



Appendix A

RF Test Data for 2.4GWIFI (Conducted Measurement)

Product Name: WiFi Extender

Test Model: NF-RE513 V2

Environmental Conditions

Temperature:	24.6°C
Relative Humidity:	52.9%
ATM Pressure:	100.0 kPa
Test Engineer:	Can Kun
Supervised by:	Nick Peng



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A.1 -6dB Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	b	2412	Ant1	8.468	≥ 0.5	Pass
NVNT	b	2437	Ant1	8.079	≥ 0.5	Pass
NVNT	b	2462	Ant1	8.037	≥ 0.5	Pass
NVNT	g	2412	Ant1	16.032	≥ 0.5	Pass
NVNT	g	2437	Ant1	16.301	≥ 0.5	Pass
NVNT	g	2462	Ant1	16.293	≥ 0.5	Pass
NVNT	n20	2412	Ant1	17.089	≥ 0.5	Pass
NVNT	n20	2437	Ant1	17.404	≥ 0.5	Pass
NVNT	n20	2462	Ant1	16.853	≥ 0.5	Pass
NVNT	n40	2422	Ant1	35.444	≥ 0.5	Pass
NVNT	n40	2437	Ant1	35.632	≥ 0.5	Pass
NVNT	n40	2452	Ant1	35.595	≥ 0.5	Pass





Test Graphs

-6dB Bandwidth NVNT b 2412MHz Ant1



-6dB Bandwidth NVNT b 2437MHz Ant1



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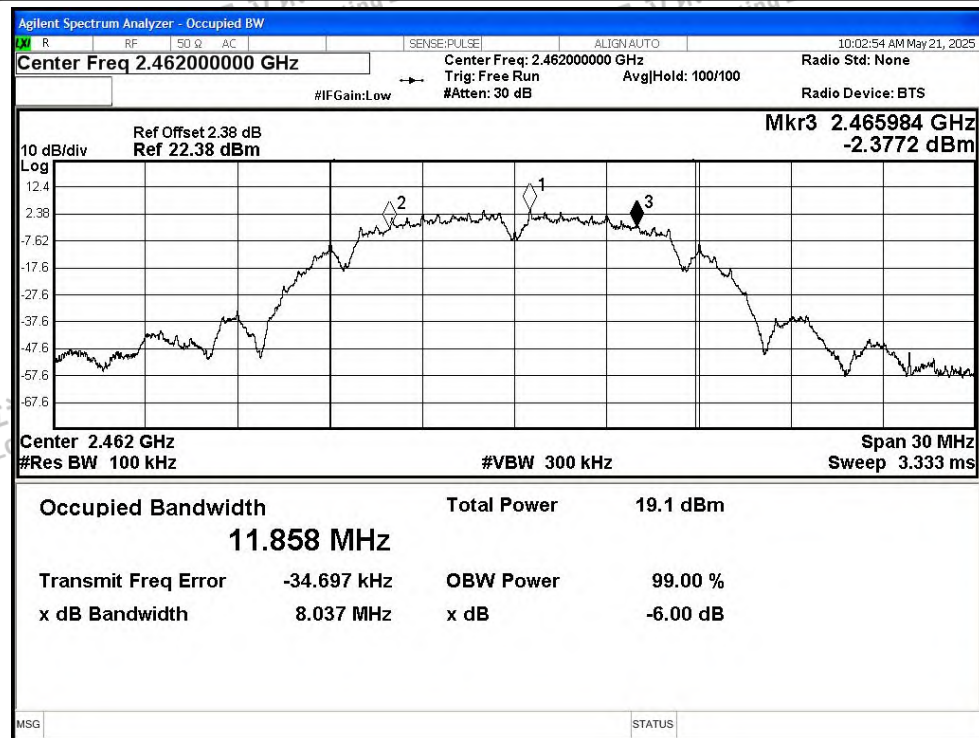
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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

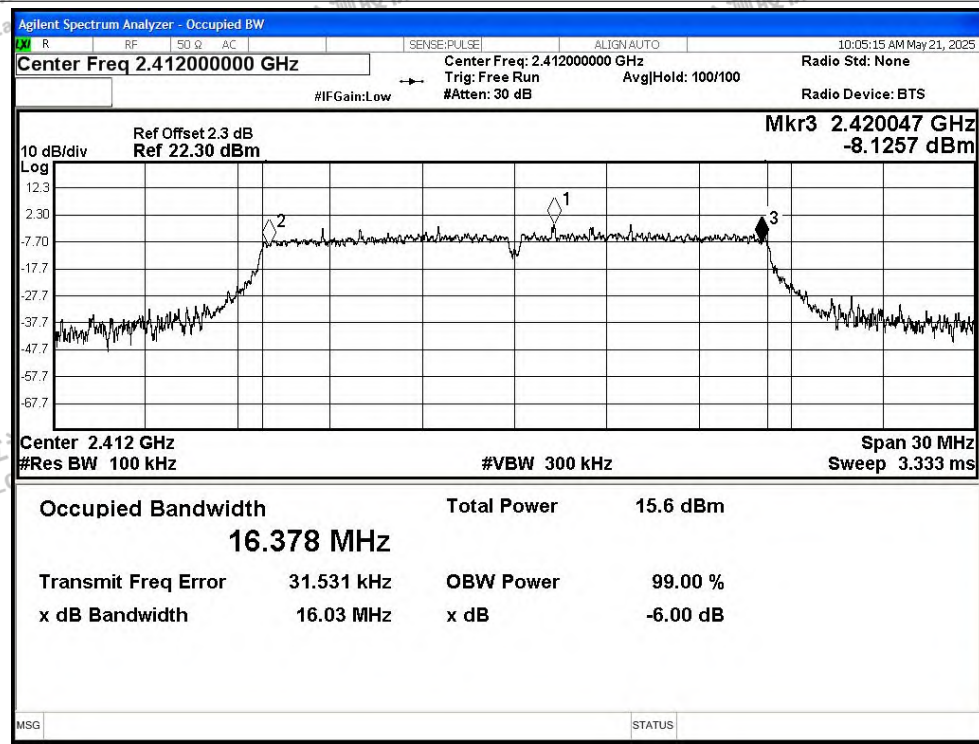
Scan code to check authenticity



-6dB Bandwidth NVNT b 2462MHz Ant1



-6dB Bandwidth NVNT g 2412MHz Ant1



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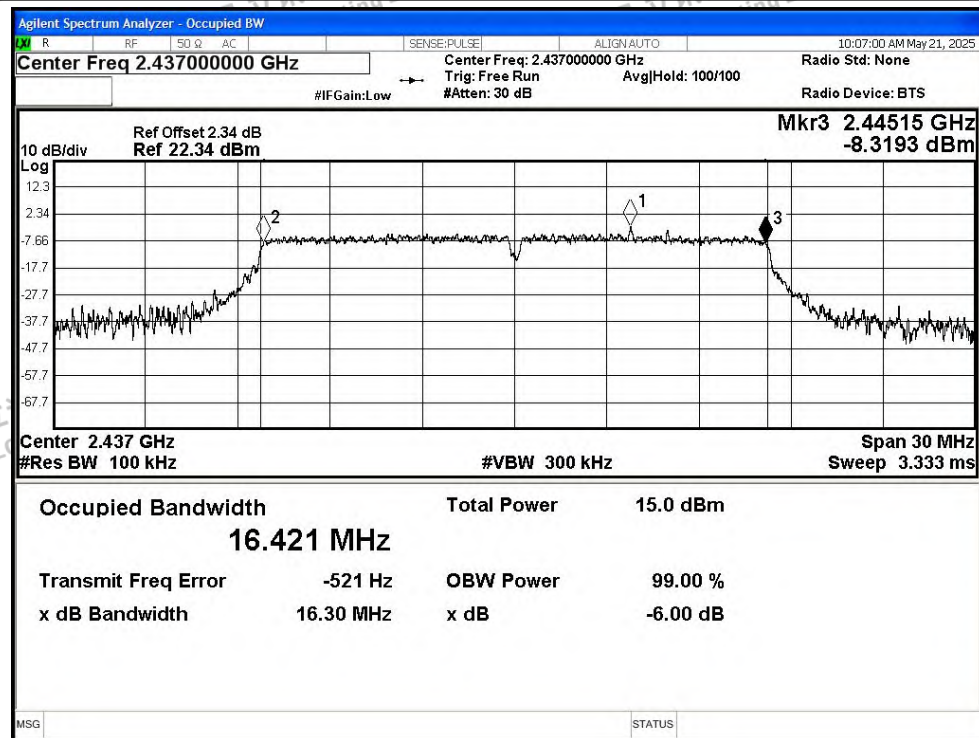
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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

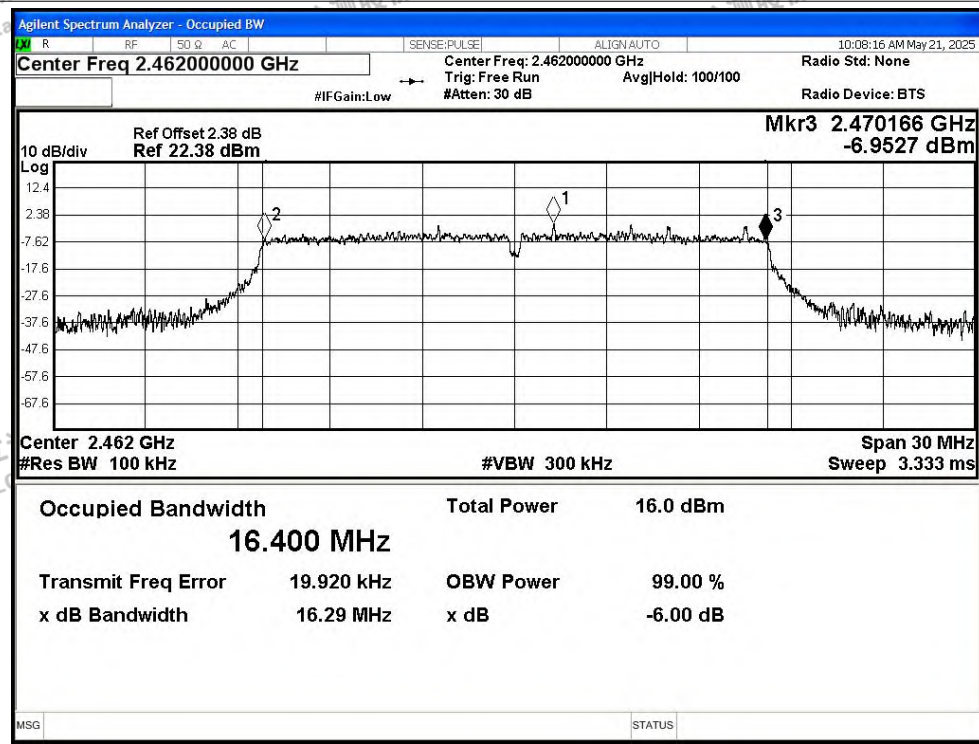
Scan code to check authenticity



-6dB Bandwidth NVNT g 2437MHz Ant1



-6dB Bandwidth NVNT g 2462MHz Ant1



Shenzhen LCS Compliance Testing Laboratory Ltd.

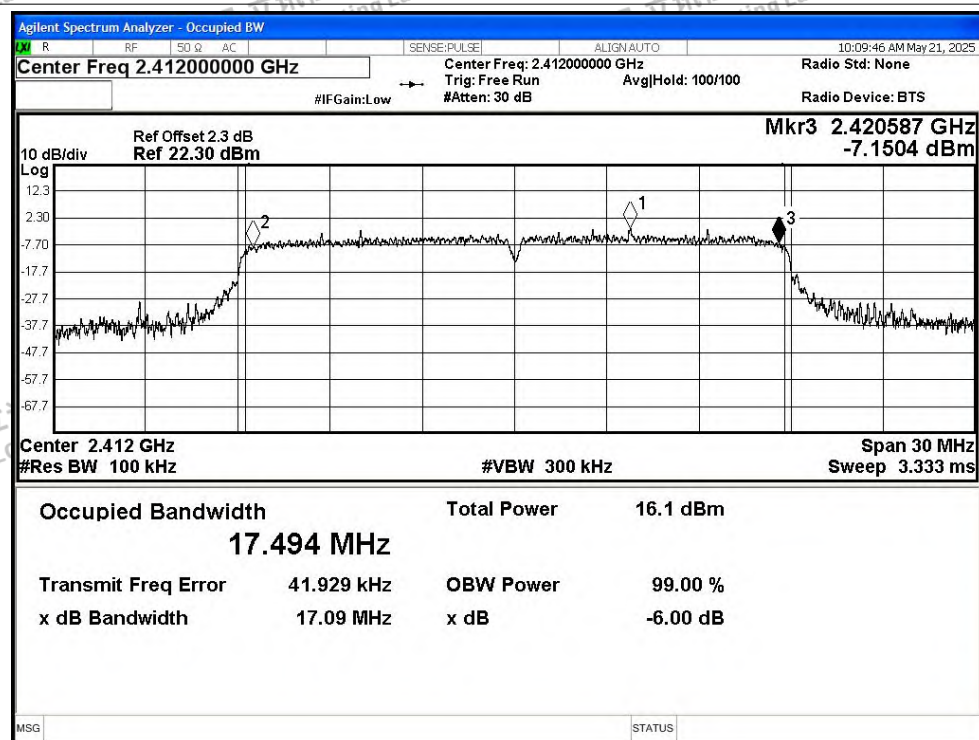
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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

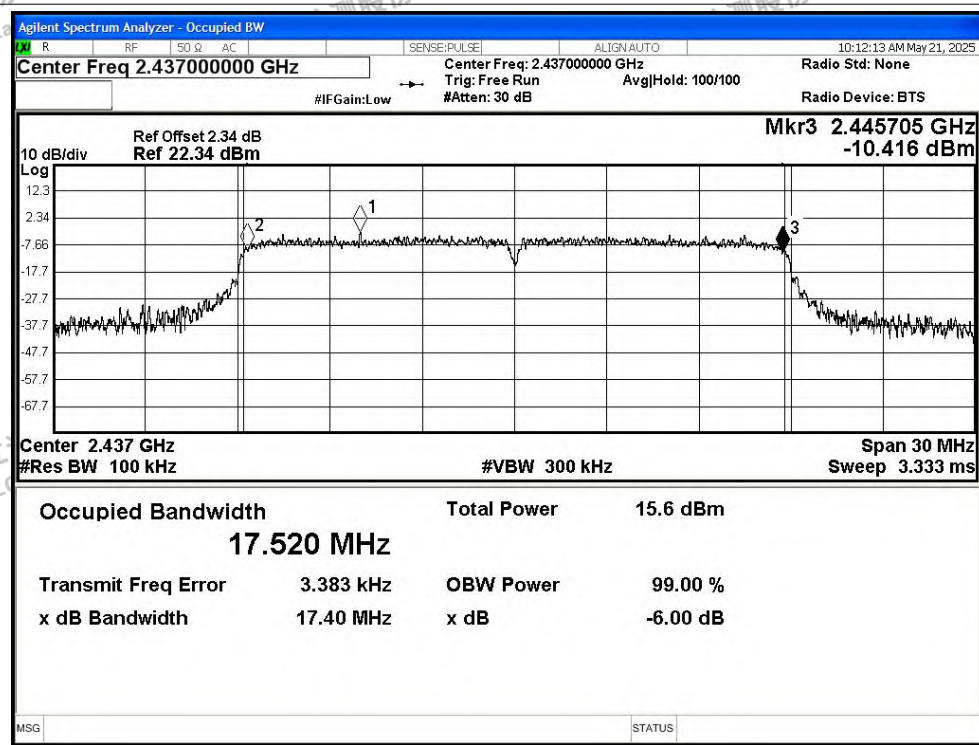
Scan code to check authenticity



-6dB Bandwidth NVNT n20 2412MHz Ant1



-6dB Bandwidth NVNT n20 2437MHz Ant1



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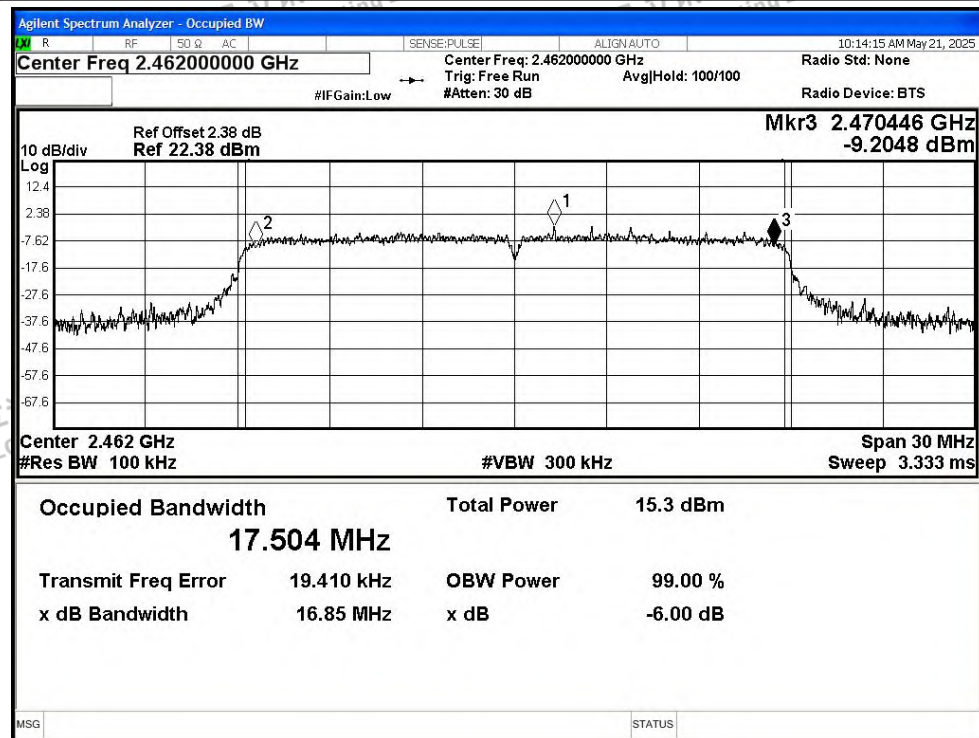
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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

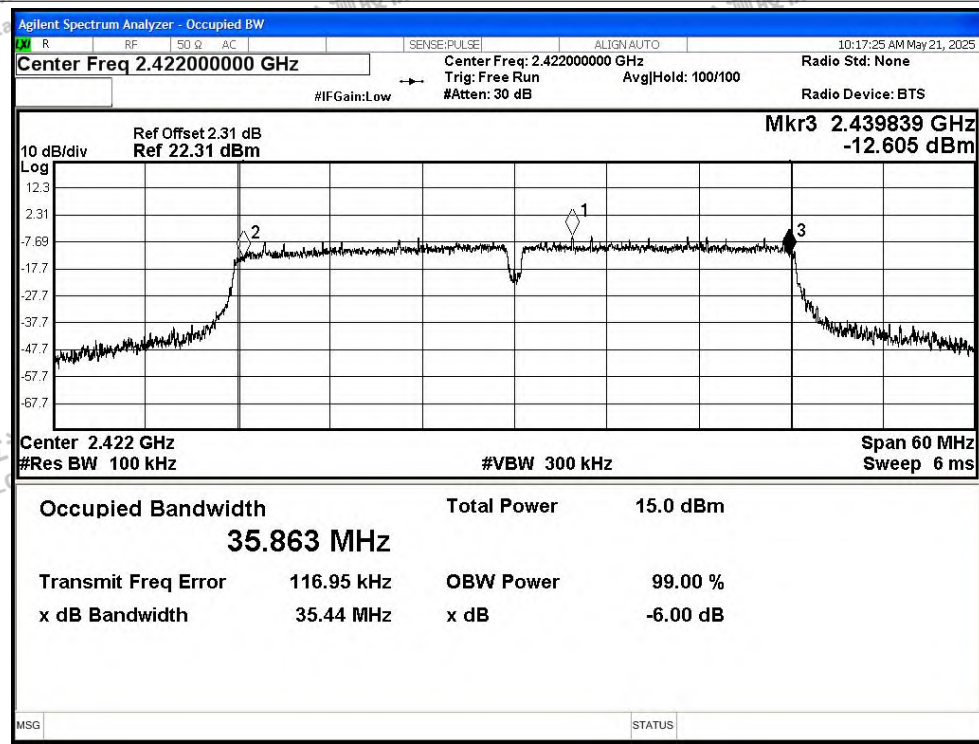
Scan code to check authenticity



-6dB Bandwidth NVNT n20 2462MHz Ant1

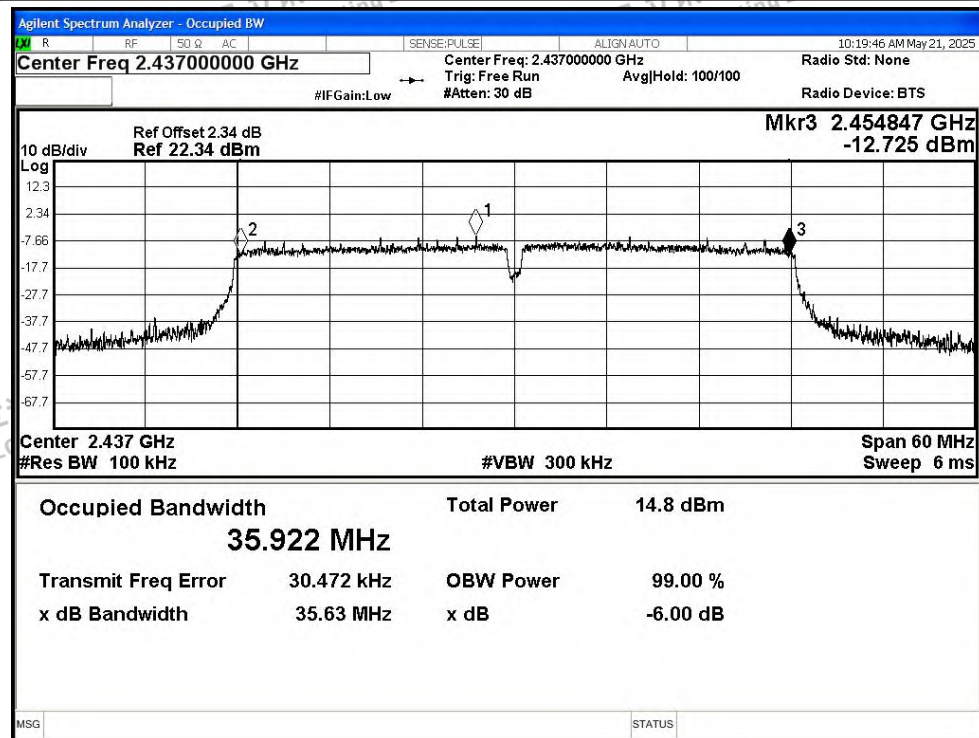


-6dB Bandwidth NVNT n40 2422MHz Ant1

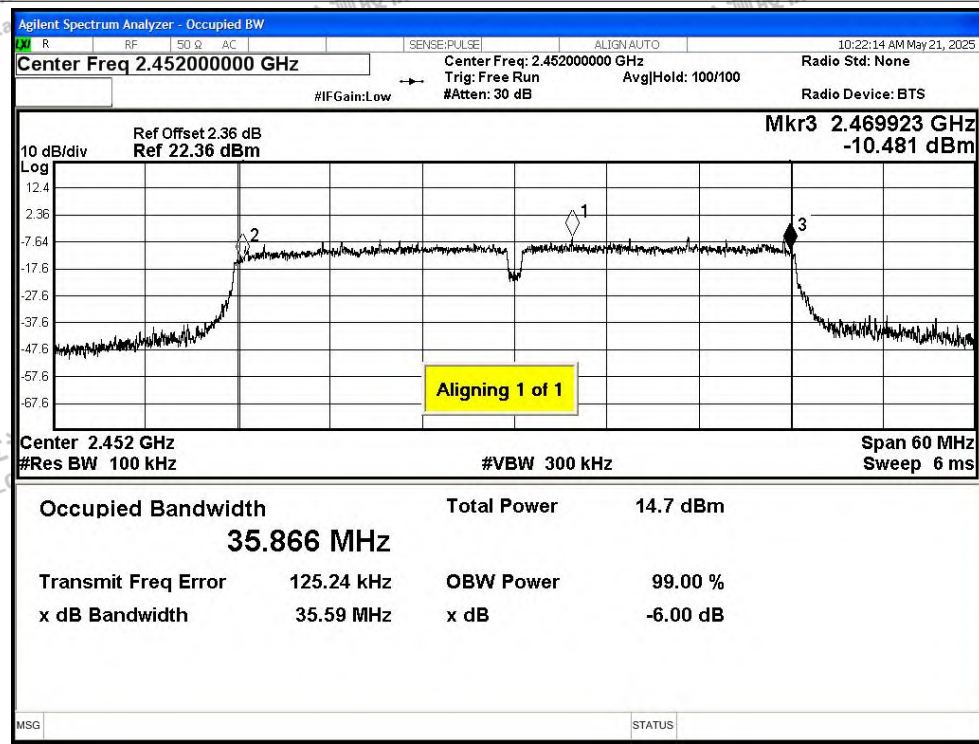




-6dB Bandwidth NVNT n40 2437MHz Ant1



-6dB Bandwidth NVNT n40 2452MHz Ant1



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Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	b	2412	Ant2	8.501	≥ 0.5	Pass
NVNT	b	2437	Ant2	8.544	≥ 0.5	Pass
NVNT	b	2462	Ant2	8.063	≥ 0.5	Pass
NVNT	g	2412	Ant2	15.928	≥ 0.5	Pass
NVNT	g	2437	Ant2	16.342	≥ 0.5	Pass
NVNT	g	2462	Ant2	16.307	≥ 0.5	Pass
NVNT	n20	2412	Ant2	16.977	≥ 0.5	Pass
NVNT	n20	2437	Ant2	17.236	≥ 0.5	Pass
NVNT	n20	2462	Ant2	17.054	≥ 0.5	Pass
NVNT	n40	2422	Ant2	34.397	≥ 0.5	Pass
NVNT	n40	2437	Ant2	35.457	≥ 0.5	Pass
NVNT	n40	2452	Ant2	35.448	≥ 0.5	Pass



