

## CFR 47 Part 2, 22 Test Report

Test Report Number: WR1067.201

**Terminal device:**FCC ID: QMNRM-218, Model: 6088, HWID: 3000, SW: TH\_0407\_eg  
(Detailed information is listed in section 4).

Originator: Hai To  
Function: TCC - Dallas – EMC  
Version/Status: 1.0 Approved  
Location: QATrax Directories  
Date: 1-Aug-06

**Change History:**

<b>Version</b>	<b>Date</b>	<b>Status</b>	<b>Handled By</b>	<b>Comments</b>
0.1	26-Jul-06	Draft	Hai To	
0.2	26-Jul-06	Proposal	Hai To	
0.3	1-Aug-06	Reviewed	Viet Do	
1.0	1-Aug-06	Approved	Viet Do	

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For the contents:

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Test & Certification Center (TCC) - Dallas

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FCC ID: QMNRM-218  
Test Report #: WR1067.201  
1-Aug-06



Accredited Laboratory  
Certificate Number: 1819-01

3 (18)

Ver 1.0

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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 2.947, 2.1033(c), 2.1041, 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055, 2.1057, Part 22, and Part 24.

### 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
RF Power Output (Conducted)	FCC Part 2.1046	6	Complies
Occupied Bandwidth: Transmitter Conducted Measurements	FCC Part 2.1049	7	Complies
Spurious Emissions at Antenna Terminals	FCC Part 2.1051	8	Complies
Frequency Stability (Temperature Variation)	FCC Part 2.1055(a)	9	Complies
Frequency Stability (Voltage Variation)	FCC Part 2.1055(d)	10	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	RSS-129	800 MHz Dual-Mode CDMA Cellular Telephones
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

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 2.1046 FCC Part 2.1049 FCC Part 2.1051 FCC Part 2.1055	CDMA/800	26-Jul-06	Working	Phone	FCC ID: QMNRM-218 Model: 6088 HW: 3000 SW: TH_0407_eg ESN: 02608919735
FCC Part 2.1046 FCC Part 2.1049 FCC Part 2.1051 FCC Part 2.1055	CDMA/800	26-Jul-06	Working	Battery	Type: BL-4C

### 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
6,7,8,9,10	N/A	6dB Attenuator	Weinshchel	Model 2	Na	12 months
6,7,8,9,10	03461	Base Station	R&S	CM200	6-Sept-06	12 months
6,7,8,9,10	02680	EMI Receiver	HP	E7405A	6-Jan-07	12 Months
6,7,8,9,10	00087	Synthesized Fun/Sweep Generator	HP	3324A	31-Oct- 06	12Months
9,10	00837	Temperature Chamber	Tenney Environmental	N/A	20-Oct-06	12 months

## 6. RF POWER OUTPUT (CONDUCTED)

**Specification: FCC Part 2.1046(a), 22.913(a), 24.232(b)(c)**

### 6.1 Setup

Testing was performed with the EUT connected to a 6dB splitter and then to the RF Power Meter to measure the conducted RF power output. The base station simulator was connected to the other port of the splitter to establish a call.

### 6.2 Pass/Fail Criteria

Not Applicable

### 6.3 Detailed Test Results

Test Technician / Engineer	Julian Kim
Date of Measurement	11-July-06
Temperature	24°C
Humidity	27 %RH
Test Result	Was operated at max power and tested in accordance with FCC Part 2.1046(a), 22.913(a), 24.232(b)(c).

**Note: RF Conducted measurements were performed with, Average Power reading.**

#### CDMA 800

Channel	Freq Max (MHz)	Max (mW)	Max (dBm)
1013	824.70 MHz	309.0	24.9
384	836.52 MHz	288.4	24.6
777	848.31 MHz	302.0	24.8

## 7. OCCUPIED BANDWIDTH (TRANSMITTER CONDUCTED MEASUREMENTS)

**Specification: FCC Part 2.1049(c)(1), 24.238(a)(b)**

### 7.1 Setup

Testing was performed with the EUT connected to a 6dB attenuator, 6dB splitter, filter bank and then to the EMI receiver. The base station simulator was connected to the other port of the splitter to establish a call.

