



Appendix B

RF Test Data for BT LE (Conducted Measurement)

Product Name: Portable mini printer

Test Model: PM230

Environmental Conditions

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





B.1 -6dB Bandwidth

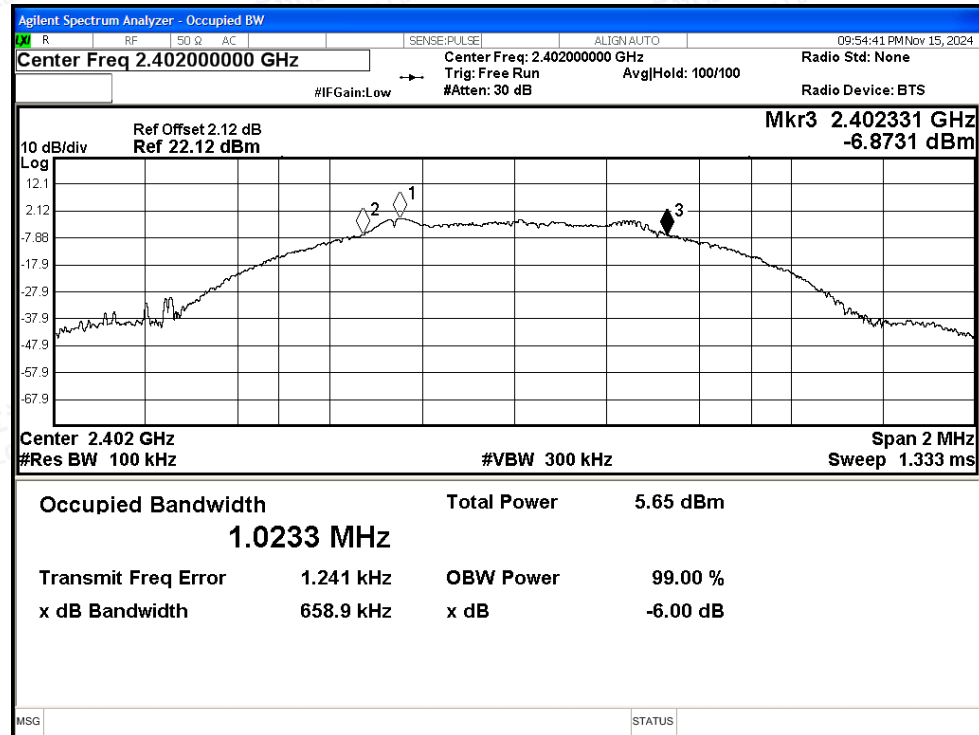
Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	BLE 1M	2402	Ant	0.659	≥ 0.5	Pass
NVNT	BLE 1M	2440	Ant	0.654	≥ 0.5	Pass
NVNT	BLE 1M	2480	Ant	0.656	≥ 0.5	Pass
NVNT	BLE 2M	2402	Ant	1.148	≥ 0.5	Pass
NVNT	BLE 2M	2440	Ant	1.143	≥ 0.5	Pass
NVNT	BLE 2M	2480	Ant	1.14	≥ 0.5	Pass



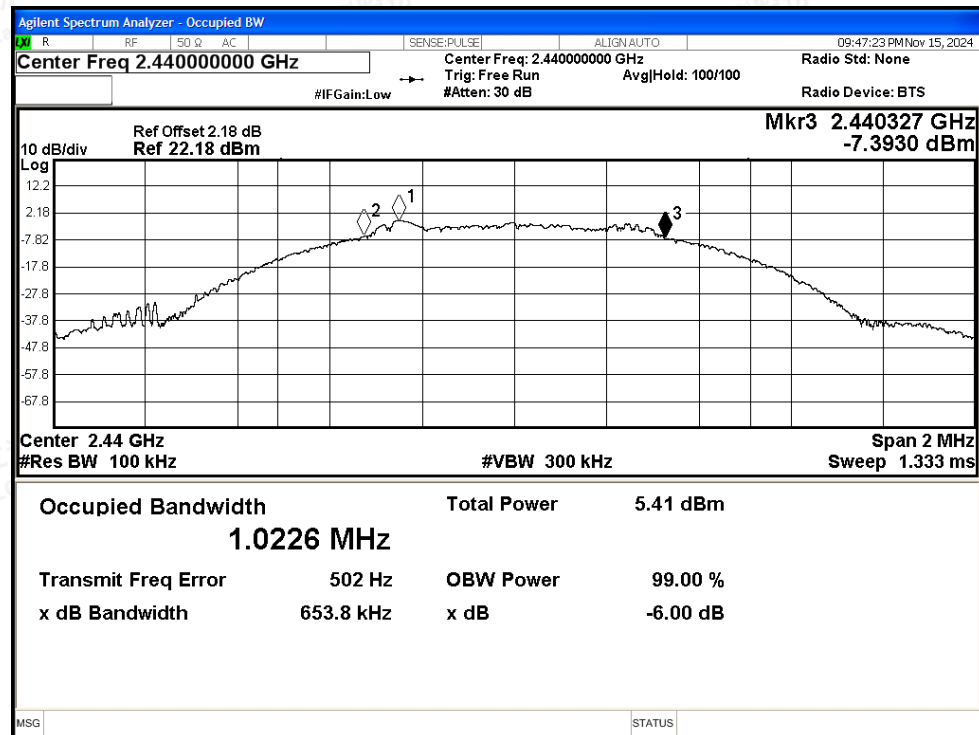


Test Graphs

-6dB Bandwidth NVNT BLE 1M 2402MHz Ant



-6dB Bandwidth NVNT BLE 1M 2440MHz Ant



Shenzhen LCS Compliance Testing Laboratory Ltd.

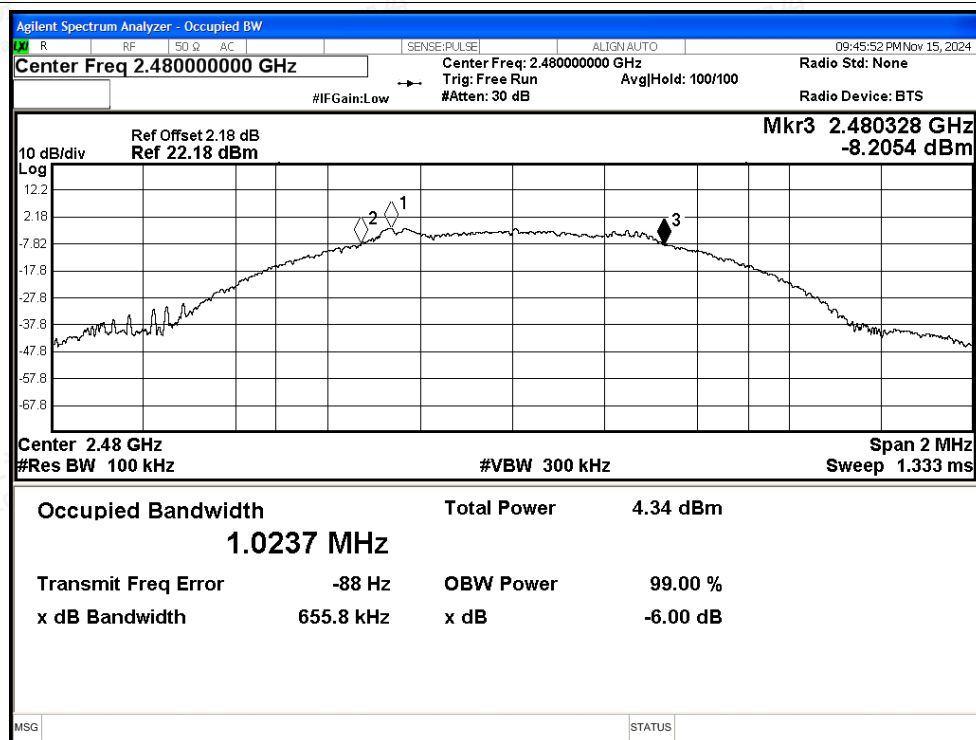
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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

Scan code to check authenticity

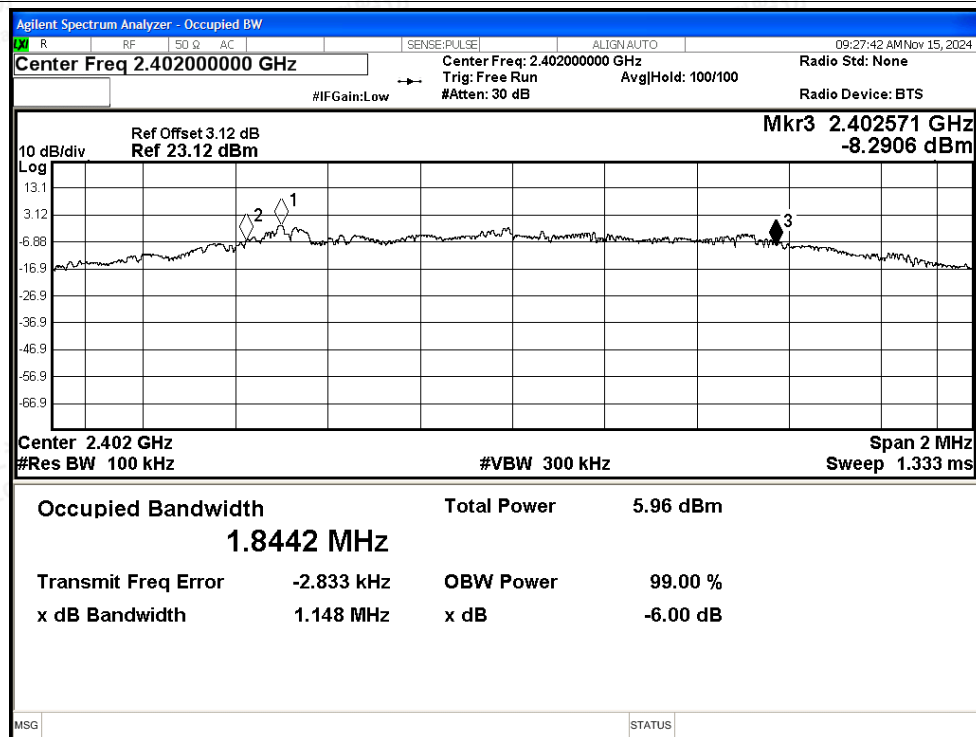


-6dB Bandwidth NVNT BLE 1M 2480MHz Ant



Test Graphs

-6dB Bandwidth NVNT BLE 2M 2402MHz Ant



-6dB Bandwidth NVNT BLE 2M 2440MHz Ant

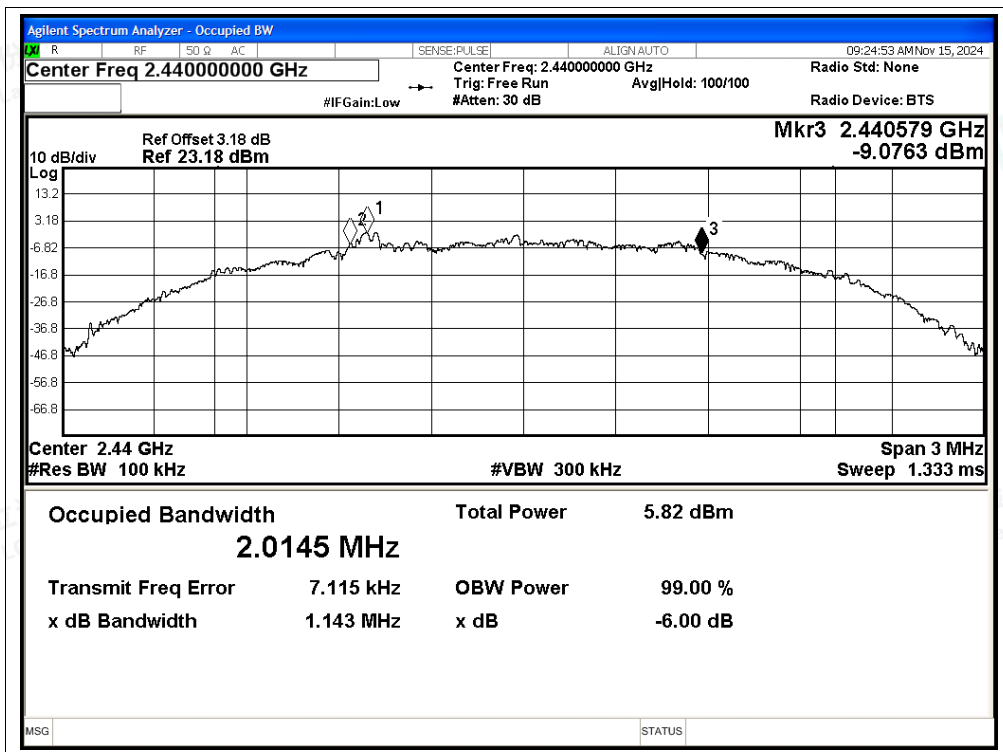


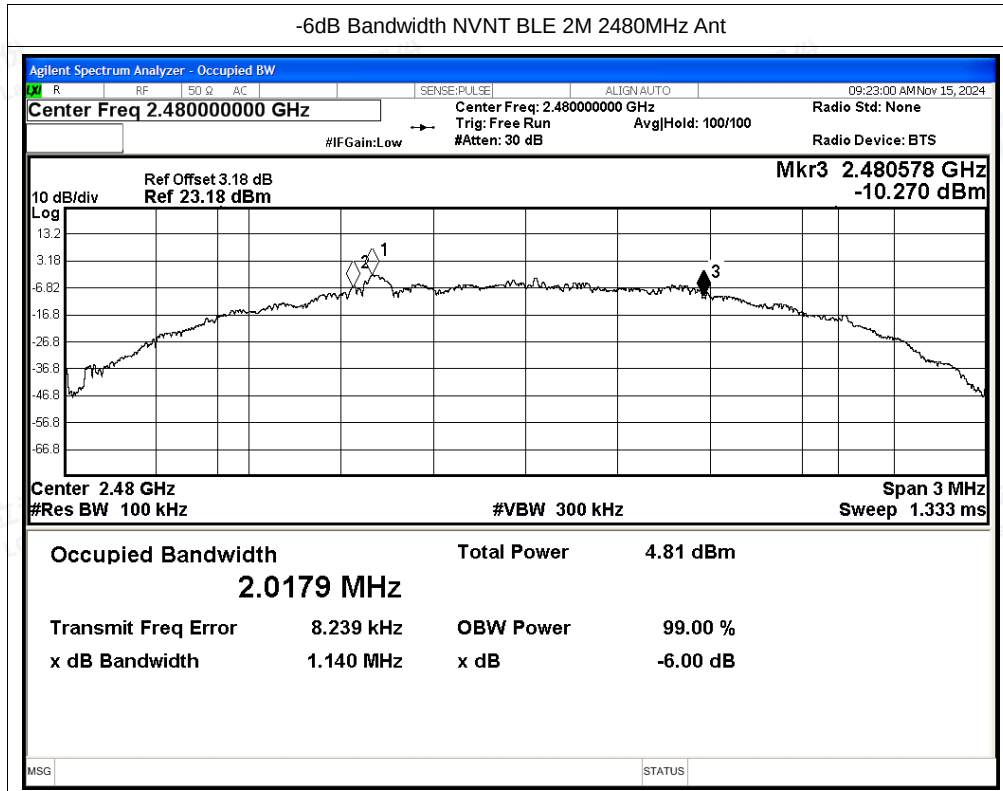
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B.2 Maximum Peak Conducted Output Power

