



# FCC TEST REPORT

**REPORT NO.:** RF910731R01F

**MODEL NO.:** XBT-DG1G

**RECEIVED:** NA

**TESTED:** Aug. 2 ~ Aug. 7, 2002

**APPLICANT:** X-Micro Technology Corp.

**ADDRESS:** 13F-4, No. 738, Chung Cheng Road, Chung Ho City, Taipei Hsien, Taiwan

**ISSUED BY:** Advance Data Technology Corporation

**LAB LOCATION:** 47 14th Lin, Chiapau Tsun, Linko, Taipei, Taiwan, R.O.C.

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0528  
ILAC MRA



Lab Code: 200102-0



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## 1 CERTIFICATION

**PRODUCT :** X-Micro Bluetooth USB Dongle Class2  
**BRAND NAME :** X-Micro  
**MODEL NO. :** XBT-DG1G  
**TEST ITEM :** ENGINEERING SAMPLE  
**APPLICANT :** X-Micro Technology Corp.  
**STANDARDS :** 47 CFR Part 15, Subpart C (Section 15.247),  
ANSI C63.4-1992

We, **Advance Data Technology Corporation**, hereby certify that one sample of the designation has been tested in our facility from Aug. 2, 2002 to Aug. 7, 2002. The test record, data evaluation and Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions herein specified.

**PREPARED BY:** Landy Soong, **DATE:** Nov. 04, 2003  
Landy Soong

**APPROVED BY:** Ellis Wu, **DATE:** Nov. 04, 2003  
Ellis Wu /  
Technical Manager

## 2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: 47 CFR Part 15, Subpart C			
Standard Section	Test Type and Limit	Result	REMARK
15.207	AC Power Conducted Emission Limit: 48dBuV	PASS	Meet the requirement of limit Minimum passing margin is -19.31dB at 0.170 MHz
15.247(a)(1)(I)-(ii)	Number of Hopping Frequency Used Spec.: At least 75 channels	PASS	Meet the requirement of limit
15.247(a)(1)(ii)	Dwell Time on Each Channel Spec. : Max. 0.4 second within 30 second	PASS	Meet the requirement of limit
15.247(a)(1)(I)-(ii)	Hopping Channel Separation Spec. : Min. 25 kHz or 20 dB bandwidth	PASS	Meet the requirement of limit
15.247(a)(2)	Spectrum Bandwidth of a Frequency Hopping Sequence Spread Spectrum System Spec.: Max. 1 MHz	PASS	Meet the requirement of limit
15.247(b)	Maximum Peak Output Power Spec.: max. 30dBm	PASS	Meet the requirement of limit
15.247(c)	Transmitter Radiated Emissions Spec.: Table 15.209	PASS	Meet the requirement of limit Minimum passing margin is -7.6dB at 360.00MHz
15.247(c)	Band Edge Measurement	PASS	Meet the requirement of limit

**Note:** The information of measurement uncertainty is available upon the customer's request.

### 3 GENERAL INFORMATION

#### 3.1 GENERAL DESCRIPTION OF EUT

<b>PRODUCT</b>	X-Micro Bluetooth USB Dongle Class2
<b>MODEL NO.</b>	XBT-DG1G
<b>POWER SUPPLY</b>	5.0VDC from host equipment
<b>MODULATION TYPE</b>	FHSS (GFSK)
<b>FREQUENCY RANGE</b>	2402MHz ~ 2480MHz
<b>NUMBER OF CHANNEL</b>	79
<b>OUTPUT POWER</b>	1.61dBm
<b>ANTENNA TYPE</b>	Patch Antenna with 1dBi antenna gain
<b>DATA CABLE</b>	NA
<b>I/O PORTS</b>	USB port
<b>ASSOCIATED DEVICES</b>	NA

**NOTE:**

1. This report is issued as a duplicate report to the original report with no. RF910731R01
2. For a more detailed features description, please refer to the manufacturer's specifications or User's Manual.



### **3.2 DESCRIPTION OF TEST MODES**

The software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel frequencies individually.

### **3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS**

The EUT is a X-Micro Bluetooth USB Dongle Class2. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

**FCC 47 CFR Part 15, Subpart C. (15.247)**  
**ANSI C63.4 : 1992**

All tests have been performed and recorded as per the above standards.

**NOTE:** The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

### 3.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK	DELL	PP01L	TW-09C748-12800-190-B220	FCC DoC APPROVED
2	MODEM	ACEEX	1414	980020503	IFAXDM1414
3	PRINTER	EPSON	LQ-300+	DCGY017096	FCC DoC APPROVED

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA
2	1.2 m braid shielded wire, terminated with DB25 and DB9 connector via metallic frame, w/o core.
3	1.2m braid shielded wire, terminated with DB25 and Centronics connector via metallic frame, w/o core

**NOTE:** All power cords of the above support units are non shielded (1.8m).



## 4 TEST PROCEDURES AND RESULTS

### 4.1 CONDUCTED EMISSION MEASUREMENT

#### 4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dB $\mu$ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

**Notes:**

1. The lower limit shall apply at the transition frequencies.
2. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

#### 4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
ROHDE & SCHWARZ Test Receiver	ESCS30	847793/022	Mar. 10, 2004
ROHDE & SCHWARZ Artificial Mains Network (for EUT)	ESH2-Z5	828075/003	July 08, 2004
ROHDE & SCHWARZ 200-A Four-line V-Network	ENV4200	830326/018	Oct. 02, 2004
* ROHDE & SCHWARZ 4-wire ISN	ENY41	838119/028	Nov. 29, 2003
* ROHDE & SCHWARZ 2-wire ISN	ENY22	837497/018	Nov. 29, 2003
EMCO-L.I.S.N. (for peripheral)	3825/2	9003-1627	July 08, 2004
Software	Cond-V2M3	NA	NA
RF cable (JYEBAO)	5D-FB	Cable-C05.01	May 23, 2004
LYNICS Terminator (For EMCO LISN)	0900510	E1-01-305	Feb. 23, 2004
LYNICS Terminator (For EMCO LISN)	0900510	E1-01-306	Feb. 23, 2004

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. “\*”: These equipment are used for conducted telecom port test only (if tested).
3. The test was performed in ADT Shielded Room No. 5.
4. The VCCI Site Registration No. is C-1093.



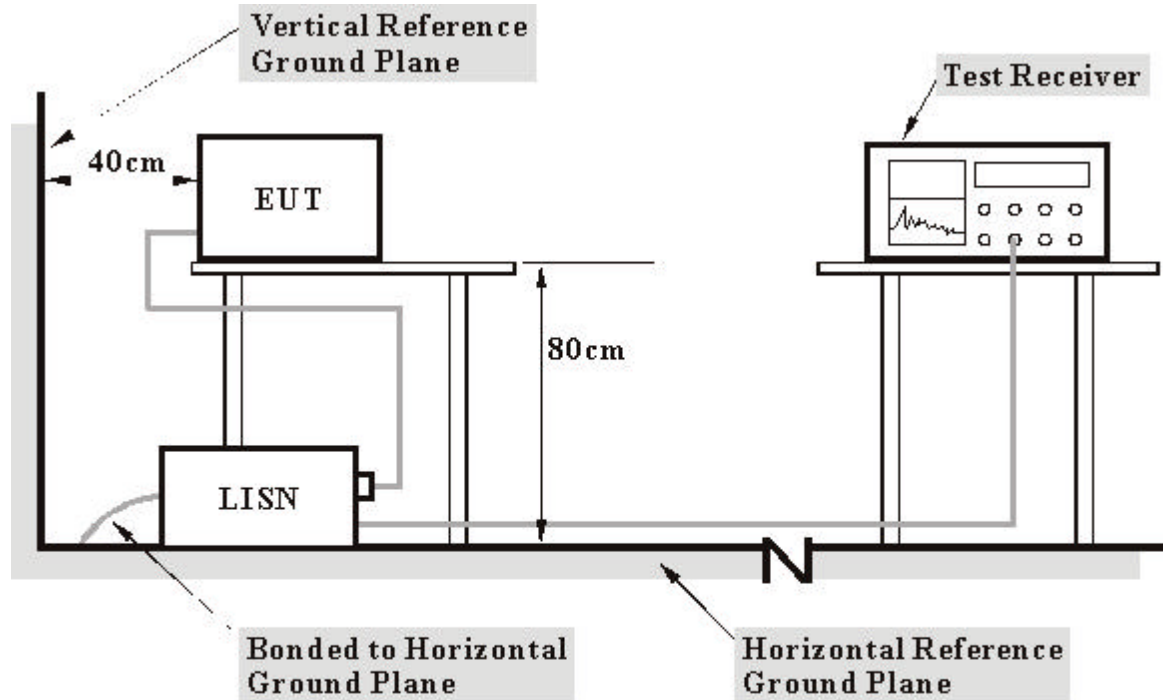
#### 4.1.3 TEST PROCEDURES

- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- c. The frequency range from 150 kHz to 30 MHz was searched. Emission levels over 10dB under the prescribed limits could not be reported

#### 4.1.4 DEVIATION FROM TEST STANDARD

No deviation

#### 4.1.5 TEST SETUP



- Note:**
1. Support units were connected to second LISN.
  2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.



