



## Appendix A

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

Product Name: Control Box

Test Model: EW020

#### Environmental Conditions

Temperature:	23.8° C
Relative Humidity:	52.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Taylor Hu
Supervised by:	Li Huan





## A.1 DTS Bandwidth

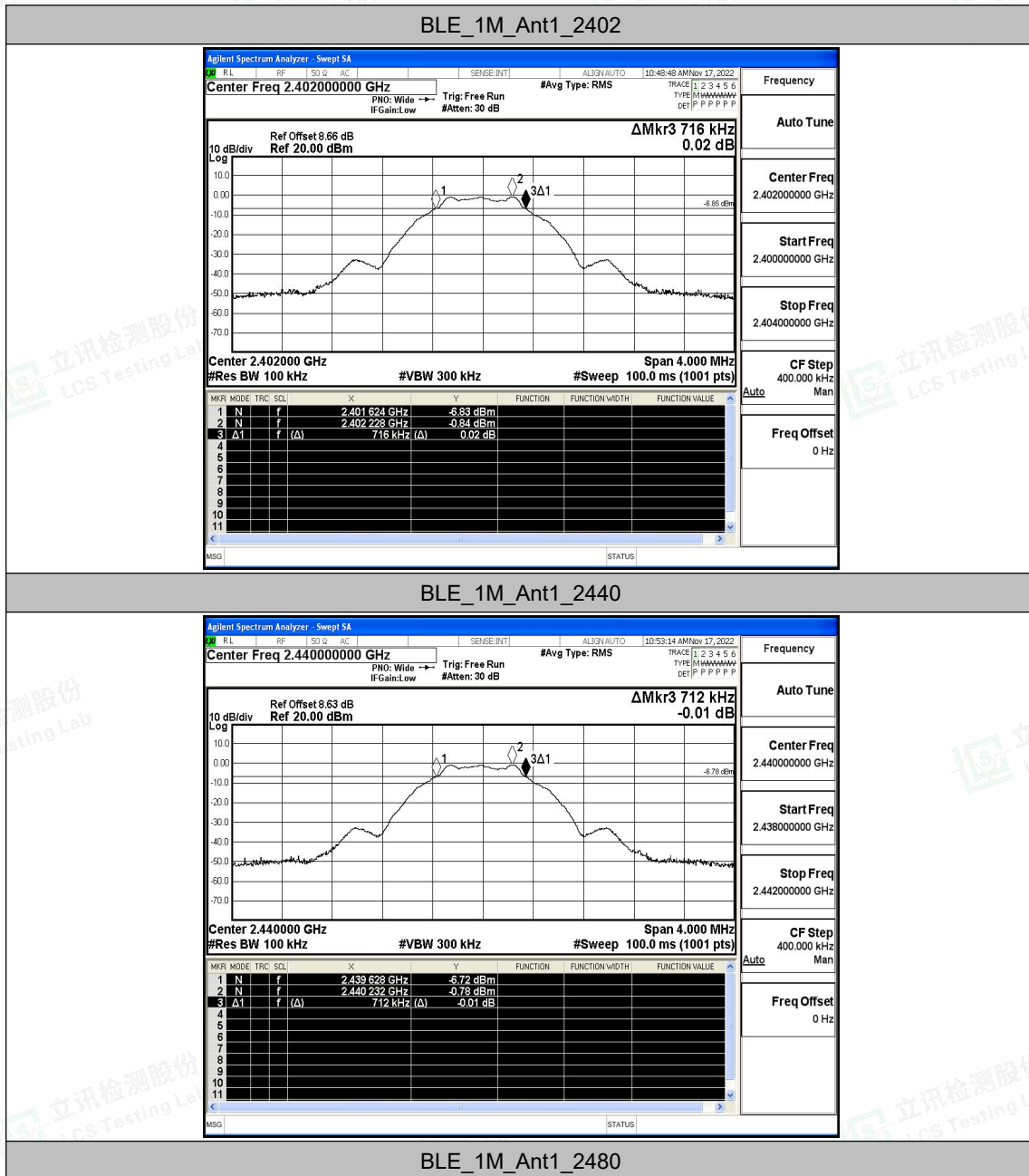
### Test Result

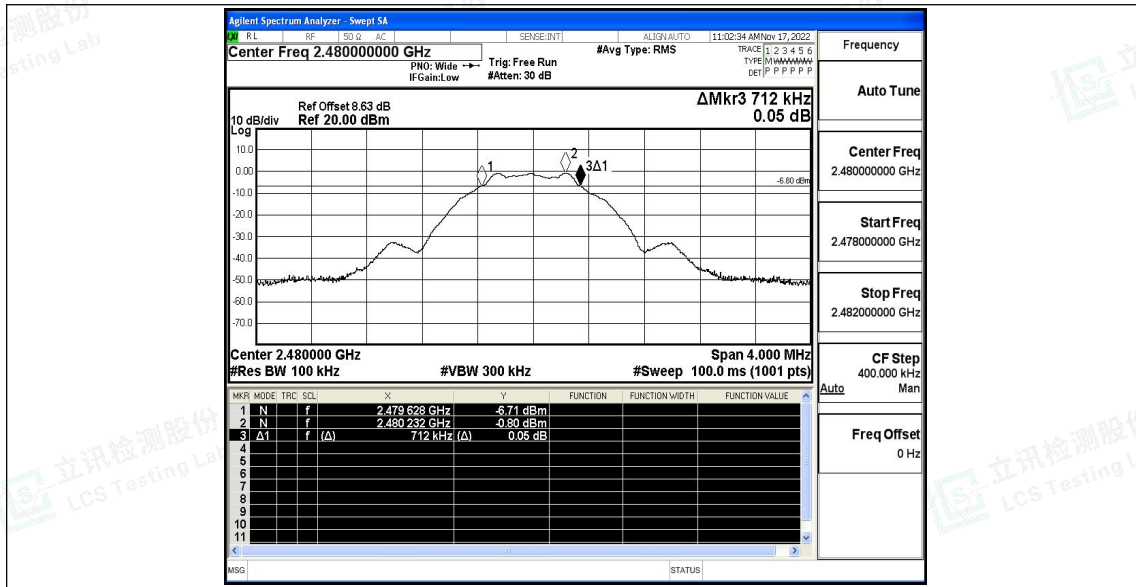
TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.716	2401.624	2402.340	0.5	PASS
		2440	0.712	2439.628	2440.340	0.5	PASS
		2480	0.712	2479.628	2480.340	0.5	PASS





