

7.5.4 Measurement Procedure and Data

Note: Since the verify power the same operating range bandwidth and smaller power can be covered by the higher power.

Please Refer to Appendix for Details

7.6 Minimum 6dB Bandwidth

Test Requirement 47 CFR Part 15, Subpart C 15.247a(2)
Test Method: ANSI C63.10-2020 + Cor.1-2023 + C63.10a-2024 + Errata to C63.10a-2024 Section 11.8.1

Limit:
 ≥ 500 kHz

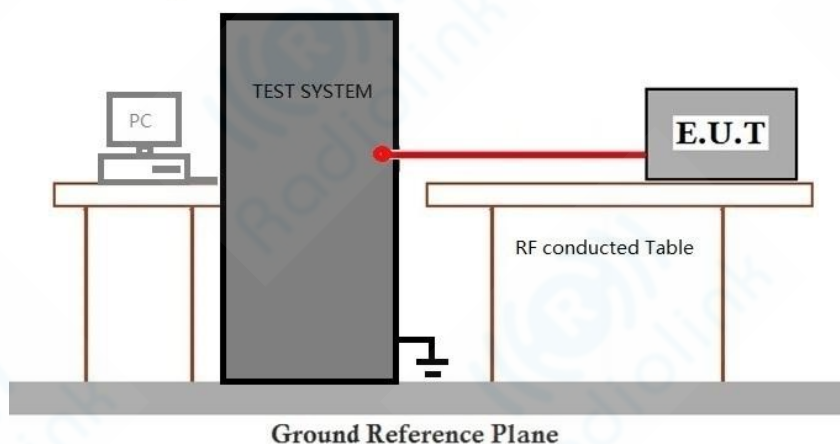
7.6.1 E.U.T. Operation

Operating Environment:
Temperature: 22.2 °C Humidity: 40.0 % RH Atmospheric Pressure: 1020 mbar

7.6.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	02	TX mode_Keep the EUT in continuously transmitting mode with GFSK modulation.

7.6.3 Test Setup Diagram



7.6.4 Measurement Procedure and Data

Please Refer to Appendix for Details

7.7 99% Bandwidth

Test Requirement N/A

Test Method: ANSI C63.10 (2013) Section 6.9.3

7.7.1 E.U.T. Operation

Operating Environment:

Temperature: 23.3 °C

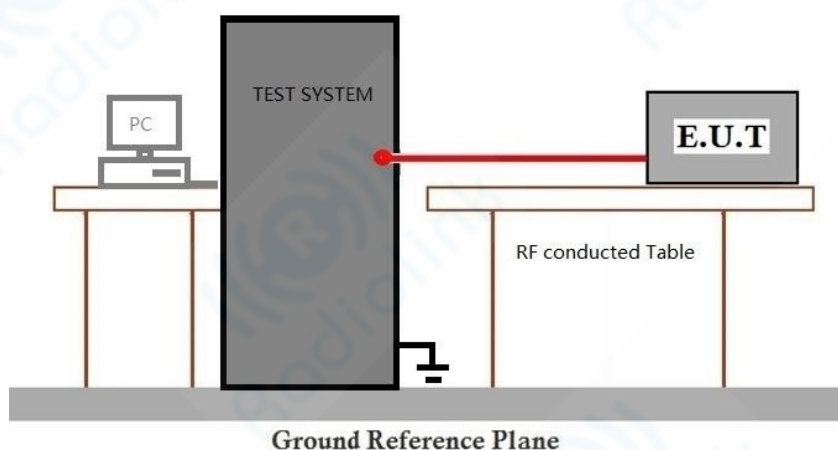
Humidity: 46.5 % RH

Atmospheric Pressure: 1020 mbar

7.7.2 Test Mode Description

Mode Code	Description
1	TX mode(1Mbps)_Keep the EUT in continuously transmitting mode with GFSK modulation.

7.7.3 Test Setup Diagram



7.7.4 Measurement Procedure and Data

Please Refer to Appendix for Details

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7.8 Power Spectrum Density

Test Requirement 47 CFR Part 15, Subpart C 15.247(e)
Test Method: ANSI C63.10-2020 + Cor.1-2023 + C63.10a-2024 + Errata to C63.10a-2024
Section 11.10.2

Limit:

$\leq 8\text{dBm}$ in any 3 kHz band during any time interval of continuous transmission

7.8.1 E.U.T. Operation

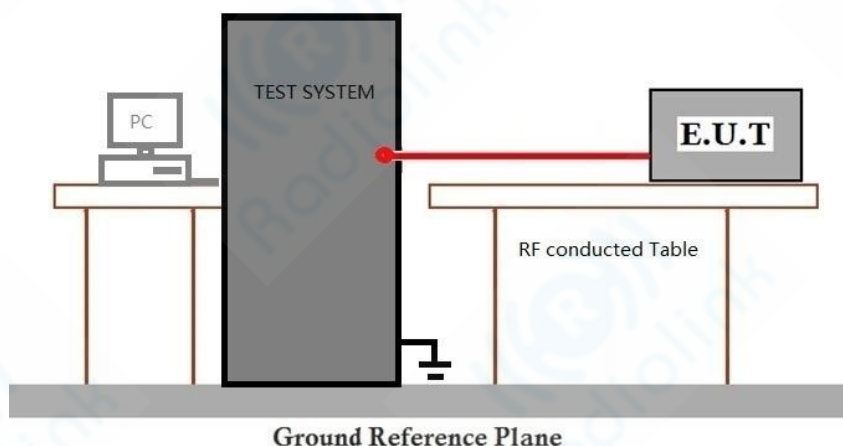
Operating Environment:

Temperature: 22.2 °C Humidity: 40.0 % RH Atmospheric Pressure: 1020 mbar

7.8.2 Test Mode Description

Mode Code	Description
1	TX mode_Keep the EUT in continuously transmitting mode with GFSK modulation.

7.8.3 Test Setup Diagram



7.8.4 Measurement Procedure and Data

Please Refer to Appendix for Details

7.9 Conducted Band Edges Measurement

Test Requirement 47 CFR Part 15, Subpart C 15.247(d)
Test Method: ANSI C63.10-2020 + Cor.1-2023 + C63.10a-2024 + Errata to C63.10a-2024
Section 6.10.4

Limit:

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

7.9.1 E.U.T. Operation

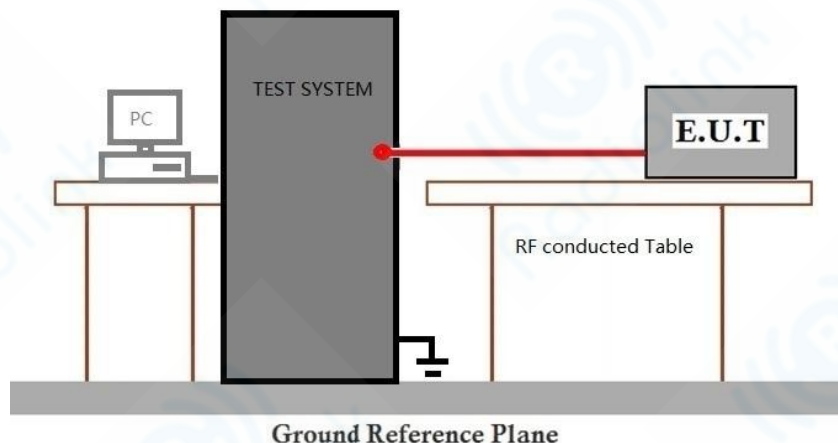
Operating Environment:

Temperature: 22.2 °C Humidity: 40.0 % RH Atmospheric Pressure: 1020 mbar

7.9.2 Test Mode Description

Mode Code	Description
1	TX mode_Keep the EUT in continuously transmitting mode with GFSK modulation.

7.9.3 Test Setup Diagram



7.9.4 Measurement Procedure and Data

Please Refer to Appendix for Details

7.10 Conducted Spurious Emissions

Test Requirement	47 CFR Part 15, Subpart C 15.247(d)
Test Method:	ANSI C63.10-2020 + Cor.1-2023 + C63.10a-2024 + Errata to C63.10a-2024 Section 11.11

Limit:

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

7.10.1 E.U.T. Operation

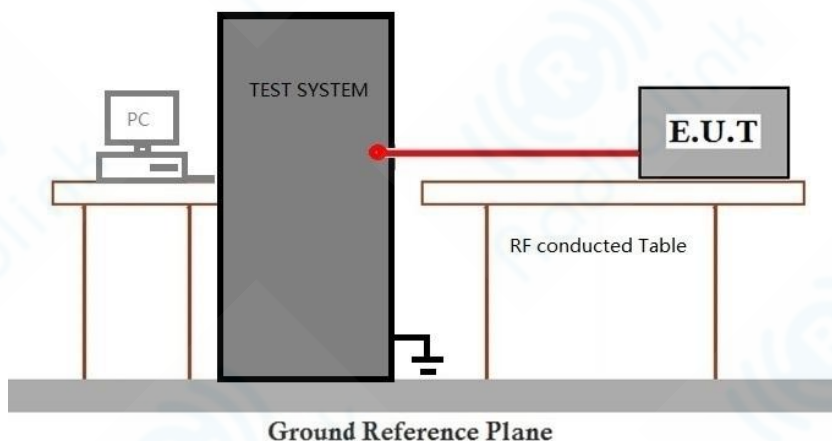
Operating Environment:

Temperature: 22.2 °C Humidity: 40.0 % RH Atmospheric Pressure: 1020 mbar

7.10.2 Test Mode Description

Mode Code	Description
1	TX mode_Keep the EUT in continuously transmitting mode with GFSK modulation.

7.10.3 Test Setup Diagram



7.10.4 Measurement Procedure and Data

Please Refer to Appendix for Details

8 Test Setup Photo

Refer to Appendix A_Setup Photo (1.4)



9 Appendix

1. Duty Cycle

1.1 Test Result

1.1.1 Ant1

Ant1							
Mode	TX Type	Frequency (MHz)	T _{on} (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)
1M	SISO	2402	0.403	0.625	64.48	1.91	0.00
		2440	0.403	0.625	64.48	1.91	0.03
		2480	0.403	0.625	64.48	1.91	0.03
2M	SISO	2404	0.218	0.625	34.88	4.57	0.00
		2440	0.218	0.625	34.88	4.57	0.00
		2478	0.218	0.625	34.88	4.57	0.03

