

## FCC Test Report (WLAN)

**Report No.:** RF130223E01H

**FCC ID:** PPD-QCNFA222

**Test Model:** QCNFA222

**Received Date:** July 23, 2015

**Test Date:** July 29 to Aug. 03, 2015

**Issued Date:** Aug. 06, 2015

**Applicant:** Qualcomm Atheros, Inc.

**Address:** 1700 Technology Drive, San Jose, CA 95110

**Issued By:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch  
Hsin Chu Laboratory

**Lab Address:** No. 81-1, Lu Liao Keng, 9th Ling, Wu Lung Tsuen, Chiung Lin Hsiang, Hsin  
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R.O.C.



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A D T

### Release Control Record

Issue No.	Description	Date Issued
RF130223E01H	Original release.	Aug. 06, 2015



A D T

## 1 Certificate of Conformity

**Product:** PCIE 802.11a/b/g/n 2.4GHz/5GHz + USB BT 4.0 card

**Brand:** Qualcomm Atheros

**Test Model:** QCNFA222

**Sample Status:** ENGINEERING SAMPLE

**Applicant:** Qualcomm Atheros, Inc.

**Test Date:** July 29 to Aug. 03, 2015

**Standards:** 47 CFR FCC Part 15, Subpart C (Section 15.247)  
ANSI C63.10: 2013

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 EMC characteristics under the conditions specified in this report.

**Prepared by :** Midoli Peng, **Date:** Aug. 06, 2015  
Midoli Peng / Specialist

**Approved by :** May Chen, **Date:** Aug. 06, 2015  
May Chen / Manager

## 2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (SECTION 15.247)			
FCC Clause	Test Item	Result	Remarks
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -0.2dB at 2483.50MHz.
15.247(b)	Conducted power	PASS	Meet the requirement of limit.

**NOTE:** 1. This report is prepared for FCC Class II change. Only Radiated Emissions and Band Edge and Conducted power Measurement need to be performed.

### 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	Frequency	Expended Uncertainty (k=2) (±)
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	5.43 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	3.72 dB
	6GHz ~ 18GHz	4.00 dB
	18GHz ~ 40GHz	4.11 dB

### 2.2 Modification Record

There were no modifications required for compliance.

### 3 General Information

#### 3.1 General Description of EUT (WLAN)

Product	PCIE 802.11a/b/g/n 2.4GHz/5GHz + USB BT 4.0 card
Brand	Qualcomm Atheros
Test Model	QCNFA222
Status of EUT	ENGINEERING SAMPLE
Power Supply Rating	3.3Vdc from host equipment
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM VHT (20/40) mode in 2.4GHz
Modulation Technology	DSSS, OFDM
Transfer Rate	802.11b: up to 11Mbps 802.11g: up to 54Mbps 802.11n : up to 300Mbps
Operating Frequency	2.412 ~ 2.462GHz
Number of Channel	11 for 802.11b/g, 802.11n (HT20), VHT20 7 for 802.11n (HT40), VHT40
Output Power	802.11b: 162.84mW 802.11g: 391.795mW 802.11n (HT20): 323.261mW 802.11n (HT40): 153.255mW
Antenna Type	See item 3.2
Antenna Connector	See item 3.2
Accessory Device	NA
Data Cable Supplied	NA

Note:

- This report is prepared for FCC Class II change. The difference compared with the Report No.: RF130223E01 R1 design is as the following:
  - ◆ Create Single band SKU (FVIN AW-NB234NF) by disable 5GHz function with software. There is no Hardware change or depopulation of components in new Single band from original certified design.
  - ◆ Reactive 5GHz band to this Single band SKU is not accessible by end user once disable of 5GHz is programmed in modular factory. Software loading is a One Time Programmable(OTP) action that is performed in the factory
  - ◆ List antenna model: WA-F-LBLB-04-028 (same type and lower gain to original typical antenna) to this Single band SKU.
  - ◆ Add modular SAR in 5mm antenna to body distance to this Single band SKU.
- According to above conditions, Only Radiated Emissions and Band Edge and Conducted power Measurement need to be performed. And all data was verified to meet the requirements.
- There are Bluetooth technology and WLAN technology used for the EUT.

4. The EUT incorporates a 2T2R function.

MODULATION MODE	DATA RATE (MCS)	TX & RX CONFIGURATION	
802.11b	1 ~ 11Mbps	1TX(Diversity) / 2TX	1RX(Diversity) / 2RX
802.11g	6 ~ 54Mbps	1TX(Diversity) / 2TX	1RX(Diversity) / 2RX
802.11n (HT20)	MCS 0~7	1TX(Diversity) / 2TX	1RX(Diversity) / 2RX
	MCS 8~15	1TX(Diversity) / 2TX	1RX(Diversity) / 2RX
802.11n (HT40)	MCS 0~7	1TX(Diversity) / 2TX	1RX(Diversity) / 2RX
	MCS 8~15	1TX(Diversity) / 2TX	1RX(Diversity) / 2RX
VHT20	MCS 0~8, Nss=1	1TX(Diversity) / 2TX	1RX(Diversity) / 2RX
	MCS 0~8, Nss=2	1TX(Diversity) / 2TX	1RX(Diversity) / 2RX
VHT40	MCS 0~9, Nss=1	1TX(Diversity) / 2TX	1RX(Diversity) / 2RX
	MCS 0~9, Nss=2	1TX(Diversity) / 2TX	1RX(Diversity) / 2RX

