



# PCTEST ENGINEERING LABORATORY, INC.

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<http://www.pctestlab.com>



## MEASUREMENT REPORT FCC Part 22 Certification

**Applicant Name:**

NEC Corporation of America  
Radio Communications Systems Division  
6535 N. State Highway 161  
Irving, TX 75039-2402 USA

**Date of Testing:**

March 30, 2010

**Test Site/Location:**

PCTEST Lab., Columbia, MD, USA

**Test Report Serial No.:**

0Y1003250495.A98

<b>FCC ID:</b>	<b>A98-AZB9304</b>
<b>APPLICANT:</b>	<b>NEC CORPORATION OF AMERICA</b>

**Application Type:** Certification

**FCC Classification:** TNB Licensed Non-Broadcast Station Transmitter

**FCC Rule Part(s):** §2; §22(H)

**EUT Type:** Cellular WCDMA/HSDPA Phone with Bluetooth and WLAN

**Model(s):** KMP7N3B1-1A

**Tx Frequency Range:** 826.40 - 846.60MHz (Cell. WCDMA)

**Max. RF Output Power:** 0.149 W ERP Cell. WCDMA (21.74 dBm)

**Emission Designator(s):** 4M27F9W (Cellular WCDMA)

**Test Device Serial No.:** *identical prototype [S/N: #004401200501019]*

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in §2.947. Test results reported herein relate only to the item(s) tested.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

**Grant Conditions:** Power output listed is ERP for Part 22.

*PCTEST certifies that no party to this application has been denied the FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. 862.*

  
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Randy Ortanez  
President



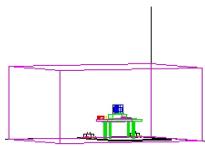
FCC ID: A98-AZB9304	 <b>PCTEST</b> ENGINEERING LABORATORY, INC.	FCC Pt. 22 WCDMA / HSDPA TEST REPORT (CERTIFICATION)	<b>NEC</b>	Reviewed by: Quality Manager
Test Report S/N: 0Y1003250495.A98	Test Dates: March 30, 2010	EUT Type: Cellular WCDMA/HSDPA Phone with Bluetooth and WLAN		Page 1 of 24

## T A B L E   O F   C O N T E N T S

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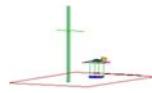
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# MEASUREMENT REPORT

## FCC Part 22

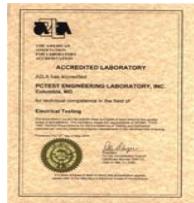


### §2.1033 General Information

**APPLICANT:** NEC Corporation of America  
**APPLICANT ADDRESS:** Radio Communications Systems Division  
**6535 N. State Highway 161, Irving, TX 75039-2402 USA**  
**TEST SITE:** PCTEST ENGINEERING LABORATORY, INC.  
**TEST SITE ADDRESS:** 6660-B Dobbin Road, Columbia, MD 21045 USA  
**FCC RULE PART(S):** §2; §22(H)  
**BASE MODEL:** KMP7N3B1-1A  
**FCC ID:** A98-AZB9304  
**FCC CLASSIFICATION:** PCS Licensed Transmitter PCB  
**EMISSION DESIGNATOR(S):** 4M27F9W (Cellular WCDMA)  
**MODE:** WCDMA / HSDPA  
**FREQUENCY TOLERANCE:** ±0.00025 % (2.5 ppm)  
**Test Device Serial No.:** #004401200501019  Production  Pre-Production  Engineering  
**DATE(S) OF TEST:** March 30, 2010  
**TEST REPORT S/N:** 0Y1003250495.A98

### Test Facility / Accreditations

Measurements were performed at PCTEST Engineering Lab. located in Columbia, MD 21045, U.S.A.



- PCTEST facility is an FCC registered (PCTEST Reg. No. 90864) test facility with the site description report on file and has met all the requirements specified in Section 2.948 of the FCC Rules and Industry Canada (2451A-1).
- PCTEST Lab is accredited to ISO 17025 by U.S. National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP Lab code: 100431-0) in EMC, FCC and Telecommunications.
- PCTEST Lab is accredited to ISO 17025-2005 by the American Association for Laboratory Accreditation (A2LA) in Specific Absorption Rate (SAR) testing, Hearing Aid Compatibility (HAC) testing, CTIA Test Plans, and wireless testing for FCC and Industry Canada Rules.
- PCTEST Lab is a recognized U.S. Conformity Assessment Body (CAB) in EMC and R&TTE (n.b. 0982) under the U.S.-EU Mutual Recognition Agreement (MRA).
- PCTEST TCB is a Telecommunication Certification Body (TCB) accredited to ISO/IEC Guide 65 by the American National Standards Institute (ANSI) in all scopes of FCC Rules and Industry Canada Standards (RSS).
- PCTEST facility is an IC registered (2451A-1) test laboratory with the site description on file at Industry Canada.
- PCTEST is a CTIA Authorized Test Laboratory (CATL) for AMPS, CDMA, and EvDO wireless devices and for Over-the-Air (OTA) Antenna Performance testing for AMPS, CDMA, GSM, GPRS, EGPRS, UMTS (W-CDMA), CDMA 1xEVDO, and CDMA 1xRTT.

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## 1.0 INTRODUCTION

## 1.1 Scope

Measurement and determination of electromagnetic emissions (EME) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission.

## 1.2 Testing Facility

The map below shows the location of the PCTEST LABORATORY, its proximity to the FCC Laboratory, the Columbia vicinity are, the Baltimore-Washington Interntl (BWI) airport, the city of Baltimore and the Washington, DC area. (See *Figure 1-1*).

These measurement tests were conducted at the PCTEST Engineering Laboratory, Inc. facility in New Concept Business Park, Guilford Industrial Park, Columbia, Maryland. The site address is 6660-B Dobbin Road, Columbia, MD 21045. The test site is one of the highest points in the Columbia area with an elevation of 390 feet above mean sea level. The site coordinates are 39° 11'15" N latitude and 76° 49'38" W longitude. The facility is 1.5 miles North of the FCC laboratory, and the ambient signal and ambient signal strength are approximately equal to those of the FCC laboratory. There are no FM or TV transmitters within 15 miles of the site. The detailed description of the measurement facility was found to be in compliance with the requirements of § 2.948 according to ANSI C63.4-2003 on January 27, 2006.

