

High Performance Wireless Platform

Abicom International's "Freedom" access point is a high performance wireless platform that can be tailored to a wide variety of customer requirements.

Freedom is particularly suited to Fixed Wireless Access (FWA) applications, including wireless bridges, wireless Internet backbone, hotspot and last mile access.

Fully concurrent dual band technology

Freedom supports fully concurrent 2.4GHz 802.11b/g and 5GHz 802.11a operation through two independent MAC's.

Enhanced features include Turbo mode (up to 108Mbps), eXtended Range mode, real-time data compression and packet bursting for enhanced throughput.

Freedom includes 64Mbytes of SDRAM and 8 Mbytes of flash memory. Additional features include, a 100Mbps full-duplex Ethernet interface, separate 2.4GHz and 5GHz antenna ports and a control port for external RF modules such as antenna diversity, external LNA or power amplifier.



Freedom AP OEM Module

Technical Specifications

Frequency Range:	2300 – 2500 MHz b/g 4900 – 6000 MHz a
Transmit Power:	Up to 20dBm b/g channel Up to 18dBm a channel
Max Transmit data-rate:	108 Mbit/sec Turbo Mode
Practical data-rate* (SuperAG Enabled)	60+ Mbit/Sec of user data or 80+ Mbit/Sec in turbo mode
Operating Modes:	AP, WDS Repeater, Point to Multipoint FWA.
Security:	Per station AES or AES with RADIUS Server.
Ethernet:	100Mbit full duplex
Power:	Power over Ethernet, (802.3af)
Dimensions:	170x100mm

About Abicom: Abicom International, Inc. provides wireless engineering services and product development in all aspects of data communications.

Abicom has extensive experience in WLAN, WISP (Wireless ISP) and is an Atheros Authorised Design Center.

For more information, contact:
Ken Bennett at 978-851-8140 (US) or
Dave Edwards at (0) 1630-655933 (UK).

www.abicom.net
www.abicom.co.uk

General Description

The "Freedom" wireless access point supports fully concurrent 2.4GHz 802.11b,g and 5GHz 802.11a operation through two independent MACs. Freedom has been optimised for Fixed Wireless Access (FWA) applications including wireless bridges, last mile access and mixed hotspot/backbone applications.

In addition to supporting standard 802.11 operation, Freedom also offers 108Mbps Turbo mode, extended range mode (XR), real-time data compression, superpacketisation and packet bursting for enhanced throughput. All of these operate in both standard AP and WDS repeater modes.

The SuperAG mode (Compression, frame bursting and superpacketisation) enables Freedom to achieve a usable data throughput in excess of 60Mbits per second.

Inbuilt hardware encryption provides an unparalleled level of security. Freedom supports all mandatory and optional modes specified in 802.11i. In addition a 128-entry Key Cache holds both shared and unique keys on a per-station basis.

Abicom International can customise the Freedom access point for special applications and is able to provide engineering support to customers wishing to integrate the Freedom into their own products.

Hardware Configuration

- Board-Level Product Suitable for OEM's
- Full-Duplex 10/100Base-T Ethernet Interface
- Separate 2.4GHz and 5GHz Antenna Ports
- Serial Port Management Interface
- Dual MAC Architecture
- Integrated 32-bit 200MHz MIPS Processor



- Flexible power supply eases installation in confined/remote sites.
- Flexible LEDs, 2x WLAN, 1X System, 4x Programmable.

Features

- Supports 2 Wireless Networks, 802.11a and 802.11b/g Concurrently
- Connects to any 802.11 Client
- Super AG Mode for up to 108Mbps Data Rates
- XR Mode for Extended Range Operation
- Extended Tuning Range for Worldwide Use
- Hardware Encryption For WPA and 802.11i, AES TKIP and WEP
- DFS/TPC For International Operation
- Support for Draft 802.11e,h and i standards.
- Hardware Data Compression and Dynamic Transmit Optimisation
- Concurrent WDS and AP functionality for remote hotspot or bridging applications.

INTERFACE

Ethernet Interface	10/100Base-T, RJ-45
Serial Interface	CMOS, 9600 Baud, no parity, 8 bits, 1 stop bit
Antenna Ports	50 Ohms. SMA Connectors
Power	PoE Compatible Interface

HARDWARE

Processor	Integrated 32-bit MIPS R4000
Flash Memory	8Mbyte
SDRAM	64Mbytes
Ethernet Controller	Realtek RTL8201

FUNCTIONALITY

Dual Independent Multiprotocol MACs	Hardware WEP, AES, TKIP, WPA/WPA2
Wireless Distribution System (WDS)	Radius Authentication
IEEE 802.1x Support	Hardware Data Compression
Standards Compliant Bursting	Draft 802.11e QoS Support
Dynamic Frequency Selection (DFS)	Draft 802.11h,i Support
Extended Tuning Range	LED Indicators
Dynamic Transmit Optimisation	Transmit Power Control (TPC)
Separate 2.4GHz and 5GHz Antenna Ports	MAC Filtering

MANAGEMENT

TELNET Command Line Interface	Serial Interface
FTP Firmware Upload	

LED INDICATORS

10/100Base-T Link Indicator	802.11b/g Transmit / Receive Indicator
802.11a Transmit / Receive Indicator	System OK LED
4 Custom Function LEDs	

POWER SUPPLY				
Parameter	Condition	Min	Typ	Max
Voltage Range	PoE			

TRANSMIT POWER (dBm)				
Operating Mode*	Data Rate (Mbps)	Min	Typ	Max
802.11b	Any		20	
802.11a,g	6, 9, 12, 18, 24		20	
	36		19	
	48		18	
	54		17	
802.11a,g SuperAG Mode	12,18,24,36,48		20	
	72		19	
	96		18	
	108		17	

RECEIVE SENSITIVITY (dBm)				
Operating Mode*	Data Rate (Mbps)	Min	Typ	Max
802.11b	1		-95	
	2		-94	
	5.5		-93	
	11		-90	
802.11a,g	6		-91	
	9		-90	
	12		-89	
	18		-88	
	24		-85	
	36		-82	
	48		-75	
54		-72		
802.11a,g SuperAG Mode	12		-88	
	18		-87	
	24		-86	
	36		-85	
	48		-82	
	72		-79	
	96		-72	
108		-69		

* 802.11b,g Specifications are for 2.4GHz-2.5GHz and 802.11a Specifications are for 5.0GHz-5.825GHz.

FREQUENCY

Tuning Range 802.11b/g	2.3GHz-2.5GHz
Tuning Range 802.11a	4.9GHz-6GHz

PHYSICAL

Size	170mm X 100mm
Weight	0.1 Kg.

ENVIRONMENTAL

Operating Temperature Range	0°C to 50°C
Storage Temperature Range	-10°C to 60°C
Humidity	Max. 95% Relative Humidity, Non-Condensing
