

Marstech Limited

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Authorized by:
Professional Engineers
Ontario

Engineering &
Administrative



Testing For FCC
Submissions/Verifications

Industry Canada
Industry Canada
Approved Test Facility



TEST REPORT			
REPORT DATE:	03 November 2003		REPORT NO: 23366D
CONTENTS:	See Table of Contents		
SUBMITTOR:	ATLINKS USA, Inc. 101 West 103 rd Street Indianapolis, IN 46290-1102 USA		
SUBJECT:	Model No:	26928XXX-D	
	FCC ID:	G9H2-6928D	
TEST SPECIFICATION	CFR 47 FCC Part 15 NOTE: Tests Conducted Are "Type" Tests.		
DATE SAMPLE RECEIVED:	22 October 2003	DATE TESTED:	27 & 30 October 2003 and 03 November 2003
RESULTS:	Equipment tested complies with referenced specification.		
ALTERATIONS	None		
Tested by:	<i>Ed. Chang</i> Edward Chang	Approved by:	<i>Robert G. Marshall</i> Robert G. Marshall, P. Eng.
		Date:	<i>Dec 2/03</i>
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MARSTECH LIMITED

TECHNICAL REPORT - FCC 2.1033(b)

Applicant

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

FCC Identifier

G9H2-6928D

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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PRODUCT DESCRIPTION

The Model 26928XXX-D is a single-line 900MHz cordless telephone that operates from 902 MHz to 928 MHz. The antenna used for the base and the handset is permanently attached to the EUT. Its actual frequency range is:

Base: 902.10 MHz to 904.05 MHz

Handset: 925.90 MHz to 927.85 MHz

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 LINE was 38.42 dBμV@ 0.15 MHz.

The highest emission read for NEUTRAL was 37.81 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.

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

Requirements:

Fundamental Frequency		Field Strength of Harmonics	15.209	
902-928 MHz	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 and -4

FIELD STRENGTH OF EMISSIONS**BASE UNIT**

Emission Frequency MHz	Meter Reading @3m dBμV	Antenna	Cable and ACF dB	Field Strength dBμV/M	FCC Limit dBμV/M	Margin dB	Detector & BW KHz
<u>Channel 1</u>							
902.099	56.50	RT4 H	33.30	89.80	94	-4.20	PK 100
1804.198	12.00	Horn V	33.18	45.18	54	-8.82	PK 1000
2706.297	10.00	Horn V	33.92	43.92	54	-10.08	PK 1000
<u>Channel 40</u>							
904.049	56.70	RT4 H	33.30	90.00	94	-4.00	PK 100
1808.098	11.00	Horn V	33.18	44.18	54	-9.82	PK 1000
2712.147	9.00	Horn V	33.92	42.92	54	-11.08	PK 1000

FIELD STRENGTH OF EMISSIONS**HANDSET UNIT**

Emission Frequency MHz	Meter Reading @3m dBμV	Antenna	Cable and ACF dB	Field Strength dBμV/M	FCC Limit dBμV/M	Margin dB	Detector & BW KHz
<u>Channel 1</u>							
925.896	54.60	RT4 V	33.40	88.00	94	-6.00	PK 100
1851.792	9.00	Horn V	33.06	42.06	54	-11.94	PK 1000
2777.688	8.00	Horn V	34.08	42.08	54	-11.92	PK 1000
<u>Channel 40</u>							
927.847	54.30	RT4 V	33.40	87.70	94	-6.30	PK 100
1855.694	8.00	Horn V	33.06	41.06	54	-12.94	PK 1000
2783.541	7.00	Horn V	34.08	41.08	54	-12.92	PK 1000

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. The handset was attenuated by 50 dB.

Test Data:

The Bandedge was measured at the Low end of the band for the base, and the High end of the band for the handset. 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 Handset) and the video bandwidth (VBW) = NONE and the span set as shown on plot.

Test Data:

Handset:

Channel 1: **0.186 MHz** [Refer to Appendix 5]
Channel 40: **0.186 MHz** [Refer to Appendix 6]

Base:

Channel 1: **0.162 MHz** [Refer to Appendix 7]
Channel 40: **0.170 MHz** [Refer to Appendix 8]

BANDWIDTH = **0.186 MHz** (Handset)
 0.170 MHz (Base)

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

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: G9112-6928D
Marstech Report No. 23366D
EXHIBIT D(5)

26928D Frequency Table

Handset Frequency Table				Base Unit Frequency Table			
Channel	Tx Freq. (MHz)	Rx Freq. (MHz)	LO Freq. (MHz)	Channel	Tx Freq. (MHz)	Rx Freq. (MHz)	LO Freq. (MHz)
1	925.90	902.10	891.40	1	902.10	925.90	936.60
2	925.95	902.15	891.45	2	902.15	925.95	936.65
3	926.00	902.20	891.50	3	902.20	926.00	936.70
4	926.05	902.25	891.55	4	902.25	926.05	936.75
5	926.10	902.30	891.60	5	902.30	926.10	936.80
6	926.15	902.35	891.65	6	902.35	926.15	936.85
7	926.20	902.40	891.70	7	902.40	926.20	936.90
8	926.25	902.45	891.75	8	902.45	926.25	936.95
9	926.30	902.50	891.80	9	902.50	926.30	937.00
10	926.35	902.55	891.85	10	902.55	926.35	937.05
11	926.40	902.60	891.90	11	902.60	926.40	937.10
12	926.45	902.65	891.95	12	902.65	926.45	937.15
13	926.50	902.70	892.00	13	902.70	926.50	937.20
14	926.55	902.75	892.05	14	902.75	926.55	937.25
15	926.60	902.80	892.10	15	902.80	926.60	937.30
16	926.65	902.85	892.15	16	902.85	926.65	937.35
17	926.70	902.90	892.20	17	902.90	926.70	937.40
18	926.75	902.95	892.25	18	902.95	926.75	937.45
19	926.80	903.00	892.30	19	903.00	926.80	937.50
20	926.85	903.05	892.35	20	903.05	926.85	937.55
21	926.90	903.10	892.40	21	903.10	926.90	937.60
22	926.95	903.15	892.45	22	903.15	926.95	937.65
23	927.00	903.20	892.50	23	903.20	927.00	937.70
24	927.05	903.25	892.55	24	903.25	927.05	937.75
25	927.10	903.30	892.60	25	903.30	927.10	937.80
26	927.15	903.35	892.65	26	903.35	927.15	937.85
27	927.20	903.40	892.70	27	903.40	927.20	937.90
28	927.25	903.45	892.75	28	903.45	927.25	937.95
29	927.30	903.50	892.80	29	903.50	927.30	938.00
30	927.35	903.55	892.85	30	903.55	927.35	938.05
31	927.40	903.60	892.90	31	903.60	927.40	938.10
32	927.45	903.65	892.95	32	903.65	927.45	938.15
33	927.50	903.70	893.00	33	903.70	927.50	938.20
34	927.55	903.75	893.05	34	903.75	927.55	938.25
35	927.60	903.80	893.10	35	903.80	927.60	938.30
36	927.65	903.85	893.15	36	903.85	927.65	938.35
37	927.70	903.90	893.20	37	903.90	927.70	938.40
38	927.75	903.95	893.25	38	903.95	927.75	938.45
39	927.80	904.00	893.30	39	904.00	927.80	938.50
40	927.85	904.05	893.35	40	904.05	927.85	938.55