



# FCC TEST REPORT

**REPORT NO.:** RF970103L06

**MODEL NO.:** WMP110 ver. 2

**RECEIVED:** Jan. 04, 2008

**TESTED:** Mar. 12 ~ Apr. 08, 2008

**ISSUED:** Apr. 10, 2008

**APPLICANT:** Cisco-Linksys LLC

**ADDRESS:** 121 Theory Drive Irvine, CA 92617 (USA)

**ISSUED BY:** Advance Data Technology Corporation

**LAB ADDRESS:** 47 14<sup>th</sup> Lin, Chiapau Tsun, Linko, Taipei, Taiwan, R.O.C.

**TEST LOCATION:** No. 19, Hwa Ya 2<sup>nd</sup> Rd., Kueishan, Taoyuan, Taiwan, R.O.C.

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## 1. CERTIFICATION

**PRODUCT:** RangePlus Wireless PCI adapter

**MODEL:** WMP110 ver. 2

**BRAND:** Linksys

**APPLICANT:** Cisco-Linksys LLC

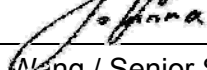
**TESTED:** Mar. 12 ~ Apr. 08, 2008

**TEST SAMPLE:** ENGINEERING SAMPLE

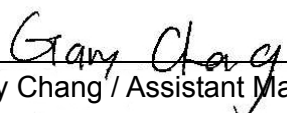
**STANDARDS:** **FCC Part 15, Subpart C (Section 15.247)**

ANSI C63.4-2003

The above equipment (model: WMP110 ver. 2) has been tested by **Advance Data Technology Corporation**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

**PREPARED BY** :  , **DATE:** Apr. 10, 2008  
Joanna Wang / Senior Specialist

**TECHNICAL ACCEPTANCE** :  , **DATE:** Apr. 10, 2008  
Responsible for RF Long Chen / Senior Engineer

**APPROVED BY** :  , **DATE:** Apr. 10, 2008  
Gary Chang / Assistant Manager

## 2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 15, Subpart C			
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	REMARK
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -19.78dB at 20.121MHz.
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)	Transmitter Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit. Minimum passing margin is -1.17dB at 2483.500MHz.
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.

### 2.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	9kHz ~ 30MHz	2.44 dB
Radiated emissions	30MHz ~ 200MHz	3.19 dB
	200MHz ~1000MHz	3.21 dB
	1GHz ~ 18GHz	2.26 dB
	18GHz ~ 40GHz	1.94 dB

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

### 3. GENERAL INFORMATION

#### 3.1 GENERAL DESCRIPTION OF EUT

<b>PRODUCT</b>	RangePlus Wireless PCI adapter
<b>MODEL NO.</b>	WMP110 ver. 2
<b>FCC ID</b>	Q87-WMP110V2
<b>POWER SUPPLY</b>	3.3Vdc from host equipment
<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/ 5.5/ 2/ 1Mbps 802.11g: 54/ 48/ 36/ 24/ 18/ 12/ 9/ 6Mbps Draft 802.11n: up to 300Mbps
<b>FREQUENCY RANGE</b>	2412MHz ~ 2462MHz
<b>NUMBER OF CHANNEL</b>	11 for 802.11b, 802.11g, Draft 802.11n (20MHz) 7 for Draft 802.11n (40MHz)
<b>MAXIMUM OUTPUT POWER</b>	57.148mW
<b>ANTENNA TYPE</b>	Dipole antenna with 1.8dBi gain
<b>DATA CABLE</b>	NA
<b>I/O PORTS</b>	NA
<b>ACCESSORY DEVICES</b>	NA

**NOTE:**

1. The EUT incorporates a MIMO function. Physically, the EUT provides one completed transmitter and two receivers.

MODULATION MODE	TX FUNCTION
802.11b	1TX
802.11g	1TX
Draft 802.11n (20MHz)	1TX
Draft 802.11n (40MHz)	1TX

2. 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

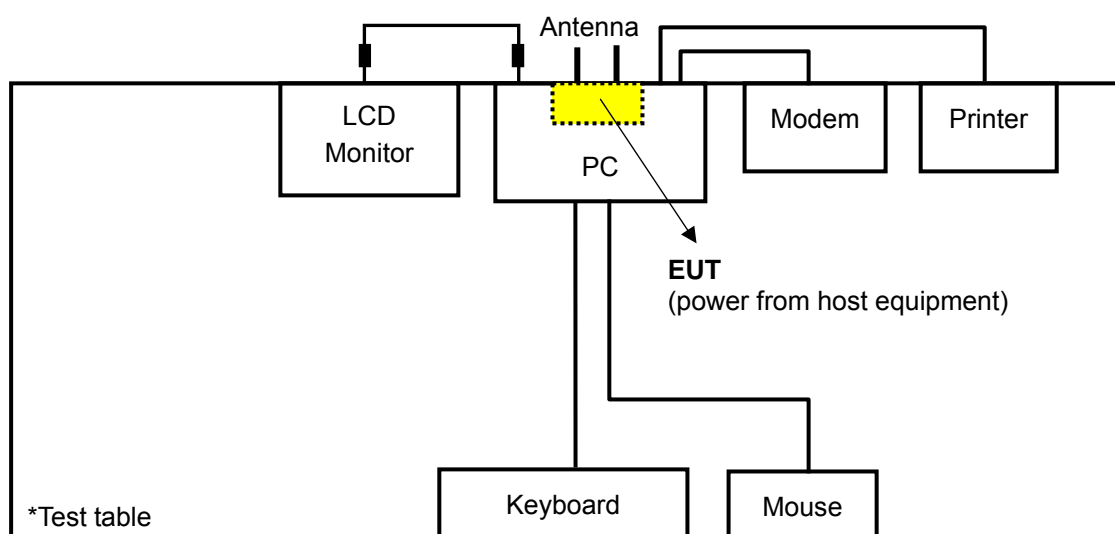
Eleven channels are provided for 802.11b, 802.11g and draft 802.11n (20MHz):

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		

Seven channels are provided for draft 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



### 3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

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

Where **RE ≥ 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 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 11	1, 6, 11	DSSS	DBPSK	1.0
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
Draft 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
Draft 802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	13.5

#### 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)
802.11b	1 to 11	1	DSSS	DBPSK	1.0





**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)
802.11b	1 to 11	1	DSSS	DBPSK	1.0

**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.

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

**ANTENNA PORT CONDUCTED MEASUREMENT:**

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

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



### 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 EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It 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	PC	MSI	Hetis 865G Giga	3AS0119585	FCC DoC Approved
2	LCD MONITOR	COMPAQ	FP 5315	CNN3480KNT	FCC DoC Approved
3	PRINTER	EPSON	LQ-300+	DCGY054146	FCC DoC Approved
4	MODEM	ACEEX	1414V/3	0401008260	IFAXDM1414
5	KEYBOARD	BTC	5200U	G09302046499	E5XKB5122U
6	MOUSE	DELL	MO56UO	513021801	FCC DoC Approved

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA
2	1.4m braid shielded wire, VGA connector, with two cores.
3	1.8m braid shielded wire, DB25 connector, w/o core.
4	1.2m braid shielded wire, DB25 & DB9 connector, w/o core.
5	1.5m foil shielded wire, USB Connector, w/o core.
6	1.8m foil shielded wire, USB Connector, w/o core.

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

## 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 UNTIL
Test Receiver ROHDE & SCHWARZ	ESI7	838496/016	Dec. 25, 2008
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Dec. 02, 2008
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Jan. 03, 2009
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-405	Dec. 17, 2008
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170242	Jan. 06, 2009
Preamplifier Agilent	8449B	3008A01910	Sep. 19, 2008
Preamplifier Agilent	8447D	2944A10634	Dec. 12, 2008
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	274397/4	Nov. 07, 2008
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	283401/4	Nov. 07, 2008
Software ADT.	ADT_Radiated_V7.6	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA
Antenna Tower Controller inn-co GmbH	CO2000	019303	NA
Turn Table ADT.	TT100.	TT93021704	NA
Turn Table Controller ADT.	SC100.	SC93021704	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 HwaYa Chamber 4.
  3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
  4. The FC Site Registration No. is 460141.
  5. The IC Site Registration No. is IC3789B-4.

#### 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 antenna is a broadband antenna, and its height 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.

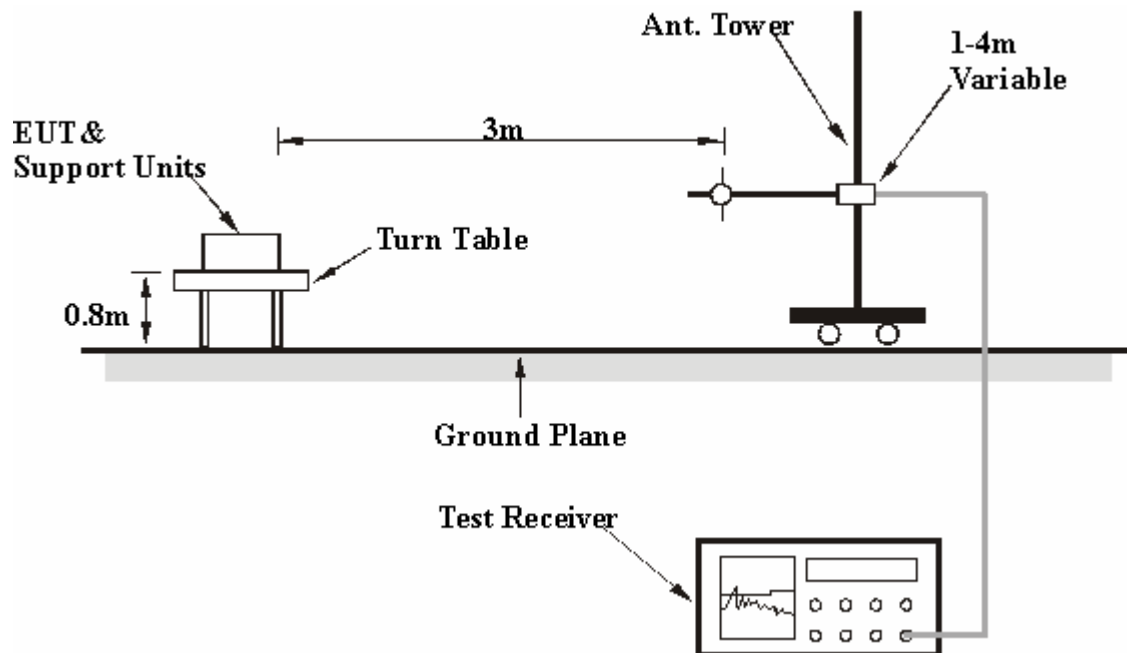
**NOTE:**

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz 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. Plugged EUT into the PC system and placed on the testing table.
- b. The PC system ran a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
- c. The necessary accessories enable the EUT in full functions.



## 4.1.7 TEST RESULTS

### 802.11b DSSS MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1010hPa	TESTED BY	Brad Wu

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	56.93 PK	74.00	-17.07	1.23 H	148	25.56	31.37
2	2386.00	46.73 AV	54.00	-7.27	1.23 H	148	15.36	31.37
3	*2412.00	105.26 PK			1.23 H	148	73.80	31.46
4	*2412.00	100.88 AV			1.23 H	148	69.42	31.46
5	4824.00	49.41 PK	74.00	-24.59	1.20 H	225	11.75	37.66
6	4824.00	41.15 AV	54.00	-12.85	1.20 H	225	3.49	37.66
7	#6432.00	56.94 PK	85.26	-28.32	1.30 H	210	15.54	41.40
8	#6432.00	52.78 AV	80.88	-28.10	1.30 H	210	11.38	41.40
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2386.00	59.62 PK	74.00	-14.38	1.69 V	125	28.25	31.37
2	2386.00	48.77 AV	54.00	-5.23	1.69 V	125	17.40	31.37
3	*2412.00	109.87 PK			1.69 V	125	78.41	31.46
4	*2412.00	105.66 AV			1.69 V	125	74.20	31.46
5	4824.00	52.26 PK	74.00	-21.74	1.00 V	209	14.60	37.66
6	4824.00	47.80 AV	54.00	-6.20	1.00 V	209	10.14	37.66
7	#6432.00	60.72 PK	89.87	-29.15	1.08 V	214	19.32	41.40
8	#6432.00	58.12 AV	85.66	-27.54	1.08 V	214	16.72	41.40

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
  2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
  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 falling in the nonrestrictive band.



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1010hPa	TESTED BY	Brad Wu

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	105.39 PK			1.24 H	146	73.84	31.55
2	*2437.00	101.06 AV			1.24 H	146	69.51	31.55
3	4874.00	49.56 PK	74.00	-24.44	1.18 H	219	11.77	37.79
4	4874.00	41.28 AV	54.00	-12.72	1.18 H	219	3.49	37.79
5	#6498.00	56.60 PK	85.39	-28.79	1.00 H	216	14.90	41.70
6	#6498.00	52.82 AV	81.06	-28.24	1.00 H	216	11.12	41.70
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	109.98 PK			1.63 V	127	78.43	31.55
2	*2437.00	105.59 AV			1.63 V	127	74.04	31.55
3	4874.00	52.23 PK	74.00	-21.77	1.01 V	228	14.44	37.79
4	4874.00	47.69 AV	54.00	-6.31	1.01 V	228	9.90	37.79
5	#6498.00	61.09 PK	89.98	-28.89	1.00 V	219	19.39	41.70
6	#6498.00	58.76 AV	85.59	-26.83	1.00 V	219	17.06	41.70

- 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.
  5. “\*”: Fundamental frequency.
  6. “#”The radiated frequency falling in the nonrestrictive band.





EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1010hPa	TESTED BY	Brad Wu

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	104.15 PK			1.24 H	150	72.51	31.64
2	*2462.00	99.72 AV			1.24 H	150	68.08	31.64
3	2487.00	59.86 PK	74.00	-14.14	1.24 H	150	28.14	31.72
4	2487.00	49.65 AV	54.00	-4.35	1.24 H	150	17.93	31.72
5	4924.00	49.56 PK	74.00	-24.44	1.16 H	219	11.64	37.92
6	4924.00	41.38 AV	54.00	-12.62	1.16 H	219	3.46	37.92
7	#6565.00	56.81 PK	84.15	-27.34	1.26 H	208	14.89	41.92
8	#6565.00	52.64 AV	79.72	-27.08	1.26 H	208	10.72	41.92

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	108.76 PK			1.32 V	149	77.12	31.64
2	*2462.00	104.43 AV			1.32 V	149	72.79	31.64
3	2487.00	62.87 PK	74.00	-11.13	1.33 V	134	31.15	31.72
4	2487.00	52.62 AV	54.00	-1.38	1.33 V	134	20.90	31.72
5	4924.00	53.37 PK	74.00	-20.63	1.02 V	219	15.45	37.92
6	4924.00	48.60 AV	54.00	-5.40	1.02 V	219	10.68	37.92
7	#6565.00	60.62 PK	88.76	-28.14	1.12 V	231	18.70	41.92
8	#6565.00	58.04 AV	84.43	-26.39	1.12 V	231	16.12	41.92

- 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 falling in the nonrestrictive band.



### 802.11g OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1010hPa	TESTED BY	Brad Wu

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	66.53 PK	74.00	-7.47	1.25 H	116	35.14	31.38
2	2390.00	47.94 AV	54.00	-6.06	1.25 H	116	16.56	31.38
3	*2412.00	105.24 PK			1.25 H	116	73.78	31.46
4	*2412.00	95.10 AV			1.25 H	116	63.64	31.46
5	4824.00	50.35 PK	74.00	-23.65	1.04 H	62	12.69	37.66
6	4824.00	35.24 AV	54.00	-18.76	1.04 H	62	-2.42	37.66
7	#6432.00	56.81 PK	85.24	-28.43	1.10 H	168	15.41	41.40
8	#6432.00	52.64 AV	75.10	-22.46	1.10 H	168	11.24	41.40
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	70.67 PK	74.00	-3.33	1.06 V	155	39.29	31.38
2	2390.00	52.19 AV	54.00	-1.81	1.06 V	155	20.80	31.38
3	*2412.00	110.91 PK			1.06 V	155	79.45	31.46
4	*2412.00	100.90 AV			1.06 V	155	69.44	31.46
5	4824.00	51.64 PK	74.00	-22.36	1.00 V	25	13.98	37.66
6	4824.00	36.59 AV	54.00	-17.41	1.00 V	25	-1.07	37.66
7	#6432.00	60.46 PK	90.91	-30.45	1.08 V	213	19.06	41.40
8	#6432.00	57.98 AV	80.90	-22.92	1.08 V	213	16.58	41.40

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
  2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
  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 falling in the nonrestrictive band.



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1010hPa	TESTED BY	Brad Wu

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	105.03 PK			1.23 H	118	73.48	31.55
2	*2437.00	94.86 AV			1.23 H	118	63.31	31.55
3	4874.00	50.49 PK	74.00	-23.51	1.09 H	58	12.70	37.79
4	4874.00	35.36 AV	54.00	-18.64	1.09 H	58	-2.43	37.79
5	#6498.00	56.72 PK	85.03	-28.31	1.03 H	115	15.02	41.70
6	#6498.00	52.51 AV	74.86	-22.35	1.03 H	115	10.81	41.70
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	110.79 PK			1.08 V	150	79.24	31.55
2	*2437.00	100.68 AV			1.08 V	150	69.13	31.55
3	4874.00	52.06 PK	74.00	-21.94	1.04 V	213	14.27	37.79
4	4874.00	36.94 AV	54.00	-17.06	1.04 V	213	-0.85	37.79
5	#6498.00	60.24 PK	90.79	-30.55	1.06 V	225	18.54	41.70
6	#6498.00	58.02 AV	80.68	-22.66	1.06 V	225	16.32	41.70

- 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.
  5. “\*“: Fundamental frequency.
  6. “#”The radiated frequency falling in the nonrestrictive band.



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1010hPa	TESTED BY	Brad Wu

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	104.92 PK			1.22 H	121	73.28	31.64
2	*2462.00	94.71 AV			1.22 H	121	63.07	31.64
3	2483.50	67.62 PK	74.00	-6.38	1.22 H	121	35.91	31.71
4	2483.50	49.67 AV	54.00	-4.33	1.22 H	121	17.96	31.71
5	4924.00	50.46 PK	74.00	-23.54	1.08 H	54	12.54	37.92
6	4924.00	35.39 AV	54.00	-18.61	1.08 H	54	-2.53	37.92
7	#6565.00	56.64 PK	84.92	-28.28	1.08 H	171	14.72	41.92
8	#6565.00	52.41 AV	74.71	-22.30	1.08 H	171	10.49	41.92

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	110.75 PK			1.08 V	145	79.11	31.64
2	*2462.00	100.59 AV			1.08 V	145	68.95	31.64
3	2483.50	72.71 PK	74.00	-1.29	1.08 V	145	41.00	31.71
4	2483.50	52.83 AV	54.00	-1.17	1.08 V	145	21.12	31.71
5	4924.00	52.26 PK	74.00	-21.74	1.08 V	215	14.34	37.92
6	4924.00	37.15 AV	54.00	-16.85	1.08 V	215	-0.77	37.92
7	#6565.00	60.36 PK	90.75	-30.39	1.09 V	189	18.44	41.92
8	#6565.00	58.24 AV	80.59	-22.35	1.09 V	189	16.32	41.92

- 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 falling in the nonrestrictive band.



**DRAFT 802.11n (20MHz) OFDM MODULATION**

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1010hPa	TESTED BY	Brad Wu

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	66.21 PK	74.00	-7.79	1.24 H	118	34.82	31.38
2	2390.00	47.61 AV	54.00	-6.39	1.24 H	118	16.23	31.38
3	*2412.00	105.11 PK			1.24 H	118	73.65	31.46
4	*2412.00	94.95 AV			1.24 H	118	63.49	31.46
5	4824.00	50.66 PK	74.00	-23.34	1.05 H	81	13.00	37.66
6	4824.00	35.58 AV	54.00	-18.42	1.05 H	81	-2.08	37.66
7	#6432.00	56.62 PK	85.11	-28.49	1.09 H	152	15.22	41.40
8	#6432.00	52.39 AV	74.95	-22.56	1.09 H	152	10.99	41.40
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	72.81 PK	74.00	-1.19	1.06 V	157	41.43	31.38
2	2390.00	52.48 AV	54.00	-1.52	1.06 V	157	21.10	31.38
3	*2412.00	110.30 PK			1.06 V	157	78.84	31.46
4	*2412.00	100.24 AV			1.06 V	157	68.78	31.46
5	4824.00	51.52 PK	74.00	-22.48	1.02 V	36	13.86	37.66
6	4824.00	36.43 AV	54.00	-17.57	1.02 V	36	-1.23	37.66
7	#6432.00	60.58 PK	90.30	-29.72	1.13 V	209	19.18	41.40
8	#6432.00	58.11 AV	80.24	-22.13	1.13 V	209	16.71	41.40

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
  2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
  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 falling in the nonrestrictive band.



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1010hPa	TESTED BY	Brad Wu

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	105.16 PK			1.21 H	123	73.61	31.55
2	*2437.00	94.95 AV			1.21 H	123	63.40	31.55
3	4874.00	50.31 PK	74.00	-23.69	1.17 H	53	12.52	37.79
4	4874.00	35.29 AV	54.00	-18.71	1.17 H	53	-2.50	37.79
5	#6498.00	56.61 PK	85.16	-28.55	1.05 H	124	14.91	41.70
6	#6498.00	52.38 AV	74.95	-22.57	1.05 H	124	10.68	41.70
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	110.90 PK			1.06 V	152	79.35	31.55
2	*2437.00	100.69 AV			1.06 V	152	69.14	31.55
3	4874.00	52.19 PK	74.00	-21.81	1.01 V	29	14.40	37.79
4	4874.00	37.08 AV	54.00	-16.92	1.01 V	29	-0.71	37.79
5	#6498.00	60.35 PK	90.90	-30.55	1.11 V	53	18.65	41.70
6	#6498.00	58.16 AV	80.69	-22.53	1.11 V	53	16.46	41.70

- 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.
  5. “\* “: Fundamental frequency.
  6. “#”The radiated frequency falling in the nonrestrictive band.



