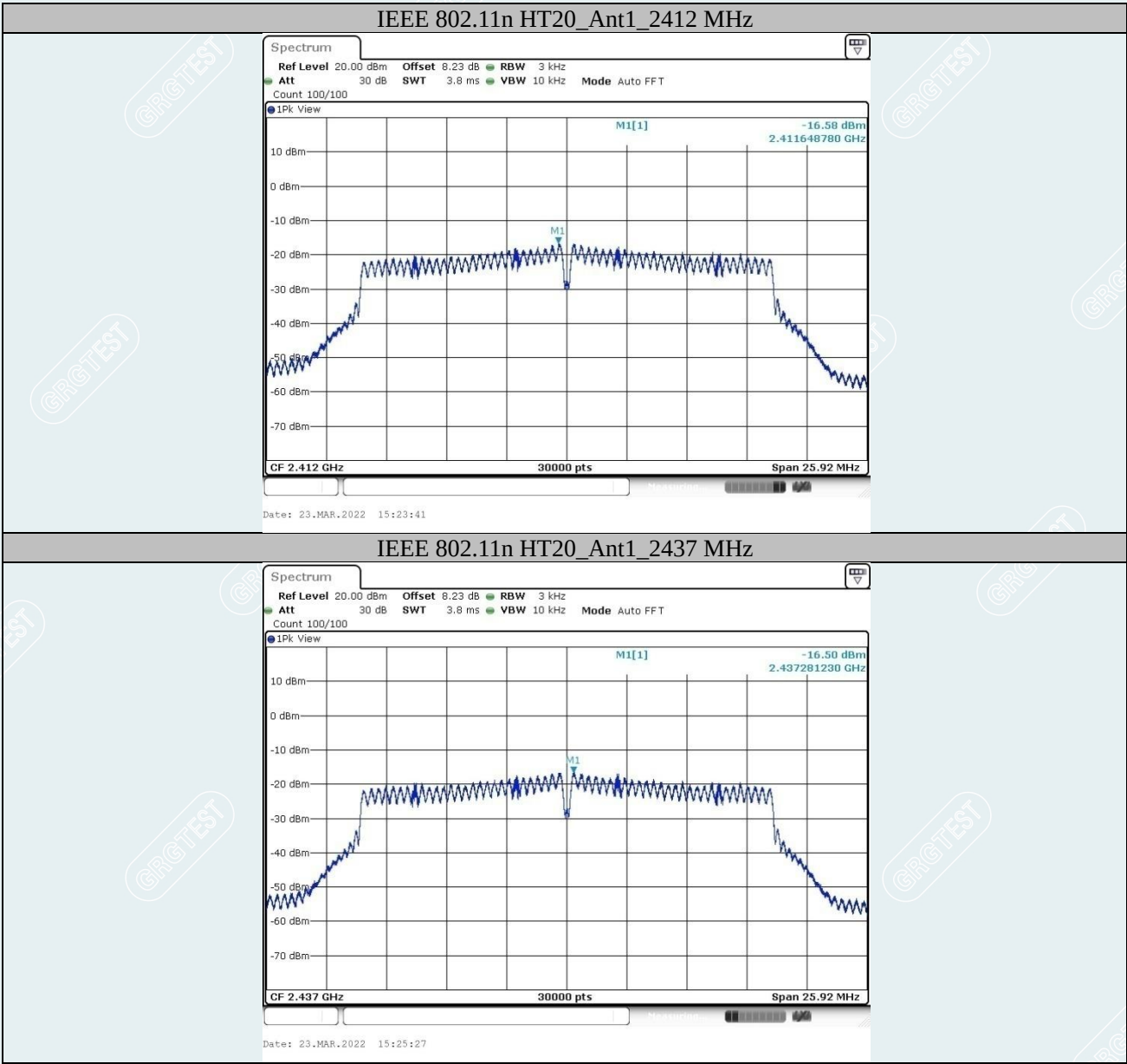
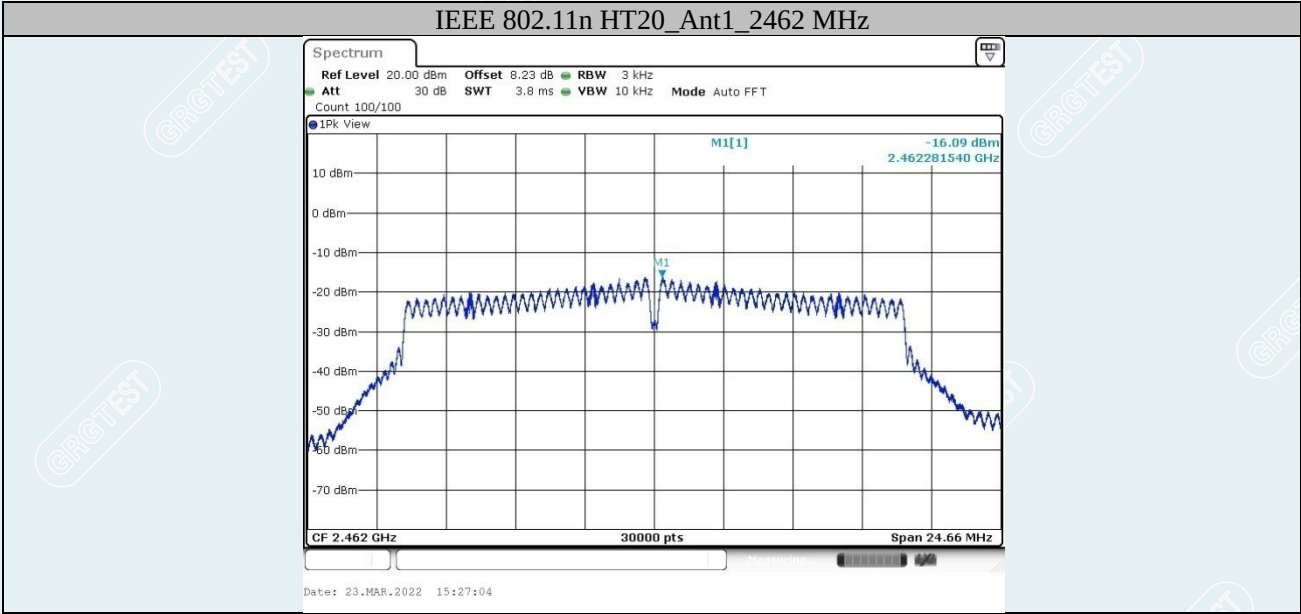






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10. CONDUCTED BAND EDGES AND SPURIOUS EMISSIONS

10.1 LIMITS

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.

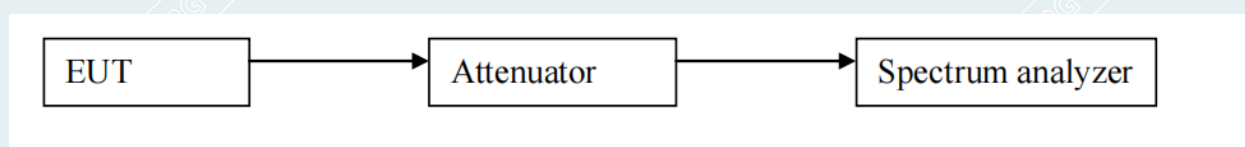
10.2 TEST PROCEDURES

Test procedures follow KDB 558074 D01 15.247 measurement guidance v05r02.

Remove the antenna from the EUT and then connect a low attenuation cable from the antenna port to the spectrum.

- 1) Remove the antenna from the EUT and then connect a low attenuation cable from the antenna port to the spectrum.
- 2) Set the spectrum analyzer: RBW =100kHz; VBW =300kHz, Frequency range = 30MHz to 26.5GHz; Sweep = auto; Detector Function = Peak; Trace = Max hold.
- 3) Measure and record the results in the test report.
- 4) The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

10.3 TEST SETUP



----- The following blanks -----

10.4 TEST RESULTS

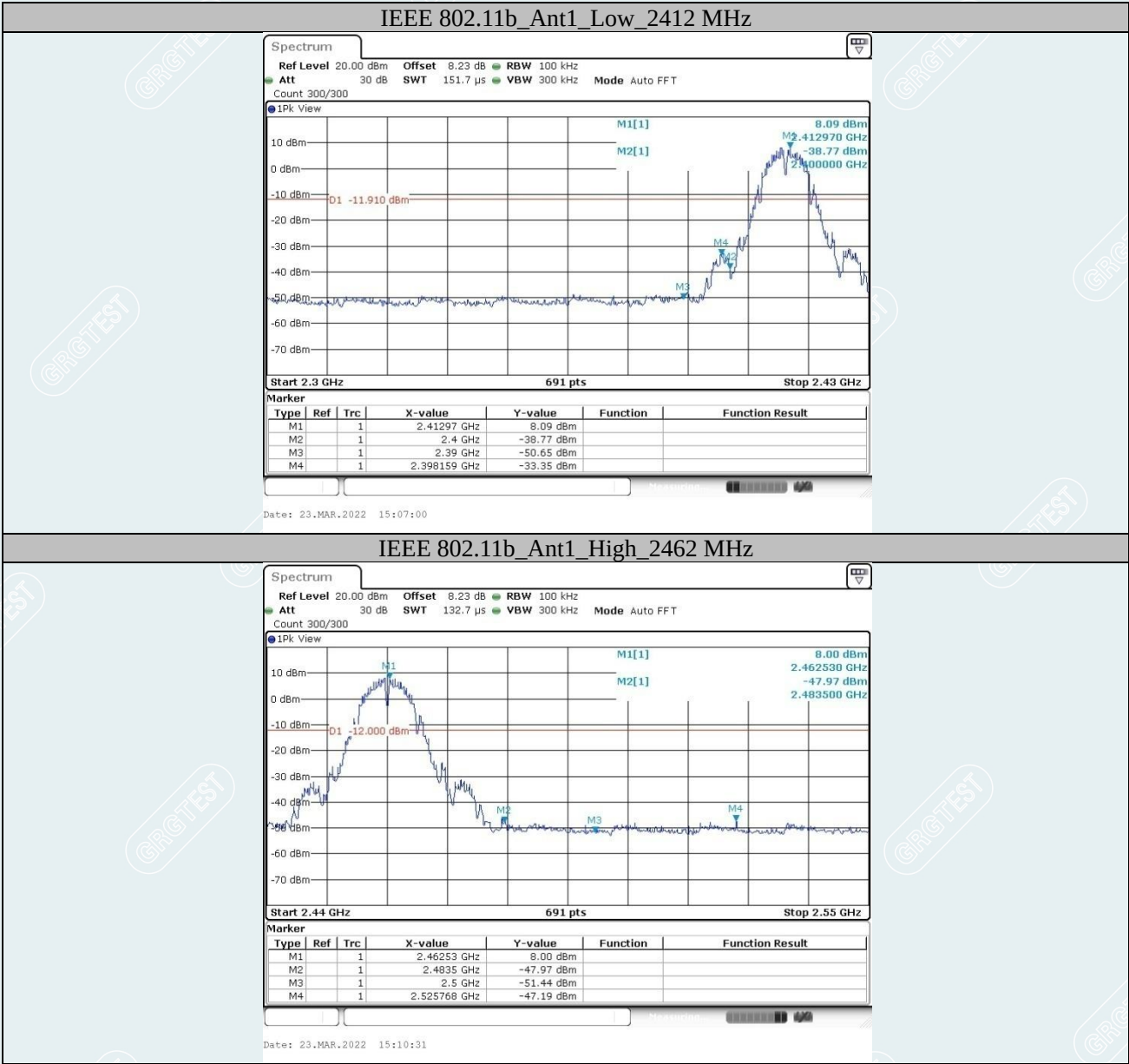
Environment: 23.1℃/53%RH
Tested By:Deng Weihao

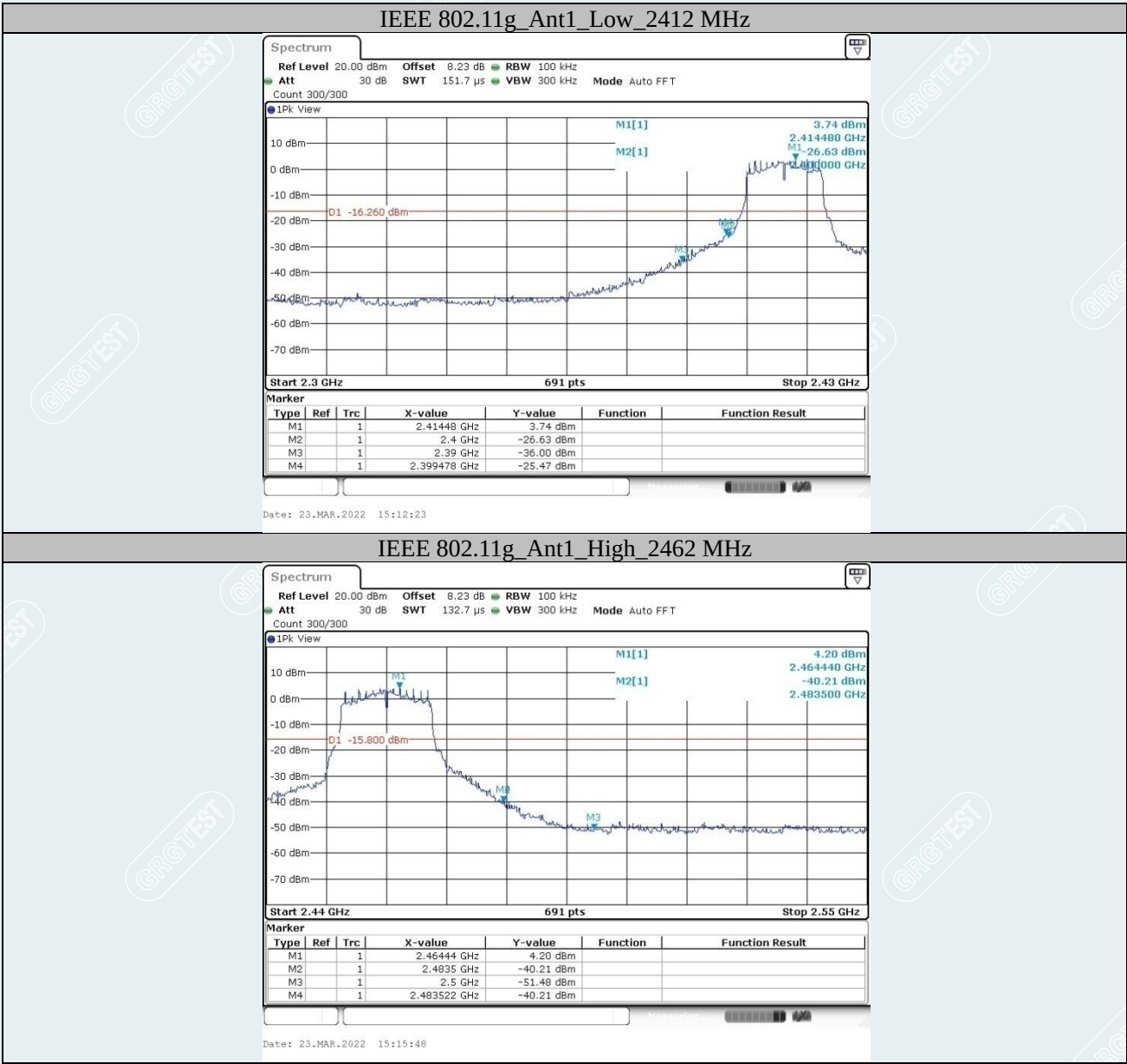
Voltage:AC 120V/60Hz
Date: 2022-03-23

Band edge

Test Mode	Antenna	ChName	Frequency[MHz]	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
IEEE 802.11b	Ant1	Low	2412	8.09	-33.35	≤-11.91	PASS
		High	2462	8.00	-47.19	≤-12.00	PASS
IEEE 802.11g	Ant1	Low	2412	3.74	-25.47	≤-16.26	PASS
		High	2462	4.20	-40.21	≤-15.80	PASS
IEEE 802.11n HT20	Ant1	Low	2412	3.96	-27.30	≤-16.04	PASS
		High	2462	4.68	-37.12	≤-15.32	PASS

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Conducted Spurious Emission:

