

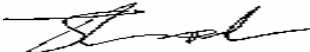
# TEST REPORT FROM RFI GLOBAL SERVICES LTD

Test of: WorldScout Corporation  
LT100

To: OET Bulletin 65 Supplement C: (2001-01)

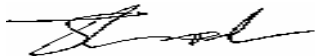
**Test Report Serial No:**  
RFI/SARE1/RP72772JD02A

**This Test Report Is Issued Under The Authority  
Of Steve Flooks, Radio Performance Service Leader:**

A handwritten signature in black ink, appearing to read 'Steve Flooks'.

pp

**Checked By: Joe Lomako**

A handwritten signature in black ink, appearing to read 'Joe Lomako'.

**Report Copy No: PDF01**

**Issue Date: 13 November 2007**

**Test Dates: 29 October 2007**

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This report may be copied in full. The results in this report apply only to the sample(s) tested.

**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](mailto:info@rfi-global.com) Website: [www.rfi-global.com](http://www.rfi-global.com)

Registered in England and Wales. Company number: 2117901

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## **1. Customer Information**

<b>Company Name:</b>	WorldScout Corporation
<b>Address:</b>	100 Leek Crescent, Unit 10, Richmond Hill, ONTARIO L4B 3E6 Canada
<b>Contact Name:</b>	Mr. N Lazovic

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

The following information (with the exception of the date of receipt) has been supplied by the customer:

### **2.1. Description of EUT**

The equipment under test is a quad band GSM/GPRS GPS LT100 receiver supporting 3 downlink and 1 uplink.

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

<b>Description:</b>	GSM/GPRS GPS Mobile Station
<b>Brand Name:</b>	Worldscout
<b>Model Name or Number:</b>	LT100
<b>Serial Number:</b>	7-0000627
<b>IMEI Number:</b>	35 268002691166
<b>Hardware Version Number:</b>	None Stated
<b>Software Version Number:</b>	None Stated
<b>FCC ID Number:</b>	VRNLT100
<b>Country of Manufacture:</b>	Canada
<b>Date of Receipt:</b>	25 October 2007

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

During the course of testing the EUT was not modified.

### **2.4. Accessories**

The following accessories were supplied with the EUT during testing:

<b>Description:</b>	Battery
<b>Brand Name:</b>	Worldscout
<b>Model Name or Number:</b>	LT100
<b>Serial Number:</b>	5-1-0001T01-01
<b>Cable Length and Type:</b>	Not Applicable
<b>Connected to Port</b>	Manufacturer Unique Contacts

<b>Description:</b>	Battery
<b>Brand Name:</b>	Worldscout
<b>Model Name or Number:</b>	LT100
<b>Serial Number:</b>	5-1-0001T01-01
<b>Country of Manufacture:</b>	Canada
<b>Connected to Port</b>	Manufacturer Unique Contacts

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### **2.5. Support Equipment**

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

<b>Description:</b>	Communication Test Set
<b>Brand Name:</b>	Anritsu
<b>Model Name or Number:</b>	MT8820A
<b>Serial Number:</b>	6K00000647
<b>Cable Length and Type:</b>	1m Rosenberger Cable
<b>Connected to Port:</b>	RF Input & Output Port

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## 2.6. Additional Information Related to Testing

Equipment Category	GSM/GPRS/GPS Quad Band		
Type of Unit	Portable Receiver		
Intended Operating Environment:	With in GSM/GPRS/GPS coverage		
Transmitter Maximum Output Power Characteristics:	GSM850	33 dBm	
	PCS1900	30 dBm	
Transmitter Frequency Range:	GSM850	(824 to 849) MHz	
	PCS1900	(1850 to 1910) MHz	
Transmitter Frequency Allocation of EUT When Under Test:	Channel Number	Channel Description	Frequency (MHz)
	128	Low	824.2
	189	Middle	836.4
	251	High	848.8
	512	Low	1850.2
	660	Middle	1879.8
	810	High	1909.8
Modulation(s):	217 Hz		
Modulation Scheme (Crest Factor):	GPRS 4		
Antenna Type:	External		
Antenna Length:	19 mm		
Number of Antenna Positions:	1 Fixed		
Power Supply Requirement:	4.2v DC / 950mAh		
Battery Type(s):	Li-ion		



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### **3. Test Specification, Methods and Procedures**

#### **3.1. Test Specification**

<b>Reference:</b>	OET Bulletin 65 Supplement C: (2001-01)
<b>Title:</b>	Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields.
<b>Purpose of Test:</b>	To determine whether the equipment met the basic restrictions as defined in OET Bulletin 65 Supplement C: (2001-01) using the SAR averaging method as described in the test specification above.

