

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

**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
<sup>1</sup> 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(μV/m)	Measurement distance(m)	Quasi-peak(dBμV/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

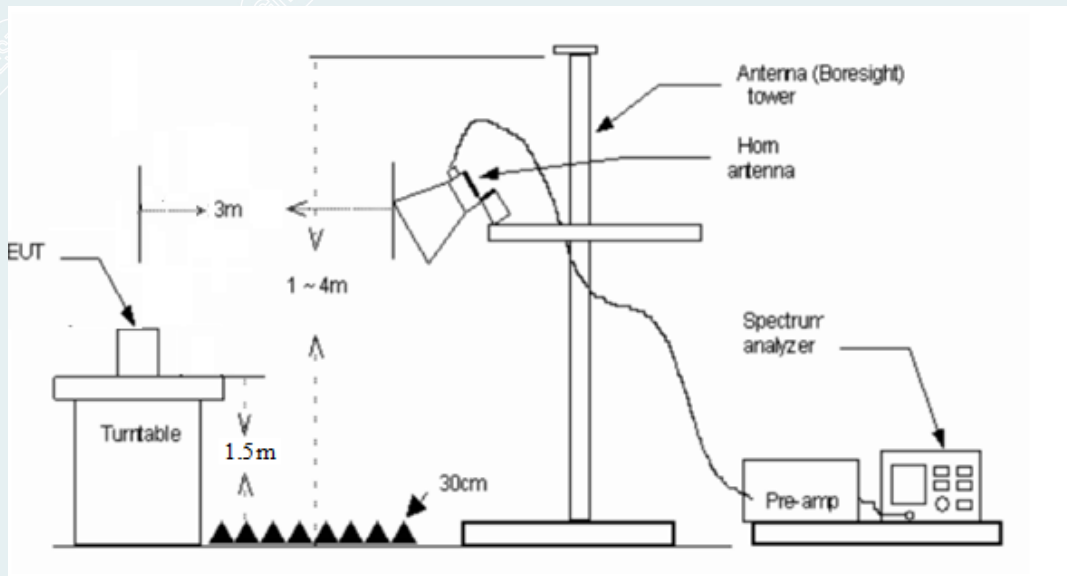


## 11.2 TEST PROCEDURES

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

#### IEEE 802.11b mode

#### Lowest Channel

Frequency 2412MHz

Environment: 23.5°C/56%RH/101.0kPa

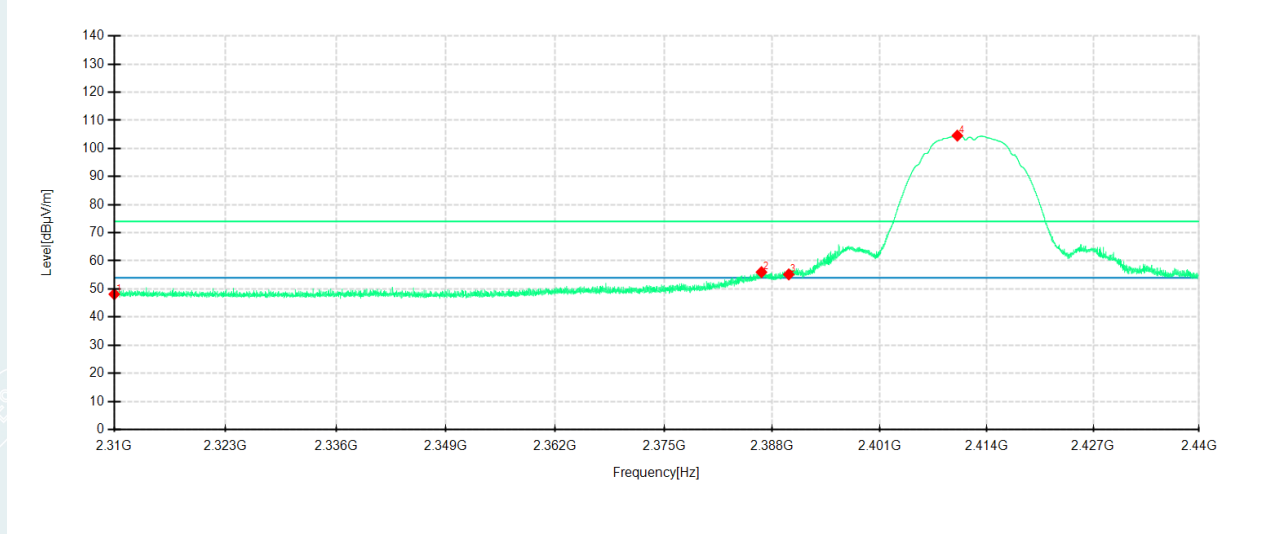
Tested By: Chen xiaocong

Detector mode: Peak

Voltage: AC 24V by AC power convert from AC 120V/60Hz

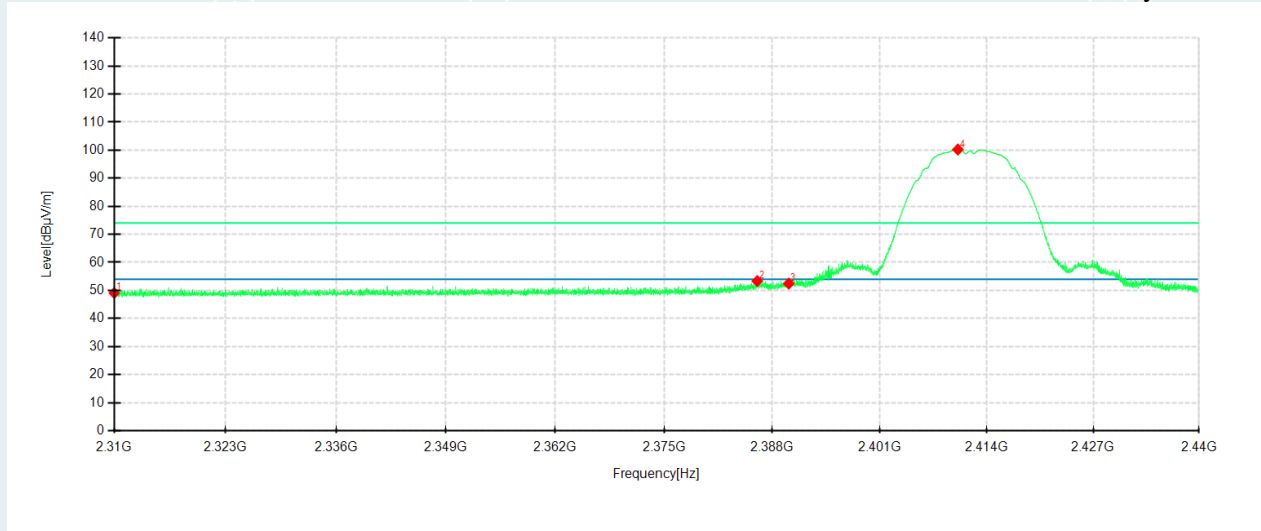
Date: 2022-09-24

Polarity: Horizontal



Detector mode: Peak

Polarity: Vertical



No.	Frequency MHz	Reading dB $\mu$ V/m	Level dB $\mu$ V/m	Factor dB	Limit dB $\mu$ V/m	Margin dB	Height cm	Angle °	Pole	Comment
1	2310	48.43	48.14	-0.29	74.00	25.86	100	172	Horizontal	/
2	2386.7077	56.85	55.98	-0.87	74.00	18.02	200	28	Horizontal	/
3	2390	56.02	55.17	-0.85	74.00	18.83	200	188	Horizontal	/
4	2410.422	105.25	104.56	-0.69	74.00	-30.56	200	188	Horizontal	No limit
1	2310	48.80	49.09	0.29	74.00	24.91	200	173	Vertical	/
2	2386.2006	53.03	53.35	0.32	74.00	20.65	200	320	Vertical	/
3	2390	52.15	52.44	0.29	74.00	21.56	200	298	Vertical	/
4	2410.487	100.15	100.23	0.08	74.00	-26.23	200	331	Vertical	No limit