Test Result

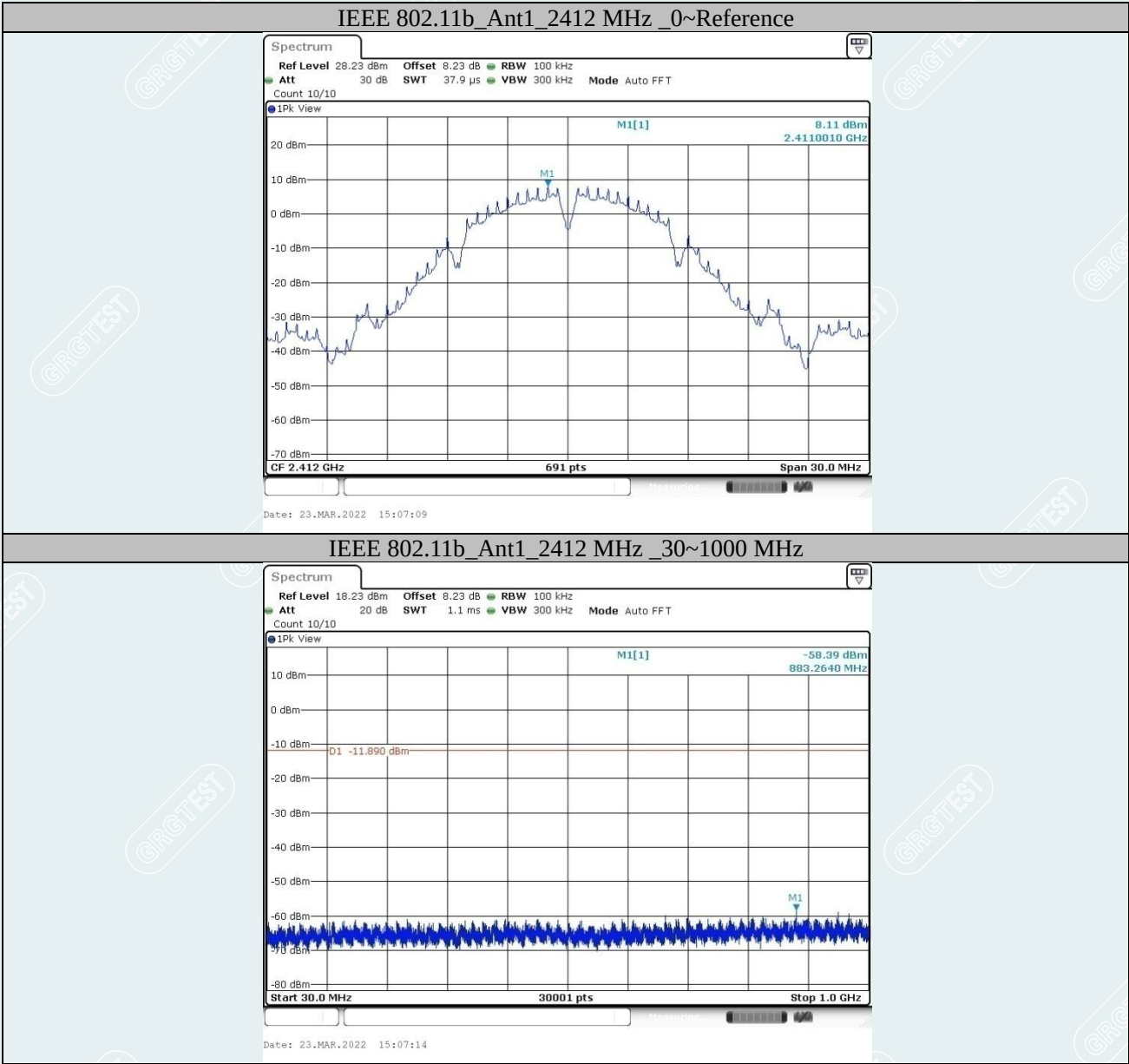
Environment: 23.1°C/53%RH

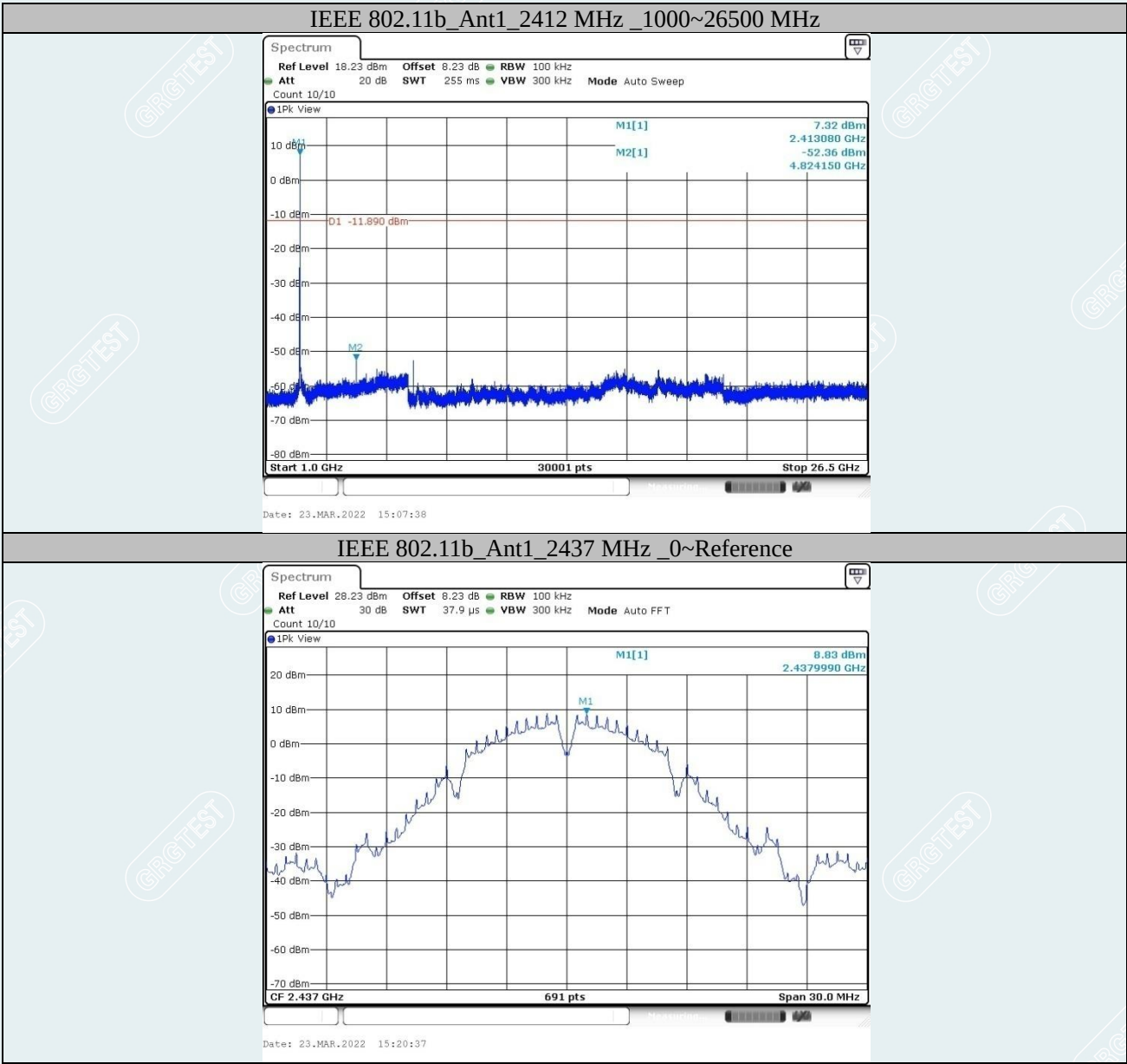
Tested By:Deng Weihao

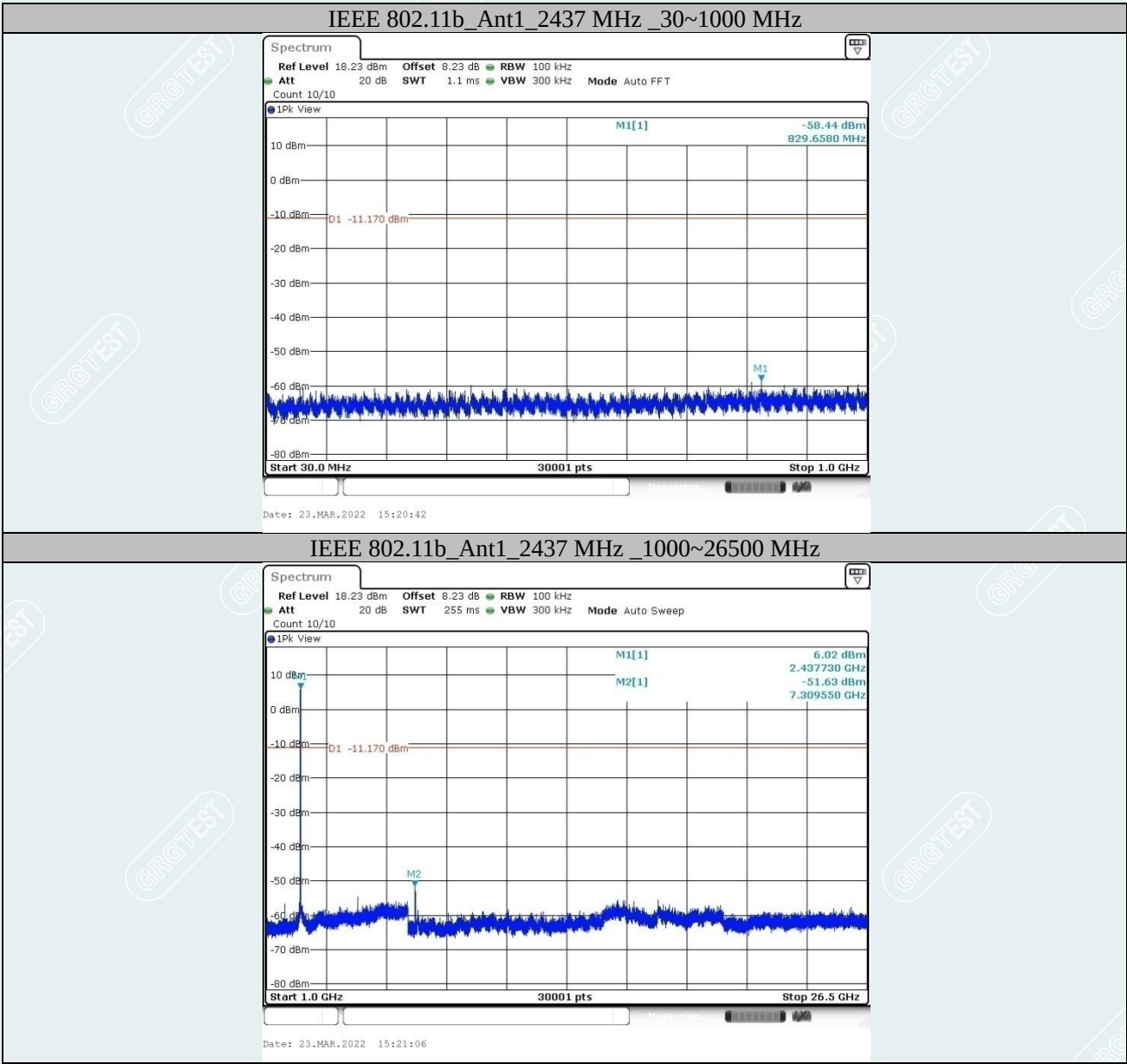
Voltage:AC 120V/60Hz

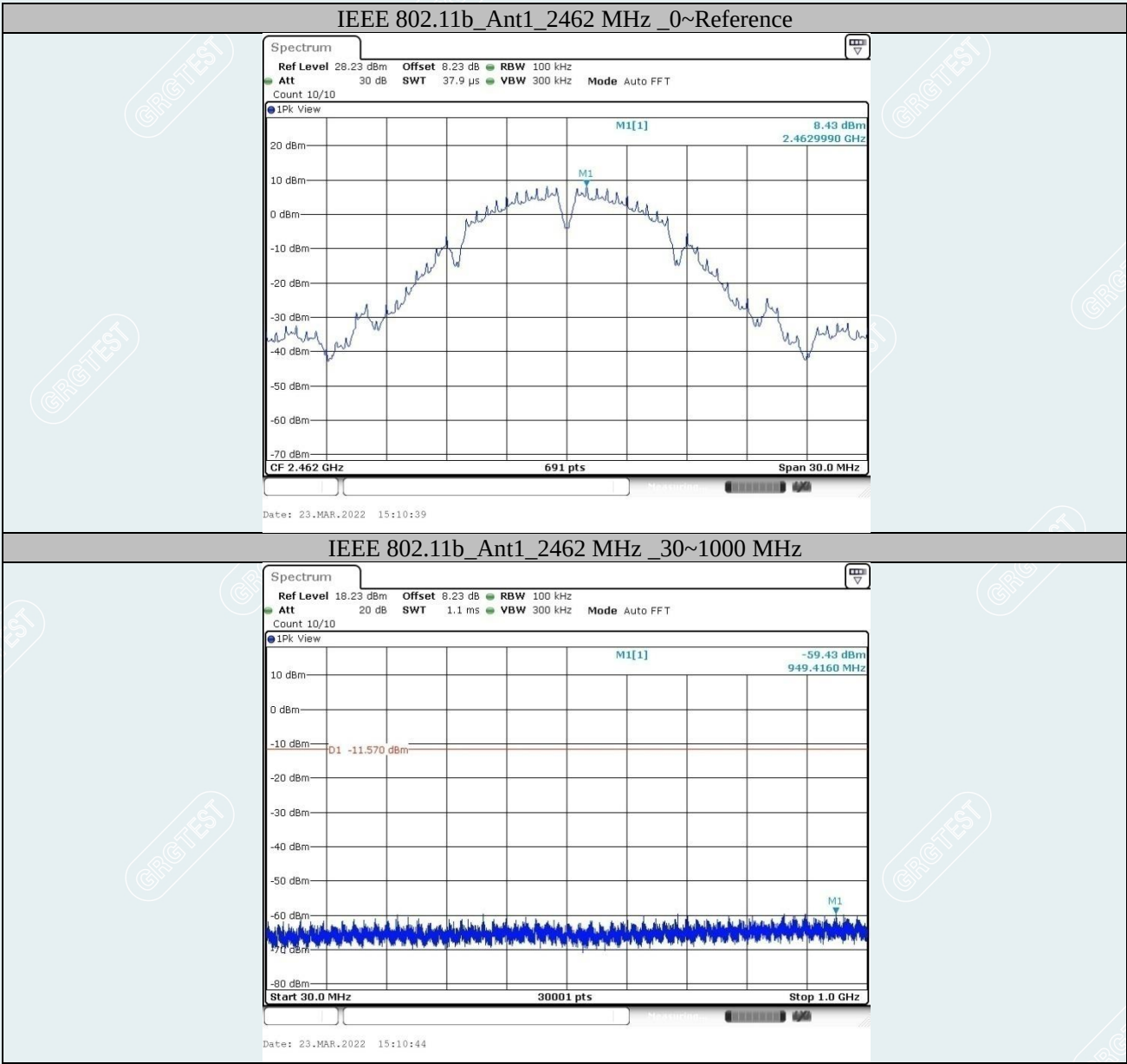
Date: 2022-03-23

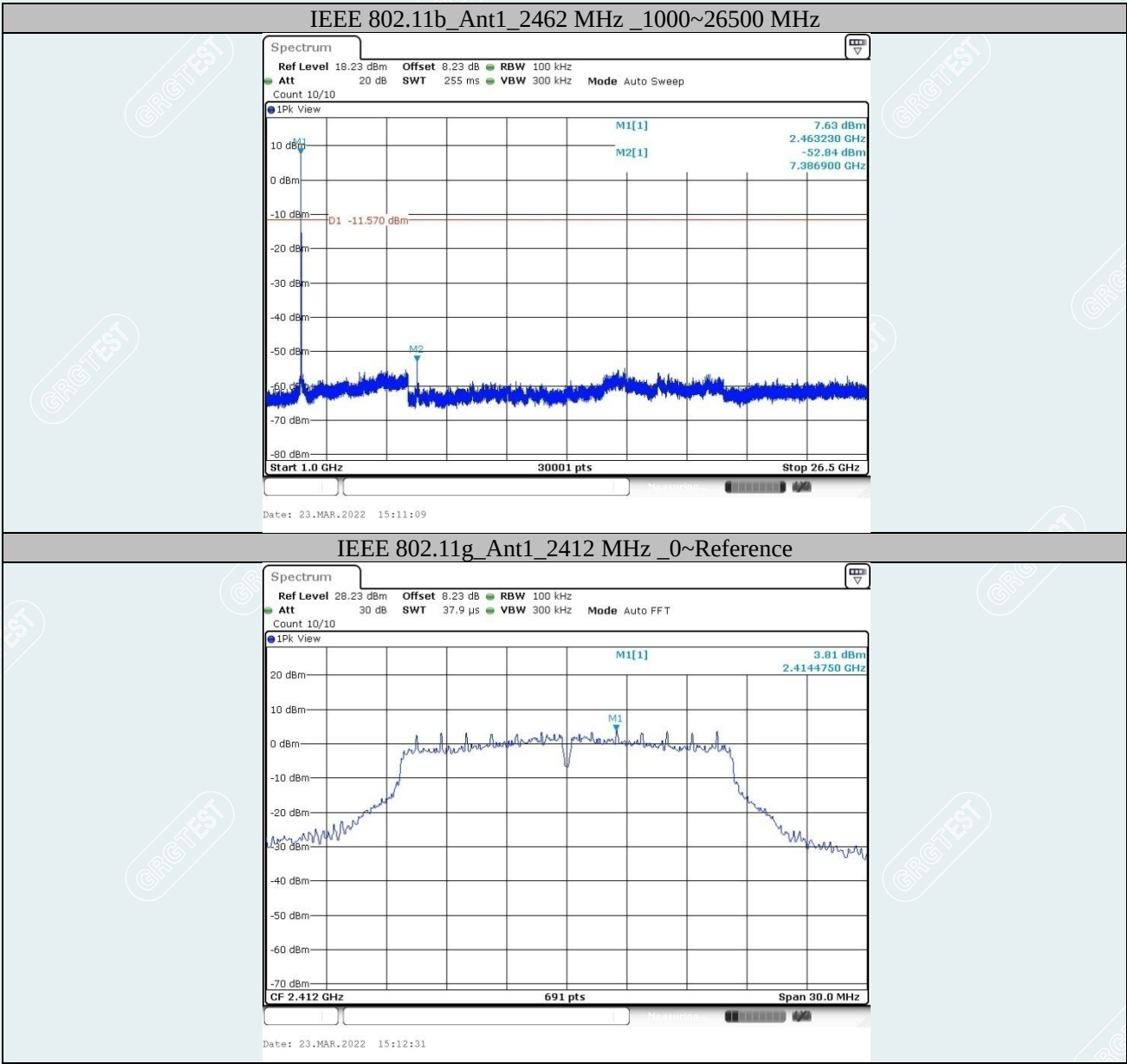
Test Mode	Antenna	Frequency[MHz]	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
IEEE 802.11b	Ant1	2412	Reference	8.11	8.11	---	PASS
			30~1000	8.11	-58.39	≤-11.89	PASS
			1000~26500	8.11	-52.36	≤-11.89	PASS
		2437	Reference	8.83	8.83	---	PASS
			30~1000	8.83	-58.44	≤-11.17	PASS
			1000~26500	8.83	-51.63	≤-11.17	PASS
		2462	Reference	8.43	8.43	---	PASS
			30~1000	8.43	-59.43	≤-11.57	PASS
			1000~26500	8.43	-52.84	≤-11.57	PASS
IEEE 802.11g	Ant1	2412	Reference	3.81	3.81	---	PASS
			30~1000	3.81	-59.15	≤-16.19	PASS
			1000~26500	3.81	-54.90	≤-16.19	PASS
		2437	Reference	3.90	3.90	---	PASS
			30~1000	3.90	-59.49	≤-16.10	PASS
			1000~26500	3.90	-54.73	≤-16.10	PASS
		2462	Reference	4.19	4.19	---	PASS
			30~1000	4.19	-59.53	≤-15.81	PASS
			1000~26500	4.19	-54.85	≤-15.81	PASS
IEEE 802.11n HT20	Ant1	2412	Reference	4.20	4.20	---	PASS
			30~1000	4.20	-59.66	≤-15.80	PASS
			1000~26500	4.20	-55.44	≤-15.80	PASS
		2437	Reference	4.54	4.54	---	PASS
			30~1000	4.54	-58.73	≤-15.46	PASS
			1000~26500	4.54	-54.76	≤-15.46	PASS
		2462	Reference	4.73	4.73	---	PASS
			30~1000	4.73	-60.03	≤-15.27	PASS
			1000~26500	4.73	-55.28	≤-15.27	PASS