### Test Graphs







## A.2 Maximum conducted output power

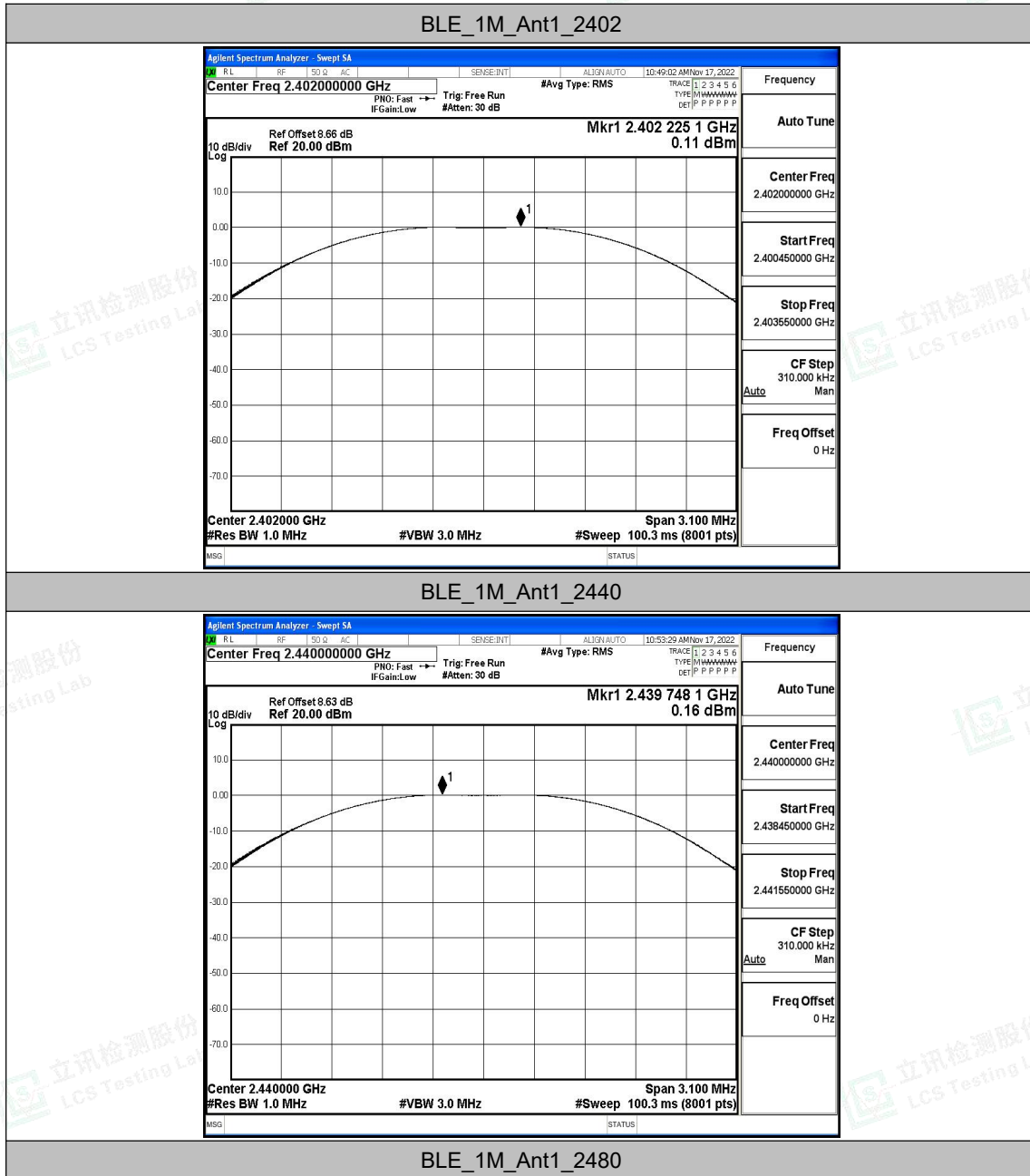
### Test Result

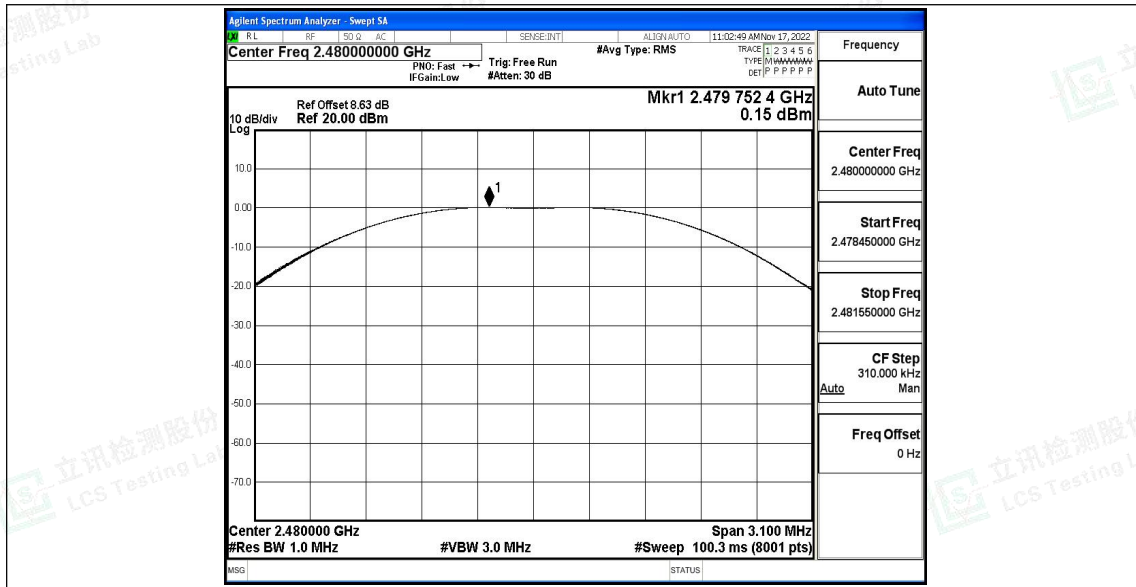
TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	0.11	≤30	PASS
		2440	0.16	≤30	PASS
		2480	0.15	≤30	PASS





