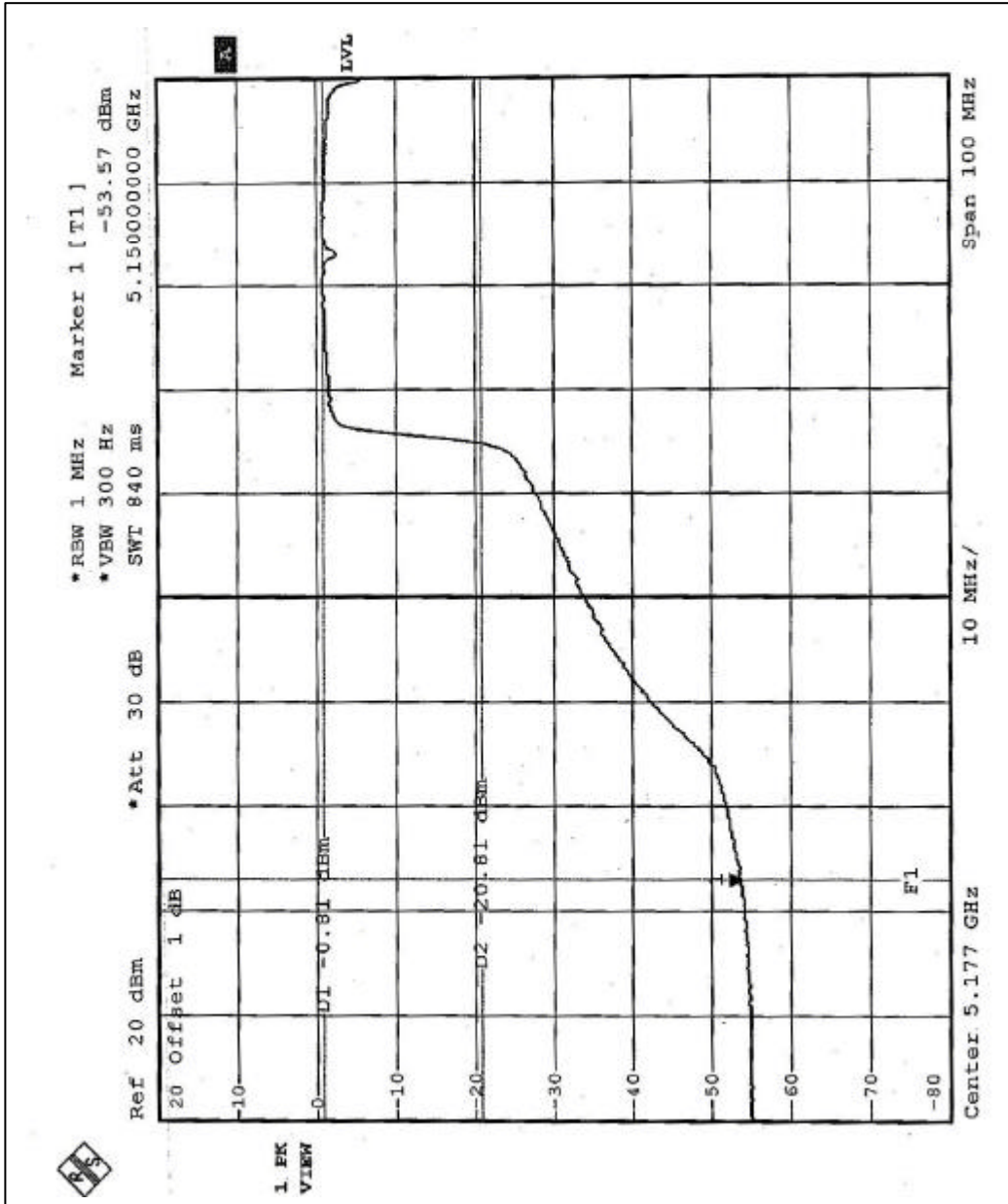




Turbo Mode: Channel 1 (5210 MHz)-Antenna 1 & Antenna 7

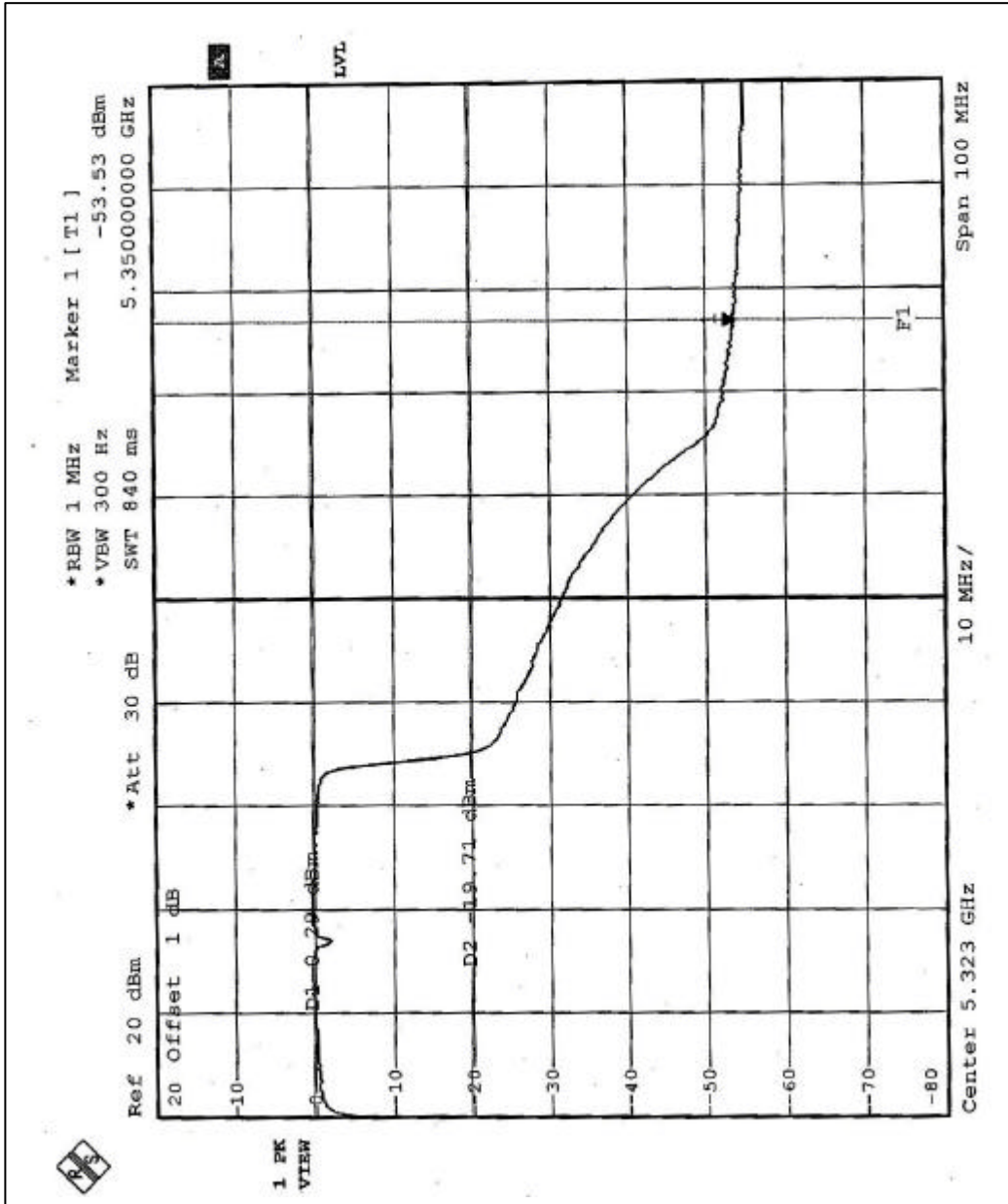
The band edge emission plot on the following page shows 52.76dBc (Average) between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 1 (turbo mode) is 97.0dBuV/m, so the maximum field strength in restrict band is 97.0-52.76dBuV/m which is under 54dBuV/m limit.





Turbo Mode: Channel 3 (5290 MHz) -Antenna 1 & 7

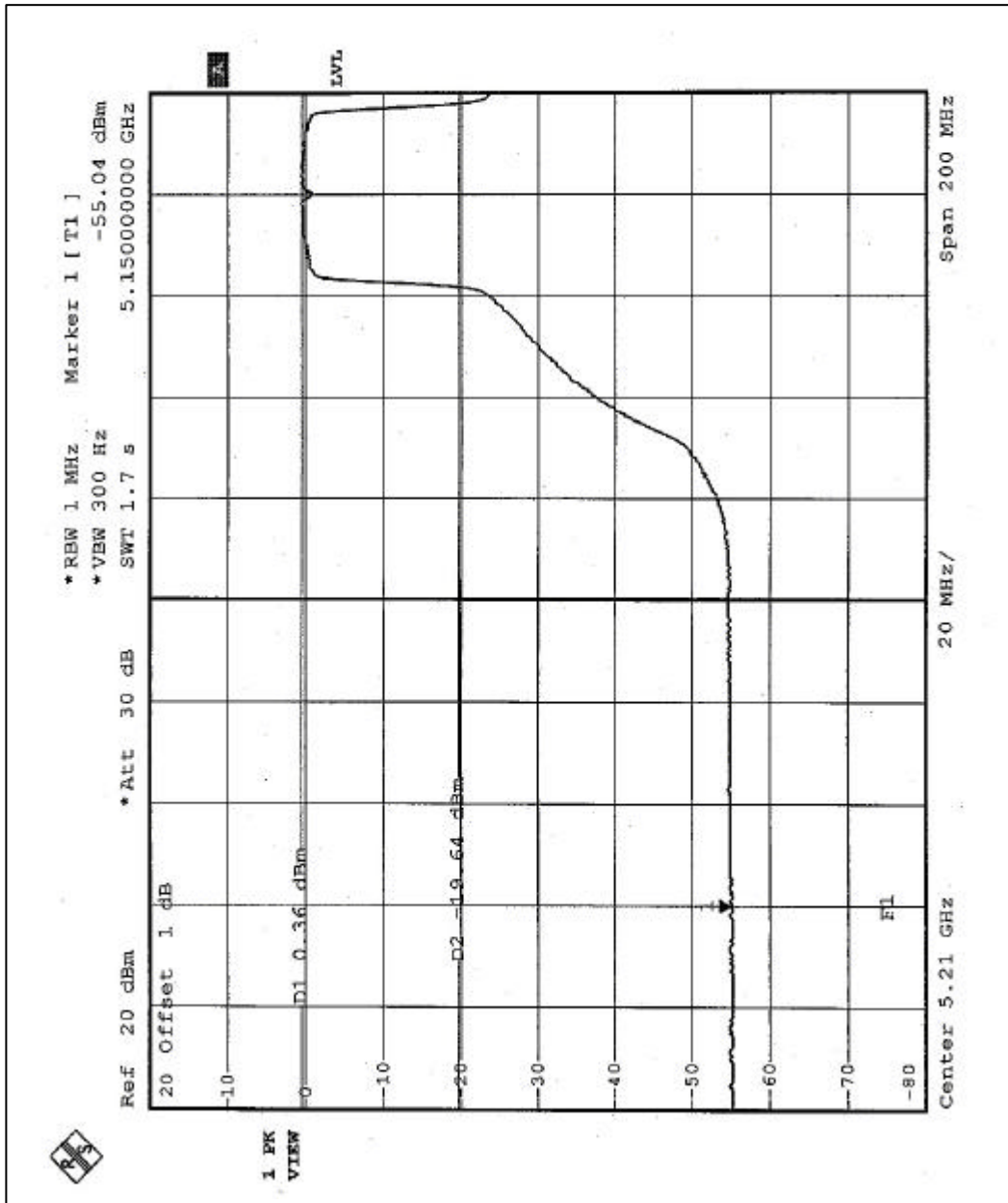
The band edge emission plot on the following page shows 52.64dBc (Average) between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 3 (turbo mode) is 103.6dBuV/m, so the maximum field strength in restrict band is  $103.6 - 52.64 = 50.96$  dBuV/m which is under 54dBuV/m limit.





