



Appendix B

RF Test Data for BT LE (Conducted Measurement)

Product Name: Notebook

Test Model: X1160

Environmental Conditions

Temperature:	22.5° C
Relative Humidity:	53.5%
ATM Pressure:	100.0 kPa
Test Engineer:	Ling Zhu
Supervised by:	Li Huan





B.1 6dB Bandwidth

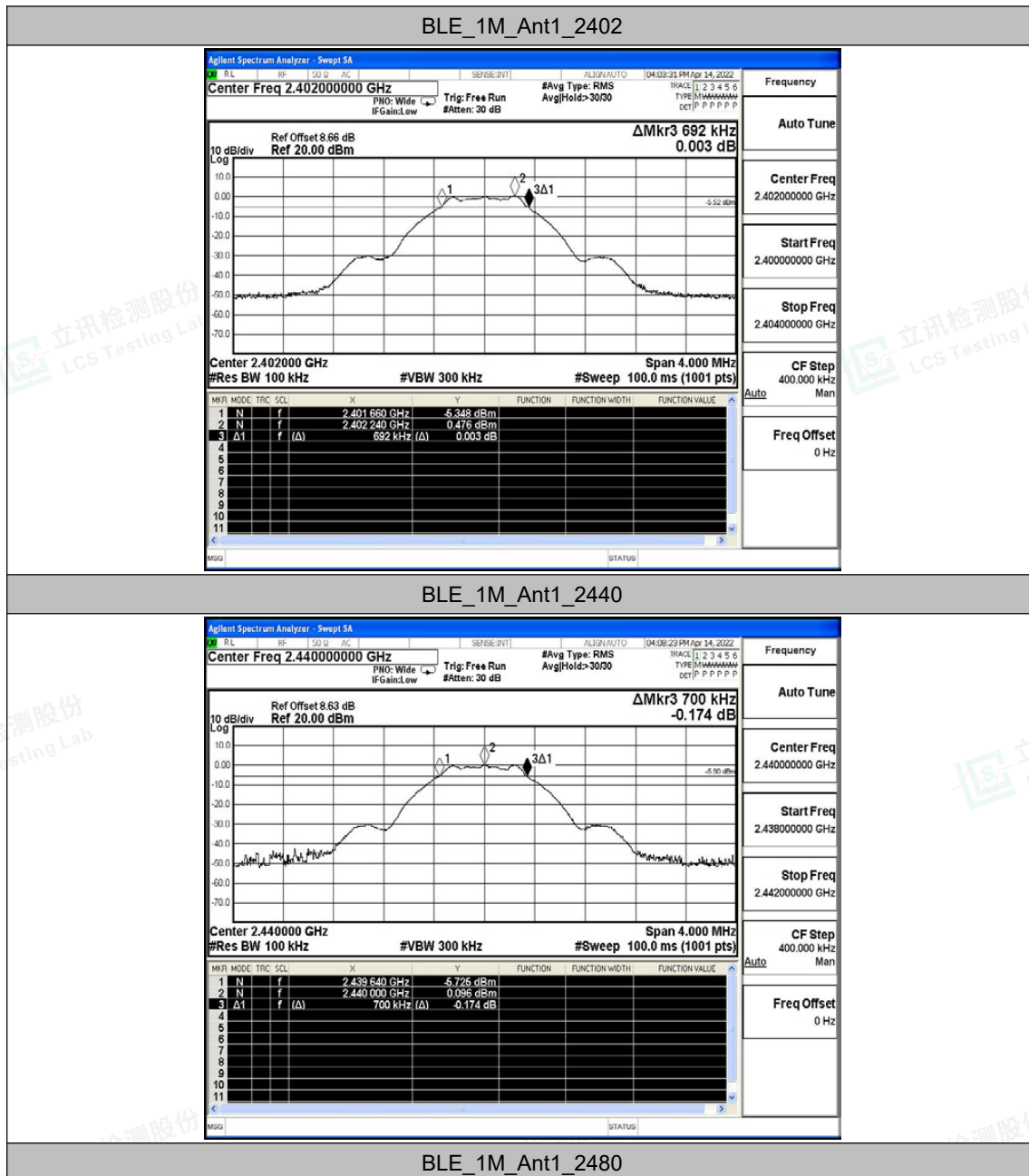
Test Result

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.692	2401.660	2402.352	0.5	PASS
		2440	0.700	2439.640	2440.340	0.5	PASS
		2480	0.692	2479.644	2480.336	0.5	PASS
BLE_2M	Ant1	2402	1.224	2401.344	2402.568	0.5	PASS
		2440	1.232	2439.340	2440.572	0.5	PASS
		2480	1.140	2479.432	2480.572	0.5	PASS





Test Graphs

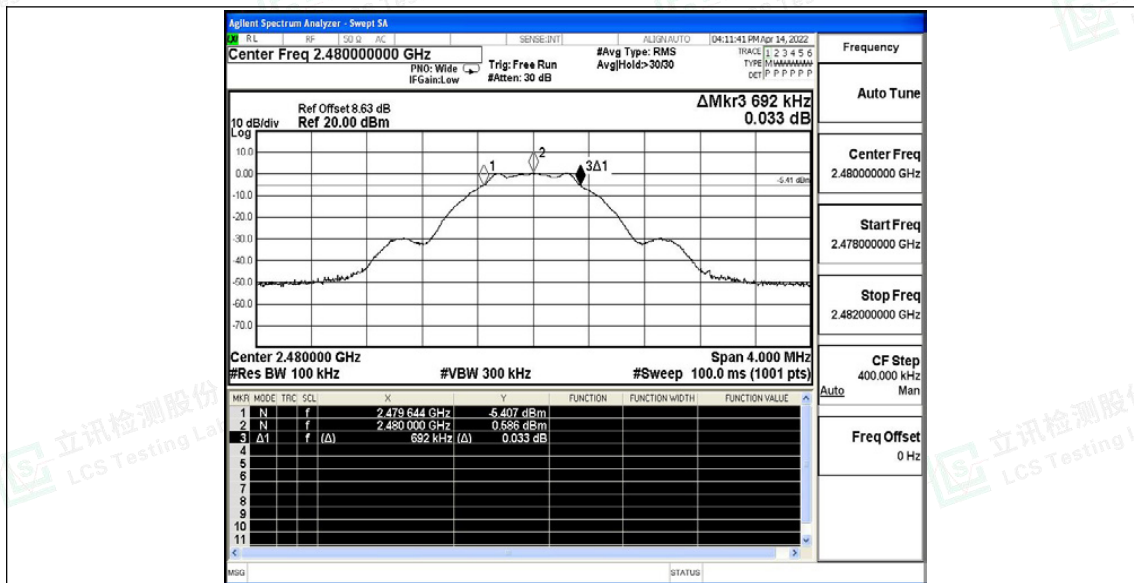


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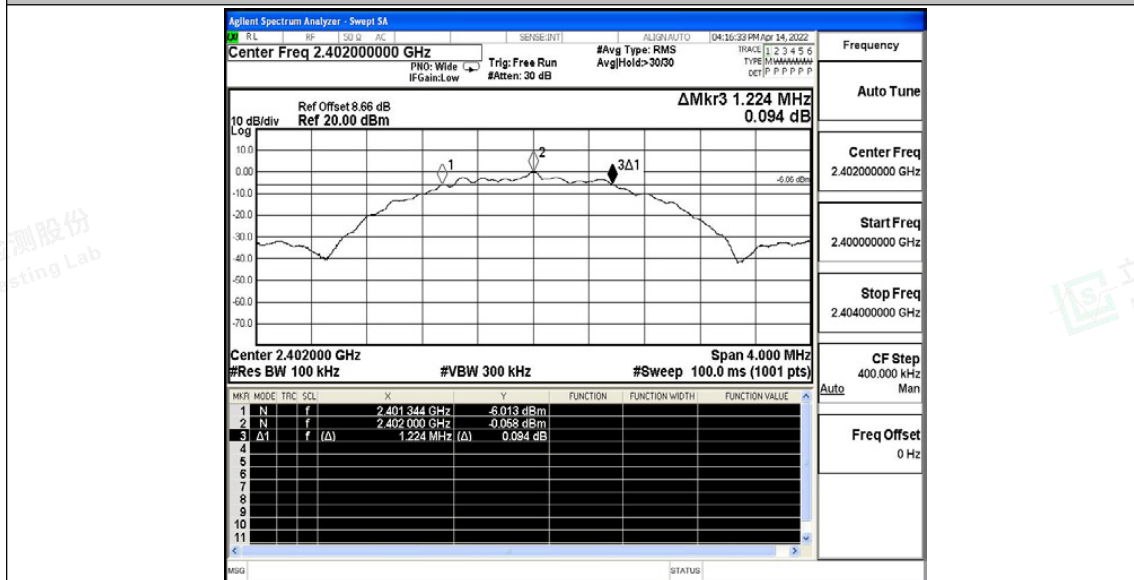
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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BLE_2M_Ant1_2402



BLE_2M_Ant1_2440

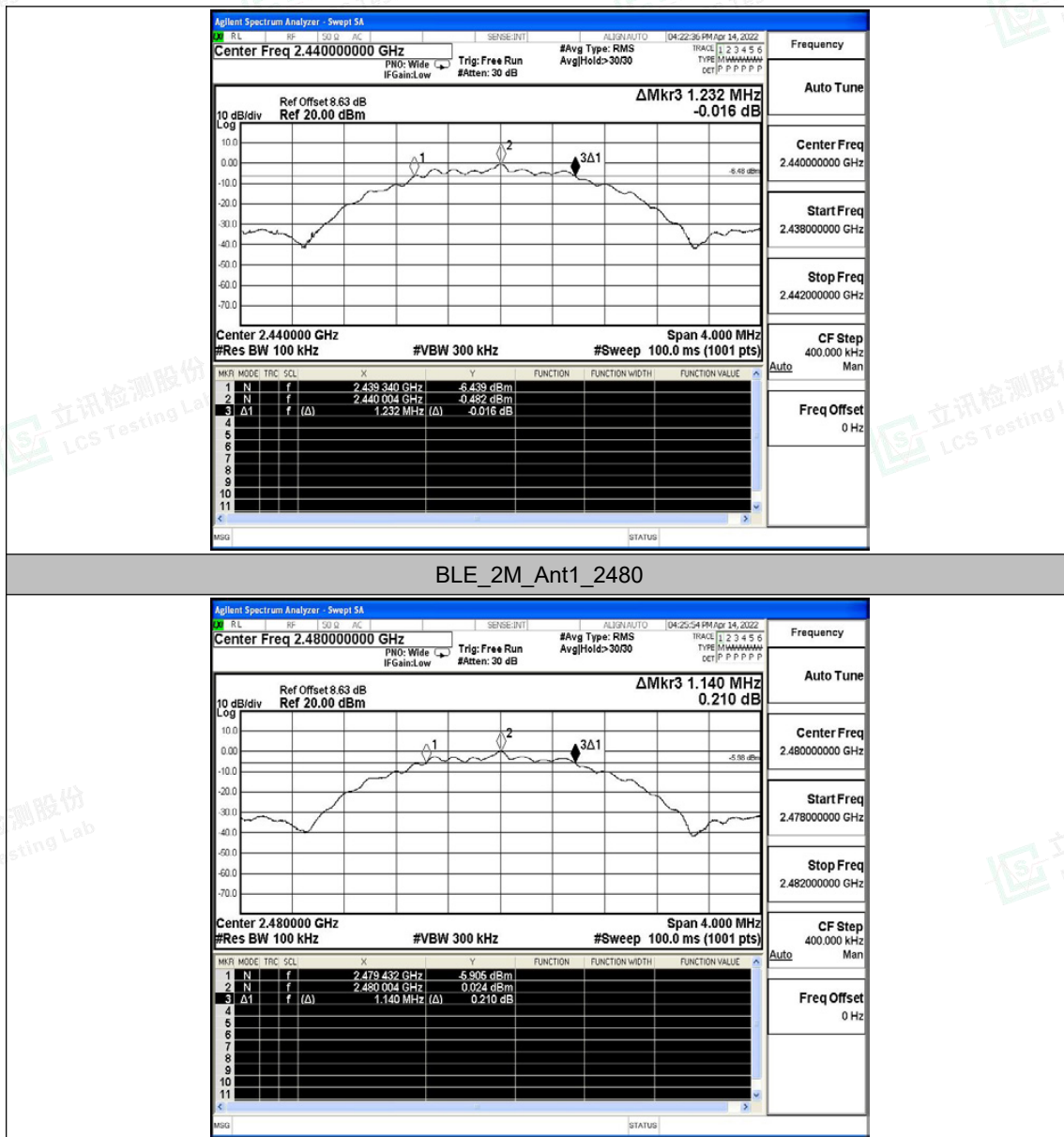


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B.2 Maximum conducted output power

Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	1.52	≤30	PASS
		2440	1.48	≤30	PASS
		2480	1.85	≤30	PASS
BLE_2M	Ant1	2402	1.45	≤30	PASS
		2440	0.88	≤30	PASS
		2480	1.34	≤30	PASS



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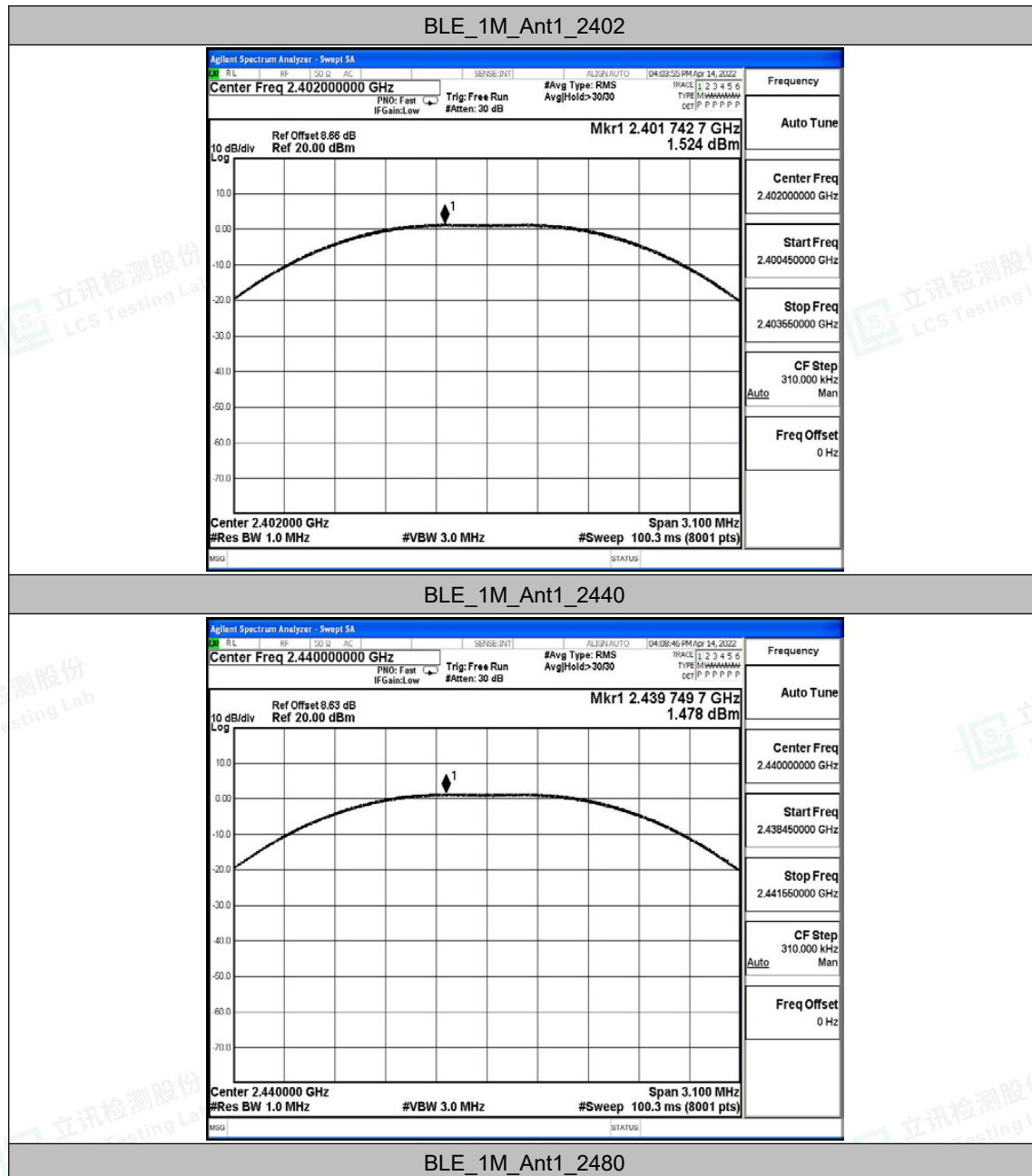
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Test Graphs

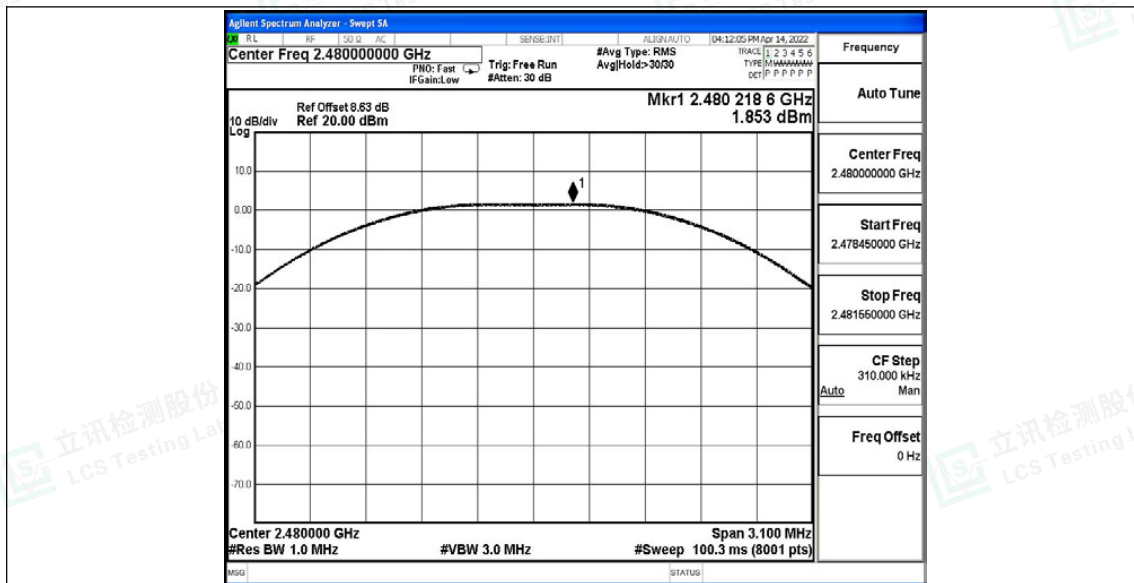


Shenzhen LCS Compliance Testing Laboratory Ltd.

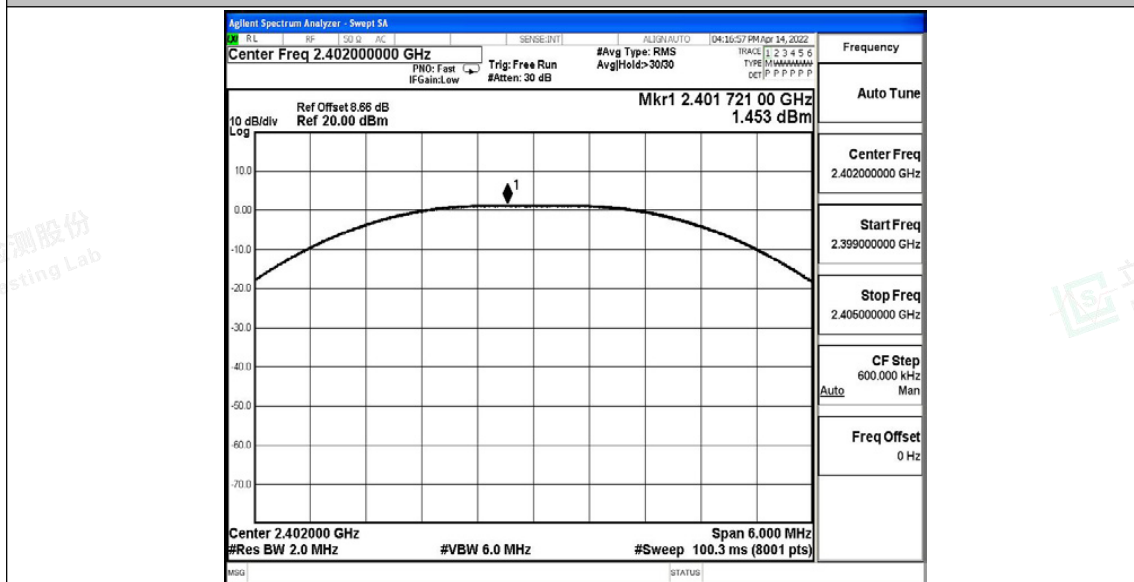
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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BLE_2M_Ant1_2402



BLE_2M_Ant1_2440

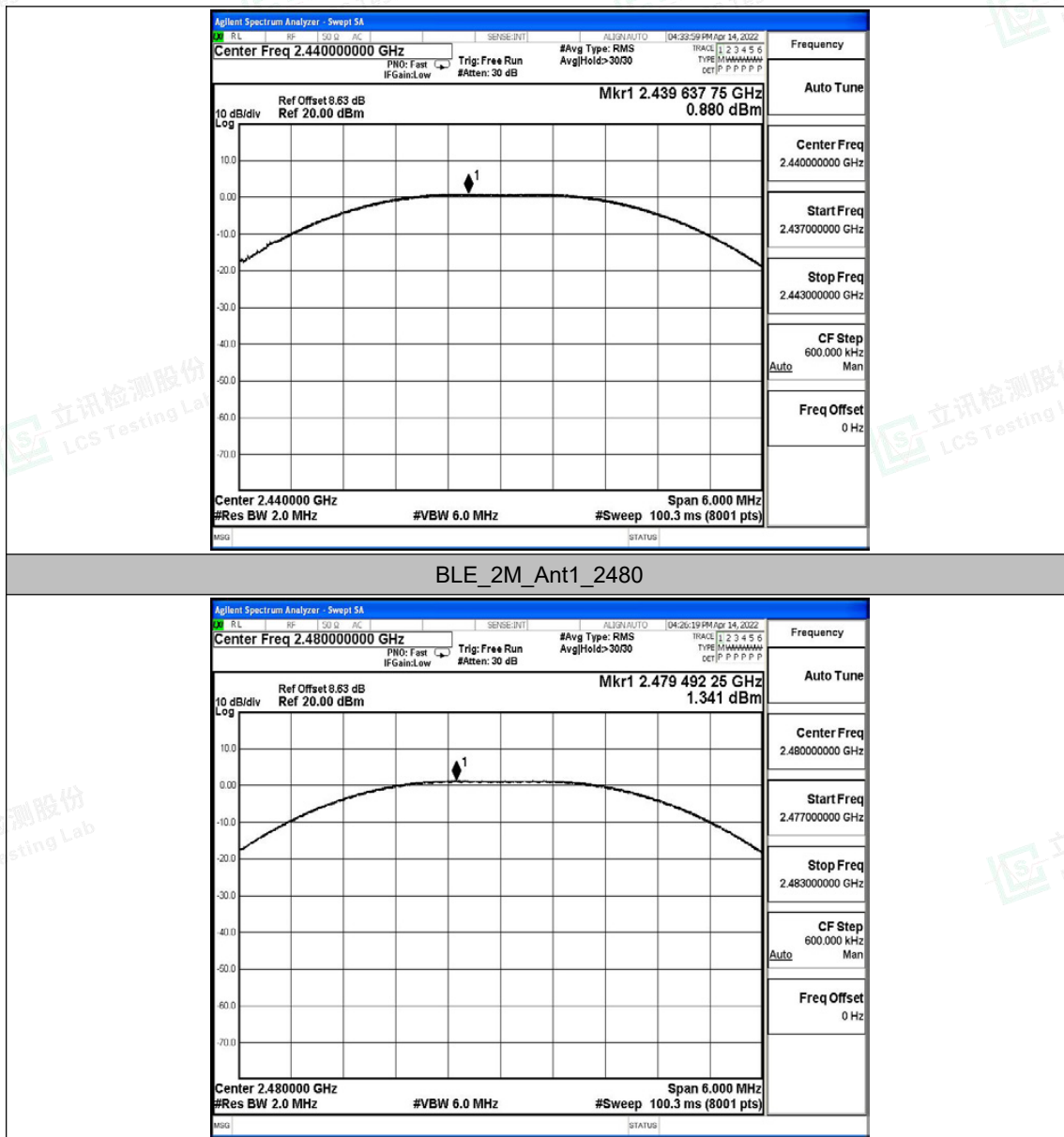


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B.3 Maximum power spectral density

