TEST REPORT

CERTIFICATE OF CONFORMITY

Standard: **47 CFR FCC Part 15, Subpart C (Section 15.247)**

Report No.: RFBEMI-WTW-P22100258

FCC ID: XHHBNRV1300-A

Product: EBOOK READER

Brand: Nook

Model No.: BNRV1300

Received Date: 2022/10/20

Test Date: 2023/1/6 ~ 2023/1/11

Issued Date: 2023/2/15

Applicant: Nook Digital LLC

Address: 33 E 17th Street New York, New York 10003 United States

Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lin Kou Laboratories

Lab Address: No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan

Test Location: No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan

FCC Registration / Designation Number: 198487 / TW2021

Approved by: Jeremy Lin , **Date:** 2023/2/15

Jeremy Lin / Project Engineer

This test report consists of 58 pages in total. It may be duplicated completely for legal use with the approval of the applicant. It should not be reproduced except in full, without the written approval of our laboratory. The test results in the report only apply to the tested sample. The test results in this report are traceable to the national or international standards.

Prepared by : Annie Chang / Senior Specialist

This report is governed by, and incorporates by reference, the Conditions of Testing as posted at the date of issuance of this report at http://www.bureauveritas.com/home/about-us/our-business/cps/about-us/terms-conditions/ and is intended for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. Measurement uncertainty is only provided upon request for accredited tests. Statements of conformity are based on simple acceptance criteria without taking measurement uncertainty into account, unless otherwise requested in writing. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence or if you require measurement uncertainty; provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents.

Table of Contents

Release Control Record **4**

1 Certificate **5**

2 Summary of Test Results **6**

2.1 Measurement Uncertainty 6
2.2 Supplementary Information 6

3 General Information **7**

3.1 General Description 7
3.2 Antenna Description of EUT 7
3.3 Channel List 8
3.4 Test Mode Applicability and Tested Channel Detail 9
3.5 Duty Cycle of Test Signal 10
3.6 Test Program Used and Operation Descriptions 12
3.7 Connection Diagram of EUT and Peripheral Devices 12
3.8 Configuration of Peripheral Devices and Cable Connections 12

4 Test Instruments **13**

4.1 RF Output Power 13
4.2 Power Spectral Density 13
4.3 6 dB Bandwidth 13
4.4 Conducted Out of Band Emissions 13
4.5 AC Power Conducted Emissions 14
4.6 Unwanted Emissions below 1 GHz 15
4.7 Unwanted Emissions above 1 GHz 16

5 Limits of Test Items **17**

5.1 RF Output Power 17
5.2 Power Spectral Density 17
5.3 6 dB Bandwidth 17
5.4 Conducted Out of Band Emissions 17
5.5 AC Power Conducted Emissions 17
5.6 Unwanted Emissions below 1 GHz 17
5.7 Unwanted Emissions above 1 GHz 18

6 Test Arrangements **19**

6.1 RF Output Power 19
6.1.1 Test Setup 19
6.1.2 Test Procedure 19
6.2 Power Spectral Density 19
6.2.1 Test Setup 19
6.2.2 Test Procedure 19
6.3 6 dB Bandwidth 20
6.3.1 Test Setup 20
6.3.2 Test Procedure 20
6.4 Conducted Out of Band Emissions 20
6.4.1 Test Setup 20
6.4.2 Test Procedure 20
6.5 AC Power Conducted Emissions 21
6.5.1 Test Setup 21
6.5.2 Test Procedure 21
6.6 Unwanted Emissions below 1 GHz 22
6.6.1 Test Setup 22
6.6.2 Test Procedure 23
6.7 Unwanted Emissions above 1 GHz 24
6.7.1 Test Setup 24
6.7.2 Test Procedure 24

7 Test Results of Test Item **25**

7.1 RF Output Power 25
7.2 Power Spectral Density 27
7.3 6 dB Bandwidth 29
7.4 Conducted Out of Band Emissions 31
7.5 AC Power Conducted Emissions 35
7.6 Unwanted Emissions below 1 GHz 39
7.7 Unwanted Emissions above 1 GHz 41

8 Pictures of Test Arrangements 57

9 Information of the Testing Laboratories 58

Release Control Record

Issue No.	Description	Date Issued
RFBEMI-WTW-P22100258	Original release.	2023/2/15

1 Certificate

Product:	EBOOK READER
Brand:	Nook
Test Model:	BNRV1300
Sample Status:	Engineering sample
Applicant:	Nook Digital LLC
Test Date:	2023/1/6 ~ 2023/1/11
Standard:	47 CFR FCC Part 15, Subpart C (Section 15.247)
Measurement procedure:	ANSI C63.10-2013 KDB 558074 D01 15.247 Meas Guidance v05r02

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (Section 15.247)			
Standard / Clause	Test Item	Result	Remark
15.247(b)	RF Output Power	Pass	Meet the requirement of limit.
15.247(e)	Power Spectral Density	Pass	Meet the requirement of limit.
15.247(a)(2)	6 dB Bandwidth	Pass	Meet the requirement of limit.
15.247(d)	Conducted Out of Band Emissions	Pass	Meet the requirement of limit.
15.207	AC Power Conducted Emissions	Pass	Minimum passing margin is -11.59 dB at 0.51200 MHz
15.205 / 15.209 / 15.247(d)	Unwanted Emissions below 1 GHz	Pass	Minimum passing margin is -11.4 dB at 299.13 MHz
15.205 / 15.209 / 15.247(d)	Unwanted Emissions above 1 GHz	Pass	Minimum passing margin is -1.0 dB at 2483.50 MHz
15.203	Antenna Requirement	Pass	No antenna connector is used.

Note: Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Specification	Expanded Uncertainty (k=2) (±)
Conducted Out of Band Emissions	9 kHz ~ 40 GHz	2.63 dB
AC Power Conducted Emissions	150 kHz ~ 30 MHz	3.00 dB
Unwanted Emissions below 1 GHz	9 kHz ~ 30 MHz	2.38 dB
	30 MHz ~ 1 GHz	5.7 dB
Unwanted Emissions above 1 GHz	1 GHz ~ 6 GHz	4.83 dB
	6 GHz ~ 18 GHz	5.37 dB
	18 GHz ~ 40 GHz	5.24 dB

The other instruments specified are routine verified to remain within the calibrated levels, no measurement uncertainty is required to be calculated.

2.2 Supplementary Information

There is not any deviation from the test standards for the test method, and no modifications required for compliance.

3 General Information

3.1 General Description

Product	EBOOK READER
Brand	Nook
Test Model	BNRV1300
Status of EUT	Engineering sample
Power Supply Rating	3.85Vdc from Battery or 5Vdc from USB port
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
Modulation Technology	DSSS, OFDM
Transfer Rate	Up to 150 Mbps
Operating Frequency	2.412 GHz ~ 2.462 GHz
Number of Channel	802.11b, 802.11g, 802.11n (HT20): 11 802.11n (HT40): 7
Output Power	135.207 mW (21.31 dBm)

Note:

1. The EUT uses following accessories.

Item	Brand	Model	Specification
Battery	EVE Energy CO., LTD	EVE2275A7GH	3.85V, 2500mAH, 9.63Wh
USB Cable	Yih Fone	SH-0522	Shielded, 1.0m

2. There are Bluetooth and WLAN (2.4 GHz) technology used for the EUT.
3. WLAN 2.4 GHz & Bluetooth technology can transmit at same time.
4. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 Antenna Description of EUT

1. The antenna information is listed as below.

Gain (dBi)	Antenna Type	Connector Type
2	CERAMIC	N/A

* Detail antenna specification please refer to antenna datasheet and/or antenna measurement report.

2. The EUT incorporates a SISO function:

Modulation Mode	TX & RX Configuration	
802.11b	1TX	1RX
802.11g	1TX	1RX
802.11n (HT20)	1TX	1RX
802.11n (HT40)	1TX	1RX

3.3 Channel List

11 channels are provided for 802.11b, 802.11g, 802.11n (HT20):

Channel	Frequency	Channel	Frequency
1	2412 MHz	7	2442 MHz
2	2417 MHz	8	2447 MHz
3	2422 MHz	9	2452 MHz
4	2427 MHz	10	2457 MHz
5	2432 MHz	11	2462 MHz
6	2437 MHz		

7 channels are provided for 802.11n (HT40):

Channel	Frequency	Channel	Frequency
3	2422 MHz	7	2442 MHz
4	2427 MHz	8	2447 MHz
5	2432 MHz	9	2452 MHz
6	2437 MHz		

3.4 Test Mode Applicability and Tested Channel Detail

Pre-Scan:	1. EUT can be used in the following ways: X-axis/ Y-axis/ Z-axis. Pre-scan these ways and find the worst case as a representative test condition. 2. For Unwanted Emission below/ above 1GHz has Battery/ EUT with USB cable(Adapter)/ EUT with USB cable(Laptop) mode of power supply. Pre-scan these modes and find the worst case as a representative test condition.
Worst Case:	1. X-axis/ Y-axis/ Z-axis Worst Condition: X-axis. 2. For Unwanted Emission below/ above 1GHz worst Condition: EUT with USB cable(Laptop).

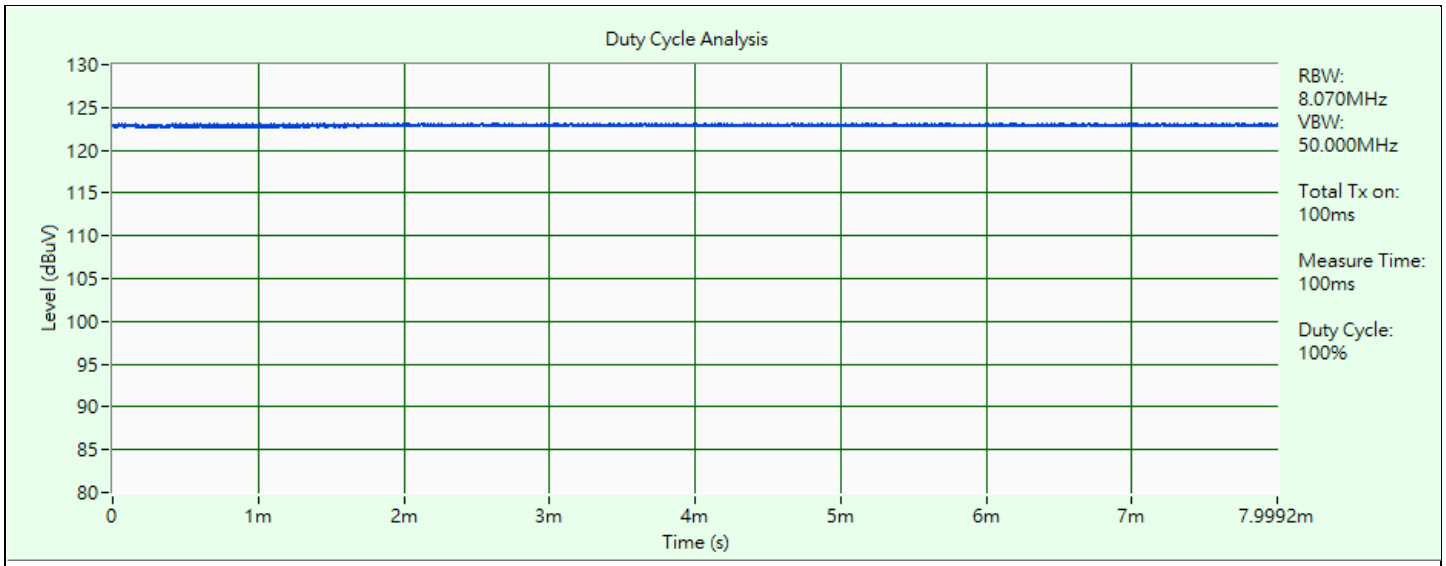
Following channel(s) was (were) selected for the final test as listed below:

Test Item	EUT Configure Mode	Mode	Signal Mode	Tested Channel	Modulation	Data Rate Parameter
RF Output Power / Power Spectral Density	A	802.11b	CDD	1, 6, 11	DBPSK	1Mb/s
		802.11g	CDD	1, 6, 11	BPSK	6Mb/s
		802.11n (HT20)	CDD	1, 6, 11	BPSK	MCS0
		802.11n (HT40)	CDD	3, 6, 9	BPSK	MCS0
6 dB Bandwidth / Conducted Out of Band Emissions	A	802.11b	CDD	1, 6, 11	DBPSK	1Mb/s
		802.11g	CDD	1, 6, 11	BPSK	6Mb/s
		802.11n (HT20)	CDD	1, 6, 11	BPSK	MCS0
		802.11n (HT40)	CDD	3, 6, 9	BPSK	MCS0
AC Power Conducted Emissions	A	802.11g	CDD	6	BPSK	6Mb/s
	B	802.11g	CDD	6	BPSK	6Mb/s
Unwanted Emissions below 1 GHz	A	802.11g	CDD	6	BPSK	6Mb/s
Unwanted Emissions above 1 GHz	A	802.11b	CDD	1, 6, 11	DBPSK	1Mb/s
		802.11g	CDD	1, 6, 11	BPSK	6Mb/s
		802.11n (HT20)	CDD	1, 6, 11	BPSK	MCS0
		802.11n (HT40)	CDD	3, 6, 9	BPSK	MCS0
EUT Configure Mode:	A	EUT with USB cable(Laptop)				
	B	EUT with USB cable(Adapter)				

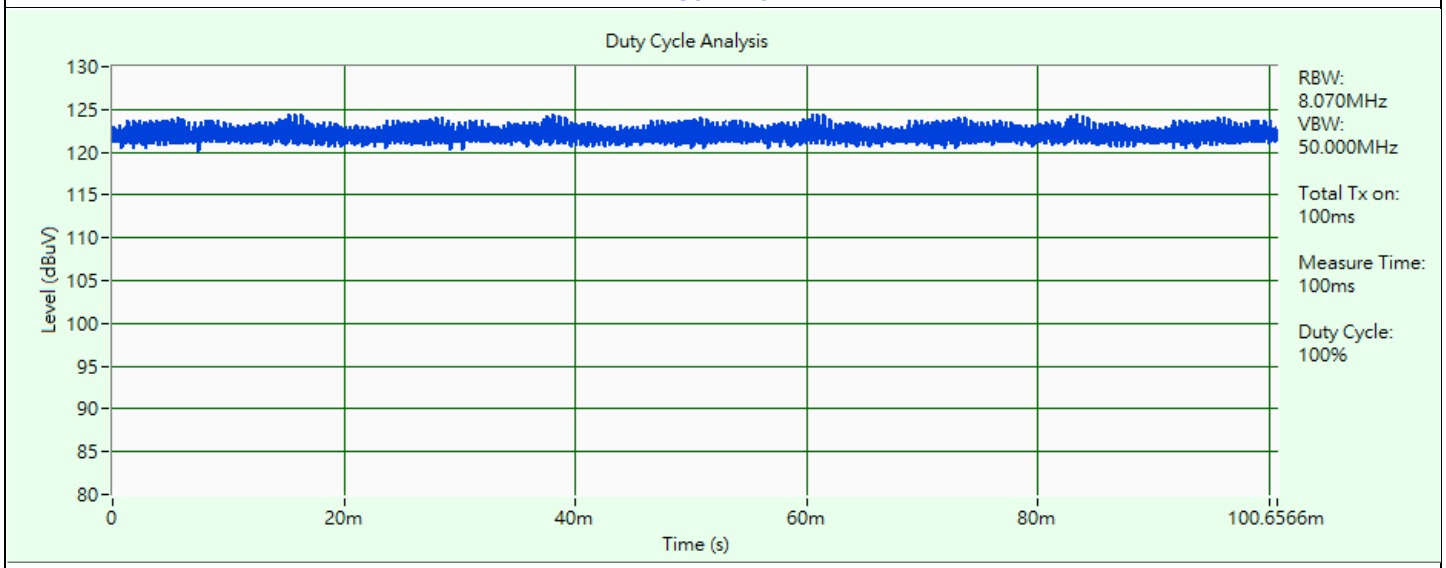
3.5 Duty Cycle of Test Signal

Mode A

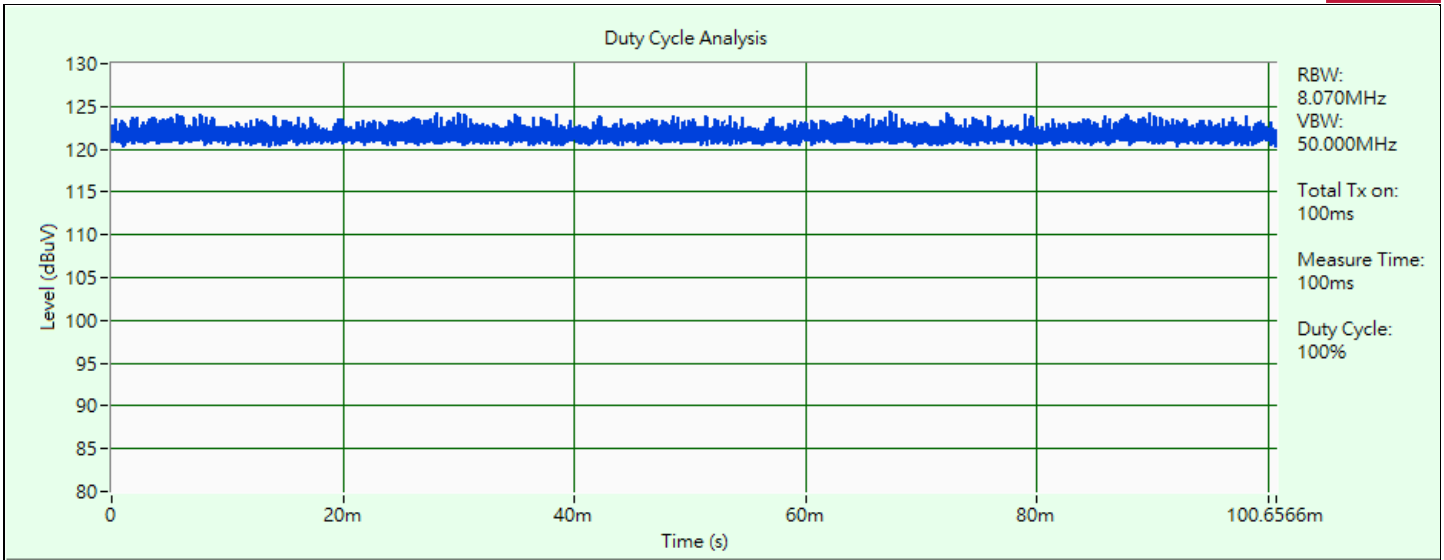
802.11b: Duty cycle = 100 ms / 100 ms x 100% = 100.0%
802.11g: Duty cycle = 100 ms / 100 ms x 100% = 100.0%
802.11n (HT20): Duty cycle = 100 ms / 100 ms x 100% = 100.0%
802.11n (HT40): Duty cycle = 100 ms / 100 ms x 100% = 100.0%