Turbo Mode: Channel 3 (5290 MHz) -Antenna 7

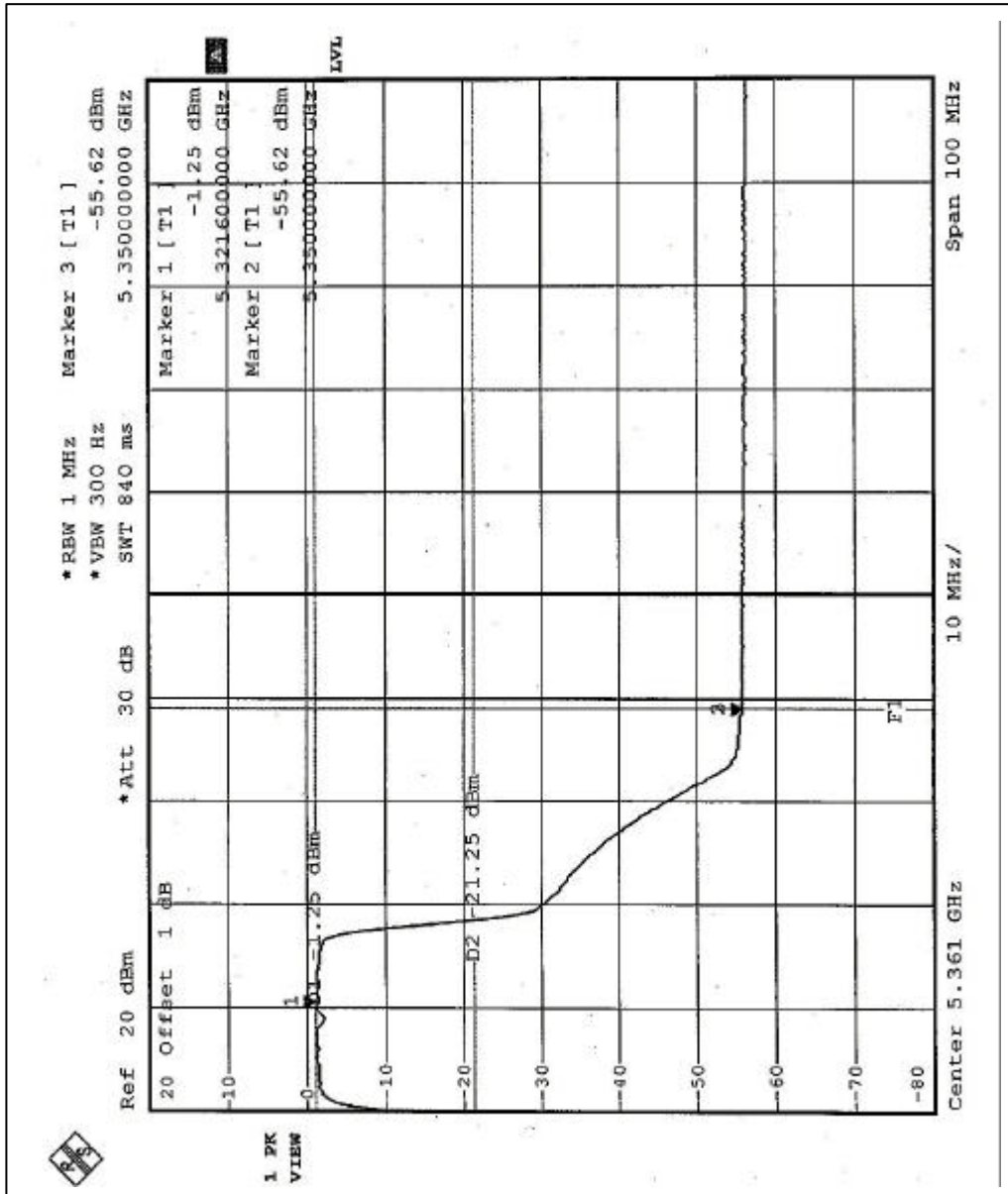
The band edge emission plot on the following page shows 55.4dBc (Average) between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 3 (turbo mode) is 103.6dBuV/m, so the maximum field strength in restrict band is  $103.6 - 55.4 = 48.2$  dBuV/m which is under 54dBuV/m limit.





Normal Mode: Channel 8 (5320 MHz) -Antenna 8

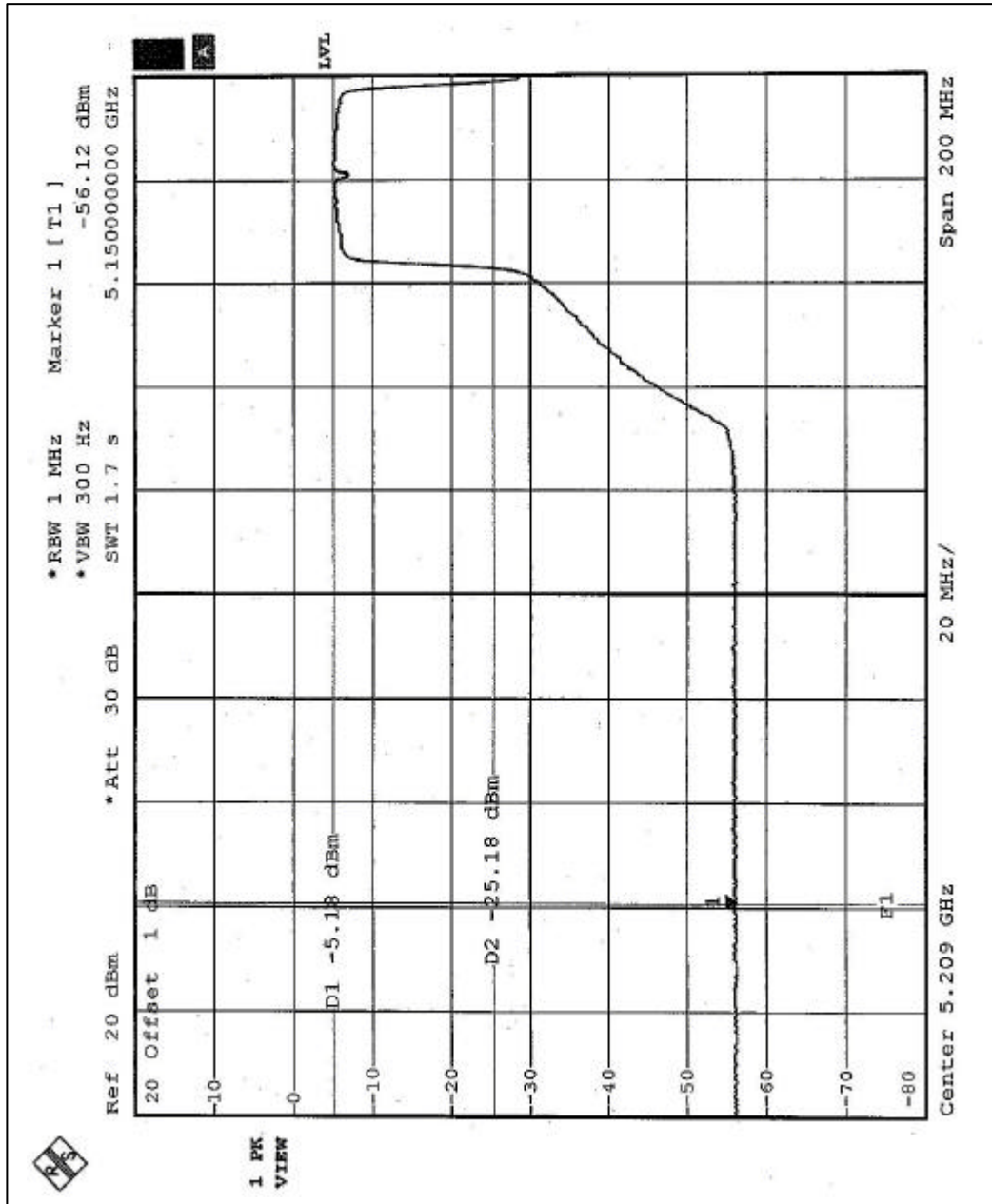
The band edge emission plot on the following page shows 54.37dBc (Average) between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 8 (normal mode) is 100.2dBuV/m, so the maximum field strength in restrict band is  $100.2 - 54.37 = 45.83$  dBuV/m which is under 54dBuV/m limit.





Turbo Mode: Channel 3 (5290 MHz) -Antenna 8

The band edge emission plot on the following page shows 50.94dBc (Average) between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 3 (turbo mode) is 96.7dBuV/m, so the maximum field strength in restrict band is  $96.7 - 50.94 = 45.76$  dBuV/m which is under 54dBuV/m limit.



**FOR FREQUENCY 5.725~5.850GHz****5.8 6dB BANDWIDTH MEASUREMENT****5.8.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT**

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

**5.8.2 TEST INSTRUMENTS**

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSP	1093.4495.30	Dec. 19, 2003

**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.

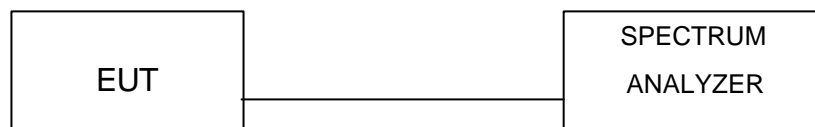
### 5.8.3 TEST PROCEDURE

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

### 5.8.4 DEVIATION FROM TEST STANDARD

No deviation

### 5.8.5 TEST SETUP



### 5.8.6 EUT OPERATING CONDITIONS

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.



## 5.8.7 TEST RESULTS(J)

6dB bandwidth of maximum conducted output power

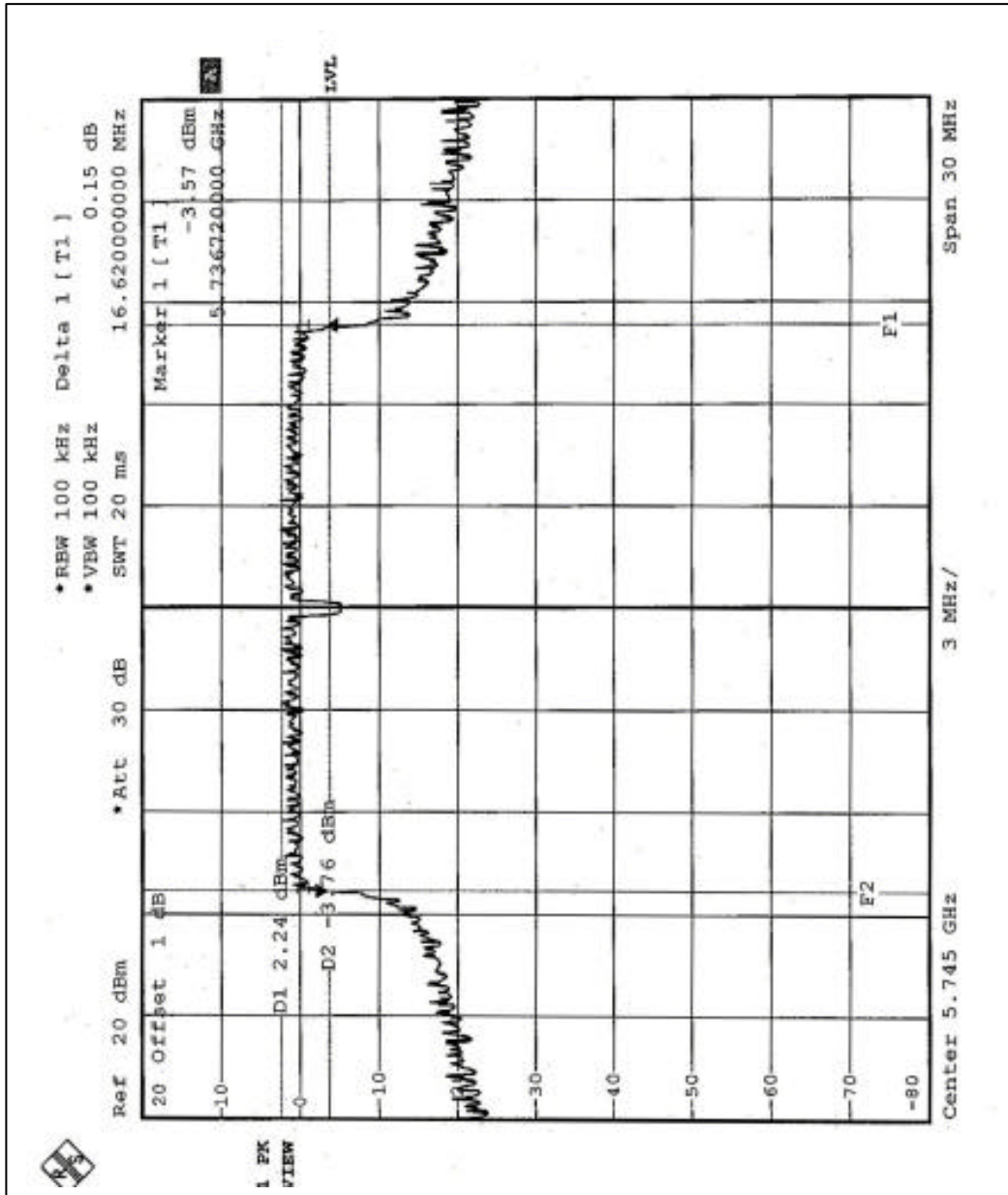
<b>EUT</b>	802.11a/b/g miniPCI module	<b>MODEL</b>	C38WCW
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60Hz	<b>ENVIRONMENTAL CONDITIONS</b>	21deg.C, 58%RH, 978 hPa
<b>TEST MODE</b>	Normal	<b>TEST BY</b>	Eric Lee

