



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

Test Report Number: WR 951.001

**Terminal device:** FCC ID: QMNRM-66 Model: 6265 Type: RM-66 HW: 5500 SW: VHL100b15.nep  
(Detailed information is listed in section 4).

Originator: Michael Sundstrom  
Function: TCC - Dallas – EMC  
Version/Status: 1.0 / Approved  
Location: QATrax Directories  
Date: 21-Dec-05

### Change History:

Version	Date	Status	Handled By	Comments
0.1	19-Dec-05	Draft	Michael Sundstrom	
0.2	21-Dec-05	Proposal	Michael Sundstrom	
0.3	21-Dec-05	Reviewed	Cindy Trinh	
1.0	21-Dec-05	Approved	Cindy Trinh	

**Testing laboratory:**

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**Date and signatures:**

21-Dec-05

For the contents:

A grayscale image of a handwritten signature, which appears to be 'Michael Sundstrom'.

Michael Sundstrom  
Operator Review

Cindy Trinh  
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 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
Spurious Emissions at Antenna Terminals	FCC Part 2.1051	5	Complies
Frequency Stability (Temperature Variation)	FCC Part 2.1055(a)(1)(b), 24.235	6	Complies
Frequency Stability (Voltage Variation)	FCC Part 2.1055(d)(1)(2), 24.235	7	Complies



## 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-129	800 MHz Dual-Mode CDMA 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.



## 2. LIST OF ABBREVIATIONS, ACRONYMS AND TERMS

### 2.1 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

### 2.2 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

### 2.3 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.

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FCC ID: QMNRN-66  
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Certificate Number: 1819-01

### 3. EQUIPMENT-UNDER-TEST (EUT)

*The results in this report relate only to the items listed below:*

#### 3.1 Description of Tested Device(s):

Test Performed	Mode of Operation	Date of Receipt	Condition of Sample	Item	Identifying Information
FCC Part 2.1051 FCC Part 2.1055(a)(1)(b), 24.235 FCC Part 2.1055(d)(1)(2), 24.235	AMPS, CDMA 800 CDMA 1900	19-Dec-05	Working	Phone	Type: RM-66 HW: 5500 SW: VHL100b15.nep FCC ID: QMNRN-66 ESN: 04414181569
FCC Part 2.1051 FCC Part 2.1055(a)(1)(b), 24.235 FCC Part 2.1055(d)(1)(2), 24.235	AMPS, CDMA 800 CDMA 1900	19-Dec-05	Operational	Battery	BL-6C 3.7 V

#### 3.2 Photograph of Tested Device(s):

Refer to attached EXHIBITS



## 4. 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
5	02664 02665	EMI Receiver	Agilent	8546A / 85460A	09 Feb 06	12 months
5	N/A	6dB Attenuator	Weinshcel	Model 2	N/A	12 months
5,6,7	02666	Base Station	R&S	CMU200	25 May 06	12 months
5	02680	Spectrum Analyzer	Agilent	E7405A	29 Dec 05	12 Months
5	00308	Synthesized Fun/Sweep Generator	HP	3324A	02 Jun 06	12Months
6,7	00485	Multi-Meter	Fluke	87III	12 May 06	12 Months
6,7	00837	Temperature Chamber	Tenney Environmental	N/A	20 Jan 06	12 months

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## 5. SPURIOUS EMISSIONS AT ANTENNA TERMINALS

*Specification: FCC Part 2.1051*

### 5.1 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.

### 5.2 Photograph:

Refer to attached EXHIBITS

### 5.3 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.

### 5.4 Detailed Test Results

Test Technician / Engineer	Michael Sundstrom
Date of Measurement	19-Dec-05
Temperature	22-23 °C
Humidity	31-35 %RH
Test Result	Complies with FCC Part 2.1051

