



FCC TEST REPORT (15.247)

REPORT NO.: RF120210E04 R2

MODEL NO.: WT41N0

FCC ID: UZ7WT41N0

RECEIVED: Feb. 10, 2012

TESTED: Feb. 15 to Oct. 19, 2012

ISSUED: Nov. 09, 2012

APPLICANT: Motorola Solutions, Inc.

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ISSUED BY: Bureau Veritas Consumer Products Services
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A D T

Table of Contents

RELEASE CONTROL RECORD	5
1. CERTIFICATION	6
2. SUMMARY OF TEST RESULTS	7
2.1 MEASUREMENT UNCERTAINTY	8
3. GENERAL INFORMATION	9
3.1 GENERAL DESCRIPTION OF EUT	9
3.2 DESCRIPTION OF TEST MODES	14
3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL	15
3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS	18
3.4 DESCRIPTION OF SUPPORT UNITS.....	19
3.5 CONFIGURATION OF SYSTEM UNDER TEST	20
4. TEST TYPES AND RESULTS (For 2.4GHz, 2412 ~ 2472MHz Band).....	21
4.1 CONDUCTED EMISSION MEASUREMENT	21
4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT	21
4.1.2 TEST INSTRUMENTS.....	21
4.1.3 TEST PROCEDURES	22
4.1.4 DEVIATION FROM TEST STANDARD	22
4.1.5 TEST SETUP	23
4.1.6 EUT OPERATING CONDITIONS	23
4.1.7 TEST RESULTS (MODE 1)	24
4.1.8 TEST RESULTS (MODE 2)	26
4.2 RADIATED EMISSION AND BANDEDGE MEASUREMENT	28
4.2.1 LIMITS OF RADIATED EMISSION AND BANDEDGE MEASUREMENT	28
4.2.2 TEST INSTRUMENTS.....	29
4.2.3 TEST PROCEDURES	31
4.2.4 DEVIATION FROM TEST STANDARD	31
4.2.5 TEST SETUP	32
4.2.6 EUT OPERATING CONDITIONS	32
4.2.7 TEST RESULTS	33
4.3 6dB BANDWIDTH MEASUREMENT	53
4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT	53
4.3.2 TEST INSTRUMENTS.....	53
4.3.3 TEST PROCEDURE.....	53
4.3.4 DEVIATION FROM TEST STANDARD	53
4.3.5 TEST SETUP	53
4.3.6 EUT OPERATING CONDITIONS	53
4.3.7 TEST RESULTS	54
4.4 CONDUCTED OUTPUT POWER.....	56
4.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT	56
4.4.2 INSTRUMENTS.....	56



4.4.3	TEST PROCEDURES	56
4.4.4	DEVIATION FROM TEST STANDARD	56
4.4.5	TEST SETUP	56
4.4.6	EUT OPERATING CONDITIONS	56
4.4.7	TEST RESULTS	57
4.5	POWER SPECTRAL DENSITY MEASUREMENT	58
4.5.1	LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT	58
4.5.2	TEST INSTRUMENTS.....	58
4.5.3	TEST PROCEDURE.....	58
4.5.4	DEVIATION FROM TEST STANDARD	58
4.5.5	TEST SETUP	58
4.5.6	EUT OPERATING CONDITION.....	58
4.5.7	TEST RESULTS	59
4.6	CONDUCTED OUT-BAND EMISSION MEASUREMENT.....	60
4.6.1	LIMITS OF CONDUCTED OUT-BAND EMISSION MEASUREMENT.....	60
4.6.2	TEST INSTRUMENTS.....	60
4.6.3	TEST PROCEDURE.....	60
4.6.4	DEVIATION FROM TEST STANDARD	61
4.6.5	TEST SETUP	61
4.6.6	EUT OPERATING CONDITION.....	61
4.6.7	TEST RESULTS	61
5.	TEST TYPES AND RESULTS (For 5Ghz, 5725~5850MHz Band)	68
5.1	CONDUCTED EMISSION MEASUREMENT	68
5.1.1	LIMITS OF CONDUCTED EMISSION MEASUREMENT.....	68
5.1.2	TEST INSTRUMENTS.....	68
5.1.3	TEST PROCEDURES	69
5.1.4	DEVIATION FROM TEST STANDARD	69
5.1.5	TEST SETUP	70
5.1.6	EUT OPERATING CONDITIONS	70
5.1.7	TEST RESULTS (MODE 1)	71
5.1.8	TEST RESULTS (MODE 2)	73
5.2	RADIATED AND BANDEDGE EMISSION MEASUREMENT.....	75
5.2.1	LIMITS OF RADIATED AND BANDEDGE EMISSION MEASUREMENT.....	75
5.2.2	TEST INSTRUMENTS.....	76
5.2.3	TEST PROCEDURES	78
5.2.4	DEVIATION FROM TEST STANDARD	78
5.2.5	TEST SETUP	79
5.2.6	EUT OPERATING CONDITIONS	79
5.2.7	TEST RESULTS	80
5.3	6dB BANDWIDTH MEASUREMENT	87
5.3.1	LIMITS OF 6dB BANDWIDTH MEASUREMENT	87
5.3.2	TEST INSTRUMENTS.....	87



A D T

5.3.3	TEST PROCEDURE.....	87
5.3.4	DEVIATION FROM TEST STANDARD.....	87
5.3.5	TEST SETUP	87
5.3.6	EUT OPERATING CONDITIONS	87
5.3.7	TEST RESULTS	88
5.4	CONDUCTED OUTPUT POWER.....	89
5.4.1	LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT	89
5.4.2	INSTRUMENTS.....	89
5.4.3	TEST PROCEDURES	89
5.4.4	DEVIATION FROM TEST STANDARD.....	89
5.4.5	TEST SETUP	89
5.4.6	EUT OPERATING CONDITIONS	89
5.4.7	TEST RESULTS	90
5.5	POWER SPECTRAL DENSITY MEASUREMENT.....	91
5.5.1	LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT	91
5.5.2	TEST INSTRUMENTS.....	91
5.5.3	TEST PROCEDURE.....	91
5.5.4	DEVIATION FROM TEST STANDARD.....	91
5.5.5	TEST SETUP	91
5.5.6	EUT OPERATING CONDITION.....	91
5.5.7	TEST RESULTS	92
5.6	CONDUCTED OUT-BAND EMISSION MEASUREMENT.....	93
5.6.1	LIMITS OF CONDUCTED OUT-BAND EMISSION MEASUREMENT.....	93
5.6.2	TEST INSTRUMENTS.....	93
5.6.3	TEST PROCEDURE.....	93
5.6.4	DEVIATION FROM TEST STANDARD.....	94
5.6.5	TEST SETUP	94
5.6.6	EUT OPERATING CONDITION.....	94
5.6.7	TEST RESULTS	94
6.	PHOTOGRAPHS OF THE TEST CONFIGURATION.....	97
7.	INFORMATION ON THE TESTING LABORATORIES	98
8.	APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB.....	99



A D T

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF120210E04	Original release	July 05, 2012
RF120210E04 R1	1. Changed CMI display of EUT. 2. Modified the test data of radiated emissions test item: I. Radiated emissions below 1GHz II. Radiated emissions above 1GHz for worst channel of original release report.)	Oct. 31, 2012
RF120210E04 R2	Modified the test sample to ENGINEERING SAMPLE_DV3 for section 1.	Nov. 09, 2012



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1. CERTIFICATION

PRODUCT: Wearable Terminal
BRAND NAME: MOTOROLA
MODEL NO.: WT41N0
TEST SAMPLE: ENGINEERING SAMPLE_DV3
APPLICANT: Motorola Solutions, Inc.
TESTED: Feb. 15 to Oct. 19, 2012
STANDARDS: **FCC Part 15, Subpart C (Section 15.247)**
ANSI C63.10-2009

The above equipment (Model: WT41N0) 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 : Phoenix Huang , **DATE:** Nov. 09, 2012
(Phoenix Huang, Specialist)

APPROVED BY : May Chen , **DATE:** Nov. 09, 2012
(May Chen, Deputy Manager)



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2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

For 2.4GHz, 2412~2472MHz Band

APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.247)			
STANDARD SECTION	TEST TYPE	RESULT	REMARK
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -13.64dB at 0.70078MHz
15.247(d) 15.209	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -1.0dB at 2483.50MHz
15.247(d)	Band Edge Measurement	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	No antenna connector is used.

For 5GHz, 5745~5825MHz Band

APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.247)			
STANDARD SECTION	TEST TYPE	RESULT	REMARK
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -17.19dB at 0.69688MHz
15.247(d) 15.209	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -3.9dB at 48.00MHz
15.247(d)	Band Edge Measurement	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	No antenna connector is used.

NOTE: The EUT was operating in 2.400 ~ 2.4835GHz, 5.15~5.35GHz, 5.47~5.725GHz and 5.725~5.850GHz frequencies band. This report was recorded the RF parameters including 2.400 ~ 2.4835GHz and 5.725~5.850GHz. For the 5.15~5.35GHz and 5.47~5.725GHz RF parameters was recorded in another test report.



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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:

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

Measurement	Value
Conducted emissions	2.89 dB
Radiated emissions (30MHz-1GHz)	5.69 dB
Radiated emissions for Chamber G (1GHz -18GHz)	2.19 dB
Radiated emissions for Site C (1GHz -18GHz)	2.49 dB
Radiated emissions (18GHz -40GHz)	2.56 dB



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3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Wearable Terminal
MODEL NO.	WT41N0
POWER SUPPLY	DC 3.7V from battery
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 / a: up to 54Mbps 802.11n (20MHz, 800ns GI): up to 65Mbps 802.11n (20MHz, 400ns GI): up to 72.2Mbps
OPERATING FREQUENCY	For 15.407 802.11a: 5.18 ~ 5.24GHz, 5.26 ~ 5.32GHz, 5.47~5.6GHz, 5.65~5.725GHz For 15.247 2.4GHz: 2.412 ~ 2.472GHz 5GHz: 5.745 ~ 5.825GHz
NUMBER OF CHANNEL	For 15.407 16 for 802.11a, 802.11n (20MHz) For 15.247 (2.4GHz) 13 for 802.11b, 802.11g, 802.11n (20MHz) For 15.247 (5GHz) 5 for 802.11a, 802.11n (20MHz)
MAXIMUM OUTPUT POWER	For 15.407 802.11a: 100.000mW 802.11n (20MHz): 79.433mW For 15.247(2.4GHz) 802.11b: 186.209mW 802.11g: 218.776mW 802.11n (20MHz): 223.872mW For 15.247(5GHz) 802.11a: 204.174mW 802.11n (20MHz): 194.984mW
ANTENNA TYPE	Please see NOTE
DATA CABLE	NA
I/O PORTS	Refer to user's manual
ASSOCIATED DEVICES	Battery × 1



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NOTE:

1. There are Bluetooth technology and WLAN technology used for the EUT. And the report number corresponds with EUT functions are listed as below:

Function	Report No.
WLAN	RF120210E04 R2 (15.247)
	RF120210E04-1 R2 (15.407)
	RF120210E04-3 R1 (DFS)
Bluetooth	RF120210E04-2 R2

2. The EUT has different versions, the relationship of testing sample versions are listed as below:

Sample No.	Brand	Model	Description
1	MOTOROLA	WT41N0	VOW version
2			Touch version
3			Non-Touch version

3. The EUT hardware/software information are as below:

Brand	Model	Description
Wearable Terminal	OS Version	07.00.2806
	OEM Name	MOTOROLA WT41N0
	OEM Version	00.17.0001
	HW Version	WT41N0_MB V3.0
Wireless (Fusion)	Part Number	31-FUSION-X2.00
	Version	X_2.00.0.0.93
XWingCon	XappVersion	X_2.00.0.0.24
BTRegTestVer4.1	Version	4.1



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4. The EUT could be supplied from a cradle, power adapter and battery, the information are listed as below:

Cradle 1 (1-slot, option)	
Brand:	MOTOROLA
Model No.:	CRD4000-1000UR
Part No.:	CRD4000-1000UR
Input power :	+12V ----- 3.33A
I/O Ports:	USB Port x 1
Associated Devices:	USB cable (Part No.:25-64396-01R) Adapter x 1 (Adapter 1: Part No.: 50-14000-148R)
Adapter 1 (option)	
Brand:	HIPRO
Model No.:	HP-O2040D43
Part No.:	50-14000-148R
Input power :	100-240V, 50-60Hz, 1.5A
Output power :	+12V ----- 3.33A DC output cable (unshielded, 1.8m with one core)
Battery 1	
Brand:	SYMBOL
Part No.:	82-90005-05 Rev. A (1X LiION)
Rating:	3.7V, 2400mAh, 8.88Wh
Battery 2	
Brand:	SYMBOL
Part No.:	82-90005-04 Rev. D (2X LiION)
Rating:	3.7V, 4800mAh, 17.76Wh



5. The EUT could be supplied with one laser scanner (optional). There are four options as below:

Laser scanner 1 (option)	
Brand:	MOTOROLA
Model No.:	RS409 1D Laser scanner
Laser scanner 2 (option)	
Brand:	MOTOROLA
Model No.:	RS309 1D Laser scanner
Laser scanner 3 (option)	
Brand:	MOTOROLA
Model No.:	RS507 2D Imager scanner
Description :	Wireless link (no direct wire-link to EUT)
Laser scanner 4 (option)	
Brand:	MOTOROLA
Model No.:	RS419 scanner
Description :	Type 1: Long USB cable (Length: 2.3m) Type 2: Short USB cable (Length: 0.4m)

6. The EUT antennas information:

Bluetooth Antenna Spec			
Antenna Type	Gain (dBi)	Connector Type	Frequency range (MHz)
PIFA	1.47	NA	2400~2500
WLAN Antenna Spec.			
Antenna Type	Gain (dBi)	Connector Type	Frequency range (MHz)
PIFA	1.48 (2.4G)	NA	2400~2500
	5.7 (5G)		4900~5850

7. The EUT incorporates a SISO function. Physically, the EUT provides one completed transmitter and one receiver.

MODULATION MODE	TX FUNCTION
802.11b	1TX
802.11g	1TX
802.11a	1TX
802.11n (20MHz)	1TX

8. Radiated and Conducted emission of the simultaneous operation (Bluetooth and WLAN technology) has been evaluated and no non-compliance was found.

9. The EUT was pre-tested in chamber under following test modes :

Pre-test Mode	Description
Mode A	X_ plane: Sample_1 + Battery 1 + Laser scanner 1
Mode B	X_ plane: Sample_2 + Battery 1 + Laser scanner 1
Mode C	X_ plane: Sample_3 + Battery 1 + Laser scanner 1
Mode D	X_ plane: Sample_2 + Battery 2 + Laser scanner 1
Mode E	Y_ plane: Sample_2 + Battery 2 + Laser scanner 1
Mode F	Z_ plane: Sample_2 + Battery 2 + Laser scanner 1
Mode G	X_ plane: Sample_2 + Battery 2 + Laser scanner 2
Mode H	X_ plane: Sample_2 + Battery 2 + Laser scanner 4 (Short cable)
Mode I	X_ plane: Sample_2 + Battery 2 + Laser scanner 4 (Long cable)
Mode J	Sample_2 + Battery 2 + Laser scanner 4 (Long cable) + Cradle 1

The worse radiated emission (Below 1GHz and Above 1GHz for 2.4GHz) was found in **Mode J**. And the radiated emission (Above 1GHz for 5GHz) was found in **Mode I**. Therefore only the test data of the modes were recorded in this report.

10. When the EUT operating in 802.11n, the software operation, which is defined by manufacturer, MCS (Modulation and Coding Schemes) from 0 to 7.
11. The above EUT information was declared by the manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.



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3.2 DESCRIPTION OF TEST MODES

Operated in 2400 ~ 2483.5MHz band:

Thirteen channels are provided for 802.11b, 802.11g, 802.11n (20MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	2412MHz	8	2447MHz
2	2417MHz	9	2452MHz
3	2422MHz	10	2457MHz
4	2427MHz	11	2462MHz
5	2432MHz	12	2467MHz
6	2437MHz	13	2472MHz
7	2442MHz		

Operated in 5725 ~ 5850MHz band:

Five channels are provided for 802.11a, 802.11n (20MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
149	5745 MHz	161	5805 MHz
153	5765 MHz	165	5825 MHz
157	5785 MHz		

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO					DESCRIPTION
	PLC	RE < 1G	RE ≥ 1G	APCM	OB	
1	-	-	√	-	-	Cradle 1 + Battery 2 (for 2.4GHz)
	-	-	√	-	-	Battery 2 (for 5GHz)
	√	√		√	√	Cradle 1 + Battery 2 (for 2.4GHz / 5GHz)
2	√	-	-	-	-	Cradle 1 + Battery 1

Where **PLC**: Power Line Conducted Emission **RE < 1G**: Radiated Emission below 1GHz
RE ≥ 1G: Radiated Emission above 1GHz **APCM**: Antenna Port Conducted Measurement
OB: Conducted Out-Band Emission Measurement

POWER LINE CONDUCTED EMISSION TEST:

- 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 13	1	OFDM	BPSK	6
802.11a	149 to 165	157	OFDM	BPSK	6

RADIATED EMISSION TEST (BELOW 1 GHz):

- 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 13	1	OFDM	BPSK	6
802.11a	149 to 165	157	OFDM	BPSK	6



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RADIATED EMISSION TEST (ABOVE 1 GHz):

- 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 13	1, 6, 11, 12, 13	DSSS	DBPSK	1
802.11g	1 to 13	1, 6, 11, 12, 13	OFDM	BPSK	6
For 2.4 GHz 802.11n (20MHz)	1 to 13	1, 2, 6, 10, 11, 12, 13	OFDM	BPSK	6.5
802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6
For 5 GHz 802.11n (20MHz)	149 to 165	149, 157, 165	OFDM	BPSK	6.5

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 13	1, 6, 11, 12, 13	DSSS	DBPSK	1
802.11g	1 to 13	1, 6, 11, 12, 13	OFDM	BPSK	6
For 2.4 GHz 802.11n (20MHz)	1 to 13	1, 2, 6, 10, 11, 12, 13	OFDM	BPSK	6.5
802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6
For 5 GHz 802.11n (20MHz)	149 to 165	149, 157, 165	OFDM	BPSK	6.5



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CONDUCTED OUT-BAND EMISSION 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)
802.11b	1 to 13	1, 11, 12, 13	DSSS	DBPSK	1
802.11g	1 to 13	1, 11, 12, 13	OFDM	BPSK	6
For 2.4 GHz 802.11n (20MHz)	1 to 13	1, 11, 12, 13	OFDM	BPSK	6.5
802.11a	149 to 165	149, 165	OFDM	BPSK	6
For 5 GHz 802.11n (20MHz)	149 to 165	149, 165	OFDM	BPSK	6.5

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
PLC	20deg. C, 70%RH	120Vac, 60Hz (SYSTEM)	Mike Hsieh
RE<1G	23deg. C, 70%RH	120Vac, 60Hz (SYSTEM)	Amos Chuang
	23deg. C, 70%RH	120Vac, 60Hz (SYSTEM)	Evan Huang
	23deg. C, 66%RH	120Vac, 60Hz (SYSTEM)	Evan Huang
RE ³ 1G	24deg. C, 69%RH	120Vac, 60Hz (SYSTEM)	Evan Huang
	23deg. C, 71%RH	DC: 3.7Vdc	Frank Liu
	22deg. C, 68%RH	120Vac, 60Hz (SYSTEM)	Evan Huang
	20deg. C, 63%RH	DC: 3.7Vdc	Evan Huang
APCM	25deg. C, 60%RH	120Vac, 60Hz (SYSTEM)	Rex Huang
OB	25deg. C, 60%RH	120Vac, 60Hz (SYSTEM)	Rex Huang



3.3 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)

ANSI C63.10-2009

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

NOTE: The EUT has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.



