



REPORT NO: F89022202
PRODUCT: WIRELESS KEYBOARD
MODEL NO: 5090
SERIAL NO: N/A
CLIENT: Behavior Tech Computer Corp.
ADDRESS: 2F,No51,Tung Hsing Rd, Taipei, Taiwan,
R.O.C.
ISSUED BY: ADVANCE DATA TECHNOLOGY
CORPORATION (ADT CORP.)
OFFICE ADDRESS: 11F, NO. 1, SEC. 4, NAN-KING EAST RD.,
TAIPEI, TAIWAN, R.O.C.
LABORATORY ADDRESS: NO. 47, 14 LING, CHIA PAU TSUEN, LIN
KOU HSIANG, TAIPEI HSIEN, TAIWAN,
R.O.C.
TEST STANDARD: 47CFR Part 15, Subpart C (15.249)
TEST DATE: March 20, 2000
TEST RESULT: Pass

This test report consists of 26 pages in total. This test report is the property of ADT Corp. and shall not be reproduced, except in full without the written consent of ADT. ADT hereby returns all rights in data to the client for legal use by the client. The test results contained in this report apply only to the samples tested.



Accredited Laboratory

CONTENTS

1. CERTIFICATION.....	3
2. SUMMARY OF TEST RESULTS & GENERAL STATEMENT OF CERTIFICATION...	4
3. GENERAL INFORMATION.....	5
3.1 General Description of EUT.....	5
3.2 Description of Test mode.....	6
3.3 Test Methodology.....	6
3.4 Support Units List.....	6
3.5 Configuration of System Under Test.....	6
4. GENERAL INFORMATION OF TEST FACILITY.....	7
4.1 Test Lab.:.....	7
4.2 Calibration Interval :.....	7
5. TEST PROCEDURES AND TEST RESULTS	8
5.1 Conducted Emission Measurement.....	8
5.2 Radiated Emission Measurement.....	9
5.2.1 Test instruments	9
5.2.2 Test Procedure.....	10
5.2.3 Test Setup	10
5.2.4 Photograph of Test Setup	11
5.2.5 EUT Operating condition.....	12
5.2.6 Climate Condition.....	12
5.2.7 Test Results.....	13
5.3 BAND EDGES MEASUREMENT.....	21
5.3.1 Test Instruments	21
5.3.2 Test Procedure.....	21
5.3.3 Test Setup	21
5.3.4 EUT Operating condition.....	22
5.3.5 Climate Condition.....	22
5.3.6 Test Results.....	22
Appendix A Lab. licenses	27



1. CERTIFICATION

Issue Date: Apr. 05, 2000

PRODUCT : WIRELESS KEYBOARD
MODEL NO : 5090
FCC ID : E5XKB5090TX
CLIENT : Behavior Tech Computer Corp.
TEST STANDARD: FCC 47CFR Part 15, Subpart C (Section 15.249)
ANSI C63.4-1992

We, **ADVANCE DATA TECHNOLOGY CORPORATION**, hereby certify that one sample of the designated sample has been tested in our facility. The test record, data evaluation and Equipment Under Test (EUT) configurations represented herein are true and accurate representation of the measurements of the sample's characteristics and the energy emitted under the conditions herein specified.

TESTED BY:

Ellis WuDATE: 4/5/2000

Ellis Wu

CHECKED BY:

Delphine HsuDATE: 4/5/2000

Delphine Hsu

APPROVED BY:

Alan LaneDATE: 4/5/2000

Dr. Alan Lane, Manager

2. SUMMARY OF TEST RESULTS & GENERAL STATEMENT OF CERTIFICATION

The EUT has been tested according to the following specifications:

47 CFR Part 15, Subpart C			
PARAGRAPH.	TEST REQUIREMENTS	COMPLIANCE (YES/NO)	TEST RESULT
15.107, 15.109	AC Power Conducted Emissions Spec.:48 dBuV	N/A	N/A
15.249	Transmitter Radiated Emissions Spec.:Table 15.209&15.249	Yes	Minimum passing margin is -6.3 dBuV At 177.00 MHz
15.249 (c)	Band Edge Measurements Spec.:15.249(c)	Yes	Under at least 50 dB

Note 1 : The EUT has been tested according to the EUT s specifications. All operating frequencies had been evaluated, and the worst data were found at the data rate of 910.2 and 919.7 MHz.

3. GENERAL INFORMATION

3.1 General Description of EUT

Product	: Wireless Keyboard
Model No	: 5090
Power Supply	: 4.5VDC (three AA batteries)
Modulation Type	: FM
Transfer Rate	: 19.2 kbps
Operating Frequency	: 910.2 ~ 919.7 MHz
Number of Channel	: 12
Channel Spacing	: 0.5 MHz
Rated RF output power level	: 0.002mW (Maximum)
Associated devices	: N/A

Note: The 5090RF is not only a radio frequency multi-channel keyboard but also a multimedia keyboard. This wireless keyboard is designed to make your life easier. It is just the right size and weight thus makes it easy to hold in hand or put on your laps, anywhere in the room. It's easy to touch and is quiet to the ears. Very wide angle and long-distance detection frees you from your desktop. In addition, with sleep mode power saving and "book-on-keyboard protection", it's even easier to use battery in any environment.

For other detailed information, please refer to user's manual.

3.2 Description of Test mode

The EUT has 12 channels for data transmission. According to Part 15, Sec. 15.31(m), the channel 1 and 12 were chose for evaluation.