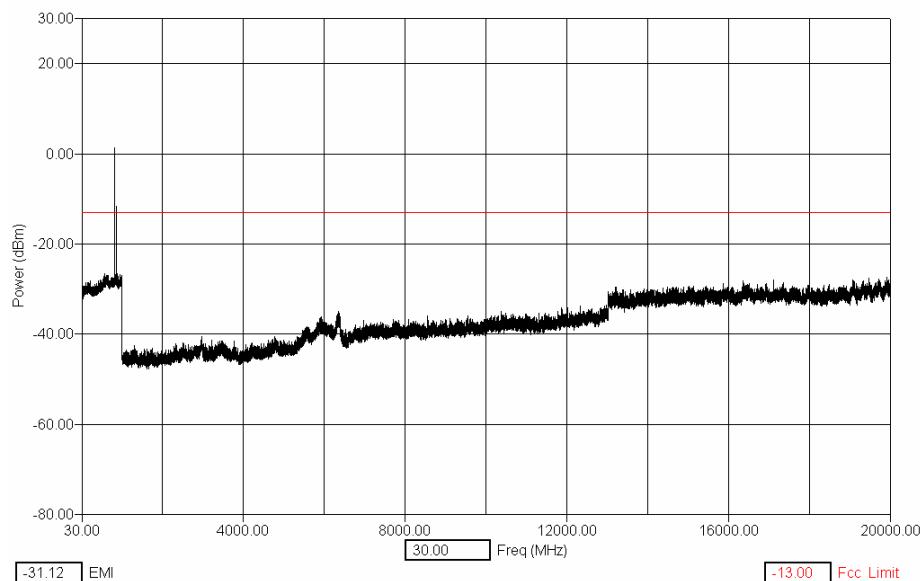
Note 1: EMI (dBm) = trace (dBuV) + cable loss (dB) + filter loss (dB).

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

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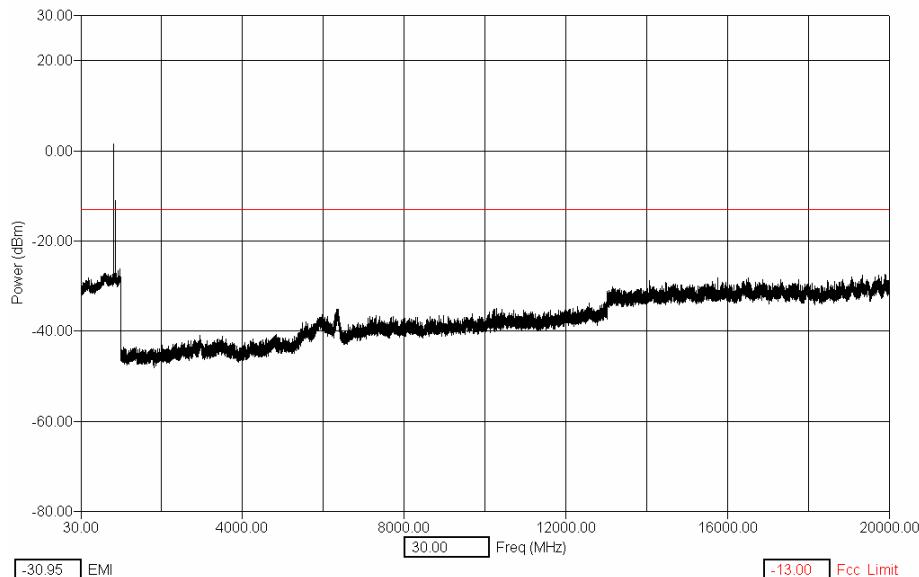
**AMPS - Channel 991, 824.04 MHz****Finals AMPS channel 991:**

Freq (Max) (MHz)	(PEAK) Trace (dBm)	Cable (dB)	Filter (dB)	(PEAK) EMI (dBm)	Limit (dBm)
1673.3	-60.0	0.4	14.60	-45.0	-13.0
2510.3	-60.9	0.6	15.65	-44.7	-13.0
3345.9	-60.5	0.8	16.10	-43.6	-13.0
4183.8	-61.7	0.9	16.12	-44.7	-13.0
5018.9	-60.0	1.1	17.16	-41.8	-13.0
5855.7	-60.3	1.2	21.33	-37.8	-13.0
6692.8	-61.2	1.3	17.75	-42.2	-13.0
7529.3	-58.5	1.3	18.06	-39.1	-13.0
8364.4	-59.4	1.4	19.00	-39.0	-13.0

