

PCTEST ENGINEERING LABORATORY, INC.

6660-B Dobbin Road, Columbia, MD 21045 USA Tel. 410.290.6652 / Fax 410.290.6554 http://www.pctestlab.com



CERTIFICATE OF COMPLIANCE FCC Part 22 & 24 Certification

Applicant Name:

Novatel Wireless Inc. 9645 Scranton Road, Suite 205 San Diego, CA 92121-3030 United States Date of Testing: May 30, 2007 Test Site/Location: PCTEST Lab., Columbia, MD, USA Test Report Serial No.: 0705160472.NBZ

| FCC ID: | NBZNRM-MC950D |
|-------------------------|--|
| APPLICANT: | NOVATEL WIRELESS INC. |
| Application Type: | Certification |
| FCC Classification: | PCS Licensed Transmitter (PCB) |
| FCC Rule Part(s): | §2; §22(H), §24(E) |
| EUT Type: | 850/1900 GSM/WCDMA/EDGE USB Modem |
| Model(s): | MC950D |
| Tx Frequency Range: | 824.20 - 848.80MHz (Cell. GSM) / 1850.20 - 1909.80MHz (PCS GSM) |
| | 826.40 - 846.60MHz (Cell. WCDMA) / 1852.4 - 1907.6MHz (PCS WCDMA) |
| Max. RF Output Power: | 2.786 W ERP Cell. GSM (34.45 dBm) / 1.95 W EIRP PCS GSM (32.9 dBm) |
| | 0.507 W ERP Cell. WCDMA (27.05 dBm) |
| | 0.457 W EIRP PCS WCDMA (26.6 dBm) |
| | 0.881 W ERP EDGE850 (29.45 dBm) / 0.977 W EIRP EDGE1900 (29.9 dBm) |
| Emission Designator(s): | 251KGXW (Cellular GSM), 248KGXW (PCS GSM) |
| | 243KG7W (EDGE850), 245KG7W (EDGE1900) |
| | 4M16F9W (Cellular WCDMA), 4M16F9W (PCS WCDMA) |
| Test Device Serial No.: | identical prototype [S/N: 1] |

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.

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 and EIRP for Part 24. This device also contains functions that are not operational in U.S. territories. This report is applicable only to U.S. operations.

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.

Randy Ortanez President



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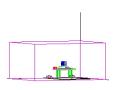


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MEASUREMENT REPORT FCC Part 22 & 24



| APPLICANT: | Novatel Wireless Inc. |
|-------------------------|---|
| APPLICANT ADDRESS: | 9645 Scranton Road, Suite 205 |
| | San Diego, CA 92121-3030 |
| TEST SITE: | PCTEST ENGINEERING LABORATORY, INC. |
| TEST SITE ADDRESS: | 6660-B Dobbin Road, Columbia, MD 21045 USA |
| FCC RULE PART(S): | §2; §22(H), §24(E) |
| BASE MODEL: | MC950D |
| FCC ID: | NBZNRM-MC950D |
| FCC CLASSIFICATION: | PCS Licensed Transmitter (PCB) |
| EMISSION DESIGNATOR(S): | 251KGXW (Cellular GSM), 248KGXW (PCS GSM) 243KG7W (EDGE850), 245KG7W (EDGE1900) 4M16F9W (Cellular WCDMA), 4M16F9W (PCS WCDMA) |
| MODE: | GSM/EDGE/WCDMA |
| FREQUENCY TOLERANCE: | ±0.00025 % (2.5 ppm) |
| Test Device Serial No.: | 1 Production Pre-Production Engineering |
| DATE(S) OF TEST: | May 30, 2007 |
| TEST REPORT S/N: | 0705160472.NBZ |
| | |

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 (IC-2451).
 PCTEST Lab is accredited to ISO 17025 by U.S. National Institute of Standards and
 - 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 (IC-2451) 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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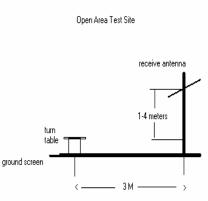


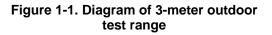
INTRODUCTION 1.0

1.1 Measurement Procedure

The radiated spurious measurements were made outdoors at a 3-meter test range (see Figure 1-1). The equipment under test is placed on a wooden turntable 3-meters from the receive antenna. The receive antenna height and turntable rotations were adjusted for the highest reading on the receive spectrum analyzer. 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. 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.

Deviation from Measurement Procedure......None





1.2 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.

1.3 **Testing Facility**

These measurements 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 and Industry Canada.

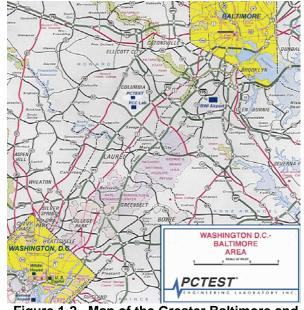


Figure 1-2. Map of the Greater Baltimore and Metropolitan Washington, D.C. area.

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2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Novatel Wireless 850/1900 GSM/WCDMA/EDGE USB Modem FCC ID: NBZNRM-MC950D**. The EUT consisted of the following component(s):

| Trade Name / Base Model | FCC ID | Description |
|----------------------------------|---------------|-----------------------------------|
| Novatel Wireless / Model: MC950D | NBZNRM-MC950D | 850/1900 GSM/WCDMA/EDGE USB Modem |

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 15.19; Docket 95-19

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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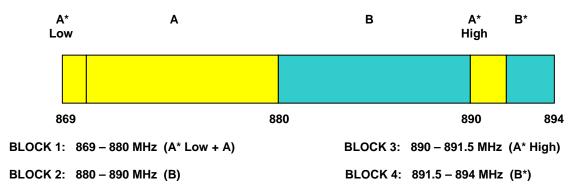


3.0 DESCRIPTION OF TESTS

3.1 Occupied Bandwidth Emission Limits

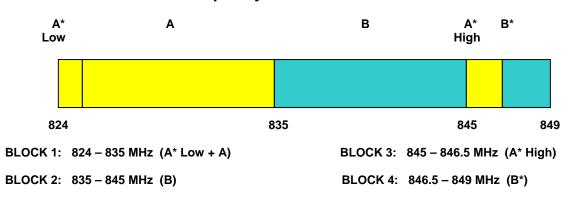
<u>§2.1049, 22.917(a), 24.238(a)</u>

- 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.
- b. 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.
- c. 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.
- d. 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.



3.2 Cellular - Base Frequency Blocks

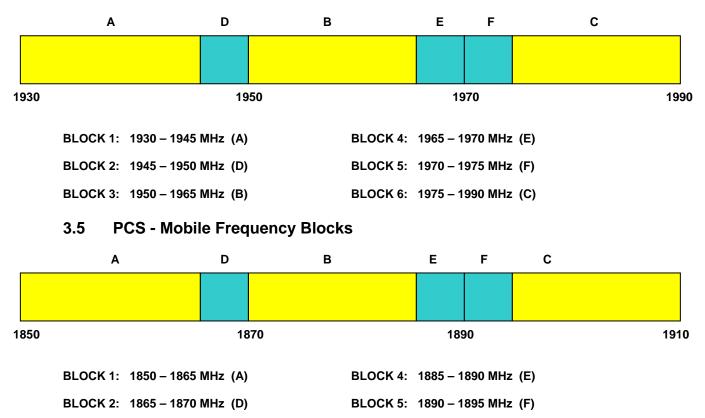
3.3 Cellular - Mobile Frequency Blocks



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3.4 **PCS - Base Frequency Blocks**



BLOCK 3: 1870 - 1885 MHz (B) BLOCK 6: 1895 - 1910 MHz (C)

3.6 Spurious and Harmonic Emissions at Antenna Terminal §2.1051, 22.917(a), 24.238(a); RSS-129 (8.1.1), RSS-133 (6.5.1)

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 10th harmonic.

3.7 Radiated Spurious and Harmonic Emissions §2.1053, 22.917(a), 24.238(a); RSS-129 (8.1.1), RSS-133 (6.5.1(i))

Spurious and harmonic radiated emissions are measured outdoors at our 3-meter test range. The equipment under test is placed on a wooden turntable 3-meters from the receive antenna. The receive antenna height and turntable rotations were adjusted for the highest reading on the receive spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th 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 spectrum analyzer reading. This level is recorded. 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 Active at 12.2 kbps RMC and TPC bits all set to "1" and in GSM mode and using a Power Control Level of "0" in the PCS Band and "5" in the Cellular Band.

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3.8 Frequency Stability / Temperature Variation §2.1055, 22.355, 24.235; RSS-132 (4.3) / RSS-133 (6.3)

The frequency stability of the transmitter is measured by:

- a.) **Temperature:** The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.
- b.) **Primary Supply Voltage:** The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery 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.

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 $\pm 0.00025\%$ (± 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).