Below is the channel & frequency table:

Channel	Frequency	Channel	Frequency	Channel	Frequency
1	910.2 MHz	5	914.2 MHz	9	917.2 MHz
2	910.7 MHz	6	914.7 MHz	10	917.7 MHz
3	912.2 MHz	7	915.2 MHz	11	919.2 MHz
4	912.7 MHz	8	915.7 MHz	12	919.7 MHz

The EUT was tested with 2 modes, as the following:

Mode	Receiver Module	Channel Frequency
Mode 1	Using BTC RF Transmitter Module	Channel 1 (910.2 MHz)
		Channel 12 (919.7 MHz)
Mode 2	Using RF-LINK Systems INC. RF Transmitter Module	Channel 1 (910.2 MHz)
		Channel 12 (919.7 MHz)

All two modes were tested separately and their data are recorded in this report.

3.3 Test Methodology

These tests were conducted on a sample of EUT for the evaluation in compliance with FCC CFR47 Part 15, Subpart C. (15.249)

Both conducted and radiated emissions measurements were conducted in accordance with ANSI C63.4:1992.

3.4 Support Units List

N/A

3.5 Configuration of System Under Test

Wireless Keyboard Model :5090
--

4. GENERAL INFORMATION OF TEST FACILITY

4.1 Test Lab.:

☒ **Lin Kuo EMC Lab.**

No. 47, 14 Ling, Chia Pau Tsuen, Lin Kuo Hsiang, Taipei, Taiwan, R.O.C.

☐ **Hsin Chu EMC Lab.**

No. 81-1, Lu Liao Keng, 9 Ling, Wu Lung Tsuen, Chiung Lin Hsiang, R.O.C.

4.2 Calibration Interval :

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



5. TEST PROCEDURES AND TEST RESULTS

5.1 Conducted Emission Measurement

This EUT is excused from investigation of conducted emission, for it is powered by battery only. According to paragraph 15.207(a), measurements to demonstrate compliance with the conducted limited are not required for devices which only employ battery power for operation and which do not operate from the AC power lines or contain provisions for operation while connected to the AC power lines.

5.2 Radiated Emission Measurement

5.2.1 Test instruments

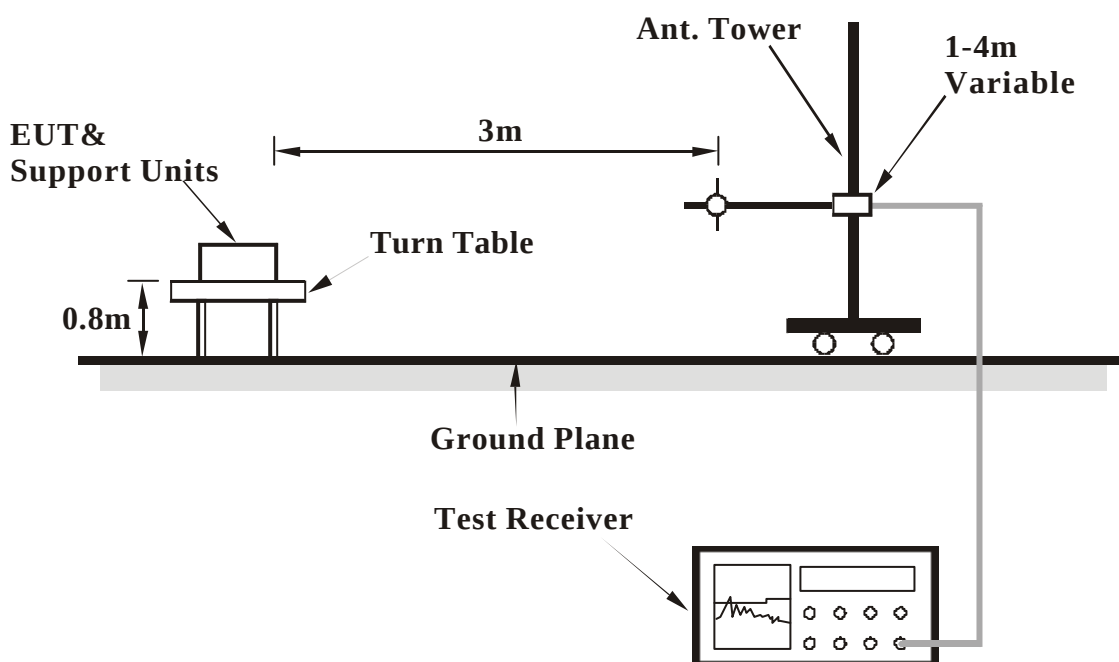
Description & Manufacturer	Model No.	Serial No.	Calibrated Until
HP Spectrum Analyzer	8590L	3544A01176	Apr 28, 2000
HP Preamplifier	8447D	2944A08485	May 01, 2000
HP Preamplifier	8347A	3307A01088	Sep. 09, 2000
ROHDE & SCHWARZ TEST RECEIVER	ESMI	839013/007 839379/002	Aug. 27, 2000
SCHWARZBECK Tunable Dipole Antenna	VHA 9103 UHA 9105	E101051 E101055	Nov. 25, 2000
CHASE BILOG Antenna	CBL6112A	2221	Aug. 10, 2000
SCHWARZBECK Horn Antenna	BBHA9120-D	D130	Jul. 09, 2000
SCHWARZBECK Horn Antenna	BBHA9170	123	Jan. 31, 2001
EMCO Turn Table	1060	1115	N/A
SHOSHIN Tower	AP-4701	A6Y005	N/A
Open Field Test Site	Site 5	ADT-R05	Aug. 09, 2000

The measurement uncertainty is less than +/- 3dB, which is calculated as per NAMAS document NIS81.

