



Appendix B

RF Test Data for BT LE (Conducted Measurement)

Product Name: Wireless Speaker

Test Model: BTS-0047

Environmental Conditions

Temperature:	23.8 ° C
Relative Humidity:	52.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Nick Peng
Supervised by:	Ling Zhu



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B.1 DTS Bandwidth

Test Result

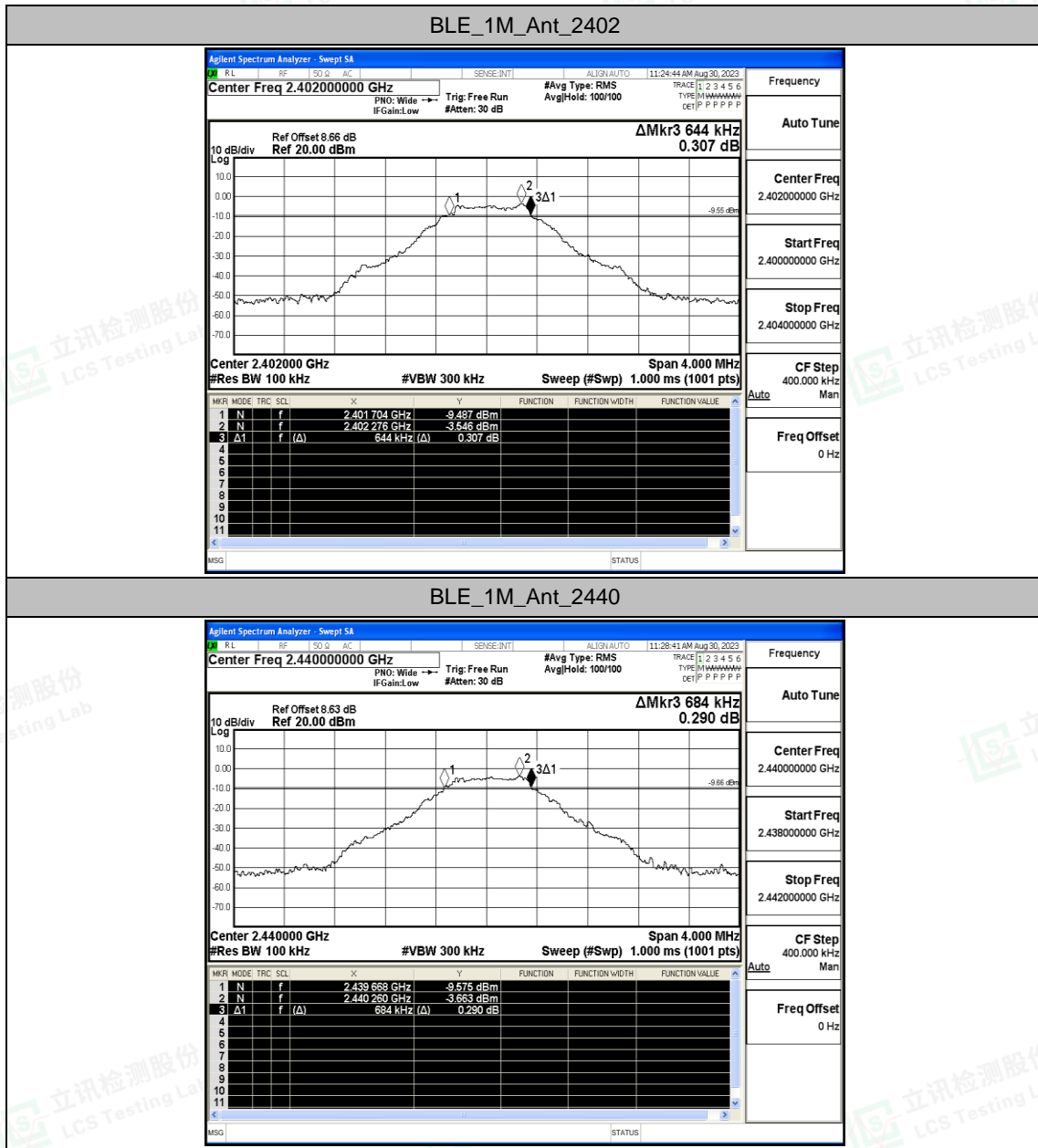
TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant	2402	0.644	2401.704	2402.348	0.5	PASS
		2440	0.684	2439.668	2440.352	0.5	PASS
		2480	0.764	2479.648	2480.412	0.5	PASS
BLE_2M	Ant	2402	1.240	2401.372	2402.612	0.5	PASS
		2440	1.232	2439.376	2440.608	0.5	PASS
		2480	1.160	2479.448	2480.608	0.5	PASS



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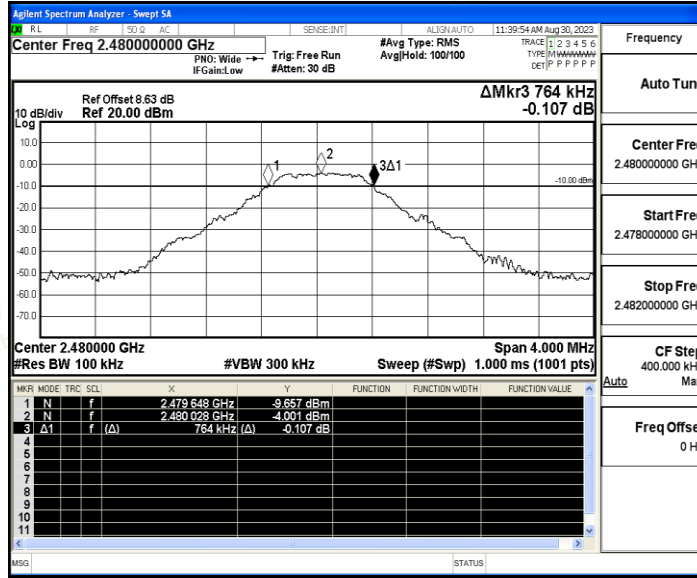
Test Graphs



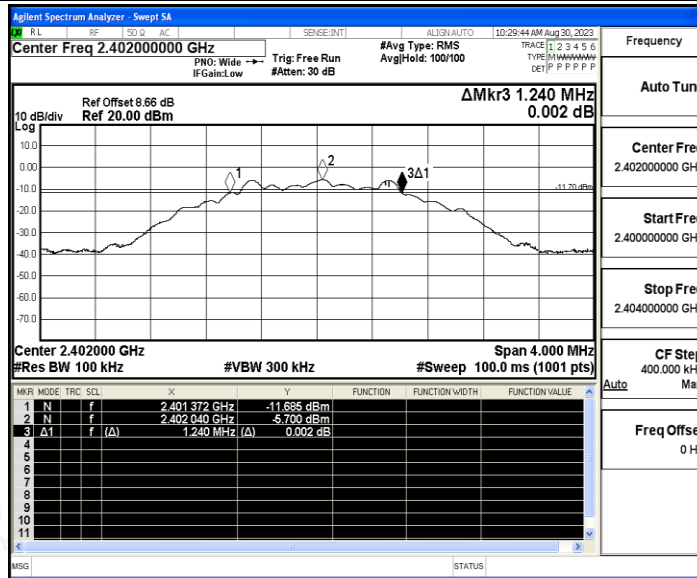
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BLE_1M_Ant_2480



BLE_2M_Ant_2402



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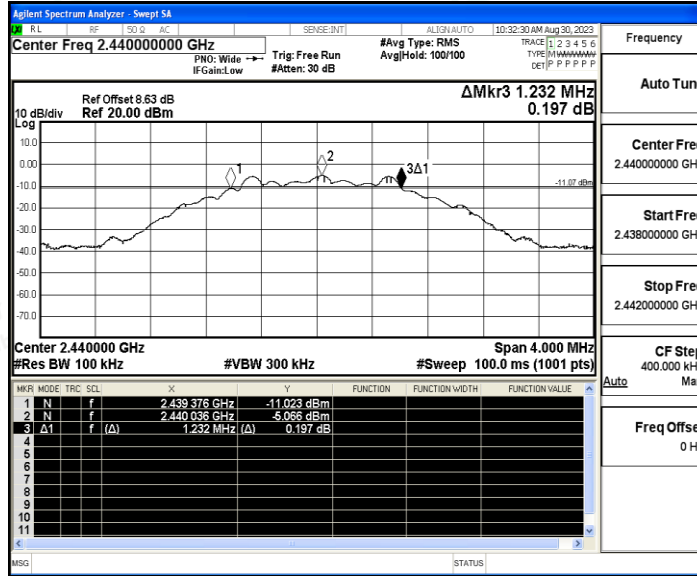
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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

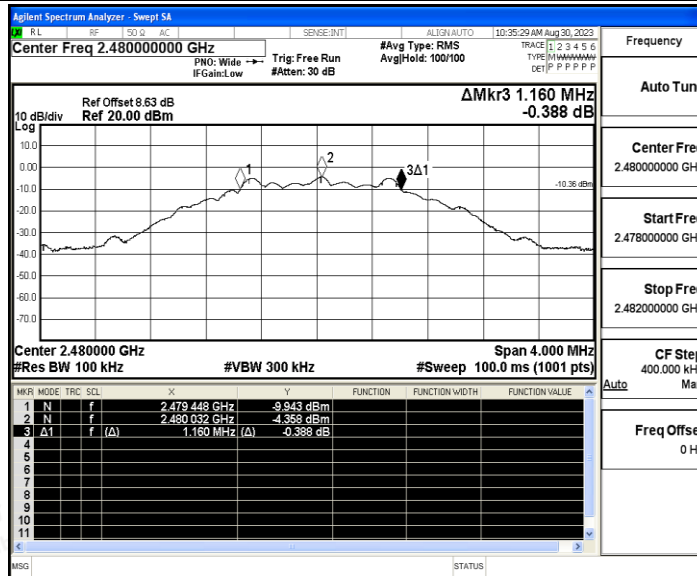
Scan code to check authenticity



BLE_2M_Ant_2440



BLE_2M_Ant_2480



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B.2 Maximum conducted output power

