

## 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 |
|-------------------------------|-----------|------------|------------------|
| ROHDE & SCHWARZ TEST RECEIVER | ESMI      | 839379/002 | Dec. 28, 2001    |
| HP ATTENUATOR                 | 8496B     | 3247A18505 | Cal. on use      |
| HP PLOTTER                    | 7475A     | 2641V27755 | N/A              |

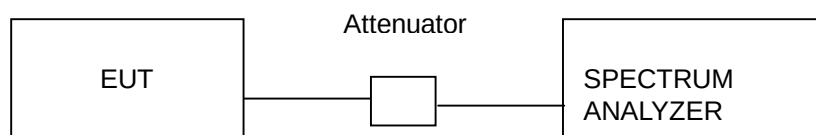
**NOTE:**

1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
2. 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 3 kHz RBW and 30 kHz 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 TEST SETUP



#### 4.5.5 EUT OPERATING CONDITIONS

Same as 4.3.5

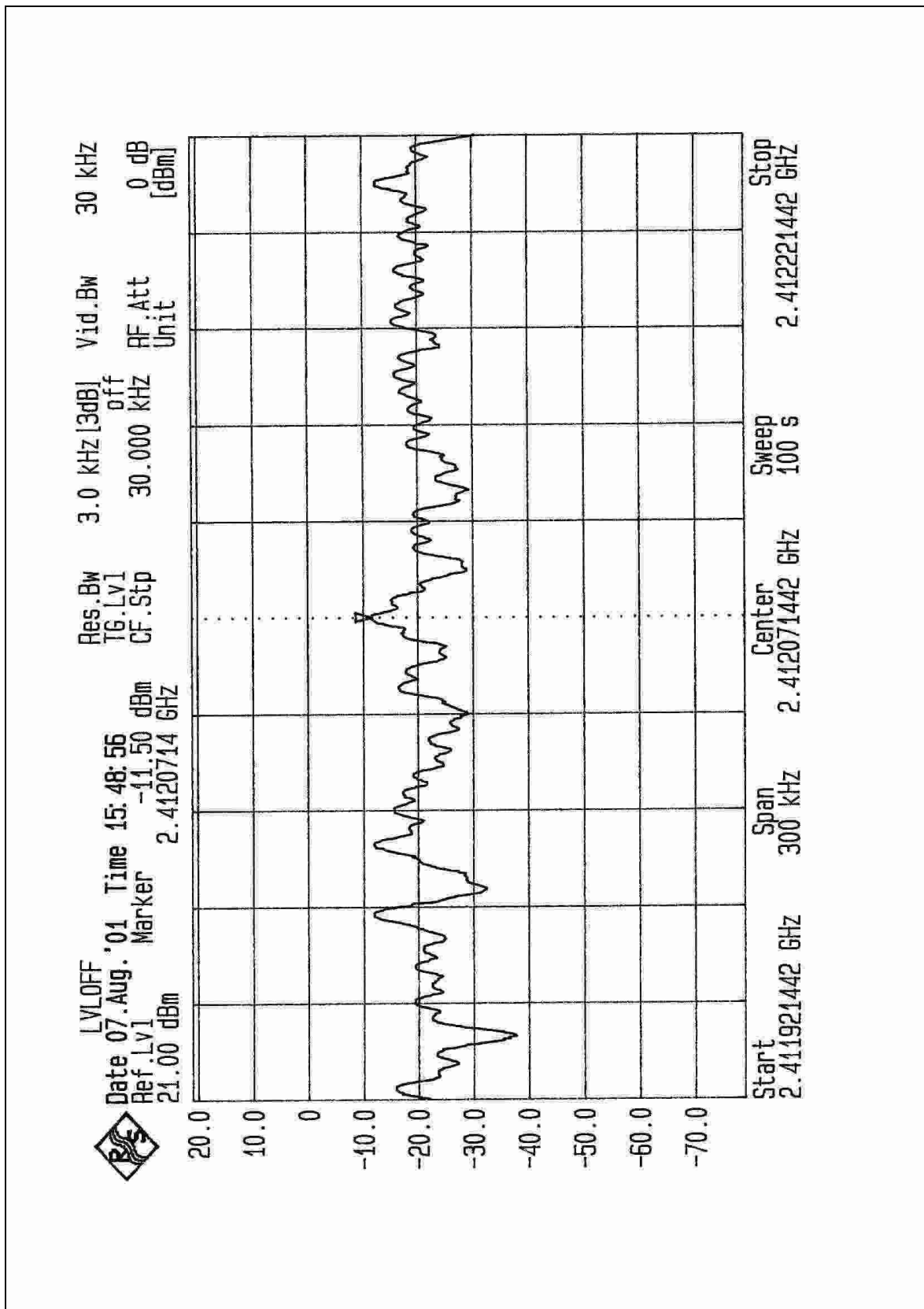


## 4.5.6 TEST RESULTS

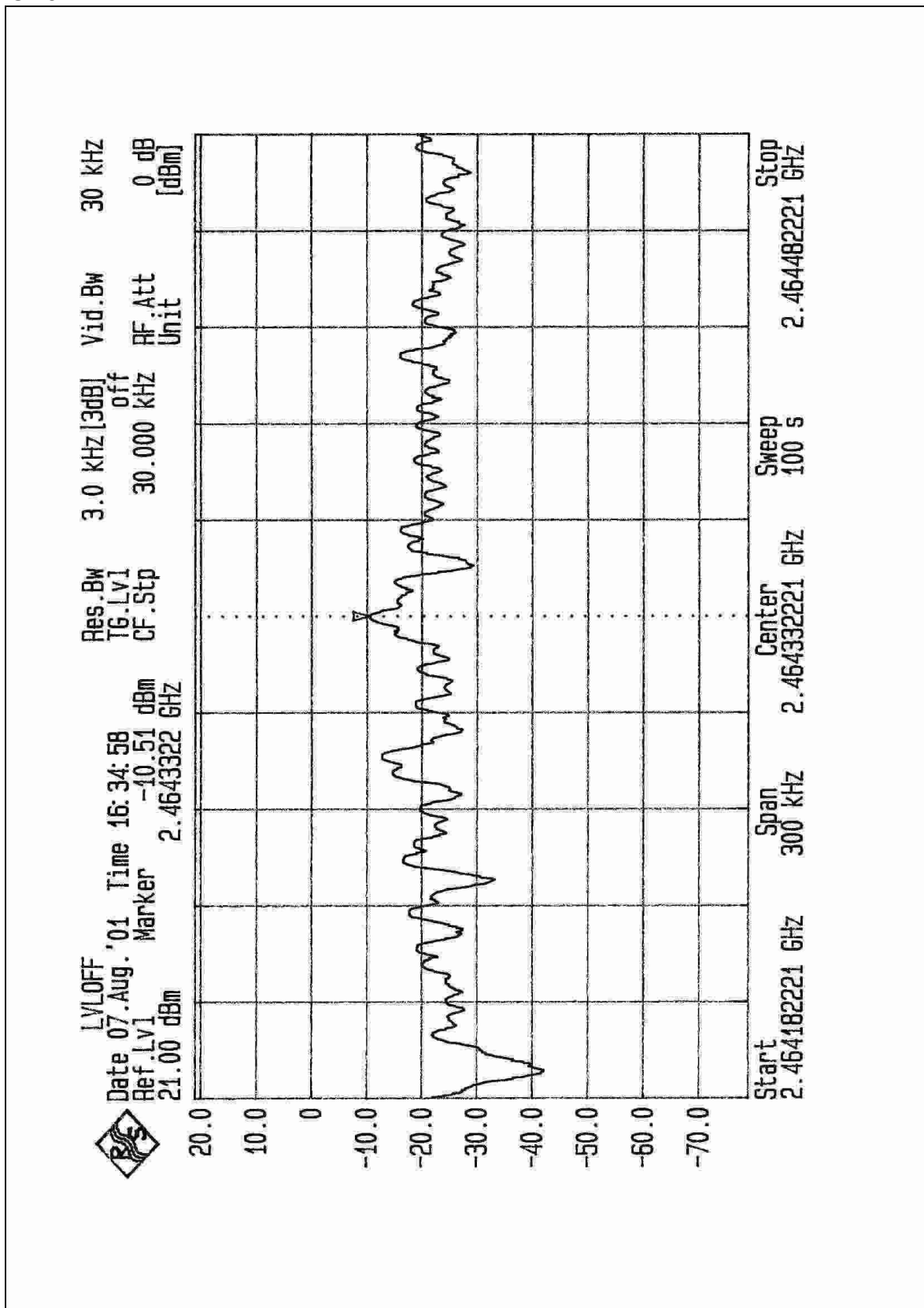
|                              |                          |                                 |                                  |
|------------------------------|--------------------------|---------------------------------|----------------------------------|
| <b>EUT</b>                   | 2.4GHz Wireless LAN Card | <b>MODEL</b>                    | XI-325, XI-325B                  |
| <b>INPUT POWER (SYSTEM)</b>  | 120Vac, 60 Hz            | <b>ENVIRONMENTAL CONDITIONS</b> | 27 deg. C,<br>75%RH,<br>1005 hPa |
| <b>TESTED BY:</b> Gary Chang |                          |                                 |                                  |

| <b>CHANNEL NUMBER</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                            | -11.50                                  | 8                          | PASS             |
| 6                     | 2437                            | -11.37                                  | 8                          | PASS             |
| 11                    | 2462                            | -10.51                                  | 8                          | PASS             |

