



Appendix A

RF Test Data for BT LE (Conducted Measurement)

Product Name: Payment Terminal

Test Model: NYC1

Environmental Conditions

Temperature:	23.8℃
Relative Humidity:	52.2%
ATM Pressure:	100.0 kPa
Test Engineer:	Joker.Hu Joker Hu
Supervised by:	Li Huan Li Huan





A.1 DTS Bandwidth

Test Result

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.688	2401.676	2402.364	0.5	PASS
		2440	0.680	2439.676	2440.356	0.5	PASS
		2480	0.680	2479.676	2480.356	0.5	PASS
BLE_2M	Ant1	2402	1.052	2401.484	2402.536	0.5	PASS
		2440	1.040	2439.484	2440.524	0.5	PASS
		2480	1.044	2479.484	2480.528	0.5	PASS

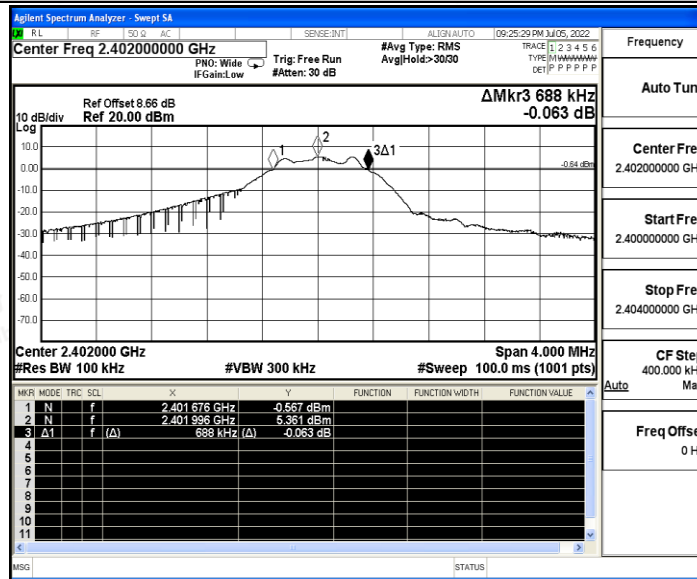


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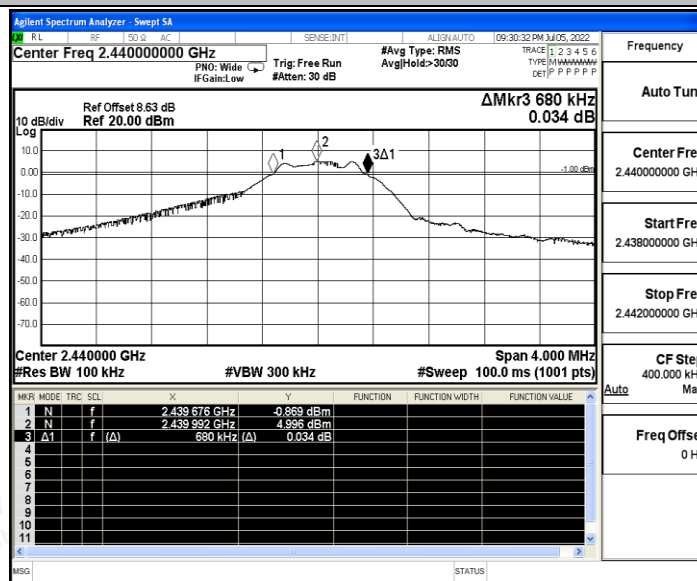


Test Graphs

BLE_1M_Ant1_2402

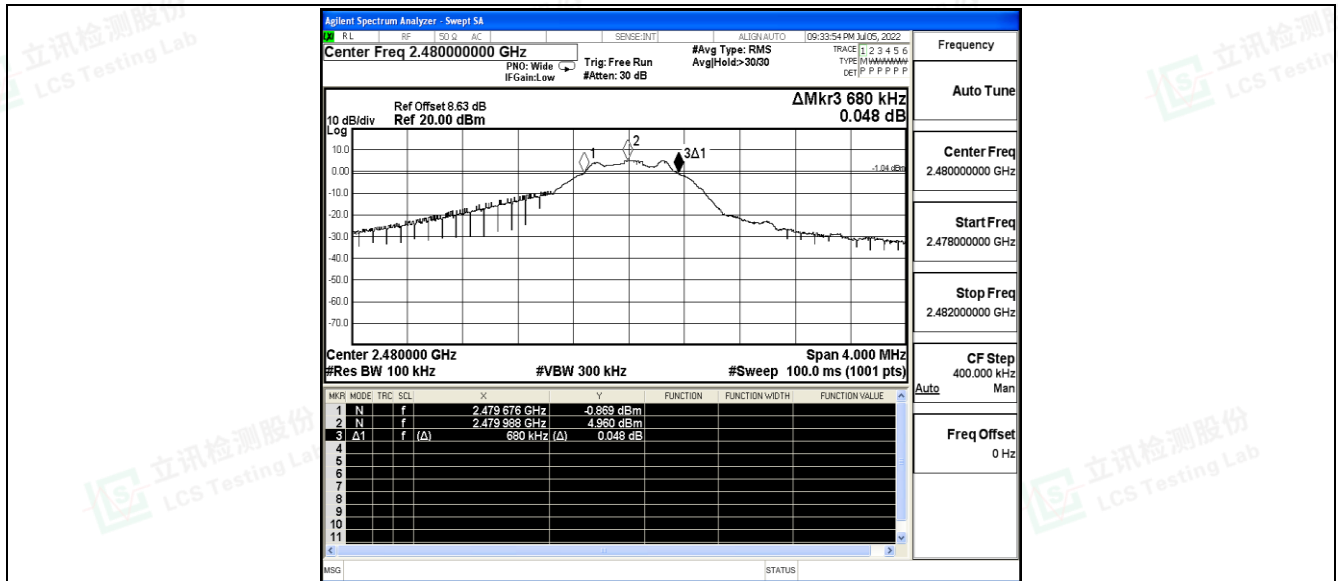


BLE_1M_Ant1_2440

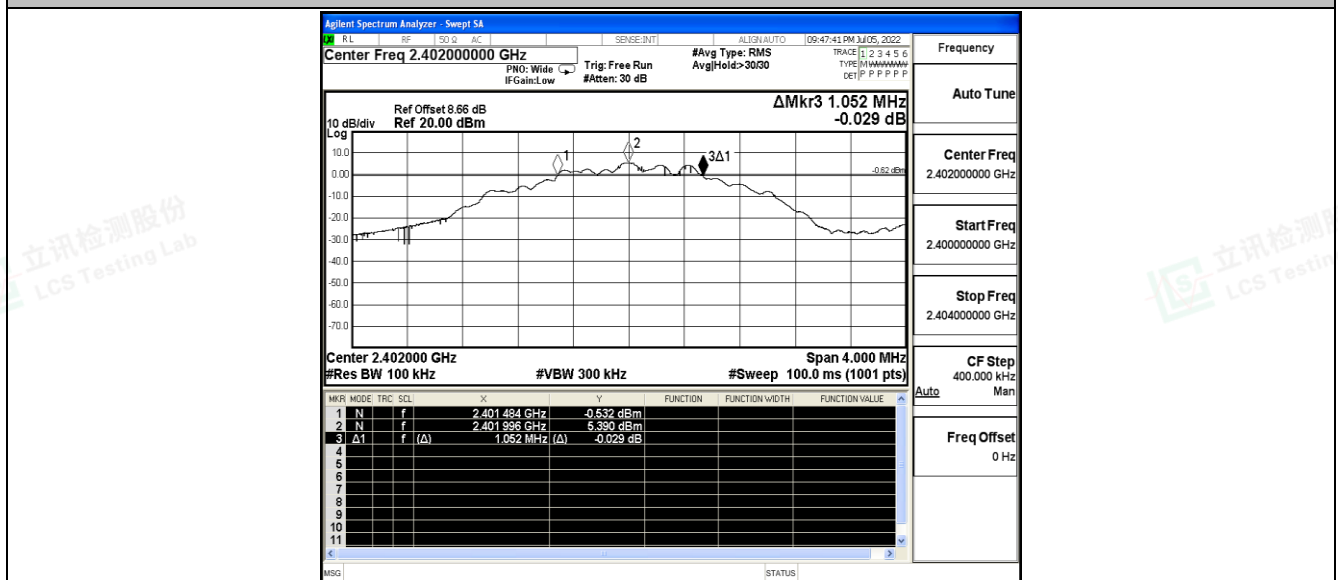


BLE_1M_Ant1_2480





BLE_2M_Ant1_2402



BLE_2M_Ant1_2440







A.2 Occupied Channel Bandwidth

Test Result

TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.0553	2401.475	2402.530	---	---
		2440	1.0687	2439.467	2440.536	---	---
		2480	1.0744	2479.462	2480.536	---	---
BLE_2M	Ant1	2402	2.0930	2400.967	2403.060	---	---
		2440	2.0524	2438.986	2441.038	---	---
		2480	2.0462	2478.989	2481.035	---	---

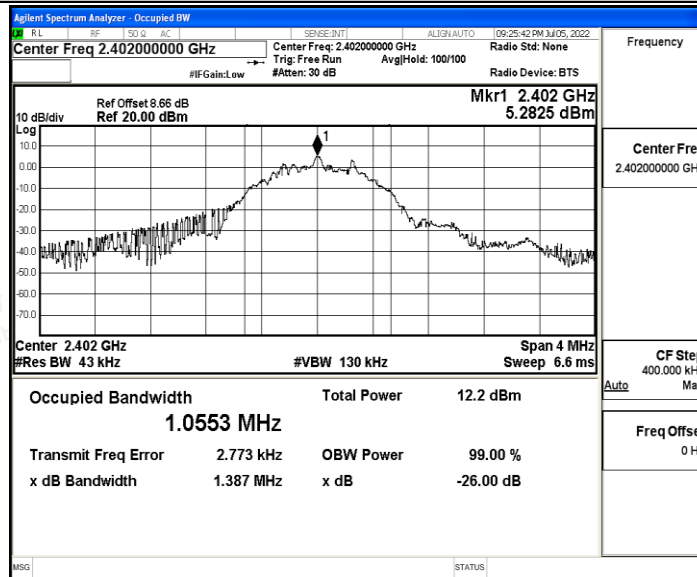


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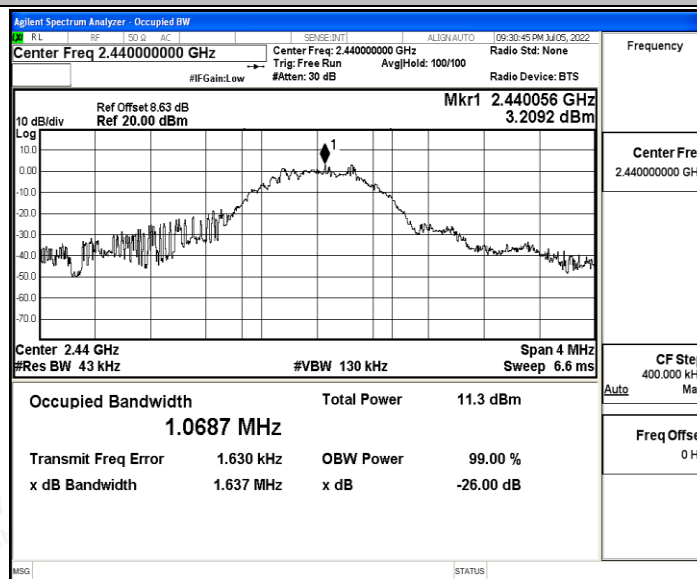


