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User Guide

AT&T 3G MicroCell™

cisco

OCTOBER 24, 2008 DRAFT

Contents

IMPORTANT SAFETY INSTRUCTIONS

Notice to Installers

The servicing instructions in this notice are for use by qualified service personnel only. To reduce the risk of electric shock, do not perform any servicing other than that contained in the operating instructions, unless you are qualified to do so.

Note to System Installer

For this apparatus, the cable shield/screen shall be grounded as close as practical to the point of entry of the cable into the building. For products sold in the US and Canada, this reminder is provided to call the system installer's attention to Article 800-93 and Article 800-100 of the NEC (or Canadian Electrical Code Part 1), which provides guidelines for proper grounding of the cable shield.

This symbol is intended to alert you that uninsulated voltage within this product may have sufficient magnitude to cause electric shock.Therefore, it is dangerous to make any kind of contact with any inside part of this product.

Ce symbole a pour but d'alerter toute personne qu'un contact avec une pièce interne de ce produit, sous tension et non isolée, pourrait être suffisant pour provoquer un choc électrique. Il est donc dangereux d'être en contact avec toute pièce interne de ce produit.

CAUTION: To reduce the risk of electric shock, do not remove cover (or back). No user-serviceable parts inside. Refer servicing to qualified service personnel.

WARNING
TO PREVENT FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

This symbol is intended to alert you of the presence of important operating and maintenance (servicing) instructions in the literature accompanying this product.

Ce symbole a pour but de vous avertir qu'une documentation importante sur le fonctionnement et l'entretien accompagne ce produit.

20080814_Installer800

1) **Read these instructions.**
2) **Keep these instructions.**
3) **Heed all warnings.**
4) **Follow all instructions.**
5) **Do not use this apparatus near water.**
6) **Clean only with dry cloth.**
7) **Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.**
8) **Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.**
9) **Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.**
10) **Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.**
11) **Only use attachments/accessories specified by the manufacturer.**
12) **Unplug this apparatus during lightning storms or when unused for long periods of time.**

IMPORTANT SAFETY INSTRUCTIONS, continued

Power Source Warning

A label on this product indicates the correct power source for this product. Operate this product only from an electrical outlet with the voltage and frequency indicated on the product label. If you are uncertain of the type of power supply to your home or business, consult your service provider or your local power company.

The AC inlet on the unit must remain accessible and operable at all times.

Ground the Product

WARNING: Avoid electric shock and fire hazard! If this product connects to cable wiring, be sure the cable system is grounded (earthed). Grounding provides some protection against voltage surges and built-up static charges.

Protect the Product from Lightning

In addition to disconnecting the AC power from the wall outlet, disconnect the signal inputs.

Verify the Power Source from the On/Off Power Light

When the on/off power light is not illuminated, the apparatus may still be connected to the power source. The light may go out when the apparatus is turned off, regardless of whether it is still plugged into an AC power source.

Eliminate AC Mains Overloads

WARNING: Avoid electric shock and fire hazard! Do not overload AC mains, outlets, extension cords, or integral convenience receptacles. For products that require battery power or other power sources to operate them, refer to the operating instructions for those products.

Provide Ventilation and Select a Location

- Remove all packaging material before applying power to the product.
- Do not place this apparatus on a bed, sofa, rug, or similar surface.
- Do not place this apparatus on an unstable surface.
- Do not install this apparatus in an enclosure, such as a bookcase or rack, unless the installation provides proper ventilation.
- Do not place entertainment devices (such as VCRs or DVDs), lamps, books, vases with liquids, or other objects on top of this product.
- Do not block ventilation openings.

Protect from Exposure to Moisture and Foreign Objects

WARNING: Avoid electric shock and fire hazard! Do not expose this product to dripping or splashing liquids, rain, or moisture. Objects filled with liquids, such as vases, should not be placed on this apparatus.

WARNING: Avoid electric shock and fire hazard! Unplug this product before cleaning. Do not use a liquid cleaner or an aerosol cleaner. Do not use a magnetic/static cleaning device (dust remover) to clean this product.

WARNING: Avoid electric shock and fire hazard! Never push objects through the openings in this product. Foreign objects can cause electrical shorts that can result in electric shock or fire.

