BreezeACCESS™ V

Affordable freedom

The BreezeACCESS family of products provides a comprehensive solution for broadband wireless access in the unlicensed ISM bands-2.4 GHz as well as 5 GHz. BreezeACCESS products offer data and voice services to various customer profiles, unsurpassed service offerings and best frequency combination.

BreezeACCESS V operates in the 5.725-5.850 GHz and 5.15-5.35 GHz unlicensed bands and is best suited for service providers. Incorporating the same mature, feature-rich and well-established BreezeACCESS II components, BreezeACCESS V is the ideal network expansion for broadband wireless access operators offering voice and IP-based services.

Key Advantages

- Ideal network expansion as well as backhauling for congested 2.4 GHz locations

- Best service offering including data and voice services, security, QoS and VPN

- Quick, demand-based deployment using established and reliable BreezeACCESS technology, incorporating:
    - o Conventional Infrastructure
    - o Familiar installation and configuration (Co-location for existing BreezeACCESS II users)
    - o Time-honored system architecture, features and management

- Winning combination of 2.4 GHz & 5 GHz co-located to maximize revenues with existing investment

- Optimal solution for the lower UNII/HIPERLAN bands (5.15-5.35 GHz)

Product Highlights

BreezeACCESS V delivers a comprehensive range of product features, ensuring fast, consistent and dependable data and voice service, including...

- Robust frequency hopping Spread Spectrum technology with Time Division Duplex (TDD) mode.

- Easy installation and low cost of ownership enable rapid market penetration, increased subscription and enhanced value-added services.

- Fast packet-based data transmission.

- Toll-quality voice with integrated RJ-11 voice ports in subscriber units, combined with V5.1 gateway delivers advanced telephony features.

- Adaptive Circuit Switched Emulation (ACSE) air protocol that maintains the efficiency of IP transmission, while reserving specific time slots for active voice call traffic.

- Highly cost-effective infrastructure and customer premises equipment.

- Enhance Quality of Service (QoS) features: 802.1Q based VPN, 802.1P based prioritization, CIR/MIR setting.

- Carrier-grade features including a rack mount chassis base station with redundancy, hot swap capability and UPS facilities.

- Easy-to-use SNMP-based remote management system, enabling simple unit configuration and multiple simultaneous unit upgrading.

BreezeACCESS V System Components

Base Station

The BreezeACCESS V indoor/outdoor Access Unit configuration includes an indoor module and outdoor unit that contains the radio and antenna units. Data, power, management and control signals are transmitted from the indoor unit to the outdoor unit via a coaxial cable.

All Access Units are connected to the subscriber's data equipment via a standard IEEE 802.3 Ethernet 10BaseT (RJ 45) interface. BreezeACCESS V provides two types of Base Station configurations, delivering superior flexibility in architecture and network deployment.

Base Station Shelf

The 19" Base Station shelf (BS-SH) can hold up to seven BS-AU modules 2.4 GHz (II) or 5 GHz (V), providing reliable access to maximum numbers of subscribers and full-scale redundancy. The BS-AU modules can be synchronized to ensure optimal utilization of the available frequency spectrum.

AU-E-BS unit

Features an indoor module and outdoor unit, which contains a radio unit and an RF connector for a separate external antenna

Stand-Alone "Micro Cell" Base Units

The Micro Cell Access Units are stand-alone base-station modules that connect to an Indoor/Outdoor Access Unit configuration.

AU-E-NI units

Features an indoor module and outdoor unit, which contains a radio unit and an RF connector for a separate external antenna.

CPE

The BreezeACCESS V series of Customer Premises Equipment (CPE) features data-only or data and voice capabilities. Single user (1D), or bridge (BD) data port options are available.

All CPE options connect to the subscriber's data equipment via a standard IEEE 802.3 Ethernet 10-BaseT (RJ 45) interface. Telephony services are supported using a standard POTS (RJ 11) interface connected directly to the subscriber's telephone. Data, power, management and control signals are transmitted from the indoor unit to the outdoor unit via a coaxial cable.