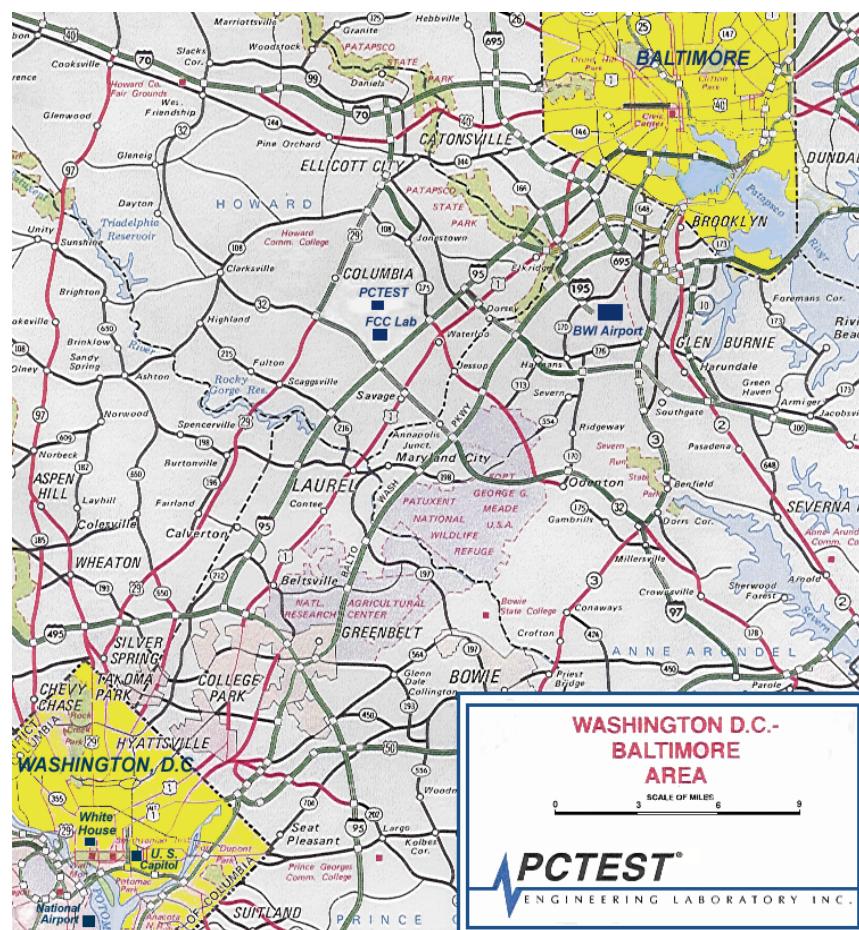


Figure 1-1. Map of the Greater Baltimore and Metropolitan Washington, D.C. area

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## 2.0 PRODUCT INFORMATION

### 2.1 Equipment Description

The Equipment Under Test (EUT) is the **NEC Cellular WCDMA/HSDPA Phone with Bluetooth and WLAN FCC ID: A98-AZB9304**. The EUT consisted of the following component(s):

Trade Name / Base Model	FCC ID	Description
NEC / Model: KMP7N3B1-1A	A98-AZB9304	Cellular WCDMA/HSDPA Phone with Bluetooth and WLAN

Table 2-1. EUT Equipment Description

### 2.2 EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and no modifications were made during testing.

### 2.3 Labeling Requirements

Per 2.925

The FCC identifier shall be permanently affixed to the equipment and shall be readily visible to the purchaser at the time of purchase.

Per 15.19; Docket 95-19

In addition to this requirement, a device subject to certification shall be labeled as follows:

*This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.*

The label shall be permanently affixed at a conspicuous location on the device; instruction manual or pamphlet supplied to the user and be readily visible to the purchaser at the time of purchase. However, when the device is so small wherein placement of the label with specified statement is not practical, only the trade name and FCC ID must be displayed on the device per Section 15.19(b)(2).

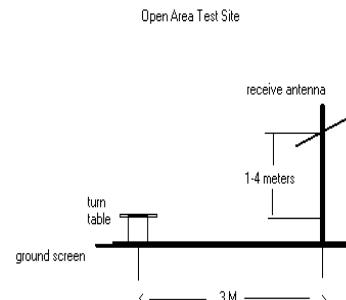
Please see attachment for FCC ID label and label location.

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## 3.0 DESCRIPTION OF TESTS

### 3.1 Measurement Procedure

The radiated spurious measurements were made outdoors at a 3-meter test range (See Figure 3-1). The equipment under test is placed on a wooden turntable 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotations were adjusted for the highest reading on the receive spectrum analyzer. This power level was recorded using a broadband average power meter. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This level is recorded with the power meter. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic antenna are taken into consideration.



**Figure 3-1. Diagram of 3-meter outdoor test range**

**Deviation from Measurement Procedure.....None**

### 3.2 Occupied Bandwidth Emission Limits

§2.1049, 22.917(a)

- On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least  $43 + 10 \log(P)$  dB.
- Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26 dB below the transmitter power.
- When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the licensee's frequency block edges, both upper and lower, as the design permits.
- The measurement of emission power can be expressed in peak or average values, provided they are expressed in the same parameters as the transmitter power.

### 3.3 Cellular - Base Frequency Blocks



**BLOCK 1: 869 – 880 MHz (A\* Low + A)**

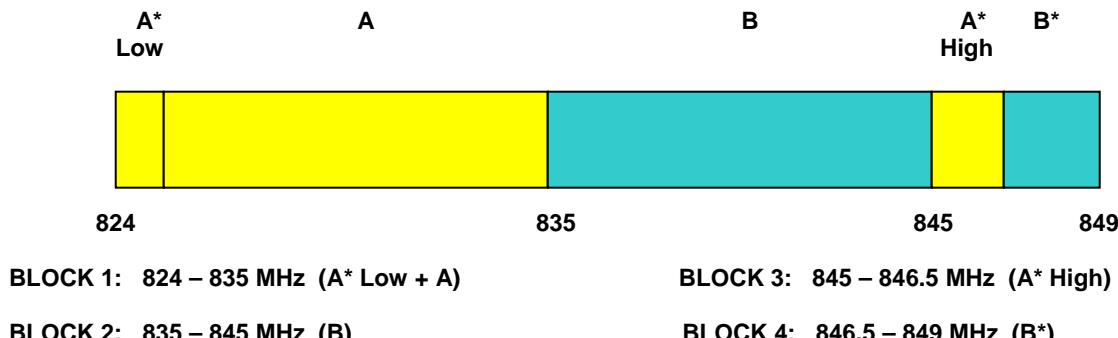
**BLOCK 2: 880 – 890 MHz (B)**

**BLOCK 3: 890 – 891.5 MHz (A\* High)**

**BLOCK 4: 891.5 – 894 MHz (B\*)**

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### 3.4 Cellular - Mobile Frequency Blocks



### 3.5 Spurious and Harmonic Emissions at Antenna Terminal

#### §2.1051, 22.917(a)

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10<sup>th</sup> harmonic.

### 3.6 Radiated Spurious and Harmonic Emissions

#### §2.1053, 22.917(a)

Spurious and harmonic radiated emissions are measured outdoors at our 3-meter test range. The equipment under test is placed on a wooden turntable 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotations were adjusted for the highest reading on the receive spectrum analyzer. This level is then measured with a broadband average power meter. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10<sup>th</sup> harmonic. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator with the level of the signal generator being adjusted to obtain the same receive average power meter reading. This spurious level is recorded with the power meter. For readings above 1 GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration. This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Inactive at 12.2 kbps RMC and TPC bits all set to "1" and in GPRS mode while transmitting with one slot active.

### 3.7 Frequency Stability / Temperature Variation

#### §2.1055, 22.355

The frequency stability of the transmitter is measured by:

- Temperature:** The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.
- Primary Supply Voltage:** The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

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**Specification** – The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within  $\pm 0.00025\%$  ( $\pm 2.5$  ppm) of the center frequency.

**Time Period and Procedure:**

1. The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).
2. The equipment is turned on in a “standby” condition for one minute before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.
3. Frequency measurements are made at 10°C intervals ranging from -30°C to +50°C. A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

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## 4.0 TEST EQUIPMENT CALIBRATION DATA

Test Equipment Calibration is traceable to the National Institute of Standards and Technology (NIST).

