

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

Product Name: 4K Set Top Box

Trade Mark: N/A

Test Model: Dongle R 4K-SN8BKAJ

FCC ID: 2AOVU-SN8BKAX

Environmental Conditions

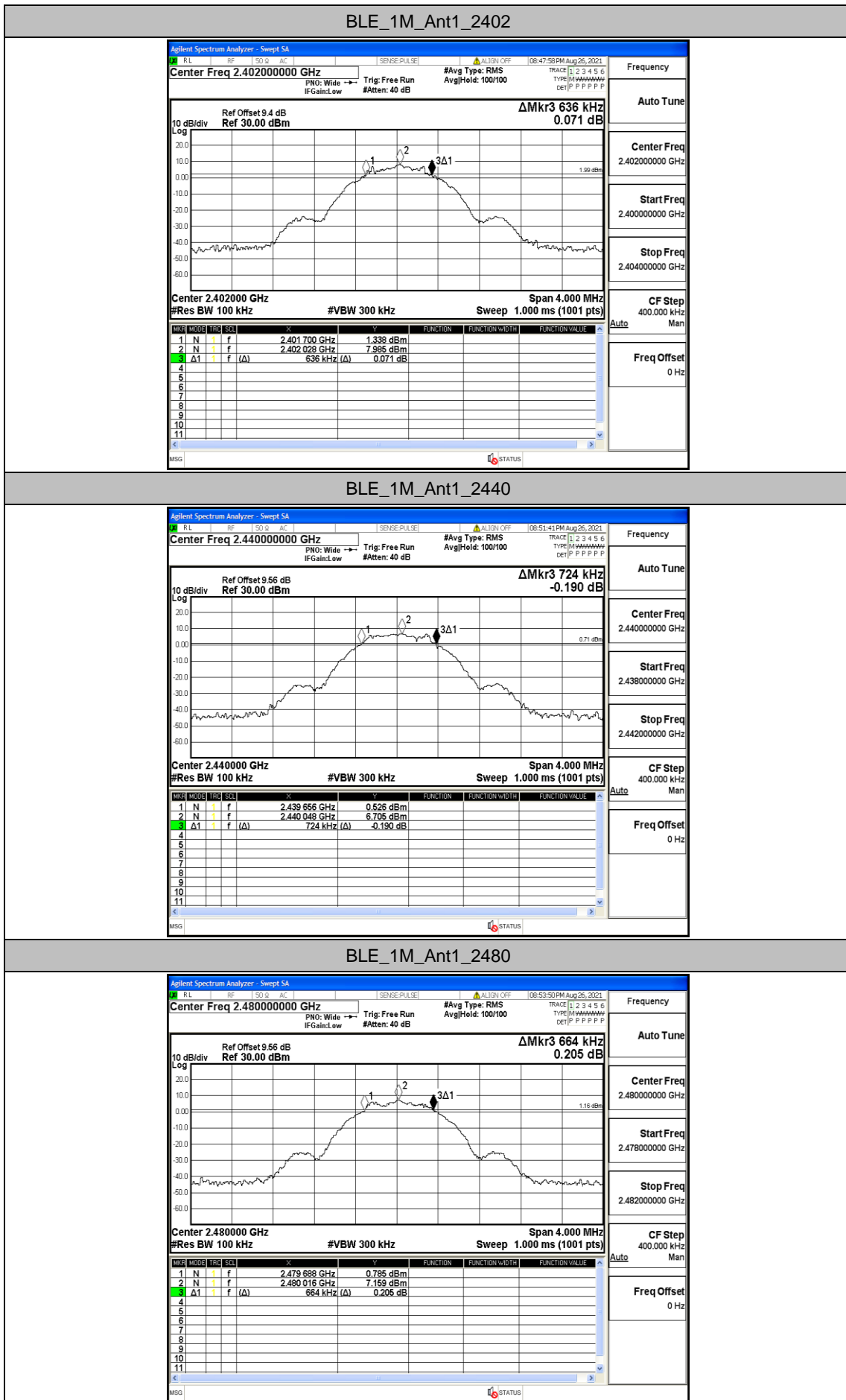
Temperature:	25.5°C
Relative Humidity:	55%
ATM Pressure:	100.0 kPa
Test Engineer:	Anna Hu
Supervised by:	Hugo Chen
NOTE	N/A

Appendix A: DTS Bandwidth

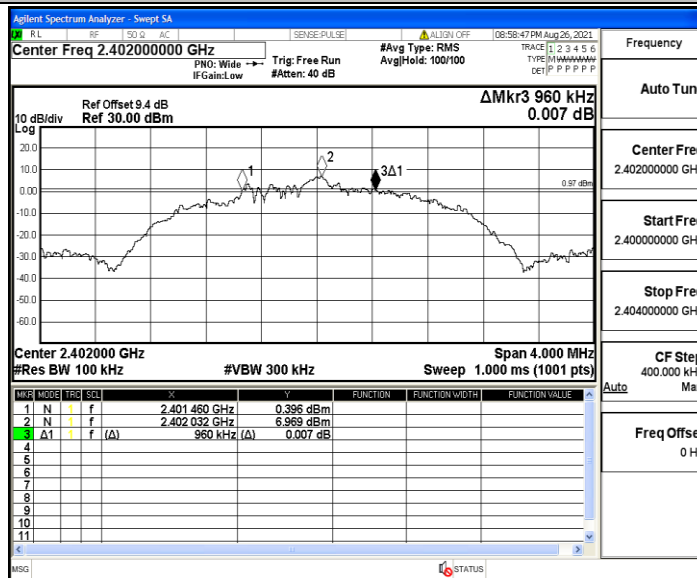
Test Result

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.636	2401.700	2402.336	0.5	PASS
		2440	0.724	2439.656	2440.380	0.5	PASS
		2480	0.664	2479.688	2480.352	0.5	PASS
BLE_2M	Ant1	2402	0.960	2401.460	2402.420	0.5	PASS
		2440	1.088	2439.496	2440.584	0.5	PASS
		2480	0.976	2479.440	2480.416	0.5	PASS

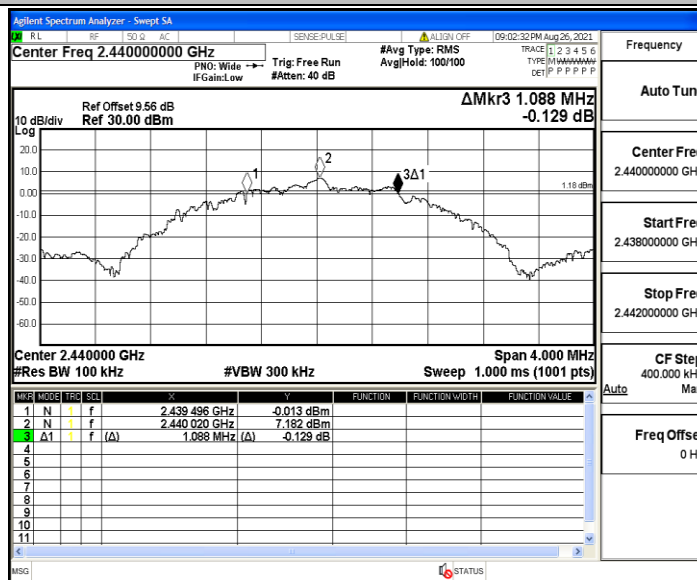
Test Graphs



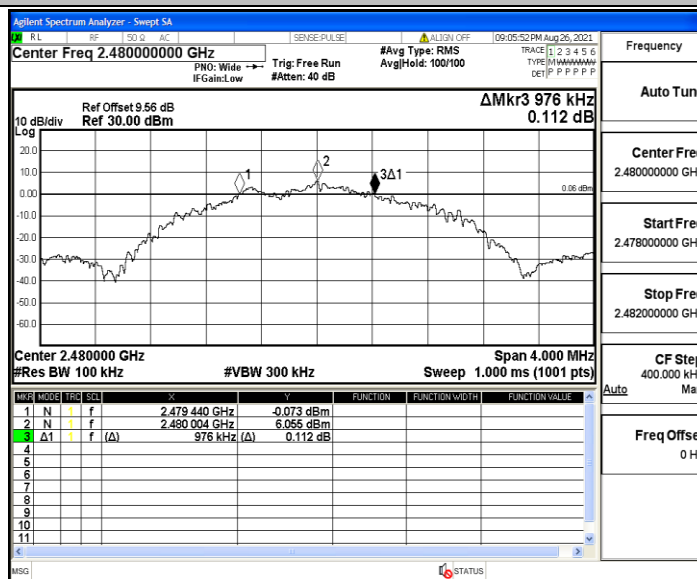
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480

