

AIReach[®] Broadband

Winning by Design



Your LMDS platform for
backhaul applications
and **broadband wireless access**

Hughes Network Systems (HNS) presents the AiReach Broadband point-to-multipoint system for backhaul and broadband wireless applications.

AiReach Broadband gives carriers a powerful platform for offering fiber-quality “last-mile” solutions that encompass voice, video, data, multimedia, and Internet services. AiReach Broadband can be deployed to backhaul 2G/3G cell sites, Wi-Fi hotspots, and to provide broadband access to multi-tenant offices and residential complexes.

Designed to help carriers implement and launch revenue-generating services in the most cost-effective and rapid way possible, the AiReach Broadband product offers:

- A completely scalable hub, for ultimate cost-effectiveness. A start-up base station with 360° coverage consists of a single-channel radio (Hub terminal) consisting of an indoor unit (IDU), an outdoor unit (ODU), and an antenna. Additional capacity can be added on a channel-by-channel, sector-by-sector basis. This allows the operator to minimize initial capital expenditures and tailor subsequent investments to subscriber growth.
- Spectral efficiency to give you the highest return on your valuable spectrum resources. The system features high-order modulations — flexibly matched with dynamic bandwidth allocation and HNS’ efficient TDMA implementation.
- Superb data-handling capabilities to satisfy the most demanding applications. With powerful bandwidth management, the system is IP-ready with QoS, offers 155 Mbps and ATM IMA interfaces at subscriber terminals, and even features LAN interfaces at all subscriber and hub terminals.
- Simultaneous TDM, ATM, and IP services at both the subscriber and hub terminals.
- AiReach Broadband is a universal radio that operates in both point-to-multipoint or point-to-point configuration.
- A fully integrated, carrier-class network management system, offering powerful capabilities and operational simplicity.
- Compact, unobtrusive equipment for ready customer acceptance. The outdoor portion of the terminal takes up less rooftop space and provides better installation options, while the indoor portion is designed to minimize demands for space in telecom closets, cabinets, and racks.
- Comprehensive customer support services, including installation, RF planning, network optimization, and technical support to ensure timely installation and trouble-free operations.

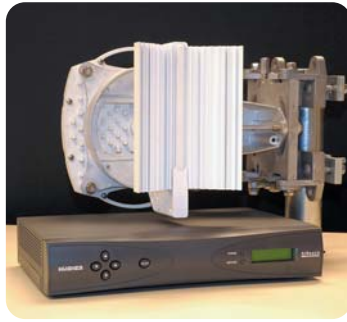
AiReach Broadband 9400 (AB9400) – A Modular System for Scalability and Flexibility.

AB9400’s highly modular architecture consists of Hub terminals (HTs) configured in multiple sectors, remote terminals (RTs) installed on customer premises or cell sites, and a comprehensive network management system. Each fully integrated building block is designed to provide scalability and flexibility.

Hub Terminal Equipment – Outdoor transceiver and antenna; indoor integrated modem and multiplexing systems; single-cable intrafacility link; and a variety of network interfaces that can simultaneously deliver traffic to backbone in TDM, ATM, and IP format. Sectors can be provisioned for 1:N (N=up to 4) active redundancy.

Customer Remote Stations – Remote station options to match need. Outdoor transceiver and antenna; single-cable intrafacility link; and indoor modem equipped with fully integrated multiplexing solutions with TDM, ATM, and IP interfaces that can simultaneously support all three types of traffic. Redundant RTs are also available.

Network Management System – Unified utility based on TMN standards (including a Northbound OSS interface) for monitoring and control of all network elements from a single location. This enables fault, configuration, accounting, and provisioning management to be accomplished remotely with varying levels of security.