Test Graphs

BLE_1M_Ant1_2402

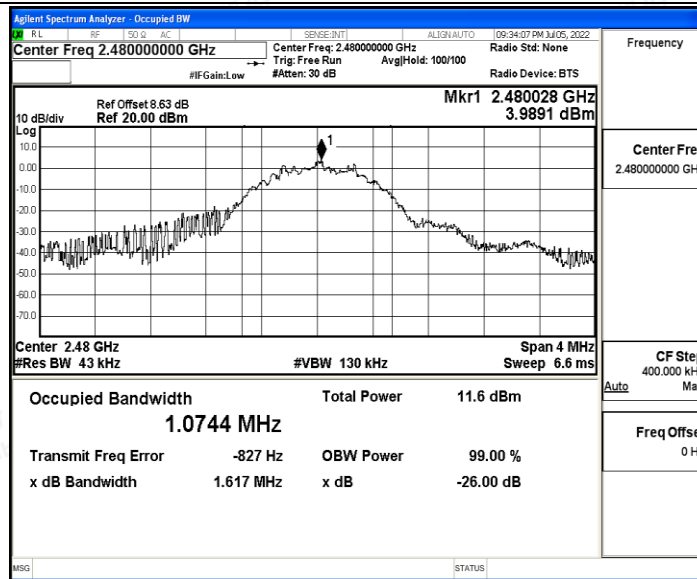


BLE_1M_Ant1_2440

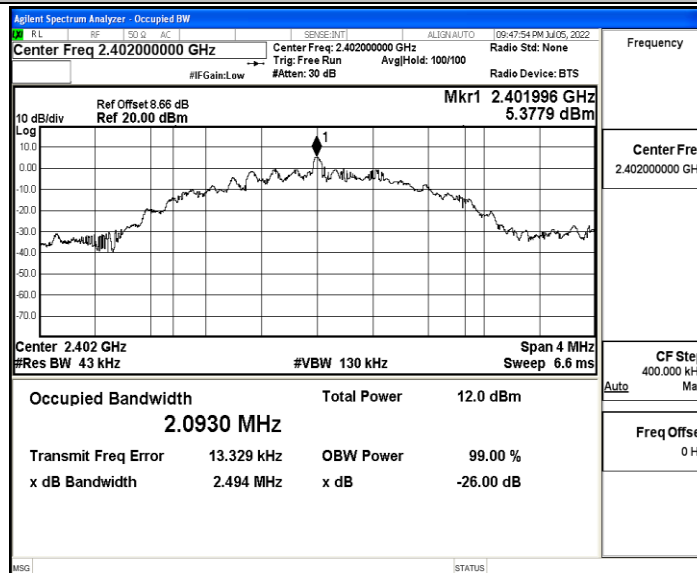


BLE_1M_Ant1_2480



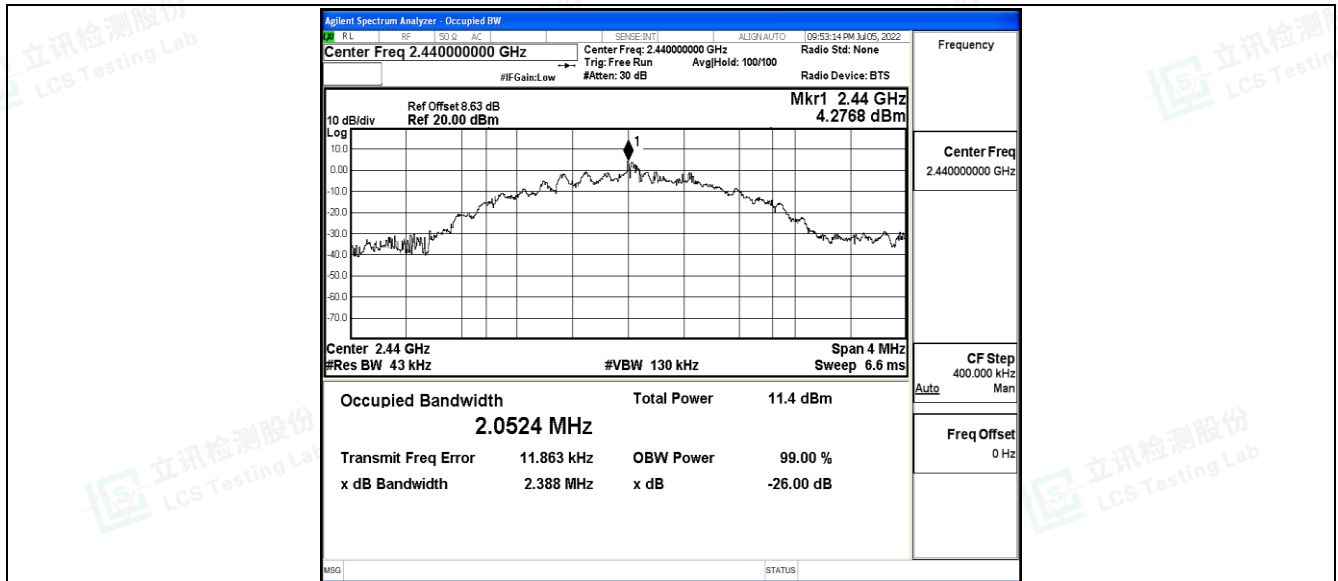


BLE_2M_Ant1_2402

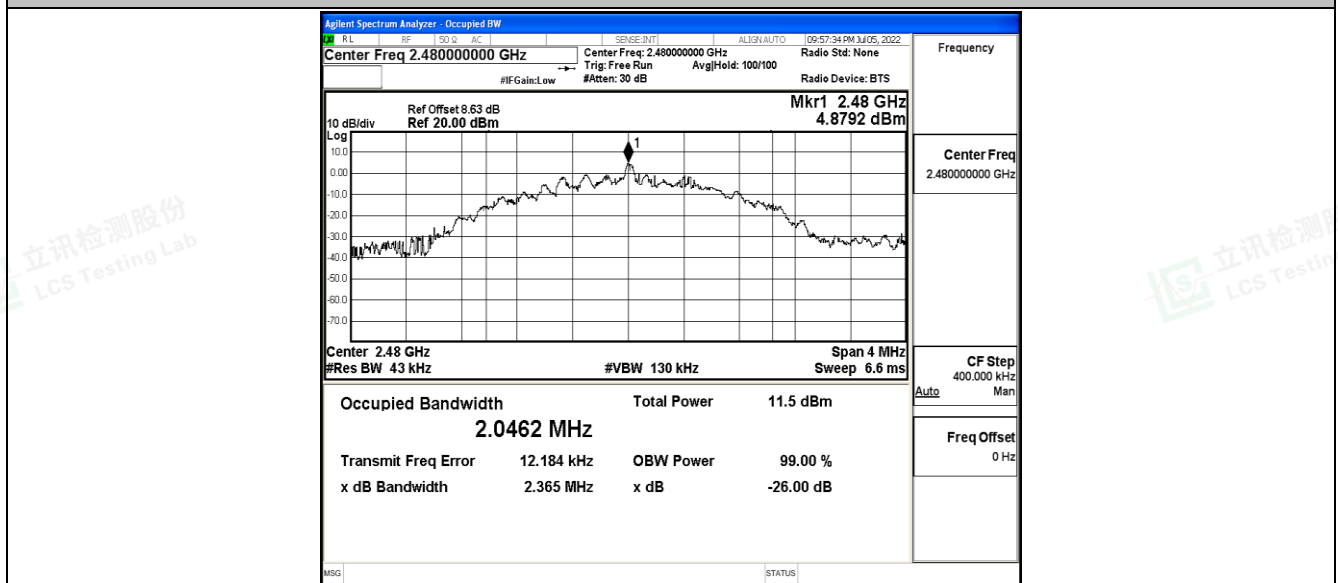


BLE_2M_Ant1_2440





BLE_2M_Ant1_2480





A.3 Maximum peak conducted output power

Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	5.43	≤30	PASS
		2440	5.04	≤30	PASS
		2480	5.01	≤30	PASS
BLE_2M	Ant1	2402	5.44	≤30	PASS
		2440	5.10	≤30	PASS
		2480	5.06	≤30	PASS

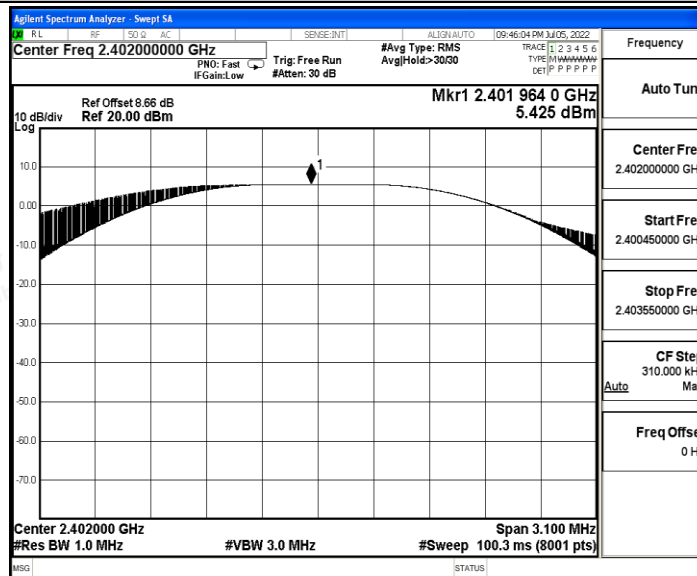


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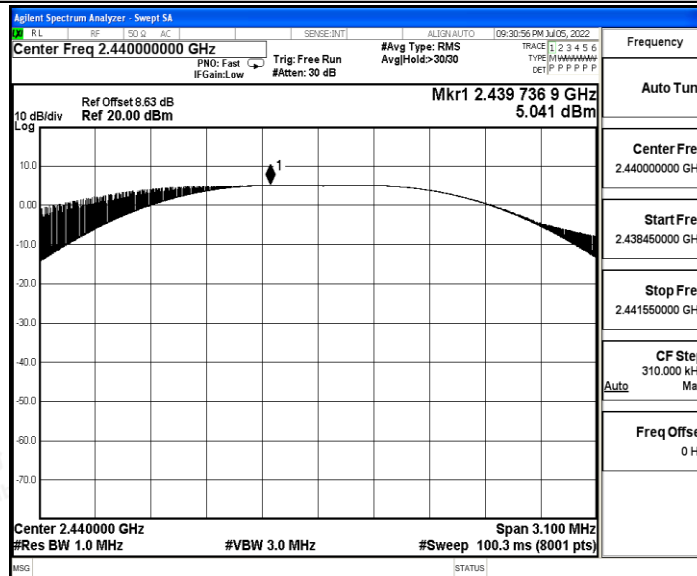


Test Graphs

BLE_1M_Ant1_2402

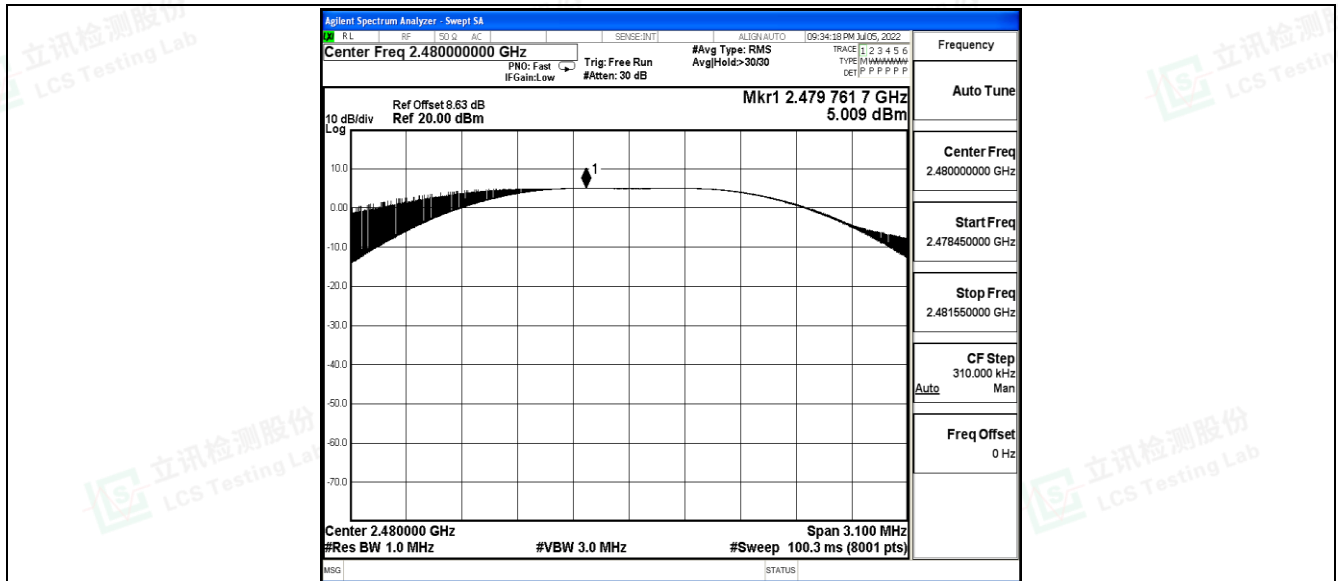


BLE_1M_Ant1_2440

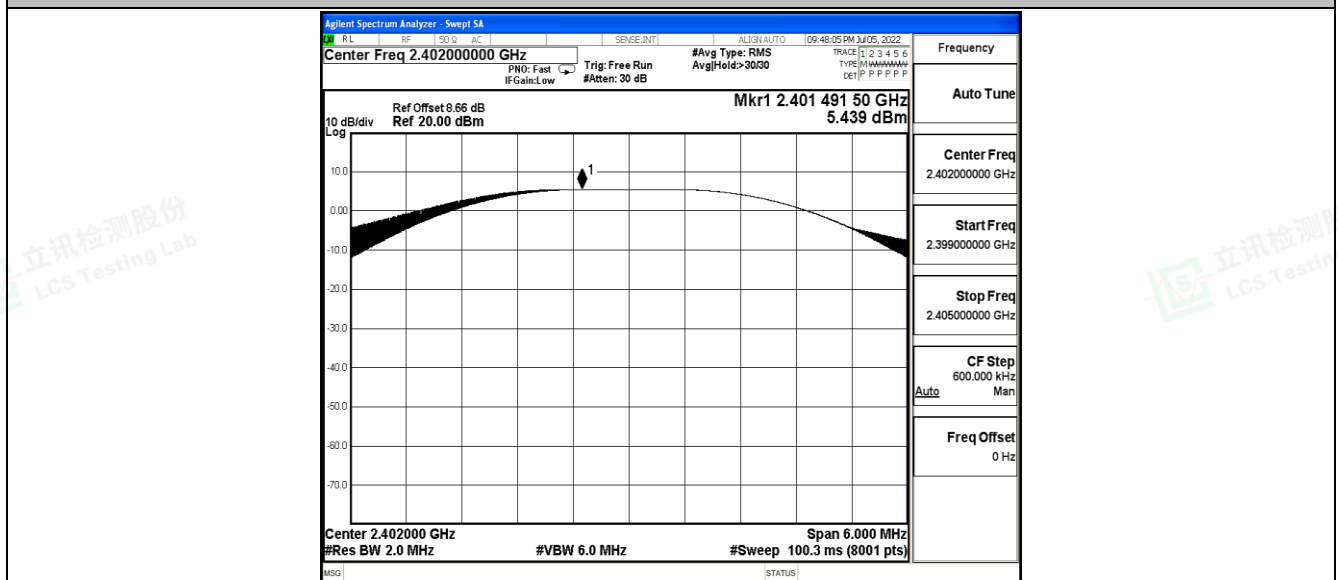


BLE_1M_Ant1_2480





BLE_2M_Ant1_2402



BLE_2M_Ant1_2440







A.4 Maximum power spectral density

Test Result

TestMode	Antenna	Channel	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-6.28	≤8.00	PASS
		2440	-7.1	≤8.00	PASS
		2480	-8.72	≤8.00	PASS
BLE_2M	Ant1	2402	-6.46	≤8.00	PASS
		2440	-6.77	≤8.00	PASS
		2480	-7.2	≤8.00	PASS