Note: The modulation and bandwidth are similar for 802.11n mode for 20MHz (40MHz) and 802.11ac mode for 20MHz (40MHz), therefore investigated worst case to representative mode in test report. (Final test mode refer section 3.3.1)

5. The EUT was pre-tested under the following modes:

Test Mode	Data rate
Mode A	400ns GI
<b>Mode B</b>	<b>800ns GI</b>

From the above modes, the worst case was found in **Mode B**. Therefore only the test data of the mode was recorded in this report.

6. This device support the power back off for WLAN/BT coexist mode. The WiFi output power will reduce to 10.5dBm from Maximum power in 802.11n HT20 (2TX) mode of 2.4GHz when WLAN and BT simultaneously transmission.

7. The emission (radiated emission) of the simultaneous operation (WiFi & Bluetooth) has been evaluated and no non-compliance found. The detail combinations of transmitters / frequencies / modes as below table

Mode	Available Channel	Tested Channel	Modulation Technology
802.11g	1 to 11	6	OFDM
+ Bluetooth (8DPSK)	0 to 78	78	FHSS

8. The above EUT information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

### 3.2 Description of Antenna

The antenna gain was declared by client; please refer to the following table:

Ant. No.	Transmitter Circuit	Brand	Model	Ant. Type	2.4GHz Gain with cable loss (dBi)	2.4GHz Cable Loss (dB)	Connector Type	Cable Length (mm)
1	Main	INPAQ	WA-F-LBLB-04-028	PIFA	2.38	-0.47	IPEX MHF	143
	Aux	INPAQ	WA-F-LBLB-04-028	PIFA	2.30	-0.47	IPEX MHF	143

Note: 1. Above antenna gains of antenna are Total (H+V).



### 3.3 Description of Test Modes

11 channels are provided for 802.11b, 802.11g and 802.11n (HT20), VHT20:

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

7 channels are provided for 802.11n (HT40), VHT40:

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

### 3.3.1 Test Mode Applicability and Tested Channel Detail

EUT CONFIGURE MODE	APPLICABLE TO			DESCRIPTION
	UE≥1G	UE<1G	APCM	
-	√	√	√	-

Where **UE ≥ 1G**: Unwanted Emission above 1GHz **UE < 1G**: Unwanted Emission below 1GHz

**APCM**: Antenna Port Conducted Measurement

**NOTE**: The EUT's antenna had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on Z-plane.

#### Unwabted Emission Test (Above 1GHz):

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	1
802.11g	1 to 11	1, 6, 11	OFDM	6
802.11n (HT20)	1 to 11	1, 6, 11	OFDM	6.5
802.11n (HT40)	3 to 9	3, 6, 9	OFDM	13.5

#### Unwabted Emission Test (Below 1GHz):

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	DATA RATE (Mbps)
802.11g	1 to 11	6	OFDM	6

**Antenna Port Conducted Measurement:**

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	1
802.11g	1 to 11	1, 6, 11	OFDM	6
802.11n (HT20)	1 to 11	1, 6, 11	OFDM	6.5
802.11n (HT40)	3 to 9	3, 6, 9	OFDM	13.5

**Test Condition:**

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (SYSTEM)	TESTED BY
<b>UE<math>\geq</math>1G</b>	24deg. C, 67%RH	120Vac, 60Hz	Robert Cheng
<b>UE<math>&lt;</math>1G</b>	24deg. C, 66%RH	120Vac, 60Hz	Robert Cheng
<b>APCM</b>	25deg. C, 60%RH	120Vac, 60Hz	Anderson Chen

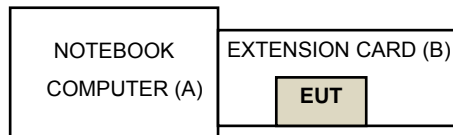
### 3.4 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

No.	Product	Brand	Model No.	Serial No.	FCC ID	Remark
A	NOTEBOOK COMPUTER	DELL	E6420	H62T3R1	FCC DoC	Provided by Lab
B	EXTENSION CARD	Qualcomm Atheros	NA	NA	NA	Supplied by Client

**NOTE:** All power cords of the above support units are non-shielded (1.8 m).

#### 3.4.1 Configuration of System under Test



### 3.5 General Description of Applied Standards

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

**FCC Part 15, Subpart C (15.247)**  
**558074 D01 DTS Meas Guidance v03r02**  
ANSI C63.10- 2013

All test items have been performed and recorded as per the above standards.

