RUBICOM SYSTEMS, INC.

FCC TEST REPORT

(INTENTIONAL RADIATOR)

FOR THE

MICROGISTICS, INC.

WALKMATE

SPREAD SPECTRUM TRANSMITTER

RSI

MARCH 1999

Rubicom Systems, Inc.
284 West Drive, Suite B
Melbourne, FL 32904

THIS REPORT SHALL NOT BE REPRODUCED
EXCEPT IN FULL WITHOUT THE WRITTEN
APPROVAL OF THE TESTING LABORATORY

JA-1621

FCC TEST REPORT

(INTENTIONAL RADIATOR)

FOR THE

MICROGISTICS, INC.

WALKMATE

SPREAD SPECTRUM TRANSMITTER

S/N: 1100B AND 1102

Prepared by: Joseph G. Barbee 3/22/99
Joseph G. Barbee

Tested by: Joseph G. Barbee 3/22/99
Joseph G. Barbee

Performed by:

RUBICOM SYSTEMS INC.
284 West Drive, Suite B
Melbourne, Florida 32904

Performed for:

MICROGISTICS, INC.
4450 West Eau Gallie Blvd.
Suite 200
Melbourne, Florida 32934

Received: February 5, 1999

Completed: March 19, 1999

TABLE OF CONTENTS

Paragraph			Title	Page
			CERTIFICATION	1
			ABSTRACT	2
1.0			**INTRODUCTION**	3
	1.1		Purpose	3
	1.2		Requirements	3
	1.3		Unit Under Test Description	5
	1.4		Summary of Results	5
2.0			**APPLICABLE DOCUMENTS**	6
3.0			**TEST SITE DESCRIPTION**	7
	3.1		Environmental Conditions	7
4.0			**TEST INSTRUMENTATION**	8
5.0			**TEST SAMPLE SETUP AND CONFIGURATIONS**	9
6.0			**PROCEDURES AND RESULTS**	11
	6.1		General	11
	6.2		Power Line Conducted 15.207	12
	6.3		Radiated Emissions 15.209/15.205	12
		6.3.1	Radiated Emissions (Pre-Scans)	12
		6.3.2	Radiated Emissions 15.209/15.205	13
	6.4		Direct Sequence Spread Spectrum 15.247(2)(b)(c)(d)(e)	40
		6.4.1	6dB Bandwidth 15.247(2)	40
		6.4.2	Peak Output Power 15.247(2)(b)	42
		6.4.3	Out of Band Emission 15.247(2)(c)	42
		6.4.4	Power Spectral Density 15.247(2)(d)	44
APPENDIX A			**30MHz-1GHz QUASI PEAK AMBIENTS**	47
APPENDIX B			**COMPLIANCE LETTER**	54

CERTIFICATION

Rubicom Systems, Inc. certifies the information obtained in this report was performed consistent with the requirements of ANSI C63.4-1992. The Microgistics, Inc. WalkMate Transmitter complies with the requirements of CFR 47 Part 15 for Intentional Radiators as required in Paragraph 15.247(a)(2)(b)(1)(c) and (d).

This data was obtained while testing a WalkMate Transmitters, serial numbers 11--B and 11002, furnished by Microgistics, Inc.. Any modifications to the unit as tested may invalidate the data and void this certification.

ABSTRACT

This report presents test results of the emanations found emitting from the Microgistics, Inc. WalkMate, Direct Sequence Spread Spectrum Transmitter and the comparison of these emissions to the requirements of FCC, Title 47, Part 15, Subpart C for Intentional Radiators as required for direct sequence type spread spectrum system operating in the 2.4 to 2.4835GHz range.

This testing was performed on a 3 meter open field test site at Rubicom Systems, Inc. (RSI). The testing was performed for Microgistics, Inc. under purchase order PD-214. The results of this test effort demonstrate compliance of the Microgistics, Inc. WalkMate Spread Spectrum Transmitter to FCC, Title 47, Part 15, Subpart C Intentional Radiators (Paragraph 247(2). The unit under test was serial number 1100B for the radiated measurements and serial number 11002 for the conducted measurements.

1.0 INTRODUCTION

1.1 Purpose

The purpose of this report is to show compliance of the Microgistics, Inc. WalkMate RF unit to the requirements of Part 15 of the FCC Rules and Regulations (47CFR, Part 15, Subpart C) for Intentional radiators. The applicable paragraphs covered by this report are 15.247(2) (b), (c) and (d). NOTE: Subparagraph (e), processing gain was completed by Microgistics, Inc.

1.2 Requirements

The test requirements for an Intentional Radiator are as follows:

RADIATED (15.205)

Frequency (MHZ)	Field Strength (µV/m)	Measurement Distance (m)
0.009-0.490	2400/F (KHz)	300
0.490-1.705	240000/F (KHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500 Average	3

CONDUCTED (15.207)

Not applicable due to battery operation.

DIRECT SEQUENCE SPREAD SPECTRUM SYSTEM

15.247(2) Bandwidth

Bandwidth must be greater than 500KHz.

15.247(2)(b) Maximum Peak Power

The maximum peak output power of the transmitter shall not exceed 1 watt.

15.247(2)(c) Out of Band Emissions, Radiated & Conducted

Power produced by Modulation Products of the Spreading Sequence, Information Sequence and the Carrier Frequency.

Levels in any 100KHz outside the frequency band shall be 20dB below that of any 100KHz band within the band that contains the highest level of the desired power or the requirements of 15.209, whichever results in lesser attenuation. All other emissions shall not exceed the limits of Section 15.209(a).

15.247(d) Power Density

Transmitted power density averaged over any one (1) second interval shall not be greater than 8dBm in any 3KHz bandwidth.

15.247(e) Processing Gain

The processing gain shall be at least 10dB. The processing gain shall be determined from the ratio in dB of the signal to noise ratio with the system spreading code turned off to the signal to noise ratio with the system spreading code turned on, as measured at the demodulated output of the receiver.

Note: The results of testing the processing gain is not provided in this document.

1.3 Unit Under Test Description

The device is used by subscribers of the WalkMate personal alarm service to summon help in the event of an emergency. A subscriber would carry this pager sized device in their purse or pocket. In the event of an emergency, they would activate the device by pushing one of the three buttons on the front of the unit. Once activated, the unit transmits a radio signal which is received by a network of radio receivers that are installed in the coverage area and the alarm is then relayed to the local emergency services provider. In a typical application, the unit is off virtually all of the time. It is only activated in the rare event that an emergency situation occurs.

1.4 Summary of Results

Paragraph 6.0 of this document presents the detailed results of each required test for the WalkMate. Each paragraph lists the signals determined to be emanating from the WalkMate.

No modifications were required of the unit under test for this test effort.

The data shows compliance to the requirements stated in paragraph 1.2 of this document.

2.0 APPLICABLE DOCUMENTS

The following documents form a part of this report to the extent expressed herein:

FCC Code of Federal Regulations Title 47, Part 15

FCC Procedure for Measuring RF Emissions from Computing Devices FCC/OET MP-4, July 1987

ANSI C63.4-1992

FCC Characteristics of Open Field Test Sites Bulletin OET 55, October 1989

3.0 TEST SITE DESCRIPTION

This testing was performed at Rubicom Systems, Inc. 3 meter test site. The description of the measurement facility was found to be compliant with the requirements of Section 2.948 of the FCC Rules. A copy of the compliance letter is attached to this report as Appendix A.

3.1 Environmental Conditions

This test effort was performed from 19 January, 1999 through 03 March, 1999. Typical conditions for the test site during this testing was:

Temperature:	**70°- 85° F**
Barometer:	**29.75 inches**
Humidity:	**50 - 80%**

4.0 TEST INSTRUMENTATION

The following test equipment was used to perform this testing.

Qty.	Description	Manufacturer	Model No.	Cal.Due	Cal Cycle
1	Spectrum Analyzer	Advantest	R3271A	09/09/99	1 yr.
1	Spectrum Analyzer	Advantest	R3261A	07/22/99	1 yr.
2	Bi-Log antenna .	Chase	CLB6111B	07/24/99	1 yr.
1	Plotter	Hewlett Packard	7440A	NCR	
1	Ridge Guide Horn Antenna	Electro Metrics	RGA-180 1-18GHz	01/15/00	1 yr.
1	Power Meter (Peak)	Pacific Microwave	1018B	04/15/99	1 yr.

5.0 TEST SAMPLE SETUP AND CONFIGURATIONS

The WalkMate was placed on a nonconductive table inside a shielded enclosure. Fresh batteries were installed after each days test or as required. During conducted measurements the output was coupled directly to the spectrum analyzer. Both continuous and pulsed operation was used during conducted measurements.

During radiated emissions the WalkMate was placed on the turn table. The pulsed mode was used during the radiated measurements.

Photo 1 presents the unit placed on the turntable during radiated testing.

JA-1621

PHOTO #1

6.0 PROCEDURES AND RESULTS

6.1 General

The data presented in this report is provided using the Advantest Spectrum Analyzers. The analyzer allows the antenna factors/cable loss, etc., to be listed in tables on a memory card. Test setups for recall are programmed. This method allows the tester to plot data instantaneously against the specification requirement. The specification limits are presented with the extrapolation for distance (20dB/decade) where necessary. When external attenuation is required for analyzer protection, the reference level offset is used.

Signal identification is partially accomplished by turning the system power "on" and "off" while observing the spectrum. All signals found to be emitting from the EUT are maximized in azimuth and elevation. Should the need arise to have more than a single plot of the frequency range the maximized signal would be linked to the proper plot.

The displayed levels are calculated in the analyzer as follows: MTR Reading + Antenna Factor + Cable Loss - Gain (where appropriate) = Signal level. NOTE: The correction factors and conversion factors are combined in the memory card.

Due to lack of sensitivity of the spectrum analyzer and receive system loss the noise from the receive system was higher than the required limit, in certain frequency ranges, when using the appropriate bandwidths.

6.2 Power Line Conducted 15.207

The unit is operated from battery only, therefore, no power line conduction is required.

6.3 Radiated Emissions 15.209/15.205

6.3.1 Radiated Emissions (Pre-Scans)

Radiated emission pre-testing was performed on the system inside the shielded enclosure. Pre-scans were performed over the frequency range of 30MHz-1GHz. These scans are for frequency content in the high ambient range. This test is performed at 1 meter. No significant signals were detected during this evaluation.

6.3.2 Radiated Emissions 15.209/15.205

Radiated emissions were performed on the Microgistics, Inc. WalkMate over the frequency range of 30MHz-25GHz. The transmit frequency was 2.441GHz.

Data Sheets 6.3.2-1 and 6.3.2-6 30MHz-1GHz Quasi Peak Detector

Data Sheets 6.3.2-7 - 6.3.2-12 1GHz-25GHz Peak Plots (1MHz-RBW, 1MHz-VBW)

Data Sheets 6.3.2-13 - 6.3.2-24 1G-25GHz Average Plots (1MHz-RBW, 10Hz-VBW)

Results

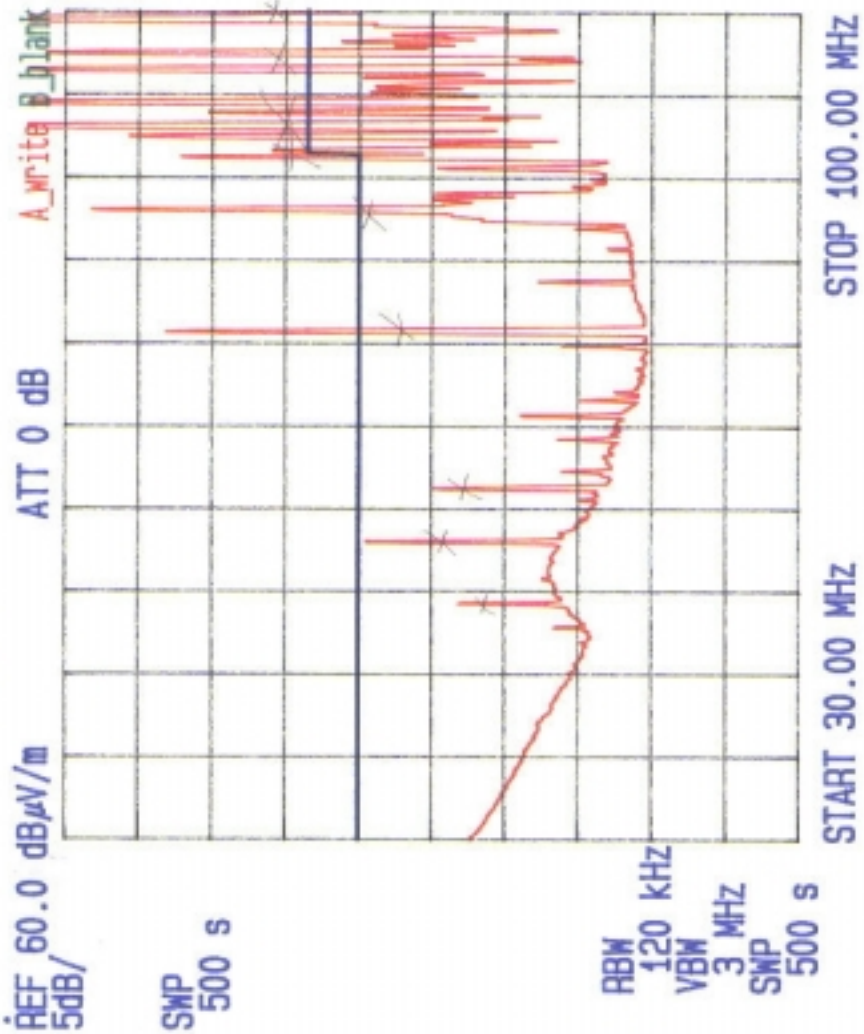
The following is a tabulated listing of the signals detected during the radiated testing. Calculation of field strength is described in Paragraph 6.1 of this document.

Freq. (GHz)	Measured Level	Spec. Req.	EUT vs Limit	Polarity	Restricted Band
2.390					
2.4	104 Peak			H	
2.4	114 Peak			V	
2.4	84 Avg.			H	
2.4	94 Avg.			V	
4.8	<65 Peak	74		H	Y
4.8	<65 Peak	74		V	Y
4.8	<45 Avg.	54		H	Y
4.8	<45 Avg.	54		V	Y
7.33	<67 Peak	74		H	Y
7.33	<67 Peak	74		V	Y
7.33	<47 Avg.	54		H	Y
7.33	<47 Avg.	54		V	Y
9.7	<42 Peak	74		H	N
9.7	<42 Peak	74		V	N

NOTE: The duty cycle correction was determined as follows. Transmit time = 1 msec, calculation of 100% during 1 msec the correction would be 20dB when averaged to the 100 msec requirements of 15.35c. This correction was used only for the signals generated by the transmitter and its harmonics. Not applicable to other spurious signals.