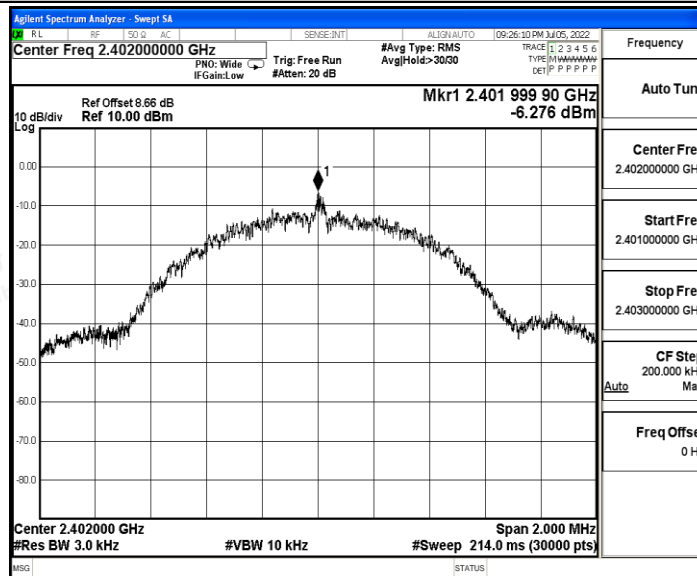


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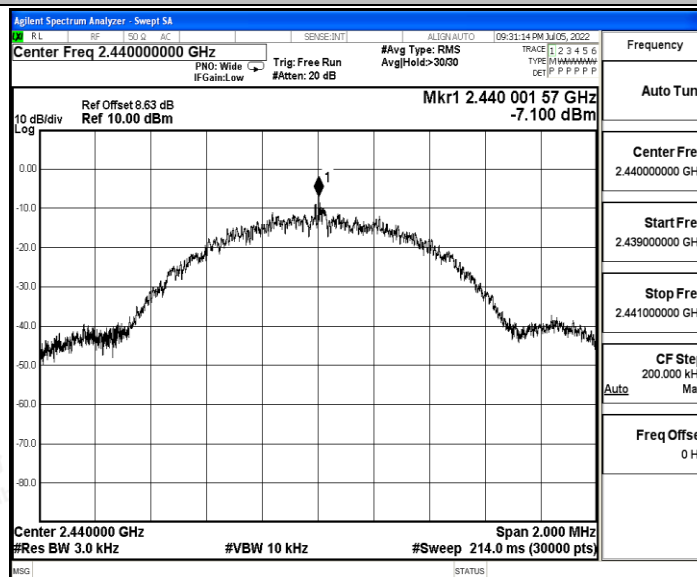


Test Graphs

BLE_1M_Ant1_2402

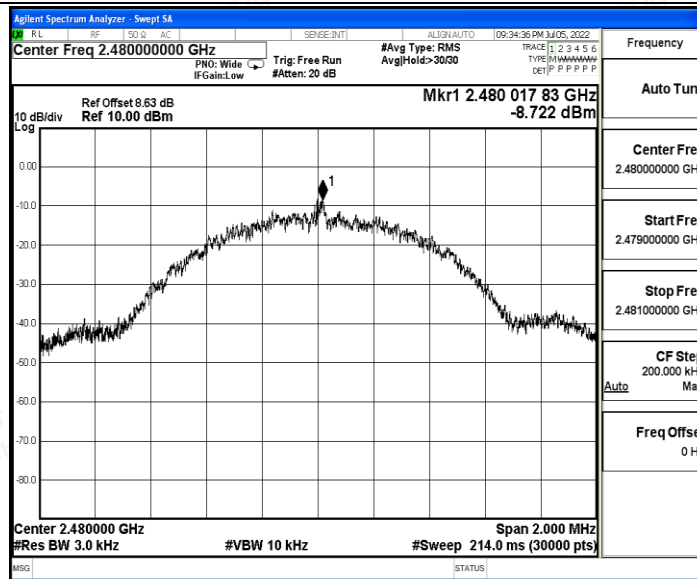


BLE_1M_Ant1_2440

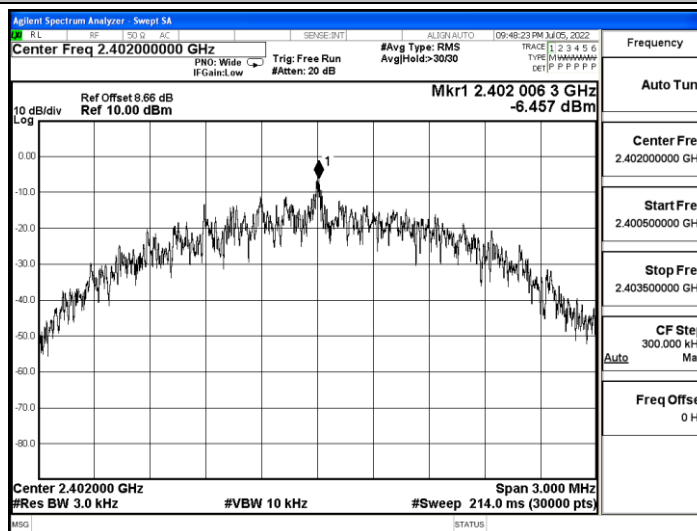


BLE_1M_Ant1_2480

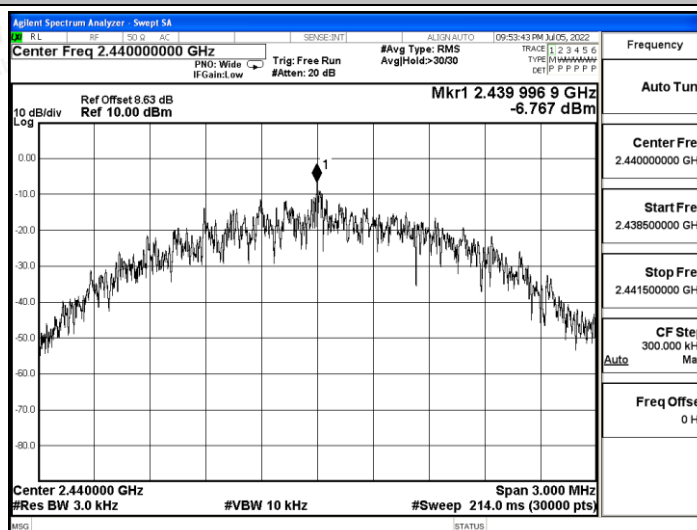




BLE_2M_Ant1_2402

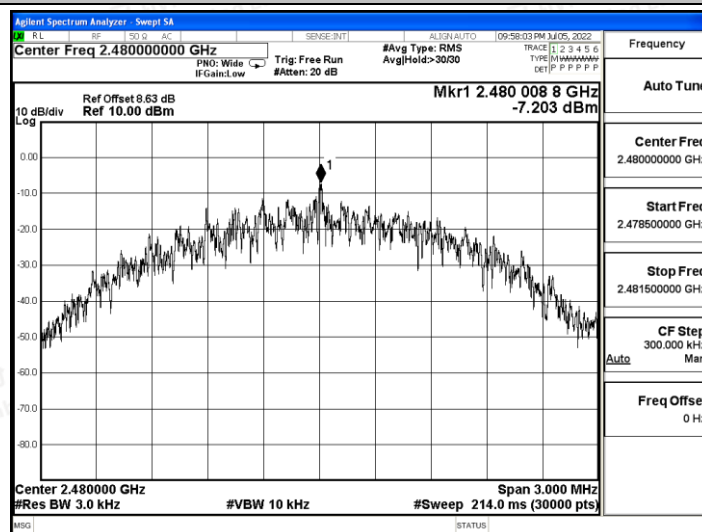


BLE_2M_Ant1_2440





BLE_2M_Ant1_2480



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A.5 Band edge measurements

Test Result

TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	5.41	-29.21	≤-14.59	PASS
		High	2480	4.95	-37.67	≤-15.05	PASS
BLE_2M	Ant1	Low	2402	5.41	-27.82	≤-14.59	PASS
		High	2480	5.17	-37.57	≤-14.83	PASS

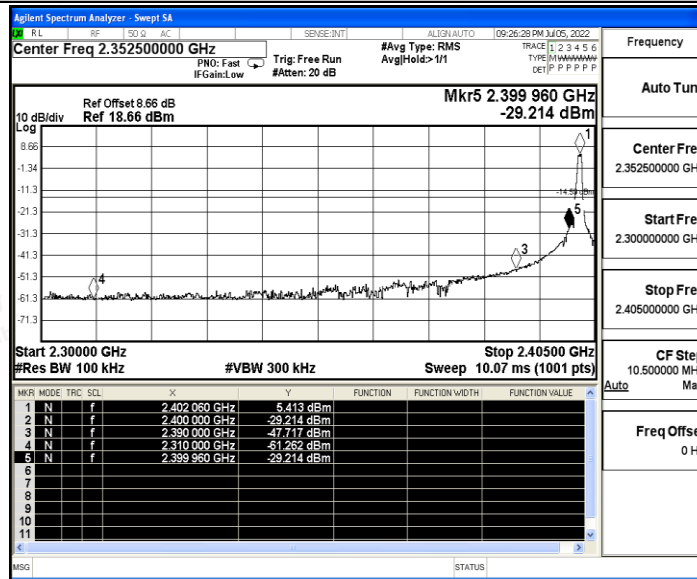


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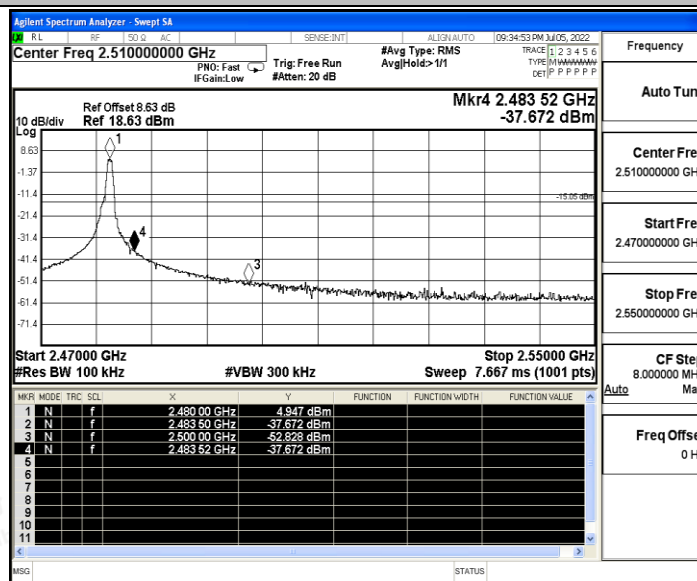


