

Marstech Limited

11 Kelfield Street, Etobicoke, Ontario, Canada, M9W 5A1
Telephone (416) 246-1116, Fax (416) 246-1020

Authorized by:
Professional Engineers
Ontario



Engineering &
Administrative

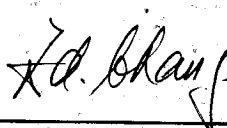
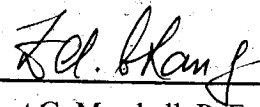


Testing For FCC
Submissions/Verifications



Approved Test Facility



TEST REPORT			
REPORT DATE:		23 February 2004	
		REPORT NO: 24003D	
CONTENTS:	See Table of Contents		
SUBMITTOR:	ATLINKS USA, Inc. 101 West 103 rd Street Indianapolis, IN 46290-1102 USA		
SUBJECT:	Model No:		22430XXX-A
	FCC ID:		G9H2-2430A
TEST SPECIFICATION	FCC CFR 47 Part 15 FCC DA 00-705 "Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems." NOTE: Tests Conducted Are "Type" Tests.		
DATE SAMPLE RECEIVED:	08 January 2004	DATE TESTED:	15, 19 & 26 Jan. 2004; and 03, 09, 11, 13, 16 & 17 Feb. 2004
RESULTS:	Equipment tested complies with referenced specifications.		
ALTERATIONS	None		
Tested by:		Approved by:	
	Edward Chang	Date:	8 March 2004
THIS REPORT SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE WRITTEN APPROVAL OF MARSTECH LIMITED. This report was prepared by Marstech Limited for the account of the "Submittor". The material in it reflects Marstech's judgement in light of the information available to it at the time of preparation. Any use which a Third Party makes of this report, or any reliance on decisions to be made based on it, are the responsibility of such Third Parties. Marstech accepts no responsibility for damages, if any, suffered by any Third Party as a result of decisions made or actions based on this report.			

TECHNICAL REPORT - FCC 2.1033(b)

Applicant

ATLINKS USA, Inc.
101 West 103rd Street
Indianapolis, IN
46290-1102 USA

FCC Identifier

G9H2-2430A

Manufacturer

Integrated Display Technology Telecommunications
(Shenzhen) Co., Ltd.
Block 21, Chentian Industrial Village
Xixian Town, Bao An District
Shenzhen City, CHINA

TABLE OF CONTENTS

<u>Exhibit</u>	<u>Description</u>	<u>FCC Ref.</u>	<u>Page</u>
A	Installation and Operating Instructions Furnished to the User.	2.1033(b)(3)	Exhibit A Exhibit A(1)
B	Description of Circuit Functions and Frequency Hopping Information Statement of Security Code	2.1033(b)(4)	Exhibit B Exhibit B(1)-1 to -3 Exhibit B(2)-1 to -5 Exhibit B(3)
C	Block Diagram Schematic Diagram	2.1033(b)(5)	Exhibit C Exhibit C(1)-1 to -4 Exhibit C(2)-1 to -6
D	Report of Measurements	2.1033(b)(6)	Exhibit D
E	Photographs Label Equipment - External Photos Internal Photos	2.1033(b)(7)	Exhibit E Exhibit E(1)-1 to -2 Exhibit E(2)-1 to -2 Exhibit E(2)-3 to -8
F	Verification Report (Not Part of Certification Package)		Exhibit F

EXHIBIT D

[FCC Ref. 2.1033(b)(6)]

"Report of Measurements"

TABLE OF CONTENTS

TEST REPORT CONTAINING:

Exhibit D(1)	Table of Contents
Exhibit D(2)	Product Description
Exhibit D(3)-1	15.107(a) Power Line Conducted Interference
Exhibit D(3)-2 to -8	15.205(c)/15.209 Spurious Radiated Emissions in Restricted Bands and Field Strength of Emissions
Exhibit D(3)-9 to -10	15.205(c)/15.209 Field Strength of Radiated Emissions in Restricted Bands at 2483.5 MHz
Exhibit D(3)-11	15.247(a)(1) Hopping Channel Separation
Exhibit D(3)-12	15.247(a)(1) Frequency Hopping Systems (Number of Hopping Frequencies Used and Channel Bandwidth)
Exhibit D(3)-13	15.247(a)(1) Frequency Hopping Systems (Dwell Time)
Exhibit D(3)-14	15.247(b)(1) Maximum Peak Output Power
Exhibit D(3)-15	15.247(c) Bandwidth of Band Edge Measurement
Exhibit D(3)-16	15.247(g) and 15.247(h)
Exhibit D(4)-1 to -2	Test Equipment List and Facility
Exhibit D(5)	3M Test Site FCC Letter
Exhibit D(6)	Frequency List Table
Exhibit D(7)	Test Setup Photos
Exhibit D(8)	Test Setup Diagram for AC Conducted Line Testing
Exhibit D(9)-1 to -3	FCC RF Exposure Requirements
Exhibit D(10)-1 to -70	SAR Report
Appendix 1 to 2	Plots for Power Line Conducted Interference
Appendix 3 to 11	Plots for Hopping Channel Separation
Appendix 12 to 15	Plots for Hopping Frequency
Appendix 16 to 24	Plots for 20 dB Bandwidth
Appendix 25 to 28	Plots for Dwell Time
Appendix 29 to 34	Plots for Band Edge

MARSTECH LIMITED

PRODUCT DESCRIPTION

The ATLINKS USA, Inc. Model 22430XXX-A is a 2.4GHz single line, spread spectrum, frequency hopping, cordless telephone with speakerphone, clock and caller ID that operates from 2401.056 to 2482.272 MHz. The antenna used for the base and the handset are permanently attached to the EUT.

Refer to Exhibit D(6) for complete frequency list.

NOTE: The base and handset use **95** Channels.

MARSTECH LIMITED

15.107 (a) POWER LINE CONDUCTED INTERFERENCE

Requirements:

Frequency of Emission (MHZ)	Conducted Limit (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

Test Procedure:

ANSI STANDARD C63.4-1992. using a 50uH LISN. Both lines were observed with the EUT transmitting. The bandwidth of the spectrum analyzer was 9KHz QP with an appropriate sweep speed. The ambient temperature of the EUT was 24°C with a humidity of 60%.

The spectrum was scanned from 0.15 to 30MHz.

Test Data:

The highest emission read for PHASE was 45.10 dBμV@ 0.15 MHz.

The highest emission read for NEUTRAL was 44.95 dBμV@ 0.15 MHz.

The graphs on Appendix 1 to 2 represent the emissions taken for this device.

Test Results:

Both lines were observed. The measurements indicate that the unit DOES appear to meet the FCC requirements for this class of equipment.

15.205(c)/15.209

**SPURIOUS RADIATED EMISSIONS INCLUDING
RESTRICTED BANDS**

Procedure

The test procedure used was ANSI STANDARD C63.4-1992 and DA-00-705 using an appropriate spectrum analyzer, as listed in the Test Equipment List. The bandwidth (RBW) of the spectrum analyzer was 100KHz/120KHz up to 1GHz with an appropriate sweep speed. The RBW above 1.0GHz was = 1.0MHz. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The ambient temperature of the EUT was 24°C with a humidity of 60%.

Requirements:

Emissions that fall in the restricted bands (15.205) must be less than 54dB μ V/m

Test Data:

