

TEST REPORT FROM RFI GLOBAL SERVICES LTD

Test of: MaxID Ltd
iDL3ID

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

Test Report Serial No:
RFI/RPTE1/RP73402JD05B

This Test Report Is Issued Under The Authority
Of Steve Flooks, Radio Performance Group Service Leader:

pp

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1. Client Information

Company Name:	MaxID Ltd
Address:	Hillswood Business Park 3000 Hillswood Drive Chertsey Surrey KT16 0RS
Contact Name:	Mr R Biggs

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2. Equipment Under Test (EUT)

The following information (with the exception of the Date of Receipt) has been supplied by the client:

2.1. Identification of Equipment Under Test (EUT)

Description:	Rugged Mobile Computer
Brand Name:	iDL
Model Name or Number:	iDL3ID FCC test unit 1
Serial Number:	505159
FCC ID Number:	TFTIDL3ID01
Country of Manufacture:	None Stated
Date of Receipt:	05 March 2008

2.2. Description of EUT

The equipment under test is a Rugged Mobile Computer.

2.3. Accessories

The following accessories were supplied with the EUT:

Description:	Docking station for Mobile computer
Brand Name:	iDL docking station
Model Name or Number:	IDL doc
Serial Number:	CHN00002
Cable Length and Type:	Not Applicable
Connected to Port:	Not Applicable

Description:	AC-DC adaptor
Brand Name:	Netgear
Model Name or Number:	DV-1280-3UK
Serial Number:	330-10102-01
Cable Length and Type:	2 meters / multicore
Connected to Port:	Docking station charger

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2.4. Support Equipment

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

Description:	Laptop
Model Name or Number:	Dell Latitude 110L
Serial Number:	(01)07898349890528
Cable Length and Type:	Not Applicable
Connected to Port:	Serial

Description:	RS-232 extender cable
Model Name or Number:	None Stated
Serial Number:	None Stated
Cable Length and Type:	2 metres 9way male to 9way fem D-type
Connected to Port:	Serial

2.5. Modifications Incorporated in EUT

The EUT was modified by the manufacturer before submission for testing. An external serial and USB cable including connections were fitted and passed through the bottom of the casing. Both cables were approximately 100mm long. One cable was used to control 802.11 functions during testing via the serial port. The USB cable was not used.

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2.6. Additional Information Related to Testing

Power Supply Requirement:	Nominal 110 V, 60 Hz AC Mains Supply Internal battery supply of 3.4 V
Intended Operating Environment:	Commercial, Light Industry, Heavy Industry, Within GSM Coverage
Equipment Category:	GSM/GPRS/EGPRS
Type of Unit:	Portable (Standalone battery powered device) Transceiver
Bandwidth:	200 kHz
Modulation Type:	GSM: GMSK / 8PSK

FCC Part 22

Transmit Frequency Range:	824.0 MHz to 849.0 MHz
Receive Frequency Range:	869.0 MHz to 894.0 MHz
Maximum Power Output (ERP):	21.9 dBm

FCC Part 24

Transmit Frequency Range:	1850.0 MHz to 1910.0 MHz
Receive Frequency Range:	1930.0 MHz to 1990.0 MHz
Maximum Power Output (EIRP):	23.9 dBm

2.7. Port Identification

Port	Description	Type/Length
1	Not Applicable	Not Applicable

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3. Test Specification, Methods and Procedures

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

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

3.1. 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.

3.2. 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 deviations from the test specification.

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5. Operation of the EUT during Testing

5.1. Operating Modes

The EUT was tested in the following operating modes, unless otherwise stated.

Standalone connected to a GSM test set and configured to transmit maximum power on Bottom, Middle and Top channels.

5.2. Configuration and Peripherals

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

GSM – A link was established to a GSM System Simulator and the EUT mode, power and frequency was controlled by the System Simulator. The EUT was initially tested in GSM and EGPRS modes on the top channel to establish the worst case (highest power and most emissions). Both modes produced near identical power and emissions, therefore the remainder of the testing was completed in GSM only mode unless otherwise stated. The EUT was set to transmit at the maximum power.

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6. Summary of Test Results

FCC Part 22

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

FCC Part 24

Range of Measurements	Specification Reference	Port Type	Compliance 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

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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.

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7.2. Test Results – FCC Part 22 (Subpart H)

7.2.1. Transmitter Effective Radiated Power (ERP)

Ambient Temperature: 15°C Relative Humidity: 46 %

Relative Humidity: 46 %

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

Results:

GSM 850 / GMSK Modulation:

Channel	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	824.2	20.9	38.4	17.5	Complied
Middle	836.4	21.9	38.4	16.5	Complied
Top	848.8	21.3	38.4	17.1	Complied

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7.3. Test Results – FCC Part 24 (Subpart E)

7.3.1. Transmitter Effective Isotropic Radiated Power (EIRP)

Ambient Temperature: 15°C Relative Humidity: 37 %

Relative Humidity: 37 %

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

Results:

GSM 1900

Channel	Measured Frequency (MHz)	Antenna Polarity	Maximum Transmitter EIRP (dBm)	Limit EIRP (dBm)	Margin (dB)	Result
Bottom	1850.2	Vertical	18.4	33.0	14.6	Complied
Middle	1879.8	Vertical	22.6	33.0	10.4	Complied
Top	1909.8	Vertical	23.9	33.0	9.1	Complied

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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”.

Measurement Type	Range	Confidence Level (%)	Calculated Uncertainty
Effective Radiated Power (ERP)	Not applicable	95%	±2.94 dB
Effective Isotropic Radiated Power (EIRP)	Not applicable	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.

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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
A059	Antenna	EMCO	3146	8902-2378	25 Feb 2008	12
C1065	Cable	Rosenberger	UFA210-1-7872	0985	Calibrated before use	-
C1265	Cable	Rosenberger	FA210A1020007070	49317-01	Calibrated before use	-
C341	Cable	Andrews	None	None	Calibrated before use	-
C461	Cable	Rosenberger	UFA210A-1-1182-704704	98H0305	Calibrated before use	-
C468	Cable	Rosenberger	UFA210A-1-3937-504504	98L0440	Calibrated before use	-
M1242	Spectrum Analyser	Rohde & Schwarz, Inc.	FSEM30	845986/022	29 Nov 2007	12
S202	Site 2	RFI	2	S202-15011990	28 Jan 2008	12

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

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Appendix 2. Test Configuration Drawing

This appendix contains the following drawings:

Drawing Reference Number	Title
DRG\73402JD05\EMIRAD	Test configuration for measurement of radiated emissions.

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