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



**IEEE 802.11b mode**

**Lowest Channel**

Frequency 2412MHz

Environment: 23.5°C/56%RH/101.0kPa

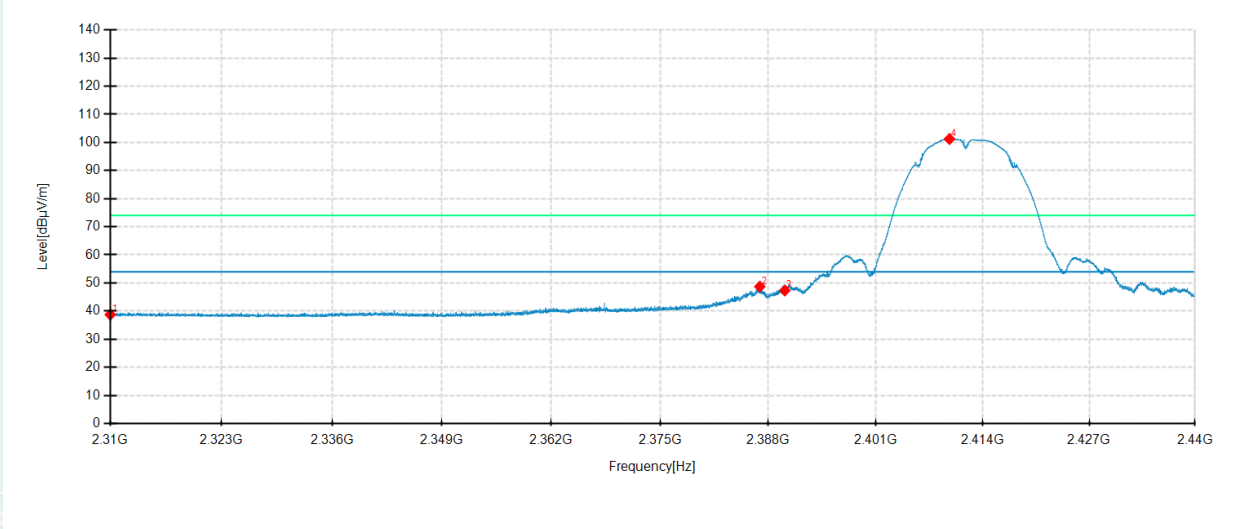
Voltage: AC 24V by AC power convert from AC 120V/60Hz

Tested By: Chen xiaocong

Date: 2022-09-24

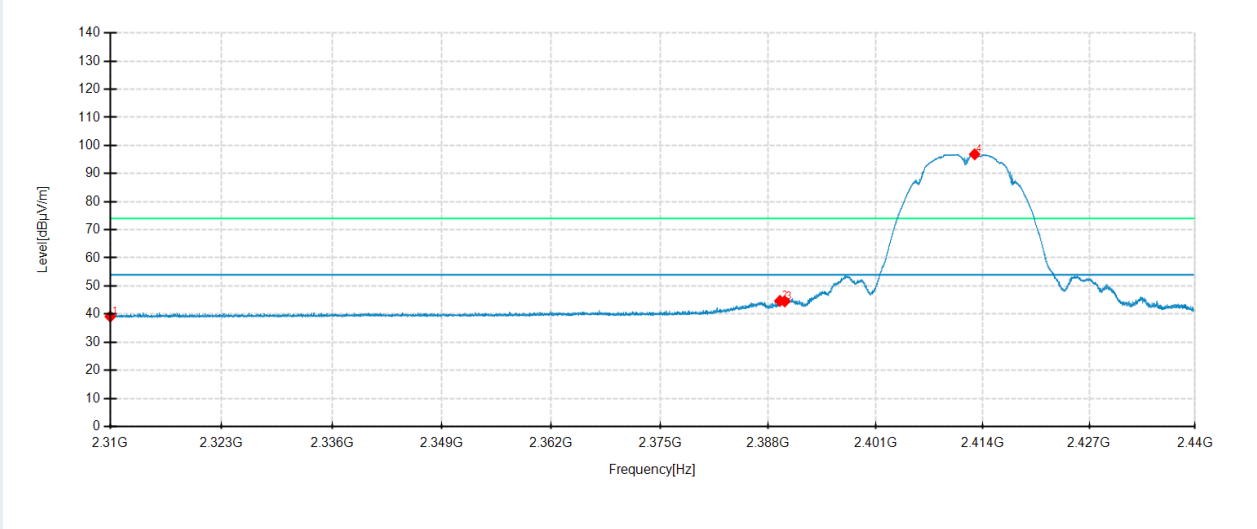
Detector mode: Average

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	39.03	38.74	-0.29	54.00	15.26	200	59	Horizontal	/
2	2386.9937	49.57	48.70	-0.87	54.00	5.30	200	187	Horizontal	/
3	2390	48.17	47.32	-0.85	54.00	6.68	200	187	Horizontal	/
4	2409.954	101.92	101.23	-0.69	54.00	-47.23	200	187	Horizontal	No limit
1	2310	38.83	39.12	0.29	54.00	14.88	200	172	Vertical	/
2	2389.4119	44.39	44.69	0.30	54.00	9.31	200	268	Vertical	/
3	2390	44.23	44.52	0.29	54.00	9.48	200	298	Vertical	/
4	2413.0223	96.82	96.86	0.04	54.00	-42.86	200	331	Vertical	No limit

**IEEE 802.11b mode**

**Highest Channel**

Frequency 2462MHz

Environment: 23.5°C/56%RH/101.0kPa

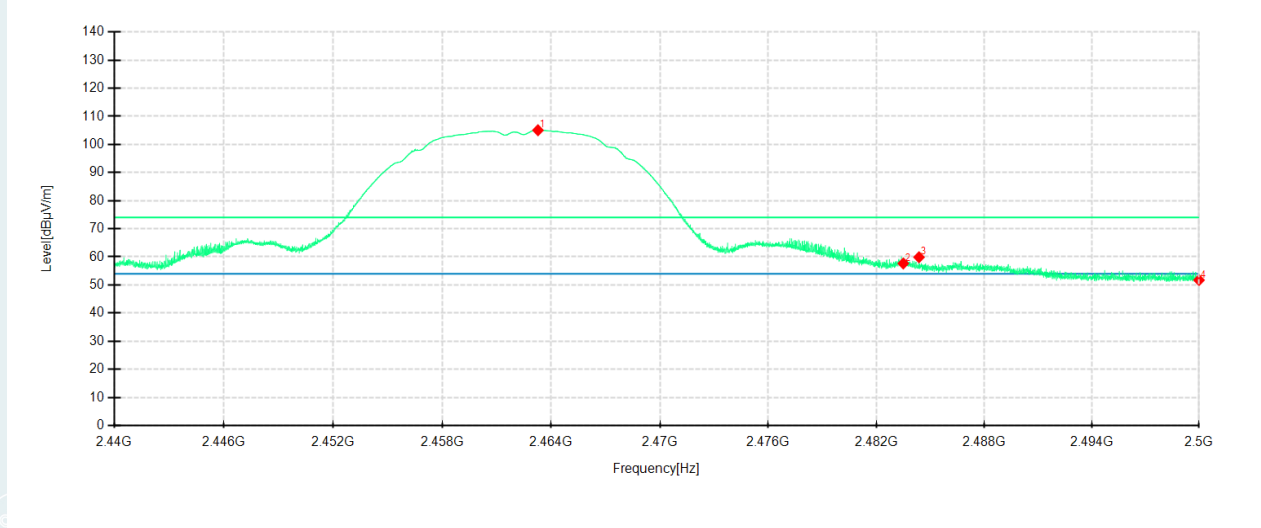
Voltage: AC 24V by AC power convert from AC 120V/60Hz

