

Test & Certification Center (TCC) - Dallas
DTX 1280-EN-2.0

FCC ID: QMNRM-193
Test Report #: WR-1134.102
15-Jun-06

Accredited Laboratory
Certificate Number: 1819-01

Ver 1.0

CFR 47 Part 15 Test Report

Test Report Number: WR-1134.102

Terminal device:

FCC ID: QMNRM-193 Model: 2865i Type: RM-193 HW: B2.0 (2030) SW: FL100b06.nep
(Detailed information is listed in section 4).

Originator: Cindy Trinh
Function: TCC - Dallas – EMC
Version/Status: 1.0 Approved
Location: TCC Directories
Date: 15-Jun-06

Change History:

Version	Date	Status	Handled By	Comments
0.1	12Jun-06	Draft	Cindy Trinh	
0.2	15Jun-06	Proposal	Cindy Trinh	
0.3	15Jun-06	Reviewed	Hai To	
1.0	15Jun-06	Approved	Hai To	

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Date and signatures:**15-Jun-06**

For the contents:

Cindy Trinh
Test Engineer

Hai To
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 15.107/207	7	Test 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 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	AMPS, CDMA 800/1900	2-Jun-06	Functional	Phone	FCC ID: QMNRM-193 Type: RM-193 HW: B2.0 (2030) SW: FL100b06.nep ESN: 02603343568
FCC Part 15.109	AMPS, CDMA 800/1900	N/A	N/A	Battery	Type: BL-6C Other: 3.7 Vdc
FCC Part 15.109	AMPS, CDMA 800/1900	N/A	N/A	Charger	Type: AC-3U
FCC Part 15.109	AMPS, CDMA 800/1900	N/A	N/A	Headset	Type: HS-9
FCC Part 15.109	AMPS, CDMA 800/1900	N/A	N/A	Laptop	Manufacturer: IBM Model: T40 Type: 2373 SN: 99ZVGF9
FCC Part 15.109	AMPS, CDMA 800/1900	N/A	N/A	AC Adapter	Manufacturer: IBM PN: 02K6543
FCC Part 15.109	AMPS, CDMA 800/1900	N/A	N/A	Data cable	Type: CA-53

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.

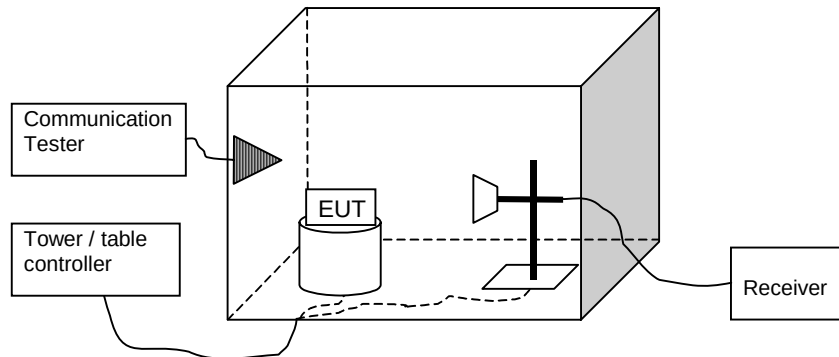
Section of Report	NMP#	Test Equipment	Mfr. #	Model #	Calibration Due Date	Calibration Interval
6	04073	EMI Receiver	Rhode & Schwarz	ESIB 26	03-Aug-06	12 months
6	02625	Base Station	Rhode & Schwarz	CMU-200	30-Aug-06	12 months
6	02871	Biconilog Antenna	EMC Automation	3003C	08-July-06	12 months
6	04076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

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 Test method and limit

The measurement is made according to ANSI C63.4-2003as follows:

The measurement is performed in the Semi-Anechoic Chamber with conducting metal floor.

The measurement distance is 3 m.

The EUT is placed on a nonconductive plate at 80 cm height.

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 antenna polarizations.

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

The measurement results are obtained as described below:

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

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

6.3 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

6.4 Detailed Test Results

Test Technician / Engineer	Cindy Trinh
Date of Measurement	8-Jun-06
Temperature	23 to 27°C
Humidity	42 to 54 %RH
Test Result	Complies with FCC Part 15.109

AMPS, RM-193 with AC-3U, HS-9 and CA-53

Quasi peak (RBW/VBW: 120 kHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
200.00	39.50	94.41	48.40	-8.90	VERTICAL	Passed
441.99	22.50	13.34	26.70	-4.20	VERTICAL	Passed
466.13	33.50	47.32	37.10	-3.60	VERTICAL	Passed
709.52	26.20	20.42	24.80	1.40	VERTICAL	Passed
930.86	33.80	48.98	29.50	4.30	VERTICAL	Passed

Peak (RBW/VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
1193.00	45.33	184.50	38.63	6.70	VERTICAL	Passed
1333.00	46.19	203.70	38.79	7.40	VERTICAL	Passed
1459.00	45.96	198.37	37.26	8.70	VERTICAL	Passed
1596.00	48.34	260.91	38.64	9.70	VERTICAL	Passed
2002.00	46.96	222.58	35.06	11.90	VERTICAL	Passed
2435.00	69.46	2968.14	55.56	13.90	VERTICAL	Passed

Average (RBW/VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
2435.00	38.79	86.89	24.89	13.90	VERTICAL	Passed

CDMA 800, RM-193 with AC-3U, HS-9 and CA-53

Quasi peak (RBW/VBW: 120 kHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
265.83	24.80	17.38	34.20	-9.40	HORIZONTAL	Passed
397.70	36.20	64.57	41.30	-5.10	HORIZONTAL	Passed
530.36	26.60	21.38	28.80	-2.20	VERTICAL	Passed
662.53	35.20	57.54	35.60	-0.40	VERTICAL	Passed
928.46	34.20	51.29	29.90	4.30	VERTICAL	Passed

Peak (RBW/VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
1197.00	48.45	264.23	41.75	6.70	VERTICAL	Passed
1326.00	48.30	259.71	41.10	7.20	VERTICAL	Passed
1600.00	48.16	255.56	38.36	9.80	VERTICAL	Passed
1763.00	49.55	299.91	39.05	10.50	VERTICAL	Passed
2002.00	47.10	226.20	35.20	11.90	VERTICAL	Passed
2973.00	48.55	267.29	31.15	17.4	VERTICAL	Passed

CDMA 1900, RM-193 with AC-3U, HS-9 and CA-53

Quasi peak (RBW/VBW: 120 kHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
31.74	33.00	44.67	44.70	-11.70	VERTICAL	Passed
36.53	27.40	23.44	40.80	-13.40	VERTICAL	Passed
442.99	24.70	17.18	28.80	-4.10	VERTICAL	Passed
529.46	21.40	11.75	23.60	-2.20	HORIZONTAL	Passed
664.63	34.80	54.95	35.30	-0.50	VERTICAL	Passed
933.17	34.50	53.09	30.30	4.20	VERTICAL	Passed

Peak (RBW/VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
1065.00	44.32	164.24	38.82	5.50	VERTICAL	Passed
1201.00	46.03	199.99	39.33	6.70	VERTICAL	Passed
1330.00	49.38	294.10	42.08	7.30	VERTICAL	Passed
1458.00	44.88	175.18	36.18	8.70	VERTICAL	Passed
1600.00	51.57	378.43	41.77	9.80	VERTICAL	Passed
2967.00	49.05	283.13	31.75	17.30	VERTICAL	Passed

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7. AC CONDUCTED EMISSIONS

Specification: FCC Part 15.107 and 207

Test Not Performed