



## 4.7 MAXIMUM PEAK OUTPUT POWER

### 4.7.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

### 4.7.2 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.

### 4.7.3 TEST PROCEDURES

- a. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
- b. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
- c. The center frequency of the spectrum analyzer is set to the fundamental frequency and using 1 MHz RBW and 3 MHz VBW (GFSK), 3MHz RBW and 10 MHz VBW (8DPSK).
- d. Measure the captured power within the band and recording the plot.
- e. Repeat above procedures until all frequencies required were complete.

### 4.7.4 DEVIATION FROM TEST STANDARD

No deviation



4.7.5 TEST SETUP



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

4.7.6 EUT OPERATING CONDITION

The software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel frequencies individually.

4.7.7 TEST RESULTS

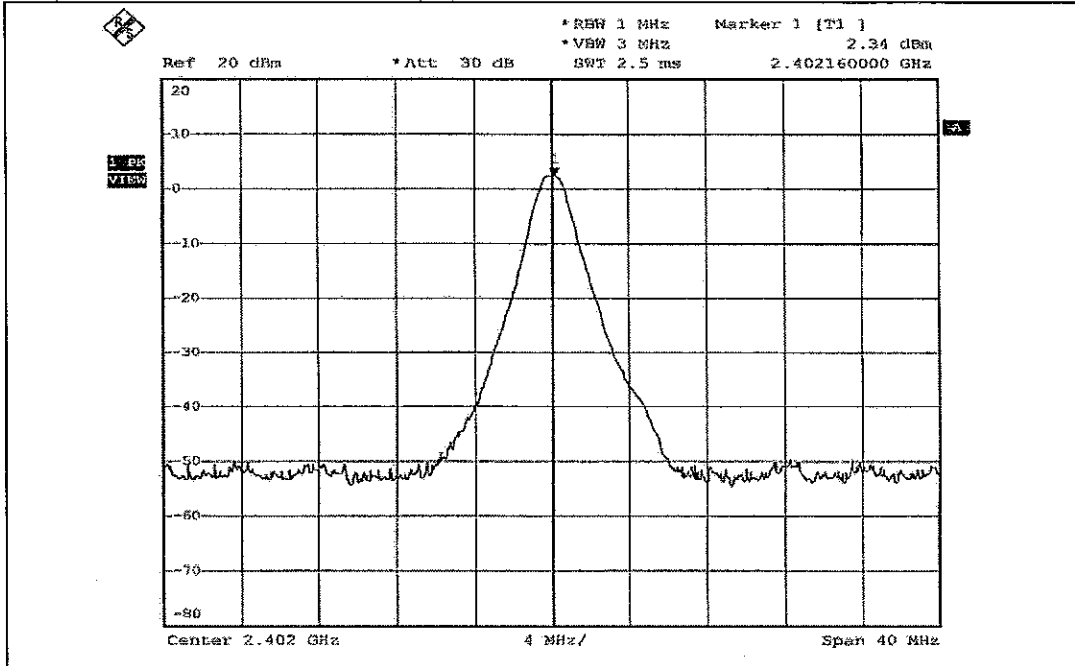
MODE A FOR GFSK

EUT TEST CONDITION		MEASUREMENT DETAIL	
MODULATION TYPE	GFSK	ENVIRONMENTAL CONDITIONS	27deg. C, 65%RH, 991hPa
TESTED BY	Long Chen	INPUT POWER (SYSTEM)	120Vac, 60 Hz

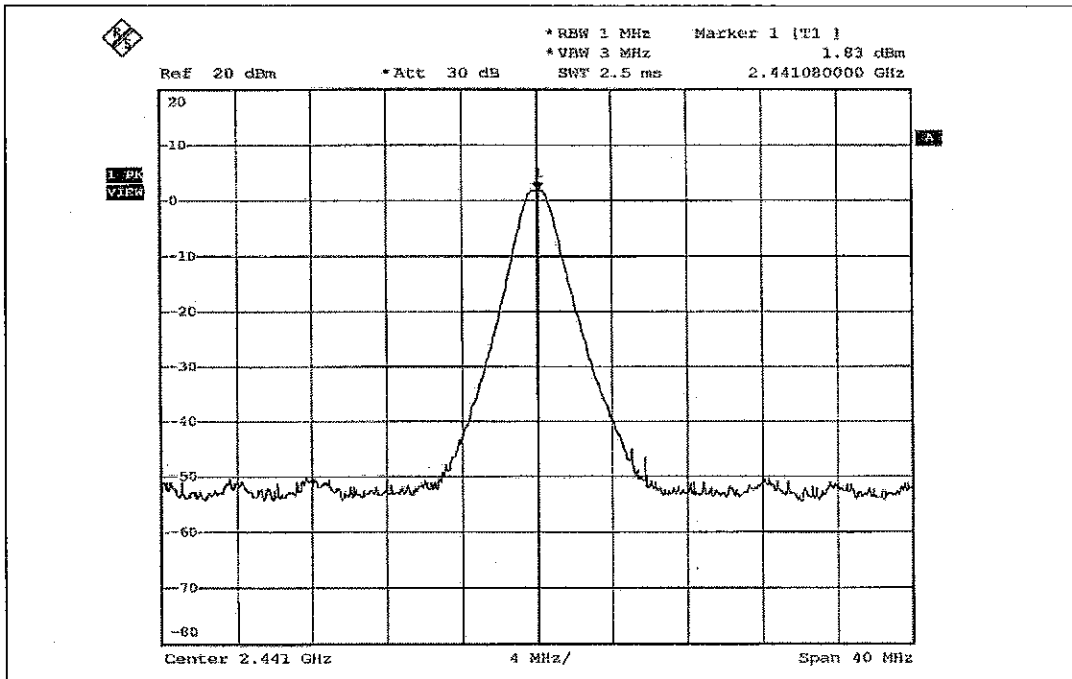
CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (mW)	PASS/FAIL
0	2402	1.714	2.340	125	PASS
39	2441	1.524	1.830	125	PASS
78	2480	1.143	0.580	125	PASS