<b>CHANNEL</b>	<b>CHANNEL FREQUENCY (MHz)</b>	<b>6 dB BANDWIDTH (MHz)</b>	<b>MINIMUM LIMIT (MHz)</b>	<b>PASS/FAIL</b>
9	5745	16.62	0.5	PASS
11	5785	16.56	0.5	PASS
13	5825	16.62	0.5	PASS



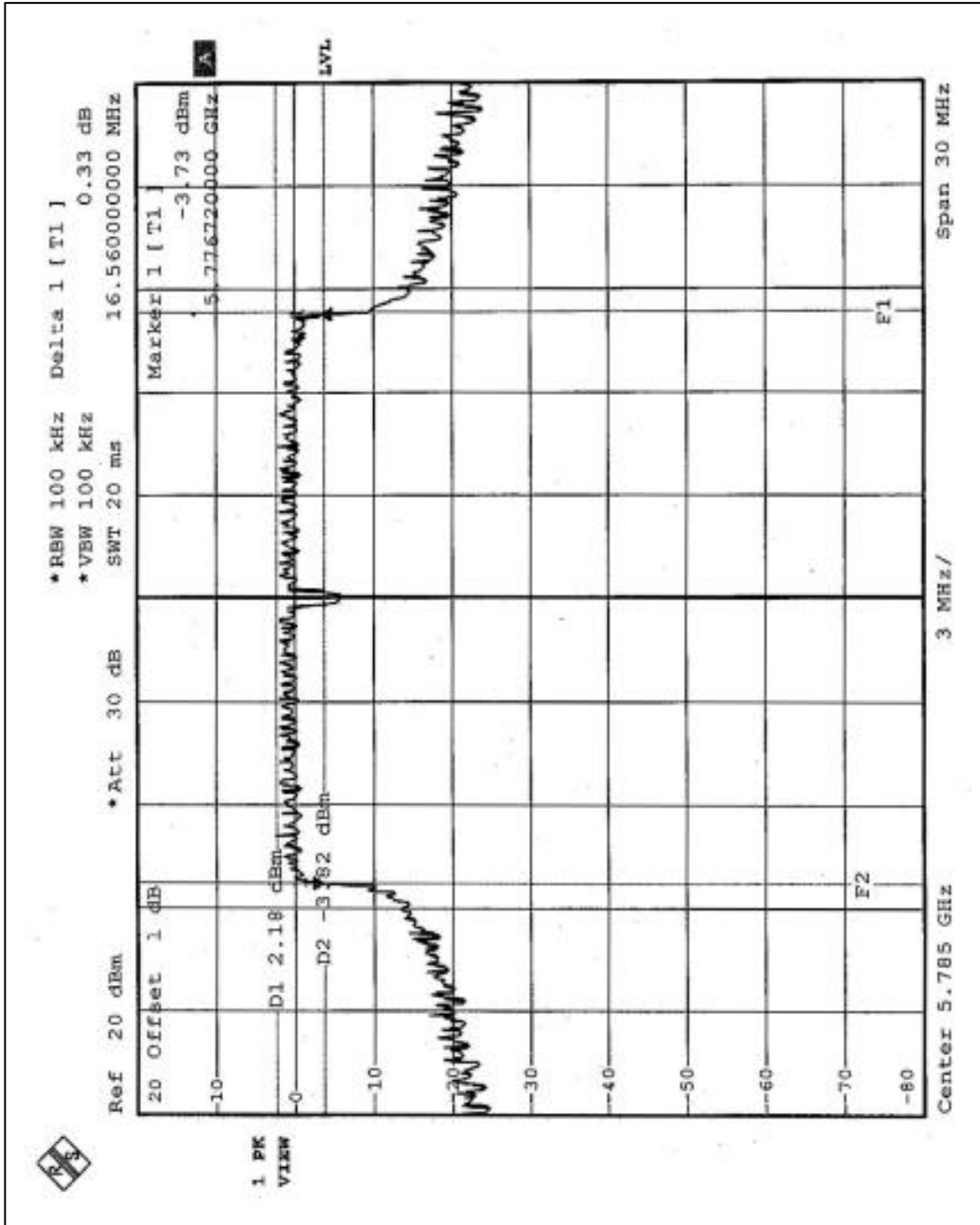


CH9



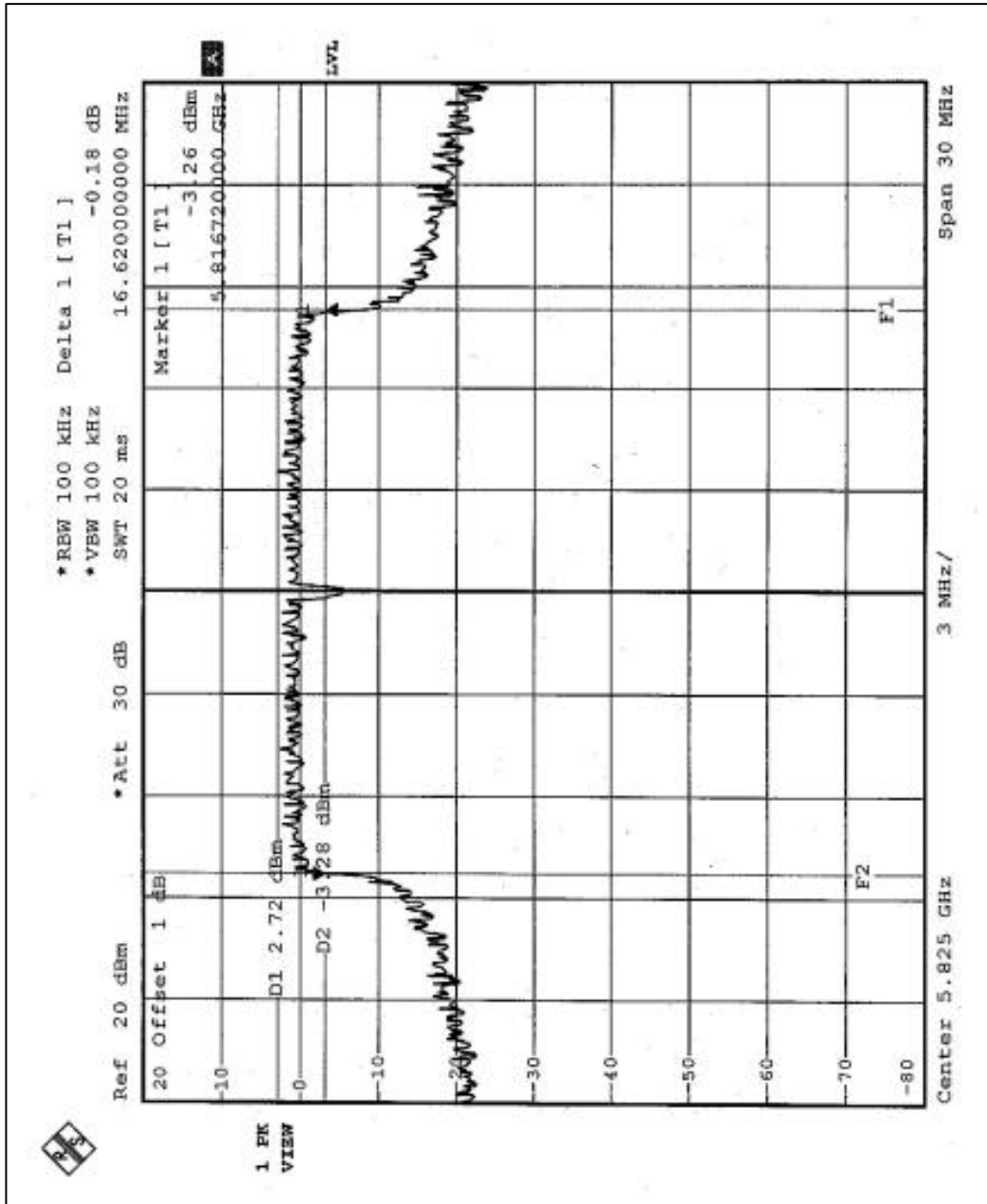


CH11





CH13



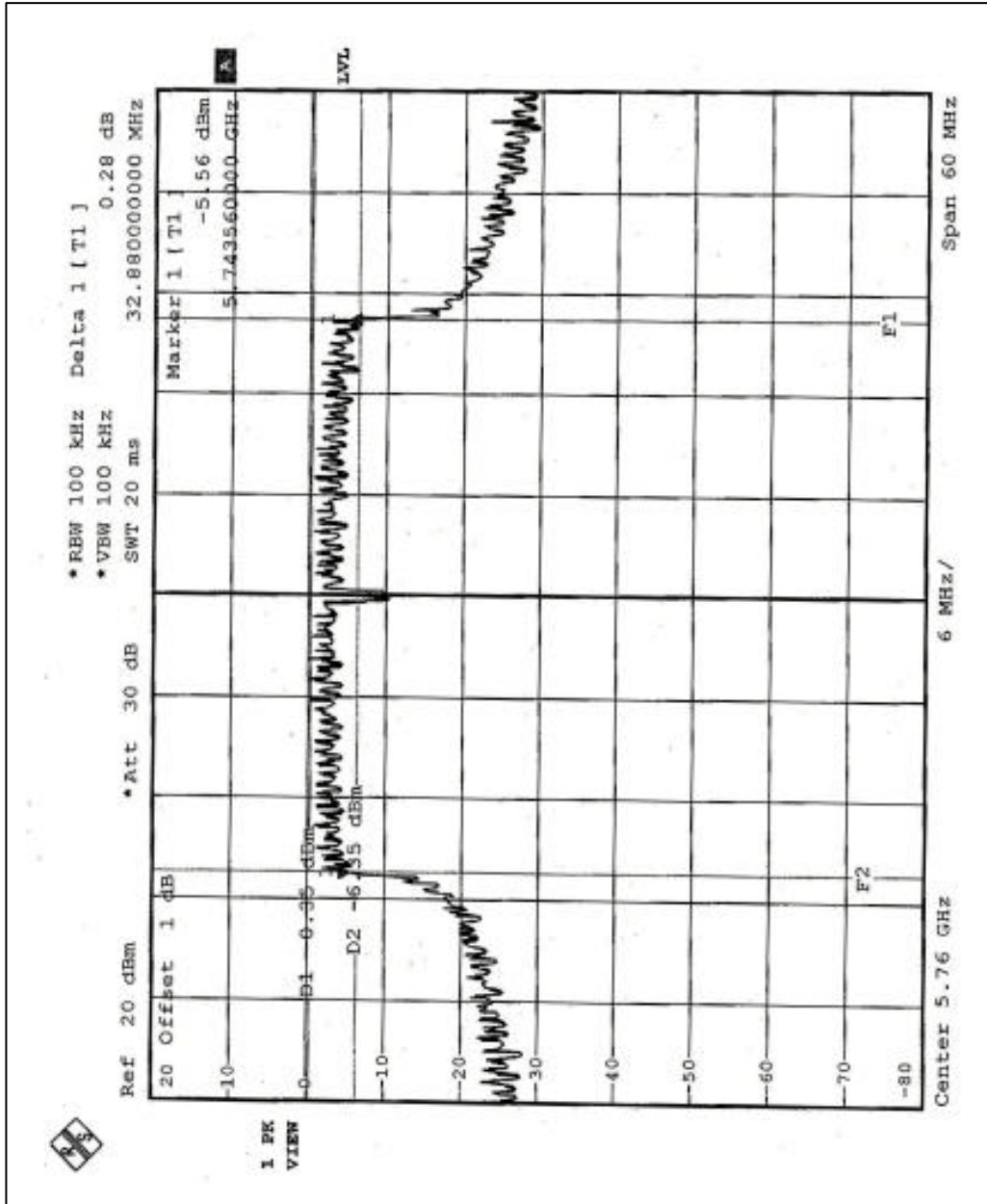


<b>EUT</b>	802.11a/b/g miniPCI module	<b>MODEL</b>	C38WCW
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60Hz	<b>ENVIRONMENTAL CONDITIONS</b>	21deg.C, 58%RH, 978 hPa
<b>TEST MODE</b>	Turbo	<b>TEST BY</b>	Eric Lee