### 7.2 Pass/Fail Criteria

#### Occupied Bandwidth, Out of Band

Band	Frequency Range (MHz)	FCC Limits (dBm)
Cellular 800, Low Channel	< 824	-13
Cellular 800, High Channel	> 849	-13
PCS 1900, Low Channel	< 1850	-13
PCS 1900, High Channel	> 1910	-13

#### Occupied Bandwidth, In Band

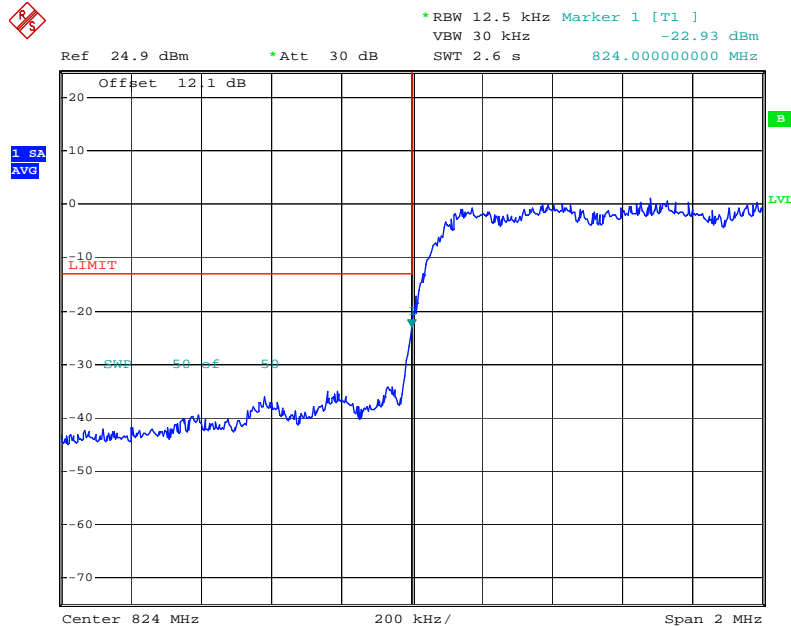
No pass/fail, these plots are used to determine the emission designators.

### 7.3 Detailed Test Results

Test Technician / Engineer	Hai To
Date of Measurement	26-Jul-06
Temperature	24 °C
Humidity	44 %RH
Test Result	Complies with FCC Part 2.1049(c)(1), 24.238(a)(b)

