

FCC Test Report (WLAN)

Report No.: RF140407E07D

FCC ID: TLZ-CM389NF

Test Model: AW-CM389NF

Received Date: Apr. 14, 2016

Test Date: May 18 to June 06, 2016

Issued Date: June 17, 2016

Applicant: AzureWave Technologies, Inc.

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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Table of Contents

Release Control Record	3
1 Certificate of Conformity	4
2 Summary of Test Results	5
2.1 Measurement Uncertainty	5
2.2 Modification Record	5
3 General Information	6
3.1 General Description of EUT (WLAN)	6
3.2 Description of Test Modes	8
3.2.1 Test Mode Applicability and Tested Channel Detail	9
3.3 Duty Cycle of Test Signal	11
3.4 Description of Support Units	12
3.4.1 Configuration of System under Test	13
3.5 General Description of Applied Standards	14
4 Test Types and Results	15
4.1 Radiated Emission and Bandedge Measurement	15
4.1.1 Limits of Radiated Emission and Bandedge Measurement	15
4.1.2 Test Instruments	16
4.1.3 Test Procedures	17
4.1.4 Deviation from Test Standard	17
4.1.5 Test Setup	18
4.1.6 EUT Operating Conditions	18
4.1.7 Test Results (Mode 1)	19
4.1.8 Test Results (Mode 2)	32
4.2 Conducted Output Power Measurement	45
4.2.1 Limits of Conducted Output Power Measurement	45
4.2.2 Test Setup	45
4.2.3 Test Instruments	45
4.2.4 Test Procedures	45
4.2.5 Deviation from Test Standard	45
4.2.6 EUT Operating Conditions	45
4.2.7 Test Results	46
5 Pictures of Test Arrangements	48
Appendix – Information on the Testing Laboratories	49

Release Control Record

Issue No.	Description	Date Issued
RF140407E07D	Original release.	June 17, 2016

1 Certificate of Conformity

Product: IEEE 802.11 2X2 MIMO a/b/g/n/ac Wireless LAN + Bluetooth + NFC NGFF Module

Brand: AzureWave

Test Model: AW-CM389NF

Sample Status: ENGINEERING SAMPLE

Applicant: AzureWave Technologies, Inc.

Test Date: May 18 to June 06, 2016

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 :

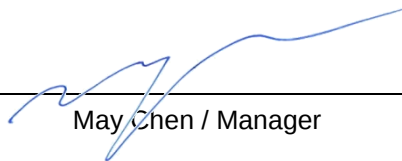


Date:

June 17, 2016

Claire Kuan / Specialist

Approved by :



Date:

June 17, 2016

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 Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -0.10dB at 4824.00MHz.
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 / Conducted Power were presented in this test report.
2. For WLAN: The EUT was operating in 2.400 ~ 2.4835GHz, 5.15~5.35GHz, 5.47~5.6GHz & 5.65~5.725GHz and 5.725~5.850GHz frequencies band. This report was recorded the RF parameters including 2.400 ~ 2.4835GHz. For the 5.15~5.35GHz, 5.47~5.6GHz & 5.65~5.725GHz and 5.725~5.850GHz RF parameters was recorded in another test report.

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	5.43 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	IEEE 802.11 2X2 MIMO a/b/g/n/ac Wireless LAN + Bluetooth + NFC NGFF Module
Brand	AzureWave
Test Model	AW-CM389NF
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 256QAM for OFDM in 11ac mode
Modulation Technology	DSSS, OFDM
Transfer Rate	802.11b: up to 11Mbps 802.11a/g: up to 54Mbps 802.11n: up to 300Mbps 802.11ac: up to 866.7Mbps
Operating Frequency	For 15.407 5.18 ~ 5.24GHz, 5.26 ~ 5.32GHz, 5.5 ~ 5.7GHz, 5.745 ~ 5.825GHz
	For 15.247 2.412 ~ 2.462GHz
Number of Channel	For 15.407 24 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 11 for 802.11n (HT40), 802.11ac (VHT40) 5 for 802.11ac (VHT80)
	For 15.247 11 for 802.11b, 802.11g, 802.11n (HT20) 7 for 802.11n (HT40)
Output Power	For 15.407 5.18~5.24GHz 64.539mW 5.26~5.32GHz 70.809mW 5.5 ~ 5.7GHz 74.062mW 5.745~5.825GHz 69.979mW
	For 15.247 624.507mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	NA
Data Cable Supplied	NA

Note:

1. This report is prepared for FCC Class II change. The differences between them are as below information:

◆ Added three sets of antennas as below table:

Original								
For WLAN / BT								
Antenna Set.	Transmitter Circuit	Brand	Model	Antenna Gain(dBi) < including cable loss>	Frequency range (MHz to MHz)	Antenna Type	Connector Type	Cable Length (cm)
1	Chain (0)	MAG.LAYERS	MSA-4008-25GC1-A1	2.98	2400~2500	PIFA	i-pex(MHF)	15
				5.16	4900~5900			
	Chain (1)	MAG.LAYERS	MSA-4008-25GC1-A1	2.98	2400~2500	PIFA	i-pex(MHF)	15
				5.16	4900~5900			
2	Main Antenna Chain 0	Wistron Neweb Corporation	DC33001KT00 (81EAAL15.G92)	1.54	2400~2500	PIFA	i-pex(MHF)	36.3
				1.26	5150~5850			
	Aux Antenna Chain 1	Wistron Neweb Corporation	DC33001KT10 (81EAAL15.G75)	0.63	2400~2500	PIFA	i-pex(MHF)	59.3
				1.84	5150~5850			
Newly								
For WLAN / BT								
Antenna Set.	Transmitter Circuit	Brand	Model	Antenna Gain(dBi)	Frequency range (MHz to MHz)	Antenna Type	Connector Type	Cable Loss (dB)
3	Chain (0)	TE connectivity	2195487	-0.77	2400~2500	Dipole	i-pex(MHF)	0.4
				3.64	5150~5850			0.5
	Chain (1)	TE connectivity	2195487	-0.77	2400~2500	Dipole	i-pex(MHF)	0.4
				3.64	5150~5850			0.5
4	Chain (0)	TE connectivity	2195501-1	2.35	2400~2500	Slot	i-pex(MHF)	0.35
				4.08	5150~5850			0.45
	Chain (1)	TE connectivity	2195501-1	2.35	2400~2500	Slot	i-pex(MHF)	0.35
				4.08	5150~5850			0.45
5	Chain (0)	TE connectivity	2195505-1	0.41	2400~2500	Slot	i-pex(MHF)	0.35
				4.82	5150~5850			0.45
	Chain (1)	TE connectivity	2195505-1	0.41	2400~2500	Slot	i-pex(MHF)	0.35
				4.82	5150~5850			0.45
From the above newly antenna sets, the Set 3, Set 4 were selected as representative antenna for the test and its data was recorded in this report.								

From the above newly antenna sets, the **Set 3, Set 4** were selected as representative antenna for the test and its data was recorded in this report.

2. According to above condition, Only Radiated Emissions / Conducted Power test items need to be performed. And all data were verified to meet the requirements.

3. There are Bluetooth, WLAN and NFC technology used for the EUT.

4. The NFC antenna provided to the EUT, please refer to the following table:

Brand	Model	Antenna Gain(dBi)	Frequency Range (MHz)	Antenna Type	Connector Type
Marvell	30X40X4T_PCB	0.5	13.56	PCB	i-pex(MHF)

5. WLAN/BT/NFC coexistence mode:

Condition	Technology		
1	WLAN(2.4GHz) 1Tx only		NFC
2	WLAN(5GHz) 1Tx only		NFC

From above coexistence mode, radiated emission of the simultaneous operation has been evaluated and no non-compliance was found.