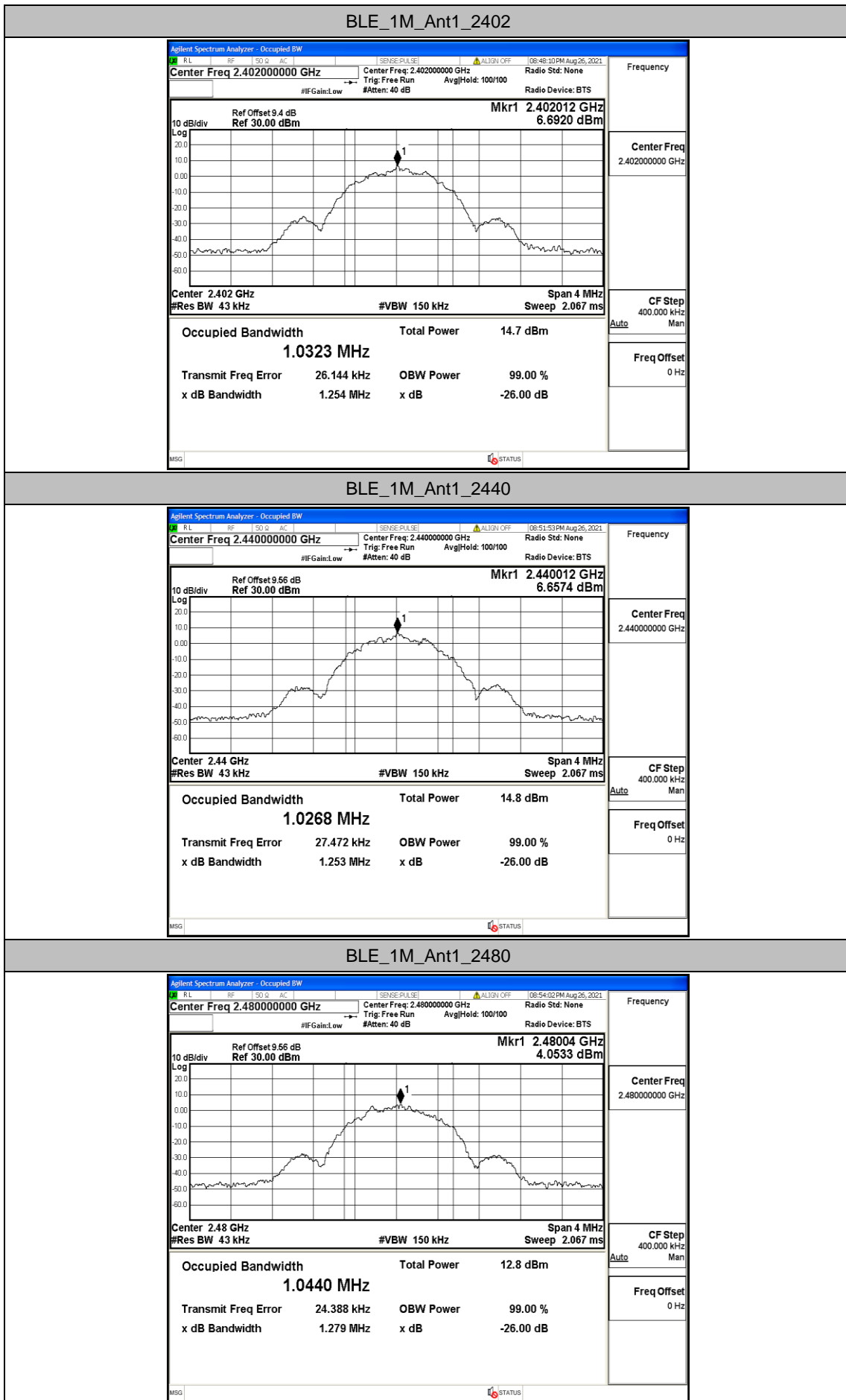


Appendix B: Occupied Channel Bandwidth

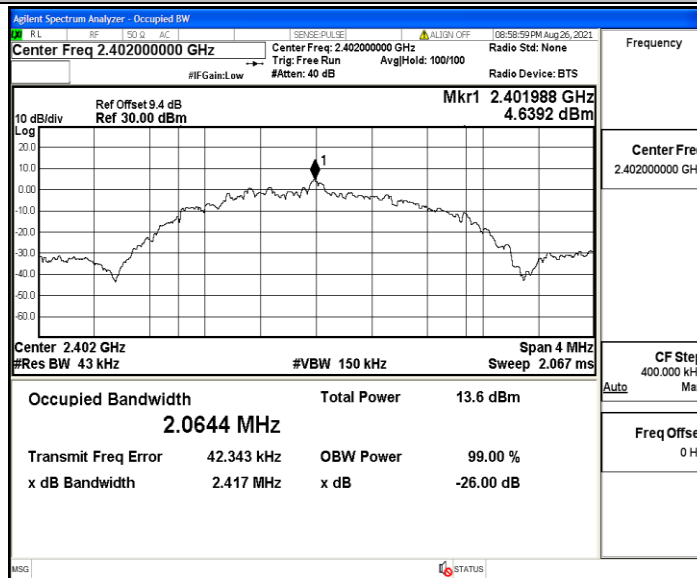
Test Result

TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.0323	2401.510	2402.542	---	PASS
		2440	1.0268	2439.514	2440.541	---	PASS
		2480	1.0440	2479.502	2480.546	---	PASS
BLE_2M	Ant1	2402	2.0644	2401.010	2403.075	---	PASS
		2440	2.0512	2439.020	2441.071	---	PASS
		2480	2.0823	2478.992	2481.074	---	PASS

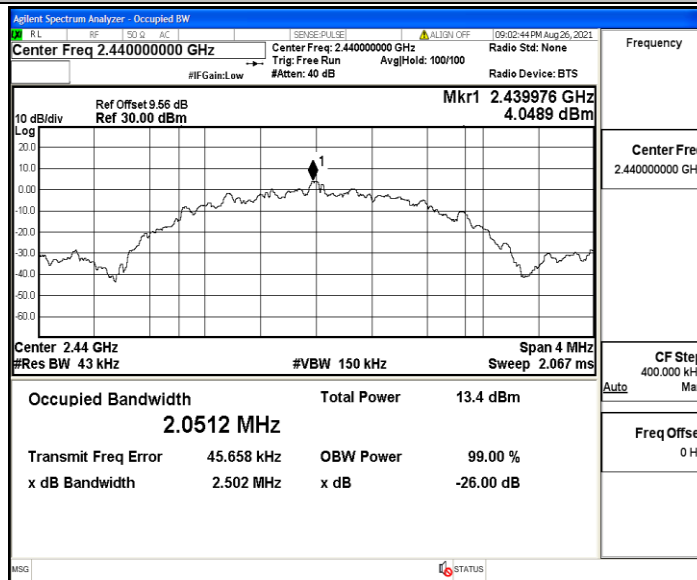
Test Graphs



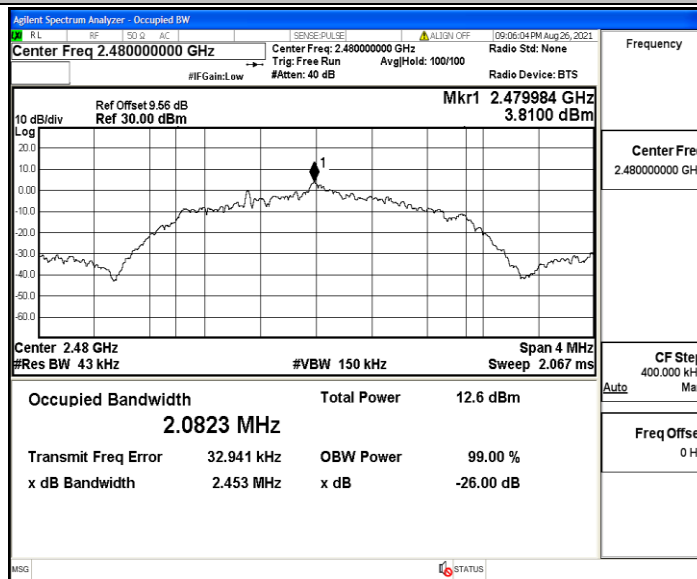
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480

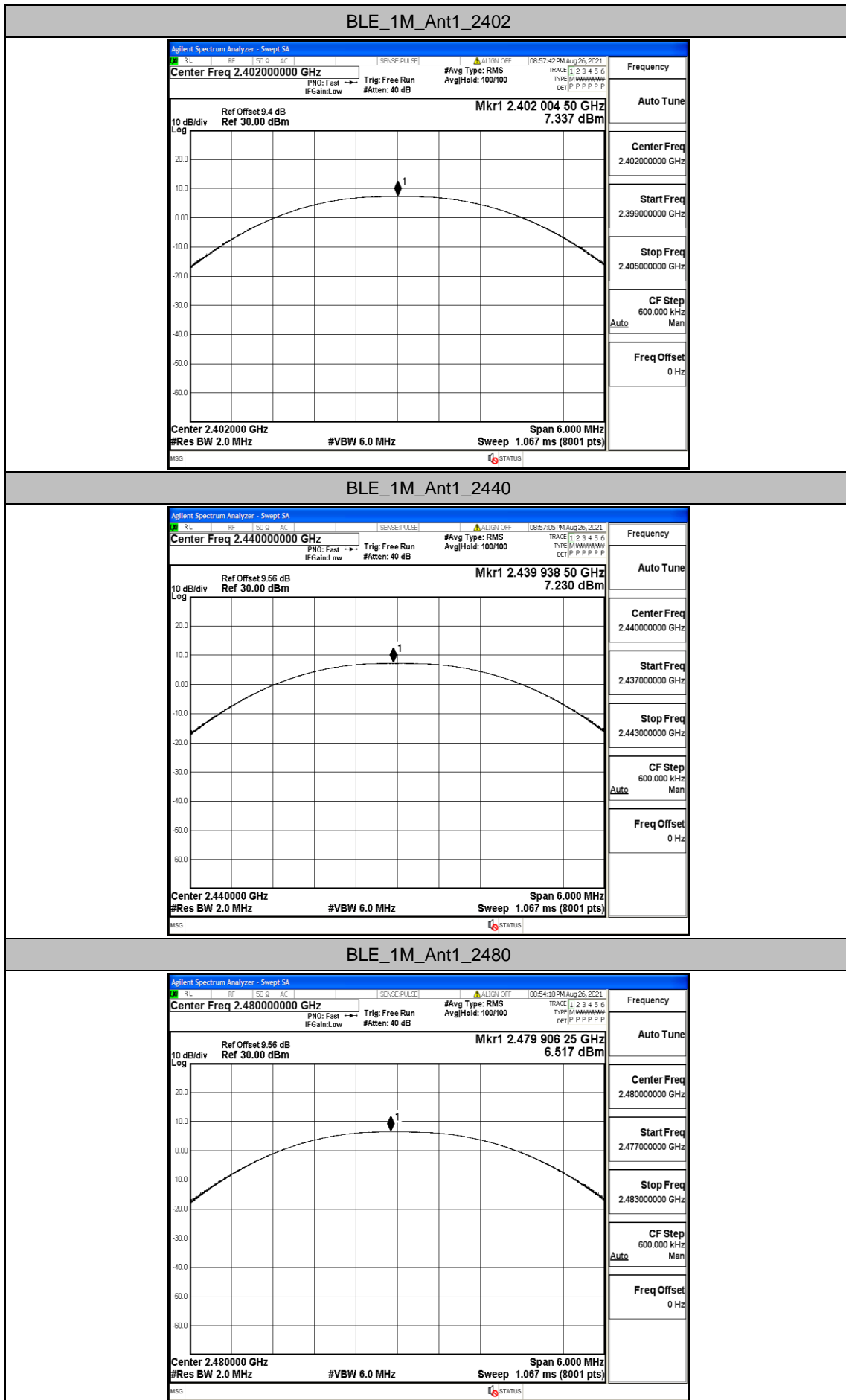


Appendix C: Maximum conducted output power

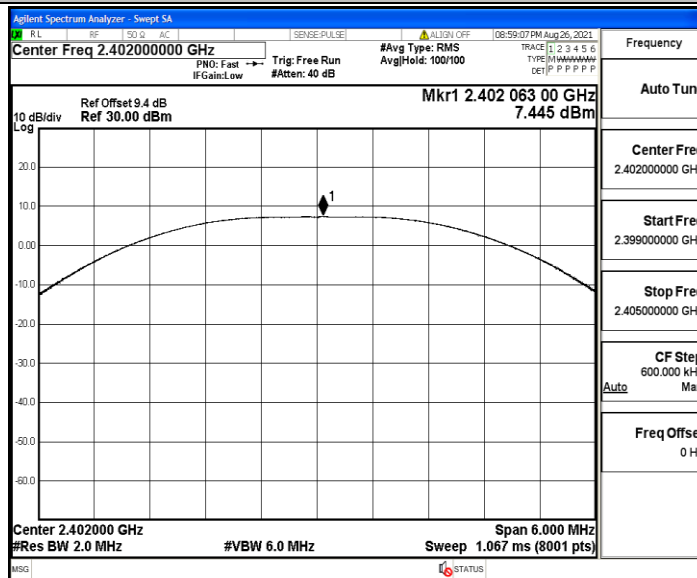
Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	7.34	≤30	PASS
		2440	7.23	≤30	PASS
		2480	6.52	≤30	PASS
BLE_2M	Ant1	2402	7.45	≤30	PASS
		2440	7.39	≤30	PASS
		2480	6.66	≤30	PASS

