



VIDA Broadband Client

4.9 GHz Broadband Distribution System

The VIDA Broadband system delivers public safety grade wireless broadband data services for mission critical applications, such as video surveillance, broadband hot spots, remote precinct connectivity, and LMR backhaul.

M/A-COM's new VIDA Broadband Network applies the open standard IEEE-based wireless broadband communications protocol of 802.16 to the 4.9 GHz band, providing true quality-of-service (QoS) while operating on contention-free licensed frequencies.

The VIDA Broadband Client provides hardened, public safety grade client infrastructure for this network. The VIDA Broadband Client can be mounted on a variety of outdoor structures, and is available in a hardened version with surge suppression and fiber optic connection.



Product Overview

The VIDA Broadband Client provides a fixed subscriber unit that integrates the sophisticated Quality-of-Service (QoS) and solid security of the IEEE 802.16 (WiMAX) protocol with the licensed protection of the 4.9 GHz public safety band to provide wireless broadband data services for mission critical applications. The M/A-COM VIDA Broadband Network is designed to stand alone or seamlessly integrate broadband data services into M/A-COM's VIDA platform.

Airlink Features

The VIDA Broadband Client implements the 802.16e-OFDM protocol which can deliver an over-the-air throughput from 4 to 19 Mbps. All communication over the wireless channel is scheduled by the base station, with contention slots provided for clients to request bandwidth. Scheduling is a major advance over older contention-based WLAN standards such as 802.11.

A protocol with coordinated scheduling provides significant advantages such as:

- minimizing contention between clients

- maximizing channel utilization
- enabling guaranteed bandwidth services for critical multimedia applications

The use of a scheduling protocol also makes the network more resilient to simple denial-of-service attacks that can disable other broadband networks.

Based on traffic loading, 16 or more "connections" can be established between the base station and each client in the network, with different QoS for each connection, allowing for great flexibility when designing a network. Low priority processes (such as email) can be mapped to best effort services while high priority processes (such as streaming video or LMR backhaul) can be mapped to Unsolicited Grant Services (UGS) which offer guaranteed throughput.

Network Features

Network convergence is provided in the form of 802.16 classifier rules that ensure network level QoS over the airlink.

Network management and administration are provided via a browser interface to M/A-COM's Unified Administration System (UAS). The UAS supports value-added policy-based management for full network deployment scenarios. All client management can be performed over the air.

Security Features

The VIDA Broadband Network provides strong protection against unauthorized network access through the use of certificates for client authentication. Authentication keys are distributed using RSA Public Key encryption. The cryptographic methods provided by the security sublayer use DES, 3-DES, and AES algorithms.

For More Information

For more information about this or any other M/A-COM Wireless Systems products, call 800-368-3277. From outside the U.S. call 1-434-455-9219 (Europe), 1-434-455-9223 (Asia Pacific), and 1-434-455-9229 (Middle East and Latin America).

Key Specifications

The VIDA Broadband Client implements a single 5-MHz channel version of the IEEE 802.16e-OFDM profile in the 4.9 GHz communications band. The client transmits up to 25 dBm power and satisfies the high-power FCC mask. Detailed specifications are listed below.

System Interfaces

Data Plane: 100Base-FX
Management: 100Base-FX or over the air
4.9 GHz RF: Type N Connector

Security Features

Authentication: X.509 Digital Certificate
Authorization: RSA Public Key Encryption
Encryption: DES, 3-DES, AES 128 bit

Network Features

Management: SNMP
Convergence: IPv4 over IEEE 802.3/Ethernet
IEEE 802.3/Ethernet
Configuration: DHCP, TFTP

PHY Characteristics

PHY: OFDM 256 FFT
Channel Bandwidth: 5 MHz
Modulation Rates: BPSK, QPSK (1/2, 3/4),
16QAM (1/2, 3/4), 64QAM (1/2, 3/4)
Duplexing: TDD
Frame Durations : 2.5mS, 5mS, 10mS, 20mS
CP: 1/32, 1/16, 1/8, 1/4
Throughput: 4-19 Mbps

MAC Characteristics

Duplexing: Time Division Duplexing (TDD)
Service Classes Supported: Real-Time Polling Service (rtPS)
Non-Real-Time Polling Service (nrtPS)
Unsolicited Grant Service (UGS)
Best Efforts (BE)

Payload Header

Suppression: Supported
Automatic Repeat Request (ARQ): Supported
Connections/Client: Up to 16

RF Transmit Specifications

Frequency: 4937.5+5*n (n=1,2,...10) MHz
Channel Bandwidth: 5 MHz
RF Power Output: 25 dBm maximum
Output Power Control: 50 dB
FCC ID: BV8VMXCL
Industry Canada: 3670A-VMXCL
Spectral Mask: FCC Mask M (90.210)

RF Receive Specifications

Frequency: 4937.5+5*n (n=1,2,...10) MHz
Channel Bandwidth: 5 MHz
Sensitivity at BER 10⁻⁶:
BPSK-1/2: -96 dBm
QPSK-3/4: -91 dBm
16-QAM-3/4: -85 dBm
Max. RX input power: -30 dBm
Max/RX input power (no damage): 0 dBm

Physical Characteristics

Power: +11 to 30 VAC/VDC
Power (Hardened model): 24 VDC
Power Consumption: 20 Watts maximum
Size (H x W x D): 10.75 in. x 8.0 in. x 3.25 in.

Environmental

Operating Temperature: -22 to +140°F (-30 to +60°C)
Storage Temperature: -40 to +185°F (-40 to +85°C)
Environmental: NEMA4
Altitude: 15000 ft