Refer to Exhibits D(3)-3 to D(3)-10

15.205(c)/15.209

FIELD STRENGTH OF RADIATED EMISSIONS INCLUDING RESTRICTED BANDS**BASE UNIT (ANT0)**

Frequency Band MHz	Meter Reading (Peak) @3m dBμV/M	Meter Reading (Average) @3m dBμV/M	Antenna and Polarization	Cable & Antenna Factor	Peak F. S. dBμV/M	Average F. S. dBμV/M	Average FCC Limit	Margin dB
Channel 1								
2401.056	84.00	—	Horn V	33.08	117.08	—	—	—
4802.112	28.00	10.00	Horn H	38.48	66.48	48.48	54	-5.52
7203.168	29.00	3.00	Horn H	44.02	73.02	47.02	54	-6.98
9604.224	18.00	0.00	Horn H	46.98	64.98	—	97.08	-32.10
12005.280	17.00	1.00	Horn H	47.90	64.90	48.90	54	-5.10
14406.336	18.00	1.00	Horn H	51.82	69.82	52.82	54	-1.18
16807.392	—							
Channel 48								
2441.664	83.00	—	Horn V	33.20	116.20	—	—	—
4883.328	24.00	8.00	Horn H	38.74	62.74	46.74	54	-7.26
7324.992	27.00	2.00	Horn H	44.23	71.23	46.23	54	-7.77
9766.656	18.00	2.00	Horn H	47.11	65.11	—	96.20	-31.09
12208.320	17.00	1.00	Horn H	48.30	65.30	49.30	54	-4.70
14649.984	18.00	1.00	Horn H	51.88	69.88	52.88	54	-1.12
17091.648	—							

1. If the peak meets the average limit, nothing further is required.
2. If the peak exceeds the average limit, then an average measurement is required (may be calculated) and must be below the average limit and also:
3. The peak measurement cannot exceed the average limit +20dB.

15.205(c)/15.209

FIELD STRENGTH OF RADIATED EMISSIONS INCLUDING RESTRICTED BANDS**BASE UNIT (ANT0)**

Frequency Band MHz	Meter Reading (Peak) @3m dBμV/M	Meter Reading (Average) @3m dBμV/M	Antenna and Polarization	Cable & Antenna Factor	Peak F. S. dBμV/M	Average F. S. dBμV/M	Average FCC Limit	Margin dB
Channel 95								
2482.272	82.00	—	Horn V	33.23	115.23	—	—	—
4964.544	24.00	6.00	Horn H	39.00	63.00	45.00	54	-9.00
7446.816	24.00	3.00	Horn H	44.44	68.44	47.44	54	-6.56
9929.088	17.00	2.00	Horn H	47.22	64.22	—	95.23	-31.01
12411.360	15.00	1.00	Horn H	48.70	63.70	49.70	54	-4.30
14893.632	16.00	1.00	Horn H	52.10	68.10	53.10	54	-0.90
17375.904	—							

1. If the peak meets the average limit, nothing further is required.
2. If the peak exceeds the average limit, then an average measurement is required (may be calculated) and must be below the average limit and also:
3. The peak measurement cannot exceed the average limit +20dB.

15.205(c)/15.209

FIELD STRENGTH OF RADIATED EMISSIONS INCLUDING RESTRICTED BANDS**BASE UNIT (ANT1)**

Frequency Band MHz	Meter Reading (Peak) @3m dBuV/M	Meter Reading (Average) @3m dBuV/M	Antenna and Polarization	Cable & Antenna Factor	Peak F. S. dBuV/M	Average F. S. dBuV/M	Average FCC Limit	Margin dB
Channel 1								
2401.056	81.00	—	Horn V	33.08	114.08	—	—	—
4802.112	26.00	9.00	Horn H	38.48	64.48	47.48	54	-6.52
7203.168	29.00	3.00	Horn H	44.02	73.02	47.02	54	-6.98
9604.224	17.00	1.00	Horn H	46.98	63.98	—	94.08	-30.10
12005.280	17.00	1.00	Horn H	47.90	64.90	48.90	54	-5.10
14406.336	18.00	1.00	Horn H	51.82	69.82	52.82	54	-1.18
16807.392	—							
Channel 48								
2441.664	79.00	—	Horn V	33.20	112.20	—	—	—
4883.328	28.00	8.00	Horn H	38.74	66.74	46.74	54	-7.26
7324.992	28.00	3.00	Horn H	44.23	72.23	47.23	54	-6.77
9766.656	17.00	1.00	Horn H	47.11	64.11	—	92.20	-28.09
12208.320	17.00	1.00	Horn H	48.30	65.30	49.30	54	-4.70
14649.984	20.00	1.00	Horn H	51.88	71.88	52.88	54	-1.12
17091.648	—							

1. If the peak meets the average limit, nothing further is required.
2. If the peak exceeds the average limit, then an average measurement is required (may be calculated) and must be below the average limit and also:
3. The peak measurement cannot exceed the average limit +20dB.

