

FCC Test Report

Report No.: RF150528E05H

FCC ID: TLZ-CU300

Test Model: AW-CU300A

Series Model: AW-CU300

Received Date: Sep. 05, 2018

Test Date: Nov. 15, 2018

Issued Date: Nov. 20, 2018

Applicant: AzureWave Technologies, Inc.

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

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**FCC Registration /
Designation Number:** 723255 / TW2022



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Release Control Record

Issue No.	Description	Date Issued
RF150528E05H	Original release.	Nov. 20, 2018

1 Certificate of Conformity

Product: IEEE 802.11 b/g/n WLAN Microcontroller Module

Brand: AzureWave

Test Model: AW-CU300A

Series Model: AW-CU300

Sample Status: ENGINEERING SAMPLE

Applicant: AzureWave Technologies, Inc.

Test Date: Nov. 15, 2018

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 : Wendy Wu , **Date:** Nov. 20, 2018
Wendy Wu / Specialist

Approved by : May Chen , **Date:** Nov. 20, 2018
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 -2.2dB at 2390.00MHz.
15.247(b)	Conducted power	PASS	Meet the requirement of limit.

NOTE: 1 This report is prepared for FCC Class II change.

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	Expanded Uncertainty (k=2) ($\pm$)
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	5.33 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	5.10 dB
	6GHz ~ 18GHz	4.85 dB
	18GHz ~ 40GHz	5.24 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	IEEE 802.11 b/g/n WLAN Microcontroller Module
Brand	AzureWave
Test Model	AW-CU300A
Series Model	AW-CU300
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
Modulation Technology	DSSS, OFDM
Transfer Rate	802.11b: up to 11Mbps 802.11g: up to 54Mbps 802.11n : up to 72.2Mbps
Operating Frequency	2.412 ~ 2.462GHz
Number of Channel	11
Output Power	200.447mW
Antenna Type	Please see Note
Antenna Connector	Please see Note
Accessory Device	NA
Data Cable Supplied	NA

Note:

1. This report is prepared for FCC Class II change. The difference compared with the Report No.: RF150528E05C design is as the following:

- ◆ Added chip model (for more details please refer to declaration letter by applicant).
- ◆ Added new antennas as below table:

Original							
Antenna No	Brand	Model	Gain (dBi) (Including cable loss)	Antenna Type	Connector Type	Frequency range (GHz to GHz)	Cable Length (mm)
1(Internal)	AzureWave	AW-CU300 ANT	5.12	PCB	NA	2.4~2.4835	NA
2(External)	TAOGLAS	FXP73.07.0100A	3	Monopole	I-PEX	2.4~2.4835	100
3(External)	TAOGLAS	PC11.07.0100A	3	Dipole	I-PEX	2.4~2.4835	100
4(External)	TAOGLAS	FXP74.07.0100A	4	PIFA	I-PEX	2.4~2.4835	100
5(External)	TAOGLAS	GW.17.07.0250E	2.7	Dipole	I-PEX	2.4~2.4835	250
6(External)	TAOGLAS	PC17.07.0070A	0.9	PIFA	I-PEX	2.4~2.4835	70
7(External)	LAIRD	NanoBlue-IP04_MAF94045	2	Monopole	I-PEX	2.4~2.4835	100
8(External)	MAG.LAYERS	EDA_1313_2G4C1-A16	2.39	Dipole	I-PEX	2.4~2.4835	150
9(External)	LAIRD	EBL2400A1-23UFL	2.45	Dipole	I-PEX	2.4~2.4835	230
Newly							
Antenna No	Brand	Model	Gain (dBi) (Including cable loss)	Antenna Type	Connector Type	Frequency range (GHz to GHz)	Cable Length (mm)
10(External)	MOLEX	1461530100	3	Dipole	I-PEX	2.4~2.4835	100
11(External)	MOLEX	1461530150	2.8	Dipole	I-PEX	2.4~2.4835	150
12(External)	MOLEX	1461530200	2.6	Dipole	I-PEX	2.4~2.4835	20
13(External)	MOLEX	1461530250	2.4	Dipole	I-PEX	2.4~2.4835	250
14(External)	MOLEX	1461530300	2.2	Dipole	I-PEX	2.4~2.4835	300
15(External)	MOLEX	2042810050	2.2	Dipole	I-PEX	2.4~2.4835	50
16(External)	MOLEX	2042810100	2	Dipole	I-PEX	2.4~2.4835	100
17(External)	MOLEX	2042810150	1.8	Dipole	I-PEX	2.4~2.4835	150
18(External)	MOLEX	2042810200	1.6	Dipole	I-PEX	2.4~2.4835	200
19(External)	MOLEX	2042810250	1.4	Dipole	I-PEX	2.4~2.4835	250
20(External)	MOLEX	2042810300	1.2	Dipole	I-PEX	2.4~2.4835	300
21(External)	YAGEO	ANTX100F113B24003	2.9	PIFA	I-PEX	2.4~2.4835	100
22(External)	YAGEO	ANTX100P113B24003	2.8	PIFA	I-PEX	2.4~2.4835	100
23(External)	LYNWAVE	ALA110-052020	2	Dipole	I-PEX	2.4~2.4835	50
24(External)	LYNWAVE	ALA120-052024	2	Dipole	I-PEX	2.4~2.4835	160
25(External)	LYNWAVE	ALA150-052020	2	Dipole	I-PEX	2.4~2.4835	85
26(External)	LYNWAVE	ALA140-05102J	2	Dipole	I-PEX	2.4~2.4835	40
27(External)	LYNWAVE	ALA120-051020	2	Dipole	I-PEX	2.4~2.4835	50
28(External)	LYNWAVE	ALA120-051022	2	Dipole	I-PEX	2.4~2.4835	100
29(External)	LYNWAVE	ALA140-051020	1.88	Dipole	I-PEX	2.4~2.4835	70
30(External)	LYNWAVE	ALA150-05102B	2	Dipole	I-PEX	2.4~2.4835	100
31(External)	LYNWAVE	ALA150-05102C	2	Dipole	I-PEX	2.4~2.4835	75
32(External)	LYNWAVE	ALA150-05102F	2	Dipole	I-PEX	2.4~2.4835	140
33(External)	LYNWAVE	ALA150-05102J	2	Dipole	I-PEX	2.4~2.4835	100
34(External)	LYNWAVE	ALA140-05102D	2	Dipole	I-PEX	2.4~2.4835	95
35(External)	LYNWAVE	ALA150-051026	2	Dipole	I-PEX	2.4~2.4835	150

Antennas 1~4 were chosen for final test.