CH 0

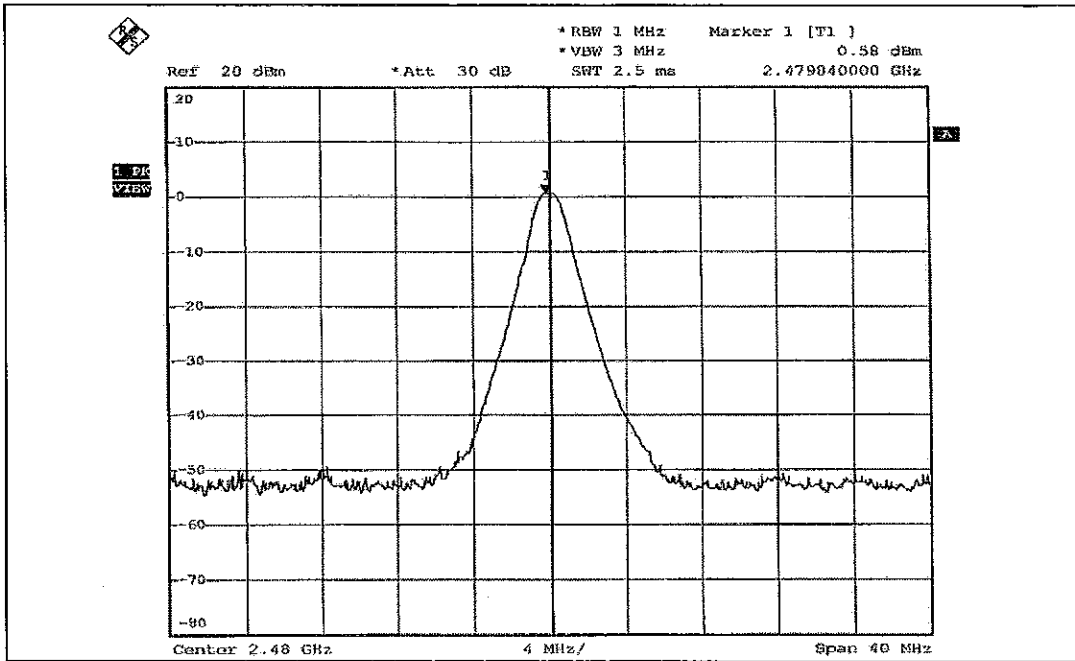


CH 39





CH 78





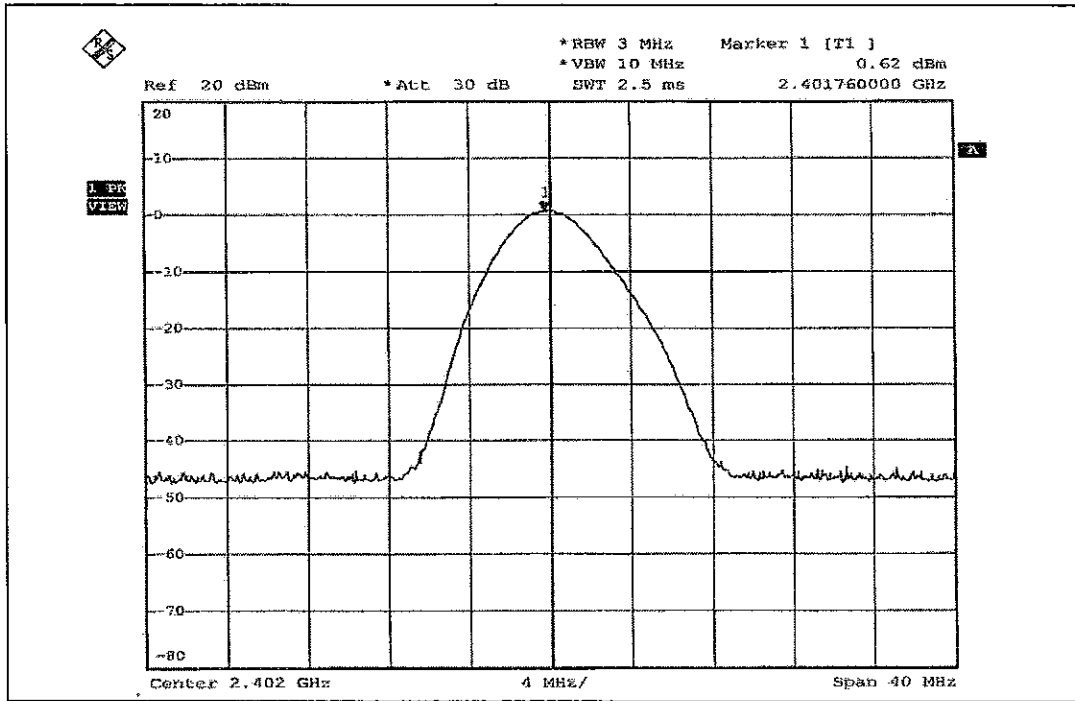
MODE B FOR 8DPSK

EUT TEST CONDITION		MEASUREMENT DETAIL	
MODULATION TYPE	8DPSK	ENVIRONMENTAL CONDITIONS	27deg. C, 65%RH, 991hPa
TESTED BY	Long Chen	INPUT POWER (SYSTEM)	120Vac, 60 Hz