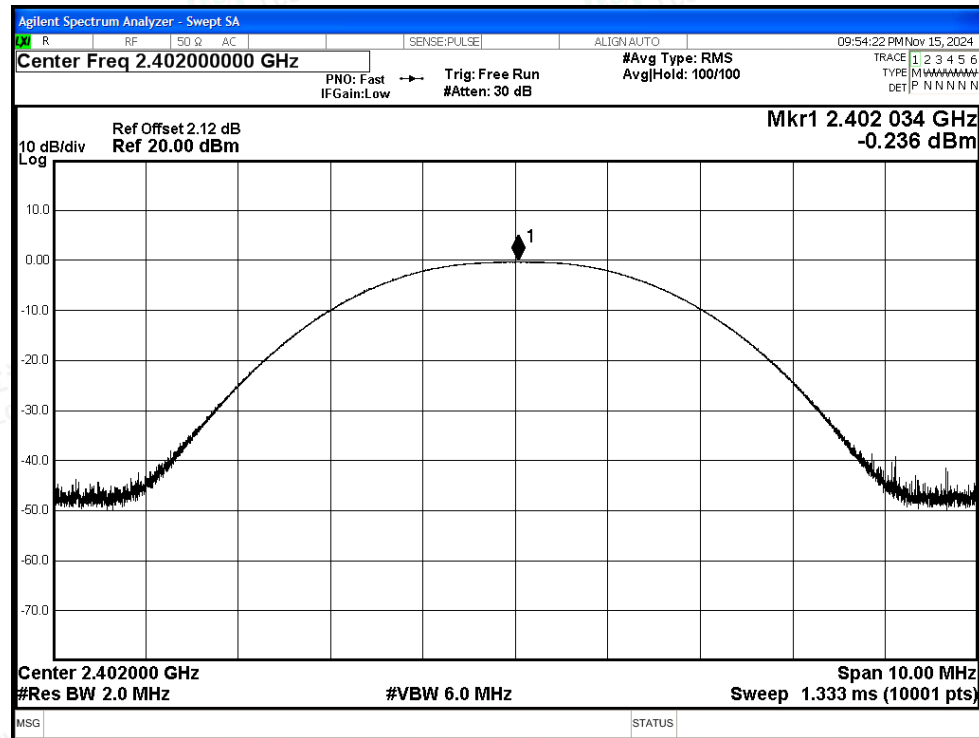
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	BLE 1M	2402	Ant	-0.24	30	Pass
NVNT	BLE 1M	2440	Ant	-0.43	30	Pass
NVNT	BLE 1M	2480	Ant	-1.46	30	Pass
NVNT	BLE 2M	2402	Ant	-0.16	30	Pass
NVNT	BLE 2M	2440	Ant	-0.52	30	Pass
NVNT	BLE 2M	2480	Ant	-1.58	30	Pass



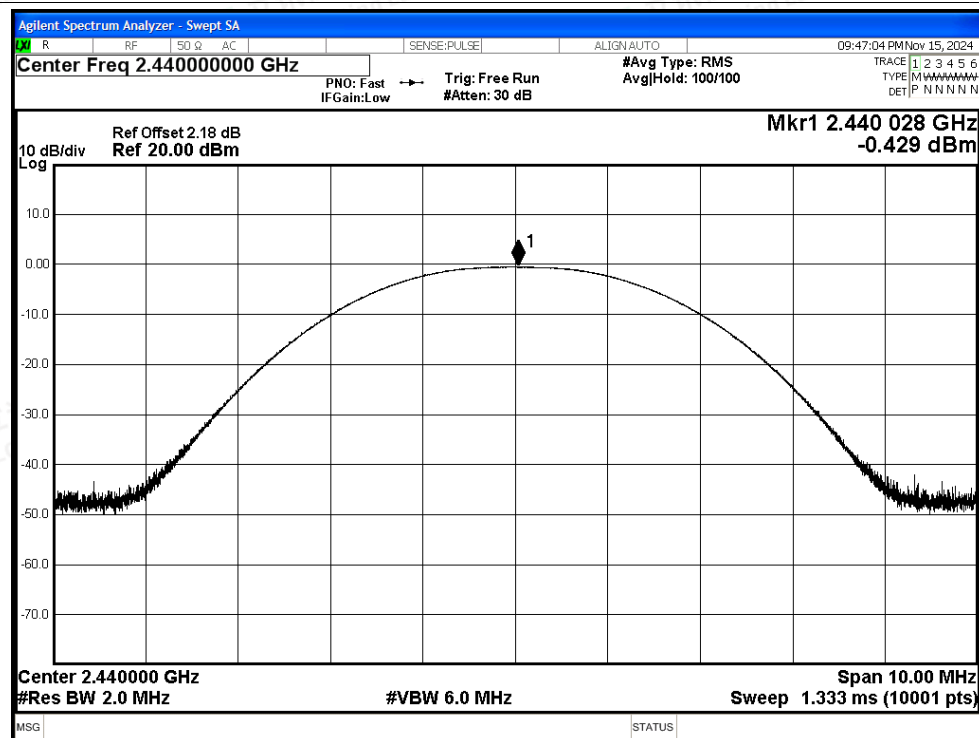


Test Graphs

Power NVNT BLE 1M 2402MHz Ant



Power NVNT BLE 1M 2440MHz Ant



Shenzhen LCS Compliance Testing Laboratory Ltd.

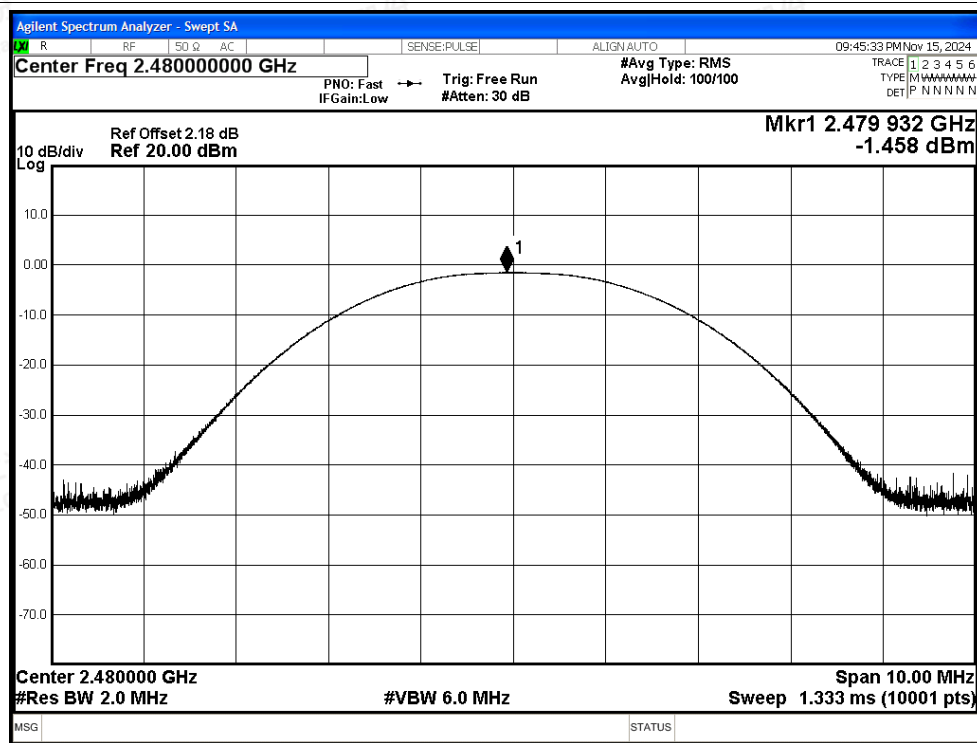
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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

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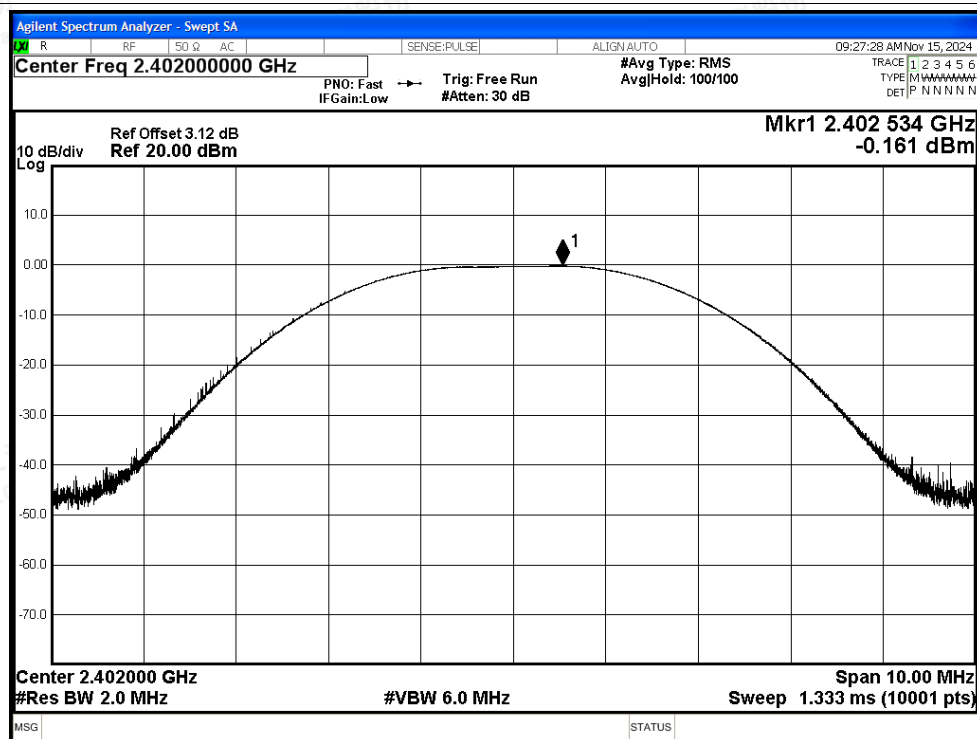


Power NVNT BLE 1M 2480MHz Ant



Test Graphs

Power NVNT BLE 2M 2402MHz Ant



Power NVNT BLE 2M 2440MHz Ant

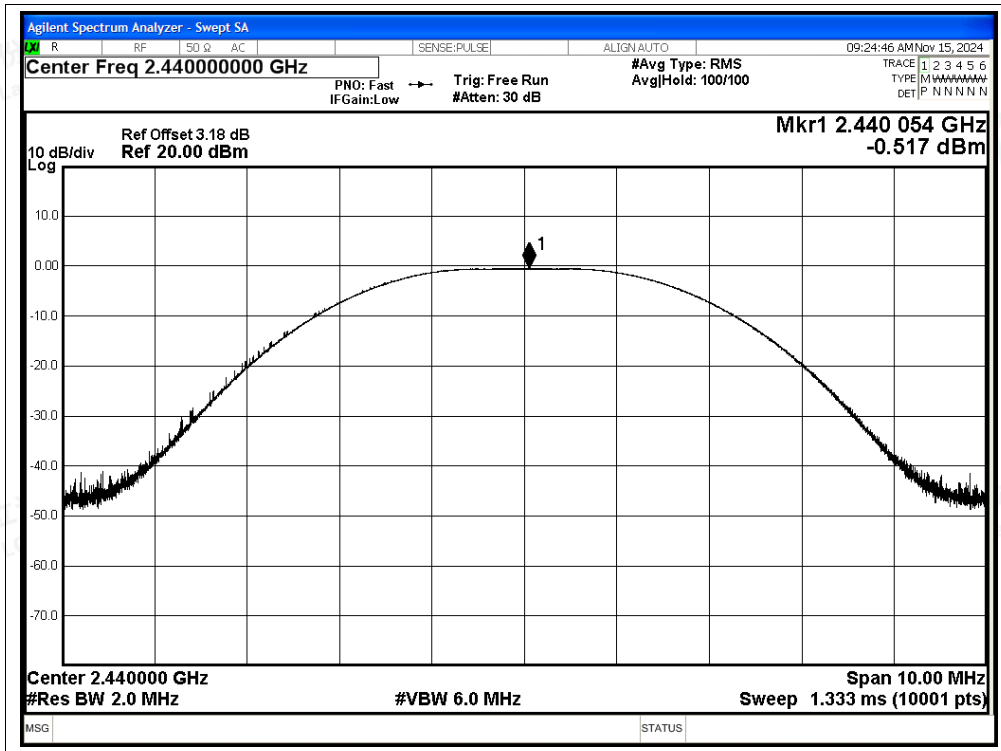


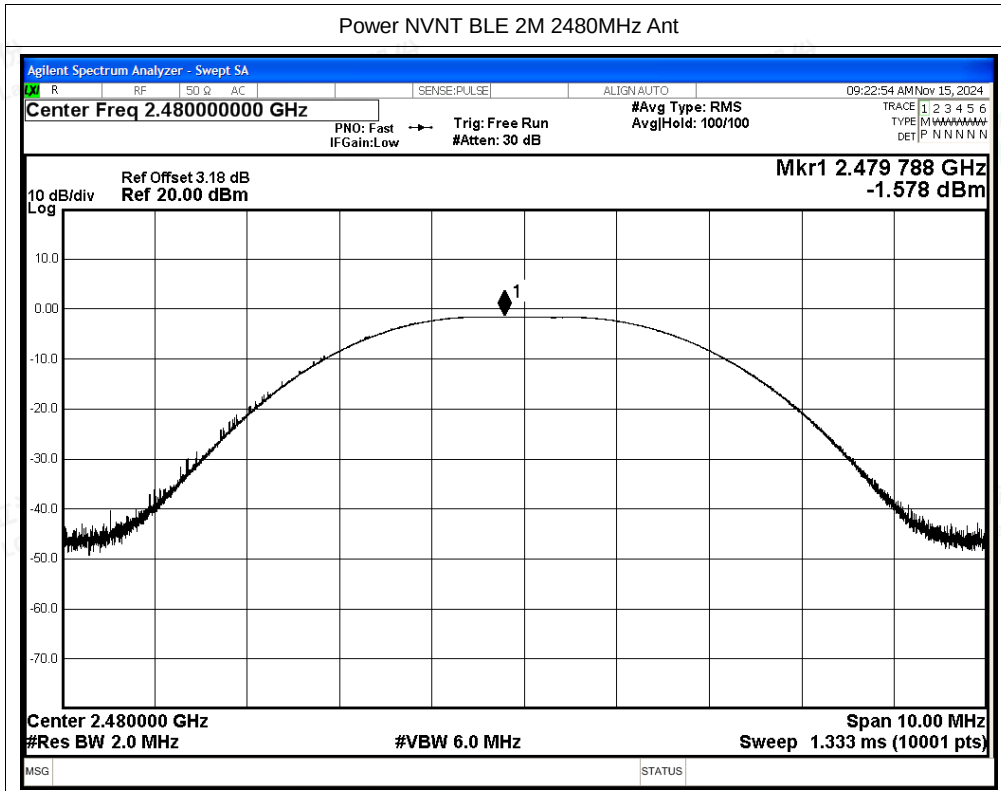
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B.3 Maximum Power Spectral Density Level

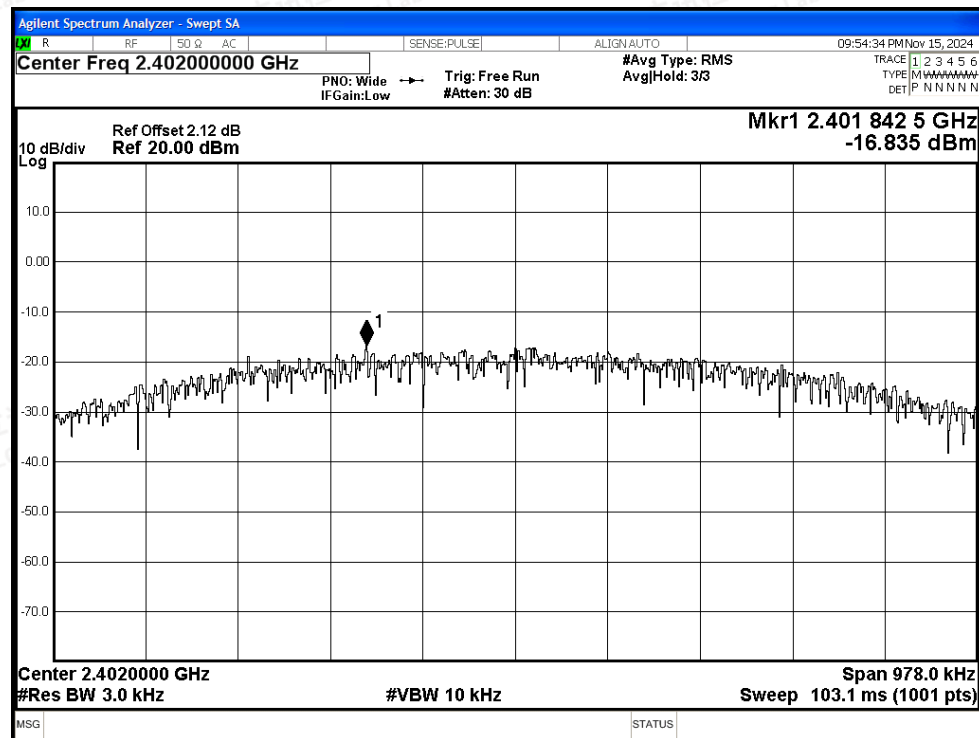
Condition	Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
NVNT	BLE 1M	2402	Ant	-16.84	8	Pass
NVNT	BLE 1M	2440	Ant	-17.42	8	Pass
NVNT	BLE 1M	2480	Ant	-18.44	8	Pass
NVNT	BLE 2M	2402	Ant	-19.79	8	Pass
NVNT	BLE 2M	2440	Ant	-20.3	8	Pass
NVNT	BLE 2M	2480	Ant	-21.13	8	Pass