<b>CHANNEL</b>	<b>CHANNEL FREQUENCY (MHz)</b>	<b>6 dB BANDWIDTH (MHz)</b>	<b>MINIMUM LIMIT (MHz)</b>	<b>PASS/FAIL</b>
4	5760	32.88	0.5	PASS
5	5800	33.12	0.5	PASS

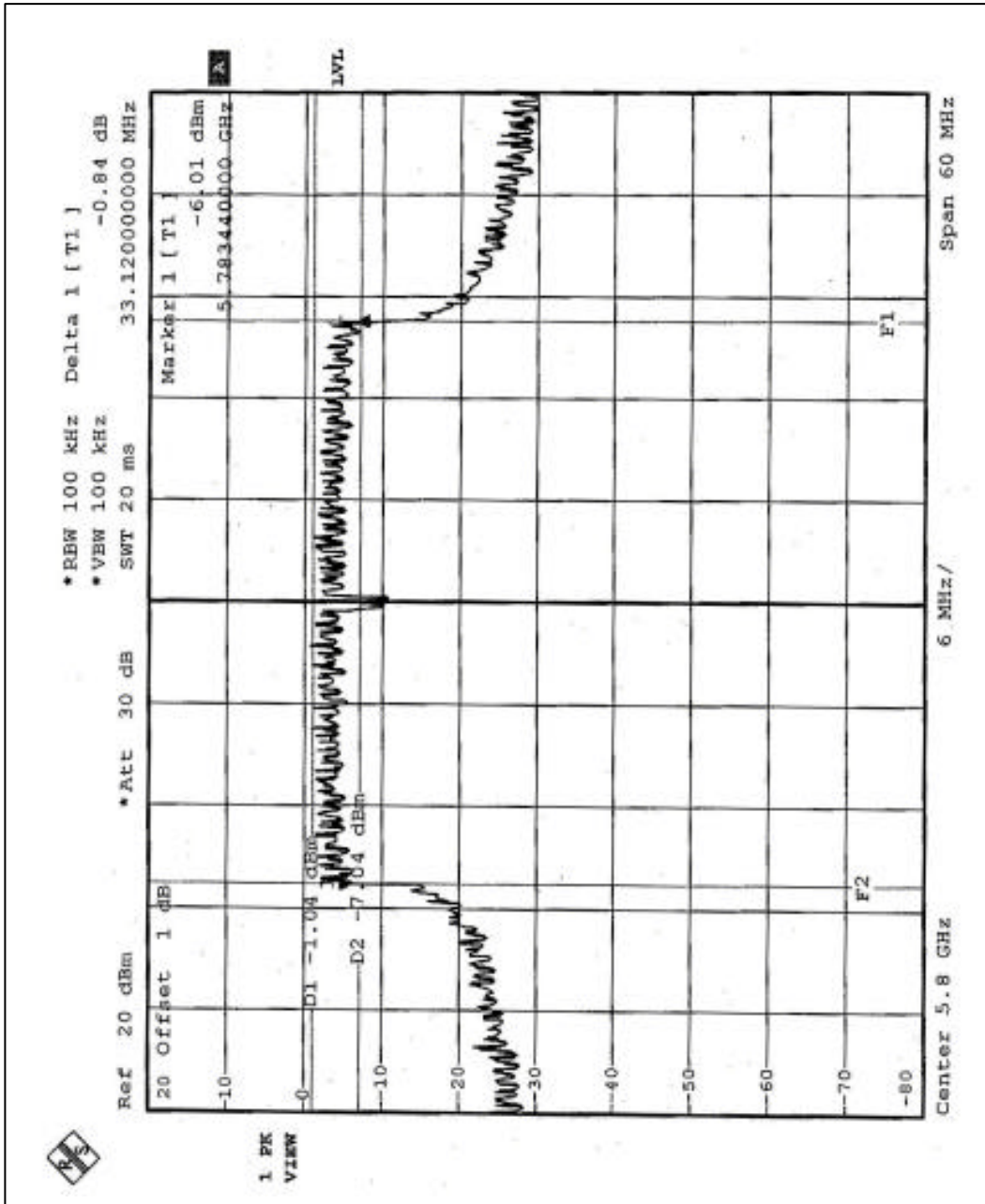


CH4





CH5





## 5.9 MAXIMUM PEAK OUTPUT POWER

### 5.9.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

### 5.9.2 INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSP30	100019	Dec. 19, 2003
R&S SIGNAL GENERATOR	SMP04	100011	May 28, 2004
TEKTRONIX OSCILLOSCOPE	TDS 220	B048470	Mar. 05, 2004
NARDA DETECTOR	4503A	FSCM99899	NA

**NOTE:**

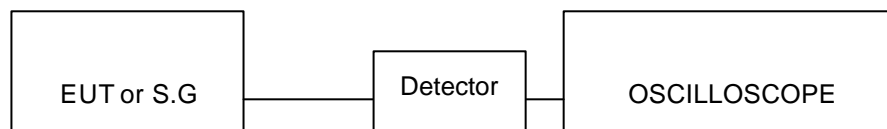
The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.



### 5.9.3 TEST PROCEDURES

8. A detector was used on the output port of the EUT. An oscilloscope was used to read the response of the detector.
9. Replaced the EUT by the signal generator. The center frequency of the S.G was adjusted to the center frequency of the measured channel.
10. Adjusted the power to have the same reading on oscilloscope. Record the power level.

### 5.9.4 TEST SETUP



### 5.9.5 EUT OPERATING CONDITIONS

Same as Item 4.3.6





## 5.9.6 TEST RESULTS(K)-Antenna 1 &amp; Antenna 7

<b>EUT</b>	802.11a/b/g miniPCI module	<b>MODEL</b>	C38WCW
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60Hz	<b>ENVIRONMENTAL CONDITIONS</b>	21deg.C, 58%RH, 978 hPa
<b>TEST MODE</b>	Normal	<b>TEST BY</b>	Eric Lee

<b>CHANNEL</b>	<b>CHANNEL FREQUENCY (MHz)</b>	<b>PEAK POWER OUTPUT (dBm)</b>	<b>PEAK POWER LIMIT (dBm)</b>	<b>PASS/FAIL</b>
9	5745	19.23	30	PASS
11	5785	19.20	30	PASS
13	5825	19.64	30	PASS

<b>EUT</b>	802.11a/b/g miniPCI module	<b>MODEL</b>	C38WCW
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60Hz	<b>ENVIRONMENTAL CONDITIONS</b>	21deg.C, 58%RH, 978 hPa
<b>TEST MODE</b>	Turbo	<b>TEST BY</b>	Eric Lee

<b>CHANNEL</b>	<b>CHANNEL FREQUENCY (MHz)</b>	<b>PEAK POWER OUTPUT (dBm)</b>	<b>PEAK POWER LIMIT (dBm)</b>	<b>PASS/FAIL</b>
4	5760	19.17	30	PASS
5	5800	19.39	30	PASS

**Note:** The output power of Antenna 1 & Antenna 7 will be programmed to the same output power by software.



## 5.9.7 TEST RESULTS(K)-Antenna 8

<b>EUT</b>	802.11a/b/g miniPCI module	<b>MODEL</b>	C38WCW
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60Hz	<b>ENVIRONMENTAL CONDITIONS</b>	21deg.C, 58%RH, 978 hPa
<b>TEST MODE</b>	Normal	<b>TEST BY</b>	Eric Lee

<b>CHANNEL</b>	<b>CHANNEL FREQUENCY (MHz)</b>	<b>PEAK POWER OUTPUT (dBm)</b>	<b>PEAK POWER LIMIT (dBm)</b>	<b>PASS/FAIL</b>
9	5745	15.38	30	PASS
11	5785	15.27	30	PASS
13	5825	15.13	30	PASS

<b>EUT</b>	802.11a/b/g miniPCI module	<b>MODEL</b>	C38WCW
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60Hz	<b>ENVIRONMENTAL CONDITIONS</b>	21deg.C, 58%RH, 978 hPa
<b>TEST MODE</b>	Turbo	<b>TEST BY</b>	Eric Lee

<b>CHANNEL</b>	<b>CHANNEL FREQUENCY (MHz)</b>	<b>PEAK POWER OUTPUT (dBm)</b>	<b>PEAK POWER LIMIT (dBm)</b>	<b>PASS/FAIL</b>
4	5760	15.04	30	PASS
5	5800	15.10	30	PASS



**5.9.8 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT**

The Maximum of Power Spectral Density Measurement is 8dBm.

**5.9.9 TEST INSTRUMENTS**

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSP	1093.4495.30	Dec. 19, 2003

**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.

### 5.9.10 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/3 kHz. The power spectral density was measured and recorded.

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

### 5.9.11 DEVIATION FROM TEST STANDARD

No deviation

### 5.9.12 TEST SETUP



### 5.9.13 EUT OPERATING CONDITION

Same as Item 4.3.6



## 5.9.14 TEST RESULTS (L)

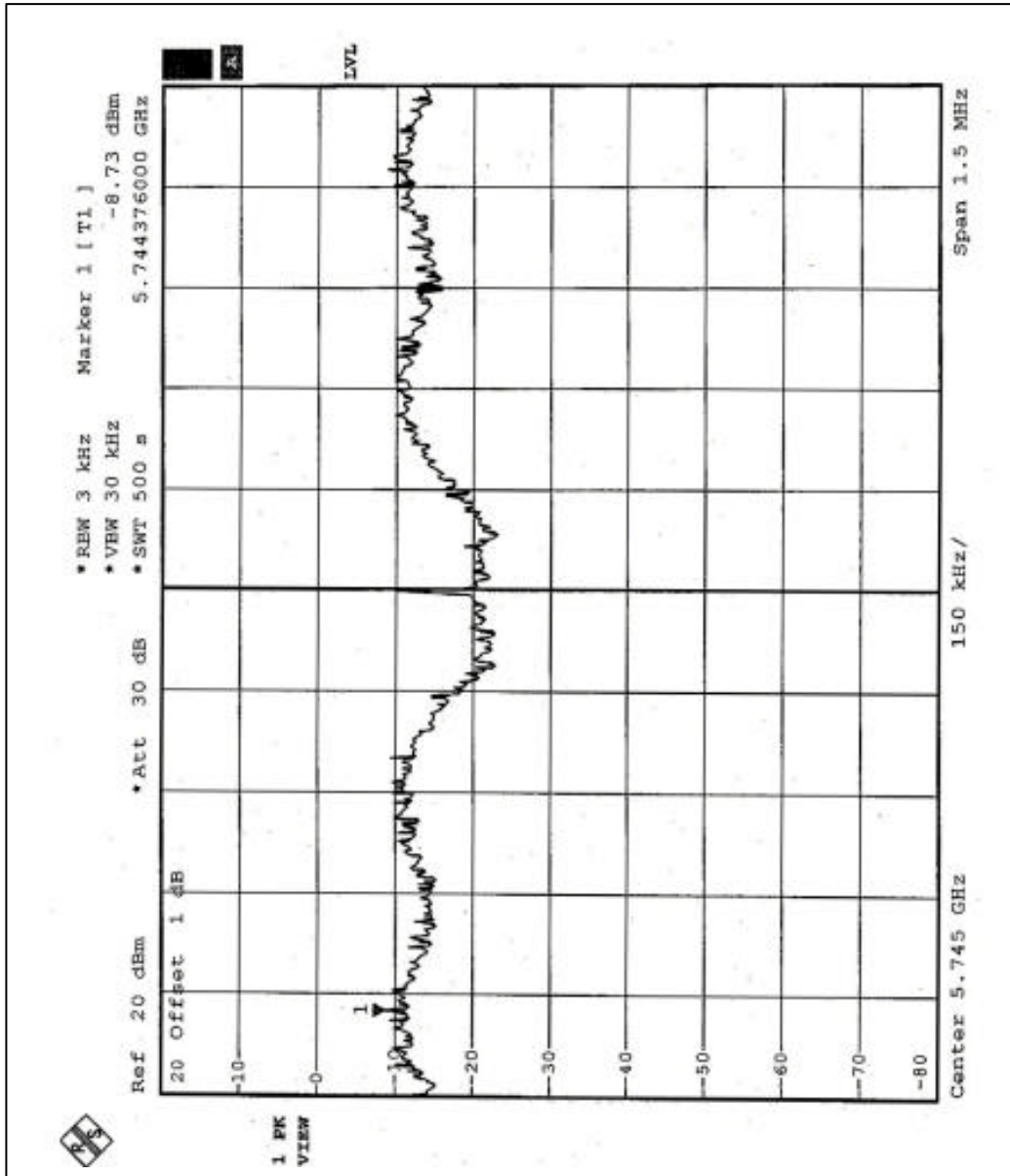
Power Spectral Density of maximum conducted output power