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3.4 DESCRIPTION OF SUPPORT UNITS

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

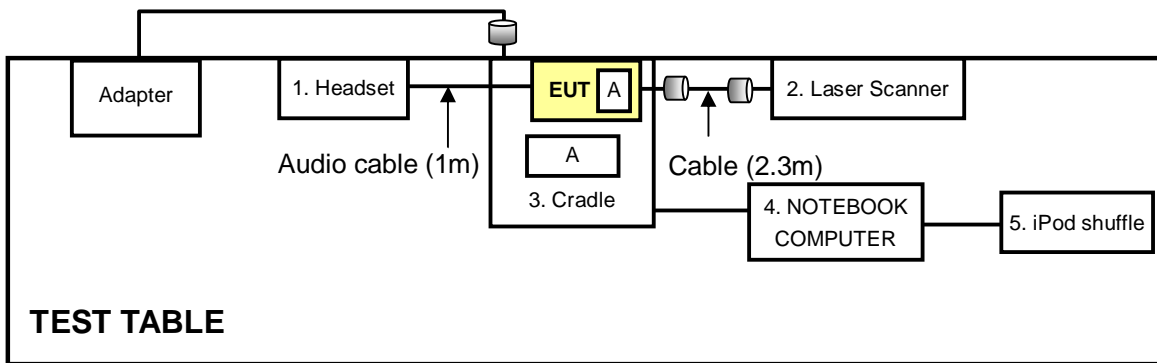
No.	Product	Brand	Model No.	Serial No.	FCC ID
1	Headset	MOTOROLA	Vix	BE09311114401G	NA
2	Laser Scanner	MOTOROLA	RS419 scanner	NA	NA
3	Cradle	MOTOROLA	CRD4000-100U R	NA	NA
4	NOTEBOOK COMPUTER	DELL	PP32LA	FSLB32S	FCC DoC
5	iPod shuffle	Apple	MC749TA/A	CC4DMFJUDFDM	NA

No.	Signal cable description
1	Audio cable, 1m
2	Cable, 2.3m
3	NA
4	USB cable, 1.6m
5	USB cable, 0.1m

Note: The power cords of the above support units were unshielded (1.8m).

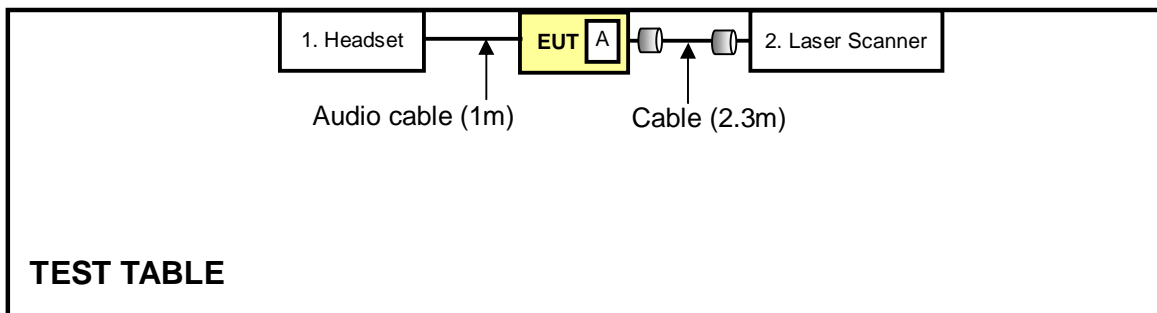
3.5 CONFIGURATION OF SYSTEM UNDER TEST

For Conducted emission / Radiated emission (below 1GHz and for 2.4GHz above 1GHz) test:



NOTE: 1. Item A is the battery.

For Radiated emission (for 5GHz above 1GHz) test:



NOTE: 1. Item A is the battery.



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4. TEST TYPES AND RESULTS (FOR 2.4GHz, 2412 ~ 2472MHz Band)

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBµV)	
	Quasi-peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

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

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver	ESCS 30	100375	Mar. 08, 2012	Mar. 07, 2013
Line-Impedance Stabilization Network (for EUT)	NSLK8127	8127-522	Sep. 07, 2011	Sep. 06, 2012
Line-Impedance Stabilization Network (for Peripheral)	ESH3-Z5	848773/004	Nov. 02, 2011	Nov. 01, 2012
RF Cable (JYEBAO)	5DFB	COCCAB-001	Aug. 29, 2011	Aug. 28, 2012
50 ohms Terminator	50	3	Nov. 02, 2011	Nov. 01, 2012
Software	BV ADT_Cond_V7.3.7	NA	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Shielded Room No. C.
3. The VCCI Con C Registration No. is C-3611.
4. Tested Date: Apr. 26, 2012

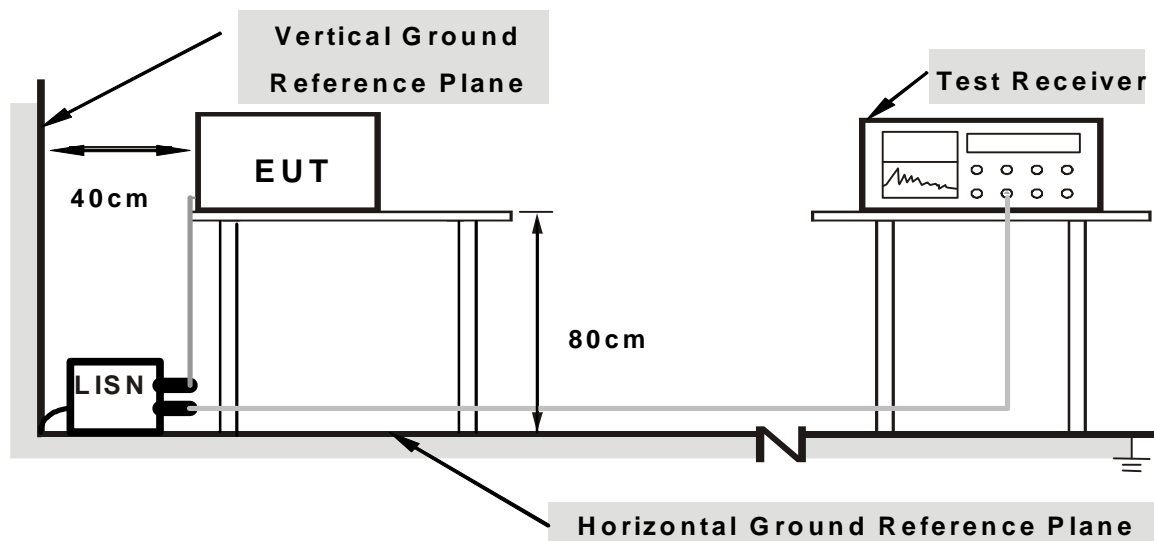
4.1.3 TEST PROCEDURES

- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) were not recorded.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



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

2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

4.1.6 EUT OPERATING CONDITIONS

1. Turn on the power of EUT.
2. The communication partner run test program “XWingCon.exe” to enable EUT under transmission/receiving condition continuously at specific channel frequency.

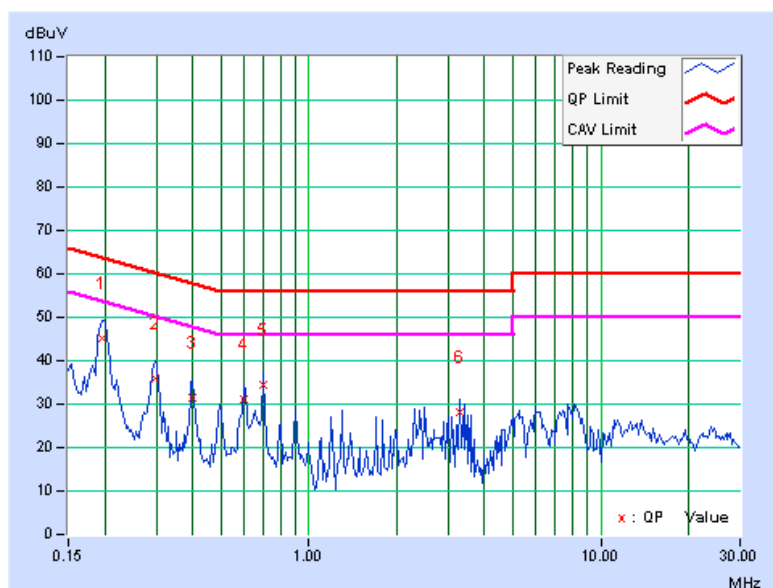
4.1.7 TEST RESULTS (MODE 1)

PHASE	Line (L)	6dB BANDWIDTH	9 kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
	1	0.19687	0.07	45.06	32.46	45.13	32.53	63.74	53.74	-18.61
2	0.29844	0.07	35.70	23.76	35.77	23.83	60.29	50.29	-24.51	-26.45
3	0.40000	0.08	31.47	23.28	31.55	23.36	57.85	47.85	-26.30	-24.49
4	0.59922	0.09	31.17	25.65	31.26	25.74	56.00	46.00	-24.74	-20.26
5	0.69688	0.09	34.18	27.90	34.27	27.99	56.00	46.00	-21.73	-18.01
6	3.28906	0.28	28.02	15.34	28.30	15.62	56.00	46.00	-27.70	-30.38

REMARKS:

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

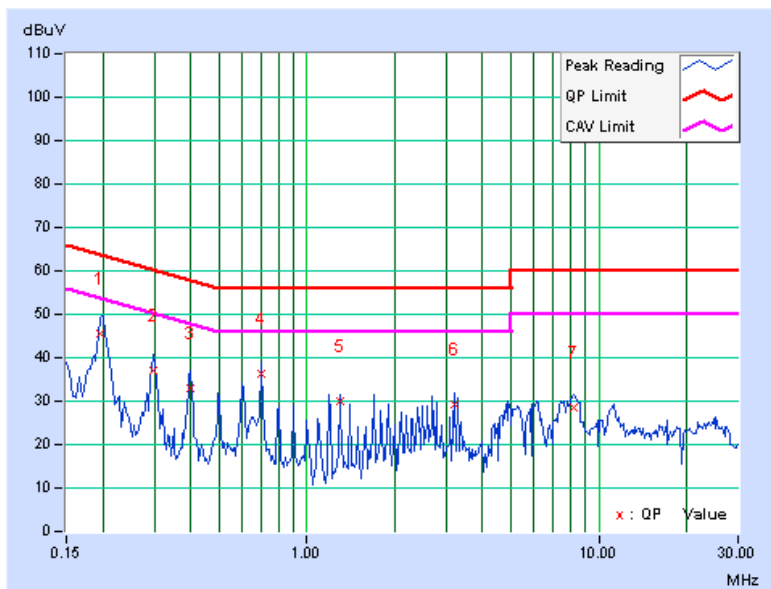


PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
	1	0.19687	0.06	45.51	34.78	45.57	34.84	63.74	53.74	-18.17
2	0.29844	0.07	36.80	27.05	36.87	27.12	60.29	50.29	-23.42	-23.17
3	0.40000	0.08	32.77	26.20	32.85	26.28	57.85	47.85	-25.00	-21.57
4	0.70078	0.09	36.16	32.27	36.25	32.36	56.00	46.00	-19.75	-13.64
5	1.29688	0.11	29.98	24.96	30.09	25.07	56.00	46.00	-25.91	-20.93
6	3.19531	0.21	29.18	16.96	29.39	17.17	56.00	46.00	-26.61	-28.83
7	8.18750	0.34	28.01	22.80	28.35	23.14	60.00	50.00	-31.65	-26.86

REMARKS:

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



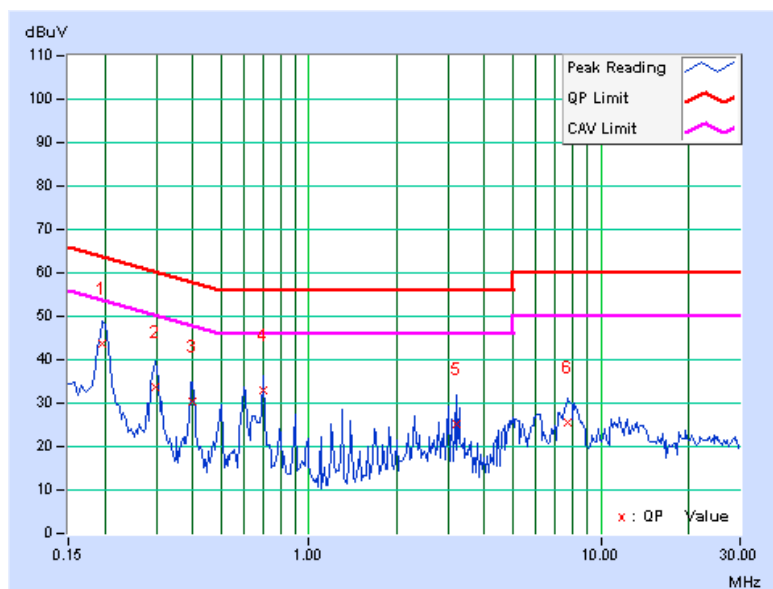
4.1.8 TEST RESULTS (MODE 2)

PHASE	Line (L)	6dB BANDWIDTH	9 kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
	1	0.19687	0.07	43.78	28.90	43.85	28.97	63.74	53.74	-19.89
2	0.29844	0.07	33.78	20.27	33.85	20.34	60.29	50.29	-26.43	-29.94
3	0.40000	0.08	30.17	19.55	30.25	19.63	57.85	47.85	-27.60	-28.22
4	0.69688	0.09	32.96	22.96	33.05	23.05	56.00	46.00	-22.95	-22.95
5	3.19141	0.27	25.10	11.63	25.37	11.90	56.00	46.00	-30.63	-34.10
6	7.67188	0.45	25.06	13.12	25.51	13.57	60.00	50.00	-34.49	-36.43

REMARKS:

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

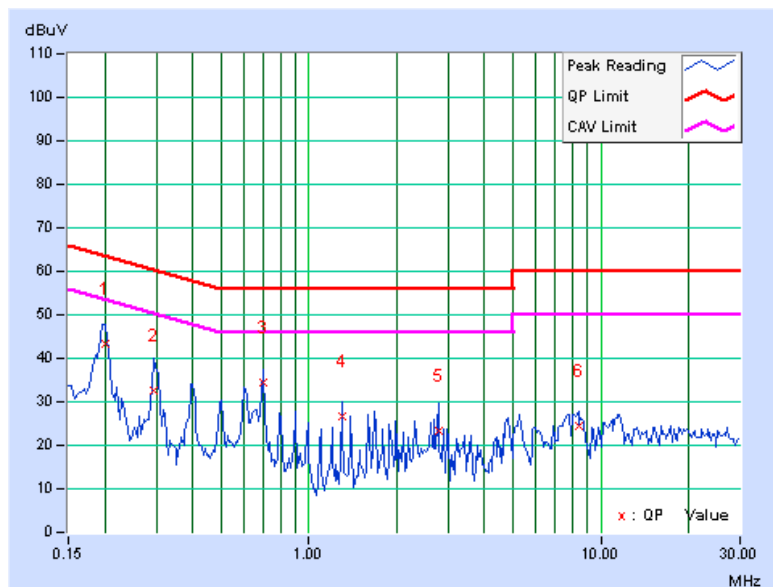


PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
	1	0.20078	0.06	43.09	28.90	43.15	28.96	63.58	53.58	-20.43
2	0.29453	0.07	32.55	20.39	32.62	20.46	60.40	50.40	-27.78	-29.94
3	0.69688	0.08	34.50	25.63	34.58	25.71	56.00	46.00	-21.42	-20.29
4	1.29688	0.11	26.49	16.96	26.60	17.07	56.00	46.00	-29.40	-28.93
5	2.79688	0.20	23.07	13.01	23.27	13.21	56.00	46.00	-32.73	-32.79
6	8.37891	0.35	24.12	16.25	24.47	16.60	60.00	50.00	-35.53	-33.40

REMARKS:

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





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4.2 RADIATED EMISSION AND BANDEDGE MEASUREMENT

4.2.1 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.