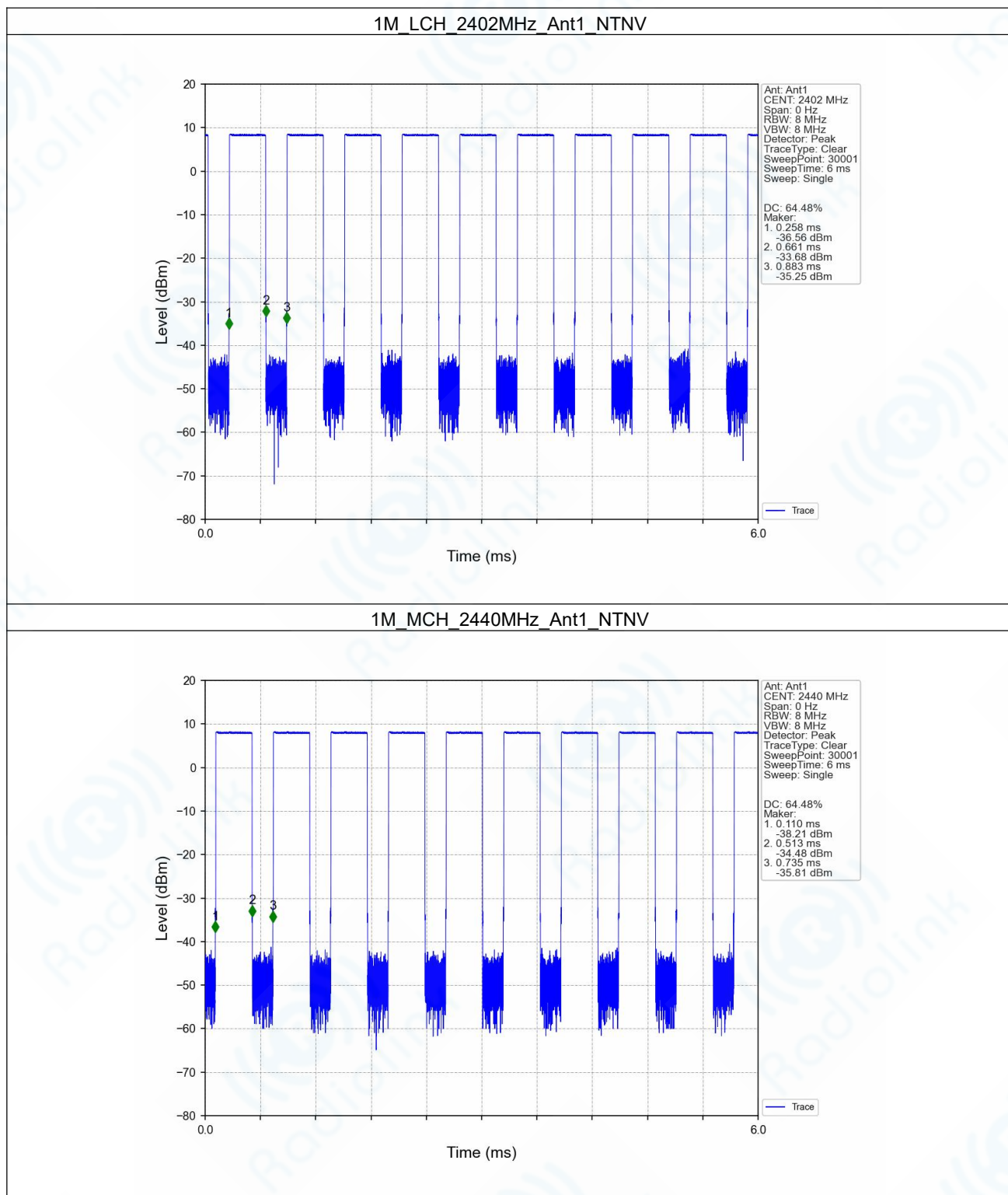


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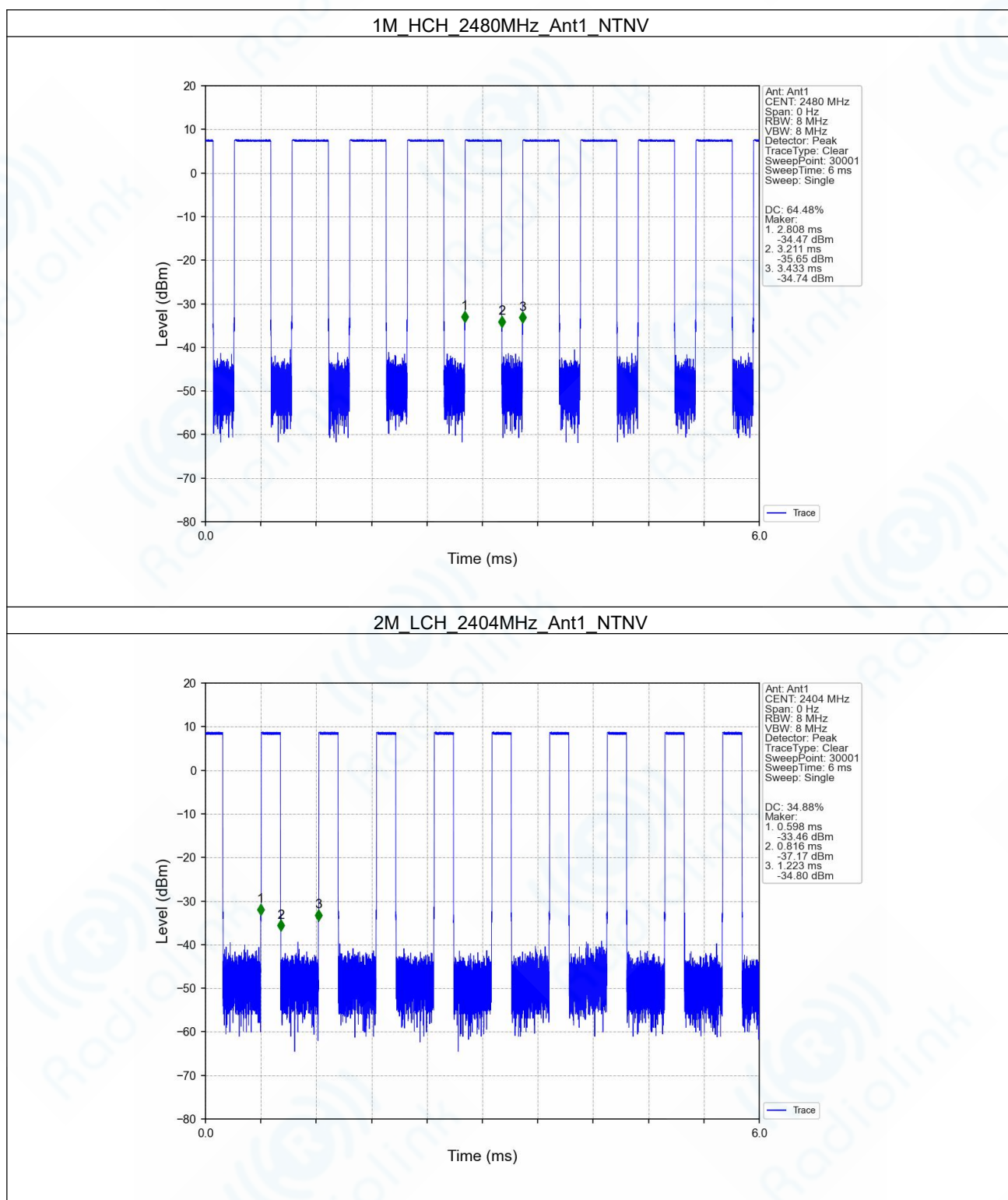
1.2 Test Graph

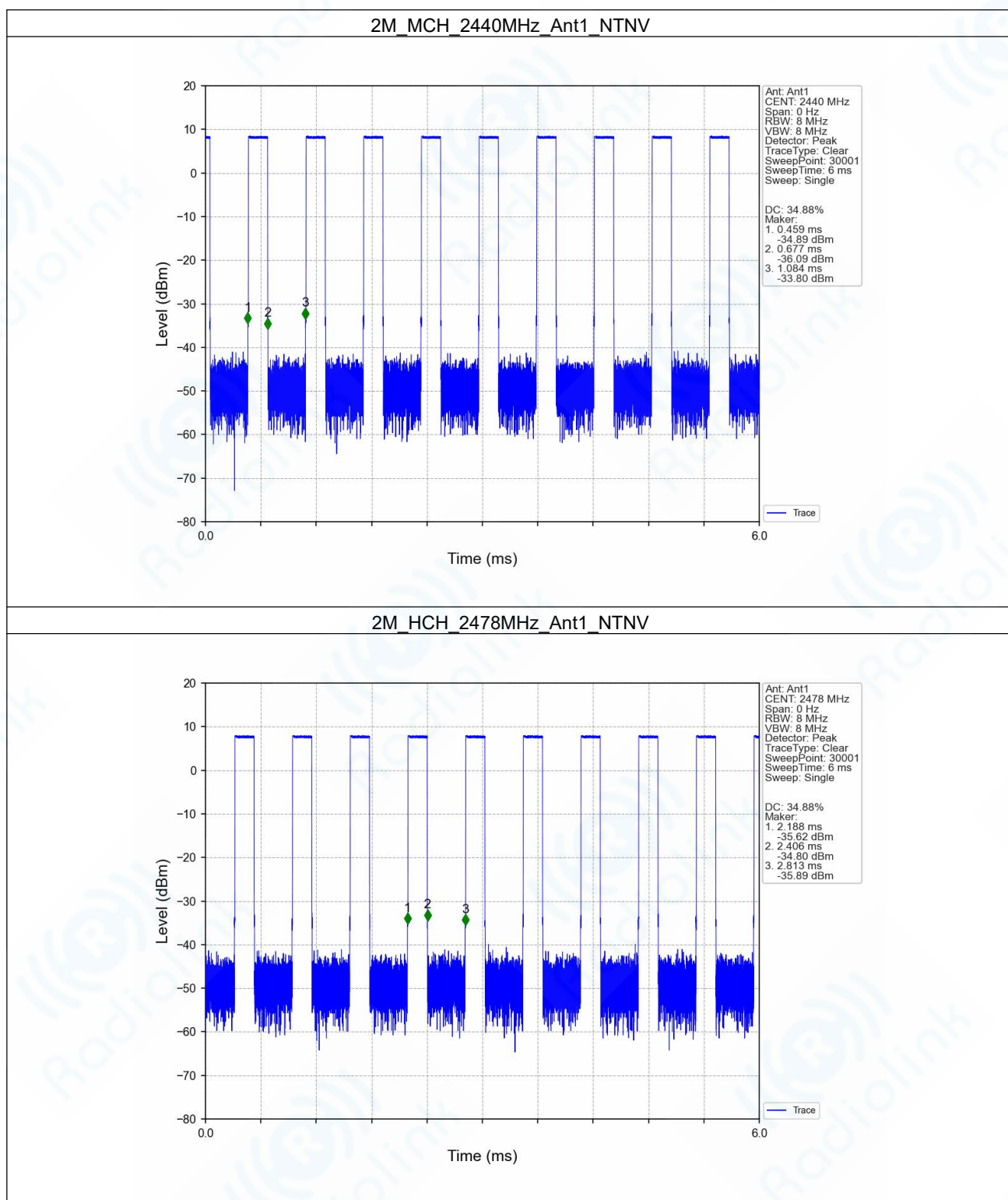
1.2.1 Ant1



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2. Bandwidth

2.1 Test Result

2.1.1 OBW

Mode	TX Type	Frequency (MHz)	ANT	99% Occupied Bandwidth (MHz)		Verdict
				Result	Limit	
1M	SISO	2402	1	1.025	/	Pass
		2440	1	1.037	/	Pass
		2480	1	1.019	/	Pass
2M	SISO	2404	1	2.058	/	Pass
		2440	1	2.035	/	Pass
		2478	1	2.032	/	Pass

2.1.2 6dB BW

Mode	TX Type	Frequency (MHz)	ANT	6dB Bandwidth (MHz)		Verdict
				Result	Limit	
1M	SISO	2402	1	0.657	≥ 0.5	Pass
		2440	1	0.657	≥ 0.5	Pass
		2480	1	0.651	≥ 0.5	Pass
2M	SISO	2404	1	1.117	≥ 0.5	Pass
		2440	1	0.958	≥ 0.5	Pass
		2478	1	1.123	≥ 0.5	Pass