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1010hPa	TESTED BY	Brad Wu

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	104.31 PK			1.20 H	119	72.67	31.64
2	*2462.00	94.09 AV			1.20 H	119	62.45	31.64
3	2483.50	67.52 PK	74.00	-6.48	1.20 H	119	35.81	31.71
4	2483.50	49.58 AV	54.00	-4.42	1.20 H	119	17.87	31.71
5	4924.00	50.38 PK	74.00	-23.62	1.10 H	134	12.46	37.92
6	4924.00	35.31 AV	54.00	-18.69	1.10 H	134	-2.61	37.92
7	#6565.00	56.31 PK	84.31	-28.00	1.18 H	223	14.39	41.92
8	#6565.00	52.09 AV	74.09	-22.00	1.18 H	223	10.17	41.92

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	110.18 PK			1.09 V	146	78.54	31.64
2	*2462.00	100.05 AV			1.09 V	146	68.41	31.64
3	2483.50	69.83 PK	74.00	-4.17	1.09 V	146	38.12	31.71
4	2483.50	52.31 AV	54.00	-1.69	1.09 V	146	20.60	31.71
5	4924.00	52.38 PK	74.00	-21.62	1.13 V	29	14.46	37.92
6	4924.00	37.29 AV	54.00	-16.71	1.13 V	29	-0.63	37.92
7	#6565.00	60.25 PK	90.18	-29.93	1.17 V	256	18.33	41.92
8	#6565.00	58.14 AV	80.05	-21.91	1.17 V	256	16.22	41.92

- 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 falling in the nonrestrictive band.



**DRAFT 802.11n (40MHz) OFDM MODULATION**

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1010hPa	TESTED BY	Brad Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	57.94 PK	74.00	-16.06	1.25 H	122	26.55	31.38
2	2390.00	46.88 AV	54.00	-7.12	1.25 H	122	15.50	31.38
3	*2422.00	98.74 PK			1.25 H	122	67.24	31.50
4	*2422.00	88.03 AV			1.25 H	122	56.53	31.50
5	4844.00	51.64 PK	74.00	-22.36	1.00 H	360	13.93	37.71
6	4844.00	36.52 AV	54.00	-17.48	1.00 H	360	-1.19	37.71
7	#6458.80	59.46 PK	78.74	-19.28	1.01 H	210	17.94	41.52
8	#6458.80	55.72 AV	68.03	-12.31	1.01 H	210	14.20	41.52
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	66.48 PK	74.00	-7.52	1.08 V	160	35.10	31.38
2	2390.00	52.52 AV	54.00	-1.48	1.08 V	160	21.13	31.38
3	*2422.00	105.70 PK			1.27 V	158	74.20	31.50
4	*2422.00	95.17 AV			1.27 V	158	63.67	31.50
5	4844.00	48.65 PK	74.00	-25.35	1.08 V	175	10.94	37.71
6	4844.00	35.24 AV	54.00	-18.76	1.08 V	175	-2.47	37.71
7	#6458.00	62.86 PK	85.70	-22.84	1.15 V	217	21.34	41.52
8	#6458.00	60.72 AV	75.17	-14.45	1.15 V	217	19.20	41.52

- 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 falling in the nonrestrictive band.





EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 4	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1010hPa	TESTED BY	Brad Wu

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	60.02 PK	74.00	-13.98	1.23 H	120	28.64	31.38
2	2390.00	46.22 AV	54.00	-7.78	1.23 H	120	14.84	31.38
3	*2437.00	101.33 PK			1.25 H	123	69.78	31.55
4	*2437.00	90.70 AV			1.25 H	123	59.15	31.55
5	4874.00	52.04 PK	74.00	-21.96	1.12 H	230	14.25	37.79
6	4874.00	36.36 AV	54.00	-17.64	1.12 H	230	-1.43	37.79
7	#6498.60	60.04 PK	81.33	-21.29	1.20 H	209	18.34	41.70
8	#6498.60	54.17 AV	70.70	-16.53	1.20 H	209	12.47	41.70

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.66 PK	74.00	-8.34	1.10 V	147	34.28	31.38
2	2390.00	51.23 AV	54.00	-2.77	1.10 V	147	19.85	31.38
3	*2437.00	108.62 PK			1.06 V	147	77.07	31.55
4	*2437.00	97.84 AV			1.06 V	147	66.29	31.55
5	2483.50	65.94 PK	74.00	-8.06	1.10 V	148	34.23	31.71
6	2483.50	49.95 AV	54.00	-4.05	1.10 V	148	18.24	31.71
7	4874.00	50.54 PK	74.00	-23.46	1.01 V	360	12.75	37.79
8	4874.00	36.17 AV	54.00	-17.83	1.01 V	360	-1.62	37.79
9	#6498.60	61.49 PK	88.62	-27.13	1.00 V	221	19.79	41.70
10	#6498.60	59.00 AV	77.84	-18.84	1.00 V	221	17.30	41.70

- 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.
  5. “ \* ”: Fundamental frequency.
  6. “#”The radiated frequency falling in the nonrestrictive band.



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 7	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1010hPa	TESTED BY	Brad Wu

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	100.61 PK			1.22 H	118	69.01	31.60
2	*2452.00	89.55 AV			1.22 H	118	57.95	31.60
3	2483.50	59.80 PK	74.00	-14.20	1.22 H	118	28.09	31.71
4	2483.50	47.78 AV	54.00	-6.22	1.22 H	118	16.07	31.71
5	4904.00	24.69 PK	74.00	-49.31	1.01 H	1	-13.18	37.87
6	4904.00	36.21 AV	54.00	-17.79	1.01 H	1	-1.66	37.87
7	#6538.60	57.86 PK	80.61	-22.75	1.01 H	221	16.02	41.83
8	#6538.60	54.90 AV	69.55	-14.65	1.01 H	221	13.06	41.83

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	*2452.00	106.08 PK			1.27 V	157	74.48	31.60
2	*2452.00	94.79 AV			1.27 V	157	63.19	31.60
3	2483.50	66.97 PK	74.00	-7.03	1.26 V	148	35.26	31.71
4	2483.50	52.33 AV	54.00	-1.67	1.26 V	148	20.62	31.71
5	4904.00	47.58 PK	74.00	-26.42	1.21 V	360	9.71	37.87
6	4904.00	35.69 AV	54.00	-18.31	1.21 V	360	-2.18	37.87
7	#6538.60	60.30 PK	86.08	-25.78	1.07 V	220	18.46	41.83
8	#6538.60	58.17 AV	74.79	-16.62	1.07 V	220	16.33	41.83

- 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 radiated frequency falling in the nonrestrictive band.



**BELOW 1GHz WORST-CASE DATA : 802.11b DSSS MODULATION**

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1010hPa	TESTED BY	Brad Wu

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	482.92	35.57 QP	46.00	-10.43	1.00 H	76	15.60	19.97
2	496.53	35.34 QP	46.00	-10.66	2.00 H	61	14.92	20.42
3	642.35	39.75 QP	46.00	-6.25	1.00 H	235	15.65	24.09
4	675.40	37.22 QP	46.00	-8.78	1.00 H	277	12.45	24.76
5	690.96	33.80 QP	46.00	-12.20	1.00 H	16	8.73	25.07
6	869.83	37.20 QP	46.00	-8.80	2.00 H	232	9.73	27.47

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	488.75	37.25 QP	46.00	-8.75	1.00 V	193	17.08	20.16
2	642.35	40.98 QP	46.00	-5.02	1.25 V	22	16.88	24.09
3	671.52	40.34 QP	46.00	-5.66	1.00 V	16	15.65	24.69
4	811.50	34.85 QP	46.00	-11.15	1.25 V	238	8.26	26.60
5	844.56	35.23 QP	46.00	-10.77	1.50 V	10	8.16	27.07
6	875.67	38.50 QP	46.00	-7.50	2.00 V	346	10.93	27.56
7	885.39	37.42 QP	46.00	-8.58	1.25 V	19	9.70	27.72
8	947.60	35.00 QP	46.00	-11.00	1.00 V	10	6.51	28.49

- 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 0.50 MHz.
  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 UNTIL
Test Receiver ROHDE & SCHWARZ	ESCS30	100288	Sep. 21, 2008
RF signal cable Woken	5D-FB	Cable-HYCO3-01	Jan. 06, 2009
LISN ROHDE & SCHWARZ	ESH2-Z5	100100	Jan. 09, 2009
LISN SCHWARZBECK	NNBL 8226-2	8226-142	May. 07, 2008
Software ADT	ADT_Cond_V3	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 HwaYa Shielded Room 2.
  3. The VCCI Site Registration No. is C-2047.

#### 4.2.3 TEST PROCEDURES

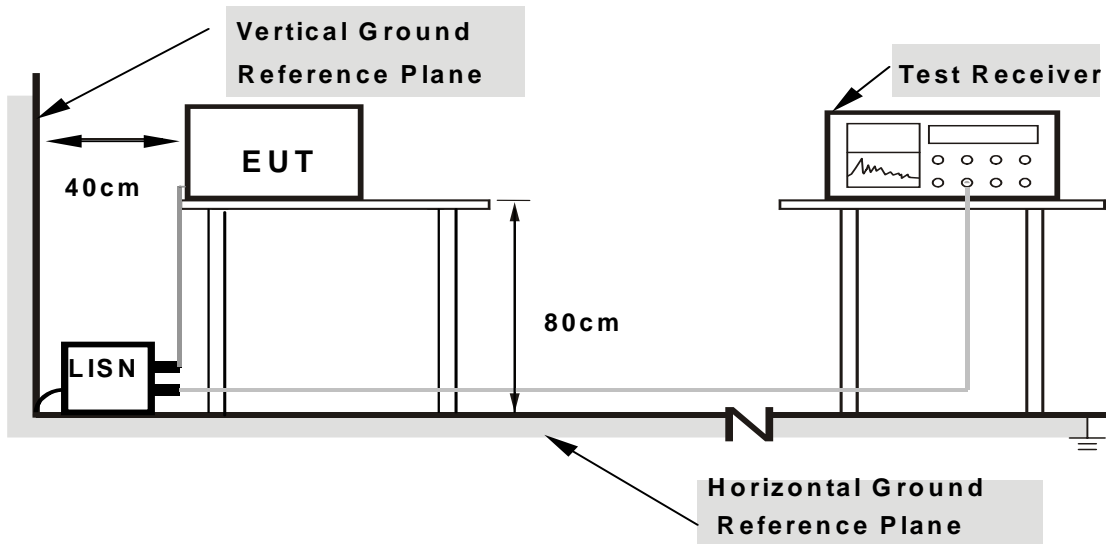
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling 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 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.

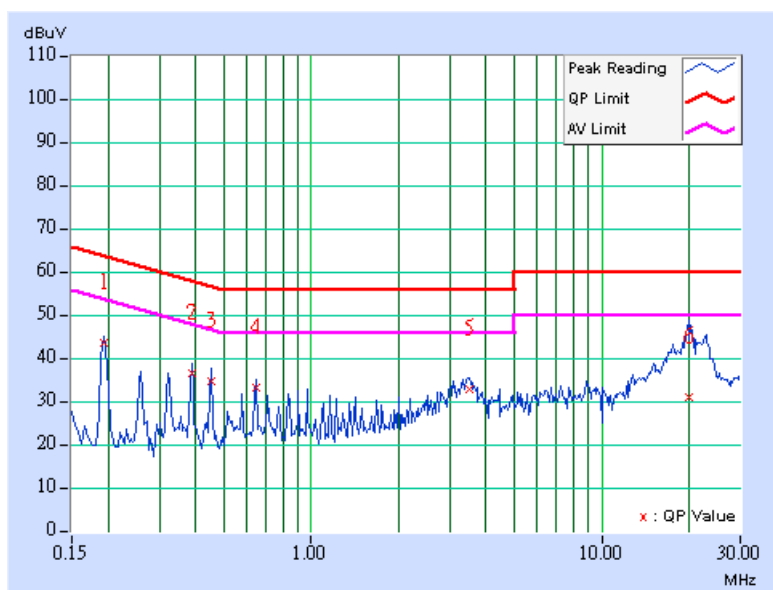
## 4.2.7 TEST RESULTS

### CONDUCTED WORST-CASE DATA 802.11b DSSS MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	PHASE	Line 1
ENVIRONMENTAL CONDITIONS	25deg. C, 65% RH, 1010hPa	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Lori Chiu

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	0.193	0.10	43.15	-	43.25	-	63.91	53.91	-20.66	-
2	0.388	0.10	36.24	-	36.34	-	58.10	48.10	-21.76	-
3	0.451	0.10	34.29	-	34.39	-	56.86	46.86	-22.47	-
4	0.646	0.10	32.89	-	32.99	-	56.00	46.00	-23.01	-
5	3.488	0.26	32.48	-	32.74	-	56.00	46.00	-23.26	-
6	19.871	0.57	30.68	-	31.25	-	60.00	50.00	-28.75	-

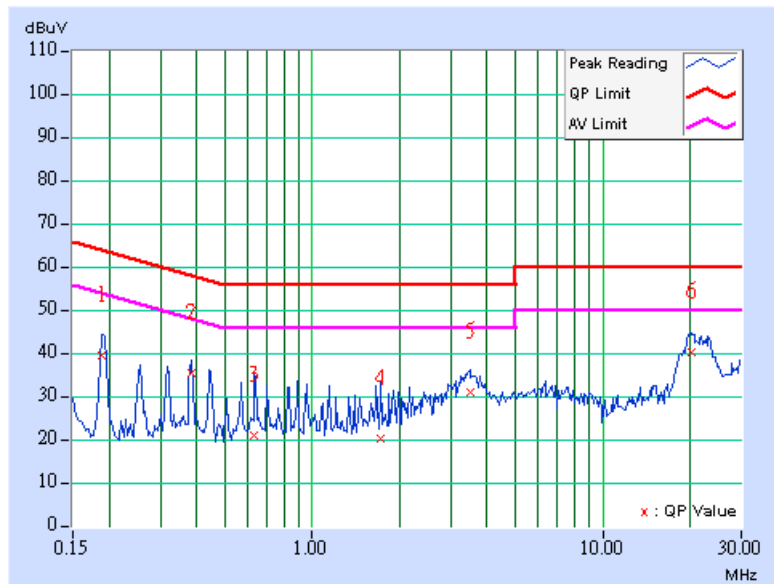
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
  2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
  3. The emission levels of other frequencies were very low against the limit.
  4. Margin value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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	PHASE	Line 2
ENVIRONMENTAL CONDITIONS	25deg. C, 65% RH, 1010hPa	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Lori Chiu

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	0.189	0.10	39.03	-	39.13	-	64.08
2	0.384	0.10	34.94	-	35.04	-	58.18	48.18	-23.14	-
3	0.634	0.14	20.43	-	20.57	-	56.00	46.00	-35.43	-
4	1.719	0.22	19.68	-	19.90	-	56.00	46.00	-36.10	-
5	3.500	0.27	30.64	-	30.91	-	56.00	46.00	-25.09	-
6	20.121	0.57	39.65	-	40.22	-	60.00	50.00	-19.78	-

- 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.	CALIBRATED UNTIL
SPECTRUM ANALYZER	FSP40	100040	Jun. 28, 2008

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

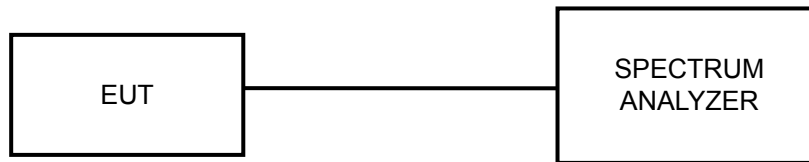
#### 4.3.3 TEST PROCEDURE

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.

#### 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.

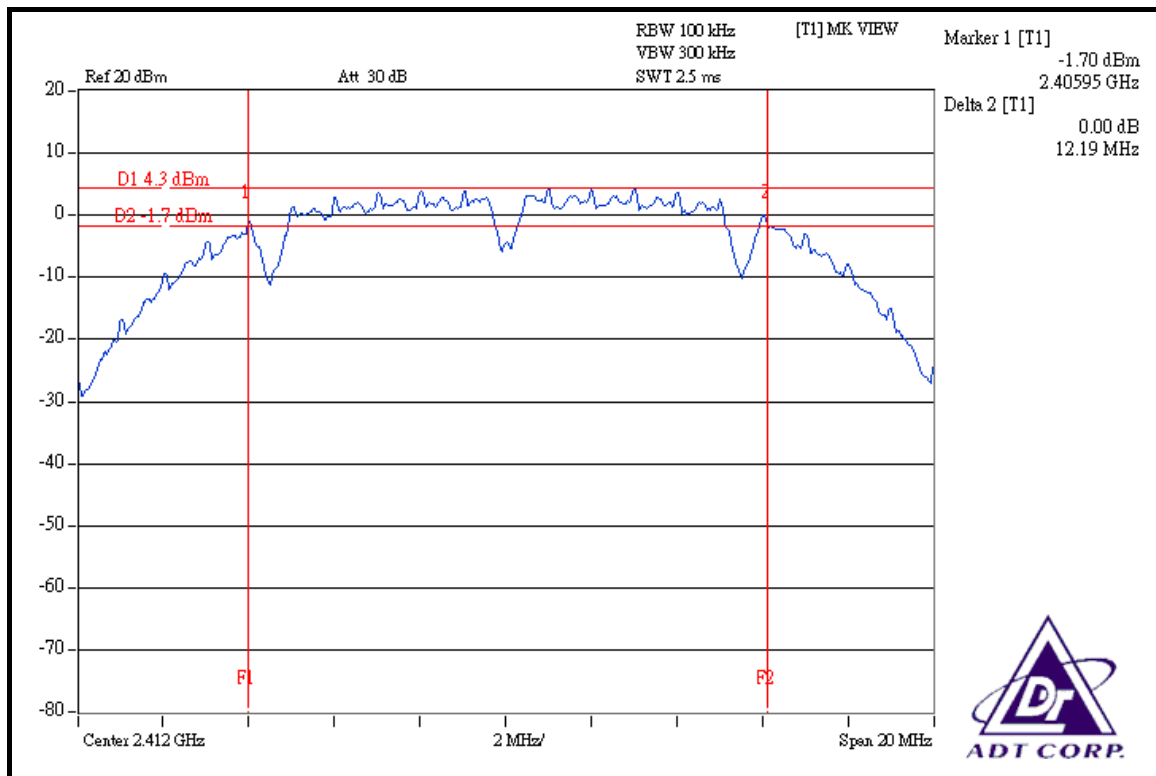
### 4.3.7 TEST RESULTS

#### 802.11b DSSS MODULATION

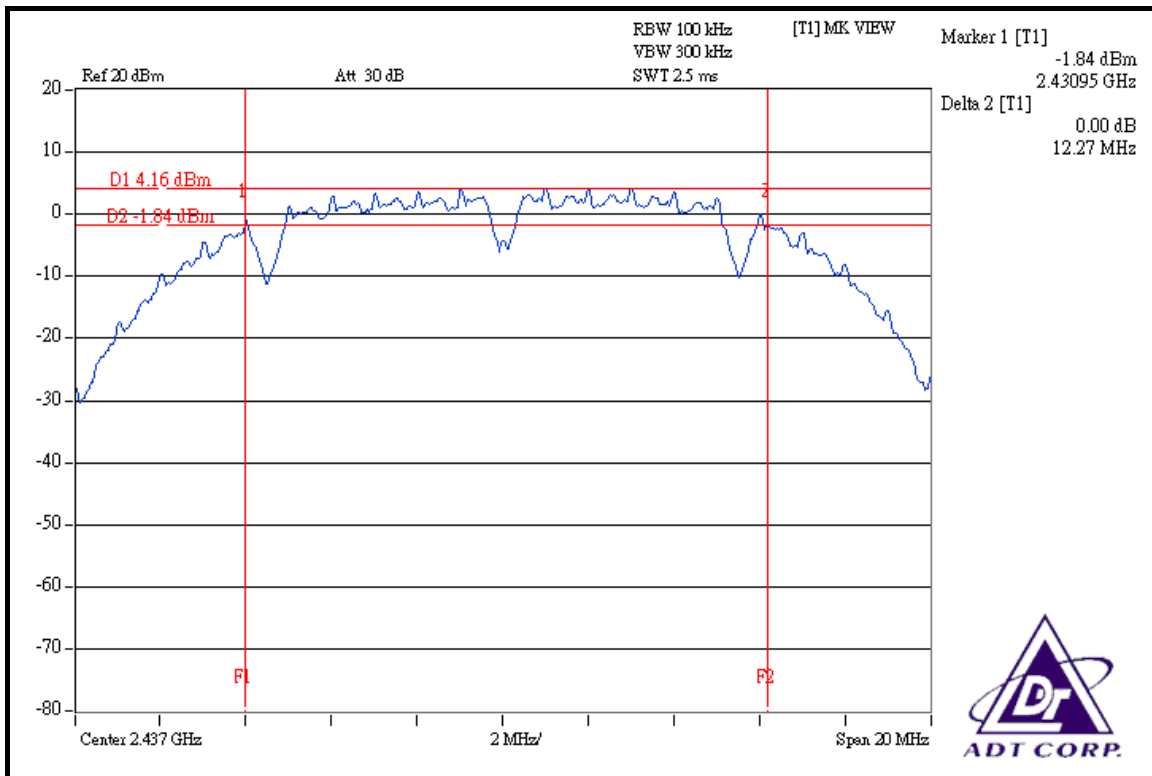
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>ENVIRONMENTAL CONDITIONS</b>	25deg.C, 65% RH, 991hPa
<b>TESTED BY</b>	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	12.19	0.5	PASS
6	2437	12.27	0.5	PASS
11	2462	12.15	0.5	PASS

