



TEST REPORT

Test Report No. : UL-RPT-RP87848JD18A V2.0

Manufacturer : Enfora Inc.
Model No. : GSM2378
FCC ID : MIVGSM2378
IC Certification No. : 4160A-GSM2378
Test Standard(s) : FCC Part 22.913(a); Part 24.232 & Industry Canada RSS-132; RSS-133

1. This test report shall not be reproduced in full or partial, without the written approval of RFI Global Services Ltd trading as UL.
2. The results in this report apply only to the sample tested.
3. This sample tested is in compliance with the above standard(s).
4. The test results in this report are traceable to the national or international standards.
5. Version 2.0 supersedes all previous versions.

Date of Issue: 01 February 2013

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This laboratory is accredited by UKAS.
The tests reported herein have been
performed in accordance with its' terms
of accreditation.

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1. Customer Information

Company Name:	Enfora Inc.
Address:	251 Renner Parkway Richardson TEXAS 75080 United States

2. Summary of Testing

2.1. General Information

Specification Reference:	47CFR22
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications) 2012: Part 22 Subpart H (Public Mobile Services)
Specification Reference:	47CFR24
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications) 2012: Part 24 Subpart E (Personal Communication Services)
Specification Reference:	Industry Canada RSS-132 Issue 3, January 2013
Specification Title:	Cellular Telephone Systems Operating in the Bands 824-849 MHz and 869-894 MHz
Specification Reference:	Industry Canada RSS-133 Issue 6, January 2013
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 trading as UL, Wade Road, Basingstoke, Hampshire, RG24 8AH
Test Date:	23 January 2013

Summary of Test Results

FCC Reference (47CFR)	Industry Canada Reference	Measurement	Result
Part 22 & RSS-132			
Part 22.913(a)	RSS-132 5.4	Transmitter Output Power (ERP)	
Part 24 & RSS-133			
Part 24.232	RSS-133 6.4 SRSP-510 5.1.2	Transmitter Output Power (EIRP)	
Key to Results			
	= Complied		= Did not comply

2.2. Methods and Procedures

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

2.3. 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:	MT 3050
Model Name or Number:	GSM2378
IMEI:	013357000000082
Hardware Version Number:	1
Software Version Number:	1.1.6
FCC ID:	MIVGSM2378
Industry Canada Certification Number:	4160A-GSM2378

3.2. Description of EUT

The equipment under test was a mobile tracker OBD, which contains GSM and GPS technologies.

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		
Power Supply Requirement(s):	Nominal	12 VDC	
Technology Tested:	GSM850		
Maximum Output Power (ERP):	GPRS	31.2 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	28.1 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:	Test jig
Brand Name:	Enfora
Model Name or Number:	Not marked or stated
Serial Number:	Not marked or stated

4. Operation and Monitoring of the EUT during Testing

4.1. Operating Modes

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

- Receiver/Idle mode.
- Constantly transmitting at full power on bottom, middle and top channels as required.
- ERP/EIRP and band edge tests were performed with the EUT in 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):

- The EUT was placed into a test jig and power leads connected to a DC power supply.
- Connected to a GSM/GPRS system simulator, operating in transceiver mode. The EUT automatically connected to the network once power was applied and the data call was initiated by the system simulator.

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:

Test Engineer:	Mark Percival	Test Date:	23 January 2013
Test Sample IMEI:	013357000000082		

FCC Part:	22.913(a)
Industry Canada Reference:	RSS-132 5.4
Test Method Used:	As detailed in ANSI TIA-603-C-2004 Section 2.2.17.2

Environmental Conditions:

Temperature (°C):	21
Relative Humidity (%):	30

Results: GPRS

Channel	Frequency (MHz)	Antenna Polarity	ERP (dBm)	ERP Limit (dBm)	Margin (dB)	Result
Bottom	824.2	Horizontal	30.5	38.45	7.95	Complied
Middle	836.6	Horizontal	31.2	38.45	7.25	Complied
Top	848.8	Horizontal	30.2	38.45	8.25	Complied

Note(s):

1. Industry Canada RSS-132 Section 5.4 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).

Test Equipment Used:

RFI No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
K0002	RSE Chamber	Rainford EMC	N/A	N/A	04 Nov 2013	12
A1818	Antenna	EMCO	3115	00075692	04 Nov 2013	12
M1124	Test Receiver	Rohde & Schwarz	ESIB 26	100046K	14 Aug 2013	12
A1534	Pre Amplifier	Hewlett Packard	8449B	3008A00405	04 Nov 2013	12
A1393	Attenuator	Huber & Suhner	6820.17.B	757456	06 Jul 2013	12

Part 24**5.2.2. Transmitter Output Power (EIRP)****Test Summary:**

Test Engineer:	Mark Percival	Test Date:	23 January 2013
Test Sample IMEI:	013357000000082		

FCC Part:	24.232
Industry Canada Reference:	RSS-133 6.4 SRSP-510 5.1.2
Test Method Used:	As detailed in ANSI TIA-603-C-2004 Section 2.2.17.2

Environmental Conditions:

Temperature (°C):	21
Relative Humidity (%):	30

Results: GPRS

Channel	Frequency (MHz)	Antenna Polarity	EIRP (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	1850.2	Horizontal	28.1	33.0	4.9	Complied
Middle	1879.8	Horizontal	27.6	33.0	5.4	Complied
Top	1909.8	Horizontal	27.1	33.0	5.9	Complied

Test Equipment Used:

RFI No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
K0002	RSE Chamber	Rainford EMC	N/A	N/A	04 Nov 2013	12
A288	Antenna	Chase	CBL6111A	1589	15 Aug 2013	12
M1124	Test Receiver	Rohde & Schwarz	ESIB 26	100046K	14 Aug 2013	12
A1534	Pre Amplifier	Hewlett Packard	8449B	3008A00405	04 Nov 2013	12
A1393	Attenuator	Huber & Suhner	6820.17.B	757456	06 Jul 2013	12

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.

7. Report Revision History

Version Number	Revision Details		
	Page No(s)	Clause	Details
1.0	-	-	Initial Version
2.0	-	-	Industry Canada references added