

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

Product Name: Bluetooth Keyboard

Trade Mark: N/A

Test Model: Bluetooth Keyboard with TouchPad

FCC ID: 2A32S-8619

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

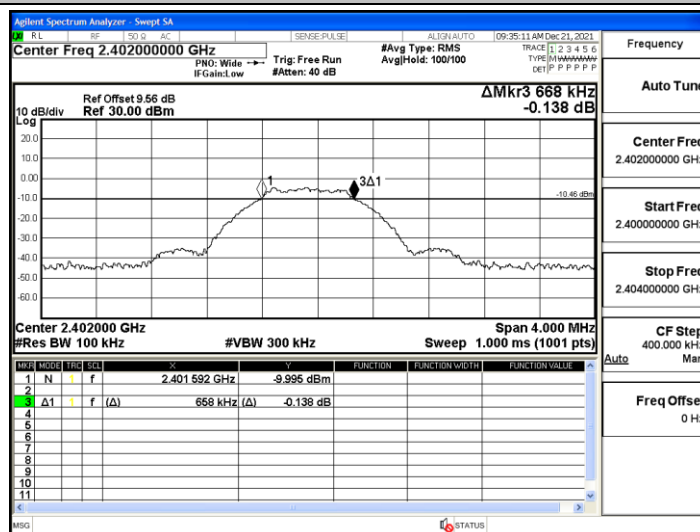
Appendix A: DTS Bandwidth

Test Result

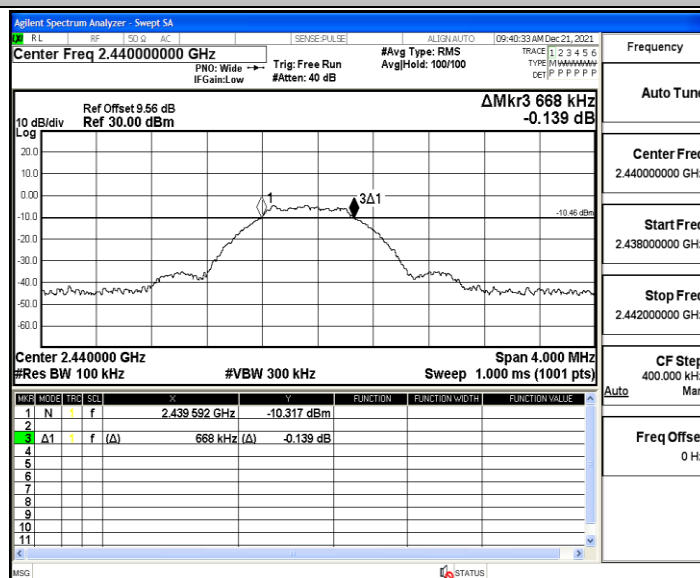
TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.658	2401.592	2402.272	0.5	PASS
		2440	0.668	2439.592	2440.260	0.5	PASS
		2480	0.656	2479.600	2480.256	0.5	PASS
BLE_2M	Ant1	2402	1.188	2401.352	2402.540	0.5	PASS
		2440	1.352	2439.260	2440.612	0.5	PASS
		2480	1.120	2479.356	2480.476	0.5	PASS

