



#### 4.4.7 TEST RESULTS

##### 802.11b DSSS MODULATION

<b>MODULATION TYPE</b>	DBPSK	<b>TRANSFER RATE</b>	1Mbps
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>ENVIRONMENTAL CONDITIONS</b>	26deg.C, 66%RH, 991hPa
<b>TESTED BY</b>	Lori Chiu		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	89.950	19.54	30	PASS
6	2437	89.743	19.53	30	PASS
11	2462	63.680	18.04	30	PASS

##### 802.11g OFDM MODULATION

<b>MODULATION TYPE</b>	BPSK	<b>TRANSFER RATE</b>	6Mbps
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>ENVIRONMENTAL CONDITIONS</b>	26deg.C, 66%RH, 991hPa
<b>TESTED BY</b>	Lori Chiu		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	25.293	14.03	30	PASS
6	2437	25.351	14.04	30	PASS
11	2462	25.410	14.05	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
SPECTRUM ANALYZER	FSEK30	100049	Aug. 14, 2006

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

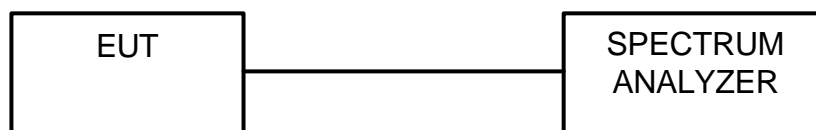
#### 4.5.3 TEST PROCEDURE

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 CONDITIONS

Same as 4.3.6



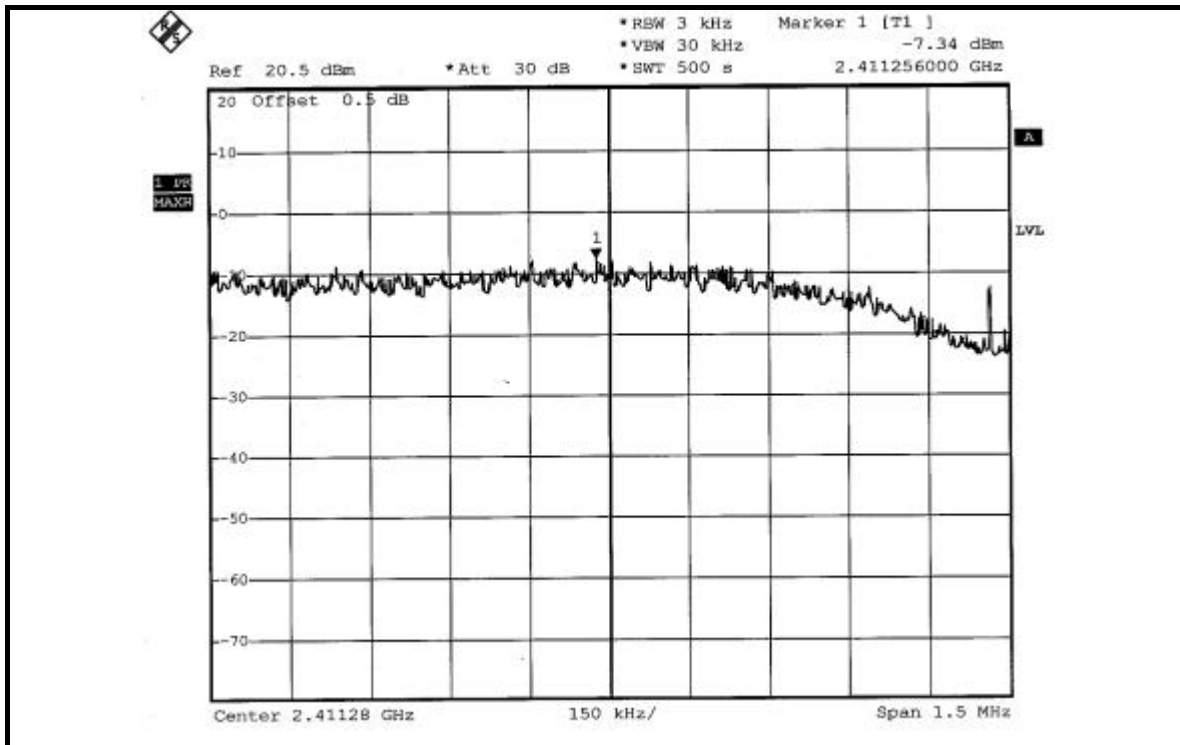
#### 4.5.7 TEST RESULTS

##### 802.11b DSSS MODULATION

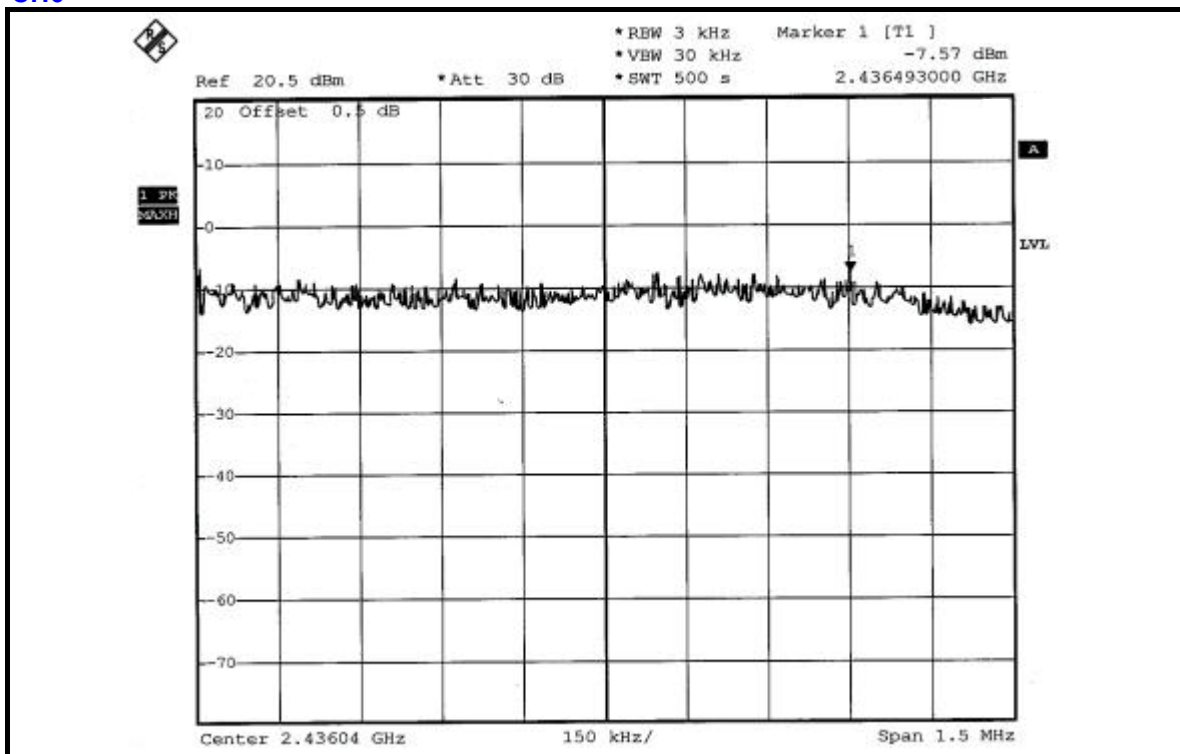
<b>MODULATION TYPE</b>	DBPSK	<b>TRANSFER RATE</b>	1Mbps
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>ENVIRONMENTAL CONDITIONS</b>	26deg.C, 66%RH, 991hPa
<b>TESTED BY</b>	Lori Chiu		