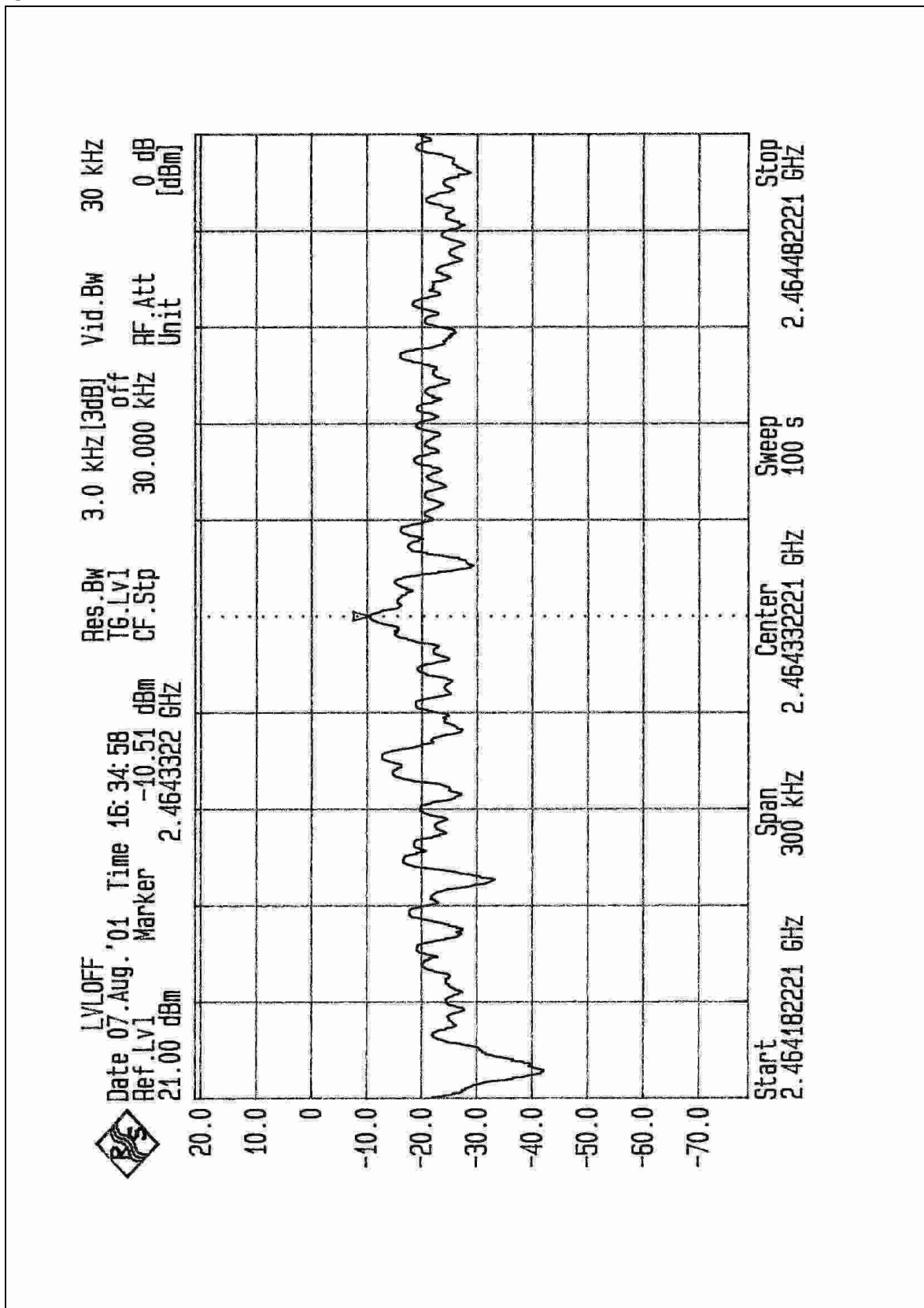
CH1



CH6



CH11





## 4.6 BAND EDGES MEASUREMENT

### 4.6.1 LIMITS OF BAND EDGES MEASUREMENT

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

### 4.6.2 TEST INSTRUMENTS

| Description & Manufacturer    | Model No. | Serial No.               | Calibrated Until |
|-------------------------------|-----------|--------------------------|------------------|
| ROHDE & SCHWARZ TEST RECEIVER | ESMI      | 848926/005<br>846839/018 | Dec 28, 2001     |
| HP ATTENUATOR                 | 8496B     | 3247A18505               | Cal. on use      |
| HP PLOTTER                    | 7475A     | 2641V27755               | N/A              |

**NOTE:**

1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
2. 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 100 kHz with suitable frequency span including 100 kHz bandwidth from band edge. The band edges was measured and recorded.