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
-	263-10dB	(DC-18GHz) 10 dB Attenuator	N/A		N/A	N/A
-	No.166	(1000-26500MHz) Microwave RF Cable	N/A		N/A	N/A
-	No.167	(100kHz - 100MHz) RG58 Coax Cable	N/A		N/A	N/A
Agilent	11713A	Attenuation/Switch Driver	12/2/2009	Annual	12/2/2010	3439A02645
Agilent	8449B	(1-26.5GHz) Pre-Amplifier	12/2/2009	Annual	12/2/2010	3008A00985
Agilent	85650A	Quasi-Peak Adapter	12/2/2009	Annual	12/2/2010	3303A01872
Agilent	8566B	(100Hz-22GHz) Spectrum Analyzer	12/2/2009	Annual	12/2/2010	3638A08713
Agilent	8648D	(9kHz-4GHz) Signal Generator	9/19/2009	Biennial	9/19/2011	3613A00315
Agilent	E4407B	ESA Spectrum Analyzer	9/28/2009	Annual	9/28/2010	US39210313
Agilent	E4432B	ESG-D Series Signal Generator	9/10/2009	Annual	9/10/2010	US40053896
Agilent	E4448A	PSA (3Hz-50GHz) Spectrum Analyzer	10/1/2009	Annual	10/1/2010	US42510244
Agilent	E5515C	Wireless Communications Test Set	9/10/2009	Annual	9/10/2010	GB46110872
Agilent	E5515C	Wireless Communications Test Set	9/11/2009	Annual	9/11/2010	GB46310798
Agilent	E5515C	Wireless Communications Test Set	8/25/2009	Annual	8/25/2010	GB41450275
Agilent	E8267C	Vector Signal Generator	9/29/2009	Biennial	9/29/2011	US42340152
Agilent	N9020A	MXA Signal Analyzer	10/22/2009	Annual	10/22/2010	US46470561
Anritsu	ML2495A	Power Meter	10/12/2009	Annual	10/12/2010	941001
Emco	3115	Horn Antenna (1-18GHz)	10/14/2009	Biennial	10/14/2011	9704-5182
Gigatronics	80701A	(0.05-18GHz) Power Sensor	9/9/2009	Annual	9/9/2010	1833460
Gigatronics	8651A	Universal Power Meter	9/9/2009	Annual	9/9/2010	8650319
K & L	11SH10	Band Pass Filter	N/A	Annual	N/A	1300/4000
K & L	11SH10	Band Pass Filter	N/A	Annual	N/A	4000/12000
MiniCircuits	VHF-1300+	High Pass Filter	N/A		N/A	30716
MiniCircuits	VHF-3100+	High Pass Filter	N/A		N/A	30721
Pasternack	PE2208-6	Bidirectional Coupler	N/A		N/A	N/A
Rohde & Schwarz	CMU200	Base Station Simulator	9/11/2009	Annual	9/11/2010	836371/0079
Rohde & Schwarz	CMU200	Base Station Simulator	4/6/2009	Annual	4/6/2010	833855/0010
Rohde & Schwarz	CMU200	Base Station Simulator	9/4/2009	Annual	9/4/2010	109892
Rohde & Schwarz	CMU200	Base Station Simulator	6/12/2009	Annual	6/12/2010	836536/0005
Rohde & Schwarz	FSQ 26	Spectrum Analyzer	9/19/2009	Annual	9/19/2010	200452
Rohde & Schwarz	CMW500	LTE Base Station Simulator	8/25/2009	Annual	8/25/2010	100976
Schwarzbeck	UHA9105	Dipole Antenna (400 - 1GHz) Rx	7/17/2009	Biennial	7/17/2011	9105-2404
Schwarzbeck	UHA9105	Dipole Antenna (400 - 1GHz) Tx	7/17/2009	Biennial	7/17/2011	9105-2403
Sunol	DRH-118	Horn Antenna (1 - 18GHz)	5/14/2009	Biennial	5/14/2011	A050307
Sunol	JB5	Bi-Log Antenna (30M - 5GHz)	7/17/2009	Biennial	7/17/2011	A051107

Table 4-1. Test Equipment

FCC ID: A98-AZB9304	 <b>PCTEST</b> ENGINEERING LABORATORY, INC.	FCC Pt. 22 WCDMA / HSDPA TEST REPORT (CERTIFICATION)	<b>NEC</b>	Reviewed by: Quality Manager
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## 5.0 SAMPLE CALCULATIONS

### Emission Designator

**Emission Designator = 4M16F9W**

WCDMA BW = 4.16 MHz

F = Frequency Modulation

9 = Composite Digital Info

W = Combination (Audio/Data) (Measured at the 99.75% power bandwidth)

### Spurious Radiated Emission - PCS Band

**Example: Channel 9262 PCS Mode 2<sup>nd</sup> Harmonic (3704.80 MHz)**

The average receive power meter reading at 3 meters with the EUT on the turntable was -81.0 dBm. The gain of the substituted antenna is 8.1 dBi. The signal generator connected to the substituted antenna terminals is adjusted to produce a reading of -81.0 dBm on the power meter. The loss of the cable between the signal generator and the terminals of the substituted antenna is 2.0 dB at 3704.80 MHz. So 6.1 dB is added to the power meter reading of -30.9 dBm yielding -24.80 dBm. The fundamental EIRP was 25.501 dBm so this harmonic was 25.501 dBm - (-24.80) = 50.3 dBc.

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## 6.0 TEST RESULTS

### 6.1 Summary

Company Name: NEC Corporation of America  
 FCC ID: A98-AZB9304  
 FCC Classification: PCS Licensed Transmitter PCB  
 Mode(s): WCDMA / HSDPA

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
<b><u>TRANSMITTER MODE (TX)</u></b>					
2.1049, 22.917(a)	Occupied Bandwidth	N/A	CONDUCTED	PASS	Section 7.0
2.1051, 22.917(a)	Band Edge / Conducted Spurious Emissions	< $43 + \log_{10}(P[\text{Watts}])$ at Band Edge / for all out-of-band emissions		PASS	Section 7.0
2.1046	Transmitter Conducted Output Power	N/A		PASS	RF Exposure Report
22.913(a)(2)	Effective Radiated Power	< 7 Watts max. ERP	RADIATED	PASS	Section 6.2
2.1051, 22.917(a)	Undesirable Emissions	< $43 + \log_{10}(P[\text{Watts}])$ for all out-of-band emissions		PASS	Sections 6.3
2.1055, 22.355	Frequency Stability	< 2.5 ppm		PASS	Sections 6.4

Table 6-1. Summary of Test Results

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## 6.2 Effective Radiated Power Output Data

§22.913(a)(2)

**POWER: "All '1' bits" (Cellular WCDMA Mode)**

Frequency [MHz]	Mode	Measured Level [dBm]	Substitute Level [dBm]	Antenna Gain [dBi]	Pol [H/V]	ERP [dBm]	ERP [Watts]	Battery Type
826.40	WCDMA	-17.910	21.46	0.00	V	21.46	0.140	Standard
836.60	WCDMA	-17.870	21.50	0.00	V	21.50	0.141	Standard
846.60	WCDMA	-17.630	21.74	0.00	V	21.74	0.149	Standard

**Table 6-2. Effective Radiated Power Output Data**

**NOTES:**

Effective Radiated Power Output Measurements by Substitution Method according to ANSI/ TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading. This level is recorded using the power meter. The conducted power at the terminals of the dipole is measured. The ERP is recorded.

This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Inactive at 12.2 kbps RMC and TPC bits all set to "1" and in GPRS mode while transmitting with one slot active. This unit was tested with its standard battery.

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### 6.3 Cellular WCDMA Radiated Measurements

§2.1053, 22.917(a)

#### Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 826.40 MHz  
 CHANNEL: 4132  
 MEASURED OUTPUT POWER: 21.740 dBm = 0.149 W  
 MODULATION SIGNAL: WCDMA (Internal)  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10} (W) =$  34.74 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBD)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
1652.80	-60.14	6.08	-54.05	V	75.8
2479.20	-60.83	6.54	-54.30	V	76.0
3305.60	-93.85	6.88	-86.98	V	108.7
4132.00	-91.57	7.25	-84.32	V	106.1
4958.40	-90.28	8.37	-81.91	V	103.7

**Table 6-3. Radiated Spurious Data (Cellular WCDMA Mode – Ch. 4132)**

#### NOTES:

Radiated Spurious Emission Measurements by Substitution Method  
according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading. This spurious level is recorded using the power meter. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Inactive at 12.2 kbps RMC and TPC bits all set to "1" and in GPRS mode while transmitting with one slot active. This unit was tested with its standard battery.

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## Cellular WCDMA Radiated Measurements (Cont'd)

§2.1053, 22.917(a)

### Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 836.60 MHz  
 CHANNEL: 4183  
 MEASURED OUTPUT POWER: 21.740 dBm = 0.149 W  
 MODULATION SIGNAL: WCDMA (Internal)  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10} (W) =$  34.74 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
1673.20	-59.69	6.09	-53.60	V	75.3
2509.80	-60.80	6.55	-54.24	V	76.0
3346.40	-93.75	6.89	-86.86	V	108.6
4183.00	-91.71	7.40	-84.31	V	106.0
5019.60	-90.03	8.35	-81.68	V	103.4

Table 6-4. Radiated Spurious Data (Cellular WCDMA Mode – Ch. 4183)

#### NOTES:

Radiated Spurious Emission Measurements by Substitution Method  
according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading. This spurious level is recorded using the power meter. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Inactive at 12.2 kbps RMC and TPC bits all set to "1" and in GPRS mode while transmitting with one slot active. This unit was tested with its standard battery.