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Test Graphs

-6dB Bandwidth NVNT b 2412MHz Ant2

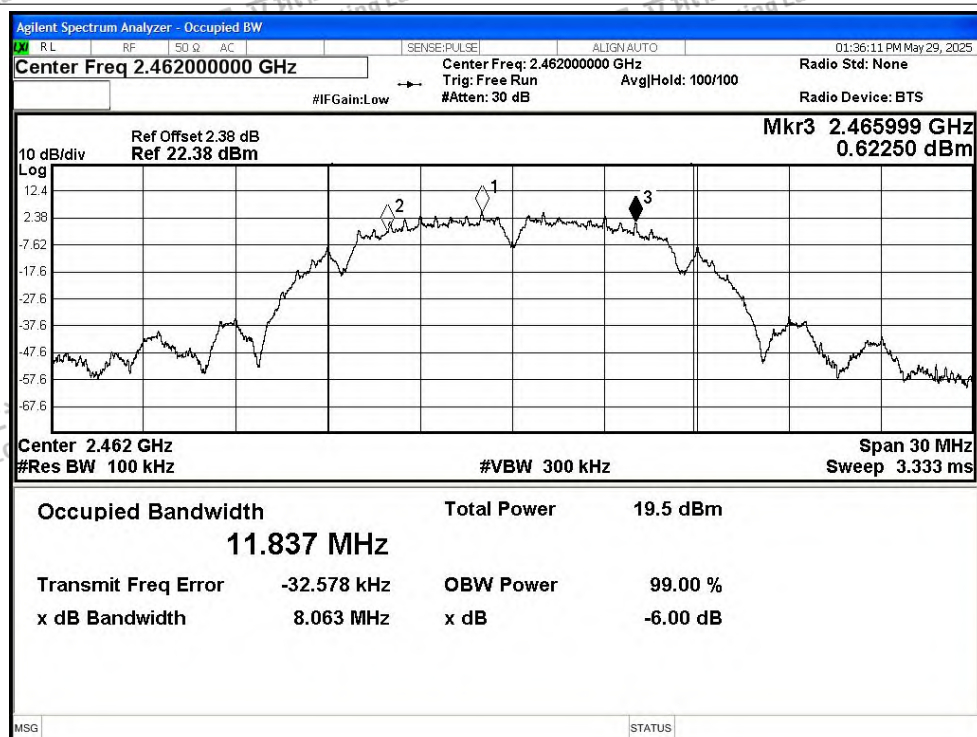


-6dB Bandwidth NVNT b 2437MHz Ant2

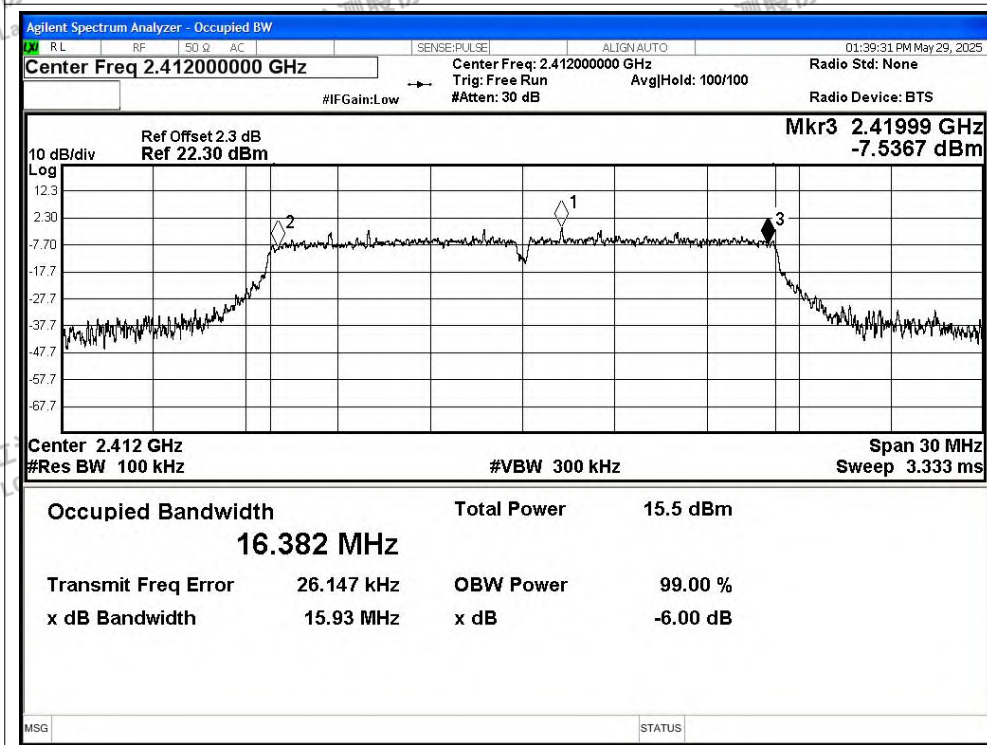




-6dB Bandwidth NVNT b 2462MHz Ant2



-6dB Bandwidth NVNT g 2412MHz Ant2



Shenzhen LCS Compliance Testing Laboratory Ltd.

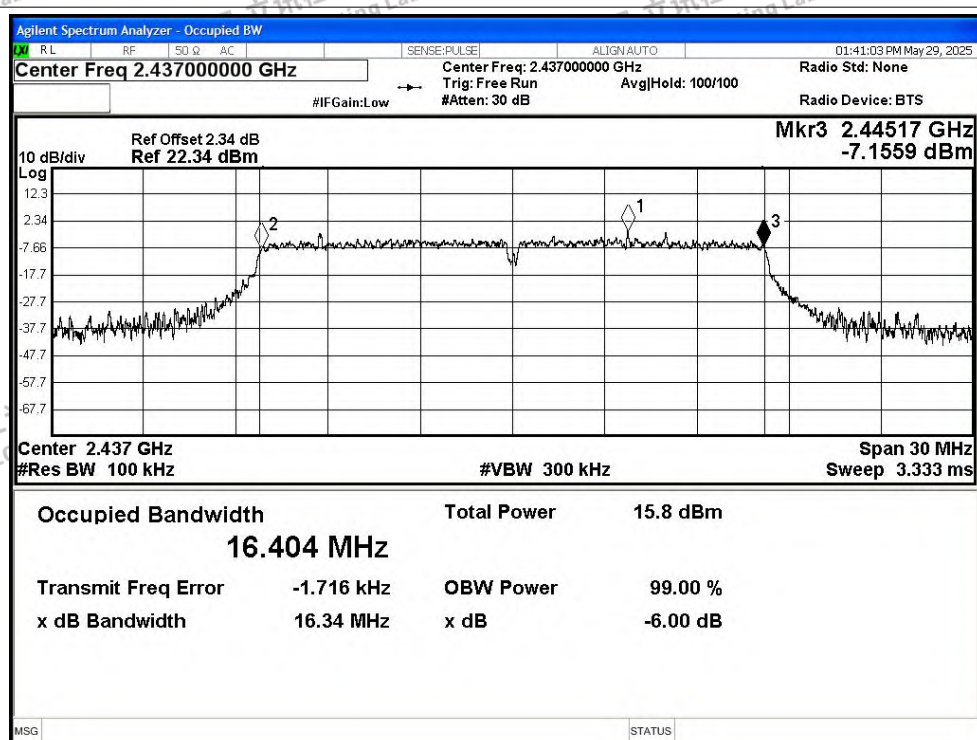
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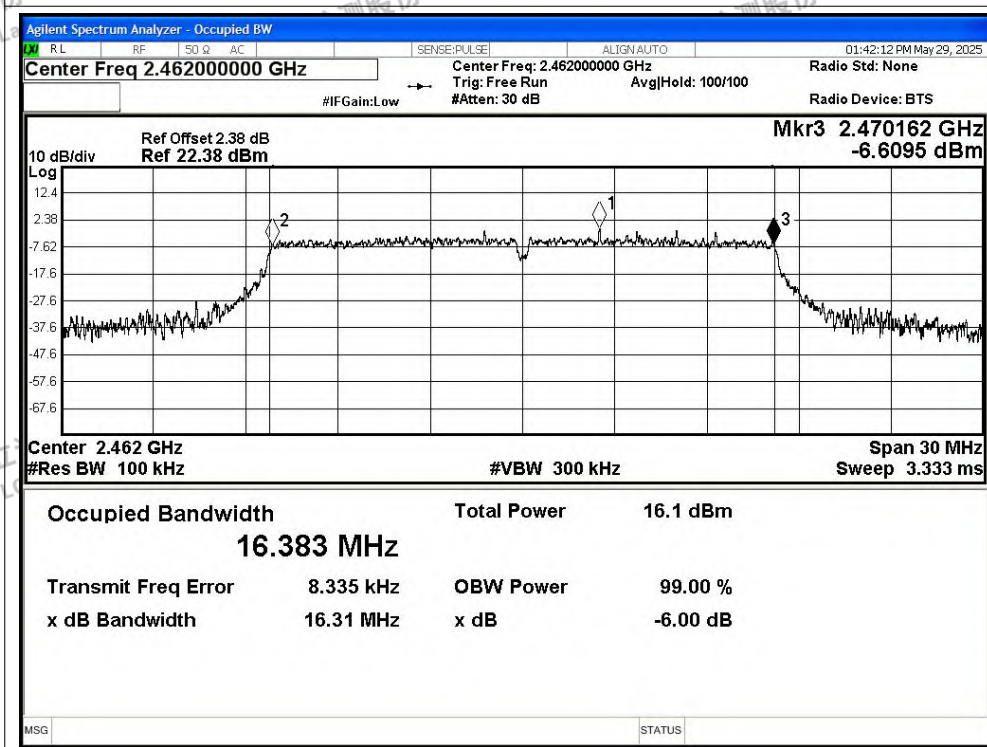
Scan code to check authenticity



-6dB Bandwidth NVNT g 2437MHz Ant2

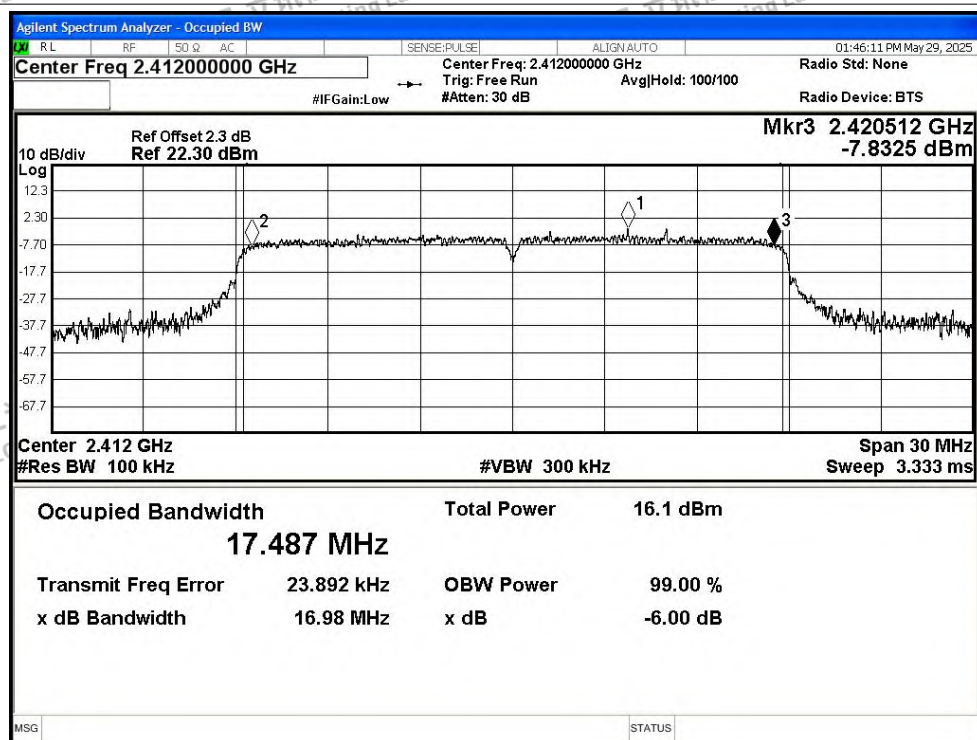


-6dB Bandwidth NVNT g 2462MHz Ant2

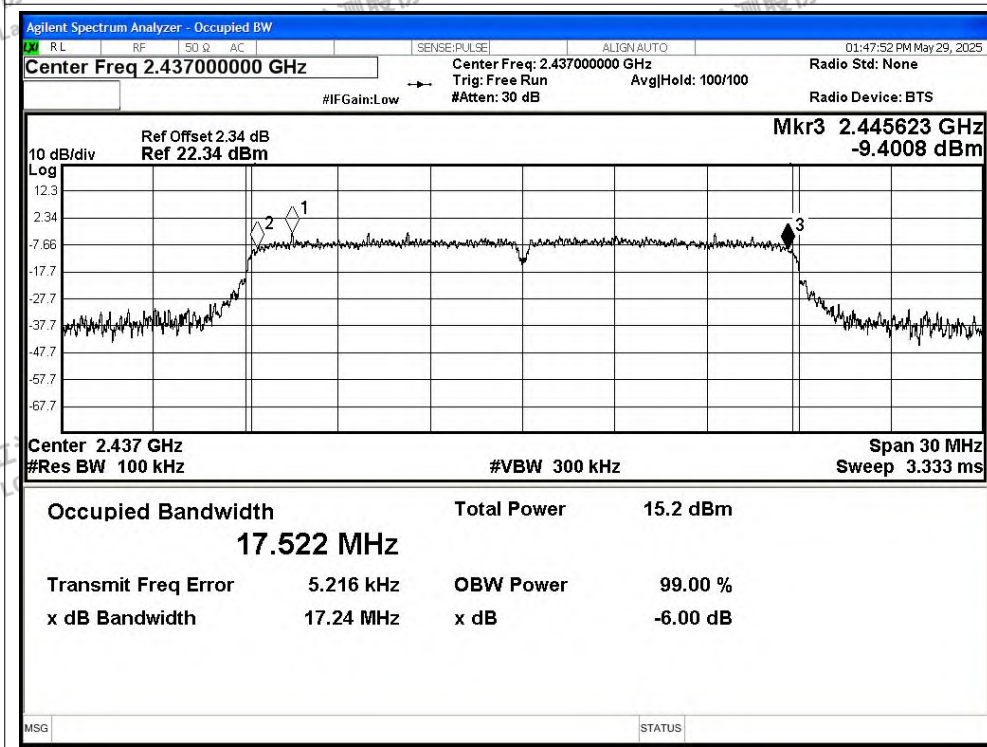




-6dB Bandwidth NVNT n20 2412MHz Ant2



-6dB Bandwidth NVNT n20 2437MHz Ant2



Shenzhen LCS Compliance Testing Laboratory Ltd.

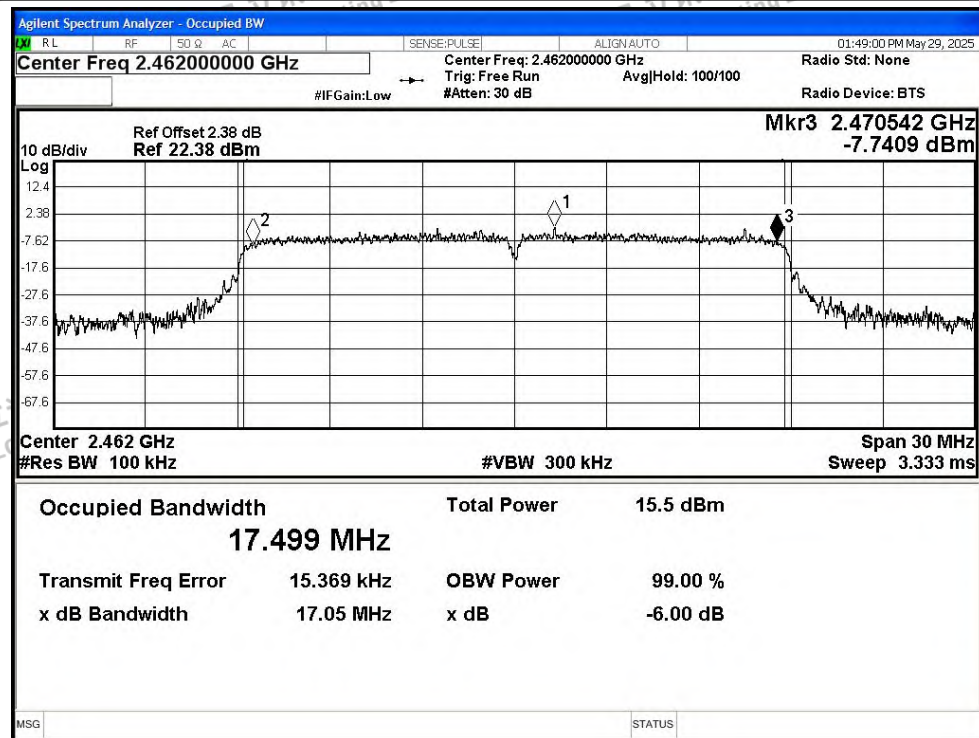
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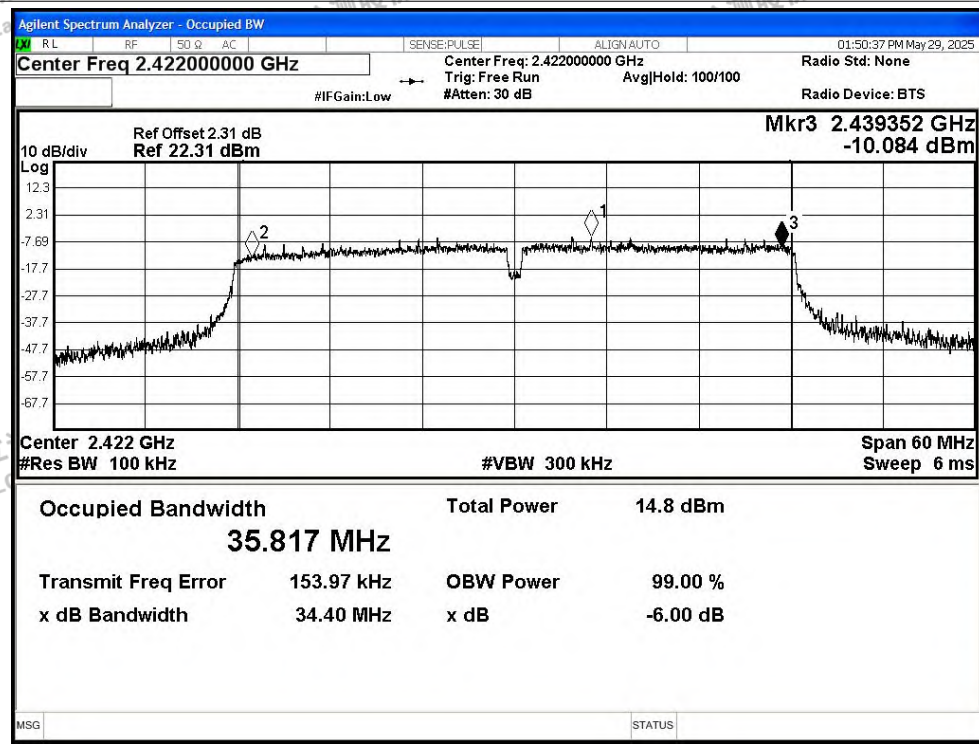
Scan code to check authenticity



