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FCC ID: NBZNRM-CC208

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Please visit www.novatelwireless.com for the latest information about your device.

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Getting Started

Welcome
Product Overview
Identifying Hardware Components

Welcome

Congratulations on your purchase of the Novatel Wireless Merlin CC208 Combo Card.

The Merlin CC208 Combo Card is a 2-in-1 PC Card and ExpressCard® for Mobile Broadband service. This dual-band modem operates over high-speed Mobile Broadband networks in the 800/1900 bands, allowing you to connect at high speeds to the Internet, your corporate Intranet, and your email while you're away from the office.

This manual describes how to install the CC208 card hardware.

Product Overview

Features

The CC208 card provides the following key features.

High Speed Wireless Data — Mobile Broadband

This combo card device enables subscribers to access the latest in CDMA EV-DO Rev A and 4G technologies, resulting in higher data rates and higher system capacity to enable richer applications and services.

Integrated Adapter for use in PC Card or ExpressCard slots

3G/4G Mobile Broadband access is more convenient than ever for Windows® and Mac® notebook computers equipped with different types of card slots. Now you only need one device, whether you're using a computer with a PC Card slot or an ExpressCard slot. Simply detach the adapter for use with computers with ExpressCard slots and reattach for use with computers that only have a PC Card slot. No need to juggle multiple modems to accommodate multiple notebooks.

NovaSpeed® Technology

NovaSpeed, a patent-pending software from Novatel Wireless, significantly enhances simultaneous upload and download performance. With NovaSpeed built into the device, streaming video, online gaming, large file transfers, and other online activities experience minimal interruptions or buffering.

Additional Features

- Advanced embedded antenna design
- Virtual Private Network (VPN) capability
- Auto Connectivity options
- Two-Way Short Messaging Service (SMS)
- NDIS configuration

Package Contents

The CC208 card package includes:

- CC208 Combo Card
- Quick Start Guide

System Requirements

The CC208 card has the following system requirements:

- A computer with a Type II PCMCIA (PC Card) or ExpressCard 34/54 slot
- Internet browser software (for example, Internet Explorer, Safari, Firefox, Opera)
- Microsoft® Windows® 7, Vista, or XP (Service Pack 2 or higher); Mac OS® X v10.4.0 or higher
- 100 MB hard drive space
- 128 MB RAM

Identifying Hardware Components

The following figures show the hardware components on the front and back of the CC208 card.

Front of device

FPO
Front of device

Back of device

FPO
Back of device

- ❶ **ExpressCard:** Detaches the device from the integrated adapter so the device can be used in ExpressCard slots.
- ❷ **LED Indicator (Service Status):** Provides a visual status of the device and its current connection. See [LED States](#) on page 7.
- ❸ **Card Slot Adapter:** Attaches to the device when using the device with PC Card slots.
- ❹ **Locking Mechanism:** Removes the card from the PCMCIA card slot adapter.

LED States

The CC208 card has two LED indicators that show when the device is powered on and the status of the current connection.

Color	Status	Description
No Light		The device is powered off.
Blue (4G LED)	Solid	The device is powered on and connected to 4G.
	Blinking	The device is powered on, connected, and sending or receiving data in 4G.
Green (3G LED)	Solid	The device is powered on and connected to 3G.
	Blinking	The device is powered on, connected, and sending or receiving data in 3G.
Red (Both LEDs)	Solid	The device is powered on but not connected or searching.
	Blinking	Error; reset the device.

Caring for the CC208 Combo Card

Like any electronic device, handle the CC208 card with care to ensure reliable operation. Novatel Wireless recommends the following guidelines:

- Do not apply adhesive labels to the device, as they may cause the device to overheat or alter the performance of the antenna.
- The card should easily slide into your computer's PC Card or ExpressCard slot. Do not force the device into your computer, as doing so may damage the connectors.
- Protect the device from liquids, dust, and excessive heat.
- Store the device in a safe place when not in use.

