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# FCC TEST REPORT (WLAN)

**REPORT NO.:** RF990204A17

**MODEL NO.:** PCG-11112L

**RECEIVED:** Feb. 4, 2010

**TESTED:** Feb. 6 ~ 23, 2010

**ISSUED:** Feb. 26, 2010

**APPLICANT:** Sony Corporation

**ADDRESS:** 1-7-1 Konan Minato-Ku, Tokyo, 108-0075 Japan

**ISSUED BY:** Bureau Veritas Consumer Products Services  
(H.K.) Ltd., Taoyuan Branch

**LAB LOCATION:** No. 47, 14th Ling, Chia Pau Tsuen, Lin Kou  
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## TABLE OF CONTENTS

1.	CERTIFICATION.....	4
2.	SUMMARY OF TEST RESULTS .....	5
2.1	MEASUREMENT UNCERTAINTY .....	5
3.	GENERAL INFORMATION .....	6
3.1	GENERAL DESCRIPTION OF EUT .....	6
3.2	DESCRIPTION OF TEST MODES .....	8
3.2.1	CONFIGURATION OF SYSTEM UNDER TEST .....	9
3.2.2	TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL.....	10
3.3	GENERAL DESCRIPTION OF APPLIED STANDARDS .....	12
3.4	DESCRIPTION OF SUPPORT UNITS.....	12
4.	TEST TYPES AND RESULTS.....	13
4.1	RADIATED EMISSION MEASUREMENT.....	13
4.1.1	LIMITS OF RADIATED EMISSION MEASUREMENT .....	13
4.1.2	TEST INSTRUMENTS .....	14
4.1.3	TEST PROCEDURES .....	15
4.1.4	DEVIATION FROM TEST STANDARD .....	15
4.1.5	TEST SETUP .....	16
4.1.6	EUT OPERATING CONDITIONS.....	16
4.1.7	TEST RESULTS .....	17
4.2	CONDUCTED EMISSION MEASUREMENT.....	31
4.2.1	LIMITS OF CONDUCTED EMISSION MEASUREMENT .....	31
4.2.2	TEST INSTRUMENTS .....	31
4.2.3	TEST PROCEDURES .....	32
4.2.4	DEVIATION FROM TEST STANDARD .....	32
4.2.5	TEST SETUP .....	33
4.2.6	EUT OPERATING CONDITIONS.....	33
4.2.7	TEST RESULTS .....	34
4.3	6dB BANDWIDTH MEASUREMENT .....	36
4.3.1	LIMITS OF 6DB BANDWIDTH MEASUREMENT .....	36
4.3.2	TEST INSTRUMENTS .....	36
4.3.3	TEST PROCEDURE .....	36
4.3.4	DEVIATION FROM TEST STANDARD .....	36
4.3.5	TEST SETUP .....	37
4.3.6	EUT OPERATING CONDITIONS.....	37
4.3.7	TEST RESULTS .....	38
4.4	MAXIMUM OUTPUT POWER .....	42
4.4.1	LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT .....	42
4.4.2	INSTRUMENTS .....	42
4.4.3	TEST PROCEDURES .....	42
4.4.4	DEVIATION FROM TEST STANDARD .....	43
4.4.5	TEST SETUP .....	43
4.4.6	EUT OPERATING CONDITIONS.....	43
4.4.7	TEST RESULTS .....	44



A D T

4.5	POWER SPECTRAL DENSITY MEASUREMENT .....	46
4.5.1	LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT .....	46
4.5.2	TEST INSTRUMENTS .....	46
4.5.3	TEST PROCEDURE .....	46
4.5.4	DEVIATION FROM TEST STANDARD .....	47
4.5.5	TEST SETUP .....	47
4.5.6	EUT OPERATING CONDITION .....	47
4.5.7	TEST RESULTS .....	48
4.6	BAND EDGES MEASUREMENT .....	52
4.6.1	LIMITS OF BAND EDGES MEASUREMENT .....	52
4.6.2	TEST INSTRUMENTS .....	52
4.6.3	TEST PROCEDURE .....	53
4.6.4	DEVIATION FROM TEST STANDARD .....	53
4.6.5	EUT OPERATING CONDITION .....	53
4.6.6	TEST RESULTS .....	54
5.	PHOTOGRAPHS OF THE TEST CONFIGURATION .....	70
6.	INFORMATION ON THE TESTING LABORATORIES .....	71
7.	APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB .....	72



A D T

# 1. CERTIFICATION

**PRODUCT:** Personal Computer  
**BRAND NAME:** SONY  
**MODEL NO.:** PCG-11112L  
**APPLICANT:** Sony Corporation  
**TEST SAMPLE:** ENGINEERING SAMPLE  
**TESTED:** Feb. 6 ~ 23, 2010  
**STANDARDS: FCC Part 15, Subpart C (Section 15.247)**  
ANSI C63.4-2003

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

**PREPARED BY :** Annie Chang , **DATE:** Feb. 26, 2010  
( Annie Chang / Senior Specialist )

**TECHNICAL ACCEPTANCE :** Jamison Chan , **DATE:** Feb. 26, 2010  
Responsible for RF ( Jamison Chan / Supervisor )

**APPROVED BY :** Ken Liu , **DATE:** Feb. 26, 2010  
( Ken Liu / Assistant Manager )



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## 2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.247)			
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	REMARK
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -11.48dB at 0.178MHz
15.247(a)(2)	Spectrum Bandwidth of a Direct Sequence Spread Spectrum System Limit: min. 500kHz	PASS	Meet the requirement of limit.
15.247(b)	Maximum Peak Output Power Limit: max. 30dBm	PASS	Meet the requirement of limit.
15.247(d)	Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit. Minimum passing margin is -2.7dB at 2483.50MHz
15.247(e)	Power Spectral Density Limit: max. 8dBm	PASS	Meet the requirement of limit.
15.247(d)	Band Edge Measurement Limit: 20dB less than the peak value of fundamental frequency	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Antenna connector is U.FL not a standard connector.

### 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	FREQUENCY	UNCERTAINTY
Conducted emissions	150kHz~30MHz	2.41 dB
Radiated emissions	30MHz~1GHz	3.86 dB
	Above 1GHz	2.89 dB



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### 3. GENERAL INFORMATION

#### 3.1 GENERAL DESCRIPTION OF EUT

<b>PRODUCT</b>	Personal Computer
<b>MODEL NO.</b>	PCG-11112L
<b>FCC ID</b>	AK8PCG11112L
<b>POWER SUPPLY</b>	10.5Vdc from AC adapter or 7.4Vdc from Battery
<b>MODULATION TYPE</b>	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
<b>MODULATION TECHNOLOGY</b>	DSSS, OFDM
<b>TRANSFER RATE</b>	802.11b:11.0/ 5.5/ 2.0/ 1.0Mbps 802.11g: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to 150Mbps
<b>OPERATING FREQUENCY</b>	2412 ~ 2462MHz
<b>NUMBER OF CHANNEL</b>	11 for 802.11b, 802.11g, 802.11n (20MHz) 7 for 802.11n (40MHz)
<b>OUTPUT POWER</b>	50.1mW
<b>ANTENNA TYPE</b>	PIFA antenna with 0.95dBi gain
<b>ANTENNA CONNECTOR</b>	U.FL connector
<b>DATA CABLE</b>	NA
<b>I/O PORTS</b>	Refer to user's manual
<b>ASSOCIATED DEVICES</b>	Refer to note below

**Note:**

1. The EUT is a Personal Computer, the functions of EUT listed as below:

Function	Test Standard	Reference Report
<b>PCI-E Half Mini Card 802.11b/g/n Module</b> (Brand: Atheros, Model: AR5BHB95)	FCC Part 15, Subpart C (Section 15.247)	RF990204A17
<b>Bluetooth module</b> (Brand: Foxconn, Model: T77H114)		RF990204A17-1



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2. The EUT equipped the following accessories:

ITEM	Brand	Interface
Display/LAN Adapter	SONY	◆ D-Sub ◆ RJ-45 (10/100/1000Mbps)
Earphone	SONY	-

3. The EUT consumes power from the following AC adapter and battery:

Item	BRAND	MODEL NO.	SPEC.
AC adapter 1	SONY	VGP-AC10V2	AC I/P: 100-240V, 0.48-0.28A, 50/60Hz DC O/P: 10.5V, 1.9A Shielded AC 2-pin (0.6m) Non-shielded DC (1.8m)
AC adapter 2	SONY	VGP-AC10V6	AC I/P: 100-240V, 0.48-0.28A, 50/60Hz DC O/P: 10.5V, 1.9A Shielded AC 2-pin (0.6m) Non-shielded DC (1.8m)
Battery 1	SONY	VGP-BPL23	7.4Vdc, 5000mAh, 37Wh
Battery 2	SONY	VGP-BPS23	7.4Vdc, 2500mAh, 19Wh

After pre-tested above two AC adapters and two batteries, the **AC Adapter 2 & Battery 1** were the worst case, therefore, only theirs test data were recorded in this report.

4. The EUT incorporates a SIMO function. Physically, the EUT provides one completed transmitter and one receiver.

Modulation Mode	Tx Function
802.11b	1TX
802.11g	1TX
802.11n (20MHz)	1TX
802.11n (40MHz)	1TX

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



### 3.2 DESCRIPTION OF TEST MODES

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

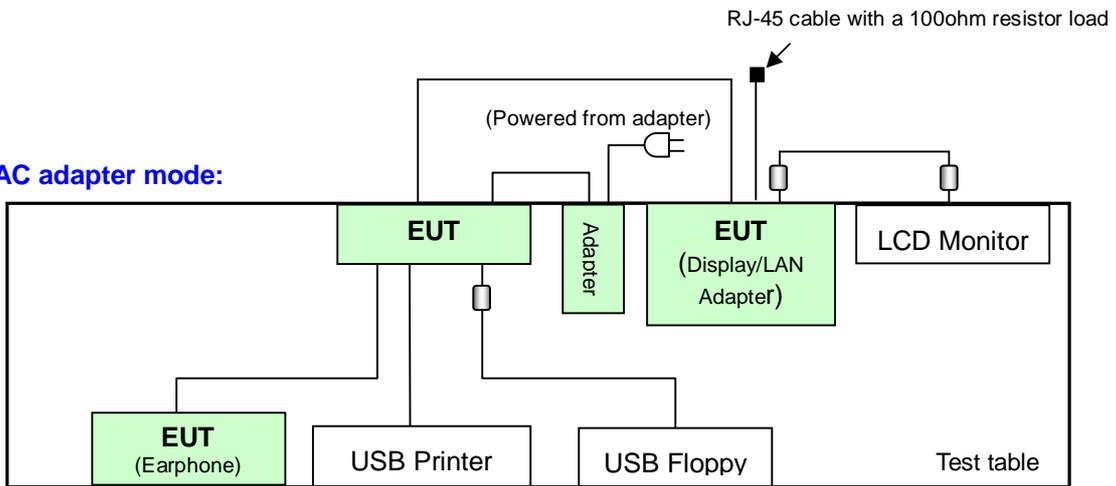
CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	2412MHz	7	2442MHz
2	2417MHz	8	2447MHz
3	2422MHz	9	2452MHz
4	2427MHz	10	2457MHz
5	2432MHz	11	2462MHz
6	2437MHz		

7 channels are provided for 802.11n (40MHz):

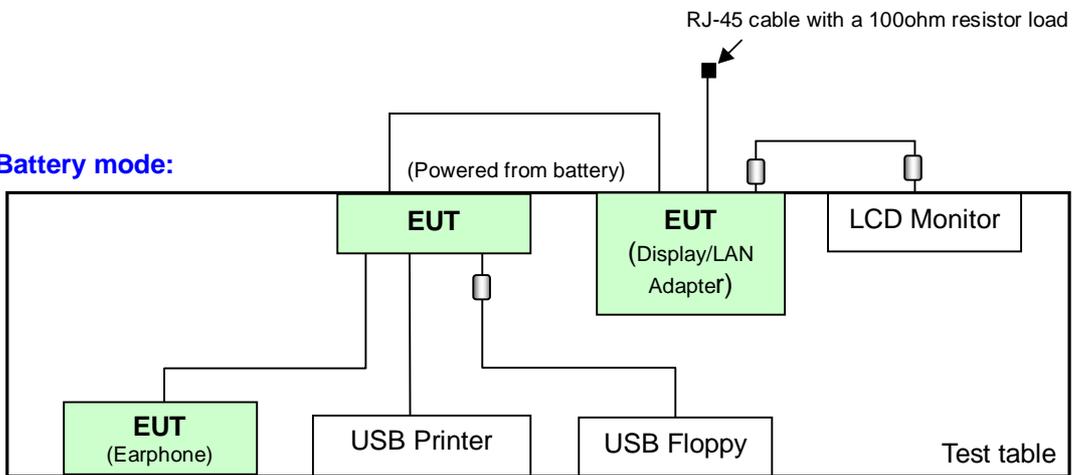
CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	2422MHz	5	2442MHz
2	2427MHz	6	2447MHz
3	2432MHz	7	2452MHz
4	2437MHz		

### 3.2.1 CONFIGURATION OF SYSTEM UNDER TEST

**w. AC adapter mode:**



**w. Battery mode:**





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### 3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE <sup>3</sup> 1G	RE<1G	PLC	APCM	
A	√	√	√	√	EUT w. AC adapter
B	-	√	-	-	EUT w. Battery

Where **RE<sup>3</sup>1G**: Radiated Emission above 1GHz      **RE<1G**: Radiated Emission below 1GHz  
**PLC**: Power Line Conducted Emission      **APCM**: Antenna Port Conducted Measurement

#### RADIATED EMISSION TEST (ABOVE 1GHz):

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
A	802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
A	802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	13.5

#### RADIATED EMISSION TEST (BELOW 1GHz):

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A & B	802.11n (20MHz)	1 to 11	11	OFDM	BPSK	6.5

#### 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.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11n (20MHz)	1 to 11	11	OFDM	BPSK	6.5



**BANDEDGE 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.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11b	1 to 11	1, 11	DSSS	DBPSK	1.0
A	802.11g	1 to 11	1, 11	OFDM	BPSK	6.0
A	802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	6.5
A	802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	13.5

**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.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
A	802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
A	802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	13.5

**TEST CONDITION:**

APPLICABLE TO	EUT CONFIGURE MODE	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE <sup>3</sup> 1G	A	20deg. C, 71% RH, 1015hPa	120Vac, 60Hz	Nick Chen
RE <1G	A	17deg. C, 86% RH, 1015hPa	120Vac, 60Hz	Nick Chen
	B	17deg. C, 86% RH, 1015hPa	7.4Vdc	Nick Chen
PLC	A	18deg. C, 85% RH, 1019hPa	120Vac, 60Hz	Chad Lee
APCM	A	17deg. C, 86% RH, 1016hPa	120Vac, 60Hz	Chad Lee



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### 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 C63.4-2003

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

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

### 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	LCD MONITOR	DELL	2408WFP	CN0NN7927426 1823S1DMS	FCC DoC Approved
2	PRINTER	LEXMARK	Z33	03331651419	FCC DoC Approved
3	EXTERNAL USB 1.1 FLOPPY	SONY	MPF82E	50010131	FCC DoC Approved

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	1.8 m braid shielded wire, terminated with VGA connector via metallic frame, with two cores
2	2.0 m foil shielded wire, terminated with USB connector via metallic frame, w/o core.
3	1.5 m shielded cable, terminated with USB connector, with 1 core.

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

(2) One RJ-45 cable was connected from Display/LAN Adapter to EUT to form an open loop cable, which was terminated with a 100ohm resistor load.

## 4. TEST TYPES AND RESULTS

### 4.1 RADIATED EMISSION MEASUREMENT

#### 4.1.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

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. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.



## 4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
HP Preamplifier	8447D	2432A03504	May 04, 2009	May 03, 2010
HP Preamplifier	8449B	3008A01924	Aug. 31, 2009	Aug. 30, 2010
HP Preamplifier	8449B	3008A01292	Aug. 10, 2009	Aug. 09, 2010
ROHDE & SCHWARZ TEST RECEIVER	ESU26	100005	Jun. 06, 2009	Jun. 05, 2010
Schwarzbeck Antenna	VULB 9168	137	Apr. 29, 2009	Apr. 28, 2010
Schwarzbeck Antenna	VHBA 9123	480	Apr. 21, 2009	Apr. 20, 2010
EMCO Horn Antenna	3115	6714	Oct. 26, 2009	Oct. 25, 2010
EMCO Horn Antenna	3115	9312-4192	Apr. 17, 2009	Apr. 16, 2010
ADT. Turn Table	TT100	0306	NA	NA
ADT. Tower	AT100	0306	NA	NA
Software	ADT_Radiated_V7.6.15.9.2	NA	NA	NA
SUHNER RF cable	SF104-26.5	CABLE-CH6-17m-01	Aug. 20, 2009	Aug. 19, 2010
ROHDE & SCHWARZ Spectrum Analyzer	FSP 40	100036	Apr. 03, 2009	Apr. 02, 2010

- 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 and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
  3. The test was performed in Chamber No. 6.
  4. The Industry Canada Reference No. IC 7450E-6.
  5. The FCC Site Registration No. is 447212.

### 4.1.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meters semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

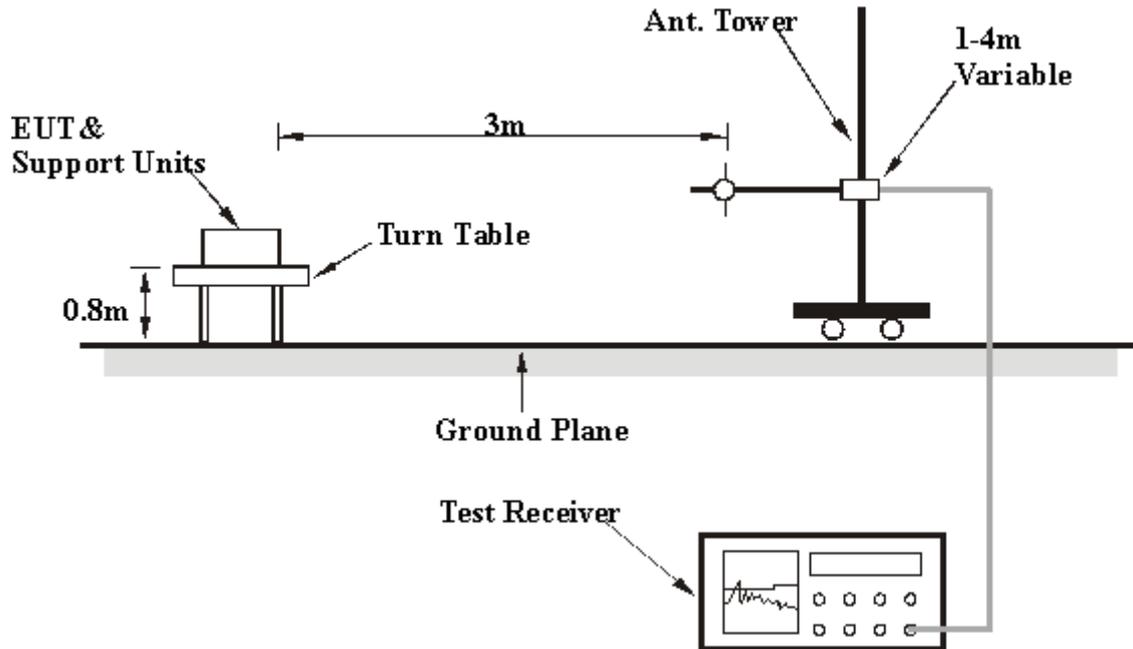
**NOTE:**

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 100kHz and video bandwidth is 300kHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

### 4.1.4 DEVIATION FROM TEST STANDARD

No deviation

### 4.1.5 TEST SETUP



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

### 4.1.6 EUT OPERATING CONDITIONS

- a. Turn on the power of all equipment.
- b. EUT ran a test program (provided by manufacture) to enable it under transmitting condition at specific channel continuously.
- c. EUT read and wrote messages to/ from HDD and ext. FDD.
- d. EUT sent messages to LCD monitor via Display/LAN Adapter (EUT) and displayed on the screen.
- e. EUT sent messages to printer via Display/LAN Adapter (EUT), and the printer printed them out.
- f. EUT sent "1kHz audio" signal to earphone (EUT).
- g. Repeated c ~ g.



