

Product Overview

Alcentia Systems proudly introduces the ARBA-550 series, the first truly WiMAX interoperable Base Station system operating in the 5 GHz license-exempt ETSI/FCC bands.

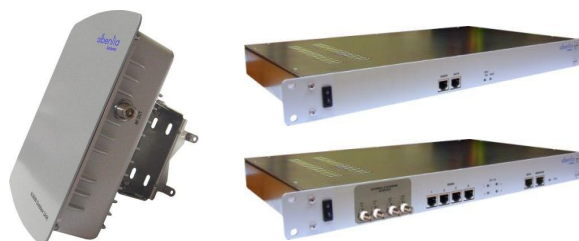
The ARBA-550 series belongs to the high performing and well proven ARBA-500 family of single-sector and multiple-sector WiMAX Base Stations

These Base Stations comply with the IEEE 802.16-2009 standard and provide the highest net throughput in the industry thanks to the high data-rate OFDM physical layer and the outstanding efficiency of the MAC layer.

ARBA-550 is based on a robust hardware platform with best-in-class performance radio which allows unprecedented coverage in the worst scenarios.

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.

ARBA-550 has shown interoperability with many low-cost CPEs manufactured by multiple vendors, enabling CAPEX optimization based on the customer's particular



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, and far beyond proprietary systems operating in license-exempt bands.

ARBA-550 is an easy to install and low power consumption solution perfectly suited for rural WiMAX deployments, supporting solar-based power supply.

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.

System Description

The ARBA-550 Base Stations are easily scalable into multiple-sector configurations, and provide access connectivity to a wide range of Subscriber Stations from residential low-cost CPEs to professional/industrial terminals.

A single-sector ARBA-550 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 802.16-2009 standard, like ARQ, support to all QoS classes, multiple convergence sublayers and unlimited differentiated service flows per user to allow triple-play applications.

PRODUCT HIGHLIGHTS

Industry's first interoperable WiMAX Base Station in the 5 GHz band

IEEE802.16-2009 (WiMAX) standard compliance

Single/multiple-sector configurations

Best-in-class net spectral efficiency of 3.5bps/Hz

Full QoS support: BE, RTPS, nRTPS and UGS

ARQ (Automatic Repeat Request)

Available in ETSI 5470-5725 MHz and FCC 5725-5825 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 5725-5825 MHz (FCC). See ordering options.		
Modulation	OFDM IEEE 802.16-2009 - 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		
Transmit power control	> 40 dB		
Duplexing method	TDD (Time Division Duplexing)		
Uplink/Downlink allocation	Programmable from 4:1 to 1:4		
Dynamic Frequency Selection	Yes		
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)		
MaxEthernet aggregated throughput	Basic	20 Mbps (40Mbps in 20MHz)	
	Advanced (1)	34.9 Mbps (69.8Mbps in 20MHz)	
ARQ support	Yes, per IEEE 802.16-2009 standard - Selectable per service flow		
Simultaneous registered users	Basic	20	
	Advanced (2)	Unlimited	
Encryption	AES and 3DES		
Quality of Service (QoS)			
Supported QoS types	UGS, RTPS, nRTPS and BE (IEEE 802.16-2009 standard)		
Service differentiation	Layer-2	MAC source/destination address, EtherType, VLAN tag	
	Layer-3	DSCP ToS, IP source/destination address and subnet, Protocol type	
	Layer-4	TCP, UDP source/destination port range	
Differentiated service flows	Basic	One bidirectional service per user	
	Advanced (3)	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	802.3af compliant (PoE)	
	Optional	12 or 48 Volts (separate connector for solar panel supply)	
Power Consumption	<18 Watts (full traffic conditions)		
Standards Compliance			
WiMAX	IEEE 802.16-2009 OFDM PHY		
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)		

Note 1: Extended throughput (34.49Mbps/10MHz) requires option ARBA-500-THR

Note 2: Unlimited registered users requires option ARBA-500-USR

Note 3: Unlimited differentiated service flows requires option ARBA-500-MDS

ORDERING INFORMATION

Outdoor Units

ARBA-556	ARBA-500 base system 5470-5725 MHz
ARBA-558	ARBA-500 base system 5725-5875 MHz
ARBA-500-THR	Extended throughput up to 34.4 Mbps
ARBA-500-USR	Unlimited registered users
ARBA-500-MDS	Unlimited differentiated service flows per user

Indoor Units

ARBA-PSE	Power supply injector (included in all ARBA-500 base systems)
ARBA-IDU-1	Single-sector rack-mount indoor unit with sync external reference
ARBA-IDU-4	Four sector rack-mount indoor unit with sync external or internal references
ARBA-IDU-CH	Multiple-sector rack-mount indoor chassis



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