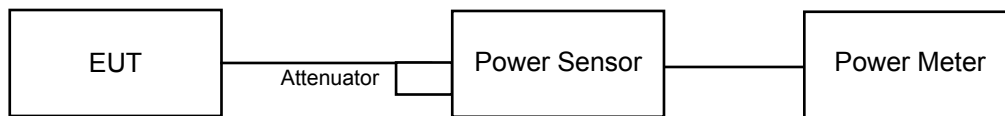
## 4 Test Types and Results

### 4.1 Conducted Output Power Measurement

#### 4.1.1 Limits of Conducted Output Power Measurement

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

#### 4.1.2 Test Setup



#### 4.1.3 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Power Meter Anritsu	ML2495A	1014008	Apr. 28, 2015	Apr. 27, 2016
Power Sensor Anritsu	MA2411B	0917122	Apr. 28, 2015	Apr. 27, 2016

**Note:**

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : Aug. 03, 2015

#### 4.1.4 Test Procedures

A peak / average power sensor was used on the output port of the EUT. A power meter was used to read the response of the peak / average power sensor. Record the power level.

#### 4.1.5 Deviation from Test Standard

No deviation.

#### 4.1.6 EUT Operating Conditions

The software (artgui.exe V2.3) provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

#### 4.1.7 Test Results

### FOR PEAK POWER

#### 802.11b

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass/Fail
1	2412	162.84	22.12	30	Pass
6	2437	129.095	21.11	30	Pass
11	2462	105.854	20.25	30	Pass

#### 802.11g

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass/Fail
1	2412	208.979	23.20	30	Pass
6	2437	391.795	25.93	30	Pass
11	2462	181.588	22.59	30	Pass

#### 802.11n (HT20)

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass/Fail
1	2412	176.15	22.46	30	Pass
6	2437	323.261	25.10	30	Pass
11	2462	145.74	21.64	30	Pass

#### 802.11n (HT40)

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass/Fail
3	2422	153.255	21.85	30	Pass
6	2437	151.36	21.80	30	Pass
9	2452	103.169	20.14	30	Pass

**FOR AVERAGE POWER**
**802.11b**

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)
1	2412	88.861	19.49
6	2437	80.891	19.08
11	2462	64.830	18.12

**802.11g**

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)
1	2412	32.473	15.12
6	2437	79.553	19.01
11	2462	26.548	14.24

**802.11n (HT20)**

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)
1	2412	27.418	14.38
6	2437	64.506	18.10
11	2462	20.537	13.13

**802.11n (HT40)**

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)
3	2422	24.074	13.82
6	2437	30.666	14.87
9	2452	16.034	12.05



## 4.2 Unwanted Emission Measurement

### 4.2.1 Limits of Unwanted Emission Measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20dB 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

**NOTE:**

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 1000MHz, 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 20dB under any condition of modulation.

#### 4.2.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Agilent	N9038A	MY50010156	Aug. 11, 2014	Aug. 10, 2015
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-04	Nov. 12, 2014	Nov. 11, 2015
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-361	Feb. 09, 2015	Feb. 08, 2016
RF Cable	8D-FB	CHHCAB-001-1 CHHCAB-001-2	Oct. 05, 2014	Oct. 04, 2015
	RF-141	CHHCAB-004	Oct. 05, 2014	Oct. 04, 2015
Horn_Antenna AISI	AIH.8018	0000220091110	Feb. 06, 2015	Feb. 05, 2016
Pre-Amplifier Agilent	8449B	3008A01923	Oct. 28, 2014	Oct. 27, 2015
RF Cable	NA	131206 131213 131215 SNMY23685/4	Jan. 16, 2015	Jan. 15, 2016
Spectrum Analyzer R&S	FSV40	100964	Jun. 26, 2015	Jun. 25, 2016
Pre-Amplifier SPACEK LABS	SLKka-48-6	9K16	Dec. 12, 2014	Dec. 11, 2015
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Feb. 05, 2015	Feb. 04, 2016
RF Cable	NA	329751/4 RF104-204	Dec. 11, 2014	Dec. 10, 2015
Software	ADT_Radiated _V8.7.07	NA	NA	NA
Antenna Tower & Turn Table CT	NA	NA	NA	NA

**Note:**

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in 966 Chamber No. H.
3. The FCC Site Registration No. is 797305.
4. The CANADA Site Registration No. is IC 7450H-3.
5. Tested Date: July 29 to 30, 2015

#### 4.2.3 Test Procedures

- a. The EUT was placed on the top of a rotating table 0.8 meters (for below 1GHz) / 1.5 meters (for above 1GHz) 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.
- f. The test-receiver system was set to peak and average detect 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.

