

Appendix Test Data for BT(BLE) (Conducted Measurement)

Product Name: WATERPROOF BLUETOOTH RECEIVER

Trade Mark: Hertz

Test Model: HMR BT

FCC ID: 2ASUD-HMRBT

Environmental Conditions

Temperature:	25.5°C
Relative Humidity:	55%
ATM Pressure:	100.0 kPa
Test Engineer:	Anna Hu
Supervised by:	Hugo Chen
NOTE	N/A

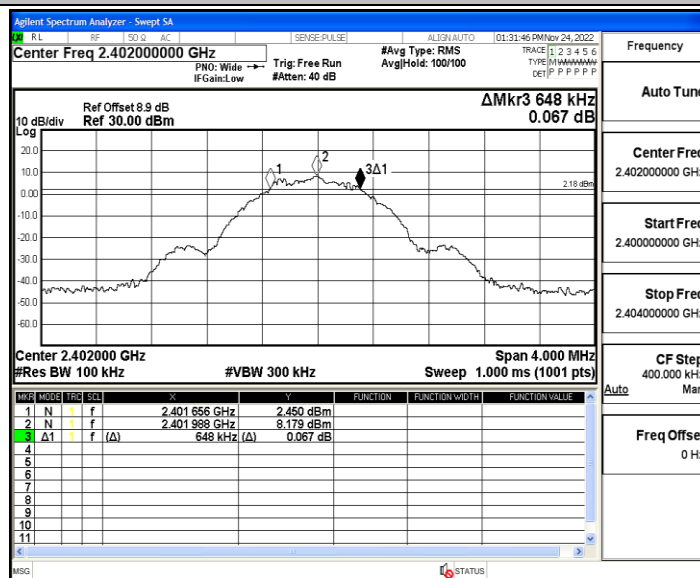
Appendix A: DTS Bandwidth

Test Result

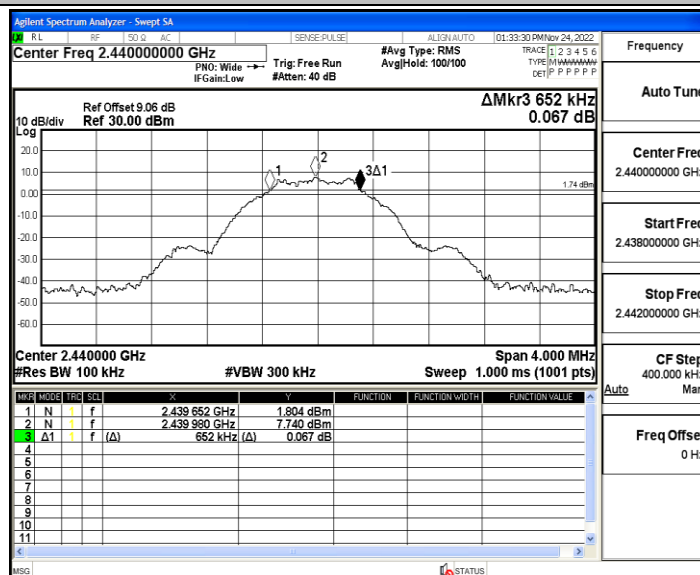
TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.648	2401.656	2402.304	0.5	PASS
		2440	0.652	2439.652	2440.304	0.5	PASS
		2480	0.656	2479.652	2480.308	0.5	PASS

Test Graphs

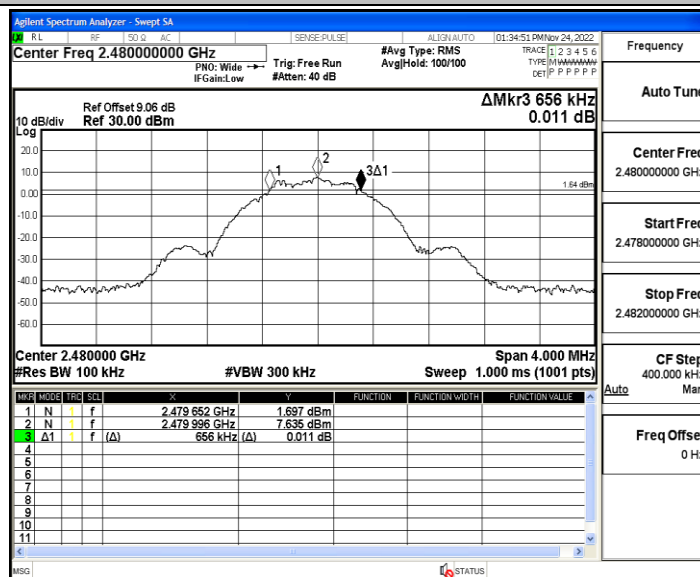
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480



