5.5 PEAK POWER SPECTRAL DENSITY MEASUREMENT

5.5.1 LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT

Frequency Band	Limit
5.15 – 5.25 GHz	4dBm
5.25 – 5.35 GHz	11dBm
5.725 – 5.825 GHz	17dBm

5.5.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
ROHDE&SCHWARZ SPECTRUM ANALYZER	FSEK30	100049	July 24, 2004

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

5.5.3 TEST PROCEDURES

1. The transmitter output was connected to the spectrum analyzer.
2. Set RBW=1MHz, VBW=3MHz. The PPSD is the highest level found across the emission in any 1MHz band.

5.5.4 DEVIATION FROM TEST STANDARD

No deviation

5.5.5 TEST SETUP

5.5.6 EUT OPERATING CONDITIONS

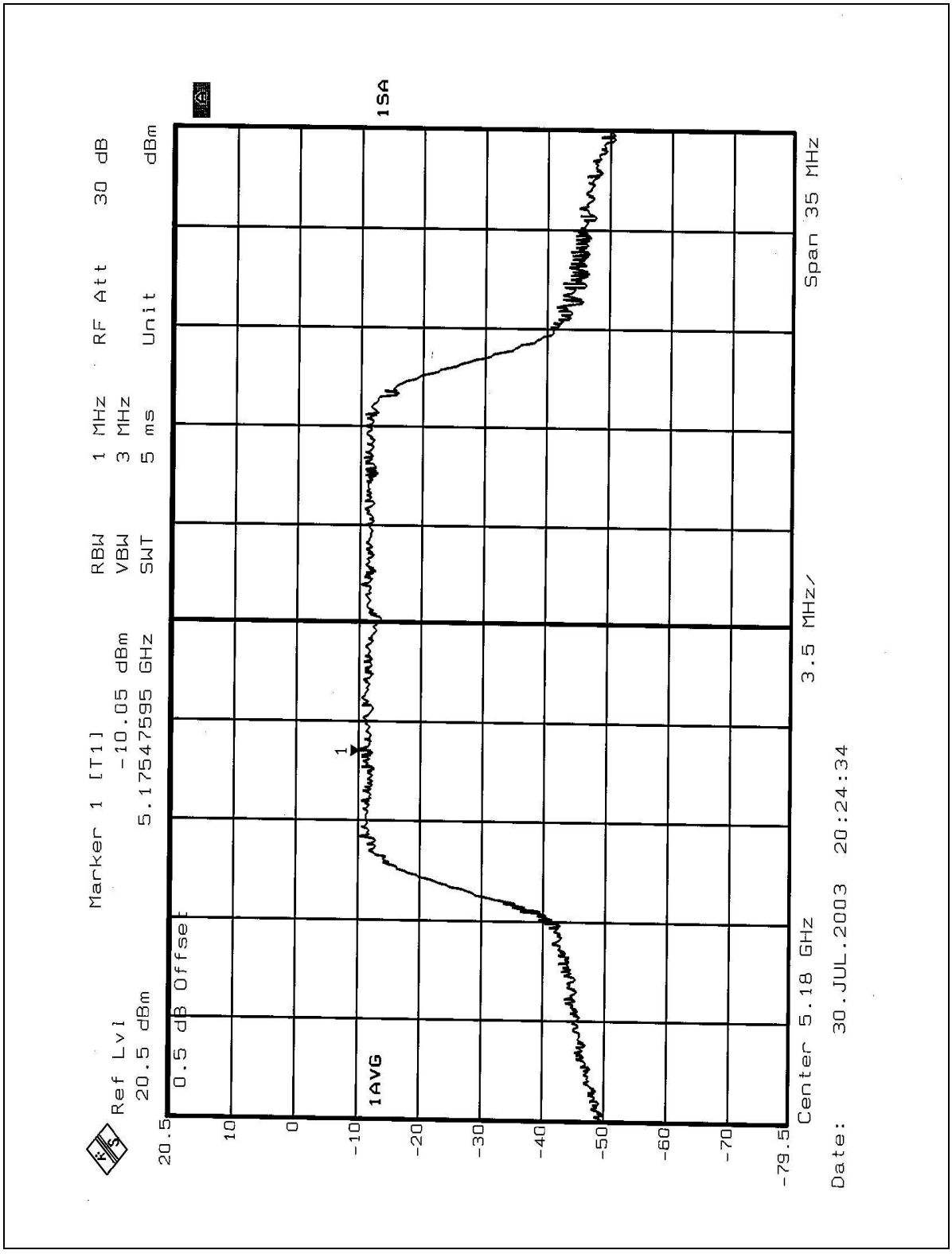
Same as 5.3.6

5.5.7 TEST RESULTS

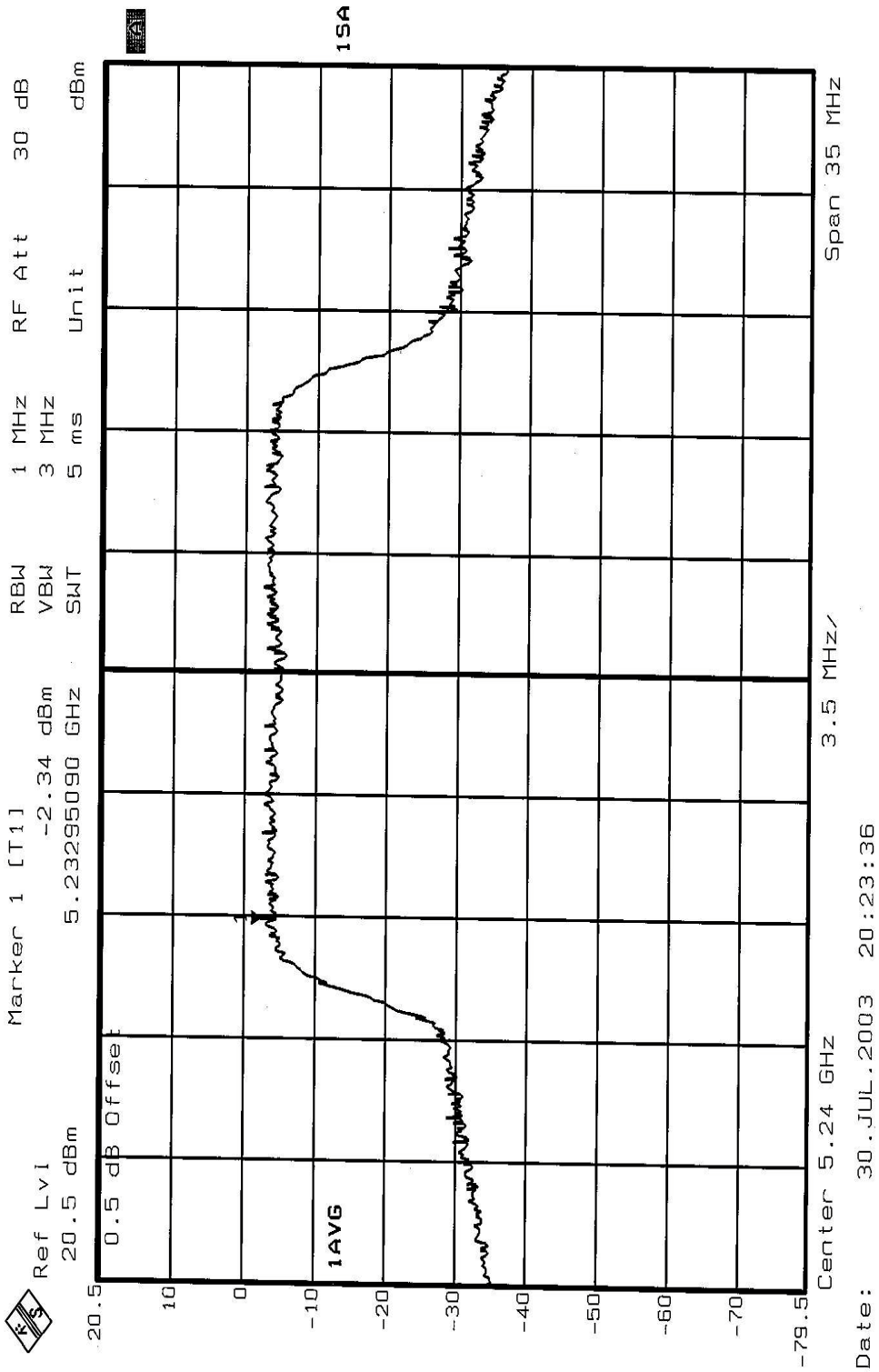
