RadioResource
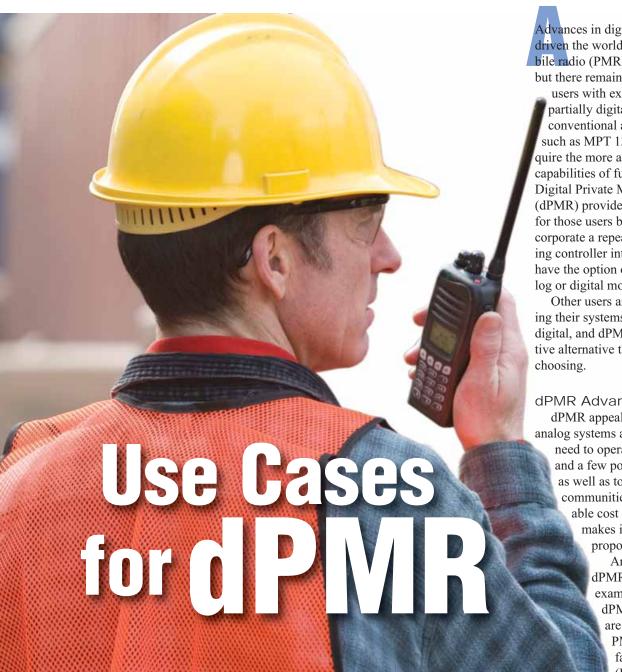## INTERNATIONAL

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Use Cases for dPMR

Digital Private Mobile Radio (dPMR) standards are taking advantage of the benefits of the digital technology.

By Ken Buckfield

Advances in digital technology have driven the world of professional mobile radio (PMR) during recent years, but there remains a large number of users with existing analog or partially digital systems — both conventional and trunked systems such as MPT 1327 — who don't require the more advanced features and capabilities of full digital operation. Digital Private Mobile Radio (dPMR) provides an ideal solution for those users because they can incorporate a repeater or digital trunking controller into their systems to have the option of operating in analog or digital modes.

Other users are building or renewing their systems and want to employ digital, and dPMR offers a competitive alternative that many users are choosing.

dPMR Advantages

dPMR appeals to users of existing analog systems and those who only need to operate one base station and a few portables and mobiles, as well as to small radio-linked communities where the reasonable cost of dPMR equipment makes it a sensible proposition.

Another advantage of dPMR is its flexibility. For example, there are dPMR446 products that are the digital version of PMR446 in Europe, or family radio service (FRS) in the United States. There also are conventional and repeater and/or IP-linked conventional systems for small-area applications, such as within a large university campus or hotel resort. Finally, dPMR is fully scalable to trunked systems capable of providing nationwide network coverage.

dPMR Association Members

AOR	Etherstack	Kirisun
CML Microcircuits	Fylde Micro	Lisheng (Fujian)
Cobham	GME	Communications
CTE International	Hytera	Linktop Technologies
Entel	Icom	Sicomm
EIL	JVCKENWOOD	Wireless Pacific

The dPMR standards and accompanying modes take a little getting used to. Following is a quick summary of each.

■ dPMR446, license-free operation covered by the European Telecommunications Standards Institute (ETSI) standard TS 102 490

■ dPMR Mode 1, the general purpose peer-to-peer application of dPMR for all forms of licensed PMR use and part of ETSI standard TS 102 658

■ dPMR Mode 2, covering base station and repeater functionality and interfaces via gateways, is part of ETSI standard TS 102 658

■ dPMR Mode 3, covering the full functionality of dPMR in managed-access multisite complex systems including all the same interfaces and gateways as Mode 2

Applications

The dPMR standard and product ranges have been used in a variety of ways, including the following examples.

dPMR446 Although dPMR446 is license free, radios currently available are typically derived from proven professional-grade PMR product lines. Users range from event organizations to highway administration entities that want the simplicity that a license-free solution provides but with the robustness of professional-grade hardware and the ability to use dPMR446-specific features such as simple status messaging. The added bonus of twice the number of channels against analog PMR446 (16 digital vs. eight analog)

is another strong selling point, especially in dense built-up areas.

The Wordsworth Trust, which manages Dove Cottage — the first family home of William Wordsworth in Grasmere, England — chose dPMR446 radios to save time and effort in delivering a first-class visitor experience. The decision to employ dPMR446 resulted from research conducted by the trust into the various options available for on-site radio communications. The trust decided on dPMR because of the simple, discreet and effective means of communications it provided, the rugged construction of the radios and the dPMR digital signal option, which proved effective throughout the site, including buildings constructed from solid stone walls.

Humanitarian Community While the specific details of dPMR systems deployed by the United Nations and related agencies are confidential, Mode 2 dPMR systems are increasingly used by a number of humanitarian agencies for many applications ranging from communications training to in-field systems in specific hot spots around the world. Some agencies have also moved to standardize on dPMR for their future digital communications.

Prisons, Airports and Local Government dPMR was not specifically designed as a mission-critical protocol, but it has been effectively implemented in mission-critical sectors, including prisons, the police service (both Mode 2 conventional and Mode 3 trunking), airports and local government authorities. Other

typical users include the business and industry sector, where transport companies, the hospitality industry and others have opted for dPMR systems.

A specific example is Sharjah International Airport in the United Arab Emirates (UAE), which employs a dPMR Mode 3 trunked radio system. The system offers eight simultaneous radio channels for general operation requirements. The design goal was to provide a flexible radio communications system that supports a centralized application system for user management and monitoring, as well as maximum channel recourse availability, particularly during peak traffic hours.

dPMR's Future

dPMR has attracted attention and support within the industry from chipset and equipment manufacturers in Europe, Asia, Australia and other territories. Seventeen members of the dPMR Association offer equipment and solutions compliant with ETSI dPMR standards.

In addition to significant activity in conducting interoperability testing at all levels from radio equipment to infrastructure, chips and test equipment, the dPMR Association is also involved in the development of the ETSI standard itself and using it as the basis to develop and scale radio networks.

Where these systems have been implemented, the technical team within the association liaises with the manufacturers and, where necessary, prepares proposals to the ETSI working group for updating the standard, all of which ensures dPMR continues as an open ETSI standard. The open standard brings together multiple vendors supplying interoperable dPMR products, solutions and services across a diverse range of applications in commerce, industry, emergency services and aid agencies around the world. ■

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