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4.2.2 TEST INSTRUMENTS

For below 1GHz and above 1GHz of 802.11g channel 11:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer Agilent	E4446A	MY48250253	Sep. 03, 2012	Sep. 02, 2013
Pre-Selector Agilent	N9039A	MY46520310	Sep. 03, 2012	Sep. 02, 2013
Signal Generator Agilent	N5181A	MY49060347	July 24, 2012	July 23, 2013
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-04	Nov. 15, 2011	Nov. 14, 2012
Pre-Amplifier Agilent	8449B	3008A02465	Feb. 27, 2012	Feb. 26, 2013
SPACEK LABS	SLKka-48-6	9K16	Nov. 15, 2011	Nov. 14, 2012
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-361	Apr. 06, 2012	Apr. 05, 2013
Horn_Antenna AISI	AIH.8018	0000220091110	Nov. 23, 2011	Nov. 22, 2012
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Oct. 12, 2012	Oct. 11, 2013
RF Cable	NA	RF104-205 RF104-207 RF104-202	Dec. 27, 2011	Dec. 26, 2012
RF Cable	NA	CHHCAB_001	Oct. 07, 2012	Oct. 06, 2013
Software	ADT_Radiated _V8.7.05	NA	NA	NA
Antenna Tower & Turn Table CT	NA	NA	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna, preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
- 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: Oct. 16 to 17, 2012



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For above 1GHz: (for other test channels)

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Spectrum Analyzer	FSP40	100036	Dec. 14, 2011	Dec. 13, 2012
Agilent PSA Spectrum Analyzer	E4446A	MY48250113	Nov. 30 , 2011	Nov. 29 , 2012
HP Pre_Amplifier	8449B	300801923	Oct. 31, 2011	Oct. 30, 2012
ROHDE & SCHWARZ Test Receiver	ESCS30	847124/029	Sep. 02, 2011	Sep. 01, 2012
SCHWARZBECK TRILOG Broadband Antenna	VULB 9168	138	Apr. 14, 2011	Apr. 13, 2012
Schwarzbeck Horn_Antenna	BBHA9120	D124	Dec. 16, 2011	Dec. 15, 2012
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 17, 2012	Jan. 16, 2013
RF Switches	EMH-011	1001	Sep. 24, 2011	Sep. 23, 2012
RF CABLE (Chaintek)	Sucoflex 106	72662/6	Jan. 19, 2012	Jan. 18, 2013
RF Cable	8DFB	STCCAB-30M-1GHz	Sep. 24, 2011	Sep. 23, 2012
Software	ADT_Radiated_V7.6.15.9.2	NA	NA	NA
CT Antenna Tower & Turn Table	NA	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The horn antenna, preamplifier (model: 8449B) and Spectrum Analyzer (model: FSP40) are used only for the measurement of emission frequency above 1GHz if tested.

3. The test was performed in Open Site No. C.

4. The FCC Site Registration No. is 656396.

5. The VCCI Site Registration No. is R-1626.

6. The CANADA Site Registration No. is IC 7450G-3.

7. Tested date: Mar. 09, 2012

4.2.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meters chamber room for below 1GHz and above 1GHz of 802.11g channel 11 test and 10 meters open site for above 1GHz of other test channels 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.

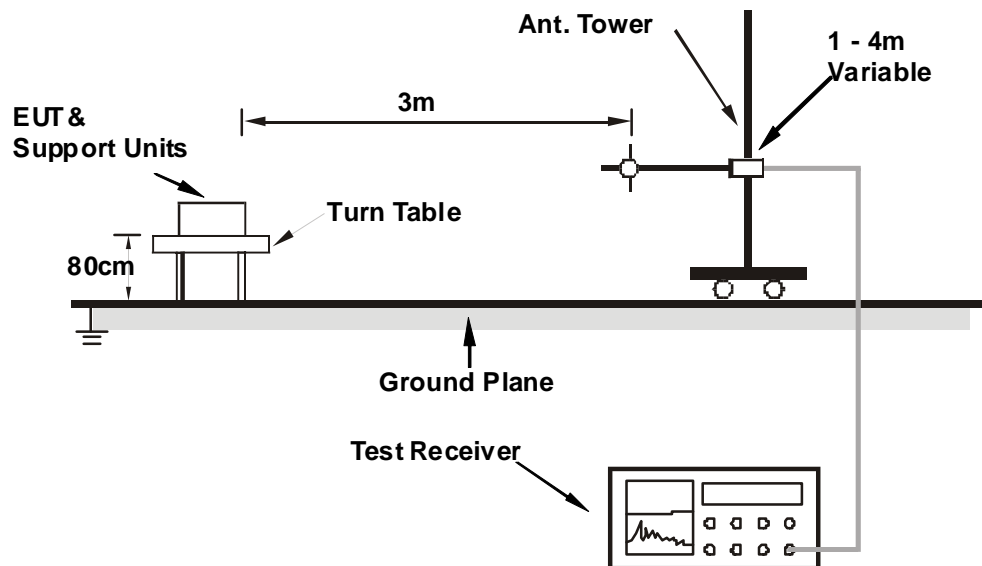
NOTE:

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 1 MHz and the video bandwidth is 10 Hz for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

4.2.4 DEVIATION FROM TEST STANDARD

No deviation

4.2.5 TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6

4.2.7 TEST RESULTS

BELOW 1GHz WORST-CASE DATA

802.11g

CHANNEL	TX Channel 1	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	48.00	25.8 QP	40.0	-14.2	1.50 H	212	11.85	13.99
2	97.15	28.1 QP	43.5	-15.4	2.00 H	83	18.73	9.34
3	146.65	32.1 QP	43.5	-11.4	1.50 H	76	17.72	14.42
4	240.08	31.6 QP	46.0	-14.4	1.50 H	91	18.77	12.85
5	330.20	32.3 QP	46.0	-13.7	1.50 H	0	16.26	16.05
6	749.77	28.5 QP	46.0	-17.5	1.50 H	0	3.88	24.64
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	48.00	36.0 QP	40.0	-4.1	1.00 V	311	21.96	13.99
2	146.41	34.7 QP	43.5	-8.9	1.00 V	352	20.24	14.41
3	279.04	30.6 QP	46.0	-15.4	1.50 V	360	16.12	14.47
4	288.87	29.3 QP	46.0	-16.7	2.00 V	227	14.47	14.86
5	547.98	25.9 QP	46.0	-20.1	1.00 V	247	4.77	21.12
6	959.97	33.0 QP	46.0	-13.0	1.00 V	0	4.86	28.15

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).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.



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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	58.1 PK	74.0	-15.9	1.49 H	64	26.89	31.21
2	2390.00	49.0 AV	54.0	-5.0	1.49 H	64	17.79	31.21
3	*2412.00	109.3 PK			1.49 H	64	78.03	31.27
4	*2412.00	106.6 AV			1.49 H	64	75.33	31.27
5	4824.00	48.9 PK	74.0	-25.1	1.04 H	326	9.48	39.42
6	4824.00	39.3 AV	54.0	-14.7	1.04 H	326	-0.12	39.42

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	58.1 PK	74.0	-15.9	1.62 V	263	26.89	31.21
2	2390.00	47.6 AV	54.0	-6.4	1.62 V	263	16.39	31.21
3	*2412.00	108.4 PK			1.62 V	263	77.13	31.27
4	*2412.00	105.7 AV			1.62 V	263	74.43	31.27
5	4824.00	49.9 PK	74.0	-24.1	1.18 V	274	10.48	39.42
6	4824.00	40.8 AV	54.0	-13.2	1.18 V	274	1.38	39.42

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.



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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	2386.00	57.4 PK	74.0	-16.6	1.51 H	64	26.20	31.20
2	2386.00	45.1 AV	54.0	-8.9	1.51 H	64	13.90	31.20
3	*2437.00	111.0 PK			1.51 H	64	79.66	31.34
4	*2437.00	108.4 AV			1.51 H	64	77.06	31.34
5	2484.00	58.9 PK	74.0	-15.1	1.51 H	64	27.44	31.46
6	2484.00	46.6 AV	54.0	-7.4	1.51 H	64	15.14	31.46
7	4874.00	50.7 PK	74.0	-23.3	1.19 H	126	11.08	39.62
8	4874.00	42.2 AV	54.0	-11.8	1.19 H	126	2.58	39.62
9	7311.00	56.0 PK	74.0	-18.0	1.51 H	225	11.90	44.10
10	7311.00	43.2 AV	54.0	-10.8	1.51 H	225	-0.90	44.10

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	2386.80	56.8 PK	74.0	-17.2	1.59 V	268	25.60	31.20
2	2386.80	45.1 AV	54.0	-8.9	1.59 V	268	13.90	31.20
3	*2437.00	109.9 PK			1.59 V	268	78.56	31.34
4	*2437.00	107.0 AV			1.59 V	268	75.66	31.34
5	2484.00	58.2 PK	74.0	-15.8	1.59 V	268	26.74	31.46
6	2484.00	45.3 AV	54.0	-8.7	1.59 V	268	13.84	31.46
7	4874.00	50.7 PK	74.0	-23.3	1.31 V	264	11.08	39.62
8	4874.00	43.5 AV	54.0	-10.5	1.31 V	264	3.88	39.62
9	7311.00	56.4 PK	74.0	-17.6	1.56 V	260	12.30	44.10
10	7311.00	44.5 AV	54.0	-9.5	1.56 V	260	0.40	44.10

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



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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	111.1 PK			1.47 H	62	79.70	31.40
2	*2462.00	108.5 AV			1.47 H	62	77.10	31.40
3	2484.70	59.6 PK	74.0	-14.4	1.47 H	62	28.14	31.46
4	2484.70	49.7 AV	54.0	-4.3	1.47 H	62	18.24	31.46
5	4924.00	49.4 PK	74.0	-24.6	1.23 H	115	9.58	39.82
6	4924.00	39.7 AV	54.0	-14.3	1.23 H	115	-0.12	39.82
7	7386.00	55.5 PK	74.0	-18.5	1.46 H	220	11.32	44.18
8	7386.00	43.0 AV	54.0	-11.0	1.46 H	220	-1.18	44.18

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	109.2 PK			1.57 V	265	77.80	31.40
2	*2462.00	106.7 AV			1.57 V	265	75.30	31.40
3	2483.50	57.9 PK	74.0	-16.1	1.57 V	265	26.44	31.46
4	2483.50	47.3 AV	54.0	-6.7	1.57 V	265	15.84	31.46
5	4924.00	50.1 PK	74.0	-23.9	1.21 V	229	10.28	39.82
6	4924.00	41.2 AV	54.0	-12.8	1.21 V	229	1.38	39.82
7	7386.00	54.5 PK	74.0	-19.5	1.00 V	150	10.32	44.18
8	7386.00	42.5 AV	54.0	-11.5	1.00 V	150	-1.68	44.18

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



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CHANNEL	TX Channel 12	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	*2467.00	92.6 PK			1.33 H	59	61.19	31.41
2	*2467.00	89.1 AV			1.33 H	59	57.69	31.41
3	2483.50	56.6 PK	74.0	-17.4	1.54 H	68	25.14	31.46
4	2483.50	45.5 AV	54.0	-8.5	1.54 H	68	14.04	31.46
5	4934.00	49.2 PK	74.0	-24.8	1.00 H	320	9.34	39.86
6	4934.00	37.7 AV	54.0	-16.3	1.00 H	320	-2.16	39.86
7	7401.00	52.7 PK	74.0	-21.3	1.52 H	165	8.50	44.20
8	7401.00	41.9 AV	54.0	-12.1	1.52 H	165	-2.30	44.20

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	*2467.00	90.2 PK			1.43 V	276	58.79	31.41
2	*2467.00	87.0 AV			1.43 V	276	55.59	31.41
3	2483.50	56.2 PK	74.0	-17.8	1.58 V	244	24.74	31.46
4	2483.50	45.1 AV	54.0	-8.9	1.58 V	244	13.64	31.46
5	4934.00	48.4 PK	74.0	-25.6	1.40 V	325	8.54	39.86
6	4934.00	36.7 AV	54.0	-17.3	1.40 V	325	-3.16	39.86
7	7401.00	51.6 PK	74.0	-22.4	1.42 V	303	7.40	44.20
8	7401.00	41.1 AV	54.0	-12.9	1.42 V	303	-3.10	44.20

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



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CHANNEL	TX Channel 13	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	*2472.00	92.4 PK			1.33 H	67	60.97	31.43
2	*2472.00	89.3 AV			1.33 H	67	57.87	31.43
3	2483.50	57.9 PK	74.0	-16.1	1.61 H	68	26.44	31.46
4	2483.50	43.4 AV	54.0	-10.6	1.61 H	68	11.94	31.46
5	4944.00	49.4 PK	74.0	-24.6	1.01 H	321	9.50	39.90
6	4944.00	37.6 AV	54.0	-16.4	1.01 H	321	-2.30	39.90
7	7416.00	52.4 PK	74.0	-21.6	1.53 H	177	8.18	44.22
8	7416.00	41.7 AV	54.0	-12.3	1.53 H	177	-2.52	44.22

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2472.00	89.4 PK			1.42 V	273	57.97	31.43
2	*2472.00	86.6 AV			1.42 V	273	55.17	31.43
3	2483.50	56.4 PK	74.0	-17.6	1.45 V	251	24.94	31.46
4	2483.50	43.3 AV	54.0	-10.7	1.45 V	251	11.84	31.46
5	4944.00	48.8 PK	74.0	-25.2	1.40 V	338	8.90	39.90
6	4944.00	36.9 AV	54.0	-17.1	1.40 V	338	-3.00	39.90
7	7416.00	51.6 PK	74.0	-22.4	1.43 V	312	7.38	44.22
8	7416.00	41.1 AV	54.0	-12.9	1.43 V	312	-3.12	44.22

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * " : Fundamental frequency.



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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	1.56 H	66	40.39	31.21
2	2390.00	52.3 AV	54.0	-1.7	1.56 H	66	21.09	31.21
3	*2412.00	108.7 PK			1.51 H	61	77.43	31.27
4	*2412.00	96.8 AV			1.51 H	61	65.53	31.27
5	4824.00	50.2 PK	74.0	-23.8	1.23 H	119	10.78	39.42
6	4824.00	39.3 AV	54.0	-14.7	1.23 H	119	-0.12	39.42

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	70.1 PK	74.0	-3.9	1.61 V	264	38.89	31.21
2	2390.00	52.2 AV	54.0	-1.8	1.61 V	264	20.99	31.21
3	*2412.00	108.4 PK			1.61 V	264	77.13	31.27
4	*2412.00	96.1 AV			1.61 V	264	64.83	31.27
5	4824.00	49.2 PK	74.0	-24.8	1.21 V	231	9.78	39.42
6	4824.00	38.1 AV	54.0	-15.9	1.21 V	231	-1.32	39.42

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.



CHANNEL	TX Channel 2	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	72.8 PK	74.0	-1.2	1.51 H	60	41.59	31.21
2	2390.00	51.6 AV	54.0	-2.4	1.51 H	60	20.39	31.21
3	*2417.00	111.0 PK			1.50 H	62	79.72	31.28
4	*2417.00	98.5 AV			1.50 H	62	67.22	31.28
5	4824.00	50.0 PK	74.0	-24.0	1.24 H	118	10.58	39.42
6	4824.00	39.3 AV	54.0	-14.7	1.24 H	118	-0.12	39.42
7	7251.00	53.2 PK	74.0	-20.8	1.48 H	219	9.16	44.04
8	7251.00	42.2 AV	54.0	-11.8	1.48 H	219	-1.84	44.04

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	69.2 PK	74.0	-4.8	1.61 V	266	37.99	31.21
2	2390.00	51.8 AV	54.0	-2.2	1.61 V	266	20.59	31.21
3	*2417.00	110.2 PK			1.61 V	266	78.92	31.28
4	*2417.00	97.6 AV			1.61 V	266	66.32	31.28
5	4834.00	49.1 PK	74.0	-24.9	1.16 V	246	9.64	39.46
6	4834.00	38.0 AV	54.0	-16.0	1.16 V	246	-1.46	39.46
7	7251.00	52.2 PK	74.0	-21.8	1.02 V	162	8.16	44.04
8	7251.00	41.6 AV	54.0	-12.4	1.02 V	162	-2.44	44.04

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



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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	70.4 PK	74.0	-3.6	1.50 H	58	39.19	31.21
2	2390.00	50.4 AV	54.0	-3.6	1.50 H	58	19.19	31.21
3	*2437.00	114.2 PK			1.47 H	61	82.86	31.34
4	*2437.00	101.1 AV			1.47 H	61	69.76	31.34
5	2483.50	70.8 PK	74.0	-3.2	1.44 H	60	39.34	31.46
6	2483.50	50.9 AV	54.0	-3.1	1.44 H	60	19.44	31.46
7	4824.00	49.5 PK	74.0	-24.5	1.23 H	106	10.08	39.42
8	4824.00	38.9 AV	54.0	-15.1	1.23 H	106	-0.52	39.42
9	7251.00	53.1 PK	74.0	-20.9	1.53 H	204	9.06	44.04
10	7251.00	42.1 AV	54.0	-11.9	1.53 H	204	-1.94	44.04

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	68.4 PK	74.0	-5.6	1.61 V	266	37.19	31.21
2	2390.00	50.2 AV	54.0	-3.8	1.61 V	266	18.99	31.21
3	*2437.00	112.8 PK			1.60 V	263	81.46	31.34
4	*2437.00	100.1 AV			1.60 V	263	68.76	31.34
5	2483.50	68.6 PK	74.0	-5.4	1.56 V	276	37.14	31.46
6	2483.50	49.5 AV	54.0	-4.5	1.56 V	276	18.04	31.46
7	4824.00	49.4 PK	74.0	-24.6	1.16 V	231	9.98	39.42
8	4824.00	38.2 AV	54.0	-15.8	1.16 V	231	-1.22	39.42
9	7251.00	51.8 PK	74.0	-22.2	1.00 V	157	7.76	44.04
10	7251.00	41.4 AV	54.0	-12.6	1.00 V	157	-2.64	44.04

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



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CHANNEL	TX Channel 10	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	*2457.00	112.8 PK			1.60 H	67	81.41	31.39
2	*2457.00	100.9 AV			1.60 H	67	69.51	31.39
3	2483.50	73.0 PK	74.0	-1.0	1.60 H	67	41.54	31.46
4	2483.50	51.8 AV	54.0	-2.2	1.60 H	67	20.34	31.46
5	4914.00	49.1 PK	74.0	-24.9	1.01 H	316	9.32	39.78
6	4914.00	37.6 AV	54.0	-16.4	1.01 H	316	-2.18	39.78
7	7371.00	53.5 PK	74.0	-20.5	1.62 H	167	9.33	44.17
8	7371.00	42.7 AV	54.0	-11.3	1.62 H	167	-1.47	44.17

