TEST REPORT
FROM
RFI GLOBAL SERVICES LTD

Partial Test of: Spider AT-G - GSM5108

To: FCC Part 22: 2008 (Subpart H) and FCC Part 24: 2008 (Subpart E)

Test Report Serial No:
RFI/RPT1/RP74121JD14A

This Test Report Is Issued Under The Authority Of Brian Watson, Operations Director: 	
Checked By: Tony Henriques 	**Report Copy No: PDF01**
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1. Customer Information

Company Name:	Enfora Inc
Address:	251 Renner Parkway Richardson TEXAS 75080

2. Equipment Under Test (EUT)

2.1. Identification of Equipment Under Test (EUT)

Brand Name:	Enfora
Model Number:	Spider AT-G – GSM5108
IMEI Number:	011525000003452
Hardware Version Number:	A
Software Version Number:	1.1.1
FCC ID Number:	MIVGSM5108

2.2. Description of EUT

The equipment under test was a GSM/GPRS/GPS Asset Tracker.

2.3. Modifications Incorporated in EUT

During the course of testing the EUT was not modified.

2.4. Additional Information Related to Testing

Power Supply Requirement:	Internal Battery Supply of 3.9 V
Type of Unit:	Transceiver
Modulation Type:	GMSK (GSM)
Data Rate:	200 kbps

FCC Part 22

Transmit Frequency Range:	824 MHz to 849 MHz		
Transmit Channels Tested:	**Channel ID**	**Channel Number**	**Channel Frequency (MHz)**
	Bottom	128	824.2
	Middle	189	836.6
	Top	251	848.8

FCC Part 24

Transmit Frequency Range:	824 MHz to 849 MHz		
Transmit Channels Tested:	**Channel ID**	**Channel Number**	**Channel Frequency (MHz)**
	Bottom	128	824.2
	Middle	189	836.6
	Top	251	848.8

3. Test Specification, Methods and Procedures

Reference:	FCC Part 22: 2008 Subpart H (Cellular Radiotelephone Service)
Title:	Code of Federal Regulations, Part 22 (47CFR22) Personal Communication Services.

Reference:	FCC Part 24: 2008 Subpart E (Broadband PCS)
Title:	Code of Federal Regulations, Part 24 (47CFR24) Personal Communication Services.

3.1. Methods and Procedures

The methods and procedures used were as detailed in:

ANSI/TIA-603-B-2003
Land Mobile Communications Equipment, Measurements and performance Standards

ANSI C63.2 (1987)
Title: American National Standard for Instrumentation - Electromagnetic noise and field strength.

ANSI C63.4 (2003)
Title: American National Standard Methods of Measurement of Electromagnetic Emissions from Low Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.

ANSI C63.5 (1988)
Title: American National Standard for the Calibration of antennas used for Radiated Emission measurements in Electromagnetic Interference (EMI) control.

ANSI C63.7 (1988)
Title: American National Standard Guide for Construction of Open Area Test Sites for performing Radiated Emission Measurements.

CISPR 16-1: (1999)
Title: Specification For Radio Disturbance and Immunity Measuring Apparatus and Methods. Part 1: Radio Disturbance and Immunity Measuring Apparatus.

3.2. Definition of Measurement Equipment

The measurement equipment used complied with the requirements of the standards referenced in the methods & procedures Section above. Appendix 1 contains a list of the test equipment used.

4. Deviations from the Test Specification

None.

5. Operation of the EUT during Testing

5.1. Operating Modes

The EUT was tested in the following operating modes, unless otherwise stated:

- Connected to a GSM test system simulator, operating in GSM or GPRS transceiver mode.
- Transmit Mode: Testing was performed at full power on the top, middle and bottom channels of the assigned frequency block.

5.2. Configuration and Peripherals

The EUT was tested in the following configuration unless otherwise stated:

- Standalone connected to a GSM system simulator via an air-link.

6. Summary of Test Results

FCC Part 22

Range of Measurements	FCC Reference	Port Type	Result
Transmitter Effective Radiated Power (ERP)	22.913(a)	Antenna	Complied

FCC Part 24

Range of Measurements	FCC Reference	Port Type	Result
Transmitter Effective Isotropic Radiated Power (EIRP)	24.232	Antenna	Complied

6.1. Location of Tests

All the measurements described in this report were performed at the premises of RFI Global Services Ltd, Wade Road, Basingstoke, Hampshire, RG24 8AH.

