

# TEST REPORT FROM RFI GLOBAL SERVICES LTD

Test of: XT3418

To: FCC Part 15: 2008 Subpart B Clauses 15.107 and 15.109

**Test Report Serial No:**  
RFI/RPT1/RP75527JD06B

This Test Report Is Issued Under The Authority  
Of Brian Watson, Operations Director:

pp



<b>Checked By:</b>	Robert Graham
<b>Signature:</b>	
<b>Date of Issue:</b>	28 September 2009

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**Table of Contents**

<b>1. Customer Information .....</b>	<b>4</b>
<b>2. Summary of Testing .....</b>	<b>5</b>
<b>3. Equipment Under Test (EUT) .....</b>	<b>6</b>
<b>4. Operation and Monitoring of the EUT during Testing .....</b>	<b>8</b>
<b>5. Measurements, Examinations and Derived Results .....</b>	<b>9</b>
<b>6. Measurement Uncertainty .....</b>	<b>15</b>
<b>Appendix 1. Test Equipment Used.....</b>	<b>16</b>

## **1. Customer Information**

<b>Company Name:</b>	Pro Tech Monitoring Inc.
<b>Address:</b>	2549 Success Drive Odessa FL 33556

## 2. Summary of Testing

### 2.1. General Information

<b>Specification Reference:</b>	47CFR15.107 & 47CFR15.109
<b>Specification Title:</b>	Code of Federal Regulations, Part 15 (47CFR15) Radio Frequency Devices: Digital Devices –Sections 15.107 & 15.109
<b>Site Registration No:</b>	209735
<b>Location of Testing:</b>	RFI Global Services Ltd, Wade Road, Basingstoke, Hampshire, RG24 8AH.
<b>Test Dates:</b>	04 September 2009

### 2.2. Summary of Test Results

FCC Reference (47CFR)	Measurement	Port Type	Result
Part 15.107(a)	Receiver / Idle AC Conducted Emissions	AC Mains	
Part 15.109(a)	Receiver / Idle Radiated Spurious Emissions	Enclosure	

#### Key to Results

= Complied = Did not comply

### 2.3. Deviations from the Test Specification

For the measurements contained within this test report, there were no deviations from, additions to, or exclusions from the test specification identified above.

### **3. Equipment Under Test (EUT)**

#### **3.1. Identification of Equipment Under Test (EUT)**

<b>Brand Name:</b>	X-Tech
<b>Model Name or Number:</b>	XT3418
<b>Serial Number:</b>	36984440
<b>IMEI:</b>	01152600026127207
<b>FCC ID Number:</b>	NC3FTD3418

<b>Description:</b>	AC Charger
<b>Brand Name:</b>	Elmo Tech
<b>Model Name or Number:</b>	SE120100
<b>Serial Number:</b>	None Stated

#### **3.2. Description of EUT**

The equipment under test was a GSM/GPRS/GPS tracker fitted with a 418 MHz transceiver.

#### **3.3. Modifications Incorporated in the EUT**

No modifications were applied to the EUT during testing.

#### **3.4. Additional Information Related to Testing**

<b>Type of Unit:</b>	Transceiver		
<b>Mode:</b>	GSM		
<b>GSM850 Receive Frequency Range:</b>	869.2 MHz to 893.8 MHz		
<b>GSM850 Receive Channels Tested:</b>	Channel ID	Channel Number	Channel Frequency (MHz)
	Bottom	128	869.2
	Middle	190	881.6
	Top	251	893.8
<b>PCS1900 Receive Frequency Range:</b>	1930.2 MHz to 1989.8 MHz		
<b>PCS1900 Receive Channels Tested:</b>	Channel ID	Channel Number	Channel Frequency (MHz)
	Bottom	512	1930.2
	Middle	660	1959.8
	Top	810	1989.8

### **3.5. Support Equipment**

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

<b>Description:</b>	Infra Red Wireless Interface
<b>Brand Name:</b>	ACTiSYS
<b>Model Name or Number:</b>	ACT-IR220LN57
<b>Serial Number:</b>	LN001248

## **4. Operation and Monitoring of the EUT during Testing**

### **4.1. Operating Modes**

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

- Receiver/Idle mode (GSM850 & PCS1900 bands)

### **4.2. Configuration and Peripherals**

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

- Tests were performed with the GSM module enabled but not transmitting, The EUT was not connected to a network but scanning on all supported bands.
- All tests were performed with the EUT connected to the charger as this was the worst case.

## **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.

This report has been produced to cover the idle mode operation of the GSM/GPRS part of the product and covers the frequency range 30 MHz to 10 GHz to cover the required 5 x 1.9 GHz unintentional requirement.