<b>CHANNEL</b>	<b>CHANNEL FREQUENCY (MHz )</b>	<b>RF POWER LEVEL IN 3 kHz BW (dBm)</b>	<b>MAXIMUM LIMIT (dBm)</b>	<b>PASS/FAIL</b>
1	2412	-7.34	8	PASS
6	2437	-7.57	8	PASS
11	2462	-8.26	8	PASS

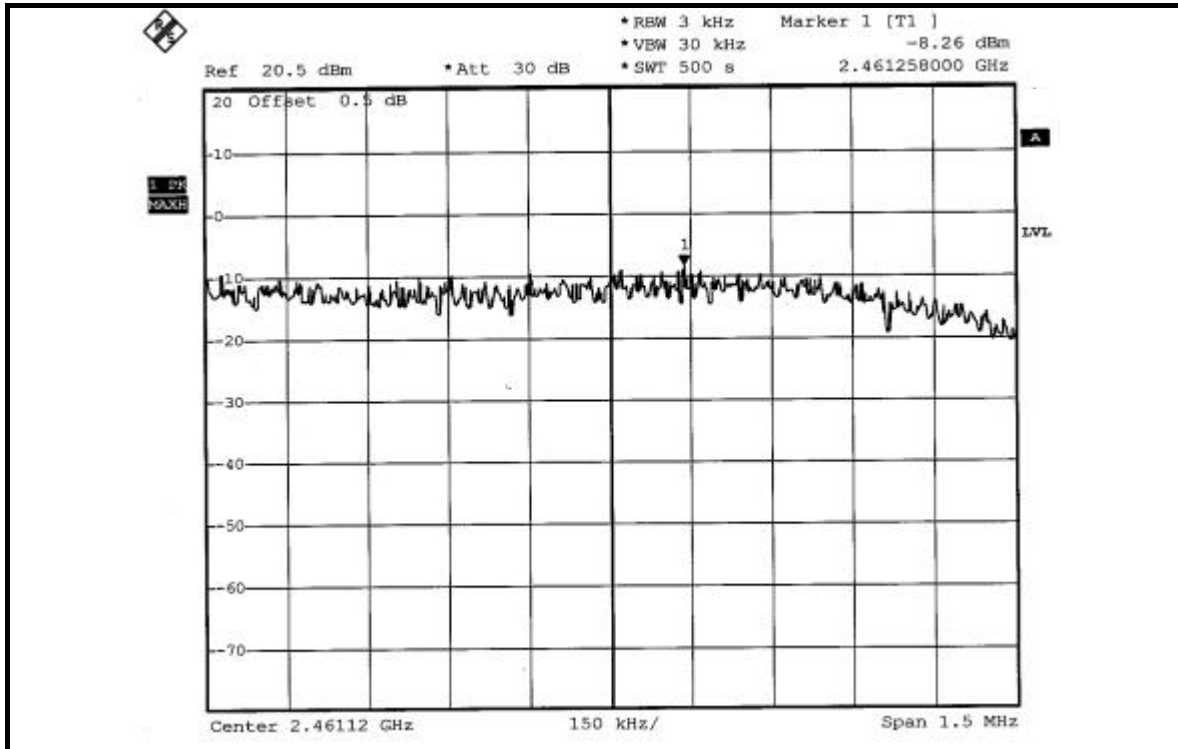
CH1



CH6



CH11



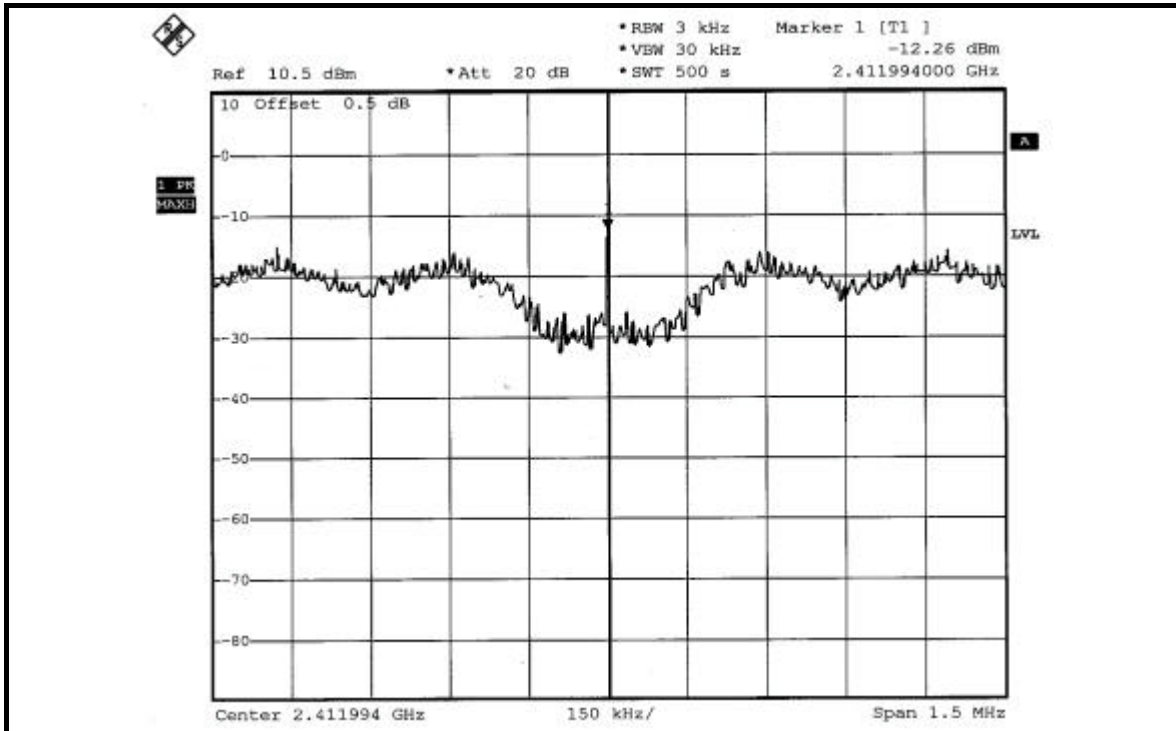


### 802.11g OFDM MODULATION

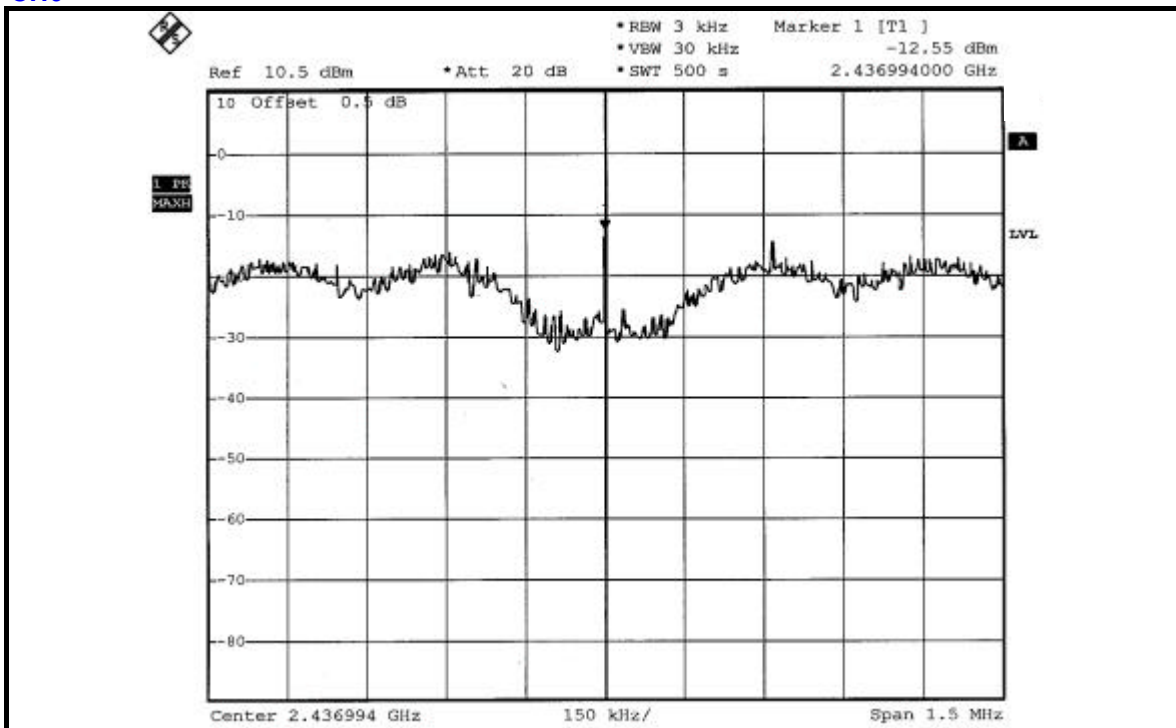
<b>MODULATION TYPE</b>	BPSK	<b>TRANSFER RATE</b>	6Mbps
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>ENVIRONMENTAL CONDITIONS</b>	26deg.C, 66%RH, 991hPa
<b>TESTED BY</b>	Lori Chiu		