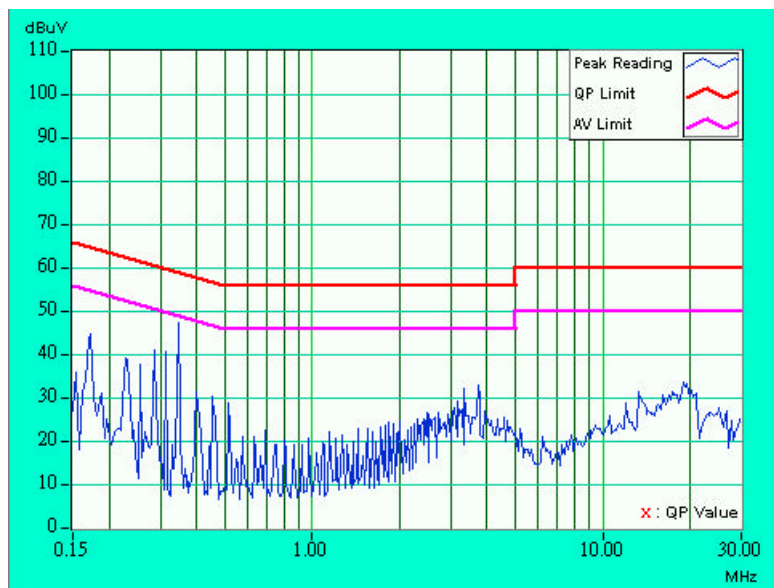
4.1.6 TEST RESULTS

<b>EUT</b>	X-Micro Bluetooth USB Dongle Class2	<b>MODEL</b>	XBT-DG1G
<b>MODE</b>	Channel 0	<b>6dB BANDWIDTH</b>	9 kHz
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>PHASE</b>	Line (L)
<b>ENVIRONMENTAL CONDITIONS</b>	35 deg. C, 50%RH, 991 hPa	<b>TESTED BY:</b> Bunny Yao	

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.170	0.10	43.45	-	43.55	-	64.98	54.98	-21.43	-
2	0.287	0.10	33.71	-	33.81	-	60.62	50.62	-26.81	-
3	0.345	0.10	32.99	-	33.09	-	59.07	49.07	-25.98	-
4	0.400	0.10	30.57	-	30.67	-	57.85	47.85	-27.18	-
5	4.756	0.43	21.11	-	21.54	-	56.00	46.00	-34.46	-
6	19.555	0.97	20.61	-	21.58	-	60.00	50.00	-38.42	-

**NOTE:**

1. QP. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Emission Level = Reading Value + Correction Factor.



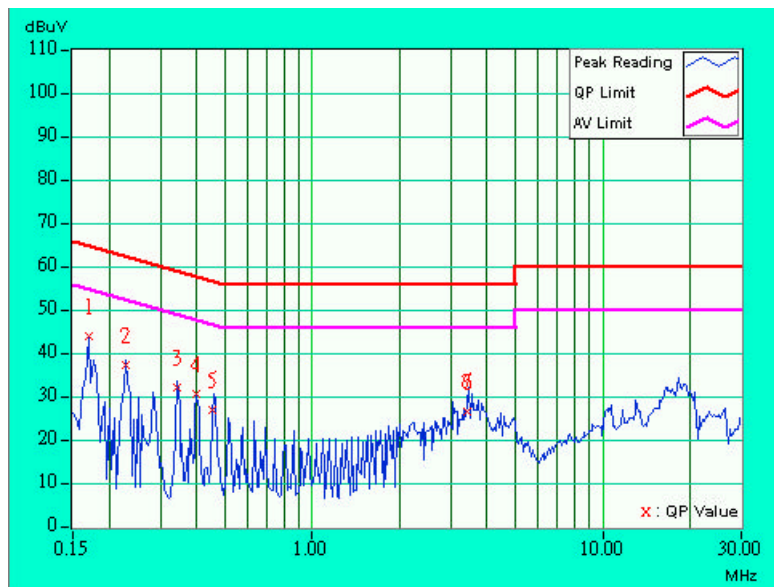


<b>EUT</b>	X-Micro Bluetooth USB Dongle Class2	<b>MODEL</b>	XBT-DG1G
<b>MODE</b>	Channel 0	<b>6dB BANDWIDTH</b>	9 kHz
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>PHASE</b>	Neutral (N)
<b>ENVIRONMENTAL CONDITIONS</b>	35 deg. C, 50%RH, 991 hPa	<b>TESTED BY:</b> Bunny Yao	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.170	0.10	43.80	-	43.90	-	64.98	54.98	-21.08	-
2	0.228	0.10	37.27	-	37.37	-	62.52	52.52	-25.15	-
3	0.341	0.10	31.95	-	32.05	-	59.17	49.17	-27.12	-
4	0.400	0.10	30.54	-	30.64	-	57.85	47.85	-27.21	-
5	0.455	0.11	26.79	-	26.90	-	56.79	46.79	-29.89	-
6	3.432	0.27	26.47	-	26.74	-	56.00	46.00	-29.26	-
7	3.432	0.27	26.21	-	26.48	-	56.00	46.00	-29.52	-

**NOTE:**

1. QP. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Emission Level = Reading Value + Correction Factor.



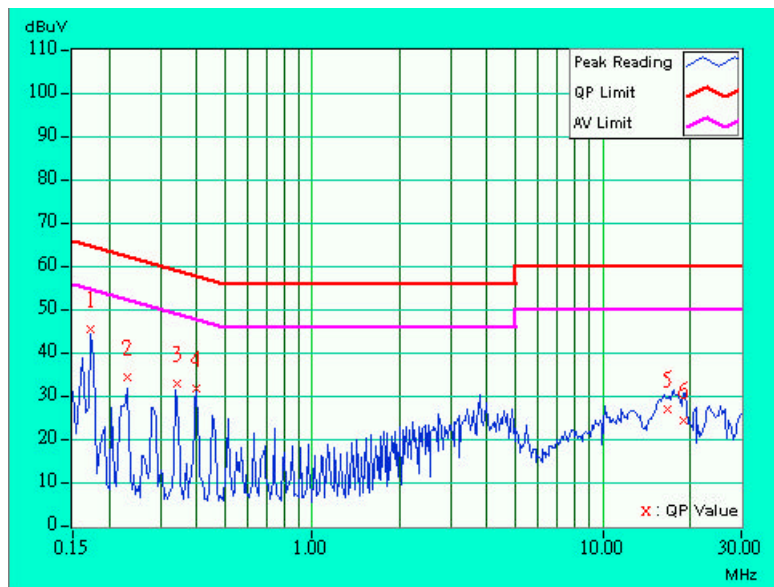


<b>EUT</b>	X-Micro Bluetooth USB Dongle Class2	<b>MODEL</b>	XBT-DG1G
<b>MODE</b>	Channel 39	<b>6dB BANDWIDTH</b>	9 kHz
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>PHASE</b>	Line (L)
<b>ENVIRONMENTAL CONDITIONS</b>	35 deg. C, 50%RH, 991 hPa	<b>TESTED BY:</b> Bunny Yao	

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.173	0.10	44.54	-	44.64	-	64.79	54.79	-20.15	-
2	0.232	0.10	33.64	-	33.74	-	62.38	52.38	-28.64	-
3	0.344	0.10	31.85	-	31.95	-	59.11	49.11	-27.16	-
4	0.400	0.10	30.86	-	30.96	-	57.85	47.85	-26.89	-
5	16.695	0.80	25.96	-	26.76	-	60.00	50.00	-33.24	-
6	19.094	0.95	23.60	-	24.55	-	60.00	50.00	-35.45	-

**NOTE:**

1. QP. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Emission Level = Reading Value + Correction Factor.



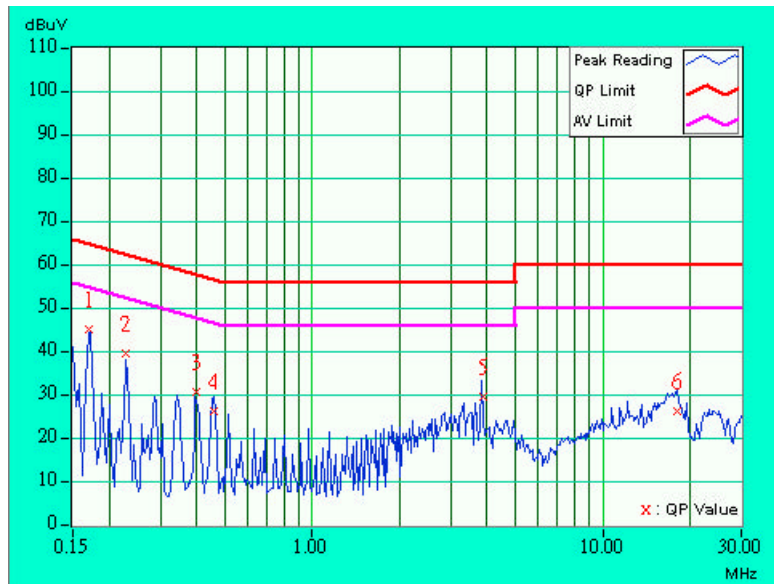


<b>EUT</b>	X-Micro Bluetooth USB Dongle Class2	<b>MODEL</b>	XBT-DG1G
<b>MODE</b>	Channel 39	<b>6dB BANDWIDTH</b>	9 kHz
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>PHASE</b>	Neutral (N)
<b>ENVIRONMENTAL CONDITIONS</b>	35 deg. C, 50%RH, 991 hPa	<b>TESTED BY:</b> Bunny Yao	

No	Freq.	Corr. Factor	Reading Value [dB (Uv)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.
1	0.170	0.10	44.53	-	44.63	-	64.98	54.98	-20.35	-
2	0.228	0.10	38.85	-	38.95	-	62.52	52.52	-23.57	-
3	0.400	0.10	30.20	-	30.30	-	57.85	47.85	-27.55	-
4	0.459	0.11	25.77	-	25.88	-	56.72	46.72	-30.84	-
5	3.874	0.29	28.99	-	29.28	-	56.00	46.00	-26.72	-
6	18.070	0.68	25.54	-	26.22	-	60.00	50.00	-33.78	-