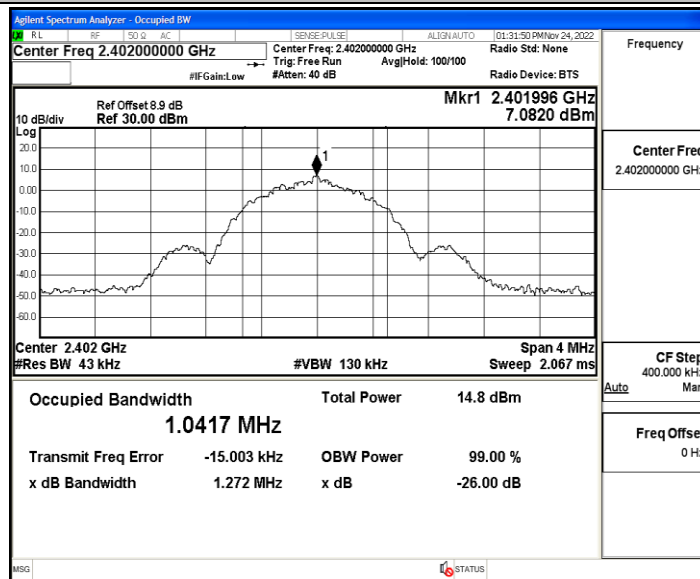
Appendix B: Occupied Channel Bandwidth

Test Result

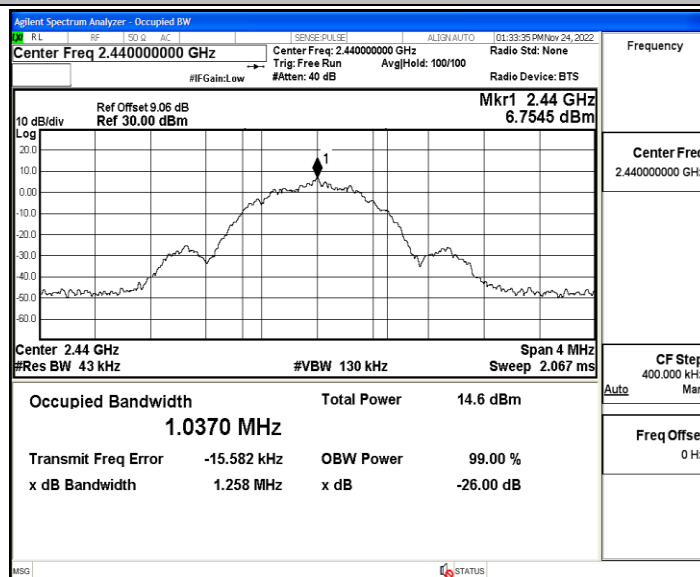
TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.0417	2401.4642	2402.5059	---	---
		2440	1.0370	2439.4659	2440.5029	---	---
		2480	1.0450	2479.4594	2480.5044	---	---

Test Graphs

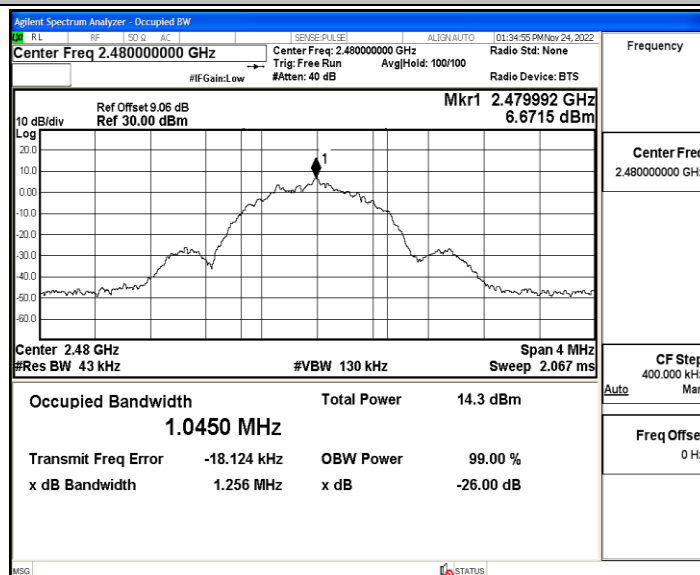
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480