Test Result

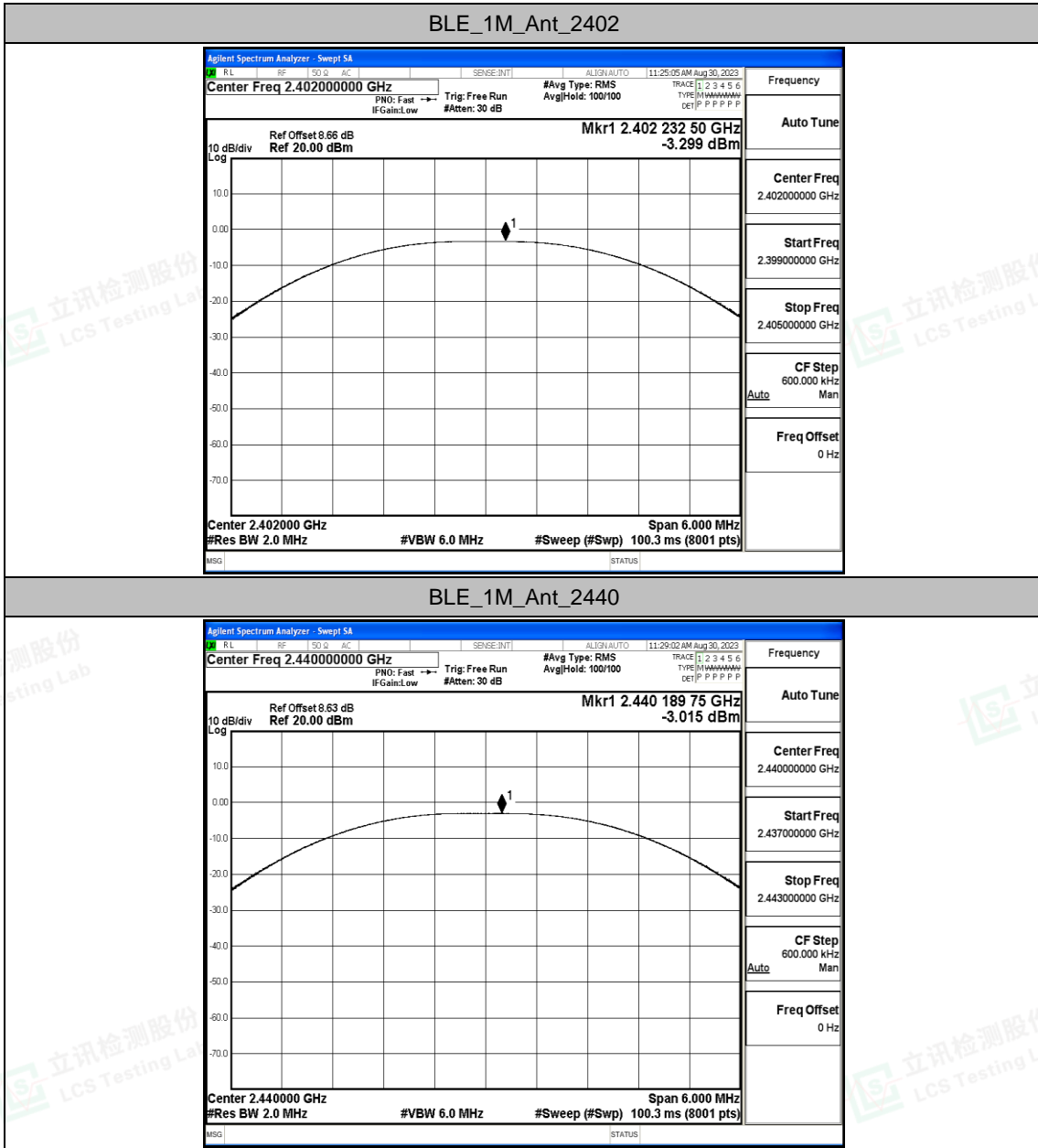
TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant	2402	-3.30	≤30	PASS
		2440	-3.02	≤30	PASS
		2480	-2.51	≤30	PASS
BLE_2M	Ant	2402	-4.54	≤30	PASS
		2440	-4.13	≤30	PASS
		2480	-3.56	≤30	PASS



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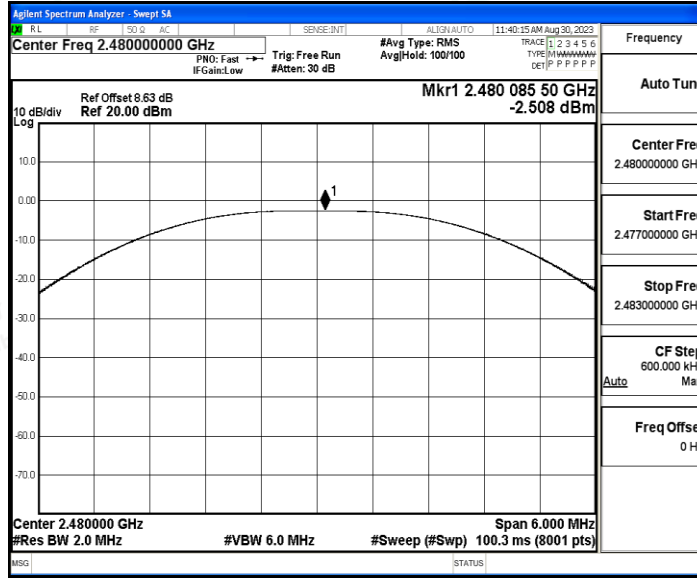
Test Graphs



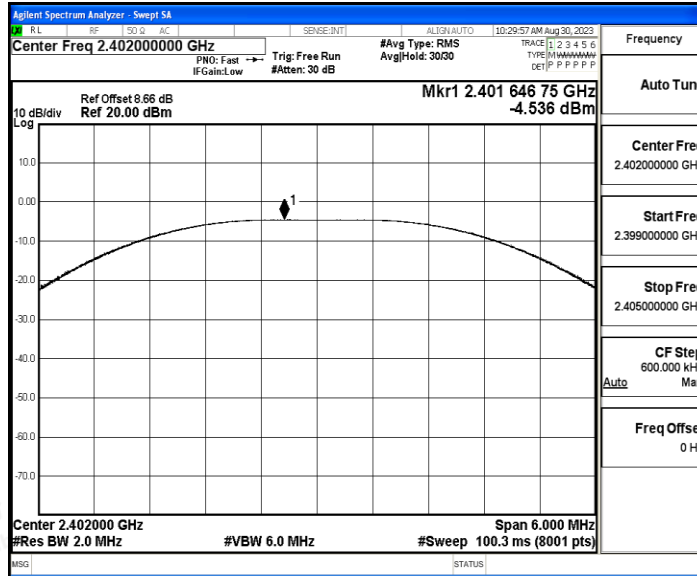
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BLE_1M_Ant_2480

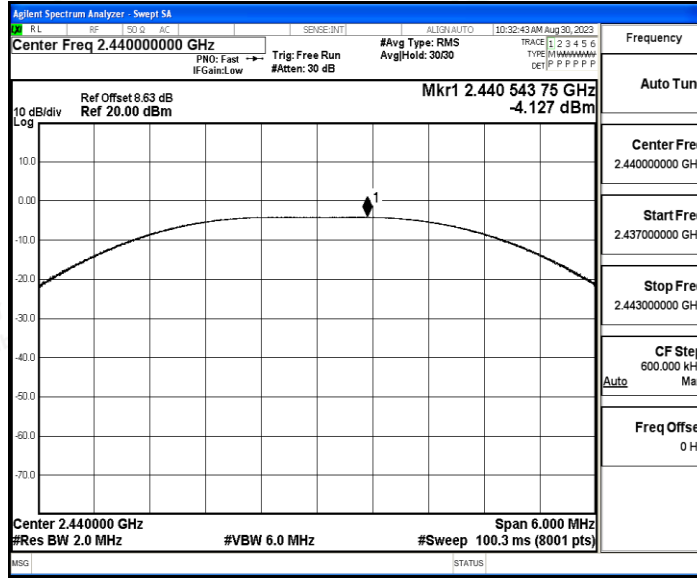


BLE_2M_Ant_2402

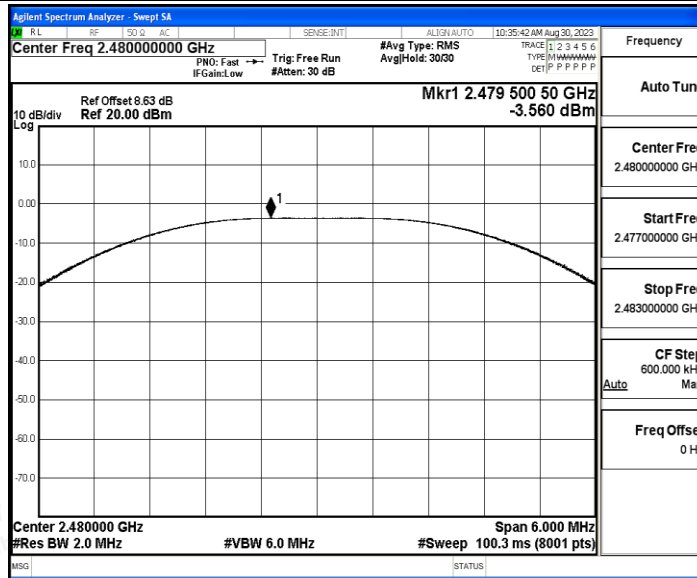




BLE_2M_Ant_2440



BLE_2M_Ant_2480



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B.3 Maximum power spectral density