<b>CHANNEL</b>	<b>CHANNEL FREQUENCY (MHz )</b>	<b>RF POWER LEVEL IN 3 kHz BW (dBm)</b>	<b>MAXIMUM LIMIT (dBm)</b>	<b>PASS/FAIL</b>
1	2412	-12.26	8	PASS
6	2437	-12.55	8	PASS
11	2462	-12.58	8	PASS

CH1

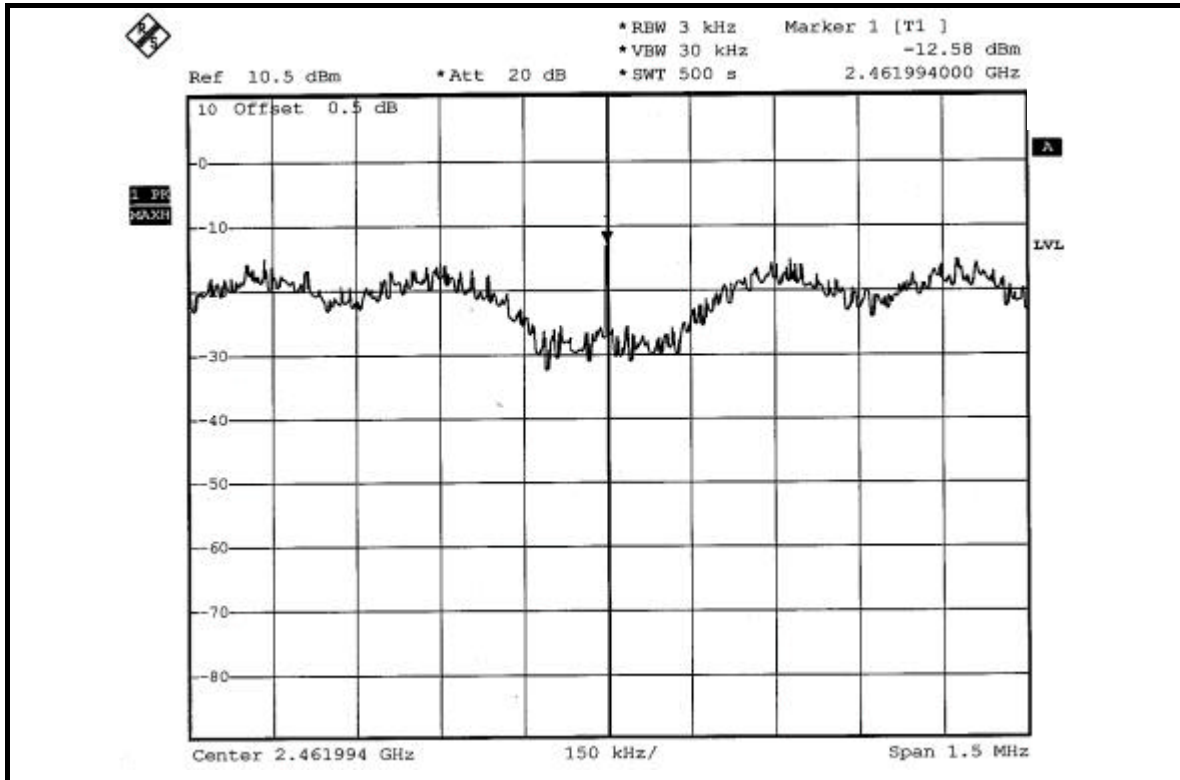


CH6





CH11





## 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
SPECTRUM ANALYZER	FSEK30	100049	Aug. 14, 2006

**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 100MHz bandwidth from band edge. The band edges was measured and recorded. The spectrum plots (Peak RBW=VBW=100kHz; 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 12 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

