



Appendix B

RF Test Data for BT LE (Conducted Measurement)

Product Name: P4 Wireless Controller

Test Model: P4-101

Environmental Conditions

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



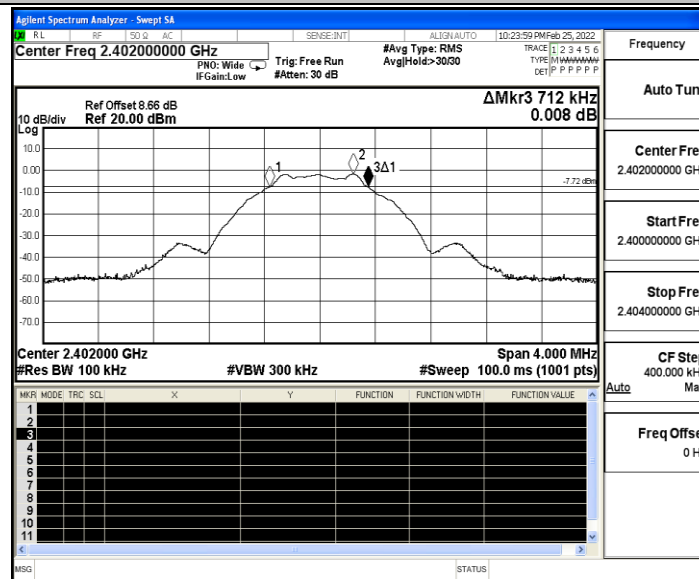
B.1 DTS Bandwidth

Test Result

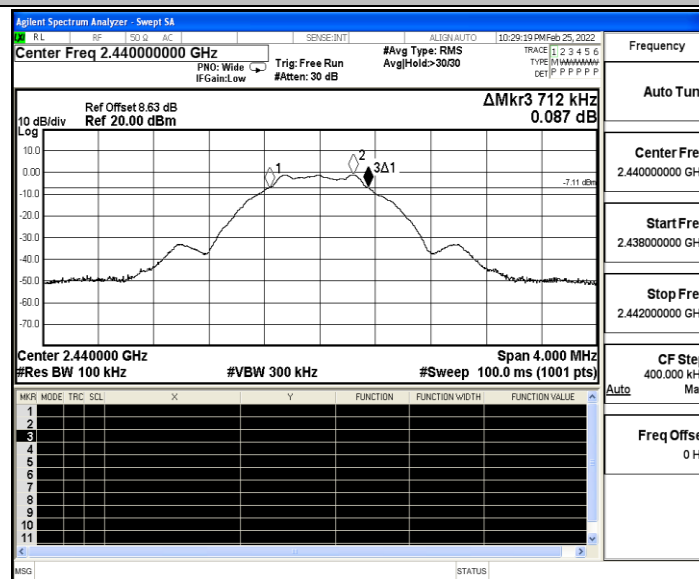
TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.712	2401.636	2402.348	0.5	PASS
		2440	0.712	2439.636	2440.348	0.5	PASS
		2480	0.712	2479.636	2480.348	0.5	PASS

