



MOBILE RADIO NETWORKS

Microwave radio solutions for base station linking and backhaul

Application Overview 3

Application overview

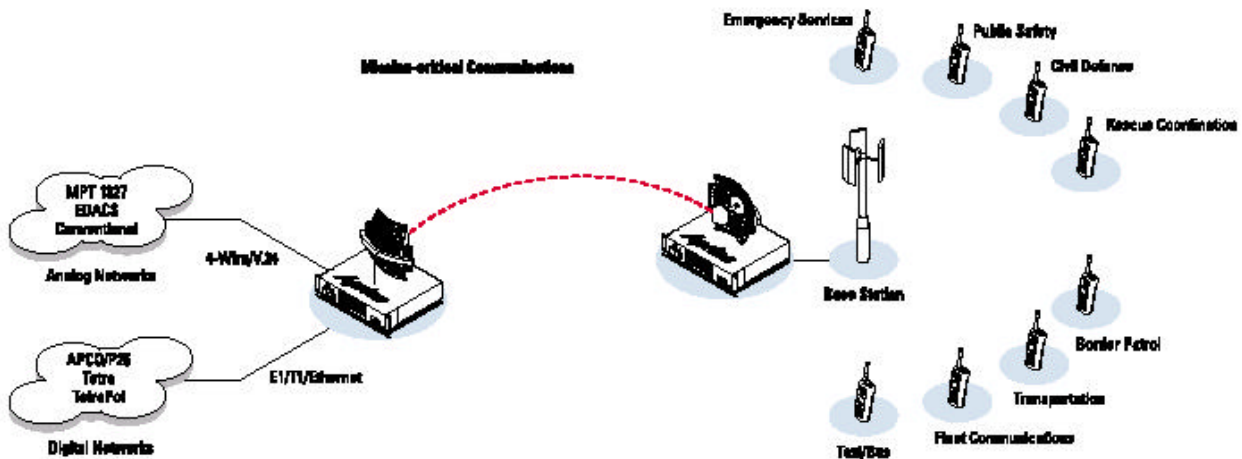
First-responders, emergency services, homeland security, public safety and disaster recovery organizations are heavily reliant on reliable mobile radio network coverage for mission-critical communications. Point-to-point digital microwave radio systems are deployed in these networks to inter-connect mobile radio base stations and backhaul the vital communications to the central or regional switches. The systems are typically deployed where distance, difficult terrain or harsh environments mean the speed or cost of deployment for wired, fiber and satellite communications is not viable or commercially feasible.

Commercial perspectives

Microwave radio enables mobile radio networks to [1] ensure their operational units receive communications coverage and access to the backbone network from remote sites [2] flexibly aggregate and transmit traffic sourced from many sites [3] integrate cost-effective links to replace leased services and reliance upon public, or other operator's networks.

Aprisa™ digital microwave radios

The REMEC HIMARK Telecom Aprisa digital microwave radios enable the robust transmission of Internet, voice and data traffic between two fixed points over distances up to 100 kilometres. They provide support for all mobile radio network types without the need for external multiplexer equipment including analog-based conventional, MPT1327 and EDACS systems; and digital-based Tetra, TetraPol and APCO/P25.



Aprisavantage

The Aprisa radio confers two key benefits to mobile radio networks transporting mission-critical communications.

Superior performance Sub 3 GHz licensed frequency bands enable extremely reliable transmission over long distances and difficult terrain, particularly over water and partly obscured paths. These regulated bands permit exclusive frequency assignment guaranteeing carrier-class performance and minimizing interference. The RF design

integrates high-performance digital processing techniques including FEC (Forward Error Correction), interleaving, and advanced radio equalization to minimize transmission degradation from interference and atmospheric effects. Sophisticated modulation techniques in the radio platform enable highly efficient transmission in narrow channels. This enables the optimisation of available spectrum where that resource may be limited and/or expensive.

Greater flexibility The design of the Aprisa enables swift network integration and redeployment. The radio features an in-built multiplexer supporting all types of mobile radio network equipment and reducing costs by eliminating the requirement for external equipment. Protocols supported include analog based conventional or MPT1327, and digital-based Tetra, TetraPol and P25. Advanced plug-in, customer-configurable interface modules support 4-Wire and V.24 for analog networks and E1/T1, X.21/V.35 and Ethernet/IP for next generation digital networks. The embedded element management applications enable remote configuration, diagnostics and monitoring; and SNMP allows straightforward integration to management systems. These features minimize field service calls, and reduce the cost of installation and ongoing management supervision.

Specification overview

Frequencies	Licensed 330 MHz to 2.7 GHz
Capacity	Up 16 Mbps (8 x E1)
Modulation	16, 32, 64 QAM and QPSK
Interfaces	E1/T1, Ethernet 10/100Base-T, 4-Wire E&M, 2-Wire, V.35, X.21, V.24
Installation	19" rack mount, with 24/48 VDC or AC options
Certification	ETSI performance certification

Indirect competition

Alternative backhaul technologies such as high-capacity point-to-multipoint, fiber, and satellite technologies generally involve significantly greater capital and service costs. There can be logistical difficulties deploying and maintaining these technologies for mission-critical communications over large areas and distances.

REMEC HIMARK Telecom

REMEC HIMARK Telecom is in the vanguard of digital microwave radio and wireless product development. The company provides high-performance access solutions to leading network operators and telecommunication and utility companies for wireless applications in Europe, the Middle East, Africa, Asia, Oceania and the Americas.

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