Test Graphs

BLE_1M_Ant1_Low_2402

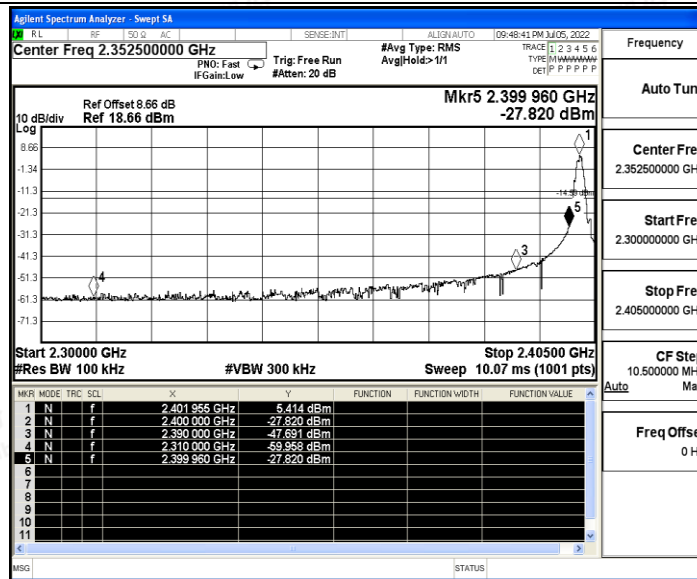


BLE_1M_Ant1_High_2480

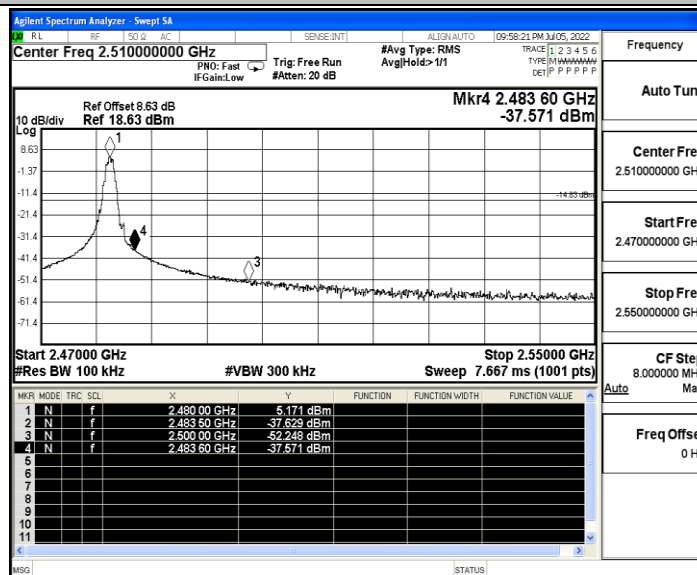


BLE_2M_Ant1_Low_2402





BLE_2M_Ant1_High_2480





A.6 Conducted Spurious Emission

Test Result

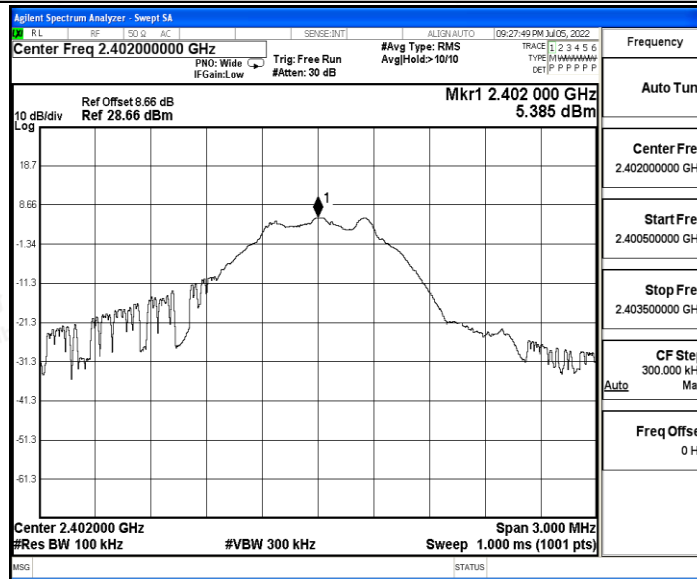
TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	5.39	5.39	---	PASS
			30~1000	5.39	-57.15	≤-14.61	PASS
			1000~26500	5.39	-44.72	≤-14.61	PASS
		2440	Reference	5.01	5.01	---	PASS
			30~1000	5.01	-57.3	≤-14.99	PASS
			1000~26500	5.01	-42.16	≤-14.99	PASS
		2480	Reference	4.60	4.60	---	PASS
			30~1000	4.60	-36.9	≤-15.4	PASS
			1000~26500	4.60	-37.99	≤-15.4	PASS
BLE_2M	Ant1	2402	Reference	5.41	5.41	---	PASS
			30~1000	5.41	-39.99	≤-14.59	PASS
			1000~26500	5.41	-46.14	≤-14.59	PASS
		2440	Reference	5.03	5.03	---	PASS
			30~1000	5.03	-45.02	≤-14.97	PASS
			1000~26500	5.03	-41.04	≤-14.97	PASS
		2480	Reference	5.03	5.03	---	PASS
			30~1000	5.03	-41.48	≤-14.97	PASS
			1000~26500	5.03	-40.68	≤-14.97	PASS