Tested By: Chen xiacong

Date: 2022-09-24

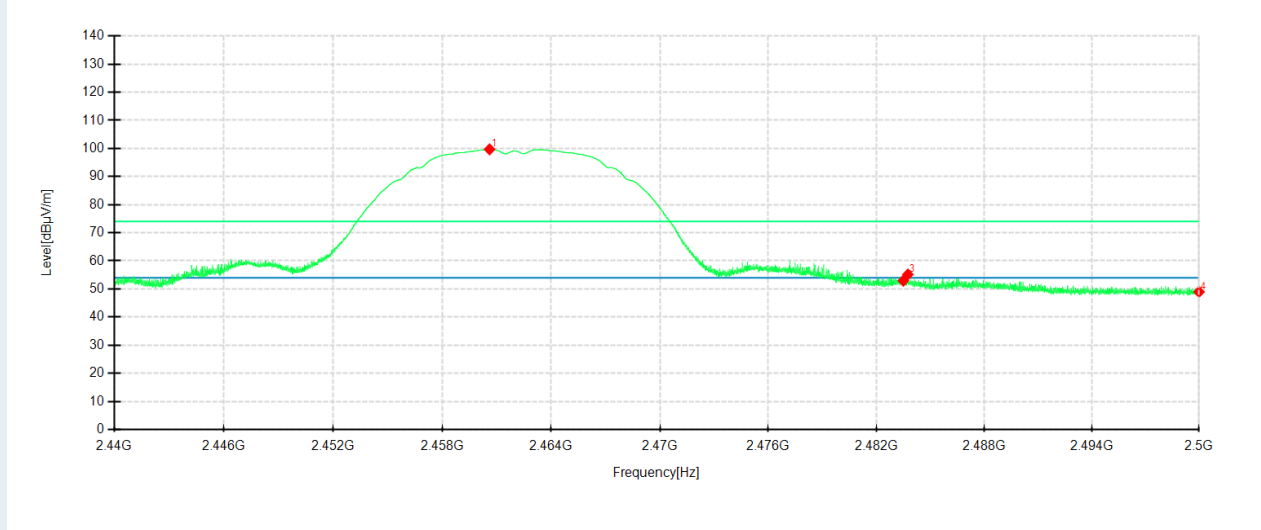
Detector mode: Peak

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	2463.2643	105.20	105.07	-0.13	74.00	-31.07	200	188	Horizontal	No limit
2	2483.5	57.40	57.66	0.26	74.00	16.34	200	188	Horizontal	/
3	2484.3744	59.59	59.87	0.28	74.00	14.13	200	188	Horizontal	/
4	2500	51.15	51.73	0.58	74.00	22.27	200	188	Horizontal	/
1	2460.5941	100.14	99.69	-0.45	74.00	-25.69	200	280	Vertical	No limit
2	2483.5	53.30	52.92	-0.38	74.00	21.08	200	174	Vertical	/
3	2483.7564	55.54	55.16	-0.38	74.00	18.84	200	291	Vertical	/
4	2500	49.29	48.97	-0.32	74.00	25.03	200	174	Vertical	/

**IEEE 802.11b mode  
Highest Channel**

Frequency 2462MHz

Environment: 23.5°C/56%RH/101.0kPa

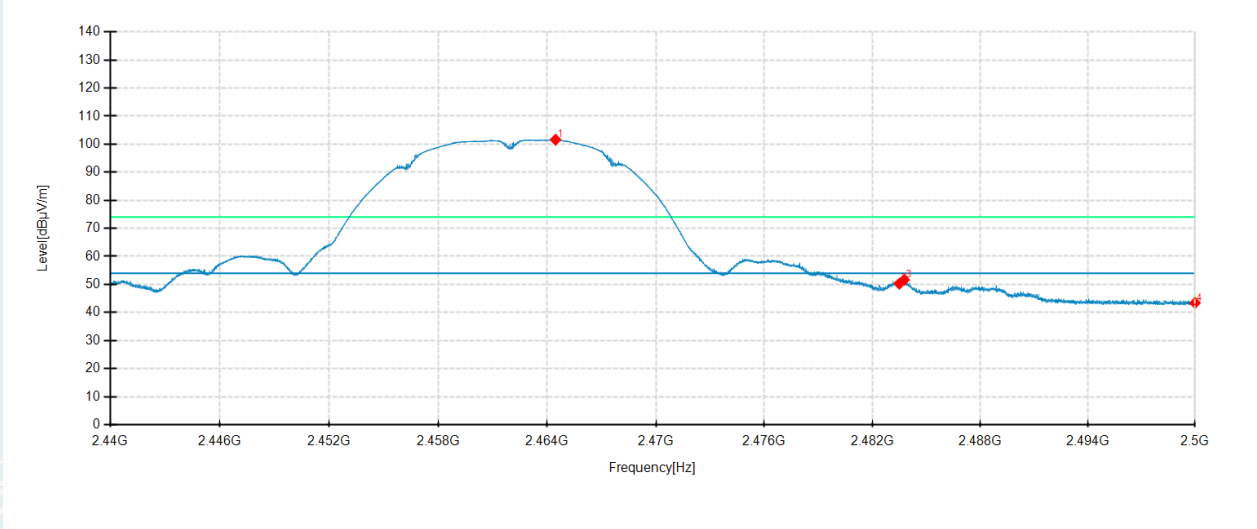
Voltage: AC 24V by AC power convert from AC 120V/60Hz

Tested By: Chen xiacong

Date: 2022-09-24

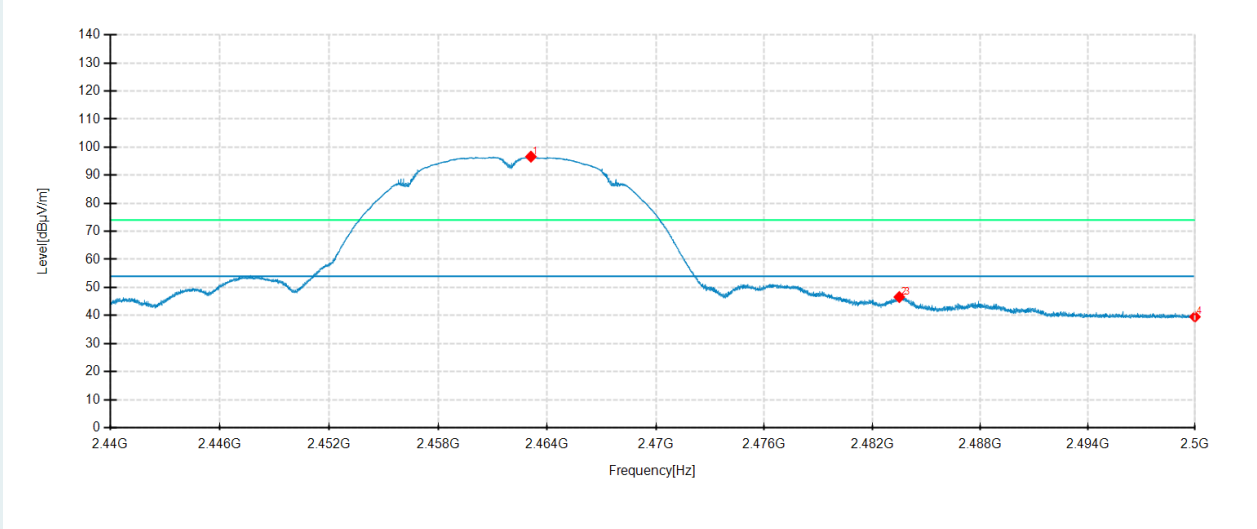
Detector mode: Average

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	2464.4584	101.72	101.61	-0.11	54.00	-47.61	200	0	Horizontal	No limit
2	2483.5	50.02	50.28	0.26	54.00	3.72	200	188	Horizontal	/
3	2483.7684	51.36	51.62	0.26	54.00	2.38	200	177	Horizontal	/
4	2500	42.81	43.39	0.58	54.00	10.61	200	188	Horizontal	/
1	2463.0963	97.07	96.62	-0.45	54.00	-42.62	200	289	Vertical	No limit
2	2483.5	46.96	46.58	-0.38	54.00	7.42	200	289	Vertical	/
3	2483.6784	47.03	46.65	-0.38	54.00	7.35	200	278	Vertical	/
4	2500	39.84	39.52	-0.32	54.00	14.48	200	172	Vertical	/

**IEEE 802.11g mode**

**Lowest Channel**

Frequency 2412MHz

Environment: 23.5°C/56%RH/101.0kPa

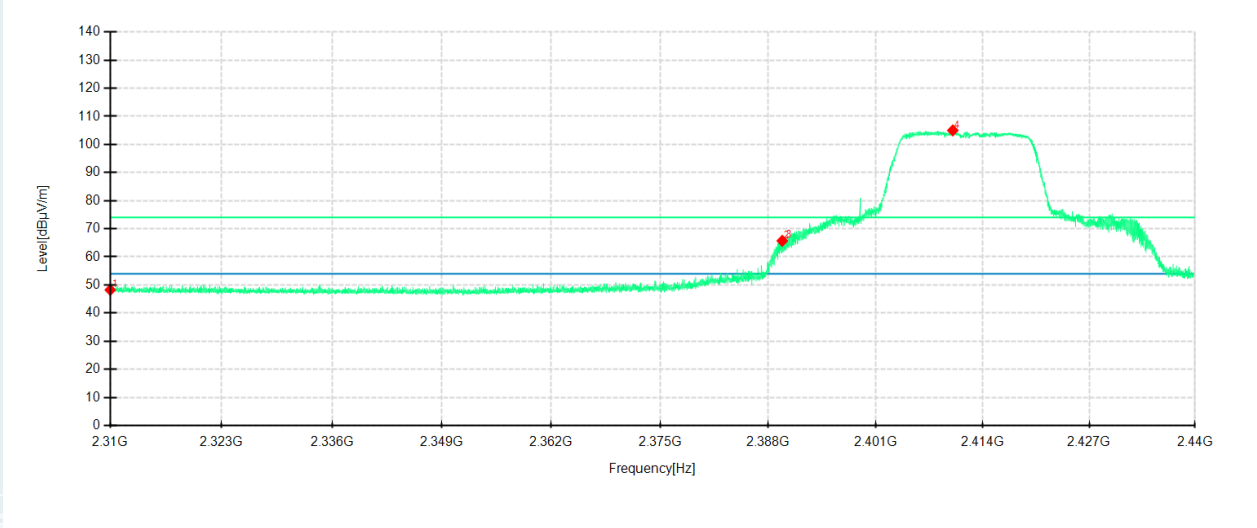
Voltage: AC 24V by AC power convert from AC 120V/60Hz