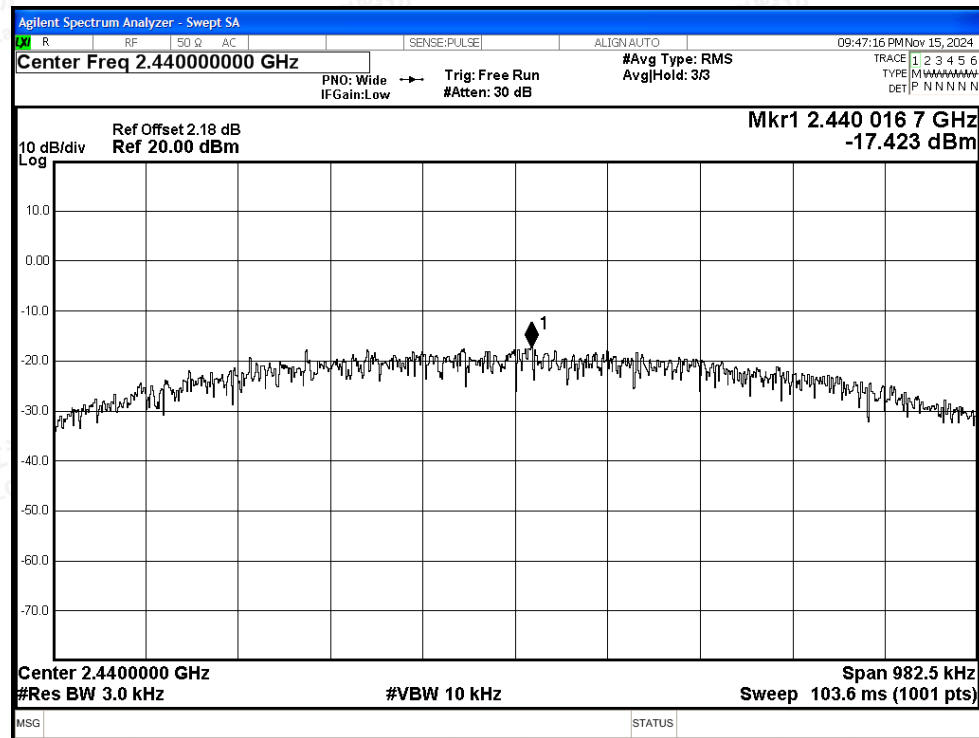


Test Graphs

PSD NVNT BLE 1M 2402MHz Ant



PSD NVNT BLE 1M 2440MHz Ant



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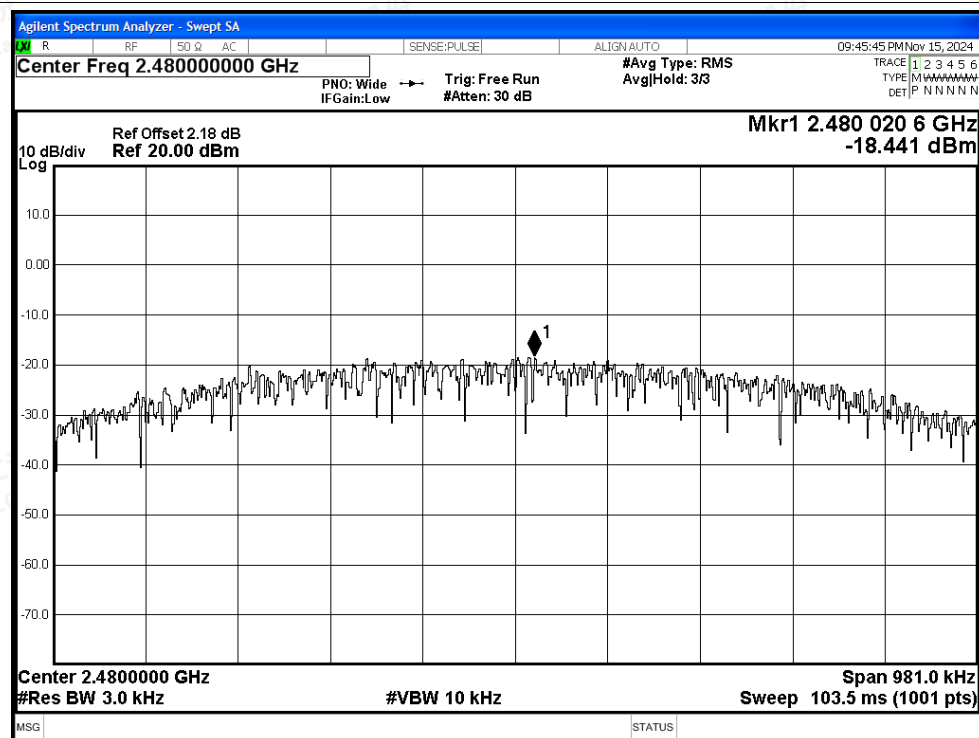
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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

Scan code to check authenticity

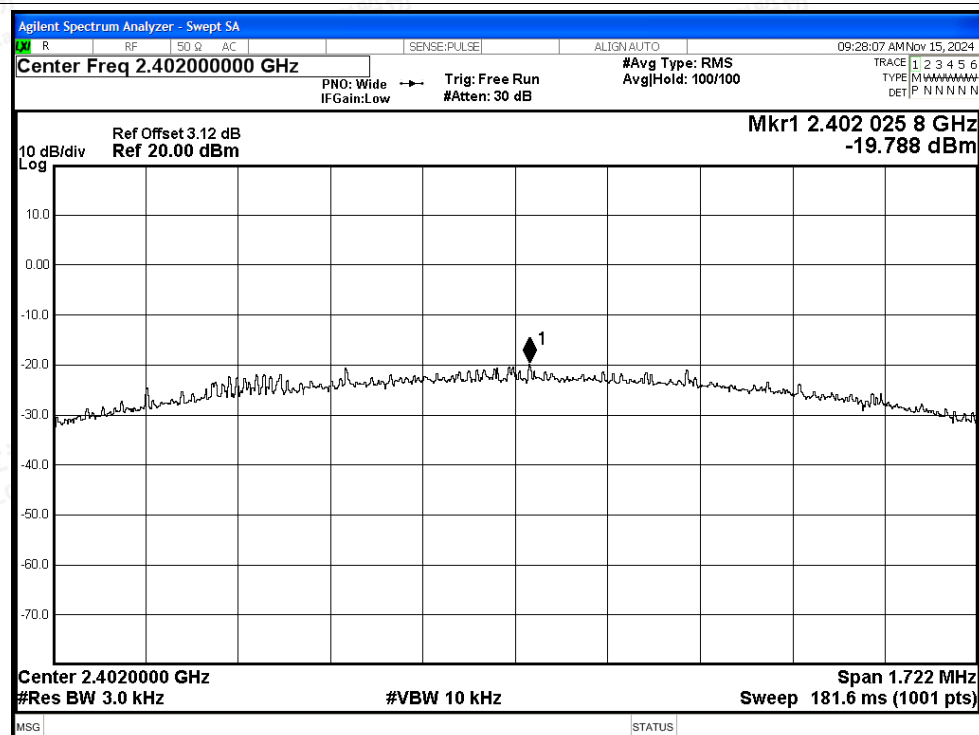


PSD NVNT BLE 1M 2480MHz Ant



Test Graphs

PSD NVNT BLE 2M 2402MHz Ant



PSD NVNT BLE 2M 2440MHz Ant

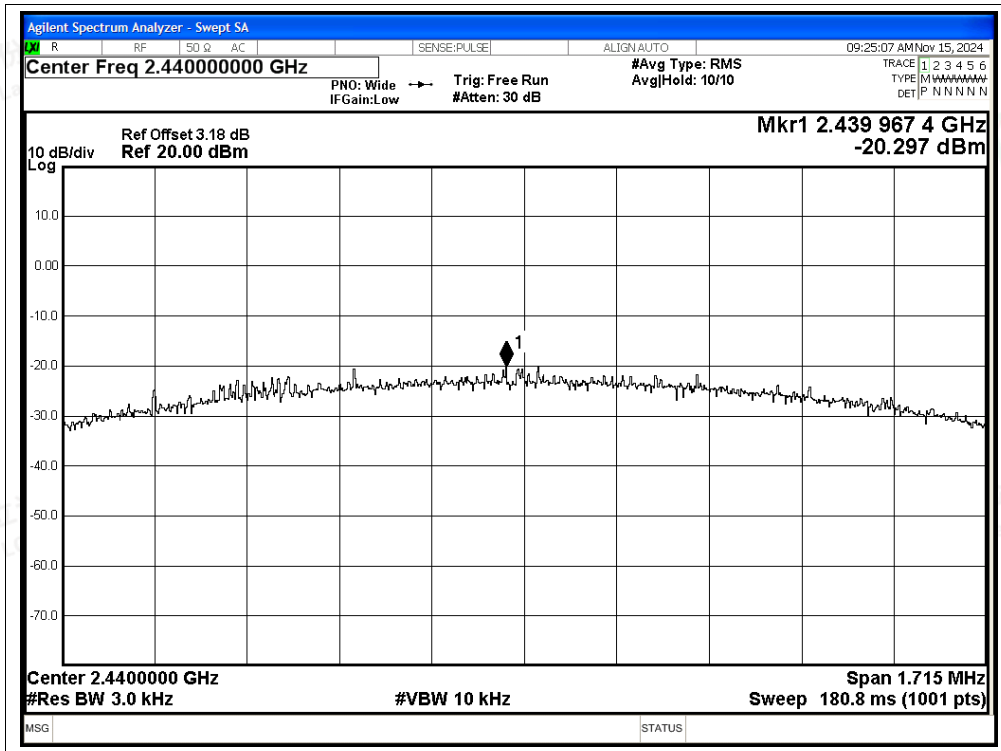


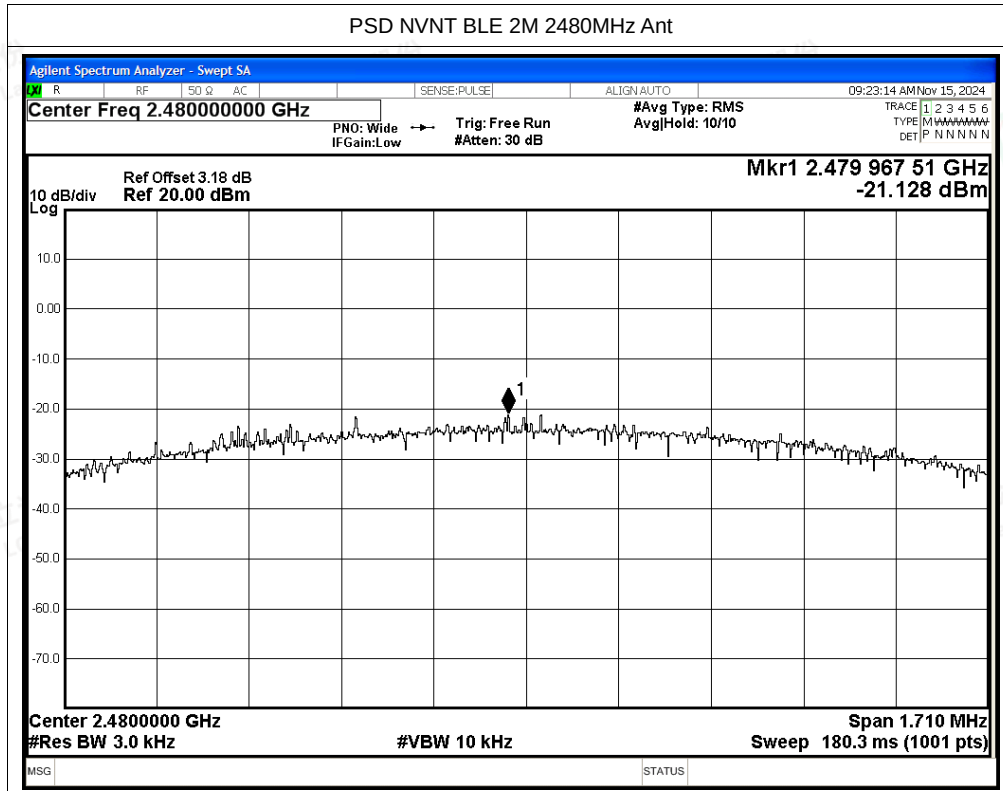
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B.4 Band Edge

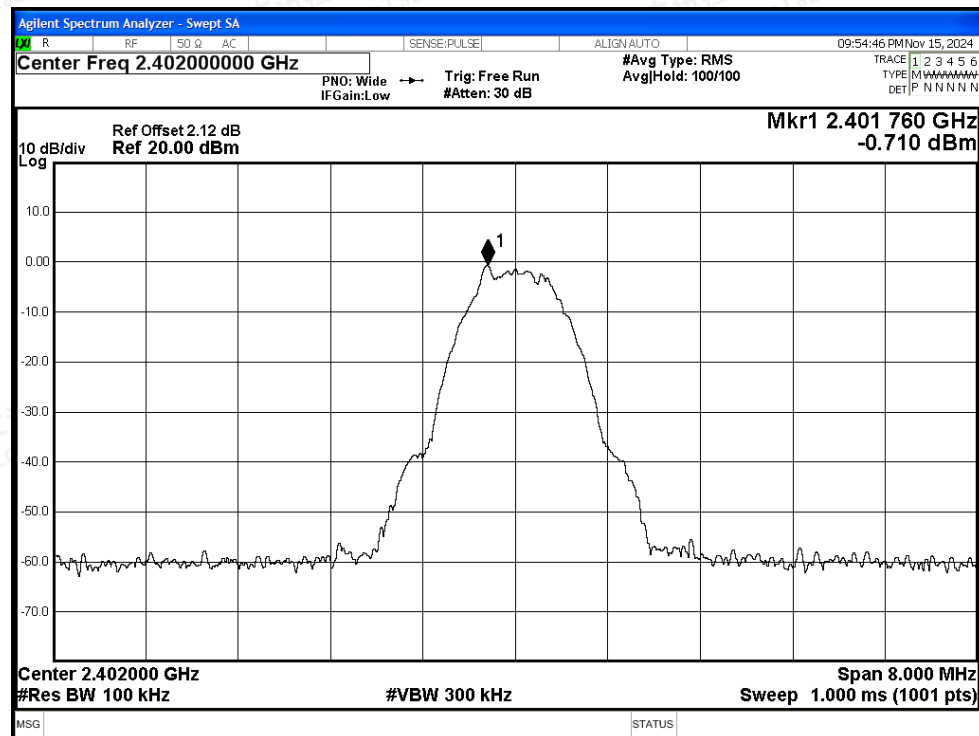
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE 1M	2402	Ant	-55.99	-20	Pass
NVNT	BLE 1M	2480	Ant	-53.23	-20	Pass
NVNT	BLE 2M	2402	Ant	-46.38	-20	Pass
NVNT	BLE 2M	2480	Ant	-52.65	-20	Pass



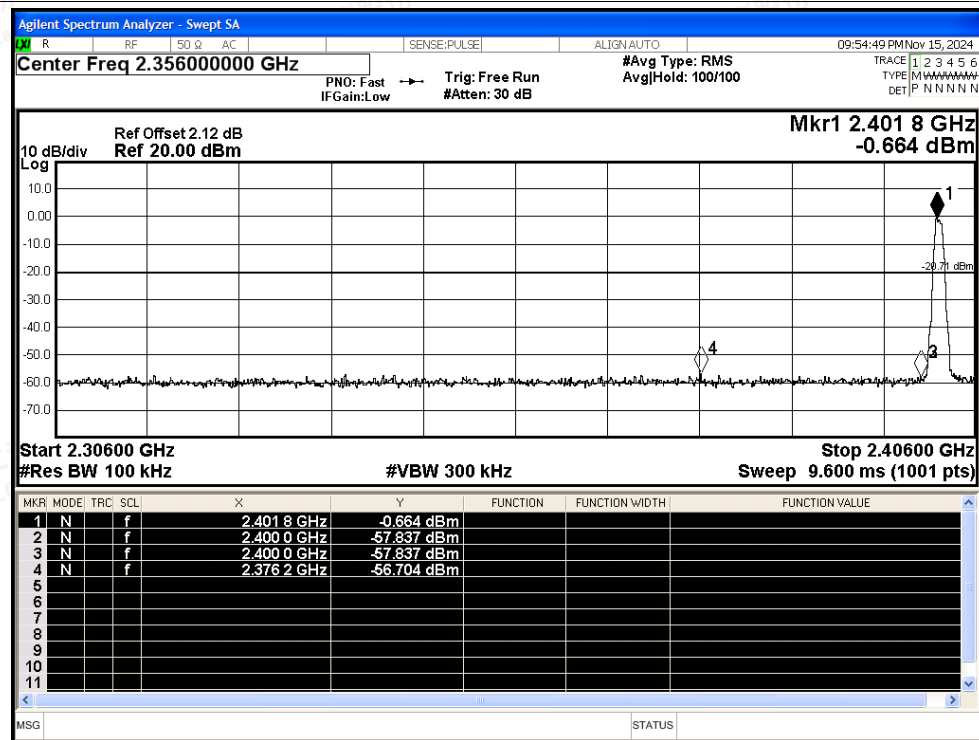


Test Graphs

Band Edge NVNT BLE 1M 2402MHz Ant Ref



Band Edge NVNT BLE 1M 2402MHz Ant Emission



Shenzhen LCS Compliance Testing Laboratory Ltd.