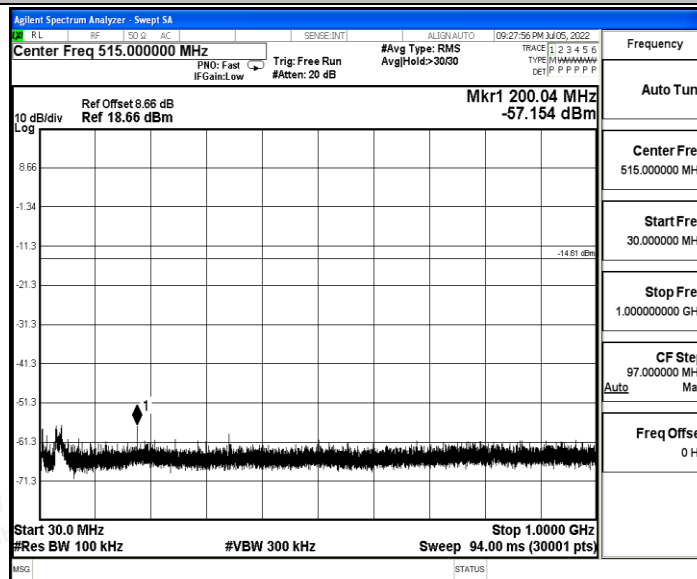


Test Graphs

BLE_1M_Ant1_2402_0~Reference

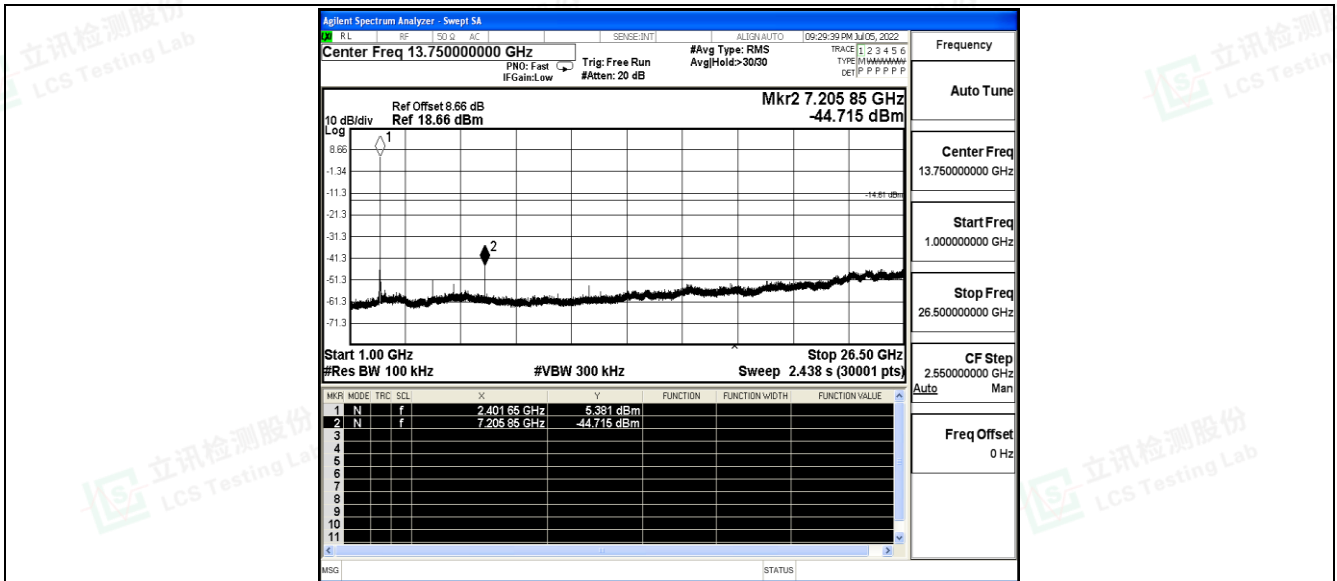


BLE_1M_Ant1_2402_30~1000

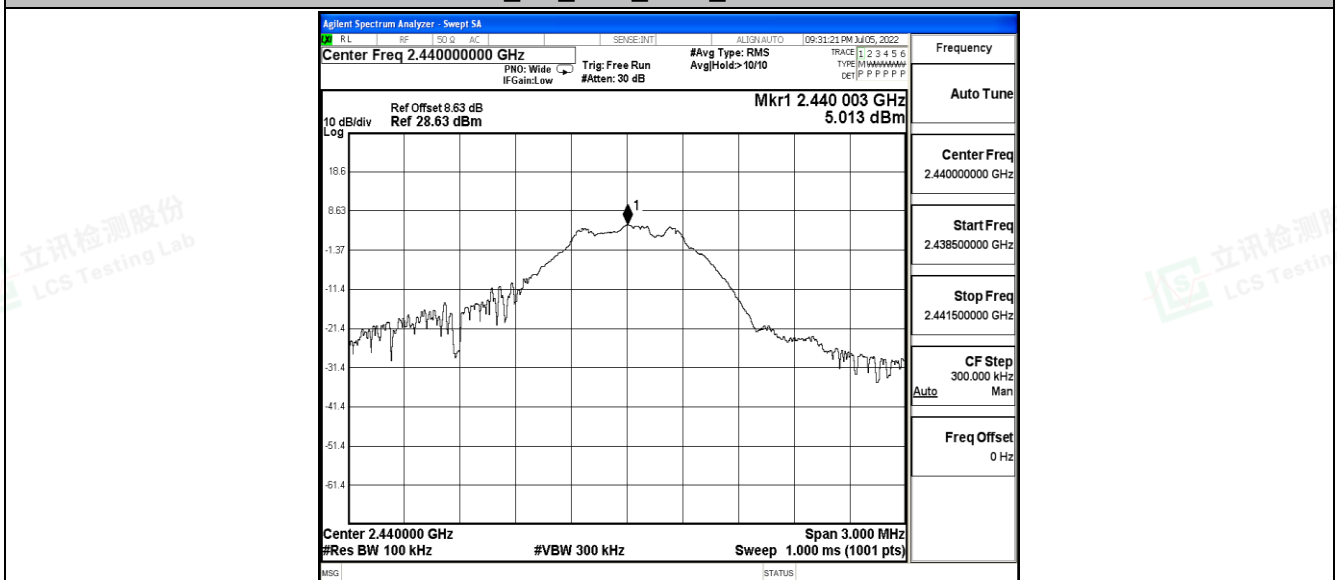


BLE_1M_Ant1_2402_1000~26500



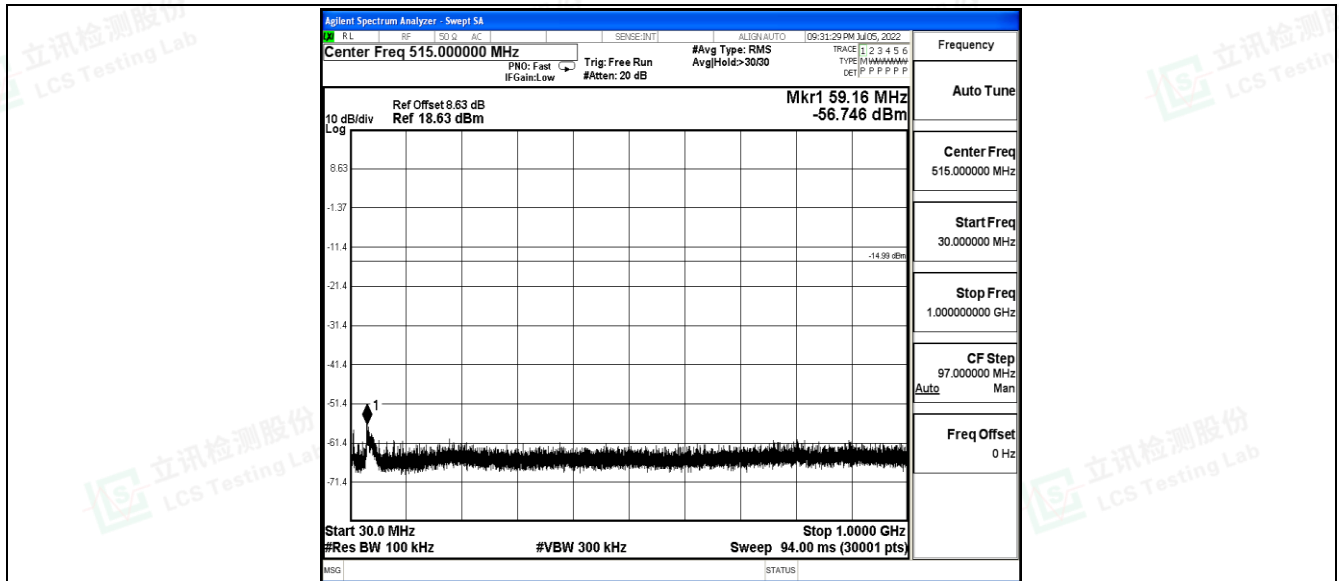


BLE_1M_Ant1_2440_0~Reference

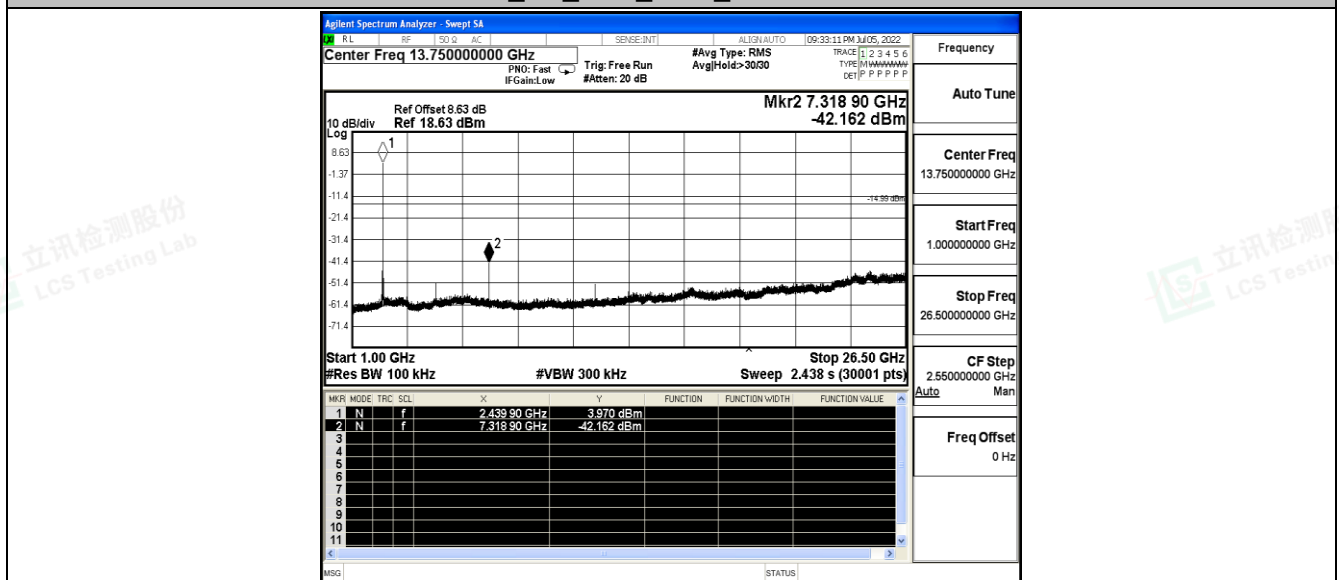


BLE_1M_Ant1_2440_30~1000



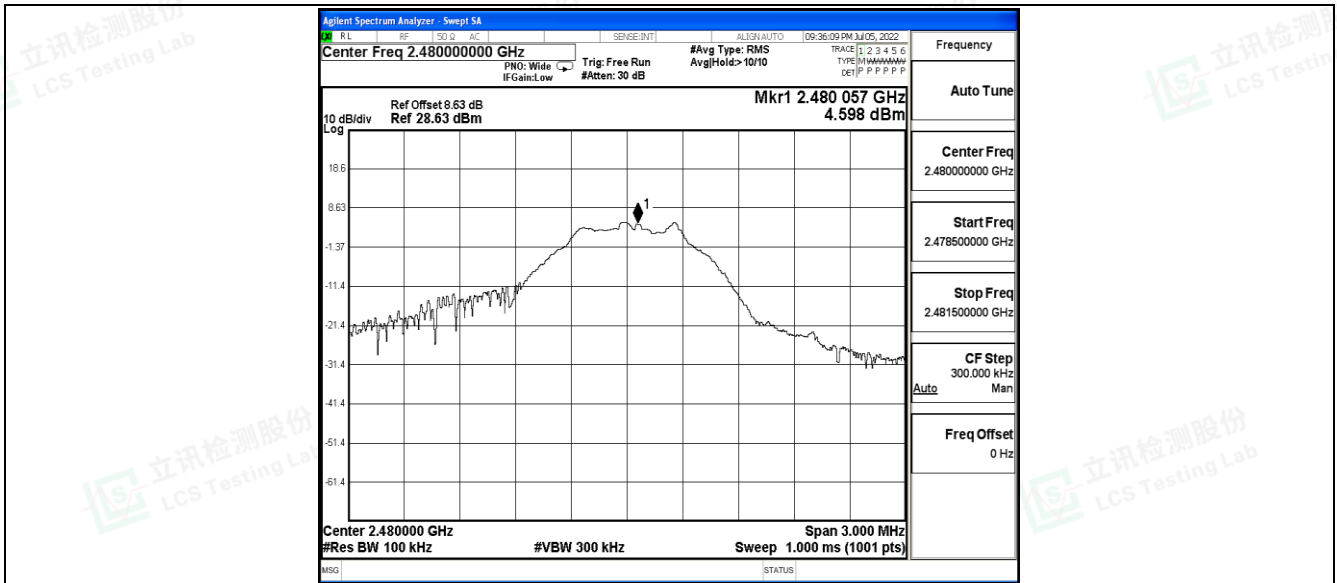


BLE_1M_Ant1_2440_1000~26500

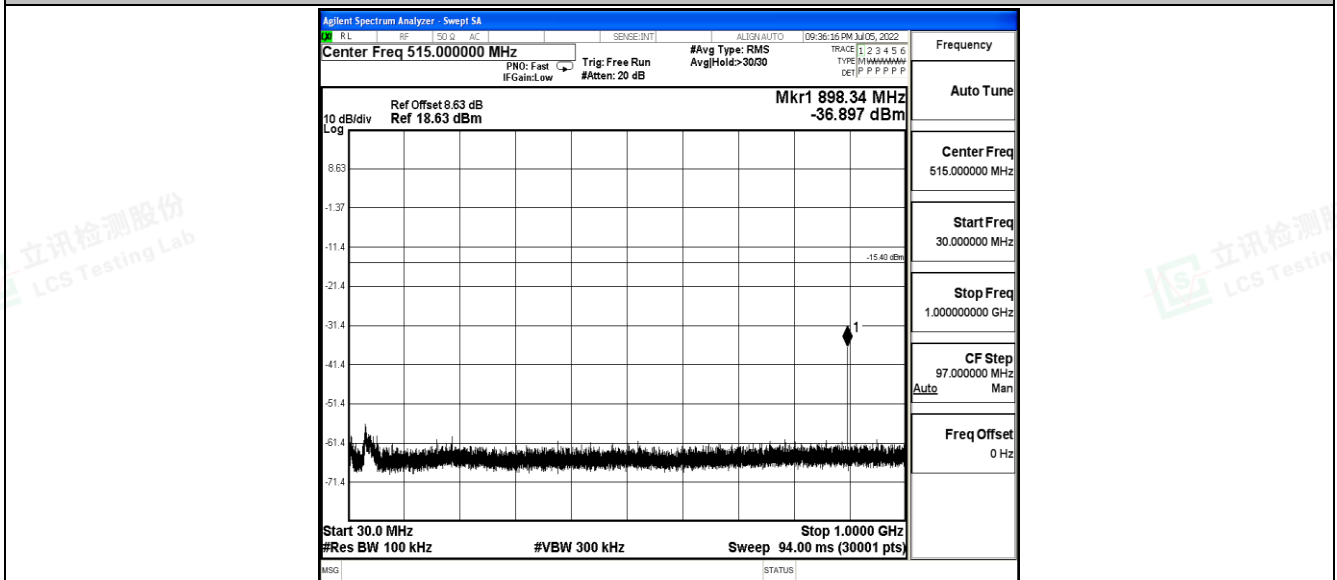


BLE_1M_Ant1_2480_0~Reference



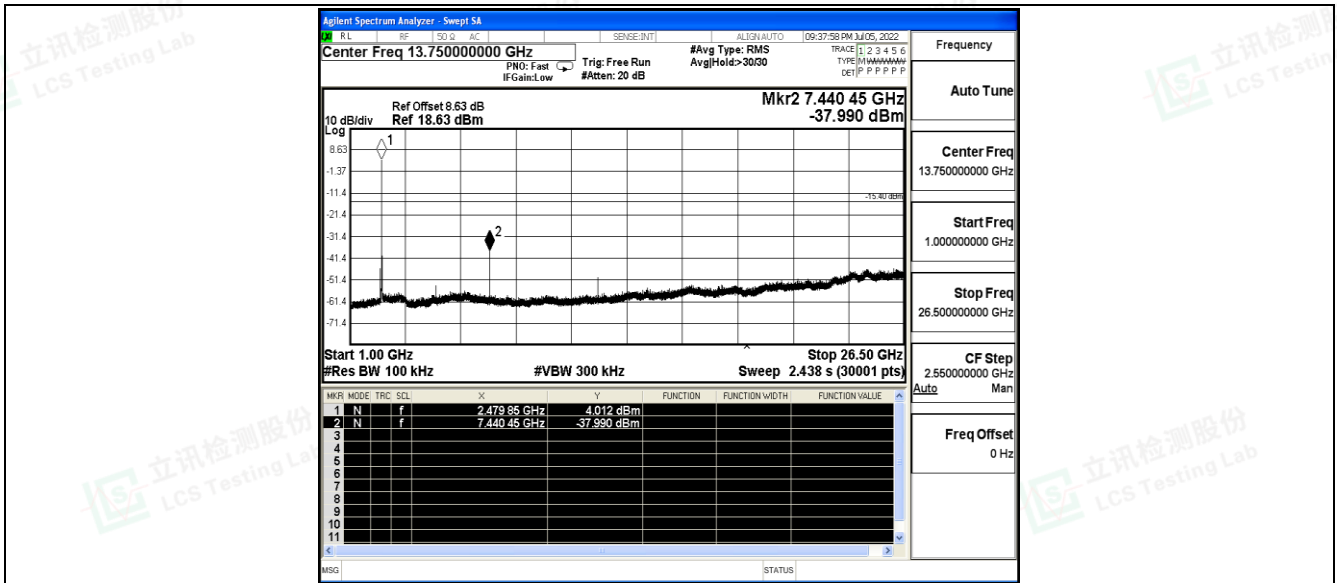


BLE_1M_Ant1_2480_30~1000