### Test Graphs







### A.3 Maximum power spectral density

#### Test Result

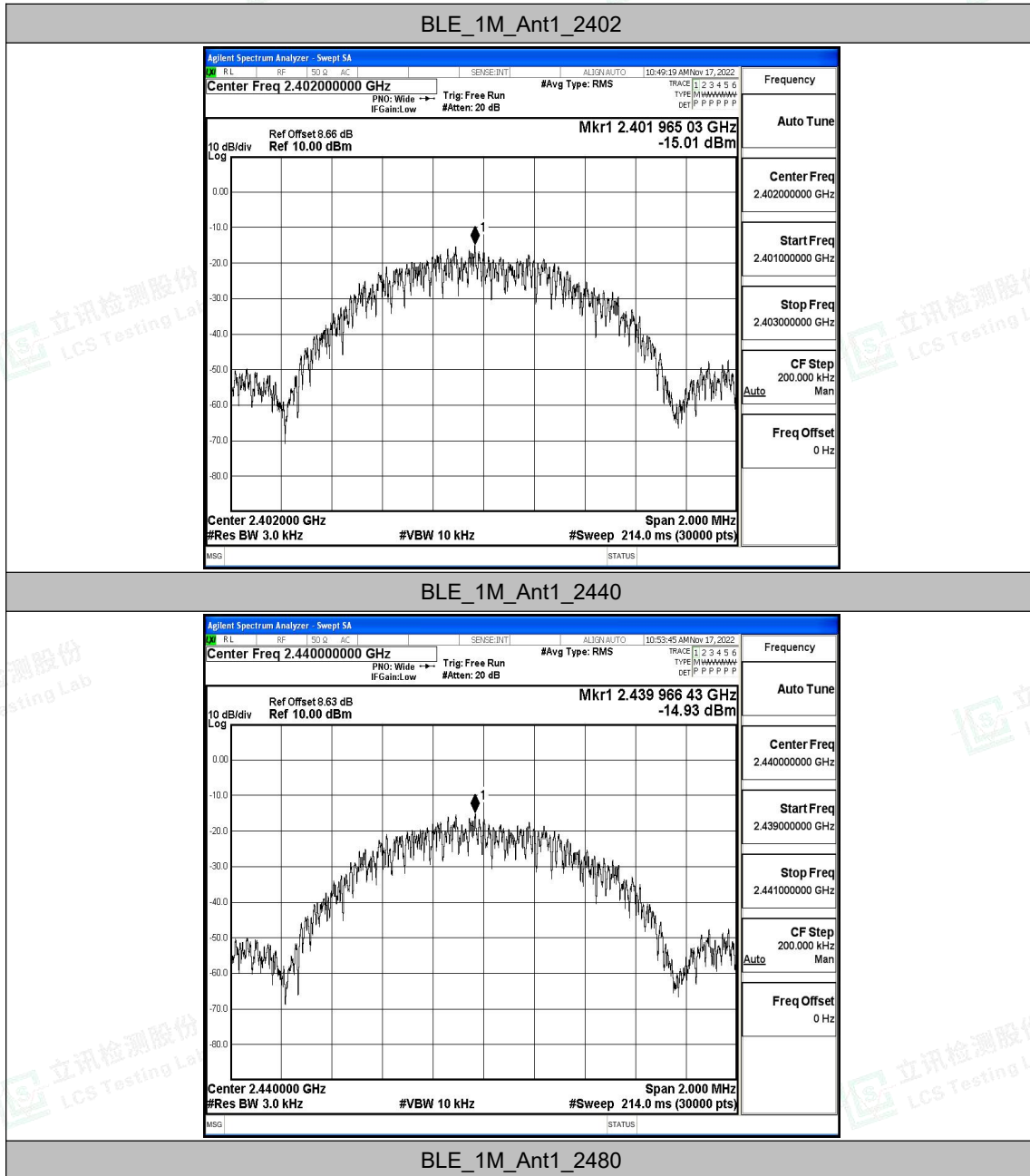
TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-15.01	≤8.00	PASS
		2440	-14.94	≤8.00	PASS
		2480	-14.99	≤8.00	PASS

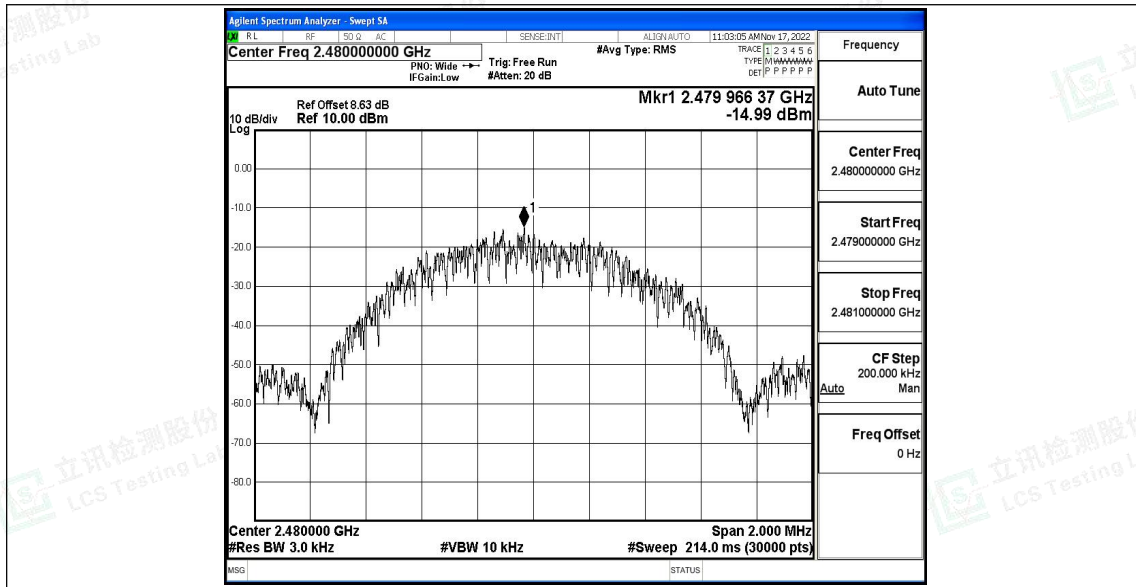






### Test Graphs







## A.4 Band edge measurements

### Test Result

TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	-0.81	-57.6	≤-20.81	PASS
		High	2480	-0.59	-58.36	≤-20.59	PASS