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## Cellular WCDMA Radiated Measurements (Cont'd)

§2.1053, 22.917(a)

### Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 846.60 MHz  
CHANNEL: 4233  
MEASURED OUTPUT POWER: 21.740 dBm = 0.149 W  
MODULATION SIGNAL: WCDMA (Internal)  
DISTANCE: 3 meters  
LIMIT:  $43 + 10 \log_{10} (W) =$  34.74 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
1693.20	-61.31	6.09	-55.22	V	77.0
2539.80	-60.59	6.57	-54.02	V	75.8
3386.40	-93.61	6.91	-86.71	V	108.4
4233.00	-91.90	7.62	-84.28	V	106.0
5079.60	-89.76	8.33	-81.43	V	103.2

Table 6-5. Radiated Spurious Data (Cellular WCDMA Mode – Ch. 4233)

#### NOTES:

Radiated Spurious Emission Measurements by Substitution Method  
according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading. This spurious level is recorded using the power meter. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Inactive at 12.2 kbps RMC and TPC bits all set to "1" and in GPRS mode while transmitting with one slot active. This unit was tested with its standard battery.

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## 6.4 Cellular WCDMA Frequency Stability

§2.1055, 22.355

OPERATING FREQUENCY: 836,600,000 Hz

CHANNEL: 4183

REFERENCE VOLTAGE: 3.7 VDC

DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.70	+ 20 (Ref)	836,600,014	14	0.000002
100 %		- 30	836,600,007	7	0.000001
100 %		- 20	836,599,997	-3	0.000000
100 %		- 10	836,599,994	-6	-0.000001
100 %		0	836,600,003	3	0.000000
100 %		+ 10	836,600,005	5	0.000001
100 %		+ 20	836,600,011	11	0.000001
100 %		+ 30	836,600,015	15	0.000002
100 %		+ 40	836,600,002	2	0.000000
100 %		+ 50	836,600,004	4	0.000000
115 %		+ 20	836,599,993	-7	-0.000001
BATT. ENDPOINT	3.41	+ 20	836,599,998	-2	0.000000

Table 6-6. Frequency Stability Data (Cellular WCDMA Mode – Ch. 4183)

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## Cellular WCDMA Frequency Stability (Cont'd)

§2.1055, 22.355

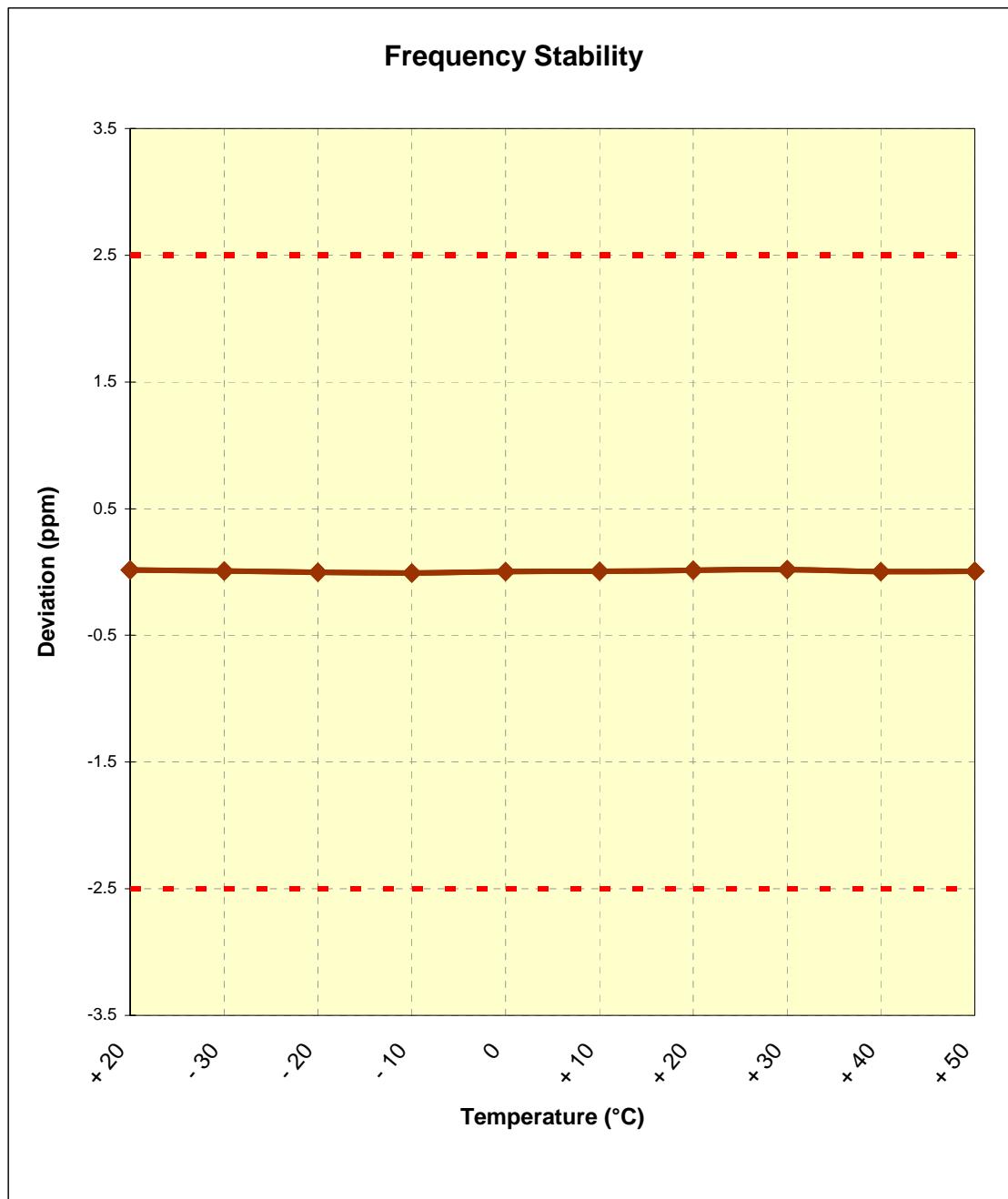
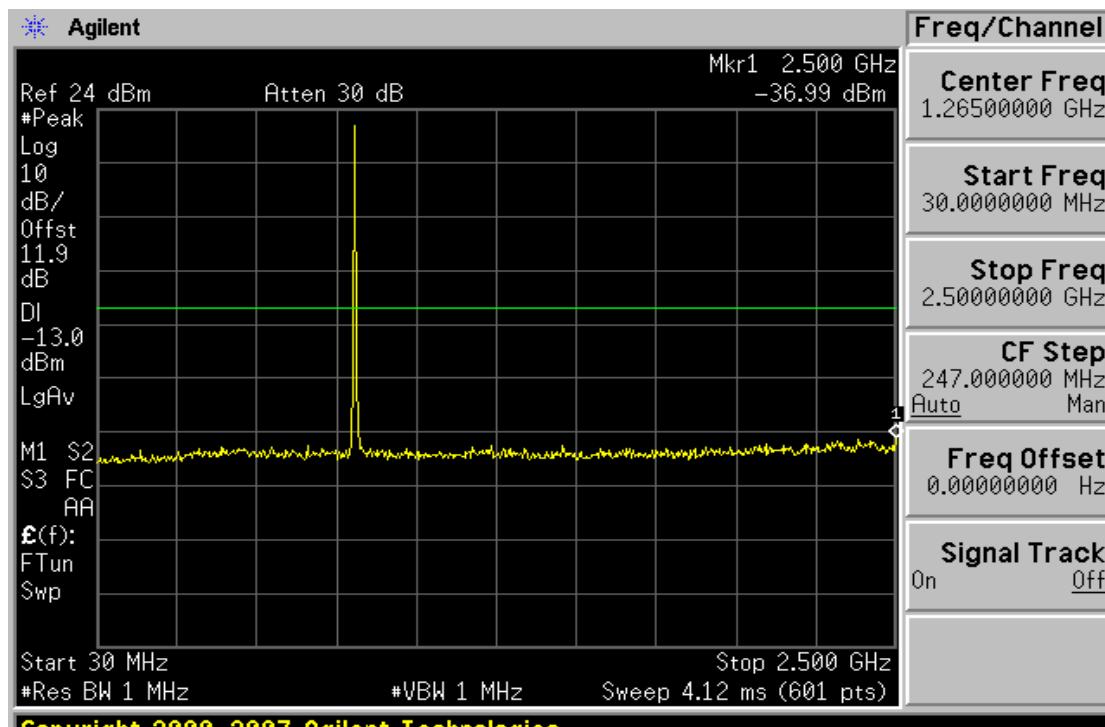