15.205(c)/15.209

FIELD STRENGTH OF RADIATED EMISSIONS INCLUDING RESTRICTED BANDS**BASE UNIT (ANT1)**

Frequency Band MHz	Meter Reading (Peak) @3m dBμV/M	Meter Reading (Average) @3m dBμV/M	Antenna and Polarization	Cable & Antenna Factor	Peak F. S. dBμV/M	Average F. S. dBμV/M	Average FCC Limit	Margin dB
Channel 95								
2482.272	77.00	—	Horn V	33.23	110.23	—	—	—
4964.544	28.00	8.00	Horn H	39.00	67.00	47.00	54	-7.00
7446.816	24.00	3.00	Horn H	44.44	68.44	47.44	54	-6.56
9929.088	18.00	2.00	Horn H	47.22	65.22	—	90.23	-25.01
12411.360	17.00	1.00	Horn H	48.70	65.70	49.70	54	-4.30
14893.632	18.00	1.00	Horn H	52.10	70.10	53.10	54	-0.90
17375.904	—							

1. If the peak meets the average limit, nothing further is required.
2. If the peak exceeds the average limit, then an average measurement is required (may be calculated) and must be below the average limit and also:
3. The peak measurement cannot exceed the average limit +20dB.

15.205(c)/15.209

FIELD STRENGTH OF RADIATED EMISSIONS INCLUDING RESTRICTED BANDS**HANDSET UNIT**

Frequency Band MHz	Meter Reading (Peak) @3m dBμV/M	Meter Reading (Average) @3m dBμV/M	Antenna and Polarization	Cable & Antenna Factor	Peak F. S. dBμV/M	Average F. S. dBμV/M	Average FCC Limit	Margin dB
Channel 1								
2401.056	87.00	—	Horn V	33.08	120.08	—	—	—
4802.112	22.00	2.00	Horn H	38.48	60.48	40.48	54	-13.52
7203.168	26.00	2.00	Horn H	44.02	70.02	46.02	54	-7.98
9604.224	17.00	1.00	Horn H	46.98	63.98	—	100.08	-36.10
12005.280	20.00	2.00	Horn H	47.90	67.90	49.90	54	-4.10
14406.336	18.00	1.00	Horn V	51.82	69.82	52.82	54	-1.18
16807.392	—							
Channel 48								
2441.664	86.00	—	Horn V	33.20	119.20	—	—	—
4883.328	20.00	2.00	Horn H	38.74	58.74	40.74	54	-13.26
7324.992	26.00	2.00	Horn H	44.23	70.23	46.23	54	-7.77
9766.656	18.00	1.00	Horn H	47.11	65.11	—	99.20	-34.09
12208.32	19.00	2.00	Horn H	48.30	67.30	50.30	54	-3.70
14649.984	18.00	1.00	Horn V	51.88	69.88	52.88	54	-1.12
17091.648	—							

1. If the peak meets the average limit, nothing further is required.
2. If the peak exceeds the average limit, then an average measurement is required (may be calculated) and must be below the average limit and also:
3. The peak measurement cannot exceed the average limit +20dB.

15.205(c)/15.209

FIELD STRENGTH OF RADIATED EMISSIONS INCLUDING RESTRICTED BANDS**HANDSET UNIT**

Frequency Band MHz	Meter Reading (Peak) @3m dBμV/M	Meter Reading (Average) @3m dBμV/M	Antenna and Polarization	Cable & Antenna Factor	Peak F. S. dBμV/M	Average F. S. dBμV/M	Average FCC Limit	Margin dB
Channel 95								
2482.272	85.00	—	Horn V	33.23	118.23	—	—	—
4964.544	17.00	1.00	Horn H	39.00	56.00	40.00	54	-14.00
7446.816	23.00	2.00	Horn H	44.44	67.44	46.44	54	-7.56
9929.088	22.00	3.00	Horn H	47.22	69.22	—	98.23	-29.01
12411.360	16.00	1.00	Horn H	48.70	64.70	49.70	54	-4.30
14893.632	18.00	1.00	Horn V	52.10	70.10	53.10	54	-0.90
17375.904	—							

1. If the peak meets the average limit, nothing further is required.
2. If the peak exceeds the average limit, then an average measurement is required (may be calculated) and must be below the average limit and also:
3. The peak measurement cannot exceed the average limit +20dB.