**Note:**

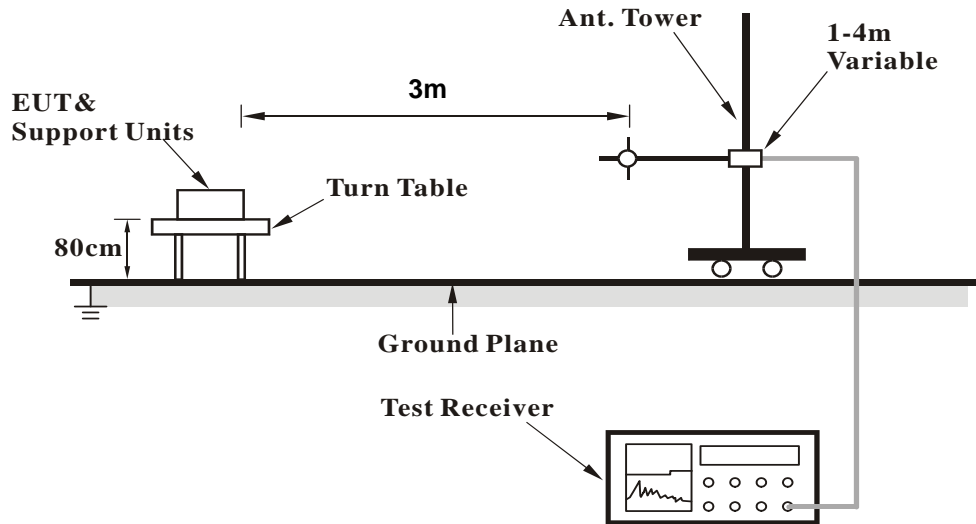
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for RMS Average (Duty cycle < 98%) for Average detection (AV) at frequency above 1GHz, then the measurement results was added to a correction factor ( $10 \log(1/\text{duty cycle})$ ).
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz (Duty cycle  $\geq$  98%) for Average detection (AV) at frequency above 1GHz.
5. All modes of operation were investigated and the worst-case emissions are reported.

#### 4.2.4 Deviation from Test Standard

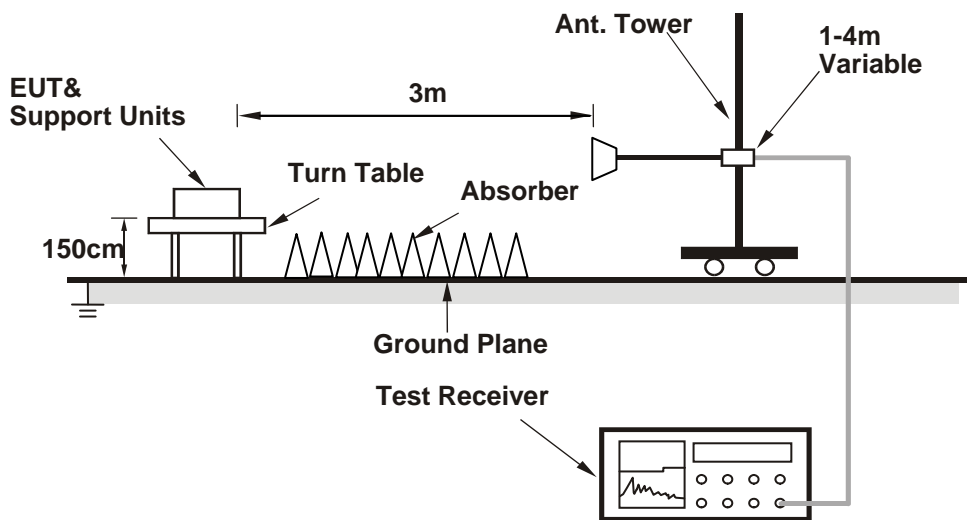
No deviation.

#### 4.2.5 Test Setup

##### <Frequency Range below 1GHz>



##### <Frequency Range above 1GHz>



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

#### 4.2.6 EUT Operating Conditions

1. Connect the EUT with the support unit A (Notebook Computer) which is placed on a testing table.
2. The communication partner run test program "artgui.exe V2.3" to enable EUT under transmission/receiving condition continuously at specific channel frequency.

4.2.7 Test Results

Above 1GHz Data

802.11b

<b>CHANNEL</b>	TX Channel 1	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	1GHz ~ 25GHz		Average (AV)

**ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M**

NO.	FREQ. (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	54.2 PK	74.0	-19.8	1.30 H	231	57.39	-3.19
2	2390.00	48.7 AV	54.0	-5.3	1.30 H	231	51.89	-3.19
3	*2412.00	104.2 PK			1.30 H	231	107.33	-3.13
4	*2412.00	101.7 AV			1.30 H	231	104.83	-3.13
5	4824.00	48.2 PK	74.0	-25.8	1.44 H	9	42.23	5.97
6	4824.00	40.0 AV	54.0	-14.0	1.44 H	9	34.03	5.97

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

NO.	FREQ. (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	53.1 PK	74.0	-20.9	1.12 V	101	56.29	-3.19
2	2390.00	47.9 AV	54.0	-6.1	1.12 V	101	51.09	-3.19
3	*2412.00	101.2 PK			1.12 V	101	104.33	-3.13
4	*2412.00	98.9 AV			1.12 V	101	102.03	-3.13
5	4824.00	48.0 PK	74.0	-26.0	1.05 V	111	42.03	5.97
6	4824.00	38.9 AV	54.0	-15.1	1.05 V	111	32.93	5.97

**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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " \* ": Fundamental frequency.