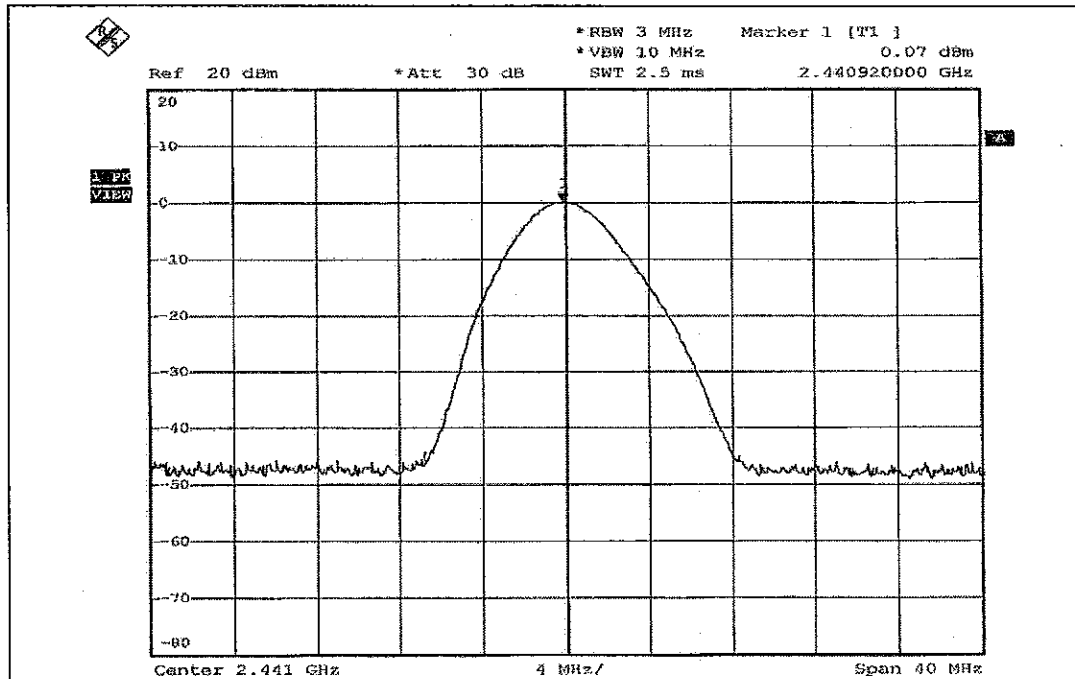
CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (mW)	PASS/FAIL
0	2402	1.153	0.62	125	PASS
39	2441	1.016	0.07	125	PASS
78	2480	0.676	-1.70	125	PASS



CH 0

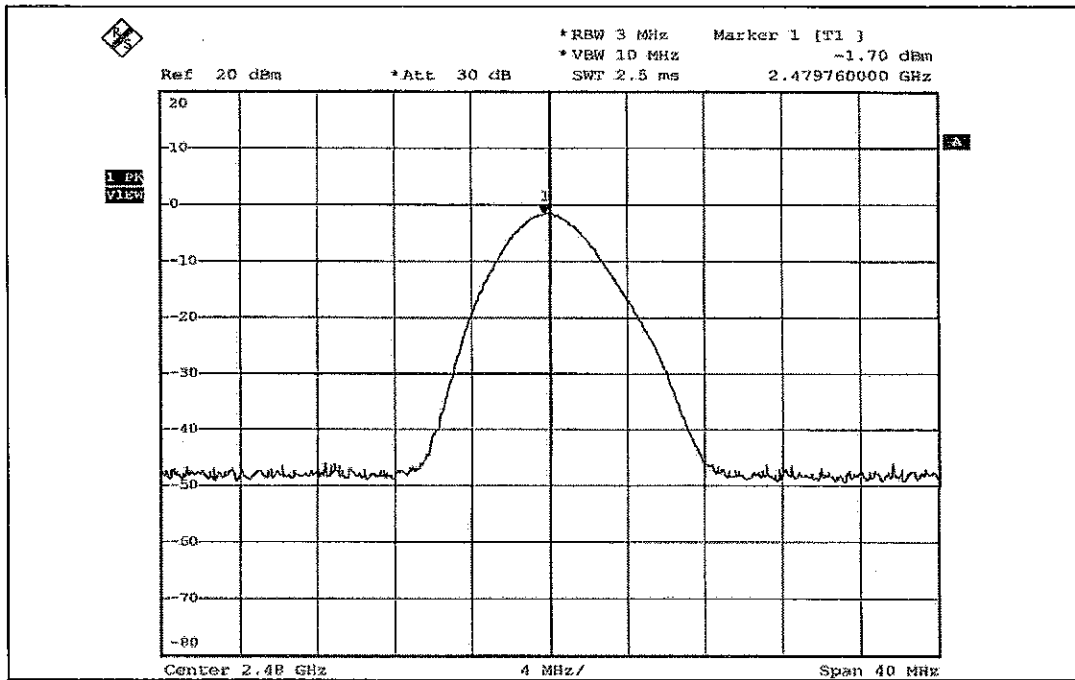


CH 39





CH 78





## 4.8 BAND EDGES MEASUREMENT

### 4.8.1 LIMITS OF BAND EDGES MEASUREMENT

Below -20dB of the highest emission level of operating band (in 100KHz RBW).

### 4.8.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
SPECTRUM ANALYZER	FSEK30	100049	Aug. 14, 2006

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

### 4.8.3 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 100 kHz with suitable frequency span including 100 MHz bandwidth from band edge. The band edges was measured and recorded.

### 4.8.4 DEVIATION FROM TEST STANDARD

No deviation.

### 4.8.5 EUT OPERATING CONDITION

The software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel frequencies individually.





#### 4.8.6 TEST RESULTS

The spectrum plots are attached on the following 4 images. D1 line indicates the highest level, D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(d).