Tested By: Chen xiacong

Date: 2022-09-24

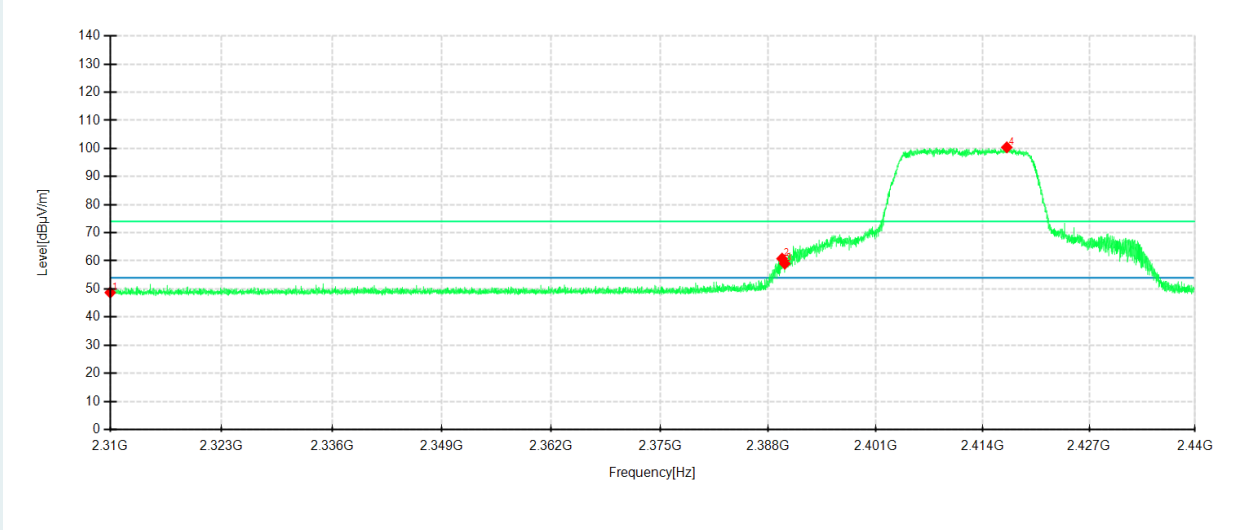
Detector mode: Peak

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	48.53	48.24	-0.29	74.00	25.76	200	40	Horizontal	/
2	2389.698	66.56	65.71	-0.85	74.00	8.29	200	18	Horizontal	/
3	2390	66.84	65.99	-0.85	74.00	8.01	200	189	Horizontal	/
4	2410.357	105.68	104.99	-0.69	74.00	-30.99	200	178	Horizontal	No limit
1	2310	48.44	48.73	0.29	74.00	25.27	100	156	Vertical	/
2	2389.672	60.50	60.79	0.29	74.00	13.21	200	173	Vertical	/
3	2390	58.75	59.04	0.29	74.00	14.96	200	308	Vertical	/
4	2416.9357	100.42	100.40	-0.02	74.00	-26.40	200	329	Vertical	No limit

**IEEE 802.11g mode**

**Lowest Channel**

Frequency 2412MHz

Environment: 23.5°C/56%RH/101.0kPa

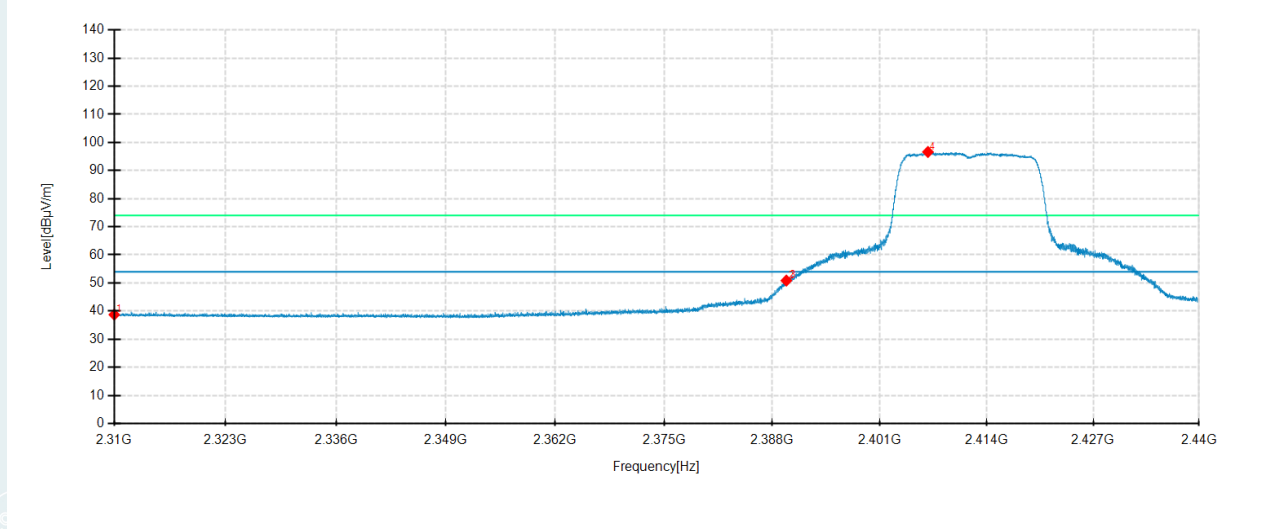
Voltage: AC 24V by AC power convert from AC 120V/60Hz

Tested By: Chen xiacong

Date: 2022-09-24

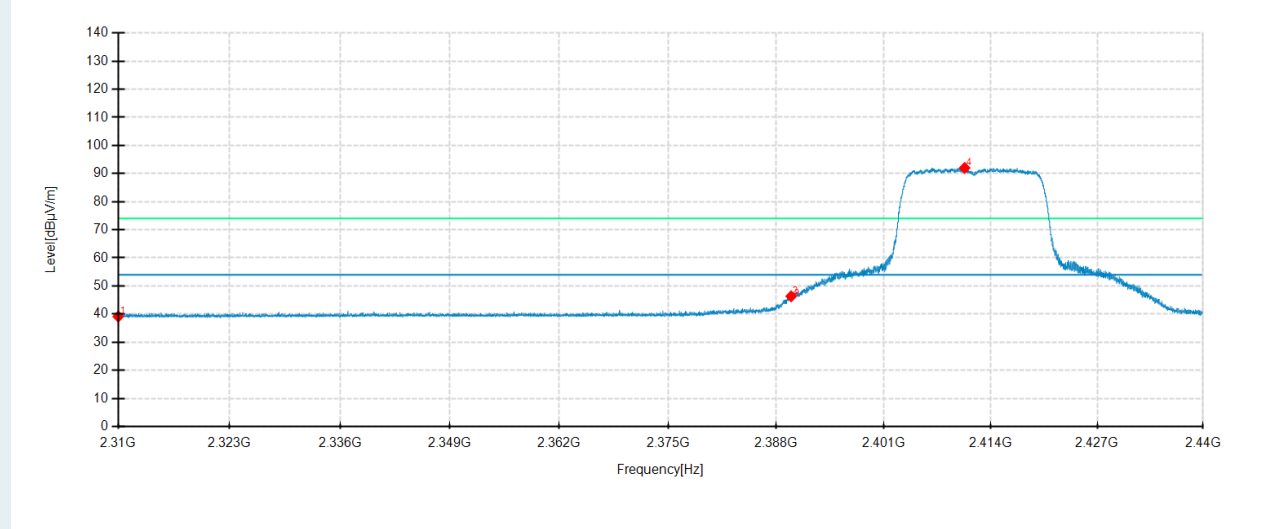
Detector mode: Average

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	39.02	38.73	-0.29	54.00	15.27	100	174	Horizontal	/
2	2389.711	51.70	50.85	-0.85	54.00	3.15	200	187	Horizontal	/
3	2390	51.75	50.90	-0.85	54.00	3.10	200	187	Horizontal	/
4	2406.8467	97.34	96.62	-0.72	54.00	-42.62	200	187	Horizontal	No limit
1	2310	38.83	39.12	0.29	54.00	14.88	100	187	Vertical	/
2	2389.802	46.03	46.32	0.29	54.00	7.68	200	298	Vertical	/
3	2390	45.00	45.29	0.29	54.00	8.71	200	173	Vertical	/
4	2410.8251	91.92	92.00	0.08	54.00	-38.00	200	328	Vertical	No limit



