

FCC Test Report

Product Name : Consumer Home Router
Trade Name : Verizon
Model No. : CR1000A
FCC ID : NKR-LVSK-R2A

Applicant : Wistron NeWeb Corporation
Address : 20 Park Ave. II, Hsinchu Science Park, Hsinchu
308, Taiwan

Date of Receipt : Aug. 03, 2021
Issued Date : Sep. 01, 2021
Report No. : 2180114R-RFNAOTHV02
Report Version : V1.0



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.

This report must not be used to claim product endorsement by TAF or any agency of the government.

Measurement uncertainties evaluated for each testing system and associated connections are given here to provide the system information for reference. Compliance determinations do not take into account measurement uncertainties for each testing system, but are based on the results of the compliance measurement.

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Test Report Certification



Product Name : Consumer Home Router
Applicant : Wistron NeWeb Corporation
Address : 20 Park Ave. II, Hsinchu Science Park, Hsinchu 308, Taiwan
Manufacturer : Wistron NeWeb Corporation
Address : 20 Park Ave. II, Hsinchu Science Park, Hsinchu 308, Taiwan
Trade Name : Verizon
Model No. : CR1000A
FCC ID : NKR-LVSK-R2A
EUT Test Voltage : AC 100-120V, 50-60Hz
Testing Voltage : AC 120V/60Hz
Applicable Standard : FCC CFR Title 47 Part 15 Subpart C Section 15.247
ANSI C63.10: 2013
Laboratory Name : Hsin Chu Laboratory
Address : No.372-2, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu
County 310, Taiwan, R.O.C.
TEL: +886-3-582-8001 / FAX: +886-3-582-8958
Test Result : Complied

Documented By

:



(Carol Tsai / Senior Engineering Adm. Specialist)

Approved By

:



(Louis Hsu / Deputy Manager)

The test results relate only to the samples tested.

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Revision History

Version	Description	Issued Date
V1.0	Initial issue of report	Sep. 01, 2021

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1. Summary of Reference Test Data

1.1. Introduction

This device has the same WiFi hardware design and software (include DFS F/W) with FCC ID: NKR-LVSK-R2. According to KDB 484596 D01v01, the FCC Part 15C (equipment class: DTS) and FCC Part 15E (equipment class: NII, 6ID) reuse the original test result of FCC ID: NKR-LVSK-R2 and perform spot-check.

The applicant takes full responsibility that the test data as referenced in this report represent compliance for the FCC ID: NKR-LVSK-R2A.

1.2. Difference Description

The original FCC ID: NKR-LVSK-R2 supports BLE function, and the new FCC ID: NKR-LVSK-R2A disable BLE function by removing BLE components and antenna.

1.3. Spot Check Verification Data Section

The radiated emission and radiated emission band edge tests were performed according to the worst result of FCC ID: NKR-LVSK-R2. After evaluation and verification, this change does not affect RF characteristic.

Therefore, re-use test data which has been recorded in Test Report of FCC ID: NKR-LVSK-R2 (DEKRA Report No.: 20A0549R-E3032110114).

1.4. Reference Section

Rule Part	Operating Frequency (MHz)	Current FCC ID	Reference Original FCC ID	Reference Exhibit Type
15C (DTS)	2412~2462	NKR-LVSK-R2A	NKR-LVSK-R2	RF Test Report_2.4G (Report No.: 20A0549R-E3032110114)

Comparison Table (The worst result)			
Test item	Test Mode / Frequency (MHz)	Test Result	
		Original FCC ID	Current FCC ID
		Margin (dB)	Margin (dB)
Radidated Emission	11b / 2462	-0.46 (AV)	-0.63 (AV)
	11ax (HE20) / 2437	-10.59 (AV)	-12.51 (AV)
	11ax (HE40) / 2452	-11.16 (AV)	-12.10 (AV)
Radidated Emission Bandedge	11b / 2462	-9.54 (AV)	-12.41 (AV)
	11ax (HE20) / 2437	-6.66 (AV)	-6.18 (AV)
	11ax (HE40) / 2452	-0.28 (PK)	-0.79 (PK)

2. General Information

2.1. EUT Description

Product Name	Consumer Home Router	
Trade Name	Verizon	
Model No.	CR1000A	
Frequency Range / Channel Number	IEEE 802.11b/g	2412~2462MHz / 11 Channels
	IEEE 802.11n/ac/ax (20MHz)	2412~2462MHz / 11 Channels
	IEEE 802.11n/ac/ax (40MHz)	2422~2452MHz / 7 Channels
Type of Modulation	IEEE 802.11b	DSSS
	IEEE 802.11g/n/ac	OFDM
	IEEE 802.11ax	OFDMA
Data Rate	IEEE 802.11b	1, 2, 5.5, 11Mbps
	IEEE 802.11g	6, 9, 18, 24, 36, 48, 54Mbps
	IEEE 802.11n	Support a subset of the combination of GI, MCS 0~MCS 31 and bandwidth defined in 802.11n
	IEEE 802.11ac	Support a subset of the combination of GI, MCS 0~MCS 9 and bandwidth defined in 802.11ax Proprietary MCS 10-MCS 11 (1024QAM)
	IEEE 802.11ax	Support a subset of the combination of GI, MCS 0~MCS 11 and bandwidth defined in 802.11ax

The EUT can support beamforming function for 802.11n/ac/ax mode at WLAN 2.4GHz, WLAN 5GHz and WLAN 6GHz.

Accessories Information					
No.	Equipment	Trade Name	Model No.	Rating	Remark
1	Adapter	LUCENT TRANS	1A98-1250	INPUT: 100-120V~1.6A, 50-60Hz OUTPUT: DC 12.0V, 5.0A, 60W	With power cable : Non-Shielded, 1.8m
No.	Equipment	Description			
2	LAN Cable	Non-Shielded, 3m			

Ant. No.	Manufacturer	PN	Ant. Type	Directional Gain (dBi)
0	WNC	Dual Ant1	Dipole Antenna	4.64
1		Dual Ant2		
2		Dual Ant3		
3		Dual Ant4		

For IEEE 802.11b/g/n/ac/ax Mode: (4TX, 4RX)

Both Ant. 0~Ant. 3 can be used as transmitting/receiving antennas, and they can transmit/receive signal simultaneously.

IEEE 802.11b/g & IEEE 802.11n/ac/ax (20MHz)

Working Frequency of Each Channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
001	2412 MHz	002	2417 MHz	003	2422 MHz	004	2427 MHz
005	2432 MHz	006	2437 MHz	007	2442 MHz	008	2447 MHz
009	2452 MHz	010	2457 MHz	011	2462 MHz	-	-

IEEE 802.11n/ac/ax (40MHz)

Working Frequency of Each Channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
003	2422 MHz	004	2427 MHz	005	2432 MHz	006	2437 MHz
007	2442 MHz	008	2447 MHz	009	2452 MHz	-	-

Note: The above EUT information is declared by the manufacturer.

2.2. Test Mode

DEKRA has verified the construction and function in typical operation. The preliminary tests were performed in different data rate, and to find the worst condition, which was shown in this test report. The following table is the final test mode.

Test Mode	Mode 1: Transmit
-----------	------------------

Test Items	Test Mode	Modulation	Channel	Antenna	Result
Radiated Emission Below 1GHz	Mode 1	11b	11	0+1+2+3	Pass
Radiated Emission Above 1GHz	Mode 1	11b	11	0+1+2+3	Pass
		11ax (20MHz)	6	0+1+2+3	Pass
		11ax (40MHz)	9	0+1+2+3	Pass
Radiated Emission Band Edge	Mode 1	11b	11	0+1+2+3	Pass
		11ax (20MHz)	6, 11	0+1+2+3	Pass
		11ax (40MHz)	9	0+1+2+3	Pass

Note:

1. Determining compliance shall be based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
2. The worst case of data rate for 802.11b is 1 Mbps, for 802.11ax (20MHz) / 802.11ax (40MHz) are MCS 0, Nss1.
3. The radiated emission and radiated emission band edge tests were performed according to the worst result of FCC ID: NKR-LVSK-R2.

2.3. Comments and Remarks

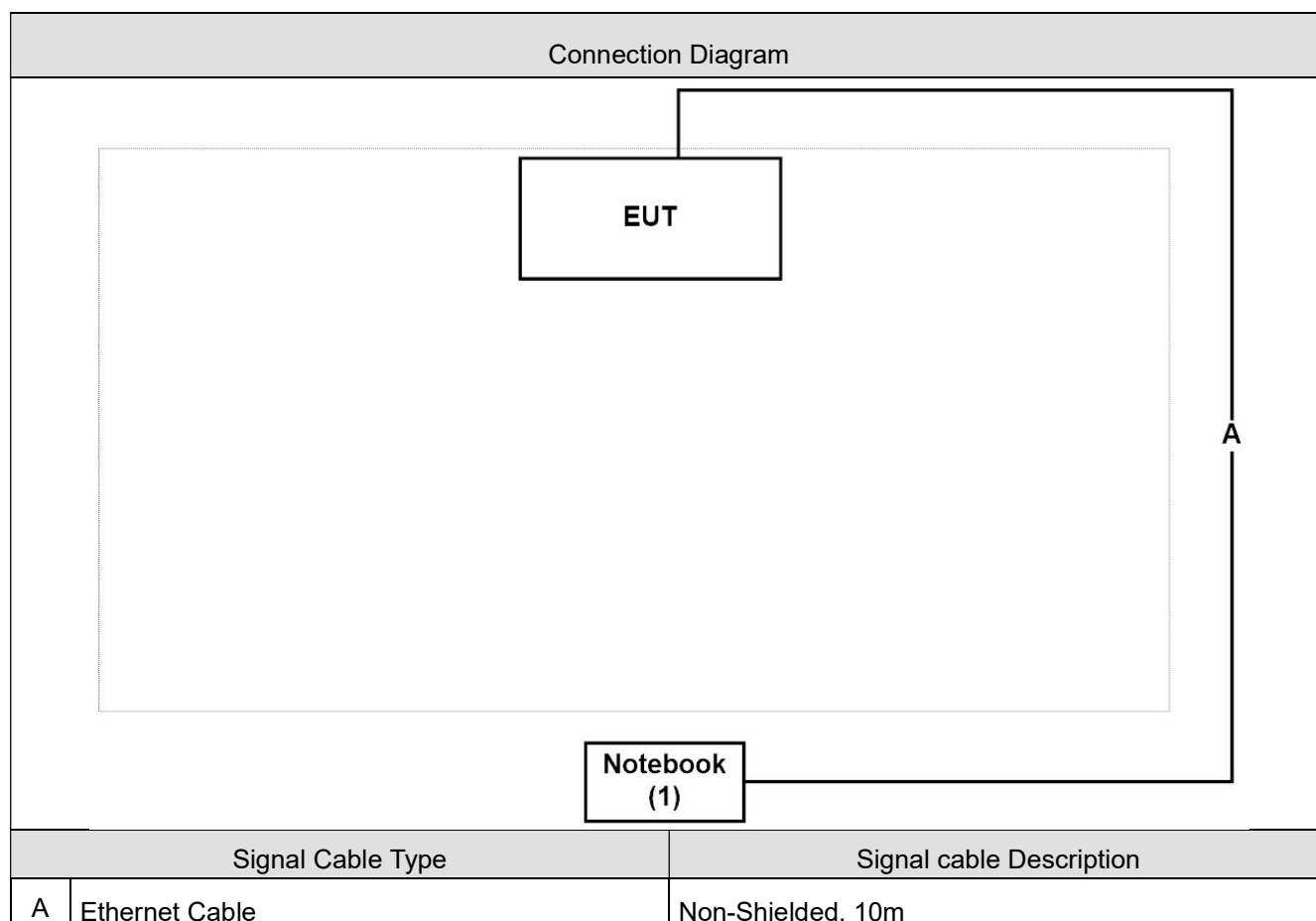
The product specification and testing instructions for the EUT declared in the report are provided by the manufacturer who will take all responsibilities for the accuracy.

