



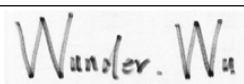
Appendix B

RF Test Data for BLE V5.2 (DTS) (Conducted Measurement)

Product Name: TWS Earbuds

Test Model: Snapods

Environmental Conditions

Temperature:	23.7℃
Relative Humidity:	52.3%
ATM Pressure:	100.0 kPa
Test Engineer:	 Wunder Wu
Supervised by:	 Li Huan



B.1 DTS Bandwidth

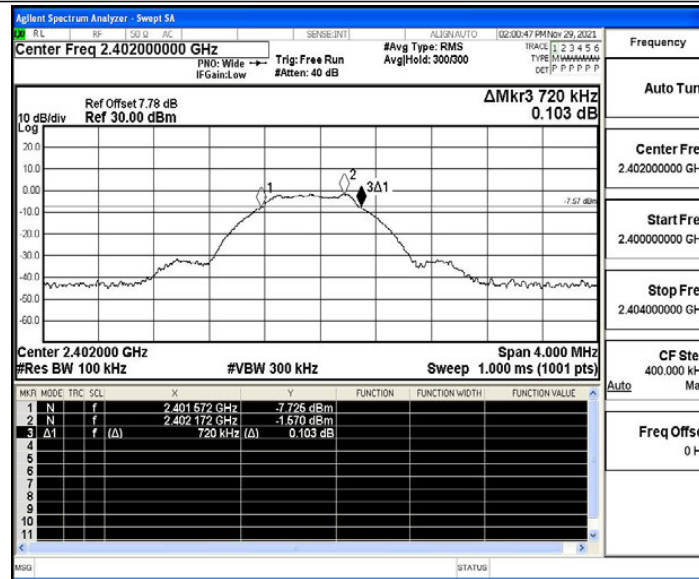
Test Result

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.720	2401.572	2402.292	≥ 0.5	PASS
		2440	0.712	2439.580	2440.292	≥ 0.5	PASS
		2480	0.736	2479.564	2480.300	≥ 0.5	PASS
BLE_2M	Ant1	2402	1.184	2401.348	2402.532	≥ 0.5	PASS
		2440	1.252	2439.284	2440.536	≥ 0.5	PASS
		2480	1.168	2479.364	2480.532	≥ 0.5	PASS