Service Warnings

WARNING: Avoid electric shock! Do not open the cover of this product. Opening or removing the cover may expose you to dangerous voltages. If you open the cover, your warranty will be void. This product contains no user-serviceable parts.

WARNING: This device has anti-tampering technology. Attempts to open the enclosure by unqualified personnel may render the device inoperable.

Check Product Safety

Upon completion of any service or repairs to this product, the service technician must perform safety checks to determine that this product is in proper operating condition.

Protect the Product When Moving It

Always disconnect the power source when moving the apparatus or connecting or disconnecting cables.

20081017_3G_Micro_Cell_Safety

Welcome

Congratulations on purchasing the AT&T 3G MicroCell™. The MicroCell provides voice and data service to AT&T 3G wireless phones and devices within a home or small business. The MicroCell is secure and delivers maximum cellular signal strength within its coverage area – it's like having your own mini cell tower in your home or office for personalized coverage.

What's Inside This Guide

This guide provides information and instructions for installing and operating the MicroCell. It includes these topics:

- Getting Started
- Installation
- Activate Your Account
- MicroCell Status
- Device Status
- Operation
- Troubleshooting
- Antenna Descriptions
- Limited Hardware Warranty Terms
- FCC Compliance
- Radiation Exposure Statements

Getting Started

Before You Begin

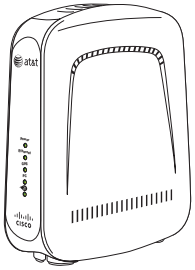
There are three things you must have before you can operate the MicroCell:

- Broadband service over DSL or Cable*
- Broadband modem or network router
- Computer with Internet access to register your device

Please verify these requirements before going any further.

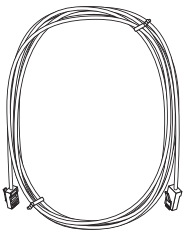
Unpack

Remove the contents of the MicroCell package and verify that you received the following:

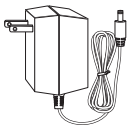


AT&T 3G MicroCell™

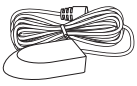
User Guide and Getting Started Guide



Ethernet Cable



AC Power Adapter



GPS Antenna Extension

(Packaged Separately)

If anything is missing or appears to be damaged, contact Customer Support at **800.331.0500** for assistance.

* Downstream speeds of at least 1.5 Mbps and upstream speeds of at least 384 Kbps are recommended for best performance. There are no restrictions on broadband service providers.

Installation

The MicroCell is a plug-n-play device that installs in minutes. Connecting the MicroCell to your pre-existing equipment is straight forward, but be sure to read the cabling instructions carefully before making connections.

About Ethernet Cabling

There are two Ethernet cabling options for installing your device. Which one is right for you, depends on the equipment setup you have.

- Option A: DSL/Cable Service with Router – You have DSL/Cable service, a broadband modem, and a network router that supports a PC network. See page 9 for Ethernet cabling instructions.
- Option B: DSL/Cable Service without Router – You have DSL/Cable service and a broadband modem that supports a single PC. See page 10 for Ethernet cabling instructions.

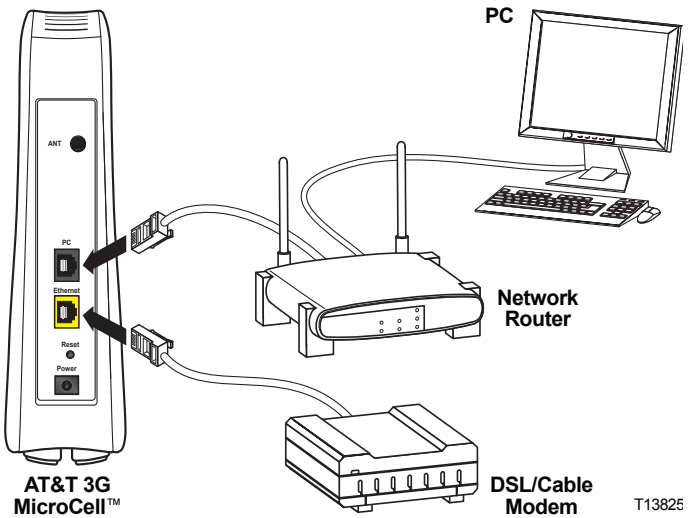
DSL/Cable Service with Network Router

If a network router is part of your Internet equipment setup, the MicroCell should be installed between the modem and network router.