2.4. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product	Manufacturer	Model No.	Serial No.	FCC ID	Power Cord
1 Notebook	Dell	Latitude E6320	8611271467	DoC	Non-Shielded, 1.8m

2.5. Configuration of Tested System



2.6. EUT Operation of during Test

1	Set the EUT as shown in Section 2.5.
2	Execute control command by software QSPR.
3	Configure test mode, test channel and data rate.
4	Let the EUT start transmitting signal continuously.
5	Verify that device is working properly.

2.7. Test Facility

Ambient conditions in the laboratory:

Items	Test Item	Actually	Tested by	Test Date	Test Site
Temperature (°C)	Radiated Emission	24.5	Cyril Chen, Elwin Lin	2021/8/17 ~ 2021/8/18	CB4-H
Humidity (%RH)		58.0			
Temperature (°C)	Radiated Emission Band Edge	24.5	Elwin Lin	2021/8/17	CB4-H
Humidity (%RH)		58.0			

Note: Test site information refers to Laboratory Information.

USA : FCC Registration Number: TW3024

Canada : CAB identifier : TW3024

The address and introduction of DEKRA Testing and Certification Co., Ltd. laboratories can be founded in our Web site: <http://www.dekra.com.tw>

If you have any comments, please don't hesitate to contact us. Our test sites as below:

Test Laboratory	DEKRA Testing and Certification Co., Ltd.
Address	1. No.372-2, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County 31061, Taiwan, R.O.C. 2. No.372, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County 31061, Taiwan, R.O.C.
Phone number	1. +886-3-582-8001 2. +886-3-582-8001
Fax number	1. +886-3-582-8958 2. +886-3-582-8958
E mail address	info.tw@dekra.com
Website	http://www.dekra.com.tw
Note: Test site number for address 1 includes SR2-H. Test site number for address 2 includes CB2-H, CB3-H, CB4-H, SR10-H and SR12-H.	

2.8. List of Test Equipment

CB4-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Signal Analyzer	R&S	FSVA40	101455	2020/10/12	2021/10/11
Signal & Spectrum Analyzer	R&S	FSV40	101049	2021/03/31	2022/03/30
Signal Analyzer	R&S	FSVA40	101435	2021/06/04	2022/06/03
EXA Signal Analyzer	Keysight	N9010A	MY51440132	2021/01/25	2022/01/24
Trilog Broadband Antenna	Schwarzbeck	VULB 9168	1209	2021/05/28	2022/05/27
Horn Antenna	Schwarzbeck	BBHA 9120D	01640	2020/09/17	2021/09/16
Horn Antenna	Schwarzbeck	BBHA 9170	203	2021/03/11	2022/03/10
Pre-Amplifier	EMCI	EMC01820I	980364	2020/09/14	2021/09/13
Pre-Amplifier	EMCI	EMC0031835	980233	2020/12/07	2021/12/06
Pre-Amplifier	DEKRA	AP-400C	201801231	2020/11/16	2021/11/15
Wideband Radio Communication Tester	R&S	CMW500	106071	2021/01/27	2022/01/26
Wireless Conn. Tseter	R&S	CMW500	157118	2021/07/07	2022/07/06
Coaxial Cable(10m)	Suhner	SF102_SF104	CB4-H	2021/08/09	2022/08/08
DEKRA Testing System	DEKRA	Version 2.0	CB4-H	NA	NA

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

2.9. Uncertainty

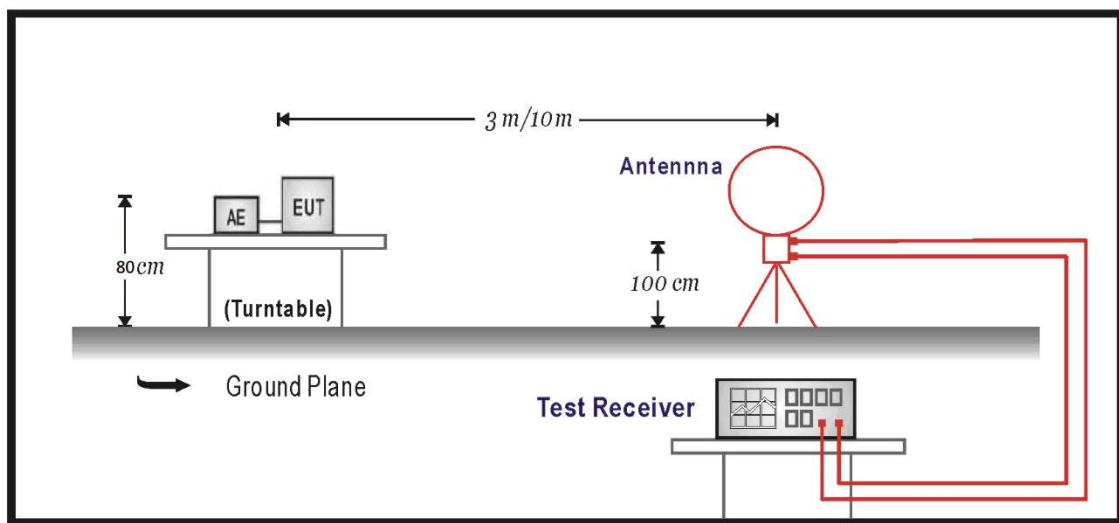
Uncertainties have been calculated according to the DEKRA internal document with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor ($k=2$)).

Test Item	Uncertainty
Radiated Emission	± 3.40 dB below 1GHz ± 3.46 dB above 1GHz
Radiated Emission Band Edge	± 3.46 dB above 1GHz

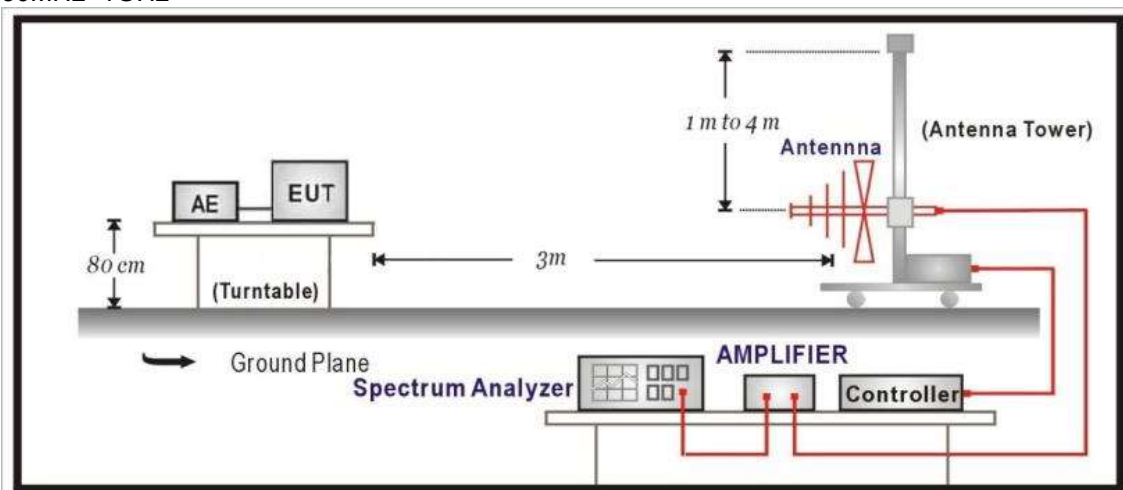
3. Radiated Emission

3.1. Test Setup

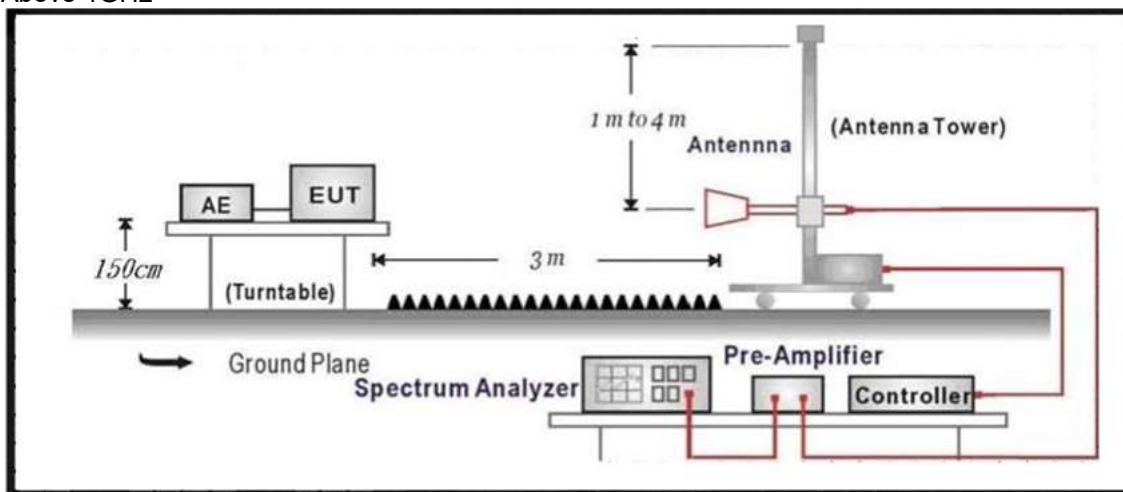
9kHz~30MHz



30MHz~1GHz



Above 1GHz



3.2. Test Limit

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limit in paragraph 15.209, whichever is the lesser attenuation.

Frequency MHz	uV/m @3m	dBuV/m@3m
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

Remarks: E field strength (dBuV/m) = 20 log E field strength (uV/m)

3.3. Test Procedure

The EUT was setup according to ANSI C63.10: 2013 and tested according to DTS test procedure of KDB 558074 D01V05r02 for compliance to FCC 47CFR 15.247 requirements.