<b>EUT</b>	802.11a/b/g miniPCI module	<b>MODEL</b>	C38WCW
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60Hz	<b>ENVIRONMENTAL CONDITIONS</b>	57deg. C, 56%RH, 978 hPa
<b>TEST MODE</b>	Normal	<b>TEST BY</b>	Eric Lee

<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>
9	5745	-8.73	8	PASS
11	5785	-8.43	8	PASS
13	5825	-8.36	8	PASS

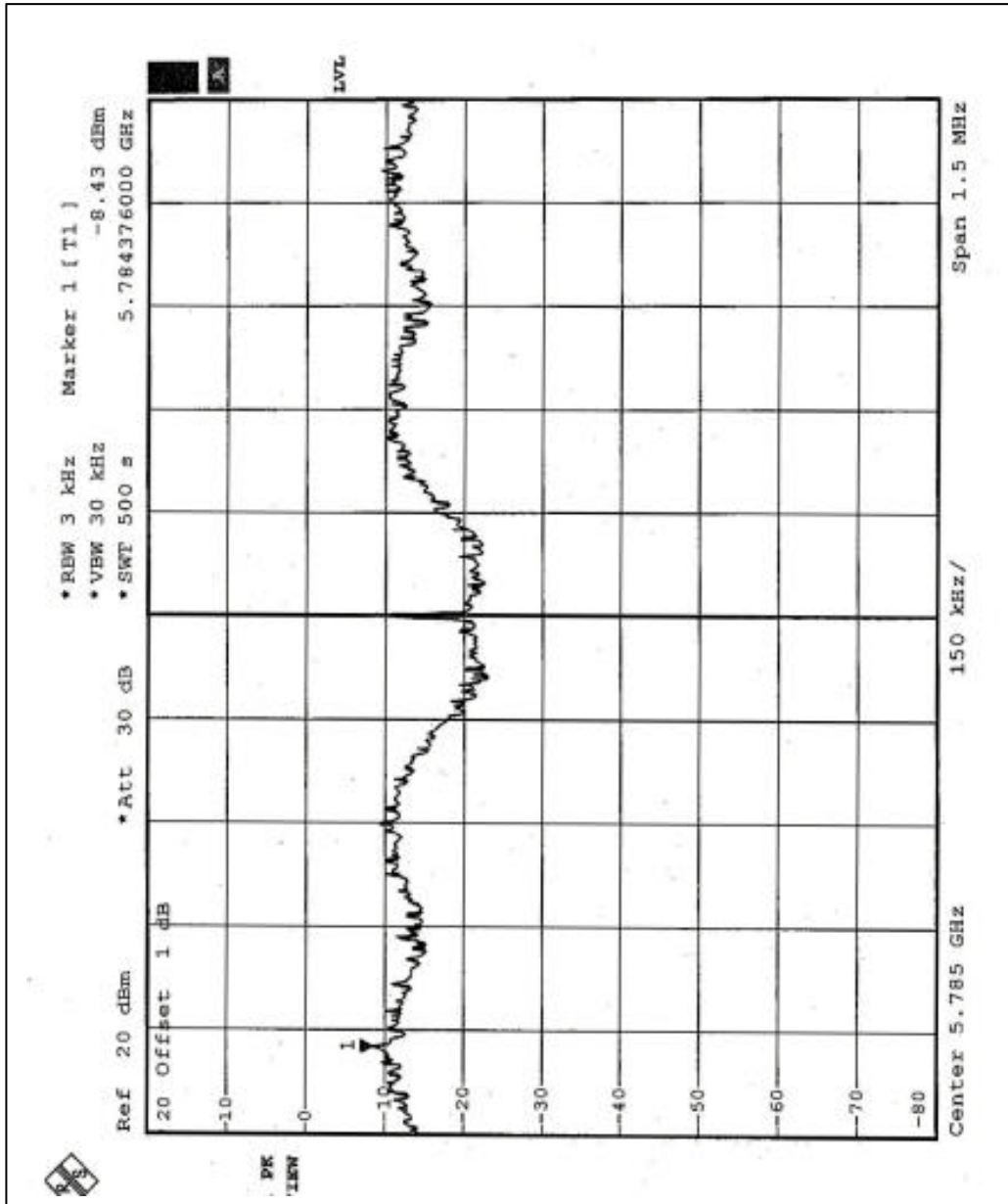


CH9



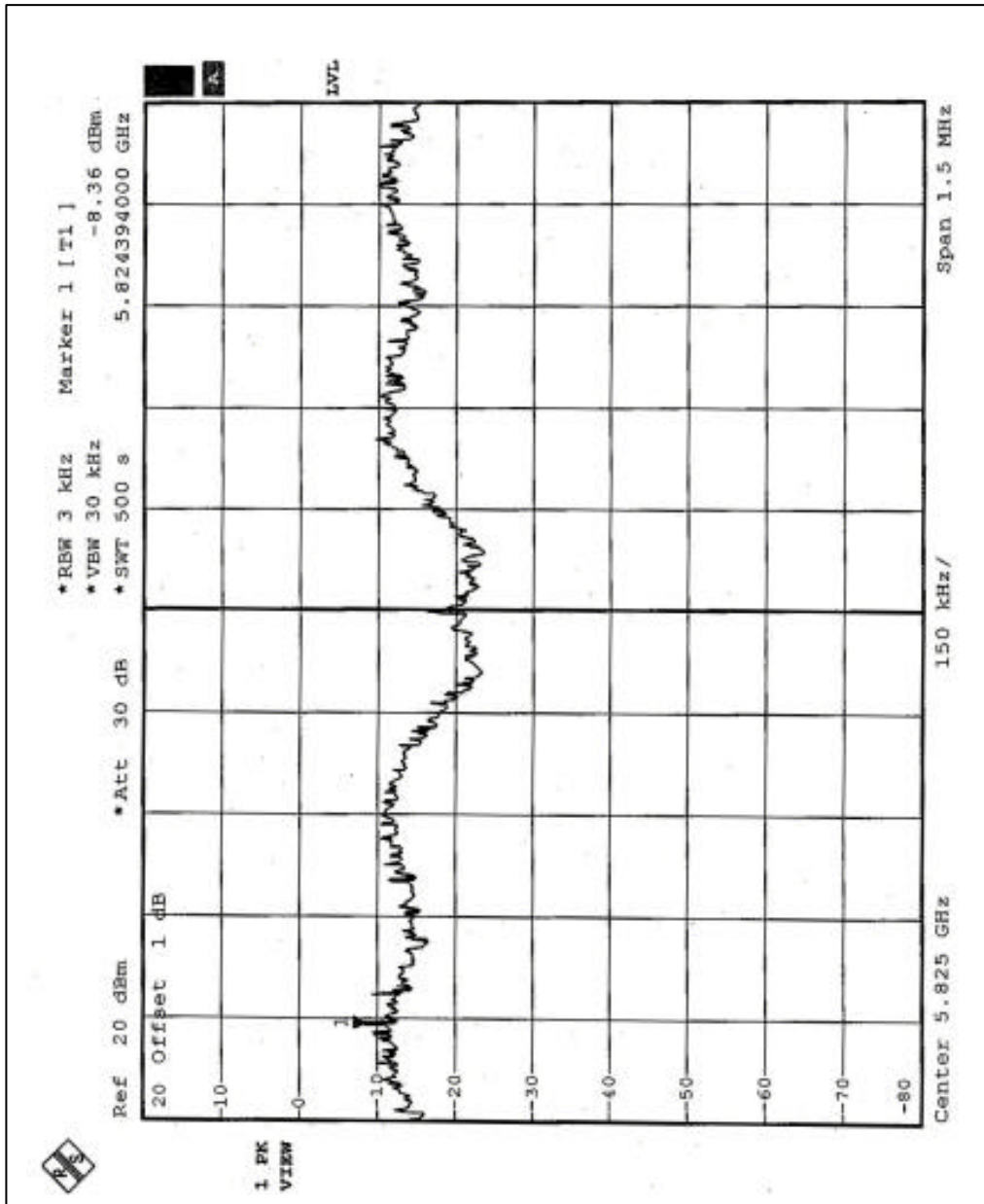


CH11





CH13





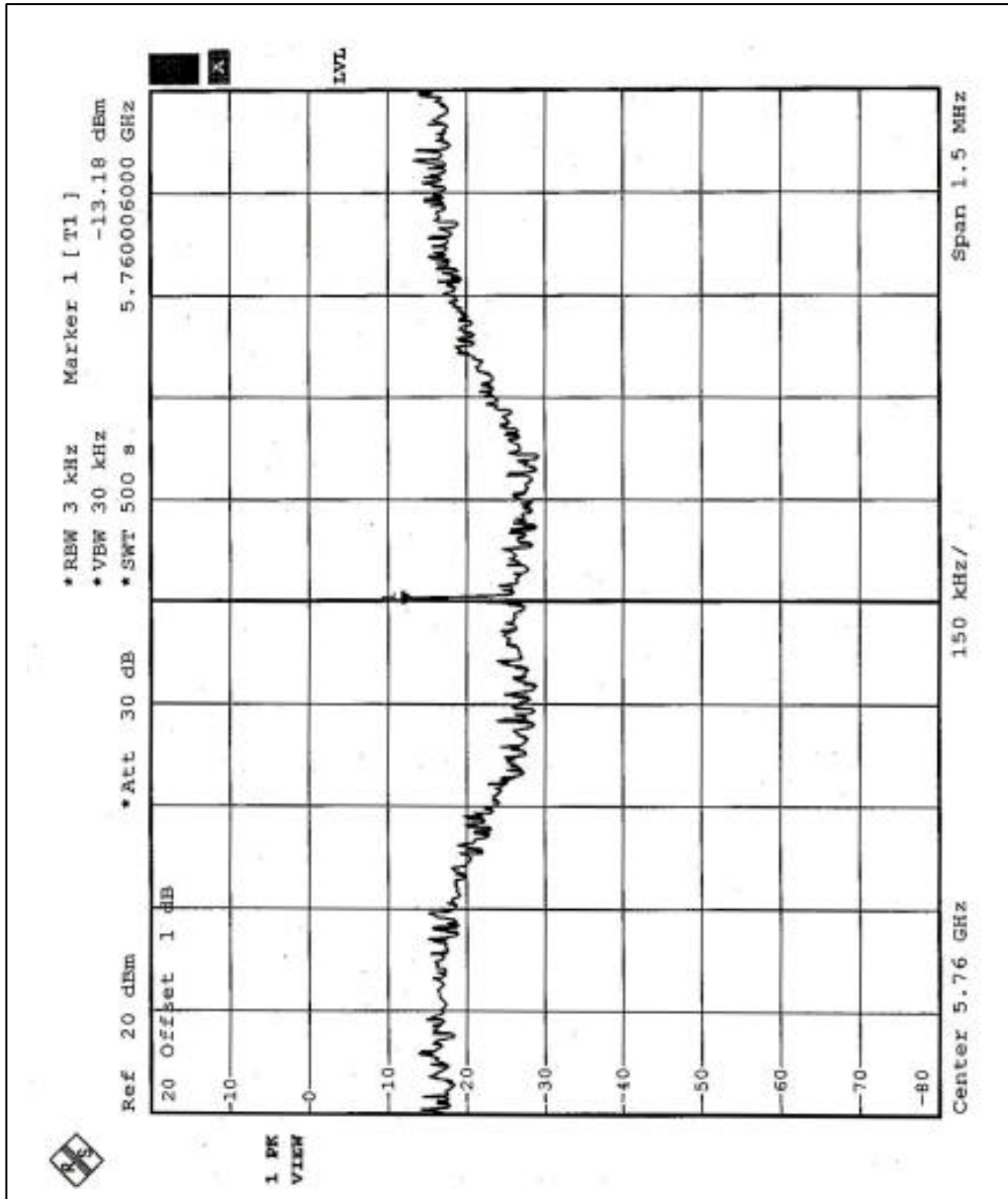


<b>EUT</b>	802.11a/b/g miniPCI module	<b>MODEL</b>	C38WCW
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60Hz	<b>ENVIRONMENTAL CONDITIONS</b>	57deg. C, 56%RH, 978 hPa
<b>TEST MODE</b>	Turbo	<b>TEST BY</b>	Eric Lee

