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Case Study on Airline DMR Upgrade

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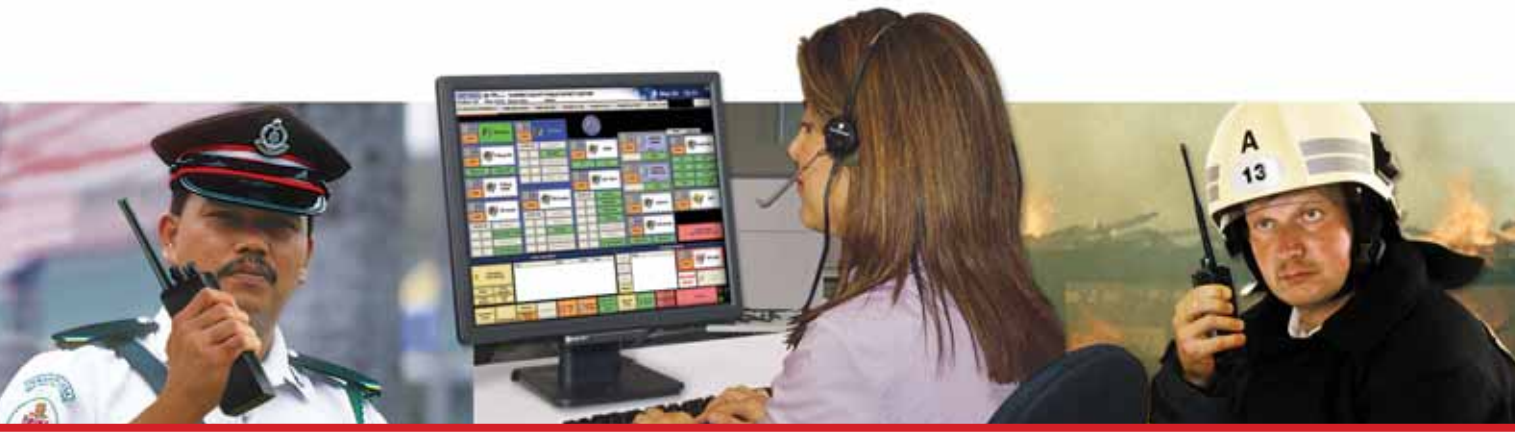
3 Ways Zetron Improves Your Interoperability



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Training Labs Benefit Industry

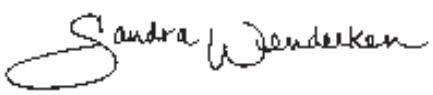
Mobile communications RF technicians are a rare commodity in many countries around the globe. Radio communications services departments of some mission-critical entities have been integrated with information technology (IT) departments. As cellular and other wireless technology use increases, mobile radio technicians often don't get the respect they justly deserve. Our industry understands the importance of system maintenance for mission-critical networks, but sometimes those in IT or management don't see the true value. Some universities offer degrees in wireless technology, including mobile radio technologies. These programs go a long way to ensure qualified workers to help design and maintain the critical networks that form our industry. Training and testing laboratories are a critical piece of these programs because they provide hands-on, real-world scenarios where users and students can learn and thrive.

Mobile communications vendors fund some of the RF training and testing laboratories around the world. These labs are essential to teaching future RF technicians, as well as for training mobile radio users so technology is used as effectively as possible. Interoperability testing for various standards in the industry ensures one vendor's product interoperates with other vendors' gear. Setting up the labs and conducting tests and training are often expensive ventures, and suppliers should be commended for the resources they devote in these areas. In the end, the overall industry benefits from better trained users and more interoperable equipment that conforms to standards.

One such training and teaching venue is highlighted in our cover story on Page 36. South Africa will see direct benefits from its new academy in the form of a well-qualified workforce and effectively trained mobile radio users.

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

It's hard to believe this is the last issue of *RadioResource International* in 2010. We welcome your input on our coverage for the coming year for the magazine, WORLD NEWS e-newsletter and RRImag.com website. Please e-mail me with your specific ideas.



Sandra Wendelken, Editor
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RadioResource INTERNATIONAL

RadioResource International delivers wireless voice and data information 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 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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INTERNATIONAL

PMR Vendors Partner for Broadband Migration

Traditional professional mobile radio (PMR) manufacturers and cellular infrastructure vendors announced a spate of recent partnerships as mission-critical communications begins to transition to high-speed data and broadband services.

Most of the partnerships have focused on the North American public-safety market because the United States allocated 700 MHz spectrum to public safety for broadband networks and agencies agreed to deploy the Long Term Evolution (LTE) standard. However, in a partnership focused outside North America, Thales Communications allied with Samsung Electronics to provide a system that combines 4G technologies, including mobile WiMAX and LTE, and the TETRA public-safety communications standard.

Samsung provides equipment to 56 mobile WiMAX operators in 34 countries. Samsung also offers end-to-end LTE solutions including system equipment and devices. Thales supplies TETRA infrastructure products and Project 25 (P25) portable radios.

Motorola and Ericsson also partnered to develop an LTE-based solution for public-safety mobile broadband that will interoperate with mission-critical voice and data. Earlier this year, Motorola sold its wireless network infrastructure assets for US$1.2 billion in cash to Nokia Siemens Networks (NSN) and said a public-safety partnership between the companies was possible. However, a few weeks later, NSN announced a partnership with Motorola's main U.S. P25 competitor Harris to develop broadband LTE products for public-safety communications.

The first partnership addressing public-safety broadband communications was inked in April between EADS and Alcatel-Lucent. The EADS and Alcatel-Lucent solution, based on LTE and P25 standards, will initially target the U.S. public-safety market, company officials said.

Woonsub Kim, Samsung executive vice president and general manager telecommunications systems business, and Pascale Sourisse, senior vice president of Thales, at the contract signing.

LONDON — The Digital Mobile Radio (DMR) Association completed the second DMR interoperability (IOP) test session in Milan, Italy. **Radio Activity**'s DMR repeater and simulcast network infrastructure and **Motorola**'s DMR terminals were tested following the association's interoperability process.

Interoperability tests performed included voice calls (individual, group, broadcast and emergency), call alerts, radio check, remote monitoring, emergency alarm, and radio enable and disable. In April, Motorola and **Selex Communications** tested interoperability between Selex's simulcast network infrastructure and Motorola's terminals.

The association also welcomed four new members — **Aeroflex**, network operator Democom, Radio Activity and **Sepura**.

"We have made the decision to add DMR products to our extensive range of TETRA radios," said Jens Thostrup, senior vice president of sales and marketing for Sepura. "Moving into the DMR market is a logical progression for Sepura."

DERBY, United Kingdom — Team Telecom Group made Simoco Group a new business division, completing the integration of its radio businesses, Team Simoco and ComGroup. The move finalizes the integration program initiated by last year's purchase of ComGroup.

The announcement also sees the re-emergence of the Simoco brand, strengthening the company's position across its key product markets, executives said. Simoco Group will coordinate all research and development (R&D), marketing, procurement, logistics, finance and product management, while both Team Simoco and ComGroup will retain their individual brands, acting as global distributors for the Simoco products.

The announcement also follows the US$8 million investment in ComGroup's development in Digital Mobile Radio (DMR) Tier 3 and Project 25 (P25) Phase 2 technology and an expansion in ComGroup's sales team to support business across the Australasian market. ComGroup's technology roadmap now includes DMR infrastructure and terminals; P25 Phase 2 products and intrinsically safe (IS) portables; and analog developments such as the new Xfin base, dispatcher and digital voice recorder.

MUNICH — EADS Defence & Security announced its official name change to **Cassidian**. Cassidian remains a division of EADS and will be able to market its large portfolio of security systems more effectively by establishing a clear-cut profile in the global market place, company officials said.

"Our business is changing. So are our customers. Especially on the civil markets we address with our security products, it is essential to be perceived as a strong brand," said Dr. Stefan Zoller, CEO of Cassidian.

EUROPE

BUCHAREST, Romania — Cassidian held a TETRA and

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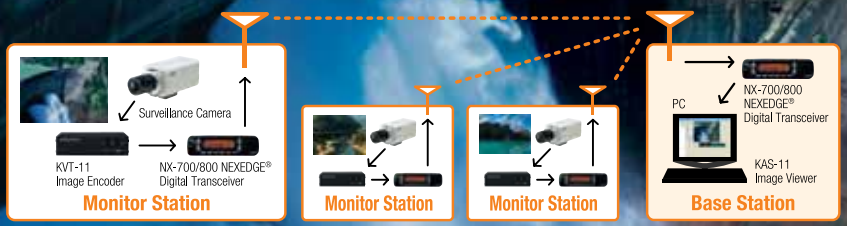

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TETRA Enhanced Data Service (TEDS) demonstration for the Romanian border protection and compliance to the Schengen Agreement.

