

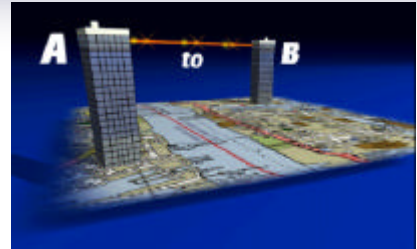
Cablefree Solutions Limited

Leaders in Free Space Optics

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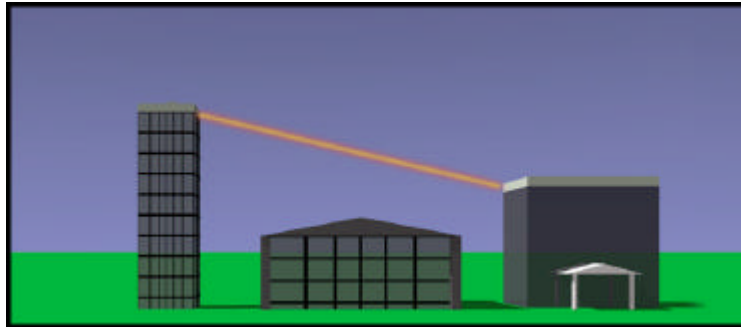
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Application Note No. 8

Cablefree connects GSM mobile telephony base stations



The Scenario:

GSM 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 (BSTs) and Base Station Controllers (BSCs)

Traditional connectivity solutions for Microcells use 2048kbps links using copper wires or microwave links – but there can be drawbacks.

Twisted-pair or coaxial cables for E1/G703 are often already available – but what if the proposed link is across a river, road or railway, or in a developing country where the existing telecommunications operator has limited or unreliable infrastructure?

Microwave or radio solutions usually require licensing and often suffer from interference, multipath and signal reflections – and public health fears in urban areas are voiced with increasing frequency.

Cablefree offers an innovative solution for GSM Microcell interconnectivity:

- Data rates of 1xE1 up to 16xE1, E2, E3 and up to STM-1 & STM-4 (622Mbps)
- Line-of-sight connections up to 2km and 4km* (*in certain regions)
- No site or frequency licenses required
- No leased-line rental or connection charges
- Rapid deployment – installation typically within 3 hours
- No risk of interference, signal reflections or airport radar systems
- Suited for permanent or temporary use
- Plug-in modules allow on-site upgradability of data bandwidth or format
- Cost-effective, safe and reliable solution

Connections to GSM Microcells made easy using CableFree

Modern GSM mobile telephony networks expand constantly to accommodate increased numbers of subscribers – in urban areas Microcells are used to cover relatively small areas where usage is dense. In many cities existing telecommunications lines are available to connect traffic from one cell to the next, usually at standard rates such as 2048kbps – but what are the alternatives where infrastructure is lacking?

Cablefree offers state-of-the-art communications systems ready for today's GSM challenges, with industry-standard data interfaces from 2Mbps to 622Mbps – and plug-in modules mean that bandwidth upgrades are easy – from E1 to 2xE1 or E2 for example. Installations are quick and costs competitive radio and microwave solutions. With no need for frequency allocation or licensing and complete freedom from interference, multipath or signal reflections common in urban areas, **Cablefree** can be deployed to expand GSM networks rapidly anywhere in the world.

Systems available:

Cablefree 622 for voice & data connectivity up to 622Mbps, range up to 2km

Cablefree Access for SDH or PDH connectivity up to 155Mbps, range up to 4km

Cablefree Gigabit for Gigabit Ethernet and Fibre Channel up to 1000m

Data formats supported:

E1/G703 2Mbps • Multiple E1 up to 16x E1 • E2 • E3 • STM-1 & STM-4 •

T1 • Multiple T1 up to 4x T1 • DS-3 • STS-1

Data Networks including Ethernet 10, 100 & 1,000Mbps • ATM-155 & 622Mbps, Token Ring • FDDI • Fibre Channel

Video solutions for Broadcast Video and CCTV

Multiplexed & custom solutions available

For more information, please contact CableFree:

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