Using Your CC208 Card

Using the CC208 Card for the First Time

Using the CC208 Card for the First Time

This chapter describes how to use the CC208 card for the first time. For additional information, refer to the Quick Start Guide.

IMPORTANT

- Installation must be performed within a Mobile Broadband coverage area.
 - This device requires an activated account with a network operator to work.
-

Inserting the CC208 Card

The CC208 card can be used with computers that have a Type II PCMCIA (PC Card) slot or an ExpressCard slot (by removing the integrated adapter). To avoid damaging the device, hold it by the sides, with the Novatel Wireless label facing up, when attaching it to or removing it from a computer.

Inserting the CC208 Card in a PC Card Slot

You can use the CC208 card with any computer that has a PC Card slot.

- ① With the integrated adapter attached to the device, hold the device so the Novatel Wireless label is facing up.
- ② Insert the device into your computer's PC Card slot.

The green LED goes ON.

CAUTION! To avoid damage, do not force the device into the slot.

FPO
Insert in a PC Card Slot

Tip! If you have difficulty inserting the device into your computer's card slot, verify that:

- The label is facing up.
- You are inserting the card into a Type II PCMCIA (PC Card slot), with the integrated adapter securely locked in place.

Inserting the CC208 Card in an ExpressCard Slot

Before you can use the CC208 card in an ExpressCard slot, remove the integrated adapter.

Removing and re-attaching the integrated adapter

To remove the integrated adapter

- ❶ Locate the locking mechanism on the bottom of the adapter.



FPO
Locking mechanism

- ❷ Push the lock out slightly.



FPO
Pushing the lock

- ❸ Pull out the device from the adapter and store the integrated adapter in a safe place.



FPO
Removing the device

To re-attach the integrated adapter

- 1 Find the locking mechanism on the bottom of the adapter and push the lock out slightly.

FPO
Push the lock out

- 2 Slide the ExpressCard portion back into the integrated adapter.

FPO
Slide into adapter

- 3 Push the lock until the device is secured.

FPO
Secure device

To insert the CC208 card in an ExpressCard slot

- ① Hold the device so the Novatel Wireless label is facing up.
- ② Insert the device into your computer's ExpressCard slot.

The green LED goes ON.

CAUTION! To avoid damage, do not force the device into the slot.



FPO
Insert in slot

Tip! If you have difficulty inserting the device into your computer's card slot, verify that:

- The label is facing up.
- You are inserting the device into an ExpressCard slot.
- The integrated adapter has been removed from the device.

Removing the CC208 Card

To remove the CC208 card from your computer, shut down your computer first or follow the “Unplug/Eject Hardware” procedure for your operating system.

IMPORTANT After you connect the device, do not remove it before your Internet connection ends, as some operating systems may be unable to respond appropriately, resulting in automatic shutdowns or screen freeze issues.

To remove the CC208 card

- ❶ Disconnect your Internet connection and close the connection software.
- ❷ Eject the card within the operating system software.

Windows only: Right-click the **Safely Remove Hardware** icon in the status tray, click **Safely Remove Hardware**, select the device, and then click **Stop**.

Mac OS X: Open a Finder window and look in the left column under Devices. If your device appears there, click the eject icon to the right of your device icon.

- ❸ Physically eject the card from your computer.

PC Card Slots: If your slot has a latch button next to it, press the button to release the device (some computers require pushing the button twice), then hold the device by the sides and gently pull it out of the slot.

ExpressCard Slots: Gently push in and release the device to activate the spring, then hold the device by the sides and gently pull it out of the slot.

Troubleshooting

Troubleshooting

Tip!

Many software issues can be resolved by removing and reinserting your modem, or restarting your computer.

The computer in which the CC208 card is inserted fails to reboot and displays an error message or blank screen.

- Remove the device and reboot the computer. The device contains internal memory that behaves like a CD-ROM. The Basic Input/Output System (BIOS) settings on some notebook computers may try to reboot from a CD-ROM before booting from a hard drive, and may display a blank screen with a cursor or an error message about a non-bootable disk. This behavior is similar to that which occurs when using any non-bootable CD in your CD-ROM drive.