### Test Graphs





## A.5 Conducted Spurious Emission

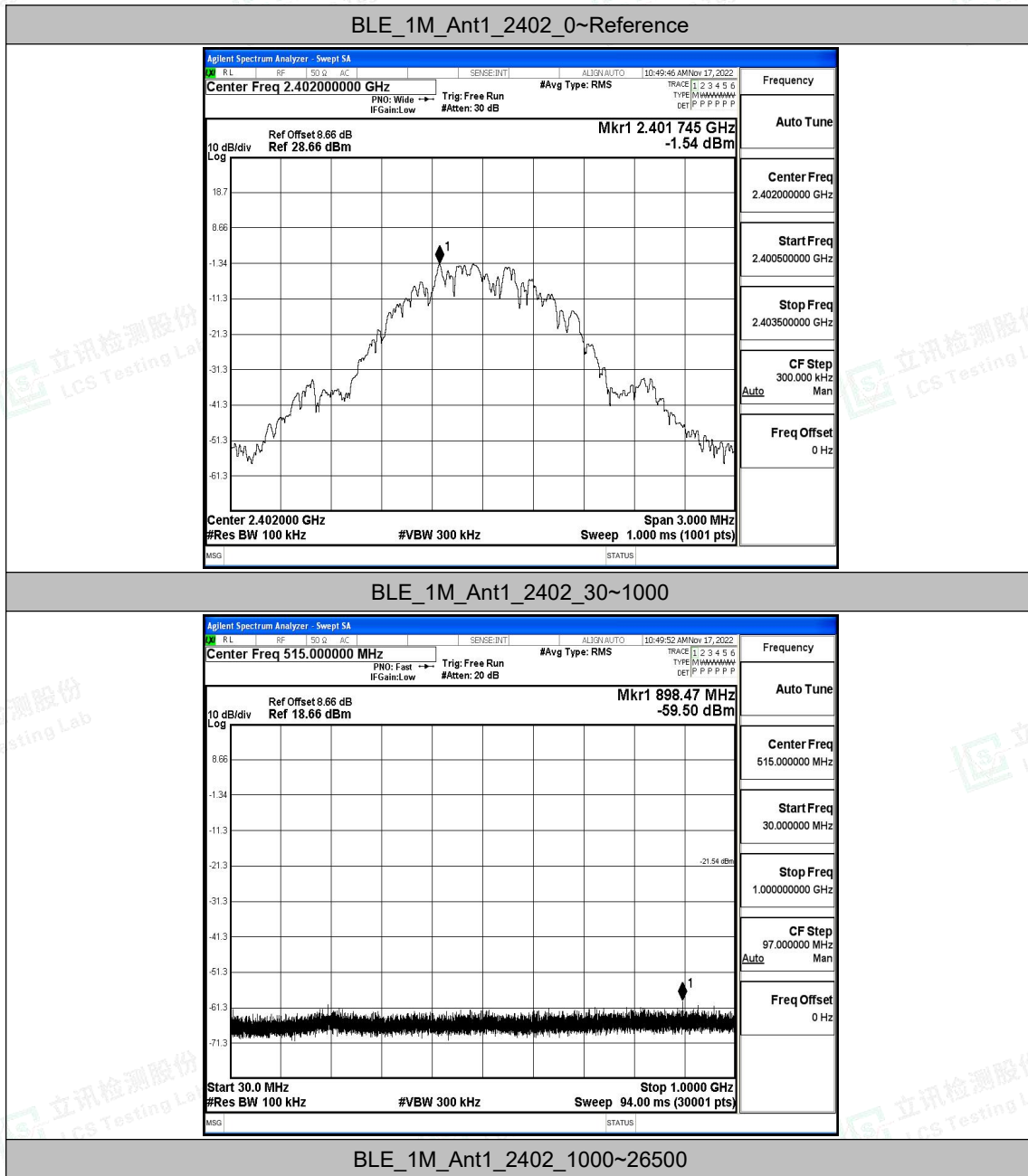
### Test Result

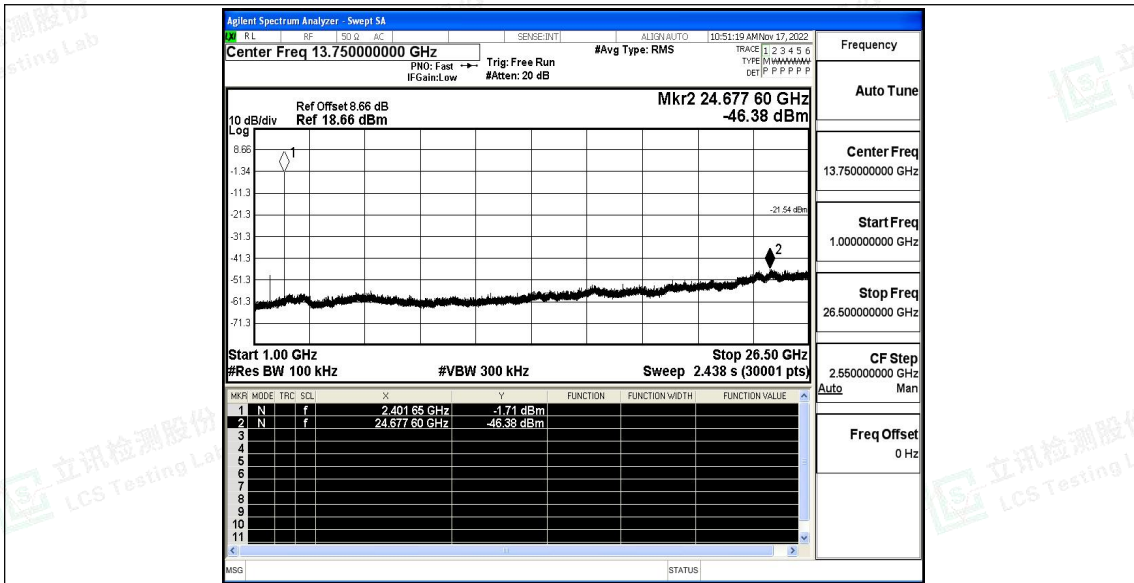
TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	-1.54	-1.54	---	PASS
			30~1000	-1.54	-59.5	≤-21.54	PASS
			1000~26500	-1.54	-46.38	≤-21.54	PASS
		2440	Reference	-0.93	-0.93	---	PASS
			30~1000	-0.93	-54.08	≤-20.93	PASS
			1000~26500	-0.93	-44.8	≤-20.93	PASS
		2480	Reference	-0.95	-0.95	---	PASS
			30~1000	-0.95	-47.69	≤-20.95	PASS
			1000~26500	-0.95	-46.65	≤-20.95	PASS