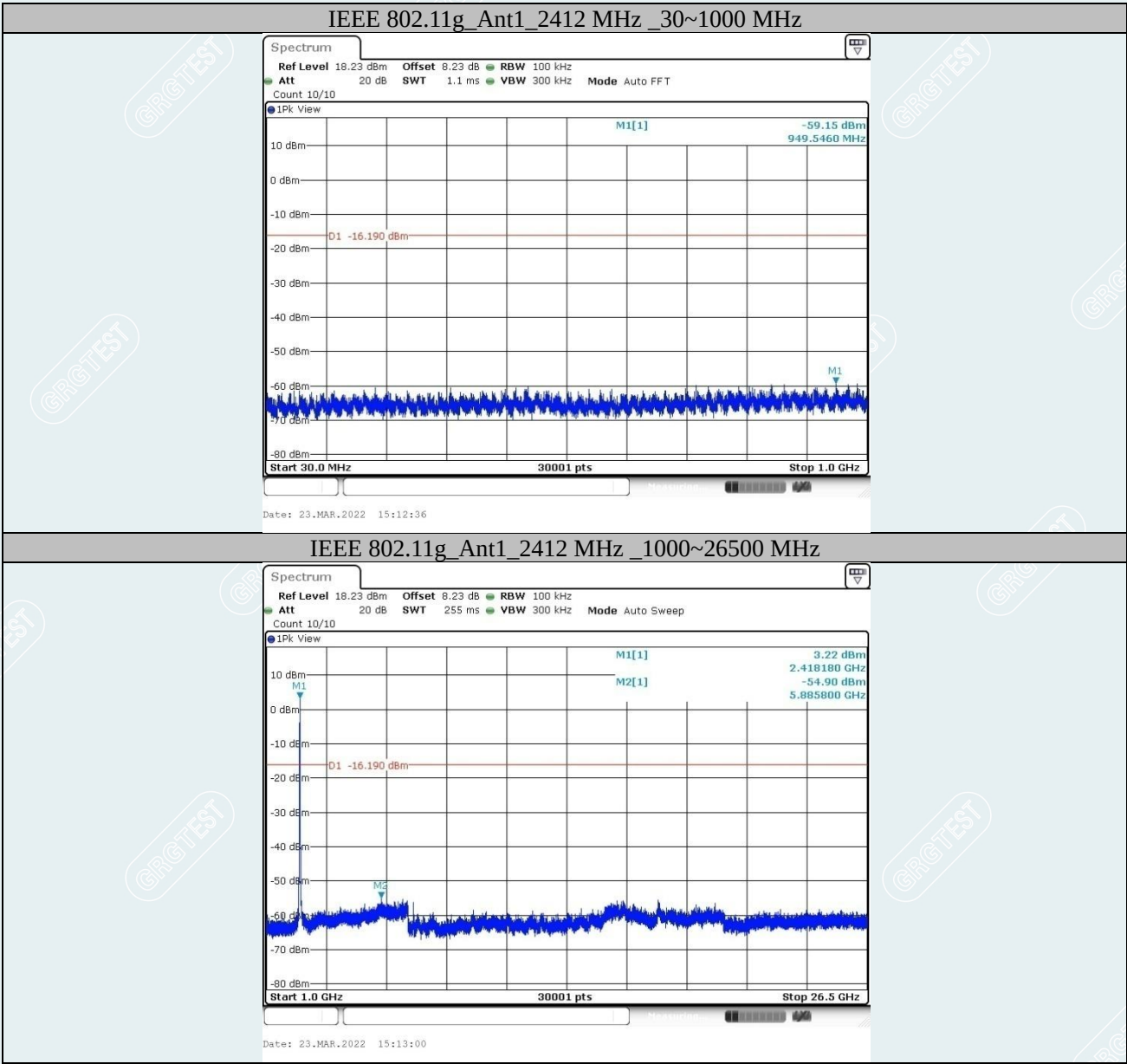


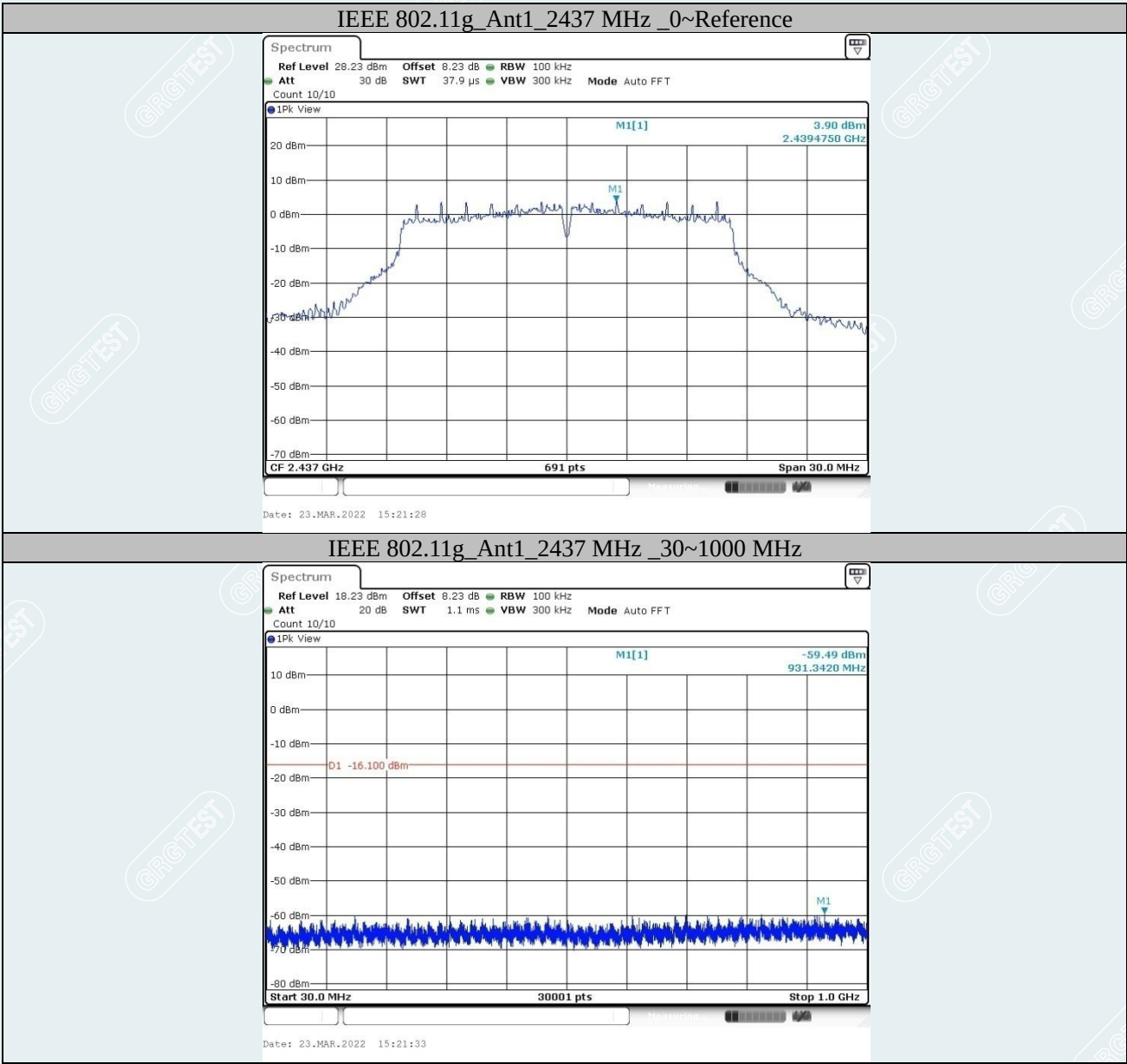


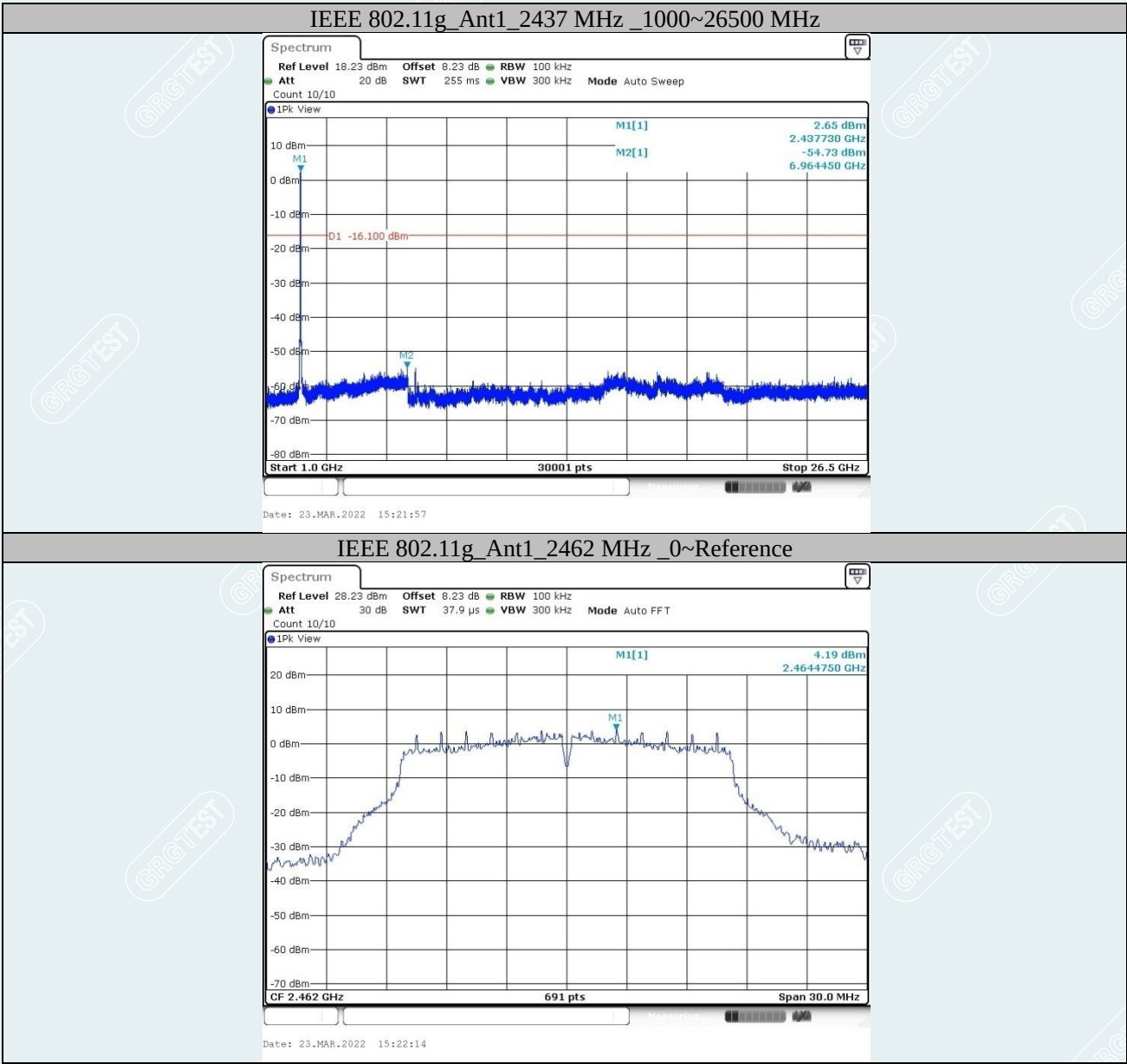




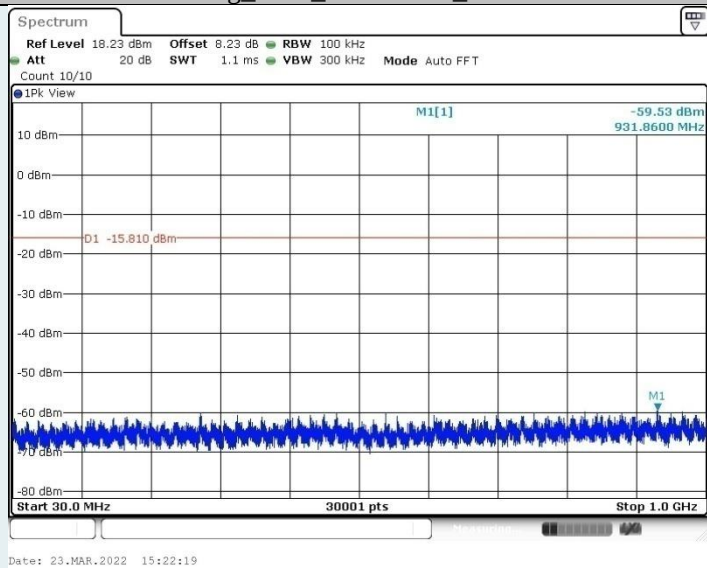




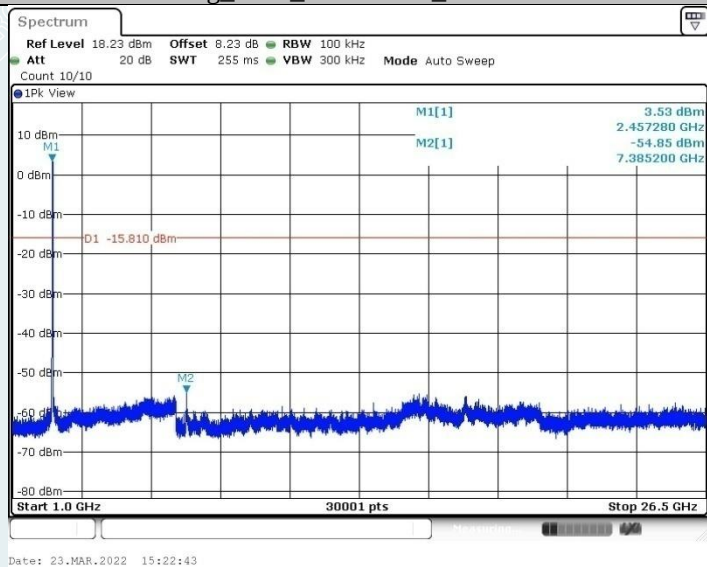


