

Application Note
GSM, 3G & 4G/LTE Cellular Network Connectivity
10 Gigabit Wireless Networks



CableFree Microwave Backhaul links installed in the Middle East

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.

Scenario

GSM, 3G and 4G/LTE operators are faced with exciting challenges - including extending networks to provide adequate connectivity in dense regions with a rapidly expanding user base. In rural areas the cells which comprise the network are relatively sparse - and frequently connected using microwave links. However, in urban areas the high density of GSM subscribers and radio propagation issues mean that "Microcells" are created - often to cover a small locality, building or an RF 'blind spot', connecting GSM Base Station Transceivers (BST) and Base Station Controllers (BSC), 3G "NodeB" and 4G WiMax and LTE base stations.

Traditional connectivity solutions for cellular backhaul use Fibre optics, copper cables or microwave links - but there are drawbacks. In some areas copper Leased Lines and fibre circuits are already available – but not always. For modern 3G and 4G networks, far higher capacities are required, and fibre optic circuits are often prohibitively expensive or owned by competitors.

CableFree solves the problem with high-capacity, highly reliable wireless solutions with low cost of ownership. CableFree products offer up to 5 Gigabits capacity with integrated multiplexers and CPRI Interfaces are installed in hours, not weeks.

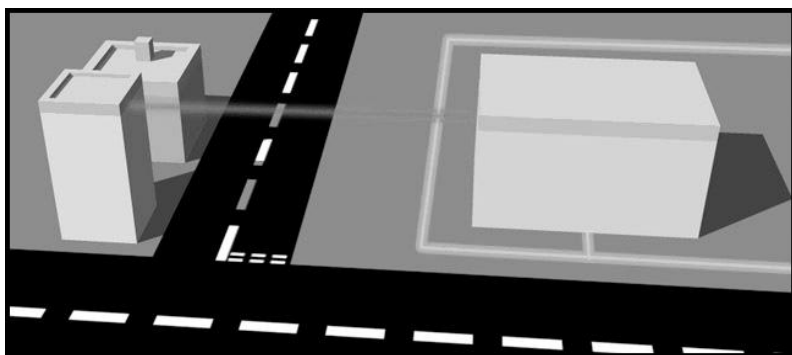
Solution

A CableFree wireless solution offers the following features and benefits:

High Performance	Gigabit Ethernet (1.25Gbps) using FSO, 6Gbps Microwave, 10Gbps+ MMW, 550Mbps using Radio
Rapid installation:	3 hours achievable, 15 minutes temporary
Highly reliable:	99.999% availability achievable
License-free Operation:	No fees to pay on license free bands
No monthly rental fee:	Low maintenance solution
Diverse technology options:	Complete range of FSO, Broadband Radio, Microwave, MMW, WiFi
Fully manageable:	Advanced software tools
Resilient solutions:	1+1 Hybrid UNITY resilient link options
Highly Secure:	Proven inherently secure technologies
Low Total-Cost-of-Ownership (TCO):	Moveable asset
Safe & Environmentally friendly:	Low disruption during installation

CableFree products are field-proven, with thousands of deployments in over 80 countries since 1997. Excellence in performance and reliability are not sacrificed in providing highly competitive priced solutions together with a comprehensive range of support services.

Application Diagram



Two or more vehicles or buildings are connected by CableFree wireless products. Clear Line-of-Sight (LOS) for FSO or Near-Line-of-Sight (NLOS) for radio is required. Cellular base station network interfaces connect directly to the wireless units which can be mounted on tripods, rooftops, towers, poles or behind windows. For permanent installation a site survey is recommended before installation, to determine suitable mounting points, location of cable runs etc. Installation involves physically mounting the equipment, aligning it, connecting data and power circuits and commissioning.

Recommended Products

CableFree Access FSO	FSO Connectivity up to 155Mbps, range up to 4km
CableFree Gigabit FSO	FSO Gigabit Ethernet and CPRI up to 2km
CableFree AC-MIMO	Radio links up to 550Mbps, range up to 40km
CableFree MW	Licensed Microwave links up to 6Gbps, range up to 100km
CableFree MMW	60/70GHz Millimeter Wave links up to 10Gbps+, range up to 10km

T: +44 (0870) 495 9169
E: sales@cablefree.net
W: www.cablefree.net

For More Information

Please contact Wireless Excellence Ltd for information on the complete range of CableFree products and services

Wireless Excellence Limited
The Oxford Science Park,
G6, Magdalen Centre
Robert Robinson Avenue,
Oxford OX4 4GA