Test Graphs

BLE_1M_Ant1_2402

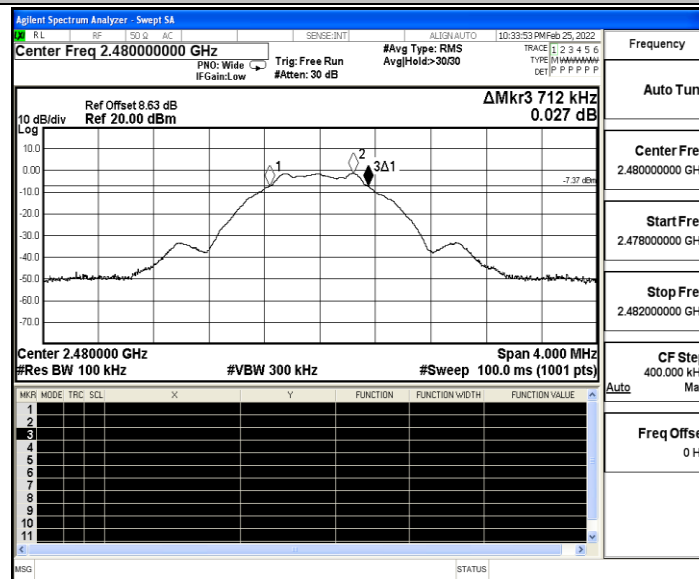


BLE_1M_Ant1_2440





BLE_1M_Ant1_2480





B.2 Maximum peak conducted output power

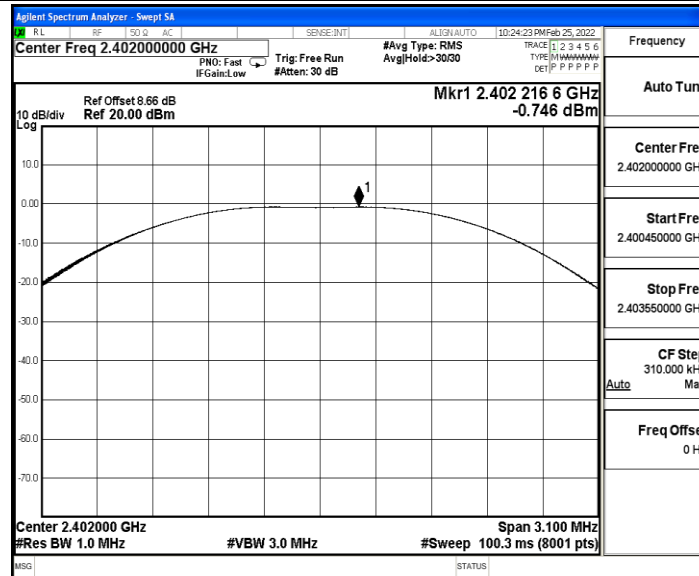
Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	-0.75	≤30	PASS
		2440	-0.18	≤30	PASS
		2480	-0.43	≤30	PASS

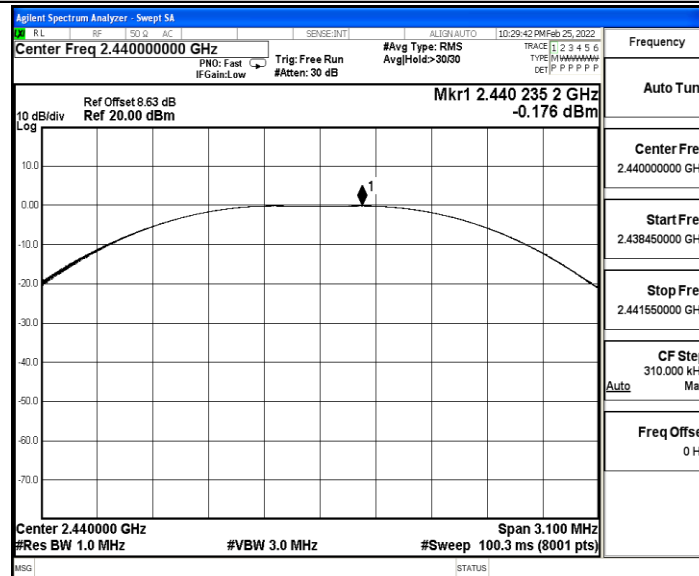


Test Graphs

BLE_1M_Ant1_2402

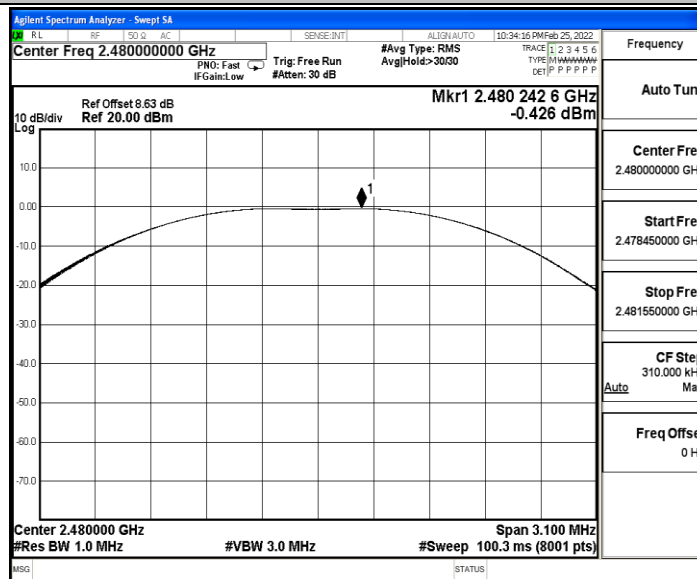


BLE_1M_Ant1_2440





BLE_1M_Ant1_2480





B.3 Maximum power spectral density

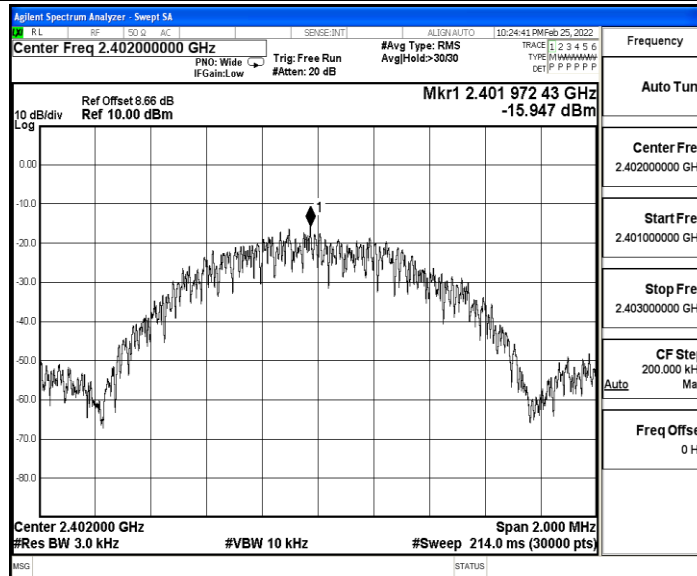
Test Result

TestMode	Antenna	Channel	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-15.95	≤8.00	PASS
		2440	-15.25	≤8.00	PASS
		2480	-15.6	≤8.00	PASS