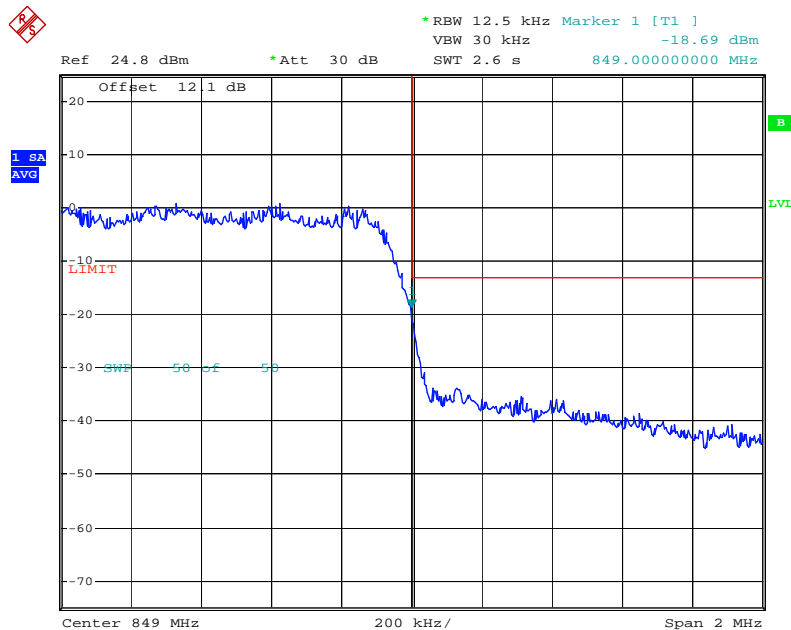
## Occupied Bandwidth, Out of Band

### CDMA 800 - Channel 1013 (824.70 MHz)



Date: 26.JUL.2006 13:11:18

### CDMA 800 – Channel 777 (848.31 MHz)

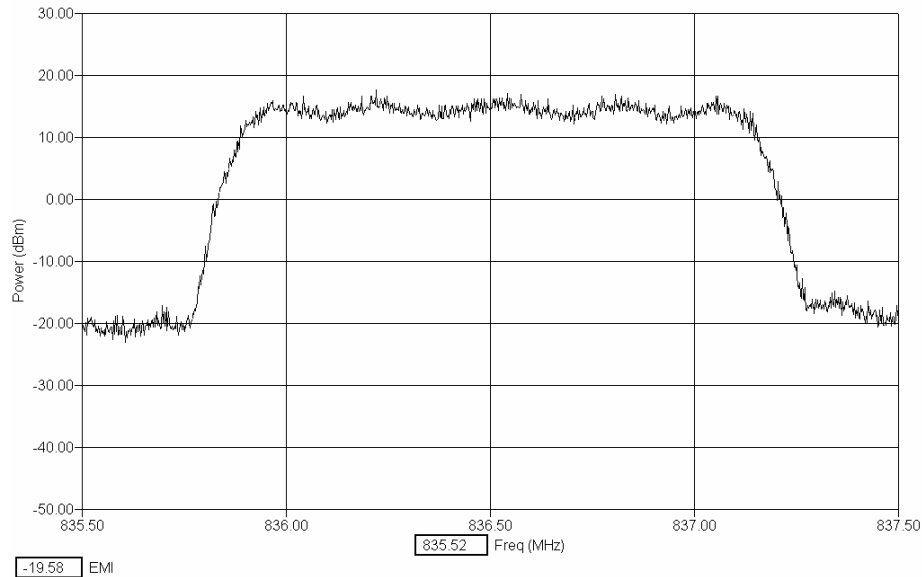


Date: 26.JUL.2006 13:14:17

## Occupied Bandwidth, In Band

### CDMA 800 - Channel 384

#### 30KHz RBW/VBW



## 8. SPURIOUS EMISSIONS AT ANTENNA TERMINALS

*Specification: FCC Part 2.1051*

### 8.1 Setup

Testing was performed with the EUT connected to a 6dB attenuator, 6dB splitter, filter bank and then to the EMI receiver. The base station simulator was connected to the other port of the splitter to establish a call. Filters were introduced to reduce or eliminate spurious emission, which could be generated internally in the EMI receiver.

### 8.2 Pass/Fail Criteria

Band	Frequency Range (MHz)	FCC Limits (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.

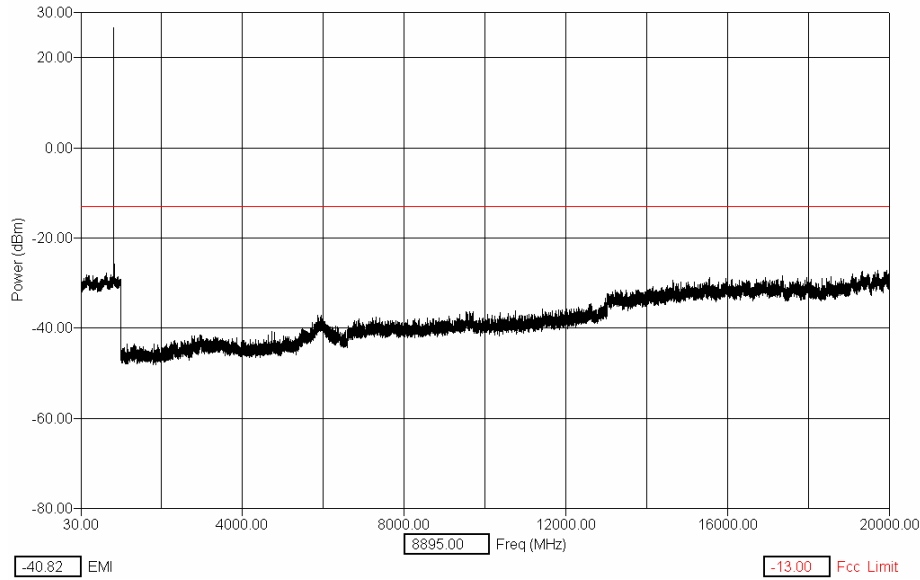
### 8.3 Detailed Test Results

Test Technician / Engineer	Hai To
Date of Measurement	26-Jul-06
Temperature	24 °C
Humidity	44 %RH
Test Result	Complies with FCC Part 2.1051