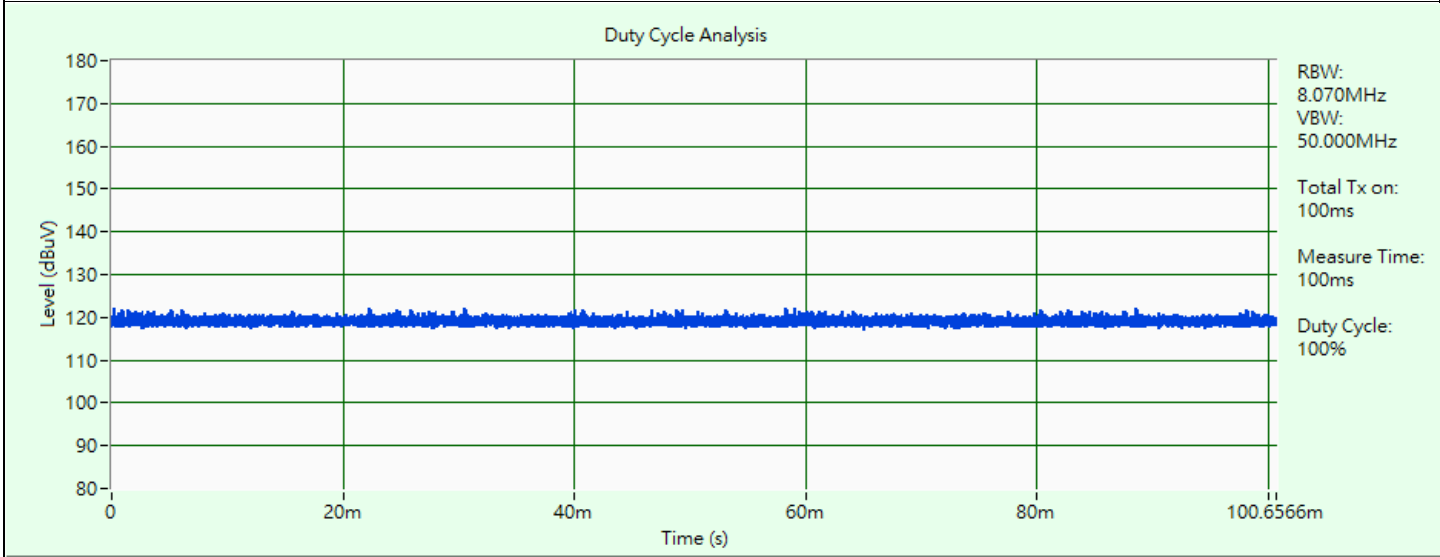
802.11b



802.11g



802.11n (HT20)



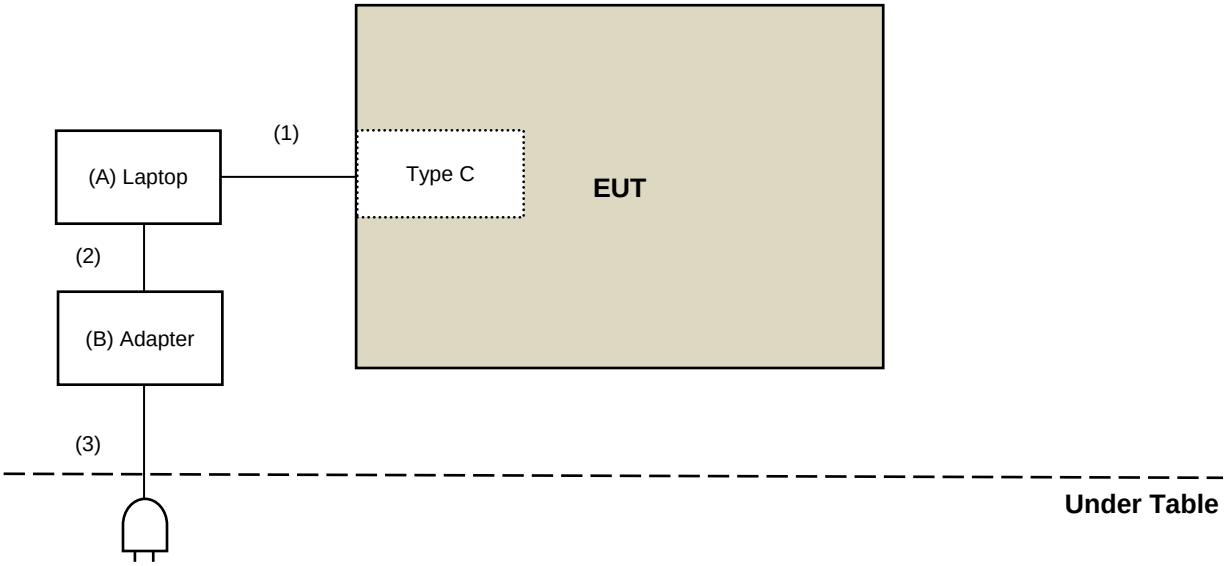
802.11n (HT40)

3.6 Test Program Used and Operation Descriptions

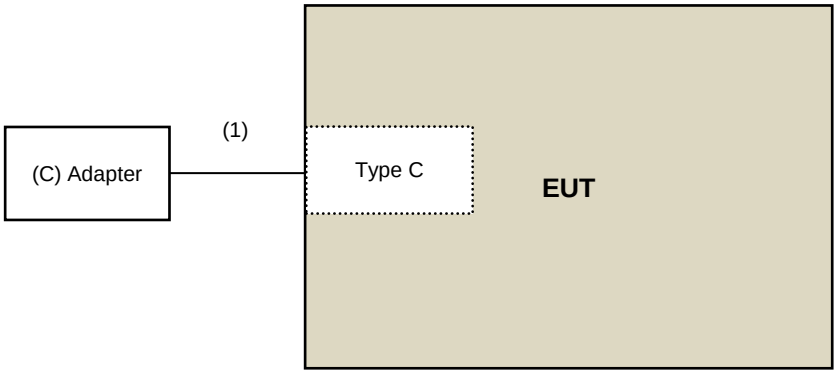
Controlling software (Tera Term v4.80 / Bluetooth RF Test Tool v5.2.1.21) has been activated to set the EUT under transmission condition continuously at specific channel frequency.

3.7 Connection Diagram of EUT and Peripheral Devices

Mode A



Mode B



3.8 Configuration of Peripheral Devices and Cable Connections

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A	Laptop	DELL	E5410	BW33YM1	N/A	Provided by Lab
B	Adapter	DELL	LA65NM130	N/A	N/A	Provided by Lab
C	Adapter	APPLE	A1385	N/A	N/A	Provided by Lab

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	USB to Type-C Cable	1	1	Y	0	Supplied by applicant
2	DC Cable	1	1.8	Y	0	Provided by Lab
3	AC Cable	1	1	N	0	Provided by Lab

4 Test Instruments

The calibration interval of the all test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.1 RF Output Power

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
MIMO Powermeasurement Test set (4X4) KEYSIGHT	U2021XA	U2021XA_001	2022/6/13	2023/6/12
MXG Vector Signal Generator KEYSIGHT	N5182B	MY53052658	2022/5/9	2023/5/8
Peak Power meter Anritsu	ML2495A	0842014	2022/4/27	2023/4/26
Pulse Power Sensor Anritsu	MA2411B	0738404	2022/4/27	2023/4/26
Spectrum Analyzer KEYSIGHT	N9030A	MY54490260	2022/7/14	2023/7/13
Spectrum Analyzer R&S	FSV40	101042	2022/9/5	2023/9/4
		101544	2022/5/9	2023/5/8
Temperature & Humidity Chamber TERCHY	MHU-225AU	920409	2022/6/27	2023/6/26
Voltage Meter FLUKE	179	89610322	2022/10/3	2023/10/2

Notes:

1. The test was performed in LK - Oven
2. Tested Date: 2023/1/11

4.2 Power Spectral Density

Refer to section 4.1 to get information of the instruments.

4.3 6 dB Bandwidth

Refer to section 4.1 to get information of the instruments.

4.4 Conducted Out of Band Emissions

Refer to section 4.1 to get information of the instruments.

4.5 AC Power Conducted Emissions

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
50 ohm terminal LYNICS	0900510	E1-011285	2022/9/19	2023/9/18
		E1-011286	2022/9/19	2023/9/18
50 Ohms Terminator LYNICS	0900510	E1-01-305	2022/2/9	2023/2/8
Attenuator STI	STI02-2200-10	NO.4	2022/9/2	2023/9/1
DC LISN R&S	ESH3-Z6	100219	2022/8/2	2023/8/1
		844950/018	2022/8/2	2023/8/1
DC LISN Schwarzbeck	NNLK 8121	8121-808	2022/4/29	2023/4/28
High Voltage Probe Schwarzbeck	TK9420	00982	2022/12/14	2023/12/13
Isolation Transformer Erika Fiedler	D-65396	017	2022/9/8	2023/9/7
LISN R&S	ENV216	101196	2022/5/24	2023/5/23
LISN Schwarzbeck	NNLK 8121	8121-00759	2022/8/18	2023/8/17
		8121-731	2022/5/26	2023/5/25
	NNLK8129	8129229	2022/6/8	2023/6/7
	NSLK 8128	8128-244	2022/11/8	2023/11/7
RF Coaxial Cable Commate	5D-FB	Cable-CO5-01	2022/1/28	2023/1/27
Software BVADT	Cond_V7.3.7.4	N/A	N/A	N/A
Test Receiver R&S	ESR3	102412	2022/12/21	2023/12/20

Notes:

1. The test was performed in Linkou Conduction 5.
2. Tested Date: 2023/1/10

4.6 Unwanted Emissions below 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
* LOOP ANTENNA EMCI	LPA600	270	2021/9/2	2023/9/1
Bi_Log Antenna Schwarzbeck	VULB 9168	137	2022/10/21	2023/10/20
Coupling/Dcoupling Network Schwarzbeck	CDNE-M2	00097	2022/6/1	2023/5/31
	CDNE-M3	00091	2022/6/1	2023/5/31
Pre_Amplifier EMCI	EMC001340	980269	2022/6/28	2023/6/27
Pre_Amplifier HP	8447D	2432A03504	2022/2/17	2023/2/16
RF Coaxial Cable Pacific	8D-FB	Cable-CH6-02	2022/6/30	2023/6/29
Software BVADT	Radiated_V7.7.1.1.1	N/A	N/A	N/A
	Radiated_V8.7.08	N/A	N/A	N/A
Spectrum Analyzer R&S	FSV40	101544	2022/5/9	2023/5/8
Test Receiver Agilent	N9038A	MY51210129	2022/4/8	2023/4/7
		MY51210137	2022/6/9	2023/6/8
Tower ADT	AT100	0306	N/A	N/A
Turn Table ADT	TT100	0306	N/A	N/A

Notes:

1. * The calibration interval of the above test instruments is 24 months and the calibrations are traceable to NML/ROC and NIST/USA
2. The test was performed in Linkou 966 Chamber 6 (CH 6).
3. Tested Date: 2023/1/10

4.7 Unwanted Emissions above 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Band Pass Filter MICRO-TRONICS	BRM17690	005	2022/5/26	2023/5/25
Boresight antenna tower fixture BV	BAF-02	6	N/A	N/A
High Pass Filter Wainwright Instruments	WHK 3.1/18G-10SS	SN 8	2022/5/26	2023/5/25
Horn Antenna EMCO	3115	00028257	2022/11/13	2023/11/12
Horn Antenna ETS-Lindgren	3117-PA	00215857	2022/11/13	2023/11/12
Horn Antenna Schwarzbeck	BBHA 9170	212	2022/10/20	2023/10/19
Notch Filter MICRO-TRONICS	BRC50703-01	010	2022/5/26	2023/5/25
Pre-amplifier HP	8449B	3008A01201	2022/2/17	2023/2/16
Pre-amplifier (18GHz-40GHz) EMCI	EMC184045B	980175	2022/9/3	2023/9/2
Pre_Amplifier EMCI	EMC0126545	980076	2022/2/17	2023/2/16
	EMC184045B	980235	2022/2/17	2023/2/16
RF Coaxial Cable EM	EM102-KMKM-3.5+1M	EM102-KMKM-3.5+1M-01	2022/7/7	2023/7/6
RF Coaxial Cable EMCI	EMC104	190801	2022/7/7	2023/7/6
		190804	2022/7/7	2023/7/6
RF Coaxial Cable HUBER SUHNER	SF-104	Cable-CH6-01	2022/9/20	2023/9/19
Software BVADT	Radiated_V7.7.1.1.1	N/A	N/A	N/A
	Radiated_V8.7.08	N/A	N/A	N/A
Spectrum Analyzer R&S	FSV40	101042	2022/9/5	2023/9/4
		101544	2022/5/9	2023/5/8
Test Receiver Agilent	N9038A	MY51210129	2022/4/8	2023/4/7
Tower ADT	AT100	0306	N/A	N/A
Turn Table ADT	TT100	0306	N/A	N/A

Notes:

1. The test was performed in Linkou 966 Chamber 6 (CH 6).
2. Tested Date: 2023/1/6 ~ 2023/1/7

5 Limits of Test Items

5.1 RF Output Power

For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30 dBm)

5.2 Power Spectral Density

The Maximum of Power Spectral Density Measurement is 8 dBm in any 3 kHz.

5.3 6 dB Bandwidth

The minimum of 6 dB Bandwidth Measurement is 0.5 MHz.

5.4 Conducted Out of Band Emissions

Below 20 dB of the highest emission level of operating band (in 100 kHz Resolution Bandwidth).

5.5 AC Power Conducted Emissions

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

Notes:

1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.

5.6 Unwanted Emissions below 1 GHz

Radiated emissions up to 1 GHz which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20 dB below the highest level of the desired power:

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

Notes:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).

5.7 Unwanted Emissions above 1 GHz

Radiated emissions above 1 GHz which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20 dB below the highest level of the desired power:

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
Above 960	500	3

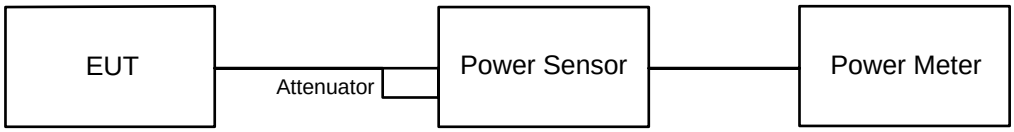
Notes:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000 MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20 dB under any condition of modulation.

6 Test Arrangements

6.1 RF Output Power

6.1.1 Test Setup



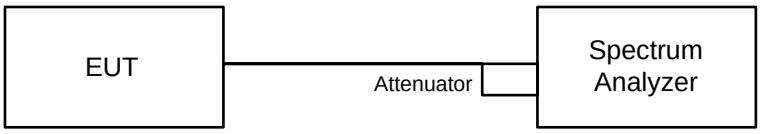
6.1.2 Test Procedure

Peak Power:
A peak power sensor was used on the output port of the EUT. A power meter was used to read the response of the peak power sensor. Record the power level.

Average Power:
Average power sensor was used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst. Duty factor is not added to measured value.

6.2 Power Spectral Density

6.2.1 Test Setup

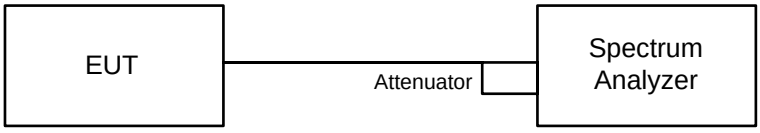


6.2.2 Test Procedure

a. Set analyzer center frequency to DTS channel center frequency.
b. Set the span to 1.5 times the DTS bandwidth.
c. Set the RBW to: 3 kHz.
d. Set the VBW ≥ 3 × RBW.
e. Detector = peak.
f. Sweep time = auto couple.
g. Trace mode = max hold.
h. Allow trace to fully stabilize.
i. Use the peak marker function to determine the maximum amplitude level within the RBW.

