



**TEST REPORT  
FROM  
RFI GLOBAL SERVICES LTD**

Test of: BluTag V5

To: FCC Part 15.249: 2008 Subpart C

**Test Report Serial No:**  
RFI/RPT1/RP75379JD03A

<b>This Test Report Is Issued Under The Authority Of Brian Watson, Operations Director:</b>	
	
<b>Checked By:</b>	Nigel Davison
<b>Signature:</b>	
<b>Date of Issue:</b>	03 August 2009

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**RFI Global Services Ltd**

Pavilion A, Ashwood Park, Ashwood Way, Basingstoke, Hampshire RG23 8BG  
Telephone: +44 (0)1256 312000 Facsimile: +44 (0)1256 312001  
Email: info@rfi-global.com Website: www.rfi-global.com

Registered in England and Wales. Company number:2117901

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**1. Customer Information**







<b>Company Name:</b>	Satellite Tracking of People LLC
<b>Address:</b>	1212 North Post Oak Road Suite 100 Houston Texas 77055

## 2. Summary of Testing

### 2.1. General Information

<b>Specification Reference:</b>	47CFR15.249
<b>Specification Title:</b>	Code of Federal Regulations Volume 47 (Telecommunications) 2008: Part 15 Subpart C (Radio Frequency Devices) - Section 15.249
<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>	17 July 2009

### 2.2. Summary of Test Results

FCC Reference (47CFR)	Measurement	Port Type	Result
FCC Part 15: Section 15.249(a)	Transmitter Fundamental Field Strength	Antenna	
FCC Part 2: Section 2.1049	Transmitter 20 dB Bandwidth	Antenna	
FCC Part 15: Section 15.249(a)(d)(e) & 15.209	Transmitter Radiated Spurious Emissions	Antenna	
FCC Part 15: Section 15.249(d) & 15.209	Transmitter Band Edge Radiated Emissions	Antenna	
<b>Key to Results</b>			
 = Complied  = Did not comply			

### 2.3. Methods and Procedures

<b>Reference:</b>	ANSI C63.4 (2003)
<b>Title:</b>	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

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>Description:</b>	Body Worn Tracking Device
<b>Brand Name:</b>	BlueTag
<b>Model Name or Number:</b>	V5
<b>Serial Number:</b>	02-40030
<b>IMEI Number:</b>	352023007665876
<b>Hardware Version Number:</b>	BB11_EE58
<b>Software Version Number:</b>	5_100
<b>FCC ID Number:</b>	S5E0906BT5

<b>Description:</b>	AC Charger for BlueTag
<b>Brand Name:</b>	BlueTag Charger
<b>Model Name or Number:</b>	CUI INC
<b>Serial Number:</b>	None Stated

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

The equipment under test was an ankle worn GSM/GPRS/GPS tracker fitted with an inductive transmitter and a 915 MHz transmitter.

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

No modifications were applied to the EUT during testing.

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

<b>Tested Technology:</b>	915 MHz Transmitter
<b>Channel Spacing:</b>	Single Channel
<b>Transmit Frequency:</b>	915 MHz
<b>Power Supply Requirement:</b>	3.7 V Nominal via internal battery

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

### **4.1. Operating Modes**

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

- Continuous transmit at maximum output power with modulation.

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

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

- For all tests, the EUT was tested with the AC charger cradle connected as this was found to be the worst case configuration.

## **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. Transmitter Fundamental Field Strength**

#### **Test Summary:**

<b>FCC Part:</b>	Section 15.249(a)
<b>Test Method Used:</b>	As detailed in ANSI C63.4 Section 8 and relevant annexes

#### **Environmental Conditions:**

<b>Temperature Range (°C):</b>	26
<b>Relative Humidity Range (%):</b>	37

#### **Results:**

<b>Frequency (MHz)</b>	<b>Antenna Polarity</b>	<b>Q-P Level (dB<math>\mu</math>V/m)</b>	<b>Limit (dB<math>\mu</math>V/m)</b>	<b>Margin (dB)</b>	<b>Result</b>
915	Vertical	83.9	94.0	10.1	Complied

**5.2.2. Transmitter 20 dB Bandwidth**

**Test Summary:**

<b>FCC Part:</b>	2.1049
<b>Test Method Used:</b>	As detailed in ANSI C63.4 Section 13.1.7 and relevant annexes (see note below)