#### **3.2. Methods and Procedures Reference Documentation**

The methods and procedures used were as detailed in:

Federal Communications Commission, "Evaluating compliance with FCC Guidelines for human exposure to radio frequency electromagnetic fields", OET Bulletin 65 Supplement C, FCC, Washington, D.C, 20554, 2001.

Thomas Schmid, Oliver Egger and Neils Kuster, "Automated E-field scanning system for dosimetric assessments", IEEE Transaction on microwave theory and techniques, Vol. 44, pp. 105-113, January 1996.

Neils Kuster, Ralph Kastle and Thomas Schmid, "Dosimetric evaluation of mobile communications equipment with know precision", IEICE Transactions of communications, Vol. E80-B, No.5, pp. 645-652, May 1997.

#### **3.3. 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.

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#### **4. Deviations from the Test Specification**

There were no deviations from the test specification.

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## **5. Operation and Configuration of the EUT during Testing**

### **5.1. Operating Modes**

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

- GPRS1900 data allocated with Multi Slot configuration set to 3downlink and 1 uplink.
- GPRS850 data allocated with Multi Slot configuration set to 3downlink and 1 uplink.

The reason for choosing this configuration was that it has been defined by the customer as being typical of normal use and likely to be worst case.

### **5.2. Configuration and Peripherals**

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

- SAR measurements were performed with the EUT at a separation distance of 15mm from the 'SAM' phantom flat section.
- Standalone mobile station in the body-worn configurations.

#### **Body Configuration**

- a) The EUT was placed in a normal operating position where the centre of EUT was aligned with the centre reference point on the flat section of the 'SAM' phantom.
  - b) With the EUT touching the phantom at an imaginary centre line. The EUT was aligned with a marked plane (X and Y axis) consisting of two lines.
  - c) For the touch-safe position the handset was gradually moved towards the flat section of the 'SAM' phantom until any point of the EUT touched the phantom.
  - d) For position(s) greater than 0mm separation the EUT was positioned as per the touch-safe position, and then the vertical height was decreased/adjusted as required.
  - e) SAR measurements were evaluated at maximum power and the unit was operated for an appropriate period prior to the evaluation in order to minimise the drift.
  - f) The device was keyed to operate continuously in the transmit mode for the duration of the test.
  - g) The location of the maximum spatial SAR distribution (hot spot) was determined relative to the handset and its antenna.
  - h) The EUT was transmitting at full power throughout the duration of the test powered by a fully charged battery.
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## **6. Summary of Test Results**

Test Name	Specification Reference	Compliance Status
Specific Absorption Rate-GPRS850 Body Configuration 1g	OET Bulletin 65 Supplement C: (2001-01)	Complied
Specific Absorption Rate- GPRS1900 Body Configuration 1g	OET Bulletin 65 Supplement C: (2001-01)	Complied

### **6.1. Location of Tests**

All the measurements described in this report were performed at the premises of  
RFI Global Services Ltd, Ewhurst Park, Ramsdell, Basingstoke, Hampshire, RG26 5RQ.

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## **7. Measurements, Examinations and Derived Results**

### **7.1. General Comments**

This section contains test results only.

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.

