EXHIBIT A

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

"Report of Measurements"

LIST OF EXHIBITS

Exhibit A(1)	List of Exhibits
Exhibit A(2)	Product Description
Exhibit A(3)-1	15.107(a) Power Line Conducted Interference
Exhibit A(3)-2 to -10	15.205(c)/15.209 Spurious Radiated Emissions in Restricted Bands and Field Strength of Emissions
Exhibit A(3)-11	15.247(b)(1) Maximum Peak Output Power **[EIRP]**
Exhibit A(3)-12	15.247(g) and 15.247(h)
Exhibit A(4)-1 to -3	Test Equipment List and Facility
Exhibit A(5)-1 to -2	Frequency List Table
Exhibit A(6)-1 to -2	Test Setup Photos
Exhibit A(7)	Test Setup Diagram for Power Line Conducted Testing
Exhibit A(8)-1 to -3	FCC RF Exposure Requirements
Exhibit A(9)-1 to -67	SAR Report
Appendix 1 to 2	Plots for Power Line Conducted Interference

PRODUCT DESCRIPTION

The Thomson Inc. (formerly ATLINKS USA, Inc.) Model 28031XXX-A is a 5.8GHz single-line, frequency hopping spread spectrum, cordless telephone with caller ID, answering machine, handset speakerphone and up to four multi-handset expandability, that operates from 5725.809328 MHz to 5848.889420 MHz. The antenna used for the base and the handset are permanently attached to the EUT.

The Model 28031XXX-A is identical to previously registered Model 28021XXX-A except model designation, addition of answering machine feature, different base main board and new power amp in base and handset RF modules.

Refer to Exhibit A(5) for complete frequency list.

NOTE: The base and handset use **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
38136	60	50

*Decreases with the logarithm of the frequency.

Test Procedure:

ANSI STANDARD C63.4-2003 using a 50μH 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 **24.10 dBμV@ 0.15 MHz**.
The highest emission read for NEUTRAL was **24.64 dBμV@ 0.15 MHz**.

Refer to Appendix 1 and 2 for the plots.

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 C63.4-2003 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 Exhibits A(3)-3 to -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	FCC Limit dBµV/M	Margin dB
Channel 1								
5725.809	**81.00**	—	**Horn V**	**39.65**	**120.65**	—	—	—
5535.3	32.00	—	Horn V	39.43	71.43	—	100.65	-29.22
11451.618	17.00	5.00	Horn H	40.91	57.91	45.91	54	-8.09
17177.427	28.00	—	Horn H	46.84	74.84	—	100.65	-25.81
22903.236	18.00	3.00	Horn H	49.18	67.18	52.18	54	-1.82
Channel 71								
5788.24	**81.00**	—	**Horn V**	**39.84**	**120.84**	—	—	—
5542.1	26.00	—	Horn V	39.43	65.43	—	100.84	-35.41
11576.48	17.00	5.00	Horn H	40.95	57.95	45.95	54	-8.05
17364.72	28.00	—	Horn H	46.66	74.66	—	100.84	-26.18
23152.961	18.00	3.00	Horn H	49.5	67.50	52.50	54	-1.50

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 (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	FCC Limit dBµV/M	Margin dB
Channel 139								
5848.889	**81.00**	—	**Horn V**	**39.5**	**120.50**	—	—	—
5535.2	20.00	—	Horn V	39.43	59.43	—	100.5	-41.07
11697.778	17.00	5.00	Horn H	40.99	57.99	45.99	54	-8.01
17546.668	28.00	—	Horn H	46.39	74.39	—	100.5	-26.11
23395.557	18.00	3.00	Horn H	49.33	67.33	52.33	54	-1.67

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]

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							
28629.045	35.00	V	61.98	96.98	100.65	-3.67	PK 1000
34354.854	35.00	V	61.42	96.42	100.65	-4.23	PK 1000
Channel 71							
28941.200	35.00	V	62.07	97.07	100.84	-3.77	PK 1000
34729.440	35.00	V	61.51	96.51	100.84	-4.33	PK 1000
Channel 139							
29244.445	35.00	V	62.16	97.16	100.50	-3.34	PK 1000
35093.334	35.00	V	61.6	96.60	100.50	-3.90	PK 1000