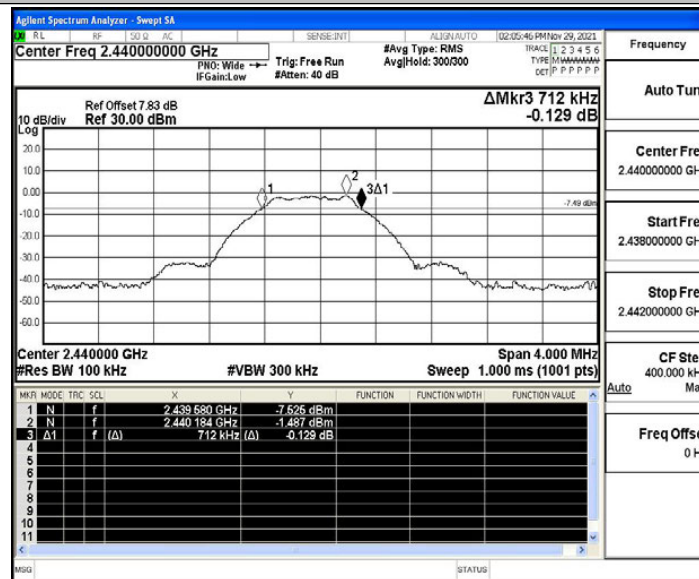


Test Graphs

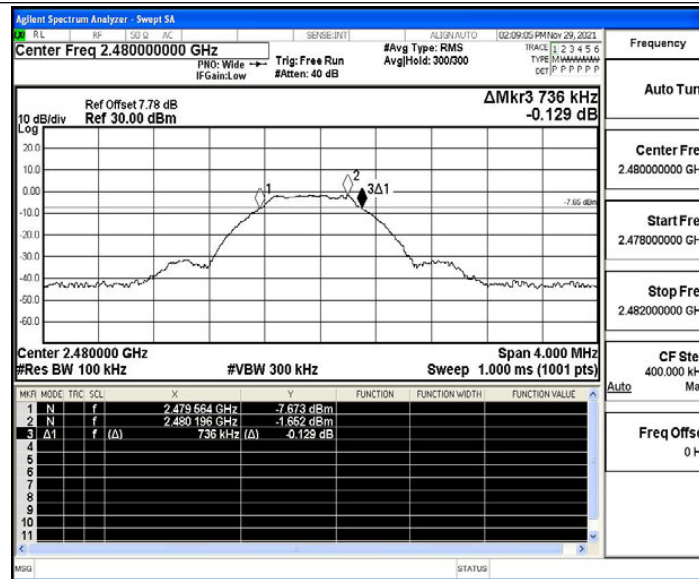
BLE_1M_Ant1_2402



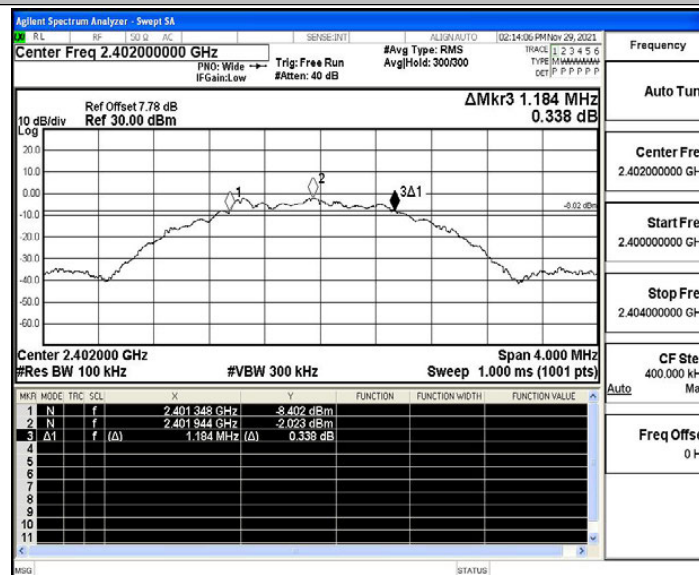
BLE_1M_Ant1_2440



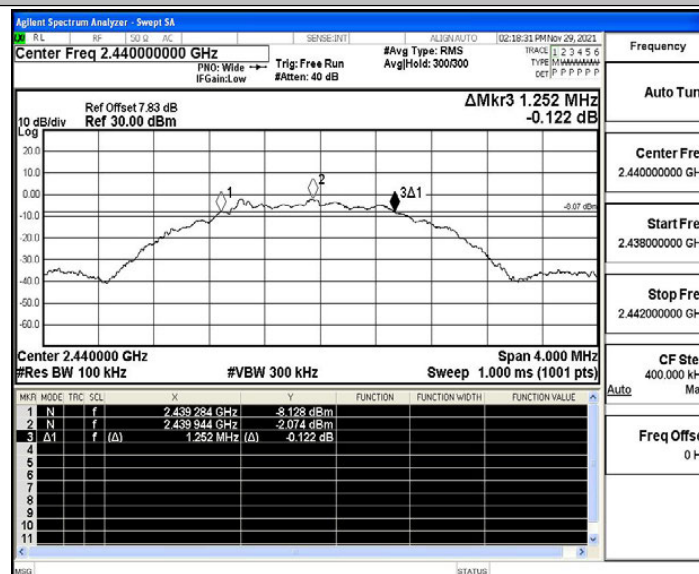
BLE_1M_Ant1_2480



BLE_2M_Ant1_2402

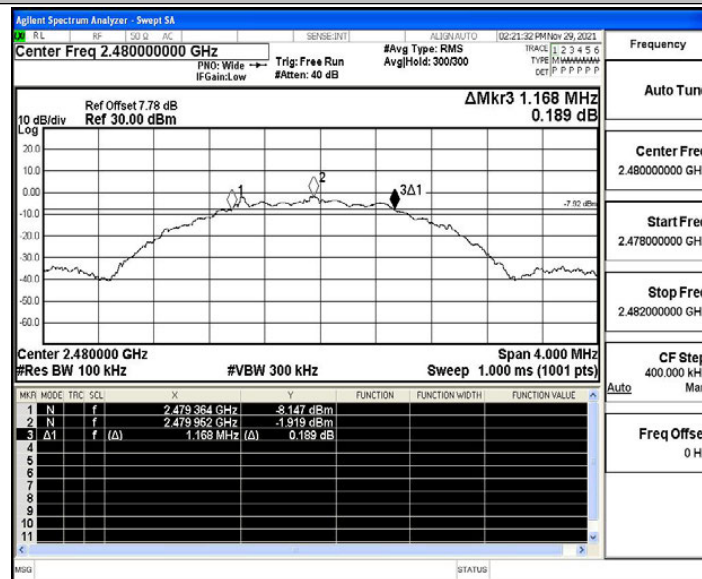


BLE_2M_Ant1_2440





BLE_2M_Ant1_2480





B.2 Maximum peak conducted output power

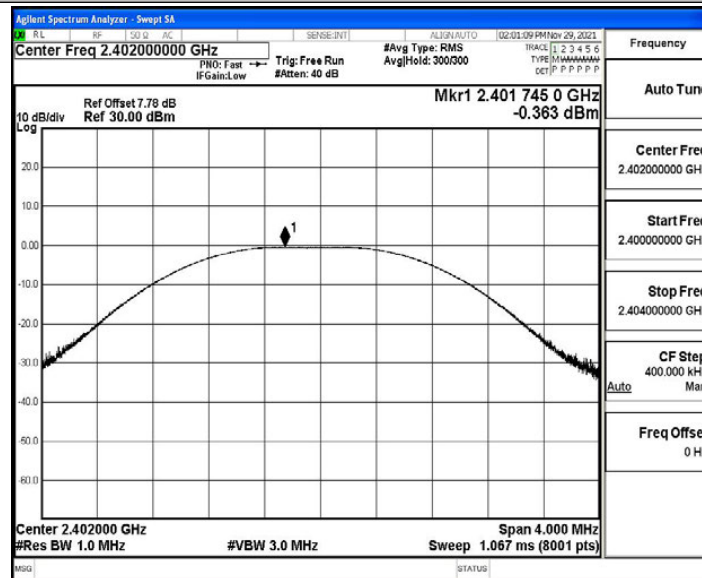
Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	-0.36	≤30	PASS
		2440	-0.33	≤30	PASS
		2480	-0.14	≤30	PASS
BLE_2M	Ant1	2402	-0.26	≤30	PASS
		2440	-0.27	≤30	PASS
		2480	-0.11	≤30	PASS

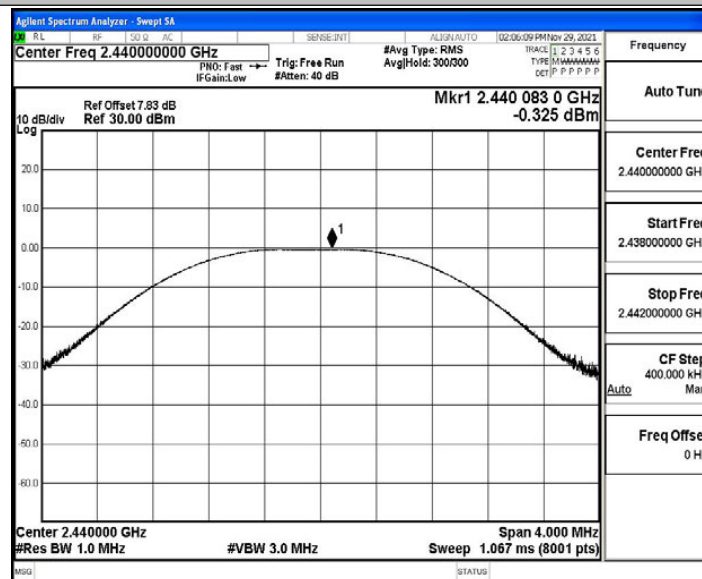


Test Graphs

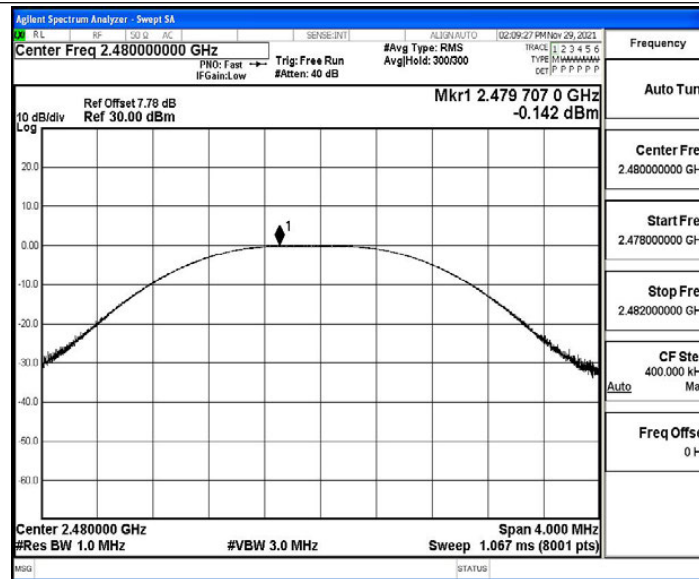
BLE_1M_Ant1_2402



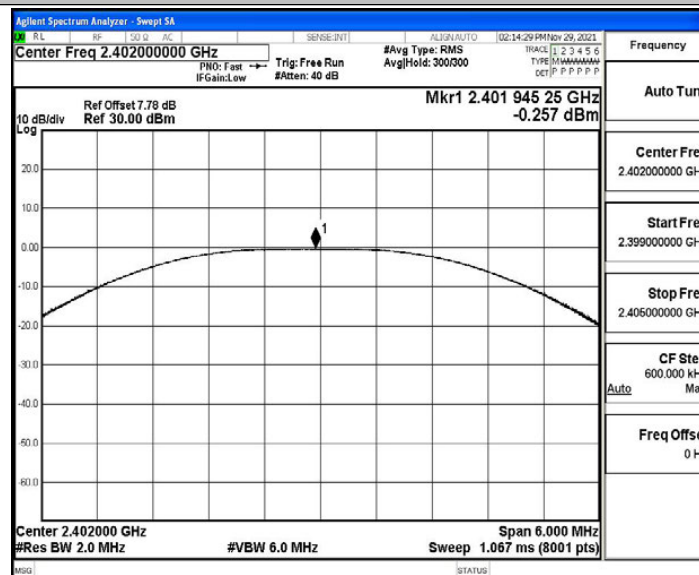
BLE_1M_Ant1_2440



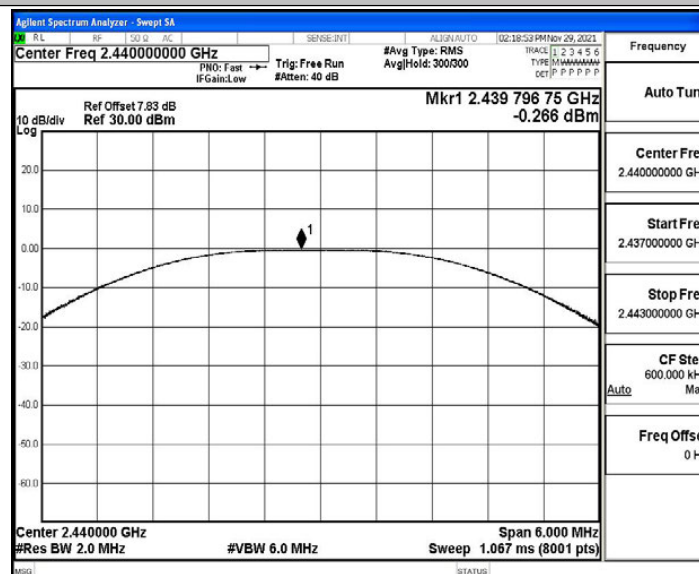
BLE_1M_Ant1_2480



BLE_2M_Ant1_2402

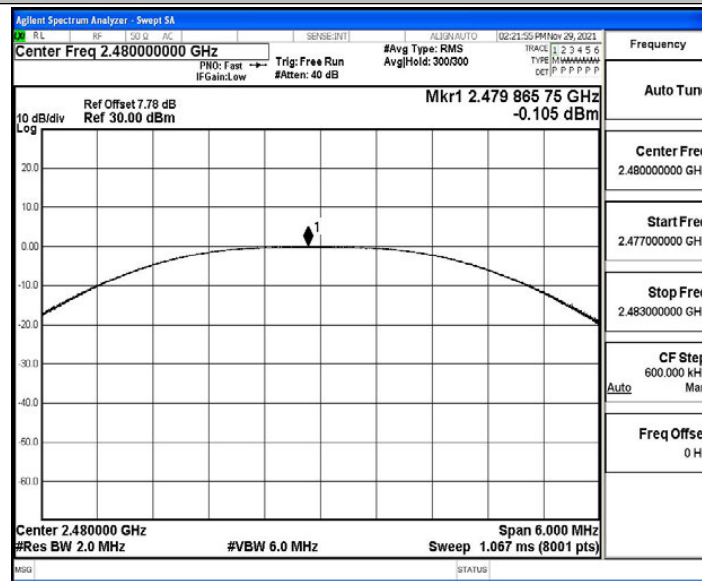


BLE_2M_Ant1_2440





BLE_2M_Ant1_2480





B.3 Maximum power spectral density

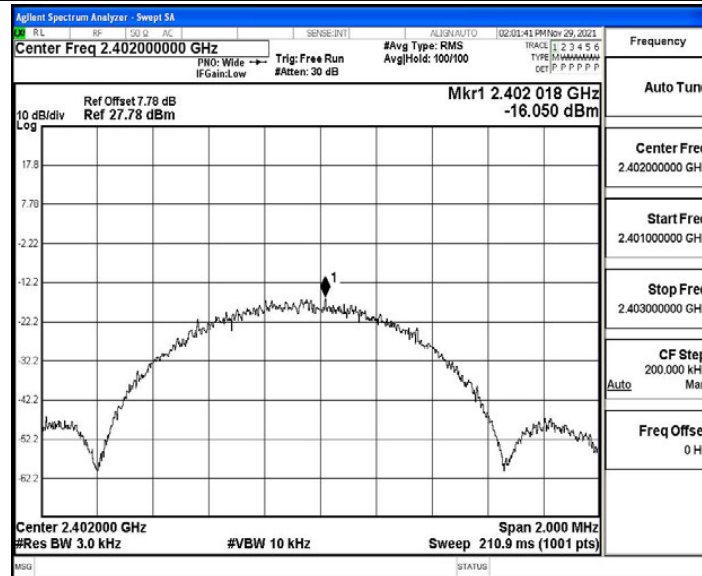
Test Result

TestMode	Antenna	Channel	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-16.05	≤8	PASS
		2440	-16.62	≤8	PASS
		2480	-15.75	≤8	PASS
BLE_2M	Ant1	2402	-19.06	≤8	PASS
		2440	-19.28	≤8	PASS
		2480	-18.99	≤8	PASS

