

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

FCC ID: QMNRH-90
Test Report #: WR-1072.101
March 13, 2006

Accredited Laboratory
Certificate Number: 1819-01

Ver 1.0

CFR 47 Part 15 Test Report

Test Report Number: WR-1072.101

Terminal device:

FCC ID: QMNRH-90 Model: 2127i Type: RH-90 HW: 7000 SW: R220_03w24_45_34.nep
(Detailed information is listed in section 4).

Originator: Cindy Trinh
Function: TCC - Dallas – EMC
Version/Status: 1.0 Approved
Location: TCC Directories
Date: March 13, 2006

Change History:

Version	Date	Status	Handled By	Comments
0.1	13-Mar-06	Draft	Cindy Trinh	
0.2	13-Mar-06	Proposal	Cindy Trinh	
0.3	13-Mar-06	Reviewed	Mark Severson	
1.0	13-Mar-06	Approved	Mark Severson	

Testing laboratory:

Test & Certification Center (TCC) Dallas
Nokia Inc
6021 Connection Drive
Irving, Texas 75039
U.S.A.

Tel. 972-894-5000

Client:

Nokia, Inc.
12278 Scripps Summit Dr.
San Diego, CA 92131
USA
Tel. +1858 831 5000
Fax. +1 858 831 6500

Date and signatures:

March 13, 2006

For the contents:

Cindy Trinh
Test Engineer

Mark Severson
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 661N.

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, 15.107 and 15.207.

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
AC Conducted Emissions	FCC Part 15.107	7	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-129	800 MHz Dual-Mode Cellular Telephones
6	RSS-132	800 MHz Cellular Telephones Employing New Technologies
7	RSS-133	2 GHz Personal Communications Services, Industry Canada
8	RSS-212	Test Facilities and Test Methods for Radio Equipment, Industry Canada (Provisional)
9	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.



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 FCC Part 15.107	CDMA 1900 USB Data Transfer	20-Feb-06	Functional	Phone	FCC ID: QMNRH-90 Type: RH-90 HW: 7000 SW: 220_03w24_45_34.nep ESN: 02604483368
FCC Part 15.109 FCC Part 15.107	CDMA 1900 USB Data Transfer	20-Feb-06	N/A	Battery	Type: BL-6C Other: 3.7 Vdc
FCC Part 15.109 FCC Part 15.107	CDMA 1900 USB Data Transfer	20-Feb-06	N/A	Charger	Type: ACP-12U
FCC Part 15.109 FCC Part 15.107	CDMA 1900 USB Data Transfer	N/A	N/A	Laptop	Manufacturer: IBM Model: T40 Type: 2373 SN: 99ZVGF9
FCC Part 15.109 FCC Part 15.107	CDMA 1900 USB Data Transfer	N/A	N/A	AC Adapter	Manufacturer: IBM PN: 02K6543
FCC Part 15.109 FCC Part 15.107	CDMA 1900 USB Data Transfer	N/A	N/A	Data cable	Type: CA-42



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.

