

4.7 FREQUENCY STABILITY

4.6.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

The frequency tolerance of the carrier signal shall be maintained within +/- 0.01% of the operating frequency over a temperature variation of -20 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.

4.6.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
ANRITSU SPECTRUM ANALYZER	MS2667C	M10281	Mar. 15, 2003
WIT STANDARD TEMPERATURE AND HUMIDITY CHAMBER	TH-4S-C	W901030	Jun. 13, 2002

NOTE:

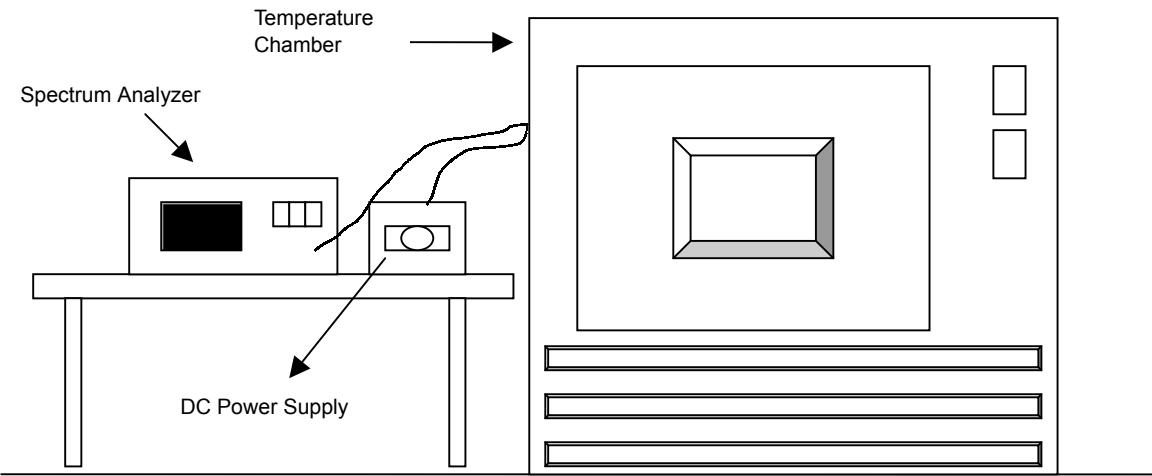
The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.

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

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.

4.6.4 TEST SETUP



4.6.5 EUT OPERATING CONDITION

Same as Item 4.1.5

4.6.6 TEST RESULTS

Operating frequency:		MHz		Limit : $\pm 0.01\%$			
Temp. (°C)	Power supply (VDC)	2 minute		5 minute		10 minute	
		(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
50	126.5	5179.882040	-0.00047414	5179.882150	-0.000472	5179.882060	-0.000474
	110.0	5179.882160	-0.00047182	5179.882160	-0.000472	5179.882200	-0.000471
	93.5	5179.882190	-0.00047124	5179.882140	-0.000472	5179.882190	-0.000471
40	126.5	5179.886480	-0.00038842	5179.887050	-0.000377	5179.887300	-0.000373
	110.0	5179.886160	-0.00039460	5179.886690	-0.000384	5179.887190	-0.000375
	93.5	5179.886270	-0.00039248	5179.886770	-0.000383	5179.887530	-0.000368
30	126.5	5179.895980	-0.00020502	5179.897640	-0.000173	5179.897650	-0.000173
	110.0	5179.894690	-0.00022993	5179.897700	-0.000172	5179.897760	-0.000171
	93.5	5179.895920	-0.00020618	5179.897410	-0.000177	5179.897540	-0.000175
20	126.5	5179.906560	-0.00000077	5179.906460	-0.000003	5179.906480	-0.000002
	110.0	5179.906610	0.00000019	5179.906520	-0.000002	5179.906240	-0.000007
	93.5	5179.906600	0.00000000	5179.906430	-0.000003	5179.905980	-0.000012
10	126.5	5179.917460	0.00020966	5179.917460	0.000210	5179.917460	0.000210
	110.0	5179.917450	0.00020946	5179.917480	0.000210	5179.917460	0.000210
	93.5	5179.917480	0.00021004	5179.917460	0.000210	5179.917470	0.000210
0	126.5	5179.926530	0.00038476	5179.926550	0.000385	5179.926550	0.000385
	110.0	5179.926460	0.00038340	5179.926530	0.000385	5179.926550	0.000385
	93.5	5179.926490	0.00038398	5179.926540	0.000385	5179.926540	0.000385
-10	126.5	5179.927830	0.00040985	5179.928200	0.000417	5179.928420	0.000421
	110.0	5179.927860	0.00041043	5179.928010	0.000413	5179.928250	0.000418
	93.5	5179.927850	0.00041024	5179.928090	0.000415	5179.928320	0.000419
-20	126.5	5179.925650	0.00036777	5179.924420	0.000344	5179.923590	0.000328
	110.0	5179.925900	0.00037259	5179.924760	0.000351	5179.924190	0.000340
	93.5	5179.925310	0.00036120	5179.924600	0.000347	5179.924020	0.000336