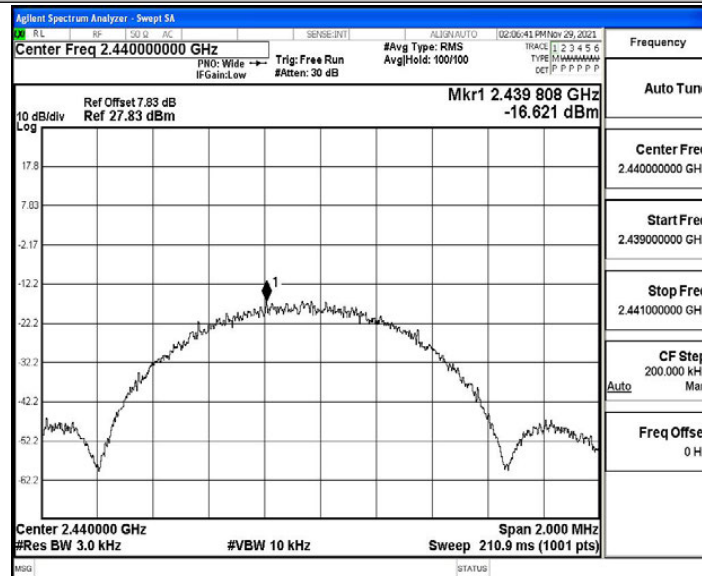


Test Graphs

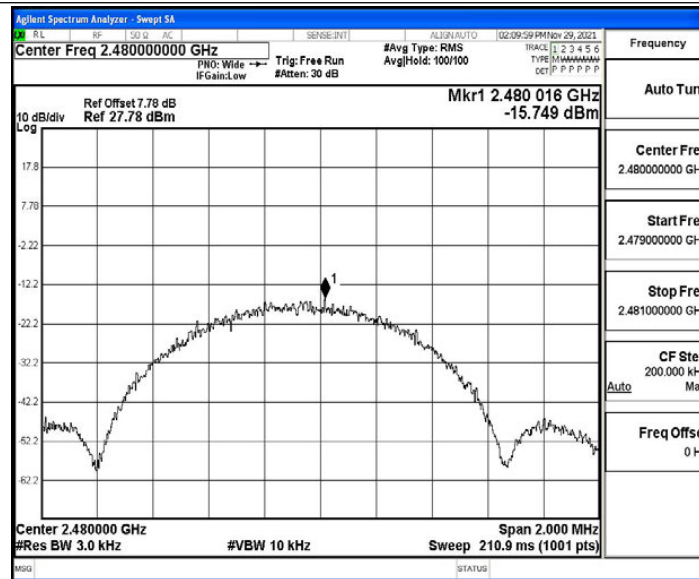
BLE_1M_Ant1_2402



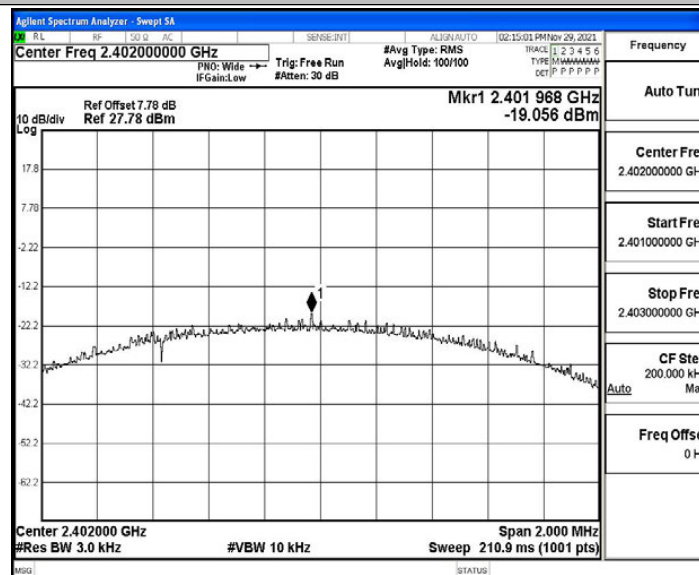
BLE_1M_Ant1_2440



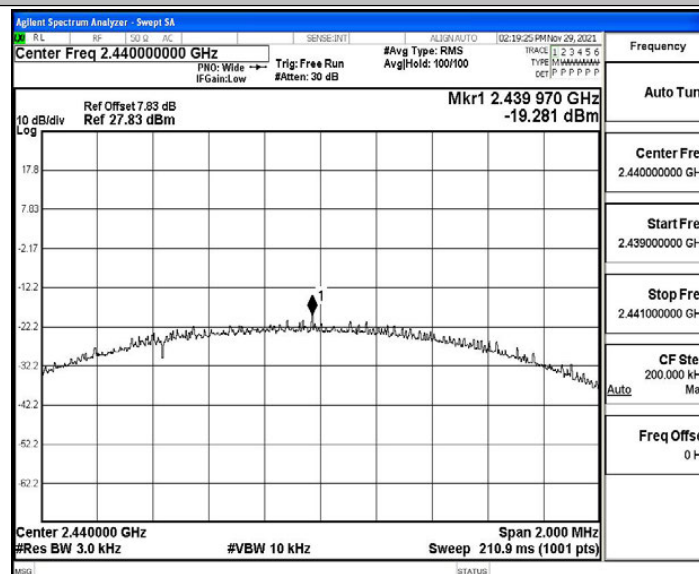
BLE_1M_Ant1_2480



BLE_2M_Ant1_2402

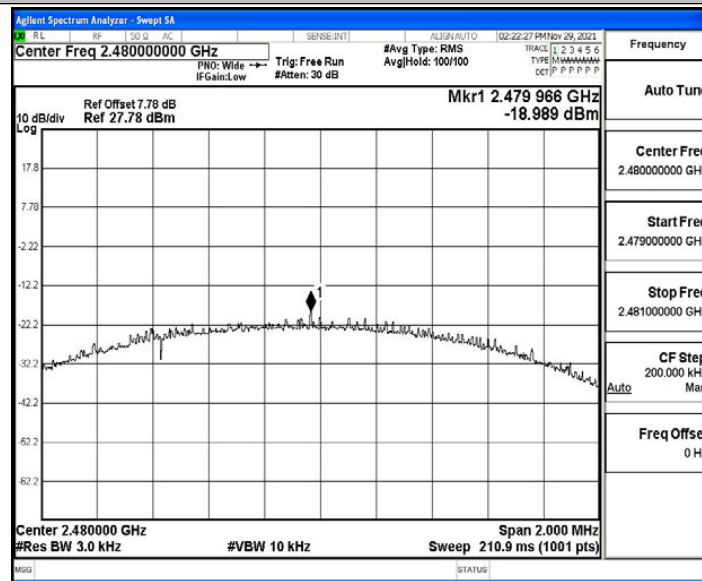


BLE_2M_Ant1_2440





BLE_2M_Ant1_2480





B.4 Band edge measurements

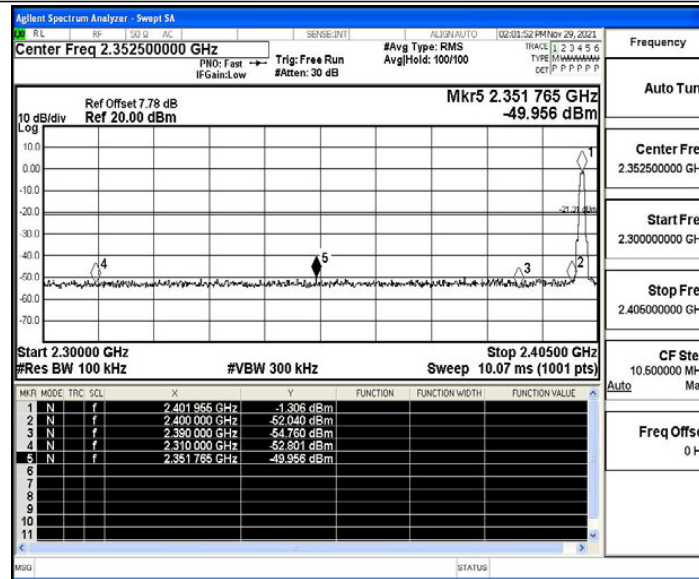
Test Result

TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	-1.31	-49.96	≤ -21.31	PASS
		High	2480	-1.59	-49.27	≤ -21.59	PASS
BLE_2M	Ant1	Low	2402	-1.50	-35.82	≤ -21.5	PASS
		High	2480	-2.89	-48.99	≤ -22.89	PASS