Cassidian showed several TETRA data capabilities, including sharing images using the instant image broadcast system, triggering an electronic display of short text messages, and verifying vehicle license plates.

Cassidian was awarded the contract to provide Romania with an integrated border security system in 2004, and the project is in progress.

LONDON — The Federation of Communication Services (FCS) in a new report said U.K. telecom regulator Ofcom should implement a directed approach to nationally managed radio communications. The FCS association, representing mobile radio companies, made the recommendations as part of a strategic review of

Zaragoza Police Trial Hybrid PMR/Broadband Network

Teltronic partnered with Zaragoza City Hall in Spain to deliver a mobile information solution to Zaragoza Police integrating TETRA with 3G and WiMAX technologies.

Following the 2008 International Fair, ExpoZaragoza, Zaragoza City Hall developed a broadband strategy. After deploying a citywide Wi-Fi network, a private mobile WiMAX network was conceived as a way of increasing productivity for the city's 6,000 municipal employees. During 2009, the first mobile WiMAX trials were undertaken with a network core and 10 base stations installed. The full rollout, with 30 – 50 base stations in the licensed 3.5 GHz band, is under way.

During late 2009, Teltronic won a tender for the development and installation of 44 mobile platforms in Zaragoza local police vehicles. The first MVC 6000 multibearer mobile devices were brought into operation in early 2010. Integrated with

TETRA mobile (MDT-400), 3G/WiMAX modem, camera and keyboard, the touchscreen technology provides police officers with rich applications, allowing navigation, e-mail, Web browsing, and video recording and transmission.

Zaragoza City Hall, Zaragoza Police and Teltronic officials will continue to work closely to achieve the full integration of the TETRA and mobile WiMAX networks across the Zaragoza metropolitan area, as well as developing new services and applications to fulfill the future requirements of all network users.

U.K. business radio regulations.

The review said that spectrum management through market mechanisms isn't applicable to professional uses, and a new directed management approach is necessary. FCS officials said Ofcom's Private Business Systems Group should relocate into a different area, perhaps under direct control of the government. The report also proposed creation of a subgroup of the U.K. Spectrum Strategy Committee (UKSSC) to look after professional spectrum.

COPENHAGEN, Denmark — Sepura and **Motorola** announced fire brigade contracts in Denmark.

Sønderborg Fire and Rescue, in line with all public-safety organizations in Denmark, joined SINE, the Danish nationwide TETRA network. Sepura radios were approved for use on the SINE network following tests carried out by the Danish authorities in 2009. The agency is one of the largest emergency response services in Denmark with 24 fire stations and 650 officers.

Motorola won a tender to supply a portfolio of TETRA digital radio terminals and services to 1,500 fire officers across 19 of southern Denmark's 22 municipalities. The devices offer voice and data transmission, remote terminal management and secure encrypted communications. The first radios will be rolled out in late 2010.

DERBY, United Kingdom — Team Simoco was contracted to complete the design and build of the microwave network for Anglian Water, geographically the largest provider of water and wastewater treatment in England and Wales.

Comprised of more than 100 links, the network spans more than 12 counties and is a shared infrastructure solution designed to support Anglian Water's strategic business and operational communications needs. Anglian Water designed and installed a large part of its network, but looked for external support from Team Simoco to complete the design and build.

LONDON — The Federation of Communication Services (FCS) awarded **Kenwood Electronics U.K.** with the 2010 Gerald David OBE innovation in business radio award.

"Kenwood winning the innovation in business radio award for its digital radio system NEXEDGE means a lot to the team and to me in particular," said Jens Toobe, system sales manager for Kenwood Europe. "It recognizes Kenwood for its high-quality products, spirit and innovations that are driving the professional mobile radio (PMR) industry forward, setting new trends and leading the way."

LATIN AMERICA

MEXICO CITY — Mexican authorities carried out a simulation of the effects on Mexico City of an earthquake measuring 8.1 on the Richter scale earlier this year. **Sepura** radios were installed in Mexico City Police's command-and-control center run by the capital's head of government and the chief of police.

The exercise aimed to evaluate response times and the adequacy and speed of deployment of all available resources. The Secretaría de Seguridad Pública del Distrito Federal (SSP-DF), the coordinating authority, carried out the large-scale drill following the high-magnitude earthquake that struck Chile in February.

SSP-DF deployed multiple command positions in the command center in plaza Tlaxcoaque, located in the historic center of Mexico City. During the drill, response teams were dispatched to a variety of simulated emergencies.

PORT-AU-PRINCE, Haiti — A TETRA-via-satellite solution was developed by **Teltronic** to allow Venezuelan aid teams in Haiti to use their TETRA radios following the earthquake in January. Venezuelan aid teams wanted to use their existing TETRA solution sourced from Teltronic via a satellite link. However, very small aperture terminal (VSAT) links introduce significant delays in communications between the node and remote zones.

A transportable base station was sent to Port-au-Prince and connected via satellite to the central node located in Caracas, Venezuela. Successful trials were conducted, with fluid communications taking place over the link by early February. This link was maintained to allow aid workers to carry out their duties in the months following the disaster because of the long-term relief effort.

FORTALEZA, Brazil — Cassidian inaugurated the Tetrapol IP network to secure federal police operations in the state of Ceara, Fortaleza, Brazil. The network covers the metropolitan area of Fortaleza and the main cities of Ceara state.

The Tetrapol secure encrypted digital network supports voice and data communications and is part of the Integrapol National Brazilian Federal Police (DPF) network within the Pró-Amazônia/Proamotec program.

The integration of all DPF units to the Brazilian states' public-safety forces further improves operational efficiency and services to the Brazilian citizens and is the cornerstone of the integrated communications model for the country's large upcoming events — FIFA World Cup 2014 and Olympics 2016. The complete Integrapol network is composed of nine regional networks based on Tetrapol IP with 27 tactical management sites, 100 fixed base stations and 220 independent digital repeaters to provide service for about 9,000 terminals.

ASIA/PACIFIC

MUMBAI, India — DAMM was contracted to provide a mission-critical radio communications system for the first monorail in India. The Mumbai Metropolitan Region Development Authority (MMRDA) awarded India's first monorail project in Mumbai to a joint consortium between SCOMI and L&T. The first phase of the project will have two lines and cover 19 kilometers with 17 stations.

DAMM will supply its TETRA equipment integrated to the telephony network, public announcement system, onboard train communications system, centralized recording system and signaling system. **Sepura** will provide train borne radio equipment.

TOWNSVILLE, Australia — Radio console provider **C4i** commissioned a voice communications command-and-control system for Maritime Safety Queensland (MSQ) at its new vessel traffic service (VTS) center in Townsville.

The recently completed facility, which houses C4i's voice communications system as part of the VTS, is responsible for managing the Queensland, Australia, coastline. Within

Simoco Donates Radio, GPS Mic for Medical Helicopter

Team Simoco donated an SRP9100 radio with GPS microphone to the North West Air Ambulance in the United Kingdom for use in the charity's medical helicopter.

Operating from Blackpool Airport and City Airport, Manchester, North West Air Ambulance provides life-saving services to those across the region, with Team Simoco's donation offering a GPS communications line between the medical team onboard the air ambulance and mountain rescue on the ground. With the GPS system in the helicopter, the mountain rescue can monitor its location from the ground, allowing officials to coordinate this information with other emergency services, while providing more accurate estimated arrival times to mountain rescue at the scene of an accident.

North West Air Ambulance has two specially equipped medical helicopters, and the charity relies mainly on public donations to reach annual maintenance costs of £4 million (US$6.1 million). The helicopters have a maximum flying time of 10 minutes to the nearest appropriate hospital from any location in the region, which has been the vital difference for thousands of people across the north west since the charity was founded in 1999.

seven months of being awarded this contract, C4i installed, commissioned and tailored a system to meet the specific requirements of MSQ. This final milestone represents the second phase of a two-phase system deployment and commissioning. C4i delivered its VoIP technology, providing the capability to interface to legacy systems in both analog and digital domains.

VICTORIA, Australia — The Country Fire Authority (CFA) in Victoria, Australia, selected Project 25 (P25) radios from **Tait Radio Communications** to replace its 10,000 handheld and vehicle-mounted radios under an A$32 million (US$28.6 million) contract.

CFA is responsible for fighting all rural fires on private land in the state of Victoria. The digital Tait portable and mobile radios are designed to filter out much of the background noise

2 Brazilian Agencies Buy Additional Teltronic Technology

The Rio de Janeiro Military Police in Brazil acquired 900 new police cars and 350 motorcycles equipped with Teltronic TETRA terminals. Teltronic also developed specialized motorcycle units with customized features for simplified operation during high-speed deployments.