Test Result

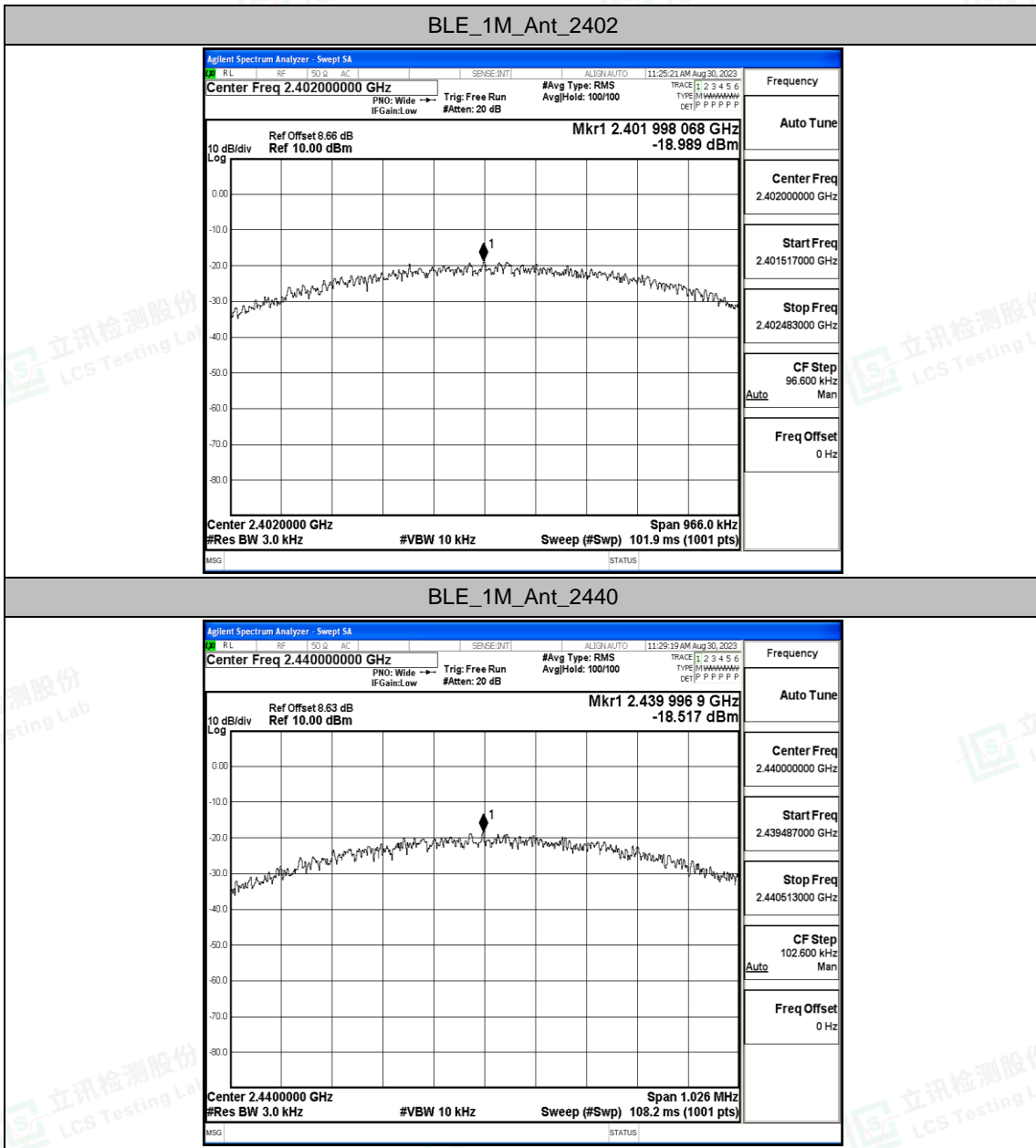
TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant	2402	-18.99	≤8.00	PASS
		2440	-18.52	≤8.00	PASS
		2480	-17.8	≤8.00	PASS
BLE_2M	Ant	2402	-23.96	≤8.00	PASS
		2440	-23	≤8.00	PASS
		2480	-22.36	≤8.00	PASS



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Test Graphs



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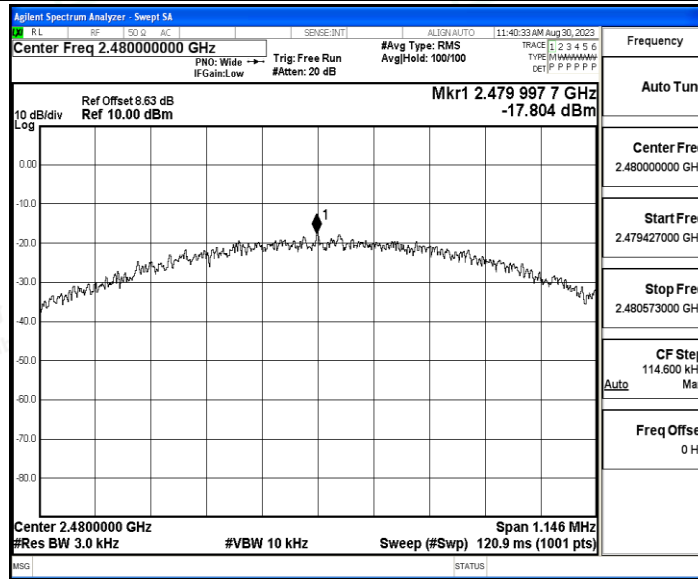
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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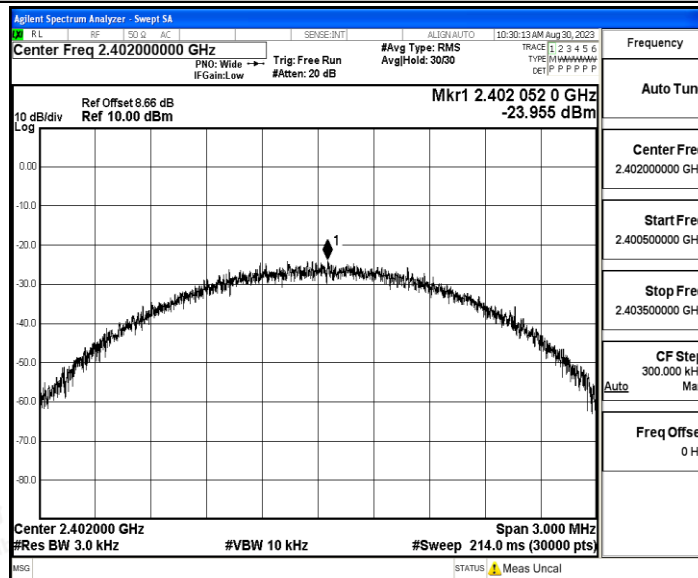
Scan code to check authenticity



BLE_1M_Ant_2480



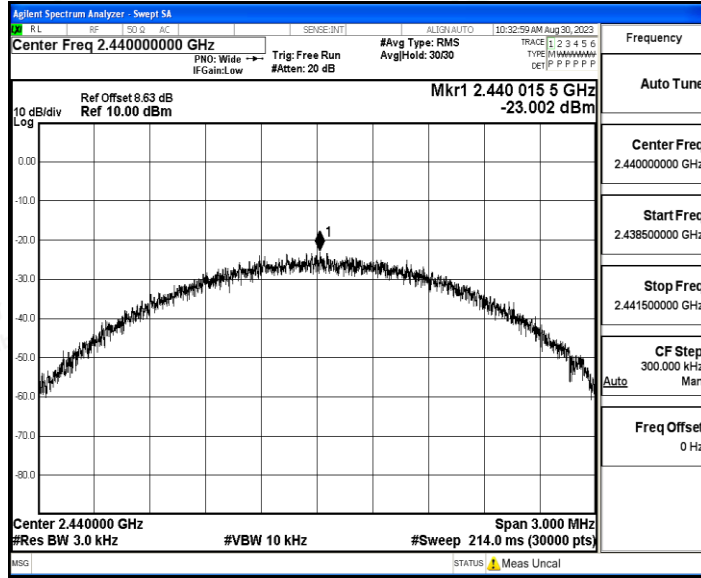
BLE_2M_Ant_2402



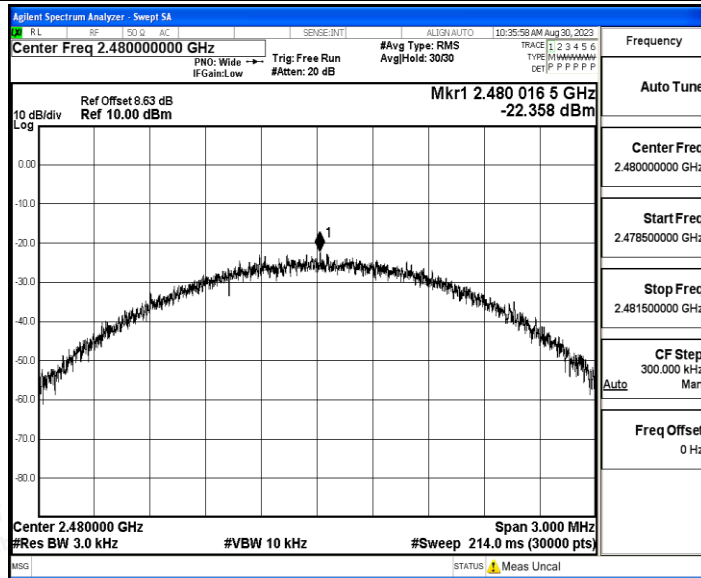
Shenzhen LCS Compliance Testing Laboratory Ltd.
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BLE_2M_Ant_2440



BLE_2M_Ant_2480



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B.4 Band edge measurements

Test Result

TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant	Low	2402	-3.65	-48.68	≤-23.65	PASS
		High	2480	-3.01	-47.98	≤-23.01	PASS
BLE_2M	Ant	Low	2402	-7.15	-41.17	≤-27.15	PASS
		High	2480	-4.90	-47.93	≤-24.9	PASS



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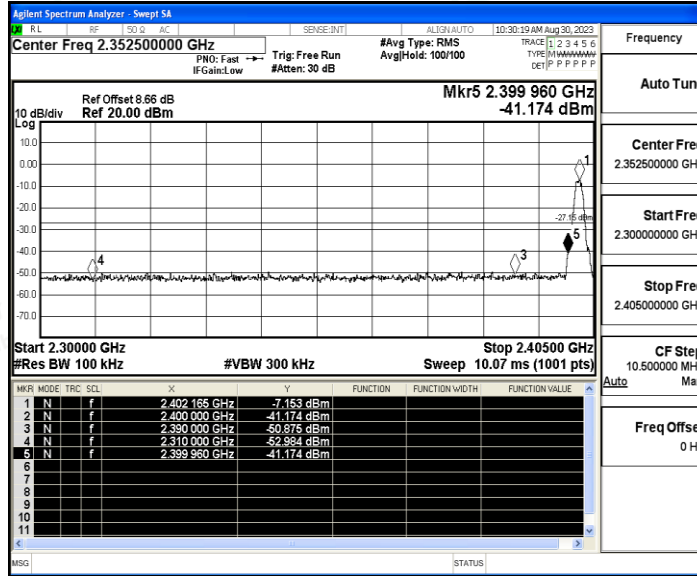
Test Graphs



