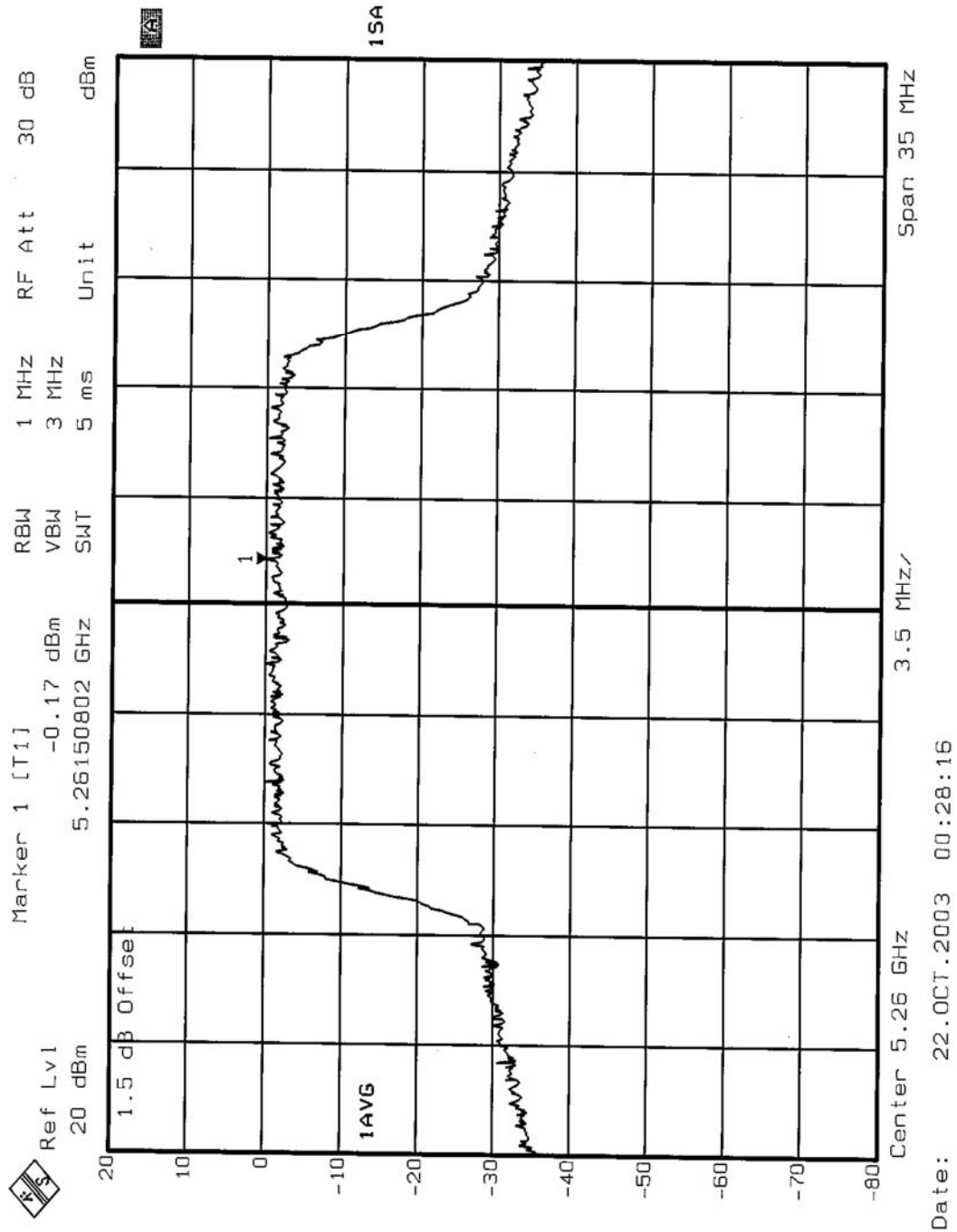


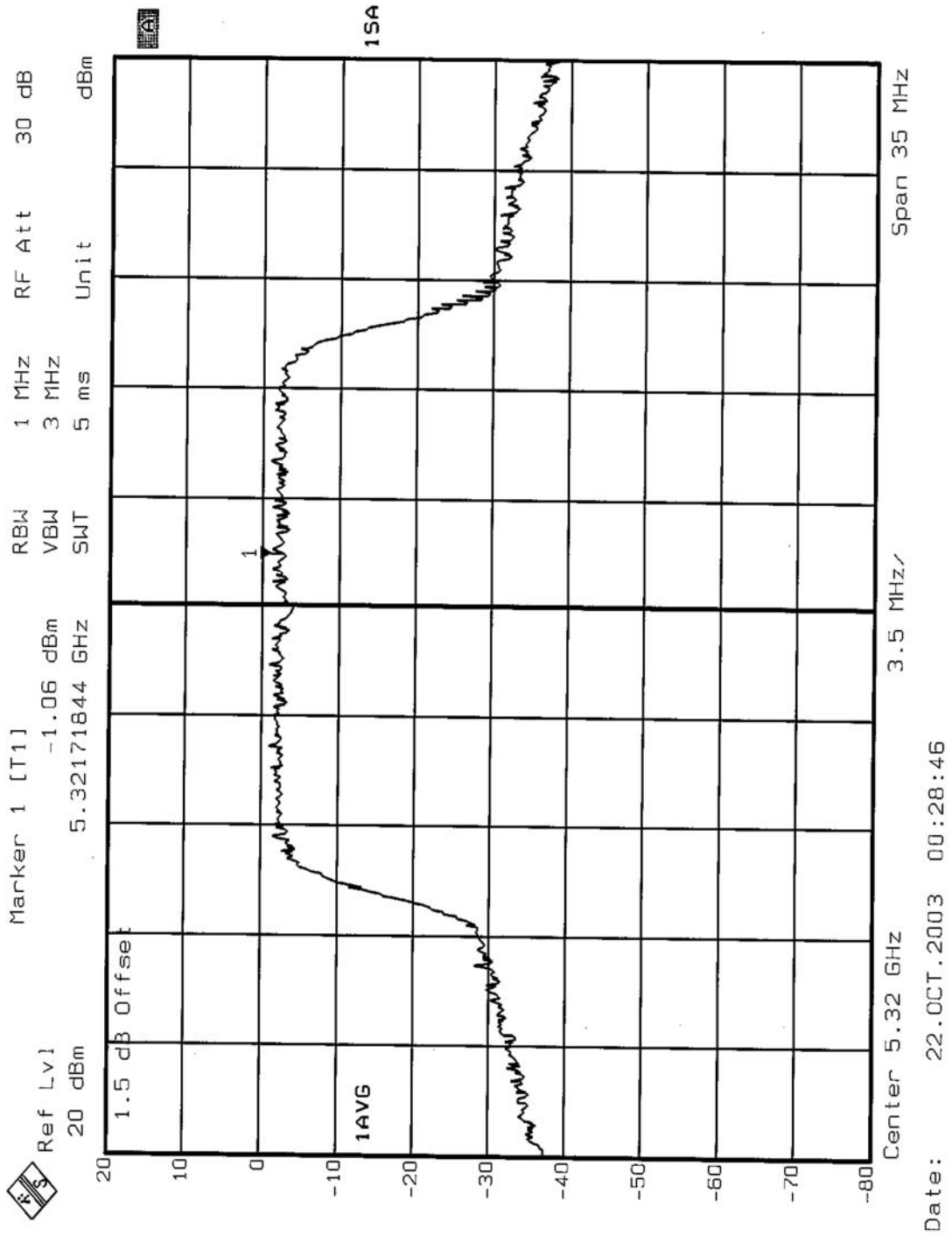


CH 5



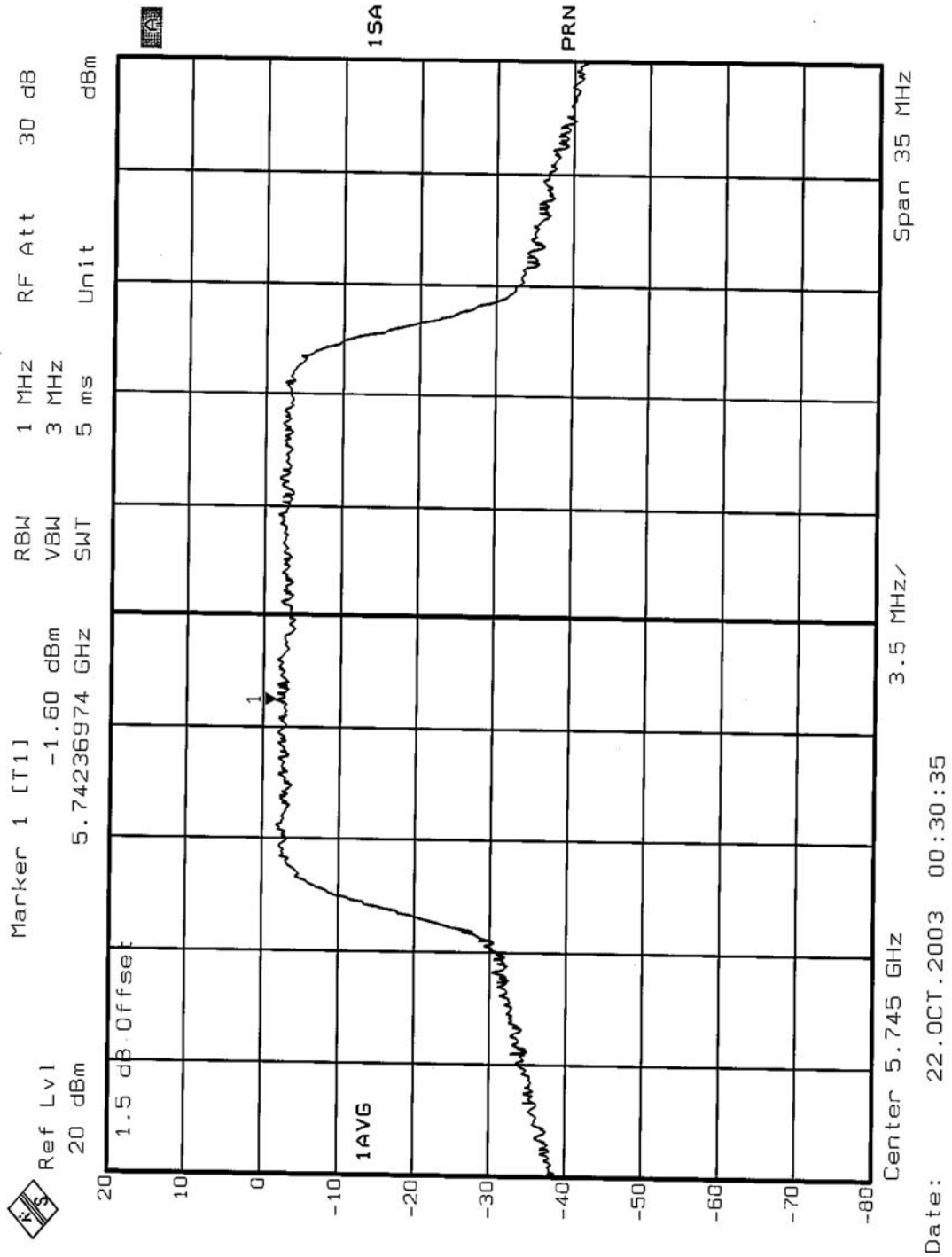


CH 8



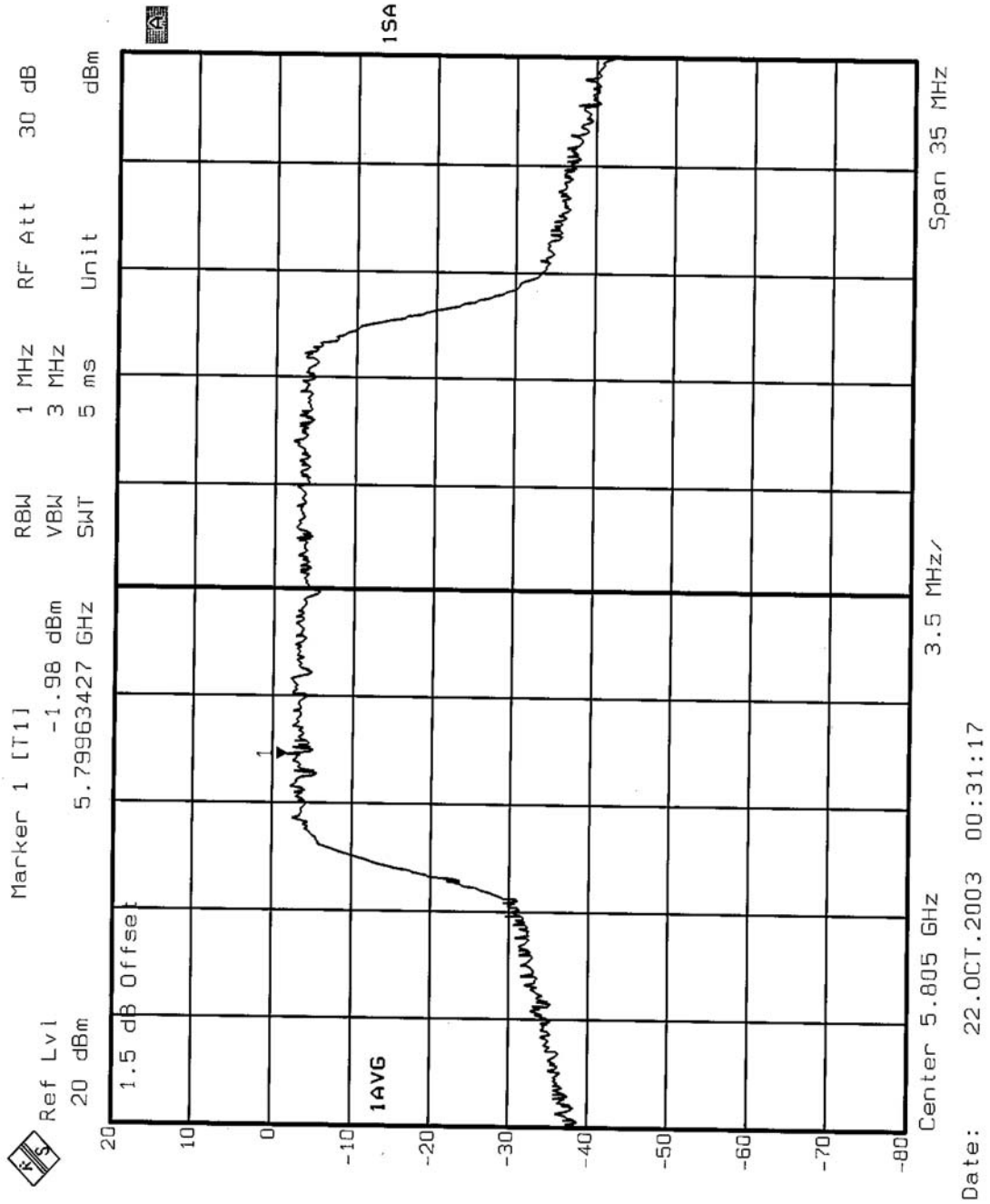


CH 9





CH12





## 5.5.8 TEST RESULTS

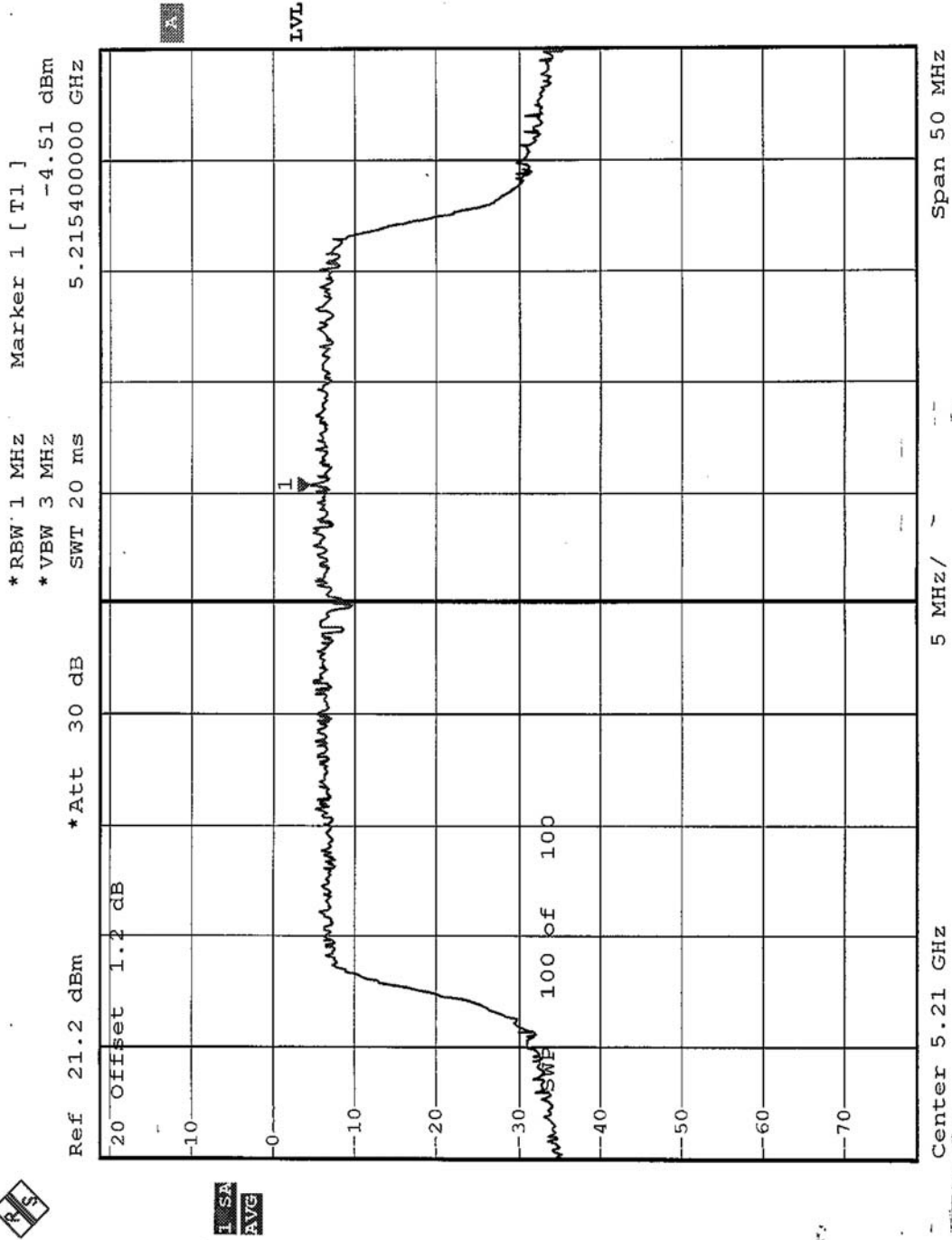
**TURBOL MODE (MODE 2)**

<b>EUT</b>	2.4/5GHz 54Mbps Wireless Mini PCI Card	<b>MODEL</b>	GL2554MP-1A
<b>ENVIRONMENTAL CONDITIONS</b>	24deg. C, 65%RH, 991hPa	<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz
<b>TESTED BY</b>	Ansen Lei		

<b>CHANNEL</b>	<b>CHANNEL FREQUENCY (MHz 5250)</b>	<b>RF POWER LEVEL IN 1MHz BW (dBm)</b>	<b>MAXIMUM LIMIT (dBm)</b>	<b>PASS/FAIL</b>
1	5210	-4.51	4	PASS
2	5250	-6.25	4	PASS
3	5290	-4.04	11	PASS
4	5760	-4.14	11	PASS
5	5800	-6.34	17	PASS



