



## CFR 47 Part 2, 22, and 24 Test Report

Test Report Number: WR-1079.104

**Terminal device:** FCC ID: QMNRM-154 Model: 6275i Type: RM-154 HW: B2.0 SW: BL100b05.nep  
(Detailed information is listed in section 4).

Originator: Cindy Trinh  
Function: TCC - Dallas – EMC  
Version/Status: 1.0 Approved  
Location: TCC Directories  
Date: 19-Jun-06

### Change History:

Version	Date	Status	Handled By	Comments
0.1	19-Jun-06	Draft	Cindy Trinh	
0.2	19-Jun-06	Proposal	Cindy Trinh	
0.3	19-Jun-06	Reviewed	Viet Do	
1.0	19-Jun-06	Approved	Viet Do	

**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. +1 858 831 5000  
Fax. +1 858 831 6500

**Date and signatures:**

19-Jun-06

For the contents:

---

Cindy Trinh  
Test Engineer

---

Viet Do  
Technical Review

**TABLE OF CONTENTS**

<b>1. GENERAL .....</b>	<b>3</b>
1.1. QUALITY SYSTEM.....	3
1.2. LIST OF GENERAL INFORMATION REQUIRED FOR CERTIFICATION .....	3
1.3. OBJECTIVE .....	6
1.4. TEST SUMMARY .....	6
<b>2. STANDARDS BASIS .....</b>	<b>7</b>
<b>3. LIST OF ABBREVIATIONS, ACRONYMS AND TERMS .....</b>	<b>8</b>
3.1. ABBREVIATIONS .....	8
3.2. ACRONYMS.....	8
3.3. TERMS .....	8
<b>4. EQUIPMENT-UNDER-TEST (EUT) .....</b>	<b>9</b>
4.1. DESCRIPTION OF TESTED DEVICE(S):.....	9
4.2. PHOTOGRAPH OF TESTED DEVICE(S):.....	9
<b>5. TEST EQUIPMENT LIST .....</b>	<b>10</b>
<b>6. RF POWER OUTPUT (RADIATED) .....</b>	<b>11</b>
6.1. SETUP .....	11
6.2. PASS/FAIL CRITERIA .....	11
6.3. DETAILED TEST RESULTS .....	12
<b>7. FIELD STRENGTH OF SPURIOUS RADIATION .....</b>	<b>13</b>
7.1. SETUP .....	13
7.2. TEST METHOD AND LIMIT.....	13
7.3. PASS/FAIL CRITERIA .....	14
7.4. DETAILED TEST RESULTS .....	15

© No part of this report shall be reproduced out of the context of the report without the written approval of Nokia Mobile Phones, Inc., Dallas Product Creation, TCC – Dallas.

Test & Certification Center (TCC) - Dallas  
DTX15927-EN-2.0

FCC ID: QMNRM-154  
Test Report: WR-1079.104  
19-Jun-06



Accredited Laboratory  
Certificate Number: 1819-01

Ver 1.0

## 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. List of General Information Required for Certification

This list is in accordance with FCC Rules and Regulations, CFR 47, Part 2, and to 22H, 24E, Confidentiality.

Sub-part 2.1033(c)(1)

Name and Address of Applicant: Nokia Inc.  
San Diego  
12278 Scripps Summit Dr.  
San Diego  
CA 92131  
USA  
Tel. +1858 831 5000  
Fax. +1 858 831 6500

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

Sub-part 2.1033(c)(2)

FCC ID: QMNRM-154

Model No.: 6275i

Sub-part 2.1033(c)(3)

Instruction Manual(s): Refer to attached EXHIBITS

Sub-part 2.1033(c)(4)

Type of Emission: 40K0F1D, 40K0F8W, 1M25F9W, 1M00FXD

Test & Certification Center (TCC) - Dallas  
DTX15927-EN-2.0

FCC ID: QMNRM-154  
Test Report: WR-1079.104  
19-Jun-06



Accredited Laboratory  
Certificate Number: 1819-01

Ver 1.0

Sub-part 2.1033(c)(5)

Frequency Range, MHz: 824.04-848.97 MHz

1851.25-1908.75 MHz

2402.00-2480.00 MHz

Sub-part 2.1033(c)(6)

Power Rating, Watts: 0.195 W AMPS Cellular

0.224 W CDMA Cellular

0.288 W CDMA PCS

Switchable  Variable  N/A

FCC Grant Note: BC- The output power is continuously variable from the value listed in this entry to 5%-10% of the value listed.