<b>CHANNEL</b>	TX Channel 6	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	1GHz ~ 25GHz		Average (AV)

**ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M**

NO.	FREQ. (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	104.6 PK			1.27 H	232	107.64	-3.04
2	*2437.00	102.1 AV			1.27 H	232	105.14	-3.04
3	4874.00	47.9 PK	74.0	-26.1	1.46 H	20	41.85	6.05
4	4874.00	39.9 AV	54.0	-14.1	1.46 H	20	33.85	6.05
5	7311.00	51.9 PK	74.0	-22.1	1.00 H	321	40.96	10.94
6	7311.00	38.6 AV	54.0	-15.4	1.00 H	321	27.66	10.94

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

NO.	FREQ. (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	101.8 PK			1.09 V	97	104.84	-3.04
2	*2437.00	99.8 AV			1.09 V	97	102.84	-3.04
3	4874.00	47.5 PK	74.0	-26.5	1.00 V	102	41.45	6.05
4	4874.00	38.3 AV	54.0	-15.7	1.00 V	102	32.25	6.05
5	7311.00	53.7 PK	74.0	-20.3	1.15 V	80	42.76	10.94
6	7311.00	39.1 AV	54.0	-14.9	1.15 V	80	28.16	10.94

**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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " \* ": Fundamental frequency.

<b>CHANNEL</b>	TX Channel 11	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	1GHz ~ 25GHz		Average (AV)

**ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M**

NO.	FREQ. (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	105.2 PK			1.06 H	231	108.14	-2.94
2	*2462.00	102.6 AV			1.06 H	231	105.54	-2.94
3	2487.00	58.0 PK	74.0	-16.0	1.06 H	231	60.85	-2.85
4	2487.00	52.8 AV	54.0	-1.2	1.06 H	231	55.65	-2.85
5	4924.00	47.9 PK	74.0	-26.1	1.42 H	12	41.83	6.07
6	4924.00	39.7 AV	54.0	-14.3	1.42 H	12	33.63	6.07
7	7386.00	52.2 PK	74.0	-21.8	1.06 H	64	40.78	11.42
8	7386.00	38.9 AV	54.0	-15.1	1.06 H	64	27.48	11.42

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

NO.	FREQ. (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	102.1 PK			1.00 V	38	105.04	-2.94
2	*2462.00	99.2 AV			1.00 V	38	102.14	-2.94
3	2487.00	55.6 PK	74.0	-18.4	1.00 V	38	58.45	-2.85
4	2487.00	50.2 AV	54.0	-3.8	1.00 V	38	53.05	-2.85
5	4924.00	47.6 PK	74.0	-26.4	1.00 V	98	41.53	6.07
6	4924.00	38.6 AV	54.0	-15.4	1.00 V	98	32.53	6.07
7	7386.00	53.1 PK	74.0	-20.9	1.12 V	68	41.68	11.42
8	7386.00	38.7 AV	54.0	-15.3	1.12 V	68	27.28	11.42

**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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " \* ": Fundamental frequency.

**802.11g**

<b>CHANNEL</b>	TX Channel 1	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	1GHz ~ 25GHz		Average (AV)

<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>								
<b>NO.</b>	<b>FREQ. (MHz)</b>	<b>EMISSION LEVEL (dBuV/m)</b>	<b>LIMIT (dBuV/m)</b>	<b>MARGIN (dB)</b>	<b>ANTENNA HEIGHT (m)</b>	<b>TABLE ANGLE (Degree)</b>	<b>RAW VALUE (dBuV)</b>	<b>CORRECTION FACTOR (dB/m)</b>
1	2390.00	67.3 PK	74.0	-6.7	1.23 H	121	70.49	-3.19
2	2390.00	45.5 AV	54.0	-8.5	1.23 H	121	48.69	-3.19
3	*2412.00	104.3 PK			1.54 H	219	107.43	-3.13
4	*2412.00	94.5 AV			1.54 H	219	97.63	-3.13
5	4824.00	47.3 PK	74.0	-26.7	1.04 H	202	41.33	5.97
6	4824.00	34.2 AV	54.0	-19.8	1.04 H	202	28.23	5.97

<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>								
<b>NO.</b>	<b>FREQ. (MHz)</b>	<b>EMISSION LEVEL (dBuV/m)</b>	<b>LIMIT (dBuV/m)</b>	<b>MARGIN (dB)</b>	<b>ANTENNA HEIGHT (m)</b>	<b>TABLE ANGLE (Degree)</b>	<b>RAW VALUE (dBuV)</b>	<b>CORRECTION FACTOR (dB/m)</b>
1	2390.00	62.1 PK	74.0	-11.9	1.13 V	94	65.29	-3.19
2	2390.00	42.7 AV	54.0	-11.3	1.13 V	94	45.89	-3.19
3	*2412.00	103.0 PK			1.22 V	35	106.13	-3.13
4	*2412.00	92.8 AV			1.22 V	35	95.93	-3.13
5	4824.00	47.3 PK	74.0	-26.7	1.23 V	86	41.33	5.97
6	4824.00	33.9 AV	54.0	-20.1	1.23 V	86	27.93	5.97

**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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " \* ": Fundamental frequency.