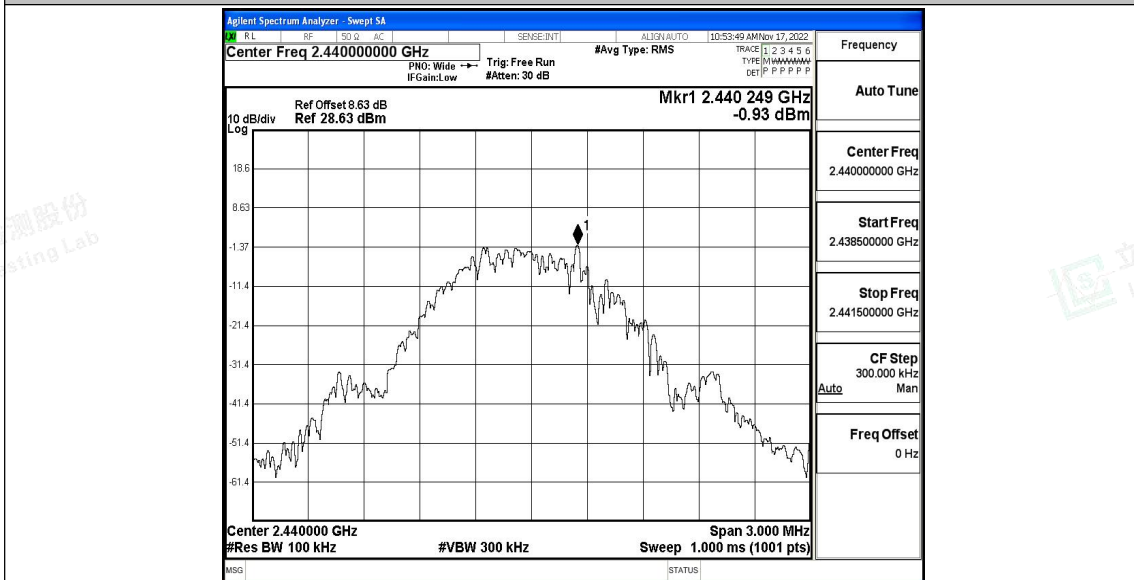


### Test Graphs



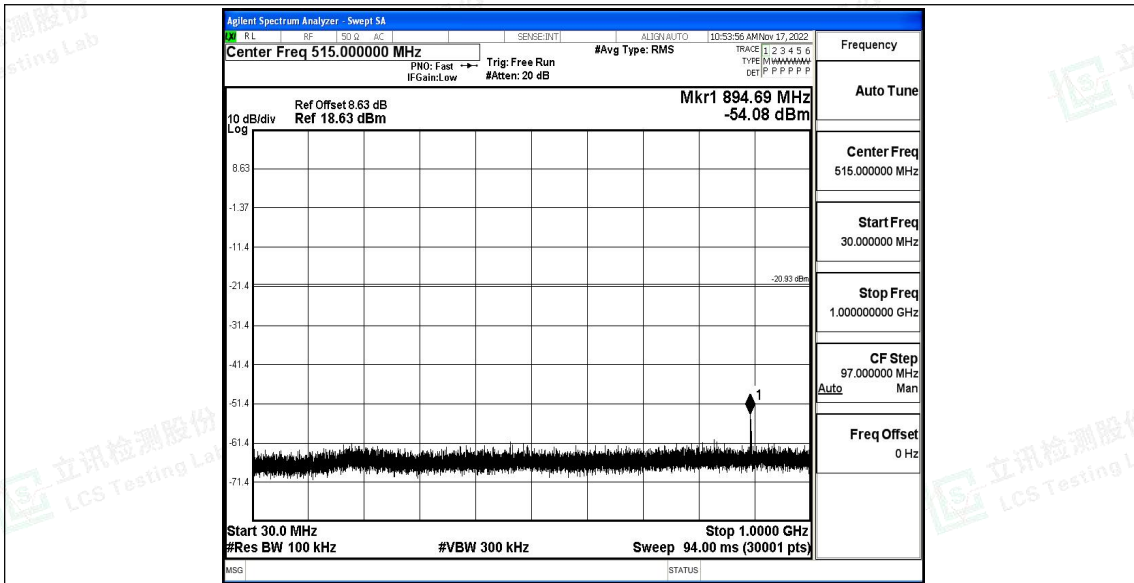


BLE\_1M\_Ant1\_2440\_0~Reference

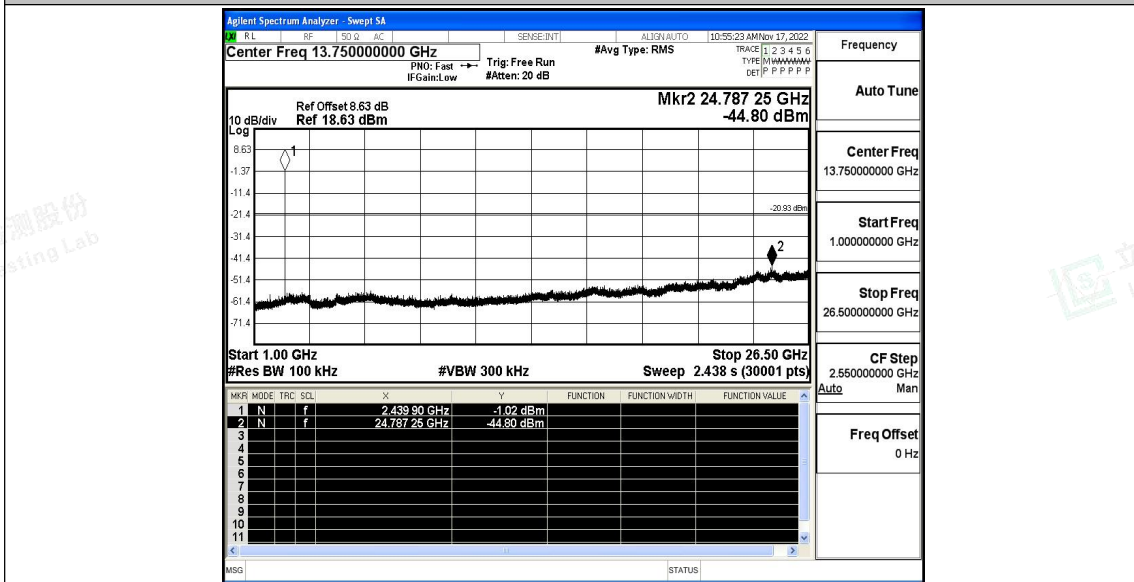


BLE\_1M\_Ant1\_2440\_30~1000





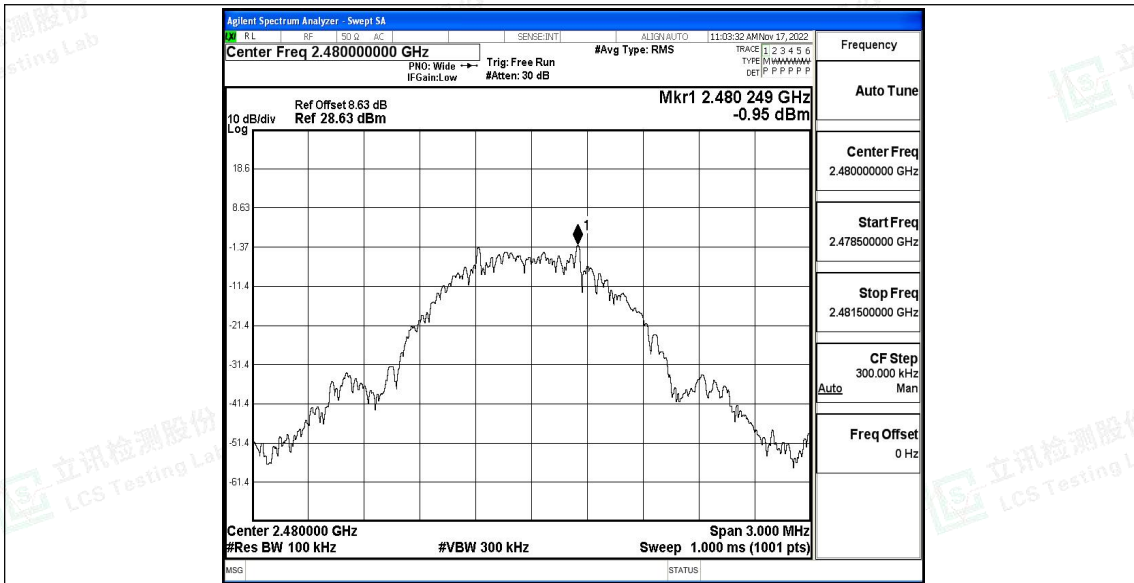
BLE\_1M\_Ant1\_2440\_1000~26500



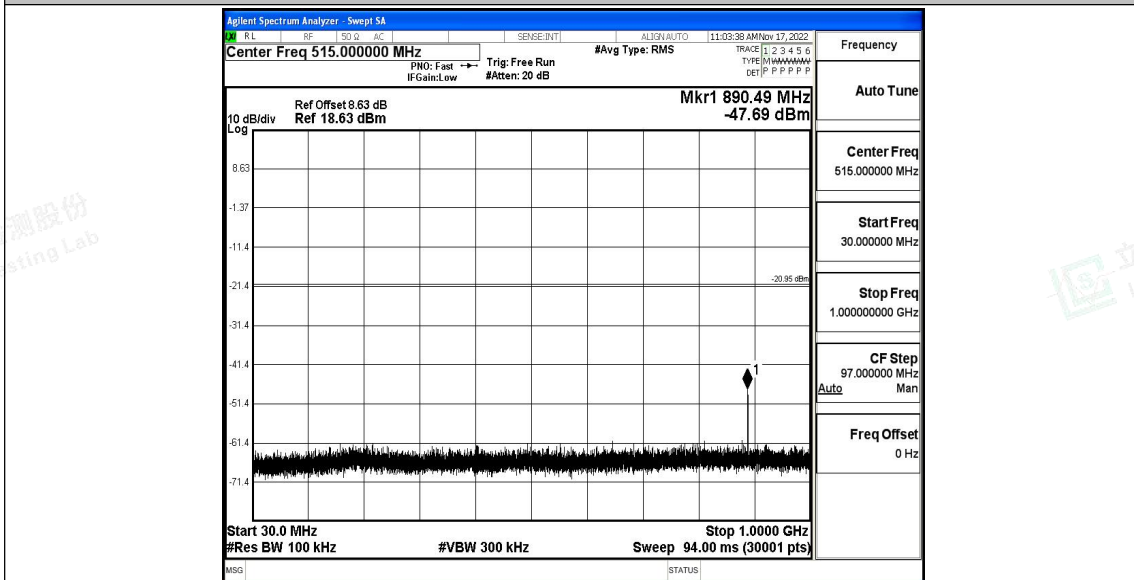
BLE\_1M\_Ant1\_2480\_0~Reference





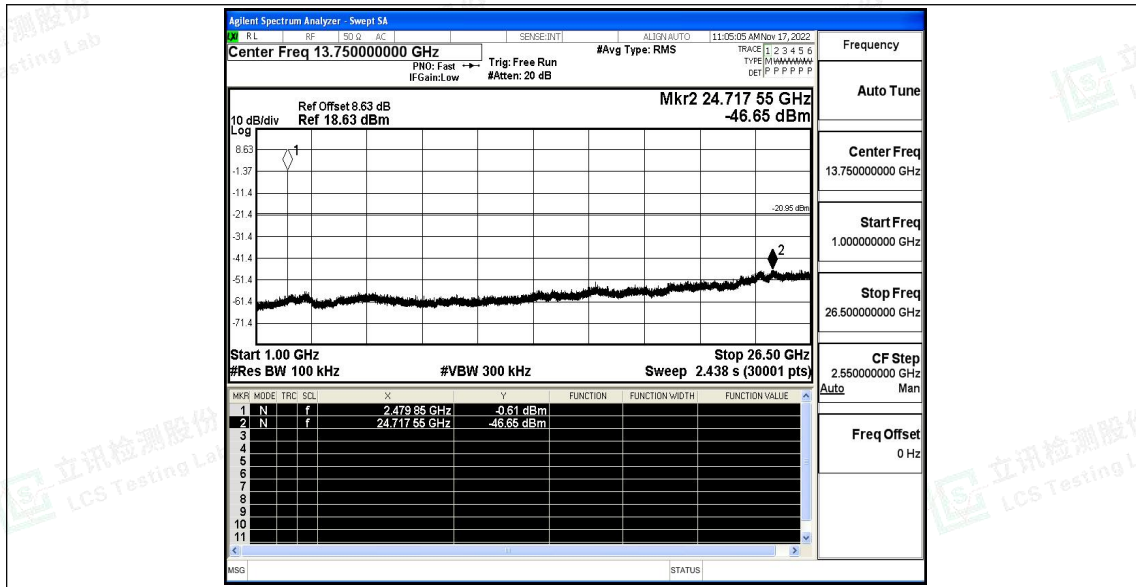


BLE\_1M\_Ant1\_2480\_30~1000



BLE\_1M\_Ant1\_2480\_1000~26500