#### MODE A FOR GFSK

##### NOTE 1:

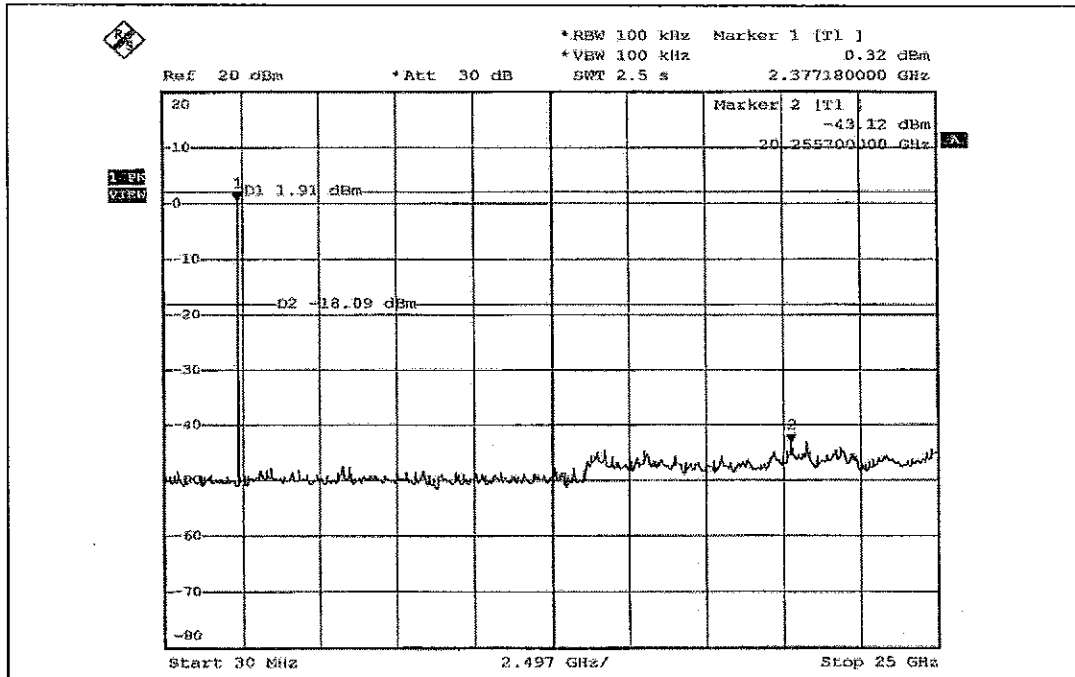
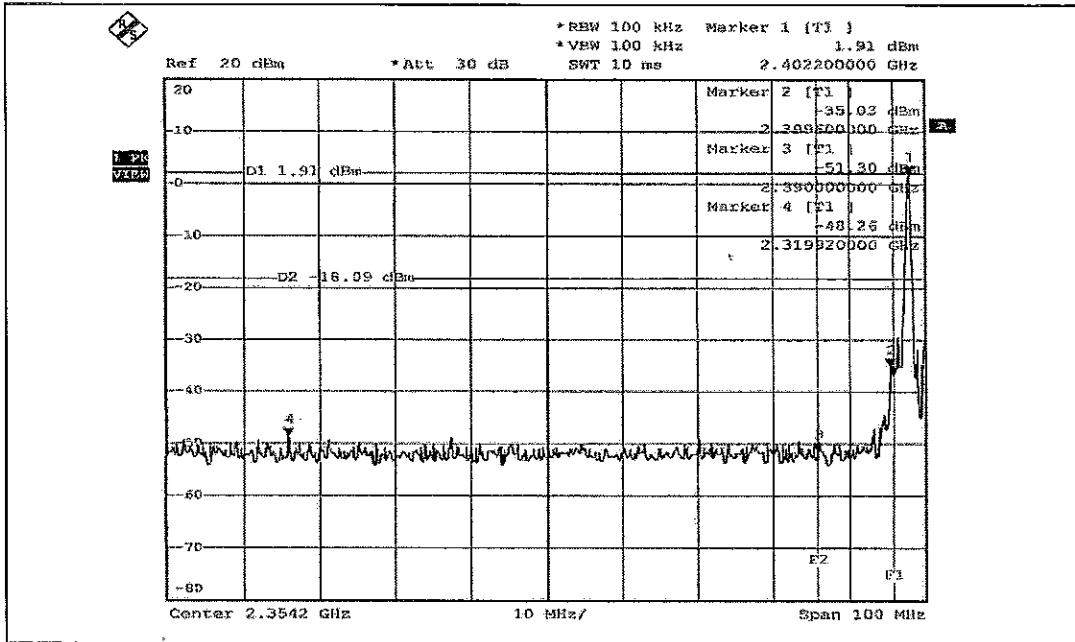
The band edge emission plot on page 77 shows 50.17dBc between carrier maximum power and local maximum emission in restrict band (2.3199GHz). The emission of carrier strength list in the test result of channel 0 at the item 4.2.7 is 100.77dBuV/m (Peak), so the maximum field strength in restrict band is  $100.77 - 50.17 = 50.60$ dBuV/m, which is under 74 dBuV/m limit.

