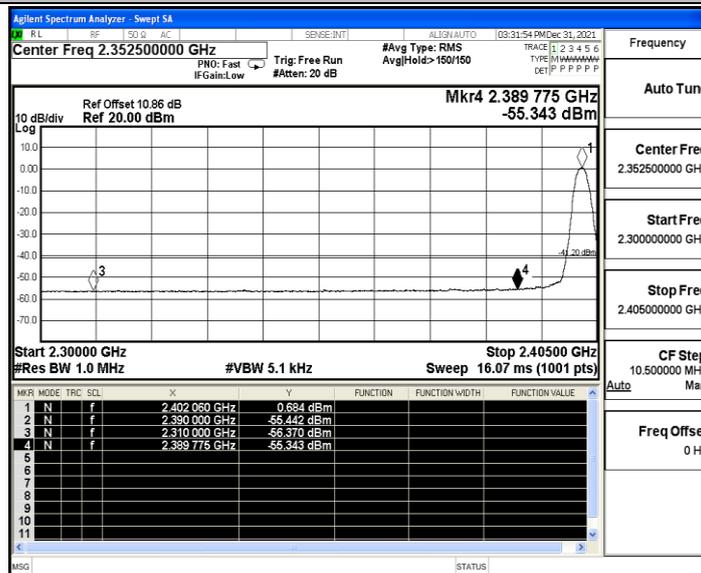




BLE_1M_Ant1_High_2480_Peak

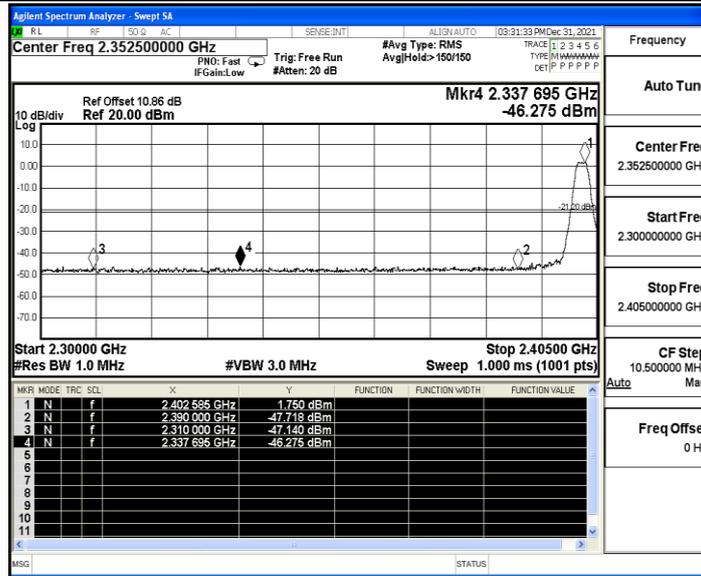


BLE_2M_Ant1_Low_2402_AV

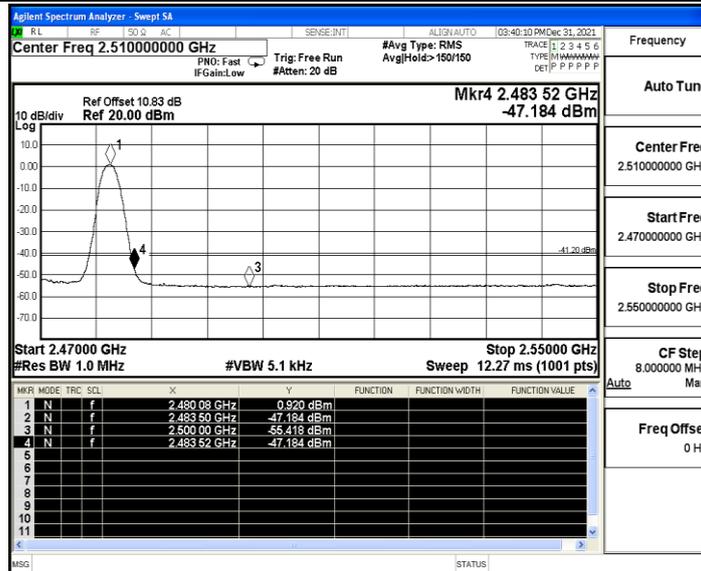




BLE_2M_Ant1_Low_2402_Peak



BLE_2M_Ant1_High_2480_AV



BLE_2M_Ant1_High_2480_Peak

