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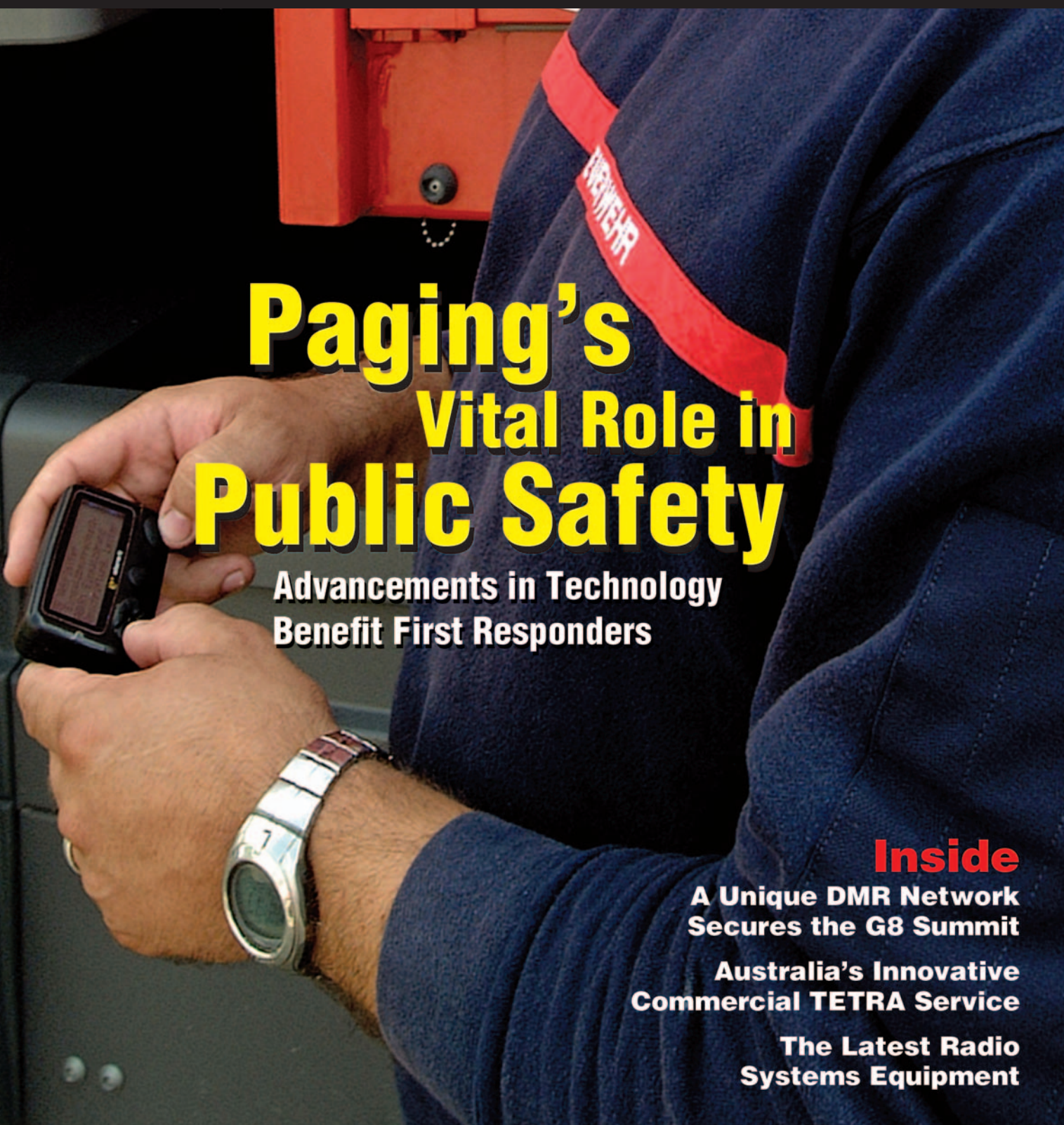

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Advancements in Technology Benefit First Responders

Inside

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Australia's Innovative Commercial TETRA Service

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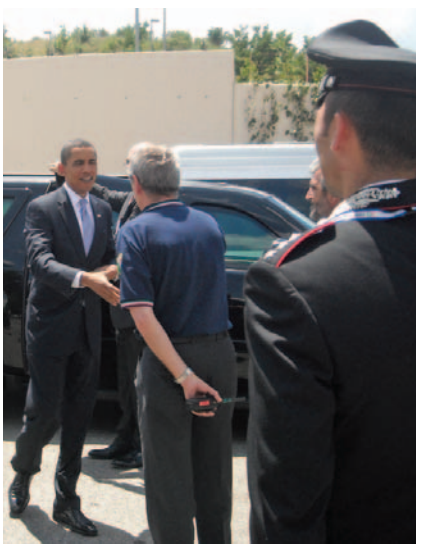

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Digital Dynamics

Digital technologies are promising to change the face of the professional mobile radio (PMR) industry. New standards and applications are already making inroads into various markets and organizations that had previously used different technology.

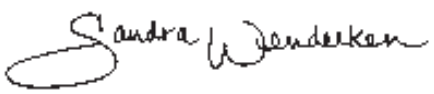
Throughout Europe, TETRA is the digital technology generally used for public-safety and emergency communications. However, a network built to support the G8 Summit last July in Italy used Digital Mobile Radio (DMR) technology, which generally has been used only in the business and industry markets. The G8 Summit network, which you can learn more about on Page 18, served the Italian Civil Protection, charged with protecting Italy on national and territorial levels. It will be interesting to watch future DMR rollouts and what markets the technology addresses.

For its part, TETRA has moved from a technology specifically designed for the emergency services sector to a broad range of markets including transportation and utilities among others. TETRA technology is also being used for a public access mobile radio (PAMR) network in Australia. See Page 14 for more details on how the network is serving a waste management firm in Dingley, Victoria.

In the United States, PAMR operators are seeing revived service from digital technologies based on NXDN technology from Kenwood, Icom and other firms. The new offerings include cellular-like functions such as GPS location, text messaging, caller identification, VoIP services, along with group, broadcast and individual calling. Having these additional services available is allowing the commercial mobile radio operators to better compete with cellular services to address the business and industry markets.

As we mentioned in the last issue of this magazine, many of our readers still use analog networks. Digital technology is not a panacea, but the additional functionality is allowing users to be creative in how they deploy networks to address their business needs. And that will only bode well for the industry's future.

We value your opinions! Please e-mail your feedback to me at swendelken@RRMediaGroup.com.



Sandra Wendelken, Editor
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RadioResource INTERNATIONAL

RadioResource International delivers wireless voice and data for mobile and remote mission-critical operations for professionals who reside or do business outside the United States and Canada. The magazine covers private and trunked mobile radio, wireless data, location technologies, public safety communications, microwave radio, satellite, paging/messaging, remote monitoring, and other commercial and private wireless applications. Editorial content is international in scope and encompasses emerging technologies, industry reports and trends, innovative applications, product information and comparisons, news, standards, and troubleshooting tips.

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World News

EUROPE

ETSI Works to Standardize Reconfigurable Radio Systems

Photo courtesy EADS

The European Telecommunications Standards Institute (ETSI) is beginning standardization of reconfigurable radio systems (RRS). RRS addresses the increasing demand for diversity of wireless communications, as well as facilitates more flexible use of RF spectrum, ETSI officials said. The work includes a focus on public-safety communications.

ETSI completed a phase of feasibility studies. The initial phase, carried out by ETSI's RRS Technical Committee, resulted in a series of ETSI technical reports that examine the standardization needs and opportunities. They include architectural and implementation aspects of RRS, as well as specific user requirements in the context of public-safety communications. The principal technical report in the series (TR 102 838) summarized the feasibility studies by the committee and presented its recommended topics for standardization.

RRS is based on technologies such as software-defined radio (SDR) and cognitive radio whose systems exploit the capabilities of reconfigurable radio and networks for self adaptation to a dynamic environment to ensure end-to-end connectivity. Global interest in RRS solutions is fuelled by the rapidly growing demand for wireless communications for a wide range of purposes.