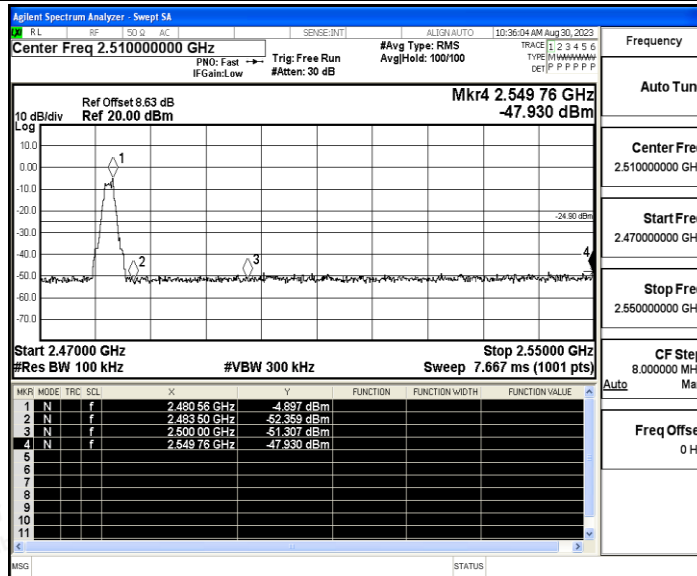
Shenzhen LCS Compliance Testing Laboratory Ltd.
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BLE_2M_Ant_Low_2402



BLE_2M_Ant_High_2480



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B.5 Conducted Spurious Emission

Test Result

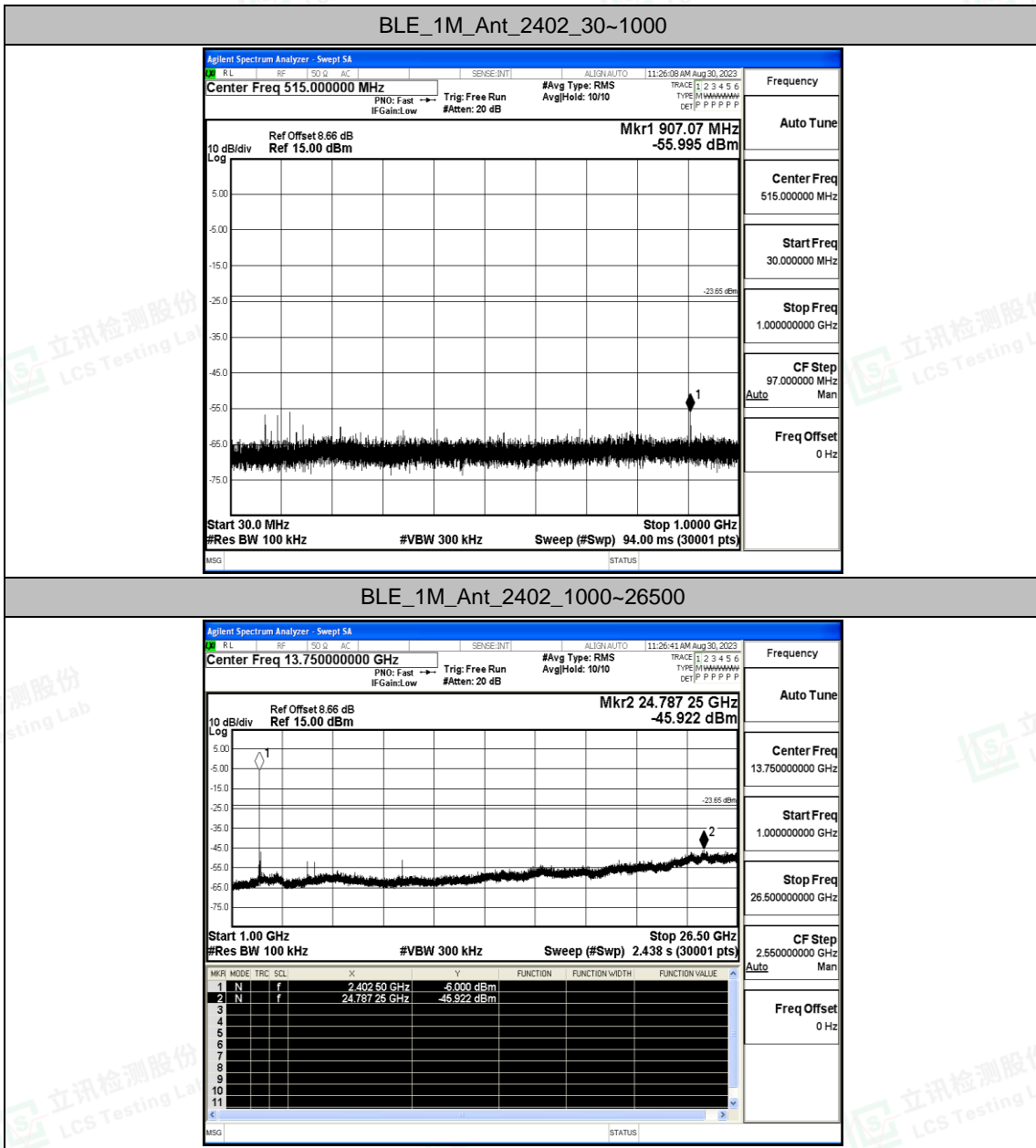
TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant	2402	30~1000	-3.65	-56	≤-23.65	PASS
			1000~26500	-3.65	-45.92	≤-23.65	PASS
		2440	30~1000	-4.00	-55.74	≤-24	PASS
			1000~26500	-4.00	-45.05	≤-24	PASS
		2480	30~1000	-3.01	-52.85	≤-23.01	PASS
			1000~26500	-3.01	-46.26	≤-23.01	PASS
BLE_2M	Ant	2402	Reference	-5.83	-5.83	---	PASS
			30~1000	-5.83	-53.36	≤-25.83	PASS
			1000~26500	-5.83	-46.61	≤-25.83	PASS
		2440	Reference	-5.29	-5.29	---	PASS
			30~1000	-5.29	-56.22	≤-25.29	PASS
			1000~26500	-5.29	-46.86	≤-25.29	PASS
		2480	Reference	-4.44	-4.44	---	PASS
			30~1000	-4.44	-56.66	≤-24.44	PASS
			1000~26500	-4.44	-45.81	≤-24.44	PASS



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Test Graphs

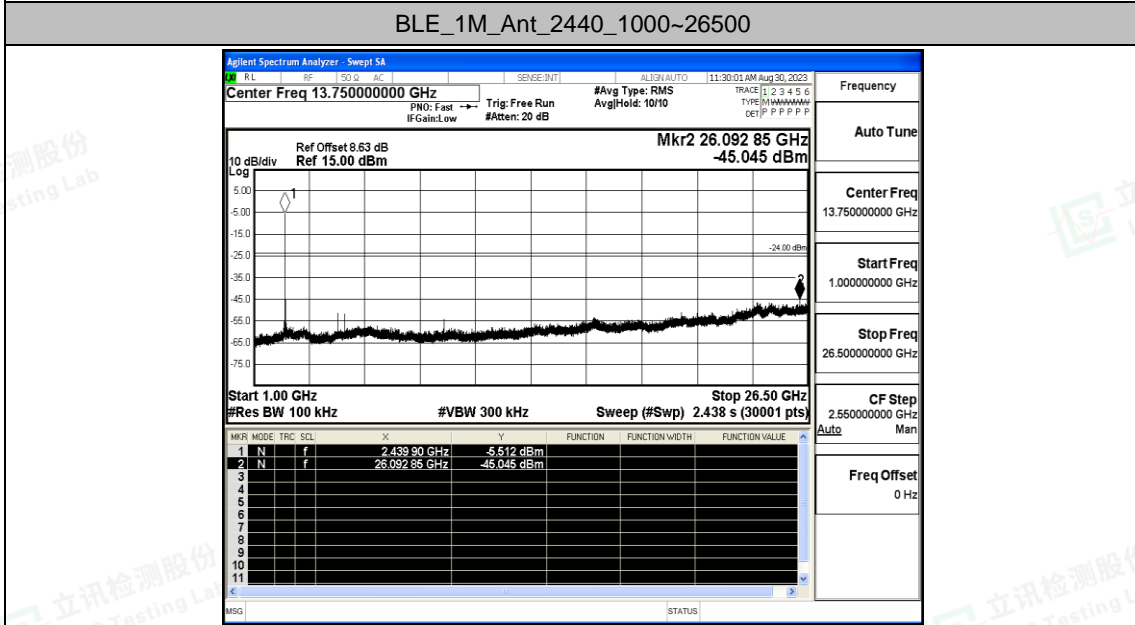
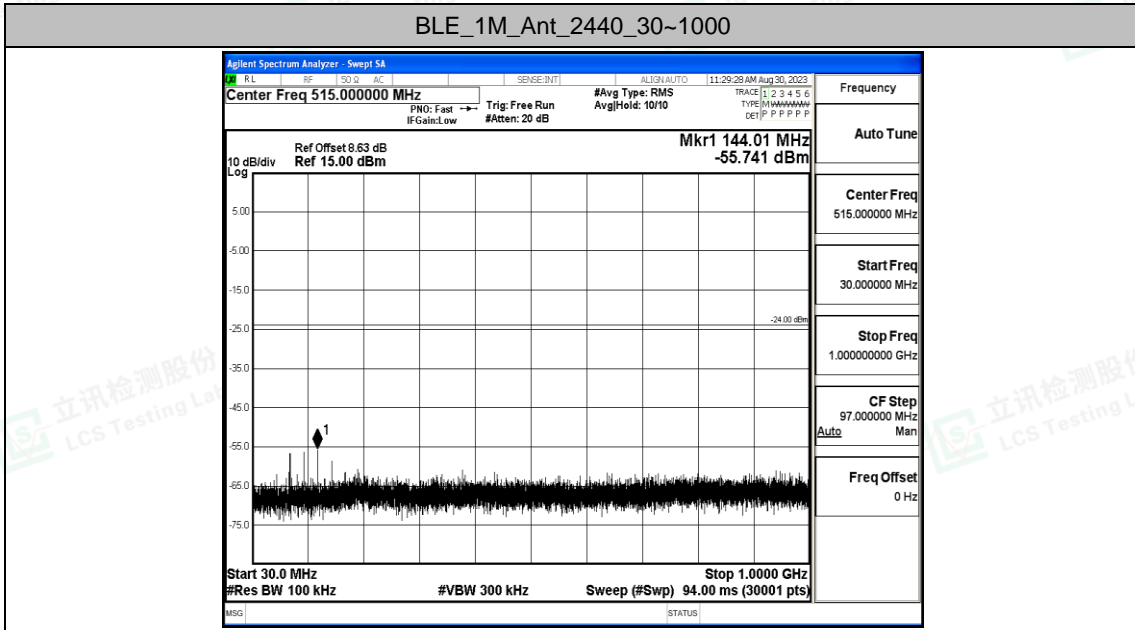