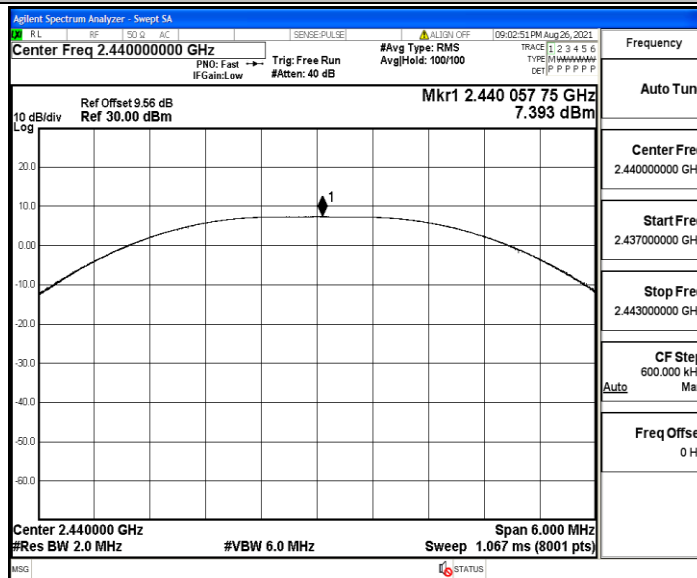
Test Graphs



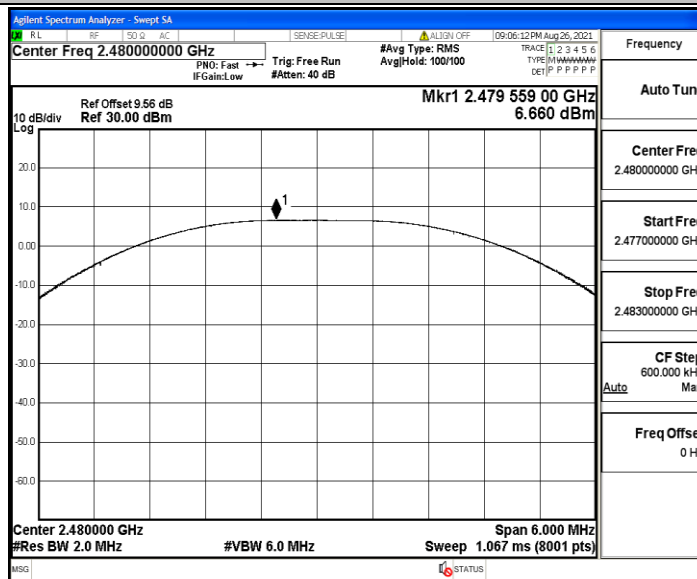
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480

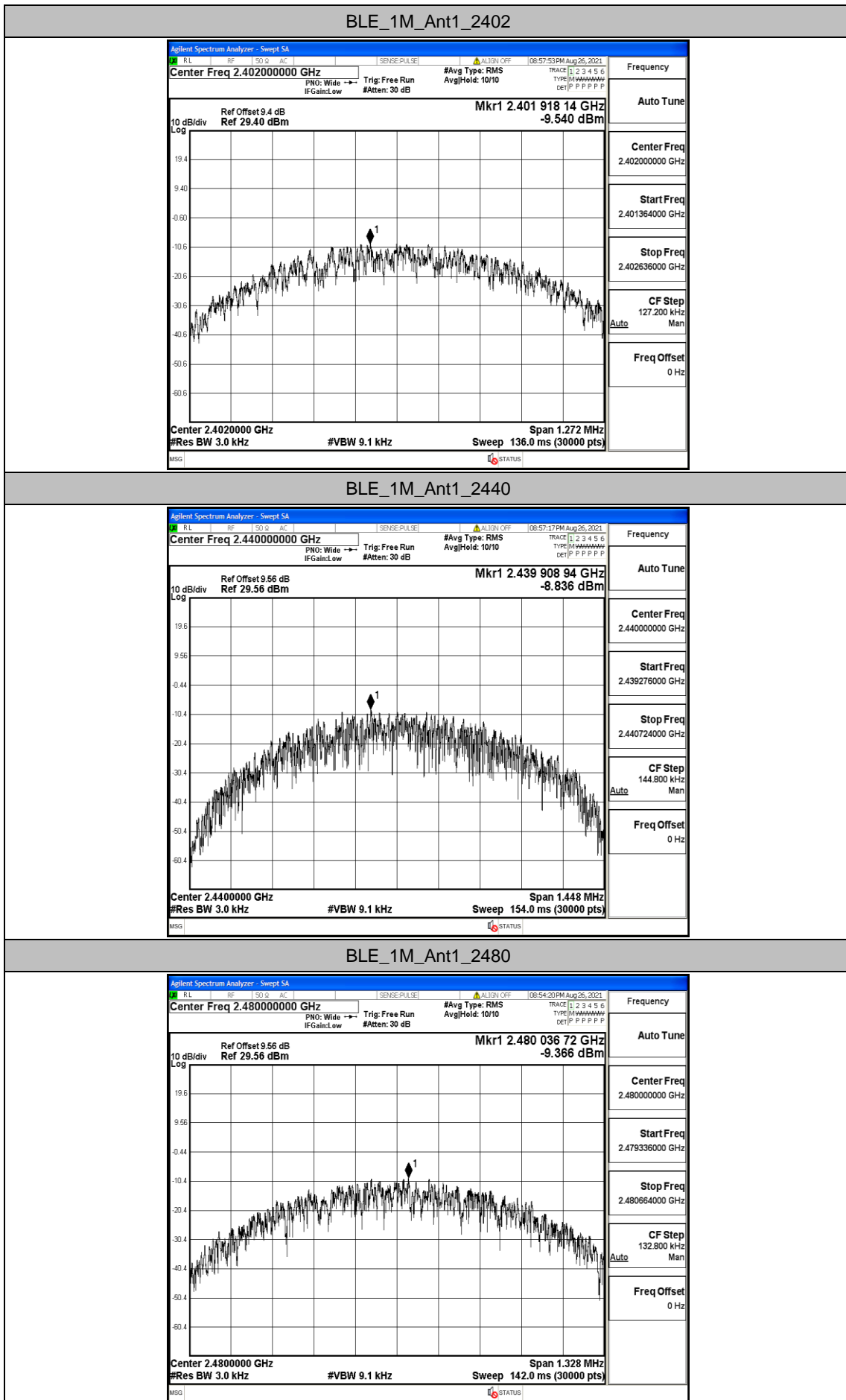


Appendix D: Maximum power spectral density

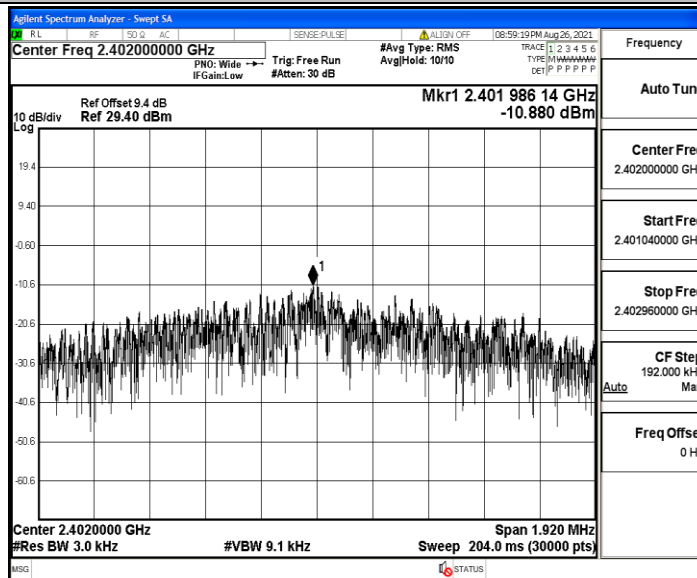
Test Result

TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-9.54	≤8	PASS
		2440	-8.84	≤8	PASS
		2480	-9.37	≤8	PASS
BLE_2M	Ant1	2402	-10.88	≤8	PASS
		2440	-10.98	≤8	PASS
		2480	-10.42	≤8	PASS

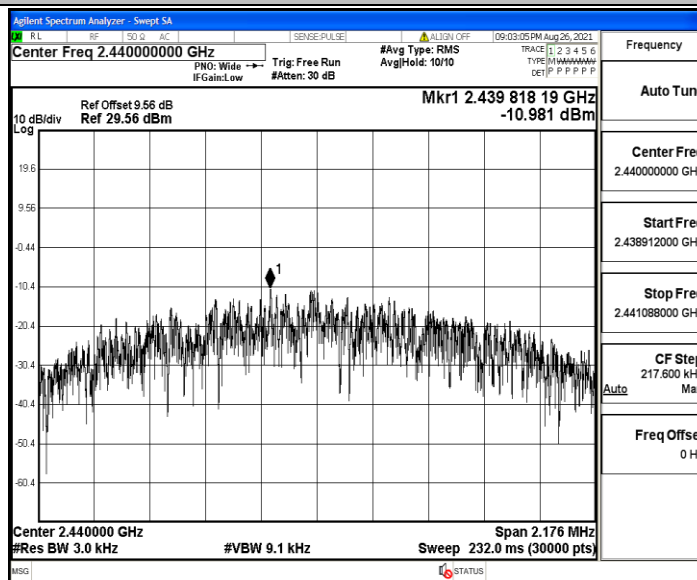
Test Graphs



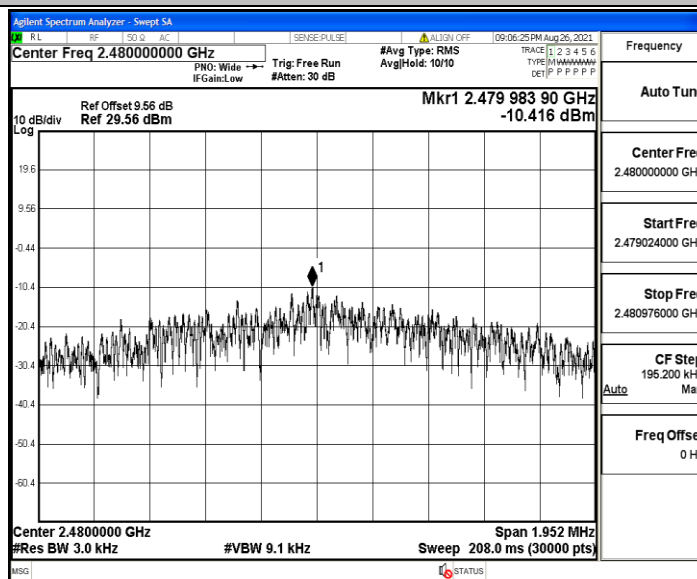
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