As part of its work, the ETSI committee is addressing public-safety communications. Currently, public-safety communications are characterized by patchworks of separate, often incompatible systems with widely varying capabilities. The application of dynamic spectrum management, cognitive radio and SDR can provide solutions for the required interoperability of such systems, which often operate in uncertain and changing operational scenarios, and maximize the use of the limited radio spectrum usually assigned to these services. Apart from bringing improved operational capabilities, these techniques also offer increased system flexibility and the ability to adapt to evolving technologies.

The application of RRS to the public-safety domain is likely to be strongly related to the evolution of TETRA. Backward compatibility with legacy and other systems is part of the work, said Marion Hagemeier, an ETSI spokeswoman. Project Mesa, a combined ETSI and U.S. project focused on wireless broadband standards for public-safety communications, is working on system and network architecture. As a result of TC RRS feasibility studies on public safety, the proposed functional architecture is based on the Project Mesa architecture and will include SDR and cognitive radio, ETSI officials said.

A meeting of the ETSI RRS technical committee was set for Mainz, Germany, 15 – 17 December. At the December meeting, approval of the technical report on system aspects for public safety was expected. Then TC RRS will start to investigate in detail the next steps specific to public safety, said ETSI's Hagemeier. Users, research bodies and manufacturers are involved. The public-safety related group is likely to move forward first.

ASIA

EXTON, Pennsylvania, USA — WPCS International completed the acquisition of **Pride Electronic Security Systems** in Queensland, Australia. The purchase price included a payment at closing of AUD$2 million (US$1.8 million) with a potential of up to an additional AUD$2 million of purchase price based on achieving certain earnings goals during the next two years.

Pride Electronic Security Systems focuses on low-voltage security installations, alarm systems, video surveillance and access controls. The company will be assimilated into the WPCS Australian operations.

LATIN AMERICA

SANTIAGO, Chile — Chilean company **Mobilink** deployed CDMA 2000 1x 450 MHz service with trunking GoTa from **ZTE**. Mobilink is the first company in Latin America with this technology.

The service is targeted at businesses in the metropolitan area of Santiago, with an option for cellular and mobile data services. The company in less than a year has upgraded its analog radio system to a digital CDMA 2000 1x network that integrates digital radio with push-to-talk (PTT) capabilities.

MIDDLE EAST/AFRICA

JEDDAH, Saudi Arabia — APCO Institute announced the opening of King Abdullah University of Science and Technology (KAUST) in Saudi Arabia. The university includes Security Command and Control's 9-1-1 Communications Center, staffed with APCO Institute-trained personnel and using APCO Institute support software.

KAUST is an international, graduate-level research university dedicated to inspiring a new age of scientific achievement in the kingdom. Its core campus occupies more than 36 million square meters on the Red Sea and sits about 80 kilometers north of Saudi Arabia's second largest city, Jeddah.

The all-inclusive program launched last year and is administered by APCO Institute Adjunct Instructor Mark Boudreaux, director of Terrebonne 9-1-1 District in Louisiana.

INTERNATIONAL

GENEVA — The International Telecommunication Union (ITU) will

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Ofcom Releases 2012 Olympics Spectrum and Interference Plan

U.K. telecom regulator Ofcom released a spectrum plan for wireless communications at the London 2012 Games. The plan includes high-level approaches to licensing and interference management.

Ofcom officials said most demand for professional mobile radio (PMR) will be met by the networks being built for the London Organizing Committee of the Olympic Games and Paralympic Games (LOCOG) or extended for the emergency and public-safety services (E&PSS). Demand outside these networks will be met from spectrum in the normal bands for PMR, talkback and telemetry. Ofcom will work closely with stakeholders to ensure 430 – 478 MHz spectrum is available to meet these needs.

"However, it is our expectation that where requirements can be met from the LOCOG network, stakeholders will adopt this solution," a statement said.

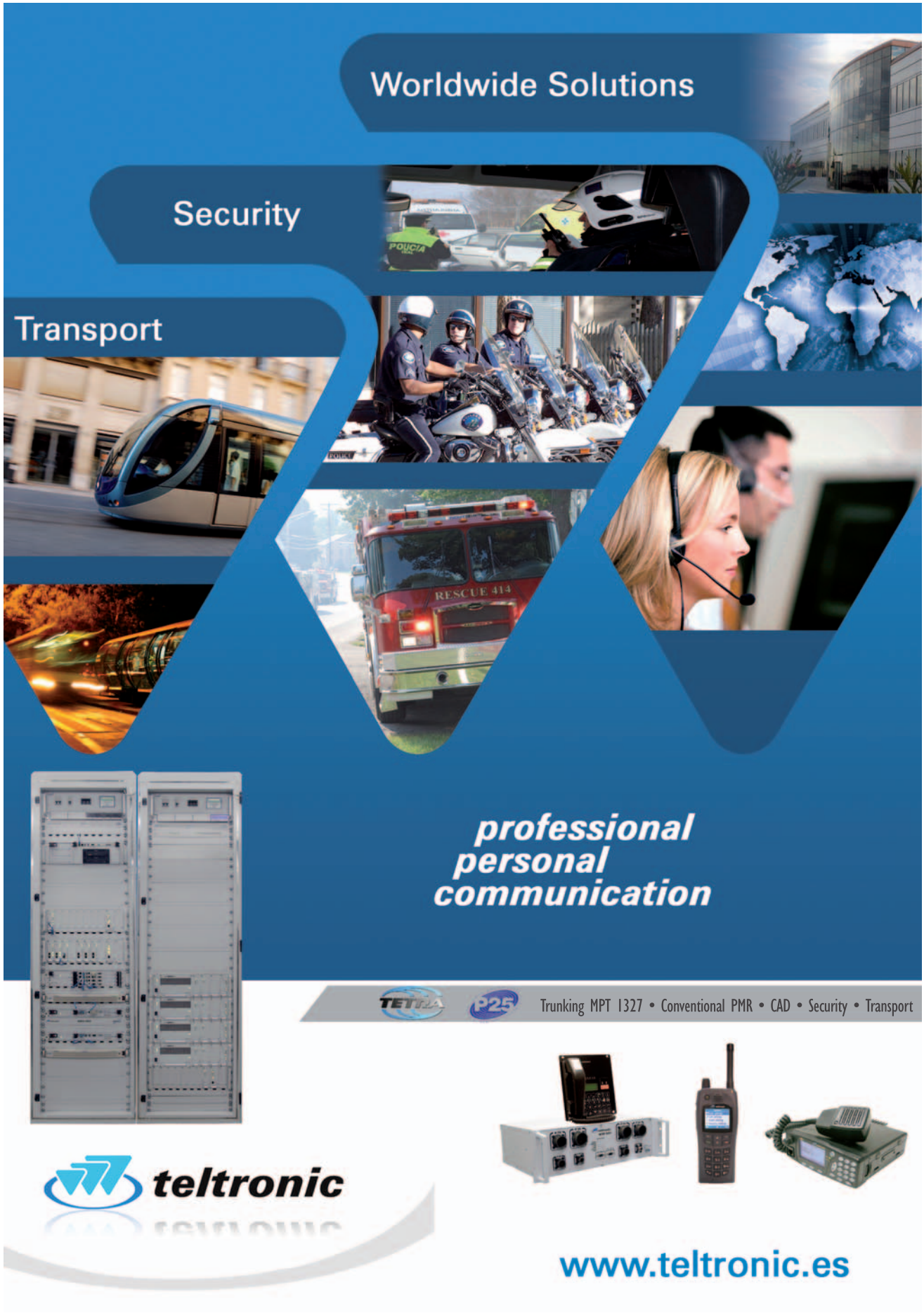
Most wireless microphones will only operate in UHF Bands IV and V, sharing with analog and digital terrestrial TV (DTT). The cleared spectrum available as a result of the switchover to DTT, including the 800 MHz band, should be available for the London 2012 Games.

Ofcom officials said mitigating the risk of harmful radio interference is a key component of plans for the London 2012 Games. Ofcom officials said it is important to maintain a presence throughout the London 2012 Games in case Ofcom engineers are called on to deal with cases of harmful radio interference.

Photo courtesy London 2012

An aerial photo of Olympic Park taken in July 2009.

"We are examining the feasibility of establishing a network of sensors both within key London 2012 Games venues and outside these venues to allow us to rapidly locate the position of any interfering radio signal sources," Ofcom officials said. "While establishing the final location of any interfering radio signal sources will always require an experienced spectrum engineer, we hope that a position location network will allow us to significantly reduce the time required to resolve any radio interference issues that may arise."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implement measures to give purchasers of information communications technology (ICT) equipment a much clearer picture of equipment's ability to interoperate with other ICT devices. A key component of this new conformity and interoperability program will be a global database that will log products declaring conformity to ITU standards.