Ethernet Cabling Procedures

- Place the MicroCell upright, near the modem, network router, and AC outlet.
- Turn off the modem, network router, and PC.
- Disconnect the Ethernet cable from the modem, while leaving the other end connected to the network router.
- Reconnect the Ethernet cable to the black connector marked PC on the MicroCell.
- Find the Ethernet cable that shipped with the MicroCell. Connect one end to a free port on the DSL/Cable modem and the other end to the yellow connector marked Ethernet on the MicroCell.
- When you have finished cabling the system, turn on the modem first, the router second, and then the PC. **Note:** Wait a few moments between turning on each device. This power-up sequence may be critical for older devices.

Note: It is essential for the router to be connected to the PC port to ensure the best quality of service on the MicroCell.



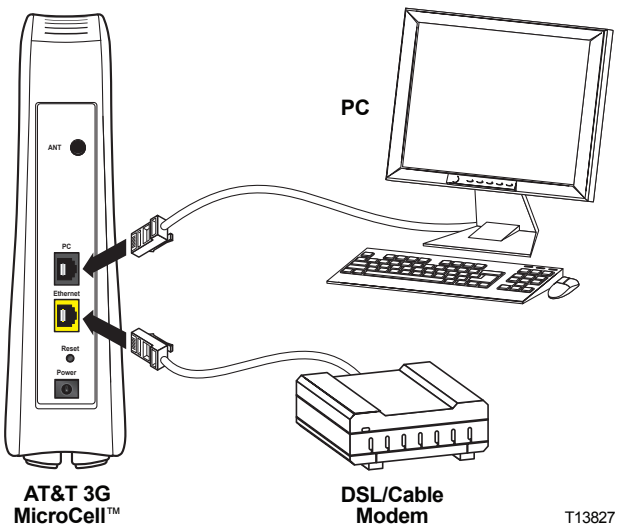
DSL/Cable Service without Network Router

If a network router is not part of your internet equipment setup, the MicroCell should be connected between the modem and the PC.

Ethernet Cabling Procedures

- Place the MicroCell upright, near the modem and AC outlet.
- Disconnect the Ethernet cable from the modem, while leaving the other end connected to the PC.
- Reconnect the Ethernet cable to the black connector marked PC on the MicroCell.
- Find the Ethernet cable that shipped with the MicroCell. Connect one end to the modem and the other end to the yellow connector marked Ethernet on the MicroCell.
- When you have finished cabling the system, turn on the modem and the PC.

Note: It is essential for the PC to be connected to the PC port to ensure the best quality of service on the MicroCell.

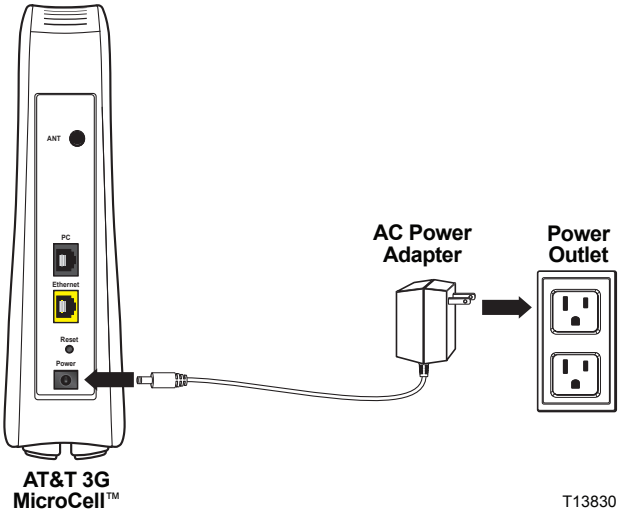


Power Cabling

Power cabling for the MicroCell is the same, no matter what your equipment configuration is. The MicroCell uses house current from a 120VAC outlet.