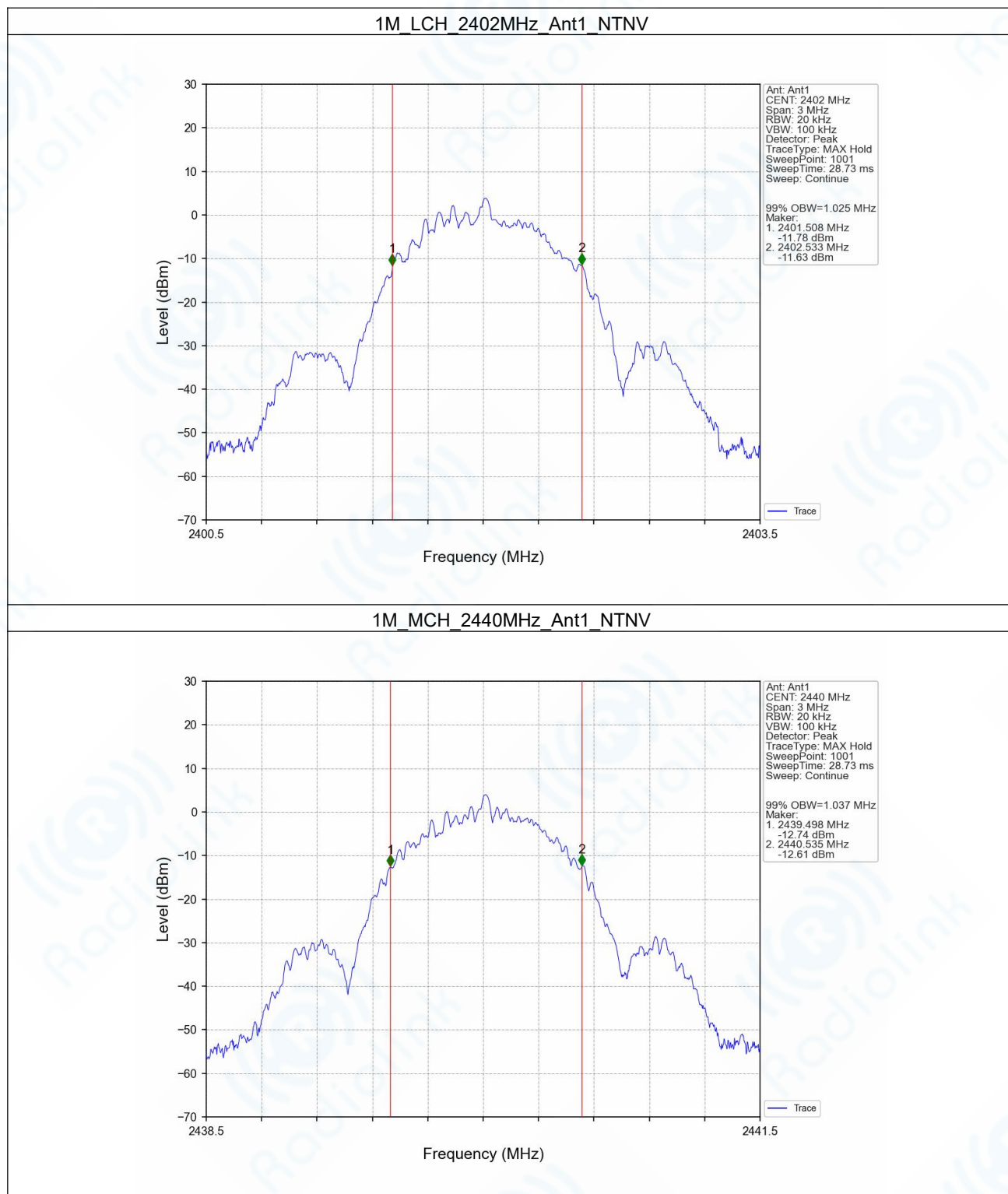


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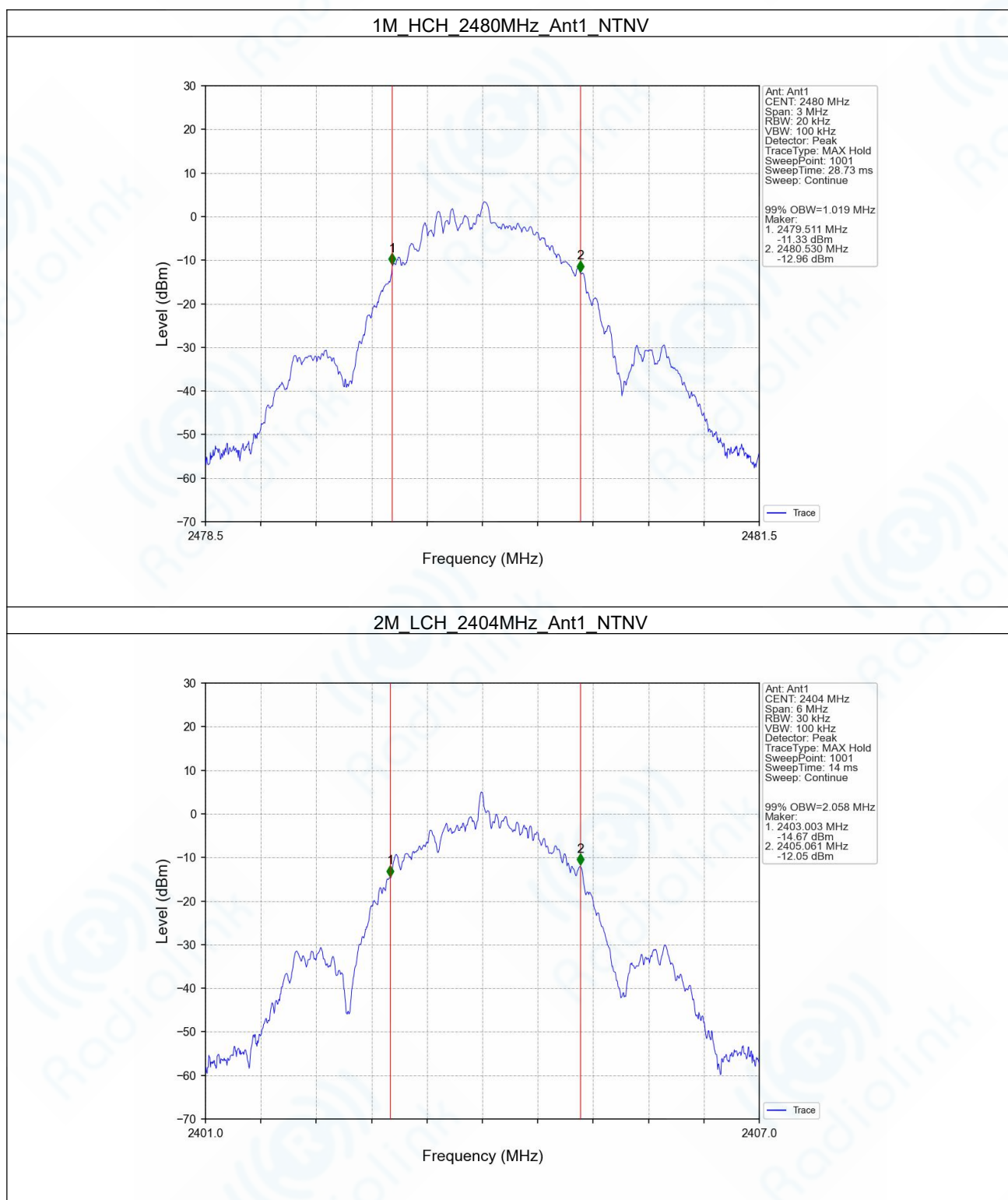
2.2 Test Graph