Test Graphs

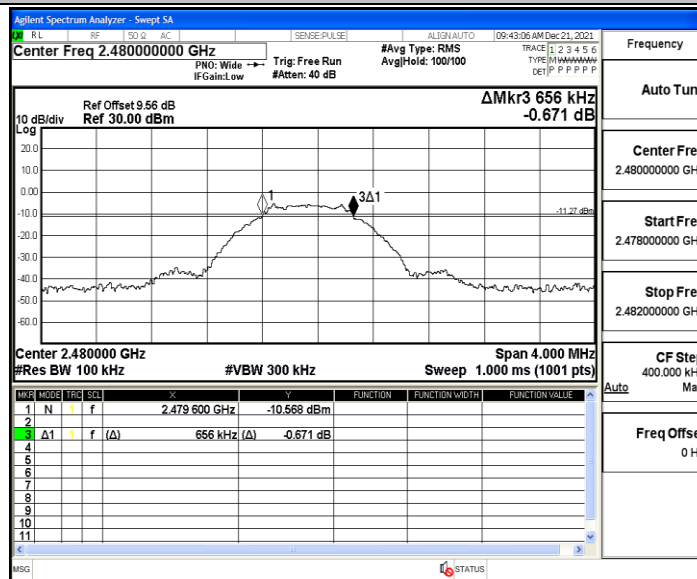
BLE_1M_Ant1_2402



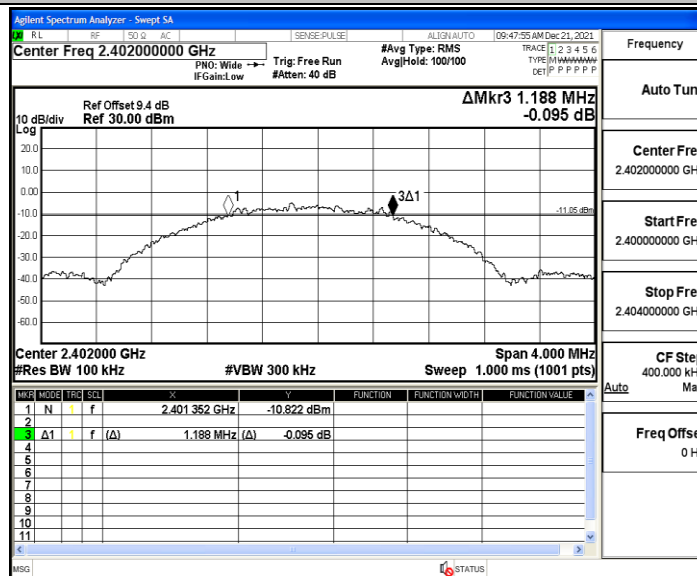
BLE_1M_Ant1_2440



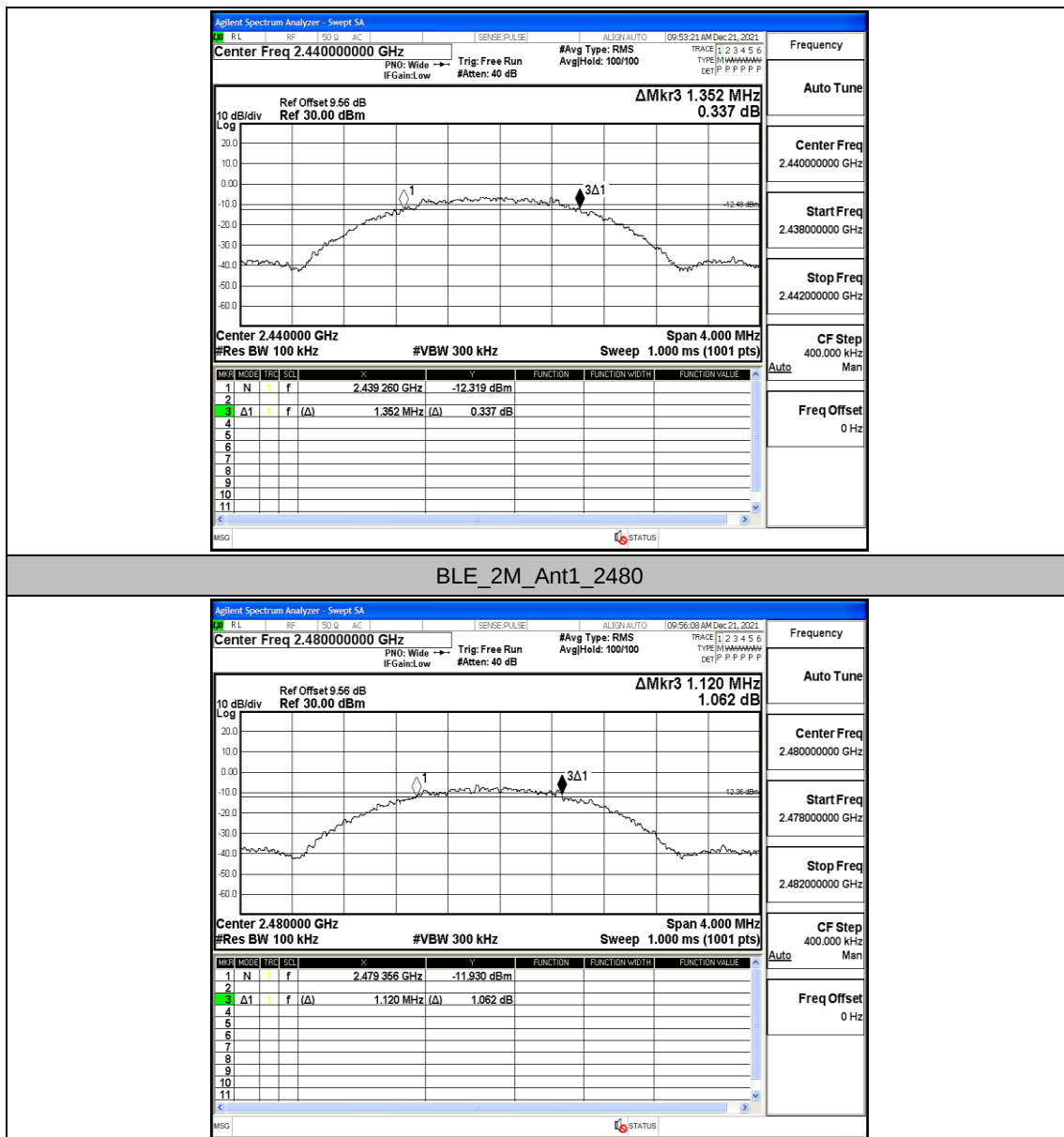
BLE_1M_Ant1_2480



BLE_2M_Ant1_2402



BLE_2M_Ant1_2440

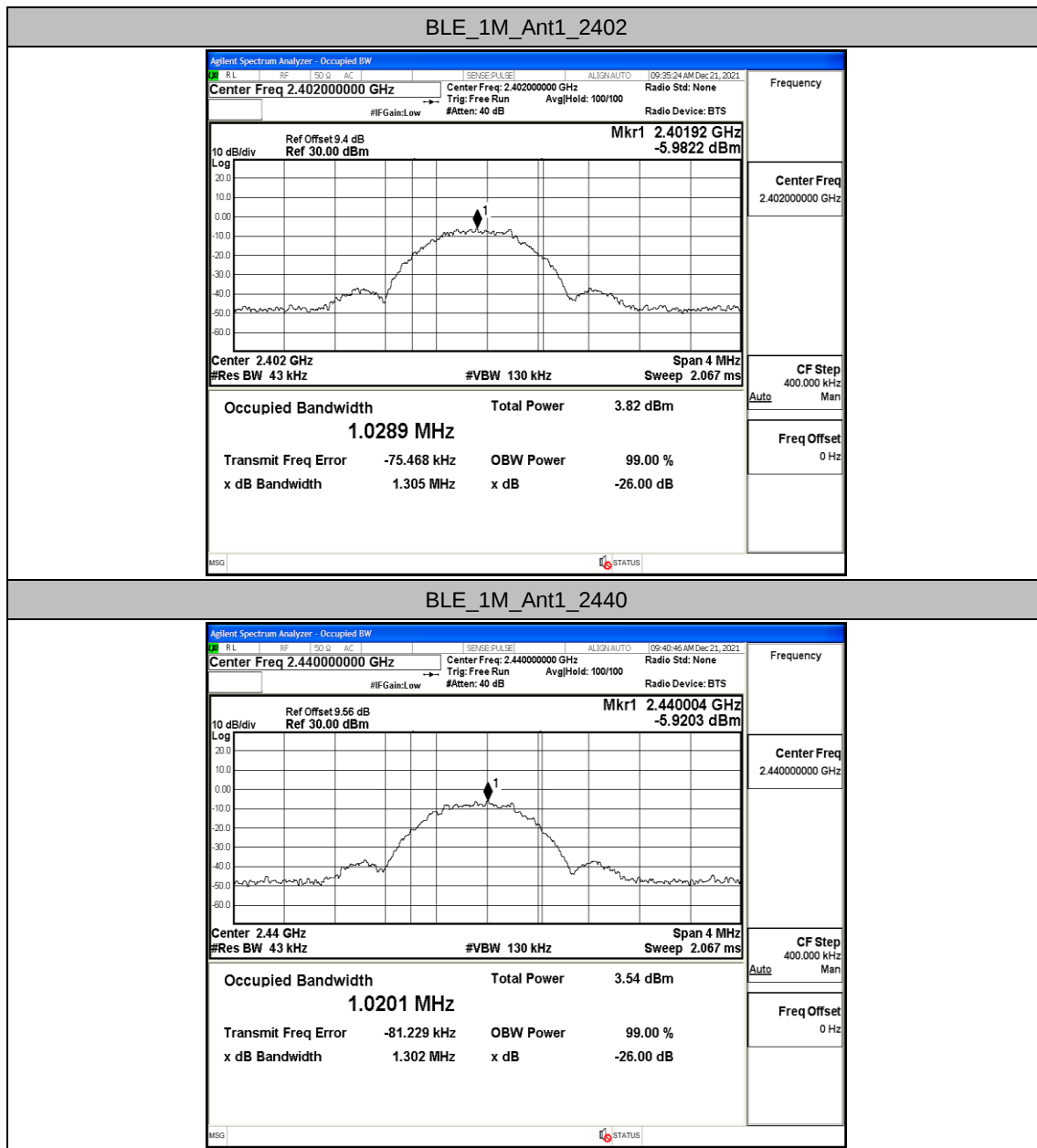


Appendix B: Occupied Channel Bandwidth

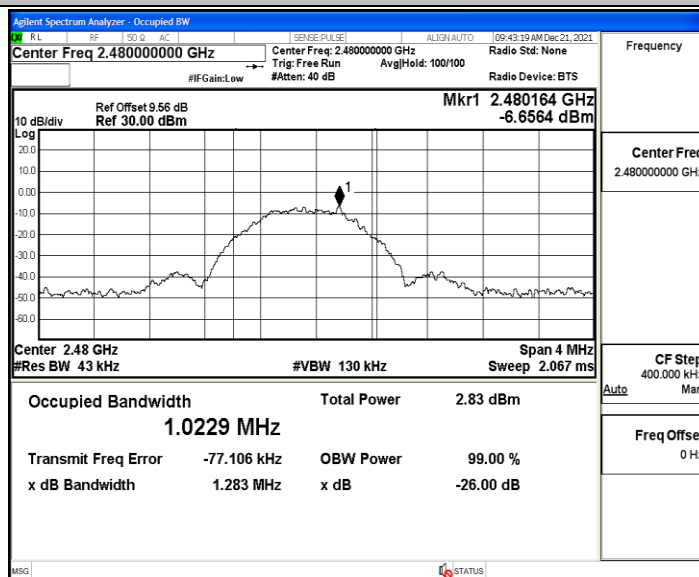
Test Result

TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.0289	2401.410	2402.439	---	PASS
		2440	1.0201	2439.409	2440.429	---	PASS
		2480	1.0229	2479.411	2480.434	---	PASS
BLE_2M	Ant1	2402	2.0486	2400.901	2402.950	---	PASS
		2440	2.0341	2438.920	2440.954	---	PASS
		2480	2.0367	2478.896	2480.932	---	PASS

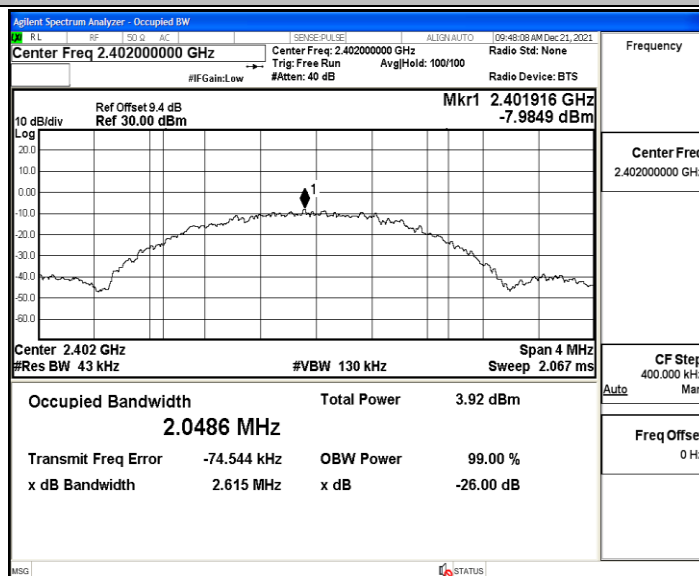
Test Graphs



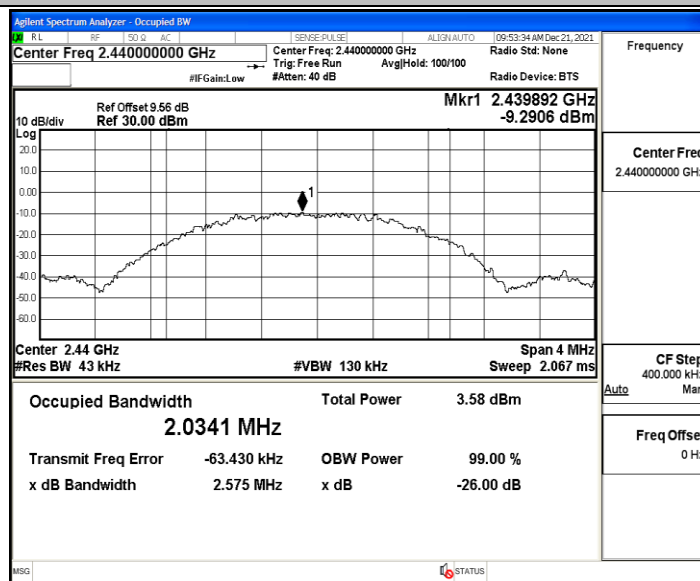
BLE_1M_Ant1_2480



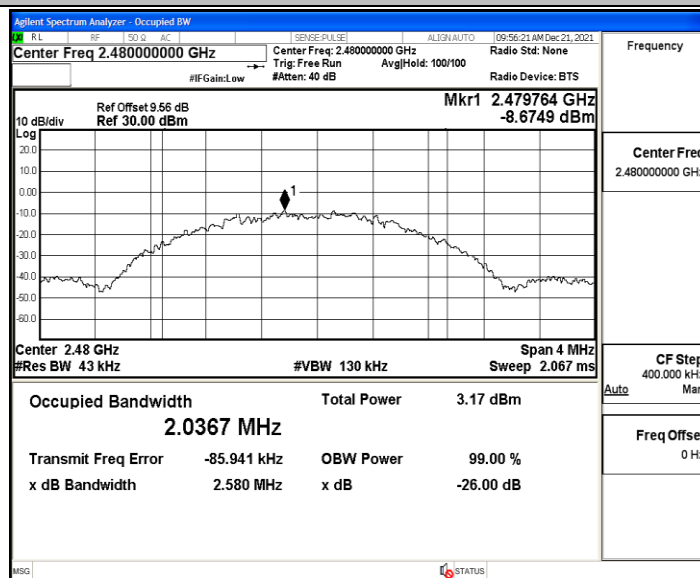
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480