15.205(c)/15.209

FIELD STRENGTH OF RADIATED EMISSIONS IN RESTRICTED BANDS AT 2483.5 MHz**Marker Delta Method**

1. The in-band field strength is shown below:

	<u>Peak</u>	<u>Average</u>
Base (ANT0):	115.23 dB μ V/M	70.23 dB μ V/M
Base (ANT1):	110.23 dB μ V/M	69.23 dB μ V/M
Handset:	118.23 dB μ V/M	77.23 dB μ V/M

2. The Delta amplitude in peak hold mode is shown as follows:

Base (ANT0):	50.93 dB	[Refer Exhibit D(3)-10]
Base (ANT1):	51.87 dB	[Refer Exhibit D(3)-10]
Handset:	50.93 dB	[Refer Exhibit D(3)-10]

3. The band edge emissions are therefore as follows:

	<u>Peak</u>
Base (ANT0)	115.23 - 50.93 = 64.30 dB μ V/M
Base (ANT1)	110.23 - 51.87 = 58.36 dB μ V/M
Handset	118.23 - 50.93 = 67.30 dB μ V/M

	<u>Average</u>
Base (ANT0)	70.23 - 50.93 = 19.30 dB μ V/M
Base (ANT1)	69.23 - 51.87 = 17.36 dB μ V/M
Handset	77.23 - 50.93 = 26.30 dB μ V/M

15.205(c)/15.209

FIELD STRENGTH OF RADIATED EMISSIONS IN RESTRICTED BANDS AT 2483.5 MHz

Frequency Band MHz	Peak F. S. dBμV/M	Average F. S. dBμV/M	Peak F. S. dBc	Average F. S. dBc
<u>Base (ANT0)</u>				
Channel 95				
2482.272	115.23	70.23		
2483.5			64.30	19.30
<u>Base (ANT1)</u>				
Channel 95				
2482.272	110.23	69.23		
2483.5			58.36	17.36
<u>Handset</u>				
Channel 95				
2482.272	118.23	77.23		
2483.5			67.30	26.30

15.247(a)(1) HOPPING CHANNEL SEPARATION

Requirements:

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20dB bandwidth of the hopping channel, whichever is greater. Frequency hopping systems in the 2.4GHz band may have hopping channel carrier frequencies separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems employ fewer than 75 hopping channels and operate with an output power no greater than 125 mW.

Measurement Procedure

1. Position the EUT without connection to the Spectrum Analyzer (SA). Turn on the EUT and connect it to the SA. Then set it to any one convenient frequency within its operating range.
2. By using the Max Hold function record the separation of two adjacent channels.
3. Measure the frequency difference of these two adjacent channels by SA MARK function and then plot the result on the SA screen.
4. Repeat above procedures until all frequencies measured were complete.

Measurement Data - Refer Appendix 3 to 11 for plotted data

Base (ANT0)

Channel 1:	Adjacent Hopping Channel Separation is 864 kHz.
Channel 47 & 48:	Adjacent Hopping Channel Separation is 873 kHz.
Channel 94 & 95:	Adjacent Hopping Channel Separation is 873 kHz.

Base (ANT1)

Channel 1:	Adjacent Hopping Channel Separation is 864 kHz.
Channel 47 & 48:	Adjacent Hopping Channel Separation is 864 kHz.
Channel 94 & 95:	Adjacent Hopping Channel Separation is 864 kHz.

Handset Unit

Channel 1:	Adjacent Hopping Channel Separation is 864 kHz.
Channel 46 & 47:	Adjacent Hopping Channel Separation is 864 kHz.
Channel 94 & 95:	Adjacent Hopping Channel Separation is 864 kHz.

15.247(a)(1) FREQUENCY HOPPING SYSTEMS**Page 1 of 2****NUMBER OF HOPPING FREQUENCIES USED****Requirements:**

Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 non-overlapping channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems which use fewer than 75 hopping frequencies may employ intelligent hopping techniques to avoid interference to other transmissions. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 non-overlapping channels are used.