5.2.2 Test Procedure

- The EUT was placed on the top of a turn table 0.8 meter above ground at a 3-meter open field site. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable height antenna tower.
- The antenna is a broadband antenna and its height is varied between one meter and four meters above ground to find the maximum value of the field strength. Both horizontal and vertical polarization of the antenna are set to make the measurement.
- For each suspected emission the EUT was arranged to its worst case and then tuned the antenna height from 1 meter to 4 meter and turned the turn table from 0 degree to 360 degrees to find the maximum reading.
- Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and peak values of EUT will be reported. Otherwise the emissions which do not have 10 dB margin will be re-tested one by one using the quasi- peak method or average method as specified and then reported. Data sheet peak mode and QP mode.

5.2.3 Test Setup



5.2.4 Photograph of Test Setup





5.2.5 EUT Operating condition

1. Power on the keyboard (battery operated)
2. Adjust the frequency channel to Channel 1(lowest channel)
3. Set EMI test program provided by manufacture, EUT transmit data at operated frequencies.
4. Repeat the step 1 to 3 to evaluate Channel 12 (highest channel)

5.2.6 Climate Condition

The temperature and related humidity: 25 degree C and 65%RH

5.2.7 Test Results

5.4.7.1 Mode 1

Channel 1 (910.2 MHz) ANTENNA POLARITY: Vertical		Detector Function : Quasi-Peak		6dB Bandwidth : 120 kHz.		Distance : 3 M Frequency Range : 30 – 1000 MHz.	
Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
44.19	10.9	20.2	31.1	40.0	-8.9	99	77
140.09	12.6	22.4	35.0	43.5	-8.5	99	366
154.85	11.9	19.2	31.1	43.5	-12.4	109	310
176.96	10.9	17.4	28.3	43.5	-15.2	99	5
184.33	10.6	17.7	28.3	43.5	-15.2	99	358
889.53	23.4	15.1	38.5	46.0	-7.5	99	327
906.21	23.5	10.2	33.7	46.0	-12.3	170	35
*910.20	23.5	41.8	65.3	94.0	-28.7	168	26

Channel 1 (910.2 MHz) Antenna Polarity: Horizontal		Detector Function : Quasi-Peak		6dB Bandwidth : 120 kHz.		Distance : 3 M Frequency Range : 30 – 1000 MHz.	
Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
44.22	17.9	10.9	28.8	40.0	-11.2	320	312
184.33	10.6	20.4	31.0	43.5	-14.5	212	-2
213.82	11.1	21.3	32.4	43.5	-11.1	151	73
228.57	12.2	20.9	33.1	46.0	-12.9	130	73
899.53	23.4	16.1	39.5	46.0	-6.5	118	278
906.21	23.5	14.0	37.5	46.0	-8.5	112	84
*910.20	23.5	47.1	70.6	94.0	-23.4	114	77
914.20	23.6	14.5	38.1	46.0	-7.9	110	101

Remarks: 1. Emission level (dBuV/m) = Correction Factor (dB) + Reading value (dBuV).
2. Correction Factor (dB) = Ant. Factor (dB)+Cable loss (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level - Limit value
5." * " : Fundamental Frequency

Channel1 (910.2MHz) Antenna Polarity: Vertical		Detector Function : Peak Average				6dB Bandwidth : 1 MHz.				Distance : 3 M Frequency Range : Above 1000 MHz.	
Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)		Antenna Height (cm)	Table Angle (Degree)
		P.K.	A.V.	P.K.	A.V.	P.K.	A.V.	P.K.	A.V.		
1820.40	32.7	18.2	-	50.9	-	74.0	54	-23.1	-	111	217
2730.60	34.8	14.5	-	49.3	-	74.0	54	-24.7	-	107	61
3640.80	38.5	13.8	-	52.3	-	74.0	54	-21.7	-	108	77
4551.00	-	-	-	-	-	-	-	-	-	-	-
5461.20	-	-	-	-	-	-	-	-	-	-	-

Channel 1 (910.2MHz) Antenna Polarity: Horizontal		Detector Function : Peak Average				6dB Bandwidth : 1 MHz.				Distance : 3 M Frequency Range : Above 1000 MHz.	
Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)		Antenna Height (cm)	Table Angle (Degree)
		P.K.	A.V.	P.K.	A.V.	P.K.	A.V.	P.K.	A.V.		
2730.60	34.8	14.3	-	49.1	-	74.0	54	-24.9	-	111	79
2730.60	34.8	18.5	14.3	53.3	49.1	74.0	54	-20.7	-24.9	99	90
1820.40	32.7	18.6	-	51.3	-	74	54	-22.7	-	99	90
3640.80	38.5	13.8	-	52.3	-	74.0	54	-21.7	-	99	85
5461.20	-	-	-	-	-	-	-	-	-	-	-

Remarks: 1. Emission level (dBuV/m) = Correction Factor (dB) + Reading value (dBuV).
2. Correction Factor (dB) = Ant. Factor (dB)+Cable loss (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level - Limit value

Channel 12 (919.7 MHz) Antenna Polarity: Vertical		Detector Function : Quasi-Peak		6dB Bandwidth : 120 kHz.		Distance : 3 M Frequency Range : 30 – 1000 MHz.	
Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
140.10	12.6	21.4	34.0	43.5	-9.5	99	4
147.46	12.3	21.5	33.8	43.5	-9.7	99	362
154.84	11.9	19.6	31.5	43.5	-12.0	99	362
176.96	10.9	19.6	30.5	43.5	-13.0	99	10
184.33	10.6	19.5	30.1	43.5	-13.4	99	360
915.72	23.6	9.4	33.0	46.0	-13.0	118	34
*919.70	23.6	39.6	63.2	94.0	-30.8	102	32
923.72	23.7	8.9	32.6	46.0	-13.4	116	33