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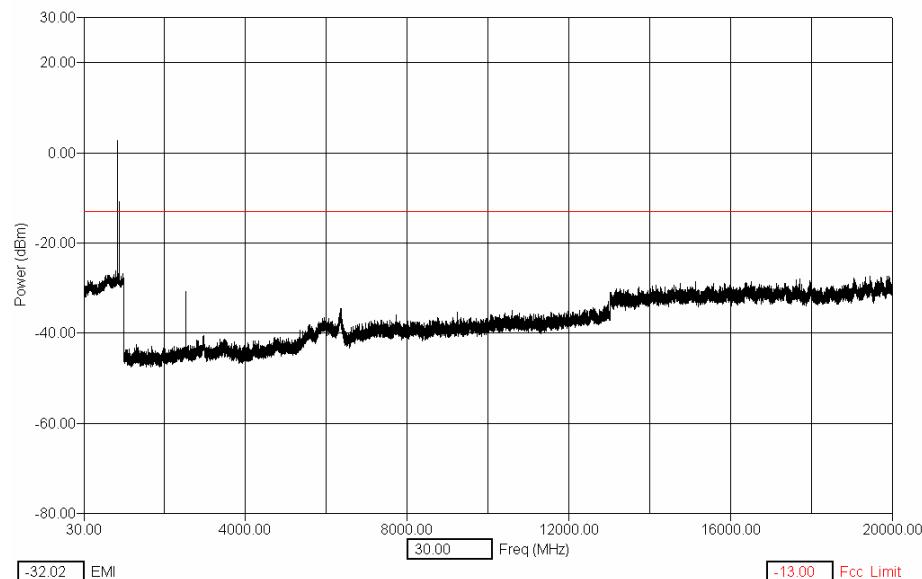
**AMPS - Channel 384, 836.52 MHz****Finals AMPS channel 384:**

Freq (Max) (MHz)	[PEAK] Trace (dBm)	Cable (dB)	Filter (dB)	[PEAK] EMI (dBm)	Limit (dBm)
1673.4	-57.6	0.4	14.60	-42.7	-13.0
2509.5	-59.1	0.6	15.65	-42.8	-13.0
3346.3	-59.6	0.8	16.10	-42.7	-13.0
4182.6	-61.3	0.9	16.12	-44.2	-13.0
5019.9	-60.9	1.1	17.16	-42.7	-13.0
5856.1	-60.4	1.2	21.33	-38.0	-13.0
6691.2	-61.4	1.3	17.75	-42.4	-13.0
7528.7	-56.9	1.3	18.06	-37.6	-13.0
8365.8	-59.1	1.4	19.00	-38.7	-13.0

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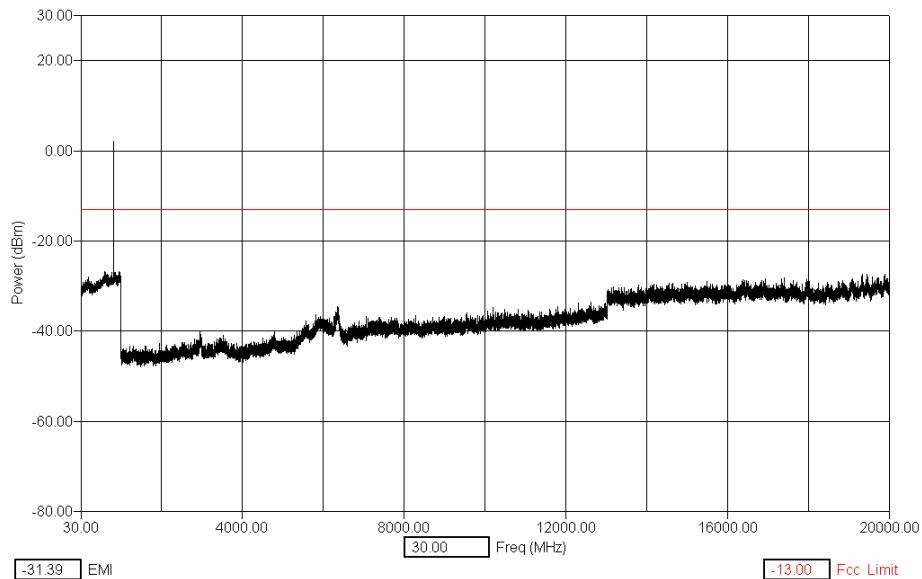
**AMPS - Channel 799, 848.97 MHz****Finals AMPS channel 799:**