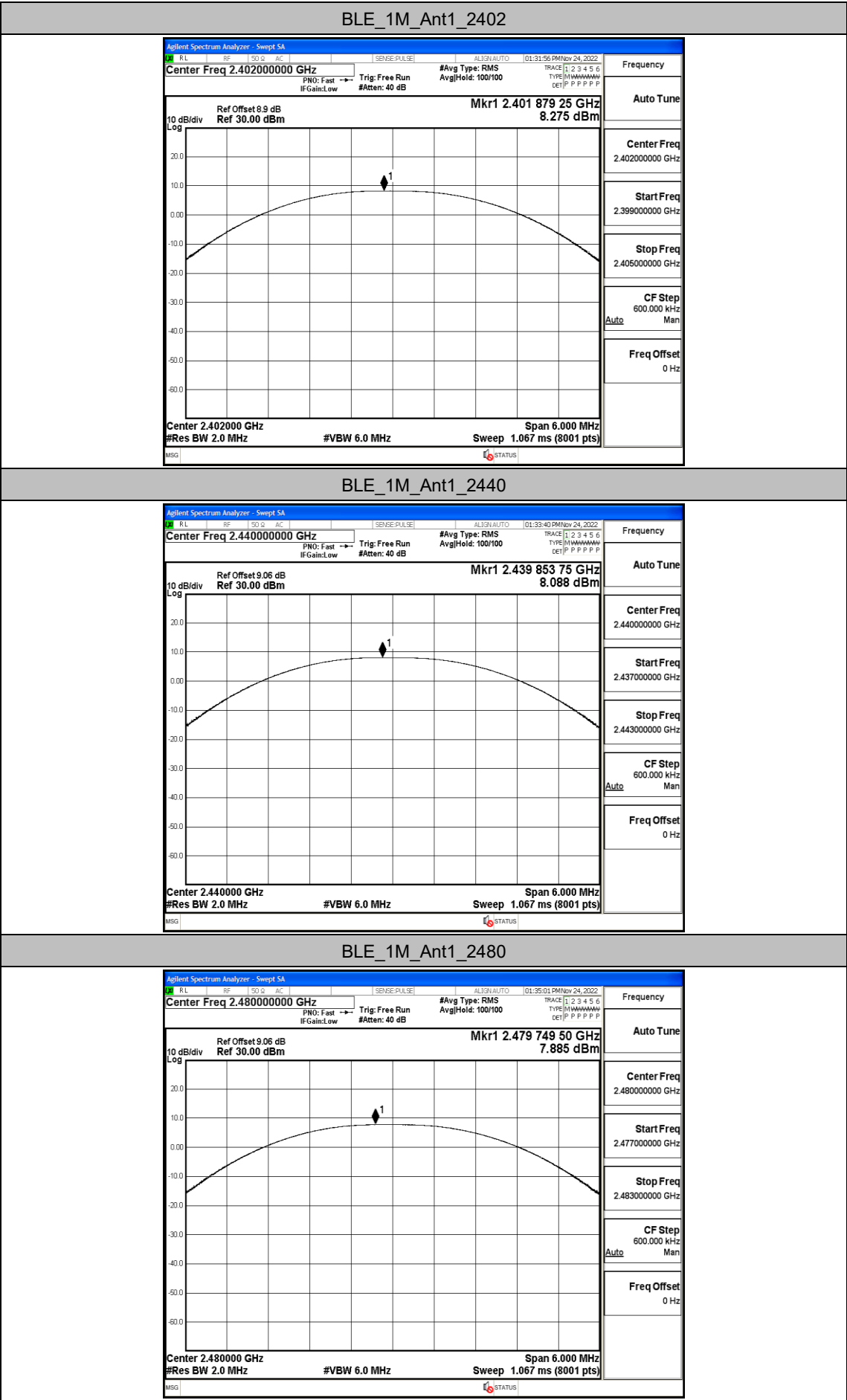


Appendix C: Maximum Peak conducted output power

Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	8.28	≤30	PASS
		2440	8.09	≤30	PASS
		2480	7.89	≤30	PASS