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 Resolution Bandwidth).

4.8.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
SPECTRUM ANALYZER	FSEK30	100049	July 17, 2002

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.

4.8.3 TEST PROCEDURE

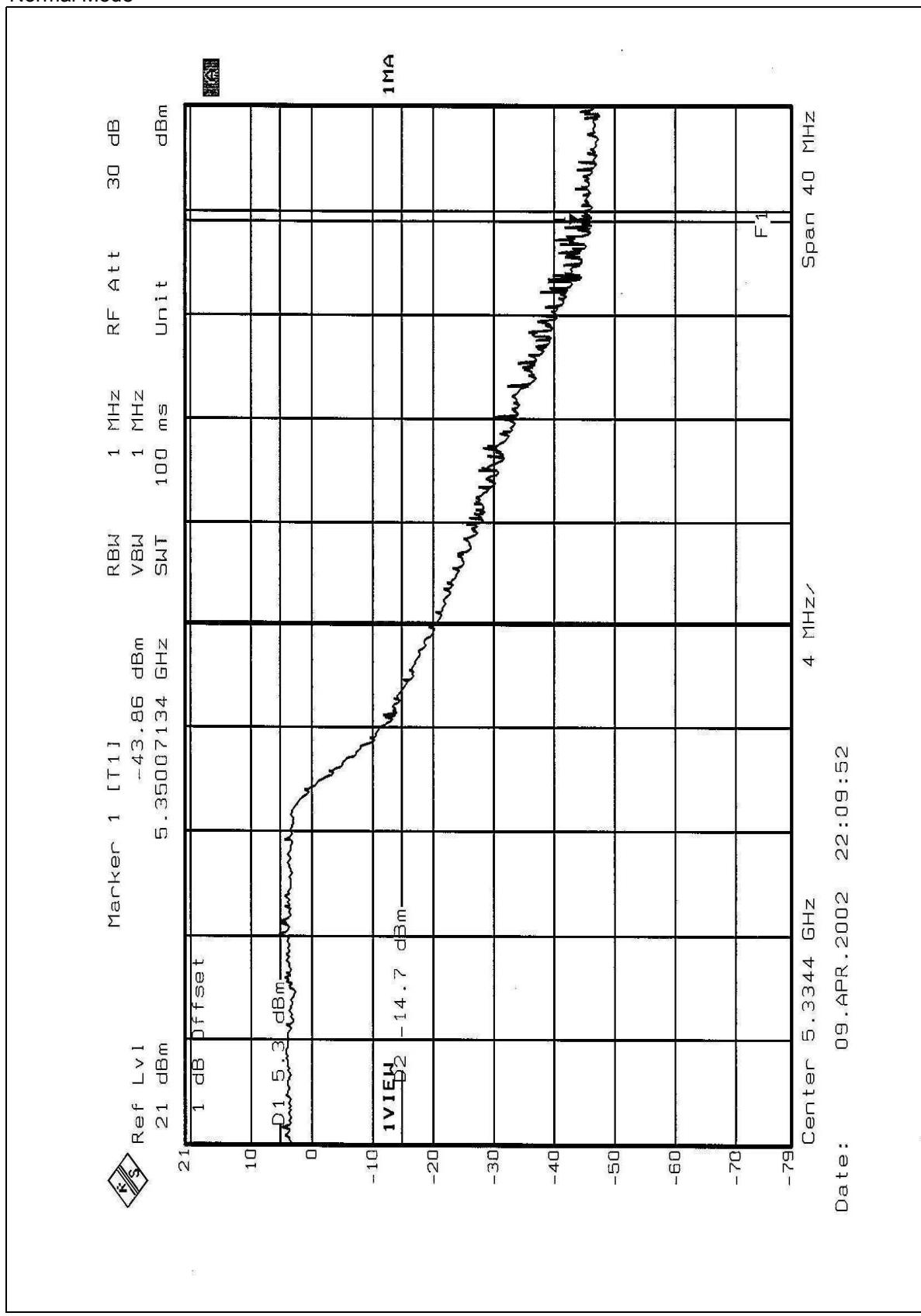
The transmitter output was connected to the spectrum analyzer via a low loss cable. Set both RBW and VBW of spectrum analyzer to 100 kHz with suitable frequency span including 100 kHz bandwidth from band edge. The band edges was measured and recorded.

