

## TEST REPORT FROM RFI GLOBAL SERVICES LTD

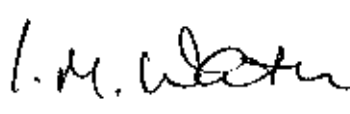
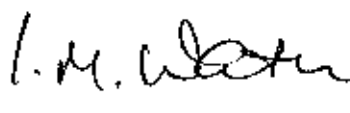
Test of: GeoSKeeper Model Q

FCC ID: VZU-GeoSKeeper-Q

To: FCC Part 22.913(a) & Part 24.232

**Test Report Serial No:**  
RFI-RPT-RP81245JD04A V2.0

**Version 2.0 Supersedes All Previous Versions**

<b>This Test Report Is Issued Under The Authority Of Chris Guy, Head of Global Approvals:</b>		
<b>Checked By:</b>	Ian Watch	
<b>Signature:</b>		
<b>Date of Issue:</b>	23 December 2011	

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**1. Customer Information**





<b>Company Name:</b>	Aerotel Medical Systems Ltd.
<b>Address:</b>	5 Hazoref St. Holon 58856 Israel

## **2. Summary of Testing**

### **2.1. General Information**

<b>Specification Reference:</b>	47CFR22
<b>Specification Title:</b>	Code of Federal Regulations Volume 47 (Telecommunications) 2010: Part 22 Subpart H (Public Mobile Services)
<b>Specification Reference:</b>	47CFR24
<b>Specification Title:</b>	Code of Federal Regulations Volume 47 (Telecommunications) 2010: Part 24 Subpart E (Personal Communication Services)
<b>Site Registration:</b>	FCC: 209735
<b>Location of Testing:</b>	RFI Global Services Ltd, Wade Road, Basingstoke, Hampshire, RG24 8AH
<b>Test Date:</b>	29 June 2011

### **2.2. Summary of Test Results**

<b>FCC Reference (47CFR)</b>	<b>Measurement</b>	<b>Result</b>
Part 22.913(a)	Transmitter Output Power (ERP)	
Part 24.232	Transmitter Output Power (EIRP)	
<b>Key to Results</b>  = Complied  = Did not comply		

### **2.3. Methods and Procedures**

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

### **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>	GeoSKeeper
<b>Model Name or Number:</b>	Q
<b>IMEI:</b>	357464030365396
<b>Hardware Version Number:</b>	2.4
<b>Software Version Number:</b>	1.6.4-X.X.X
<b>FCC ID:</b>	VZU-GeoSKeeper-Q

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

The equipment under test was a Wearable Mobile Safety and Tracking Device incorporating a GSM/GPRS module.

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

No modifications were applied to the EUT during testing.

### 3.4. Additional Information Related to Testing

Type of Radio Device:	Transceiver		
Mode:	GSM/GPRS		
Modulation Type:	GMSK		
Channel Spacing:	200 kHz		
Technology Tested:	GSM850		
Maximum Output Power (ERP):	GSM	32.8 dBm	
	GPRS	32.7 dBm	
Transmit Frequency Range:	824 to 849 MHz		
Transmit Channels Tested:	Channel ID	Channel Number	Channel Frequency (MHz)
	Bottom	128	824.2
	Middle	190	836.6
	Top	251	848.8
Technology Tested:	PCS1900		
Maximum Output Power (EIRP):	GSM	30.6 dBm	
	GPRS	30.3 dBm	
Transmit Frequency Range:	1850 to 1910 MHz		
Transmit Channels Tested:	Channel ID	Channel Number	Channel Frequency (MHz)
	Bottom	512	1850.2
	Middle	660	1879.8
	Top	810	1909.8

### 3.5. Support Equipment

The following 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):

- Constantly transmitting at full power on bottom, middle and top channels as required.
- ERP/EIRP tests were performed with the EUT in GSM single timeslot circuit switched and GPRS Multislot Class 10 with the unit transmitting on two timeslots in the uplink.