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	*2457.00	101.4 PK			1.52 V	250	70.01	31.39
2	*2457.00	99.4 AV			1.52 V	250	68.01	31.39
3	2483.50	69.4 PK	74.0	-4.6	1.52 V	250	37.94	31.46
4	2483.50	49.0 AV	54.0	-5.0	1.52 V	250	17.54	31.46
5	4914.00	48.2 PK	74.0	-25.8	1.46 V	315	8.42	39.78
6	4914.00	36.4 AV	54.0	-17.6	1.46 V	315	-3.38	39.78
7	7371.00	51.5 PK	74.0	-22.5	1.49 V	327	7.33	44.17
8	7371.00	40.8 AV	54.0	-13.2	1.49 V	327	-3.37	44.17

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



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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	107.2 PK			1.00 H	144	74.63	32.57
2	*2462.00	96.2 AV			1.00 H	144	63.63	32.57
3	2483.50	67.6 PK	74.0	-6.4	1.00 H	144	34.97	32.63
4	2483.50	50.7 AV	54.0	-3.3	1.00 H	144	18.07	32.63
5	4923.20	47.2 PK	74.0	-26.8	1.10 H	125	5.19	42.01
6	4923.20	36.8 AV	54.0	-17.2	1.10 H	125	-5.21	42.01
7	7386.50	52.6 PK	74.0	-21.4	1.02 H	332	5.87	46.73
8	7386.50	41.2 AV	54.0	-12.8	1.02 H	332	-5.53	46.73

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	107.1 PK			1.10 V	142	74.53	32.57
2	*2462.00	95.4 AV			1.10 V	142	62.83	32.57
3	2483.50	67.4 PK	74.0	-6.6	1.10 V	142	34.77	32.63
4	2483.50	50.2 AV	54.0	-3.8	1.10 V	142	17.57	32.63
5	4924.00	47.3 PK	74.0	-26.7	1.00 V	241	5.25	42.01
6	4924.00	36.5 AV	54.0	-17.5	1.00 V	241	-5.51	42.01
7	7384.20	52.3 PK	74.0	-21.7	1.20 V	241	5.57	46.73
8	7384.20	41.0 AV	54.0	-13.1	1.20 V	241	-5.78	46.73

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



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CHANNEL	TX Channel 12	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	*2467.00	93.0 PK			1.54 H	52	61.59	31.41
2	*2467.00	80.5 AV			1.54 H	52	49.09	31.41
3	2483.50	62.3 PK	74.0	-11.7	1.54 H	52	30.84	31.46
4	2483.50	45.9 AV	54.0	-8.1	1.54 H	52	14.44	31.46
5	4934.00	48.9 PK	74.0	-25.1	1.12 H	298	9.04	39.86
6	4934.00	37.3 AV	54.0	-16.7	1.12 H	298	-2.56	39.86
7	7401.00	53.1 PK	74.0	-20.9	1.60 H	153	8.90	44.20
8	7401.00	42.1 AV	54.0	-11.9	1.60 H	153	-2.10	44.20

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	*2467.00	89.6 PK			1.60 V	245	58.19	31.41
2	*2467.00	77.8 AV			1.60 V	245	46.39	31.41
3	2483.50	58.9 PK	74.0	-15.1	1.60 V	245	27.44	31.46
4	2483.50	45.0 AV	54.0	-9.0	1.60 V	245	13.54	31.46
5	4934.00	48.9 PK	74.0	-25.1	1.43 V	337	9.04	39.86
6	4934.00	36.6 AV	54.0	-17.4	1.43 V	337	-3.26	39.86
7	7401.00	51.0 PK	74.0	-23.0	1.48 V	303	6.80	44.20
8	7401.00	40.1 AV	54.0	-13.9	1.48 V	303	-4.10	44.20

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



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CHANNEL	TX Channel 13	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	*2472.00	92.9 PK			1.56 H	66	61.47	31.43
2	*2472.00	80.2 AV			1.56 H	66	48.77	31.43
3	2483.50	69.5 PK	74.0	-4.5	1.56 H	66	38.04	31.46
4	2483.50	47.9 AV	54.0	-6.1	1.56 H	66	16.44	31.46
5	4944.00	49.4 PK	74.0	-24.6	1.14 H	304	9.50	39.90
6	4944.00	37.7 AV	54.0	-16.3	1.14 H	304	-2.20	39.90
7	7416.00	52.9 PK	74.0	-21.1	1.58 H	155	8.68	44.22
8	7416.00	42.2 AV	54.0	-11.8	1.58 H	155	-2.02	44.22

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2472.00	89.5 PK			1.62 V	254	58.07	31.43
2	*2472.00	77.8 AV			1.62 V	254	46.37	31.43
3	2483.50	64.3 PK	74.0	-9.7	1.62 V	254	32.84	31.46
4	2483.50	46.2 AV	54.0	-7.8	1.62 V	254	14.74	31.46
5	4944.00	48.9 PK	74.0	-25.1	1.48 V	337	9.00	39.90
6	4944.00	36.8 AV	54.0	-17.2	1.48 V	337	-3.10	39.90
7	7416.00	50.4 PK	74.0	-23.6	1.44 V	299	6.18	44.22
8	7416.00	39.6 AV	54.0	-14.4	1.44 V	299	-4.62	44.22

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * " : Fundamental frequency.



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802.11n (20MHz)

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	72.8 PK	74.0	-1.2	1.50 H	60	41.59	31.21
2	2390.00	50.0 AV	54.0	-4.0	1.50 H	60	18.79	31.21
3	*2412.00	109.6 PK			1.50 H	60	78.33	31.27
4	*2412.00	95.4 AV			1.50 H	60	64.13	31.27
5	4824.00	49.2 PK	74.0	-24.8	1.12 H	97	9.78	39.42
6	4824.00	38.3 AV	54.0	-15.7	1.12 H	97	-1.12	39.42

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	72.6 PK	74.0	-1.4	1.59 V	256	41.39	31.21
2	2390.00	49.6 AV	54.0	-4.4	1.59 V	256	18.39	31.21
3	*2412.00	107.1 PK			1.59 V	246	75.83	31.27
4	*2412.00	93.8 AV			1.59 V	246	62.53	31.27
5	4824.00	48.9 PK	74.0	-25.1	1.11 V	223	9.48	39.42
6	4824.00	37.9 AV	54.0	-16.1	1.11 V	223	-1.52	39.42

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 2	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	72.1 PK	74.0	-1.9	1.51 H	58	40.89	31.21
2	2390.00	51.8 AV	54.0	-2.2	1.51 H	58	20.59	31.21
3	*2417.00	112.3 PK			1.49 H	66	81.02	31.28
4	*2417.00	97.6 AV			1.49 H	66	66.32	31.28
5	4834.00	49.6 PK	74.0	-24.4	1.14 H	110	10.14	39.46
6	4834.00	38.7 AV	54.0	-15.3	1.14 H	110	-0.76	39.46
7	7251.00	52.9 PK	74.0	-21.1	1.50 H	221	8.86	44.04
8	7251.00	42.1 AV	54.0	-11.9	1.50 H	221	-1.94	44.04

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	72.0 PK	74.0	-2.0	1.65 V	264	40.79	31.21
2	2390.00	51.7 AV	54.0	-2.3	1.65 V	264	20.49	31.21
3	*2417.00	109.9 PK			1.59 V	266	78.62	31.28
4	*2417.00	96.6 AV			1.59 V	266	65.32	31.28
5	4834.00	49.0 PK	74.0	-25.0	1.06 V	237	9.54	39.46
6	4834.00	38.1 AV	54.0	-15.9	1.06 V	237	-1.36	39.46
7	7251.00	51.2 PK	74.0	-22.8	1.01 V	166	7.16	44.04
8	7251.00	41.2 AV	54.0	-12.8	1.01 V	166	-2.84	44.04

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



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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	69.5 PK	74.0	-4.5	1.52 H	59	38.29	31.21
2	2390.00	50.9 AV	54.0	-3.1	1.52 H	59	19.69	31.21
3	*2437.00	114.4 PK			1.53 H	62	83.06	31.34
4	*2437.00	100.2 AV			1.53 H	62	68.86	31.34
5	2483.50	67.2 PK	74.0	-6.8	1.63 H	65	35.74	31.46
6	2483.50	50.6 AV	54.0	-3.4	1.63 H	65	19.14	31.46
7	4874.00	49.6 PK	74.0	-24.4	1.12 H	98	9.98	39.62
8	4874.00	38.4 AV	54.0	-15.6	1.12 H	98	-1.22	39.62
9	7311.00	52.9 PK	74.0	-21.1	1.51 H	205	8.80	44.10
10	7311.00	42.4 AV	54.0	-11.6	1.51 H	205	-1.70	44.10

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	67.7 PK	74.0	-6.3	1.64 V	265	36.49	31.21
2	2390.00	50.8 AV	54.0	-3.2	1.64 V	265	19.59	31.21
3	*2437.00	113.5 PK			1.61 V	277	82.16	31.34
4	*2437.00	99.2 AV			1.61 V	277	67.86	31.34
5	2483.50	65.5 PK	74.0	-8.5	1.53 V	264	34.04	31.46
6	2483.50	49.5 AV	54.0	-4.5	1.53 V	264	18.04	31.46
7	4874.00	49.3 PK	74.0	-24.7	1.11 V	235	9.68	39.62
8	4874.00	38.6 AV	54.0	-15.4	1.11 V	235	-1.02	39.62
9	7311.00	50.9 PK	74.0	-23.1	1.04 V	156	6.80	44.10
10	7311.00	41.1 AV	54.0	-12.9	1.04 V	156	-3.00	44.10

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



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CHANNEL	TX Channel 10	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	*2457.00	113.9 PK			1.59 H	70	82.51	31.39
2	*2457.00	100.2 AV			1.59 H	70	68.81	31.39
3	2483.50	72.9 PK	74.0	-1.1	1.58 H	70	41.44	31.46
4	2483.50	50.7 AV	54.0	-3.3	1.58 H	70	19.24	31.46
5	4914.00	49.9 PK	74.0	-24.1	1.10 H	295	10.12	39.78
6	4914.00	38.2 AV	54.0	-15.8	1.10 H	295	-1.58	39.78
7	7371.00	53.8 PK	74.0	-20.2	1.61 H	127	9.63	44.17
8	7371.00	42.6 AV	54.0	-11.4	1.61 H	127	-1.57	44.17

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	*2457.00	112.4 PK			1.55 V	258	81.01	31.39
2	*2457.00	99.4 AV			1.55 V	258	68.01	31.39
3	2483.50	68.9 PK	74.0	-5.1	1.55 V	258	37.44	31.46
4	2483.50	48.4 AV	54.0	-5.6	1.55 V	258	16.94	31.46
5	4914.00	48.9 PK	74.0	-25.1	1.54 V	341	9.12	39.78
6	4914.00	36.9 AV	54.0	-17.1	1.54 V	341	-2.88	39.78
7	7371.00	50.5 PK	74.0	-23.5	1.43 V	314	6.33	44.17
8	7371.00	40.0 AV	54.0	-14.0	1.43 V	314	-4.17	44.17

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



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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	110.4 PK			1.44 H	61	79.00	31.40
2	*2462.00	95.9 AV			1.44 H	61	64.50	31.40
3	2483.50	72.3 PK	74.0	-1.7	1.43 H	60	40.84	31.46
4	2483.50	50.0 AV	54.0	-4.0	1.43 H	60	18.54	31.46
5	4924.00	49.3 PK	74.0	-24.7	1.07 H	109	9.48	39.82
6	4924.00	38.3 AV	54.0	-15.7	1.07 H	109	-1.52	39.82
7	7386.00	52.4 PK	74.0	-21.6	1.56 H	204	8.22	44.18
8	7386.00	42.1 AV	54.0	-11.9	1.56 H	204	-2.08	44.18

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	108.2 PK			1.56 V	267	76.80	31.40
2	*2462.00	94.2 AV			1.56 V	267	62.80	31.40
3	2483.50	68.4 PK	74.0	-5.6	1.52 V	273	36.94	31.46
4	2483.50	48.5 AV	54.0	-5.5	1.52 V	273	17.04	31.46
5	4924.00	49.1 PK	74.0	-24.9	1.13 V	355	9.28	39.82
6	4924.00	38.6 AV	54.0	-15.4	1.13 V	355	-1.22	39.82
7	7386.00	50.8 PK	74.0	-23.2	1.05 V	323	6.62	44.18
8	7386.00	41.0 AV	54.0	-13.0	1.05 V	323	-3.18	44.18

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



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CHANNEL	TX Channel 12	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	*2467.00	94.8 PK			1.34 H	78	63.39	31.41
2	*2467.00	81.6 AV			1.34 H	78	50.19	31.41
3	2483.50	60.1 PK	74.0	-13.9	1.56 H	78	28.64	31.46
4	2483.50	44.7 AV	54.0	-9.3	1.56 H	78	13.24	31.46
5	4934.00	50.6 PK	74.0	-23.4	1.09 H	301	10.74	39.86
6	4934.00	38.3 AV	54.0	-15.7	1.09 H	301	-1.56	39.86
7	7401.00	54.3 PK	74.0	-19.7	1.63 H	121	10.10	44.20
8	7401.00	42.6 AV	54.0	-11.4	1.63 H	121	-1.60	44.20

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	*2467.00	92.9 PK			1.48 V	277	61.49	31.41
2	*2467.00	79.0 AV			1.48 V	277	47.59	31.41
3	2483.50	57.0 PK	74.0	-17.0	1.48 V	277	25.54	31.46
4	2483.50	43.9 AV	54.0	-10.1	1.48 V	277	12.44	31.46
5	4934.00	48.5 PK	74.0	-25.5	1.55 V	360	8.64	39.86
6	4934.00	36.6 AV	54.0	-17.4	1.55 V	360	-3.26	39.86
7	7401.00	50.7 PK	74.0	-23.3	1.38 V	315	6.50	44.20
8	7401.00	40.0 AV	54.0	-14.0	1.38 V	315	-4.20	44.20

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



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CHANNEL	TX Channel 13	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	*2472.00	93.4 PK			1.58 H	69	61.97	31.43
2	*2472.00	79.6 AV			1.58 H	69	48.17	31.43
3	2483.50	71.7 PK	74.0	-2.3	1.58 H	69	40.24	31.46
4	2483.50	49.1 AV	54.0	-4.9	1.58 H	69	17.64	31.46
5	4944.00	50.8 PK	74.0	-23.2	1.04 H	313	10.90	39.90
6	4944.00	38.6 AV	54.0	-15.4	1.04 H	313	-1.30	39.90
7	7416.00	54.4 PK	74.0	-19.6	1.62 H	119	10.18	44.22
8	7416.00	43.0 AV	54.0	-11.0	1.62 H	119	-1.22	44.22

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2472.00	92.0 PK			1.54 V	264	60.57	31.43
2	*2472.00	78.7 AV			1.54 V	264	47.27	31.43
3	2483.50	69.1 PK	74.0	-4.9	1.54 V	264	37.64	31.46
4	2483.50	48.3 AV	54.0	-5.7	1.54 V	264	16.84	31.46
5	4944.00	48.9 PK	74.0	-25.1	1.60 V	360	9.00	39.90
6	4944.00	36.9 AV	54.0	-17.1	1.60 V	360	-3.00	39.90
7	7416.00	50.4 PK	74.0	-23.6	1.32 V	315	6.18	44.22
8	7416.00	39.7 AV	54.0	-14.3	1.32 V	315	-4.52	44.22

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * " : Fundamental frequency.

4.3 6dB BANDWIDTH MEASUREMENT

4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S Spectrum Analyzer	FSP 40	100060	May 11, 2011	May 10, 2012

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : Mar. 12, 2012

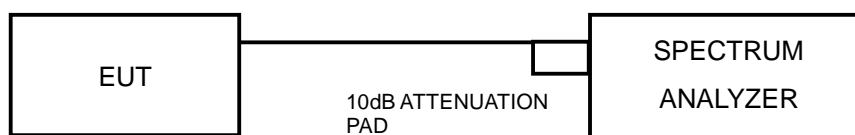
4.3.3 TEST PROCEDURE

1. Set resolution bandwidth (RBW) = approximately 1% of the emission bandwidth
2. Set the video bandwidth (VBW) $\geq 3 \times$ RBW, Detector = Peak.
3. Trace mode = max hold.
4. Sweep = auto couple.
5. Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission

4.3.4 DEVIATION FROM TEST STANDARD

No deviation

4.3.5 TEST SETUP



4.3.6 EUT OPERATING CONDITIONS

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



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4.3.7 TEST RESULTS

802.11b

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	10.02	0.5	PASS
6	2437	10.03	0.5	PASS
11	2462	10.11	0.5	PASS
12	2467	10.30	0.5	PASS
13	2472	10.13	0.5	PASS

802.11g

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.03	0.5	PASS
2	2417	16.03	0.5	PASS
6	2437	16.40	0.5	PASS
10	2457	16.02	0.5	PASS
11	2462	15.90	0.5	PASS
12	2467	16.00	0.5	PASS
13	2472	15.86	0.5	PASS



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802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	17.17	0.5	PASS
2	2417	17.07	0.5	PASS
6	2437	16.91	0.5	PASS
10	2457	16.82	0.5	PASS
11	2462	16.97	0.5	PASS
12	2467	16.73	0.5	PASS
13	2472	16.89	0.5	PASS

4.4 CONDUCTED OUTPUT POWER

4.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

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

4.4.2 INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Peak Power Meter	ML2495A	0824006	May 04, 2011	May 03, 2012
Power Sensor	MA2411B	0738172	May 03, 2011	May 02, 2012

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : Mar. 12, 2012

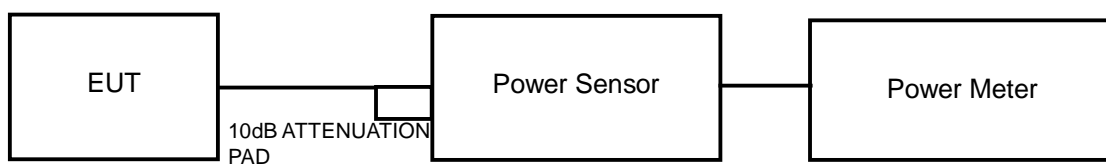
4.4.3 TEST PROCEDURES

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 peak power level.