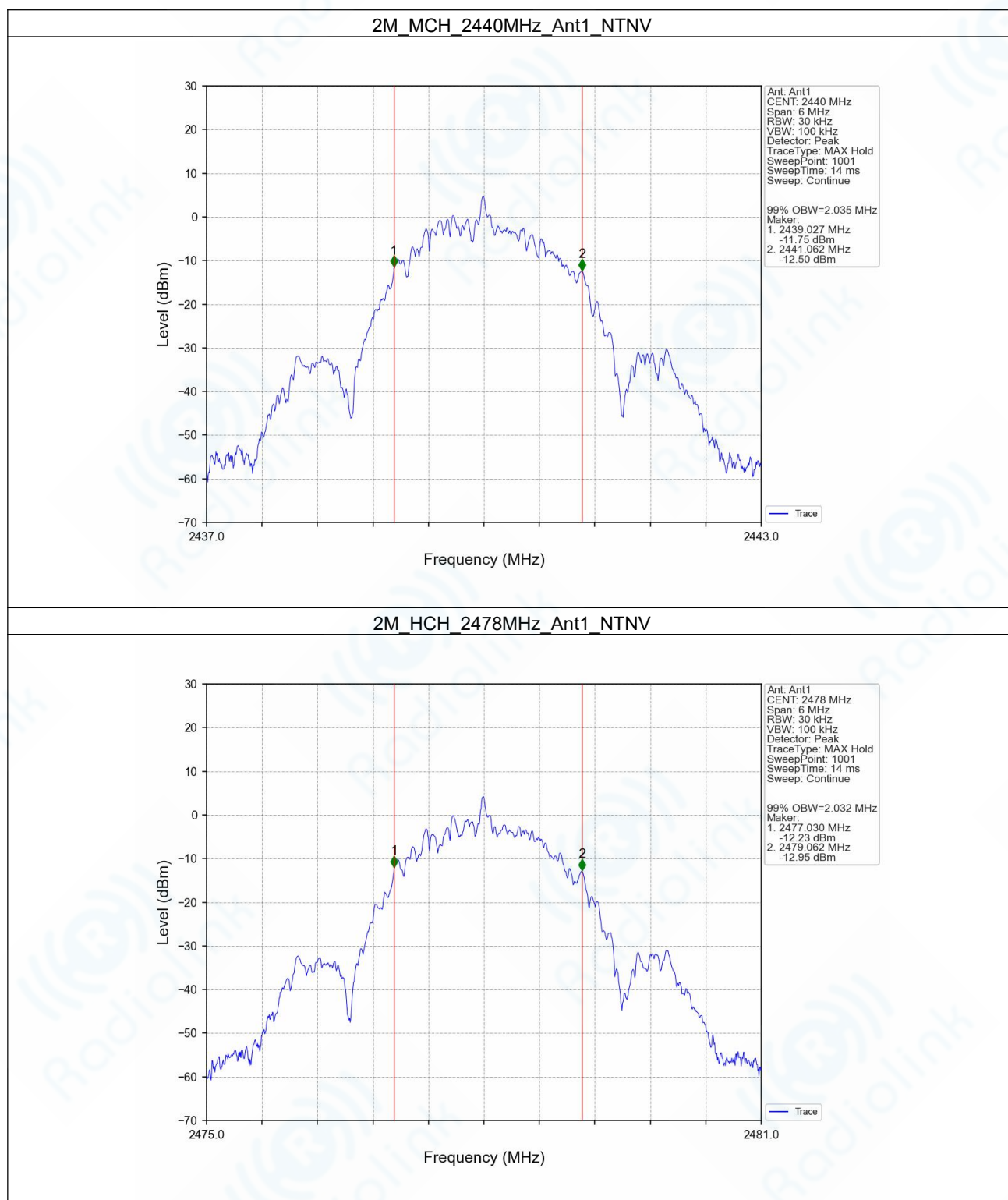
2.2.1 OBW



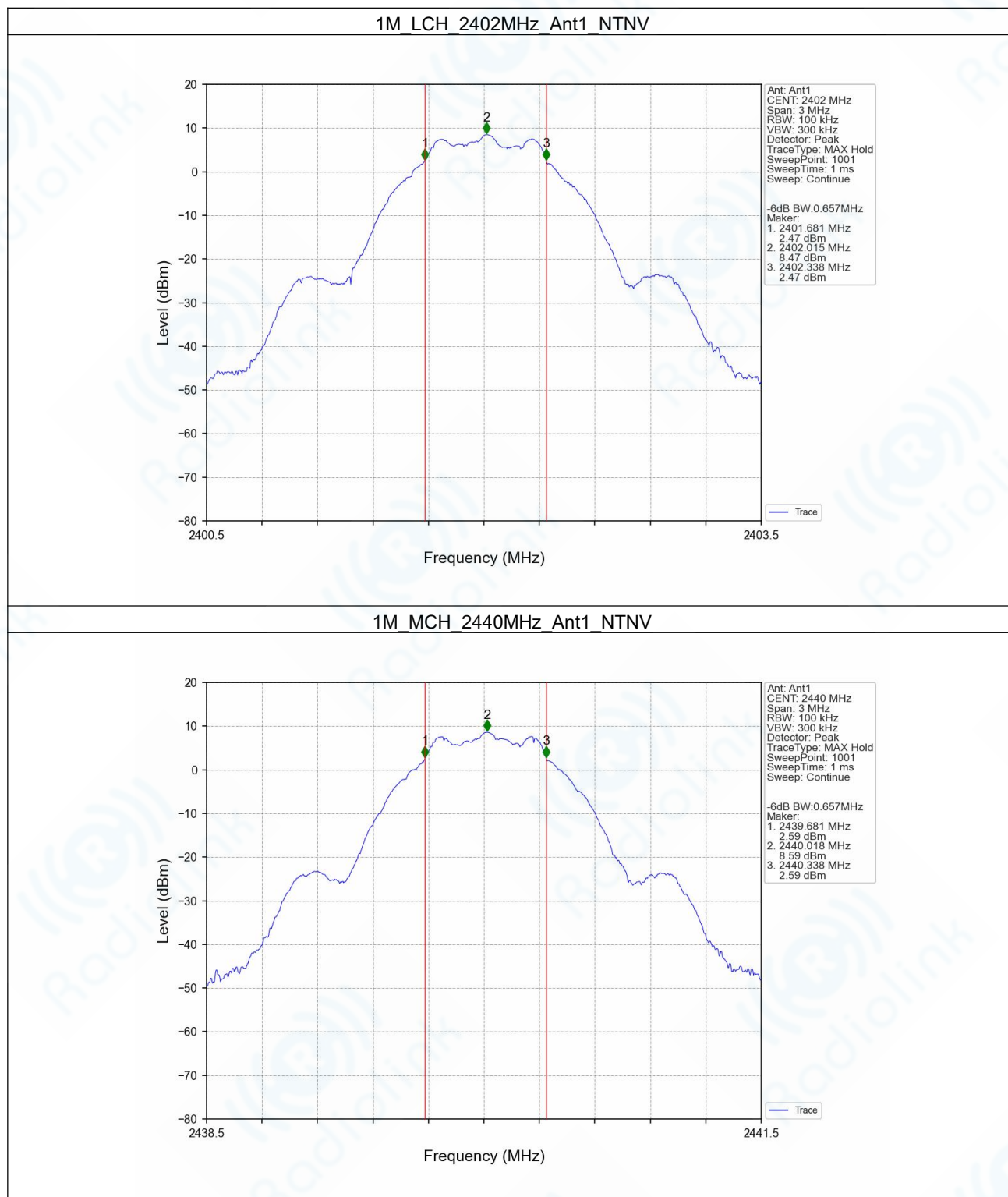
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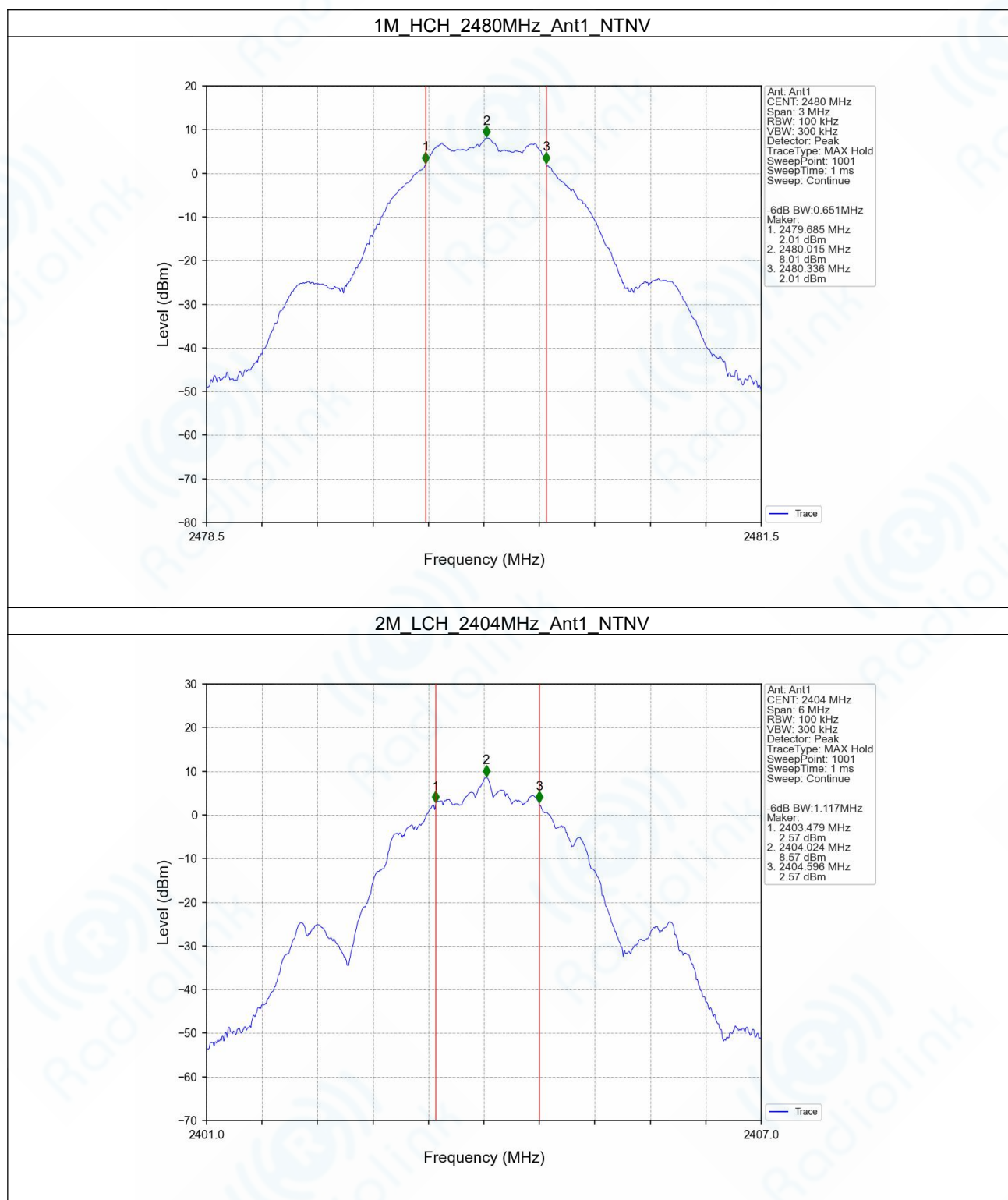


2.2.2 6dB BW



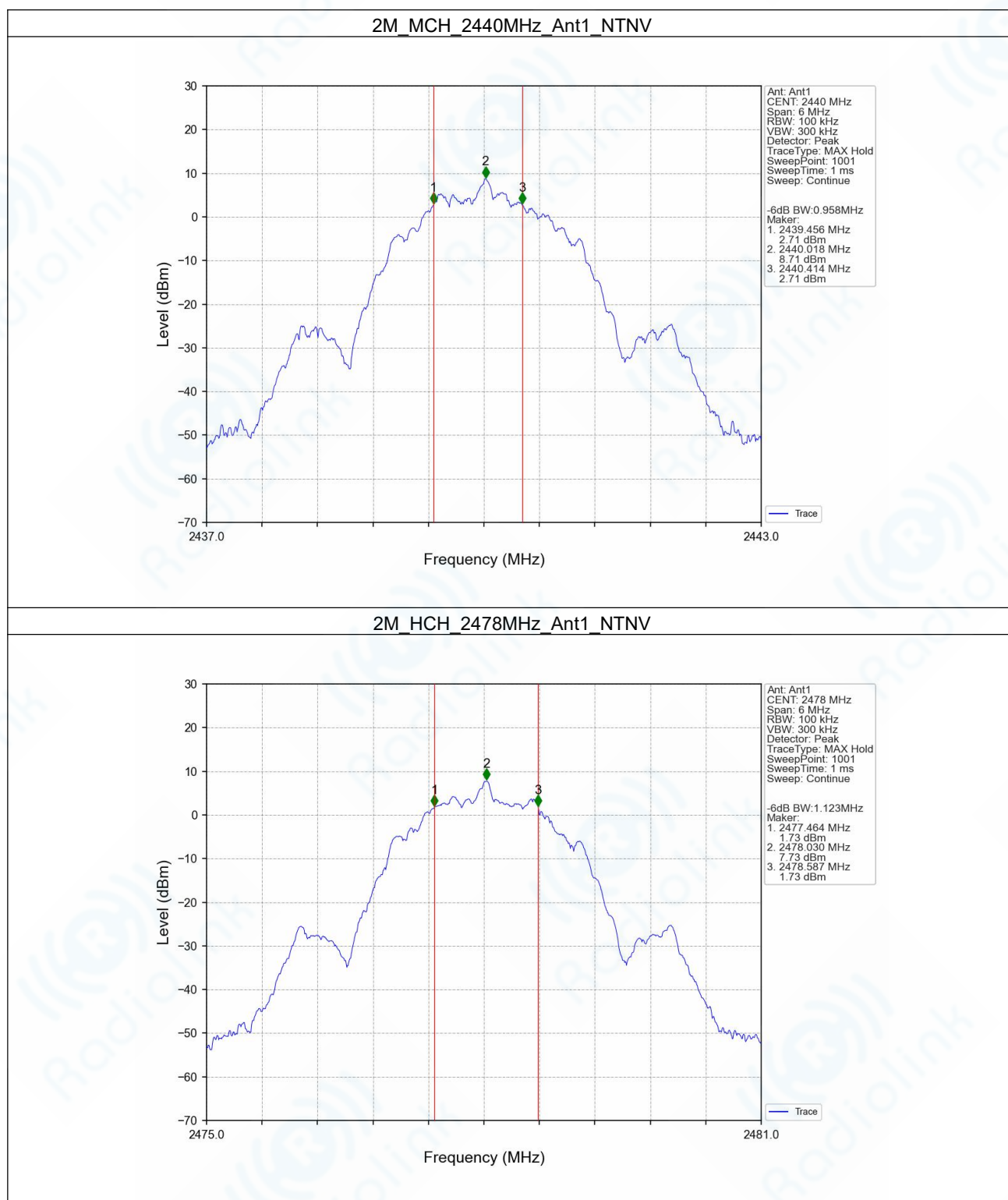
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3. Maximum Conducted Output Power

3.1 Test Result

3.1.1 Power

Mode	TX Type	Frequency (MHz)	Maximum Peak Conducted Output Power (dBm)		Verdict
			ANT1	Limit	
1M	SISO	2402	8.92	<=30	Pass
		2440	8.62	<=30	Pass
		2480	8.07	<=30	Pass
2M	SISO	2404	8.72	<=30	Pass
		2440	8.84	<=30	Pass
		2478	7.93	<=30	Pass

Note1: Antenna Gain: Ant1: 2.64dBi;