### **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 - Part 22****5.2.1. Transmitter Output Power (ERP)****Test Summary:**

<b>Test Engineer:</b>	Andrew Edwards	<b>Test Date:</b>	29 June 2011
<b>Test Sample IMEI:</b>	357464030365396		

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

**Environmental Conditions:**

<b>Temperature (°C):</b>	30
<b>Relative Humidity (%):</b>	19

**Results: Peak****Results: Circuit Switched Peak Power**

Channel	Frequency (MHz)	Antenna Polarity	ERP (dBm)	ERP Limit (dBm)	Margin (dB)	Result
Bottom	824.2	Vertical	32.8	38.0	5.2	Complied
Middle	836.6	Horizontal	31.0	38.0	7.0	Complied
Top	848.8	Horizontal	29.6	38.0	8.4	Complied

**Results: GPRS Peak Power**

Channel	Frequency (MHz)	Antenna Polarity	ERP (dBm)	ERP Limit (dBm)	Margin (dB)	Result
Bottom	824.2	Vertical	32.7	38.0	5.3	Complied
Middle	836.6	Horizontal	30.7	38.0	7.3	Complied
Top	848.8	Horizontal	29.6	38.0	8.4	Complied

**Note(s):**

- Measurements below 1 GHz were performed in a semi-anechoic chamber (RFI Asset Number K0001) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum ERP levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.

### 5.3. Test Results - Part 24

#### 5.3.1. Transmitter Output Power (EIRP)

##### Test Summary:

Test Engineer:	Andrew Edwards	Test Date:	29 June 2011
Test Sample IMEI:	357464030365396		

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

##### Environmental Conditions:

Temperature (°C):	30
Relative Humidity (%):	19

##### Results: GSM Circuit Switched Peak Power

Channel	Frequency (MHz)	Antenna Polarity	EIRP (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	1850.2	Horizontal	30.4	33.0	2.6	Complied
Middle	1879.8	Horizontal	30.6	33.0	2.4	Complied
Top	1909.8	Horizontal	30.3	33.0	2.7	Complied

##### Results: GPRS Peak Power

Channel	Frequency (MHz)	Antenna Polarity	EIRP (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	1850.2	Horizontal	30.2	33.0	2.8	Complied
Middle	1879.8	Horizontal	30.3	33.0	2.7	Complied
Top	1909.8	Horizontal	30.1	33.0	2.9	Complied

##### Note(s):

1. Pre-scans above 1 GHz were performed in a fully anechoic chamber (RFI Asset Number K0002) at a distance of 3 metres. The EUT was placed at a height of 1.5 metres above the test chamber floor in the centre of the chamber turntable. All measurement antennas were placed at a fixed height of 1.5 metres above the test chamber floor, in line with the EUT. Final measurements above 1 GHz were performed in a semi-anechoic chamber (RFI Asset Number K0001) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum EIRP levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.

## **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)	824 to 849 MHz	95%	±2.94 dB
Effective Isotropic Radiated Power (EIRP)	1850 to 1910 MHz	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**

<b>RFI No.</b>	<b>Instrument</b>	<b>Manufacturer</b>	<b>Type No.</b>	<b>Serial No.</b>	<b>Date Calibration Due</b>	<b>Cal. Interval Months</b>
A553	Antenna	Chase	CBL6111A	1593	26 Mar 2012	12
A1534	Pre Amplifier	Hewlett Packard	8449B	3008A00405	20 Jun 2012	12
A1817	Antenna	EMCO	3115	00075694	03 Feb 2012	12
A1818	Antenna	EMCO	3115	00075692	05 Sep 2011	12
A1970	Pre Amplifier	RFI	N/A	N/A	30 Jun 2011	12
A2000	Attenuator	Huber & Suhner	6830.17.B	301623	09 Feb 2012	12
A288	Antenna	Chase	CBL6111A	1589	05 Sep 2011	12
G0543	Pre Amplifier	Sonoma	310N	230801	30 Jun 2011	12
K0001	RSE Chamber	Rainford EMC	N/A	N/A	29 May 2012	12
K0002	RSE Chamber	Rainford EMC	N/A	N/A	05 Sep 2011	12
M1273	Test Receiver	Rohde & Schwarz	ESIB 26	100275	04 Feb 2012	12
M1590	Test Receiver	Rohde & Schwarz	ESU26	100239	15 Jun 2012	12

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