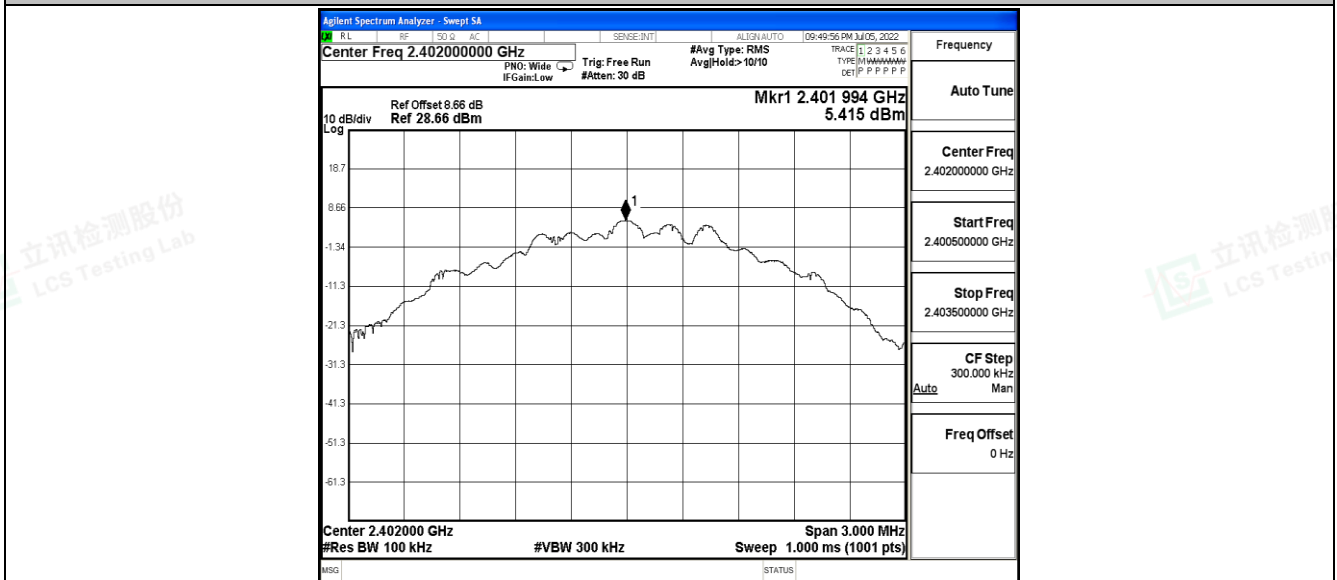


BLE_1M_Ant1_2480_1000~26500



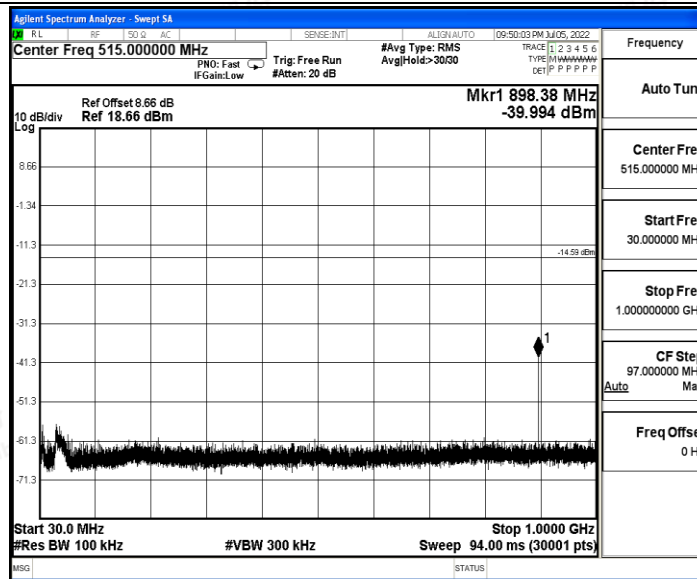


BLE_2M_Ant1_2402_0~Reference

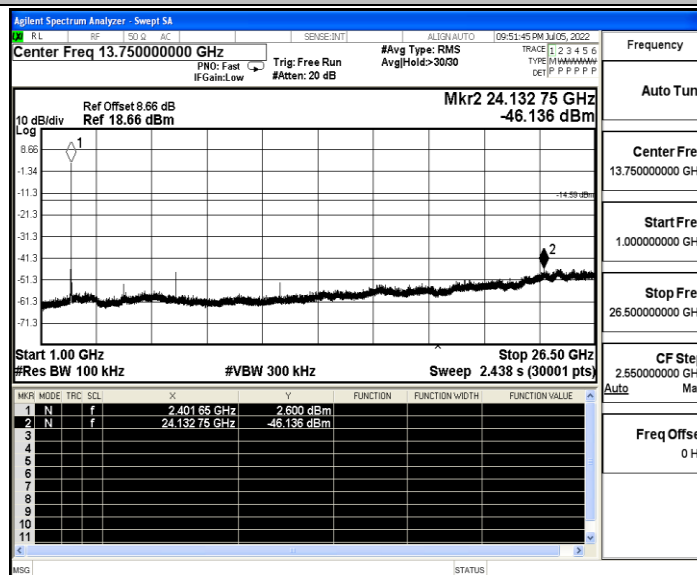


BLE_2M_Ant1_2402_30~1000



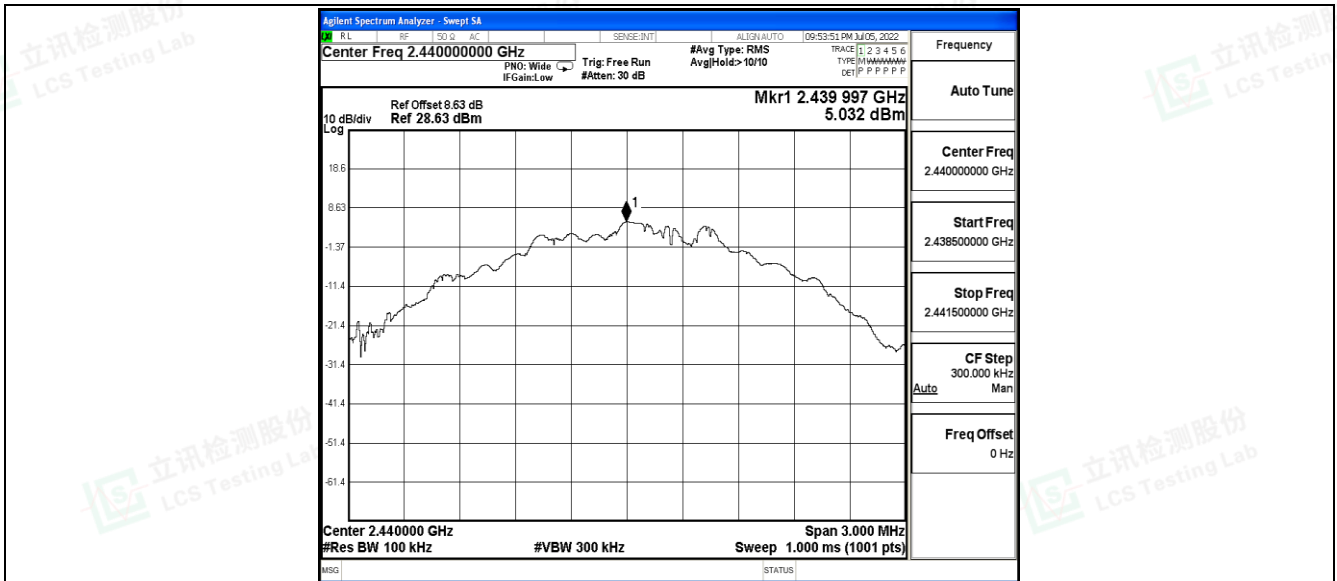


BLE_2M_Ant1_2402_1000~26500

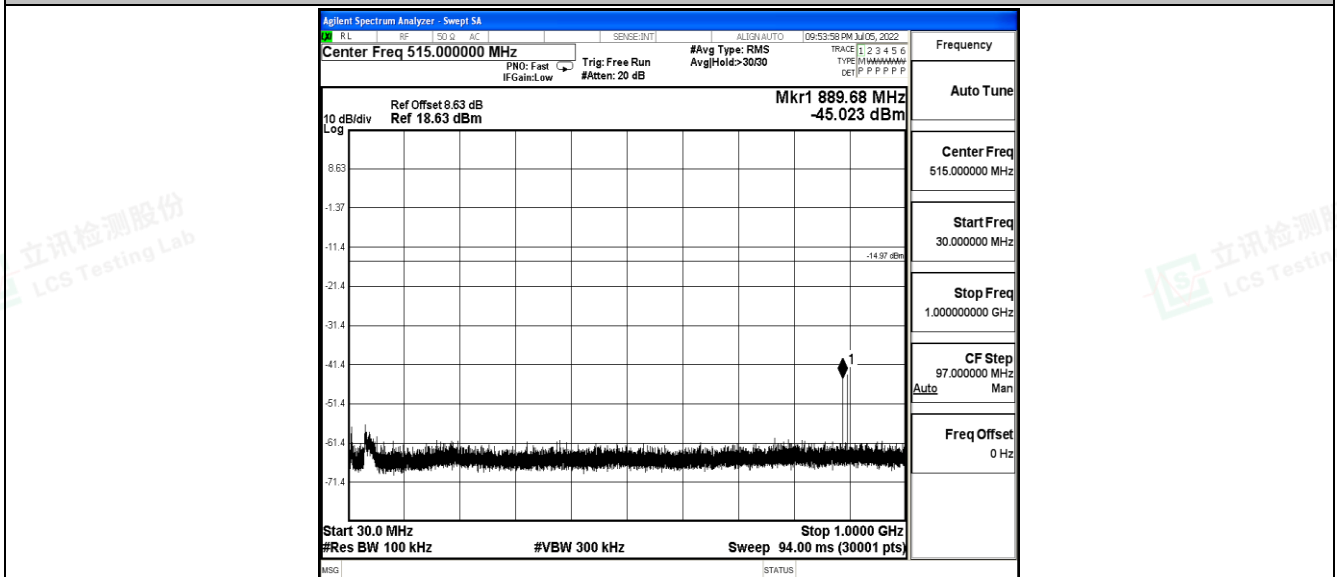


BLE_2M_Ant1_2440_0~Reference



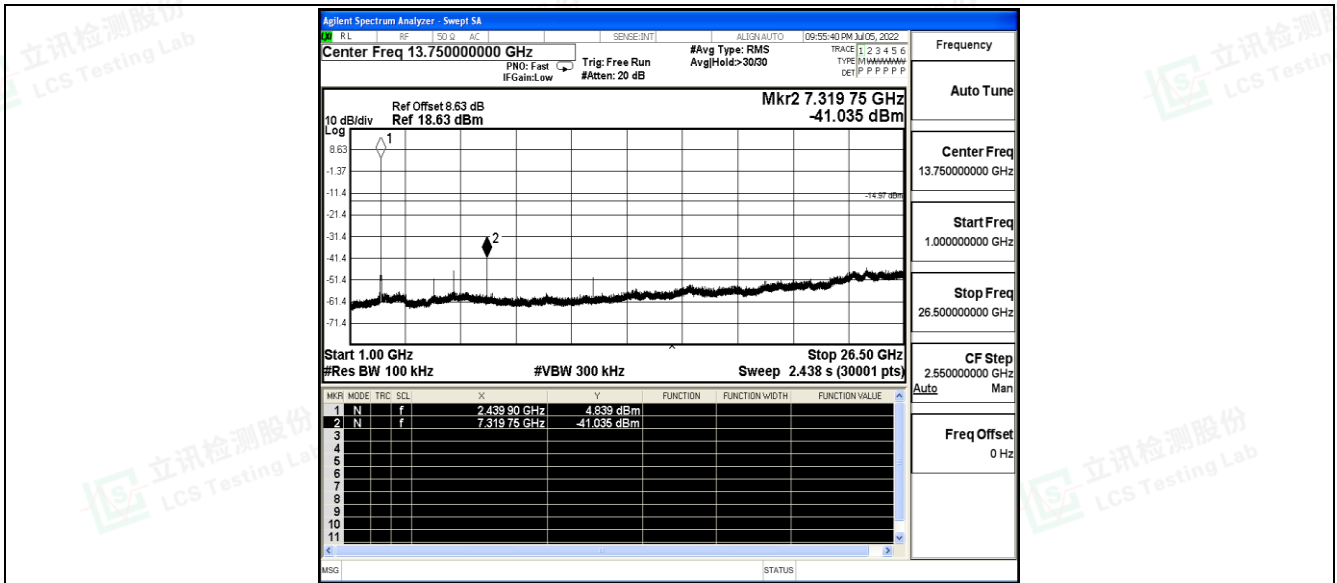


BLE_2M_Ant1_2440_30~1000

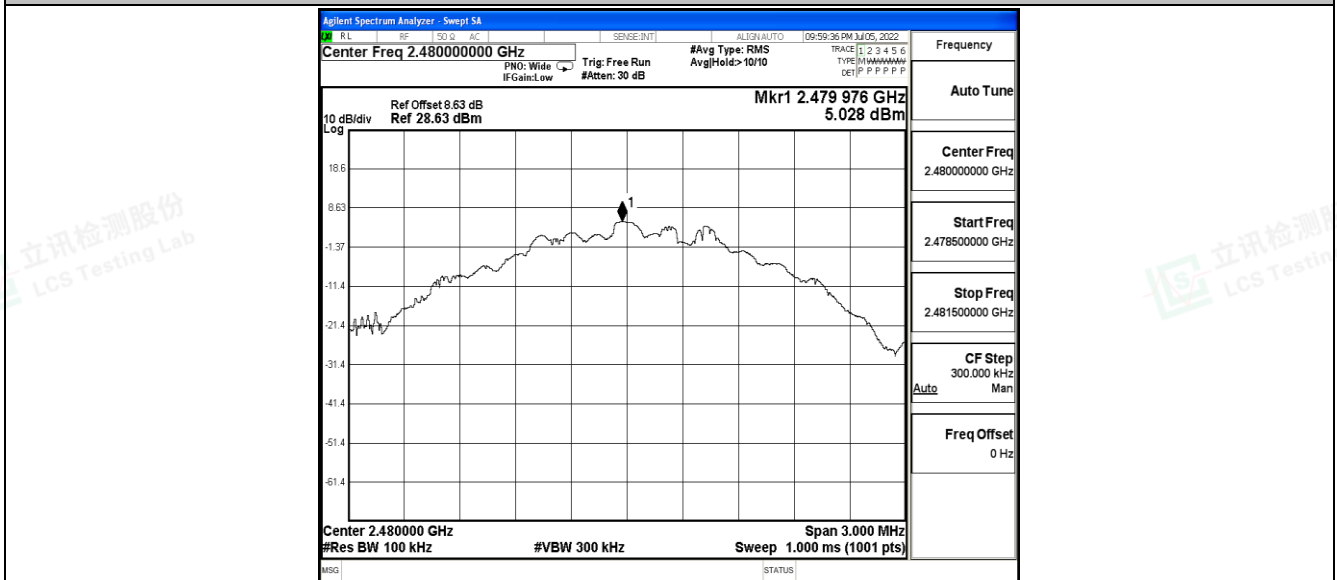


BLE_2M_Ant1_2440_1000~26500



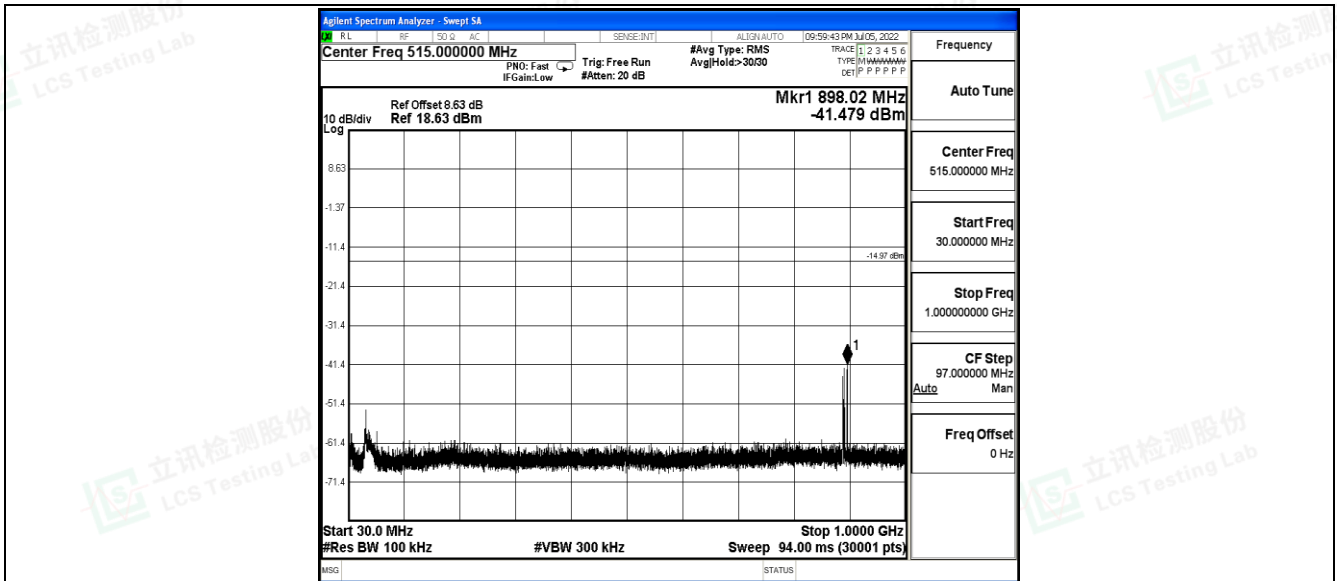


BLE_2M_Ant1_2480_0~Reference

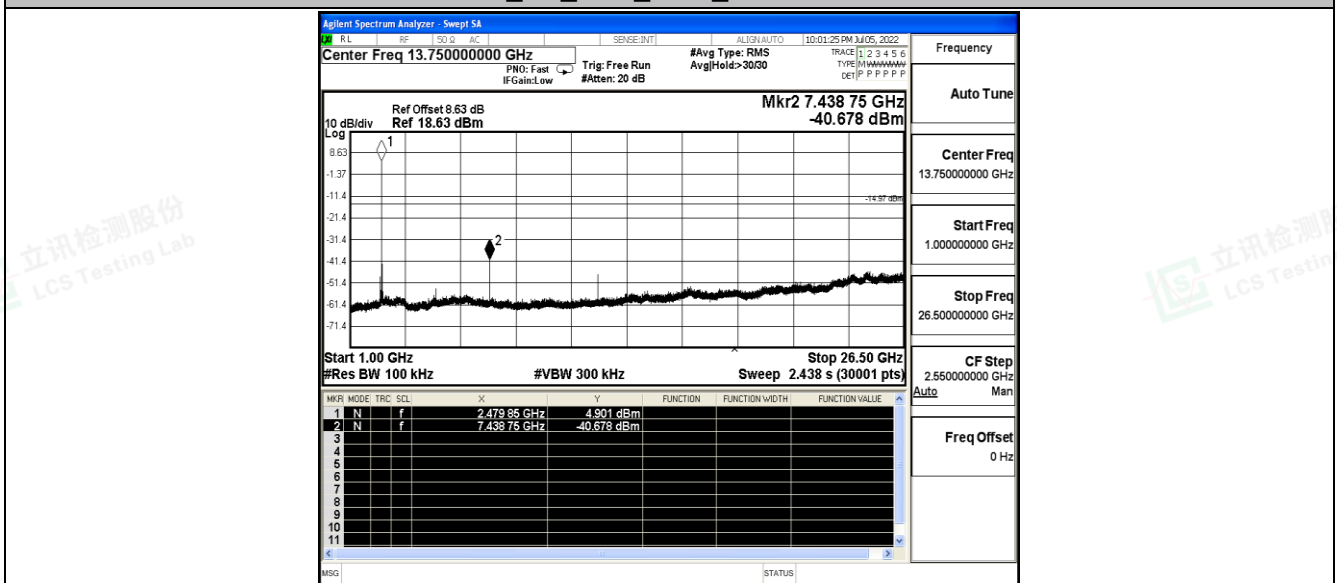