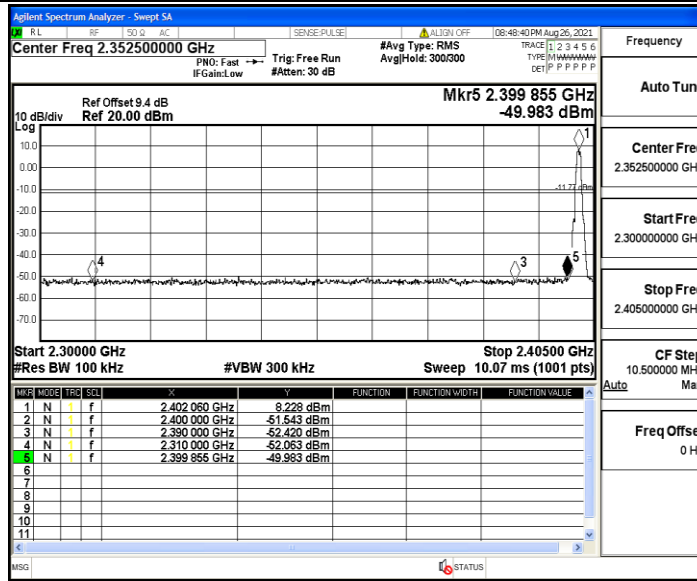
Appendix E: Band edge measurements

Test Result

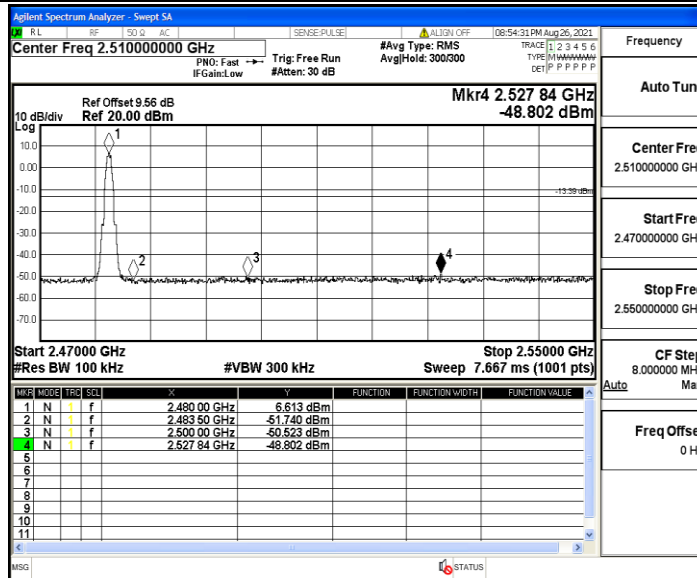
TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	8.23	-49.98	≤ -11.77	PASS
		High	2480	6.61	-48.8	≤ -13.39	PASS
BLE_2M	Ant1	Low	2402	7.76	-25.75	≤ -12.24	PASS
		High	2480	6.54	-48.76	≤ -13.46	PASS