2. According to above conditions, only worst modulation of Radiated Emissions and Antenna Port Conducted Measurement test items need to be performed. And all data were verified to meet the requirements.
3. The EUT has below model names, which are identical to each other in all aspects except for the following:

Brand	Model No.	Remark
AzureWave	AW-CU300	-
AzureWave	AW-CU300A	PCB size is extended added flash component

From the above models, model: AW-CU300A was selected as representative model for the test and its data was recorded in this report.

4. The EUT incorporates a SISO function.

MODULATION MODE	DATA RATE (MCS)	TX & RX CONFIGURATION	
802.11b	1 ~ 11Mbps	1TX	1RX
802.11g	6 ~ 54Mbps	1TX	1RX
802.11n (HT20)	MCS 0~7	1TX	1RX

5. 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 Description of Test Modes

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

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		

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT CONFIGURE MODE	APPLICABLE TO			DESCRIPTION
	RE $\geq$ 1G	RE<1G	APCM	
1	√	√	√	With antenna 1 (PCB)
2	√	√	-	With antenna 2 (Monopole)
3	√	√	-	With antenna 3 (Dipole)
4	√	√	-	With antenna 4 (PIFA)

Where **RE $\geq$ 1G**: Radiated Emission above 1GHz & Bandedge Measurement
RE<1G: Radiated Emission below 1GHz
APCM: Antenna Port Conducted Measurement

NOTE 1: “-” means no effect.

2: In original report, Antenna placement had been investigated on the positioned of each 3 axis.

Following worst case were found as listed below.

Antenna	Worst position
PCB	Y-plane
Monopole	Y-plane
PIFA	X-plane

Radiated 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	MODULATION TYPE	DATA RATE (Mbps)
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6

Radiated 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	MODULATION TYPE	DATA RATE (Mbps)
802.11g	1 to 11	6	OFDM	BPSK	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	MODULATION TYPE	DATA RATE (Mbps)
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6

Test Condition:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (SYSTEM)	TESTED BY
RE $\geq$ 1G	22deg. C, 66%RH	120Vac, 60Hz	Steven Chaing
RE<1G	22deg. C, 66%RH	120Vac, 60Hz	Steven Chaing
APCM	25deg. C, 60%RH	120Vac, 60Hz	Anderson Chen

3.3 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.

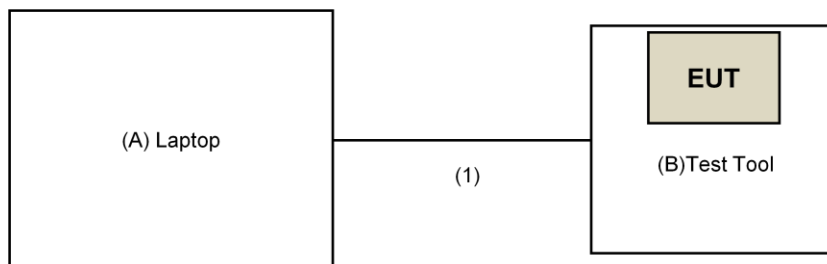
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Laptop	HP	TPN-Q186	5CD8212YYK	FCC DoC	Provided by Lab
B.	Test Tool	AzureWave	NA	NA	NA	Supplied by client

Note:

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

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	USB Cable	1	1.8	Yes	0	Provided by Lab

3.3.1 Configuration of System under Test



3.4 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)

KDB 558074 D01 15.247 Meas Guidance v05

ANSI C63.10-2013

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

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge 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.

4.1.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Keysight	N9038A	MY54450088	July 05, 2018	July 04, 2019
Pre-Amplifier EMCI	EMC001340	980142	Feb. 09, 2018	Feb. 08, 2019
Loop Antenna ^(*) Electro-Metrics	EM-6879	264	Dec. 16, 2016	Dec. 15, 2018
RF Cable	NA	LOOPCAB-001	Jan. 15, 2018	Jan. 14, 2019
RF Cable	NA	LOOPCAB-002	Jan. 15, 2018	Jan. 14, 2019
Pre-Amplifier Mini-Circuits	ZFL-1000VH2B	AMP-ZFL-01	Oct. 30, 2018	Oct. 29, 2019
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-406	Nov. 29, 2017	Nov. 28, 2018
RF Cable	8D	966-4-1	Mar. 21, 2018	Mar. 20, 2019
RF Cable	8D	966-4-2	Mar. 21, 2018	Mar. 20, 2019
RF Cable	8D	966-4-3	Mar. 21, 2018	Mar. 20, 2019
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-3m-4-01	Sep. 27, 2018	Sep. 26, 2019
Horn_Antenna SCHWARZBECK	BBHA 9120D	9120D-783	Dec. 12, 2017	Dec. 11, 2018
Pre-Amplifier Mini-Circuits	ZVA-183-S+	AMP-ZVA-03	May 10, 2018	May 09, 2019
RF Cable	EMC104-SM-SM-1200	160923	Jan. 29, 2018	Jan. 28, 2019
RF Cable	EMC104-SM-SM-2000	150318	Jan. 29, 2018	Jan. 28, 2019
RF Cable	EMC104-SM-SM-5000	150321	Jan. 29, 2018	Jan. 28, 2019
Pre-Amplifier EMCI	EMC184045SE	980387	Jan. 29, 2018	Jan. 28, 2019
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170608	Dec. 14, 2017	Dec. 13, 2018
RF Cable	EMC102-KM-KM-1200	160925	Jan. 29, 2018	Jan. 28, 2019
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Boresight Antenna Tower & Turn Table Max-Full	MF-7802BS	MF780208530	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 calibration interval of the above test instruments is 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. The test was performed in 966 Chamber No. 4.
4. The CANADA Site Registration No. is 20331-2
5. Loop antenna was used for all emissions below 30 MHz.
6. Tested Date: Nov. 15, 2018

4.1.3 Test Procedures

For Radiated emission below 30MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. 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.

NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9kHz at frequency below 30MHz.

For Radiated emission above 30MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 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 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.

Note:

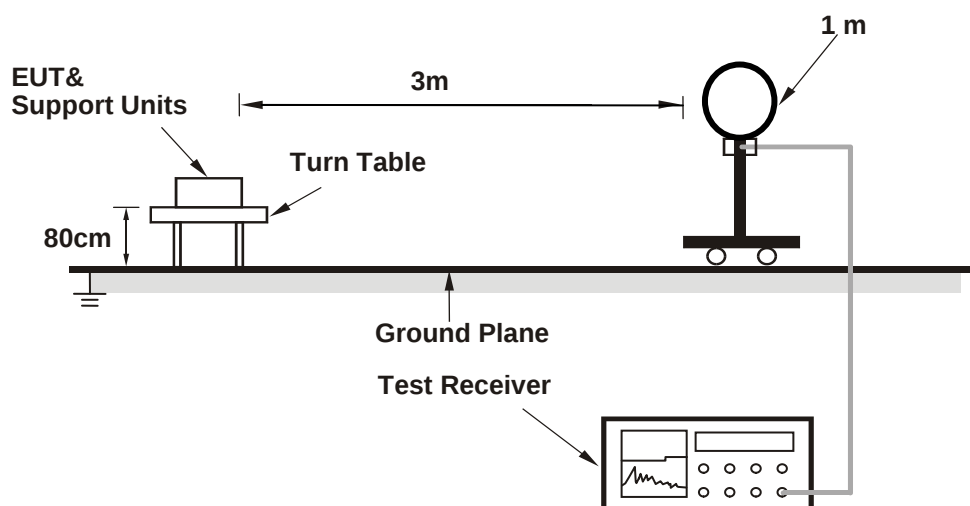
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is $\geq 1/T$ (Duty cycle $< 98\%$) or 10Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

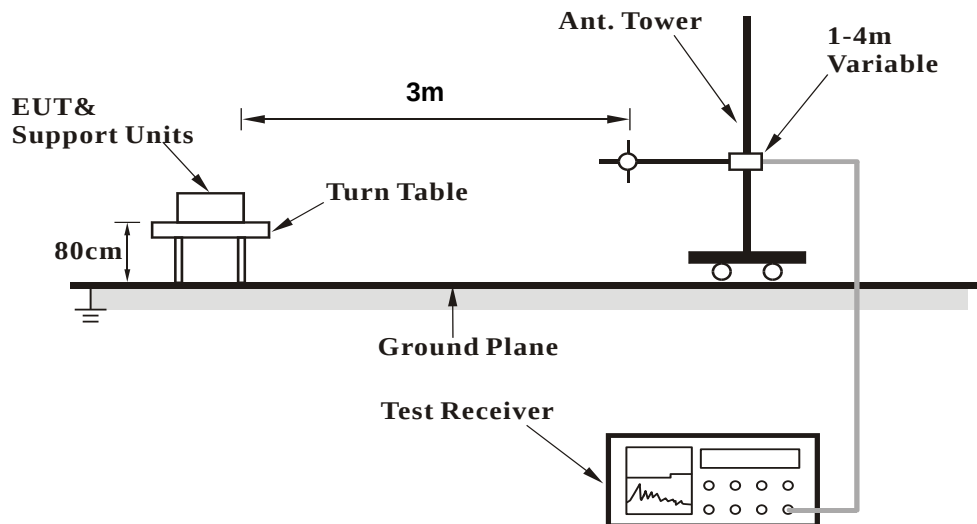
No deviation.

4.1.5 Test Setup

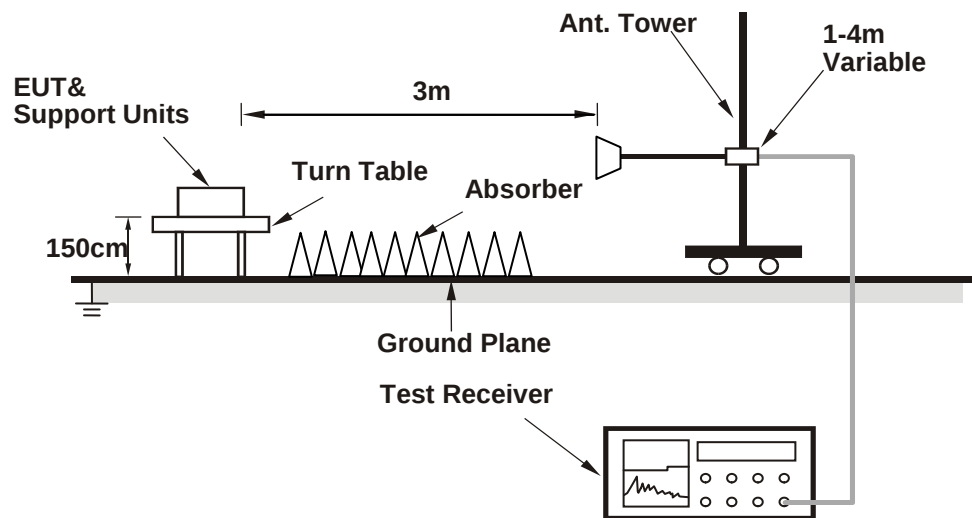
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For Radiated emission above 1GHz



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

4.1.6 EUT Operating Conditions

1. Connect the EUT with the support unit A (Laptop) which is placed on a testing table.
2. The communication partner run test program "DutApiWiFi8801BrdigeUart paste External/Internal (Chip) Ant.txt command" to enable EUT under transmission/receiving condition continuously at specific channel frequency.