**IEEE 802.11g mode**

**Highest Channel**

Frequency 2462MHz

Environment: 23.5°C/56%RH/101.0kPa

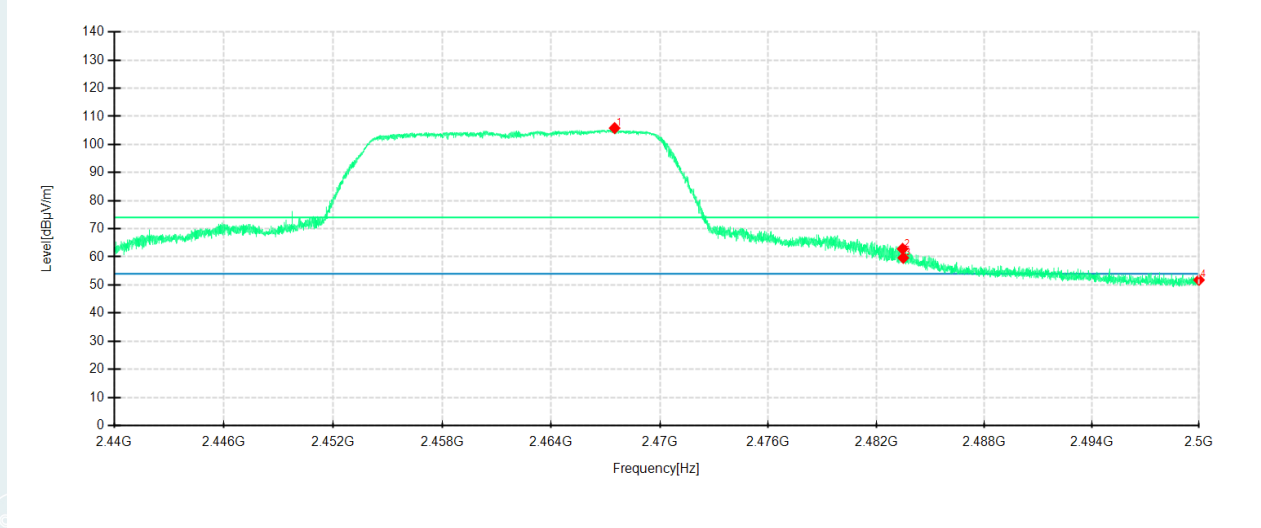
Voltage: AC 24V by AC power convert from AC 120V/60Hz

Tested By: Chen xiacong

Date: 2022-09-24

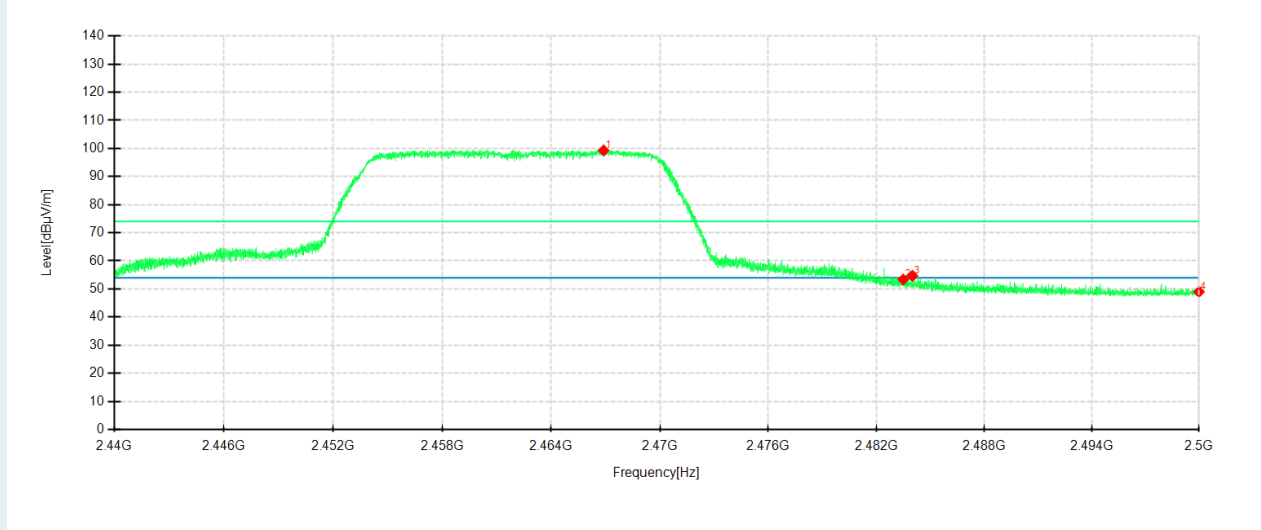
Detector mode: Peak

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	2467.4947	105.88	105.83	-0.05	74.00	-31.83	200	188	Horizontal	No limit
2	2483.4623	62.59	62.85	0.26	74.00	11.15	200	188	Horizontal	/
3	2483.5	59.39	59.65	0.26	74.00	14.35	200	188	Horizontal	/
4	2500	51.20	51.78	0.58	74.00	22.22	200	28	Horizontal	/
1	2466.8887	99.73	99.30	-0.43	74.00	-25.30	200	277	Vertical	No limit
2	2483.5	53.75	53.37	-0.38	74.00	20.63	200	329	Vertical	/
3	2484.0084	55.04	54.67	-0.37	74.00	19.33	200	287	Vertical	/
4	2500	49.32	49.00	-0.32	74.00	25.00	100	105	Vertical	/



**IEEE 802.11g mode**

**Highest Channel**

Frequency 2462MHz

Environment: 23.5°C/56%RH/101.0kPa

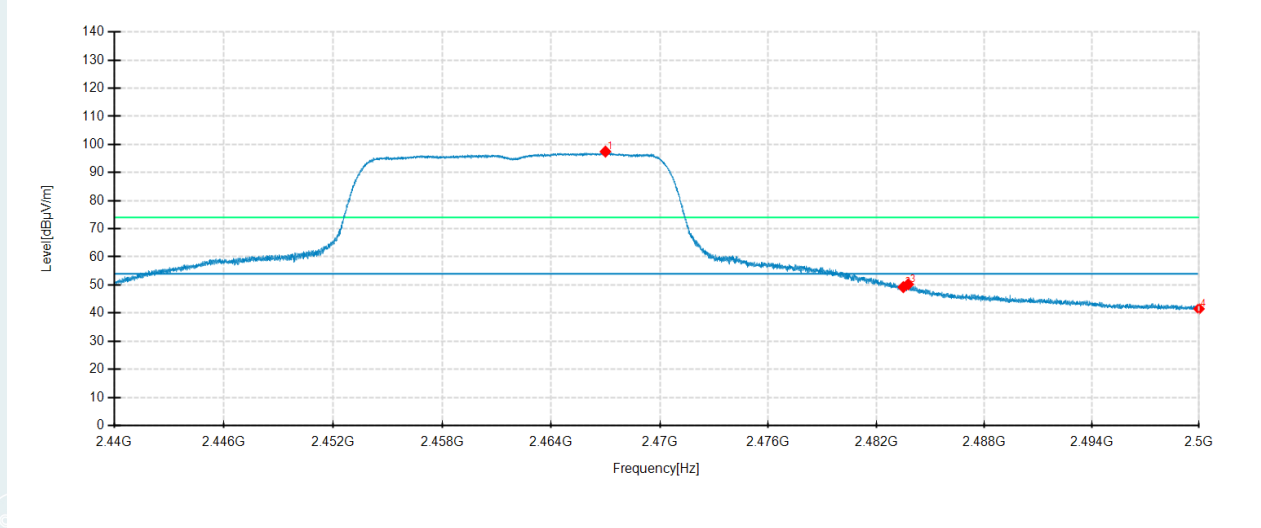
Voltage: AC 24V by AC power convert from AC 120V/60Hz