<b>CHANNEL</b>	TX Channel 6	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	1GHz ~ 25GHz		Average (AV)

**ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M**

NO.	FREQ. (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	108.1 PK			1.32 H	229	111.14	-3.04
2	*2437.00	98.2 AV			1.32 H	229	101.24	-3.04
3	4874.00	47.1 PK	74.0	-26.9	1.00 H	218	41.05	6.05
4	4874.00	34.3 AV	54.0	-19.7	1.00 H	218	28.25	6.05
5	7311.00	51.6 PK	74.0	-22.4	1.25 H	102	40.66	10.94
6	7311.00	37.8 AV	54.0	-16.2	1.25 H	102	26.86	10.94

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

NO.	FREQ. (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	107.1 PK			1.18 V	109	110.14	-3.04
2	*2437.00	96.5 AV			1.18 V	109	99.54	-3.04
3	4874.00	47.3 PK	74.0	-26.7	1.16 V	101	41.25	6.05
4	4874.00	34.1 AV	54.0	-19.9	1.16 V	101	28.05	6.05
5	7311.00	52.1 PK	74.0	-21.9	1.69 V	316	41.16	10.94
6	7311.00	38.1 AV	54.0	-15.9	1.69 V	316	27.16	10.94

**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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " \* ": Fundamental frequency.

<b>CHANNEL</b>	TX Channel 11	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	1GHz ~ 25GHz		Average (AV)

**ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M**

NO.	FREQ. (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	102.8 PK			1.30 H	136	105.74	-2.94
2	*2462.00	92.7 AV			1.30 H	136	95.64	-2.94
3	2483.50	71.6 PK	74.0	-2.4	1.45 H	151	74.47	-2.87
4	2483.50	51.1 AV	54.0	-2.9	1.45 H	151	53.97	-2.87
5	4924.00	47.2 PK	74.0	-26.8	1.04 H	211	41.13	6.07
6	4924.00	34.2 AV	54.0	-19.8	1.04 H	211	28.13	6.07
7	7386.00	52.4 PK	74.0	-21.6	1.25 H	90	40.98	11.42
8	7386.00	38.7 AV	54.0	-15.3	1.25 H	90	27.28	11.42

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

NO.	FREQ. (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	103.1 PK			1.07 V	126	106.04	-2.94
2	*2462.00	92.2 AV			1.07 V	126	95.14	-2.94
3	2483.50	69.1 PK	74.0	-4.9	1.00 V	123	71.97	-2.87
4	2483.50	49.3 AV	54.0	-4.7	1.00 V	123	52.17	-2.87
5	4924.00	46.6 PK	74.0	-27.4	1.24 V	103	40.53	6.07
6	4924.00	33.5 AV	54.0	-20.5	1.24 V	103	27.43	6.07
7	7386.00	51.5 PK	74.0	-22.5	1.65 V	316	40.08	11.42
8	7386.00	37.5 AV	54.0	-16.5	1.65 V	316	26.08	11.42

**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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " \* ": Fundamental frequency.

802.11n (HT20)

<b>CHANNEL</b>	TX Channel 1	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	73.1 PK	74.0	-0.9	1.21 H	120	76.29	-3.19
2	2390.00	49.0 AV	54.0	-5.0	1.21 H	120	52.19	-3.19
3	*2412.00	103.5 PK			1.21 H	138	106.63	-3.13
4	*2412.00	92.1 AV			1.21 H	138	95.23	-3.13
5	4824.00	46.6 PK	74.0	-27.4	1.00 H	221	40.63	5.97
6	4824.00	33.3 AV	54.0	-20.7	1.00 H	221	27.33	5.97

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	65.2 PK	74.0	-8.8	1.13 V	107	68.39	-3.19
2	2390.00	45.2 AV	54.0	-8.8	1.13 V	107	48.39	-3.19
3	*2412.00	101.7 PK			1.09 V	110	104.83	-3.13
4	*2412.00	90.6 AV			1.09 V	110	93.73	-3.13
5	4824.00	46.8 PK	74.0	-27.2	1.22 V	86	40.83	5.97
6	4824.00	33.9 AV	54.0	-20.1	1.22 V	86	27.93	5.97

**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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " \* ": Fundamental frequency.