The program will support more informed purchasing decisions for end users and has the potential to widen markets, increase competition and decrease costs, ITU officials said. It will allow purchasers to freely consult a comprehensive global database to check whether a product conforms to ITU standards or will work with other network elements.

The new ITU program will also focus on skills training and the development of regional testing centers for developing countries. It will be voluntary and open to ITU members and nonmembers. Conformity to ITU-T recommendations will be declared only via accredited laboratories or certifiers; testing will not be carried out by ITU. Once accepted and entered into the new database, products will be given a unique identifier that can be referenced by the manufacturing company.

Separately, the ITU, Inmarsat and Vizada SAS reached an agreement to improve emergency communications for disaster preparedness and to coordinate relief activities in the aftermath of a disaster.

Inmarsat and Vizada donated 70 BGAN terminals — portable devices that are capable of delivering voice and broadband data — to the ITU. The equipment will enhance ITU's capacity in deploying mobile telecommunications to assist countries in preparing for disaster and in strengthening response and recovery mechanisms. Based on the agreement, Inmarsat and Vizada will provide ITU with preferential airtime rates and technical training support.

Copyright and source courtesy ITU/V. Martin

GENEVA — Russian physicist and radio communications pioneer Alexander Stepanovich Popov was honored at the International Telecommunication Union (ITU) Telecom World 2009. "Without the enormous scientific achievements of Popov, modern radio-communication technologies, that have done so much to connect people and assure the development of other sectors, from maritime and air transport to satellite systems, might never have become a reality," said ITU Secretary-General Dr. Hamadoun Touré.

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KS Cuts Waste with Digital Service

Photo courtesy KS Environmental

A commercial network helps improve efficiencies and reduce costs for an Australian waste management firm.

By Steve Crutchfield

For boutique waste management company KS Environmental, effective communications is an essential part of ensuring business remains progressive, profitable and growth oriented. The Australian-owned company, founded in 1967, is based in Dingley, Victoria, and has large contracts for both commercial and council waste management, along with the collection and disposal of liquid waste and sweeping roads. The company's size enables it to specialize in designing products specifically for customer needs. Major sporting events, city councils and commercial businesses form the core of KS Environmental's customers.

While people generally accept that analog communications in most media are being replaced by digital, few realize that with two-way radio, it's not just a transition to improved voice quality, but a quantum leap bringing a host of add-on benefits such as GPS location services, text messaging, network security, encryption, data transfer and a single push emergency button. "It is a big step to go to a new and different communications network," says Andrew Weaver, operations manager at KS Environmental. "But the benefits have been fantastic."

Motorola's new Zeon Digital commercial radio system now used by KS Environmental allows its mobile and outdoor workers to communicate with greater efficiency and reliability while also bringing more security to the workplace. "There really is no comparison to the old system," Weaver says. "But it was still a gamble. People tend not to like change and want to stay with what they know."

Enhanced Efficiencies

KS Environmental's old analog system served the firm well for more than 25 years but was rapidly becoming out of date. With 18,000 pickups a week, there is no room for inefficiencies. "The time came for us to make a business decision to invest in a communications system that would assist in running the business more effectively and efficiently," Weaver says. The company transitioned from the analog network to the Zeon Digital network in 2007. The Zeon Digital network is owned and operated by Motorola Australia and complies with the TETRA standard. The digital nature of TETRA means that Australian businesses have access to two-way radios that offer more than just voice communications; location services via GPS, text messaging, data transfer, emergency button and telephone interconnect are all available from the one radio. The looped linking design of the network also gives customers increased redundancy and the highest level of availability 24 hours a day seven days a week.

The communications benefits have improved teamwork and saved the company on labor costs. The Zeon Digital system that services KS Environmental's fleet of 60 vehicles is a combination of mobile and portable radios divided into four different talk groups. Liquid waste talks to liquid waste, sweeping to sweeping, and so on, which avoids unnecessary cross-communications among departments.

Having GPS incorporated into the company's two-way radios has changed the way KS Environmental does business. With plasma TVs installed around the office linked to the online GPS system, managers can see exactly where the trucks are, what the timelines are, and which customers want pickups and when. With everything documented on screens located throughout the facility, it's easy for customer service to answer customer questions. "With landfills becoming more scarce, our vehicles have to travel a long way to dispose of waste," Weaver says.

Using the GPS capabilities also

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“Using the GPS capabilities of the Zeon Digital network helps ensure that the runs that management designs for the trucks result in using fuel economically.”

— Andrew Weaver, KS Environmental

helps ensure that the runs that management designs for the trucks result in using fuel economically. “Initially, we were a little concerned that the truck drivers would feel that they were being overly monitored, but in fact, they can see how the system has benefited them,” Weaver says. “All the pickups are more evenly apportioned, and pickups can be done in eight hours with other trucks helping out with back up if necessary. Overtime has been reduced, and it’s obvious that clear and clean communications helps everyone.”

KS Environmental went to market wanting at least three suppliers to submit proposals for the business. Motorola designed a package purpose-built to suit the waste management company’s needs. The secure nature of the digital network was another benefit. “We were concerned that the installation in 60 vehicles would be somewhat piecemeal,” Weaver says. “It wasn’t. It was well managed and professionally done and didn’t negatively impact the business. We ran the two systems concurrently but the new system was able to takeover in a very short period.”

Planning the network, installation and training — the unseen side of the communications infrastructure that can often be disruptive — went smoothly. The installers kept management informed on a daily basis about what they were doing and the stages involved. “This had the effect of making both management and the users very comfortable with the decision to invest in a new system,” Weaver says. “People tend not to like change so the fact that it was pretty much seamless made for very relaxed employees and reduced tension to a minimum.” ■

Steve Crutchfield is general manager of Zeon Digital, taking up the reins in April 2007. Previously Crutchfield held the global role as director of desktop solutions for McAfee before moving to Australia from Portland, Oregon, USA, to assume responsibility for sales, business development and strategic alliances as McAfee’s SME director in the Asia Pacific. E-mail comments to editor@RRMediaGroup.com.

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U.S. President Barack Obama greets officials at the G8 Summit in Italy in July 2009.

Photo courtesy Selex Communications

Benvenuto in Italia!

A unique DMR network handles heavy traffic and secure communications for the G8 Summit.

By Andrea Pratesi

The Italian Civil Protection, involved in the organization and security of the 2009 G8 Summit 8 – 10 July, used new Digital Mobile Radio (DMR) systems manufactured by Selex Communications. During the three main days of the meeting and in the preparatory days ahead of the event, the new DMR networks cleared heavy communications traffic throughout the wide and complex territory.

Coverage extended around the city of L'Aquila and along the routes from the residences of the heads of states and their staff, the journalists and all the accredited authorities. The event encompassed a wide strip in central Italy from the Tyrrhenian Sea to the Adriatic Sea. The network's 500 users included the Italian Civil Protection, heads of state staff, security services, transportation services for the delegations, emergency medical services and other services. The system was unique to the professional mobile radio (PMR) industry because DMR technology was used for emergency and security purposes; TETRA technology is generally used in Europe for emergency services. In addition, for the first time, seven simulcast DMR networks were implemented in a complex configuration.

System Design and Coverage

The network incorporated the inherent advantages of DMR's digital modulation and the well-known benefits of the traditional simulcast networks that the Italian Civil Protection have used for some time. The new networks ensured excellent coverage of wide territories, along with ease of use for first responders in the field. The system guaranteed radio communications between the main control center of the Guardia di Finanza base in Coppito (close to L'Aquila). Handheld, in-vehicle and dispatcher radios were used on the network.

The goal was to provide coverage to the city of L'Aquila, along the highway from L'Aquila to Rome where the Fiumicino airport is located, and along the highway from L'Aquila to Pescara. Because of the presence of mountains, the 70 DMR repeater stations, arranged in seven simulcast networks and installed in 30 different sites covering about 8,000 square kilometers, were used to cover the terrain. Italian officials appreciated the flexibility of the DMR networks, originally installed in Italy's Sardinia region.