Channel 12 (919.7 MHz) Antenna Polarity: Horizontal		Detector Function : Quasi-Peak		6dB Bandwidth : 120 kHz.		Distance : 3 M Frequency Range : 30 – 1000 MHz.	
Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
44.21	10.9	17.2	28.1	40.0	-11.9	328	289
176.95	10.9	19.5	30.4	43.5	-13.1	241	1
184.31	10.6	20.1	30.7	43.5	-12.8	184	317
199.05	10.2	23.4	33.6	43.5	-9.9	132	352
213.82	11.1	22.6	33.7	43.5	-9.8	151	57
915.72	23.6	12.7	36.3	46.0	-9.7	109	85
*919.70	23.6	44.5	68.1	94.0	-25.9	109	70
923.72	23.7	14.0	37.7	46.0	-8.3	109	81

Remarks: 1. Emission level (dBuV/m) = Correction Factor (dB) + Reading value (dBuV).
2. Correction Factor (dB) = Ant. Factor (dB)+Cable loss (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level - Limit value
5." * " : Fundamental Frequency

Channel 12(919.7MHz) Antenna Polarity: Vertical		Detector Function : Peak Average				6dB Bandwidth : 1 MHz.				Distance : 3 M Frequency Range : Above 1000 MHz.	
Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)		Antenna Height (cm)	Table Angle (Degree)
		P.K.	A.V.	P.K.	A.V.	P.K.	A.V.	P.K.	A.V.		
1839.30	32.8	11.5	-	44.3	-	74.0	54	-29.7	-	99	283
2759.10	34.9	14.2	-	49.1	-	74.0	54	-24.9	-	99	19
3678.82	38.5	13.0	-	51.5	-	74.0	54	-22.5	-	99	282
4598.50	-	-	-	-	-	-	-	-	-	-	-
5518.20	-	-	-	-	-	-	-	-	-	-	-

Channel 12(919.7MHz) Antenna Polarity: Horizontal		Detector Function : Peak Average				6dB Bandwidth : 1 MHz.				Distance : 3 M Frequency Range : Above 1000 MHz.	
Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)		Antenna Height (cm)	Table Angle (Degree)
		P.K.	A.V.	P.K.	A.V.	P.K.	A.V.	P.K.	A.V.		
1839.30	32.8	14.6	-	47.4	-	74.0	54	-26.6	-	99	250
2759.30	34.9	14.9	-	49.8	-	74.0	54	-24.2	-	99	336
3679.00	38.5	13.9	-	52.4	-	74.0	54	-21.6	-	99	173
4598.50	-	-	-	-	-	-	-	-	-	-	-
5518.20	-	-	-	-	-	-	-	-	-	-	-

Remarks: 1. Emission level (dBuV/m) = Correction Factor (dB) + Reading value (dBuV).
2. Correction Factor (dB) = Ant. Factor (dB)+Cable loss (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level - Limit value

5.4.7.3 Mode 2

Channel 1 (910.2 MHz) Antenna Polarity: Vertical		Detector Function : Quasi-Peak		6dB Bandwidth : 120 kHz.		Distance : 3 M Frequency Range : 30 – 1000 MHz.	
Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
68.30	6.5	24.1	30.6	40.0	-9.4	99	259
176.99	10.9	25.1	36.0	43.5	-7.5	99	246
243.35	13.2	18.6	31.8	46.0	-14.2	99	15
250.83	13.7	21.5	35.2	46.0	-10.8	99	361
722.65	22.0	12.0	34.0	46.0	-12.0	99	245
899.50	23.4	14.7	38.1	46.0	-7.9	99	295
*910.20	23.5	43.9	67.4	94.0	-26.6	174	109
914.22	8.4	23.6	32.0	46.0	-14.0	177	106

Channel 1 (910.2 MHz) Antenna Polarity: Horizontal		Detector Function : Quasi-Peak		6dB Bandwidth : 120 kHz.		Distance : 3 M Frequency Range : 30 – 1000 MHz.	
Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
177.00	10.9	26.3	37.2	43.5	-6.3	194	254
184.35	10.6	19.8	30.4	43.5	-13.1	265	299
236.00	12.7	20.2	32.9	46.0	-13.1	133	209
309.73	15.2	17.9	33.1	46.0	-12.9	110	16
457.35	18.8	16.0	34.8	46.0	-11.2	99	321
906.22	23.5	9.7	33.2	46.0	-12.8	113	361
*910.20	23.5	52.7	76.2	94.0	-17.8	105	361
914.22	23.6	14.8	38.4	46.0	-7.6	116	60

- Remarks:** 1. Emission level (dBuV/m) = Correction Factor (dB) + Reading value (dBuV).
2. Correction Factor (dB) = Ant. Factor (dB)+Cable loss (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level - Limit value
5. " * " : Fundamental Frequency

Channel 1 (910.2MHz) ANTENNA POLARITY: Vertical		Detector Function : Peak Average				6dB Bandwidth : 1 MHz.				Distance : 3 M Frequency Range : Above 1000 MHz.	
Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)		Antenna Height (cm)	Table Angle (Degree)
		P.K.	A.V.	P.K.	A.V.	P.K.	A.V.	P.K.	A.V.		
1820.40	32.7	16.4	-	49.1	-	74.0	54	-24.9	-	156	121
2730.60	34.8	16.9	-	51.7	-	74.0	54	-22.3	-	99	54
3640.80	38.5	13.8	-	52.3	-	74.0	54	-21.7	-	99	284
4551.00	-	-	-	-	-	-	-	-	-	-	-
5461.20	-	-	-	-	-	-	-	-	-	-	-