The EUT and its simulators are placed on a turn table which is 0.8 or 1.5 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level. Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.10: 2013 on radiated measurement.

On any frequency or frequencies from 9kHz(inclde The the lowest oscillator frequency generated within the device up to the 10th harmonic) to 1000 MHz, the limit shown are based on measuring equipment employing a quasi-peak detector function and on any frequency or frequencies above 1000 MHz the radiated limit shown are based upon the use of measurement instrumentation employing an average detector function. When average radiated emission measurement are included emission measurement below 1000 MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit.

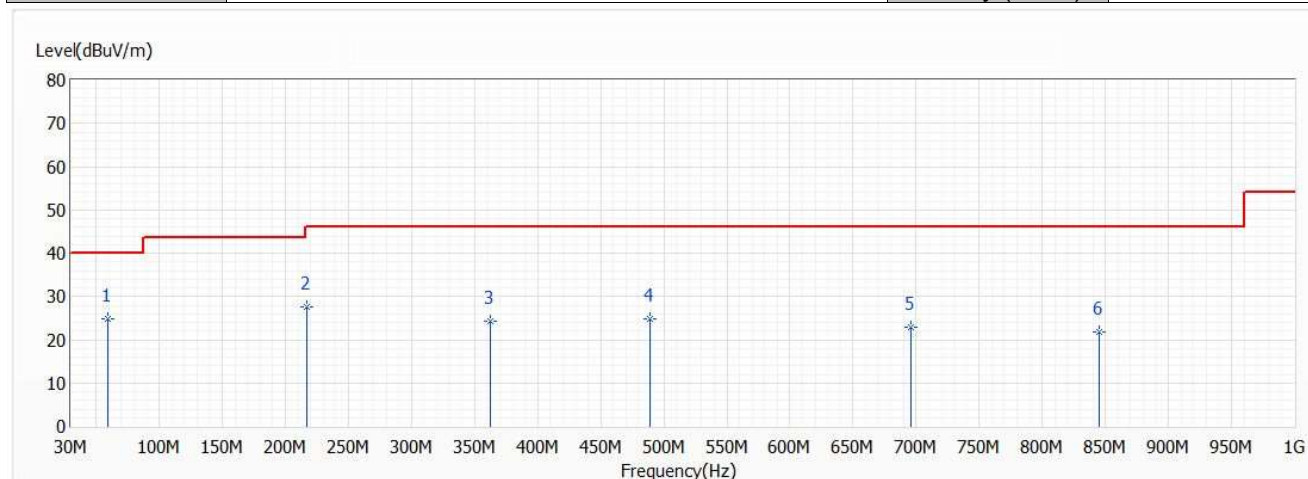
The bandwidth below 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz.

3.4. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247.

3.5. Test Result of Radiated Emissions (30MHz~1GHz)

Model No	CR1000A	Site	CB4-H
Test Voltage	AC120V/60Hz	Test Date	2021/8/18
Test Mode	Mode 1: Transmit	Engineer	Cyril Chen
Polarity	Horizontal	Temperature (°C)	24.5
Test Condition	CDD,802.11b,Ant0+1+2+3,2.462G,BW20M	Humidity (%RH)	58.0

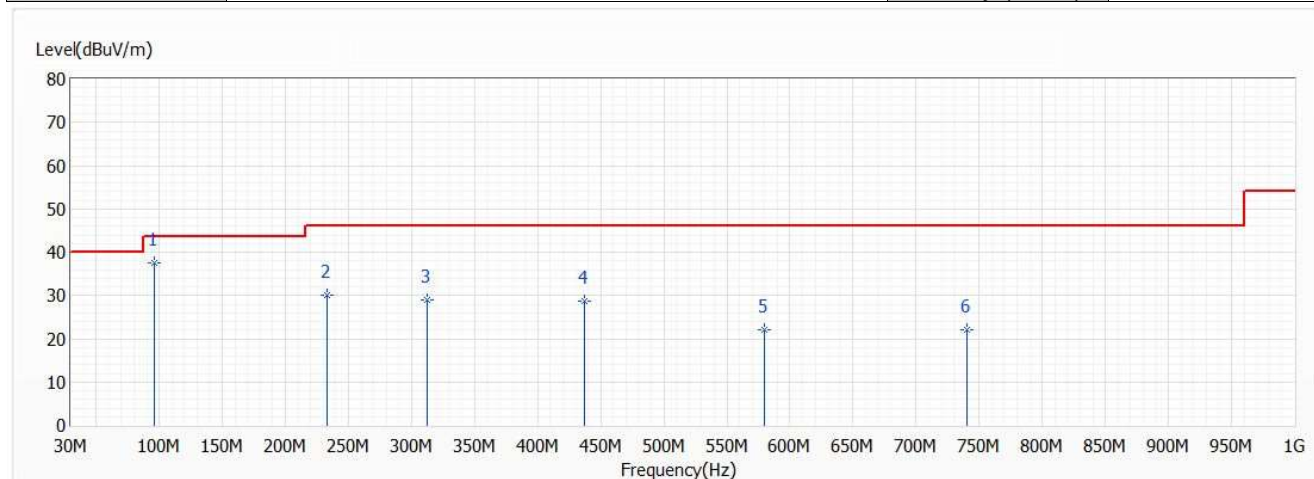


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
* 1	59.585	24.82	40.00	-15.18	18.30	6.52	QP
2	217.210	27.48	46.00	-18.52	20.39	7.09	QP
3	362.225	24.26	46.00	-21.74	16.66	7.60	QP
4	488.810	24.96	46.00	-21.04	16.92	8.04	QP
5	695.905	22.76	46.00	-23.24	14.00	8.76	QP
6	845.285	21.90	46.00	-24.10	12.64	9.26	QP

Note:

1. All reading levels is Quasi-Peak value.
2. “ * ”, means this data is the worst value.
3. Emission Level = Reading Level + Correct Factor
4. The emission under 30MHz were not included is because their levels are lower than 20dB from limit.

Model No	CR1000A	Site	CB4-H
Test Voltage	AC120V/60Hz	Test Date	2021/8/18
Test Mode	Mode 1: Transmit	Engineer	Cyril Chen
Polarity	Vertical	Temperature (°C)	24.5
Test Condition	CDD,802.11b,Ant0+1+2+3,2.462G,BW20M	Humidity (%RH)	58.0



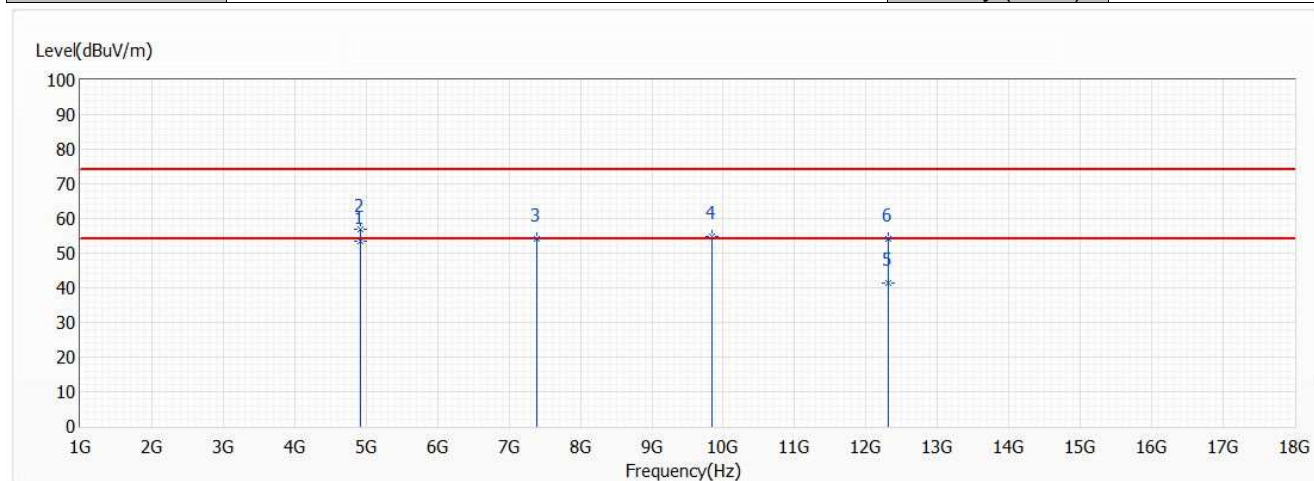
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
* 1	96.445	37.57	43.50	-5.93	30.74	6.83	QP
2	233.215	29.97	46.00	-16.03	22.81	7.16	QP
3	312.755	28.85	46.00	-17.15	21.41	7.44	QP
4	437.400	28.72	46.00	-17.28	20.85	7.87	QP
5	579.990	22.07	46.00	-23.93	13.68	8.39	QP
6	740.040	22.10	46.00	-23.90	13.20	8.90	QP

Note:

1. All reading levels is Quasi-Peak value.
2. “ * ”, means this data is the worst value.
3. Emission Level = Reading Level + Correct Factor
4. The emission under 30MHz were not included is because their levels are lower than 20dB from limit.

3.6. Test Result of Radiated Emissions (1GHz~10th Harmonic)

Model No	CR1000A	Site	CB4-H
Test Voltage	AC120V/60Hz	Test Date	2021/8/17
Test Mode	Mode 1: Transmit	Engineer	Elwin Lin
Polarity	Horizontal	Temperature (°C)	24.5
Test Condition	CDD,802.11b,Ant0+1+2+3,Ch11,2.462G,BW20M	Humidity (%RH)	58.0

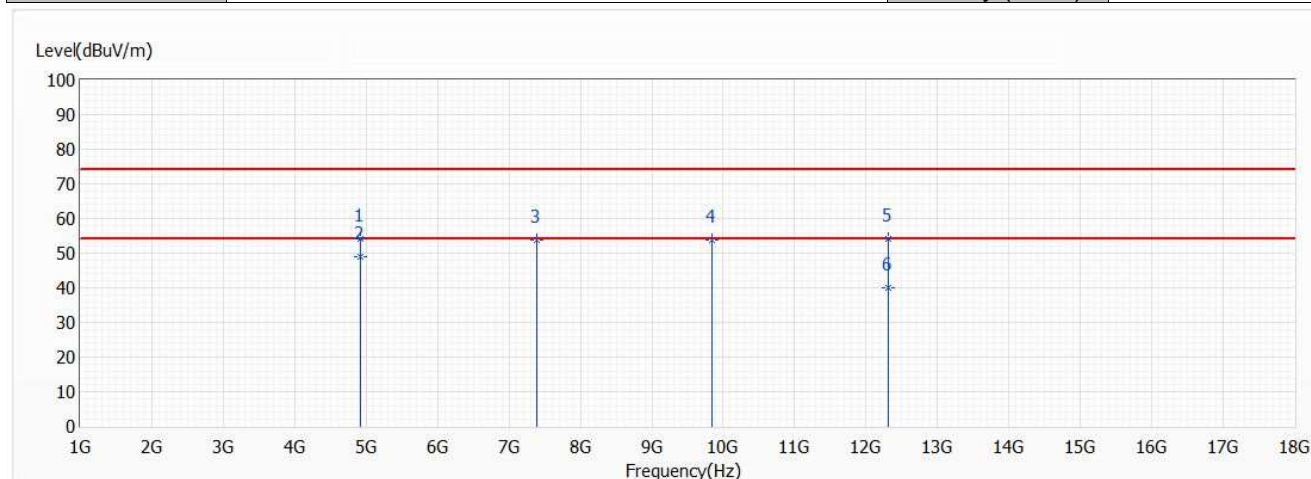


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
* 1	4924.000	53.37	54.00	-0.63	54.03	-0.66	AV
2	4924.000	56.88	74.00	-17.12	57.54	-0.66	PK
3	7386.000	53.98	74.00	-20.02	46.70	7.28	PK
4	9848.000	54.89	74.00	-19.11	42.13	12.76	PK
5	12310.000	41.26	54.00	-12.74	26.65	14.61	AV
6	12310.000	54.22	74.00	-19.78	39.61	14.61	PK

Note:

- 1.All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. “ * ”, means this data is the worst value.
- 3.Emission Level = Reading Level + Correct Factor.
- 4.The average measurement was not performed when the peak measured data under the limit of average detection.
- 5.The emission above 13GHz were not included is because their levels are lower than 20dB form limit.