| Agilent E4407B ESA Spectrum Analyzer 04/29/07 Annual 04/28/08 US39210313 Agilent E5515C Wireless Communications Test Set 10/06/06 Biennial 07/28/08 GB41450275 Agilent E5515C Wireless Communications Test Set 10/06/06 Biennial 10/01/07 S13400315 Agilent 8848D (9kHz-4GHz) Signal Generator 10/01/06 Annual 08/08/07 40/01/07 S13400315 Agilent E5515C Wireless Communications Test Set 10/02/06 Biennial 08/23/08 92/03-2178 BMCO Model 3115 (1-18GHz) Horn Antenna 08/24/06 Biennial 08/24/08 93704-5182 Rohde & Schwarz CMU200 Base Station Simulator 10/26/06 Annual 10/28/07 833856/01 Rohde & Schwarz CMU200 Base Station Simulator 09/22/06 Annual 09/22/07 10/28/07 833856/01 Agilent E4448A (342-50GHz) Spectrum Analyzer 12/21/06 Annual 12/21/07 333865/01 Agilent E4488A (342-50GHz) Pre-Ampilfer 12/21/06 Annual 12/21/07 10/43 | Manufacturer | Model / Equipment | Calibration Date | Cal Interval | Calibration Due | Serial No. |
|--|-------------------|---|---------------------|-----------------|--------------------|------------------|
| Agilent E5515C Wireless Communications Test Set 10/06/06 Biennial 10/05/08 GB43193972 Agilent E4432B ESG-D Series Signal Generator 08/08/07 US40053896 Agilent E5615C Wireless Communications Test Set 10/01/06 Annual 10/01/07 3813A00315 Agilent E5515C Wireless Communications Test Set 10/02/06 Biennial 10/25/08 GB46310789 EMCO Model 3115 (1-18GHz) Horn Antenna 08/24/08 Biennial 08/24/08 9704-5182 Rohde & Schwarz CMU200 Base Station Simulator 11/08/06 Annual 07/26/07 83365/010 Rohde & Schwarz CMU200 Base Station Simulator 05/24/07 Annual 09/22/07 836371/079 Agilent HP 85668 (100Hz-22GHz) Spectrum Analyzer 10/26/06 Annual 09/22/07 US42510244 Agilent E82570 (250Hz-20GHz) Spectrum Analyzer 09/22/06 Annual 09/22/07 US42510244 Agilent HP 85650 Aguasi-Peak Adapter 12/21/07 Annual 08/04/07 1835299 Agilent HP 84498 (1-26.5GHz) Pre | Agilent | E4407B ESA Spectrum Analyzer | 04/29/07 | Annual | 04/28/08 | US39210313 |
| Agilent E4432B ESG-D Series Signal Generator 08/08/06 Annual 08/08/07 US40053896 Agilent 86480 (%htz-4GHz) Signal Generator 10/01/06 Annual 10/01/07 3813A00315 Agilent E5515C Wireless Communications Test Set 10/26/06 Biennial 08/23/08 GB46310798 EMCO Model 3115 (1-18GHz) Horn Antenna 08/23/06 Biennial 08/23/08 9203-2178 Rohde & Schwarz CMU200 Base Station Simulator 11/08/06 Annual 10/25/07 833855/010 Rohde & Schwarz CMU200 Base Station Simulator 07/26/06 Annual 07/26/07 833855/010 Rohde & Schwarz CMU200 Base Station Simulator 07/26/07 Annual 07/22/07 83385/1079 Agilent HP 85668 (100Hz-22GHz) Spectrum Analyzer 09/22/07 Annual 09/22/07 US42510244 Agilent E8257D (250kHz-20GHz) Signal Generator 03/07/06 Annual 09/22/07 US42510244 Agilent HP 85650A Quasi-Peak Adapter 12/21/06 Annual 12/12/07 2043A00301 Agil | Agilent | E5515C Wireless Communications Test Set | 07/27/06 | Biennial | 07/26/08 | GB41450275 |
| Agilent 8648D (9kHz-4GHz) Signal Generator 10/01/06 Annual 10/01/07 3613A00315 Agilent E5515C Wireless Communications Test Set 10/26/06 Biennial 10/25/08 GB44310798 EMCO Model 3115 (1-18GHz) Horn Antenna 08/24/06 Biennial 08/23/08 9203-2178 EMCO Model 3115 (1-18GHz) Horn Antenna 08/25/06 Biennial 08/24/08 9203-2178 Rohde & Schwarz CMU200 Base Station Simulator 11/08/06 Annual 07/26/07 833855/010 Rohde & Schwarz CMU200 Base Station Simulator 07/26/06 Annual 07/26/07 833855/010 Agilent HP 8566B (100Hz-22GHz) Spectrum Analyzer 12/21/06 Annual 09/22/07 US42510244 Agilent E4448A (3Hz-50GHz) Spectrum Analyzer 09/22/06 Annual 09/22/07 US42510244 Agilent HP 85650A Quasi-Peak Adapter 12/21/06 Annual 09/22/07 US42510244 Agilent HP 8449B (1-26.5GHz) Pre-Amplifier 12/1/206 Annual 12/21/07 2043A00301 Agilent | Agilent | E5515C Wireless Communications Test Set | 10/06/06 | Biennial | 10/05/08 | GB43193972 |
| Agilent ES515C Wireless Communications Test Set 10/26/06 Biennial 10/25/08 GB46310798 EMCO Model 3115 (1-18GHz) Horn Antenna 08/24/06 Biennial 08/23/08 9203-2178 EMCO Model 3115 (1-18GHz) Horn Antenna 08/25/06 Biennial 08/23/08 9203-2178 Rohde & Schwarz CMU200 Base Station Simulator 11/08/06 Annual 11/08/07 107826 Rohde & Schwarz CMU200 Base Station Simulator 07/26/07 Annual 07/26/07 83385/010 Rohde & Schwarz CMU200 Base Station Simulator 05/24/07 Annual 05/23/08 836371/079 Agilent HP 8566B (100Hz-22GHz) Spectrum Analyzer 09/22/06 Annual 09/22/07 US42510244 Agilent E8257D (250Hz-20GHz) Spectrum Analyzer 09/22/06 Annual 08/04/07 1835299 Agilent HP 85650 Quasi-Peak Adapter 12/21/06 Annual 12/21/07 2043A00301 Agilent HP 8498 (1-26.5GHz) Pre-Amplifier 12/21/06 Annual 12/12/07 3008A00985 Agilent | Agilent | E4432B ESG-D Series Signal Generator | 08/08/06 | Annual | 08/08/07 | US40053896 |
| EMCO Model 3115 (1-18GHz) Horn Antenna 08/24/06 Biennial 08/23/08 9203-2178 EMCO Model 3115 (1-18GHz) Horn Antenna 08/25/06 Biennial 08/24/08 9704-5182 Rohde & Schwarz CMU200 Base Station Simulator 11/08/06 Annual 11/08/07 107826 Rohde & Schwarz CMU200 Base Station Simulator 05/24/07 Annual 05/23/08 83855/107 Aglient HP 85668 (100Hz-22GHz) Spectrum Analyzer 05/24/07 Annual 05/22/07 US42510244 Aglient E4488 (3Hz-50GHz) Spectrum Analyzer 09/22/06 Annual 09/22/07 US42510244 Agilent E4488 (3Hz-50GHz) Spectrum Analyzer 09/02/06 Annual 08/04/07 1835299 Agilent HP 85650 A Quasi-Peak Adapter 12/21/06 Annual 12/21/07 2043A00301 Agilent HP 8449B (1-26.5GHz) Pre-Amplifier 12/12/06 Annual 12/12/07 3008A00985 Agilent HP 8449B (1-26.5GHz) Pre-Amplifier 12/12/06 Annual 12/12/07 N/A Agilent HP 8449B (| Agilent | 8648D (9kHz-4GHz) Signal Generator | 10/01/06 | Annual | 10/01/07 | 3613A00315 |
| EMCO Model 3115 (1-18GH2) Horn Antenna 08/25/06 Biennial 08/24/08 9704-5182 Rohde & Schwarz CMU200 Base Station Simulator 11/08/06 Annual 11/08/07 107826 Rohde & Schwarz CMU200 Base Station Simulator 07/26/06 Annual 07/26/07 833855/010 Rohde & Schwarz CMU200 Base Station Simulator 05/24/07 Annual 05/23/08 836371/079 Agilent HP 8566B (100Hz-22GHz) Spectrum Analyzer 05/22/06 Annual 09/22/07 US42510244 Agilent E4448A (3Hz-50GHz) Spectrum Analyzer 09/22/06 Annual 09/22/07 US42510244 Agilent E4458 (741z-50GHz) Spectrum Analyzer 09/22/06 Annual 09/22/07 US42510244 Agilent HP 85650A Quasi-Peak Adapter 12/21/06 Annual 12/21/07 2043A00301 Agilent HP 85650A Quasi-Peak Adapter 12/21/06 Annual 12/21/07 3008A00985 Agilent HP 85685A (20Hz-2GHz) Pre-Amplifier 12/12/06 Annual 12/12/07 N/A Agilent HP 8 | Agilent | E5515C Wireless Communications Test Set | 10/26/06 | Biennial | 10/25/08 | GB46310798 |
| Rohde & Schwarz CMU200 Base Station Simulator 11/08/06 Annual 11/08/07 107826 Rohde & Schwarz CMU200 Base Station Simulator 07/26/06 Annual 07/26/07 833855/010 Rohde & Schwarz CMU200 Base Station Simulator 05/24/07 Annual 05/23/08 836371/079 Aglient HP 8566B (100Hz–22GHz) Spectrum Analyzer 12/21/06 Annual 09/22/07 US42510244 Agilent E4448A (3Hz-50GHz) Spectrum Analyzer 09/22/06 Annual 09/07/07 US42510244 Agilent E8257D (250KHz-20GHz) Spectrum Analyzer 09/04/06 Annual 03/07/08 MY45470194 Gigatronics 80701A (0.05-18GHz) Power Sensor 08/04/06 Annual 12/21/07 2043A00301 Agilent HP 85650 AQuasi-Peak Adapter 12/21/06 Annual 12/12/07 3008A00985 Agilent HP 85650 AQuasi-Peak Adapter 12/12/06 Annual 12/12/07 N/A Agilent HP 85680 AQuasi-Peak Adapter 12/12/06 Annual 12/12/07 N/A Agilent HP 856850 | EMCO | Model 3115 (1-18GHz) Horn Antenna | 08/24/06 | Biennial | 08/23/08 | 9203-2178 |
| Rohde & Schwarz CMU200 Base Station Simulator 07/26/06 Annual 07/26/07 833855/010 Rohde & Schwarz CMU200 Base Station Simulator 05/24/07 Annual 05/23/08 836371/079 Aglient HP 8566B (100Hz–22GHz) Spectrum Analyzer 12/21/06 Annual 09/22/07 US42510244 Aglient E4448A (3Hz-50GHz) Spectrum Analyzer 09/22/06 Annual 09/22/07 US42510244 Aglient E8257D (250KHz-20GHz) Signal Generator 03/08/07 Annual 09/2/07 1835299 Aglient HP 85650A Quasi-Peak Adapter 12/21/06 Annual 12/21/07 2043A00301 Aglient HP 85650A Quasi-Peak Adapter 12/21/06 Annual 12/21/07 3008A00985 Aglient HP 85650A Quasi-Peak Adapter 12/21/06 Annual 12/12/07 3008A00985 Aglient HP 85650A Quasi-Peak Adapter 12/12/06 Annual 12/12/07 N/A Aglient HP 85650A Quasi-Peak Adapter 12/12/06 Annual 12/12/07 N/A Aglient HP 84498 (1-26.5GHz) Pre-Amp | EMCO | Model 3115 (1-18GHz) Horn Antenna | 08/25/06 | Biennial | 08/24/08 | 9704-5182 |
| Rohde & Schwarz CMU200 Base Station Simulator 05/24/07 Annual 05/23/08 836371/079 Agilent HP 8566B (100Hz-22GHz) Spectrum Analyzer 12/21/06 Annual 12/21/07 3638A08713 Agilent E4448A (3Hz-50GHz) Spectrum Analyzer 09/22/06 Annual 09/22/07 US42510244 Agilent E8257D (250KHz-20GHz) Signal Generator 03/08/07 Annual 03/07/08 MY45470194 Gigatronics 80701A (0.05-18GHz) Power Sensor 08/04/06 Annual 08/04/07 1835299 Agilent HP 85650A Quasi-Peak Adapter 12/21/06 Annual 12/21/07 2043A00301 Agilent HP 85650A Quasi-Peak Adapter 12/21/06 Annual 12/21/07 3008A00985 Agilent HP 8449B (1-26.5GHz) Pre-Amplifier 12/12/06 Annual 12/21/07 N/A Agilent HP 8449B (1-26.5GHz) Pre-Amplifier 12/12/06 Annual 12/21/07 N/A Agilent HP 8449B (1-26.5GHz) Pre-Selector 12/12/06 Annual 12/12/07 N/A Agilent HP 8468D Opt.462 I | Rohde & Schwarz | CMU200 Base Station Simulator | 11/08/06 | Annual | 11/08/07 | 107826 |
| Agilent HP 8566B (100Hz-22GHz) Spectrum Analyzer 12/21/06 Annual 12/21/07 3638A08713 Agilent E4448A (3Hz-50GHz) Spectrum Analyzer 09/22/06 Annual 09/22/07 US42510244 Agilent E8257D (250kHz-20GHz) Signal Generator 03/08/07 Annual 03/07/08 MY45470194 Gigatronics 80701A (0.05-18GHz) Power Sensor 08/04/06 Annual 08/04/07 1835299 Agilent HP 85650A Quasi-Peak Adapter 12/21/06 Annual 12/21/07 2043A00301 Agilent HP 84498 (1-26.5GHz) Pre-Amplifier 12/21/06 Annual 12/21/07 3008A00985 Agilent HP 84498 (1-26.5GHz) Pre-Amplifier 12/12/06 Annual 12/12/07 3008A00985 Agilent HP 84498 (1-26.5GHz) Pre-Amplifier 12/12/06 Annual 12/12/07 3008A00985 Agilent HP 8498 (1-26.5GHz) Pre-Amplifier 12/12/06 Annual 12/12/07 N/A Agilent HP 85650A Quasi-Peak Adapter 12/12/06 Annual 12/12/07 N/A Agilent HP 11713A Atte | Rohde & Schwarz | CMU200 Base Station Simulator | 07/26/06 | Annual | 07/26/07 | 833855/010 |
| Agilent E4448A (3Hz-50GHz) Spectrum Analyzer 09/22/06 Annual 09/22/07 US42510244 Agilent E8257D (250kHz-20GHz) Signal Generator 03/08/07 Annual 03/07/08 MY45470194 Gigatronics 80701A (0.05-18GHz) Power Sensor 08/04/06 Annual 08/04/07 1835299 Agilent HP 85650A Quasi-Peak Adapter 12/21/06 Annual 12/21/07 2043A00301 Agilent HP 8449B (1-26.5GHz) Pre-Amplifier 12/12/06 Annual 12/12/07 3008A00985 Agilent HP 8449B (1-26.5GHz) Pre-Amplifier 12/12/06 Annual 12/12/07 3008A00985 Agilent HP 8449B (1-26.5GHz) Pre-Amplifier 12/12/06 Annual 12/12/07 3008A00985 Agilent HP 11713A Attenuation/Switch Driver 12/12/06 Annual 12/12/07 N/A Agilent HP 85686 Dpt. 462 Impulse Bandwidth 12/12/06 Annual 12/12/07 N/A Agilent HP 85686 Dpt. 462 Impulse Bandwidth 12/12/06 Annual 12/12/07 N/A Compliance Design A100 Ro | Rohde & Schwarz | CMU200 Base Station Simulator | 05/24/07 | Annual | 05/23/08 | 836371/079 |
| Agilent E8257D (250KHz-20GHz) Signal Generator 03/08/07 Annual 03/07/08 MY45470194 Gigatronics 80701A (0.05-18GHz) Power Sensor 08/04/06 Annual 08/04/07 1835299 Agilent HP 85650A Quasi-Peak Adapter 12/21/06 Annual 12/21/07 2043A00301 Agilent HP 8449B (1-26.5GHz) Pre-Amplifier 12/21/06 Annual 12/21/07 3008A00985 Agilent HP 8449B (1-26.5GHz) Pre-Amplifier 12/12/06 Annual 12/21/07 2043A00301 Agilent HP 8449B (1-26.5GHz) Pre-Amplifier 12/12/06 Annual 12/12/07 3008A00985 Agilent HP 8449B (1-26.5GHz) Pre-Amplifier 12/12/06 Annual 12/12/07 N/A Agilent HP 85685A (20Hz-2GHz) Preselector 12/12/06 Annual 12/12/07 N/A Agilent HP 85685A (20Hz-2GHz) Preselector 12/12/06 Annual 12/12/07 N/A Agilent HP 85685A (20Hz-2GHz) Preselector 12/12/06 Annual 12/12/07 N/A Compliance Design A100 Roberts Dipoles </td <td>Agilent</td> <td>HP 8566B (100Hz–22GHz) Spectrum Analyzer</td> <td>12/21/06</td> <td>Annual</td> <td>12/21/07</td> <td>3638A08713</td> | Agilent | HP 8566B (100Hz–22GHz) Spectrum Analyzer | 12/21/06 | Annual | 12/21/07 | 3638A08713 |
| Gigatronics 80701A (0.05-18GHz) Power Sensor 08/04/06 Annual 08/04/07 1835299 Agilent HP 85650A Quasi-Peak Adapter 12/21/06 Annual 12/21/07 2043A00301 Agilent HP 8449B (1-26.5GHz) Pre-Amplifier 12/12/06 Annual 12/21/07 3008A00985 Agilent HP 85650A Quasi-Peak Adapter 12/21/06 Annual 12/21/07 2043A00301 Agilent HP 85650A Quasi-Peak Adapter 12/21/06 Annual 12/21/07 2043A00301 Agilent HP 85650A Quasi-Peak Adapter 12/21/06 Annual 12/21/07 3008A00985 Agilent HP 85665A (20Hz-2GHz) Pre-Amplifier 12/12/06 Annual 12/12/07 N/A Agilent HP 85665A (20Hz-2GHz) Preselector 12/12/06 Annual 12/12/07 N/A Agilent HP 8566B Opt. 462 Impulse Bandwidth 12/12/06 Annual 12/12/07 N/A Agilent HP 8566B Opt. 462 Impulse Bandwidth 12/12/06 Biennial 08/25/07 9205-3874 Compliance Design A100 Roberts Dipoles | Agilent | E4448A (3Hz-50GHz) Spectrum Analyzer | 09/22/06 | Annual | 09/22/07 | US42510244 |
| Agilent HP 85650A Quasi-Peak Adapter 12/21/06 Annual 12/21/07 2043A00301 Agilent HP 8449B (1-26.5GHz) Pre-Amplifier 12/12/06 Annual 12/12/07 3008A00985 Agilent HP 85650A Quasi-Peak Adapter 12/21/06 Annual 12/21/07 2043A00301 Agilent HP 85650A Quasi-Peak Adapter 12/21/06 Annual 12/21/07 2043A00301 Agilent HP 8449B (1-26.5GHz) Pre-Amplifier 12/12/06 Annual 12/12/07 3008A00985 Agilent HP 8449B (1-26.5GHz) Pre-Amplifier 12/12/06 Annual 12/12/07 N/A Agilent HP 85685A (20Hz-2GHz) Preselector 12/12/06 Annual 12/12/07 N/A Agilent HP 8566B Opt. 462 Impulse Bandwidth 12/12/06 Annual 12/12/07 3701A22204 EMCO 3115 (1-18GHz) Horn Antenna 08/25/05 Biennial 08/25/07 9205-3874 Compliance Design A100 Roberts Dipoles 08/31/05 Biennial 08/21/07 5118 EMCO Dipole Pair 09/21/06 | Agilent | E8257D (250kHz-20GHz) Signal Generator | 03/08/07 | Annual | 03/07/08 | MY45470194 |
| Agilent HP 8449B (1-26.5GH2) Pre-Amplifier 12/12/06 Annual 12/12/07 3008A00985 Agilent HP 85650A Quasi-Peak Adapter 12/21/06 Annual 12/21/07 2043A00301 Agilent HP 8449B (1-26.5GH2) Pre-Amplifier 12/12/06 Annual 12/12/07 3008A00985 Agilent HP 11713A Attenuation/Switch Driver 12/12/06 Annual 12/12/07 N/A Agilent HP 85685A (20Hz-2GHz) Preselector 12/12/06 Annual 12/12/07 N/A Agilent HP 8566B Opt. 462 Impulse Bandwidth 12/12/06 Annual 12/12/07 N/A Agilent HP 8566B Opt. 462 Impulse Bandwidth 12/12/06 Annual 12/12/07 N/A Agilent HP 8566B Opt. 462 Impulse Bandwidth 12/12/06 Annual 08/25/07 9205-3874 Compliance Design A100 Roberts Dipoles 08/31/05 Biennial 08/31/07 5118 EMCO Dipole Pair 09/21/06 Biennial 09/20/08 23951 SOLAR 8012-50 LISN (2) 111/18/05 Biennial | Gigatronics | 80701A (0.05-18GHz) Power Sensor | 08/04/06 | Annual | 08/04/07 | 1835299 |
| Agilent HP 85650A Quasi-Peak Adapter 12/21/06 Annual 12/21/07 2043A00301 Agilent HP 8449B (1-26.5GHz) Pre-Amplifier 12/12/06 Annual 12/12/07 3008A00985 Agilent HP 11713A Attenuation/Switch Driver 12/12/06 Annual 12/12/07 N/A Agilent HP 85685A (20Hz-2GHz) Preselector 12/12/06 Annual 12/12/07 N/A Agilent HP 8566B Opt. 462 Impulse Bandwidth 12/12/06 Annual 12/12/07 N/A Agilent HP 8566B Opt. 462 Impulse Bandwidth 12/12/06 Annual 12/12/07 3701A22204 EMCO 3115 (1-18GHz) Horn Antenna 08/25/05 Biennial 08/25/07 9205-3874 Compliance Design A100 Roberts Dipoles 08/31/05 Biennial 09/20/08 23951 SOLAR 8012-50 LISN (2) 11/18/05 Biennial 01/18/07 0313233, 0310234 K & L 11SH10 Band Pass Filter N/A Annual N/A 1300/4000 K & L 11SH10 Band Pass Filter N/A Annual | Agilent | HP 85650A Quasi-Peak Adapter | 12/21/06 | Annual | 12/21/07 | 2043A00301 |
| Agilent HP 8449B (1-26.5GHz) Pre-Amplifier 12/12/06 Annual 12/12/07 3008A00985 Agilent HP 11713A Attenuation/Switch Driver 12/12/06 Annual 12/12/07 N/A Agilent HP 85685A (20Hz-2GHz) Preselector 12/12/06 Annual 12/12/07 N/A Agilent HP 8566B Opt. 462 Impulse Bandwidth 12/12/06 Annual 12/12/07 3701A22204 EMCO 3115 (1-18GHz) Horn Antenna 08/25/05 Biennial 08/25/07 9205-3874 Compliance Design A100 Roberts Dipoles 08/31/05 Biennial 08/31/07 5118 EMCO Dipole Pair 09/21/06 Biennial 09/20/08 23951 SOLAR 8012-50 LISN (2) 11/18/05 Biennial 11/18/07 0313233, 0310234 K & L 11SH10 Band Pass Filter N/A Annual N/A 4000/12000 K & L 11SH10 Band Pass Filter N/A Annual N/A M/A - 263-10dB (DC-18GHz) 10 dB Attenuator N/A N/A N/A | Agilent | HP 8449B (1-26.5GHz) Pre-Amplifier | 12/12/06 | Annual | 12/12/07 | 3008A00985 |
| Agilent HP 11713A Attenuation/Switch Driver 12/12/06 Annual 12/12/07 N/A Agilent HP 85685A (20Hz-2GHz) Preselector 12/12/06 Annual 12/12/07 N/A Agilent HP 8566B Opt. 462 Impulse Bandwidth 12/12/06 Annual 12/12/07 N/A Agilent HP 8566B Opt. 462 Impulse Bandwidth 12/12/06 Annual 12/12/07 3701A22204 EMCO 3115 (1-18GHz) Horn Antenna 08/25/05 Biennial 08/25/07 9205-3874 Compliance Design A100 Roberts Dipoles 08/31/05 Biennial 08/31/07 5118 EMCO Dipole Pair 09/21/06 Biennial 09/20/08 23951 SOLAR 8012-50 LISN (2) 11/18/05 Biennial 11/18/07 0313233, 0310234 K & L 11SH10 Band Pass Filter N/A Annual N/A 4000/12000 Agilent HP 8495A (0-70dB) DC-4GHz Attenuator N/A N/A N/A - 263-10dB (DC-18GHz) 10 dB Attenuator N/A N/A N/A - | Agilent | HP 85650A Quasi-Peak Adapter | 12/21/06 | Annual | 12/21/07 | 2043A00301 |
| Agilent HP 85685A (20Hz-2GHz) Preselector 12/12/06 Annual 12/12/07 N/A Agilent HP 8566B Opt. 462 Impulse Bandwidth 12/12/06 Annual 12/12/07 3701A22204 EMCO 3115 (1-18GHz) Horn Antenna 08/25/05 Biennial 08/25/07 9205-3874 Compliance Design A100 Roberts Dipoles 08/31/05 Biennial 08/25/07 5118 EMCO Dipole Pair 09/21/06 Biennial 09/20/08 23951 SOLAR 8012-50 LISN (2) 11/18/05 Biennial 11/18/07 0313233, 0310234 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 Agilent HP 8495A (0-70dB) DC-4GHz Attenuator N/A Annual N/A N/A - 263-10dB (DC-18GHz) 10 dB Attenuator N/A N/A N/A - No.165 (30MHz - 1000MHz) RG58 Coax Cable N/A N/A N/A - No.166 (1000-2650 | Agilent | HP 8449B (1-26.5GHz) Pre-Amplifier | 12/12/06 | Annual | 12/12/07 | 3008A00985 |
| Agilent HP 8566B Opt. 462 Impulse Bandwidth 12/12/06 Annual 12/12/07 3701A22204 EMCO 3115 (1-18GHz) Horn Antenna 08/25/05 Biennial 08/25/07 9205-3874 Compliance Design A100 Roberts Dipoles 08/31/05 Biennial 08/31/07 5118 EMCO Dipole Pair 09/21/06 Biennial 09/20/08 23951 SOLAR 8012-50 LISN (2) 11/18/05 Biennial 11/18/07 0313233, 0310234 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 Agilent HP 8495A (0-70dB) DC-4GHz Attenuator N/A N/A N/A N/A - 263-10dB (DC-18GHz) 10 dB Attenuator N/A N/A N/A N/A - No.165 (30MHz - 1000MHz) RG58 Coax Cable N/A N/A N/A - No.166 (1000-26500MHz) Microwave RF Cable N/A N/A N/A - No.167 (100kHz - 100MHz) RG58 C | Agilent | HP 11713A Attenuation/Switch Driver | 12/12/06 | Annual | 12/12/07 | N/A |
| EMCO 3115 (1-18GHz) Horn Antenna 08/25/05 Biennial 08/25/07 9205-3874 Compliance Design A100 Roberts Dipoles 08/31/05 Biennial 08/31/07 5118 EMCO Dipole Pair 09/21/06 Biennial 09/20/08 23951 SOLAR 8012-50 LISN (2) 11/18/05 Biennial 11/18/07 0313233, 0310234 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 Agilent HP 8495A (0-70dB) DC-4GHz Attenuator N/A N/A N/A N/A - 263-10dB (DC-18GHz) 10 dB Attenuator N/A N/A N/A N/A Pasternack PE2208-6 Bidirectional Coupler N/A N/A N/A N/A - No.165 (30MHz - 1000MHz) RG58 Coax Cable 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 | Agilent | HP 85685A (20Hz-2GHz) Preselector | 12/12/06 | Annual | 12/12/07 | N/A |
| Compliance Design A 100 Roberts Dipoles 08/31/05 Biennial 08/31/07 5118 EMCO Dipole Pair 09/21/06 Biennial 09/20/08 23951 SOLAR 8012-50 LISN (2) 11/18/05 Biennial 11/18/07 0313233, 0310234 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 Agilent HP 8495A (0-70dB) DC-4GHz Attenuator N/A Annual N/A N/A - 263-10dB (DC-18GHz) 10 dB Attenuator N/A N/A N/A N/A Pasternack PE2208-6 Bidirectional Coupler N/A N/A N/A N/A - No.165 (30MHz - 1000MHz) RG58 Coax Cable N/A 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 - No.167 (100kHz - 100MHz) RG58 Coax Cable N/ | Agilent | HP 8566B Opt. 462 Impulse Bandwidth | 12/12/06 | Annual | 12/12/07 | 3701A22204 |
| EMCO Dipole Pair 09/21/06 Biennial 09/20/08 23951 SOLAR 8012-50 LISN (2) 11/18/05 Biennial 11/18/07 0313233, 0310234 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 Agilent HP 8495A (0-70dB) DC-4GHz Attenuator N/A N/A N/A - 263-10dB (DC-18GHz) 10 dB Attenuator N/A N/A N/A Pasternack PE2208-6 Bidirectional Coupler N/A N/A N/A - No.165 (30MHz - 1000MHz) RG58 Coax Cable 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 - No.167 (100kHz - 100MHz) RG58 Coax Cable N/A N/A N/A - No.167 (100kHz - 100MHz) RG58 Coax Cable N/A N/A N/A - No.167 (100kHz - 100MH | EMCO | 3115 (1-18GHz) Horn Antenna | 08/25/05 | Biennial | 08/25/07 | 9205-3874 |
| SOLAR 8012-50 LISN (2) 11/18/05 Biennial 11/18/07 0313233, 0310234 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 Agilent HP 8495A (0-70dB) DC-4GHz Attenuator N/A Annual N/A N/A - 263-10dB (DC-18GHz) 10 dB Attenuator N/A N/A N/A N/A Pasternack PE2208-6 Bidirectional Coupler N/A N/A N/A N/A - No.165 (30MHz - 1000MHz) RG58 Coax Cable 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 - No.167 (100kHz - 100MHz) RG58 Coax Cable N/A N/A N/A - No.167 (100kHz - 100MHz) RG58 Coax Cable N/A N/A N/A - No.167 (100kHz - 100MHz) RG58 Coax Cable N/A N/A N/A | Compliance Design | A100 Roberts Dipoles | 08/31/05 | Biennial | 08/31/07 | 5118 |
| K & L11SH10 Band Pass FilterN/AAnnualN/A1300/4000K & L11SH10 Band Pass FilterN/AAnnualN/A4000/12000AgilentHP 8495A (0-70dB) DC-4GHz AttenuatorN/AN/AN/AN/A-263-10dB (DC-18GHz) 10 dB AttenuatorN/AN/AN/AN/APasternackPE2208-6 Bidirectional CouplerN/AN/AN/AN/A-No.165 (30MHz - 1000MHz) RG58 Coax CableN/AN/AN/A-No.166 (1000-26500MHz) Microwave RF CableN/AN/AN/A-No.167 (100kHz - 100MHz) RG58 Coax CableN/AN/AN/ARohde & SchwarzNRVD Dual Channel Power Meter12/11/06Biennial12/10/08101695 | EMCO | Dipole Pair | 09/21/06 | Biennial | 09/20/08 | 23951 |
| K & L 11SH10 Band Pass Filter N/A Annual N/A 4000/12000 Agilent HP 8495A (0-70dB) DC-4GHz Attenuator N/A N/A N/A - 263-10dB (DC-18GHz) 10 dB Attenuator N/A N/A N/A Pasternack PE2208-6 Bidirectional Coupler N/A N/A N/A - No.165 (30MHz - 1000MHz) RG58 Coax Cable 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 - No.167 (100kHz - 100MHz) RG58 Coax Cable N/A N/A N/A - No.167 (100kHz - 100MHz) RG58 Coax Cable N/A N/A N/A - No.167 (100kHz - 100MHz) RG58 Coax Cable N/A N/A N/A - No.167 (100kHz - 100MHz) RG58 Coax Cable N/A N/A N/A - No.167 (100kHz - 100MHz) RG58 Coax Cable N/A N/A N/A - NRVD Dual Channel Power Meter 12/11/06 Biennia | SOLAR | 8012-50 LISN (2) | 11/18/05 | Biennial | 11/18/07 | 0313233, 0310234 |
| Agilent HP 8495A (0-70dB) DC-4GHz Attenuator N/A N/A N/A - 263-10dB (DC-18GHz) 10 dB Attenuator N/A N/A N/A Pasternack PE2208-6 Bidirectional Coupler N/A N/A N/A - No.165 (30MHz - 1000MHz) RG58 Coax Cable 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 - No.167 (100kHz - 100MHz) RG58 Coax Cable N/A N/A N/A - No.167 (100kHz - 100MHz) RG58 Coax Cable N/A N/A N/A Rohde & Schwarz NRVD Dual Channel Power Meter 12/11/06 Biennial 12/10/08 101695 | K&L | 11SH10 Band Pass Filter | N/A | Annual | N/A | 1300/4000 |
| - 263-10dB (DC-18GHz) 10 dB Attenuator N/A N/A N/A Pasternack PE2208-6 Bidirectional Coupler N/A N/A N/A - No.165 (30MHz - 1000MHz) RG58 Coax Cable 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 - No.167 (100kHz - 100MHz) RG58 Coax Cable N/A N/A N/A Rohde & Schwarz NRVD Dual Channel Power Meter 12/11/06 Biennial 12/10/08 101695 | K&L | 11SH10 Band Pass Filter | N/A | Annual | N/A | 4000/12000 |
| Pasternack PE2208-6 Bidirectional Coupler N/A N/A N/A - No.165 (30MHz - 1000MHz) RG58 Coax Cable 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 - No.167 (100kHz - 100MHz) RG58 Coax Cable N/A N/A N/A Rohde & Schwarz NRVD Dual Channel Power Meter 12/11/06 Biennial 12/10/08 101695 | Agilent | HP 8495A (0-70dB) DC-4GHz Attenuator | N/A | | N/A | N/A |
| No.165 (30MHz - 1000MHz) RG58 Coax Cable 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 - No.167 (100kHz - 100MHz) RG58 Coax Cable N/A N/A N/A Rohde & Schwarz NRVD Dual Channel Power Meter 12/11/06 Biennial 12/10/08 101695 | - | 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 Rohde & Schwarz NRVD Dual Channel Power Meter 12/11/06 Biennial 12/10/08 101695 | Pasternack | PE2208-6 Bidirectional Coupler | N/A | | N/A | N/A |
| - No.167 (100kHz - 100MHz) RG58 Coax Cable N/A N/A N/A Rohde & Schwarz NRVD Dual Channel Power Meter 12/11/06 Biennial 12/10/08 101695 | - | No.165 (30MHz - 1000MHz) RG58 Coax Cable | N/A | | N/A | N/A |
| Rohde & Schwarz NRVD Dual Channel Power Meter 12/11/06 Biennial 12/10/08 101695 | - | 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 |
| Rohde & Schwarz NRV-Z33 Peak Power Sensor (1mW-20W) 11/28/06 Biennial 11/27/08 100155 | Rohde & Schwarz | NRVD Dual Channel Power Meter | 12/11/06 | Biennial | 12/10/08 | 101695 |
| | Rohde & Schwarz | NRV-Z33 Peak Power Sensor (1mW-20W) | 11/28/06 | Biennial | 11/27/08 | 100155 |