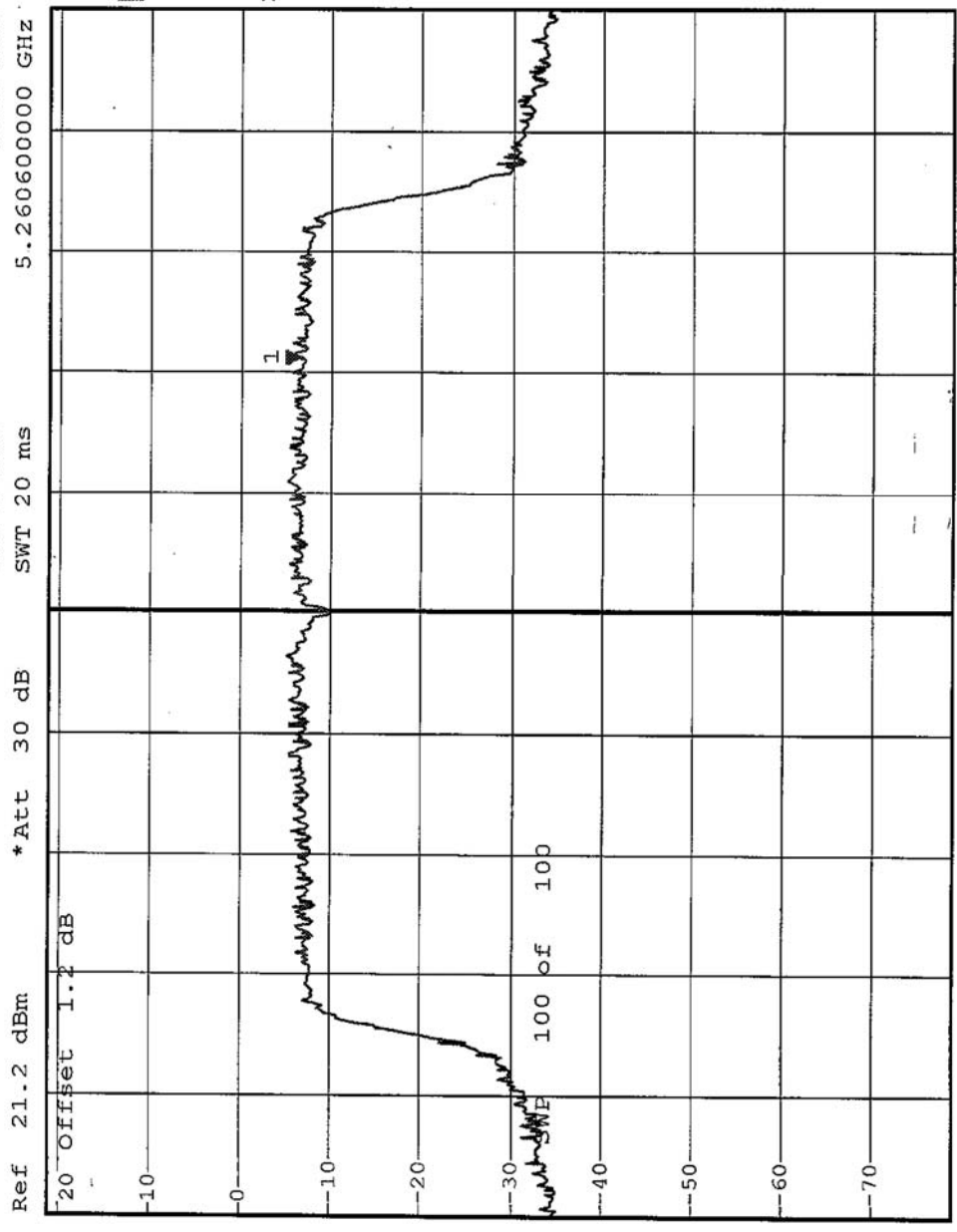
CH 1





CH 2

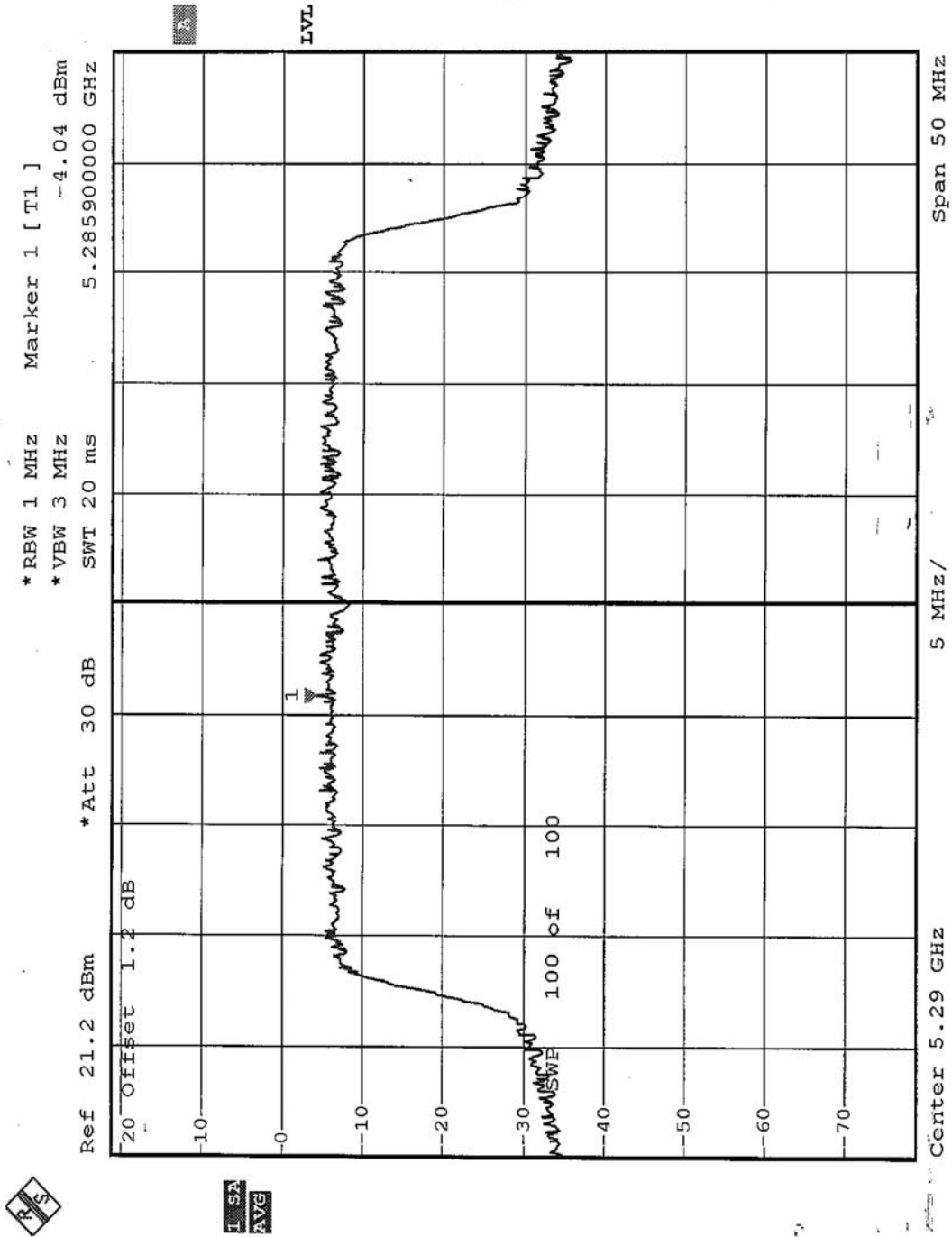
\* RBW 1 MHz  
\* VBW 3 MHz  
SWT 20 ms  
Marker 1 [ T1 ]  
-6.25 dBm  
5.260600000 GHz