-6dB Bandwidth NVNT n20 2462MHz Ant2

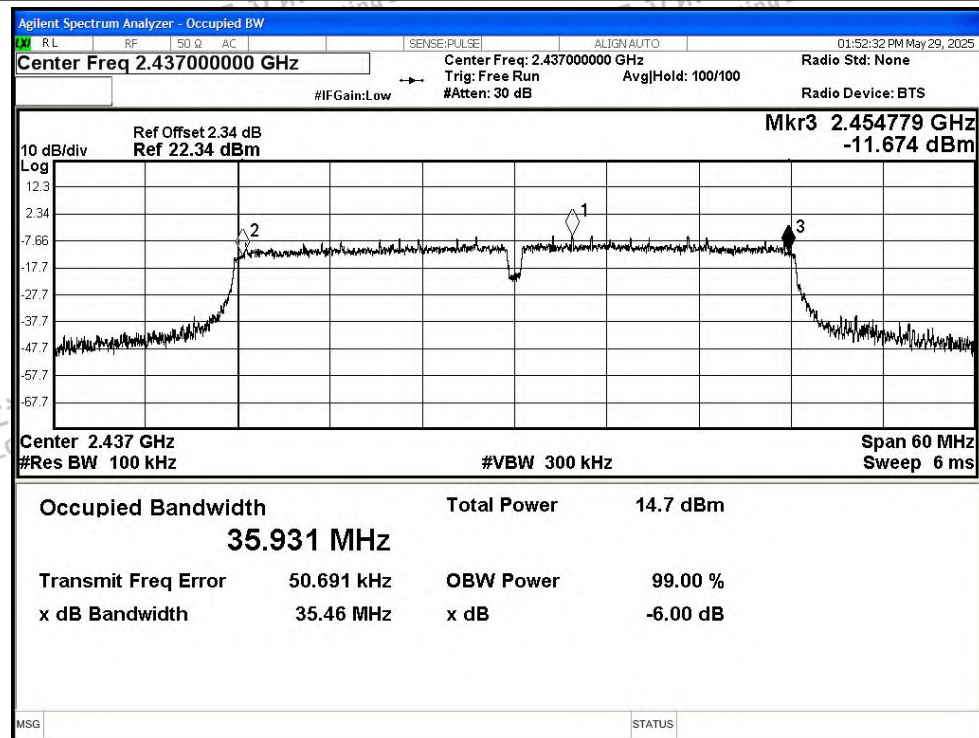


-6dB Bandwidth NVNT n40 2422MHz Ant2

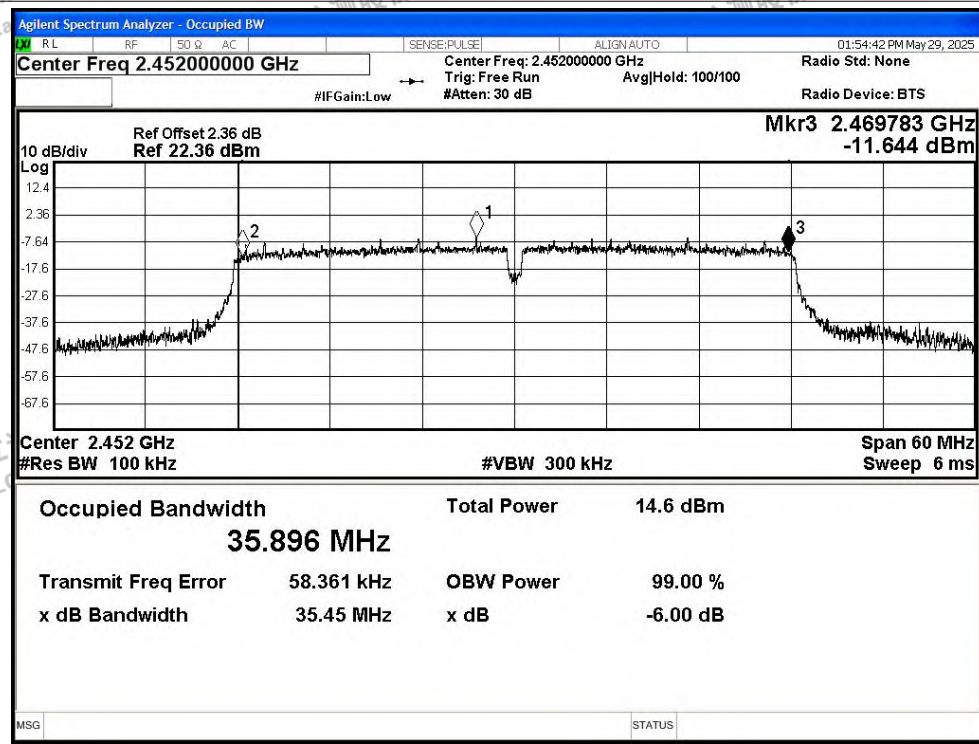




-6dB Bandwidth NVNT n40 2437MHz Ant2



-6dB Bandwidth NVNT n40 2452MHz Ant2





A.2 Maximum Peak Conducted Output Power

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	b	2412	Ant1	14.78	30	Pass
NVNT	b	2437	Ant1	14.72	30	Pass
NVNT	b	2462	Ant1	14.18	30	Pass
NVNT	g	2412	Ant1	14.34	30	Pass
NVNT	g	2437	Ant1	15.07	30	Pass
NVNT	g	2462	Ant1	14.69	30	Pass
NVNT	n20	2412	Ant1	14.87	30	Pass
NVNT	n20	2437	Ant1	14.29	30	Pass
NVNT	n20	2462	Ant1	13.92	30	Pass
NVNT	n40	2422	Ant1	13.45	30	Pass
NVNT	n40	2437	Ant1	13.4	30	Pass
NVNT	n40	2452	Ant1	13.08	30	Pass

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	b	2412	Ant2	15.15	30	Pass
NVNT	b	2437	Ant2	14.33	30	Pass
NVNT	b	2462	Ant2	14.41	30	Pass
NVNT	g	2412	Ant2	14.24	30	Pass
NVNT	g	2437	Ant2	14.56	30	Pass
NVNT	g	2462	Ant2	14.85	30	Pass
NVNT	n20	2412	Ant2	14.7	30	Pass
NVNT	n20	2437	Ant2	13.86	30	Pass
NVNT	n20	2462	Ant2	14.13	30	Pass
NVNT	n40	2422	Ant2	13.22	30	Pass
NVNT	n40	2437	Ant2	13.14	30	Pass
NVNT	n40	2452	Ant2	13.03	30	Pass

MIMO

Condition	Mode	Frequency (MHz)	Conducted Power (dBm)			Limit (dBm)	Verdict
			Ant1	Ant2	Ant1+Ant2		
NVNT	n20	2412	14.87	14.7	17.80	30	Pass
NVNT	n20	2437	14.29	13.86	17.09	30	Pass
NVNT	n20	2462	13.92	14.13	17.04	30	Pass
NVNT	n40	2422	13.45	13.22	16.35	30	Pass
NVNT	n40	2437	13.4	13.14	16.28	30	Pass
NVNT	n40	2452	13.08	13.03	16.07	30	Pass



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A.3 Maximum Power Spectral Density Level

Condition	Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
NVNT	b	2412	Ant1	-9.35	8	Pass
NVNT	b	2437	Ant1	-9.97	8	Pass
NVNT	b	2462	Ant1	-6.5	8	Pass
NVNT	g	2412	Ant1	-14.84	8	Pass
NVNT	g	2437	Ant1	-16.55	8	Pass
NVNT	g	2462	Ant1	-16.05	8	Pass
NVNT	n20	2412	Ant1	-15.63	8	Pass
NVNT	n20	2437	Ant1	-16.15	8	Pass
NVNT	n20	2462	Ant1	-17.53	8	Pass
NVNT	n40	2422	Ant1	-20.16	8	Pass
NVNT	n40	2437	Ant1	-20.3	8	Pass
NVNT	n40	2452	Ant1	-20.86	8	Pass

Condition	Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
NVNT	b	2412	Ant2	-5.87	8	Pass
NVNT	b	2437	Ant2	-9.87	8	Pass
NVNT	b	2462	Ant2	-9.79	8	Pass
NVNT	g	2412	Ant2	-16.24	8	Pass
NVNT	g	2437	Ant2	-16.42	8	Pass
NVNT	g	2462	Ant2	-15.82	8	Pass
NVNT	n20	2412	Ant2	-15.62	8	Pass
NVNT	n20	2437	Ant2	-16.83	8	Pass
NVNT	n20	2462	Ant2	-15.15	8	Pass
NVNT	n40	2422	Ant2	-20.13	8	Pass
NVNT	n40	2437	Ant2	-20.83	8	Pass
NVNT	n40	2452	Ant2	-20.81	8	Pass

MIMO

Condition	Mode	Frequency (MHz)	Conducted PSD (dBm/3kHz)			Limit (dBm)	Verdict
			Ant1	Ant2	Ant1+Ant2		
NVNT	n20	2412	-15.63	-15.62	-12.61	8	Pass
NVNT	n20	2437	-16.15	-16.83	-13.47	8	Pass
NVNT	n20	2462	-17.53	-15.15	-13.17	8	Pass
NVNT	n40	2422	-20.16	-20.13	-17.13	8	Pass
NVNT	n40	2437	-20.3	-20.83	-17.55	8	Pass
NVNT	n40	2452	-20.86	-20.81	-17.82	8	Pass

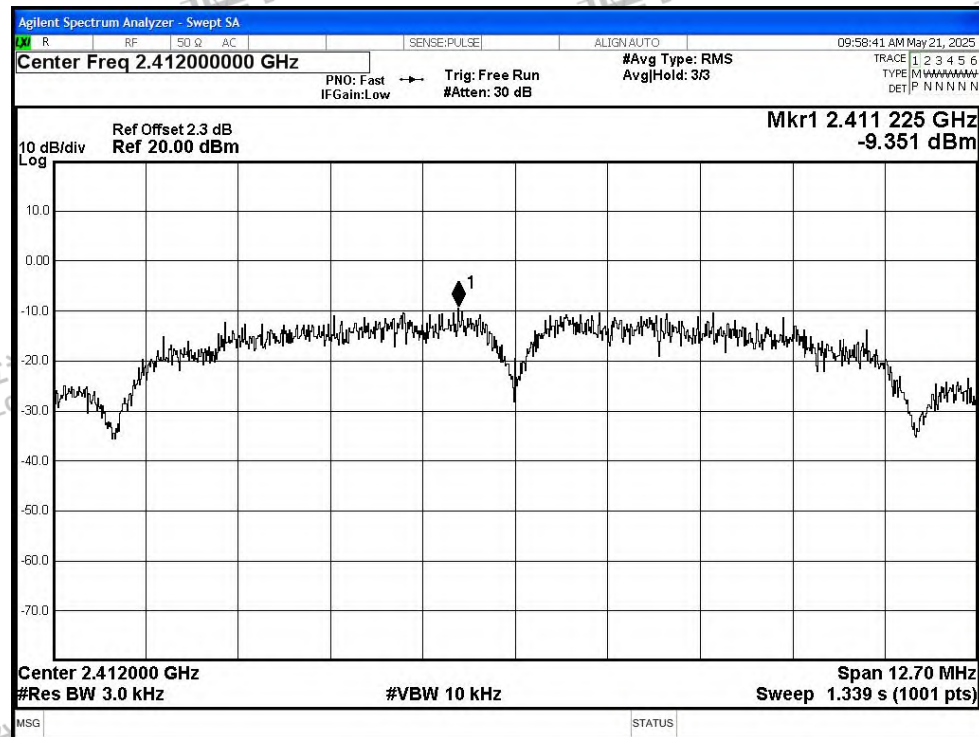


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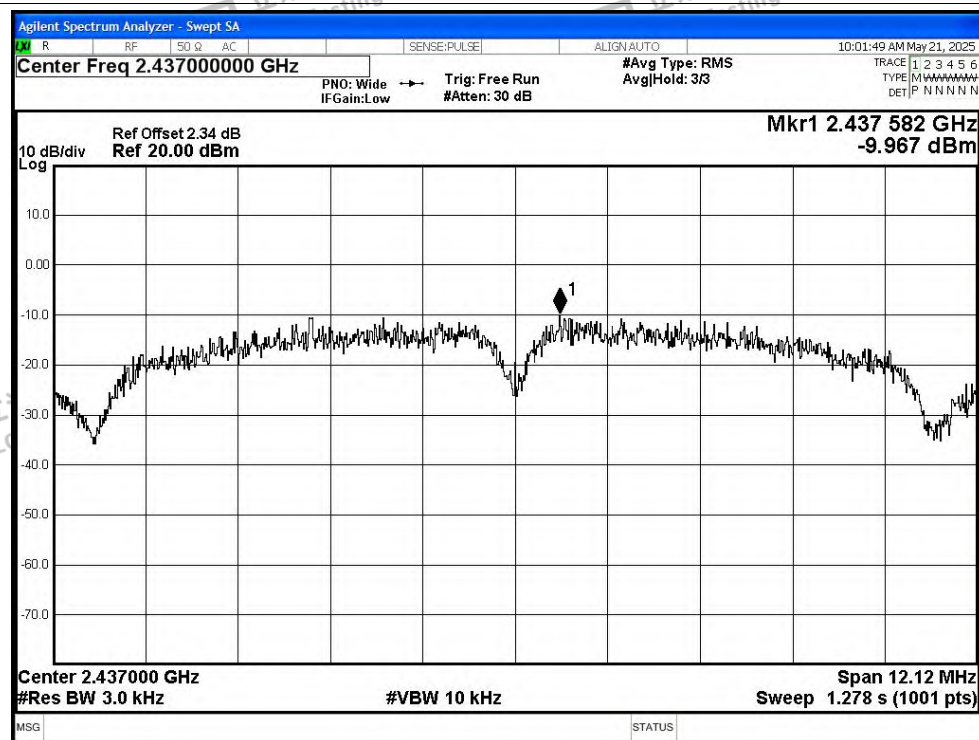