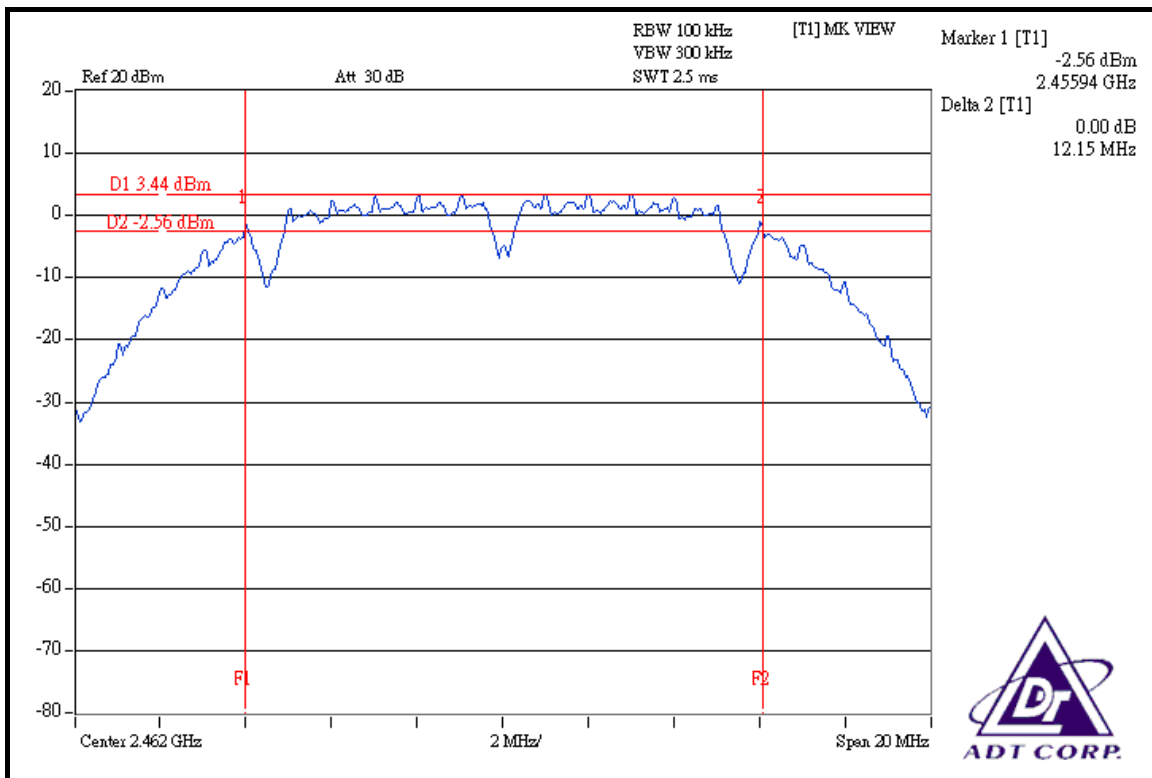
#### CH 1



### CH 6



### CH 11



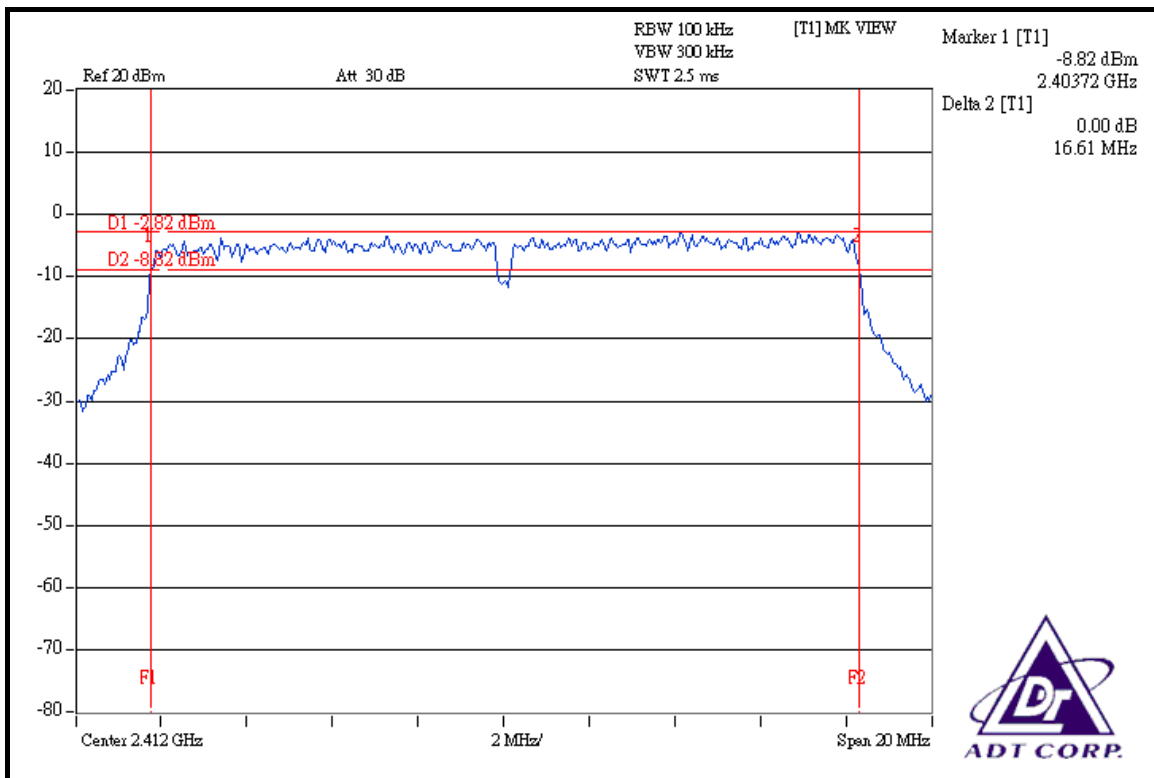


### 802.11g OFDM MODULATION

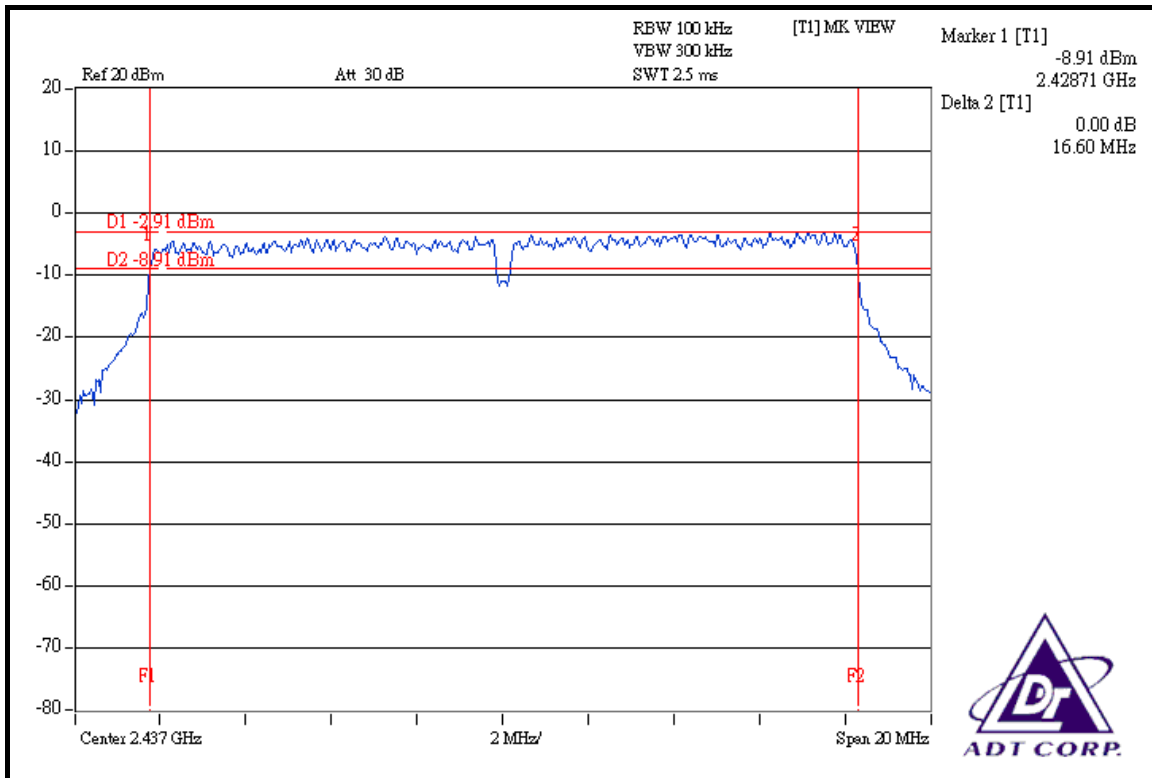
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>ENVIRONMENTAL CONDITIONS</b>	25deg.C, 65% RH, 991hPa
<b>TESTED BY</b>	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.61	0.5	PASS
6	2437	16.60	0.5	PASS
11	2462	16.61	0.5	PASS

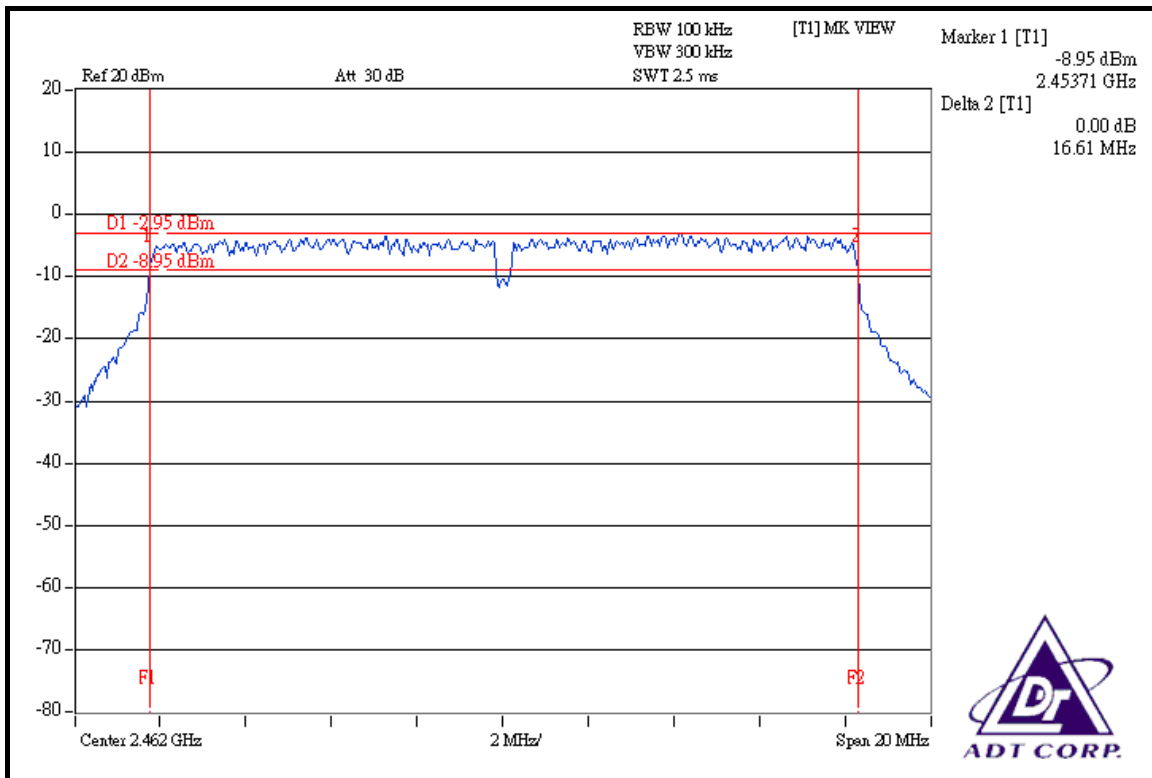
### CH 1



### CH 6



### CH 11



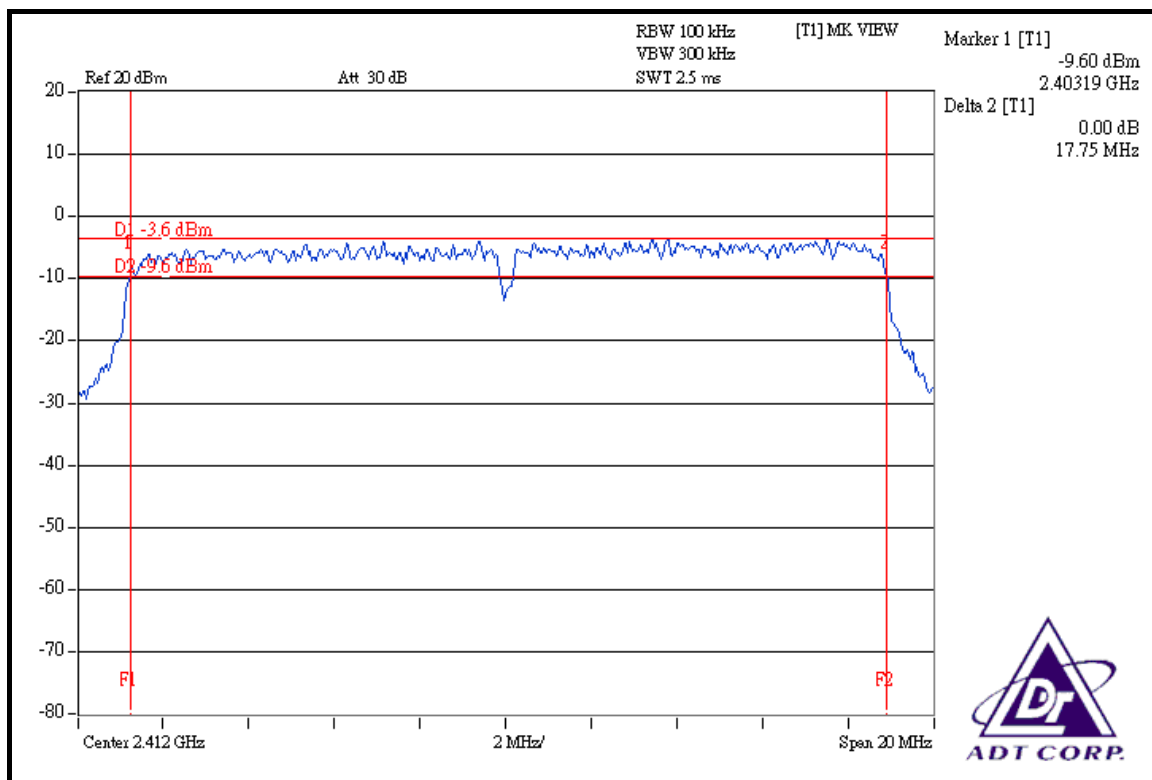


**DRAFT 802.11n (20MHz) OFDM MODULATION**

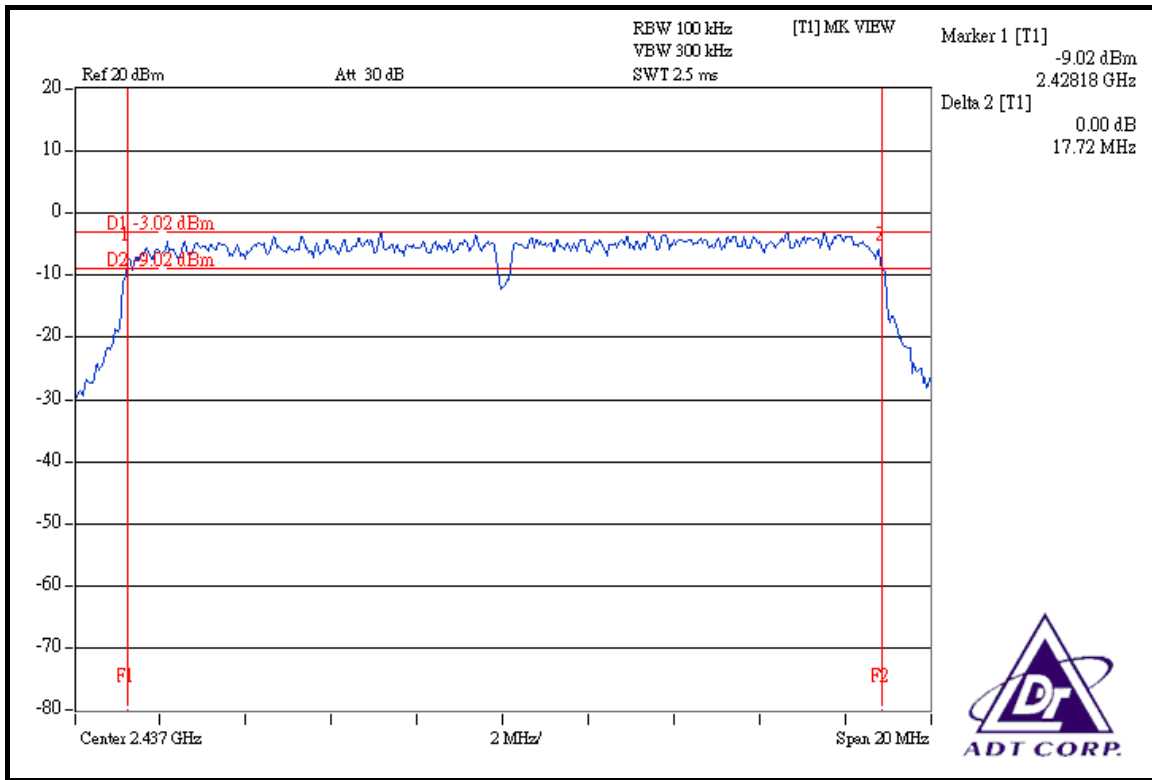
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>ENVIRONMENTAL CONDITIONS</b>	25deg.C, 65% RH, 991hPa
<b>TESTED BY</b>	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	17.75	0.5	PASS
6	2437	17.72	0.5	PASS
11	2462	17.71	0.5	PASS

