WaveIP
GigAccess Wireless Solutions

GigAccess™ OFDM 700 RSU

Installation and Operation Instructions

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1. Introduction

1.1 General

This document describes how to install and use GigAccess™ OFDM 700 Residential Subscriber Unit (RSU) to obtain wireless high-speed Internet access.

1.2 GigAccess™ OFDM System Overview

GigAccess™ OFDM is a wireless point-to-point and point-to-multipoint broadband communication system. The basic subsystem is composed of a single sector, which consists of an Access Unit (AU) and up to 250 Subscriber Units (SU). Each sector is a stand-alone communication network operating on a star topology with a gateway to the WAN, which allows two-way communication between the SUs and the WAN via the AU.

The following figure depicts a general description of a typical sector in the GigAccess™ OFDM system.
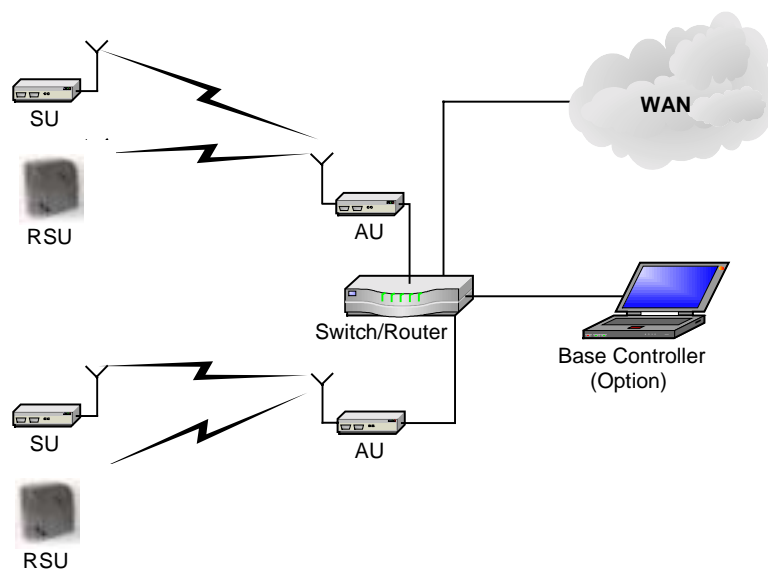

Figure 1-1: Typical sector in GigAccess™ OFDM System

2. Installation

2.1 Packing List

When you first open the package, verify that the unit is complete with the following components:

1. RSU Unit
2. Indoor Power Supply (AC input).
3. Quick start guide.

Figure 2-1: RSU package content

2.2 Installation Procedure

2.2.1 General

The RSU is a self-installed, plug and play unit, which requires minimum operation from the user.

A description of the RSU is given in the figure below.

1. Polarization Indication
2. Air link led (Green)
3. ETH link led (Yellow)
4. Received Signal Indicator Lights
5. ETH Connector
6. Power led
7. DC Power Jack

Figure 2-2: GigAccess™ OFDM Self-install RSU

2.2.2 Before You Start

1) Make sure your computer is equipped with an Ethernet Network Interface (NIC)
2) Make sure your computer is set up to automatically obtain an IP address (refer to section 2.2.5 for more information).
3) Select the appropriate location for the RSU:
   - Make sure you are operating the RSU in a room near an outside window.
   - Locate the RSU in such a way that the antenna side will be directed towards your service provider (AU direction).

- Obtain a clear line of site to the AU as much as possible - avoid any physical obstacles, which may block the signal.

2.2.3 Installation

The installation process should follow the following steps:

1) Connect the CAT5 Ethernet cable from the RSU data port to your PC NIC. Note that your RSU consists two Ethernet ports, so you can connect your PC to either of them, or to connect two PCs; each PC to different Ethernet connector.

2) Connect the power supply to the AC wall socket and to the RSU DC power port.

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WARNING!   Use only with the supplied Power Supply adapter

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3) Align the RSU until you get the maximum receive signal from your service provider. Best received indication when maximum "Received Power Indication LEDs" are light. Check both vertical and horizontal polarization and select the polarization that gives you the best receiving power. The RSU antenna polarization must be the same as in the AU antenna. In most applications, the preferred orientation is vertical polarization. (Above ground propagation of the signal is better when it is polarized vertically).

4) The RSU will automatically acquire the radio channel of the AU.

- Verify that the Air link led flashes (green led on the Ethernet connector), which indicated reception from the AU.
- Verify that the Ethernet link led light (yellow led on the Ethernet connector) when the PC is connected. This led will flash in case of Ethernet data transaction between the RSU and the PC.

Now you are ready to surf into the Internet.