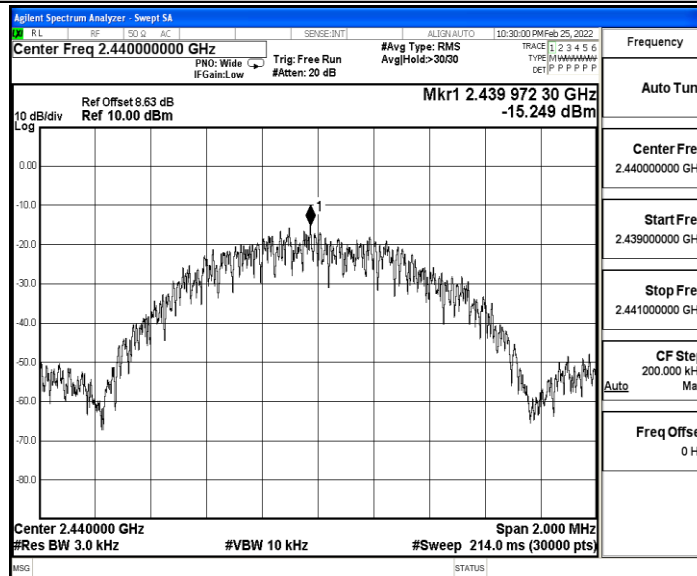


Test Graphs

BLE_1M_Ant1_2402

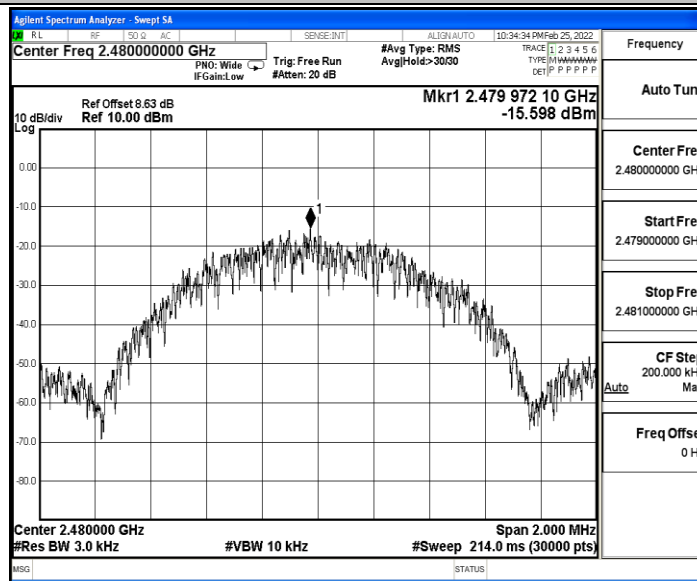


BLE_1M_Ant1_2440





BLE_1M_Ant1_2480





B.4 Band edge measurements

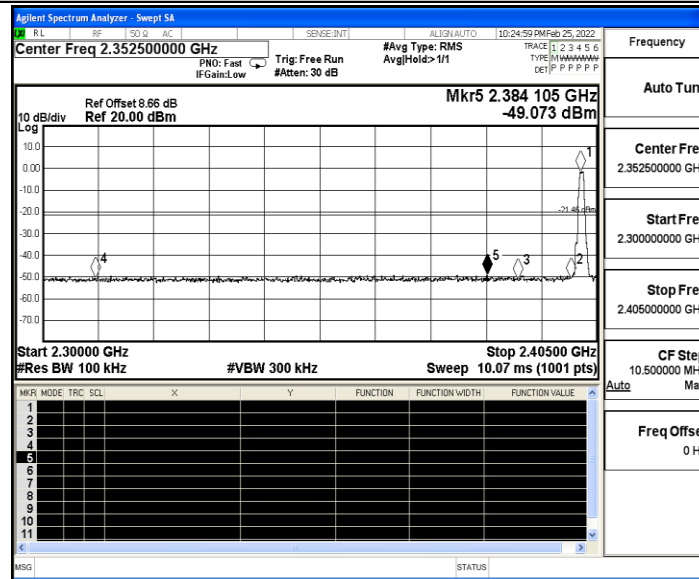
Test Result

TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	-1.46	-49.07	≤ -21.46	PASS
		High	2480	-1.10	-47.83	≤ -21.1	PASS