EUT	802.11a+802.11g Dual Band Wireless Access Point	**MODEL**	SL-5354AP Aries
ENVIRONMENTAL CONDITIONS	28deg. C, 60%RH, 991 hPa	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
TESTED BY	Ansen Lei		

CHANNEL NUMBER	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 1 MHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	5180	-10.05	4	PASS
4	5240	-2.34	4	PASS
5	5260	-1.34	11	PASS
8	5320	0.70	11	PASS
9	5745	-0.43	17	PASS
12	5805	-0.59	17	PASS

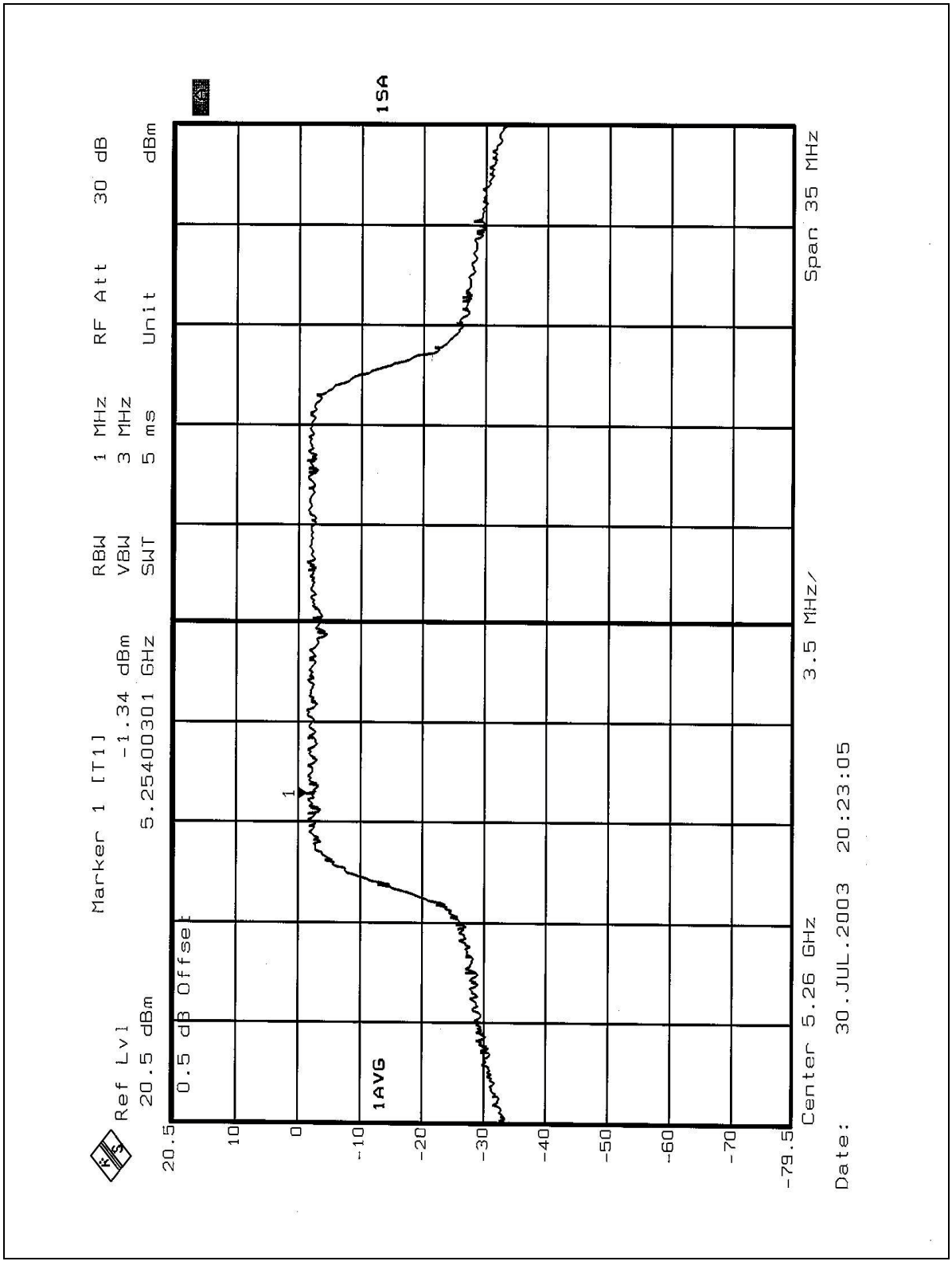
CHANNEL 1


Marker 1 [T1]
-10.05 dBm
5.17547595 GHz
RBW 1 MHz
VBW 3 MHz
SWT 5 ms
RF Att 30 dB
Unit dBm
Ref Lvl
20.5 dBm
0.5 dB Offset
1AVG
1SA
Center 5.18 GHz
3.5 MHz/
Span 35 MHz
Date: 30.JUL.2003 20:24:34
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5