Channel 1 (910.2MHz) Antenna Polarity: Horizontal		Detector Function : Peak Average				6dB Bandwidth : 1 MHz.				Distance : 3 M Frequency Range : Above 1000 MHz.	
Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)		Antenna Height (cm)	Table Angle (Degree)
		P.K.	A.V.	P.K.	A.V.	P.K.	A.V.	P.K.	A.V.		
1820.40	32.7	17.4	-	20.1	-	74.0	54	-23.9	-	99	99
2730.60	34.8	16.1	-	50.9	-	74.0	54	-23.1	-	99	307
3640.80	38.5	13.5	-	52.0	-	74.0	54	-22.0	-	99	184
4551.00	-	-	-	-	-	-	-	-	-	-	-
5461.20	-	-	-	-	-	-	-	-	-	-	-

- Remarks:** 1. Emission level (dBuV/m) = Correction Factor (dB) + Reading value (dBuV).
2. Correction Factor (dB) = Ant. Factor (dB)+Cable loss (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level - Limit value

Channel 12 (919.7 MHz) Antenna Polarity: Vertical		Detector Function : Quasi-Peak		6dB Bandwidth : 120 kHz.		Distance : 3 M Frequency Range : 30 – 1000 MHz.	
Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
47.95	9.1	21.6	30.7	40.0	-9.3	99	71
120.05	12.9	13.2	26.1	43.5	-17.4	99	204
203.15	10.4	20.3	30.7	43.5	-12.8	99	44
250.83	13.7	15.4	29.1	46.0	-16.9	99	343
516.20	20.1	11.0	31.1	46.0	-14.9	218	186
816.02	22.7	11.3	34.0	46.0	-12.0	122	355
*919.72	23.6	44.8	68.4	94.0	-25.6	162	102
923.73	23.7	7.0	30.7	46.0	-15.3	154	111

Channel 12 (919.7 MHz) Antenna Polarity: Horizontal		Detector Function : Quasi-Peak		6dB Bandwidth : 120 kHz.		Distance : 3 M Frequency Range : 30 – 1000 MHz.	
Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
169.63	11.2	19.2	30.4	43.5	-13.1	137	318
184.35	10.6	22.7	33.3	43.5	-10.2	99	20
203.18	10.4	26.1	36.5	43.5	-7.0	132	90
228.65	12.2	21.6	33.8	46.0	-12.2	196	23
250.75	13.7	19.8	33.5	46.0	-12.5	202	108
457.25	18.8	18.2	37.0	46.0	-9.0	101	293
*919.73	23.6	53.1	76.7	94.0	-17.3	107	76
923.73	23.7	14.3	38.0	46.0	-8.0	107	348

Remarks: 1. Emission level (dBuV/m) = Correction Factor (dB) + Reading value (dBuV).
2. Correction Factor (dB) = Ant. Factor (dB)+Cable loss (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level - Limit value
5." * " : Fundamental Frequency

Channel 12(919.7MHz) Antenna Polarity: Vertical		Detector Function : Peak Average				6dB Bandwidth : 1 MHz.				Distance : 3 M Frequency Range : Above 1000 MHz.	
Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)		Antenna Height (cm)	Table Angle (Degree)
		P.K.	A.V.	P.K.	A.V.	P.K.	A.V.	P.K.	A.V.		
1839.32	32.8	10.6	-	43.4	-	74.0	54	-30.6	-	197	288
2759.14	34.9	16.0	-	50.9	-	74.0	54	-23.1	-	99	243
3679.00	38.5	13.9	-	52.4	-	74.0	54	-21.6	-	99	327
4598.50	-	-	-	-	-	-	-	-	-	-	-
5518.20	-	-	-	-	-	-	-	-	-	-	-

Channel 12(919.7MHz) Antenna Polarity: Horizontal		Detector Function : Peak Average				6dB Bandwidth : 1 MHz.				Distance : 3 M Frequency Range : Above 1000 MHz.	
Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)		Antenna Height (cm)	Table Angle (Degree)
		P.K.	A.V.	P.K.	A.V.	P.K.	A.V.	P.K.	A.V.		
1839.32	32.8	15.4	-	48.2	-	74.0	54	-25.8	-	99	271
2759.11	34.9	16.3	-	51.2	-	74.0	54	-22.8	-	157	146
3679.18	38.5	12.8	-	51.3	-	74.0	54	-22.7	-	168	333
4598.50	-	-	-	-	-	-	-	-	-	-	-
5518.20	-	-	-	-	-	-	-	-	-	-	-

Remarks: 1. Emission level (dBuV/m) = Correction Factor (dB) + Reading value (dBuV).
2. Correction Factor (dB) = Ant. Factor (dB)+Cable loss (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level - Limit value

5.3 BAND EDGES MEASUREMENT

5.3.1 Test Instruments

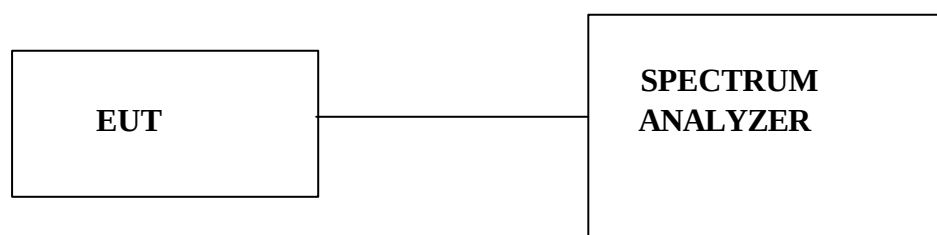
Description & Manufacturer	Model No.	Serial No.	Calibrated Until
ROHDE & SCHWARZ TEST RECEIVER	ESMI	848926/005 846839/018	Dec 03, 2000
HP PLOTTER	7475A	2641V27755	N/A

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

5.3.2 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 100 kHz with convenient frequency span including 100 kHz bandwidth from band edge. The band edges was measured and recorded.