## **5.2. Test Results**

### **5.2.1. Receiver/Idle AC Conducted Spurious Emissions**

#### **Test Summary:**

FCC Part:	15.107(a)
Test Method Used:	As detailed in ANSI C63.4 Section 7 and relevant annexes

#### **Environmental Conditions:**

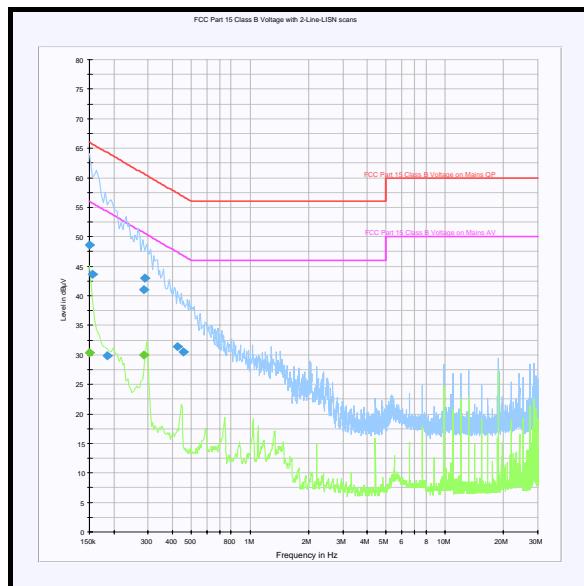
Temperature (°C):	25
Relative Humidity (%):	32

#### **Results: Quasi Peak Detector Measurements**

Frequency (MHz)	Line	Quasi Peak Level (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)	Result
0.150000	Neutral	48.6	66.0	17.4	Complied
0.154500	Live	43.7	65.8	22.1	Complied
0.186000	Neutral	29.9	64.2	34.3	Complied
0.285000	Neutral	41.1	60.7	19.6	Complied
0.289500	Neutral	43.1	60.5	17.4	Complied
0.424500	Neutral	31.5	57.4	25.9	Complied
0.456000	Neutral	30.5	56.8	26.4	Complied

#### **Results: Average Detector Measurements**

Frequency (MHz)	Line	Average Level (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)	Result
0.150000	Neutral	30.3	56.0	25.7	Complied
0.285000	Neutral	30.0	50.7	20.7	Complied

**Receiver/Idle Mode AC Conducted Spurious Emissions (continued)**

*Note: This plot is a pre-scan and for indication purposes only. For final measurements, see accompanying table.*

### **5.2.2. Receiver/Idle Radiated Spurious Emissions**

#### **Test Summary:**

<b>FCC Part:</b>	15.109(a)
<b>Test Method Used:</b>	As detailed in ANSI C63.4 Section 8 and relevant annexes
<b>Frequency Range:</b>	30 to 1000 MHz

#### **Environmental Conditions:**

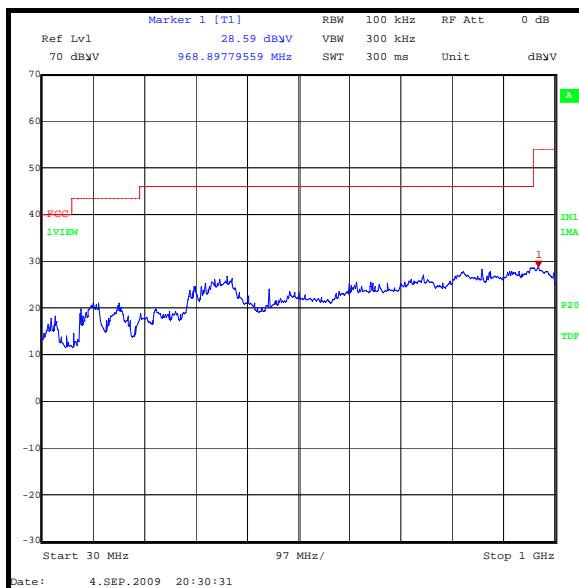
<b>Temperature (°C):</b>	23
<b>Relative Humidity (%):</b>	23

#### **Highest Peak Level:**

Frequency (MHz)	Antenna Polarity	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
968.898	Horizontal	28.6	54.0	25.4	Complied

#### **Note(s):**

1. No spurious emissions were detected above the noise floor of the measuring receiver; therefore, the highest peak noise floor reading of the measuring receiver was recorded as shown in the table above.



*Note: This plot is a pre-scan and for indication purposes only. For final measurements, see accompanying table.*

**Receiver/Idle Radiated Spurious Emissions (continued)****Test Summary:**

FCC Part:	15.109(a)
Test Method Used:	As detailed in ANSI C63.4 Section 8 and relevant annexes
Frequency Range:	1 to 10 GHz