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## **7.2. Test Results**

### **7.2.1. Specific Absorption Rate - GPRS850 Body Configuration 1g**

#### **Test Summary:**

Tissue Volume:	1g
Maximum Level (W/kg):	0.159

#### **Environmental Conditions:**

Temperature Variation in Lab (°C):	23.0 to 23.0
Temperature Variation in Liquid (°C):	23.0 to 23.0

#### **Results:**

EUT Position	Phantom Configuration	Channel Number	Level (W/kg)	Limit (W/kg)	Margin (W/kg)	Note(s)	Result
Front of EUT Facing Phantom	Flat (SAM)	189	0.159	1.600	1.441	1	Complied
Rear of EUT Facing Phantom	Flat (SAM)	189	0.114	1.600	1.486	1	Complied

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

1. SAR measurements were performed with the EUT at a separation distance of 15mm from the 'SAM' phantom flat section.

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### **7.2.2. Specific Absorption Rate - GPRS1900 Body Configuration 1g**

#### **Test Summary:**

Tissue Volume:	1g
Maximum Level (W/kg):	0.197

#### **Environmental Conditions:**

Temperature Variation in Lab (°C):	23.0 to 23.0
Temperature Variation in Liquid (°C):	23.5 to 23.0

#### **Results:**

EUT Position	Phantom Configuration	Channel Number	Level (W/kg)	Limit (W/kg)	Margin (W/kg)	Note(s)	Result
Front of EUT Facing Phantom	Flat (SAM)	660	0.155	1.600	1.445	1	Complied
Rear of EUT Facing Phantom	Flat (SAM)	660	0.197	1.600	1.403	1	Complied

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

1. SAR measurements were performed with the EUT at a separation distance of 15mm from the 'SAM' phantom flat section.
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### 7.2.3. EIRP/ERP Measurement

Channel Number	Frequency (MHZ)	TX Power before Test (dBm)	Note
128	Low	21.3	ERP
189	Middle	23.4	ERP
251	High	24.8	ERP
512	Low	26.5	EIRP
660	Middle	26.9	EIRP
810	High	24.2	EIRP

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#### **7.2.4. 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”.

Test Name	Confidence Level	Calculated Uncertainty
Specific Absorption Rate-GPRS850 Body Configuration 1g	95%	18.03
Specific Absorption Rate-GPRS1900 Body Configuration 1g	95%	18.30

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.

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### Measurement Uncertainty (Continued)

#### 7.3. Specific Absorption Rate Uncertainty at 850 MHz Body 1g, GSM Modulation Scheme calculated in accordance with IEC 62209-1 & IEEE 1528

Type	Source of uncertainty	+ Value	- Value	Probability Distribution	Divisor	C <sub>i</sub> (1g)	Standard Uncertainty		u <sub>i</sub> or u <sub>eff</sub>
							+ u (%)	- u (%)	
B	Probe calibration	11.000	11.000	normal (k=2)	2.0000	1.0000	5.500	5.500	∞
B	Axial Isotropy	0.500	0.500	normal (k=2)	2.0000	1.0000	0.250	0.250	∞
B	Hemispherical Isotropy	2.600	2.600	normal (k=2)	2.0000	1.0000	1.300	1.300	∞
B	Spatial Resolution	0.500	0.500	Rectangular	1.7321	1.0000	0.289	0.289	∞
B	Boundary Effect	0.769	0.769	Rectangular	1.7321	1.0000	0.444	0.444	∞
B	Linearity	0.600	0.600	Rectangular	1.7321	1.0000	0.346	0.346	∞
B	Detection Limits	0.200	0.200	Rectangular	1.7321	1.0000	0.115	0.115	∞
B	Readout Electronics	0.560	0.560	normal (k=2)	2.0000	1.0000	0.280	0.280	∞
B	Response Time	0.000	0.000	Rectangular	1.7321	1.0000	0.000	0.000	∞
B	Integration Time	1.730	1.730	Rectangular	1.7321	1.0000	0.999	0.999	∞
B	RF Ambient conditions	3.000	3.000	Rectangular	1.7321	1.0000	1.732	1.732	∞
B	Probe Positioner Mechanical Restrictions	4.000	4.000	Rectangular	1.7321	1.0000	2.309	2.309	∞
B	Probe Positioning with regard to Phantom Shell	2.850	2.850	Rectangular	1.7321	1.0000	1.645	1.645	∞
B	Extrapolation and integration/ Maximum SAR evaluation	5.080	5.080	Rectangular	1.7321	1.0000	2.933	2.933	∞
A	Test Sample Positioning	0.584	0.584	normal (k=1)	1.0000	1.0000	0.584	0.584	10
A	Device Holder uncertainty	0.154	0.154	normal (k=1)	1.0000	1.0000	0.154	0.154	10
B	Phantom Uncertainty	4.000	4.000	Rectangular	1.7321	1.0000	2.309	2.309	∞
B	Drift of output power	5.000	5.000	Rectangular	1.7321	1.0000	2.887	2.887	∞
B	Liquid Conductivity (target value)	5.000	5.000	Rectangular	1.7321	0.6400	1.848	1.848	∞
A	Liquid Conductivity (measured value)	3.600	3.600	normal (k=1)	1.0000	0.6400	2.304	2.304	5
B	Liquid Permittivity (target value)	5.000	5.000	Rectangular	1.7321	0.6000	1.732	1.732	∞
A	Liquid Permittivity (measured value)	4.000	4.000	normal (k=1)	1.0000	0.6000	2.400	2.400	5
	Combined standard uncertainty			t-distribution			9.20	9.20	>500
	Expanded uncertainty			k = 1.96			18.03	18.03	>500