Test Graphs

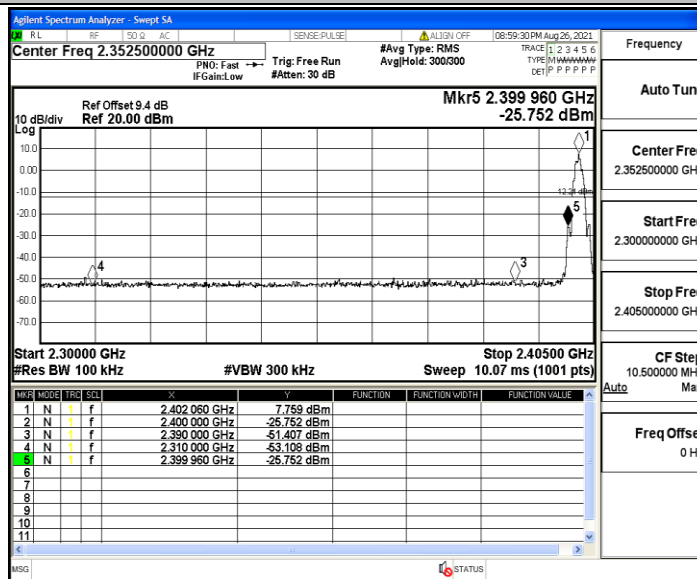
BLE_1M_Ant1_Low_2402



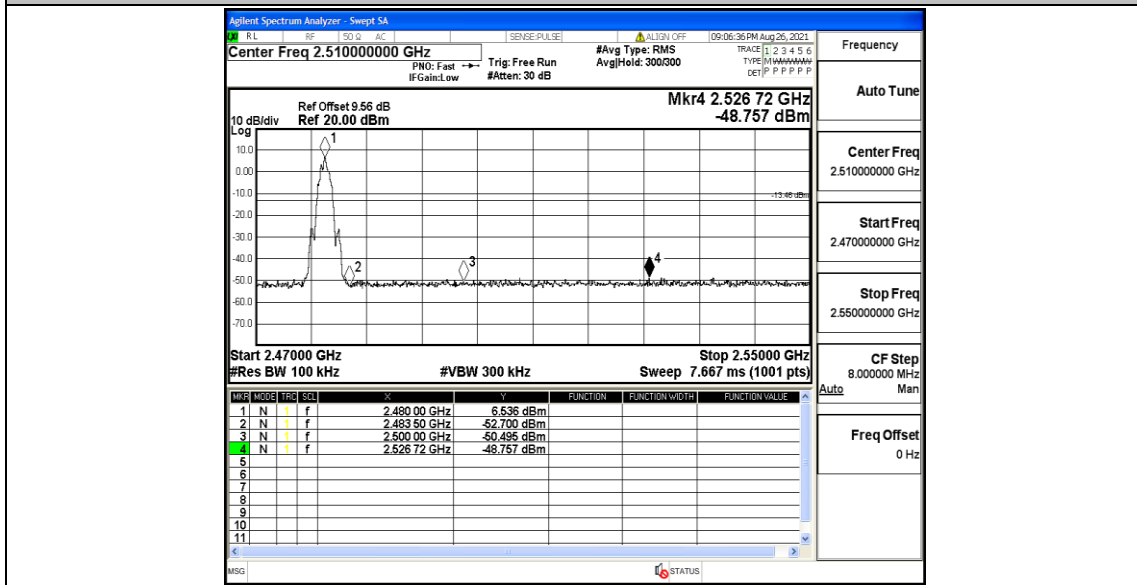
BLE_1M_Ant1_High_2480



BLE_2M_Ant1_Low_2402



BLE_2M_Ant1_High_2480

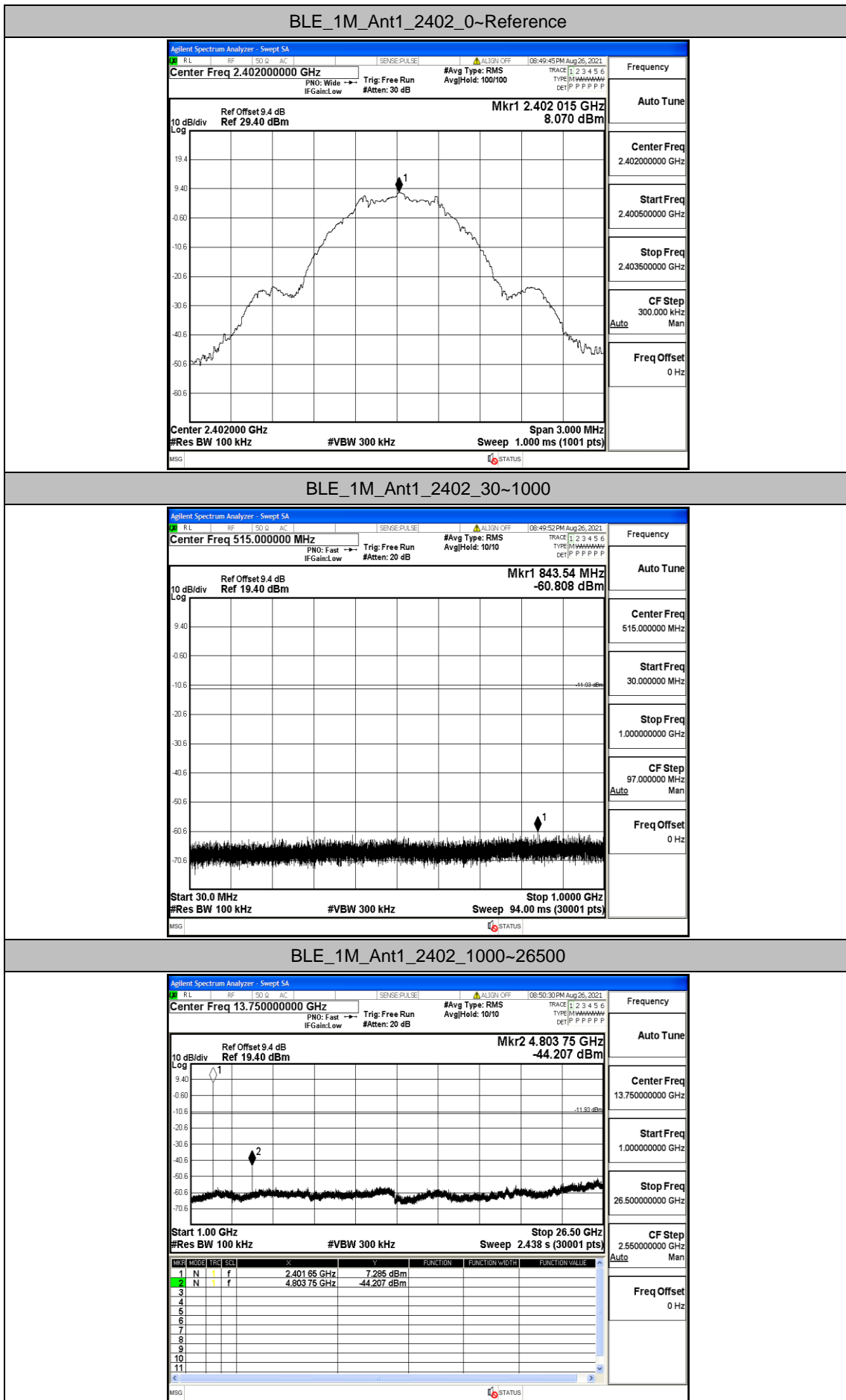


Appendix F: Conducted Spurious Emission

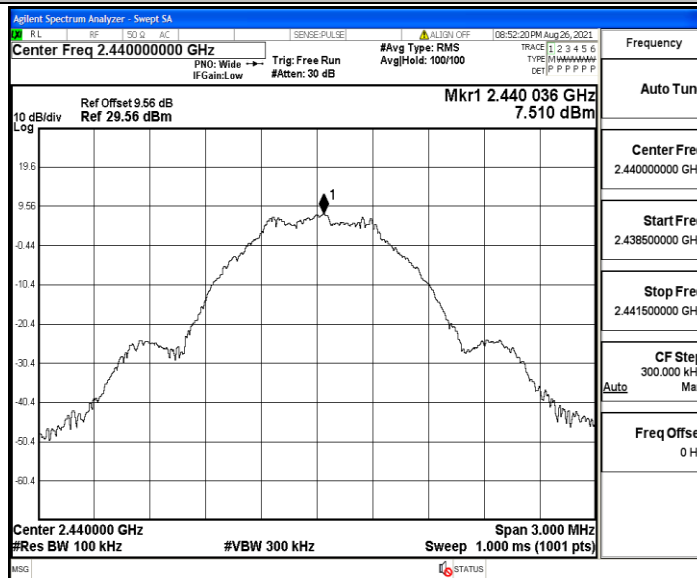
Test Result

TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	8.07	8.07	---	PASS
			30~1000	8.07	-60.81	≤-11.93	PASS
			1000~26500	8.07	-44.21	≤-11.93	PASS
		2440	Reference	7.51	7.51	---	PASS
			30~1000	7.51	-61.01	≤-12.49	PASS
			1000~26500	7.51	-43.52	≤-12.49	PASS
		2480	Reference	5.58	5.58	---	PASS
			30~1000	5.58	-61.07	≤-14.42	PASS
			1000~26500	5.58	-45.74	≤-14.42	PASS
BLE_2M	Ant1	2402	Reference	7.26	7.26	---	PASS
			30~1000	7.26	-61.55	≤-12.74	PASS
			1000~26500	7.26	-47.27	≤-12.74	PASS
		2440	Reference	7.19	7.19	---	PASS
			30~1000	7.19	-60.79	≤-12.81	PASS
			1000~26500	7.19	-41.95	≤-12.81	PASS
		2480	Reference	5.96	5.96	---	PASS
			30~1000	5.96	-60.99	≤-14.04	PASS
			1000~26500	5.96	-43.08	≤-14.04	PASS