BLE_2M_Ant1_2480_30~1000





BLE_2M_Ant1_2480_1000~26500





A.7 Duty Cycle

Test Result

TestMode	Antenna	Channel	ON Time [ms]	Period [ms]	X	DC [%]	xFactor	Limit	Verdict
BLE_1M	Ant1	2402	2.17	2.50	0.8680	86.80	0.61	---	---
		2440	2.17	2.50	0.8680	86.80	0.61	---	---
		2480	2.17	2.50	0.8680	86.80	0.61	---	---
BLE_2M	Ant1	2402	1.12	1.88	0.5957	59.57	2.25	---	---
		2440	1.12	1.88	0.5957	59.57	2.25	---	---
		2480	1.12	1.88	0.5957	59.57	2.25	---	---

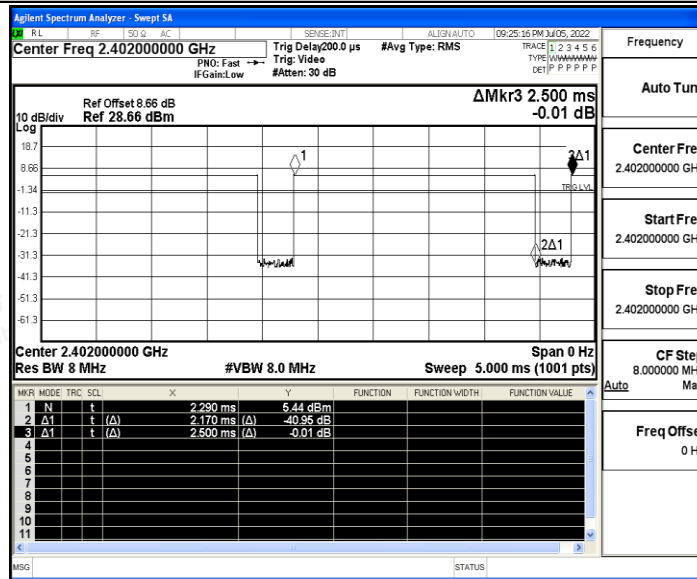


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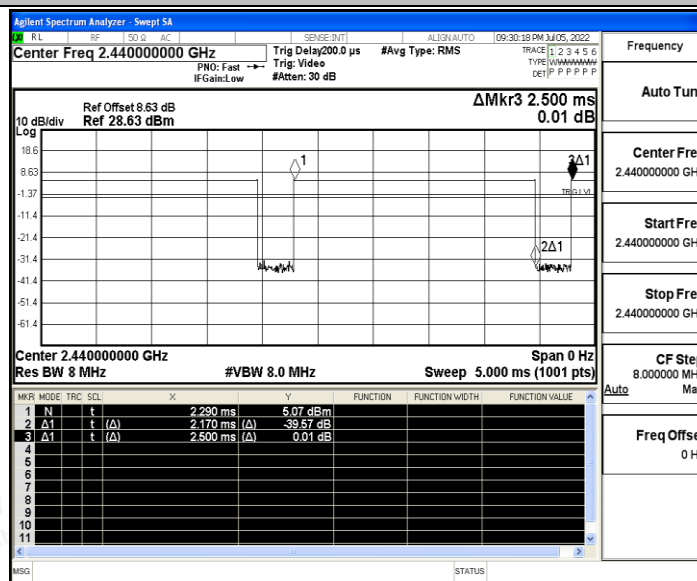


