

Product Overview

Albenia Systems proudly introduces the ALB-450 series of 802.16-2004 point-multipoint Base Station system operating in the 5 GHz license-exempt ETSI/FCC bands.

The ALB-450 series belongs to the high performing and well proven ALB-400 family of single-sector and multiple-sector 802.16-2004 Base Stations. ALB-400 Base Stations can be used to provide Point-Multipoint wireless connectivity to ALB-200 Subscriber Stations operating in slave mode.

These Base Stations comply with the IEEE 802.16-2004 standard and provide up to 35 Mbps Ethernet aggregated throughput per sector.

The highly scalable architecture of these Base Stations has been optimized to maximize the functionality, offering extensive QoS control on multiple differentiated services and users, total control on the network parameters, ARQ, data encryption and advanced management interfaces.

ALB-450 is based on a robust hardware platform specifically designed for professional applications, with best-in-class performance radio which allows unprecedented coverage in the worst scenarios.

The system is built based on industrial-grade components with protection against shock and vibration in order to allow professional point-multipoint applications like video transmission and backhaul networks in the toughest scenarios.

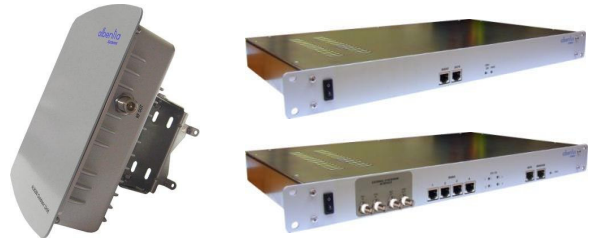
System Description

The ALB-450 Base Stations are easily scalable into multiple-sector configurations, and provide access connectivity to an unlimited number of ALB-250 stations operating in slave mode.

A single-sector ALB-450 base station comprises an outdoor radio unit connected to an indoor power supply injector via a standard cat5 Ethernet cable which carries data and power. The outdoor unit houses all baseband and radio electronics in a compact and robust weather-proof IP67 enclosure.

Multiple-sector Base Stations can be configured by connecting several outdoor units to a single rack-mount indoor unit which synchronizes all sectors in order to cancel TDD inter-sector interferences.

This family of Base Stations implement the most advanced functionality of the IEEE 802.16-2004 standard, like ARQ, support to all QoS classes, multiple convergence sublayers and unlimited differentiated service flows per user to allow triple-play applications.



Thanks to the use of wider channel bandwidths of up to 10 MHz, this solution is able to provide an outstanding throughput-coverage performance comparable to expensive licensed band high power base stations.

The ALB-450/250 Point-Multipoint solution has been specifically designed for professional applications, so that network control overhead has been minimized in order to provide the maximum throughput and the highest MAC layer efficiency (up to 94%)

System integration, user and service provisioning is supported by a powerful and intuitive management system based on SNMP, web, command line interface and an innovative XML-RPC open protocol for remote management.

PRODUCT HIGHLIGHTS

Professional IEEE 802.16-2004 Base Station for the unlicensed 5 GHz bands

Compatible with ALB-250 professional Subscriber Stations

IEEE802.16-2004 standard compliance

Single/multiple-sector configurations

Up to 35 Mbps Ethernet aggregated net throughput per sector

Full QoS support: BE, RTPS, nRTPS and UGS

ARQ (Automatic Repeat Request)

Available in ETSI 5470-5725 MHz and FCC 5725-5875 MHz bands

Advanced networking functionality: Bridging, routing, VLAN, NAT

SNMP, web, CLI and XML management

Outdoor easy installation

Low power consumption



System Specifications

Radio parameters			
Frequency Band	5470-5725 MHz (ETSI) or 5725-5875 MHz (FCC). See ordering options.		
Modulation	OFDM IEEE 802.16-2004 - 256 subcarriers, cyclic prefix 1/4, 1/8, 1/16 or 1/32		
Supported channel bandwidth	1.75, 3.5, 7 and 10 MHz		
Adaptive modulation	BPSK, QPSK, 16QAM and 64QAM		
FEC code rate	1/2, 2/3 and 3/4 concatenated Reed-Solomon and Viterbi		
Maximum output power	+24 dBm (+20 dBm for 64QAM-3/4)		
Transmit power control	> 40 dB		
Duplexing method	TDD (Time Division Duplexing)		
Uplink/Downlink allocation	Programmable from 4:1 to 1:4		
TDD synchronization	External or internal references (10 MHz, 1pps). Requires ARBA-IDU unit		
Antenna connector	N-type, 50 ohms		
RF parameters	Modulation	Sensitivity (1.75 MHz)	Sensitivity (10 MHz)
	BPSK-1/2	-99.5 dBm	-92 dBm
	QPSK-1/2	-96.5 dBm	-89 dBm
	QPSK-3/4	-94 dBm	-86.5 dBm
	16QAM-1/2	-91 dBm	-83.5 dBm
	16QAM-3/4	-87.5 dBm	-80 dBm
	64QAM-2/3	-83.5 dBm	-76 dBm
64QAM-3/4	-81.5 dBm	-74 dBm	
Data traffic and Throughput			
Maximum over-the-air data rate	37.7 Mbps (64QAM-3/4, 10 MHz BW)		
Ethernet aggregated throughput	35 Mbps (64QAM-3/4, 10 MHz BW)		
ARQ support	Yes, per IEEE 802.16-2004 standard - Selectable per service flow		
Simultaneous registered users	Unlimited		
Encryption	AES and 3DES		
Quality of Service (QoS)			
Supported QoS types	UGS, RTPS, nRTPS and BE (IEEE 802.16-2004 standard)		
Service differentiation	Layer-2 Layer-3 Layer-4	MAC source/destination address, EtherType, VLAN tag DSCP ToS, IP source/destination address and subnet, Protocol type TCP, UDP source/destination port range	
Differentiated service flows	Unlimited differentiated services per user		
Management and Provisioning			
Management local interfaces	Web, Command-Line Interface		
Management remote interfaces	SNMP, XML-RPC		
User and services local provisioning	XML local database		
User and services centralized provisioning	AAA Radius, LDAP, XML-RPC		
Network functionality			
Layer-2 Network functionality	Bridging (IEEE 802.1), VLAN (IEEE 802.1q)		
Layer-3 Network functionality	Static/Dynamic routing, NAT, DHCP server/client		
Supported CS	Ethernet, IPv4oEthernet, VLAN, IPv4oVLAN		
Networking modes	Bridge mode, IP routing		
Data interface	10/100 Base-T Ethernet RJ45		
Physical, Mechanical and Electrical			
Size	395 x 265 x 95 mm		
Outdoor Unit Weight	3.2 kg		
Power Supply	Basic Optional	802.3af compliant (PoE) 12 or 48 Volts (separate connector for solar panel supply)	
Power Consumption	<18 Watts (full traffic conditions)		
Standards Compliance			
Modulation	IEEE 802.16-2004		
Radio	ETSI EN 301 893, ETSI EN 302 502		
Environmental	ETSI EN 300 019-1-4 C4.1E (ODU), ETSI EN 300 019-1-3 C3.2 (IDU)		

ORDERING INFORMATION

Outdoor Units

ALB-456 ALB-400 base station system 5470-5725 MHz
ALB-458 ALB-400 base station system 5725-5875 MHz

Indoor Units

ALB-PSE Power supply injector (included in all ALB-400 base systems)
ALB-IDU-1 Single-sector rack-mount indoor unit with sync external reference
ALB-IDU-4 Four sector rack-mount indoor unit with sync external or internal references
ALB-IDU-CH Multiple-sector rack-mount indoor chassis



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