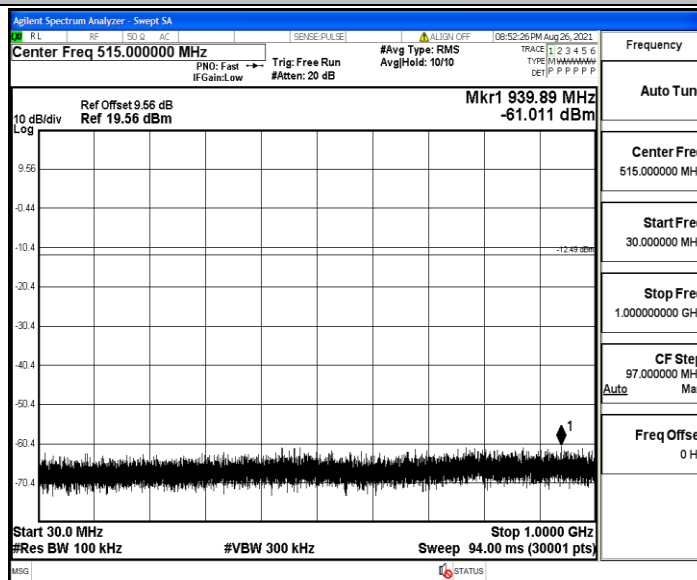
Test Graphs



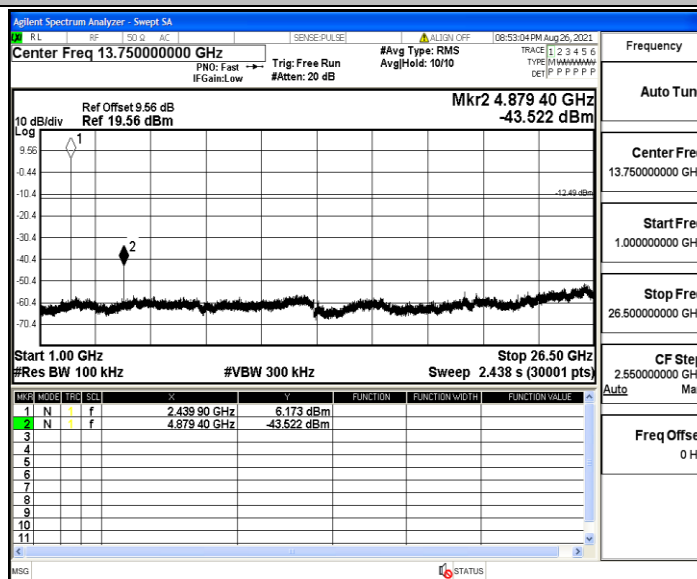
BLE_1M_Ant1_2440_0~Reference



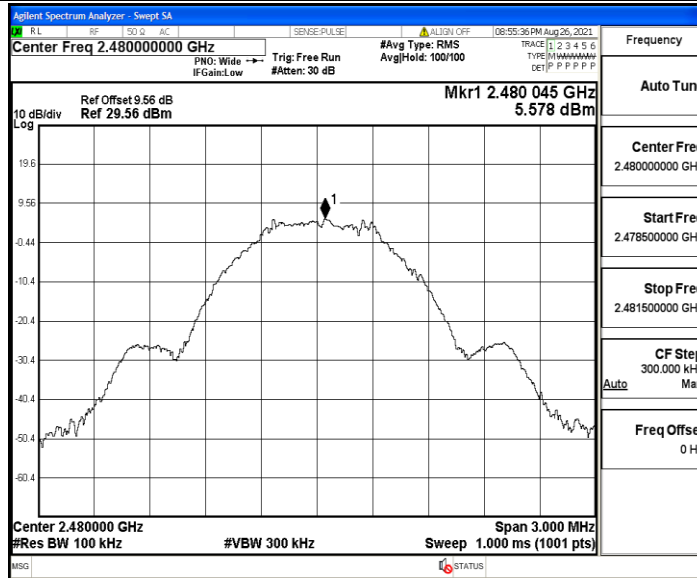
BLE_1M_Ant1_2440_30~1000



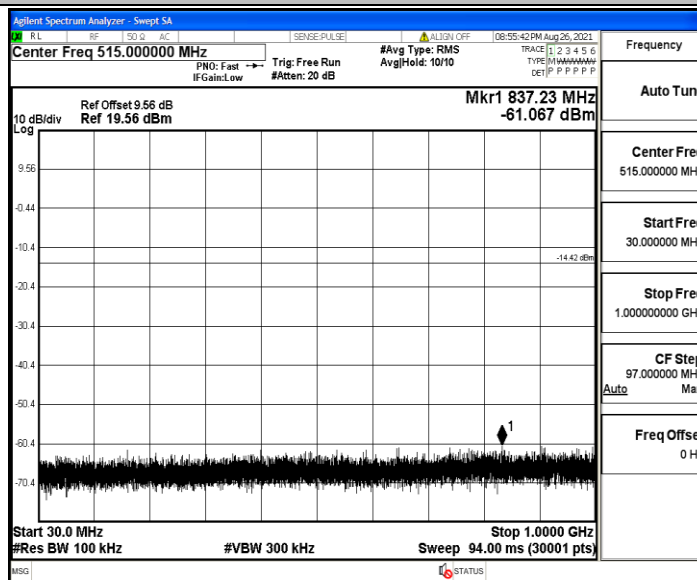
BLE_1M_Ant1_2440_1000~26500



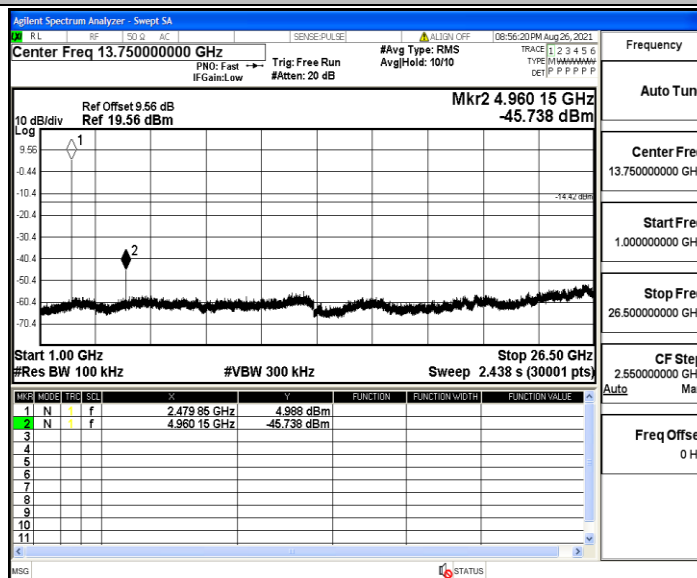
BLE_1M_Ant1_2480_0~Reference



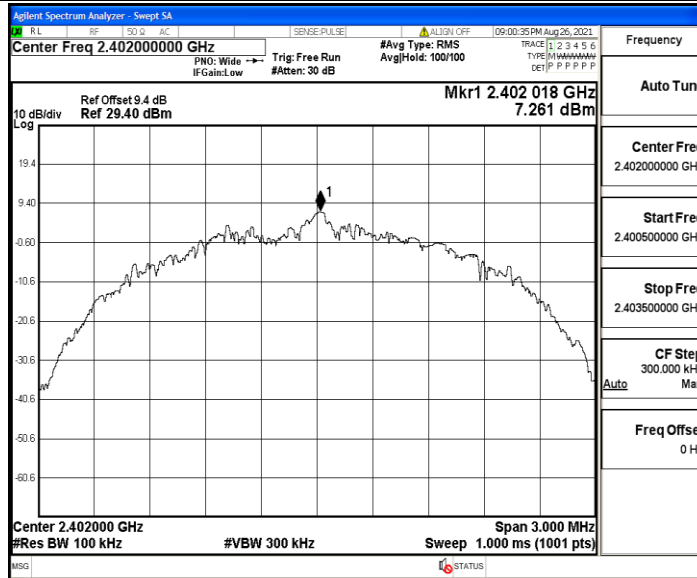
BLE_1M_Ant1_2480_30~1000



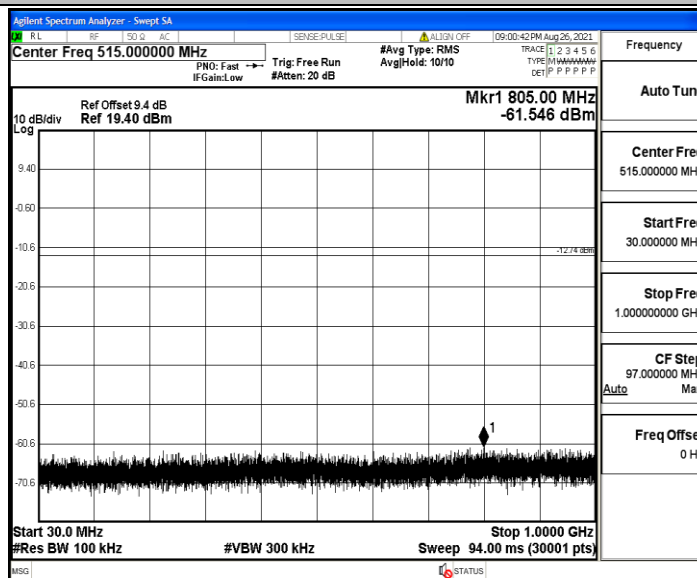
BLE_1M_Ant1_2480_1000~26500



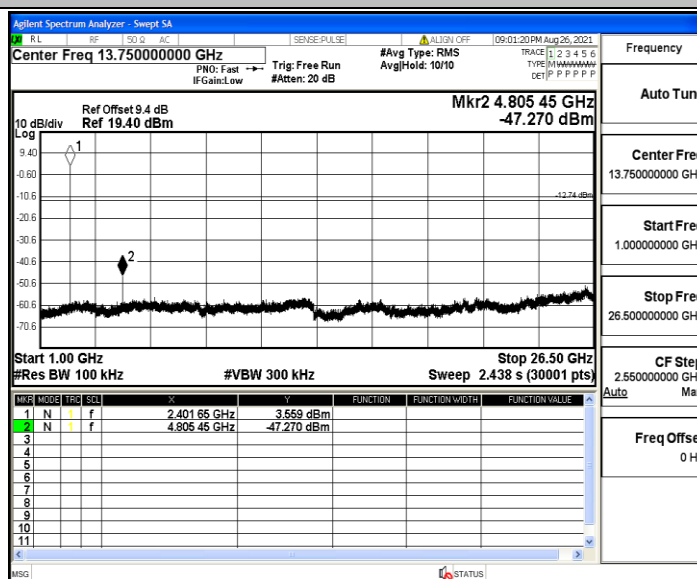
BLE_2M_Ant1_2402_0~Reference



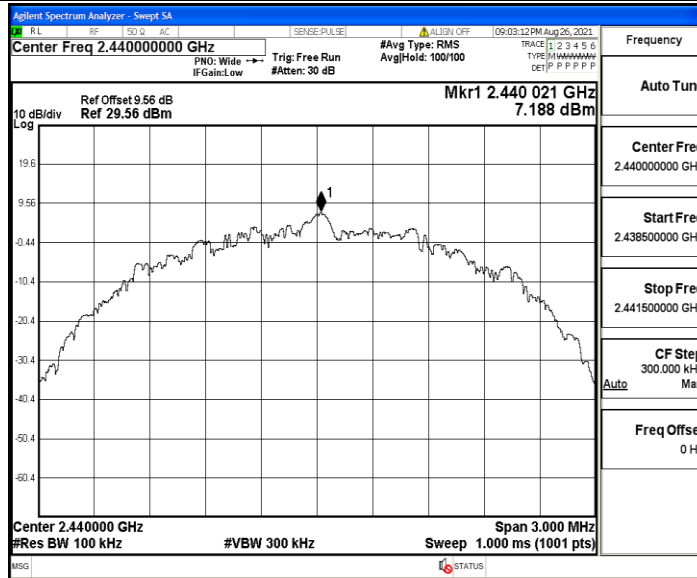
BLE_2M_Ant1_2402_30~1000



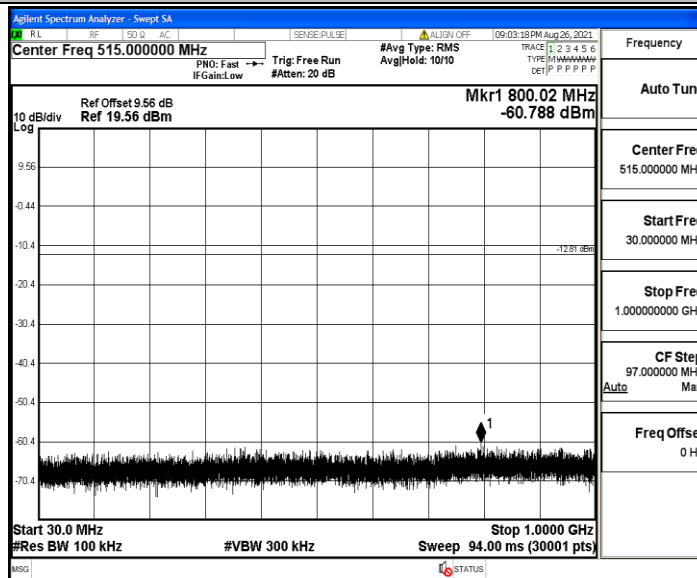
BLE_2M_Ant1_2402_1000~26500



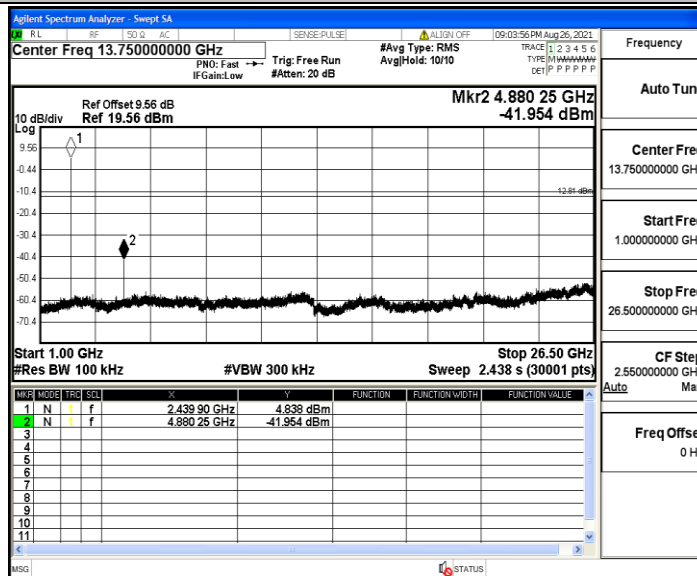
BLE_2M_Ant1_2440_0~Reference



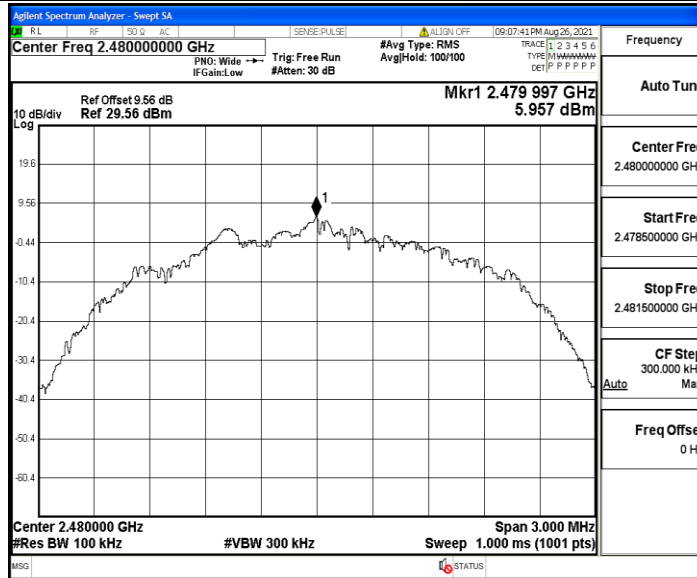
BLE_2M_Ant1_2440_30~1000



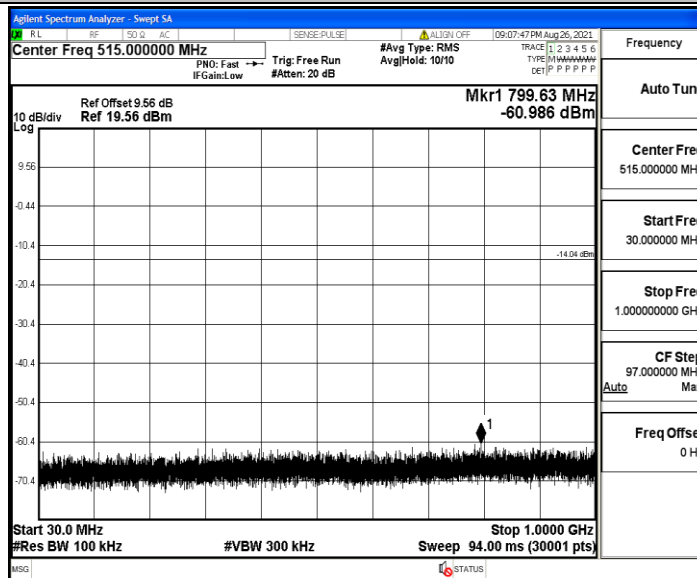
BLE_2M_Ant1_2440_1000~26500



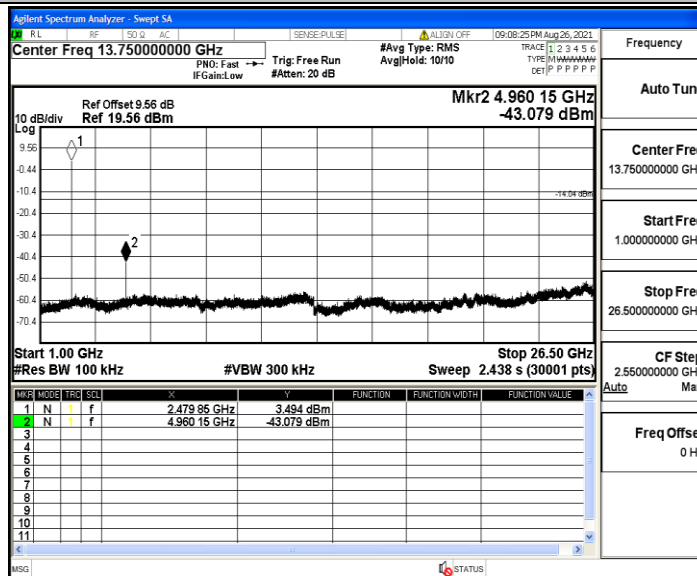
BLE_2M_Ant1_2480_0~Reference



BLE_2M_Ant1_2480_30~1000



BLE_2M_Ant1_2480_1000~26500

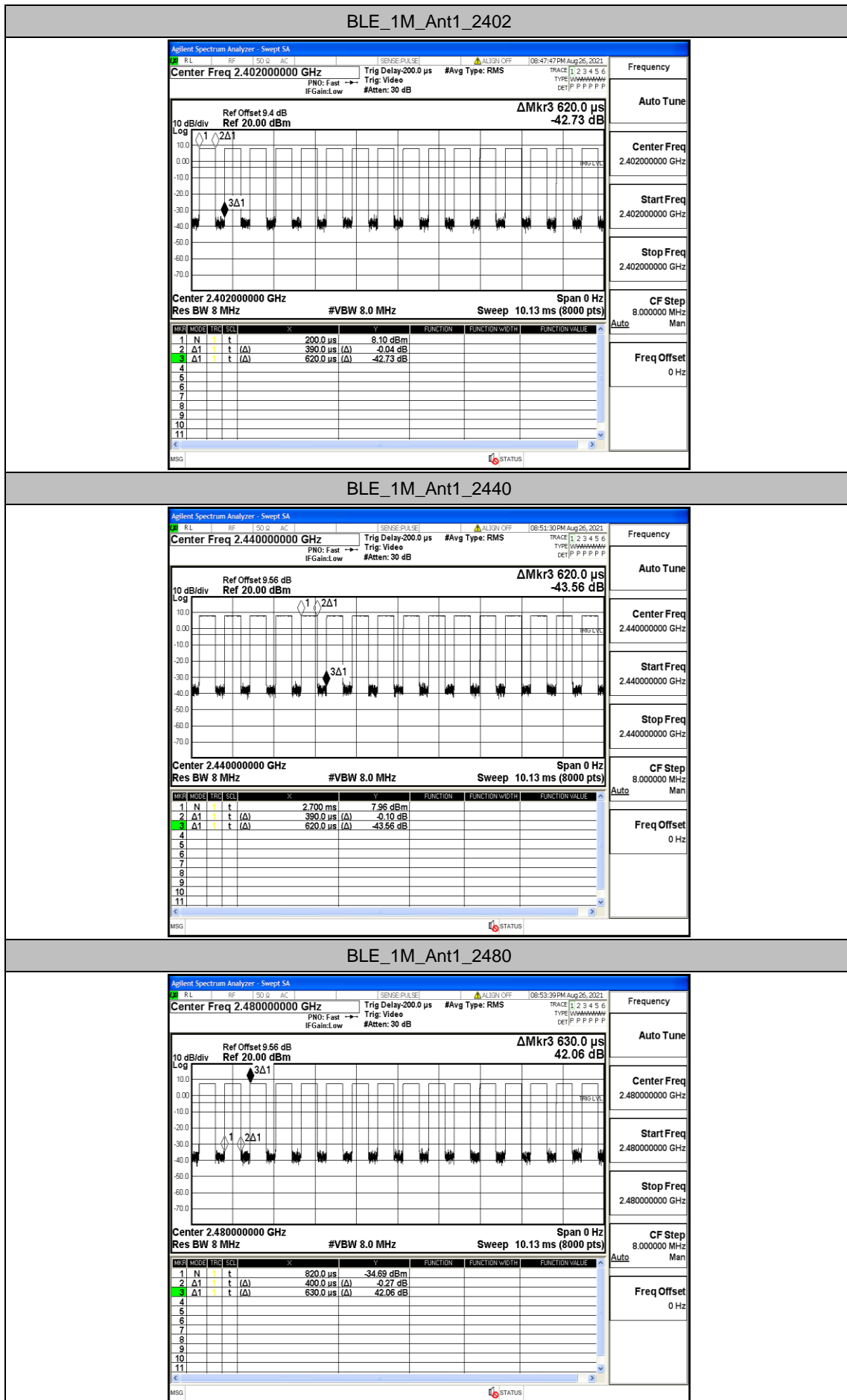


Appendix G: Duty Cycle

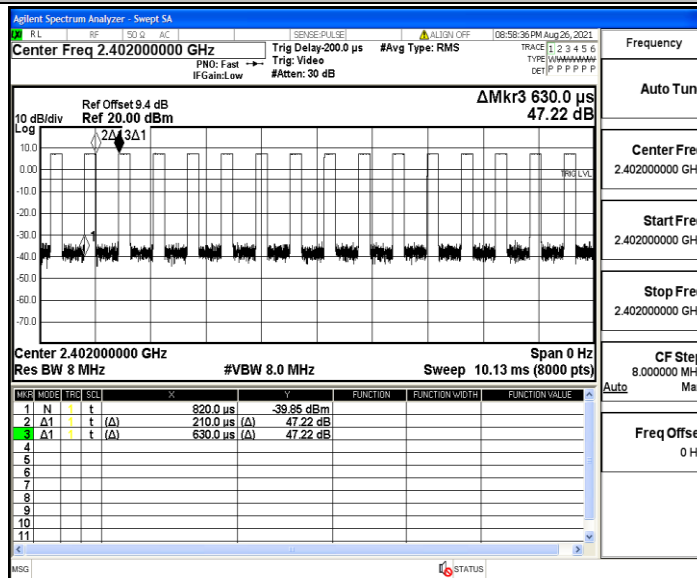
Test Result

TestMode	Antenna	Channel	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	1/B[kHz]
BLE_1M	Ant1	2402	0.39	0.62	62.90	1.61
		2440	0.39	0.62	62.90	1.61
		2480	0.40	0.63	63.49	1.59
BLE_2M	Ant1	2402	0.21	0.63	33.33	1.59