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### Measurement Uncertainty (Continued)

#### 7.4. Specific Absorption Rate Uncertainty at 1900 MHz Body 1g, PCS Modulation Scheme calculated in accordance with IEC 62209-1 & IEEE 1528

Type	Source of uncertainty	+ Value	- Value	Probability Distribution	Divisor	C <sub>i</sub> (1g)	Standard Uncertainty		u <sub>i</sub> or u <sub>eff</sub>
							+ u (%)	- u (%)	
B	Probe calibration	11.000	11.000	normal (k=2)	2.0000	1.0000	5.500	5.500	∞
B	Axial Isotropy	0.500	0.500	normal (k=2)	2.0000	1.0000	0.250	0.250	∞
B	Hemispherical Isotropy	2.600	2.600	normal (k=2)	2.0000	1.0000	1.300	1.300	∞
B	Spatial Resolution	0.500	0.500	Rectangular	1.7321	1.0000	0.289	0.289	∞
B	Boundary Effect	0.769	0.769	Rectangular	1.7321	1.0000	0.444	0.444	∞
B	Linearity	0.600	0.600	Rectangular	1.7321	1.0000	0.346	0.346	∞
B	Detection Limits	0.200	0.200	Rectangular	1.7321	1.0000	0.115	0.115	∞
B	Readout Electronics	0.560	0.560	normal (k=2)	2.0000	1.0000	0.280	0.280	∞
B	Response Time	0.000	0.000	Rectangular	1.7321	1.0000	0.000	0.000	∞
B	Integration Time	1.730	1.730	Rectangular	1.7321	1.0000	0.999	0.999	∞
B	RF Ambient conditions	3.000	3.000	Rectangular	1.7321	1.0000	1.732	1.732	∞
B	Probe Positioner Mechanical Restrictions	4.000	4.000	Rectangular	1.7321	1.0000	2.309	2.309	∞
B	Probe Positioning with regard to Phantom Shell	2.850	2.850	Rectangular	1.7321	1.0000	1.645	1.645	∞
B	Extrapolation and integration/ Maximum SAR evaluation	5.080	5.080	Rectangular	1.7321	1.0000	2.933	2.933	∞
A	Test Sample Positioning	0.584	0.584	normal (k=1)	1.0000	1.0000	0.584	0.584	10
A	Device Holder uncertainty	0.154	0.154	normal (k=1)	1.0000	1.0000	0.154	0.154	10
B	Phantom Uncertainty	4.000	4.000	Rectangular	1.7321	1.0000	2.309	2.309	∞
B	Drift of output power	5.000	5.000	Rectangular	1.7321	1.0000	2.887	2.887	∞
B	Liquid Conductivity (target value)	5.000	5.000	Rectangular	1.7321	0.6400	1.848	1.848	∞
A	Liquid Conductivity (measured value)	4.170	4.170	normal (k=1)	1.0000	0.6400	2.669	2.669	5
B	Liquid Permittivity (target value)	5.000	5.000	Rectangular	1.7321	0.6000	1.732	1.732	∞
A	Liquid Permittivity (measured value)	4.230	4.230	normal (k=1)	1.0000	0.6000	2.538	2.538	5
	Combined standard uncertainty			t-distribution			9.34	9.34	>400
	Expanded uncertainty			k = 1.96			18.30	18.30	>400