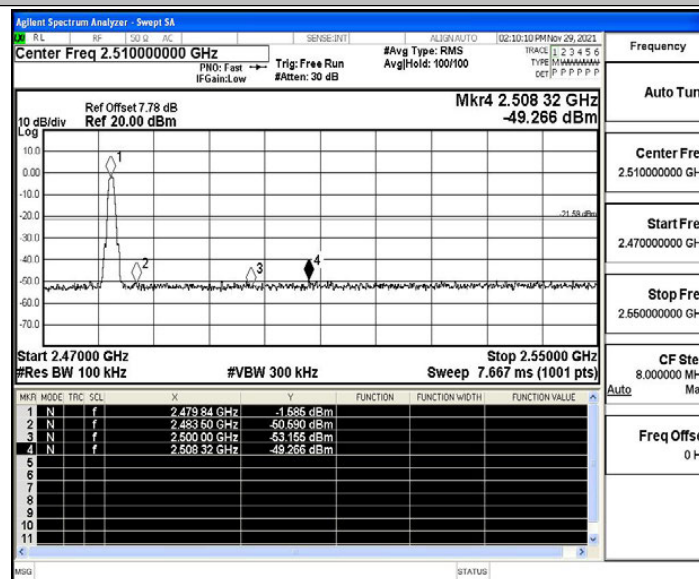


Test Graphs

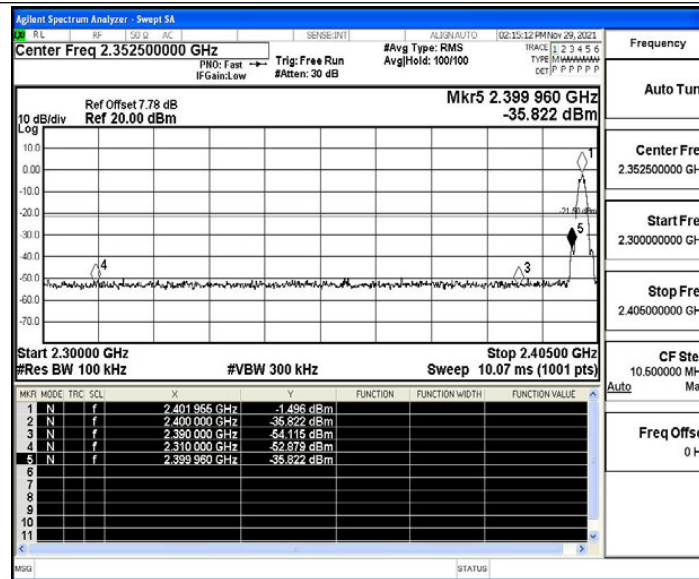
BLE_1M_Ant1_Low_2402



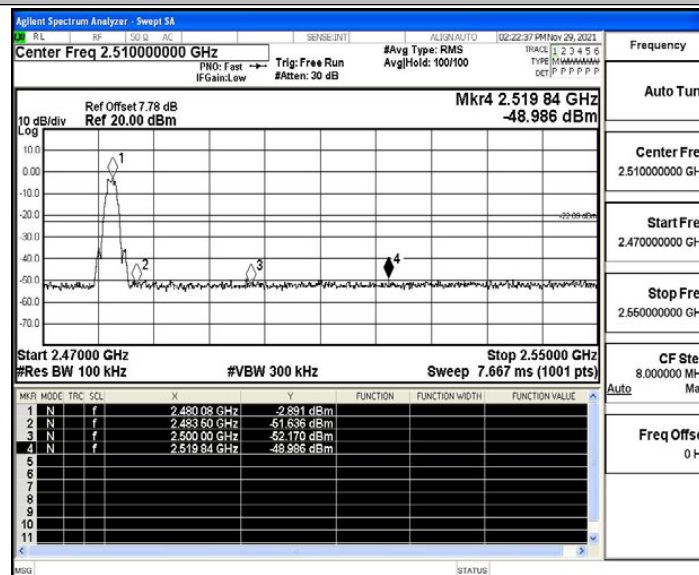
BLE_1M_Ant1_High_2480



BLE_2M_Ant1_Low_2402



BLE_2M_Ant1_High_2480





B.5 Conducted Spurious Emission

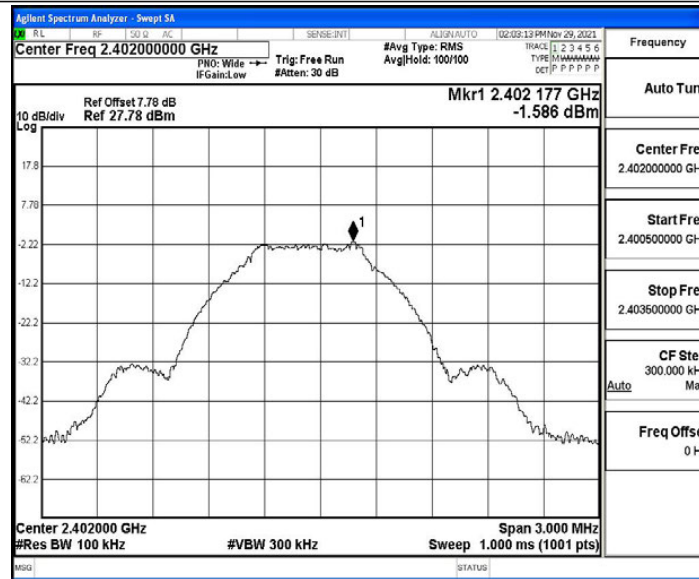
Test Result

TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	-1.59	-1.59	---	PASS
			30~1000	-1.59	-61.61	≤ -21.59	PASS
			1000~26500	-1.59	-46.84	≤ -21.59	PASS
		2440	Reference	-1.60	-1.60	---	PASS
			30~1000	-1.60	-61.2	≤ -21.6	PASS
			1000~26500	-1.60	-47.04	≤ -21.6	PASS
		2480	Reference	-1.42	-1.42	---	PASS
			30~1000	-1.42	-61.82	≤ -21.42	PASS
			1000~26500	-1.42	-47.15	≤ -21.42	PASS
BLE_2M	Ant1	2402	Reference	-3.53	-3.53	---	PASS
			30~1000	-3.53	-61.09	≤ -23.53	PASS
			1000~26500	-3.53	-46.6	≤ -23.53	PASS
		2440	Reference	-2.27	-2.27	---	PASS
			30~1000	-2.27	-61.57	≤ -22.27	PASS
			1000~26500	-2.27	-46.97	≤ -22.27	PASS
		2480	Reference	-1.99	-1.99	---	PASS
			30~1000	-1.99	-62.42	≤ -21.99	PASS
			1000~26500	-1.99	-47.22	≤ -21.99	PASS