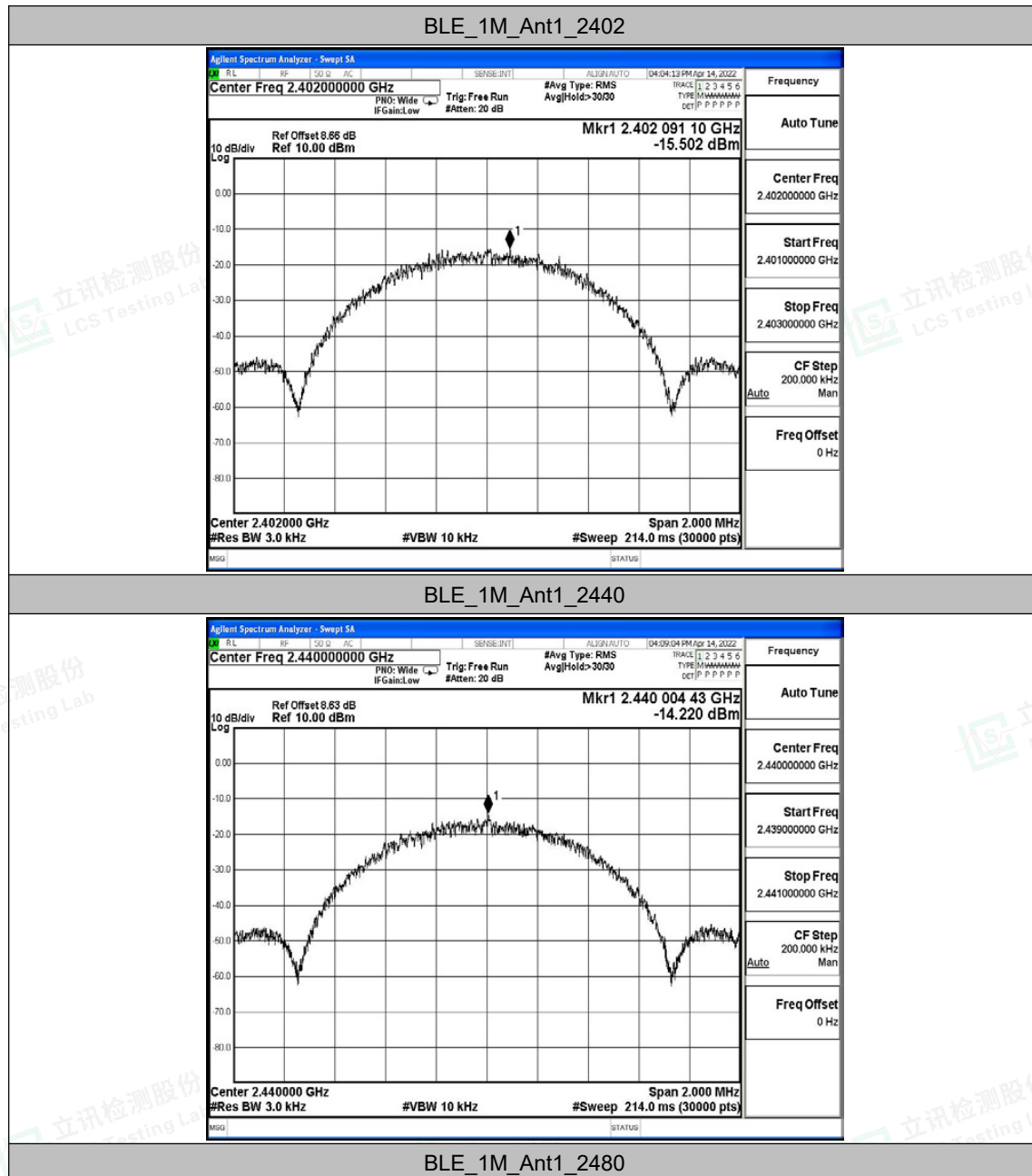
Test Result

TestMode	Antenna	Channel	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-15.5	≤8.00	PASS
		2440	-14.22	≤8.00	PASS
		2480	-13.23	≤8.00	PASS
BLE_2M	Ant1	2402	-16.75	≤8.00	PASS
		2440	-16.94	≤8.00	PASS
		2480	-17.08	≤8.00	PASS





Test Graphs

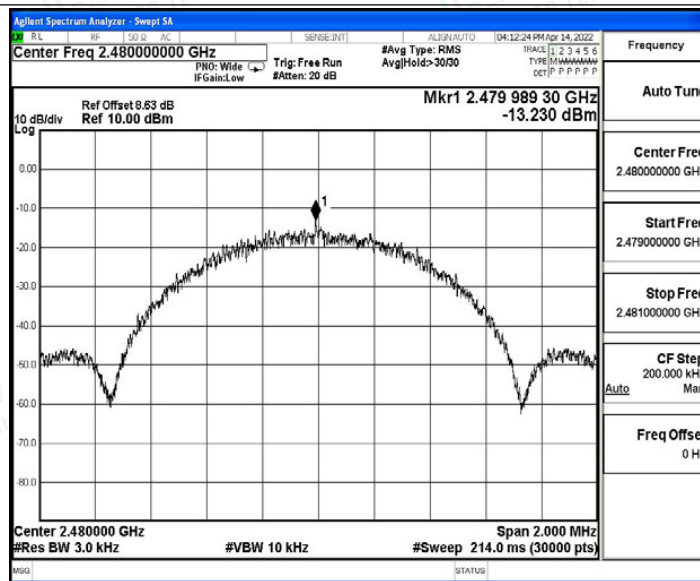


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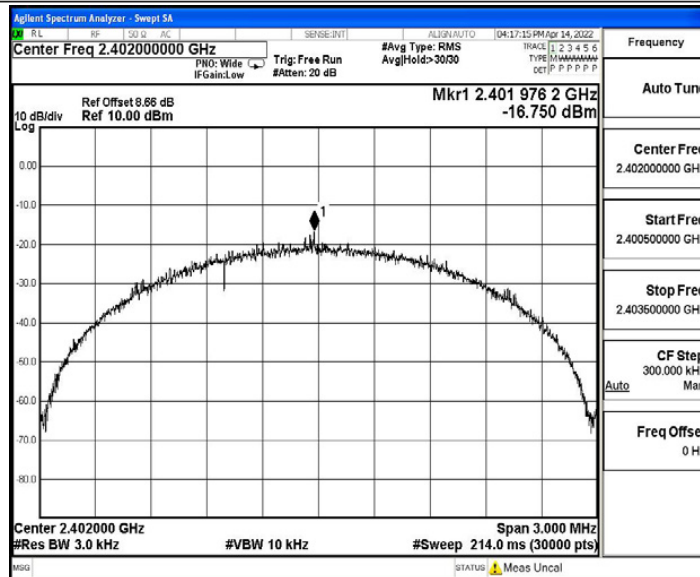
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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BLE_2M_Ant1_2402



BLE_2M_Ant1_2440

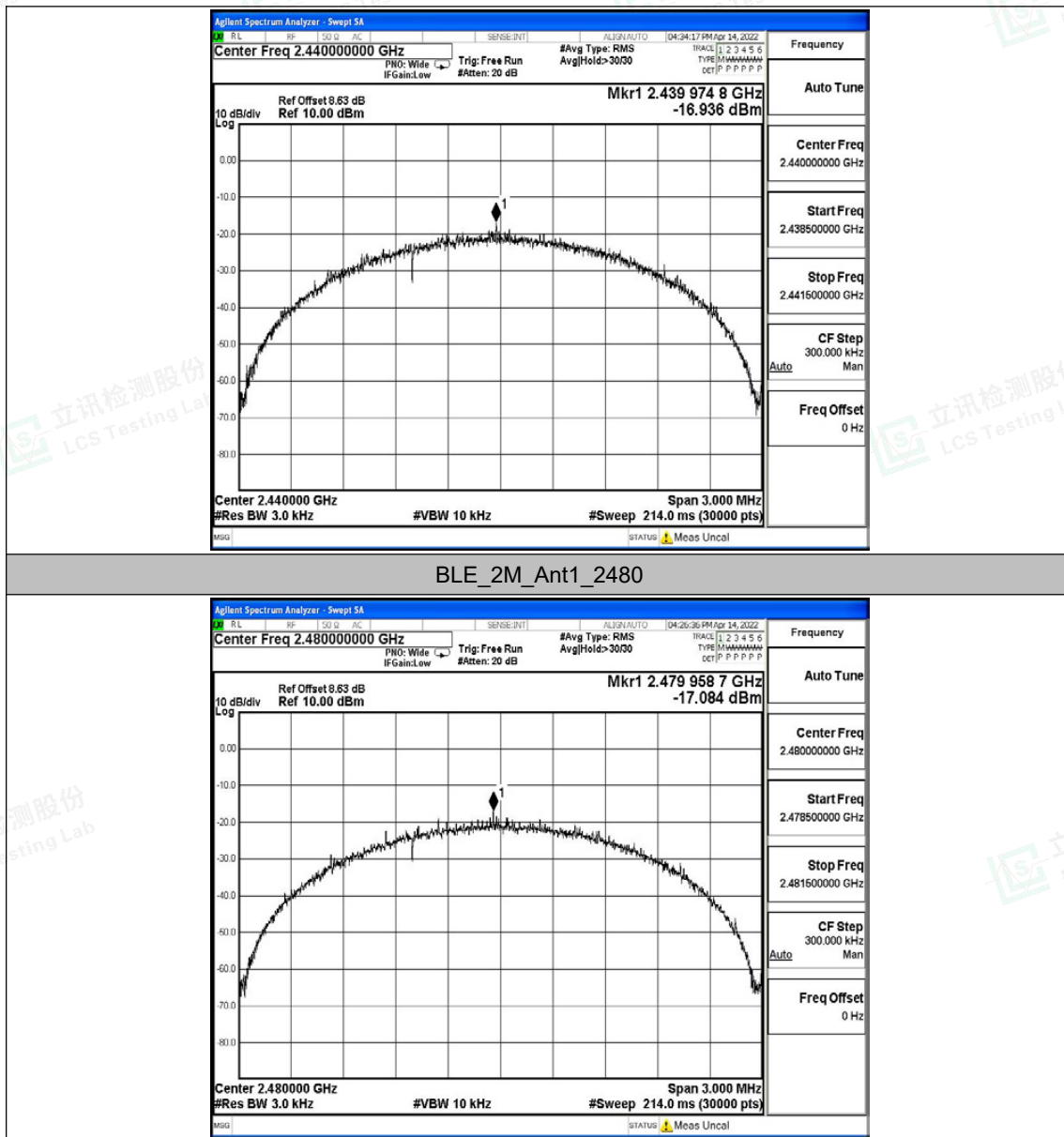


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B.4 Band edge measurements

Test Result

TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	0.80	-57.02	≤ -19.2	PASS
		High	2480	0.58	-57.71	≤ -19.42	PASS
BLE_2M	Ant1	Low	2402	0.04	-32.22	≤ -19.96	PASS
		High	2480	-0.13	-57.68	≤ -20.13	PASS