4.1.7 Test Results (Mode 1)

Above 1GHz Data:

802.11g

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	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	69.2 PK	74.0	-4.8	1.61 H	236	71.4	-2.2
2	2390.00	49.4 AV	54.0	-4.6	1.61 H	236	51.6	-2.2
3	*2412.00	103.5 PK			1.61 H	236	105.9	-2.4
4	*2412.00	91.7 AV			1.61 H	236	94.1	-2.4
5	4824.00	47.5 PK	74.0	-26.5	1.00 H	200	45.7	1.8
6	4824.00	34.0 AV	54.0	-20.0	1.00 H	200	32.2	1.8
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	63.5 PK	74.0	-10.5	1.06 V	120	65.7	-2.2
2	2390.00	45.7 AV	54.0	-8.3	1.06 V	120	47.9	-2.2
3	*2412.00	96.0 PK			1.06 V	120	98.4	-2.4
4	*2412.00	84.1 AV			1.06 V	120	86.5	-2.4
5	4824.00	46.6 PK	74.0	-27.4	1.25 V	93	44.8	1.8
6	4824.00	33.4 AV	54.0	-20.6	1.25 V	93	31.6	1.8

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.

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	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	106.5 PK			1.25 H	226	109.1	-2.6
2	*2437.00	94.8 AV			1.25 H	226	97.4	-2.6
3	4874.00	47.0 PK	74.0	-27.0	1.05 H	205	45.0	2.0
4	4874.00	34.1 AV	54.0	-19.9	1.05 H	205	32.1	2.0
5	7311.00	51.8 PK	74.0	-22.2	1.19 H	82	43.4	8.4
6	7311.00	38.1 AV	54.0	-15.9	1.19 H	82	29.7	8.4
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	98.1 PK			1.14 V	106	100.7	-2.6
2	*2437.00	87.0 AV			1.14 V	106	89.6	-2.6
3	4874.00	46.6 PK	74.0	-27.4	1.26 V	103	44.6	2.0
4	4874.00	33.3 AV	54.0	-20.7	1.26 V	103	31.3	2.0
5	7311.00	52.1 PK	74.0	-21.9	1.69 V	301	43.7	8.4
6	7311.00	38.3 AV	54.0	-15.7	1.69 V	301	29.9	8.4

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.

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	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	104.5 PK			1.73 H	235	107.1	-2.6
2	*2462.00	93.1 AV			1.73 H	235	95.7	-2.6
3	2483.50	67.9 PK	74.0	-6.1	1.73 H	235	70.3	-2.4
4	2483.50	48.9 AV	54.0	-5.1	1.73 H	235	51.3	-2.4
5	4924.00	47.5 PK	74.0	-26.5	1.00 H	220	45.5	2.0
6	4924.00	34.5 AV	54.0	-19.5	1.00 H	220	32.5	2.0
7	7386.00	51.6 PK	74.0	-22.4	1.13 H	113	43.0	8.6
8	7386.00	37.6 AV	54.0	-16.4	1.13 H	113	29.0	8.6
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	95.6 PK			1.06 V	91	98.2	-2.6
2	*2462.00	84.8 AV			1.06 V	91	87.4	-2.6
3	2483.50	63.3 PK	74.0	-10.7	1.06 V	91	65.7	-2.4
4	2483.50	46.0 AV	54.0	-8.0	1.06 V	91	48.4	-2.4
5	4924.00	47.5 PK	74.0	-26.5	1.20 V	110	45.5	2.0
6	4924.00	34.1 AV	54.0	-19.9	1.20 V	110	32.1	2.0
7	7386.00	51.9 PK	74.0	-22.1	1.67 V	294	43.3	8.6
8	7386.00	38.1 AV	54.0	-15.9	1.67 V	294	29.5	8.6

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

Below 1GHz Data:

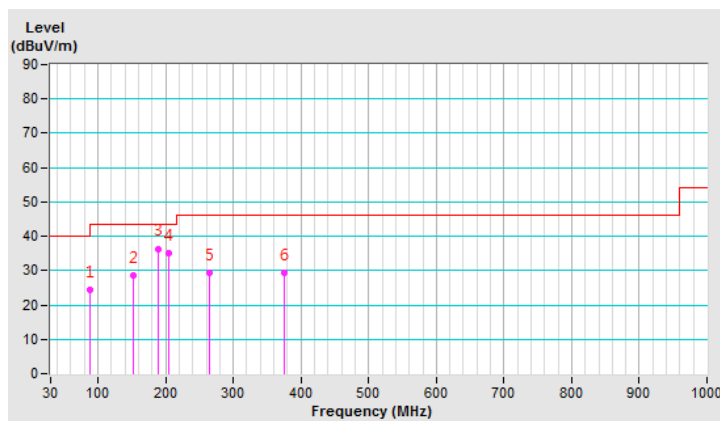
802.11g

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 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	88.78	24.5 QP	43.5	-19.0	2.00 H	205	38.1	-13.6
2	151.66	28.5 QP	43.5	-15.0	1.50 H	289	36.1	-7.6
3	189.93	36.4 QP	43.5	-7.1	1.50 H	252	46.9	-10.5
4	205.06	35.2 QP	43.5	-8.3	1.50 H	255	46.3	-11.1
5	264.01	29.4 QP	46.0	-16.6	1.50 H	324	37.8	-8.4
6	375.03	29.3 QP	46.0	-16.7	2.00 H	213	34.1	-4.8

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 emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