Freq (Max) (MHz)	[PEAK] Trace (dBm)	Cable (dB)	Filter (dB)	[PEAK] EMI (dBm)	Limit (dBm)
1698.0	-61.0	0.4	14.59	-46.1	-13.0
2546.9	-46.3	0.6	15.49	-30.2	-13.0
3395.8	-57.7	0.8	16.02	-40.9	-13.0
4244.8	-55.5	0.9	16.39	-38.2	-13.0
5093.0	-61.4	1.1	17.25	-43.0	-13.0
5942.9	-53.3	1.2	22.11	-30.0	-13.0
6792.3	-57.6	1.3	17.87	-38.5	-13.0
7640.4	-58.2	1.3	17.97	-38.9	-13.0
8491.1	-59.1	1.4	18.55	-39.2	-13.0

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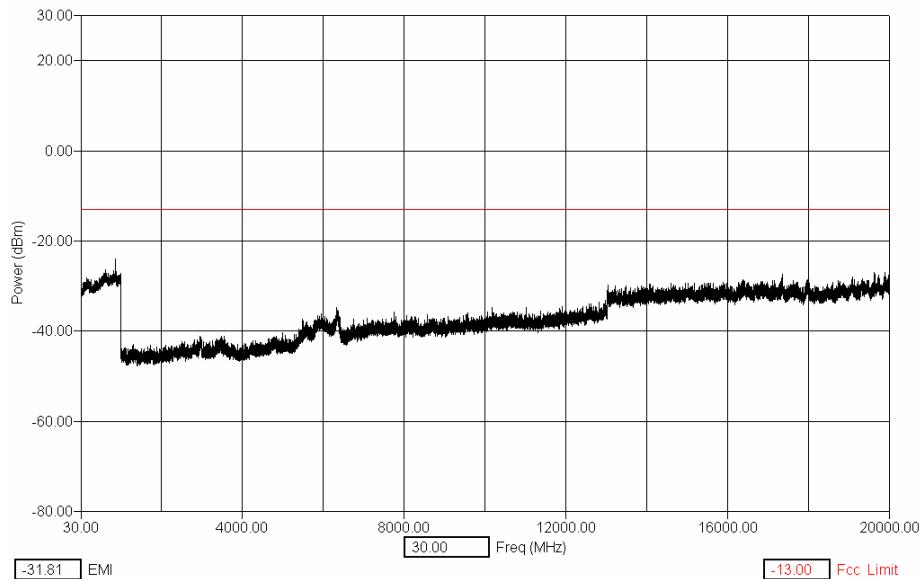
**CDMA 800 - Channel 1013, 824.70 MHz****Finals CDMA 800, channel 1013:**

Freq (Max) (MHz)	(PEAK) Trace (dBm)	Cable (dB)	Filter (dB)	(PEAK) EMI (dBm)	Limit (dBm)
1651.2	-60.3	0.4	14.67	-45.3	-13.0
2474.5	-60.7	0.6	15.46	-44.7	-13.0
3299.7	-61.2	0.8	15.98	-44.5	-13.0
4122.0	-62.2	0.9	16.09	-45.2	-13.0
4948.1	-61.0	1.1	17.03	-42.9	-13.0
5772.6	-60.9	1.2	19.98	-39.8	-13.0
6597.1	-60.0	1.2	18.06	-40.7	-13.0
7423.4	-57.9	1.3	17.98	-38.6	-13.0
8248.1	-57.6	1.4	18.97	-37.3	-13.0