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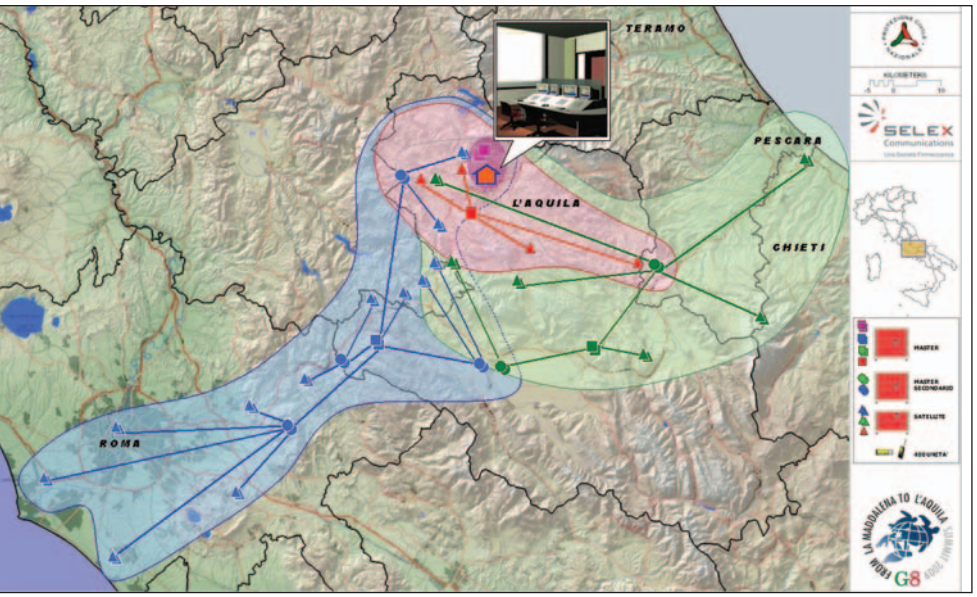

The two networks installed in the blue area of the map consist of 22 DMR repeaters, able to guarantee radio coverage of the territory from Fiumicino Airport in Rome to L'Aquila.

Within a few weeks, the equipment was fully reconfigured and installed within the regions of Abruzzo and Lazio, after the G8 Summit was relocated from La Maddalena to L'Aquila.

The two networks installed consisted of 22 DMR repeaters, which are able to guarantee radio coverage from Fiumicino Airport in Rome to L'Aquila. The repeaters were interconnected through UHF digital single-channel links integrated in the same mechanical structure of the repeaters. This feature allows a quick deployment of the equipment at a site.

Simulcast is the technique used for radio coverage of a specific area using different repeaters with the same frequency pair or channel. The repeaters are linked to each other to eliminate the distortion in the overlap area covered by more than one repeater. The result is a "virtual single-site repeater" with coverage that is the sum of all the repeaters. The simulcast technique provides automatic handover; the terminal units are tuned on the same channel while moving under the coverage of the different repeaters, so no signalization is required. The simulcast architecture, the same that was previously used for the analog networks, allows people in the field to freely move across the wide area ensured by the simulcast technology. There is no need for special operations

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DMR Update

The DMR standard was developed within the European Telecommunications Standards Institute (ETSI) and was recently finalized. DMR, first ratified in 2005, offers a nonproprietary protocol for new mobile digital radio networks, establishing frequency ranges and channel spacing equal to the current analog networks, but doubling the number of channels with TDMA technology.

The standard is designed to operate within the existing 12.5-kilohertz channel spacing used in licensed land mobile frequency bands globally and to meet future regulatory requirements for 6.25-kilohertz channel equivalence. The primary goal is to specify affordable digital systems with low complexity. DMR provides voice, data and other supplementary services.

The network for the G8 Summit conformed to the DMR Tier II mode of operation, which covers licensed conventional radio systems, mobiles and hand portables operating in PMR frequency bands from 66 – 960 MHz. The ETSI DMR Tier II standard is targeted at users who need spectral efficiency, advanced voice features and integrated IP data services in licensed bands for high-power communications. ETSI DMR Tier II specifies two-slot TDMA in 12.5-kilohertz channels.

Selex Communications' DMR equipment has been commercially available since 2008. The digital simulcast networks deployed for the G8 summit allowed the use of DMR commercially available terminal units. Representatives of the Civil Protection department in Rome, who followed the installation of the DMR simulcast system, confirmed that the new digital mobile radio system satisfied expectations.

to be set up on the terminal units because the network, through its own internal automatic mechanisms, acts like a virtual single-site repeater.

Selex Communications' DMR simulcast networks employ the Extended Communications System (ECOS-D) platform, which has the capability to allow communications in both analog FM and digital DMR on the same channel, instantly switching between the modes in a real-time dual-operating mode. This feature is important for customers who require a seamless migration, running both analog FM and new digital terminals on the same network.

Traffic and Data

The network used UHF and VHF spectrum. The repeater links used 440 MHz frequencies, and the terrain coverage used 160 MHz spectrum. The system managed more than 120,000 calls during the week of the summit. The number of communications on the same RF channel simultaneously doubled with the digital technology. The seven networks supported 14 digital conversations at the same time compared with the seven conversations allowed with analog infrastructure. Each repeater in each network worked on the same VHF frequency pair and with the same 12.5-kilohertz channel spacing of the previous simulcast analog network, but with the DMR technology, it carried two digital communications simultaneously.

In addition, radio communications were more secure than with the analog network, voice quality was excellent, and a user's location was automatically known through GPS. The location feature allowed dispatch center operators to better coordinate all the users' activities required within the wide area. The multifunctional dispatching units displayed GPS individual localization on geographic maps, allowing the operators of the Civil Protection in the Coppito main control center to manage all the communications and coordinate the activities of the personnel in the field.

The seven networks consequently supported 14 digital conversations at the same time instead of the seven previously allowed with analog infrastructure.

Intergraph, as part of the Selex Communications team, provided security technology for the summit. Intergraph's integrated security solutions provided a common operating picture that aided Civil Protection personnel in their efforts to secure vulnerable areas, detect and assess threats and quickly respond to incidents. The integrated security system also enabled the exchange of intelligence between the central management station and several remote command-and-control centers.

In addition, Rossi of Brescia, an Intergraph digital photogrammetry customer, provided aerial photos captured by Intergraph's digital mapping camera (DMC), a large-format frame digital aerial camera. The photos were incorporated into the high-resolution maps used by Civil Protection personnel to advance situational awareness of those monitoring the G8 site and surrounding areas. ■

Andrea Pratesi is director of the professional mobile radio and networks business unit at Selex Communications, a Finmeccanica company. Previously a radar systems engineer, 15 years ago he moved to telecommunications, where he has covered different positions, ranging from sales and technical support to project management. E-mail comments to andrea.pratesi@selex-comms.com.

Paging's Vital Role in **Public Safety**

Advances in paging and two-way messaging are benefiting first responders around the globe.

By Derek Banner

Photos courtesy PageOne

In almost every hospital throughout the world, radio paging is used to contact and inform emergency personnel and first responders during a crisis. Paging is reliable; the technology can call and inform every member of a pre-selected group or a number of groups with just one message transmitted rather than a series of messages. Paging messages are received within a few seconds. During a major emergency, paging doesn't suffer from network congestion, so it doesn't lose calls or take a long time to transmit messages. Furthermore, the technology is cost effective.

If on-site radio paging works well for the emergency teams within a hospital, where both time and reliability are of life-saving importance, it isn't surprising that wide-area and national coverage messaging networks also support first responders — emergency services as well as other support and government agencies — worldwide.

Paging Features

Radio paging networks are reliable, because most public or blue-light services have at least two levels of redundancy for both equipment and coverage. On the equipment side, there is always two of everything with automatic failover in case one piece of apparatus should fail. A simple base station contains at least two transmitters, two controllers, two power supplies and two antennas. In the event of a single failure, the other redundant equipment is automatically switched into operation.

Wide-area radio paging uses simulcast technology; most locations in a coverage area are illuminated from signals from at least two base stations. In the unlikely event a base station doesn't transmit a signal — perhaps because it is situated at the heart of an incident — the coverage will be supplemented by neighboring base stations. This technology ensures that radio coverage for paging networks is second to none and can work underground at basement level. In addition, the radio pagers are sensitive, and the frequencies they use provide good in-building coverage. Therefore, a paging network generally requires less network infrastructure and is more cost effective than two-way radio systems.