## A.6 Duty Cycle

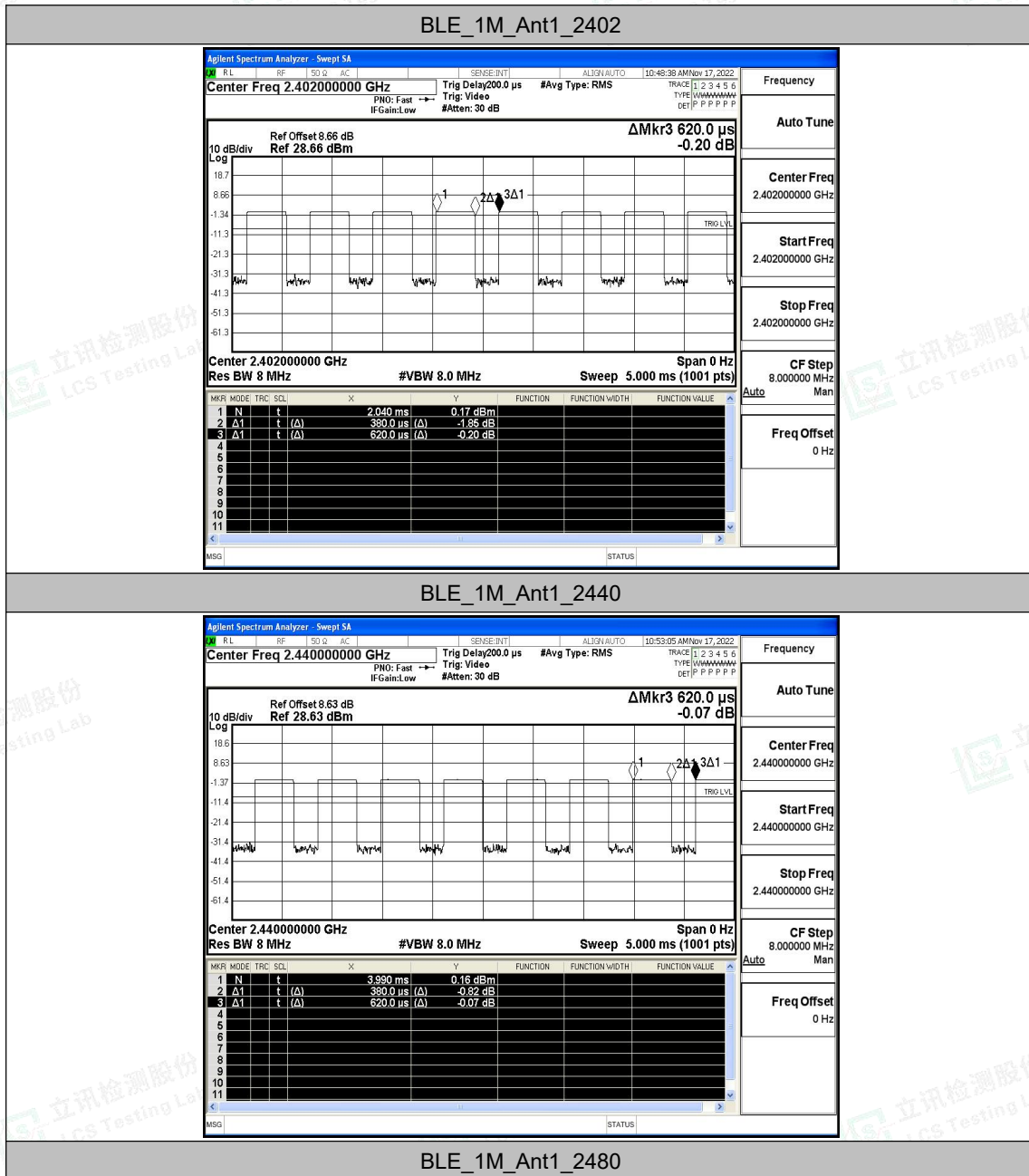
### Test Result

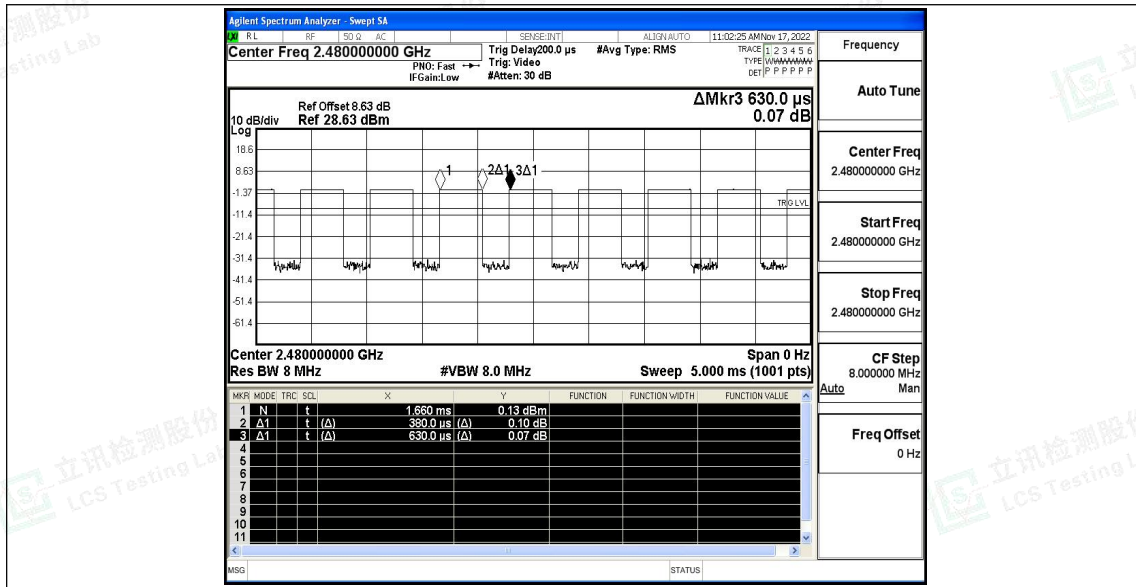
TestMode	Antenna	Channel	ON Time [ms]	Period [ms]	X	DC [%]	xFactor	1/T	Limit	Verdict
BLE_1M	Ant1	2402	0.38	0.62	0.6129	61.29	2.13	2.63	---	---
		2440	0.38	0.62	0.6129	61.29	2.13	2.63	---	---
		2480	0.38	0.63	0.6032	60.32	2.20	2.63	---	---





### Test Graphs







## A.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	-57.47	≤-41.20	37.73	≤54	PASS
				AV	2377.805	-56.77	≤-41.20	38.43	≤54	PASS
				AV	2390.000	-57.09	≤-41.20	38.11	≤54	PASS
				Peak	2310.000	-50.04	≤-21.20	45.16	≤74	PASS
				Peak	2381.480	-47.65	≤-21.20	47.55	≤74	PASS
				Peak	2390.000	-48.56	≤-21.20	46.64	≤74	PASS
		High	2480	AV	2483.500	-53.34	≤-41.20	41.86	≤54	PASS
				AV	2483.520	-53.34	≤-41.20	41.86	≤54	PASS
				AV	2500.000	-56.49	≤-41.20	38.71	≤54	PASS
				Peak	2483.500	-49.97	≤-21.20	45.23	≤74	PASS
				Peak	2485.200	-47.41	≤-21.20	47.79	≤74	PASS
				Peak	2500.000	-50.69	≤-21.20	44.51	≤74	PASS

