

Marstech Limited

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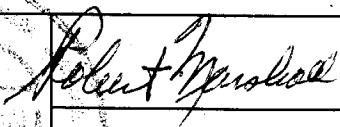
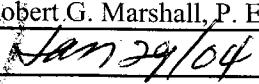
Authorized by:
Professional Engineers
Ontario

Engineering &
Administrative

UL
Certified
Agency
Testing For FCC
Submissions/Verifications

Industry Canada
Industrie Canada
Approved Test Facility

Qualified
Facility

TEST REPORT			
REPORT DATE:	22 January 2004 REPORT NO: 24005D		
CONTENTS:	See Table of Contents		
SUBMITTOR:	ATLINKS USA, Inc. 101 West 103 rd Street Indianapolis, IN 46290-1102 USA		
SUBJECT:	Model No: 25838XXX-A (Base Unit)		
	FCC ID: G9H2-5838A		
TEST SPECIFICATION	FCC CFR 47 Part 15 NOTE: Tests Conducted Are "Type" Tests.		
DATE SAMPLE RECEIVED:	13 January 2004	DATE TESTED:	15, 21 & 22 January 2004
RESULTS:	Equipment tested complies with referenced specification. Please also note that the EUT meets the new rules (150KHz to 30MHz) FCC Power Line Conducted Limits.		
ALTERATIONS	None		
Tested by:			Approved by: Robert G. Marshall, P. Eng.
	Edward Chang	Date:	

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TECHNICAL REPORT - FCC 2.1033(b)

Applicant

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

FCC Identifier

G9H2-5838A

Manufacturer

Huiyang CCT Telecommunications Products Co. Ltd.
CCT Technology Park, San He Economic Experimental Zone
Huiyang City, Guangdong Province
P. R. of China

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EXHIBIT D

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

"Report of Measurements"

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TEST REPORT CONTAINING:

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Exhibit D(3)-1	15.107(a) Power Line Conducted Interference
Exhibit D(3)-2 to -3	15.249(a), (b) and (c) Field Strength of Emissions
Exhibit D(3)-4	15.249(d) Band Edges
Exhibit D(3)-5	2.202 Bandwidth
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
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Exhibit D(8)	Test Setup Diagram for AC Conducted Line Testing
Appendix 1 to 2	Plots for Power Line Conducted Interference
Appendix 3 to 4	Plots for Band Edge
Appendix 5 to 6	Plots for 20 dB Bandwidth

MARSTECH LIMITED

PRODUCT DESCRIPTION

The Model 25838XXX-A (base unit) is a 900MHz single-line cordless telephone that operates from 925MHz to 927MHz. The antenna used for the base is permanently attached to the EUT.

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

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 37.07 dB μ V@ 0.15 MHz.

The highest emission read for NEUTRAL was 30.53 dB μ V@ 0.15 MHz.

The graphs on Appendix 1 and 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.

15.249 (a), (b) and (c) FIELD STRENGTH OF EMISSIONS

Requirements:

Fundamental Frequency	Field Strength of Harmonics	15.209	
94dB μ V	54 dB μ V/m@ 3m	30-88 MHz	40 dB μ V/m@ 3m
		88-216 MHz	43.5
		216-960 MHz	46
		Above 960 MHz	54

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50dB below the level of the fundamental or to the general radiated emission limits in 15.209, whichever is the lesser attenuation.

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

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%.

Test Data:

Refer to Exhibit D(3)-3

FIELD STRENGTH OF EMISSIONS**BASE UNIT**

Emission Frequency MHz	Meter Reading @3m dB μ V	Antenna	Cable and ACF dB	Field Strength dB μ V/M	FCC Limit dB μ V/M	Margin dB	Detector & BW KHz
Channel 1							
924.580	57.50	RT4 V	33.40	90.90	94	-3.10	PK 100
1849.160	—						
2773.740	—						
3698.320	—						
Channel 40							
926.567	57.50	RT4 V	33.40	90.90	94	-3.10	PK 100
1853.134	—						
2779.701	—						
3706.268	—						

15.249 (d) BAND EDGES

Requirements:

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

Measurement:

The base was attenuated by 50 dB.

Test Data:

The Bandedge was measured at the Low and High end of the band. See Plots [Appendix 3 and 4].

2.202 BANDWIDTH

Measurement:

The measurements were made with the spectrum analyzer's resolution bandwidth (RBW) = 30KHz (Base) and the video bandwidth (VBW) = NONE and the span set as shown on plot.

Test Data:

Base:

Channel 1: **0.150 MHz** [Refer to Appendix 5]
Channel 40: **0.149 MHz** [Refer to Appendix 6]

BANDWIDTH = **0.150 MHz**

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

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: G9H2-5838A
Marstech Report No. 24005D
EXHIBIT D(5)

TOTAL P.02

25838XXX-A Frequency Table

A. Base unit

Ch. No	BU Tx Freq	BU Tx Vco Freq	BU Rx Freq	BU Rx Vco Freq
1	924575072	462287536	5788656640	828479520
2	924626024	462313012	5788834972	828504996
3	924676976	462338488	5789013304	828530472
4	924727928	462363964	5789191636	828555948
5	924778880	462389440	5789369968	828581424
6	924829832	462414916	5789548300	828606900
7	924880784	462440392	5789726632	828632376
8	924931736	462465868	5789904964	828657852
9	924982688	462491344	5790083296	828683328
10	925033640	462516820	5790261628	828708804
11	925084592	462542296	5790439960	828734280
12	925135544	462567772	5790618292	828759756
13	925186496	462593248	5790796624	828785232
14	925237448	462618724	5790974956	828810708
15	925288400	462644200	5791153288	828836184
16	925339352	462669676	5791331620	828861660
17	925390304	462695152	5791509952	828887136
18	925441256	462720628	5791688284	828912612
19	925492208	462746104	5791866616	828938088
20	925543160	462771580	5792044948	828963564
21	925594112	462797056	5792223280	828989040
22	925645064	462822532	5792401612	829014516
23	925696016	462848008	5792579944	829039992
24	925746968	462873484	5792758276	829065468
25	925797920	462898960	5792936608	829090944
26	925848872	462924436	5793114940	829116420
27	925899824	462949912	5793293272	829141896
28	925950776	462975388	5793471604	829167372
29	926001728	463000864	5793649936	829192848
30	926052680	463026340	5793828268	829218324
31	926103632	463051816	5794006600	829243800
32	926154584	463077292	5794184932	829269276
33	926205536	463102768	5794363264	829294752
34	926256488	463128244	5794541596	829320228
35	926307440	463153720	5794719928	829345704
36	926358392	463179196	5794898260	829371180
37	926409344	463204672	5795076592	829396656
38	926460296	463230148	5795254924	829422132
39	926511248	463255624	5795433256	829447608
40	926562200	463281100	5795611588	829473084