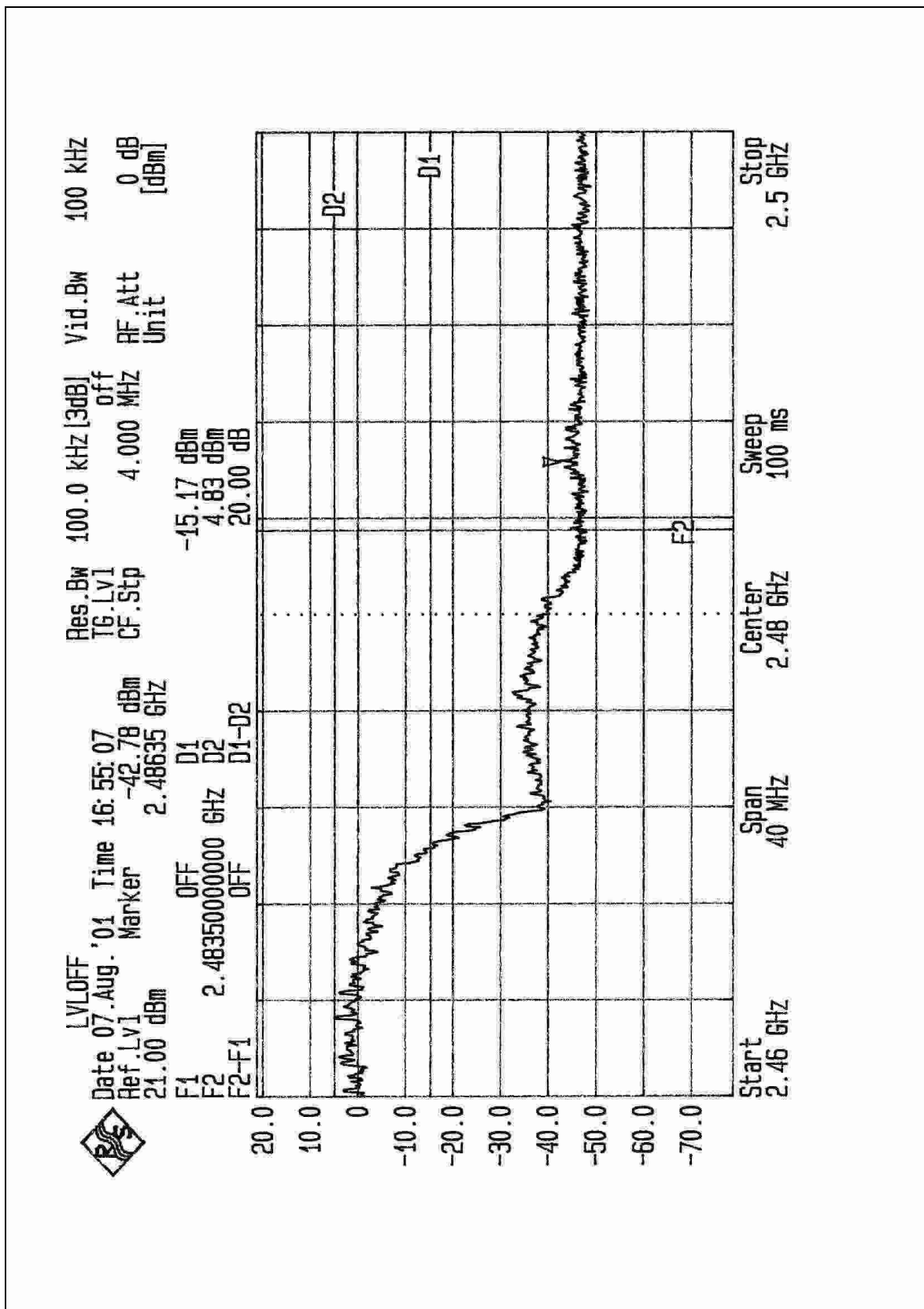
#### 4.6.4 EUT OPERATING CONDITION

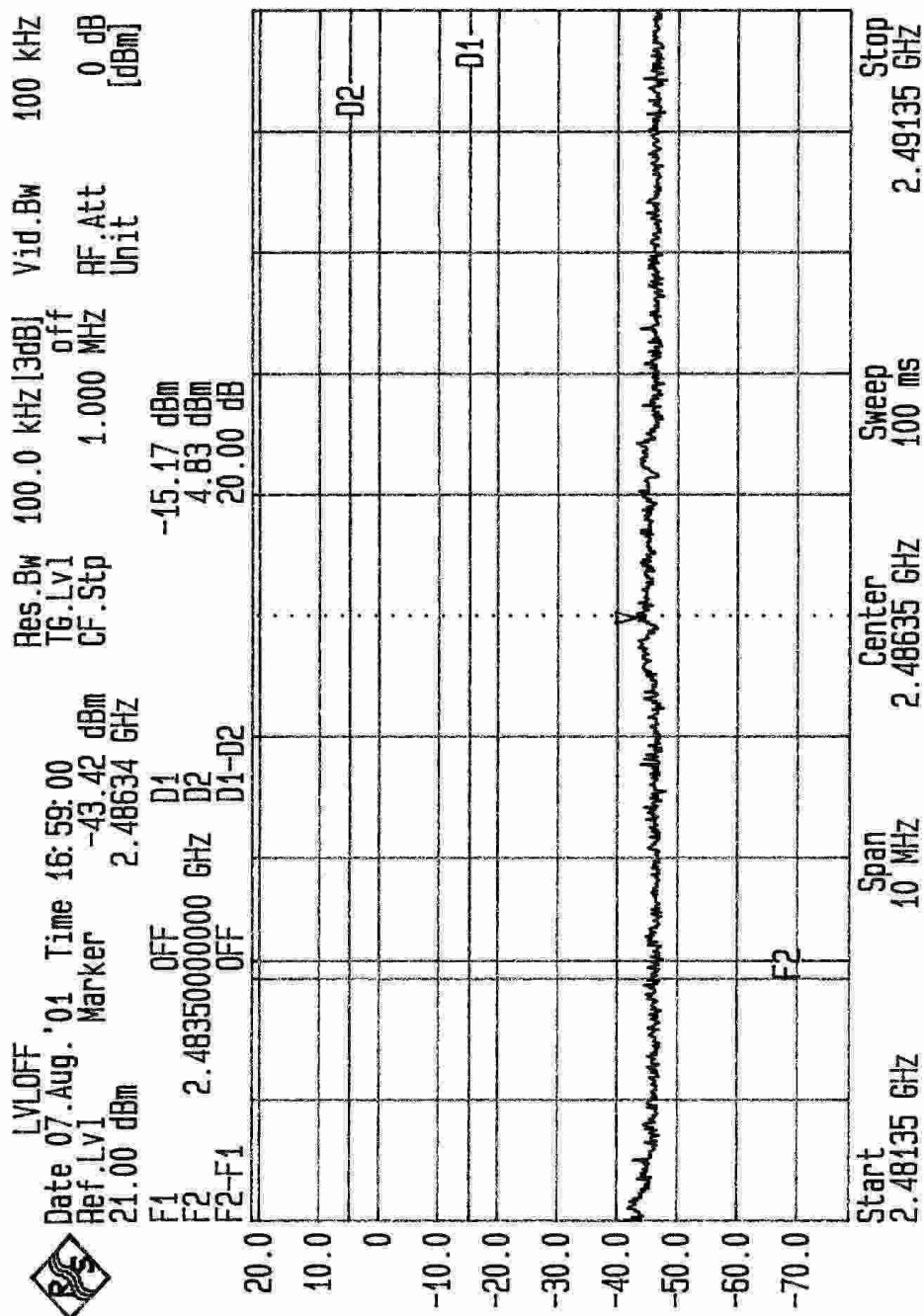
Same as Item 4.3.5