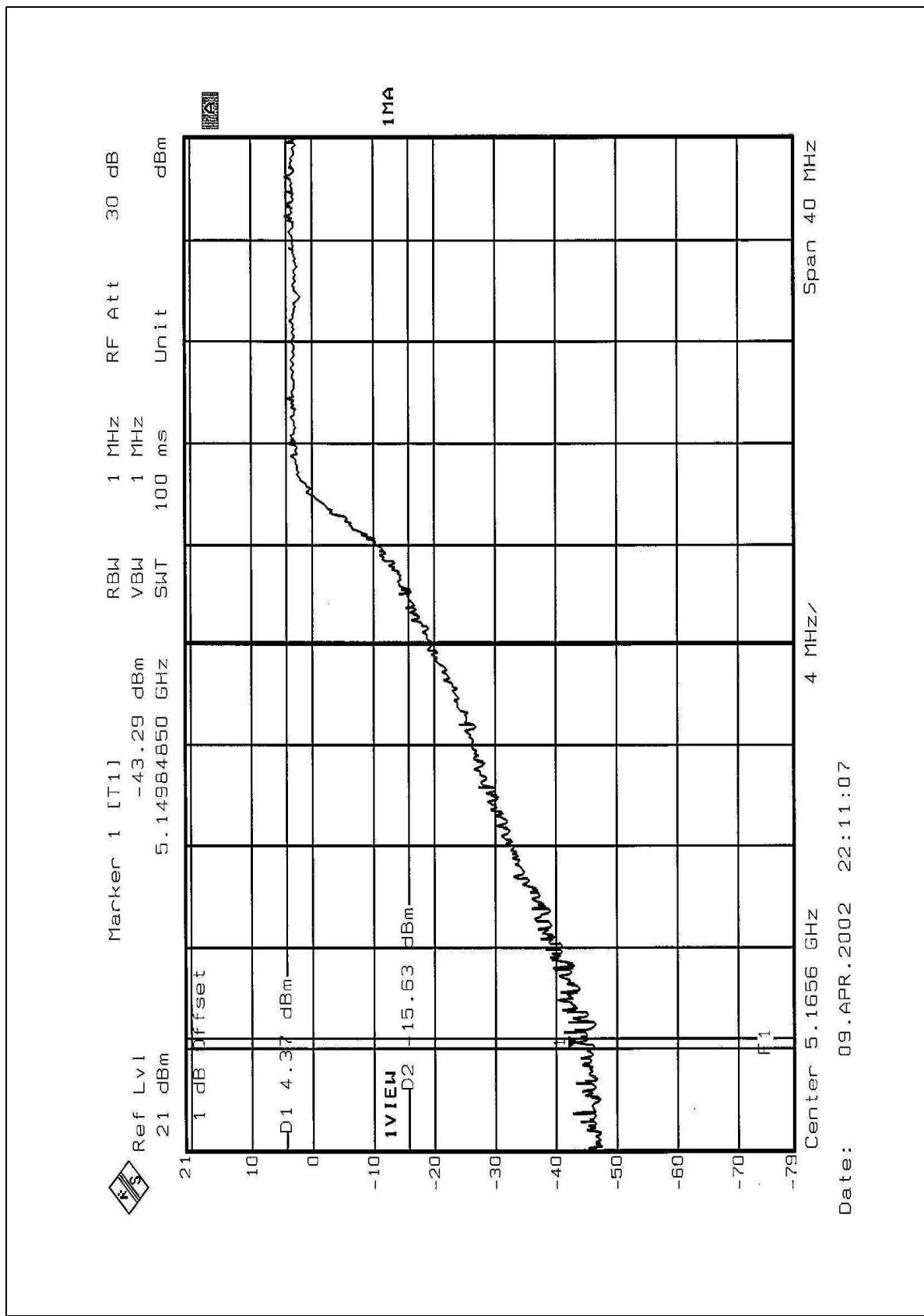
4.8.4 EUT OPERATING CONDITION

4.8.5 TEST RESULTS

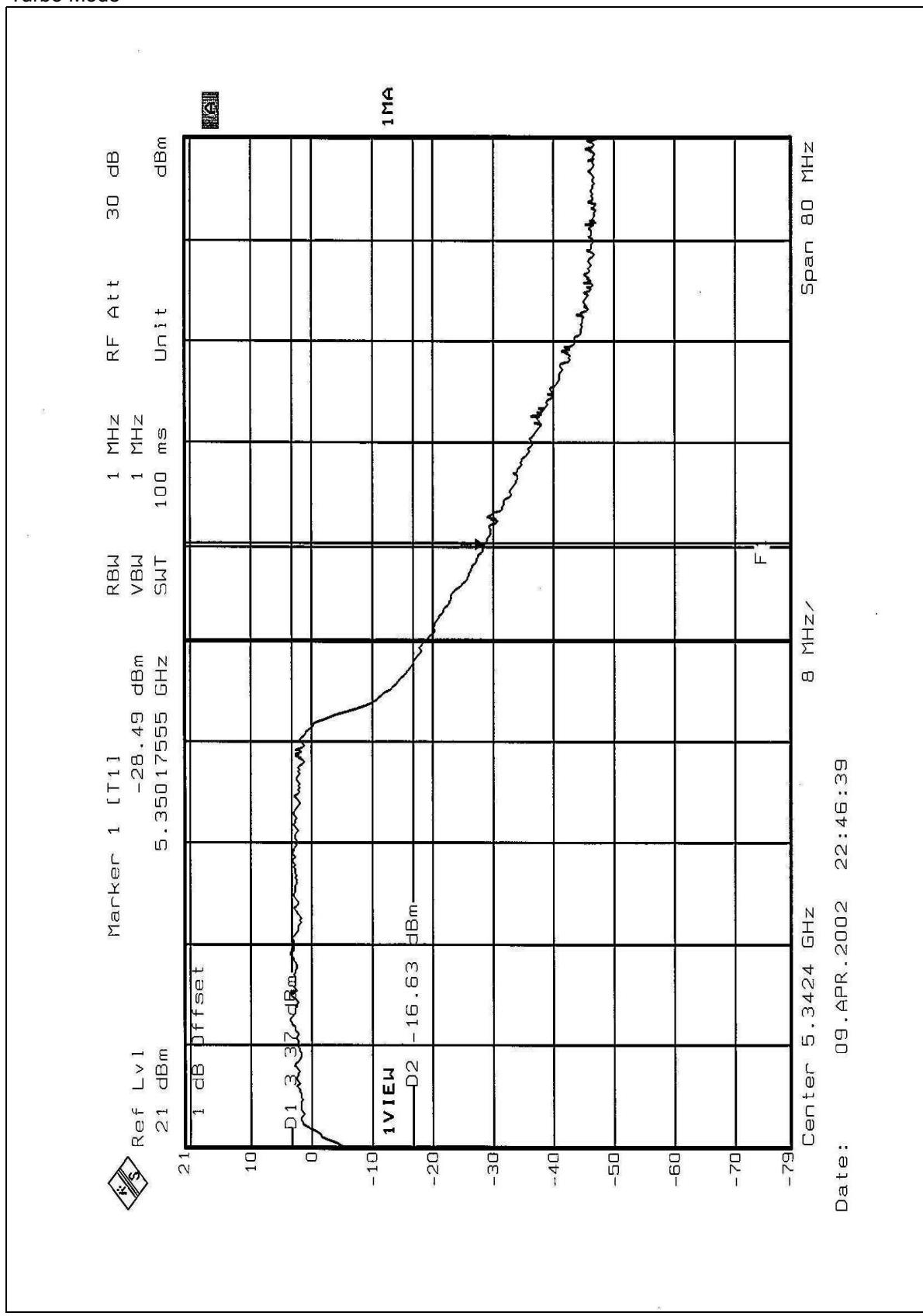
The spectrum plots are attached on the following 2 pages. D2 line indicates the highest level, D1 line indicates the 20dB offset below D2. It shows compliance with the requirement in part 15.247(C).