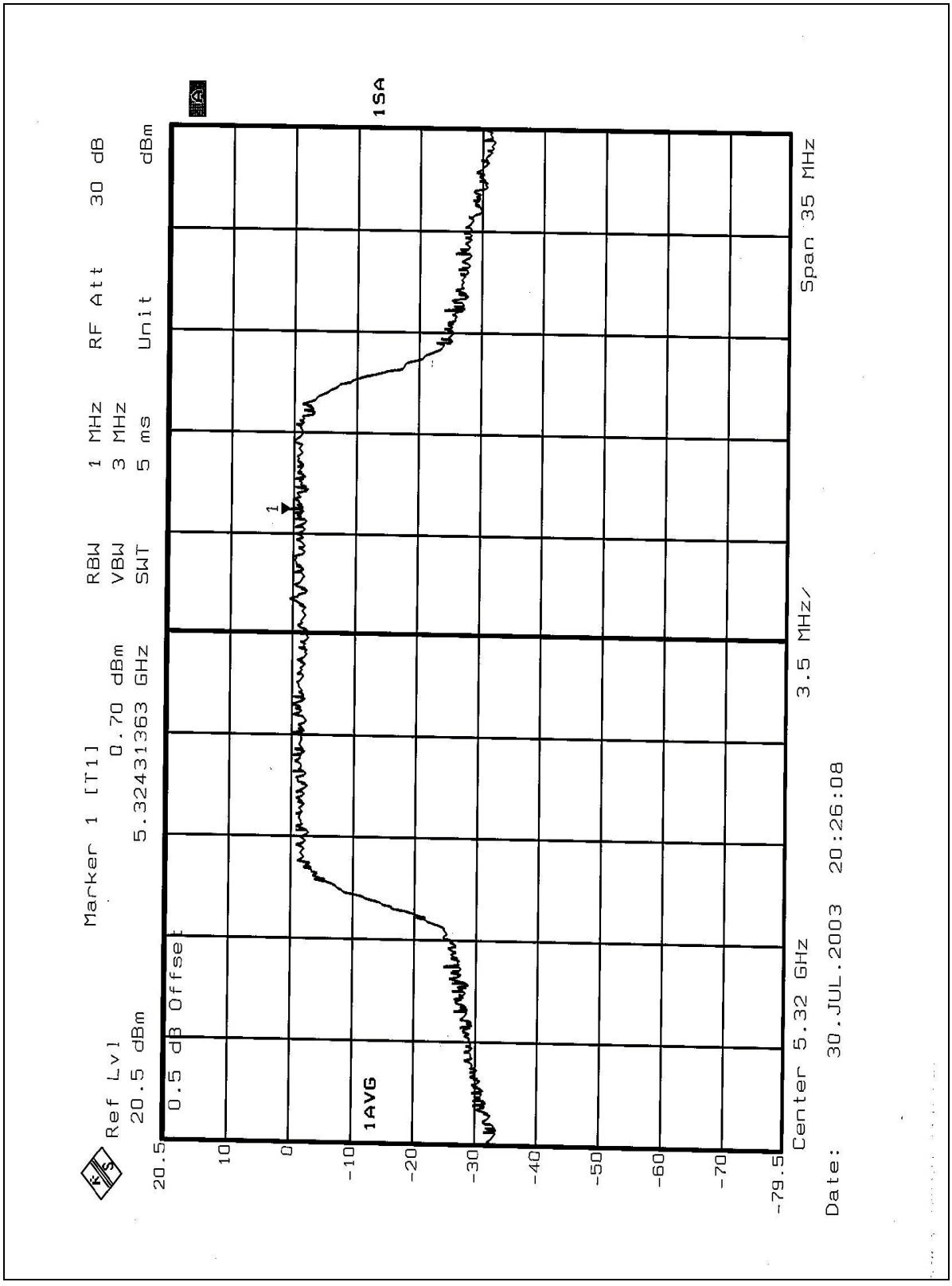
CHANNEL 4


Ref Lvl
20.5 dBm
0.5 dB Offset
Marker 1 [T1]
-2.34 dBm
5.23295090 GHz
RBW 1 MHz
VBW 3 MHz
SWT 5 ms
RF Att 30 dB
Unit dBm
1SA
1AVG
Center 5.24 GHz
3.5 MHz/
Span 35 MHz
Date: 30.JUL.2003 20:23:36
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5