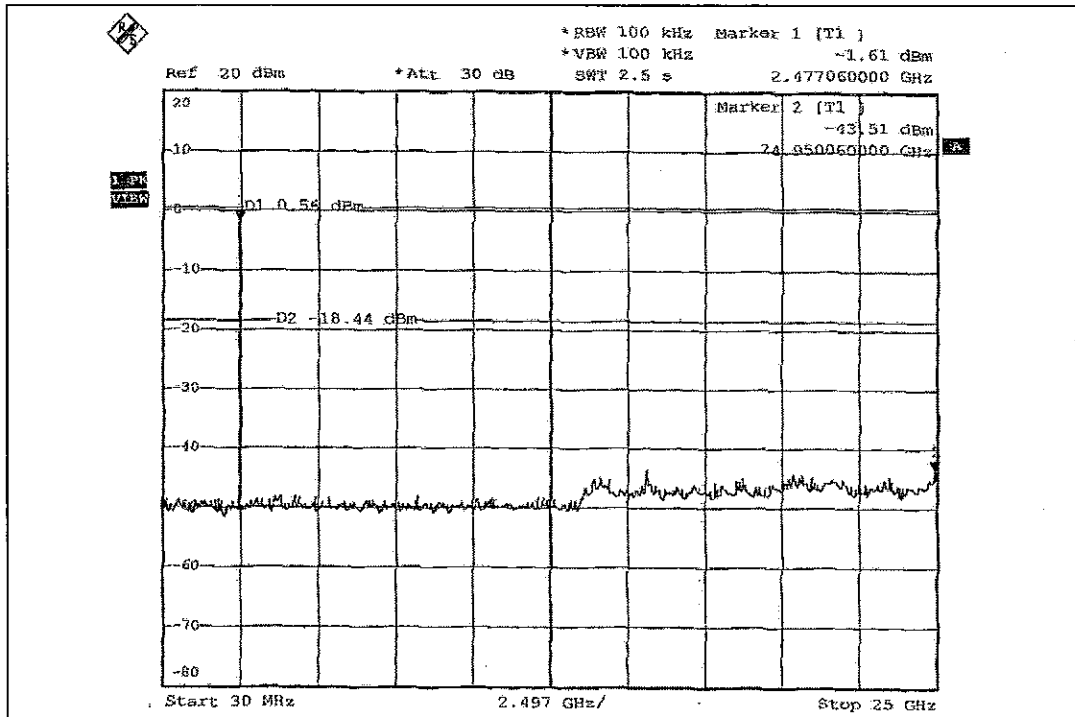
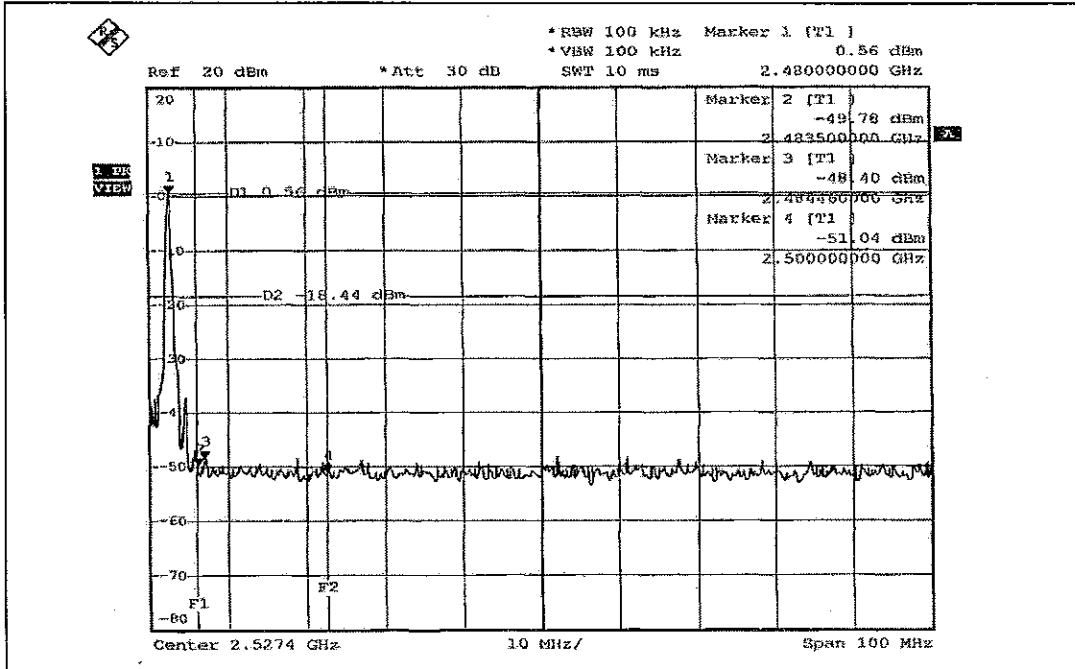
The band edge emission plot on page 77 shows 50.17dBc between carrier maximum power and local maximum emission in restrict band (2.3199GHz). The emission of carrier strength list in the test result of channel 0 at the item 4.2.7 is 70.77dBuV/m (Average), so the maximum field strength in restrict band is  $70.77 - 50.17 = 20.60$ dBuV/m, which is under 54 dBuV/m limit.

##### NOTE 2:

The band edge emission plot on page 78 shows 48.96dBc between carrier maximum power and local maximum emission in restrict band (2.4845GHz). The emission of carrier strength list in the test result of channel 78 at the item 4.2.7 is 101.12dBuV/m (Peak), so the maximum field strength in restrict band is  $101.12 - 48.96 = 52.16$ dBuV/m, which is under 74 dBuV/m limit.

The band edge emission plot on page 78 shows 48.96dBc between carrier maximum power and local maximum emission in restrict band (2.4845GHz). The emission of carrier strength list in the test result of channel 78 at the item 4.2.7 is 71.12dBuV/m (Average), so the maximum field strength in restrict band is  $71.12 - 48.96 = 22.16$ dBuV/m, which is under 54 dBuV/m limit.