Test Graphs

PSD NVNT b 2412MHz Ant1

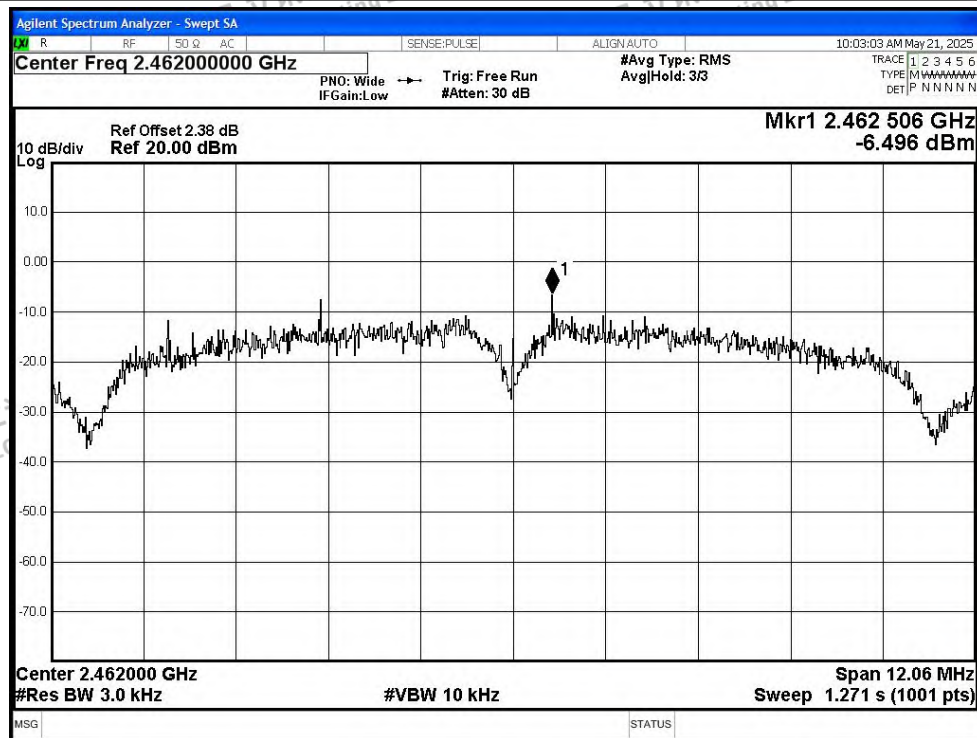


PSD NVNT b 2437MHz Ant1

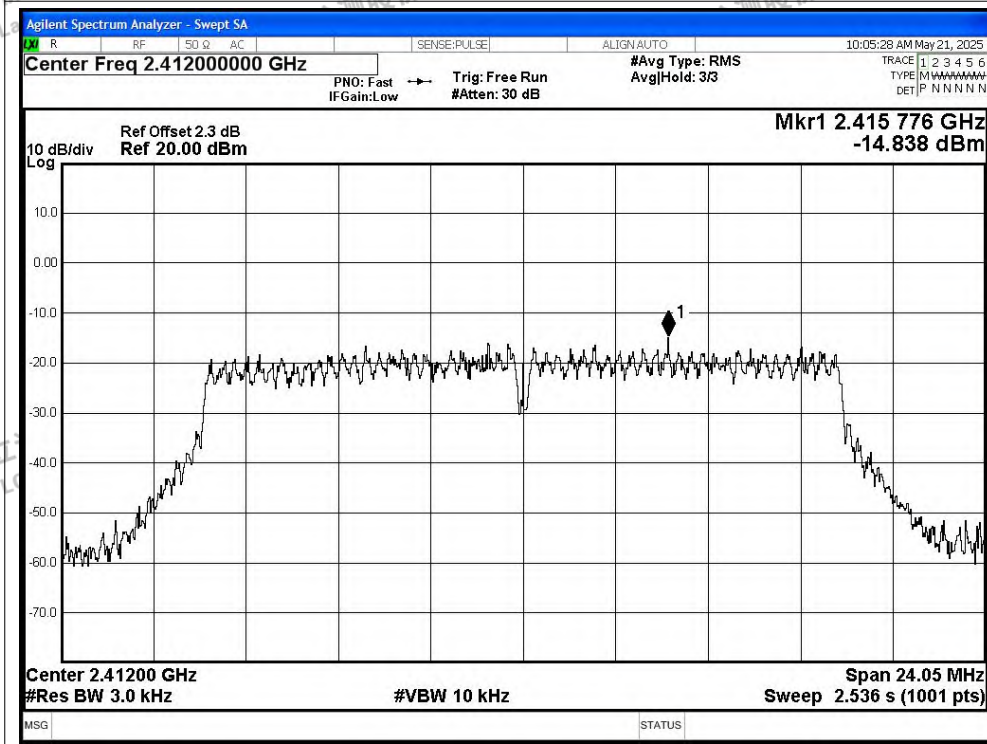




PSD NVNT b 2462MHz Ant1

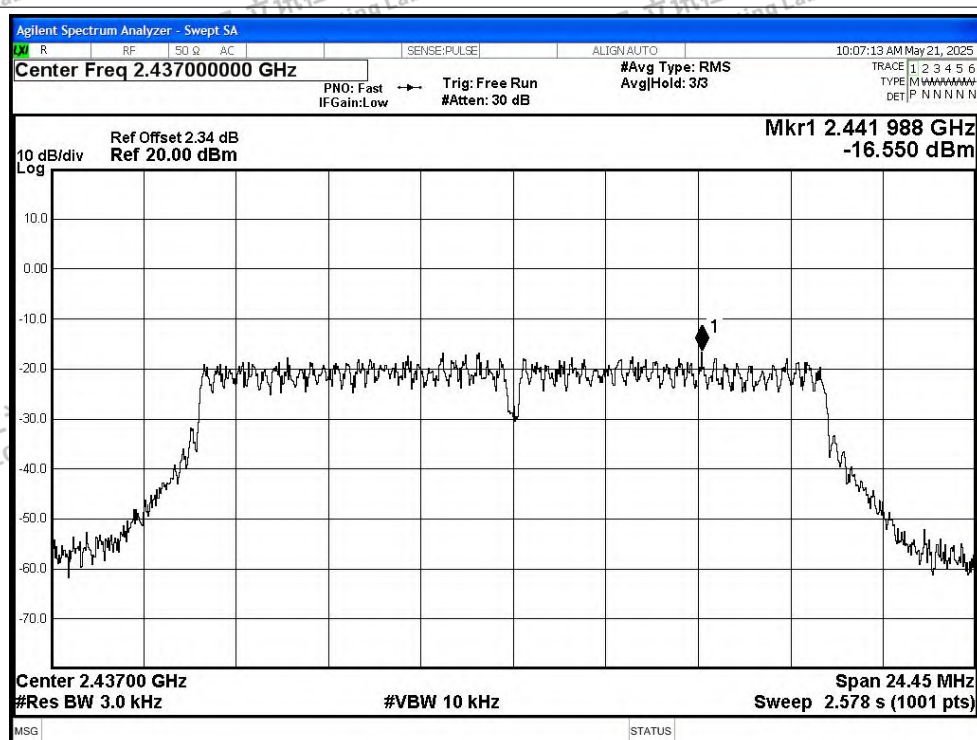


PSD NVNT g 2412MHz Ant1

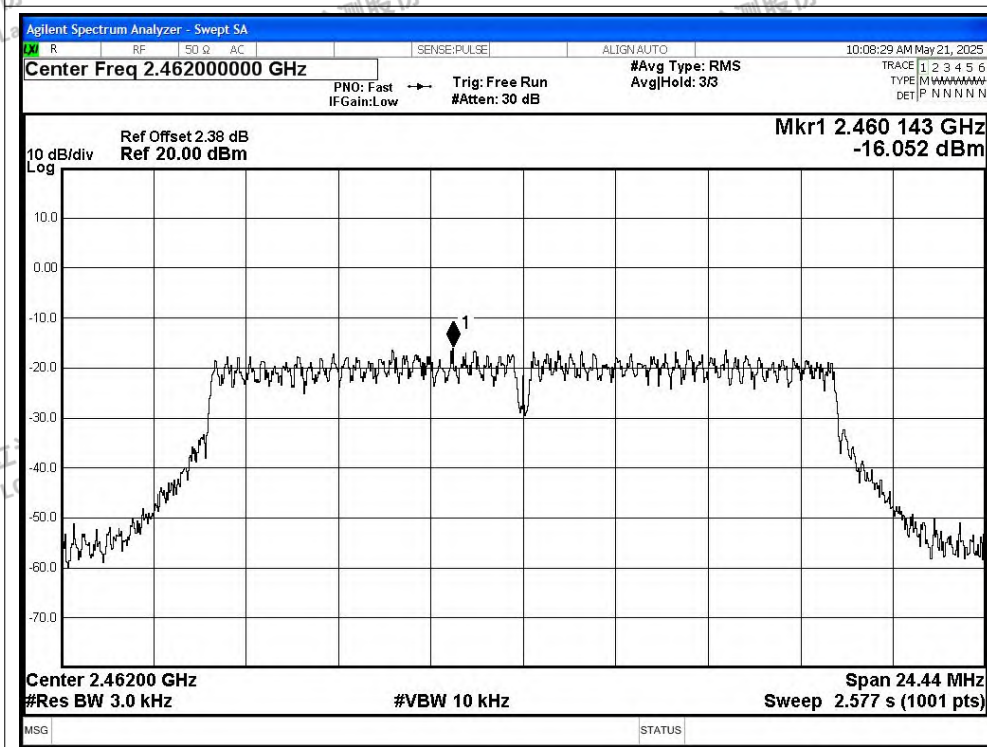




PSD NVNT g 2437MHz Ant1

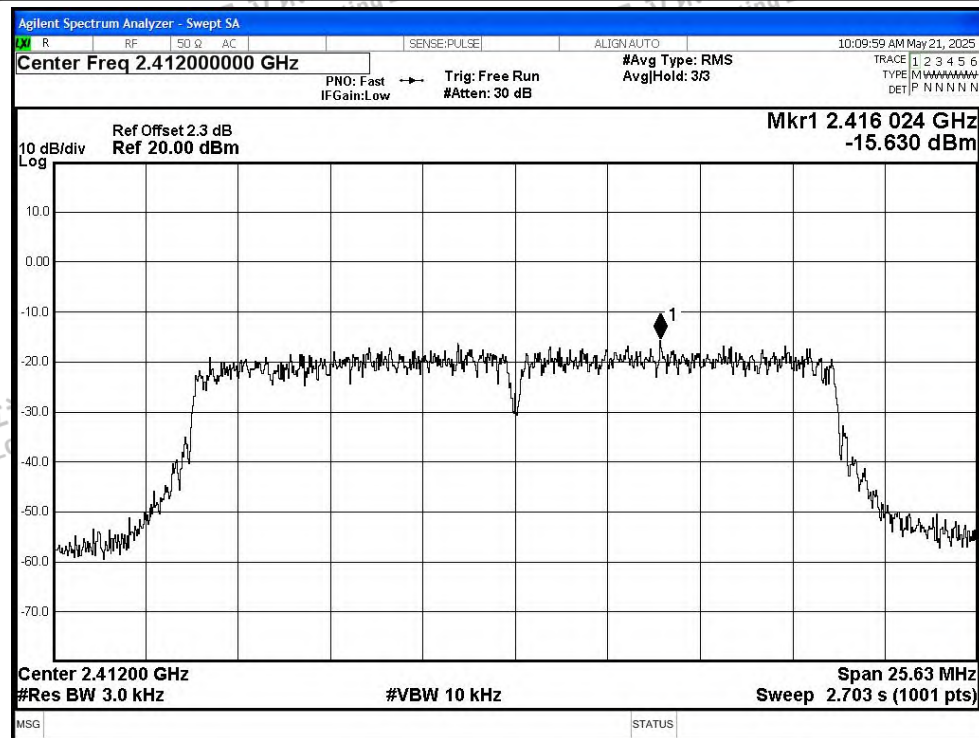


PSD NVNT g 2462MHz Ant1

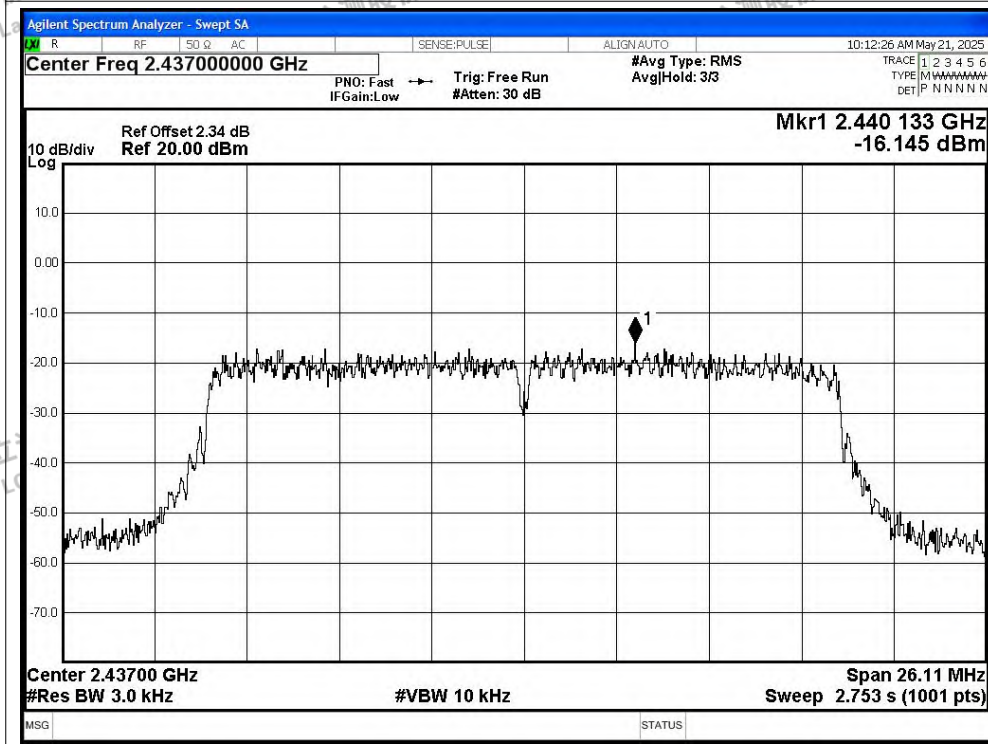




PSD NVNT n20 2412MHz Ant1

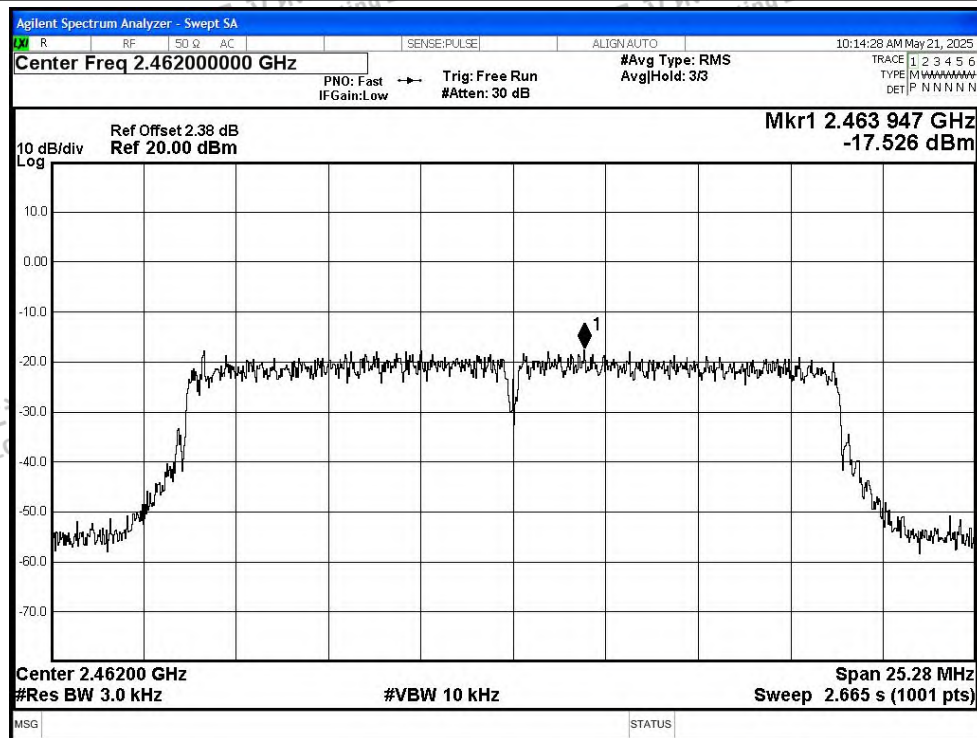


PSD NVNT n20 2437MHz Ant1

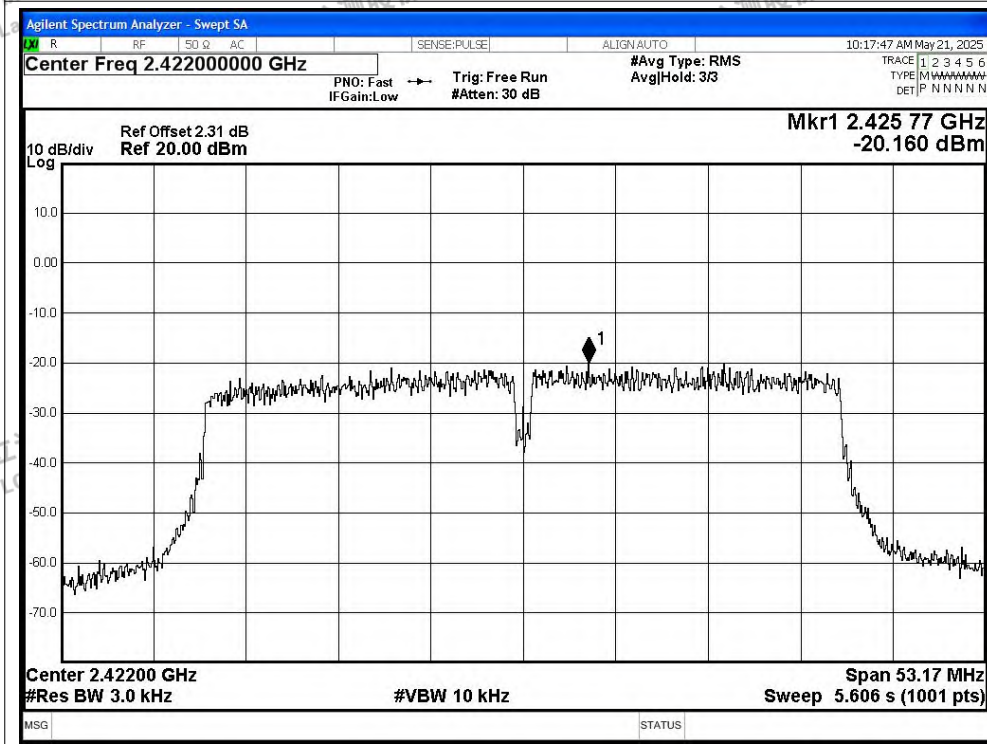




PSD NVNT n20 2462MHz Ant1

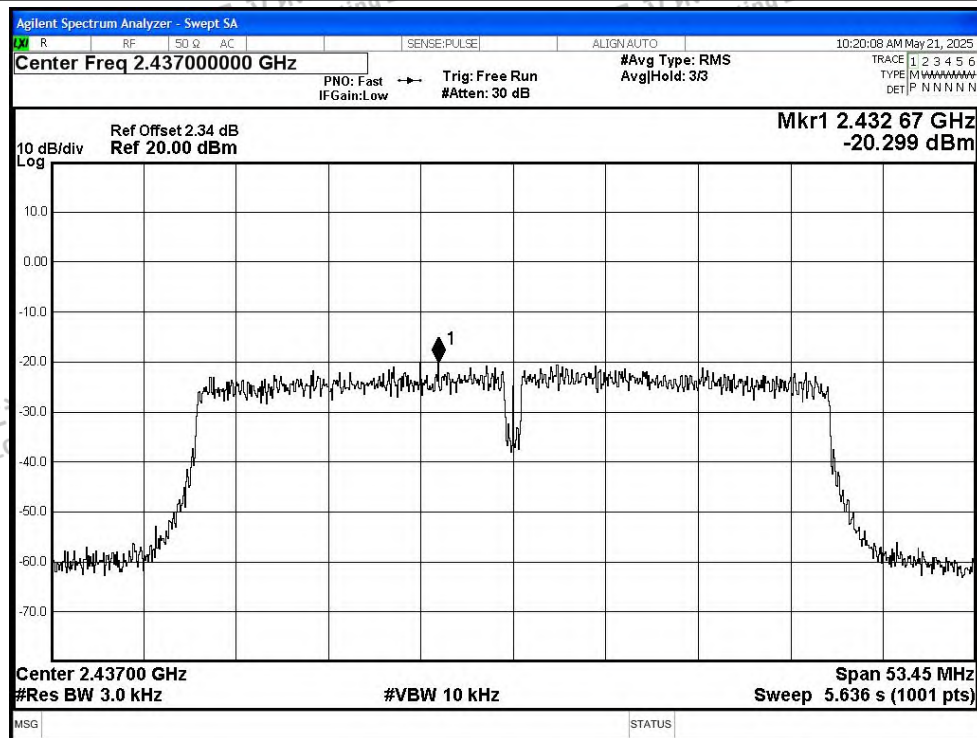


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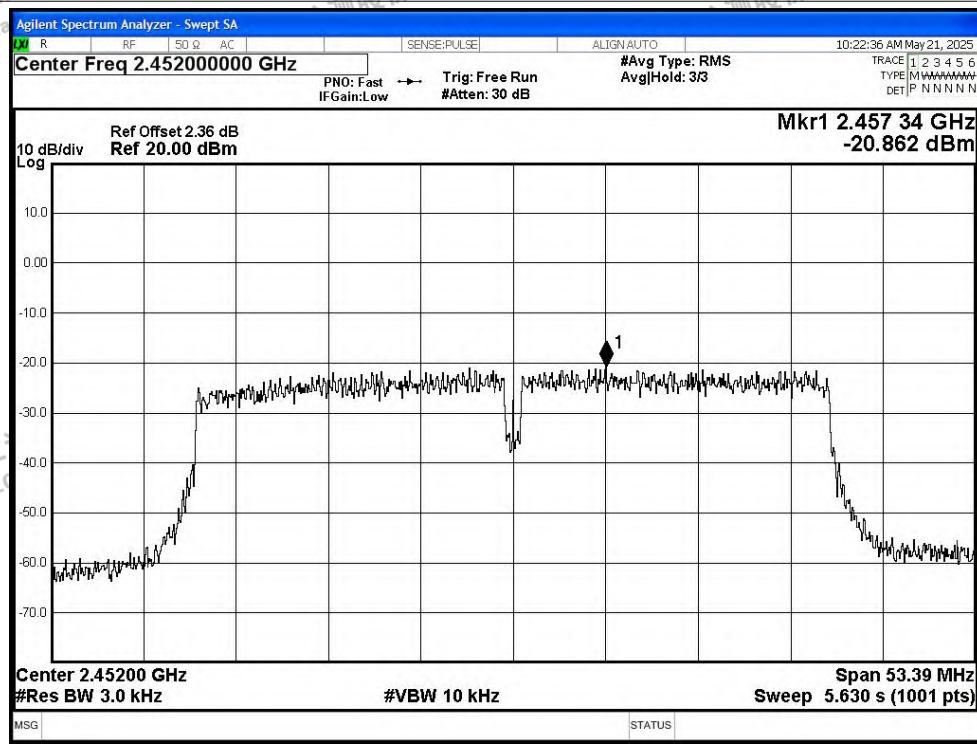