Test & Certification Center (TCC) - Dallas  
DTX15927-EN-2.0

FCC ID: QMNRM-154  
Test Report: WR-1079.104  
19-Jun-06



Accredited Laboratory  
Certificate Number: 1819-01

5 (15)

Ver 1.0

Sub-part 2.1033(c)(7)

Maximum Power Rating, Watts: 0.288 W

Sub-part 2.1033(c)(8)

Voltages & Currents in all elements in final R.F. Stage, including final transistor or solid-state device:

Collector Current, A = 0.078  
Collector Voltage, Vdc = 3.7  
Supply Voltage, Vdc = 3.7

Sub-part 2.1033(c)(9)

Tune-up Procedure: Refer to attached EXHIBITS

Sub-part 2.1033(c)(10)

Circuit Diagram/Circuit Description:

Including description of circuitry & devices provided for determining and stabilizing frequency, for suppression of spurious radiation, for limiting modulation and limiting power.

Refer to attached EXHIBITS

Sub-part 2.1033(c)(11)

Label Information: Refer to attached EXHIBITS

Sub-part 2.1033(c)(12)

Photographs: Refer to attached EXHIBITS

Sub-part 2.1033(c)(13)

Digital Modulation Description: N/A

Sub-part 2.1033(c)(14)

Test and Measurement Data: FOLLOWS



## 1.3. Objective

All tests and measurement data shown was performed to determine whether the selected handset was in compliance as specified in FCC: CFR47 Parts 2.947, 2.1033(c), 2.1046, 2.1053, Part 22, and Part 24.

## 1.4. 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
RF Power Output (Radiated)	FCC Part 22.913(a) / 24.232(b)	6	Complies
Field Strength of Spurious Radiation	FCC Part 2.1053	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 2	Code of Federal Regulations (CFR) Title 47, Part 2 – Frequency Allocations and Radio Treaty Matters; General Rules and Regulations: Subpart J – Equipment Authorization Procedures
3	FCC: CFR 47 Part 22	Code of Federal Regulations (CFR) Title 47, Part 22 – Public Mobile Services: Subpart H – Cellular Radiotelephone Service
4	FCC: CFR 47 Part 24	Code of Federal Regulations (CFR) Title 47, Part 24 – Personal Communications Services: Subpart E – Broadband PCS
5	RSS-128	800 MHz Dual-Mode TDMA Cellular Telephones
6	RSS-129	800 MHz Dual-Mode CDMA Cellular Telephones
7	RSS-132	800 MHz Cellular Telephones Employing New Technologies
8	RSS-133	2 GHz Personal Communications Services, Industry Canada
9	RSS-212	Test Facilities and Test Methods for Radio Equipment, Industry Canada (Provisional)
10	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  
dBc - decibels from carrier  
dBm - decibels per milliwatt (absolute measurement)  
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  
EDRP - Effective Dipole Radiated Power  
EIRP - Effective Isotropic Radiated Power  
EMC - Electromagnetic Compatibility  
EMI - Electromagnetic Interference  
ERP - Effective Radiated Power  
EUT - Equipment under Test  
GSM - Global System for Mobile communications  
PCS - Personal Communications Services  
RF - Radio Frequency  
TDMA - Time Division Multiple Access

#### 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, TDMA, and CDMA.

Cellular - refers to a frequency in the 800MHz band.

PCS - refers to a frequency in the 1900MHz band.

Test & Certification Center (TCC) - Dallas  
DTX15927-EN-2.0

FCC ID: QMNRM-154  
Test Report: WR-1079.104  
19-Jun-06



Accredited Laboratory  
Certificate Number: 1819-01

Ver 1.0

## 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 22.913(a) / 24.232(b) FCC Part 2.1053	AMPS, CDMA 800/1900	16-May-06	Functional	Phone (Black cover)	FCC ID: QMNRM-154 Type: RM-154 HW: B2.0 SW: BL100b05.nep ESN: 02601193613
N/A	N/A	N/A	N/A	Battery	Type: BL-6C Other: 3.7 Vdc

### 4.2. Photograph of Tested Device(s):

Refer to attached EXHIBITS

**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	Rhode & Schwarz	ESIB 26	03-Aug-06	12 months
6,7	02625	Base Station	Rhode & Schwarz	CMU-200	30-Aug-06	12 months
6,7	02871	Biconilog Antenna	EMC Automation	3003C	08-July-06	12 months
6,7	04076	Horn Antenna	ETS	3117	18-Aug-06	12 months
6,7	02836	Turntable and Tower Controller	Sunol	FM2022 & 2846	N/A	N/A