Table 4-1. Test Equipment

| FCC ID: NBZNRM-MC950D | | FCC Pt. 22/24 GSM/EDGE/WCDMA MEASUREMENT REPORT (CERTIFICATION) | NOVATEL WIRELESS | Reviewed by: Quality Manager |
|--------------------------------|---------------|--|------------------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Page 9 of 56 |
| 0705160472.NBZ | May 30, 2007 | 850/1900 GSM/WCDMA/EDGE USB Modem | | Fage 9 01 50 |
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5.0 SAMPLE CALCULATIONS

GSM Emission Designator

Emission Designator = 250KGXW

GSM BW = 250 kHz G = Phase Modulation X = Cases not otherwise covered W = Combination (Audio/Data)

WCDMA 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: GSM Channel 512 PCS Mode 2nd Harmonic (3700.40 MHz)

The receive analyzer 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 receive analyzer. The loss of the cable between the signal generator and the terminals of the substituted antenna is 2.0 dB at 3700.40 MHz. So 6.1 dB is added to the signal generator 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.

| FCC ID: NBZNRM-MC950D | | FCC Pt. 22/24 GSM/EDGE/WCDMA MEASUREMENT REPORT (CERTIFICATION) | NOVATEL WIRELESS | Reviewed by: Quality Manager |
|--------------------------------|---------------|--|------------------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Page 10 of 56 |
| 0705160472.NBZ | May 30, 2007 | 850/1900 GSM/WCDMA/EDGE USB Modem | | Fage 10 01 50 |
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6.0 TEST RESULTS

6.1 Summary

| Company Name: | Novatel Wireless Inc. |
|---------------------|--------------------------------|
| FCC ID: | NBZNRM-MC950D |
| FCC Classification: | PCS Licensed Transmitter (PCB) |
| Mode(s): | <u>GSM/EDGE/WCDMA</u> |

| FCC Part Section(s) | RSS Section | Test Description Test Limit | | Test Condition | Test Result | Reference |
|---------------------------------|---|--|--|--|----------------|--------------------------------------|
| TRANSMITTER MO | DDE (TX) | | | | | |
| 2.1049, 22.917(a), 24.238(a) | N/A | Occupied Bandwidth | N/A | | PASS | Section 7.0 |
| 2.1051, 22.917(a), 24.238(a) | RSS-132 (4.5.1) RSS-133 (6.5.1) | Band Edge / Conducted Spurious Emissions | < 43 + log ₁₀ (P[Watts]) at Band Edge and for all out-of-band emissions | CONDUCTED | PASS | Section 7.0 |
| 2.1046 | N/A | GSM/WCDMA Conducted Output Power | N/A | | PASS | Section 6.2 |
| 22.913(a)(2) | RSS-132 (4.4) [SRSP-503(5.1.3)] | Effective Radiated Power | < 7 Watts max. ERP (<6.3 Watts max. ERP (IC)) | | PASS | Section 6.3 |
| 24.232(c) | RSS-133 (6.4) [SRSP-510 (5.1.2)] | Equivalent Isotropic Radiated Power | < 2 Watts max. EIRP | | PASS | Section 6.4 |
| 2.1053, 22.917(a), 24.238(a) | RSS-132 (4.5.1) RSS-133 (6.5.1) | Undesirable Emissions | < 43 + log ₁₀ (P[Watts]) for all out- of-band emissions | RADIATED | PASS | Sections 6.5, 6.6, 6.7, 6.8 |
| 2.1055, 22.355, 24.235 | RSS-132 (4.3) RSS-133 (6.3) | Frequency Stability | < 2.5 ppm | | PASS | Sections 6.9, 6.10, 6.11, 6.12 |
| RECEIVER MODE | (RX) / DIGITAL EMIS | SIONS | | | | • |
| 15.107 | RSS-Gen (7.2.2) | AC Conducted Emissions 150kHz – 30MHz | < FCC 15.107 limits or < RSS-Gen table 2 limits | LINE CONDUCTED | PASS | Pt. 15B Test Report |
| 15.109 | RSS-132 (4.6) RSS-133(6.7(a) [RSS-Gen (7.2.2)] RSS-210 (7.3) | General Field Strength Limits (Restricted Bands and Radiated Emissions Limits) | < FCC 15.109 limits or < RSS-210 table 3 limits | RADIATED (30MHz-1GHz) (1-25 GHz) | PASS | Pt. 15B Test Report |
| RF EXPOSURE (SA | AR) | | | | | |
| 2.1091 / 2.1093 | RSS-102 | SAR Test | 1.6 W/kg (SAR Limit) | SAR | PASS | SAR Report |

Table 6-1. Summary of Test Results

| FCC ID: NBZNRM-MC950D | | FCC Pt. 22/24 GSM/EDGE/WCDMA MEASUREMENT REPORT (CERTIFICATION) | NOVATEL WIRELESS | Reviewed by: Quality Manager |
|--------------------------------|---------------|--|------------------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Page 11 of 56 |
| 0705160472.NBZ | May 30, 2007 | 850/1900 GSM/WCDMA/EDGE USB Modem | | Fage 11 01 50 |
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6.2 Conducted Output Power §2.1046

A base station simulator (Rhode and Schwartz Model: CMU200) was used to establish communication with the **Novatel Wireless 850/1900 GSM/WCDMA/EDGE USB Modem FCC ID: NBZNRM-MC950D**. The base station simulator parameters were set to produce the maximum power from the EUT. This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Active at 12.2 kbps RMC and TPC bits all set to "1" and in GSM mode and using a Power Control Level of "0" in the PCS Band and "5" in the Cellular Band.