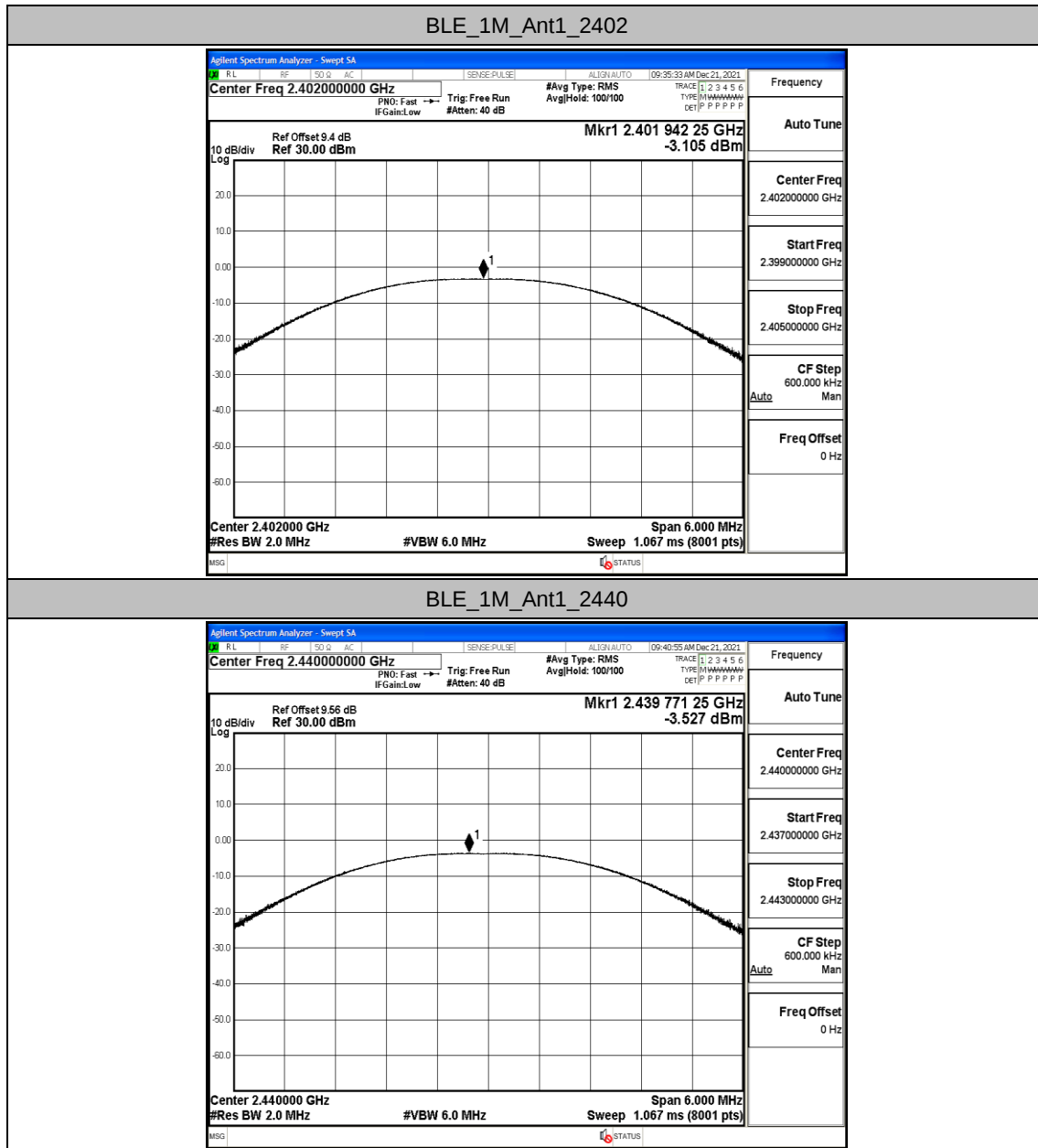


Appendix C: Maximum conducted output power

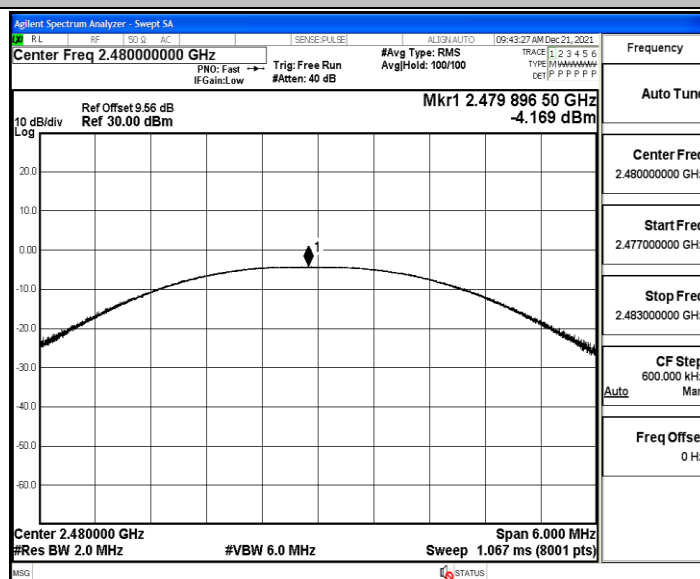
Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	-3.11	≤30	PASS
		2440	-3.53	≤30	PASS
		2480	-4.17	≤30	PASS
BLE_2M	Ant1	2402	-3.15	≤30	PASS
		2440	-3.53	≤30	PASS
		2480	-4.14	≤30	PASS

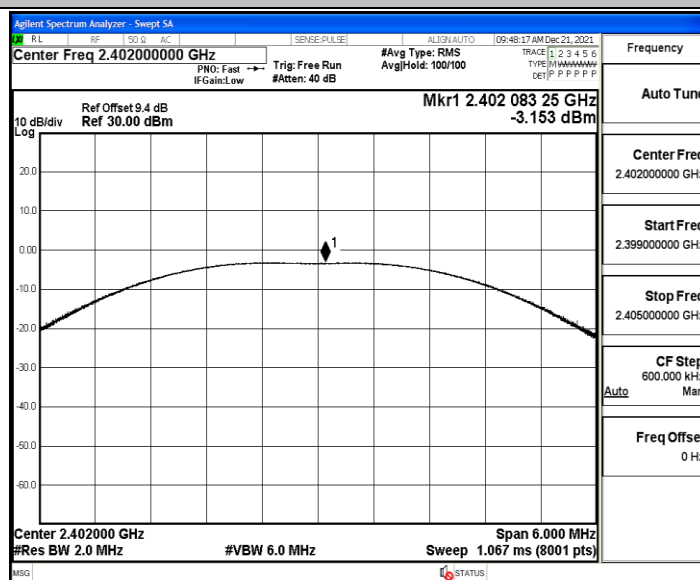
Test Graphs



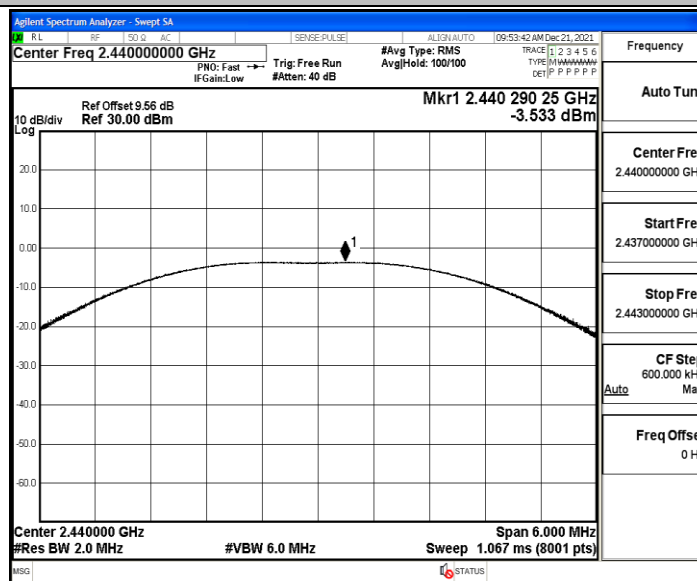
BLE_1M_Ant1_2480



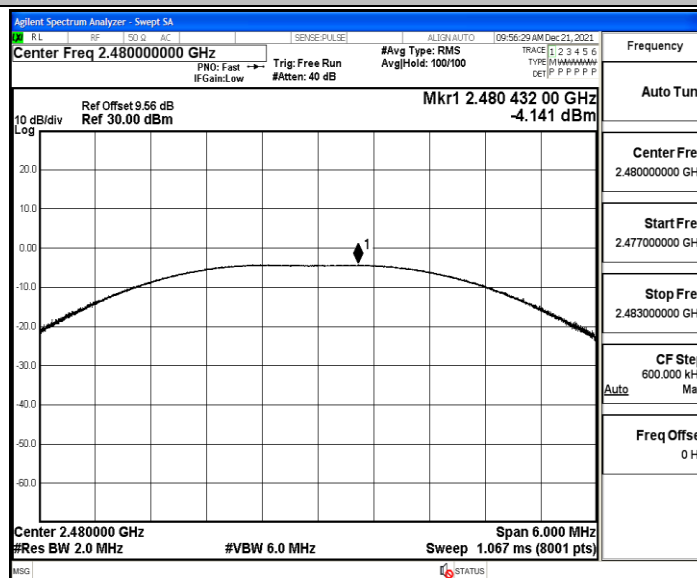
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480

