TEST REPORT
FROM
RFI GLOBAL SERVICES LTD

Partial Test of: MTD

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

Test Report Serial No:
RFI/RPT1/RP74737JD18C

This Test Report Is Issued Under The Authority Of Brian Watson, Operations Director: 	
Checked By:	Nigel Davison
	
Date of Issue:	28 May 2009

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1. Customer Information

Company Name:	Pro Tech Monitoring inc
Address:	2549 Success Dr Odessa, Fl 33556

2. Summary of Testing

2.1. General Information

Specification Reference:	47CFR22
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications) 2008: Part 22 Subpart H (Public Mobile Services)
Specification Reference:	47CFR24
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications) 2008: Part 24 Subpart E (Personal Communication Services)
Site Registration:	FCC: 209735
Location of Testing:	RFI Global Services Ltd, Wade Road, Basingstoke, Hampshire, RG24 8AH.
Test Dates:	24 March 2009

2.2. Summary of Test Results

FCC Reference (47CFR)	Measurement	Port Type	Result
FCC Part 22: Section 22.913(a)	Transmitter Effective Radiated Power (ERP)	Antenna	✓
FCC Part 24: Section 24.232	Transmitter Effective Isotropic Radiated Power (EIRP)	Antenna	✓

Key to Results

✓ = Complied ✗ = Did not comply

2.3. Methods and Procedures

Reference:	ANSI/TIA-603-C-2004
Title:	Land Mobile Communications Equipment, Measurements and performance Standards
Reference:	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.

2.4. Deviations from the Test Specification

Partial testing requested.

- ERP in GSM850 band
- EIRP in PCS1900 band

3. Equipment Under Test (EUT)

3.1. Identification of Equipment Under Test (EUT)

Description:	Tracking Device
Brand Name:	MTD
Model Name or Number:	Not stated
Serial Number:	33592707
IMEI Number:	011312001080690
FCC ID Number:	NC3MTD3418

Description:	Cradle with two RJ11 interface
Brand Name:	Pro Tech
Model Name or Number:	MCS 1000
Serial Number:	50337535
Cable Length and Type:	1.8m / Multicore
Connected to Port:	Interface port

Description:	AC Power Adaptor for battery charging through cradle
Brand Name:	CUI INC
Model Name or Number:	DSA-0151A-05
Serial Number:	None Stated
Cable Length and Type:	1.8m / Multicore
Connected to Port:	Power

3.2. Description of EUT

The equipment under test was a belt worn GSM/GPRS with ISM band Tracking Device.

3.3. Modifications Incorporated in the EUT

No modifications were applied to the EUT during testing.

3.4. Additional Information Related to Testing

Technology Tested:	GSM 850 / PCS1900	
Intended Operating Environment:	Within GSM coverage	
Type of Unit:	Portable (Standalone battery powered device)	
Power Supply Requirement(s):	Nominal	3.7V via Li-ion battery

FCC Part 22

Transmit Frequency Range:	824.2 MHz to 848.8 MHz		
Transmit Channels Tested:	**Channel ID**	**Channel Number**	**Channel Frequency (MHz)**
	Bottom	128	824.2
	Middle	190	836.6
	Top	251	848.8
Receive Frequency Range:	869.2 MHz to 893.8 MHz		
Receive Channels Tested:	**Channel ID**	**Channel Number**	**Channel Frequency (MHz)**
	Bottom	128	869.2
	Middle	190	881.4
	Top	251	893.8
Maximum Power Output (ERP):	34.4 dBm		

FCC Part 24

Transmit Frequency Range:	1850.2 MHz to 1909.8 MHz		
Transmit Channels Tested:	**Channel ID**	**Channel Number**	**Channel Frequency (MHz)**
	Bottom	512	1850.2
	Middle	660	1879.8
	Top	810	1909.8
Receive Frequency Range:	1930.2 MHz to 1989.8 MHz		
Receive Channels Tested:	**Channel ID**	**Channel Number**	**Channel Frequency (MHz)**
	Bottom	512	1930.2
	Middle	660	1959.8
	Top	810	1989.8
Maximum Power Output (EIRP):	30.0 dBm		