The CC208 card does not seem to work.

- Be sure you are using the device in the correct geographic region: Mobile Broadband in the US. Please visit your network operator's website for network details.
- Be sure your wireless network's coverage extends to your current location.

Product Specifications and Regulatory Information

Product Specifications
Regulatory Information
Wireless Communications
Safety Hazards

Product Specifications

General

Name	Merlin CC208
Model	CC208
Approvals	FCC (North America); CDG
Weight	47 g / 1.65 oz
Dimensions	138 mm x 54 mm x 22 mm (PC) 5.4 in x 2.1 in x 0.87 in 124 mm x 34 mm x 22 mm (Express) 4.9 in x 1.3 in x 0.87 in
Wireless Network—Dual Mode	CDMA EVDO Rev A; WiMax Wave 2
Chip Set	QUALCOMM™ QSC6085
Interface Type	PCMCIA or ExpressCard; Beceem's BCSM350 for Wimax

Technology/Bands

Technology	CDMA Rev A, Rev 0, 1XRTT; WiMax
Band Designation	800/1900 MHz
Transmit Band	824.7-848.31MHz/1851.25-1908.75MHz
Receive Band	869.7-893.31MHz/1931.25-1988.75MHz

Environmental

Operating Temperature	0° C to +55° C 32°F to 131° F
Storage Temperature	-20° C to +65° C -4° F to 149° F
Relative Humidity	5% to 90% over operating temperature
Drop	1 meter drop, no damage—fully operational
Vibration Stability	5 Hz to 500 Hz, 0.1 octave/second

Regulatory Information

Federal Communications Commission Notice (FCC – United States)

Electronic devices, including computers and wireless modems, generate RF energy incidental to their intended function and are therefore subject to FCC rules and regulations.

This equipment has been tested to, and found to be within the acceptable limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential environment. This equipment generates radio frequency energy and is designed for use in accordance with the manufacturer's user manual. However, there is no guarantee that interference will not occur in any particular installation. If this equipment causes harmful interference to radio or television reception, which can be determined by turning the equipment off and on, you are encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.

This device complies with Part 15 of the Federal Communications Commission (FCC) Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

WARNING: DO NOT ATTEMPT TO SERVICE THE WIRELESS COMMUNICATION DEVICE YOURSELF. SUCH ACTION MAY VOID THE WARRANTY. THE NOVATEL WIRELESS CC208 DEVICE IS FACTORY TUNED. NO CUSTOMER CALIBRATION OR TUNING IS REQUIRED. CONTACT TECHNICAL SUPPORT FOR INFORMATION ABOUT SERVICING YOUR WIRELESS COMMUNICATION DEVICE.

NOTE: The Radio Frequency (RF) emitter installed in your modem must not be located or operated in conjunction with any other antenna or transmitter, unless specifically authorized by Novatel Wireless Technologies

FCC CAUTION: Any changes or modification not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

MODIFICATIONS: The FCC requires that you be notified that any changes or modifications made to this device that are not expressly approved by your service provider may void your authority to operate the equipment.

This device is approved for use in normal size notebook computers only (typically with 12" or larger display screens). To comply with FCC RF exposure requirements, this modem should not be used in configurations that cannot maintain at least 1 cm (approximately 0.393" or 10 mm) from users and bystanders; for example, in certain notebook and tablet computers and configurations where the connectors are unable to provide or ensure the necessary separation is available between the modem and its users to satisfy RF exposure compliance requirements.

RF Exposure/ Specific Absorption Rate (SAR) Information

This product has been evaluated for SAR and meets the FCC Guidelines for exposure to radio waves.

FCC Equipment Authorization ID: NBZNRM-CC208

Your wireless modem is a radio transmitter and receiver. It is designed and manufactured not to exceed the exposure limits for radio frequency (RF) energy set by the Federal Communications Commission (FCC) of the U.S. Government. These limits are part of comprehensive guidelines and establish permitted levels of RF energy for the general population. The guidelines are based on standards that were developed by independent scientific organizations through periodic and thorough evaluation of scientific studies. The standards include a substantial safety margin designed to assure the safety of all persons, regardless of age and health.