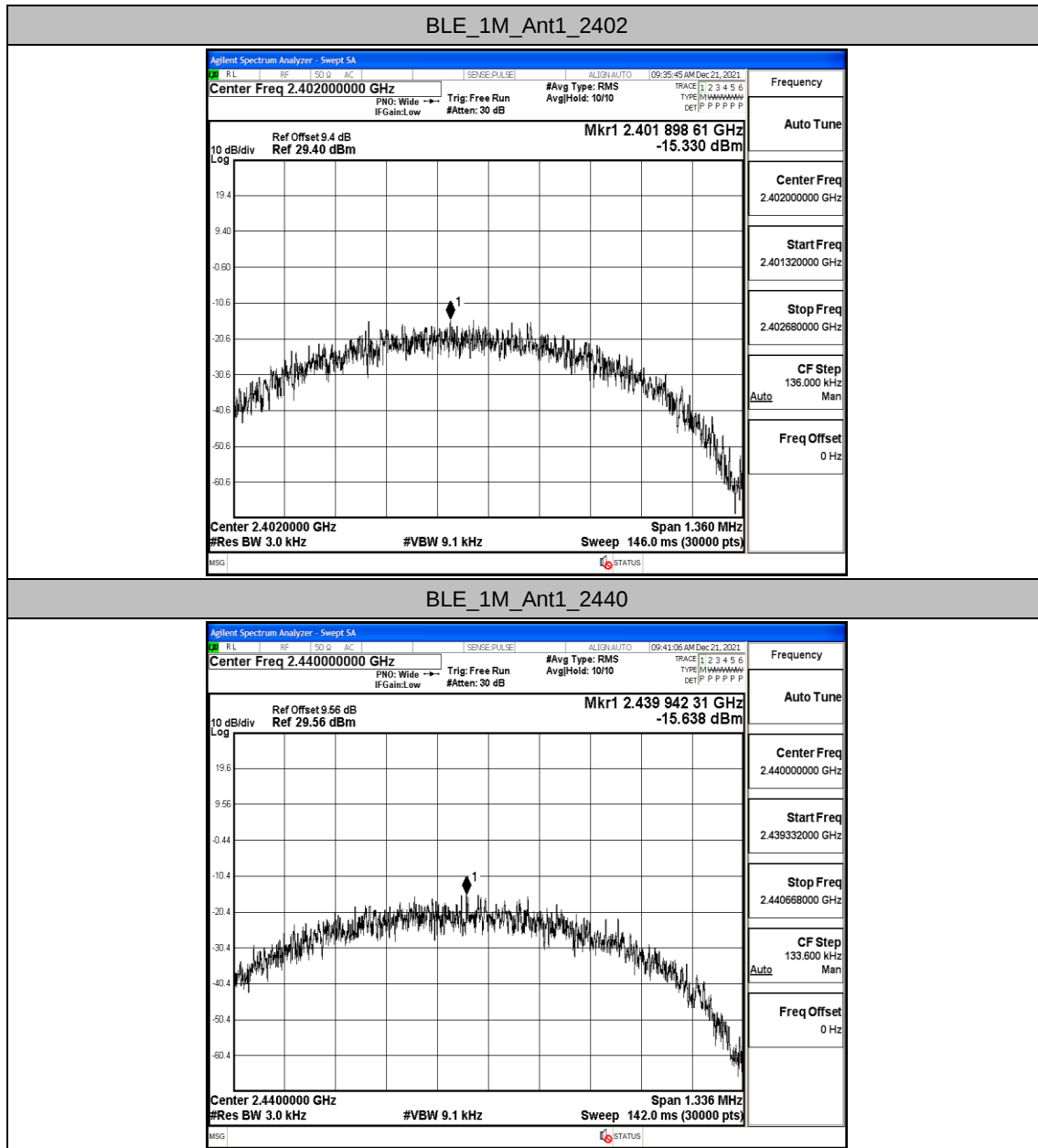


Appendix D: Maximum power spectral density

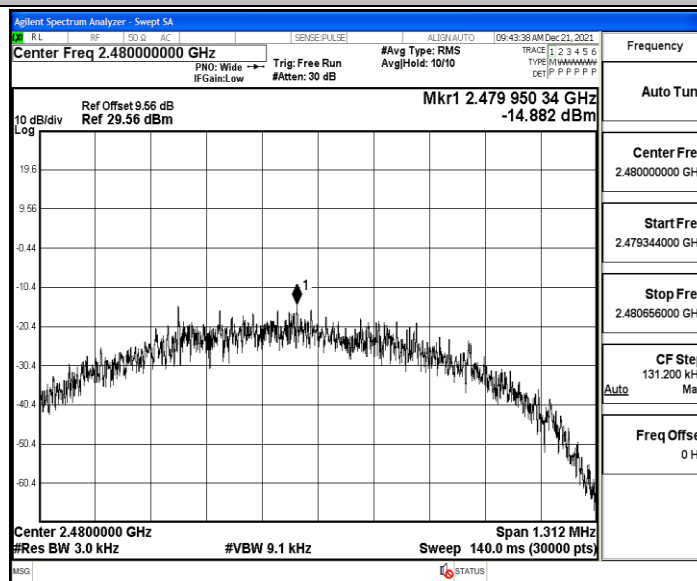
Test Result

TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-15.33	≤8	PASS
		2440	-15.64	≤8	PASS
		2480	-14.88	≤8	PASS
BLE_2M	Ant1	2402	-17.17	≤8	PASS
		2440	-18.4	≤8	PASS
		2480	-15.93	≤8	PASS

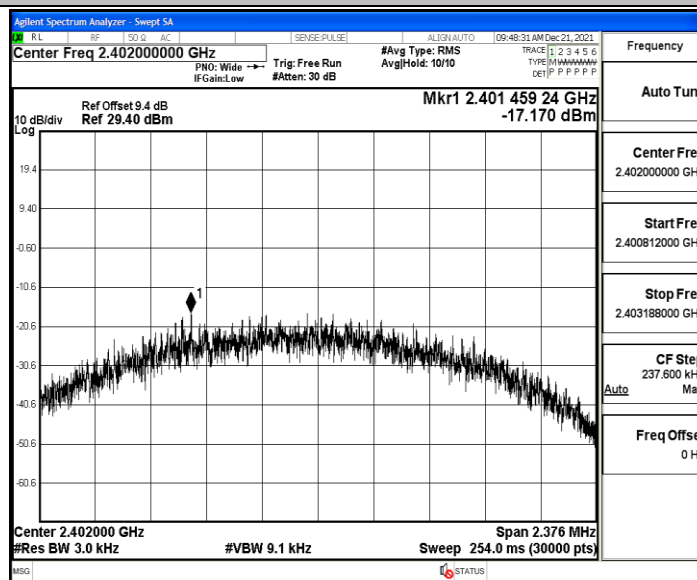
Test Graphs



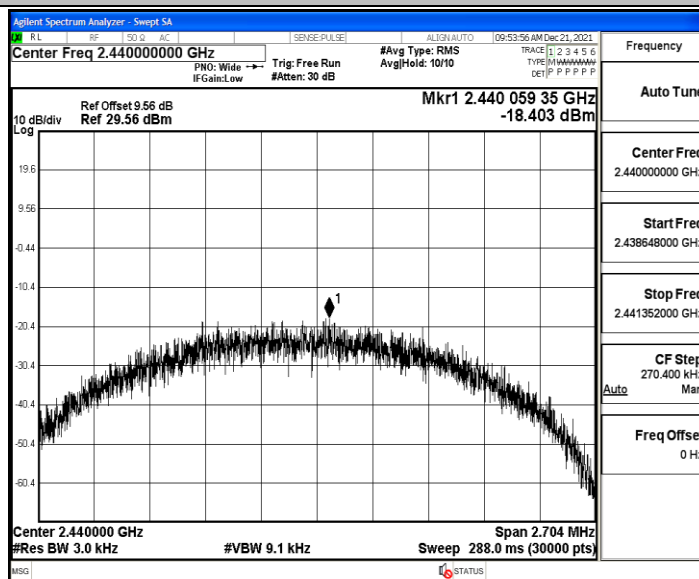
BLE_1M_Ant1_2480



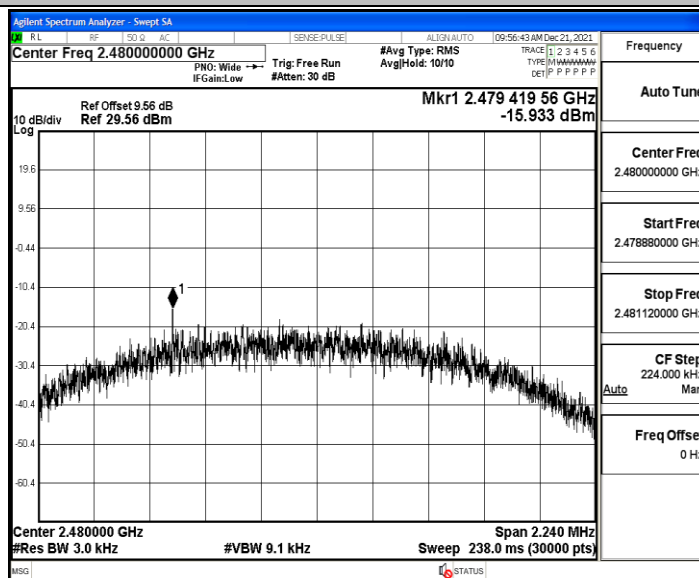
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



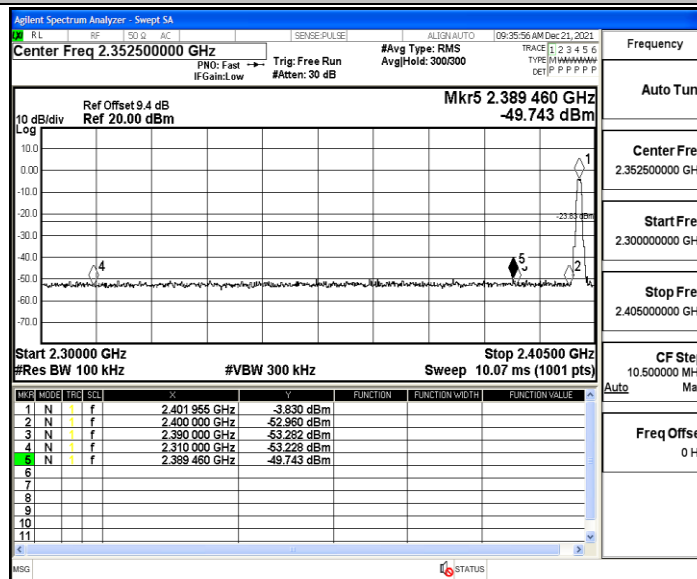
Appendix E: Band edge measurements

Test Result

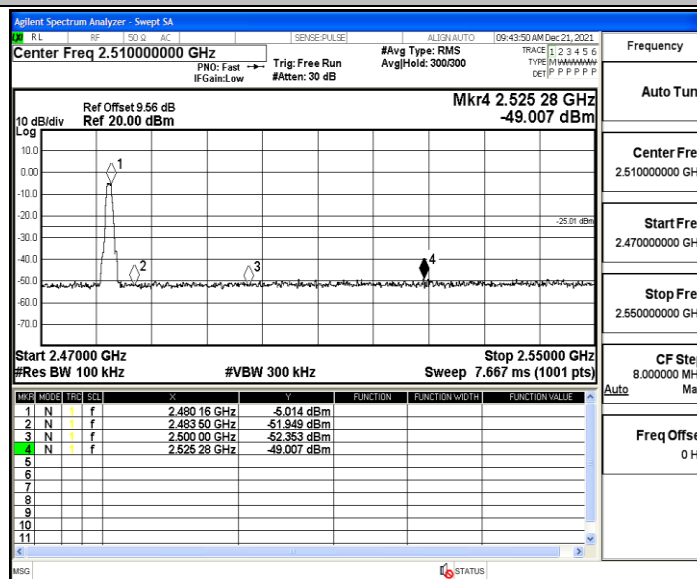
TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	-3.83	-49.74	≤-23.83	PASS
		High	2480	-5.01	-49.01	≤-25.01	PASS
BLE_2M	Ant1	Low	2402	-5.58	-38.63	≤-25.58	PASS
		High	2480	-6.23	-48.33	≤-26.23	PASS

