

# TEST REPORT FROM RFI GLOBAL SERVICES LTD

Test of: Smart One 0.6418

FCC ID: NC3XT06418

To: FCC Part 15.109: 2010 Subpart B

**Test Report Serial No:**  
RFI-RPT-RP80091JD01A V2.0

**Version 2.0 Supersedes All Previous Versions**

**This Test Report Is Issued Under The Authority  
Of Chris Guy, Head of Global Approvals:**



<b>Checked By:</b>	A. Henriques
<b>Signature:</b>	
<b>Date of Issue:</b>	14 January 2011

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## **1. Customer Information**

<b>Company Name:</b>	Pro Tech Monitoring Inc.
<b>Address:</b>	2549 Success Dr Odessa, FL 33556 United States

## 2. Summary of Testing

### 2.1. General Information

<b>Specification Reference:</b>	47CFR15.109
<b>Specification Title:</b>	Code of Federal Regulations Volume 47 (Telecommunications) 2010: Part 15 Subpart B (Radio Frequency Devices) – Section 15.109
<b>Site Registration:</b>	FCC: 209735
<b>Location of Testing:</b>	RFI Global Services Ltd, Wade Road, Basingstoke, Hampshire, RG24 8AH.
<b>Test Dates:</b>	07 December 2010 to 08 December 2010

### 2.2. Summary of Test Results

FCC Reference (47CFR)	Measurement	Result
Part 15.109	Receiver/Idle Mode Radiated Spurious Emissions	
<b>Key to Results</b>		
 = Complied  = Did not comply		

### 2.3. Methods and Procedures

<b>Reference:</b>	ANSI C63.4 (2009)
<b>Title:</b>	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.

### 2.4. 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>	Smart One
<b>Model Name or Number:</b>	0.6418
<b>Serial Number:</b>	35002718
<b>Hardware Version Number:</b>	0.6
<b>Software Version Number:</b>	5.0.2.4
<b>FCC ID Number:</b>	NC3XT06418

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

The equipment under test was a GPS Tracking Equipment for Department of Corrections.

#### **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 Equipment</b>	Transceiver		
<b>Mode:</b>	GSM/GPRS		
<b>Power Supply Requirement:</b>	Nominal	3.6 V	
<b>Technology Tested:</b>	GSM850		
<b>Receive Frequency Range:</b>	824 to 849 MHz		
<b>Receive Channels Tested:</b>	<b>Channel ID</b>	<b>Channel Number</b>	<b>Channel Frequency (MHz)</b>
	Bottom	128	869.2
	Middle	190	881.6
	Top	251	848.8
<b>Technology Tested:</b>	PCS1900		
<b>Receive Frequency Range:</b>	1930 to 1990 MHz		
<b>Receive Channels Tested:</b>	<b>Channel ID</b>	<b>Channel Number</b>	<b>Channel Frequency (MHz)</b>
	Bottom	512	1930.2
	Middle	660	1959.8
	Top	810	1989.8

#### **3.5. Support Equipment**

No support equipment was used to exercise the EUT during testing:

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

### **4.1. Operating Modes**

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

- Receiver/Idle mode.

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

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

- Standalone in idle mode receiving in both the GSM850 and PCS1900 bands.

## **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

### 5.2.1. Receiver/Idle Mode Radiated Spurious Emissions

#### Test Summary:

Test Engineer:	Andrew Edwards	Test Date:	07 December 2010
Test Sample Serial No:	35002718		

FCC Part:	15.109
Test Method Used:	As detailed in ANSI C63.4 Section 8
Frequency Range:	30 MHz to 1000 MHz