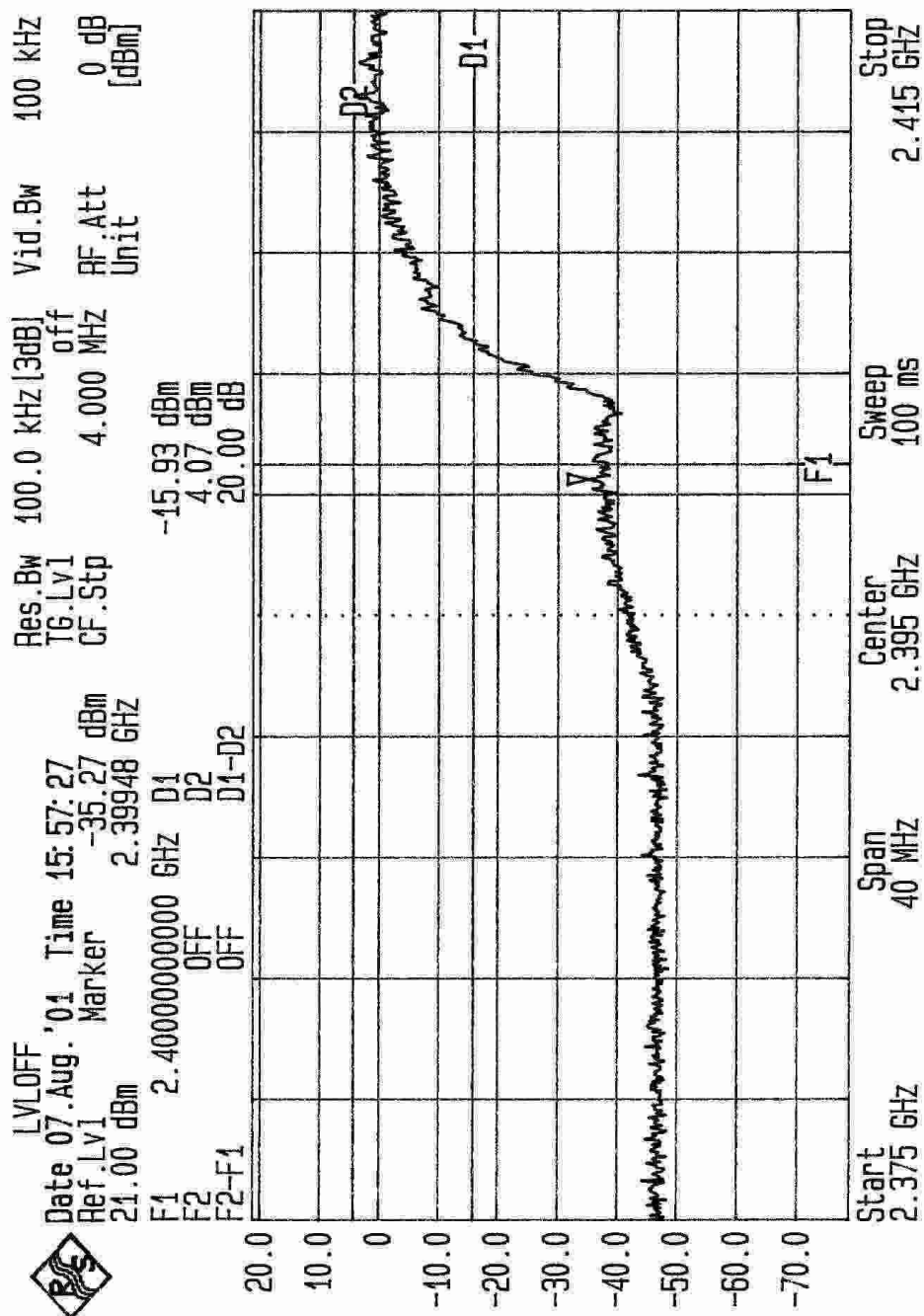
#### 4.6.5 TEST RESULTS

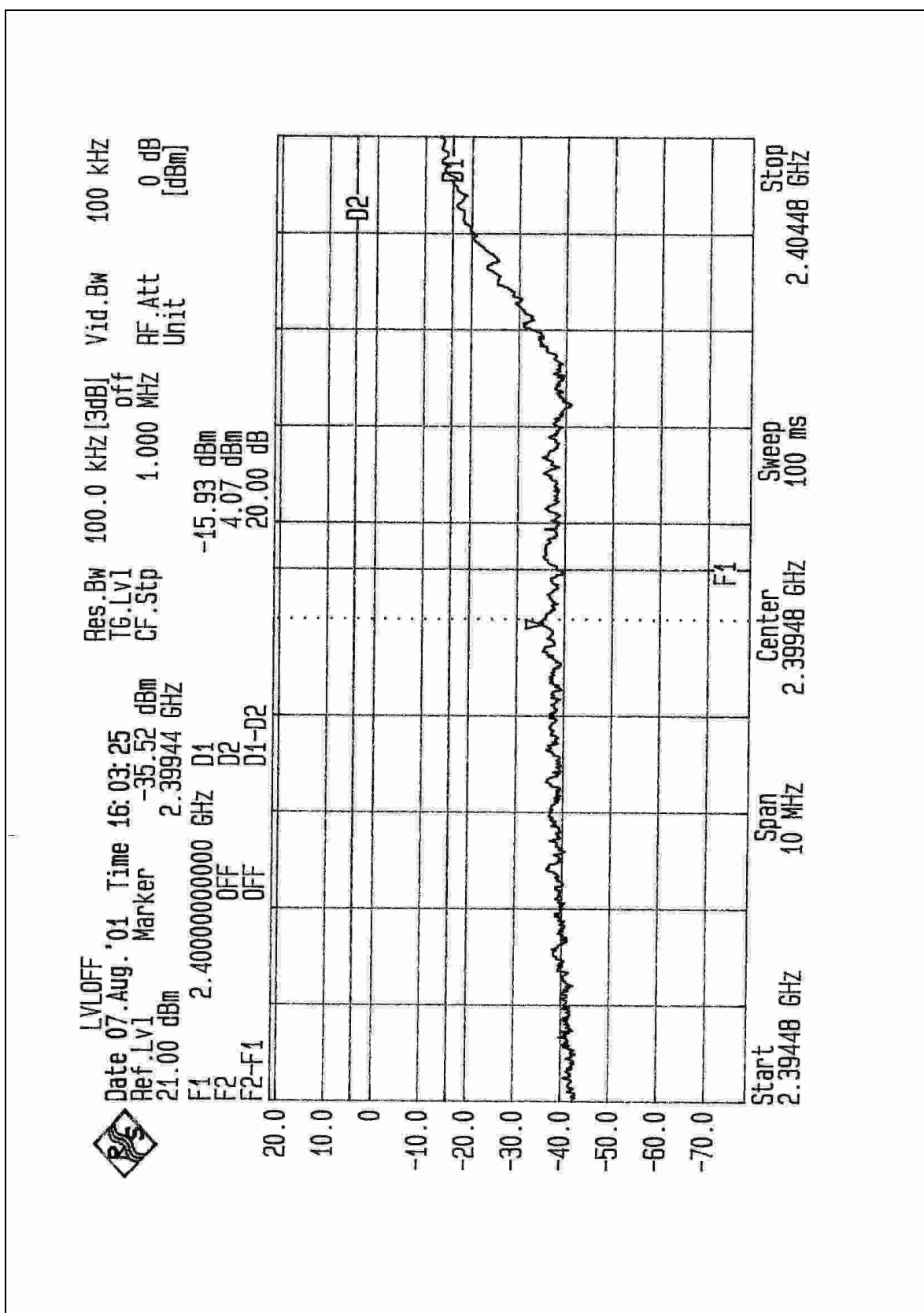
The spectrum plots are attached on the following 2 pages. D2 line indicates the highest level, D1 line indicates the 20dB offset below D2. It shows compliance with the requirement in part 15.247(C).