**MODE B FOR 8DPSK****NOTE 1:**

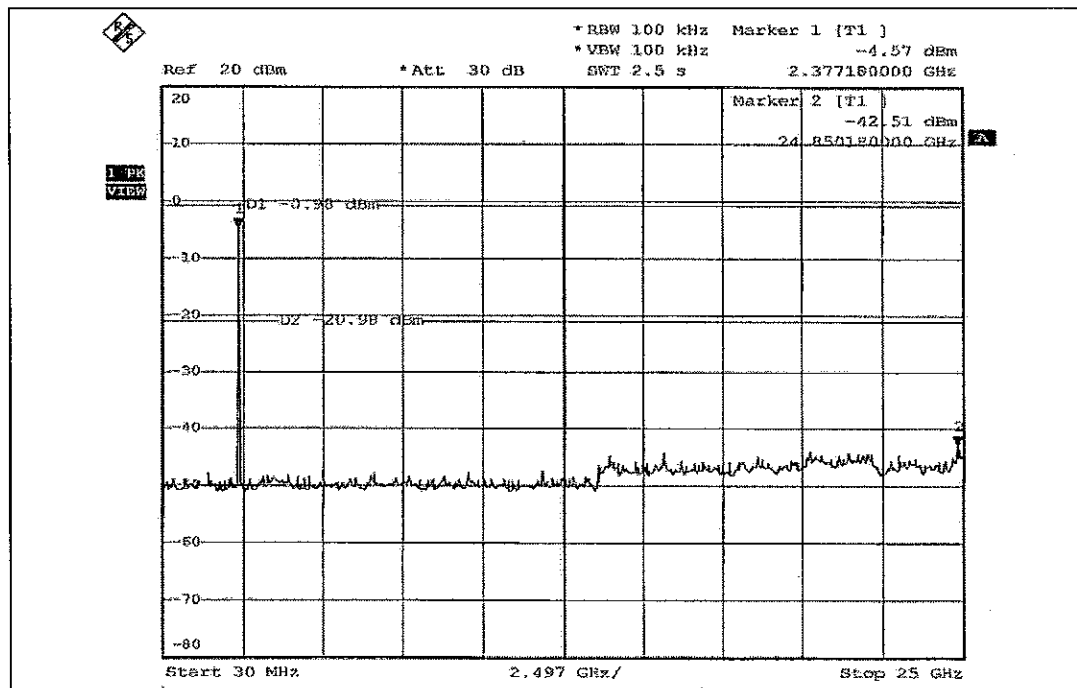
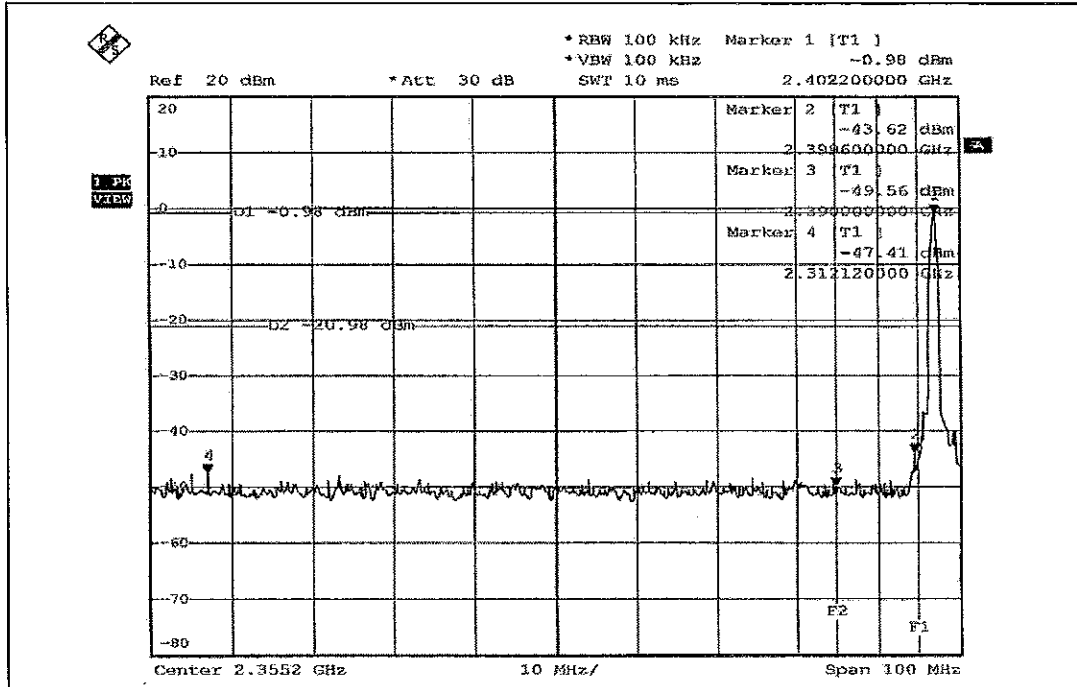
The band edge emission plot on page 80 shows 46.43dBc between carrier maximum power and local maximum emission in restrict band (2.3121GHz). The emission of carrier strength list in the test result of channel 0 at the item 4.2.7 is 96.56dBuV/m (Peak), so the maximum field strength in restrict band is  $96.56 - 46.43 = 50.13$ dBuV/m, which is under 74 dBuV/m limit.

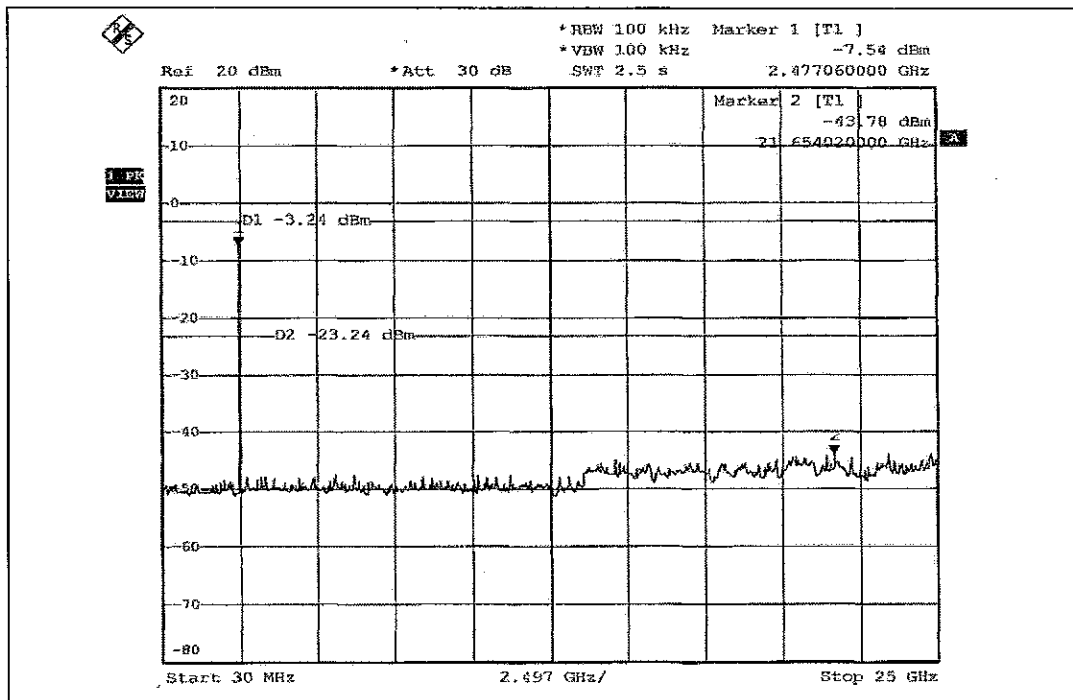
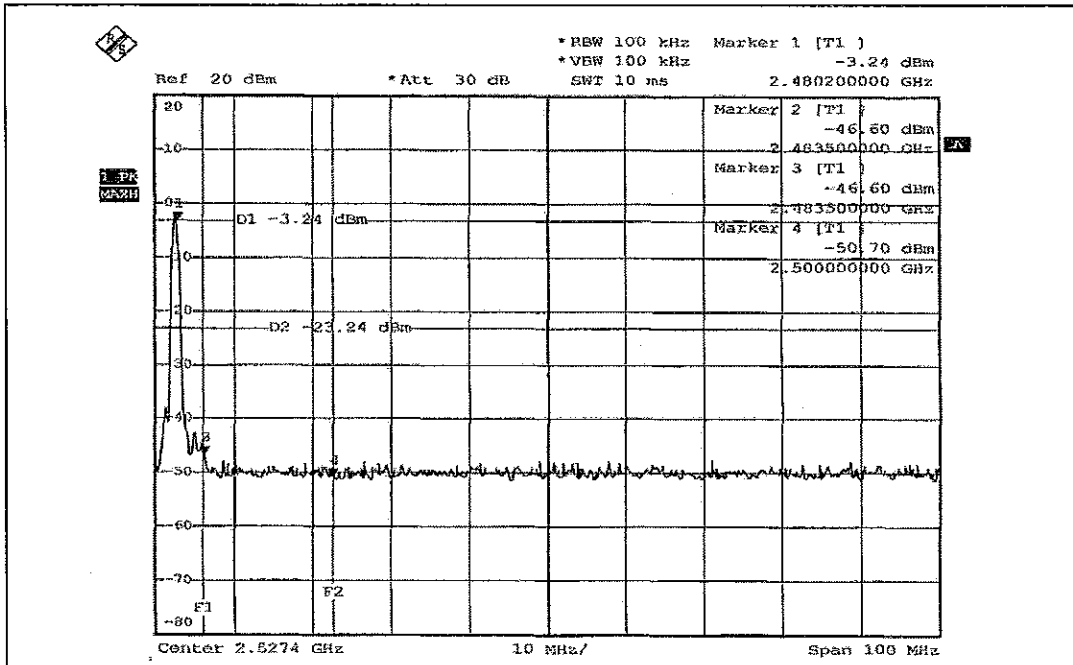
The band edge emission plot on page 80 shows 46.43dBc between carrier maximum power and local maximum emission in restrict band (2.3121GHz). The emission of carrier strength list in the test result of channel 0 at the item 4.2.7 is 66.56dBuV/m (Average), so the maximum field strength in restrict band is  $66.56 - 46.43 = 20.13$ dBuV/m, which is under 54 dBuV/m limit.