**AB9400 Hub Terminal
(IDU, ODU, Antenna)**



**AB9400 Remote Terminal
(IDU, ODU, Antenna)**



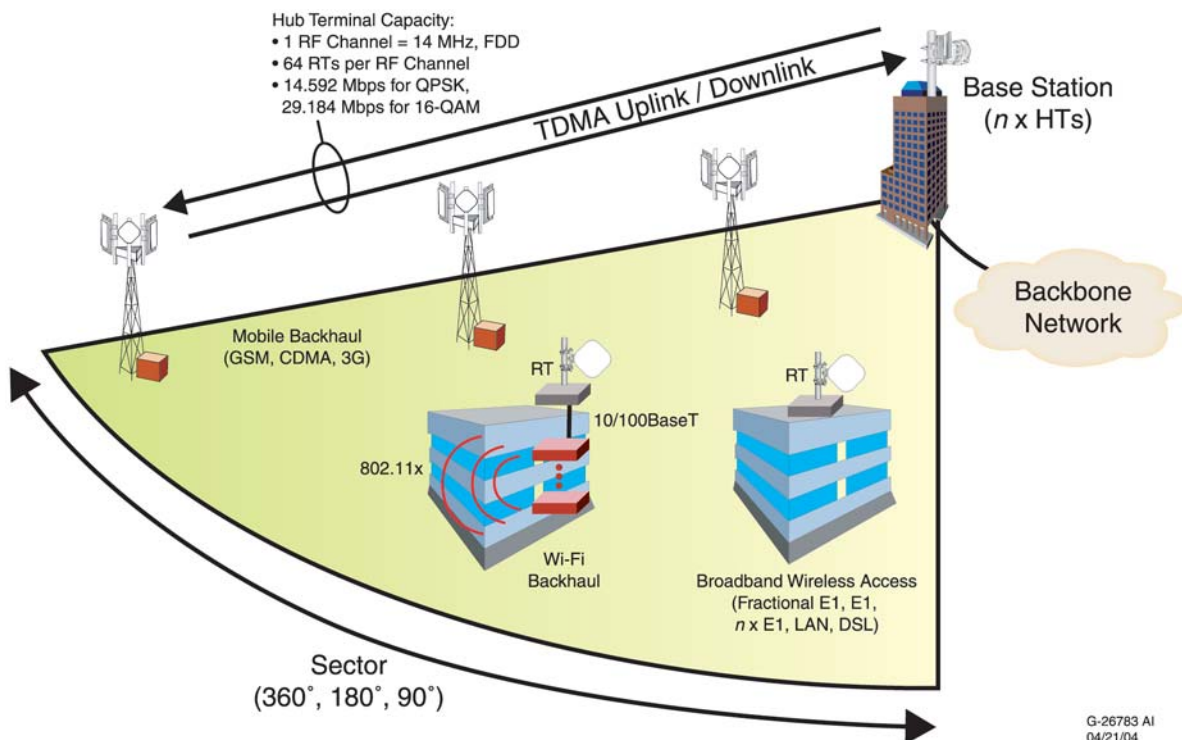
**AB9400 Network
Management System**

Bandwidth Provisioning – Time Division Multiple Access (TDMA) implementation provides great flexibility in provisioning the bandwidth to the remote stations down to the individual port level. Bandwidth allocated to individual subscriber terminals can be changed without visits to either the subscriber or the hub sites.

Service Provisioning – The system provides remote provisioning of hub and subscriber terminals, ports, and end-user services. Each port and its parameters can be separately provisioned. Network configurations are stored in a central relational database, with automatic reconciliation of configuration changes.

State-of-the-Art Systems Designed and Implemented by the World Leader in Digital Communications.

HNS is the world's leader in complex radio-based systems, and enjoys a global reputation as one of the world's leading network systems companies. With 30 years of experience, we have successfully implemented systems in more than 85 countries, many of which represent very large projects with long-term support needs. Accordingly, to ensure the success of your project, HNS offers a comprehensive portfolio of services including network planning, rooftop installations, system commissioning, and testing.



For more information about AiReach Broadband from Hughes Network Systems, contact the sales office in your region today.

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Technical Specifications

GENERAL

	ETSI 26 GHz	ETSI 28 GHz
■ Transmit Band (downlink): Hub to Remote	24.549 - 25.445 GHz	27.5485 - 28.4445 GHz
■ Receive Band (uplink): Remote to Hub	25.557 - 26.453 GHz	28.5565 - 29.4525 GHz
■ RF Bandwidth per Carrier	14 MHz	
■ Number of Remote Terminals	64 per RF Carrier	
■ Access Method	TDMA/TDMA	
■ Duplexing	FDD	
■ Modulation	QPSK & 16 QAM on same carrier	
■ Throughput/RF Carrier	14.592 Mbps (QPSK), 29.184 Mbps (16 QAM)	

HUB TERMINAL TECHNICAL SPECIFICATIONS

■ Sectorization	360°, 180°, 90°
■ Network Interface	T1/E1, 10/100BaseT, DS3/E3, STM-1 sm/mm
■ MTBF	>10 Years
■ Transmit Output Power	26 GHz (QPSK/16 QAM): +18.5/+16 dBm 28 GHz (QPSK/16 QAM): +20.5/+18 dBm
■ Receive Sensitivity @ 10 ⁻⁶ BER	26 GHz (QPSK/16 QAM): -84.6/-77.4 dBm 28 GHz (QPSK/16 QAM): -83.6/-76.4 dBm
■ Noise Figure	26 GHz 7.5 dB 28 GHz 8.5 dB
■ Power	-48 Vdc
■ Antenna Gain	17 dBi (90°), 18 dBi (180°)
■ Redundancy	1:N (N=1 to 4) per sector
■ Backbone Traffic	Simultaneous transport of TDM, ATM, and IP

REMOTE TERMINAL TECHNICAL SPECIFICATIONS

■ CPE Interface	T1/E1, STM-1 sm, 10/100BaseT
■ Configurable Services	Native ATM, Native ATM with IMA Ethernet to ATM, Ethernet to Ethernet Structured TDM/Unstructured (transparent) TDM Simultaneous transport of TDM, ATM, and IP traffic on same RT
■ MTBF	>10 years
■ Transmit Output Power	26 GHz (QPSK/16 QAM): +18.5/+16 dBm 28 GHz (QPSK/16 QAM): +20.5/+18 dBm
■ Receive Sensitivity @ 10 ⁻⁶ BER	26 GHz (QPSK/16 QAM): -84.6/-77.4 dBm 28 GHz (QPSK/16 QAM): -83.6/-76.4 dBm
■ Noise Figure	26 GHz 7.5 dB 28 GHz 8.5 dB
■ Power	-48 Vdc or 110/220 V AC
■ Antenna Gain (30 cm/60 cm)	26 GHz: 35.3 dBi/40.7 dBi 28 GHz: 36.3 dBi/40.7 dBi