**NOTE:**

1. QP. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Emission Level = Reading Value + Correction Factor.



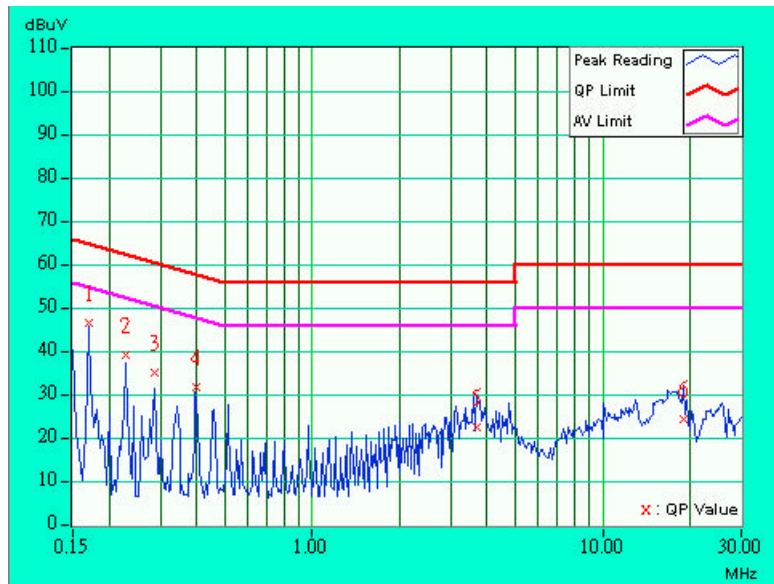


<b>EUT</b>	X-Micro Bluetooth USB Dongle Class2	<b>MODEL</b>	XBT-DG1G
<b>MODE</b>	Channel 78	<b>6dB BANDWIDTH</b>	9 kHz
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>PHASE</b>	Line (L)
<b>ENVIRONMENTAL CONDITIONS</b>	35 deg. C, 50%RH, 991 hPa	<b>TESTED BY:</b> Bunny Yao	

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.170	0.10	45.57	-	45.67	-	64.98	54.98	-19.31	-
2	0.228	0.10	38.33	-	38.43	-	62.52	52.52	-24.09	-
3	0.287	0.10	34.27	-	34.37	-	60.62	50.62	-26.25	-
4	0.400	0.10	30.78	-	30.88	-	57.85	47.85	-26.97	-
5	3.703	0.37	21.83	-	22.20	-	56.00	46.00	-33.80	-
6	18.914	0.93	23.44	-	24.37	-	60.00	50.00	-35.63	-

**NOTE:**

1. QP. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Emission Level = Reading Value + Correction Factor.





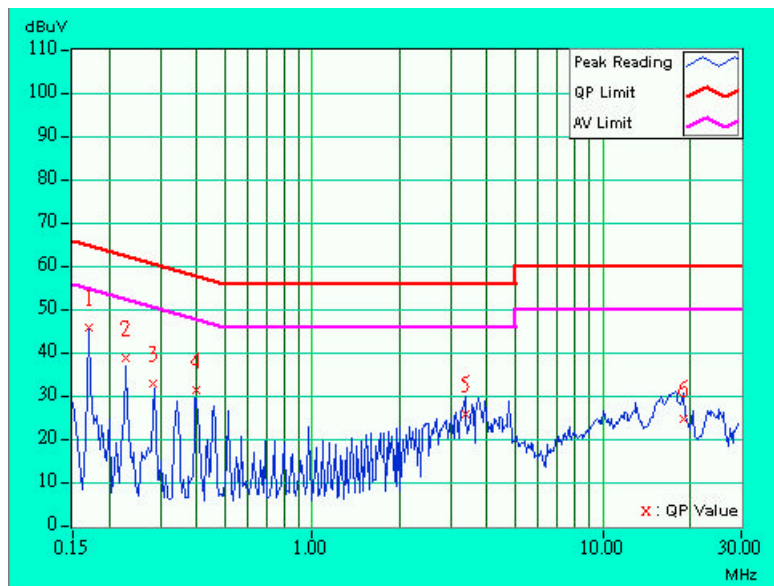


<b>EUT</b>	X-Micro Bluetooth USB Dongle Class2	<b>MODEL</b>	XBT-DG1G
<b>MODE</b>	Channel 78	<b>6dB BANDWIDTH</b>	9 kHz
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>PHASE</b>	Neurral (N)
<b>ENVIRONMENTAL CONDITIONS</b>	35 deg. C, 50%RH, 991 hPa	<b>TESTED BY:</b> Bunny Yao	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.170	0.10	45.29	-	45.39	-	64.98	54.98	-19.59	-
2	0.228	0.10	38.13	-	38.23	-	62.52	52.52	-24.29	-
3	0.283	0.10	32.37	-	32.47	-	60.73	50.73	-28.26	-
4	0.400	0.10	30.74	-	30.84	-	57.85	47.85	-27.01	-
5	3.367	0.27	25.19	-	25.46	-	56.00	46.00	-30.54	-
6	18.906	0.73	24.09	-	24.82	-	60.00	50.00	-35.18	-

**NOTE:**

1. QP. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Emission Level = Reading Value + Correction Factor.





## 4.2 NUMBER OF HOPPING FREQUENCY USED

### 4.2.1 LIMIT OF HOPPING FREQUENCY USED

At least 75 hopping frequencies, and should be equally spaced.

### 4.2.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
SPECTRUM ANALYZER	FSEK30	100049	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.

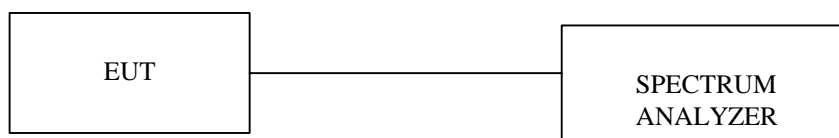
### 4.2.3 TEST PROCEDURES

1. Check the calibration of the measuring instrument (SA) using either an internal calibrator or a known signal from an external generator.
2. Turn on the EUT and connect its antenna terminal to measurement via a low loss cable. Then set it to any one measured frequency within its operating range and make sure the instrument is operated in its linear range.
3. Set the SA on MaxHold Mode, and then keep the EUT in hopping mode. Record all the signals from each channel until each one has been recorded.
4. Set the SA on View mode and then plot the result on SA screen.
5. Repeat above procedures until all frequencies measured were complete.