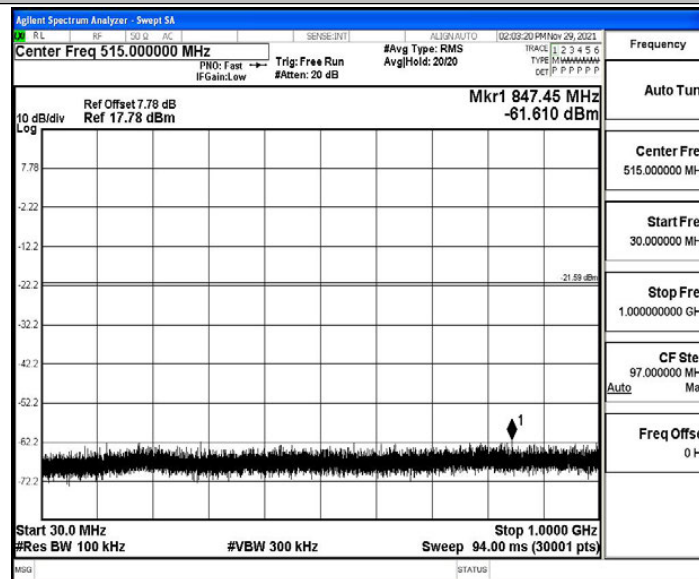


Test Graphs

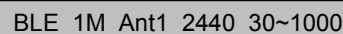
BLE_1M_Ant1_2402_0~Reference



BLE_1M_Ant1_2402_30~1000

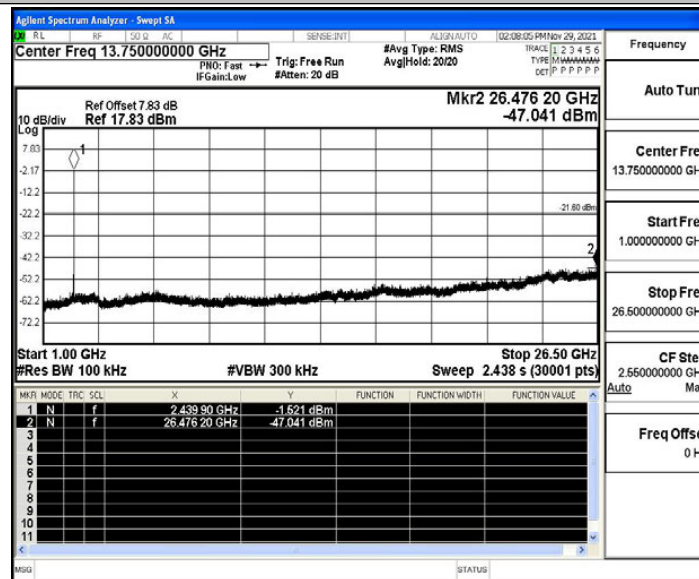


BLE_1M_Ant1_2402_1000~26500

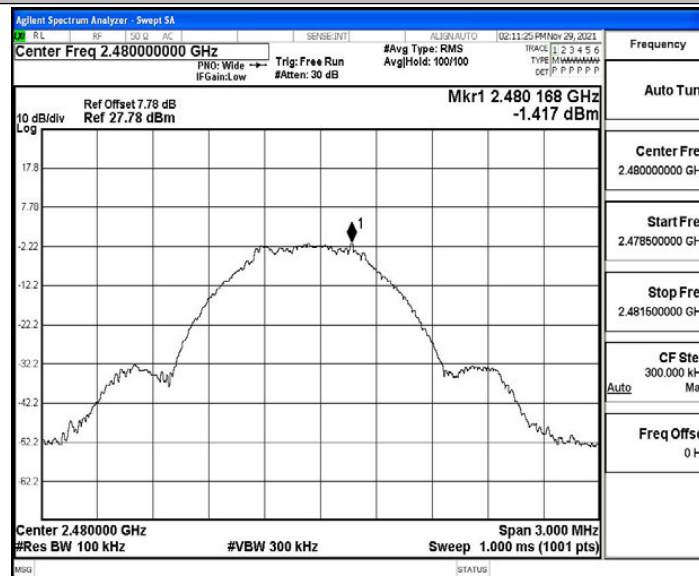




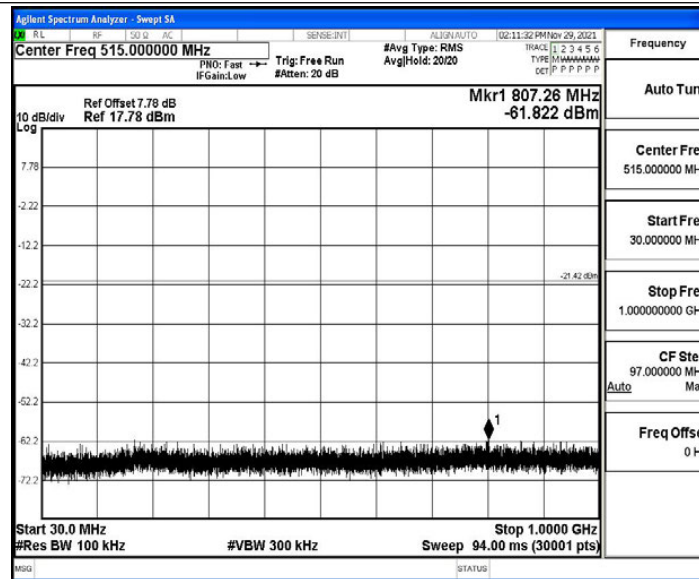
BLE_1M_Ant1_2440_1000~26500



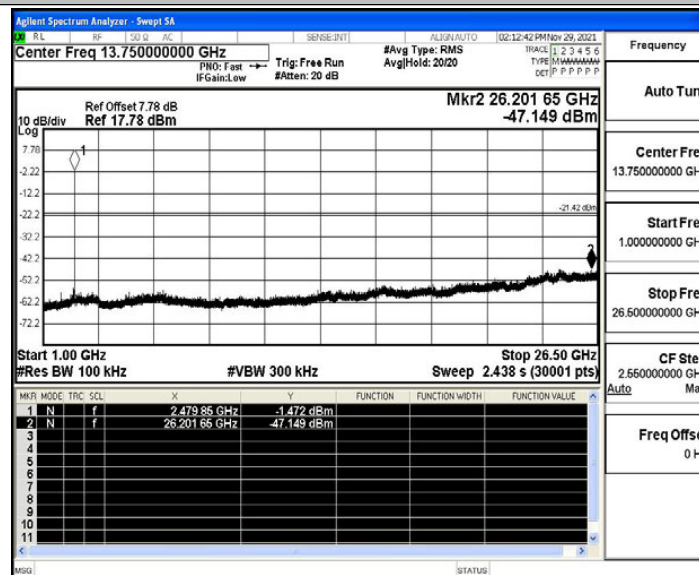
BLE_1M_Ant1_2480_0~Reference



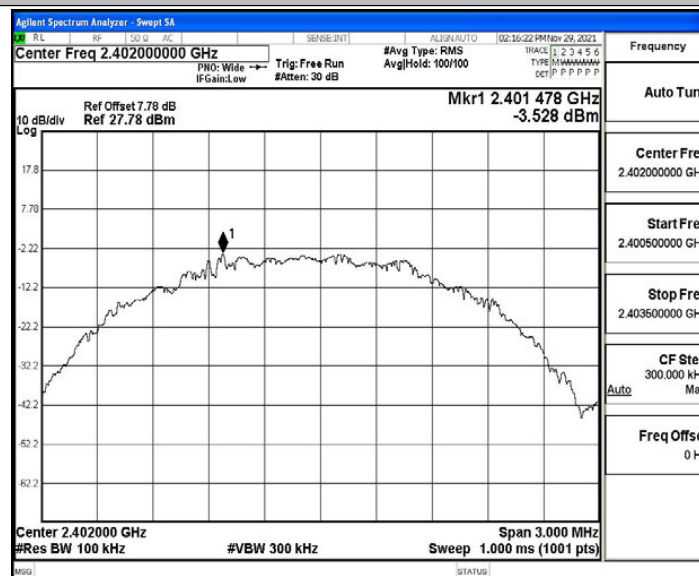
BLE_1M_Ant1_2480_30~1000



BLE_1M_Ant1_2480_1000~26500

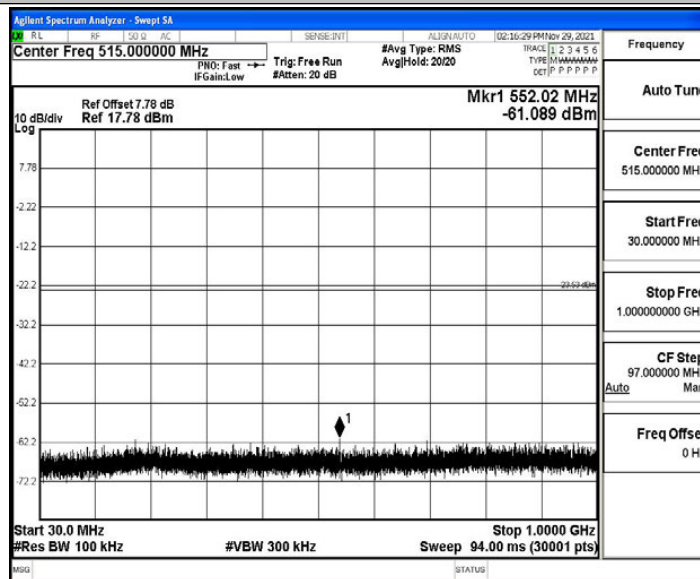


BLE_2M_Ant1_2402_0~Reference

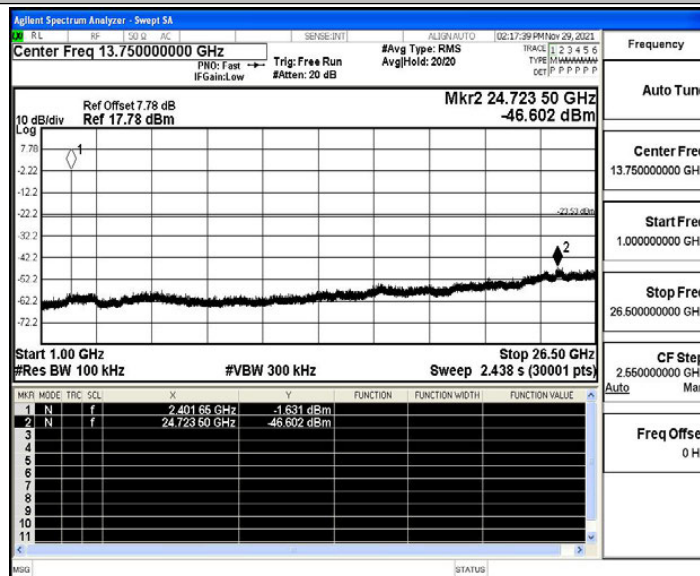




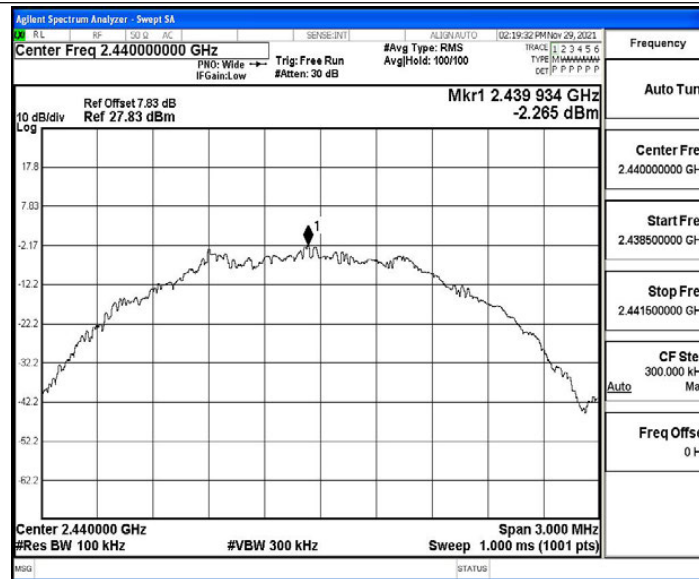
BLE_2M_Ant1_2402_30~1000



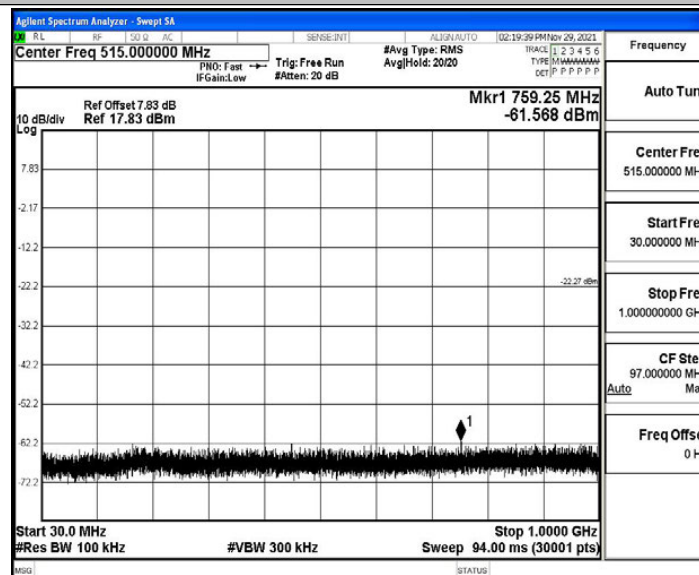
BLE_2M_Ant1_2402_1000~26500