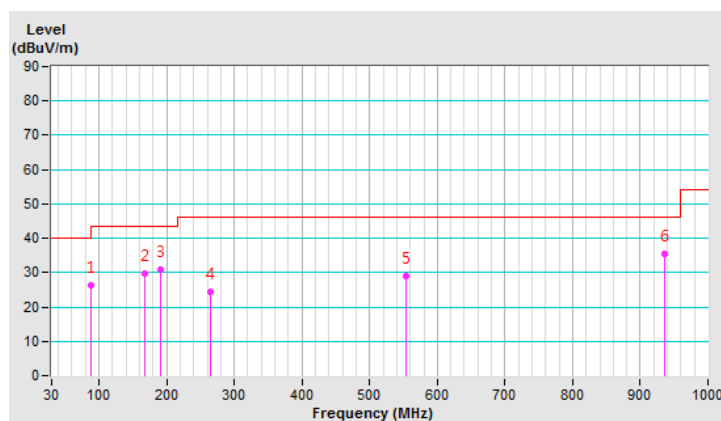


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

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	88.30	26.2 QP	43.5	-17.3	1.00 V	299	39.8	-13.6
2	167.96	29.6 QP	43.5	-13.9	1.00 V	264	37.8	-8.2
3	191.29	31.0 QP	43.5	-12.5	1.00 V	264	41.6	-10.6
4	264.01	24.4 QP	46.0	-21.6	1.00 V	299	32.8	-8.4
5	553.00	29.1 QP	46.0	-16.9	1.00 V	329	29.9	-0.8
6	936.00	35.4 QP	46.0	-10.6	1.50 V	0	29.3	6.1

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 emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



4.1.8 Test Results (Mode 2)

Above 1GHz Data:

802.11g

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	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	71.6 PK	74.0	-2.4	1.53 H	164	73.8	-2.2
2	2390.00	51.8 AV	54.0	-2.2	1.53 H	164	54.0	-2.2
3	*2412.00	102.4 PK			1.53 H	164	104.8	-2.4
4	*2412.00	92.5 AV			1.53 H	164	94.9	-2.4
5	4824.00	46.3 PK	74.0	-27.7	1.01 H	195	44.5	1.8
6	4824.00	33.3 AV	54.0	-20.7	1.01 H	195	31.5	1.8
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	67.0 PK	74.0	-7.0	1.04 V	214	69.2	-2.2
2	2390.00	44.8 AV	54.0	-9.2	1.04 V	214	47.0	-2.2
3	*2412.00	96.9 PK			1.04 V	214	99.3	-2.4
4	*2412.00	87.2 AV			1.04 V	214	89.6	-2.4
5	4824.00	46.6 PK	74.0	-27.4	1.28 V	103	44.8	1.8
6	4824.00	33.7 AV	54.0	-20.3	1.28 V	103	31.9	1.8

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.

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	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	106.9 PK			1.36 H	177	109.5	-2.6
2	*2437.00	95.5 AV			1.36 H	177	98.1	-2.6
3	4874.00	47.2 PK	74.0	-26.8	1.11 H	199	45.2	2.0
4	4874.00	34.5 AV	54.0	-19.5	1.11 H	199	32.5	2.0
5	7311.00	51.6 PK	74.0	-22.4	1.29 H	103	43.2	8.4
6	7311.00	38.0 AV	54.0	-16.0	1.29 H	103	29.6	8.4
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	100.1 PK			1.05 V	202	102.7	-2.6
2	*2437.00	89.7 AV			1.05 V	202	92.3	-2.6
3	4874.00	47.5 PK	74.0	-26.5	1.35 V	87	45.5	2.0
4	4874.00	34.0 AV	54.0	-20.0	1.35 V	87	32.0	2.0
5	7311.00	51.3 PK	74.0	-22.7	1.58 V	272	42.9	8.4
6	7311.00	37.3 AV	54.0	-16.7	1.58 V	272	28.9	8.4

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.

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	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	105.0 PK			1.59 H	174	107.6	-2.6
2	*2462.00	93.8 AV			1.59 H	174	96.4	-2.6
3	2483.50	68.7 PK	74.0	-5.3	1.59 H	174	71.1	-2.4
4	2483.50	50.4 AV	54.0	-3.6	1.59 H	174	52.8	-2.4
5	4924.00	47.5 PK	74.0	-26.5	1.05 H	195	45.5	2.0
6	4924.00	34.3 AV	54.0	-19.7	1.05 H	195	32.3	2.0
7	7386.00	51.9 PK	74.0	-22.1	1.20 H	105	43.3	8.6
8	7386.00	38.0 AV	54.0	-16.0	1.20 H	105	29.4	8.6
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	98.4 PK			1.03 V	177	101.0	-2.6
2	*2462.00	87.7 AV			1.03 V	177	90.3	-2.6
3	2483.50	67.5 PK	74.0	-6.5	1.03 V	177	69.9	-2.4
4	2483.50	45.0 AV	54.0	-9.0	1.03 V	177	47.4	-2.4
5	4924.00	47.1 PK	74.0	-26.9	1.27 V	71	45.1	2.0
6	4924.00	33.9 AV	54.0	-20.1	1.27 V	71	31.9	2.0
7	7386.00	49.9 PK	74.0	-24.1	1.63 V	301	41.3	8.6
8	7386.00	36.6 AV	54.0	-17.4	1.63 V	301	28.0	8.6

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

Below 1GHz Data:

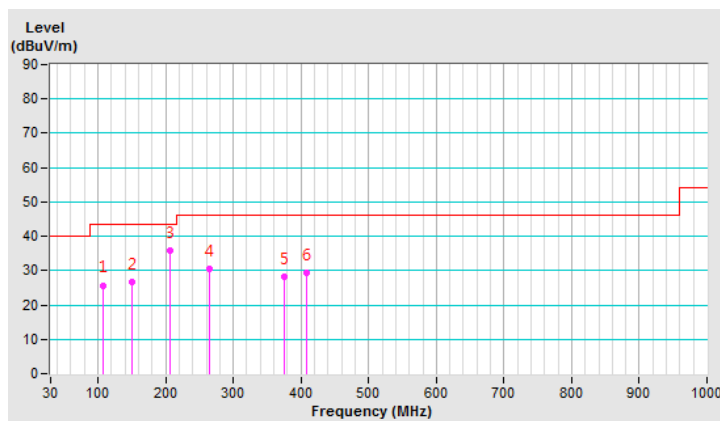
802.11g

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 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	107.92	25.7 QP	43.5	-17.8	1.50 H	262	36.8	-11.1
2	150.67	26.7 QP	43.5	-16.8	1.00 H	301	34.3	-7.6
3	206.44	35.9 QP	43.5	-7.6	1.50 H	260	47.0	-11.1
4	264.01	30.5 QP	46.0	-15.5	1.00 H	324	38.9	-8.4
5	375.00	28.1 QP	46.0	-17.9	1.00 H	326	32.9	-4.8
6	407.98	29.5 QP	46.0	-16.5	1.00 H	319	33.5	-4.0