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## 4.1.7 TEST RESULT

802.11b

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	20deg. C, 71%RH 1015hPa	TESTED BY	Nick Chen
TEST MODE	A		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	60.5 PK	74.0	-13.5	1.41 H	298	28.95	31.55
2	2390.00	47.0 AV	54.0	-7.0	1.41 H	298	15.47	31.55
3	*2412.00	107.8 PK			1.41 H	298	76.18	31.64
4	*2412.00	103.5 AV			1.41 H	298	71.88	31.64
5	#3216.00	49.5 PK	87.8	-38.3	1.21 H	300	14.98	34.50
6	#3216.00	45.2 AV	83.5	-38.3	1.21 H	300	10.69	34.50
7	4824.00	46.4 PK	74.0	-27.6	1.34 H	291	8.70	37.73
8	4824.00	34.1 AV	54.0	-19.9	1.34 H	291	-3.64	37.73
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	2390.00	58.7 PK	74.0	-15.3	1.19 V	260	27.11	31.55
2	2390.00	46.5 AV	54.0	-7.5	1.19 V	260	14.93	31.55
3	*2412.00	104.2 PK			1.19 V	260	72.52	31.64
4	*2412.00	99.3 AV			1.19 V	260	67.63	31.64
5	#3216.00	48.2 PK	84.2	-36.0	1.19 V	262	13.68	34.50
6	#3216.00	43.1 AV	79.3	-36.1	1.19 V	262	8.64	34.50
7	4824.00	47.3 PK	74.0	-26.7	1.36 V	26	9.54	37.73
8	4824.00	34.5 AV	54.0	-19.5	1.36 V	26	-3.22	37.73

- 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.
  6. "#": The radiated frequency is out the restricted band.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	20deg. C, 71%RH 1015hPa	TESTED BY	Nick Chen
TEST MODE	A		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	107.4 PK			1.39 H	304	75.68	31.73
2	*2437.00	102.7 AV			1.39 H	304	70.98	31.73
3	#3249.00	48.6 PK	87.4	-38.9	1.18 H	301	14.01	34.55
4	#3249.00	42.7 AV	82.7	-40.1	1.18 H	301	8.10	34.55
5	4874.00	47.0 PK	74.0	-27.0	1.18 H	294	9.12	37.91
6	4874.00	34.7 AV	54.0	-19.3	1.18 H	294	-3.25	37.91
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	103.8 PK			1.38 V	287	72.03	31.73
2	*2437.00	99.2 AV			1.38 V	287	67.44	31.73
3	#3249.00	48.3 PK	83.8	-35.5	1.16 V	274	13.73	34.55
4	#3249.00	40.3 AV	79.2	-38.8	1.16 V	274	5.79	34.55
5	4874.00	47.0 PK	74.0	-27.0	1.30 V	74	9.12	37.91
6	4874.00	35.0 AV	54.0	-19.1	1.30 V	74	-2.96	37.91

- 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 radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	20deg. C, 71%RH 1015hPa	TESTED BY	Nick Chen
TEST MODE	A		

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	107.9 PK			1.35 H	301	76.07	31.83
2	*2462.00	103.0 AV			1.35 H	301	71.21	31.83
3	2483.50	60.9 PK	74.0	-13.1	1.35 H	301	29.03	31.91
4	2483.50	48.7 AV	54.0	-5.4	1.35 H	301	16.74	31.91
5	#3282.00	47.0 PK	87.9	-41.0	1.35 H	239	12.35	34.60
6	#3282.00	40.9 AV	83.0	-42.2	1.35 H	239	6.29	34.60
7	4924.00	47.8 PK	74.0	-26.2	1.09 H	176	9.79	38.04
8	4924.00	35.6 AV	54.0	-18.4	1.09 H	176	-2.44	38.04
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	*2462.00	103.3 PK			1.45 V	285	71.49	31.83
2	*2462.00	98.3 AV			1.45 V	285	66.42	31.83
3	2483.50	59.3 PK	74.0	-14.7	1.45 V	285	27.37	31.91
4	2483.50	47.7 AV	54.0	-6.3	1.45 V	285	15.81	31.91
5	#3282.00	45.9 PK	83.3	-37.4	1.10 V	289	11.34	34.60
6	#3282.00	36.5 AV	78.3	-41.8	1.10 V	289	1.88	34.60
7	4924.00	47.8 PK	74.0	-26.2	1.08 V	87	9.74	38.04
8	4924.00	37.0 AV	54.0	-17.0	1.08 V	87	-1.04	38.04

- 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.
  6. "#":The radiated frequency is out the restricted band.



A D T

802.11g

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	20deg. C, 71%RH 1015hPa	TESTED BY	Nick Chen
TEST MODE	A		

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	65.3 PK	74.0	-8.7	1.42 H	302	33.78	31.55
2	2390.00	48.6 AV	54.0	-5.4	1.42 H	302	17.06	31.55
3	*2412.00	104.0 PK			1.42 H	302	72.38	31.64
4	*2412.00	93.6 AV			1.42 H	302	62.00	31.64
5	#3216.00	49.0 PK	84.0	-35.1	1.41 H	236	14.47	34.50
6	#3216.00	44.4 AV	73.6	-29.2	1.41 H	236	9.91	34.50
7	4824.00	46.9 PK	74.0	-27.1	1.36 H	274	9.13	37.73
8	4824.00	33.2 AV	54.0	-20.8	1.36 H	274	-4.52	37.73
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	2390.00	64.3 PK	74.0	-9.7	1.38 V	261	32.77	31.55
2	2390.00	47.4 AV	54.0	-6.6	1.38 V	261	15.86	31.55
3	*2412.00	101.2 PK			1.38 V	261	69.57	31.64
4	*2412.00	89.6 AV			1.38 V	261	58.00	31.64
5	#3216.00	48.0 PK	81.2	-33.2	1.38 V	271	13.52	34.50
6	#3216.00	42.2 AV	69.6	-27.5	1.38 V	271	7.65	34.50
7	4824.00	46.8 PK	74.0	-27.3	1.37 V	255	9.02	37.73
8	4824.00	33.3 AV	54.0	-20.7	1.37 V	255	-4.43	37.73

- 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.
  6. “#“:The radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	20deg. C, 71%RH 1015hPa	TESTED BY	Nick Chen
TEST MODE	A		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	104.7 PK			1.37 H	300	73.01	31.73
2	*2437.00	94.0 AV			1.37 H	300	62.23	31.73
3	#3249.00	47.9 PK	84.7	-36.9	1.37 H	236	13.32	34.55
4	#3249.00	41.4 AV	74.0	-32.5	1.37 H	236	6.88	34.55
5	4874.00	46.5 PK	74.0	-27.5	1.35 H	291	8.62	37.91
6	4874.00	33.6 AV	54.0	-20.4	1.35 H	291	-4.28	37.91
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	102.1 PK			1.41 V	262	70.39	31.73
2	*2437.00	91.4 AV			1.41 V	262	59.66	31.73
3	#3249.00	46.7 PK	82.1	-35.4	1.36 V	272	12.18	34.55
4	#3249.00	40.1 AV	71.4	-31.3	1.36 V	272	5.53	34.55
5	4874.00	47.0 PK	74.0	-27.0	1.33 V	265	9.07	37.91
6	4874.00	33.5 AV	54.0	-20.5	1.33 V	265	-4.38	37.91

- 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 radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	20deg. C, 71%RH 1015hPa	TESTED BY	Nick Chen
TEST MODE	A		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	104.0 PK			1.34 H	302	72.13	31.83
2	*2462.00	92.2 AV			1.34 H	302	60.34	31.83
3	2483.50	65.6 PK	74.0	-8.4	1.34 H	302	33.67	31.91
4	2483.50	50.2 AV	54.0	-3.8	1.34 H	302	18.31	31.91
5	#3282.00	46.6 PK	84.0	-37.3	1.35 H	240	12.03	34.60
6	#3282.00	39.5 AV	72.2	-32.6	1.35 H	240	4.94	34.60
7	4924.00	47.1 PK	74.0	-26.9	1.39 H	273	9.06	38.04
8	4924.00	33.9 AV	54.0	-20.1	1.39 H	273	-4.17	38.04
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	*2462.00	100.6 PK			1.42 V	264	68.80	31.83
2	*2462.00	89.2 AV			1.42 V	264	57.37	31.83
3	2483.50	63.2 PK	74.0	-10.8	1.42 V	264	31.30	31.91
4	2483.50	49.3 AV	54.0	-4.7	1.42 V	264	17.39	31.91
5	#3282.00	46.0 PK	80.6	-34.7	1.33 V	273	11.37	34.60
6	#3282.00	37.8 AV	69.2	-31.4	1.33 V	273	3.24	34.60
7	4924.00	46.9 PK	74.0	-27.2	1.25 V	288	8.81	38.04
8	4924.00	34.0 AV	54.0	-20.0	1.25 V	288	-4.06	38.04

- 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.
  6. "#":The radiated frequency is out the restricted band.



A D T

802.11n (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	20deg. C, 71%RH 1015hPa	TESTED BY	Nick Chen
TEST MODE	A		

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	62.4 PK	74.0	-11.6	1.40 H	304	30.84	31.55
2	2390.00	49.5 AV	54.0	-4.5	1.40 H	304	17.92	31.55
3	*2412.00	103.5 PK			1.40 H	304	71.84	31.64
4	*2412.00	93.0 AV			1.40 H	304	61.33	31.64
5	#3216.00	49.2 PK	83.5	-34.3	1.36 H	242	14.71	34.50
6	#3216.00	44.1 AV	73.0	-28.9	1.36 H	242	9.57	34.50
7	4824.00	47.3 PK	74.0	-26.8	1.33 H	281	9.52	37.73
8	4824.00	33.9 AV	54.0	-20.1	1.33 H	281	-3.87	37.73
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	2390.00	61.5 PK	74.0	-12.6	1.42 V	261	29.90	31.55
2	2390.00	48.2 AV	54.0	-5.9	1.42 V	261	16.60	31.55
3	*2412.00	99.8 PK			1.42 V	261	68.12	31.64
4	*2412.00	89.1 AV			1.42 V	261	57.42	31.64
5	#3216.00	46.9 PK	79.8	-32.8	1.35 V	273	12.42	34.50
6	#3216.00	41.4 AV	69.1	-27.6	1.35 V	273	6.93	34.50
7	4824.00	46.8 PK	74.0	-27.2	1.38 V	247	9.11	37.73
8	4824.00	33.0 AV	54.0	-21.0	1.38 V	247	-4.72	37.73

- 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.
  6. “#”:The radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	20deg. C, 71%RH 1015hPa	TESTED BY	Nick Chen
TEST MODE	A		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	104.0 PK			1.40 H	299	72.24	31.73
2	*2437.00	93.3 AV			1.40 H	299	61.53	31.73
3	#3249.00	47.4 PK	84.0	-36.6	1.39 H	235	12.87	34.55
4	#3249.00	41.7 AV	73.3	-31.5	1.39 H	235	7.18	34.55
5	4874.00	47.0 PK	74.0	-27.0	1.38 H	302	9.07	37.91
6	4874.00	33.7 AV	54.0	-20.3	1.38 H	302	-4.25	37.91
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	101.3 PK			1.38 V	262	69.57	31.73
2	*2437.00	90.3 AV			1.38 V	262	58.59	31.73
3	#3249.00	47.2 PK	81.3	-34.1	1.35 V	272	12.63	34.55
4	#3249.00	40.3 AV	70.3	-30.0	1.35 V	272	5.76	34.55
5	4874.00	47.1 PK	74.0	-26.9	1.34 V	253	9.17	37.91
6	4874.00	33.7 AV	54.0	-20.4	1.34 V	253	-4.26	37.91

- 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 radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	20deg. C, 71%RH 1015hPa	TESTED BY	Nick Chen
TEST MODE	A		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	102.7 PK			1.36 H	298	70.88	31.83
2	*2462.00	92.0 AV			1.36 H	298	60.15	31.83
3	2483.50	65.1 PK	74.0	-8.9	1.36 H	298	33.18	31.91
4	<b>2483.50</b>	<b>51.3 AV</b>	<b>54.0</b>	<b>-2.7</b>	<b>1.36 H</b>	<b>298</b>	<b>19.36</b>	<b>31.91</b>
5	#3282.00	47.1 PK	82.7	-35.6	1.36 H	237	12.53	34.60
6	#3282.00	39.3 AV	72.0	-32.7	1.36 H	237	4.71	34.60
7	4924.00	47.2 PK	74.0	-26.8	1.30 H	277	9.18	38.04
8	4924.00	33.5 AV	54.0	-20.5	1.30 H	277	-4.52	38.04
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	*2462.00	99.9 PK			1.35 V	263	68.11	31.83
2	*2462.00	89.0 AV			1.35 V	263	57.14	31.83
3	2483.50	62.8 PK	74.0	-11.2	1.35 V	263	30.92	31.91
4	2483.50	50.0 AV	54.0	-4.1	1.35 V	263	18.04	31.91
5	#3282.00	46.4 PK	79.9	-33.5	1.33 V	272	11.84	34.60
6	#3282.00	38.1 AV	69.0	-30.9	1.33 V	272	3.47	34.60
7	4924.00	46.8 PK	74.0	-27.2	1.29 V	311	8.77	38.04
8	4924.00	33.6 AV	54.0	-20.4	1.29 V	311	-4.43	38.04

- 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.
  6. "#":The radiated frequency is out the restricted band.



A D T

802.11n (40MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	20deg. C, 71%RH 1015hPa	TESTED BY	Nick Chen
TEST MODE	A		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	63.7 PK	74.0	-10.3	1.42 H	306	32.12	31.55
2	2390.00	48.4 AV	54.0	-5.6	1.42 H	306	16.86	31.55
3	*2422.00	96.6 PK			1.42 H	306	64.97	31.67
4	*2422.00	86.5 AV			1.42 H	306	54.86	31.67
5	#3229.00	47.6 PK	76.6	-29.0	1.40 H	301	13.12	34.52
6	#3229.00	41.9 AV	66.5	-24.6	1.40 H	301	7.40	34.52
7	4844.00	46.9 PK	74.0	-27.1	1.38 H	289	9.12	37.80
8	4844.00	33.8 AV	54.0	-20.2	1.38 H	289	-3.96	37.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	61.7 PK	74.0	-12.3	1.41 V	286	30.18	31.55
2	2390.00	47.3 AV	54.0	-6.7	1.41 V	286	15.78	31.55
3	*2422.00	94.1 PK			1.41 V	286	62.40	31.67
4	*2422.00	83.6 AV			1.41 V	286	51.96	31.67
5	#3229.00	47.6 PK	74.1	-26.5	1.37 V	262	13.04	34.52
6	#3229.00	40.3 AV	63.6	-23.3	1.37 V	262	5.79	34.52
7	4844.00	47.2 PK	74.0	-26.8	1.37 V	251	9.37	37.80
8	4844.00	33.9 AV	54.0	-20.1	1.37 V	251	-3.88	37.80

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
  2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
  3. The other emission levels were very low against the limit.
  4. Margin value = Emission level – Limit value.
  5. “ \* “: Fundamental frequency.
  6. “#”:The radiated frequency is out the restricted band.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 4	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	20deg. C, 71%RH 1015hPa	TESTED BY	Nick Chen
TEST MODE	A		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	97.6 PK			1.38 H	302	65.86	31.73
2	*2437.00	86.7 AV			1.38 H	302	54.96	31.73
3	#3249.00	47.4 PK	77.6	-30.2	1.38 H	240	12.89	34.55
4	#3249.00	41.4 AV	66.7	-25.3	1.38 H	240	6.81	34.55
5	4874.00	47.0 PK	74.0	-27.0	1.33 H	297	9.09	37.91
6	4874.00	34.0 AV	54.0	-20.1	1.33 H	297	-3.96	37.91
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	93.4 PK			1.40 V	287	61.62	31.73
2	*2437.00	83.5 AV			1.40 V	287	51.73	31.73
3	#3249.00	46.7 PK	73.4	-26.6	1.37 V	264	12.19	34.55
4	#3249.00	39.3 AV	63.5	-24.2	1.37 V	264	4.75	34.55
5	4874.00	46.8 PK	74.0	-27.2	1.35 V	268	8.88	37.91
6	4874.00	33.8 AV	54.0	-20.2	1.35 V	268	-4.14	37.91

- 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 radiated frequency is out the restricted band.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 7	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	20deg. C, 71%RH 1015hPa	TESTED BY	Nick Chen
TEST MODE	A		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	97.4 PK			1.35 H	302	65.62	31.79
2	*2452.00	87.2 AV			1.35 H	302	55.42	31.79
3	2483.50	66.4 PK	74.0	-7.6	1.35 H	302	34.46	31.91
4	2483.50	49.6 AV	54.0	-4.4	1.35 H	302	17.67	31.91
5	#3269.00	46.1 PK	77.4	-31.3	1.34 H	240	11.56	34.58
6	#3269.00	39.4 AV	67.2	-27.8	1.34 H	240	4.79	34.58
7	4904.00	47.2 PK	74.0	-26.8	1.32 H	296	9.18	38.01
8	4904.00	33.1 AV	54.0	-20.9	1.32 H	296	-4.95	38.01
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	94.5 PK			1.42 V	263	62.70	31.79
2	*2452.00	84.4 AV			1.42 V	263	52.65	31.79
3	2483.50	63.2 PK	74.0	-10.8	1.42 V	263	31.27	31.91
4	2483.50	48.9 AV	54.0	-5.2	1.42 V	263	16.94	31.91
5	#3269.00	48.7 PK	74.5	-25.8	1.19 V	264	14.10	34.58
6	#3269.00	42.2 AV	64.4	-22.2	1.19 V	264	7.65	34.58
7	4904.00	47.0 PK	74.0	-27.0	1.36 V	289	8.98	38.01
8	4904.00	33.9 AV	54.0	-20.1	1.36 V	289	-4.15	38.01

- 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 radiated frequency is out the restricted band.