6. The EUT incorporates a MIMO function.

MODULATION MODE	DATA RATE (MCS)	TX & RX CONFIGURATION	
802.11a	6 ~ 54Mbps	1Tx diversity/2TX(CDD)	1Rx diversity/2RX
802.11b	1 ~ 11Mbps	1Tx diversity/2TX(CDD)	1Rx diversity/2RX
802.11g	6 ~ 54Mbps	1Tx diversity/2TX(CDD)	1Rx diversity/2RX
802.11n (HT20)	MCS 0~7	1Tx	1Rx diversity
	MCS 8~15	2Tx	2Rx
802.11n (HT40)	MCS 0~7	1Tx	1Rx diversity
	MCS 8~15	2Tx	2Rx
802.11ac (VHT20) (5GHz)	MCS0~8 (256QAM) Nss=1	1Tx	1Rx diversity
	MCS0~8 (256QAM) Nss=2	2Tx	2Rx
802.11ac (VHT40) (5GHz)	MCS0~9 (256QAM) Nss=1	1Tx	1Rx diversity
	MCS0~9 (256QAM) Nss=2	2Tx	2Rx
802.11ac (VHT80) (5GHz)	MCS0~9 (256QAM) Nss=1	1Tx	1Rx diversity
	MCS0~9 (256QAM) Nss=2	2Tx	2Rx

7. 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		

7 channels are provided for 802.11n (HT40):

Channel	Frequency	Channel	Frequency
3	2422MHz	7	2442MHz
4	2427MHz	8	2447MHz
5	2432MHz	9	2452MHz
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	√	√	-	EUT With Dipole antenna
2	√	√	√	EUT With Slot antenna

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

NOTE: 1. **For Dipole antenna:** The EUT's antenna had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Y-plane**.
 2. **For Slot antenna:** The EUT's antenna had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **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)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	13
802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	27

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:

- ☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- ☒ 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.

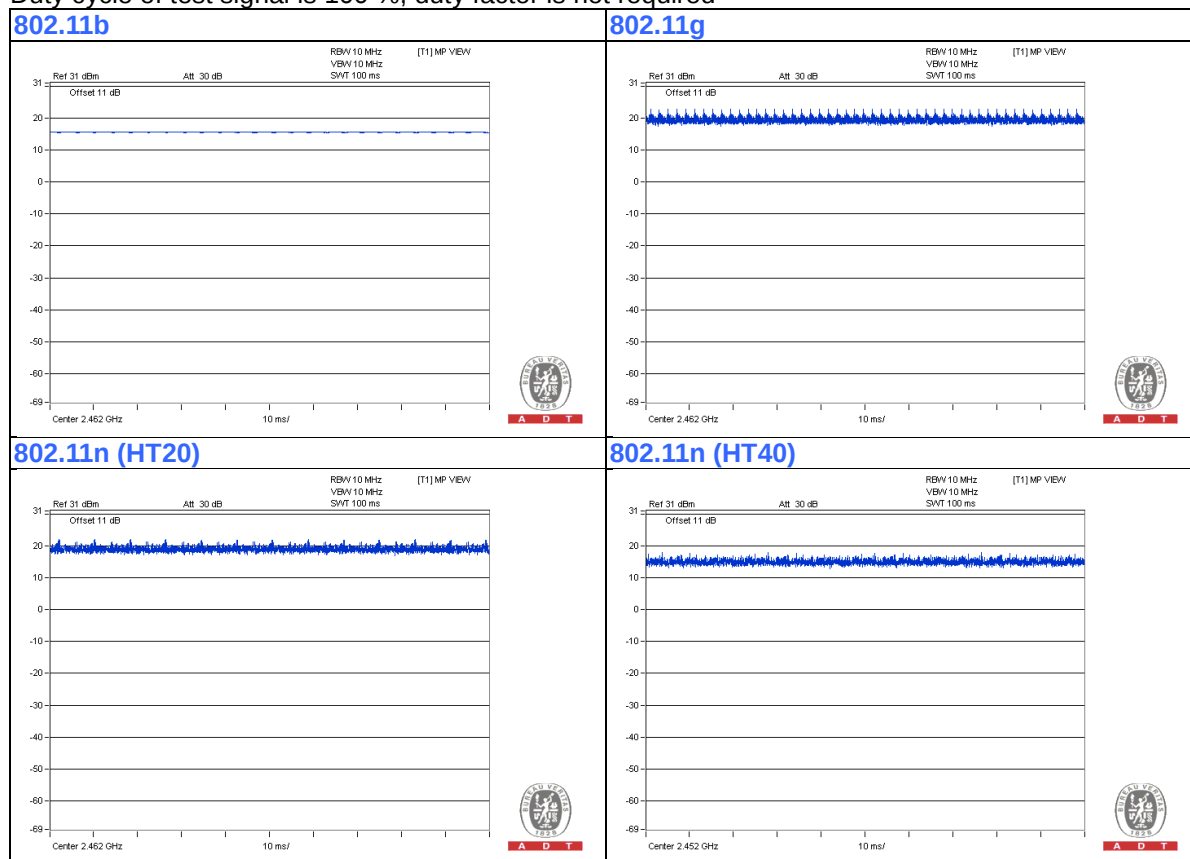
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	13
802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	27

Test Condition:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (SYSTEM)	TESTED BY
RE $\geq$ 1G	22deg. C, 63%RH	120Vac, 60Hz	Robert Cheng
RE<1G	26deg. C, 69%RH	120Vac, 60Hz	Andy Ho
APCM	23deg. C, 63%RH	120Vac, 60Hz	Anderson Chen

3.3 Duty Cycle of Test Signal

Duty cycle of test signal is 100 %, duty factor is not required



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.

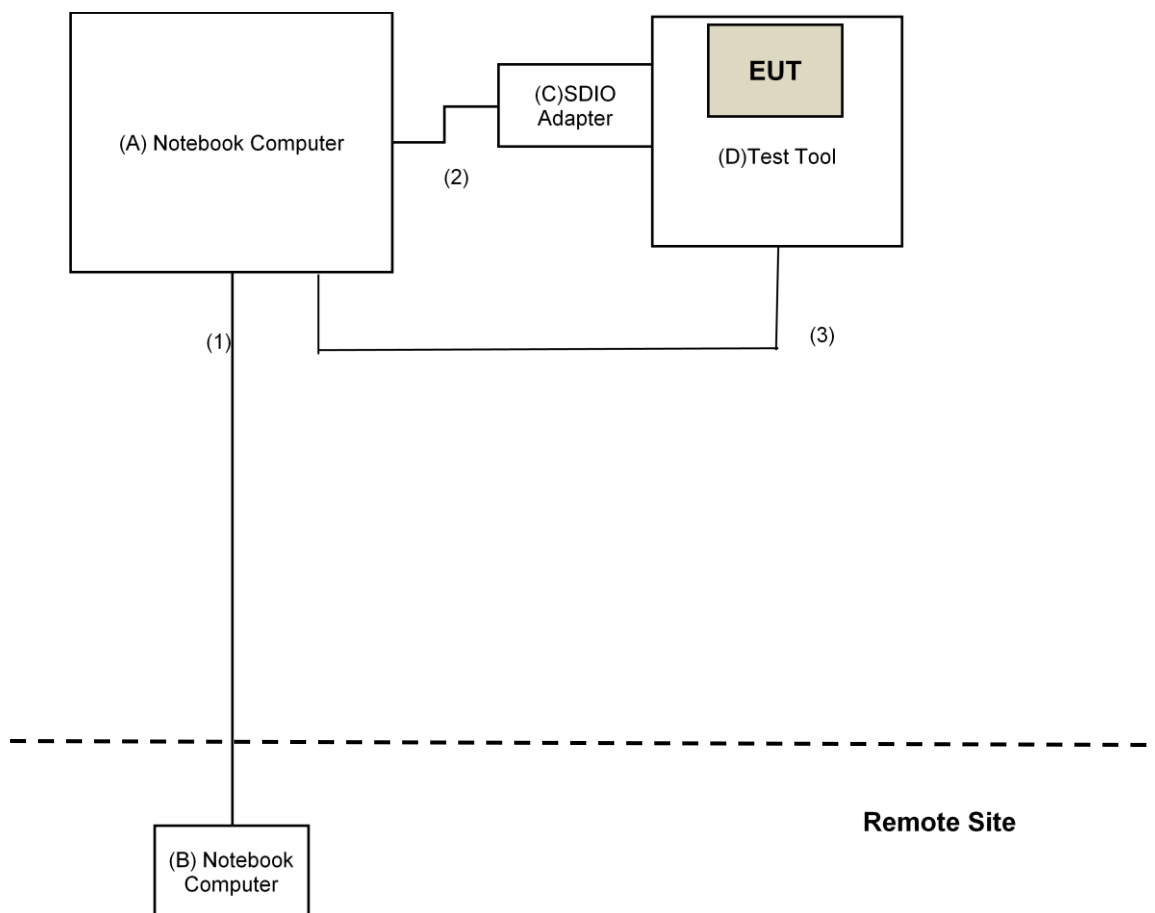
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	NOTEBOOK COMPUTER	Lenovo	769	L3-BE428 08/01	NA	Provided by Lab
B.	NOTEBOOK COMPUTER	DELL	E6420	B92T3R1	FCC DoC	Provided by Lab
C.	SDIO ADAPTER	AzureWave	CK77 94V-0	NA	NA	Supplied by client
D.	TEST TOOLS	AzureWave	1280NF I03	NA	NA	Supplied by client