<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>
4	5760	-13.18	8	PASS
5	5800	-14.37	8	PASS

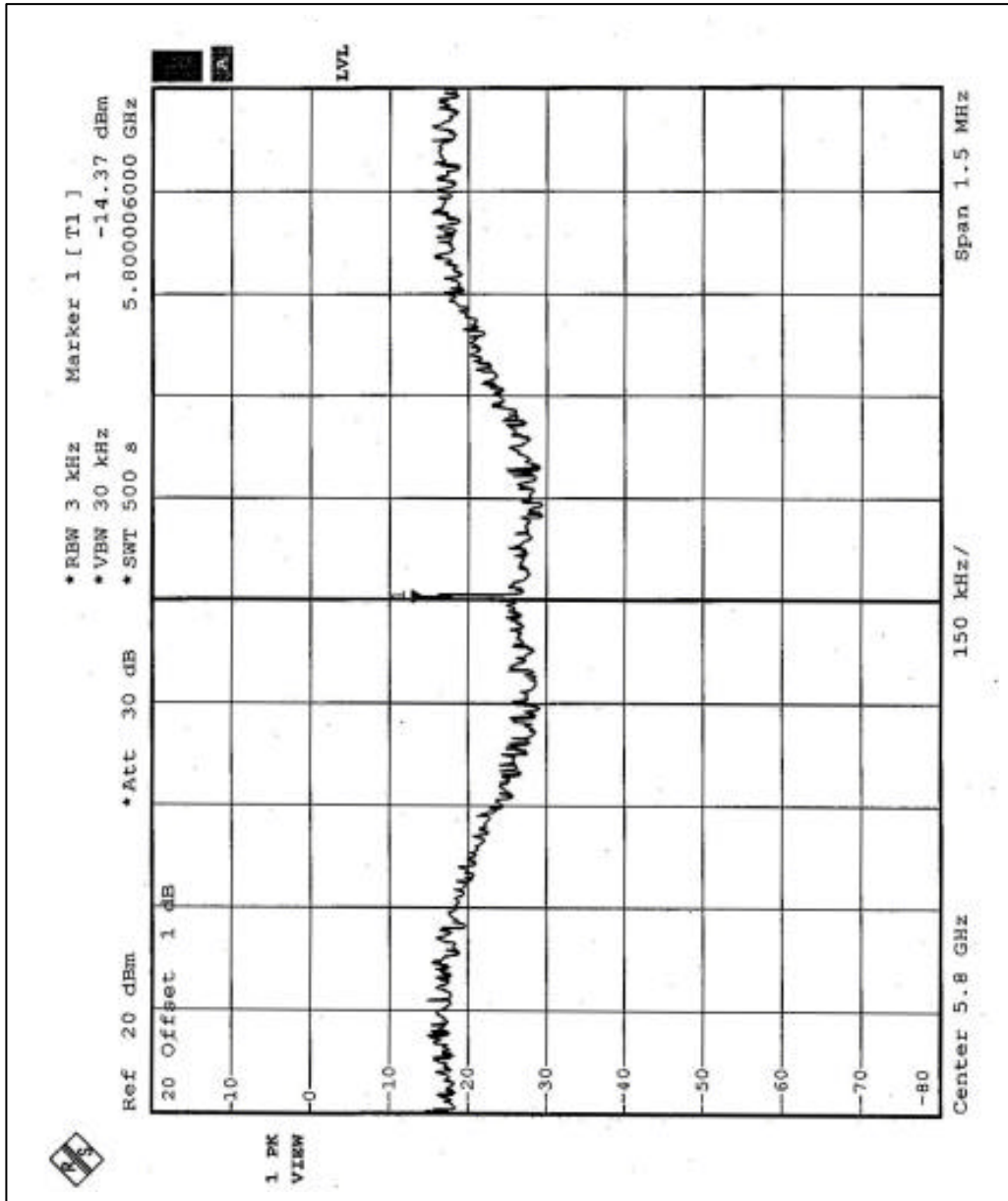


CH4





CH5





## 5.10 BAND EDGES MEASUREMENT

### 5.10.1 LIMITS OF BAND EDGES MEASUREMENT

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

### 5.10.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSP	1093.4495.30	Dec. 19, 2003

**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.

### 5.10.3 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.

### 5.10.4 DEVIATION FROM TEST STANDARD

No deviation



#### 5.10.5 EUT OPERATING CONDITION

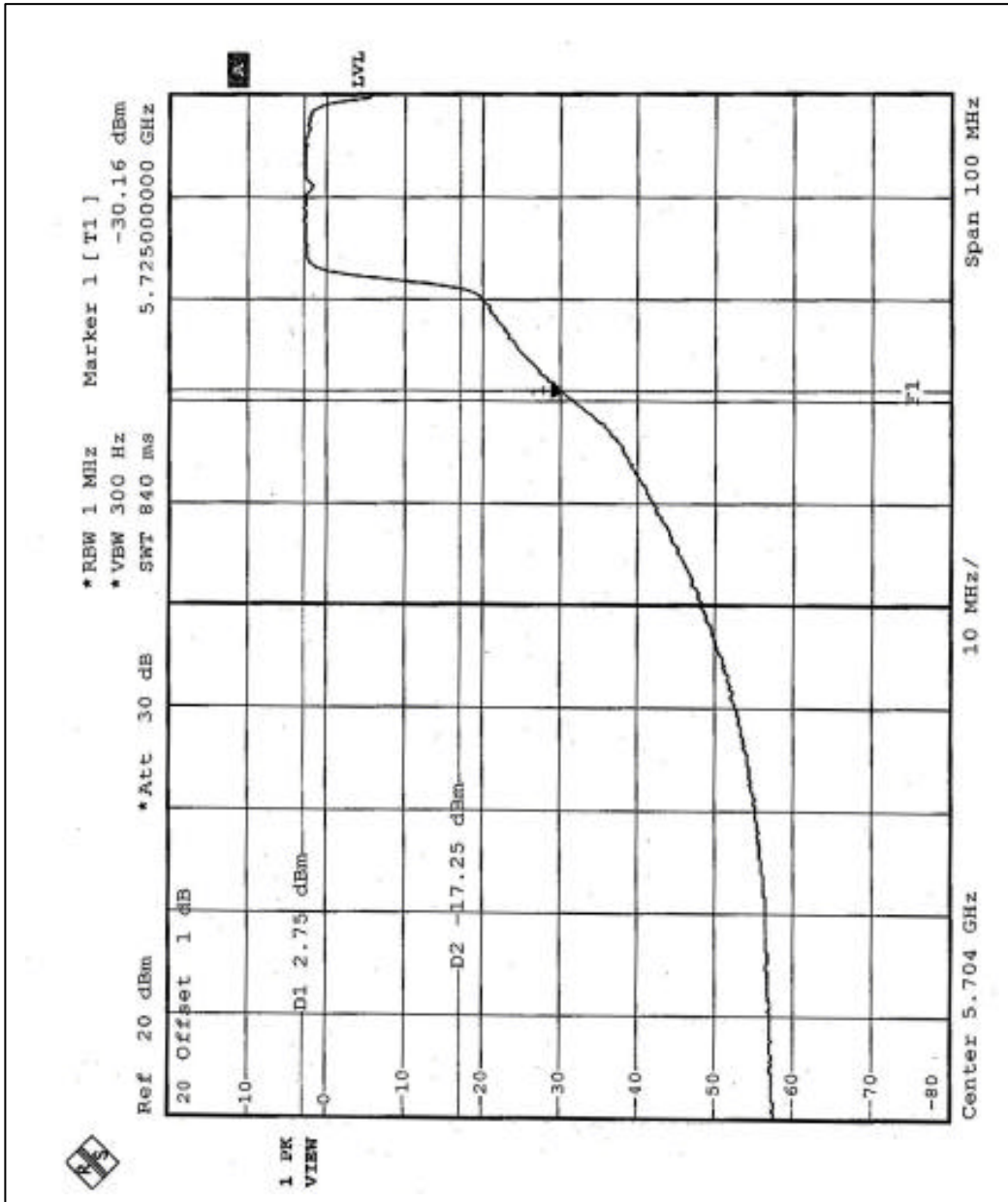
Same as Item 4.3.6

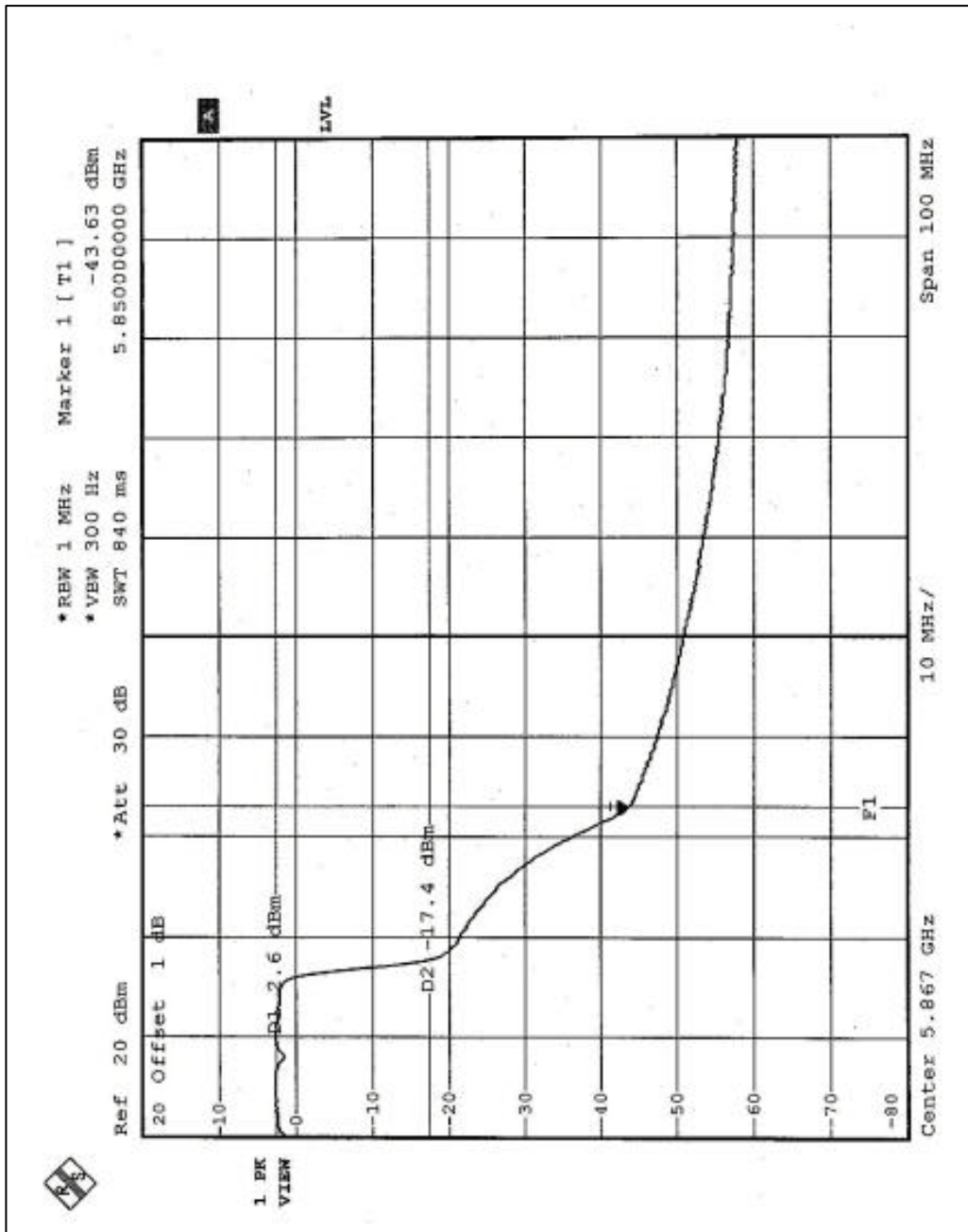
#### 5.10.6 TEST RESULTS (M)