3.5. Support Equipment

The following support equipment was used to exercise the EUT during testing:

Description:	Infra Red Wireless Interface
Brand Name:	ACTiSYS
Model Name or Number:	ACT-IR220LN57
Serial Number:	LN001248
Cable Length and Type:	1.2m / Multicore
Connected to Port:	Wireless (Infra Red)

4. Operation and Monitoring of the EUT during Testing

4.1. Operating Modes

The EUT was tested in the following operating mode(s):

- EUT was tested in GSM single timeslot circuit switched and GPRS Multislot Class 8 with the unit transmitting on single timeslots in the uplink.
- Constantly transmitting at full power on bottom, middle and top channels as required.

4.2. Configuration and Peripherals

The EUT was tested in the following configuration(s):

- Connected to a GSM/GPRS system simulator, operating in transceiver mode.

5. Measurements, Examinations and Derived Results

5.1. 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 6. Measurement Uncertainty* for details.

5.2. Test Results

5.3. Transmitter Effective Radiated Power (ERP)

Test Summary:

FCC Part:	22.913(a)
Test Method Used:	As detailed in ANSI TIA-603-C-2004 Section 2.2.17.2

Environmental Conditions:

Temperature (°C):	25
Relative Humidity (%):	22

Results: GSM

Channel	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	824.2	32.8	38.5	5.7	Complied
Middle	836.6	34.2	38.5	4.3	Complied
Top	848.8	34.4	38.5	4.1	Complied

Results: GPRS

Channel	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	824.2	29.1	38.5	9.4	Complied
Middle	836.6	30.6	38.5	7.9	Complied
Top	848.8	31.1	38.5	7.4	Complied

Note(s):

1. Measurements were performed with the test antenna in the vertical and horizontal planes and the EUT in the X, Y and Z planes. The highest level was recorded.
2. All modes were compared on each channel and the highest power recorded was subtracted from the limit to show the margin.

5.4. Transmitter Effective Isotropic Radiated Power (EIRP)

Test Summary:

FCC Part:	24.232
Test Method Used:	As detailed in ANSI TIA-603-C-2004 Section 2.2.17.2

Environmental Conditions:

Temperature (°C):	25
Relative Humidity (%):	22

Results: GSM

Channel	Measured Frequency (MHz)	Antenna Polarity	Maximum EIRP (dBm)	Limit (dBm)	Margin (dBm)	Result
Bottom	1850.2	Vertical	29.4	33.0	3.6	Complied
Middle	1879.8	Vertical	29.3	33.0	3.7	Complied
Top	1909.8	Vertical	29.0	33.0	4.0	Complied

Results: GPRS

Channel	Measured Frequency (MHz)	Antenna Polarity	Maximum EIRP (dBm)	Limit (dBm)	Margin (dBm)	Result
Bottom	1850.2	Vertical	30.0	33.0	3.0	Complied
Middle	1879.8	Vertical	27.8	33.0	5.2	Complied
Top	1909.8	Vertical	29.5	33.0	3.5	Complied

Note(s):

1. Measurements were performed with the test antenna in the vertical and horizontal planes and the EUT in the X, Y and Z planes. The highest level was recorded.

6. 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)	30MHz to 1GHz	95%	±2.94 dB
Effective Isotropic Radiated Power (EIRP)	1GHz to 4GHz	95%	±2.54 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
A1392	Attenuator	HUBER + SUHNER AG	757456	6820.17.B	Calibrated before use	-
A1396	Attenuator	HUBER + SUHNER AG	757987	6810.17.B	Calibrated before use	-
A1534	Pre Amplifier	Hewlett Packard	8449B OPT H02	3008A00405	Calibrated before use	-
A1818	Antenna	EMCO	3115	00075692	25 Oct 2008	12
K0002	Site Reference 4421	Rainford EMC	N/A	N/A	Calibration not required	-
M1124	Spectrum Analyser	Rohde & Schwarz	ESIB26	100046K	09 Mar 2009	12

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