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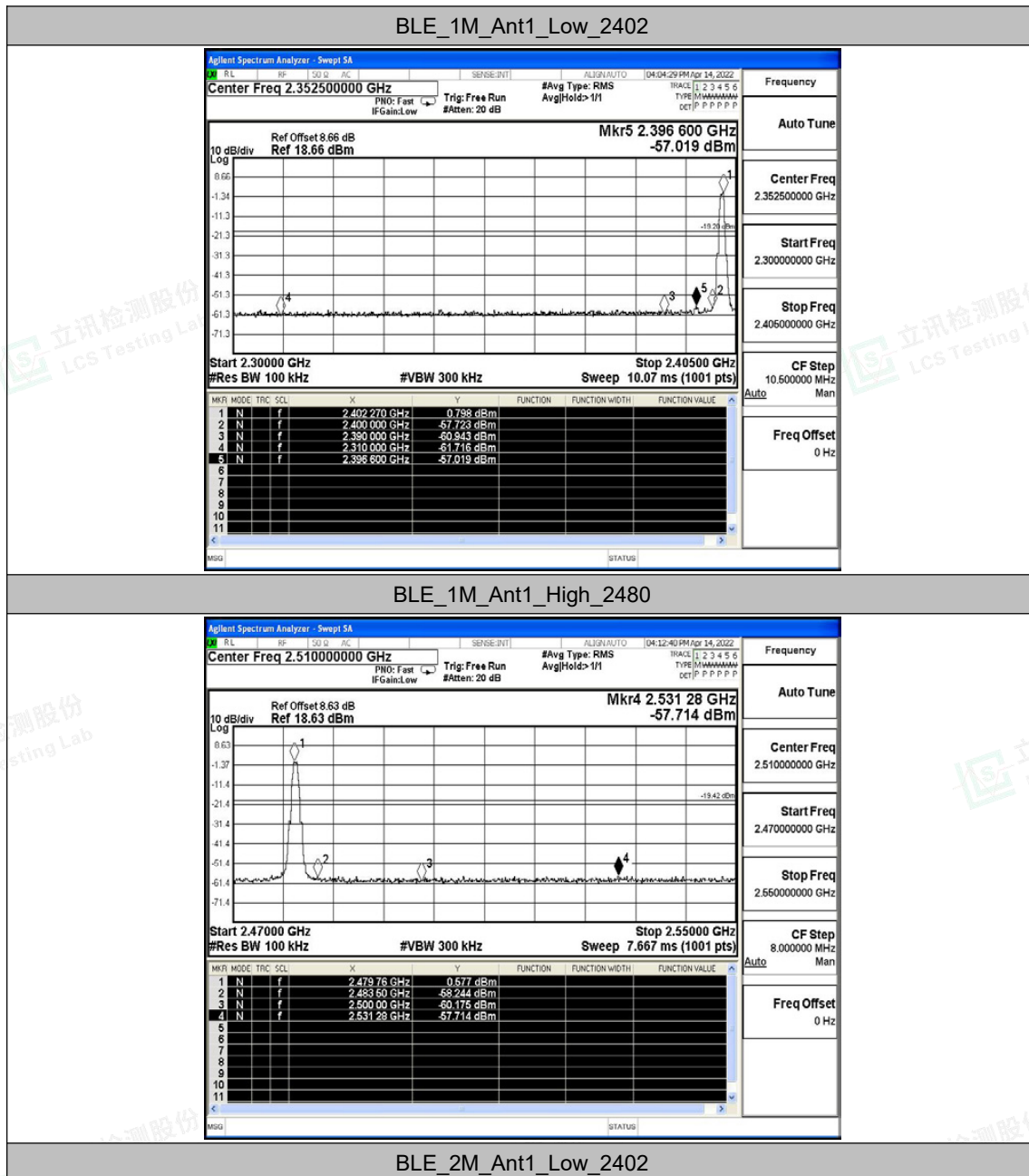
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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Test Graphs

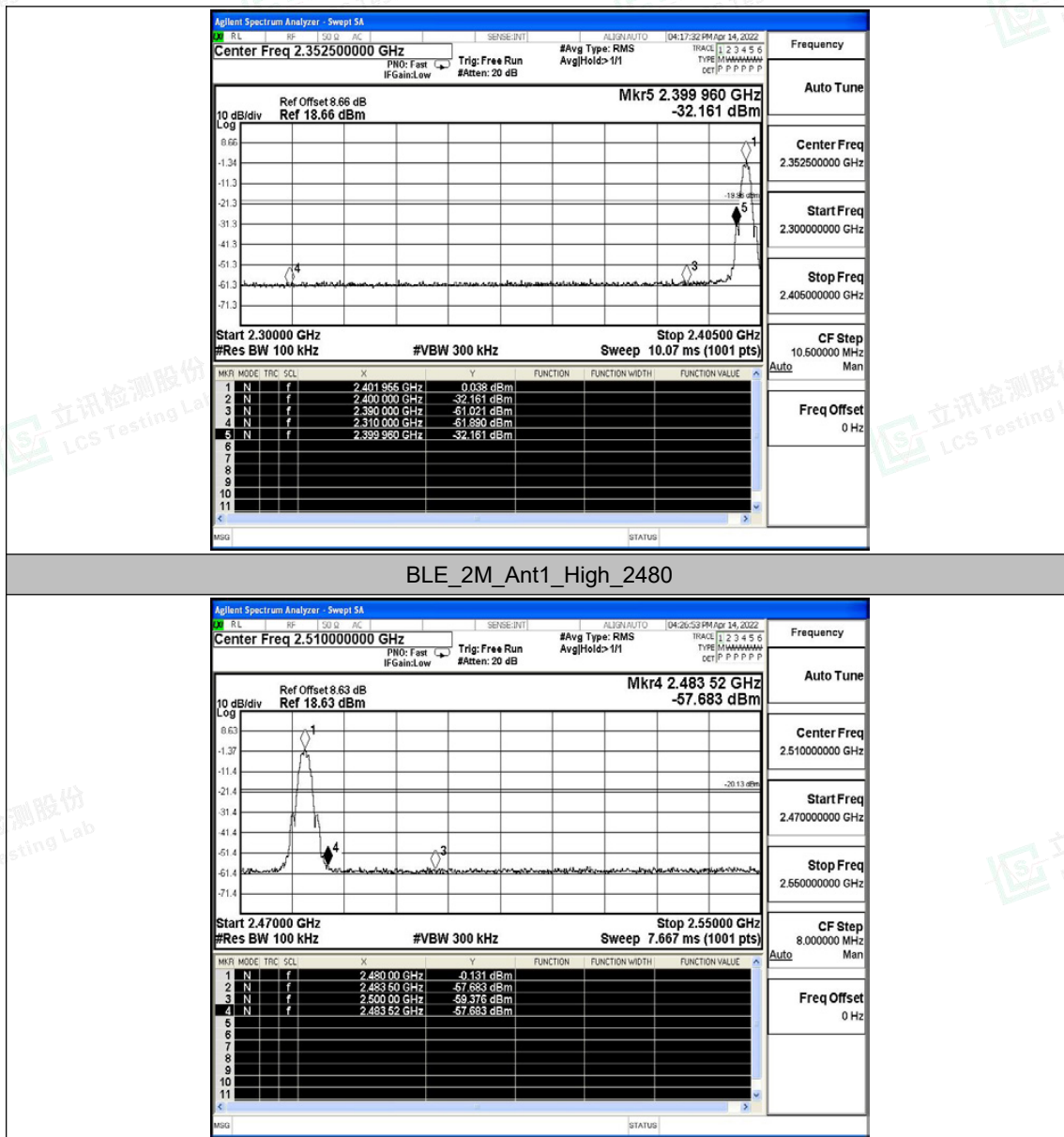


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B.5 Conducted Spurious Emission

Test Result

TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	0.37	0.37	---	PASS
			30~1000	0.37	-60.06	≤-19.63	PASS
			1000~26500	0.37	-45.71	≤-19.63	PASS
		2440	Reference	0.12	0.12	---	PASS
			30~1000	0.12	-60.65	≤-19.88	PASS
			1000~26500	0.12	-31.65	≤-19.88	PASS
		2480	Reference	0.30	0.30	---	PASS
			30~1000	0.30	-61.19	≤-19.7	PASS
			1000~26500	0.30	-46.34	≤-19.7	PASS
BLE_2M	Ant1	2402	Reference	-0.58	-0.58	---	PASS
			30~1000	-0.58	-60.7	≤-20.58	PASS
			1000~26500	-0.58	-46.44	≤-20.58	PASS
		2440	Reference	-0.58	-0.58	---	PASS
			30~1000	-0.58	-60.94	≤-20.58	PASS
			1000~26500	-0.58	-31.93	≤-20.58	PASS
		2480	Reference	-0.12	-0.12	---	PASS
			30~1000	-0.12	-60.49	≤-20.12	PASS
			1000~26500	-0.12	-38.77	≤-20.12	PASS



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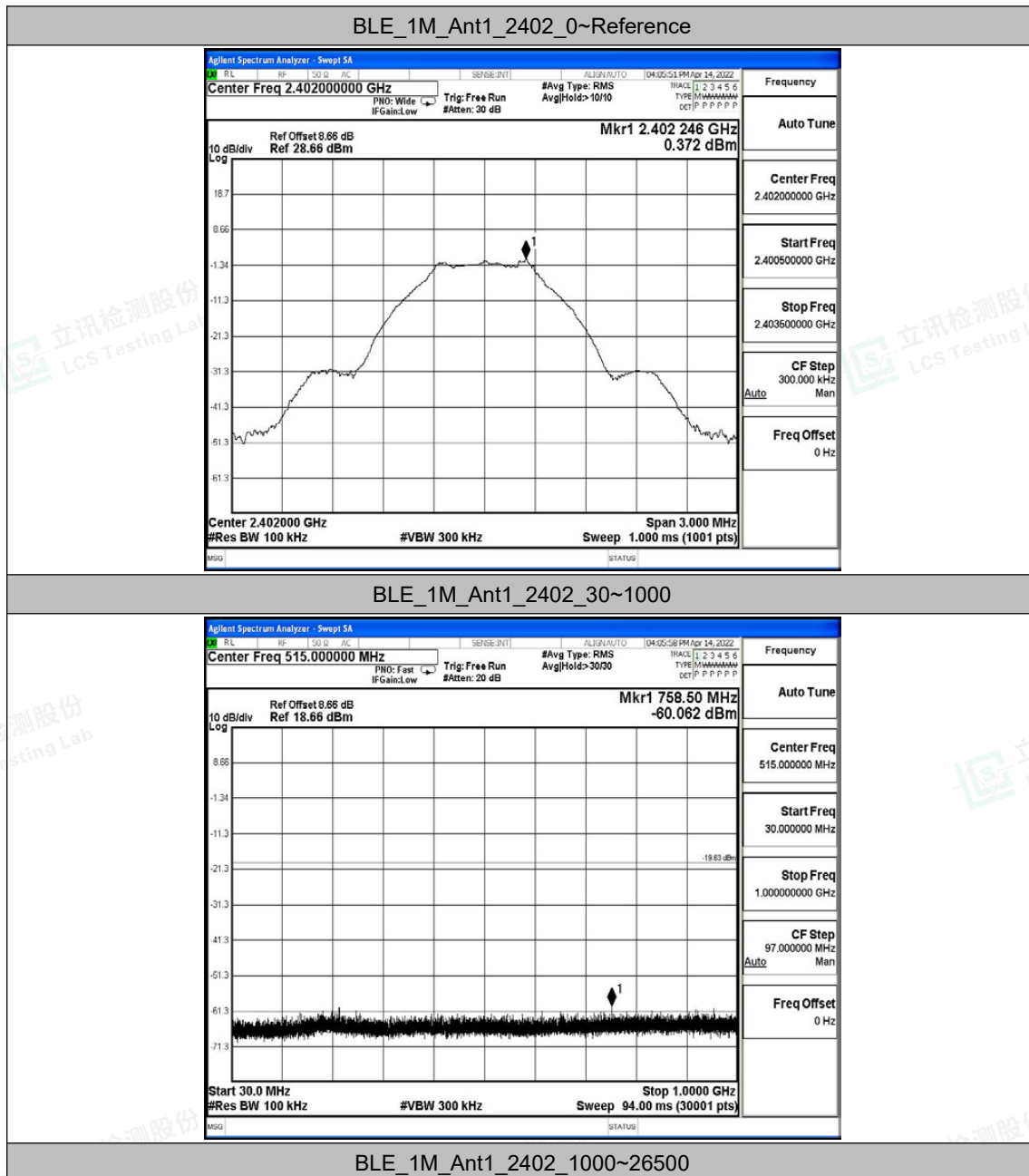
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Test Graphs