### 4.2.4 DEVIATION FROM TEST STANDARD

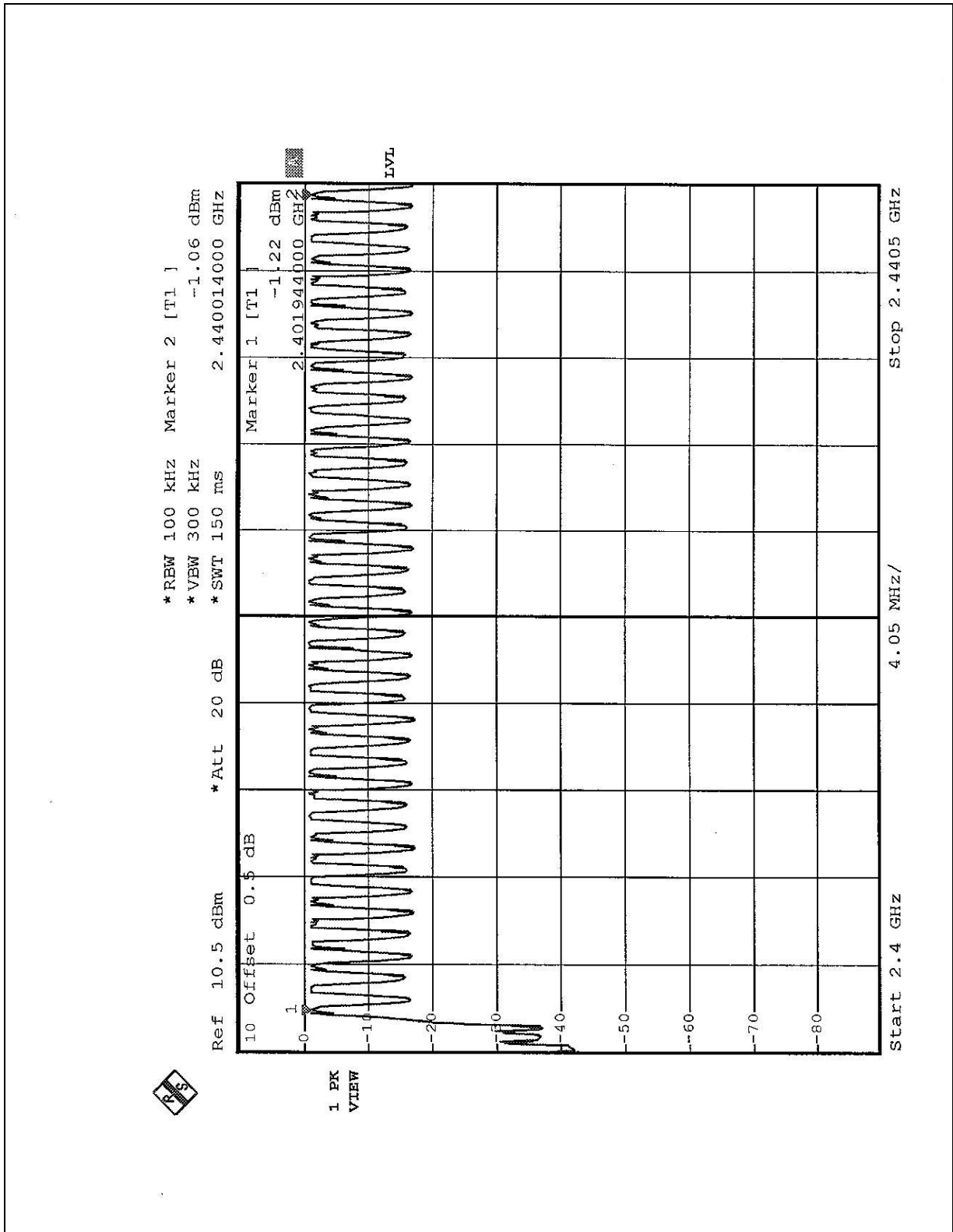
No deviation

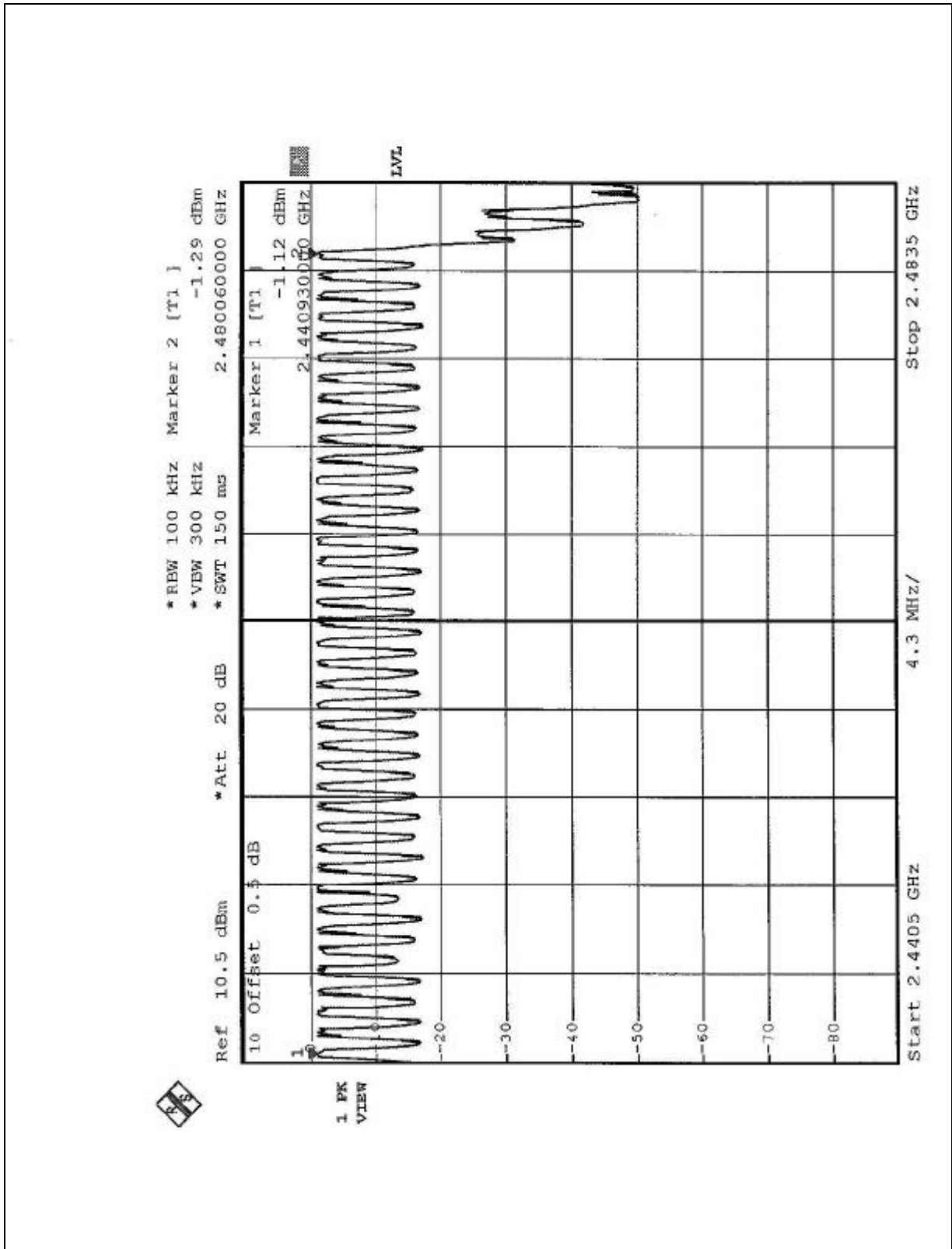
#### 4.2.5 TEST SETUP



#### 4.2.6 TEST RESULTS

There are 79 hopping frequencies in the hopping mode. Please refer to next two pages for the test result. On the plots, it shows that the hopping frequencies are equally spaced.





### 4.3 DWELL TIME ON EACH CHANNEL

#### 4.3.1 LIMIT OF DWELL TIME USED

For FHSS, the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 30 second period. For hybrid systems, the average time of occupancy on any frequency should not exceed 0.4 seconds within a time period in seconds equal to the number of hopping frequencies employed multiplied by 0.4.

#### 4.3.2 TEST INSTRUMENTS

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

#### NOTES:

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

#### 4.3.3 TEST PROCEDURES

1. Check the calibration of the measuring instrument (SA) using either an internal calibrator or a known signal from an external generator.
2. Turn on the EUT and connect its antenna terminal to measurement via a low loss cable. Then set it to any one measured frequency within its operating range and make sure the instrument is operated in its linear range.
3. Adjust the center frequency of SA on any frequency be measured and set SA to zero span mode. And then, set RBW and VBW of spectrum analyzer to proper value.
4. Measure the time duration of one transmission on the measured frequency. And then plot the result with time difference of this time duration.
5. Repeat above procedures until all frequencies measured were complete.



4.3.4 DEVIATION FROM TEST STANDARD

No deviation

4.3.5 TEST SETUP



4.3.6 TEST RESULTS

CHANNEL	DWELL TIME
0	285.57ms
39	288.61ms
78	285.57ms

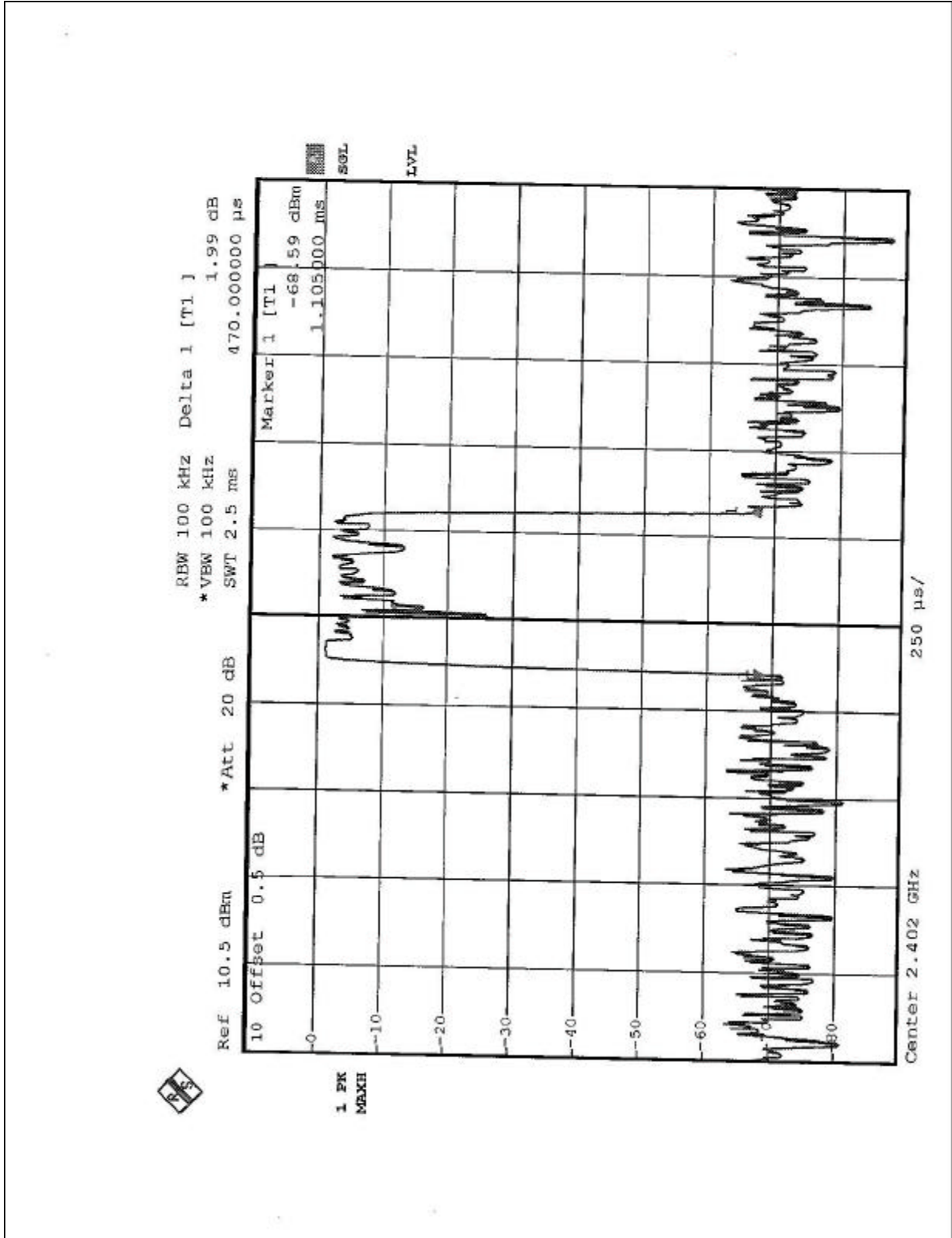
Note : This product is averagely hopped on 79 frequencies. The maximum hopping rate is 500 hops/sec. The longest pulse duration is 475.00 μ sec.