Tested By: Chen xiacong

Date: 2022-09-24

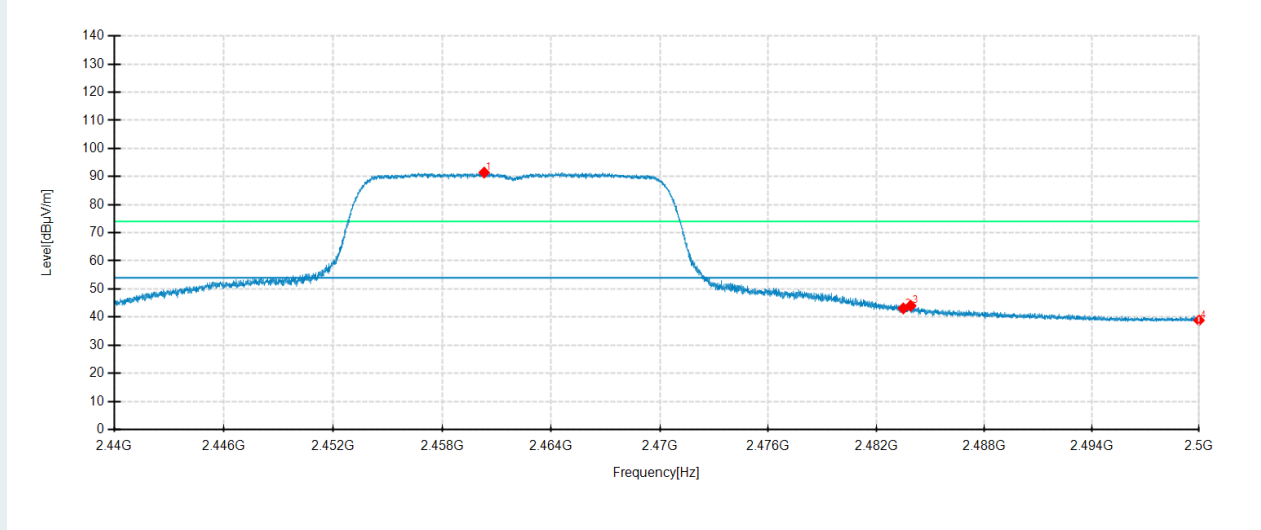
Detector mode: Average

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	2466.9907	97.51	97.45	-0.06	54.00	-43.45	200	188	Horizontal	No limit
2	2483.5	48.97	49.23	0.26	54.00	4.77	200	188	Horizontal	/
3	2483.7684	49.96	50.22	0.26	54.00	3.78	200	188	Horizontal	/
4	2500	40.93	41.51	0.58	54.00	12.49	200	18	Horizontal	/
1	2460.3	91.86	91.41	-0.45	54.00	-37.41	200	288	Vertical	No limit
2	2483.5	43.46	43.08	-0.38	54.00	10.92	200	288	Vertical	/
3	2483.9124	44.38	44.01	-0.37	54.00	9.99	200	319	Vertical	/
4	2500	39.16	38.84	-0.32	54.00	15.16	200	173	Vertical	/

**IEEE 802.11n HT20 mode**

**Lowest Channel**

Frequency 2412MHz

Environment: 23.5°C/56%RH/101.0kPa

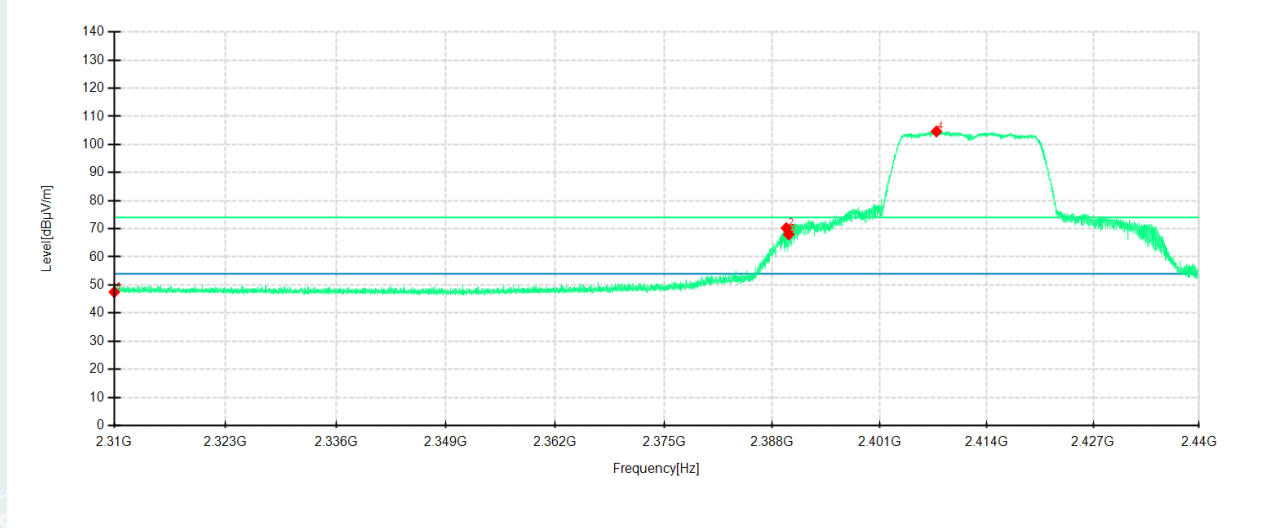
Voltage: AC 24V by AC power convert from AC 120V/60Hz

Tested By: Chen xiacong

Date: 2022-09-24

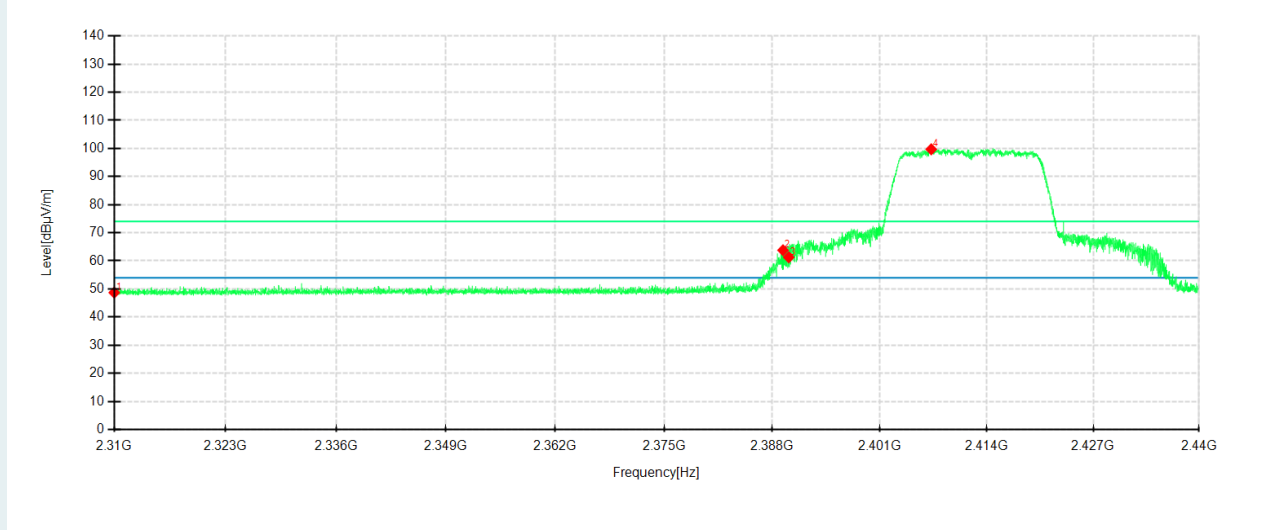
Detector mode: Peak

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	47.76	47.47	-0.29	74.00	26.53	100	29	Horizontal	/
2	2389.711	71.10	70.25	-0.85	74.00	3.75	200	360	Horizontal	/
3	2390	68.87	68.02	-0.85	74.00	5.98	200	172	Horizontal	/
4	2407.8738	105.34	104.63	-0.71	74.00	-30.63	200	360	Horizontal	No limit
1	2310	48.42	48.71	0.29	74.00	25.29	200	28	Vertical	/
2	2389.3079	63.47	63.77	0.30	74.00	10.23	200	82	Vertical	/
3	2390	60.99	61.28	0.29	74.00	12.72	200	50	Vertical	/
4	2407.2497	99.57	99.70	0.13	74.00	-25.70	200	187	Vertical	No limit