**Note 1:** EMI (dBm) = trace (dBuV) + cable loss (dB) + filter loss (dB).

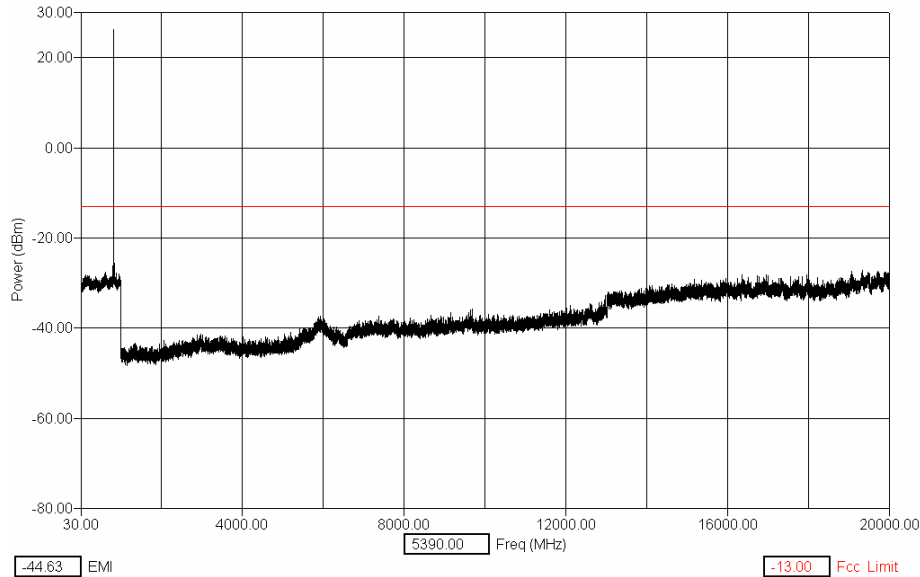
**Note 2:** measurements were performed with 3MHz RBW/VBW.

## CDMA 800 - Channel 1013, 824.70 MHz



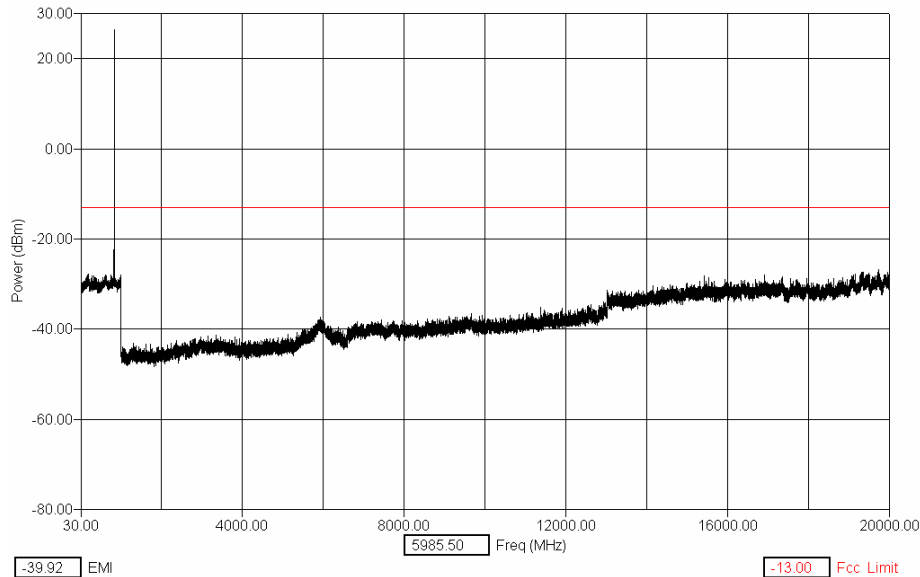
Freq (Max) [MHz]	(PEAK) Trace [dBm]	Cable [dB]	Filter [dB]	(PEAK) EMI [dBm]	Limit [dBm]
1650.0	-65.1	0.4	14.67	-50.1	-13.0
2474.2	-63.3	0.6	15.46	-47.2	-13.0
3297.7	-64.1	0.8	15.98	-47.3	-13.0
4124.4	-65.3	0.9	16.09	-48.2	-13.0
4948.5	-66.8	1.1	17.03	-48.7	-13.0
5772.7	-65.3	1.2	19.98	-44.1	-13.0
6597.5	-64.0	1.2	18.06	-44.7	-13.0
7422.7	-62.0	1.3	17.98	-42.7	-13.0
8246.6	-63.1	1.4	18.97	-42.8	-13.0