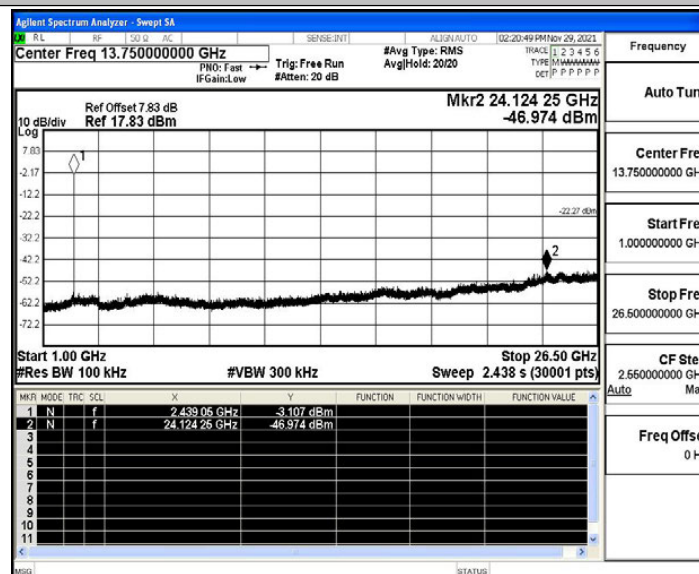
BLE_2M_Ant1_2440_0~Reference



BLE_2M_Ant1_2440_30~1000

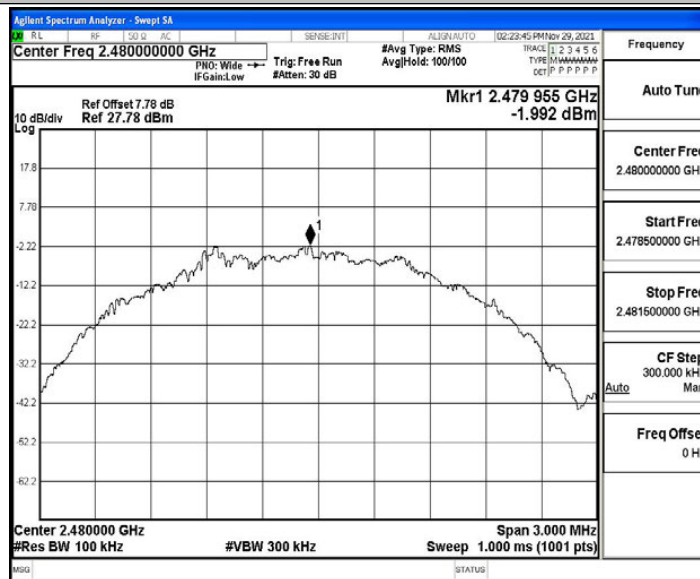


BLE_2M_Ant1_2440_1000~26500

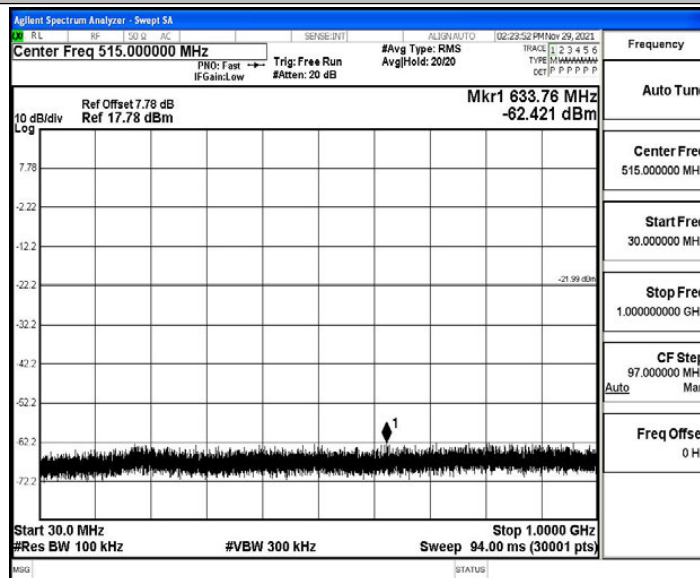




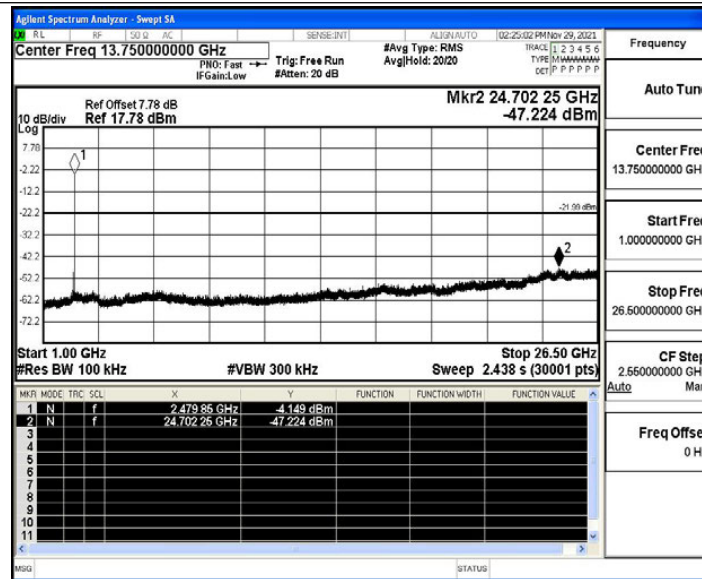
BLE_2M_Ant1_2480_0~Reference



BLE_2M_Ant1_2480_30~1000



BLE_2M_Ant1_2480_1000~26500





B.6 Duty Cycle

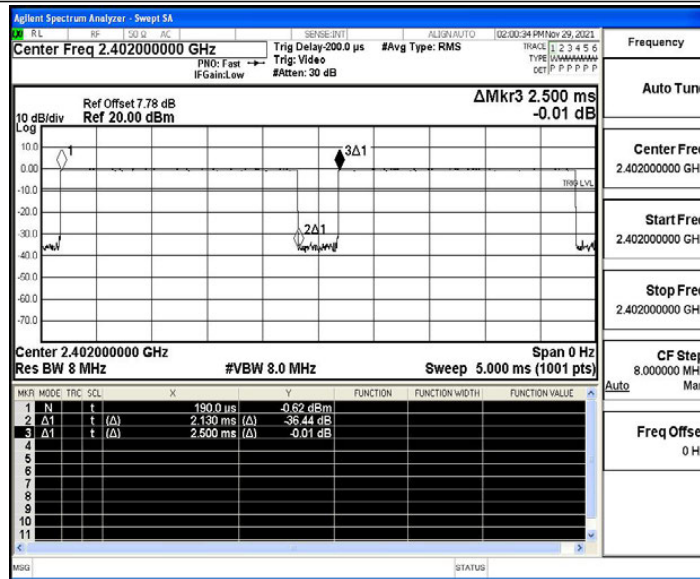
Test Result

TestMode	Antenna	Channel	ON Time [ms]	Period [ms]	X	DC [%]	xFactor	1/T[KHz]
BLE_1M	Ant1	2402	2.13	2.50	0.8520	85.20	0.70	0.47
		2440	2.12	2.50	0.8480	84.80	0.72	0.47
		2480	2.13	2.50	0.8520	85.20	0.70	0.47
BLE_2M	Ant1	2402	1.08	1.25	0.8640	86.40	0.63	0.93
		2440	1.08	1.25	0.8640	86.40	0.63	0.93
		2480	1.07	1.25	0.8560	85.60	0.68	0.93