6.3 6 dB Bandwidth

6.3.1 Test Setup

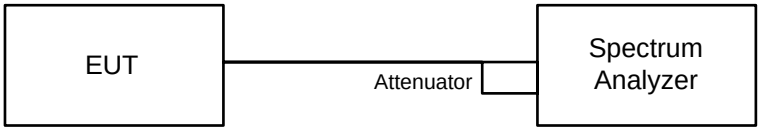


6.3.2 Test Procedure

a. Set resolution bandwidth (RBW) = 100 kHz.
b. Set the video bandwidth (VBW) ≥ 3 x RBW, Detector = Peak.
c. Trace mode = max hold.
d. Sweep = auto couple.
e. Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

6.4 Conducted Out of Band Emissions

6.4.1 Test Setup



6.4.2 Test Procedure

MEASUREMENT PROCEDURE REF

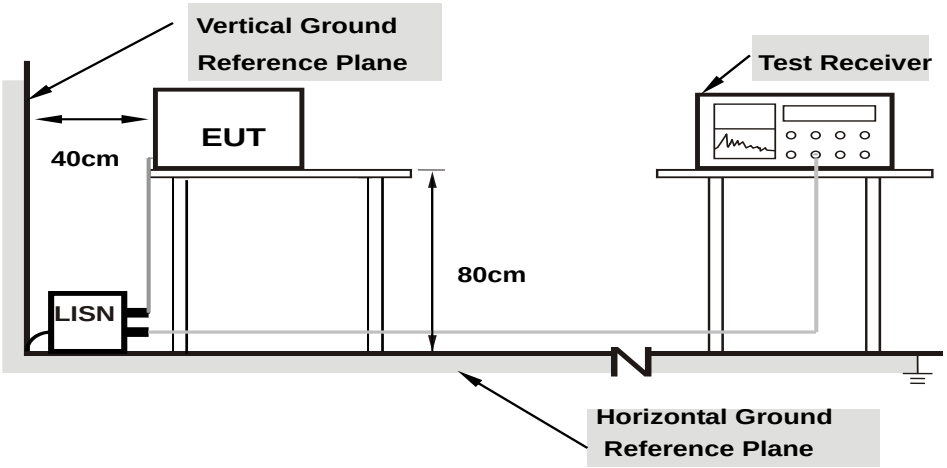
a. Set the RBW = 100 kHz.
b. Set the VBW ≥ 300 kHz.
c. Detector = peak.
d. Sweep time = auto couple.
e. Trace mode = max hold.
f. Allow trace to fully stabilize.
g. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

MEASUREMENT PROCEDURE OOBE

a. Set RBW = 100 kHz.
b. Set VBW ≥ 300 kHz.
c. Detector = peak.
d. Sweep = auto couple.
e. Trace Mode = max hold.
f. Allow trace to fully stabilize.
g. Use the peak marker function to determine the maximum amplitude level.

6.5 AC Power Conducted Emissions

6.5.1 Test Setup



Note: 1.Support units were connected to second LISN.

For the actual test configuration, please refer to the attached file (Test Setup Photo).

6.5.2 Test Procedure

a. The EUT was placed on a 0.8 meter to the top of table and placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50 uH of coupling impedance for the measuring instrument.

b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

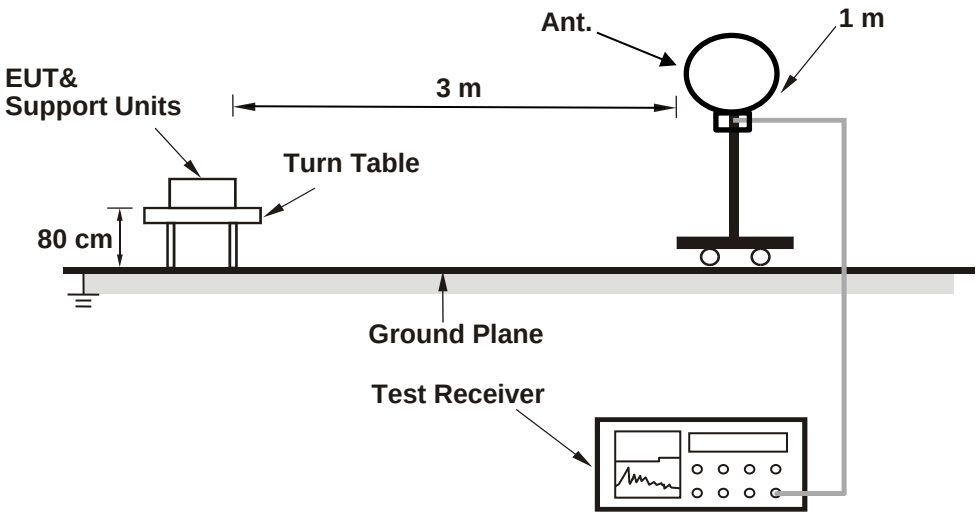
c. The frequency range from 150 kHz to 30 MHz was searched. Emission levels under (Limit – 20 dB) was not recorded.

Note: The resolution bandwidth and video bandwidth of test receiver is 9 kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15 MHz-30 MHz.

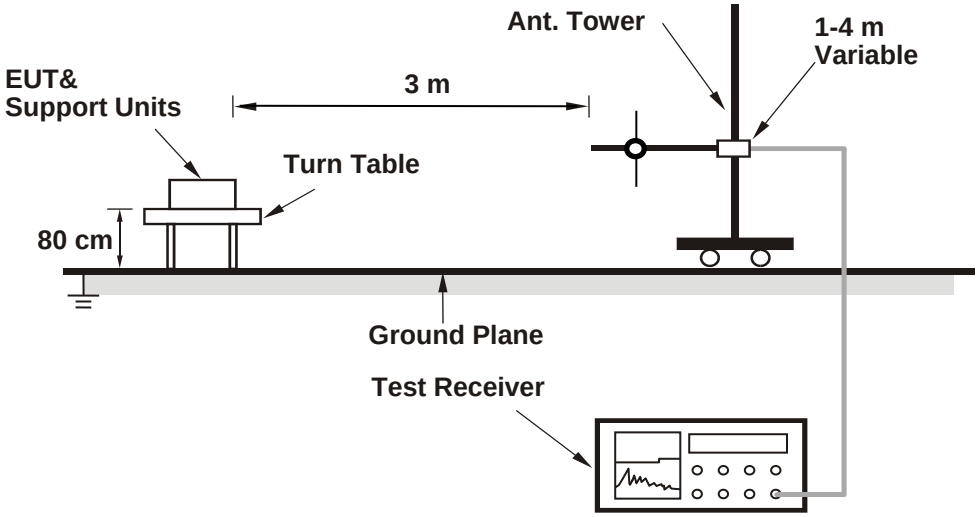
6.6 Unwanted Emissions below 1 GHz

6.6.1 Test Setup

For Radiated emission below 30 MHz



For Radiated emission above 30 MHz



For the actual test configuration, please refer to the attached file (Test Setup Photo).

6.6.2 Test Procedure

For Radiated emission below 30 MHz

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode, except for the frequency band (9 kHz to 90 kHz and 110 kHz to 490 kHz) set to average detect function and peak detect function.

Notes:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 200 Hz at frequency below 150 kHz.
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9 kHz or 10 kHz at frequency (150 kHz to 30 MHz).
3. All modes of operation were investigated and the worst-case emissions are reported.

For Radiated emission above 30 MHz

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

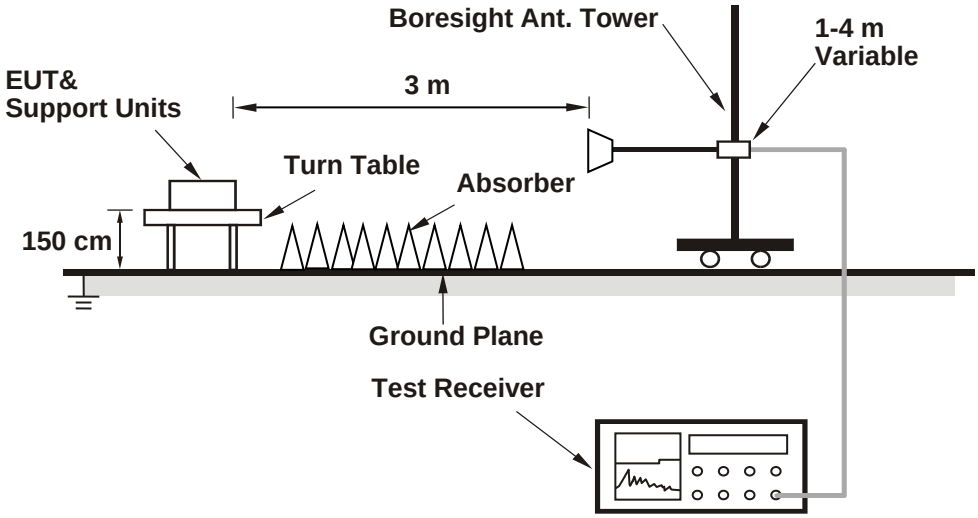
e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.

Notes:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) at frequency below 1 GHz.
2. All modes of operation were investigated and the worst-case emissions are reported.

6.7 Unwanted Emissions above 1 GHz

6.7.1 Test Setup



For the actual test configuration, please refer to the attached file (Test Setup Photo).

6.7.2 Test Procedure

a. The EUT was placed on the top of a rotating table 1.5 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to peak and average detects function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Notes:

1. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) and Average detection (AV) at frequency above 1 GHz.
2. For fundamental and harmonic signal measurement, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is ≥ 1/T (Duty cycle < 98%) or 10 Hz (Duty cycle ≥ 98%) for Average detection (AV) at frequency above 1 GHz.
3. All modes of operation were investigated and the worst-case emissions are reported.

7 Test Results of Test Item

7.1 RF Output Power

Mode A

Input Power:	120Vac, 60Hz	Environmental Conditions:	25°C, 76% RH	Tested By:	Dalen Dai

For Peak Power

802.11b

Chan.	Chan. Freq. (MHz)	Peak Power (mW)	Peak Power (dBm)	Power Limit (dBm)	Test Result
1	2412	25.177	14.01	30	Pass
6	2437	25.468	14.06	30	Pass
11	2462	24.831	13.95	30	Pass

Note: The antenna gain is 2 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11g

Chan.	Chan. Freq. (MHz)	Peak Power (mW)	Peak Power (dBm)	Power Limit (dBm)	Test Result
1	2412	133.352	21.25	30	Pass
6	2437	135.207	21.31	30	Pass
11	2462	130.918	21.17	30	Pass

Note: The antenna gain is 2 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11n (HT20)

Chan.	Chan. Freq. (MHz)	Peak Power (mW)	Peak Power (dBm)	Power Limit (dBm)	Test Result
1	2412	121.339	20.84	30	Pass
6	2437	121.899	20.86	30	Pass
11	2462	120.504	20.81	30	Pass

Note: The antenna gain is 2 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11n (HT40)

Chan.	Chan. Freq. (MHz)	Peak Power (mW)	Peak Power (dBm)	Power Limit (dBm)	Test Result
3	2422	119.950	20.79	30	Pass
6	2437	121.339	20.84	30	Pass
9	2452	118.304	20.73	30	Pass

Note: The antenna gain is 2 dBi < 6 dBi, so the output power limit shall not be reduced.

For Average Power

802.11b

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)
1	2412	15.704	11.96
6	2437	15.812	11.99
11	2462	15.453	11.89

802.11g

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)
1	2412	15.524	11.91
6	2437	15.596	11.93
11	2462	15.417	11.88

802.11n (HT20)

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)
1	2412	15.311	11.85
6	2437	15.453	11.89
11	2462	15.241	11.83

802.11n (HT40)

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)
3	2422	15.382	11.87
6	2437	15.56	11.92
9	2452	15.276	11.84

7.2 Power Spectral Density

Mode A

Input Power:	120Vac, 60Hz	Environmental Conditions:	25°C, 76% RH	Tested By:	Dalen Dai

802.11b

Channel	Freq. (MHz)	PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Pass / Fail
1	2412	-18.58	8	Pass
6	2437	-18.4	8	Pass
11	2462	-18.3	8	Pass

Note: The antenna gain is 2 dBi < 6 dBi, so the power density limit shall not be reduced.

802.11g

Channel	Freq. (MHz)	PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Pass / Fail
1	2412	-17.33	8	Pass
6	2437	-17.28	8	Pass
11	2462	-17.34	8	Pass

Note: The antenna gain is 2 dBi < 6 dBi, so the power density limit shall not be reduced.

802.11n (HT20)

Channel	Freq. (MHz)	PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Pass / Fail
1	2412	-16.47	8	Pass
6	2437	-16.21	8	Pass
11	2462	-16.26	8	Pass

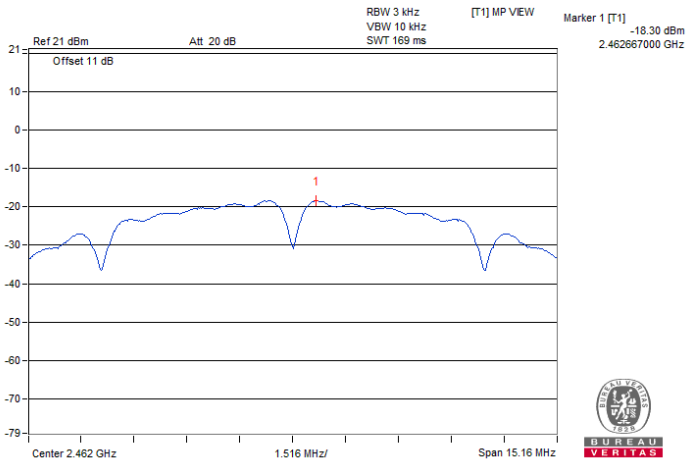
Note: The antenna gain is 2 dBi < 6 dBi, so the power density limit shall not be reduced.

802.11n (HT40)

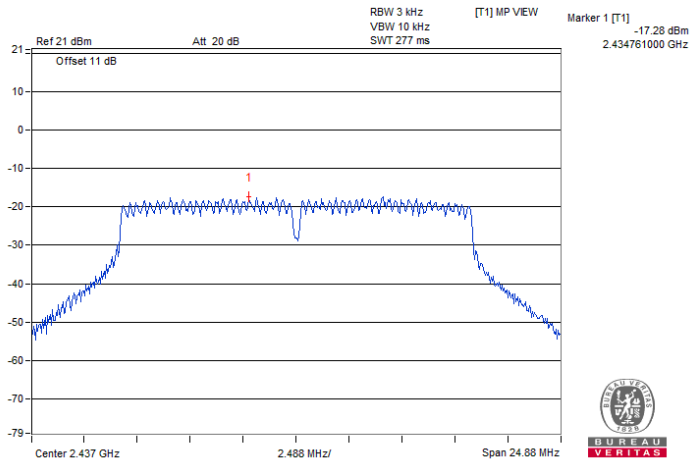
Channel	Freq. (MHz)	PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Pass / Fail
3	2422	-16.67	8	Pass
6	2437	-16.64	8	Pass
9	2452	-16.88	8	Pass

Note: The antenna gain is 2 dBi < 6 dBi, so the power density limit shall not be reduced.