So, the longest Dwell Time = 475.00 μ sec x 1600 ÷ 79 x 30 = 288.61 msec. which is smaller than 0.4sec.

Test plots of the transmitting time slot are shown on next three pages.

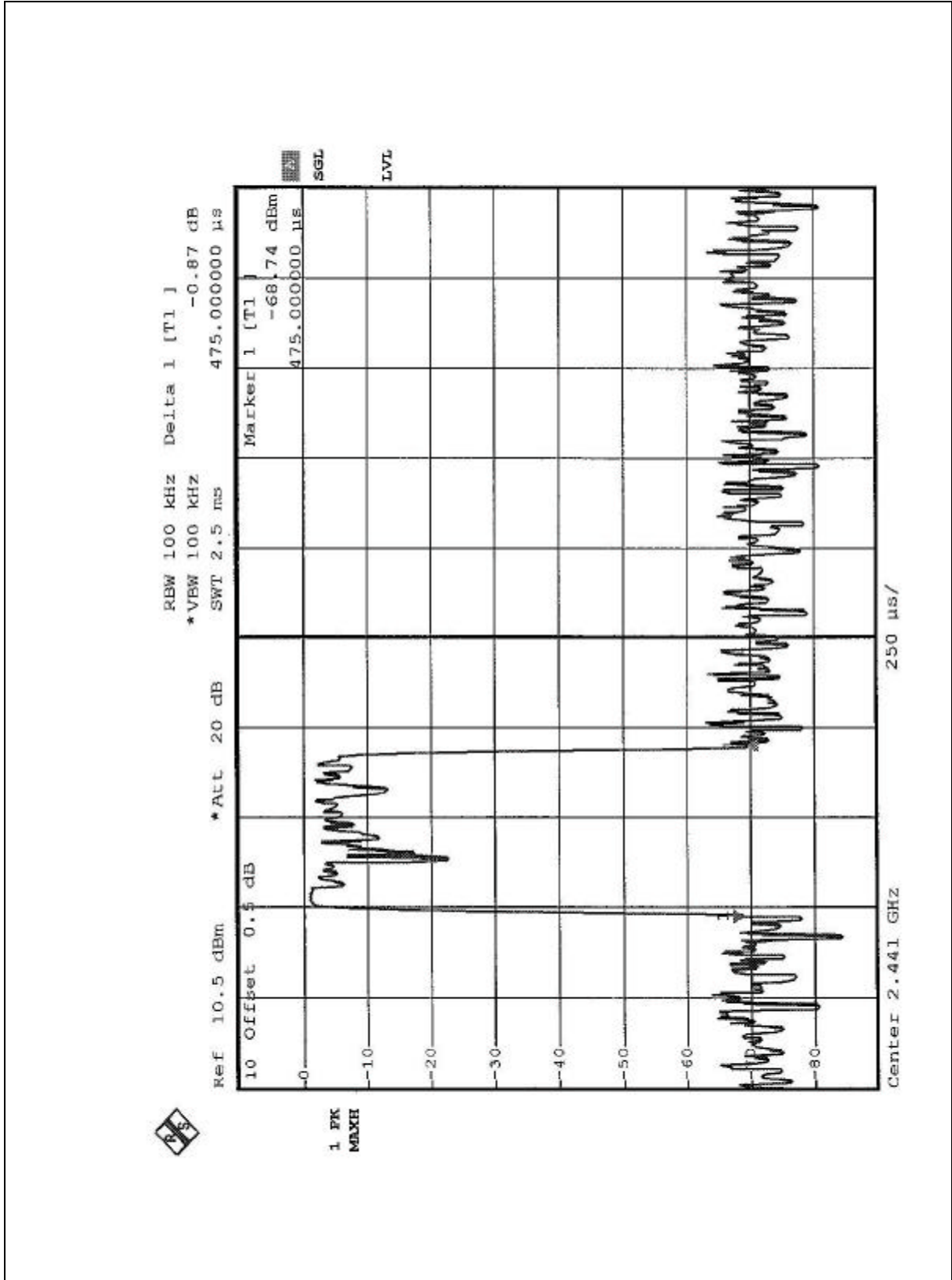


Channel 0

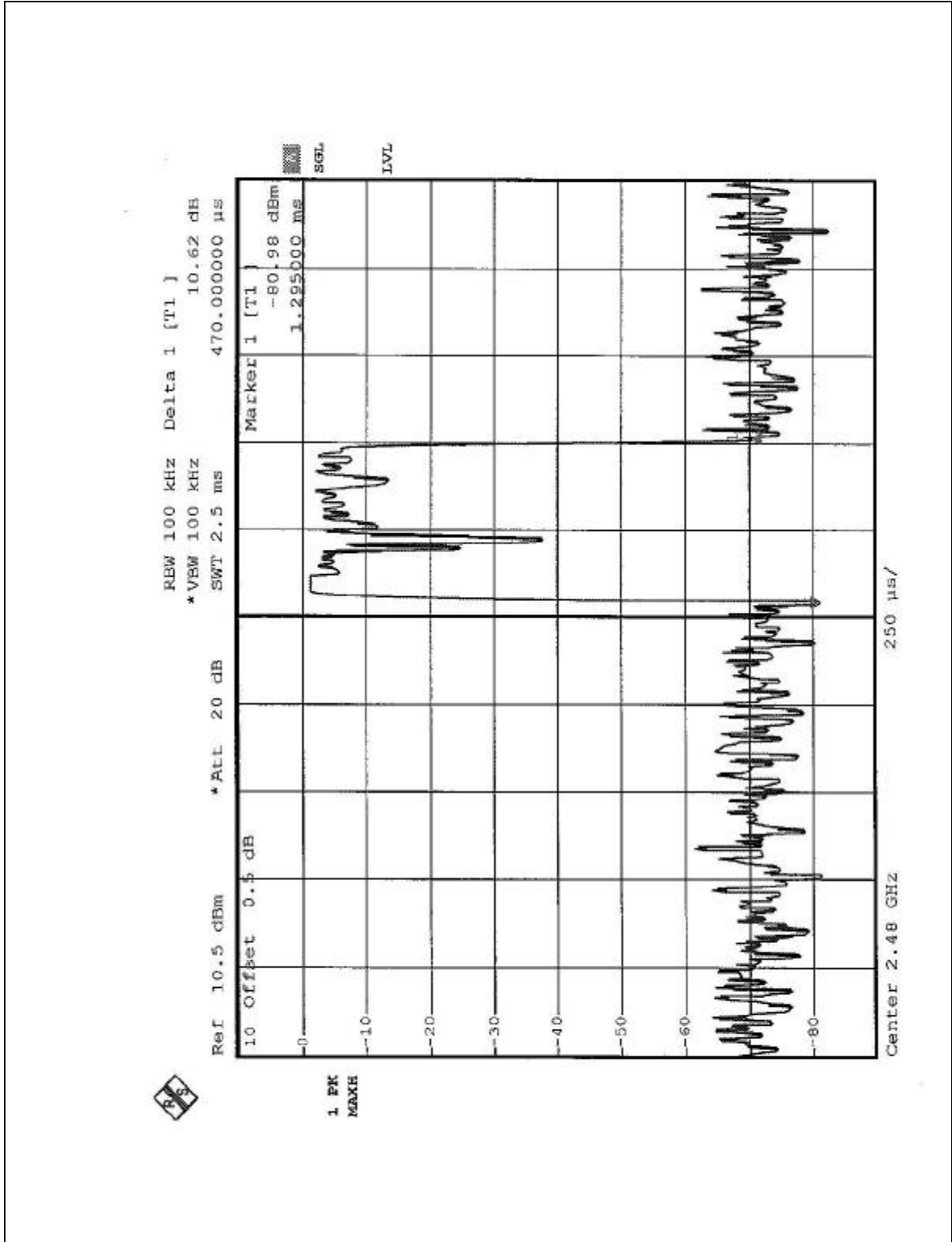




Channel 39



Channel 78





## 4.4 CHANNEL BANDWIDTH

### 4.4.1 LIMITS OF CHANNEL BANDWIDTH

For frequency hopping system operating in the 2400-2483.5 MHz and 5725-5850 MHz bands, the maximum 20 dB bandwidth of the hopping channel is 1 MHz.

### 4.4.2 TEST INSTRUMENTS

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

#### NOTES:

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

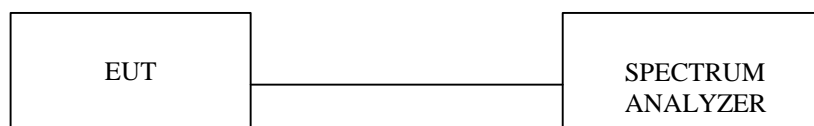
### 4.4.3 TEST PROCEDURE

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. Measure the frequency difference of two frequencies that were attenuated 20dB from the reference level. Record the frequency difference as the emission bandwidth.
4. Repeat above procedures until all frequencies measured were complete.