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.	RJ45	1	10	No	0	Provided by Lab
2.	USB	1	1.5	Yes	0	Provided by Lab
3.	USB	1	1.8	Yes	0	Provided by Lab

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)
KDB 558074 D01 DTS Meas Guidance v03r05
KDB 662911 D01 Multiple Transmitter Output v02r01
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 Agilent	N9038A	MY51210202	Dec. 16, 2015	Dec. 15, 2016
Pre-Amplifier ^(*) EMCI	EMC001340	980142	Jan. 20, 2016	Jan. 19, 2018
Loop Antenna(*) Electro-Metrics	EM-6879	264	Dec. 16, 2014	Dec. 15, 2016
RF Cable	NA	LOOPCAB-001 LOOPCAB-002	Jan. 18, 2016	Jan. 17, 2017
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-04	Nov. 11, 2015	Nov. 10, 2016
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-361	Jan. 07, 2016	Jan. 06, 2017
RF Cable	8D-FB	CHHCAB-001-1 CHHCAB-001-2	Oct. 04, 2015	Oct. 03, 2016
	RF-141	CHHCAB-004	Oct. 04, 2015	Oct. 03, 2016
Horn_Antenna AISI	AIH.8018	0000220091110	Jan. 18, 2016	Jan. 17, 2017
Pre-Amplifier Agilent	8449B	3008A01923	Oct. 27, 2015	Oct. 26, 2016
RF Cable	NA	131206 131213 131215 SNMY23685/4	Jan. 15, 2016	Jan. 14, 2017
Spectrum Analyzer Agilent	E4446A	MY48250254	Nov. 25, 2015	Nov. 24, 2016
Pre-Amplifier SPACEK LABS	SLKKa-48-6	9K16	Dec. 11, 2015	Dec. 10, 2016
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Jan. 18, 2016	Jan. 17, 2017
RF Cable	SUCOFLEX 102	36442/2 36434/2	Dec. 10, 2015	Dec.09, 2016
Software	ADT_Radiated _V8.7.07	NA	NA	NA
Antenna Tower & Turn Table CT	CM100	NA	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-WD02	NA	NA
Spectrum Analyzer R&S	FSP40	100060	May 11, 2016	May 10, 2017
Power meter Anritsu	ML2495A	1014008	May 5, 2016	May 4, 2017
Power sensor Anritsu	MA2411B	0917122	May 5, 2016	May 4, 2017

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. H.
4. The FCC Site Registration No. is 797305.
5. The CANADA Site Registration No. is IC 7450H-3.
6. Tested Date: May 18 to June 06, 2016

4.1.3 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:

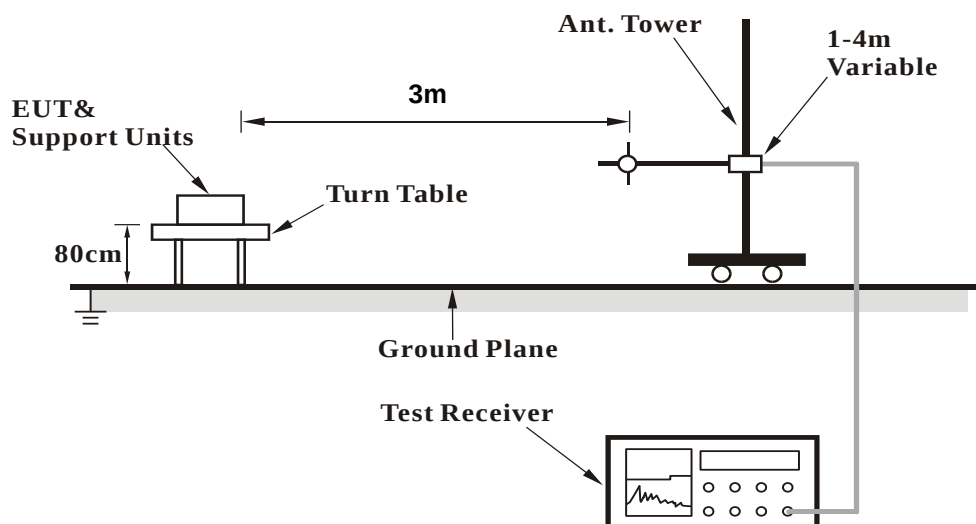
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
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.

4.1.4 Deviation from Test Standard

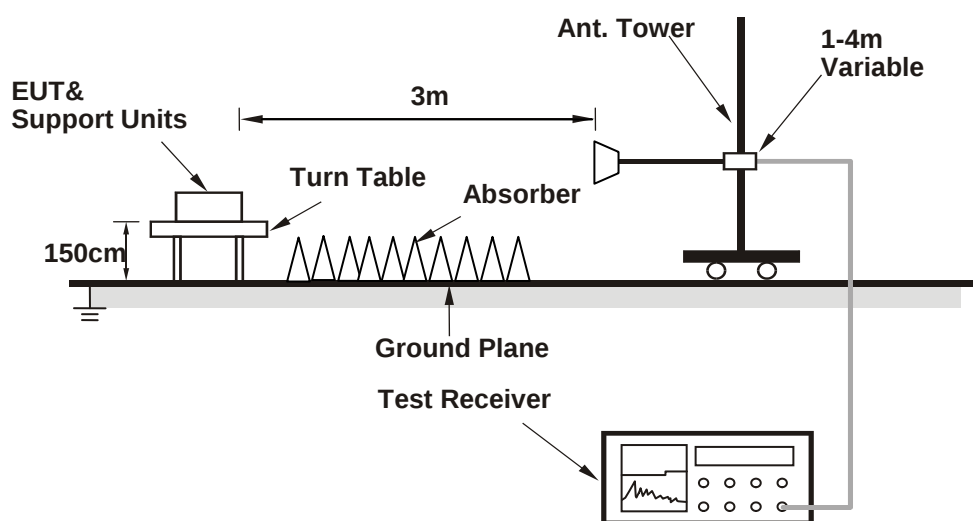
No deviation.