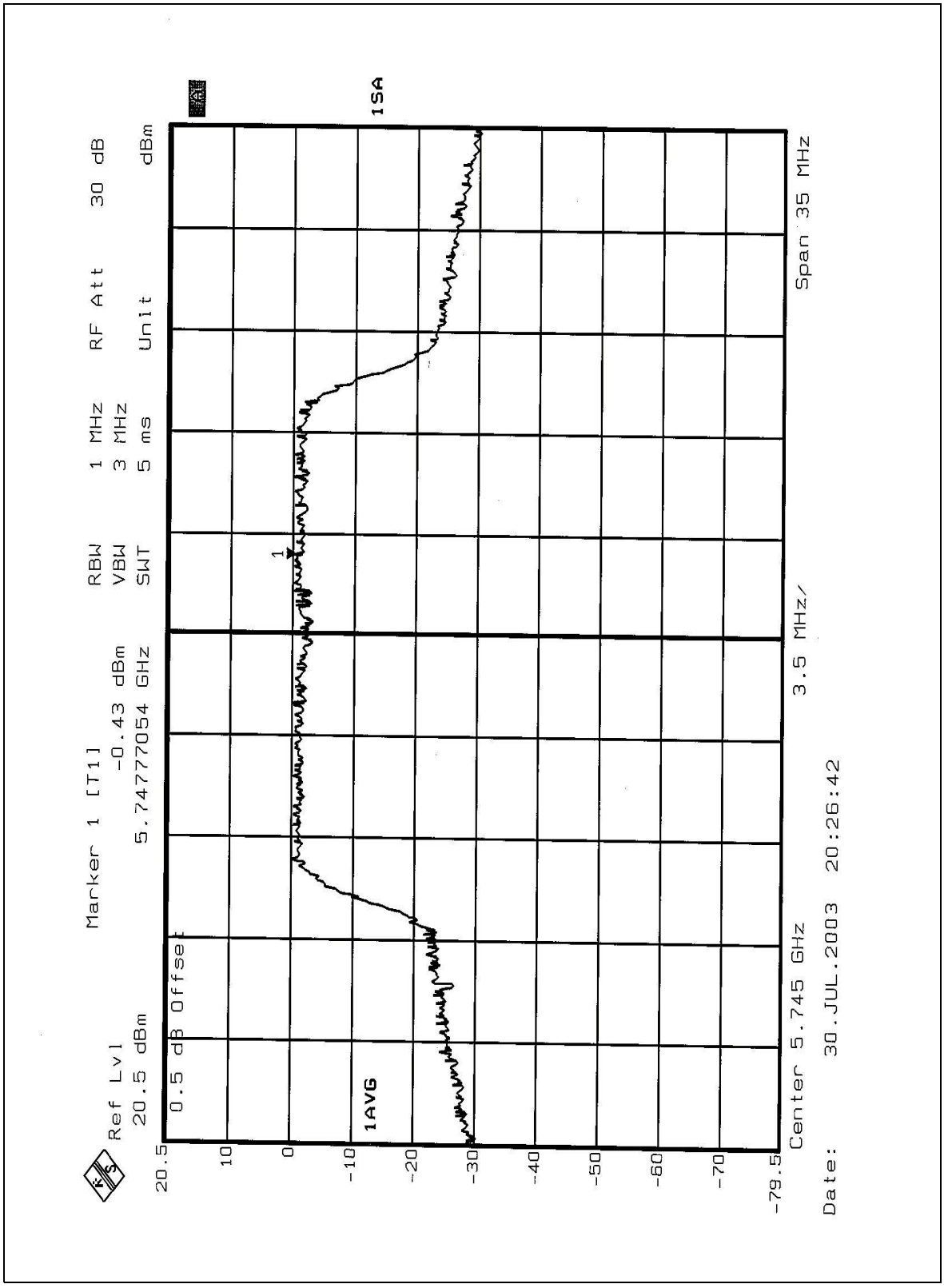
CHANNEL 5


Ref Lvl
20.5 dBm
0.5 dB Offset
Marker 1 [T1]
-1.34 dBm
5.25400301 GHz
RBW 1 MHz
VBW 3 MHz
SWT 5 ms
RF Att 30 dB
Unit dBm
1SA
1AVG
Center 5.26 GHz
3.5 MHz/
Span 35 MHz
Date: 30.JUL.2003 20:23:05
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5

