

TCC

Company Confidential

Test & Certification Center (TCC) - Dallas
DTX15927-EN-1.0

FCC ID: QMNRM-121
Test Report #: WR 918
November 21, 2005



Accredited Laboratory
Certificate Number: 1819-01

1 (13)

Ver 1.0

CFR 47 Part 2, 22 Test Report

Test Report Number: WR-918

Terminal device: FCC ID: Unknown Model: 2355 Type: RM-121 HW: 3500 SW: JN100b02.nep
(Detailed information is listed in section 4).

Originator: Cindy Trinh
Function: TCC - Dallas - EMC
Version/Status: 1.0 Approved
Location: TCC Directories
Date: November 21, 2005

Change History:

Version	Date	Status	Handled By	Comments
0.1	21-Nov-05	Draft	Cindy Trinh	
0.2	21-Nov-05	Proposal	Cindy Trinh	
0.3	21-Nov-05	Reviewed	Mark Severson	
1.0	21-Nov-05	Approved	Mark Severson	

Testing laboratory: Test & Certification Center (TCC) Dallas
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Date and signatures:

November 21, 2005

For the contents:

Cindy Trinh
Test Operator

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 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.

1.2.1 Sub-part 2.1033(c)(1)

Name and Address of Applicant:

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San Diego
12278 Scripps Summit Dr.
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CA 92131
USA
Tel. +1858 831 5000
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Manufacturer:

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1.2.2 Sub-part 2.1033(c)(2)

FCC ID: QMNRM-121

Model No: 2355

1.2.3 Sub-part 2.1033(c)(3)

Instruction Manual(s): Refer to attached EXHIBITS



1.2.4 Sub-part 2.1033(c)(4)

Type of Emission: 1M25F9W

1.2.5 Sub-part 2.1033(c)(5)

Frequency Range, MHz: 824.04MHz – 848.97MHz

1.2.6 Sub-part 2.1033(c)(6)

Power Rating, Watts: 0.107W CDMA Cellular

☐ 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.

1.2.7 Sub-part 2.1033(c)(7)

Maximum Power Rating, Watts: 0.107W

1.2.8 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 = 0.29

Collector Voltage, Vdc = 3.7

Supply Voltage, Vdc = 3.7

1.2.9 Sub-part 2.1033(c)(9)

Tune-up Procedure: Refer to attached EXHIBITS

1.2.10 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

1.2.11 Sub-part 2.1033(c)(11)

Label Information: Refer to attached EXHIBITS

1.2.12 Sub-part 2.1033(c)(12)

Photographs: Refer to attached EXHIBITS

1.2.13 Sub-part 2.1033(c)(13)

Digital Modulation Description: N/A

1.2.14 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)	6	Complies
Field Strength of Spurious Radiation	FCC Part 2.1053	7	Not Performed

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.

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)	CDMA 800	18-Nov-05	Functional	Phone	FCC ID: QMNRM-121 Type: RM-121 HW: 3500 SW: JN100b02.nep ESN: 03303733325
FCC Part 22.913(a)	CDMA 800	N/A	N/A	Battery	Type: BL-5C Other: 3.7 Vdc
FCC Part 22.913(a)	CDMA 800	N/A	N/A	Headset	Type: HS-9
FCC Part 22.913(a)	CDMA 800	N/A	N/A	Charger	Type: ACP-12U

4.2 Photograph of Tested Device(s):

See 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.