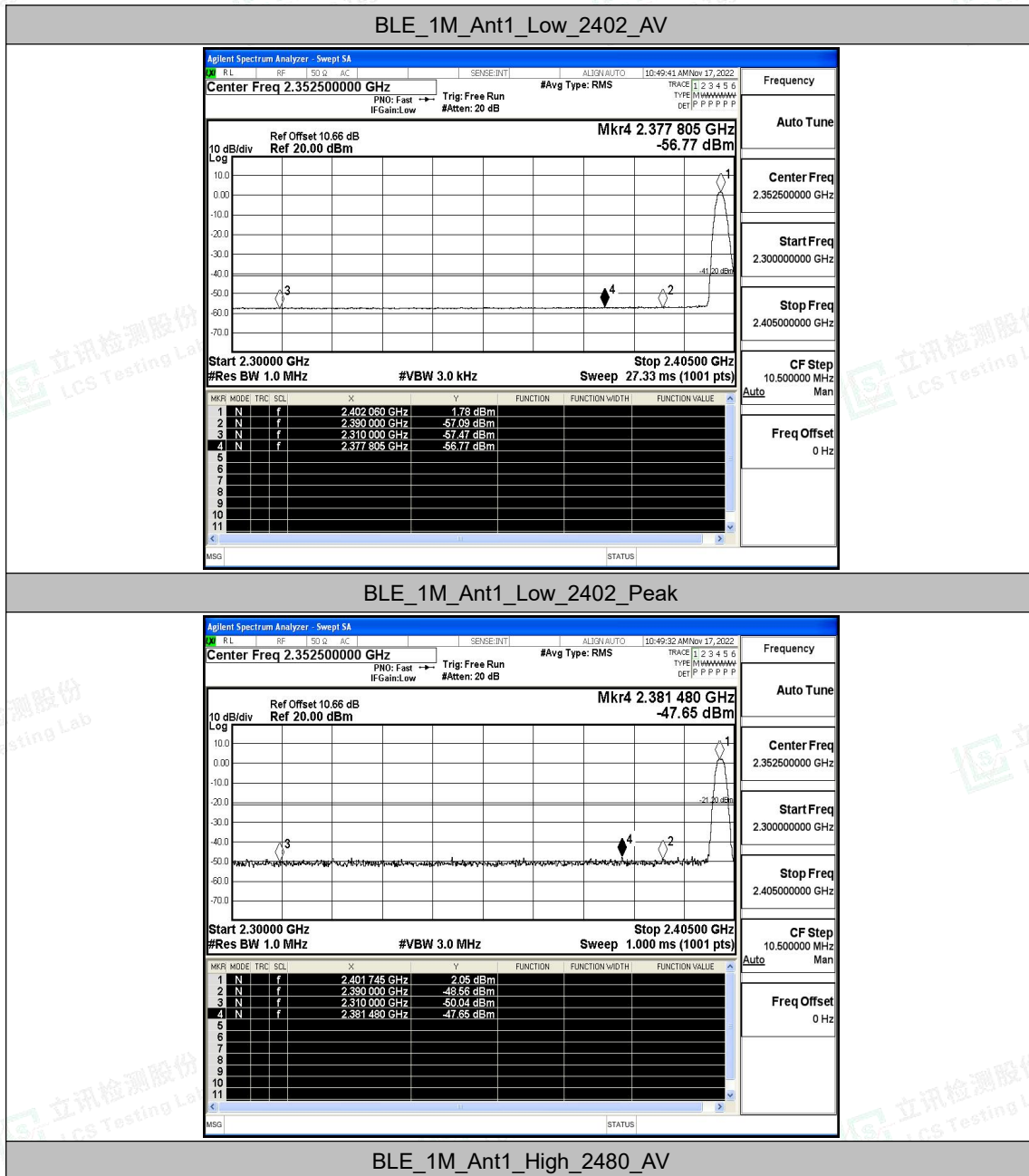
#### Note:

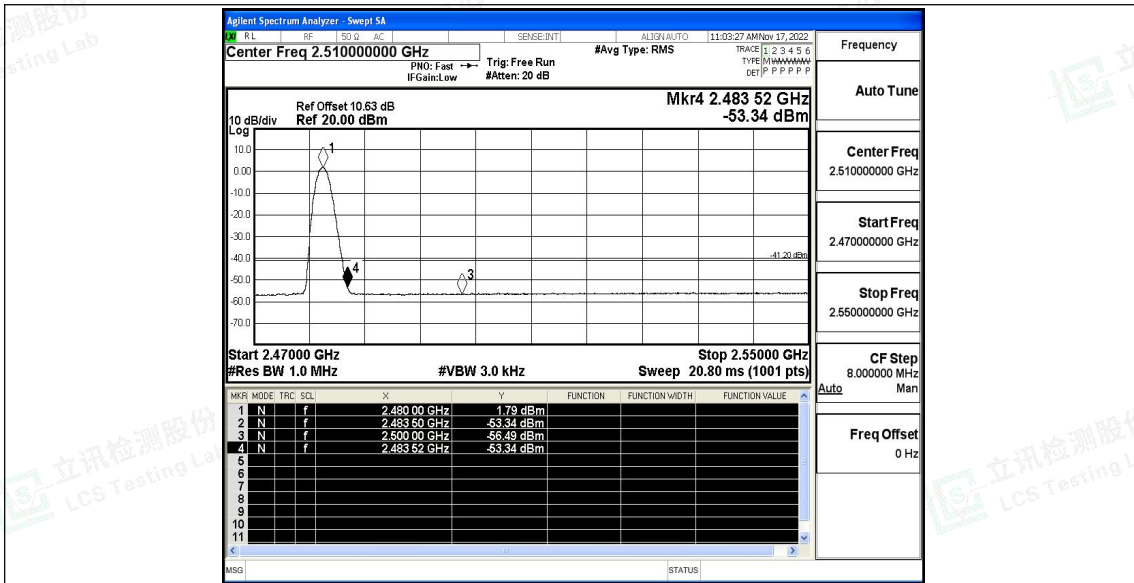
1. The Antenna Gain is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.





### Test Graphs





BLE\_1M\_Ant1\_High\_2480\_Peak

