AT-WR4662n

HIGH-SPEED MOBILITY - WIRELESS BASE ROUTER
IEEE 802.11a/b/g/n DUAL RADIO

2002/95/EC RoHS COMPLIANT

Overview

The AT-WR4662n is a wireless base station capable of 600Mbps throughput. It operates at both 2.4GHz and 5GHz frequency bands.

The AT-WR4662n is based on IEEE802.11n, with two-spatial-stream Multiple Input and Multiple Output (MIMO) technology. This technology delivers speeds of up to three times faster and up to three times wider coverage than IEEE802.11a/g.

Mobile IP is designed to allow mobile hosts to move from one network to another while maintaining a permanent IP address. This enables IP packet routing among mobile hosts, and also between mobile hosts and hosts located on the core network.

High-Speed Mobile IP (HSMIP) provides and improves broadband communication even when mobile hosts are moving at at high speed. Mobility is achieved by a network infrastructure in which HSMIP servers, HSMIP base routers and HSMIP mobile routers are the main components.

The HSMIP base router is a network appliance installed at a fixed location, for example beside a railway track, which has a permanent connection to the core network. It offers access to mobile nodes via a wireless medium.

In addition to High-Speed Mobility, the AT-WR4662n may be deployed as a standard Access Point delivering wireless access.

Point to Point, Point to Multipoint, and partially or fully meshed networks can be easily designed and deployed with limited need for advance definition of the network architecture.

Key Features

- IEEE 802.11a/b/g compliant
- IEEE 802.11n (2x2 MIMO chains)
- WLAN regulatory domain compliance (IEEE 802.11h included)
- AlliedWare Plus™ operating system based
- Industry Standard Command Line Interface (CLI)
- Routing capability (RIP, OSPF, IP static routes)
- High-Speed Mobile IP (HSMIP)
- Web GUI for HSMIP Manager
- Multicast routing via IGMP snooping
- Security (Firewall, NAT, DoS, IP/Port/MAC filtering)
- IEEE 802.1X, RADIUS support
- Configurable wireless station role
- Network resilience and high availability
- DHCP client/server
- DNS client/server
- NTP client/server
- SSH login
- Syslog support
- SNMP support
- File transfer support (FTP, SCP, TFTP)
- Multiple software images with fallback recovery
- Multiple configuration storage
- Troubleshooting utilities
- IEEE 802.3af compliant PoE feeding
- IP67 outdoor enclosure rating with protective vent

Product Positioning

The High-Speed Mobile IP (HSMIP) solution is ideal for Intelligent Transportation System (ITS) and vehicle-to-infrastructure wireless communications (V2I).

By removing the speed barrier, railway/subway providers, highway providers and municipalities can achieve real-time communication with vehicles. This improves public safety, law enforcement, freight and cargo surveillance, traffic management and infotainment.

As a wireless base station, AT-WR4662n is a useful component for Wireless ISPs, local utilities, municipalities, hospitality and enterprises.

Wireless ISPs can easily and quickly provide homes in rural areas with broadband Internet access and VoIP telephony and, at the same time, can set WiFi hot spots for roaming users.

Enterprises can connect remote buildings without the need for expensive leased lines and can extend WiFi coverage to outdoor areas to provide users with mobile intranet and Internet access everywhere.

Municipalities can build wireless IP networks for connecting remote offices and for increasing public safety with real time monitored surveillance cameras and continuous communication with local police patrols.

Local utilities can easily control their remote equipment and read, in real time, gas, water and electricity meters without the need for expensive fiber cabling.

Product Specifications

Configuration and Management

Administration

For security reasons, only SSH login is allowed. The Administrator password is configurable and any login session has an idle time-out.

Industry Standard Command Line Interface (CLI)

The industry standard CLI makes system management easy and intuitive, and so reduces training costs. Each command is associated with a specific function, or a common function performing a specific task. You can automate your configuration tasks, as many of these commands may be combined into scripts.

With three distinct modes, the CLI is very secure. In *User exec mode* you can view settings and troubleshoot problems but cannot make changes to the system. In *Privileged exec mode* you can change system settings and restart the device. You can only make configuration changes in Global configuration mode, which reduces the risk of making accidental configuration changes. The access to *Privileged exec mode* is protected by password.

Firmware upgrade

You can upgrade the Firmware image by either downloading a file from a remote server, or loading it from a file stored in the local file system. Auto recovery and fall back mechanisms make the process robust against failure

Configuration storage

Besides factory (default) and startup configuration, you can save multiple configuration instances. Configuration data is saved in CLI format and stored in non volatile memory after encryption.

File transfer

File transfer between the local file system and remote servers uses Uniform Resource Locator (URL) reference and is handled by most common protocols.

High-Speed Mobile IP

Standard-based solution

High-Speed Mobile IP is based on standard IP protocols, RFC 3344 IP mobility support and IEEE 802.11 WLAN communication.

High throughput

Using IEEE 802.11n as the mobile communication medium you get more than 40Mbps throughput.