JA-1621

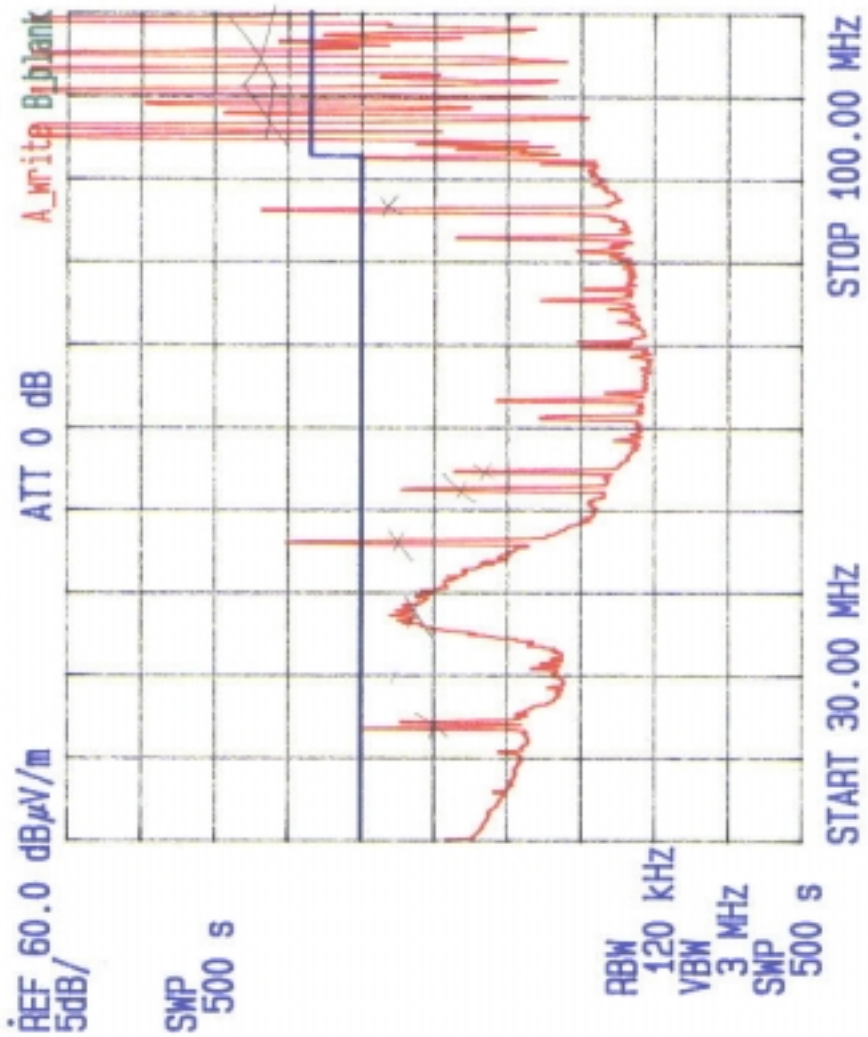
TEST: FCC RADIATED EUT: WalkMate REV 1.1 S/N: 1100B
FREQ: 30M-100MHz SPEC: PARAGRAPH 15.247 (2) (C) ANT.HT/POL: 1.5 H
DETECTOR: QUASI PEAK ANTENNA: INTERNAL EUT POSITION: 180°
DATE: 2/16/07 TEST SITE: 3 METER TESTER:



DATA SHEET 6.2.3-1

JA-1621

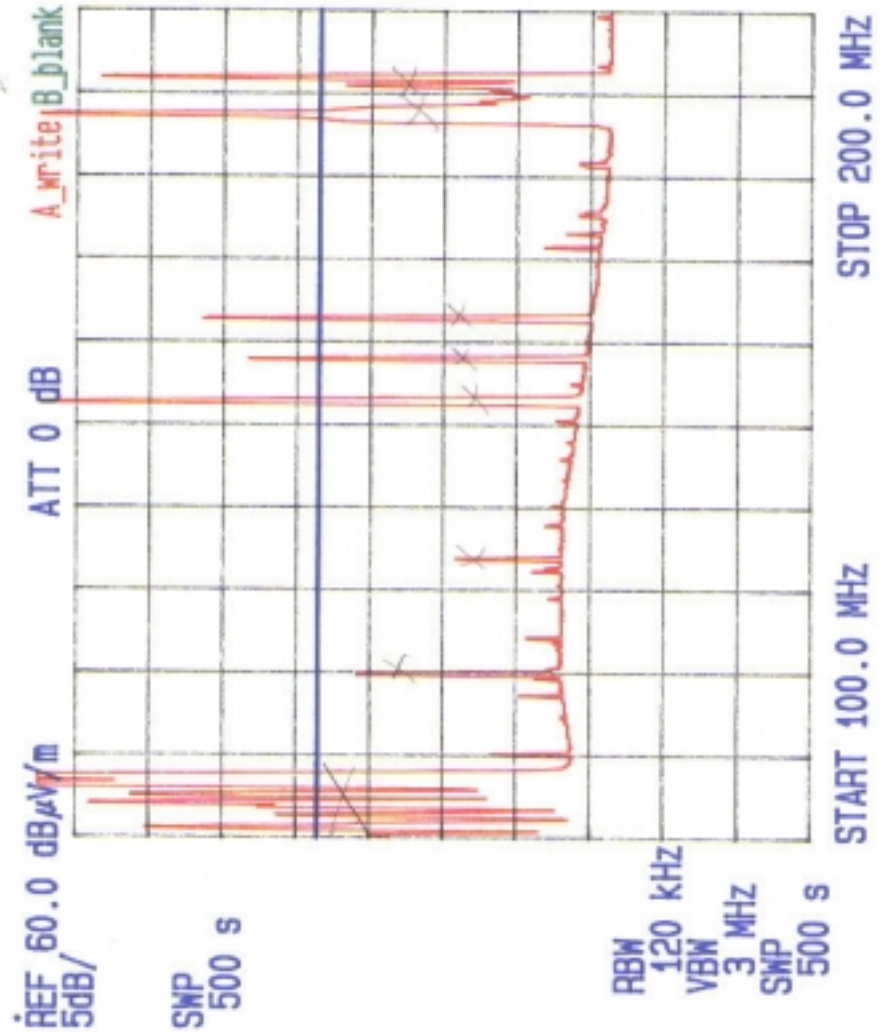
TEST: FCC RADIATED EUT: WalkMate REV 1.1 S/N: 1100B
FREQ: 30M-100MHz SPEC: PARAGRAPH 15.247 (2) (C) ANT.HT/POL: 1.75 V
DETECTOR: QUASI PEAK ANTENNA: INTERNAL EUT POSITION: 0°
DATE: 2/12/99 TEST SITE: 3 METER TESTER:



DATA SHEET 6.2.3-2

JA-1621

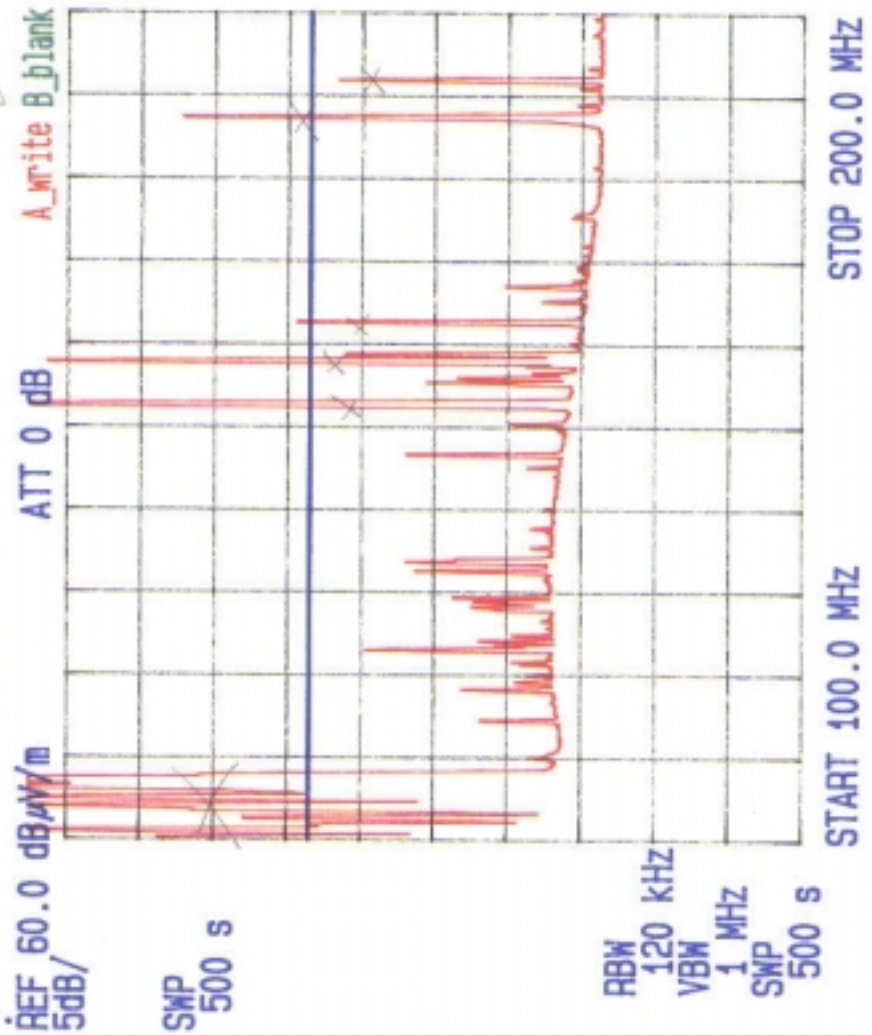
TEST: FCC RADIATED EUT: WalkMate REV 1.1 S/N: 1100B
FREQ: 100M-200MHz SPEC: PARAGRAPH 15.247 (2) (C) ANT.HT/POL: 1.5m H
DETECTOR: QUASI PEAK ANTENNA: INTERNAL EUT POSITION: 180°
DATE: 2/3/99 TEST SITE: 3 METER TESTER:



DATA SHEET 6.2.3-3

JA-1621

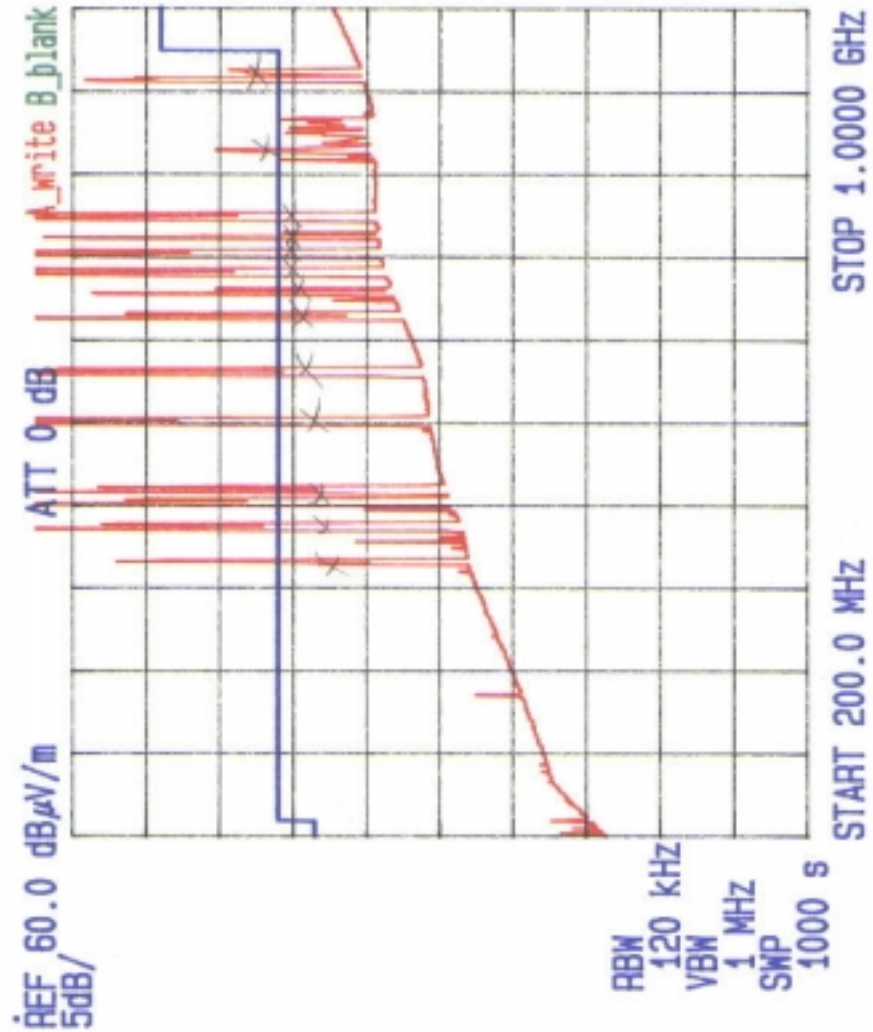
TEST: FCC RADIATED EUT: WalkMate REV 1.1 S/N: 1100B
FREQ: 100M-200MHz SPEC: PARAGRAPH 15.247 (2) (C) ANT.HT/POL: 1.75 V
DETECTOR: QUASI PEAK ANTENNA: INTERNAL EUT POSITION: UP
DATE: 7/12/99 TEST SITE: 3 METER TESTER:



DATA SHEET 6.2.3-4

JA-1621

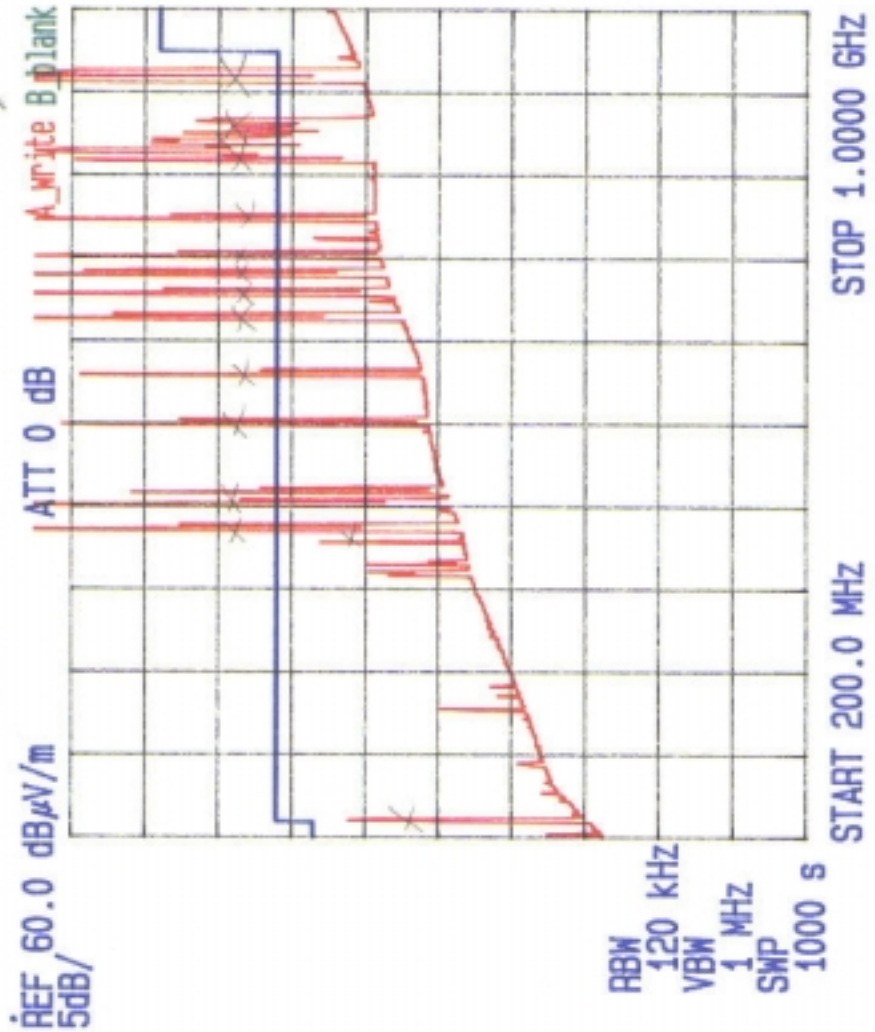
TEST: FCC RADIATED EUT: WalkMate REV 1.1 S/N: 1100B
FREQ: 200M-1GHz SPEC: PARAGRAPH 15.247 (2) (C) ANT.HT/POL: 1.5 m H
DETECTOR: QUASI PEAK ANTENNA: INTERNAL EUT POSITION: 0°
DATE: 2/1/99 TEST SITE: 3 METER TESTER:



DATA SHEET 6.2.3-5

JA-1621

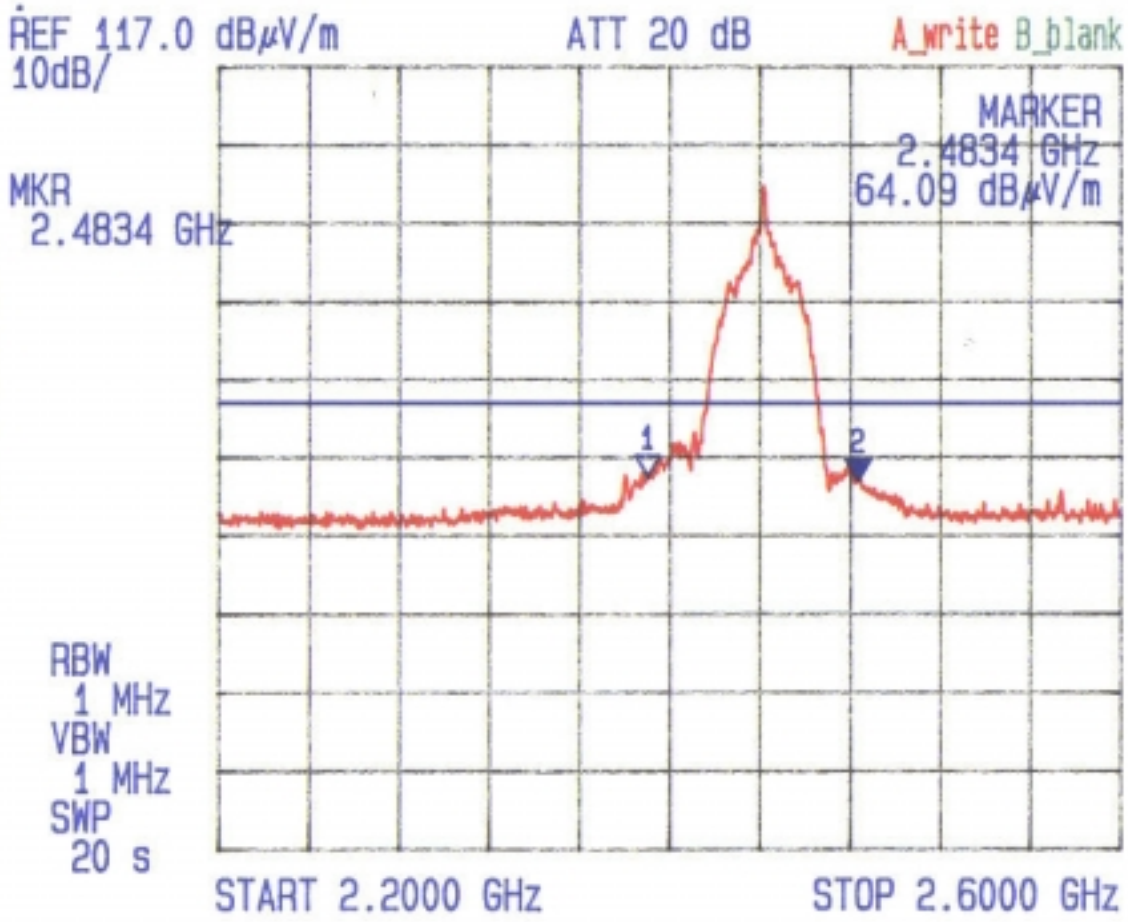
TEST: FCC RADIATED EUT: WalkMate REV 1.1 S/N: 1100B
FREQ: 200M-1GHz SPEC: PARAGRAPH 15.247 (2) (C) ANT.HT/POL: 1.5T V
DETECTOR: QUASI PEAK ANTENNA: INTERNAL EUT POSITION:
DATE: 2/16/99 TEST SITE: 3 METER TESTER:



DATA SHEET 6.2.3-6

RSI

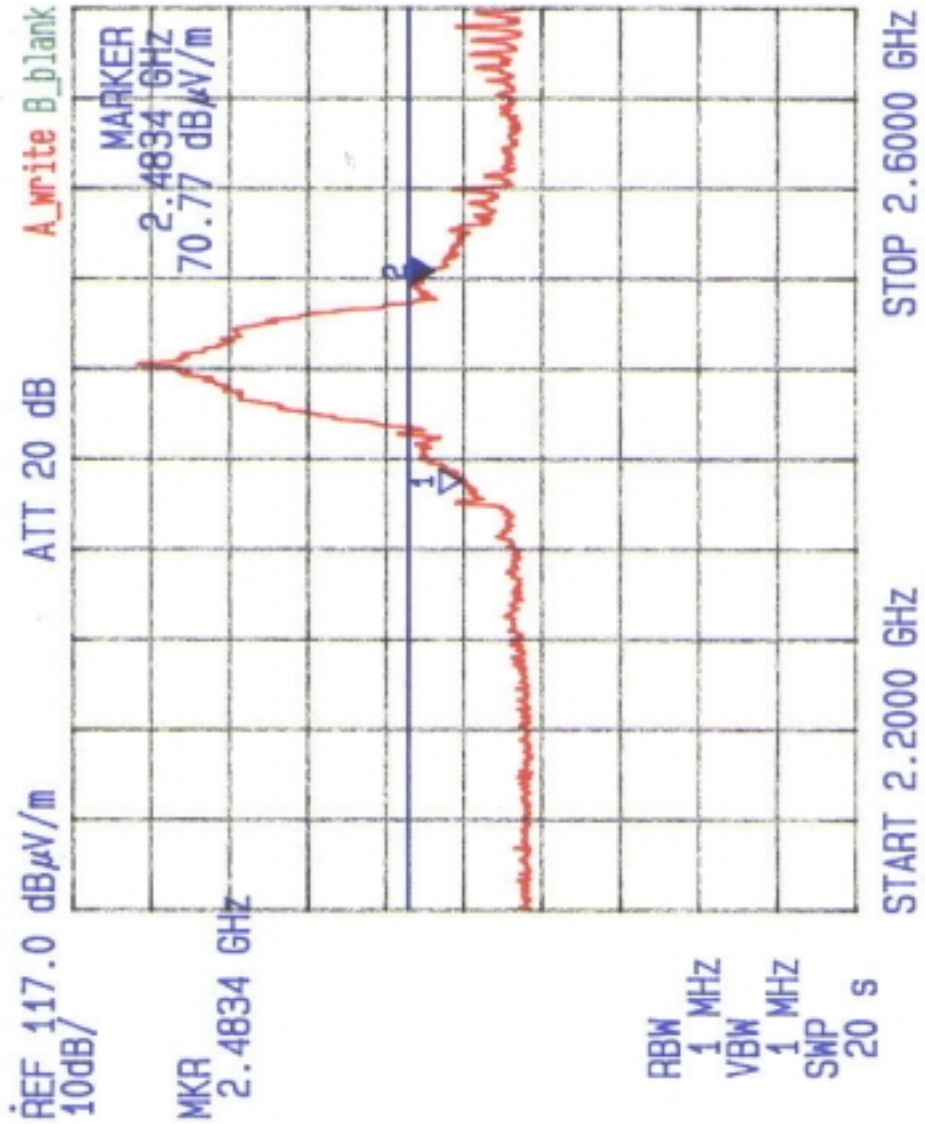
TEST: FCC RADIATED	EUT: WalkMate REV 1.1	S/N: 1100B
FREQ: 2.2-2.6GHZ	SPEC: PARAGRAPH 15.247 (2) (C)	ANT.HT/POL: (m) H
DETECT: PEAK	ANTENNA: INTERNAL	EUT POSITION: 202
DATE: 3-19-99	TEST SITE: 3 METER	TESTER:



DATA SHEET 6.2.3-7

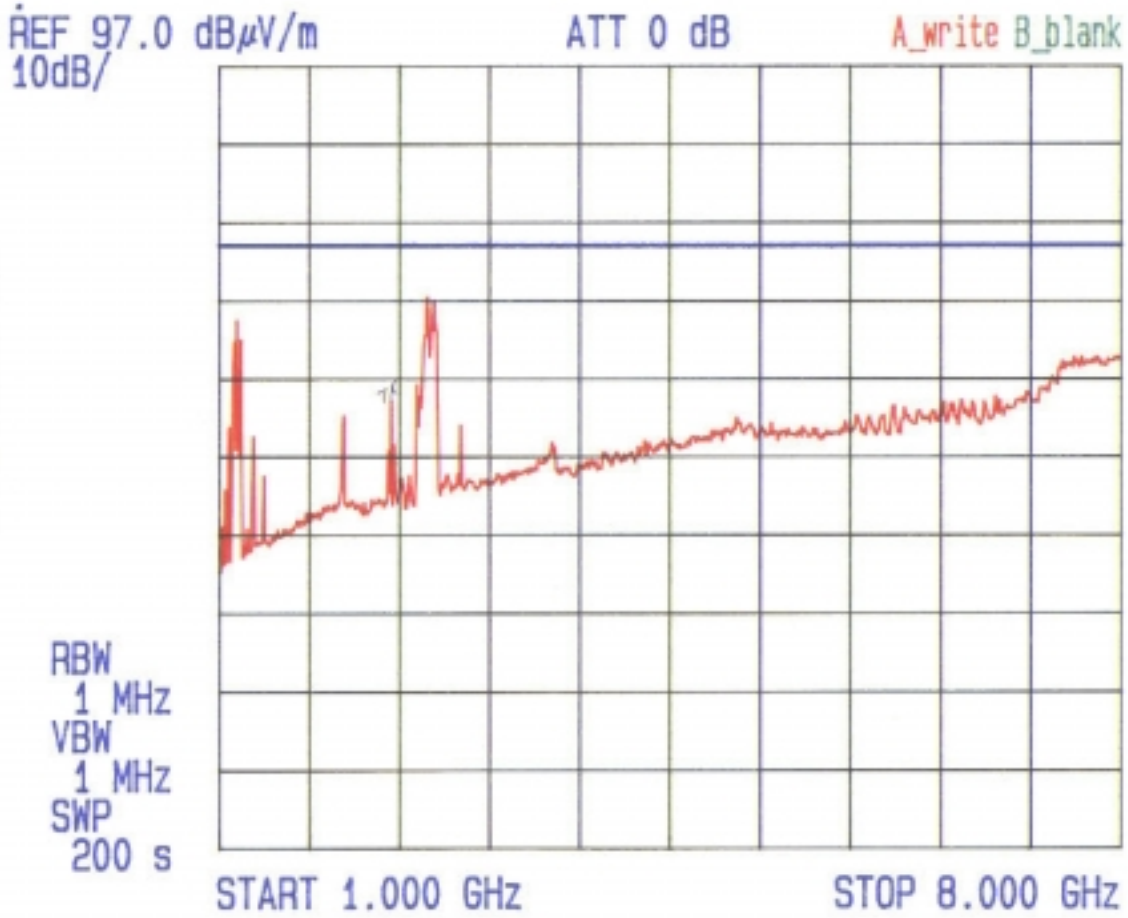
JA-1621

TEST: FCC RADIATED EUT: WalkMate REV 1.1 S/N: 1100B
FREQ: 2.2-2.6GHZ SPEC: PARAGRAPH 15.247 (2) (C) ANT.HT/POL: 1m / V
DETECT: PEAK ANTENNA: INTERNAL EUT POSITION: Z0Z
DATE: 3-19-97 TEST SITE: 3 METER TESTER:



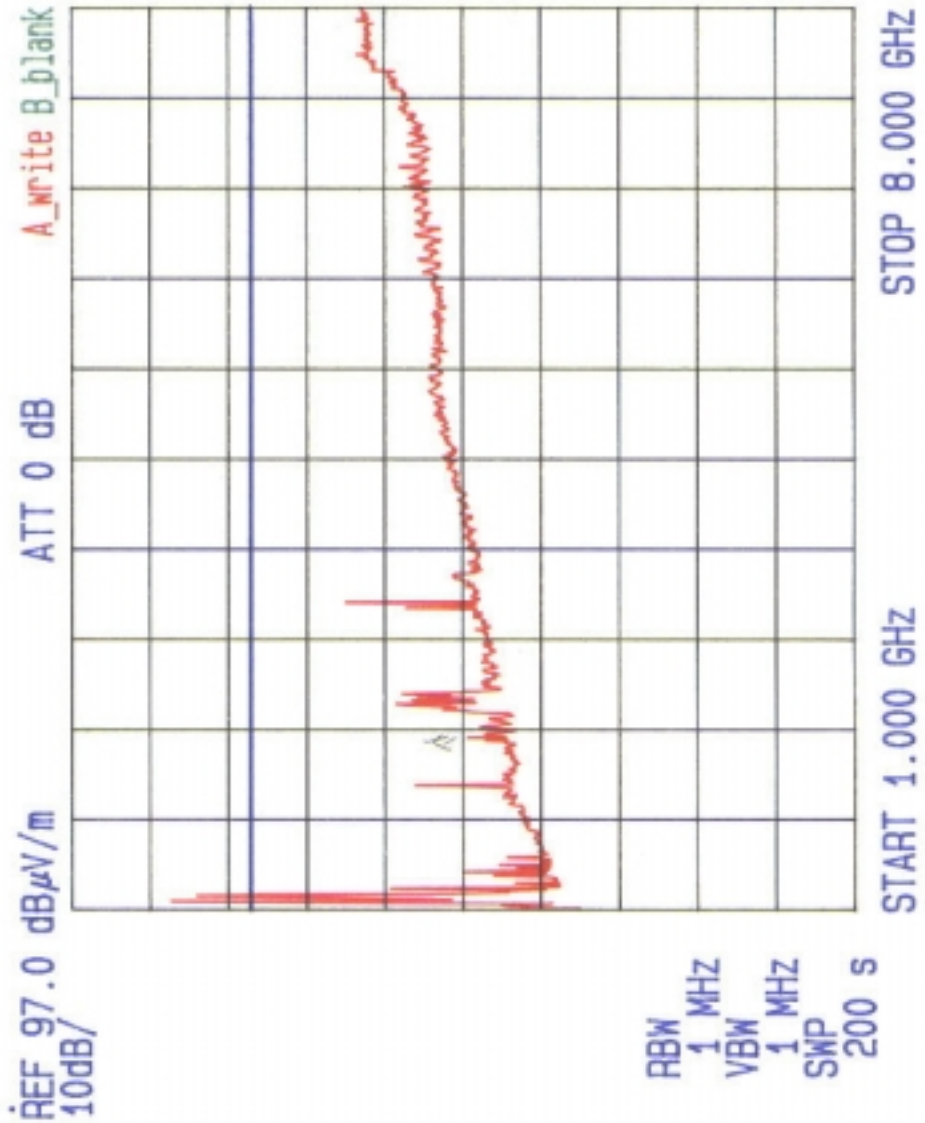
DATA SHEET 6.2.3-8

TEST: RADIATED	EUT: WalkMate REV 1.1	S/N: 11002
FREQ: 1G-8GHz	SPEC: PARAGRAPH 15.247 (2) (C)	ANT.HT/POL: 1m \ V
DETECT: PEAK	ANTENNA: INTERNAL	EUT POSITION: Z02
DATE: 3-19-99	TEST SITE: 3 METER	TESTER:



JA-1621

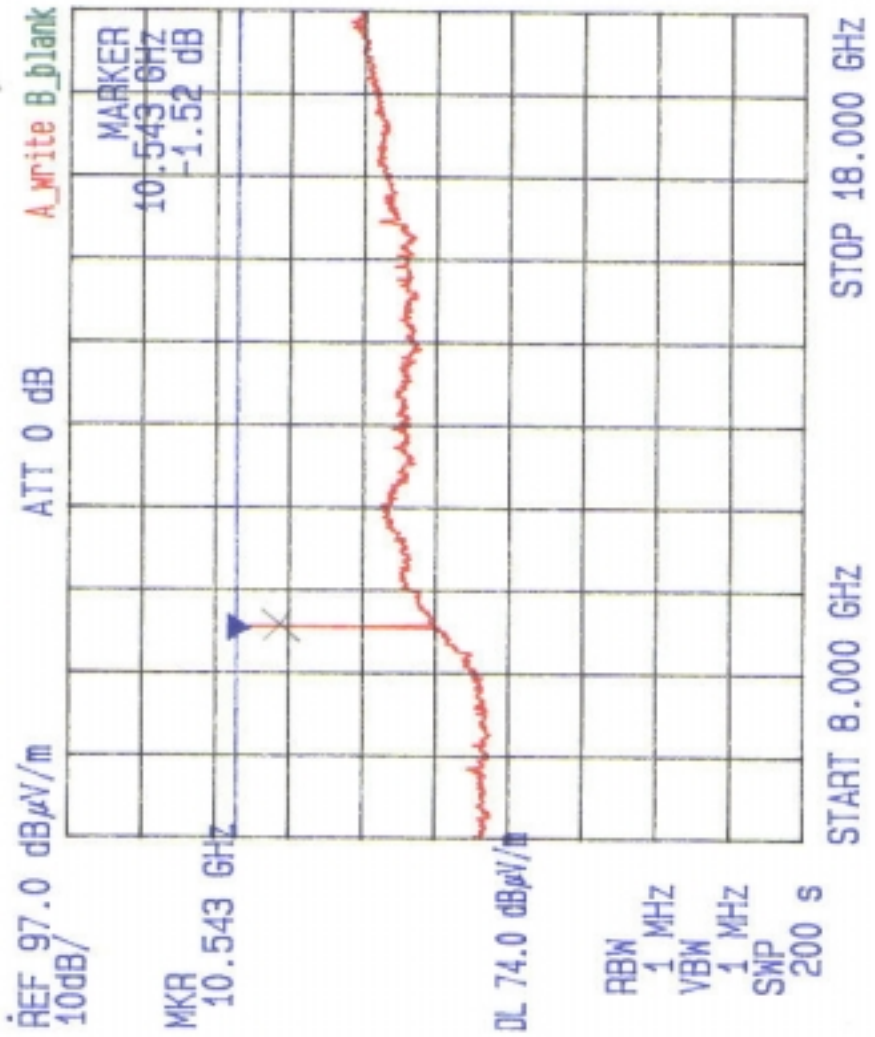
TEST: RADIATED EUT: WalkMate REV 1.1 S/N: 11002
FREQ: 1G-8GHz SPEC: PARAGRAPH 15.247 (2) (C) ANT.HT/POL: 1m \ H
DETECT: PEAK ANTENNA: INTERNAL EUT POSITION: 202°
DATE: 5-19-15 TEST SITE: 3 METER TESTER:



DATA SHEET 6.2.3-10

JA-1621

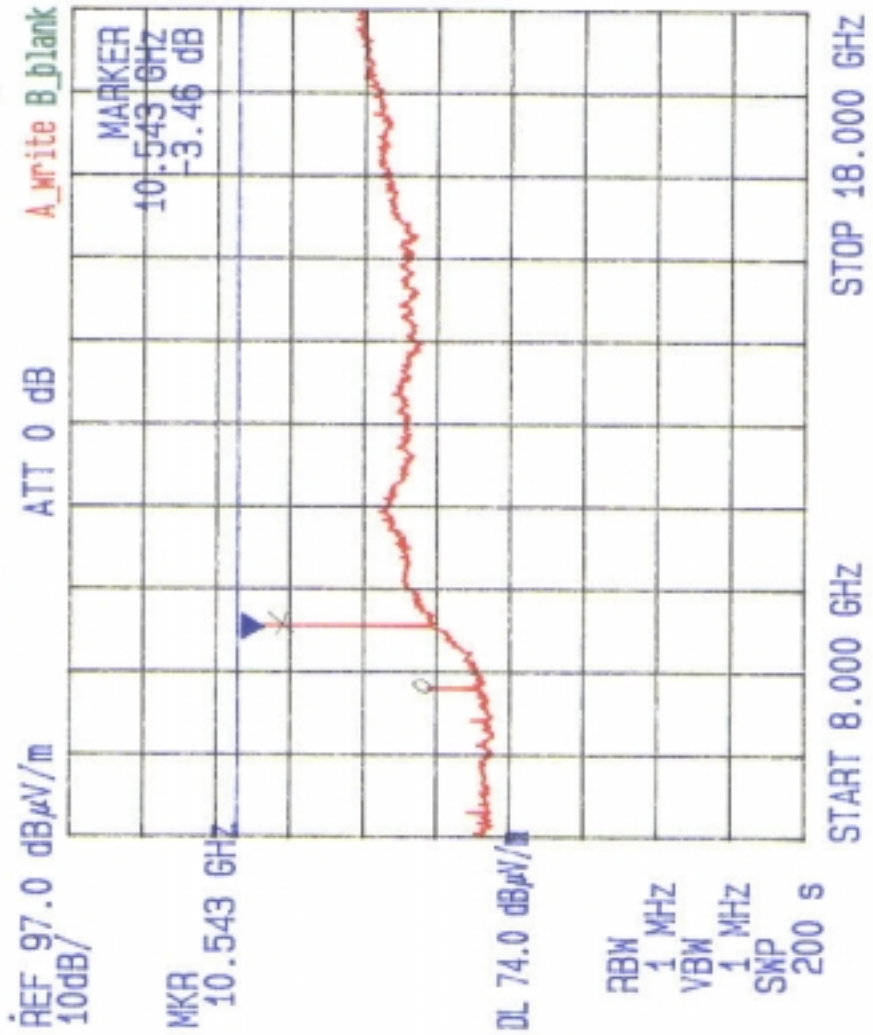
TEST: FCC RADIATED EUT: WalkMate REV 1.1 S/N: 1100B
FREQ: 8G-18GHz SPEC: PARAGRAPH 15.247 (2) (C) ANT.HT/POL: 1.25 H
DETECT: PEAK ANTENNA: INTERNAL EUT POSITION: 67°
DATE: 2/1/99 TEST SITE: 1 METER TESTER:



DATA SHEET 6.2.3-11

JA-1621

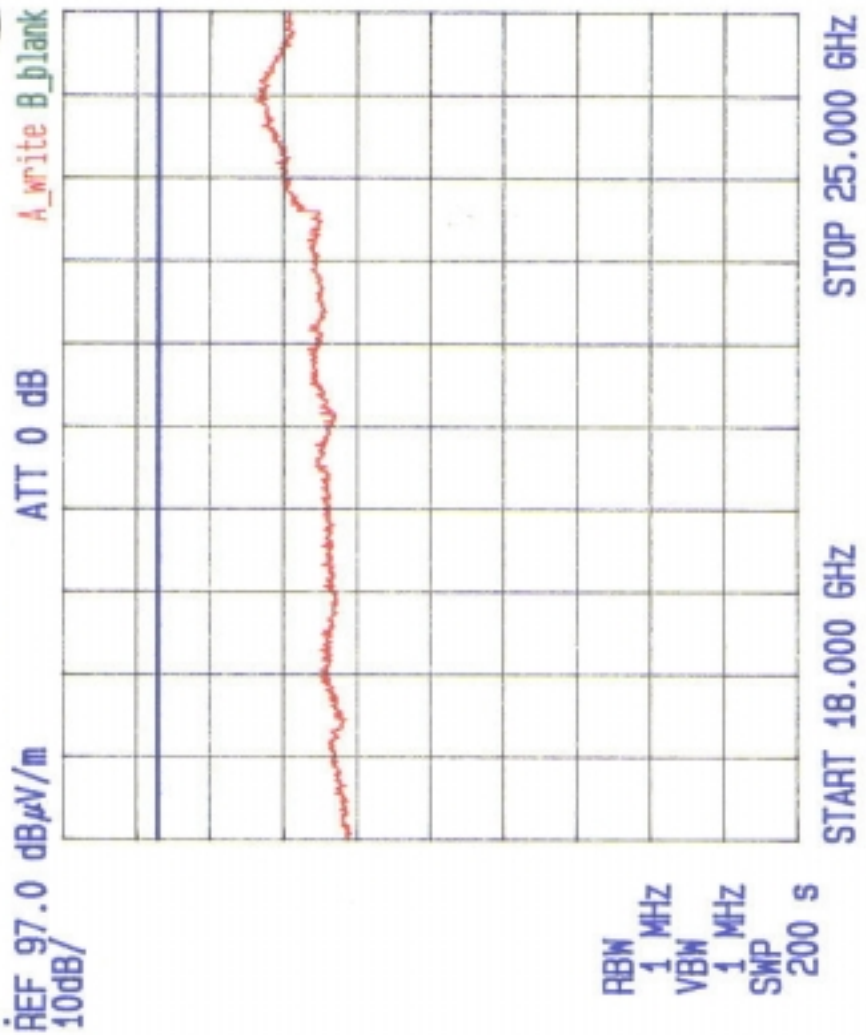
TEST: FCC RADIATED EUT: WalkMate REV 1.1 S/N: 1100B
FREQ: 8G-18GHz SPEC: PARAGRAPH 15.247 (2) (C) ANT.HT/POL: 125" V
DETECT: PEAK ANTENNA: INTERNAL EUT POSITION: 180°
DATE: 2/11/99 TEST SITE: 1 METER TESTER:



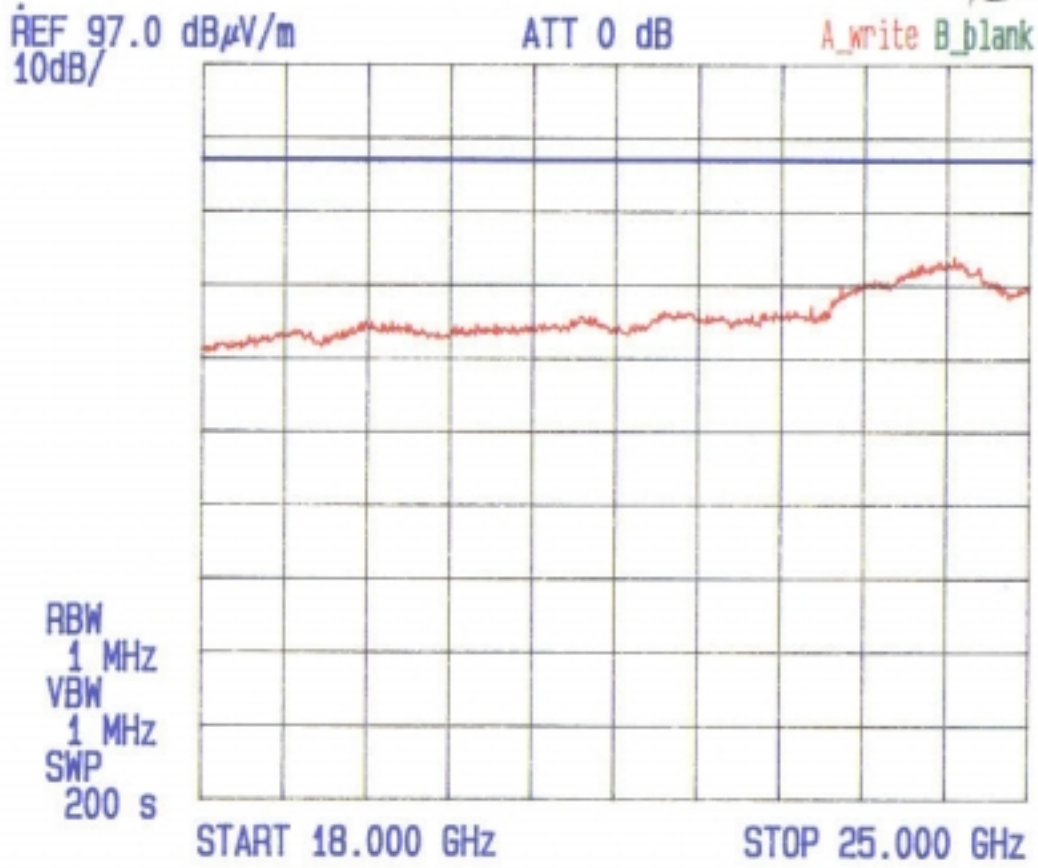
DATA SHEET 6.2.3-12

JA-1621

TEST: FCC RADIATED EUT: WalkMate REV 1.1 S/N: 1100B
FREQ: 18GHz-25GHz SPEC: PARAGRAPH 15.247 (2) (C) ANT.HT/POL: 1.25m H
DETECT: PEAK ANTENNA: INTERNAL EUT POSITION: 180
DATE: 2-18-97 TEST SITE: METER TESTER:

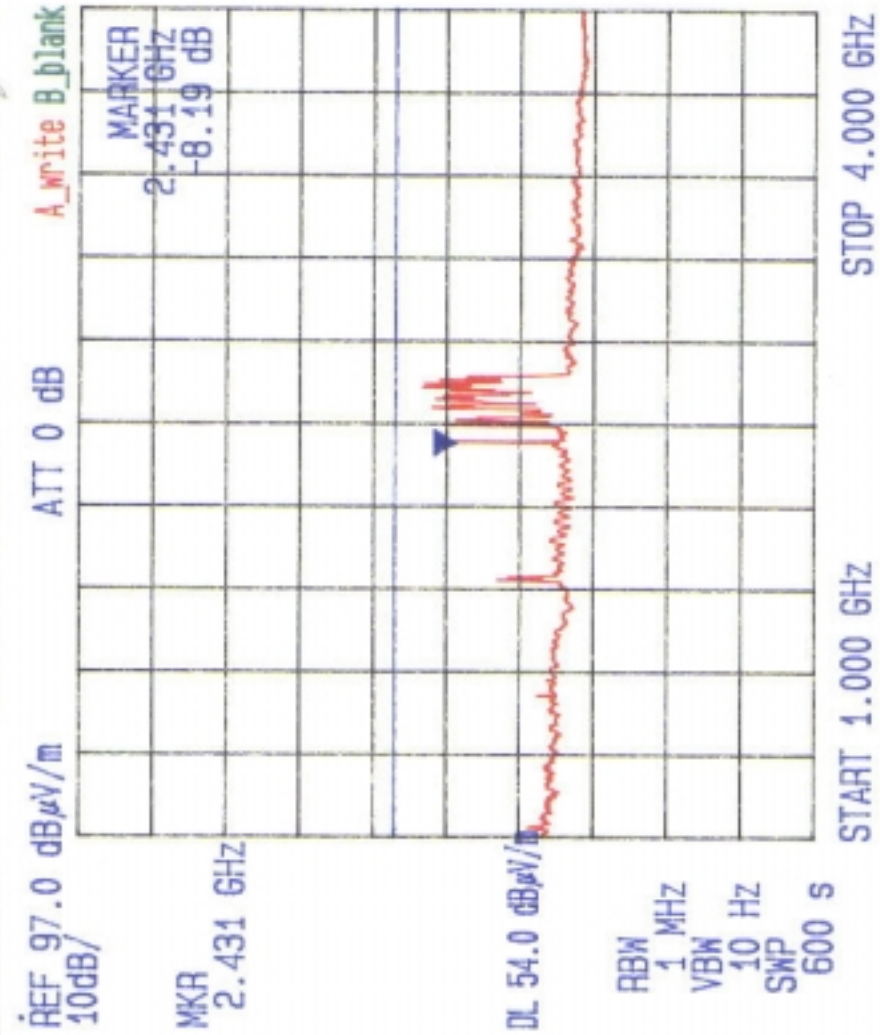


TEST: FCC RADIATED	EUT: WalkMate REV 1.1	S/N: 1100B
FREQ: 18GHz-25GHz	SPEC: PARAGRAPH 15.247 (2) (C)	ANT.HT/POL: 1.25m\ V
DETECT: PEAK	ANTENNA: INTERNAL	EUT POSITION: 67°
DATE: 2-10-99	TEST SITE: METER	TESTER:



JA-1621

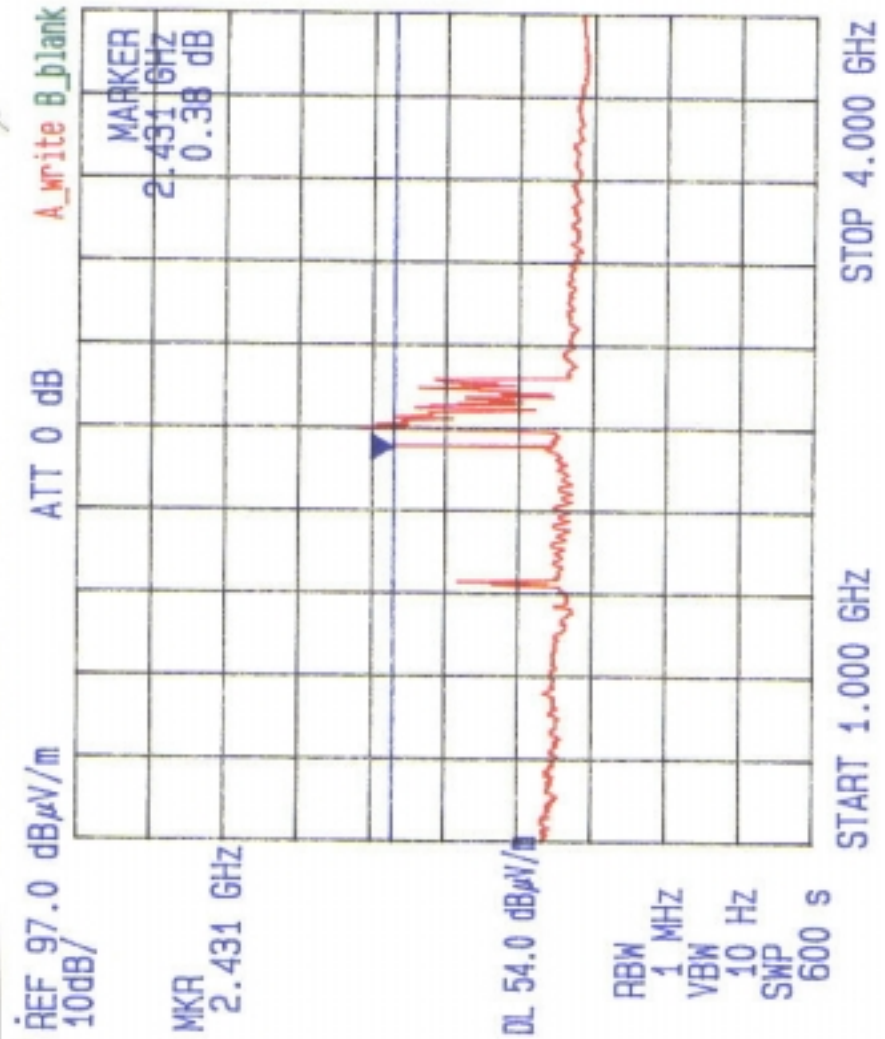
TEST: FCC RADIATED EUT: WalkMate REV 1.1 S/N: 1100B
FREQ: 1G-4GHz SPEC: PARAGRAPH 15.247 (2) (C) ANT.HT/POL: 1.5 H
DETECT: AVERAGE ANTENNA: INTERNAL EUT POSITION: 67
DATE: 2/7/99 TEST SITE: 3 METER TESTER:



DATA SHEET 6.2.3-15

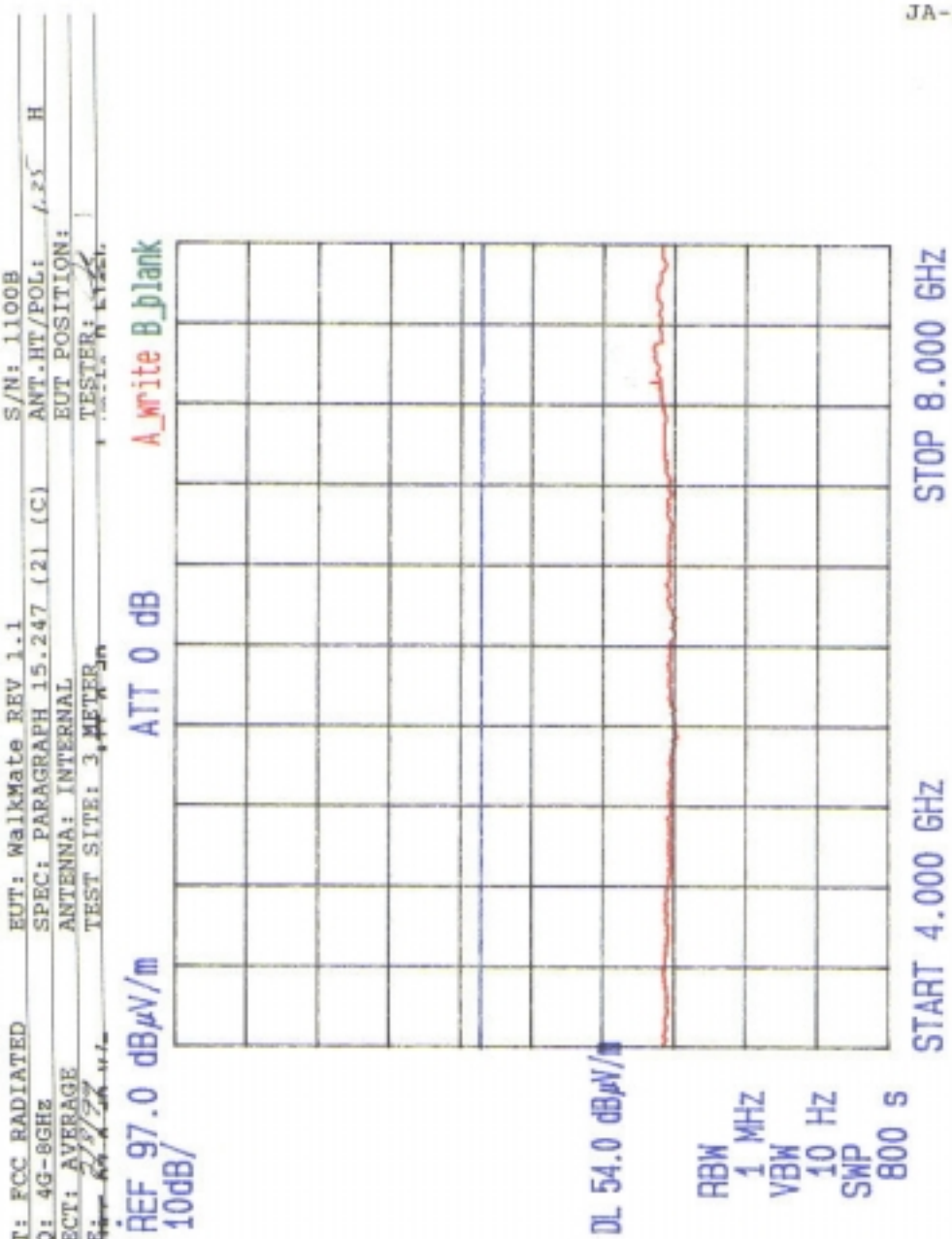
JA-1621

TEST: FCC RADIATED EUT: WalkMate REV 1.1 S/N: 1100B
FREQ: 1G-4GHz SPEC: PARAGRAPH 15.247 (2) (C) ANT.HT/POL: 1.25 V
DETECT: AVERAGE ANTENNA: INTERNAL EUT POSITION: 180°
DATE: 2/8/99 TEST SITE: 3 METER TESTER:



DATA SHEET 6.2.3-16

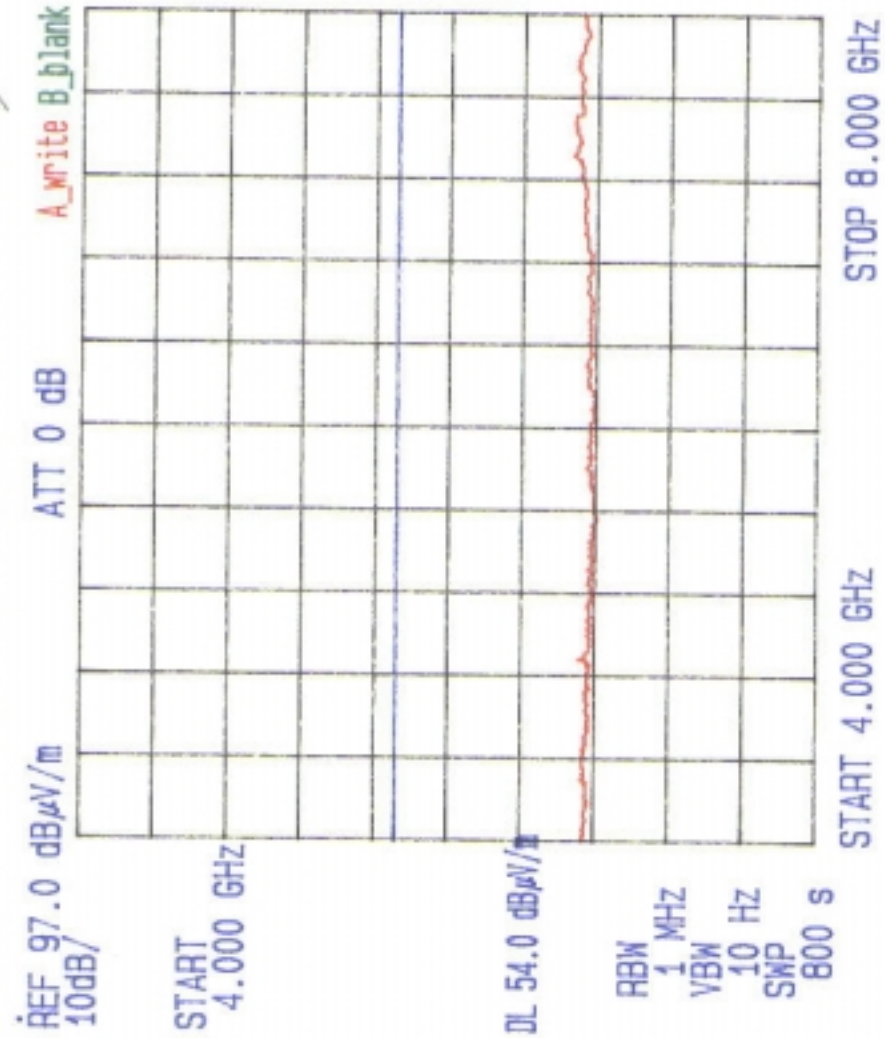
JA-1621



DATA SHEET 6.2.3-17

JA-1621

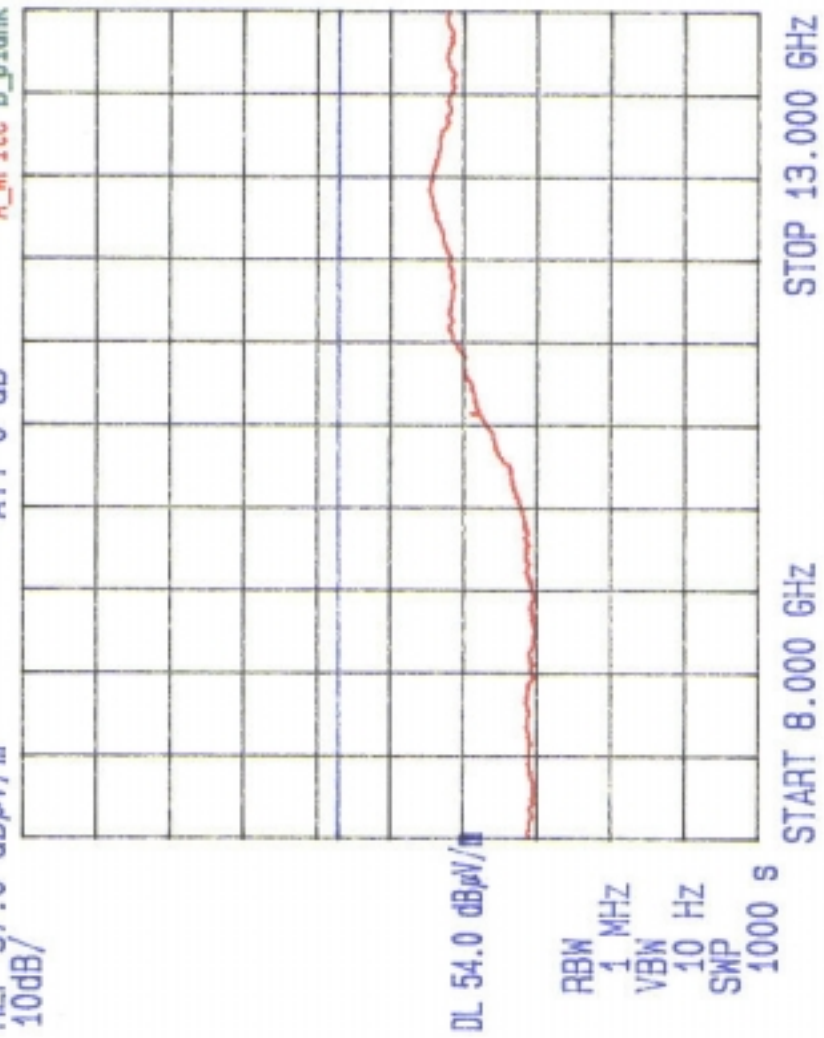
TEST: FCC RADIATED EUT: WalkMate REV 1.1 S/N: 1100B
FREQ: 4G-8GHz SPEC: PARAGRAPH 15.247 (2) (C) ANT.HT/POL: 1.25 V
DETECT: AVERAGE ANTENNA: INTERNAL EUT POSITION: 180°
DATE: 2/9/99 TEST SITE: 3 METER TESTER:



DATA SHEET 6.2.3-18

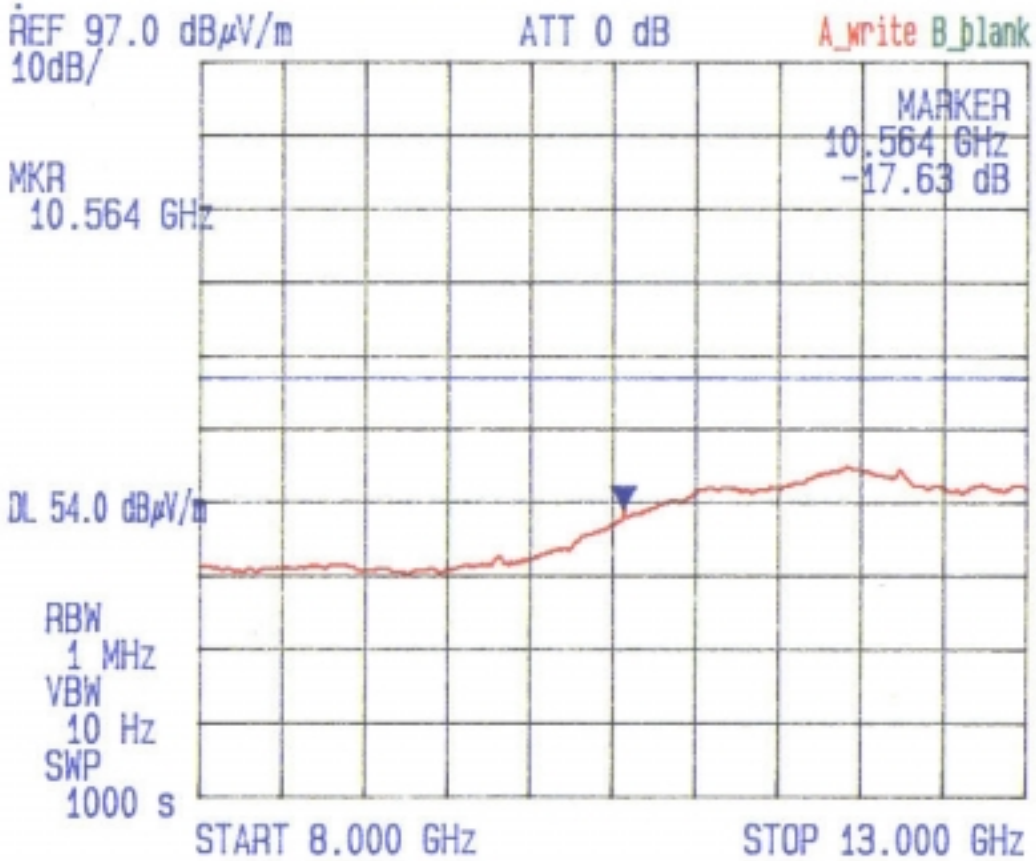
JA-1621

TEST: FCC RADIATED EUT: WalkMate REV 1.1 S/N: 1100B
FREQ: 8G-13GHz SPEC: PARAGRAPH 15.247 (2) (C) ANT.HT/POL: 1.25m H
DETECT: AVERAGE ANTENNA: INTERNAL EUT POSITION: -
DATE: 2-10-99 TEST SITE: METER TESTER:



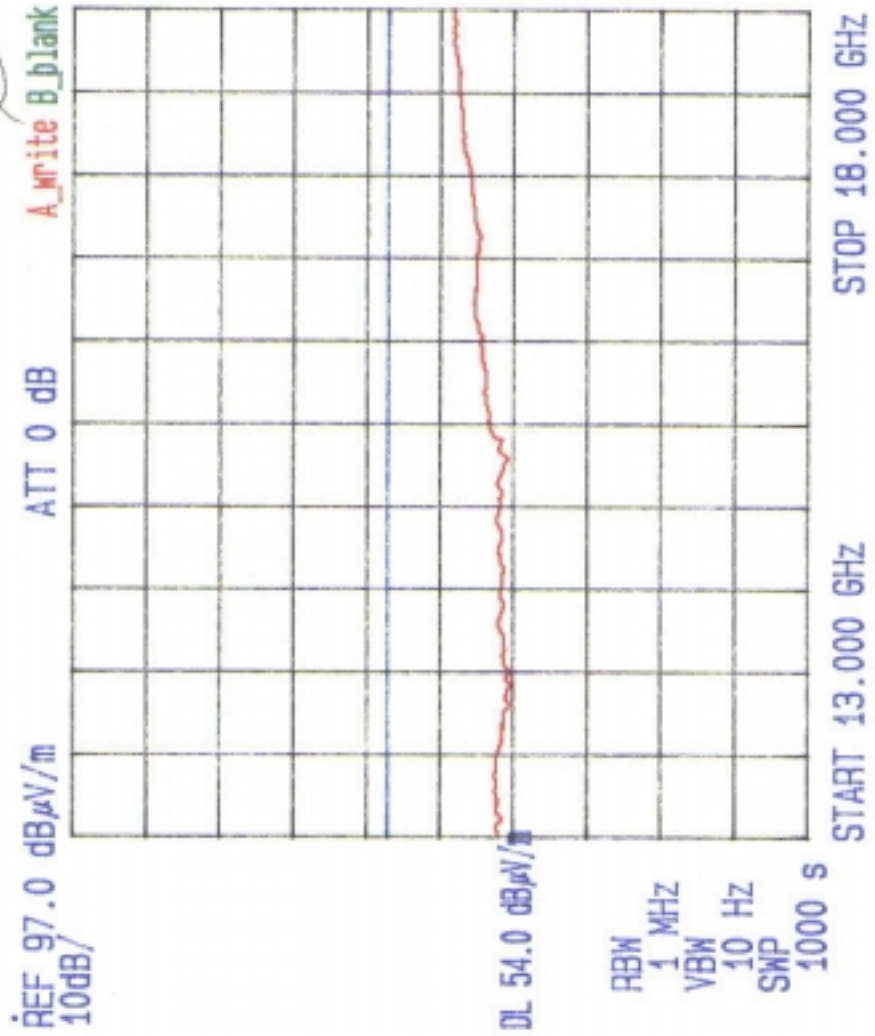
DATA SHEET 6.2.3-19

TEST: FCC RADIATED	EUT: WalkMate REV 1.1	S/N: 1100B
FREQ: 8G-13GHz	SPEC: PARAGRAPH 15.247 (2) (C)	ANT.HT/POL: 1.25 V
DETECT: AVERAGE	ANTENNA: INTERNAL	EUT POSITION: 67°
DATE: 2/10/99	TEST SITE: 3 METER	TESTER:



JA-1621

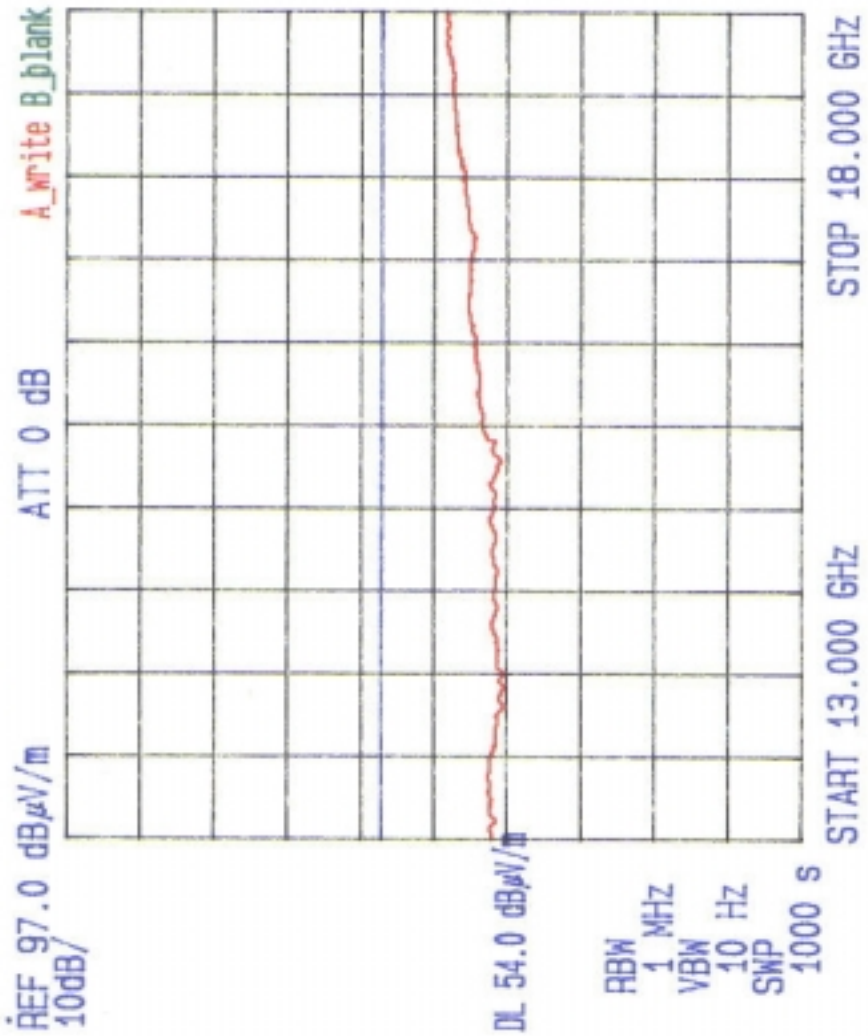
TEST: FCC RADIATED EUT: WalkMate REV 1.1 S/N: 1100B
FREQ: 13G-18GHz SPEC: PARAGRAPH 15.247 (2) (C) ANT.HT/POL: 1.25m H
DETECT: AVERAGE ANTENNA: INTERNAL EUT POSITION: 67°
DATE: 2-10-99 TEST SITE: METER TESTER:



DATA SHEET 6.2.3-21

JA-1621

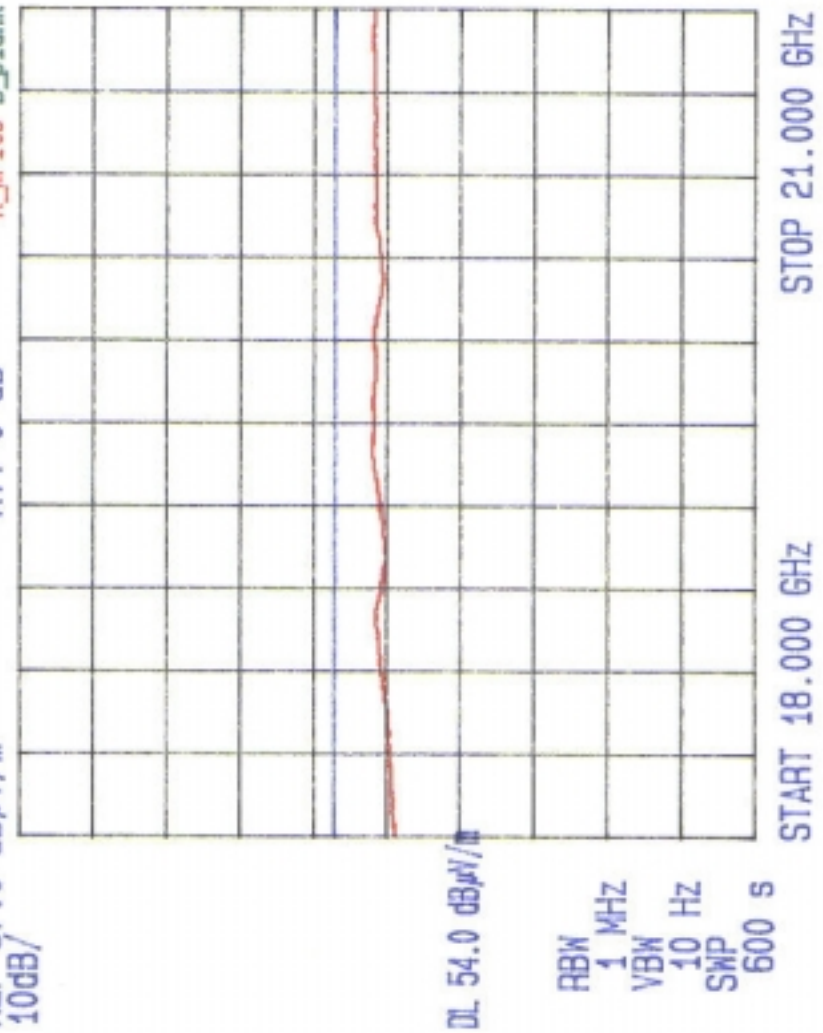
TEST: FCC RADIATED EUT: WalkMate REV 1.1 S/N: 1100B
FREQ: 13G-18GHz SPEC: PARAGRAPH 15.247 (2) (C) ANT.HT/POL: 1.25m V
DETECT: AVERAGE ANTENNA: INTERNAL EUT POSITION: 6.90
DATE: 8/10/99 TEST SITE: METER TESTER:



DATA SHEET 6.2.3-22

JA-1621

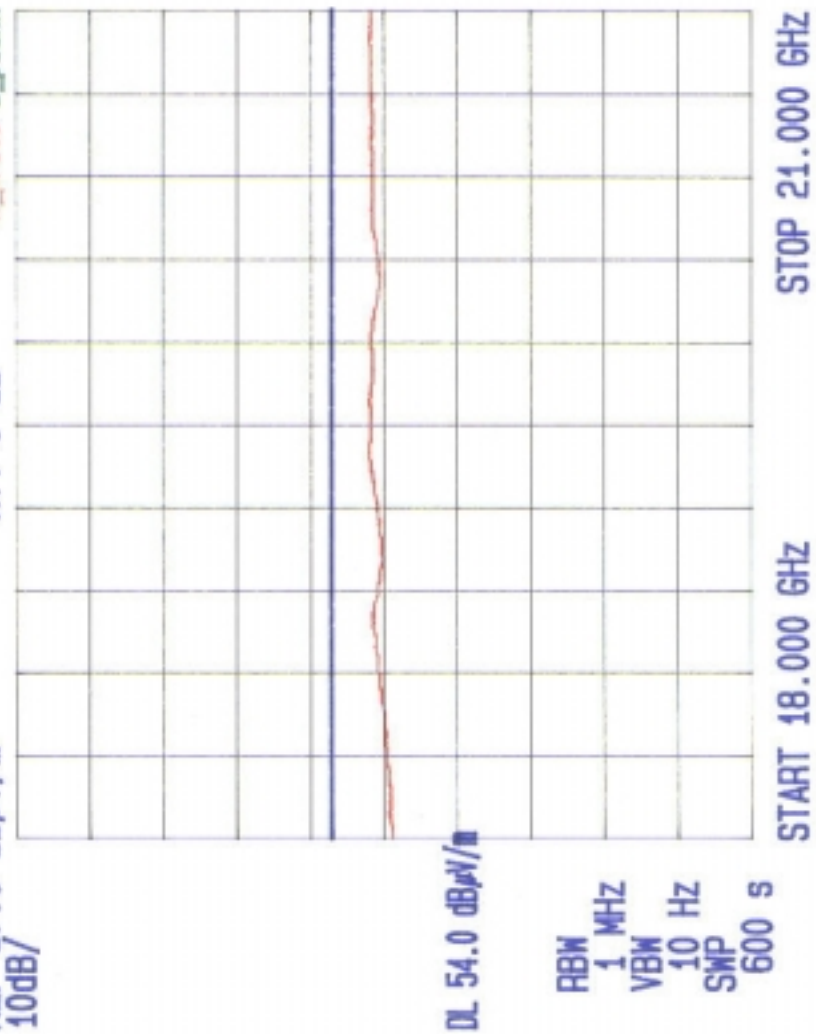
TEST: FCC RADIATED EUT: WalkMate REV 1.1 S/N: 1100B
FREQ: 18G-21GHz SPEC: PARAGRAPH 15.247 (2) (C) ANT.HT/POL: 1.5m\ H
DETECT: AVERAGE ANTENNA: INTERNAL EUT POSITION: 180°
DATE: 2-10-99 TEST SITE: METER TESTER:



DATA SHEET 6.2.3-23

JA-1621

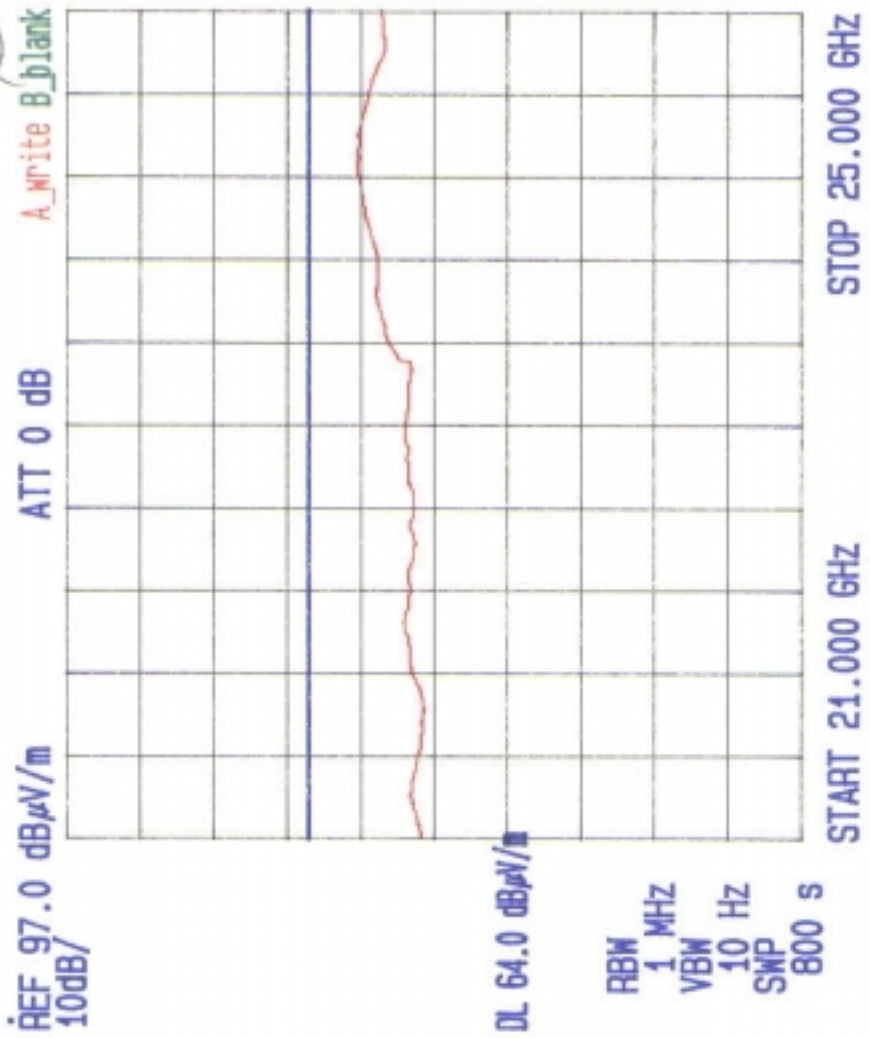
TEST: FCC RADIATED EUT: WalkMate REV 1.1 S/N: 1100B
FREQ: 18G-21GHz SPEC: PARAGRAPH 15.247 (2) (C) ANT.HT/POL: 1.25m\V
DETECT: AVERAGE ANTENNA: INTERNAL EUT POSITION: 67°
DATE: 2-10-99 TEST SITE: METER TESTER:



DATA SHEET 6.2.3-24

JA-1621

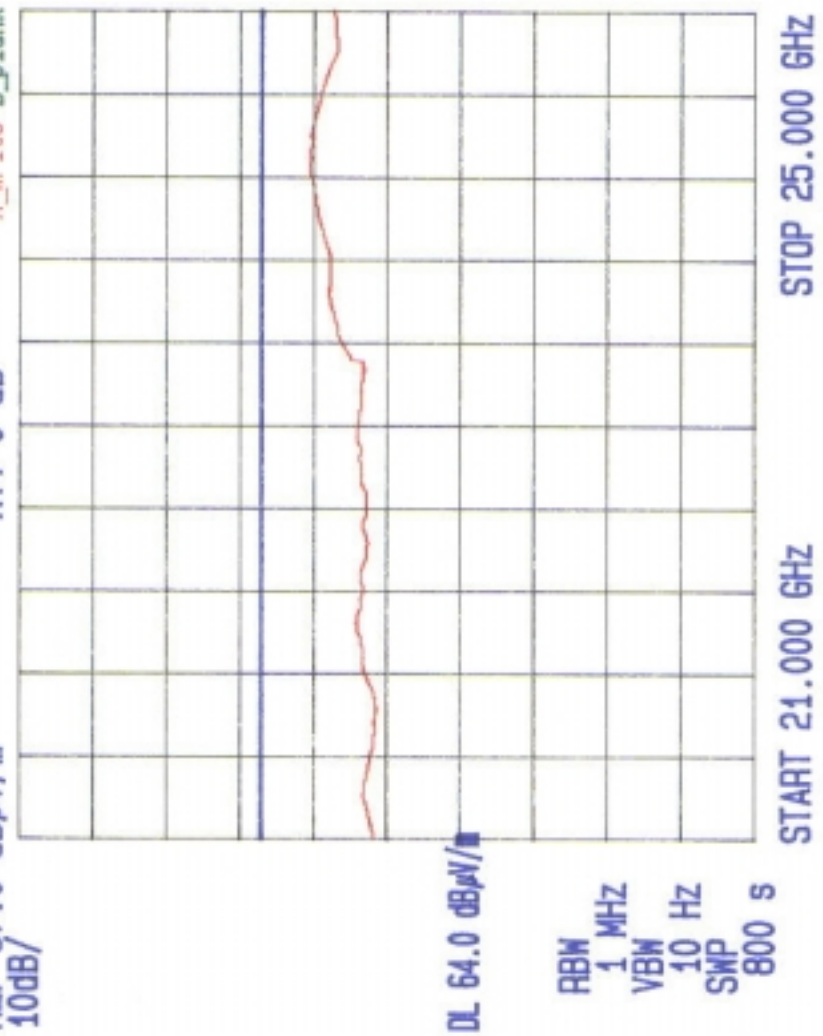
TEST: FCC RADIATED EUT: WalkMate REV 1.1 S/N: 1100B
FREQ: 21G-25GHz SPEC: PARAGRAPH 15.247 (2) (C) ANT.HT/POL: 1.25m H
DETECT: AVERAGE ANTENNA: INTERNAL EUT POSITION: 180
DATE: 7-18-99 TEST SITE: 1 METER TESTER: [illegible]



DATA SHEET 6.2.3-25

JA-1621

TEST: FCC RADIATED EUT: WalkMate REV 1.1 S/N: 1100B
FREQ: 21G-25GHz SPEC: PARAGRAPH 15.247 (2) (C) ANT.HT/POL: 1.25m V
DETECT: AVERAGE ANTENNA: INTERNAL EUT POSITION: 67°
DATE: 2-10-99 TEST SITE: 1 METER TESTER: JB



DATA SHEET 6.2.3-26

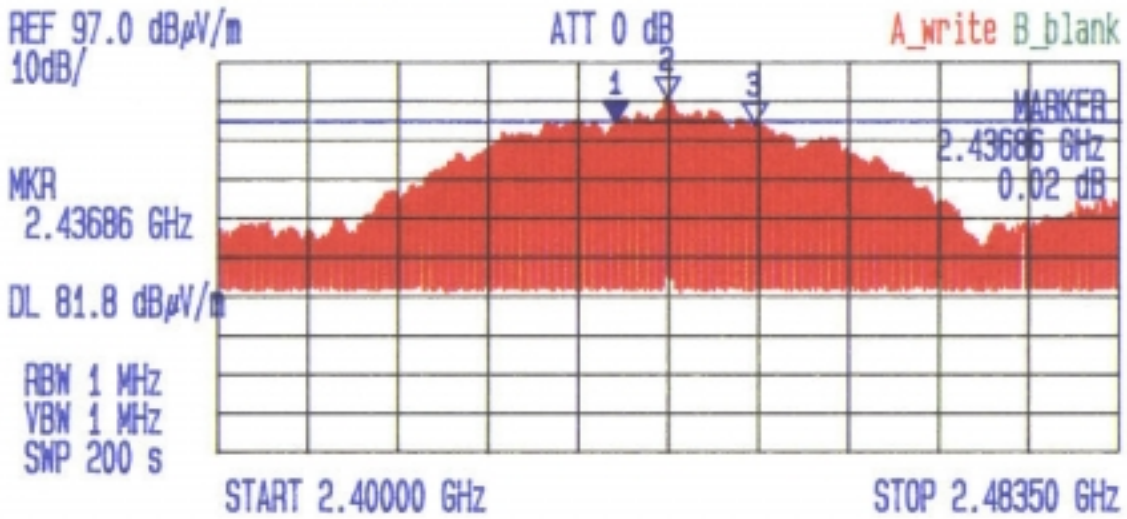
6.4 Direct Sequence Spread Spectrum 15.247(2)(b)(c)(d)(e)

6.4.1 <u>6dB Bandwidth 15.247(2)</u>

The minimum 6dB bandwidth must be greater than 500KHz. Data Sheet 6.4.1-1 shows the measured 6dB points to give a bandwidth of 28.8MHz.