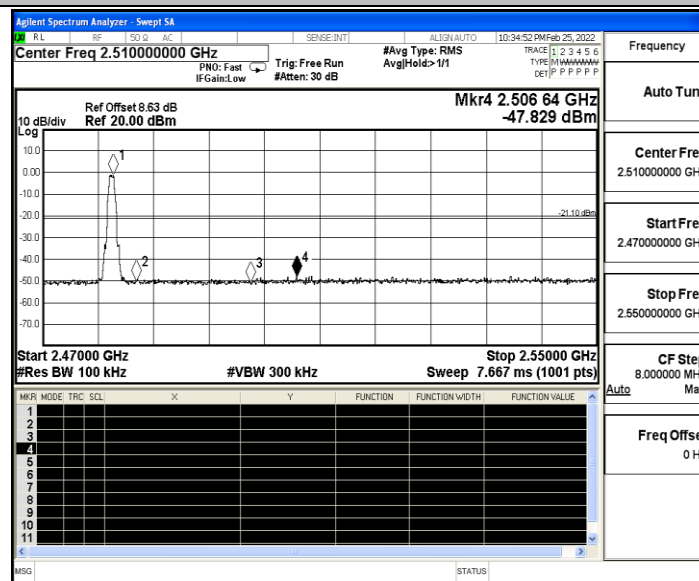


Test Graphs

BLE_1M_Ant1_Low_2402



BLE_1M_Ant1_High_2480





B.5 Conducted Spurious Emission

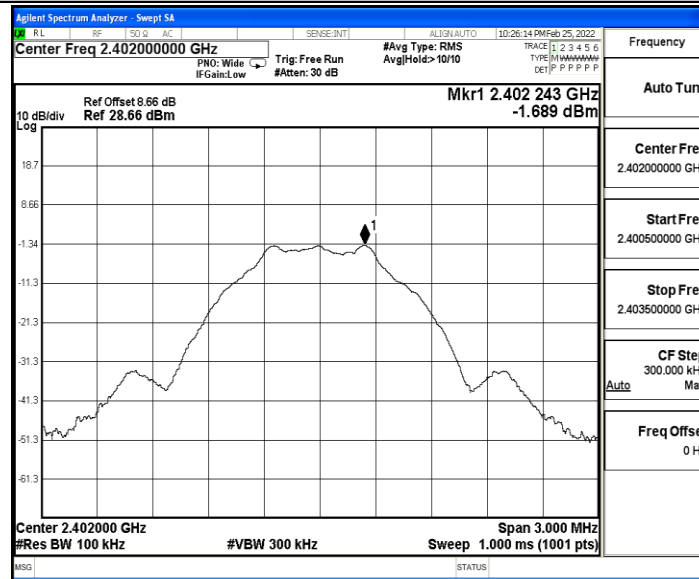
Test Result

TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	-1.69	-1.69	---	PASS
			30~1000	-1.69	-60.01	≤ -21.69	PASS
			1000~26500	-1.69	-45.97	≤ -21.69	PASS
		2440	Reference	-1.10	-1.10	---	PASS
			30~1000	-1.10	-60.62	≤ -21.1	PASS
			1000~26500	-1.10	-45.93	≤ -21.1	PASS
		2480	Reference	-1.45	-1.45	---	PASS
			30~1000	-1.45	-60.74	≤ -21.45	PASS
			1000~26500	-1.45	-46.31	≤ -21.45	PASS