| | | GSM | EDGE | |
|----------|---------|---------------------------|--------------------|--------------------|
| Band | Channel | Power Control Level | Conducted Power | Conducted Power |
| | | | [dBm] | [dBm] |
| | 128 | 5 | 32.40 | 27.40 |
| Cellular | 190 | 5 | 32.30 | 27.40 |
| | 251 | 5 | 32.10 | 27.10 |
| | 512 | 0 | 29.75 | 27.61 |
| PCS | 661 | 0 | 29.75 | 27.73 |
| | 810 | 0 | 29.60 | 27.50 |

| Band | Channel | HSDPA Inactive | HSDPA Active |
|----------|---------|-------------------|------------------|
| | | 12.2 kbps RMC | 12.2 kbps RMC |
| | | [dBm] | [dBm] |
| Cellular | 4132 | 24.91 | 24.93 |
| | 4183 | 24.35 | 24.36 |
| | 4233 | 24.61 | 24.66 |
| PCS | 9262 | 23.96 | 23.97 |
| | 9400 | 23.78 | 23.82 |
| | 9538 | 23.77 | 23.78 |

Table 6-2. GSM Conducted Output Powers

Table 6-3. WCDMA Conducted Output Powers

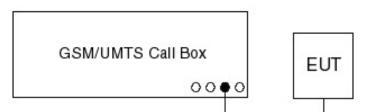


Figure 6-1. GSM/WCDMA Conducted Power Test Setup Diagram

| FCC ID: NBZNRM-MC950D | | FCC Pt. 22/24 GSM/EDGE/WCDMA MEASUREMENT REPORT (CERTIFICATION) | NOVATEL WIRELESS | Reviewed by: Quality Manager |
|--------------------------------|---------------|--|------------------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Page 12 of 56 |
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6.3 **Effective Radiated Power Output Data** §22.913(a)(2); RSS-132 (4.4) [SRSP-503(5.1.3)]

POWER: PCL "5" (Cellular GSM Mode)

| Frequency [MHz] | Mode | Measured Level [dBm] | Substitute Level [dBm] | Antenna Gain [dBd] | Pol [H/V] | ERP [dBm] | ERP [Watts] | Battery Type |
|--------------------|---------|----------------------------|------------------------------|--------------------------|--------------|--------------|----------------|-----------------|
| 824.20 | GSM850 | -4.100 | 36.10 | -1.65 | Н | 34.45 | 2.786 | Standard |
| 836.60 | GSM850 | -4.200 | 36.00 | -1.65 | Н | 34.35 | 2.723 | Standard |
| 848.80 | GSM850 | -4.700 | 35.50 | -1.65 | Н | 33.85 | 2.427 | Standard |
| 824.20 | EDGE850 | -9.100 | 31.10 | -1.65 | Н | 29.45 | 0.881 | Standard |

Table 6-4. Effective Radiated Power Output Data (GSM)

| POWER: | All "1" bits | (Cellular WCDMA Mode) | |
|--------|--------------|-----------------------|--|
|--------|--------------|-----------------------|--|

| Frequency [MHz] | Measured Level [dBm] | Substitute Level [dBm] | Antenna Gain [dBd] | Pol [H/V] | ERP [dBm] | ERP [Watts] | Battery Type |
|--------------------|----------------------------|------------------------------|--------------------------|--------------|--------------|----------------|-----------------|
| 826.40 | -11.500 | 28.70 | -1.65 | Н | 27.05 | 0.507 | Standard |
| 836.60 | -12.100 | 28.10 | -1.65 | Н | 26.45 | 0.442 | Standard |
| 846.60 | -11.800 | 28.40 | -1.65 | Н | 26.75 | 0.473 | Standard |

Table 6-5. Effective Radiated Power Output Data (WCDMA)

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 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 1 MHz. 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. The conducted power at the terminals of the dipole is measured. The ERP is recorded.

| FCC ID: NBZNRM-MC950D | | FCC Pt. 22/24 GSM/EDGE/WCDMA MEASUREMENT REPORT (CERTIFICATION) | NOVATEL WIRELESS | Reviewed by: Quality Manager |
|--------------------------------|---------------|--|------------------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Page 13 of 56 |
| 0705160472.NBZ | May 30, 2007 | 850/1900 GSM/WCDMA/EDGE USB Modem | | Fage 13 01 50 |
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Equivalent Isotropic Radiated Power Output Data 6.4 §24.232(c); RSS-133 (6.4) [SRSP-510 (5.1.2)]

| Frequency [MHz] | Mode | Measured Level [dBm] | Substitute Level [dBm] | Antenna Gain [dBi] | Pol [H/V] | EIRP [dBm] | EIRP [Watts] | Battery Type |
|--------------------|----------|----------------------------|------------------------------|--------------------------|--------------|---------------|-----------------|-----------------|
| 1850.20 | GSM1900 | -9.600 | 24.70 | 8.00 | V | 32.70 | 1.862 | Standard |
| 1880.00 | GSM1900 | -9.400 | 24.90 | 8.00 | V | 32.90 | 1.950 | Standard |
| 1909.80 | GSM1900 | -10.100 | 24.20 | 8.00 | V | 32.20 | 1.660 | Standard |
| 1880.00 | EDGE1900 | -12.400 | 21.90 | 8.00 | V | 29.90 | 0.977 | Standard |

POWER: PCL "0" (PCS GSM Mode)

Table 6-6. Equivalent Isotropic Radiated Power Output Data (GSM)

| Frequency [MHz] | Measured Level [dBm] | Substitute Level [dBm] | Antenna Gain [dBi] | Pol [H/V] | EIRP [dBm] | EIRP [Watts] | Battery Type |
|--------------------|----------------------------|------------------------------|--------------------------|--------------|---------------|-----------------|-----------------|
| 1852.40 | -15.700 | 18.60 | 8.00 | V | 26.60 | 0.457 | Standard |
| 1880.00 | -15.900 | 18.40 | 8.00 | V | 26.40 | 0.437 | Standard |
| 1907.60 | -16.200 | 18.10 | 8.00 | V | 26.10 | 0.407 | Standard |

POWER: All "1" bits (PCS WCDMA Mode)

Table 6-7. Equivalent Isotropic Radiated Power Output Data (WCDMA)

NOTES:

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

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 1 MHz. A Horn antenna was substituted in place of the EUT. This Horn antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. The conducted power at the terminals of the Horn antenna is measured. The difference between the gain of the horn and an isotropic antenna is taken into consideration and the EIRP is recorded.

This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Active at 12.2 kbps RMC and TPC bits all set to "1" and in GSM mode and using a Power Control Level of "0" in the PCS Band and "5" in the Cellular Band. This unit was tested with its standard battery.

| FCC ID: NBZNRM-MC950D | | FCC Pt. 22/24 GSM/EDGE/WCDMA MEASUREMENT REPORT (CERTIFICATION) | NOVATEL WIRELESS | Reviewed by: Quality Manager |
|---|--------------|--|------------------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Page 14 of 56 |
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6.5 Cellular GSM Radiated Measurements §2.1053, 22.917(a); RSS-132 (4.5.1)

Field Strength of SPURIOUS Radiation

| OPERATING FREQUENCY: | 824. | 20 | MHz |
|------------------------|---------------------------------|--------|----------------|
| CHANNEL: | 12 | 8 | |
| MEASURED OUTPUT POWER: | 34.450 | dBm = | <u>2.786</u> W |
| MODULATION SIGNAL: | GSM (Internal) | | |
| DISTANCE: | 3 | meters | |
| LIMIT: | 43 + 10 log ₁₀ (W) = | 47.45 | dBc |

| FREQ. | LEVEL @ ANTENNA | SUBSTITUTE ANTENNA | CORRECT GENERATOR | POL | |
|---------|---------------------------|-----------------------|-----------------------|-------|-------|
| (MHz) | TERMINALS (dBm) | GAIN (dBd) | LEVEL (dBm) | (H/V) | (dBc) |
| 1648.40 | -52.03 | 6.32 | -45.72 | Н | 80.2 |
| 2472.60 | -60.79 | 7.69 | -53.10 | Н | 87.6 |
| 3296.80 | -57.72 | 7.83 | -49.89 | Н | 84.3 |
| 4121.00 | -92.00 | 7.83 | -84.17 | Н | 118.6 |
| 4945.20 | -91.32 | 8.62 | -82.70 | Н | 117.1 |

Table 6-8. Radiated Spurious Data (Cellular GSM Mode – Ch. 128)

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 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. 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 spurious level is recorded. 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.

| FCC ID: NBZNRM-MC950D | | FCC Pt. 22/24 GSM/EDGE/WCDMA MEASUREMENT REPORT (CERTIFICATION) | NOVATEL WIRELESS | Reviewed by: Quality Manager |
|--------------------------------|---------------|--|------------------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Page 15 of 56 |
| 0705160472.NBZ | May 30, 2007 | 850/1900 GSM/WCDMA/EDGE USB Modem | | Fage 15 01 50 |
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Cellular GSM Radiated Measurements (Cont'd) §2.1053, 22.917(a); RSS-132 (4.5.1)

Field Strength of SPURIOUS Radiation

| OPERATING FREQUENCY: | 836. | MHz | |
|------------------------|---------------------------|--------|----------------|
| CHANNEL: | 190 | _ | |
| MEASURED OUTPUT POWER: | 34.450 | dBm = | <u>2.786</u> W |
| MODULATION SIGNAL: | GSM (Internal) | | |
| DISTANCE: | 3 | meters | |
| LIMIT: | $43 + 10 \log_{10} (W) =$ | 47.45 | dBc |

| FREQ. | LEVEL @ ANTENNA | SUBSTITUTE ANTENNA | CORRECT GENERATOR | POL | |
|---------|---------------------------|-----------------------|----------------------|-------|-------|
| (MHz) | TERMINALS (dBm) | GAIN (dBd) | LEVEL (dBm) | (H/V) | (dBc) |
| 1673.20 | -53.12 | 6.33 | -46.79 | Н | 81.2 |
| 2509.80 | -97.70 | 7.75 | -89.95 | Н | 124.4 |
| 3346.40 | -94.56 | 7.86 | -86.70 | Н | 121.1 |
| 4183.00 | -92.12 | 8.07 | -84.05 | Н | 118.5 |
| 5019.60 | -91.09 | 8.55 | -82.55 | Н | 117.0 |

Table 6-9. Radiated Spurious Data (Cellular GSM Mode – Ch. 190)

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 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. 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 spurious level is recorded. 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 Active at 12.2 kbps RMC and TPC bits all set to "1" and in GSM mode and using a Power Control Level of "0" in the PCS Band and "5" in the Cellular Band. This unit was tested with its standard battery.

| FCC ID: NBZNRM-MC950D | | FCC Pt. 22/24 GSM/EDGE/WCDMA MEASUREMENT REPORT (CERTIFICATION) | NOVATEL WIRELESS | Reviewed by: Quality Manager | |
|--------------------------------|---------------|--|------------------|---------------------------------|--|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogo 16 of 56 | |
| 0705160472.NBZ | May 30, 2007 | 850/1900 GSM/WCDMA/EDGE USB Modem | | Page 16 of 56 | |
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Cellular GSM Radiated Measurements (Cont'd) §2.1053, 22.917(a); RSS-132 (4.5.1)

Field Strength of SPURIOUS Radiation

| OPERATING FREQUENCY: | 848. | 80 | MHz |
|------------------------|---------------------------|--------|----------------|
| CHANNEL: | 25 | _ | |
| MEASURED OUTPUT POWER: | 34.450 | dBm = | <u>2.786</u> W |
| MODULATION SIGNAL: | GSM (Internal) | | |
| DISTANCE: | 3 | meters | |
| LIMIT: | $43 + 10 \log_{10} (W) =$ | 47.45 | dBc |

| FREQ. | LEVEL @ ANTENNA | SUBSTITUTE ANTENNA | CORRECT GENERATOR | POL | |
|---------|--------------------|-----------------------|----------------------|-------|-------|
| (MHz) | TERMINALS (dBm) | GAIN (dBd) | LEVEL (dBm) | (H/V) | (dBc) |
| 1697.60 | -49.80 | 6.34 | -43.47 | Н | 77.9 |
| 2546.40 | -77.54 | 7.74 | -69.80 | Н | 104.3 |
| 3395.20 | -94.40 | 7.89 | -86.51 | Н | 121.0 |
| 4244.00 | -92.24 | 8.31 | -83.93 | Н | 118.4 |
| 5092.80 | -90.84 | 8.53 | -82.31 | Н | 116.8 |

 Table 6-10. Radiated Spurious Data (Cellular GSM Mode – Ch. 251)

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 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 1 MHz. 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 spurious level is recorded. 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.

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6.6 Cellular WCDMA Radiated Measurements <u>§2.1053, 22.917(a); RSS-132 (4.5.1)</u>

Field Strength of SPURIOUS Radiation

| OPERATING FREQUENCY: | 826. | .40 | MHz |
|------------------------|---------------------------------|--------|----------------|
| CHANNEL: | 4132 | | _ |
| MEASURED OUTPUT POWER: | 27.050 | dBm = | <u>0.507</u> W |
| MODULATION SIGNAL: | WCDMA (Internal) | | |
| DISTANCE: | 3 | meters | |
| LIMIT: | 43 + 10 log ₁₀ (W) = | 40.05 | dBc |

| FREQ. (MHz) | LEVEL @ ANTENNA TERMINALS (dBm) | SUBSTITUTE ANTENNA GAIN (dBd) | CORRECT GENERATOR LEVEL (dBm) | POL (H/V) | (dBc) |
|----------------|--|--|--|--------------|-------|
| 1652.80 | -79.01 | 6.32 | -72.70 | Н | 99.7 |
| 2479.20 | -89.78 | 7.70 | -82.07 | Н | 109.1 |
| 3305.60 | -94.69 | 7.84 | -86.86 | Н | 113.9 |
| 4132.00 | -92.02 | 7.87 | -84.15 | Н | 111.2 |
| 4958.40 | -91.28 | 8.61 | -82.68 | Н | 109.7 |

Table 6-11. 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 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. 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 spurious level is recorded. 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.

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Cellular WCDMA Radiated Measurements (Cont'd) §2.1053, 22.917(a); RSS-132 (4.5.1)

Field Strength of SPURIOUS Radiation

| OPERATING FREQUENCY: | 836. | .60 | MHz |
|------------------------|---------------------------------|--------|----------------|
| CHANNEL: | 4183 | | _ |
| MEASURED OUTPUT POWER: | 27.050 | dBm = | <u>0.507</u> W |
| MODULATION SIGNAL: | WCDMA (Internal) | | |
| DISTANCE: | 3 | meters | |
| LIMIT: | 43 + 10 log ₁₀ (W) = | 40.05 | dBc |

| FREQ. (MHz) | LEVEL @ ANTENNA TERMINALS (dBm) | SUBSTITUTE ANTENNA GAIN (dBd) | CORRECT GENERATOR LEVEL (dBm) | POL (H/V) | (dBc) |
|----------------|--|--|--|--------------|-------|
| 1673.20 | -80.93 | 6.32 | -74.61 | Н | 101.7 |
| 2509.80 | -90.72 | 7.75 | -82.97 | Н | 110.0 |
| 3346.40 | -94.58 | 7.86 | -86.72 | Н | 113.8 |
| 4183.00 | -92.11 | 8.04 | -84.06 | Н | 111.1 |
| 5019.60 | -91.12 | 8.55 | -82.58 | Н | 109.6 |

Table 6-12. 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 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. 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 spurious level is recorded. 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.

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Cellular WCDMA Radiated Measurements (Cont'd) §2.1053, 22.917(a); RSS-132 (4.5.1)

Field Strength of SPURIOUS Radiation

| OPERATING FREQUENCY: | | .60 | MHz |
|------------------------|---------------------------------|--------|----------------|
| CHANNEL: | 4233 | | _ |
| MEASURED OUTPUT POWER: | 27.050 | dBm = | <u>0.507</u> W |
| MODULATION SIGNAL: | WCDMA (Internal) | | |
| DISTANCE: | 3 | meters | |
| LIMIT: | 43 + 10 log ₁₀ (W) = | 40.05 | dBc |

| FREQ. (MHz) | LEVEL @ ANTENNA TERMINALS | SUBSTITUTE ANTENNA GAIN | CORRECT GENERATOR LEVEL | POL (H/V) | (dBc) |
|----------------|---------------------------------|-------------------------------|-------------------------------|--------------|-------|
| | (dBm) | (dBd) | (dBm) | | |
| 1693.20 | -79.82 | 6.33 | -73.49 | Н | 100.5 |
| 2539.80 | -90.57 | 7.74 | -82.83 | Н | 109.9 |
| 3386.40 | -94.43 | 7.89 | -86.55 | Н | 113.6 |
| 4233.00 | -92.22 | 8.26 | -83.95 | Н | 111.0 |
| 5079.60 | -90.88 | 8.53 | -82.35 | Н | 109.4 |

Table 6-13. 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 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. 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 spurious level is recorded. 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.