Teltronic supplied the communications network for the Pan-American Games held in Rio de Janeiro in 2007. Following the games, network coverage was expanded and enhanced to provide communications across the whole Rio de Janeiro metropolitan area with as many as 9,000 users.

In addition, Bahia State Public Safety Secretariat in Brazil implemented Teltronic's Synchronous Data Manager (SDM) solution within its TETRA network. Based on optimized polling methods, SDM maximizes the use of each radio channel within the network. This

The Bahia command center

allows Bahia State to read 50 positions per second (around 3,000 positions per minute) with no noticeable effect on network performance.

The company also implemented its new CeCo-Fleet solution to allow Web access for greater management of network resources. In 2005, Teltronic won a contract to supply Bahia State Public Safety Secretariat with a TETRA system comprising 22 base stations and about 4,000 terminals fully integrated to the existing analog systems via a call center.

from helicopters, trucks, sirens, hoses and machinery for audio clarity, company officials said.

The P25 digital standard radios, which will replace analog radios, will be progressively introduced into service starting later this year. The rollout to CFA brigades and locations is expected to be completed by mid-2012. Tait will establish a new support facility in Melbourne while the radio rollout is under way, creating 12 new jobs.

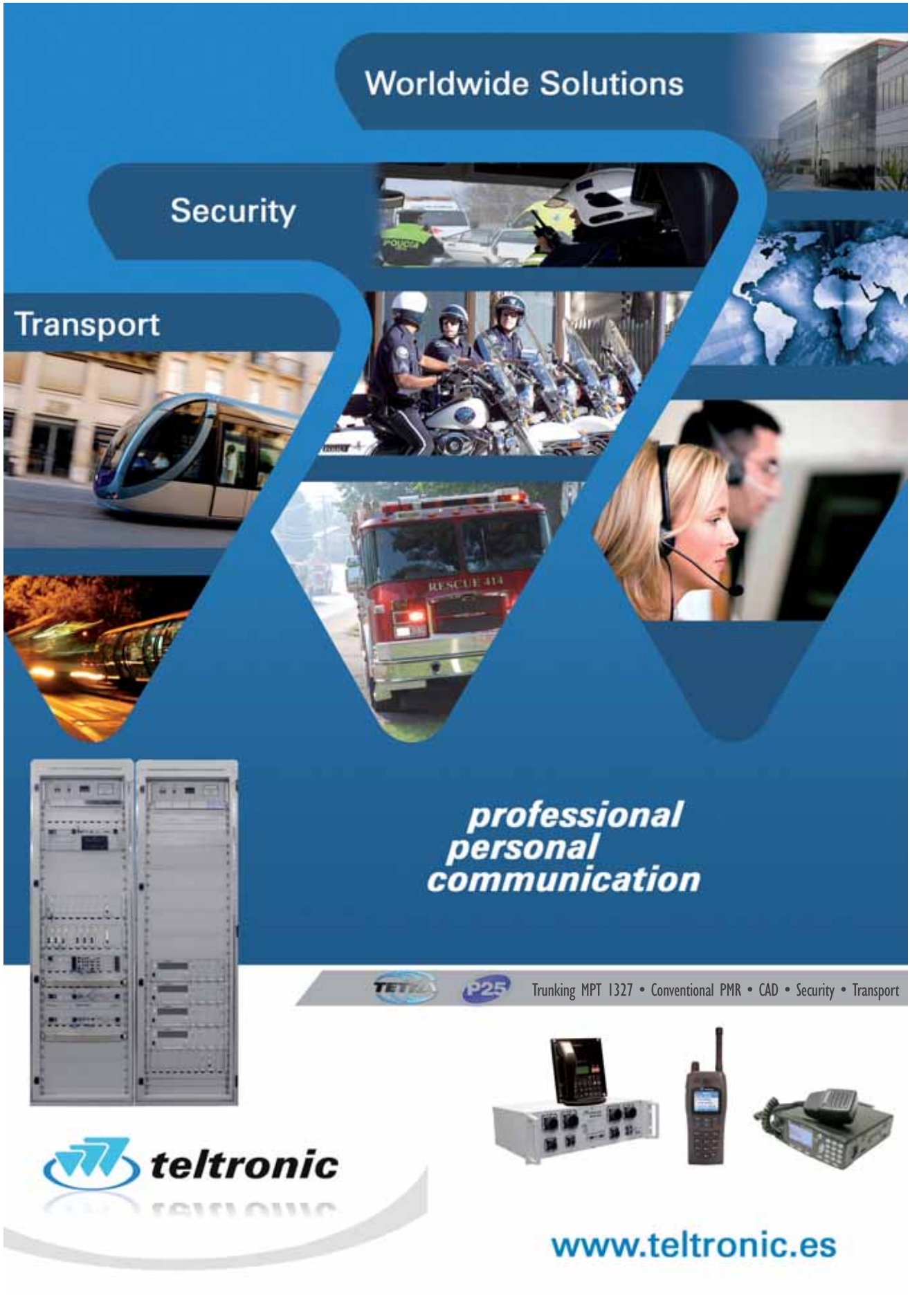
"The new digital radios have inbuilt capabilities that will allow the sending of GPS information to pinpoint truck locations and short status messages from fire crews in the field," said CFA's Acting CEO Michael Wootten. "The digital mode will deliver clearer voice, especially in fringe areas and will enhance the safety of all CFA firefighters in communities right across Victoria."

TTA, ETSI Partner on Standards

The Telecommunications Technology Association (TTA) of South Korea and the European Telecommunications Standards Institute (ETSI) renewed their memorandum of understanding (MoU). The renewal will see the two standards development organizations continue to share their work and expertise to contribute to the development of globally applicable standards for information and communications technologies (ICT).

The original MoU between TTA, the South Korean ICT standardization association, and ETSI was established in 1992 and was last renewed in 2005. TTA and ETSI have many common areas of work and where specifications and standards development come together. The agreement ensures a high level of alignment between the two organizations and their respective regions. The groups specifically plan to work together on intelligent transportation systems (ITS), machine-to-machine (M2M) communications and digital multimedia broadcasting.

"While reviewing the text of the MoU, TTA recognized that ETSI and TTA are covering more areas where there is scope for cooperation, including mobile communications aspects such as IMT-Advanced and Third Generation Partnership Project (3GPP), and next-generation networks such as M2M, ITS, cloud computing and TETRA," said Keun Hyeob Lee, TTA president. "I believe these areas are essential for both organizations and certainly ones where we can be the international standardization leaders."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Utilities' Digital Horizon

Utilities are upgrading to digital technology to take advantage of advanced features and smart grid integration.

By Roberto Marengon

Voice and data wireless communications are critical to the operations of utilities. An efficient communications system reduces costs, increases personnel safety and allows development of new services for customers. Utilities maintenance staff often operate in dangerous environments, involving high-energy sources. In many cases, they must recover critical services during emergencies; an affordable and fast voice communications system is essential to increase safety margins.

All utility equipment requires periodic visits to assure the right degree of functionality. Therefore, an efficient remote control system reduces the costs of surveillance and maintenance and allows configuration of the devices on site to solve emergency conditions such as a blackout. A data communications system between control centers and remote devices helps implement new features such as remote metering and time-related billing for customers. The smart grid, for example, is a European and U.S. project based on distributed production, store and use of electricity. To assure stability and efficiency across the power system, a robust communications layer between the devices involved in the electricity network is needed. The number of devices to be connected spans from a few hundred to several hundred of thousands with different bandwidth requirements.

Many sites are not easily reachable by a fixed communications system based on wires or optical fiber; therefore, a wireless approach is needed. Many solutions are available from public networks such as GSM/GPRS to proprietary communications infrastructure. Rarely can one technology respond to all the communications needs; a utility more commonly uses many different media depending on local availability, expected service level, bandwidth demand, type of devices, scope of the control and operating costs.

Fiber-optic and microwave links, where applicable, are the best backhaul solutions thanks to their high reliability. Power utilities place fiber-optic support along new high-voltage power lines, and gas/oil companies use the same solution along pipelines. Limited portions of the electricity utilities' networks are cabled with fiber, because they commonly use GSM/GPRS modems for data communications with remote peripherals. This choice was initially taken for financial reasons because it minimizes large infrastructure investments by moving the costs to monthly service billing. The cost of

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The new digital radio technologies offer standard solutions that may solve many communications needs of utilities.

the GSM modems, thanks to the standardized market, is low compared with radio modems.