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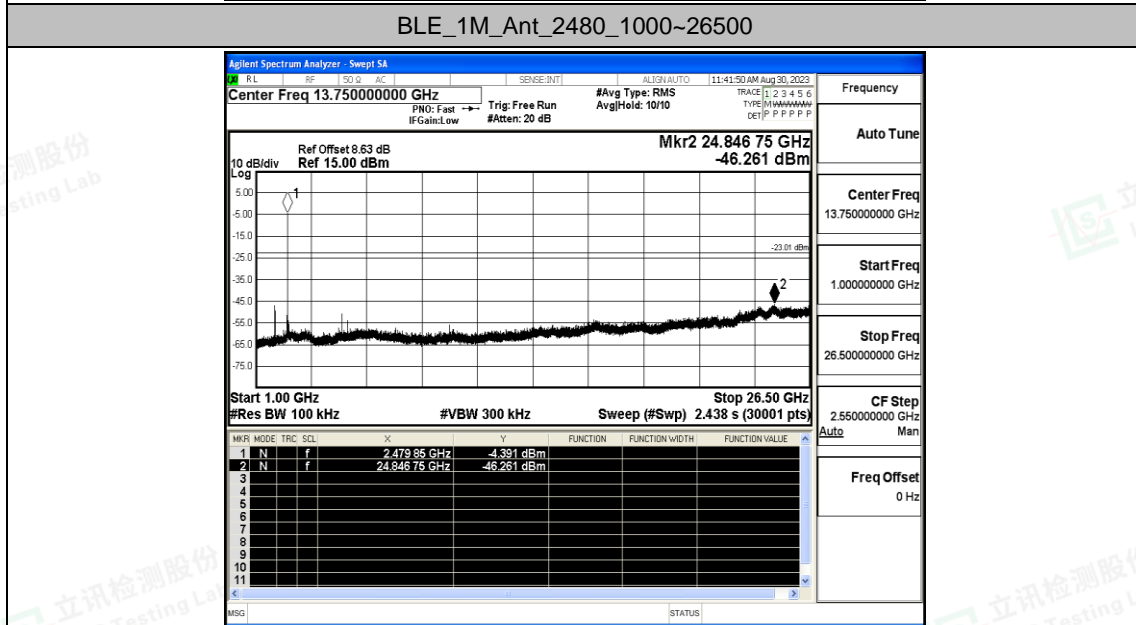
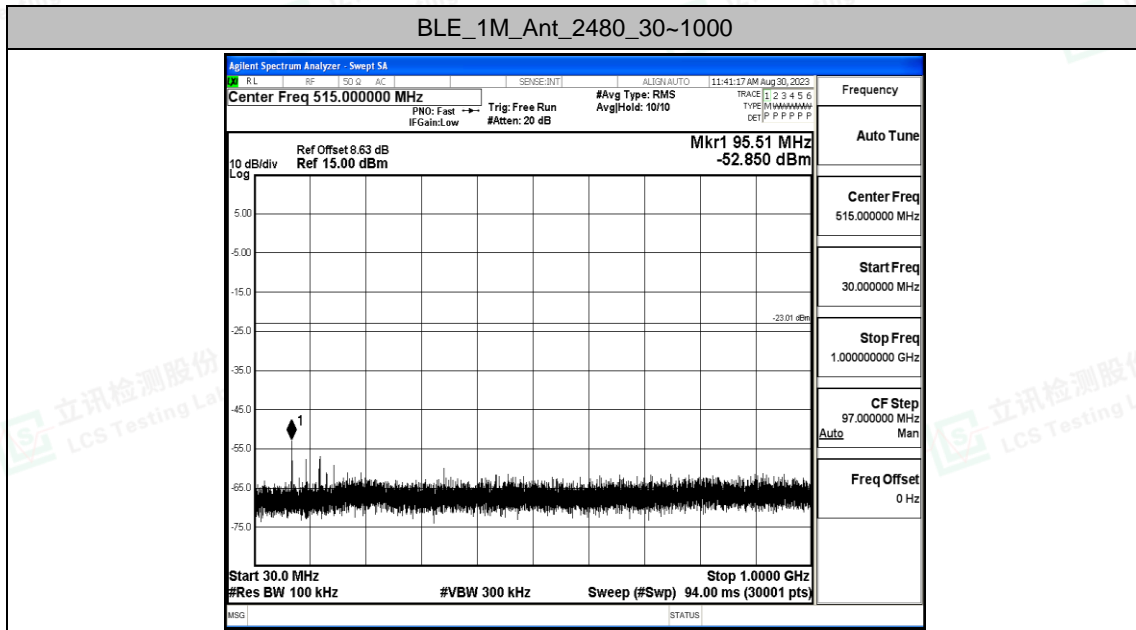


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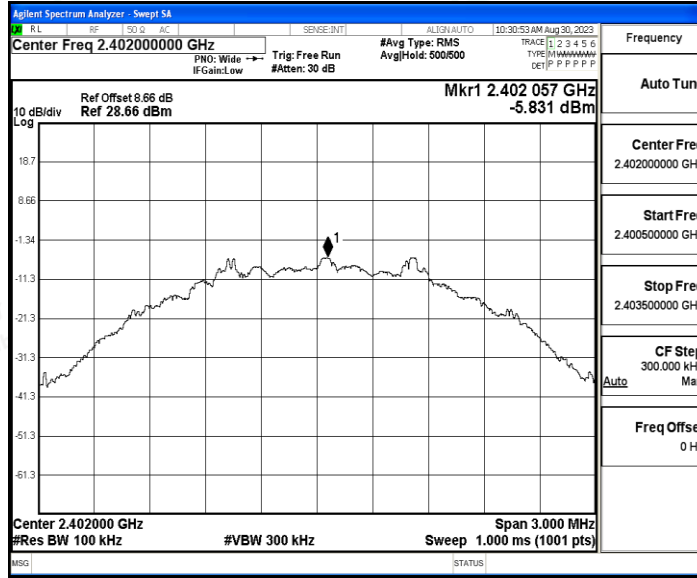
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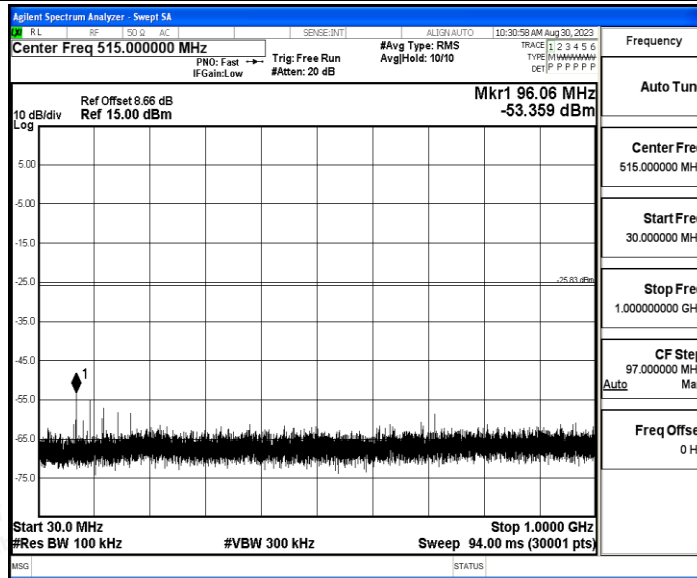
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BLE_2M_Ant_2402_0~Reference



BLE_2M_Ant_2402_30~1000



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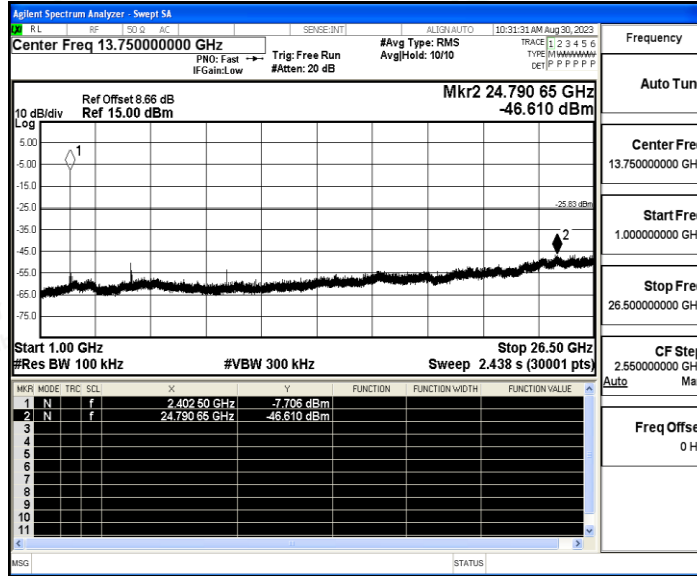
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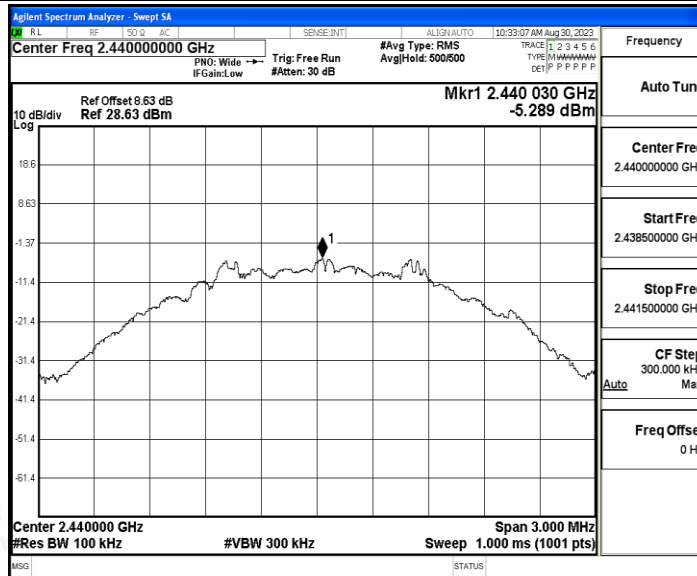
Scan code to check authenticity



