EXHIBIT A

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

"Report of Measurements"

TABLE OF CONTENTS

TEST REPORT CONTAINING:

PRODUCT DESCRIPTION

The Model 25831XXX-A (Base) is a 5.8GHz single-line, frequency hopping spread spectrum, cordless telephone base that operates from 5760.719 MHz to 5838.311 MHz. The antenna used for the base is permanently attached to the EUT.

Refer to Exhibit A(5) for frequency channel information and frequency list.

NOTE: The base uses **75** channels.

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:

Base Unit

The highest emission read for PHASE was **29.51 dBμV@ 0.15 MHz.**
The highest emission read for NEUTRAL was **28.82 dBμV@ 14.43 MHz.**

Refer to Appendix 1 and 2.

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 IN 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 54dBμV/m

Test Data:

Refer to Exhibit A(3)-3 to -5

15.205(c)/15.209 **FIELD STRENGTH OF RADIATED EMISSIONS INCLUDING RESTRICTED BANDS**

BASE 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 dBuV/M	Average FCC Limit	Margin dB
Channel 1								
5760.719	**84.00**	—	**Horn V**	**39.48**	**123.48**	—	—	—
3358.91	13.00	8.00	Horn V	35.44	48.44	43.44	54	-10.56
3819.48	15.00	2.00	Horn V	36.08	51.08	38.08	54	-15.92
4903.69	15.00	1.00	Horn V	38.61	53.61	39.61	54	-14.39
5878.07	22.00	6.00	Horn V	40.79	62.79	46.79	54	-7.21
5917.78	22.00	6.00	Horn V	40.79	62.79	46.79	54	-7.21
11521.438	12.00	0.00	Horn V	47.43	59.43	47.43	54	-6.57
17282.157	19.00	—	Horn H	54.16	73.16	—	103.48	-30.32
23042.87	10.00	—	Horn H	49.21	59.21	—	103.48	-44.27
Channel 44								
5799.069	**80.00**	—	**Horn V**	**39.57**	**119.57**	—	—	—
3358.86	12.00	8.00	Horn V	35.44	47.44	43.44	54	-10.56
3857.79	20.00	5.00	Horn V	36.08	56.08	41.08	54	-12.92
4880.30	17.00	4.00	Horn V	38.61	55.61	42.61	54	-11.39
5878.07	22.00	6.00	Horn V	40.79	62.79	46.79	54	-7.21
5917.78	22.00	6.00	Horn V	40.79	62.79	46.79	54	-7.21
11598.138	9.00	-2.00	Horn V	46.06	55.06	44.06	54	-9.94

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

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 dBuV/M	Average FCC Limit	Margin dB
Channel 88								
5838.311	**79.00**	—	**Horn V**	**39.66**	**118.66**	—	—	—
3358.80	13.00	8.00	Horn V	35.44	48.44	43.44	54	-10.56
3897.06	17.00	0.00	Horn V	36.08	53.08	36.08	54	-17.92
4958.90	17.00	1.00	Horn V	38.61	55.61	39.61	54	-14.39
5878.07	22.00	6.00	Horn V	40.79	62.79	46.79	54	-7.21
5917.78	22.00	6.00	Horn V	40.79	62.79	46.79	54	-7.21
11676.622	9.00	-2.00	Horn V	47.50	56.50	45.50	54	-8.50

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

Emission Frequency MHz	Meter Reading @3m dBμV/M (Peak)	Antenna Polarity	Total Correction Factor dB	Field Strength dBμV/M (Peak)	FCC Limit dB	Margin dB	Detector & BW Khz
Channel 1							
28803.595	32.00	V	56.04	88.04	103.48	-15.44	PK 1000
34564.314	32.00	V	58.25	90.25	103.48	-13.23	PK 1000
Channel 44							
28995.345	—						
34794.414	—						
Channel 88							
29191.555	—						
35029.866	—						

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.

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 5 for plotted data

Base Unit

Low Channel (CH1 & CH2):	Adjacent Hopping Channel Separation is **891.900** kHz.
Mid Channel (CH55 & CH56):	Adjacent Hopping Channel Separation is **891.600** kHz.
High Channel (CH98 & CH99):	Adjacent Hopping Channel Separation is **892.000** kHz.

15.247(a)(1) FREQUENCY HOPPING SYSTEMS

NUMBER OF HOPPING FREQUENCIES USED

Requirements:

Frequency hopping systems operating in the 2400-2483.5 MHz band shall use at least 15 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 may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 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 75 hopping frequencies. **Refer Appendix 6 to 8 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 are complete.

Measurement Data - Refer Appendix 9 to 11 for plotted data.

Base Unit	Channel 01:	Channel Bandwidth is **714** kHz.
	Channel 44:	Channel Bandwidth is **707** kHz
	Channel 88:	Channel Bandwidth is **709** kHz

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

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 75)** 30 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 are complete.

Measurement Data - Refer Appendix 12 to 13 for plotted data.

Base Unit

The dwell time is (1.05 mS x 4) x 40 = 168 mS

The maximum time of occupancy for a particular channel is 168 mS in any 30 second period.

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

Requirements:

For frequency hopping systems in the 2400-2483.5 MHz band employing at least 75 non-overlapping 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 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 of SA to 5MHz and VBW to NONE.

3. Measure the highest amplitude appearing on spectral display and record the level to calculate result data.

4. Repeat the above procedures until all frequencies measured are complete.

Measurement Data

Base Unit:

Channel 01:	Output Peak Power is	0.407 W.	**[ERP]**
Channel 44:	Output Peak Power is	0.166 W.	**[ERP]**
Channel 88:	Output Peak Power is	0.134 W.	**[ERP]**

15.247(d) 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 marking the highest point and edge frequency.

4. Repeat the above procedures until all frequencies measured are complete.

5. Note: Measurements to be made with hopping and modulation.

Measurement Data - Refer Appendix 14 and 15 for plotted data

Base Unit

Channel 01: All emissions in this 100 kHz bandwidth are attenuated more than **42.18** dB.
Channel 88: All emissions in this 100 kHz bandwidth are attenuated more than **44.68** dB.

Part 15.247(g): Exhibit C(3)-18 and -19 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 C(3)-19 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), Calibration Due June 2005
2. Spectrum Analyzer: ANRITSU 2601A, S/N MT64544, (10KHz - 2.2GHz), Calibration Due June 2005
3. Spectrum Analyzer: IFR AN940, S/N 635001039, (9KHz - 26.5GHz), Calibration Due April 2005
4. Preamp: HP 8449B, S/N 3008A00378, (1 - 26.5GHz), Calibration Due August 2005
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, Calibration Due July 2005
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. 2005
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
Attention: Tuat Huynh

Registration Number: 90578

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: G9H2-5831A
Marstech Report No. 24298D
EXHIBIT A(4)-3