4.4.4 DEVIATION FROM TEST STANDARD

No deviation

4.4.5 TEST SETUP



4.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6



A D T

4.4.7 TEST RESULTS

802.11b

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
1	2412	173.780	22.40	30	PASS
6	2437	186.209	22.70	30	PASS
11	2462	154.882	21.90	30	PASS
12	2467	1.479	1.70	30	PASS
13	2472	1.514	1.80	30	PASS

802.11g

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
1	2412	213.796	23.30	30	PASS
2	2417	218.776	23.40	30	PASS
6	2437	151.356	21.80	30	PASS
10	2457	218.776	23.40	30	PASS
11	2462	204.174	23.10	30	PASS
12	2467	14.791	11.70	30	PASS
13	2472	13.804	11.40	30	PASS

802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
1	2412	208.930	23.20	30	PASS
2	2417	223.872	23.50	30	PASS
6	2437	165.959	22.20	30	PASS
10	2457	218.776	23.40	30	PASS
11	2462	199.526	23.00	30	PASS
12	2467	11.749	10.70	30	PASS
13	2472	12.303	10.90	30	PASS

4.5 POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

4.5.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S Spectrum Analyzer	FSP 40	100060	May 11, 2011	May 10, 2012

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : Mar. 12, 2012

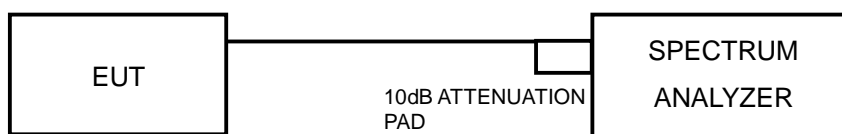
4.5.3 TEST PROCEDURE

1. Set the RBW = 100 kHz, VBW =300 kHz, Detector = peak.
2. Sweep time = auto couple, Trace mode = max hold, allow trace to fully stabilize.
3. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.
4. Scale the observed power level to an equivalent value in 3 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where $BWCF = 10\log(3 \text{ kHz}/100\text{kHz})$

4.5.4 DEVIATION FROM TEST STANDARD

No deviation

4.5.5 TEST SETUP



4.5.6 EUT OPERATING CONDITION

Same as Item 4.3.6



A D T

4.5.7 TEST RESULTS

802.11b

Channel	FREQUENCY (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	9.43	-5.80	8	PASS
6	2437	11.13	-4.10	8	PASS
11	2462	9.78	-5.45	8	PASS
12	2467	-11.29	-26.52	8	PASS
13	2472	-10.64	-25.87	8	PASS

802.11g

Channel	FREQUENCY (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	5.91	-9.32	8	PASS
2	2417	7.05	-8.18	8	PASS
6	2437	10.19	-5.04	8	PASS
10	2457	6.24	-8.99	8	PASS
11	2462	4.76	-10.47	8	PASS
12	2467	-12.65	-27.88	8	PASS
13	2472	-12.61	-27.84	8	PASS

802.11n (20MHz)

Channel	FREQUENCY (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	3.67	-11.56	8	PASS
2	2417	5.42	-9.81	8	PASS
6	2437	7.23	-8.00	8	PASS
10	2457	6.24	-8.99	8	PASS
11	2462	1.64	-13.59	8	PASS
12	2467	-12.71	-27.94	8	PASS
13	2472	-12.67	-27.90	8	PASS

4.6 CONDUCTED OUT-BAND EMISSION MEASUREMENT

4.6.1 LIMITS OF CONDUCTED OUT-BAND EMISSION MEASUREMENT

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

4.6.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S Spectrum Analyzer	FSP 40	100060	May 11, 2011	May 10, 2012

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : Mar. 12, 2012

4.6.3 TEST PROCEDURE

MEASUREMENT PROCEDURE REF

1. Set the RBW = 100 kHz.
2. Set the VBW \geq 300 kHz.
3. Detector = peak.
4. Sweep time = auto couple.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

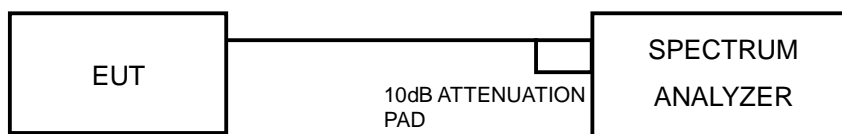
MEASUREMENT PROCEDURE OOB

1. Set RBW = 100 kHz.
2. Set VBW \geq 300 kHz.
3. Set span to encompass the spectrum to be examined
4. Detector = peak.
5. Trace Mode = max hold.
6. Sweep = auto couple.

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

4.6.5 TEST SETUP



4.6.6 EUT OPERATING CONDITION

Same as Item 4.3.6

4.6.7 TEST RESULTS

The conducted emission test is performed on each TX port of operating mode without summing or adding $10\log(N)$ since the limit is relative emission limit. Only worst data of each operating mode is presented.

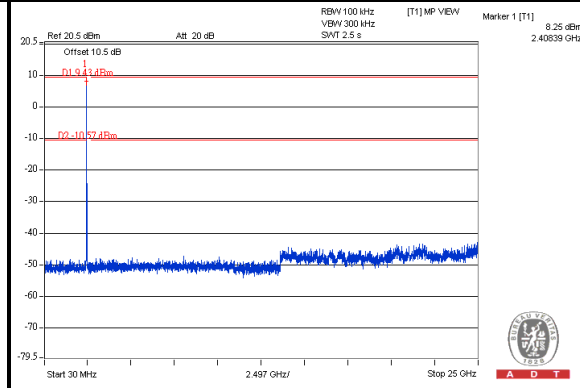
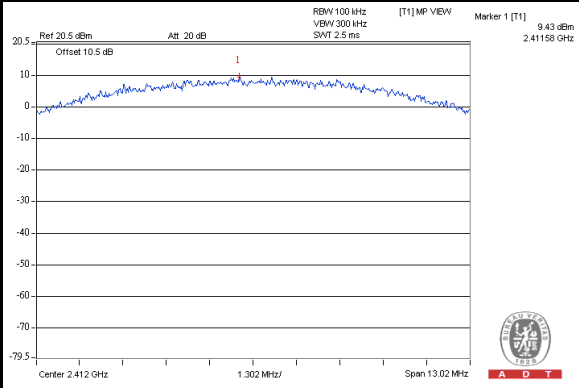
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement.



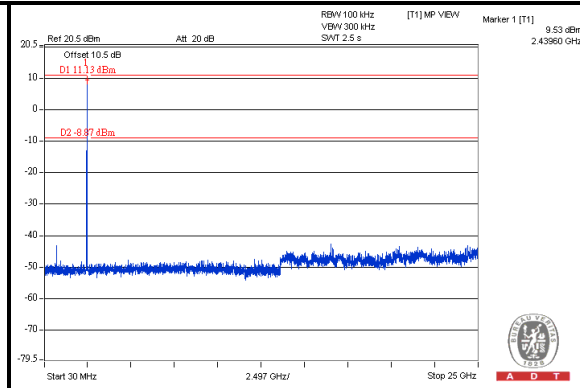
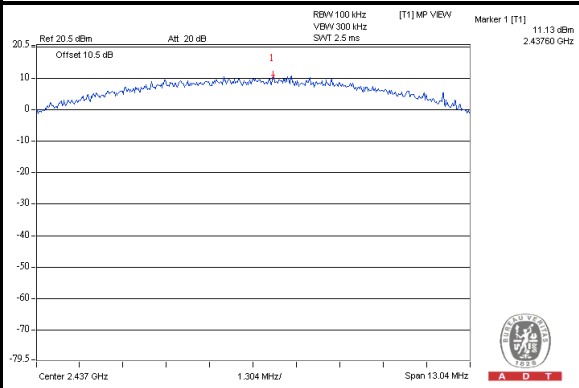
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802.11b

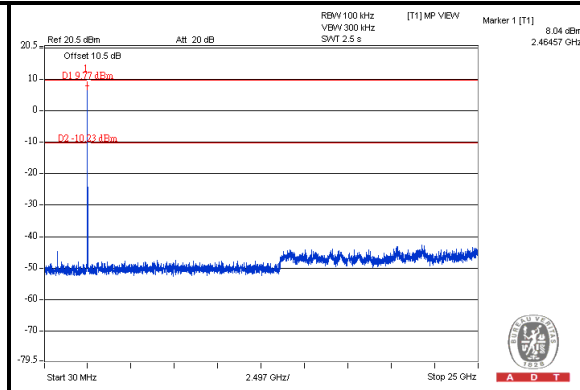
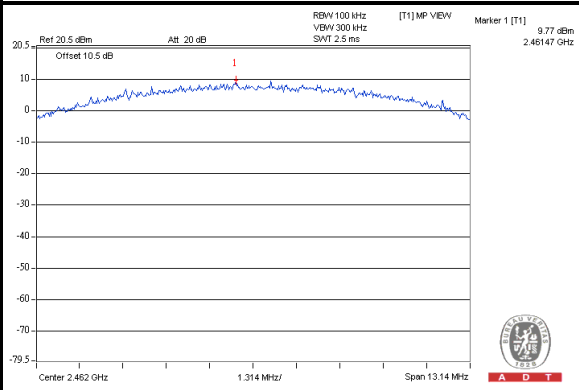
CH 1



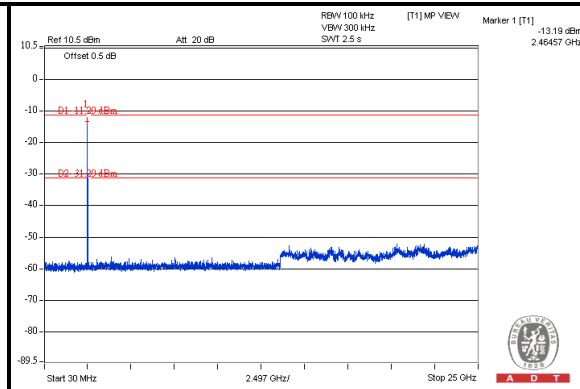
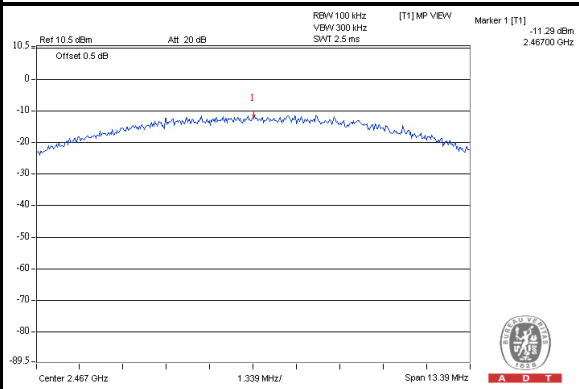
CH 6



CH 11



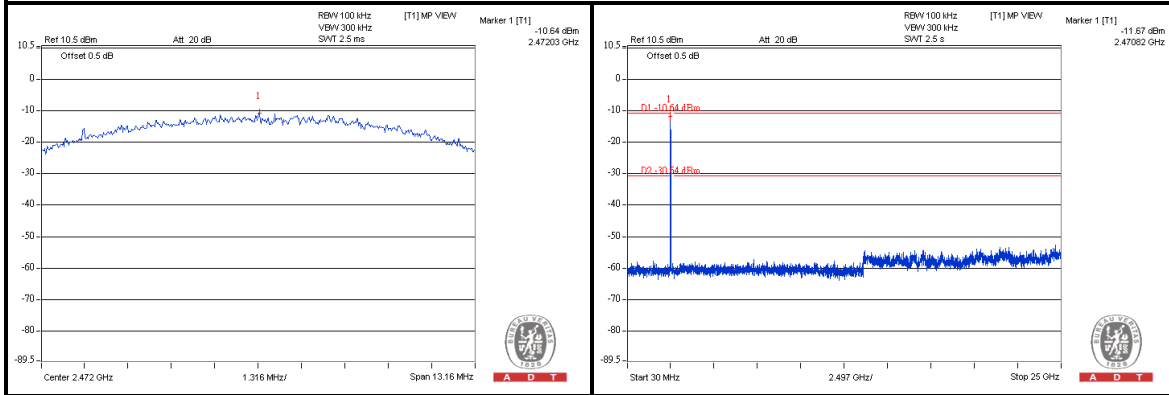
CH 12





A D T

CH 13

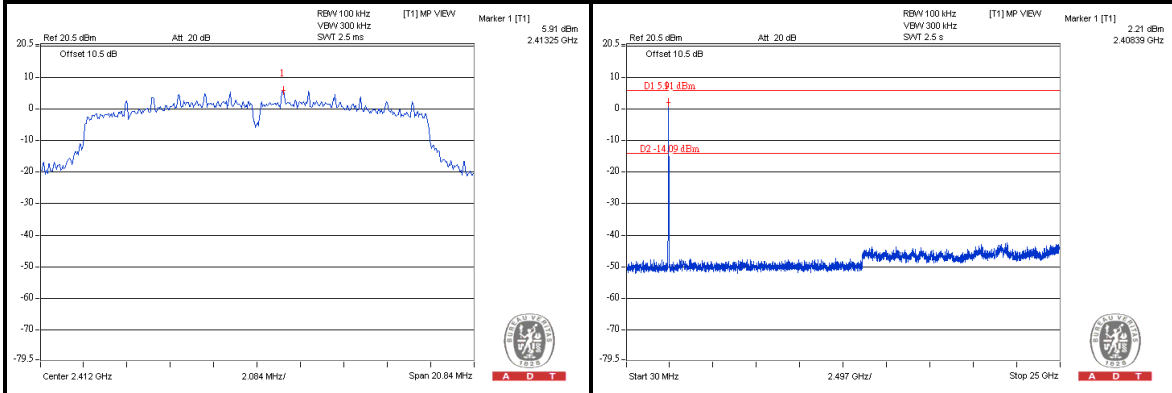




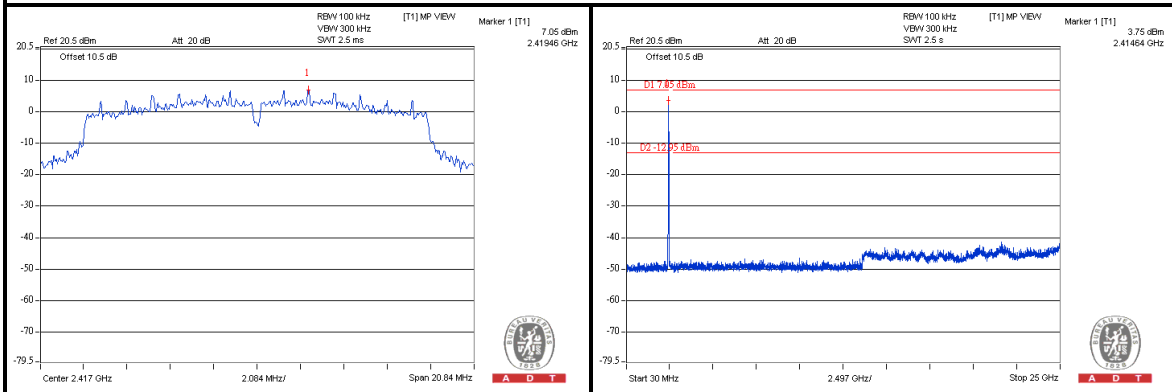
A D T

802.11g

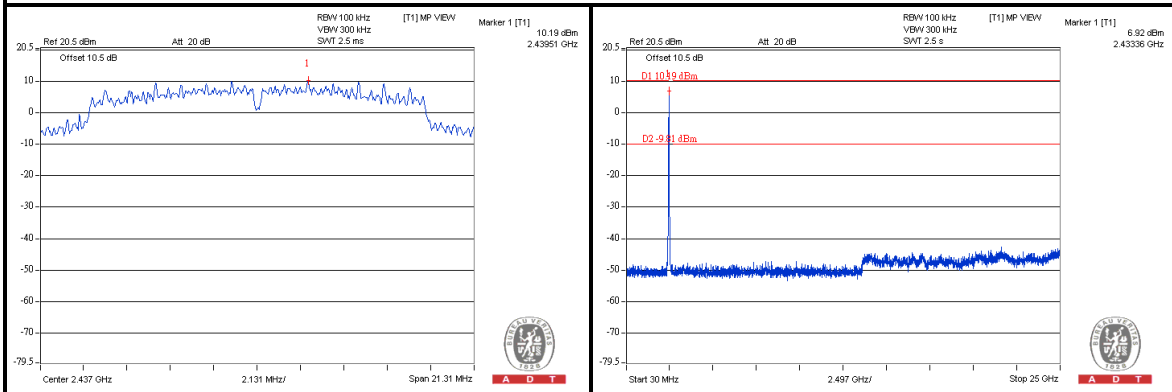
CH 1



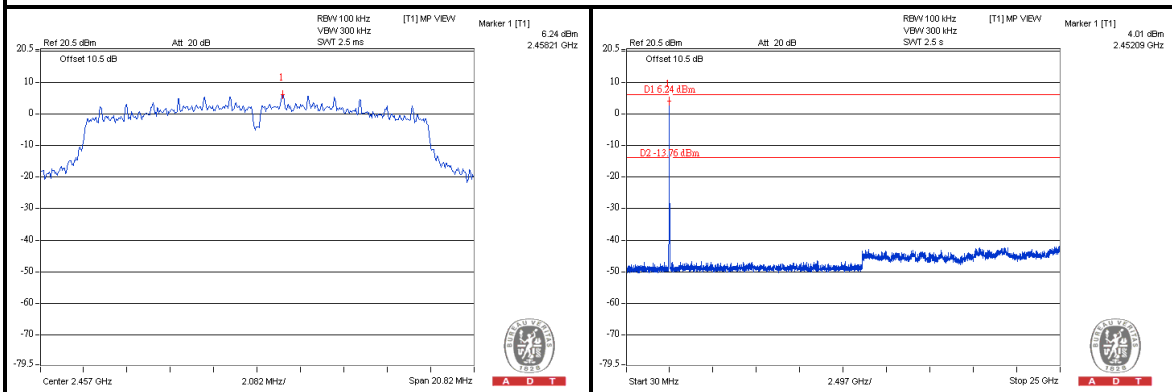
CH 2



CH 6



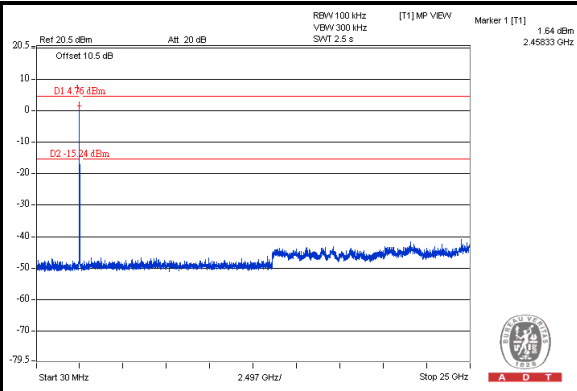
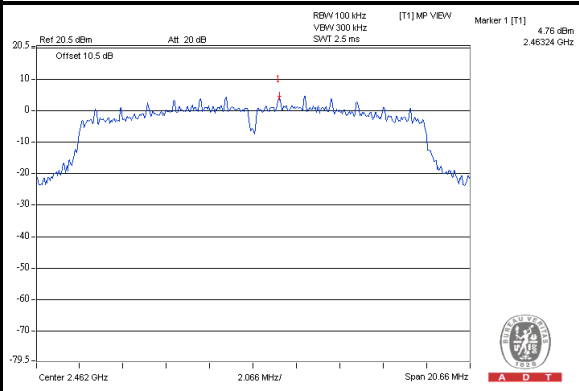
CH 10