PSD NVNT n40 2437MHz Ant1



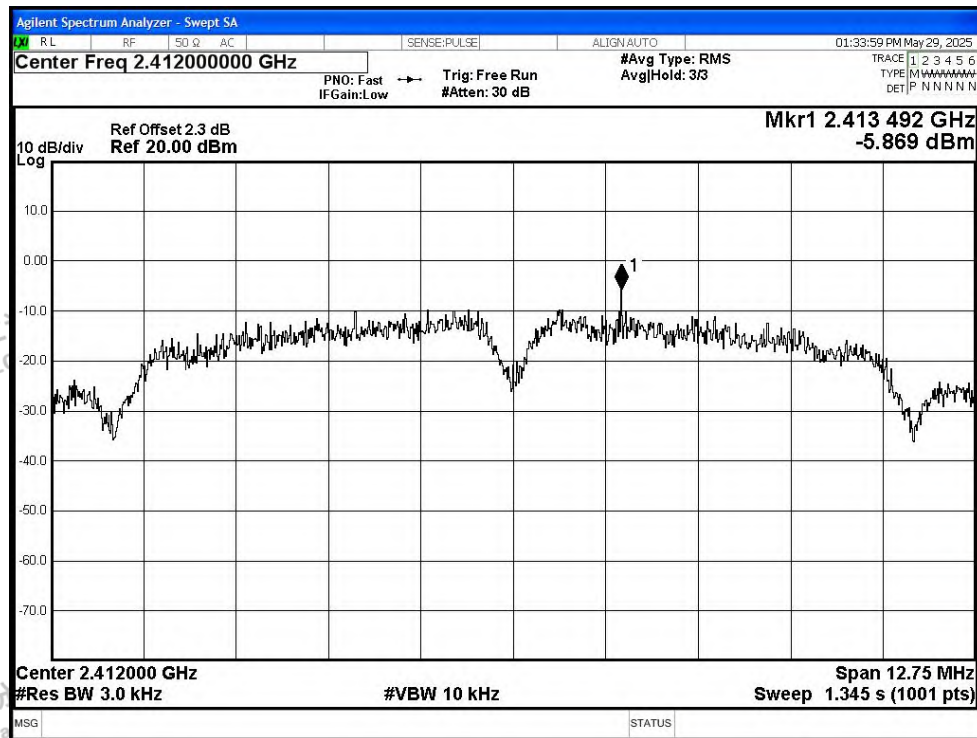
PSD NVNT n40 2452MHz Ant1



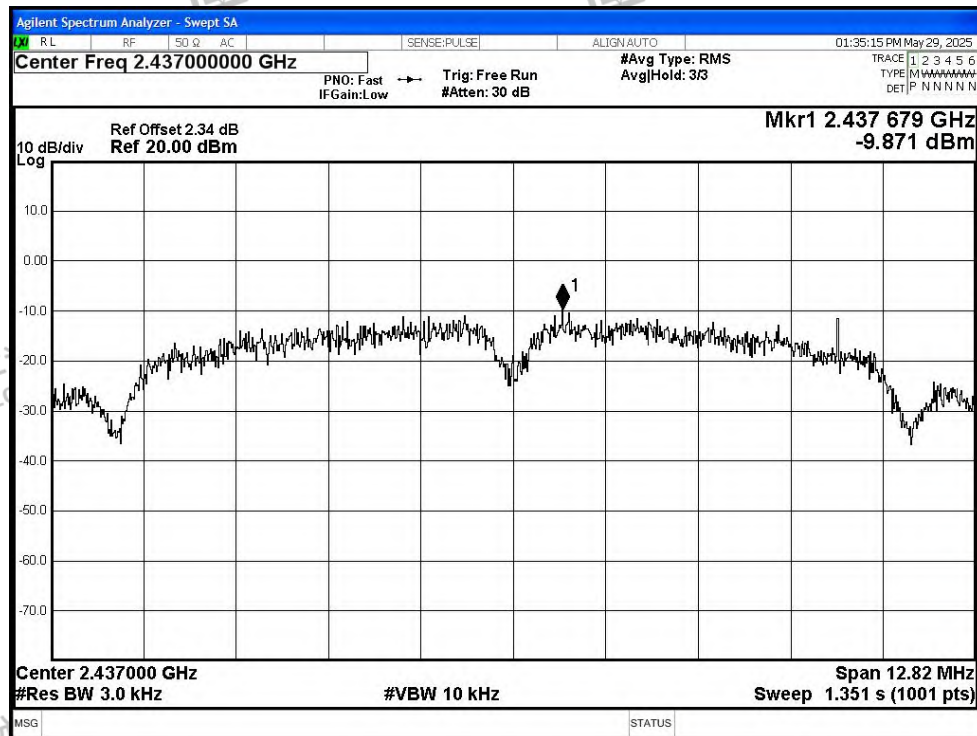


Test Graphs

PSD NVNT b 2412MHz Ant2

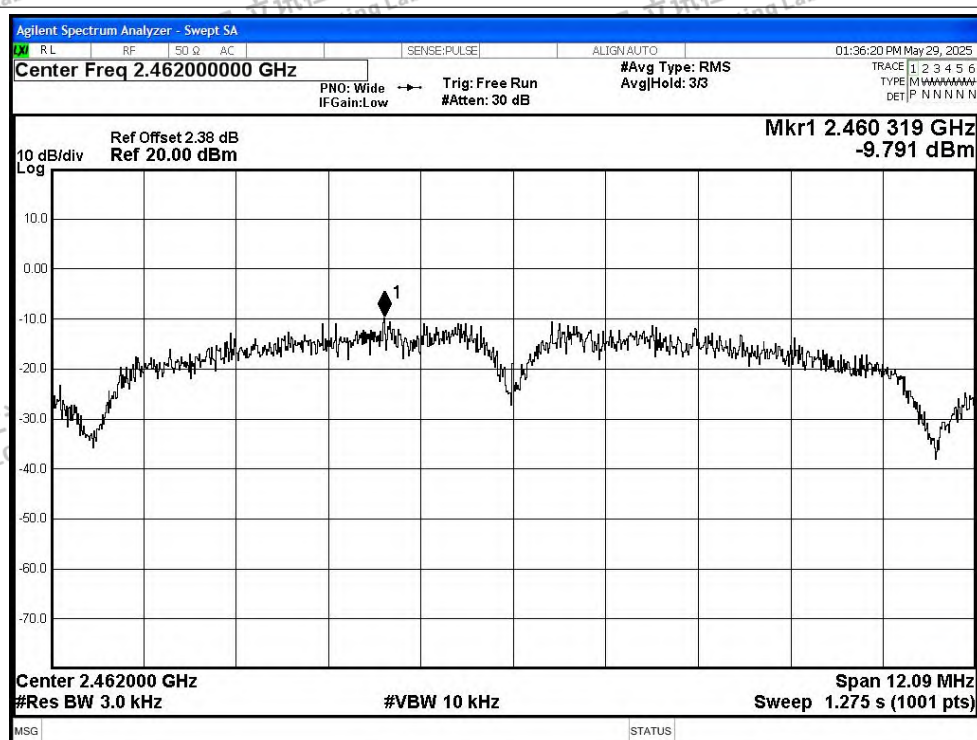


PSD NVNT b 2437MHz Ant2

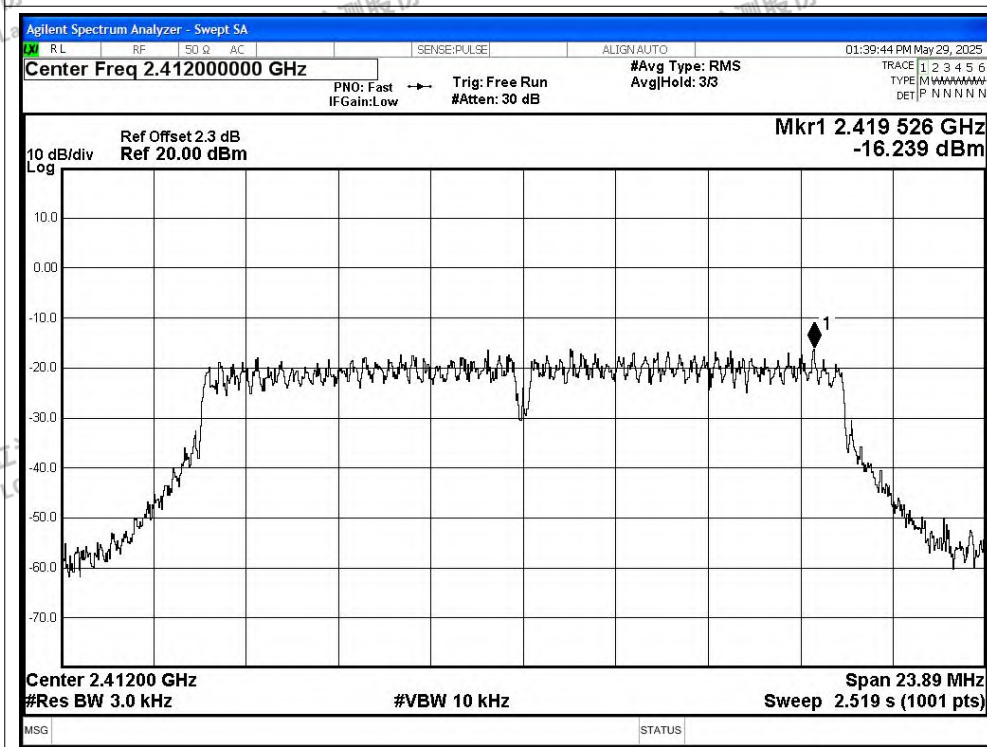




PSD NVNT b 2462MHz Ant2

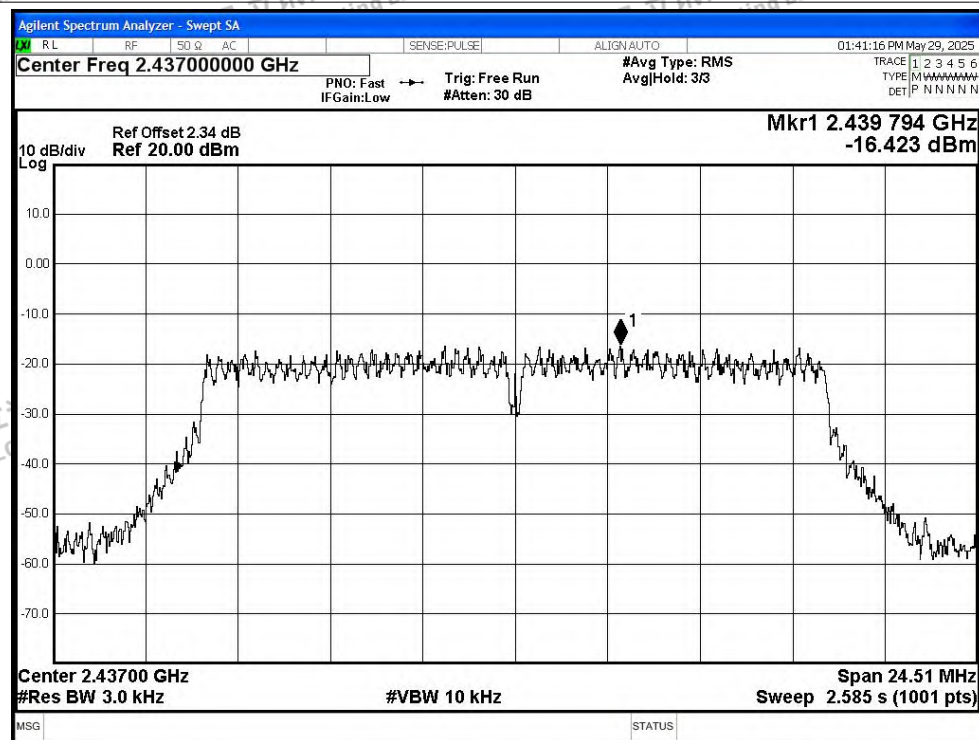


PSD NVNT g 2412MHz Ant2

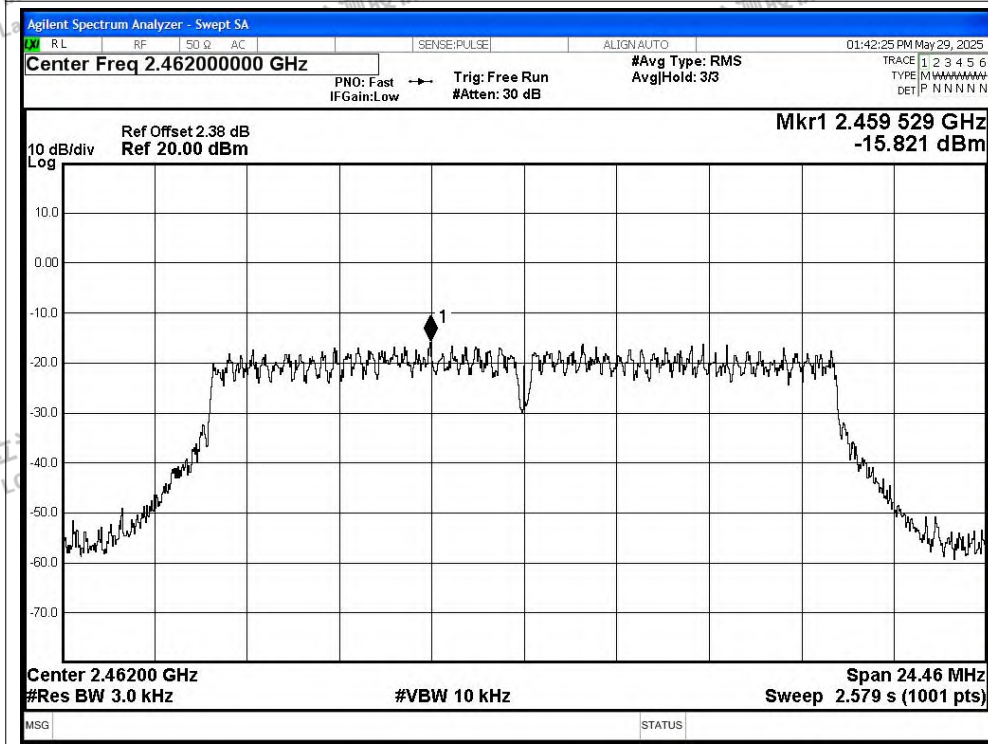




PSD NVNT g 2437MHz Ant2

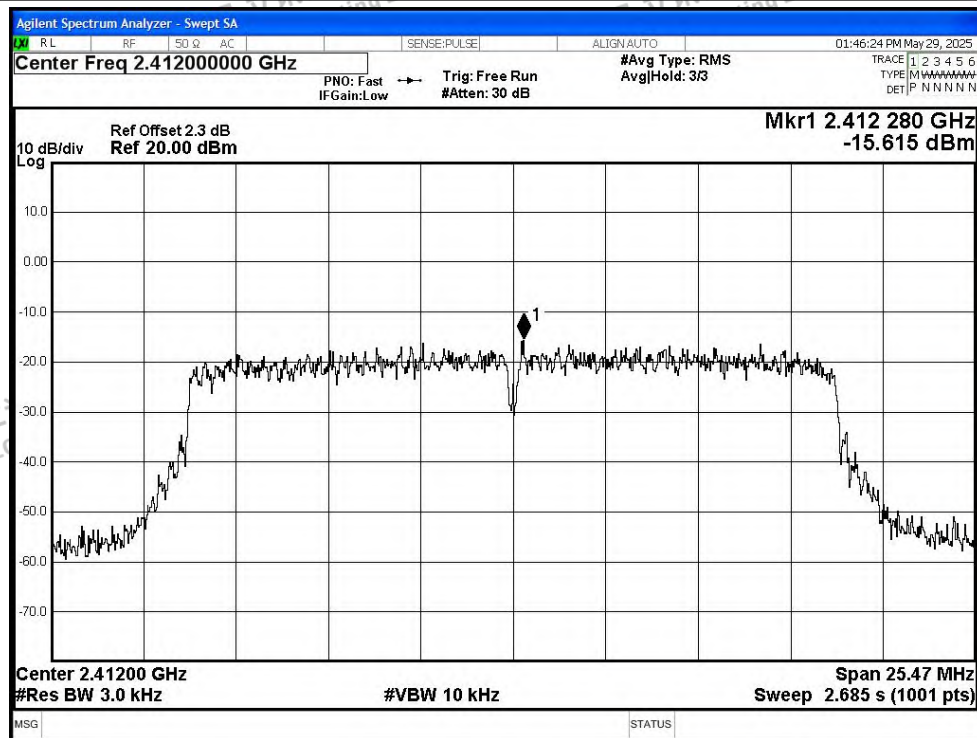


PSD NVNT g 2462MHz Ant2

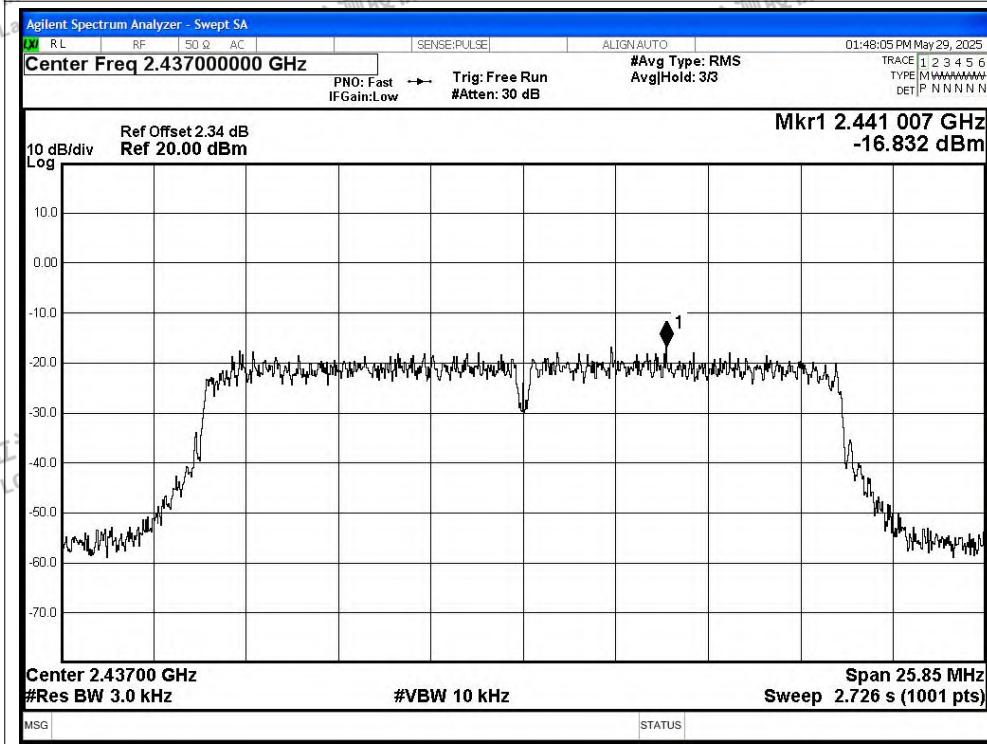




PSD NVNT n20 2412MHz Ant2

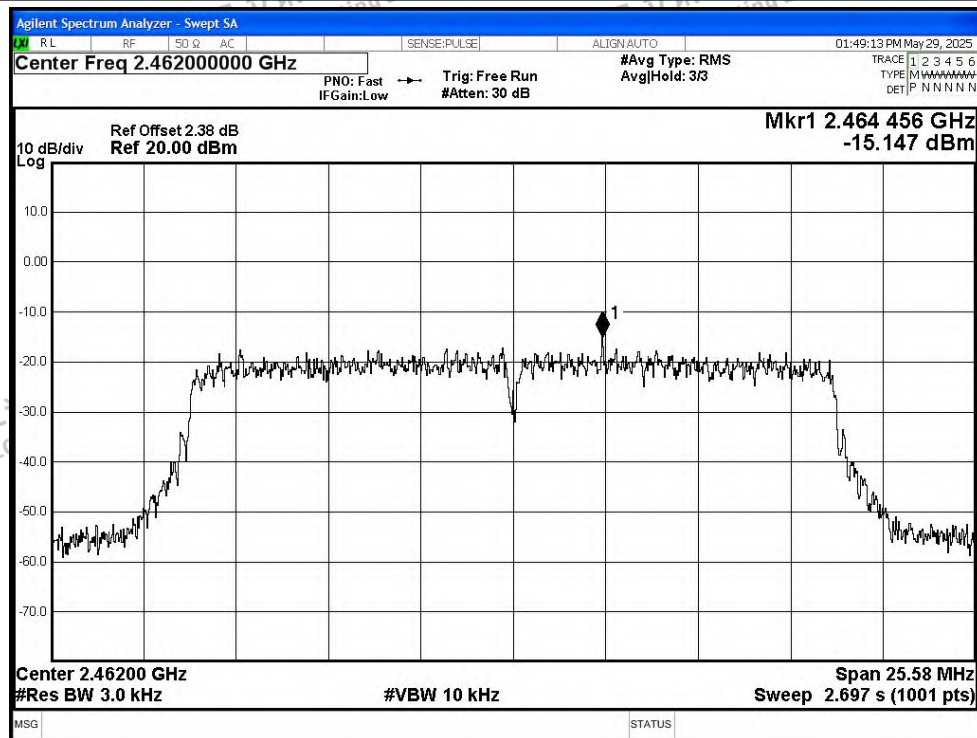


PSD NVNT n20 2437MHz Ant2

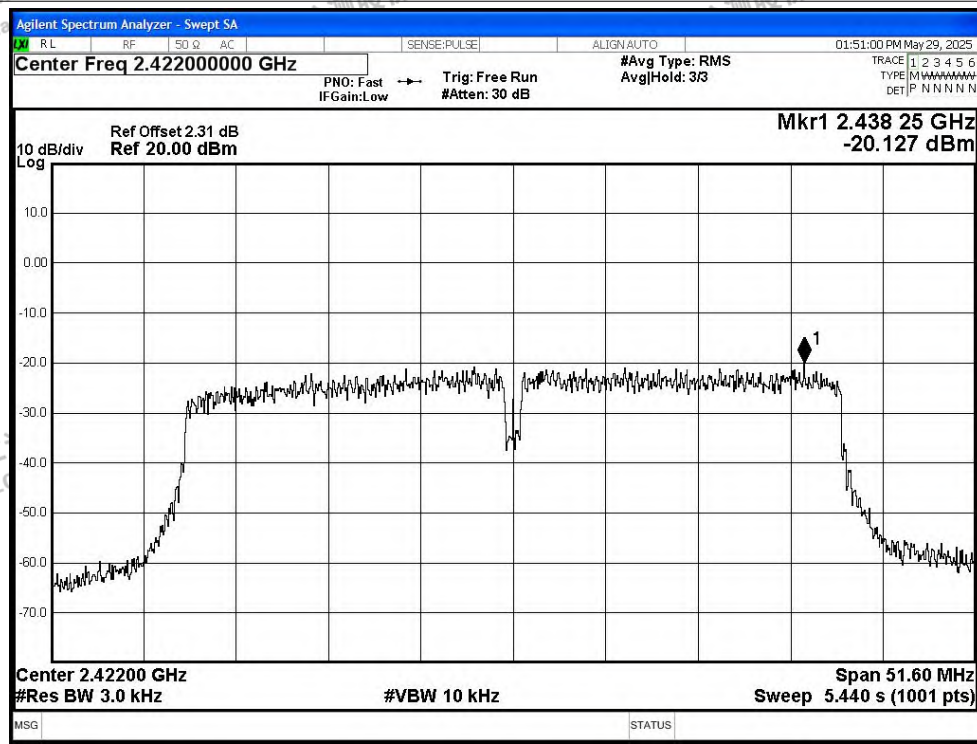




PSD NVNT n20 2462MHz Ant2

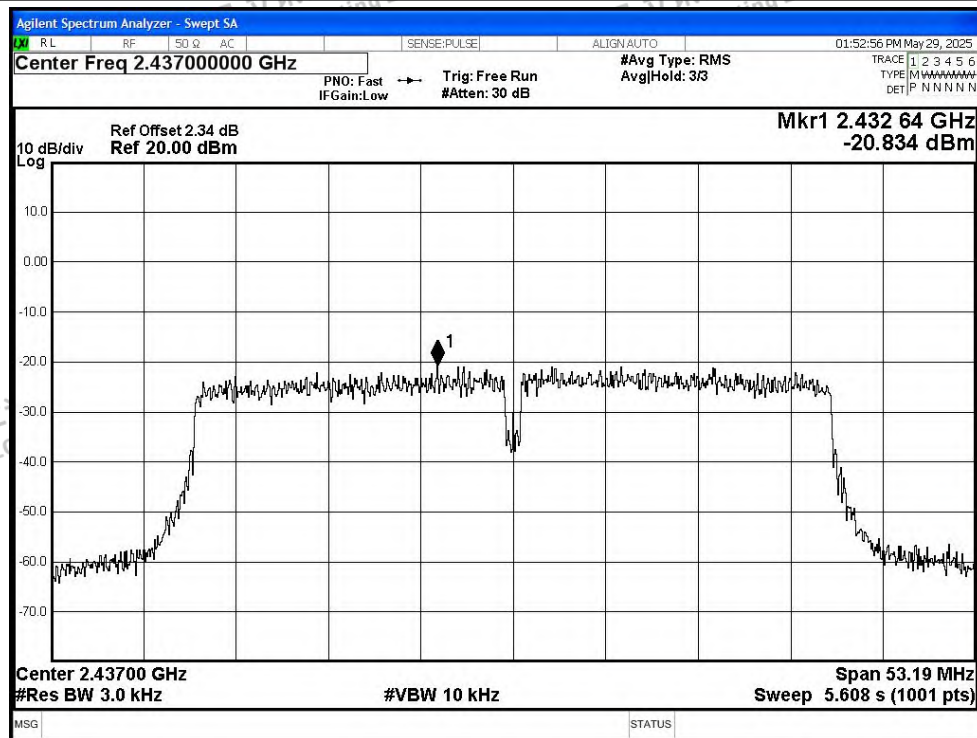


PSD NVNT n40 2422MHz Ant2

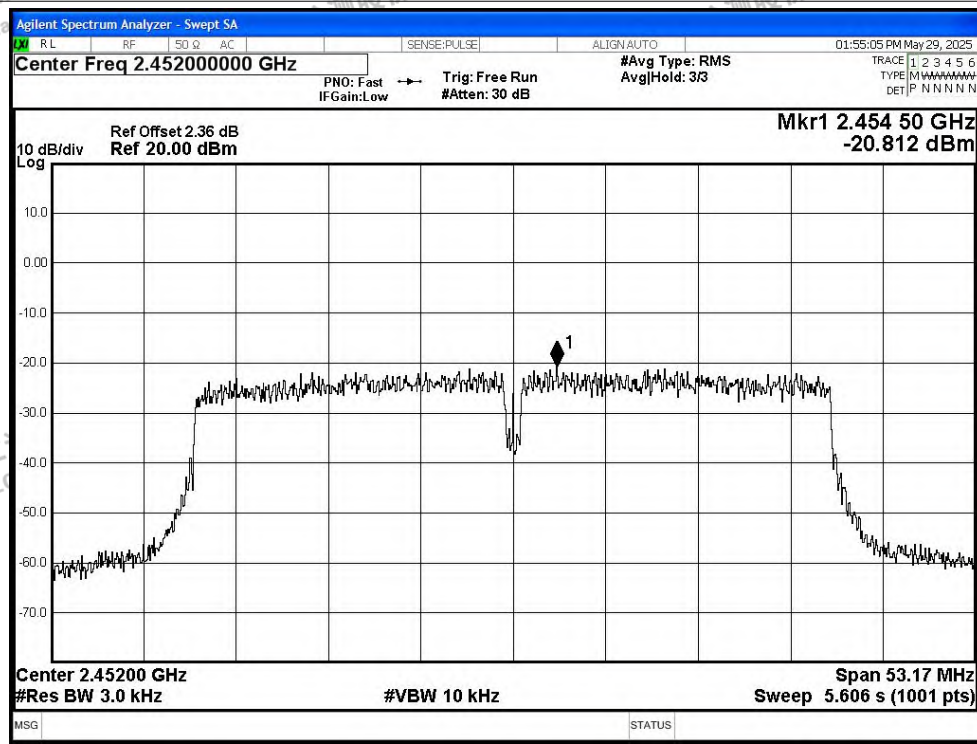




PSD NVNT n40 2437MHz Ant2



PSD NVNT n40 2452MHz Ant2





A.4 Band Edge

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	b	2412	Ant1	-46.77	-20	Pass
NVNT	b	2462	Ant1	-57.1	-20	Pass
NVNT	g	2412	Ant1	-32.81	-20	Pass
NVNT	g	2462	Ant1	-42.89	-20	Pass
NVNT	n20	2412	Ant1	-32.34	-20	Pass
NVNT	n20	2462	Ant1	-42.63	-20	Pass
NVNT	n40	2422	Ant1	-33.71	-20	Pass
NVNT	n40	2452	Ant1	-37.7	-20	Pass



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

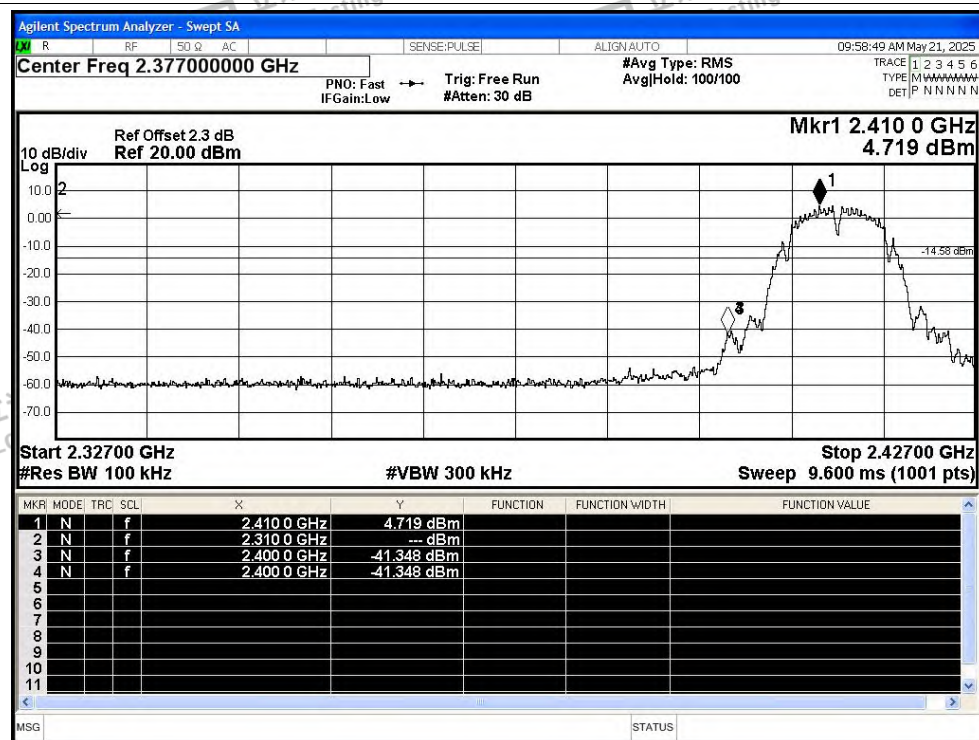


Test Graphs

Band Edge NVNT b 2412MHz Ant1 Ref



Band Edge NVNT b 2412MHz Ant1 Emission



Shenzhen LCS Compliance Testing Laboratory Ltd.