### 4.4.4 DEVIATION FROM TEST STANDARD

No deviation

#### 4.4.5 TEST SETUP



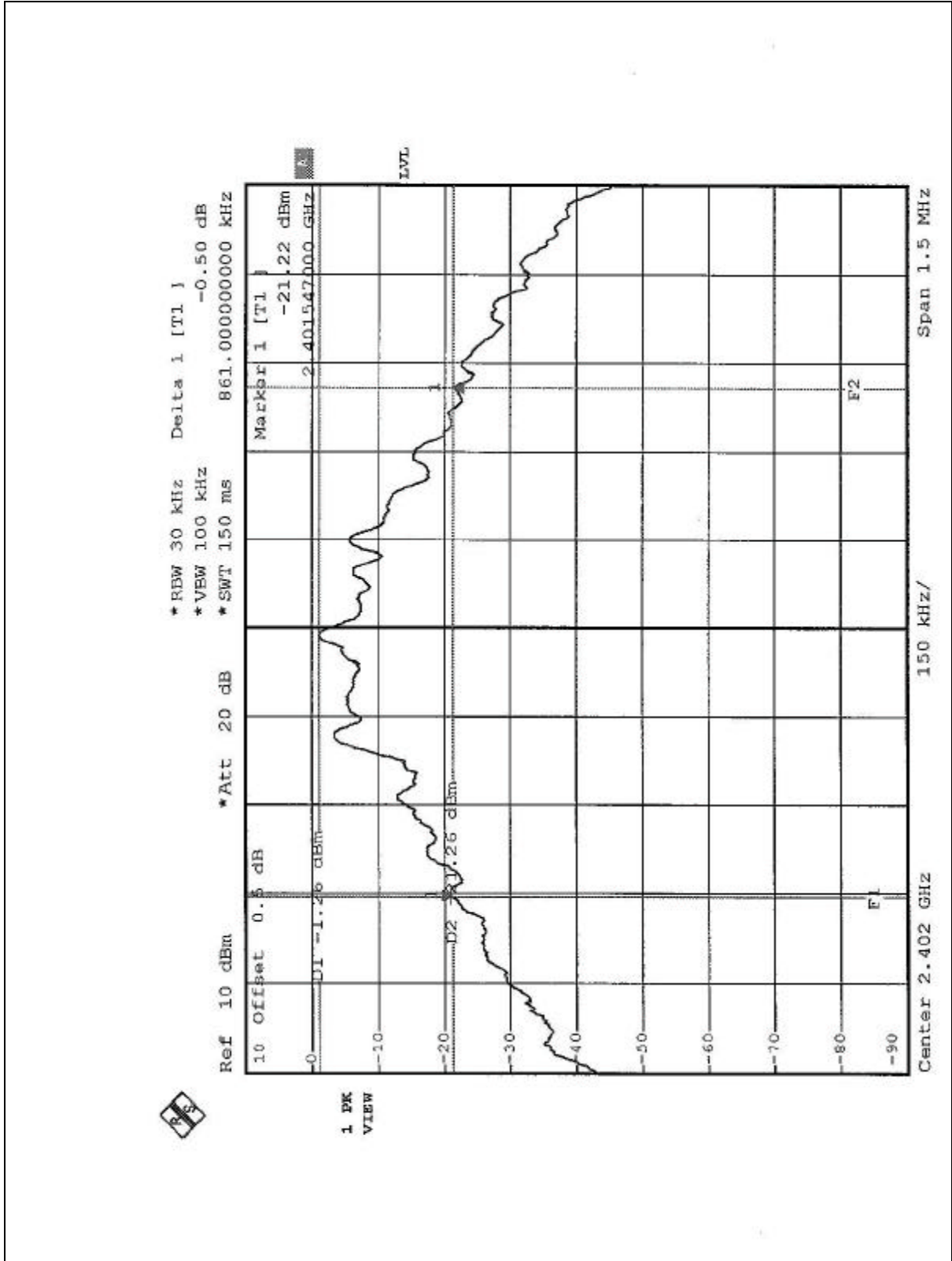
#### 4.4.6 EUT OPERATING CONDITION

The software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel frequencies individually.

#### 4.4.7 TEST RESULTS

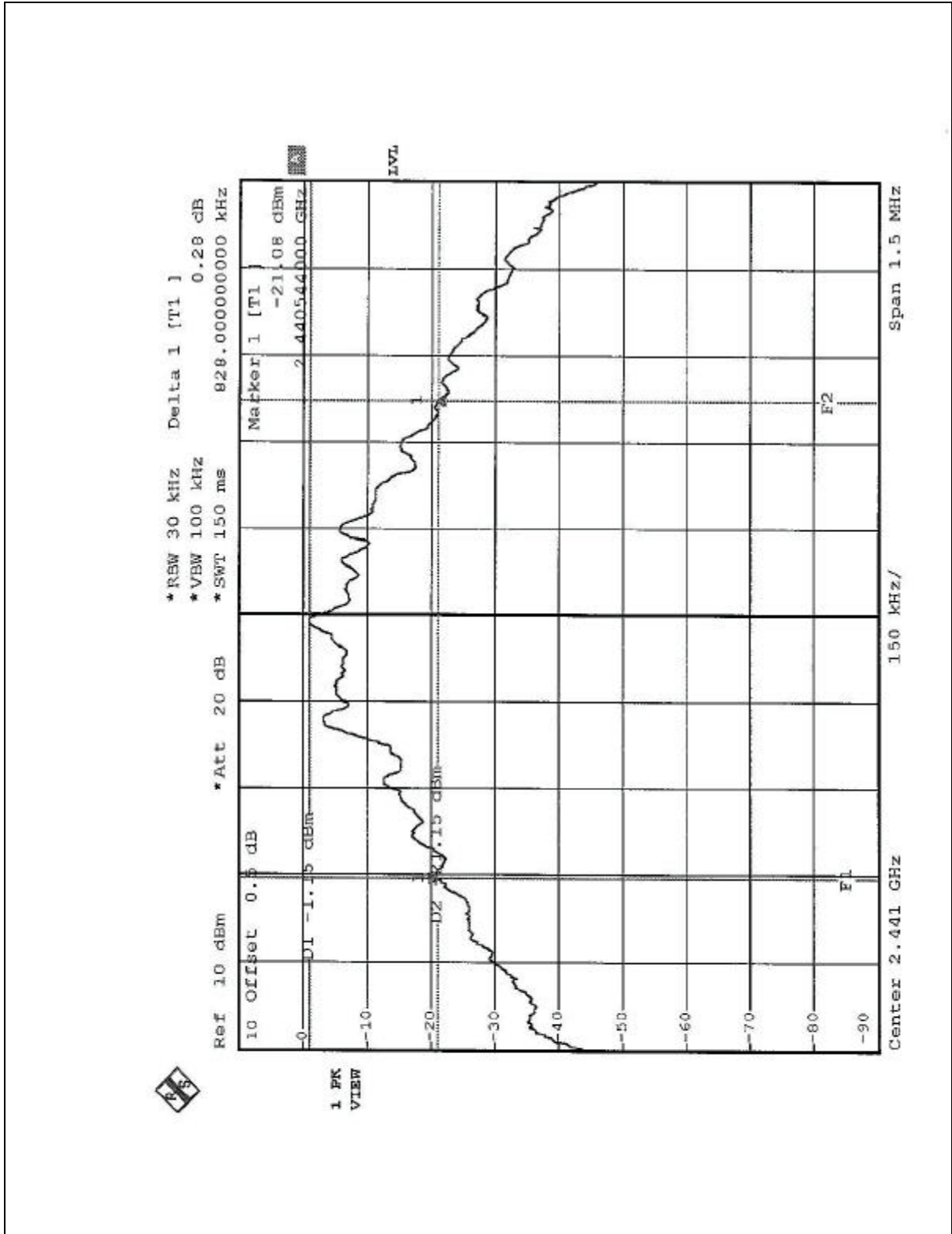
CHANNEL	CHANNEL FREQUENCY (MHz)	20dB BANDWIDTH (kHz)	MAXIMUM LIMIT (MHz)	PASS/FAIL
0	2402	861.00	1	PASS
39	2441	828.00	1	PASS
78	2480	837.00	1	PASS