Model No	CR1000A	Site	CB4-H
Test Voltage	AC120V/60Hz	Test Date	2021/8/17
Test Mode	Mode 1: Transmit	Engineer	Elwin Lin
Polarity	Vertical	Temperature (°C)	24.5
Test Condition	CDD,802.11b,Ant0+1+2+3,Ch11,2.462G,BW20M	Humidity (%RH)	58.0

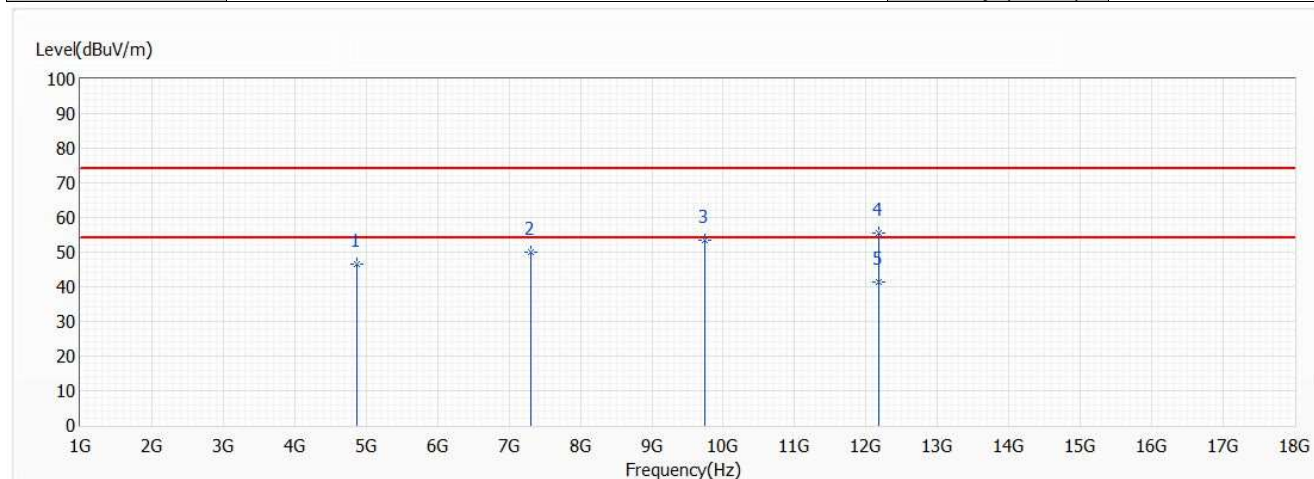


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	4924.000	54.16	74.00	-19.84	54.82	-0.66	PK
* 2	4924.000	48.93	54.00	-5.07	49.59	-0.66	AV
3	7386.000	53.66	74.00	-20.34	46.38	7.28	PK
4	9848.000	53.63	74.00	-20.37	40.87	12.76	PK
5	12310.000	54.05	74.00	-19.95	39.44	14.61	PK
6	12310.000	40.16	54.00	-13.84	25.55	14.61	AV

Note:

- 1.All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. “ * ”, means this data is the worst value.
- 3.Emission Level = Reading Level + Correct Factor.
- 4.The average measurement was not performed when the peak measured data under the limit of average detection.
- 5.The emission above 13GHz were not included is because their levels are lower than 20dB form limit.

Model No	CR1000A	Site	CB4-H
Test Voltage	AC120V/60Hz	Test Date	2021/8/17
Test Mode	Mode 1: Transmit	Engineer	Elwin Lin
Polarity	Horizontal	Temperature (°C)	24.5
Test Condition	CDD,802.11ax,Ant0+1+2+3,Ch6,2.437G,BW20M	Humidity (%RH)	58.0

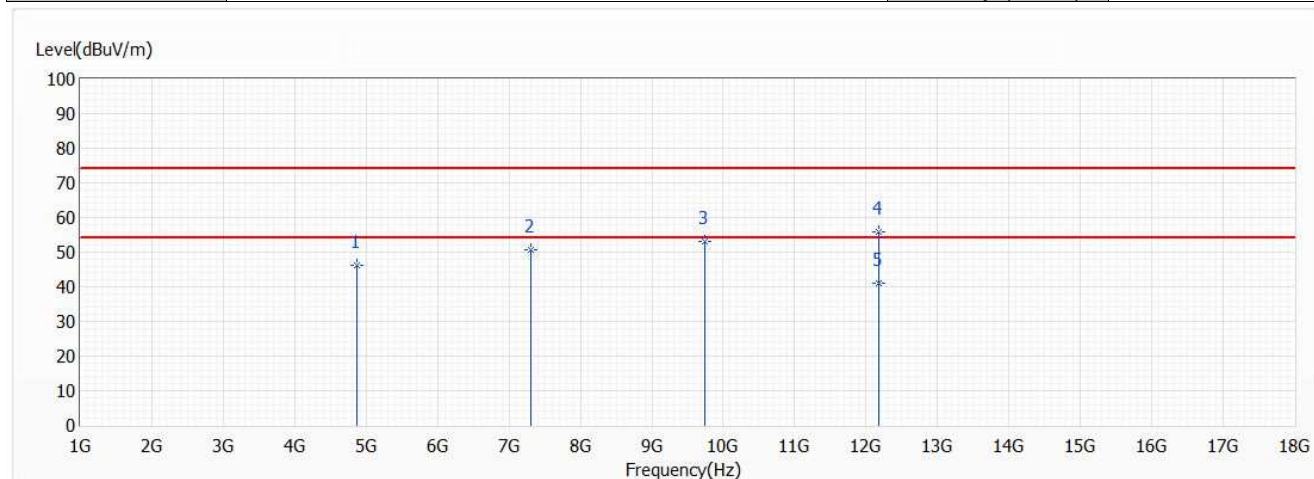


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	4874.000	46.57	74.00	-27.43	47.32	-0.75	PK
2	7311.000	49.98	74.00	-24.02	42.95	7.03	PK
3	9748.000	53.54	74.00	-20.46	41.21	12.33	PK
4	12185.000	55.47	74.00	-18.53	40.78	14.69	PK
* 5	12185.000	41.49	54.00	-12.51	26.80	14.69	AV

Note:

- 1.All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. “ * ”, means this data is the worst value.
- 3.Emission Level = Reading Level + Correct Factor.
- 4.The average measurement was not performed when the peak measured data under the limit of average detection.
- 5.The emission above 13GHz were not included is because their levels are lower than 20dB form limit.

Model No	CR1000A	Site	CB4-H
Test Voltage	AC120V/60Hz	Test Date	2021/8/17
Test Mode	Mode 1: Transmit	Engineer	Elwin Lin
Polarity	Vertical	Temperature (°C)	24.5
Test Condition	CDD,802.11ax,Ant0+1+2+3,Ch6,2.437G,BW20M	Humidity (%RH)	58.0

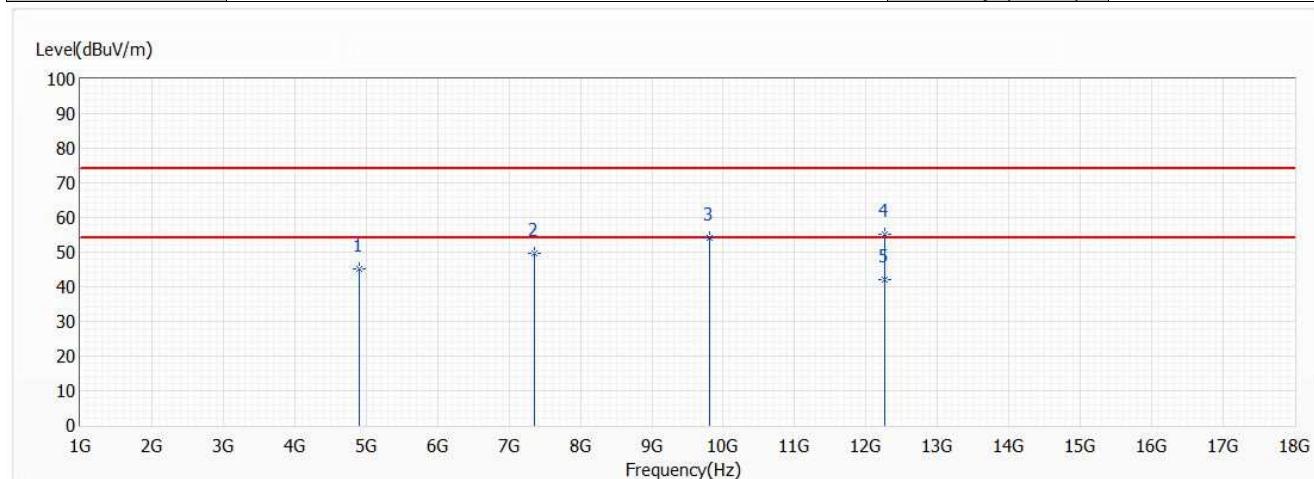


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	4874.000	46.17	74.00	-27.83	46.92	-0.75	PK
2	7311.000	50.59	74.00	-23.41	43.56	7.03	PK
3	9748.000	53.05	74.00	-20.95	40.72	12.33	PK
4	12185.000	55.78	74.00	-18.22	41.09	14.69	PK
* 5	12185.000	41.19	54.00	-12.81	26.50	14.69	AV

Note:

- 1.All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. “ * ”, means this data is the worst value.
- 3.Emission Level = Reading Level + Correct Factor.
- 4.The average measurement was not performed when the peak measured data under the limit of average detection.
- 5.The emission above 13GHz were not included is because their levels are lower than 20dB form limit.