Test Graphs

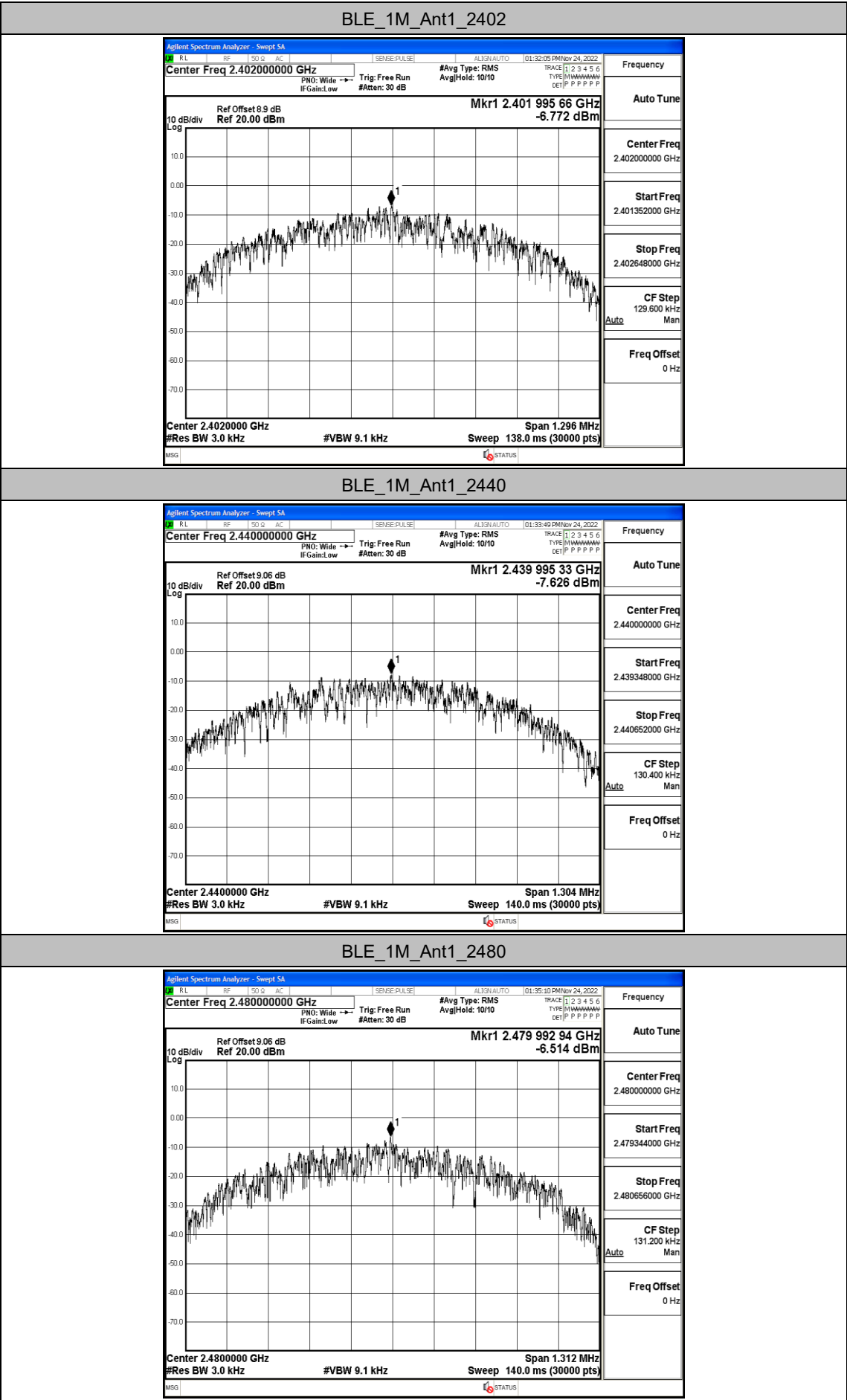


Appendix D: Maximum power spectral density

Test Result

TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-6.77	≤8.00	PASS
		2440	-7.63	≤8.00	PASS
		2480	-6.51	≤8.00	PASS

Test Graphs



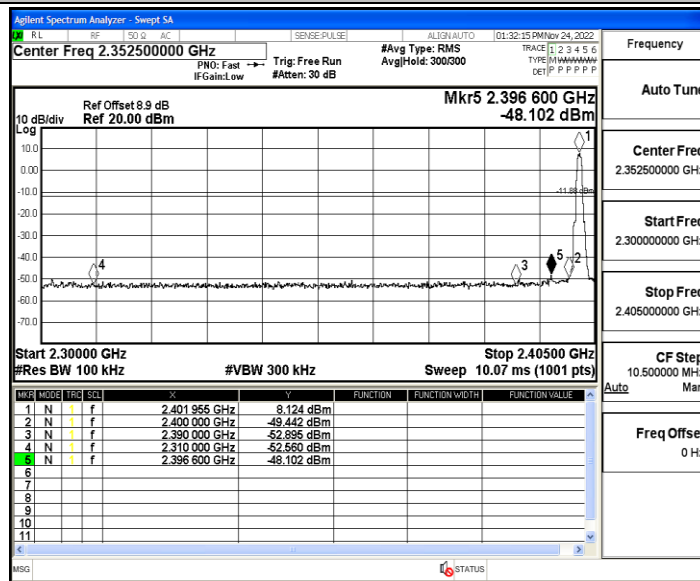
Appendix E: Band edge measurements

Test Result

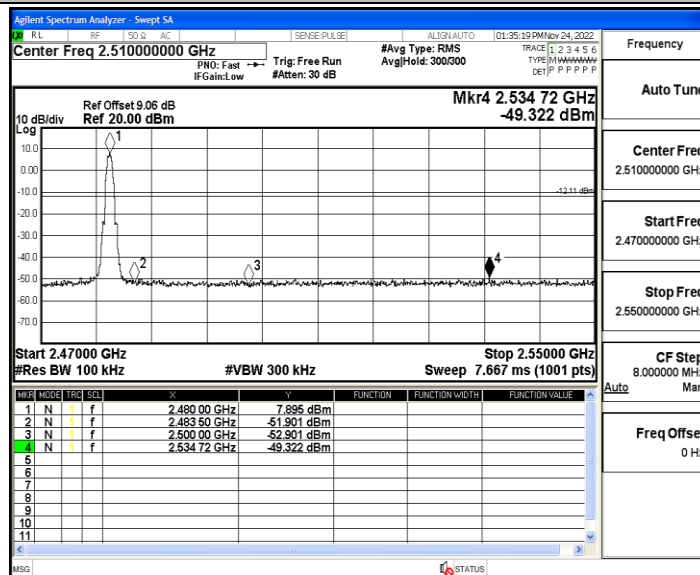
TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	8.12	-48.1	≤-11.88	PASS
		High	2480	7.90	-49.32	≤-12.11	PASS

