

WIRELESS EXCELLENCE

Microwave Radio (MW)

FOR2 - Full Outdoor Microwave 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 WiMax solutions, customers in over 60 countries have chosen Wireless Excellence as the “one stop shop” solution of choice for dependable wireless networking.

About Microwave

Using the latest RF technology, our microwave links operate in all the popular bands from 6-38GHz, distances over 40km and net throughput up to 400 or 800Mbps full duplex.

Our advanced Full-Outdoor Microwave Radio provides a platform with IP/Gigabit Ethernet interfaces, with Power-Over-Ethernet technology to ensure simplicity of installation in zero-footprint deployment scenarios.

Flexibility, performance and low cost of ownership are ensured.

Full-Outdoor Microwave IP Radios 7-38GHz

Wireless Excellence is offering a range of high performance low cost microwave radios using licensed frequencies in the common 7-38GHz bands. Using advanced modulation techniques, native IP/Ethernet traffic up to 400Mbps (364Mbps net) or 800Mbps (2+0) full duplex capacity can be transmitted reliably.

Microwave radio is an established technology used by telecommunication operators and organizations where quality of service is ensured through careful frequency and link planning. Wireless Excellence Microwave Radios are distinguished by high performance, advanced radio features and flexible reconfigurable network interfaces.

System Features

- Compact, All-Outdoor configuration
- Spectrally Efficient, Software-Defined Radio
- Powerful Forward Error Correction (FEC)
- Adaptive Coding & Modulation (ACM), Adaptive Power Control (APC)
- Capacity up to 400Mbps or 800Mbps Full Duplex
- Native IP/Gigabit Ethernet POE & SFP Interfaces
- Rugged & proven telecom-grade design
- 1+0, 1+1, 2+0, 4+0, ring, star and mesh architectures
- SyncE and IEEE 1588V2 Network synchronisation
- Rapid Spanning Tree (RSTP), Ethernet Ring Protection

Enhanced Performance, Flexibility & Features

Wireless Excellence Microwave radios are high performance, modern generation wireless networking platforms supporting IP/Ethernet interfaces, operating from 6 to 38GHz frequency bands and capacities up to 400Mbps or 800Mbps (using 2+0) or even higher aggregation.

Wireless Excellence has pioneered the use of Software-Defined Radio, which enables in-service upgrades, remote configuration, low equipment costs. Advanced features such as Adaptive Coding and Modulation (ACM) ensure maximum uptime for ISPs and other customers who have to offer SLA's based on uptime, or are limited on antenna size for difficult sites.

Integrated Radio Link Aggregation (RLA) for 2+0 aggregation applications is built into the radios. Resilient 1+1 protected links are also supported with direct connection between the radios, no IDU is required for either 2+0 or 1+1 deployments.

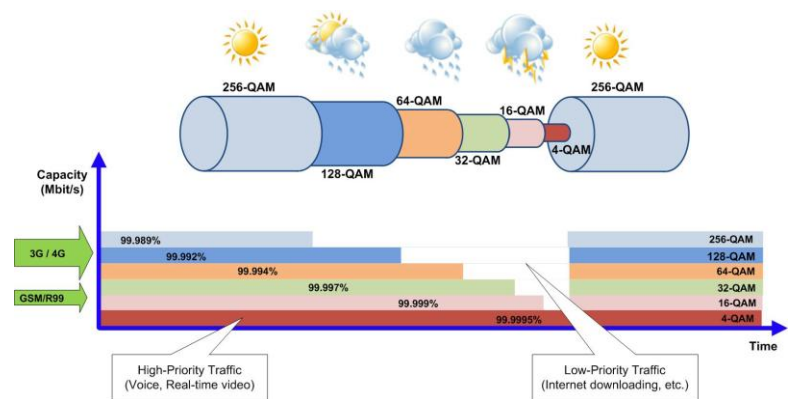
Advanced carrier-centric features such as Ethernet Ring Protection and Rapid Spanning Tree are included, as well as Synchronisation features such as Synchronous Ethernet (SyncE) and IEEE 1588v2. QoS and VLAN features are standard. The systems are MEF9 and MEF14-compliant

Operating distances vary depending on local weather conditions, specifically link frequency and rain intensity. Planning for microwave wave spectrum use must take into account the propagation characteristics of radio signals at this frequency range. Wireless excellence has a complete range of tools and services available to plan your microwave network to meet all design objectives. Generally, higher frequencies are used for short-range, high capacity links, and lower frequencies are used for long range links. Link lengths exceeding 100km are possible when correctly designed, specified and deployed.