Model No	CR1000A	Site	CB4-H
Test Voltage	AC120V/60Hz	Test Date	2021/8/17
Test Mode	Mode 1: Transmit	Engineer	Elwin Lin
Polarity	Horizontal	Temperature (°C)	24.5
Test Condition	CDD,802.11ax,Ant0+1+2+3Ch9,2.452G,BW40M	Humidity (%RH)	58.0

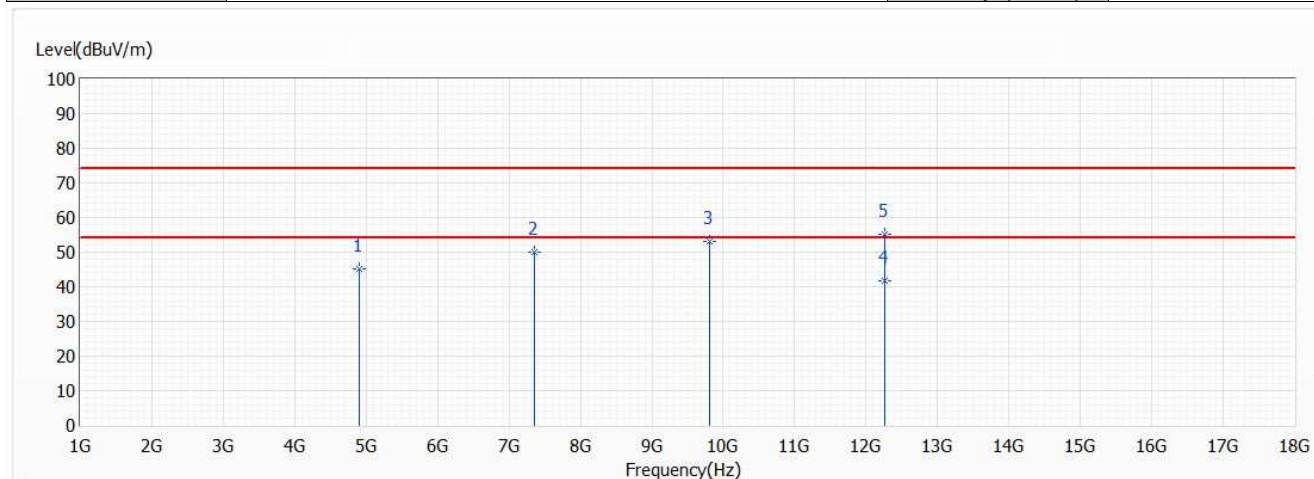


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	4904.000	45.24	74.00	-28.76	45.97	-0.73	PK
2	7356.000	49.77	74.00	-24.23	42.72	7.05	PK
3	9808.000	54.07	74.00	-19.93	41.49	12.58	PK
4	12260.000	55.10	74.00	-18.90	40.44	14.66	PK
* 5	12260.000	41.90	54.00	-12.10	27.24	14.66	AV

Note:

- 1.All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. “ * ”, means this data is the worst value.
- 3.Emission Level = Reading Level + Correct Factor.
- 4.The average measurement was not performed when the peak measured data under the limit of average detection.
- 5.The emission above 13GHz were not included is because their levels are lower than 20dB form limit.

Model No	CR1000A	Site	CB4-H
Test Voltage	AC120V/60Hz	Test Date	2021/8/17
Test Mode	Mode 1: Transmit	Engineer	Elwin Lin
Polarity	Vertical	Temperature (°C)	24.5
Test Condition	CDD,802.11ax,Ant0+1+2+3Ch9,2.452G,BW40M	Humidity (%RH)	58.0



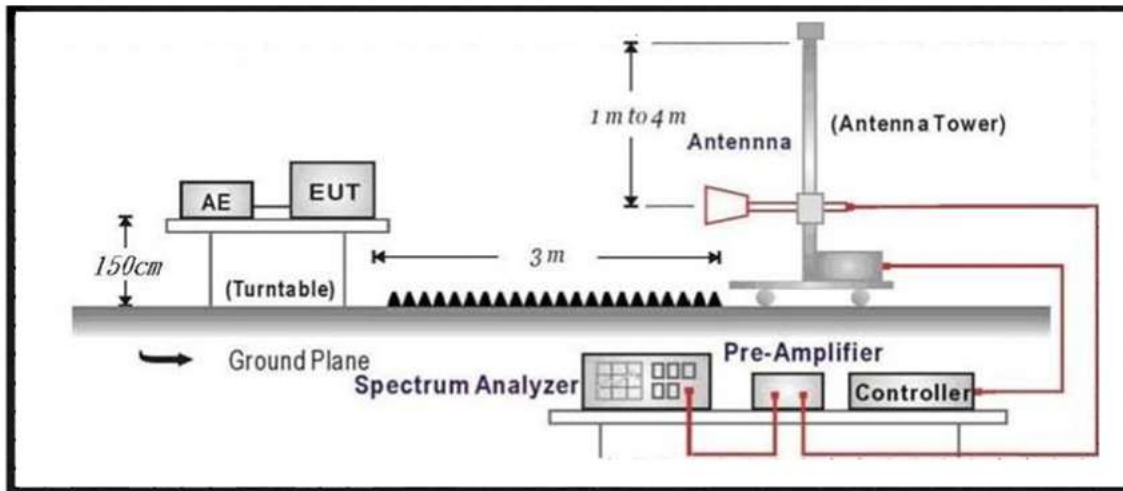
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	4904.000	45.09	74.00	-28.91	45.82	-0.73	PK
2	7356.000	50.04	74.00	-23.96	42.99	7.05	PK
3	9808.000	53.13	74.00	-20.87	40.55	12.58	PK
* 4	12260.000	41.75	54.00	-12.25	27.09	14.66	AV
5	12260.000	55.03	74.00	-18.97	40.37	14.66	PK

Note:

- 1.All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. “ * ”, means this data is the worst value.
- 3.Emission Level = Reading Level + Correct Factor.
- 4.The average measurement was not performed when the peak measured data under the limit of average detection.
- 5.The emission above 13GHz were not included is because their levels are lower than 20dB form limit.

4. Radiated Emission Band Edge

4.1. Test Setup



4.2. Test Limit

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limit in paragraph 15.209, whichever is the lesser attenuation.

4.3. Test Procedure

The EUT was setup according to ANSI C63.10: 2013 and tested according to FHSS test procedure of FCC KDB 558074 D01 v05r02 for compliance to FCC 47CFR 15.247 requirements.

The EUT and its simulators are placed on a turn table which is 1.5 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

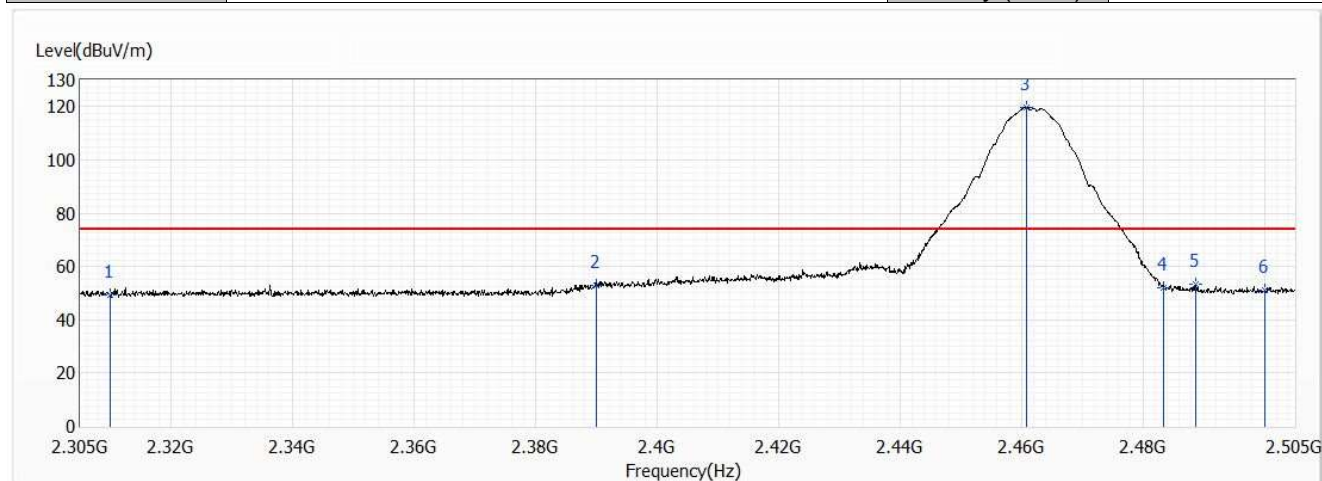
Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.10: 2013 on radiated measurement.

4.4. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247.

4.5. Test Result of Radiated Emission Band Edge

Model No	CR1000A	Site	CB4-H
Test Voltage	AC120V/60Hz	Test Date	2021/8/17
Test Mode	Mode 1: Transmit	Engineer	Elwin Lin
Polarity	Horizontal	Temperature (°C)	24.5
Test Condition	CDD,802.11b,Ant0+1+2+3,Ch11,2.462G,BW20M	Humidity (%RH)	58.0

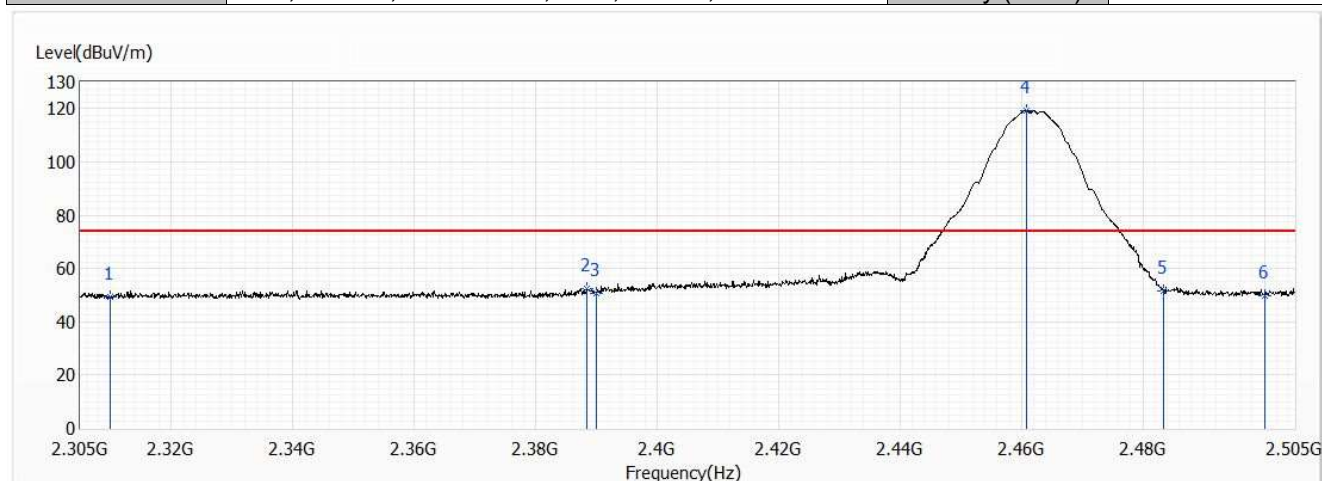


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	49.43	74.00	-24.57	36.54	12.89	PK
2	2390.000	52.73	74.00	-21.27	39.82	12.91	PK
3	2460.900	119.81	74.00	45.81	106.74	13.07	PK
4	2483.500	52.00	74.00	-22.00	38.91	13.09	PK
5	2488.700	53.19	74.00	-20.81	40.10	13.09	PK
6	2500.000	51.14	74.00	-22.86	38.03	13.11	PK

Note:

1. All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.
4. The fundamental for reference only, it's not restricted by unwanted emission limit.