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6.7 PCS GSM Radiated Measurements §2.1053, 24.238(a); RSS-133 (6.5.1)

Field Strength of SPURIOUS Radiation

| OPERATING FREQUENCY: | 1850 | 0.20 | MHz |
|------------------------|---------------------------|--------|----------------|
| CHANNEL: | 51 | 2 | _ |
| MEASURED OUTPUT POWER: | 32.900 | dBm = | <u>1.950</u> W |
| MODULATION SIGNAL: | GSM (Internal) | | |
| DISTANCE: | 3 | meters | |
| LIMIT: | $43 + 10 \log_{10} (W) =$ | 45.90 | dBc |

| FREQ. | LEVEL @ ANTENNA | SUBSTITUTE ANTENNA | CORRECT GENERATOR | POL | |
|----------|---------------------------|-----------------------|----------------------|-------|-------|
| (MHz) | TERMINALS (dBm) | GAIN (dBi) | LEVEL (dBm) | (H/V) | (dBc) |
| 3700.40 | -54.91 | 9.85 | -45.06 | V | 78.0 |
| 5550.60 | -89.47 | 10.72 | -78.75 | V | 111.7 |
| 7400.80 | -85.96 | 11.60 | -74.36 | V | 107.3 |
| 9251.00 | -81.72 | 11.36 | -70.37 | V | 103.3 |
| 11101.20 | -81.75 | 12.74 | -69.01 | V | 101.9 |

Table 6-14. Radiated Spurious Data (PCS GSM Mode – Ch. 512)

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 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 1 MHz. A halfwave 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 spurious level is recorded. 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 Active at 12.2 kbps RMC and TPC bits all set to "1" and in GSM mode and using a Power Control Level of "0" in the PCS Band and "5" in the Cellular Band. This unit was tested with its standard battery.

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PCS GSM Radiated Measurements (Cont'd) §2.1053, 24.238(a); RSS-133 (6.5.1)

Field Strength of SPURIOUS Radiation

| OPERATING FREQUENCY: | 1880 | 0.00 | MHz |
|------------------------|---------------------------------|--------|----------------|
| CHANNEL: | 66 | 1 | _ |
| MEASURED OUTPUT POWER: | 32.900 | dBm = | <u>1.950</u> W |
| MODULATION SIGNAL: | GSM (Internal) | | |
| DISTANCE: | 3 | meters | |
| LIMIT: | 43 + 10 log ₁₀ (W) = | 45.90 | dBc |

| FREQ. | LEVEL @ ANTENNA | SUBSTITUTE ANTENNA | CORRECT GENERATOR | POL | |
|----------|---------------------------|-----------------------|----------------------|-------|-------|
| (MHz) | TERMINALS (dBm) | GAIN (dBi) | LEVEL (dBm) | (H/V) | (dBc) |
| 3760.00 | -53.03 | 9.78 | -43.26 | V | 76.2 |
| 5640.00 | -89.41 | 10.92 | -78.49 | V | 111.4 |
| 7520.00 | -85.66 | 11.66 | -74.00 | V | 106.9 |
| 9400.00 | -81.80 | 11.56 | -70.24 | V | 103.1 |
| 11280.00 | -81.38 | 12.63 | -68.75 | V | 101.6 |

Table 6-15. Radiated Spurious Data (PCS GSM Mode – Ch. 661)

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 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. 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 spurious level is recorded. 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.

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PCS GSM Radiated Measurements (Cont'd) §2.1053, 24.238(a); RSS-133 (6.5.1)

Field Strength of SPURIOUS Radiation

| OPERATING FREQUENCY: | 1909 | .80 | MHz |
|------------------------|---------------------------|--------|----------------|
| CHANNEL: | 810 | 0 | _ |
| MEASURED OUTPUT POWER: | 32.900 | dBm = | <u>1.950</u> W |
| MODULATION SIGNAL: | GSM (Internal) | | |
| DISTANCE: | 3 | meters | |
| LIMIT: | $43 + 10 \log_{10} (W) =$ | 45.90 | dBc |

| FREQ. | LEVEL @ ANTENNA | SUBSTITUTE ANTENNA | CORRECT GENERATOR | POL | |
|----------|---------------------------|-----------------------|-----------------------|-------|-------|
| (MHz) | TERMINALS (dBm) | GAIN (dBi) | LEVEL (dBm) | (H/V) | (dBc) |
| 3819.60 | -48.36 | 9.71 | -38.65 | V | 71.6 |
| 5729.40 | -89.35 | 11.12 | -78.23 | V | 111.1 |
| 7639.20 | -85.09 | 11.44 | -73.65 | V | 106.5 |
| 9549.00 | -81.84 | 11.73 | -70.11 | V | 103.0 |
| 11458.80 | -81.00 | 12.52 | -68.48 | V | 101.4 |

Table 6-16. Radiated Spurious Data (PCS GSM Mode – Ch. 810)

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 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 1 MHz. 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 spurious level is recorded. 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.

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PCS WCDMA Radiated Measurements 6.8 §2.1053, 24.238(a); RSS-133 (6.5.1)

Field Strength of SPURIOUS Radiation

| OPERATING FREQUENCY: | 1852 | 2.40 | MHz |
|------------------------|---------------------------------|--------|----------------|
| CHANNEL: | 926 | _ | |
| MEASURED OUTPUT POWER: | 26.600 | dBm = | <u>0.457</u> W |
| MODULATION SIGNAL: | WCDMA (Internal) | | |
| DISTANCE: | 3 | meters | |
| LIMIT: | 43 + 10 log ₁₀ (W) = | 39.60 | dBc |

| FREQ. (MHz) | LEVEL @ ANTENNA TERMINALS (dBm) | SUBSTITUTE ANTENNA GAIN (dBi) | CORRECT GENERATOR LEVEL (dBm) | POL (H/V) | (dBc) |
|----------------|--|--|--|--------------|-------|
| 3704.80 | -76.09 | 9.84 | -66.25 | V | 92.8 |
| 5557.20 | -89.46 | 10.73 | -78.73 | V | 105.3 |
| 7409.60 | -85.95 | 11.61 | -74.33 | V | 100.9 |
| 9262.00 | -81.73 | 11.37 | -70.36 | V | 97.0 |
| 11114.40 | -81.72 | 12.73 | -68.99 | V | 95.6 |

Table 6-17. Radiated Spurious Data (PCS WCDMA Mode – Ch. 9262)

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 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 1 MHz. A halfwave 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 spurious level is recorded. 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.

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PCS WCDMA Radiated Measurements (Cont'd) §2.1053, 24.238(a); RSS-133 (6.5.1)

Field Strength of SPURIOUS Radiation

| OPERATING FREQUENCY: | 1880.00 | | MHz |
|------------------------|---------------------------------|--------|----------------|
| CHANNEL: | 940 | _ | |
| MEASURED OUTPUT POWER: | 26.600 | dBm = | <u>0.457</u> W |
| MODULATION SIGNAL: | WCDMA (Internal) | | |
| DISTANCE: | 3 | meters | |
| LIMIT: | 43 + 10 log ₁₀ (W) = | 39.60 | dBc |

| FREQ. (MHz) | LEVEL @ ANTENNA TERMINALS (dBm) | SUBSTITUTE ANTENNA GAIN (dBi) | CORRECT GENERATOR LEVEL (dBm) | POL (H/V) | (dBc) |
|----------------|--|--|--|--------------|-------|
| 3760.00 | -74.83 | 9.78 | -65.06 | V | 91.7 |
| 5640.00 | -89.41 | 10.92 | -78.49 | V | 105.1 |
| 7520.00 | -85.66 | 11.66 | -74.00 | V | 100.6 |
| 9400.00 | -81.80 | 11.56 | -70.24 | V | 96.8 |
| 11280.00 | -81.38 | 12.63 | -68.75 | V | 95.3 |

Table 6-18. Radiated Spurious Data (PCS WCDMA Mode – Ch. 9400)

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 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. 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 spurious level is recorded. 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.

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PCS WCDMA Radiated Measurements (Cont'd) §2.1053, 24.238(a); RSS-133 (6.5.1)

Field Strength of SPURIOUS Radiation

| OPERATING FREQUENCY: | 1907 | MHz | |
|------------------------|---------------------------------|--------|---------|
| CHANNEL: | 9538 | | _ |
| MEASURED OUTPUT POWER: | 26.600 | dBm = | 0.457 W |
| MODULATION SIGNAL: | WCDMA (Internal) | | |
| DISTANCE: | 3 | meters | |
| LIMIT: | 43 + 10 log ₁₀ (W) = | 39.60 | dBc |

| FREQ. (MHz) | LEVEL @ ANTENNA TERMINALS (dBm) | SUBSTITUTE ANTENNA GAIN (dBi) | CORRECT GENERATOR LEVEL (dBm) | POL (H/V) | (dBc) |
|----------------|--|--|--|--------------|-------|
| 3815.20 | -76.58 | 9.71 | -66.87 | V | 93.5 |
| 5722.80 | -89.36 | 11.10 | -78.25 | V | 104.9 |
| 7630.40 | -85.13 | 11.46 | -73.67 | V | 100.3 |
| 9538.00 | -81.84 | 11.72 | -70.12 | V | 96.7 |
| 11445.60 | -81.03 | 12.53 | -68.50 | V | 95.1 |

Table 6-19. Radiated Spurious Data (PCS WCDMA Mode – Ch. 9538)

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 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 1 MHz. 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 spurious level is recorded. 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.

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6.9 Cellular GSM Frequency Stability Measurements §2.1055, 22.355; RSS-132 (4.3)

| Operating Frequency: | 836600000 | Hz |
|----------------------|-----------------|-------|
| Channel: | PDTCH=190 | |
| Reference Voltage: | 5.0 | Vdc |
| Deviation Limit: | +/- 0.00025/2.5 | %/ppm |

| Voltage | Power | Temp | Tx Frequency | Deviation | Offset |
|---------|-------|----------|----------------|------------|--------|
| (%) | (Vdc) | (C) | (Hz) | (%) | (Hz) |
| 100% | | 25 (Ref) | 836,599,994.42 | 0.0000000 | -5.58 |
| 100% | | -20 | 836,600,006.77 | 0.0000124 | 6.77 |
| 100% | | -10 | 836,600,010.32 | 0.0000159 | 10.32 |
| 100% | | 0 | 836,600,034.14 | 0.0000397 | 34.14 |
| 100% | 5.0 | 10 | 836,600,009.05 | 0.0000146 | 9.05 |
| 100% | 5.0 | 25 | 836,599,992.54 | -0.0000019 | -7.46 |
| 100% | | 30 | 836,599,983.44 | -0.0000110 | -16.56 |
| 100% | | 40 | 836,599,993.61 | -0.0000008 | -6.39 |
| 100% | | 50 | 836,600,006.88 | 0.0000125 | 6.88 |
| 100% | | 60 | 836,600,016.56 | 0.0000221 | 16.56 |
| 90% | 4.5 | 25 | 836,600,003.08 | 0.000087 | 3.08 |
| 110% | 5.5 | 25 | 836,599,994.91 | 0.000005 | -5.09 |

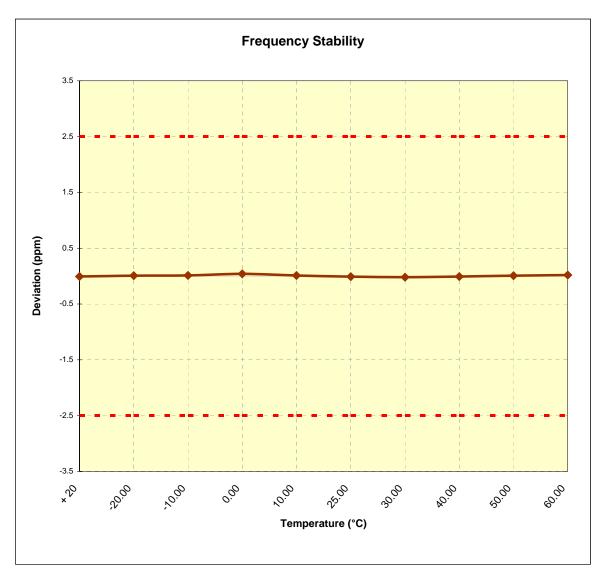
Table 6-20. Frequency Stability Data (Cellular GSM Mode – Ch. 190)

Note: This unit was tested with its standard battery.

| FCC ID: NBZNRM-MC950D | | FCC Pt. 22/24 GSM/EDGE/WCDMA MEASUREMENT REPORT (CERTIFICATION) | NOVATEL WIRELESS | Reviewed by: Quality Manager |
|--------------------------------|--|--|------------------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Page 27 of 56 |
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Cellular GSM Frequency Stability Measurements (Cont'd) §2.1055, 22.355; RSS-132 (4.3)



Plot 6-1. Frequency Stability Graph (Cellular GSM Mode – Ch. 190)

Note: This unit was tested with its standard battery.

| FCC ID: NBZNRM-MC950D | | FCC Pt. 22/24 GSM/EDGE/WCDMA MEASUREMENT REPORT (CERTIFICATION) | NOVATEL WIRELESS | Reviewed by: Quality Manager |
|--------------------------------|---------------|--|------------------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Page 28 of 56 |
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6.10 Cellular WCDMA Frequency Stability Measurements §2.1055, 22.355; RSS-132 (4.3)

| Operating Frequency: | 836400000 | Hz |
|----------------------|----------------------|-------|
| Channel: | ULCH=4182, DLCH=4407 | |
| Reference Voltage: | 5.0 | Vdc |
| Deviation Limit: | +/- 0.00025/2.5 | %/ppm |

| Voltage | Power | Temp | Tx Frequency | Deviation | Offset |
|---------|-------|----------|----------------|------------|--------|
| (%) | (Vdc) | (C) | (Hz) | (%) | (Hz) |
| 100% | | 25 (Ref) | 836,400,013.06 | 0.0000000 | 13.06 |
| 100% | | -20 | 836,400,010.27 | -0.0000028 | 10.27 |
| 100% | | -10 | 836,400,007.88 | -0.0000052 | 7.88 |
| 100% | | 0 | 836,400,029.84 | 0.0000168 | 29.84 |
| 100% | 5.0 | 10 | 836,400,014.08 | 0.0000010 | 14.08 |
| 100% | 5.0 | 25 | 836,400,015.30 | 0.0000022 | 15.30 |
| 100% | | 30 | 836,400,019.70 | 0.0000066 | 19.70 |
| 100% | | 40 | 836,399,985.74 | -0.0000273 | -14.26 |
| 100% | | 50 | 836,400,015.61 | 0.0000026 | 15.61 |
| 100% | | 60 | 836,400,013.07 | 0.0000000 | 13.07 |
| 90% | 4.5 | 25 | 836,399,986.52 | -0.0000265 | -13.48 |
| 110% | 5.5 | 25 | 836,400,013.34 | 0.000003 | 13.34 |

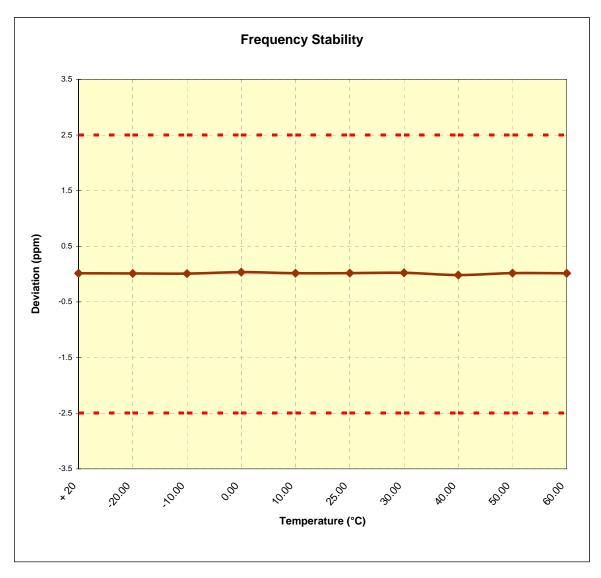
Table 6-21. Frequency Stability Data (Cellular WCDMA Mode – Ch. 4182)

Note: This unit was tested with its standard battery.

| FCC ID: NBZNRM-MC950D | | FCC Pt. 22/24 GSM/EDGE/WCDMA MEASUREMENT REPORT (CERTIFICATION) | NOVATEL WIRELESS | Reviewed by: Quality Manager |
|--------------------------------|--|--|------------------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Page 29 of 56 |
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Cellular WCDMA Frequency Stability Measurements (Cont'd) §2.1055, 22.355; RSS-132 (4.3)



Plot 6-2. Frequency Stability Graph (Cellular WCDMA Mode – Ch. 4182)

Note:

This unit was tested with its standard battery.

| FCC ID: NBZNRM-MC950D | | FCC Pt. 22/24 GSM/EDGE/WCDMA MEASUREMENT REPORT (CERTIFICATION) | NOVATEL WIRELESS | Reviewed by: Quality Manager |
|--------------------------------|---------------|--|------------------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Page 30 of 56 |
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| | | | | 05/24/07 |