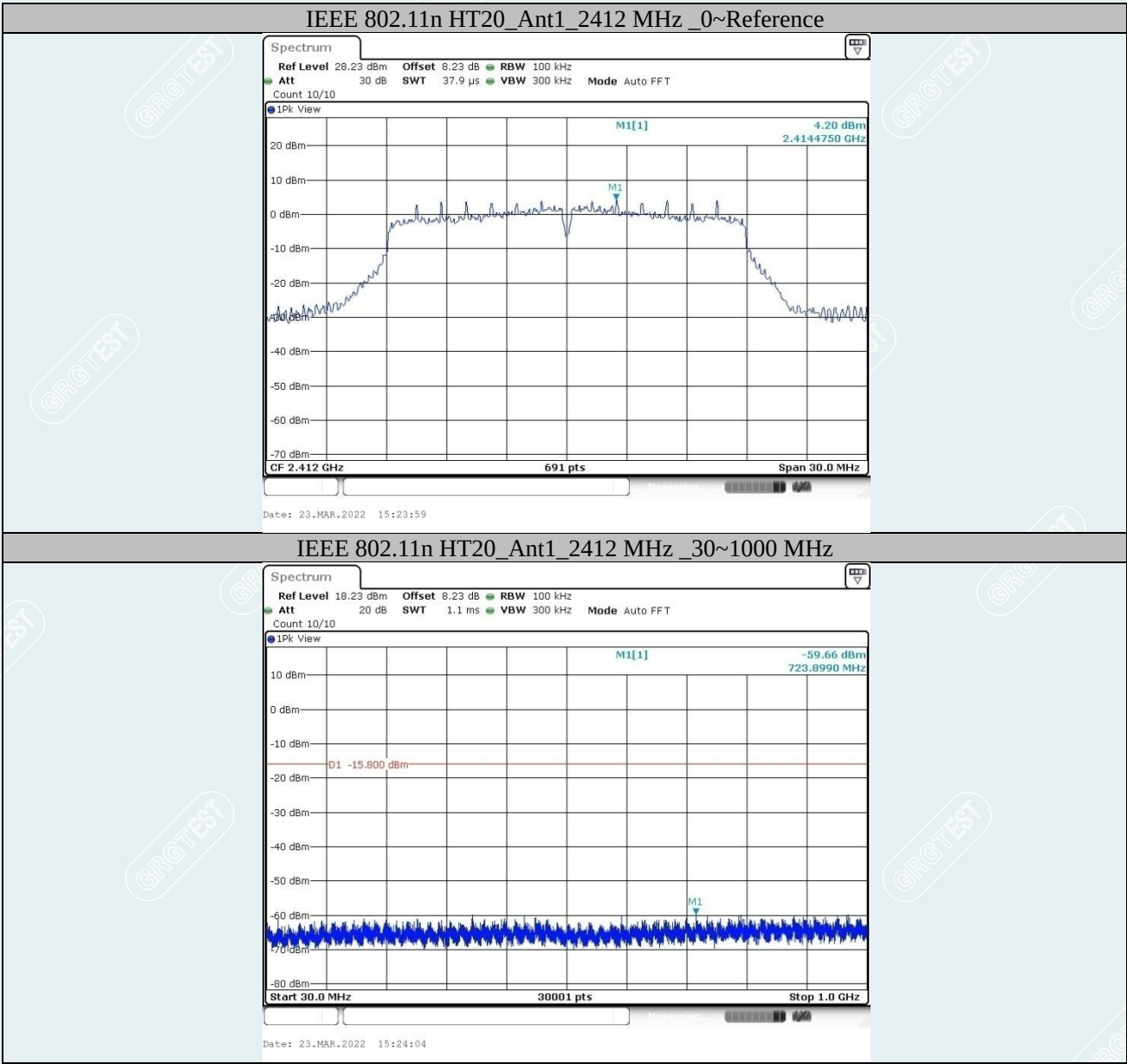


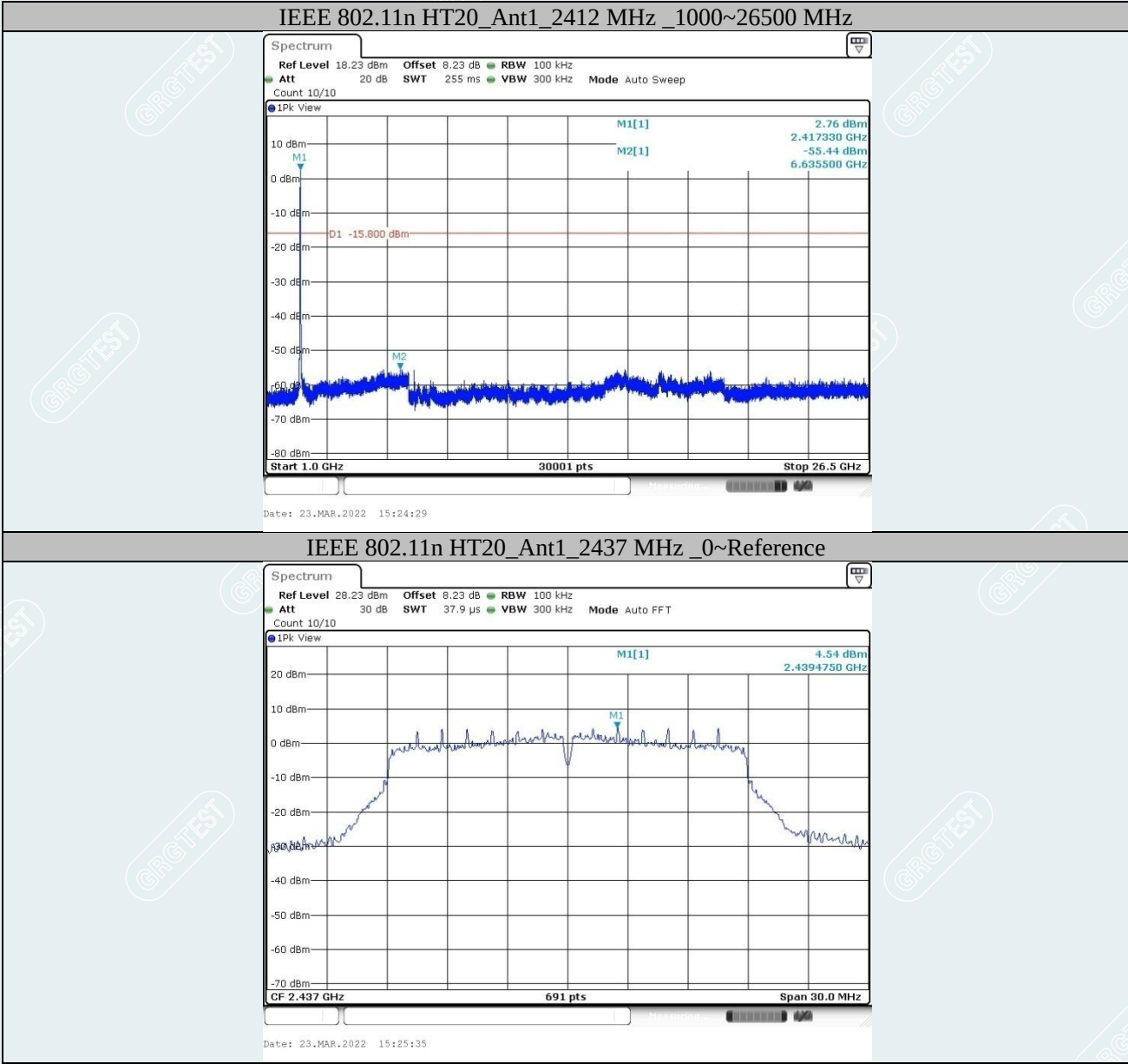
IEEE 802.11g_Ant1_2462 MHz_30~1000 MHz

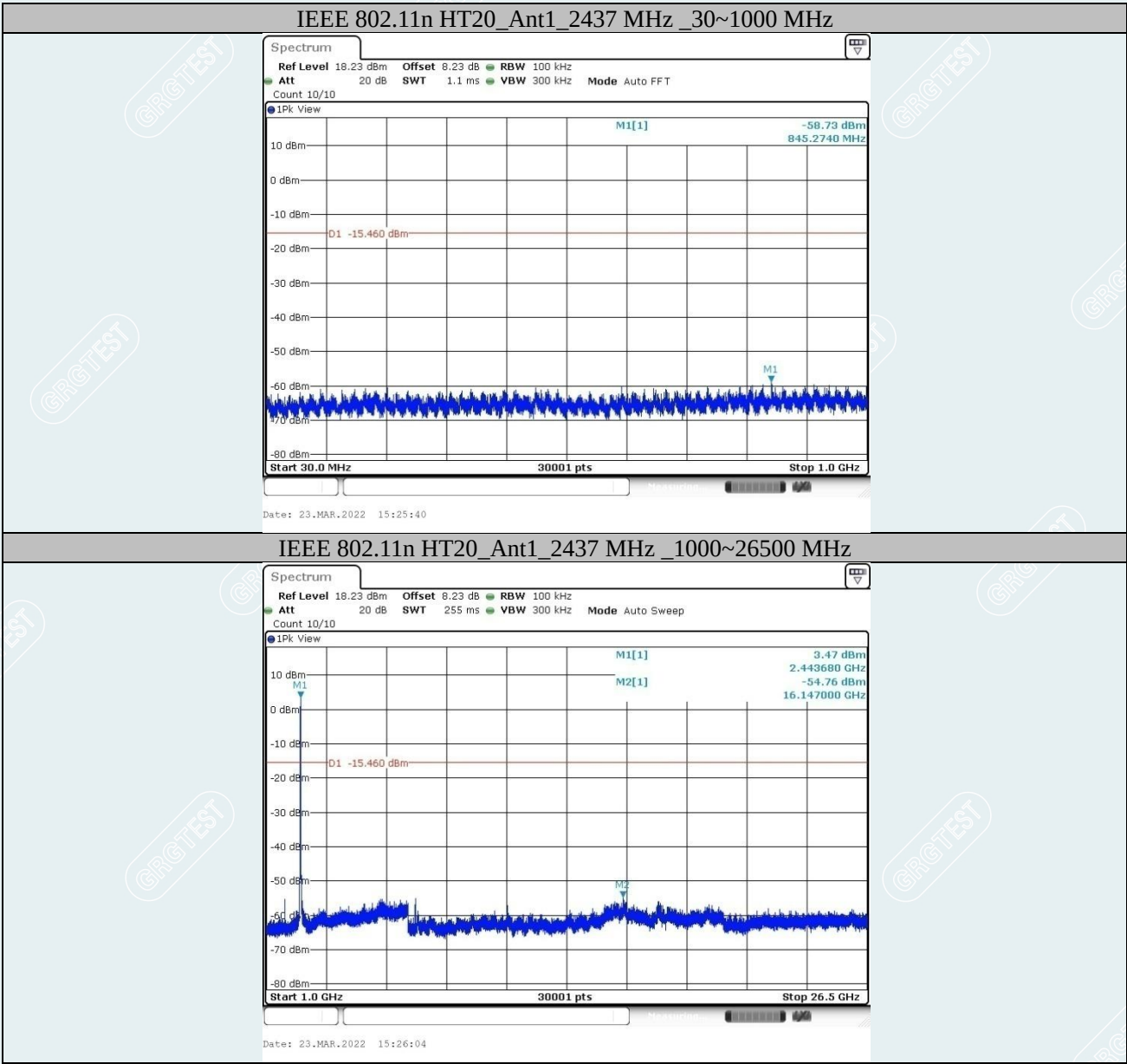


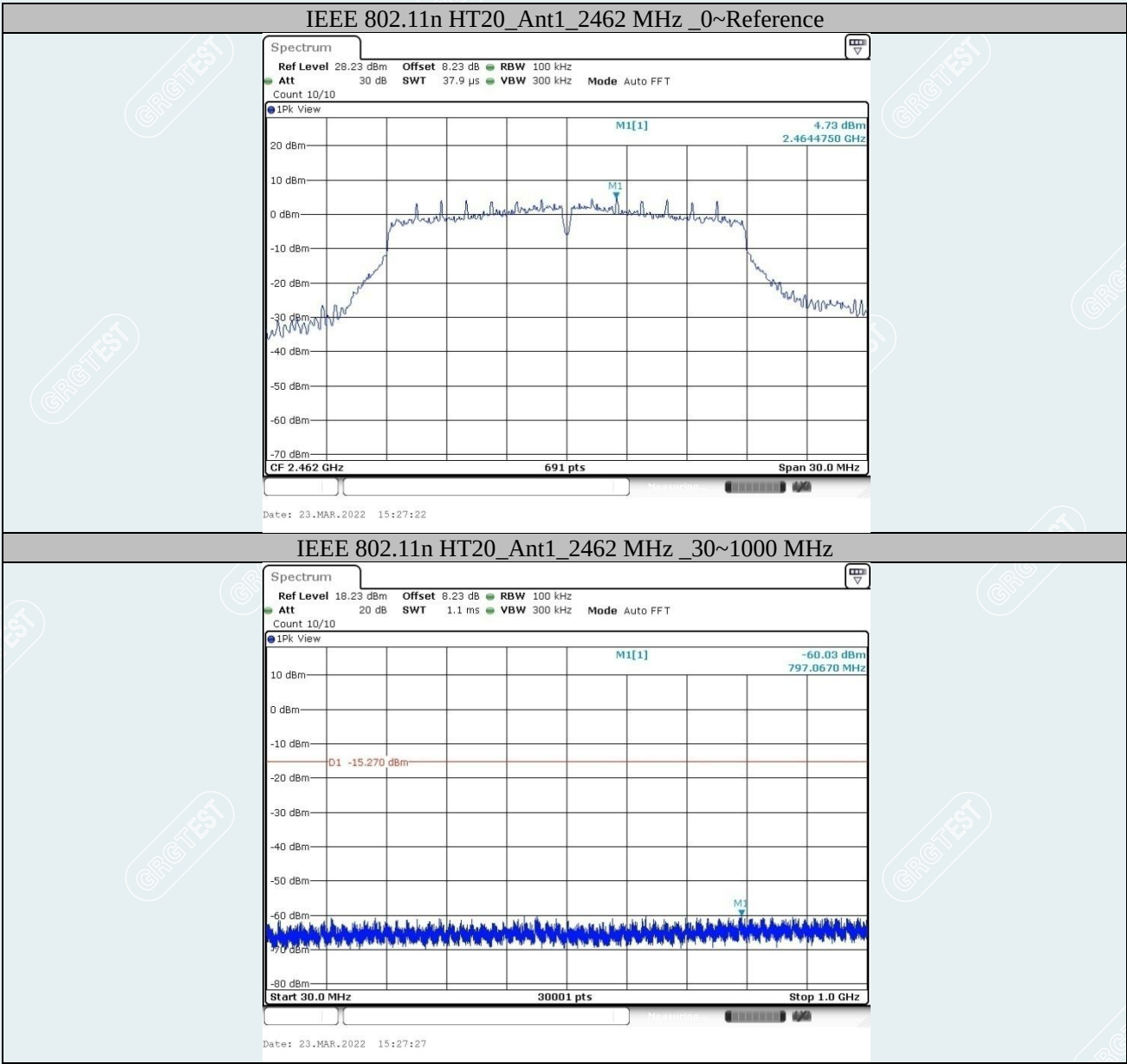
IEEE 802.11g_Ant1_2462 MHz_1000~26500 MHz