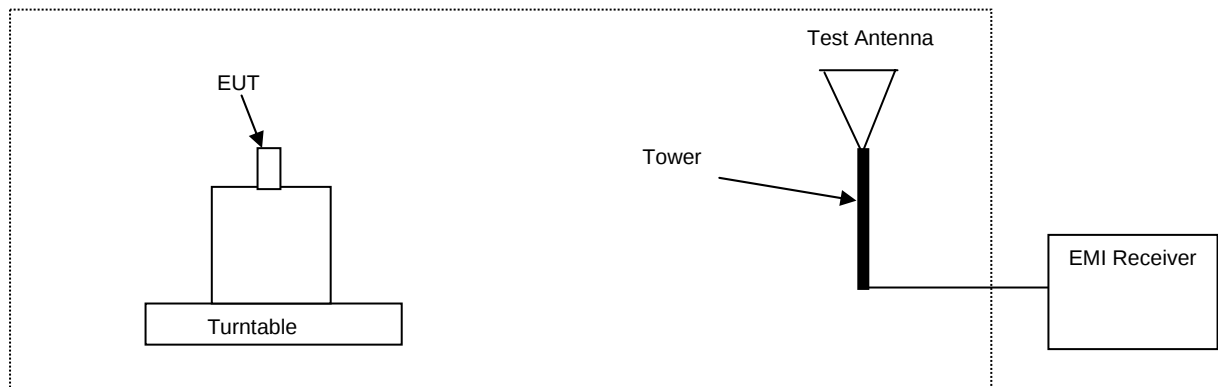
Section of Report	NMP#	Test Equipment	Mfr. #	Model #	Calibration Due Date	Calibration Interval
6,7	04073	EMI Receiver	R&S	ESIB 26	03-Aug-06	12 months
6,7	02625	Base Station	R&S	CMU-200	30-Aug-06	12 months
6	02871	Biconilog Antenna	EMC Automation	3003C	08-July-06	12 months
6	04076	Horn Antenna	ETS	3117	18-Aug-06	12 months
6	02836	Turntable and Tower Controller	Sunol	FM2022 & 2846	N/A	N/A
7	00658	LISN	Rhode & Schwarz	ESH3-Z5	07 Jul 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	10-Mar-06
Temperature	23 to 26 °C
Humidity	19 to 49 %RH
Test Result	Complies with FCC Part 15.109

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USB Data Transfer

CDMA 1900, Channel 600

Quasi peak (RBW: 120 kHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
266.130862	29.00	28.18	38.40	-9.40	HORIZONTAL	PASSED
353.909018	19.20	9.12	23.10	-3.90	HORIZONTAL	PASSED
395.392385	27.60	23.99	32.90	-5.30	VERTICAL	PASSED
529.960120	21.90	12.45	24.10	-2.20	HORIZONTAL	PASSED
622.944489	22.10	12.74	23.00	-0.90	HORIZONTAL	PASSED
928.957715	32.80	43.65	28.50	4.30	VERTICAL	PASSED

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
1001.000000	47.30	231.74	42.60	4.70	VERTICAL	PASSED
1601.702405	43.80	154.88	34.00	9.80	VERTICAL	PASSED
2002.504008	46.30	206.54	34.40	11.90	VERTICAL	PASSED
2088.176353	45.90	197.24	33.10	12.80	VERTICAL	PASSED
9435.363727	39.20	91.20	21.30	17.90	VERTICAL	PASSED
9729.460922	39.80	97.72	21.50	18.30	HORIZONTAL	PASSED

7. AC CONDUCTED EMISSIONS

Specification: FCC Part 15.107 and 15.207

7.1 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.

7.2 Pass/Fail Criteria

Frequency Range	AC Conducted Emission Limits (CISPR 22)	
	Quasi-peak (dBμV)	Average (dBμV)
0.15MHz - 0.5MHz	66 - 56	56 - 46
0.5MHz - 5MHz -	56	46
5MHz - 30MHz	60	50

7.3 Detailed Test Results

Test Technician / Engineer	Cindy Trinh
Date of Measurement	13-Mar-06
Temperature	21 to 23°C
Humidity	46 to 50 %RH
Test Result	Complies with FCC Part 15.107

**FCC Part 15.107****USB Data Transfer****CDMA 1900, Channel 600****Quasi peak (RBW: 9 kHz)**

Frequency [MHz]	U [dBμV]	Line	Result
1.715000	34.70	N	Passed
1.750000	37.50	L1	Passed
1.820000	37.60	L1	Passed
1.855000	34.90	N	Passed
2.140000	25.40	L1	Passed
2.365000	24.50	L1	Passed
3.505000	27.00	L1	Passed
3.765000	30.40	L1	Passed
3.890000	33.70	L1	Passed
4.525000	31.10	L1	Passed