Test & Certification Center (TCC) - Dallas  
DTX15927-EN-2.0

FCC ID: QMNRM-154  
Test Report: WR-1079.104  
19-Jun-06



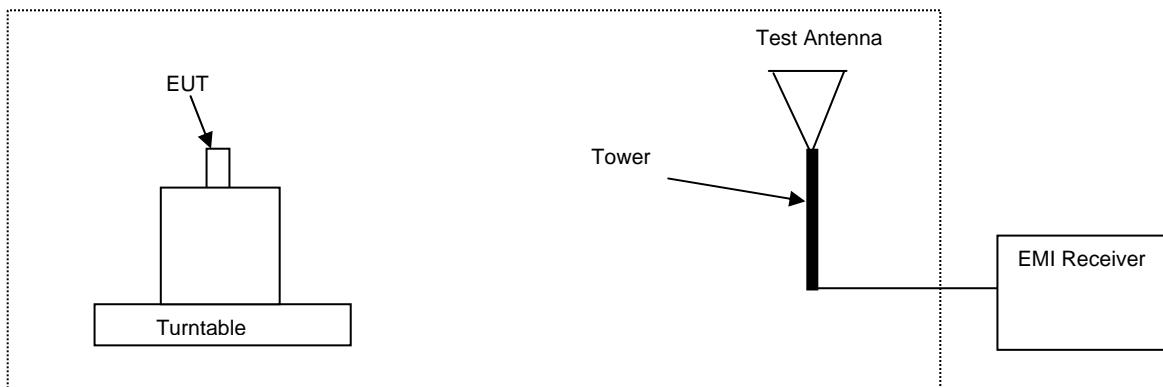
Accredited Laboratory  
Certificate Number: 1819-01

Ver 1.0

## 6. RF POWER OUTPUT (RADIATED)

*Specification: FCC Part 22.913(a), 24.232(b)(c)*

### 6.1. Setup



### 6.2. Pass/Fail Criteria

Band	FCC Limit (dBm)
Cellular	38.5 (EDRP)
PCS	33.0 (EIRP)



## 6.3. Detailed Test Results

<b>Test Technician / Engineer</b>	Cindy Trinh
<b>Date of Measurement</b>	19-Jun-06
<b>Temperature</b>	23 to 24 °C
<b>Humidity</b>	41 to 51 %RH
<b>Test Result</b>	Complies with FCC Part 22.913(a) and FCC Part 24.232(b)

Note: measurements were performed with RBW=1 MHz and VBW=3 MHz

### AMPS

Channel / f <sub>c</sub> [MHz]	ERP [dBm]	ERP [W]	P <sub>MEAS</sub> [dBm]	A <sub>TOT</sub> [dB]	Polarisation	Result
991	22.00	0.158	-14.70	36.70	HORIZONTAL	Passed
384	22.90	0.195	-14.00	36.90	VERTICAL	Passed
799	20.50	0.112	-15.40	35.90	VERTICAL	Passed

### CDMA 800

Channel / f <sub>c</sub> [MHz]	ERP [dBm]	ERP [W]	P <sub>MEAS</sub> [dBm]	A <sub>TOT</sub> [dB]	Polarisation	Result
1013	23.50	0.224	-14.70	38.20	VERTICAL	Passed
384	22.70	0.186	-14.20	36.90	VERTICAL	Passed
777	20.50	0.112	-15.40	35.90	VERTICAL	Passed

### CDMA 1900

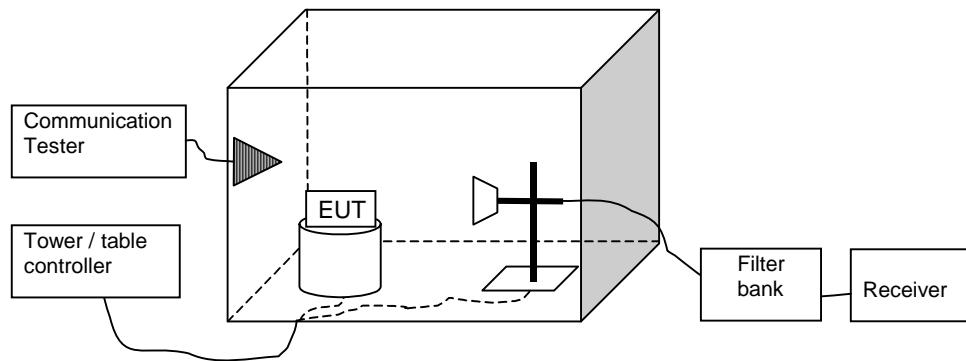
Channel / f <sub>c</sub> [MHz]	EIRP [dBm]	EIRP [W]	P <sub>MEAS</sub> [dBm]	A <sub>TOT</sub> [dB]	Polarisation	Result
25	22.90	0.195	-22.90	45.80	HORIZONTAL	Passed
600	24.30	0.269	-22.60	46.90	HORIZONTAL	Passed
1175	24.60	0.288	-22.40	47.00	HORIZONTAL	Passed