Test Graphs

BLE_1M_Ant1_Low_2402



BLE_1M_Ant1_High_2480



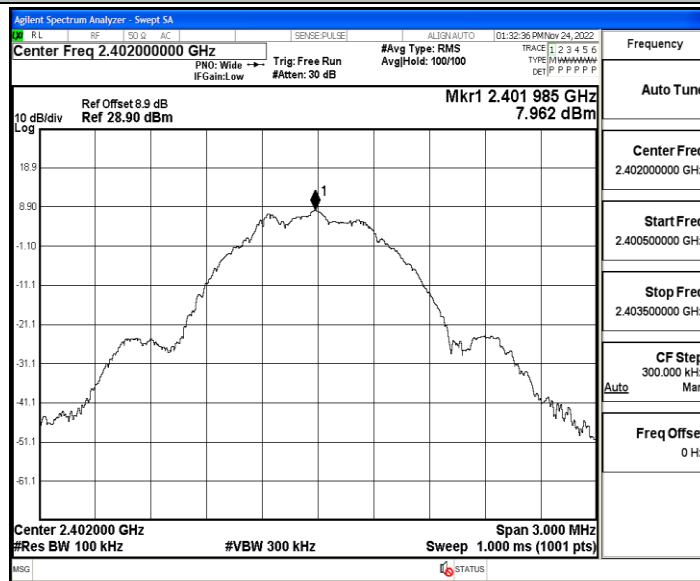
Appendix F: Conducted Spurious Emission

Test Result

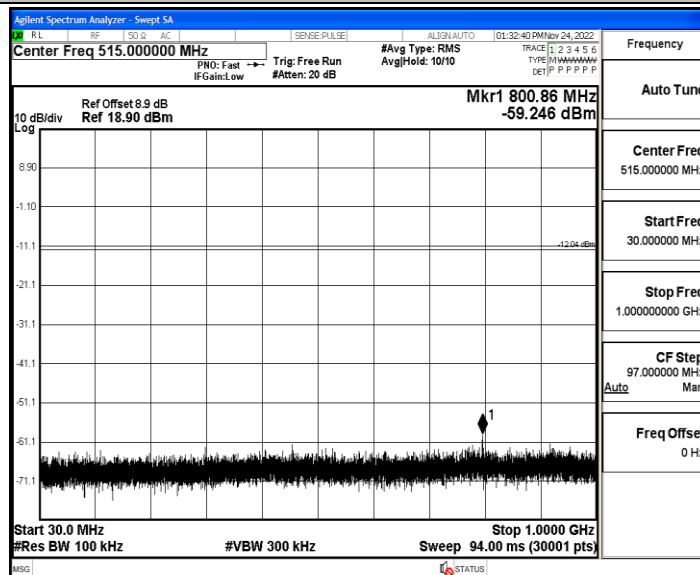
TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	7.96	7.96	---	PASS
			30~1000	7.96	-59.25	≤-12.04	PASS
			1000~26500	7.96	-41.7	≤-12.04	PASS
		2440	Reference	7.63	7.63	---	PASS
			30~1000	7.63	-59.92	≤-12.37	PASS
			1000~26500	7.63	-40.71	≤-12.37	PASS
		2480	Reference	7.66	7.66	---	PASS
			30~1000	7.66	-56.89	≤-12.34	PASS
			1000~26500	7.66	-43.49	≤-12.34	PASS