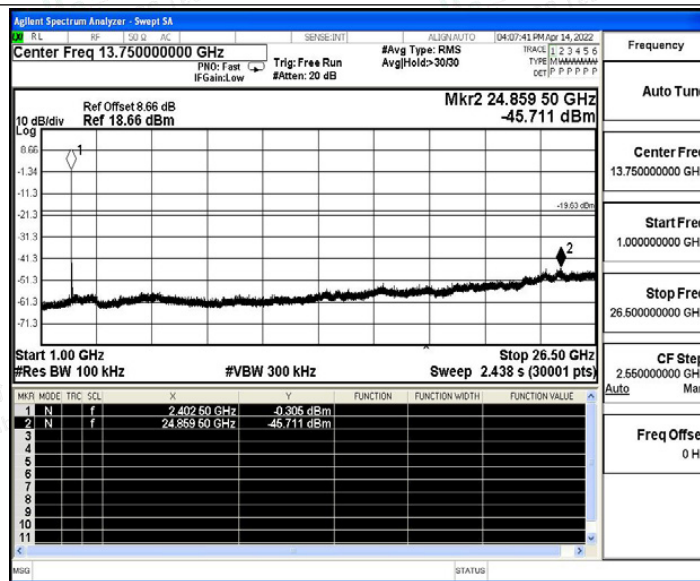


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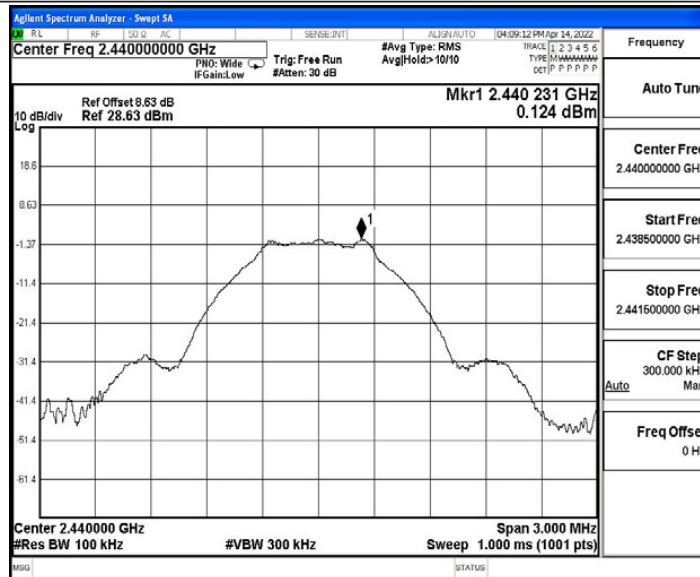
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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BLE_1M_Ant1_2440_0~Reference



BLE_1M_Ant1_2440_30~1000

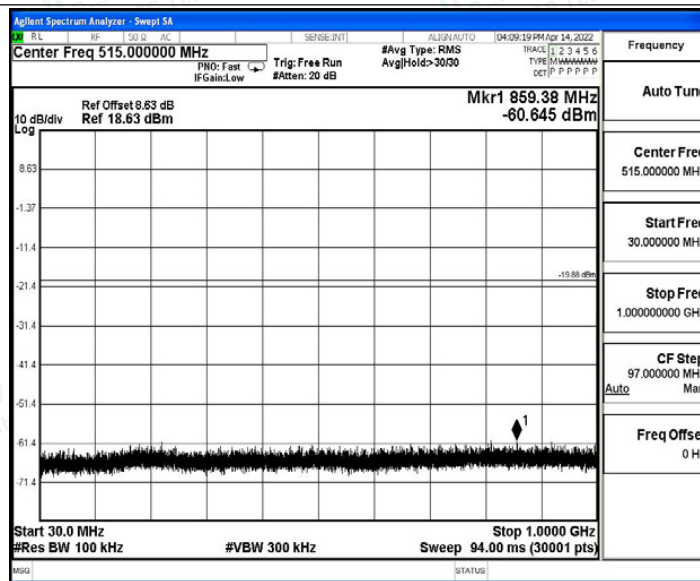


Shenzhen LCS Compliance Testing Laboratory Ltd.

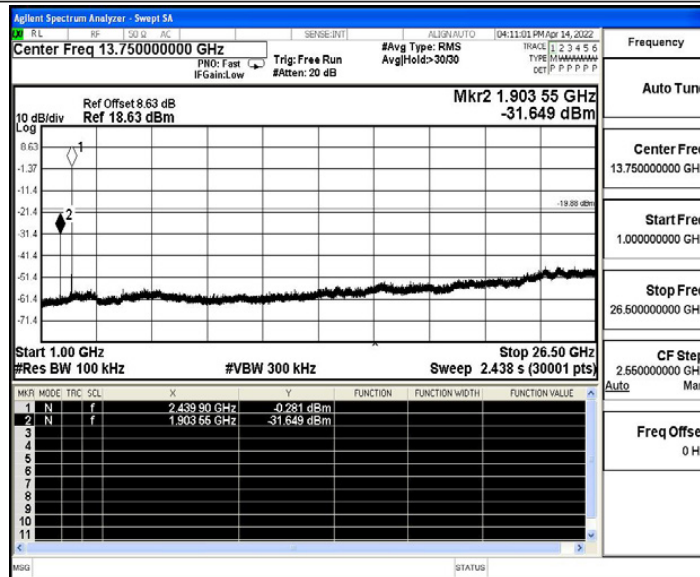
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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BLE_1M_Ant1_2440_1000~26500



BLE_1M_Ant1_2480_0~Reference

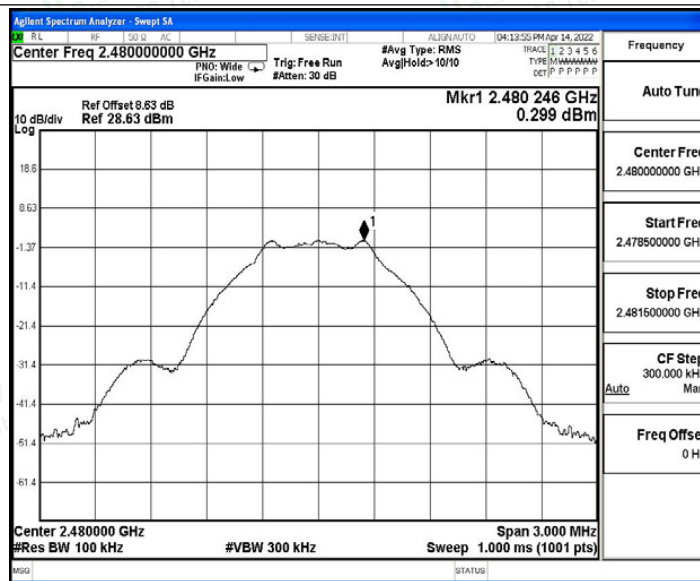


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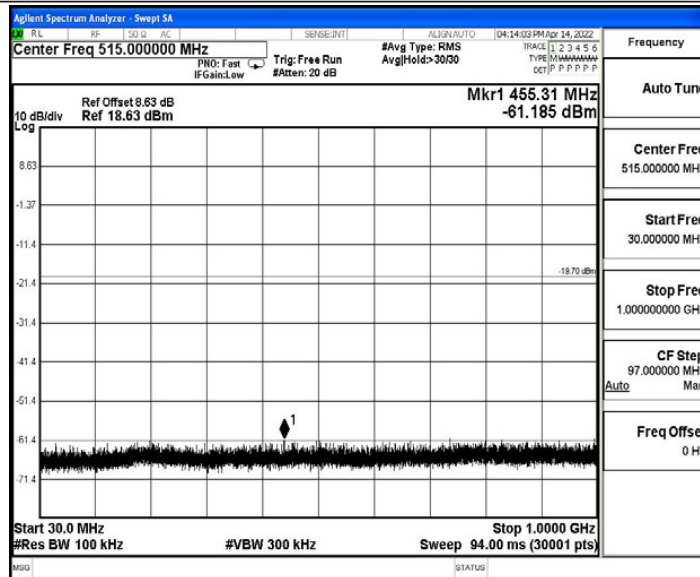
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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BLE_1M_Ant1_2480_30~1000



BLE_1M_Ant1_2480_1000~26500

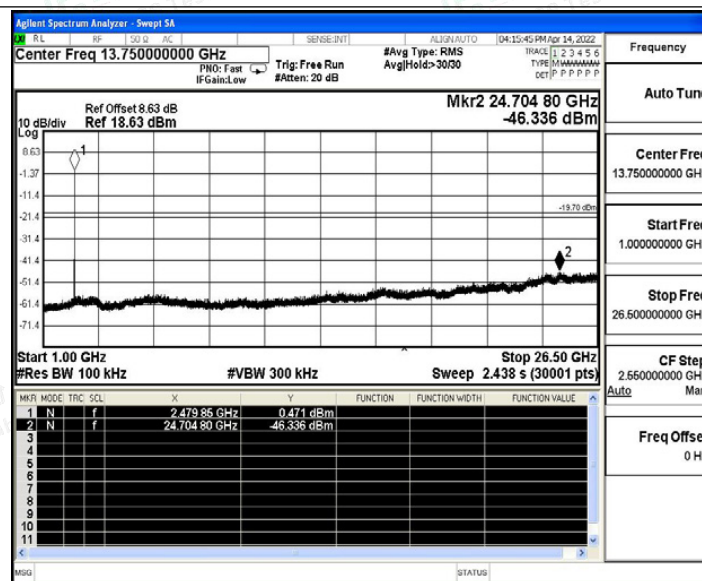


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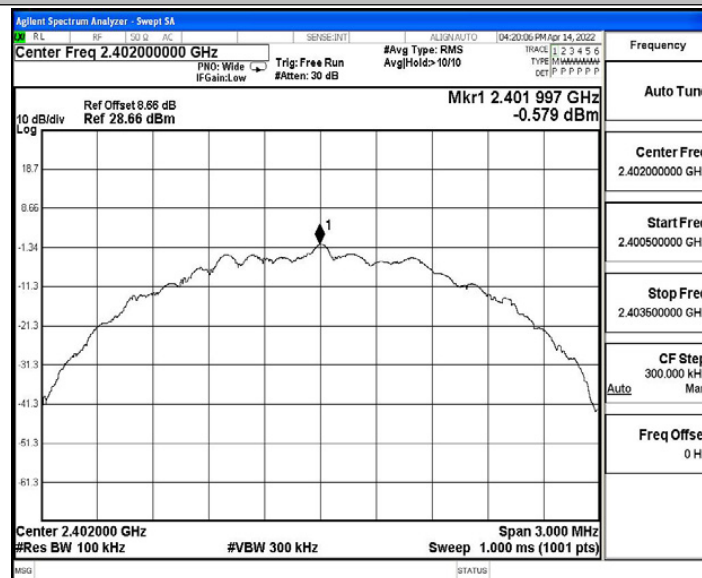
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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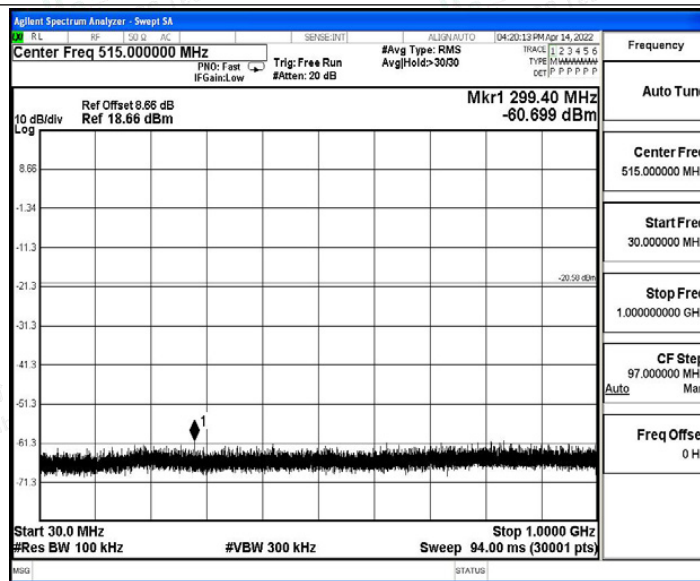