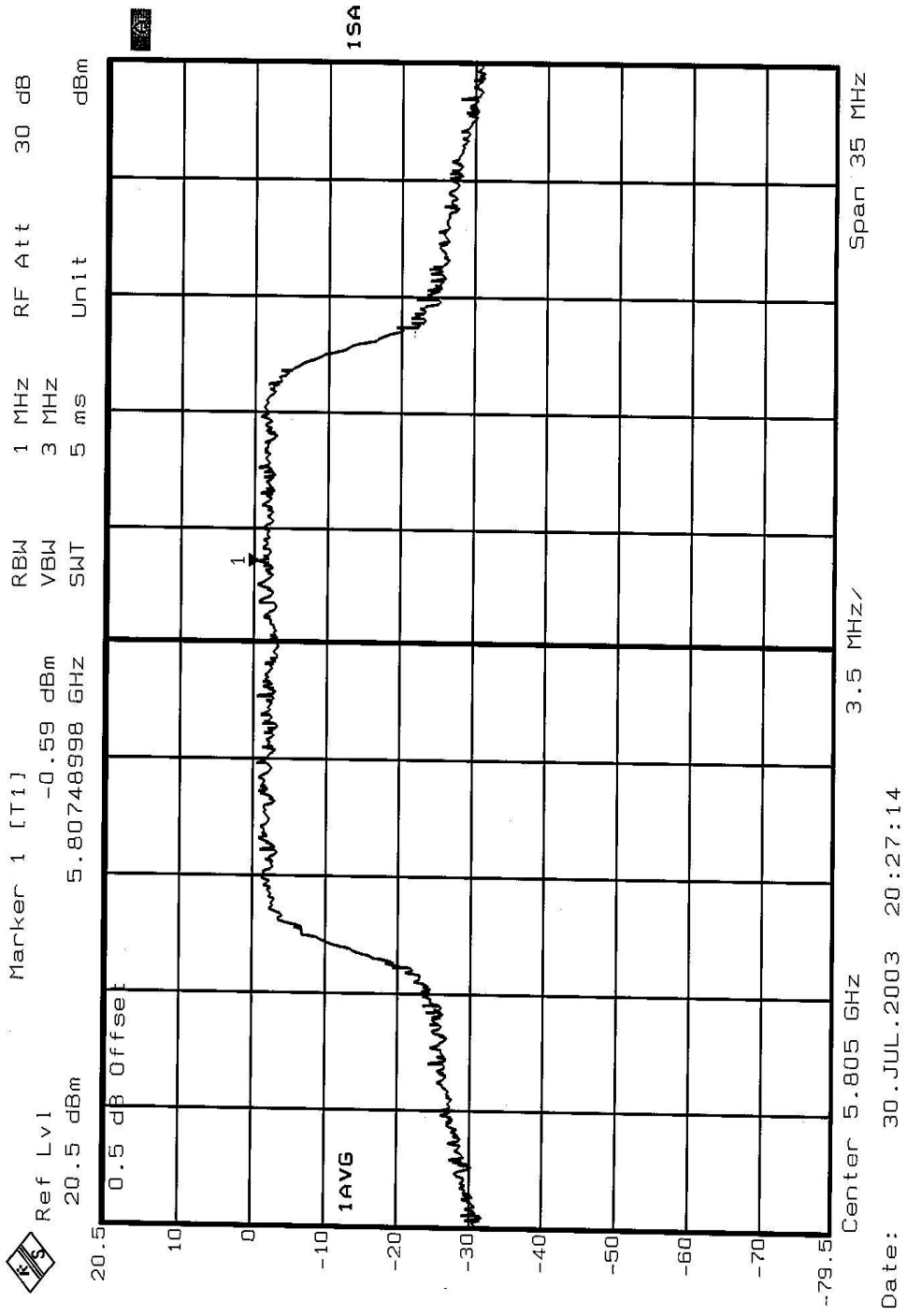
CHANNEL 8


Marker 1 [T1]
0.70 dBm
5.32431363 GHz
RBW 1 MHz
VBW 3 MHz
SWT 5 ms
RF Att 30 dB
Unit dBm
Ref Lvl
20.5 dBm
0.5 dB Offset
1AVG
1SA
Center 5.32 GHz
3.5 MHz/
Span 35 MHz
Date: 30.JUL.2003 20:26:08
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5

CHANNEL 9


1SA
Ref Lvl
20.5 dBm
0.5 dB Offset
Marker 1 [T1]
-0.43 dBm
5.74777054 GHz
RBW 1 MHz
VBW 3 MHz
SWT 5 ms
RF Att 30 dB
Unit dBm
1AVG
Center 5.745 GHz
3.5 MHz/
Span 35 MHz
Date: 30.JUL.2003 20:26:42
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5

CHANNEL 12


Ref Lvl
20.5 dBm
0.5 dB Offset
Marker 1 [T1]
-0.59 dBm
5.80748998 GHz
RBW 1 MHz
VBW 3 MHz
SWT 5 ms
RF Att 30 dB
Unit dBm
1SA
1AVG
Center 5.805 GHz
3.5 MHz/
Span 35 MHz
Date: 30.JUL.2003 20:27:14
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5

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	Apr. 10, 2004
WIT STANDARD TEMPERATURE AND HUMIDITY CHAMBER	TH-4S-C	W901030	Jul. 17, 2004

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

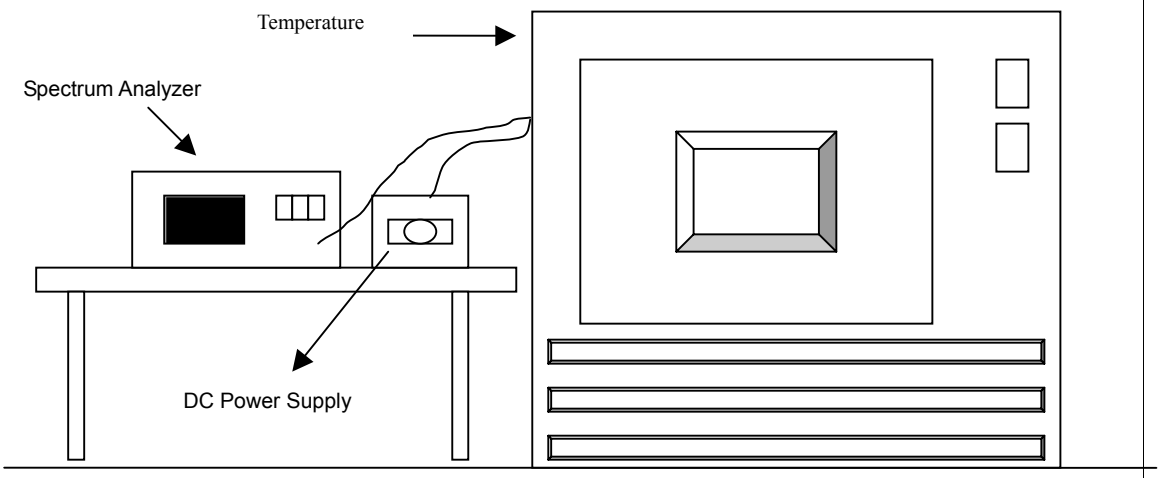
5.6.3 TEST PROCEDURE

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

Operating frequency: 5320MHz				Limit : ± 0.02%			
Temp. (℃)	Power supply (VDC)	2 minute		5 minute		10 minute	
		(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
50	93.5	5319.9994	-0.0000113	5320.0009	0.0000169	5320.0019	0.0000357
	110	5319.9992	-0.0000150	5320.0006	0.0000113	5320.0018	0.0000338
	126.5	5319.9996	-0.0000075	5320.0007	0.0000132	5320.0021	0.0000395
40	93.5	5319.9778	-0.0004173	5319.9788	-0.0003985	5319.9796	-0.0003835
	110	5319.9776	-0.0004211	5319.9786	-0.0004023	5319.9792	-0.0003910
	126.5	5319.9777	-0.0004192	5319.9789	-0.0003966	5319.9794	-0.0003872
30	93.5	5319.9667	-0.0006259	5319.9668	-0.0006241	5319.9668	-0.0006241
	110	5319.9666	-0.0006278	5319.9667	-0.0006259	5319.9669	-0.0006222
	126.5	5319.9668	-0.0006241	5319.9667	-0.0006259	5319.9669	-0.0006222
20	93.5	5319.9630	-0.0006955	5319.9630	-0.0006955	5319.9627	-0.0007011
	110	5319.9630	-0.0006955	5319.9631	-0.0006936	5319.9626	-0.0007030
	126.5	5319.9631	-0.0006936	5319.9629	-0.0006974	5319.9628	-0.0006992
10	93.5	5319.9596	-0.0007594	5319.9590	-0.0007707	5319.9592	-0.0007669
	110	5319.9596	-0.0007594	5319.9592	-0.0007669	5319.9590	-0.0007707
	126.5	5319.9595	-0.0007613	5319.9591	-0.0007688	5319.9593	-0.0007650
0	93.5	5319.9585	-0.0007801	5319.9588	-0.0007744	5319.9588	-0.0007744
	110	5319.9586	-0.0007782	5319.9588	-0.0007744	5319.9587	-0.0007763
	126.5	5319.9586	-0.0007782	5319.9587	-0.0007763	5319.9589	-0.0007726
-10	93.5	5319.9630	-0.0006955	5319.9632	-0.0006917	5319.9637	-0.0006823
	110	5319.9632	-0.0006917	5319.9634	-0.0006880	5319.9636	-0.0006842
	126.5	5319.9633	-0.0006898	5319.9634	-0.0006880	5319.9634	-0.0006880
-20	93.5	5319.9715	-0.0005357	5319.9717	-0.0005320	5319.9719	-0.0005282
	110	5319.9716	-0.0005338	5319.9717	-0.0005320	5319.9718	-0.0005301
	126.5	5319.9716	-0.0005338	5319.9718	-0.0005301	5319.9718	-0.0005301
-30	93.5	5319.9772	-0.0004286	5319.9779	-0.0004154	5319.9778	-0.0004173
	110	5319.9774	-0.0004248	5319.9778	-0.0004173	5319.9779	-0.0004154
	126.5	5319.9776	-0.0004211	5319.9778	-0.0004173	5319.9779	-0.0004154