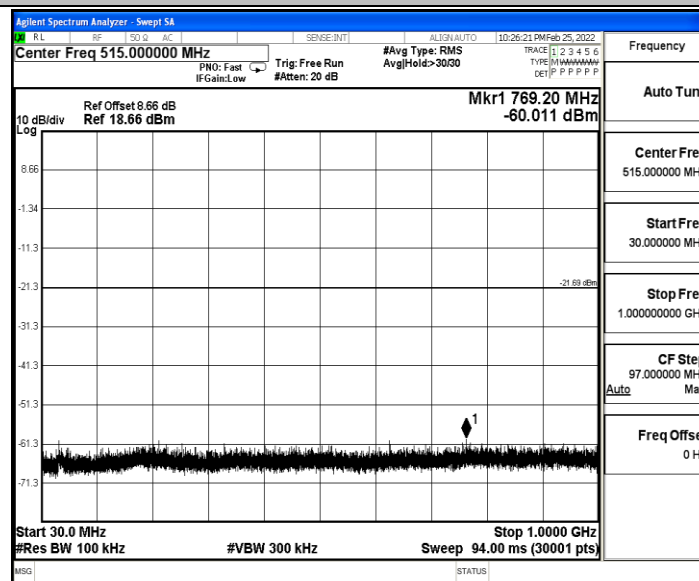


Test Graphs

BLE_1M_Ant1_2402_0~Reference

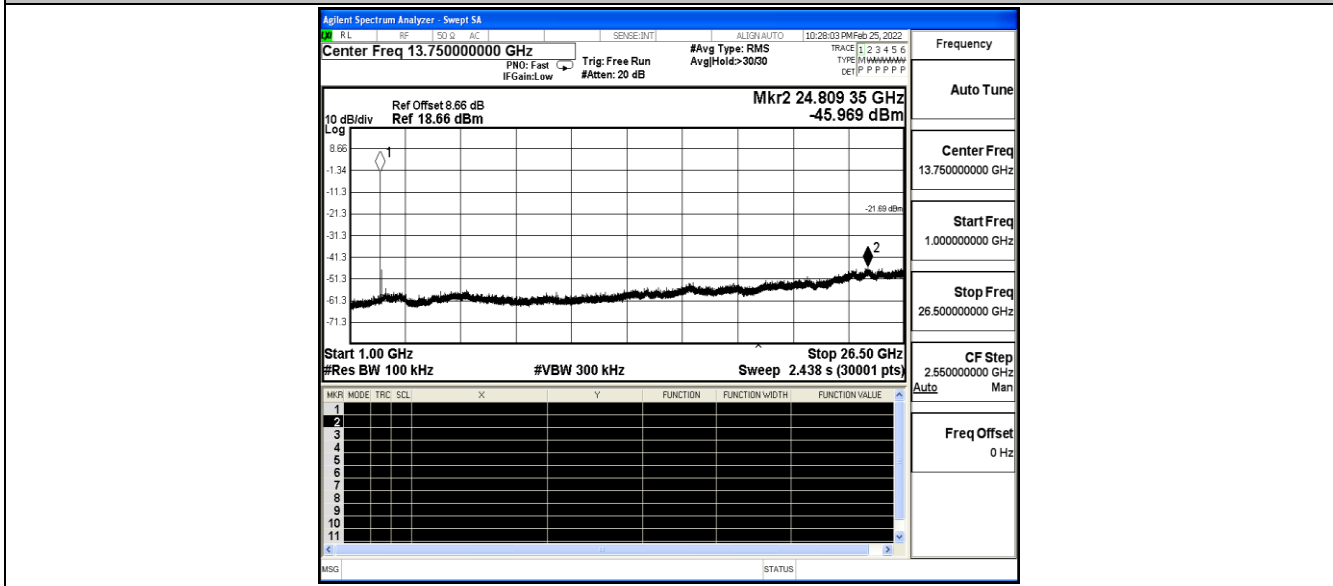


BLE_1M_Ant1_2402_30~1000

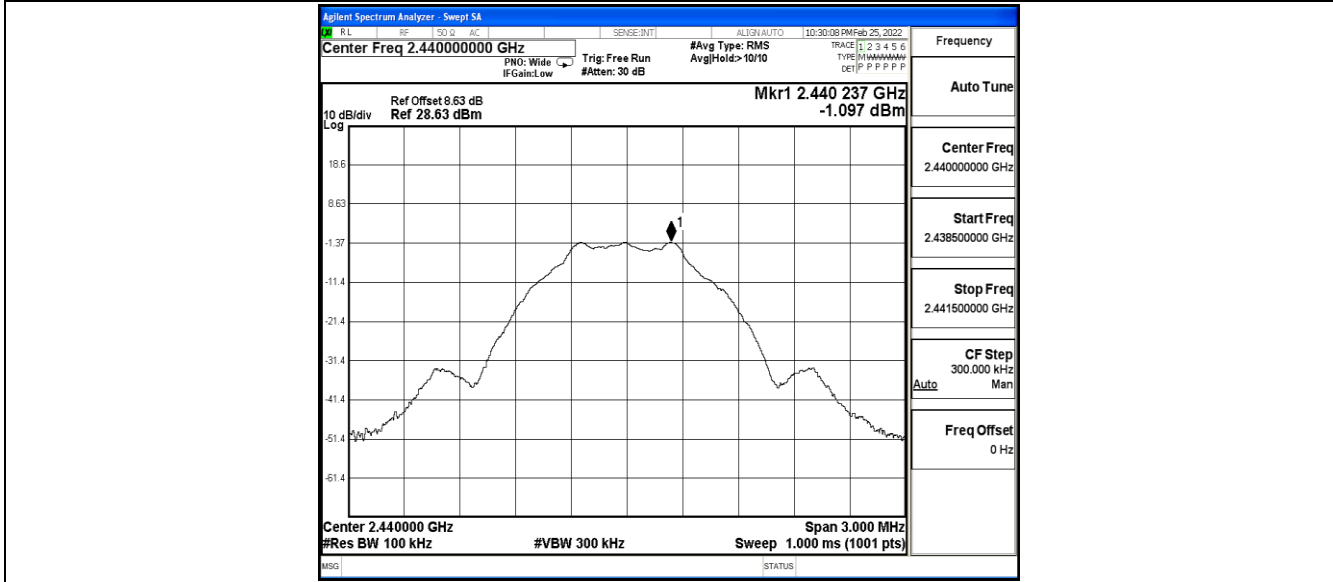




BLE_1M_Ant1_2402_1000~26500

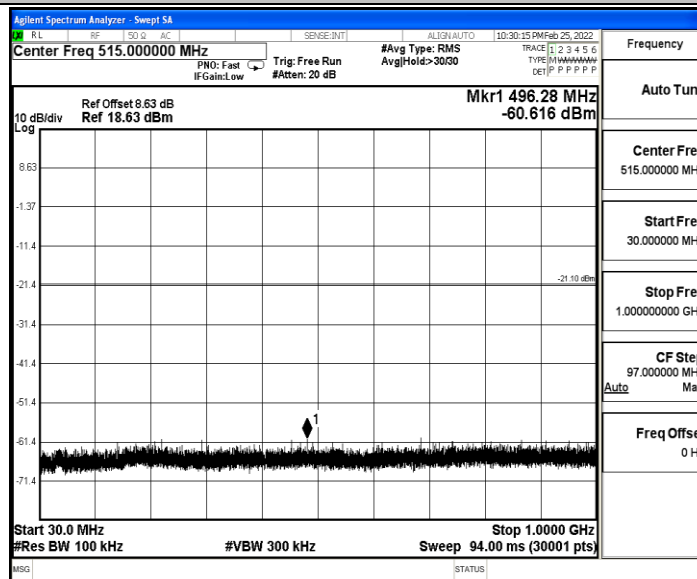


BLE_1M_Ant1_2440_0~Reference

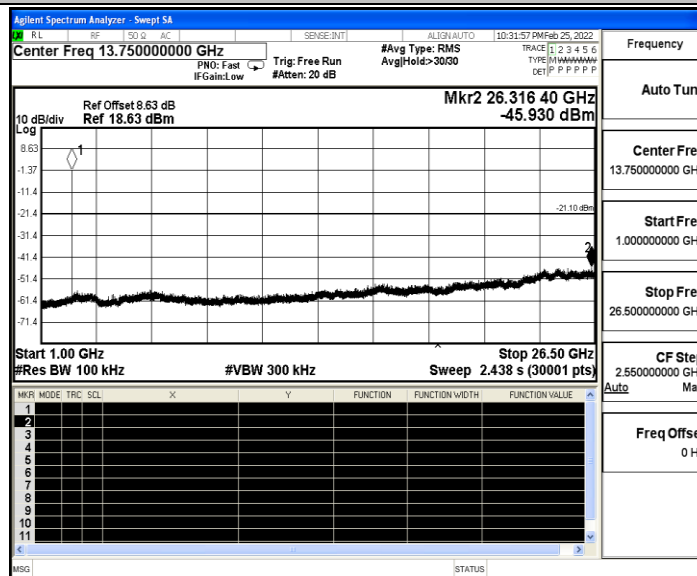




BLE_1M_Ant1_2440_30~1000

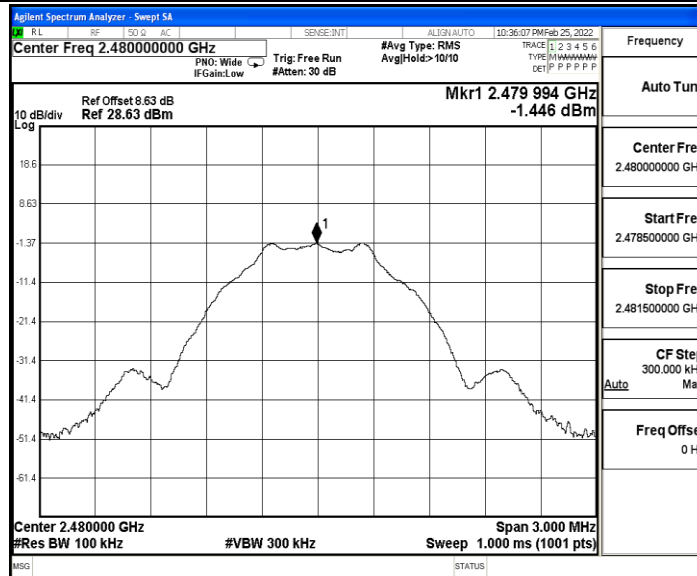


BLE_1M_Ant1_2440_1000~26500

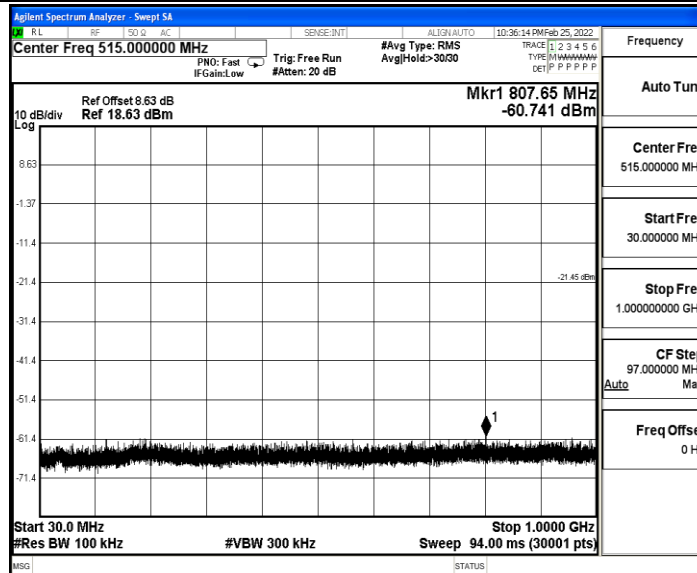




BLE_1M_Ant1_2480_0~Reference