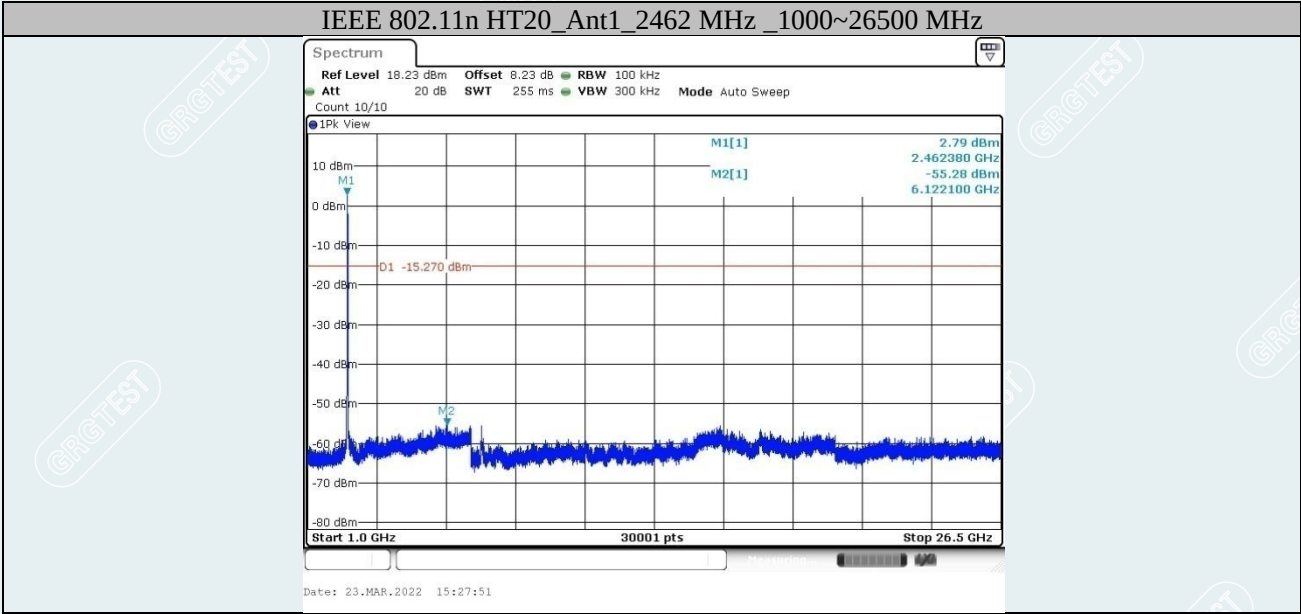












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11. RESTRICTED BANDS OF OPERATION

11.1 LIMITS

Section 15.247(d) 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)).

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	
13.36 - 13.41			

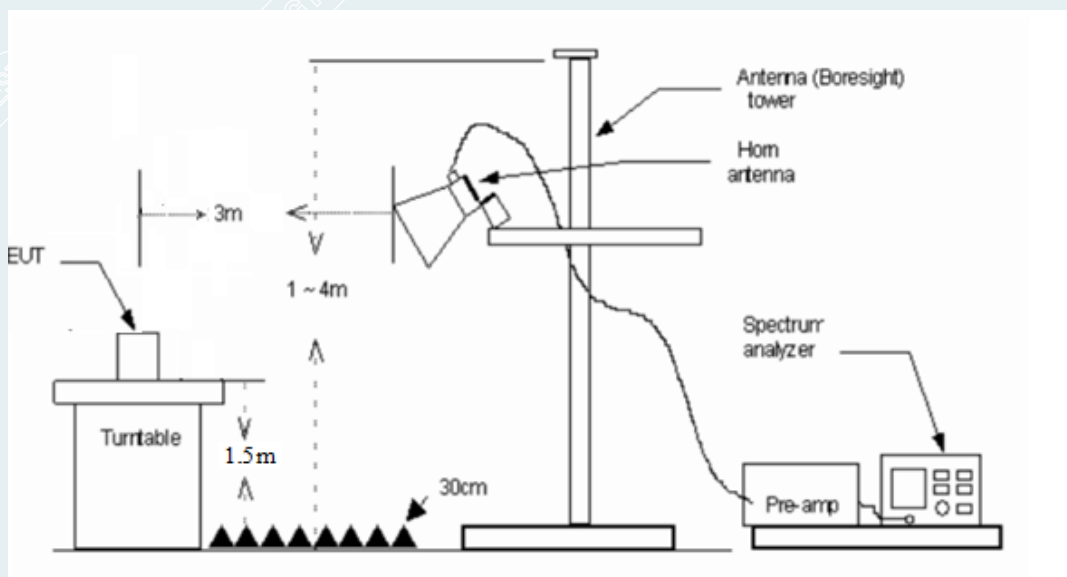
Frequency (MHz)	Quasi-peak(μ V/m)	Measurement distance(m)	Quasi-peak(dB μ V/m)@distance 3m
0.009-0.490	2400/F(kHz)	300	128.5~93.8
0.490-1.705	24000/F(kHz)	30	73.8~63
1.705-30.0	30	30	69.5
30~88	100	3	40
88~216	150	3	43.5
216~960	200	3	46
Above 960	500	3	54

11.2 TEST PROCEDURES

Test procedures follow KDB 558074 D01 15.247 measurement guidance v05r02.

- 1) The EUT is placed on a turntable, which is 1.5m above the ground plane.
- 2) The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
- 3) EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
- 4) Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:
 - a) The frequency above 1GHz, for Peak detector: Set RBW=1MHz, RBW=3MHz.
 - b) The frequency above 1GHz, for Avg detector: Set RBW=1MHz, if the EUT is configured to transmit with duty cycle $\geq 98\%$, set VBW $\leq$ RBW/100 (i.e., 10kHz) but not less than 10 Hz, Where duty cycle is defined in section 2.9. If the EUT duty cycle is $< 98\%$, set VBW $\geq 1/T$, Where T is defined in section 2.9.
- 5) Repeat the procedures until all the PEAK and AVERAGE versus polarization are measured.

11.3 TEST SETUP



----- The following blanks -----

11.4 TEST RESULTS

802.11b mode

Lowest Channel

Frequency 2412MHz

Environment: 25℃/60%RH

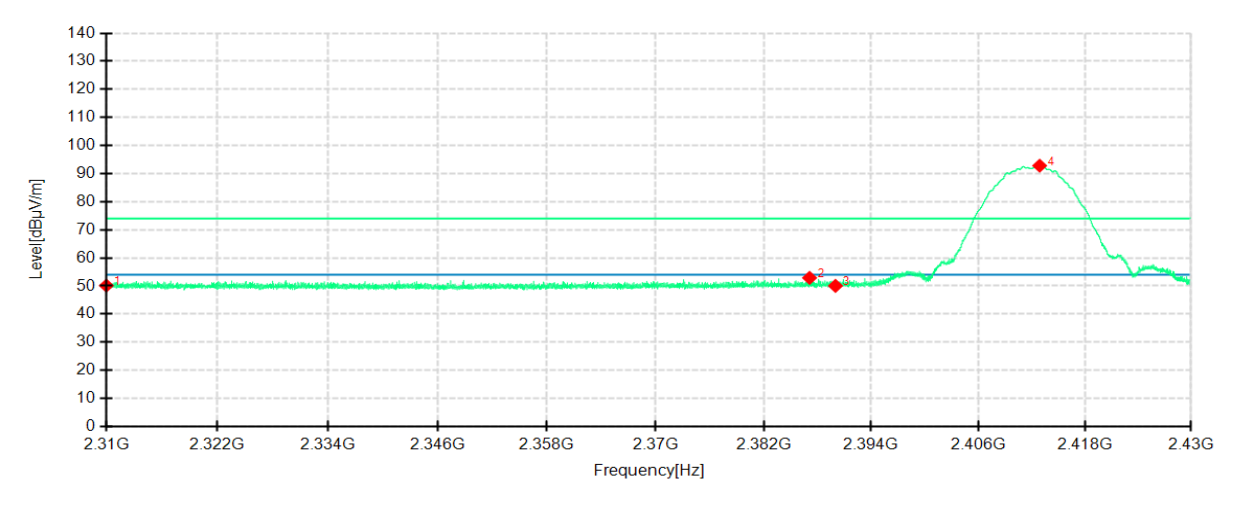
Tested By: Lu Qiang

Detector mode: Peak

Voltage: AC 120V/60Hz

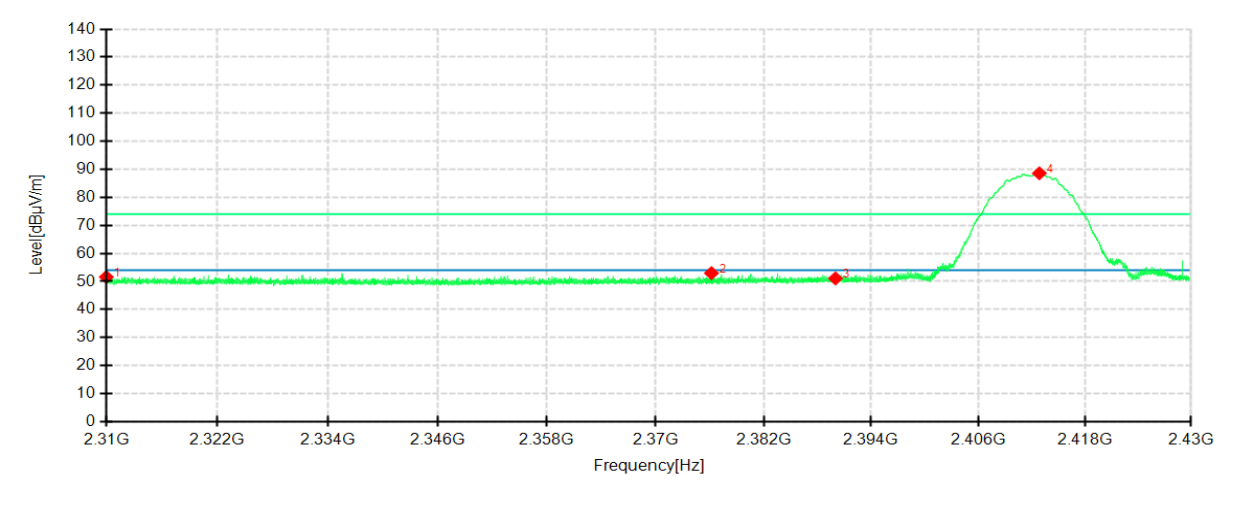
Date: 2022-01-11

Polarity: Horizontal



Detector mode: Peak

Polarity: Vertical



No .	Frequency MHz	Reading dB μ V/m	Level dB μ V/m	Factor dB	Limit dB μ V/m	Margin dB	Height cm	Angle °	Pole	Comment
1	2310.0000	46.66	50.14	3.48	74.00	23.86	100	142	Horizontal	/
2	2387.1120	49.13	52.89	3.76	74.00	21.11	100	142	Horizontal	/
3	2390.0000	46.23	50.04	3.81	74.00	23.96	100	353	Horizontal	/
4	2412.9000	88.78	92.82	4.04	74.00	-18.82	100	142	Horizontal	No limit
1	2310.0000	48.10	51.58	3.48	74.00	22.42	200	211	Vertical	/
2	2376.2040	49.37	52.95	3.58	74.00	21.05	100	149	Vertical	/
3	2390.0000	47.26	51.07	3.81	74.00	22.93	200	258	Vertical	/
4	2412.8640	84.52	88.56	4.04	74.00	-14.56	200	142	Vertical	No limit

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802.11b mode**Lowest Channel**

Frequency 2412MHz

Environment: 25°C/60%RH

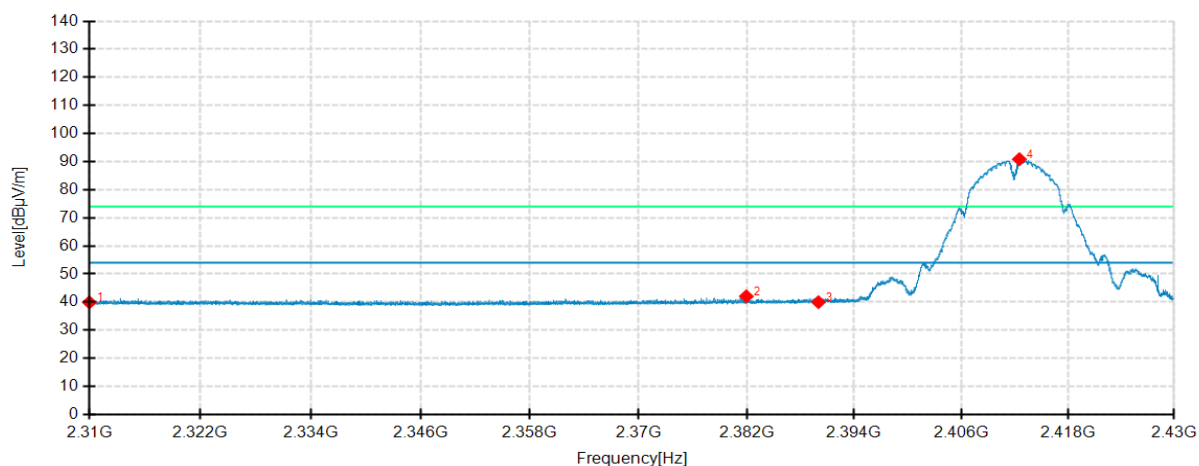
Tested By: Lu Qiang

Detector mode: Average

Voltage: AC 120V/60Hz

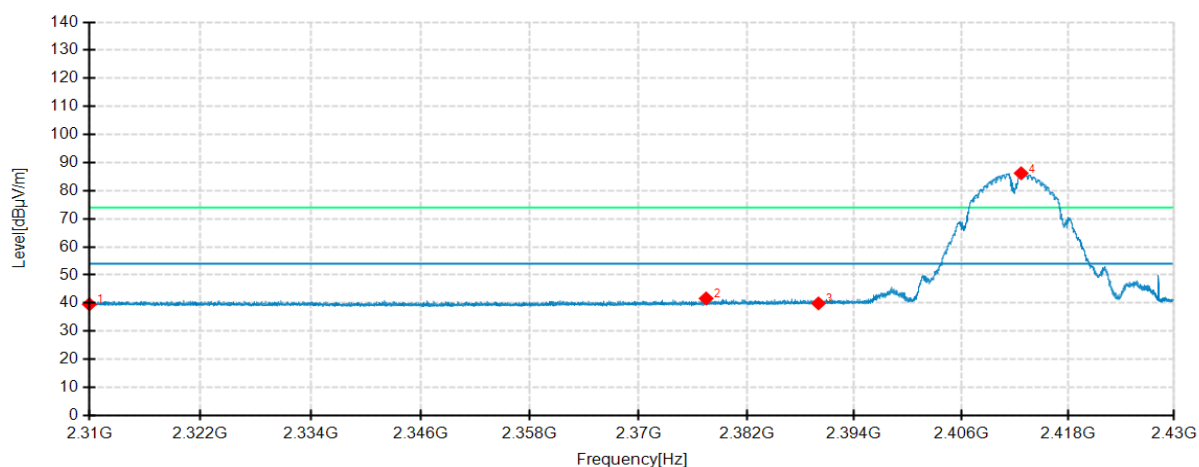
Date: 2022-01-11

Polarity: Horizontal



Detector mode: Average

Polarity: Vertical



No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBμV/m	Margin dB	Height cm	Angle °	Pole	Comment
1	2310.0000	36.42	39.90	3.48	54.00	14.10	200	218	Horizontal	/
2	2381.9640	38.38	42.05	3.67	54.00	11.95	200	204	Horizontal	/
3	2390.0000	36.17	39.98	3.81	54.00	14.02	100	357	Horizontal	/
4	2412.5280	86.80	90.84	4.04	54.00	-36.84	100	142	Horizontal	No limit
1	2310.0000	36.08	39.56	3.48	54.00	14.44	100	211	Vertical	/
2	2377.5000	38.04	41.64	3.60	54.00	12.36	200	149	Vertical	/
3	2390.0000	36.08	39.89	3.81	54.00	14.11	200	184	Vertical	/
4	2412.7320	82.16	86.20	4.04	54.00	-32.20	200	142	Vertical	No limit