Model No	CR1000A	Site	CB4-H
Test Voltage	AC120V/60Hz	Test Date	2021/8/17
Test Mode	Mode 1: Transmit	Engineer	Elwin Lin
Polarity	Vertical	Temperature (°C)	24.5
Test Condition	CDD,802.11b,Ant0+1+2+3,Ch11,2.462G,BW20M	Humidity (%RH)	58.0

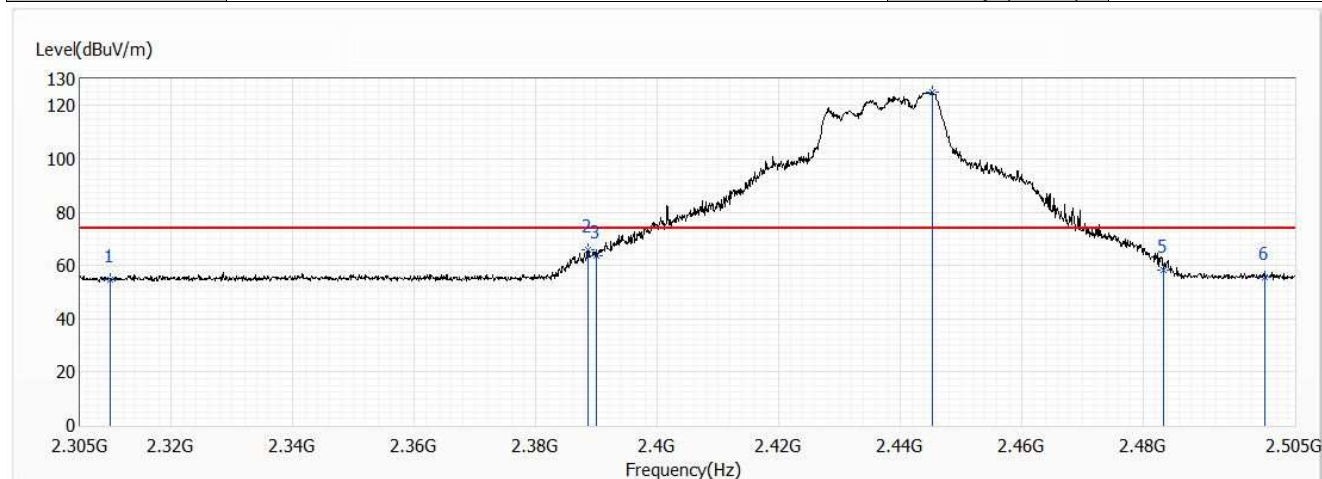


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	49.46	74.00	-24.54	36.57	12.89	PK
2	2388.500	52.62	74.00	-21.38	39.70	12.92	PK
3	2390.000	50.84	74.00	-23.16	37.93	12.91	PK
! 4	2460.900	119.44	74.00	45.44	106.37	13.07	PK
5	2483.500	51.43	74.00	-22.57	38.34	13.09	PK
6	2500.000	49.64	74.00	-24.36	36.53	13.11	PK

Note:

1. All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.
4. The fundamental for reference only, it's not restricted by unwanted emission limit.

Model No	CR1000A	Site	CB4-H
Test Voltage	AC120V/60Hz	Test Date	2021/8/17
Test Mode	Mode 1: Transmit	Engineer	Elwin Lin
Polarity	Horizontal	Temperature (°C)	24.5
Test Condition	CDD,802.11ax,Ant0+1+2+3,Ch6,2.437G,BW20M	Humidity (%RH)	58.0

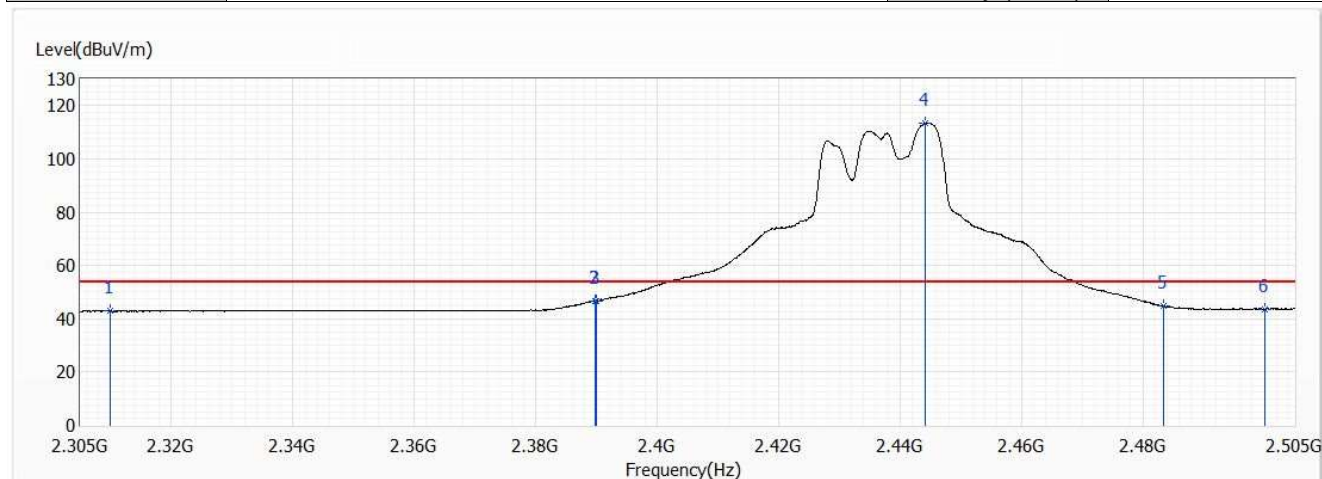


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	54.63	74.00	-19.37	41.74	12.89	PK
2	2388.600	65.75	74.00	-8.25	52.83	12.92	PK
3	2390.000	63.58	74.00	-10.42	50.67	12.91	PK
! 4	2445.400	125.01	74.00	51.01	111.97	13.04	PK
5	2483.500	58.41	74.00	-15.59	45.32	13.09	PK
6	2500.000	55.72	74.00	-18.28	42.61	13.11	PK

Note:

1. All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.
4. The fundamental for reference only, it's not restricted by unwanted emission limit.

Model No	CR1000A	Site	CB4-H
Test Voltage	AC120V/60Hz	Test Date	2021/8/17
Test Mode	Mode 1: Transmit	Engineer	Elwin Lin
Polarity	Horizontal	Temperature (°C)	24.5
Test Condition	CDD,802.11ax,Ant0+1+2+3,Ch6,2.437G,BW20M	Humidity (%RH)	58.0

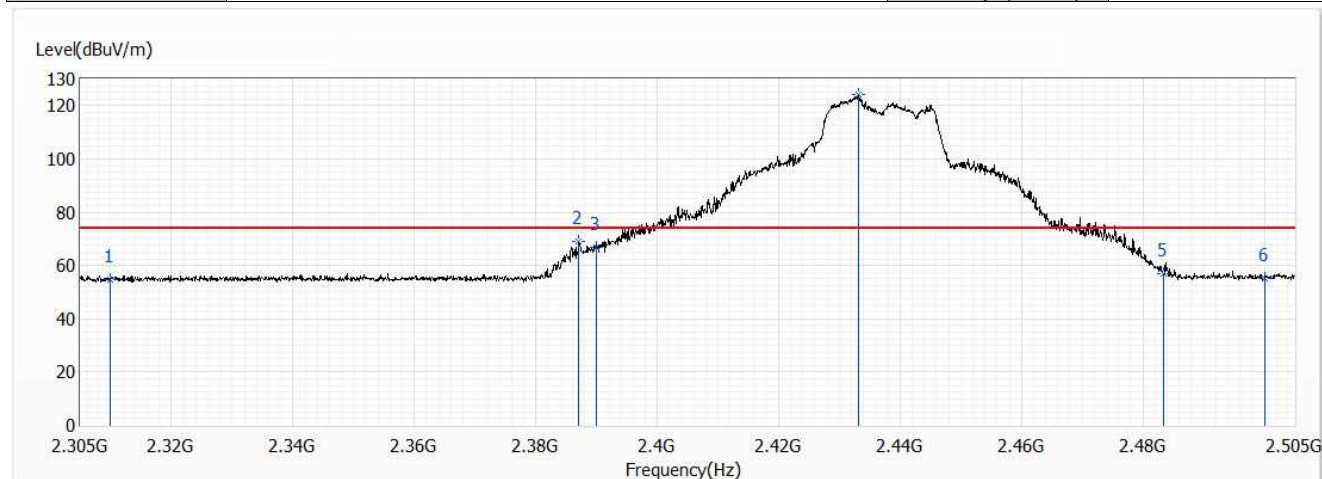


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	42.86	54.00	-11.14	29.97	12.89	AV
2	2389.700	46.61	54.00	-7.39	33.70	12.91	AV
3	2390.000	46.68	54.00	-7.32	33.77	12.91	AV
! 4	2444.200	113.46	54.00	59.46	100.43	13.03	AV
5	2483.500	44.77	54.00	-9.23	31.68	13.09	AV
6	2500.000	43.66	54.00	-10.34	30.55	13.11	AV

Note:

1. All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.
4. The fundamental for reference only, it's not restricted by unwanted emission limit.

