



VIDA Broadband Base Station 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 Base Station provides hardened, public safety grade base station infrastructure for M/A-COM's 4.9 GHz VIDA Broadband Network.



Product Overview

The VIDA Broadband Base Station 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 public safety grade 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 Base Station implements the 802.16e-OFDM protocol to 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 the VIDA Broadband Client to request bandwidth. 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 is provided via a browser interface to M/A-COM's Unified Administration System (UAS). The base station additionally supports localized SNMP management using an open MIB. Base stations may optionally be configured as DHCP and/or TFTP servers. All VIDA

Broadband Client management can be performed over the air.

Security Features

The VIDA Broadband Base Station 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 Base Station implements a single 5-MHz channel version of the IEEE 802.16e-OFDM profile in the 4.9 GHz communications band. The base station transmits up to 27 dBm power and satisfies the high-power FCC mask. Detailed specifications are listed below.

System Interfaces

Data Plane:	100Base-FX
Management:	100Base-FX
4.9 GHz RF:	Type N Connector
GPS RF:	SMA 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:	27 dBm maximum
Output Power Control:	30 dB
FCC ID:	BV8VIDA-BB
Industry Canada:	3670A-VIDABB
Spectral Mask:	FCC Mask M (90.210)

RF Receive Specifications

Frequency:	4937.5+5*n (n=1,2,...10) MHz
Channel Bandwidth:	5 MHz
1st Adjacent channel rejection at BER = 1e-6 for 3 dB degradation C/I (16QAM-3/4):	>20 dB
2nd adjacent channel rejection at BER = 1e-6 for 3 dB degradation C/I (16QAM-3/4):	>50 dBc
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 (AC Model):	120 VAC
Power (DC Model):	+24 VDC
Power Consumption:	60 Watts maximum
Size (H x W x D):	14.5 in. x 8.0 in. x 4.25 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