802.11b mode**Highest Channel**

Frequency 2462MHz

Environment: 25°C/60%RH

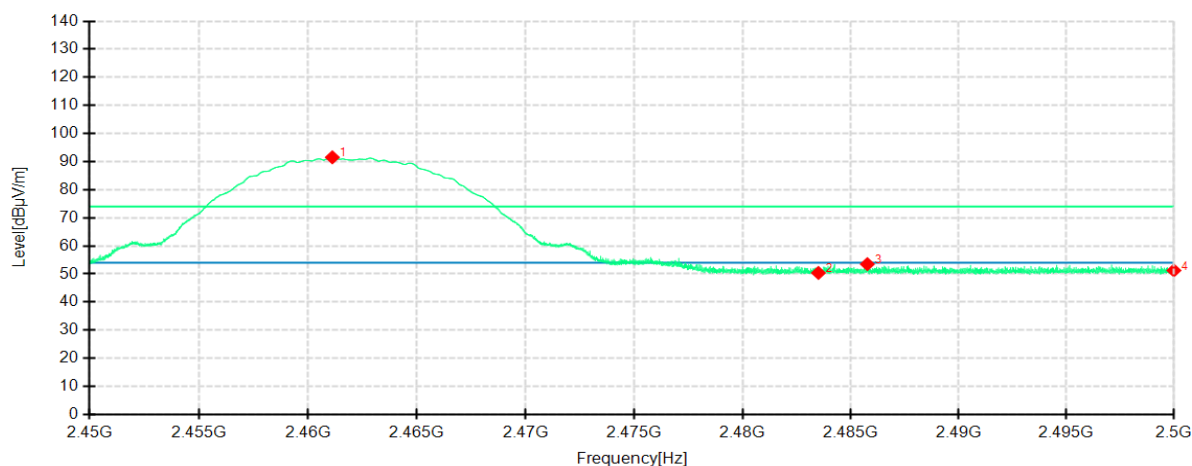
Tested By: Lu Qiang

Detector mode: Peak

Voltage: AC 120V/60Hz

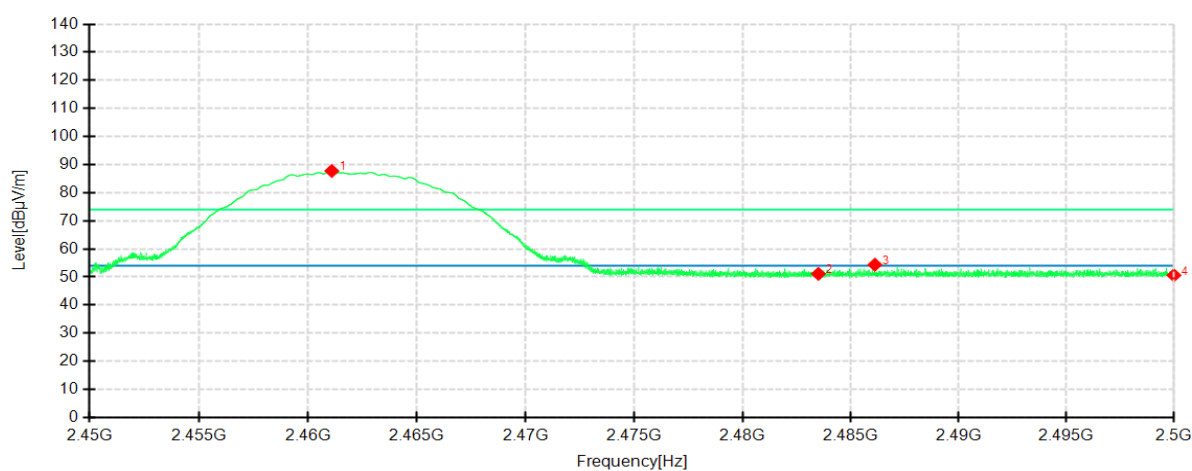
Date: 2022-01-11

Polarity: Horizontal



Detector mode: Peak

Polarity: Vertical



No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Comment
1	2461.1150	87.27	91.53	4.26	74.00	-17.53	200	8	Horizontal	No limit
2	2483.5000	46.05	50.38	4.33	74.00	23.62	200	218	Horizontal	/
3	2485.7650	49.15	53.49	4.34	74.00	20.51	100	142	Horizontal	/
4	2500.0000	46.86	51.24	4.38	74.00	22.76	100	204	Horizontal	/
1	2461.0900	83.48	87.74	4.26	74.00	-13.74	200	142	Vertical	No limit
2	2483.5000	46.78	51.11	4.33	74.00	22.89	200	190	Vertical	/
3	2486.1150	50.04	54.38	4.34	74.00	19.62	200	142	Vertical	/
4	2500.0000	46.21	50.59	4.38	74.00	23.41	100	142	Vertical	/

802.11b mode**Highest Channel**

Frequency 2462MHz

Environment: 23.6°C/53%RH

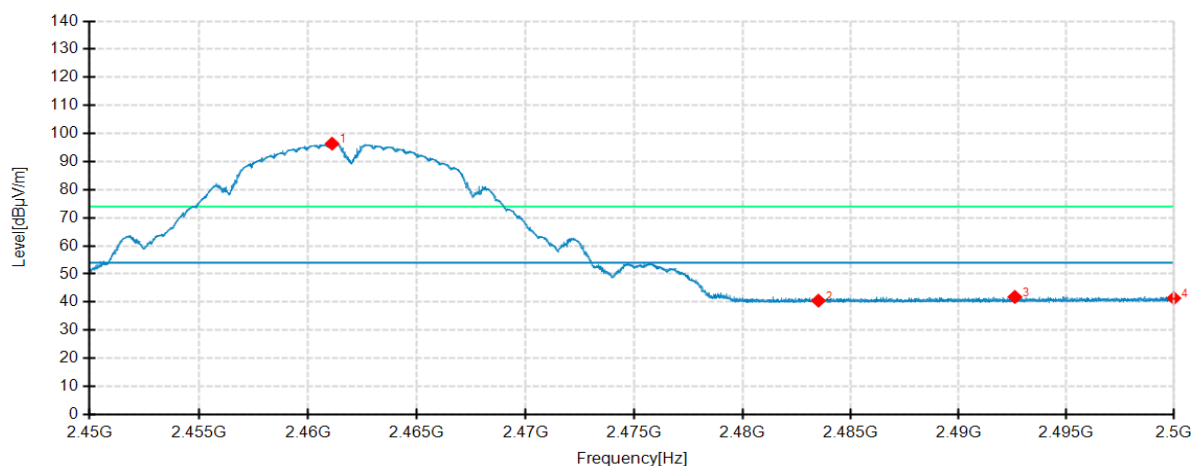
Tested By: Lu Qiang

Detector mode: Average

Voltage: AC 120V/60Hz

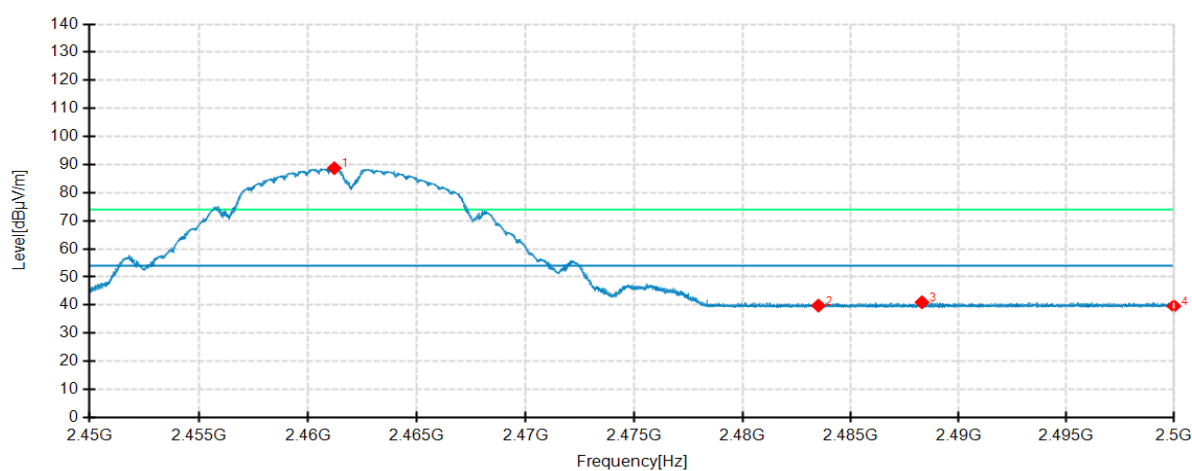
Date: 2022-01-11

Polarity: Horizontal



Detector mode: Average

Polarity: Vertical



No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Comment
1	2461.1050	92.48	96.37	3.89	54.00	-42.37	100	356	Horizontal	No limit
2	2483.5000	36.17	40.50	4.33	54.00	13.50	200	264	Horizontal	/
3	2492.6050	37.33	41.84	4.51	54.00	12.16	100	305	Horizontal	/
4	2500.0000	36.73	41.38	4.65	54.00	12.62	100	260	Horizontal	/
1	2461.2050	85.11	88.72	3.61	54.00	-34.72	200	42	Vertical	No limit
2	2483.5000	36.13	39.82	3.69	54.00	14.18	200	97	Vertical	/
3	2488.2950	37.28	40.99	3.71	54.00	13.01	200	71	Vertical	/
4	2500.0000	35.90	39.65	3.75	54.00	14.35	200	13	Vertical	/

802.11g mode**Lowest Channel**

Frequency 2412MHz

Environment: 25°C/60%RH

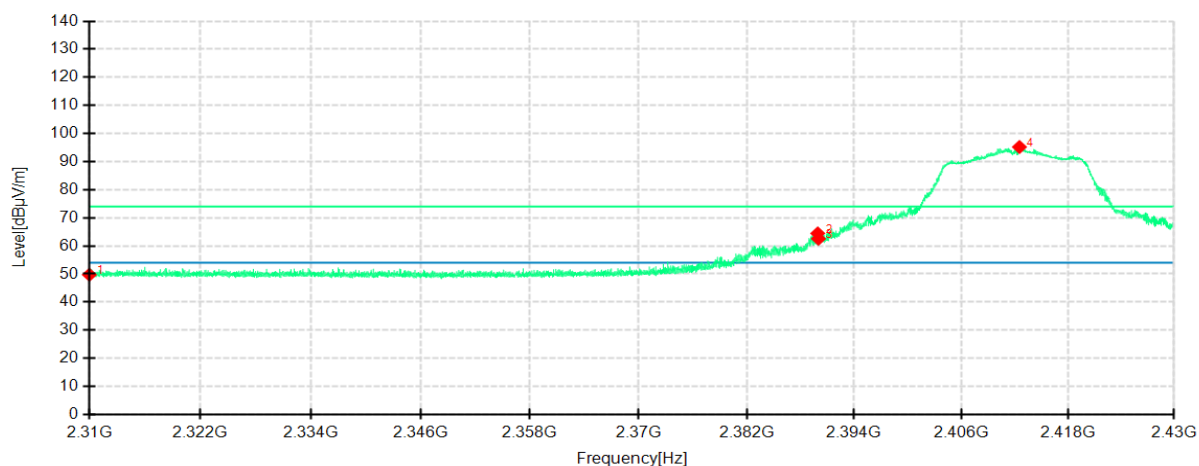
Tested By: Lu Qiang

Detector mode: Peak

Voltage: AC 120V/60Hz

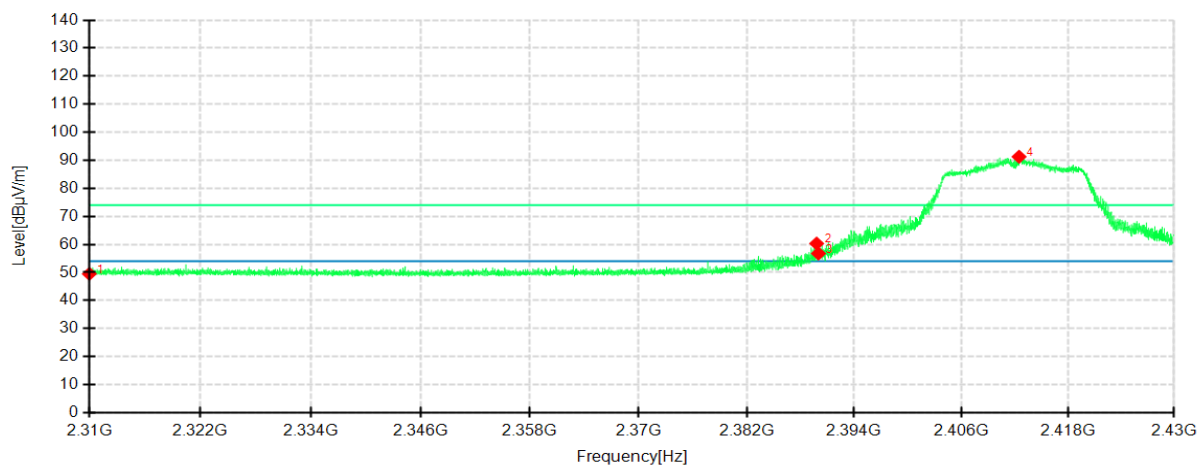
Date: 2022-01-11

Polarity: Horizontal



Detector mode: Peak

Polarity: Vertical



No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Comment
1	2310.0000	46.25	49.73	3.48	74.00	24.27	100	334	Horizontal	/
2	2389.9200	60.64	64.45	3.81	74.00	9.55	200	11	Horizontal	/
3	2390.0000	58.73	62.54	3.81	74.00	11.46	100	360	Horizontal	/
4	2412.5400	91.16	95.20	4.04	74.00	-21.20	100	142	Horizontal	No limit
1	2310.0000	46.01	49.49	3.48	74.00	24.51	200	142	Vertical	/
2	2389.8000	56.50	60.31	3.81	74.00	13.69	200	142	Vertical	/
3	2390.0000	52.94	56.75	3.81	74.00	17.25	200	142	Vertical	/
4	2412.4920	87.22	91.26	4.04	74.00	-17.26	200	142	Vertical	No limit