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WARNING! Do not put any obstacle in front antenna. A minimum separation distance of 20 cm must be maintained between the device in operation and all persons.
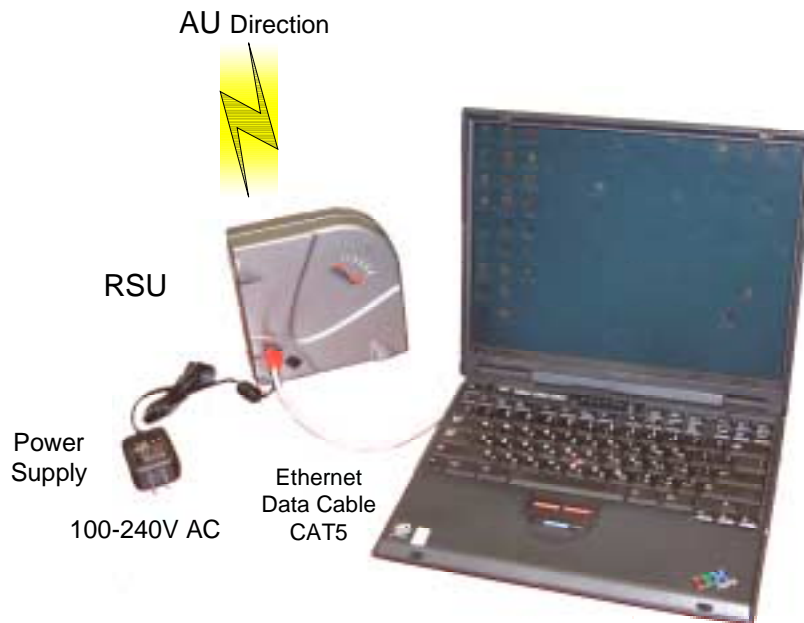
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Figure 2-3: GigAccess™ RSU - Installation Scheme

2.2.4 Radio Channel Selection

The radio channel is defined at the AU side.

The RSU is pre-configured to scan all channels. Therefore it will acquire the AU channel automatically.

2.2.5 User PC Setup

<u>In Case of specific IP setup</u> **–** configuration the PC IP as followed:

- Press right click on the Network Neighborhood Icon.
- Select the Protocol reed and press properties.
- Choose the Specify an IP address and fill in the required specific IP address.

<u>In Case of DHCP/NAT setup</u> **-** Configure the PC NIC obtain an IP address from DHCP server. For this configuration follow the following steps:

- Press right click on the Network Neighborhood Icon.
- Select the Protocol reed and press properties.
- Choose Obtain an IP address from DHCP server.

2.2.6 Safety

- Do not immerse the equipment in any type of liquid.
- Only operate the equipment from the power source(s) Supplied by Manufacturer! Any other type of input power source may cause damage to the equipment and voids the warranty.
- Do not place the equipment on an unstable surface.
- Do not disassemble the equipment. Removing covers voids the warranty.
- Do not expose the equipment to extreme hot or cold temperatures.

2.3 FCC Information

Notice: This device has been tested and found to comply with Radio Frequency Exposure Limits. A minimum separation distance of 20 cm must be maintained between the device in operation and all persons.

This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) This device must accept any interference received, including interference that may cause undesired operation.

This device Complies With FCC Standards
FOR HOME OR OFFICE USE

FCC Notice, USA

This equipment has been tested and found to comply with the limits for Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in 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 the relocate-receiving antenna.
- 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 dealer or an experienced radio/TV technician for help.

This device must accept any interference received including interference that may cause undesired operation. Any unauthorized modification or changes to this device without the express approval of WaveIP may void the user's authority to operate this device. Furthermore, this device intended to be used only when installed in accordance with the instructions outlined in this manual. Failure to comply with these instructions may also void the user's authority to operate this device and/or the manufacturer's warranty.

3. GigAccess™ OFDM 700 RSU Technical Specifications

3.1 General Specification

Access technology	TDMA (Time division multiple access)
Duplex schemes	TDD (Time division duplex)
Wireless MAC Interface	Proprietary based on IEEE 802.16
Applications	Access, Campus, Consecutive

3.2 Residential Subscriber Unit (RSU)

Physical Interface	2 x 10/100 Base-T
Connector Type	RJ-45
Protocol Supported	IP, ICMP, TCP, UDP, RTP, ARP, FTP, TFTP, DNS, HTTP, NAT, DHCP, PPPoE, RADIUS AAA, VLAN 802.1q.
Packet classification	Wire-speed based to information in layers 2, 3 and 4-7: MAC, IP, Protocol, Ports, TOS and VLAN, payload
Output Power: (at antenna port)	up to +25 dBm
Antenna	6 dBi
Software Update	Over the Air Download via TFTP
Operating Temperature	0°C - +40°C
Power (via indoor Outlet)	3.3 VDC, <6 Watt
Mechanical	6.3" x 6.3" x 2"

3.3 Radio Specifications

Operating Frequency	710 - 716 MHz and 740 - 746 MHz
RF Waveform	Orthogonal Frequency Division Multiplexing (OFDM).
Modulation	BPSK, QPSK, 16QAM
EIRP	+31 dBm
Number of Channels	2
Antenna Polarization	Vertical or Horizontal
Data Rates	up to 9 Mbps