TEST REPORT
FROM
RFI GLOBAL SERVICES LTD

Test of: Num8+

FCC ID: XYANUM8

To: FCC Part 22.913 and Part 24.232

Test Report Serial No:
RFI-RPT-RP79720JD03A V2.0

Version 2.0 Supersedes All Previous Versions

This Test Report Is Issued Under The Authority Of Chris Guy, Head of Global Approvals: 	
Checked By:	A. Henriques
Signature: 	
Date of Issue:	05 January 2011

This report is issued in Adobe Acrobat portable document format (PDF). It is only a valid copy of the report if it is being viewed in PDF format with the following security options not allowed: Changing the document, Selecting text and graphics, Adding or changing notes and form fields.

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

This page has been left intentionally blank.

Table of Contents

1. Customer Information 4

2. Summary of Testing 5
2.1. General Information 5
2.2. Summary of Test Results 5
2.3. Methods and Procedures 5
2.4. Deviations from the Test Specification 5

3. Equipment Under Test (EUT) 6
3.1. Identification of Equipment Under Test (EUT) 6
3.2. Description of EUT 6
3.3. Modifications Incorporated in the EUT 6
3.4. Additional Information Related to Testing 7
3.5. Support Equipment 7

4. Operation and Monitoring of the EUT during Testing 8
4.1. Operating Modes 8
4.2. Configuration and Peripherals 8

5. Measurements, Examinations and Derived Results 9
5.1. General Comments 9
5.2. Test Results – FCC Part 22 10
5.2.1. Transmitter Output Power (ERP) 10
5.3. Test Results – FCC Part 24 11
5.3.1. Transmitter Equivalent Isotropic Radiated Power (EIRP) 11

6. Measurement Uncertainty 12

Appendix 1. Test Equipment Used 13

1. Customer Information

Company Name:	Lok8U Ltd
Address:	Unit 2, Colemeadow Road North Moons Moat Redditch Worcestershire B98 9PB United Kingdom

2. Summary of Testing

2.1. General Information

Specification Reference:	47CFR22
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications) 2010: Part 22 Subpart H (Public Mobile Services) - Section 22.913
Specification Reference:	47CFR24
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications) 2010: Part 24 Subpart E (Personal Communication Services) - Section 24.232
Site Registration:	209735
Location of Testing:	RFI Global Services Ltd, Wade Road, Basingstoke, Hampshire, RG24 8AH.
Test Dates:	24 November 2010

2.2. Summary of Test Results

FCC Reference (47CFR)	Measurement	Result
Part 22		
Part 22.913(a)	Transmitter Output Power (ERP)	
Part 24		
Part 24.232	Transmitter Output Power (EIRP)	
Key to Results = Complied = Did not comply		

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:	Lok8u
Model Name or Number:	Num8+
IMEI:	3560210111861289
Hardware Version Number:	2
Software Version Number:	2
FCC ID:	XYANUM8

3.2. Description of EUT

The equipment under test was a wrist mounted location device specifically designed to be worn by children, also functioning as a digital watch. It included an integral SIM card and had GPRS functionality. It also included GPS for its location services. The software on the EUT has been configured so that it is not possible to make or receive a circuit switched speech call.

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:	GPRS		
Modulation Type:	GMSK		
Channel Spacing:	200 kHz		
Power Supply Requirement(s):	Nominal	3.8V (supplied by internal battery)	
Technology Tested:	GSM850		
Maximum Output Power (ERP):	GPRS	19.2 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):	GPRS	23.8 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:

Description:	Desktop charger
Brand Name:	Lok8u
Model Name or Number:	nu•m8
Serial Number:	None stated

4. Operation and Monitoring of the EUT during Testing

4.1. Operating Modes

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

- Transmitting at maximum power on the bottom, centre and top channels in the GSM850 and PCS1900 bands in GPRS mode.

4.2. Configuration and Peripherals

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

- Connected to an Agilent 8960 GSM base station simulator over a radio link.
- A customer supplied SIM indicative of normal usage was present in the EUT during tests.
- 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. The desktop charger was not connected to the EUT during testing as this is not a valid mode of operation.
- GPRS was tested with the EUT transmitting at maximum power on two timeslots.