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**BELOW 1GHz WORST-CASE DATA : 802.11n (20MHz)**

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	17deg. C, 86%RH 1015hPa	TESTED BY	Nick Chen
TEST MODE	A		

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	70.42	25.6 QP	40.0	-14.4	1.08 H	67	13.53	12.08
2	104.62	27.2 QP	43.5	-16.3	1.11 H	229	17.75	9.46
3	165.24	25.7 QP	43.5	-17.8	1.32 H	211	11.76	13.91
4	200.99	26.8 QP	43.5	-16.8	1.07 H	46	15.49	11.26
5	718.64	30.4 QP	46.0	-15.6	1.32 H	355	5.25	25.18
6	920.72	28.4 QP	46.0	-17.6	1.00 H	76	0.16	28.27

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	53.32	30.3 QP	40.0	-9.7	1.24 V	274	17.61	12.68
2	87.52	33.3 QP	40.0	-6.7	1.32 V	169	24.78	8.51
3	95.29	30.4 QP	43.5	-13.1	1.24 V	127	21.84	8.52
4	159.02	28.9 QP	43.5	-14.6	1.11 V	157	14.84	14.04
5	197.88	26.7 QP	43.5	-16.8	1.32 V	7	15.37	11.36
6	992.23	36.4 QP	54.0	-17.6	1.27 V	184	7.30	29.07

- 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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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	7.4Vdc	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	17deg. C, 86%RH 1015hPa	TESTED BY	Nick Chen
TEST MODE	B		

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	54.87	26.3 QP	40.0	-13.7	1.16 H	82	13.61	12.72
2	132.60	30.4 QP	43.5	-13.1	1.38 H	100	17.65	12.73
3	228.97	31.4 QP	46.0	-14.6	1.23 H	7	19.14	12.28
4	266.28	31.4 QP	46.0	-14.6	1.12 H	205	17.59	13.79
5	505.67	31.5 QP	46.0	-14.5	1.24 H	22	10.29	21.21
6	564.74	33.0 QP	46.0	-13.0	1.21 H	109	10.48	22.51
7	617.60	32.0 QP	46.0	-14.0	1.07 H	187	8.49	23.51
8	743.51	32.4 QP	46.0	-13.6	1.25 H	118	6.78	25.67
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	53.32	35.5 QP	40.0	-4.5	1.08 V	253	22.84	12.68
2	129.49	32.8 QP	43.5	-10.7	1.13 V	163	20.38	12.39
3	168.35	32.2 QP	43.5	-11.3	1.27 V	10	18.32	13.86
4	382.87	33.0 QP	46.0	-13.0	1.23 V	253	15.37	17.64
5	515.00	33.9 QP	46.0	-12.1	1.10 V	151	12.52	21.42
6	732.63	33.8 QP	46.0	-12.2	1.36 V	172	8.32	25.45
7	959.58	32.3 QP	46.0	-13.7	1.00 V	157	3.61	28.70

- 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.

## 4.2 CONDUCTED EMISSION MEASUREMENT

### 4.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dB $\mu$ V)	
	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 0.50MHz.
  3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

### 4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Test Receiver	ESCI	100612	Jul. 15, 2009	Jul. 14, 2010
ROHDE & SCHWARZ Artificial Mains Network (for EUT)	ESH3-Z5	100218	Nov. 24, 2009	Nov. 23, 2010
LISN With Adapter (for EUT)	AD10	C10Ada-001	Nov. 24, 2009	Nov. 23, 2010
ROHDE & SCHWARZ Artificial Mains Network (for peripherals)	ESH3-Z5	100219	Nov. 23, 2009	Nov. 22, 2010
Software	ADT_Cond_V7.3.7	NA	NA	NA
Software	ADT_ISN_V7.3.7	NA	NA	NA
RF cable (JYEBAO)	5D-FB	Cable-C10.01	Feb. 26, 2009	Feb. 25, 2010
SUHNER Terminator (For ROHDE & SCHWARZ LISN)	65BNC-5001	E1-010773	Feb. 27, 2009	Feb. 26, 2010

- 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. 10.
  3. The VCCI Site Registration No. C-1852.



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### 4.2.3 TEST PROCEDURES

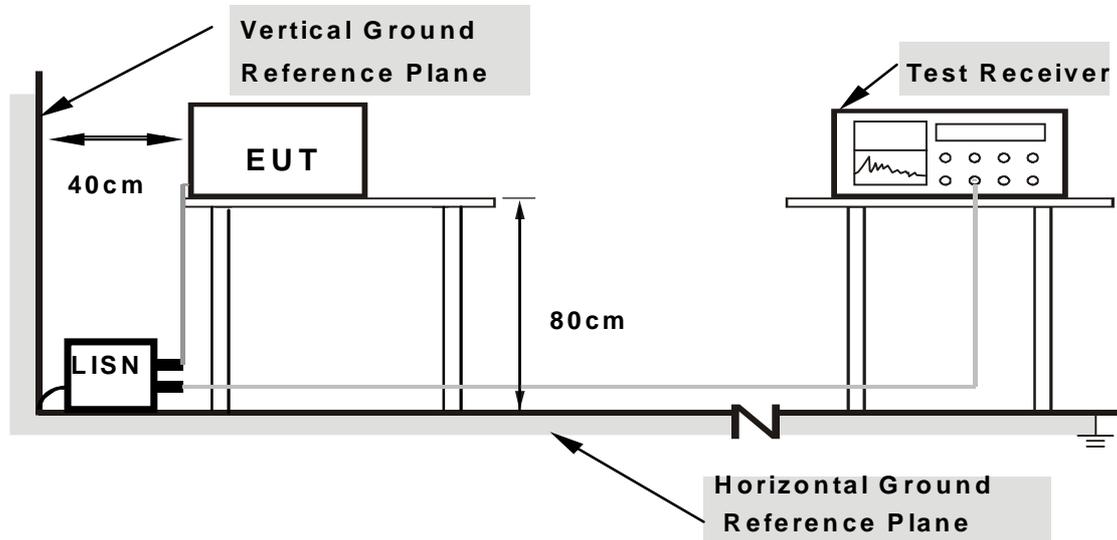
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling 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) was not recorded.

**NOTE:** 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



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

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

## 4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6.



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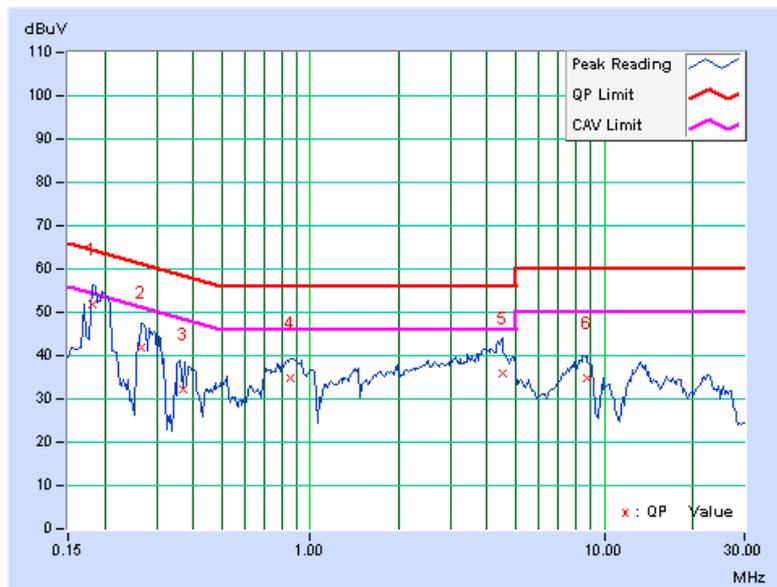
### 4.2.7 TEST RESULTS

CONDUCTED WORST-CASE DATA : 802.11n (20MHz)

CHANNEL	Channel 11	PHASE	Line 1
TEST MODE	A	6dB BANDWIDTH	9kHz

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.181	0.19	51.53	-	51.72	-	64.43	54.43	-12.71	-
2	0.267	0.23	41.73	-	41.96	-	61.20	51.20	-19.25	-
3	0.371	0.28	31.99	-	32.27	-	58.47	48.47	-26.20	-
4	0.853	0.31	34.46	-	34.77	-	56.00	46.00	-21.23	-
5	4.492	0.41	35.70	-	36.11	-	56.00	46.00	-19.89	-
6	8.750	0.56	34.30	-	34.86	-	60.00	50.00	-25.14	-

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
  2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
  3. The emission levels of other frequencies were very low against the limit.
  4. Margin value = Emission level - Limit value
  5. Correction factor = Insertion loss + Cable loss
  6. Emission Level = Correction Factor + Reading Value.



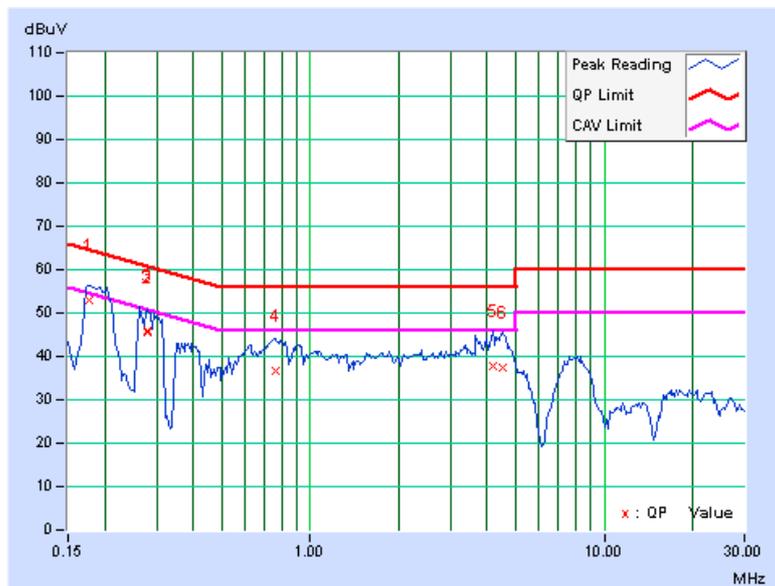


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<b>CHANNEL</b>	Channel 11	<b>PHASE</b>	Line 2
<b>TEST MODE</b>	A	<b>6dB BANDWIDTH</b>	9kHz

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.178	0.28	52.84	-	53.12	-	64.60	54.60	-11.48	-
2	0.279	0.32	45.30	-	45.62	-	60.85	50.85	-15.23	-
3	0.279	0.32	45.64	-	45.96	-	60.85	50.85	-14.89	-
4	0.759	0.39	36.16	-	36.55	-	56.00	46.00	-19.45	-
5	4.164	0.45	37.42	-	37.87	-	56.00	46.00	-18.13	-
6	4.512	0.46	36.93	-	37.39	-	56.00	46.00	-18.61	-

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
  2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
  3. The emission levels of other frequencies were very low against the limit.
  4. Margin value = Emission level - Limit value
  5. Correction factor = Insertion loss + Cable loss
  6. Emission Level = Correction Factor + Reading Value.





### 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.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
R&S SPECTRUM ANALYZER	FSP 40	100036	Apr. 03, 2009	Apr. 02, 2010

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

#### 4.3.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100kHz RBW and 300kHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

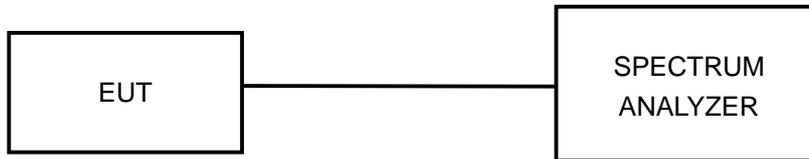
#### 4.3.4 DEVIATION FROM TEST STANDARD

No deviation



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### 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.



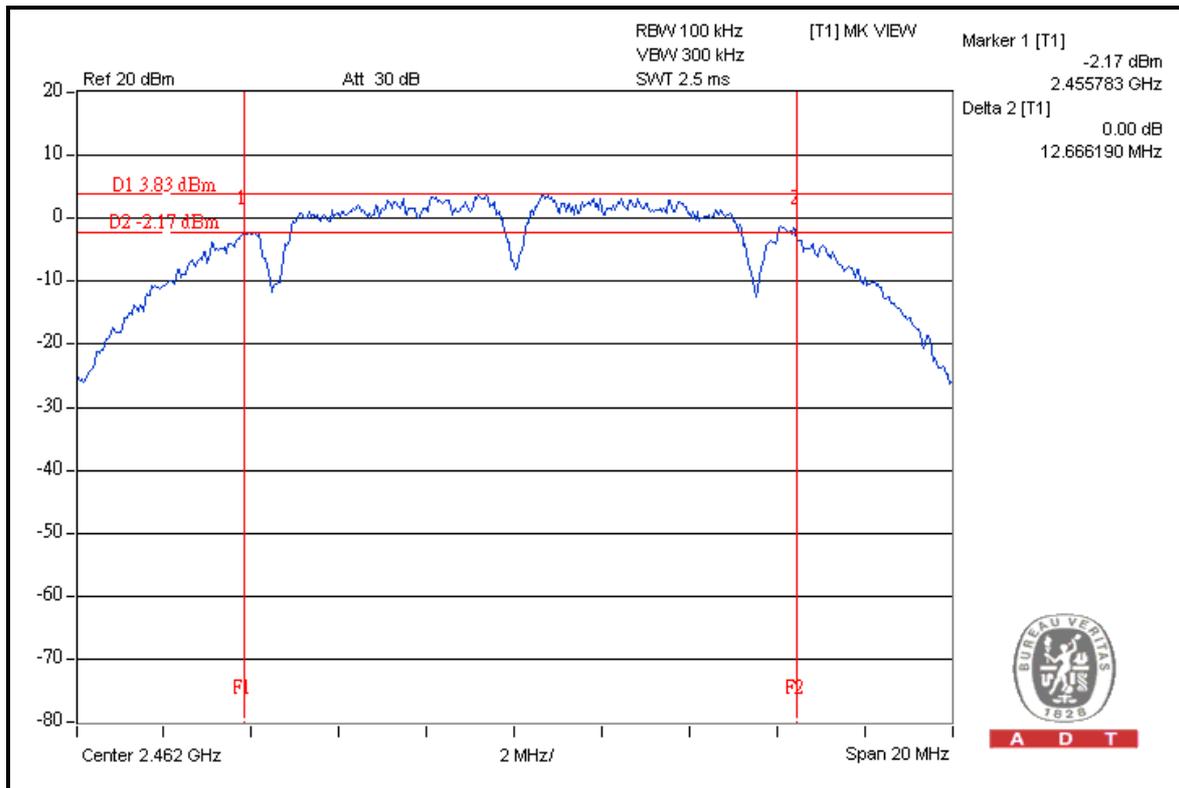
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### 4.3.7 TEST RESULTS

#### 802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	12.55	0.5	PASS
6	2437	12.06	0.5	PASS
11	2462	12.67	0.5	PASS

#### CH 11





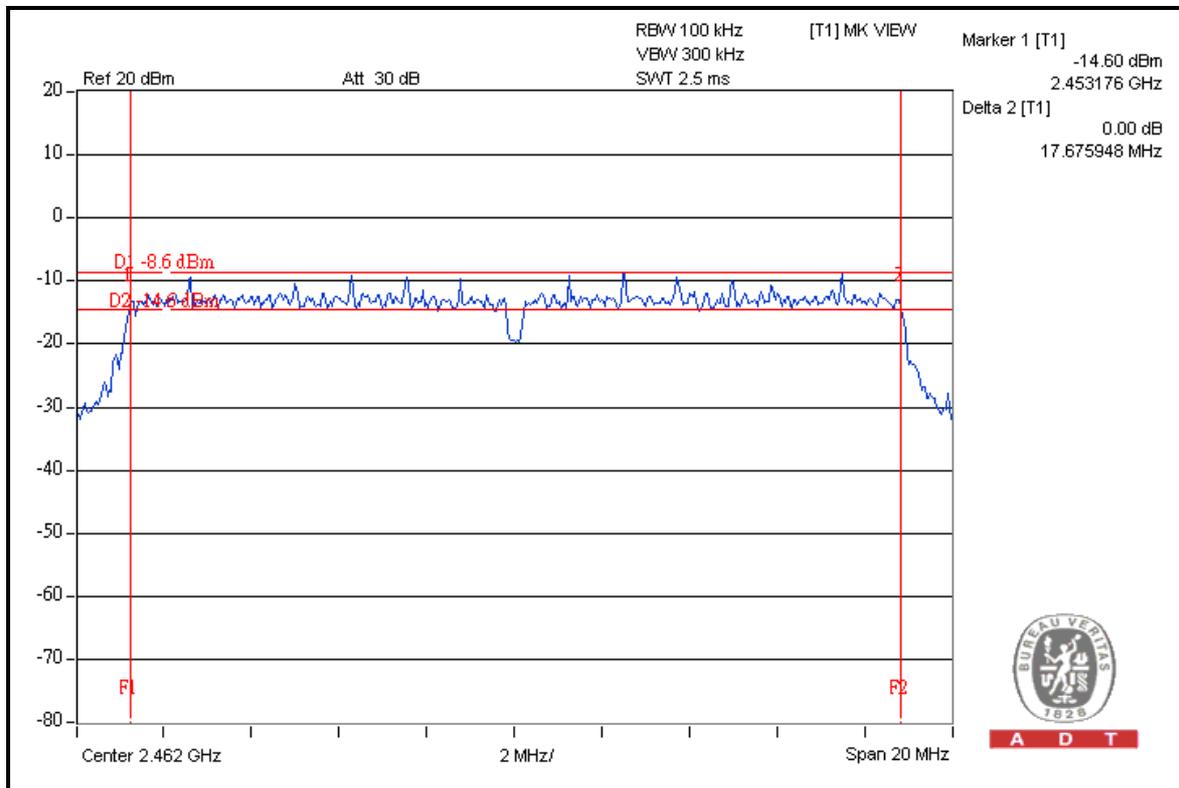


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### 802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	17.65	0.5	PASS
6	2437	17.66	0.5	PASS
11	2462	17.68	0.5	PASS