Increasing the number of remote devices to monitor may cause the cost of the data traffic to be greater than the cost for frequency licenses plus the cost of infrastructure maintenance. But the main problem is not in the expense but spectrum availability. Because of the greater priority assigned to voice calls in conjunction with the increasing bandwidth requirements of new consumer data services, GSM networks' data connections can suffer lost connections. When the operation requests an affordable real-time data link, for example, to open or close electricity switches of power lines, GSM could fail. Similar operations may be requested in a blackout or during an emergency — exactly when the public network could overload or fail. With GPRS, another problem must be considered — the data may have an unpredictable delay, and some applications requiring quick confirmation won't work.

A more expensive public switched telephone network (PSTN) modem has some advantages compared with GSM, but it doesn't solve the problem of a blackout. In addition, its applicability is limited because of the difficulty with telephone lines in rural environments.

Power utilities often use modems in high- and medium-voltage power lines. This technology uses frequencies from 24 to 500 kHz, with transmitter power levels of 10 – 20 watts. The radio wave is superimposed to the main voltage from 10 to hundreds of kilovolts through capacitive and inductive coupling devices. The communications can be analog or digital. The bandwidth available depends on the noise into the line, and it may start from 9.6 kilobits per second (kbps) using a modem over an analog powerline device to 64 kbps or more using a digital transceiver. These systems are expensive because of the heavy coupling system to the high voltage line and the cost of the transceivers. Reliability is good, but random noise on the power line may interrupt communications for minutes. The RF irradiation at such low frequencies produces a large area of interference that limits the reuse of the same band. The impedance variability along the power line — different geometry or air-to-underground transition in medium-voltage power lines — produces extra irradiation and strong reflections that reduce

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the communications capability.

The current tendency of utilities is to have redundant data connections to critical sites. So the peripherals may be reached through a GSM/GPRS, radio or satellite network, choosing the best system for the utility's requirements with lower cost, channel availability or emergency access.

Digital Standards

To manage a variety of communications channels, utilities are attracted to standardized platforms and protocols that can integrate all the communications in a common environment. A natural choice is IP, the most deployed and well-known protocol. Using IP protocols to communicate with peripheral devices reduces or eliminates the need to modify the existing supervisory control and data acquisition (SCADA) software when there are changes in the media used or in the backhaul network geometry.

A digital radio system is an attractive way to connect remote devices without dependency on public networks or proprietary radio solutions. Digital radio infrastructure provides comprehensive coverage and affordable IP communications. The same infrastructure should carry both data and voice, allowing users to benefit from a private, dedicated communications resource for maintenance staff, rescue and emergency situations. Utilities need standardized technology to host a multivendor environment that guarantees a nonproprietary solution and reasonable investment costs. At least three different solutions can meet these requirements: TETRA, digital Private Mobile Radio (dPMR) and Digital Mobile Radio (DMR).

TETRA uses a four time slot TDMA access scheme in 25-kilohertz RF bandwidth to give a gross data rate of 7.2 kbps per time slot, which yields a bit rate of around 2.5 to 3.5 kbps for IP applications. The contemporary use of four time slots for one carrier assures a gross data rate of up to 28.8 kbps, which yields a good net bit rate of around 9 to 10 kbps. But this implementation requires at least two 25-kilohertz carriers on each site to manage the control channel so the investment could outweigh the data service improvement. Coverage capability is limited because of the UHF band and the fast on-air data rate.

The dPMR European Telecommunications Standards Institute (ETSI) standard uses an FDMA access schema with a gross data rate of 4.8 kbps. No manufacturers offer high-power licensable radios yet using the dPMR standard. NXDN is a proprietary version of dPMR developed by Icom and Kenwood. NXDN provides good coverage in rural areas, but because of its low data rate, applications involving a large number of peripherals require many carriers to assure the desired traffic.

DMR is also an ETSI standard that offers an intermediate solution

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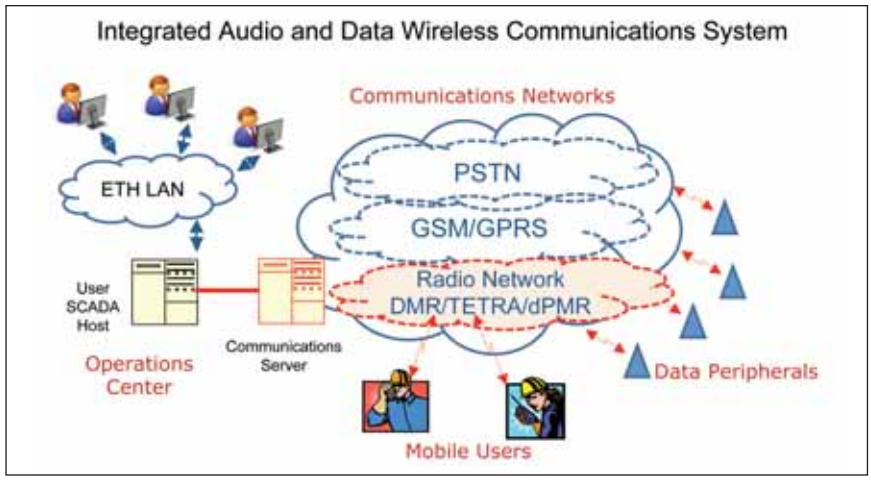

between TETRA and dPMR. The standard provides two time division time slots in 12.5 kilohertz of bandwidth. The gross bit rate is 4.8 kbps per time slot, giving a 1.3 to 3.2 kbps net data rate. It's possible to use both time slots simultaneously, doubling the data rate, but this feature is only on expensive base stations. DMR Tier 2 systems don't require a control channel, so all the radio resources are available for communications.

The DMR standard was designed to replace existing analog systems with digital technology. Therefore, DMR has the same coverage, cost and simplicity of a conventional system. Unlike TETRA, DMR operates in the low RF bands at 160 and 80 MHz. These bands are used by many utilities in Europe because of the rural coverage capability. Changing bands is difficult based on agreements with neighboring countries and migrating large infrastructures.

The data transmission for DMR is realized with the IP-based Packet Data Protocol, the "envelope" in which raw data is inserted. It is possible to set different levels of forward error correction (FEC) coding to maximize the throughput. Heavy FEC (1.3 kbps) is used for multipoint or mobile communications, light or no FEC (2.4 to 3.2 kbps) is used for fixed point in good coverage areas.

Motorola's MOTOTRBO terminals, with an optional third party's board, support serial data communications on a single time slot. Motorola named this Packet Data Protocol service for its DMR products "raw data protocol." Radio Activity implemented in its DMR base stations the raw data protocol layer service compatible with MOTOTRBO terminals. The

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base stations can be linked through an IP backbone to realize wide-area coverage for both simulcast and multicast. The master station of the network presents to the host SCADA system IP ports for direct data connection with the DMR terminals. The interfacing protocol is open for a simple integration to a customer's existing applications.

Selex Communications also offers a DMR radio modem solution, and soon other DMR-IP data terminals from Radio Activity, Hytera Communications and Tait Radio Communications will be on the market. Tait is developing DMR terminals, data modems and infrastructure in the 80 MHz band. Radio Activity is developing a line of data terminals for all PMR bands that will implement full Ethernet IP data communications on the Linux platform.

DMR infrastructure can carry both data and voice communications, allowing users to benefit from a private, dedicated communications resource for maintenance staff, rescue and emergency situations. Utilities often use pipeline communications throughout their plants. The communications between maintenance operators normally requires low traffic and an open channel operation. In these cases, DMR simulcast is the best solution for simplicity of operation, cost, spectrum efficiency and coverage.

In the past, in Italy, ENEL, the main electricity producer and distributor, and SNAM, the gas company of ENI Group, built simulcast networks to connect their plants across the country. Because of the drawbacks of proprietary solutions and lack of professional mobile radio (PMR) expertise, the companies implemented GSM service and satellite systems in the areas without GSM coverage. But company officials are worried about operating during a big accident if the GSM network goes down and satellite doesn't have line of site.

The new digital radio technologies offer standard solutions that may solve many communications needs of utilities. The integration of data and voice communications in the same infrastructure can reduce costs, giving a robust and private communications platform. These solutions may be easily interfaced with other IP-based communications to provide a unique and homogeneous IP backbone. ■

Roberto Marengon is the managing director of Radio Activity, a radio communications engineering firm. He started his career at Alcatel, developing the first Italian 900 MHz cordless telephone. He was the research and development manager of Prod el SpA (formerly Marconi Group and now Selex Communications) for more than 10 years, developing a new generation of simulcast networks. In 1998, he started engineering company SIEL TRE Srl, focused on maritime radio applications, and launched Radio Activity in 2003. E-mail comments to r.marengon@radioactivity-tlc.it.