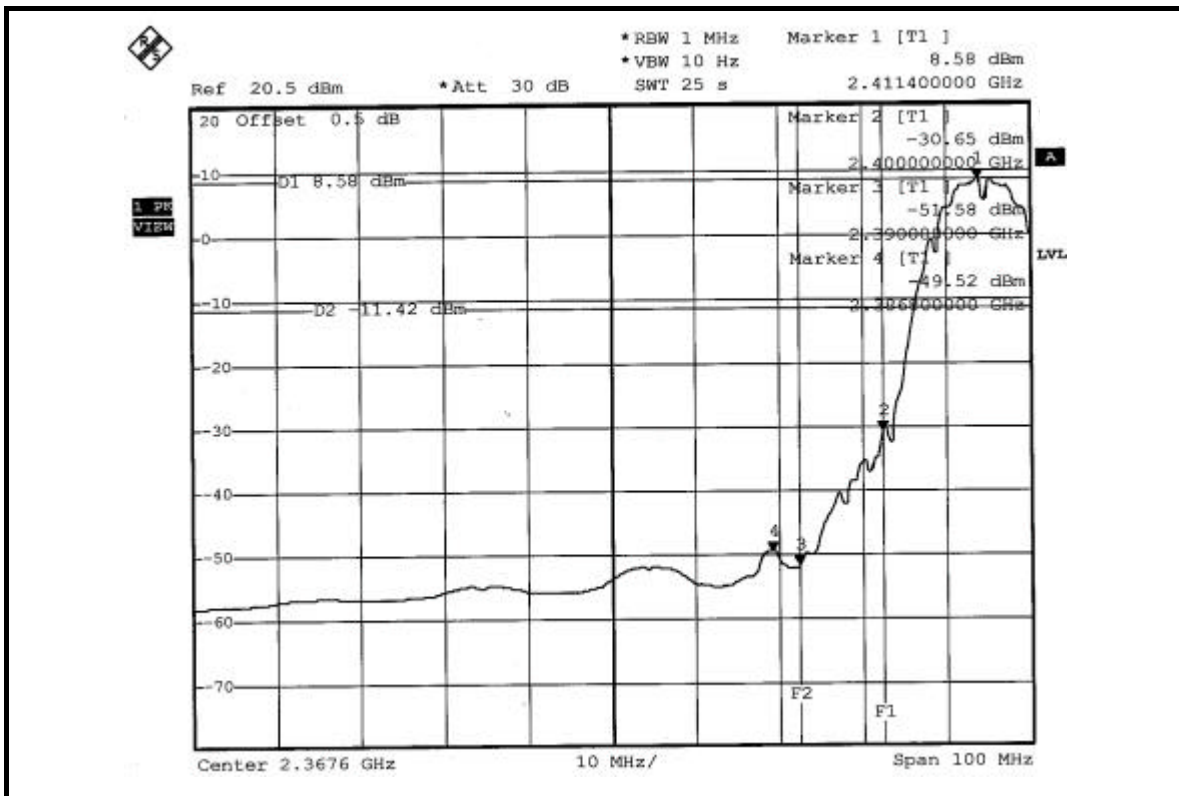
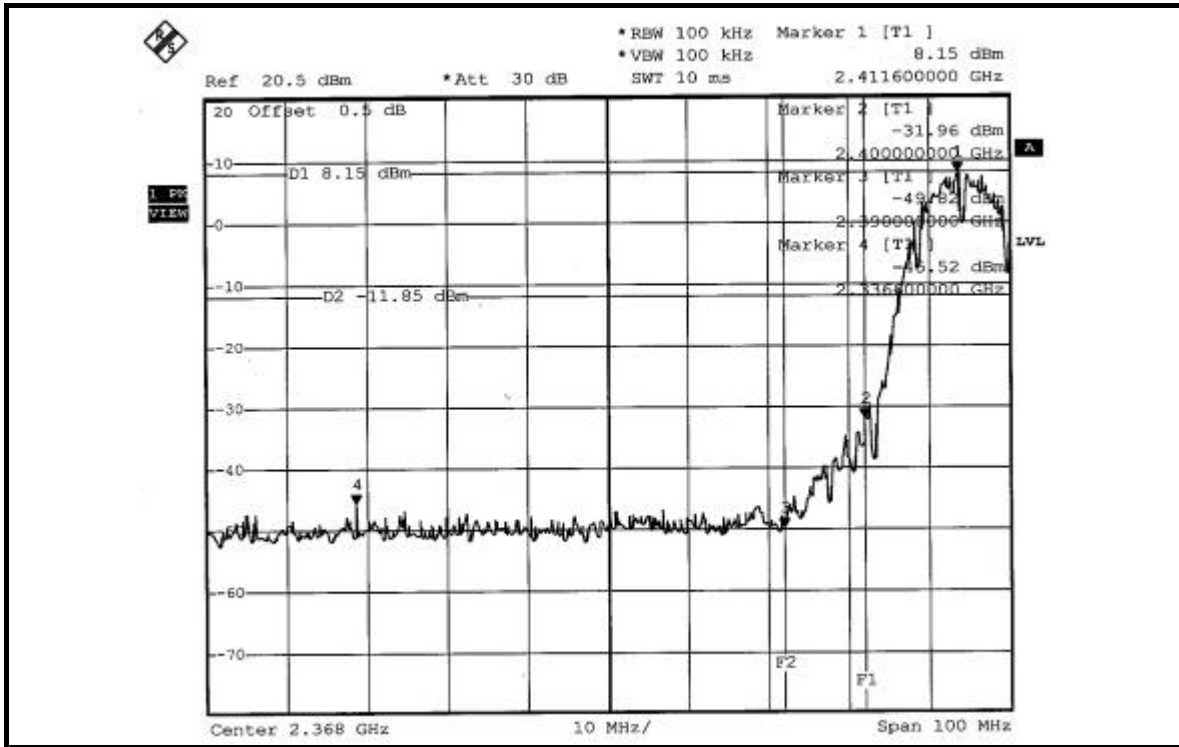
**NOTE 1:** The band edge emission plot of DSSS technique on the next page shows 53.67dBc between carrier maximum power and local maximum emission in restrict band (2.3366GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 114.08dBuV/m (Peak), so the maximum field strength in restrict band is  $114.08 - 53.67 = 60.41$ dBuV/m which is under 74dBuV/m limit.

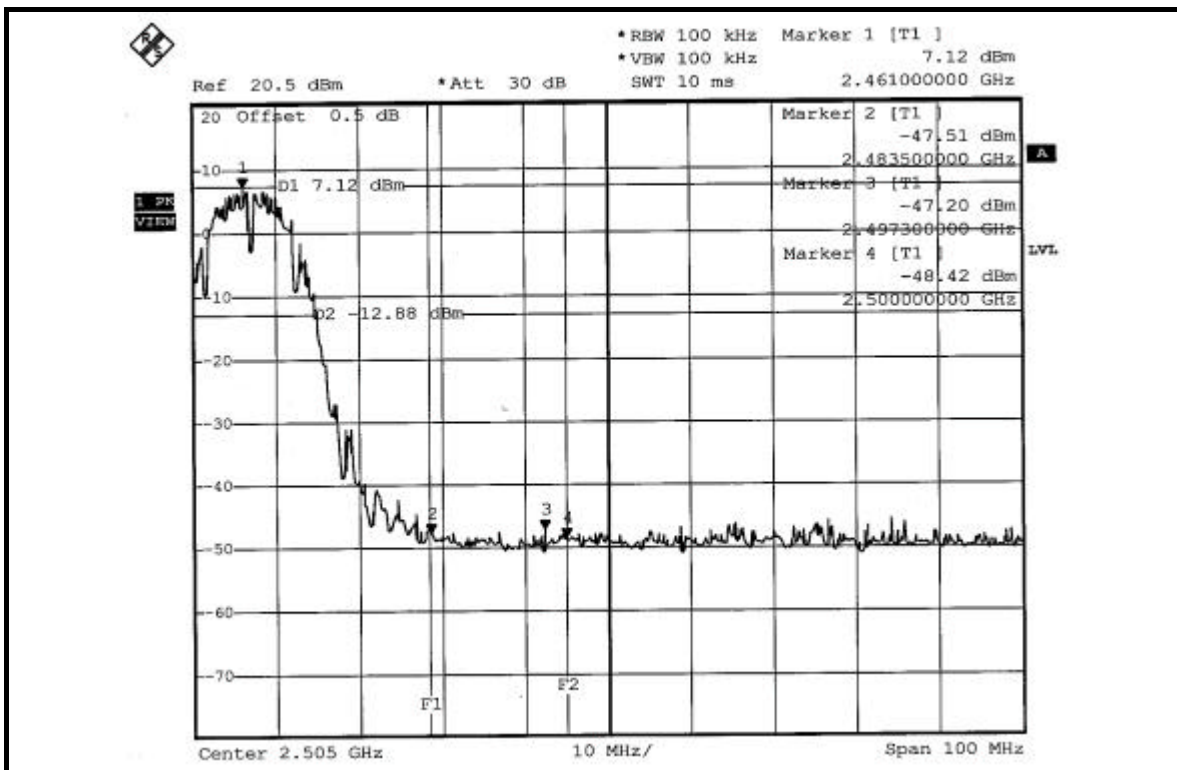
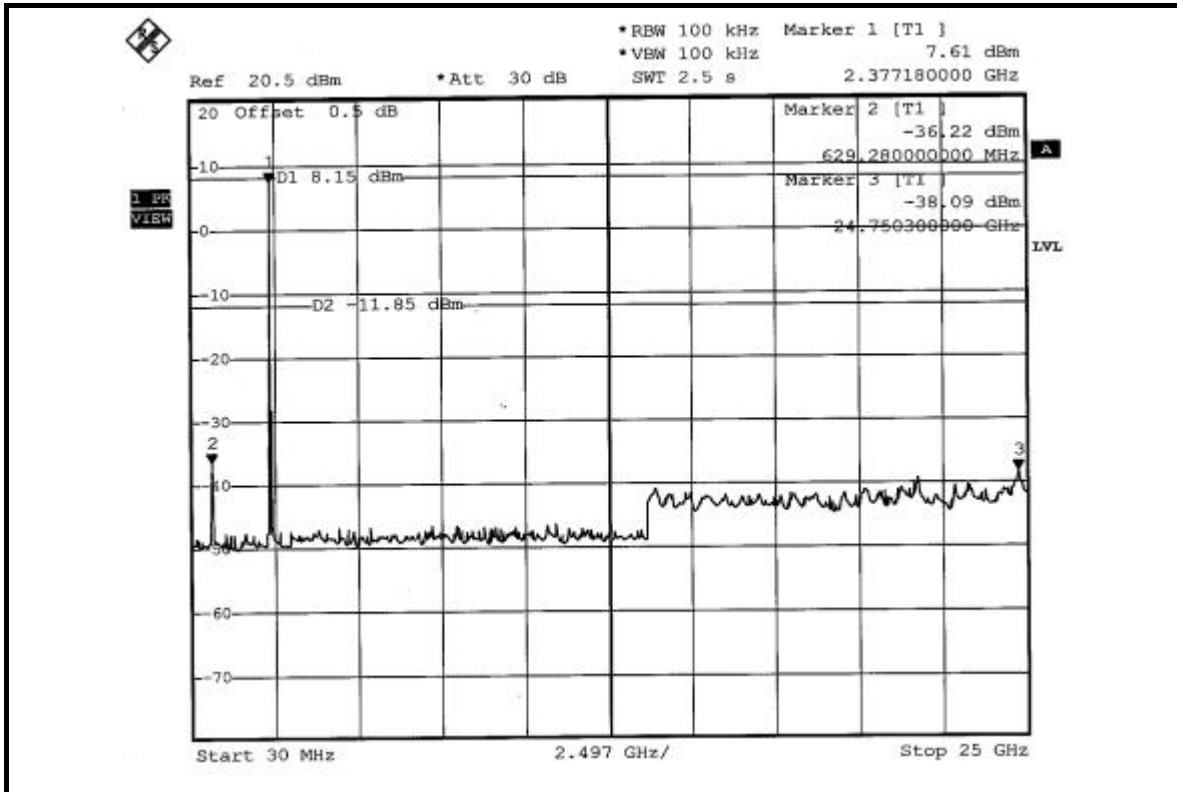
The band edge emission plot of DSSS technique on the next page shows 58.10dBc between carrier maximum power and local maximum emission in restrict band (2.3868GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 110.41dBuV/m (Average), so the maximum field strength in restrict band is  $110.41 - 58.10 = 52.31$ dBuV/m which is under 54dBuV/m limit.