**IEEE 802.11n HT20 mode**

**Lowest Channel**

Frequency 2412MHz

Environment: 23.5°C/56%RH/101.0kPa

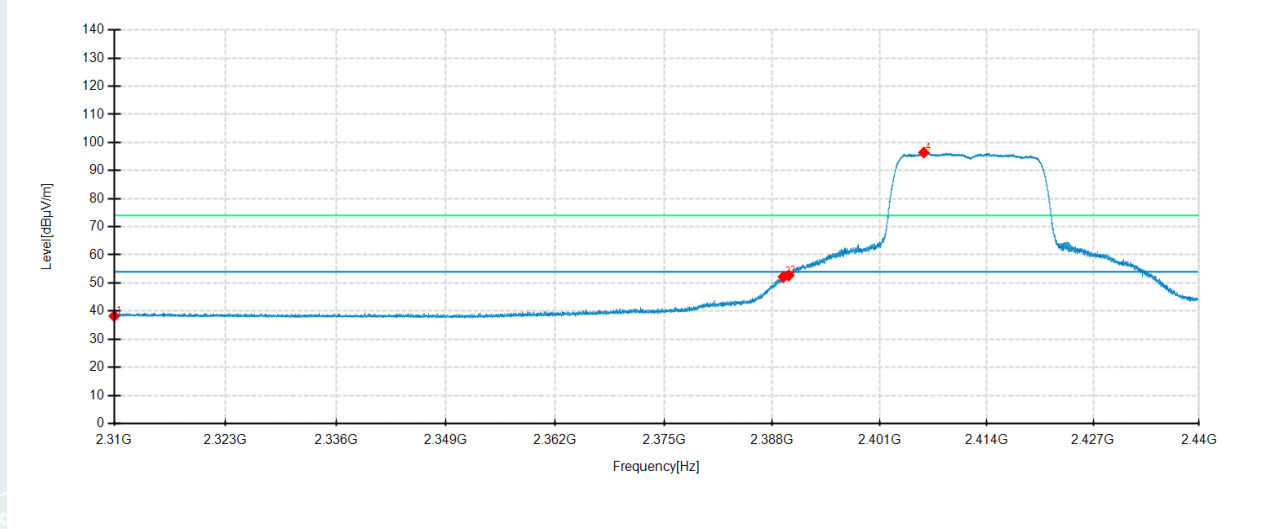
Voltage: AC 24V by AC power convert from AC 120V/60Hz

Tested By: Chen xiacong

Date: 2022-09-24

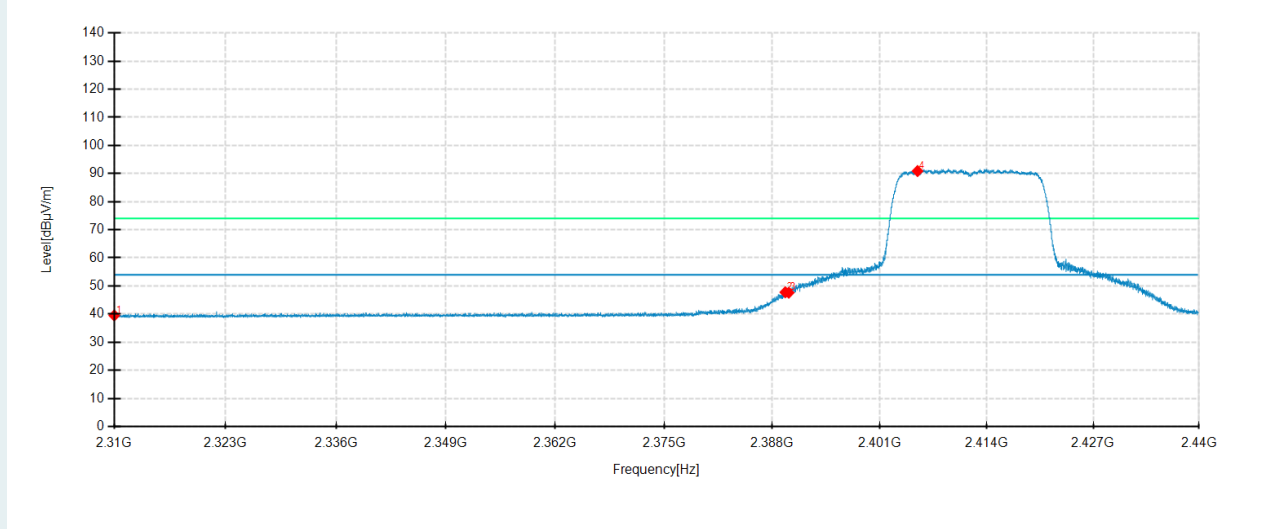
Detector mode: Average

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	38.51	38.22	-0.29	54.00	15.78	200	173	Horizontal	/
2	2389.3599	52.99	52.14	-0.85	54.00	1.86	200	173	Horizontal	/
3	2390	53.52	52.67	-0.85	54.00	1.33	200	206	Horizontal	/
4	2406.3526	97.13	96.41	-0.72	54.00	-42.41	200	206	Horizontal	No limit
1	2310	39.21	39.50	0.29	54.00	14.50	200	188	Vertical	/
2	2389.581	47.48	47.77	0.29	54.00	6.23	200	188	Vertical	/
3	2390	47.31	47.60	0.29	54.00	6.40	200	188	Vertical	/
4	2405.5856	90.74	90.89	0.15	54.00	-36.89	200	188	Vertical	No limit

**IEEE 802.11n HT20 mode**

**Highest Channel**

Frequency 2462MHz

Environment: 23.5°C/56%RH/101.0kPa

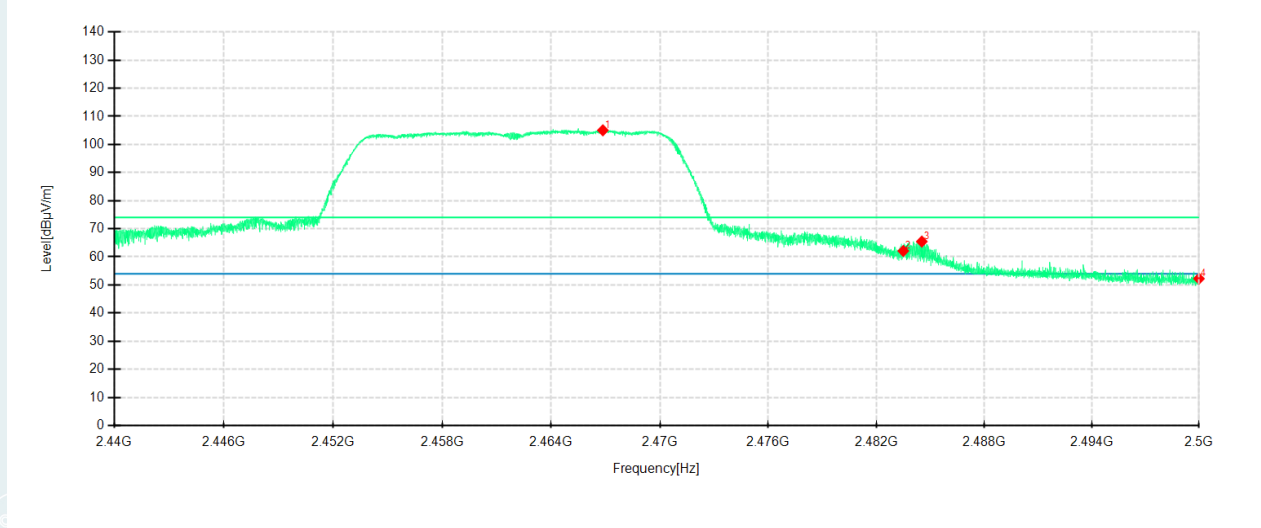
Voltage: AC 24V by AC power convert from AC 120V/60Hz