TETRAnews

Critical communications for all professional users

ISSUE 2/2010

KEY TOOL IN DRUGS TRADE PREVENTION

Mazatlan is a premier tourist destination in the Mexican state of Sinaloa and one of the key states in the war against the drug trade in the country. The municipality needed a new radio solution to ensure effective and secure communications – and remove the risk of eavesdropping – for its municipal police. The new Sepura radios will operate on a Rohde & Schwarz TETRA infrastructure covering the municipality, an area of approximately 3,000 sq. km. As well as being a very popular tourist destination Mazatlan is also one of Mexico's largest commercial ports.

The Secretary of Public Safety in Mazatlan, Lic. Gilberto Acuña Armenta, said: "By enabling Automatic Vehicle Location, the GPS capability will enhance operational efficiency and improve officer safety. The Bluetooth functionality of the radios will enable future implementation of remote data projects and the ability to deal with events more effectively by sending pictures of fingerprints, criminals or missing persons over the TETRA network".

PUTTING TEDS TO THE TEST

EADS hosted a demonstration of TETRA/TEDS (TETRA Enhanced Data Service) in Bucharest, attended by senior representatives of the Ministry of Interior and Administration, the Special Telecommunications Service, the Ministry of National Defence, and other public institutions tasked with the protection of national safety and order.

The demonstration underlined the strength of Romanian border protection and compliance to the Schengen agreement. EADS was awarded the contract to provide Romania with an integrated border security system in 2004.

TEDS is the high-speed data evolution of the TETRA standard. EADS demonstrated several data capabilities, including the sharing of images using the 'instant image broadcast' system, the triggering of an electronic display by means of short text messages, and the verification of vehicle licence plates.

The function for sharing images using the instant image broadcast system enables images of a suspicious person or activity to nearby officers on foot patrol, all with just one click of a key.

Short text messages can be used to trigger an electronic display. For example, an alarm signal received by a fire station can be configured to generate a message that will automatically open the fire station door, turn on the lights, start the exhaust fans, and even switch on the traffic lights in front of the fire station.

Data protection with TETRA on the Romanian border

The car licence plate checking function can be easily applied by police officers in the field. A car's licence plate number can be checked directly on location in the database stored in the portable reader, or remotely if the reader is connected to a TETRA terminal.

WELCOME TO TETRA NEWS!

Phil Kidner,
CEO, The TETRA Association

TETRA News is designed to give you a brief update of what is currently happening in the TETRA world. TETRA is now deployed in over 114 countries so we cannot include everything. You can always find out further information by visiting our website at **www.tetra-association.com** or by contacting us direct at **enquiries@tetra-association.com**

Another way of finding out about TETRA in your region is to attend one of our events. You will find a full programme on the website. Each event comprises of a conference and exhibition. During the conference you will hear from members of the TETRA community on different aspects of TETRA including from existing users who will share their TETRA experiences with you. The exhibition is made up of the leading TETRA manufacturers and gives an opportunity to see their latest projects. And of course it is a good opportunity to network with the TETRA community.

continued on Page 3

Call for papers now open. See pages 5 and back page. **www.tetraworldcongress.com**

Enhanced efficiency for forest management

Forestal Mininco operates in five Chilean regions and is one of the largest forest groups in Latin America. To optimise its production processes and ensure reliable communications in emergency situations, Forestal Mininco turned to TETRA.

The system is the largest of its kind deployed in Chile and one of the largest in Latin America.

It provides communications coverage through 14 sites, including a mobile unit, and includes 1,600 handsets with base radios (fixed equipment), vehicle-mounted mobile devices, and portable devices for workers. Motorola is responsible for managing and maintaining the system.

Forestal Mininco can now establish enhanced communications, increasing its operations security in the areas of Maule, Biobío, and La Araucanía, covering an extension of approximately 41,400 sq km in southern Chile.

"The system deployment evaluation process has yielded positive results, proving the enhancement of both coverage and communication quality among the different regions. Forestal Mininco is geographically dispersed and we needed technology that would give us seamless coverage, in turn enabling the development of data applications aimed at enhancing forest operations efficiency", said Eduard von Plessing, Telecommunications Engineer for CMPC, Forestal Mininco Head Office.

The system is designed to be a highly fault-tolerant system enabling wide area communications (roaming) among other applications aimed at making communications more efficient.

Service deployment entailed migrating, restructuring, and training the staff that interact with these systems and migrating all analogue devices to the new digital technology. The second phase will include data transmission and AVL (Automatic Vehicle Location) technology.

Lima takes to TETRA

The Lima Electric Train Consortium has chosen a TETRA system from Teltronic. The first stage will comprise five sites and a number of terminals, including mobiles for the trains and hand-portables for employees. A digital recording system is one of the special applications which will be developed.

The Lima Electric Train is a large-scale project promoted by the current Peruvian government to improve the flow of traffic in this capital city of eight million inhabitants. The Electric Train, which is due to start commercial operations in July 2011, will complete Line 1 of the Lima Metro, connecting Villa El Salvador in the south of the city with Central Lima.

Better network management for Bahia

As automatic vehicle location (AVL) and personal location (APL) services are introduced using GPS technology incorporated into TETRA terminals, increasingly efficient network management is required.

Bahia State Public Safety Secretariat in Brazil has implemented Teltronic's Synchronous Data Manager (SDM). This maximises the use of each radio channel within the network, enabling Bahia State to read 50 positions per second with no noticeable effect on network performance.

The Bahia public safety network is shared by the Military Police, Civil Police, Scientific Police and Fire Brigade achieving cost savings, increased functionality and greater cooperation between forces.

WELCOME TO TETRA NEWS!

continued from Page 1

These events are free to delegates that register in advance through the website.

Visit the Events section (top right on **www.tetra-association.com**) and click on Registration for the event that interests you.

You may have been given your copy of TETRA News by a TETRA Association Member or picked it up at a TETRA Association event but you can also get news and information updates by sending us your contact details. Just send an email to **admin@tetra-association.com** I look forward to meeting you at one of our events in the near future.

Access to applications

TETRA-Applications.com has opened free access to its database of more than 1,000 applications, solutions and products designed for the TETRA market. The portal features more than 270 companies from around the world.

Companies that sign up for the service can upload their own data. In this way TETRA-Applications.com ensures that the data is up-to-date and comes from a reliable source. As the TETRA industry is growing rapidly, new companies and their solutions are added to the portal every day.

Gert Jan Wolf, the founder and owner of TETRA-Applications.com, said: "Our website already attracts many visitors from all over the world and we have signed new members from various verticals such as Public Safety, Industry and (public) Transport".

Industry professionals who want to browse the TETRA portal will be able to sign up for free. For more information and to register, visit **www.tetra-applications.com**

Military Police increase TETRA fleet

Rio de Janeiro currently has one of the largest public safety TETRA networks deployed anywhere in Latin America, with as many as 9,000 users connected to the system.

This figure is about to grow even further following the purchase by Rio de Janeiro Military Police of 900 new police cars and 350 motorcycles which have been equipped with TETRA terminals from Teltronic.

A DMO (Direct Mode) Gateway combined with additional sites has provided additional coverage and reduced the possibility of dropped calls in sometimes challenging terrain.

The terminals incorporate GPS functionality to allow vehicles to be tracked and to give extra protection to police officers. Teltronic has also developed specialised motorcycle units with customised features for simplified operation during high-speed deployments.

The Chairman's Vision

Phil Godfrey

The TETRA World Congress in Singapore proved to be a highly successful event once again, and the event proved particularly popular with visitors from Asia. This shows us just how important it is for the Association to hold its conferences in different regions of the world. South America is the next region for us to visit and the Association will be running events in Argentina and Brazil during late September.

South America continues to be an important growth market for TETRA and also demonstrates how TETRA is being deployed in a wide variety of different applications. For example, Lima's new metro service is being equipped with TETRA and the Panama Canal has used TETRA successfully for several years. TETRA is employed to manage the vast forests of Chile, and to assist the Mexican authorities in the fight against the illegal drugs trade.

TETRA is also critical in the support of humanitarian relief efforts, and has been used by the Venezuelan authorities to support the continuing efforts of their staff following the earthquake in Haiti. Indeed one could be forgiven for thinking that natural disasters seem to be becoming more frequent and more severe each year.

Reliable communications are essential in times of major events, man-made or natural. We all need to continue our efforts to put pressure on the regulators throughout the world to make sure that spectrum is made available to support Public Protection and Disaster Relief efforts.

Phil Godfrey
Chairman, TETRA Association

SNCF switches network

Thales has won the IRIS2 'Regeneration of the SNCF safety radio network in the Île-de-France' contract to provide an upgradeable secure network across all train stations and lines in the Paris area by the end of 2011.

Thales' DigiM@x solution will enable replacement of the existing Tetrapol network. The migration from Tetrapol to TETRA also makes it easier to roll out new capacities designed to host wideband PMR technologies.