L SA  
AVG



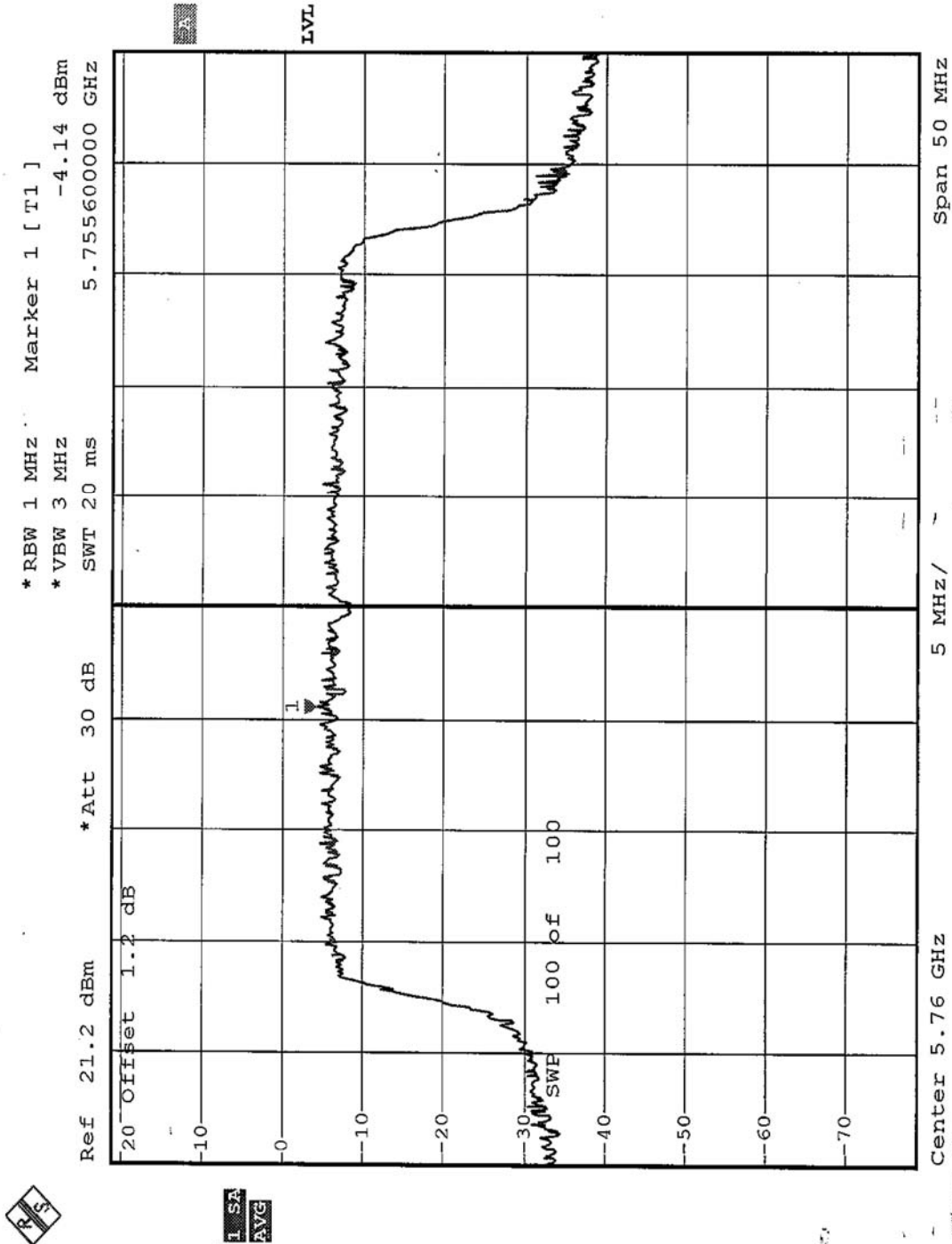
CH 3





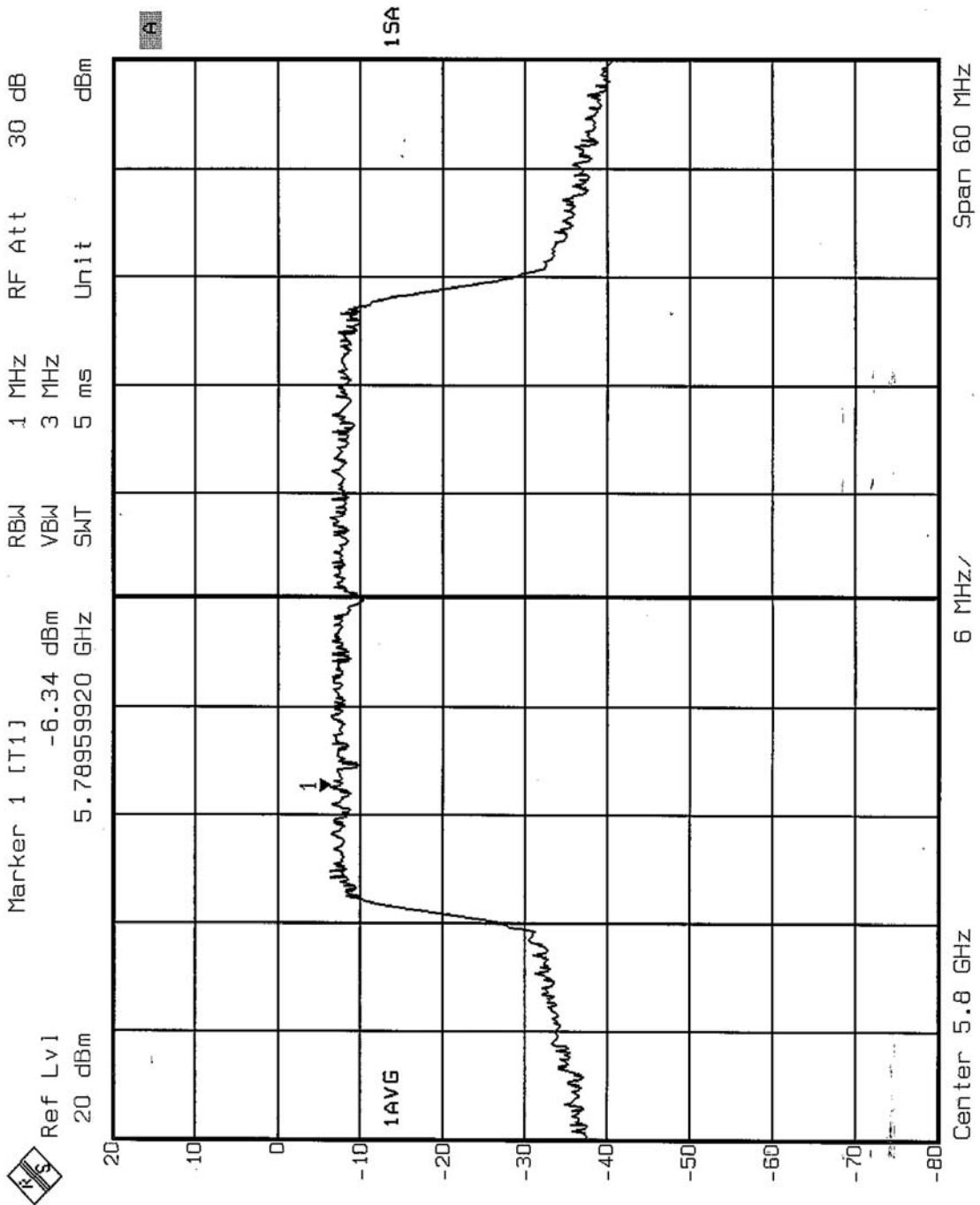


CH 4





CH 5





## 5.5.9 TEST RESULTS

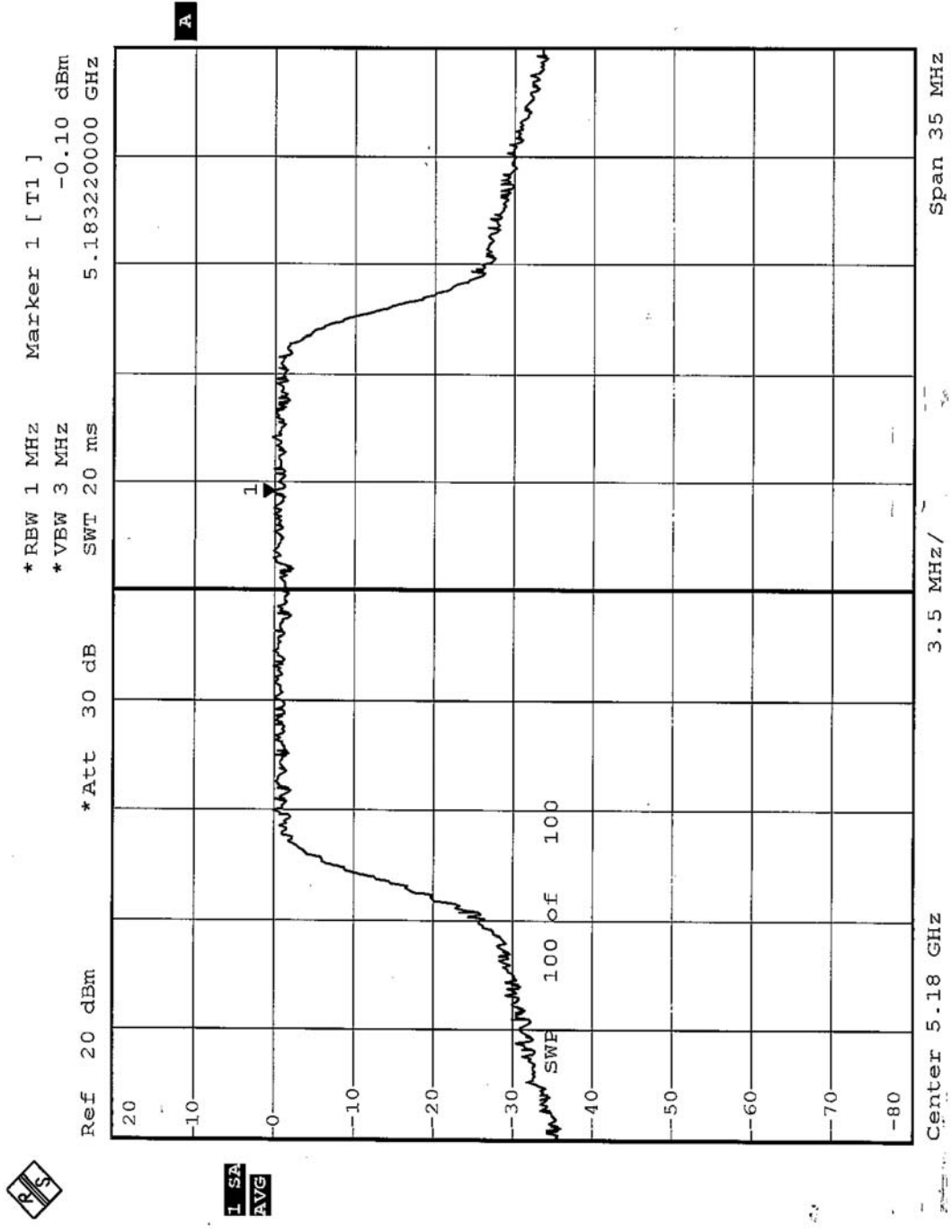
**NORMAL MODE (MODE 3 、 MODE4)**

<b>EUT</b>	2.4/5GHz 54Mbps Wireless Mini PCI Card	<b>MODEL</b>	GL2554MP-1A
<b>ENVIRONMENTAL CONDITIONS</b>	24deg. C, 65%RH, 991hPa	<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz
<b>TESTED BY</b>	Ansen Lei		

<b>CHANNEL</b>	<b>CHANNEL FREQUENCY (MHz )</b>	<b>RF POWER LEVEL IN 1MHz BW (dBm)</b>	<b>MAXIMUM LIMIT (dBm)</b>	<b>PASS/FAIL</b>
1	5180	-0.1	4	PASS
4	5240	0.3	4	PASS
5	5260	-0.17	11	PASS
8	5320	-1.06	11	PASS
9	5745	-3.61	17	PASS
12	5805	-4.60	17	PASS