- Connect one end of the AC adapter to the rear panel connector marked AC adapter.
- Connect the other end to the AC outlet.

That completes installation. The device is now ready to be registered.

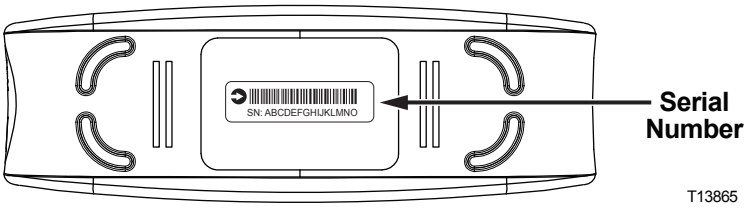


Activate Your Account

You must register your AT&T 3G MicroCell™ online before your service can be activated. Please go to **att.com/3GMicroCell**, which will walk you through the following steps.

- Login and navigate to the Welcome page. It will provide helpful information on what you will need to activate your service. Select "**Set Up Your Device**."

Step 1: Enter the serial number located on the bottom of your device. Please note that the serial number is case sensitive. Select "**Next**."



Step 2: Enter a nickname for your device, your email, and the street address where your device is installed. This sets the location for E911 service*. Select "**Next.**"

Step 3: Set up your Approved User List. Enter the wireless numbers you would like to grant access to your MicroCell. You can add more numbers at anytime, up to 10 in all. Select "**Next**."

Step 4: Confirm AT&T 3G MicroCell™ Device Set Up Information—Review your account information for accuracy, and Terms & Conditions. Select "**Submit**."

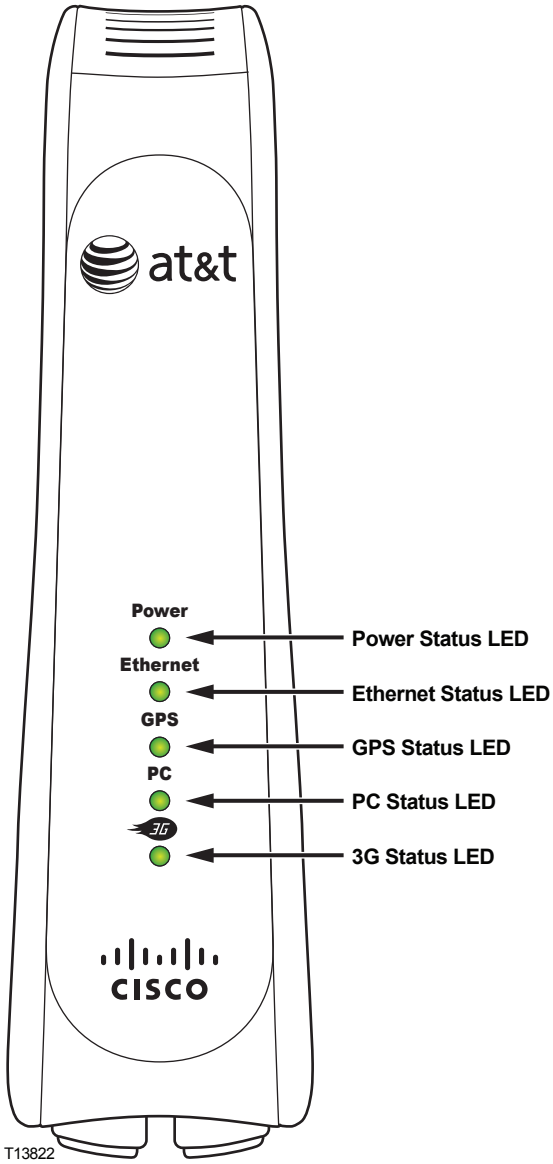
Congratulations! You have completed your online registration.

- Visit **att.com/3GMicroCell** anytime to manage your device settings.
- After registering your device, it can take 10-30 minutes to activate. Service is available when all MicroCell status LEDs turn green. If the Power LED stays red or if the 3G LED is still flashing after 30 minutes, see Troubleshooting on page 16 for additional information.