Installed by the SNCF on all its lines in the Île-de-France region (Paris and its region, covering 11.6 million people), the IRIS2 radio network is designed to provide reliable and secure communication to the monitoring, safety and security teams. It includes more than 1,000 TETRA terminals distributed over 203 radio relays and 55 management centres around Paris.

For this project, Thales joined forces with Exprimm, a subsidiary of the Bouygues Group specialising in the engineering and roll out of radio systems (TETRA, PMR, RF, GSM, Wifi, WiMax, etc. solutions) and infrastructures in the specific environments of urban transport.

SINGAPORE SUCCESS!

The 2010 TETRA World Congress in Singapore proved a great success, with visitor numbers significantly higher than the previous record attendance at the first Congress held in Asia, Hong Kong 2008.

Attendees came to Singapore from 65 countries, with 60 per cent of visitors from Asia.

TETRA Association CEO Phil Kidner said: "The success of the TETRA standard speaks for itself, with the overall TETRA market showing year-on-year growth on average of 38 per cent during the latter part of this decade."

"TETRA has become the critical communications choice of many sectors. In transportation - the second largest sector after public safety, the TETRA market has grown over 250 per cent in recent years, while in the oil and gas industry, adoption of TETRA technology has quadrupled."

"Asia Pacific is the fastest-growing region in terms of TETRA implementations, and this is reflected by the level of interest in our flagship annual event."

Working together for better public safety

Egil Bovim, left, President of PSCE, and Phil Godfrey, Chairman of the TETRA Association, sign the formal co-operation agreement during the TETRA World Congress in Singapore.

Photograph courtesy of Land Mobile – www.landmobile.co.uk

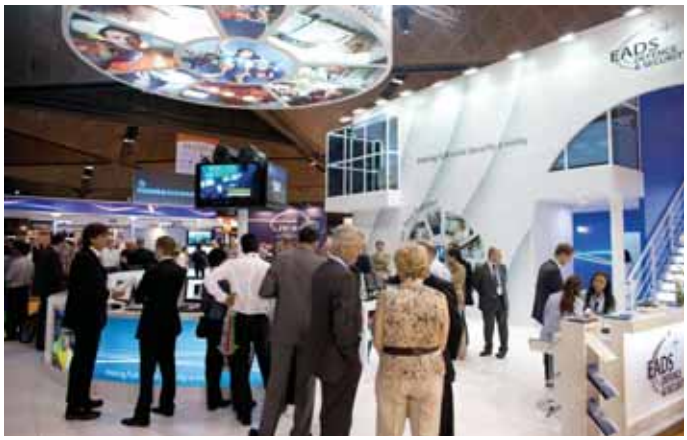
A formal co-operation agreement has been signed between the TETRA Association and Public Safety Communications – Europe (PSCE). The agreement means that the two organisations will collaborate in advancing public safety communications for the benefit of users and the wider public.

The agreement was signed by Egil Bovim, the President of PSCE, and Phil Godfrey, Chairman of the TETRA Association, at the TETRA World Congress in Singapore.

PSCE and the TETRA Association have already worked together in lobbying the European Commission for additional spectrum. This is needed to cater for expansion in voice and wideband data services as well as for future mobile broadband services required for public safety communications use.

Egil Bovim said "PSCE sees it as important that the various institutions and organisations working on public safety communication are in collaboration. There are clear differences in terms of technology orientation, membership and organisational structures, however we do all work towards providing the best possible services, and as such there are areas where it is useful that we stand together."

Phil Godfrey said "The TETRA Association has a broader role than just concentrating on technology. For that reason, we seek to partner with other key user-led organisations so we can ensure that users can continue to improve their operational effectiveness in the years to come. We look forward to working together to safeguard the public safety market of the future."



Photographs ©Tapio Makinen

Denmark Motorola has won a tender to supply TETRA digital radio terminals and services to 1500 fire officers across 19 of Southern Denmark's 22 municipalities.

"Fire services in Southern Denmark are aiming towards a modernisation of their communications technology. Following a competitive tender that included extensive trials we selected Motorola's digital TETRA terminal solutions," said Søren Ipsen,

fire chief in Kolding Municipality and Leader of the steering group for the Fire Chiefs in Southern Denmark.

The TETRA terminals supplied will include the MTP810Ex and MTP850Ex radios designed for hazardous environments containing potentially explosive gas and dust. These will be used, for example, by smoke divers who are deployed to deal with fires in remote areas. The radios, which will be rolled out in early 2011, will communicate over Denmark's nationwide digital TETRA SINE Network.

Motorola will also supply its Integrated Terminal Management (iTM) Solution that will allow each municipality to remotely manage the software and configurations of every radio terminal from a central location.

Germany ***The Central Procurement Office of the German Federal State of Mecklenburg-Vorpommern*** has selected Motorola to provide over 10,000 TETRA radios for its public safety services.

Over the next three years, Motorola will supply public safety personnel across the region with a variety of portable and mobile TETRA terminals, as well as services and accessories.

Motorola will also supply its Integrated Terminal Management (iTM) Solution. This enables remote management of all radio terminals from a central location.

Sepura partner Selectric Nachrichten-Systeme GmbH will deliver up to 37,000 TETRA radios to the German federal state of Rheinland-Pfalz. The overall value of the contract is 15.7m and covers a four year framework agreement with the potential for extension by an additional year. Radios will be supplied to all public safety users in the state including police, fire brigades and rescue services.

The Government of the German Federal State of Saarland has awarded the contract for their total fleet of 4,000 TETRA radios to Selectric, Sepura's partner in Germany. Radios will be supplied to all police, fire brigades and rescue services in Saarland.

Patrik Schlicker, Project Manager for Saarland's Ministry of the Interior, commented: "With one European-wide tender we have been able to complete successfully the procurement of TETRA radios for all public safety users in Saarland."

Saarland is the first German state to select the new Sepura Colour Console (SCC) for the mobile radios. The SCC has a large high resolution colour screen which allows the display of high quality photographs and maps and introduces three text mode sizes and

a new 'night mode' which reduces glare during night driving.

India DAMM has won the contract to provide the TETRA system for the first Monorail project in India.

The project, in Mumbai, is expected to be completed by 2011 with a 20-km route and 22 stations. The monorail line will be carrying some 300,000 commuters each day.

The DAMM TetraFlex® solution integrates with the telephony network, public announcement system, onboard train communication system, centralised recording system and signalling system.

Consort Digital, regional partner for DAMM in India, will be responsible for the supply, installation, integration and commissioning of the system.

DAMM has also won the contract to provide the Tamil Nadu Police in India with TETRA based communication and control room applications.

Due to the emergence of new cities and increasing population, the Tamil Nadu police infrastructure needs to be upgraded and expanded to cater to the increased challenges in the environments and policing requirements.

Morocco Over 600 km of Moroccan highways will be equipped with a TETRA system from Rohill, enabling communications in mission-critical situations,

Zaragoza Police trials first hybrid TETRA/ WiMAX/3G network

Zaragoza Police understands the importance of providing the best possible service to its local community. TETRA service was first available in 2005, integrated with existing ICT infrastructure to provide advanced call centre functionality and video monitoring.

Following the 2008 International Fair, ExpoZaragoza, Zaragoza City Hall developed a comprehensive broadband strategy. Following on from the deployment of a city-wide WiFi network, a private mobile WiMAX network was conceived as a way of increasing productivity for the city's 6,000 municipal employees. During 2009, the first mobile WiMAX trials were undertaken with a network core and some 10 base stations installed. The full roll-out of up to 50 base stations in the licensed 3.5GHz band is taking place this year. From the outset, the City Hall has been working closely with TETRA provider Teltronic so the mobile WiMAX network can be fully integrated with the existing TETRA network.

During late 2009, Teltronic won a public tender for the development and installation of 44 mobile platforms in Zaragoza Local Police vehicles. The first multi-bearer mobile devices were brought into operation during early 2010. Integrated with the TETRA mobile, 3G/WiMAX modems, camera and keyboard, the touch-screen technology provides police officers with a rich applications environment, allowing navigation, e-mail, web browsing as well as video recording and transmission. These services enhance the existing voice and data services already available over TETRA.

Zaragoza City Hall, Zaragoza Police and Teltronic will continue to work closely together to achieve the full integration of the TETRA and mobile WiMAX networks across the Zaragoza metropolitan area as well as developing new services and applications to fulfil the future requirements of all network users.

These are exciting times for the professional mobile communications industry as innovative business and operational models continue to evolve towards a new era of broadband communications.

said the company "National Highways in Morocco" (ADM).

The first phase will include the Casablanca-Rabat axis, Casablanca-El Jadida and Casablanca-Agadir. The mobile radio system is specially designed for emergency services, emergency calls and security.