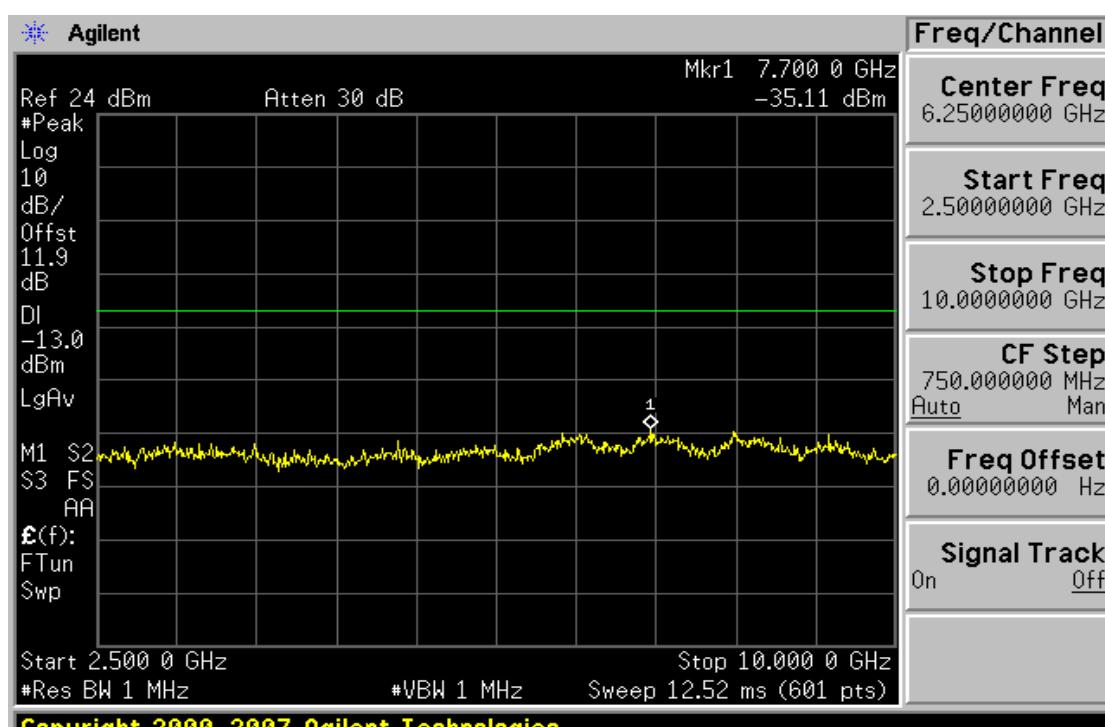
Figure 6-1. Frequency Stability Graph (Cellular WCDMA Mode – Ch. 4183)

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## 7.0 PLOTS OF EMISSIONS

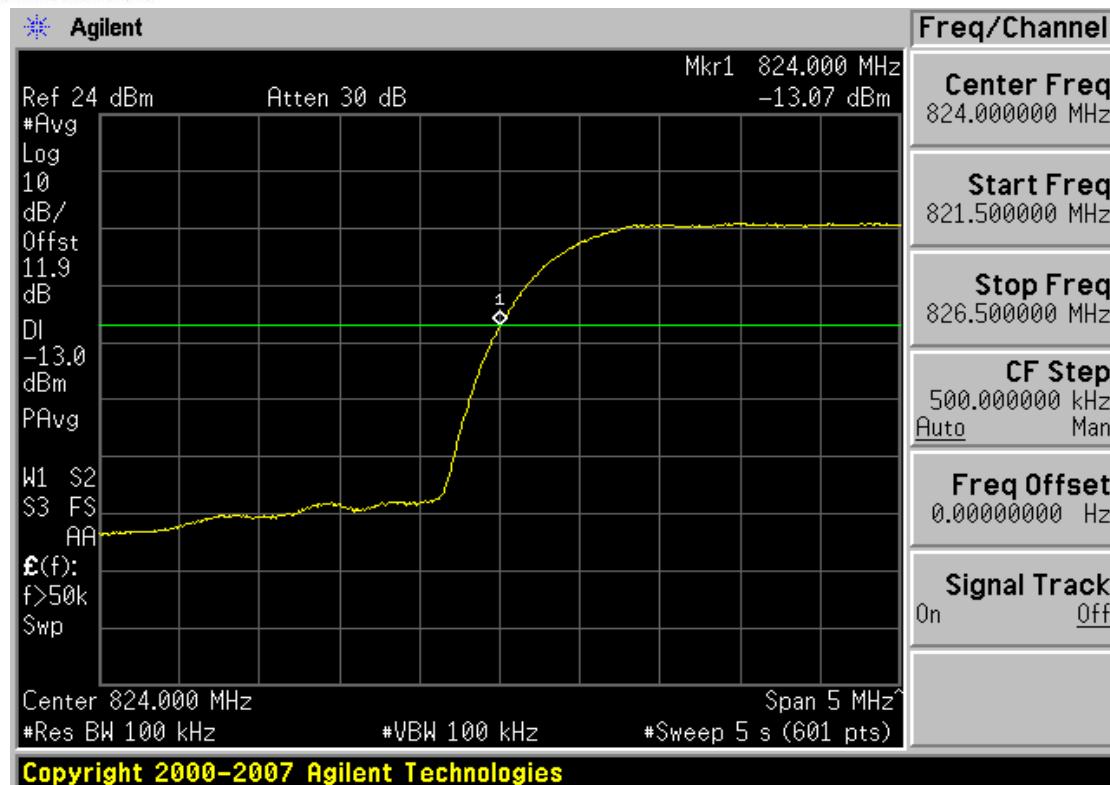


Plot 7-1. Conducted Spurious Plot (Cellular WCDMA Mode – Ch. 4132)