**Environmental Conditions:**

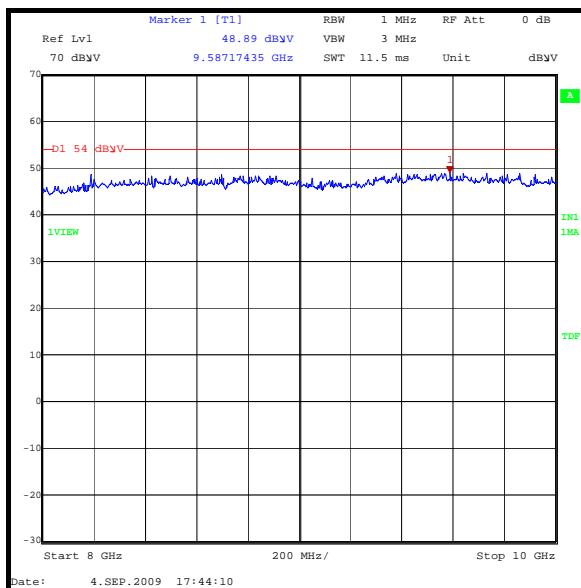
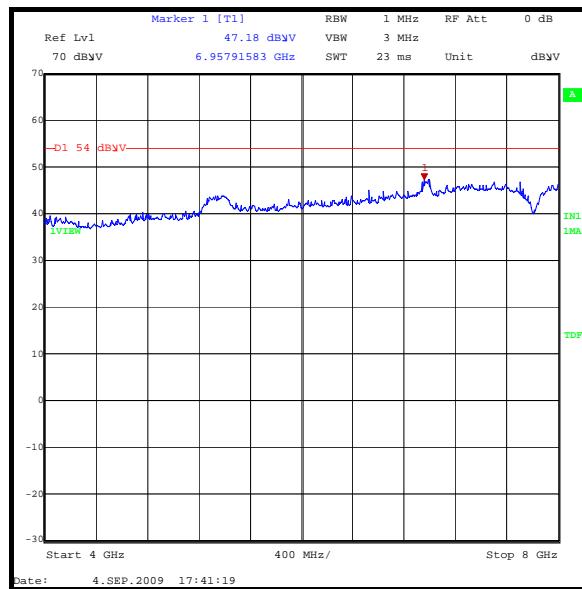
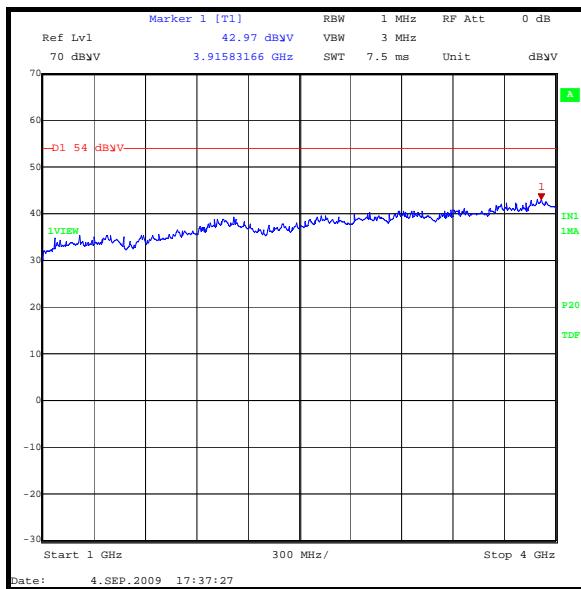
Temperature (°C):	24
Relative Humidity (%):	29

**Results: Highest Peak Level:**

Frequency (GHz)	Antenna Polarity	Detector Level (dB $\mu$ V)	Antenna Factor (dB)	Peak Level (dB $\mu$ V/m)	Average Limit (dB $\mu$ V/m)	Margin (dB)	Result
9.587	Horizontal	40.5	8.4	48.9	54.0	5.1	Complied

**Note(s):**

1. No spurious emissions were detected above the noise floor of the measuring receiver; therefore, the highest peak noise floor reading of the measuring receiver was recorded as shown in the table above. The peak level was compared to the average limit as opposed to being compared to the peak limit because this is the more onerous limit.

**Receiver/Idle Radiated Spurious Emissions (continued)**

These plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables.

## **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
AC Conducted Spurious Emissions	150 kHz to 30 MHz	95%	± 3.72 dB
Radiated Spurious Emissions	30 MHz to 10 GHz	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)
A1534	Pre Amplifier	Hewlett Packard	8449B OPT H02	3008A00405	Calibrated before use	-
A1818	Antenna	EMCO	3115	00075692	25 Oct 2008	12
A1830	Pulse Limiter	Rhode & Schwarz	ESH3-Z2	100668	05 Jan 2009	12
A288	Antenna	Chase	CBL6111A	1589	13 Mar 2009	12
A649	LISN	Rohde & Schwarz	ESH3-Z5	825562/008	19 Mar 2009	12
K0002	3m RSE Chamber	Rainford EMC	N/A	N/A	01 Sep 2009	12
M1124	Test Receiver	Rohde & Schwarz	ESIB26	100046K	09 Mar 2009	12
M1263	Test Receiver	Rohde & Schwarz	ESIB7	100265	22 Apr 2009	12

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