***E911 Service:** AT&T 3G MicroCell™ service is not available when either electrical service or your broadband service is unavailable. You will not be able to access E911 service using your wireless device unless you have service on AT&T's wireless network from your home. The MicroCell unit includes a GPS device that enables the unit to identify its location. The MicroCell will not work until it has identified its location. If the MicroCell is moved to a new location, it is important that instructions for updating the device location be followed to enable E911 service to function properly.

MicroCell Status

This diagram identifies the status LEDs on the MicroCell front panel.



This table describes how the status LEDs operate.

LED Indicator	Color/State	Description
Power	Off	No power.
	Red/Steady*	Power was just applied and the MicroCell is initializing. If it persists, a fault has occurred.
	Green/Steady	Power is on and there are no faults.
Ethernet (Broadband Connection)	Off*	No connection.
	Green/Steady	Ethernet link.
GPS	Off	Initial state.
	Green/Flashing*	Searching for GPS signal (part of first-time authentication).
	Green/Steady	GPS ready.
PC (PC/Router Connection)	Off	No connection. This is valid if you do not have a have a PC or router, i.e., you only use the device for MicroCell service.
	Green/Steady	Ethernet activity.
3G (MicroCell Connection)	Off	No configuration and no MicroCell service.
	Green/Flashing*	Initialization is in process. Flashes may be short or medium in length.
	Red/Flashing*	Fault condition(s) present that impact operation. No MicroCell service.
	Green/Steady	MicroCell service available.

*If any condition marked with an asterisk persists after 30 minutes, first see Troubleshooting on page 16 for additional information. If you are still unable to resolve the problem, contact Customer Support at **800.331.0500** for assistance.

Device Status

3G devices registered to access AT&T 3G MicroCell™ service on your MicroCell will display this alpha tag when service is available:

AT&T MicroCell

If you do not see this alpha tag on your device, you are either out of range of the MicroCell or your device isn't registered (see Approved User List), or your MicroCell is not functioning properly (see Troubleshooting on page 16 for additional information). If you are unable to resolve the problem, contact Customer Support at **800.331.0500** for assistance.

Operation

Performance Highlights

Here are some performance highlights for AT&T 3G MicroCell™ service using the MicroCell:

- Supports AT&T 3G wireless phones and devices
- Supports up to four simultaneous calls
- Supports hand out to the macro network
- Supports UMTS bands 2 & 5 (1900 MHz and 850 MHz)

What Happens When You Start Up the MicroCell?

Authentication

At startup, the MicroCell connects to the AT&T network using your Internet service. Then the AT&T network authenticates the MicroCell and its location. The process takes from 10 to 30 minutes to complete. If authentication succeeds, AT&T 3G MicroCell™ service is granted. If authentication fails, service is denied.

GPS Satellite Link

First-time authentication in a new location requires a GPS (Global Positioning System) link with the MicroCell.

- If the GPS link succeeds, authentication continues.
- If the GPS link fails, authentication is terminated. A failed GPS link is indicated by a flashing green GPS LED on the front panel.

What Should You Do About a Failed GPS Link?

A GPS link will fail because of low signal strength at the MicroCell.

If the 3G LED is also flashing, authentication has failed. See Troubleshooting on page 16 for steps you can take to fix the problem.

Note: You can still receive AT&T 3G MicroCell™ service when the GPS link is down as long as the MicroCell has previously completed authentication. However, if you move your MicroCell to a new address, it will need a GPS link again in order to complete authentication and receive AT&T 3G MicroCell™ service.

Troubleshooting

Your AT&T 3G MicroCell™ has been engineered to provide continuous service without intervention on your part. Occasionally, though, hardware faults and broadband service interruptions can occur that disrupt the operation of the MicroCell. For these occasions, there are remedial troubleshooting steps you can take to find the source of the problem and restore operation.

Note: When you suspect any disruption of service, always look at the MicroCell front panel status LEDs first.