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 emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

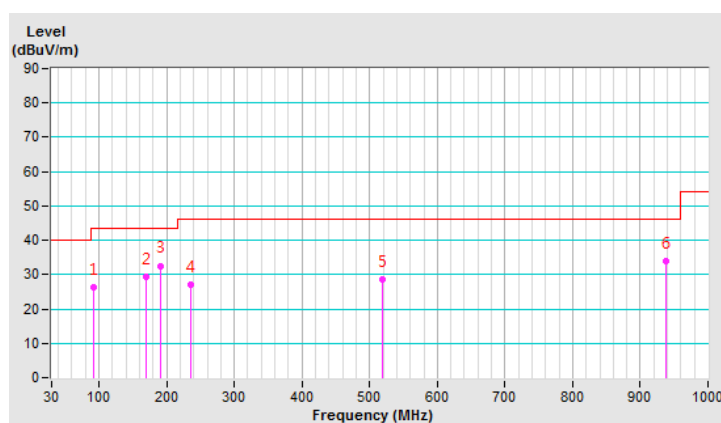


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

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	91.33	26.2 QP	43.5	-17.3	1.50 V	240	39.9	-13.7
2	169.39	29.3 QP	43.5	-14.2	1.00 V	286	37.6	-8.3
3	190.32	32.6 QP	43.5	-10.9	1.50 V	240	43.2	-10.6
4	236.00	26.9 QP	46.0	-19.1	1.50 V	325	36.6	-9.7
5	519.49	28.6 QP	46.0	-17.4	1.00 V	322	29.9	-1.3
6	937.73	33.8 QP	46.0	-12.2	2.00 V	106	27.6	6.2

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 emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



4.1.9 Test Results (Mode 3)

Above 1GHz Data:

802.11g

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	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	59.1 PK	74.0	-14.9	1.97 H	134	61.3	-2.2
2	2390.00	43.0 AV	54.0	-11.0	1.97 H	134	45.2	-2.2
3	*2412.00	98.7 PK			1.97 H	134	101.1	-2.4
4	*2412.00	87.9 AV			1.97 H	134	90.3	-2.4
5	4824.00	47.3 PK	74.0	-26.7	1.03 H	227	45.5	1.8
6	4824.00	34.1 AV	54.0	-19.9	1.03 H	227	32.3	1.8
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	66.6 PK	74.0	-7.4	2.54 V	103	68.8	-2.2
2	2390.00	46.9 AV	54.0	-7.1	2.54 V	103	49.1	-2.2
3	*2412.00	102.7 PK			2.54 V	103	105.1	-2.4
4	*2412.00	91.8 AV			2.54 V	103	94.2	-2.4
5	4824.00	46.8 PK	74.0	-27.2	1.27 V	99	45.0	1.8
6	4824.00	33.6 AV	54.0	-20.4	1.27 V	99	31.8	1.8

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.

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	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	101.4 PK			1.98 H	149	104.0	-2.6
2	*2437.00	90.4 AV			1.98 H	149	93.0	-2.6
3	4874.00	46.1 PK	74.0	-27.9	1.11 H	224	44.1	2.0
4	4874.00	33.2 AV	54.0	-20.8	1.11 H	224	31.2	2.0
5	7311.00	51.4 PK	74.0	-22.6	1.20 H	70	43.0	8.4
6	7311.00	38.2 AV	54.0	-15.8	1.20 H	70	29.8	8.4
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	106.0 PK			1.99 V	186	108.6	-2.6
2	*2437.00	94.7 AV			1.99 V	186	97.3	-2.6
3	4874.00	46.9 PK	74.0	-27.1	1.21 V	90	44.9	2.0
4	4874.00	33.9 AV	54.0	-20.1	1.21 V	90	31.9	2.0
5	7311.00	50.2 PK	74.0	-23.8	1.66 V	306	41.8	8.4
6	7311.00	36.6 AV	54.0	-17.4	1.66 V	306	28.2	8.4

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.

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	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	99.4 PK			2.02 H	138	102.0	-2.6
2	*2462.00	88.4 AV			2.02 H	138	91.0	-2.6
3	2483.50	59.7 PK	74.0	-14.3	2.02 H	138	62.1	-2.4
4	2483.50	43.6 AV	54.0	-10.4	2.02 H	138	46.0	-2.4
5	4924.00	47.6 PK	74.0	-26.4	1.03 H	223	45.6	2.0
6	4924.00	34.1 AV	54.0	-19.9	1.03 H	223	32.1	2.0
7	7386.00	51.6 PK	74.0	-22.4	1.21 H	116	43.0	8.6
8	7386.00	37.8 AV	54.0	-16.2	1.21 H	116	29.2	8.6
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	104.4 PK			2.43 V	116	107.0	-2.6
2	*2462.00	93.1 AV			2.43 V	116	95.7	-2.6
3	2483.50	67.4 PK	74.0	-6.6	2.43 V	116	69.8	-2.4
4	2483.50	47.7 AV	54.0	-6.3	2.43 V	116	50.1	-2.4
5	4924.00	46.8 PK	74.0	-27.2	1.18 V	88	44.8	2.0
6	4924.00	33.8 AV	54.0	-20.2	1.18 V	88	31.8	2.0
7	7386.00	51.1 PK	74.0	-22.9	1.72 V	310	42.5	8.6
8	7386.00	37.6 AV	54.0	-16.4	1.72 V	310	29.0	8.6