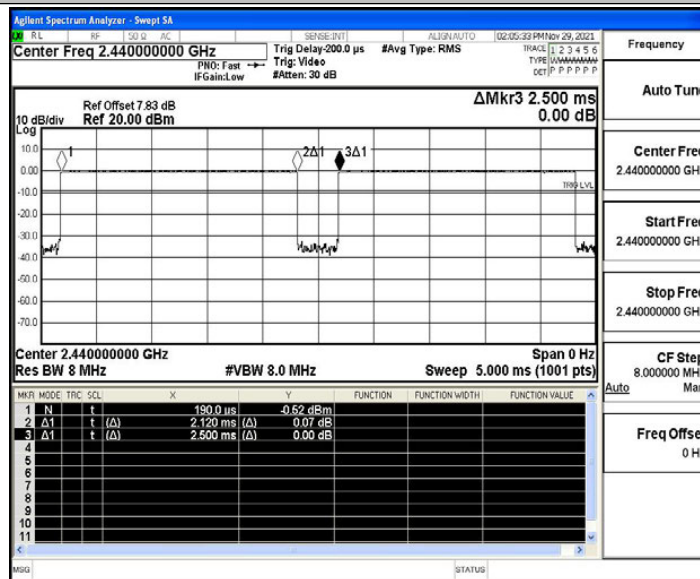


Test Graphs

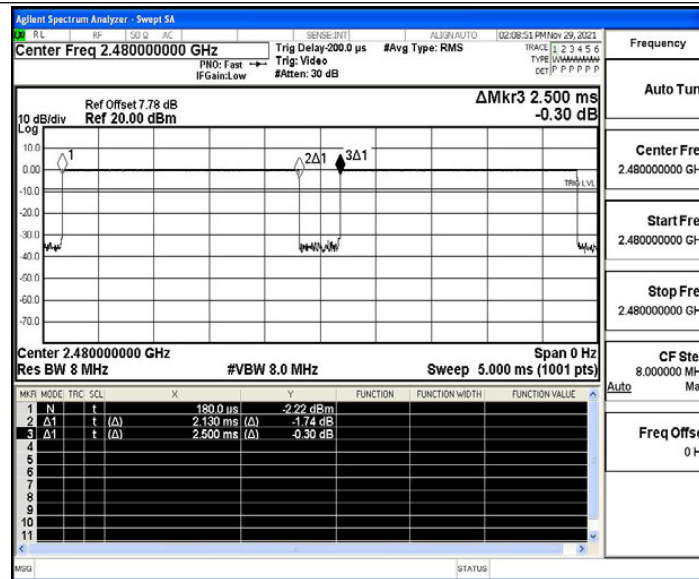
BLE_1M_Ant1_2402



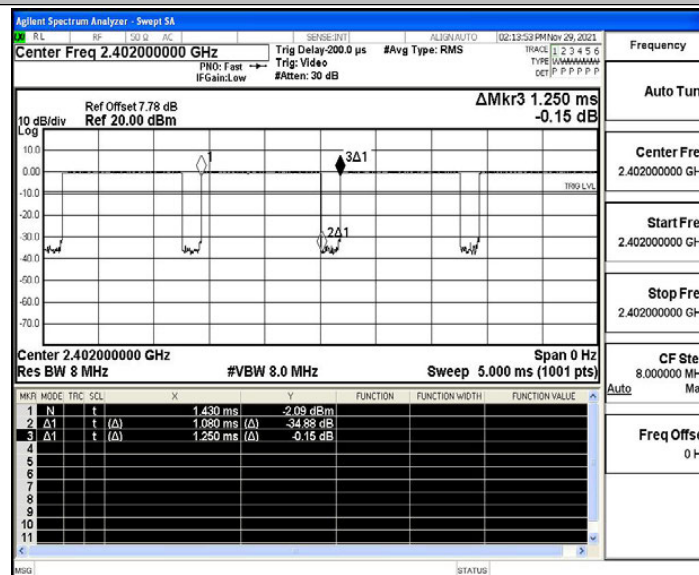
BLE_1M_Ant1_2440



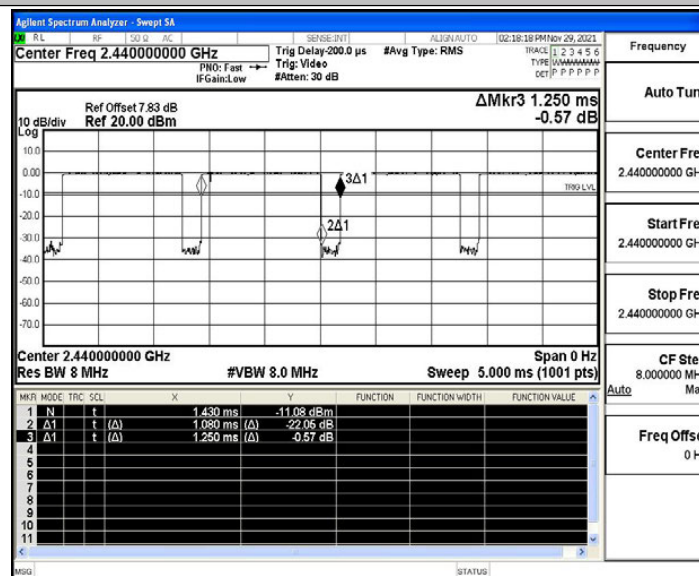
BLE_1M_Ant1_2480



BLE_2M_Ant1_2402

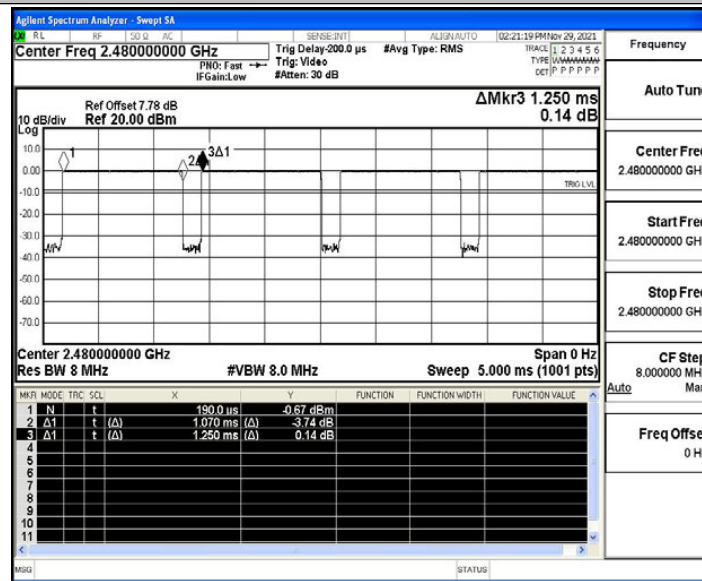


BLE_2M_Ant1_2440





BLE_2M_Ant1_2480





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	-48.83	≤-41.20	46.37	≤54	PASS
				AV	2355.545	-48.33	≤-41.20	46.87	≤54	PASS
				AV	2390.000	-48.48	≤-41.20	46.72	≤54	PASS
				Peak	2310.000	-41.7	≤-21.20	53.50	≤74	PASS
				Peak	2375.390	-37.84	≤-21.20	57.36	≤74	PASS
				Peak	2390.000	-42.07	≤-21.20	53.13	≤74	PASS
		High	2480	AV	2483.500	-47.87	≤-41.20	47.33	≤54	PASS
				AV	2483.520	-47.87	≤-41.20	47.33	≤54	PASS
				AV	2500.000	-48.03	≤-41.20	47.17	≤54	PASS
				Peak	2483.500	-41.48	≤-21.20	53.72	≤74	PASS
				Peak	2492.480	-38.87	≤-21.20	56.33	≤74	PASS
				Peak	2500.000	-40.42	≤-21.20	54.78	≤74	PASS
BLE_2M	Ant1	Low	2402	AV	2310.000	-48.66	≤-41.20	46.54	≤54	PASS
				AV	2352.815	-47.97	≤-41.20	47.23	≤54	PASS
				AV	2390.000	-48.33	≤-41.20	46.87	≤54	PASS
				Peak	2310.000	-41.77	≤-21.20	53.43	≤74	PASS
				Peak	2322.260	-38.69	≤-21.20	56.51	≤74	PASS
				Peak	2390.000	-41.16	≤-21.20	54.04	≤74	PASS
		High	2480	AV	2483.500	-46.88	≤-41.20	48.32	≤54	PASS
				AV	2483.520	-46.88	≤-41.20	48.32	≤54	PASS
				AV	2500.000	-47.8	≤-41.20	47.40	≤54	PASS
				Peak	2483.500	-42.21	≤-21.20	52.99	≤74	PASS
				Peak	2485.200	-37.77	≤-21.20	57.43	≤74	PASS
				Peak	2500.000	-41.44	≤-21.20	53.76	≤74	PASS

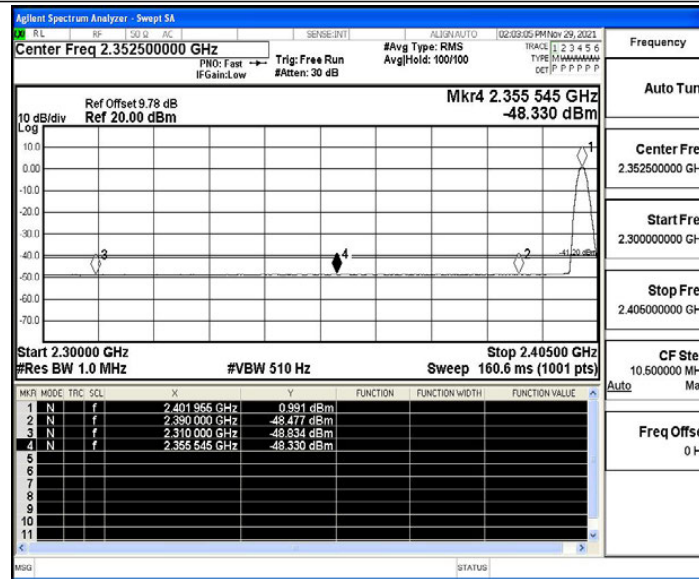
Note:

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.