### CH 11



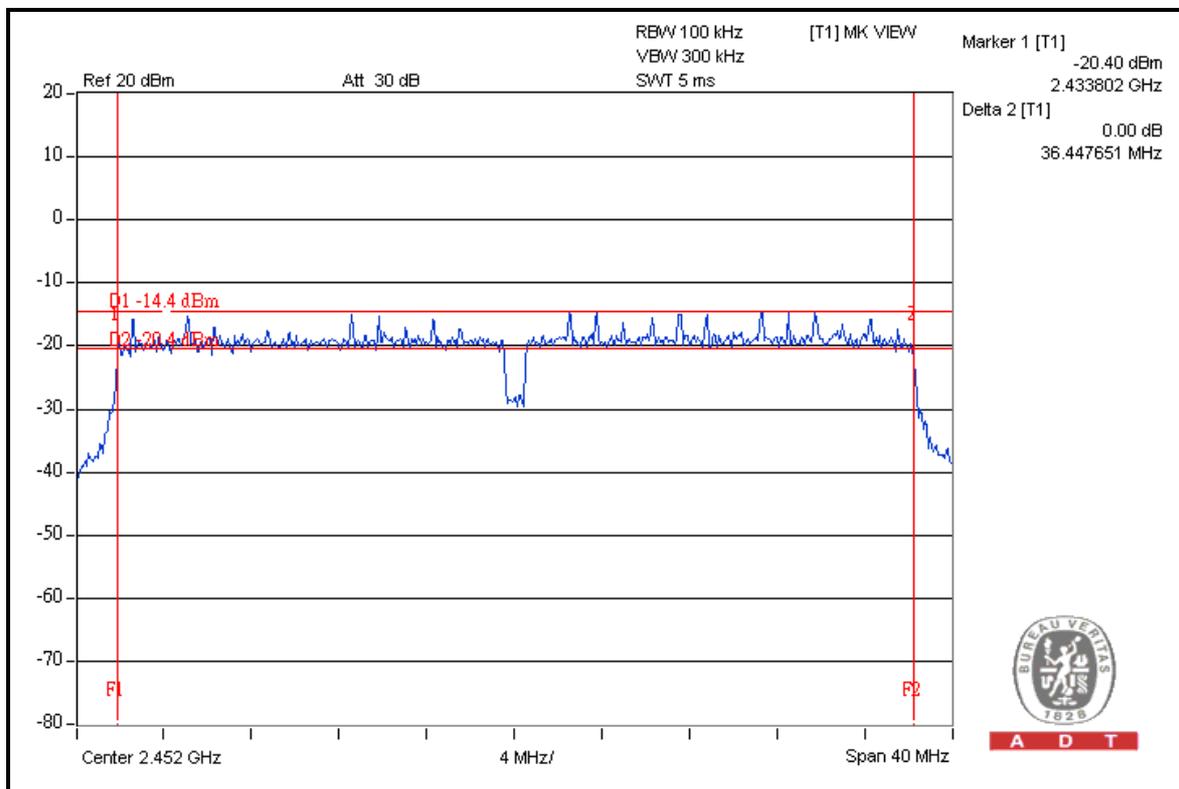


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### 802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2422	36.21	0.5	PASS
4	2437	36.45	0.5	PASS
7	2452	36.45	0.5	PASS

### CH 7



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## 4.4 MAXIMUM OUTPUT POWER

### 4.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Output Power Measurement is 30dBm.

### 4.4.2 INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Peak Power meter & Anritsu	ML2495A	0842014	Apr. 25, 2009	Apr. 25, 2010
Pulse Power Sensor & Anritsu	MA2411B	0738404	Apr. 25, 2009	Apr. 25, 2010

**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. Measurement Bandwidth of ML2495A is 65MHz greater than 6dB bandwidth of emission.

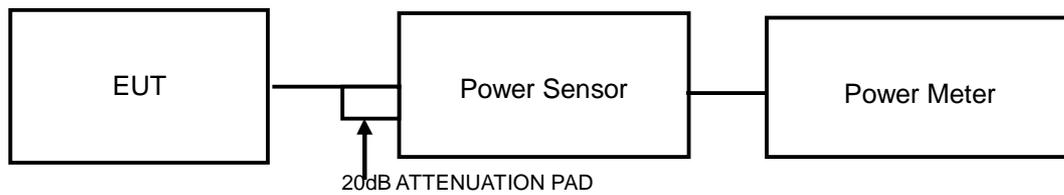
### 4.4.3 TEST PROCEDURES

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



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## 4.4.7 TEST RESULTS

### 802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK OUTPUT POWER (dBm)	PEAK OUTPUT POWER (mW)	PEAK OUTPUT POWER (dBm)	PASS / FAIL
1	2412	17.0	50.1	30	PASS
6	2437	16.9	49.0	30	PASS
11	2462	17.0	50.1	30	PASS

### 802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK OUTPUT POWER (dBm)	PEAK OUTPUT POWER (mW)	PEAK OUTPUT POWER (dBm)	PASS / FAIL
1	2412	13.6	22.9	30	PASS
6	2437	13.8	24.0	30	PASS
11	2462	13.5	22.4	30	PASS

### 802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK OUTPUT POWER (dBm)	PEAK OUTPUT POWER (mW)	PEAK OUTPUT POWER (dBm)	PASS / FAIL
1	2412	12.4	17.4	30	PASS
6	2437	12.5	17.8	30	PASS
11	2462	12.6	18.2	30	PASS



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802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK OUTPUT POWER (dBm)	PEAK OUTPUT POWER (mW)	PEAK OUTPUT POWER (dBm)	PASS / FAIL
1	2422	9.6	9.1	30	PASS
4	2437	9.6	9.1	30	PASS
7	2452	9.5	8.9	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.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
R&S SPECTRUM ANALYZER	FSP 40	100036	Apr. 03, 2009	Apr. 02, 2010

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

### 4.5.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3kHz RBW and 30kHz VBW, set sweep time = span/3kHz. The power spectral density was measured and recorded.

The sweep time is allowed to be longer than span/3kHz for a full response of the mixer in the spectrum analyzer.

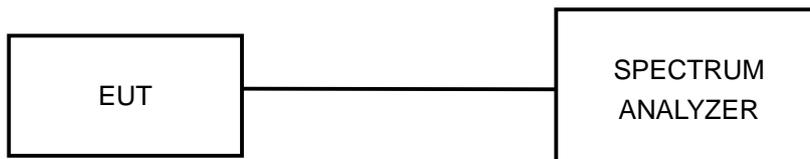


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#### 4.5.4 DEVIATION FROM TEST STANDARD

No deviation

#### 4.5.5 TEST SETUP



#### 4.5.6 EUT OPERATING CONDITION

Same as Item 4.3.6



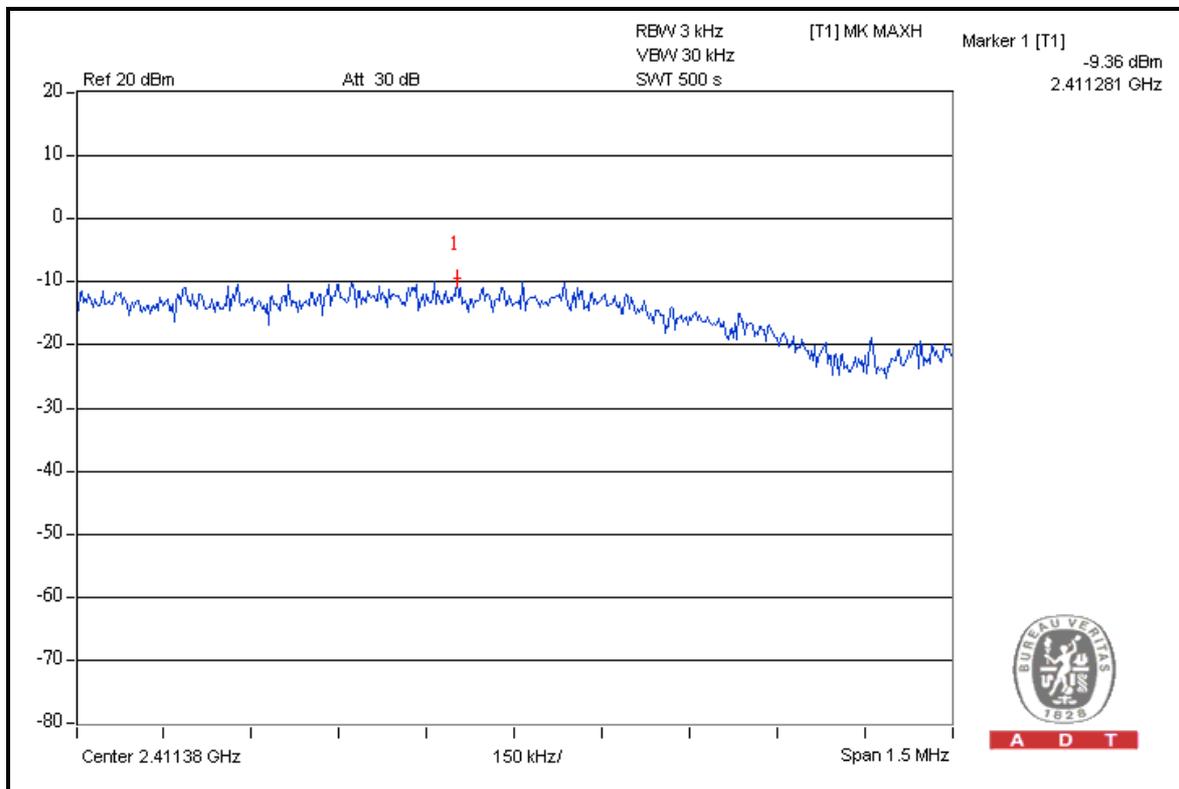
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## 4.5.7 TEST RESULTS

### 802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	2412	-9.4	8	PASS
6	2437	-10.5	8	PASS
11	2462	-10.1	8	PASS

### CH 1



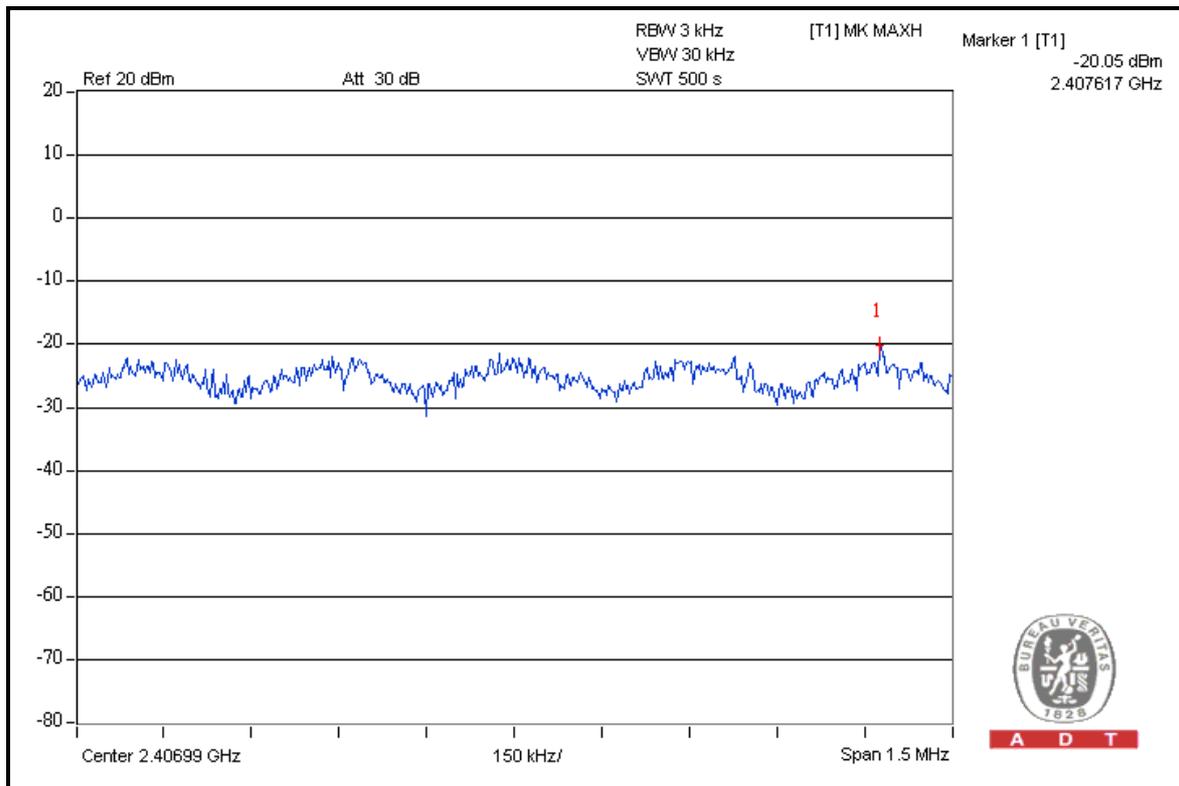


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### 802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	2412	-20.1	8	PASS
6	2437	-20.4	8	PASS
11	2462	-20.7	8	PASS

### CH 1





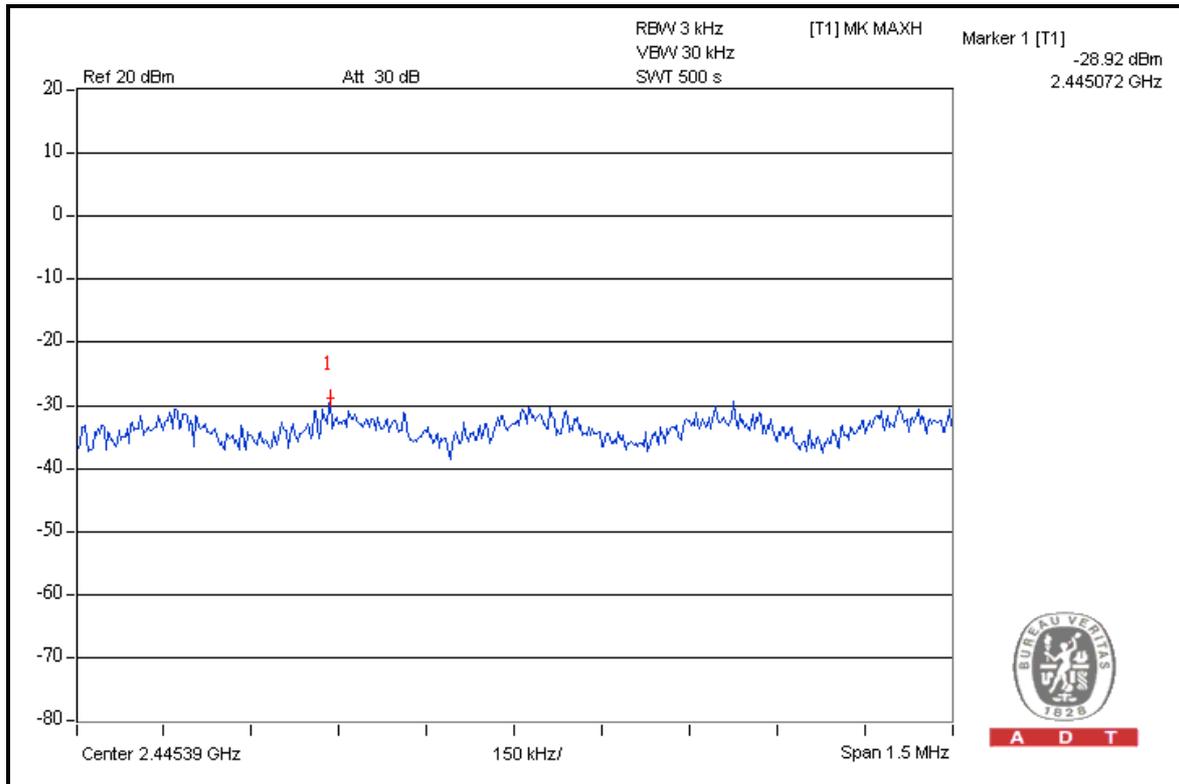


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### 802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz )	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	2422	-29.8	8	PASS
4	2437	-28.9	8	PASS
7	2452	-29.2	8	PASS

### CH 4





## 4.6 BAND EDGES MEASUREMENT

### 4.6.1 LIMITS OF BAND EDGES 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.	DATE OF CALIBRATION	CALIBRATED UNTIL
<b>FOR CONDUCTED MEASUREMENT:</b>				
R&S SPECTRUM ANALYZER	FSP 40	100036	Apr. 03, 2009	Apr. 02, 2010
<b>FOR RADIATED MEASUREMENT:</b>				
HP Preamplifier	8447D	2432A03504	May 04, 2009	May 03, 2010
HP Preamplifier	8449B	3008A01924	Aug. 31, 2009	Aug. 30, 2010
HP Preamplifier	8449B	3008A01292	Aug. 10, 2009	Aug. 09, 2010
ROHDE & SCHWARZ TEST RECEIVER	ESU26	100005	Jun. 06, 2009	Jun. 05, 2010
Schwarzbeck Antenna	VULB 9168	137	Apr. 29, 2009	Apr. 28, 2010
Schwarzbeck Antenna	VHBA 9123	480	Apr. 21, 2009	Apr. 20, 2010
EMCO Horn Antenna	3115	6714	Oct. 26, 2009	Oct. 25, 2010
EMCO Horn Antenna	3115	9312-4192	Apr. 17, 2009	Apr. 16, 2010
ADT. Turn Table	TT100	0306	NA	NA
ADT. Tower	AT100	0306	NA	NA
Software	ADT_Radiated_V7.6.15.9.2	NA	NA	NA
SUHNER RF cable	SF104-26.5	CABLE-CH6-17 m-01	Aug. 20, 2009	Aug. 19, 2010
ROHDE & SCHWARZ Spectrum Analyzer	FSP 40	100036	Apr. 03, 2009	Apr. 02, 2010

- NOTE:**
1. The calibration interval of the above test instruments is 12/24 months. And the calibrations are traceable to NML/ROC and NIST/USA.
  2. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
  3. The test was performed in Chamber No. 6.
  4. The Industry Canada Reference No. IC 7450E-6.
  5. The FCC Site Registration No. is 447212.

### 4.6.3 TEST PROCEDURE

#### FOR CONDUCTED MEASUREMENT:

The transmitter output was connected to the spectrum analyzer via a low loss cable. Set both RBW and VBW of spectrum analyzer to 100kHz and 300kHz with suitable frequency span including 100MHz bandwidth from band edge. The band edges was measured and recorded.

The spectrum plots (Peak RBW =100kHz, VBW = 300kHz; Average RBW = 1MHz, VBW = 10Hz) are attached on the following pages.

#### FOR RADIATED MEASUREMENT:

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. 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. Set both RBW and VBW of spectrum analyzer to 100kHz and 300kHz with suitable frequency span including 100MHz bandwidth from band edge. The band edges was measured and recorded.

The spectrum plots (Peak RBW =100kHz, VBW = 300kHz; Average RBW = 1MHz, VBW = 10Hz) are attached on the following pages.

**NOTE:** The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz for Average detection (AV) at frequency above 1GHz.

### 4.6.4 DEVIATION FROM TEST STANDARD

No deviation

### 4.6.5 EUT OPERATING CONDITION

Same as Item 4.3.6

## 4.6.6 TEST RESULTS

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 in part 15.247(d).