**NOTE:** The band edge emission plot on the following 4 pages shows 20.0dB delta between carrier maximum power and local maximum emission in restrict band (2.48635GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.6 (Page 28) is 97.3dBuV/m, so the maximum field strength in restrict band is  $97.3 - 47.61 = 49.69$  dBuV/m which is under 54 dBuV/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.

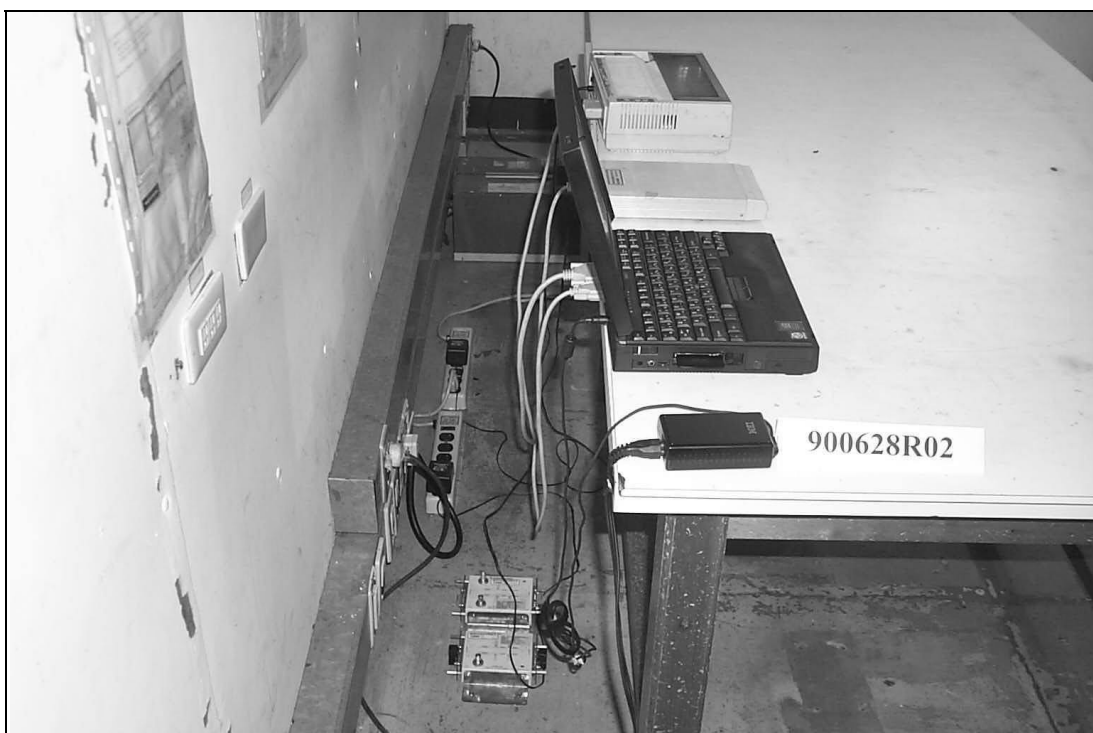
And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