The introduction of TETRA allows ADM to mitigate the limitations of the analogue networks in terms of coverage and features, and enables the use of several new applications including sending text messages, geo-localisation, the usage of professional applications on certain radio terminals and the connection to centralised applications.

Spain Telvent has been awarded a contract by Canal de Isabel II, a Madrid-based water utility, to provide hand-held TETRA terminals to the Integrated Emergency Mobile Communication System in the Madrid Region. The project consists of supplying and commissioning several thousand handportable terminals and accessories during the next four years. The terminals will be used by Madrid Region fire brigades, civil defence, local police, BESCAM (Autonomous Police), ambulances, health care and environmental services.

UK ***Warwickshire Police Force*** has selected Sepura STP8038 TETRA hand-portable radios to replace its existing fleet of Airwave terminals. More than 1,200 handportable terminals will be supplied to Warwickshire Police in the coming weeks. The contract was awarded following user trials and technical evaluations, facilitated by Arqiva, Warwickshire Police's Managed Service Provider.

David Farn, Project Manager for Warwickshire Police, said "We have put a lot of effort into selecting the right terminal for the Force to ensure that we can deliver protection to the communities of Warwickshire for many years to come."

Servitron delivers with TETRA

The deployment of TETRA network infrastructure and terminal solutions have traditionally been associated with public safety organisations looking to meet mission-critical communication requirements and standards. Increasingly the benefits of such solutions are being realised by non-public safety organisations and for some, are fast becoming a necessity for business success.

Leading Mexico City based radio services communications provider Servitron began its partnership with Motorola last year for the provision of its TETRA network infrastructure and terminals. Servitron was looking to upgrade from an analogue to a digital network in order to deliver reliable and efficient communication services to its extensive customer user base.

Servitron now has approximately 6,500 TETRA subscribers out of the 20,000 radio users served by its networks, spanning a wide range of vertical sectors, including transportation, energy utilities and government agencies, all users where constant communication is critical to business success for its customers – and for Servitron.

Servitron was attracted to TETRA because it is an open standard, it offers a range of small size user terminals, provides access to a host of data applications and services that can be tailored to the specific needs of end users in diverse vertical markets, and offers a roadmap for future services.

TETRA Events 2010

Event	Date	Location
TETRA moving forward in Argentina	23 September	Hilton Hotel, Buenos Aires, Argentina
TETRA moving forward in Brazil	28 September	Hotel Pestana Rio Atlantica, Rio de Janeiro, Brazil
3rd International Forum and Exhibition Professional Mobile Radio Connection	5-6 October	Holiday Inn Suschevsky, Moscow, Russia
The Scandinavian TETRA Seminar	12-13 October	Quality Hotel Fredrikstad, Norway
TETRA China Roadshow	18 October	Chengdu, China
TETRA China Roadshow	20 October	Guangzhou, China
TETRA China Roadshow	22 October	Hangzhou, China
TETRA moving forward in Indonesia	8 November	Intercontinental Jakarta Mid Plaza, Indonesia
4th Annual City-Rail 2010	9-10 November	Shanghai International Hotel, Shanghai, China
TETRA moving forward in Thailand	11 November	Bangkok, Thailand
PMR Expo 2010	23-25 November	Koelnmesse, Cologne, Germany
TETRA moving forward in India	29 November	ITC Royal Gardenia Hotel Bangalore, India
TETRA moving forward in India	2 December	Leela Kempinski Hotel Mumbai, India
Control Room Communications	8-10 December	Movenpick Hotel Amsterdam, The Netherlands
TETRA moving forward in the Middle East and North Africa	February 2011	TBA
TETRA Workshop	9-11 March 2011	IWCE, Las Vegas Convention Centre, USA

Full details of all these events can be found by clicking on 'World Events', top right of **www.tetra-association.com**, or by emailing the TETRA Association Events Manager **nicola.morrison@tetra-association.com**

Talk TETRA to a global audience

The 13th annual TETRA World Congress will take place 24th – 27th May 2011 in Budapest. The research and production process for the conference programme is now under way.

The TETRA World Congress is the world's largest TETRA conference and exhibition and attracts more than 2000 attendees. It provides a unique opportunity to meet users, manufacturers, network operators, application developers and systems integrators from across the globe.

If you would like to actively share your knowledge and practical experience with this audience then we would like to hear from you. The goal of the event is to allow mission critical communications users to exchange ideas, develop expertise and share best practice. The interactive programme for 2011 will focus on Critical Communications For An Evolving World and will incorporate a mixture of case study presentations, workshop-based discussions, panel sessions, interviews, seminars and masterclasses.

Key themes for discussion are likely to include:

- The Role Of TETRA in Critical Communications
- TETRA in Crisis Management, Incident and Event Planning
- Future TETRA
- TETRA and Complementary Technologies
- TEDS/TETRA 2/Broadband TETRA/Mobile Broadband
- TETRA for Non Public Safety Users – Transport, Industry and Utilities
- New TETRA Applications and Innovations
- Interoperability and Cooperation
- TETRA Business Models
- Digital Dividend, Spectrum Availability and Management

If you would like to contribute to the conference programme as a presenter, discussion leader or panellist, we invite you to submit papers or proposals for consideration no later than Friday 15th October 2010.

This can be done by contacting Hanna Jackson at IIR Telecoms directly by email – **hjackson@iir-conferences.com** For full submission details and conditions please visit **www.tetraworldcongress.com**

Promoting TETRA

Association Chairman Phil Godfrey and Vice Chairman of the Board Hans Borgonjen represented TETRA at the 5th Annual European Spectrum Conference, presenting to more than 250 stakeholders in Brussels on 23rd & 24th June.

Association CEO Phil Kidner will present at the Crisis Management and Security Forum 2010 in New Delhi on 27th October.

More information on products and companies in this edition can be found at **www.tetra-association.com**

Subscribe at **www.tetra-association.com**

TETRA News: Comments and contributions welcomed – please send to: **editor@tetra-association.com**

For any other information please contact the TETRA Association's administration office by email: administration@tetra-association.com or visit the Association's website at **www.tetra-association.com**

Published by: The TETRA Association, 14 Blandford Square, Newcastle upon Tyne, NE1 4HZ UK in September 2010.

DMR Network Takes Off

Company Name: Air Algérie
Distribution Partner: American International Radio (AIR)
Reseller Partner: CODEP

Algeria's national airline integrated digital radio technology into its IP network to enhance communications.

By Tim Clark

Algeria's first national airline company, Air Algérie has been quick to embrace innovative technologies as part of its ongoing commitment to modernization. Having implemented a high-tech, IP multimedia network, the airline was seeking to upgrade its radio fleet.

Carrying about 3 million passengers per year, Air Algérie operates domestic flights to 32 airports, as well as international routes to 45 cities in Africa, the Middle East, Europe, Canada and China. Up to 150 flights are scheduled daily during peak periods, and the airline carrier owns a fleet comprising 15 NG Boeing B737s, three B767s, five Airbus 330 and 12 ATR72s. Despite market challenges, Air Algérie has seen sustained growth, with its prospects further strengthened by the Algerian government's national tourist development plan to attract 2.5 million tourists to Algeria by 2015.

Why Move to Digital?

Following the expansion of the airline's operations, the company's analog communications system had reached its limits. Restricted coverage and functionality hindered efficiency. In airports there is a high level of background noise, which can impact audio clarity. With analog radio, voice communications can also be affected by RF interference that causes static and shortens the range within which voice quality is acceptable. The needs for extended coverage, improved audio quality in high-noise areas and more sophisticated call management capabilities motivated the company's decision to move to a digital platform.

Motorola's Digital Mobile Radio (DMR)-compliant MOTOTRBO digital radio's ability to double capacity in existing spectrum and to provide advanced features without additional infrastructure made it the ideal candidate for Air Algérie's existing needs. The technology could also provide an open standards-based platform to cater to further growth. A smooth migration path from the existing analog system was also important. A dual-mode analog/digital scan and use of 12.5-kilohertz spectrum channels offered a gradual, cost-effective migration to the new digital system, allowing Air Algérie to preserve its existing analog investment.

Air Algérie was also motivated by a need to link radio communications from headquarters in the city center of Algiers to the airport 30 kilometers away, as well as a longer-term vision to interconnect its offices at all 32 national airports and extend the network to some of the international airports where it operates.

Using the product's IP Site Connect feature, the Algiers city center offices and airport were linked, along with the ability to link more sites via a standard IP network in the future. Having uninterrupted voice and data communications without geographical limitations enables personnel throughout the airline to interact and share information, promoting greater cohesion and improved productivity.

Increased Capacity

In line with its commitment to modernization, Air Algérie migrated to the digital radio system in 2009. The new network has 32 sites and four

licensed UHF channels. The upgrade decision enabled employees to benefit from improved call management, better audio quality, and integrated voice and data services.