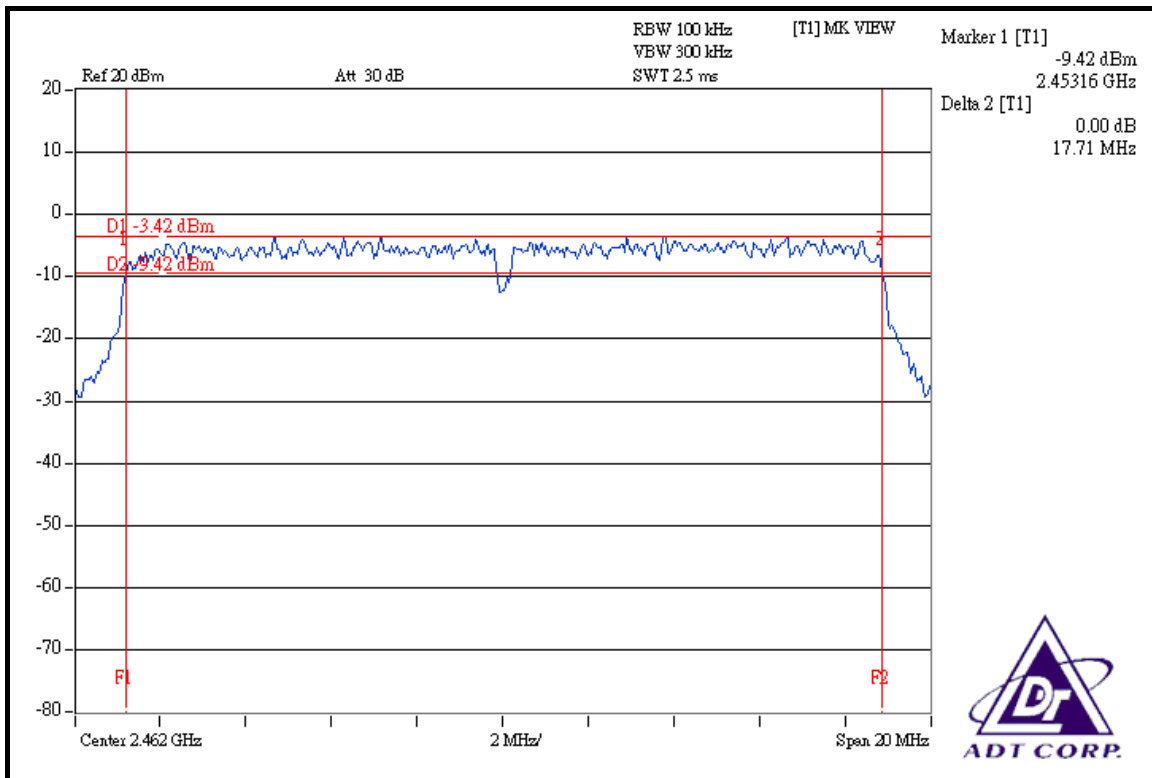
**CH 1**



### CH 6



### CH 11





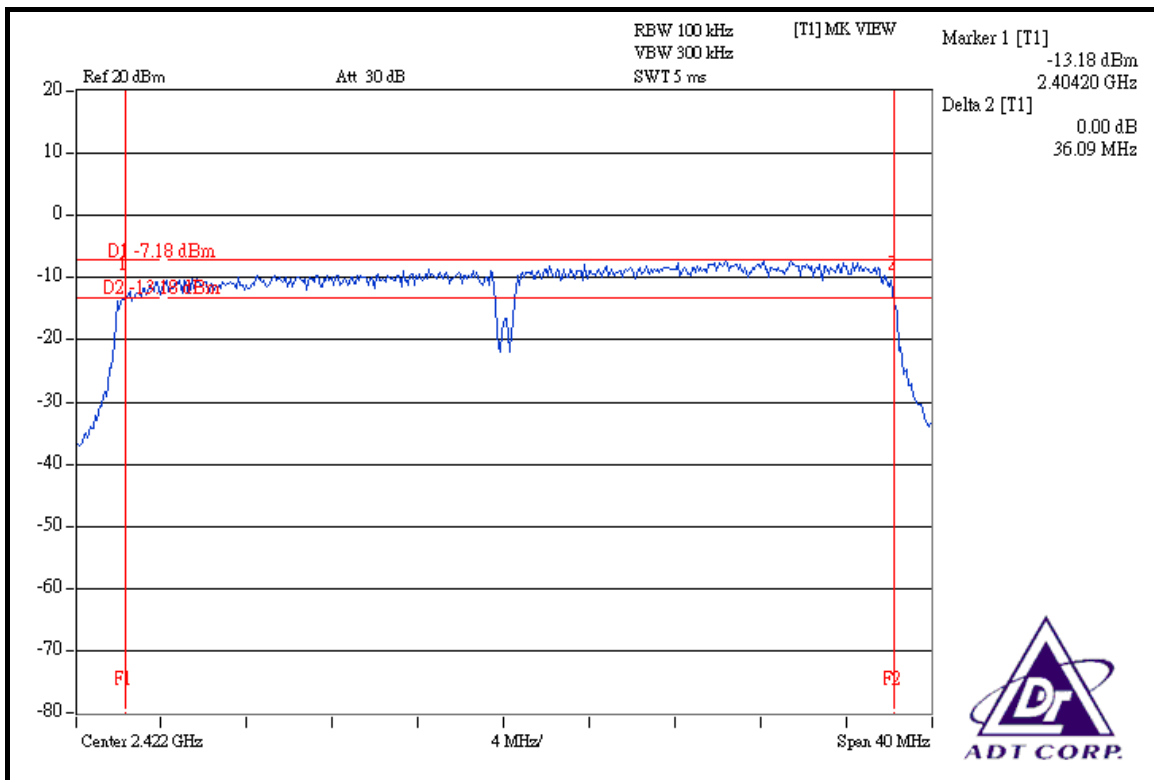


**DRAFT 802.11n (40MHz) OFDM MODULATION**

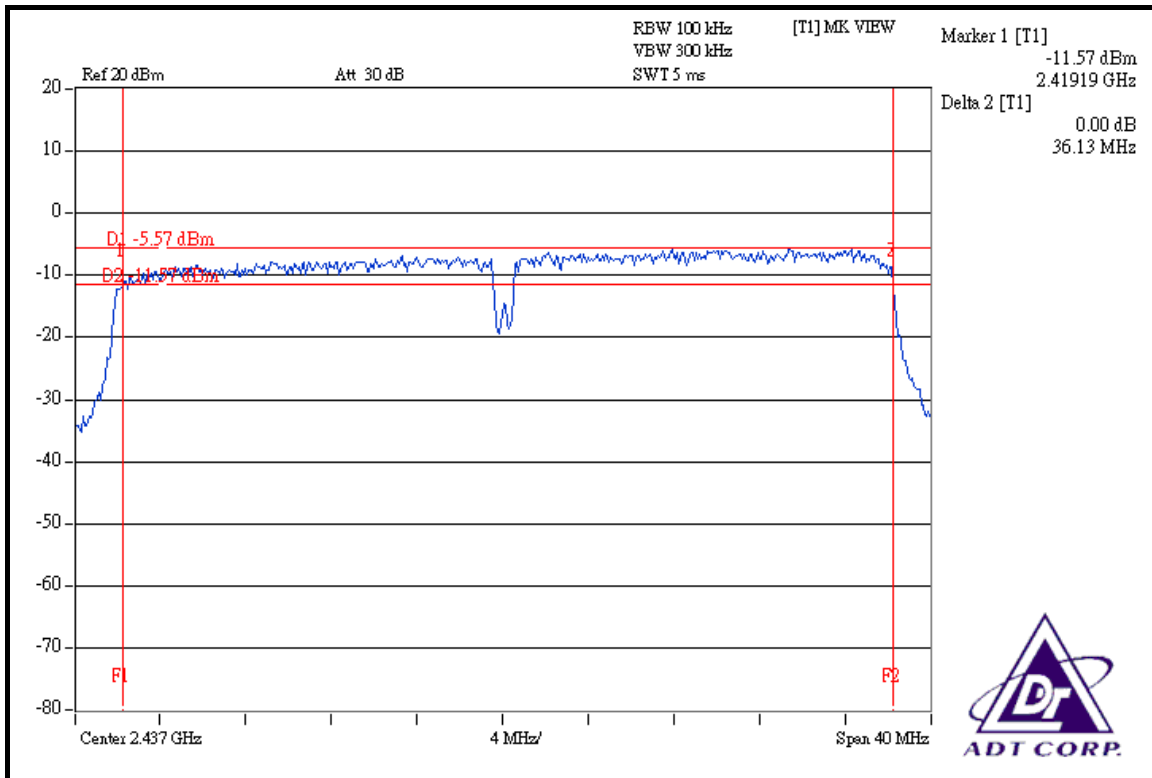
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>ENVIRONMENTAL CONDITIONS</b>	25deg.C, 65% RH, 991hPa
<b>TESTED BY</b>	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2422	36.09	0.5	PASS
4	2437	36.13	0.5	PASS
7	2452	36.50	0.5	PASS

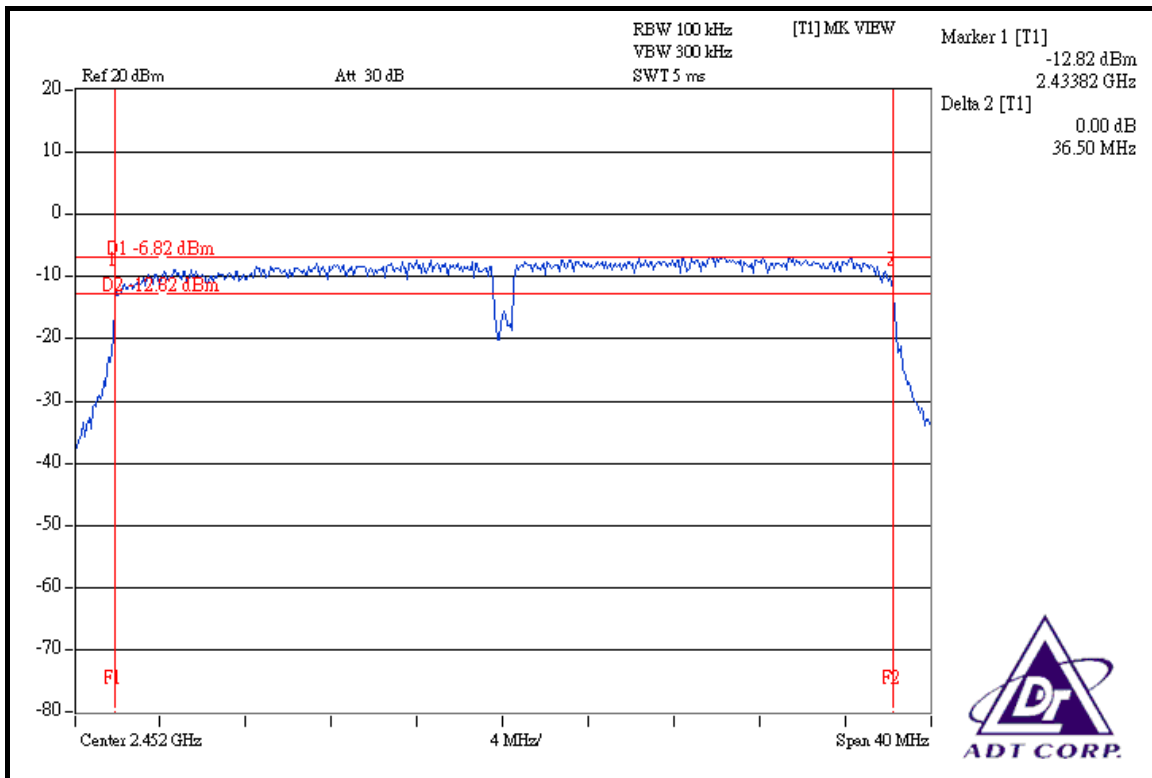
**CH 1**



### CH 4



### CH 7





#### 4.4 MAXIMUM PEAK OUTPUT POWER

##### 4.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

##### 4.4.2 INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100040	Jun. 28, 2008
AGILENT SYNTHESIZED SIGNAL GENERATOR	E8257C	MY43320668	Dec. 25, 2008
DIGITAL RT OSCILLOSCOPE	TDS1012	C037299	Nov. 21, 2008
NARDA DETECTOR	4503A	FSCM99899	NA

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

##### 4.4.3 TEST PROCEDURES

- a. A detector was used on the output port of the EUT. An oscilloscope was used to read the response of the detector.
- b. Replaced the EUT by the signal generator. The center frequency of the S.G was adjusted to the center frequency of the measured channel.
- c. Adjusted the power to have the same reading on oscilloscope. 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.



#### 4.4.7 TEST RESULTS

##### 802.11b DSSS MODULATION

<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>ENVIRONMENTAL CONDITIONS</b>	25deg.C, 65% RH, 991hPa
<b>TESTED BY</b>	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2412	57.148	17.57	30	PASS
6	2437	56.624	17.53	30	PASS
11	2462	45.499	16.58	30	PASS

##### 802.11g OFDM MODULATION

<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>ENVIRONMENTAL CONDITIONS</b>	25deg.C, 65% RH, 991hPa
<b>TESTED BY</b>	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2412	40.644	16.09	30	PASS
6	2437	39.811	16.00	30	PASS
11	2462	40.551	16.08	30	PASS



### DRAFT 802.11n (20MHz) OFDM MODULATION

<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>ENVIRONMENTAL CONDITIONS</b>	25deg.C, 65% RH, 991hPa
<b>TESTED BY</b>	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2412	36.224	15.59	30	PASS
6	2437	40.738	16.10	30	PASS
11	2462	35.810	15.54	30	PASS

### DRAFT 802.11n (40MHz) OFDM MODULATION

<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>ENVIRONMENTAL CONDITIONS</b>	25deg.C, 65% RH, 991hPa
<b>TESTED BY</b>	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2422	25.704	14.10	30	PASS
4	2437	35.563	15.51	30	PASS
7	2452	28.708	14.58	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 UNTIL
R&S SPECTRUM ANALYZER	FSP40	100040	Jun. 28, 2008

**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

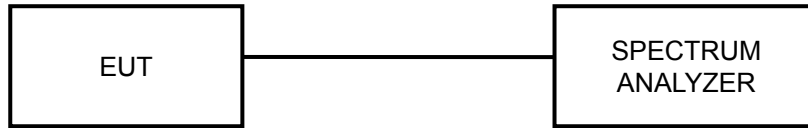
The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3kHz RBW and 30kHz VBW, set sweep time = span/3kHz. The power spectral density was measured and recorded.

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

### 4.5.4 DEVIATION FROM TEST STANDARD

No deviation.