BLE_2M_Ant1_2402_0~Reference

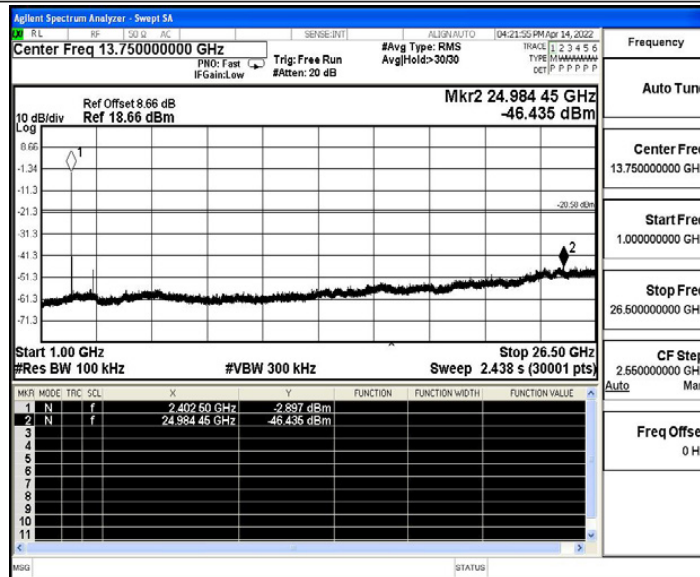


BLE_2M_Ant1_2402_30~1000





BLE_2M_Ant1_2402_1000~26500



BLE_2M_Ant1_2440_0~Reference

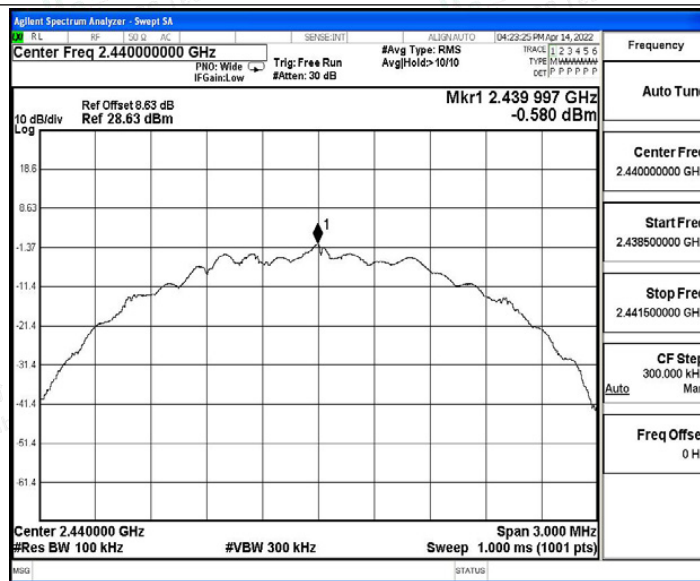


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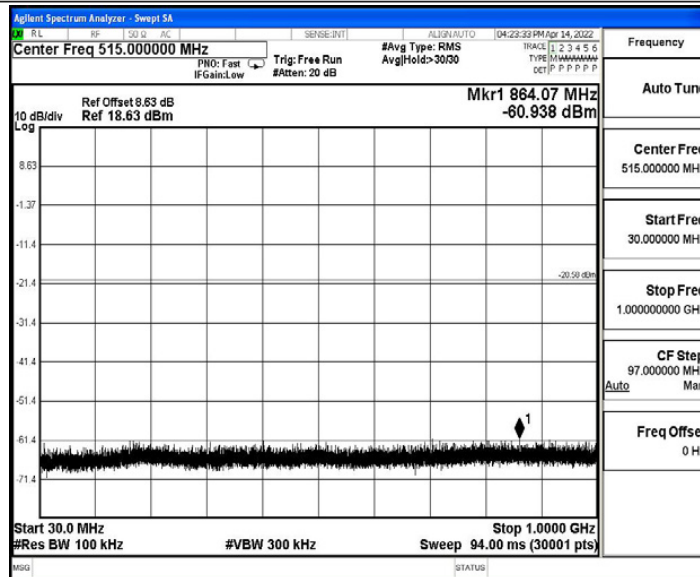
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BLE_2M_Ant1_2440_30~1000



BLE_2M_Ant1_2440_1000~26500

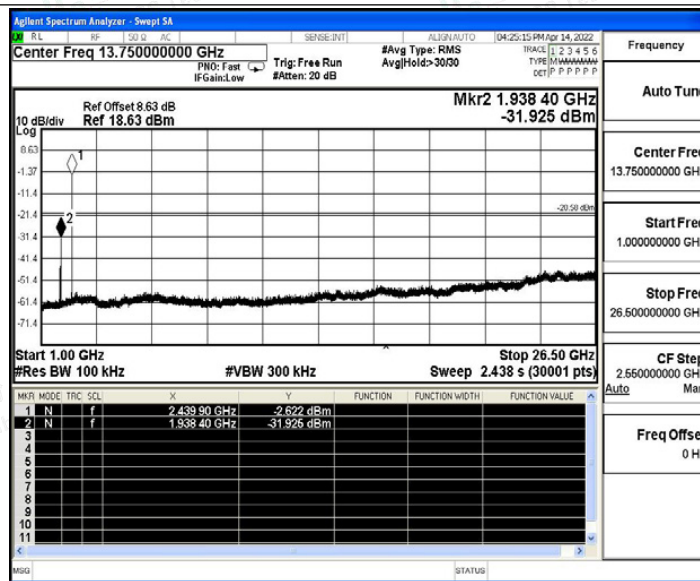


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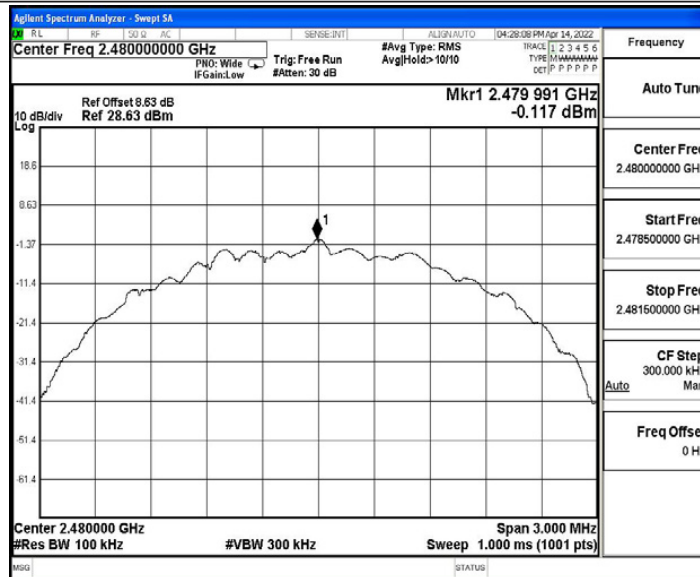
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BLE_2M_Ant1_2480_0~Reference



BLE_2M_Ant1_2480_30~1000

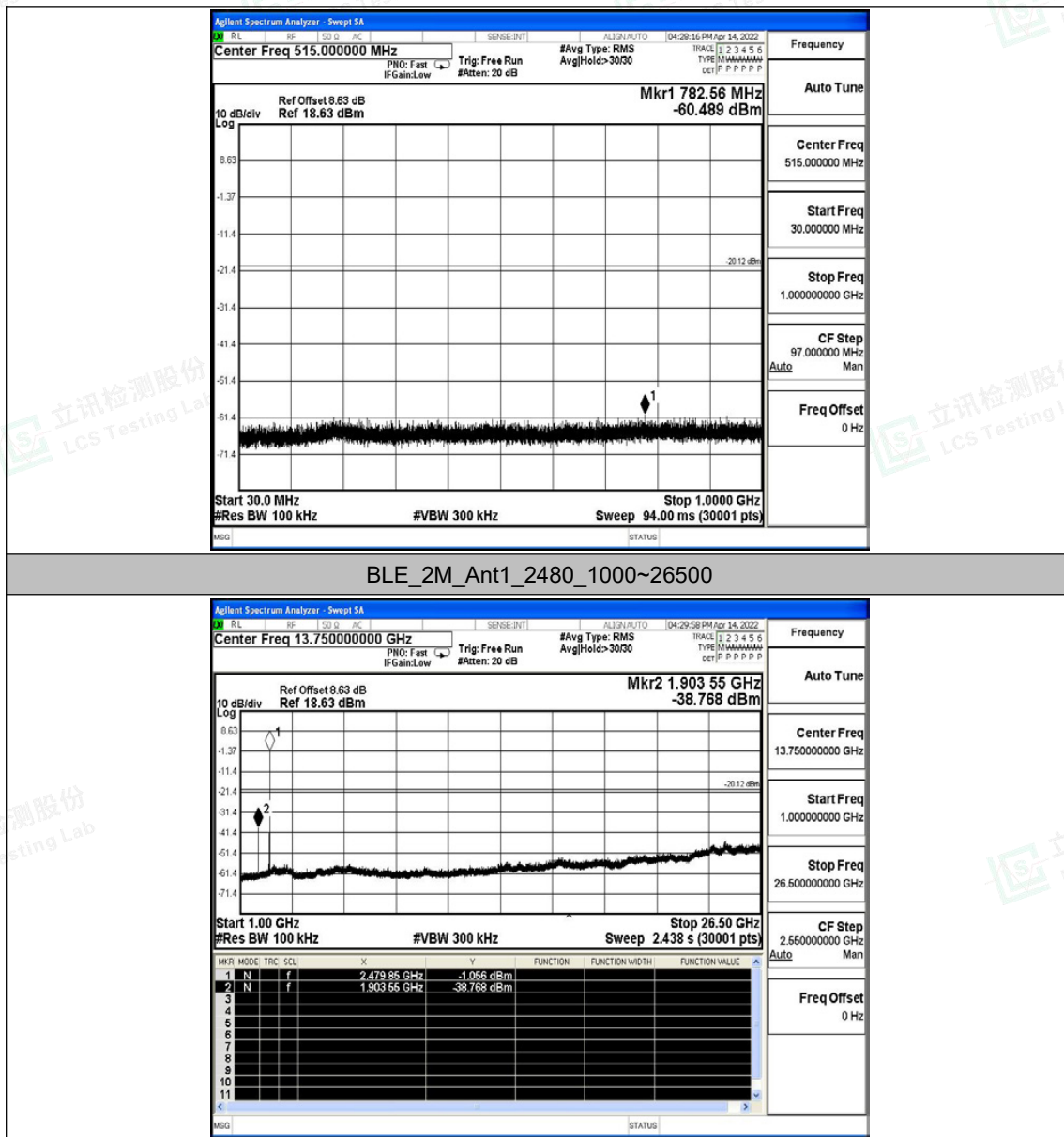


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B.6 Duty Cycle

Test Result

TestMode	Antenna	Channel	ON Time [ms]	Period [ms]	X	DC [%]	xFactor	1/T	Limit
BLE_1M	Ant1	2402	2.14	2.50	0.8560	85.60	0.68	0.47	---
		2440	2.14	2.50	0.8560	85.60	0.68	0.47	---
		2480	2.14	2.50	0.8560	85.60	0.68	0.47	---
BLE_2M	Ant1	2402	1.08	1.87	0.5775	57.75	2.38	0.93	---
		2440	1.09	1.88	0.5798	57.98	2.37	0.92	---
		2480	1.08	1.88	0.5745	57.45	2.41	0.93	---