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



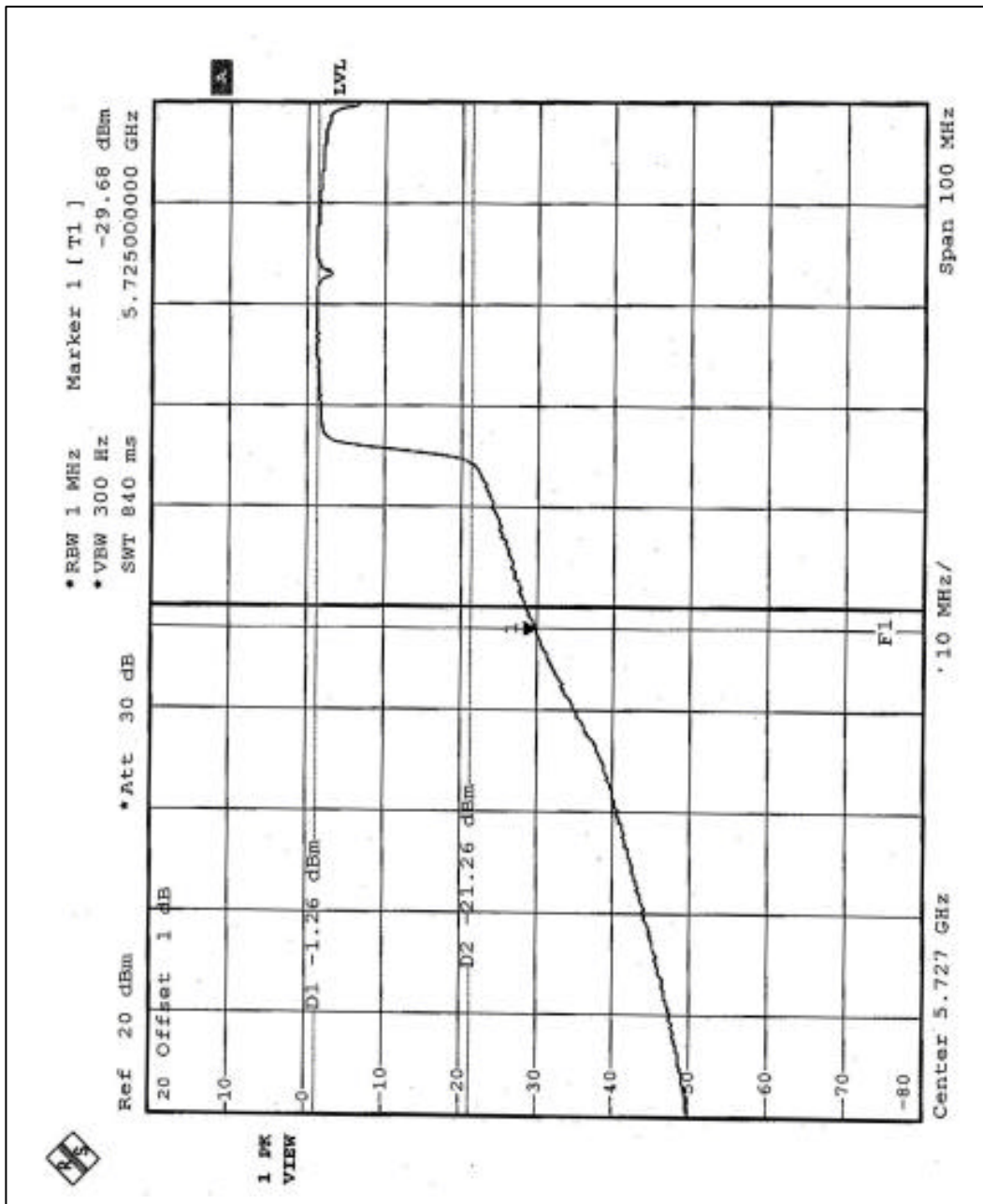
Antenna 1 & 7  
Normal Mode



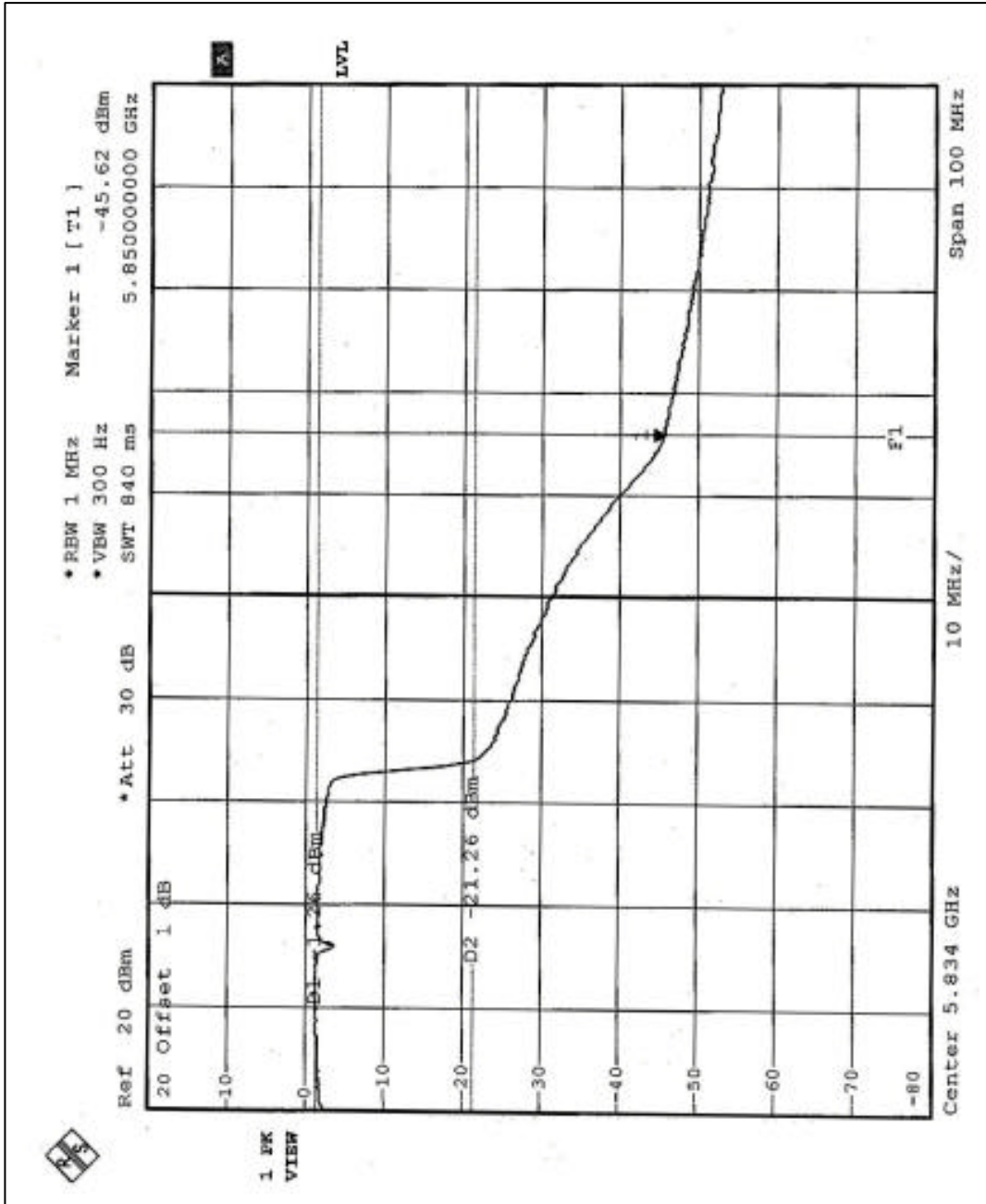




Turbo Mode

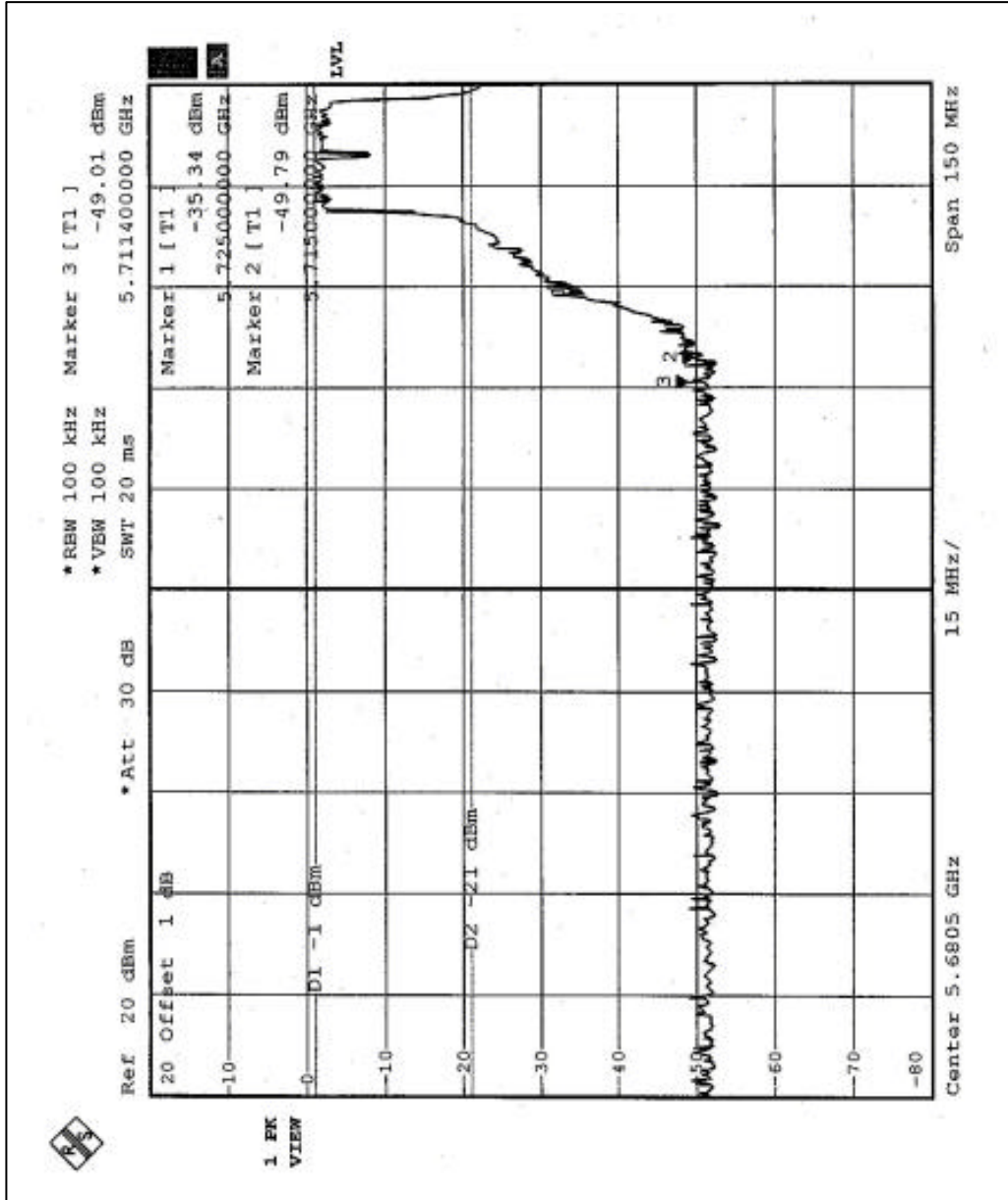


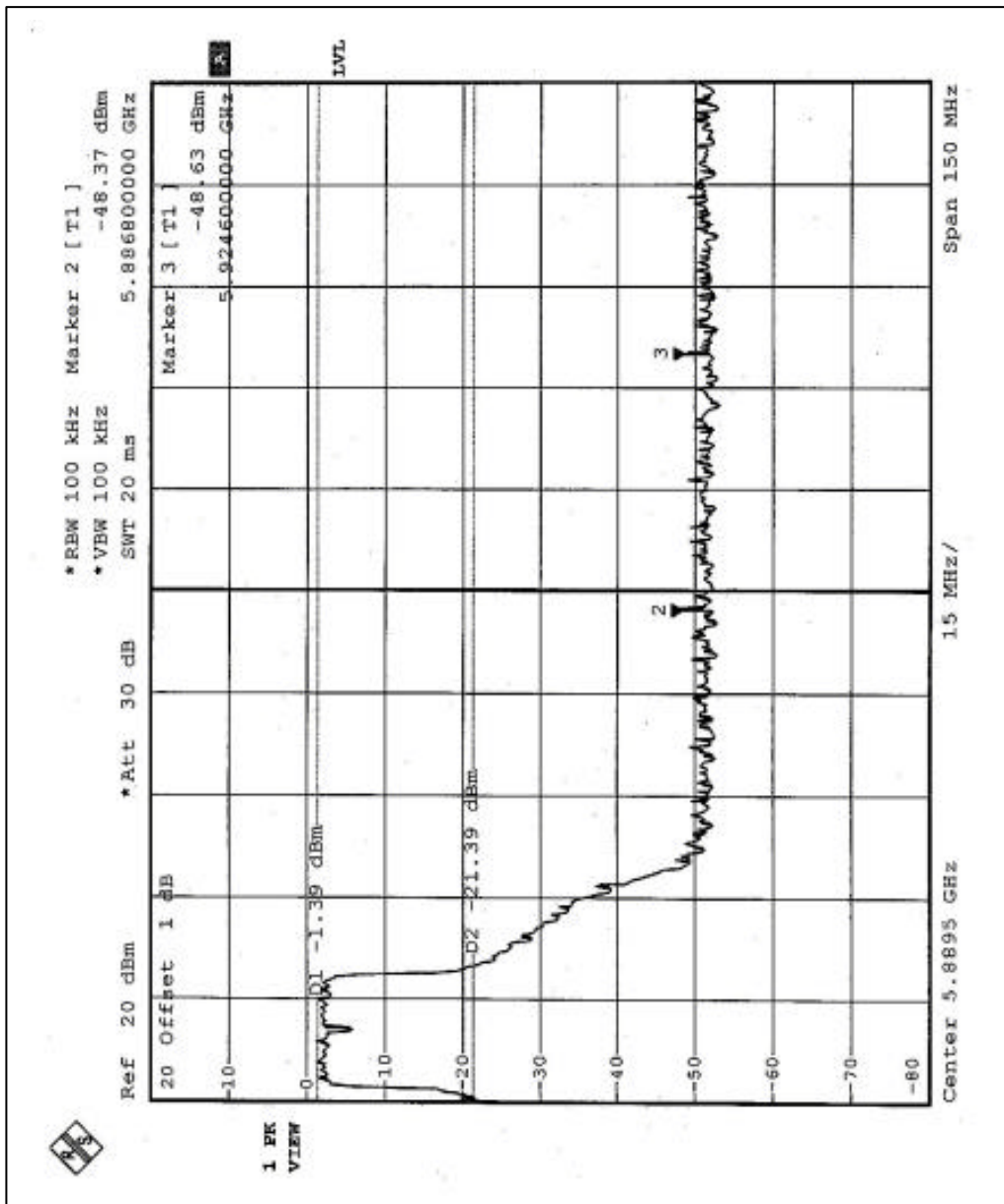






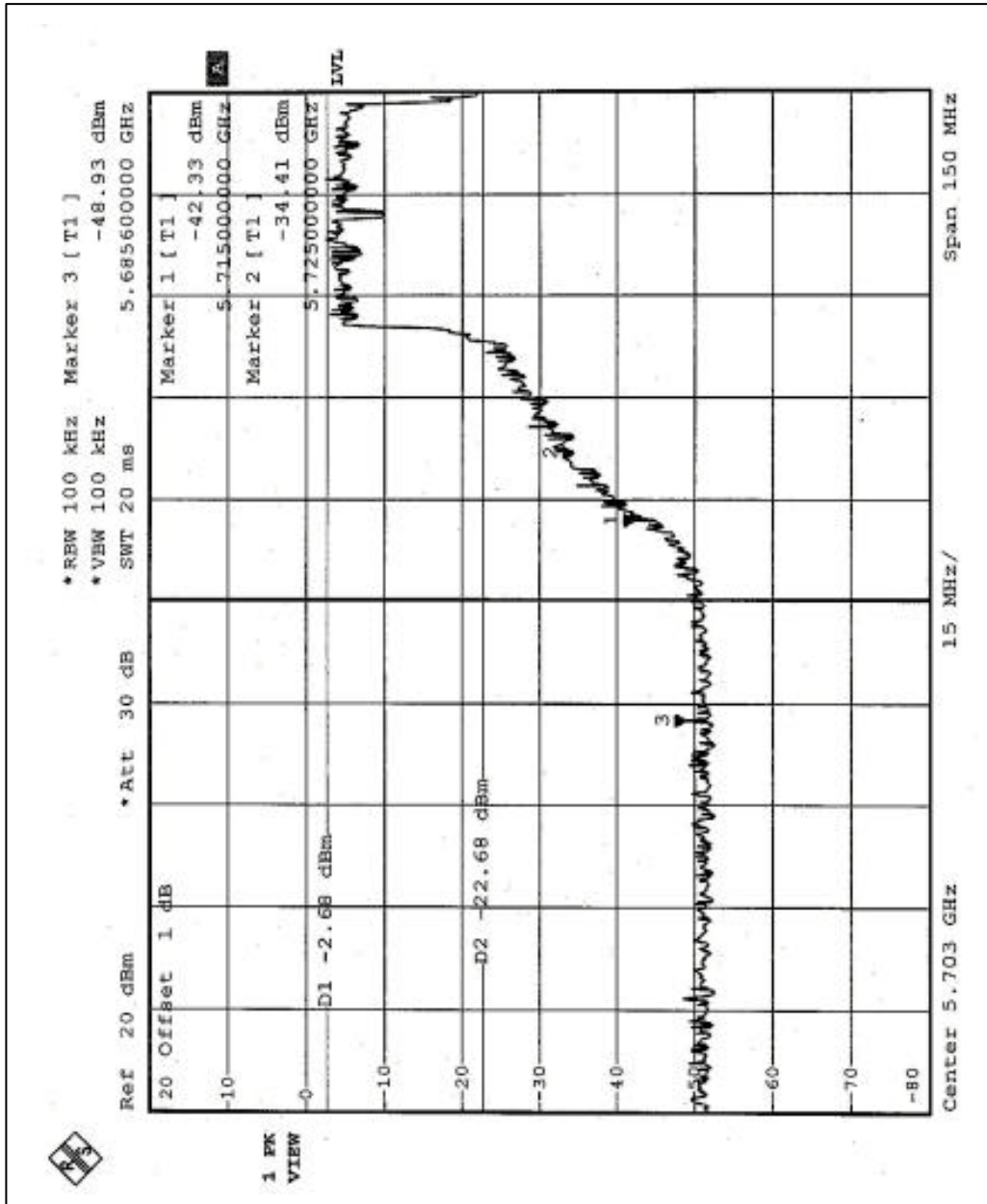
Antenna 8  
Normal Mode

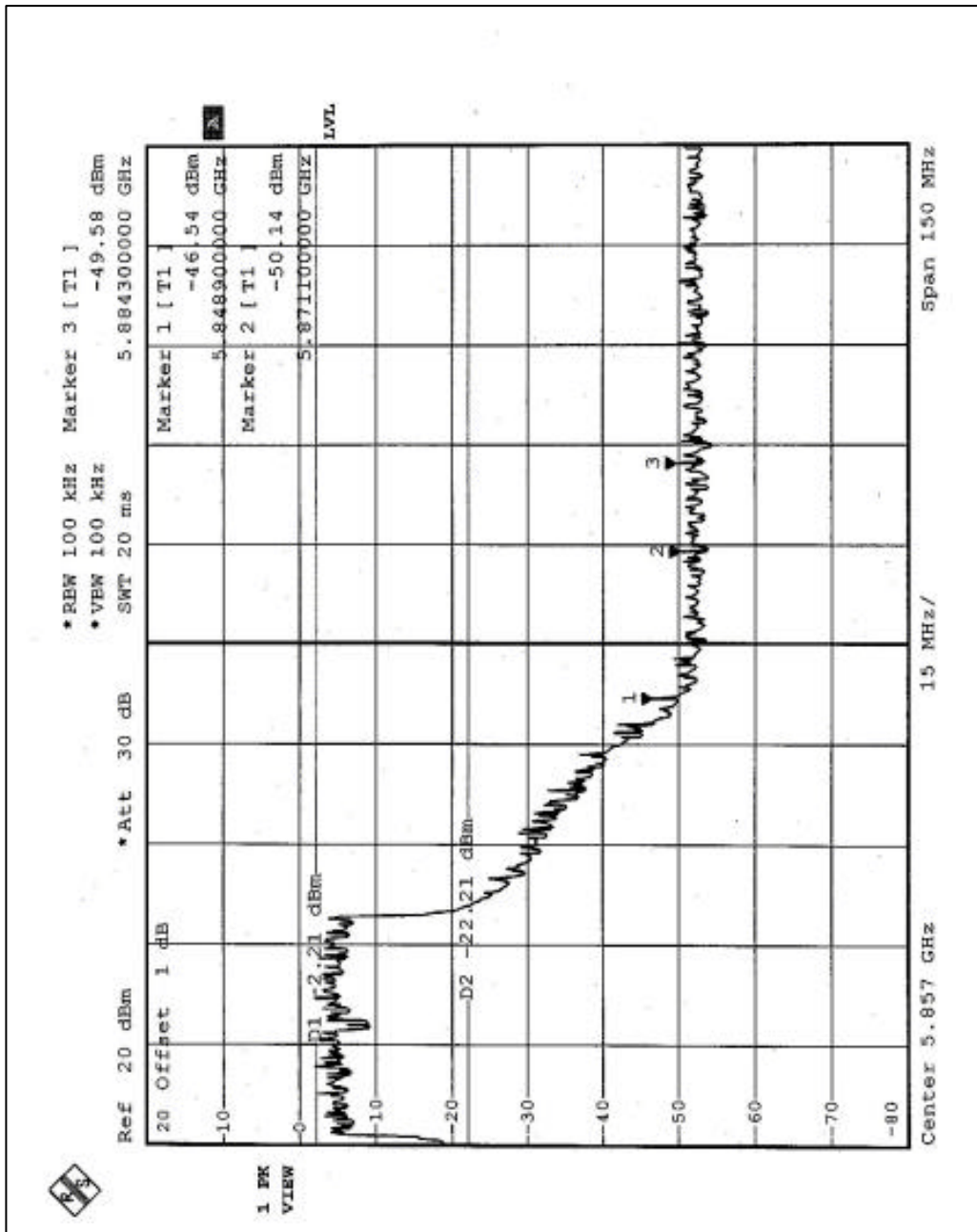






Turbo Mode







## **5.11 ANTENNA REQUIREMENT**

### **5.11.1 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 15.407(a), 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.

### **5.11.2 ANTENNA CONNECTED CONSTRUCTION**

#### **FOR FREQUENCY 5.15~5.35GHz**

The maximum Gain antenna (Antenna 1) used in this product is Directional antenna, and the antenna connector type for the EUT is UFL connector. And the maximum Gain of these antennas is 3dBi.

#### **FOR FREQUENCY 5.725~5.850GHz**

The maximum Gain antenna (Antenna 7) used in this product is Directional antenna, and the antenna connector type for the EUT is MMCX connector. And the maximum Gain of these antennas is 6dBi.



## 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, UL
<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).

If you have any comments, please feel free to contact us at the following:

**Lin Kou EMC Lab:**

Tel: 886-2-26052180

Fax: 886-2-26052943

**Hsin Chu EMC Lab:**

Tel: 886-35-935343

Fax: 886-35-935342

**Lin Kou Safety Lab:**

Tel: 886-2-26093195

Fax: 886-2-26093184

**Lin Kou RF&Telecom Lab**

Tel: 886-3-3270910

Fax: 886-3-3270892

**Email:** [service@mail.adt.com.tw](mailto:service@mail.adt.com.tw)

**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.