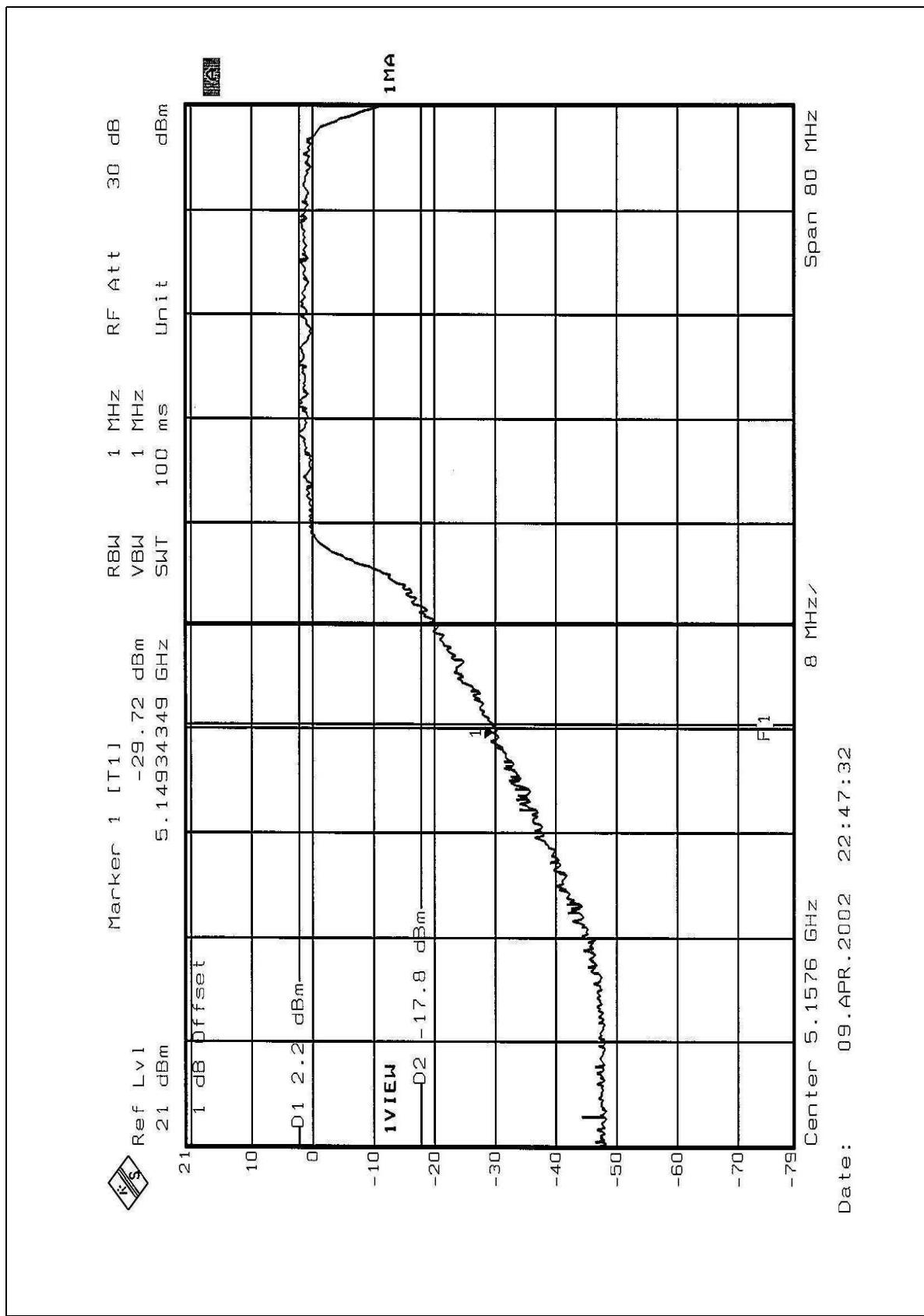
Normal Mode





Turbo Mode





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.

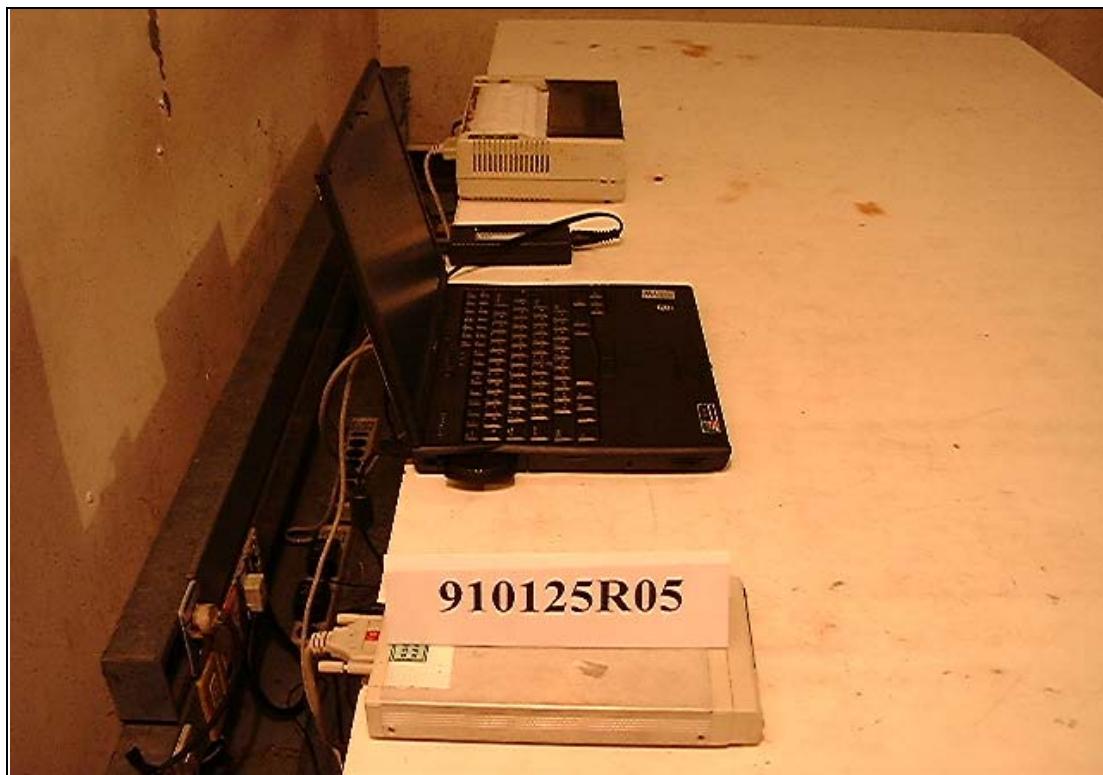
And according to FCC 47 CFR Section 15.407(a), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

4.9.2 ANTENNA CONNECTED CONSTRUCTION

The antenna used in this product is Side Stem Antenna. The antenna connector for the device is an integral Antenna. And the maximum Gain of this antenna is only 1.5dBi.

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

USA	FCC, NVLAP
Germany	TUV Rheinland
Japan	VCCI
New Zealand	MoC
Norway	NEMKO
R.O.C.	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.

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