5.3.3 Test Setup





5.3.4 EUT Operating condition

1. Power on the keyboard (battery operated)
2. Adjust the frequency channel to Channel 1(lowest channel)
3. Set EMI test program provided by manufacture, EUT transmit data at operated frequencies.
4. Repeat the step 1 to 3 to evaluate Channel 12 (highest channel)

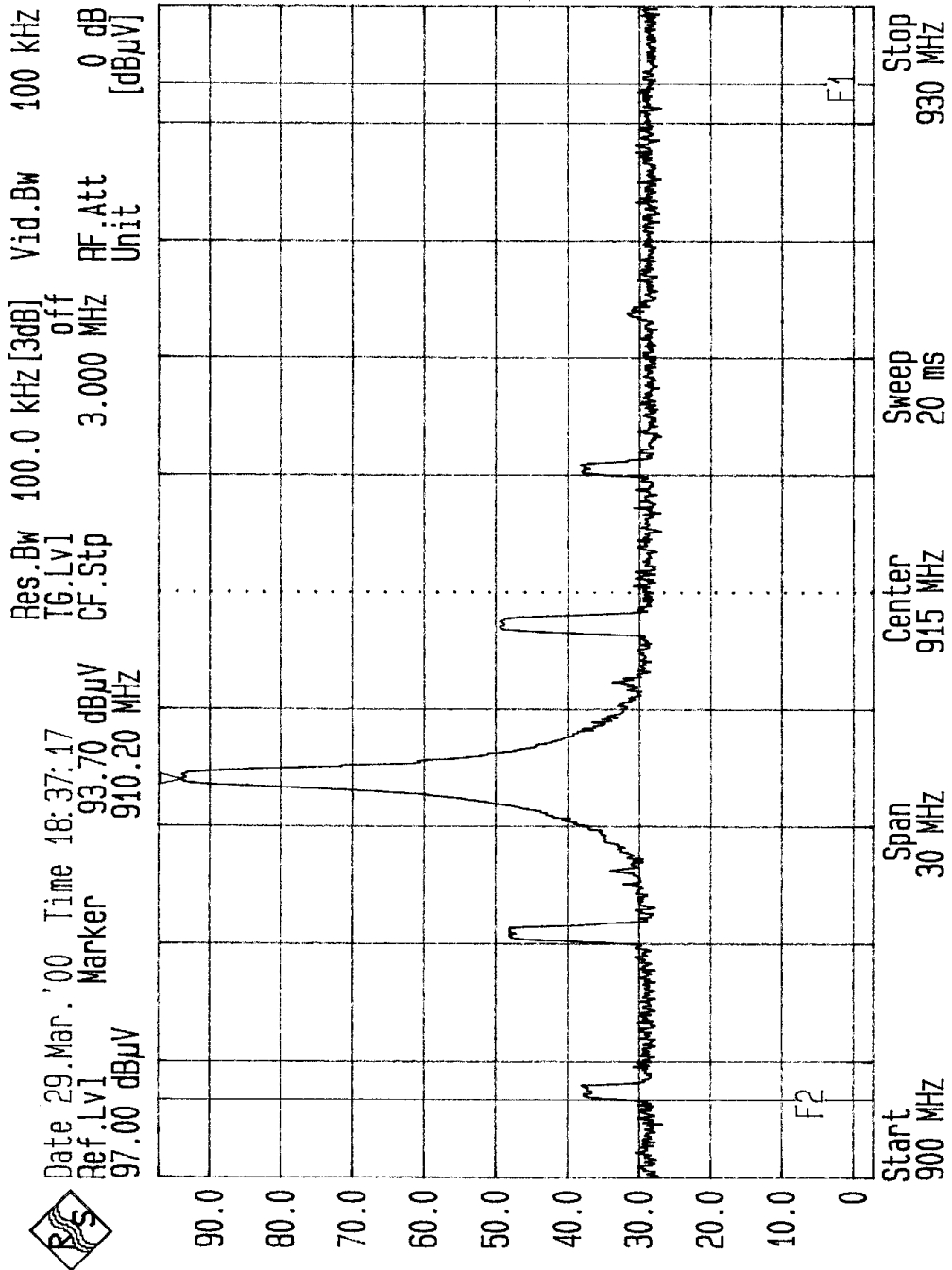
5.3.5 Climate Condition

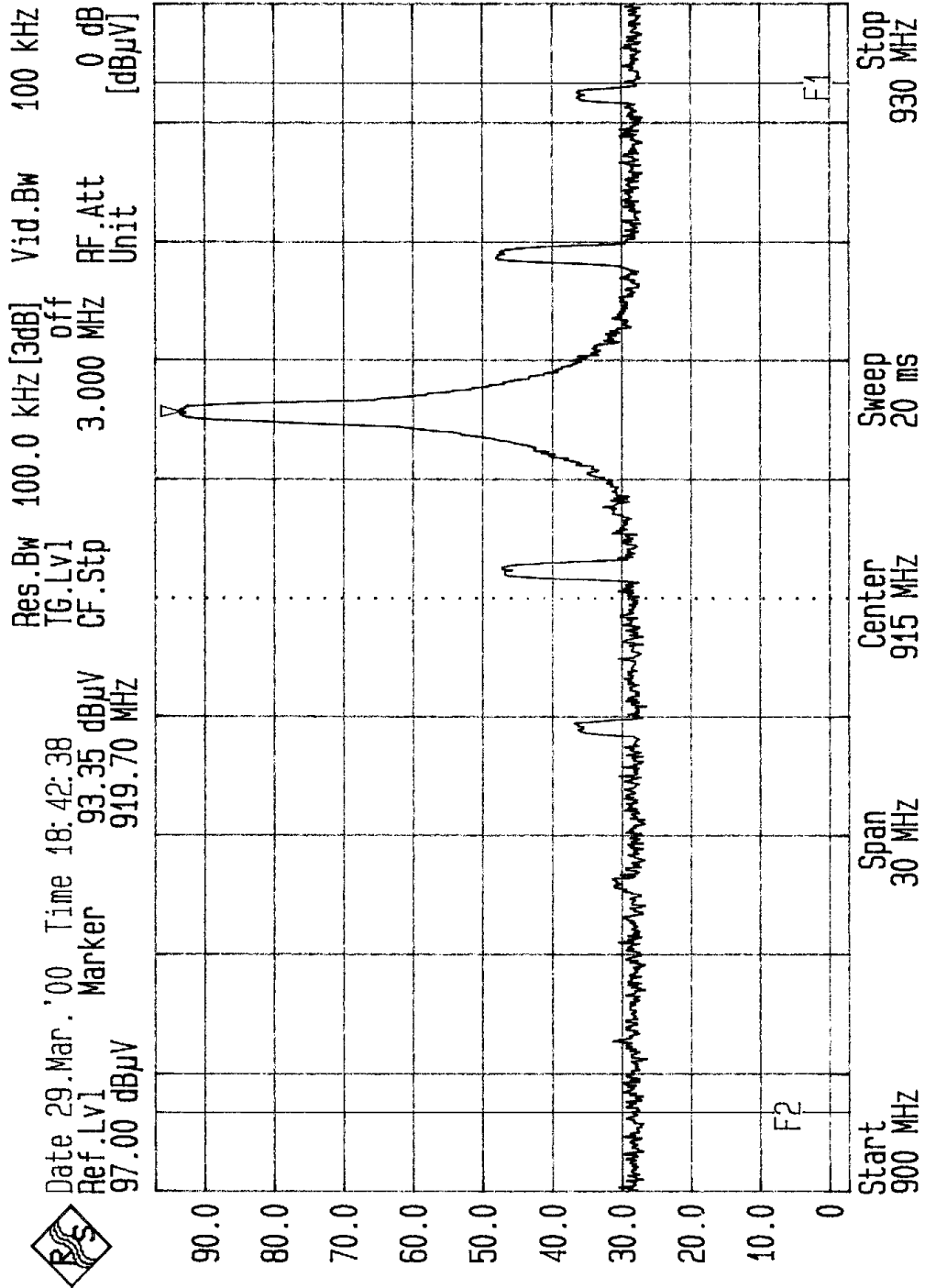
The temperature and related humidity: 25 degree C and 65%RH

5.3.6 Test Results

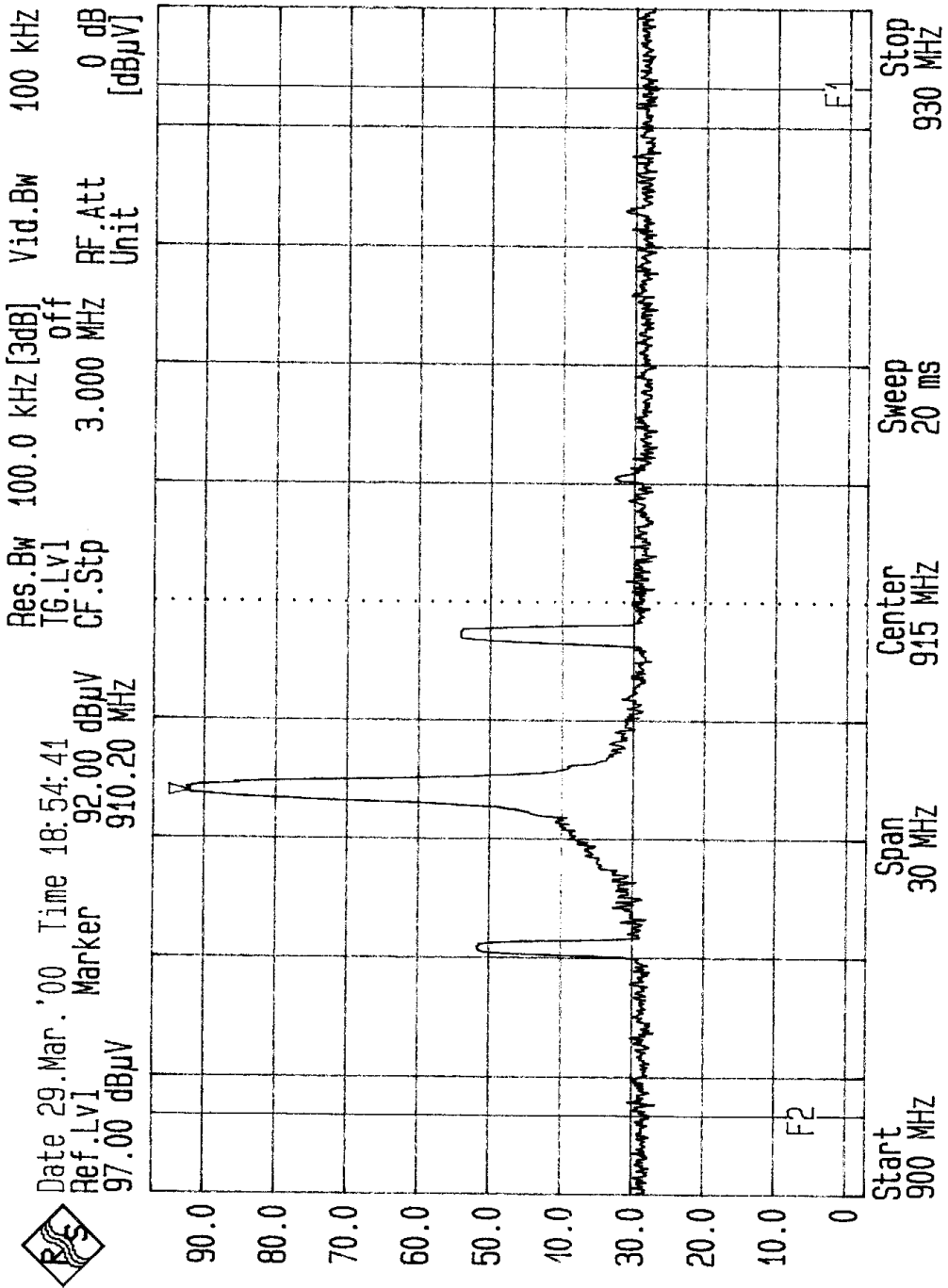
The spectrum plots are attached as below.