**NOTE 2:**

The band edge emission plot on page 81 shows 43.36dBc 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 78 at the item 4.2.7 is 96.89dBuV/m (Peak), so the maximum field strength in restrict band is  $96.89 - 43.36 = 53.53$ dBuV/m, which is under 74 dBuV/m limit.

The band edge emission plot on page 81 shows 43.36dBc 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 78 at the item 4.2.7 is 66.89dBuV/m (Average), so the maximum field strength in restrict band is  $66.89 - 43.36 = 23.53$ dBuV/m, which is under 54 dBuV/m limit.







## 4.9 ANTENNA REQUIREMENT

### 4.9.1 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.

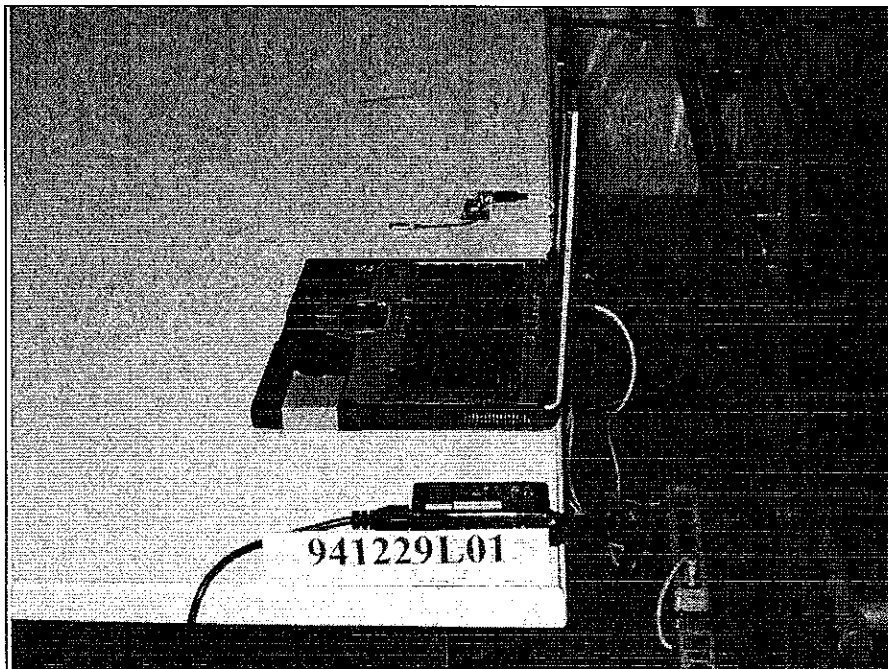
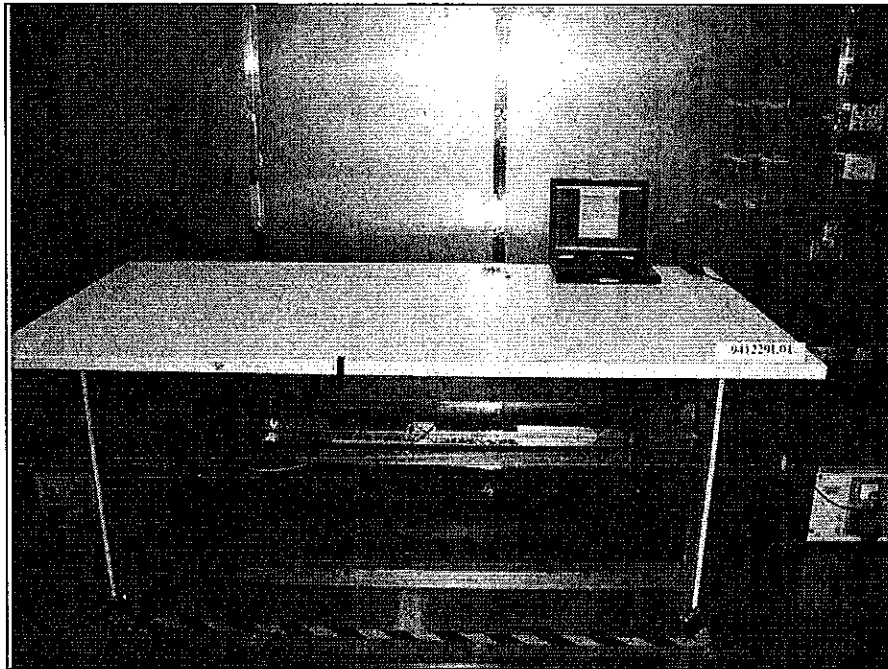
And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### 4.9.2 ANTENNA CONNECTED CONSTRUCTION

The antenna used in this product is Print antenna without antenna connector. The maximum gain of this antenna is  $-4.67\text{dBi}$ .