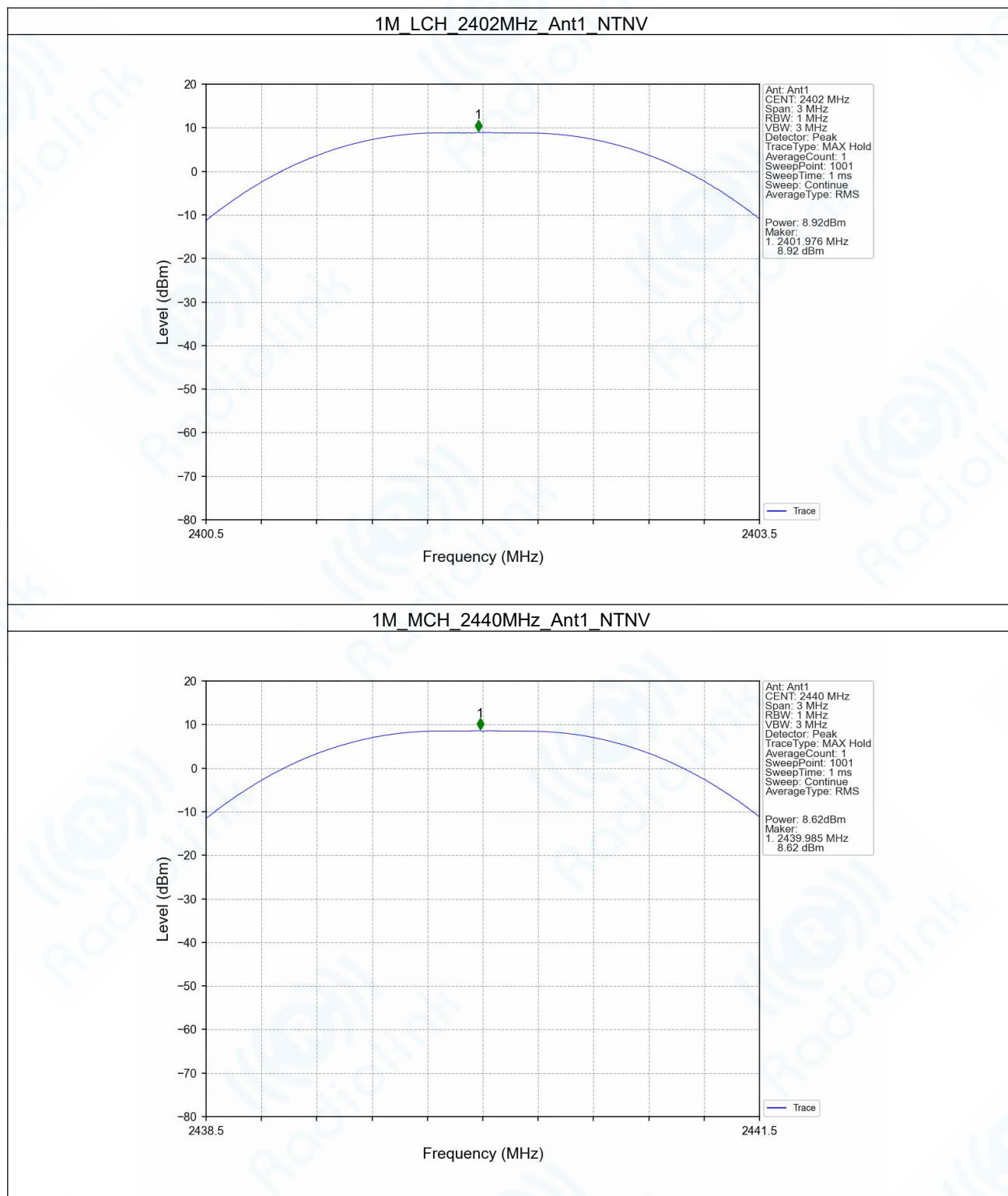


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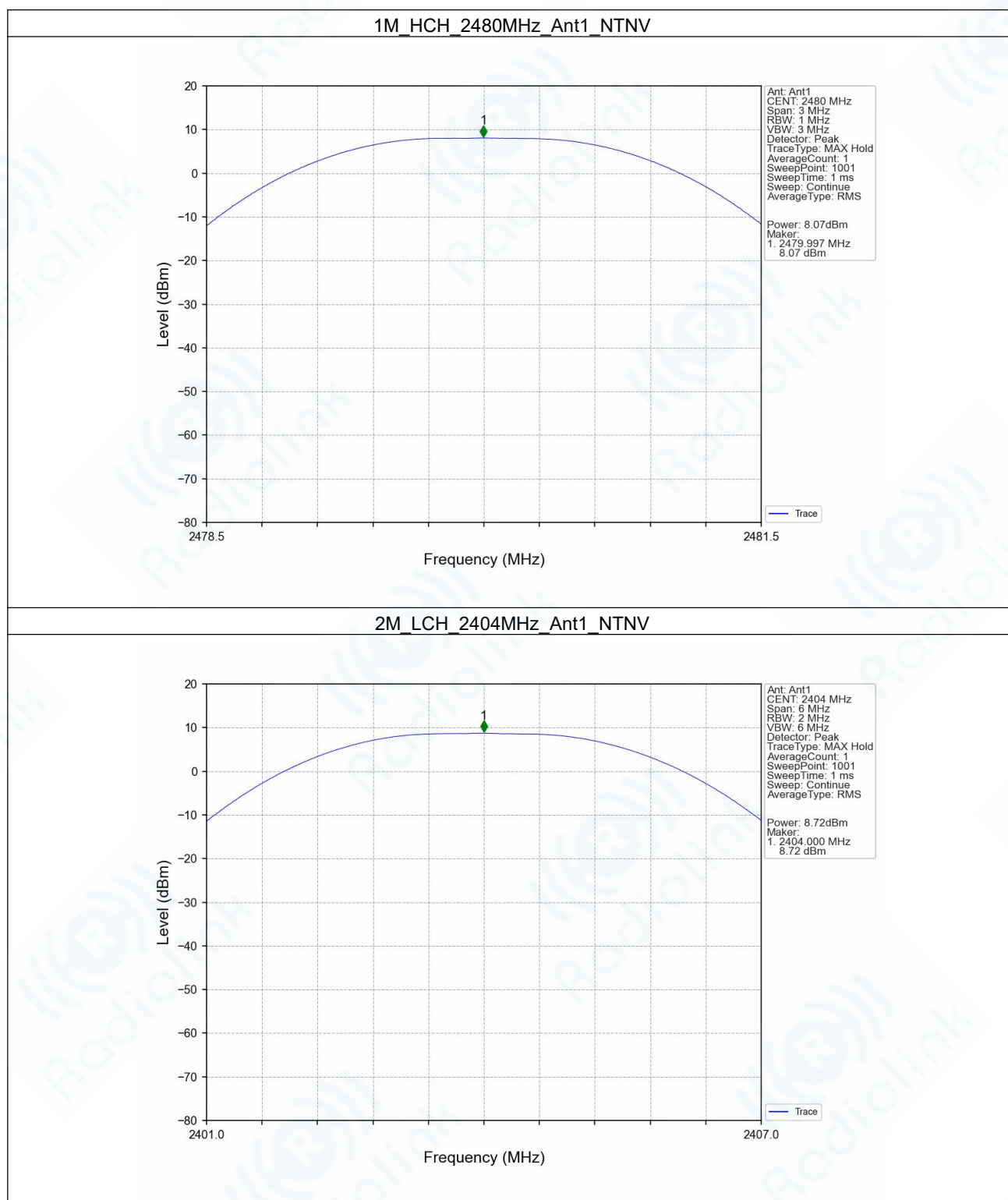
3.2 Test Graph

3.2.1 Power



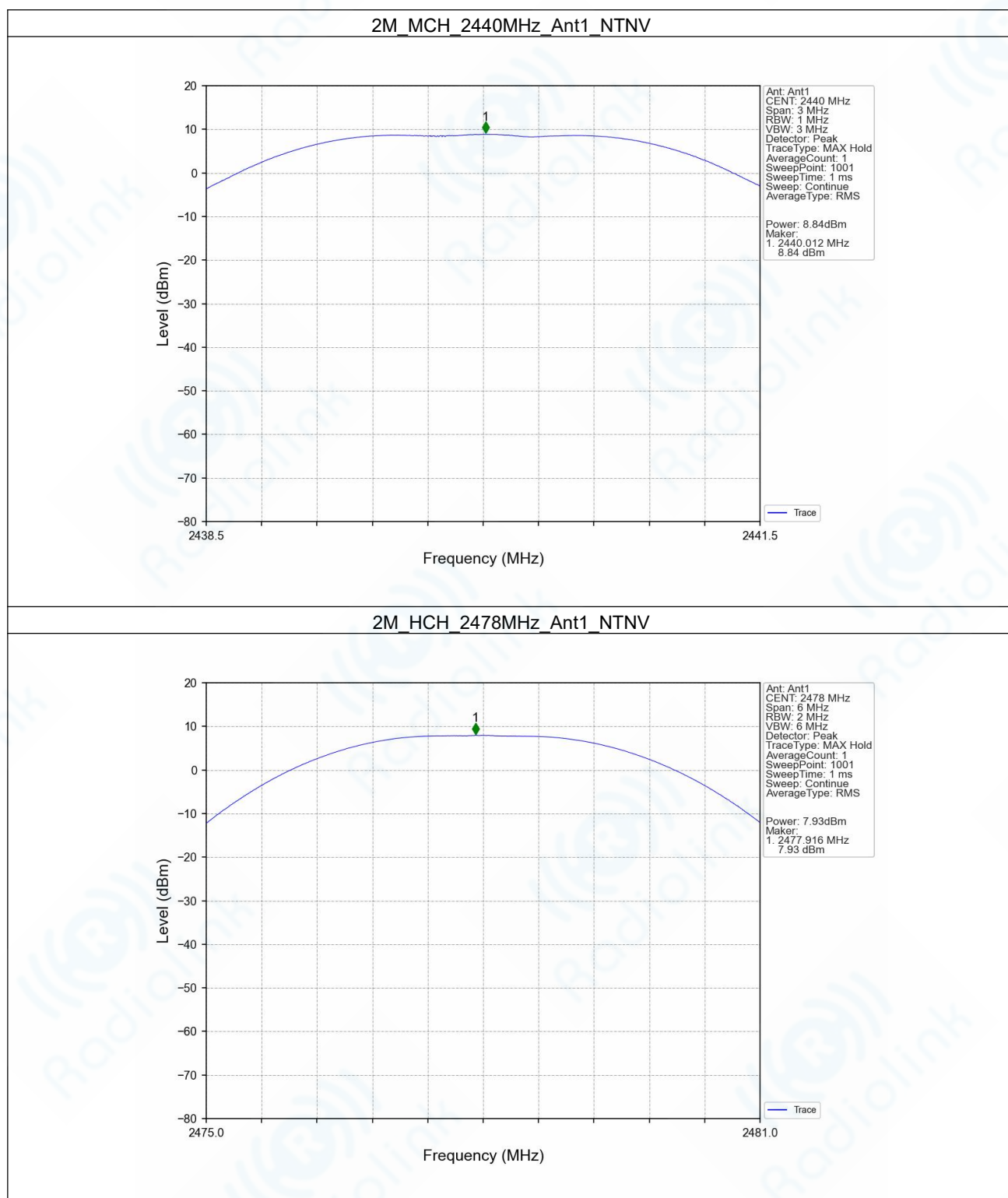
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4. Maximum Power Spectral Density

4.1 Test Result

4.1.1 PSD

Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm)		Verdict
			ANT1	Limit(dBm/3kHz)	
1M	SISO	2402	6.42dBm/30kHz	<=8	Pass
		2440	6.57dBm/30kHz	<=8	Pass
		2480	7.59dBm/100kHz	<=8	Pass
2M	SISO	2404	5.00dBm/30kHz	<=8	Pass
		2440	4.68dBm/30kHz	<=8	Pass
		2478	7.76dBm/100kHz	<=8	Pass

Note1: Antenna Gain: Ant1: 2.64dBi;