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	FCC Limit dBµV/M	Margin dB
Channel 1								
5725.809	**80.00**	—	**Horn V**	**39.65**	**119.65**	—	—	—
5535.31	47.00	—	Horn V	39.43	86.43	—	99.65	-13.22
11451.618	17.00	5.00	Horn H	40.91	57.91	45.91	54	-8.09
17177.427	28.00	—	Horn H	46.84	74.84	—	99.65	-24.81
22903.236	18.00	3.00	Horn H	49.18	67.18	52.18	54	-1.82
Channel 71								
5788.24	**80.00**	—	**Horn V**	**39.84**	**119.84**	—	—	—
5544.7	30.00	—	Horn V	39.43	69.43	—	99.84	-30.41
11576.48	17.00	5.00	Horn H	40.95	57.95	45.95	54	-8.05
17364.72	28.00	—	Horn H	46.66	74.66	—	99.84	-25.18
23152.961	18.00	3.00	Horn H	49.5	67.50	52.50	54	-1.50

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 (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	FCC Limit dBµV/M	Margin dB
Channel 139								
5848.889	**80.00**	—	**Horn V**	**39.5**	**119.50**	—	—	—
5559.9	21.00	—	Horn V	39.43	60.43	—	99.5	-39.07
11697.778	17.00	5.00	Horn H	40.99	57.99	45.99	54	-8.01
17546.668	28.00	—	Horn H	46.39	74.39	—	99.5	-25.11
23395.557	18.00	3.00	Horn H	49.33	67.33	52.33	54	-1.67

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)

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							
28629.045	35.00	V	61.98	96.98	99.65	-2.67	PK 1000
34354.854	35.00	V	61.42	96.42	99.65	-3.23	PK 1000
Channel 71							
28941.200	35.00	V	62.07	97.07	99.84	-2.77	PK 1000
34729.440	35.00	V	61.51	96.51	99.84	-3.33	PK 1000
Channel 139							
29244.445	35.00	V	62.16	97.16	99.50	-2.34	PK 1000
35093.334	35.00	V	61.6	96.60	99.50	-2.90	PK 1000

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	FCC Limit dBµV/M	Margin dB
Channel 1								
5725.809	**77.50**	—	**Horn H**	**39.65**	**117.15**	—	—	—
11451.618	19.00	3.00	Horn H	40.91	59.91	43.91	54	-10.09
17177.427	29.00	—	Horn H	46.84	75.84	—	99.65	-23.81
22903.236	22.00	2.00	Horn H	49.18	71.18	51.18	54	-2.82
Channel 71								
5788.24	**77.50**	—	**Horn H**	**39.84**	**117.34**	—	—	—
11576.48	18.00	3.00	Horn H	40.95	58.95	43.95	54	-10.05
17364.72	28.00	—	Horn H	46.66	74.66	—	98.84	-24.18
23152.961	22.00	2.00	Horn H	49.5	71.50	51.50	54	-2.50
Channel 139								
5848.889	**78.00**	—	**Horn H**	**39.5**	**117.50**	—	—	—
11697.778	18.00	3.00	Horn H	40.99	58.99	43.99	54	-10.01
17546.668	28.00	—	Horn H	46.39	74.39	—	97.5	-23.11
23395.557	22.00	2.00	Horn H	49.33	71.33	51.33	54	-2.67

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

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							
28629.045	35.00	V	61.98	96.98	99.65	-2.67	PK 1000
34354.854	35.00	V	61.42	96.42	99.65	-3.23	PK 1000
Channel 71							
28941.200	35.00	V	62.07	97.07	98.84	-1.77	PK 1000
34729.440	35.00	V	61.51	96.51	98.84	-2.33	PK 1000
Channel 139							
29244.445	35.00	V	62.16	97.16	97.50	-0.34	PK 1000
35093.334	35.00	V	61.6	96.60	97.50	-0.90	PK 1000

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

Requirements:

For frequency hopping systems operating 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**.

Measurement Data

Base (ANT0)

Channel 1:	Output Peak Power is **0.348 W**.	[EIRP]
Channel 71:	Output Peak Power is **0.364 W**.	[EIRP]
Channel 139:	Output Peak Power is **0.336 W**.	[EIRP]

Base (ANT1)

Channel 1:	Output Peak Power is **0.276 W**.	[EIRP]
Channel 71:	Output Peak Power is **0.289 W**.	[EIRP]
Channel 139:	Output Peak Power is **0.267 W**.	[EIRP]

Handset Unit

Channel 1:	Output Peak Power is **0.156 W**.	[EIRP]
Channel 71:	Output Peak Power is **0.163 W**.	[EIRP]
Channel 139:	Output Peak Power is **0.168 W**.	[EIRP]

Conclusion:

Base Unit: The output peak power (EIRP) on the base unit of Model 28031XXX-A is slightly higher than the original Model 28021XXX-A filing due to the power amp change and antenna shape is slightly different. The radiated fundamental field strength level of Model 28031XXX-A is not more than 3dB of the original Model 28021XXX-A.

Handset Unit: The output peak power (EIRP) of Model 28031XXX-A is less than the original Model 28021XXX-A due to the power amp change.