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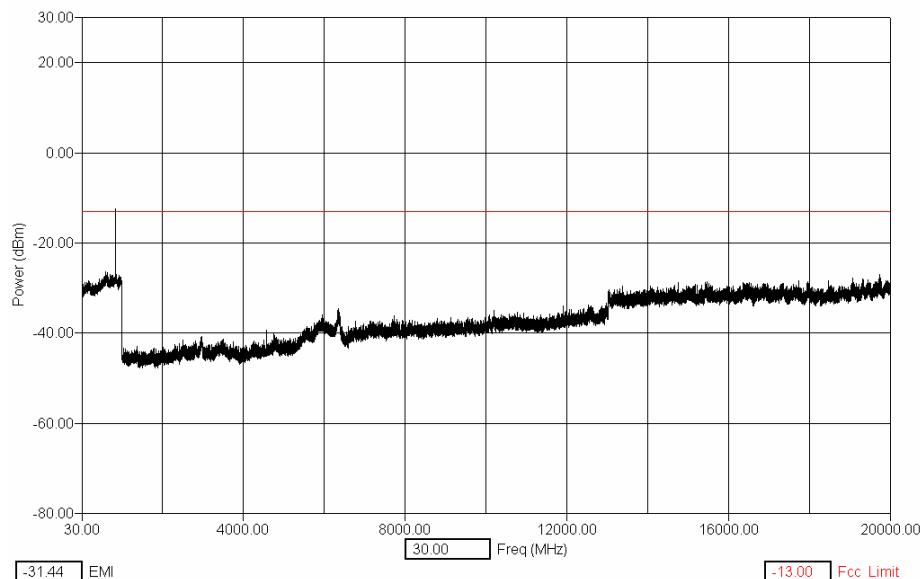
**CDMA 800 - Channel 384, 836.52 MHz****Finals CDMA 800, channel 384:**

Freq (Max) (MHz)	(PEAK) Trace (dBm)	Cable (dB)	Filter (dB)	(PEAK) EMI (dBm)	Limit (dBm)
1673.0	-60.3	0.4	14.60	-45.3	-13.0
2509.9	-60.5	0.6	15.65	-44.3	-13.0
3344.4	-61.2	0.8	16.10	-44.3	-13.0
4181.4	-60.9	0.9	16.12	-43.8	-13.0
5017.7	-60.7	1.1	17.16	-42.5	-13.0
5854.3	-61.1	1.2	21.33	-38.6	-13.0
6692.0	-61.5	1.3	17.75	-42.5	-13.0
7529.9	-58.6	1.3	18.06	-39.2	-13.0
8363.9	-58.9	1.4	19.00	-38.5	-13.0

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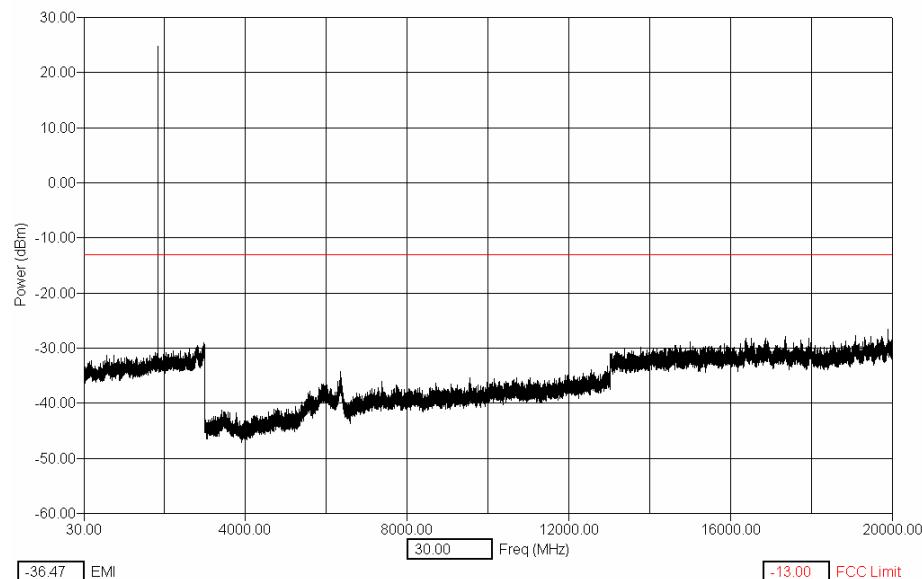
**CDMA 800 - Channel 777, 848.31 MHz****Finals CDMA 800, channel 777:**

Freq (Max) (MHz)	[PEAK] Trace (dBm)	Cable (dB)	Filter (dB)	[PEAK] EMI (dBm)	Limit (dBm)
1695.4	-61.2	0.4	14.59	-46.3	-13.0
2545.2	-60.1	0.6	15.53	-43.9	-13.0
3393.2	-60.7	0.8	16.05	-43.8	-13.0
4242.4	-60.4	0.9	16.35	-43.1	-13.0
5090.3	-61.4	1.1	17.26	-43.1	-13.0
5937.1	-60.8	1.2	22.09	-37.5	-13.0
6787.8	-58.8	1.3	17.96	-39.5	-13.0
7636.5	-58.1	1.3	17.98	-38.8	-13.0
8484.9	-58.9	1.4	18.53	-38.9	-13.0