5.7 BAND EDGES MEASUREMENT

5.7.1 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
SPECTRUM ANALYZER	FSEK30	100049	July 24, 2003

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.

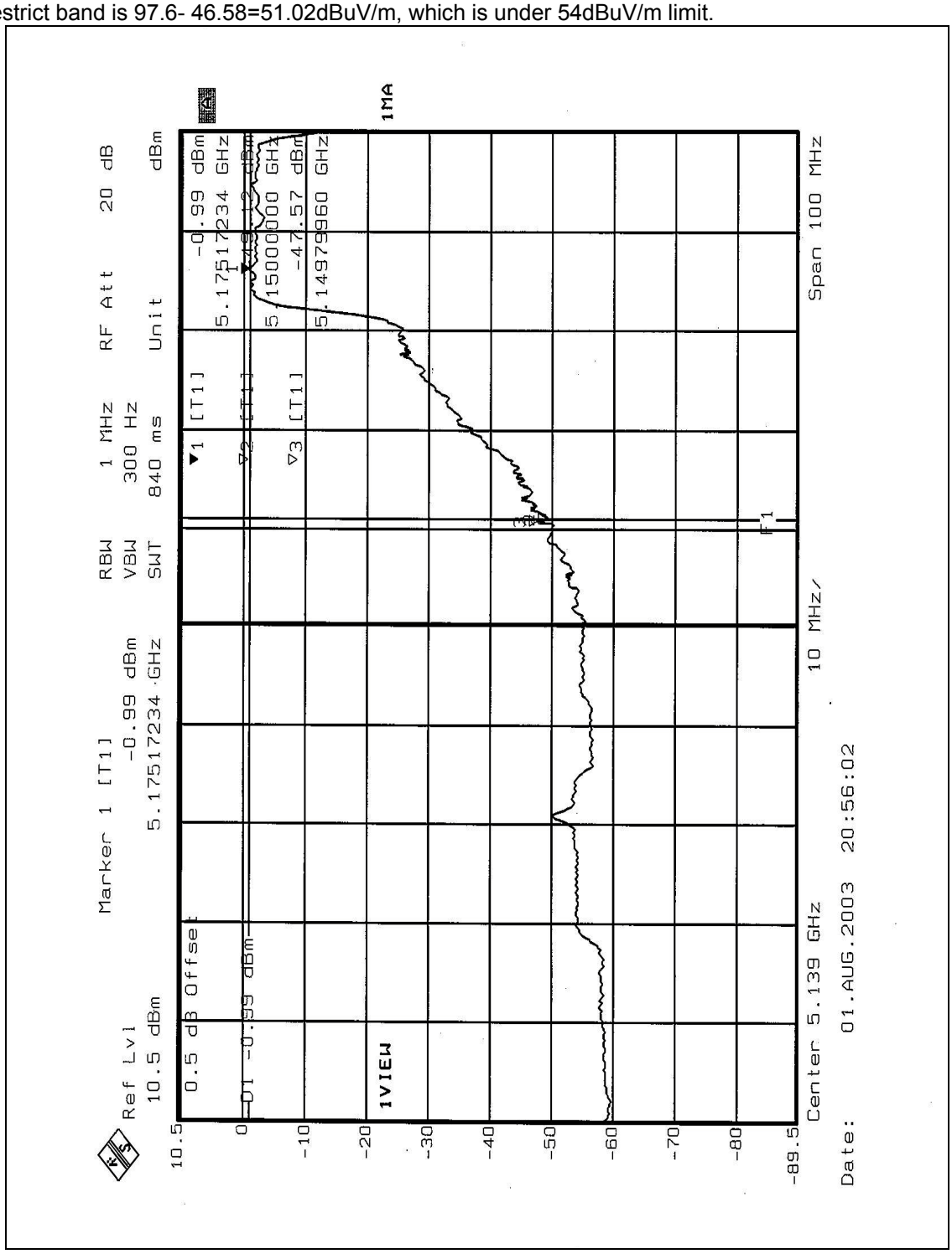
5.7.4 TEST RESULTS

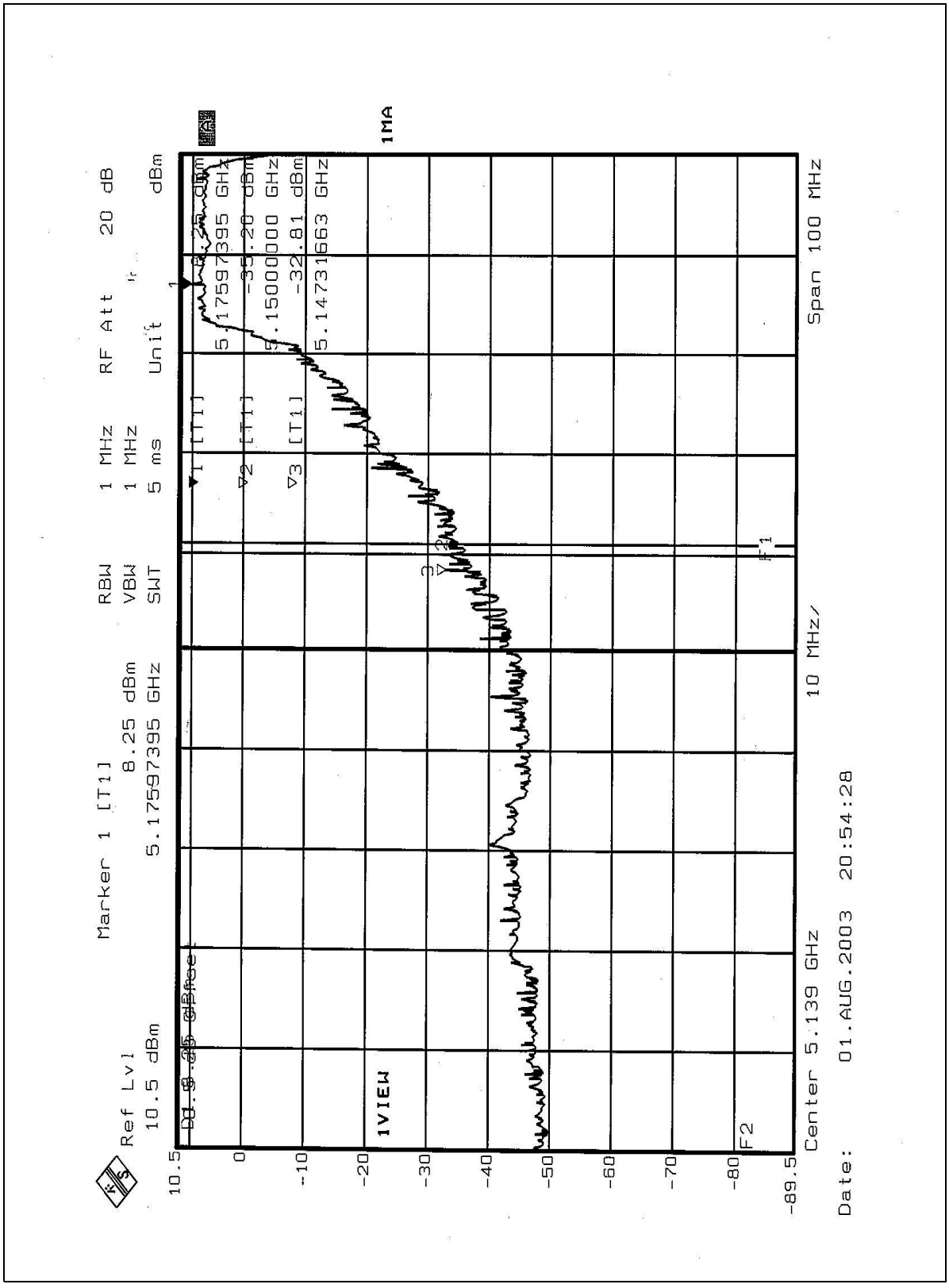
For signals in the restricted bands above and below the 5.15 to 5.35 GHz allocated band a measurement was made of the amplitude of the spurious emissions with respect to the intentional signals. The relative