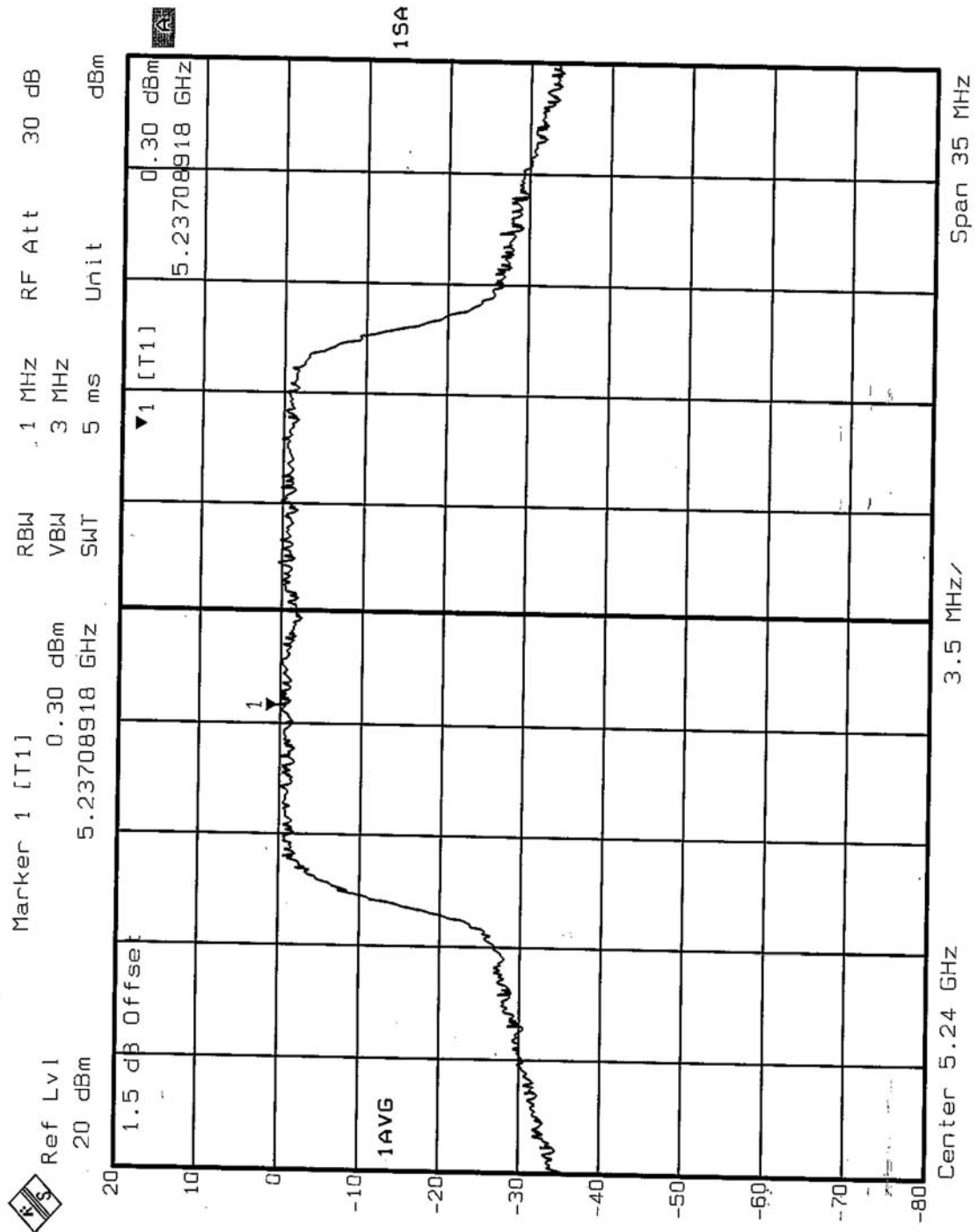


CH 1



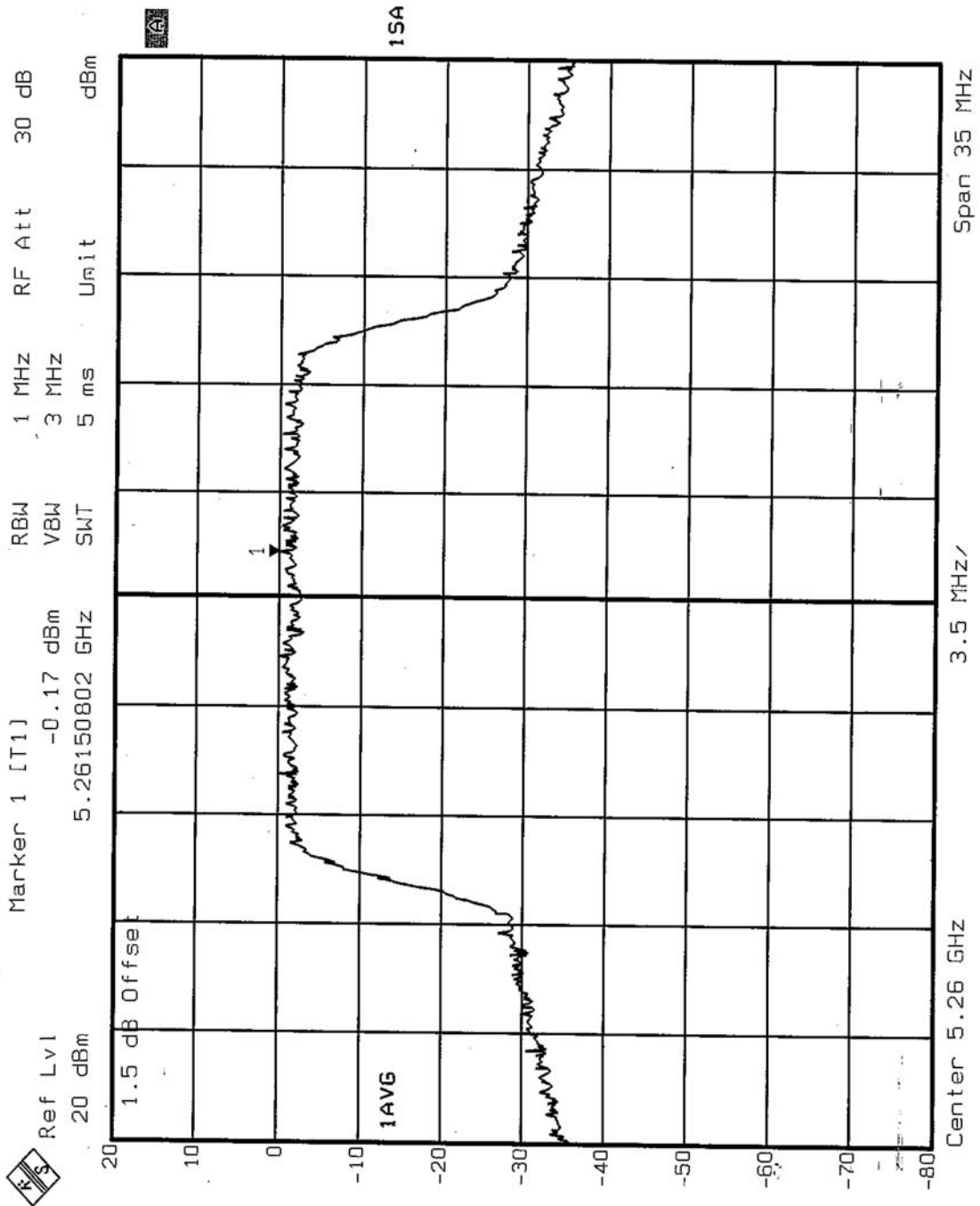


CH 4



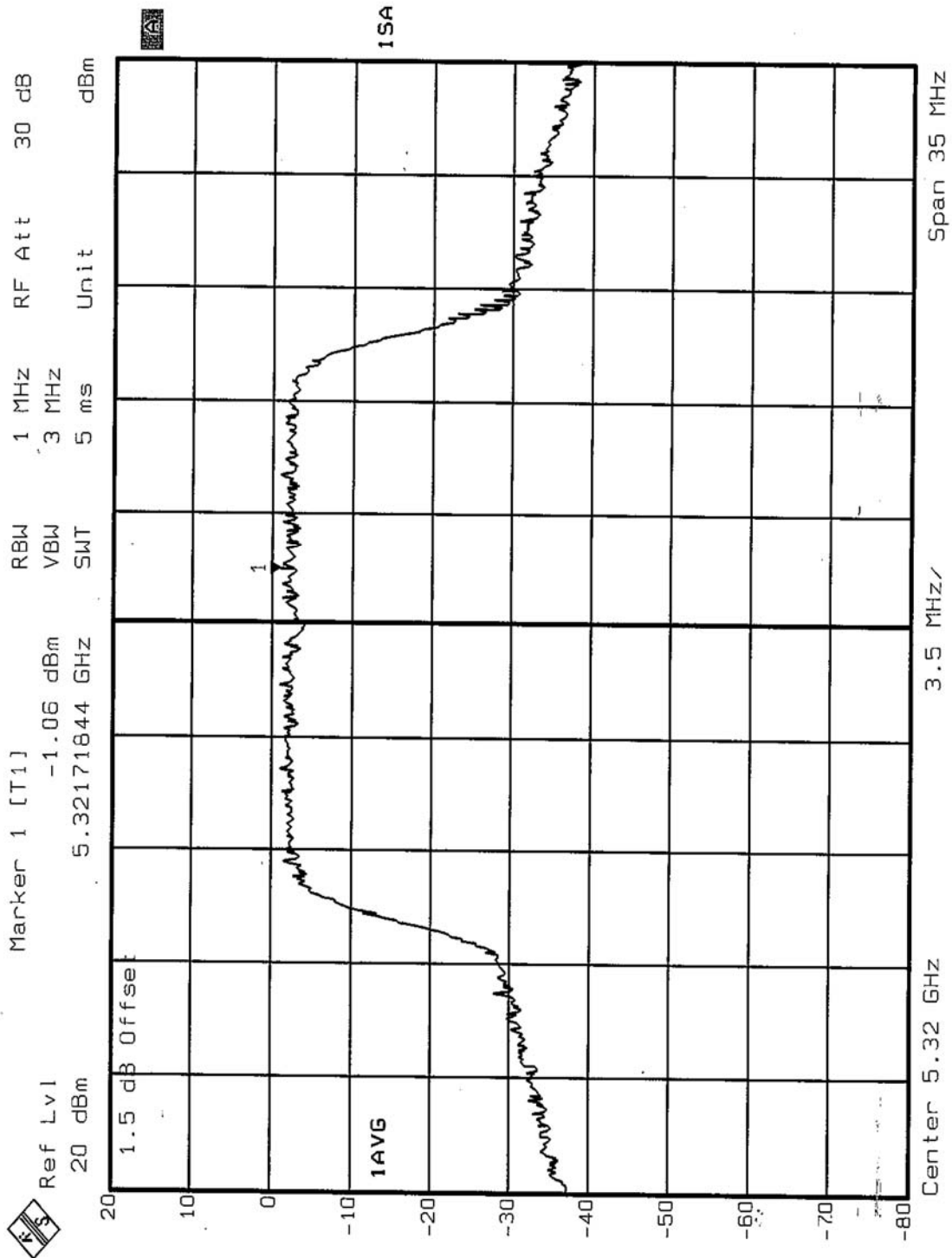


CH 5



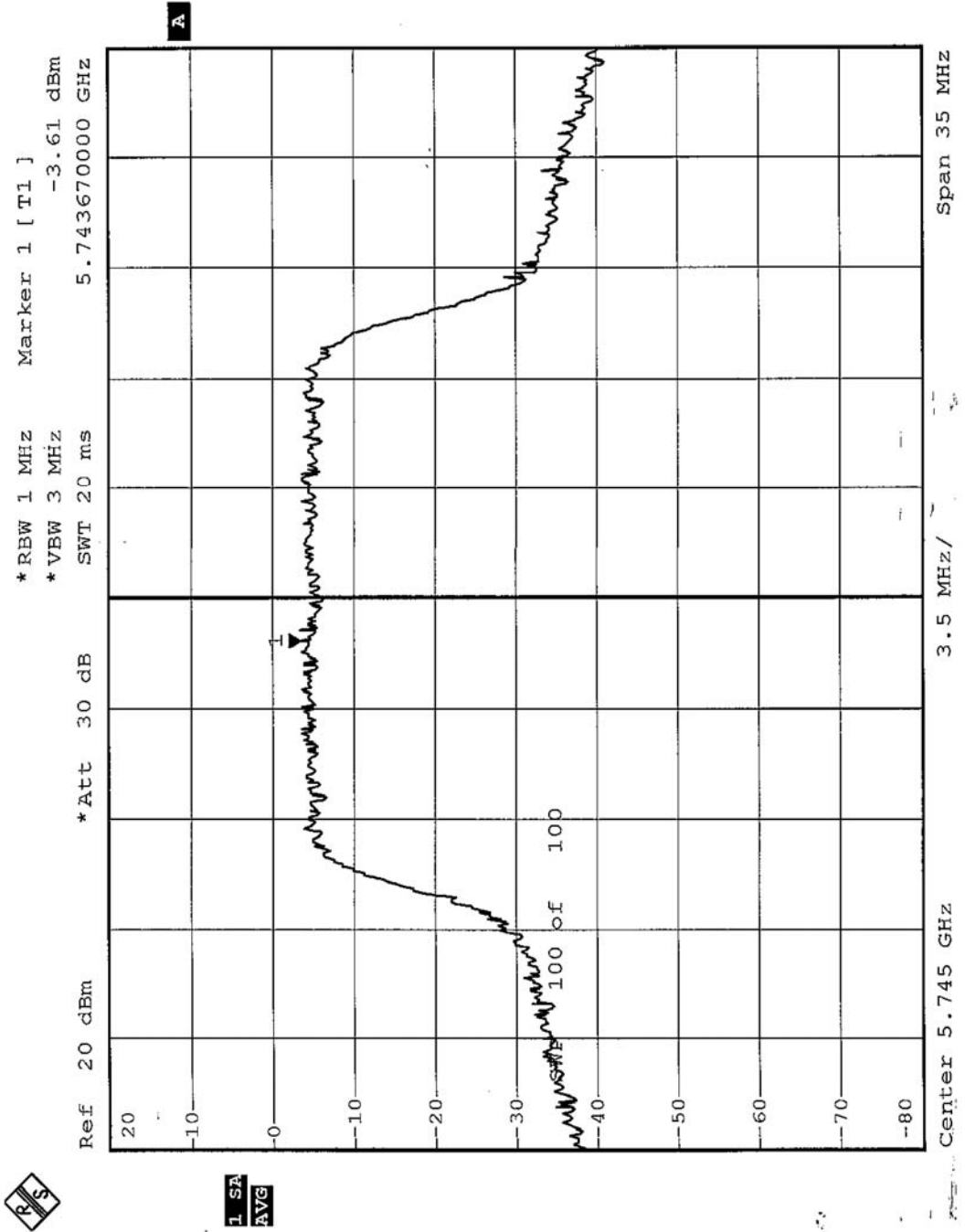


CH 8





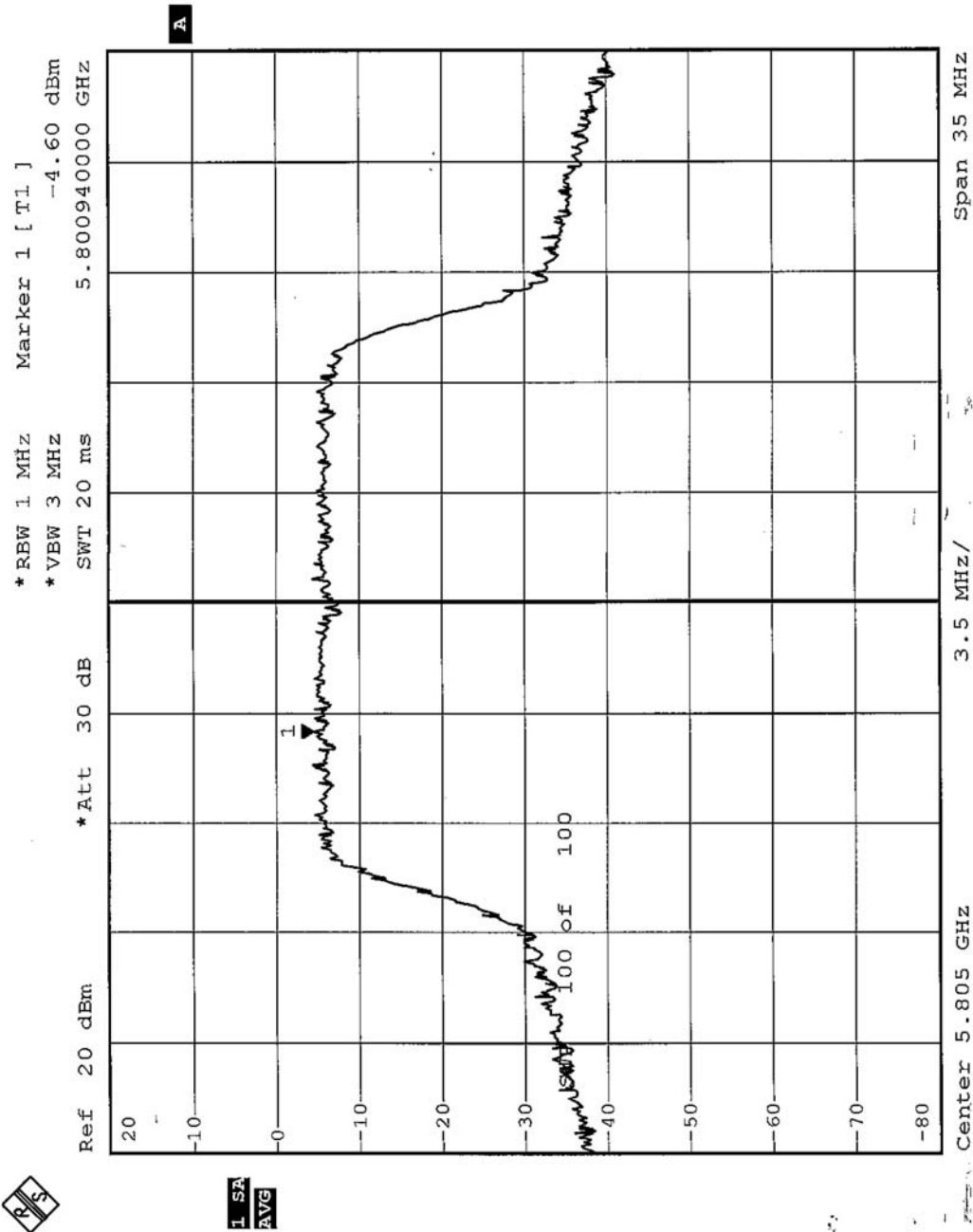
CH 9







CH12





## 5.6 FREQUENCY STABILITY

### 5.6.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

The frequency tolerance of the carrier signal shall be maintained within +/- 0.02% of the operating frequency over a temperature variation of -30 degrees to 50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C.