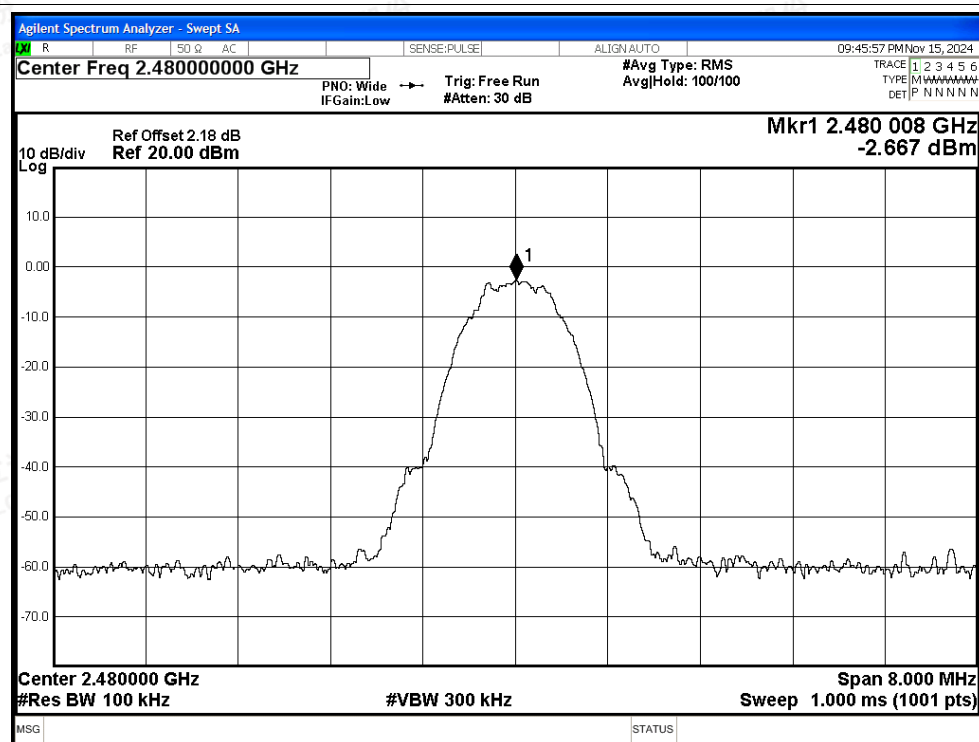
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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

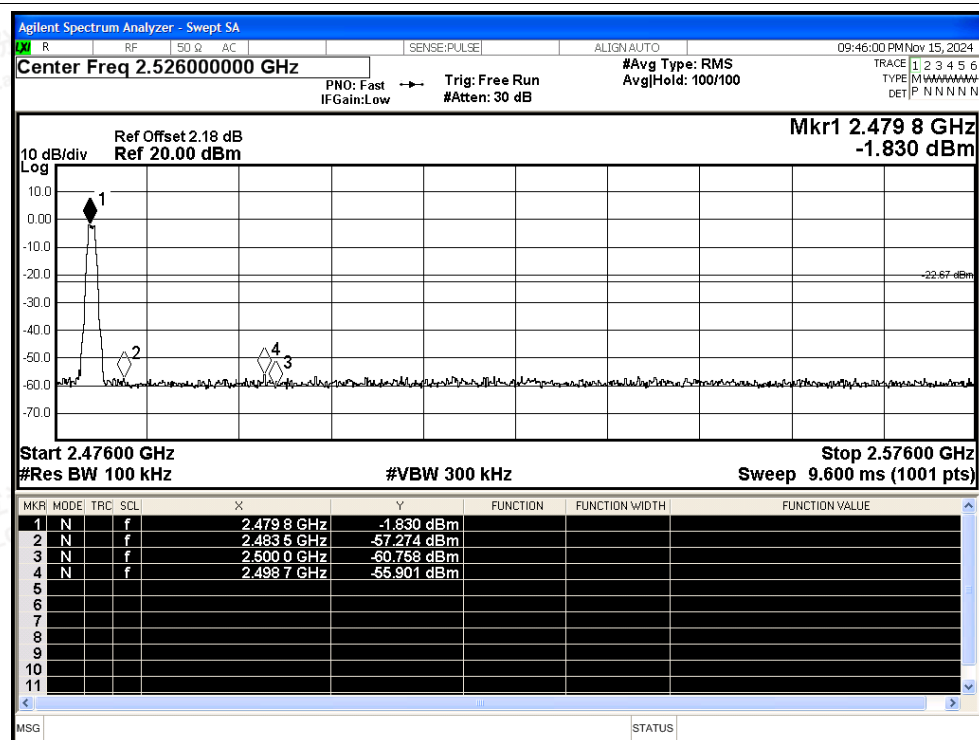
Scan code to check authenticity



Band Edge NVNT BLE 1M 2480MHz Ant Ref



Band Edge NVNT BLE 1M 2480MHz Ant Emission



Test Graphs

Band Edge NVNT BLE 2M 2402MHz Ant Ref

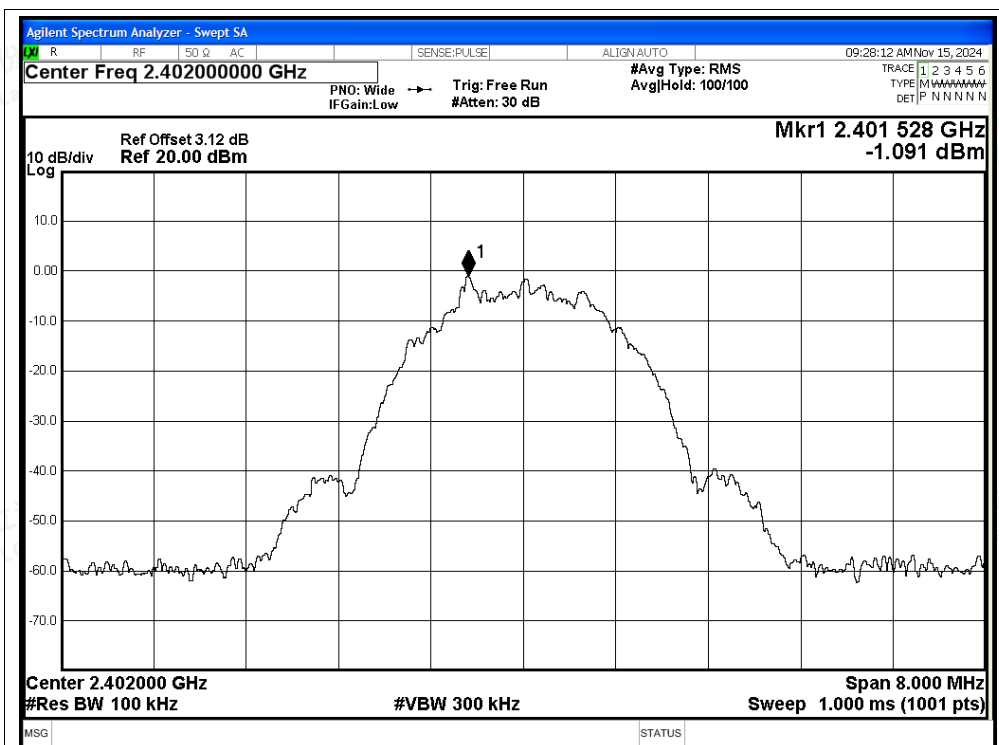


Shenzhen LCS Compliance Testing Laboratory Ltd.

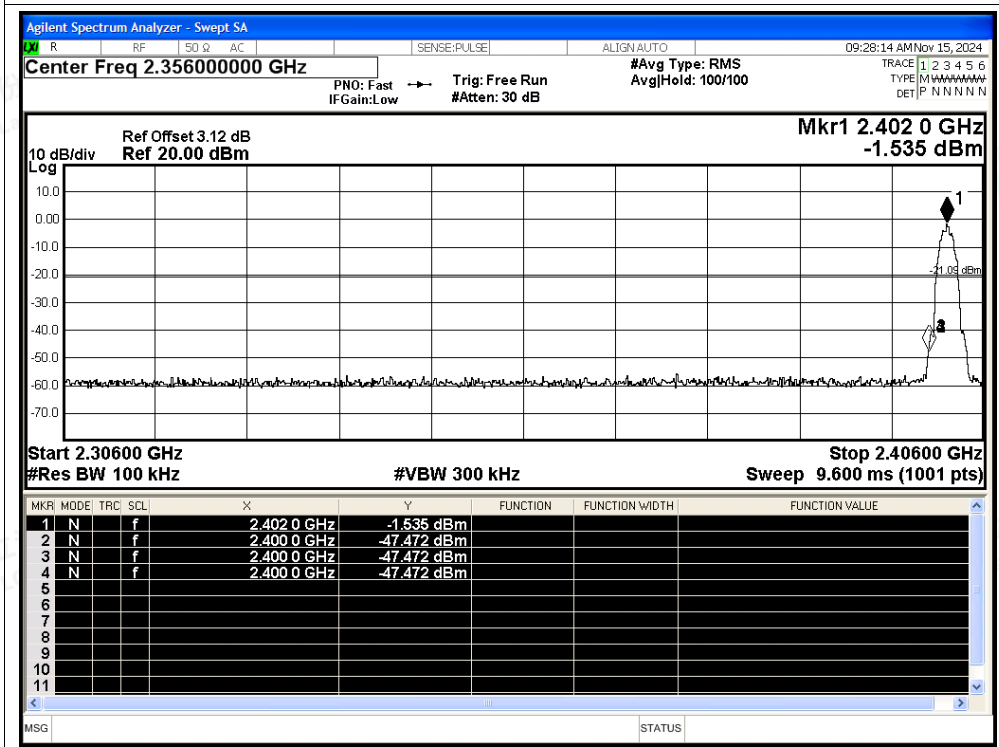
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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Band Edge NVNT BLE 2M 2402MHz Ant Emission



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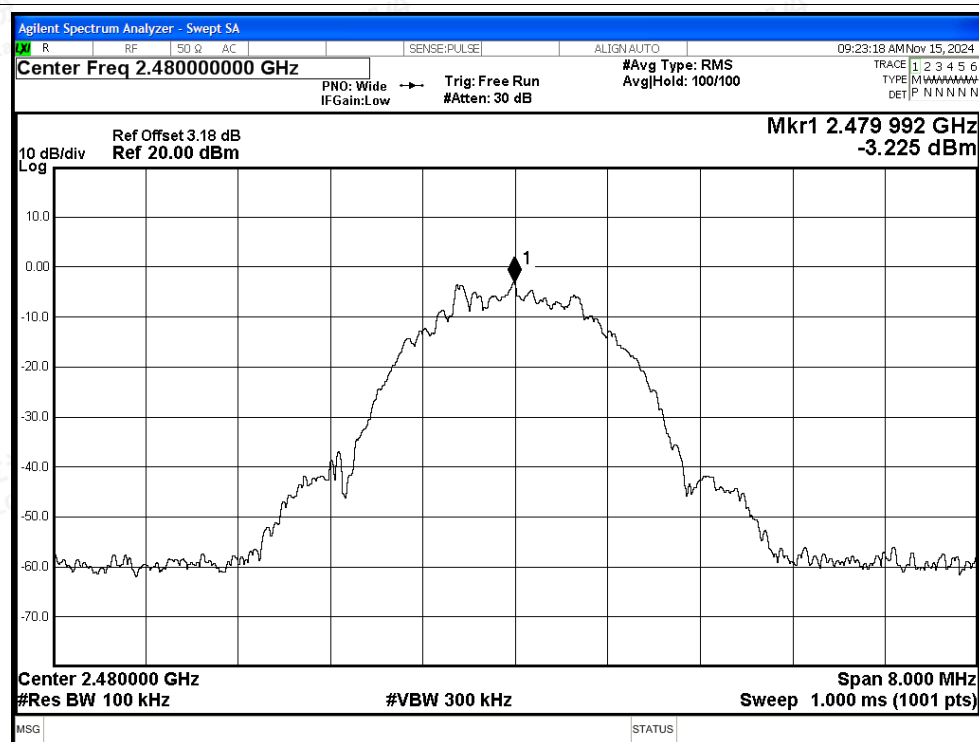
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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

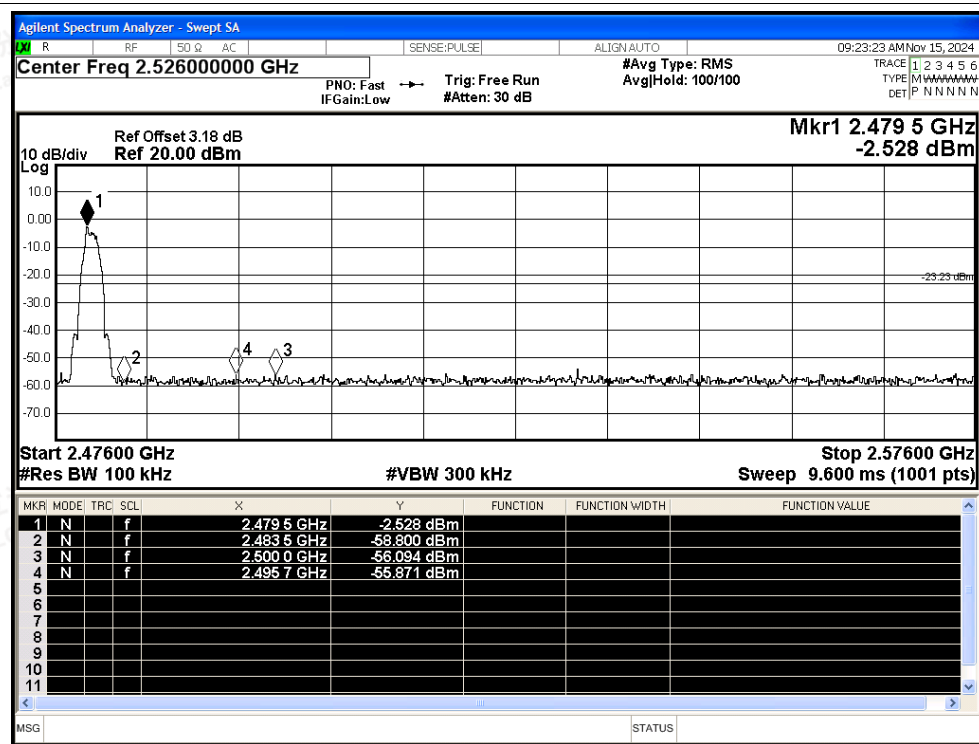
Scan code to check authenticity



Band Edge NVNT BLE 2M 2480MHz Ant Ref



Band Edge NVNT BLE 2M 2480MHz Ant Emission



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B.5 Conducted RF Spurious Emission