6.11 PCS GSM Frequency Stability Measurements §2.1055, 24.235; RSS-133 (6.3)

| Operating Frequency: | 188000000 | Hz |
|----------------------|-----------------|-------|
| Channel: | PDTCH=661 | |
| Reference Voltage: | 5.0 | Vdc |
| Deviation Limit: | +/- 0.00025/2.5 | %/ppm |

| Voltage | Power | Temp | Tx Frequency | Deviation | Offset |
|---------|-------|----------|------------------|------------|--------|
| (%) | (Vdc) | (C) | (Hz) | (%) | (Hz) |
| 100% | | 25 (Ref) | 1,879,999,961.99 | 0.0000000 | -38.01 |
| 100% | | -20 | 1,879,999,979.15 | 0.0000172 | -20.85 |
| 100% | | -10 | 1,880,000,036.43 | 0.0000744 | 36.43 |
| 100% | | 0 | 1,880,000,013.79 | 0.0000518 | 13.79 |
| 100% | 5.0 | 10 | 1,879,999,964.29 | 0.0000023 | -35.71 |
| 100% | 5.0 | 25 | 1,879,999,959.91 | -0.0000021 | -40.09 |
| 100% | | 30 | 1,879,999,968.53 | 0.0000065 | -31.47 |
| 100% | | 40 | 1,879,999,958.42 | -0.0000036 | -41.58 |
| 100% | | 50 | 1,880,000,012.67 | 0.0000507 | 12.67 |
| 100% | | 60 | 1,880,000,022.78 | 0.0000608 | 22.78 |
| 90% | 4.5 | 25 | 1,879,999,964.00 | 0.0000020 | -36.00 |
| 110% | 5.5 | 25 | 1,879,999,959.58 | -0.0000024 | -40.42 |

Table 6-22. Frequency Stability Data (PCS GSM Mode - Ch. 661)

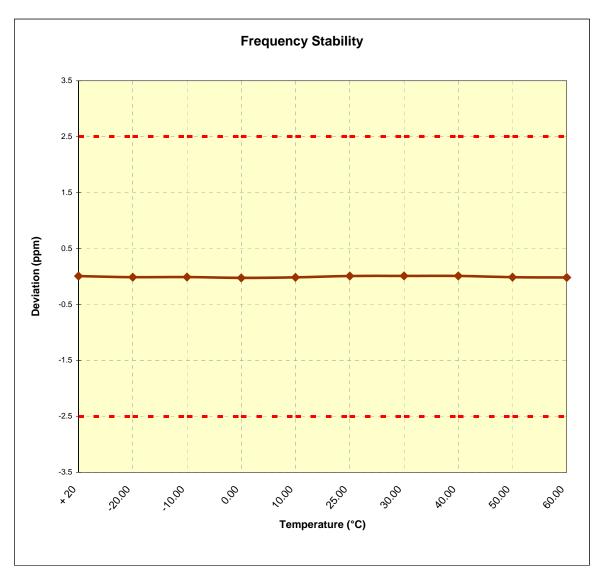
Note: This unit was tested with its standard battery.

| FCC ID: NBZNRM-MC950D | | FCC Pt. 22/24 GSM/EDGE/WCDMA MEASUREMENT REPORT (CERTIFICATION) | NOVATEL WIRELESS | Reviewed by: Quality Manager |
|---|--------------|--|------------------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogo 21 of 56 |
| 0705160472.NBZ | May 30, 2007 | 850/1900 GSM/WCDMA/EDGE USB Modem | | Page 31 of 56 |
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PCS GSM Frequency Stability Measurements (Cont'd) §2.1055, 24.235; RSS-133 (6.3)



Plot 6-3. Frequency Stability Graph (PCS GSM Mode - Ch. 661)

Note: This unit was tested with its standard battery.

| FCC ID: NBZNRM-MC950D | | FCC Pt. 22/24 GSM/EDGE/WCDMA MEASUREMENT REPORT (CERTIFICATION) | NOVATEL WIRELESS | Reviewed by: Quality Manager |
|--|--------------|--|------------------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Page 32 of 56 |
| 0705160472.NBZ | May 30, 2007 | 850/1900 GSM/WCDMA/EDGE USB Modem | | Fage 32 01 50 |
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6.12 PCS WCDMA Frequency Stability Measurements §2.1055, 24.235; RSS-133 (6.3)

| Operating Frequency: | 188000000 | Hz |
|----------------------|----------------------|-------|
| Channel: | ULCH=9400, DLCH=9800 | |
| Reference Voltage: | 5.0 | Vdc |
| Deviation Limit: | +/- 0.00025/2.5 | %/ppm |

| Voltage | Power | Temp | Tx Frequency | Deviation | Offset |
|---------|-------|----------|------------------|------------|--------|
| (%) | (Vdc) | (C) | (Hz) | (%) | (Hz) |
| 100% | | 25 (Ref) | 1,880,000,017.12 | 0.0000000 | 17.12 |
| 100% | | -20 | 1,879,999,979.80 | -0.0000373 | -20.20 |
| 100% | | -10 | 1,879,999,984.13 | -0.0000330 | -15.87 |
| 100% | | 0 | 1,879,999,953.74 | -0.0000634 | -46.26 |
| 100% | 5.0 | 10 | 1,879,999,972.88 | -0.0000442 | -27.12 |
| 100% | 5.0 | 25 | 1,880,000,018.23 | 0.0000011 | 18.23 |
| 100% | | 30 | 1,880,000,022.79 | 0.0000057 | 22.79 |
| 100% | | 40 | 1,880,000,020.37 | 0.000033 | 20.37 |
| 100% | | 50 | 1,879,999,978.32 | -0.0000388 | -21.68 |
| 100% | | 60 | 1,879,999,967.03 | -0.0000501 | -32.97 |
| 90% | 4.5 | 25 | 1,879,999,981.24 | -0.0000359 | -18.76 |
| 110% | 5.5 | 25 | 1,880,000,019.13 | 0.0000020 | 19.13 |

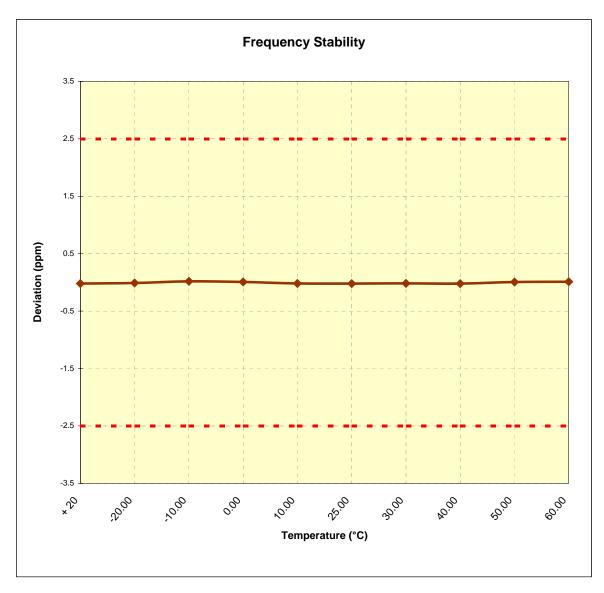
Table 6-23. Frequency Stability Data (PCS WCDMA Mode – Ch. 9400)

<u>Note:</u> This unit was tested with its standard battery.

| FCC ID: NBZNRM-MC950D | | FCC Pt. 22/24 GSM/EDGE/WCDMA MEASUREMENT REPORT (CERTIFICATION) | NOVATEL WIRELESS | Reviewed by: |
|--|--------------|--|------------------|-----------------|
| | | (CERTIFICATION) | NUVATEL WINELESS | Quality Manager |
| Test Report S/N: | Test Dates: | EUT Type: | | Page 33 of 56 |
| 0705160472.NBZ | May 30, 2007 | 850/1900 GSM/WCDMA/EDGE USB Modem | | 1 age 55 01 50 |
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| | • | | | 05/04/07 |



PCS WCDMA Frequency Stability Measurements (Cont'd) §2.1055, 24.235; RSS-133 (6.3)



Plot 6-4. Frequency Stability Graph (PCS WCDMA Mode – Ch. 9400)

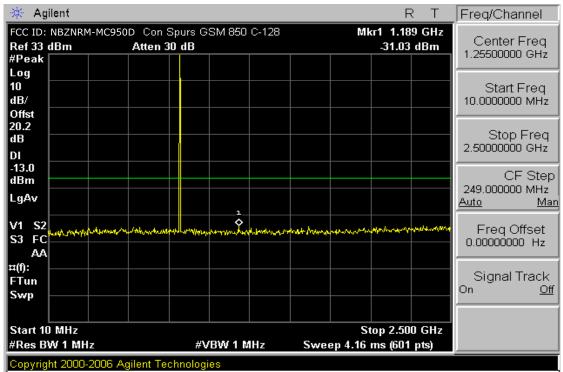
Note:

This unit was tested with its standard battery.

| FCC ID: NBZNRM-MC950D | | FCC Pt. 22/24 GSM/EDGE/WCDMA MEASUREMENT REPORT (CERTIFICATION) | NOVATEL WIRELESS | Reviewed by: Quality Manager |
|--|--------------|--|------------------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Page 34 of 56 |
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PLOTS OF EMISSIONS 7.0



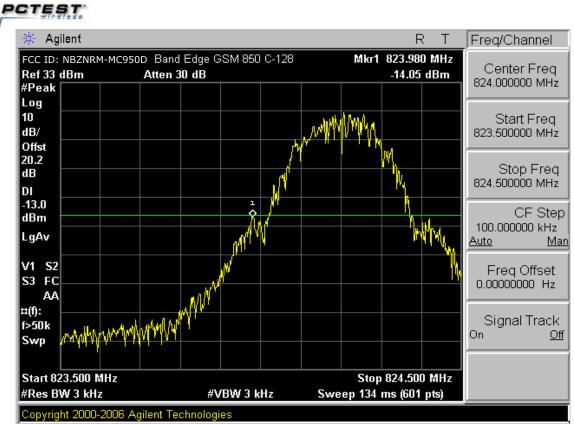




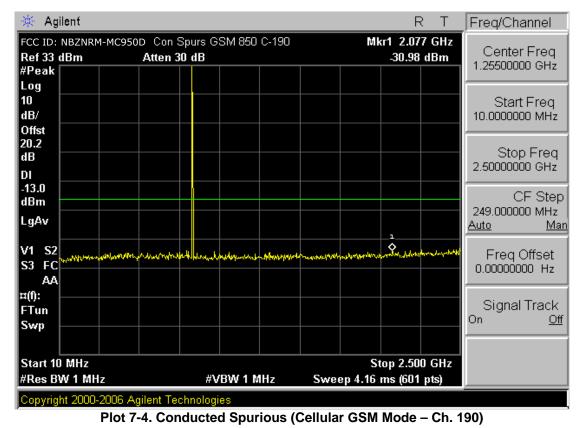
Plot 7-2. Conducted Spurious Plot (Cellular GSM Mode – Ch. 128)

| FCC ID: NBZNRM-MC950D | | FCC Pt. 22/24 GSM/EDGE/WCDMA MEASUREMENT REPORT (CERTIFICATION) | NOVATEL WIRELESS | Reviewed by: Quality Manager |
|---|--------------|--|------------------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Page 35 of 56 |
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| FCC ID: NBZNRM-MC950D | «NPCTEST. | FCC Pt. 22/24 GSM/EDGE/WCDMA MEASUREMENT REPORT (CERTIFICATION) | NOVATEL WIRELESS | Reviewed by: Quality Manager |
|--|--------------|--|------------------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Page 36 of 56 |
| 0705160472.NBZ | May 30, 2007 | 850/1900 GSM/WCDMA/EDGE USB Modem | | Fage 30 01 50 |
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| Start 2.500 GHz #Res BW 1 MHz | #VBW 1 MHz | Stop 10.000 GHz Sweep 12.52 ms (601 pts) | |
|-------------------------------------|---|---|---|
| S3 FC AA ¤(f): FTun Swp | | | Freq Offset 0.00000000 Hz Signal Track On <u>Off</u> |
| LgAv | | . In the second | 750.000000 MHz <u>Auto Ma</u> |
| -13.0 dBm | | | CF Step |
| 20.2 dB DI | | | Stop Freq 10.0000000 GHz |
| dB/ Offst | | | Start Freq 2.50000000 GHz |
| ¥Peak Log 10 | | | |
| Ref 33 dBm | C950D Con Spurs GSM 850 C- Atten 30 dB | 190 Mkr1 6.962 GHz -26.09 dBm | Center Freq 6.2500000 GHz |
| 🔆 Agilent | | R T | Freq/Channel |

Plot 7-5. Conducted Spurious Plot (Cellular GSM Mode – Ch. 190)



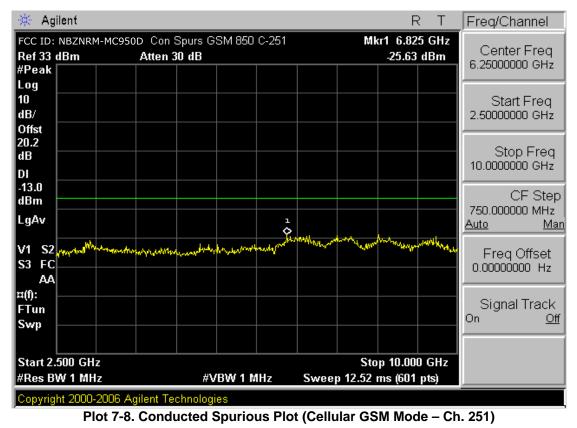
Plot 7-6. Occupied Bandwidth Plot (Cellular GSM Mode - Ch. 190)

| FCC ID: NBZNRM-MC950D | | FCC Pt. 22/24 GSM/EDGE/WCDMA MEASUREMENT REPORT (CERTIFICATION) | NOVATEL WIRELESS | Reviewed by: Quality Manager |
|--------------------------------|--------------|--|------------------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Page 37 of 56 |
| 0705160472.NBZ | May 30, 2007 | 850/1900 GSM/WCDMA/EDGE USB Modem | | Fage 37 01 50 |
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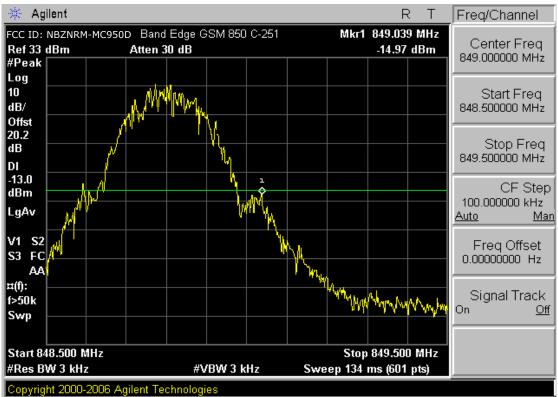
| Copyright 2000-200 | 6 Agilent Tec | | 51 | roop into into (c | | P |
|-------------------------------|-------------------------|----------|------------|--|----------------------|----------------------------------|
| Start 10 MHz #Res BW 1 MHz | | #VBW 1 M | Hz Sv | Stop 2 veep 4.16 ms (6 | .500 GHz i01 ntsì | |
| | | | | | | |
| FTun Swp | | | | | | Signal Track On <u>Of</u> t |
| AA ¤(f): | | | | | | |
| V1 S2 | worker | Manner | mahammanan | hard and a state of the state o | hand | Freq Offset 0.00000000 Hz |
| LgAv | | | | | 1 | 249.000000 MHz <u>Auto Ma</u> |
| -13.0 dBm | | | | | | CF Step |
| dB DI | | | | | | Stop Freq 2.5000000 GHz |
| Offst 20.2 | | | | | | |
| 10 dB/ | | | | | | Start Freq 10.0000000 MHz |
| #Peak Log | | | | | | |
| CC ID: NBZNRM-MC | C950D Con S Atten 30 | | C-251 | | .417 GHz .84 dBm | Center Freq 1.25500000 GHz |
| 🔆 Agilent | | | | | RT | Freq/Channel |