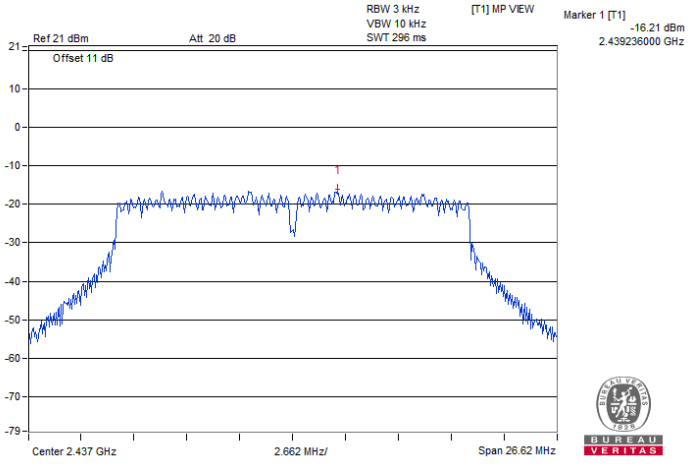
Spectrum Plot of Maximum Value



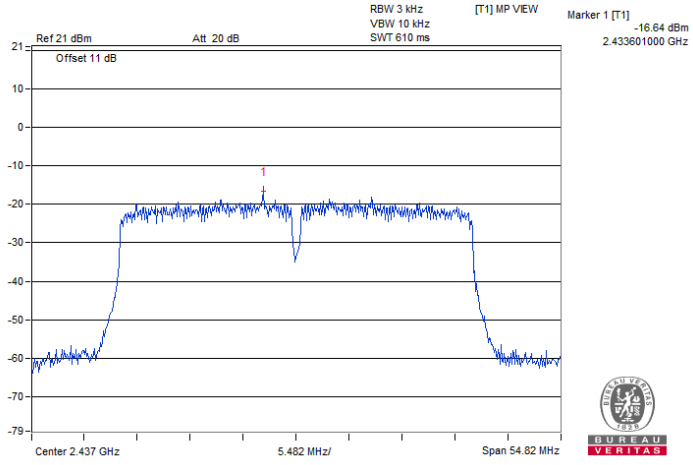
802.11b : CH 11



802.11g : CH 6



802.11n (HT20) : CH 6



802.11n (HT40) : CH 6

7.3 6 dB Bandwidth

Mode A

Input Power:	120Vac, 60Hz	Environmental Conditions:	25°C, 76% RH	Tested By:	Dalen Dai

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Test Result
1	2412	10.11	0.5	Pass
6	2437	10.11	0.5	Pass
11	2462	10.11	0.5	Pass

802.11g

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Test Result
1	2412	16.59	0.5	Pass
6	2437	16.59	0.5	Pass
11	2462	16.60	0.5	Pass

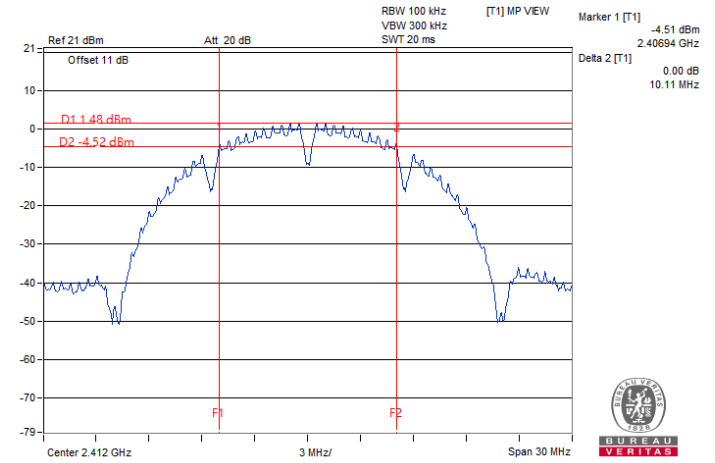
802.11n (HT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Test Result
1	2412	17.75	0.5	Pass
6	2437	17.75	0.5	Pass
11	2462	17.75	0.5	Pass

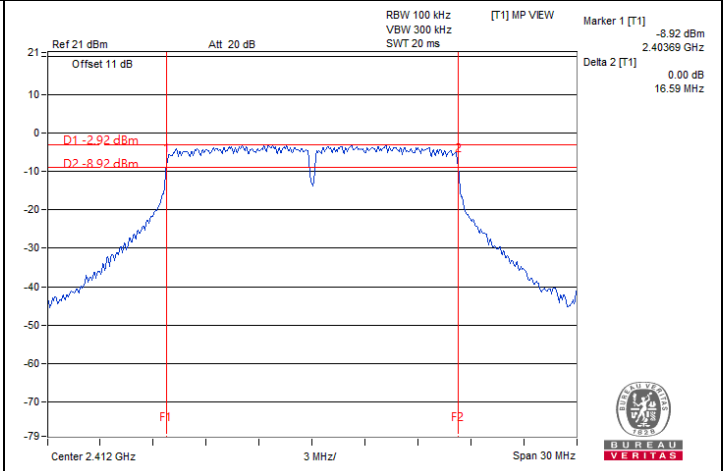
802.11n (HT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Test Result
3	2422	36.57	0.5	Pass
6	2437	36.55	0.5	Pass
9	2452	36.58	0.5	Pass

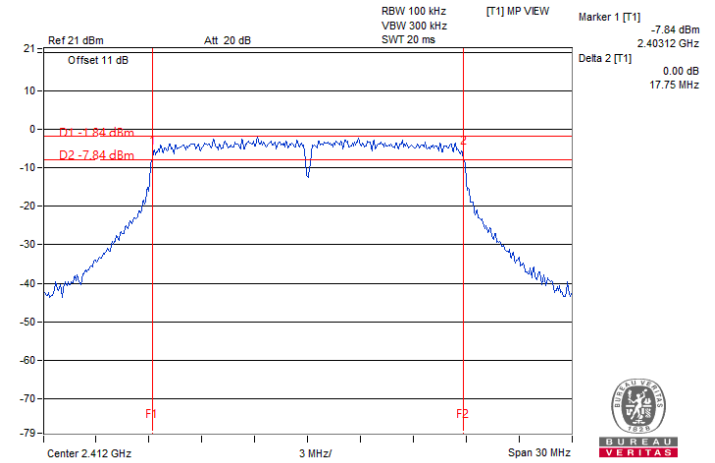
Spectrum Plot of Minimum Value



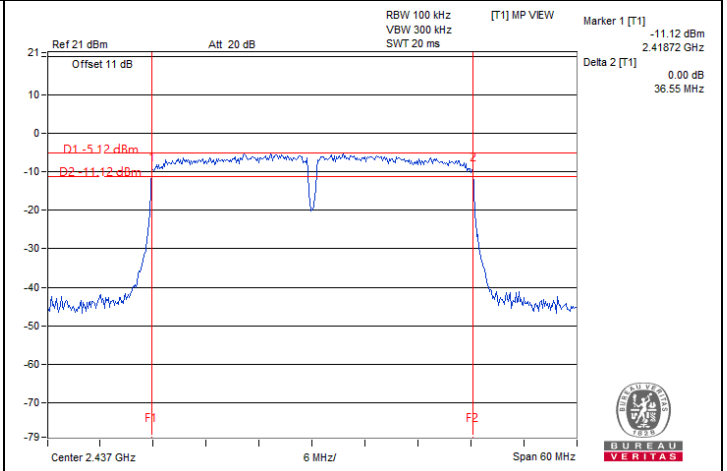
802.11b : CH 1



802.11g : CH 1



802.11n (HT20) : CH 1



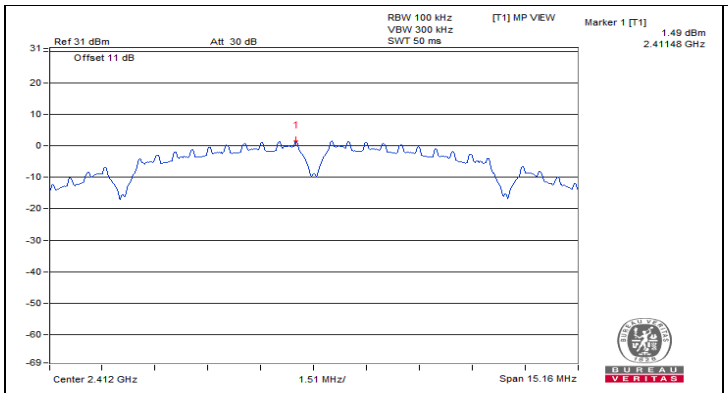
802.11n (HT40) : CH 6

7.4 Conducted Out of Band Emissions

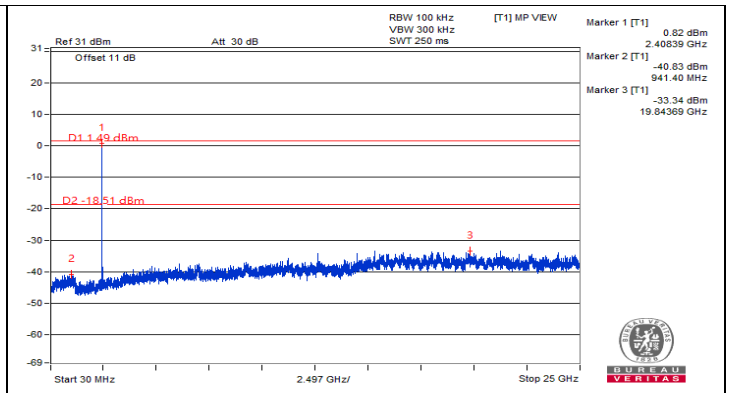
Mode A

Input Power:	120Vac, 60Hz	Environmental Conditions:	25°C, 76% RH	Tested By:	Dalen Dai