Test Graphs

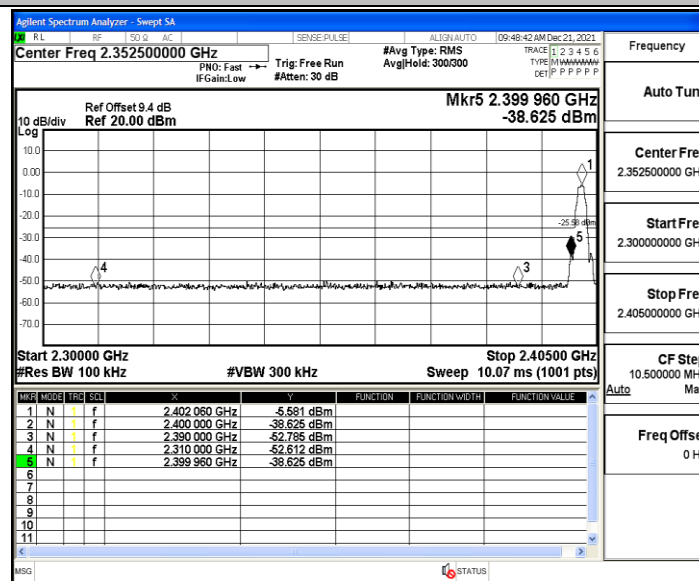
BLE_1M_Ant1_Low_2402



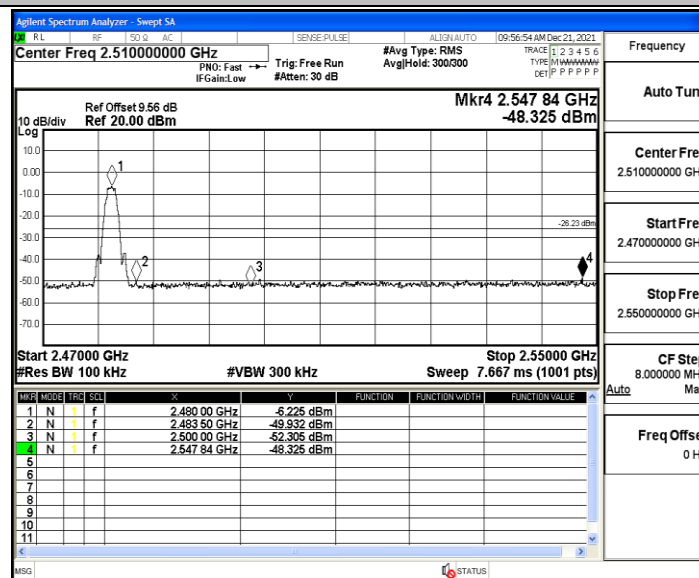
BLE_1M_Ant1_High_2480



BLE_2M_Ant1_Low_2402



BLE_2M_Ant1_High_2480



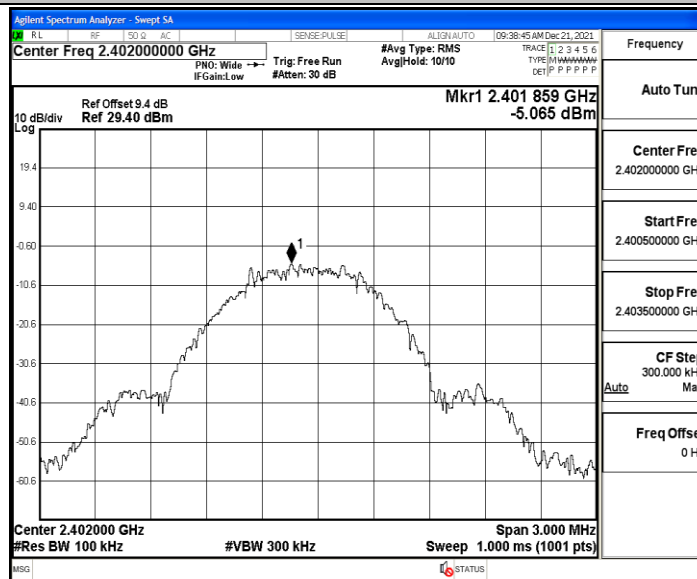
Appendix F: Conducted Spurious Emission

Test Result

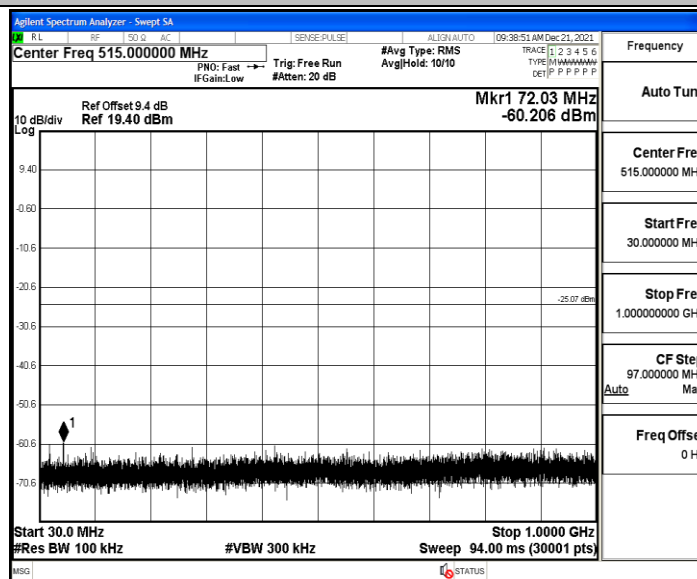
TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	-5.07	-5.07	---	PASS
			30~1000	-5.07	-60.21	≤-25.07	PASS
			1000~26500	-5.07	-48.65	≤-25.07	PASS
		2440	Reference	-5.74	-5.74	---	PASS
			30~1000	-5.74	-60.13	≤-25.74	PASS
			1000~26500	-5.74	-49.31	≤-25.74	PASS
		2480	Reference	-5.90	-5.90	---	PASS
			30~1000	-5.90	-59.88	≤-25.9	PASS
			1000~26500	-5.90	-52.32	≤-25.9	PASS
BLE_2M	Ant1	2402	Reference	-6.99	-6.99	---	PASS
			30~1000	-6.99	-59.93	≤-26.99	PASS
			1000~26500	-6.99	-50.31	≤-26.99	PASS
		2440	Reference	-6.84	-6.84	---	PASS
			30~1000	-6.84	-59.79	≤-26.84	PASS
			1000~26500	-6.84	-50.74	≤-26.84	PASS
		2480	Reference	-7.55	-7.55	---	PASS
			30~1000	-7.55	-60.19	≤-27.55	PASS
			1000~26500	-7.55	-51.16	≤-27.55	PASS