#### 4.5.5 TEST SETUP



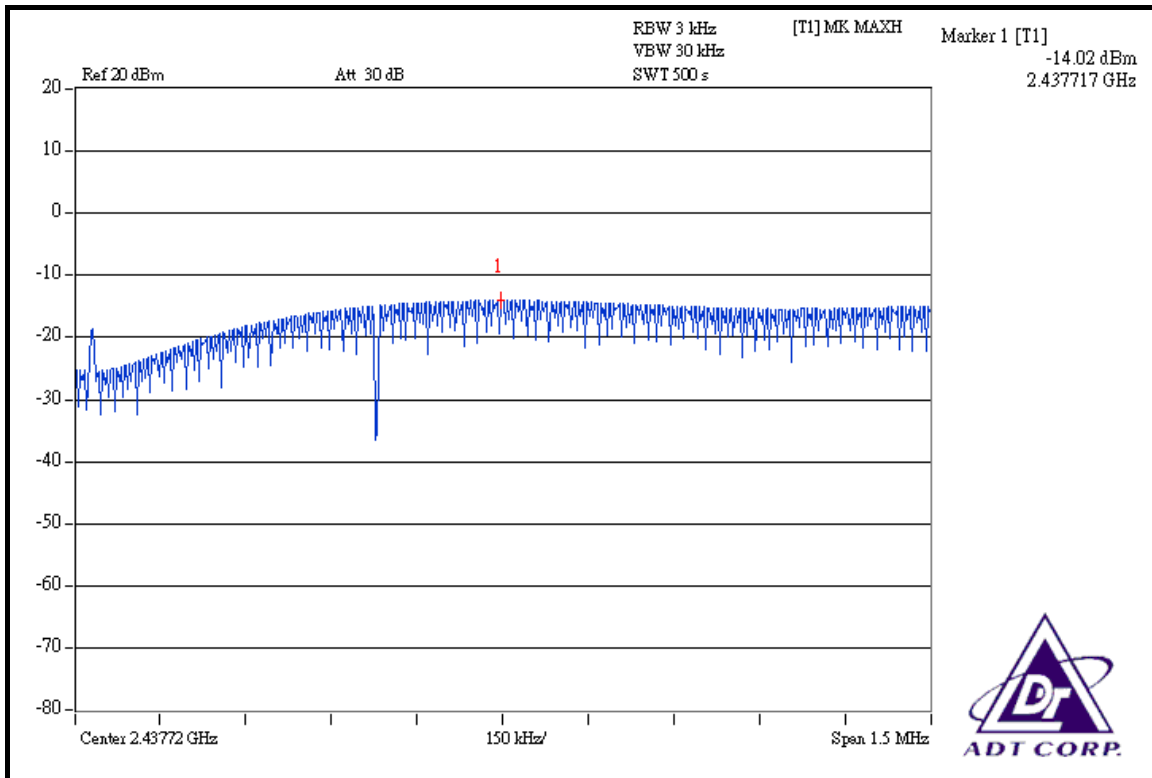
#### 4.5.6 EUT OPERATING CONDITION

Same as Item 4.3.6

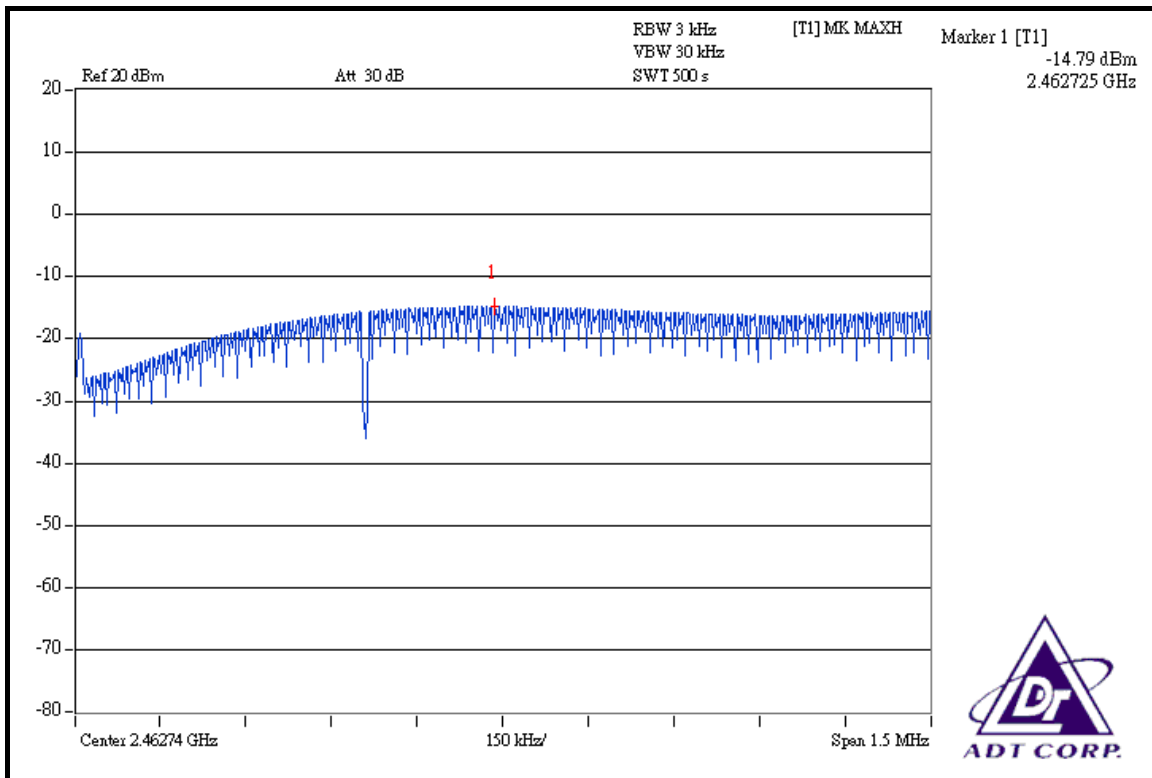




CH 6



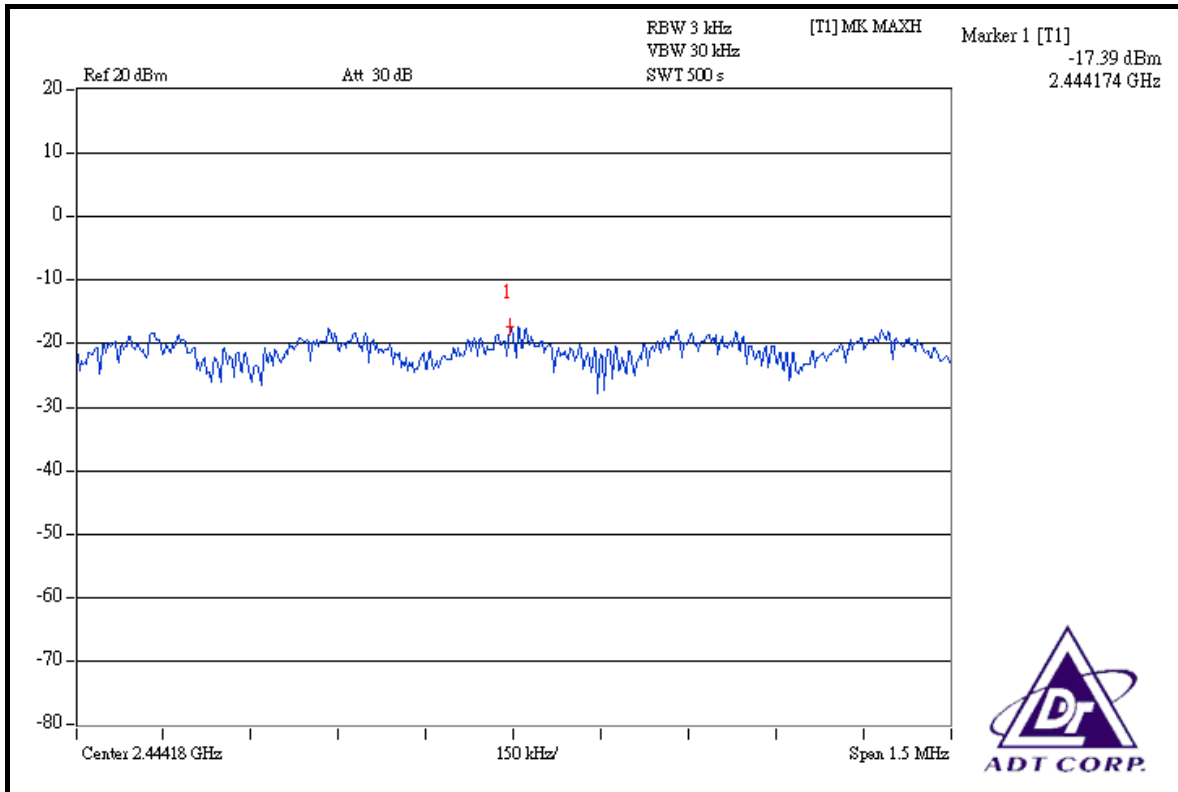
CH 11



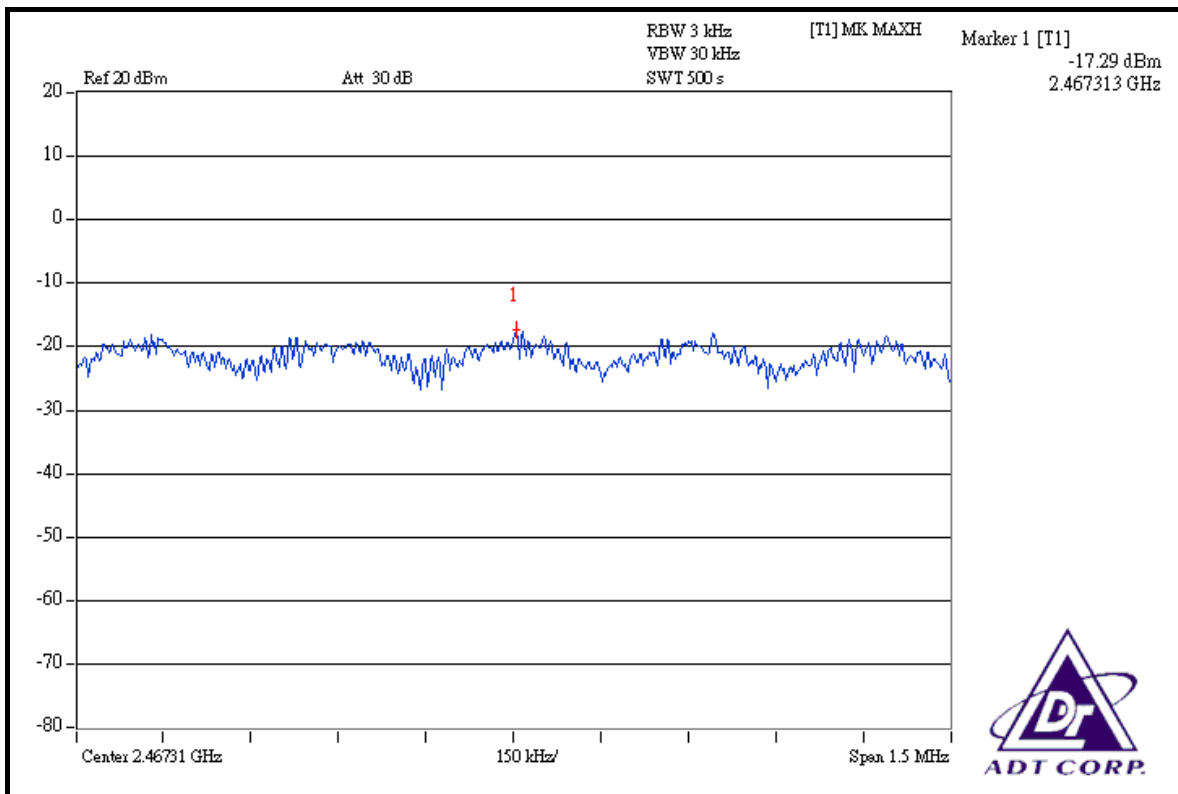




### CH 6



### CH 11



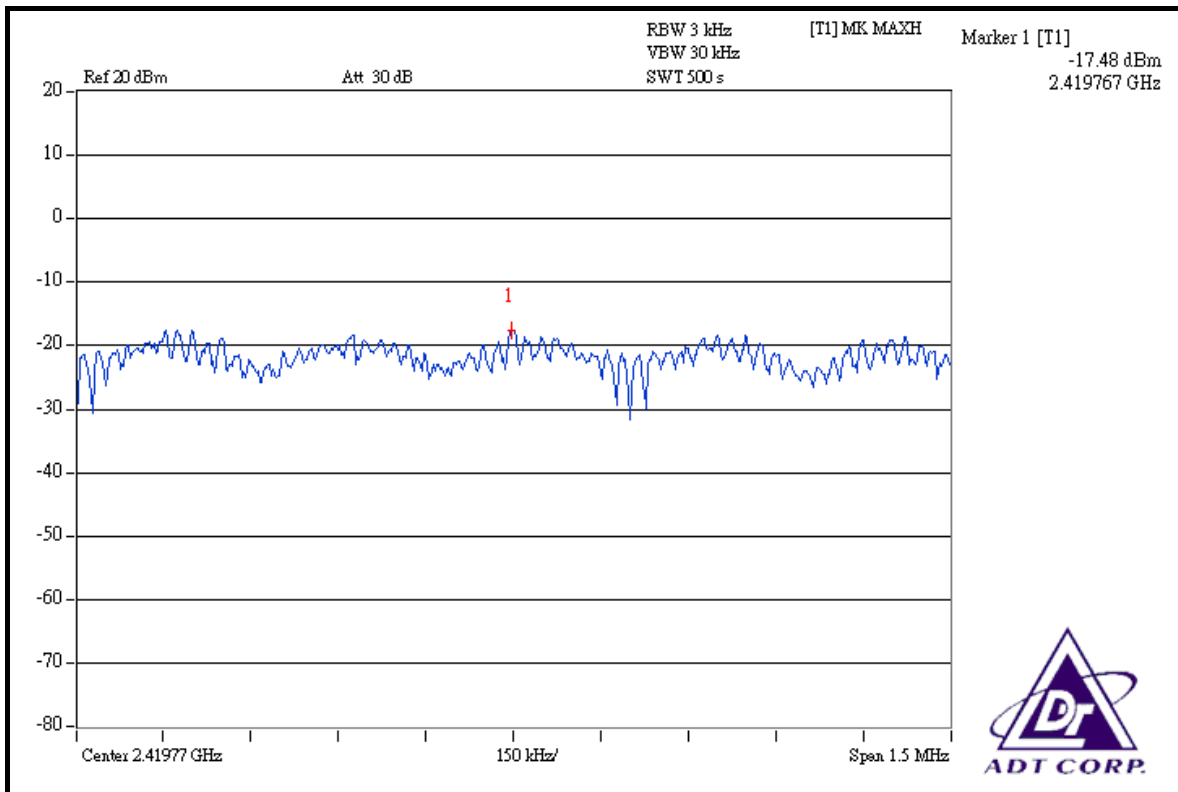


**DRAFT 802.11n (20MHz) OFDM MODULATION**

<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>ENVIRONMENTAL CONDITIONS</b>	25deg.C, 65% RH, 991hPa
<b>TESTED BY</b>	Brad Wu		

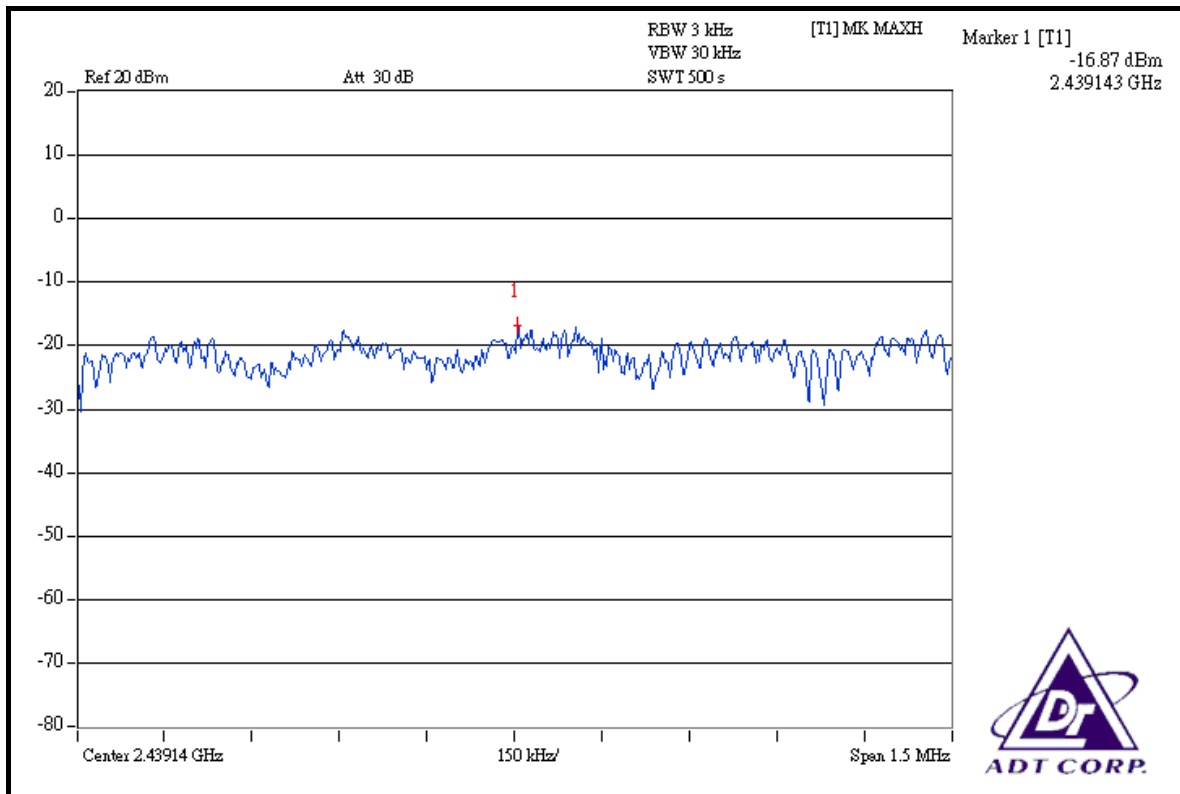
CHANNEL	CHANNEL FREQUENCY (MHz )	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	2412	-17.48	8	PASS
6	2437	-16.87	8	PASS
11	2462	-17.36	8	PASS

**CH 1**

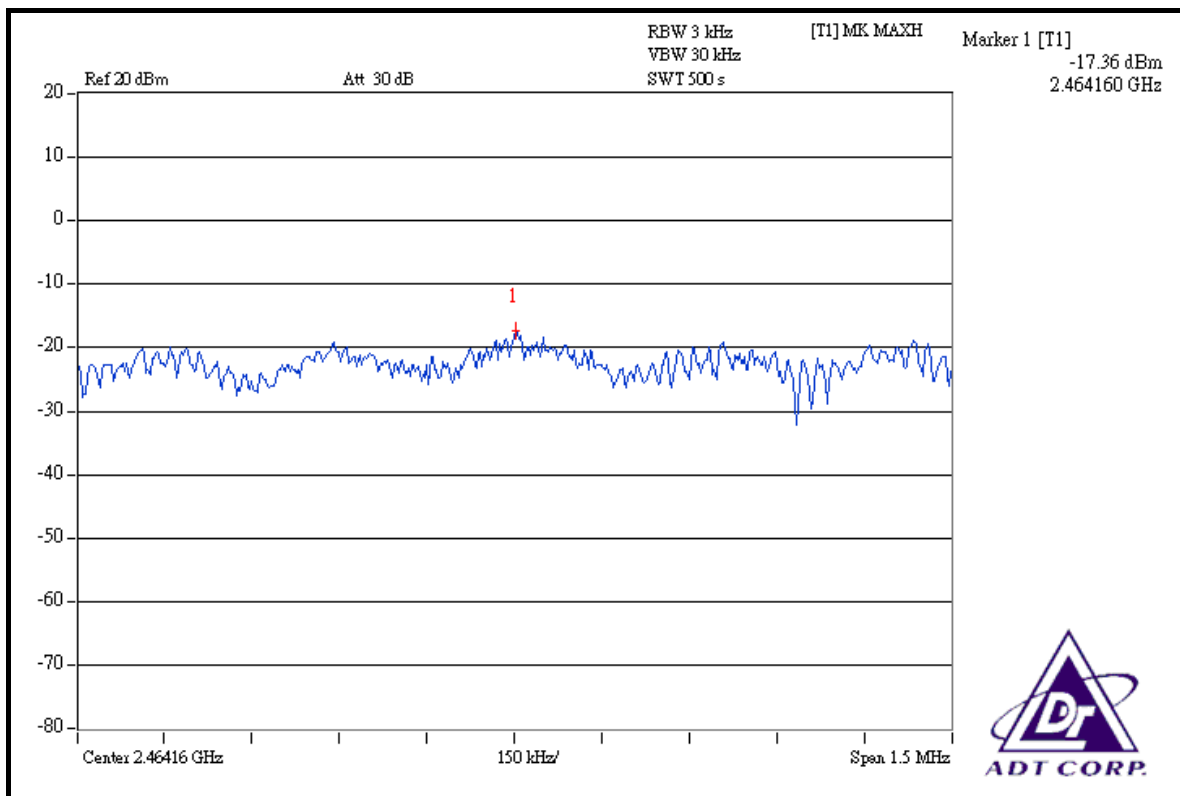




### CH 6



### CH 11



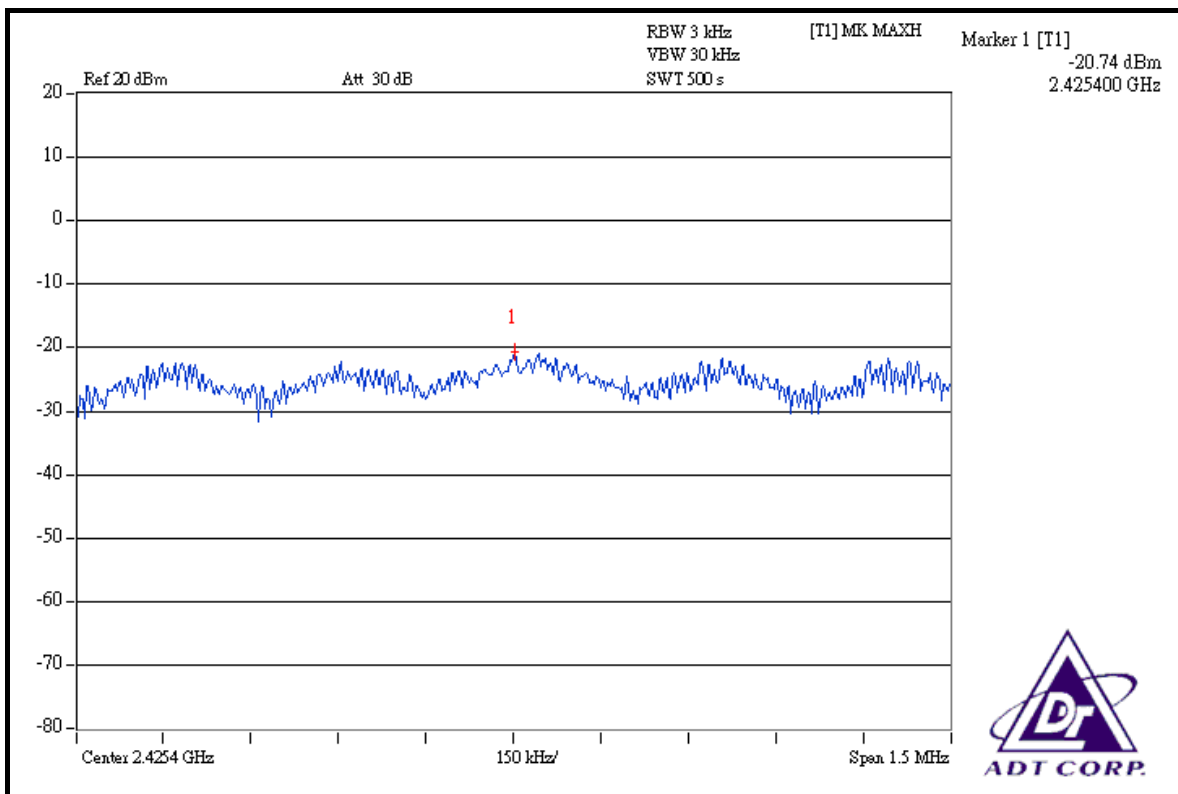


**DRAFT 802.11n (40MHz) OFDM MODULATION**

<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>ENVIRONMENTAL CONDITIONS</b>	25deg.C, 65% RH, 991hPa
<b>TESTED BY</b>	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	2422	-20.74	8	PASS
4	2437	-19.12	8	PASS
7	2452	-20.14	8	PASS

**CH 1**









## 4.6 BAND EDGES MEASUREMENT

### 4.6.1 LIMITS OF BAND EDGES MEASUREMENT

Below  $-20\text{dB}$  of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

### 4.6.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100040	Jun. 28, 2008

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

### 4.6.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer via a low lose cable. Set both RBW and VBW of spectrum analyzer to 100kHz with suitable frequency span including 10Hz 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.

### 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 24 images. 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 DSSS MODULATION

##### NOTE 1:

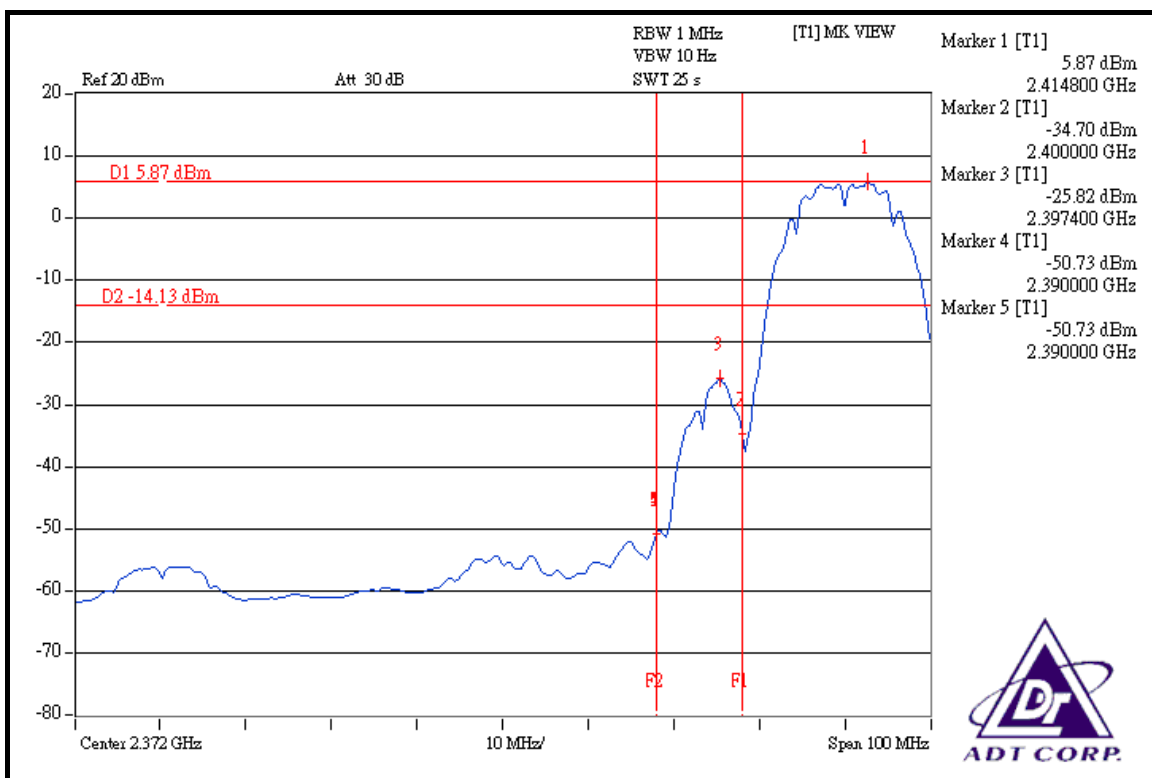
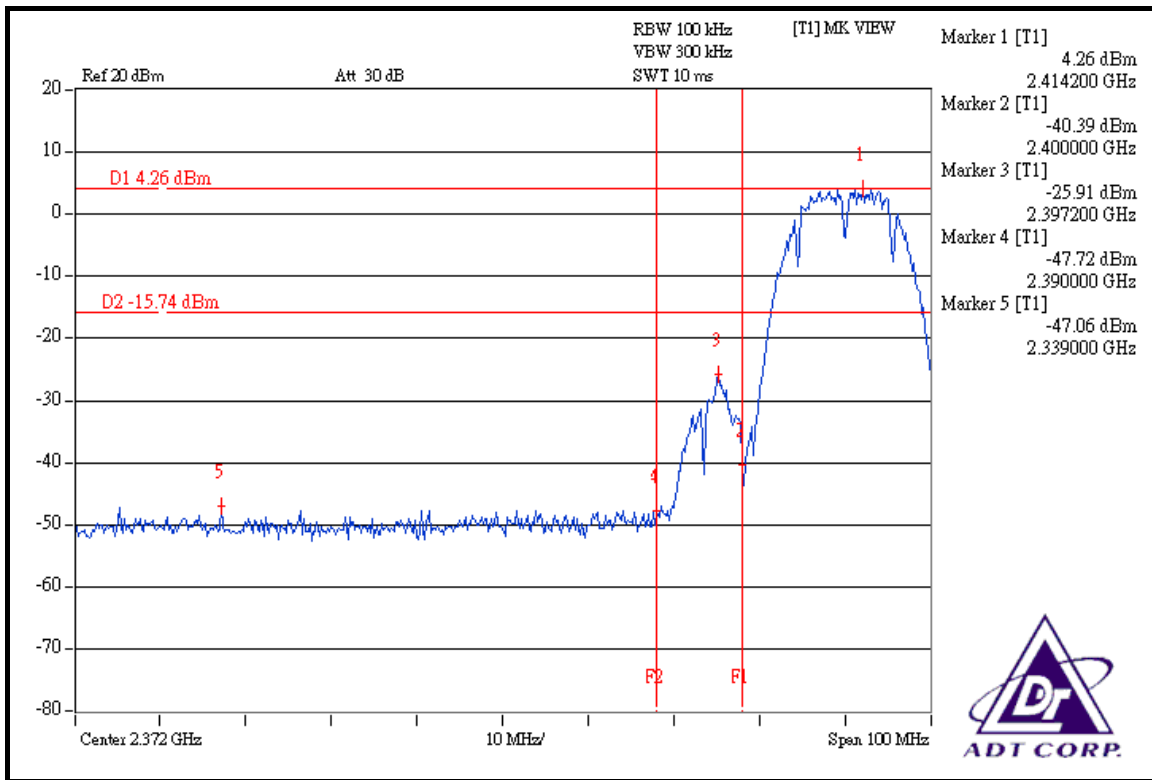
The band edge emission plot on the next page shows 51.32dBc between carrier maximum power and local maximum emission in restrict band (2.33900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 109.87dBuV/m (Peak), so the maximum field strength in restrict band is  $109.87 - 51.32 = 58.55$ dBuV/m which is under 74dBuV/m limit.