Test Graphs

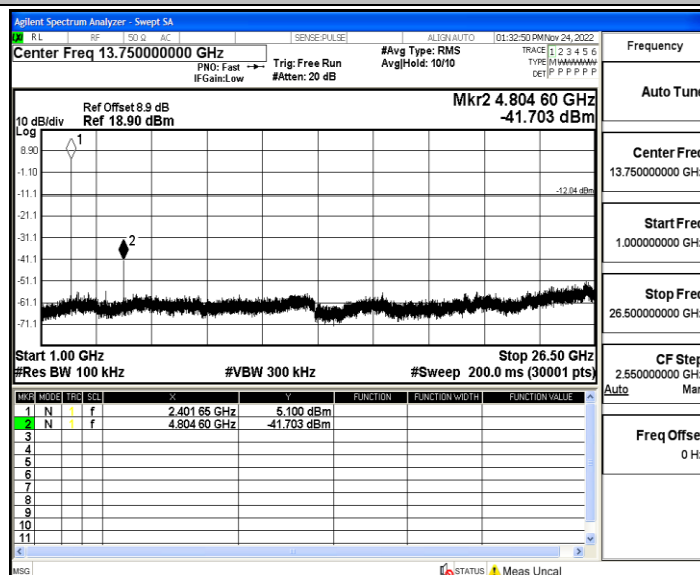
BLE_1M_Ant1_2402_0~Reference



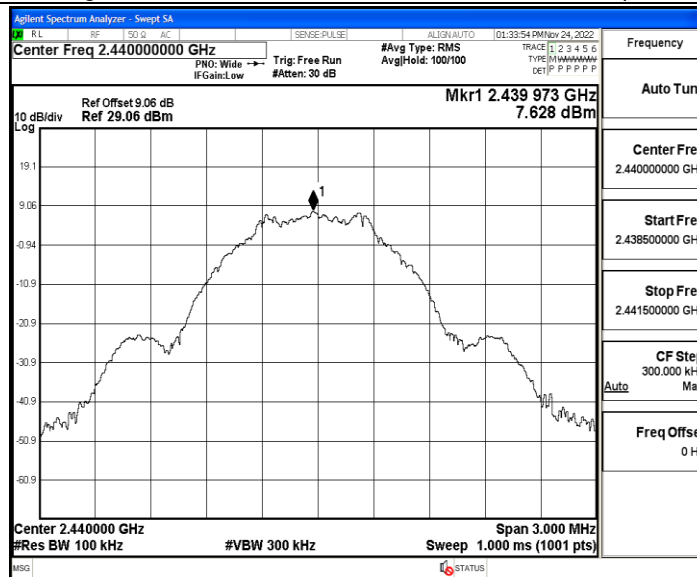
BLE_1M_Ant1_2402_30~1000



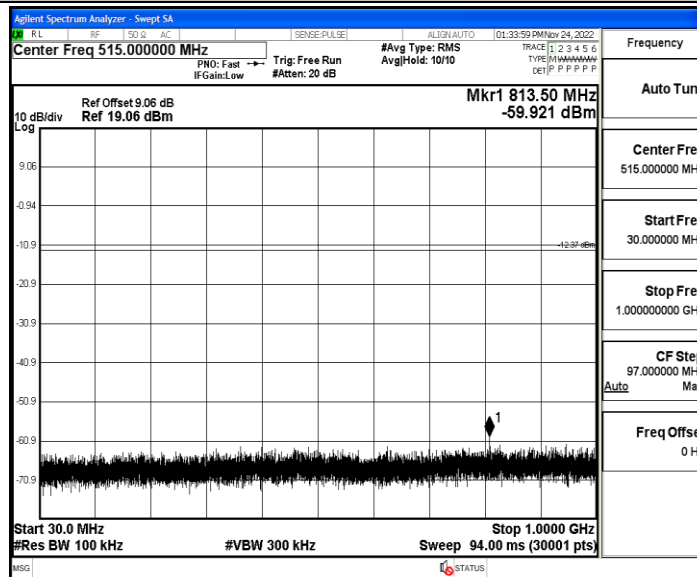
BLE_1M_Ant1_2402_1000~26500



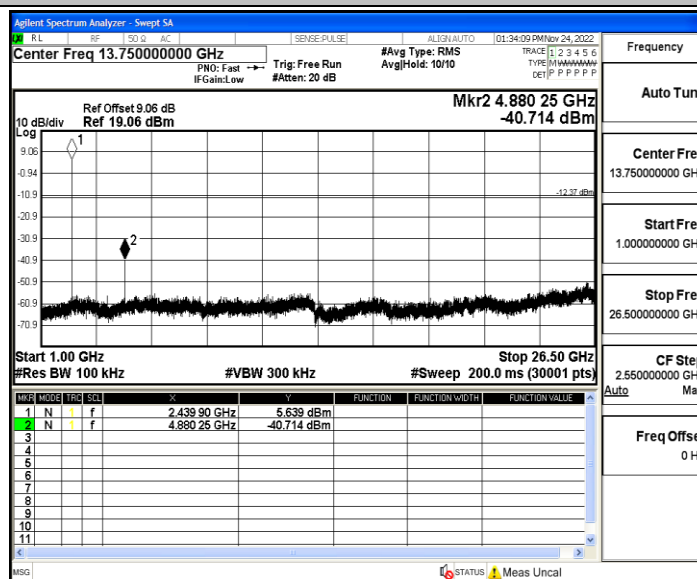
BLE_1M_Ant1_2440_0~Reference



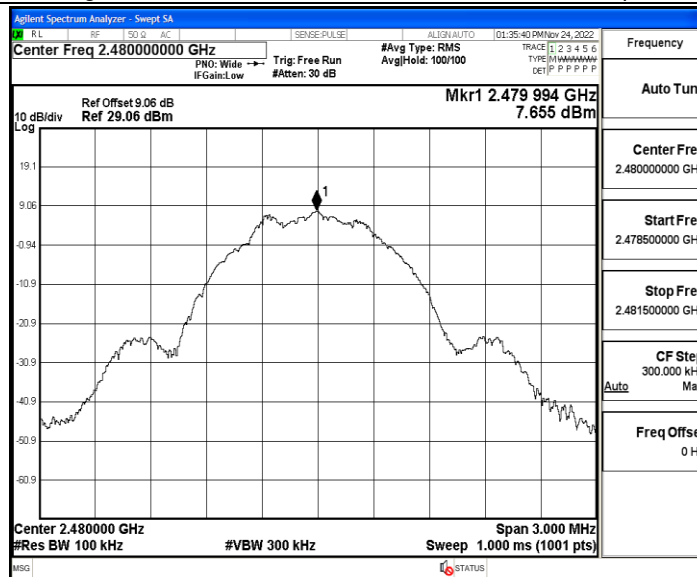
BLE_1M_Ant1_2440_30~1000



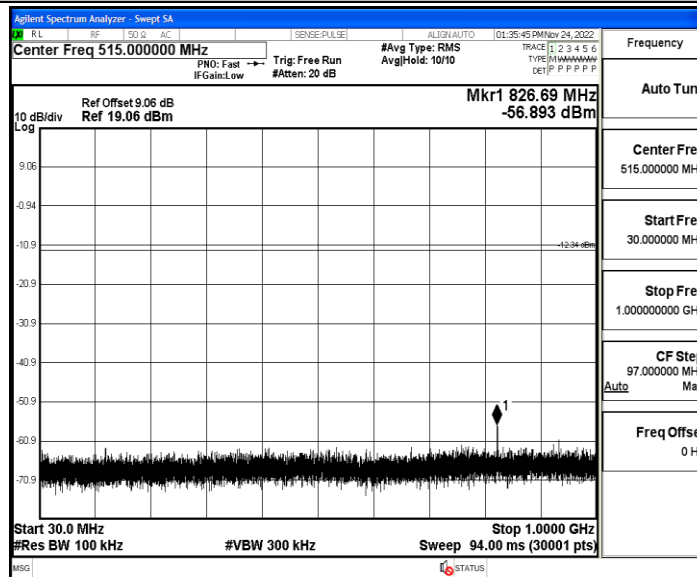
BLE_1M_Ant1_2440_1000~26500



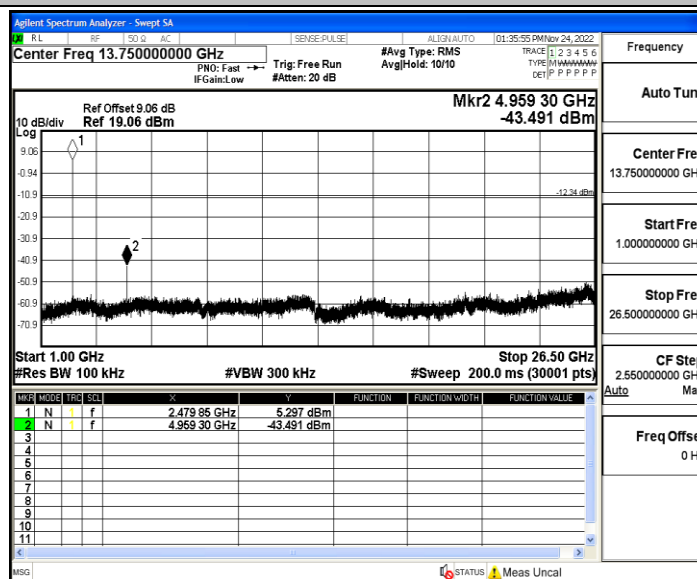