## 7. FIELD STRENGTH OF SPURIOUS RADIATION

*Specification: FCC Part 2.1053*

### 7.1. Setup



### 7.2. Test method and limit

The measurement is made according to TIA-603-B-2002 as follows:

The measurement is divided into the Preliminary Measurement and the Final Measurement.

The suspected frequencies are searched for in Preliminary Measurement with absorbers on the floor and measuring antenna at fixed height using 2-axis EUT position system.

The Final Measurement is performed in the Semi-Anechoic Chamber with conducting metal floor, if the Preliminary Measurement results are closer than 20 dB to the permissible value.

The EUT is placed at nonconductive plate at the turntable center.

For each suspected frequency, the turntable is rotated 360 degrees and antenna is scanned from 1 to 4 m. This is repeated for both horizontal and vertical receive polarizations.

The emissions less than 20 dB below the permissible value are reported.

The substitution method is used. Substitution values at each frequencies are measured beforehand and saved to the test software.

The substitution corrections are obtained as described below:

$$A_{SUBST} = P_{SUBST\_TX} - P_{SUBST\_RX} - L_{SUBST\_CABLES} + G_{SUBST\_TX\_ANT}$$

Where  $A_{SUBST}$  is the final substitution correction including receive antenna gain.  $P_{SUBST\_TX}$  is signal generator level,  $P_{SUBST\_RX}$  is receiver level,  $L_{SUBST\_CABLES}$  is cable losses including both TX and RX cables and  $G_{SUBST\_TX\_ANT}$  is substitution antenna gain.

The measurement results are obtained as described below:



$$P [dBm] = P_{MEAS} + A_{TOT}$$

Where  $P_{MEAS}$  is receiver reading in dBm and  $A_{TOT}$  is total correction factor including cable loss, preamplifier gain and substitution correction ( $A_{TOT} = L_{CABLES} - G_{PREAMP} + A_{SUBST}$ ).

### 7.3. Pass/Fail Criteria

Band	Frequency Range (MHz)	FCC Limit (dBm)
Cellular / PCS	30 – 20000*	-13

- Frequency to be investigated up to the 10<sup>th</sup> harmonic of the highest clock or frequency used.

Substitution method according to ANSI/TIA/EIA 603-1 was used for final measurements.



## 7.4. Detailed Test Results

<b>Test Technician / Engineer</b>	Cindy Trinh
<b>Date of Measurement</b>	19-Jun-06
<b>Temperature</b>	23 to 24°C
<b>Humidity</b>	41 to 51 %RH
<b>Test Result</b>	Complies with FCC Part 2.1053

Note: 30MHz to 18GHz were performed with 1MHz RBW/VBW.

### AMPS, Channel 384

Frequency [MHz]	P [dBm]	P [ $\mu$ W]	P <sub>MEAS</sub> [dBm]	A <sub>TOT</sub> [dB]	Polarisation	Result
1673.05	-49.00	0.01259	-67.80	18.80	VERTICAL	Passed
2503.20	-51.40	0.00724	-70.00	18.60	VERTICAL	Passed
2509.32	-44.80	0.03311	-63.40	18.60	VERTICAL	Passed
3352.21	-51.30	0.00741	-66.50	15.20	VERTICAL	Passed

### CDMA 800, Channel 384

Frequency [MHz]	P [dBm]	P [ $\mu$ W]	P <sub>MEAS</sub> [dBm]	A <sub>TOT</sub> [dB]	Polarisation	Result
1675.85	-51.00	0.00794	-69.40	18.40	HORIZONTAL	Passed
2510.32	-41.40	0.07244	-59.90	18.50	HORIZONTAL	Passed

### CDMA 1900, Channel 600

Frequency [MHz]	P [dBm]	P [ $\mu$ W]	P <sub>MEAS</sub> [dBm]	A <sub>TOT</sub> [dB]	Polarisation	Result
5639.28	-43.10	0.04898	-63.80	20.70	VERTICAL	Passed
7520.54	-40.40	0.09120	-63.90	23.50	VERTICAL	Passed