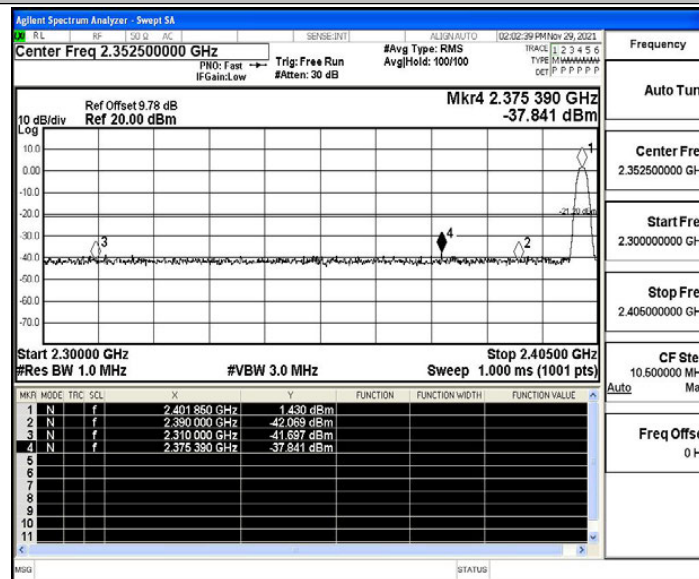


Test Graphs

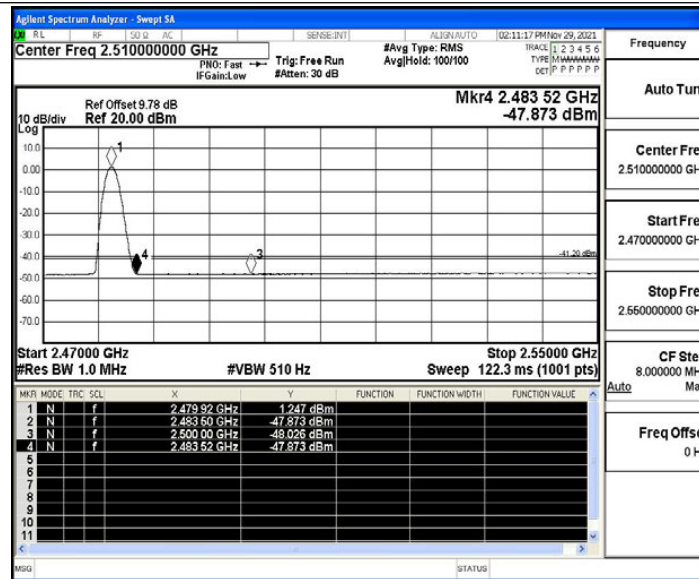
BLE_1M_Ant1_Low_2402_AV



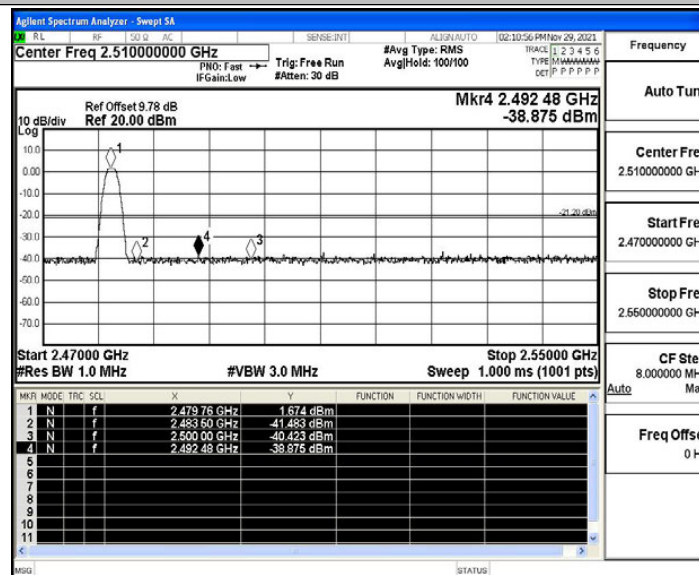
BLE_1M_Ant1_Low_2402_Peak



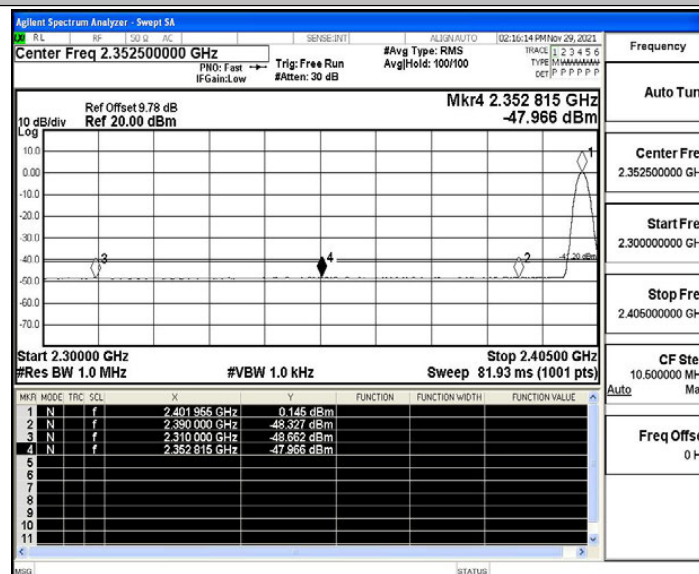
BLE_1M_Ant1_High_2480_AV



BLE_1M_Ant1_High_2480_Peak

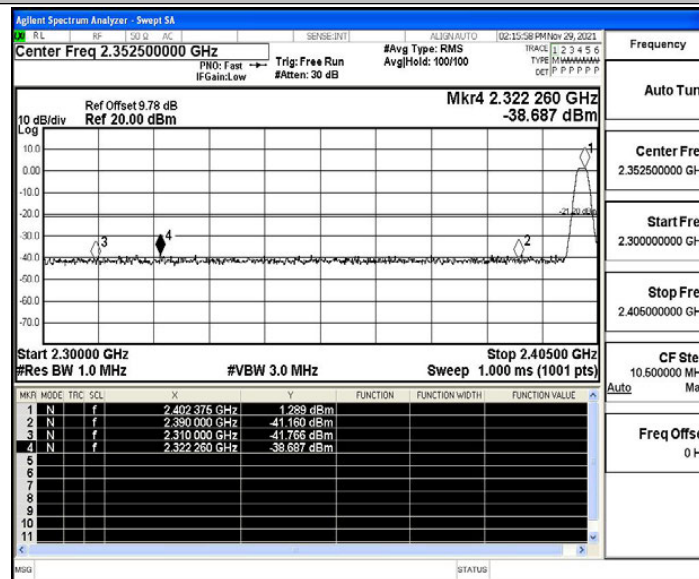


BLE_2M_Ant1_Low_2402_AV

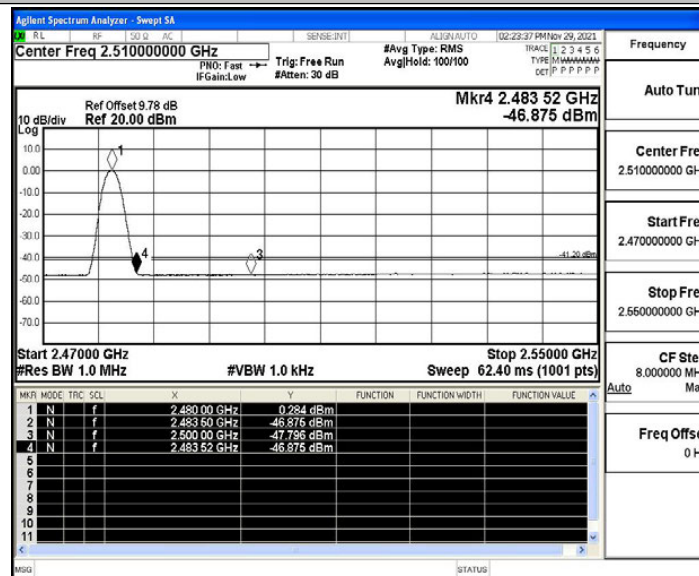




BLE_2M_Ant1_Low_2402_Peak



BLE_2M_Ant1_High_2480_AV



BLE_2M_Ant1_High_2480_Peak