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 – FCC Part 22

5.2.1. Transmitter Output Power (ERP)

Test Summary:

Test Engineer:	Crawford Lindsay	**Test Date:**	24 November 2010
Test Sample IMEI:	3560210111861289		

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

Environmental Conditions:

Temperature (°C):	25
Relative Humidity (%):	21

Results: GPRS – Peak ERP

Channel	Frequency (MHz)	Antenna Polarity	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	824.2	Vertical	18.5	38.45	19.95	Complied
Middle	836.6	Vertical	19.0	38.45	19.45	Complied
Top	848.8	Vertical	19.2	38.45	19.25	Complied

Results: GPRS – Average ERP

Channel	Frequency (MHz)	Antenna Polarity	Average ERP (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	824.2	Vertical	18.3	38.45	20.15	Complied
Middle	836.6	Vertical	18.8	38.45	19.65	Complied
Top	848.8	Vertical	19.0	38.45	19.45	Complied

Note(s):

To establish the case of highest power for the EUT it was manipulated in the following manner:

In each of its three orthogonal faces
- X plane – EUT was placed with the watch face face-down to the table surface
- Y plane – By means of a pole rising vertically from the table surface, the EUT was held with the watch face vertically upright
- Z plane – The EUT was connected to the table surface by its strap so as the watch face was held horizontally upright.

For each plane
- The EUT was rotated 360 degrees by means of a turntable
- The antenna polarisation was verified in both its vertical and horizontal orientations

The maximum level produced during these manipulations was recorded. The test was fully repeated for each of top, middle and bottom channels.

5.3. Test Results – FCC Part 24

5.3.1. Transmitter Equivalent Isotropic Radiated Power (EIRP)

Test Summary:

Test Engineer:	Crawford Lindsay	**Test Date:**	24 November 2010
Test Sample IMEI:	3560210111861289		

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

Environmental Conditions:

Temperature (°C):	25
Relative Humidity (%):	21

Results: GPRS – Peak ERP

Channel	Frequency (MHz)	Antenna Polarity	EIRP (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	1850.2	Horizontal	21.5	33.0	11.5	Complied
Middle	1879.8	Horizontal	23.8	33.0	9.2	Complied
Top	1909.8	Horizontal	21.5	33.0	11.5	Complied

Results: GPRS – Average ERP

Channel	Frequency (MHz)	Antenna Polarity	Average EIRP (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	1850.2	Horizontal	21.3	33.0	11.7	Complied
Middle	1879.8	Horizontal	23.6	33.0	9.4	Complied
Top	1909.8	Horizontal	21.3	33.0	11.7	Complied

Note(s):

To establish the case of highest power for the EUT it was manipulated in the following manner:

In each of its three orthogonal faces
- X plane – EUT was placed with the watch face face-down to the table surface
- Y plane – By means of a pole rising vertically from the table surface, the EUT was held with the watch face vertically upright
- Z plane – The EUT was connected to the table surface by its strap so as the watch face was held horizontally upright.

For each plane
- The EUT was rotated 360 degrees by means of a turntable
- The antenna polarisation was verified in both its vertical and horizontal orientations

The maximum level produced during these manipulations was recorded. The test was fully repeated for each of top, middle and bottom channels.

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
Equivalent 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

RFI No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
A288	Antenna	Chase	CBL6111A	1589	05 Sep 2011	12
A1393	Attenuator	Huber + Suhner	757456	6820.17.B	06 Jul 2011	12
A1534	Pre Amplifier	Hewlett Packard	8449B	3008A00405	06 Jun 2011	12
A1818	Antenna	EMCO	3115	00075692	05 Sep 2011	12
K0002	3m RSE Chamber	Rainford EMC	N/A	N/A	05 Sep 2011	12
L1003	GSM Base Station Simulator	Agilent	8960	GB44051133	Calibration not required	-
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.