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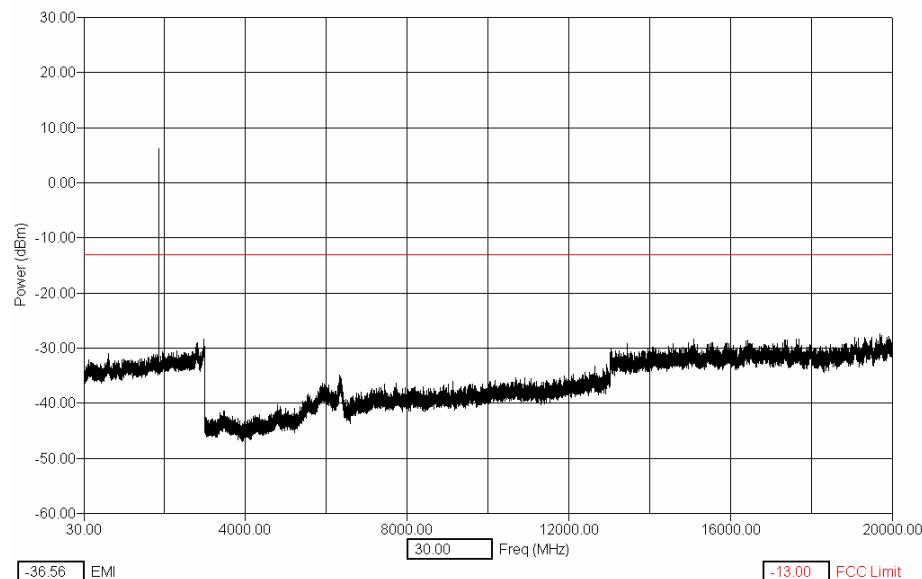
**CDMA 1900 - Channel 25, 1851.25 MHz****Finals CDMA 1900, channel 25:**

Freq (Max) (MHz)	(PEAK) Trace (dBm)	Cable (dB)	Filter (dB)	(PEAK) EMI (dBm)	Limit (dBm)
3702.2	-60.5	0.85	16.2	-43.4	-13.0
5554.5	-57.7	1.13	18.4	-38.1	-13.0
7405.7	-57.1	1.32	18.4	-37.4	-13.0
9255.8	-56.7	1.48	19.5	-35.7	-13.0
11106.9	-58.1	1.60	20.2	-36.3	-13.0
12958.2	-58.1	1.71	22.6	-33.8	-13.0
14811.2	-55.2	1.80	22.8	-30.6	-13.0
16663.2	-56.3	1.88	23.8	-30.6	-13.0
18511.4	-57.5	1.95	24.9	-30.7	-13.0

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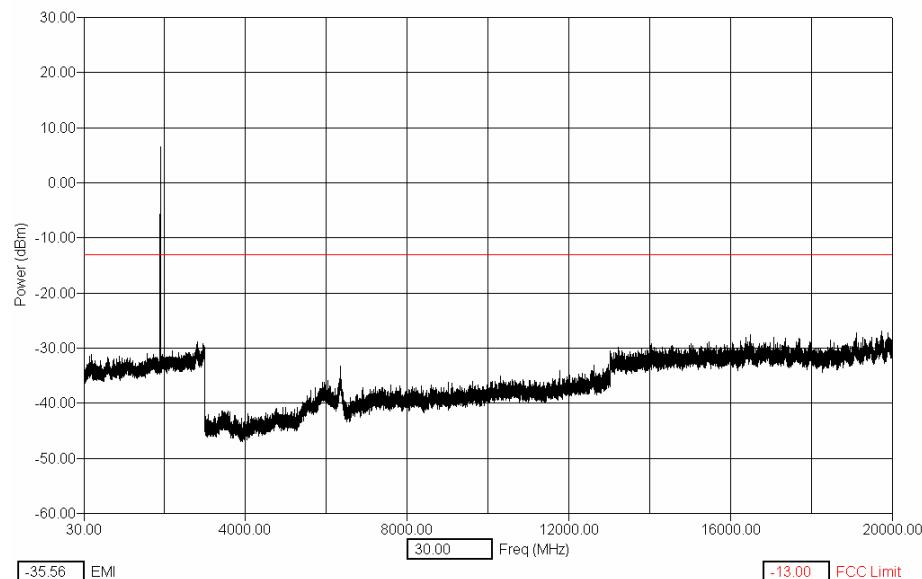
**CDMA 1900 - Channel 600, 1880.00 MHz****Finals CDMA 1900, channel 600:**