## CDMA 800 - Channel 384, 836.52 MHz



Freq (Max) [MHz]	(PEAK) Trace [dBm]	Cable [dB]	Filter [dB]	(PEAK) EMI [dBm]	Limit [dBm]
1673.0	-63.8	0.4	14.60	-48.8	-13.0
2511.4	-64.8	0.6	15.65	-48.5	-13.0
3346.9	-62.9	0.8	16.10	-46.1	-13.0
4182.9	-65.9	0.9	16.12	-48.8	-13.0
5019.1	-65.3	1.1	17.16	-47.0	-13.0
5854.7	-65.7	1.2	21.33	-43.2	-13.0
6692.6	-66.8	1.3	17.75	-47.8	-13.0
7530.1	-63.2	1.3	18.06	-43.8	-13.0
8365.2	-61.8	1.4	19.00	-41.4	-13.0

## CDMA 800 - Channel 777, 848.31 MHz



Freq (Max) (MHz)	(PEAK) Trace (dBm)	Cable (dB)	Filter (dB)	(PEAK) EMI (dBm)	Limit (dBm)
1696.4	-63.2	0.4	14.59	-48.2	-13.0
2544.5	-63.3	0.6	15.53	-47.1	-13.0
3394.0	-61.8	0.8	16.05	-44.9	-13.0
4242.7	-64.5	0.9	16.35	-47.2	-13.0
5089.5	-65.4	1.1	17.26	-47.1	-13.0
5937.3	-66.0	1.2	22.09	-42.8	-13.0
6786.2	-63.3	1.3	17.96	-44.1	-13.0
7635.2	-62.2	1.3	17.98	-42.9	-13.0
8483.9	-63.4	1.4	18.53	-43.4	-13.0

## 9. FREQUENCY STABILITY (TEMPERATURE VARIATION)

**Specification: FCC Part 2.1055(a)(1)(b), 24.235**

### 9.1 Setup

The EUT was connected to the base station simulator to measure the RF power output.

### 9.2 Pass/Fail Criteria

Not Applicable

### 9.3 Detailed Test Results

Test Technician / Engineer	Hai To
Date of Measurement	26-27, Jul-06
Temperature	22°C
Humidity	48%RH
Test Result	Tested in accordance with 2.1055(a)(1)(b), 24.235 at maximum power setting.

Temp. (°C)	CDMA 800, Channel 384
	Change (Hz)
-30	13
-20	12
-10	13
0	14
10	14
20	15
30	15
40	14
50	16

## 10. FREQUENCY STABILITY (VOLTAGE VARIATION)

**Specification: FCC Part 2.1055(d)(1)(2), 24.235**

### 10.1 Setup

The EUT was connected to the base station simulator to measure the RF power output.

### 10.2 Pass/Fail Criteria

Not Applicable

### 10.3 Detailed Test Results

<b>Test Technician / Engineer</b>	Hai To
<b>Date of Measurement</b>	26-27-Jul-06
<b>Temperature</b>	22 °C
<b>Humidity</b>	48 %RH
<b>Test Result</b>	Tested in accordance with 2.1055(d)(1)(2), 24.235 at maximum power setting.

#### CDMA 800, Call Mode, Channel

% of STV	Voltage	Change (Hz)
85	3.2	12
100 (Nominal)	3.7	15
115	4.2	12