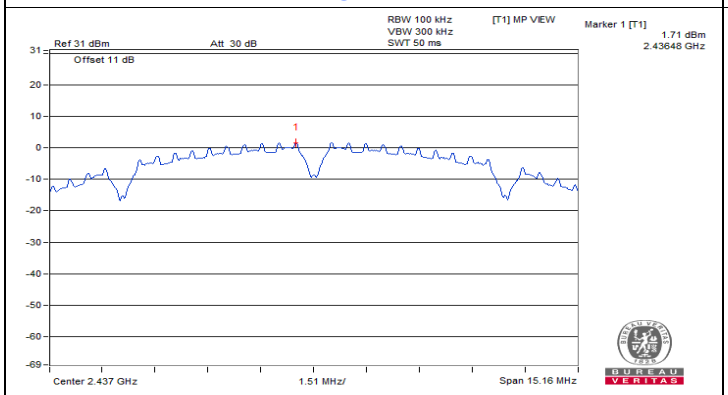
802.11b



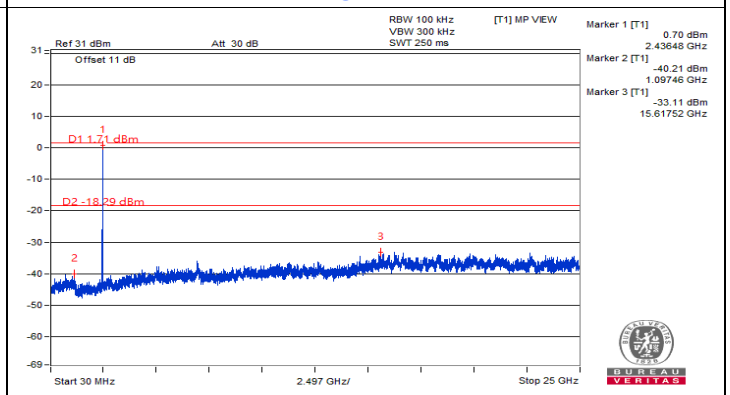
CH 1



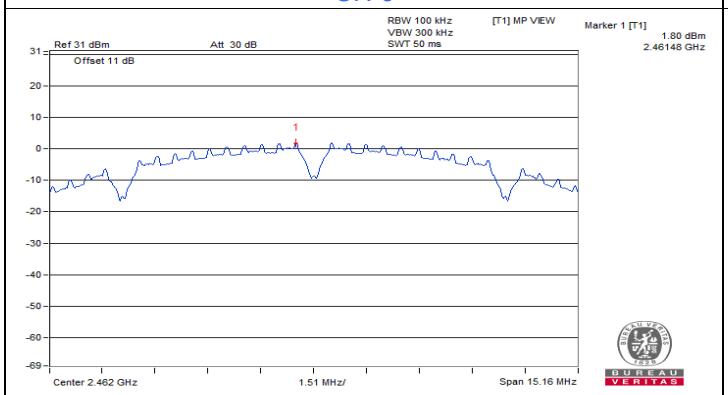
CH 1



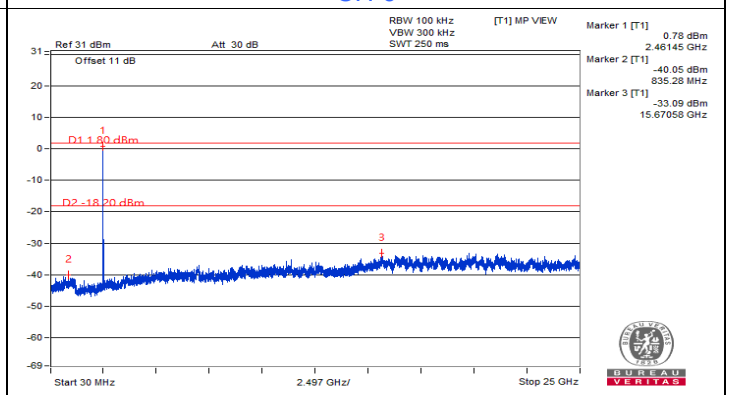
CH 6



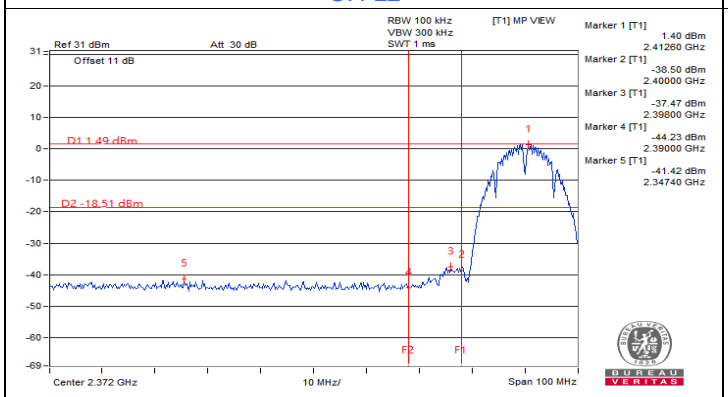
CH 6



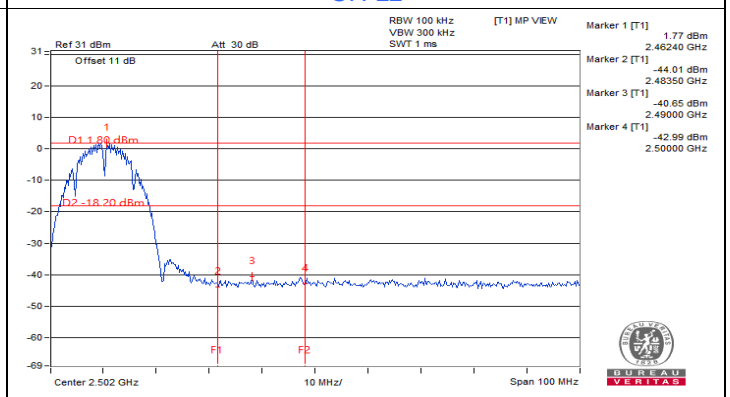
CH 11



CH 11

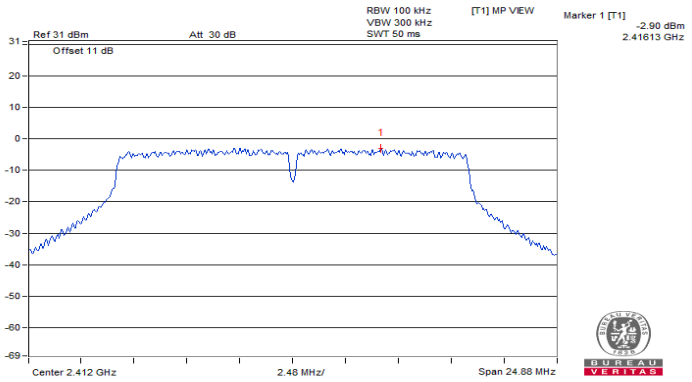


CH 1 Band edge

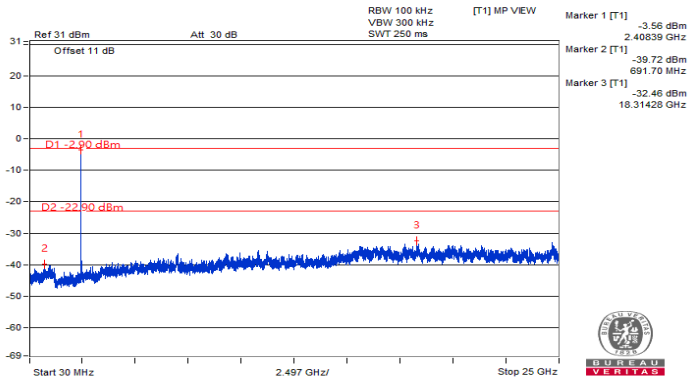


CH 11 Band edge

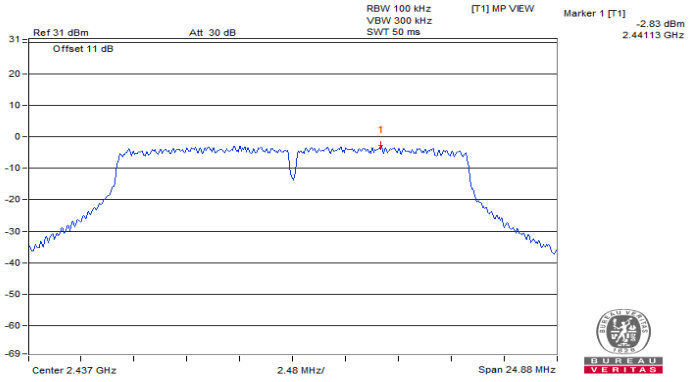
802.11g



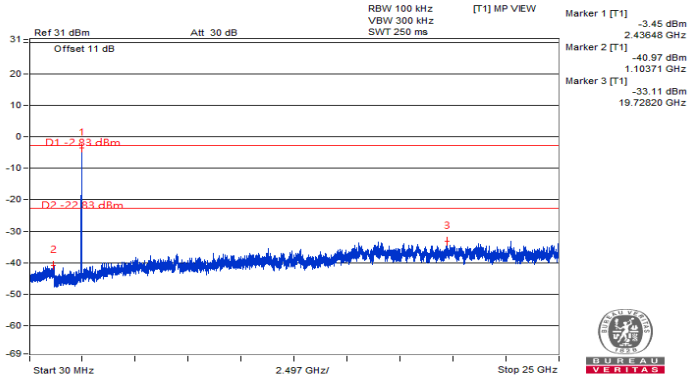
CH 1



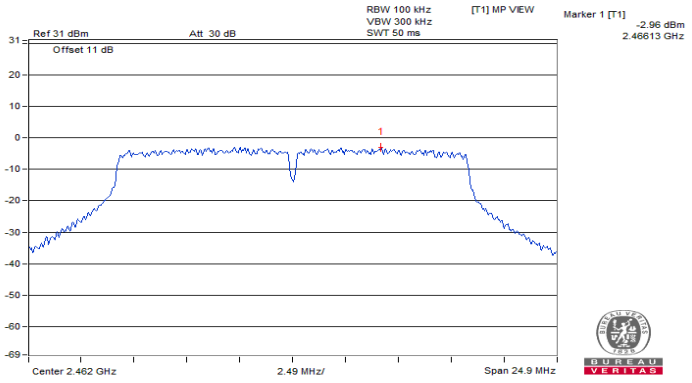
CH 1



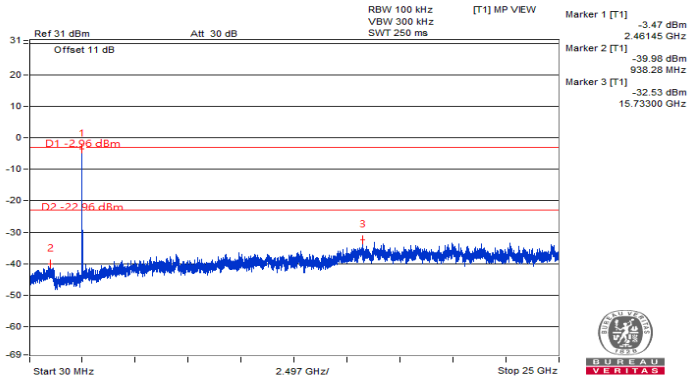
CH 6



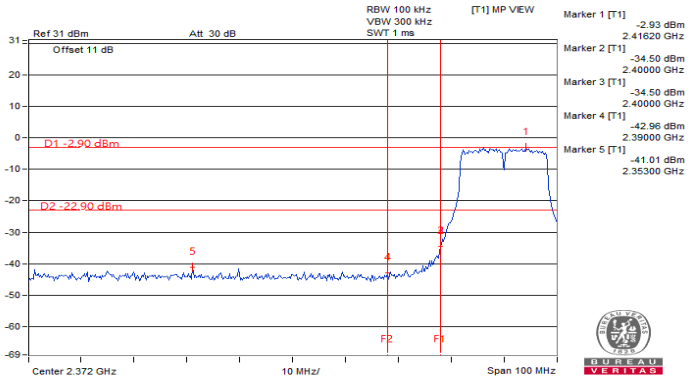
CH 6



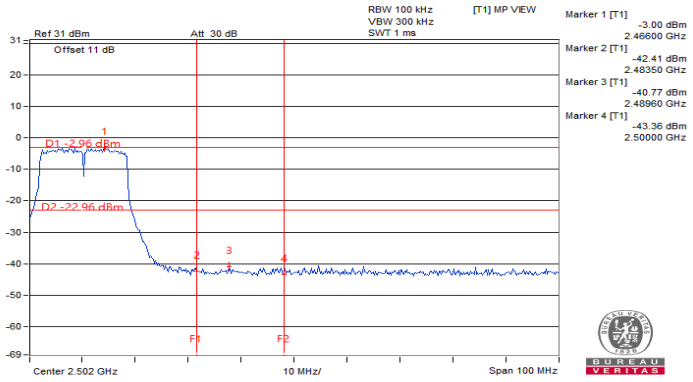
CH 11



CH 11

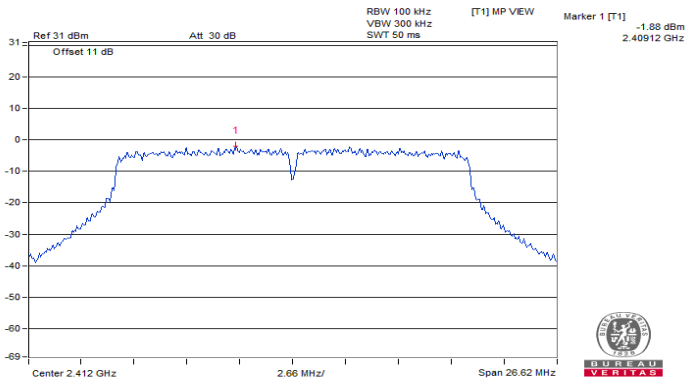


CH 1 Band edge

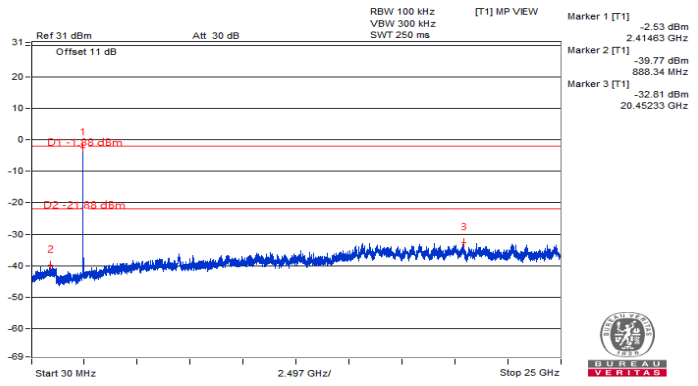


CH 11 Band edge

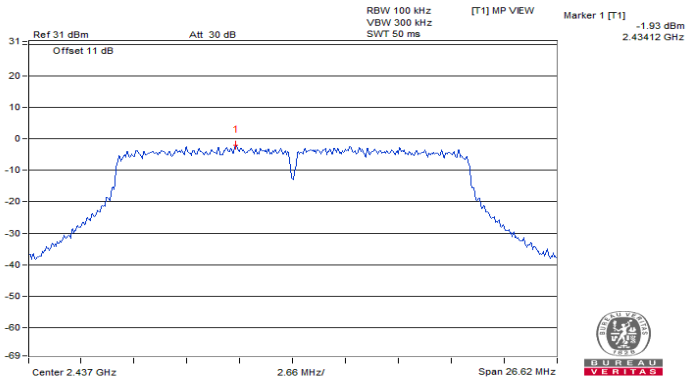
802.11n (HT20)



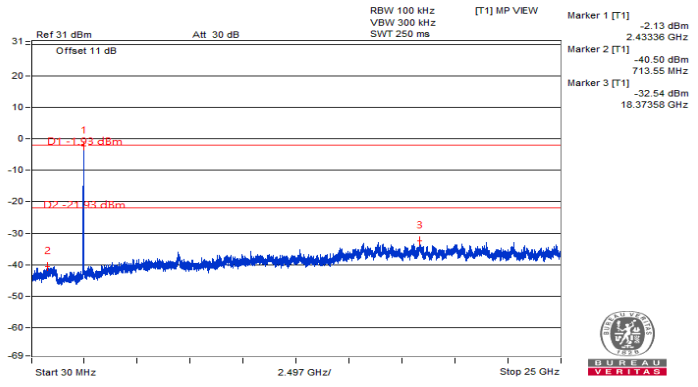
CH 1



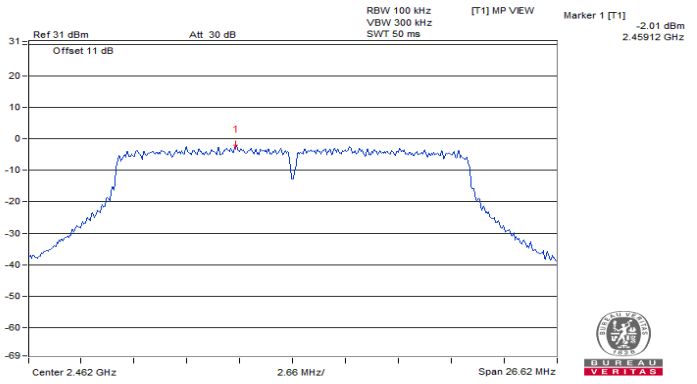
CH 1



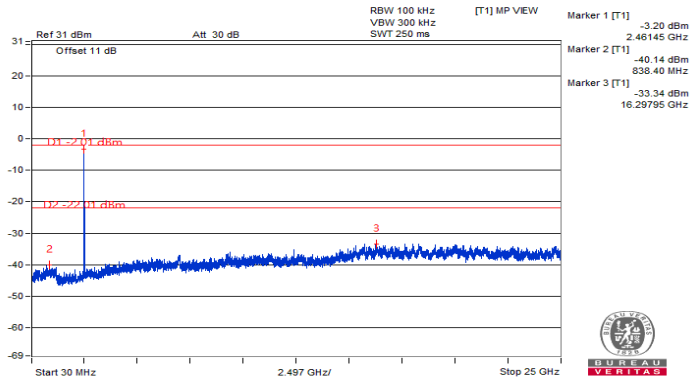
CH 6



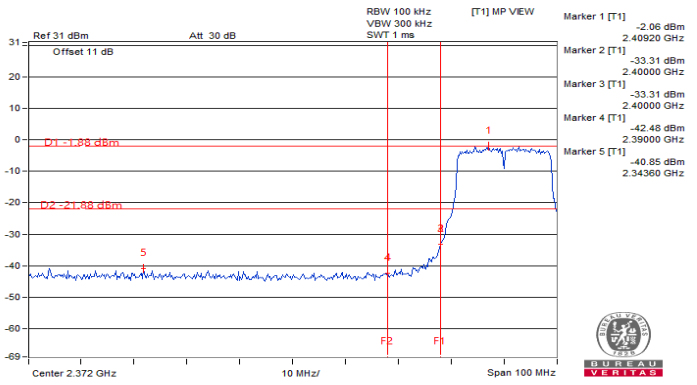
CH 6



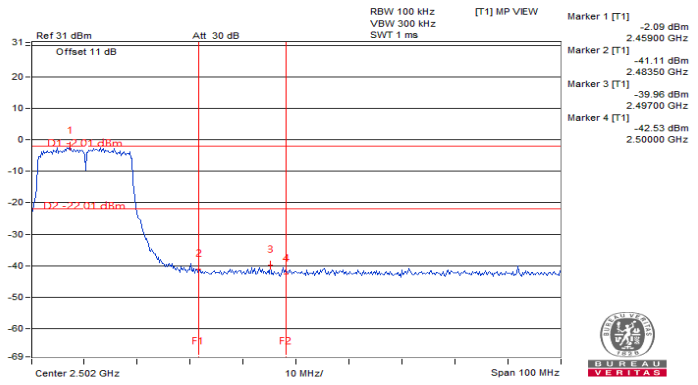
CH 11



CH 11

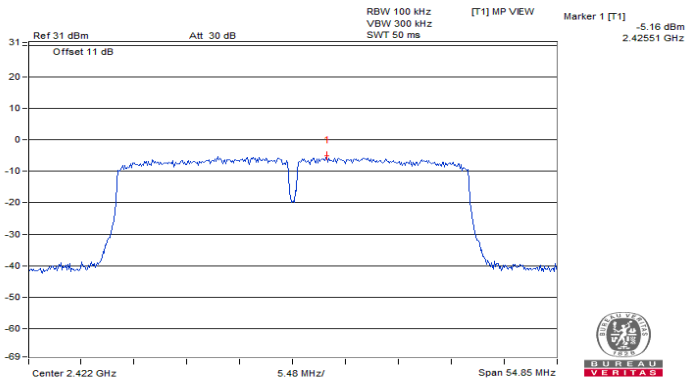


CH 1 Band edge

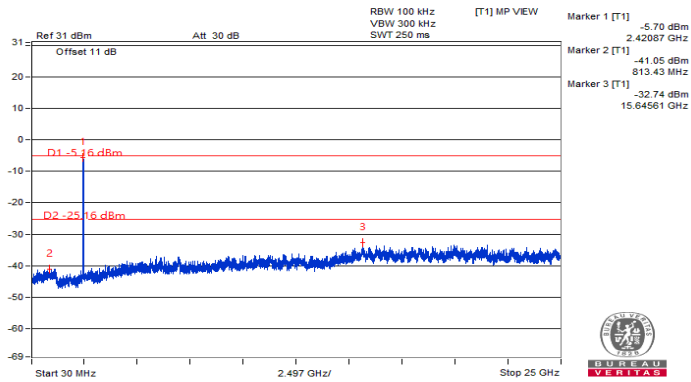


CH 11 Band edge

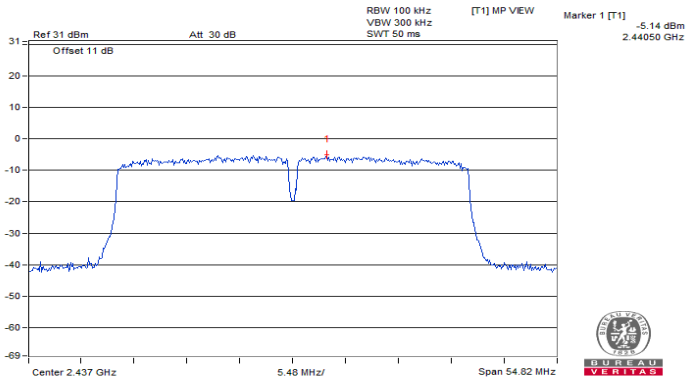
802.11n (HT40)



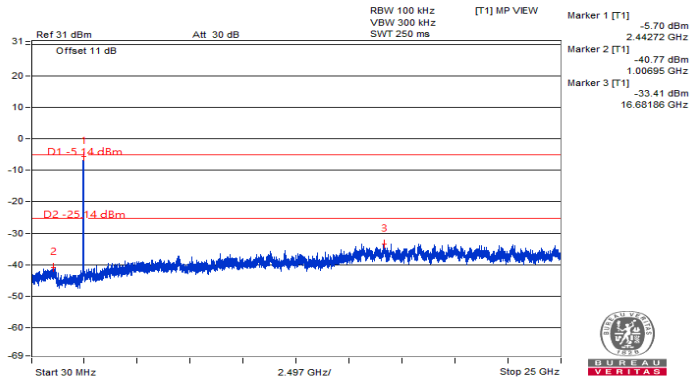
CH 3



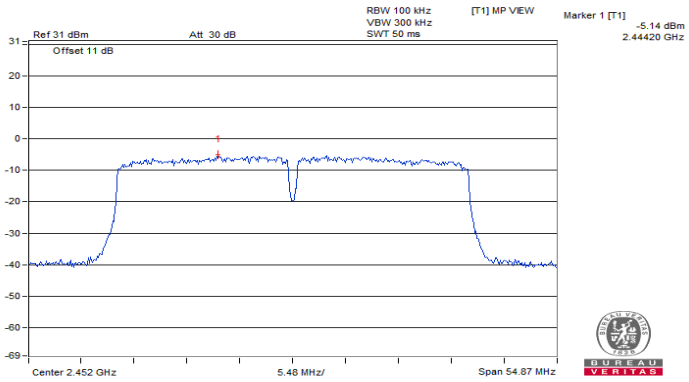
CH 3



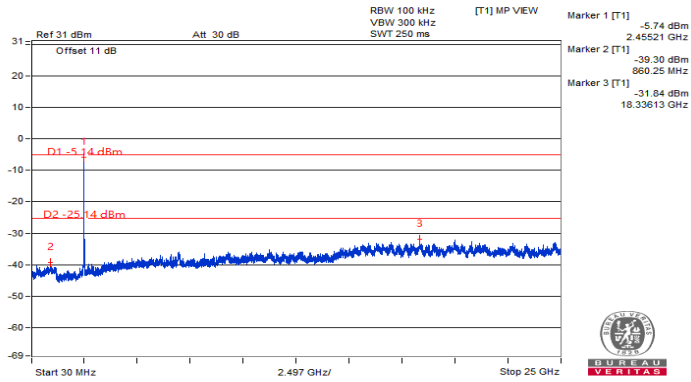
CH 6



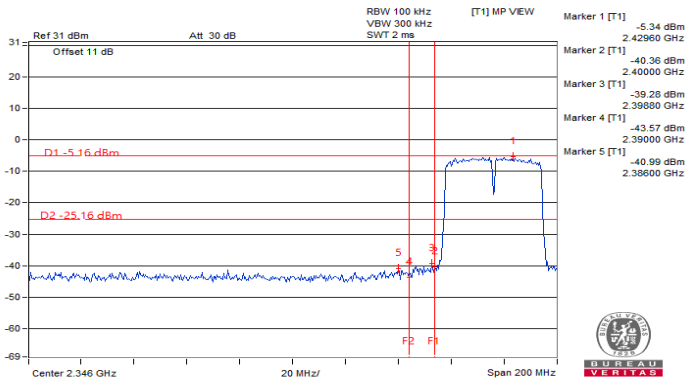
CH 6



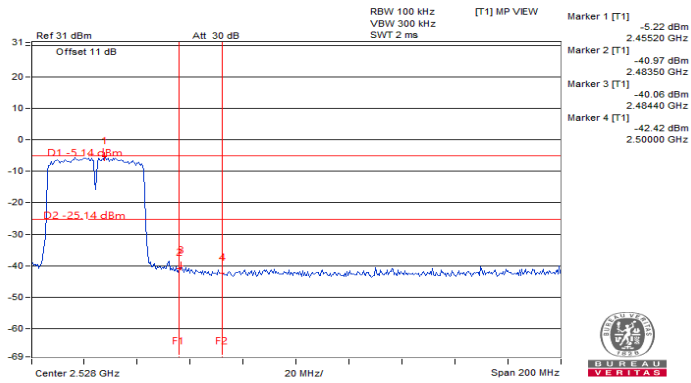
CH 9



CH 9



CH 3 Band edge



CH 9 Band edge

7.5 AC Power Conducted Emissions

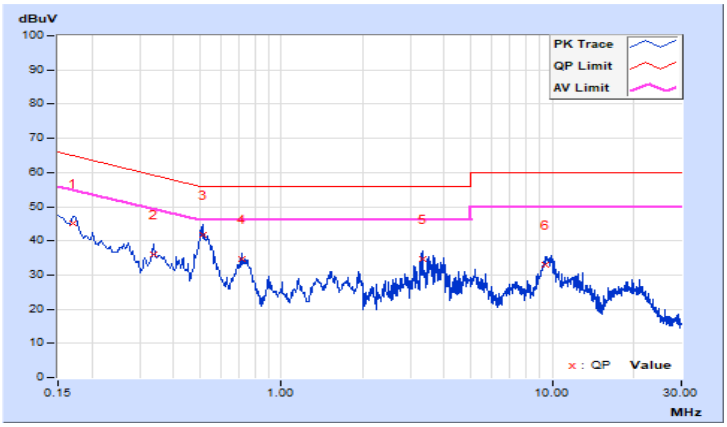
Mode A

RF Mode	802.11g	**Channel**	CH 6：2437 MHz
Frequency Range	150 kHz ~ 30 MHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120Vac, 60Hz	**Environmental Conditions**	25°C, 75% RH
Tested By	Jed Wu		