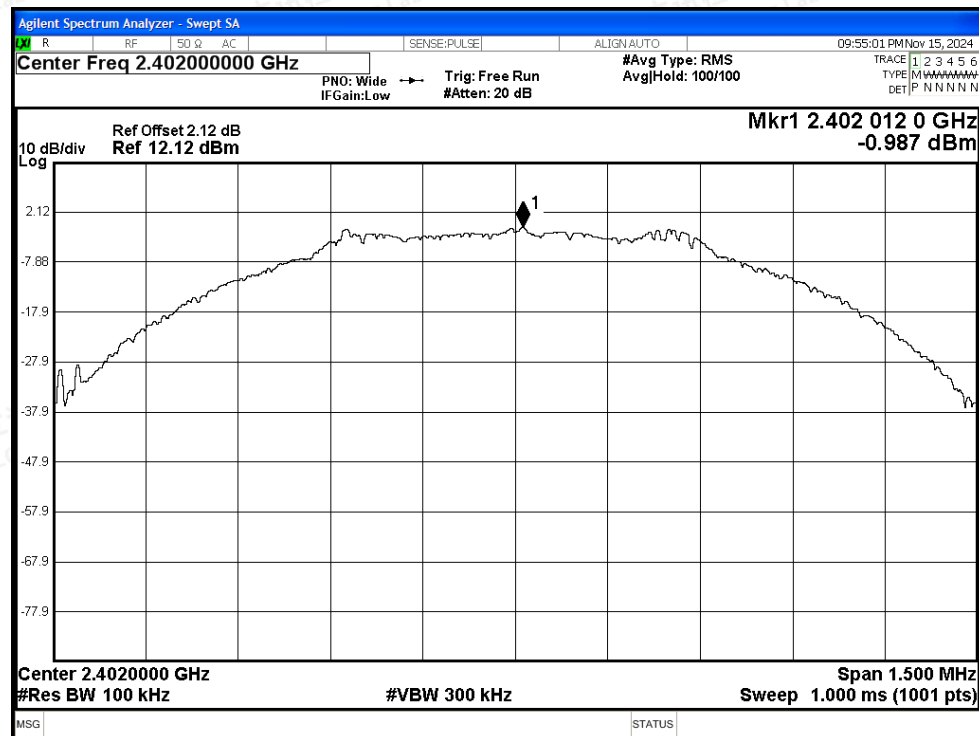
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE 1M	2402	Ant	-53.3	-20	Pass
NVNT	BLE 1M	2440	Ant	-54.88	-20	Pass
NVNT	BLE 1M	2480	Ant	-53.7	-20	Pass
NVNT	BLE 2M	2402	Ant	-54.04	-20	Pass
NVNT	BLE 2M	2440	Ant	-52.9	-20	Pass
NVNT	BLE 2M	2480	Ant	-51.61	-20	Pass



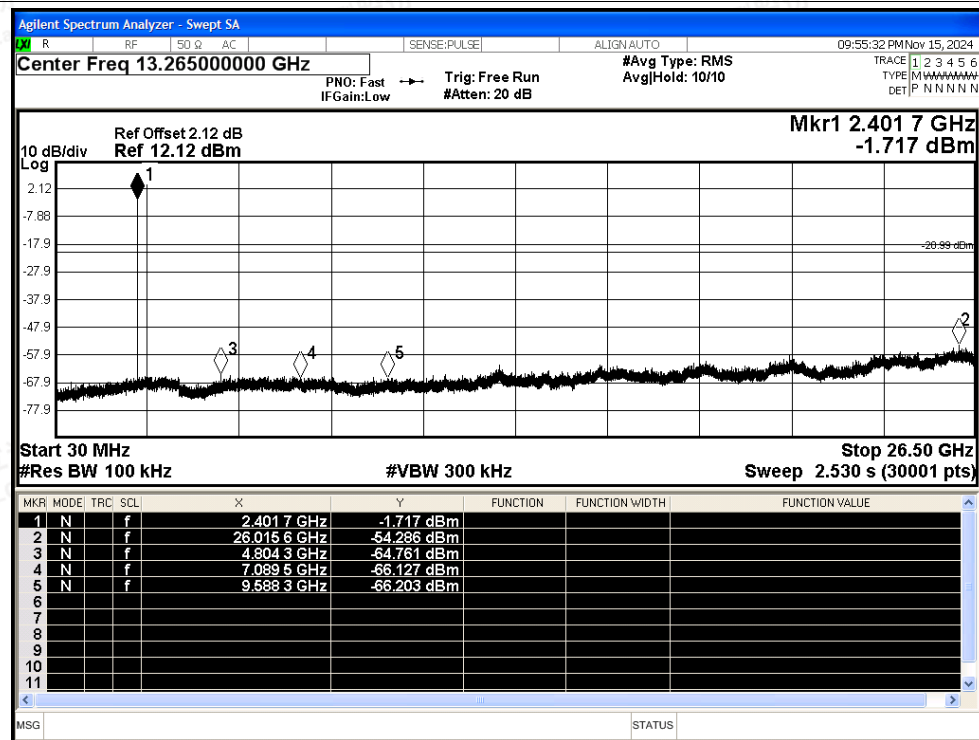


Test Graphs

Tx. Spurious NVNT BLE 1M 2402MHz Ant Ref



Tx. Spurious NVNT BLE 1M 2402MHz Ant Emission



Shenzhen LCS Compliance Testing Laboratory Ltd.

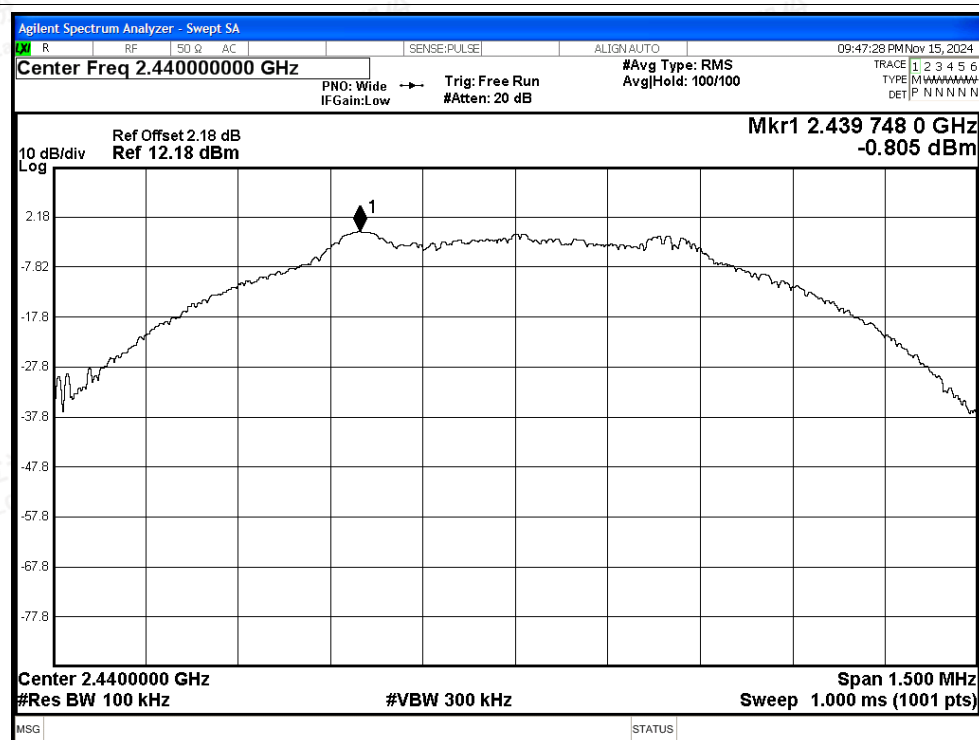
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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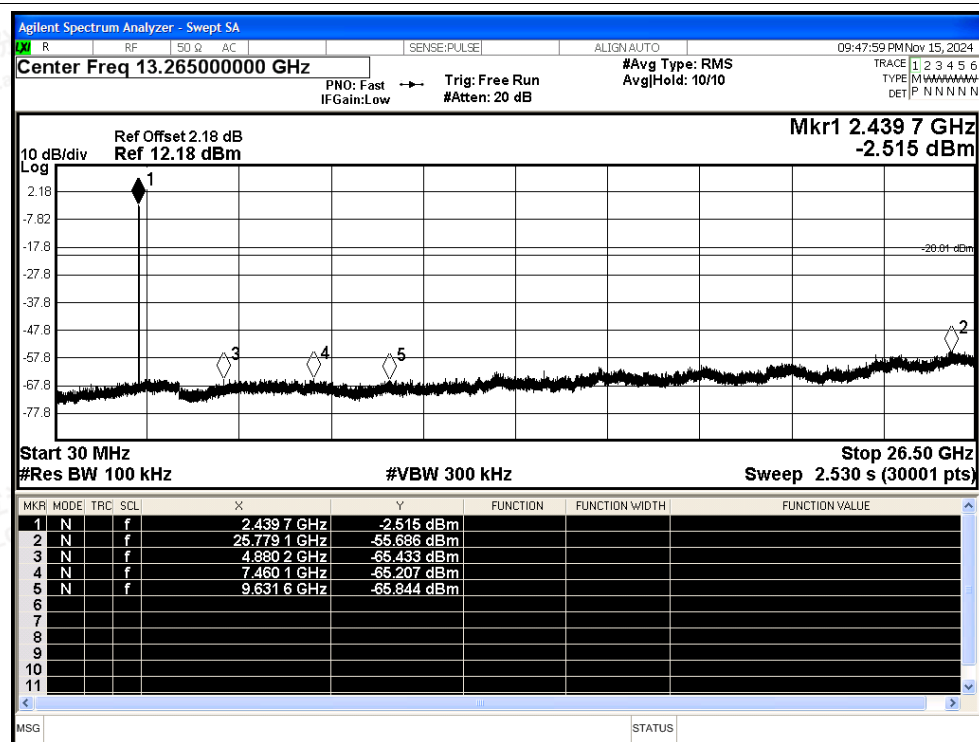
Scan code to check authenticity



Tx. Spurious NVNT BLE 1M 2440MHz Ant Ref



Tx. Spurious NVNT BLE 1M 2440MHz Ant Emission



Shenzhen LCS Compliance Testing Laboratory Ltd.

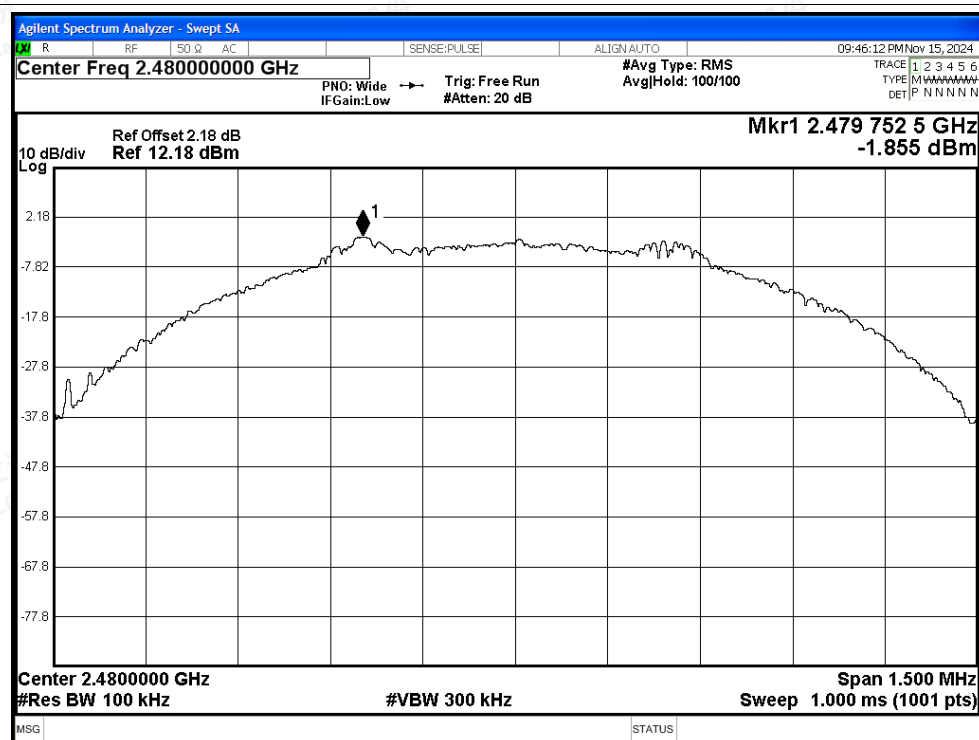
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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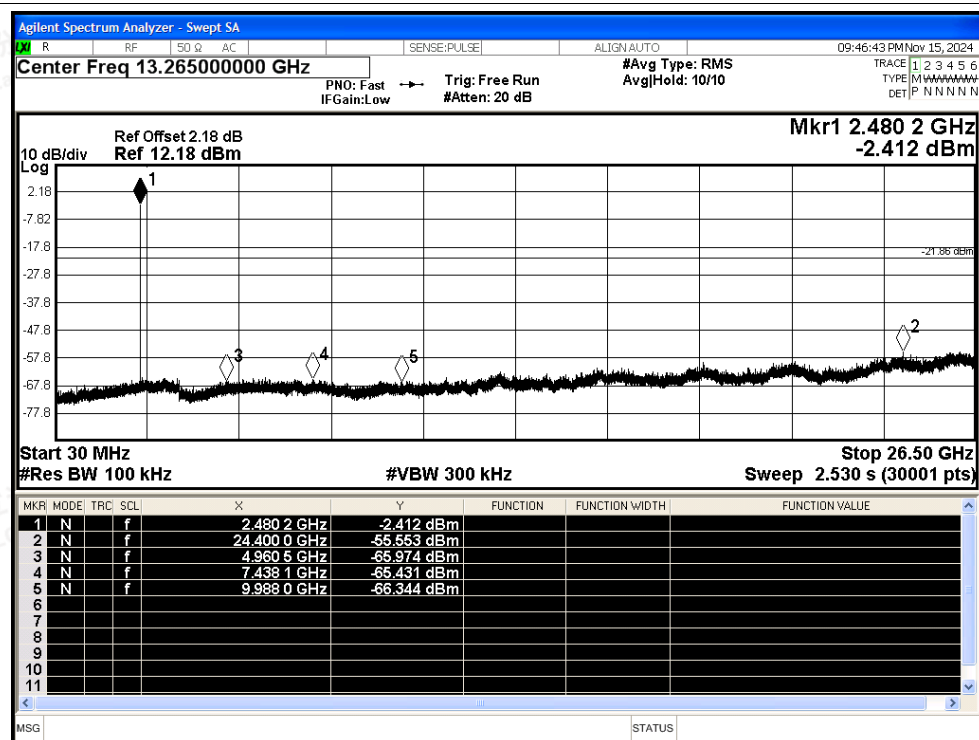
Scan code to check authenticity



Tx. Spurious NVNT BLE 1M 2480MHz Ant Ref



Tx. Spurious NVNT BLE 1M 2480MHz Ant Emission



Test Graphs

Tx. Spurious NVNT BLE 2M 2402MHz Ant Ref

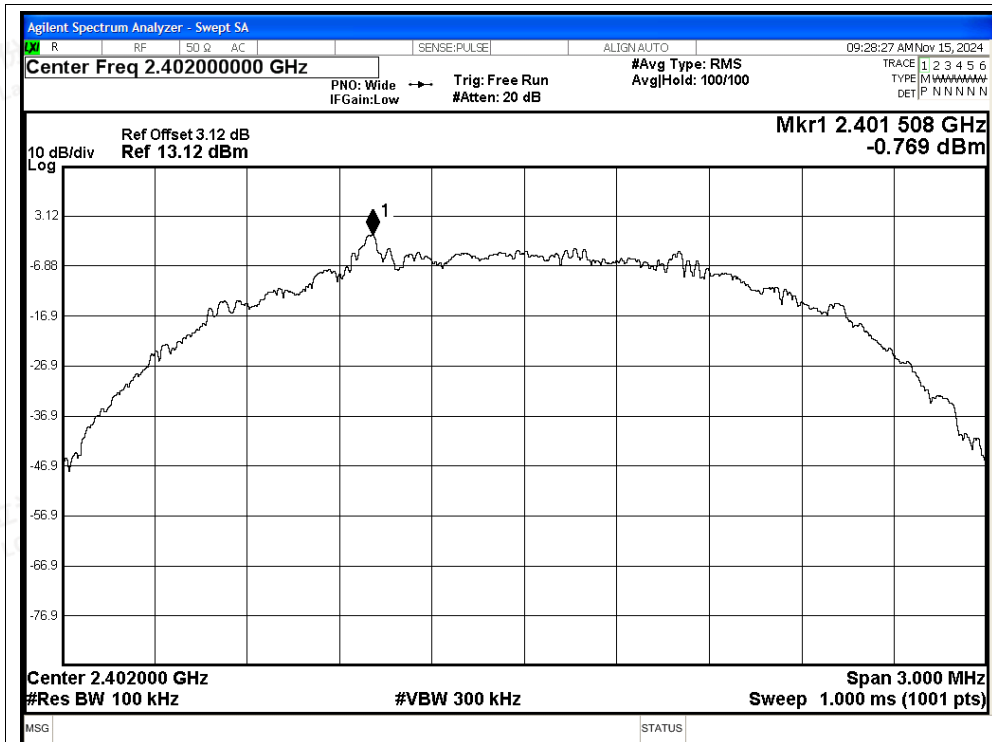


Shenzhen LCS Compliance Testing Laboratory Ltd.