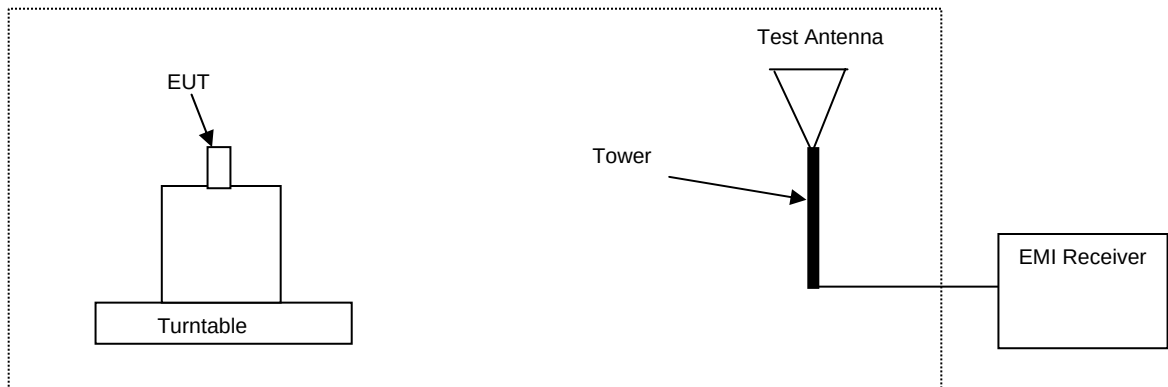
Section of Report	NMP#	Test Equipment	Mfr. #	Model #	Calibration Due Date	Calibration Interval
6	04073	EMI Receiver	R&S	ESIB 26	03-Aug-06	12 months
6	02625	Base Station	R&S	CMU-200	30-Aug-06	12 months
6	01472	Biconilog Antenna	EMC Automation	3003C	08-July-06	12 months
6	04076	Horn Antenna	ETS	3117	18-Aug-06	12 months
6	02836	Turntable and Tower Controller	Sunol	FM2022 & 2846	N/A	NCR

6. RF POWER OUTPUT (RADIATED)

Specification: FCC Part 22.913(a)

6.1 Setup

ERP values are calculated using the substitution method in accordance with TIA 603. The phone is set to transmit maximum power and the maximum measured level is recorded. A signal generator is then used to drive a substitute transmit antenna until the equivalent level is measured. The power into the transmit antenna is then measured.



6.2 Pass/Fail Criteria

Band	FCC Limit (dBm)
Cellular	38.5 (EDRP)



6.3 Detailed Test Results

Test Technician / Engineer	Cindy Trinh
Date of Measurement	21-Nov-05
Temperature	23 to 24 °C
Humidity	42 to 46 %RH
Test Result	Complies with FCC Part 22.913(a)

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

CDMA 800

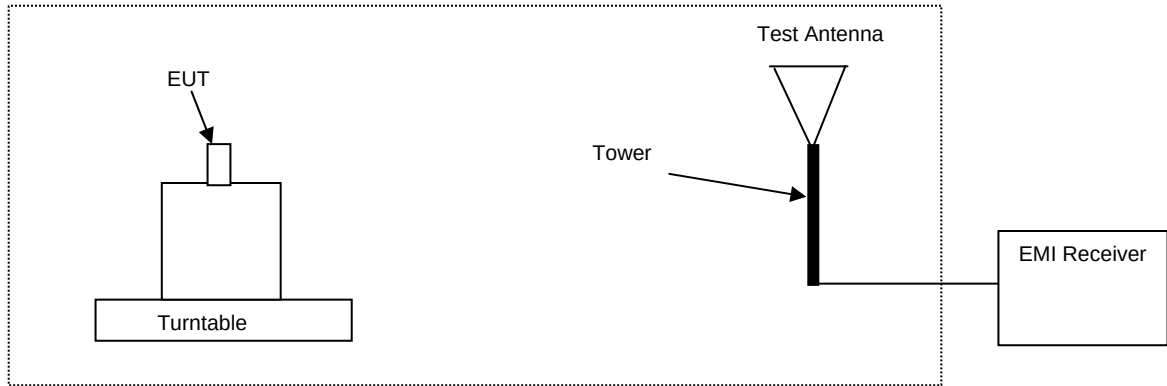
Channel	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Result
1013	20.30	0.107	-16.40	36.70	HORIZONTAL	PASSED
384	20.00	0.100	-16.90	36.90	VERTICAL	PASSED
777	19.50	0.089	-16.40	35.90	VERTICAL	PASSED

7. FIELD STRENGTH OF SPURIOUS RADIATION

Specification: FCC Part 2.1053

7.1 Setup

Test equipment set-up.



7.2 Pass/Fail Criteria

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

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

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

7.3 Detailed Test Results

Test Not Performed