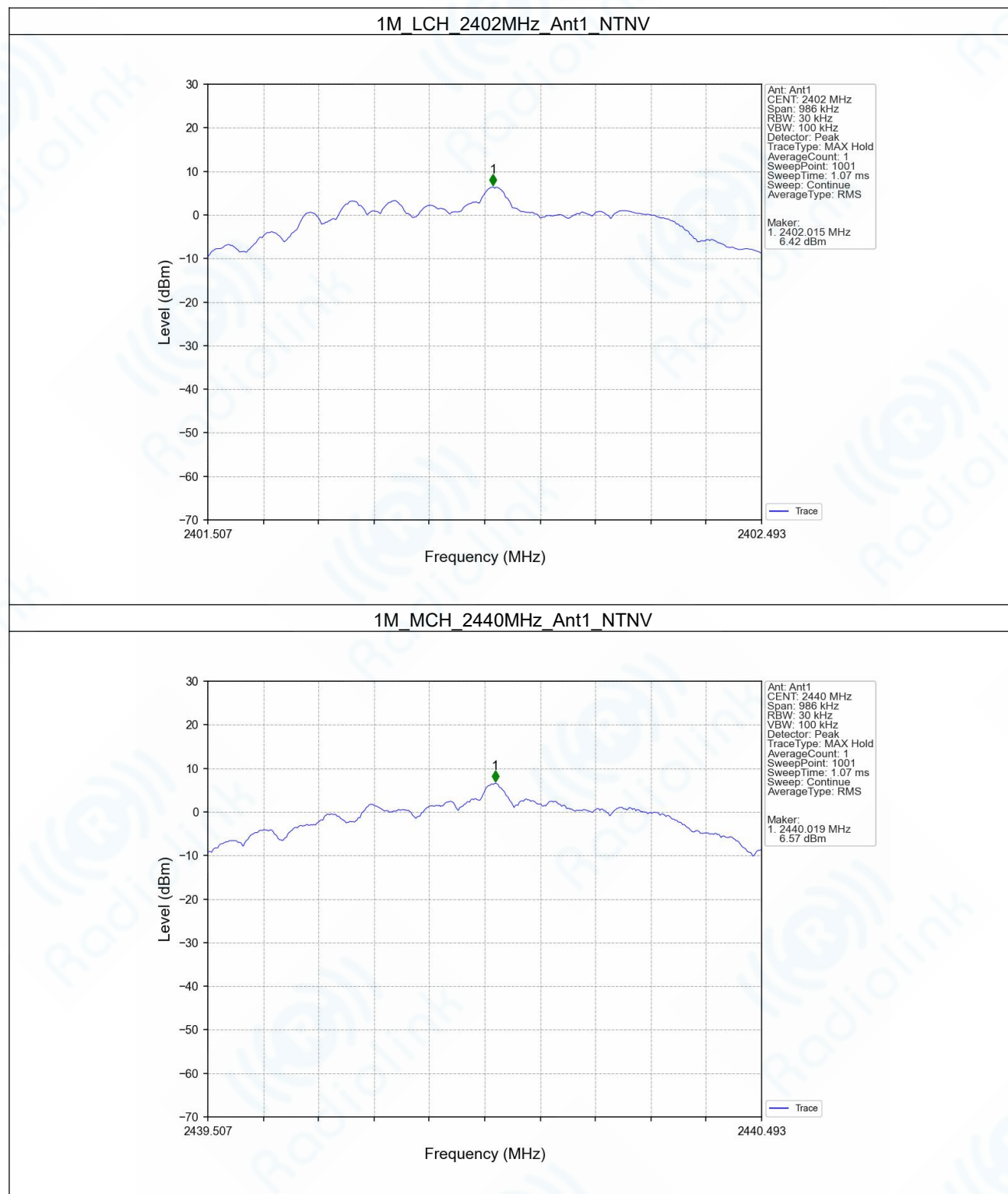


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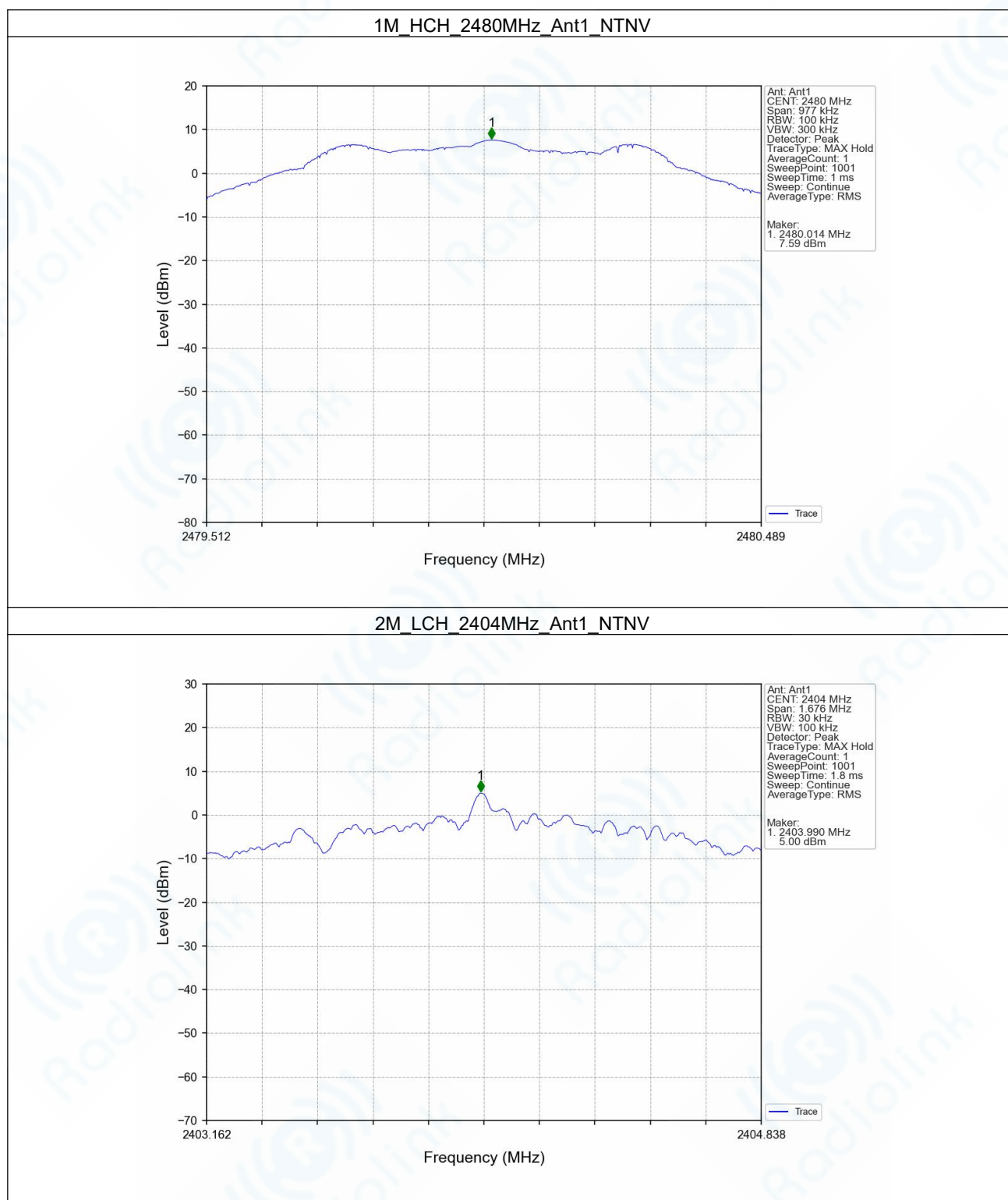
4.2 Test Graph

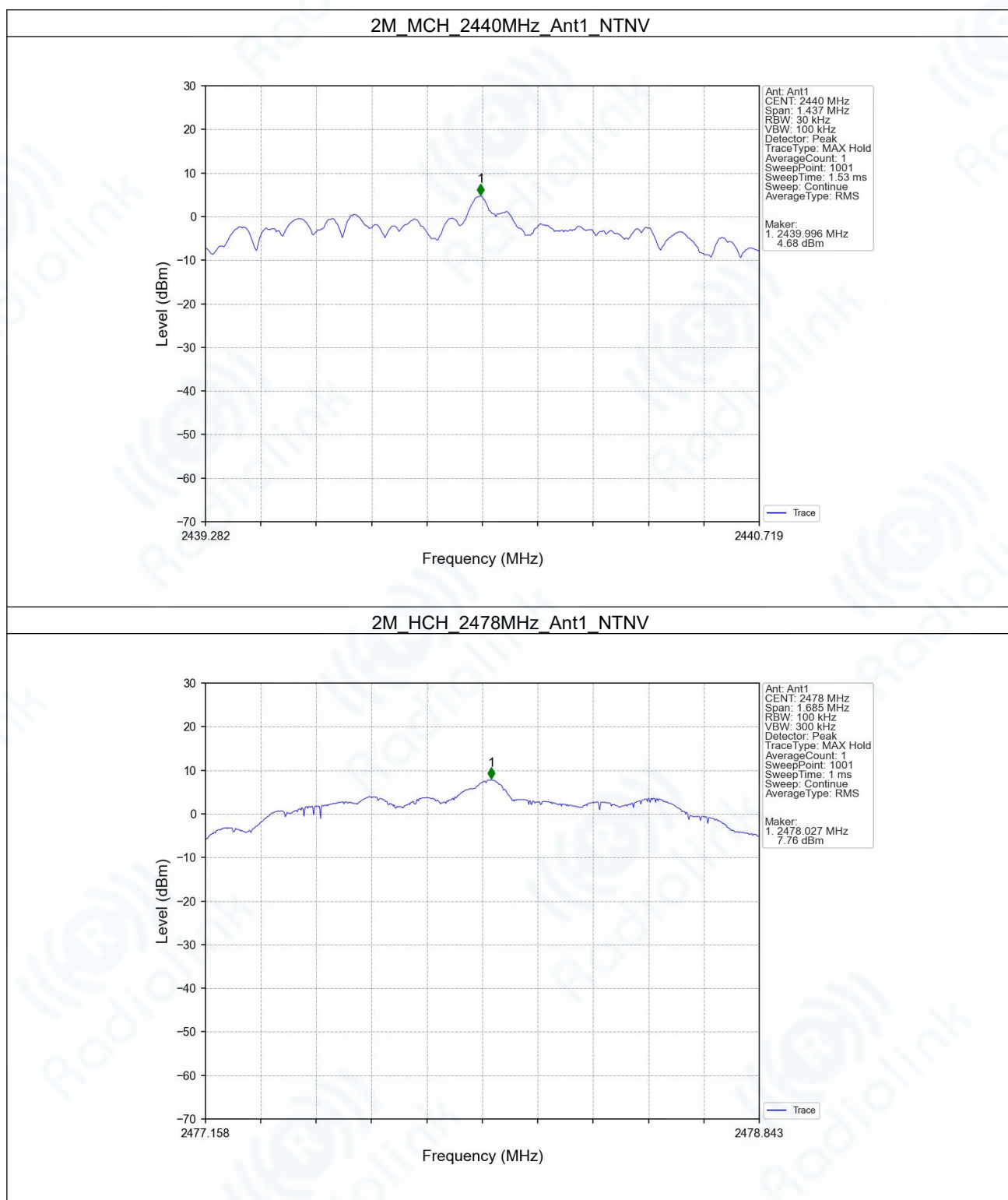
4.2.1 PSD



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5. Unwanted Emissions In Non-restricted Frequency Bands

5.1 Test Result

5.1.1 Ref

Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)
1M	SISO	2402	1	8.89
		2440	1	8.59
		2480	1	7.60
2M	SISO	2404	1	8.55
		2440	1	8.30
		2478	1	7.68

5.1.2 CSE

Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
1M	SISO	2402	1	8.89	-11.11	Pass
		2440	1	8.89	-11.11	Pass
		2480	1	8.89	-11.11	Pass
2M	SISO	2404	1	8.55	-11.45	Pass
		2440	1	8.55	-11.45	Pass
		2478	1	8.55	-11.45	Pass