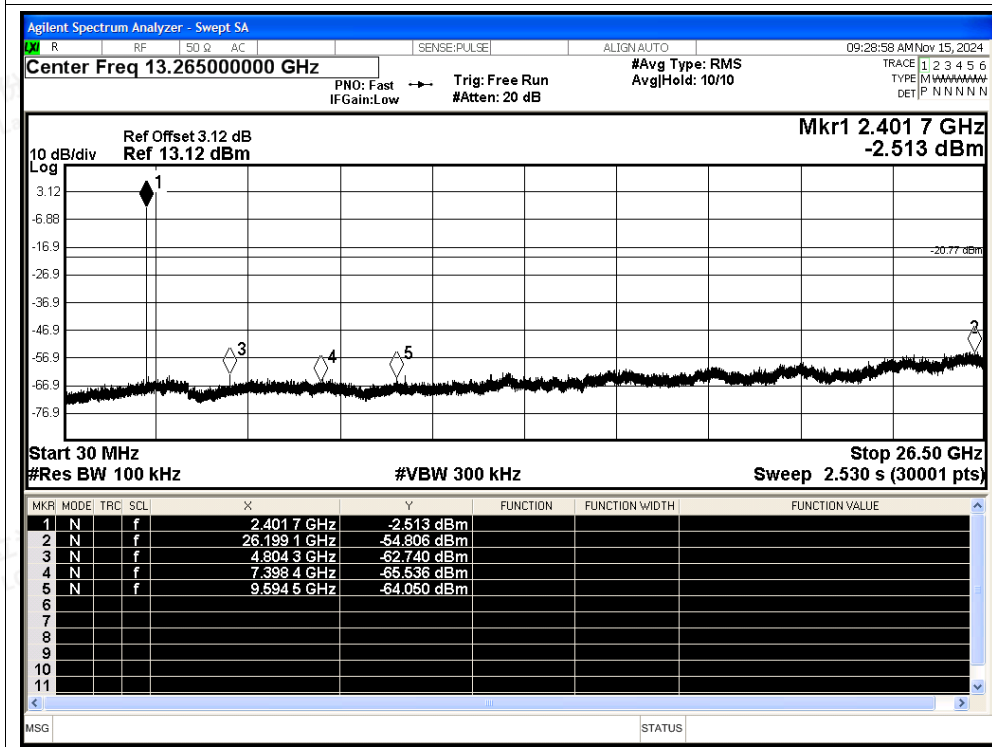
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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Tx. Spurious NVNT BLE 2M 2402MHz Ant Emission



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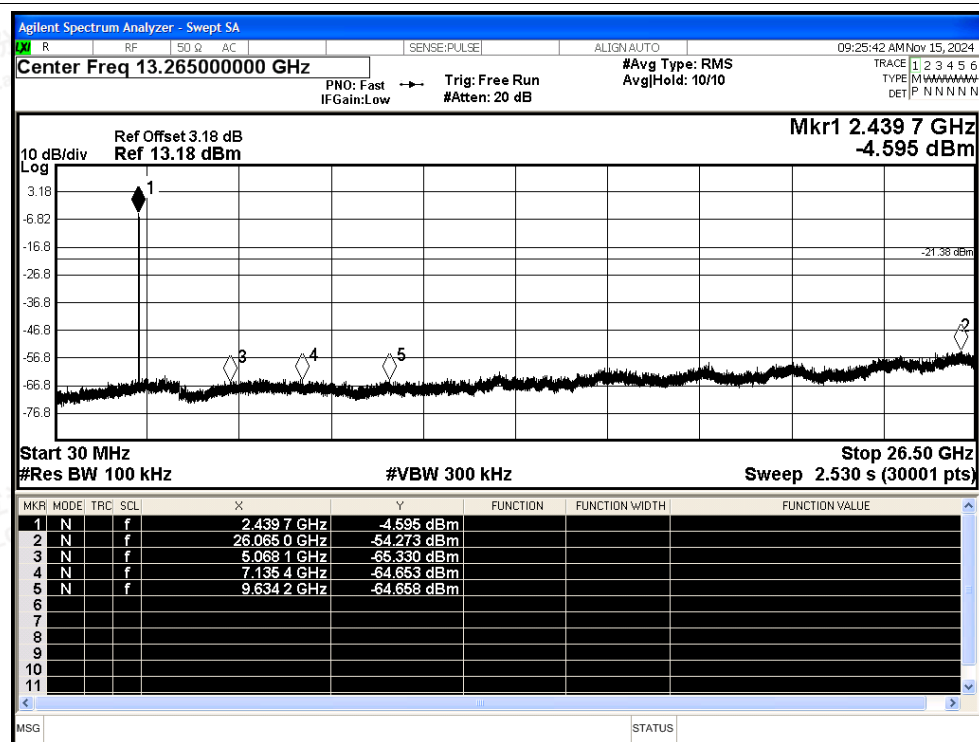
Scan code to check authenticity



Tx. Spurious NVNT BLE 2M 2440MHz Ant Ref



Tx. Spurious NVNT BLE 2M 2440MHz Ant Emission



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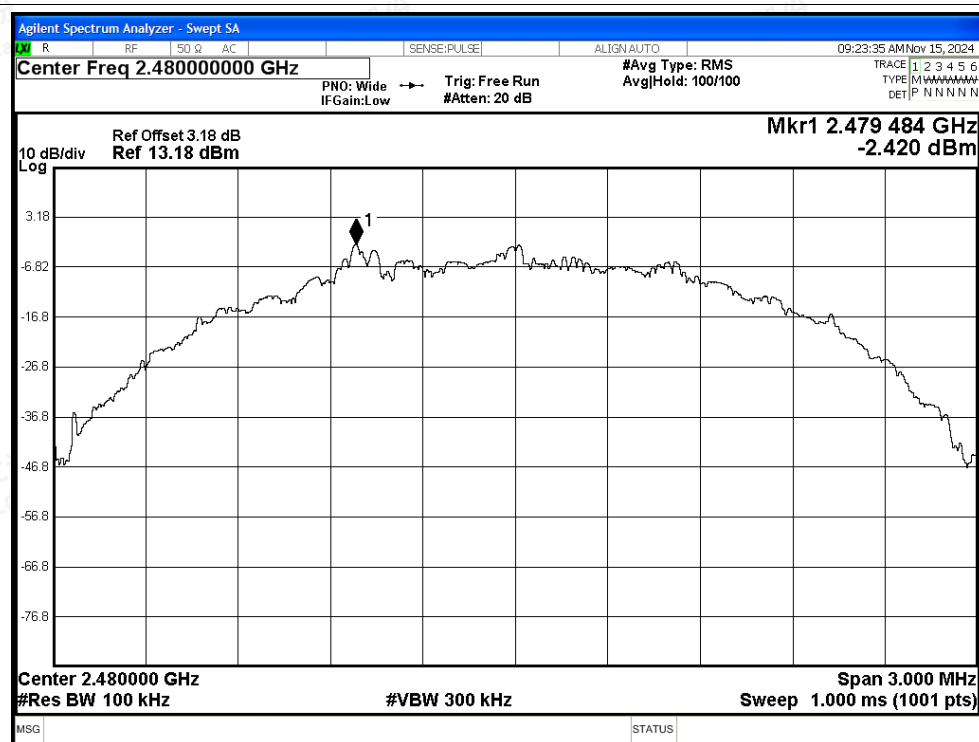
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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

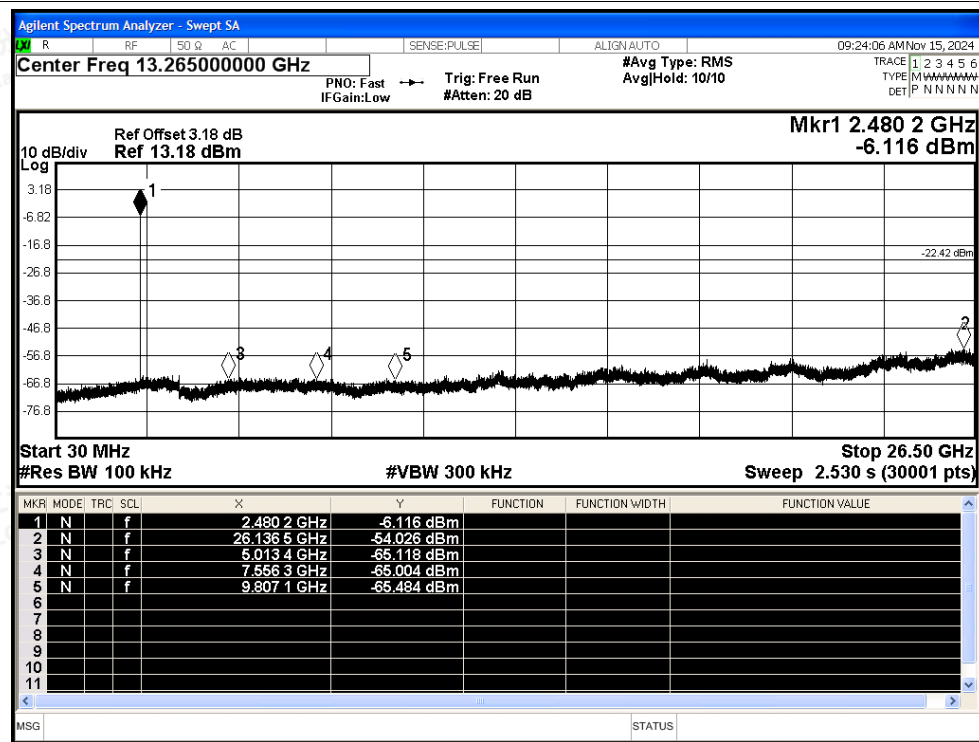
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Tx. Spurious NVNT BLE 2M 2480MHz Ant Ref



Tx. Spurious NVNT BLE 2M 2480MHz Ant Emission



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B.6 Duty Cycle

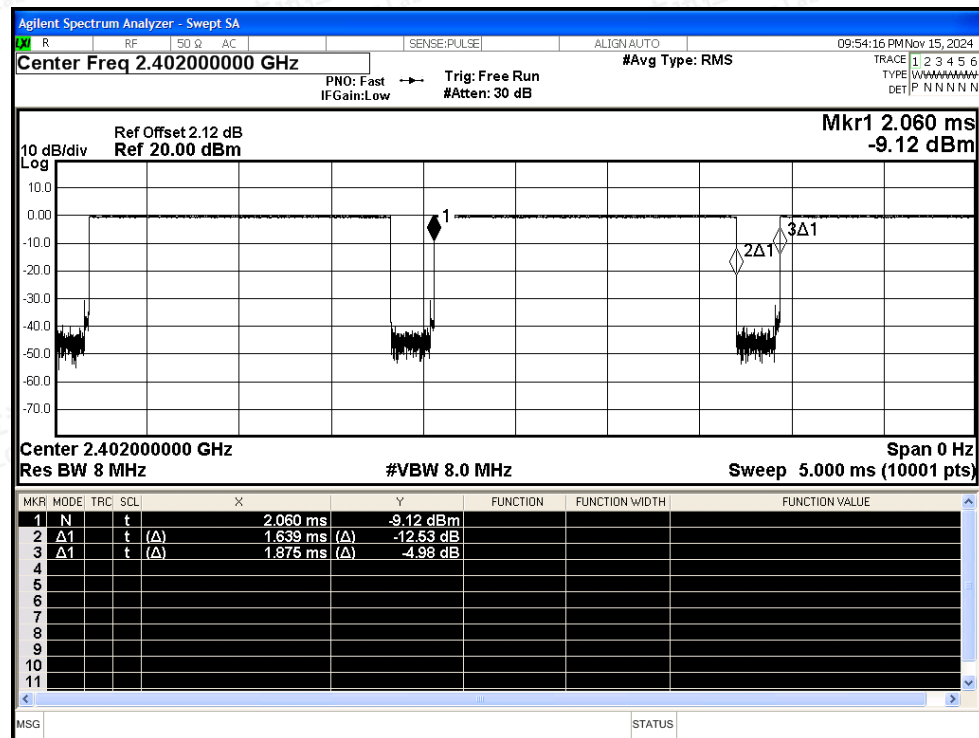
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	BLE 1M	2402	Ant	87.39	0.59	0.61
NVNT	BLE 1M	2440	Ant	87.39	0.59	0.61
NVNT	BLE 1M	2480	Ant	87.39	0.59	0.61
NVNT	BLE 2M	2402	Ant	65.96	1.81	1.21
NVNT	BLE 2M	2440	Ant	65.96	1.81	1.21
NVNT	BLE 2M	2480	Ant	65.92	1.81	1.21



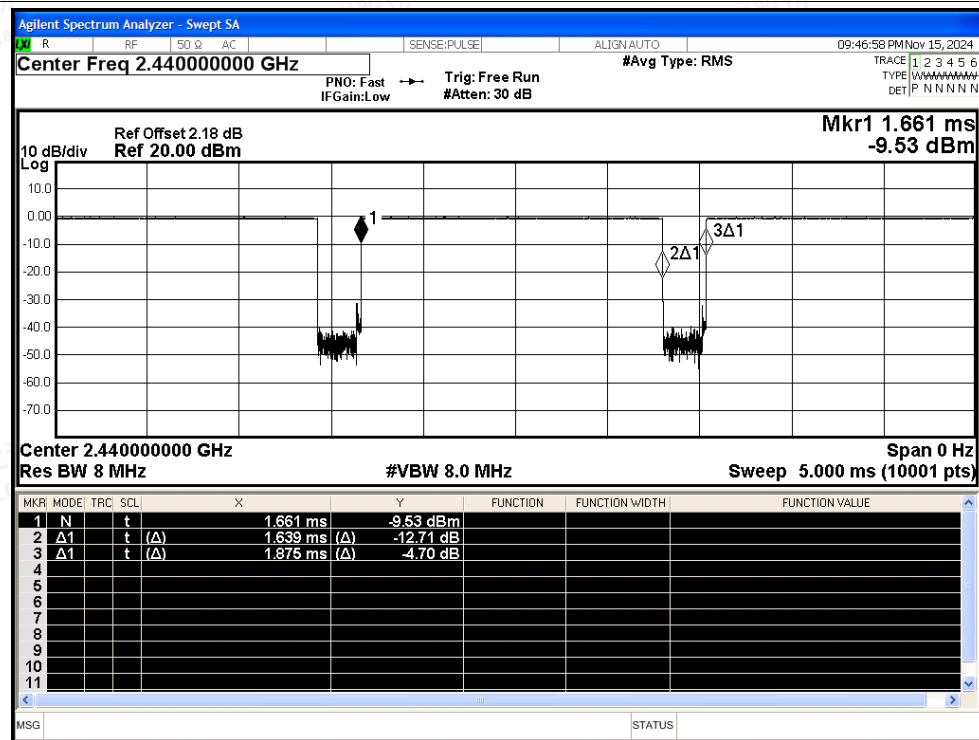


Test Graphs

Duty Cycle NVNT BLE 1M 2402MHz Ant



Duty Cycle NVNT BLE 1M 2440MHz Ant



Shenzhen LCS Compliance Testing Laboratory Ltd.