### 5.6.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
ANRITSU SPECTRUM ANALYZER	MS2667C	M10281	Aug. 12, 2004
WIT STANDARD TEMPERATURE AND HUMIDITY CHAMBER	TH-4S-C	W901030	Aug. 12, 2004

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

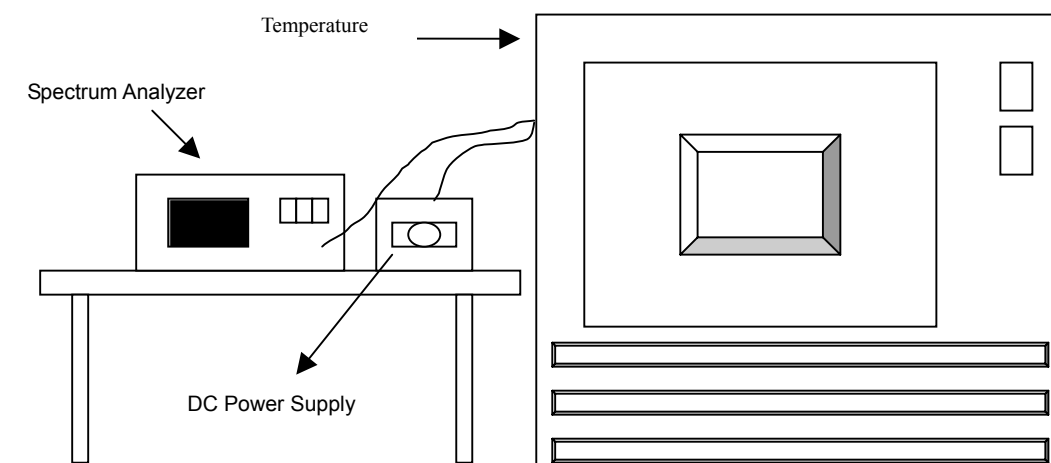
### 5.6.3 TEST PROCEDURE

1. The EUT was placed inside the environmental test chamber and powered by nominal DC voltage.
2. Turn the EUT on and couple its output to a spectrum analyzer.
3. Turn the EUT off and set the chamber to the highest temperature specified.
4. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
5. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
6. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

#### 5.6.4 DEVIATION FROM TEST STANDARD

No deviation

#### 5.6.5 TEST SETUP



#### 5.6.6 EUT OPERATING CONDITION

Same as Item 4.1.6

## 5.6.7 TEST RESULTS (MODE1、MODE 2、MODE 3、MODE 4)

Operating frequency: 5320MHz				Limit : $\pm 0.02\%$			
Temp. (°C)	Power supply (VDC)	2 minute		5 minute		10 minute	
		(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
50	126.5	5320.0218	0.0004098	5320.0222	0.0004173	5320.0224	0.0004211
	110.0	5320.0216	0.0004060	5320.0223	0.0004192	5320.0226	0.0004248
	93.5	5320.0217	0.0004079	5320.0224	0.0004211	5320.0220	0.0004135
40	126.5	5320.0065	0.0001222	5320.0070	0.0001316	5320.0067	0.0001259
	110.0	5320.0064	0.0001203	5320.0070	0.0001316	5320.0065	0.0001222
	93.5	5320.0066	0.0001241	5320.0072	0.0001353	5320.0062	0.0001165
30	126.5	5320.0080	0.0001504	5320.0082	0.0001541	5320.0080	0.0001504
	110.0	5320.0082	0.0001541	5320.0081	0.0001523	5320.0080	0.0001504
	93.5	5320.0084	0.0001579	5320.0080	0.0001504	5320.0082	0.0001541
20	126.5	5320.0117	0.0002199	5320.0115	0.0002162	5320.0915	0.0017199
	110.0	5320.0117	0.0002199	5320.0115	0.0002180	5320.0115	0.0002162
	93.5	5320.0116	0.0002180	5320.0116	0.0001936	5320.0114	0.0002143
10	126.5	5320.0105	0.0001974	5320.0103	0.0001955	5320.0163	0.0003064
	110.0	5320.0105	0.0001974	5320.0104	0.0001974	5320.0163	0.0003064
	93.5	5320.0107	0.0002011	5320.0105	0.0004436	5320.0161	0.0003026
0	126.5	5320.0237	0.0004455	5320.0236	0.0004455	5320.0234	0.0004398
	110.0	5320.0237	0.0004455	5320.0237	0.0004436	5320.0234	0.0004398
	93.5	5320.0236	0.0004436	5320.0236	0.0005545	5320.0232	0.0004361
-10	126.5	5320.0293	0.0005508	5320.0295	0.0005526	5320.0295	0.0005545
	110.0	5320.0294	0.0005526	5320.0294	0.0005508	5320.0296	0.0005564
	93.5	5320.0295	0.0005545	5320.0293	0.0005470	5320.0294	0.0005526
-20	126.5	5320.0290	0.0005451	5320.0291	0.0005489	5320.0292	0.0005489
	110.0	5320.0292	0.0005489	5320.0292	0.0005526	5320.0291	0.0005470
	93.5	5320.0289	0.0005432	5320.0294	0.0004041	5320.0292	0.0005489
-30	126.5	5320.0217	0.0004079	5320.0215	0.0004023	5320.0217	0.0004079
	110.0	5320.0216	0.0004060	5320.0214	0.0004060	5320.0215	0.0004041
	93.5	5320.0215	0.0004041	5320.0216	0.0004060	5320.0214	0.0004023



## 5.7 BAND EDGES MEASUREMENT

### 5.7.1 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
SPECTRUM ANALYZER	FSEK30	100049	August 12, 2004

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

### 5.7.2 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 1MHz with suitable frequency span including 100 MHz bandwidth from band edge. The band edges was measured and recorded.

### 5.7.3 EUT OPERATING CONDITION

The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.

### 5.7.4 TEST RESULTS

For signals in the restricted bands above and below the 5.15 to 5.35GHz allocated band a measurement was made of the amplitude of the spurious emissions with respect to the intentional signals. The relative amplitude, in dBc, was applied to the average and peak filed strength of the intentional signal made on the OATS to calculate the field strength of the unintentional signals.

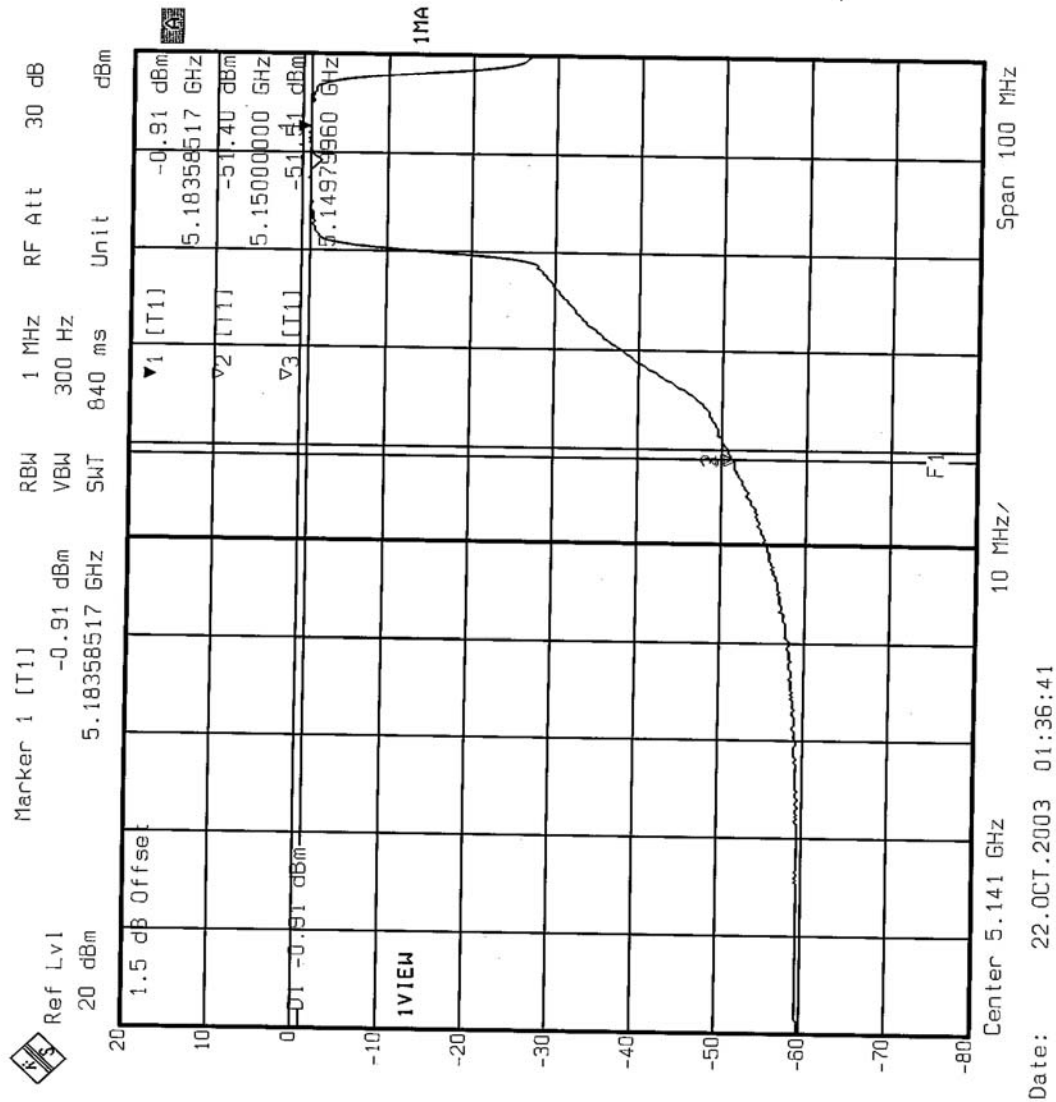
The spectrum plots (Peak RBW=VBW=1MHz; Average RBW=1MHz, VBW=300Hz) are attached on the following 4 pages.



**NORMAL MODE (MODE 1 、 MODE2)**

Channel 1 (5180 MHz)

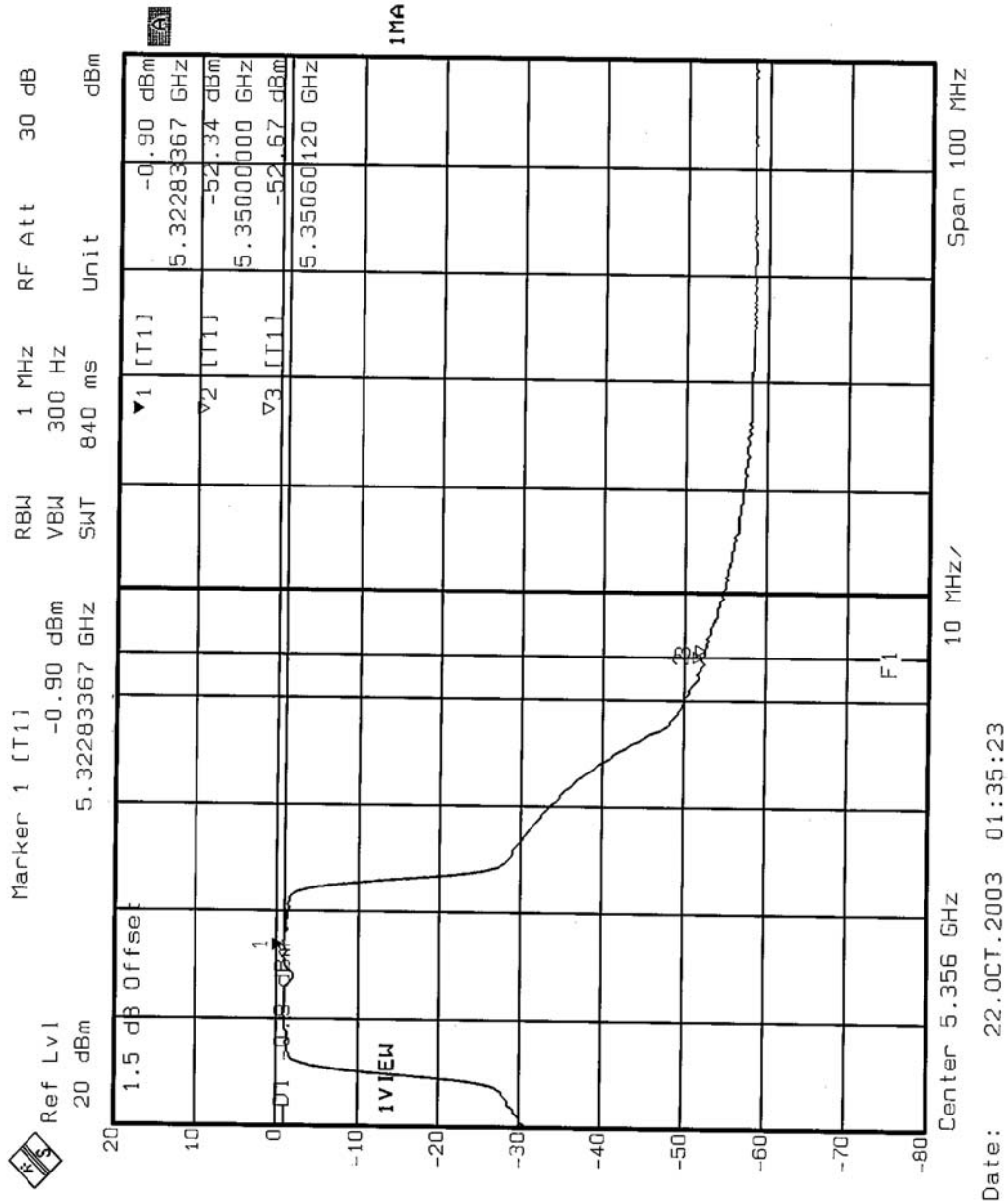
The band edge emission plot of OFDM technique on the following page shows 50.49dB delta between carrier maximum power and local maximum emission in restrict band (5.1500GHz). The emission of carrier strength list in the test result of channel 1 at the item 5.2.9 is 101.9dBuV/m, so the maximum field strength in restrict band is 101.9-50.49=51.41dBuV/m which is under 54dBuV/m limit.