802.11g mode**Lowest Channel**

Frequency 2412MHz

Environment: 25°C/60%RH

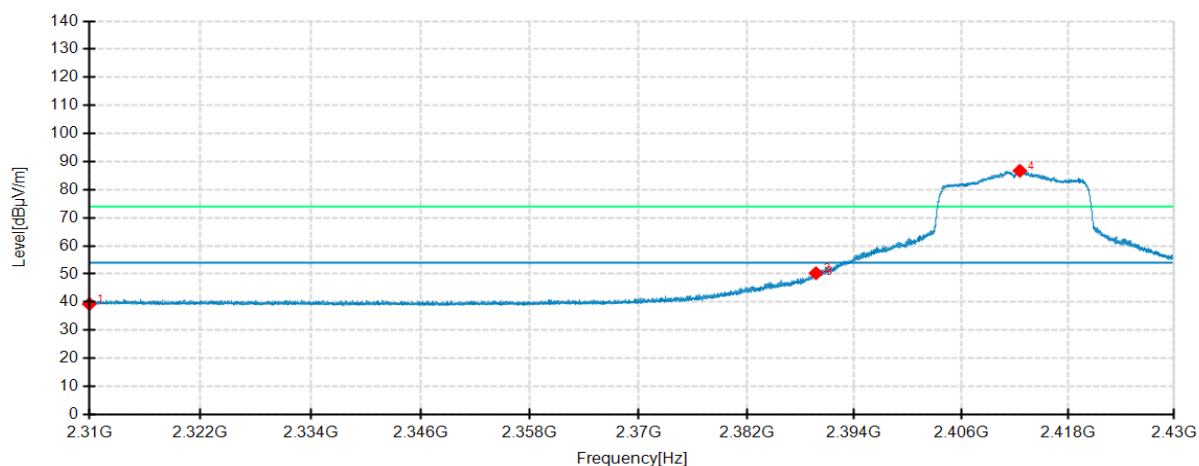
Tested By: Lu Qiang

Detector mode: Average

Voltage: AC 120V/60Hz

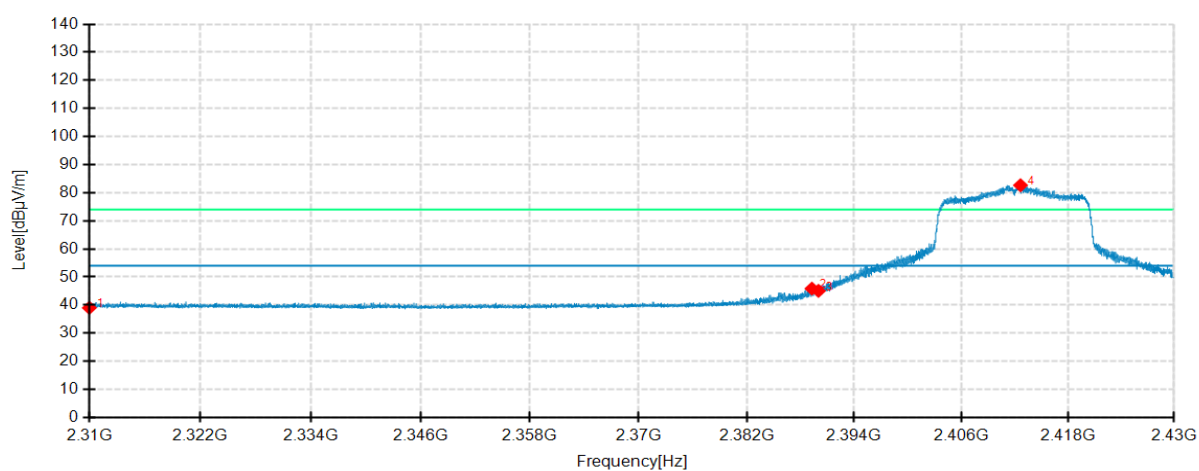
Date: 2022-01-11

Polarity: Horizontal



Detector mode: Average

Polarity: Vertical



No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Comment
1	2310.0000	35.83	39.31	3.48	54.00	14.69	200	122	Horizontal	/
2	2389.7280	46.46	50.27	3.81	54.00	3.73	200	13	Horizontal	/
3	2390.0000	45.43	49.24	3.81	54.00	4.76	100	142	Horizontal	/
4	2412.5880	82.68	86.72	4.04	54.00	-32.72	100	142	Horizontal	No limit
1	2310.0000	35.53	39.01	3.48	54.00	14.99	100	68	Vertical	/
2	2389.2720	42.07	45.87	3.80	54.00	8.13	200	142	Vertical	/
3	2390.0000	41.25	45.06	3.81	54.00	8.94	200	142	Vertical	/
4	2412.6600	78.61	82.65	4.04	54.00	-28.65	200	142	Vertical	No limit

802.11g mode**Highest Channel**

Frequency 2462MHz

Environment: 25°C/60%RH

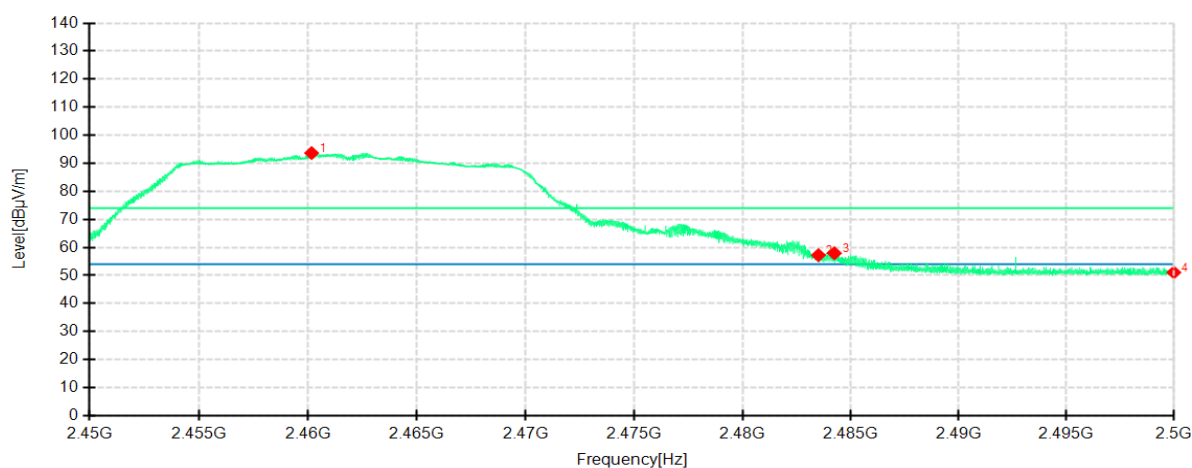
Tested By: Lu Qiang

Detector mode: Peak

Voltage: AC 120V/60Hz

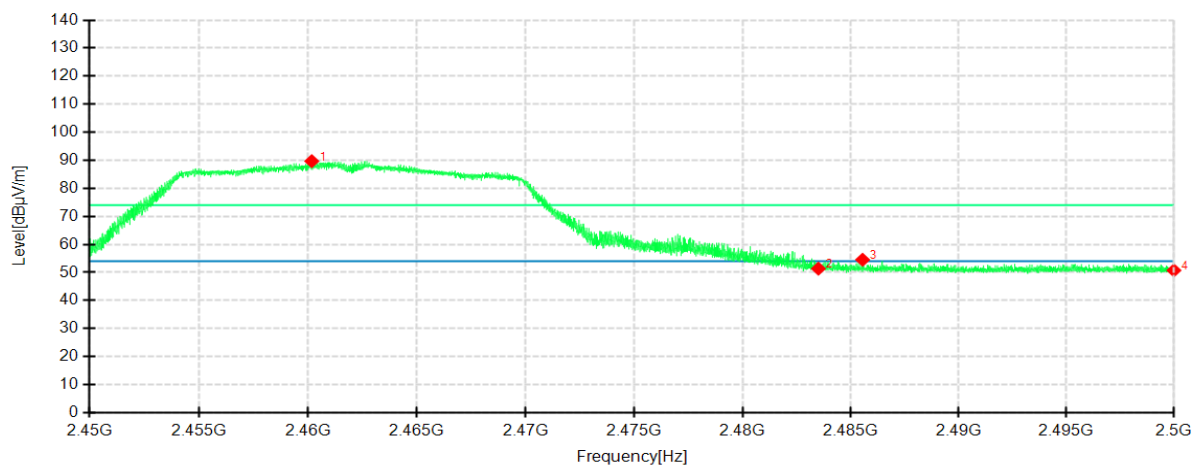
Date: 2022-01-11

Polarity: Horizontal



Detector mode: Peak

Polarity: Vertical



No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBμV/m	Margin dB	Height cm	Angle °	Pole	Comment
1	2460.1650	89.39	93.65	4.26	74.00	-19.65	100	142	Horizontal	No limit
2	2483.5000	52.90	57.23	4.33	74.00	16.77	200	13	Horizontal	/
3	2484.2400	53.59	57.92	4.33	74.00	16.08	200	7	Horizontal	/
4	2500.0000	46.68	51.06	4.38	74.00	22.94	200	1	Horizontal	/
1	2460.1700	85.41	89.67	4.26	74.00	-15.67	200	142	Vertical	No limit
2	2483.5000	47.03	51.36	4.33	74.00	22.64	200	142	Vertical	/
3	2485.5450	50.19	54.53	4.34	74.00	19.47	200	142	Vertical	/
4	2500.0000	46.36	50.74	4.38	74.00	23.26	100	46	Vertical	/

802.11g mode**Highest Channel**

Frequency 2462MHz

Environment: 25°C/60%RH

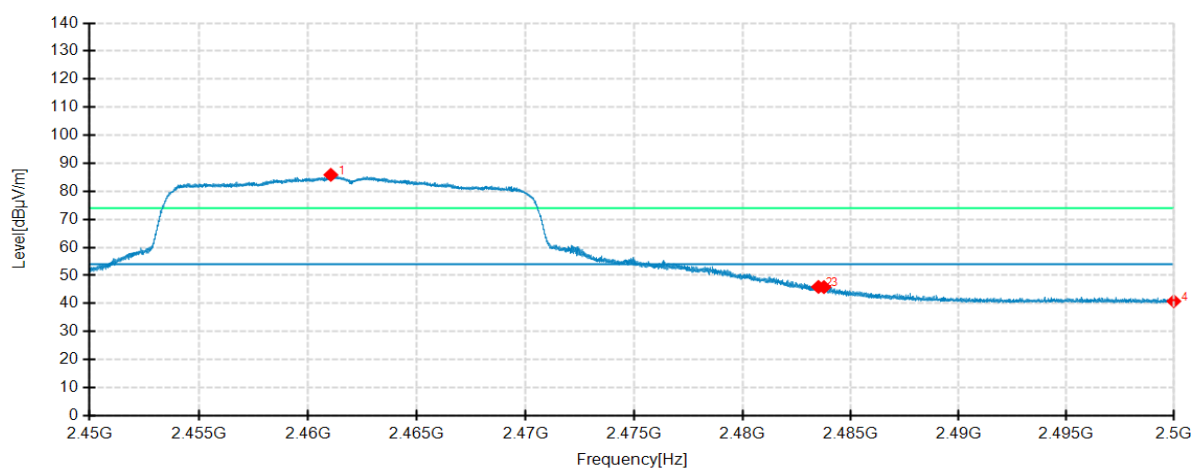
Tested By: Lu Qiang

Detector mode: Average

Voltage: AC 120V/60Hz

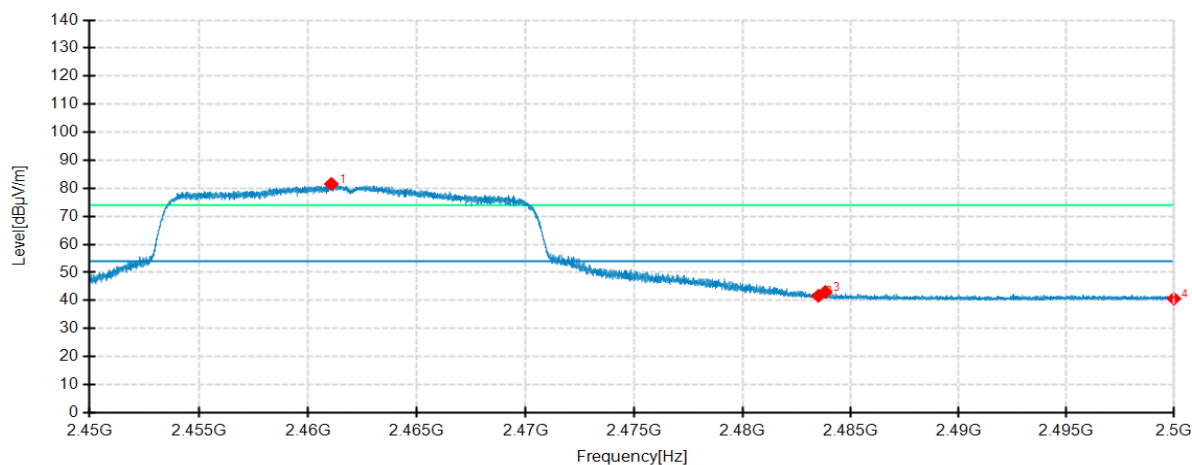
Date: 2022-01-11

Polarity: Horizontal



Detector mode: Average

Polarity: Vertical



No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBμV/m	Margin dB	Height cm	Angle °	Pole	Comment
1	2461.0450	81.62	85.88	4.26	54.00	-31.88	200	7	Horizontal	No limit
2	2483.5000	41.59	45.92	4.33	54.00	8.08	200	0	Horizontal	/
3	2483.7550	41.51	45.84	4.33	54.00	8.16	200	7	Horizontal	/
4	2500.0000	36.42	40.80	4.38	54.00	13.20	100	176	Horizontal	/
1	2461.0700	77.31	81.57	4.26	54.00	-27.57	200	142	Vertical	No limit
2	2483.5000	37.33	41.66	4.33	54.00	12.34	200	142	Vertical	/
3	2483.8200	38.70	43.03	4.33	54.00	10.97	200	142	Vertical	/
4	2500.0000	36.27	40.65	4.38	54.00	13.35	100	218	Vertical	/

802.11n HT20 mode**Lowest Channel**

Frequency 2412MHz

Environment: 25°C/60%RH

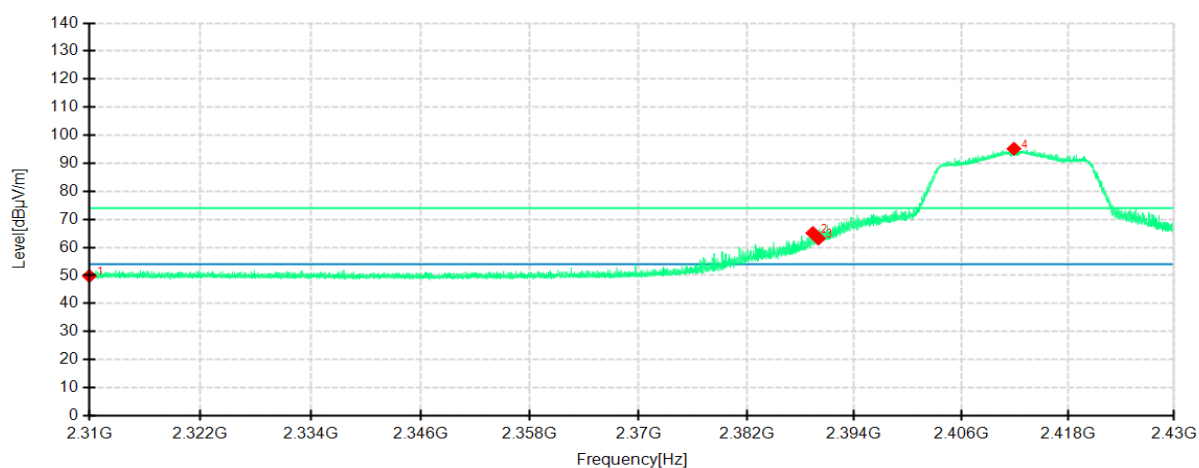
Tested By: Lu Qiang

Detector mode: Peak

Voltage: AC 120V/60Hz

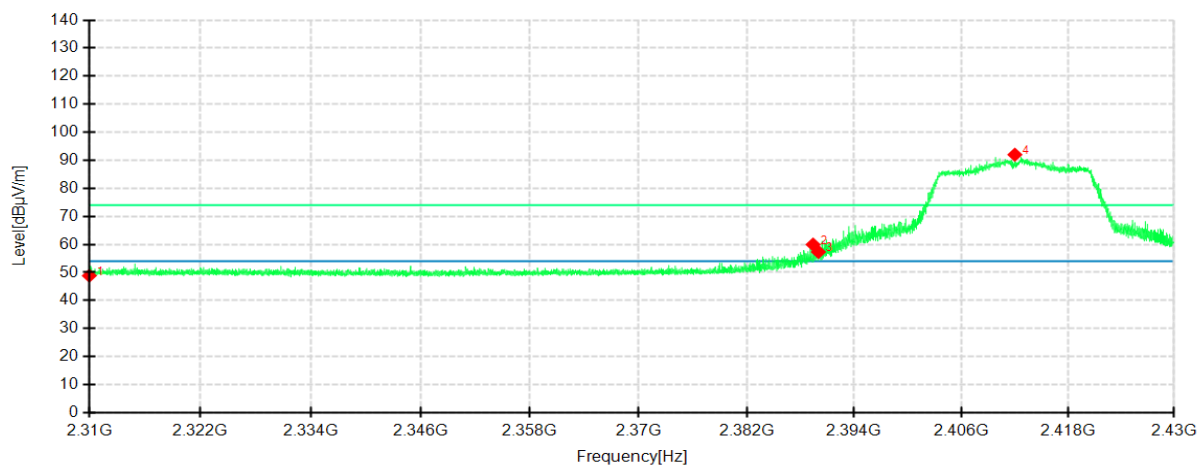
Date: 2022-01-11

Polarity: Horizontal



Detector mode: Peak

Polarity: Vertical



No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBμV/m	Margin dB	Height cm	Angle °	Pole	Comment
1	2310.0000	46.32	49.80	3.48	74.00	24.20	200	218	Horizontal	/
2	2389.3800	61.32	65.12	3.80	74.00	8.88	100	335	Horizontal	/
3	2390.0000	59.38	63.19	3.81	74.00	10.81	200	26	Horizontal	/
4	2411.9160	91.12	95.16	4.04	74.00	-21.16	100	359	Horizontal	No limit
1	2310.0000	45.36	48.84	3.48	74.00	25.16	200	142	Vertical	/
2	2389.4040	56.14	59.94	3.80	74.00	14.06	200	142	Vertical	/
3	2390.0000	53.50	57.31	3.81	74.00	16.69	200	142	Vertical	/
4	2412.0240	87.95	91.99	4.04	74.00	-17.99	200	142	Vertical	No limit