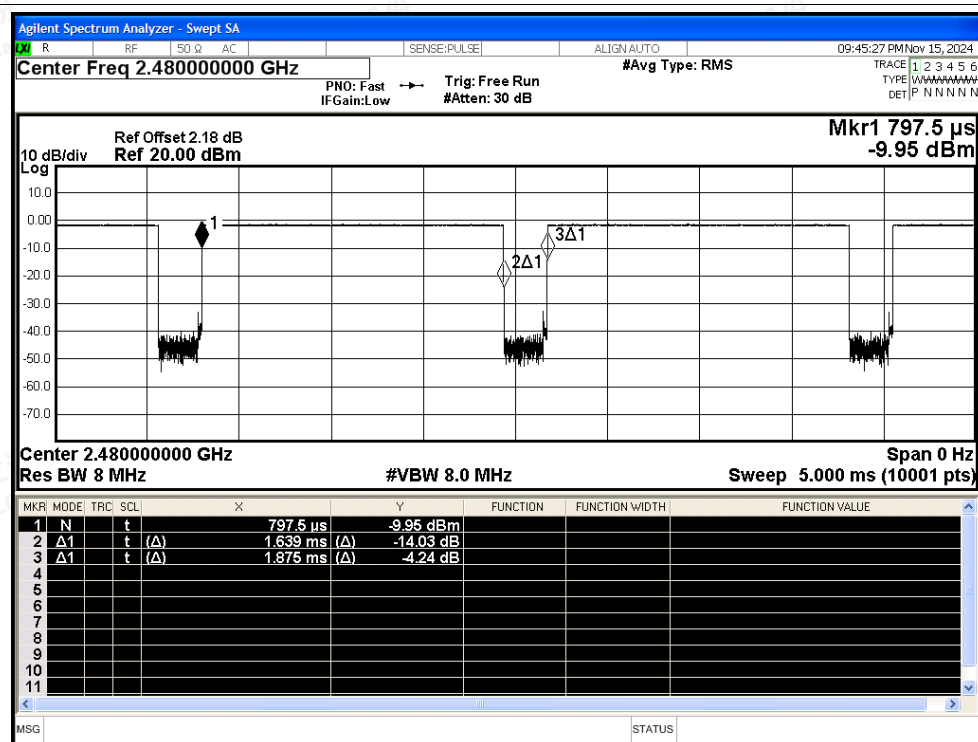
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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

Scan code to check authenticity

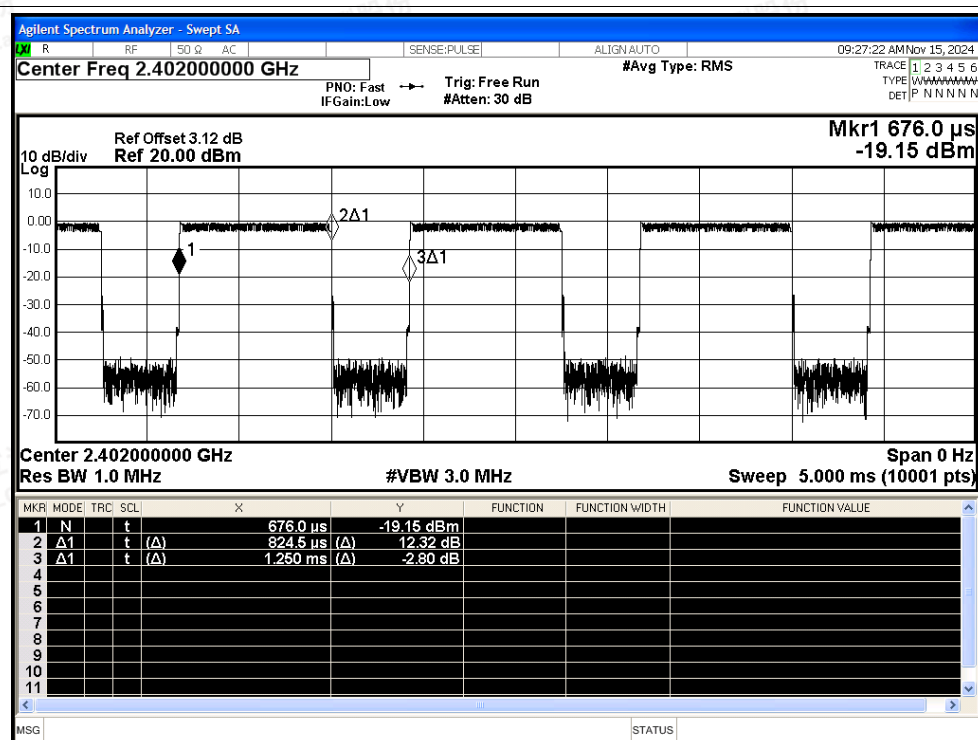


Duty Cycle NVNT BLE 1M 2480MHz Ant



Test Graphs

Duty Cycle NVNT BLE 2M 2402MHz Ant



Duty Cycle NVNT BLE 2M 2440MHz Ant

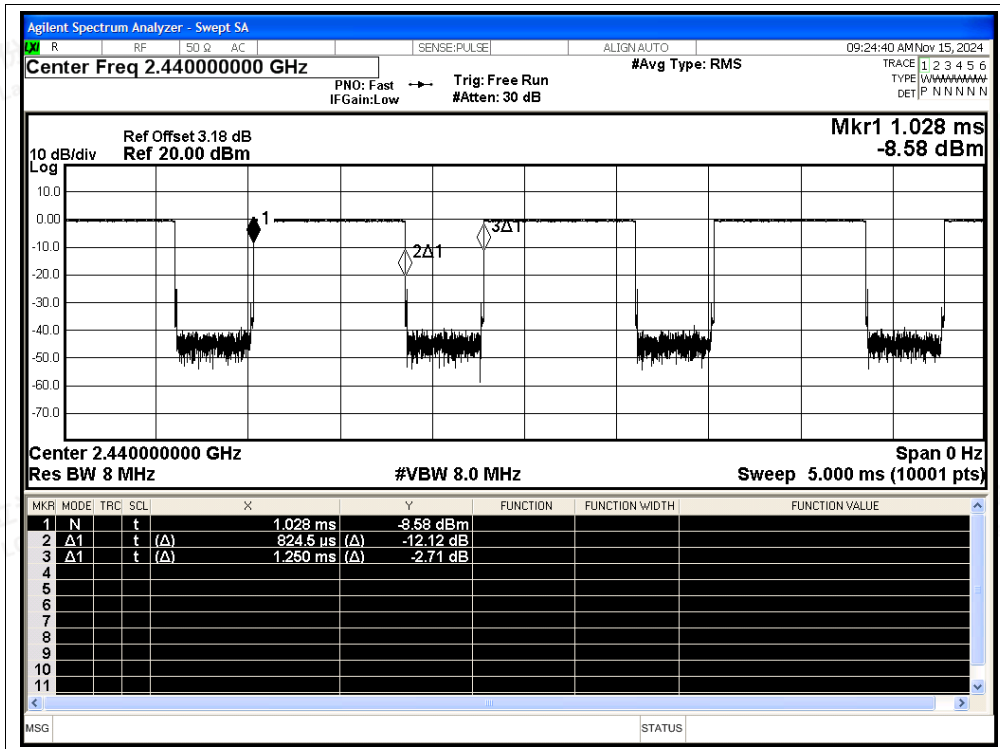


Shenzhen LCS Compliance Testing Laboratory Ltd.

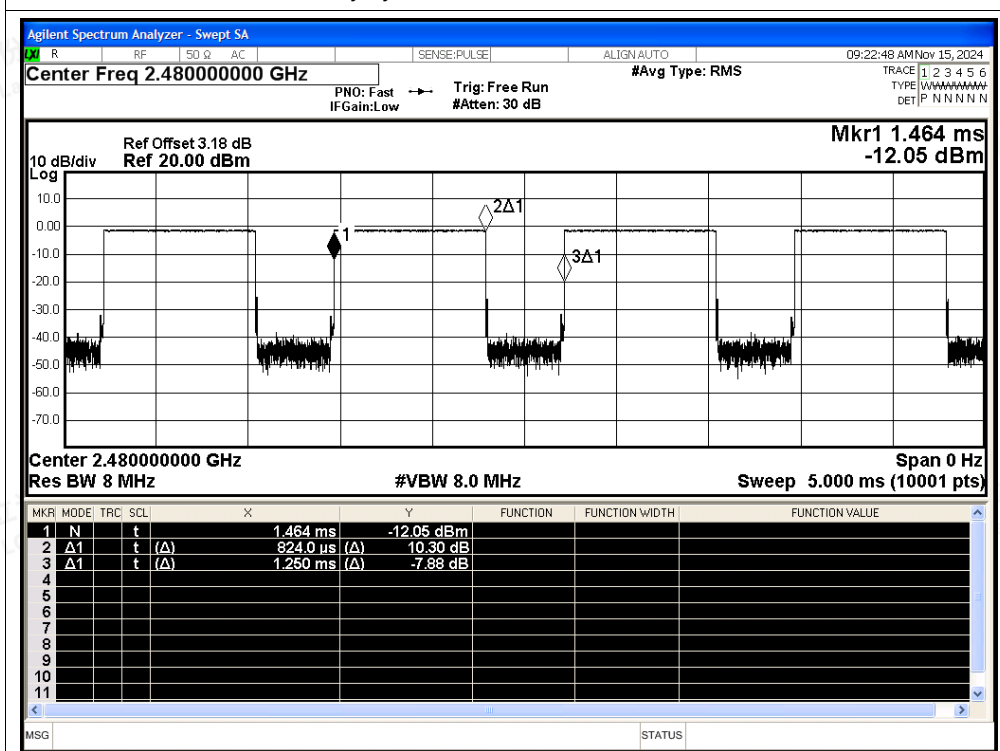
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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Duty Cycle NVNT BLE 2M 2480MHz Ant



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B.7 Restrict Band

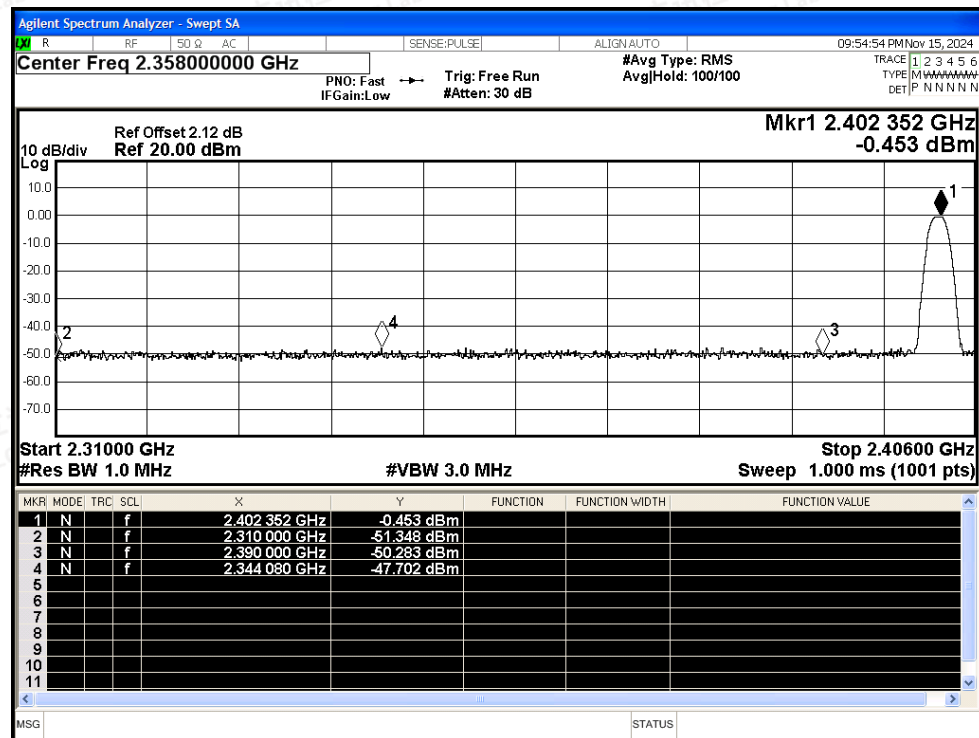
Condition	Mode	Frequency (MHz)	Antenna	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor (dB)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	BLE 1M	2402	Ant	2310	-51.35	2.499	-	46.41	Peak	74	Pass
NVNT	BLE 1M	2402	Ant	2310	-58.99	2.499	0.59	39.36	Average	54	Pass
NVNT	BLE 1M	2402	Ant	2344.08	-47.7	2.499	-	50.06	Peak	74	Pass
NVNT	BLE 1M	2402	Ant	2344.464	-57.62	2.499	0.59	40.73	Average	54	Pass
NVNT	BLE 1M	2402	Ant	2390	-50.28	2.499	-	47.48	Peak	74	Pass
NVNT	BLE 1M	2402	Ant	2390	-58.38	2.499	0.59	39.97	Average	54	Pass
NVNT	BLE 1M	2480	Ant	2483.5	-49.8	2.499	-	47.96	Peak	74	Pass
NVNT	BLE 1M	2480	Ant	2483.5	-57.83	2.499	0.59	40.52	Average	54	Pass
NVNT	BLE 1M	2480	Ant	2486.968	-46.39	2.499	-	51.37	Peak	74	Pass
NVNT	BLE 1M	2480	Ant	2483.872	-56.88	2.499	0.59	41.47	Average	54	Pass
NVNT	BLE 1M	2480	Ant	2500	-50.26	2.499	-	47.50	Peak	74	Pass
NVNT	BLE 1M	2480	Ant	2500	-57.45	2.499	0.59	40.90	Average	54	Pass
NVNT	BLE 2M	2402	Ant	2310	-49.17	2.499	-	48.59	Peak	74	Pass
NVNT	BLE 2M	2402	Ant	2310	-57.88	2.499	1.81	41.69	Average	54	Pass
NVNT	BLE 2M	2402	Ant	2360.688	-46.4	2.499	-	51.36	Peak	74	Pass
NVNT	BLE 2M	2402	Ant	2389.776	-56.56	2.499	1.81	43.01	Average	54	Pass
NVNT	BLE 2M	2402	Ant	2390	-48.6	2.499	-	49.16	Peak	74	Pass
NVNT	BLE 2M	2402	Ant	2390	-56.8	2.499	1.81	42.77	Average	54	Pass
NVNT	BLE 2M	2480	Ant	2483.5	-48.21	2.499	-	49.55	Peak	74	Pass
NVNT	BLE 2M	2480	Ant	2483.5	-56.45	2.499	1.81	43.12	Average	54	Pass
NVNT	BLE 2M	2480	Ant	2484.736	-44.05	2.499	-	53.71	Peak	74	Pass
NVNT	BLE 2M	2480	Ant	2483.896	-55.89	2.499	1.81	43.68	Average	54	Pass
NVNT	BLE 2M	2480	Ant	2500	-49.86	2.499	-	47.90	Peak	74	Pass
NVNT	BLE 2M	2480	Ant	2500	-57.33	2.499	1.81	42.24	Average	54	Pass



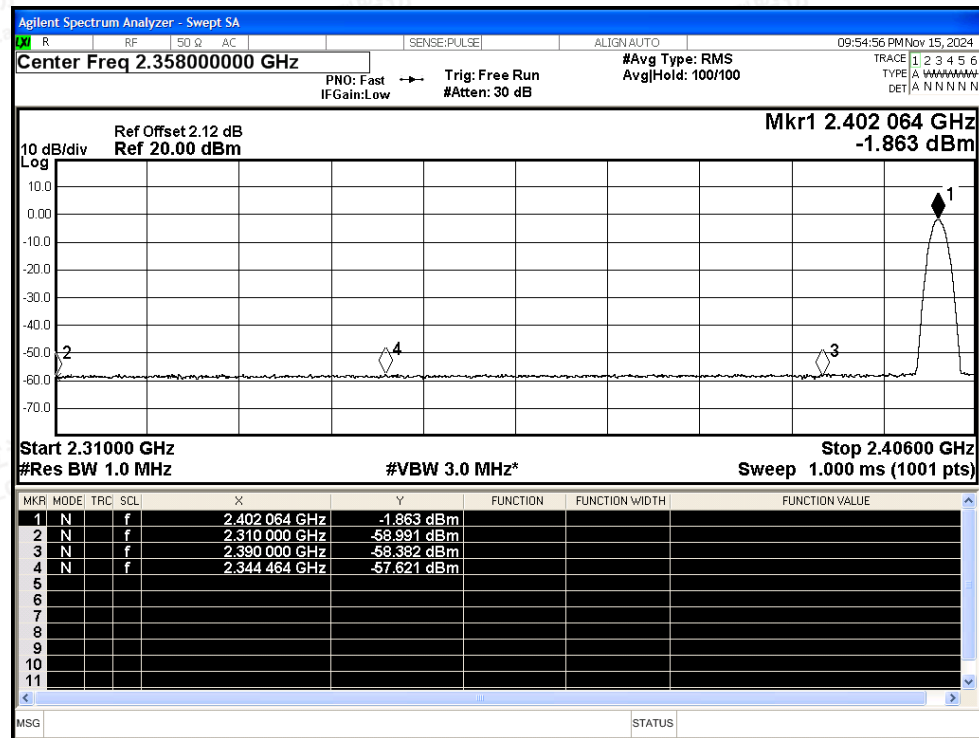


Test Graphs

Restrict Band NVNT BLE 1M 2402MHz Ant Peak



Restrict Band NVNT BLE 1M 2402MHz Ant Average



Shenzhen LCS Compliance Testing Laboratory Ltd.