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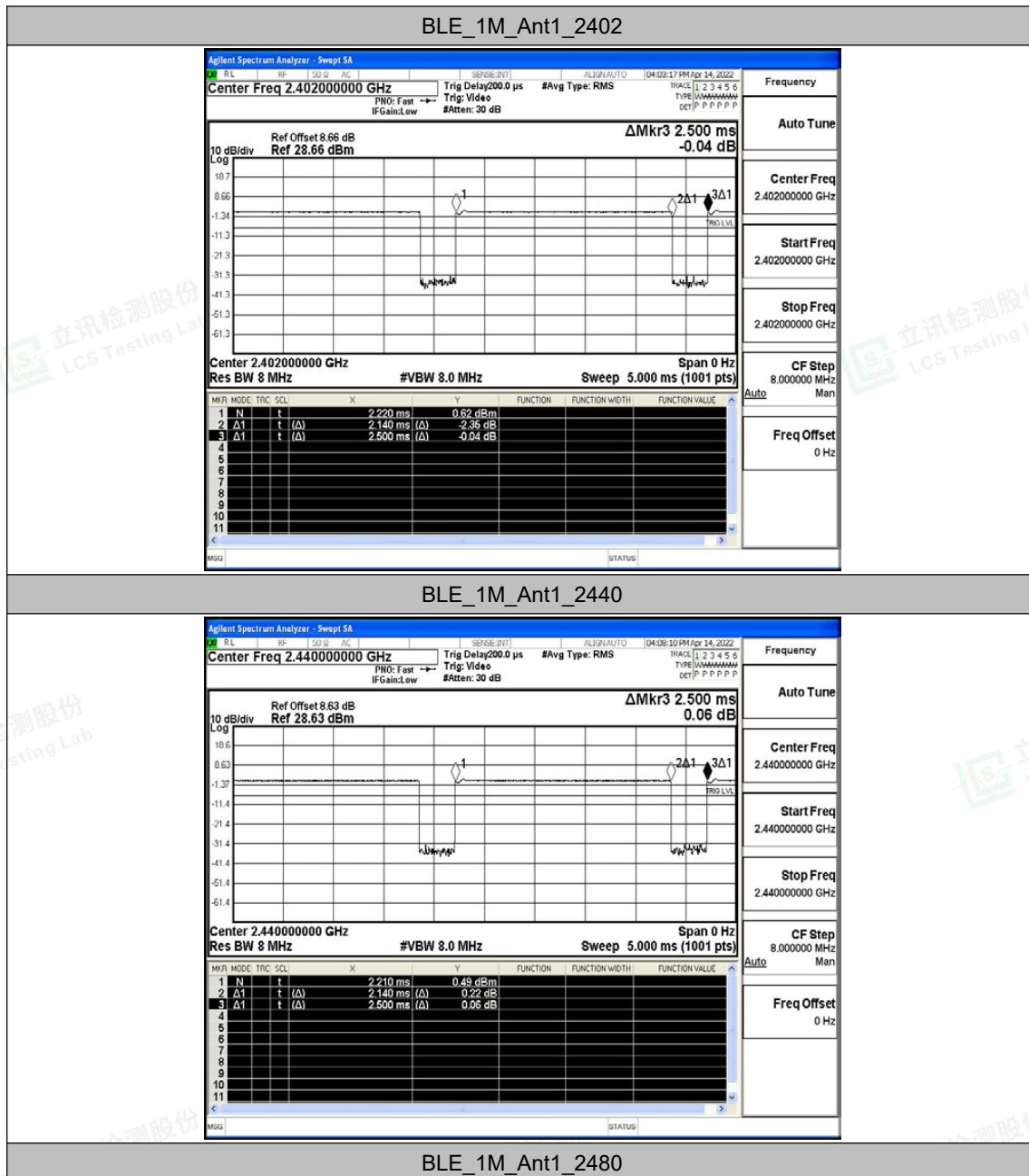
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

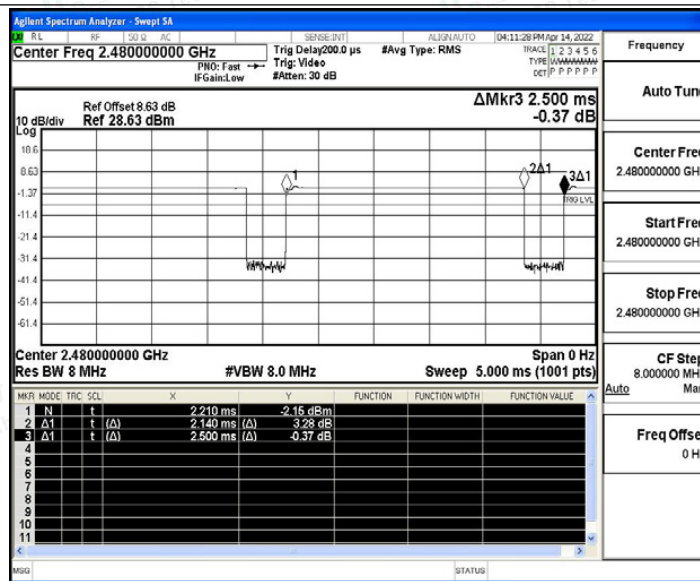
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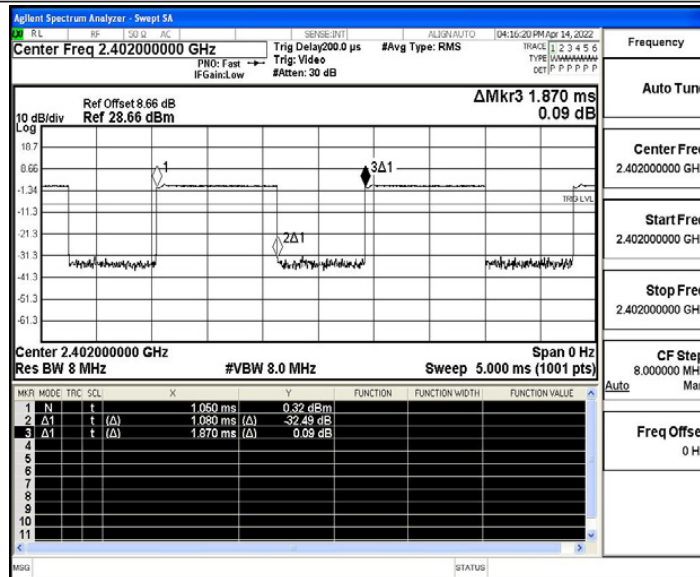


Test Graphs





BLE_2M_Ant1_2402



BLE_2M_Ant1_2440

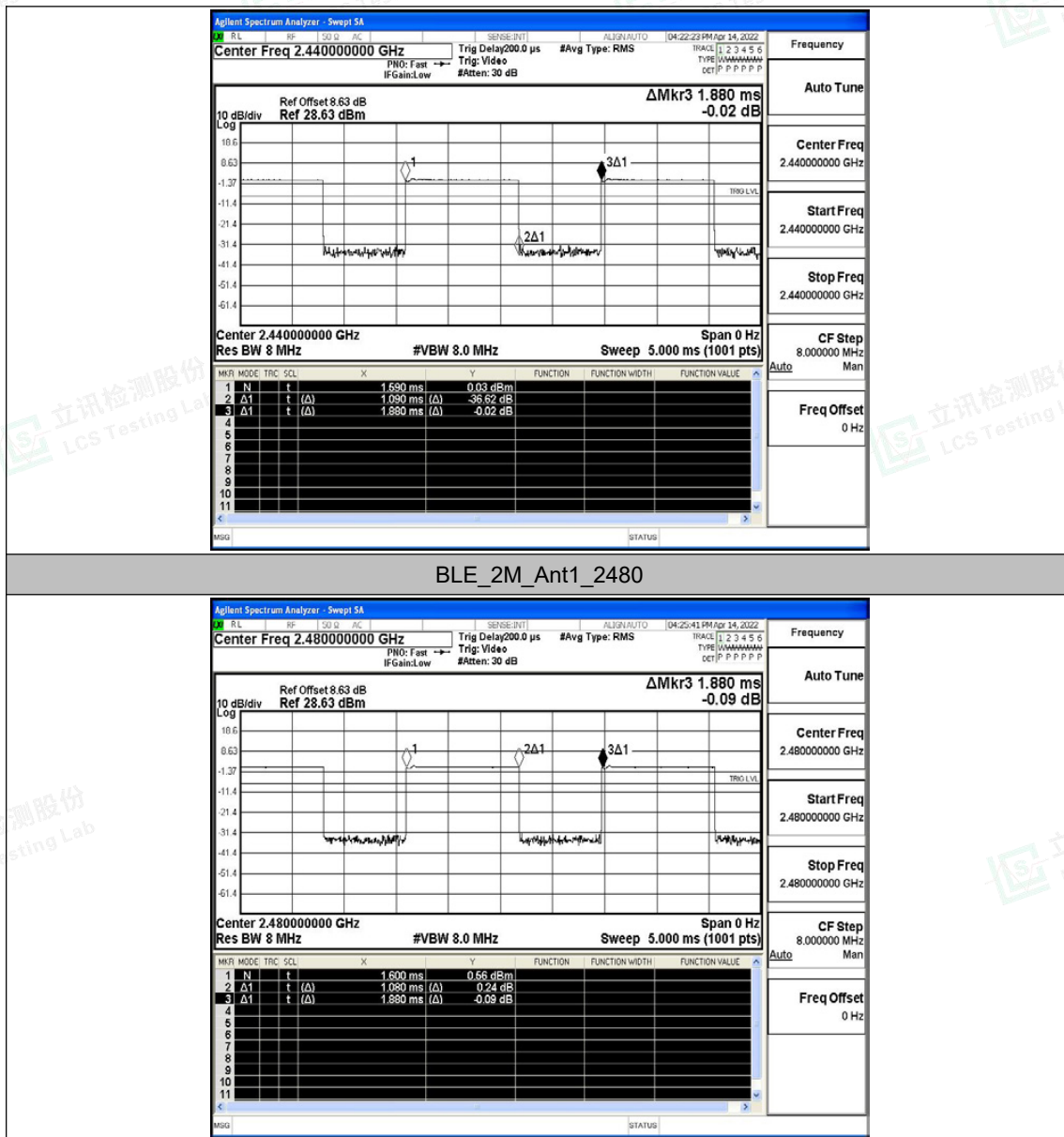


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B.7 Emissions in Restricted Bands

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	-58.09	≤-41.20	37.11	≤54	PASS
				AV	2389.460	-57.23	≤-41.20	37.97	≤54	PASS
				AV	2390.000	-57.28	≤-41.20	37.92	≤54	PASS
				Peak	2310.000	-48.15	≤-21.20	47.05	≤74	PASS
				Peak	2388.095	-45.81	≤-21.20	49.39	≤74	PASS
				Peak	2390.000	-48.25	≤-21.20	46.95	≤74	PASS
		High	2480	AV	2483.500	-53.41	≤-41.20	41.79	≤54	PASS
				AV	2483.520	-53.41	≤-41.20	41.79	≤54	PASS
				AV	2500.000	-56.93	≤-41.20	38.27	≤54	PASS
				Peak	2483.500	-43.75	≤-21.20	51.45	≤74	PASS
				Peak	2483.520	-43.75	≤-21.20	51.45	≤74	PASS
				Peak	2500.000	-47.08	≤-21.20	48.12	≤74	PASS
BLE_2M	Ant1	Low	2402	AV	2310.000	-57.92	≤-41.20	37.28	≤54	PASS
				AV	2389.565	-57.09	≤-41.20	38.11	≤54	PASS
				AV	2390.000	-57.2	≤-41.20	38.00	≤54	PASS
				Peak	2310.000	-48.46	≤-21.20	46.74	≤74	PASS
				Peak	2386.625	-46.3	≤-21.20	48.90	≤74	PASS
				Peak	2390.000	-47.72	≤-21.20	47.48	≤74	PASS
		High	2480	AV	2483.500	-48.84	≤-41.20	46.36	≤54	PASS
				AV	2483.520	-48.84	≤-41.20	46.36	≤54	PASS
				AV	2500.000	-56.96	≤-41.20	38.24	≤54	PASS
				Peak	2483.500	-44.15	≤-21.20	51.05	≤74	PASS
				Peak	2484.080	-42.85	≤-21.20	52.35	≤74	PASS
				Peak	2500.000	-47.55	≤-21.20	47.65	≤74	PASS