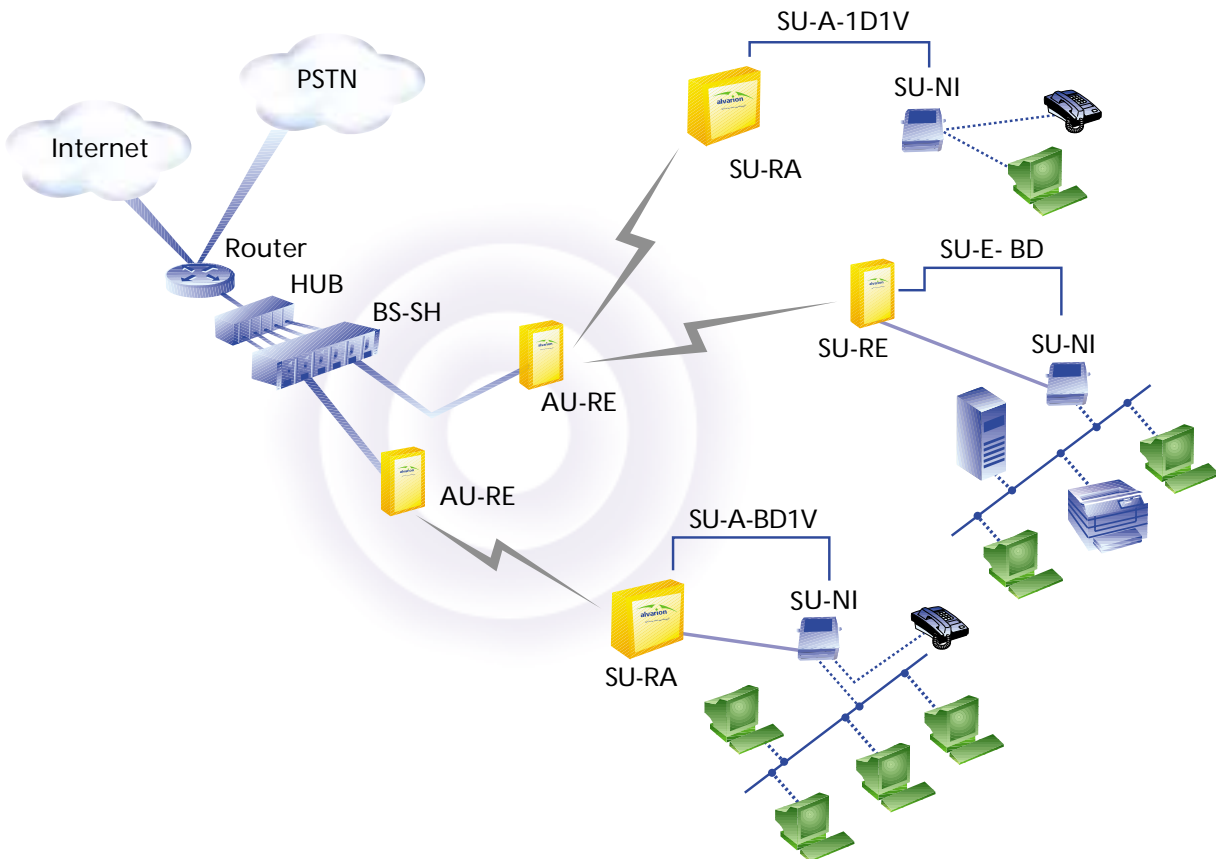The outdoor units feature two antenna options, delivering enhanced network flexibility, as follows:

SU-A unit: Features a radio module and integrated flat panel antenna.

SU-E unit: Features a radio module and RF connector for a separate external antenna.

BreezeACCESS V
Unrestricted access, unlimited choice.