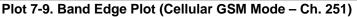




| FCC ID: NBZNRM-MC950D | | FCC Pt. 22/24 GSM/EDGE/WCDMA MEASUREMENT REPORT (CERTIFICATION) | NOVATEL WIRELESS | Reviewed by: Quality Manager |
|--------------------------------|---------------|--|------------------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Page 38 of 56 |
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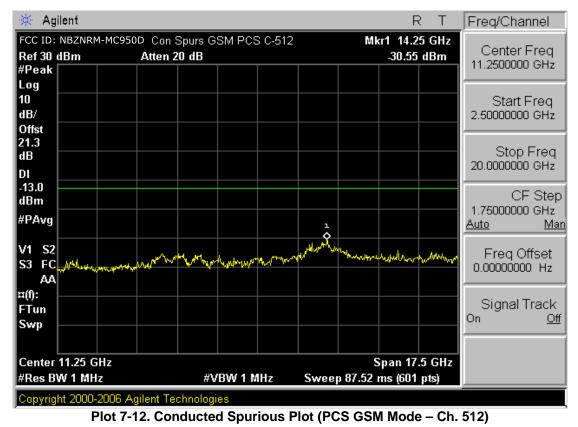
Plot 7-10. Occupied Bandwidth Plot (EDGE850 Mode - Ch. 190)

| FCC ID: NBZNRM-MC950D | | FCC Pt. 22/24 GSM/EDGE/WCDMA MEASUREMENT REPORT (CERTIFICATION) | NOVATEL WIRELESS | Reviewed by: Quality Manager |
|--------------------------------|--------------|--|------------------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Page 39 of 56 |
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| Con Spurs GSM PCS C-51: | | Akr1 2.450 GHz _38.85 dBm | Center Freq 1.25500000 GHz Start Freq 10.0000000 MHz Stop Freq 2.50000000 GHz |
|---------------------------------|-----------------------|---------------------------------|--|
| | | | 10.0000000 MHz Stop Freq |
| | | | |
| | | | |
| | | | CF Step 249.000000 MHz Auto Ma |
| Marta Martala Marta and a start | Martin and the second | | Freq Offset 0.00000000 Hz |
| | | | Signal Track On <u>Of</u> |
| #VBW 1 MHz | | Span 2.49 GHz 6 ms (601 pts) | |
| | | #VBW 1 MHz Sweep 4.1 | #VBW 1 MHz Sweep 4.16 ms (601 pts) |

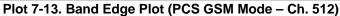


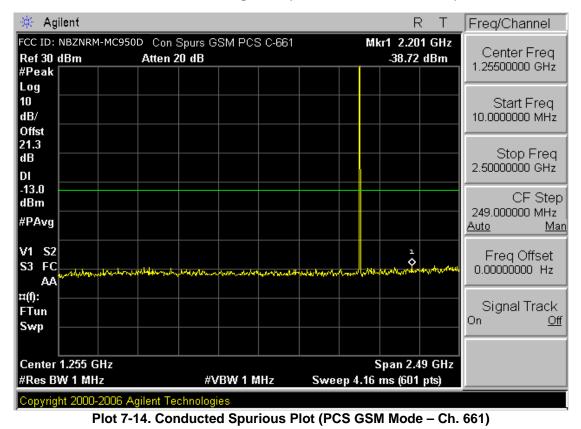


| FCC ID: NBZNRM-MC950D | | FCC Pt. 22/24 GSM/EDGE/WCDMA MEASUREMENT REPORT (CERTIFICATION) | NOVATEL WIRELESS | Reviewed by: Quality Manager |
|--------------------------------|---------------|--|------------------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dago 40 of 56 |
| 0705160472.NBZ | May 30, 2007 | 850/1900 GSM/WCDMA/EDGE USB Modem | | Page 40 of 56 |
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| FCC ID: NBZNRM-MC950D | «NPCTEST. | FCC Pt. 22/24 GSM/EDGE/WCDMA MEASUREMENT REPORT (CERTIFICATION) | NOVATEL WIRELESS | Reviewed by: Quality Manager |
|--------------------------------|---------------|--|------------------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Page 41 of 56 |
| 0705160472.NBZ | May 30, 2007 | 850/1900 GSM/WCDMA/EDGE USB Modem | | Fage 41 01 50 |
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| 🔆 Agilent | | | R | Т | Freq/Channel |
|-----------------------------------|------------------------------------|----------------|-----------------------------------|---------------------------------|--------------------------------------|
| Ref 30 dBm #Peak | 50D Con Spurs GSM P Atten 20 dB | CS C-661 | Mkr1 14.28 -31.50 c | | Center Freq 11.2500000 GHz |
| Log 10 dB/ Offst | | | | | Start Freq 2.5000000 GHz |
| dB DI | | | | | Stop Freq 20.0000000 GHz |
| -13.0 dBm #PAvg | | | | | CF Step 1.75000000 GHz Auto Ma |
| V1 S2 S3 FC | he and the many the provided and | and the second | L | ለ ግጥ _{ቀት} - | Freq Offset |
| ≭(f): FTun Swp | | | | | Signal Track On <u>Of</u> |
| Center 11.25 GHz #Res BW 1 MHz | #VBW 1 | MHz Sw | Span 17.5 veep 87.52 ms (601 p | | |
| Copyright 2000-2006 | Agilent Technologies | | | | |



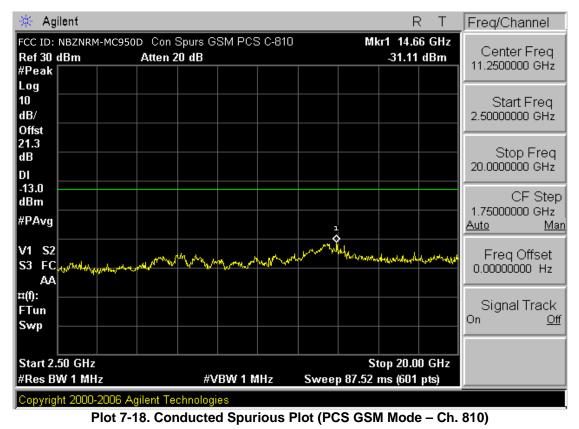


REV 2.5GWC 05/24/07



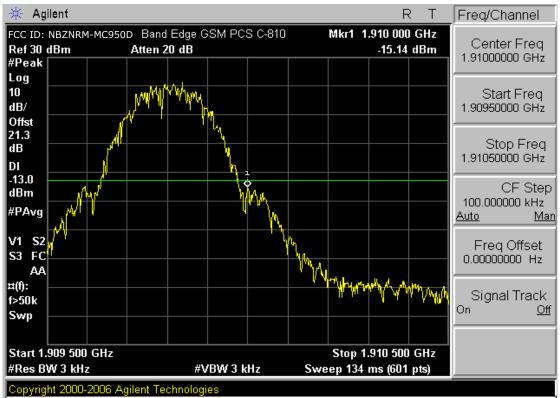
| 🔆 Agilent | | RT | Freq/Channel |
|--|--|---|---|
| FCC ID: NBZNRM-MC Ref 30 dBm #Peak | 950D Con Spurs GSM PCS C-810 Atten 20 dB | Mkr1 2.467 GHz -39.10 dBm | Center Freq 1.25500000 GHz |
| Log 10 dB/ Offst | | | Start Freq 10.0000000 MHz |
| dB DI | | | Stop Freq 2.50000000 GHz |
| -13.0 dBm #PAvg | | | CF Step 249.000000 MHz <u>Auto Ma</u> |
| V1 S2 S3 FC AA | here and the second of the | northe second and the | Freq Offset 0.00000000 Hz |
| ¤(f): FTun Swp | | | Signal Track ^{On <u>Off</u>} |
| Start 10 MHz #Res BW 1 MHz | #VBW 1 MHz | Stop 2.500 GHz Sweep 4.16 ms (601 pts) | |





| FCC ID: NBZNRM-MC950D | | FCC Pt. 22/24 GSM/EDGE/WCDMA MEASUREMENT REPORT (CERTIFICATION) | NOVATEL WIRELESS | Reviewed by: Quality Manager |
|--------------------------------|---------------|--|------------------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Page 43 of 56 |
| 0705160472.NBZ | May 30, 2007 | 850/1900 GSM/WCDMA/EDGE USB Modem | | Fage 43 01 50 |
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Plot 7-19. Band Edge Plot (PCS GSM Mode - Ch. 810)

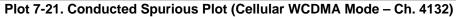


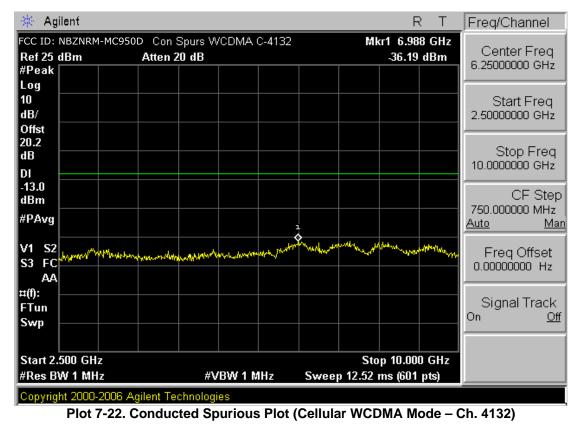
Plot 7-20. Occupied Bandwidth Plot (EDGE1900 Mode - Ch. 661)

| FCC ID: NBZNRM-MC950D | | FCC Pt. 22/24 GSM/EDGE/WCDMA MEASUREMENT REPORT (CERTIFICATION) | NOVATEL WIRELESS | Reviewed by: Quality Manager |
|---|--------------|--|------------------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Page 44 of 56 |
| 0705160472.NBZ | May 30, 2007 | 850/1900 GSM/WCDMA/EDGE USB Modem | | Fage 44 01 50 |
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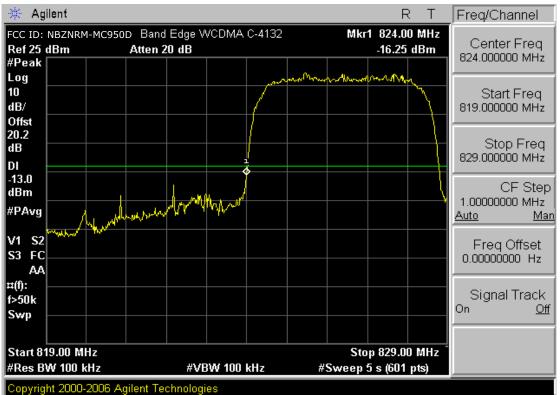
| 🔆 Agilent | | | | | | RT | Freq/Channel |
|---|------------------------|---------|---------------|----------------|------------------|----------------------------|---|
| FCC ID: NBZNRM-M Ref 25 dBm #Peak | C950D Con S Atten 2 | | MA C-4132 | | | 1.649 GHz 40.24 dBm | Center Freq 1.25500000 GHz |
| Log 10 dB/ Offst | | | | | | | Start Freq 10.0000000 MHz |
| 20.2 dB DI | | | | | | | Stop Freq 2.5000000 GHz |
| -13.0 dBm #PAvg | | | | | | | CF Step 249.000000 MHz <u>Auto Ma</u> |
| V1 S2 S3 FC | urta hara | n human | entralitation | ulle full have | Margaret Margare | v-yarran ay hy she h | Freq Offset 0.00000000 Hz |
| ¤(f): FTun Swp | | | | | | | Signal Track On <u>Off</u> |
| Center 1.255 GHz #Res BW 1 MHz | | #VBW | (1 MHz | Swee | | an 2.49 GHz s (601 pts) | |
| Copyright 2000-200 | 06 Agilent Teo | | r 1 141112 | 34466 | p 4.10 m | s (001 pts) | |



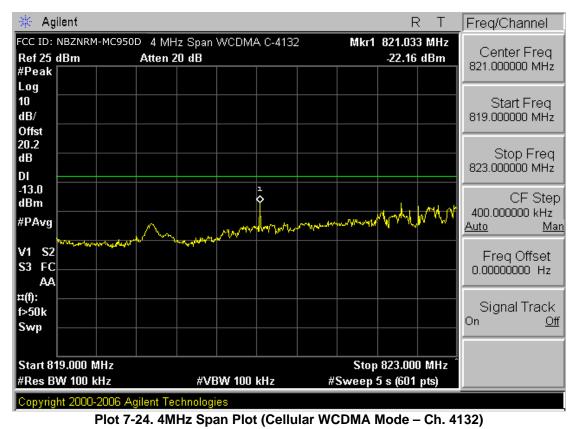


| FCC ID: NBZNRM-MC950D | | FCC Pt. 22/24 GSM/EDGE/WCDMA MEASUREMENT REPORT (CERTIFICATION) | NOVATEL WIRELESS | Reviewed by: Quality Manager |
|--------------------------------|--------------|--|------------------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Page 45 of 56 |
| 0705160472.NBZ | May 30, 2007 | 850/1900 GSM/WCDMA/EDGE USB Modem | | r aye 43 01 50 |
| © 2007 PCTEST Engineering Labo | protony Inc | | | DEV 2 50W0 |





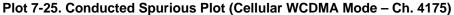


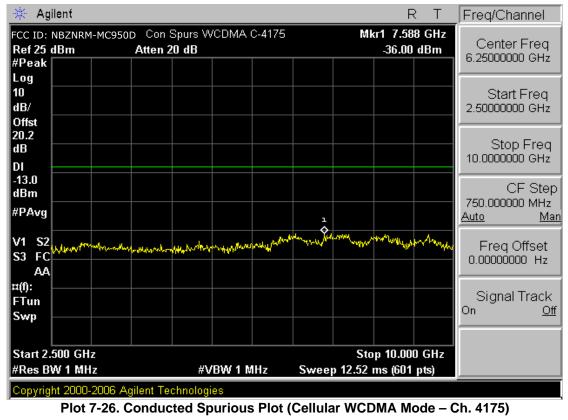


| FCC ID: NBZNRM-MC950D | | FCC Pt. 22/24 GSM/EDGE/WCDMA MEASUREMENT REPORT (CERTIFICATION) | NOVATEL WIRELESS | Reviewed by: Quality Manager |
|--------------------------------|---------------|--|------------------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Page 46 of 56 |
| 0705160472.NBZ | May 30, 2007 | 850/1900 GSM/WCDMA/EDGE USB Modem | | Fage 40 01 50 |
| © 2007 PCTEST Engineering Labo | pratory, Inc. | | | REV 2.5GWC |

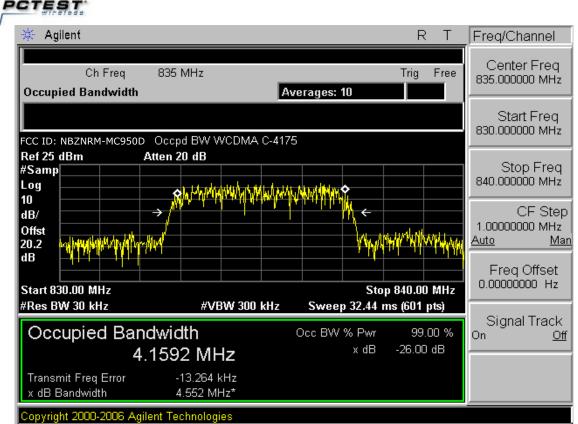


| 🔆 Agilent | | | | RT | Freq/Channel |
|--|---|--|--------------------------------|-------------------------------|--|
| FCC ID: NBZNRM-MC Ref 25 dBm #Peak | C950D Con Spurs Atten 20 dB | WCDMA C-4175 | M | kr1 2.060 GHz -40.89 dBm | Center Freq 1.25500000 GHz |
| Log 10 dB/ Offst | | | | | Start Freq 10.0000000 MHz |
| 20.2 dB DI | | | | | Stop Freq 2.5000000 GHz |
| -13.0 dBm #PAvg | | | | | CF Step 249.000000 MHz Auto Mai |
| V1 S2 S3 FC | ana | langs frat state over state state over | qaqthissudestfortanossierpress | 2 nDennederhaptent | Freq Offset 0.00000000 Hz |
| ¤(f): FTun Swp | | | | | Signal Track ^{On <u>Off</u>} |
| Start 10 MHz #Res BW 1 MHz | | VBW 1 MHz | Sweep 4.16 | top 2.500 GHz ms (601 pts) | |
| Copyright 2000-2006 | 6 Agilent Technolo | gies | | | |

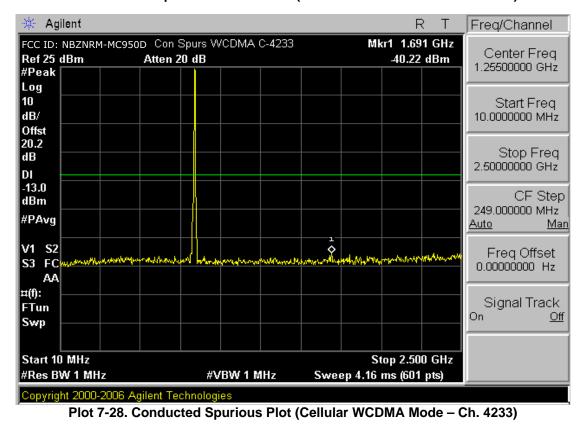




| FCC ID: NBZNRM-MC950D | | FCC Pt. 22/24 GSM/EDGE/WCDMA MEASUREMENT REPORT (CERTIFICATION) | NOVATEL WIRELESS | Reviewed by: Quality Manager | |
|--------------------------------|--------------|--|------------------|---------------------------------|--|
| Test Report S/N: | Test Dates: | EUT Type: | | Page 47 of 56 | |
| 0705160472.NBZ | May 30, 2007 | 850/1900 GSM/WCDMA/EDGE USB Modem | | Fage 47 01 50 | |
| © 2007 PCTEST Engineering Labo | ratory Inc | | | PEV 2 5CWC | |