### 802.11b

#### RESTRICT BAND (2310 ~ 2390 MHz)

FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
2412.00 (PK)	107.8	52.6	55.2	74.00
2412.00 (AV)	103.5	62.4	41.1	54.00

#### RESTRICT BAND (2483.5 ~ 2500 MHz)

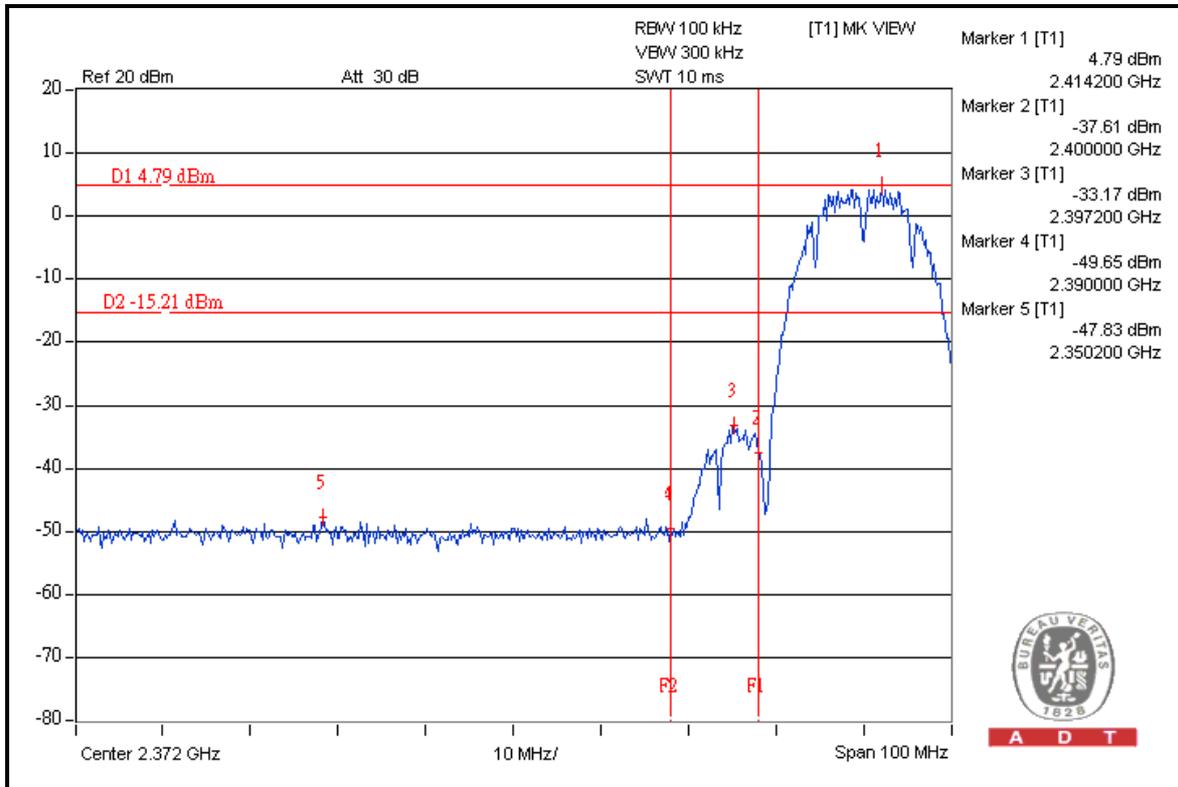
FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
2462.00 (PK)	107.9	51.5	56.4	74.00
2462.00 (AV)	103.0	60.4	42.6	54.00

#### NOTE:

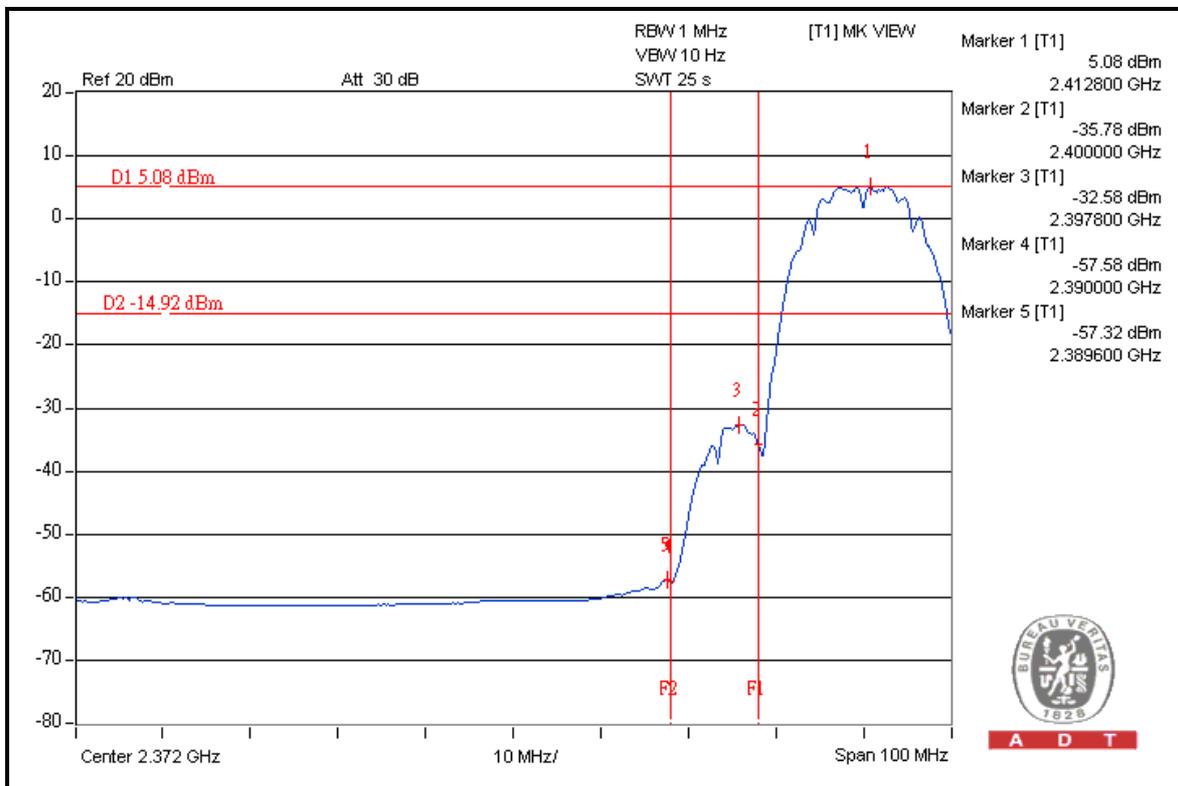
- Delta = Amplitude between the peak of the fundamental and the peak of the band edge emission. Please check following 3 pages.
- Maximum field strength in restrict band = Fundamental emission – Delta.



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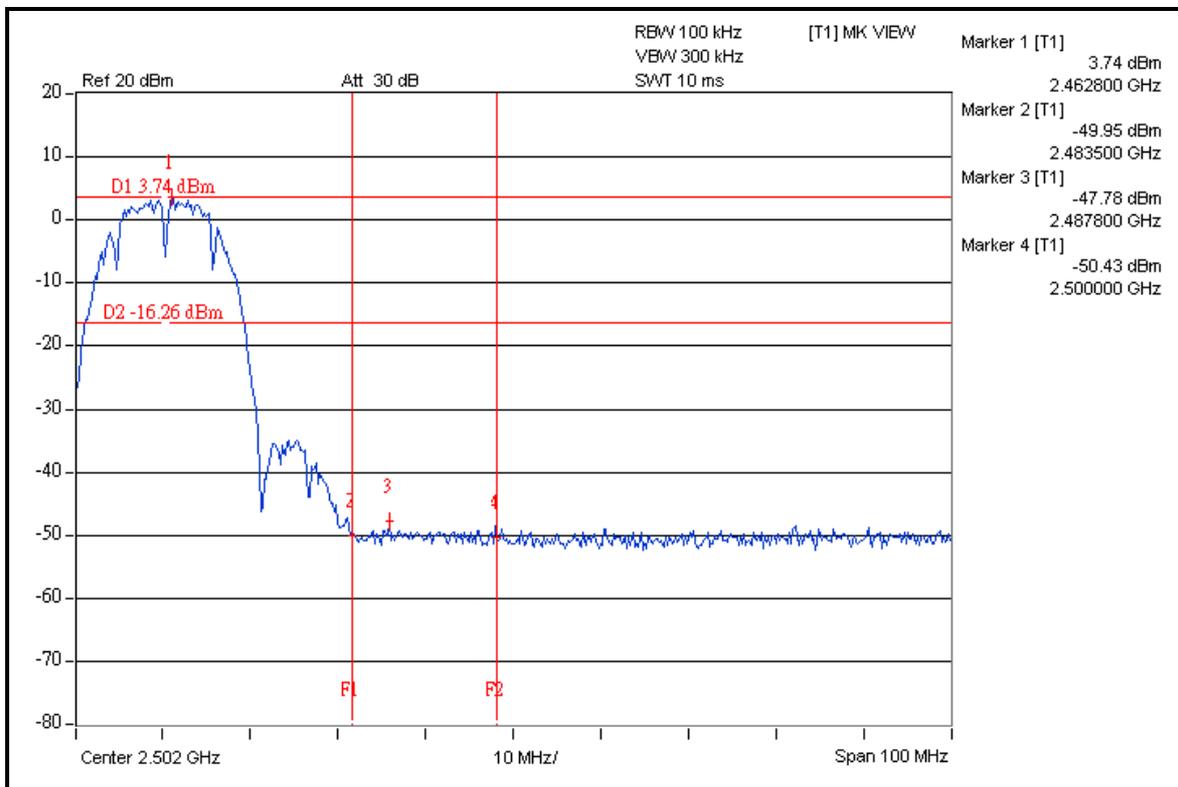
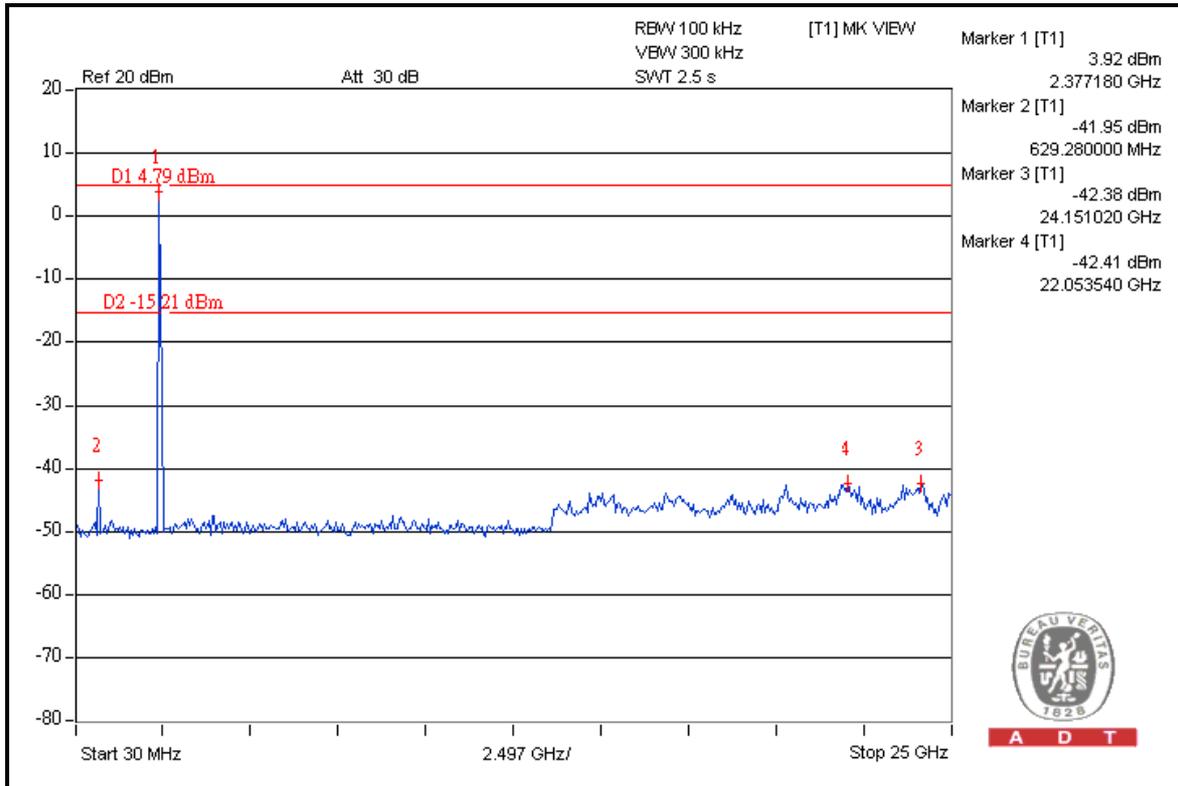
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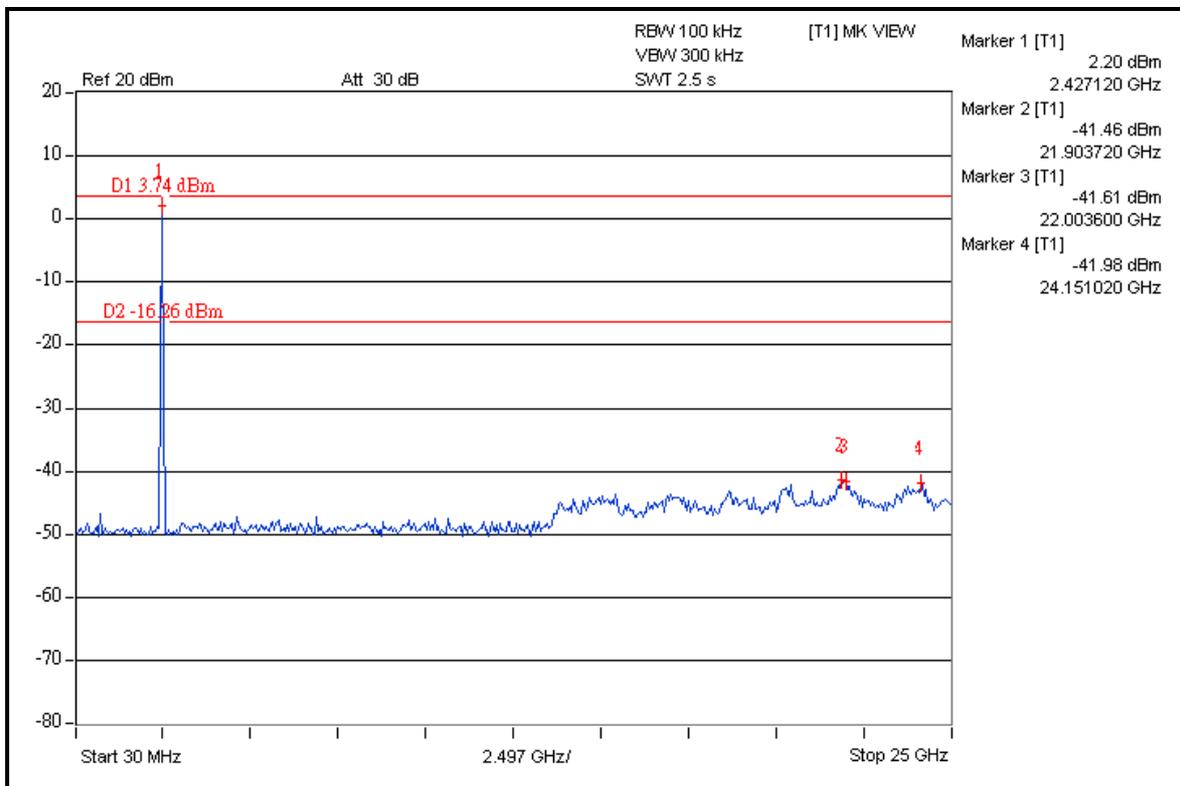
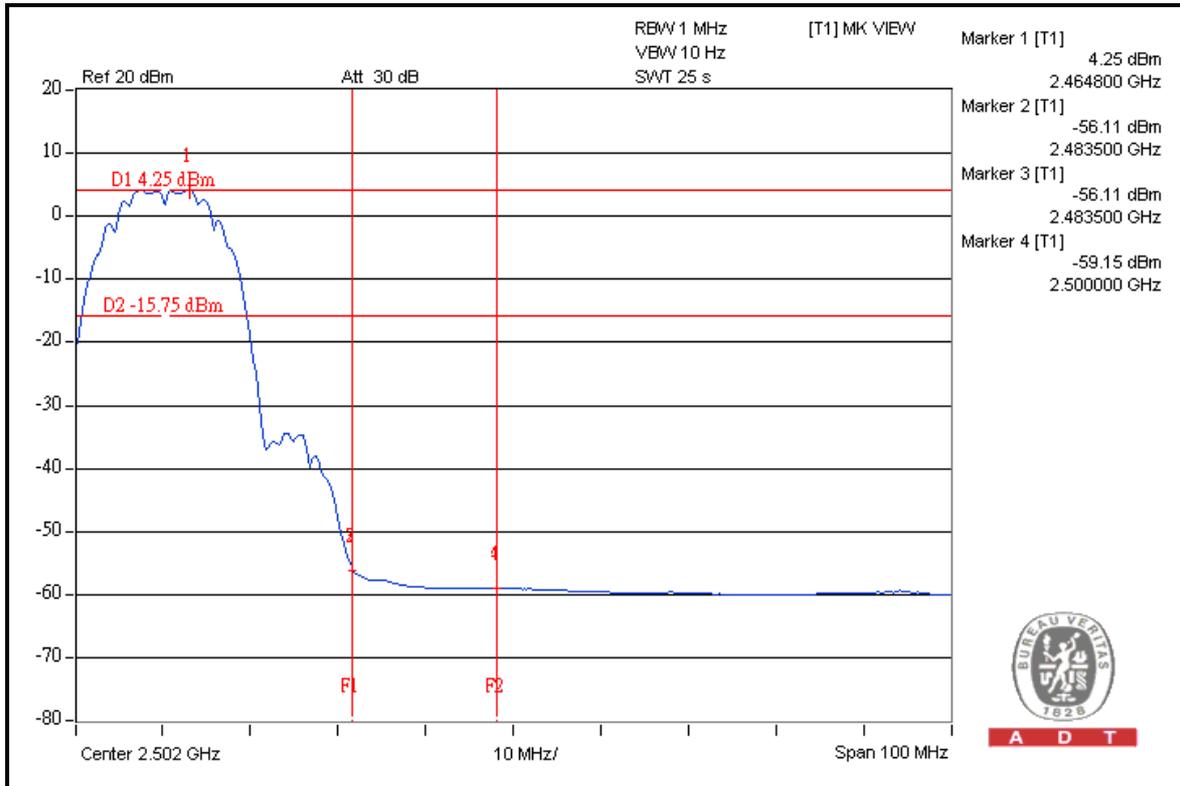


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### 802.11g

#### RESTRICT BAND (2310 ~ 2390 MHz)

FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
2412.00 (PK)	104.0	41.6	62.4	74.00
2412.00 (AV)	93.6	44.8	48.8	54.00