Phase Of Power : Line (L)										
No	**Frequency (MHz)**	**Correction Factor (dB)**	**Reading Value (dBuV)**		**Emission Level (dBuV)**		**Limit (dBuV)**		**Margin (dB)**	
			Q.P.	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**
1	0.16977	9.92	35.24	23.50	45.16	33.42	64.97	54.97	-19.81	-21.55
2	0.33800	9.92	26.06	18.07	35.98	27.99	59.25	49.25	-23.27	-21.26
3	**0.51200**	**9.92**	**31.91**	**24.49**	**41.83**	**34.41**	**56.00**	**46.00**	**-14.17**	**-11.59**
4	0.71200	9.93	24.74	17.72	34.67	27.65	56.00	46.00	-21.33	-18.35
5	3.34000	9.99	24.68	15.69	34.67	25.68	56.00	46.00	-21.33	-20.32
6	9.40400	10.16	22.70	17.63	32.86	27.79	60.00	50.00	-27.14	-22.21

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

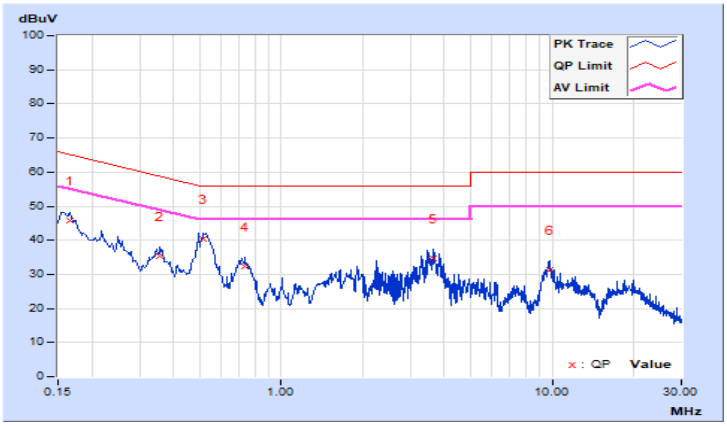


RF Mode	802.11g	**Channel**	CH 6：2437 MHz
Frequency Range	150 kHz ~ 30 MHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120Vac, 60Hz	**Environmental Conditions**	25°C, 75% RH
Tested By	Jed Wu		

Phase Of Power : Neutral (N)										
No	**Frequency (MHz)**	**Correction Factor (dB)**	**Reading Value (dBuV)**		**Emission Level (dBuV)**		**Limit (dBuV)**		**Margin (dB)**	
			Q.P.	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**
1	0.16535	9.93	35.95	24.45	45.88	34.38	65.19	55.19	-19.31	-20.81
2	0.35782	9.92	25.42	17.48	35.34	27.40	58.78	48.78	-23.44	-21.38
3	0.51600	9.93	30.55	23.95	40.48	33.88	56.00	46.00	-15.52	-12.12
4	0.73200	9.94	22.48	15.72	32.42	25.66	56.00	46.00	-23.58	-20.34
5	3.64400	10.00	24.81	13.86	34.81	23.86	56.00	46.00	-21.19	-22.14
6	9.74800	10.18	21.20	15.64	31.38	25.82	60.00	50.00	-28.62	-24.18

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value



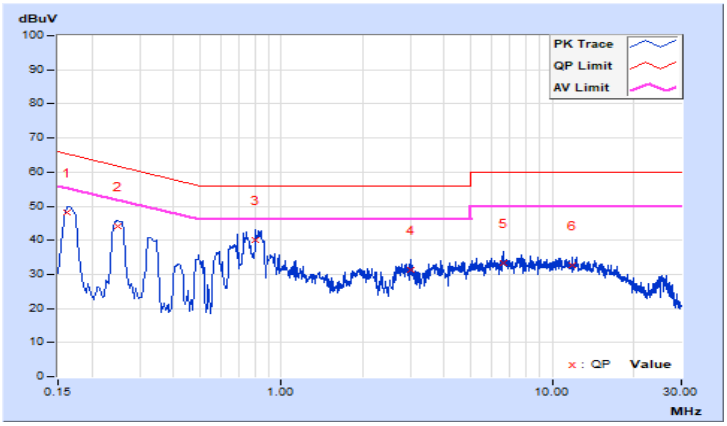
Mode B

RF Mode	802.11g	**Channel**	CH 6：2437 MHz
Frequency Range	150 kHz ~ 30 MHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120Vac, 60Hz	**Environmental Conditions**	25°C, 75% RH
Tested By	Jed Wu		

Phase Of Power : Line (L)										
No	**Frequency (MHz)**	**Correction Factor (dB)**	**Reading Value (dBuV)**		**Emission Level (dBuV)**		**Limit (dBuV)**		**Margin (dB)**	
			Q.P.	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**
1	0.16190	9.93	38.08	17.10	48.01	27.03	65.37	55.37	-17.36	-28.34
2	0.24810	9.94	34.06	15.86	44.00	25.80	61.82	51.82	-17.82	-26.02
3	0.80400	9.97	30.23	17.80	40.20	27.77	56.00	46.00	-15.80	-18.23
4	3.02400	10.08	21.26	13.28	31.34	23.36	56.00	46.00	-24.66	-22.64
5	6.60800	10.23	23.12	16.12	33.35	26.35	60.00	50.00	-26.65	-23.65
6	11.87600	10.43	22.09	15.48	32.52	25.91	60.00	50.00	-27.48	-24.09

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

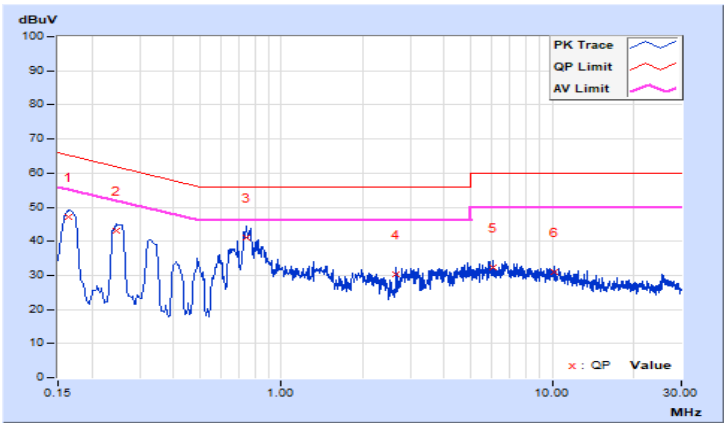


RF Mode	802.11g	**Channel**	CH 6：2437 MHz
Frequency Range	150 kHz ~ 30 MHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120Vac, 60Hz	**Environmental Conditions**	25°C, 75% RH
Tested By	Jed Wu		

Phase Of Power : Neutral (N)										
No	**Frequency (MHz)**	**Correction Factor (dB)**	**Reading Value (dBuV)**		**Emission Level (dBuV)**		**Limit (dBuV)**		**Margin (dB)**	
			Q.P.	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**
1	0.16448	9.94	37.09	19.17	47.03	29.11	65.23	55.23	-18.20	-26.12
2	0.24600	9.95	33.28	16.64	43.23	26.59	61.89	51.89	-18.66	-25.30
3	**0.74800**	**9.98**	**31.26**	**19.74**	**41.24**	**29.72**	**56.00**	**46.00**	**-14.76**	**-16.28**
4	2.66000	10.07	20.13	12.67	30.20	22.74	56.00	46.00	-25.80	-23.26
5	6.08400	10.21	22.22	15.34	32.43	25.55	60.00	50.00	-27.57	-24.45
6	10.22800	10.38	20.56	14.21	30.94	24.59	60.00	50.00	-29.06	-25.41

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value



7.6 Unwanted Emissions below 1 GHz

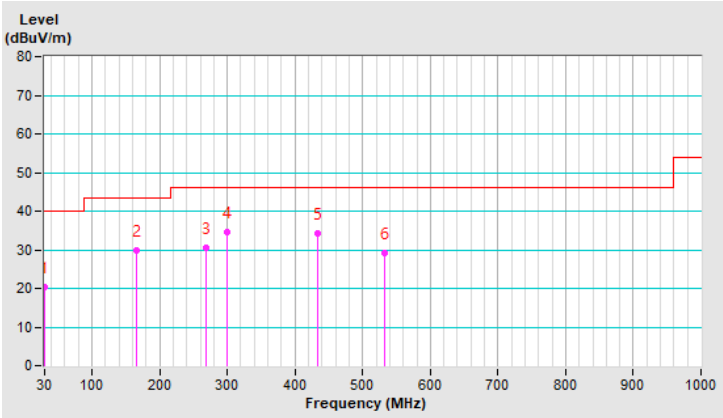
Mode A

RF Mode	802.11g	**Channel**	CH 6：2437 MHz
Frequency Range	30 MHz ~ 1 GHz	**Detector Function & Bandwidth**	(QP) RB = 120kHz
Input Power	120Vac, 60Hz	**Environmental Conditions**	20°C, 58% RH
Tested By	Jed Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	30.58	20.4 QP	40.0	-19.6	1.46 H	127	30.9	-10.5
2	166.58	30.0 QP	43.5	-13.5	1.28 H	281	38.1	-8.1
3	269.30	30.6 QP	46.0	-15.4	1.39 H	324	37.5	-6.9
4	**299.13**	**34.6 QP**	**46.0**	**-11.4**	**1.12 H**	**336**	**40.5**	**-5.9**
5	433.13	34.4 QP	46.0	-11.6	1.83 H	324	36.8	-2.4
6	532.85	29.3 QP	46.0	-16.7	1.91 H	165	30.0	-0.7

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
5. The emission levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

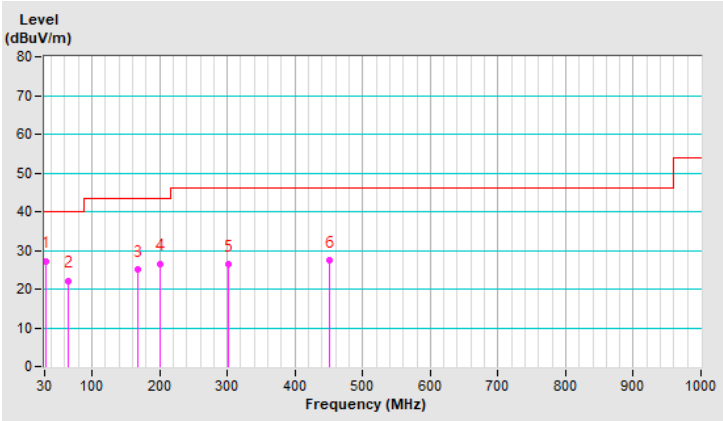


RF Mode	802.11g	**Channel**	CH 6：2437 MHz
Frequency Range	30 MHz ~ 1 GHz	**Detector Function & Bandwidth**	(QP) RB = 120kHz
Input Power	120Vac, 60Hz	**Environmental Conditions**	20°C, 58% RH
Tested By	Jed Wu		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	31.89	27.2 QP	40.0	-12.8	1.76 V	156	37.7	-10.5
2	64.48	22.2 QP	40.0	-17.8	1.56 V	273	32.0	-9.8
3	168.03	25.0 QP	43.5	-18.5	1.34 V	210	33.1	-8.1
4	199.94	26.4 QP	43.5	-17.1	1.05 V	132	37.0	-10.6
5	302.23	26.3 QP	46.0	-19.7	1.89 V	210	32.1	-5.8
6	450.01	27.3 QP	46.0	-18.7	1.23 V	144	29.5	-2.2

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
5. The emission levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



7.7 Unwanted Emissions above 1 GHz

Mode A

RF Mode	802.11b	**Channel**	CH 1：2412 MHz
Frequency Range	1 GHz ~ 25 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120Vac, 60Hz	**Environmental Conditions**	19.8°C, 63.2% RH
Tested By	Jed Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	2390.00	59.5 PK	74.0	-14.5	1.51 H	132	57.4	2.1
2	2390.00	52.8 AV	54.0	-1.2	1.51 H	132	50.7	2.1
3	*2412.00	111.9 PK			1.51 H	132	109.5	2.4
4	*2412.00	109.8 AV			1.51 H	132	107.4	2.4
5	4824.00	51.0 PK	74.0	-23.0	1.36 H	103	38.8	12.2
6	4824.00	40.8 AV	54.0	-13.2	1.36 H	103	28.6	12.2
Antenna Polarity & Test Distance : Vertical at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	2390.00	58.4 PK	74.0	-15.6	3.53 V	312	56.3	2.1
2	2390.00	51.7 AV	54.0	-2.3	3.53 V	312	49.6	2.1
3	*2412.00	110.0 PK			3.53 V	312	107.6	2.4
4	*2412.00	107.9 AV			3.53 V	312	105.5	2.4
5	4824.00	50.4 PK	74.0	-23.6	3.15 V	274	38.2	12.2
6	4824.00	40.2 AV	54.0	-13.8	3.15 V	274	28.0	12.2

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.

RF Mode	802.11b	**Channel**	CH 6：2437 MHz
Frequency Range	1 GHz ~ 25 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120Vac, 60Hz	**Environmental Conditions**	19.8°C, 63.2% RH
Tested By	Jed Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	*2437.00	113.8 PK			1.32 H	143	111.4	2.4
2	*2437.00	111.9 AV			1.32 H	143	109.5	2.4
3	2483.50	59.7 PK	74.0	-14.3	1.32 H	143	57.2	2.5
4	2483.50	52.8 AV	54.0	-1.2	1.32 H	143	50.3	2.5
5	4874.00	54.7 PK	74.0	-19.3	1.30 H	210	42.1	12.6
6	4874.00	48.0 AV	54.0	-6.0	1.30 H	210	35.4	12.6
Antenna Polarity & Test Distance : Vertical at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	*2437.00	111.9 PK			3.34 V	301	109.5	2.4
2	*2437.00	110.1 AV			3.34 V	301	107.7	2.4
3	2483.50	59.3 PK	74.0	-14.7	3.34 V	301	56.8	2.5
4	2483.50	51.5 AV	54.0	-2.5	3.34 V	301	49.0	2.5
5	4874.00	54.1 PK	74.0	-19.9	3.09 V	167	41.5	12.6
6	4874.00	47.4 AV	54.0	-6.6	3.09 V	167	34.8	12.6

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.

RF Mode	802.11b	**Channel**	CH 11：2462 MHz
Frequency Range	1 GHz ~ 25 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120Vac, 60Hz	**Environmental Conditions**	19.8°C, 63.2% RH
Tested By	Jed Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	*2462.00	111.9 PK			1.47 H	143	109.4	2.5
2	*2462.00	110.0 AV			1.47 H	143	107.5	2.5
3	2483.50	61.0 PK	74.0	-13.0	1.47 H	143	58.5	2.5
4	2483.50	52.7 AV	54.0	-1.3	1.47 H	143	50.2	2.5
5	4924.00	53.0 PK	74.0	-21.0	1.32 H	114	40.3	12.7
6	4924.00	44.8 AV	54.0	-9.2	1.32 H	114	32.1	12.7
Antenna Polarity & Test Distance : Vertical at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	*2462.00	110.0 PK			3.49 V	323	107.5	2.5
2	*2462.00	108.0 AV			3.49 V	323	105.5	2.5
3	2483.50	58.6 PK	74.0	-15.4	3.49 V	323	56.1	2.5
4	2483.50	50.6 AV	54.0	-3.4	3.49 V	323	48.1	2.5
5	4924.00	52.4 PK	74.0	-21.6	3.11 V	285	39.7	12.7
6	4924.00	44.2 AV	54.0	-9.8	3.11 V	285	31.5	12.7

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.

RF Mode	802.11g	**Channel**	CH 1：2412 MHz
Frequency Range	1 GHz ~ 25 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120Vac, 60Hz	**Environmental Conditions**	19.8°C, 63.2% RH
Tested By	Jed Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	2390.00	68.9 PK	74.0	-5.1	1.67 H	144	66.8	2.1
2	2390.00	52.9 AV	54.0	-1.1	1.67 H	144	50.8	2.1
3	*2412.00	108.6 PK			1.67 H	144	106.2	2.4
4	*2412.00	101.8 AV			1.67 H	144	99.4	2.4
5	4824.00	52.3 PK	74.0	-21.7	1.52 H	115	40.1	12.2
6	4824.00	44.1 AV	54.0	-9.9	1.52 H	115	31.9	12.2
Antenna Polarity & Test Distance : Vertical at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	2390.00	67.9 PK	74.0	-6.1	3.37 V	300	65.8	2.1
2	2390.00	52.1 AV	54.0	-1.9	3.37 V	300	50.0	2.1
3	*2412.00	106.7 PK			3.37 V	300	104.3	2.4
4	*2412.00	99.9 AV			3.37 V	300	97.5	2.4
5	4824.00	51.7 PK	74.0	-22.3	3.31 V	262	39.5	12.2
6	4824.00	43.5 AV	54.0	-10.5	3.31 V	262	31.3	12.2

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.