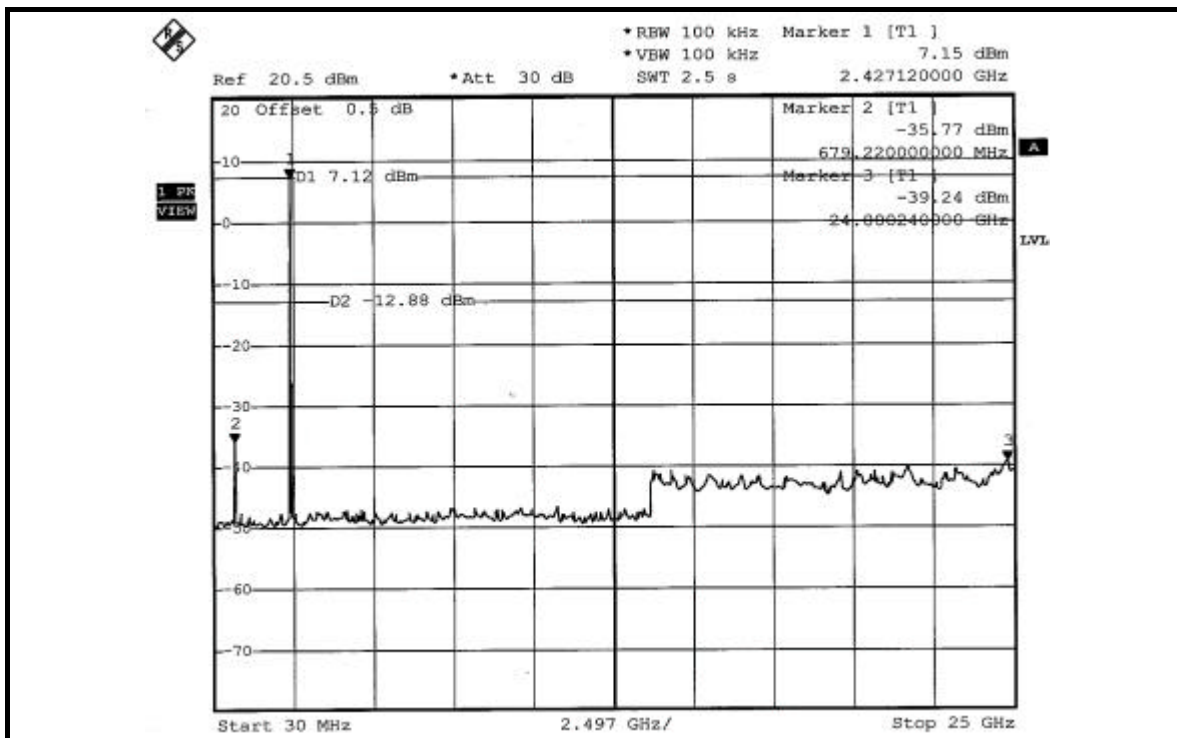
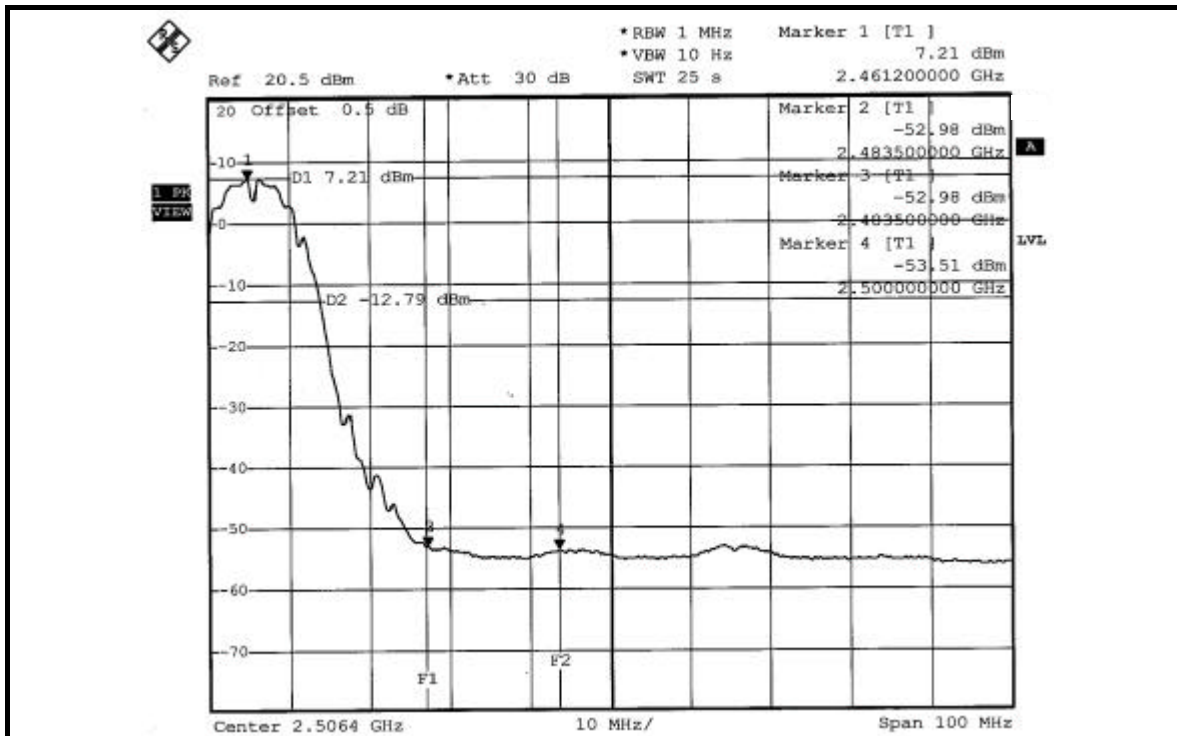
**NOTE 2:** The band edge emission plot of DSSS technique on the next second shows 54.32dBc between carrier maximum power and local maximum emission in restrict band (2.4973GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 113.32dBuV/m (Peak), so the maximum field strength in restrict band is  $113.32 - 54.32 = 59.00$ dBuV/m which is under 74dBuV/m limit.