Hardware Problems

If...	Then...
The Power LED is off.	The MicroCell is not getting AC power. • Make sure the AC adapter is securely connected between the MicroCell power connector and AC outlet or power strip (see the power cabling diagram on page 11). • Make sure there are no faults in the power strip or in the building's power system.
The Power LED is red.	A hardware fault on the MicroCell has occurred. • Recyle power on the MicroCell (disconnect and reconnect power to the unit) to restart initialization. • If the Power LED stays red, contact Customer Support at **800.331.0500** for assistance.
The GPS LED is flashing after 30 minutes.	The MicroCell cannot detect a GPS signal. • This condition usually occurs because the MicroCell is too far from a window, or is in a windowless room. This is a problem if the MicroCell has not previously completed first-time authentication (see GPS Satellite Link on page 15 for more information). • To fix: 1. Disconnect power and Ethernet cabling. 2. Move the MicroCell to a window. 3. Reconnect power and wait 10-30 minutes for the GPS link. 4. When the GPS LED turns to steady green, the MicroCell has the link it needs to continue with first-time authentication. 5. Allow the process to continue until the 3G LED turns to steady green. Then move the unit back to its original position and re-cable. **Note:** You must re-connect power within 20 minutes or the MicroCell will lose the GPS data and the entire procedure will need to be repeated. • An alternative solution is to install the optional GPS antenna extension (see Antenna Descriptions on page 18 for more information and installation instructions).

Hardware Problems, continued

If...	Then...
The Ethernet LED is off.	There is no physical connection between the MicroCell and the broadband modem. • Make sure an Ethernet cable is securely connected between the broadband modem and the MicroCell rear panel connector marked Ethernet (see the Ethernet Cabling diagrams on pages 9 and 10).
The PC LED is off.	There is no physical connection to the PC network. • Make sure the PC or network router is connected to this port (see the Ethernet Cabling diagrams on pages 9 and 10).
The 3G LED is off.	There is no configuration. In this case the Power LED may also be red. • To fix, recycle power on the MicroCell to restart initialization. • If the condition does not clear, contact Customer Support at **800.331.0500** for assistance.
The 3G LED is green/ flashing (short pulses).	Configuration is in process. • If this condition persists, the ISP is not responding. • To fix, recycle power on the broadband modem and wait several minutes for the condition to clear. • If the condition does not clear, contact your ISP for assistance.
The 3G LED is green/ flashing (even pulses).	Configuration has completed, but, a connection has not been opened with the AT&T Network. • If the condition persists, recycle power on the MicroCell and wait for the condition to clear. • If the condition doesn't clear, contact Customer Support at **800.331.0500** for assistance.
The 3G LED is red/flashing.	Faults are present on the MicroCell that impact service. • The Power LED may be red. If so, take steps to clear this condition. • GPS LED may be flashing. If so, take steps to clear this condition.

Service Problems

If...	Then...
The PC network performance declines.	Traffic across the MicroCell has risen to a critical level. • Check for unusually heavy data requests (video downloads are likely suspects) and limit them, if possible. • If the decline is chronic, consider upgrading service.
A 3G device is unable to access the AT&T 3G MicroCell™ service.	The device may not be registered (see Activate Your Account on page 12 and follow the instructions on how to access your account and register 3G devices).
Callers are having trouble making calls on the AT&T 3G MicroCell™ service.	The MicroCell may be serving a full load of calls. The MicroCell can support up to four simultaneous calls.

Antenna Descriptions

The MicroCell has one antenna for cellular signals and another for GPS signals. If GPS signal strength is too low, a port for connecting an optional GPS antenna extension is also available. All three are described below:

Cellular Antenna

The cellular antenna is mounted inside the MicroCell enclosure and is for transceiving cellular traffic with registered 3G devices. The maximum range of the AT&T 3G MicroCell™ is approximately 5000 square feet. Actual range will be limited by the density of obstructions.

GPS Antenna

The GPS (Global Positioning System) antenna is mounted inside the MicroCell enclosure and is for receiving GPS signals. It cannot be adjusted, but has enough gain in most instances to detect signals in any room with a window.

