

Microwave Radio (MW)

CableFree FOR3 - 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 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 Microwave

Using the latest RF technology, our microwave links operate in all the popular bands from 2-42GHz, distances over 40km and net throughput up to 890 or 1780Mbps 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 2-42GHz

Wireless Excellence is offering a range of high performance low cost microwave radios using licensed frequencies in the common 2-42GHz bands. Using advanced modulation techniques up to 1024QAM, native IP/Ethernet traffic up to 890Mbps (2+0 gives 1780Mbps) 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 890Mbps 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
- Rapid Spanning Tree (RSTP), QinQ, Jumbo Frame (9600 byte) support
- Network Synchronisation with Sync-E
- GBE copper or optical port versions available
- Licensed and Unlicensed bands supported



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

Enhanced Performance, Flexibility & Features

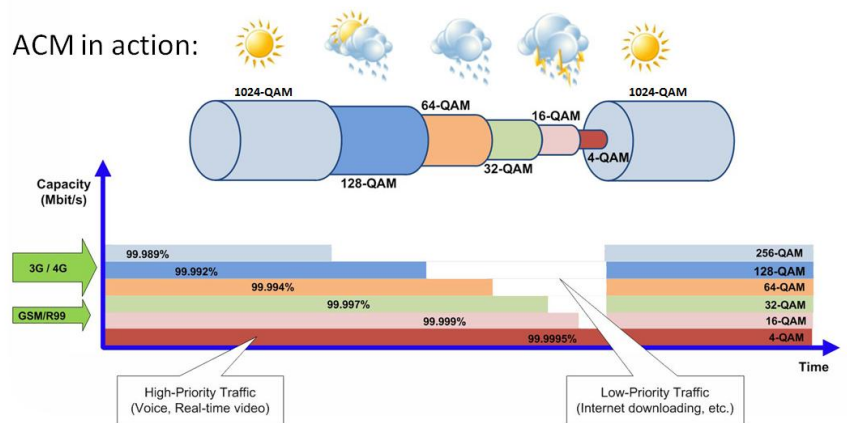
Wireless Excellence Microwave radios are high performance, modern generation wireless networking platforms supporting IP/Ethernet interfaces, operating from 2 to 42GHz frequency bands and capacities up to 890Mbps (or 1780Mbps using 2+0) or even higher aggregation.

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.

Advanced carrier-centric features such as Rapid Spanning Tree are included, as well as Synchronisation features such as Synchronous Ethernet (SyncE). QoS and QinQ VLAN features are standard.

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.

ACM in action:



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:

Licensed Frequency Bands (GHz)																			
Band	3.5	3.6	4	6L	6U	7	8	10.5	11	13	15	18	23	26	28	32	38*	42*	
Frequency	3.4-	3.6-	4.4-	5.9-	6.4-	7.1-	7.9-	10.1-	10.7-	12.7-	14.4-	17.7-	21.2-	24.5-	27.5-	31.8-	37.0-	40.5-	
Range	3.6	4.2	5.0	6.4	7.1	7.9	8.5	10.7	11.7	13.3	15.4	19.7	23.6	26.5	29.5	33.4	40.0	43.5	
Unlicensed Bands (GHz) **																			
Band	2.4		5			10.5		17		24									
Frequency	2.30-		5.5-			10.3-		17.1-		24.0-									
Range	2.45		5.9			11.6		17.3		24.25									

* Volume Availability: Please check with factory. **Note: Not all bands unlicensed in all regions. Check your local regulator for rules for relevant region/country

Specifications

System Variant	CFMW-FOR3-1024QAM-O
System Parameters	
Frequency Band	3.5, 3.6, 4, 6L, 6U, 7, 8, 10.5, 11, 13, 15, 18, 23, 26, 28, 32, 38, 42 GHz Licensed Bands (Factory set to within a sub-band) 2.4, 5.5 - 5.8, 10.5, 17, 24 GHz Unlicensed Bands supported
Bandwidth	CEPT/ETSI: 7, 14, 28, 56, 112MHz. (Note: 112MHz supported where allowed) ANSI/FCC: 10, 20, 30, 40, 50, 60, 80MHz
Capacity	2 up to 890Mbps Full duplex net throughput (890Mbps FDX uses 112MHz channels)
Modulation Type	QPSK, 8PSK, 16QAM, 32QAM, 64QAM, 128QAM, 256QAM, 512QAM, 1024QAM
Rx Sensitivity	Depends on specific modulation used
Output Power	Up to 25dBm – 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) (QPSK to 1024 QAM), ATPC, QoS
Radio Configurations	1+0, 1+1, 2+0
Network Synchronisation	Synchronous Ethernet (ITU-T G.8261/G.8262/G.8264 ESMC),
Data Interface	
IP/Ethernet Interface	1000Base-T (Standard IEEE 802.3) with proprietary High-Power-over-Ethernet, Optional Optical (SFP), with wide choice of optical SFP modules (SM, MM, CWDM).
Antenna	
Antenna Type	Parabolic 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	<35W (depends on specific model)
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)	280x240x110mm
Dimensions (POE box)	170x150x39mm
Weight (Radio, POE)	3.1 kg (Radio), 0.5kg (POE box)

Product codes

Product Code	Description
CFMW-FOR3-1024QAM-O-ETH - 1+0-xxxx	Full Outdoor 1024QAM Microwave radio link 1+0 configuration including IP67-rated outdoor modem with Gigabit Ethernet interface, IP67-rated outdoor unit, antennas, management software, Power-over-Ethernet Injector. Frequency License may be required