The band edge emission plot of DSSS technique on the next third page shows 60.19dBc between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 109.69dBuV/m (Average), so the maximum field strength in restrict band is  $109.69 - 60.19 = 49.50$ dBuV/m which is under 54dBuV/m limit.

### 802.11b DSSS MODULATION







### 802.11g OFDM MODULATION

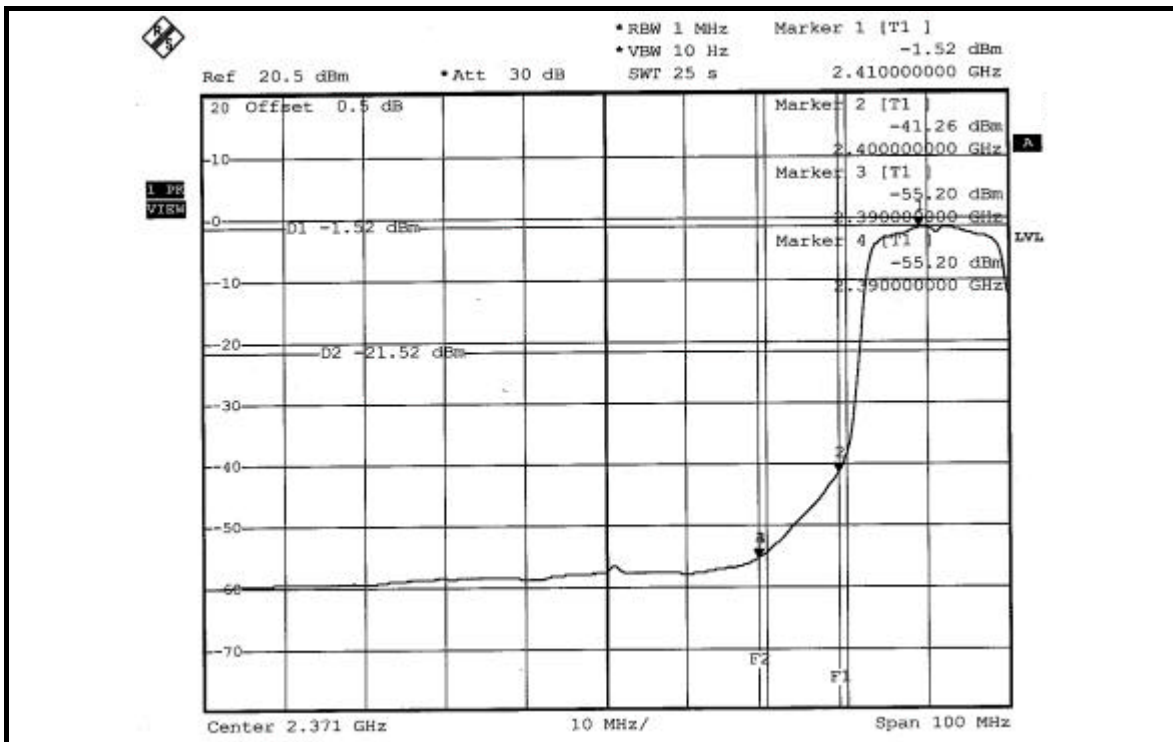
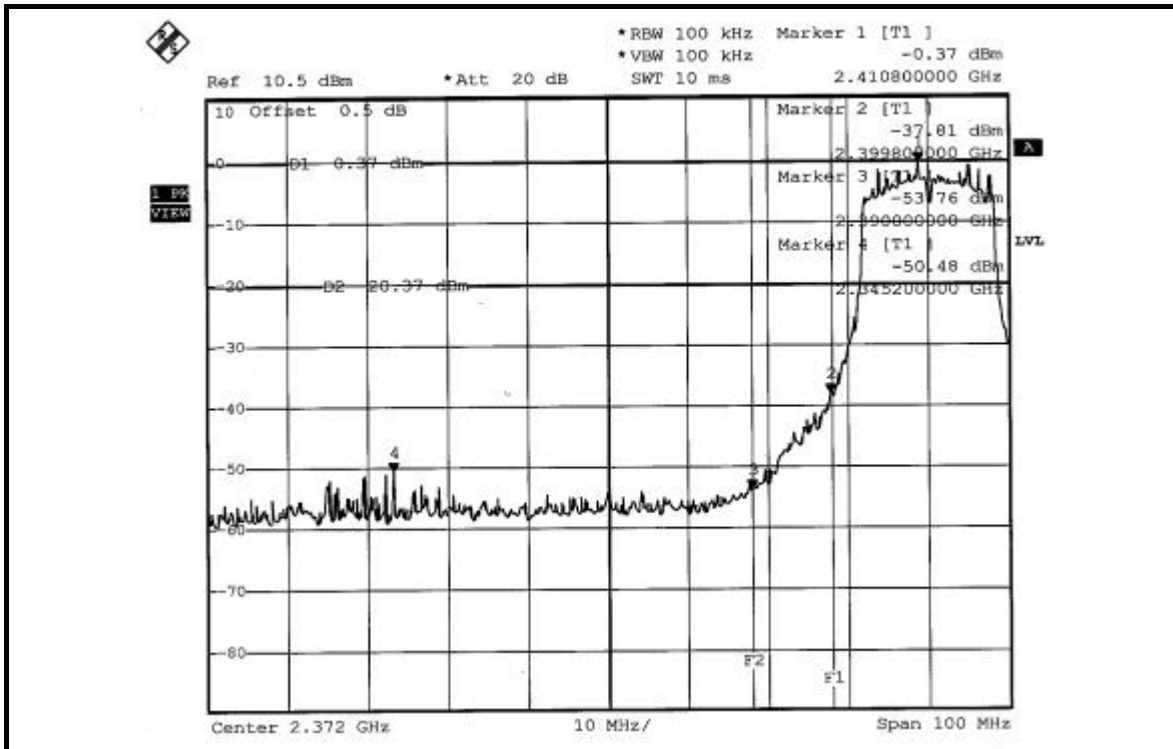
**NOTE 1:** The band edge emission plot of OFDM technique on the next page shows 50.11dBc between carrier maximum power and local maximum emission in restrict band (2.3452GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 109.42dBuV/m (Peak), so the maximum field strength in restrict band is  $109.42 - 50.11 = 59.31$ dBuV/m which is under 74dBuV/m limit.