Part 15.247(g): Exhibit C(2)-17 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(2)-18 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 C63.4-2003 (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 C63.4-2003 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 2006
2. Spectrum Analyzer: ANRITSU 2601A, S/N MT64544, (10KHz - 2.2GHz), Calibration Due June 2006
3. Spectrum Analyzer: IFR AN940, S/N 635001039, (9KHz - 26.5GHz), Calibration Due April 2006
4. Preamp: HP 8449B, S/N 3008A00378, (1 - 26.5GHz), Calibration Due August 2006
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. Horn Antenna: Q-PAR WBH218HN, S/N 4171 (2 to 18 GHz Freq.)
8. Horn Antenna: Radar System (Flange 3/4" Square) MIL F 3922/68 (26.5 - 40GHz)
9. Line Impedance Stabilization Network.: Marstech, Calibration Due July 2006
10. OML Mixer: M28HWD, S/N Ka31114-1 (26.5 - 40GHz), Calibration Due November 2006
11. OML Diplexer: DPL.313A (Unit plugs into M28HWD)
12. Semflex Cable: Used with M28HWD and DPL.313A

FEDERAL COMMUNICATIONS COMMISSION

Laboratory Division
7435 Oakland Mills Road
Columbia, MD 21046

August 22, 2003

Registration Number: 90578

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

APPENDIX A – CHANNEL CENTRE FREQUENCIES

The following table lists the channel centre frequencies as detailed in section 2.1.

Note the Physical Channel Number is in the range 1…139, and it is this number which is referred to by the Logical to Physical Mapping, as detailed in section 3.2.3.

Physical Channel Number	Centre Frequency (MHz)	Physical Channel Number	Centre Frequency (MHz)	Physical Channel Number	Centre Frequency (MHz)	Physical Channel Number	Centre Frequency (MHz)
1	5725.809328	36	5757.026760	71	5788.240269	106	5819.457700
2	5726.701199	37	5757.916653	72	5789.134116	107	5820.347593
3	5727.593070	38	5758.810500	73	5790.024009	108	5821.241440
4	5728.484941	39	5759.700393	74	5790.917856	109	5822.131333
5	5729.376812	40	5760.594240	75	5791.807749	110	5823.025181
6	5730.268683	41	5761.484133	76	5792.701597	111	5823.915073
7	5731.160554	42	5762.377981	77	5793.591489	112	5824.808921
8	5732.052425	43	5763.267873	78	5794.485337	113	5825.698813
9	5732.944296	44	5764.161721	79	5795.375229	114	5826.592661
10	5733.836167	45	5765.051613	80	5796.269077	115	5827.482554
11	5734.728038	46	5765.945461	81	5797.158970	116	5828.376401
12	5735.619909	47	5766.835354	82	5798.052817	117	5829.266294
13	5736.511780	48	5767.729201	83	5798.942710	118	5830.160142
14	5737.403651	49	5768.619094	84	5799.836558	119	5831.050034
15	5738.295510	50	5769.512942	85	5800.726450	120	5831.943882
16	5739.189358	51	5770.402834	86	5801.620298	121	5832.833774
17	5740.079250	52	5771.296682	87	5802.510190	122	5833.727622
18	5740.973098	53	5772.186574	88	5803.404038	123	5834.617515
19	5741.862990	54	5773.080422	89	5804.293931	124	5835.511362
20	5742.756838	55	5773.970315	90	5805.187778	125	5836.401255
21	5743.646731	56	5774.864162	91	5806.077671	126	5837.295103
22	5744.540578	57	5775.754055	92	5806.971519	127	5838.184995
23	5745.430471	58	5776.647903	93	5807.861411	128	5839.078843
24	5746.324319	59	5777.537795	94	5808.755259	129	5839.968735
25	5747.214211	60	5778.431643	95	5809.645151	130	5840.862583
26	5748.108059	61	5779.321535	96	5810.538999	131	5841.752476
27	5748.997951	62	5780.215383	97	5811.428892	132	5842.646323
28	5749.891799	63	5781.105276	98	5812.322739	133	5843.538194
29	5750.781692	64	5781.999123	99	5813.212632	134	5844.430065
30	5751.675539	65	5782.889016	100	5814.106479	135	5845.321936

31	5752.565432	66	5783.782863	101	5814.996372	136	5846.213807
32	5753.459279	67	5784.672756	102	5815.890220	137	5847.105678
33	5754.349172	68	5785.566604	103	5816.780112	138	5847.997549
34	5755.243020	69	5786.456496	104	5817.673960	139	5848.889420
35	5756.132912	70	5787.350344	105	5818.563853		