Channel 0

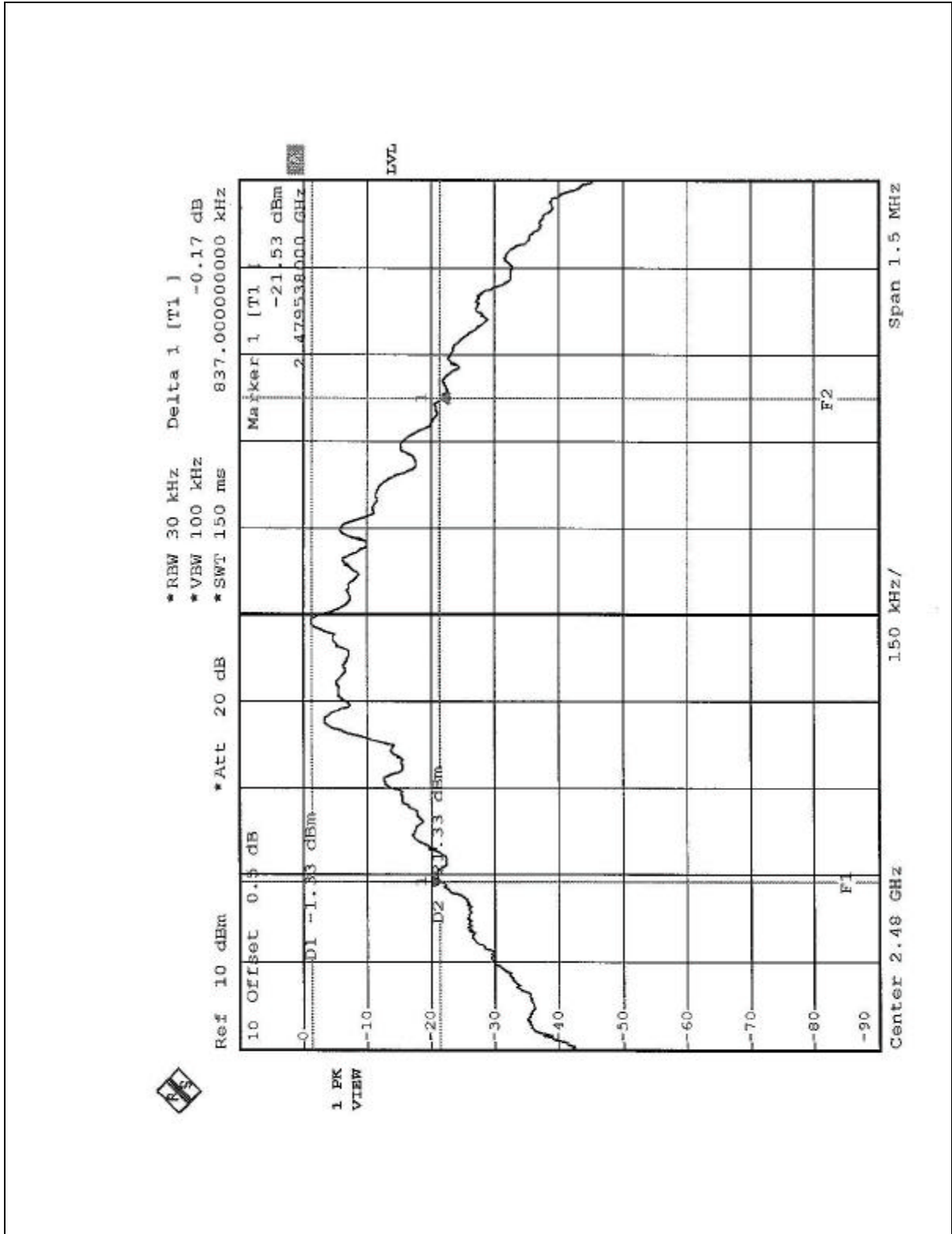




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## 4.5 HOPPING CHANNEL SEPARATION

### 4.5.1 LIMIT OF HOPPING CHANNEL SEPARATION

At least 25KHz or 20dB bandwidth (whichever is greater).

### 4.5.2 TEST INSTRUMENTS

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

#### NOTES:

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 PROCEDURES

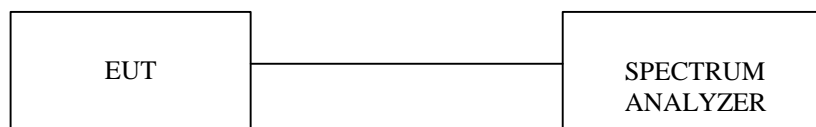
1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range.
3. By using the MaxHold function record the separation of two adjacent channels.
4. Measure the frequency difference of these two adjacent channels by SA MARK function. And then plot the result on SA screen.
5. Repeat above procedures until all frequencies measured were complete.

### 4.5.4 DEVIATION FROM TEST STANDARD

No deviation



#### 4.5.5 TEST SETUP

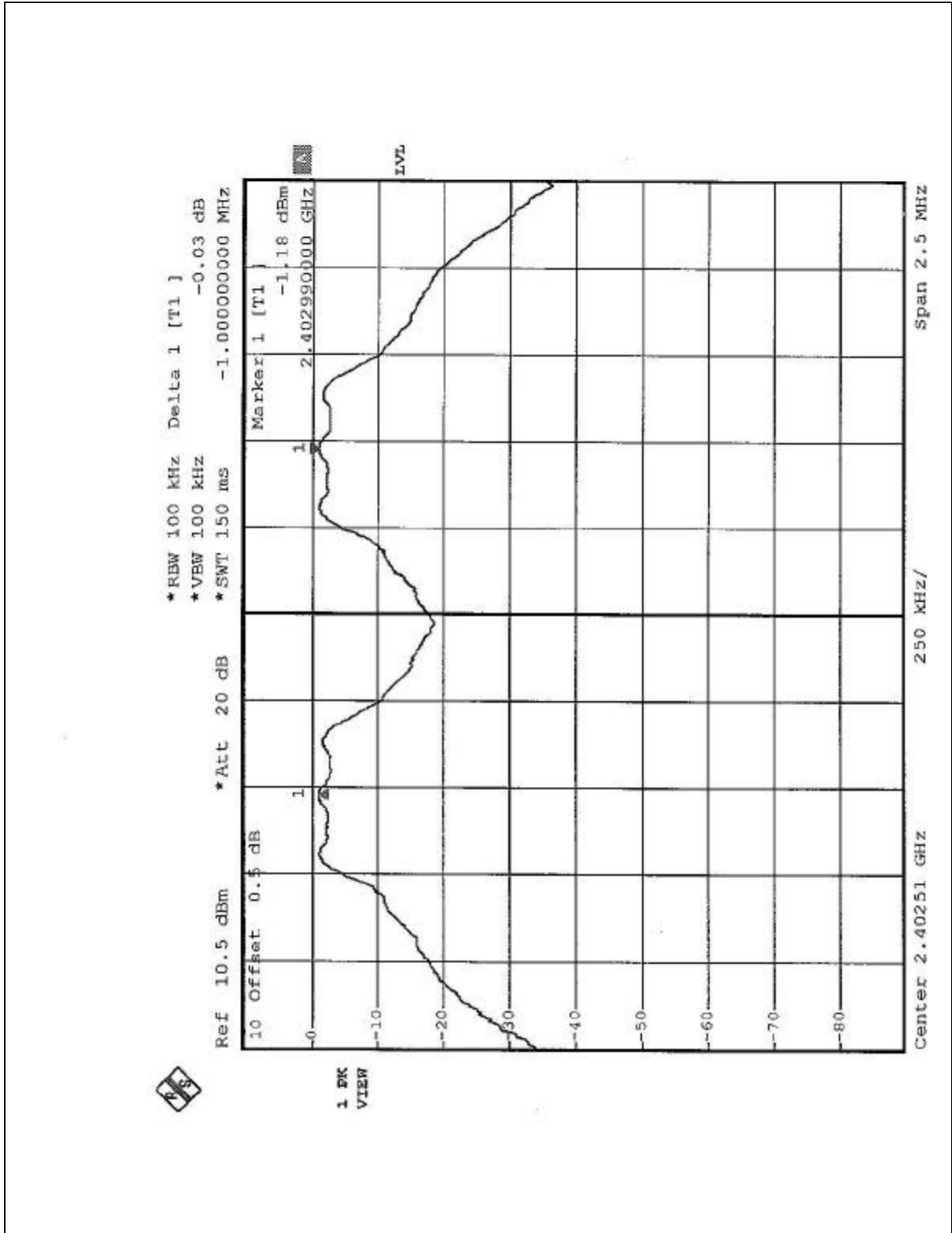


#### 4.5.6 TEST RESULTS

Channel	Frequency (MHz)	Adjacent Channel Separation	Minimum Limit (kHz)	Pass / Fail
0	2402	1MHz	861.00	PASS
39	2441	1MHz	828.00	PASS
78	2480	1MHz	837.00	PASS

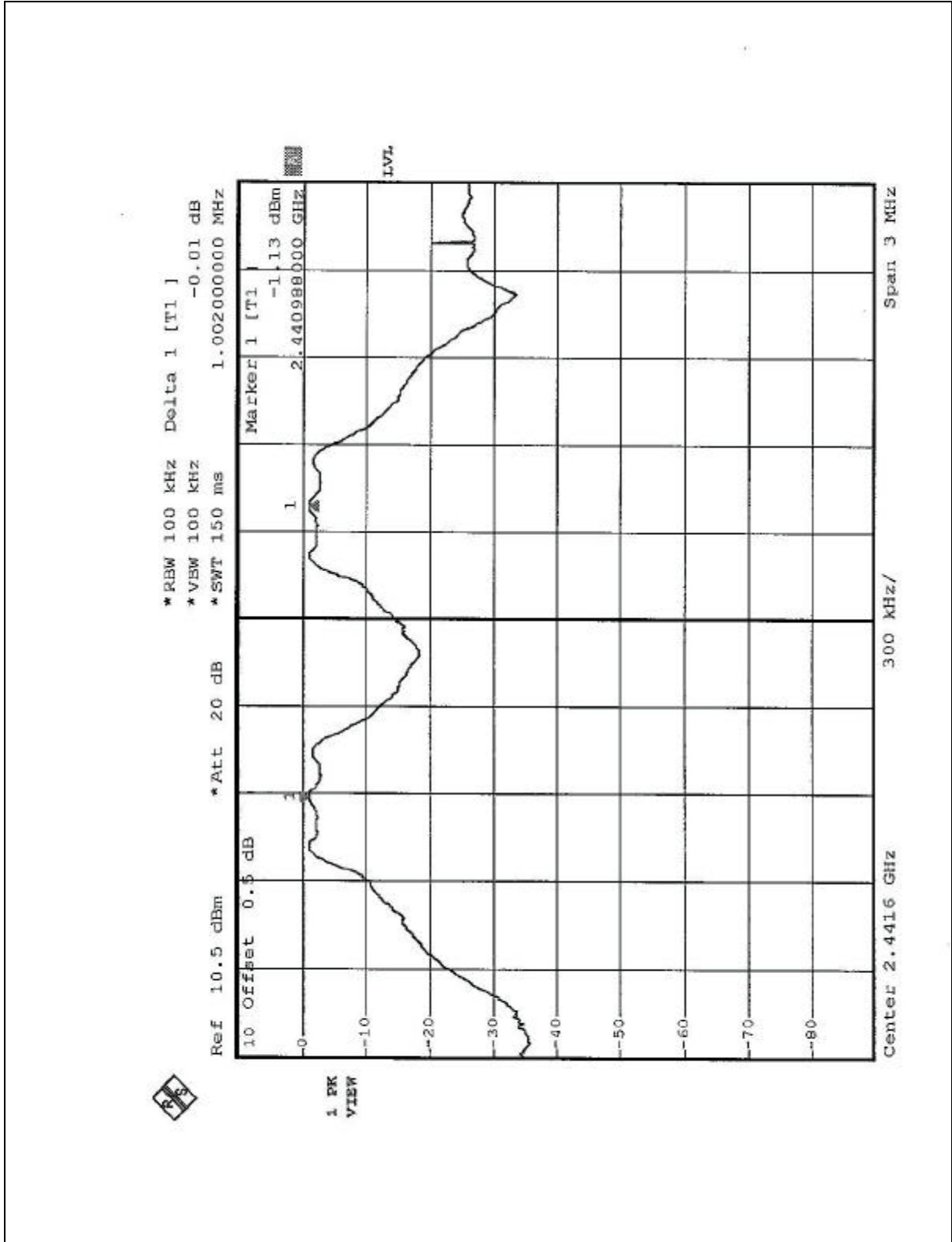
The minimum limit is 20dB bandwidth. Test results please refer to next three pages.