Test Graphs

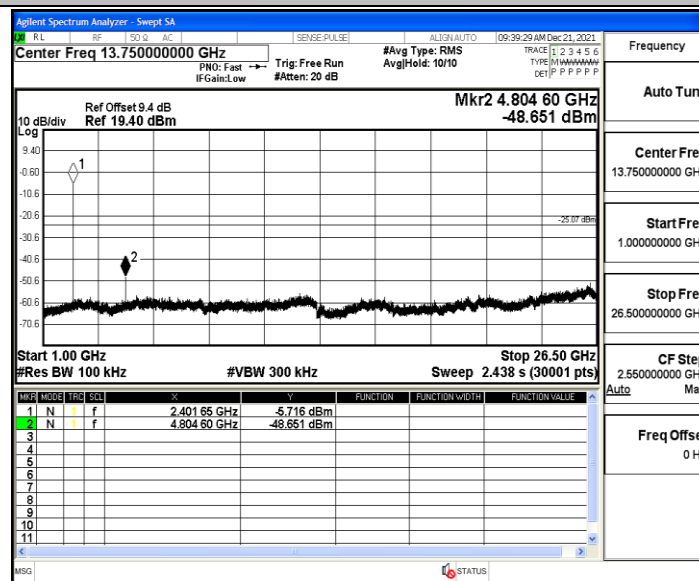
BLE_1M_Ant1_2402_0~Reference



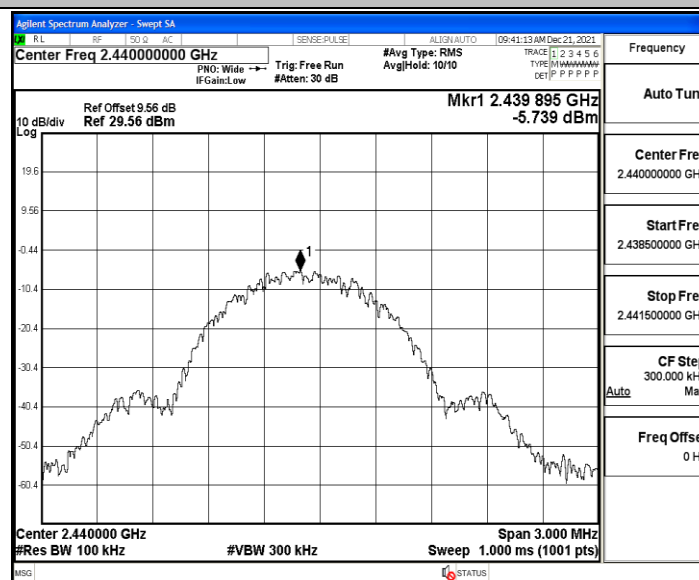
BLE_1M_Ant1_2402_30~1000



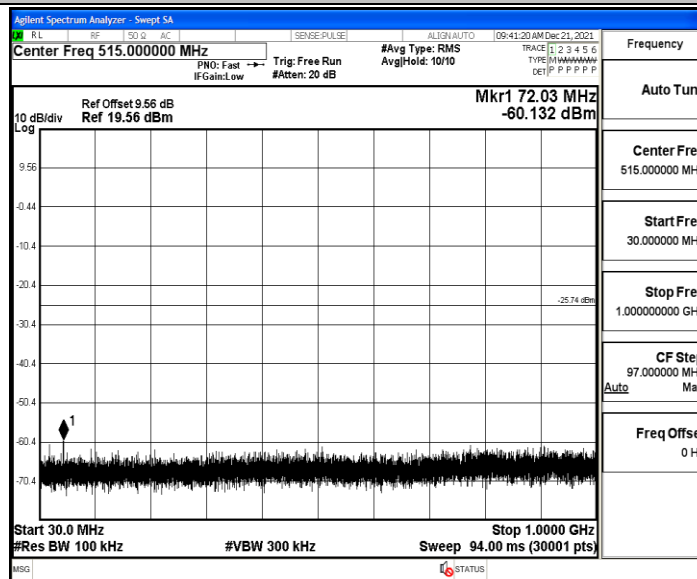
BLE_1M_Ant1_2402_1000~26500



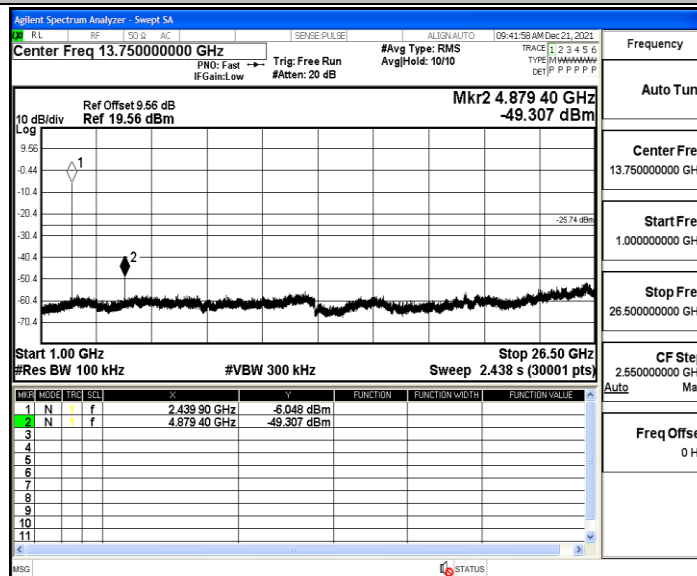
BLE_1M_Ant1_2440_0~Reference



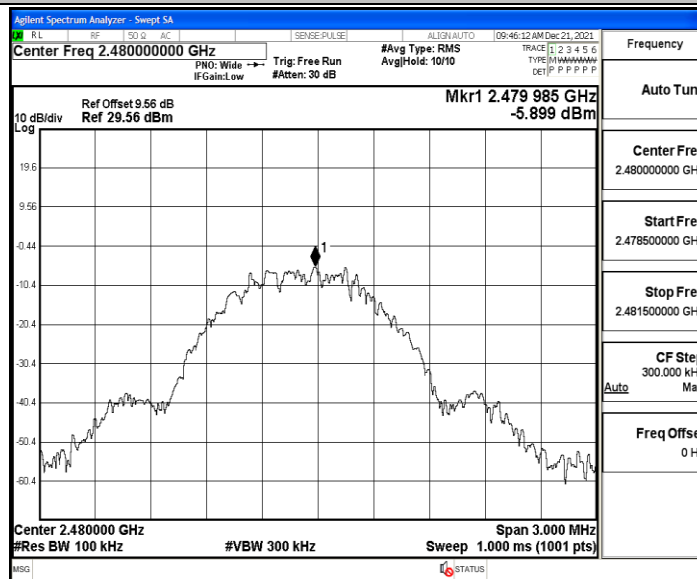
BLE_1M_Ant1_2440_30~1000



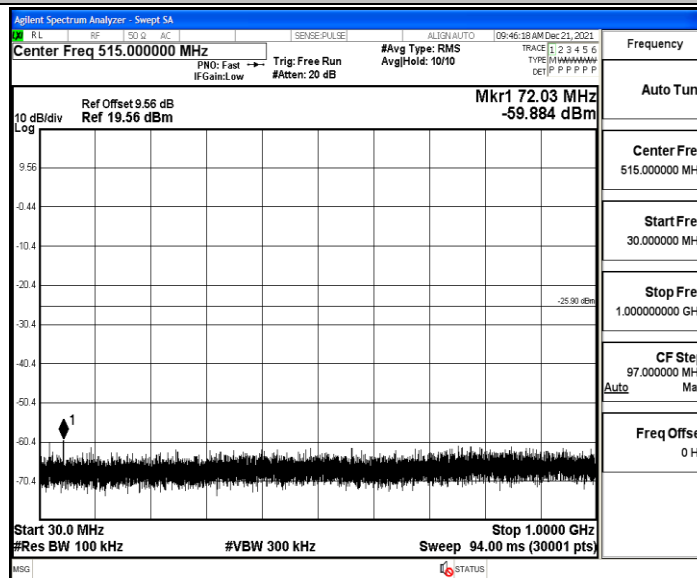
BLE_1M_Ant1_2440_1000~26500



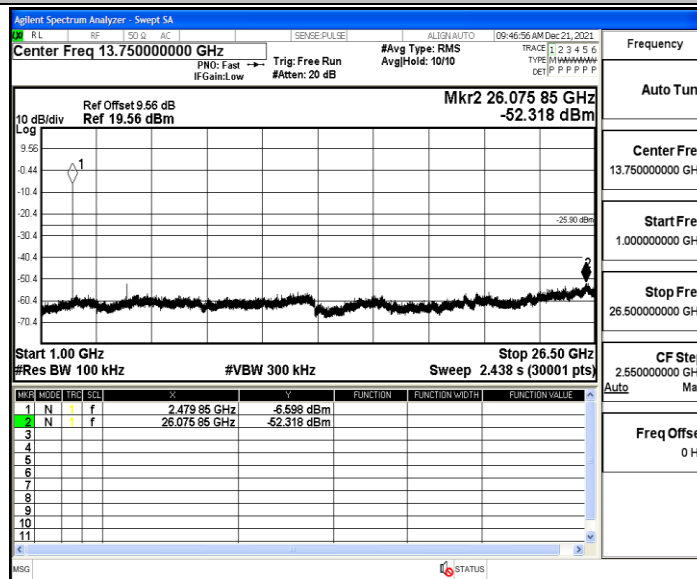
BLE_1M_Ant1_2480_0~Reference



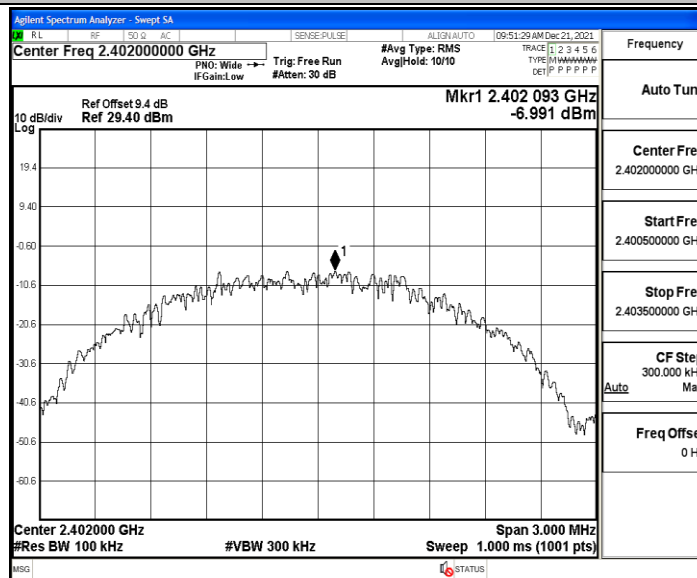
BLE_1M_Ant1_2480_30~1000



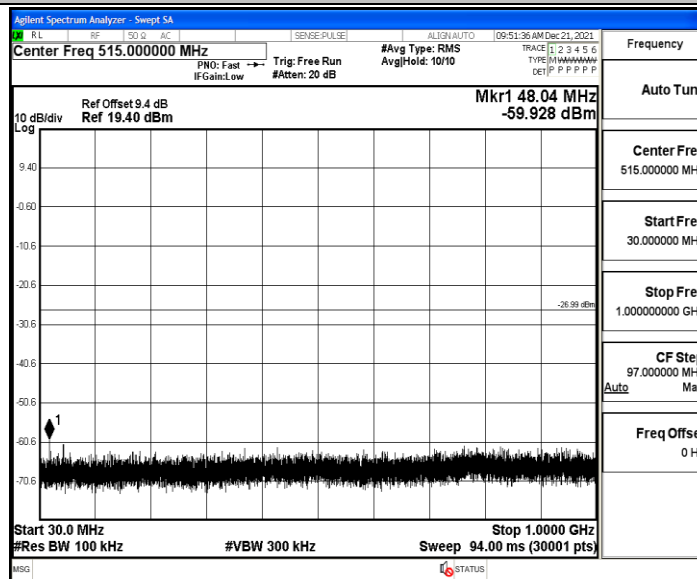
BLE_1M_Ant1_2480_1000~26500



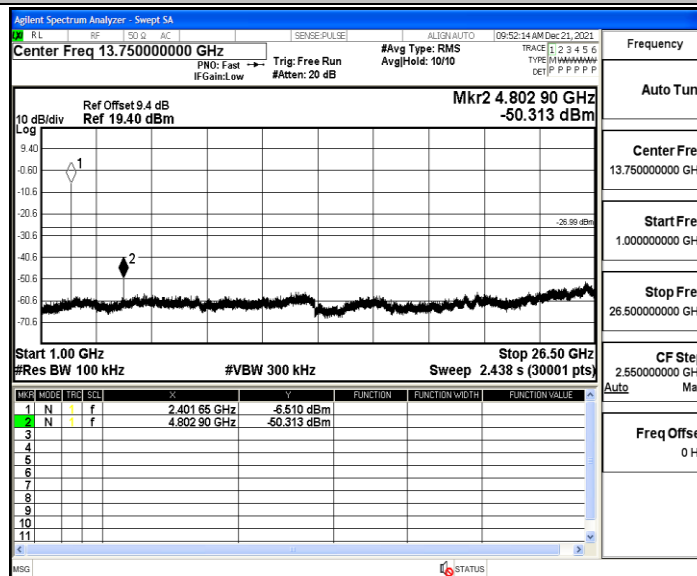
BLE_2M_Ant1_2402_0~Reference



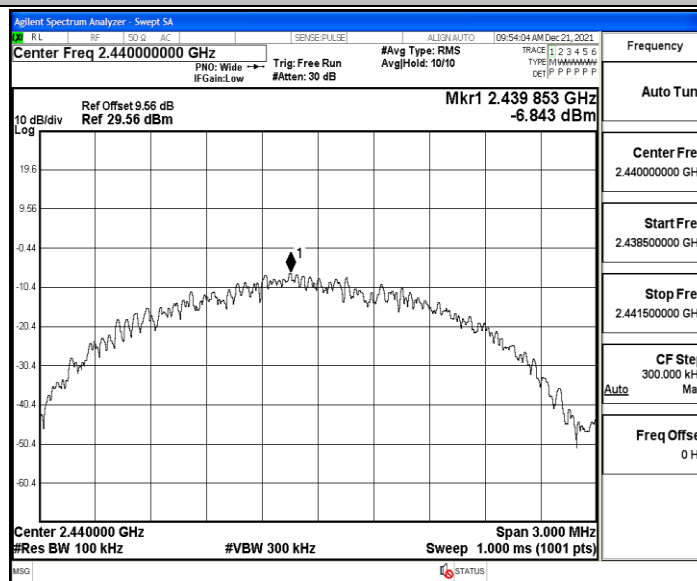
BLE_2M_Ant1_2402_30~1000



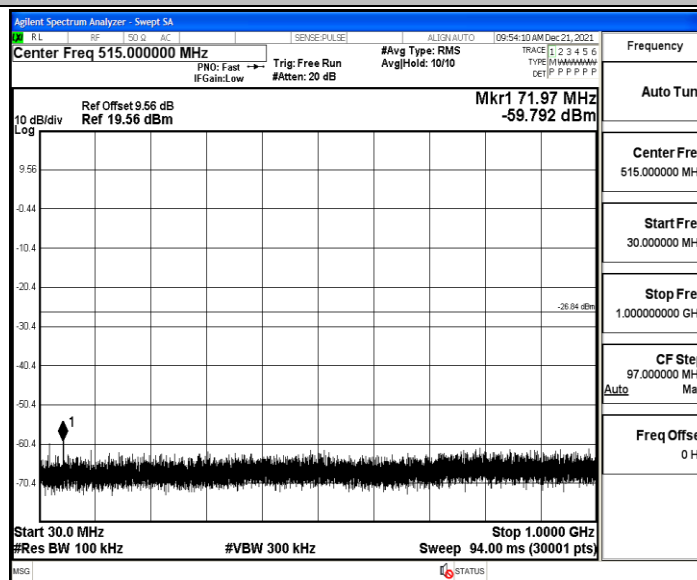
BLE_2M_Ant1_2402_1000~26500

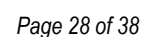


