# TEST REPORT
# FROM
# RFI GLOBAL SERVICES LTD

Test of: Enfora Inc.
GSM3408

To: FCC Part 22: 2007 (Subpart H) and FCC Part 24: 2007 (Subpart E)

**Test Report Serial No:**
RFI/RPTE1/RP73579JD02A

| | |
|---|---|
| **This Test Report Is Issued Under The Authority Of Steve Flooks, Radio Performance Group Service Leader:**  **pp Brian Watson** | |
| **Checked By: Brian Watson**  | **Report Copy No: PDF01** |
| **Issue Date: 26 June 2008** | **Test Dates: 06 February 2008** |

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**GSM3408**

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## 1. Customer Information

| | |
|---|---|
| **Company Name:** | Enfora Inc. |
| **Address:** | 251 Renner Parkway<br>Richardson<br>TEXAS<br>75080<br>USA |
| **Contact Name:** | Mr R Holden |

# 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 GSM3408 Quad-band wireless sled for a family of Palms PDAs that is capable of operating in GSM and GPRS technologies bands.

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

| | |
|---|---|
| **Description:** | Handheld Cradle for palm Tx and E2 |
| **Brand Name:** | Enfora |
| **Model Name or Number:** | GSM3408 |
| **Serial Number:** | 3 408470700294 |
| **IMEI Number:** | 0 11069000179541 |
| **Hardware Version Number:** | None Stated |
| **Software Version Number:** | None Stated |
| **Hardware Revision of GSM Module:** | None Stated |
| **Software Revision of GSM Module:** | None Stated |
| **FCC ID Number:** | MIVGSM3408 |
| **Country of Manufacture:** | USA |
| **Date of Receipt:** | 04 February 2008 |

## 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:

| | |
|---|---|
| **Description:** | PalmOne |
| **Brand Name:** | Tungsten |
| **Model Name or Number:** | LogPad E2 |
| **Serial Number:** | PN20UCP5V141 |
| **Cable Length and Type:** | Not Applicable |
| **Country of Manufacture:** | China |
| **Connected to Port** | Data Port Unique to Manufacturer |

## 2.5. Support Equipment

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

| | |
|---|---|
| **Description:** | Radio Communication Analyser |
| **Brand Name:** | Anritsu |
| **Model Name or Number:** | MT8820A |
| **Serial Number:** | 6K000000647 |
| **Cable Length and Type:** | 1.5m Utiflex Cable |
| **Connected to Port:** | RF (Input/Output) Air Link |

## 2.6. Additional Information Related to Testing

| | | | |
|---|---|---|---|
| **Equipment Category** | GSM(850/1900) and GPRS(850/1900) | | |
| **Type of Unit** | Portable (Standalone battery powered device) | | |
| **Intended Operating Environment:** | Within GSM/GPRS 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):** | GSM: 8.3 GPRS: 4 | | |
| **Antenna Type:** | Patch Antenna | | |
| **Antenna Length:** | Unknown | | |
| **Number of Antenna Positions:** | 1 Fixed Internal | | |
| **Power Supply Requirement:** | 3.7V / 870 mAh | | |
| **Battery Type(s):** | Lithium-Ion | | |

# 3. Test Specification, Methods and Procedures

## 3.1. Test Specification

| | |
|---|---|
| **Reference:** | FCC Part 22: 2007 Subpart H (Cellular Radiotelephone Service) |
| **Title:** | Code of Federal Regulations, Part 22 (47CFR22)<br>Personal Communication Services. |

| | |
|---|---|
| **Reference:** | FCC Part 24: 2007 Subpart E (Broadband PCS) |
| **Title:** | Code of Federal Regulations, Part 24 (47CFR24)<br>Personal Communication Services. |

## 3.2. Methods and Procedures

The methods and procedures used were as detailed in:

ANSI/TIA-603-B-2003
Land Mobile Communications Equipment, Measurements and performance Standards

ANSI C63.2 (1987)
Title: American National Standard for Instrumentation - Electromagnetic noise and field strength.

ANSI C63.4 (2003)
Title: 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.

ANSI C63.5 (1988)
Title: American National Standard for the Calibration of antennas used for Radiated Emission measurements in Electromagnetic Interference (EMI) control.

ANSI C63.7 (1988)
Title: American National Standard Guide for Construction of Open Area Test Sites for performing Radiated Emission Measurements.

CISPR 16-1: (1999)
Title: Specification For Radio Disturbance and Immunity Measuring Apparatus and Methods. Part 1: Radio Disturbance and Immunity Measuring Apparatus.

## 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.

# 4. Deviations from the Test Specification

There were no deviation from the test specification.

# 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:

- PCS1900 call allocated mode
- GSM850 call allocated mode

## 5.2. Configuration and Peripherals

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

- Stand-alone portable.
- ERP/EIRP measurements were performed with the EUT attached to a PDA.

# 6. Summary of Test Results

## FCC Part 22

| Range of Measurements | Specification Reference | Port Type | Compliancy Status |
|---|---|---|---|
| Transmitter Effective Radiated Power (ERP) | 22.913(a) | Antenna | Complied |

## FCC Part 24

| Range of Measurements | Specification Reference | Port Type | Compliancy Status |
|---|---|---|---|
| Transmitter Effective Isotropic Radiated Power (EIRP) | 24.232 | Antenna | 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.

## 6.2. Site Registration Numbers

FCC: 90895
IC: 3485

# 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.

## 7.1.1. Test Results – FCC Part 22 (Subpart H)

### 7.1.1. Transmitter Equivalent Radiated Power (ERP) - GSM850

Tests were performed using the test methods detailed in ANSI TIA-603-C-2004 and FCC CFR Part 2.

| Channel Number | Frequency (MHz) | TX Power before Test (dBm) | Note |
|---|---|---|---|
| 128 | 824.2 | 26.2 | ERP |
| 189 | 836.4 | 27.5 | ERP |
| 251 | 848.8 | 26.4 | ERP |

## 7.2. Test Results – FCC Part 24 (Subpart E)

### 7.2.1. Transmitter Equivalent Isotropic Radiated Power (EIRP) - PCS1900

Tests were performed using the test methods detailed in ANSI TIA-603-C-2004 and FCC CFR Part 2.

| Channel Number | Frequency (MHz) | TX Power before Test (dBm) | Note |
|---|---|---|---|
| 512 | 1850.2 | 27.3 | EIRP |
| 660 | 1879.8 | 25.7 | EIRP |
| 810 | 1909.8 | 23.9 | EIRP |

## 8. 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 |
|---|---|---|
| Equivalent Radiated Power (ERP) | 95% | ±1.78 dB |
| Equivalent Isotropic Radiated Power (EIRP) | 95% | ±2.54 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) |
|---|---|---|---|---|---|---|
| A028 | Antenna | Eaton | 91888-2 | 304 | 08 Jun 2006 | 36 |
| C1065 | Cable | Rosenberger | UFA210-1-7872 | 0985 | Calibrated before use | - |
| M1242 | Spectrum Analyser | Rohde & Schwarz, Inc. | FSEM30 | 845986/022 | 29 Nov 2007 | 15 |
| S202 | Site 2 | RFI | 2 | S202-15011990 | Verified before use | - |

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