4.1.5 Test Setup

<Frequency Range below 1GHz>



<Frequency Range above 1GHz>



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

4.1.6 EUT Operating Conditions

- Connected the EUT with the support unit A (Notebook Computer) which is placed on remote site.
- Contorlling software (DutApiMimoBtFmBrdigeEth.exe[ver 2.0.0.47]) has been activated to set the EUT on specific status.

4.1.7 Test Results (Mode 1)

Above 1GHz Data

802.11b

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	50.40 PK	74.00	-23.60	2.66 H	240	52.80	-2.40
2	2390.00	39.20 AV	54.00	-14.80	2.66 H	240	41.60	-2.40
3	*2412.00	100.10 PK			2.66 H	240	102.50	-2.40
4	*2412.00	97.30 AV			2.66 H	240	99.70	-2.40
5	4824.00	55.20 PK	74.00	-18.80	2.20 H	344	49.30	5.90
6	4824.00	45.60 AV	54.00	-8.40	2.20 H	344	39.70	5.90
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	51.30 PK	74.00	-22.70	1.78 V	166	53.70	-2.40
2	2390.00	39.20 AV	54.00	-14.80	1.78 V	166	41.60	-2.40
3	*2412.00	105.60 PK			1.78 V	166	108.00	-2.40
4	*2412.00	101.90 AV			1.78 V	166	104.30	-2.40
5	4824.00	59.10 PK	74.00	-14.90	2.15 V	246	53.20	5.90
6	4824.00	53.90 AV	54.00	-0.10	2.15 V	246	48.00	5.90

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	102.20 PK			2.59 H	189	104.60	-2.40
2	*2437.00	99.30 AV			2.59 H	189	101.70	-2.40
3	4874.00	54.80 PK	74.00	-19.20	2.25 H	352	48.70	6.10
4	4874.00	45.30 AV	54.00	-8.70	2.25 H	352	39.20	6.10
5	7311.00	58.50 PK	74.00	-15.50	1.25 H	93	48.10	10.40
6	7311.00	46.20 AV	54.00	-7.80	1.25 H	93	35.80	10.40
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	107.60 PK			1.58 V	357	110.00	-2.40
2	*2437.00	104.10 AV			1.58 V	357	106.50	-2.40
3	4874.00	60.50 PK	74.00	-13.50	2.43 V	241	54.40	6.10
4	4874.00	53.80 AV	54.00	-0.20	2.43 V	241	47.70	6.10
5	7311.00	59.20 PK	74.00	-14.80	1.00 V	213	48.80	10.40
6	7311.00	47.90 AV	54.00	-6.10	1.00 V	213	37.50	10.40

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	102.70 PK			2.51 H	200	105.00	-2.30
2	*2462.00	100.00 AV			2.51 H	200	102.30	-2.30
3	2483.50	50.90 PK	74.00	-23.10	2.51 H	200	53.30	-2.40
4	2483.50	39.60 AV	54.00	-14.40	2.51 H	200	42.00	-2.40
5	4924.00	55.40 PK	74.00	-18.60	2.22 H	345	49.20	6.20
6	4924.00	45.80 AV	54.00	-8.20	2.22 H	345	39.60	6.20
7	7386.00	58.60 PK	74.00	-15.40	1.24 H	100	47.70	10.90
8	7386.00	46.20 AV	54.00	-7.80	1.24 H	100	35.30	10.90
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	108.10 PK			1.40 V	360	110.40	-2.30
2	*2462.00	104.70 AV			1.40 V	360	107.00	-2.30
3	2483.50	65.10 PK	74.00	-8.90	1.40 V	360	67.50	-2.40
4	2483.50	41.80 AV	54.00	-12.20	1.40 V	360	44.20	-2.40
5	4924.00	58.60 PK	74.00	-15.40	2.25 V	241	52.40	6.20
6	4924.00	53.20 AV	54.00	-0.80	2.25 V	241	47.00	6.20
7	7386.00	59.60 PK	74.00	-14.40	1.00 V	215	48.70	10.90
8	7386.00	48.10 AV	54.00	-5.90	1.00 V	215	37.20	10.90

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

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	43.80 PK	74.00	-30.20	2.03 H	211	46.20	-2.40
2	2390.00	40.90 AV	54.00	-13.10	2.03 H	211	43.30	-2.40
3	*2412.00	102.60 PK			2.03 H	211	105.00	-2.40
4	*2412.00	93.50 AV			2.03 H	211	95.90	-2.40
5	4824.00	55.20 PK	74.00	-18.80	2.25 H	359	49.30	5.90
6	4824.00	45.60 AV	54.00	-8.40	2.25 H	359	39.70	5.90
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	58.00 PK	74.00	-16.00	1.78 V	360	60.40	-2.40
2	2390.00	43.20 AV	54.00	-10.80	1.78 V	360	45.60	-2.40
3	*2412.00	108.10 PK			1.78 V	360	110.50	-2.40
4	*2412.00	98.10 AV			1.78 V	360	100.50	-2.40
5	4824.00	55.20 PK	74.00	-18.80	2.28 V	350	49.30	5.90
6	4824.00	45.50 AV	54.00	-8.50	2.28 V	350	39.60	5.90

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	107.40 PK			2.00 H	222	109.80	-2.40
2	*2437.00	98.30 AV			2.00 H	222	100.70	-2.40
3	4874.00	54.90 PK	74.00	-19.10	2.25 H	360	48.80	6.10
4	4874.00	45.20 AV	54.00	-8.80	2.25 H	360	39.10	6.10
5	7311.00	58.80 PK	74.00	-15.20	1.21 H	105	48.40	10.40
6	7311.00	46.50 AV	54.00	-7.50	1.21 H	105	36.10	10.40
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	113.50 PK			1.72 V	360	115.90	-2.40
2	*2437.00	103.40 AV			1.72 V	360	105.80	-2.40
3	4874.00	55.00 PK	74.00	-19.00	2.31 V	360	48.90	6.10
4	4874.00	45.30 AV	54.00	-8.70	2.31 V	360	39.20	6.10
5	7311.00	58.40 PK	74.00	-15.60	1.22 V	83	48.00	10.40
6	7311.00	46.20 AV	54.00	-7.80	1.22 V	83	35.80	10.40

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	103.10 PK			2.09 H	208	105.40	-2.30
2	*2462.00	93.90 AV			2.09 H	208	96.20	-2.30
3	2483.50	43.80 PK	74.00	-30.20	2.09 H	208	46.20	-2.40
4	2483.50	40.80 AV	54.00	-13.20	2.09 H	208	43.20	-2.40
5	4924.00	55.00 PK	74.00	-19.00	2.23 H	359	48.80	6.20
6	4924.00	45.80 AV	54.00	-8.20	2.23 H	359	39.60	6.20
7	7386.00	58.50 PK	74.00	-15.50	1.26 H	94	47.60	10.90
8	7386.00	45.90 AV	54.00	-8.10	1.26 H	94	35.00	10.90
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	111.60 PK			1.53 V	359	113.90	-2.30
2	*2462.00	102.20 AV			1.53 V	359	104.50	-2.30
3	2483.50	68.50 PK	74.00	-5.50	1.53 V	359	70.90	-2.40
4	2483.50	52.10 AV	54.00	-1.90	1.53 V	359	54.50	-2.40
5	4924.00	54.90 PK	74.00	-19.10	2.33 V	357	48.70	6.20
6	4924.00	45.40 AV	54.00	-8.60	2.33 V	357	39.20	6.20
7	7386.00	58.40 PK	74.00	-15.60	1.25 V	81	47.50	10.90
8	7386.00	46.00 AV	54.00	-8.00	1.25 V	81	35.10	10.90

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)