The exposure standard for wireless devices including mobile wireless modems uses a unit of measurement known as the Specific Absorption Rate, or SAR. Tests for SAR are conducted using standard operating positions reviewed by the FCC with the device under test transmitting at its highest certified power level in all frequency bands. Although the SAR is determined at the highest certified power level, the actual SAR level of the device while operating can be well below the maximum value. This is because the device is designed to operate at multiple power levels so as to use only the power required to reach the network. In general, the closer you are to a wireless base station antenna, the lower the power output.

Before this device is made available for sale to the public, it must be tested and certified to the FCC RF exposure limit. The tests are performed in positions and locations near the body as required by the FCC for each model.

Wireless Communications

IMPORTANT Due to the transmission and reception properties of wireless communications, data occasionally can be lost or delayed.

This can be due to the variation in radio signal strength that results from changes in the characteristics of the radio transmission path. Although data loss is rare, the environment where you operate the modem may adversely affect communications.

Variations in radio signal strength are referred to as “fading.” Fading can be caused by various factors, including signal reflection, the ionosphere, and interference from other radio channels.

Novatel Wireless or its partners will not be held responsible for damages of any kind resulting from the delays or errors in data transmitted or received with the CC208 card, or failure of the CC208 card to transmit or receive such data.

Safety Hazards

Do not operate this device in an environment that may be susceptible to radio interference resulting in danger, specifically:

Areas where prohibited by the law

Follow any special rules and regulations and obey all signs and notices. Always turn off the host device and remove the modem from the card slot when instructed to do so, or when you suspect that it may cause interference or danger.

Where explosive atmospheres may be present

Do not operate your modem in any area where a potentially explosive atmosphere may exist. Sparks in such areas could cause an explosion or fire resulting in bodily injury or even death. Be aware and comply with all signs and instructions.

Users are advised not to operate the modem while at a refueling point or service station. Users are reminded to observe restrictions on the use of radio equipment in fuel depots (fuel storage and distribution areas), chemical plants or where blasting operations are in progress.

Areas with a potentially explosive atmosphere are often, but not always clearly, marked. Potential locations can include gas stations, below deck on boats, chemical transfer or storage facilities, vehicles using liquefied petroleum gas (such as propane or butane), areas where the air contains chemicals or particles, such as grain, dust or metal powders, and any other area where you would normally be advised to turn off your vehicle engine.

Near medical and life support equipment

Do not operate your modem near medical equipment, life support equipment, or near any equipment that may be susceptible to any form of radio interference. In such areas, the host communications device must be turned off. The modem may transmit signals that could interfere with this equipment.

On an aircraft, either on the ground or airborne

In addition to FAA requirements, many airline regulations state that you must suspend wireless operations before boarding an airplane. Please ensure that the host device is turned off and your modem is removed from the card slot prior to boarding aircraft in order to comply with these regulations. The modem can transmit signals that could interfere with various onboard systems and controls.

While operating a vehicle

The driver or operator of any vehicle should not operate a wireless data device while in control of a vehicle. Doing so will detract from the driver or operator's control and operation of that vehicle. In some countries, operating such communications devices while in control of a vehicle is an offense.

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Warranty

Novatel Wireless Limited Warranty and Liability

Novatel Wireless warrants for the 12 month period immediately following receipt of the Product by Purchaser that the Product will be free from defects in material and workmanship under normal use. THESE WARRANTIES ARE EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