<b>CHANNEL</b>	TX Channel 6	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	1GHz ~ 25GHz		Average (AV)

**ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M**

NO.	FREQ. (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	107.2 PK			1.34 H	217	110.24	-3.04
2	*2437.00	95.7 AV			1.34 H	217	98.74	-3.04
3	4874.00	46.9 PK	74.0	-27.1	1.02 H	207	40.85	6.05
4	4874.00	33.9 AV	54.0	-20.1	1.02 H	207	27.85	6.05
5	7311.00	52.1 PK	74.0	-21.9	1.22 H	103	41.16	10.94
6	7311.00	38.3 AV	54.0	-15.7	1.22 H	103	27.36	10.94

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

NO.	FREQ. (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	105.8 PK			1.13 V	113	108.84	-3.04
2	*2437.00	94.1 AV			1.13 V	113	97.14	-3.04
3	4874.00	46.9 PK	74.0	-27.1	1.27 V	101	40.85	6.05
4	4874.00	33.8 AV	54.0	-20.2	1.27 V	101	27.75	6.05
5	7311.00	51.7 PK	74.0	-22.3	1.59 V	294	40.76	10.94
6	7311.00	37.6 AV	54.0	-16.4	1.59 V	294	26.66	10.94

**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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " \* ": Fundamental frequency.

<b>CHANNEL</b>	TX Channel 11	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	1GHz ~ 25GHz		Average (AV)

**ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M**

NO.	FREQ. (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	102.7 PK			1.31 H	147	105.64	-2.94
2	*2462.00	92.5 AV			1.31 H	147	95.44	-2.94
3	2483.50	71.8 PK	74.0	-2.2	1.06 H	147	74.67	-2.87
4	2483.50	50.4 AV	54.0	-3.6	1.06 H	147	53.27	-2.87
5	4924.00	47.3 PK	74.0	-26.7	1.05 H	210	41.23	6.07
6	4924.00	34.1 AV	54.0	-19.9	1.05 H	210	28.03	6.07
7	7386.00	51.8 PK	74.0	-22.2	1.21 H	99	40.38	11.42
8	7386.00	38.3 AV	54.0	-15.7	1.21 H	99	26.88	11.42

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

NO.	FREQ. (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	101.9 PK			1.16 V	114	104.84	-2.94
2	*2462.00	91.8 AV			1.16 V	114	94.74	-2.94
3	2483.50	69.5 PK	74.0	-4.5	1.08 V	93	72.37	-2.87
4	2483.50	49.4 AV	54.0	-4.6	1.08 V	93	52.27	-2.87
5	4924.00	47.5 PK	74.0	-26.5	1.19 V	93	41.43	6.07
6	4924.00	34.1 AV	54.0	-19.9	1.19 V	93	28.03	6.07
7	7386.00	52.0 PK	74.0	-22.0	1.67 V	300	40.58	11.42
8	7386.00	38.1 AV	54.0	-15.9	1.67 V	300	26.68	11.42

**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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " \* ": Fundamental frequency.

**802.11n (HT40)**

<b>CHANNEL</b>	TX Channel 3	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	1GHz ~ 25GHz		Average (AV)

<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>								
NO.	FREQ. (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	67.2 PK	74.0	-6.8	1.40 H	120	70.39	-3.19
2	2390.00	47.6 AV	54.0	-6.4	1.40 H	120	50.79	-3.19
3	*2422.00	98.4 PK			1.16 H	123	101.49	-3.09
4	*2422.00	87.3 AV			1.16 H	123	90.39	-3.09
5	4844.00	46.5 PK	74.0	-27.5	1.00 H	215	40.51	5.99
6	4844.00	33.3 AV	54.0	-20.7	1.00 H	215	27.31	5.99
7	7266.00	51.7 PK	74.0	-22.3	1.24 H	91	40.81	10.89
8	7266.00	38.0 AV	54.0	-16.0	1.24 H	91	27.11	10.89

<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>								
NO.	FREQ. (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	62.2 PK	74.0	-11.8	1.11 V	100	65.39	-3.19
2	2390.00	42.5 AV	54.0	-11.5	1.11 V	100	45.69	-3.19
3	*2422.00	96.9 PK			1.09 V	99	99.99	-3.09
4	*2422.00	85.8 AV			1.09 V	99	88.89	-3.09
5	4844.00	46.1 PK	74.0	-27.9	1.27 V	108	40.11	5.99
6	4844.00	33.2 AV	54.0	-20.8	1.27 V	108	27.21	5.99
7	7266.00	52.1 PK	74.0	-21.9	1.63 V	303	41.21	10.89
8	7266.00	38.1 AV	54.0	-15.9	1.63 V	303	27.21	10.89

**REMARKS:**

- Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
- Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
- The other emission levels were very low against the limit.
- Margin value = Emission Level – Limit value
- " \* ": Fundamental frequency.