The technology's group-call facility enables pre-selected groups of two to thousands of people to receive a public alert. This is possible because of the use of a common code for simultaneous transmission rather than sequential transmission. Users can also be in more than one group enabling complex, yet flexible groups to be created that can respond to various emergencies. During normal operation, paging customers are alerted within 30 seconds; however, for emergency services or at times of crisis, this can be accelerated to five to 15 seconds for a single user or a group comprised of thousands of people.

Paging can handle a high throughput of messages both at the time of an emergency and after an incident. It operates in the same way and with almost the same delays during normal operation. Unlike competing technologies, paging doesn't suffer from congestion where messages can get lost or take minutes or hours to get through. Compared with other technologies and

services, radio paging is low cost to buy and maintain. The receivers are robust and cost less than $100 each, making radio-paging networks and operations cost efficient.

Paging During Crises

During the past decade, there have been many manmade and natural disasters. Recent situations exemplify the need for good communications that don't fail under the strain caused by an emergency situation. On 11 September, 2001, radio paging proved to be "the most reliable means of notification," according to the Arlington (Virginia, USA) County "After-Action Report on the Response to the September 11 Terrorist Attack on the Pentagon." After Hurricane Katrina struck New Orleans, USA, in August 2005 "paging systems seemed more reliable in some instances … because paging systems utilize satellite networks, rather than terrestrial systems, for backbone infrastructure," the Katrina Independent Panel Report states. The 7 July Review Committee that investigated the communications shortfalls after the London bombings in 2005 released a report stating that the London Ambulance Service began issuing pagers to managers as backup communications. Some local authorities in London, in collaboration with the relevant police service, have set up pager and/or e-mail alert systems for local businesses, communities and residents.

During the past decade, analysis of almost all emergencies indicates that where other services have failed — either through equipment being taken out of service, which happened during Katrina, or through shear network congestion, which happened during the 11 September and 7 July terrorist attacks — radio paging works consistently throughout emergencies, disasters and other crises.

European Operations

In many European countries, public radio paging services operate to serve businesses and private customers. For example, the United Kingdom has PageOne and Vodafone; Germany and France have e*Message; Sweden has Generic; Switzerland has Digicall and Swissphone; and Israel has Beeper. The commercial radio paging services also serve emergency services, if only as a backup to their normal communications networks.

TETRA or Tetrapol networks installed for the exclusive use of the emergency services cover most European countries. In general, the networks work well, but TETRA can't provide some of the features that are inherent in paging networks. Terminals are comparatively expensive and bulkier, TETRA networks use more spectrum, and in some countries, coverage is an issue.

LEARN MORE
For more information on paging in the U.K., visit www.RRImag.com

For reasons such as these, some countries with TETRA networks have supplemented the mobile radio systems with private radio paging services for their blue-light and government services. In Belgium, ASTRID supplements its TETRA network with radio paging, as do C2000 in Holland, LEBIG in Lower Austria, several counties in Germany and some departments in France. In all of these countries, public-safety paging infrastructure has already been installed or is in the process of installation. These networks have been partially paid for by public authorities or by specialized network operators.

In the United Kingdom, when O2 closed its public radio-paging network in 2005, a large portion of users went to the other nationwide operators such as PageOne and Vodafone Paging. The Royal National Lifeboat Institution (RNLI) and most fire services in England, Scotland and Wales provide radio pagers on the national networks to

Commercial radio paging services also serve emergency services.

their personnel and have installed hundreds of private wide-area radio paging systems around the coastline of Great Britain and Ireland so lifeboat men and firefighters can be called in the case of a coastal emergency.

Current Developments

Radio paging can also be used to alert the public in times of crisis. In Germany, e*Message developed a prototype of a public-warning module that can be integrated in any user device to transform it into a smart siren. The energy-saving e*WarnModul (e*WM) is designed to make practically any electronic device into a smart siren. Depending on the type of host device, the warning information can be presented acoustically or on a display, or even transferred to another device for further processing. The new e*WM module doesn't need a subscriber identity module (SIM) card and is independent of other networks. It is more precise and versatile in use than conventional sirens in stand-alone operation and is mass producible for one-tenth the cost of modules designed for use in competitive technologies.

The e*WM module can be easily integrated with domestic smoke detectors and will emit appropriate warnings depending on the message contents. The e*WM can then be used to warn the public in specific areas, down to the house number, without any prior definition of warning regions, and totally independent

of main electric power. e*WM is suitable for warning the public 24 hours a day and seven days a week.

Swissphone developed the ResQ pager, a two-way device that incorporates a GPS receiver to enable a dispatcher to get an acknowledgement or response to a paging call. Incorporating the response element within paging adds an extra benefit to traditional broadcast messaging because the control center can determine the availability and exact location of staff. In addition, incident controllers can make rapid, informed decisions on the mobilization and coordination of their resources. Responders are therefore equipped with a device that's not only durable and reliable, but most importantly, easy to use. It is an ideal way for emergency services — as well as corporate and public-sector organizations — to enhance the robustness and performance of their operational and crisis management processes. In the United Kingdom, PageOne integrated the ResQ devices with its Web-based messaging applications and existing command-and-control systems. The service enables immediate access to secure mapping and location-based messaging.

Radio paging is reliable, quick and inexpensive. It doesn't suffer from network congestion, even during a crisis or emergency. Device, network and integration developments are currently taking place that will further enhance the performance characteristics of radio paging networks. The advancements will make paging even more suitable for alerting and informing first responders, as well as informing the public to immediate threats. ■

Paging Associations

The European Mobile Messaging Association (EMMA) is the voice of paging operators and manufacturers around the world. The association promotes the use of paging to end users as a solution for their requirements. For more information, visit www.emma-info.org.

EMMA works closely with the American Association of Paging Carriers (AAPC). For more information on the paging and messaging business within the United States, visit www.pagingcarriers.org.

Derek Banner is chairman of the European Mobile Messaging Association (EMMA). Banner spent more than 30 years with British Telecom, almost all of which was in its mobile telecommunications businesses. Banner has worked closely with key U.K. and European government and regulatory departments, providing papers and representations on critical business issues. Contact Banner at derek.banner@wirelessmessaging.org.

Radio Systems

In this issue, we look at a variety of radio systems. For more information on a product, please contact the appropriate company via its Web site at the end of each listing. Be sure to mention that you found the information in *RadioResource International* magazine.

Axell Wireless

The CSR438 digital channel selective repeater provides quick and secure radio coverage in any TETRA network and supports up to eight TETRA carriers, Axell officials said. The repeater can be used to expand a base station's service area by filling in coverage gaps caused by terrain, buildings or tunnels, and provide rural or remote TETRA coverage through the use of frequency shifting technology. The repeater offers low delay and high-selectivity filter configuration parameters and alarm monitoring within the same hardware.

www.axellwireless.com

BridgeCom Systems

The TL-NET system provides interoperable communications between dissimilar equipment. The audio and data are passed using VoIP technology. The system can link conventional, logic trunked radio (LTR), digital, desktop console, PC, iDEN network or any combination thereof.

www.bridgecomsystems.com

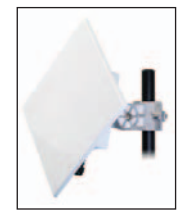
CalAmp

The Dataradio Sentry 4G-900 provides high-speed, long-range data connectivity in the license-free 900 MHz band. Ensuring the protection of sensitive data, the system combines several security features. The system's rugged enclosure withstands harsh conditions with an extended temperature range, CalAmp executives said.

www.calamp.com

Carlson Wireless Technologies

The Trailblazer line is a fractional T1 system with an integrated channel bank for plain old telephone service (POTS), four-wire E&M and Ethernet along with frequency options in 2.4, 4.9 and 5.x GHz. The company's True-TDM technology is



voter/comparator compatible. The Long-Haul product line is an IP and T1/E1 wireless bridge available in 700 and 900 MHz, and 2.4, 3.65, 4.9, 5.x and 6 GHz providing distances beyond 60 miles.
www.carlsonwireless.com