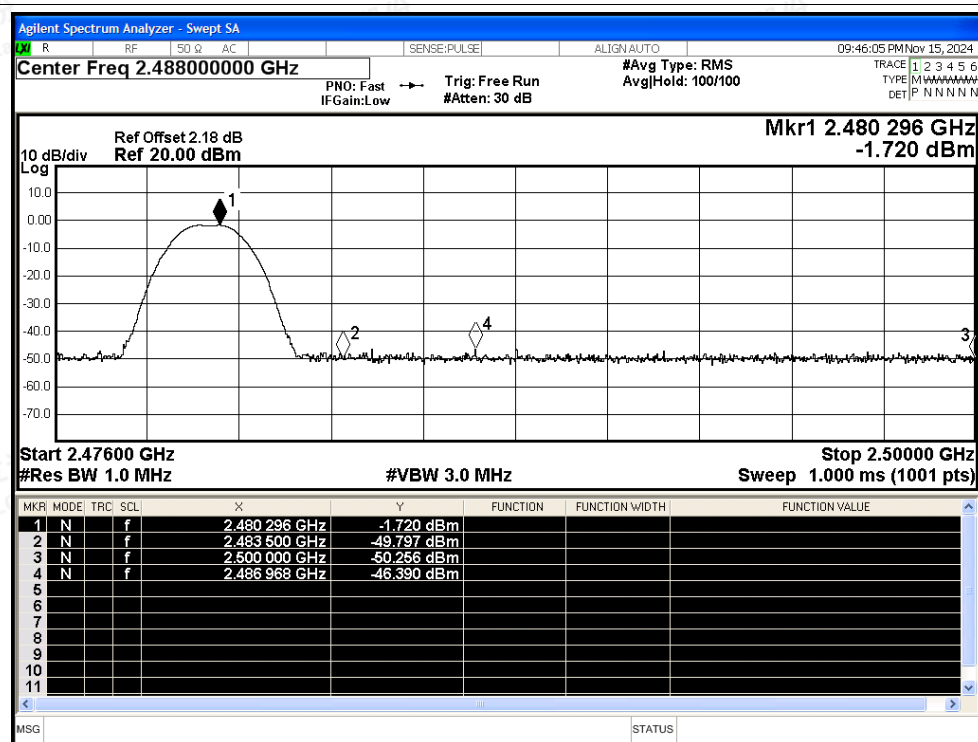
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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

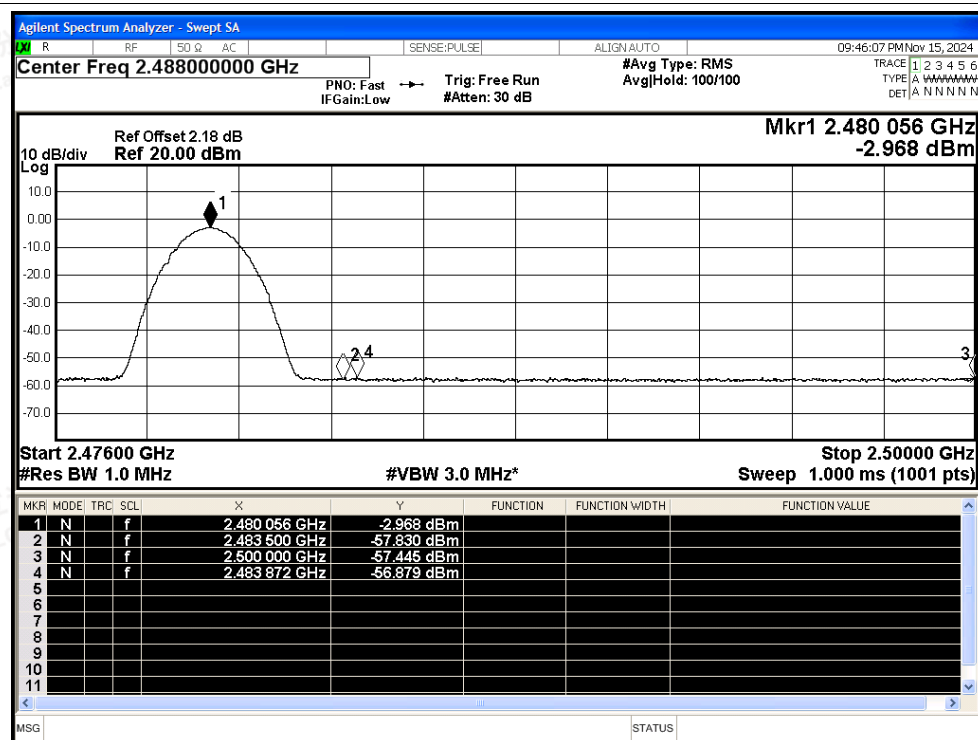
Scan code to check authenticity



Restrict Band NVNT BLE 1M 2480MHz Ant Peak



Restrict Band NVNT BLE 1M 2480MHz Ant Average



Test Graphs

Restrict Band NVNT BLE 2M 2402MHz Ant Peak

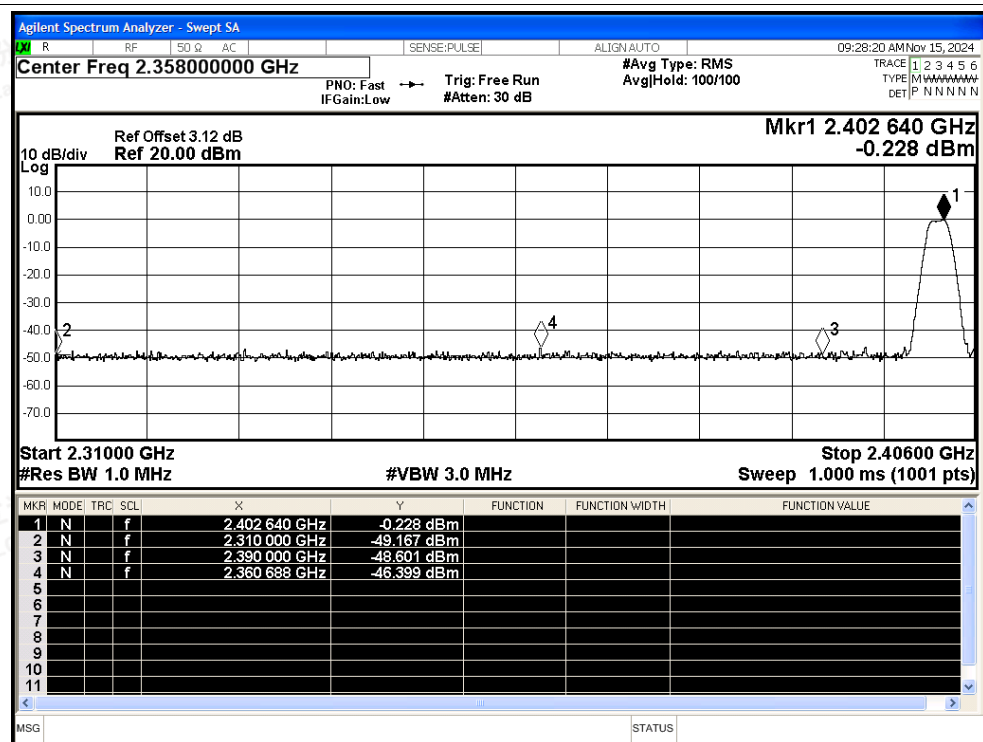


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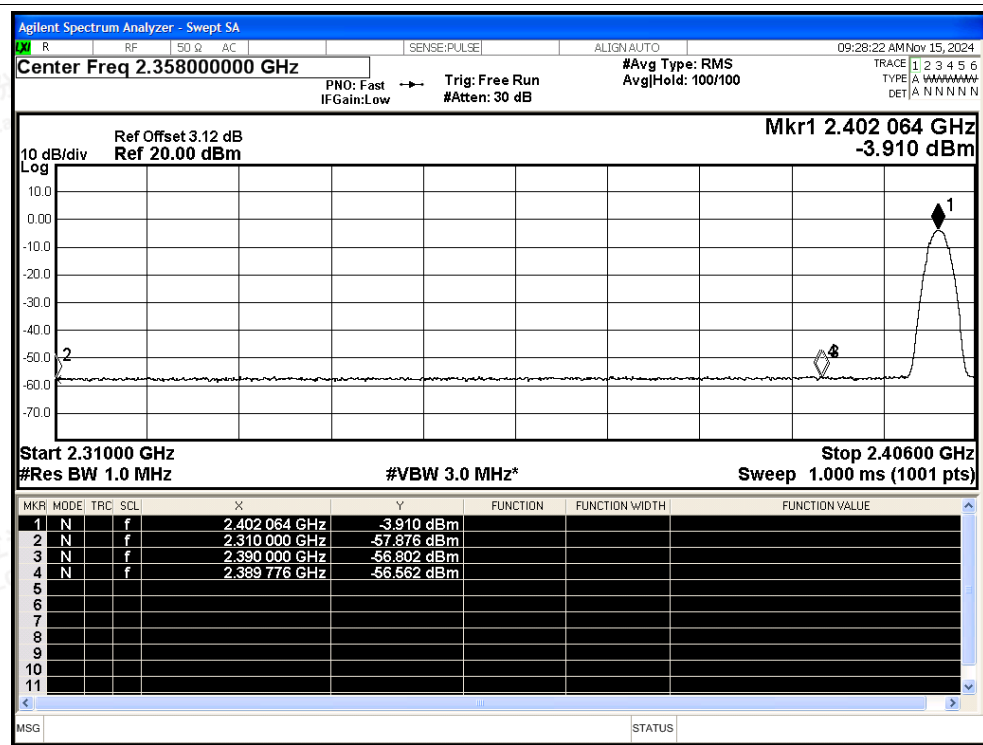
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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Restrict Band NVNT BLE 2M 2402MHz Ant Average



Shenzhen LCS Compliance Testing Laboratory Ltd.

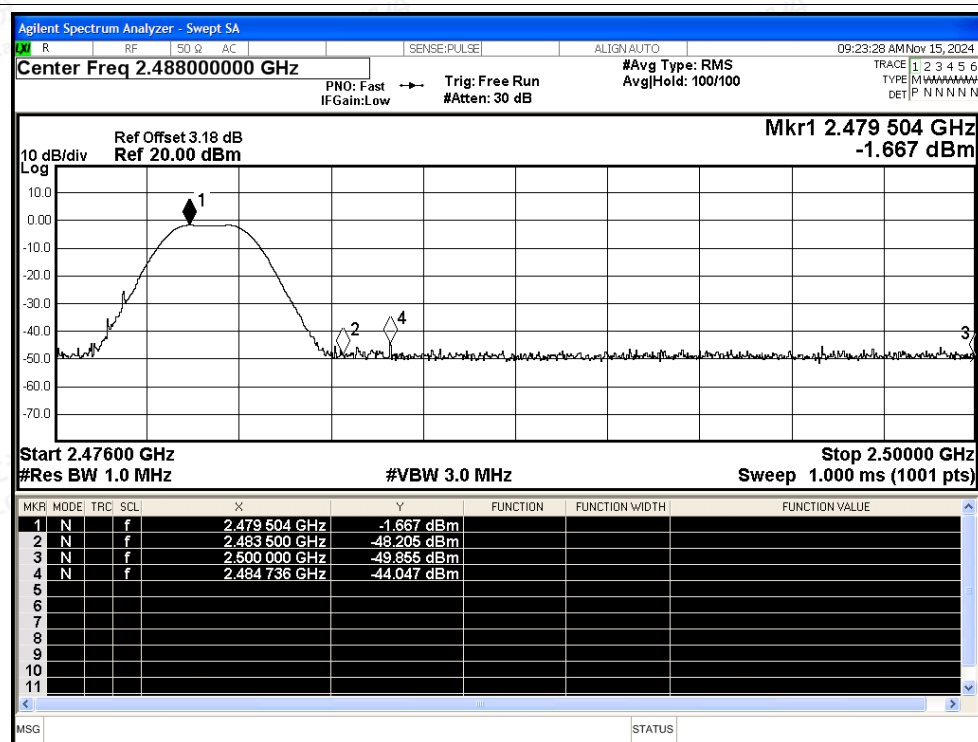
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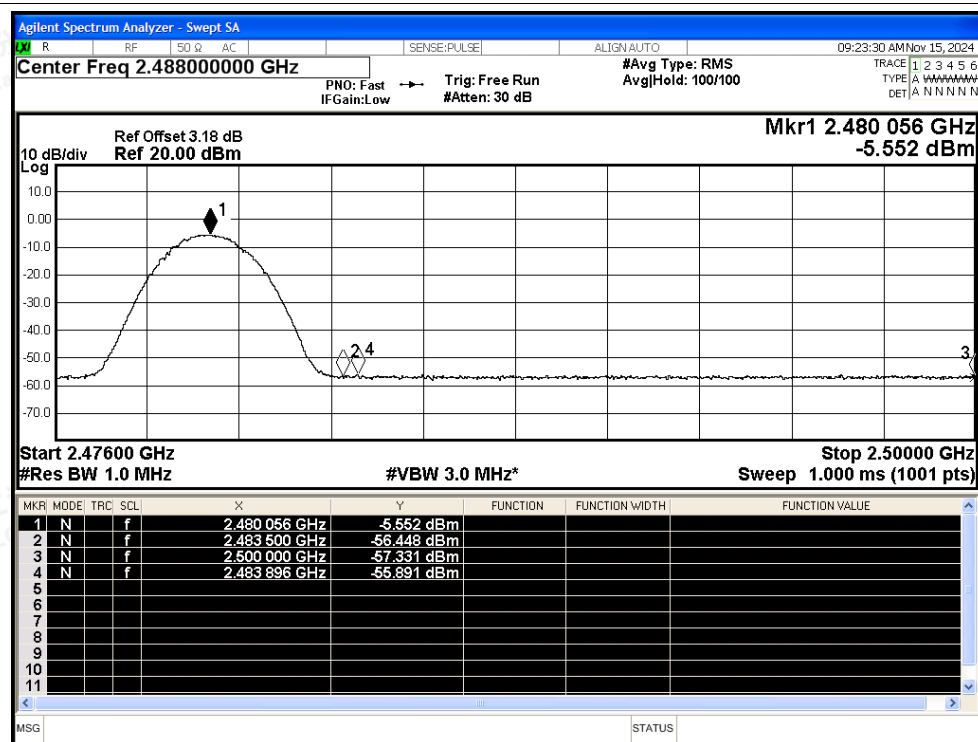
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Restrict Band NVNT BLE 2M 2480MHz Ant Peak



Restrict Band NVNT BLE 2M 2480MHz Ant Average



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