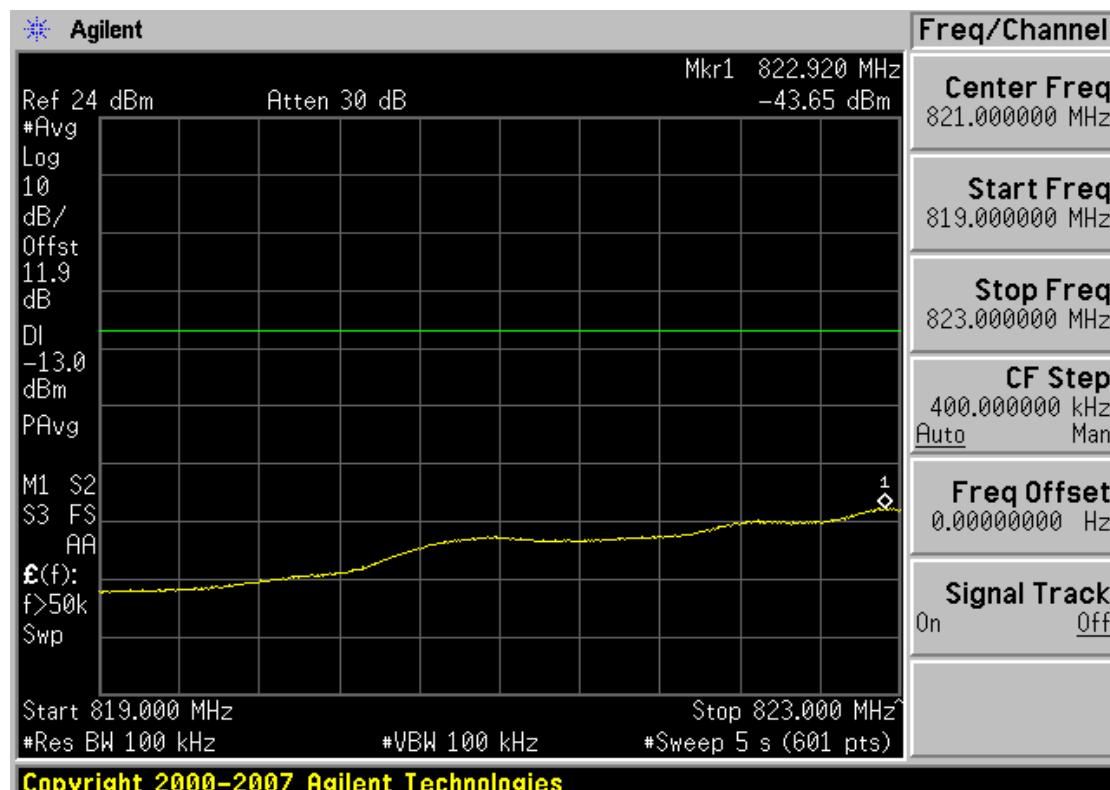


Plot 7-2. Conducted Spurious Plot (Cellular WCDMA Mode – Ch. 4132)

FCC ID: A98-AZB9304	 <b>PCTEST</b> ENGINEERING LABORATORY, INC.	FCC Pt. 22 WCDMA / HSDPA TEST REPORT (CERTIFICATION)	<b>NEC</b>	Reviewed by: Quality Manager
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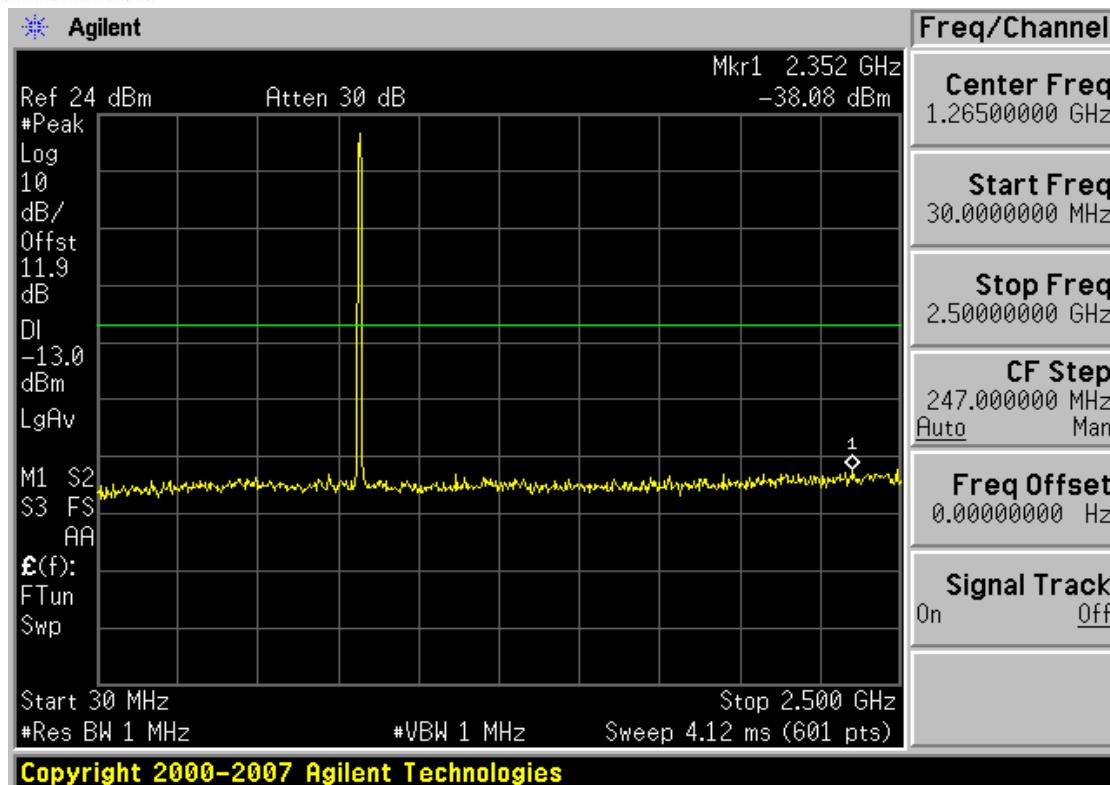


Plot 7-3. Band Edge Plot (Cellular WCDMA Mode – Ch. 4132)

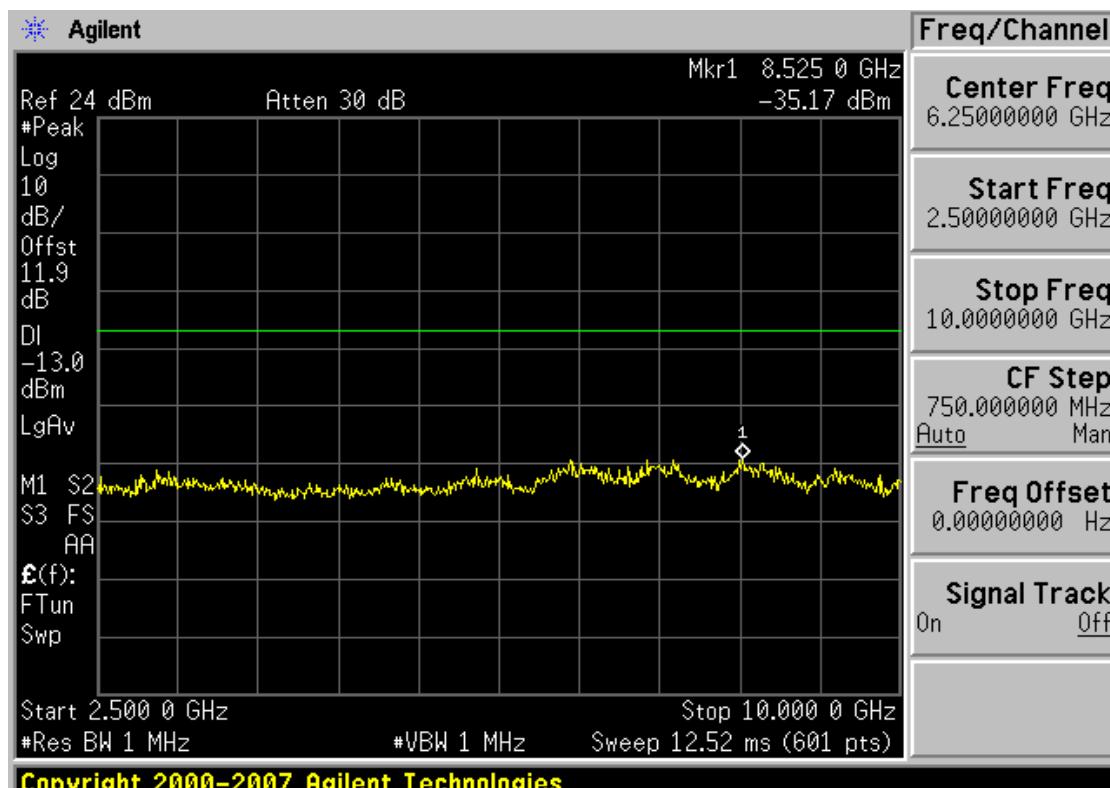


Plot 7-4. 4MHz Span Plot (Cellular WCDMA Mode – Ch. 4132)