The band edge emission plot of OFDM technique on the next page shows 53.68dBc between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 99.98dBuV/m (Average), so the maximum field strength in restrict band is  $99.98 - 53.68 = 46.30$ dBuV/m which is under 54dBuV/m limit.

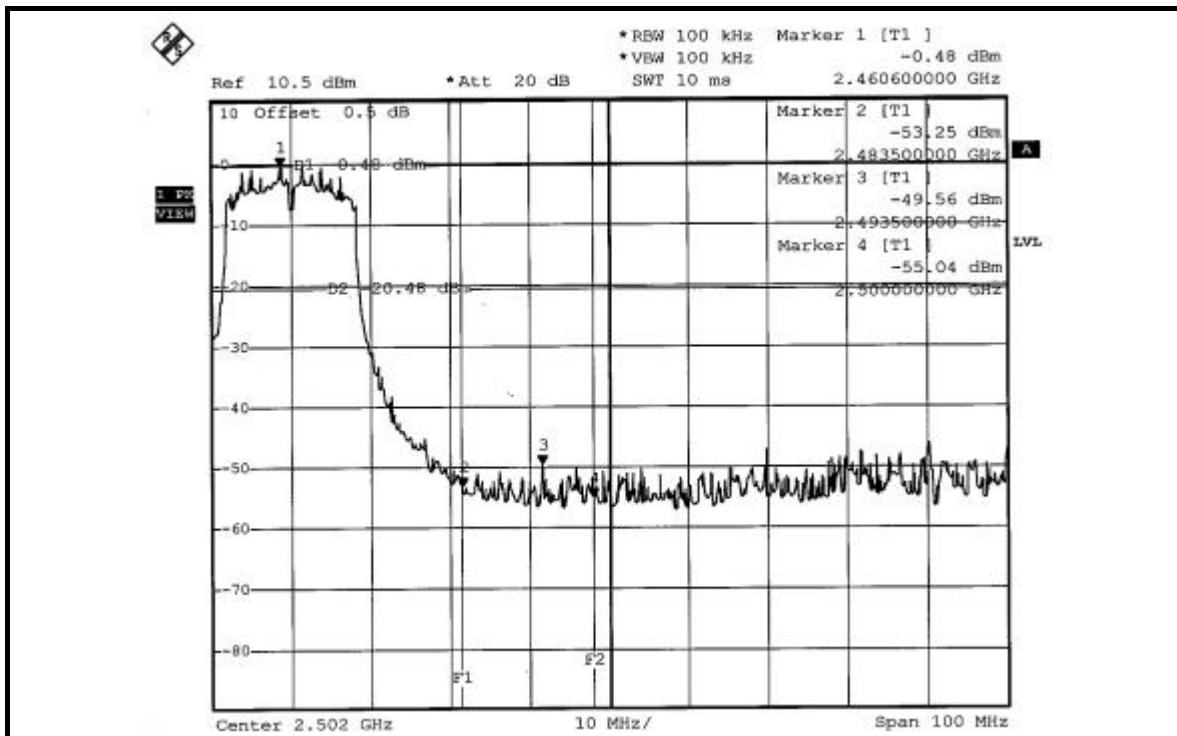
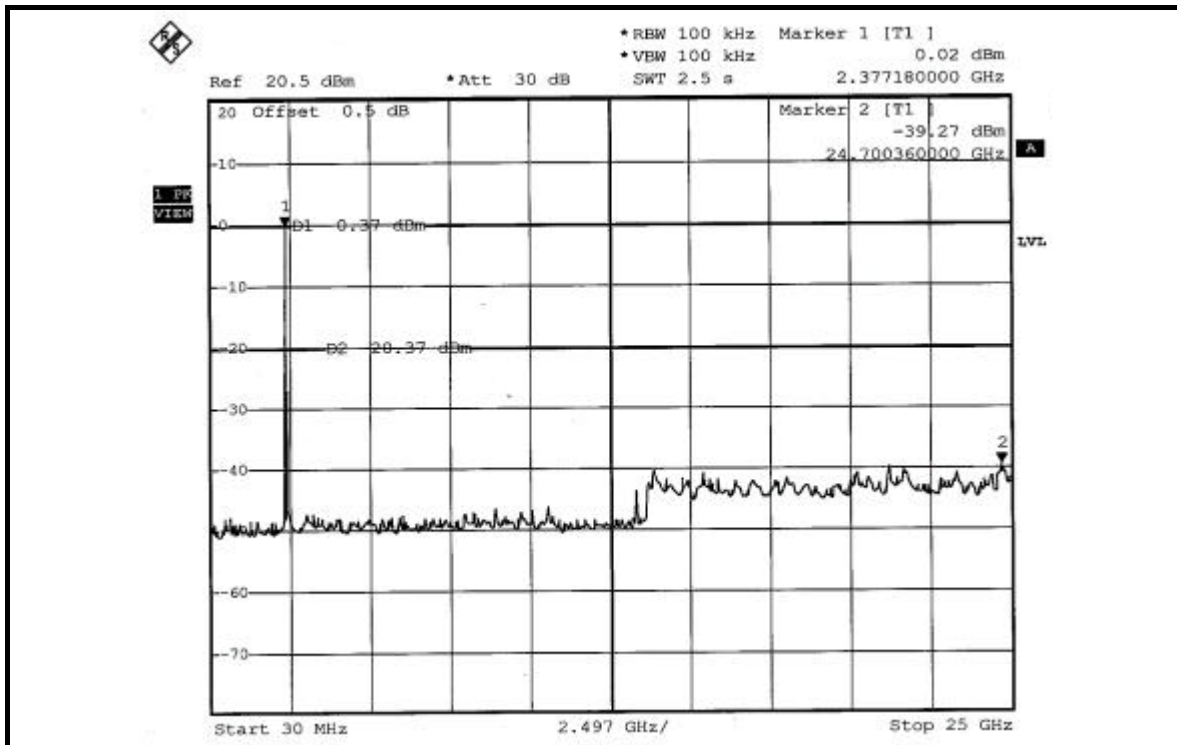
**NOTE 2:** The band edge emission plot of OFDM technique on the second page shows 49.08dBc between carrier maximum power and local maximum emission in restrict band (2.4935GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 109.74dBuV/m (Peak), so the maximum field strength in restrict band is  $109.74 - 49.08 = 60.66$ dBuV/m which is under 74dBuV/m limit.

