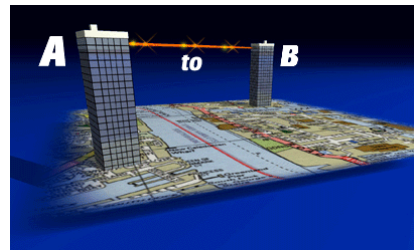


CableFree

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

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CableFree HPR Radio – Product Overview

System Features

- Pre-WiMax OFDM Radio Platform
- Raw data rates up to 108Mbps
- Operates in 2.3-2.5 and/or 5.3-5.8GHz ISM band
- Optional 5.4GHz band support
- Range up to 40km*
- Data Throughput up to 74+Mbps
- Carrier-class OS and resiliency features
- Power-over-Ethernet technology; 10/100 and GbE ports
- Rugged environmental IP66 waterproof enclosure

*Depends on radio environment and antennas

Applications

- Point-to-Point or Point-to-Multipoint Data network segments
- Wireless ISP or Hotspots
- Resilience for FSO or Fibre links
- Fast Roll-out & Temporary Deployment



Accessories

Antennas	Wide range of Directional, Sectorized and Omnidirectional antennas available
Radio Cards	1, 2, or 3 extra radio cards for resilience, high throughput, backhaul 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:

600MHz, 1GHz or 1.4GHz 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), Support TDD/FDD transmission

Enhanced Wireless Performance

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

- Highly configurable – up to 5 radio cards – 'mix and match' 2.4/5GHz
- 108Mbps raw data rate using 'turbo mode' offers 74+Mbps throughput.
- 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. Full duplex option using dual wireless cards
- Sophisticated RadioOS software platform
- Hotspot features including Radius authentication and per-user bandwidth controls

Specifications

System Variant	WHPR-dual
Performance	
Range	Up to 40km or more with appropriate antennas
Bandwidth	54Mbps (108Mbps Turbo mode)
Power Consumption	25W; 24V fed from Power-over-Ethernet injector; 115/230Vac; 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 5GHz: 5.150-5.350 (5 MHz step) 5.725-5.825 (5 MHz step) 5.47-5.725 GHz - optional license required. Please contact CableFree for further details.
Radio Type	Direct Sequence Spread Spectrum (DSSS)
Modulation	2.4GHz: CCK (11, 5.5Mbps), DQPSK (2Mbps), DBPSK (1Mbps); OFDM for data rate >20 Mbps 5GHz: OFDM (BPSK, QPSK, 16-QAM, 64-QAM)
Operation Channels	11
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-b: 11, 5.5, 2, 1 Mbps, auto-fallback 2.4GHz-g (Normal mode): 54, 48, 36, 24, 18, 12, 11, 9, 6, 5.5, 2, 1 Mbps, auto-fallback 2.4GHz-g (Turbo mode): 108,96,72,48,36,24,18,12 Mbps, auto-fallback 5GHz (Normal mode): 54, 48, 36, 24, 18, 12, 9, 6 Mbps, auto-fallback 5GHz (Turbo mode): 108, 96, 72 48, 36, 24, 18, 12 Mbps, auto-fallback
Compatibility	Proprietary modes; also back-compatible and 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; Proprietary mode
Router Platform	
CPU	AMD NX x86-class 600MHz, 1GHz or 1.4GHz options; 256MB SDRAM; 64MB FLASH
System Software Management	RouterOS 2.8.x or 2.9.x; Choice of license levels 1-6; Remotely 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) allows two complete radio ODUs to be configured with one in 'hot standby' for high-availability applications
Mechanical	
Dimensions (mm)	405x235x65mm
Connectors	External: RF: N-type 1 - 5 ports; 10/100 and GbE with auto MDI/MDIX: RJ-45 Internal: RS232 console: DB9
Environmental Weight	External version – IP66 4kg
Product Code	
Description	
WHPRO-dual-1	Dual-band High Performance radio with IP66-rated indoor-mounted unit, single radio card, pre-loaded software, Power-over-Ethernet injector with mains 115/230Vac input. Does not include Antennas, Ethernet or RF cables.
WHPRO-dual-2	Dual-band High Performance radio with IP66-rated outdoor-mounted unit, 2 radio cards, pre-loaded software, Power-over-Ethernet injector with mains 115/230Vac input. Does not include Antennas, Ethernet or RF cables.
WPCI-dual	Optional additional radio module 54Mbps dual-band 2.4/5GHz. Note: riser required
WPCI-5+	Optional additional high power radio module 54Mbps 5GHz band only. Note: riser required
WHPRoriser1	Optional riser required for adding 1 radio module to a single-radio MPR
WHPRoriser4	Optional riser required for adding 4 radio modules to a single-radio MPR