BLE_2M_Ant1_2440_0~Reference

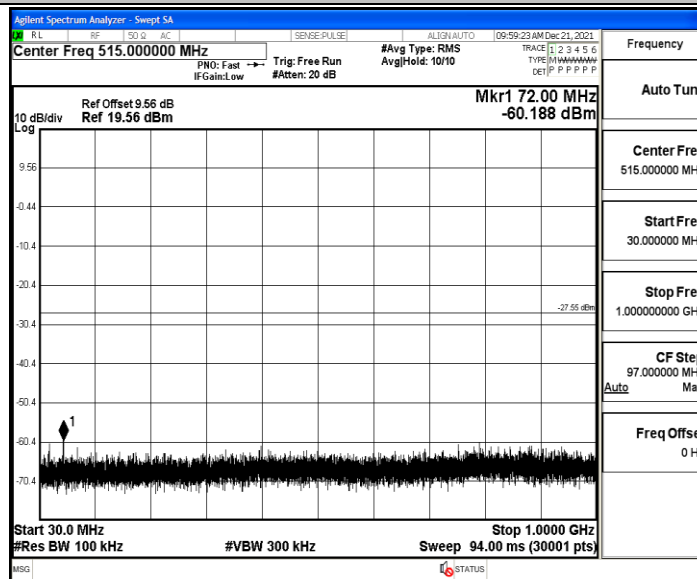


BLE_2M_Ant1_2440_30~1000

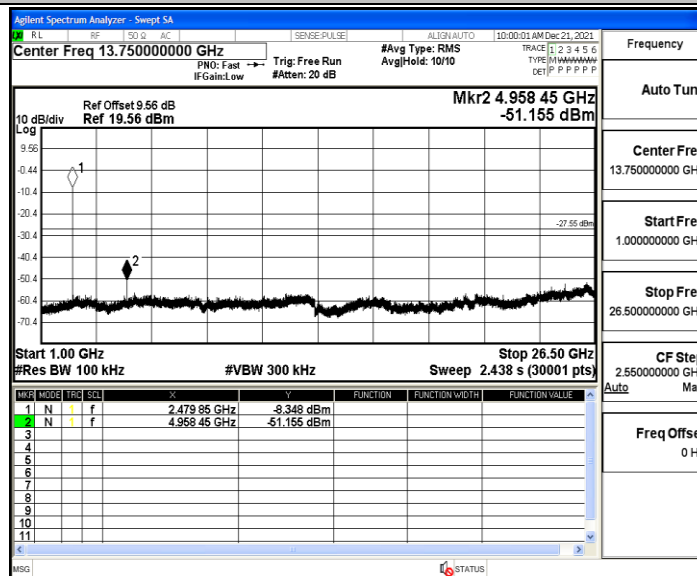




BLE_2M_Ant1_2480_30~1000



BLE_2M_Ant1_2480_1000~26500



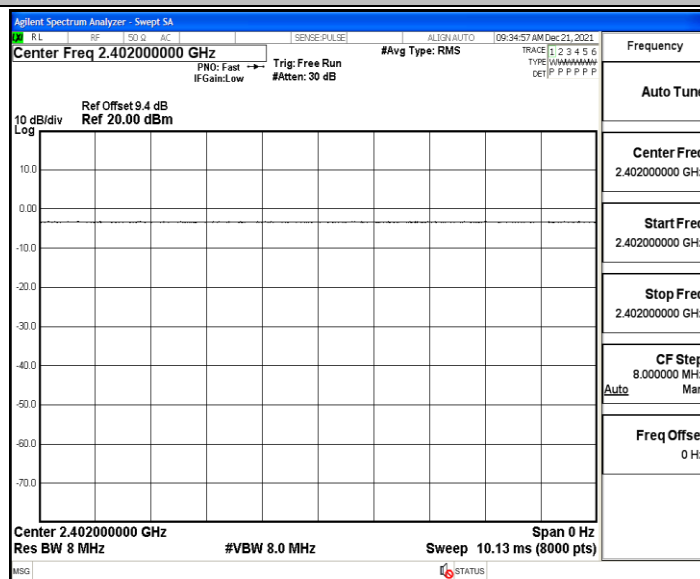
Appendix G: Duty Cycle

Test Result

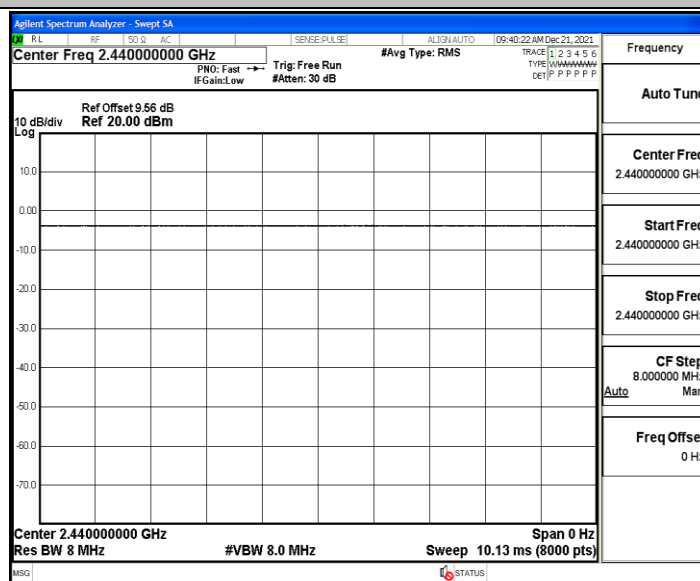
TestMode	Antenna	Channel	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	1/T[kHz]
BLE_1M	Ant1	2402	0.00	0.00	100	$+\infty$
		2440	0.00	0.00	100	$+\infty$
		2480	0.00	0.00	100	$+\infty$
BLE_2M	Ant1	2402	0.00	0.00	100	$+\infty$
		2440	0.00	0.00	100	$+\infty$
		2480	0.00	0.00	100	$+\infty$

Test Graphs

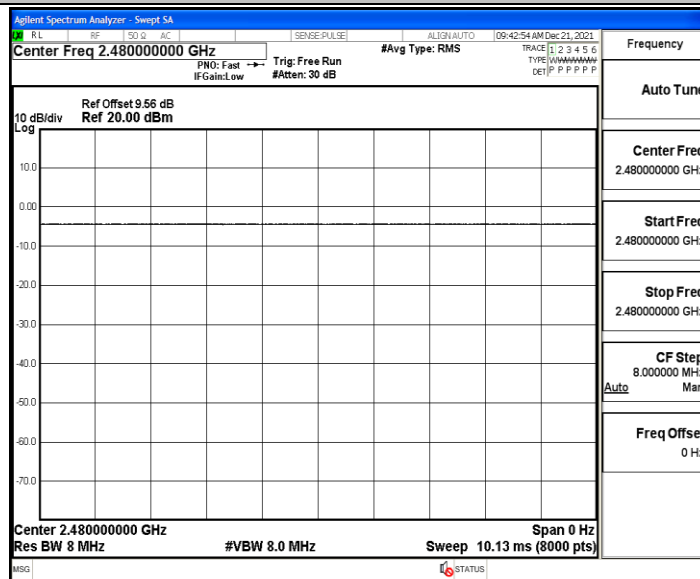
BLE_1M_Ant1_2402



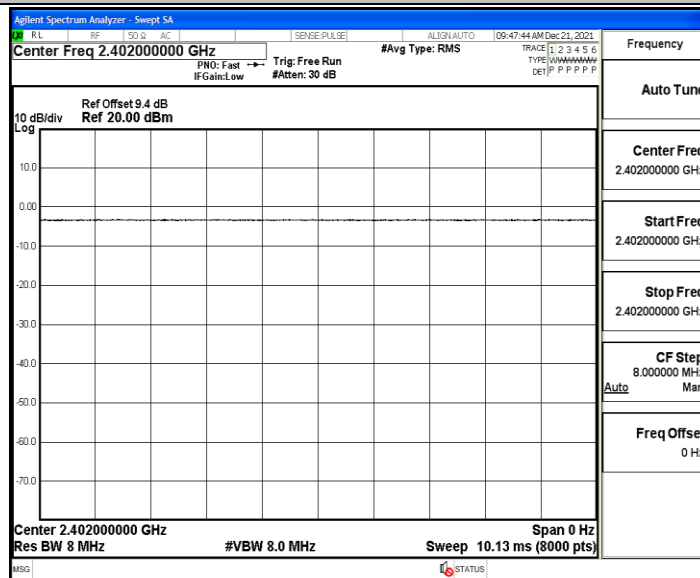
BLE_1M_Ant1_2440



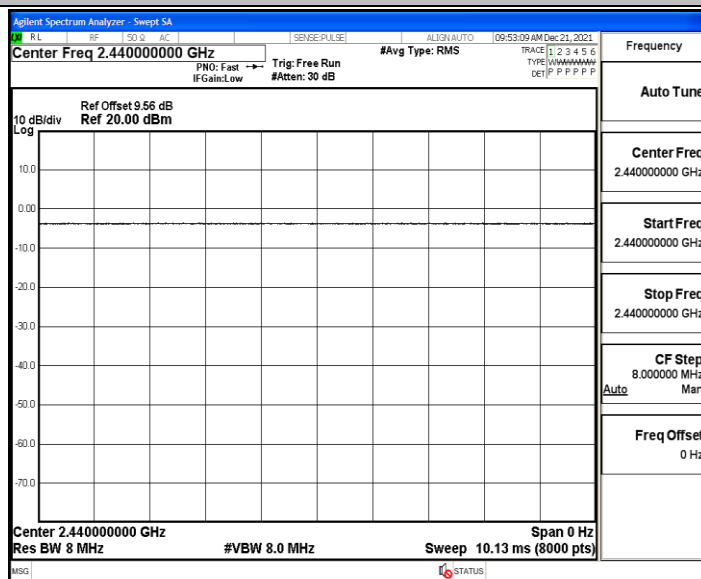
BLE_1M_Ant1_2480



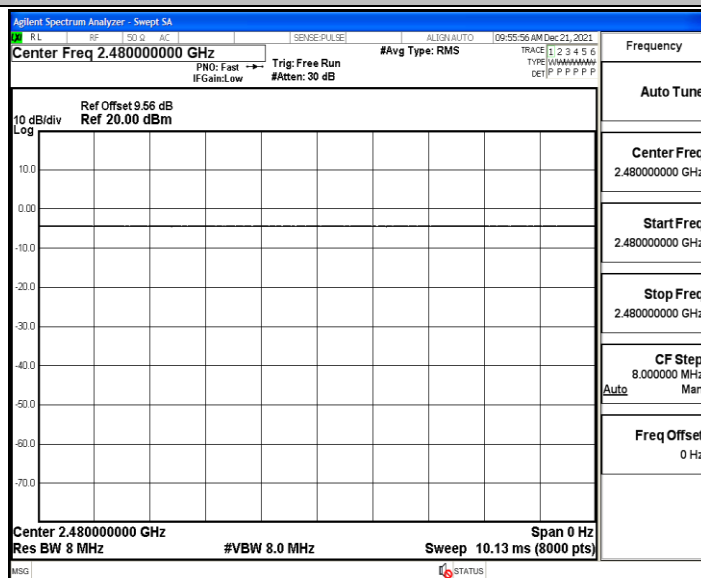
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