Model No	CR1000A	Site	CB4-H
Test Voltage	AC120V/60Hz	Test Date	2021/8/17
Test Mode	Mode 1: Transmit	Engineer	Elwin Lin
Polarity	Vertical	Temperature (°C)	24.5
Test Condition	CDD,802.11ax,Ant0+1+2+3,Ch6,2.437G,BW20M	Humidity (%RH)	58.0

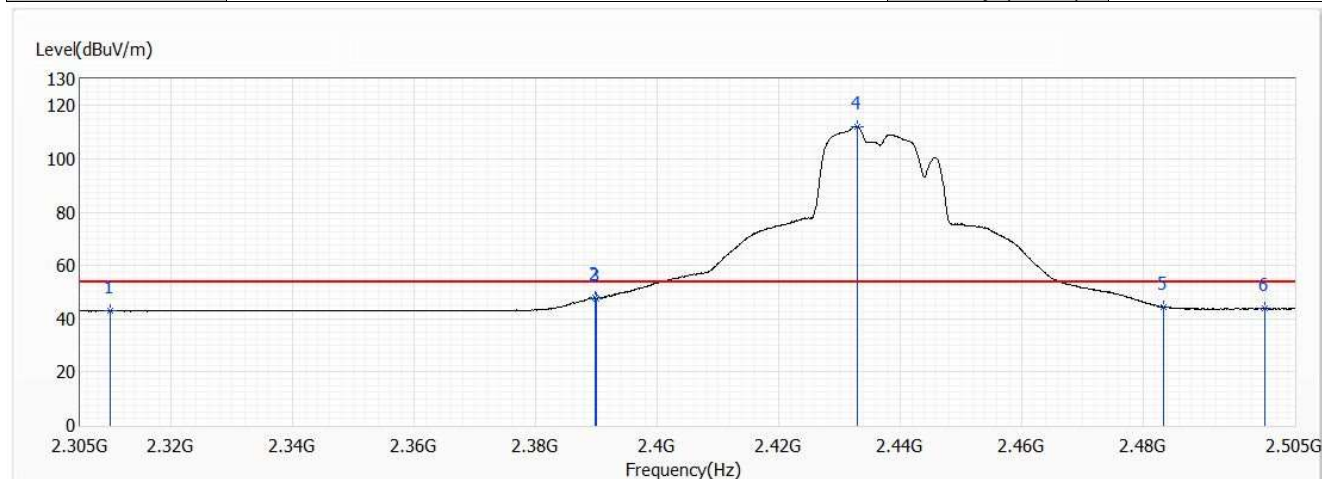


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	54.80	74.00	-19.20	41.91	12.89	PK
2	2387.100	69.13	74.00	-4.87	56.20	12.93	PK
3	2390.000	66.89	74.00	-7.11	53.98	12.91	PK
! 4	2433.200	124.25	74.00	50.25	111.26	12.99	PK
5	2483.500	57.06	74.00	-16.94	43.97	13.09	PK
6	2500.000	55.20	74.00	-18.80	42.09	13.11	PK

Note:

1. All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.
4. The fundamental for reference only, it's not restricted by unwanted emission limit.

Model No	CR1000A	Site	CB4-H
Test Voltage	AC120V/60Hz	Test Date	2021/8/17
Test Mode	Mode 1: Transmit	Engineer	Elwin Lin
Polarity	Vertical	Temperature (°C)	24.5
Test Condition	CDD,802.11ax,Ant0+1+2+3,Ch6,2.437G,BW20M	Humidity (%RH)	58.0

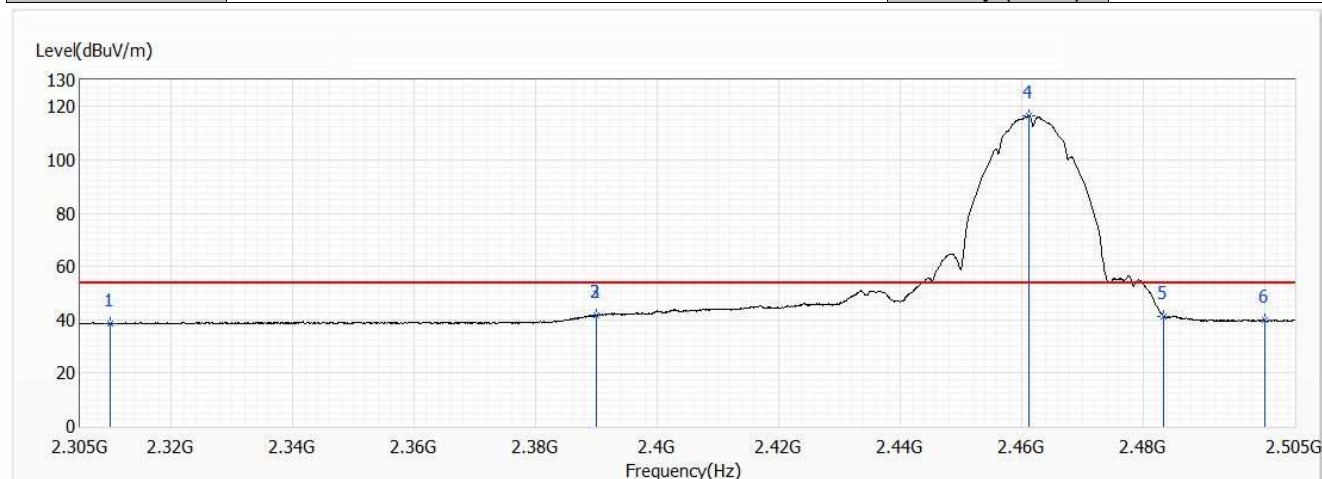


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	42.88	54.00	-11.12	29.99	12.89	AV
2	2389.700	47.82	54.00	-6.18	34.91	12.91	AV
3	2390.000	47.65	54.00	-6.35	34.74	12.91	AV
! 4	2432.900	112.18	54.00	58.18	99.19	12.99	AV
5	2483.500	44.35	54.00	-9.65	31.26	13.09	AV
6	2500.000	43.83	54.00	-10.17	30.72	13.11	AV

Note:

1. All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.
4. The fundamental for reference only, it's not restricted by unwanted emission limit.

Model No	CR1000A	Site	CB4-H
Test Voltage	AC120V/60Hz	Test Date	2021/8/17
Test Mode	Mode 1: Transmit	Engineer	Elwin Lin
Polarity	Horizontal	Temperature (°C)	24.5
Test Condition	CDD,802.11ax,Ant0+1+2+3,Ch11,2.462G,BW20M	Humidity (%RH)	58.0

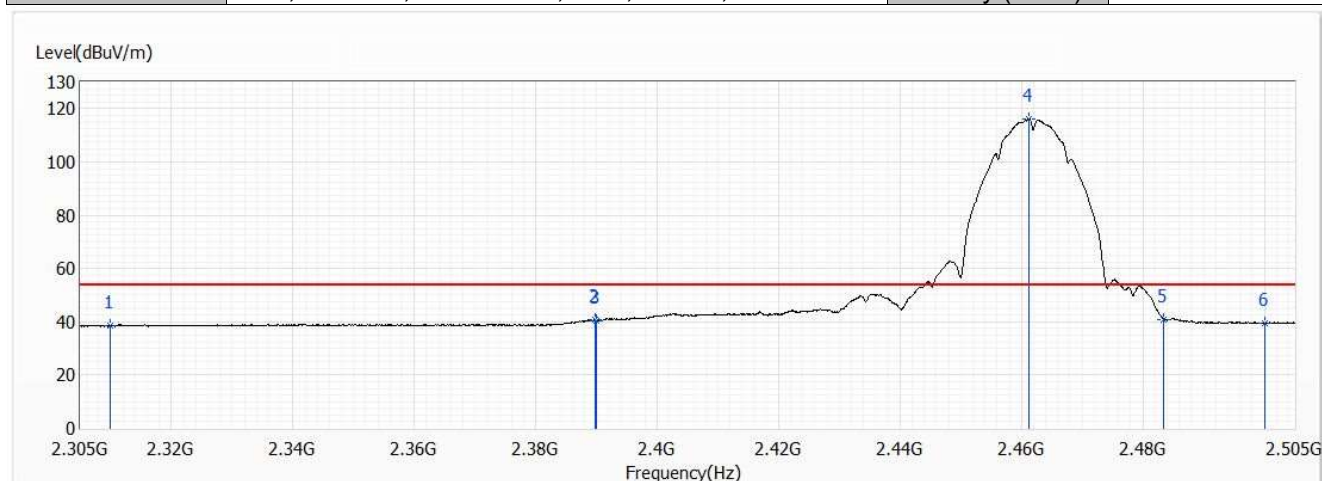


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	38.56	54.00	-15.44	25.67	12.89	AV
2	2389.900	41.59	54.00	-12.41	28.68	12.91	AV
3	2390.000	41.51	54.00	-12.49	28.60	12.91	AV
! 4	2461.300	116.59	54.00	62.59	103.52	13.07	AV
5	2483.500	41.43	54.00	-12.57	28.34	13.09	AV
6	2500.000	39.74	54.00	-14.26	26.63	13.11	AV

Note:

1. All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.
4. The fundamental for reference only, it's not restricted by unwanted emission limit.

Model No	CR1000A	Site	CB4-H
Test Voltage	AC120V/60Hz	Test Date	2021/8/17
Test Mode	Mode 1: Transmit	Engineer	Elwin Lin
Polarity	Vertical	Temperature (°C)	24.5
Test Condition	CDD,802.11ax,Ant0+1+2+3,Ch11,2.462G,BW20M	Humidity (%RH)	58.0

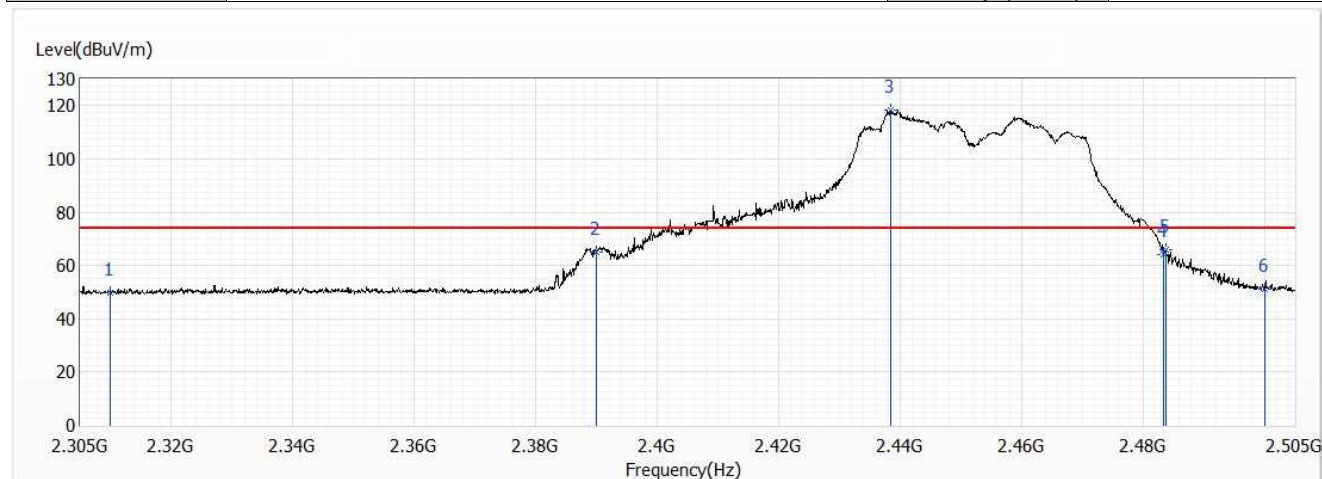


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	38.45	54.00	-15.55	25.56	12.89	AV
2	2389.700	40.68	54.00	-13.32	27.77	12.91	AV
3	2390.000	40.55	54.00	-13.45	27.64	12.91	AV
! 4	2461.200	116.21	54.00	62.21	103.14	13.07	AV
5	2483.500	40.79	54.00	-13.21	27.70	13.09	AV
6	2500.000	39.57	54.00	-14.43	26.46	13.11	AV

Note:

1. All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.
4. The fundamental for reference only, it's not restricted by unwanted emission limit.

