

## Advanced MIMO OFDM Radio CableFree CCR-N Connectorised Client 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 MIMO OFDM Radio Solution
- Connectorised Client Radio (CCR) ideal as CPE
- Raw data rates up to 150Mbps
- Product versions cover 2.3-2.5 and 5.1-5.8GHz ISM bands
- Optional licensed frequency band support
- Range up to 40km\*
- DFS and TPC features for regulatory regional compliance
- Connect to high gain directional, sector or omni antennas
- Data Throughput up to 100Mbps Half Duplex
- Carrier-class OS with NAT, filtering, full management features
- Power-over-Ethernet technology
- Optional Fibre Optic SFP Interface with SingleMode (SM), MultiMode (MM), CWDM & DWDM fibre options
- No RF cables – single Cat 5 carries power + network data
- Rugged environmental IP66 waterproof enclosure

\*Depends on radio environment and choice of base-station antennas

## Applications

- Ideal CPE for Wireless ISP deployments
- Point-to-Point or Point-to-Multipoint Data network segments
- Wireless ISP
- 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, 400MHz MIPS 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 QoS & 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 – use any allowed channel in 5GHz band
- 802.11an radio chipset
- Software-selectable 5, 10, 20, 40MHz channel widths.
- OFDM Software-defined radio – ‘state-of-the art’ radio using powerful DSP technology
- 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

## Specifications

System Variant	WXGICRNXX
<b>Performance</b>	
Range	Up to 15km (depends on base station antennas)
Bandwidth	Up to 54Mbps (150Mbps in N mode)
Power Consumption	10W; 18V fed from proprietary Power-over-Ethernet injector; 115/230Vac; optional Uninterruptible Power Supply (UPS)
Operating Temperature	-20...+60 deg C
<b>Wireless</b>	
Frequency	5GHz: 5.150-5.825 (5 MHz step) 4.9-6.1GHz - optional license required. 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)
RF Channels	Software Selectable 5, 10, 20, 40MHz; also custom channel widths available
RF Output Power	23dBm (200mW) – 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; 1 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 150, 135, 72.2 65Mbps, 54, 48, 36, 24, 18, 12, 9, 6 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
<b>Antenna Connectors</b>	
RF Connectors	2x SMA Connectors for connection to external MIMO antenna.
<b>Router Platform</b>	
CPU	MIPS 400MHz; 32MB SRAM; 64MB FLASH
System Software	RadioOS 8.1; Choice of license levels 1-6; Remotely Upgradeable via TFTP
Management	Local and Remote configuration, control and administration via 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
<b>Mechanical</b>	
Dimensions (mm)	196x123x50mm
Connectors	External: 10/100 Ethernet with auto MDI/MDIX: Waterproof RJ45
Environmental	IP66
Weight	3kg

## Part Numbers

Product Code	Description
CCR-N-U-1-C-2	P2P CCR-N Unit, 2.3-2.5GHz, Single Unit, 100Mbps, 10/100 Interface, 2x SMA Connectors
CCR-N-U-1-C-5	P2P CCR-N Unit, 4.9-6.0GHz, Single Unit, 100Mbps, 10/100 Interface, 2x SMA Connectors

Features Connectorised RF interface for external antennas.  
For Integrated Internal antenna model please use ICR-N.  
Please contact Wireless Excellence Limited for suitable external antennas and cables

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