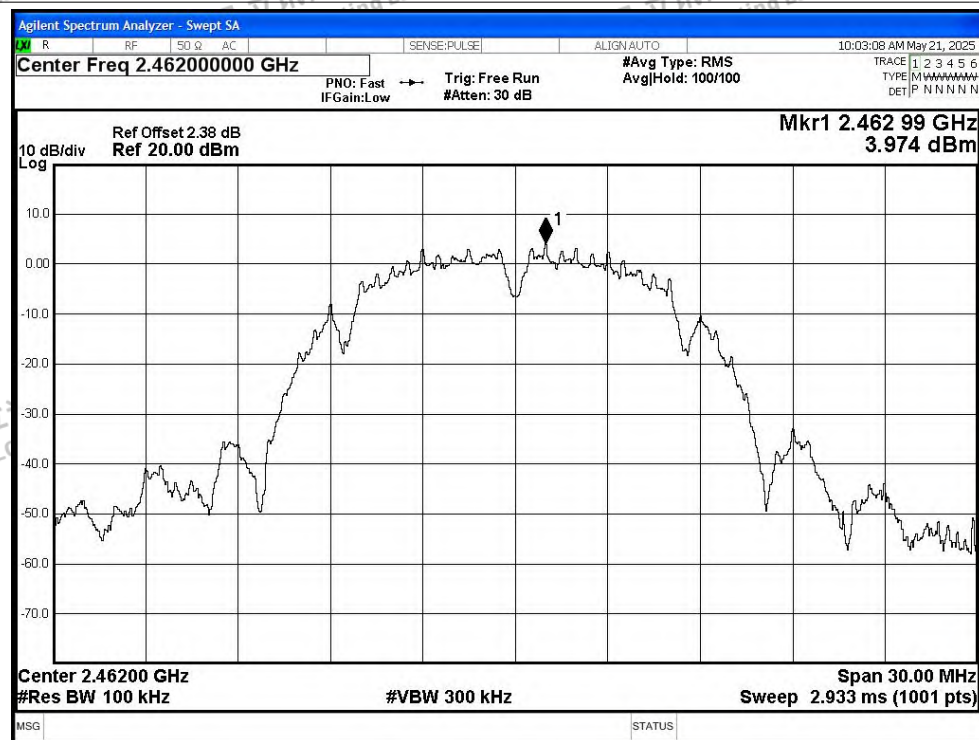
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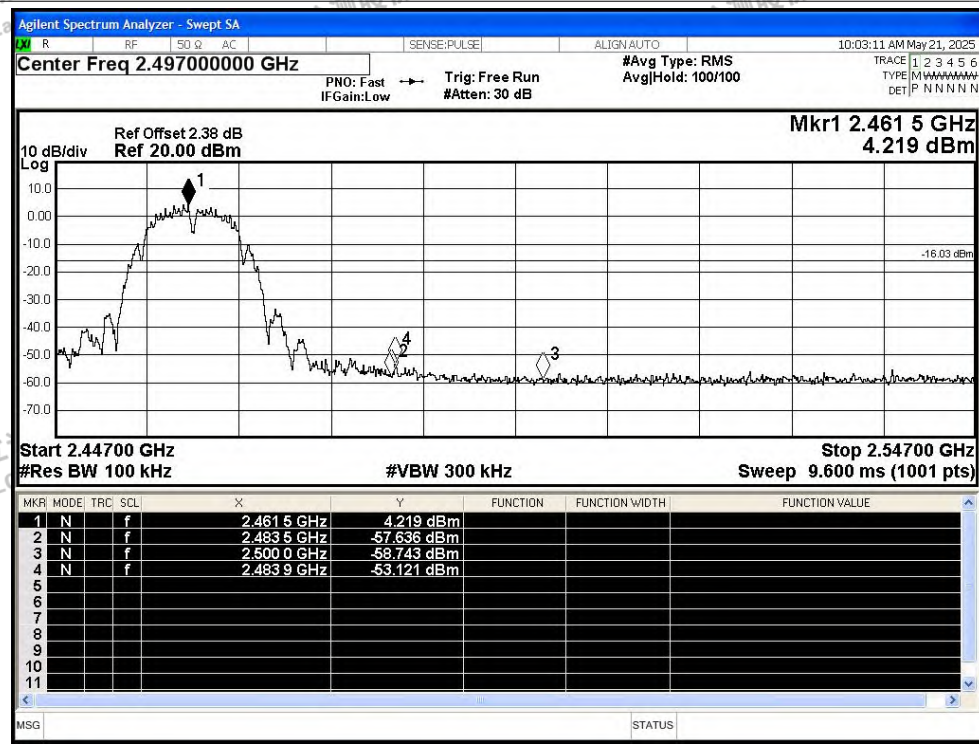
Scan code to check authenticity



Band Edge NVNT b 2462MHz Ant1 Ref



Band Edge NVNT b 2462MHz Ant1 Emission



Shenzhen LCS Compliance Testing Laboratory Ltd.

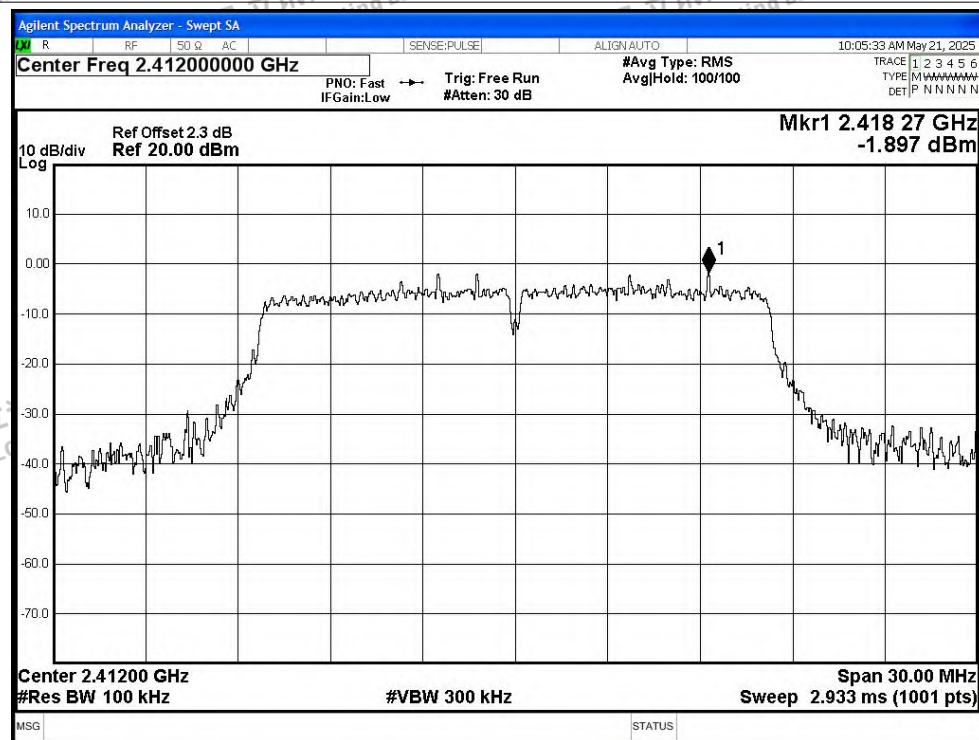
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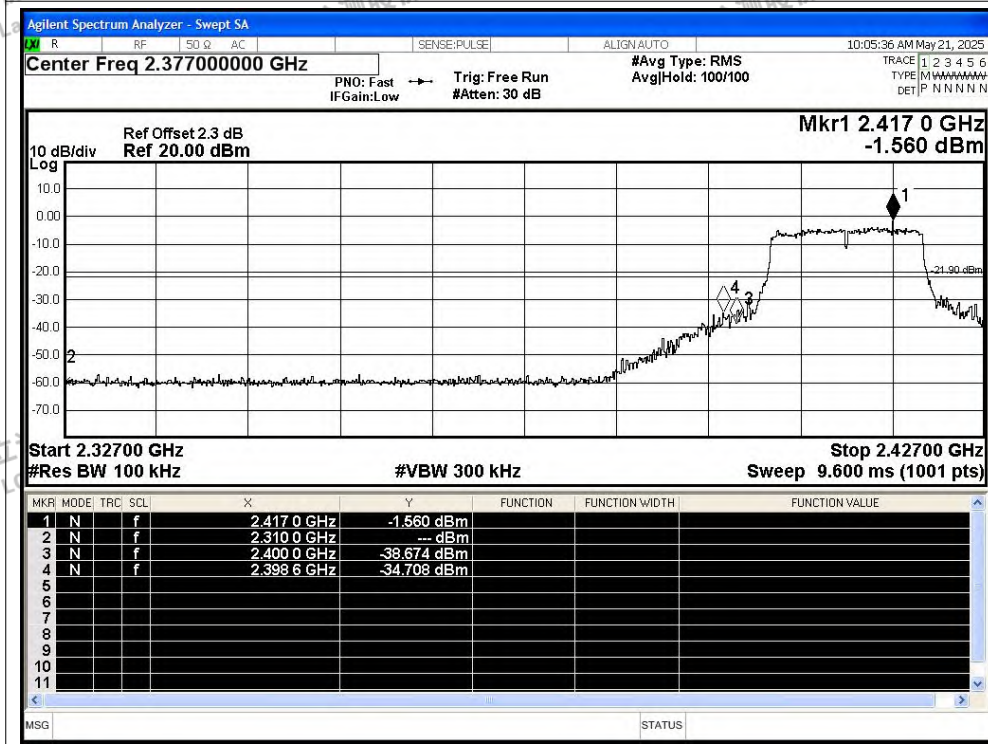
Scan code to check authenticity



Band Edge NVNT g 2412MHz Ant1 Ref

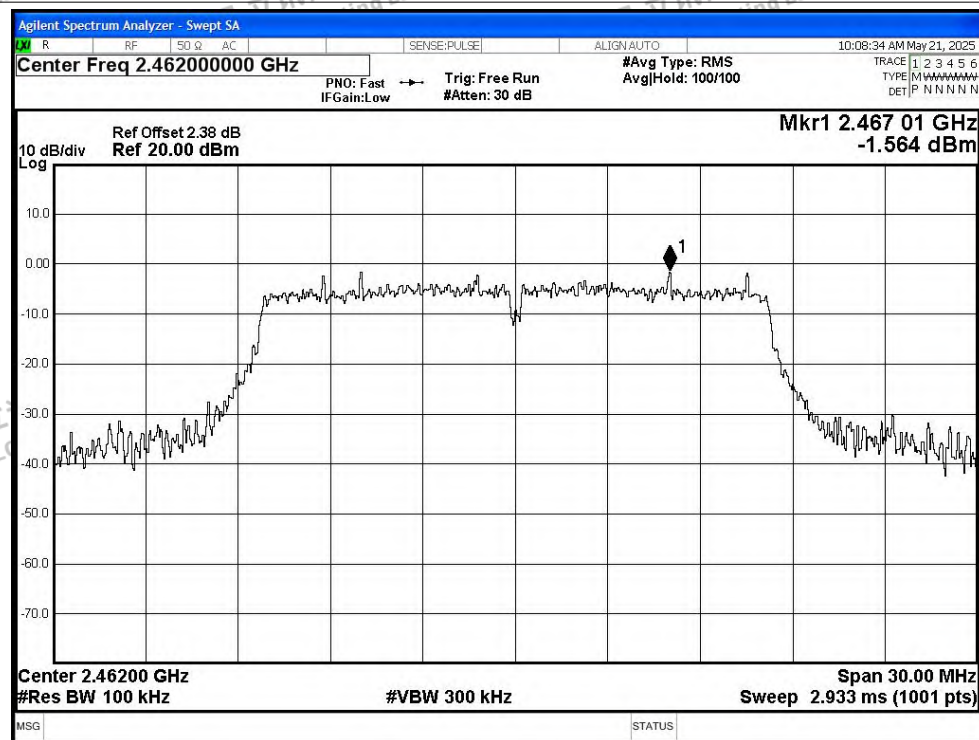


Band Edge NVNT g 2412MHz Ant1 Emission

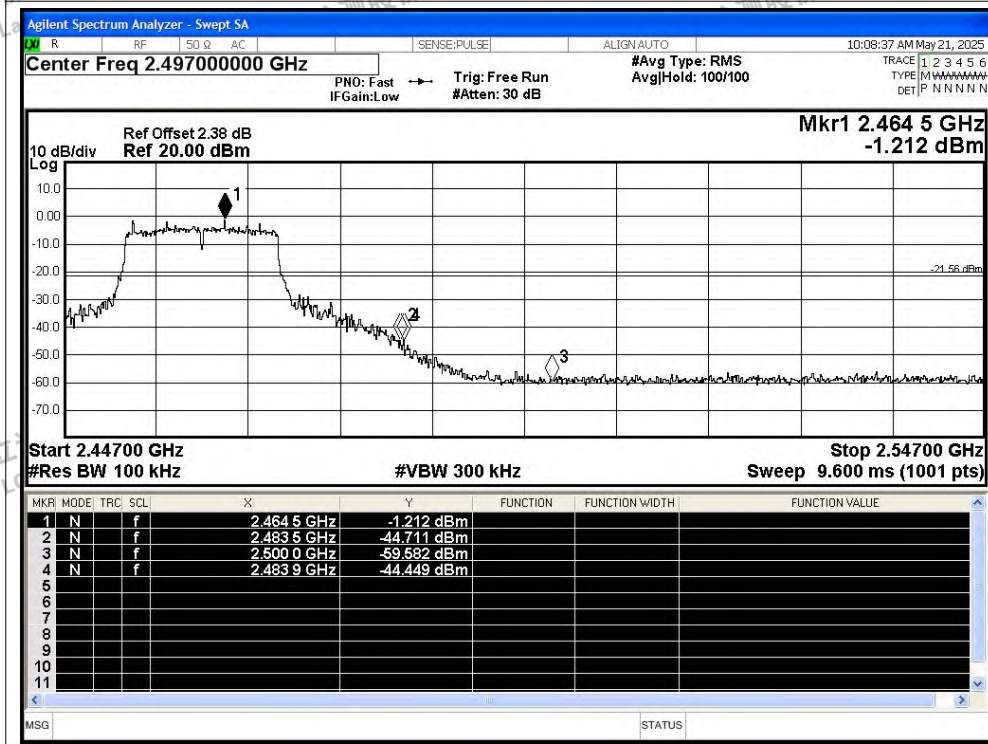




Band Edge NVNT g 2462MHz Ant1 Ref



Band Edge NVNT g 2462MHz Ant1 Emission



Shenzhen LCS Compliance Testing Laboratory Ltd.

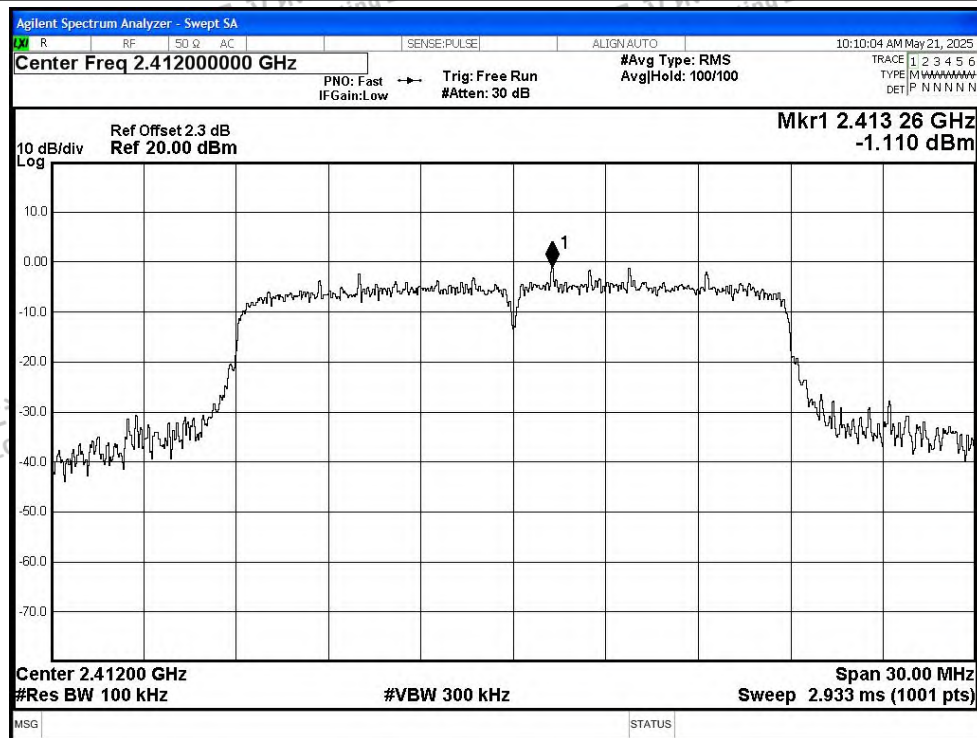
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Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com

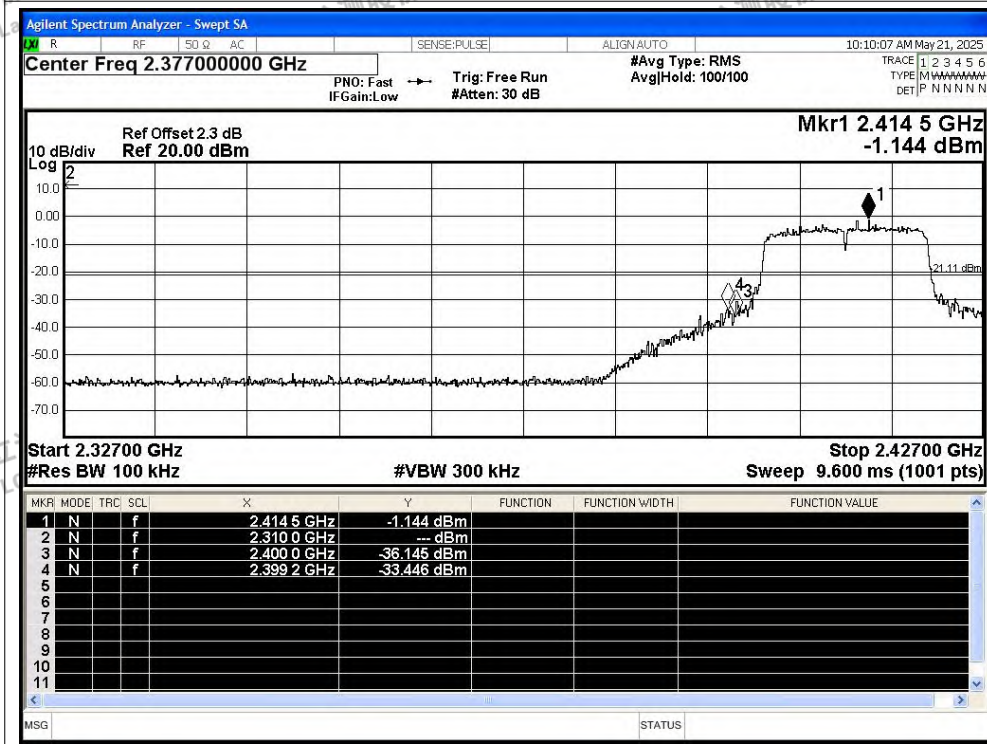
Scan code to check authenticity



Band Edge NVNT n20 2412MHz Ant1 Ref

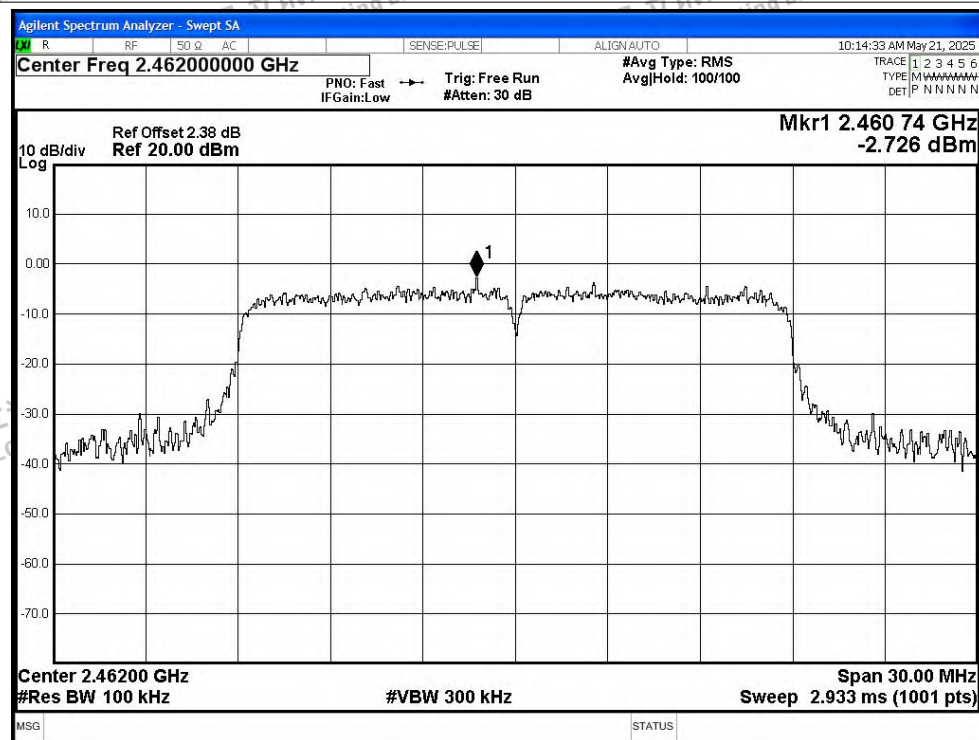


Band Edge NVNT n20 2412MHz Ant1 Emission

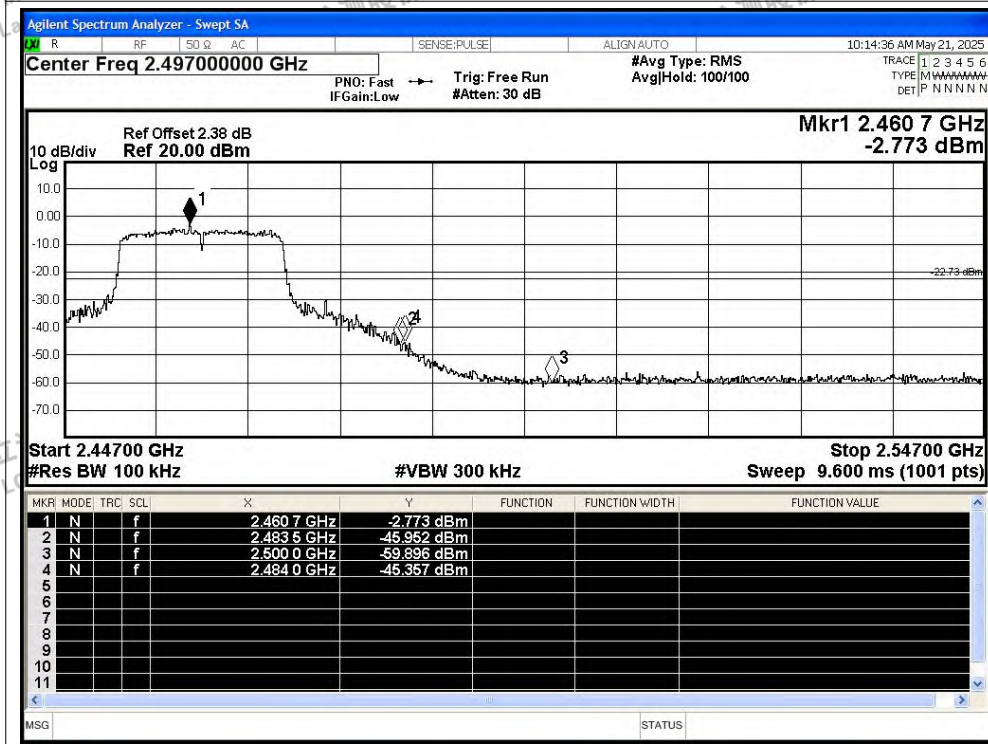




Band Edge NVNT n20 2462MHz Ant1 Ref



Band Edge NVNT n20 2462MHz Ant1 Emission



Shenzhen LCS Compliance Testing Laboratory Ltd.