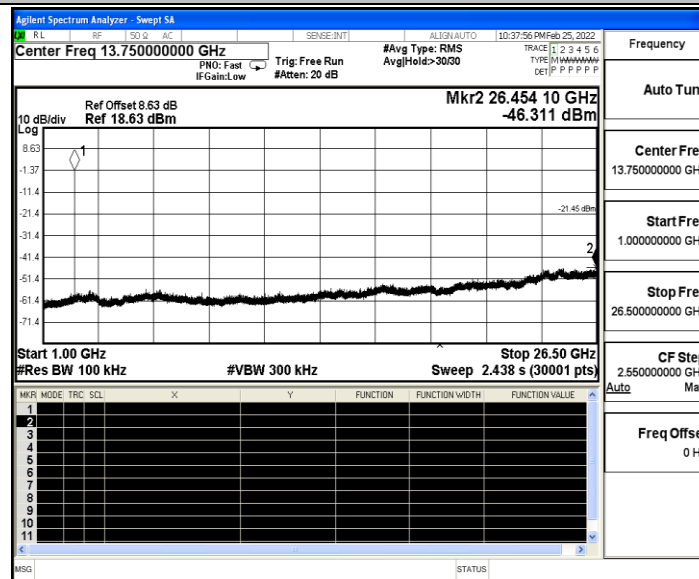


BLE_1M_Ant1_2480_30~1000





BLE_1M_Ant1_2480_1000-26500





B.6 Duty Cycle

Test Result

TestMode	Antenna	Channel	ON Time [ms]	Period [ms]	X	DC [%]	xFactor	Limit	Verdict
BLE_1M	Ant1	2402	0.39	0.63	0.6190	61.90	2.08	---	---
		2440	0.39	0.63	0.6190	61.90	2.08	---	---
		2480	0.39	0.63	0.6190	61.90	2.08	---	---

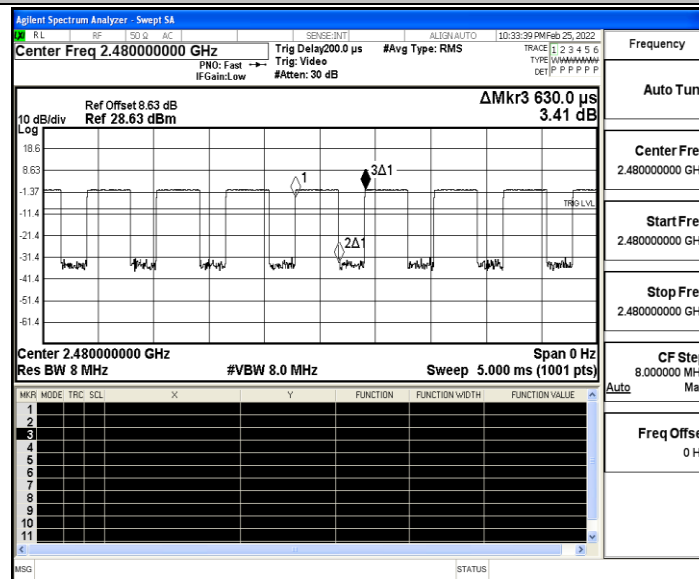


BLE_1M_Ant1_2402





BLE_1M_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	-47.66	≤-41.20	47.54	≤54	PASS
				AV	2373.605	-46.86	≤-41.20	48.34	≤54	PASS
				AV	2390.000	-47.01	≤-41.20	48.19	≤54	PASS
				Peak	2310.000	-38.79	≤-21.20	56.41	≤74	PASS
				Peak	2350.820	-36.53	≤-21.20	58.67	≤74	PASS
				Peak	2390.000	-38.71	≤-21.20	56.49	≤74	PASS
		High	2480	AV	2483.500	-46.71	≤-41.20	48.49	≤54	PASS
				AV	2499.920	-46.23	≤-41.20	48.97	≤54	PASS
				AV	2500.000	-46.54	≤-41.20	48.66	≤54	PASS
				Peak	2483.500	-38.17	≤-21.20	57.03	≤74	PASS
				Peak	2496.640	-35.51	≤-21.20	59.69	≤74	PASS
				Peak	2500.000	-37.62	≤-21.20	57.58	≤74	PASS