Highly secure

Security is a critical matter using radio waves as media, because you face the potential risk of eavesdropping, session hijacking, 'man-in-the-middle' and fake access point attacks.

Security enforcement is assured by:

- Session key exchange with strong encryption to prevent tapping
- HSMIP mobile router authentication to prevent unauthorized access
- HSMIP base router authentication to prevent access system spoofing
- HSMIP packet authentication to prevent DoS attacks

Despite the framework complexity, security process is optimized to support high-speed mobility.

Zero handover

Mobile IP maintains a continuous connectivity when moving from one access point to another one, but link switching operations (handover) must be performed with low latency to reduce packet delay and loss.

To overcome high-speed mobility constrains, HSMIP solution combines two key technologies:

- Make Before Break
- Packet Division Multiple Access (PDMA)

Make Before Break means the mobile node connects to the next access point before the signal strength becomes critical and communication errors occur.

PDMA means the mobile nodes establish concurrent connections with multiple access points using the same radio interface; the radio interface transmits each packet independently and timing synchronization is not required.

The HSMIP solution squeezes handover latency and so supports mobility for vehicles moving at 300 Km/h (186 MPH) or more.

High Stability and Availability

Make Before Break and PDMA compounding enables the HSMIP mobile router to select the best next access point by evaluating the quality of available links.

Redundant wireless coverage resolves the situation where HSMIP base routers are out-of-service.

Scalability

Additional HSMIP network appliances may be added without disrupting the current deployment.

Network services

Management

- Industry Command Line Interface (CLI), via SSH and serial console

Bridging

- Multiple bridge interfaces
- VLAN tagging
- VLAN bridging

Routing

- IPv4 static routes
- Routing Information Protocol (RIP v1, v2)
- Open Shortest Path First (OSPF v1, v2)
- High-speed Mobile IP
- Inter-VLAN routing

Multicasting

- IGMP snooping

Network resilience

- Virtual Router Redundancy (VRRP)
- Spanning-Tree Protocol (STP)
- Multiple Spanning-Tree Protocol (MSTP)
- Rapid Spanning-Tree Protocol (RSTP)

Firewalling and NAT

- Source and destination NAT
- Bridge firewalling
- Stateful packet filtering
- Packet classification based on ACL

Security
- Access Control List:
  - Type of Service (TOS)
  - DiffServ (DS)
  - Source/destination IP address
  - TCP/UDP source/destination port
  - IP protocol number
- IEEE 802.1X port-based access control
- IEEE 802.1X RADIUS support
- SSL
- TLS

Applications:
- BootP
- DHCP client/server
- DNS client/server
- NTP client/server
- Syslog client/server
- TELNET client
- Embedded system monitoring
- File transferring:
  - Secure Copy (SCP)
  - FTP client
  - TFTP client
- Troubleshooting tools:
  - ping
  - traceroute
  - iperf
  - tcpdump
  - athstats (wireless traffic statistics)
  - 80211stats (802.11 statistics)
  - radartool (DFS logging)
  - mnstats (HSMIP service statistics)

Wireless features
- IEEE 802.11a/b/g
- IEEE 802.11n - 2x2 MIMO chains
- IEEE802.11d
- IEEE802.11e
- IEEE802.11h
- IEEE802.11i - Supported methods:
  - EAP-PEAPv0 (GTC, MD5 MSCHAPv2)
  - EAP-PEAPv1 (GTC, MD5 MSCHAPv2)
  - EAP-TLS
  - EAP-TTLS (GTC, MD5 MSCHAPv2)
  - LEAP (STAtion side only)
  - WEP (40,128)
  - WPA/WPA2 (TKIP, AES, Enterprise)
- Regulatory domain compliance
- Network topology: infrastructured
  - Access Point
  - Bridge
  - Repeater
  - STAtion
- WMM
- Enhanced Auto Channel Selection
- SSID hiding/ignoring
- Multiple SSID (max. 8 per port)
- Antenna alignment support
- VLAN to SSID mapping
- Scan list of users
- Advanced wireless interface tuning:
  - Beacon period
  - Client isolation
  - Client max association
  - IEEE 802.11b fall-back control
  - Short radio preamble
  - Short slot time

Technical Specifications

Standard Compliance
RoHS compliant.