#### RESTRICT BAND (2483.5 ~ 2500 MHz)

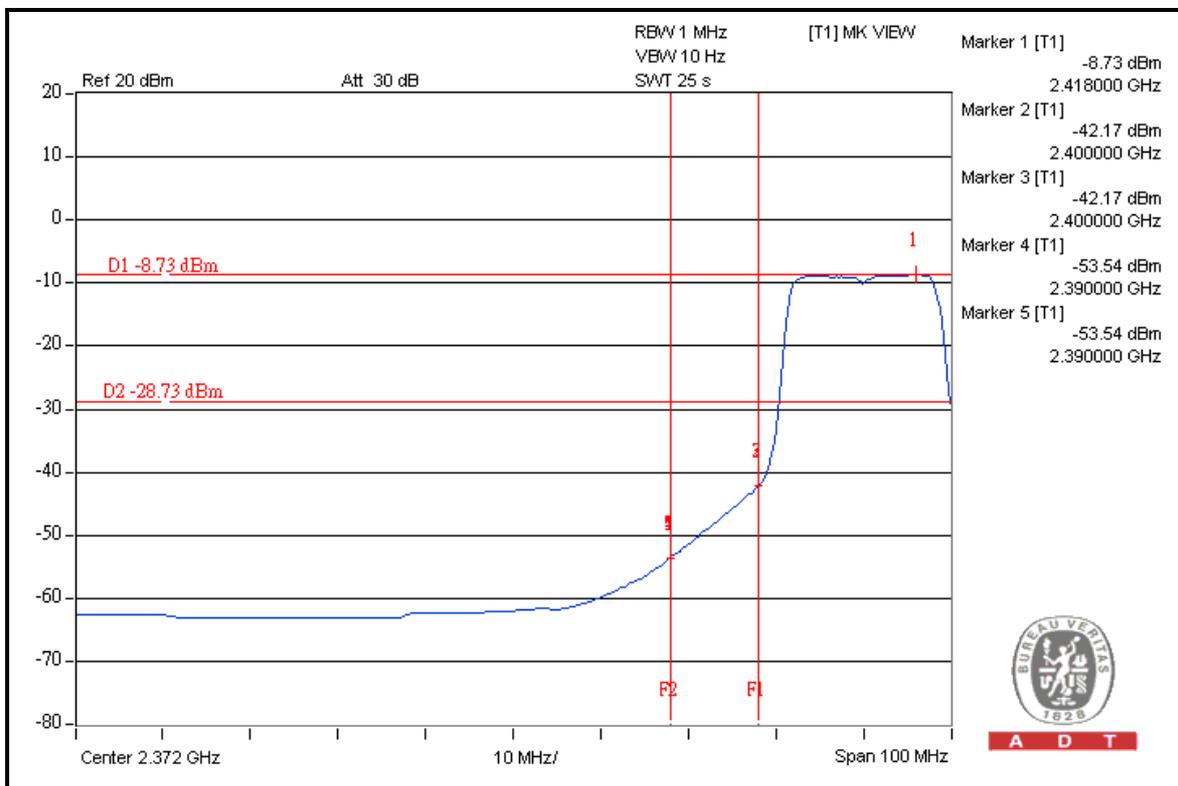
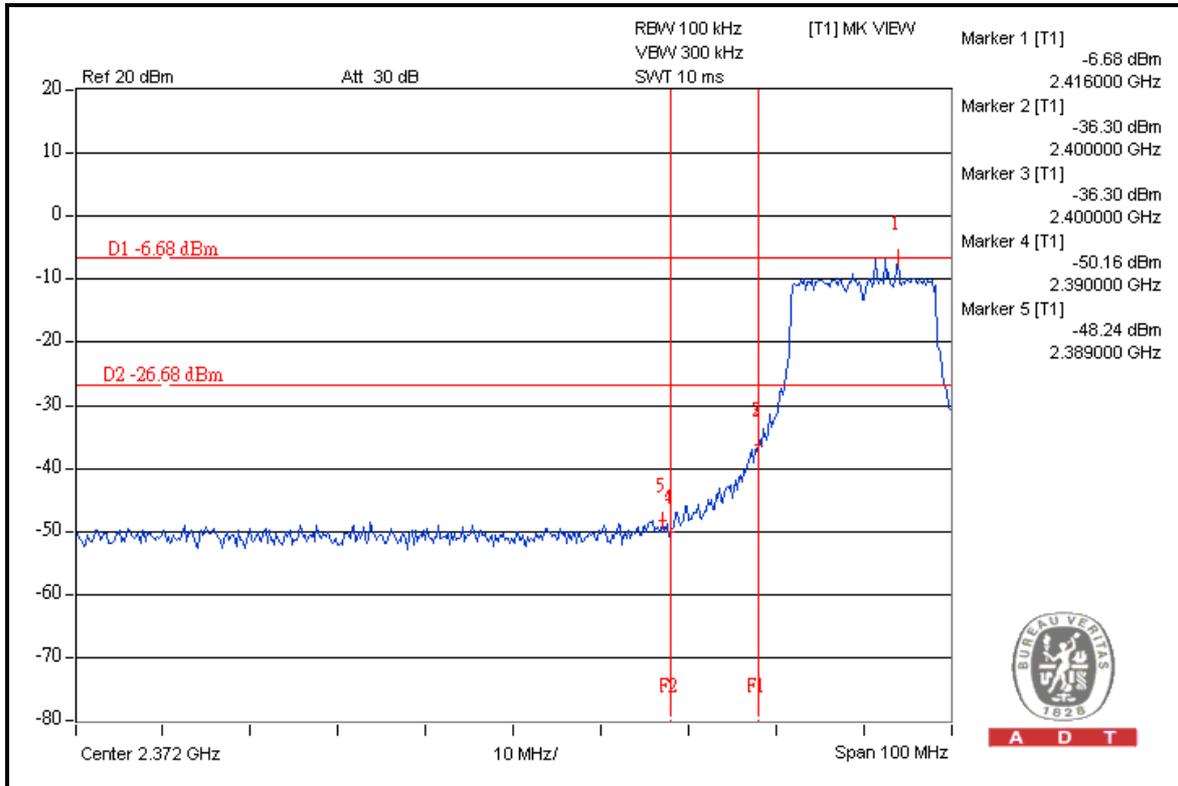
FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
2462.00 (PK)	104.0	41.8	62.2	74.00
2462.00 (AV)	92.2	46.6	45.6	54.00

**NOTE:**

1. Delta = Amplitude between the peak of the fundamental and the peak of the band edge emission. Please check following 3 pages.
2. Maximum field strength in restrict band = Fundamental emission – Delta.

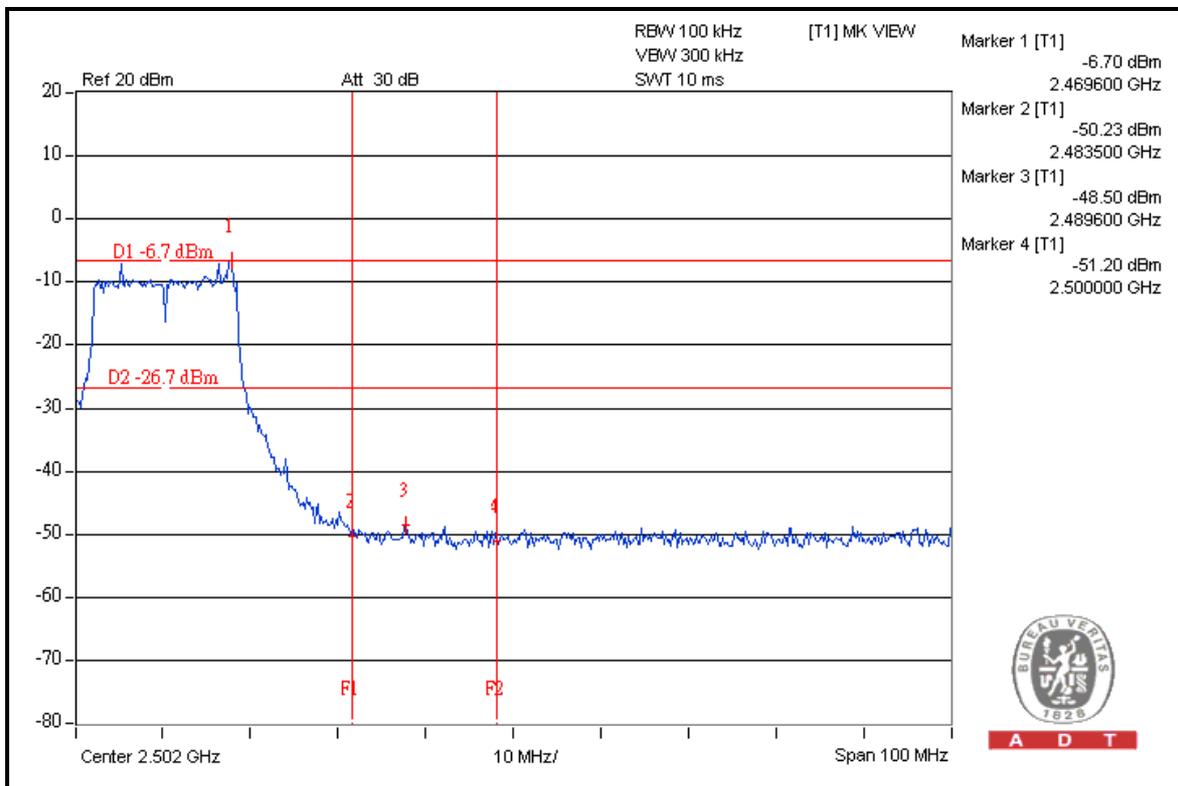
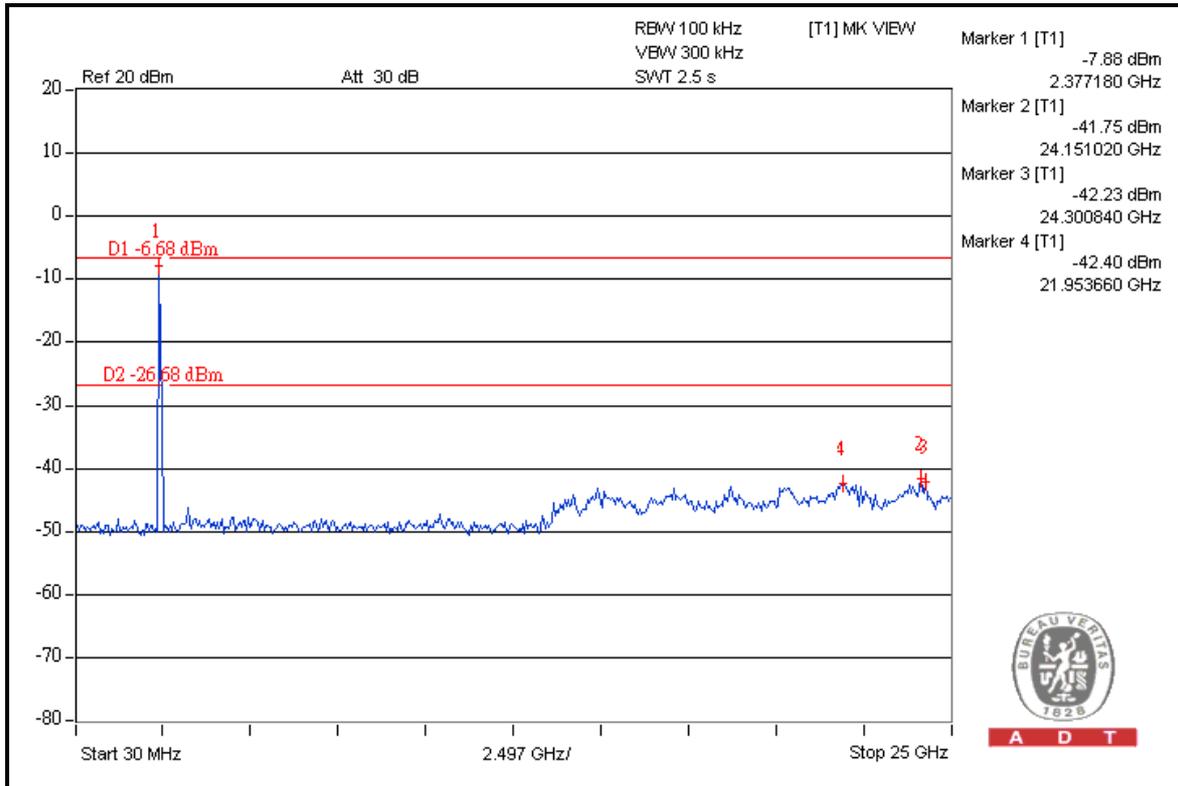


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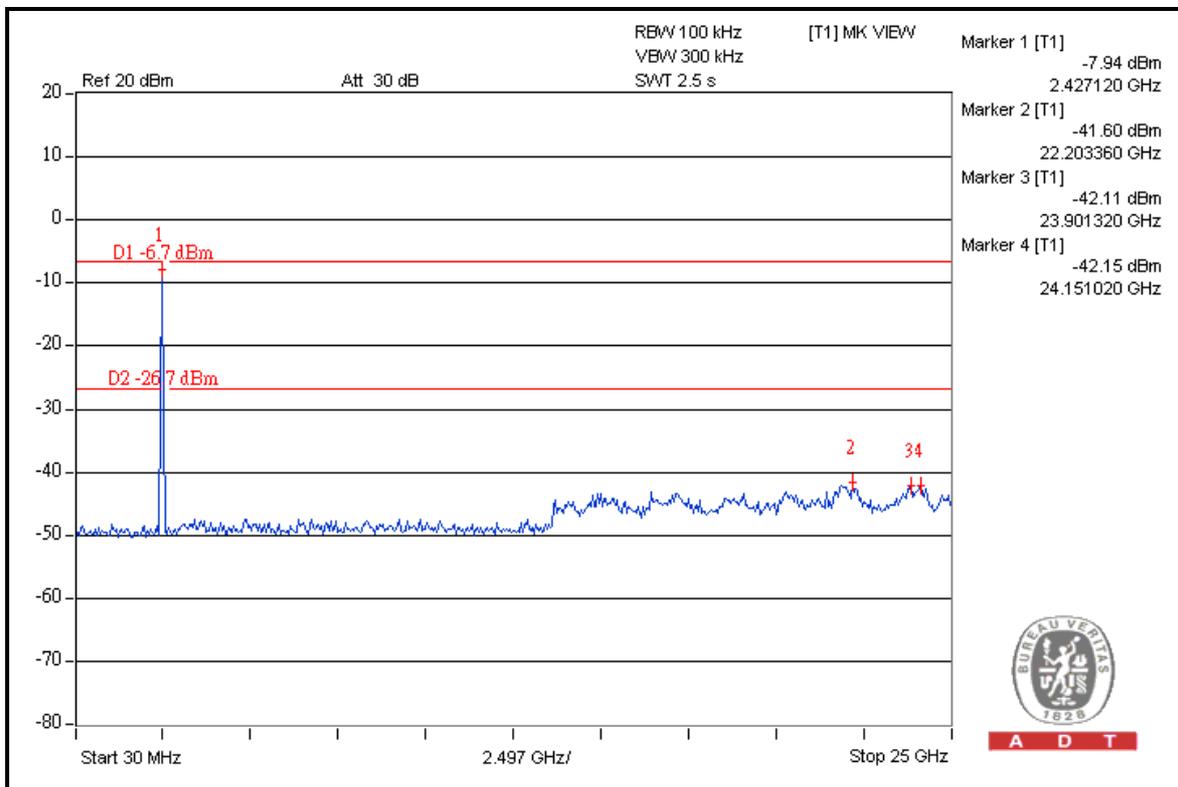
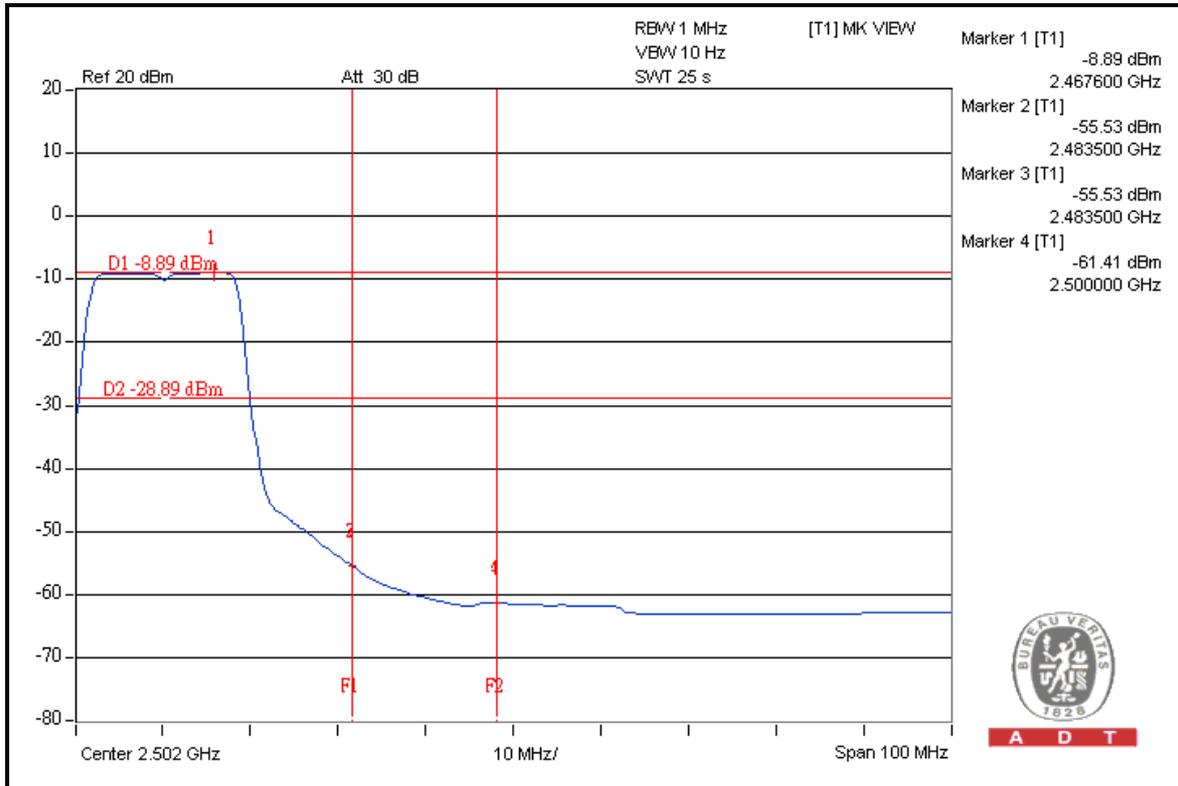


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### 802.11n (20MHz)

#### RESTRICT BAND (2310 ~ 2390 MHz)

FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
2412.00 (PK)	103.5	39.4	64.1	74.00
2412.00 (AV)	93.0	43.2	49.8	54.00