Measurement Procedure

1. Position the EUT without connection to Spectrum Analyzer (SA). Turn on the EUT and connect its antenna terminal to SA via a low loss cable and set it to any one measured frequency within its operating range and ensure that the SA is operated in its linear range.
2. Set the SA on MaxHold Mode, and then keep the EUT in hopping mode. Record all of the signals from each channel until each one has been recorded.
3. Set the SA on View mode and plot the results on SA screen.
4. Repeat the above procedures until all frequencies measured are complete.

Measurement Data

The base has **95** hopping frequencies and the handset has **95** hopping frequencies. **Refer Appendix 12 to 15 for plotted data.**

CHANNEL BANDWIDTH [15.247(a)]**Requirements:**

The 20dB bandwidth of the hopping channel is less than 1 MHz.

Measurement Procedure

1. Position the EUT without connection to the Spectrum Analyzer (SA). Turn on the EUT and connect it to the SA. Then set it to any one convenient frequency within its operating range. Set a reference level on the SA equal to the highest peak value.
2. Measure the frequency difference of two frequencies that were attenuated 20dB from the reference level. Record the frequency difference as the emission bandwidth.
3. Repeat above procedures until all frequencies measured were complete.

Measurement Data - Refer Appendix 16 to 24 for plotted data

<u>Base (ANT0)</u>	Channel 1:	Channel Bandwidth is 649 kHz.
	Channel 48:	Channel Bandwidth is 660 kHz.
	Channel 95:	Channel Bandwidth is 650 kHz.
<u>Base (ANT1)</u>	Channel 1:	Channel Bandwidth is 659 kHz.
	Channel 48:	Channel Bandwidth is 673 kHz.
	Channel 95:	Channel Bandwidth is 650 kHz.
<u>Handset Unit</u>	Channel 1:	Channel Bandwidth is 668 kHz.
	Channel 48:	Channel Bandwidth is 661 kHz.
	Channel 95:	Channel Bandwidth is 651 kHz.

15.247(a)(1) FREQUENCY HOPPING SYSTEMS (continued)

Page 2 of 2

DWELL TIME ON EACH CHANNEL

Requirements:

The average time of occupancy on any frequency shall not be greater than 0.4 seconds within a (0.4 x 95) 38 second period.

Measurement Procedure

1. Position the EUT without connection to Spectrum Analyzer (SA). Turn on the EUT and connect its antenna terminal to SA via a low loss cable and set it to any one measured frequency within its operating range and ensure that the SA is operated in its linear range.
2. Adjust the centre frequency of SA on any frequency to be measured and set SA to zero span mode. Set RBW and VBW of SA to proper value.
3. Measure the time duration of one transmission on the measured frequency and then plot the result with the time difference of this time duration.
4. Repeat the above procedures until all frequencies measured were complete.

Measurement Data - Refer Appendix 25 to 28 for plotted data.

Base (ANT0)

The dwell time is $(0.84 \text{ mS} \times 1) \times 40 = 33.6 \text{ mS}$

The maximum time of occupancy for a particular channel is **33.6 mS** in any 30 second period.

Base (ANT1)

The dwell time is $(0.84 \text{ mS} \times 1) \times 40 = 33.6 \text{ mS}$

The maximum time of occupancy for a particular channel is **33.6 mS** in any 30 second period.

Handset Unit

The dwell time is $(0.84 \text{ mS} \times 1) \times 40 = 33.6 \text{ mS}$

The maximum time of occupancy for a particular channel is **33.6 mS** in any 30 second period.

15.247(b) (1) MAXIMUM PEAK OUTPUT POWER [EIRP]

Requirements:

For frequency hopping systems in the 2400-2483.5 MHz band employing at least 75 hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 Watt. For all other frequency hopping systems in the 2400-2483.5 band: 0.125 Watt. If transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Measurement Data -

Base (ANT0)

Channel 1:	Output Peak Power is 0.153 W [EIRP].
Channel 48:	Output Peak Power is 0.129 W [EIRP].
Channel 95:	Output Peak Power is 0.100 W [EIRP].