		2440	0.21	0.63	33.33	1.59
		2480	0.21	0.62	33.87	1.61

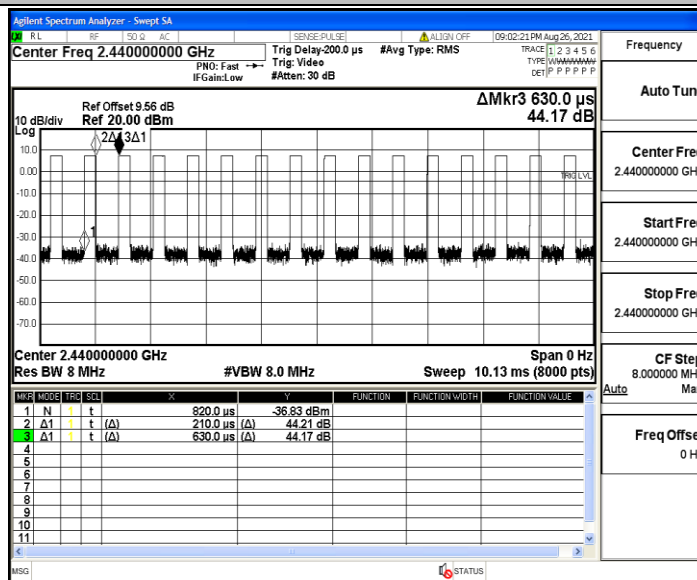
Test Graphs



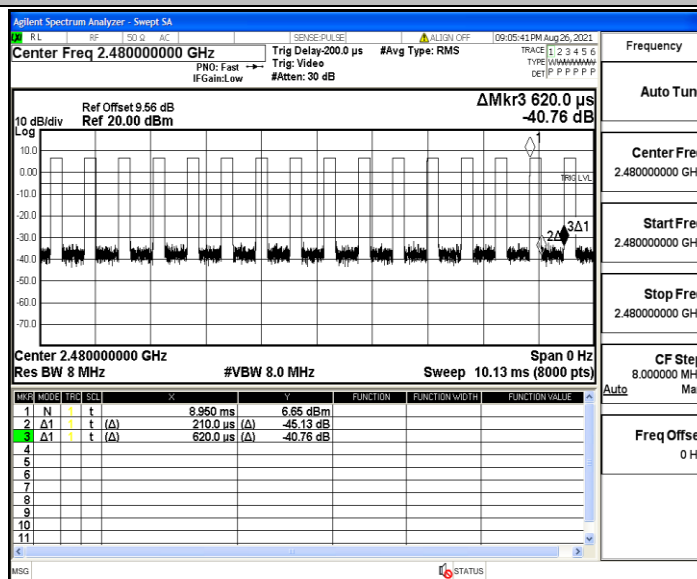
BLE_2M_Ant1_2402



BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



Appendix H: Emissions in Restricted Bands

Test Result

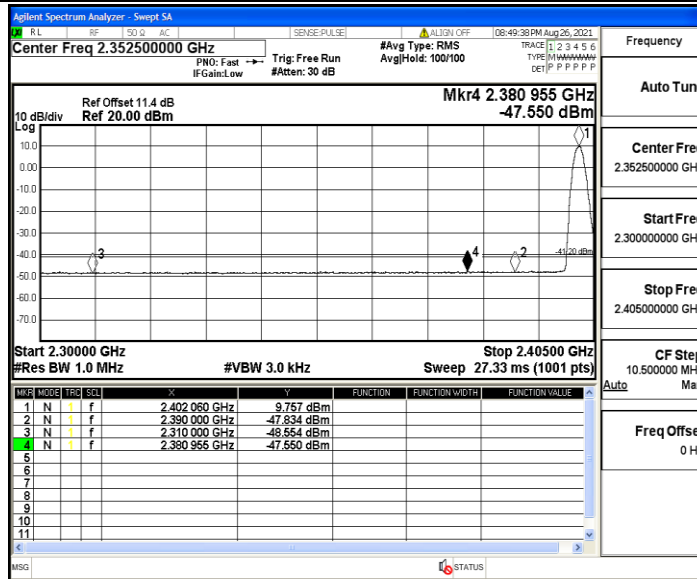
TestMode	Antenna	ChName	Channel	Detector	Freq. [MHz]	Result [dBm]	Limit [dBm]	Verdict
BLE_1M	Ant1	Low	2402	AV	2310.000	-48.55	≤-41.20	PASS
				AV	2380.955	-47.55	≤-41.20	PASS
				AV	2390.000	-47.83	≤-41.20	PASS
				Peak	2310.000	-40.35	≤-21.20	PASS
				Peak	2367.410	-38.66	≤-21.20	PASS
				Peak	2390.000	-41.32	≤-21.20	PASS
		High	2480	AV	2483.500	-45.22	≤-41.20	PASS
				AV	2483.520	-45.22	≤-41.20	PASS
				AV	2500.000	-47.23	≤-41.20	PASS
				Peak	2483.500	-40.04	≤-21.20	PASS
				Peak	2484.720	-38.91	≤-21.20	PASS
				Peak	2500.000	-40.18	≤-21.20	PASS
BLE_2M	Ant1	Low	2402	AV	2310.000	-48.27	≤-41.20	PASS
				AV	2380.640	-47.06	≤-41.20	PASS
				AV	2390.000	-47.71	≤-41.20	PASS
				Peak	2310.000	-41.01	≤-21.20	PASS
				Peak	2375.705	-38.87	≤-21.20	PASS
				Peak	2390.000	-40.89	≤-21.20	PASS
		High	2480	AV	2483.500	-42.18	≤-41.20	PASS
				AV	2483.520	-42.18	≤-41.20	PASS
				AV	2500.000	-47.07	≤-41.20	PASS
				Peak	2483.500	-38.77	≤-21.20	PASS
				Peak	2483.600	-37.95	≤-21.20	PASS
				Peak	2500.000	-41.9	≤-21.20	PASS