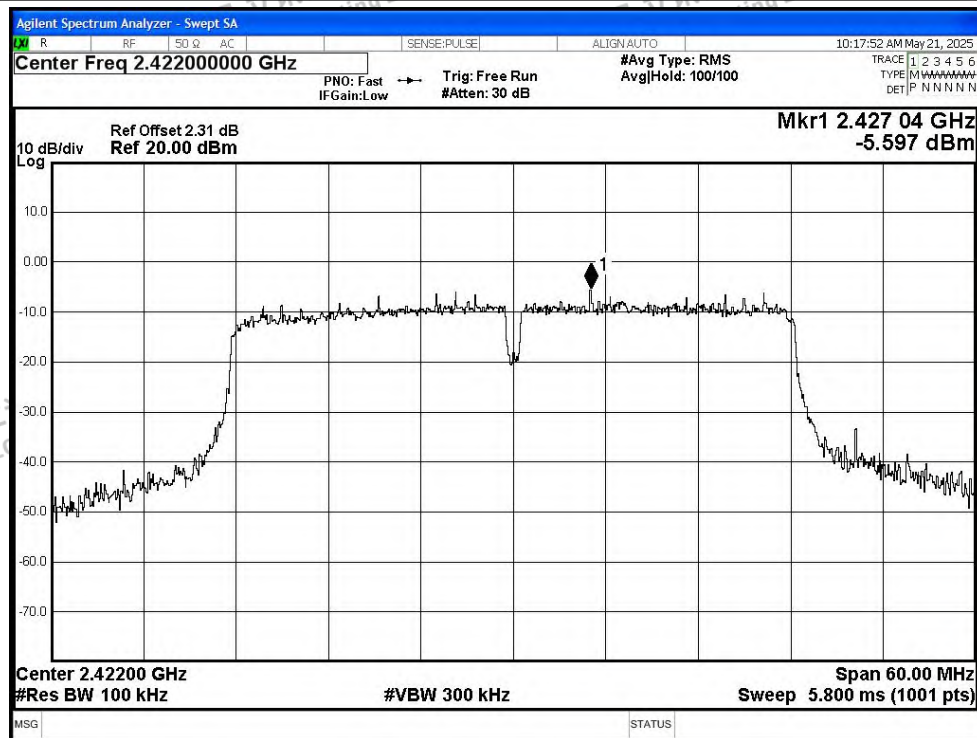
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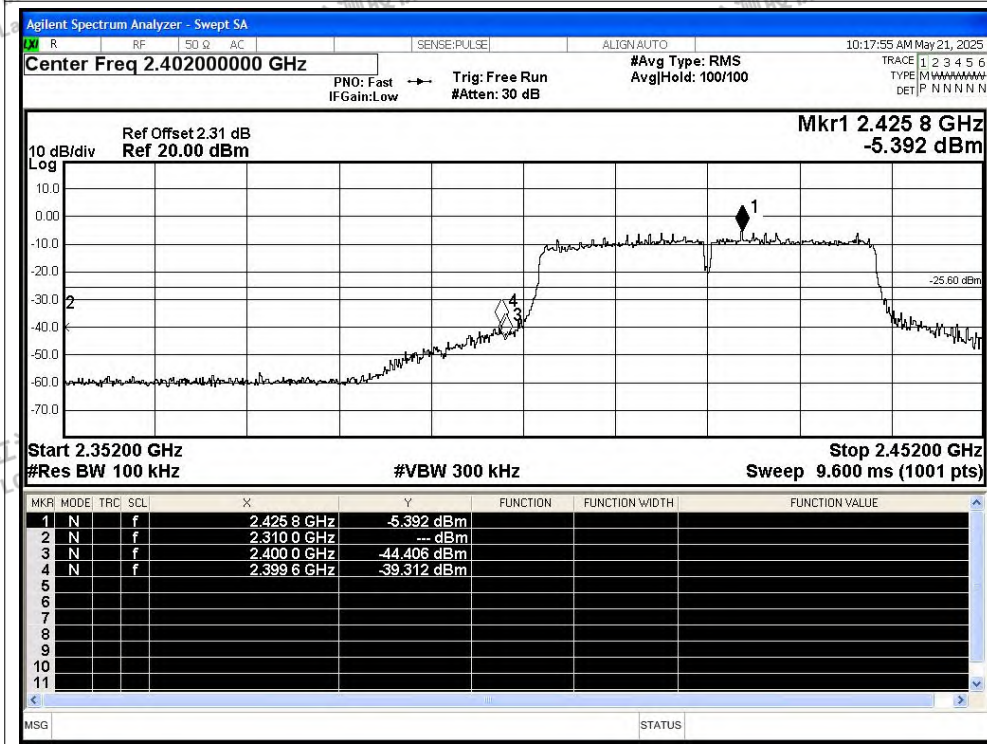
Scan code to check authenticity



Band Edge NVNT n40 2422MHz Ant1 Ref

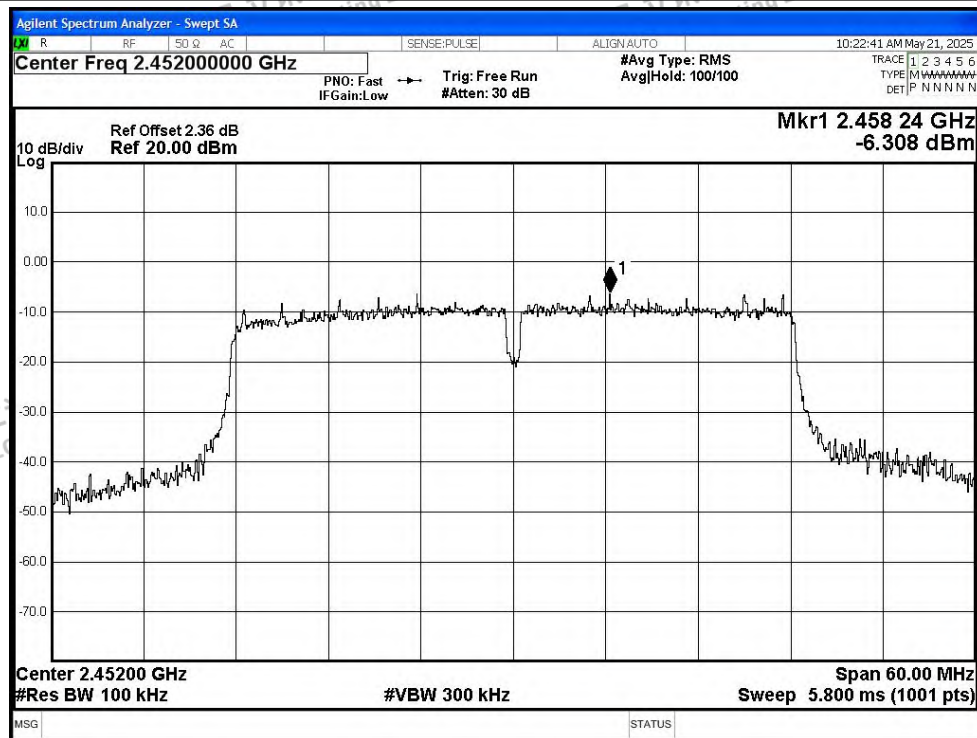


Band Edge NVNT n40 2422MHz Ant1 Emission

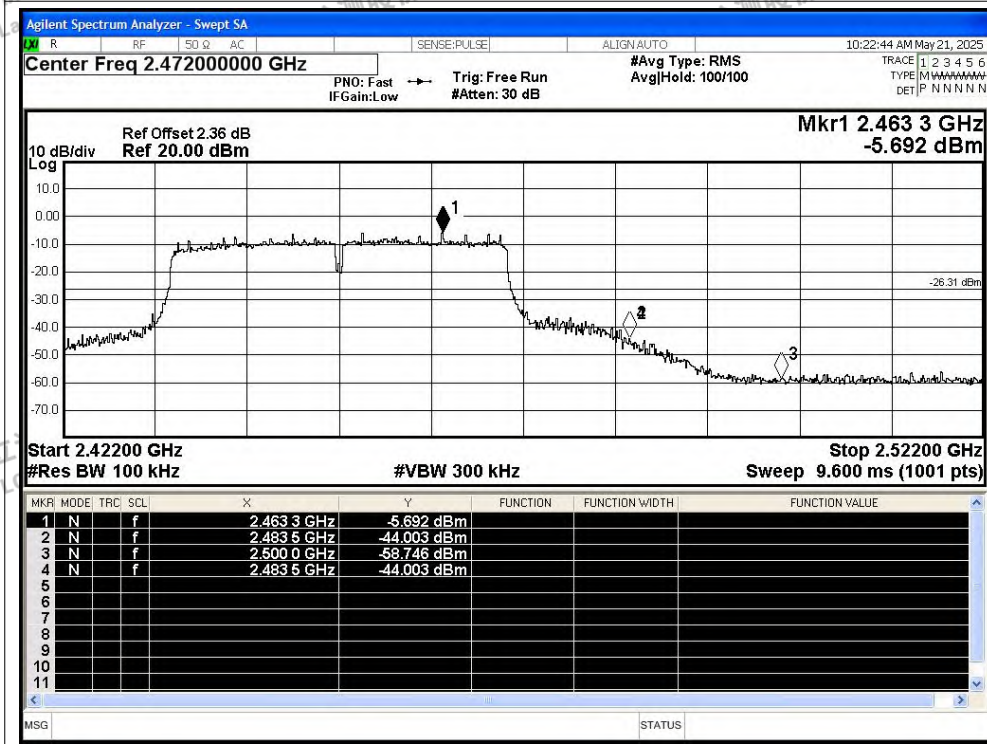




Band Edge NVNT n40 2452MHz Ant1 Ref



Band Edge NVNT n40 2452MHz Ant1 Emission





Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	b	2412	Ant2	-47.02	-20	Pass
NVNT	b	2462	Ant2	-59.78	-20	Pass
NVNT	g	2412	Ant2	-34.44	-20	Pass
NVNT	g	2462	Ant2	-43.77	-20	Pass
NVNT	n20	2412	Ant2	-30.38	-20	Pass
NVNT	n20	2462	Ant2	-43.11	-20	Pass
NVNT	n40	2422	Ant2	-34.44	-20	Pass
NVNT	n40	2452	Ant2	-36.58	-20	Pass



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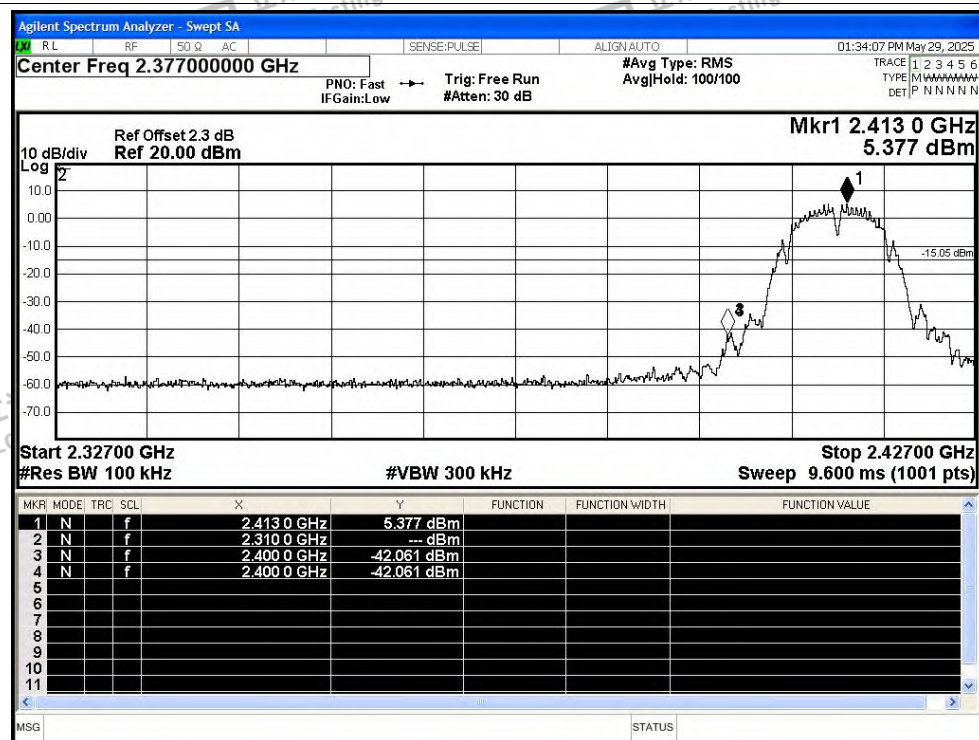