Channel 8 (5320 MHz)

The band edge emission plot of OFDM technique on the following page shows 51.44dB delta between carrier maximum power and local maximum emission in restrict band (5.3500GHz). The emission of carrier strength list in the test result of channel 1 at the item 5.2.9 is 95.30dBuV/m, so the maximum field strength in restrict band is  $95.30 - 51.44 = 43.86$  dBuV/m which is under 54dBuV/m limit.

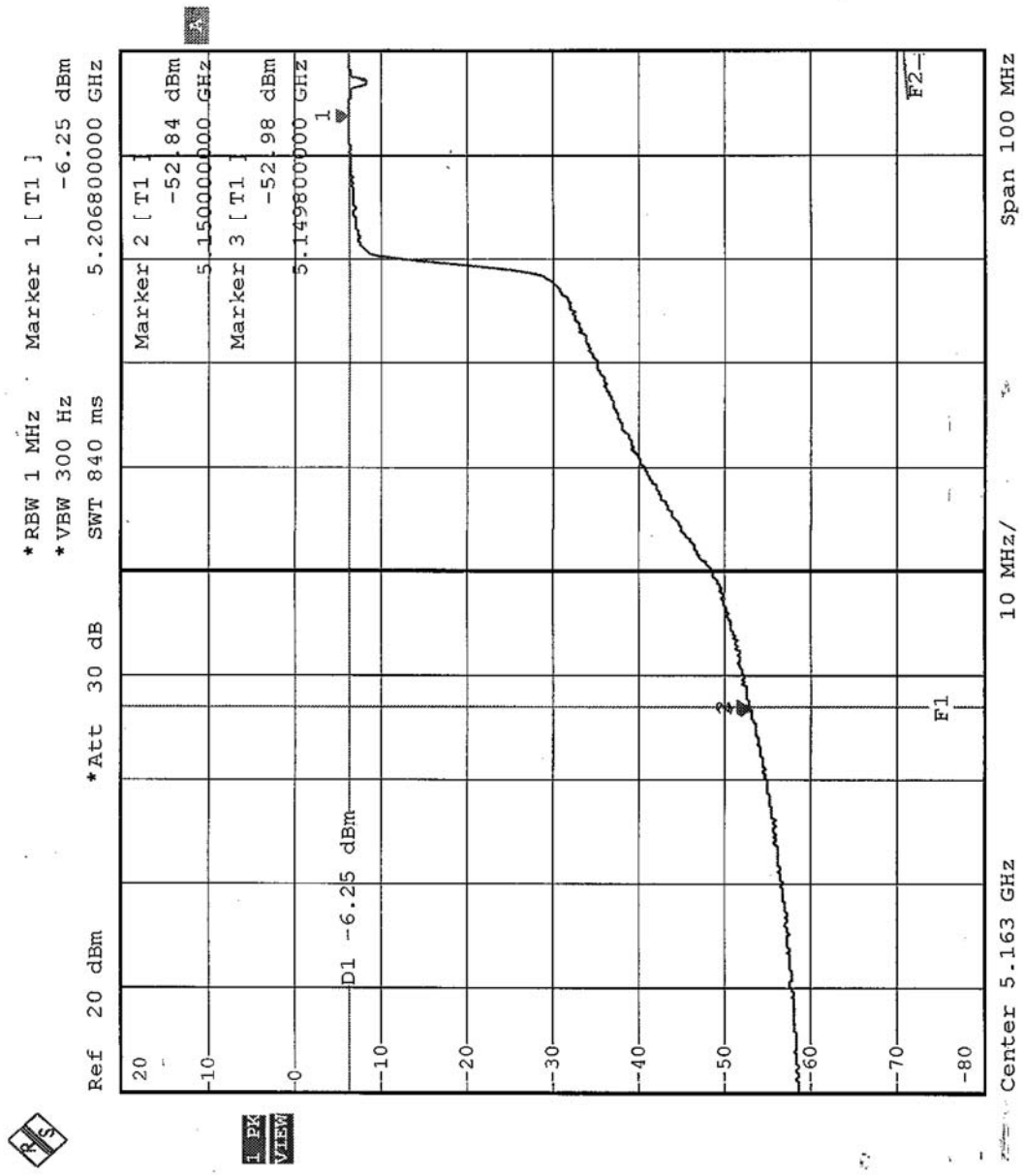




**TURBO MODE (MODE 2)**

Channel 1 (5210 MHz)

The band edge emission plot of OFDM technique on the following page shows 46.59dB delta between carrier maximum power and local maximum emission in restrict band (5.1500GHz). The emission of carrier strength list in the test result of channel 1 at the item 5.2.11 is 84.68dBuV/m, so the maximum field strength in restrict band is 84.68-46.59=38.09dBuV/m which is under 54dBuV/m limit.

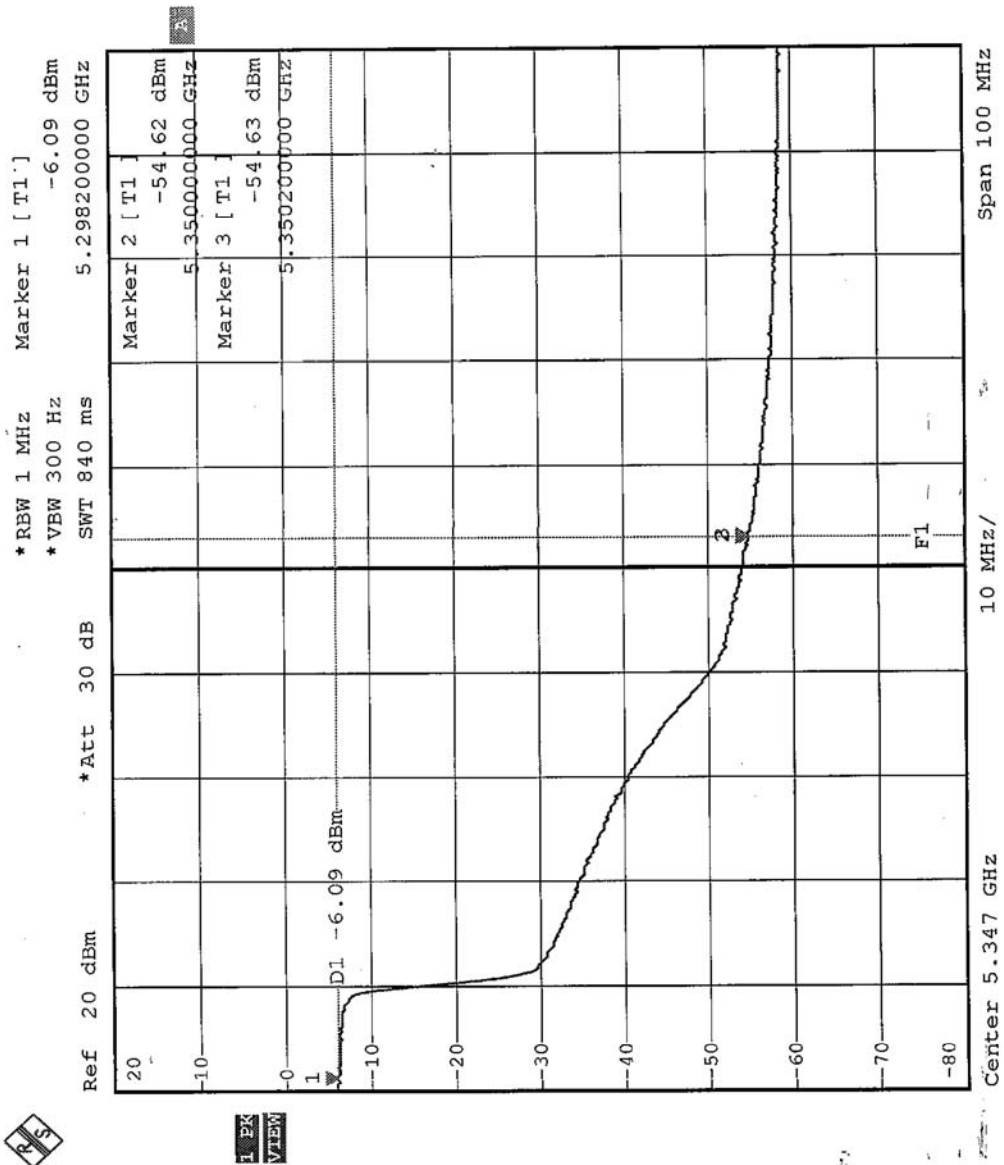






Channel 3 (5290 MHz)

The band edge emission plot of OFDM technique on the following page shows 48.53dB delta between carrier maximum power and local maximum emission in restrict band (5.3500GHz). The emission of carrier strength list in the test result of channel 1 at the item 5.2.11 is 86.47dBuV/m, so the maximum field strength in restrict band is 86.47-48.53=37.94dBuV/m which is under 54dBuV/m limit.

