

TEST REPORT FROM RFI GLOBAL SERVICES LTD

Test of: Identicom T Series Lone Worker Device



FCC ID: VTJS10621

IC Certification No.: 7467A-S10621

To: FCC Parts 22.913 & 24.232; Industry Canada RSS-132 Issue 2
Section 4.4 & RSS-133 Issue 5 Section 6.4

Test Report Serial No:
RFI-RPT-RP82075JD01A V3.0

Version 3.0 Supersedes All Previous Versions

This Test Report Is Issued Under The Authority Of Chris Guy, Head of Global Approvals:		
Checked By:	Ian Watch	
Signature:		
Date of Issue:	19 August 2011	

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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





Company Name:	Connexion2 Ltd.
Address:	Momentum House Church Lane Dinnington Yorkshire S25 2RG United Kingdom

2. Summary of Testing

2.1. General Information

GSM850	
Specification Reference:	47CFR22
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications) 2010: Part 22 Subpart H (Public Mobile Services)
Specification Reference:	RSS-132 Issue 2 Sep 2005
Specification Title:	Cellular Telephones Employing New Technologies Operating in the Bands 824-849 MHz and 869-894 MHz
Specification Reference:	SRSP-503 Issue 7 Sep 2008
Specification Title:	Technical Requirements for Cellular Radiotelephone Systems Operating in the Bands 824 – 849 MHz and 869 – 894 MHz
PCS1900	
Specification Reference:	47CFR24
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications) 2010: Part 24 Subpart E (Personal Communication Services)
Specification Reference:	RSS-133 Issue 5 Feb 2009
Specification Title:	2 GHz Personal Communications Services
Specification Reference:	SRSP-510 Issue 5 Feb 2009
Specification Title:	Technical Requirements for Personal Communications Services (PCS) in the Bands 1850-1915 MHz and 1930-1995 MHz
Site Registration:	FCC: 209735; Industry Canada: 3245B-2
Location of Testing:	RFI Global Services Ltd, Wade Road, Basingstoke, Hampshire, RG24 8AH.
Test Date:	11 April 2011 to 21 June 2011

2.2. Summary of Test Results

FCC Reference (47CFR)	IC Reference	Measurement	Result
GSM850			
22.913(a)	RSS-132 Section 4.4 SRSP-503 Section 5.1.3	Transmitter Output Power (ERP)	
Part 2.1046	-	Transmitter Conducted Average Output Power	Note 1
PCS1900			
Part 24.232	RSS-133 Section 6.4 SRSP-510 Section 5.1.2	Transmitter Output Power (EIRP)	
Part 2.1046	-	Transmitter Conducted Average Output Power	Note 1
Key to Results			
 = Complied  = Did not comply			

Note 1: The measurement was performed to support SAR tests.

2.3. Methods and Procedures

Reference:	ANSI/TIA-603-C-2004
Title:	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)

Brand Name:	Identicom t series Lone Worker Device
Model Name or Number:	T series S10619
IMEI:	353681046333360
Hardware Version Number:	EE09-TR1-BOM-2-007 r2
Software Version Number:	EE09-05-02-t13
FCC ID:	VTJS10621
Industry Canada Certification No.:	7467A-S10621

3.2. Description of EUT

The equipment under test was a GSM enabled lone worker security device with man-down alarm and in-built GPS receiver.

3.3. Modifications Incorporated in the EUT

No modifications were applied to the EUT during testing.

3.4. Additional Information Related to Testing

Technology Tested:	GSM850/GPRS850		
Type of Radio Device:	Transceiver		
Mode:	Circuit Switched and Packet Switched GSM850		
Transmit Frequency Range:	824 to 829 MHz		
Transmit Channels Tested:	Channel ID	Channel Number	Channel Frequency (MHz)
	Bottom	128	824.2
	Middle	189	836.4
	Top	251	848.8
Technology Tested:	PCS1900/GPRS1900		
Mode:	Circuit Switched and Packet Switched GSM1900		
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:

Description:	Radio Communications Test Set
Brand Name:	Rhode and Schwarz
Model Name or Number:	CMU200
Serial Number:	111379

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, centre and top channels as required
- Tests were performed with the EUT in GSM single timeslot, circuit switched mode and also in GPRS Multislot Class 10 mode 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 Rohde & Schwarz CMU200 over a radio or RF cable.
- The EUT battery was fully charged before commencing the test. The EUT was then tested under battery power only. Battery levels were repeatedly monitored during the tests and the battery recharged as required.

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 & RSS-132**5.2.1. Transmitter Effective Radiated Power (ERP)****Test Summary:**

Test Engineer:	Nick Steele	Test Date:	21 June 2011
Test Sample IMEI:	353681046333360		

FCC Part:	22.913(a)
Test Method Used:	ANSI TIA-603-C-2004 Section 2.2.17.2

Environmental Conditions:

Temperature (°C):	27
Relative Humidity (%):	22

Results: GSM Circuit Switched

Channel	Frequency (MHz)	Antenna Polarity	Peak ERP (dBm)	ERP Limit (dBm)	Margin (dB)	Result
Bottom	824.2	Vertical	23.2	38.45	15.25	Complied
Middle	836.4	Vertical	24.7	38.45	13.75	Complied
Top	848.8	Vertical	26.0	38.45	12.45	Complied

Channel	Frequency (MHz)	Antenna Polarity	Average ERP (dBm)	ERP Limit (dBm)	Margin (dB)	Result
Bottom	824.2	Vertical	23.0	38.45	15.45	Complied
Middle	836.4	Vertical	24.5	38.45	13.95	Complied
Top	848.8	Vertical	25.8	38.45	12.65	Complied