Test Graphs

Band Edge NVNT b 2412MHz Ant2 Ref

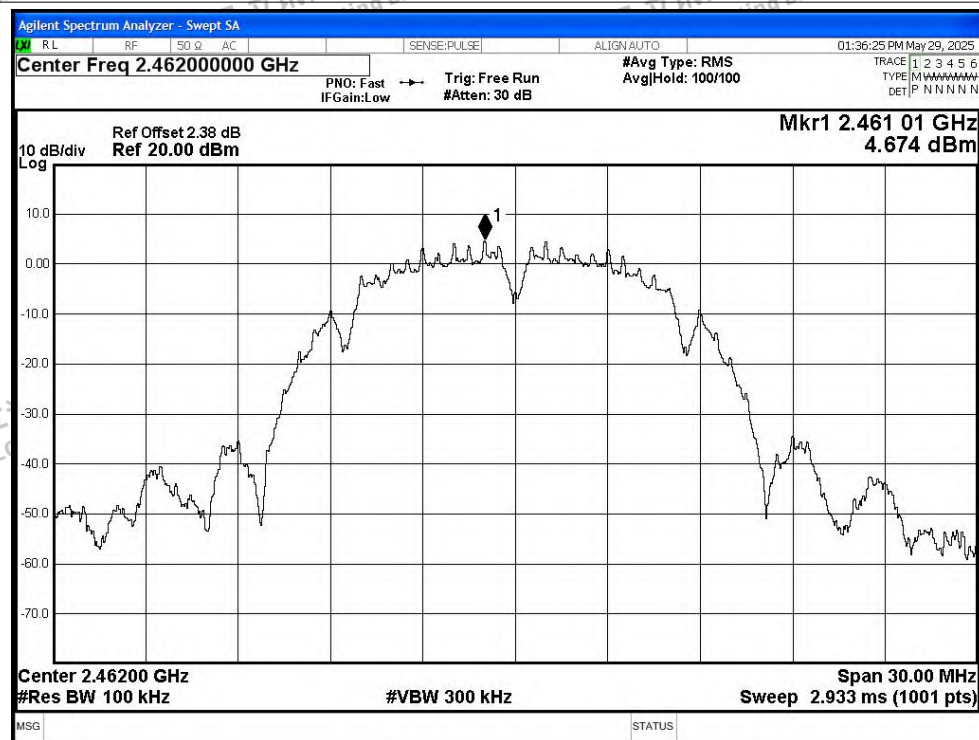


Band Edge NVNT b 2412MHz Ant2 Emission

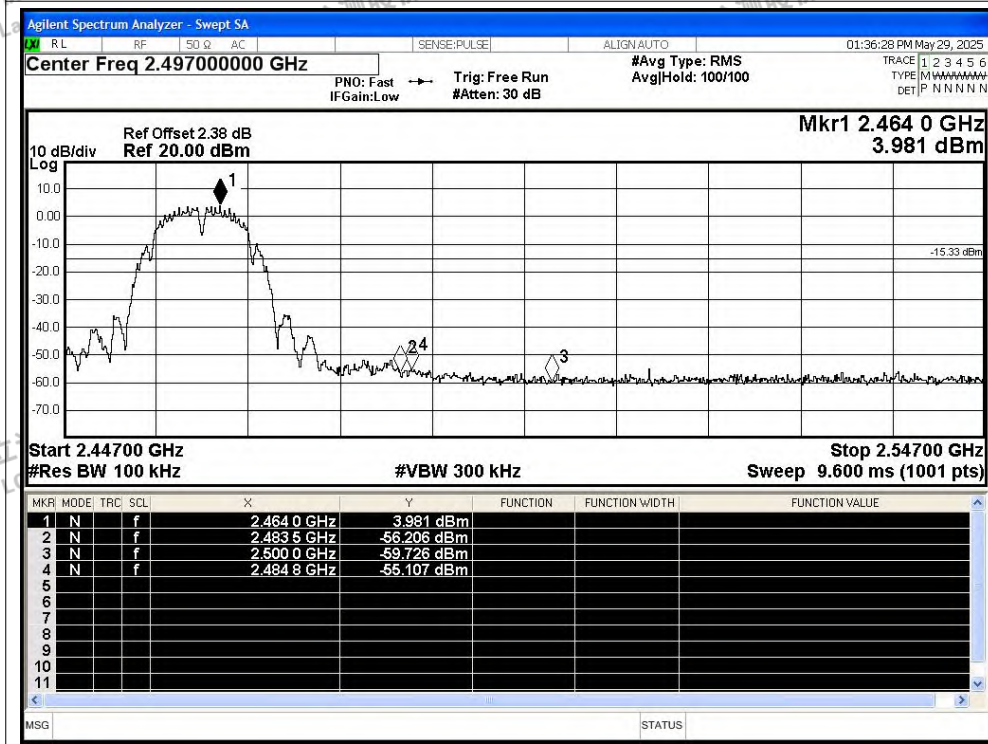




Band Edge NVNT b 2462MHz Ant2 Ref

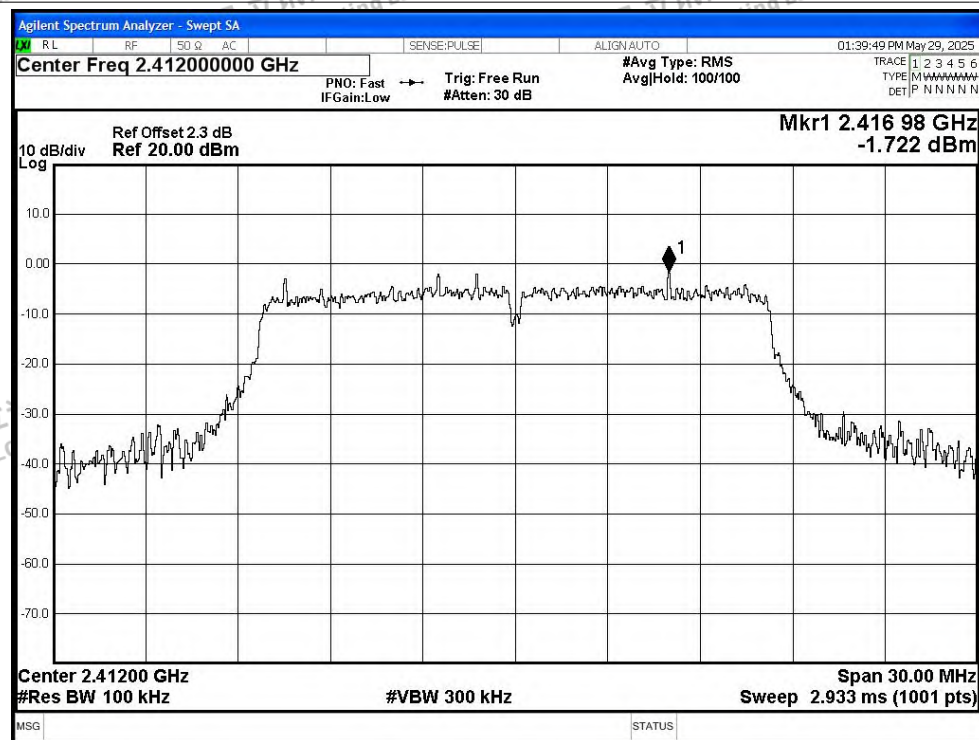


Band Edge NVNT b 2462MHz Ant2 Emission

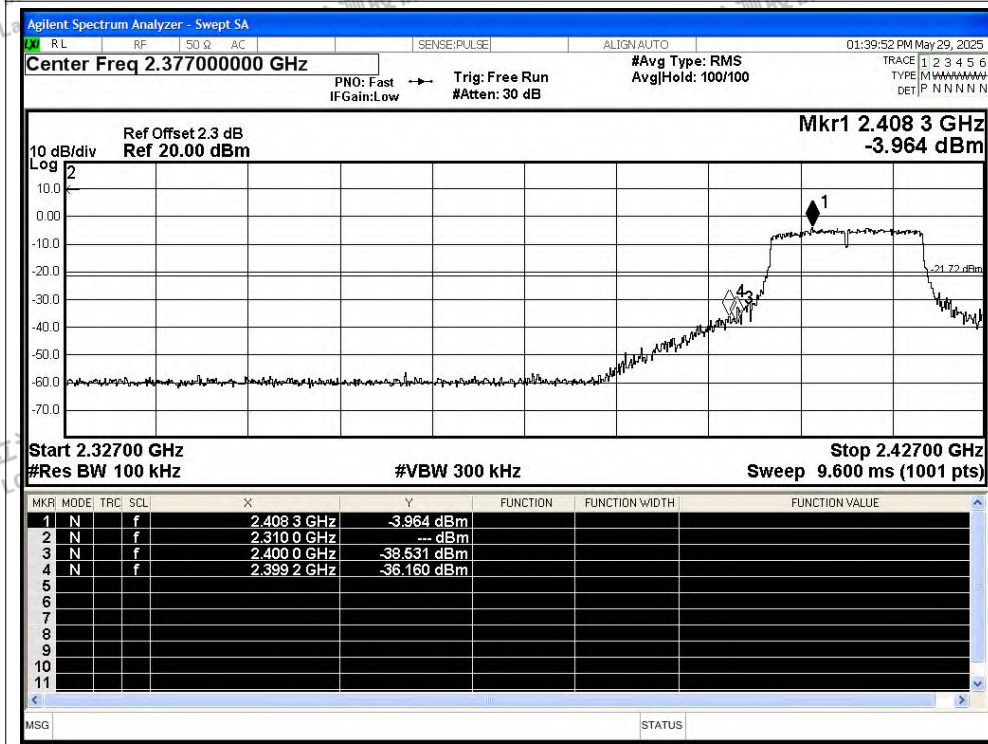




Band Edge NVNT g 2412MHz Ant2 Ref

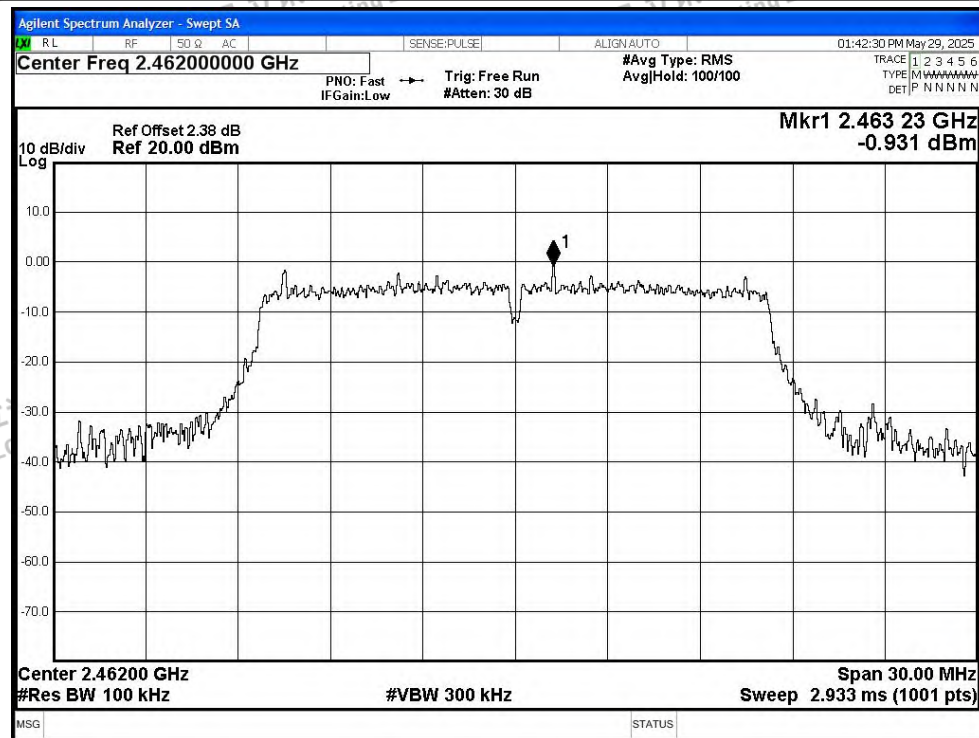


Band Edge NVNT g 2412MHz Ant2 Emission

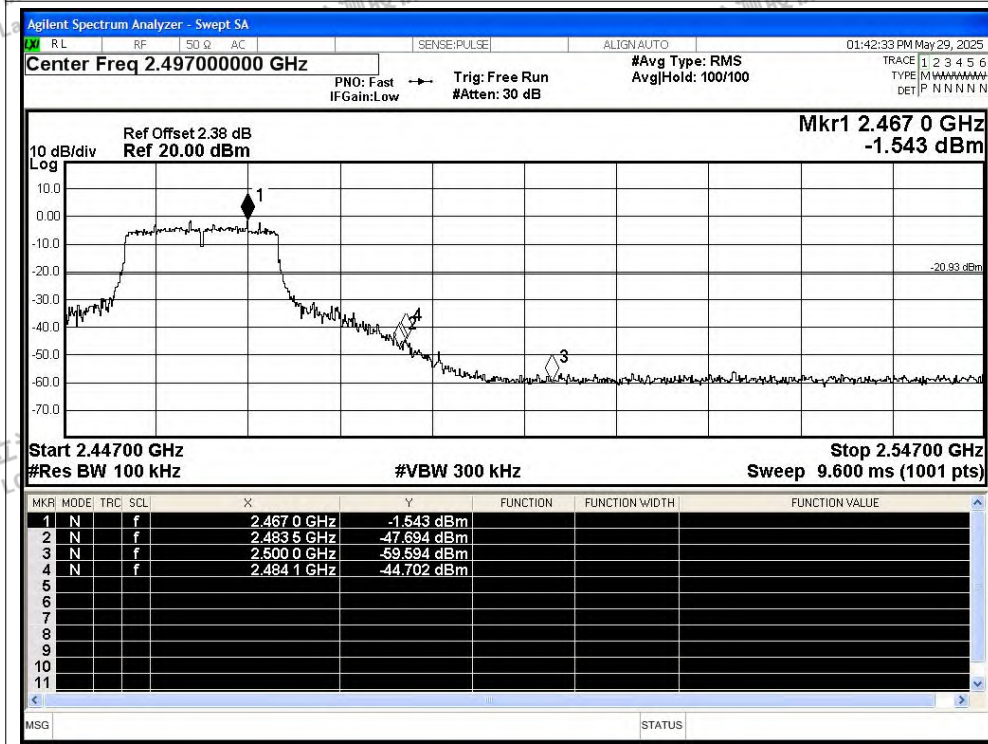




Band Edge NVNT g 2462MHz Ant2 Ref

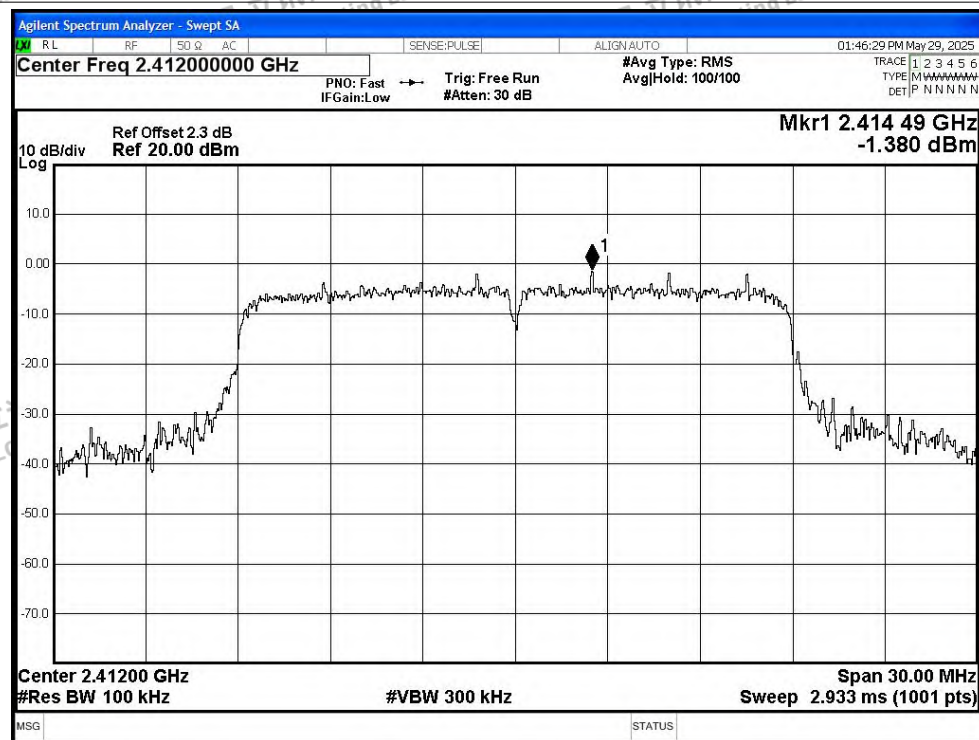


Band Edge NVNT g 2462MHz Ant2 Emission

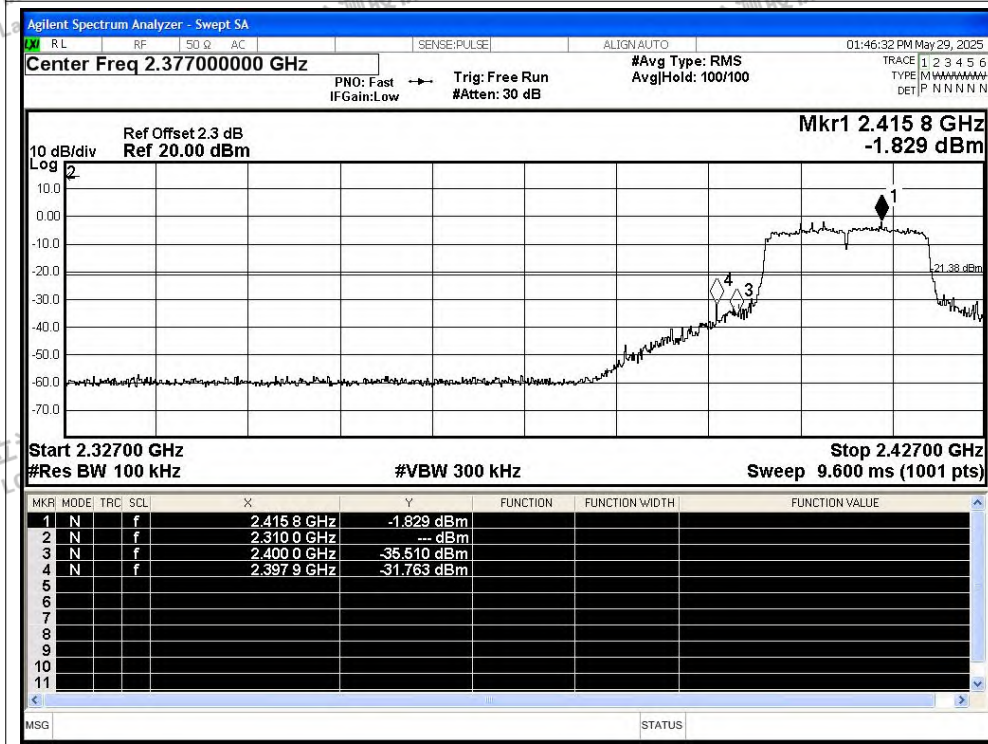




Band Edge NVNT n20 2412MHz Ant2 Ref



Band Edge NVNT n20 2412MHz Ant2 Emission



Shenzhen LCS Compliance Testing Laboratory Ltd.

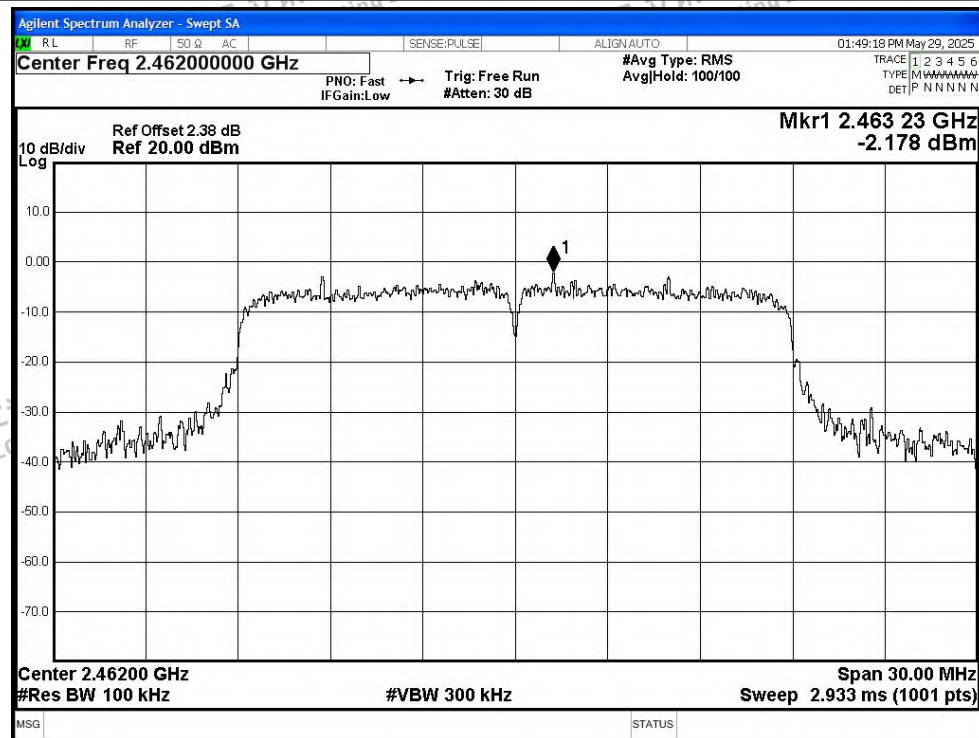
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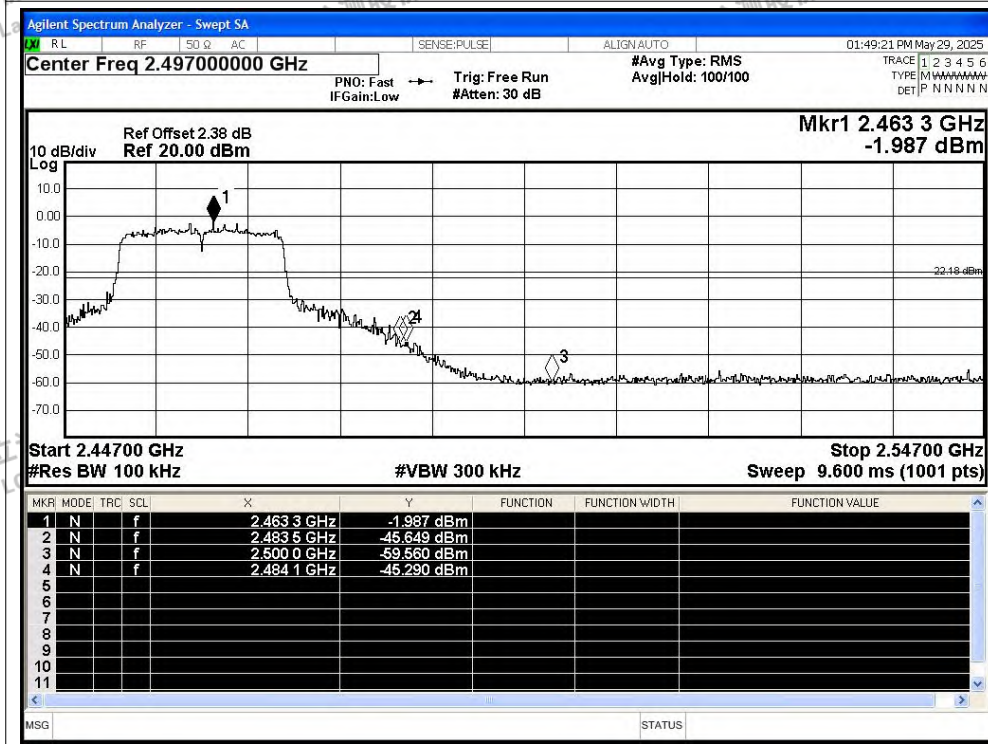
Scan code to check authenticity



Band Edge NVNT n20 2462MHz Ant2 Ref



Band Edge NVNT n20 2462MHz Ant2 Emission



Shenzhen LCS Compliance Testing Laboratory Ltd.

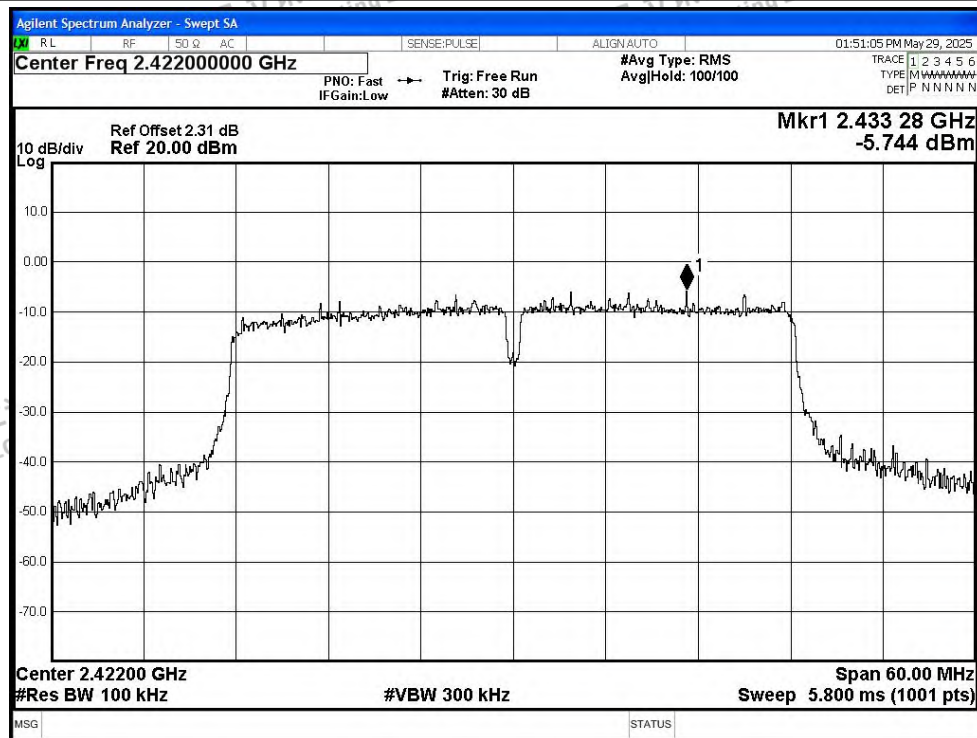
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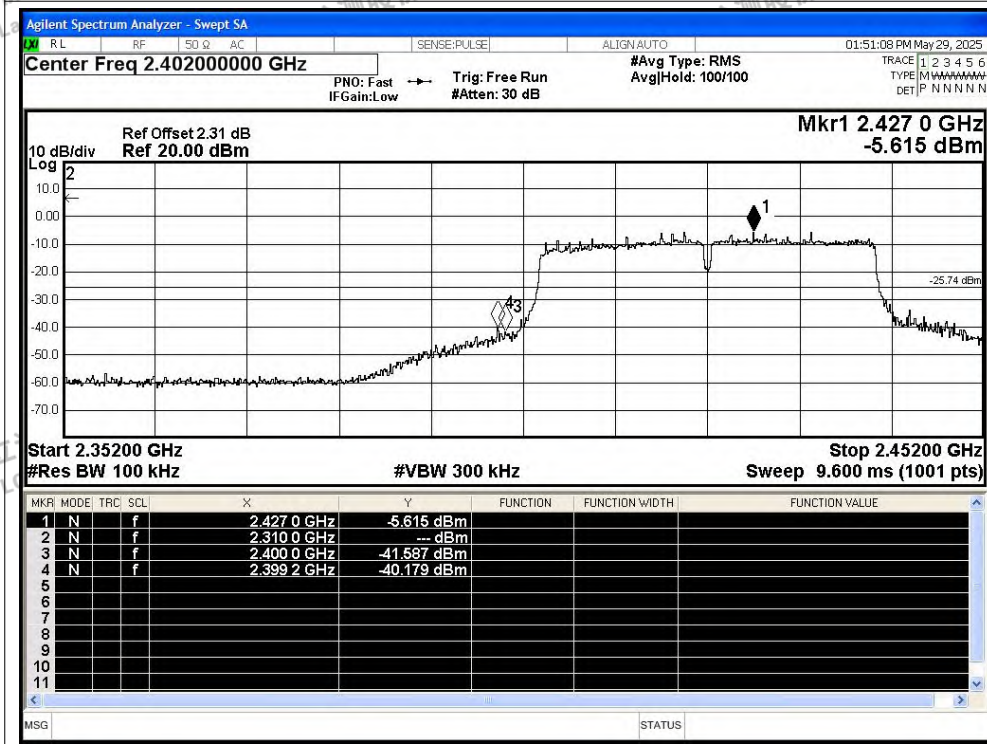
Scan code to check authenticity



Band Edge NVNT n40 2422MHz Ant2 Ref

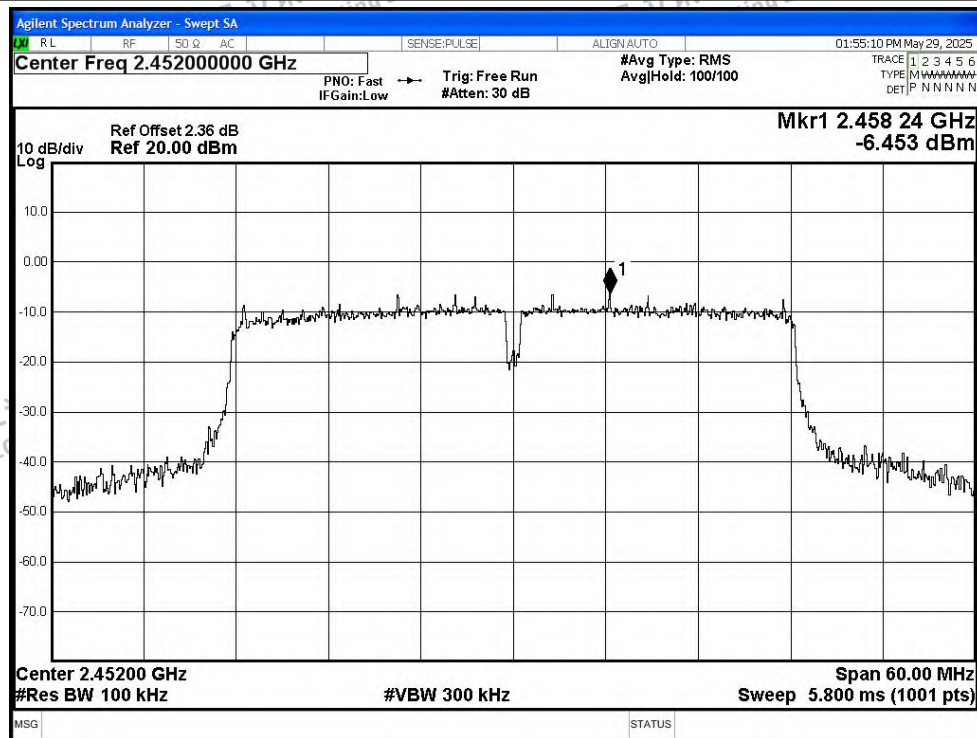


Band Edge NVNT n40 2422MHz Ant2 Emission

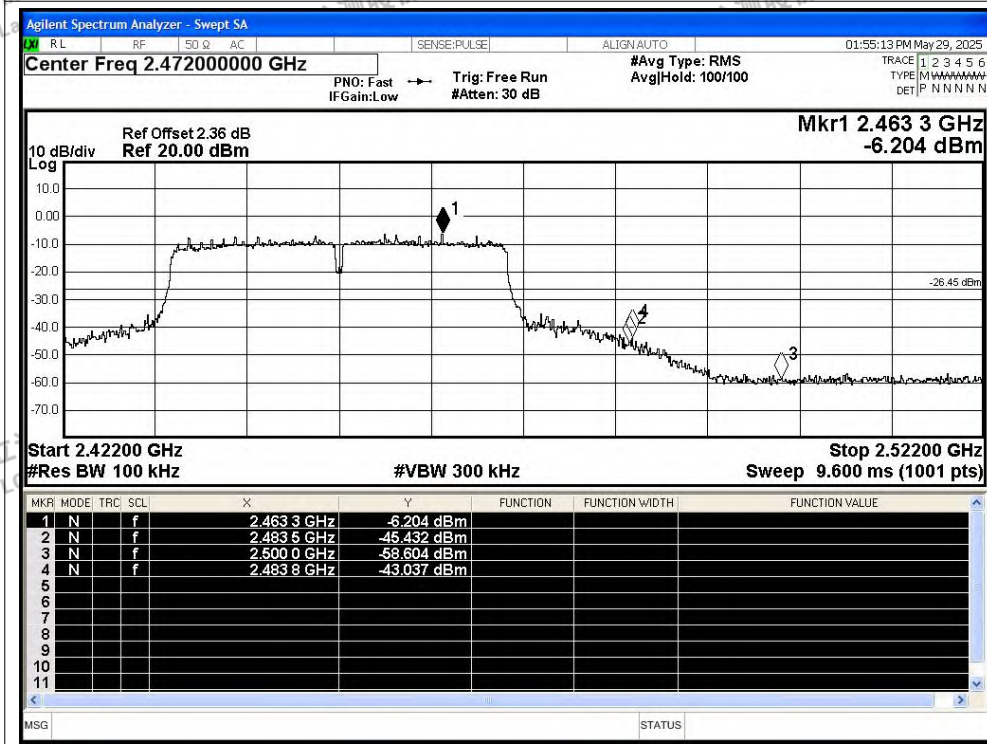




Band Edge NVNT n40 2452MHz Ant2 Ref



Band Edge NVNT n40 2452MHz Ant2 Emission





A.5 Conducted RF Spurious Emission

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	b	2412	Ant1	-51.51	-20	Pass
NVNT	b	2437	Ant1	-50.52	-20	Pass
NVNT	b	2462	Ant1	-48.92	-20	Pass
NVNT	g	2412	Ant1	-42.66	-20	Pass
NVNT	g	2437	Ant1	-44.11	-20	Pass
NVNT	g	2462	Ant1	-43.47	-20	Pass
NVNT	n20	2412	Ant1	-43.68	-20	Pass
NVNT	n20	2437	Ant1	-43.96	-20	Pass
NVNT	n20	2462	Ant1	-43.88	-20	Pass
NVNT	n40	2422	Ant1	-39.6	-20	Pass
NVNT	n40	2437	Ant1	-40.93	-20	Pass
NVNT	n40	2452	Ant1	-39.61	-20	Pass



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