RF Mode	802.11g	**Channel**	CH 6：2437 MHz
Frequency Range	1 GHz ~ 25 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120Vac, 60Hz	**Environmental Conditions**	19.8°C, 63.2% RH
Tested By	Jed Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	*2437.00	113.4 PK			1.48 H	145	111.0	2.4
2	*2437.00	106.8 AV			1.48 H	145	104.4	2.4
3	2483.50	66.7 PK	74.0	-7.3	1.48 H	145	64.2	2.5
4	**2483.50**	**53.0 AV**	**54.0**	**-1.0**	**1.48 H**	**145**	**50.5**	**2.5**
5	4874.00	55.1 PK	74.0	-18.9	1.46 H	212	42.5	12.6
6	4874.00	48.4 AV	54.0	-5.6	1.46 H	212	35.8	12.6
Antenna Polarity & Test Distance : Vertical at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	*2437.00	111.0 PK			3.50 V	325	108.6	2.4
2	*2437.00	104.3 AV			3.50 V	325	101.9	2.4
3	2483.50	65.2 PK	74.0	-8.8	3.50 V	325	62.7	2.5
4	2483.50	51.5 AV	54.0	-2.5	3.50 V	325	49.0	2.5
5	4874.00	54.5 PK	74.0	-19.5	3.12 V	287	41.9	12.6
6	4874.00	47.8 AV	54.0	-6.2	3.12 V	287	35.2	12.6

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.

RF Mode	802.11g	**Channel**	CH 11：2462 MHz
Frequency Range	1 GHz ~ 25 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120Vac, 60Hz	**Environmental Conditions**	19.8°C, 63.2% RH
Tested By	Jed Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	*2462.00	108.3 PK			1.47 H	145	105.8	2.5
2	*2462.00	101.6 AV			1.47 H	145	99.1	2.5
3	2483.50	66.6 PK	74.0	-7.4	1.47 H	145	64.1	2.5
4	2483.50	52.9 AV	54.0	-1.1	1.47 H	145	50.4	2.5
5	4924.00	52.4 PK	74.0	-21.6	1.33 H	116	39.7	12.7
6	4924.00	44.0 AV	54.0	-10.0	1.33 H	116	31.3	12.7
Antenna Polarity & Test Distance : Vertical at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	*2462.00	106.3 PK			3.49 V	325	103.8	2.5
2	*2462.00	99.6 AV			3.49 V	325	97.1	2.5
3	2483.50	65.5 PK	74.0	-8.5	3.49 V	325	63.0	2.5
4	2483.50	49.9 AV	54.0	-4.1	3.49 V	325	47.4	2.5
5	4924.00	51.8 PK	74.0	-22.2	3.11 V	287	39.1	12.7
6	4924.00	43.4 AV	54.0	-10.6	3.11 V	287	30.7	12.7

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.

RF Mode	802.11n (HT20)	**Channel**	CH 1：2412 MHz
Frequency Range	1 GHz ~ 25 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120Vac, 60Hz	**Environmental Conditions**	19.8°C, 63.2% RH
Tested By	Jed Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	2390.00	67.7 PK	74.0	-6.3	1.67 H	144	65.6	2.1
2	2390.00	52.7 AV	54.0	-1.3	1.67 H	144	50.6	2.1
3	*2412.00	108.7 PK			1.67 H	144	106.3	2.4
4	*2412.00	101.4 AV			1.67 H	144	99.0	2.4
5	4824.00	52.4 PK	74.0	-21.6	1.53 H	114	40.2	12.2
6	4824.00	44.2 AV	54.0	-9.8	1.53 H	114	32.0	12.2
Antenna Polarity & Test Distance : Vertical at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	2390.00	66.8 PK	74.0	-7.2	3.37 V	300	64.7	2.1
2	2390.00	51.5 AV	54.0	-2.5	3.37 V	300	49.4	2.1
3	*2412.00	106.8 PK			3.37 V	300	104.4	2.4
4	*2412.00	99.7 AV			3.37 V	300	97.3	2.4
5	4824.00	51.8 PK	74.0	-22.2	2.99 V	262	39.6	12.2
6	4824.00	43.6 AV	54.0	-10.4	2.99 V	262	31.4	12.2

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.

RF Mode	802.11n (HT20)	**Channel**	CH 6：2437 MHz
Frequency Range	1 GHz ~ 25 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120Vac, 60Hz	**Environmental Conditions**	19.8°C, 63.2% RH
Tested By	Jed Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	*2437.00	113.2 PK			1.48 H	146	110.8	2.4
2	*2437.00	106.1 AV			1.48 H	146	103.7	2.4
3	2483.50	69.1 PK	74.0	-4.9	1.48 H	146	66.6	2.5
4	**2483.50**	**53.0 AV**	**54.0**	**-1.0**	**1.48 H**	**146**	**50.5**	**2.5**
5	4874.00	54.9 PK	74.0	-19.1	1.45 H	213	42.3	12.6
6	4874.00	48.2 AV	54.0	-5.8	1.45 H	213	35.6	12.6
Antenna Polarity & Test Distance : Vertical at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	*2437.00	111.3 PK			3.56 V	298	108.9	2.4
2	*2437.00	104.2 AV			3.56 V	298	101.8	2.4
3	2483.50	67.3 PK	74.0	-6.7	3.56 V	298	64.8	2.5
4	2483.50	51.2 AV	54.0	-2.8	3.56 V	298	48.7	2.5
5	4874.00	54.3 PK	74.0	-19.7	3.18 V	260	41.7	12.6
6	4874.00	47.6 AV	54.0	-6.4	3.18 V	260	35.0	12.6

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.

RF Mode	802.11n (HT20)	**Channel**	CH 11：2462 MHz
Frequency Range	1 GHz ~ 25 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120Vac, 60Hz	**Environmental Conditions**	19.8°C, 63.2% RH
Tested By	Jed Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	*2462.00	108.2 PK			1.48 H	144	105.7	2.5
2	*2462.00	100.8 AV			1.48 H	144	98.3	2.5
3	2483.50	66.4 PK	74.0	-7.6	1.48 H	144	63.9	2.5
4	2483.50	52.8 AV	54.0	-1.2	1.48 H	144	50.3	2.5
5	4924.00	52.3 PK	74.0	-21.7	1.34 H	115	39.6	12.7
6	4924.00	43.9 AV	54.0	-10.1	1.34 H	115	31.2	12.7
Antenna Polarity & Test Distance : Vertical at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	*2462.00	106.3 PK			3.50 V	324	103.8	2.5
2	*2462.00	98.9 AV			3.50 V	324	96.4	2.5
3	2483.50	63.9 PK	74.0	-10.1	3.50 V	324	61.4	2.5
4	2483.50	49.7 AV	54.0	-4.3	3.50 V	324	47.2	2.5
5	4924.00	51.7 PK	74.0	-22.3	3.18 V	262	39.0	12.7
6	4924.00	43.3 AV	54.0	-10.7	3.18 V	262	30.6	12.7

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.

RF Mode	802.11n (HT40)	**Channel**	CH 3：2422 MHz
Frequency Range	1 GHz ~ 25 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120Vac, 60Hz	**Environmental Conditions**	19.8°C, 63.2% RH
Tested By	Jed Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	2390.00	63.9 PK	74.0	-10.1	1.66 H	145	61.8	2.1
2	2390.00	52.8 AV	54.0	-1.2	1.66 H	145	50.7	2.1
3	*2422.00	105.8 PK			1.66 H	145	103.5	2.3
4	*2422.00	98.0 AV			1.66 H	145	95.7	2.3
5	4844.00	51.9 PK	74.0	-22.1	1.52 H	113	39.4	12.5
6	4844.00	43.7 AV	54.0	-10.3	1.52 H	113	31.2	12.5
Antenna Polarity & Test Distance : Vertical at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	2390.00	62.3 PK	74.0	-11.7	3.38 V	325	60.2	2.1
2	2390.00	50.9 AV	54.0	-3.1	3.38 V	325	48.8	2.1
3	*2422.00	103.9 PK			3.38 V	325	101.6	2.3
4	*2422.00	96.1 AV			3.38 V	325	93.8	2.3
5	4844.00	51.3 PK	74.0	-22.7	3.30 V	287	38.8	12.5
6	4844.00	43.1 AV	54.0	-10.9	3.30 V	287	30.6	12.5

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.

RF Mode	802.11n (HT40)	**Channel**	CH 6：2437 MHz
Frequency Range	1 GHz ~ 25 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120Vac, 60Hz	**Environmental Conditions**	19.8°C, 63.2% RH
Tested By	Jed Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	*2437.00	106.8 PK			1.01 H	157	104.4	2.4
2	*2437.00	99.1 AV			1.01 H	157	96.7	2.4
3	2483.50	65.4 PK	74.0	-8.6	1.01 H	157	62.9	2.5
4	2483.50	52.9 AV	54.0	-1.1	1.01 H	157	50.4	2.5
5	4874.00	54.5 PK	74.0	-19.5	1.85 H	128	41.9	12.6
6	4874.00	47.8 AV	54.0	-6.2	1.85 H	128	35.2	12.6
Antenna Polarity & Test Distance : Vertical at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	*2437.00	105.0 PK			3.03 V	287	102.6	2.4
2	*2437.00	97.4 AV			3.03 V	287	95.0	2.4
3	2483.50	61.1 PK	74.0	-12.9	3.03 V	287	58.6	2.5
4	2483.50	49.1 AV	54.0	-4.9	3.03 V	287	46.6	2.5
5	4874.00	53.9 PK	74.0	-20.1	2.66 V	249	41.3	12.6
6	4874.00	47.2 AV	54.0	-6.8	2.66 V	249	34.6	12.6

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.

RF Mode	802.11n (HT40)	**Channel**	CH 9：2452 MHz
Frequency Range	1 GHz ~ 25 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120Vac, 60Hz	**Environmental Conditions**	19.8°C, 63.2% RH
Tested By	Jed Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	*2452.00	103.1 PK			1.01 H	154	100.6	2.5
2	*2452.00	95.3 AV			1.01 H	154	92.8	2.5
3	2483.50	65.1 PK	74.0	-8.9	1.01 H	154	62.6	2.5
4	2483.50	52.9 AV	54.0	-1.1	1.01 H	154	50.4	2.5
5	4904.00	53.8 PK	74.0	-20.2	1.84 H	125	41.1	12.7
6	4904.00	47.1 AV	54.0	-6.9	1.84 H	125	34.4	12.7
Antenna Polarity & Test Distance : Vertical at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	*2452.00	101.1 PK			3.02 V	290	98.6	2.5
2	*2452.00	93.3 AV			3.02 V	290	90.8	2.5
3	2483.50	62.8 PK	74.0	-11.2	3.02 V	290	60.3	2.5
4	2483.50	50.5 AV	54.0	-3.5	3.02 V	290	48.0	2.5
5	4904.00	53.2 PK	74.0	-20.8	2.64 V	251	40.5	12.7
6	4904.00	46.5 AV	54.0	-7.5	2.64 V	251	33.8	12.7

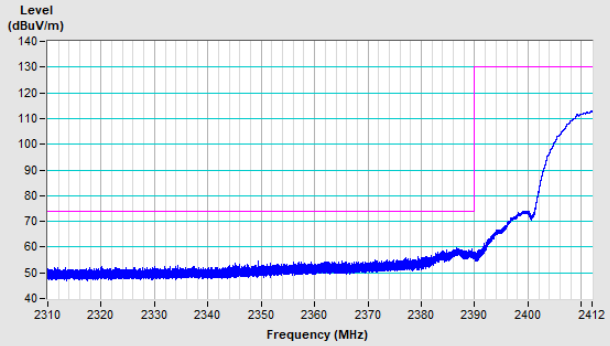
Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.

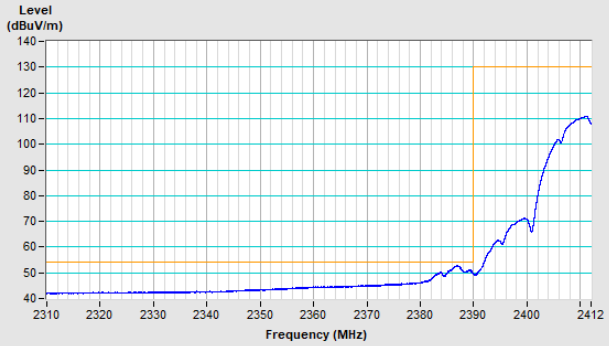
Mode A_Plot of Band Edge

802.11b Channel 1

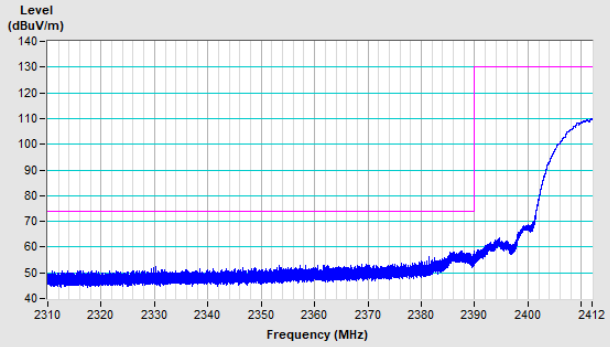
Horizontal (Peak)



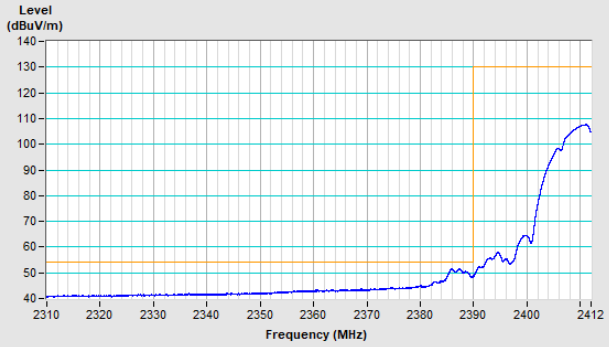
Horizontal (Average)



Vertical (Peak)

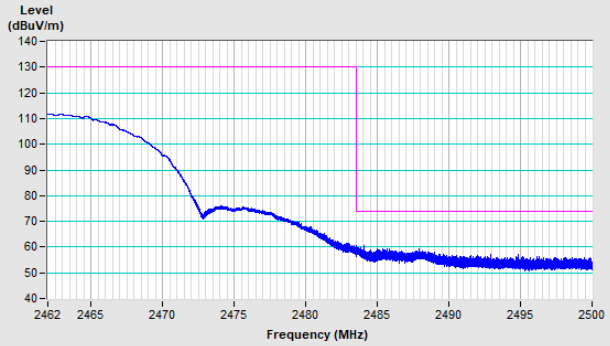


Vertical (Average)

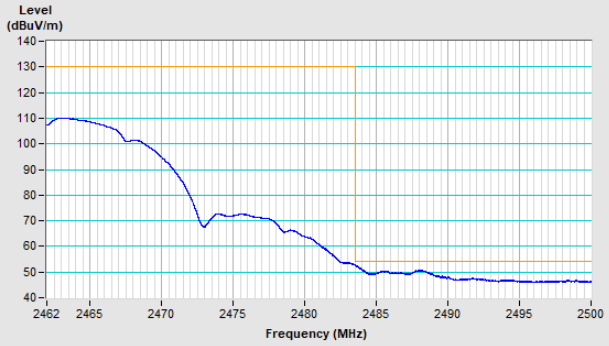


802.11b Channel 11

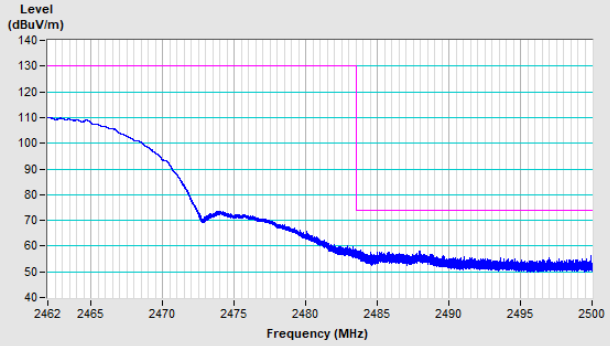
Horizontal (Peak)



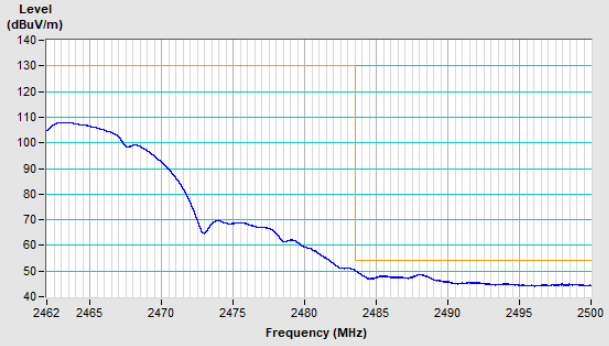
Horizontal (Average)



Vertical (Peak)

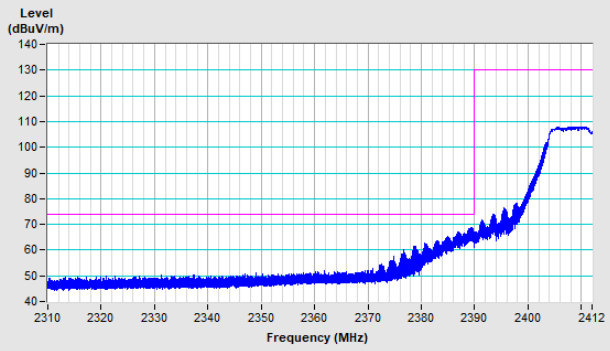


Vertical (Average)