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	43.80 PK	74.00	-30.20	2.08 H	200	46.20	-2.40
2	2390.00	40.80 AV	54.00	-13.20	2.08 H	200	43.20	-2.40
3	*2412.00	102.80 PK			2.08 H	200	105.20	-2.40
4	*2412.00	94.00 AV			2.08 H	200	96.40	-2.40
5	4824.00	55.00 PK	74.00	-19.00	2.29 H	360	49.10	5.90
6	4824.00	45.10 AV	54.00	-8.90	2.29 H	360	39.20	5.90
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	58.60 PK	74.00	-15.40	1.60 V	357	61.00	-2.40
2	2390.00	44.50 AV	54.00	-9.50	1.60 V	357	46.90	-2.40
3	*2412.00	107.50 PK			1.60 V	357	109.90	-2.40
4	*2412.00	96.00 AV			1.60 V	357	98.40	-2.40
5	4824.00	55.40 PK	74.00	-18.60	2.24 V	340	49.50	5.90
6	4824.00	45.80 AV	54.00	-8.20	2.24 V	340	39.90	5.90

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	107.20 PK			1.97 H	226	109.60	-2.40
2	*2437.00	98.40 AV			1.97 H	226	100.80	-2.40
3	4874.00	54.60 PK	74.00	-19.40	2.30 H	360	48.50	6.10
4	4874.00	45.20 AV	54.00	-8.80	2.30 H	360	39.10	6.10
5	7311.00	58.80 PK	74.00	-15.20	1.20 H	115	48.40	10.40
6	7311.00	46.70 AV	54.00	-7.30	1.20 H	115	36.30	10.40
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	112.40 PK			1.71 V	358	114.80	-2.40
2	*2437.00	101.30 AV			1.71 V	358	103.70	-2.40
3	4874.00	55.30 PK	74.00	-18.70	2.30 V	350	49.20	6.10
4	4874.00	45.70 AV	54.00	-8.30	2.30 V	350	39.60	6.10
5	7311.00	59.10 PK	74.00	-14.90	1.19 V	79	48.70	10.40
6	7311.00	46.70 AV	54.00	-7.30	1.19 V	79	36.30	10.40

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	103.40 PK			2.05 H	211	105.70	-2.30
2	*2462.00	94.30 AV			2.05 H	211	96.60	-2.30
3	2483.50	43.90 PK	74.00	-30.10	2.05 H	211	46.30	-2.40
4	2483.50	40.90 AV	54.00	-13.10	2.05 H	211	43.30	-2.40
5	4924.00	54.90 PK	74.00	-19.10	2.22 H	360	48.70	6.20
6	4924.00	45.80 AV	54.00	-8.20	2.22 H	360	39.60	6.20
7	7386.00	58.70 PK	74.00	-15.30	1.29 H	83	47.80	10.90
8	7386.00	46.20 AV	54.00	-7.80	1.29 H	83	35.30	10.90
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	110.30 PK			1.62 V	358	112.60	-2.30
2	*2462.00	99.10 AV			1.62 V	358	101.40	-2.30
3	2483.50	72.10 PK	74.00	-1.90	1.62 V	358	74.50	-2.40
4	2483.50	51.00 AV	54.00	-3.00	1.62 V	358	53.40	-2.40
5	4924.00	54.60 PK	74.00	-19.40	2.28 V	360	48.40	6.20
6	4924.00	45.20 AV	54.00	-8.80	2.28 V	360	39.00	6.20
7	7386.00	58.80 PK	74.00	-15.20	1.22 V	84	47.90	10.90
8	7386.00	46.40 AV	54.00	-7.60	1.22 V	84	35.50	10.90

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)

CHANNEL	TX Channel 3	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	63.70 PK	74.00	-10.30	2.14 H	166	66.10	-2.40
2	2390.00	47.90 AV	54.00	-6.10	2.14 H	166	50.30	-2.40
3	*2422.00	99.20 PK			2.14 H	166	101.60	-2.40
4	*2422.00	87.30 AV			2.14 H	166	89.70	-2.40
5	4844.00	55.30 PK	74.00	-18.70	2.19 H	360	49.30	6.00
6	4844.00	46.30 AV	54.00	-7.70	2.19 H	360	40.30	6.00
7	7266.00	58.10 PK	74.00	-15.90	1.29 H	76	47.70	10.40
8	7266.00	45.70 AV	54.00	-8.30	1.29 H	76	35.30	10.40
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	62.30 PK	74.00	-11.70	1.60 V	356	64.70	-2.40
2	2390.00	47.90 AV	54.00	-6.10	1.60 V	356	50.30	-2.40
3	*2422.00	102.40 PK			1.60 V	356	104.80	-2.40
4	*2422.00	91.20 AV			1.60 V	356	93.60	-2.40
5	4844.00	55.40 PK	74.00	-18.60	2.29 V	360	49.40	6.00
6	4844.00	45.70 AV	54.00	-8.30	2.29 V	360	39.70	6.00
7	7266.00	59.20 PK	74.00	-14.80	1.25 V	89	48.80	10.40
8	7266.00	46.60 AV	54.00	-7.40	1.25 V	89	36.20	10.40

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	2390.00	49.50 PK	74.00	-24.50	2.14 H	145	51.90	-2.40
2	2390.00	46.70 AV	54.00	-7.30	2.14 H	145	49.10	-2.40
3	*2437.00	101.10 PK			2.14 H	145	103.50	-2.40
4	*2437.00	90.20 AV			2.14 H	145	92.60	-2.40
5	2483.50	63.70 PK	74.00	-10.30	2.14 H	145	66.10	-2.40
6	2483.50	48.00 AV	54.00	-6.00	2.14 H	145	50.40	-2.40
7	4874.00	54.60 PK	74.00	-19.40	2.23 H	360	48.50	6.10
8	4874.00	45.50 AV	54.00	-8.50	2.23 H	360	39.40	6.10
9	7311.00	58.80 PK	74.00	-15.20	1.24 H	77	48.40	10.40
10	7311.00	46.00 AV	54.00	-8.00	1.24 H	77	35.60	10.40

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	64.10 PK	74.00	-9.90	1.71 V	356	66.50	-2.40
2	2390.00	48.80 AV	54.00	-5.20	1.71 V	356	51.20	-2.40
3	*2437.00	106.10 PK			1.71 V	356	108.50	-2.40
4	*2437.00	95.00 AV			1.71 V	356	97.40	-2.40
5	2483.50	70.20 PK	74.00	-3.80	1.71 V	356	72.60	-2.40
6	2483.50	53.80 AV	54.00	-0.20	1.71 V	356	56.20	-2.40
7	4874.00	54.20 PK	74.00	-19.80	2.26 V	360	48.10	6.10
8	4874.00	45.00 AV	54.00	-9.00	2.26 V	360	38.90	6.10
9	7311.00	59.10 PK	74.00	-14.90	1.19 V	93	48.70	10.40
10	7311.00	46.60 AV	54.00	-7.40	1.19 V	93	36.20	10.40

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 9	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	*2452.00	99.20 PK			2.11 H	150	101.60	-2.40
2	*2452.00	87.30 AV			2.11 H	150	89.70	-2.40
3	2483.50	63.70 PK	74.00	-10.30	2.11 H	150	66.10	-2.40
4	2483.50	48.20 AV	54.00	-5.80	2.11 H	150	50.60	-2.40
5	4904.00	54.70 PK	74.00	-19.30	2.17 H	357	48.50	6.20
6	4904.00	45.40 AV	54.00	-8.60	2.17 H	357	39.20	6.20
7	7356.00	58.90 PK	74.00	-15.10	1.32 H	85	48.10	10.80
8	7356.00	46.70 AV	54.00	-7.30	1.32 H	85	35.90	10.80
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	104.20 PK			1.51 V	360	106.60	-2.40
2	*2452.00	92.80 AV			1.51 V	360	95.20	-2.40
3	2483.50	70.40 PK	74.00	-3.60	1.51 V	360	72.80	-2.40
4	2483.50	52.90 AV	54.00	-1.10	1.51 V	360	55.30	-2.40
5	4904.00	54.60 PK	74.00	-19.40	2.23 V	360	48.40	6.20
6	4904.00	45.20 AV	54.00	-8.80	2.23 V	360	39.00	6.20
7	7356.00	58.10 PK	74.00	-15.90	1.23 V	77	47.30	10.80
8	7356.00	45.90 AV	54.00	-8.10	1.23 V	77	35.10	10.80

