

Test & Certification Center (TCC) - Dallas
DTXC 1280-EN-1.0

FCC ID: GMLRM-88
Test Report #: WR 896.005
January 20, 2006

Accredited Laboratory
Certificate Number: 1819-01

Ver 1.0

CFR 47 Part 15 Test Report

Test Report Number: WR 896.005

Terminal device:

FCC ID: GMLRM-88 Model: E62-1 Type: RM-88 Build: 4.0 SW: 5.4802
(Detailed information is listed in section 4).

Originator: Cindy Trinh
Function: TCC - Dallas – EMC
Version/Status: 1.0 Approved
Location: TCC Directories
Date: January 20, 2006

Change History:

Version	Date	Status	Handled By	Comments
0.1	20-Jan-06	Draft	Cindy Trinh	
0.2	20-Jan-06	Proposal	Cindy Trinh	
0.3	20-Jan-06	Reviewed	Severson Mark	
1.0	20-Jan-06	Approved	Severson Mark	

Testing laboratory:

Test & Certification Center (TCC) Dallas
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Tel. 972-894-5000

Client:

Nokia Inc
6021 Connection Drive
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Date and signatures:

January 20, 2006

For the contents:

Cindy Trinh

Mark Severson

Test Engineer

Technical Review



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1. GENERAL

1.1 Quality System

The quality system in place for TCC-Dallas conforms to ISO/IEC 17025 and has been audited to the standard by A2LA (American Association of Laboratory Accreditation). TCC - Dallas has also been audited using the ISO 9000 Quality System, as part of Nokia Mobile Phones, Inc., by ABS (American Bureau of Shipping) Quality Evaluations Inc.

TCC-Dallas is a recognized laboratory with the Federal Communications Commission in filing applications for Certification under Parts 15 and 18, Registration Number 100060, and Industry Canada, Registration Number IC 661.

1.2 Objective

All tests and measurement data shown was performed to determine whether the selected handset was in compliance as specified in FCC: CFR47 Parts 15.109.

1.3 Test Summary

Test Results: *The test result relates only to those tested devices mentioned in Section 4 of this test report.*

Test Performed	Reference	Section of Report	Complies / Does not comply / Not Tested
Idle Mode Radiated Emissions	FCC Part 15.109	6	Complies

2. STANDARDS BASIS

Testing has been carried out in accordance with:

REF.	Code of the standard	Name of the standard
1	ANSI C63.4	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9kHz to 40GHz.
2	FCC: CFR 47 Part 15	Code of Federal Regulations (CFR) Title 47, Part 15 – Radio Frequency Devices: Subpart B – Unintentional Radiators and Subpart C – Intentional Radiators
3	CISPR 22 / EN55022	Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement.
4	ICES-003	Digital Apparatus, Industry Canada
5	RSS-132	800 MHz Cellular Telephones Employing New Technologies
6	RSS-133	2 GHz Personal Communications Services, Industry Canada
7	RSS-212	Test Facilities and Test Methods for Radio Equipment, Industry Canada (Provisional)
8	RSP-100	Radio Equipment Certification Procedure

Note: Unless otherwise stated, (by reference to a version number and a publication date), the latest version of the above documents applies.

Deviations:

Not Applicable.

3. LIST OF ABBREVIATIONS, ACRONYMS AND TERMS

3.1 Abbreviations

- dB - decibel
- dBm - decibels per milliwatt (absolute measurement)
- dB μ V - decibel per microvolt
- dB μ V/m - decibel of microvolt per meter
- GHz - gigahertz or 1000000000 hertz
- kHz - kilohertz or 1000 hertz
- MHz - megahertz or 1000000 hertz

3.2 Acronyms

- AMPS - Advanced Mobile Phone System
- BSS - Base Station Simulator
- CDMA - Code Division Multiple Access
- EMC - Electromagnetic Compatibility
- EMI - Electromagnetic Interference
- EUT - Equipment under Test
- GSM - Global System for Mobile communications
- PCS - Personal Communications Services
- RF - Radio Frequency

3.3 Terms

- Base Station Simulator (BSS) - simulates all the necessary signals that a phone would experience while on a live network. There are many types of base station simulators catering for all current protocols, i.e., GSM, AMPS, and CDMA.
- Cellular - refers to a frequency in the 800MHz band.
- PCS - refers to a frequency in the 1900MHz band.

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4. EQUIPMENT-UNDER-TEST (EUT)

The results in this report relate only to the items listed below:

4.1 Description of Tested Device(s):

Test Performed	Mode of Operation	Date of Receipt	Condition of Sample	Item	Identifying Information
FCC Part 15.109	GSM850 USB File Transfer	8-Dec-05	Functional	Phone	FCC ID: GMLRM-88 Type: RM-88 Build: 4.0 SW: 5.4802 IMEI: 011004001923938
FCC Part 15.109	GSM850 USB File Transfer	8-Dec-05	N/A	Mini SD Card	Type: 512MB Model: S512T
FCC Part 15.109	GSM850 USB File Transfer	8-Dec-05	N/A	Battery	Type: BP-5L Other: 3.7vdc
FCC Part 15.109	GSM850 USB File Transfer	8-Dec-05	N/A	Charger	Type: AC-4U
FCC Part 15.109	GSM850 USB File Transfer	N/A	N/A	Laptop	Manufacturer: IBM Model: T40 Type: 2373 SN: 99ZVGF9
FCC Part 15.109	GSM850 USB File Transfer	N/A	N/A	Data cable	Type: DKE-2 SN: 10888
FCC Part 15.109	GSM850 USB File Transfer	N/A	N/A	AC Adapter	Manufacturer: IBM PN: 02K6543

5. TEST EQUIPMENT LIST

The listing below indicates the test equipment utilized for the test (s). Calibration interval on all items listed can be obtained from the Engineering Services Group within NMP, Product Creation - Dallas. Where relevant, measuring equipment is subjected to in-service checks between testing. TCC - Dallas shall notify clients promptly, in writing, of identification of defective measuring equipment that casts doubt on the validity of results given in this report.