The system exceeds the 500KHz minimum bandwidth.

TEST: 6dB BANDWIDTH	EUT: WalkMate REV 1.1	S/N: 11002
FREQ: 2.4-2.4835GHZ	SPEC: PARAGRAPH 15.247 (2)	ANT.HT/POL: H
DETECTOR: PEAK	ANTENNA:	EUT POSITION:
DATE: 3/19/99	TEST SITE: ROOM 1	TESTER:



*** Multi Marker List ***

No.1:	2.43686 GHz	0.02 dB	A
No.2:	2.44163 GHz	6.07 dB	A
No.3:	2.44974 GHz	-0.26 dB	A
No.4:			
No.5:			
No.6:			
No.7:			
No.8:			
Δ:			

NOTE: 6dB Bandwidth = 28.8MHz

6.4.2 Peak Output Power 15.247(2)(b)

The peak output power to the antenna shall not exceed 1 watt.

The peak power measurement was made using the continuous transmit function.

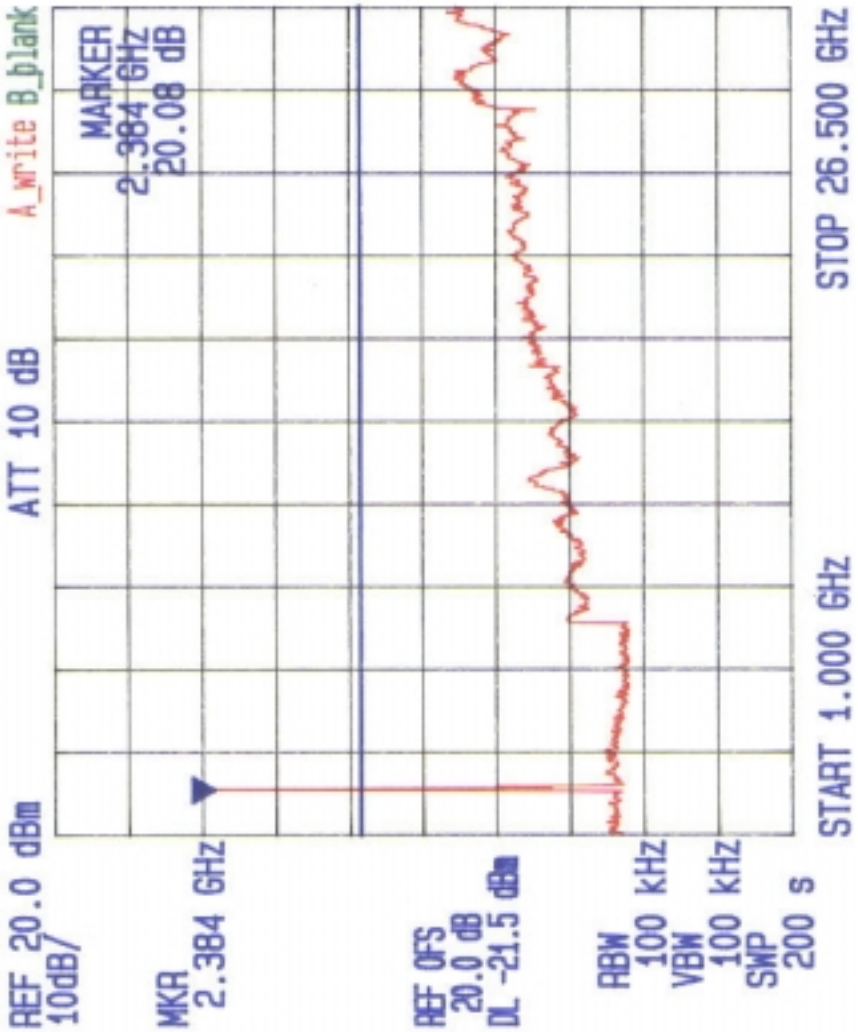
The power output measured with a peak power meter was recorded as +27.4dBm. This is 2.6dB below the 1 watt requirement.

6.4.3 Out of Band Emission 15.247(2)(c)

Out of band measurements were made on the antenna port of the RF unit. The measurement was made over the 2-25GHz range using the 100KHz RBW. Data Sheet 6.4.3-1 presents the scan across the entire range. The plot demonstrates that there is greater than 20dB separation between the intended signal and any other signals in the range.

JA-1621

TEST: ANT. CONDUCTED EUT: WalkMate REV 1.1 S/N: 11002
FREQ: 1-26.5GHZ SPEC: PARAGRAPH 15.247 (2) (C) ANT.HT/POL: H
DETECTOR: PEAK ANTENNA: EUT POSITION:
DATE: 5/11/97 TEST SITE: ROOM 1 TESTER:



DATA SHEET 6.4.3-1

6.4.4 Power Spectral Density 15.247(2)(d)

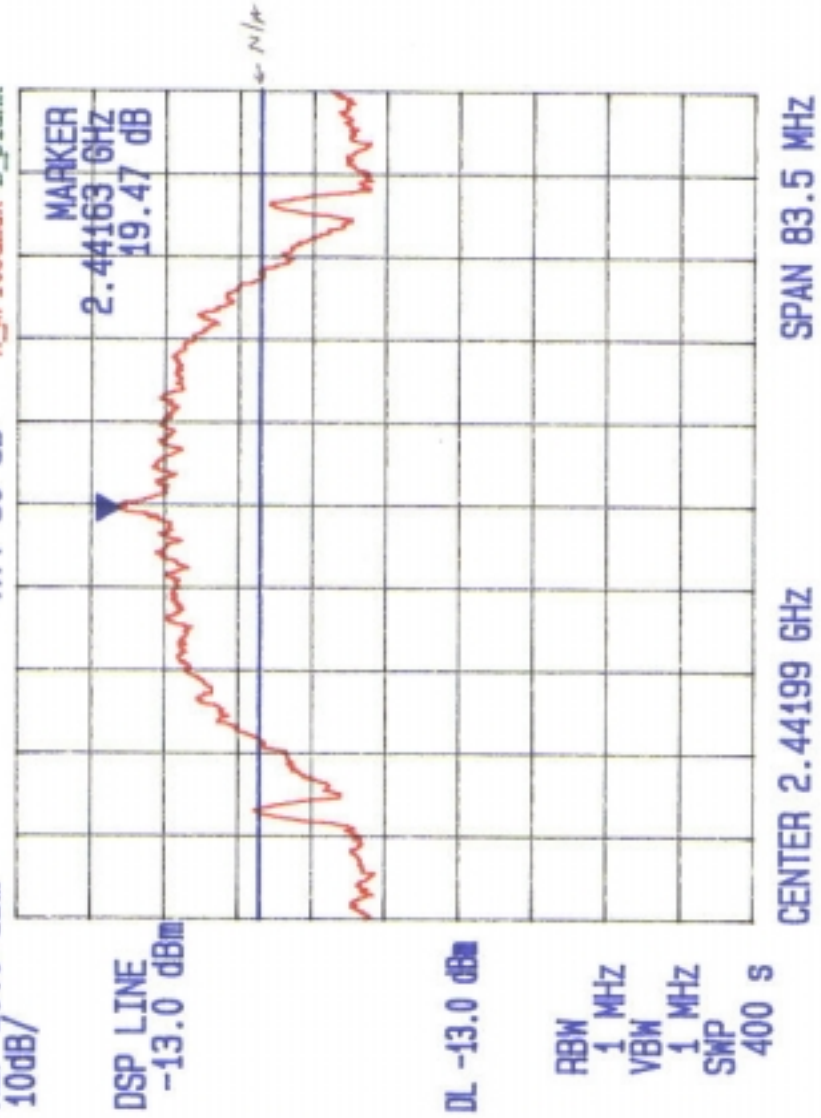
The transmitted power density averaged over a 1 second interval shall not be greater than +8dBm in any 3KHz bandwidth within the band.

The peak point was selected after a max hold was performed and the spectrum analyzer peak marker was positioned (Data Sheet 6.4.4-1). The peak frequency was used as the center frequency. The RBW was set to 3KHz and the span width of 1.5MHz and sweep time of 500 seconds selected (Data Sheet 6.4.4-2).

The results show the spectral density to be 10dB below the +8dBm requirement.

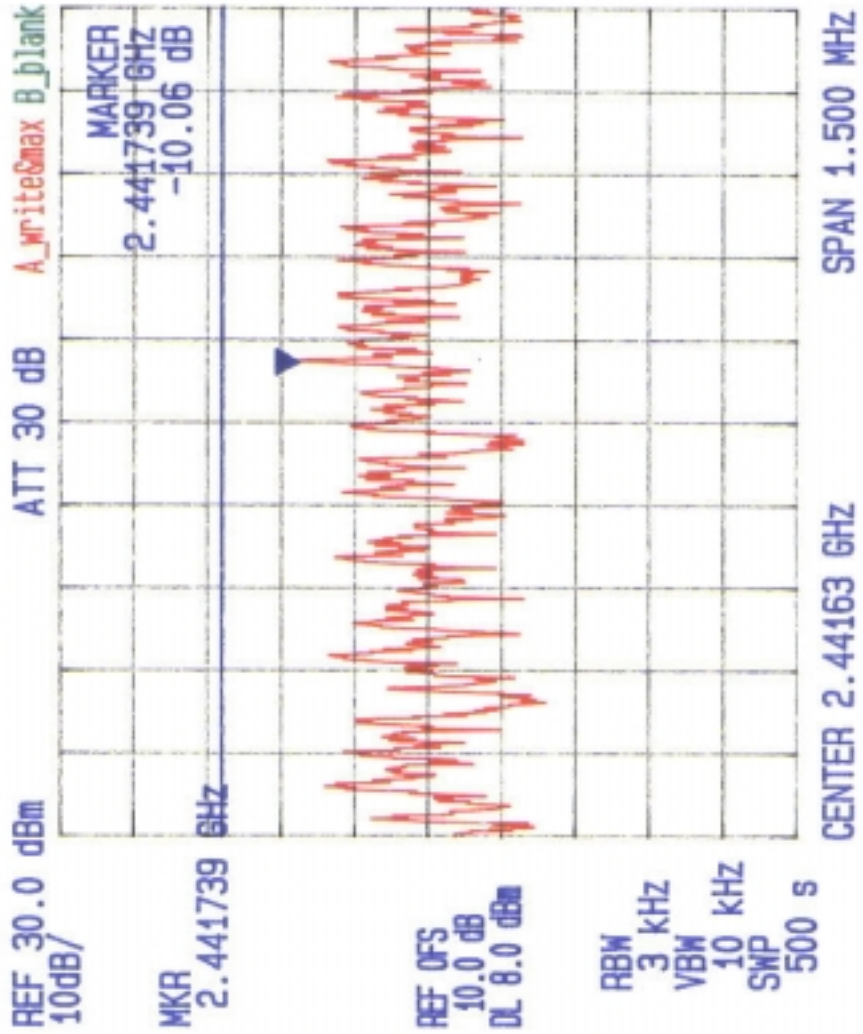
JA-1621

TEST: SPECTRAL DENSITY EUT: WalkMate REV 1.1 S/N: 11002
FREQ: 2.4-2.4835GHZ SPEC: PARAGRAPH 15.247 (d) ANT.HT/POL: H
DETECTOR: PEAK ANTENNA: Cardioid EUT POSITION:
DATE: 3/11/99 TEST SITE: ROOM 1 TESTER:



DATA SHEET 6.4.4-1

TEST: SPECTRAL DENSITY EUT: WalkMate REV 1.1 S/N: 11002
FREQ: 2.4-2.4835GHZ SPEC: PARAGRAPH 15.247 (d) ANT.HT/POL: H
DETECTOR: PEAK ANTENNA: Cardioid EUT POSITION:
DATE: 2/11/99 TEST SITE: ROOM 1 TESTER:



DATA SHEET 6.4.4-2

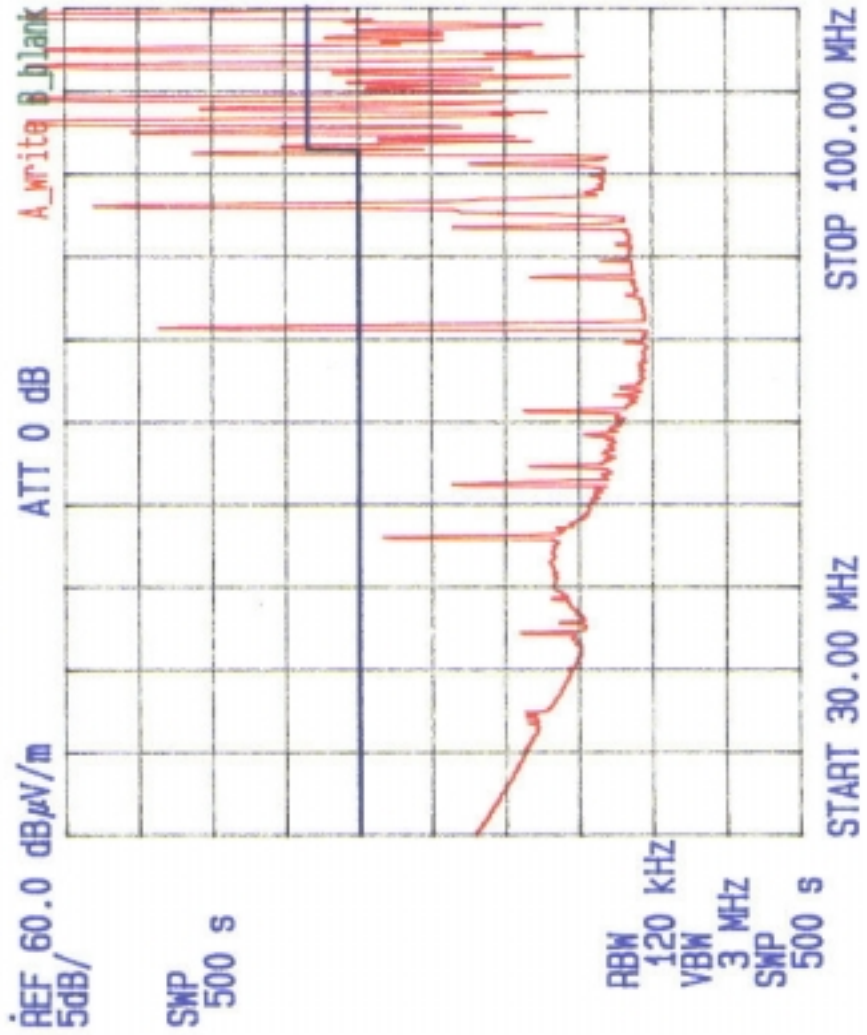
JA-1621

APPENDIX A

30MHz-1GHz QUASI PEAK AMBIENTS

JA-1621

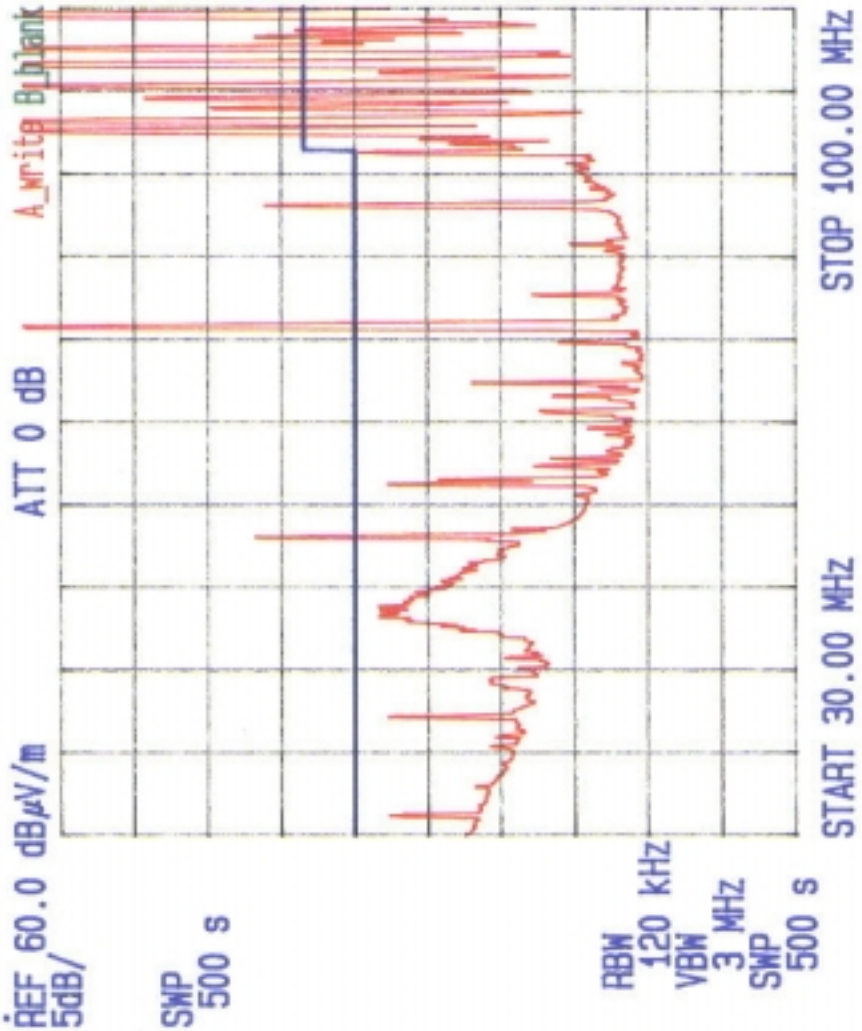
TEST: FCC RADIATED EUT: WalkMate REV 1.1 S/N: 1100B
FREQ: 30M-100MHz SPEC: PARAGRAPH 15.247 (2) (C) ANT.HT/POL: 1.5 H
DETECTOR: Q PEAK AMB. ANTENNA: INTERNAL EUT POSITION:
DATE: 2-12-97 TEST SITE: 3 METER TESTER:



DATA SHEET A-1

JA-1621

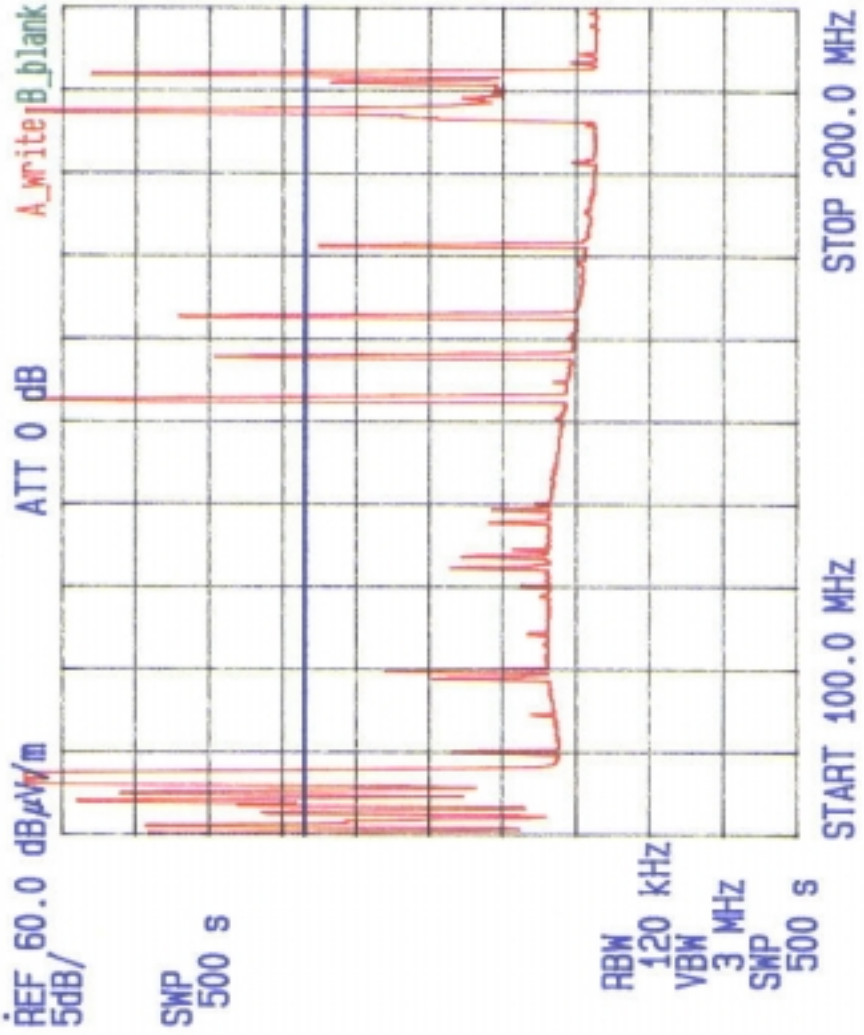
TEST: FCC RADIATED EUT: WalkMate REV 1.1 S/N: 1100B
FREQ: 30M-100MHz SPEC: PARAGRAPH 15.247 (2) (C) ANT.HT/POL: 1.75 V
DETECTOR: Q PEAK AMB. ANTENNA: INTERNAL EUT POSITION: —
DATE: 1/21/97 TEST SITE: 3 METER TESTER:



DATA SHEET A-2

JA-1621

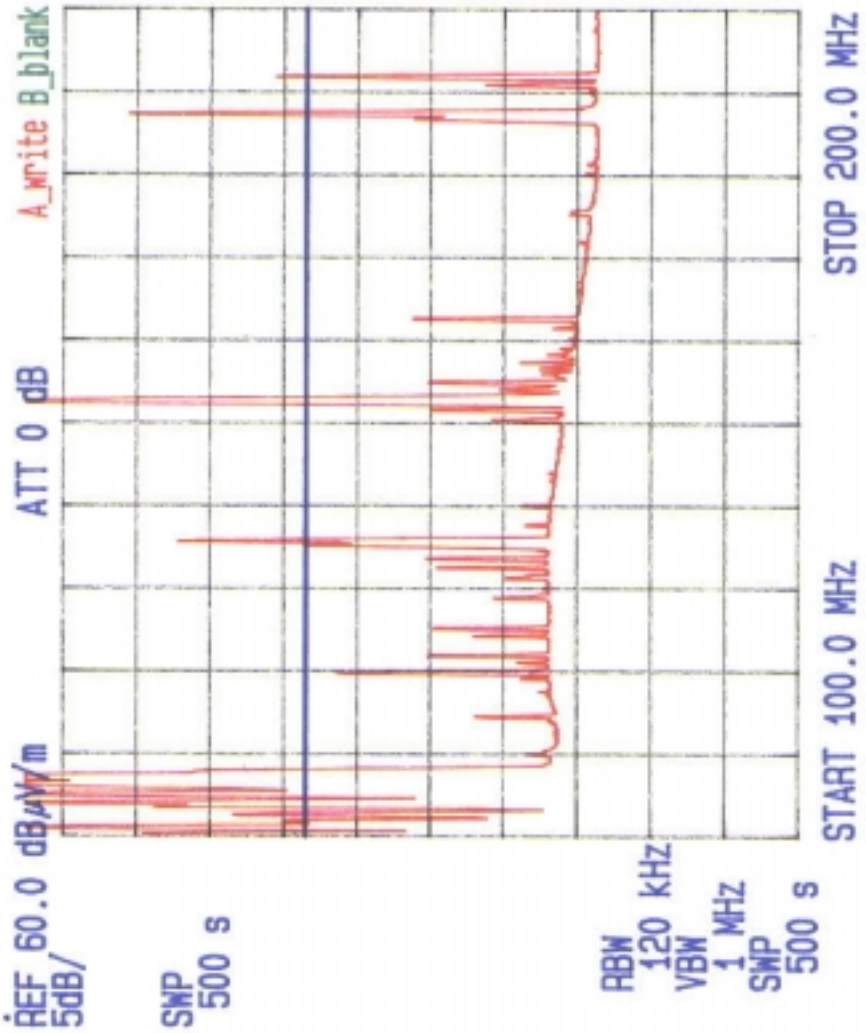
TEST: FCC RADIATED EUT: WalkMate REV 1.1 S/N: 1100B
FREQ: 100M-200MHz SPEC: PARAGRAPH 15.247 (2) (C) ANT.HT/POL: 1.5 H
DETECTOR: Q PEAK AMB. ANTENNA: INTERNAL EUT POSITION:
DATE: 2/3/99 TEST SITE: 3 METER TESTER:



DATA SHEET A-3

JA-1621

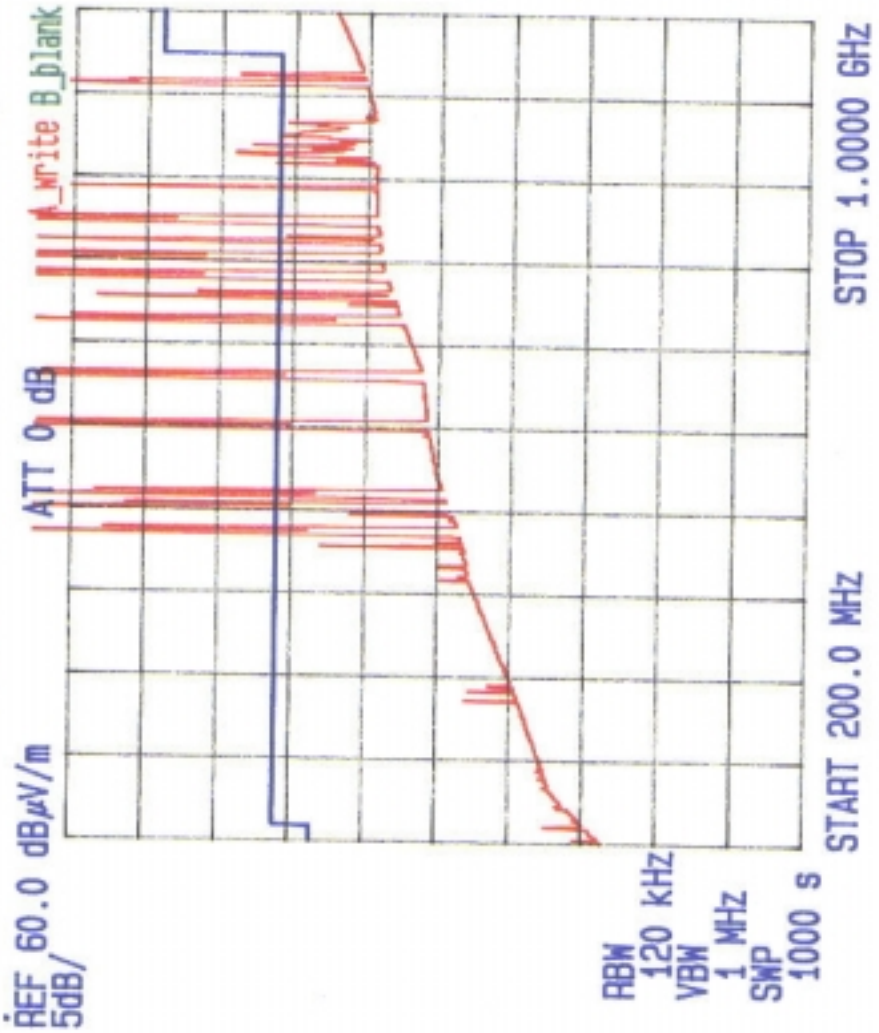
TEST: FCC RADIATED EUT: WalkMate REV 1.1 S/N: 1100B
FREQ: 100M-200MHz SPEC: PARAGRAPH 15.247 (2) (C) ANT.HT/POL: 1.75 V
DETECTOR: Q PEAK A MB ANTENNA: INTERNAL EUT POSITION:
DATE: 9/12/09 TEST SITE: 3 METER TESTER:



DATA SHEET A-4

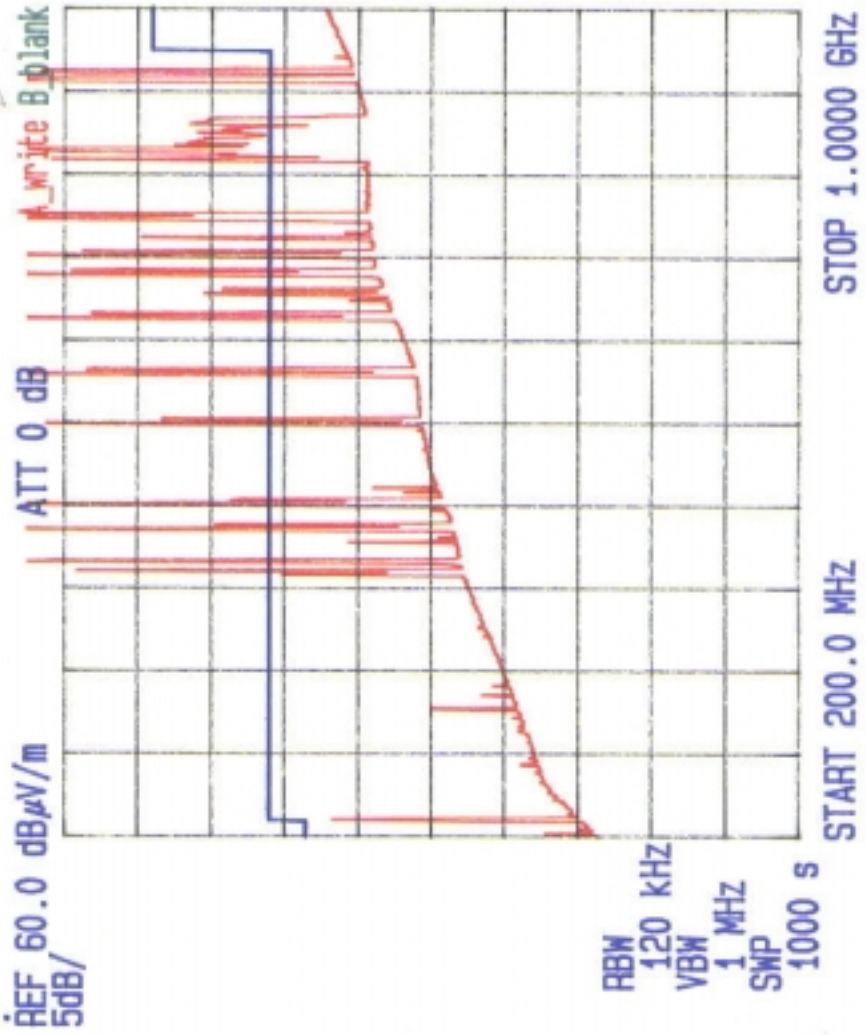
JA-1621

TEST: FCC RADIATED EUT: WalkMate REV 1.1 S/N: 1100B
FREQ: 200M-1GHz SPEC: PARAGRAPH 15.247 (2) (C) ANT.HT/POL: 1.5m H
DETECTOR: Q PEAK AMB. ANTENNA: INTERNAL EUT POSITION:
DATE: 8/2/99 TEST SITE: 3 METER TESTER:



JA-1621

TEST: FCC RADIATED EUT: WalkMate REV 1.1 S/N: 1100B
FREQ: 200M-1GHz SPEC: PARAGRAPH 15.247 (2) (C) ANT.HT/POL: 1.7 m V
DETECTOR: Q PEAK AMB. ANTENNA: INTERNAL EUT POSITION:
DATE: 2/2/02 TEST SITE: 3 METER TESTER:



DATA SHEET A-6

APPENDIX B

COMPLIANCE

LETTER

FEDERAL COMMUNICATIONS COMMISSION

7435 Oakland Mills Road
Columbia, MD 21046
Telephone: 301-725-1585 (ext-218)
Facsimile: 301-344-2050

JA-1621

December 5, 1996

IN REPLY REFER TO
31040/SIT
1300F2

Rubicom Systems, Inc.
284 West Drive, Suite B
Melbourne, FL 32904

Attention: Joseph G. Barbee

Re: Measurement facility located at above address
(3 meter site)

Gentlemen:

Your submission of the description of the subject measurement facility has been reviewed and found to be in compliance with the requirements of Section 2.948 of the FCC Rules. The description has, therefore, been placed on file and the name of your organization added to the Commission's list of facilities whose measurement data will be accepted in conjunction with applications for certification or notification under Parts 15 or 18 of the Commission's Rules. Our list will also indicate that the facility complies with the radiated and AC line conducted test site criteria in ANSI C63.4-1992. Please note that this filing must be updated for any changes made to the facility, and at least every three years the data on file must be certified as current.

Per your request, the above mentioned facility has been also added to our list of those who perform these measurement services for the public on a fee basis. This list is published periodically and is also available on the Laboratory's Public Access Link as described in the enclosed Public Notice.

Sincerely,

Thomas W. Phillips
Electronics Engineer
Customer Service Branch

Enclosure:
PAL PN