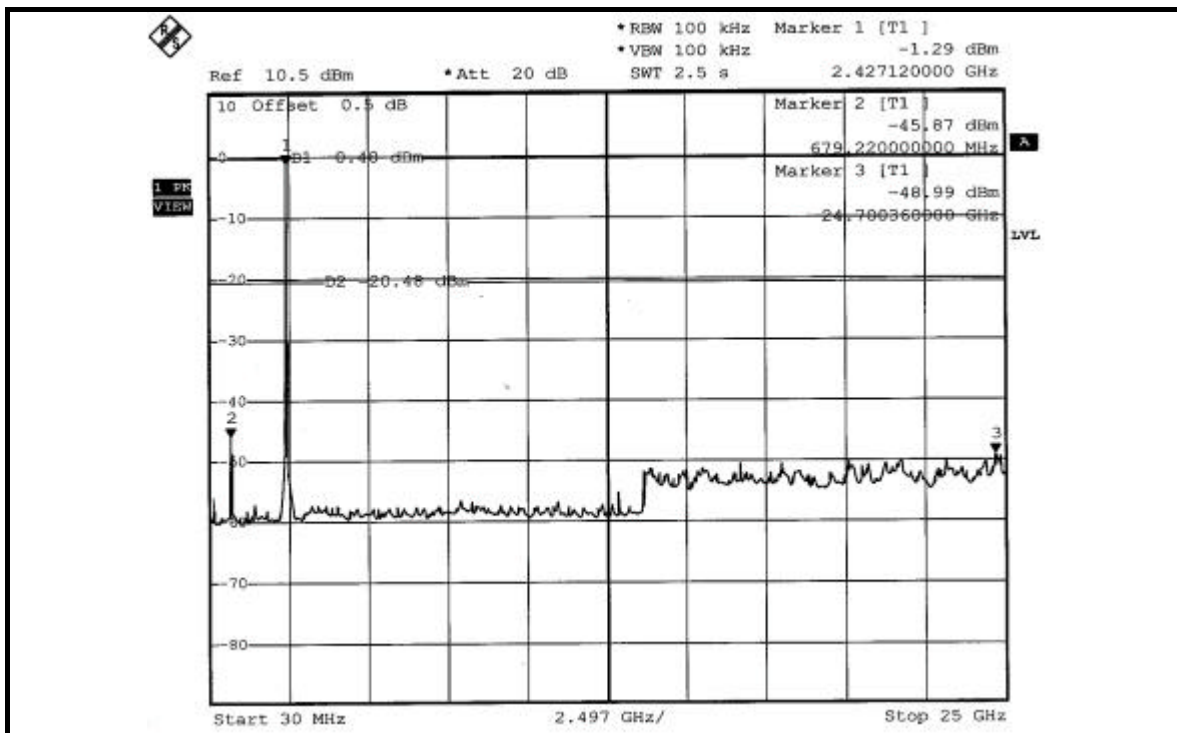
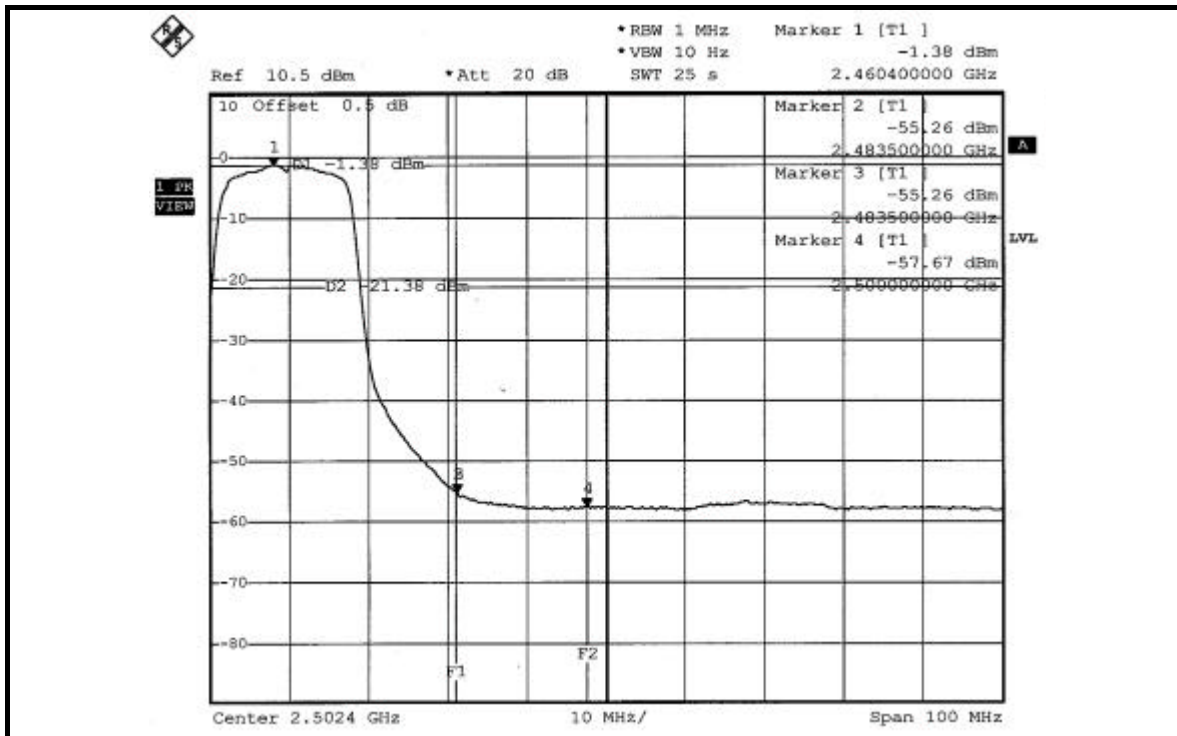
The band edge emission plot of OFDM technique on the third page shows 53.88dBc between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 100.41dBuV/m (Average), so the maximum field strength in restrict band is  $100.41 - 53.88 = 46.53$ dBuV/m which is under 54dBuV/m limit.

### 802.11g OFDM MODULATION











## **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**

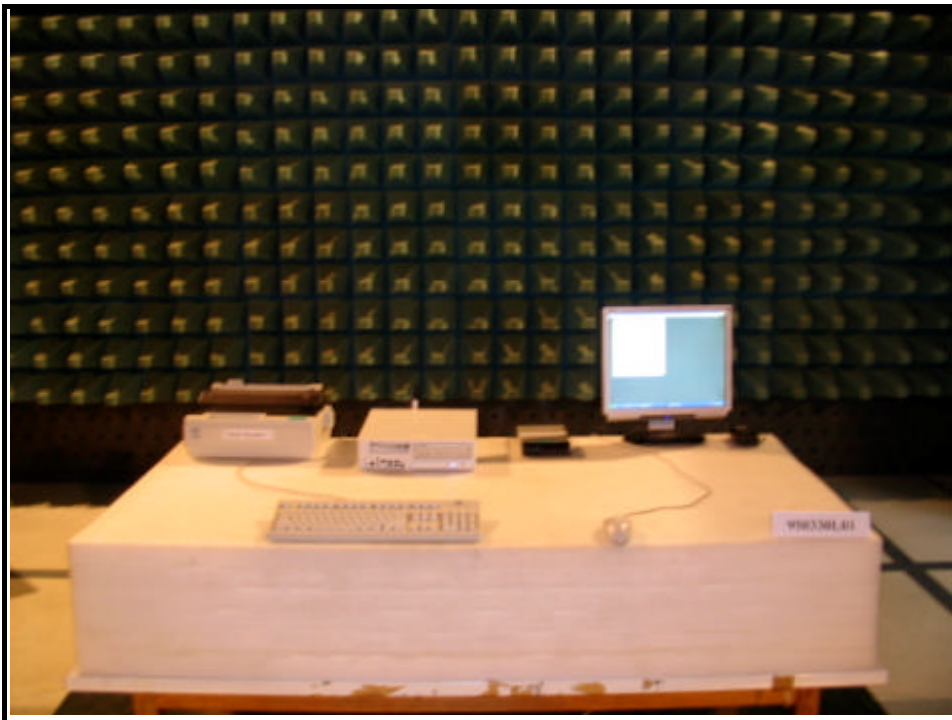
The antenna used in this product is Dipole antenna with R-SMA connector. The maximum Gain of the antenna is 2.5dBi.

## 5 PHOTOGRAPHS OF THE TEST CONFIGURATION

### CONDUCTED EMISSION TEST



## RADIATED EMISSION TEST





## 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>	CNLA, BSMI, DGT
<b>Netherlands</b>	Telefication
<b>Singapore</b>	PSB , 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: 886-2-26052943

**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

**Linko RF Lab.**

Tel: 886-3-3270910

Fax: 886-3-3270892

**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.



## **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.