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

Below 1GHz Data:

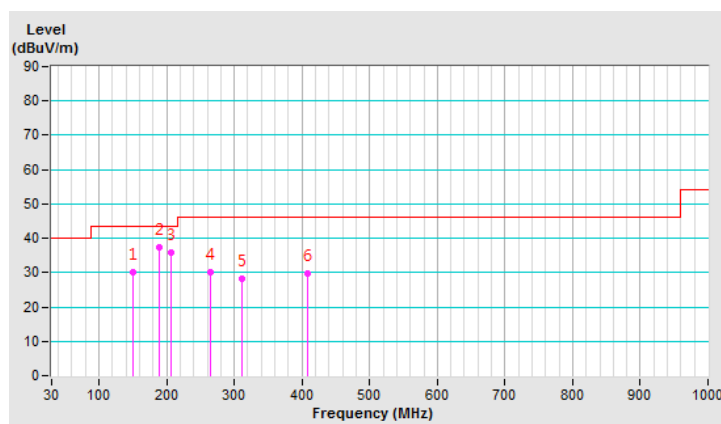
802.11g

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 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	150.40	30.2 QP	43.5	-13.3	2.00 H	284	37.8	-7.6
2	189.86	37.4 QP	43.5	-6.1	1.50 H	243	47.9	-10.5
3	207.32	35.9 QP	43.5	-7.6	1.50 H	254	47.0	-11.1
4	264.01	30.1 QP	46.0	-15.9	1.00 H	319	38.5	-8.4
5	312.08	28.2 QP	46.0	-17.8	1.00 H	95	34.8	-6.6
6	408.69	29.8 QP	46.0	-16.2	1.00 H	322	33.8	-4.0

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 emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

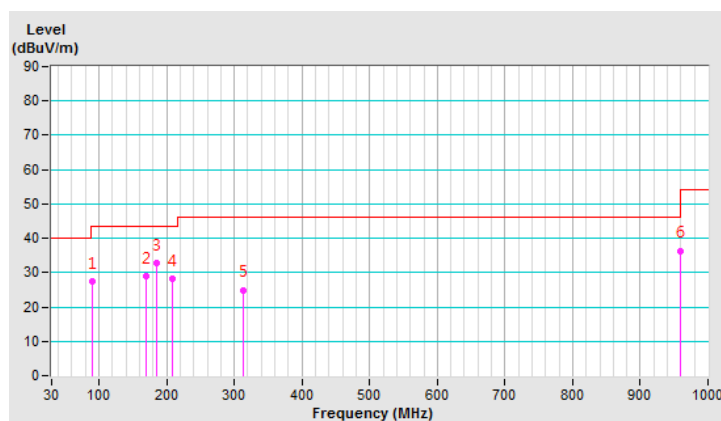


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

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	90.55	27.5 QP	43.5	-16.0	1.00 V	48	41.3	-13.8
2	169.36	29.1 QP	43.5	-14.4	1.00 V	54	37.4	-8.3
3	184.91	32.8 QP	43.5	-10.7	1.00 V	258	42.8	-10.0
4	208.16	28.2 QP	43.5	-15.3	1.00 V	84	39.3	-11.1
5	313.14	25.0 QP	46.0	-21.0	1.00 V	336	31.6	-6.6
6	960.01	36.4 QP	54.0	-17.6	1.50 V	360	30.2	6.2

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 emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



4.1.10 Test Results (Mode 4)

Above 1GHz Data:

802.11g

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	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	69.9 PK	74.0	-4.1	1.64 H	127	72.1	-2.2
2	2390.00	49.2 AV	54.0	-4.8	1.64 H	127	51.4	-2.2
3	*2412.00	104.6 PK			1.64 H	127	107.0	-2.4
4	*2412.00	93.0 AV			1.64 H	127	95.4	-2.4
5	4824.00	47.0 PK	74.0	-27.0	1.04 H	211	45.2	1.8
6	4824.00	33.6 AV	54.0	-20.4	1.04 H	211	31.8	1.8
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	66.6 PK	74.0	-7.4	1.01 V	191	68.8	-2.2
2	2390.00	47.3 AV	54.0	-6.7	1.01 V	191	49.5	-2.2
3	*2412.00	101.1 PK			1.01 V	191	103.5	-2.4
4	*2412.00	89.6 AV			1.01 V	191	92.0	-2.4
5	4824.00	46.2 PK	74.0	-27.8	1.28 V	65	44.4	1.8
6	4824.00	33.1 AV	54.0	-20.9	1.28 V	65	31.3	1.8

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.

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	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	108.0 PK			1.68 H	105	110.6	-2.6
2	*2437.00	96.2 AV			1.68 H	105	98.8	-2.6
3	4874.00	46.2 PK	74.0	-27.8	1.03 H	218	44.2	2.0
4	4874.00	33.1 AV	54.0	-20.9	1.03 H	218	31.1	2.0
5	7311.00	51.7 PK	74.0	-22.3	1.22 H	73	43.3	8.4
6	7311.00	38.0 AV	54.0	-16.0	1.22 H	73	29.6	8.4
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	104.5 PK			1.02 V	190	107.1	-2.6
2	*2437.00	92.3 AV			1.02 V	190	94.9	-2.6
3	4874.00	46.7 PK	74.0	-27.3	1.22 V	113	44.7	2.0
4	4874.00	33.8 AV	54.0	-20.2	1.22 V	113	31.8	2.0
5	7311.00	50.9 PK	74.0	-23.1	1.78 V	271	42.5	8.4
6	7311.00	37.3 AV	54.0	-16.7	1.78 V	271	28.9	8.4

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.