The exclusive remedy for a claim under this warranty shall be limited to the repair or replacement, at Novatel Wireless' option, of defective or non-conforming materials, parts or components. The foregoing warranties do not extend to (I) non conformities, defects or errors in the Products due to accident, abuse, misuse or negligent use of the Products or use in other than a normal and customary manner, environmental conditions not conforming to Novatel Wireless' specification, of failure to follow prescribed installation, operating and maintenance procedures, (II) defects, errors or nonconformity's in the Product due to modifications, alterations, additions or changes not made in accordance with Novatel Wireless' specifications or authorized by Novatel Wireless, (III) normal wear and tear, (IV) damage caused by force of nature or act of any third person, (V) shipping damage, (VI) service or repair of Product by the purchaser without prior written consent from Novatel Wireless, (VII) products designated by Novatel Wireless as beta site test samples, experimental, developmental, reproduction, sample, incomplete or out of specification Products, or (VIII) returned products if the original identification marks have been removed or altered.

Glossary

Glossary

- **3G** — Third Generation. 3G refers to the third generation of mobile telephony technology. The evolution of 3G technology is as follows:

GSM technologies

- » GPRS offered speeds up to 48.8 Kbps (began in 2000).
- » EDGE reached up to 384 Kbps (2003).
- » WCDMA offered downlink speeds up to 1.02 Mbps.
- » UMTS supports a theoretical data transfer rate of 21 Mbps.
- » HSUPA offered uplink speeds up to 5.76 Mbps and downlink speeds up to 7.2 Mbps.
- » HSDPA boosted downlink to 14 Mbps (in 75 countries 2007)
- » HSPA+ increased uplink speeds to 11 Mbps and downlink speeds to 42 Mbps.
- » LTE Evolved UMTS Terrestrial Radio Access is aiming for 100 Mbps (specifications completed 2008).

CDMA technologies

- » 1xRTT offered speeds up to 144 Kbps (2002).
- » EV-DO increased downlink speeds up to 2.4 Mbps (2004).
- » EV-DO Rev A boosted downlink speeds to 3.1 Mbps (2006).
- » EV-DO Rev B can use 2 to 15 channels with each downlink peaking at 4.9 Mbps.
- » Ultra Mobile Broadband was slated to reach 288 Mbps but operators might switch to LTE instead.

- **Broadband** — High-capacity high-speed, transmission channel with a wider bandwidth than conventional modem lines. Broadband channels can carry video, voice, and data simultaneously.
- **CDMA** — Code Division Multiple Access. It is the underlying channel access method used by some mobile phone standards.
- **Computing Device** — Any of a variety of computer-like devices (for example, desktop computer, laptop, tablet PC, smart phone, and PDA).
- **ExpressCard** — PCMCIA's hardware standard for high-performance expansion of notebook computers. Intended to replace the PC Card (formerly PCMCIA card) standard.
- **Kbps** — Kilobits per second. The rate of data flow.
- **NovaSpeed Technology** — Novatel Wireless's proprietary software that enhances the speed and performance of its mobile broadband modems and enables simultaneous upload and download data transfers.
- **PC Card** — PCMCIA's hardware standard for peripheral devices for laptop computers. Superseded by the ExpressCard.

- **PCMCIA** — Personal Computer Memory Card International Association. An international standards organization of industry-leading companies for the definition of personal computer peripheral device standards.
- **Rev A** — CDMA EV-DO Rev. A is a leading-edge wireless technology with higher data rates and higher system capacity. It is a fully backward compatible standard and remains interoperable with deployed EV-DO networks and devices around the world. The increased data rates on Rev. A's physical layer enable richer applications and services. For more information, visit www.cdg.org.
- **SMS** — Short Message Service. A service for sending short messages of up to 160 (224 in 5-bit mode) characters to mobile devices. SMS is also known as text messaging.
- **VPN** — Virtual Private Network. A secure private network that runs over the public Internet. Commonly used to connect to an office network from elsewhere.
- **VPN Passthrough** — A feature that allows a client to connect to a VPN server.
- **WWAN** — Wireless Wide Area Network. Wireless network technologies deployed over a large geographical area to a large number of users (see WLAN). This service is usually provided through cellular providers. WWAN connectivity allows a user with a laptop and a WWAN device to surf the Internet, check email, or connect to a virtual private network (VPN) from anywhere within the coverage area of the network operator.