Specifications

Radio and Modem

Modulation	GFSK modulation, with 2,4,8 modulation states (1,2,3 bits / symbol).		
Symbol Rate	1 M symbol/sec		
Gross bit rate	1,2,3 Mbps		
Operation Mode	Time Division Duplex		
Radio Access Method	FH-CDMA		
Frequency	5.725-5.875 GHz		5.15-5.35GHz
Standard Compliance	FCC Part 15.247, ETS 300 328		
Channel Bandwidth	1 MHz		2 MHz
Output Power (at antenna port)	26 dBm typical		25 dbm max
Antenna SU-RA	20dBi, 14° horizontal x 11° vertical EN 302 085, Class TS 2 compliant		20dBi, 14° horizontal x 11° vertical EN 302 085, Class TS 2 compliant
SU-RE, AU-RE	N-Type connector, 50 ohm		N-Type connector, 50 ohm
Receive nominal sensitivity	1 Mbps	-85 dBm	-91 dBm
(at antenna port BER	2 Mbps	-78 dBm	-84 dBm
10E-6) SU-A/E AU- E	3 Mbps	-70 dBm	-76 dBm

Outdoor Unit to Indoor Unit Communication

IF Frequency	440 MHz
IF cable Impedance	50 ohm
Maximum IF cable Attenuation	15 dB
Maximum IF cable DC Resistance	1.5 ohm

Voice Communication (DV series)

Standard compliance	ITU-T H.323 Ver. 2 VoIP standard
Compression	G.711 (A-Law and µ-Law) - 64 kbps (transparent) G.723.1 - 6.3 kbps; G.729 - 8 kbps (G.729, G.729 with Annex A and/or Annex B)
Echo cancellation	ITU-T G.168 and G.131

Configuration and Management

Management options	a. Via the MON port, using terminal emulation with the built-in Monitor program
Remote Management	b. Telnet, using the Monitor program c. TFTP, using the Configuration upload/download utility d. SNMP
Remote Management Access	From wired LAN or from Wireless link
SNMP Agents	MIB II, Bridge MIB, Private BreezeACCESS MIB
Accounting	Radius compatible client in subscriber unit
Security	Authentication, filtering, VLAN
Software upgrade	TFTP download

Interfaces

RF (antenna)	N-Type jack, 50 ohm, lightning protected
IF	SU-NI, AU-NI, BS-AU indoor units: TNC jack, 50 ohm, lightning protected
	SU-RA/E, AU-RE outdoor units: TNC jack, 50 ohm, lightning protected
Ethernet	10Base-T Ethernet (RJ-45) with 2 embedded LEDs.
	Cable connection to a PC: straight (for all models)
Telephone (DV series)	RJ 11 jack (POTS)
Monitor	RS 232, 3-pin low profile jack
Power	SU-RA/E, AU-RE outdoor units: 12VDC via IF cable
	SU-NI, AU-NI, BS-AU indoor units: DC power plug to external power supply
	BS-PS (power supply module of BS-SH): 4-pin DC power plug to - 48VDC power source

Electrical

SU-A/E, AU-E	12VDC/2.5A from external power supply
BS-SH (modular base station)	-48VDC or 110/220 VAC, 200w for a fully equipped shelf 25W per AU (ODU plus IDU modules)

Mechanical

Unit	Structure	Dimensions	Weight
SU-RA	Metal box plus an integrated antenna in plastic enclosure, poll or wall mountable	30.6 x 30.6 x 7.2 cm (30.6 x 12 x 4.7 cm + 30.6 x 30.6 x 2.5 cm)	2.5 kg
AU-RE, SU-RE	Metal box, poll or wall mountable	30.6 x 12 x 4.7 cm	1.58 kg
SU-NI, AU-NI	Metal box, desktop or wall mountable	15 x 8.7 x 3.7 cm	0.34 kg
BS-SH	19″ rack (3U) or desktop installation	13 x 48.2 x 25.6 cm	4.76 kg

Environmental

Operating Temperature	Outdoor Units	-40°C to 55° (GU-RA: -40°C to 85°C)
	Indoor equipment	0°C to 40°C
Operating Humidity	Outdoor Units	5%-95% non condensing, Weather protected

Standards Compliance, General

EMC	EN 300 826
Safety	UL 1950, EN 60950
Environmental	ETS 300 019

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