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	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	47.99	30.55 QP	40.00	-9.45	2.00 H	174	39.01	-8.46
2	184.59	36.25 QP	43.50	-7.25	2.00 H	51	46.11	-9.86
3	359.99	39.28 QP	46.00	-6.72	1.00 H	257	44.39	-5.11
4	528.00	41.84 QP	46.00	-4.16	1.50 H	214	42.97	-1.13
5	648.01	42.70 QP	46.00	-3.30	1.50 H	12	41.18	1.52
6	840.00	40.79 QP	46.00	-5.21	1.00 H	186	35.94	4.85
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	184.16	33.40 QP	43.50	-10.10	1.00 V	86	43.22	-9.82
2	312.00	33.10 QP	46.00	-12.90	1.00 V	72	39.26	-6.16
3	528.00	39.23 QP	46.00	-6.77	1.50 V	105	40.36	-1.13
4	648.01	38.11 QP	46.00	-7.89	1.50 V	70	36.59	1.52
5	887.99	36.63 QP	46.00	-9.37	1.00 V	92	31.13	5.50
6	984.00	38.19 QP	54.00	-15.81	1.50 V	102	30.83	7.36

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

4.1.8 Test Results (Mode 2)

Above 1GHz Data

802.11b

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	61.20 PK	74.00	-12.80	1.35 H	45	63.60	-2.40
2	2390.00	40.60 AV	54.00	-13.40	1.35 H	45	43.00	-2.40
3	*2412.00	104.00 PK			1.35 H	45	106.40	-2.40
4	*2412.00	100.20 AV			1.35 H	45	102.60	-2.40
5	4824.00	57.40 PK	74.00	-16.60	1.31 H	180	51.50	5.90
6	4824.00	48.80 AV	54.00	-5.20	1.31 H	180	42.90	5.90
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	65.50 PK	74.00	-8.50	1.47 V	166	67.90	-2.40
2	2390.00	42.20 AV	54.00	-11.80	1.47 V	166	44.60	-2.40
3	*2412.00	107.50 PK			1.47 V	166	109.90	-2.40
4	*2412.00	103.10 AV			1.47 V	166	105.50	-2.40
5	4824.00	59.10 PK	74.00	-14.90	1.41 V	25	53.20	5.90
6	4824.00	53.10 AV	54.00	-0.90	1.41 V	25	47.20	5.90

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	103.20 PK			1.30 H	39	105.60	-2.40
2	*2437.00	99.60 AV			1.30 H	39	102.00	-2.40
3	4874.00	57.30 PK	74.00	-16.70	1.30 H	178	51.20	6.10
4	4874.00	48.90 AV	54.00	-5.10	1.30 H	178	42.80	6.10
5	7311.00	59.10 PK	74.00	-14.90	1.21 H	67	48.70	10.40
6	7311.00	45.70 AV	54.00	-8.30	1.21 H	67	35.30	10.40
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	106.20 PK			1.53 V	166	108.60	-2.40
2	*2437.00	102.40 AV			1.53 V	166	104.80	-2.40
3	4874.00	59.10 PK	74.00	-14.90	1.66 V	28	53.00	6.10
4	4874.00	53.80 AV	54.00	-0.20	1.66 V	28	47.70	6.10
5	7311.00	59.60 PK	74.00	-14.40	1.06 V	249	49.20	10.40
6	7311.00	46.10 AV	54.00	-7.90	1.06 V	249	35.70	10.40

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	102.40 PK			1.29 H	48	104.70	-2.30
2	*2462.00	98.80 AV			1.29 H	48	101.10	-2.30
3	2483.50	59.50 PK	74.00	-14.50	1.29 H	48	61.90	-2.40
4	2483.50	38.70 AV	54.00	-15.30	1.29 H	48	41.10	-2.40
5	4924.00	57.90 PK	74.00	-16.10	1.28 H	165	51.70	6.20
6	4924.00	49.30 AV	54.00	-4.70	1.28 H	165	43.10	6.20
7	7386.00	59.30 PK	74.00	-14.70	1.24 H	80	48.40	10.90
8	7386.00	45.80 AV	54.00	-8.20	1.24 H	80	34.90	10.90
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	105.10 PK			1.54 V	163	107.40	-2.30
2	*2462.00	101.50 AV			1.54 V	163	103.80	-2.30
3	2483.50	63.40 PK	74.00	-10.60	1.54 V	163	65.80	-2.40
4	2483.50	41.00 AV	54.00	-13.00	1.54 V	163	43.40	-2.40
5	4924.00	58.90 PK	74.00	-15.10	1.50 V	26	52.70	6.20
6	4924.00	53.10 AV	54.00	-0.90	1.50 V	26	46.90	6.20
7	7386.00	59.60 PK	74.00	-14.40	1.00 V	241	48.70	10.90
8	7386.00	46.30 AV	54.00	-7.70	1.00 V	241	35.40	10.90

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

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	57.70 PK	74.00	-16.30	1.29 H	33	60.10	-2.40
2	2390.00	42.60 AV	54.00	-11.40	1.29 H	33	45.00	-2.40
3	*2412.00	103.80 PK			1.29 H	33	106.20	-2.40
4	*2412.00	94.20 AV			1.29 H	33	96.60	-2.40
5	4824.00	50.30 PK	74.00	-23.70	1.20 H	169	44.40	5.90
6	4824.00	39.10 AV	54.00	-14.90	1.20 H	169	33.20	5.90
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	61.60 PK	74.00	-12.40	1.47 V	161	64.00	-2.40
2	2390.00	44.50 AV	54.00	-9.50	1.47 V	161	46.90	-2.40
3	*2412.00	106.60 PK			1.47 V	161	109.00	-2.40
4	*2412.00	96.90 AV			1.47 V	161	99.30	-2.40
5	4824.00	50.30 PK	74.00	-23.70	1.31 V	83	44.40	5.90
6	4824.00	39.90 AV	54.00	-14.10	1.31 V	83	34.00	5.90

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	2390.00	60.60 PK	74.00	-13.40	1.26 H	32	63.00	-2.40
2	2390.00	40.20 AV	54.00	-13.80	1.26 H	32	42.60	-2.40
3	*2437.00	110.00 PK			1.26 H	32	112.40	-2.40
4	*2437.00	100.10 AV			1.26 H	32	102.50	-2.40
5	2483.50	69.60 PK	74.00	-4.40	1.26 H	32	72.00	-2.40
6	2483.50	48.80 AV	54.00	-5.20	1.26 H	32	51.20	-2.40
7	4874.00	49.80 PK	74.00	-24.20	1.24 H	155	43.70	6.10
8	4874.00	38.90 AV	54.00	-15.10	1.24 H	155	32.80	6.10
9	7311.00	54.70 PK	74.00	-19.30	1.03 H	335	44.30	10.40
10	7311.00	42.40 AV	54.00	-11.60	1.03 H	335	32.00	10.40