amplitude, in dBc, was applied to the average and peak filed strength of the intentional signal 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 8 pages.

Channel 1 (5180 MHz)

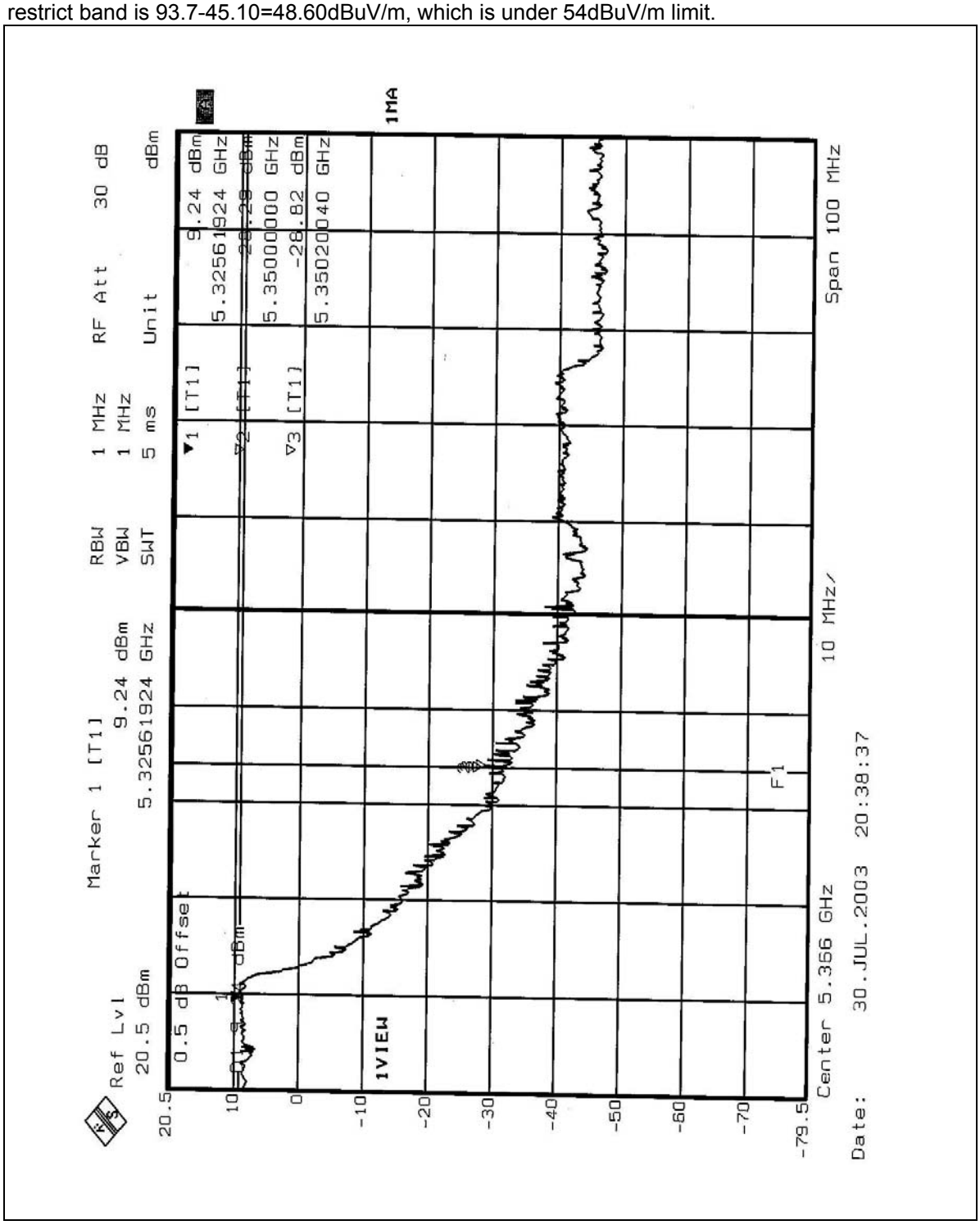
The band edge emission plot on the following 2 pages shows 41.06dBc (Peak) / 46.58dBc (Average) between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 1 is 97.6dBuV/m, so the maximum field strength in restrict band is 97.6- 46.58=51.02dBuV/m, which is under 54dBuV/m limit.

