

Advanced OFDM Radio

Multi-Radio, High Performance: HPR Radio

Overview



About Wireless Excellence

Founded in 1996 and with headquarters in Oxford UK, Wireless Excellence Limited is a leading designer and supplier of outdoor and indoor Broadband Wireless communication products.

With a complete range of solutions including Radio, Microwave, Millimeter-Wave, Free Space Optics, WiFi and 4G/5G/LTE, customers in over 80 countries have chosen Wireless Excellence as the “one stop shop” solution of choice for dependable wireless networking.

About Our OFDM Range

CableFree OFDM Radio solutions deliver the performance, reliable connectivity, and cost-effectiveness that are crucial to modern wireless broadband networks. Our scalable wireless platform delivers superior performance even in demanding conditions, with the flexibility and features to enable a wide range of applications. CableFree OFDM Radio technology combines the best hardware and software technology to ensure best possible network performance.

System Features

- Advanced OFDM Radio Platform
- Raw data rates up to 108Mbps
- Operates in 2.3-2.5 or 5.1-5.8GHz ISM bands
- Supports extended 4.9-6.0GHz licensed bands
- Range up to 60km* with external antennas
- DFS and TPC features for regulatory regional compliance
- Data Throughput up to 74+Mbps
- Carrier-class OS and resiliency features
- Power-over-Ethernet technology;
- 10/100 POE and optional 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



Embedded Router Platform

CableFree OFDM radios from Wireless Excellence are high-performance carrier-grade Radio Solutions. They embody state-of-the-art software-defined-radio hardware, coupled with a powerful carrier-class router operating software with advanced Layer 2 Bridging and Layer 3 Routing features:

- High performance CPU, 500MHz x86 architecture
- IP Bridging
- Layer3 IP Routing
- Advanced Networking: RSTP, BGP, OSPF & MPLS
- VPN and Ethernet-over-IP (EoIP) tunnels
- Virtual Router Redundancy Protocol (VRRP)
- WISP & hotspot –specific features including Walled Garden, Cookies, RADIUS authentication, accounting, control of connection time
- Advanced, feature-rich OoS & traffic prioritisation
- Uplink and downlink bandwidth control on a per-user basis
- Firewall, NAT, DHCP Client and Server

Enhanced Wireless Performance

CableFree OFDM radios from Wireless Excellence offer major advantages over competing radio 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
- Software Selectable 5, 10, 20, 40MHz; also custom channel widths available
- Optional proprietary TDMA 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
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	5GHz: 5.150-5.350 (5 MHz step) 5.725-5.825 (5 MHz step) 5.47-5.725 GHz, 4.90-6.00GHz 2GHz: 2.192 - 2.539GHz (5 MHz step) DFS (Dynamic Frequency Select) feature for regions requiring DFS enabled
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)
RF Channels	Software Selectable 5, 10, 20, 40MHz; also custom channel widths available
RF Output Power	18dBm (63mW, standard power) or 28dBm (630mW, high power version)- TPC (Transmit Power Control), 1dB steps 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 Rates	2GHz & 5GHz 108, 96, 72 48, 36, 24, 18, 12 Mbps, 54, 48, 36, 24, 18, 12, 9, 6 Mbps, auto-fallback
Compatibility	Proprietary modes plus back compatibility fully interoperable modes
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; WPA, WPA2, TKIP, CCMP, AES; Proprietary modes
Router Platform	
CPU	AMD x86-class 500MHz, 1GHz or 1.4GHz options; 256MB SDRAM; 64MB FLASH
System Software Management	RadioOS 8.1; 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 ODU's 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 optional GbE with auto MDI/MDIX: RJ-45 Internal: RS232 console: DB9
Environmental	External version - IP66
Weight	4kg

Part Numbers

Product Code	Description
HPR-M/S-X-X-XX-WC/NC	Dual Band High Performance radio with IP66-rated indoor-mounted unit, Up to 5 radio cards, pre-loaded software, Power-over-Ethernet injector with mains 115/230Vac input. Does not include Antennas, Ethernet or RF cables.

X: Variable Value. Specify Frequency, Number of Radio Cards (up to 5)

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