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	64.20 PK	74.00	-9.80	1.71 V	144	66.60	-2.40
2	2390.00	42.10 AV	54.00	-11.90	1.71 V	144	44.50	-2.40
3	*2437.00	112.80 PK			1.71 V	144	115.20	-2.40
4	*2437.00	102.80 AV			1.71 V	144	105.20	-2.40
5	2483.50	73.10 PK	74.00	-0.90	1.71 V	144	75.50	-2.40
6	2483.50	50.90 AV	54.00	-3.10	1.71 V	144	53.30	-2.40
7	4874.00	50.20 PK	74.00	-23.80	1.28 V	79	44.10	6.10
8	4874.00	39.70 AV	54.00	-14.30	1.28 V	79	33.60	6.10
9	7311.00	55.00 PK	74.00	-19.00	1.37 V	90	44.60	10.40
10	7311.00	41.90 AV	54.00	-12.10	1.37 V	90	31.50	10.40

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	105.40 PK			1.22 H	22	107.70	-2.30
2	*2462.00	95.90 AV			1.22 H	22	98.20	-2.30
3	2483.50	65.00 PK	74.00	-9.00	1.22 H	22	67.40	-2.40
4	2483.50	50.30 AV	54.00	-3.70	1.22 H	22	52.70	-2.40
5	4924.00	50.20 PK	74.00	-23.80	1.25 H	139	44.00	6.20
6	4924.00	39.10 AV	54.00	-14.90	1.25 H	139	32.90	6.20
7	7386.00	54.10 PK	74.00	-19.90	1.00 H	331	43.20	10.90
8	7386.00	42.10 AV	54.00	-11.90	1.00 H	331	31.20	10.90
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	108.20 PK			1.53 V	159	110.50	-2.30
2	*2462.00	98.60 AV			1.53 V	159	100.90	-2.30
3	2483.50	68.70 PK	74.00	-5.30	1.53 V	159	71.10	-2.40
4	2483.50	52.20 AV	54.00	-1.80	1.53 V	159	54.60	-2.40
5	4924.00	50.10 PK	74.00	-23.90	1.28 V	79	43.90	6.20
6	4924.00	39.70 AV	54.00	-14.30	1.28 V	79	33.50	6.20
7	7386.00	55.20 PK	74.00	-18.80	1.40 V	91	44.30	10.90
8	7386.00	42.20 AV	54.00	-11.80	1.40 V	91	31.30	10.90

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)

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	58.00 PK	74.00	-16.00	1.29 H	29	60.40	-2.40
2	2390.00	42.80 AV	54.00	-11.20	1.29 H	29	45.20	-2.40
3	*2412.00	103.10 PK			1.29 H	29	105.50	-2.40
4	*2412.00	91.10 AV			1.29 H	29	93.50	-2.40
5	4824.00	49.90 PK	74.00	-24.10	1.17 H	124	44.00	5.90
6	4824.00	38.80 AV	54.00	-15.20	1.17 H	124	32.90	5.90
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	60.60 PK	74.00	-13.40	1.49 V	160	63.00	-2.40
2	2390.00	45.10 AV	54.00	-8.90	1.49 V	160	47.50	-2.40
3	*2412.00	106.20 PK			1.49 V	160	108.60	-2.40
4	*2412.00	94.50 AV			1.49 V	160	96.90	-2.40
5	4824.00	50.60 PK	74.00	-23.40	1.18 V	81	44.70	5.90
6	4824.00	39.70 AV	54.00	-14.30	1.18 V	81	33.80	5.90

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	2390.00	57.20 PK	74.00	-16.80	1.32 H	27	59.60	-2.40
2	2390.00	38.50 AV	54.00	-15.50	1.32 H	27	40.90	-2.40
3	*2437.00	109.80 PK			1.32 H	27	112.20	-2.40
4	*2437.00	98.30 AV			1.32 H	27	100.70	-2.40
5	2483.50	64.70 PK	74.00	-9.30	1.32 H	27	67.10	-2.40
6	2483.50	44.00 AV	54.00	-10.00	1.32 H	27	46.40	-2.40
7	4874.00	49.50 PK	74.00	-24.50	1.21 H	140	43.40	6.10
8	4874.00	38.70 AV	54.00	-15.30	1.21 H	140	32.60	6.10
9	7311.00	54.80 PK	74.00	-19.20	1.02 H	343	44.40	10.40
10	7311.00	42.30 AV	54.00	-11.70	1.02 H	343	31.90	10.40

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	60.30 PK	74.00	-13.70	1.68 V	142	62.70	-2.40
2	2390.00	40.00 AV	54.00	-14.00	1.68 V	142	42.40	-2.40
3	*2437.00	112.50 PK			1.68 V	142	114.90	-2.40
4	*2437.00	101.00 AV			1.68 V	142	103.40	-2.40
5	2483.50	68.30 PK	74.00	-5.70	1.68 V	142	70.70	-2.40
6	2483.50	46.10 AV	54.00	-7.90	1.68 V	142	48.50	-2.40
7	4874.00	50.30 PK	74.00	-23.70	1.23 V	87	44.20	6.10
8	4874.00	39.70 AV	54.00	-14.30	1.23 V	87	33.60	6.10
9	7311.00	55.00 PK	74.00	-19.00	1.36 V	92	44.60	10.40
10	7311.00	42.20 AV	54.00	-11.80	1.36 V	92	31.80	10.40

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	106.90 PK			1.35 H	37	109.20	-2.30
2	*2462.00	95.50 AV			1.35 H	37	97.80	-2.30
3	2483.50	69.40 PK	74.00	-4.60	1.35 H	37	71.80	-2.40
4	2483.50	50.90 AV	54.00	-3.10	1.35 H	37	53.30	-2.40
5	4924.00	50.00 PK	74.00	-24.00	1.15 H	129	43.80	6.20
6	4924.00	39.10 AV	54.00	-14.90	1.15 H	129	32.90	6.20
7	7386.00	54.80 PK	74.00	-19.20	1.02 H	330	43.90	10.90
8	7386.00	42.10 AV	54.00	-11.90	1.02 H	330	31.20	10.90
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	109.60 PK			1.71 V	146	111.90	-2.30
2	*2462.00	98.20 AV			1.71 V	146	100.50	-2.30
3	2483.50	73.00 PK	74.00	-1.00	1.71 V	146	75.40	-2.40
4	2483.50	52.80 AV	54.00	-1.20	1.71 V	146	55.20	-2.40
5	4924.00	50.70 PK	74.00	-23.30	1.19 V	90	44.50	6.20
6	4924.00	39.80 AV	54.00	-14.20	1.19 V	90	33.60	6.20
7	7386.00	54.50 PK	74.00	-19.50	1.31 V	92	43.60	10.90
8	7386.00	42.00 AV	54.00	-12.00	1.31 V	92	31.10	10.90

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)

CHANNEL	TX Channel 3	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	57.00 PK	74.00	-17.00	1.35 H	36	59.40	-2.40
2	2390.00	46.20 AV	54.00	-7.80	1.35 H	36	48.60	-2.40
3	*2422.00	100.50 PK			1.35 H	36	102.90	-2.40
4	*2422.00	88.70 AV			1.35 H	36	91.10	-2.40
5	4844.00	49.60 PK	74.00	-24.40	1.21 H	151	43.60	6.00
6	4844.00	38.80 AV	54.00	-15.20	1.21 H	151	32.80	6.00
7	7266.00	54.30 PK	74.00	-19.70	1.05 H	360	43.90	10.40
8	7266.00	42.00 AV	54.00	-12.00	1.05 H	360	31.60	10.40
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	60.30 PK	74.00	-13.70	1.69 V	142	62.70	-2.40
2	2390.00	48.10 AV	54.00	-5.90	1.69 V	142	50.50	-2.40
3	*2422.00	103.20 PK			1.69 V	142	105.60	-2.40
4	*2422.00	91.40 AV			1.69 V	142	93.80	-2.40
5	4844.00	49.90 PK	74.00	-24.10	1.24 V	84	43.90	6.00
6	4844.00	39.80 AV	54.00	-14.20	1.24 V	84	33.80	6.00
7	7266.00	55.70 PK	74.00	-18.30	1.28 V	77	45.30	10.40
8	7266.00	43.00 AV	54.00	-11.00	1.28 V	77	32.60	10.40