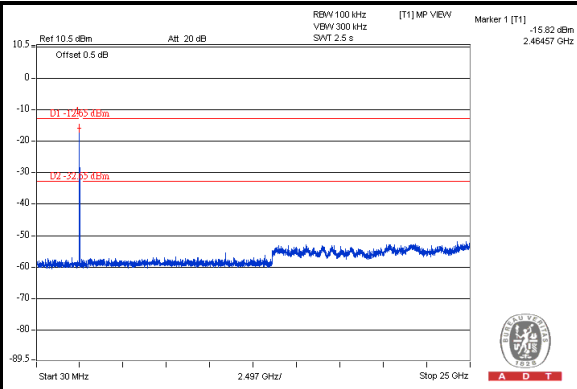
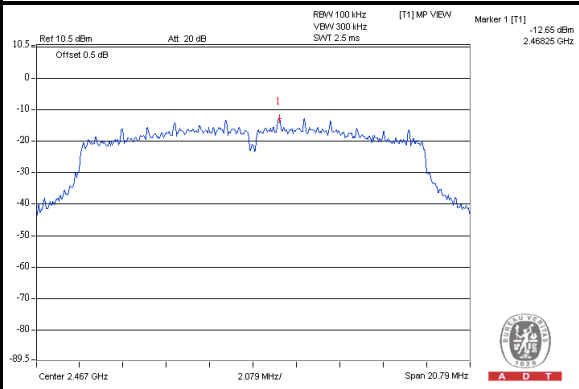


A D T

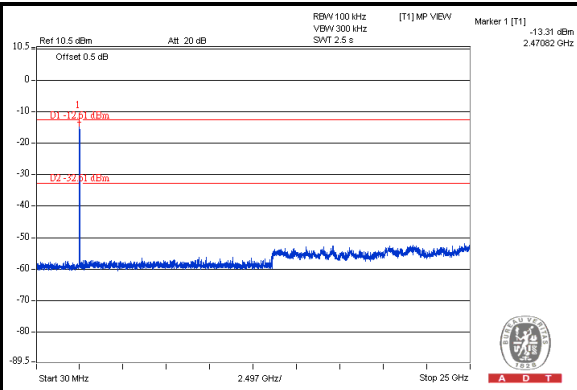
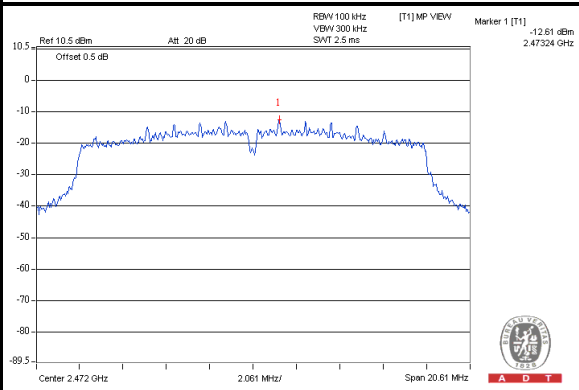
CH 11



CH 12



CH 13

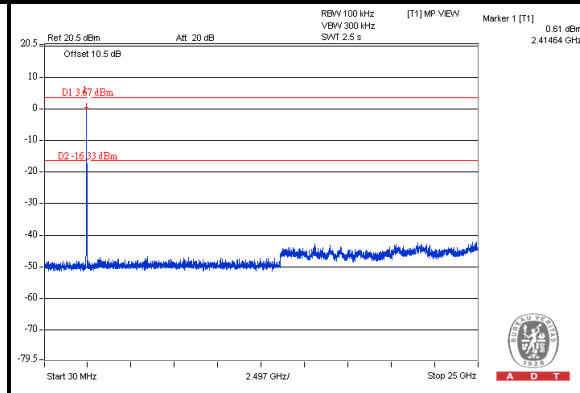
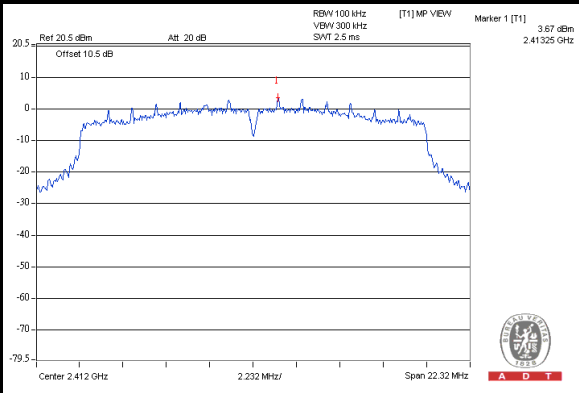




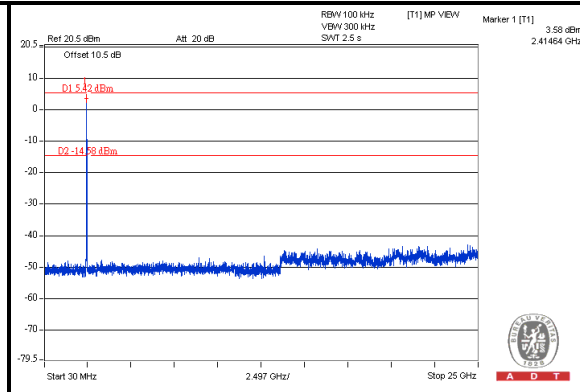
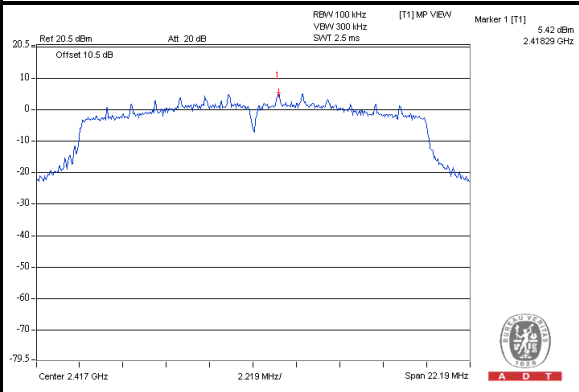
A D T

802.11n (20MHz)

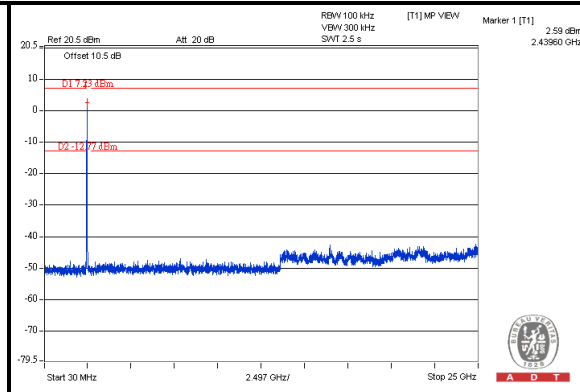
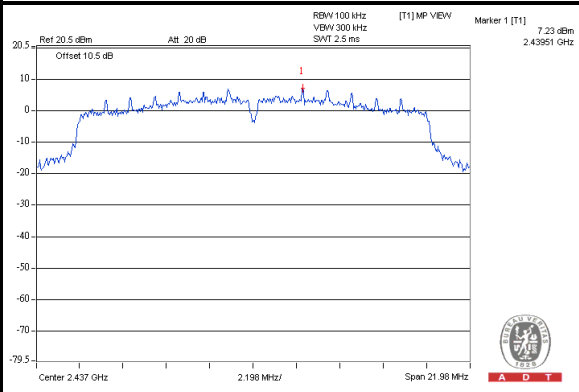
CH 1



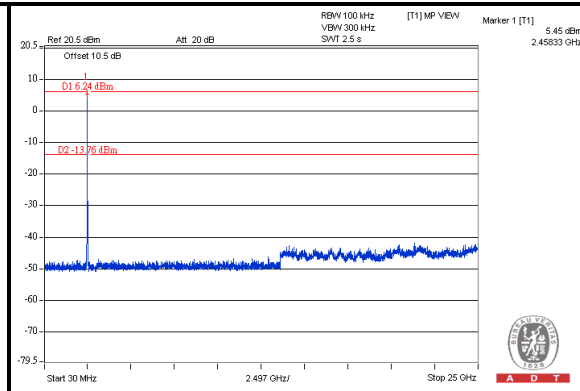
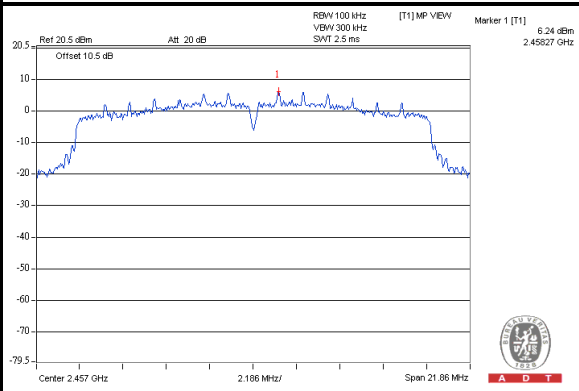
CH 2



CH 6



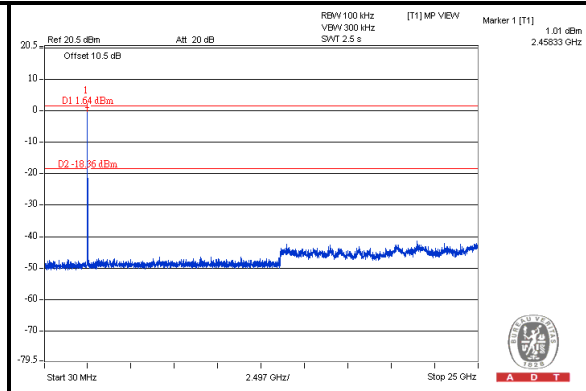
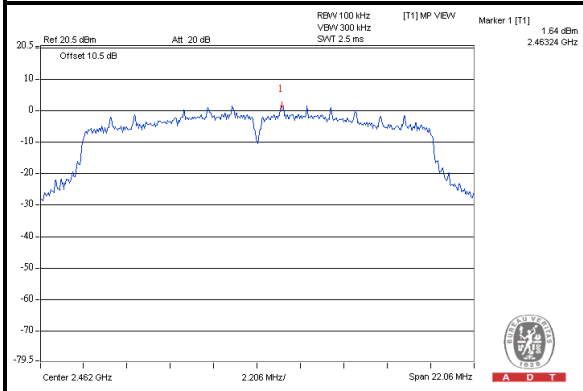
CH 10



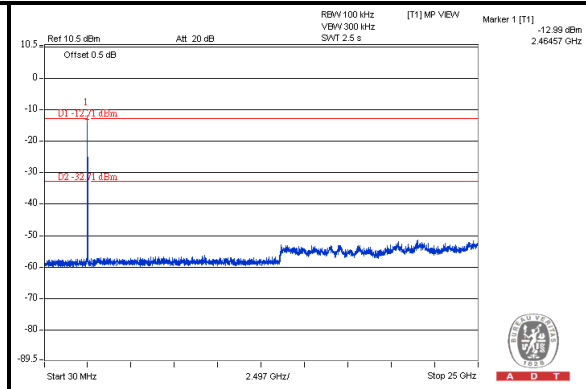
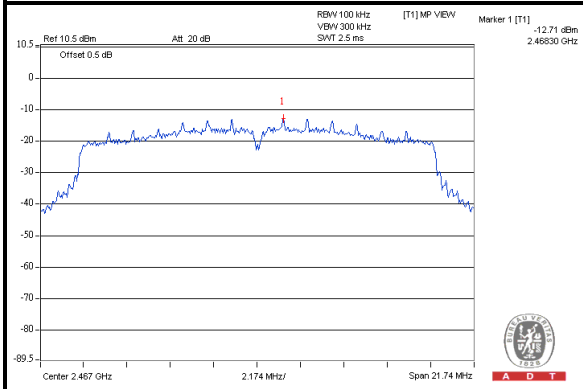


A D T

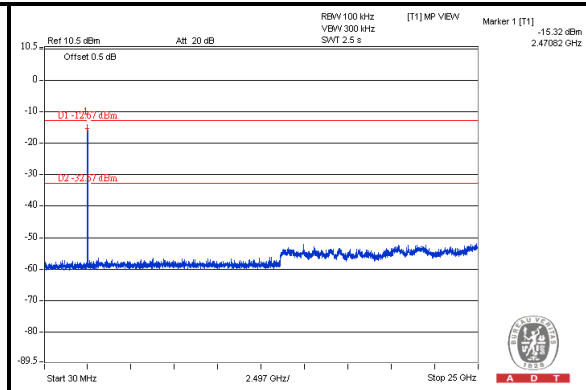
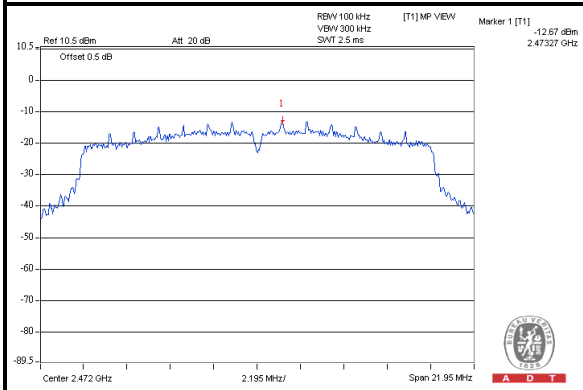
CH 11



CH 12



CH 13





A D T

5. TEST TYPES AND RESULTS (FOR 5GHz, 5725~5850MHz Band)

5.1 CONDUCTED EMISSION MEASUREMENT

5.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBµV)	
	Quasi-peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

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

5.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver	ESCS 30	100375	Mar. 12, 2012	Mar. 11, 2013
Line-Impedance Stabilization Network (for EUT)	NSLK8127	8127-522	Sep. 07, 2011	Sep. 06, 2012
Line-Impedance Stabilization Network (for Peripheral)	ESH3-Z5	848773/004	Nov. 02, 2011	Nov. 01, 2012
RF Cable (JYEBAO)	5DFB	COCCAB-002	Aug. 29, 2011	Aug. 28, 2012
50 ohms Terminator	50	3	Nov. 02, 2011	Nov. 01, 2012
Software	BV ADT_Cond_V7.3.7	NA	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Shielded Room No. C.
3. The VCCI Con C Registration No. is C-3611.
4. Tested Date: Mar. 16, 2012

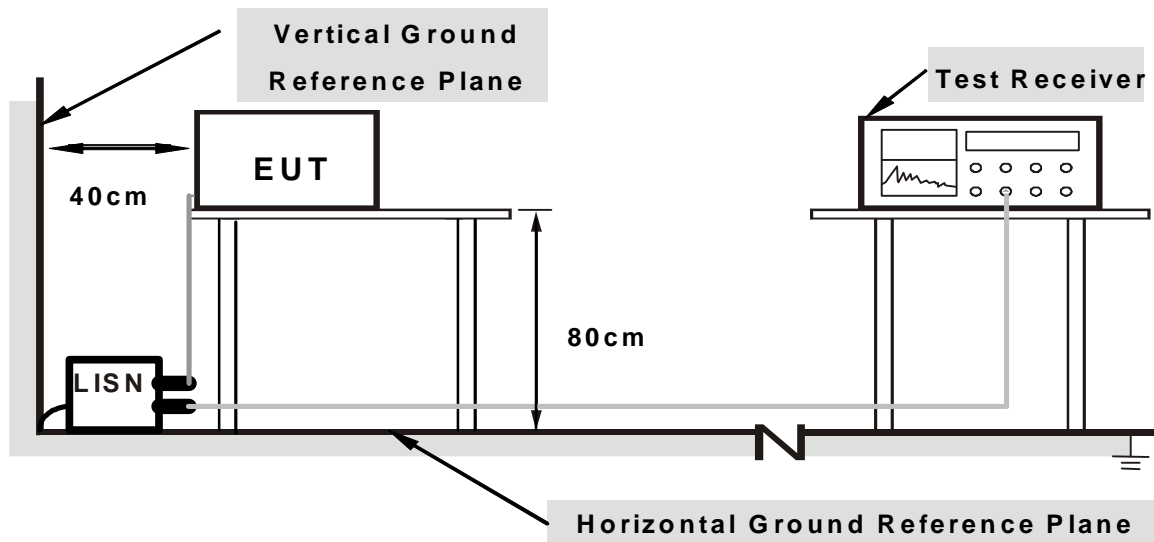
5.1.3 TEST PROCEDURES

- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit – 20dB) were not recorded.