BLE_2M_Ant_2402_1000~26500



BLE_2M_Ant_2440_0~Reference



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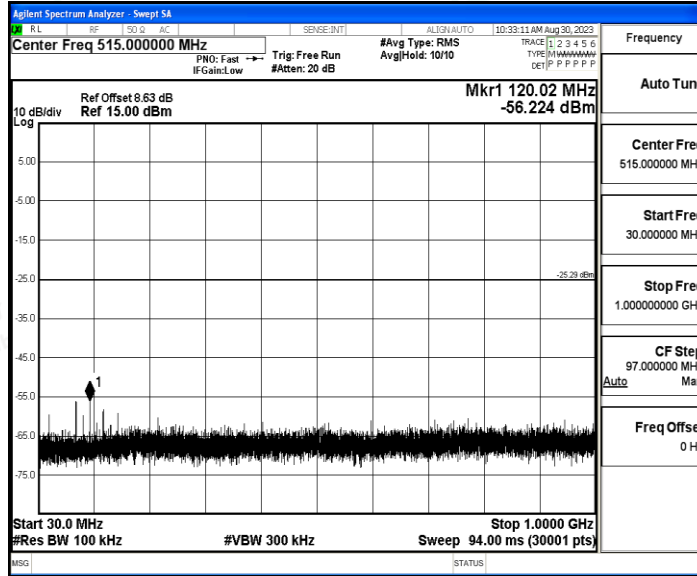
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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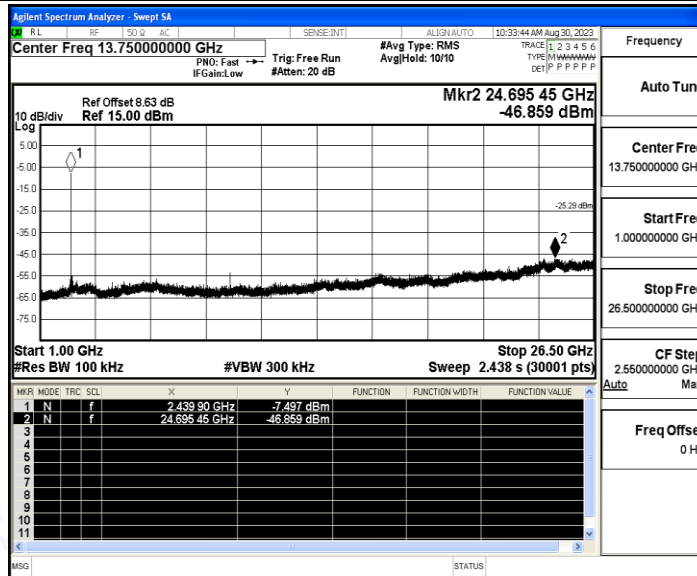
Scan code to check authenticity



BLE_2M_Ant_2440_30~1000



BLE_2M_Ant_2440_1000~26500



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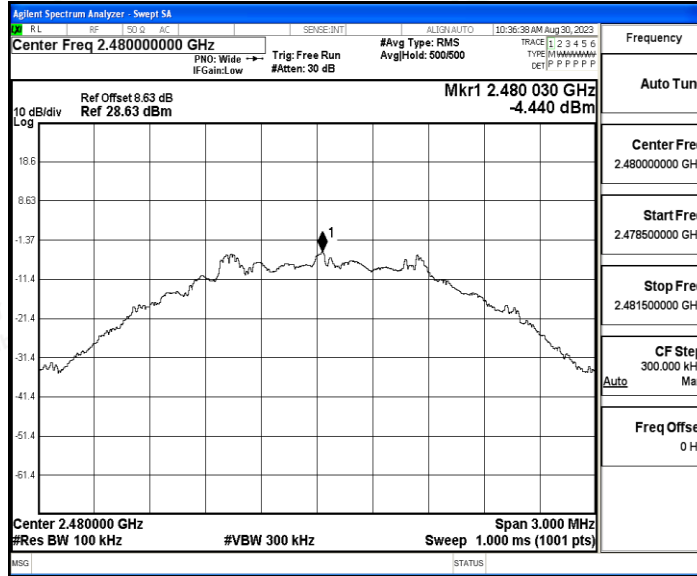
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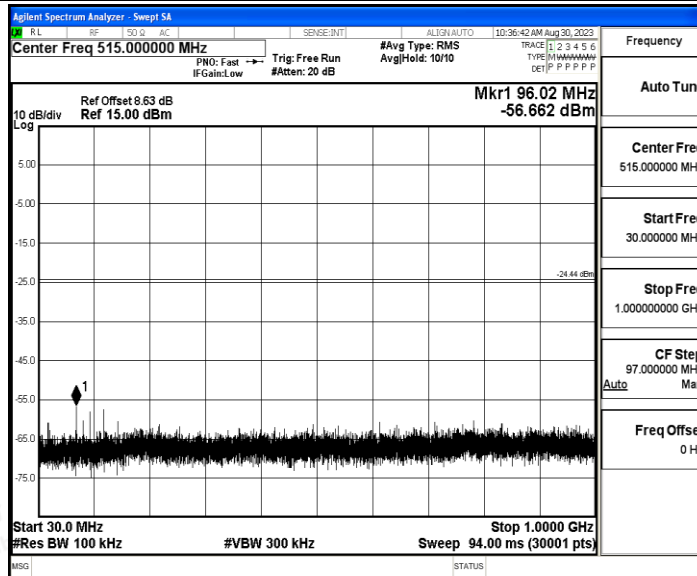
Scan code to check authenticity



BLE_2M_Ant_2480_0~Reference



BLE_2M_Ant_2480_30~1000



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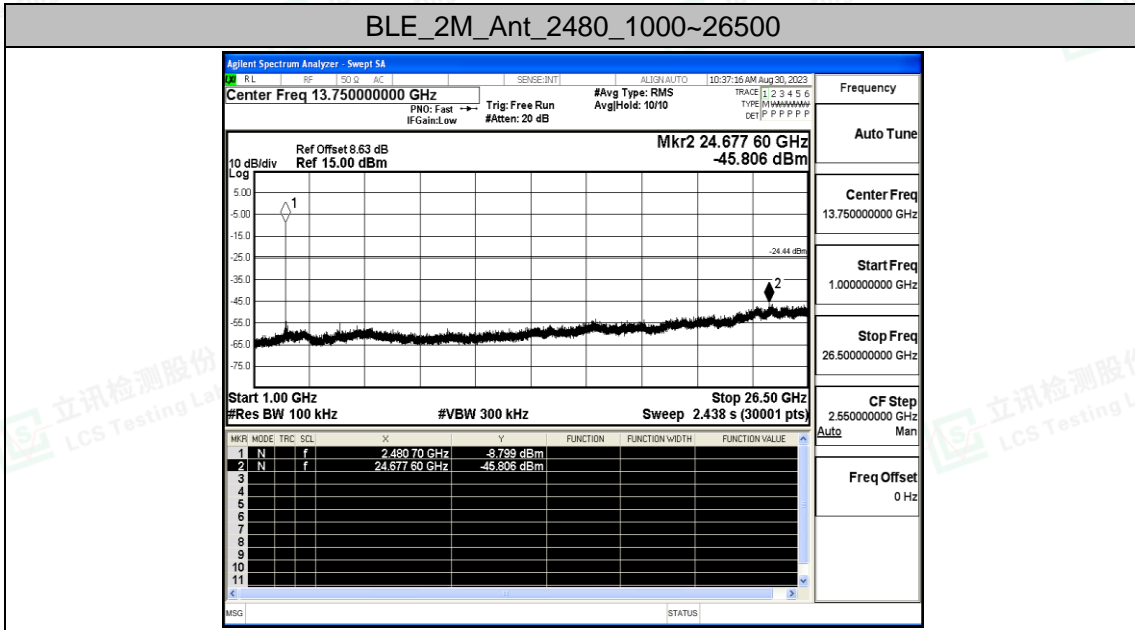
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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BLE_2M_Ant_2480_1000~26500