Damm Cellular Systems

Damm TETRA base stations are offered in an outdoor base station, BS421, which can be installed with up to four carriers at a site,

and an indoor base station, BS41x, with up to eight carriers. Designed for a fully distributed IP solution, scalable from single- to large multisite networks, the base stations come integrated with LogServer, Dispatcher and Network Management. The base stations are provided with an internal GPS receiver.
www.damm.dk

Daniels Electronics

For agencies that require compact Project 25 (P25) repeaters supporting transparent encryption in VHF or UHF bands, the ET-6 provides a compact, unobtrusive 30-

watt repeater/base station. The ET-6 30-watt Stealth Repeater was designed to meet the needs of surveillance operations where covert radio communications and rapid deployment are vital. The system can be configured as a repeater, a base station or a repeater/base station combination.
www.danelec.com

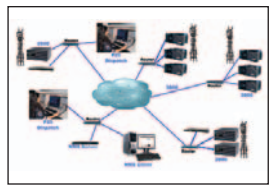
EADS Secure Networks North America

The UC5000i software manages a complete Project 25 (P25) trunked radio frequency subsystem (RFSS) including

subscriber data, subscriber unit location, subscriber and site capacity, network and component connectivity, and other P25 features. The software offers a robust distributed architecture so that wide-area trunking will continue if the software fails or loses connection with the rest of the P25 infrastructure. The system features an open, mulitvendor design, software-driven architecture and native IP core.
www.eads-ps.com

EF Johnson Technologies

The Hybrid IP25 system is a secure and reliable wide-area conventional system that has many of the features of a trunk-



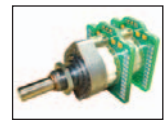
ed system, company executives said. The native IP system uses commercial off-the-shelf (COTS) components for lower capital expenses and operating costs. The network offers the best of both trunked and conventional

infrastructure systems, executives said.
www.efjohnson.com

Elma Electronics

The MV series Stepped Attenuators offers integrated surface mount device (SMD) resistors and audio input selector switches. The attenuators feature no through-hole soldering and an automated assembly process.

The input selector switches offer users a high-quality switch for input selection path



so no fidelity is lost in the audio path. The switches are applicable with any radio or console communications device that uses audio switches or tuning dials, Elma executives said.
www.elma.com

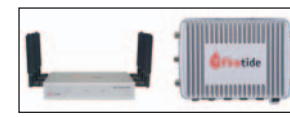
European Telecommunications S.A

ETSA is presenting a new generation of microrepeaters dedicated to indoor TETRA

radio coverage. The equipment has a volume of 2 L and power consumption of less than 30 watts. The repeater can be used with a TETRA output power of +25 dBm with one carrier or +19 dBm with two carriers, and supports hypertext transfer protocol (HTTP), simple network management protocol (SNMP) and telecommunications network (TELNET) protocols.
www.etsa.fr

Firetide

HotPort 7000 multiple-input and multiple-output (MIMO)-based infrastructure mesh



delivers throughput of up to 400 Megabits per second (Mbps), providing an alternative to fiber or leased lines. The infrastructure enables delivery of multiple high-speed services over wireless, including high-resolution real-time video surveillance, broadband access infrastructure backhaul. Indoor and outdoor models feature integrated tools for easier deployments and network management, and dual or single configurable radios are available in the 2.4, 4.9 and 5 GHz frequency ranges.
www.firetide.com

GE MDS

The MDS Mercury 900 is a mobile data system. The feature set is optimized for mobility and includes advanced roaming

capabilities and seamless adaptation to specific access point configuration settings. The system offers up to 800 kilobits per second (kbps) aggregate Ethernet throughput while parked.
www.gemds.com

GRE America

GRECOM digital scanners are for monitoring analog or digital trunked radio systems.

Scanner options include the PSR-500 handheld and the versatile PSR-600 desktop, which converts to a flush mobile dash mount in a DIN-E opening. The PSR-500/600 is recognized for ease of use, big GRE sound and stable control of audio volume, company executives said.
www.greamerica.com

Idylltek

Model LT8R brings eight fully self-contained logic trunked radio (LTR) controllers in a single package. The 80-character LCD shows the activity on all channels including user identification and user's home, and lets users see the trunking in action. Model RP-176 brings 112 digital coded squelch (DCS) codes and 64 CTCSS tones. Up to 176 tones can be simultaneously enabled. The built-in LCD displays verbose messages during setup and other data. Both repeater panels are remotely programmable and less than 2 inches deep.
www.idylltek.com

Kenwood Japan

The NEXEDGE products use advanced digital signal processor (DSP)-driven digital voice technologies and support both FM analog and new digital fleets. The line supports conventional, trunked and wide-area trunked IP network solutions and operates in 6.25- and 12.5-kilohertz digital channels, and 25- and 12.5-kilohertz FM channels. The dual use makes efficient use of current analog assets and an array of advanced digital feature sets for business and government sectors.
http://nexedge.kenwood.com

Kolibri Systems

KoliTrack and KoliDispatch are a geographical tracking module and radio dispatcher. The company's platform is highly configurable and can be extended step-wise. The IP-based structure allows consoles to be at distant locations from the server, with the possibility to build stand-by consoles. When using two servers, the applications can be made redundant (hot standby) to increase system availability. The company offers a line interface for Motorola and Rohill TETRA infrastructure, which unloads the network and accesses key TETRA capabilities. The two applications can be integrated.
www.kolibri-systems.com

Midian Electronics

The VTE-1 voting tone encoder (pilot tone generator) has a built-in 600-ohm line driver

and interfaces a radio receiver with an analog voting comparator to create an analog satellite-voting receiver. The product looks at the carrier-operated relay (COR) from the receiver. When COR is inactive, the encoder generates a selectable voting tone to the voting comparator. When the receiver's COR is active, the tone is no longer generated, and audio from the radio is sent to the voting comparator.
www.midians.com

Midland Radio

Midland's 700 and 800 MHz Project 25 (P25) base stations and repeaters supplement the company's Base Tech Series continuous duty, multimode public-safety equipment, expanding the spectrum offering from 30 to 800 MHz. With a reliability rate of greater than 0.991 percent, the units are backed by a five-year parts and labor warranty. All Base Tech products offer an unsurpassed 100 dB spurious response rejection on the receiver, allowing the base stations and repeaters to remain clearly focused on the task at hand even in high-noise environments.
www.midlandradio.com

Omnitronics

The IPR110Plus is a VoIP and session initiation protocol (SIP) gateway for professional mobile radio (PMR). The gateway connects remote radio networks from SIP-compatible private branch exchange (PBX) systems. Enhancements include support for radios using MDC1200 protocol and tone remote signaling for Project 25 (P25). Key features include connections with or without SIP, in-built RS-232 channel change capabilities, multicasting VoIP and P25 analog fixed station interface (AFSI).
www.omnitronicsworld.com

Raytheon

Raytheon announced Project 25 (P25) digital conventional voting within the P25net radio system, a fully compliant, IP-based P25 system. The voting system dynamically selects and routes the best P25 audio signal from multiple receivers to the site controller. Users then have extended P25 conventional coverage area for a given channel compared with a single receiver system. The system accommodates and compensates for network transport latencies between receiver sites. The product is a stand-alone application with its own process management and configuration

file and can operate anywhere in the IP network.
www.raytheon.com

Regal Group

The RG-450ST series UHF/VHF transceivers are compatible with the

SmarTrunk II digital trunking protocol. With up to eight zones and 196 channel capability, the feature-rich transceivers are optimized for both trunking and conventional operation. The low cost and compact transceivers are available in full keypad and nonkeypad models.
www.szrg2003.com

Simulcast Solutions

The Convex Automatic Delay Line (ADL) is a single-channel narrowband analog simulcast dynamic delay. Path length changes, such as microwave loop reversal, telco reroutes, or microwave/multiplexer realignment, are automatically compensated. No additional circuits are needed. The ADL performs its alignments based on a GPS 1 pulse per second (pps) when the circuit is idle.

www.simulcastsolutions.com

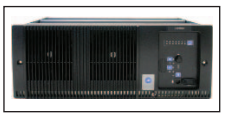
Spinner

Spinner offers a choice of coaxial surge protectors to comply with the frequency of lightning that varies regionally. Surge protectors can be used in installations for analog and digital communications. They are also suitable for communications lines in tunnels with overhead contact wires, as well as for applications in connection with radiating cables, company executives said.

