

CableFree

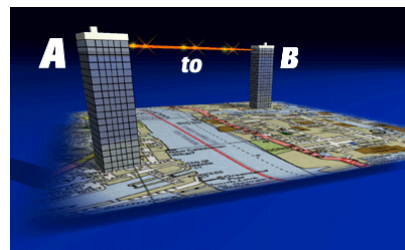
W i r e l e s s E x c e l l e n c e

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CableFree High Performance Sectored Radio Base Station – Product Overview

System Features

- Raw data rates per sector up to 108Mbps using OFDM
- Operates in 2.3-2.5 and/or 5.1-5.8GHz ISM bands
- Range up to 10km radius per sector *
- Data Throughput up to 72Mbps per sector
- Carrier-class OS and resiliency features
- Rugged indoor grade 1U or 2U rack enclosure

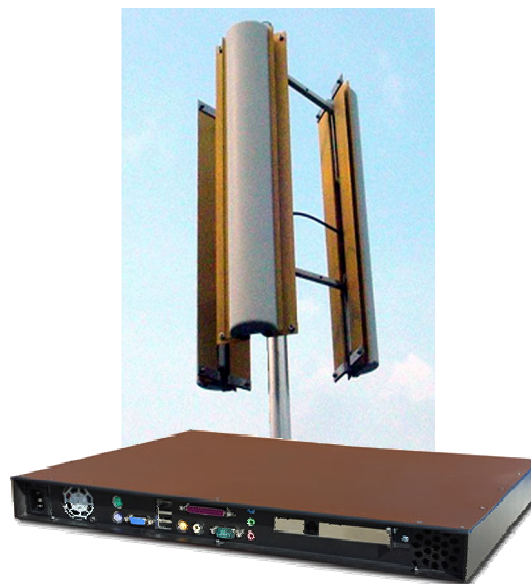
*Depends on radio environment and antennas, max range assumes 90deg sectors, high gain antennas

Applications

- Point-to-Multipoint Data network segments
- Wireless ISP base stations
- Wireless VOIP, multimedia and broadband services

Accessories

Antennas	Sectored or Omnidirectional antennas
Radio Cards	Versions with 4 or 8 radio cards for dual-frequency, high throughput per sector, backhaul and/or hotspot applications
O/S Software	Higher level functions for Public Wireless LAN, Hotspot, etc
Mounting Brackets	Wall, Pole, Tower or Tripod mount options available
Alignment kit	Display of Local & Remote signal levels*
Management Suite	Full range of solutions including SNMP, LinkManager™, AlarmView™, ClusterManager™



Embedded Router Platform

CableFree High Performance Radios are not cheap enterprise-grade WLAN components. They embody powerful carrier-class routers with advanced features not found in wireless bridges or access points. Such features include:

600-1500MHz CPU • IP Bridging • Layer3 IP Routing • Border Gateway Protocol (BGP) • Ethernet-over-IP (EoIP) interfaces • Virtual Router Redundancy Protocol (VRRP) • WISP & hotspot –specific features including Walled Garden, Cookies, RADIUS authentication, accounting, control of connection time • uplink and downlink bandwidth control on a per-user basis • DHCP Client and Server • Network Address Translation (NAT)

Enhanced Wireless Performance

CableFree High Performance radios offer major advantages over simple 'off-the-shelf' WiFi products. Examples are:

- Highly configurable – up to 8 radio cards – 'mix and match' 2.4/5.4/5.8GHz and support for legacy 802.11 a/b/g
- 108Mbps raw data rate using 'turbo mode' offers 72Mbps TCP throughput per sector.
- OFDM Software-defined radio – 'state-of-the art' radio using powerful DSP technology
- Optional proprietary 'Nstreme' wireless protocol - improves P2P and P2MP wireless links through packet optimisation. No protocol/speed degradation for long links. Added security layer. FDD throughput by bonded dual wireless cards
- Sophisticated RadioOS software platform
- Hotspot features including Radius authentication and per-user bandwidth controls