FCC ID: A98-AZB9304	<b>PCTEST</b> Engineering Laboratory, Inc.		FCC Pt. 22 WCDMA / HSDPA TEST REPORT (CERTIFICATION)	Reviewed by: Quality Manager
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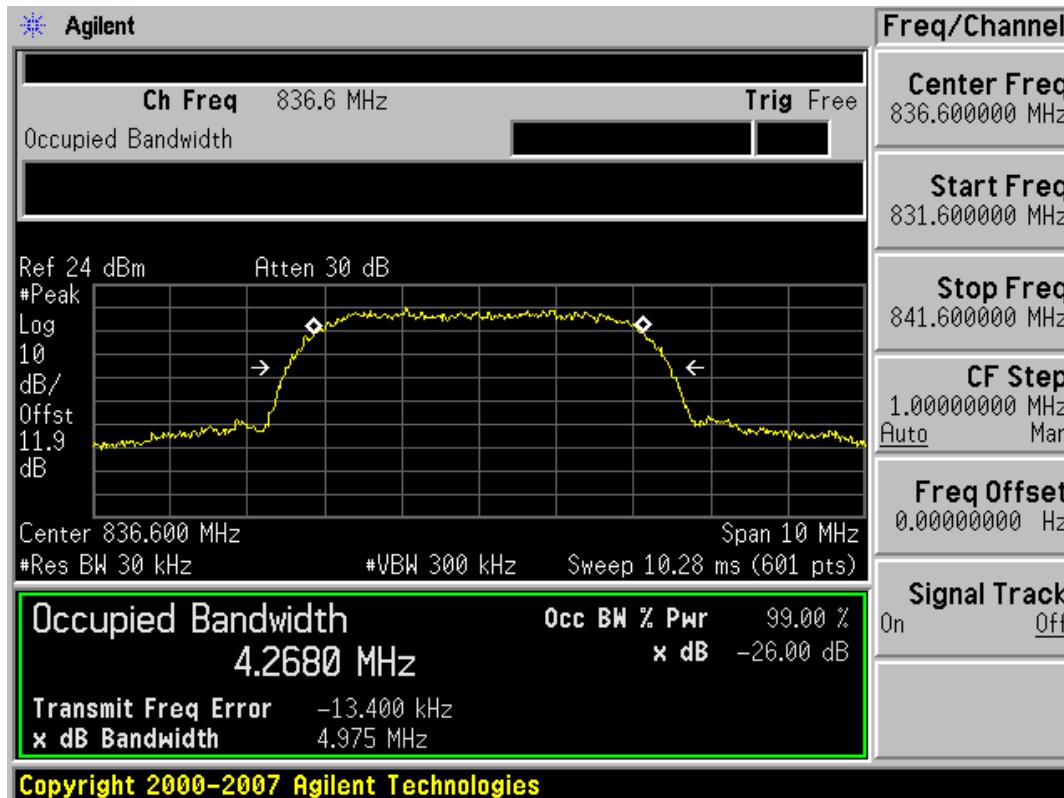


Plot 7-5. Conducted Spurious Plot (Cellular WCDMA Mode – Ch. 4183)

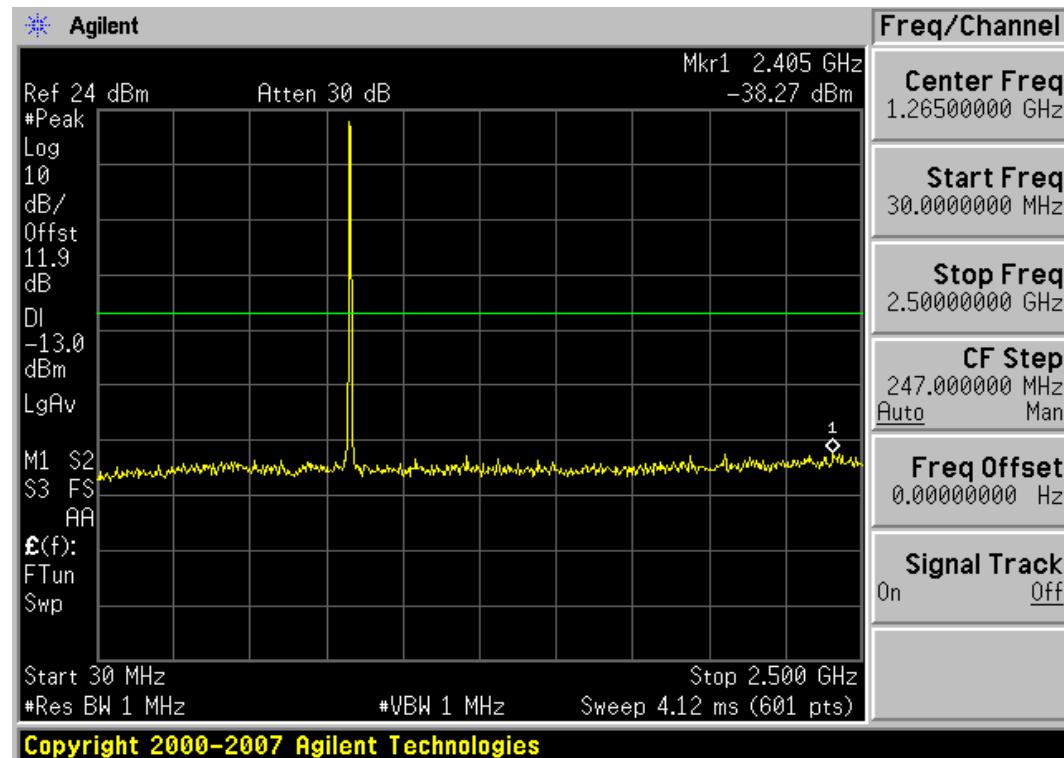


Plot 7-6. Conducted Spurious Plot (Cellular WCDMA Mode – Ch. 4183)

FCC ID: A98-AZB9304	 <b>PC TEST</b> ENGINEERING LABORATORY, INC.	FCC Pt. 22 WCDMA / HSDPA TEST REPORT (CERTIFICATION)	 <b>NEC</b>	Reviewed by: Quality Manager
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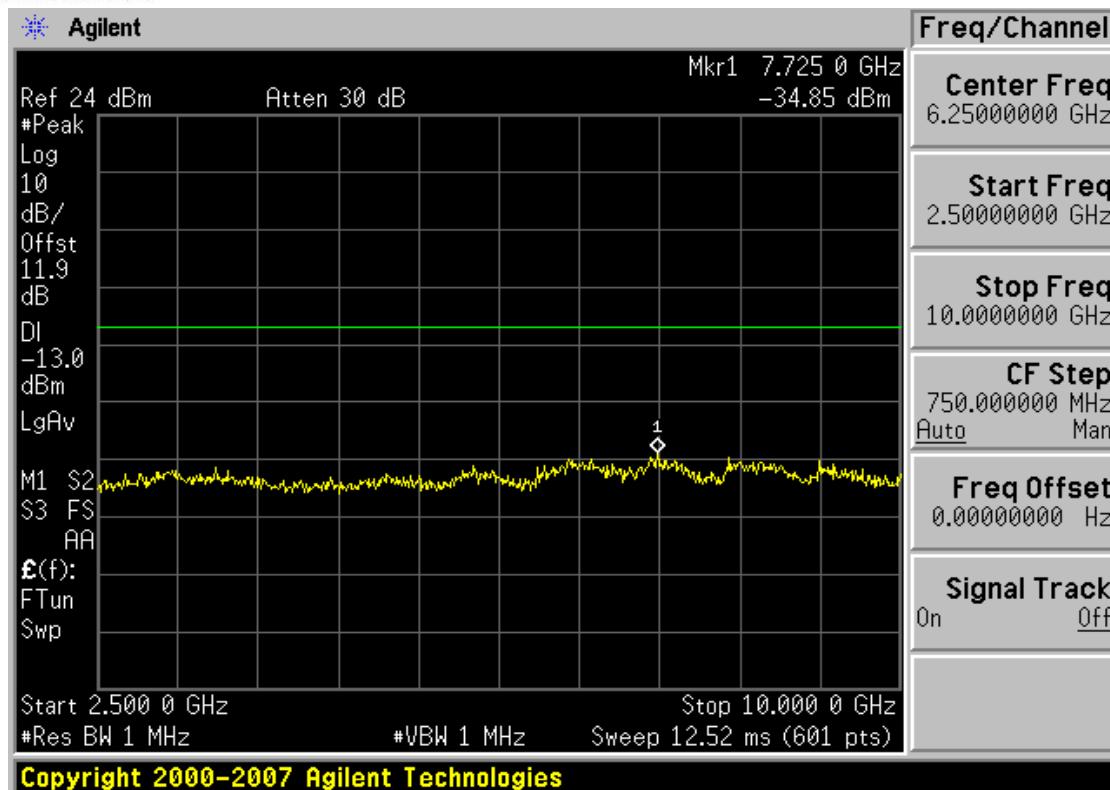