**Environmental Conditions:**

<b>Temperature (°C):</b>	26
<b>Relative Humidity (%):</b>	36

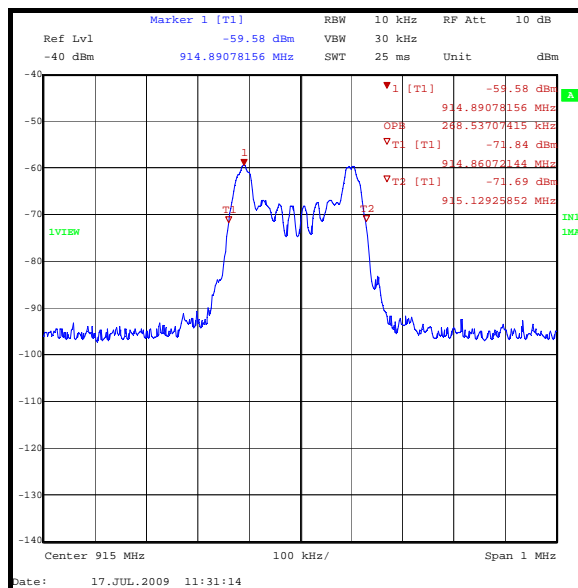
**Results:**

Transmitter 20 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
0.268537	26	25.73146	Complied

Designated Frequency Band	
Band (MHz)	Bandwidth (MHz)
902-928	26.0
2400 to 2483.5	83.5
5725 to 5875	150.0
24000 to 242500	2500.0

**Note(s):**

- In lieu of the test method detailed in ANSI C63.4 Section 13.1.7 the 99% occupied bandwidth was measured using the Occupied Bandwidth function of the spectrum analyser



**5.2.3. Transmitter Radiated Spurious Emissions****Test Summary:**

<b>FCC Part:</b>	15.249(a)(d)(e) & 15.209
<b>Test Method Used:</b>	As detailed in ANSI C63.4 Section 8 and relevant annexes
<b>Frequency Range:</b>	30 MHz to 1000 MHz

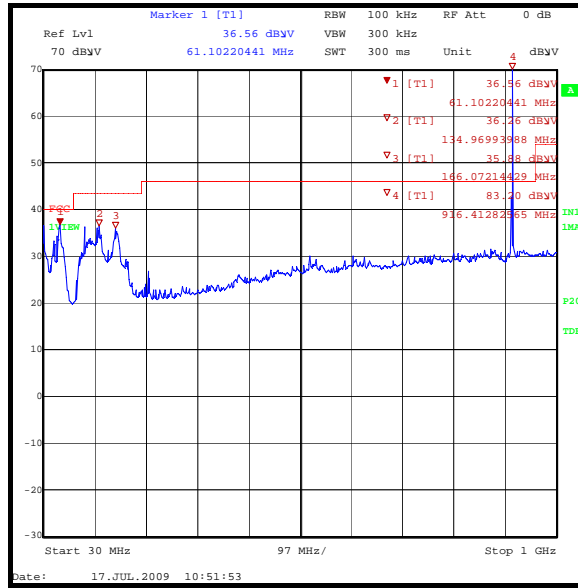
**Environmental Conditions:**

<b>Temperature (°C):</b>	26
<b>Relative Humidity (%):</b>	33

**Results:**

<b>Frequency (MHz)</b>	<b>Antenna Polarity</b>	<b>Level (dB<math>\mu</math>V/m)</b>	<b>Limit (dB<math>\mu</math>V/m)</b>	<b>Margin (dB)</b>	<b>Result</b>
60.746575	Vertical	32.2	40.0	7.8	Complied
134.370742	Vertical	29.3	43.0	13.7	Complied
165.759319	Vertical	27.3	43.0	15.7	Complied

**Transmitter Radiated Spurious Emissions (continued)**



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

**5.2.4. Transmitter Radiated Spurious Emissions (Continued)****Test Summary:**

<b>FCC Part:</b>	15.249(a)(d)(e) & 15.209
<b>Test Method Used:</b>	As detailed in ANSI C63.4 Section 8 and relevant annexes
<b>Frequency Range:</b>	1 GHz to 10 GHz