If the GPS link is unreliable (indicated by a flashing GPS status LED), try the following procedure:

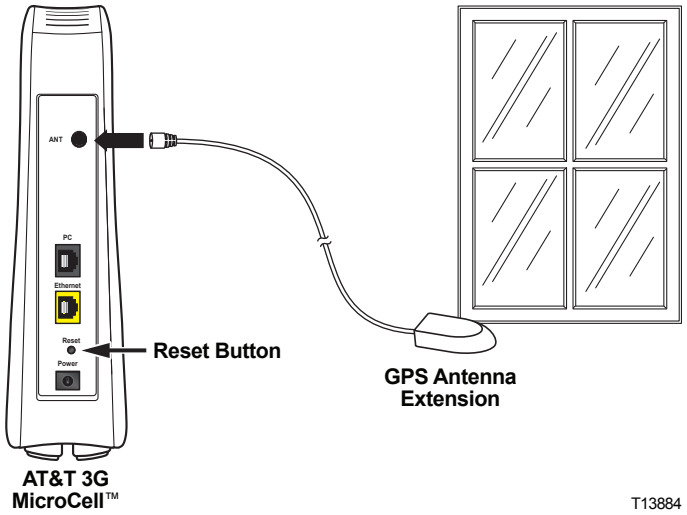
- Move the MicroCell closer to a window.
- Recycle power on the MicroCell to restart authentication.
- You'll know if the effort was successful if the GPS status LED turns to steady green.

If this procedure fails, try installing the optional GPS antenna extension.

GPS Antenna Extension Installation

- Plug one end of the device into the GPS antenna extension connector and place the other end as close as possible to the nearest window.
- Recycle power on the MicroCell to restart authentication.
- If the extension is successful, the GPS status LED will turn to steady green in 10 to 30 minutes. You must then allow authentication to continue until the 3G status LED turns to steady green.
- Disconnect the GPS antenna extension when you're done and store it in a safe place.

If this procedure fails, contact Customer Support at **800.331.0500** for assistance.



Note: Pressing the Reset button restores the MicroCell to its factory default settings. Do *not* press the Reset button unless you have been asked to by Customer Support.

AT&T Warranty Terms

FCC Compliance

United States FCC Compliance

This device has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against such interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy. If not installed and used in accordance with the instructions, it may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment OFF and ON, the user is encouraged to try to correct the interference by one or more of the following measures:

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

Any changes or modifications not expressly approved by Cisco Systems, Inc., could void the user's authority to operate the equipment.

The information shown in the FCC Declaration of Conformity paragraph below is a requirement of the FCC and is intended to supply you with information regarding the FCC approval of this device. *The phone numbers listed are for FCC-related questions only and not intended for questions regarding the connection or operation for this device. Please contact your cable service provider for any questions you may have regarding the operation or installation of this device.*

FC Declaration of Conformity

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

AT&T 3G MicroCell™
Model: MicroCell
Manufactured by: Cisco Systems, Inc.
5030 Sugarloaf Parkway
Lawrenceville, Georgia 30044 USA
Telephone: **770-236-1077**

Canada EMI Regulation

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la class B est conforme à la norme NMB-003 du Canada.

20060628 FCC Standard

Software and Firmware Use

The software described in this document is protected by copyright law and furnished to you under a license agreement. You may only use or copy this software in accordance with the terms of your license agreement.

The firmware in this equipment is protected by copyright law. You may only use the firmware in the equipment in which it is provided. Any reproduction or distribution of this firmware, or any portion of it, without our express written consent is prohibited.

Disclaimer

Cisco Systems, Inc. assumes no responsibility for errors or omissions that may appear in this guide. We reserve the right to change this guide at any time without notice.

Radiation Exposure Statements

Note: This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter. This equipment should be installed and operated with a minimum distance of 7.9 inches (20 cm) between the radiator and your body.

United States

This system has been evaluated for RF exposure for humans in reference to ANSI C 95.1 (American National Standards Institute) limits. The evaluation was based on evaluation per ANI C 95.1 and FCC OET Bulletin 65C rev 01.01. The minimum separation distance from the antenna to general bystander is 7.9 inches (20 cm) to maintain compliance.

Canada

This system has been evaluated for RF exposure for humans in reference to ANSI C 95.1 limits. The evaluation was based on evaluation per RSS-102 Rev 2. The minimum separation distance from the antenna to general bystander is 7.9 inches (20 cm) to maintain compliance.

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www.scientificatlanta.com

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