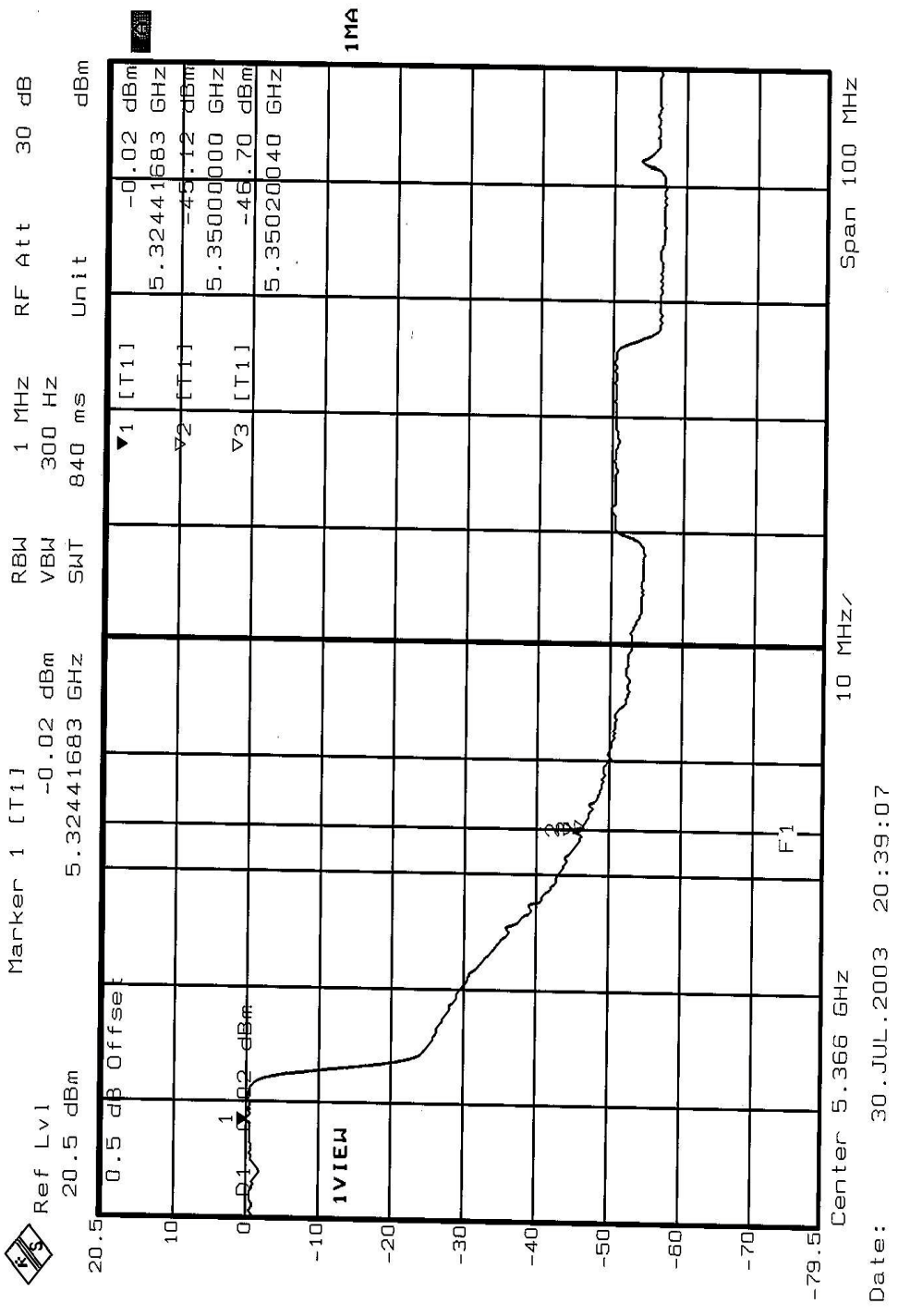



Ref Lvl
10.5 dBm
Marker 1 [T1]
8.25 dBm
5.1759739 5 GHz
RBW 1 MHz
VBW 1 MHz
SWT 5 ms
RF Att 20 dB
Unit dBm
1 [T1] 8.25 dBm
5.1759739 5 GHz
2 [T1] -35.26 dBm
9.1500000 0 GHz
3 [T1] -32.81 dBm
5.1473166 3 GHz
1MA
1VIEW
F1
F2
Center 5.139 GHz
10 MHz/
Span 100 MHz
Date: 01.AUG.2003 20:54:28

Channel 8 (5320 MHz)

The band edge emission plot on the following 2 pages shows 37.53dBc (Peak) / 45.10dBc (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 is 93.7dBuV/m, so the maximum field strength in restrict band is 93.7-45.10=48.60dBuV/m, which is under 54dBuV/m limit.




Marker 1 [T1]
-0.02 dBm
5.32441683 GHz
Ref Lvl
20.5 dBm
0.5 dB Offset
RBW 1 MHz
VBW 300 Hz
SWT 840 ms
RF Att 30 dB
Unit dBm
1 [T1] -0.02 dBm 5.32441683 GHz
2 [T1] -45.12 dBm 5.35000000 GHz
3 [T1] -46.70 dBm 5.35020040 GHz
1MA
1VIEW
Center 5.366 GHz
10 MHz/
Span 100 MHz
Date: 30.JUL.2003 20:39:07

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 antenna used in this product is Dipole antenna without antenna connector. The maximum Gain of the antenna is 5dBi.

6. PHOTOGRAPHS OF THE TEST CONFIGURATION

CONDUCTED EMISSION TEST

RADIATED EMISSION TEST

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:

USA	FCC, NVLAP, UL
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.

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

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Tel: 886-3-3270910
Fax: 886-3-3270892

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