### **4.7.2 ANTENNA CONNECTED CONSTRUCTION**

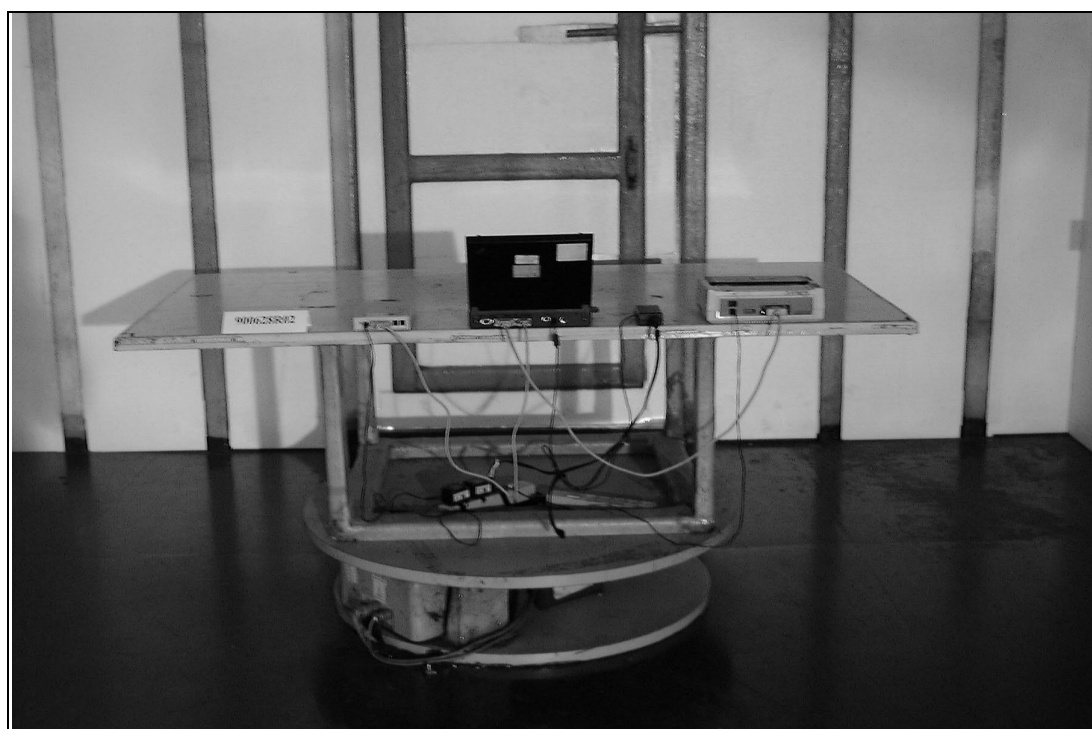
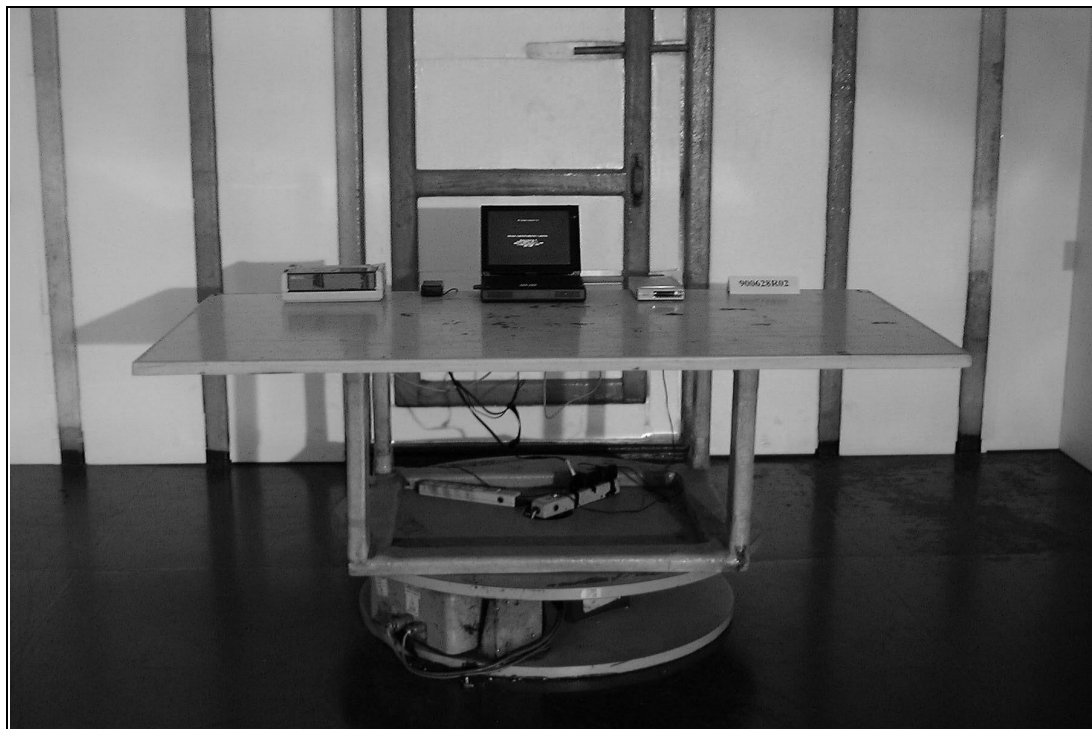
The antenna used in this product is printed antenna. There is no antenna connector for model XI-325, and MMCX antenna connector is used for model XI-325B. The maximum Gain of this antenna is only -1dBi.

## 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 and Safety consultation. Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025, Guide 25 or EN 45001:

|                    |                 |
|--------------------|-----------------|
| <b>USA</b>         | FCC, NVLAP      |
| <b>Germany</b>     | TUV Rheinland   |
| <b>Japan</b>       | VCCI            |
| <b>New Zealand</b> | MoC             |
| <b>Norway</b>      | NEMKO           |
| <b>R.O.C.</b>      | BSMI, DGT, CNLA |

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).

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