5.1.4 DEVIATION FROM TEST STANDARD

No deviation

5.1.5 TEST SETUP



- Note:**
1. Support units were connected to second LISN.
 2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

5.1.6 EUT OPERATING CONDITIONS

Same as the 4.1.6

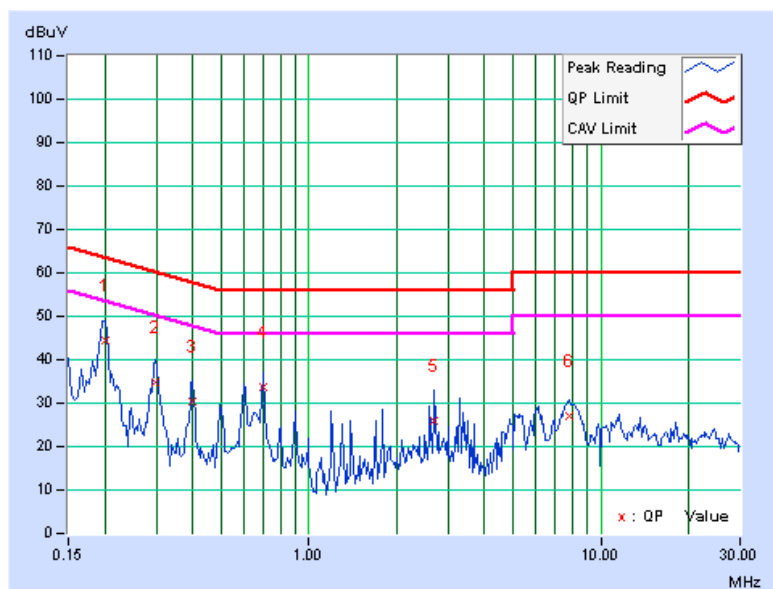
5.1.7 TEST RESULTS (MODE 1)

PHASE	Line (L)	6dB BANDWIDTH	9 kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
	1	0.20078	0.07	44.37	31.42	44.44	31.49	63.58	53.58	-19.14
2	0.29844	0.07	34.59	22.60	34.66	22.67	60.29	50.29	-25.62	-27.61
3	0.40000	0.08	30.37	22.28	30.45	22.36	57.85	47.85	-27.40	-25.49
4	0.69688	0.09	33.49	27.76	33.58	27.85	56.00	46.00	-22.42	-18.15
5	2.69531	0.24	25.55	13.41	25.79	13.65	56.00	46.00	-30.21	-32.35
6	7.78125	0.45	26.70	20.98	27.15	21.43	60.00	50.00	-32.85	-28.57

REMARKS:

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

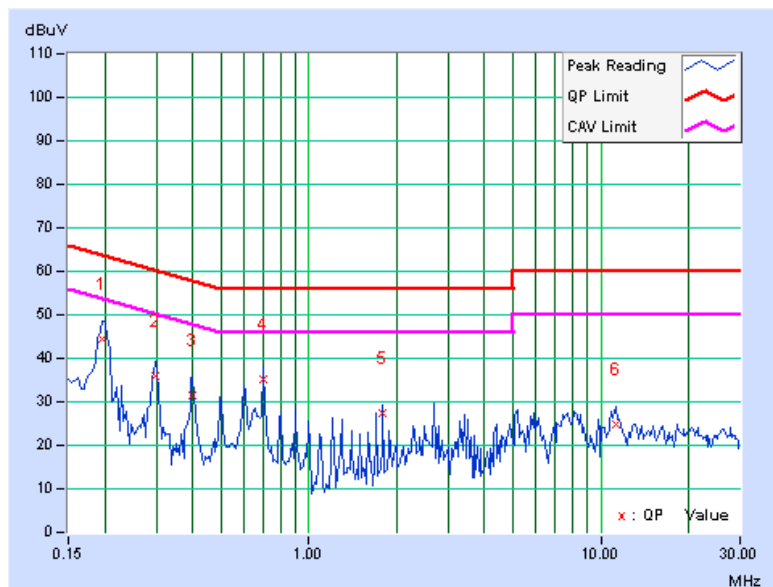


PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
	1	0.19687	0.06	44.37	31.57	44.43	31.63	63.74	53.74	-19.31
2	0.29844	0.07	35.85	24.46	35.92	24.53	60.29	50.29	-24.37	-25.76
3	0.40000	0.08	31.47	23.74	31.55	23.82	57.85	47.85	-26.30	-24.03
4	0.69688	0.08	35.16	28.73	35.24	28.81	56.00	46.00	-20.76	-17.19
5	1.79688	0.15	27.40	19.62	27.55	19.77	56.00	46.00	-28.45	-26.23
6	11.28125	0.43	24.45	18.64	24.88	19.07	60.00	50.00	-35.12	-30.93

REMARKS:

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



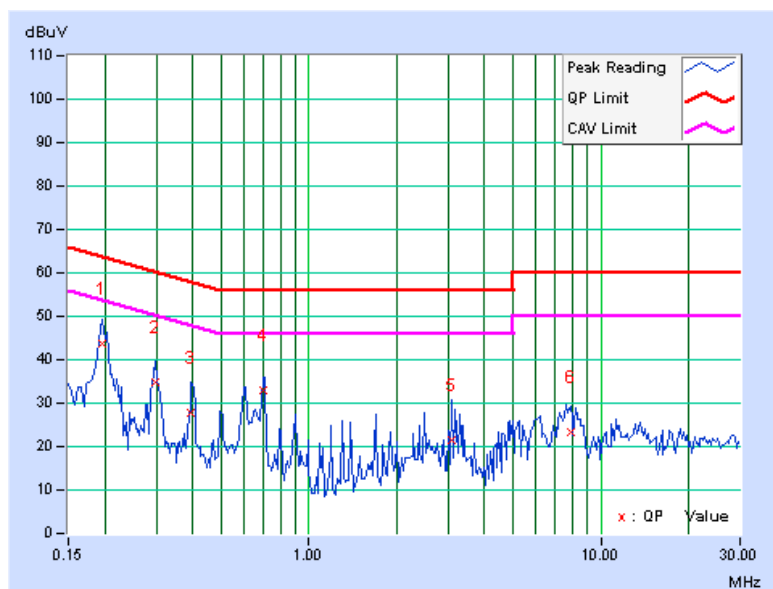
5.1.8 TEST RESULTS (MODE 2)

PHASE	Line (L)	6dB BANDWIDTH	9 kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
	1	0.19687	0.07	43.62	28.66	43.69	28.73	63.74	53.74	-20.05
2	0.29844	0.07	34.63	20.39	34.70	20.46	60.29	50.29	-25.58	-29.82
3	0.39609	0.08	27.88	19.28	27.96	19.36	57.93	47.93	-29.98	-28.58
4	0.69906	0.09	32.72	25.65	32.81	25.74	56.00	46.00	-23.19	-20.26
5	3.09375	0.27	21.30	10.48	21.57	10.75	56.00	46.00	-34.43	-35.25
6	7.86719	0.46	22.80	16.57	23.26	17.03	60.00	50.00	-36.74	-32.97

REMARKS:

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

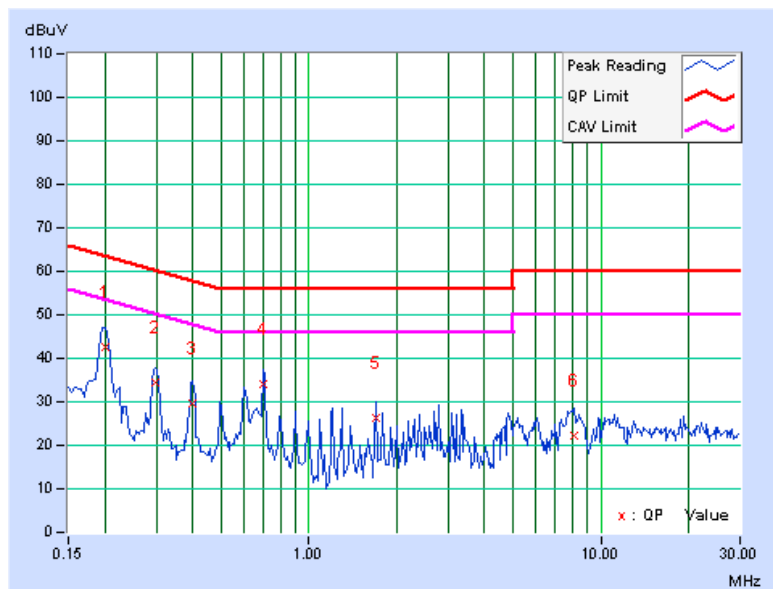


PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
	1	0.20078	0.06	42.36	28.92	42.42	28.98	63.58	53.58	-21.16
2	0.29844	0.07	34.29	21.32	34.36	21.39	60.29	50.29	-25.93	-28.90
3	0.40000	0.08	29.50	20.32	29.58	20.40	57.85	47.85	-28.27	-27.45
4	0.69688	0.08	34.00	26.84	34.08	26.92	56.00	46.00	-21.92	-19.08
5	1.69531	0.15	26.15	17.02	26.30	17.17	56.00	46.00	-29.70	-28.83
6	8.10547	0.34	21.98	9.85	22.32	10.19	60.00	50.00	-37.68	-39.81

REMARKS:

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



5.2 RADIATED AND BANDEDGE EMISSION MEASUREMENT

5.2.1 LIMITS OF RADIATED AND BANDEDGE EMISSION MEASUREMENT

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

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

NOTE:

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



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5.2.2 TEST INSTRUMENTS

For below 1GHz and above 1GHz of 802.11n channel 157:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer Agilent	E4446A	MY48250253	Sep. 03, 2012	Sep. 02, 2013
Pre-Selector Agilent	N9039A	MY46520310	Sep. 03, 2012	Sep. 02, 2013
Signal Generator Agilent	N5181A	MY49060347	July 24, 2012	July 23, 2013
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-04	Nov. 15, 2011	Nov. 14, 2012
Pre-Amplifier Agilent	8449B	3008A02465	Feb. 27, 2012	Feb. 26, 2013
SPACEK LABS	SLKKa-48-6	9K16	Nov. 15, 2011	Nov. 14, 2012
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-361	Apr. 06, 2012	Apr. 05, 2013
Horn_Antenna AISI	AIH.8018	0000220091110	Nov. 23, 2011	Nov. 22, 2012
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Oct. 12, 2012	Oct. 11, 2013
RF Cable	NA	RF104-205 RF104-207 RF104-202	Dec. 27, 2011	Dec. 26, 2012
RF Cable	NA	CHHCAB_001	Oct. 07, 2012	Oct. 06, 2013
Software	ADT_Radiated _V8.7.05	NA	NA	NA
Antenna Tower & Turn Table CT	NA	NA	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna, preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
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: Oct. 16 to 17, 2012



A D T

For above 1GHz: (for other test channels)

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Agilent Spectrum Analyzer	E4446A	MY48250254	July 12, 2011	July 11, 2012
Agilent Pre-Selector	N9039A	MY46520311	July 12, 2011	July 11, 2012
Agilent Signal Generator	N5181A	MY49060517	July 12, 2011	July 11, 2012
Mini-Circuits Pre-Amplifier	ZFL-1000VH2B	AMP-ZFL-03	Nov. 15, 2011	Nov. 14, 2012
Agilent Pre-Amplifier	8449B	3008A02578	July 04, 2011	July 03, 2012
SPACEK LABS	SLKKa-48-6	9K16	Nov. 15, 2011	Nov. 14, 2012
SCHWARZBECK Trilog Broadband Antenna	VULB 9168	9168-360	Apr. 14, 2011	Apr. 13, 2012
AISI Horn_Antenna	AIH.8018	0000320091110	Nov. 14, 2011	Nov. 13, 2012
SCHWARZBECK Horn_Antenna	BBHA 9170	9170-424	Oct. 07, 2011	Oct. 06, 2012
RF CABLE	NA	RF104-201 RF104-203 RF104-204	Dec. 26, 2011	Dec. 25, 2012
RF Cable	NA	CHGCAB_001	Oct. 07, 2011	Oct. 06, 2012
Software	ADT_Radiated_V8.7.05	NA	NA	NA
CT Antenna Tower & Turn Table	NA	NA	NA	NA

- Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The horn antenna, preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
 3. The test was performed in 966 Chamber No. G.
 4. The FCC Site Registration No. is 966073.
 5. The VCCI Site Registration No. is G-137.
 6. The CANADA Site Registration No. is IC 7450H-2.
 7. Tested Date: Mar. 13, 2012

5.2.3 TEST PROCEDURES

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

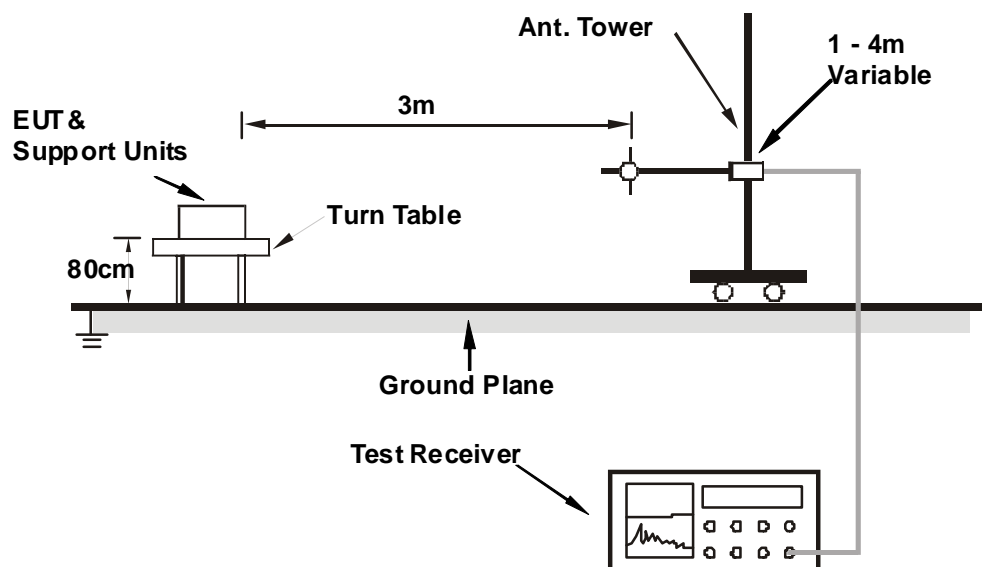
NOTE:

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 1 MHz and the video bandwidth is 10 Hz for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

5.2.4 DEVIATION FROM TEST STANDARD

No deviation

5.2.5 TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

5.2.6 EUT OPERATING CONDITIONS

Same as the 4.2.6



A D T

5.2.7 TEST RESULTS

BELOW 1GHz WORST-CASE DATA

802.11a

CHANNEL	TX Channel 157	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	48.00	25.8 QP	40.0	-14.2	1.50 H	216	11.80	13.99
2	97.50	27.3 QP	43.5	-16.2	1.50 H	78	17.93	9.39
3	145.82	31.5 QP	43.5	-12.0	1.00 H	69	17.13	14.39
4	239.96	32.2 QP	46.0	-13.8	1.00 H	83	19.39	12.85
5	748.23	30.1 QP	46.0	-16.0	1.00 H	309	5.44	24.61
6	959.97	31.0 QP	46.0	-15.0	1.50 H	25	2.81	28.15

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	48.00	36.1 QP	40.0	-3.9	1.00 V	314	22.09	13.99
2	144.63	34.2 QP	43.5	-9.3	1.00 V	321	19.83	14.34
3	302.61	29.6 QP	46.0	-16.4	2.00 V	225	14.27	15.37
4	648.05	24.8 QP	46.0	-21.2	1.50 V	360	1.86	22.93
5	847.59	34.0 QP	46.0	-12.0	1.00 V	301	7.64	26.33
6	959.97	33.6 QP	46.0	-12.4	1.50 V	0	5.41	28.15

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).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.



A D T

ABOVE 1GHz DATA

802.11a

CHANNEL	TX Channel 149	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	*5745.00	118.8 PK			1.06 H	214	77.10	41.70
2	*5745.00	106.2 AV			1.06 H	214	64.50	41.70
3	11490.00	58.0 PK	74.0	-16.0	1.38 H	166	10.28	47.72
4	11490.00	46.8 AV	54.0	-7.2	1.38 H	166	-0.92	47.72

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	*5745.00	109.7 PK			1.33 V	105	68.00	41.70
2	*5745.00	97.5 AV			1.33 V	105	55.80	41.70
3	11490.00	57.2 PK	74.0	-16.8	1.15 V	288	9.48	47.72
4	11490.00	45.9 AV	54.0	-8.1	1.15 V	288	-1.82	47.72

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).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. The limit value is defined as per 15.247.



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CHANNEL	TX Channel 157	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	*5785.00	118.7 PK			1.14 H	215	76.88	41.82
2	*5785.00	105.4 AV			1.14 H	215	63.58	41.82
3	11570.00	59.4 PK	74.0	-14.6	1.43 H	172	11.63	47.77
4	11570.00	47.8 AV	54.0	-6.2	1.43 H	172	0.03	47.77

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	*5785.00	110.1 PK			1.27 V	101	68.28	41.82
2	*5785.00	98.1 AV			1.27 V	101	56.28	41.82
3	11570.00	58.3 PK	74.0	-15.7	1.12 V	273	10.53	47.77
4	11570.00	46.5 AV	54.0	-7.5	1.12 V	273	-1.27	47.77

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).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. The limit value is defined as per 15.247.