802.11n HT20 mode**Lowest Channel**

Frequency 2412MHz

Environment: 25°C/60%RH

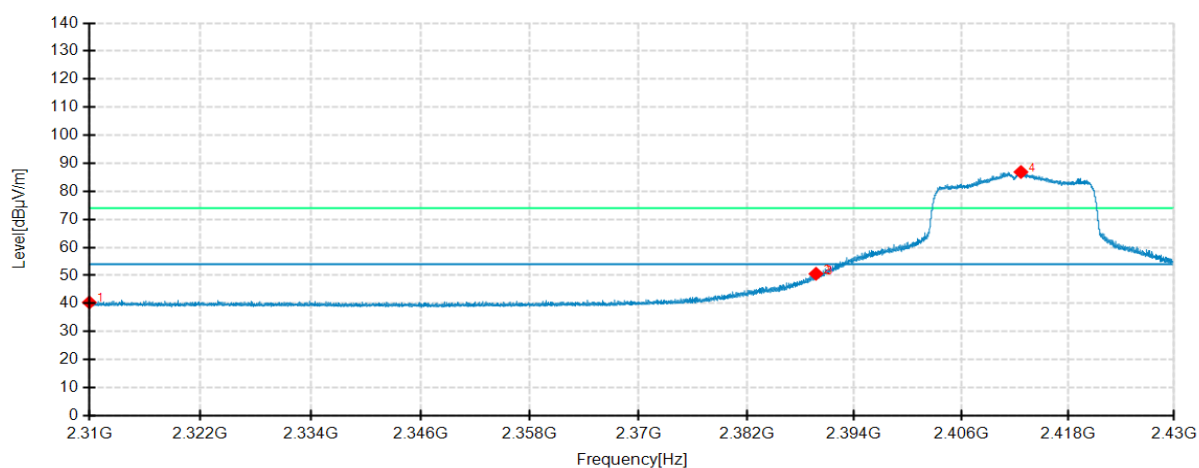
Tested By: Lu Qiang

Detector mode: Average

Voltage: AC 120V/60Hz

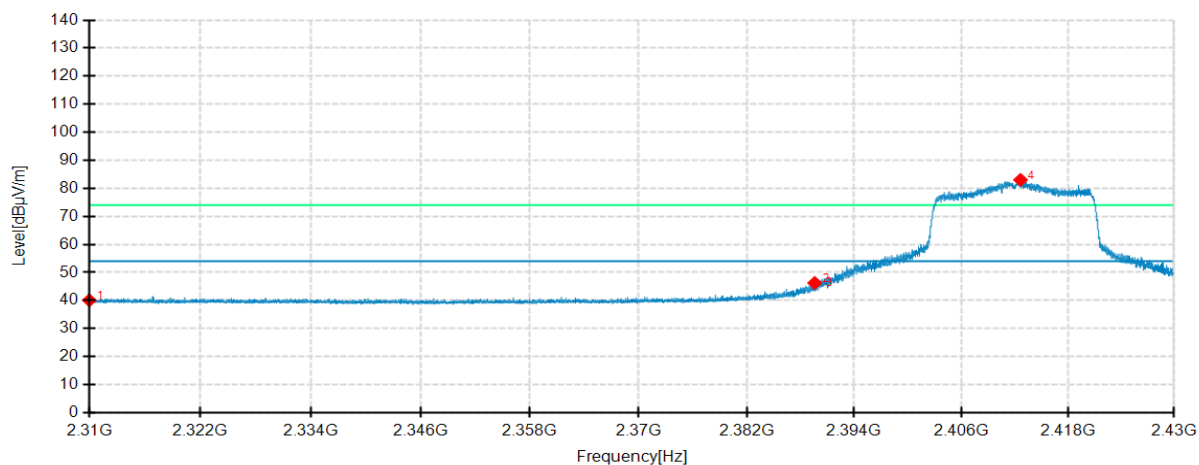
Date: 2022-01-11

Polarity: Horizontal



Detector mode: Average

Polarity: Vertical



No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBμV/m	Margin dB	Height cm	Angle °	Pole	Comment
1	2310.0000	36.90	40.38	3.48	54.00	13.62	100	313	Horizontal	/
2	2389.7280	46.78	50.59	3.81	54.00	3.41	200	11	Horizontal	/
3	2390.0000	46.19	50.00	3.81	54.00	4.00	200	6	Horizontal	/
4	2412.7080	82.85	86.89	4.04	54.00	-32.89	100	142	Horizontal	No limit
1	2310.0000	36.59	40.07	3.48	54.00	13.93	200	142	Vertical	/
2	2389.5840	42.45	46.25	3.80	54.00	7.75	200	142	Vertical	/
3	2390.0000	41.08	44.89	3.81	54.00	9.11	200	142	Vertical	/
4	2412.6600	78.97	83.01	4.04	54.00	-29.01	200	142	Vertical	No limit

802.11n HT20 mode**Highest Channel**

Frequency 2462MHz

Environment: 25°C/60%RH

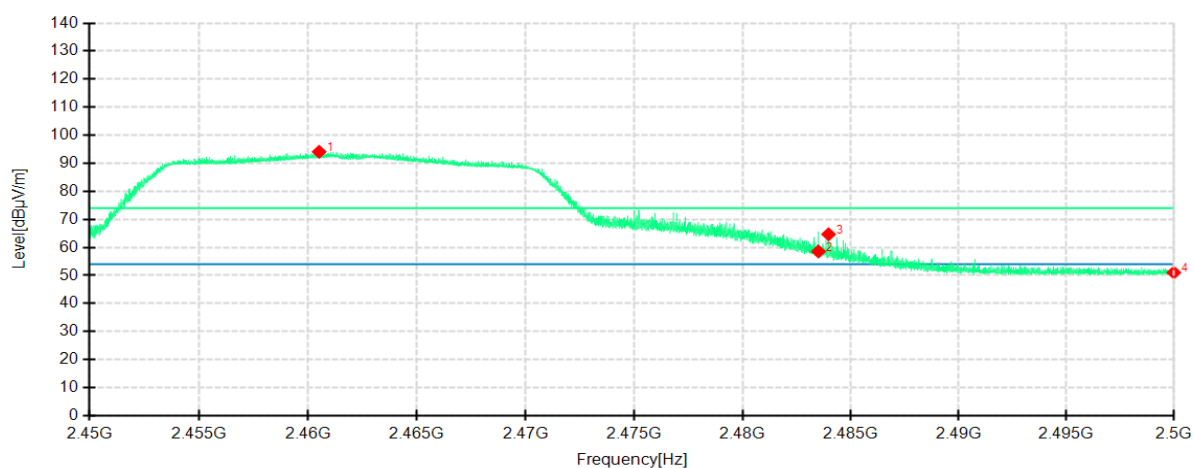
Tested By: Lu Qiang

Detector mode: Peak

Voltage: AC 120V/60Hz

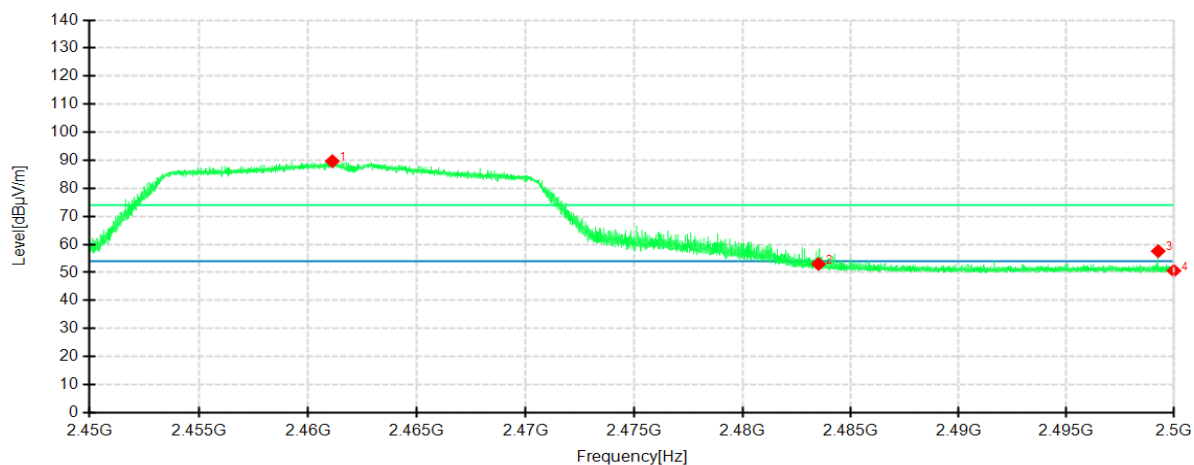
Date: 2022-01-11

Polarity: Horizontal



Detector mode: Peak

Polarity: Vertical



No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Comment
1	2460.5100	89.84	94.10	4.26	74.00	-20.10	200	7	Horizontal	No limit
2	2483.5000	54.23	58.56	4.33	74.00	15.44	100	142	Horizontal	/
3	2483.9700	60.34	64.67	4.33	74.00	9.33	100	341	Horizontal	/
4	2500.0000	46.64	51.02	4.38	74.00	22.98	200	3	Horizontal	/
1	2461.1150	85.40	89.66	4.26	74.00	-15.66	200	142	Vertical	No limit
2	2483.5000	48.69	53.02	4.33	74.00	20.98	200	142	Vertical	/
3	2499.2700	53.22	57.60	4.38	74.00	16.40	100	218	Vertical	/
4	2500.0000	46.21	50.59	4.38	74.00	23.41	200	340	Vertical	/

802.11n HT20 mode**Highest Channel**

Frequency 2462MHz

Environment: 25°C/60%RH

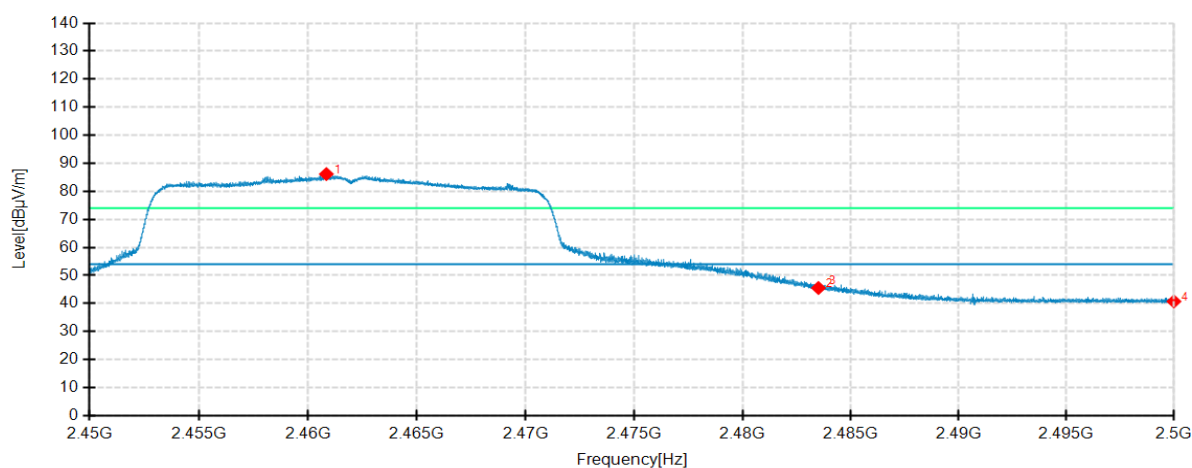
Tested By: Lu Qiang

Detector mode: Average

Voltage: AC 120V/60Hz

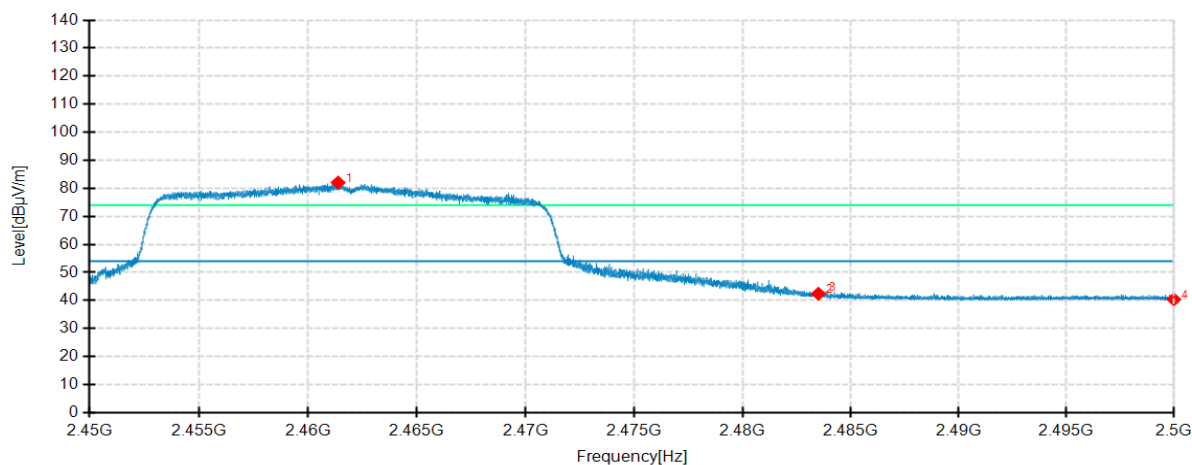
Date: 2022-01-11

Polarity: Horizontal



Detector mode: Average

Polarity: Vertical



No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBμV/m	Margin dB	Height cm	Angle °	Pole	Comment
1	2460.8400	81.88	86.14	4.26	54.00	-32.14	200	218	Horizontal	No limit
2	2483.5000	41.20	45.53	4.33	54.00	8.47	200	3	Horizontal	/
3	2483.6100	42.43	46.76	4.33	54.00	7.24	200	1	Horizontal	/
4	2500.0000	36.35	40.73	4.38	54.00	13.27	200	136	Horizontal	/
1	2461.3800	77.80	82.06	4.26	54.00	-28.06	200	142	Vertical	No limit
2	2483.5000	38.07	42.40	4.33	54.00	11.60	200	327	Vertical	/
3	2483.6350	38.97	43.30	4.33	54.00	10.70	100	40	Vertical	/
4	2500.0000	36.01	40.39	4.38	54.00	13.61	100	33	Vertical	/

APPENDIX A. PHOTOGRAPH OF THE TEST CONNECTION DIAGRAM

Please refer to the attached document E202112276794-Test photo-27.

APPENDIX B. PHOTOGRAPH OF THE EUT

Please refer to the attached document E202112276794-EUT photo-27.

----- End of Report -----