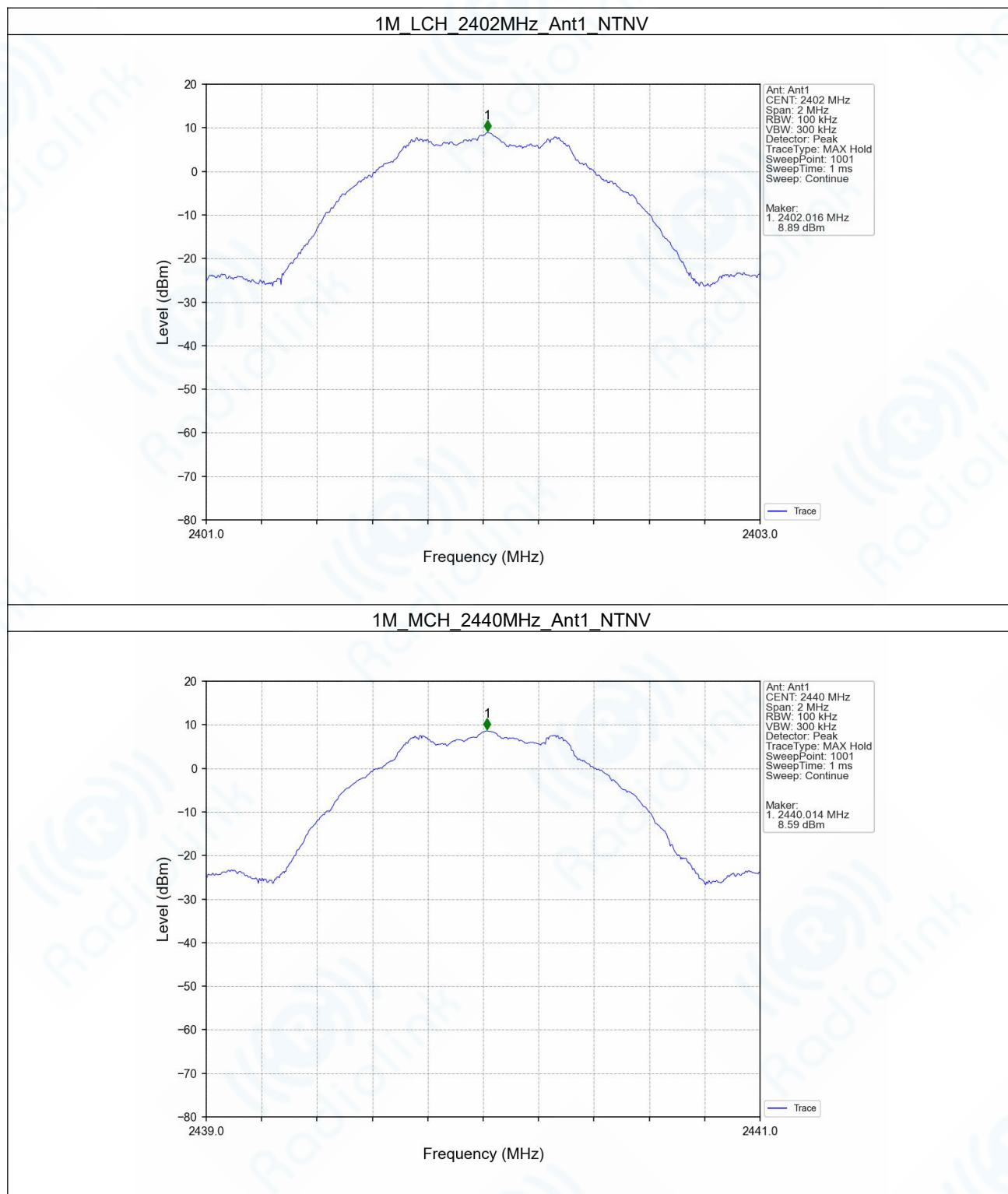


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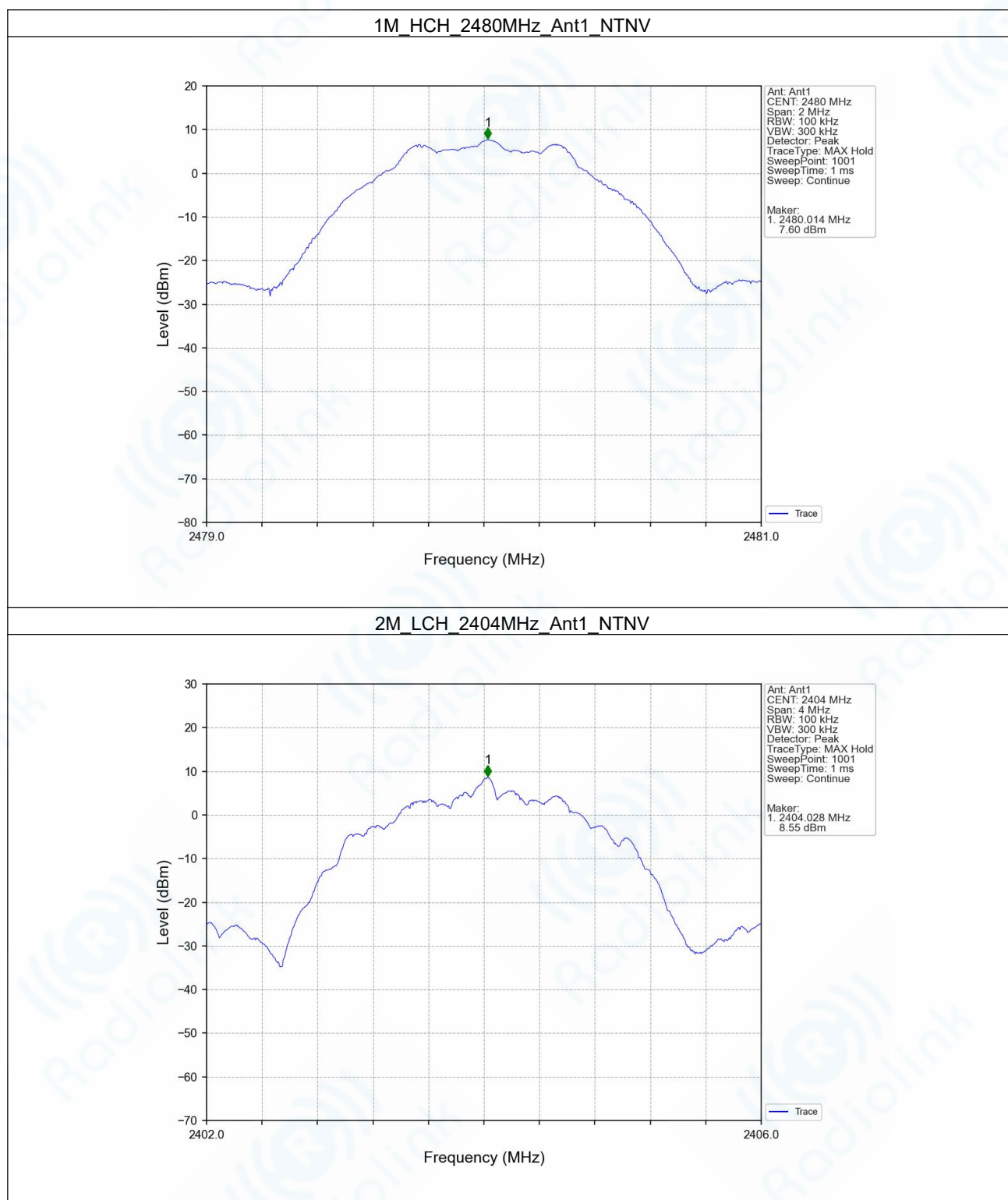
5.2 Test Graph

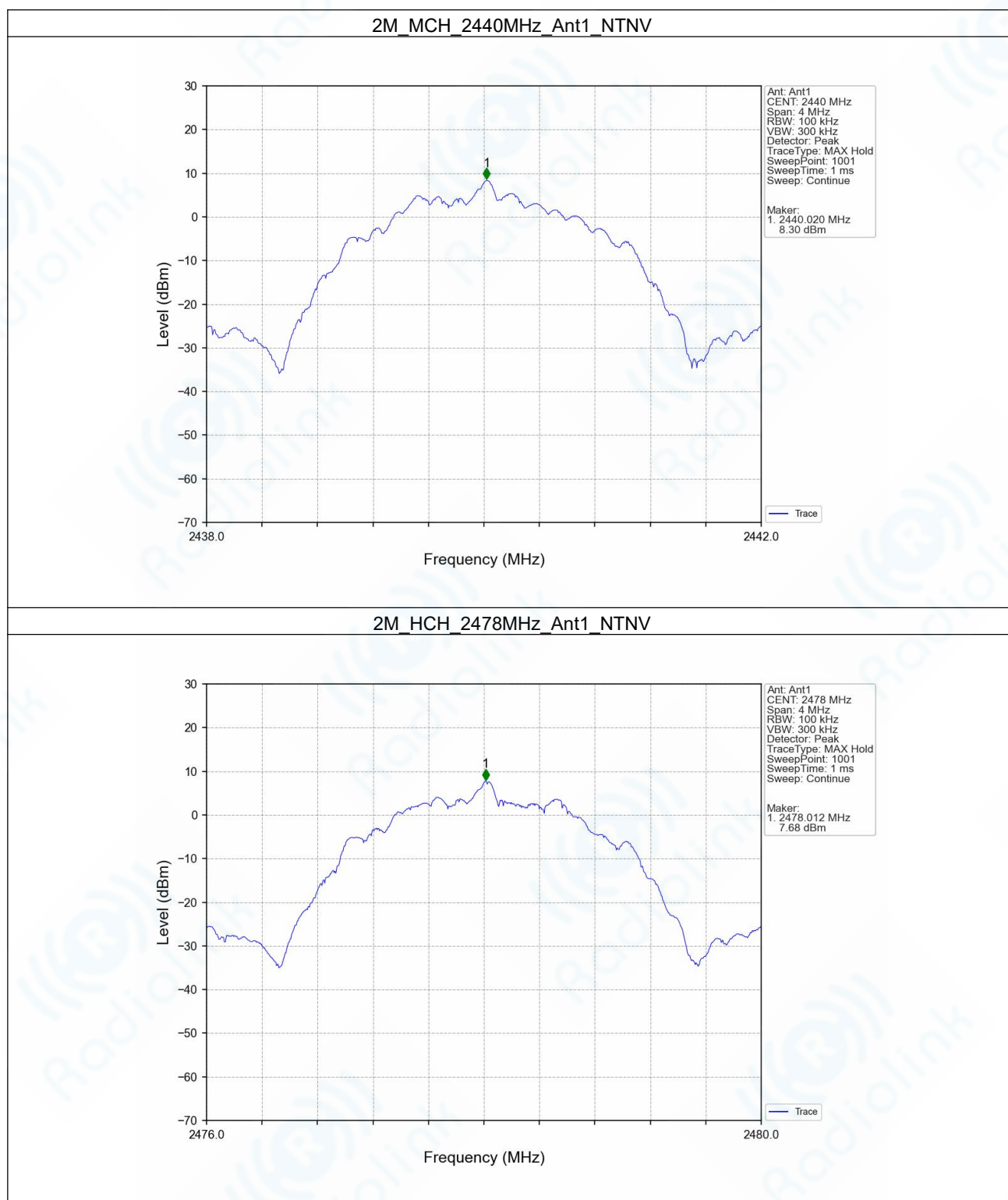
5.2.1 Ref



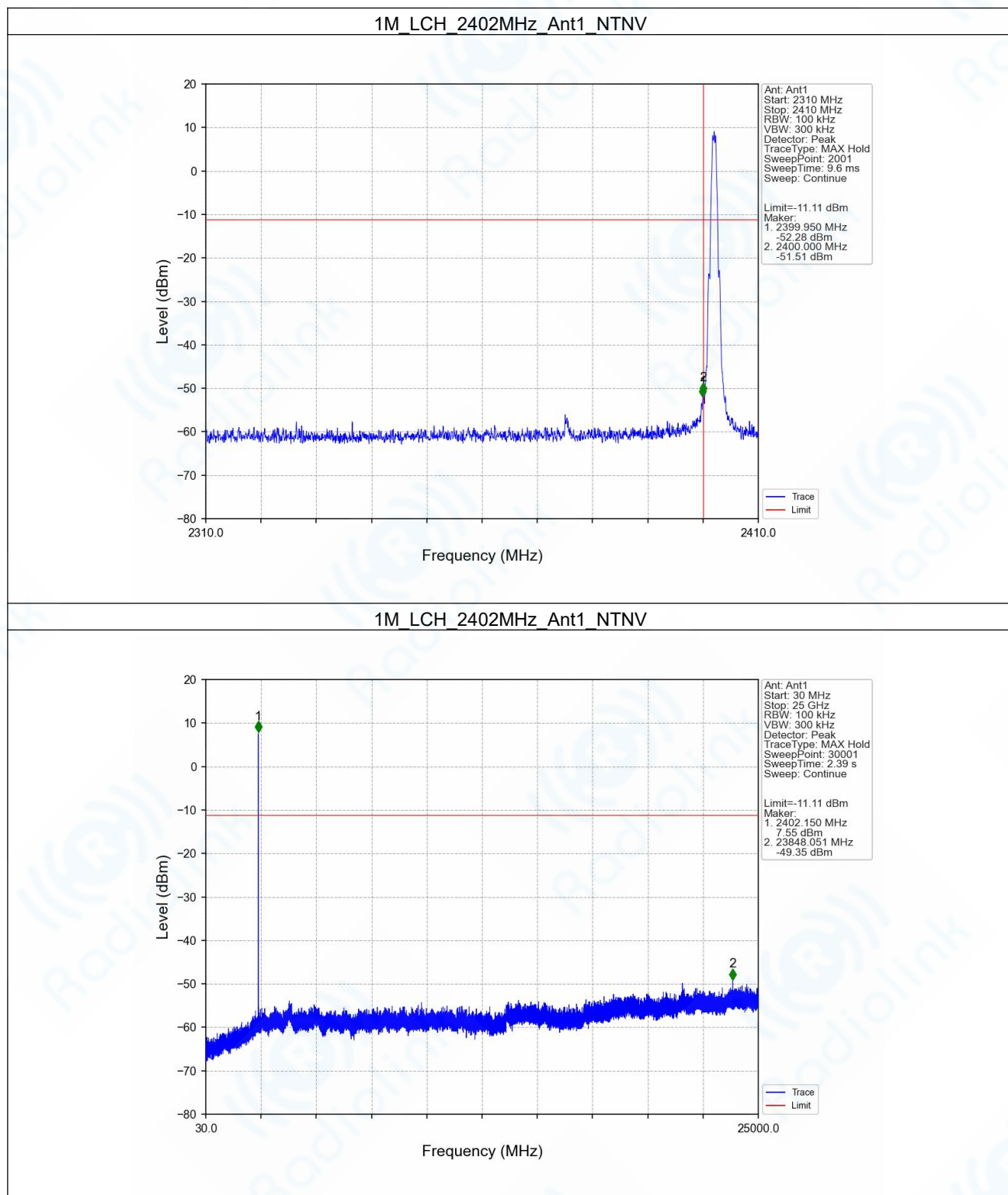
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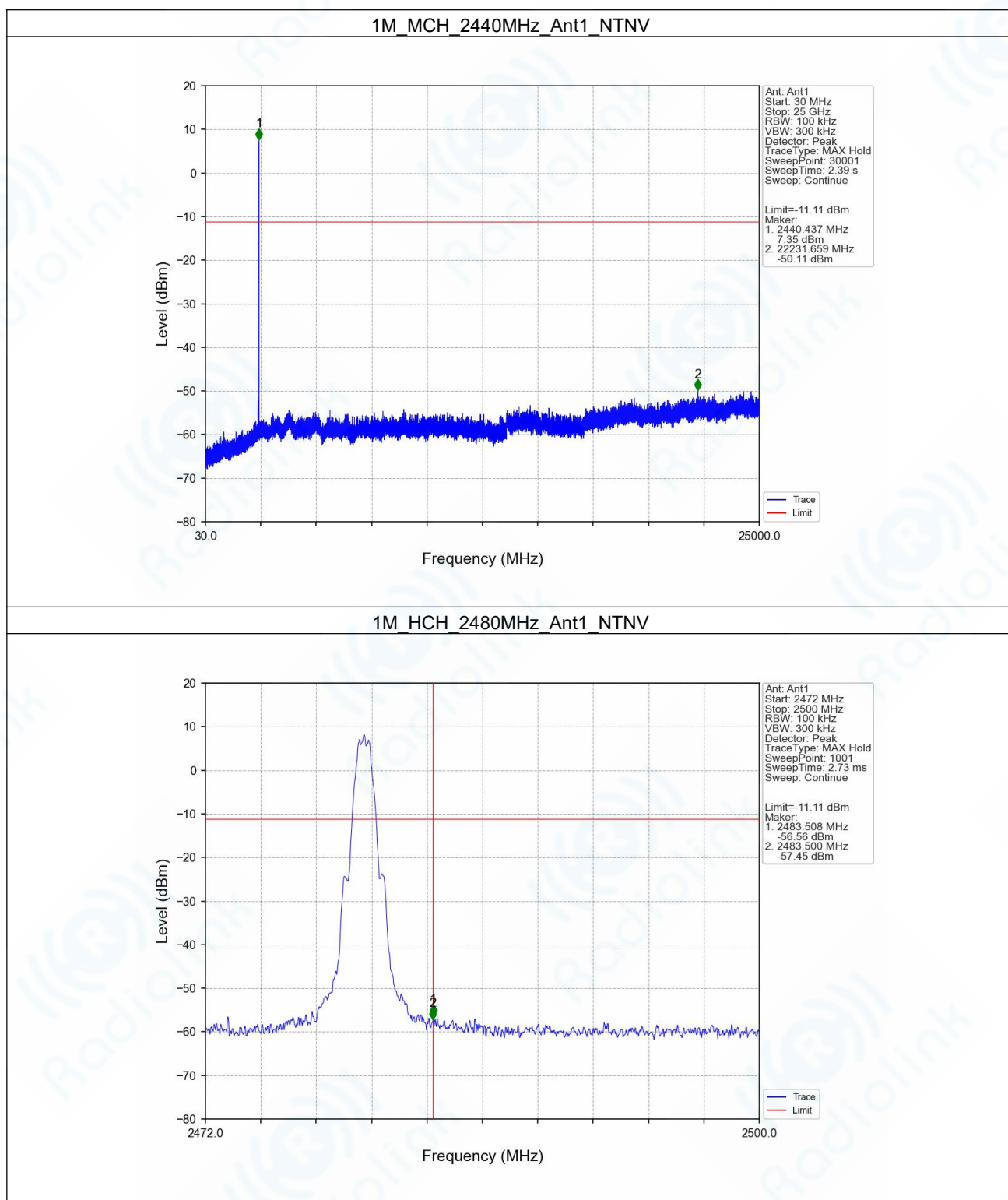