A D T

CHANNEL	TX Channel 165	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	*5825.00	118.4 PK			1.05 H	217	76.48	41.92
2	*5825.00	104.8 AV			1.05 H	217	62.88	41.92
3	11650.00	59.3 PK	74.0	-14.7	1.43 H	177	11.41	47.89
4	11650.00	47.3 AV	54.0	-6.7	1.43 H	177	-0.59	47.89

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	*5825.00	111.6 PK			1.31 V	104	69.68	41.92
2	*5825.00	98.4 AV			1.31 V	104	56.48	41.92
3	11650.00	59.4 PK	74.0	-14.6	1.17 V	278	11.51	47.89
4	11650.00	47.2 AV	54.0	-6.8	1.17 V	278	-0.69	47.89

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).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. The limit value is defined as per 15.247.

802.11n (20MHz)

CHANNEL	TX Channel 149	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	*5745.00	118.7 PK			1.09 H	201	77.00	41.70
2	*5745.00	104.3 AV			1.09 H	201	62.60	41.70
3	11490.00	59.1 PK	74.0	-14.9	1.46 H	168	11.38	47.72
4	11490.00	47.6 AV	54.0	-6.4	1.46 H	168	-0.12	47.72
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	*5745.00	110.6 PK			1.30 V	95	68.90	41.70
2	*5745.00	98.2 AV			1.30 V	95	56.50	41.70
3	11490.00	59.2 PK	74.0	-14.8	1.16 V	275	11.48	47.72
4	11490.00	46.9 AV	54.0	-7.1	1.16 V	275	-0.82	47.72

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).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. The limit value is defined as per 15.247.



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CHANNEL	TX Channel 157	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	*5785.00	115.0 PK			1.45 H	358	71.63	43.37
2	*5785.00	100.5 AV			1.45 H	358	57.13	43.37
3	11570.00	54.8 PK	74.0	-19.2	1.10 H	254	4.97	49.83
4	11570.00	44.2 AV	54.0	-9.8	1.10 H	254	-5.63	49.83

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	*5785.00	111.1 PK			1.23 V	263	67.75	43.37
2	*5785.00	96.6 AV			1.23 V	263	53.23	43.37
3	11570.00	54.3 PK	74.0	-19.7	1.05 V	217	4.47	49.83
4	11570.00	42.8 AV	54.0	-11.2	1.05 V	217	-7.03	49.83

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).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. The limit value is defined as per 15.247.



A D T

CHANNEL	TX Channel 165	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	*5825.00	118.7 PK			1.11 H	207	76.78	41.92
2	*5825.00	105.2 AV			1.11 H	207	63.28	41.92
3	11650.00	59.5 PK	74.0	-14.5	1.45 H	188	11.61	47.89
4	11650.00	47.2 AV	54.0	-6.8	1.45 H	188	-0.69	47.89

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	*5825.00	109.8 PK			1.33 V	114	67.88	41.92
2	*5825.00	98.9 AV			1.33 V	114	56.98	41.92
3	11650.00	58.3 PK	74.0	-15.7	1.25 V	273	10.41	47.89
4	11650.00	47.6 AV	54.0	-6.4	1.25 V	273	-0.29	47.89

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).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. The limit value is defined as per 15.247.

5.3 6dB BANDWIDTH MEASUREMENT

5.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

5.3.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S Spectrum Analyzer	FSP 40	100060	May 11, 2011	May 10, 2012

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : Mar. 12, 2012

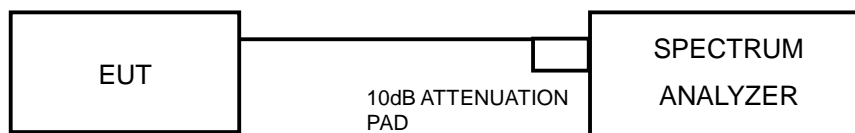
5.3.3 TEST PROCEDURE

1. Set resolution bandwidth (RBW) = approximately 1% of the emission bandwidth
2. Set the video bandwidth (VBW) $\geq 3 \times$ RBW, Detector = Peak.
3. Trace mode = max hold.
4. Sweep = auto couple.
5. Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission

5.3.4 DEVIATION FROM TEST STANDARD

No deviation

5.3.5 TEST SETUP



5.3.6 EUT OPERATING CONDITIONS

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



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5.3.7 TEST RESULTS

802.11a

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
149	5745	16.34	0.5	PASS
157	5785	16.41	0.5	PASS
165	5825	16.37	0.5	PASS

802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
149	5745	17.60	0.5	PASS
157	5785	17.70	0.5	PASS
165	5825	17.62	0.5	PASS

5.4 CONDUCTED OUTPUT POWER

5.4.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT

For systems using digital modulation in the 5725 –5850 MHz band: 1 Watt (30dBm)

5.4.2 INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Peak Power Meter	ML2495A	0824006	May 04, 2011	May 03, 2012
Power Sensor	MA2411B	0738172	May 03, 2011	May 02, 2012

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : Mar. 12, 2012

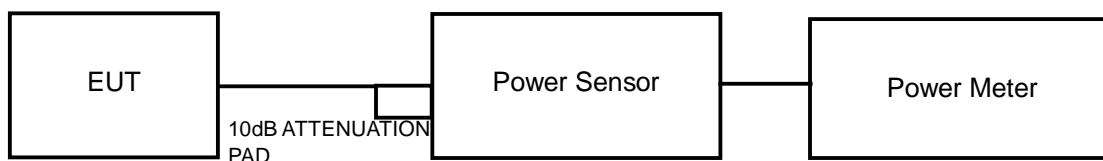
5.4.3 TEST PROCEDURES

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 peak power level.

5.4.4 DEVIATION FROM TEST STANDARD

No deviation

5.4.5 TEST SETUP



5.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6



A D T

5.4.7 TEST RESULTS

802.11a

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
149	5745	190.546	22.80	30	PASS
157	5785	204.174	23.10	30	PASS
165	5825	199.526	23.00	30	PASS

802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
149	5745	173.780	22.40	30	PASS
157	5785	194.984	22.90	30	PASS
165	5825	190.546	22.80	30	PASS

5.5 POWER SPECTRAL DENSITY MEASUREMENT

5.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

5.5.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S Spectrum Analyzer	FSP 40	100060	May 11, 2011	May 10, 2012

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : Mar. 12, 2012

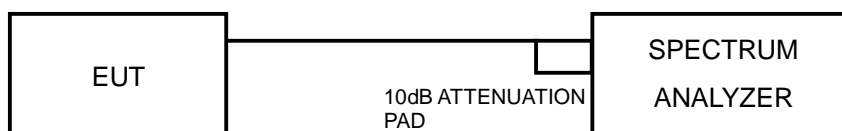
5.5.3 TEST PROCEDURE

1. Set the RBW = 100 kHz, VBW =300 kHz, Detector = peak.
2. Sweep time = auto couple, Trace mode = max hold, allow trace to fully stabilize.
3. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.
4. Scale the observed power level to an equivalent value in 3 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where $BWCF = 10\log(3 \text{ kHz}/100\text{kHz})$

5.5.4 DEVIATION FROM TEST STANDARD

No deviation

5.5.5 TEST SETUP



5.5.6 EUT OPERATING CONDITION

Same as Item 4.3.6



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5.5.7 TEST RESULTS

802.11a

Channel	FREQUENCY (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
149	5745	7.82	-7.41	8	PASS
157	5785	8.01	-7.22	8	PASS
165	5825	8.04	-7.19	8	PASS

802.11n (20MHz)

Channel	FREQUENCY (MHz)	PSD (dBm/100kHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
149	5745	7.62	-7.61	8	PASS
157	5785	8.09	-7.14	8	PASS
165	5825	7.62	-7.61	8	PASS



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5.6 CONDUCTED OUT-BAND EMISSION MEASUREMENT

5.6.1 LIMITS OF CONDUCTED OUT-BAND EMISSION MEASUREMENT

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

5.6.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S Spectrum Analyzer	FSP 40	100060	May 11, 2011	May 10, 2012

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : Mar. 12, 2012

5.6.3 TEST PROCEDURE

MEASUREMENT PROCEDURE REF

1. Set the RBW = 100 kHz.
2. Set the VBW \geq 300 kHz.
3. Detector = peak.
4. Sweep time = auto couple.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

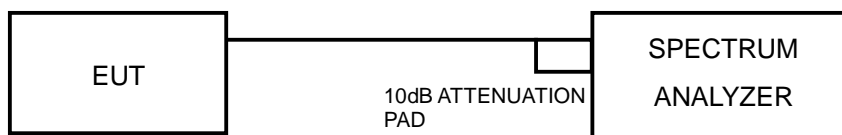
MEASUREMENT PROCEDURE OOB

1. Set RBW = 100 kHz.
2. Set VBW \geq 300 kHz.
3. Set span to encompass the spectrum to be examined.
4. Detector = peak.
5. Trace Mode = max hold.
6. Sweep = auto couple.

5.6.4 DEVIATION FROM TEST STANDARD

No deviation

5.6.5 TEST SETUP



5.6.6 EUT OPERATING CONDITION

Same as Item 4.3.6

5.6.7 TEST RESULTS

The conducted emission test is performed on each TX port of operating mode without summing or adding $10\log(N)$ since the limit is relative emission limit. Only worst data of each operating mode is presented.

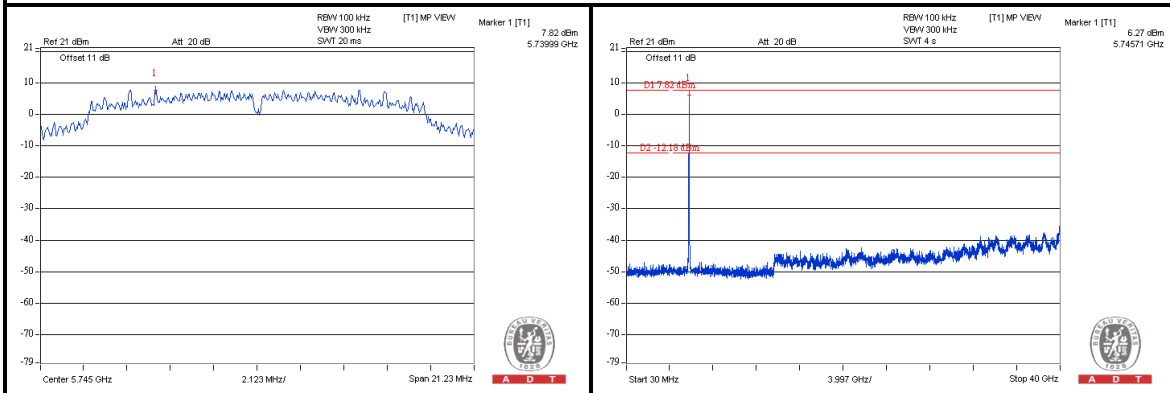
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement.



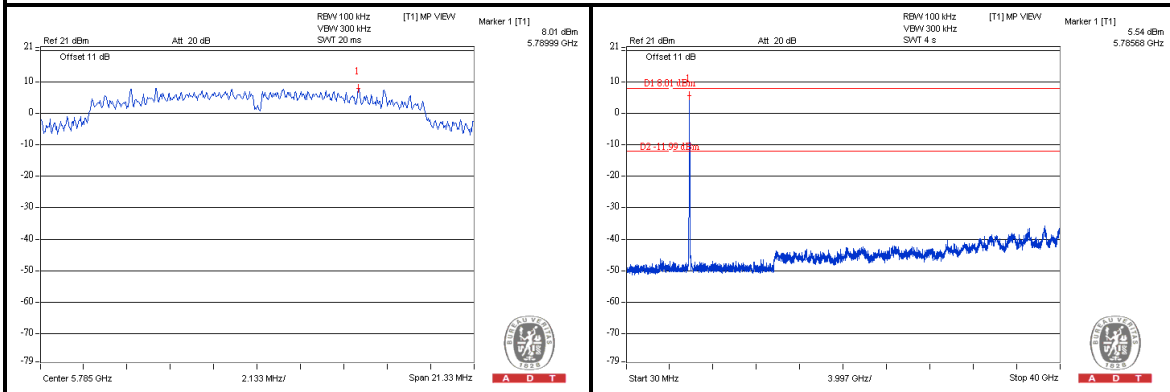
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802.11a

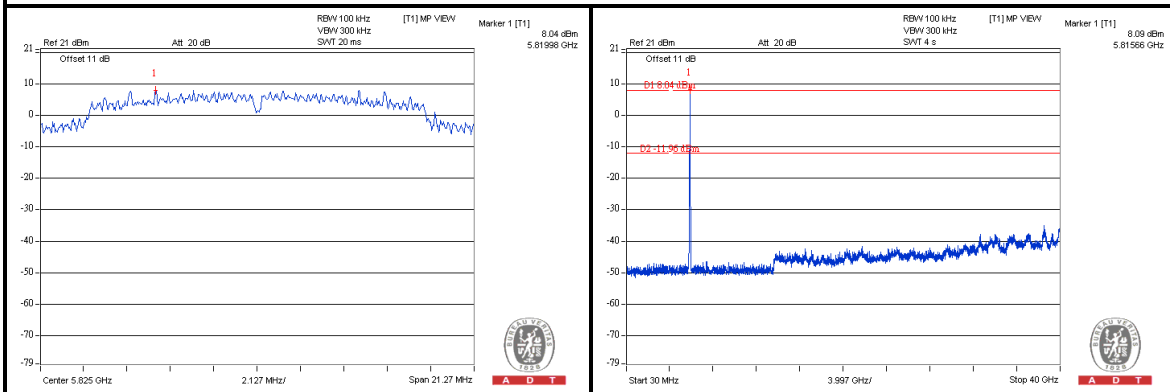
CH 149



CH 157



CH 165

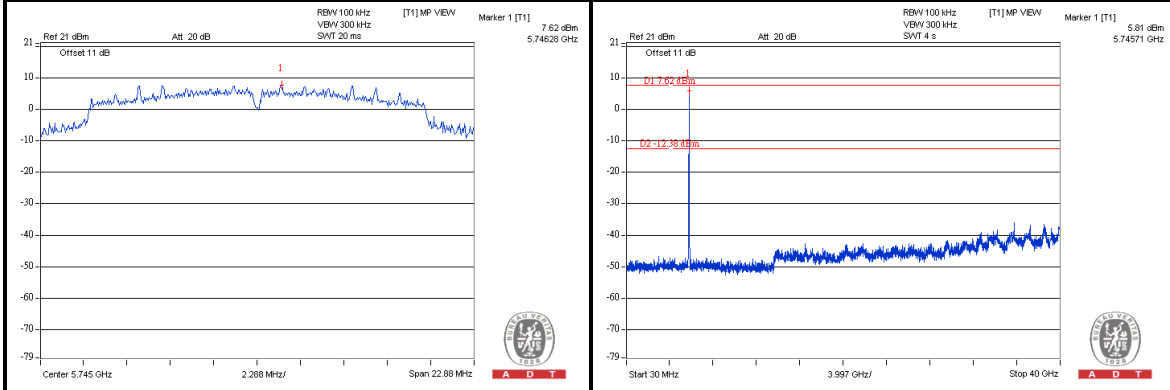




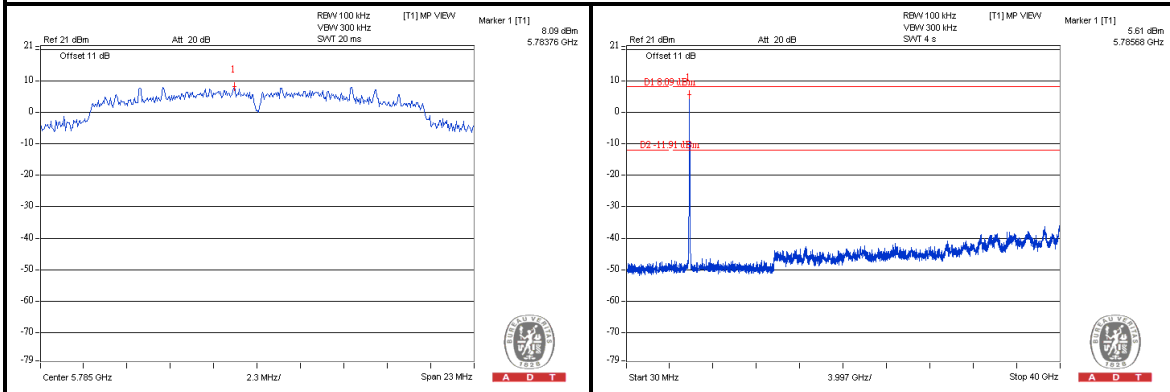
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802.11n (20MHz)

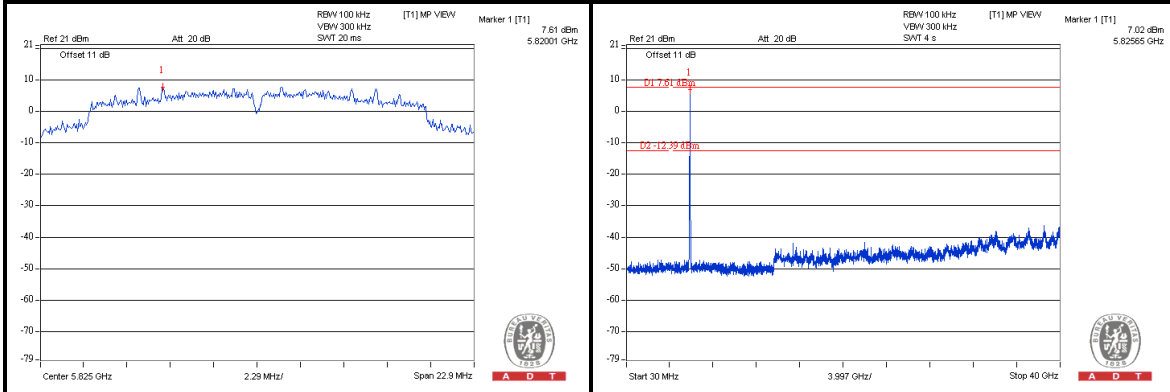
CH 149



CH 157



CH 165





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6. PHOTOGRAPHS OF THE TEST CONFIGURATION

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



7. 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.

Copies of accreditation and authorization certificates of our laboratories obtained from approval agencies can be downloaded from our web site:

www.adt.com.tw/index.5.phtml.

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

Linko EMC/RF Lab:

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Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com

Web Site: www.adt.com.tw

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



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8. APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No modifications were made to the EUT by the lab during the test.

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