CableFree
Wireless Excellence

Advanced MIMO OFDM Radio

CableFree Amber Crystal: MIMO AC 2x2

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.

Note: Due to policy of continuous product improvement, product specifications may change without notice

System Features

- Advanced MIMO OFDM Radio Platform
- Raw data rates up to 867Mbps using 2x2 MIMO OFDM
- 5.1-5.8GHz ISM bands
- Supports extended 4.9-6.0GHz licensed bands
- Range up to 40km*
- Data Throughput up to 530-650Mbps*
- Carrier-class OS and resiliency features
- Power-over-Ethernet technology
- Rugged environmental IP67 waterproof enclosure
- 200Km/h Wind Resistance
- Near & Non- LOS Operation
- 2 x 2 MIMO Support
- Modulation up to 256QAM
- Network interfaces 2x 10/100/1000 GigE
- Optional Fibre Optic SFP Interface with SingleMode (SM), MultiMode (MM), CWDM & DWDM fibre options

*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, 533MHz MIPS architecture
- IP Bridging
- Layer3 IP Routing
- Advanced Networking features

Enhanced Wireless Performance

CableFree OFDM radios from Wireless Excellence offer major advantages over competing radio products.
Examples are:

- Highly configurable – up to 2 or 4 radio cards depending on version
- 867Mbps raw data rate using 2x2 MIMO features offers up to 530-650Mbps throughput
- MIMO OFDM Software-defined radio – 'state-of-the art' radio using powerful DSP technology
- Sophisticated Linux-Based software platform
- Extensible Feature Set

Specifications

System Variant	Amber Crystal: WIHPR-MIMO AC2

Performance

Range	Up to 40km or more with suitable external antennas
Bandwidth	bandwidth up to 530Mbps (867Mbps raw speed) in AC 2x2 MIMO mode
Power Consumption	10W; 18V (or 48V factory option) fed from Power-over-Ethernet injector; 115/230Vac; optional Uninterruptible Power Supply (UPS)
Operating Temp	-40...+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 DFS (Dynamic Frequency Select) feature for regions requiring DFS enabled
Radio Type	Direct Sequence Spread Spectrum (DSSS)
Modulation	5GHz: OFDM (BPSK, QPSK, 16-QAM, 64-QAM, 256QAM); Dynamic (Adaptable to Conditions)
RF Channels	Software Selectable 5, 10, 20, 40, 80MHz; also custom channel widths available
Latency	<3ms
RF Output Power	18dBm (63mW, standard power) or 28dBm (630mW, high power version)– TPC (Transmit Power Control), 1dB steps under software control. Minimum power 0dBm
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	5GHz (Normal mode): 54, 48, 36, 24, 18, 12, 9, 6 Mbps, auto-fallback 5GHz (N 2X2 mode): 300, 270, 240, 180, 120, 90, 60, 30 Mbps, auto-fallback 5GHz (AC 2X2 mode): 867, 780, 650, 585, 520, 390, 260, 195, 130, 65 Mbps, auto-fallback
Compatibility	Proprietary modes plus back compatibility 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; WPA, WPA2, TKIP, CCMP, AES; Proprietary modes

Antenna

Type	For use with External Antennas - 2xN connectors
Gain	Depends on External Antenna

Router Platform

CPU	533MHz up to 720MHz MIPS CPU; 128MB SRAM; 8MB FLASH Memory
System Software	CF-OS V1; Remotely Upgradeable via TFTP
Management	Local and Remote configuration, control and administration via Telnet, SSH, HTTP, SNMP protocols
Resilience Features	Network configurations with multiple units allows two complete radio ODUs to be configured with one in 'hot standby' for high-availability applications

Mechanical

Dimensions (mm)	300x220x55mm
Connectors	External: 10/100/1000 Ethernet: RJ45 ; Optional N connectors for optional second radio feature ; Optional SFP Fibre Optic Interface module.
Environmental	IP67
Weight	2kg

Part Numbers

Product Code	Description
HPR-MIMO-AC2-B-1-2/5S	P2P HPR 2x2 MIMO Bundle, 4.9-6.0GHz, Complete Link, 867Mbps, 10/100/1000 POE Interface, 2xN connectors for External antennas
Integrated Antenna Version:	See IHPR-MIMO-AC2 datasheet