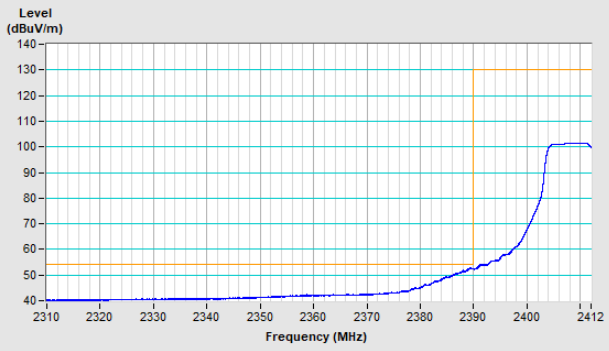


802.11g Channel 1

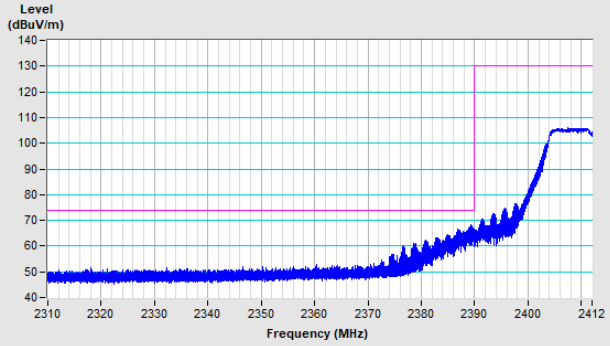
Horizontal (Peak)



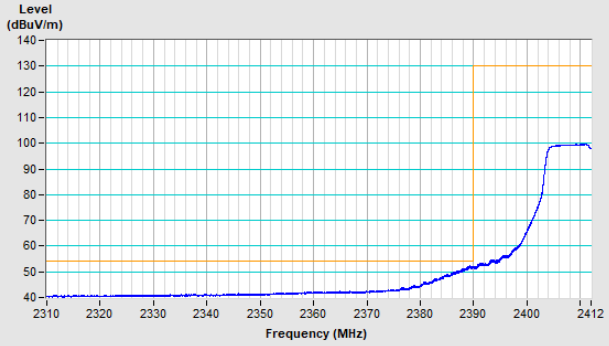
Horizontal (Average)



Vertical (Peak)

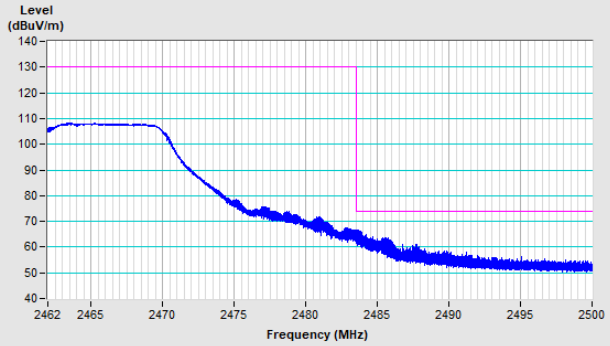


Vertical (Average)

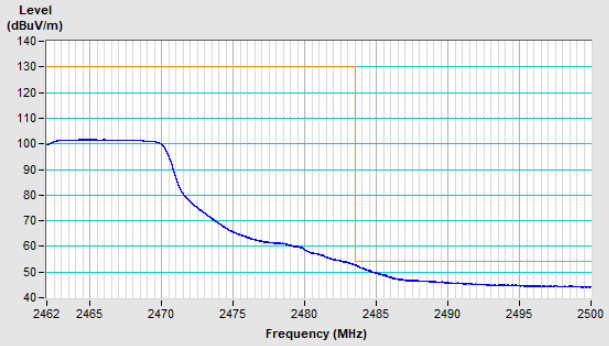


802.11g Channel 11

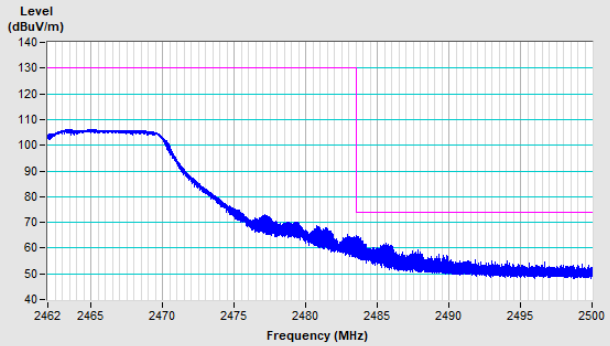
Horizontal (Peak)



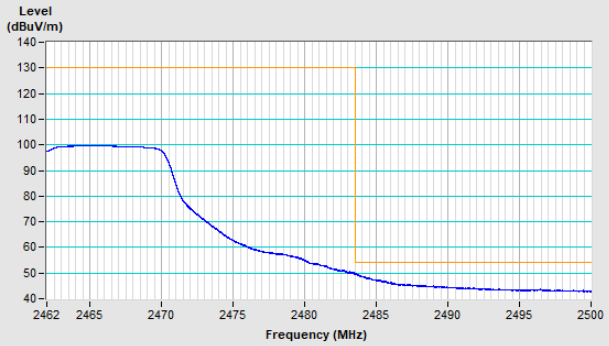
Horizontal (Average)



Vertical (Peak)

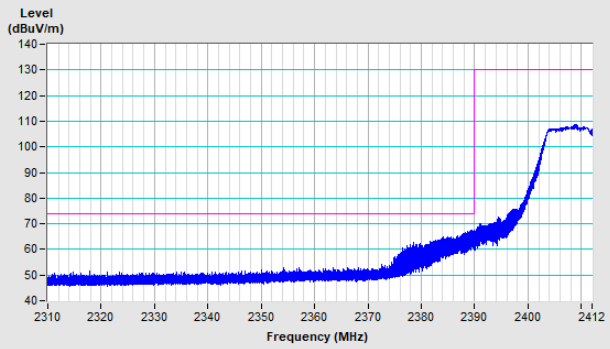


Vertical (Average)

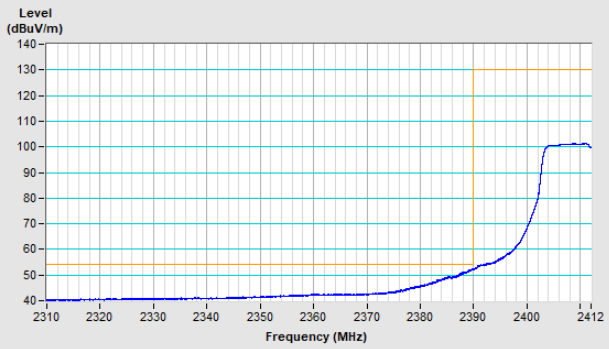


802.11n (HT20) Channel 1

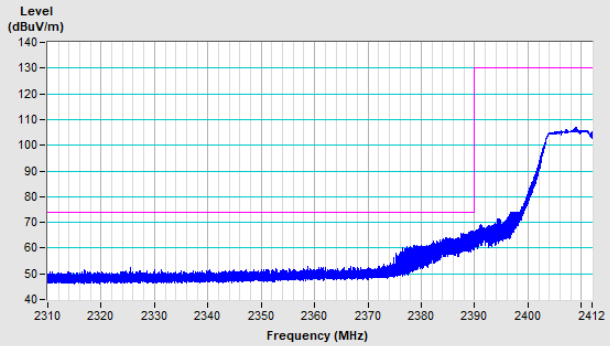
Horizontal (Peak)



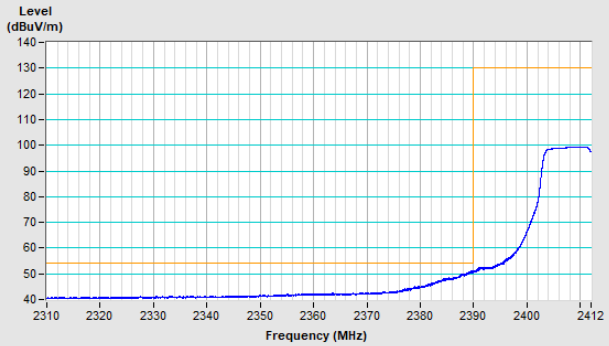
Horizontal (Average)



Vertical (Peak)

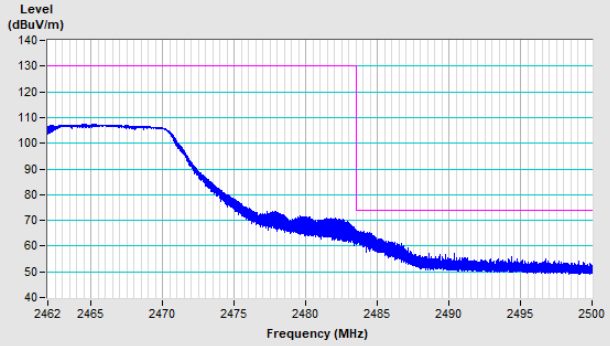


Vertical (Average)

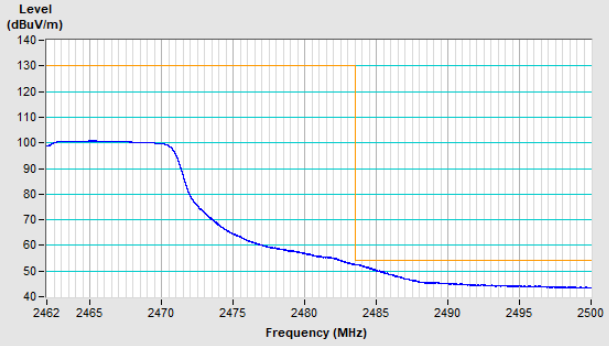


802.11n (HT20) Channel 11

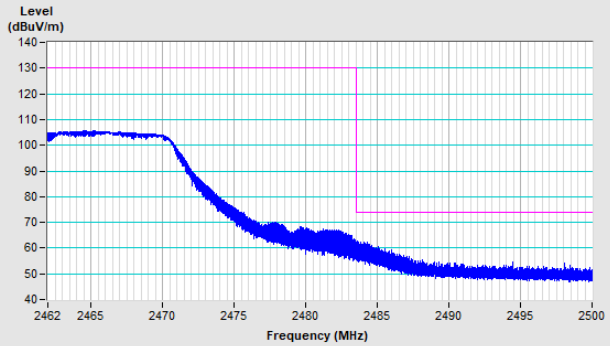
Horizontal (Peak)



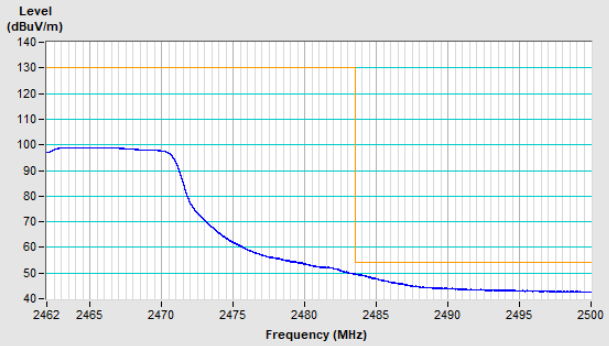
Horizontal (Average)



Vertical (Peak)

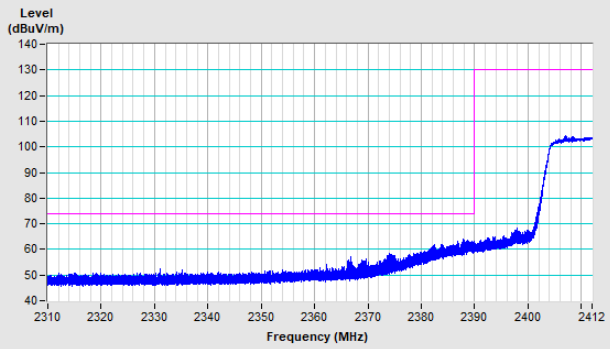


Vertical (Average)

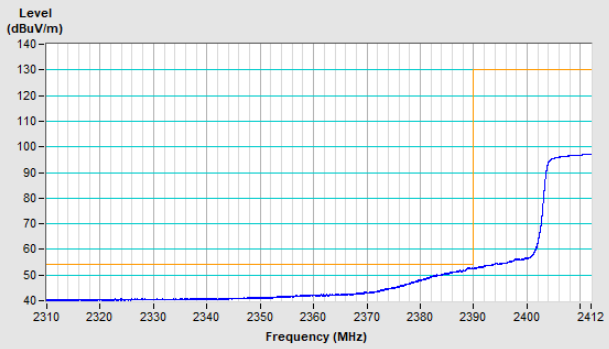


802.11n (HT40) Channel 3

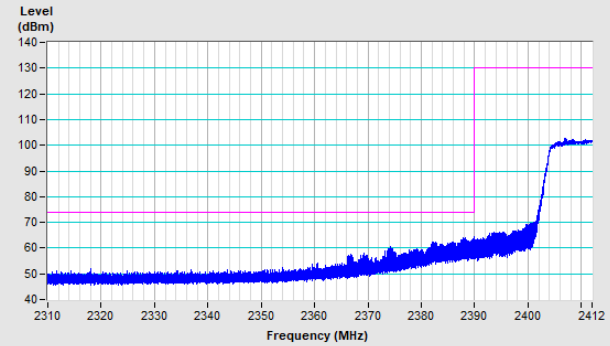
Horizontal (Peak)



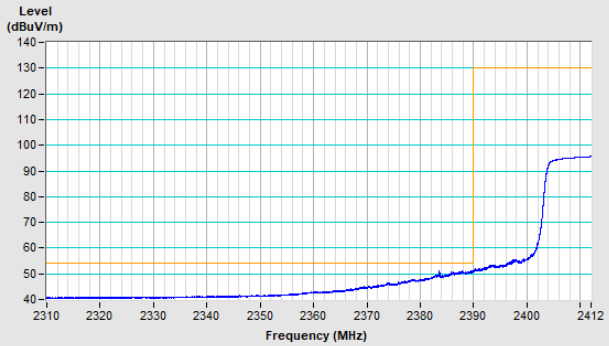
Horizontal (Average)



Vertical (Peak)

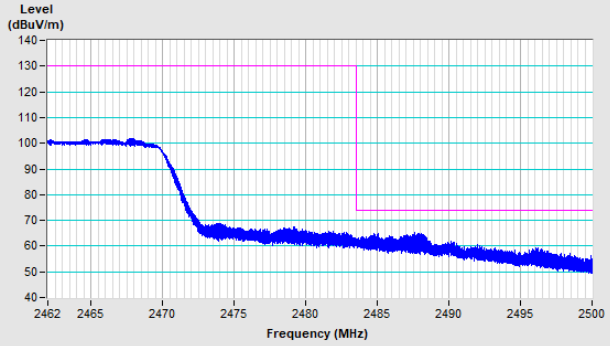


Vertical (Average)

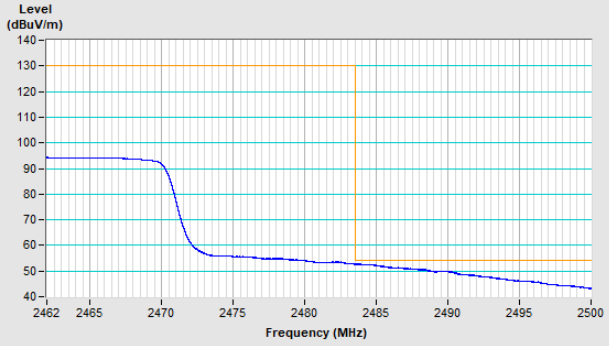


802.11n (HT40) Channel 9

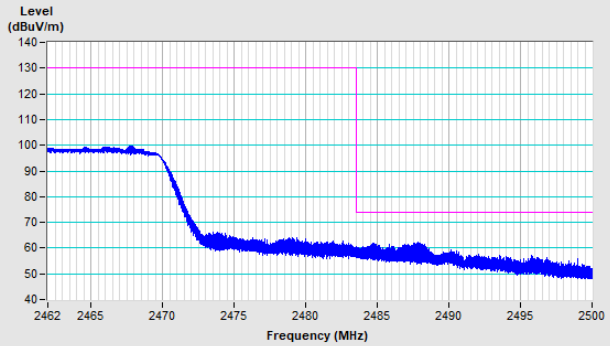
Horizontal (Peak)



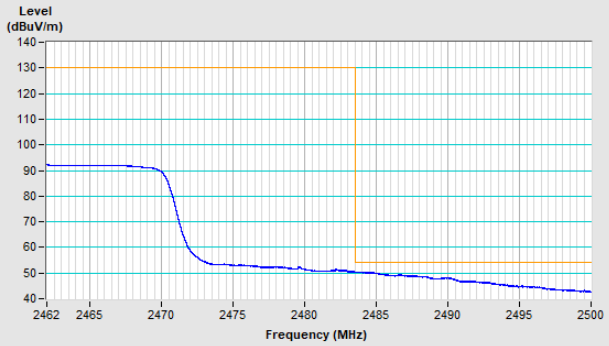
Horizontal (Average)



Vertical (Peak)



Vertical (Average)



8 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo)

9 Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

Lin Kou EMC/RF Lab
Tel: 886-2-26052180
Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab
Tel: 886-3-6668565
Fax: 886-3-6668323

Hwa Ya EMC/RF/Safety Lab
Tel: 886-3-3183232
Fax: 886-3-3270892

Email: service.adt@bureauveritas.com
Web Site: http://ee.bureauveritas.com.tw

The address and road map of all our labs can be found in our web site also.

--- END ---