Channel 0

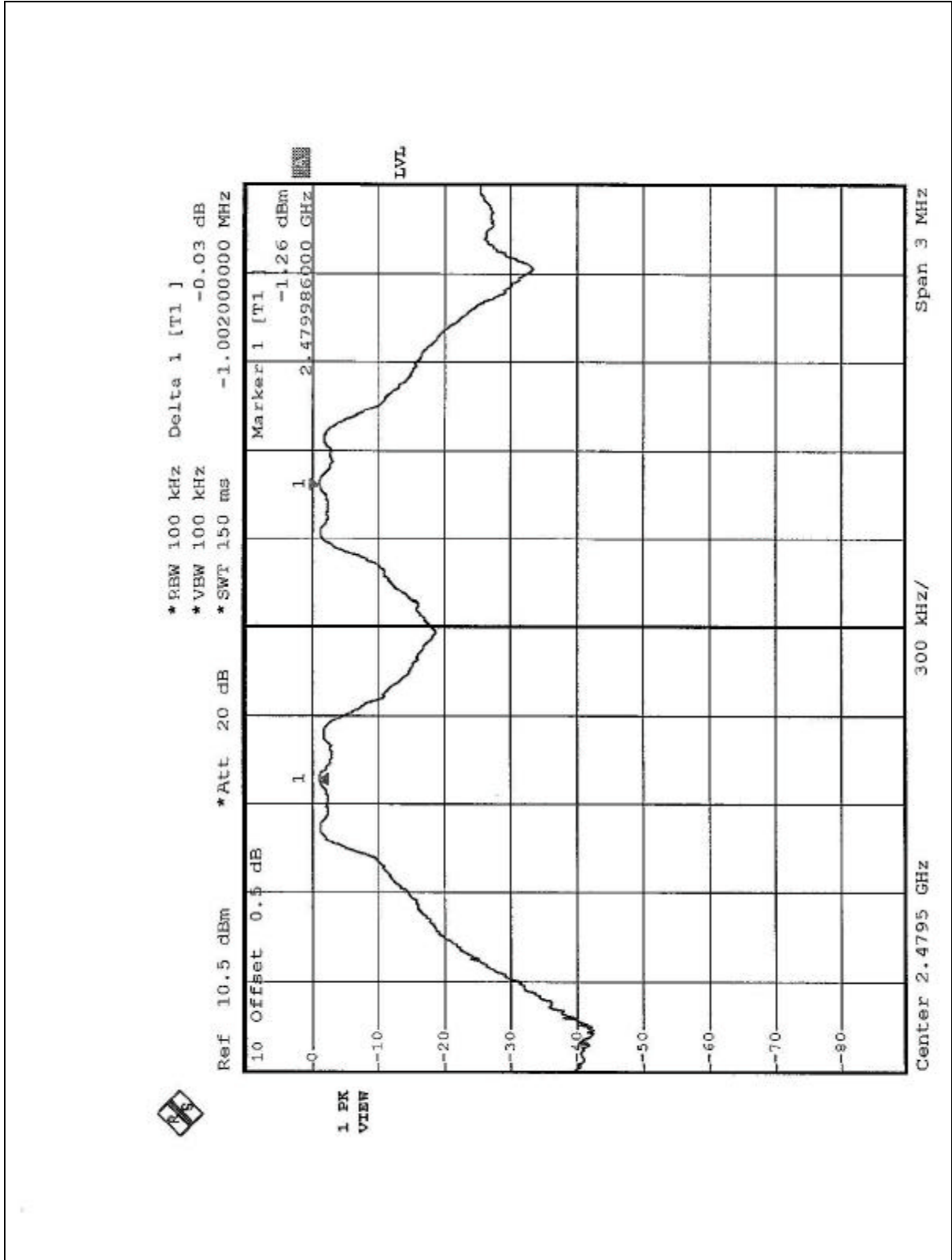




Channel 39



Channel 78





## 4.6 MAXIMUM PEAK OUTPUT POWER

### 4.6.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Limit of Maximum Peak Output Power Measurement is 30dBm.

### 4.6.2 INSTRUMENTS

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

#### NOTES:

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 PROCEDURES

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. The center frequency of the spectrum analyzer is set to the fundamental frequency and using 3 MHz RBW and 3 MHz VBW.
4. Measure the frequency difference of two frequencies that were attenuated 20dB from the reference level. Record the frequency difference as the emission bandwidth.
5. Repeat above procedures until all frequencies measured were complete.

### 4.6.4 DEVIATION FROM TEST STANDARD

No deviation

#### 4.6.5 TEST SETUP



For the actual test configuration, please refer to the related Item – Photographs of the Test Configuration.

#### 4.6.6 EUT OPERATING CONDITION

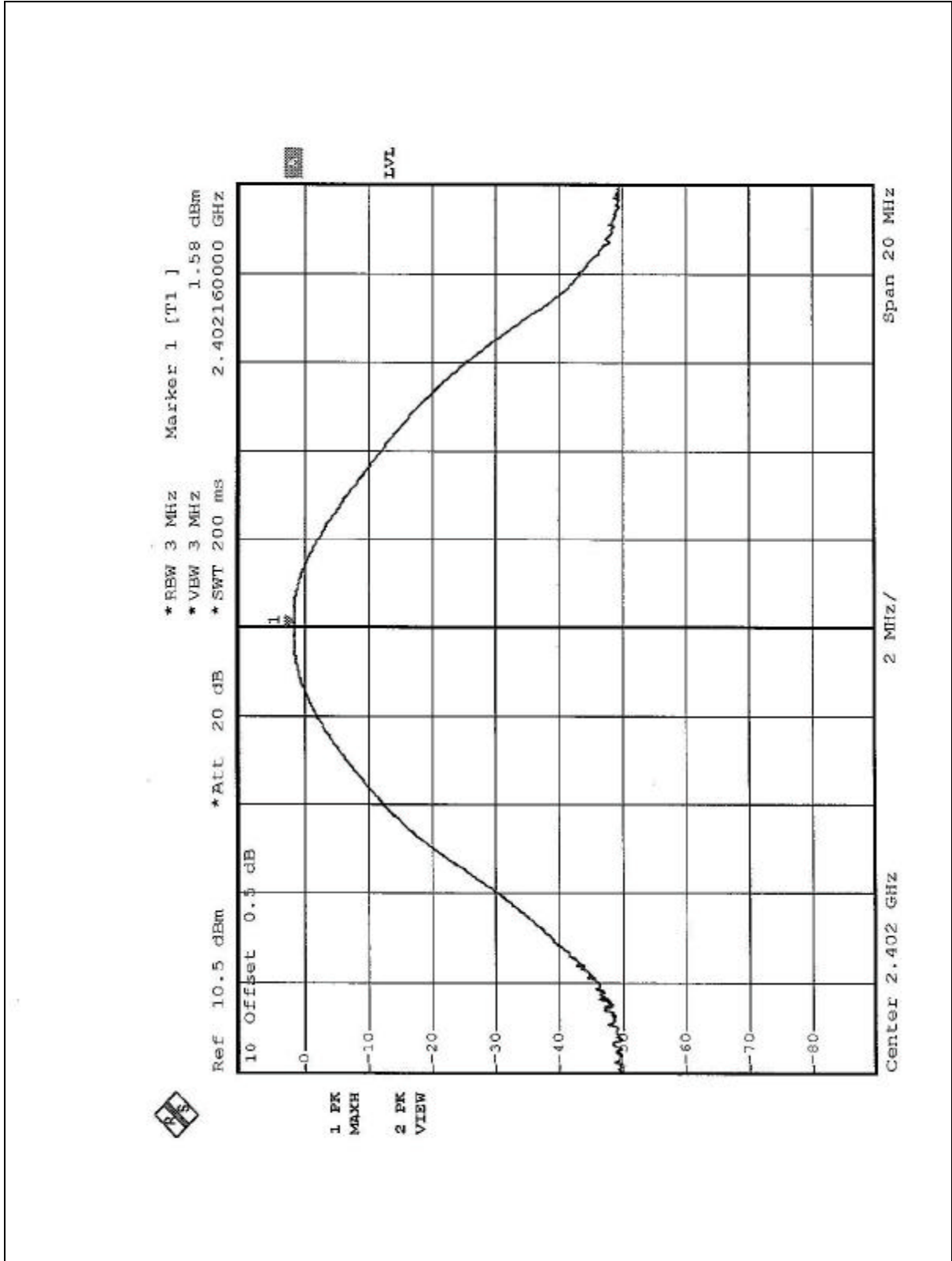
The software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel frequencies individually.

#### 4.6.7 TEST RESULTS

Output Power to Antenna:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
0	2402	1.58	30	PASS
39	2441	1.61	30	PASS
78	2480	1.46	30	PASS

Channel 0



### Channel 39