#### Environmental Conditions:

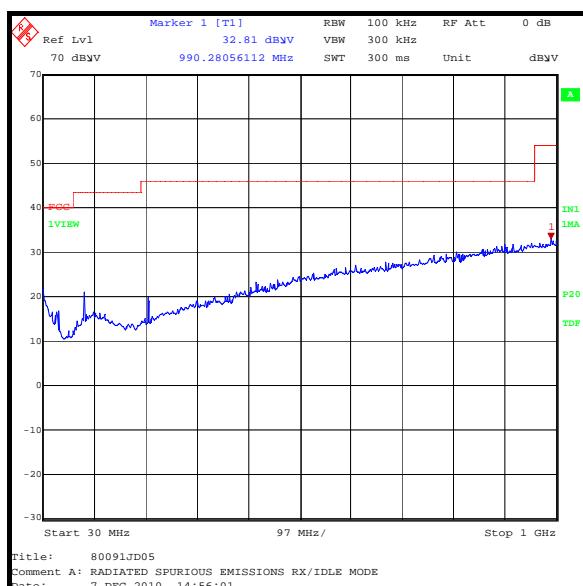
Temperature (°C):	24
Relative Humidity (%):	20

#### Results:

Frequency (MHz)	Antenna Polarity	Peak Level (dB $\mu$ V/m)	Q-P Limit (dB $\mu$ V/m)	Margin (dB)	Result
990.280	Vertical	32.8	54.0	21.2	Complied

#### Note(s):

1. The final measured value, for the given emission, in the table above incorporates the calibrated antenna factor and cable loss.
2. No spurious emissions were detected within 20 dB of the limit therefore the highest peak noise floor reading of the measuring receiver was recorded as shown in the table above.
3. All other emissions shown on the pre-scan plot were investigated and found to be ambient or >20 dB below the applicable limit or below the measurement system noise floor.



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

Test Engineer:	Andrew Edwards	Test Date:	08 December 2010
Test Sample Serial No:	35002718		

FCC Part:	15.109
Test Method Used:	As detailed in ANSI C63.4 Section 8
Frequency Range:	1 GHz to 10 GHz