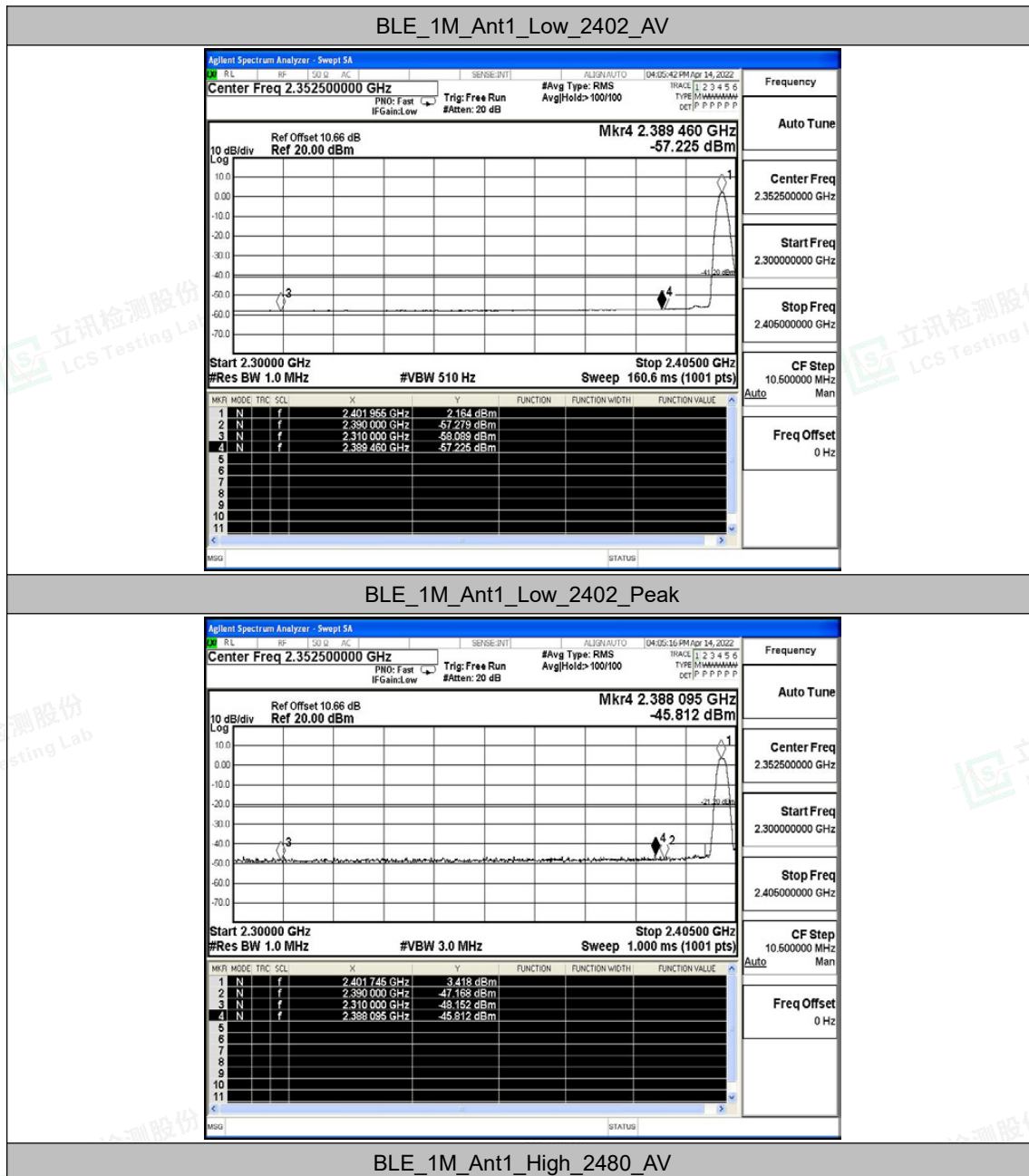
Note:

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

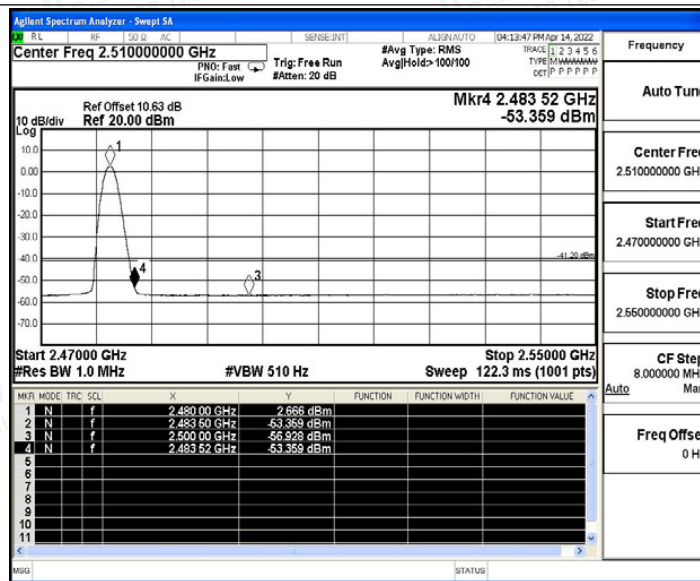


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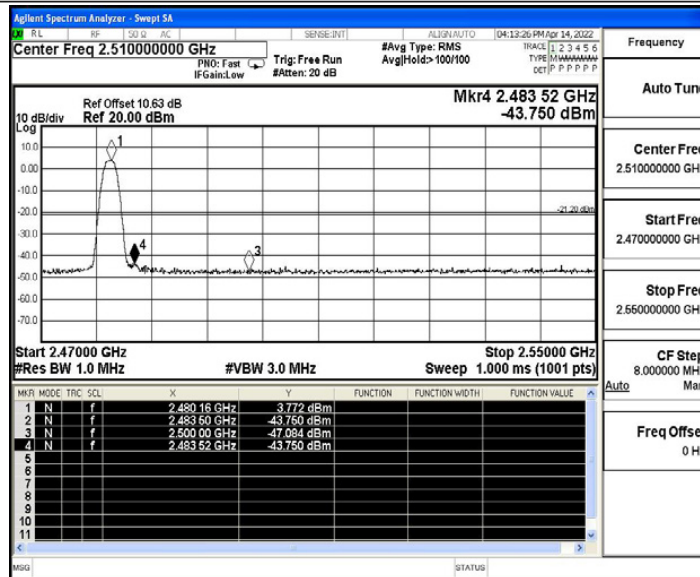
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com

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BLE_1M_Ant1_High_2480_Peak



BLE_2M_Ant1_Low_2402_AV

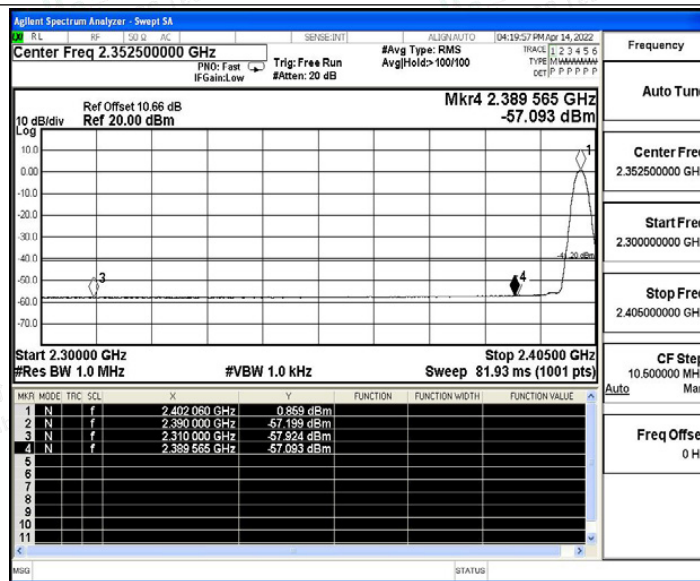


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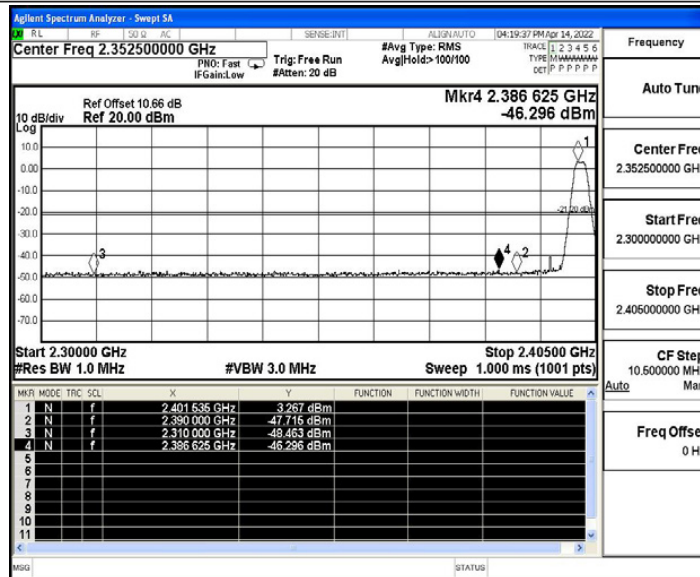
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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BLE_2M_Ant1_Low_2402_Peak



BLE_2M_Ant1_High_2480_AV

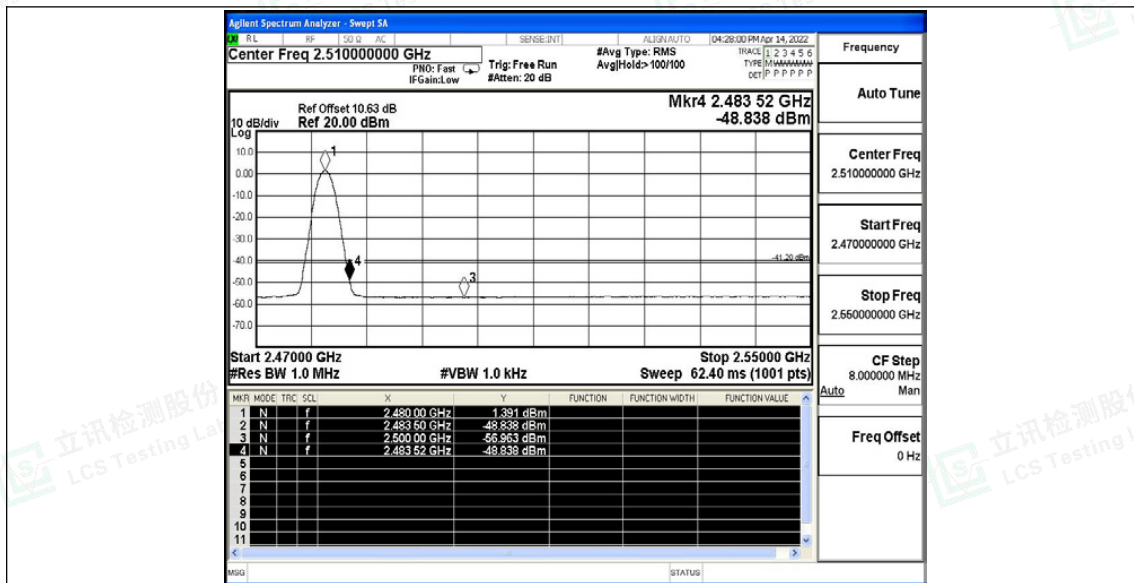


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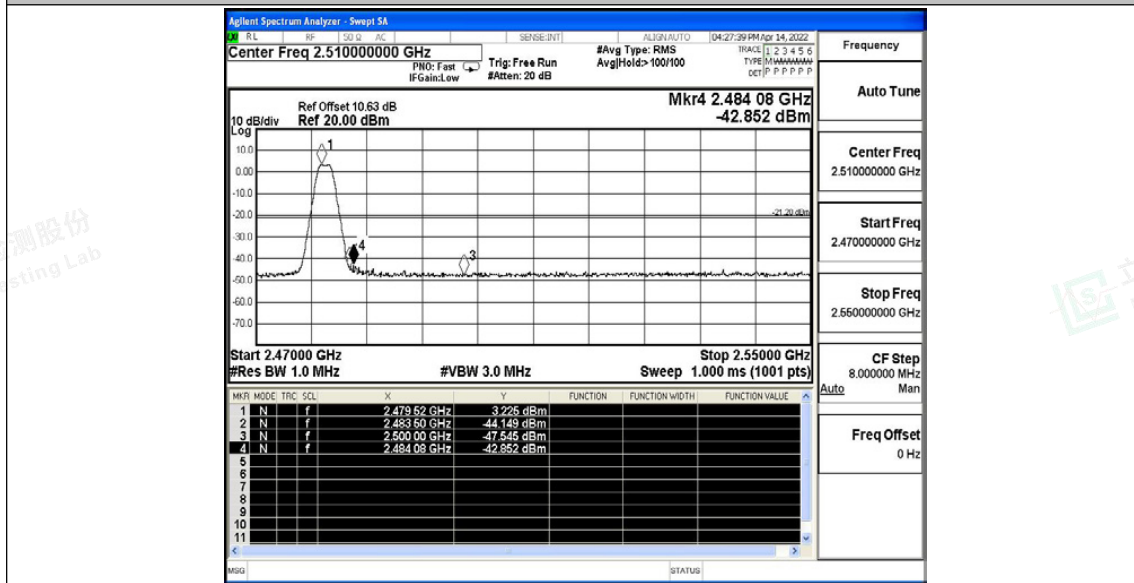
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BLE_2M_Ant1_High_2480_Peak



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