www.spinner-group.com

Tait Radio Communications

The TB9100 Project 25 (P25) digital base station/repeater is the foundation of P25 TaitNet systems. The systems are available in P25 conventional, trunked, simulcast and trunked simulcast, and offered in VHF, UHF and 700/800 MHz configurations. The product offers simulcast control, central and distributed voting, and IP connectivity all built into the base station.



www.taitradio.com

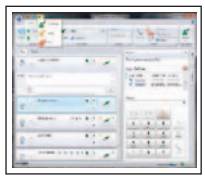
Teltronic S.A. Unipersonal

Teltronic's NEBULA line of infrastructure features an end-to-end IP architecture, making the system an ideal platform for reliable, secure communications, and is suitable for most communications

standards. The company offers TETRA and Project 25 (P25) infrastructure solutions upgradable in line with future trends such as P25 Phase 2 and TETRA Release 2 with minimum adjustments.
www.teltronic.es

Twisted Pair Solutions

Wave software is a distributed and highly reliable VoIP software that connects users regardless of device type. The software lets systems, such as Project 25 (P25) and TETRA, PCs and PDAs, analog and digital



private branch exchange (PBX) phones, IP phones, mobile phones, and intercom and broadcast systems work together. The software can support hundreds of groups of simultaneous users with a single commercial off-the-shelf (COTS) Windows-based server. By enabling an extensive range of disparate communications devices to work together, users can achieve complete systems interoperability, officials said.
www.twistpair.com

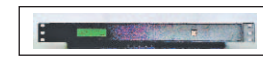
Vertex Standard

The VXR-7000 repeater base station is continuous-duty and cycle-rated to enhance

productivity. The product includes DTMF encode and decode for emergency and automatic number identification (ANI) functions. Other features include 16 channels, 47 CTCSS tones/108 DCS codes, encode and decode, eight-character ANI/ENI identification (ID) display, community repeater operation (up to 16 tones), timers, D-Sub 25-pin accessory connector, line interface port and optional internal duplexer.
www.vertexstandard.com

Westel Wireless Systems

Fixed Station Interface Access Point (FSIAP) offers a practical way to control a Project 25 (P25) repeater over an IP net-



work without having to replace existing tone-based remote and console equipment. The FSIAP-25 has a traditional four-wire line interface for connection to the console and an Ethernet port for connection, via a network, to the repeater.
www.westelwireless.com

Zetron

Acom's end-to-end digital architecture integrates voice, data, paging and video trans-

mitted over a LAN or a Web browser. Operating on a local-area or wide-area backbone, the system supports communications across a wide spectrum of radio bands and dissimilar communications interfaces. The system offers a feature-rich telephony communications package that integrates with standard analog subscriber, exchange ports, and ETSI ISDN and E1 QSig.
www.zetron.com

HF System

Codan announced the MRZ Commander system, a battery-operated, rapidly deployable communications system designed to support high-frequency (HF) voice and data communications. The ruggedized 125-watt radio is housed inside a standard Pelican case. The self-contained system weighs about 23 kilograms including batteries, which can operate up to six hours off one charge. The system provides global interface to AC/DC, meets many military standards, and supports frequency hopping and communications security options.
www.codan.com.au

Broadband PMR

Thales Communications launched TeMax, a broadband private mobile radio (PMR) system for mission-critical users. The radio offers advanced PMR services such as exchange of real-time video, face recognition, video recording and streaming, as well as high data rate wireless access within a range of several kilometers to end. The radio allows the dissemination of critical information to teams in the field, real-time and accurate reporting of a field situation to the command-and-control room, and mobile high-speed access to centralized databases. The radio uses WiMAX technology as a transport layer.
www.thalesgroup.com

Touch-Display Tablet

The Latitude XT2 XFR by **Dell** features a 30.7-centimeter convertible tablet with a multitouch display. Designed for users in the military, police, border patrol, field service organizations and first responders, the computer can be installed in vehicles. The

computer features an Intel Core 2 Duo processor with up to 5 gigabits of DDR3 1066 MHz memory; four-, six- and nine-cell battery options; and standard data security as well as optional additional security. The tablet can withstand temperatures from -23 degrees to +60 degrees Celsius and comes with an impact resistant, sunlight-viewable LED display.
www.dell.com

Portable TETRA Accessory

Stop Noise Finland released the Multi Handset, a TETRA accessory device that has the normal audio functionality of a speaker microphone with a keypad and integrated camera module. The keypad allows users to control TETRA terminal functions remotely, including sending status messages, changing talk groups or adjusting volume. The camera module is optimized for reading 1D and 2D barcodes and can capture digital images. The accessory features an internal memory for storing barcode data and images and a USB interface for downloading them to a computer.
www.stopnoise.fi

New Products

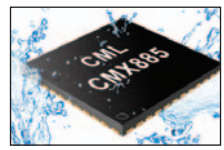
Recording Software with TETRA Support

Verint Systems extended its call recording platform to include support for Motorola's Dimetra IP TETRA network system. As a Motorola TETRA application partner, Verint will integrate Audiolog public-safety recording software, part of the company's broader Impact 360 for public safety system, with the Motorola TETRA network. Audiolog makes recorded voice, console screens and associated data readily accessible to call handlers and dispatchers for fast and effective response times, Verint executives said.

www.verint.com

Marine VHF Baseband

CML Microcircuits introduced the CMX885 Marine VHF baseband processor, designed to meet the global requirements of low-cost, highly integrated marine VHF transceivers by offering audio processing with selectable audio processing order. The marine world audio and signaling system features inband-signaling capabilities including digital selcall (DSC) and automatic transmitter identification system (ATIS). The processor is suitable for portable and fixed mobile



transceivers and uses dual-receiver channel operation for DSC class D conformance. The processor operates between 3 and 3.6 volts and is available in 48-pin very thin profile quad flat package (VQFN) and low profile quad flat package (LQFP).

www.cmlmicro.com

Remote Solar Power

The Global SolarHybrid system by **Global Thermoelectric** relies primarily on the sun's energy to generate power but uses a Thermoelectric Generator (TEG) in a backup capacity. The system ensures 24/7/365 operation for applications including supervisory control and data acquisition (SCADA) and communications equipment. The TEG operates on natural gas or liquefied petroleum gas (LPG). The system comes in two standard model lines, the 2000 series for sites from the equator to 40 degrees north latitude and the 3000 series for locales farther north. Custom options are available.

www.globalte.com

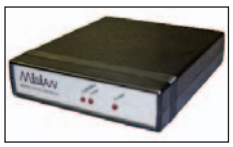
Vocoder

Digital Voice Systems Inc. (DVSI) unveiled a low-bit-rate AMBE+2 vocoder, the AMBE-LR. The vocoder features data rates of 1.2 and 1.8 kilobits per second (kbps). For existing systems, the vocoder can be employed to increase the number of users supported across a fixed bandwidth and to free spectrum. The vocoder is available with an array of advanced features.

www.dvsinc.com

Tone Remote Encoder

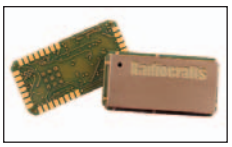
Midian's TRE-10 is a tone remote encoder that encodes high-level 2175 hertz, followed by the F1 function tone and then by continuous low-level 2175 hertz keying tone. The encoder has a mic audio input to pass microphone audio through a 600-ohm balanced line driver to the dedicated line, telemetry link or microwave to a tone remote adapter. The encoder can be used with the company's tone remote adapters or other manufacturers' tone remote adapters that use Electronic Industries Association (EIA) standard function tones.



www.midians.com

RF Module

Radiocrafts introduced a high-power module, the RC1180HP-RC232, as the newest in the RC232 product line. The module is certified for operation up to 500 megawatts under the European radio regulations for license-free use. When used with quarter-wave antennas, a line-of-sight range of more than 3 kilometers can be achieved. The module measures 12.7 by 25.4 by 3.3 millimeters and no external components are required, except an antenna. The module is a complete RF system with a universal asynchronous receiver/transmitter (UART) interface for both configuration and communications.



www.radiocrafts.com

Rapid Response Vehicle

Excelerate Technology unveiled Rapid Response vehicles that integrate technologies into the Land Rover Discovery. Technologies include a transportable satellite, private GSM, VoIP, wireless network, closed circuit TV (CCTV) and video streaming. The vehicle is fitted with four drop-down touch-screens, coded orthogonal frequency division multiplexing (COFDM) bodywork camera kits and a mobile broadband global area network (BGAN) system.