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B.6 Duty Cycle

Test Result

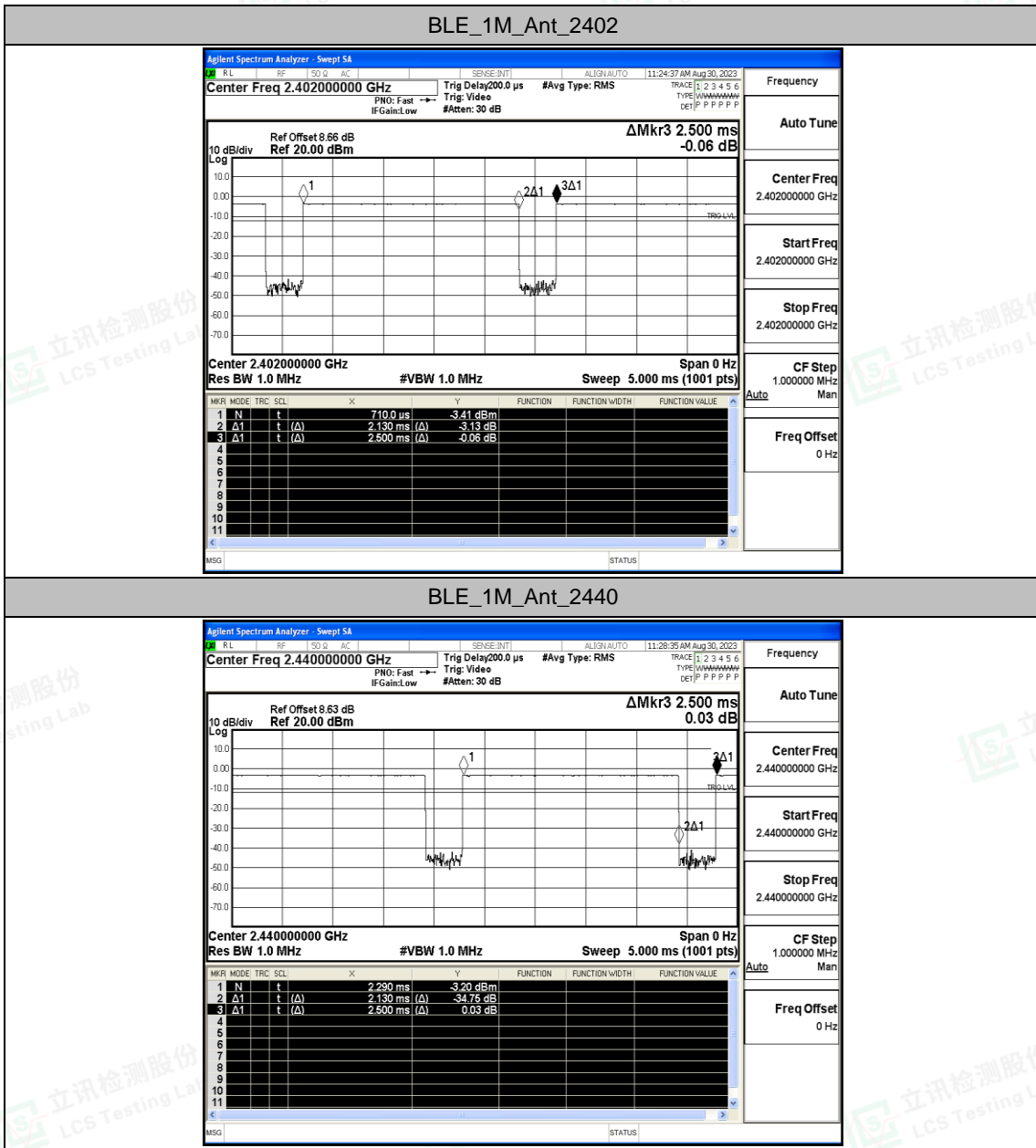
TestMode	Antenna	Channel	ON Time [ms]	Period [ms]	X	DC [%]	xFactor	1/T	Limit	Verdict
BLE_1M	Ant	2402	2.13	2.50	0.8520	85.20	0.70	0.47	---	PASS
		2440	2.13	2.50	0.8520	85.20	0.70	0.47	---	PASS
		2480	2.13	2.50	0.8520	85.20	0.70	0.47	---	PASS
BLE_2M	Ant	2402	1.08	2.50	0.4320	43.20	3.65	0.93	---	PASS
		2440	1.08	2.50	0.4320	43.20	3.65	0.93	---	PASS
		2480	1.08	2.50	0.4320	43.20	3.65	0.93	---	PASS



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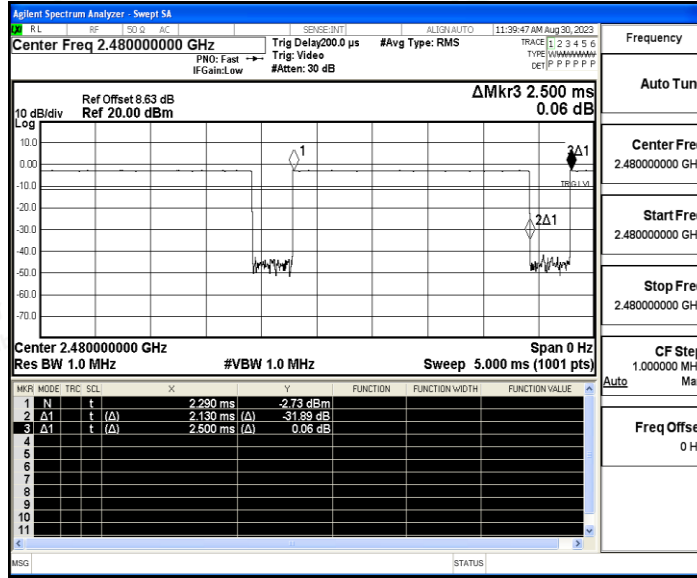
Test Graphs



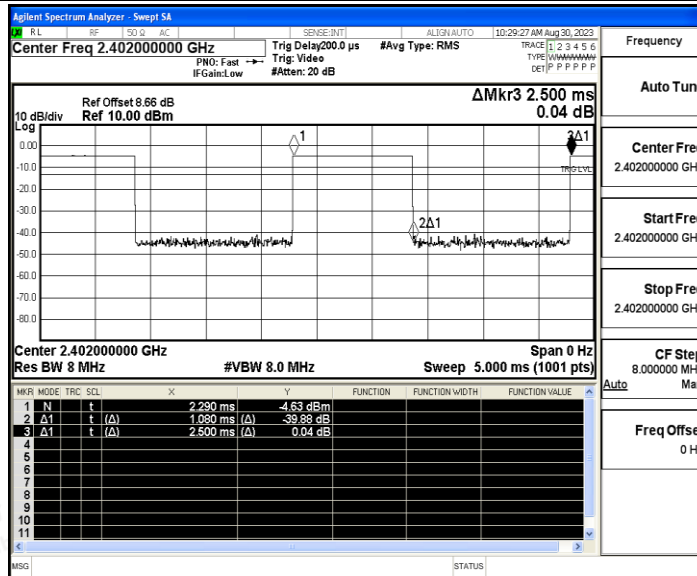
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BLE_1M_Ant_2480



BLE_2M_Ant_2402



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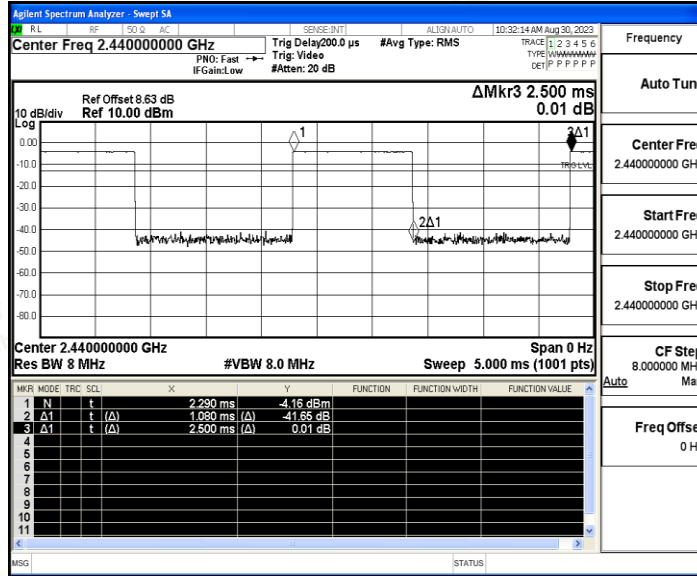
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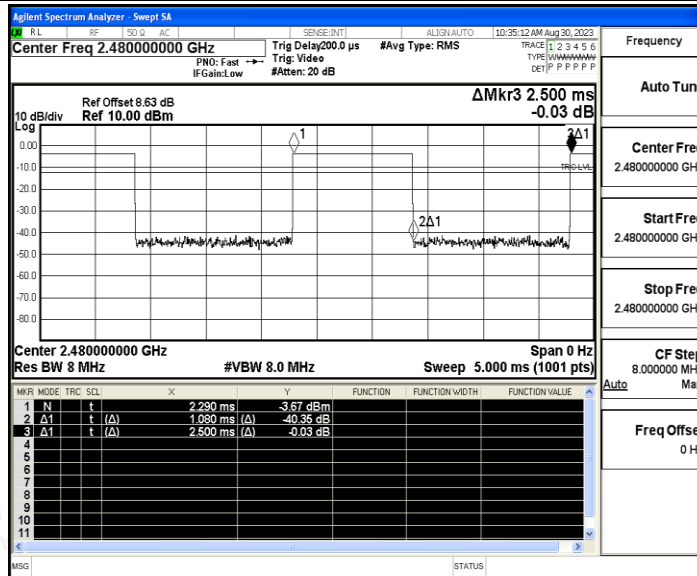
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BLE_2M_Ant_2440



BLE_2M_Ant_2480



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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	Ant	Low	2402	AV	2310.000	-48.05	≤-41.20	47.15	≤54	PASS
				AV	2378.015	-45.92	≤-41.20	49.28	≤54	PASS
				AV	2390.000	-47.37	≤-41.20	47.83	≤54	PASS
				Peak	2310.000	-40.81	≤-21.20	54.39	≤74	PASS
				Peak	2378.015	-36.95	≤-21.20	58.25	≤74	PASS
				Peak	2390.000	-40.54	≤-21.20	54.66	≤74	PASS
		High	2480	AV	2483.500	-46.73	≤-41.20	48.47	≤54	PASS
				AV	2499.760	-46.55	≤-41.20	48.65	≤54	PASS
				AV	2500.000	-46.7	≤-41.20	48.50	≤54	PASS
				Peak	2483.500	-40.95	≤-21.20	54.25	≤74	PASS
				Peak	2493.040	-36.77	≤-21.20	58.43	≤74	PASS
				Peak	2500.000	-40.36	≤-21.20	54.84	≤74	PASS
BLE_2M	Ant	Low	2402	AV	2310.000	-47.67	≤-41.20	47.53	≤54	PASS
				AV	2377.805	-46.44	≤-41.20	48.76	≤54	PASS
				AV	2390.000	-47.32	≤-41.20	47.88	≤54	PASS
				Peak	2310.000	-41.4	≤-21.20	53.80	≤74	PASS
				Peak	2377.805	-37.16	≤-21.20	58.04	≤74	PASS
				Peak	2390.000	-40.84	≤-21.20	54.36	≤74	PASS
		High	2480	AV	2483.500	-46.34	≤-41.20	48.86	≤54	PASS
				AV	2483.520	-46.34	≤-41.20	48.86	≤54	PASS
				AV	2500.000	-46.55	≤-41.20	48.65	≤54	PASS
				Peak	2483.500	-39.61	≤-21.20	55.59	≤74	PASS
				Peak	2489.920	-37.24	≤-21.20	57.96	≤74	PASS
				Peak	2500.000	-39.51	≤-21.20	55.69	≤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.