**Environmental Conditions:**

<b>Temperature (°C):</b>	26
<b>Relative Humidity (%):</b>	33

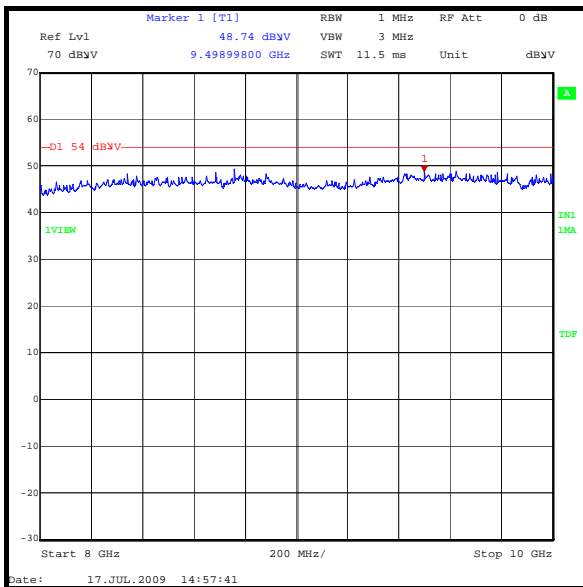
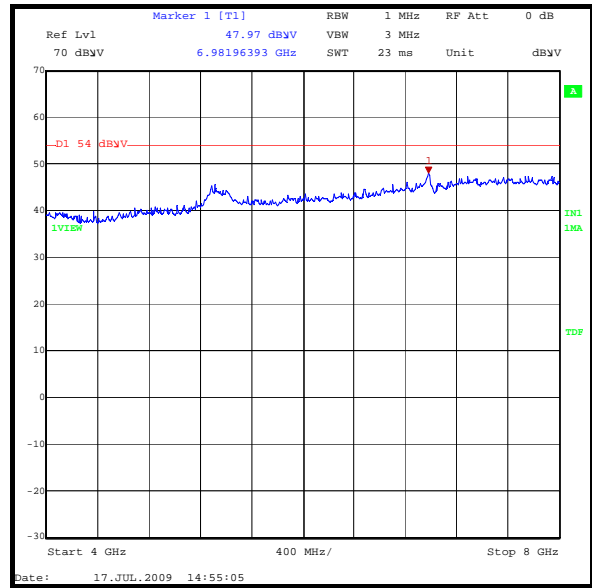
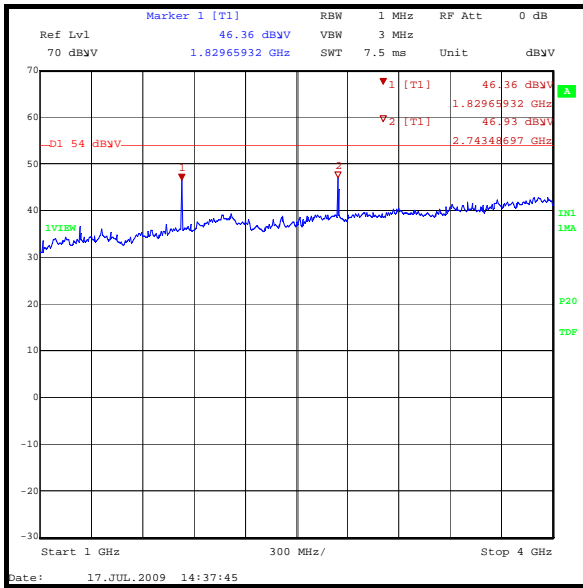
**Results:****Highest Peak Level:**

Frequency (MHz)	Antenna Polarity	Detector Level (dB $\mu$ V)	Transducer Factor (dB)	Actual Level (dB $\mu$ V/m)	Average Limit (dB $\mu$ V/m)	Margin (dB)	Result
1830.056	Vertical	45.0	-2.2	42.8	54.0	11.2	Complied

**Note(s):**

1. 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.
2. Emissions shown on the plots may be at a much higher level than those shown in the tables due to the amplification of the carriers by the test system preamp. The final measurements were made with the use of filters and attenuators.

**Transmitter Radiated Emissions (continued)**



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

**5.2.5. Transmitter Radiated Emissions at Band Edges**

**Test Summary:**

<b>FCC Part:</b>	15.249(d) & 15.209
<b>Test Method Used:</b>	As detailed in ANSI C63.4 Section 8 and relevant annexes

**Environmental Conditions:**

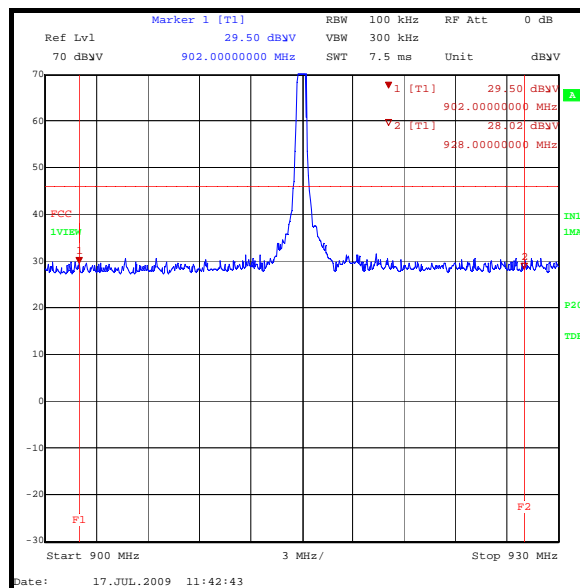
<b>Temperature (°C):</b>	26
<b>Relative Humidity (%):</b>	36

**Results: Bottom Band Edge**

Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
902	29.5	46.0	16.5	Complied

**Results: Top Band Edge**

Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
928	28.0	46.0	18.0	Complied



Note: This plot is a pre-scan 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”.

<b>Measurement Type</b>	<b>Range</b>	<b>Confidence Level (%)</b>	<b>Calculated Uncertainty</b>
Occupied Bandwidth	None Specified	95%	±0.12 %
Radiated Spurious Emissions	9 kHz to 30 MHz	95%	±3.53 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)
A1299	Antenna	Schaffner	CBL6143	5094	28 Jul 2008	12
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	26 Aug 2008	12
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.