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Engineering & Administrative

CERTIFICATED UL ENGINEER

Testing For FCC Submissions/Verifications

Industry Canada Approved Test Facility

Qualified SP Facility

TEST REPORT			
REPORT DATE:	25 March 2004		REPORT NO: 24016D
CONTENTS:	See Table of Contents		
SUBMITTOR:	ATLINKS USA, Inc. 101 West 103rd Street Indianapolis, IN 46290-1102 USA		
SUBJECT:	Model No:	**27977XXX-A**	
	FCC ID:	G9H2-7977A	
TEST SPECIFICATION	FCC 47 CFR Part 15 NOTE: Tests Conducted Are "Type" Tests.		
DATE SAMPLE RECEIVED:	19 January 2004 and 10 February 2004	DATE TESTED:	20 January 2004; 12 & 20 February 2004; and 08 March 2004
RESULTS:	Equipment tested complies with referenced specification. Also, the Model 27977XXX-A meets the new rules (150kHz to 30MHz) FCC Power Line Conducted Limits.		
ALTERATIONS:	None		
Tested by:	Ed Chang	Approved by:	Robert G. Marshall, P. Eng.
	Edward Chang	Date:	Mar 1/04

TECHNICAL REPORT - FCC 2.1033(b)

Applicant

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

FCC Identifier

G9H2-7977A

Manufacturer

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

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EXHIBIT D

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

"Report of Measurements"

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TEST REPORT CONTAINING:

PRODUCT DESCRIPTION

The Model 27977XXX-A is a single-line 2.4GHz cordless headset telephone with caller ID that operates from 2402.799039 MHz to 2476.19901 MHz. The antenna used for the base and the handset 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 LINE was 40.22 dBμV@ 0.15 MHz.
The highest emission read for NEUTRAL was 42.65 dBμV@ 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	
94dBμV	54 dBμV/m@ 3m	30-88 MHz	40 dBμV/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 54dBμV/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
Channel 1							
2402.80	**60.00**	**Horn V**	**33.08**	**93.08**	**94**	**-0.92**	**PK 1000**
4805.60	10.00	Horn V	37.88	47.88	54	-6.12	PK 1000
Channel 40							
2404.75	**59.00**	**Horn V**	**33.08**	**92.08**	**94**	**-1.92**	**PK 1000**
4809.50	9.00	Horn V	37.88	46.88	54	-7.12	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
Channel 1							
2474.25	**60.00**	**Horn V**	**33.23**	**93.23**	**94**	**-0.77**	**PK 1000**
4948.50	13.00	Horn V	38.17	51.17	54	-2.83	PK 1000
Channel 40							
2476.20	**60.00**	**Horn V**	**33.23**	**93.23**	**94**	**-0.77**	**PK 1000**
4952.40	13.00	Horn V	38.17	51.17	54	-2.83	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 (ANT0/ANT1) and Handset/Spacemaker] and the video bandwidth (VBW) = NONE and the span set as shown on plot.

Test Data:

Base:

Channel 1: **0.086 MHz** [Refer to Appendix 5]
Channel 40: **0.088 MHz** [Refer to Appendix 6]

Handset:

Channel 1: **0.085 MHz** [Refer to Appendix 7]
Channel 40: **0.086 MHz** [Refer to Appendix 8]

BANDWIDTH = **0.088 MHz** [Base]
0.086 MHz [Handset]

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