ElectroMagnetic Compatibility (EMC)
ETSI EN 50121-4:2006
ETSI EN 50385:2002
ETSI EN 61000-6-3:2007
ETSI EN 61000-6-4:2007
ETSI EN 301 489-17 V2.1.1

Radio equipment
ETSI EN 300 328 V1.7.1
ETSI EN 301 893 V1.5.1

Safety
ETSI EN 60950-1:2006+A11:2009+A1:2010

IMPORTANT NOTE:
This product is not available in North America

Environmental Specifications

Operating Temp.:	-30° - 65°C (-22° - 149°F)
Storage Temp.:	-40° - 70°C (-40° - 158°F)
Relative humidity:	95% relative, non condensing
International Protection Rating:	IP67[1]
MTBF:	39,000 hours

Physical Specifications

Dimensions (W x D x H):	212 x 57 x 183 mm 8.35" x 2.25" x 7.21"
Weight:	<1.2Kg (2.64 lbs)
Case:	Aluminum enclosure

Power Characteristics

AC/DC adapter	
Input Voltage	IEEE 802.3af PoE
Voltage range:	7 ~ 20VAC
Max consumption:	10W
Connector:	RJ-45 female

Interfaces

Wired Interfaces

Type:	Fast Ethernet
Standard:	IEEE 802.3u
Ports:	1
Connector:	RJ-45 Female

Wireless Interfaces

Type:	WLAN
Standard:	IEEE 802.1 1a/b/g/n
Ports:	2
Connector:	4x N-type, Female

[1] *with optional AT-TQ0051/3 UTP cable*

AT-WR4662n | High-Speed Mobility - wireless base router

Radio Characteristics

	IEEE 802.11a	IEEE 802.11b	IEEE 802.11g
FREQUENCY RANGE:			
	4.9GHz ~ 5.85GHz	2.3GHz ~ 2.5GHz	
MODULATION TECHNIQUE:			
	OFDM (BPSK, QPSK, 16QAM, 64QAM)	DSSS (DBPSK, DQPSK, CCK)	OFDM (BPSK,QPSK, 16-QAM, 64-QAM)
OUTPUT POWER: [2]			
Tolerance: ±2dB@25°C ±3dB@0~60°C	21dBm @6Mbps 16dBm @54Mbps - 19dBm @MCS0 (20MHz) 14dBm @MCS7 (20MHz) 18dBm @MCS0 (40MHz) 13dBm @MCS7 (40MHz)	19dBm @1Mbps 21dBm @11Mbps	23dBm @6Mbps 19dBm @54Mbps - 21dBm @MCS0 (20MHz) 17dBm @MCS7 (20MHz) 20dBm @MCS0 (40MHz) 16dBm @MCS7 (40MHz)
RECEIVE SENSITIVITY:			
1 Rx chain	-82dBm @ 6Mbps -65dBm @ 54Mbps - -82dBm @MCS0 (20MHz) -64dBm @MCS7 (20MHz) -79dBm @MCS0 (40MHz) -61dBm @MCS7 (40MHz)	-82dBm @ 1Mbps -76dBm @ 11Mbps	82dBm @ 6Mbps -65dBm @ 54Mbps - -82dBm @MCS0 (20MHz) -64dBm @MCS7 (20MHz) -79dBm @MCS0 (40MHz) -61dBm @MCS7 (40MHz)
2 Rx chain	-91dBm @ 6Mbps -75dBm @ 54Mbps - -91dBm @MCS0 (20MHz) -73dBm @MCS7 (20MHz) -87dBm @MCS0 (40MHz) -70dBm @MCS7 (40MHz)	-91dBm @ 1Mbps -87dBm @ 11Mbps	-91dBm @ 6Mbps -76dBm @ 54Mbps - -91dBm @MCS0 (20MHz) -73dBm @MCS7 (20MHz) -86dBm @MCS0 (40MHz) -71dBm @MCS7 (40MHz)
DATA RATES:			
	54,48,36,24,18,12,9,6 Mbps, auto-fallback	11,5.5,2,1 Mbps, auto-fallback	54,48,36,24,18,12,9,6 Mbps, auto-fallback
DATA RATES (802.11A/N, 802.11G/N ONLY):			
	@400GI 1Nss: ≤ 150Mbps (40MHz) 2Nss: ≤ 300Mbps (40MHz)	@800GI 1Nss: ≤ 65Mbps (20MHz) 2Nss: ≤ 130Mbps (20MHz) 1Nss: ≤ 135Mbps (40MHz) 2Nss: ≤ 270Mbps (40MHz)	
SECURITY:			
	- 64-bit,128-bit, 152-bit WEP Encryption - 802.1x Authentication - TKIP and AES hardware Encryption		
OPERATION MODE:			
	- bridging - infrastructure - HSMIP - WDS		
MEDIA ACCESS PROTOCOL:			
	CSMA/CA with ACK architecture 32-bit MAC		

Ordering Information

AT-WR4662n
High-Speed Mobility - wireless base router - IEEE 802.11a/b/g/n dual radio

Associated Products

AT-6101G
IEEE 802.3af GE PoE injector

AT-WR4652-80
High-Speed Mobility - wireless mobile router - IEEE 802.11a/b/g/n dual radio

AT-WR4684HA-60
High-Speed Mobility - home-agent and authenticator

AT-WR4684M-60
High-Speed Mobility - manager

AT-TQ00xx
Cables and accessories

[2] *Output power is the maximum signal level delivered by the radio. The signal level is automatically limited in accordance to the selected regulatory domain.*

Allied Telesis the solution : the network

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