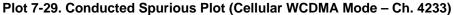
Plot 7-27. Occupied Bandwidth Plot (Cellular WCDMA Mode - Ch. 4175)

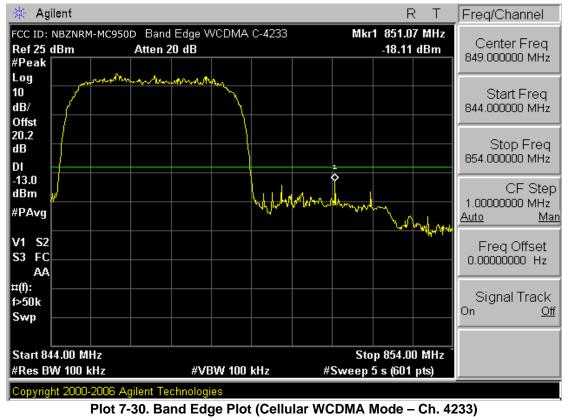


| FCC ID: NBZNRM-MC950D | | FCC Pt. 22/24 GSM/EDGE/WCDMA MEASUREMENT REPORT (CERTIFICATION) | NOVATEL WIRELESS | Reviewed by: Quality Manager |
|--------------------------------|---------------|--|------------------|---------------------------------|
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| 🔆 Agilent | | | R | Т | Freq/Channel |
|----------------------------------|--|------------------------|----------------------------------|-------------|---------------------------------------|
| Ref 25 dBm #Peak | 950D Con Spurs WCDMA Atten 20 dB | C-4233 | Mkr1 7.938 -35.75 d | | Center Freq 6.25000000 GHz |
| Log 10 dB/ Offst | | | | | Start Freq 2.5000000 GHz |
| 20.2 dB DI | | | | | Stop Freq 10.000000 GHz |
| -13.0 dBm #PAvg | | | 1 | | CF Step 750.000000 MHz Auto Mar |
| V1 S2 S3 FC AA | And a new and the present on an any her have | gulgalan, aller proved | when when you we | ++Williamsv | Freq Offset 0.00000000 Hz |
| ¤(f): FTun Swp | | | | | Signal Track On <u>Off</u> |
| Start 2.500 GHz #Res BW 1 MHz | #VBW 1 M | 1Hz Swee | Stop 10.000 p 12.52 ms (601 p | | |
| Copyright 2000-2006 | Agilent Technologies | | | | |



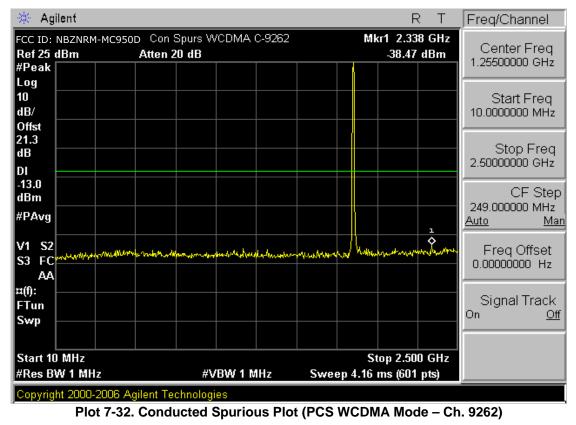


| FCC ID: NBZNRM-MC950D | | FCC Pt. 22/24 GSM/EDGE/WCDMA MEASUREMENT REPORT (CERTIFICATION) | NOVATEL WIRELESS | Reviewed by: Quality Manager |
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| Test Report S/N: | Test Dates: | EUT Type: | | Page 49 of 56 |
| 0705160472.NBZ | May 30, 2007 | 850/1900 GSM/WCDMA/EDGE USB Modem | | Page 49 01 56 |
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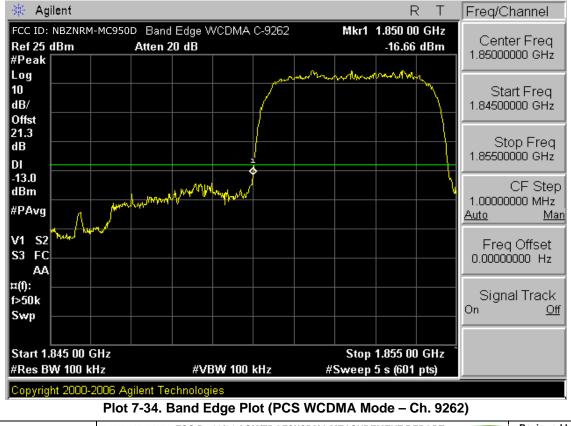


| FCC ID: NBZNRM-MC950D | | FCC Pt. 22/24 GSM/EDGE/WCDMA MEASUREMENT REPORT (CERTIFICATION) | NOVATEL WIRELESS | Reviewed by: Quality Manager |
|--------------------------------|---------------|--|------------------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Page 50 of 56 |
| 0705160472.NBZ | May 30, 2007 | 850/1900 GSM/WCDMA/EDGE USB Modem | | Fage 50 01 50 |
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| 🔆 Agi | ilent | | | | | | | | R | Т | Freq/Channel |
|------------------------------|--|------------------|------------------------|------------------|---------------|---------------------------|--------|---------------|-----------------------------|-------------|--|
| FCC ID: Ref 25 (#Peak | | -MC950I | Con S Atten 2 | | CDMA (| C-9262 | | Mkı | 1 14.1 -31.72 | | Center Freq 11.2500000 GHz |
| Log 10 dB/ | | | | | | | | | | | Start Freq 2.50000000 GHz |
| Offst 21.3 dB DI | | | | | | | | | | | Stop Freq 20.0000000 GHz |
| -13.0 dBm #PAvg | | | | | | | 1 | | | | CF Step 1.7500000 GHz |
| V1 S2 S3 FC | white | stitured to be a | ~~~M ^{AR} 747 | r de la companya | Wigendager It | ryge ^{nt} ogener | ymy An | Marria and an | vhlatorene (| ywyhan ywyn | Auto Man Freq Offset 0.00000000 Hz |
| AA ¤(f): FTun Swp | | | | | | | | | | | Signal Track On <u>Off</u> |
| Start 2. | | 7 | | #\ | /BW 1 M | Hz | Swee | | op 20.00 ns <i>(</i> 601 | | |
| | #Res BW 1 MHz #VBW 1 MHz Sweep 87.52 ms (601 pts) Copyright 2000-2006 Agilent Technologies | | | | | | | | | | |



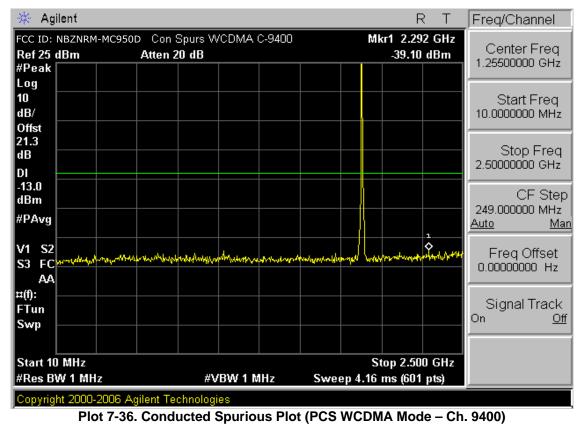


| FCC ID: NBZNRM-MC950D | | FCC Pt. 22/24 GSM/EDGE/WCDMA MEASUREMENT REPORT (CERTIFICATION) | NOVATEL WIRELESS | Reviewed by: Quality Manager |
|--------------------------------|---------------|--|------------------|---------------------------------|
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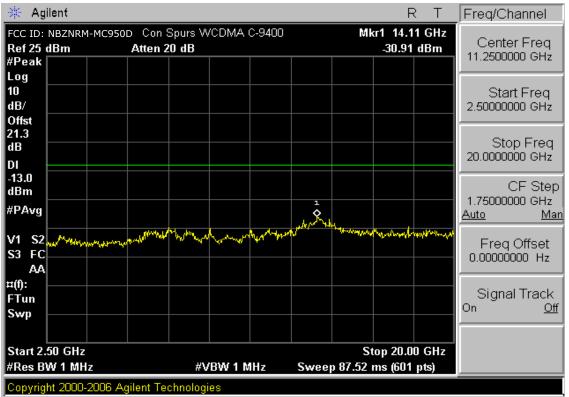
| 🔆 Agilent | | R T | Freq/Channel |
|--|---------------------------------------|--|--|
| FCC ID: NBZNRM-MC Ref 25 dBm #Peak | 2950D 4 MHz Span WCDMA Atten 20 dB | C-9262 Mkr1 1.850 000 GHz -17.18 dBm | Center Freq 1.84800000 GHz |
| Log 10 dB/ Offst | | | Start Freq 1.84600000 GHz |
| 21.3 dB DI | | | Stop Freq 1.8500000 GHz |
| -13.0 dBm #PAvg | warmanapprophytophytophyto | man and the particular and the second s | CF Step 400.00000 kHz <u>Auto Ma</u> |
| V1 S2 S3 FC AA | | | Freq Offset 0.00000000 Hz |
| ¤(f): f>50k Swp | | | Signal Track On <u>Off</u> |
| Start 1.846 000 GH #Res BW 100 kHz | z #VBW 100 k | Stop 1.850 000 GHz Hz #Sweep 5 s (601 pts) | |



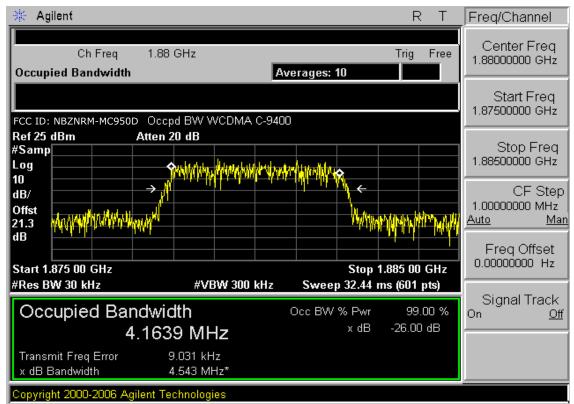


| FCC ID: NBZNRM-MC950D | | FCC Pt. 22/24 GSM/EDGE/WCDMA MEASUREMENT REPORT (CERTIFICATION) | NOVATEL WIRELESS | Reviewed by: Quality Manager |
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| Test Report S/N: | Test Dates: | EUT Type: | | Page 52 of 56 |
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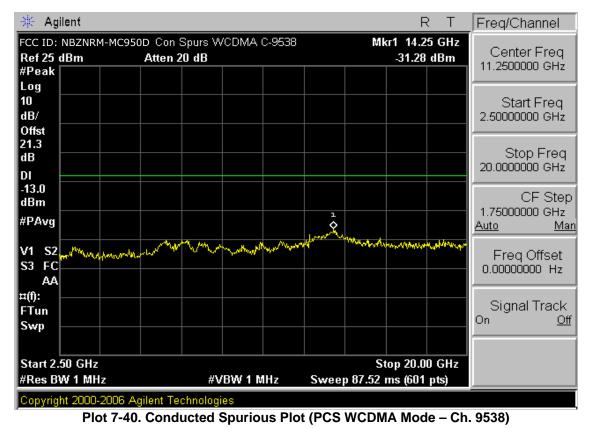
Plot 7-38. Occupied Bandwidth Plot (PCS WCDMA Mode - Ch. 9400)

| FCC ID: NBZNRM-MC950D | | FCC Pt. 22/24 GSM/EDGE/WCDMA MEASUREMENT REPORT (CERTIFICATION) | NOVATEL WIRELESS | Reviewed by: Quality Manager |
|---|--------------|--|------------------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogo E2 of E6 |
| 0705160472.NBZ | May 30, 2007 | 850/1900 GSM/WCDMA/EDGE USB Modem | | Page 53 of 56 |
| © 2007 PCTEST Engineering Laboratory Inc. | | | | REV 2 5GWC |



| 🔆 Agilent | | RT | Freq/Channel |
|-------------------------------|---|---|--|
| Ref 25 dBm #Peak | C950D Con Spurs WCDMA C-9538 Atten 20 dB | Mkr1 2.305 GHz -39.66 dBm | Center Freq 1.25500000 GHz |
| Log 10 dB/ Offst | | | Start Freq 10.0000000 MHz |
| 21.3 dB DI | | | Stop Freq 2.5000000 GHz |
| -13.0 dBm #PAvg | | | CF Step 249.000000 MHz <u>Auto Mar</u> |
| V1 S2 S3 FC AA | alla tha Marana an | ner alle and harden warden and the second | Freq Offset 0.00000000 Hz |
| ≭(f): FTun Swp | | | Signal Track On <u>Off</u> |
| Start 10 MHz #Res BW 1 MHz | #VBW 1 MHz | Stop 2.500 GHz Sweep 4.16 ms (601 pts) | |
| Copyright 2000-200 | 6 Agilent Technologies | | |



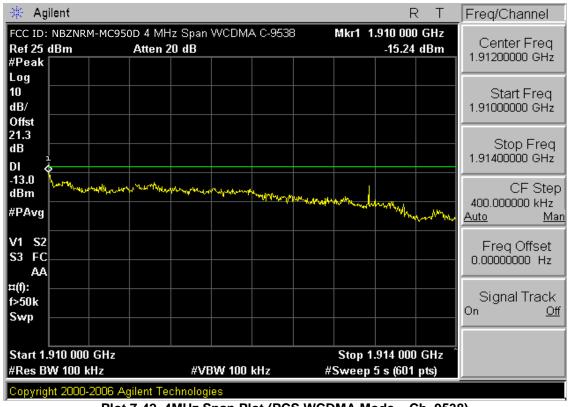


| FCC ID: NBZNRM-MC950D | | FCC Pt. 22/24 GSM/EDGE/WCDMA MEASUREMENT REPORT (CERTIFICATION) | NOVATEL WIRELESS | Reviewed by: Quality Manager |
|--|--------------|--|------------------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Page 54 of 56 |
| 0705160472.NBZ | May 30, 2007 | 850/1900 GSM/WCDMA/EDGE USB Modem | | Fage 54 01 50 |
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| 🔆 Agilent | | | RT | Freq/Channel |
|---|--------------------------------------|------------------------|---|---|
| FCC ID: NBZNRM Ref 25 dBm #Peak | 4-MC950D Band Edge W0 Atten 20 dB | CDMA C-9538 | Mkr1 1.910 00 GHz -15.99 dBm | Center Freq 1.91000000 GHz |
| Log 10 dB/ Offst 21.3 dB | and the and the and the | | | Start Freq 1.90500000 GHz Stop Freq |
| DI -13.0 v dBm #PAvg | | <u>l</u> Mulundurya | An marine and a second | 1.91500000 GHz ['] CF Step 1.00000000 MHz <u>Auto Man</u> |
| V1 S2 S3 FC AA | | | | Freq Offset 0.00000000 Hz |
| ¤(f): f>50k Swp | | | | Signal Track On <u>Off</u> |
| Start 1.905 00 (#Res BW 100 k | | V 100 kHz | Stop 1.915 00 GHz #Sweep 5 s (601 pts) | |
| Copyright 2000-3 | 2006 Agilent Technologies | S | | |





Plot 7-42. 4MHz Span Plot (PCS WCDMA Mode – Ch. 9538)

| FCC ID: NBZNRM-MC950D | | FCC Pt. 22/24 GSM/EDGE/WCDMA MEASUREMENT REPORT (CERTIFICATION) | NOVATEL WIRELESS | Reviewed by: Quality Manager |
|---|--------------|--|------------------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | | Dogo EE of E6 |
| 0705160472.NBZ | May 30, 2007 | 850/1900 GSM/WCDMA/EDGE USB Modem | | Page 55 of 56 |
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8.0 CONCLUSION

The data collected show that the **Novatel Wireless 850/1900 GSM/WCDMA/EDGE USB Modem FCC ID: NBZNRM-MC950D** complies with all the requirements of Parts 2, 22, and 24 of the FCC rules.

| FCC ID: NBZNRM-MC950D | A PCTEST | FCC Pt. 22/24 GSM/EDGE/WCDMA MEASUREMENT REPORT | | Reviewed by: |
|--------------------------------|---------------|---|------------------|-----------------|
| FCC ID. NBZINRIM-IMC950D | V | (CERTIFICATION) | NOVATEL WIRELESS | Quality Manager |
| Test Report S/N: | Test Dates: | EUT Type: | | Page 56 of 56 |
| 0705160472.NBZ | May 30, 2007 | 850/1900 GSM/WCDMA/EDGE USB Modem | | Faye 50 01 50 |
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