5.2.2 CSE



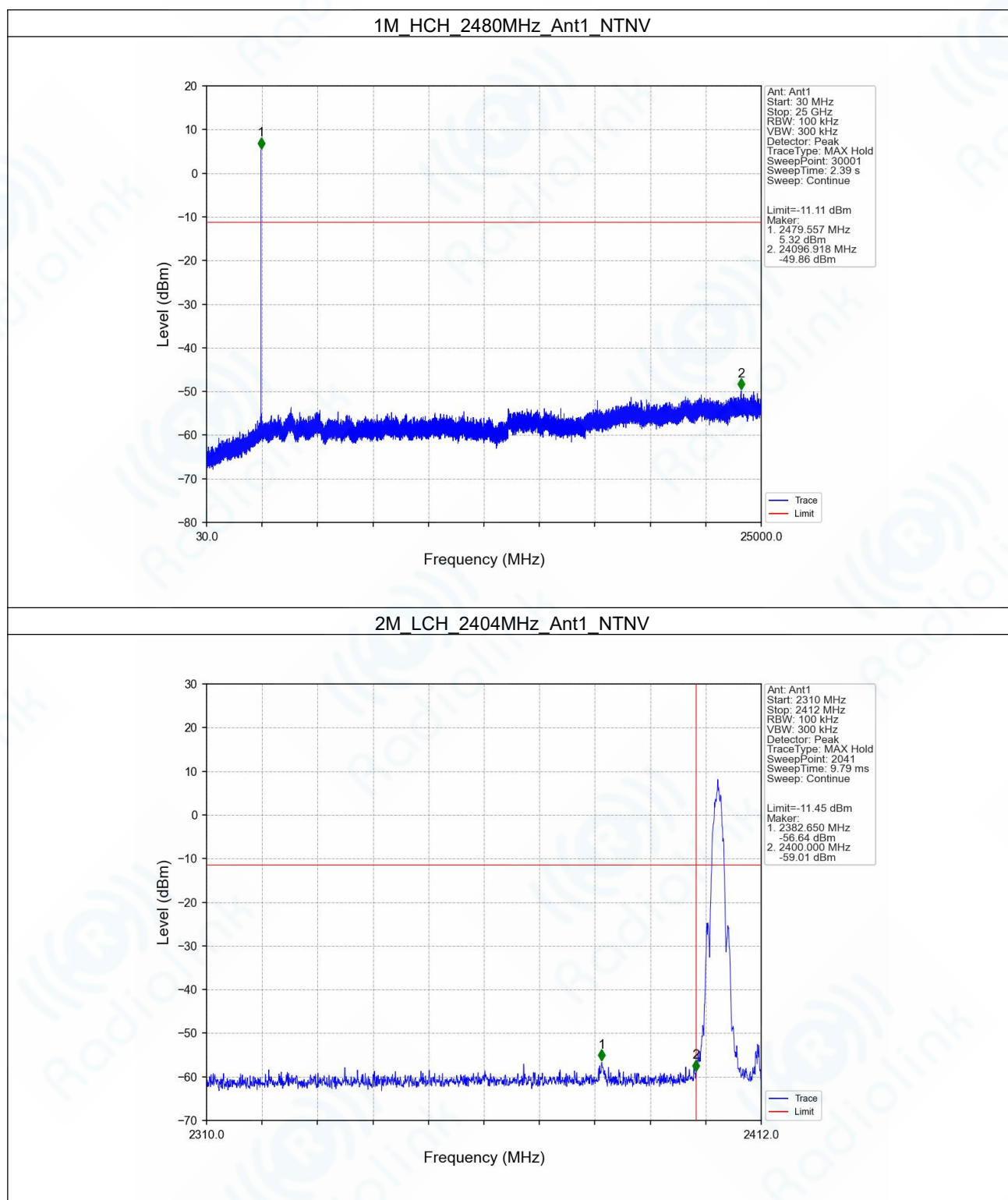
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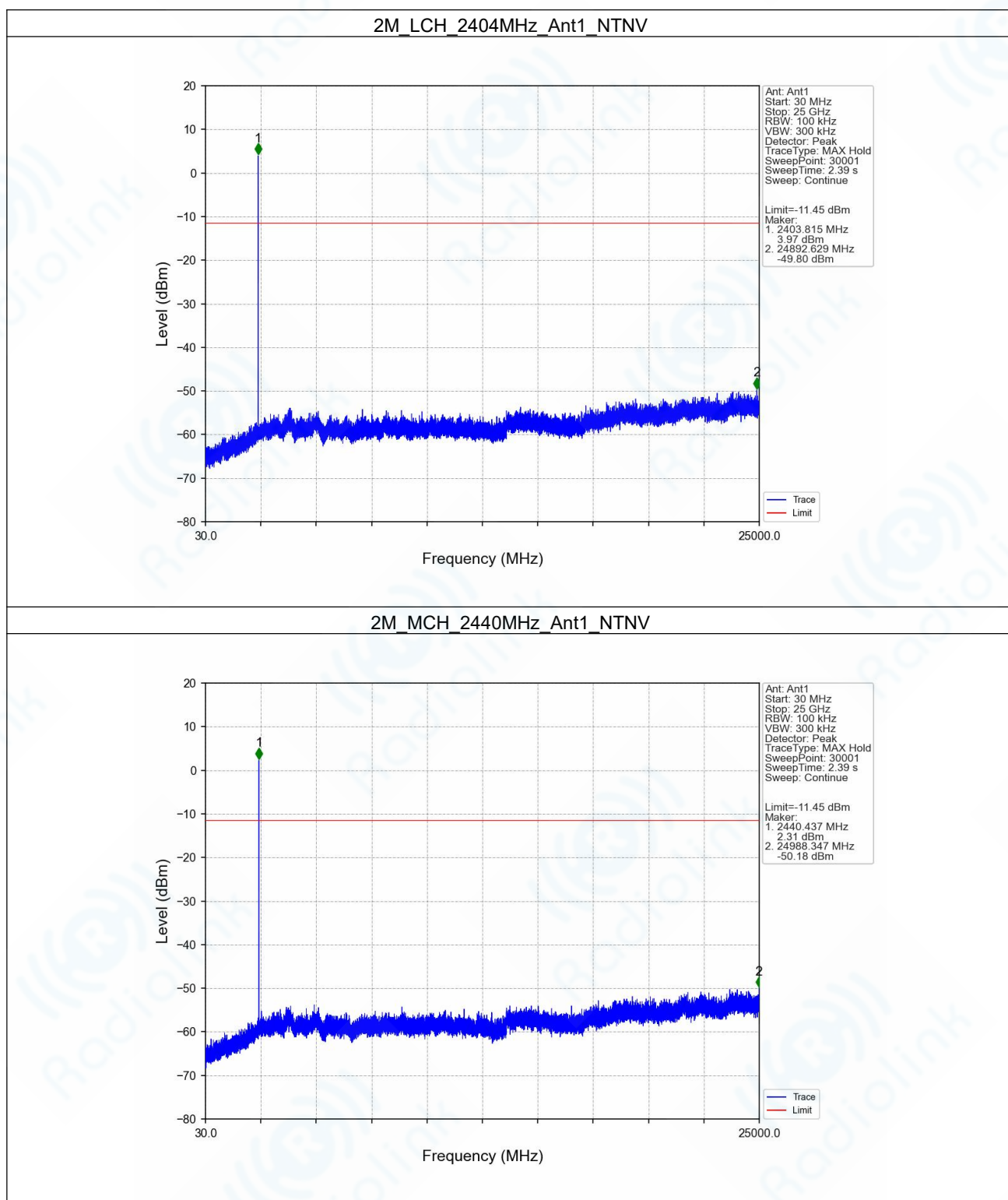
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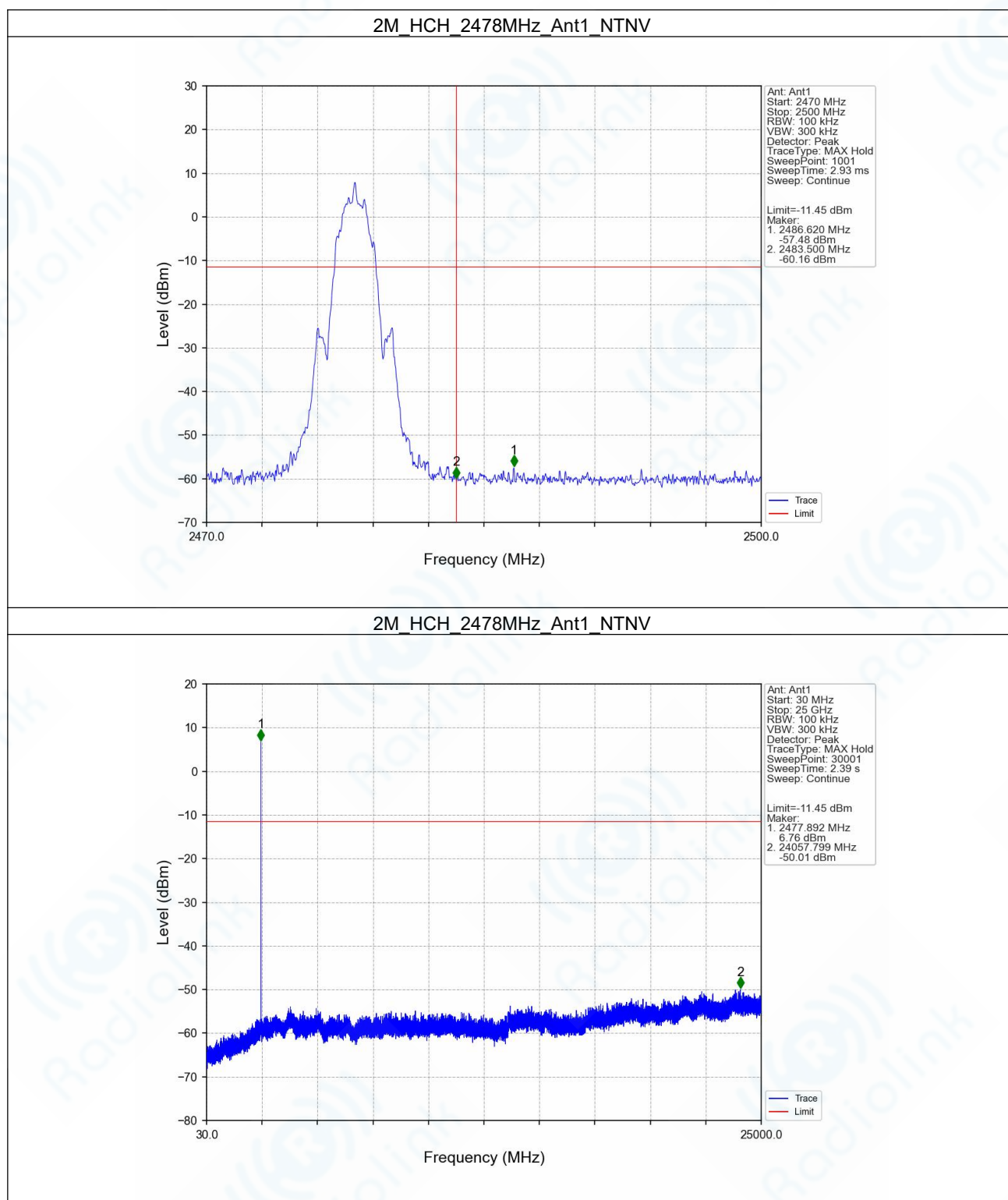
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- End of the Report -

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