www.excelerate.info

Voice Encryptor

The Panthon voice encryptor by **Sectra** enables European government authorities to protect sensitive phone calls with security levels up to restricted. The encryptor integrates with smart phones, making an encrypted call similar to making a regular call, company officials said. The encryption is hardware based and installed on a microSD-card that is inserted in the phone. Voice quality remains the same as other company products, officials said.

www.sectra.com

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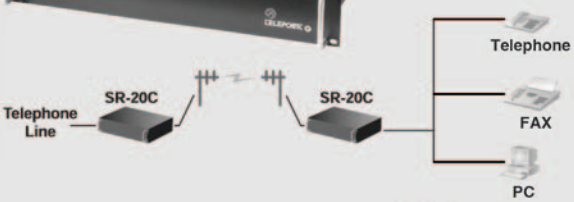

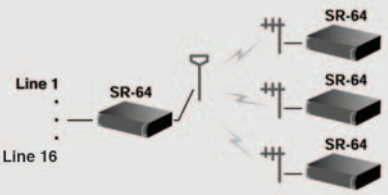

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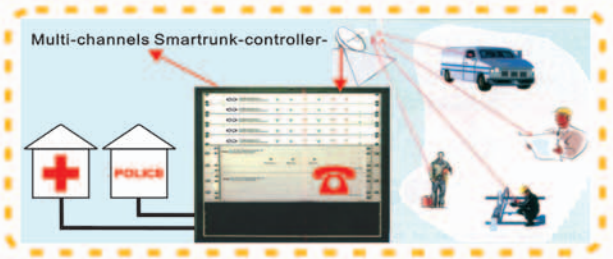

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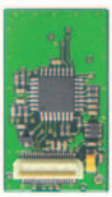
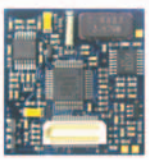


RG-117-/ RG-117-R For Icom™ radios)



VT-80 (for Vertex™ Radios)

RG-380 Trunking board for motorola Professional Series Radios

RG-180 Trunking board for Motorola Commercial Series Radios

RG-860 (For Kenwood)

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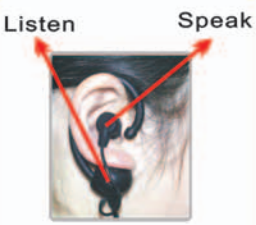

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2. Which of the following best describes your organization?
❑ A Mobile Communications Dealer/Reseller
❑ B Distributor, Agent, Importer, Exporter, Rep
❑ C Commercial Trunked Radio and Other Wireless Service Providers
❑ D Government/Public Safety/Military
❑ E Business/Industrial/Transportation User
❑ F Communications Manufacturer/OEM/Software Developer
❑ G Engineering and Consulting Firm
❑ Z Other—please specify _____

3. What is your function?
❑ A Corporate Management
❑ B Operations/Administration Management
❑ C Technical/Engineering Management
❑ D Sales/Marketing
❑ Z Others Allied to the Field—please specify _____

4. Do you recommend, specify or purchase radio communications equipment or services?
❑ A Yes ❑ B No

5. Is there any servicing of radio equipment at your location?
❑ A Yes ❑ B No

6. In what area of the world do you do most of your business? (mark only one)
❑ A Western Europe
❑ B Eastern Europe
❑ C Middle East
❑ D Asia
❑ E Australia/New Zealand
❑ F Africa
❑ G Mexico/Central and South America
❑ H United States/Canada
❑ Z Other _____

7. What wireless technologies does your organization plan to use/buy over the next 2 years? (check all that apply)
❑ A Conventional Two-Way
❑ B Cellular/Personal Communications
❑ C Paging/Messaging
❑ D Mobile Data
❑ E SCADA/Telemetry
❑ F Microwave radio
❑ G Trunking
❑ H Location Technologies
❑ I Tone Signaling (ANI, Encryption, etc.)
❑ J Interconnect
❑ K Satellite
❑ L CAD
❑ M Wireless Broadband
❑ Z Other _____

Q110

PMR Offers Advantages for Asia's Energy Sector

By Ian Carr

For the staff working on the Kazakhstan-China Pipeline (KCP), in one of the world's most remote locations, the vast expanse of the desert-like steppe extends in all directions, as far as the eye can see. Indeed, such geographical isolation is common to many staff working in the oil, gas and mining industries — storm-battered oil rigs and sun-blistered deserts are par for the course.

Having the right technology and infrastructure in these remote outposts is key. It allows staff to do their job, and it provides the necessary safety mechanisms and support. Central to this is effective communications; it's the linchpin that unites field engineers with an unseen operations center far over the horizon.

KCP extends from Atasu in central Kazakhstan to Alashanku in Western China, a distance of 1,000 kilometers. To guarantee reliable, mission-critical communications across the entire distance of the pipeline, Team Simoco installed a multisite professional mobile radio (PMR) system, providing voice and data communications between sites and reliable coverage. The network also guarantees secure and resilient communications in the event of any emergency situation.

Health and safety was a key concern in KCP's choice of a communications system for its staff working along the pipeline. The technology ensures operators working on the pipeline can communicate effectively and that appropriate action is taken in any emergency situation to maintain staff safety and allow a timely shutdown of the pipeline.

The operational radio system consists of 19 sites each equipped with base stations. Key staff is equipped with portable radios and vehicle mobiles to enable effective communications, while working remotely. Each site has between three and five channels, and they are linked over an IP network deployed along the entire length of the 1,000-kilometer pipeline.

Energy Sector Benefits

About $3 million of oil every hour flows down a typical oil pipeline, and any delays in drilling or pumping will lead to serious financial loss for a company. Coordinated communications among the company headquarters, site operations and field engineers and the ability to easily send and receive timely voice- and data-based information will help to ensure the smooth running of day-to-day operations, keeping revenues flowing.

Effective health and safety procedures, supported by the right communications infrastructure covering wells, pipeline or the entire plant is vital in being able to coordinate emergency evacuations and site shutdowns. Man-down technology is also essential, with in-built tilt-switches in radio terminals or microphones raising an alert if an individual remains horizontal. Integrated into a PMR network, man-down technology ensures timely assistance. The Bluetooth functionality on TETRA PMR handsets can be used to identify and monitor the exact locations of any workers if they are in need of help, and if they have entered a hazardous zone, staff can immediately contact an individual worker via his handset to alert him to the danger.

An additional advantage of PMR is that it can be effectively managed remotely, removing the need for on-site maintenance. Such an approach is particularly valuable in the remote working environment of oil and gas, where sending a telecommunications field engineer to repair a connection would prove logistically difficult and significantly add to the cost of running the radio network.

PMR technology has plug-and-play functionality, IP compatibility and software-configurable standard components. By combining the low capital cost and flexibility advantages of PMR with the system management and low cost-of-ownership benefits of IP technology, users can connect to a base station via the Web and reconfigure a controller without having to send an engineer out in a dinghy off a rig or to the wilds of the Russian Steppe.

Satellite may provide the core bearer network in large and remote locations, but cost, network reliability and line-of-site issues must be considered. For sites with fixed satellite networks in place, PMR technology can be added to give staff more flexible communications. The technology's duplex speech capability enables the extension of public switched telephone network (PSTN) services to portables anywhere on site.

Helicopters, planes and ships all need to land or dock at mini-airport and seaport terminals. Ground-to-air and marine radio communications can be integrated into a PMR system to enable incoming and outgoing flights to liaise with ground staff for more coordinated activity. ■

Ian Carr is the managing director of radio communications firm Team Simoco. Carr has 28 years of industry experience managing commercial, manufacturing and operational performance. E-mail comments to editor@RRMediaGroup.com.

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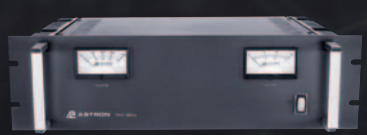

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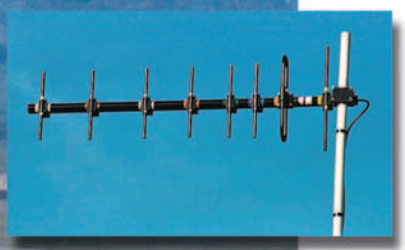

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