Base (ANT1)

Channel 1:	Output Peak Power is 0.0767 W [EIRP].
Channel 48:	Output Peak Power is 0.0497 W [EIRP].
Channel 95:	Output Peak Power is 0.0316 W [EIRP].

Handset Unit

Channel 1:	Output Peak Power is 0.306 W [EIRP].
Channel 48:	Output Peak Power is 0.249 W [EIRP].
Channel 95:	Output Peak Power is 0.199 W [EIRP].

15.247(c) BANDWIDTH OF BAND EDGE MEASUREMENT

Requirements:

In any 100 kHz bandwidth outside these frequency bands, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

Measurement Procedure

1. Position the EUT without connection to Spectrum Analyzer (SA). Turn on the EUT and connect its antenna terminal to SA via a low loss cable and set it to any one measured frequency within its operating range and ensure that the SA is operated in its linear range.
2. Set RBW to 120 kHz and suitable frequency span 500 KHz or 1000 kHz; VBW = none.
3. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
4. Repeat the above procedures until all frequencies measured were complete.
5. Note: Measurements made with hopping and modulation.

Measurement Data - Refer Appendix 38 to 43 for plotted data

Base (ANT0)

Channel 1: All emissions in this 100 kHz bandwidth are attenuated more than **46.87** dB.
Channel 95: All emissions in this 100 kHz bandwidth are attenuated more than **50.93** dB.

Base (ANT1)

Channel 1: All emissions in this 100 kHz bandwidth are attenuated more than **46.87** dB.
Channel 95: All emissions in this 100 kHz bandwidth are attenuated more than **51.87** dB.

Handset Unit

Channel 1: All emissions in this 100 kHz bandwidth are attenuated more than **46.55** dB.
Channel 95: All emissions in this 100 kHz bandwidth are attenuated more than **50.93** dB.

Part 15.247(g):

Exhibit B(2)-5 provides information on how the system is designed while the transmitter is presented with a continuous voice stream and a description of the system transmitting short bursts.

Part 15.247(h):

Exhibit B(2)-5 provides information concerning the avoidance of simultaneous occupancy of hopping frequencies by multiple transmitters, system synchronization procedure, frequency hopping algorithm, hopping tables, and dual slot diversity.

TEST FACILITY AND EQUIPMENT LIST

FACILITIES:

- Radiated ANSI C63.4 (FCC OET/55) open field 3 metre test range. This test range is protected from the cold and moisture by a non-conductive enclosure.
- Conducted 2.5m Anechoic Chamber

EQUIPMENT:

Anritsu 2601A Spectrum Analyzer
Advantest R3261A Spectrum Analyzer
Hewlett-Packard RF generator # 8640 B with an 002 doubler
A.H. Systems biconical antenna; 20 MHz to 330 MHz
A.H. Systems log periodic antenna; 300 MHz to 1.8 GHz
Compliance Design P950 Preamp (16 dB) ... 25 MHz to 1.0 GHz

NOTE:

The Anritsu 2601A Spectrum Analyzer and the Advantest R3261A Spectrum Analyzer are calibrated annually, and that calibration is directly traceable to the National Research Council of Canada. (NRC)
This equipment is only used by qualified technicians and only for the purpose of EMI measurements. The three metre test range has been carefully evaluated to the ANSI document C63.4 and will be remeasured for reflections and losses every three years.

ADDITIONAL TEST EQUIPMENT LIST

1. Spectrum Analyzer: HP 8591EM, S/N 3639A00995, (9KHz - 1.8GHz), Calibrated April 2003
2. Spectrum Analyzer: ANRITSU 2601A, S/N MT64544, (10KHz - 2.2GHz), Calibrated May 2003
3. Spectrum Analyzer: IFR AN940, S/N 635001039, (9KHz - 26.5GHz), Calibrated March 2003
4. Preamp: HP 8449B, S/N 3008A00378, (1 - 26.5GHz), Calibrated August 2003
5. Horn Antenna: Q-PAR 6878/24, S/N 1721, (1.5-18GHz)
6. Horn Antenna: A. H. Systems SAS 572, S/N 164 (18 - 26.5GHz)
7. Line Impedance Stabilization Network.: Marstech, Cal. July 2003
8. Horn Antenna: Radar System (Flange 3/4" Square) MIL F 3922/68 (26.5 - 40GHz)
9. OML Mixer: M28HWD, S/N Ka31114-1 (26.5 - 40GHz), Calibration Due Nov. 10, 2004
10. OML Diplexer: DPL.313A (Unit plugs into M28HWD)
11. Semflex Cable: Used with M28HWD and DPL.313A

