

WIRELESS EXCELLENCE

Pre-WiMAX OFDM Radio HPR Radio Overview

IHPR/IMPR/ICR Bundle



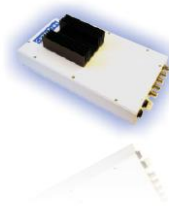
ICR Radio Unit



MPR Radio Unit



HPR Radio Unit



IHPR-DP Bundle



About Wireless Excellence

Founded in 1995 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, Millimetre-Wave, Free Space Optics, WiFi and WiMax solutions, customers in over 60 countries have chosen Wireless Excellence as the "one stop shop" solution of choice for dependable wireless networking.

About Our OFDM Range

Wireless Excellence Broadband solutions deliver the power, connectivity, high-demand services and cost-effectiveness that are crucial to increased return on investment whilst offering the flexibility to support virtually any wireless broadband network. The platform combines superior access performance with the flexibility to facilitate a wide range of applications.

The technology is designed to speed deployment and time to market, while helping control equipment, management and installation costs.

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

Embedded Router Platform

Wireless Excellence 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

Wireless Excellence 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

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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Specifications

System Variant

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.
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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	13
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
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Compatibility	Proprietary modes; also back-compatible and fully interoperable with IEEE 802.11a/b/g compliant products
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Radio Architecture	Support ad-hoc, peer-to-peer networks and infrastructure communication to wired Ethernet networks via Access Point
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Security	64/128-bit WEP data encryption; AES; Proprietary mode
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Router Platform

CPU	AMD NX x86-class 500MHz, 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 ODU's to be configured with one in 'hot standby' for high-availability applications
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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