**Environmental Conditions:**

Temperature (°C):	23
Relative Humidity (%):	21

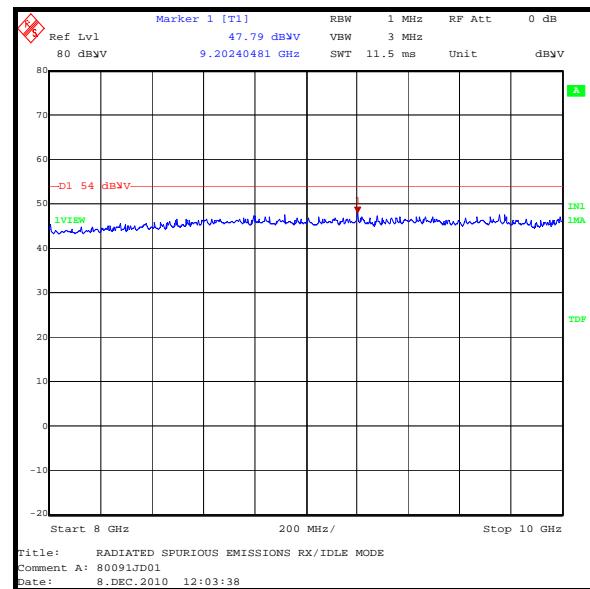
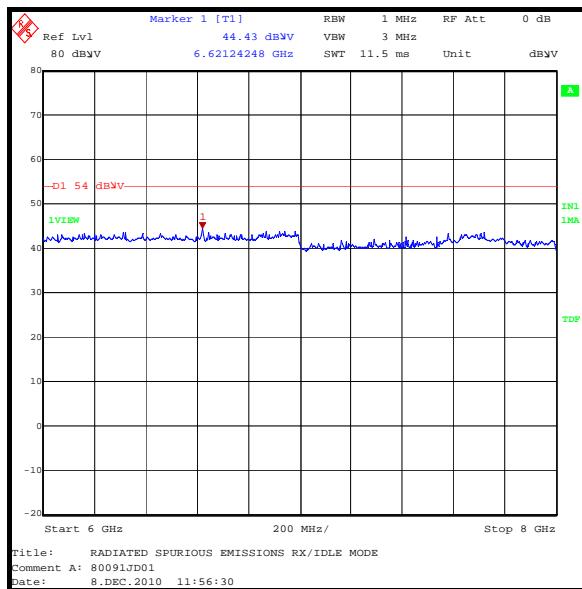
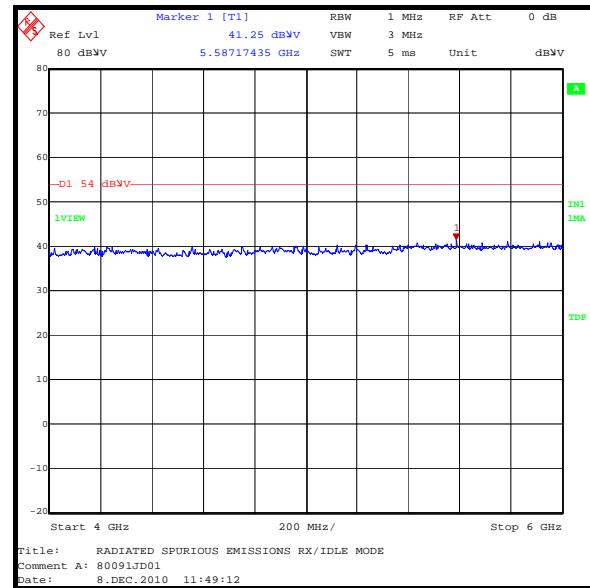
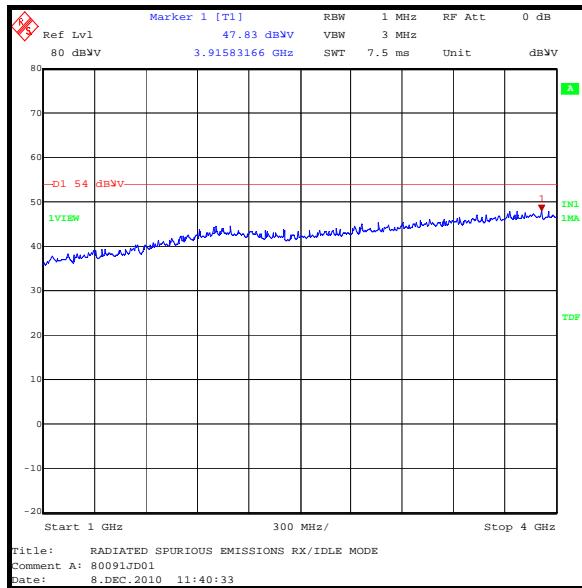
**Results:**

Frequency (MHz)	Antenna Polarity	Peak Level (dB $\mu$ V/m)	Average Limit (dB $\mu$ V/m)	Margin (dB)	Result
3915.532	Vertical	47.8	54.0	6.2	Complied

**Note(s):**

1. The final measured value, for the given emission, in the table above incorporates the calibrated antenna factor and cable loss.
2. 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 Mode Radiated Spurious Emissions (continued)



## **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
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 Calibration Due	Cal. Interval (Months)
A1534	Pre Amplifier	Hewlett Packard	8449B	3008A00405	06 Jun 2011	12
A1818	Antenna	EMCO	3115	00075692	05 Sep 2011	12
A253	Antenna	Flann Microwave	12240-20	128	05 Sep 2011	12
A254	Antenna	Flann Microwave	14240-20	139	05 Sep 2011	12
A255	Antenna	Flann Microwave	16240-20	519	05 Sep 2011	12
A288	Antenna	Chase	CBL6111A	1589	05 Sep 2011	12
K0002	3m RSE Chamber	Rainford EMC	N/A	N/A	05 Sep 2011	12
M1124	Test Receiver	Rohde & Schwarz	ESI26	100046K	22 Apr 2011	12

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