6.2. Site Registration Numbers

FCC: 209735

7. Measurements, Examinations and Derived Results

7.1. General Comments

Measurement uncertainties are evaluated in accordance with current best practice. Our reported expanded uncertainties are based on standard uncertainties, which are multiplied by an appropriate coverage factor to provide a statistical confidence level of approximately 95%. Please refer to Section 8 for details of measurement uncertainties.

7.2. Test Results – FCC Part 22 (Subpart H)

7.2.1. Transmitter Effective Radiated Power (ERP)

Ambient Temperature: 21ºC Relative Humidity: 29%

Tests were performed using the test methods detailed in ANSI TIA-603-C-2004 referencing FCC CFR Part 2.

GSM Results:

Channel	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	824.25	34.6	38.4	3.8	Complied
Middle	836.6	33.6	38.4	4.8	Complied
Top	848.8	34.0	38.4	4.4	Complied

GPRS Results:

Channel	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	824.2	33.8	38.4	4.6	Complied
Middle	836.6	32.5	38.4	5.9	Complied
Top	848.8	32.7	38.4	5.7	Complied

7.3. Test Results – FCC Part 24 (Subpart E)

7.3.1. Transmitter Effective Isotropic Radiated Power (EIRP)

Ambient Temperature: 21ºC Relative Humidity: 29%

Tests were performed using the test methods detailed in ANSI TIA-603-C-2004 referencing FCC CFR Part 2.

GSM Results:

Channel	Measured Frequency (MHz)	Antenna Polarity	Maximum Transmitter EIRP (dBm)	Limit EIRP (dBm)	Margin (dB)	Result
Bottom	1850.2	Vertical	32.7	33.0	0.3	Complied
Middle	1879.8	Vertical	32.6	33.0	0.4	Complied
Top	1909.8	Vertical	32.5	33.0	0.5	Complied

GPRS Results:

Channel	Measured Frequency (MHz)	Antenna Polarity	Maximum Transmitter EIRP (dBm)	Limit EIRP (dBm)	Margin (dB)	Result
Bottom	1850.2	Vertical	32.7	33.0	0.3	Complied
Middle	1879.8	Vertical	32.4	33.0	0.6	Complied
Top	1909.8	Vertical	32.6	33.0	0.4	Complied

8. Measurement Uncertainty

No measurement or test can ever be perfect and the imperfections give rise to error of measurement in the results. Consequently, the result of a measurement is only an approximation to the value of the measurand (the specific quantity subject to measurement) and is only complete when accompanied by a statement of the uncertainty of the approximation.

The expression of uncertainty of a measurement result allows realistic comparison of results with reference values and limits given in specifications and standards.

The uncertainty of the result may need to be taken into account when interpreting the measurement results.

The reported expanded uncertainties below are based on a standard uncertainty multiplied by an appropriate coverage factor, such that a confidence level of approximately 95% is maintained. For the purposes of this document “approximately” is interpreted as meaning “effectively” or “for most practical purposes”.

Measurement Type	Range	Confidence Level (%)	Calculated Uncertainty
Effective Radiated Power (ERP)	Not applicable	95%	±2.94 dB
Effective Isotropic Radiated Power (EIRP)	Not applicable	95%	±2.94 dB

The methods used to calculate the above uncertainties are in line with those recommended within the various measurement specifications. Where measurement specifications do not include guidelines for the evaluation of measurement uncertainty, the published guidance of the appropriate accreditation body is followed.

Appendix 1. Test Equipment Used

RFI No.	Instrument	Manufacturer	Type No.	Serial No.	Date Last Calibrated	Cal. Interval (Months)
A1299	Antenna	Schaffner	CBL6143	5094	28 Jul 2008	12
A1818	Antenna	EMCO	3115	00075692	25 Oct 2008	12
K0002	3m RSE Chamber	Rainford EMC	N/A	N/A	26 Aug 2008	12
M1124	Spectrum Analyser	Rohde & Schwarz	ESIB26	100046K	19 Feb 2008	12
M1140	Radio Communications Analyser	Anritsu	MT8820A	6K0000647	Calibration not required	-

NB In accordance with UKAS requirements, all the measurement equipment is on a calibration schedule.