Results: GPRS

Channel	Frequency (MHz)	Antenna Polarity	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	824.2	Vertical	22.7	38.45	15.75	Complied
Middle	836.4	Vertical	24.1	38.45	14.35	Complied
Top	848.8	Vertical	25.5	38.45	12.95	Complied

Channel	Frequency (MHz)	Antenna Polarity	Average ERP (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	824.2	Vertical	22.5	38.45	15.95	Complied
Middle	836.4	Vertical	23.9	38.45	14.55	Complied
Top	848.8	Vertical	25.3	38.45	13.15	Complied

Transmitter Effective Radiated Power (ERP) (continued)**Note(s):**

1. SRSP-503 states the limit as an EIRP value of 11.5 Watts (40.6 dBm) which equates to an ERP limit of 7 Watts (38.45 dBm).

5.2.2. Transmitter Conducted Average and Peak Output Power**Test Summary:**

Test Engineer:	Naseer Mirza	Test Date:	11 April 2011
Test Sample IMEI:	353681046333360		

FCC Part:	2.1046
Test Method Used:	The conducted power was measured using an average power meter

Environmental Conditions:

Temperature (°C):	23
Relative Humidity (%):	30

Results: GSM850 Circuit Switched

Channel	Frequency (MHz)	Peak Power (dBm)	Average Power (dBm)
Bottom	824.2	30.5	30.3
Middle	836.4	30.6	30.4
Top	848.8	30.6	30.4

Results: GPRS850 Packet Switched

Channel	Frequency (MHz)	Peak Power (dBm)	Average Power (dBm)
Bottom	824.2	30.5	30.3
Middle	836.4	30.6	30.4
Top	848.8	30.6	30.4

5.3. Test Results – Part 24 & RSS-133**5.3.1. Transmitter Equivalent Isotropic Radiated Power (EIRP)****Test Summary:**

Test Engineer:	Nick Steele	Test Date:	21 June 2011
Test Sample IMEI:	353681046333360		

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

Environmental Conditions:

Temperature (°C):	27
Relative Humidity (%):	22

Results: GSM Circuit Switched

Channel	Frequency (MHz)	Antenna Polarity	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	1850.2	Vertical	26.4	33.0	6.6	Complied
Middle	1879.8	Vertical	27.0	33.0	6.0	Complied
Top	1909.8	Vertical	26.5	33.0	6.5	Complied

Channel	Frequency (MHz)	Antenna Polarity	Average EIRP (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	1850.2	Vertical	26.2	33.0	6.8	Complied
Middle	1879.8	Vertical	26.8	33.0	6.2	Complied
Top	1909.8	Vertical	26.3	33.0	6.7	Complied

Results: GPRS

Channel	Frequency (MHz)	Antenna Polarity	EIRP (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	1850.2	Vertical	26.0	33.0	7.0	Complied
Middle	1879.8	Vertical	26.5	33.0	6.5	Complied
Top	1909.8	Vertical	26.1	33.0	6.9	Complied

Channel	Frequency (MHz)	Antenna Polarity	Average EIRP (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	1850.2	Vertical	25.8	33.0	7.2	Complied
Middle	1879.8	Vertical	26.3	33.0	6.7	Complied
Top	1909.8	Vertical	25.9	33.0	7.1	Complied

5.3.2. Transmitter Conducted Average and Peak Output Power**Test Summary:**

Test Engineer:	Naseer Mirza	Test Date:	11 April 2011
Test Sample IMEI:	353681046333360		

FCC Part:	2.1046
Test Method Used:	The conducted power was measured using an average power meter.

Environmental Conditions:

Temperature (°C):	23
Relative Humidity (%):	30

Results: PCS1900 Circuit Switched

Channel	Frequency (MHz)	Peak Power (dBm)	Average Power (dBm)
Bottom	1850.2	28.8	28.6
Middle	1879.8	28.8	28.6
Top	1909.8	28.8	28.6

Results: GPRS1900 Packet Switched

Channel	Frequency (MHz)	Peak Power (dBm)	Average Power (dBm)
Bottom	1850.2	28.0	27.8
Middle	1879.8	28.0	27.8
Top	1909.8	28.0	27.8

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 849MHz	95%	±2.94 dB
Conducted RF Power	824 to 849 MHz	95%	±0.27 dB
Equivalent Isotropic Radiated Power (EIRP)	1850 to 1910 MHz	95%	±2.94 dB
Conducted RF Power	1850 to 1910 MHz	95%	±0.27 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
A1396	Attenuator	Huber & Suhner	757987	6810.17.B	06 Jul 2011	12
A1818	Antenna	EMCO	3115	00075692	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
M263	Power Meter	Rohde & Schwarz	NRVD	826558/004	27 May 2011	12
M265	Diode Power Sensor	Rohde & Schwarz	NRV-Z1	893350/017	27 May 2011	12
M1124	Test Receiver	Rohde & Schwarz	ESI26	100046K	24 Jun 2011	12
M1044	Diode Power Sensor	Rohde & Schwarz	NRV-Z1	893350/019	27 May 2011	12

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

Note(s):

1. Conducted peak and average power measurements were performed on 11 April 2011 using RFI Nos. M263, M265 and M1044. All three items were within their calibration period on 11th April 2011.
2. ERP and EIRP measurements were performed on 21 June 2011 using Asset Nos. A1396, A1818, A288, K0002 and M1124. All five items were within their calibration period on 21 June 2011.