Applications

- Telecom Service Providers & ISPs
- 4G Backhaul for Cellular Network operators
- Point-to-Point Wireless networking
- CCTV backhaul for multiple cameras
- Corporate backbone links
- Resilience for Fibre links
- Fast Roll-out & Temporary Deployment



Wide range of frequencies and bands available

Wireless Excellence Full Outdoor Microwave radios are available in all commonly-used frequency bands worldwide. The Full-outdoor radios feature the same RF properties as the ODUs of our split-mount radios giving installers ease of familiarity with the platform. Examples include:

Frequency Band (GHz)									
Band	7	8	11	13	15	18	23	26	38
Frequency Range	7.1-7.9	7.9-8.5	10.7-11.7	12.7-13.3	14.4-15.4	17.7-19.7	21.2-23.6	24.2-26.5	37.0-40.0

Specifications

System Variant	CFMW-FOR2-256QAM-O
System Parameters	
Frequency Band	7, 8, 11, 13, 15, 18, 23, 26, 38GHz (Factory set to within a sub-band)
Bandwidth	CEPT/ETSI: 7, 14, 28, 56MHz ANSI/FCC: 10, 20, 30, 40, 50MHz
Capacity	2 up to 364Mbps Full duplex net throughput
Modulation Type	QPSK, 8PSK, 16QAM, 32QAM, 64QAM, 128QAM, 256QAM
Rx Sensitivity	Depends on specific modulation used
Output Power	Up to 27dm – depends on specific version and modulation
Forward Error Correction	Trellis-Coded Modulation concatenated with Reed-Solomon Coding.
Network Management	SNMP Enabled
Remote Parameters Monitoring	Full range of SNMP, HTTP/web, CLI, serial
Advanced Radio Features	Adaptive Coding and Modulation (ACM) (4 to 256 QAM), ATPC, OoS
Radio Configurations	1+0, 1+1, 2+0 with direct connection between radios, no IDU required
Network Synchronisation	Synchronous Ethernet (ITU-T G.8261/G.8262/G.8264 ESMC), IEEE 1588v2 Transparent Operation
Data Interface	
IP/Ethernet Interface	100Base-T, 1000Base-T (Standard IEEE 802.3) with proprietary High-Power-over-Ethernet, Optical (SFP), with wide choice of optical SFP modules.
Antenna	
Antenna Type	Cassegrain type antenna with radome – 30cm up to 3m – please see separate datasheet
Antenna Gain/ beamwidth	Depends on specific antenna and frequency chosen – see appropriate antenna data
Power / Environment	
DC Power	-40 to -60 Volts DC (-48V typically)
Power Consumption	50W (depends on ODU type)
Operational Temperature	-20°C to 55°C ETS 300 019-2-4 Class 4M5
Humidity	0 to 95%, non-condensing
Physical Dimensions	
Dimensions (Radio only)	138x326x285mm, pole mount fixings
Dimensions (POE box)	170x150x39mm
Weight (Radio, POE)	7 kg (Radio), 0.5km (POE box)

Product codes

Product Code	Description	
CFMW-FOR2-256QAM-O-ETH - 1+0-xxxx	Full Outdoor Microwave radio link 1+0 configuration including IP67-rated outdoor modem with Ethernet interfaces, IP67-rated outdoor unit, antennas, management software, Outdoor-rated Power-over-Ethernet Injector. Frequency License required	T: +44 (0870) 495 9169 F: +44 (0871) 918 7618 E: sales@wirelessexcellence.com W: www.wirelessexcellence.com

Note – precise product code depends on frequency, band, antennas, resilience and other options. Please contact Wireless Excellence for more information

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