Appendix H: Emissions in Restricted Bands

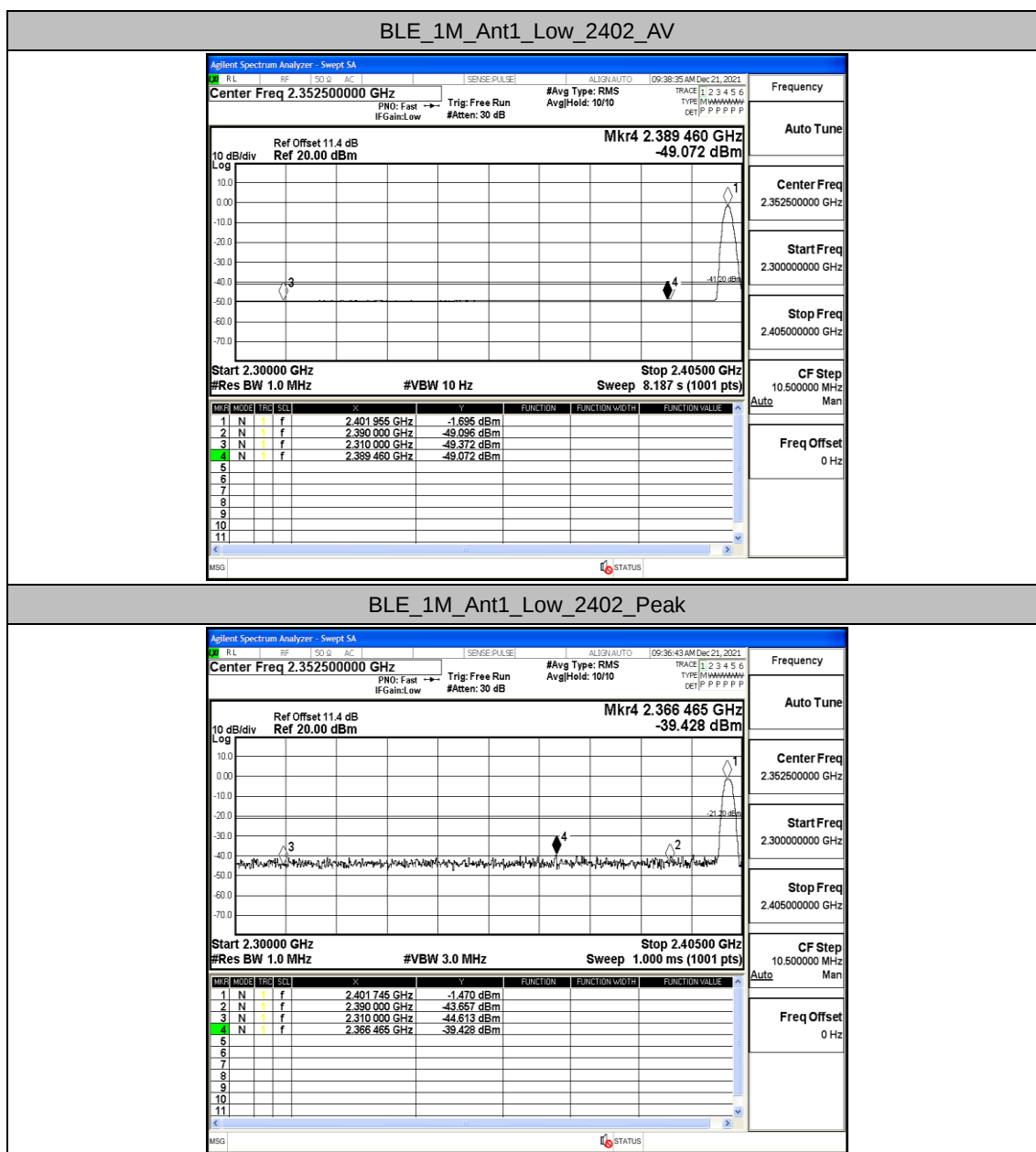
Test Result

TestMode	Antenna	ChName	Channel	Detector	Freq. [MHz]	Result [dBm]	Limit [dBm]	Verdict
BLE_1M	Ant1	Low	2402	AV	2310.000	-49.37	≤-41.20	PASS
				AV	2389.460	-49.07	≤-41.20	PASS
				AV	2390.000	-49.1	≤-41.20	PASS
				Peak	2310.000	-44.61	≤-21.20	PASS
				Peak	2366.465	-39.43	≤-21.20	PASS
				Peak	2390.000	-43.66	≤-21.20	PASS
		High	2480	AV	2483.500	-48.55	≤-41.20	PASS
				AV	2499.680	-48.38	≤-41.20	PASS
				AV	2500.000	-48.4	≤-41.20	PASS
				Peak	2483.500	-40.95	≤-21.20	PASS
				Peak	2484.240	-39.46	≤-21.20	PASS
				Peak	2500.000	-44.74	≤-21.20	PASS
BLE_2M	Ant1	Low	2402	AV	2310.000	-49.4	≤-41.20	PASS
				AV	2389.670	-49.09	≤-41.20	PASS
				AV	2390.000	-49.1	≤-41.20	PASS
				Peak	2310.000	-45.98	≤-21.20	PASS
				Peak	2388.620	-38.9	≤-21.20	PASS
				Peak	2390.000	-45.66	≤-21.20	PASS
		High	2480	AV	2483.500	-47.86	≤-41.20	PASS
				AV	2483.520	-47.86	≤-41.20	PASS
				AV	2500.000	-48.39	≤-41.20	PASS
				Peak	2483.500	-41.02	≤-21.20	PASS
				Peak	2494.240	-39	≤-21.20	PASS
				Peak	2500.000	-41.87	≤-21.20	PASS

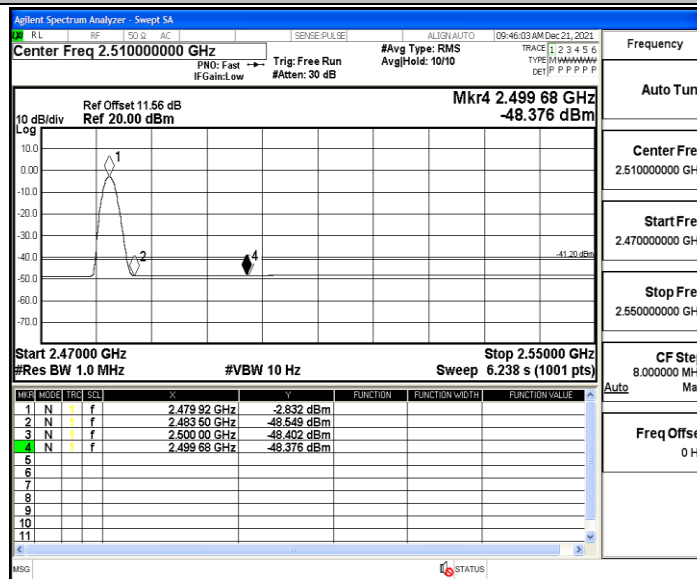
Note:

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.

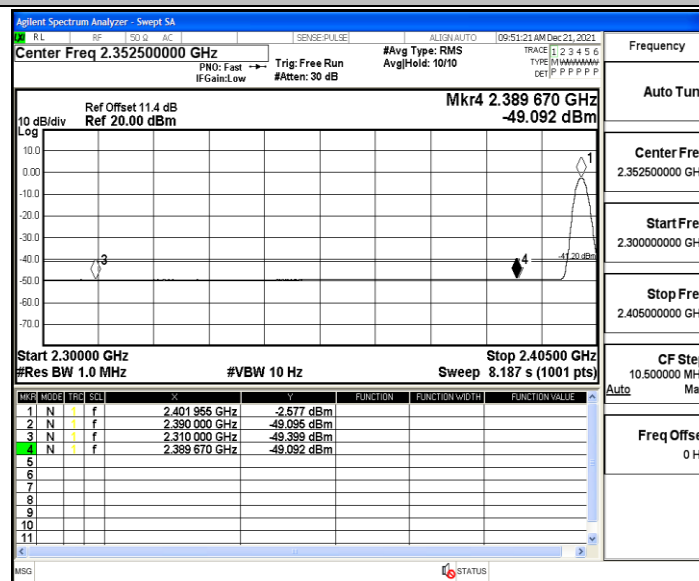
Test Graphs



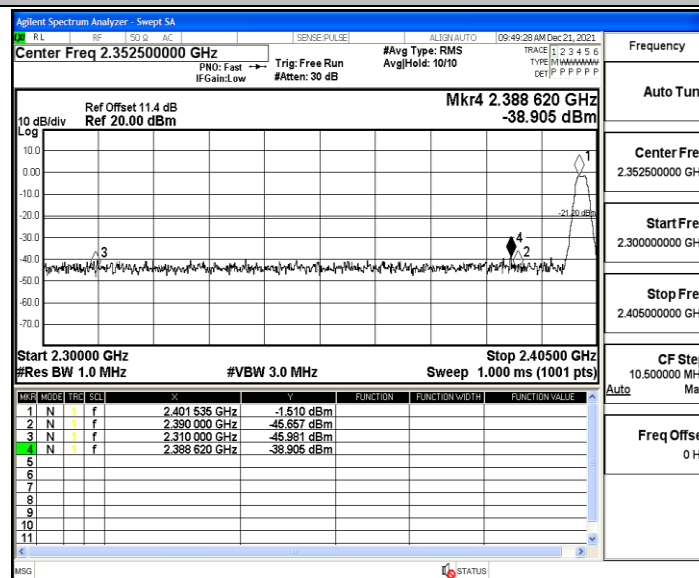
BLE_1M_Ant1_High_2480_AV



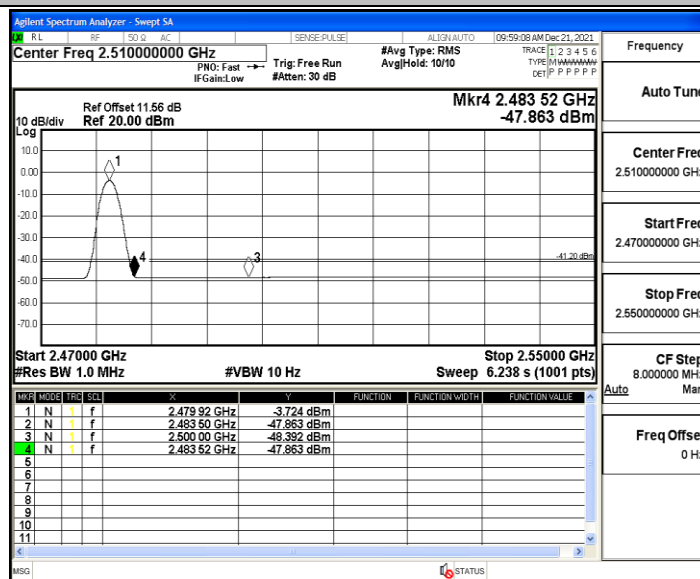
BLE_2M_Ant1_Low_2402_AV



BLE_2M_Ant1_Low_2402_Peak



BLE_2M_Ant1_High_2480_AV



BLE_2M_Ant1_High_2480_Peak