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

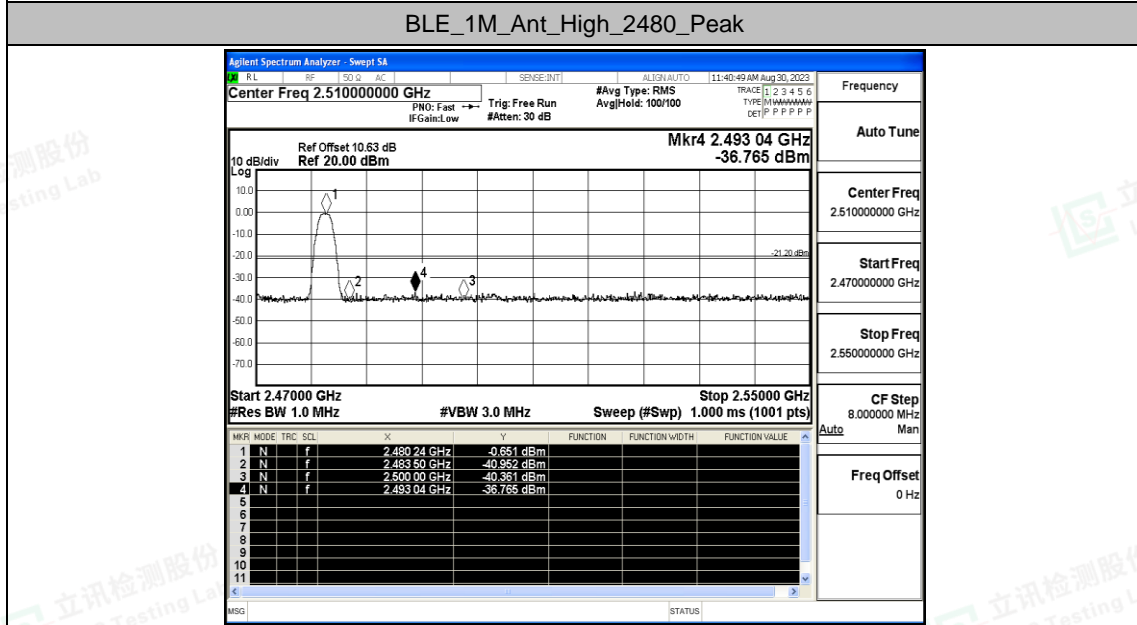
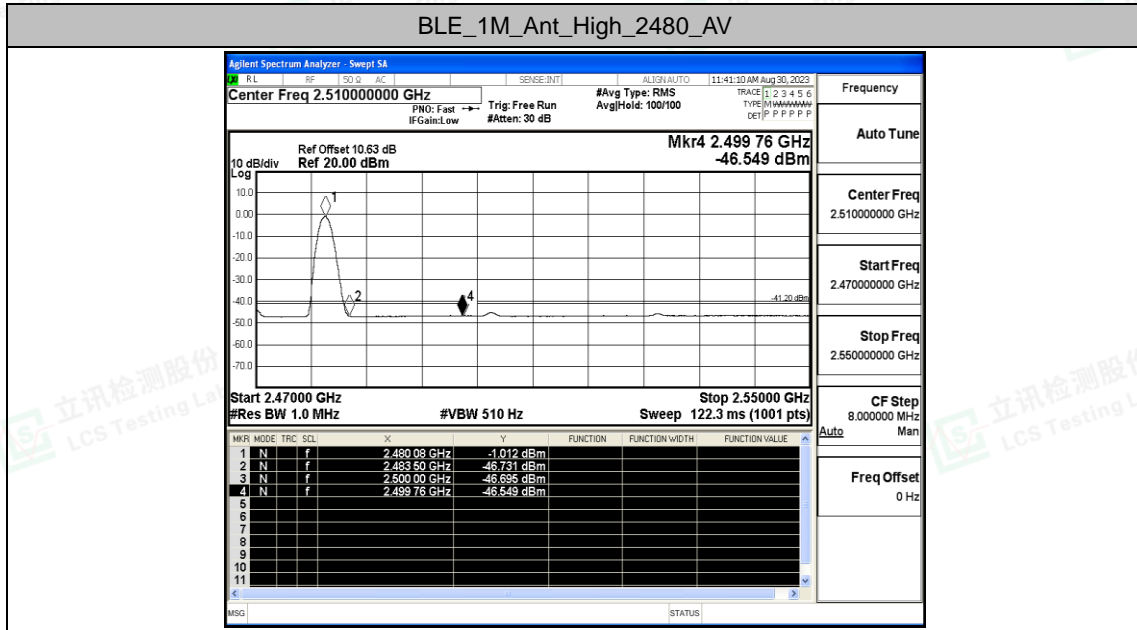


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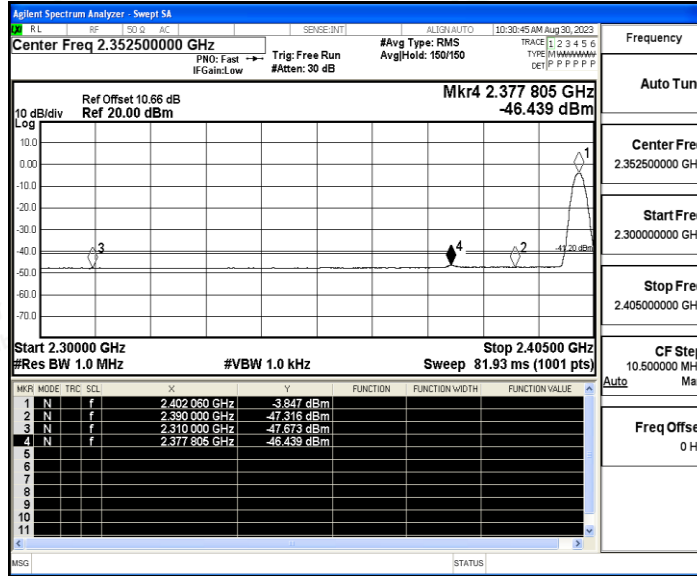
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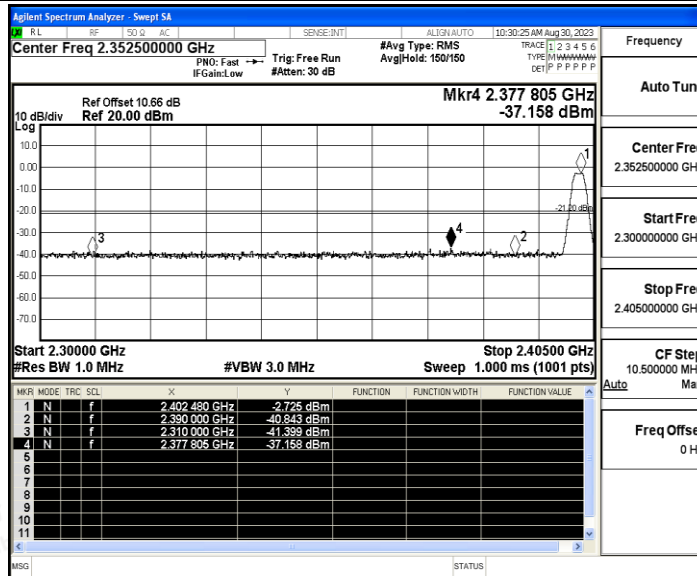
Scan code to check authenticity



BLE_2M_Ant_Low_2402_AV



BLE_2M_Ant_Low_2402_Peak



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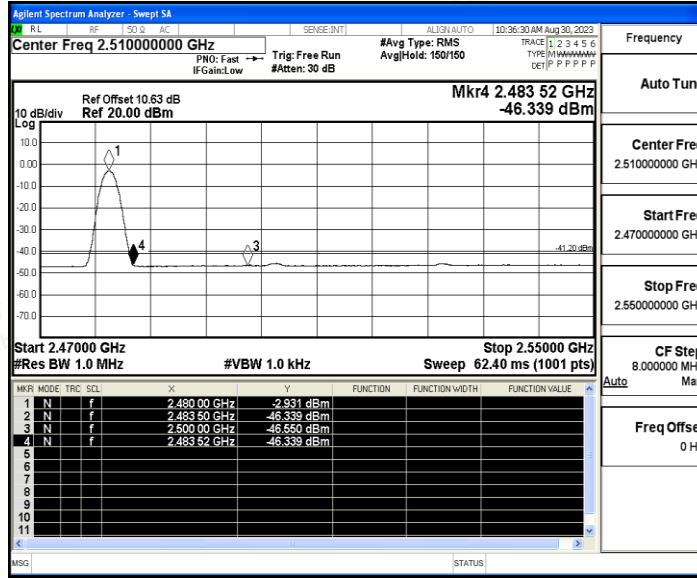
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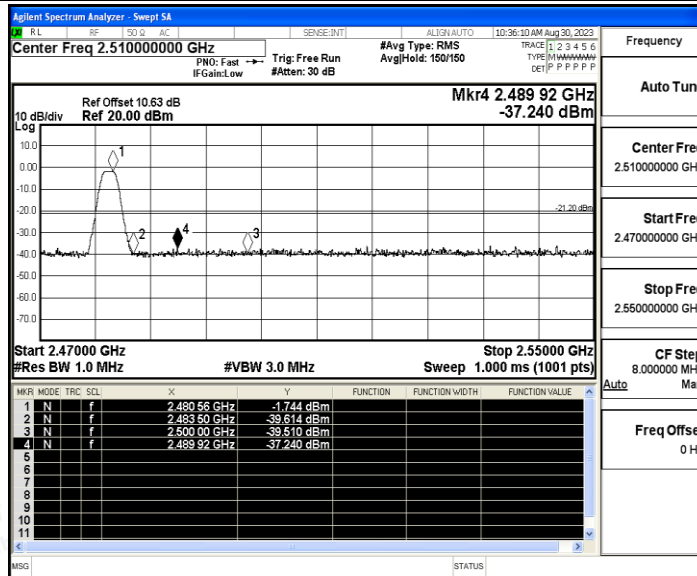
Scan code to check authenticity



BLE_2M_Ant_High_2480_AV



BLE_2M_Ant_High_2480_Peak



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