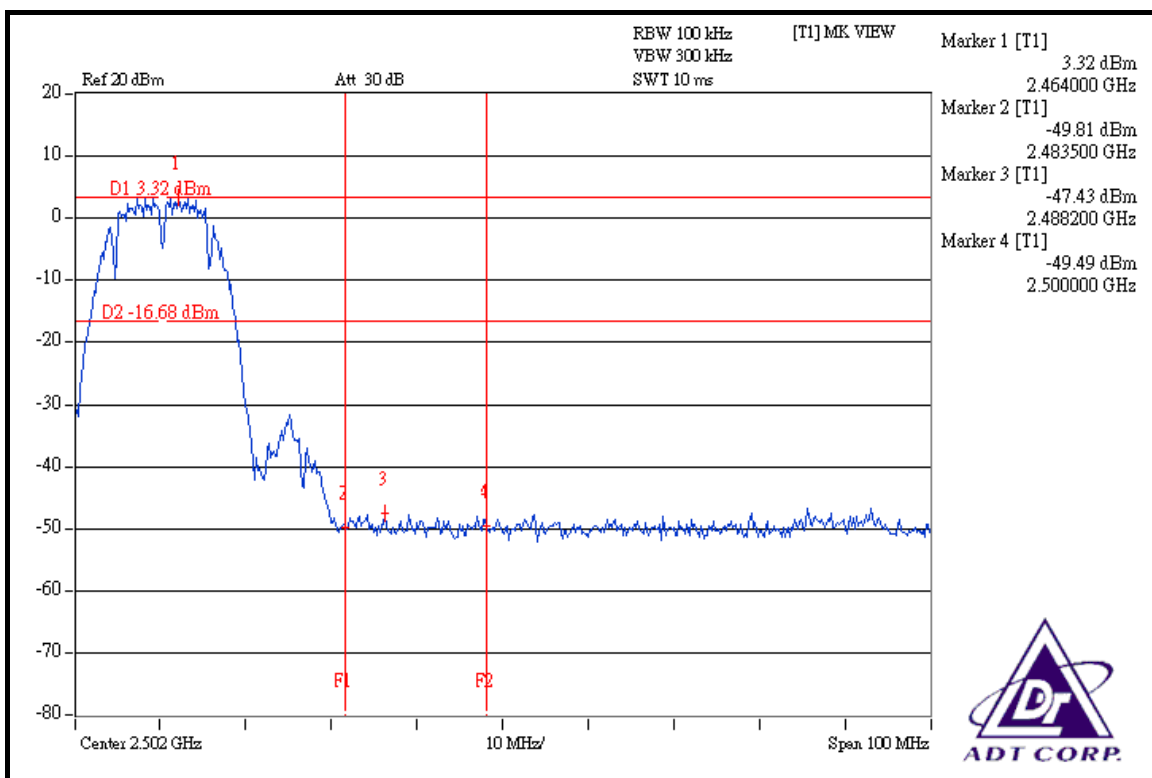
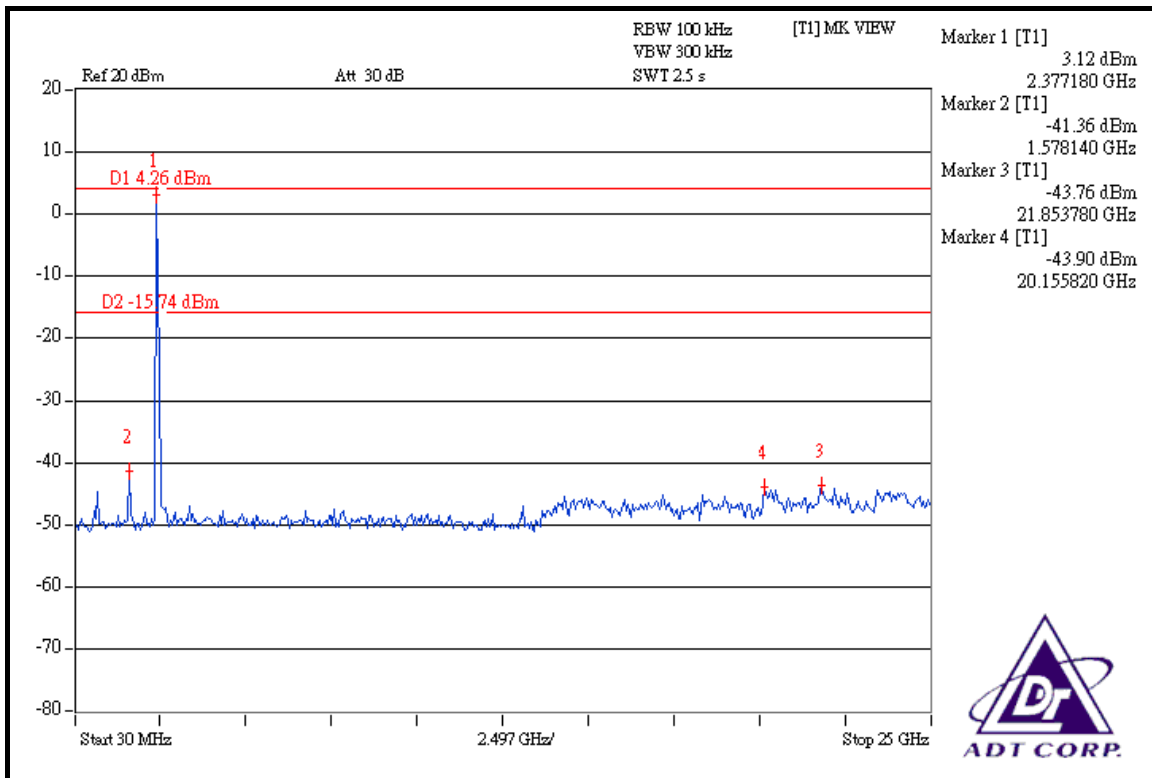
The band edge emission plot on the next page shows 56.60dBc between carrier maximum power and local maximum emission in restrict band (2.39000GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 105.66dBuV/m (Average), so the maximum field strength in restrict band is  $105.66 - 56.60 = 49.06$ dBuV/m which is under 54dBuV/m limit.

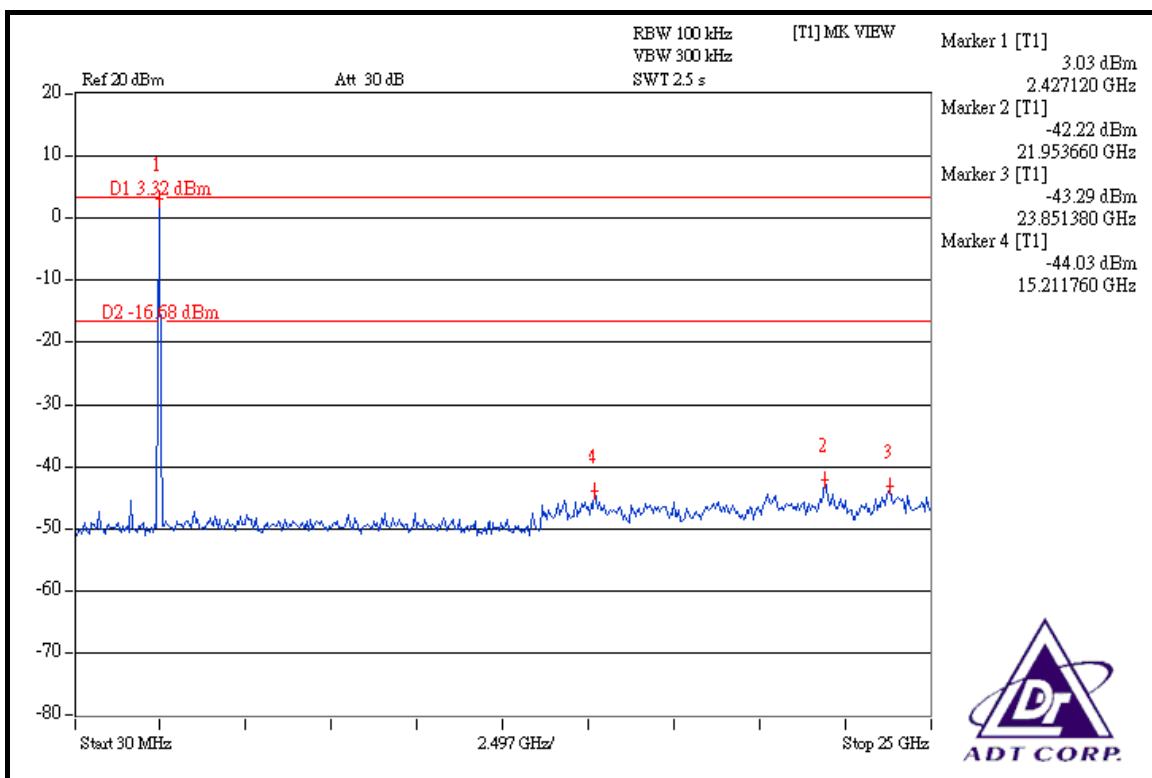
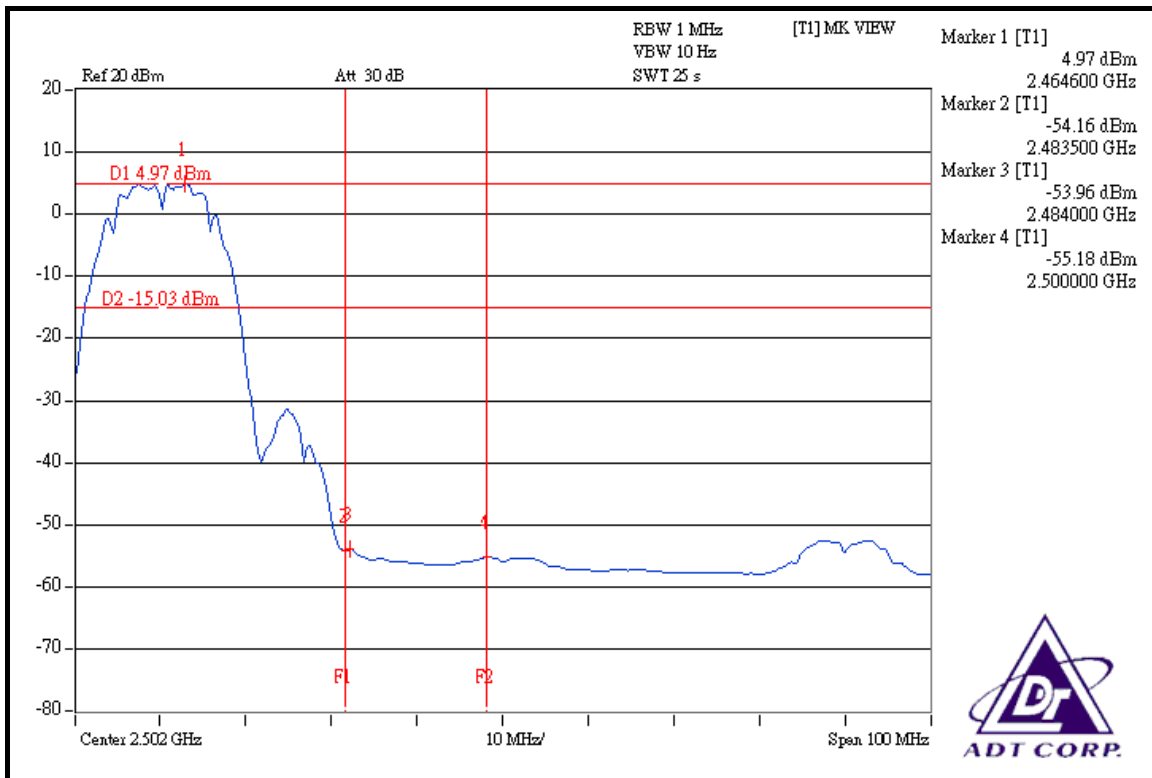
##### NOTE 2:

The band edge emission plot on the next second page shows 50.75dBc between carrier maximum power and local maximum emission in restrict band (2.48820GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 108.76dBuV/m (Peak), so the maximum field strength in restrict band is  $108.76 - 50.75 = 58.01$ dBuV/m which is under 74dBuV/m limit.

The band edge emission plot on the next third page shows 58.93dBc between carrier maximum power and local maximum emission in restrict band (2.48400GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 104.43dBuV/m (Average), so the maximum field strength in restrict band is  $104.43 - 58.93 = 45.50$ dBuV/m which is under 54dBuV/m limit.







## 802.11g OFDM MODULATION

### NOTE 1:

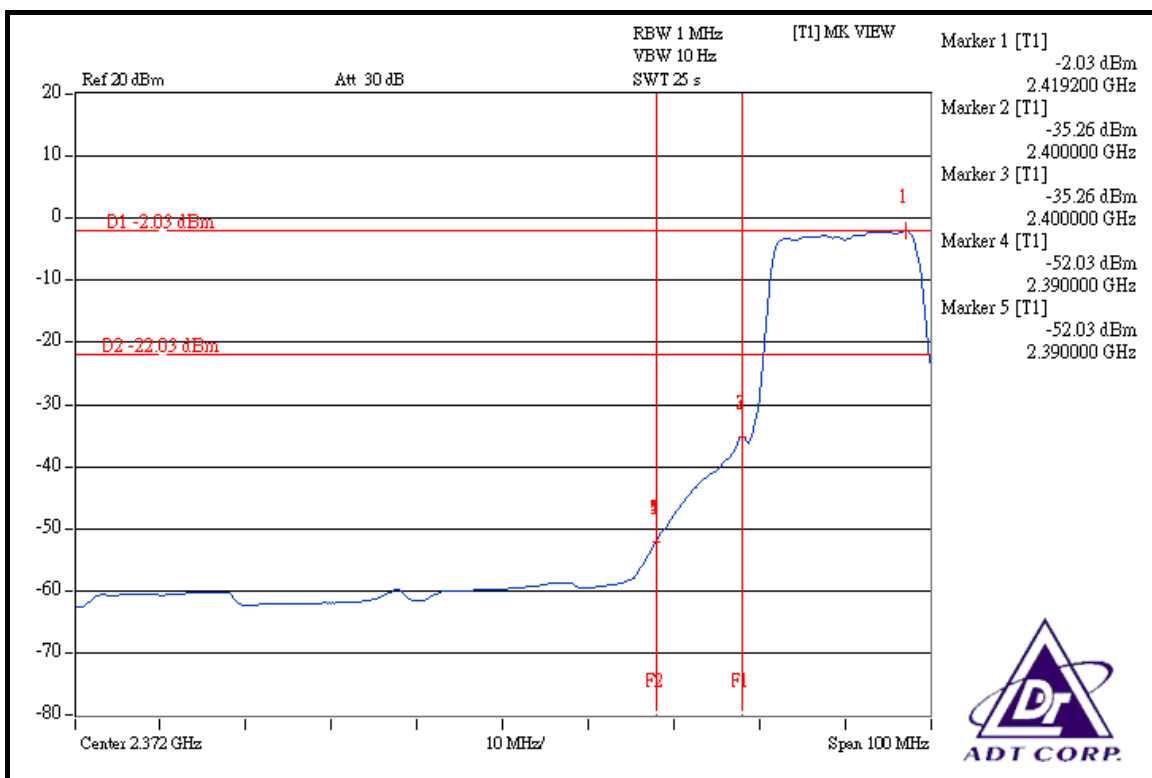
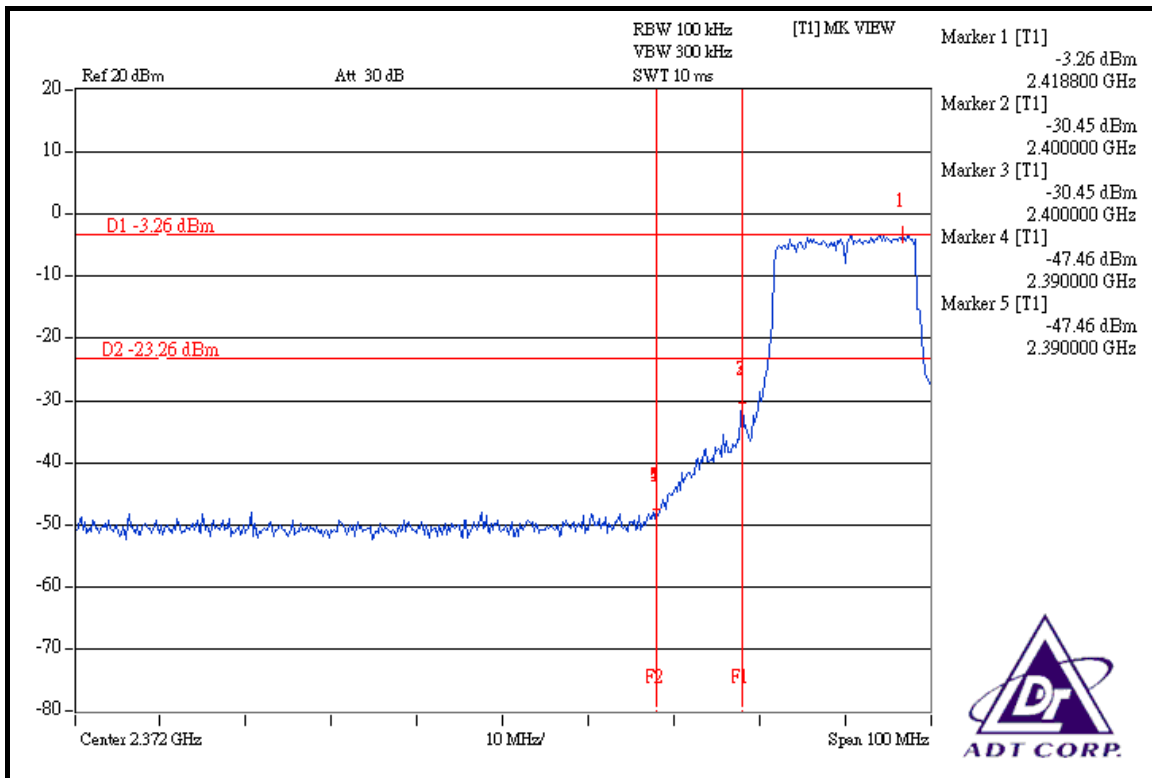
The band edge emission plot on the next page shows 44.20dBc between carrier maximum power and local maximum emission in restrict band (2.39000GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 110.91dBuV/m (Peak), so the maximum field strength in restrict band is  $110.91 - 44.20 = 66.71$ dBuV/m which is under 74dBuV/m limit.

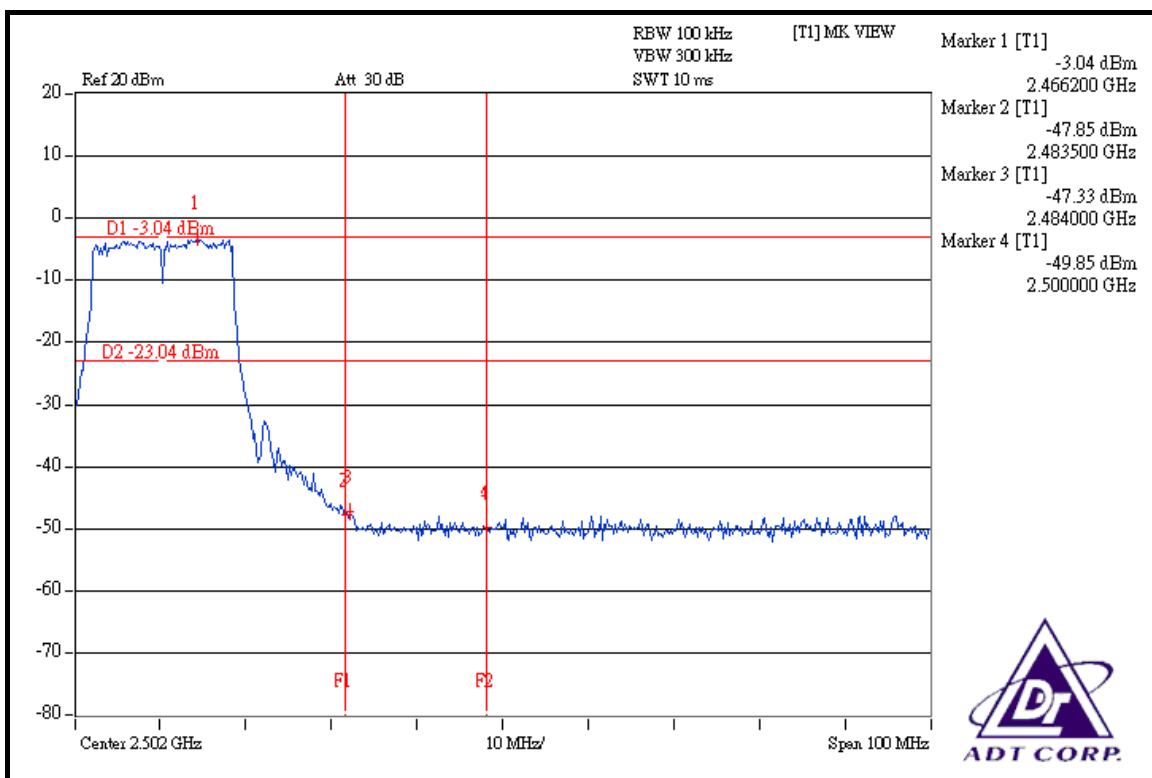
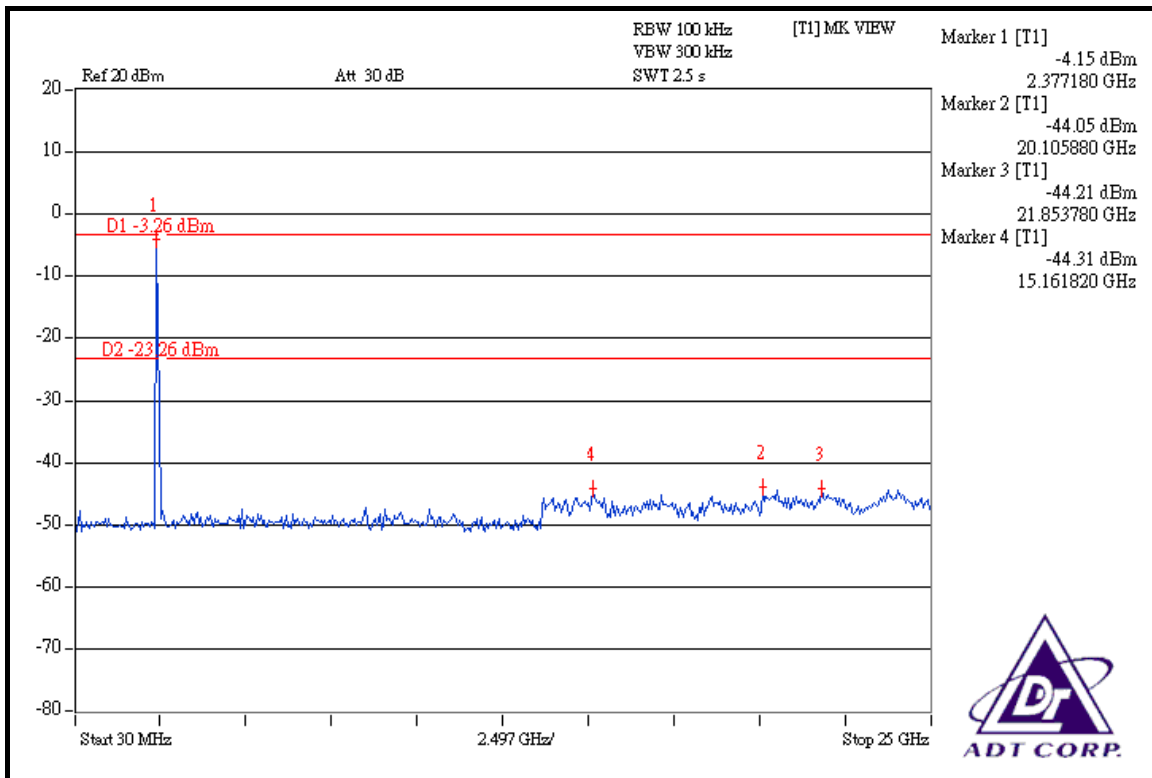
The band edge emission plot on the next page shows 50.00dBc between carrier maximum power and local maximum emission in restrict band (2.39000GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 100.90dBuV/m (Average), so the maximum field strength in restrict band is  $100.90 - 50.00 = 50.90$ dBuV/m which is under 54dBuV/m limit.