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	2390.00	58.50 PK	74.00	-15.50	1.32 H	27	60.90	-2.40
2	2390.00	44.90 AV	54.00	-9.10	1.32 H	27	47.30	-2.40
3	*2437.00	99.40 PK			1.32 H	27	101.80	-2.40
4	*2437.00	87.40 AV			1.32 H	27	89.80	-2.40
5	2483.50	66.90 PK	74.00	-7.10	1.32 H	27	69.30	-2.40
6	2483.50	50.90 AV	54.00	-3.10	1.32 H	27	53.30	-2.40
7	4874.00	49.40 PK	74.00	-24.60	1.25 H	152	43.30	6.10
8	4874.00	38.40 AV	54.00	-15.60	1.25 H	152	32.30	6.10
9	7311.00	54.50 PK	74.00	-19.50	1.01 H	356	44.10	10.40
10	7311.00	42.30 AV	54.00	-11.70	1.01 H	356	31.90	10.40

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	61.80 PK	74.00	-12.20	1.78 V	144	64.20	-2.40
2	2390.00	46.80 AV	54.00	-7.20	1.78 V	144	49.20	-2.40
3	*2437.00	102.10 PK			1.78 V	144	104.50	-2.40
4	*2437.00	90.10 AV			1.78 V	144	92.50	-2.40
5	2483.50	70.30 PK	74.00	-3.70	1.78 V	144	72.70	-2.40
6	2483.50	52.80 AV	54.00	-1.20	1.78 V	144	55.20	-2.40
7	4874.00	50.50 PK	74.00	-23.50	1.22 V	98	44.40	6.10
8	4874.00	40.10 AV	54.00	-13.90	1.22 V	98	34.00	6.10
9	7311.00	55.30 PK	74.00	-18.70	1.33 V	91	44.90	10.40
10	7311.00	42.70 AV	54.00	-11.30	1.33 V	91	32.30	10.40

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 9	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	*2452.00	97.50 PK			1.36 H	17	99.90	-2.40
2	*2452.00	85.80 AV			1.36 H	17	88.20	-2.40
3	2483.50	68.20 PK	74.00	-5.80	1.36 H	17	70.60	-2.40
4	2483.50	51.80 AV	54.00	-2.20	1.36 H	17	54.20	-2.40
5	4904.00	49.20 PK	74.00	-24.80	1.24 H	156	43.00	6.20
6	4904.00	38.30 AV	54.00	-15.70	1.24 H	156	32.10	6.20
7	7356.00	54.60 PK	74.00	-19.40	1.01 H	341	43.80	10.80
8	7356.00	42.50 AV	54.00	-11.50	1.01 H	341	31.70	10.80
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	100.20 PK			1.68 V	144	102.60	-2.40
2	*2452.00	88.50 AV			1.68 V	144	90.90	-2.40
3	2483.50	71.30 PK	74.00	-2.70	1.68 V	144	73.70	-2.40
4	2483.50	53.70 AV	54.00	-0.30	1.68 V	144	56.10	-2.40
5	4904.00	50.20 PK	74.00	-23.80	1.21 V	100	44.00	6.20
6	4904.00	39.90 AV	54.00	-14.10	1.21 V	100	33.70	6.20
7	7356.00	55.20 PK	74.00	-18.80	1.33 V	79	44.40	10.80
8	7356.00	42.40 AV	54.00	-11.60	1.33 V	79	31.60	10.80

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	30MHz ~ 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	96.01	33.30 QP	43.50	-10.20	1.50 H	1	46.30	-13.00
2	165.85	32.10 QP	43.50	-11.40	2.00 H	46	40.40	-8.30
3	360.02	39.40 QP	46.00	-6.60	1.00 H	259	44.50	-5.10
4	431.99	38.80 QP	46.00	-7.20	2.00 H	140	41.60	-2.80
5	887.99	42.00 QP	46.00	-4.00	1.00 H	178	36.50	5.50
6	984.00	41.50 QP	54.00	-12.50	1.00 H	175	34.20	7.30
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	133.79	28.80 QP	43.50	-14.70	1.00 V	61	37.60	-8.80
2	184.79	34.10 QP	43.50	-9.40	1.00 V	107	44.00	-9.90
3	311.98	33.10 QP	46.00	-12.90	1.50 V	71	39.10	-6.00
4	528.00	39.20 QP	46.00	-6.80	1.50 V	107	40.30	-1.10
5	648.01	38.00 QP	46.00	-8.00	1.50 V	69	36.50	1.50
6	972.02	37.90 QP	54.00	-16.10	1.50 V	97	30.70	7.20

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

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)

Per KDB 662911 D01 Multiple Transmitter Output Method of conducted output power measurement on IEEE 802.11 devices,

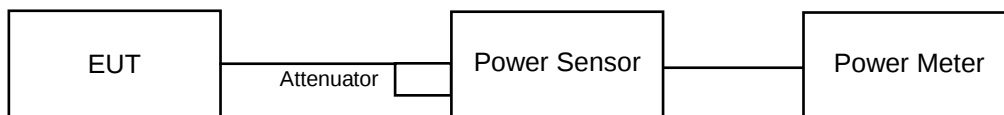
Array Gain = 0 dB (i.e., no array gain) for $NANT \leq 4$;

Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any NANT;

Array Gain = $5 \log(NANT/NSS)$ dB or 3 dB, whichever is less for 20-MHz channel widths with $NANT \geq 5$.

For power measurements on all other devices: Array Gain = $10 \log(NANT/NSS)$ dB.

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 / 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.

4.2.5 Deviation from Test Standard

No deviation.

4.2.6 EUT Operating Conditions

Same as Item 4.1.6.

4.2.7 Test Results

FOR PEAK POWER

802.11b

Chan.	Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	15.98	15.32	73.669	18.67	30	Pass
6	2437	15.27	15.49	69.051	18.39	30	Pass
11	2462	13.72	13.71	47.046	16.73	30	Pass

802.11g

Chan.	Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	23.01	22.27	368.641	25.67	30	Pass
6	2437	24.97	24.92	624.507	27.96	30	Pass
11	2462	20.41	21.21	242.031	23.84	30	Pass

802.11n (HT20)

Chan.	Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	22.66	21.98	342.263	25.34	30	Pass
6	2437	24.89	24.81	611.01	27.86	30	Pass
11	2462	22.21	21.43	305.336	24.85	30	Pass

802.11n (HT40)

Chan.	Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	19.52	19.83	185.697	22.69	30	Pass
6	2437	22.11	22.16	326.992	25.15	30	Pass
9	2452	18.37	18.55	140.321	21.47	30	Pass

FOR AVERAGE POWER

802.11b

Chan.	Frequency (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	13.12	12.42	37.97	15.79
6	2437	12.31	12.57	35.094	15.45
11	2462	10.86	10.73	24.02	13.81

802.11g

Chan.	Frequency (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	13.79	13.39	45.76	16.60
6	2437	16.42	16.39	87.404	19.42
11	2462	11.31	11.57	27.876	14.45

802.11n (HT20)

Chan.	Frequency (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	13.62	13.26	44.198	16.45
6	2437	16.41	16.33	86.706	19.38
11	2462	13.21	12.78	39.908	16.01

802.11n (HT40)

Chan.	Frequency (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
3	2422	10.79	10.96	24.469	13.89
6	2437	12.91	12.51	37.367	15.72
9	2452	9.01	9.22	16.318	12.13

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 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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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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