## 5. PHOTOGRAPHS OF THE TEST CONFIGURATION

### CONDUCTED EMISSION TEST

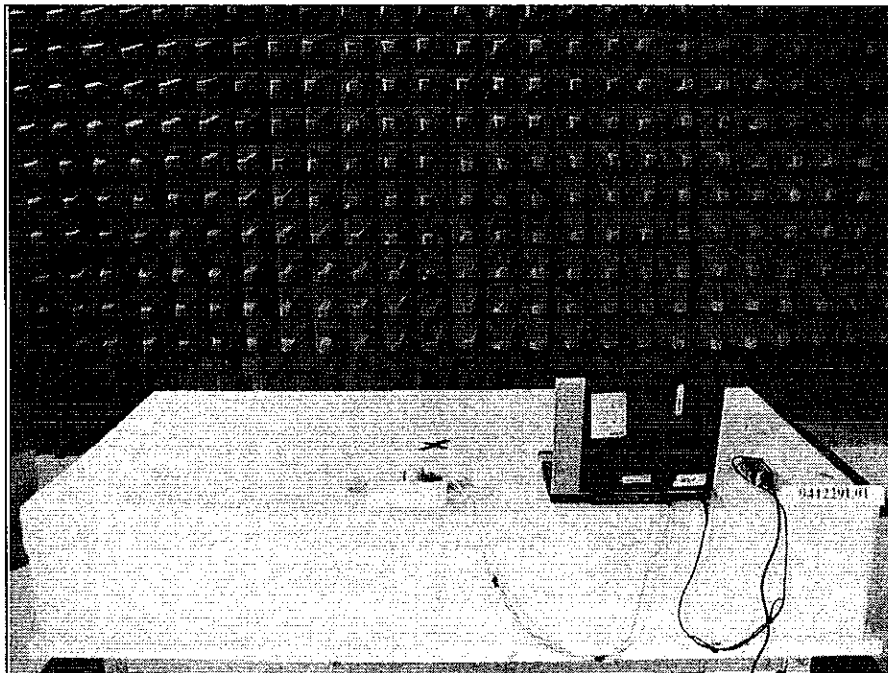
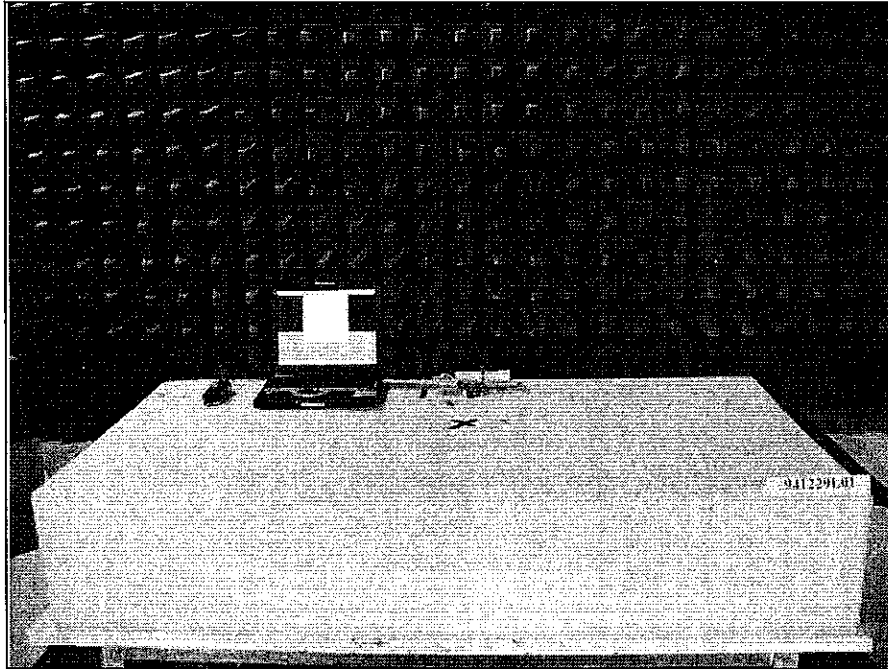


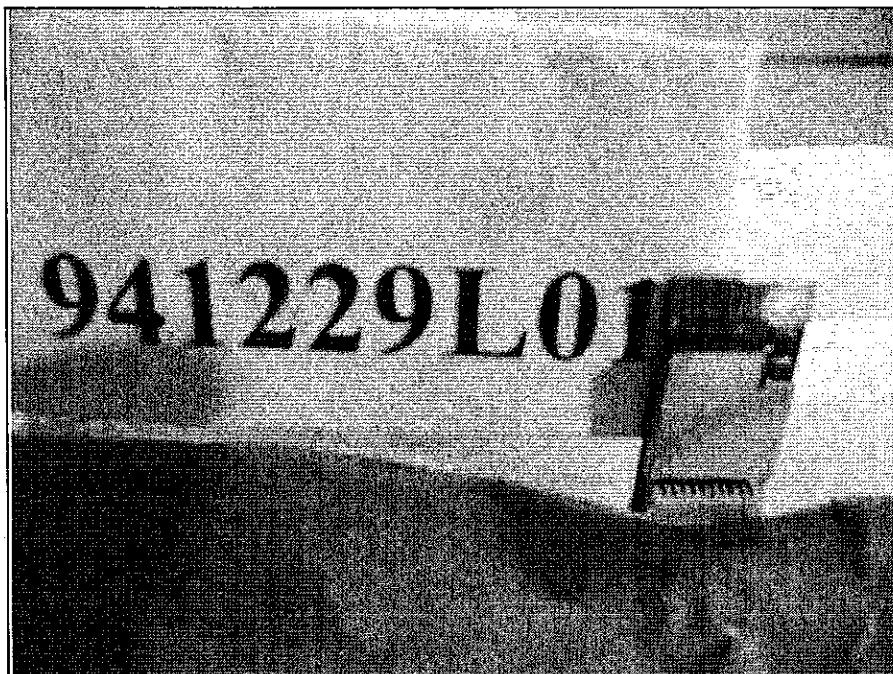


# 941229L01



### 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, NVLAP, 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.