BLE_1M_Ant1_2480_0~Reference



BLE_1M_Ant1_2480_30~1000



BLE_1M_Ant1_2480_1000~26500



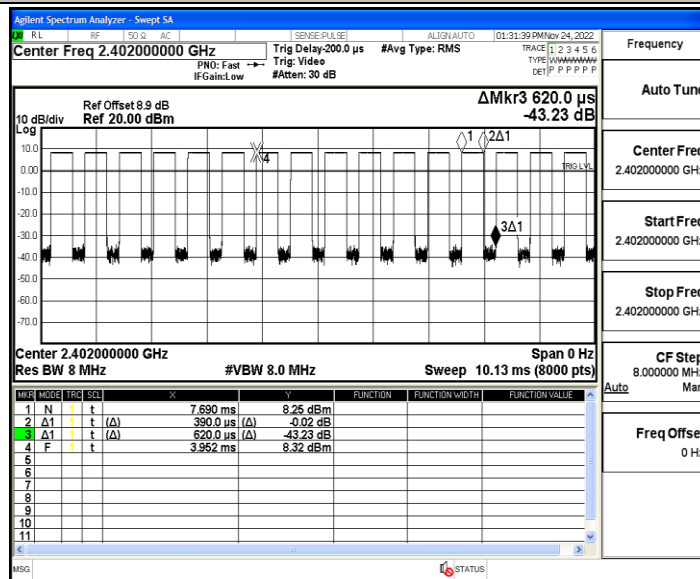
Appendix G: Duty Cycle

Test Result

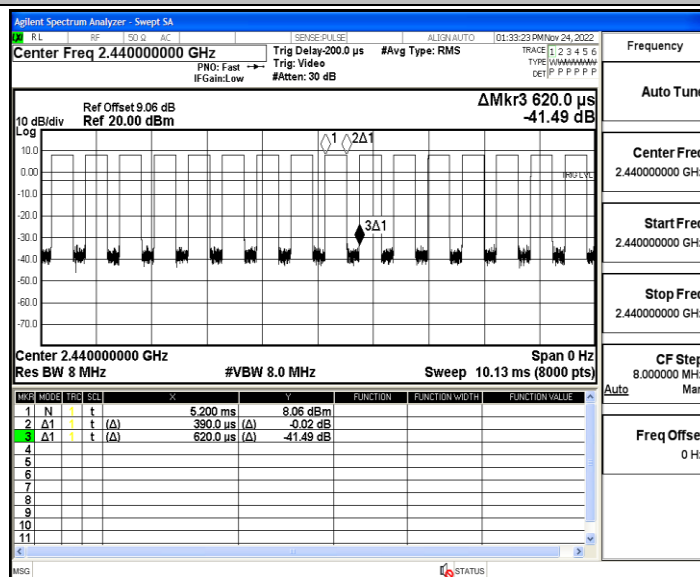
TestMode	Antenna	Channel	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	1/T[kHz]
BLE_1M	Ant1	2402	0.39	0.62	62.90	2.56
		2440	0.39	0.62	62.90	2.56
		2480	0.39	0.62	62.90	2.56

Test Graphs

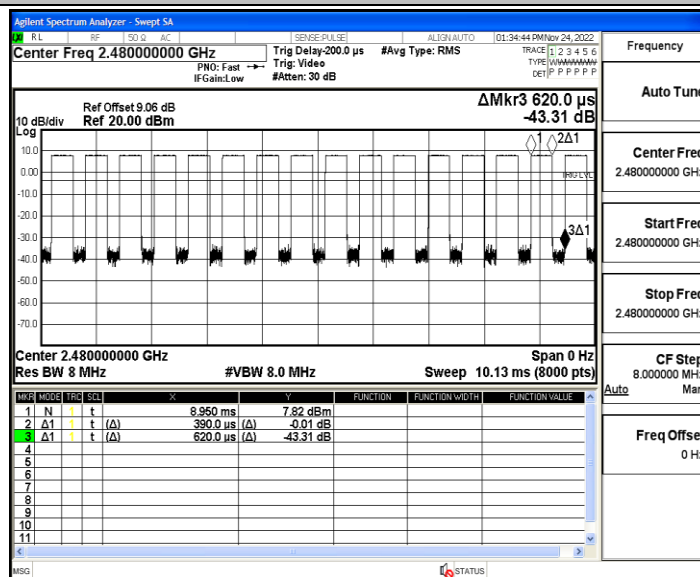
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480