Model No	CR1000A	Site	CB4-H
Test Voltage	AC120V/60Hz	Test Date	2021/8/17
Test Mode	Mode 1: Transmit	Engineer	Elwin Lin
Polarity	Horizontal	Temperature (°C)	24.5
Test Condition	CDD,802.11ax,Ant0+1+2+3,Ch9,2.452G,BW40M	Humidity (%RH)	58.0

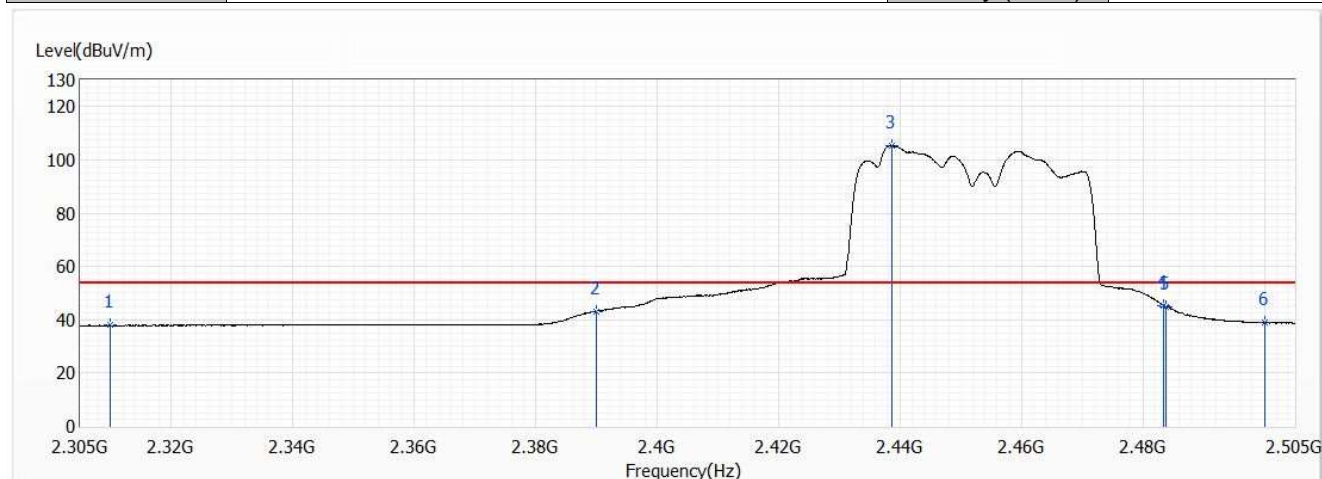


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	49.78	74.00	-24.22	36.89	12.89	PK
2	2390.000	64.86	74.00	-9.14	51.95	12.91	PK
! 3	2438.400	118.22	74.00	44.22	105.21	13.01	PK
4	2483.500	64.01	74.00	-9.99	50.92	13.09	PK
5	2483.800	65.71	74.00	-8.29	52.62	13.09	PK
6	2500.000	50.91	74.00	-23.09	37.80	13.11	PK

Note:

1. All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.
4. The fundamental for reference only, it's not restricted by unwanted emission limit.

Model No	CR1000A	Site	CB4-H
Test Voltage	AC120V/60Hz	Test Date	2021/8/17
Test Mode	Mode 1: Transmit	Engineer	Elwin Lin
Polarity	Horizontal	Temperature (°C)	24.5
Test Condition	CDD,802.11ax,Ant0+1+2+3,Ch9,2.452G,BW40M	Humidity (%RH)	58.0

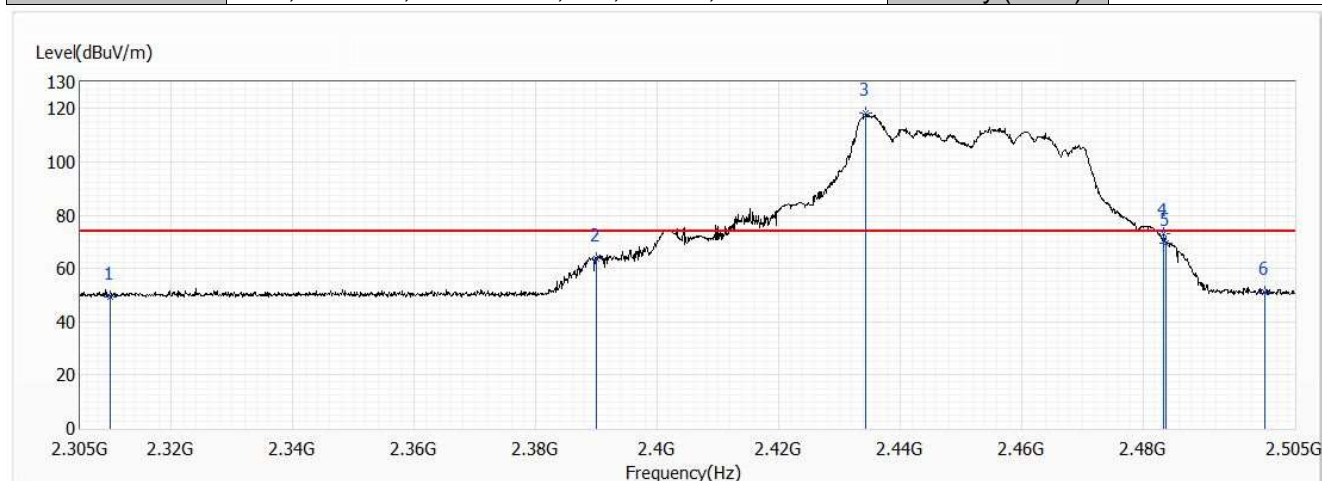


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	37.88	54.00	-16.12	24.99	12.89	AV
2	2390.000	43.23	54.00	-10.77	30.32	12.91	AV
! 3	2438.600	105.36	54.00	51.36	92.35	13.01	AV
4	2483.500	45.40	54.00	-8.60	32.31	13.09	AV
5	2483.800	45.05	54.00	-8.95	31.96	13.09	AV
6	2500.000	38.87	54.00	-15.13	25.76	13.11	AV

Note:

1. All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.
4. The fundamental for reference only, it's not restricted by unwanted emission limit.

Model No	CR1000A	Site	CB4-H
Test Voltage	AC120V/60Hz	Test Date	2021/8/17
Test Mode	Mode 1: Transmit	Engineer	Elwin Lin
Polarity	Vertical	Temperature (°C)	24.5
Test Condition	CDD,802.11ax,Ant0+1+2+3,Ch9,2.452G,BW40M	Humidity (%RH)	58.0

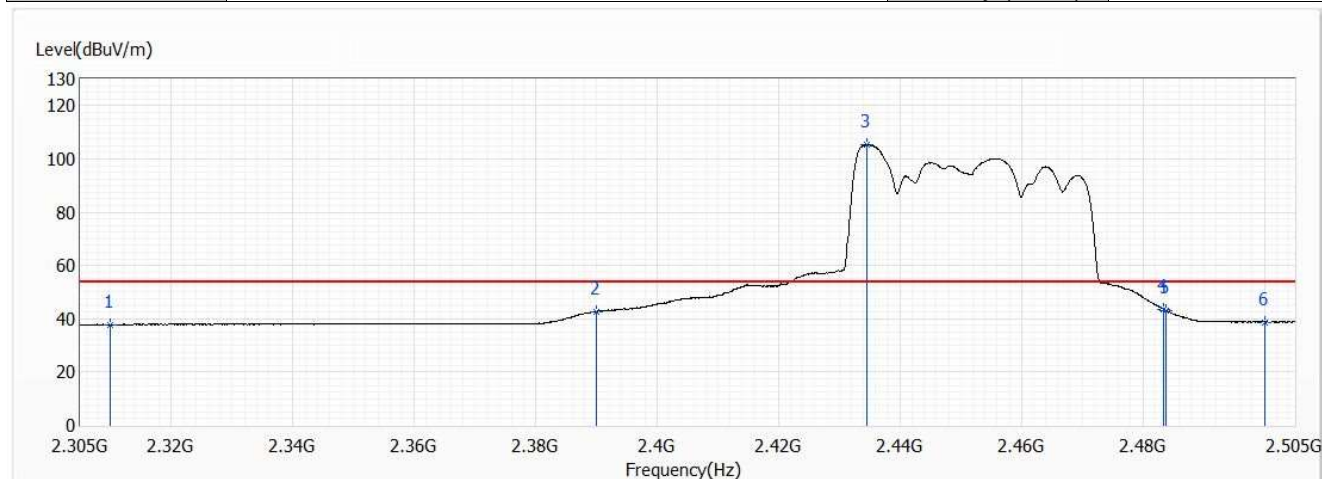


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	49.39	74.00	-24.61	36.50	12.89	PK
2	2390.000	63.58	74.00	-10.42	50.67	12.91	PK
! 3	2434.400	118.56	74.00	44.56	105.56	13.00	PK
4	2483.500	73.21	74.00	-0.79	60.12	13.09	PK
5	2483.800	69.50	74.00	-4.50	56.41	13.09	PK
6	2500.000	51.22	74.00	-22.78	38.11	13.11	PK

Note:

1. All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.
4. The fundamental for reference only, it's not restricted by unwanted emission limit.

Model No	CR1000A	Site	CB4-H
Test Voltage	AC120V/60Hz	Test Date	2021/8/17
Test Mode	Mode 1: Transmit	Engineer	Elwin Lin
Polarity	Vertical	Temperature (°C)	24.5
Test Condition	CDD,802.11ax,Ant0+1+2+3,Ch9,2.452G,BW40M	Humidity (%RH)	58.0



No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2310.000	37.81	54.00	-16.19	24.92	12.89	AV
2	2390.000	42.66	54.00	-11.34	29.75	12.91	AV
! 3	2434.600	105.40	54.00	51.40	92.40	13.00	AV
4	2483.500	43.39	54.00	-10.61	30.30	13.09	AV
5	2483.800	43.23	54.00	-10.77	30.14	13.09	AV
6	2500.000	38.75	54.00	-15.25	25.64	13.11	AV

Note:

1. All reading above 1GHz is performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.
4. The fundamental for reference only, it's not restricted by unwanted emission limit.