Tested By: Chen xiacong

Date: 2022-09-24

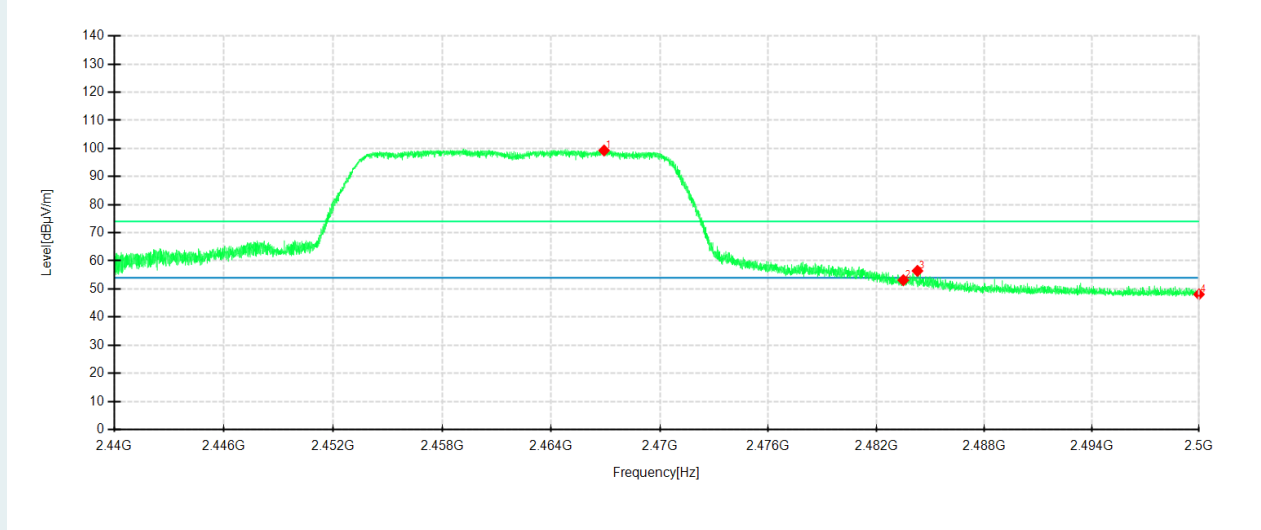
Detector mode: Peak

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	2466.8467	105.09	105.03	-0.06	74.00	-31.03	200	187	Horizontal	No limit
2	2483.5	61.85	62.11	0.26	74.00	11.89	200	187	Horizontal	/
3	2484.5305	65.16	65.44	0.28	74.00	8.56	200	187	Horizontal	/
4	2500	51.67	52.25	0.58	74.00	21.75	200	187	Horizontal	/
1	2466.9127	99.71	99.28	-0.43	74.00	-25.28	200	286	Vertical	No limit
2	2483.5	53.50	53.12	-0.38	74.00	20.88	200	286	Vertical	/
3	2484.2844	56.80	56.43	-0.37	74.00	17.57	200	286	Vertical	/
4	2500	48.40	48.08	-0.32	74.00	25.92	100	168	Vertical	/

**IEEE 802.11n HT20 mode**

**Highest Channel**

Frequency 2462MHz

Environment: 23.5°C/56%RH/101.0kPa

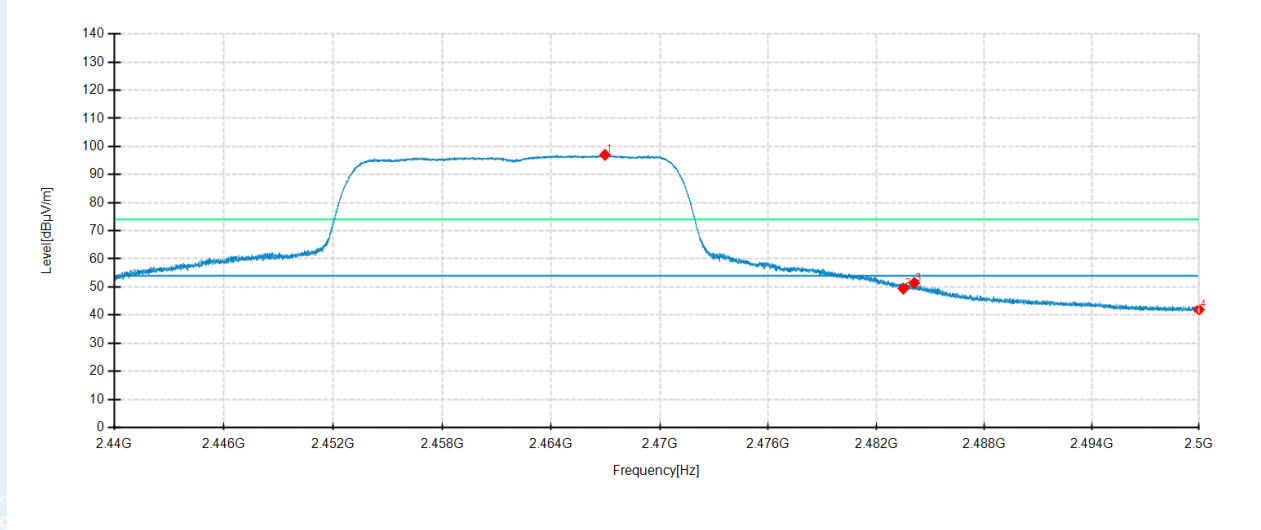
Voltage: AC 24V by AC power convert from AC 120V/60Hz

Tested By: Chen xiaocong

Date: 2022-09-24

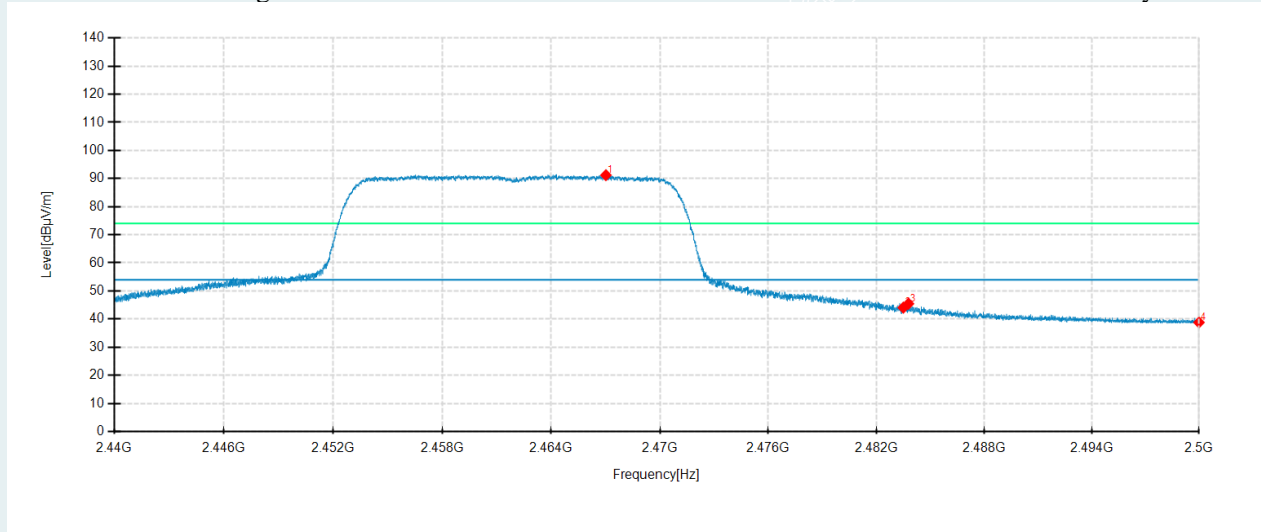
Detector mode: Average

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	2466.9667	97.08	97.02	-0.06	54.00	-43.02	200	188	Horizontal	No limit
2	2483.5	49.15	49.41	0.26	54.00	4.59	200	188	Horizontal	/
3	2484.1104	51.13	51.41	0.28	54.00	2.59	200	177	Horizontal	/
4	2500	41.36	41.94	0.58	54.00	12.06	200	11	Horizontal	/
1	2467.0147	91.63	91.20	-0.43	54.00	-37.20	200	280	Vertical	No limit
2	2483.5	44.44	44.06	-0.38	54.00	9.94	200	280	Vertical	/
3	2483.7864	45.83	45.45	-0.38	54.00	8.55	200	280	Vertical	/
4	2500	39.12	38.80	-0.32	54.00	15.20	100	188	Vertical	/

**APPENDIX A. PHOTOGRAPH OF THE TEST CONNECTION DIAGRAM**

Please refer to the attached document E20220818423001-16-Test photo.

**APPENDIX B. PHOTOGRAPH OF THE EUT**

Please refer to the attached document E20220818423001-17-EUT photo.

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