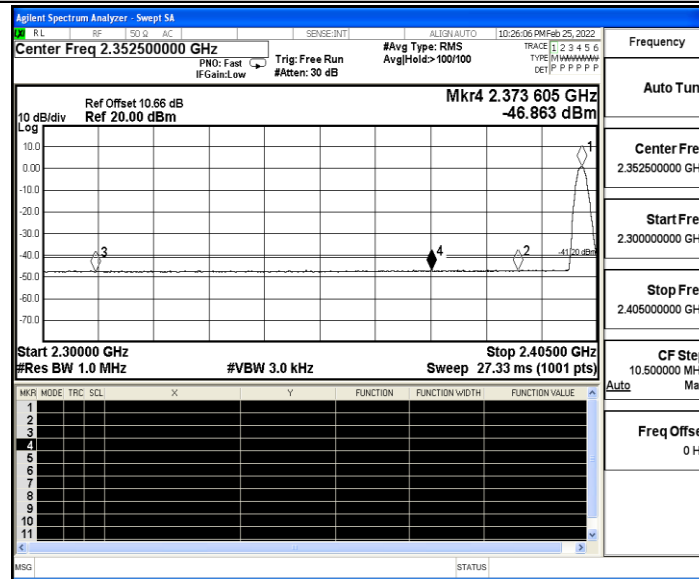
Note:

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.

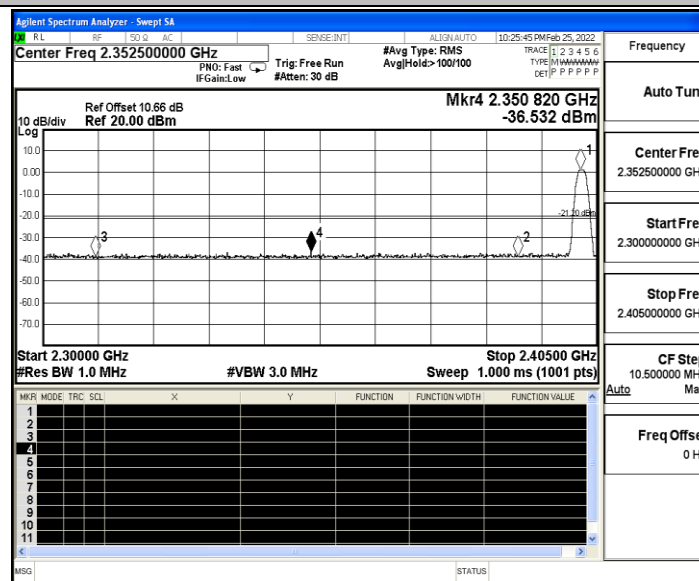


Test Graphs

BLE_1M_Ant1_Low_2402_AV

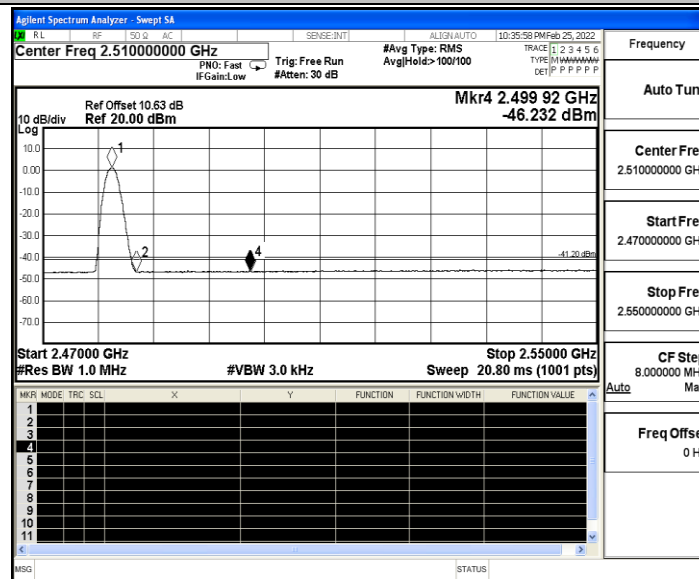


BLE_1M_Ant1_Low_2402_Peak





BLE_1M_Ant1_High_2480_AV



BLE_1M_Ant1_High_2480_Peak