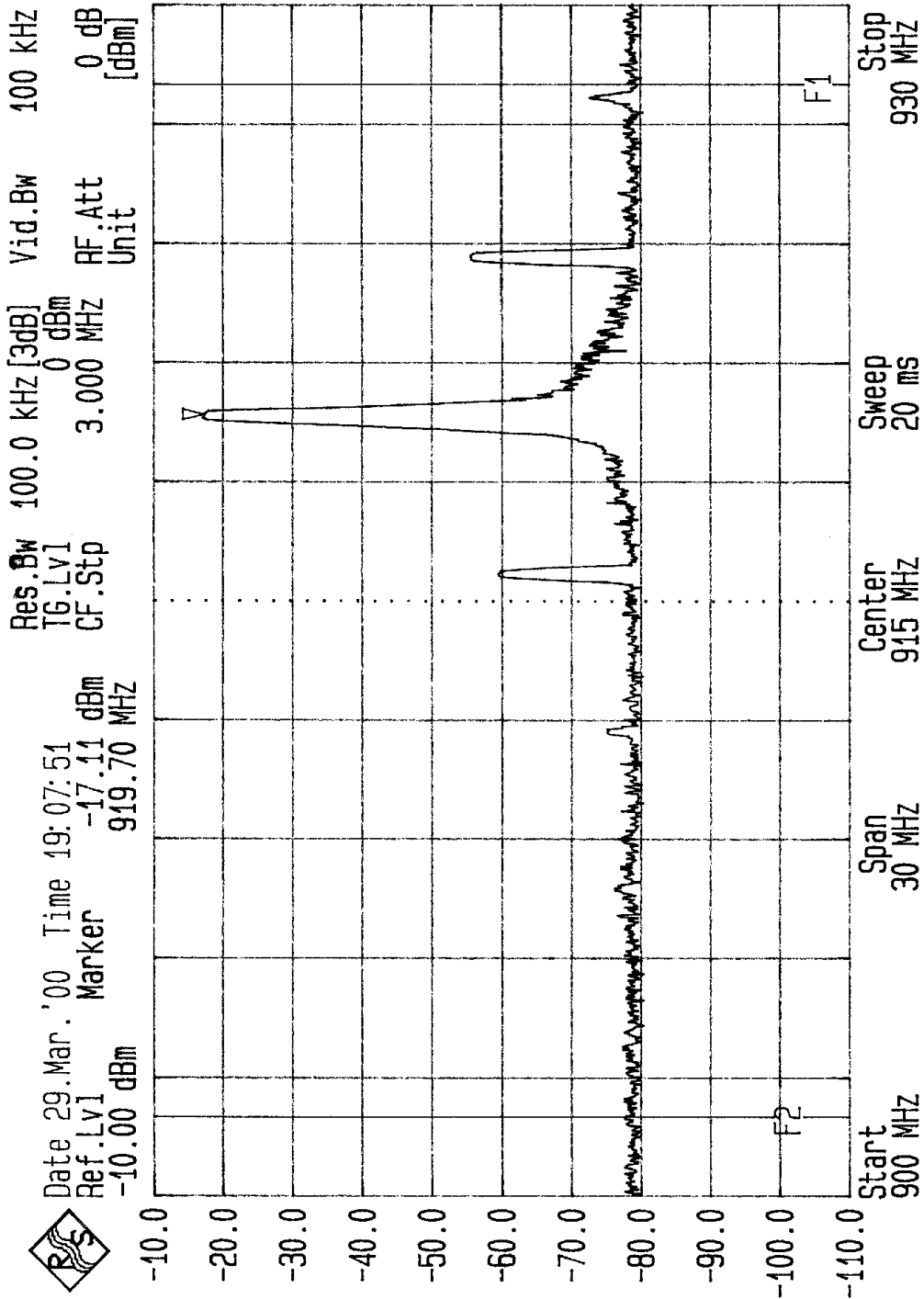
5.6.3.1 Mode 1





Mode 2







Appendix A Lab. licenses

NVLAP

NVLAP Lab Code: 200102-0 and 200376-0

ADT Corp. is recognized under the United States Department of Commerce, National Institute of Standards and Technology, National Voluntary Laboratory Accreditation Program (NVLAP) for satisfactory compliance with criteria established in Title 15, Part 285 Code of Federal Regulations. These criteria encompass the requirements of ISO/IEC Guide 25 and the relevant requirements of ISO 9002 (ANSI/ASQC Q92-1987) as suppliers of calibration or test results.

FCC

The Open Area Test Sites, and conducted measurement facilities are located in Newberg, OR,. These sites have been fully described in reports filed with the FCC (Federal Communications Commission), and accepted by the FCC in letters maintained in our files.