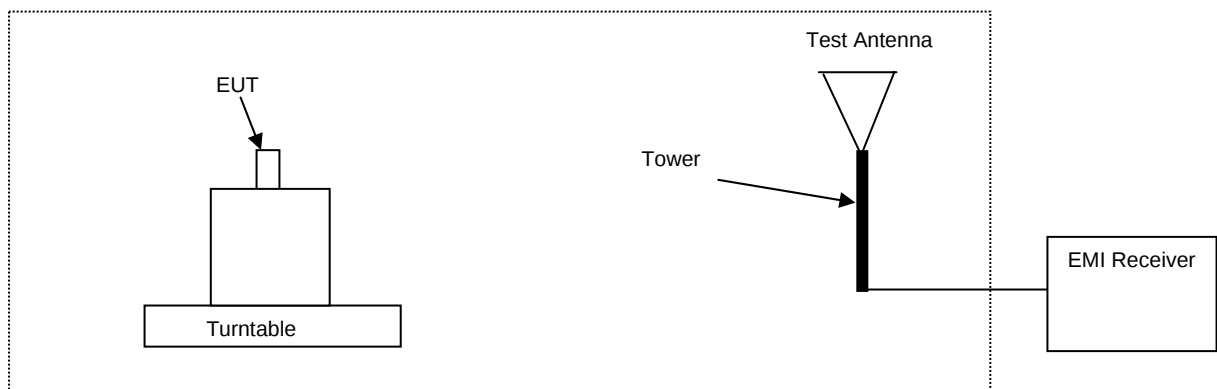
Section of Report	NMP#	Test Equipment	Mfr. #	Model #	Calibration Due Date	Calibration Interval
6	04073	EMI Receiver	R&S	ESIB 26	03-Aug-06	12 months
6	02625	Base Station	R&S	CMU-200	30-Aug-06	12 months
6	02871	Biconilog Antenna	EMC Automation	3003C	08-July-06	12 months
6	04076	Horn Antenna	ETS	3117	18-Aug-06	12 months
6	02836	Turntable and Tower Controller	Sunol	FM2022 & 2846	N/A	NCR
6	04073	EMI Receiver	R&S	ESIB 26	03-Aug-06	12 months

6. IDLE MODE RADIATED EMISSIONS

Specification: FCC Part 15.109

6.1 Setup

Testing was performed in accordance with ANSI C63.4, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9kHz to 40GHz.



6.2 Pass/Fail Criteria

Band	Frequency Range (MHz)	FCC Class B Limit (dBμV/m at 3m)
Cellular	30 – 88	40
Cellular	88 – 216	43.5
Cellular	216 – 960	46
Cellular	> 960 *	54

* Frequency to be investigated up to the 5th harmonic of the highest clock or frequency used

6.3 Detailed Test Results

Test Technician / Engineer	Cindy Trinh
Date of Measurement	20-Jan-06
Temperature	23 to 24 °C
Humidity	27 to 40 %RH
Test Result	Complies with FCC Part 15.109

The measurement results are obtained as described below:

$$E [\mu V/m] = U_{RX} + A_{TOT}$$

Where U_{RX} is receiver reading and A_{TOT} is total correction factor including cable loss, antenna factor and preamplifier gain ($A_{TOT} = L_{CABLES} + AF - G_{PREAMP}$).

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RM-88 with AC-4U, PC, DKE-2

Quasi peak (RBW: 120 kHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
33.666733	27.70	24.27	46.10	-18.40	VERTICAL	PASSED
442.884569	19.50	9.44	29.60	-10.10	VERTICAL	PASSED

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
1001.000000	36.80	69.18	38.10	-1.30	VERTICAL	PASSED
1200.902806	29.90	31.26	29.20	0.70	VERTICAL	PASSED
1602.202405	37.20	72.44	33.40	3.80	HORIZONTAL	PASSED
2002.504008	41.90	124.45	36.00	5.90	VERTICAL	PASSED
2998.997996	36.20	64.57	24.40	11.80	VERTICAL	PASSED
5744.480962	42.90	139.64	29.30	13.60	VERTICAL	PASSED
6000.500000	36.50	66.83	22.50	14.00	VERTICAL	PASSED
6103.702405	36.90	69.98	22.60	14.30	VERTICAL	PASSED
6764.531062	37.00	70.79	22.00	15.00	VERTICAL	PASSED
7224.450902	36.80	69.18	21.50	15.30	VERTICAL	PASSED
7587.680361	36.60	67.61	20.90	15.70	VERTICAL	PASSED