Appendix H: Emissions in Restricted Bands

Test Result

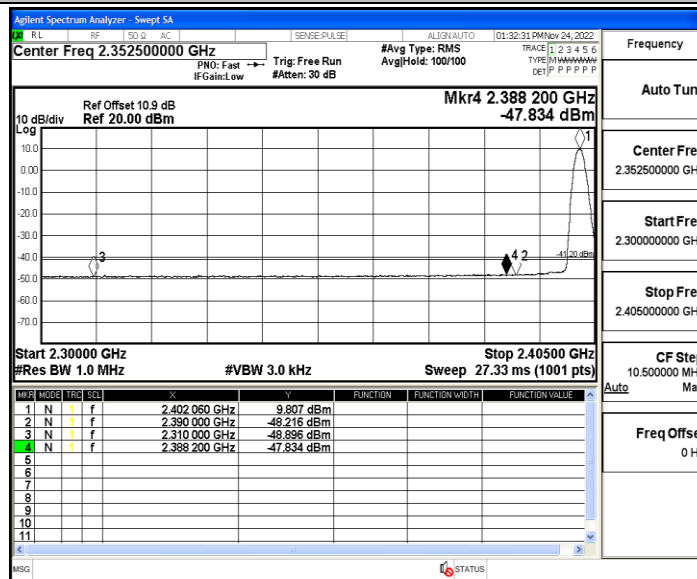
TestMode	Antenna	ChName	Channel	Detector	Freq. [MHz]	Result [dBm]	Limit [dBm]	Verdict
BLE_1M	Ant1	Low	2402	AV	2310.000	-48.9	≤-41.20	PASS
				AV	2388.200	-47.83	≤-41.20	PASS
				AV	2390.000	-48.22	≤-41.20	PASS
				Peak	2310.000	-43.14	≤-21.20	PASS
				Peak	2377.700	-39	≤-21.20	PASS
				Peak	2390.000	-41.99	≤-21.20	PASS
		High	2480	AV	2483.500	-44.81	≤-41.20	PASS
				AV	2483.520	-44.81	≤-41.20	PASS
				AV	2500.000	-47.85	≤-41.20	PASS
				Peak	2483.500	-39.98	≤-21.20	PASS
				Peak	2494.800	-38.18	≤-21.20	PASS
				Peak	2500.000	-41.53	≤-21.20	PASS

Note:

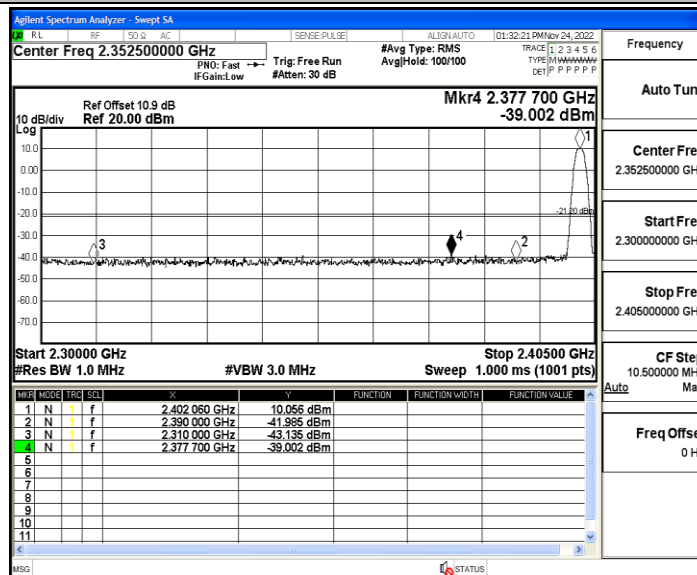
1. The Antenna Gain is compensated in the graph with 2dBi and Antenna Gain which is Higher.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

Test Graphs

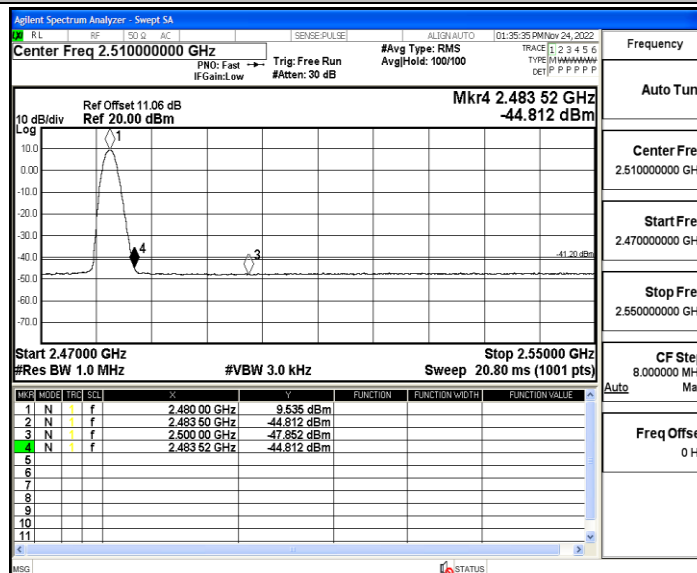
BLE_1M_Ant1_Low_2402_AV



BLE_1M_Ant1_Low_2402_Peak



BLE_1M_Ant1_High_2480_AV



BLE_1M_Ant1_High_2480_Peak