### NOTE 2:

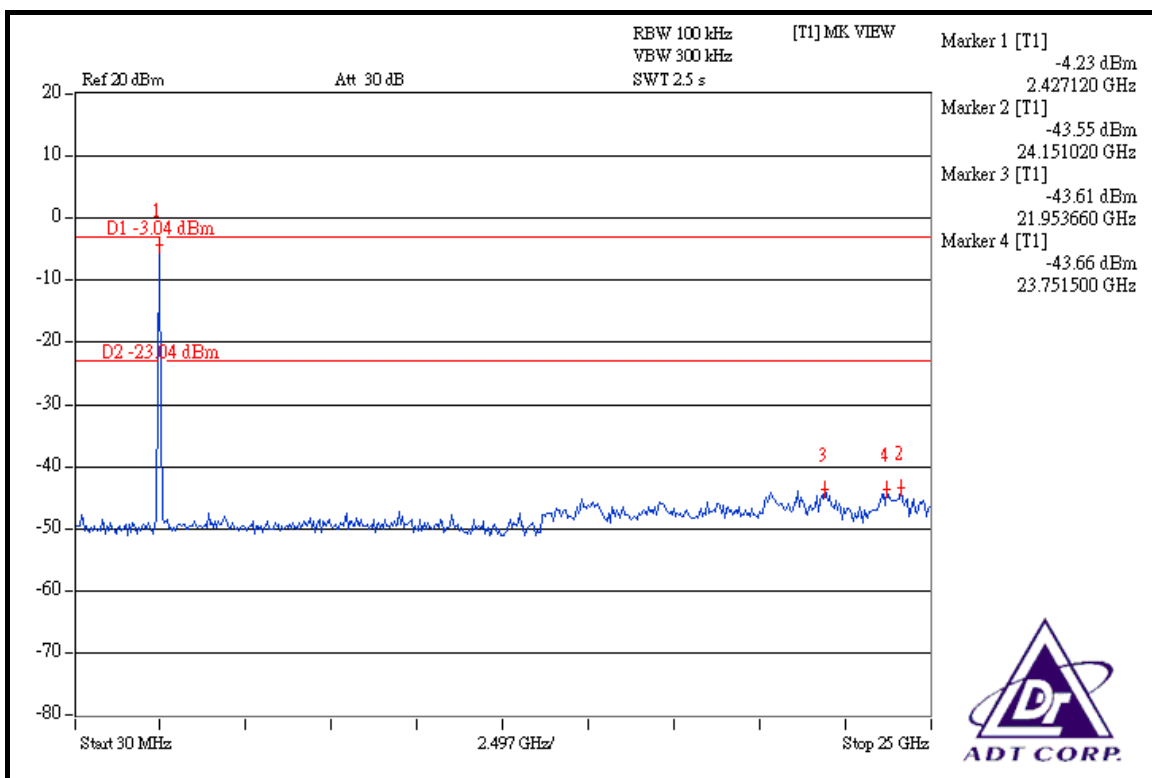
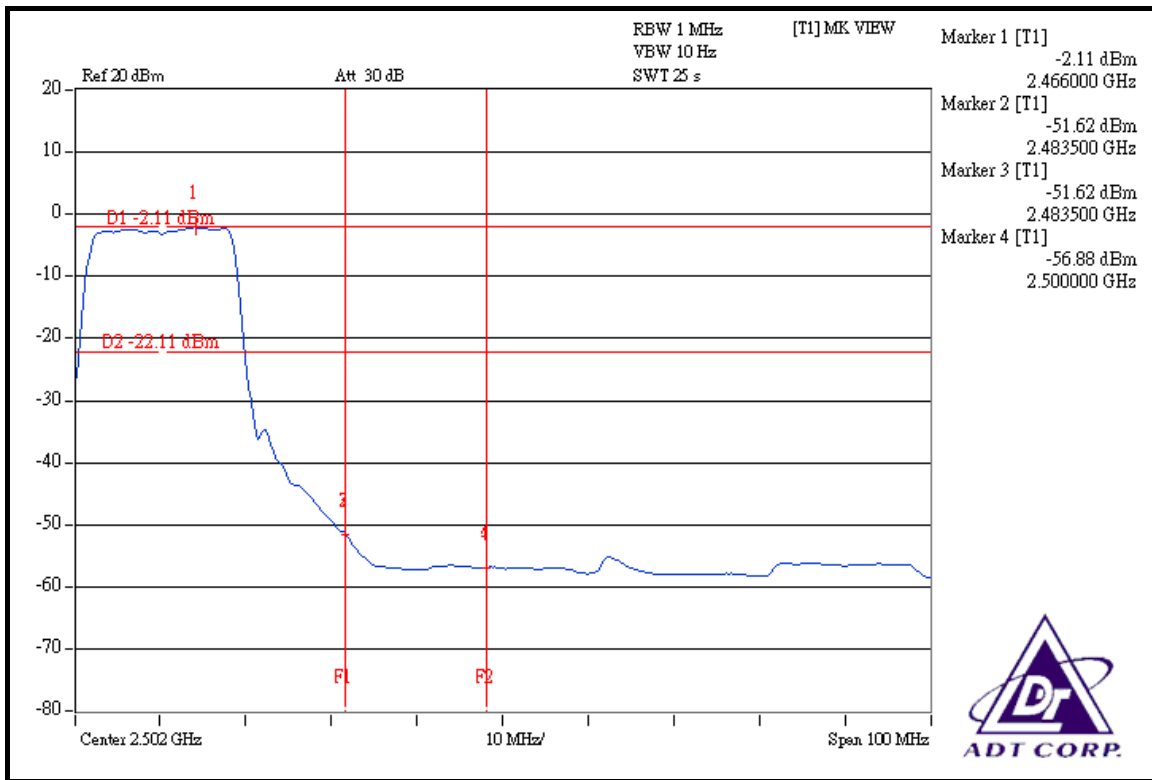
The band edge emission plot on the next second page shows 44.29dBc between carrier maximum power and local maximum emission in restrict band (2.48400GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 110.75dBuV/m (Peak), so the maximum field strength in restrict band is  $110.75 - 44.29 = 66.46$ dBuV/m which is under 74dBuV/m limit.

The band edge emission plot on the next third page shows 49.51dBc between carrier maximum power and local maximum emission in restrict band (2.48350GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 100.59dBuV/m (Average), so the maximum field strength in restrict band is  $100.59 - 49.51 = 51.08$ dBuV/m which is under 54dBuV/m limit.









## DRAFT 802.11n (20MHz) OFDM MODULATION

### NOTE 1:

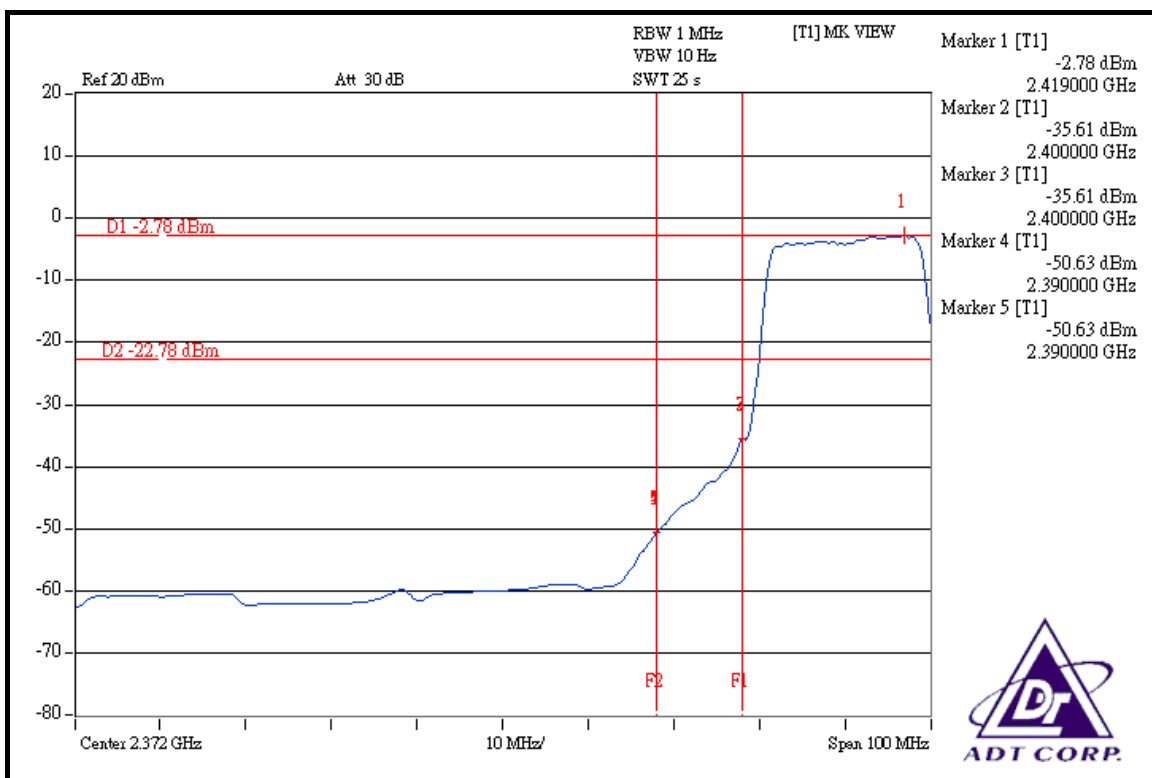
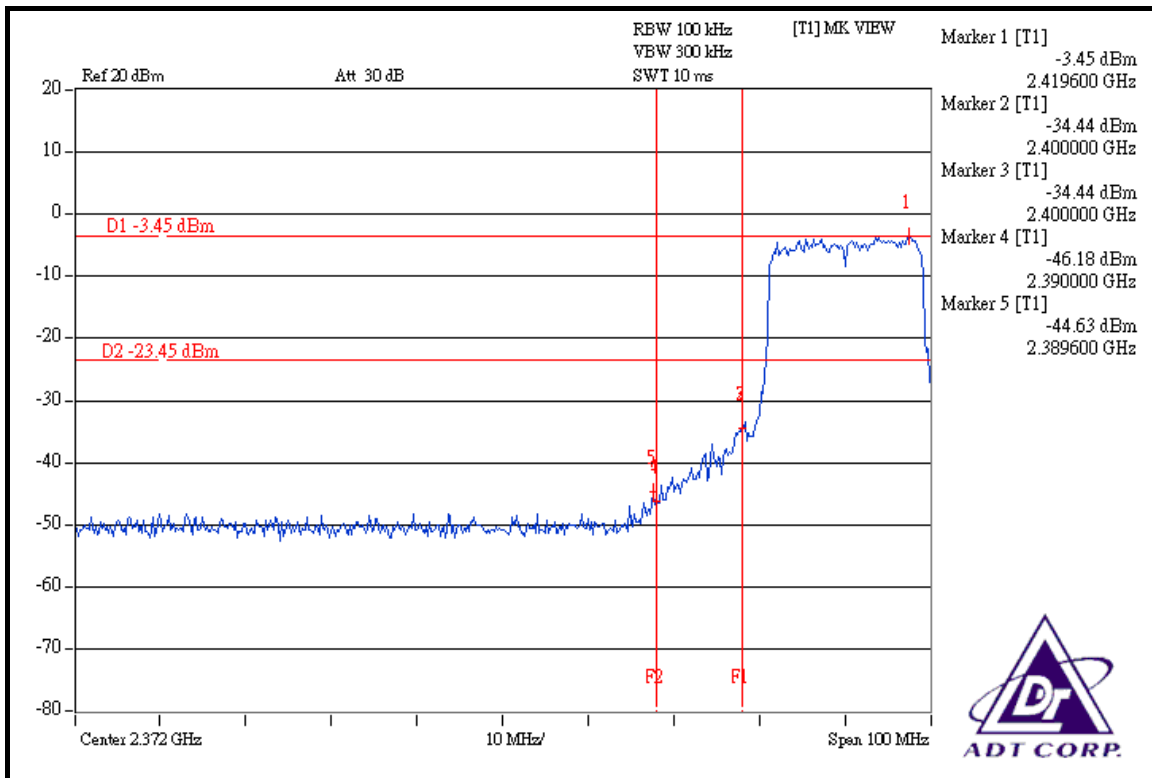
The band edge emission plot on the next page shows 41.18dBc between carrier maximum power and local maximum emission in restrict band (2.38960GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 110.30dBuV/m (Peak), so the maximum field strength in restrict band is  $110.30 - 41.18 = 69.12$ dBuV/m which is under 74dBuV/m limit.

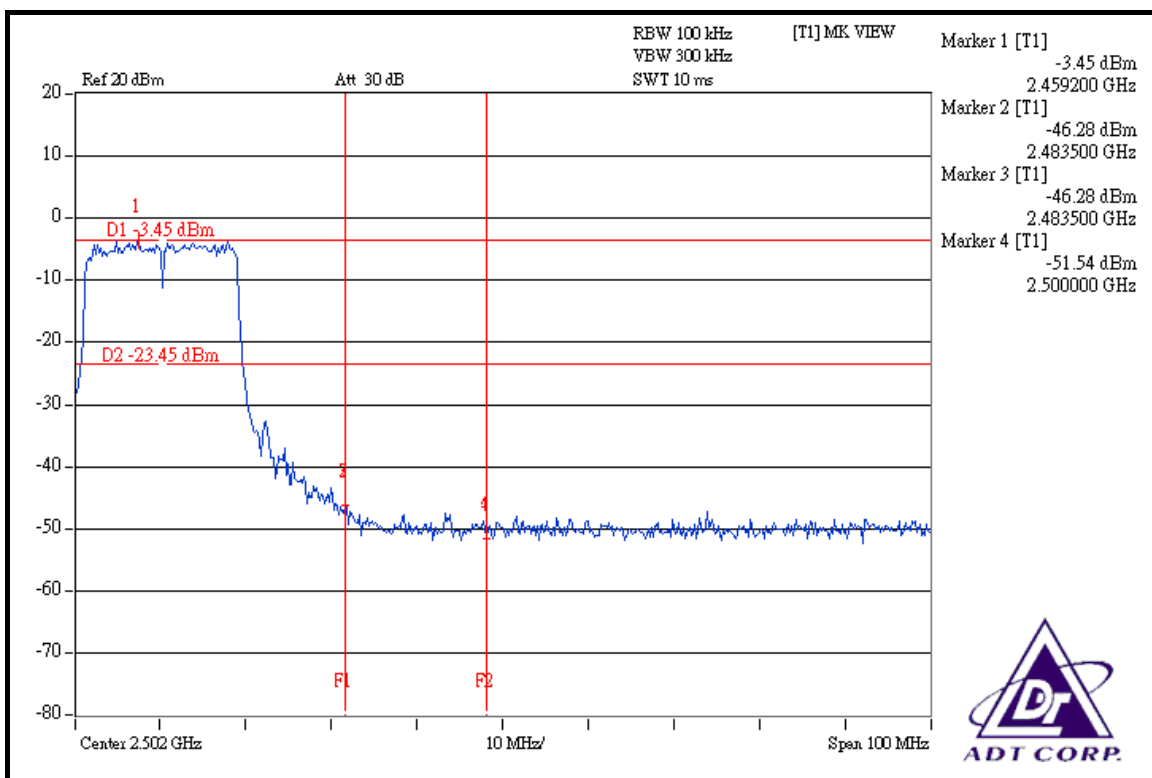
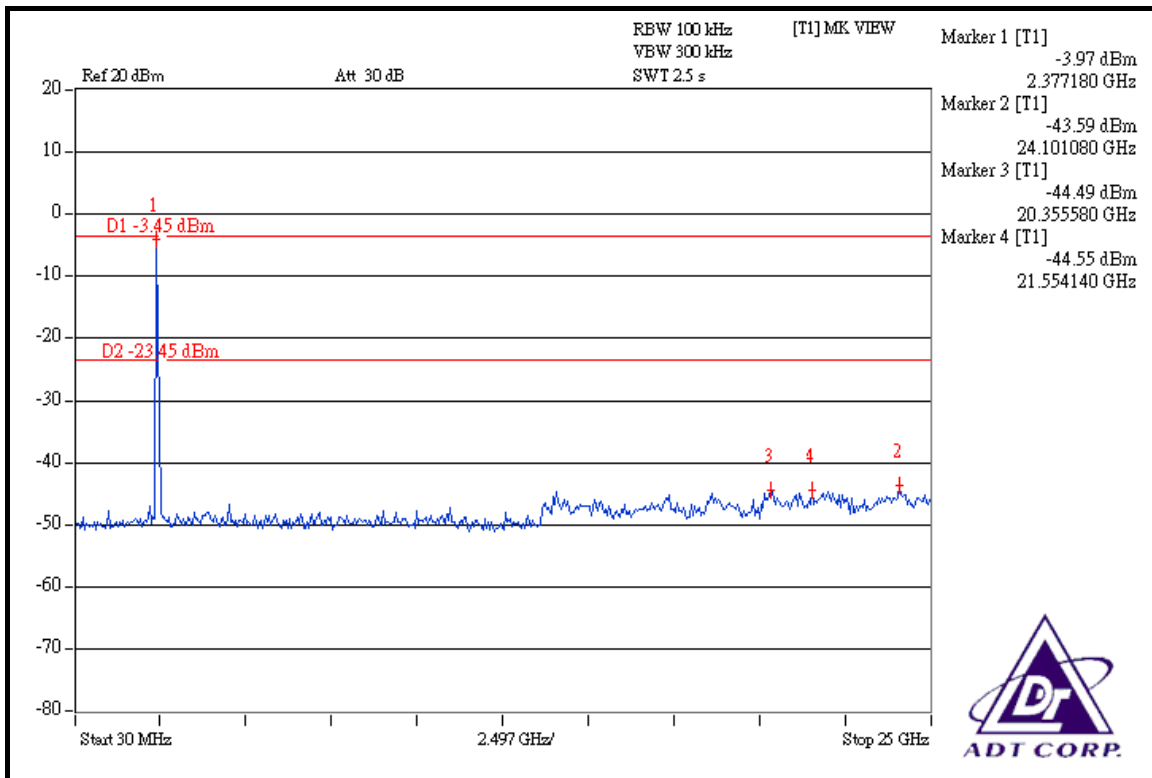
The band edge emission plot on the next page shows 47.85dBc between carrier maximum power and local maximum emission in restrict band (2.39000GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 100.24dBuV/m (Average), so the maximum field strength in restrict band is  $100.24 - 47.85 = 52.39$ dBuV/m which is under 54dBuV/m limit.

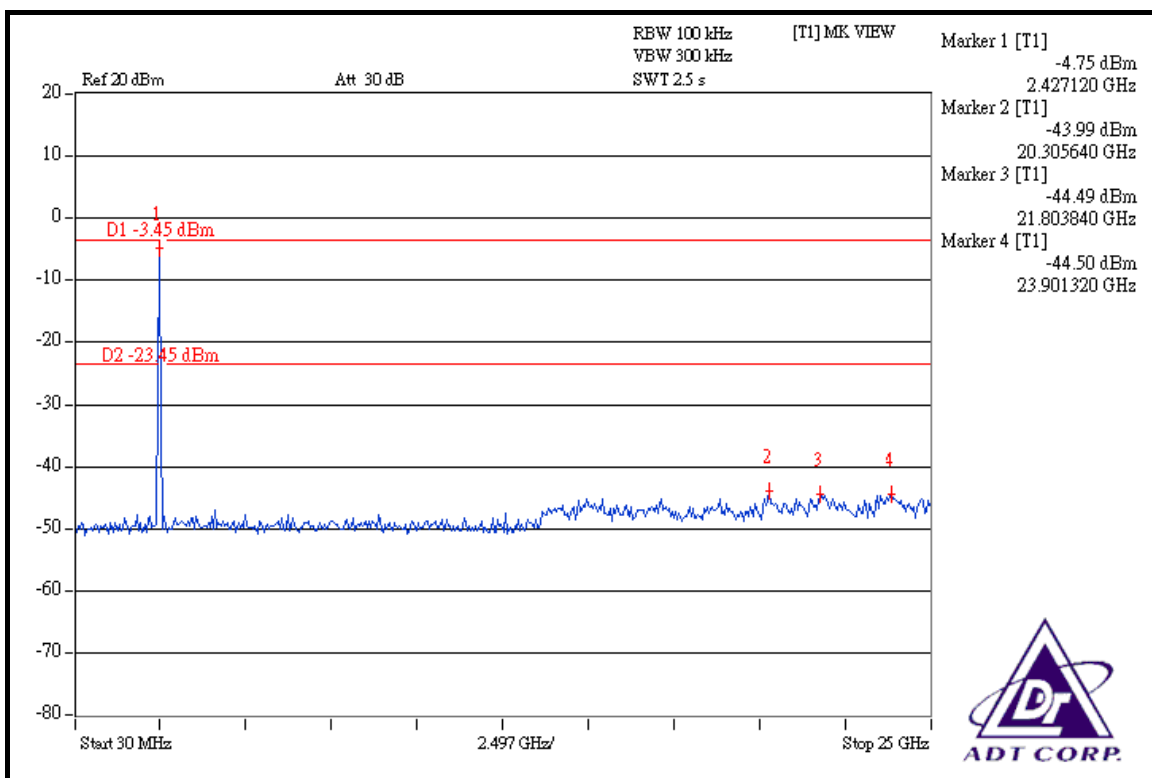
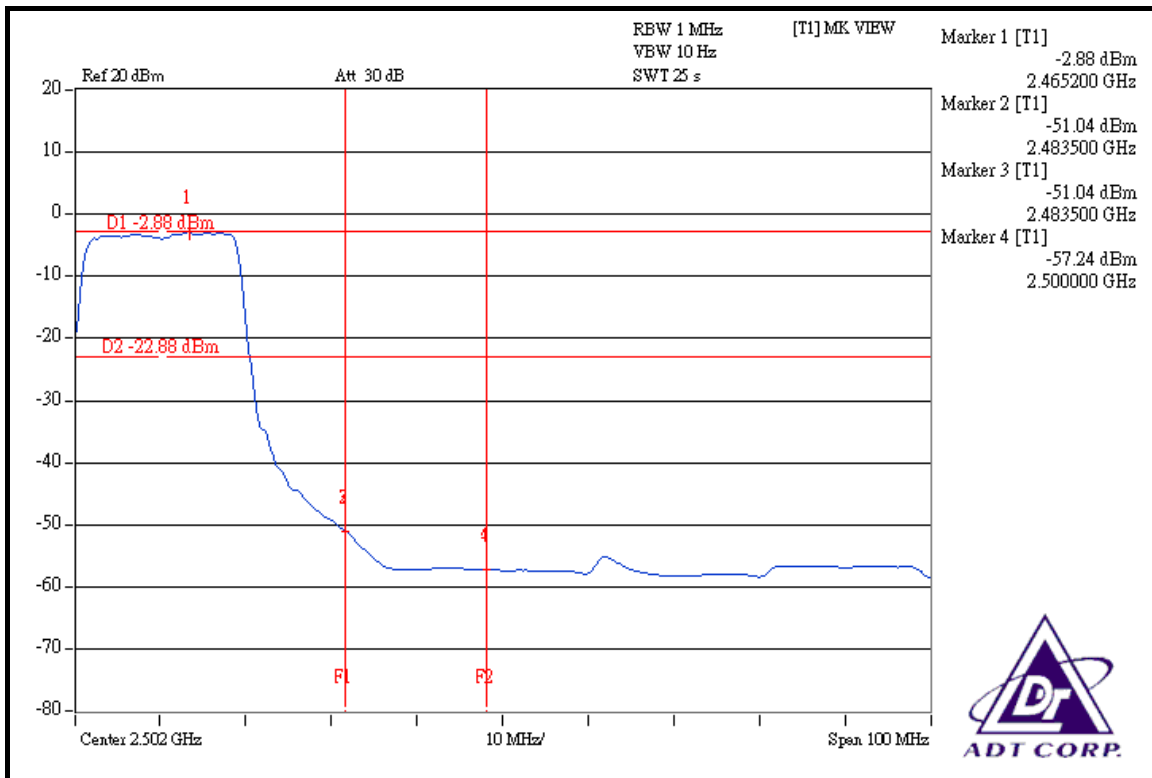
### NOTE 2:

The band edge emission plot on the next second page shows 42.83dBc between carrier maximum power and local maximum emission in restrict band (2.48350GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 110.18dBuV/m (Peak), so the maximum field strength in restrict band is  $110.18 - 42.83 = 67.35$ dBuV/m which is under 74dBuV/m limit.