Plot 7-7. Occupied Bandwidth Plot (Cellular WCDMA Mode – Ch. 4183)

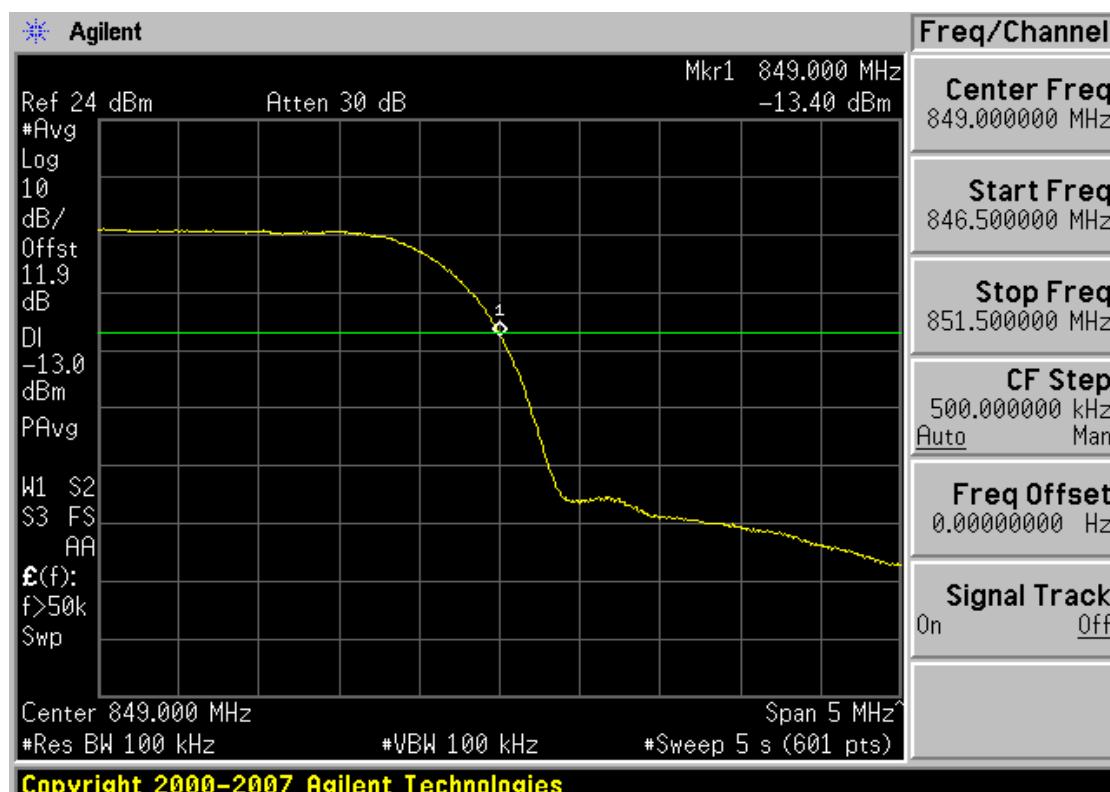


Plot 7-8. Conducted Spurious Plot (Cellular WCDMA Mode – Ch. 4233)

FCC ID: A98-AZB9304	 <b>PCTEST</b> ENGINEERING LABORATORY, INC.	FCC Pt. 22 WCDMA / HSDPA TEST REPORT (CERTIFICATION)	<b>NEC</b>	Reviewed by: Quality Manager
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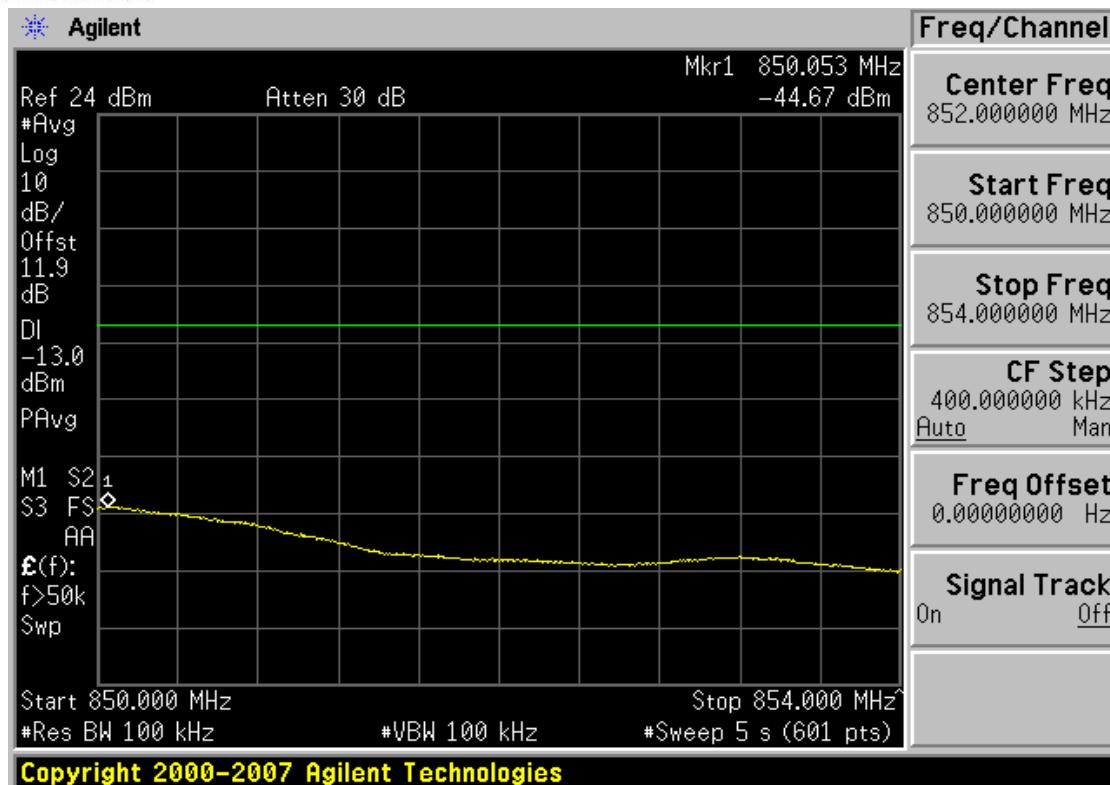


Plot 7-9. Conducted Spurious Plot (Cellular WCDMA Mode – Ch. 4233)



Plot 7-10. Band Edge Plot (Cellular WCDMA Mode – Ch. 4233)

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Plot 7-11. 4MHz Span Plot (Cellular WCDMA Mode – Ch. 4233)

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## 8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **NEC Cellular WCDMA/HSDPA Phone with Bluetooth and WLAN FCC ID: A98-AZB9304** complies with all the requirements of Parts 2, 22 of the FCC rules.

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