Note:

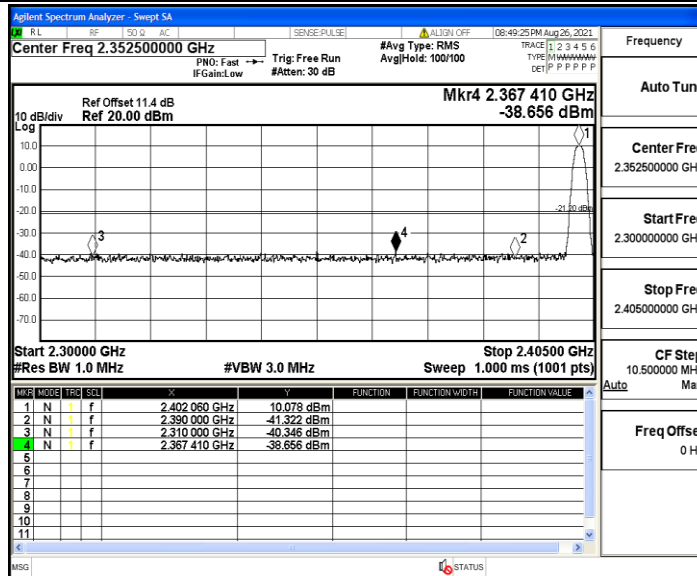
1. The Antenna Gain is compensated in the graph with 2dBi and Antenna Gain which is Higher.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

Test Graphs

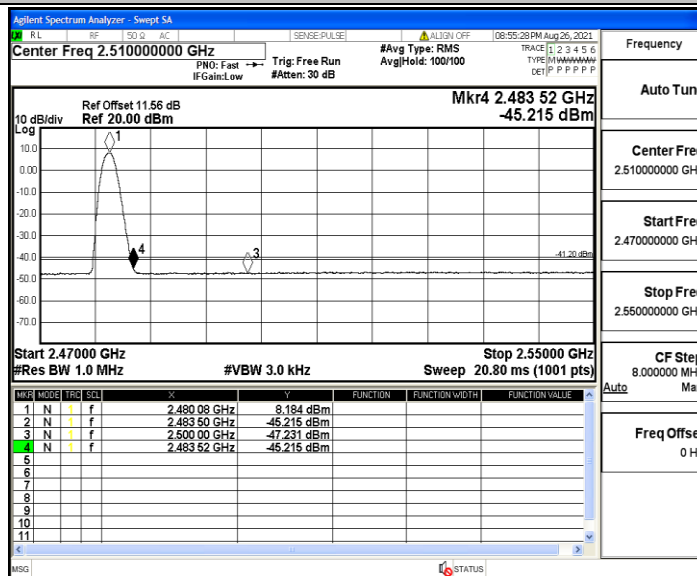
BLE_1M_Ant1_Low_2402_AV



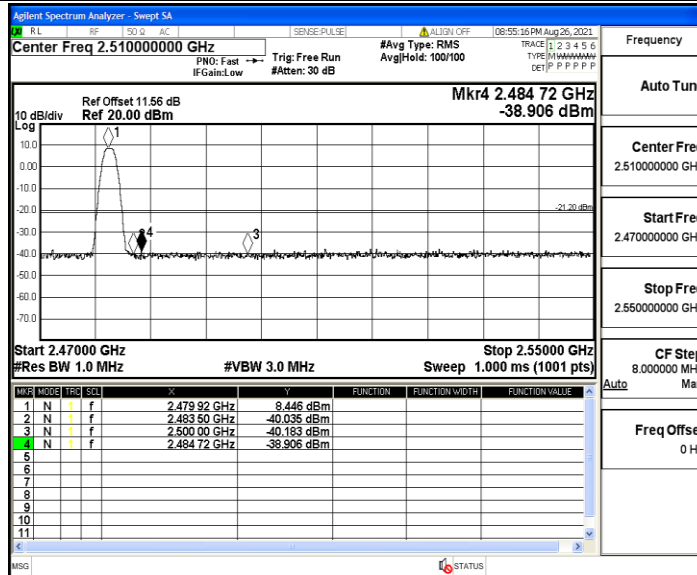
BLE_1M_Ant1_Low_2402_Peak



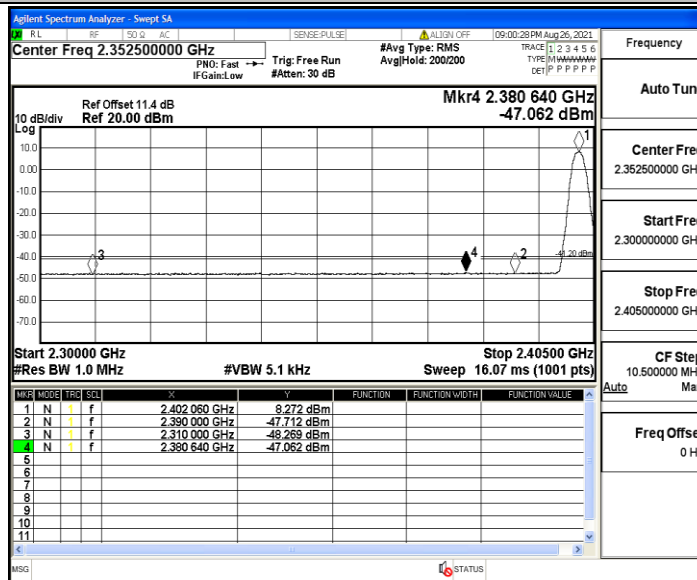
BLE_1M_Ant1_High_2480_AV



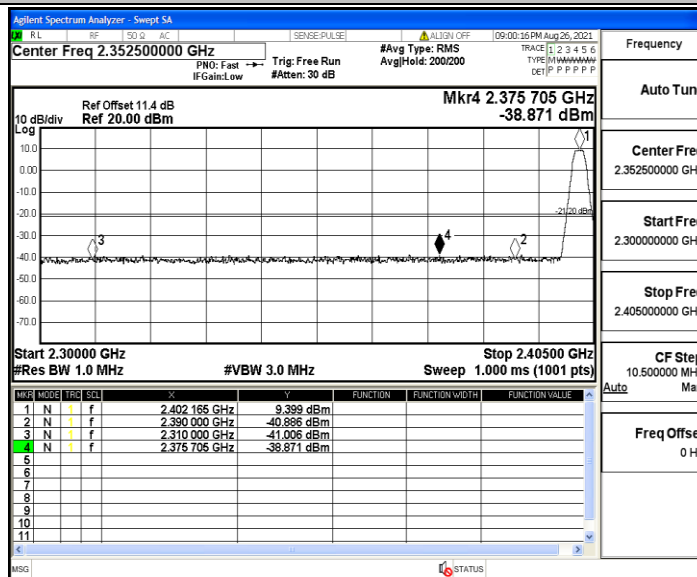
BLE_1M_Ant1_High_2480_Peak



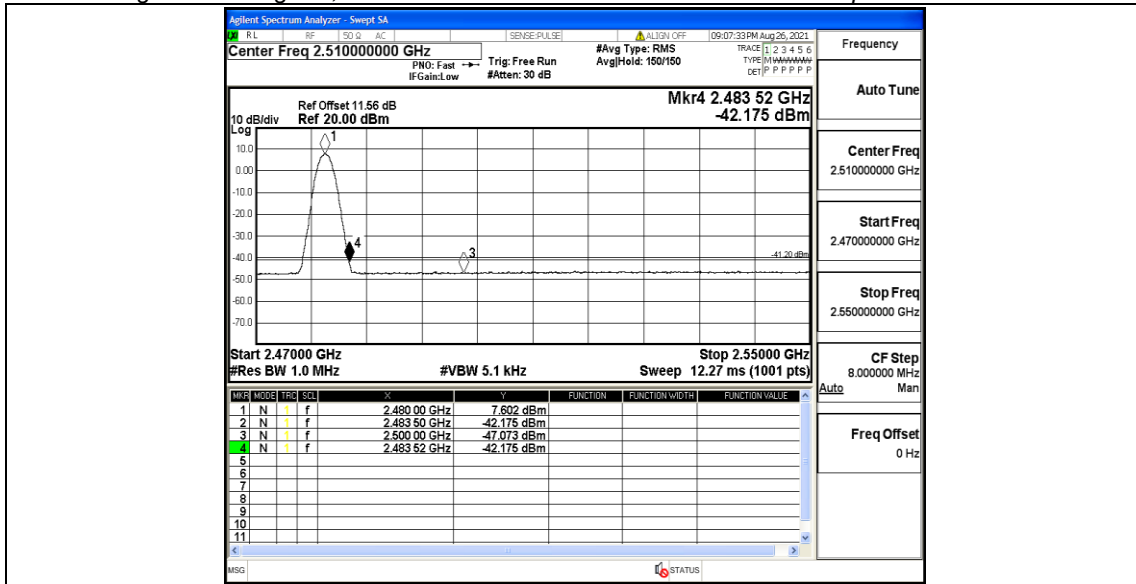
BLE_2M_Ant1_Low_2402_AV



BLE_2M_Ant1_Low_2402_Peak



BLE_2M_Ant1_High_2480_AV



BLE_2M_Ant1_High_2480_Peak