The band edge emission plot on the next third page shows 48.16dBc between carrier maximum power and local maximum emission in restrict band (2.48350GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 100.05dBuV/m (Average), so the maximum field strength in restrict band is  $100.05 - 48.16 = 51.89$ dBuV/m which is under 54dBuV/m limit.







## DRAFT 802.11n (40MHz) OFDM MODULATION

### NOTE 1:

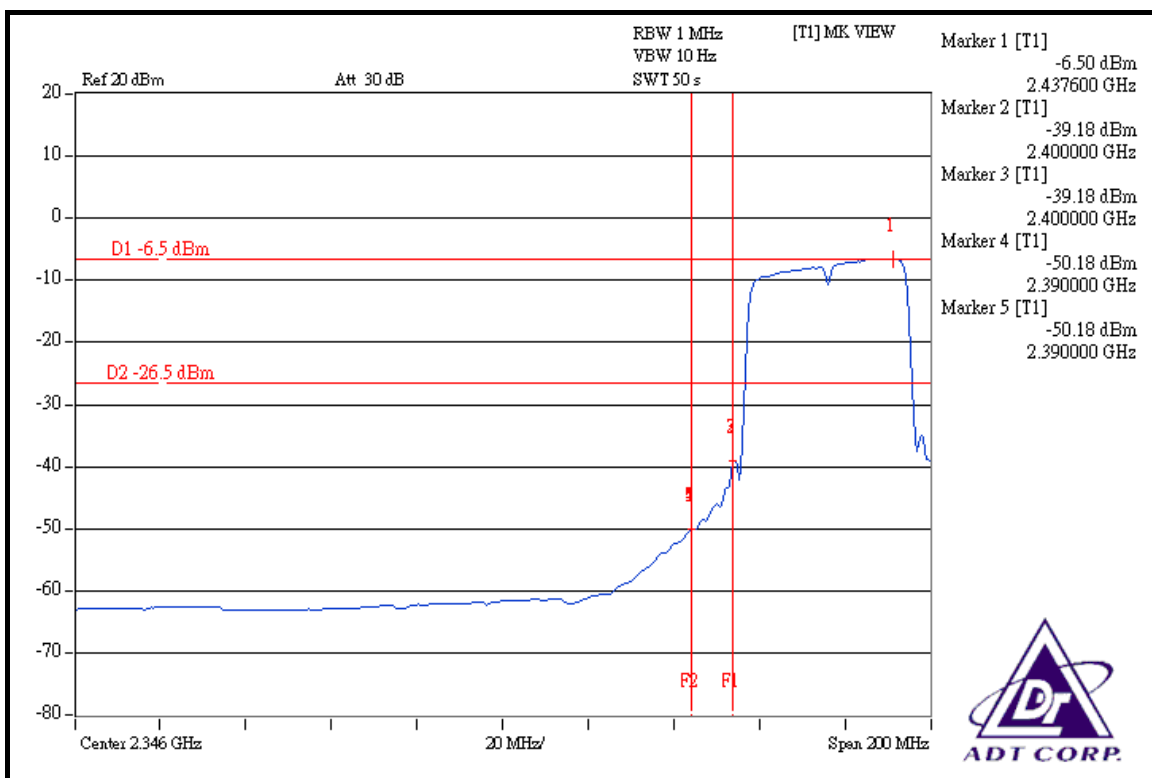
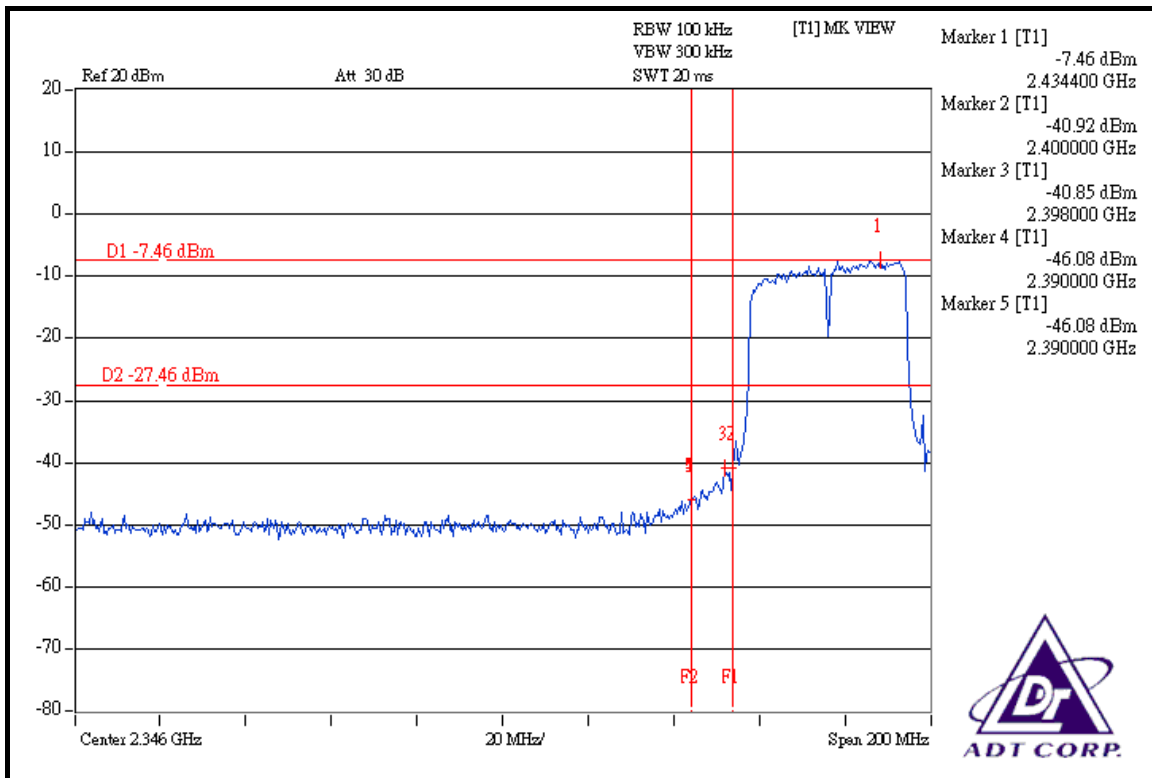
The band edge emission plot on the next page shows 38.62dBc between carrier maximum power and local maximum emission in restrict band (2.39000GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 105.70dBuV/m (Peak), so the maximum field strength in restrict band is  $105.70 - 38.62 = 67.08$ dBuV/m which is under 74dBuV/m limit.

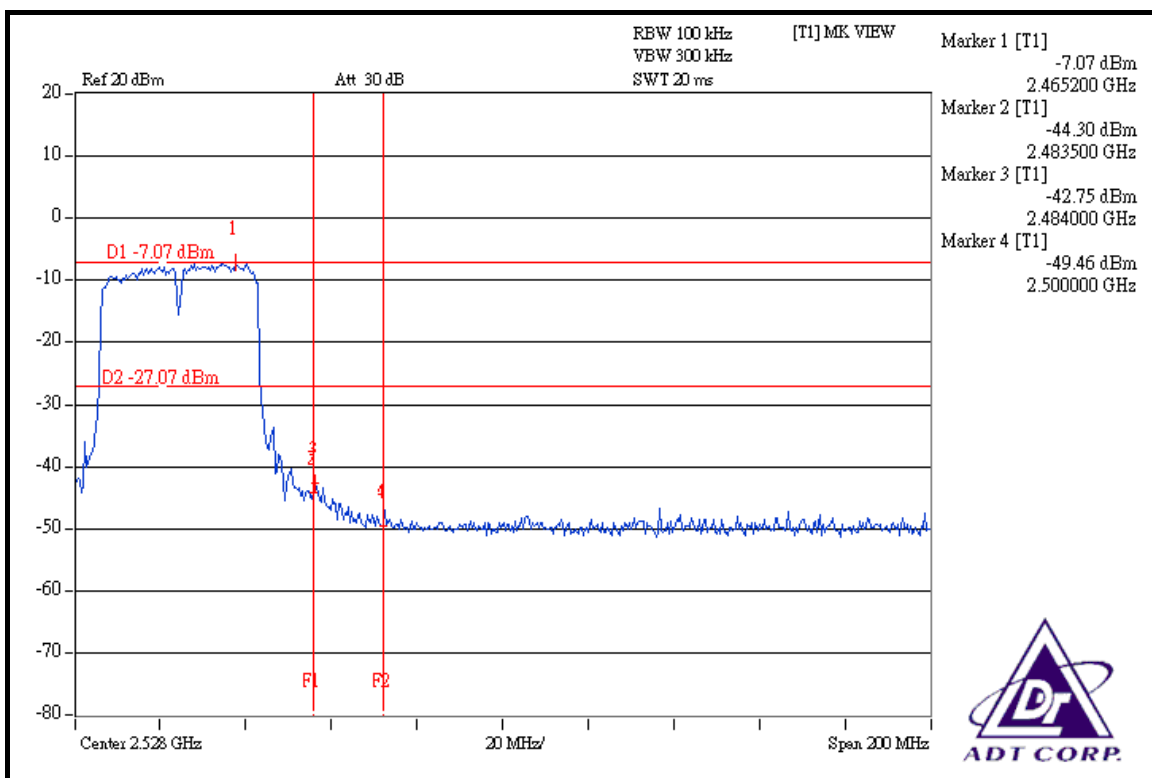
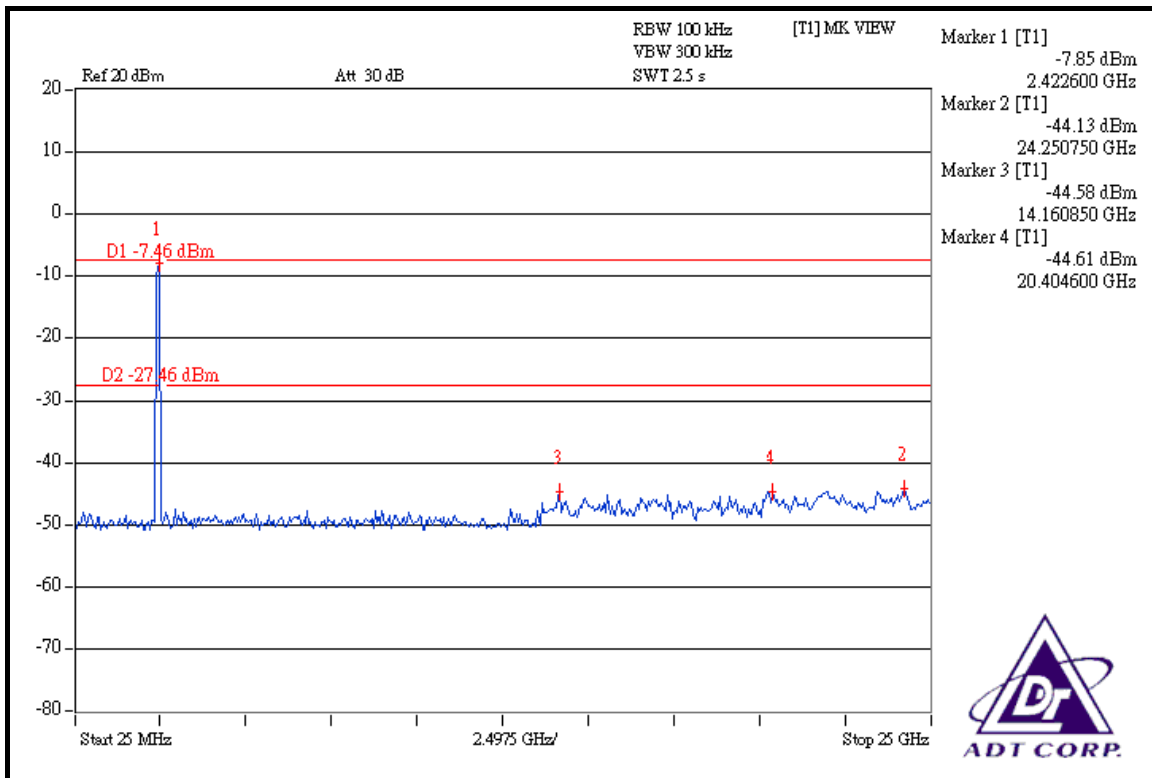
The band edge emission plot on the next page shows 43.68dBc between carrier maximum power and local maximum emission in restrict band (2.39000GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 95.17dBuV/m (Average), so the maximum field strength in restrict band is  $95.17 - 43.68 = 51.49$ dBuV/m which is under 54dBuV/m limit.

### NOTE 2:

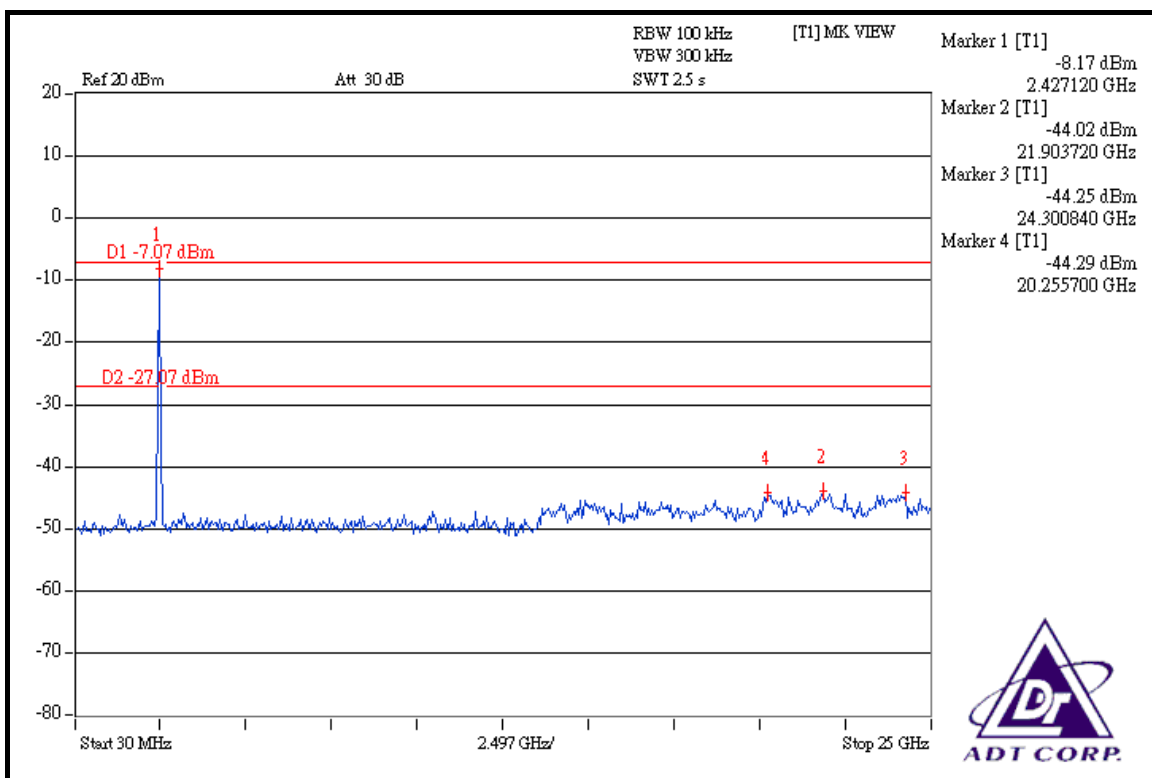
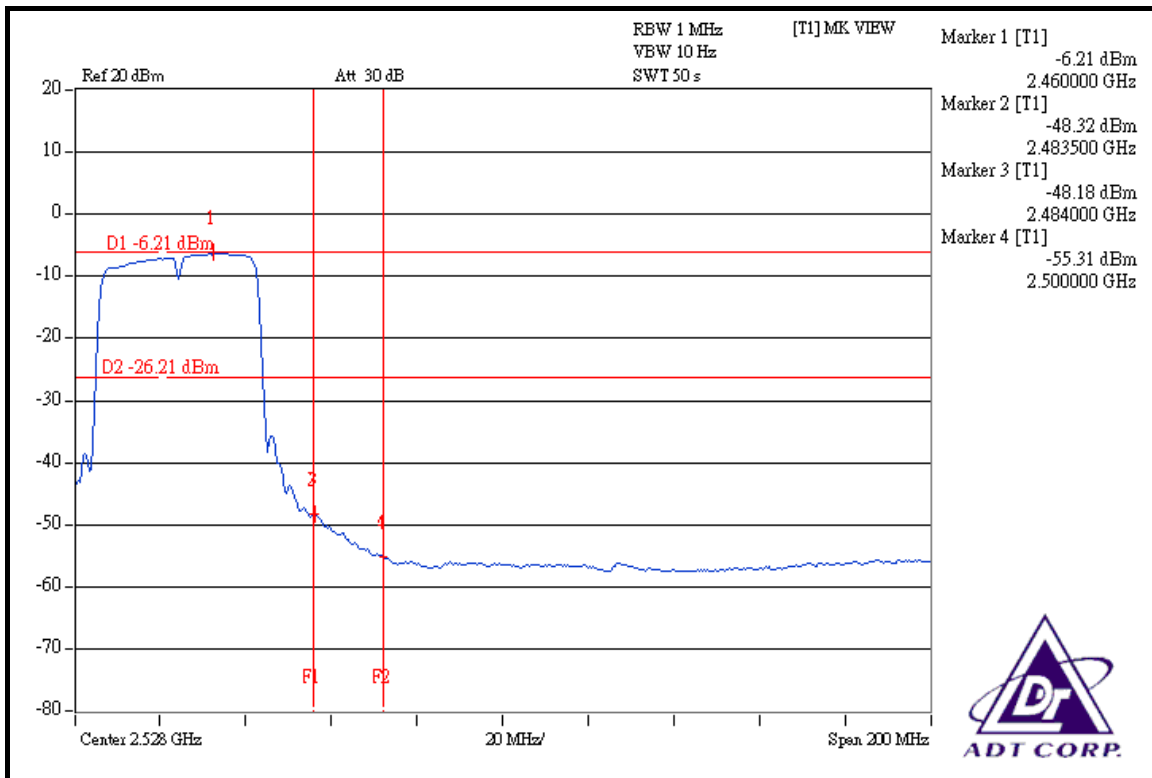
The band edge emission plot on the next second page shows 35.68dBc between carrier maximum power and local maximum emission in restrict band (2.48400GHz). The emission of carrier strength list in the test result of channel 7 at the item 4.2.7 is 106.08dBuV/m (Peak), so the maximum field strength in restrict band is  $106.08 - 35.68 = 70.40$ dBuV/m which is under 74dBuV/m limit.

The band edge emission plot on the next third page shows 41.97dBc between carrier maximum power and local maximum emission in restrict band (2.48400GHz). The emission of carrier strength list in the test result of channel 7 at the item 4.2.7 is 94.79dBuV/m (Average), so the maximum field strength in restrict band is  $94.79 - 41.97 = 52.82$ dBuV/m which is under 54dBuV/m limit.











## **4.7 ANTENNA REQUIREMENT**

### **4.7.1 STANDARD APPLICABLE**

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

### **4.7.2 ANTENNA CONNECTED CONSTRUCTION**

The antenna used in this product is Dipole antenna with R-SMA connector. The maximum gain of the antenna is 1.8dBi.



## 5. PHOTOGRAPHS OF THE TEST CONFIGURATION

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



## 6. INFORMATION ON THE TESTING LABORATORIES

We, ADT Corp., were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

<b>USA</b>	FCC, UL, A2LA
<b>Germany</b>	TUV Rheinland
<b>Japan</b>	VCCI
<b>Norway</b>	NEMKO
<b>Canada</b>	INDUSTRY CANADA, CSA
<b>R.O.C.</b>	TAF, BSMI, NCC
<b>Netherlands</b>	Telefication
<b>Singapore</b>	GOST-ASIA(MOU)
<b>Russia</b>	CERTIS(MOU)

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.



## **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.