#### RESTRICT BAND (2483.5 ~ 2500 MHz)

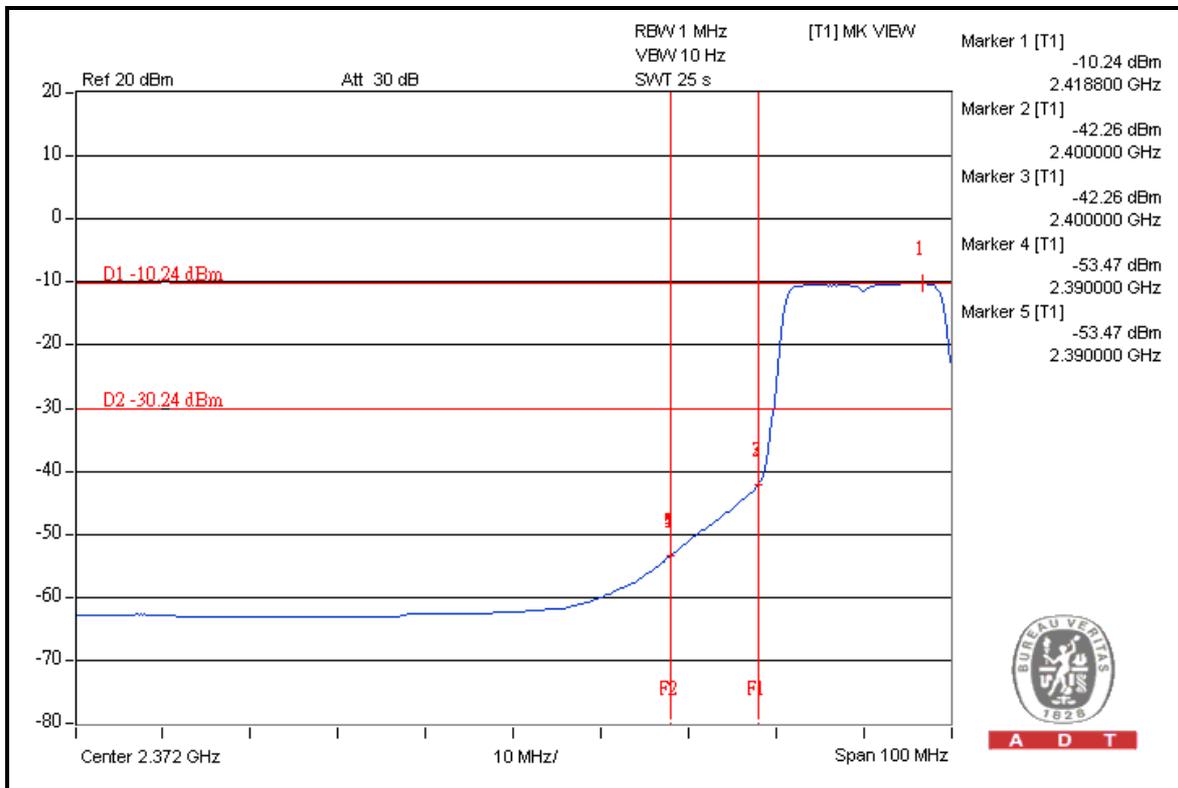
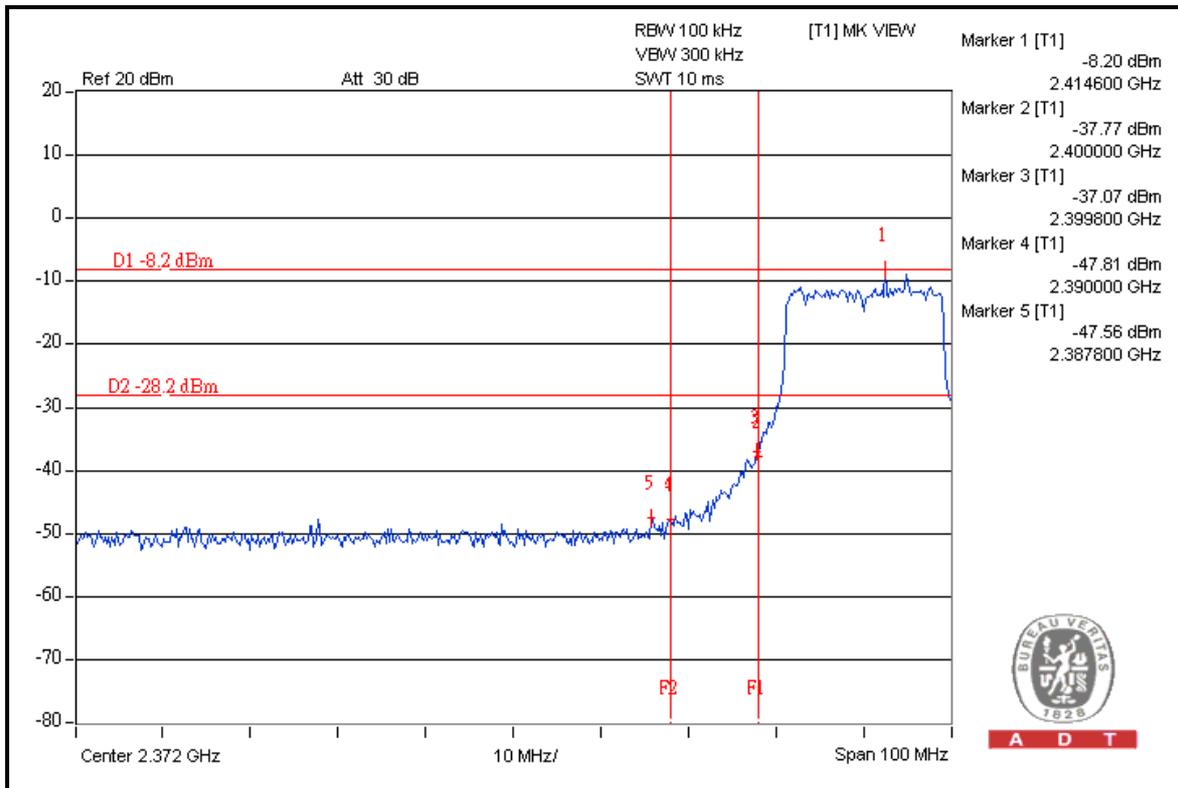
FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
2462.00 (PK)	102.7	36.6	66.1	74.00
2462.00 (AV)	92.0	38.6	53.4	54.00

#### NOTE:

1. Delta = Amplitude between the peak of the fundamental and the peak of the band edge emission. Please check following 3 pages.
2. Maximum field strength in restrict band = Fundamental emission – Delta.

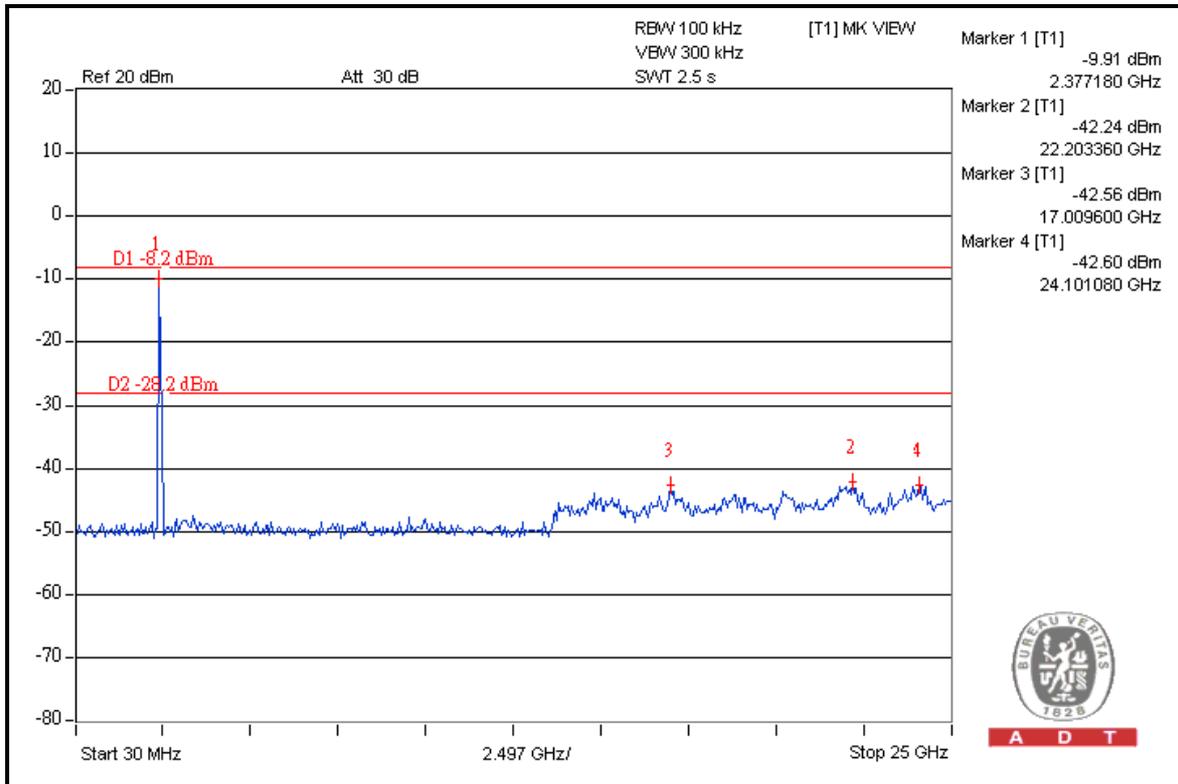


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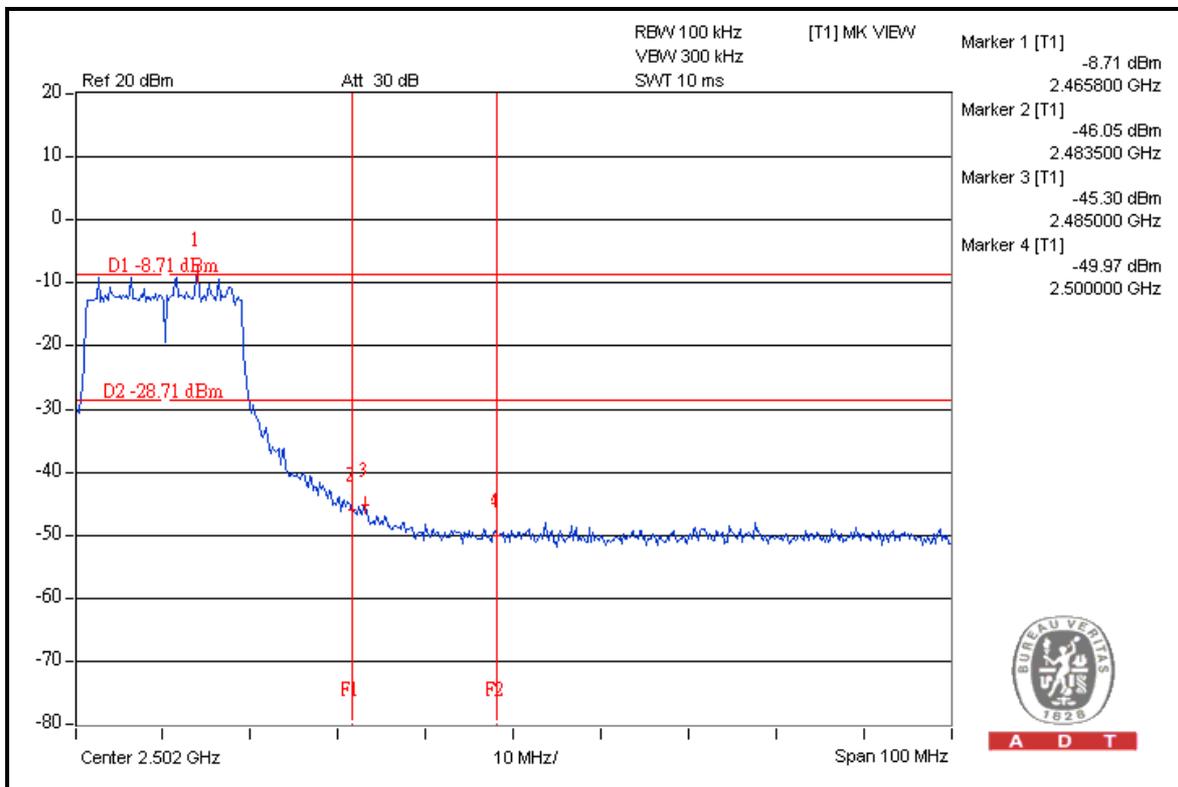




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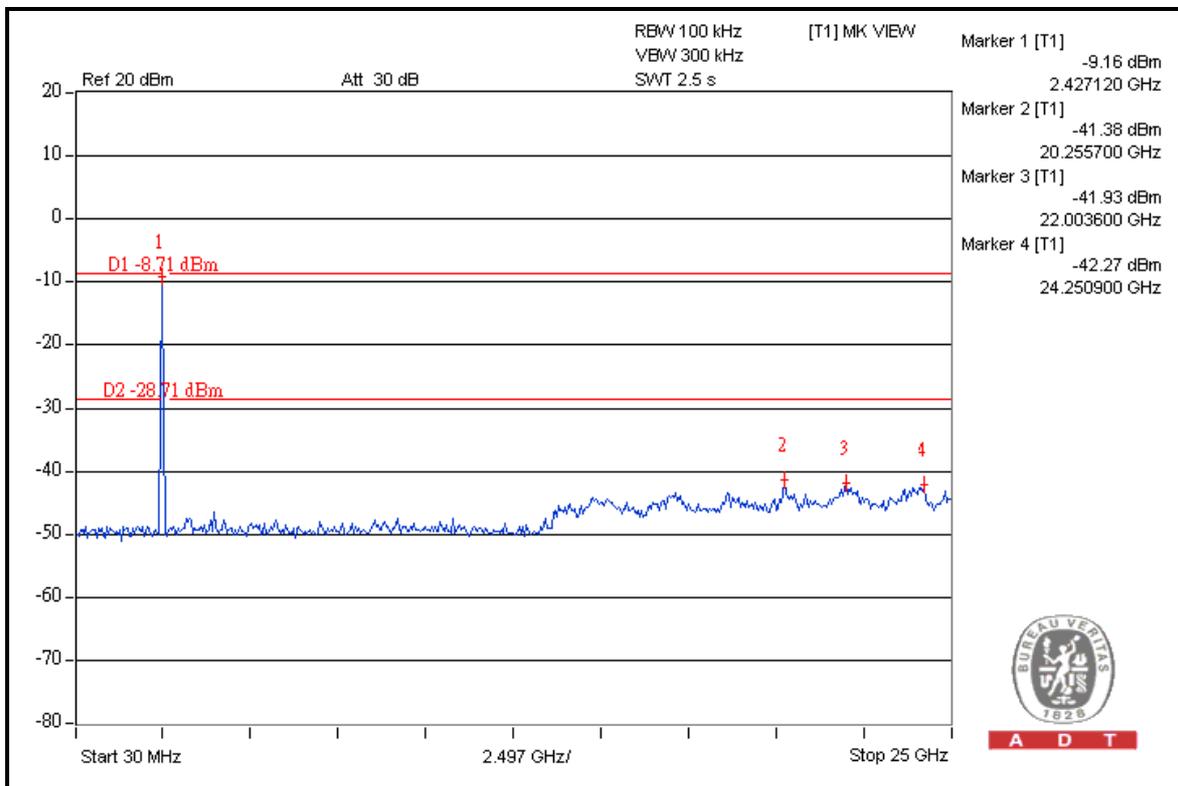
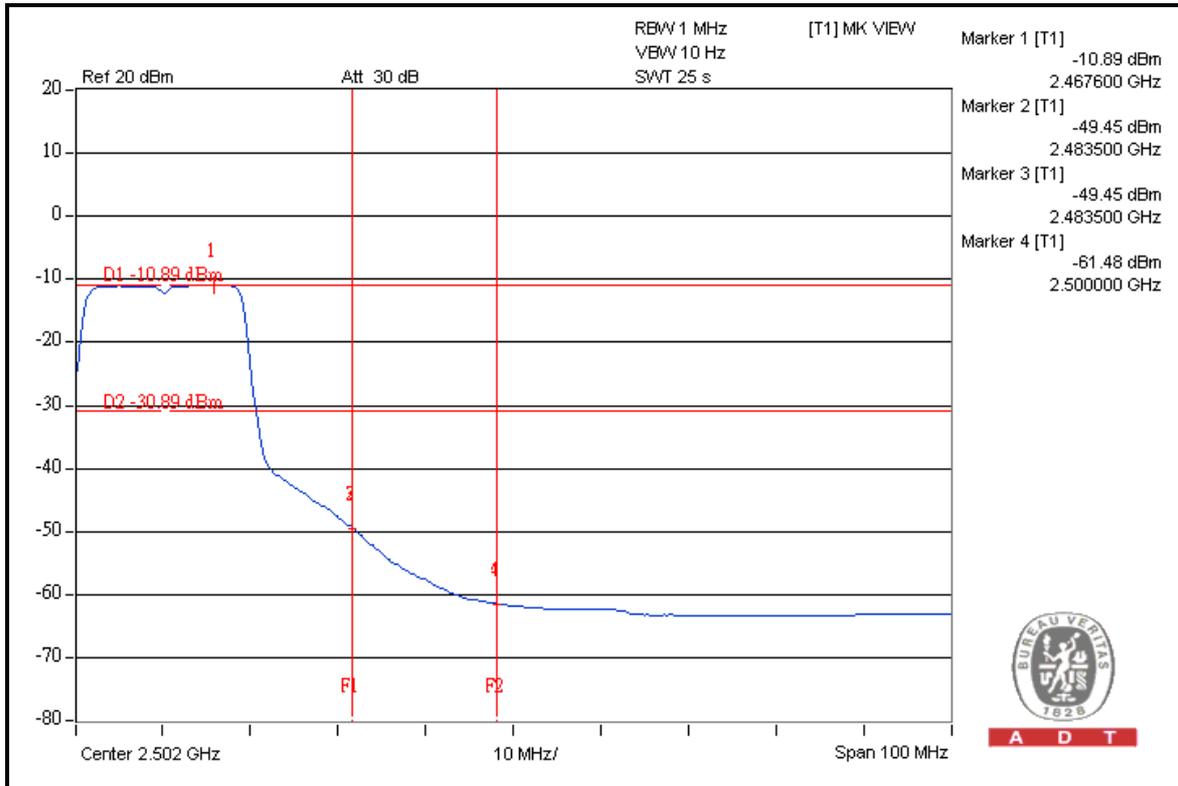
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### 802.11n (40MHz)

#### RESTRICT BAND (2310 ~ 2390 MHz)

FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
2422.00 (PK)	96.6	33.1	63.5	74.00
2422.00 (AV)	86.5	37.7	48.8	54.00