Freq (Max) (MHz)	[PEAK] Trace (dBm)	Cable (dB)	Filter (dB)	[PEAK] EMI (dBm)	Limit (dBm)
3759.4	-60.3	0.86	16.8	-42.7	-13.0
5640.8	-59.2	1.14	18.5	-39.5	-13.0
7520.1	-57.5	1.34	18.1	-38.0	-13.0
9399.7	-58.6	1.49	18.9	-38.1	-13.0
11280.9	-59.1	1.61	20.2	-37.2	-13.0
13159.8	-58.7	1.72	21.8	-35.2	-13.0
15039.6	-55.9	1.81	23.7	-30.4	-13.0
16921.1	-56.1	1.89	25.0	-29.2	-13.0
18799.9	-56.9	1.96	25.1	-29.8	-13.0

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**CDMA 1900 - Channel 1175, 1908.75 MHz****Finals CDMA 1900, channel 1175:**

Freq (Max) (MHz)	[PEAK] Trace (dBm)	Cable (dB)	Filter (dB)	[PEAK] EMI (dBm)	Limit (dBm)
3818.3	-61.1	0.87	16.7	-43.5	-13.0
5727.4	-60.9	1.15	19.4	-40.4	-13.0
7633.4	-58.0	1.35	18.0	-38.7	-13.0
9545.7	-59.4	1.50	20.3	-37.6	-13.0
11452.8	-59.3	1.62	20.5	-37.2	-13.0
13360.4	-54.5	1.73	22.0	-30.8	-13.0
15271.1	-56.1	1.82	23.3	-31.0	-13.0
17178.0	-56.3	1.90	24.3	-30.1	-13.0
19088.3	-57.4	1.97	26.3	-29.1	-13.0

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## 6. FREQUENCY STABILITY (TEMPERATURE VARIATION)

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

### 6.1 Setup

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

### 6.2 Pass/Fail Criteria

Not Applicable

### 6.3 Detailed Test Results

Test Technician / Engineer	Michael Sundstrom
Date of Measurement	20-Dec-05
Temperature	21-23 °C
Humidity	15-45 %RH
Test Result	Tested in accordance with 2.1055(a)(1)(b), 24.235 at maximum power setting.

Temp. (°C)	AMPS, Channel 384	CDMA 800, Channel 384	CDMA 1900, Channel 600
	Change (Hz)	Change (Hz)	Change (Hz)
-30	-196	13	28
-20	-202	12	27
-10	-198	11	26
0	-210	11	27
10	-188	12	28
20	-218	12	-27
30	-220	13	28
40	-205	13	27
50	-198	12	28

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## 7. FREQUENCY STABILITY (VOLTAGE VARIATION)

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

### 7.1 Setup

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

### 7.2 Pass/Fail Criteria

Not Applicable

### 7.3 Detailed Test Results

Test Technician / Engineer	Michael Sundstrom
Date of Measurement	20-Dec-05
Temperature	21-23 °C
Humidity	15-45 %RH
Test Result	Tested in accordance with 2.1055(d)(1)(2), 24.235 at maximum power setting.

**PLEASE ENSURE ALL EQUIPMENT USED FOR THIS TEST IS ENTERED INTO SECTION 5.**

#### AMPS, Call Mode, Channel 384

% of STV	Voltage	Change (Hz)
100 (Nominal)	3.7	-201
115	4.2	-195
Battery End Point	3.2	-210

#### CDMA 800, Call Mode, Channel 384

% of STV	Voltage	Change (Hz)
100 (Nominal)	3.7	13
115	4.2	12
Battery End Point	3.2	9

#### CDMA 1900, Call Mode, Channel 600

% of STV	Voltage	Change (Hz)
100 (Nominal)	3.7	28
115	4.2	28
Battery End Point	3.2	29