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	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	106.0 PK			1.66 H	98	108.6	-2.6
2	*2462.00	94.6 AV			1.66 H	98	97.2	-2.6
3	2483.50	70.2 PK	74.0	-3.8	1.66 H	98	72.6	-2.4
4	2483.50	49.8 AV	54.0	-4.2	1.66 H	98	52.2	-2.4
5	4924.00	47.0 PK	74.0	-27.0	1.00 H	215	45.0	2.0
6	4924.00	33.9 AV	54.0	-20.1	1.00 H	215	31.9	2.0
7	7386.00	51.4 PK	74.0	-22.6	1.22 H	101	42.8	8.6
8	7386.00	37.6 AV	54.0	-16.4	1.22 H	101	29.0	8.6
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			1.08 V	177	104.7	-2.6
2	*2462.00	90.4 AV			1.08 V	177	93.0	-2.6
3	2483.50	66.4 PK	74.0	-7.6	1.08 V	177	68.8	-2.4
4	2483.50	47.1 AV	54.0	-6.9	1.08 V	177	49.5	-2.4
5	4924.00	46.9 PK	74.0	-27.1	1.25 V	87	44.9	2.0
6	4924.00	33.8 AV	54.0	-20.2	1.25 V	87	31.8	2.0
7	7386.00	51.0 PK	74.0	-23.0	1.65 V	278	42.4	8.6
8	7386.00	37.1 AV	54.0	-16.9	1.65 V	278	28.5	8.6

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

Below 1GHz Data:

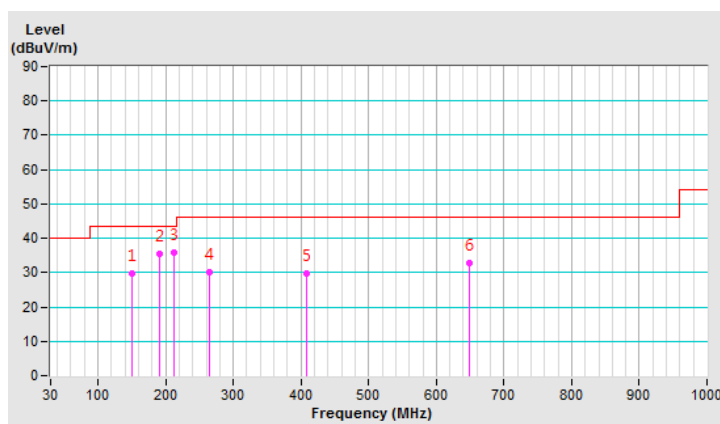
802.11g

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 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	151.15	29.6 QP	43.5	-13.9	2.00 H	302	37.2	-7.6
2	191.00	35.4 QP	43.5	-8.1	1.50 H	258	46.0	-10.6
3	212.94	35.9 QP	43.5	-7.6	1.50 H	258	47.0	-11.1
4	264.01	30.2 QP	46.0	-15.8	1.00 H	313	38.6	-8.4
5	408.28	29.8 QP	46.0	-16.2	1.00 H	306	33.8	-4.0
6	647.99	32.9 QP	46.0	-13.1	1.50 H	56	31.5	1.4

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 emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

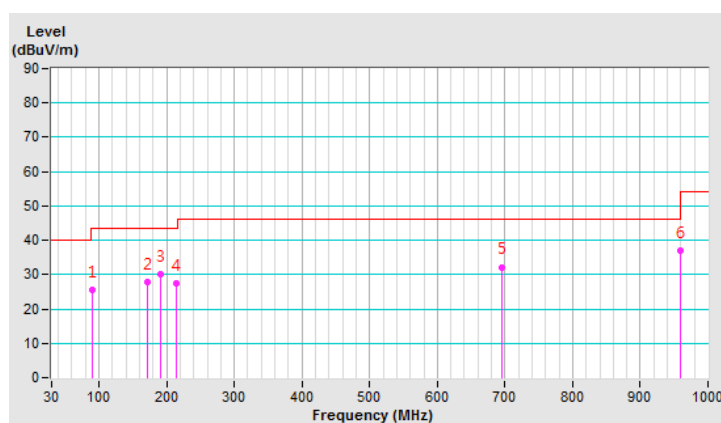


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

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	90.12	25.5 QP	43.5	-18.0	2.00 V	226	39.2	-13.7
2	171.23	27.8 QP	43.5	-15.7	1.50 V	360	36.2	-8.4
3	191.04	30.1 QP	43.5	-13.4	1.50 V	262	40.7	-10.6
4	214.66	27.4 QP	43.5	-16.1	1.00 V	93	38.6	-11.2
5	695.98	32.2 QP	46.0	-13.8	1.00 V	324	30.3	1.9
6	960.01	36.8 QP	54.0	-17.2	2.00 V	0	30.6	6.2

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 emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

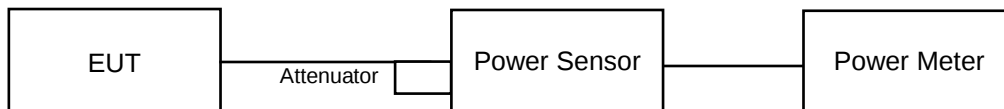


4.2 Conducted Output Power Measurement

4.2.1 Limits of Conducted Output Power Measurement

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

4.2.2 Test Setup



4.2.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.2.4 Test Procedures

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 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.

4.2.5 Deviation from Test Standard

No deviation.

4.2.6 EUT Operating Conditions

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.2.7 Test Results

FOR PEAK POWER

802.11g

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass/Fail
1	2412	148.594	21.72	30	Pass
6	2437	200.447	23.02	30	Pass
11	2462	167.494	22.24	30	Pass

FOR AVERAGE POWER

802.11b

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)
1	2412	16.032	12.05
6	2437	29.648	14.72
11	2462	19.275	12.85

5 Pictures of Test Arrangements

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

Appendix – 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 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:

Linkou EMC/RF Lab

Tel: 886-2-26052180

Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab

Tel: 886-3-6668565

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Tel: 886-3-3183232

Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

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

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