#### RESTRICT BAND (2483.5 ~ 2500 MHz)

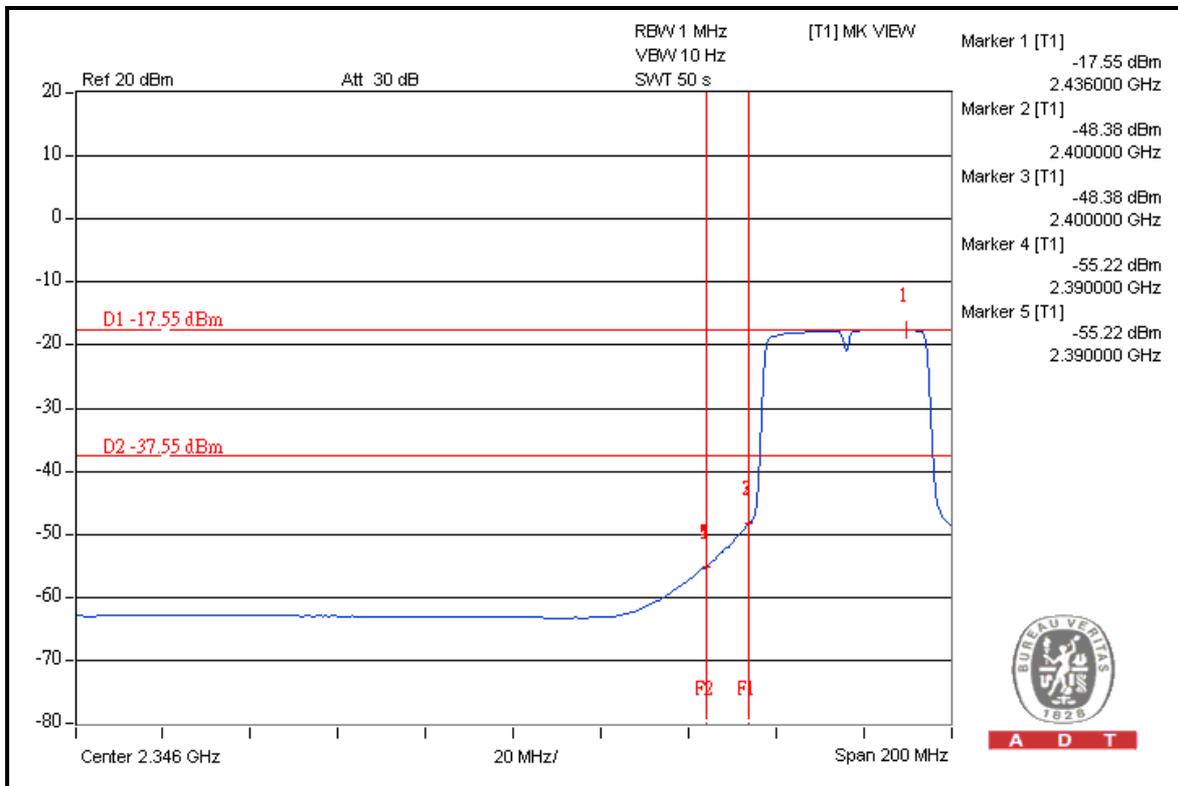
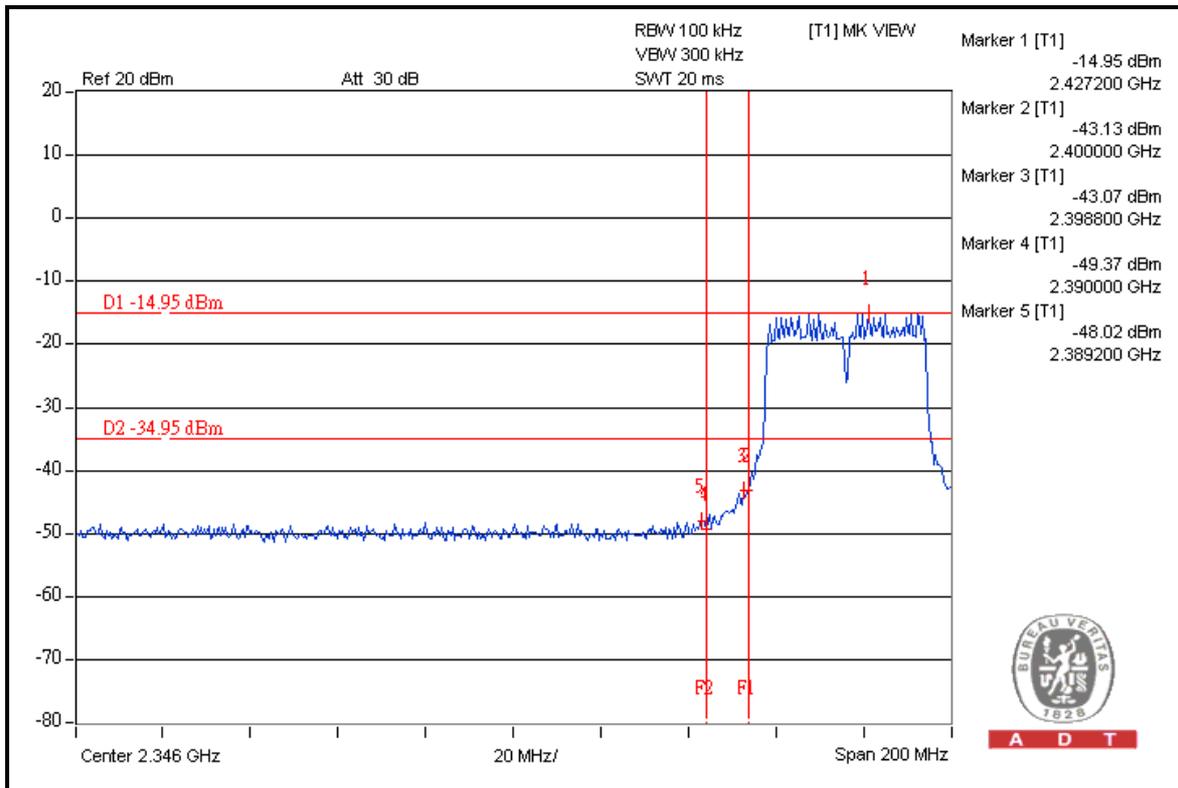
FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
2452.00 (PK)	97.4	33.1	64.3	74.00
2452.00 (AV)	87.2	38.4	48.8	54.00

#### NOTE:

1. Delta = Amplitude between the peak of the fundamental and the peak of the band edge emission. Please check following 3 pages.
2. Maximum field strength in restrict band = Fundamental emission – Delta.

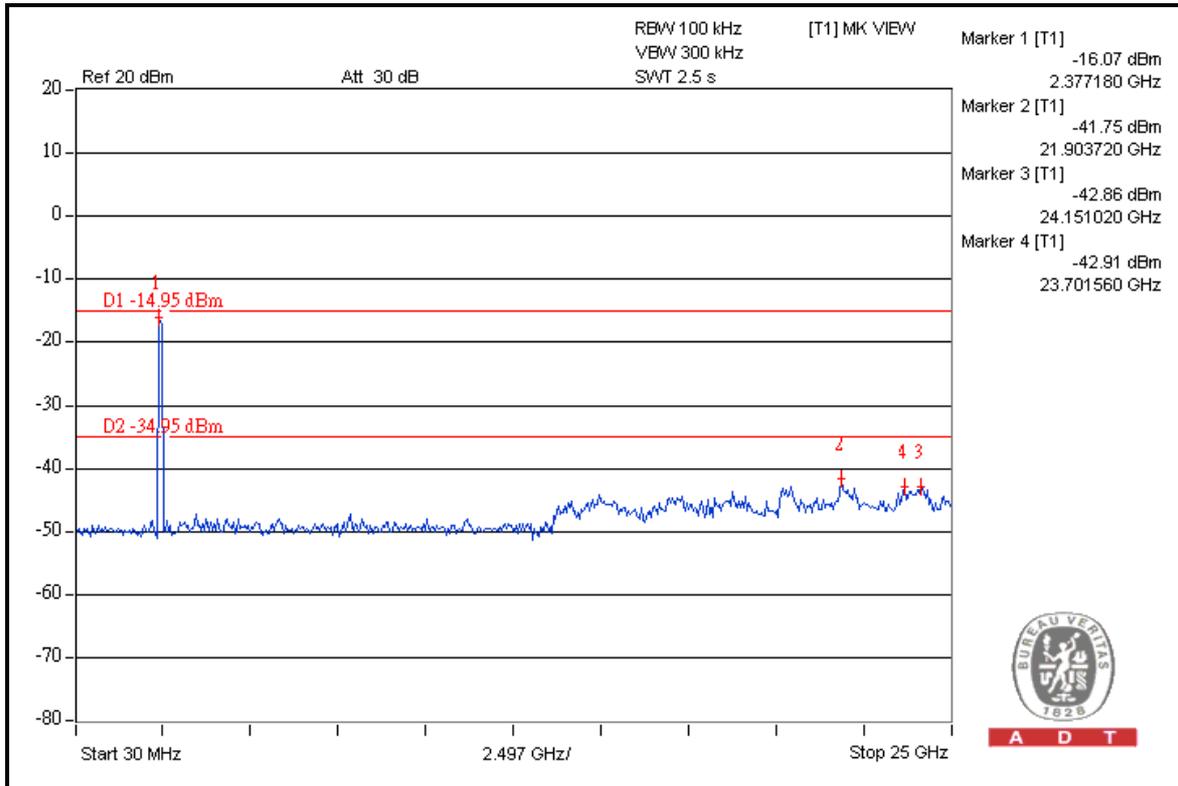


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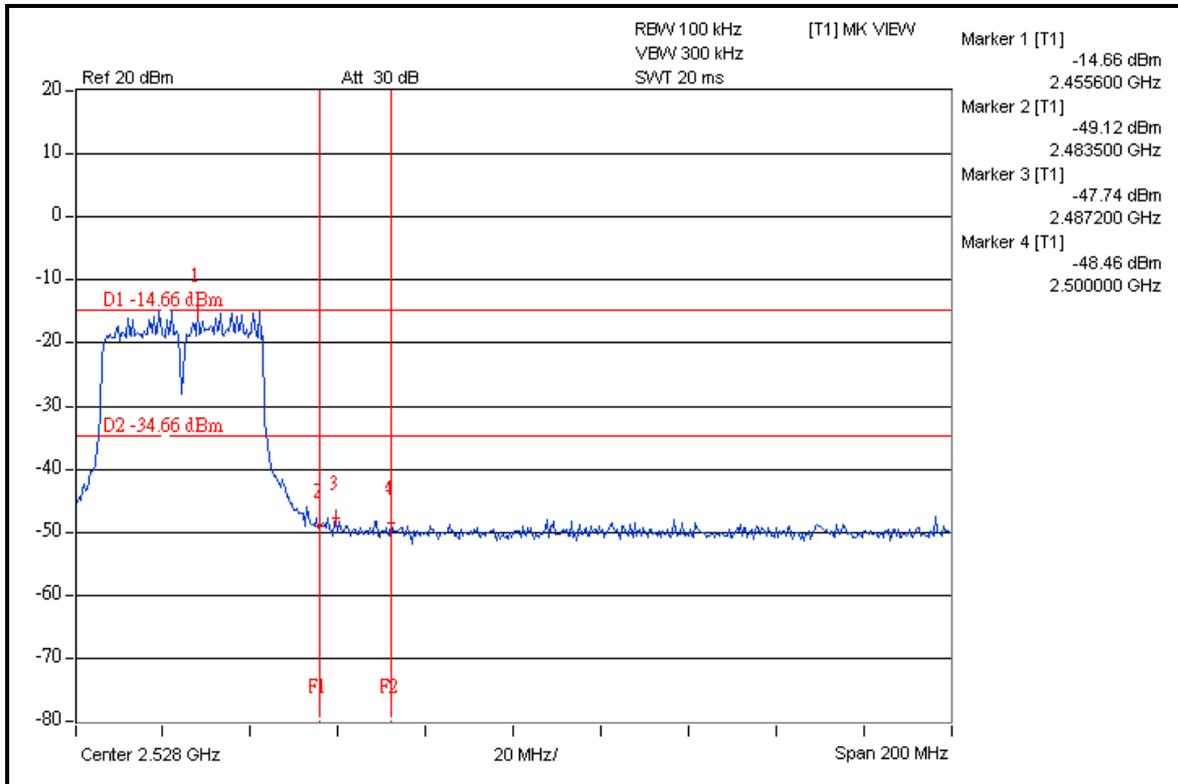




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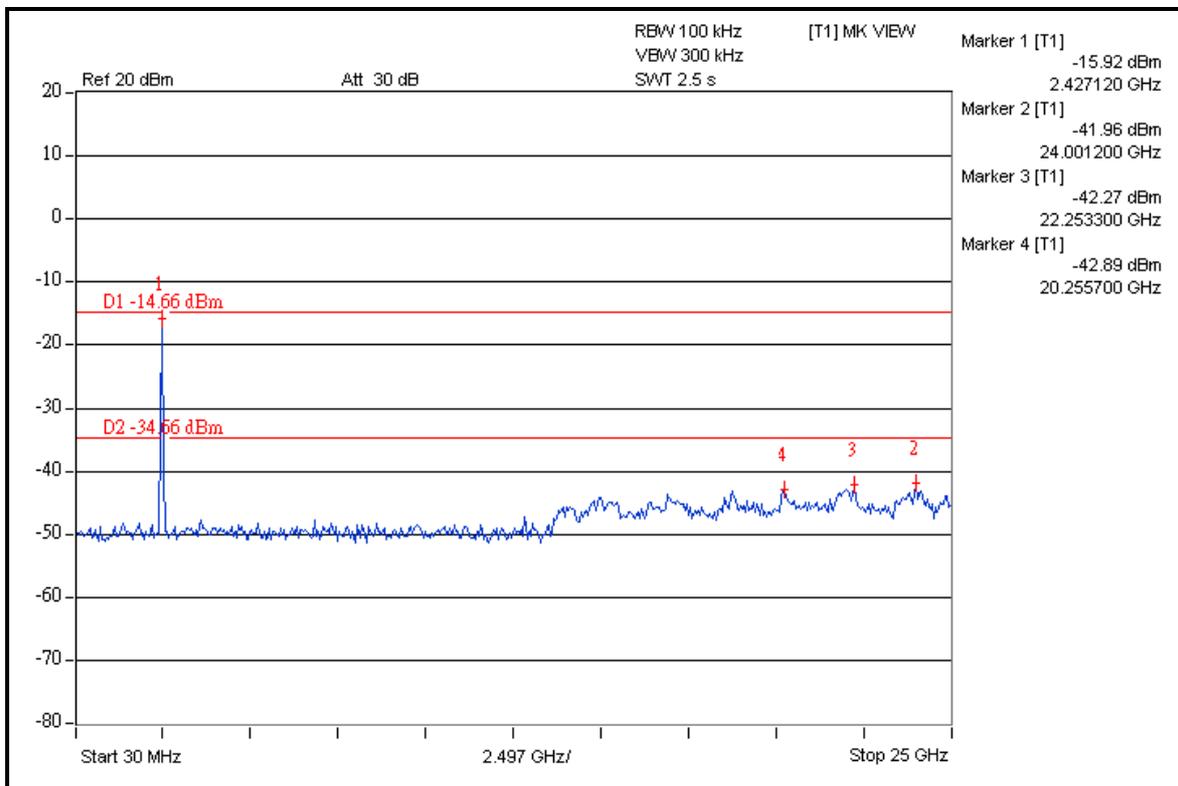
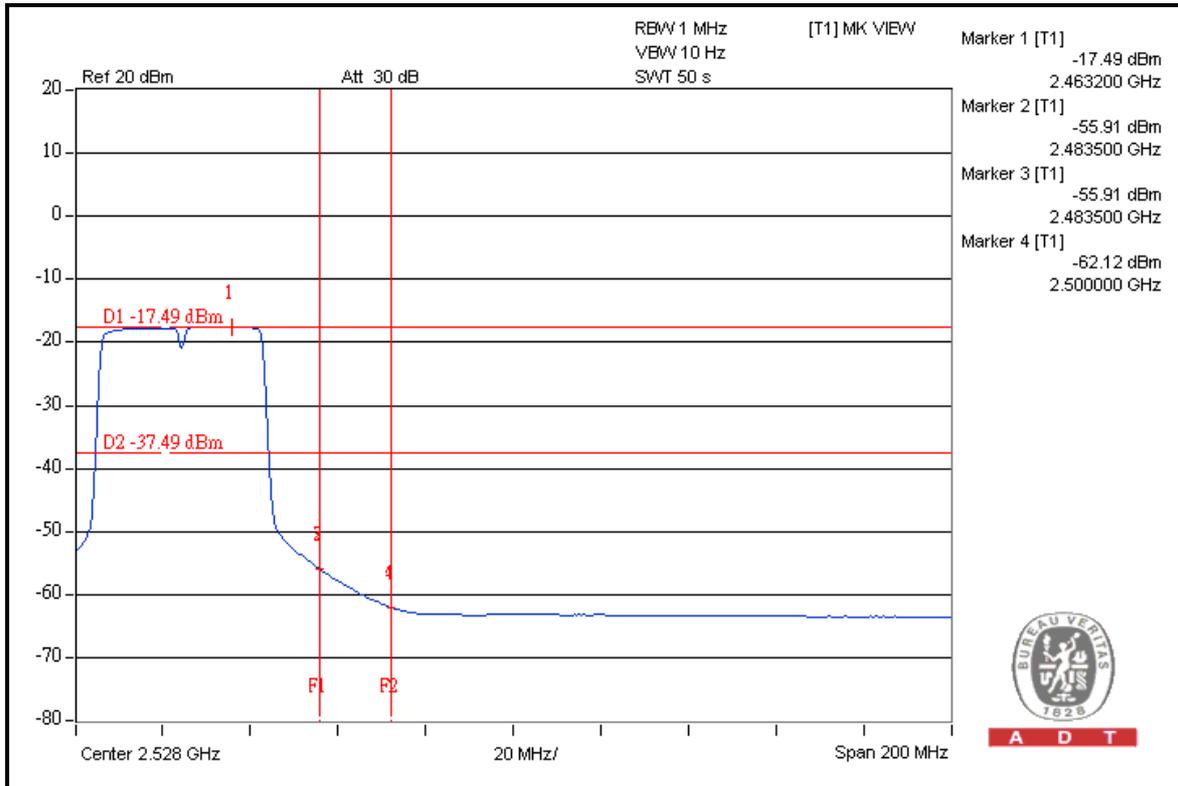


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## 5. PHOTOGRAPHS OF THE TEST CONFIGURATION

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



## 6. 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 certificates of our laboratories obtained from approval agencies can be downloaded from our web site: [www.adt.com.tw/index.5/phtml](http://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:**

Tel: 886-2-26052180

Fax: 886-2-26051924

**Hsin Chu EMC/RF Lab:**

Tel: 886-3-5935343

Fax: 886-3-5935342

**Hwa Ya EMC/RF/Safety / Telecom Lab:**

Tel: 886-3-3183232

Fax: 886-3-3185050

**Web Site:** [www.adt.com.tw](http://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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## **7. APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB**

No any modifications are made to the EUT by the lab during the test.

**---END---**