FEDERAL COMMUNICATIONS COMMISSION

Laboratory Division
7435 Oakland Mills Road
Columbia, MD 21046

August 22, 2003

Electrohome Electronics Ltd.
809 Wellington St. N.
Kitchener, Ontario, N2G 4J6
Canada

Registration Number: 90578

Attention: Tuat Huynh

Re: Measurement facility located at Roseville
3 meter site
Date of Renewal: August 22, 2003

Dear Sir or Madam:

Your request for renewal of the registration of the subject measurement facility has been received. The information submitted has been placed in your file and the registration has been renewed. The name of your organization will remain on the list of facilities whose measurement data will be accepted in conjunction with applications for Certification under Parts 15 or 18 of the Commission's Rules. Please note that the file must be updated for any changes made to the facility and the registration must be renewed at least every three years.

Measurement facilities that have indicated that they are available to the public to perform measurement services on a fee basis may be found on the FCC website www.fcc.gov under E-Filing, OET Equipment Authorization Electronic Filing, Test Firms.

Sincerely,



Ms. Phyllis Parrish
Information Technician

FCC ID: G9H2-2430A
Marstech Report No. 24003D
EXHIBIT D(5)

AT2430 WDCT Cordless Phone Frequency Table

Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2.401920E+09	42	2.437344E+09	84	2.473632E+09
2	2.402784E+09	43	2.438208E+09	85	2.474496E+09
3	2.403648E+09	44	2.439072E+09	86	2.475360E+09
4	2.404512E+09	45	2.439936E+09	87	2.476224E+09
5	2.405376E+09	46	2.440800E+09	88	2.477088E+09
6	2.406240E+09			89	2.477952E+09
7	2.407104E+09	48	2.442528E+09	90	2.478816E+09
8	2.407968E+09	49	2.443392E+09	91	2.479680E+09
9	2.408832E+09	50	2.444256E+09	92	2.480544E+09
10	2.409696E+09	51	2.445120E+09	93	2.481408E+09
11	2.410560E+09	52	2.445984E+09		
12	2.411424E+09	53	2.446848E+09		
13	2.412288E+09	54	2.447712E+09		
14	2.413152E+09	55	2.448576E+09		
15	2.414016E+09	56	2.449440E+09		
16	2.414880E+09	57	2.450304E+09		
17	2.415744E+09	58	2.451168E+09		
18	2.416608E+09	59	2.452032E+09		
19	2.417472E+09	60	2.452896E+09		
20	2.418336E+09	61	2.453760E+09		
21	2.419200E+09	62	2.454624E+09		
22	2.420064E+09	63	2.455488E+09		
23	2.420928E+09	64	2.456352E+09		
24	2.421792E+09	65	2.457216E+09		
25	2.422656E+09	66	2.458080E+09		
26	2.423520E+09	67	2.458944E+09		
27	2.424384E+09	68	2.459808E+09		
28	2.425248E+09	69	2.460672E+09		
29	2.426112E+09	70	2.461536E+09		
30	2.426976E+09	71	2.462400E+09		
31	2.427840E+09	72	2.463264E+09		
32	2.428704E+09	73	2.464128E+09		
33	2.429568E+09	74	2.464992E+09		
34	2.430432E+09	75	2.465856E+09		
35	2.431296E+09	76	2.466720E+09		
36	2.432160E+09	77	2.467584E+09		
37	2.433024E+09	78	2.468448E+09		
38	2.433888E+09	79	2.469312E+09		
39	2.434752E+09	80	2.470176E+09		
40	2.435616E+09	81	2.471040E+09		
41	2.436480E+09	82	2.471904E+09		
		83	2.472768E+09		

NOTE: Channel 0 - 2.401056E+09
Channel 47 - 2.441664E+09
Channel 94 - 2.482272E+09