Specifications

System Variant	WHPBS
Performance	
Range	Up to 10km sector radius (depends on antennas & environment)
Bandwidth	54Mbps (108Mbps Turbo mode) raw rate per sector
Power Consumption	40W; 115/230Vac; 48Vdc (36-72V range) telecom supply option; optional Uninterruptible Power Supply (UPS)
Operating Temperature	-20...+60 deg C
Wireless	
Frequency	2.4GHz: 2.412-2.472 (5 MHz step, channels 1-13), 2484 (channel 14) 2.512-2.732 (20 MHz step, channels 15-26) - optional license required 5.3GHz: 5.150-5.350 (5 MHz step) 5.8GHz: 5.725-5.825 (5 MHz step) 5.47-5.725 GHz - optional license required
Radio Type	Direct Sequence Spread Spectrum (DSSS)
Modulation	2.4GHz: CCK (11, 5.5Mbps), DQPSK (2Mbps), DBPSK (1Mbps); OFDM for data rate >20 Mbps 5.3GHz, 5.8GHz: OFDM (BPSK, QPSK, 16-QAM, 64-QAM)
RF Output Power	18dBm (125mW) – under software control
Sensitivity @FER=0.08:	54 Mbps OFDM -73 dBm; 48 Mbps OFDM -76 dBm; 36 Mbps OFDM -82 dBm; 24 Mbps OFDM -85 dBm; 18 Mbps OFDM -88 dBm; 12 Mbps OFDM -89 dBm; 11 Mbps OFDM -91 dBm; 9 Mbps OFDM -90 dBm; 6 Mbps OFDM -91 dBm; 5.5Mbps OFDM -92 dBm; 2 Mbps OFDM -93 dBm; 1 Mbps OFDM -94 dBm
Radio Data Rate	2.4GHz legacy 'b': 11, 5.5, 2, 1 Mbps, auto-fallback 2.4GHz OFDM (Normal mode): 54, 48, 36, 24, 18, 12, 11, 9, 6, 5.5, 2, 1 Mbps, auto-fallback 2.4GHz OFDM (Turbo mode): 108,96,72,48,36,24,18,12 Mbps, auto-fallback 5.3/5.8GHz OFDM (Normal mode): 54, 48, 36, 24, 18, 12, 9, 6 Mbps, auto-fallback 5.3/5.8GHz OFDM (Turbo mode): 108, 96, 72 48, 36, 24, 18, 12 Mbps, auto-fallback
Compatibility	Normal mode, interoperable with all CableFree radio products; legacy "WiFi" mode, fully interoperable with IEEE 802.11a/b/g compliant products
Radio Architecture	Support ad-hoc, peer-to-peer networks and infrastructure communication to wired Ethernet networks via Access Point
Security	64/128-bit WEP data encryption; AES; WPA; Proprietary mode
Router Platform	
CPU	Intel x86-class 600MHz or 1.5GHz; 128MB SDRAM; 64MB FLASH
System Software Management	RadioOS 2.9.x; Choice of license levels; Upgradeable via TFTP Local and Remote configuration, control and administration via RS232, Telnet, HTTP, SNMP and Proprietary protocols
Resilience Features	Virtual Router Redundancy Protocol (VRRP) for two complete routers to be configured with one in 'hot standby' for high-availability
Mechanical	
Dimensions (mm)	2U rack mount; 440x230x88mm
Connectors	External: RF: N-type Internal: 10/100 Ethernet: RJ45; RS232 console: DB9
Environmental Weight	Internal version – IP54 5kg
Product Code	Description
WHPBS-4	High Performance Sectorized Radio Base Station, 4 tri-band radio cards with up to 72Mbps TCP throughput per sector, IP54-rated indoor-mounted unit, pre-loaded software, Power supply with mains 115/230Vac input. Does not include Antennas, Ethernet or RF cables.
WHPBS-5	High Performance Sectorized Radio Base Station, 5 tri-band radio cards with up to 72Mbps TCP throughput per sector, IP54-rated indoor-mounted unit, pre-loaded software, Power supply with mains 115/230Vac input. Does not include Antennas, Ethernet or RF cables.
W2Gxxx	2.4GHz Antenna options – see separate datasheet
W5Gxxx	5.3-5.8GHz Antenna options – see separate datasheet
WHPBS-48DC	48Vdc (36-72 range) telecom supply input power supply module option