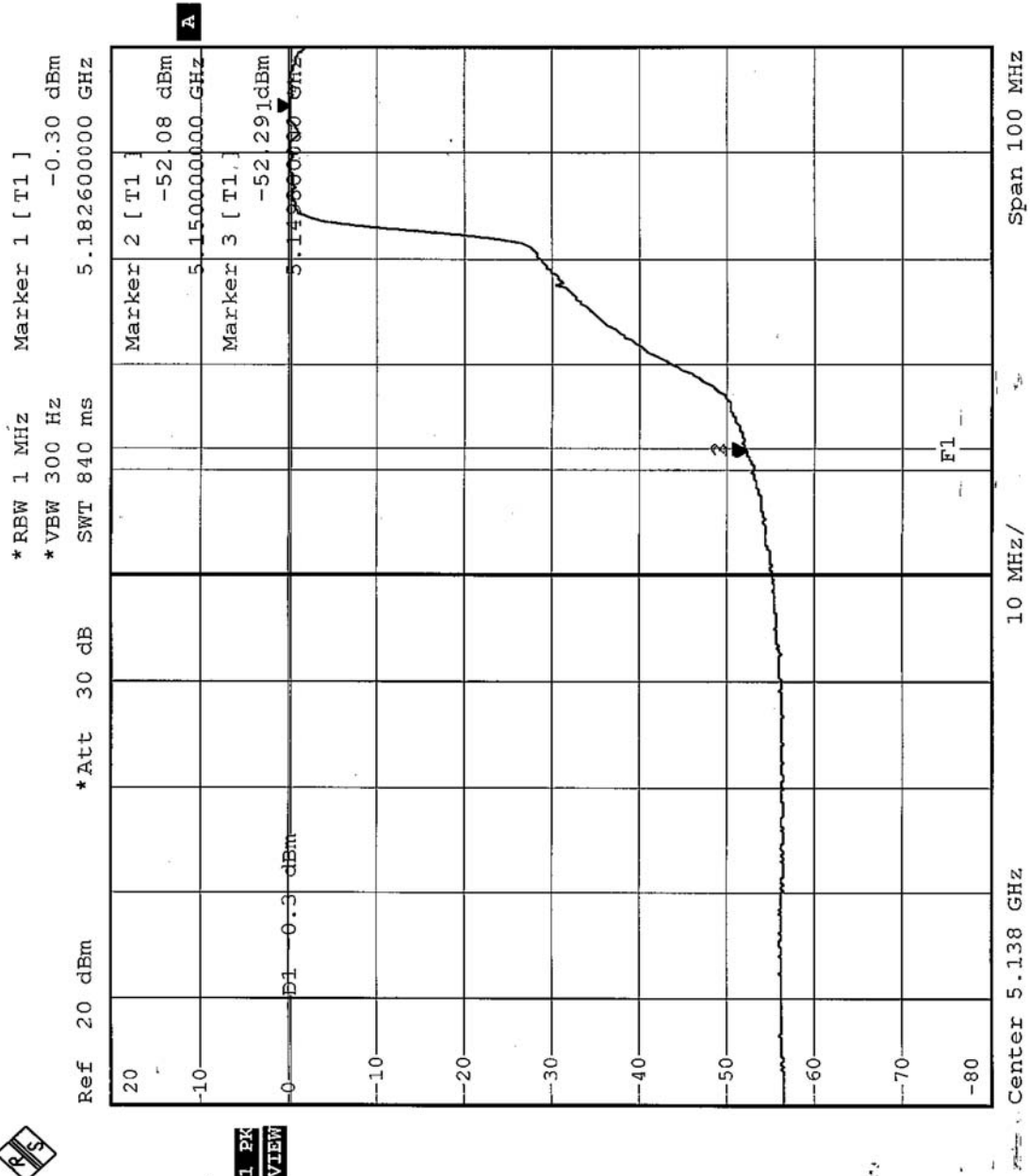




**NORMAL MODE (MODE 3 、 MODE 4)**

Channel 1 (5180 MHz)

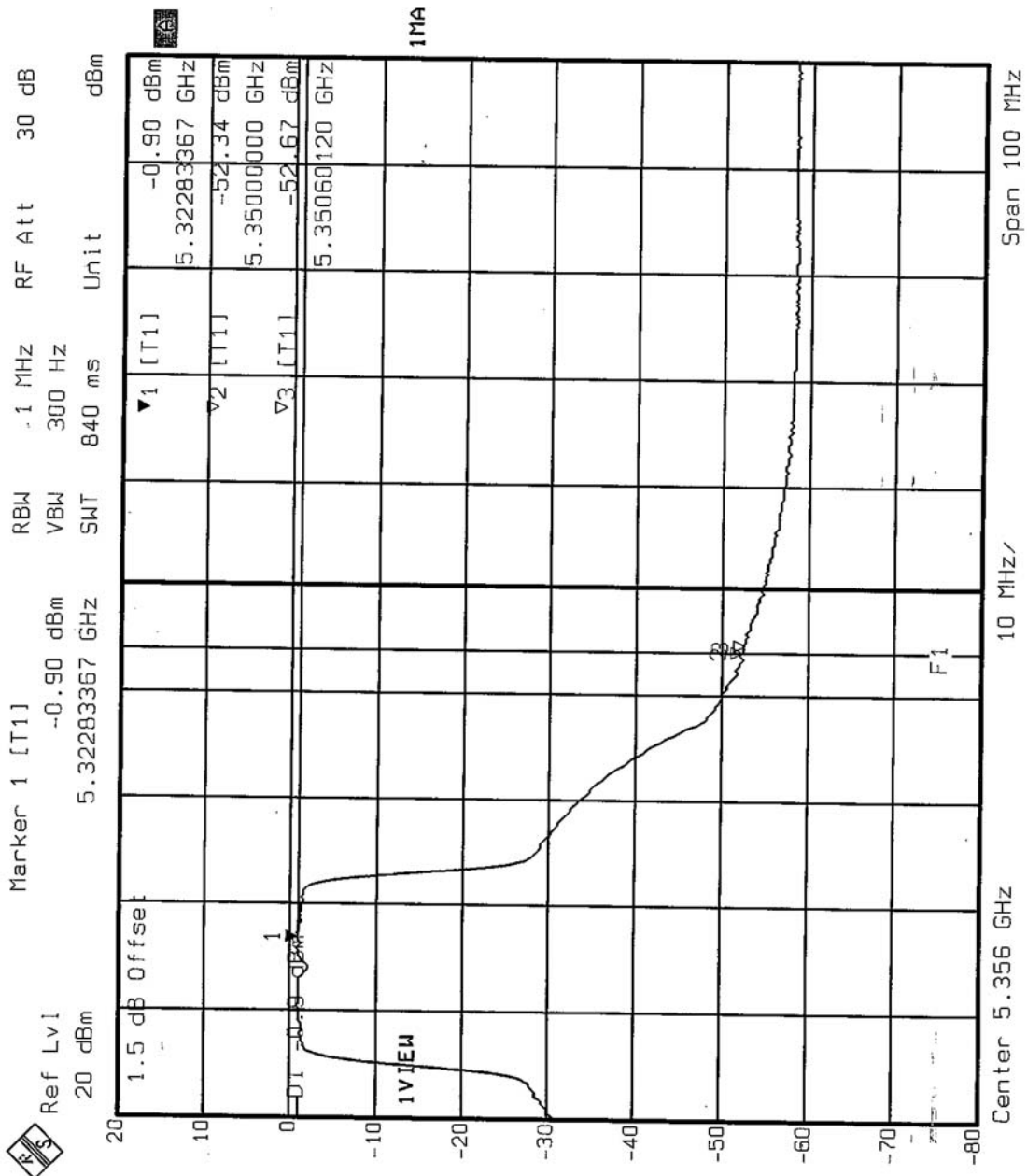
The band edge emission plot of OFDM technique on the following page shows 51.78dB delta between carrier maximum power and local maximum emission in restrict band (5.1500GHz). The emission of carrier strength list in the test result of channel 1 at the item 5.2.13 is 86.45dBuV/m, so the maximum field strength in restrict band is 86.45-57.78=34.67dBuV/m which is under 54dBuV/m limit.





Channel 8 (5320 MHz)

The band edge emission plot of OFDM technique on the following page shows 51.44dB delta between carrier maximum power and local maximum emission in restrict band (5.3500GHz). The emission of carrier strength list in the test result of channel 1 at the item 5.2.12 is 89.43dBuV/m, so the maximum field strength in restrict band is 51.44-89.43=37.99dBuV/m which is under 54dBuV/m limit.





## **5.8 ANTENNA REQUIREMENT**

### **5.8.1 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.

### **5.8.2 ANTENNA CONNECTED CONSTRUCTION**

The antennas used in this product are Dipole and PIFA antennas with UFL connector. The maximum Gain of the antenna is 5dBi.

## 6. PHOTOGRAPHS OF THE TEST CONFIGURATION

### CONDUCTED EMISSION TEST

Mode 1





Mode 2





Mode 3

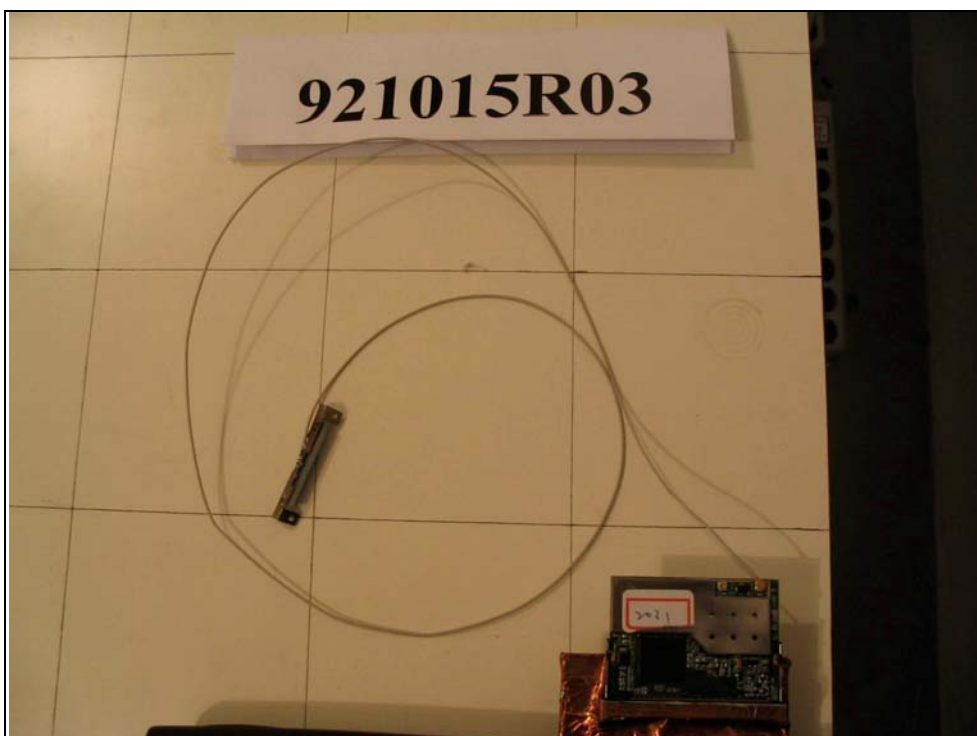




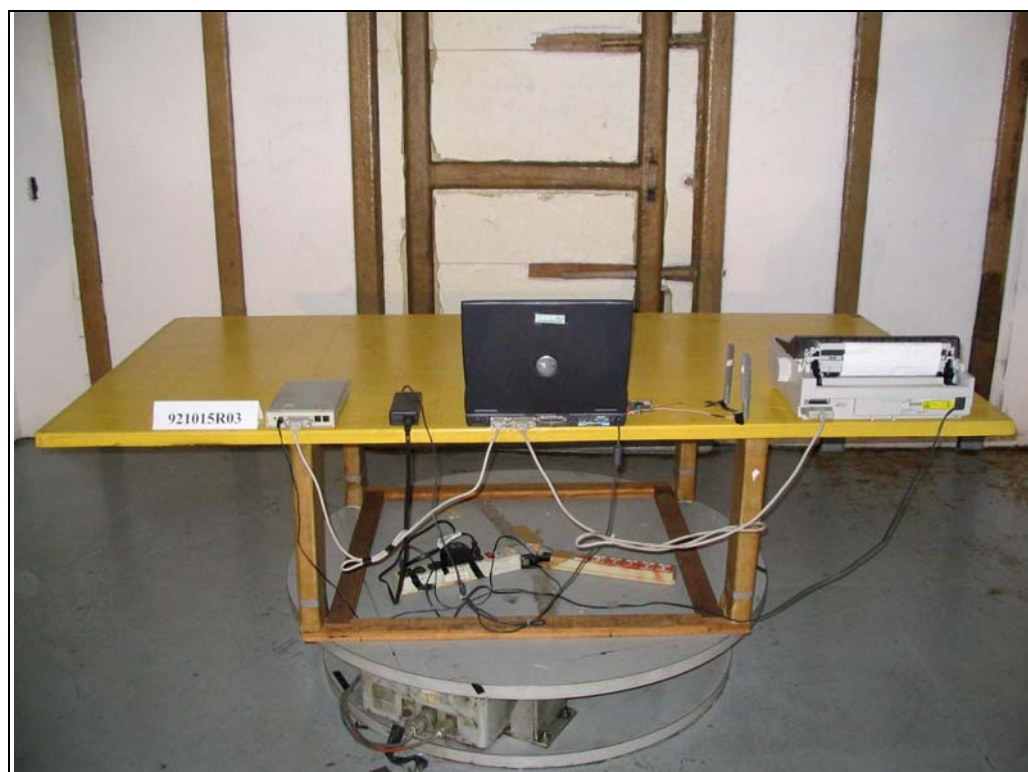


Mode 4





### RADIATED EMISSION TEST Mode 1





Mode 2





Mode 3





Mode 4









## 7. 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

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Fax: 886-35-935342

**Lin Kou Safety Lab:**

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Fax: 886-2-26093184

**Lin Kou RF&Telecom Lab**

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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.