<b>CHANNEL</b>	TX Channel 6	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	1GHz ~ 25GHz		Average (AV)

**ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M**

NO.	FREQ. (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	56.1 PK	74.0	-17.9	1.27 H	147	59.29	-3.19
2	2390.00	38.2 AV	54.0	-15.8	1.27 H	147	41.39	-3.19
3	*2437.00	99.6 PK			1.37 H	143	102.64	-3.04
4	*2437.00	89.0 AV			1.37 H	143	92.04	-3.04
5	2483.50	73.6 PK	74.0	-0.4	1.27 H	147	76.47	-2.87
6	2483.50	52.5 AV	54.0	-1.5	1.27 H	147	55.37	-2.87
7	4874.00	46.9 PK	74.0	-27.1	1.00 H	223	40.85	6.05
8	4874.00	33.7 AV	54.0	-20.3	1.00 H	223	27.65	6.05
9	7311.00	52.1 PK	74.0	-21.9	1.14 H	97	41.16	10.94
10	7311.00	38.5 AV	54.0	-15.5	1.14 H	97	27.56	10.94

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

NO.	FREQ. (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	54.2 PK	74.0	-19.8	1.10 V	95	57.39	-3.19
2	2390.00	35.2 AV	54.0	-18.8	1.10 V	95	38.39	-3.19
3	*2437.00	98.2 PK			1.17 V	88	101.24	-3.04
4	*2437.00	87.8 AV			1.17 V	88	90.84	-3.04
5	2483.50	69.1 PK	74.0	-4.9	1.12 V	102	71.97	-2.87
6	2483.50	49.0 AV	54.0	-5.0	1.12 V	102	51.87	-2.87
7	4874.00	46.7 PK	74.0	-27.3	1.22 V	110	40.65	6.05
8	4874.00	33.7 AV	54.0	-20.3	1.22 V	110	27.65	6.05
9	7311.00	51.5 PK	74.0	-22.5	1.66 V	313	40.56	10.94
10	7311.00	37.5 AV	54.0	-16.5	1.66 V	313	26.56	10.94

**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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " \* ": Fundamental frequency.

<b>CHANNEL</b>	TX Channel 9	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	1GHz ~ 25GHz		Average (AV)

**ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M**

NO.	FREQ. (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	99.1 PK			1.30 H	147	102.08	-2.98
2	*2452.00	88.6 AV			1.30 H	147	91.58	-2.98
<b>3</b>	<b>2483.50</b>	<b>73.8 PK</b>	<b>74.0</b>	<b>-0.2</b>	<b>1.29 H</b>	<b>145</b>	<b>76.67</b>	<b>-2.87</b>
4	2483.50	52.3 AV	54.0	-1.7	1.29 H	145	55.17	-2.87
5	4904.00	47.0 PK	74.0	-27.0	1.00 H	213	40.92	6.08
6	4904.00	34.1 AV	54.0	-19.9	1.00 H	213	28.02	6.08
7	7356.00	52.5 PK	74.0	-21.5	1.22 H	97	41.28	11.22
8	7356.00	38.7 AV	54.0	-15.3	1.22 H	97	27.48	11.22

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

NO.	FREQ. (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	97.6 PK			1.07 V	91	100.58	-2.98
2	*2452.00	87.5 AV			1.07 V	91	90.48	-2.98
3	2483.50	69.3 PK	74.0	-4.7	1.11 V	89	72.17	-2.87
4	2483.50	49.7 AV	54.0	-4.3	1.11 V	89	52.57	-2.87
5	4904.00	47.2 PK	74.0	-26.8	1.21 V	111	41.12	6.08
6	4904.00	33.9 AV	54.0	-20.1	1.21 V	111	27.82	6.08
7	7356.00	51.8 PK	74.0	-22.2	1.65 V	301	40.58	11.22
8	7356.00	37.9 AV	54.0	-16.1	1.65 V	301	26.68	11.22

**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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " \* ": Fundamental frequency.



**Below 1GHz Data:**

**802.11g**

<b>CHANNEL</b>	TX Channel 6	<b>DETECTOR FUNCTION</b>	Quasi-Peak (QP)
<b>FREQUENCY RANGE</b>	Below 1GHz		

**ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M**

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	88.93	34.3 QP	43.5	-9.2	2.00 H	231	53.17	-18.89
2	166.02	40.4 QP	43.5	-3.1	1.73 H	14	53.62	-13.23
3	233.22	35.1 QP	46.0	-10.9	1.00 H	321	49.85	-14.72
4	373.53	38.1 QP	46.0	-8.0	1.00 H	343	48.28	-10.23
5	624.71	36.7 QP	46.0	-9.3	1.50 H	41	41.08	-4.34
6	697.12	37.7 QP	46.0	-8.3	1.00 H	246	41.07	-3.39

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	31.60	32.5 QP	40.0	-7.5	1.00 V	26	47.40	-14.89
2	71.13	30.9 QP	40.0	-9.1	1.00 V	304	46.40	-15.50
3	89.66	31.8 QP	43.5	-11.8	1.00 V	316	50.66	-18.91
4	166.62	33.6 QP	43.5	-9.9	1.00 V	34	46.86	-13.23
5	373.38	34.7 QP	46.0	-11.3	1.00 V	320	44.94	-10.24
6	697.07	34.7 QP	46.0	-11.3	1.00 V	268	38.11	-3.39

**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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

## 5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

## 6 Appendix A – Information on 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 accredited and approved according to ISO/IEC 17025.

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

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

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