Test Graphs

BLE_1M_Ant1_2402

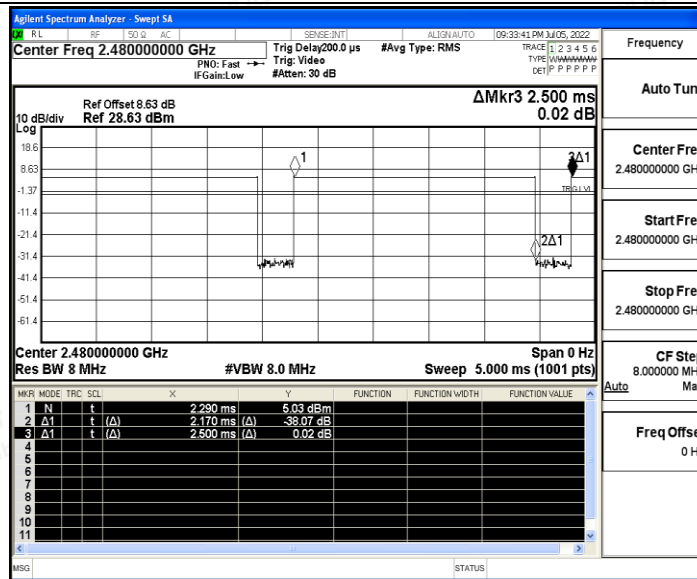


BLE_1M_Ant1_2440

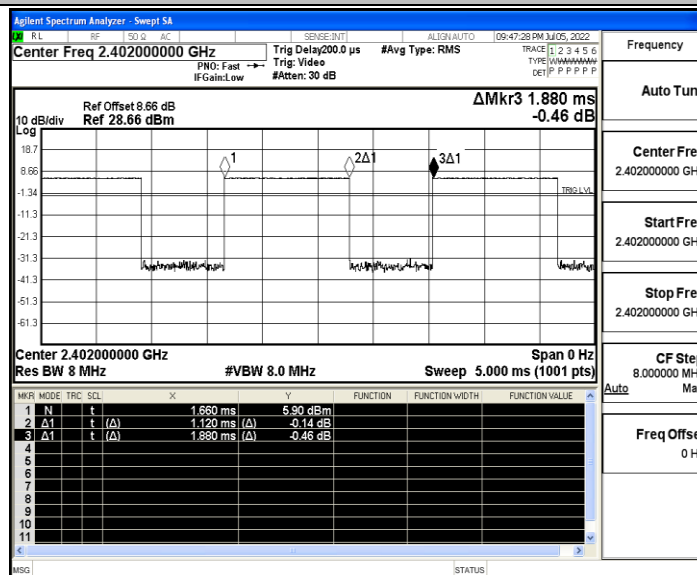


BLE_1M_Ant1_2480



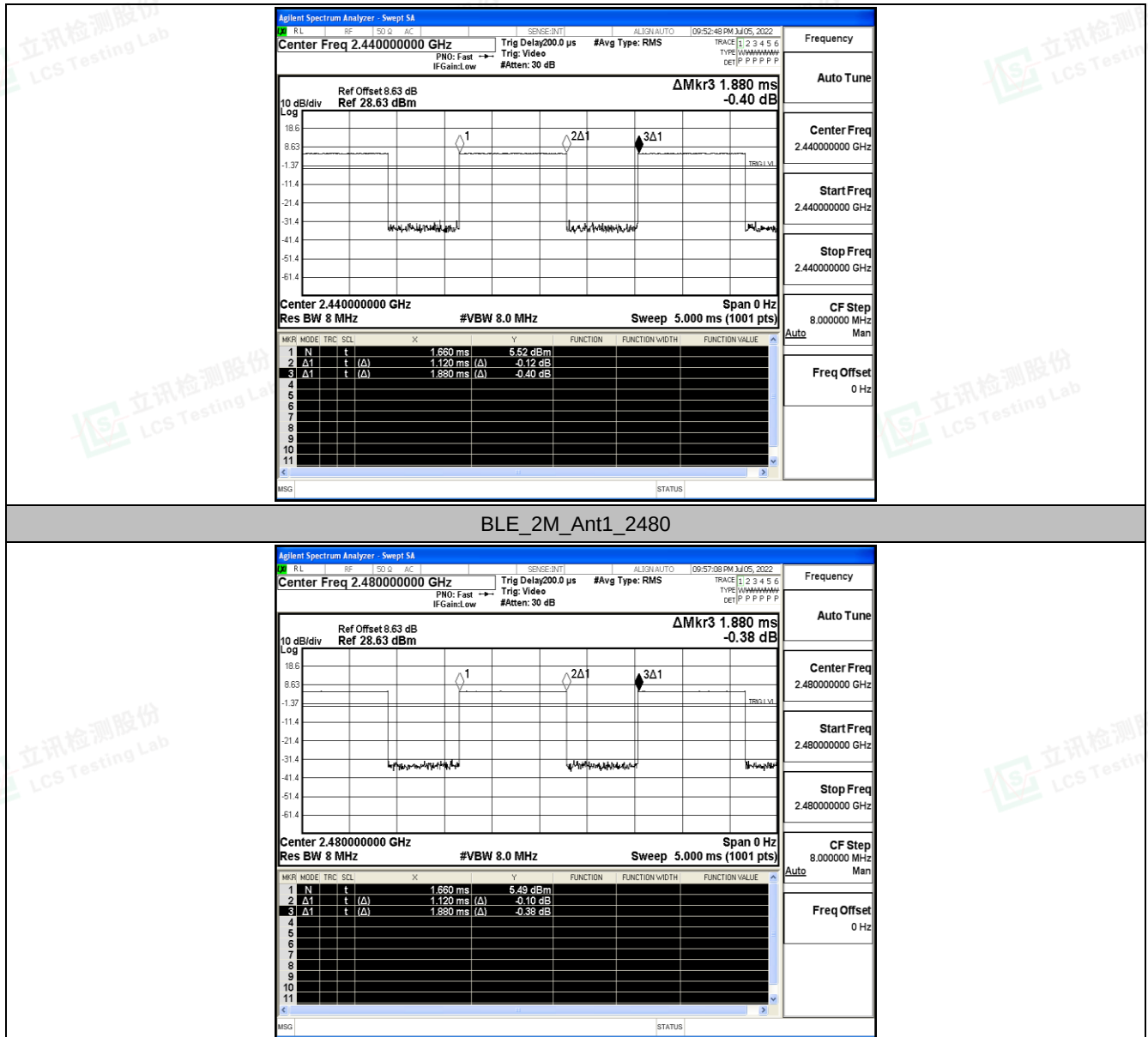


BLE_2M_Ant1_2402



BLE_2M_Ant1_2440







A.8 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	-57.81	≤-41.20	37.39	≤54	PASS
				AV	2389.775	-49.49	≤-41.20	45.71	≤54	PASS
				AV	2390.000	-49.51	≤-41.20	45.69	≤54	PASS
				Peak	2310.000	-43.02	≤-21.20	52.18	≤74	PASS
				Peak	2389.985	-26.48	≤-21.20	68.72	≤74	PASS
				Peak	2390.000	-26.48	≤-21.20	68.72	≤74	PASS
		High	2480	AV	2483.500	-45.38	≤-41.20	49.82	≤54	PASS
				AV	2483.520	-45.38	≤-41.20	49.82	≤54	PASS
				AV	2500.000	-56.43	≤-41.20	38.77	≤54	PASS
				Peak	2483.500	-22.51	≤-21.20	72.69	≤74	PASS
				Peak	2483.520	-22.51	≤-21.20	72.69	≤74	PASS
				Peak	2500.000	-37.88	≤-21.20	57.32	≤74	PASS
BLE_2M	Ant1	Low	2402	AV	2310.000	-57.53	≤-41.20	37.67	≤54	PASS
				AV	2389.880	-49.54	≤-41.20	45.66	≤54	PASS
				AV	2390.000	-49.64	≤-41.20	45.56	≤54	PASS
				Peak	2310.000	-42.05	≤-21.20	53.15	≤74	PASS
				Peak	2389.880	-26.47	≤-21.20	68.73	≤74	PASS
				Peak	2390.000	-26.5	≤-21.20	68.70	≤74	PASS
		High	2480	AV	2483.500	-43.92	≤-41.20	51.28	≤54	PASS
				AV	2483.600	-43.05	≤-41.20	52.15	≤54	PASS
				AV	2500.000	-55.76	≤-41.20	39.44	≤54	PASS
				Peak	2483.500	-22.54	≤-21.20	72.66	≤74	PASS
				Peak	2483.520	-22.54	≤-21.20	72.66	≤74	PASS
				Peak	2500.000	-37.43	≤-21.20	57.77	≤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.

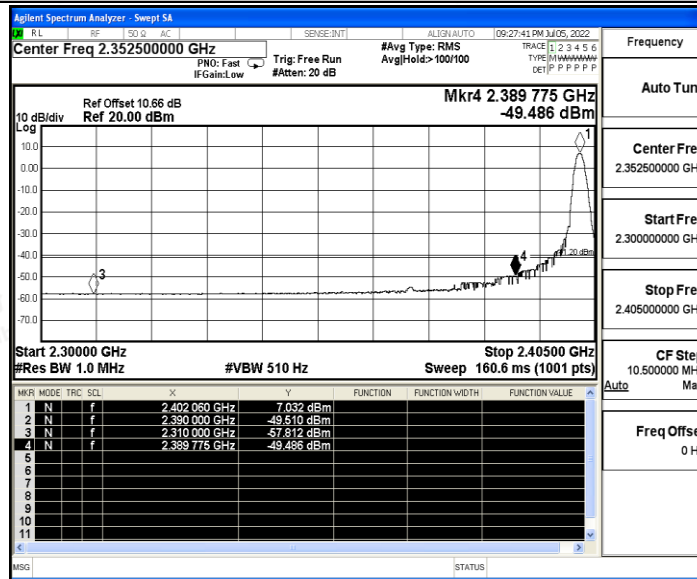


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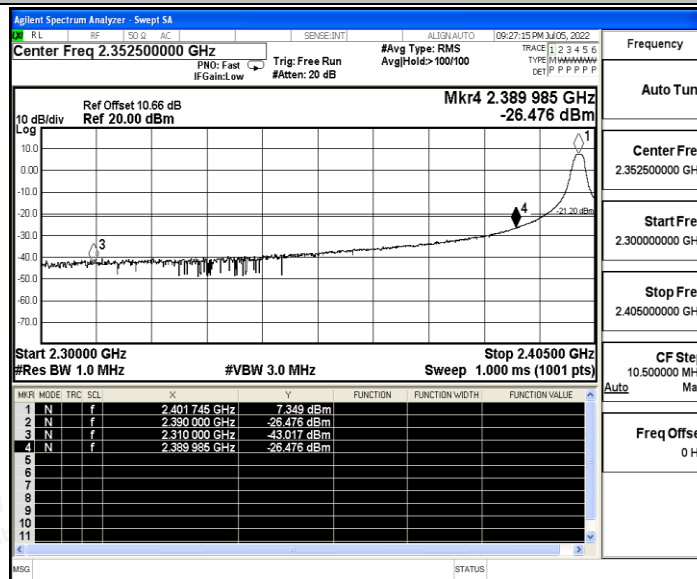


Test Graphs

BLE_1M_Ant1_Low_2402_AV

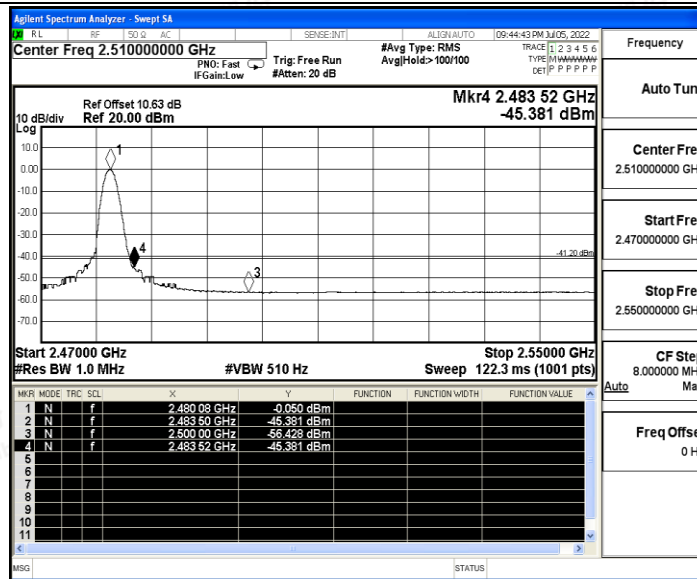


BLE_1M_Ant1_Low_2402_Peak

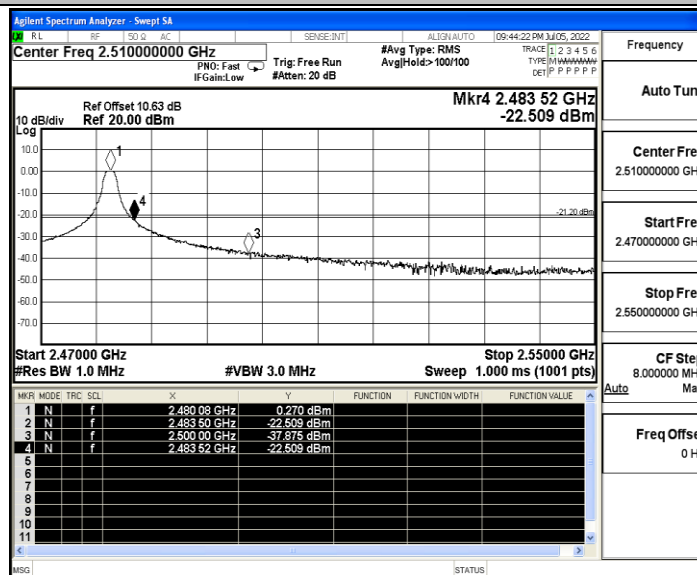


BLE_1M_Ant1_High_2480_AV



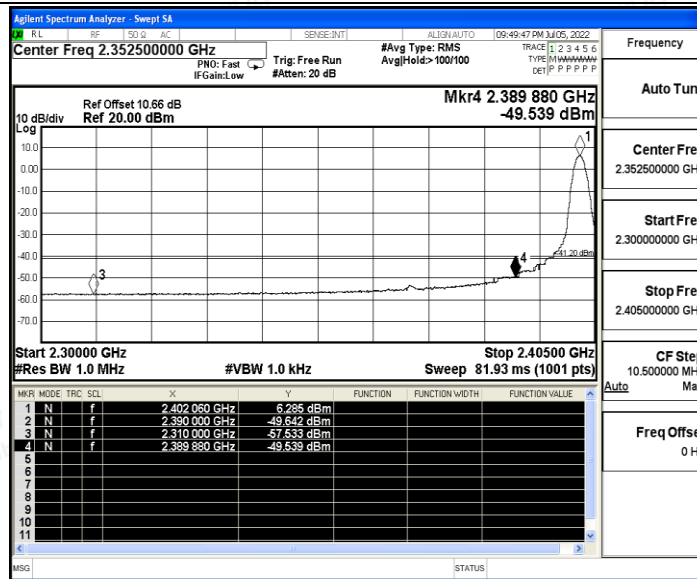


BLE_1M_Ant1_High_2480_Peak

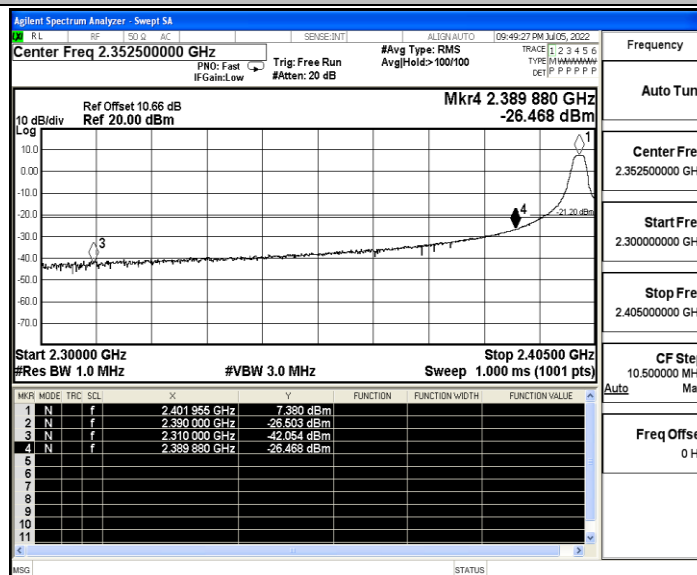


BLE_2M_Ant1_Low_2402_AV



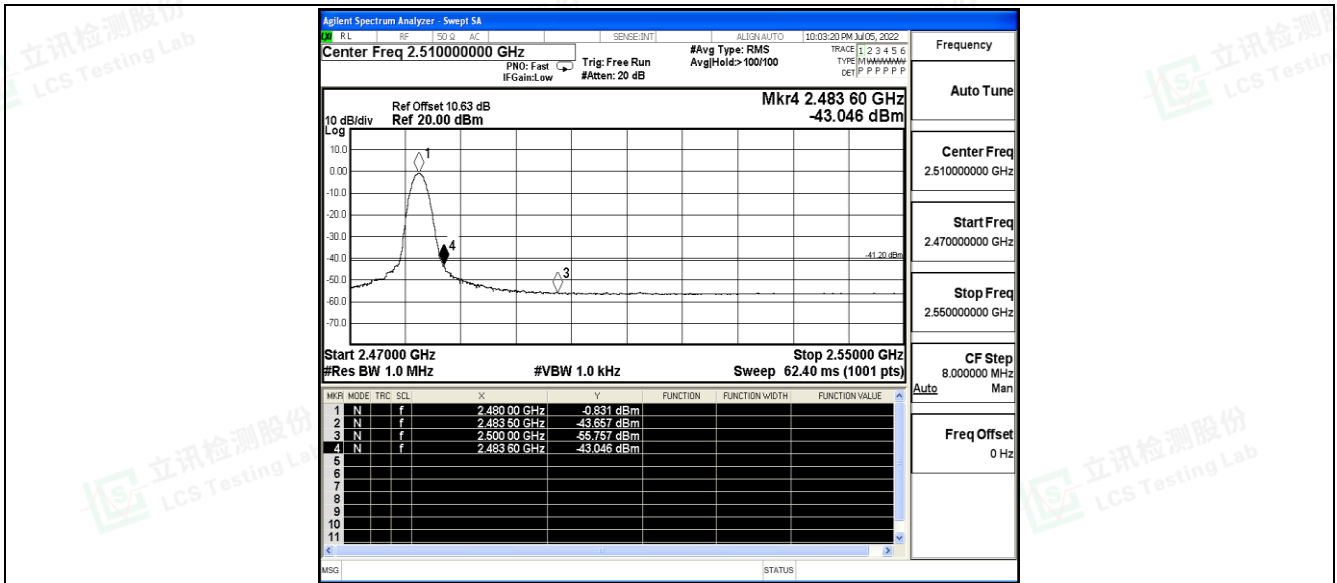


BLE_2M_Ant1_Low_2402_Peak



BLE_2M_Ant1_High_2480_AV





BLE_2M_Ant1_High_2480_Peak