The first order in 2009 was placed for 150 display portable handsets, 20 mobile radios and five repeaters. These radios have built-in GPS modules, enabling location-based tracking of personnel and vehicles to enhance efficiency. Productivity is further boosted by allowing users to send text messages and access applications, such as simple database queries or bar code reading from portable devices. The airline has since added another 150 radios to the network.

The DR 3000 repeater operates in both analog and digital mode and supports two simultaneous voice or data paths in digital TDMA mode. DMR's two-slot TDMA technology doubles calling capacity by using one repeater and other existing infrastructure to split the 12.5-kilohertz channel into two channels, which can be used for simultaneous voice conversations or separate voice and data transmissions. This means that more people can communicate over existing licensed channels without interference while keeping new infrastructure needs and costs down.

"Air Algérie prides itself on being an innovative, progressive company," says Abdelwahid Bouabdallah, Air Algérie managing director. "We embrace new digital technologies such as MOTOTRBO, which can be integrated into our IP-based network, providing a platform to facilitate our development and support future growth."

Since moving to the digital systems, Air Algérie has seen a marked improvement in the quality of voice communications and benefited from extended coverage and optimized call management. The system has been integrated into the company intranet, linking its headquarters in Algiers to the city airport. The built-in error correction technology and background noise suppression in the radios helps deliver clear audio throughout the coverage area, preventing miscommunication and missed calls from occurring.

The network's design for flexible call management has made it easy for users to communicate with an individual, a sub-group of radios or all radios in the system. Users can control who hears communications, preventing others from overhearing calls that aren't applicable. Air Algérie's analog system is still in use, and the migration to the full digital system will be completed during the next five years. ■

Tim Clark is the product director for Motorola's radio products and accessories business across Europe, Middle East and Africa (EMEA), based in Basingstoke, United Kingdom. Clark has 20 years of experience in engineering, product management, marketing and sales support roles within global organizations, working primarily with two-way radio, wireless broadband, GSM, UMTS and IT technologies. E-mail comments to editor@RRMediaGroup.com.

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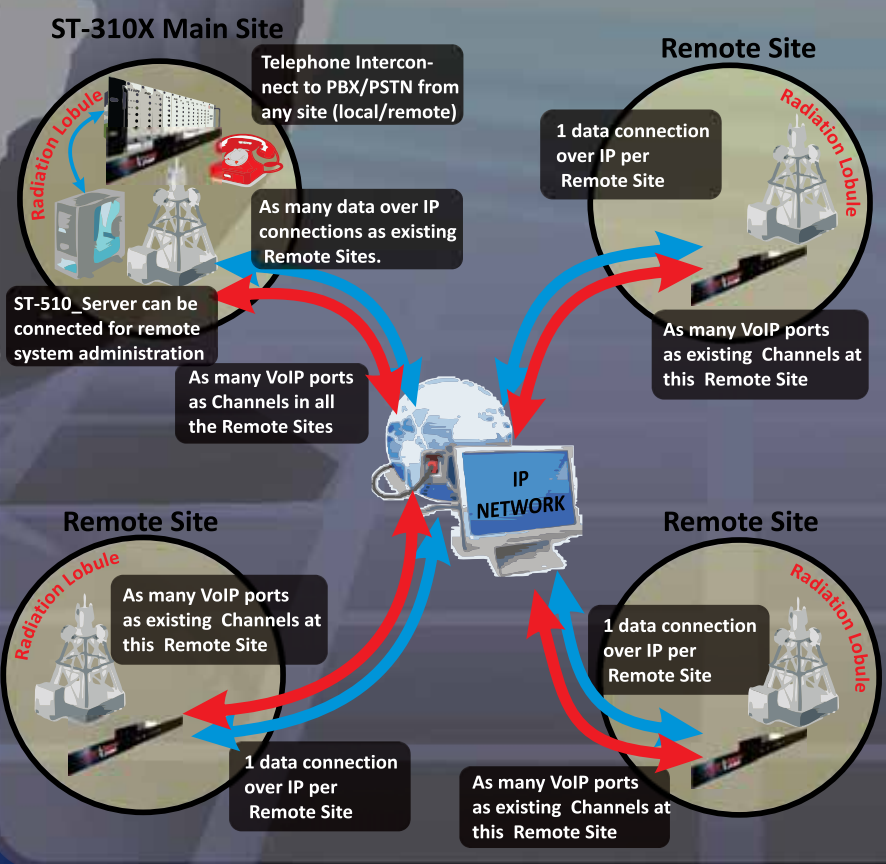

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- ✓ An ST-310X Network supports up to 126 nodes

* Requires external multimedia computer
**Requires external industrial computer

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Support: techsupport@smartrunk.com

South Africa's New Training Academy

Photos courtesy NMMU

A state-of-the-art venue in Port Elizabeth is used to train radio users and ensure future RF technicians.

By Dalenca Pottas

The Nelson Mandela Metropolitan University (NMMU) TETRA Academy in Port Elizabeth, South Africa, was established in the run-up to the 2010 FIFA World Cup, which took place in June and July. The primary objective during the period preceding the World Cup was to ensure that the terminal users, dispatchers and technicians who would be using TETRA networks to ensure the safety of citizens and tourists during the event would be properly trained. The training was done concurrently with the rollout of the technology in the operational environment, leading to tight deadlines.

Now that the fanfare of the World Cup has died down in Port Elizabeth, one of the main event cities of the FIFA World Cup, the TETRA Academy is poised to begin its future role in a government, industry and academia partnership. TETRA is a standard for mobile radios developed by the European Telecommunications Standards Institute (ETSI). The open standard enables independent manufacturers to develop infrastructure and radio terminal products that can fully interoperate with each other. For example, radio terminals from different manufacturers can operate on equipment infrastructure from other manufacturers.

World Cup Influence

The first TETRA network used by the South African Police Service (SAPS) was launched in 2007 in Gauteng. The second such network is now being rolled out in the Eastern Cape Province. In December 2008, systems integrater Integcomm was awarded the contract to build a digital command-and-control network for SAPS in the Eastern Cape. The contract requires Integcomm to supply, deliver, test, commission and successfully operate the radio communications network for the Eastern Cape Police.

In March 2009, EADS Secure Networks subcontracted with Integcomm for the supply of the TETRA equipment and related expertise for the completion of the contract. The final SAPS network in the Eastern Cape will comprise more than 200 base stations covering the total Eastern Cape Province. The design of the network provides for the use of TETRA Enhanced Data Service (TEDS) technology, WiMAX, and mobile data and video applications, and at this stage, employs an advanced technology and peripheral design.

The Eastern Cape SAPS TETRA contract resulted in a Department of Trade and Industry (DTI) National Industrial Participation Programme (NIPP) obligation in partnership with

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Official model

As a leading professional communication equipments supplier and two-way radio sponsor of Expo 2010,Shanghai China, Kirisunlaunched the mobile， GPS solution,combinedwith his top conventionalportable radio PT7200 and mobile radio PT8200,which meets MIL-STD 810, provides various features for emergency application and securityfor your safety,suchas locating ,tracking ,GPS patrolling and so on.

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NMMU. The DTI NIPP program seeks to leverage economic benefits and support the development of South African industry by effectively using the instrument of government procurement and is effectively targeted at South African industries, enterprises, and suppliers of goods and services to governmental and parastatal agencies. Therefore, companies awarded the tender to roll out TETRA in the Eastern Cape were obliged under NIPP to invest back into the South African economy.

The value of the investment is US$3.8 million, including hardware and software equipment, NMMU staff training, and the fittings and furniture in the academy.

The value of the investment in the NMMU TETRA Academy is 26.7 million South African rand (US$3.8 million), including hardware and software equipment, NMMU staff training, and the fittings and furniture in the academy. The main role players in the TETRA Academy comprise industry (Integcomm and EADS), the South African government (DTI) and academia (the NMMU).

The TETRA Academy

The TETRA Academy is a fully fledged training center housed in the Faculty of Engineering, the Built Environment and Information Technology at NMMU. The center is the first of its kind internationally where TETRA training is done in collaboration with a university, and one of several EADS TETRA training centers internationally.

The center will be used for integration testing of the EADS TETRA equipment with other TETRA equipment suppliers/vendors and for testing software applications for integration with EADS TETRA software. The academy was established at the NMMU in Port Elizabeth because of its geographic location, and because the university had the necessary expertise to make a venture of this nature successful. The primary need at the time of establishing the center was for a facility to service the training needs of the SAPS Eastern Cape communications project. Given the scope of the SAPS project alone, the academy will be servicing the related training needs for a number of years.

Leading up to the World Cup, 20 members of the SAPS staff were trained as dispatcher workstation operators, six of whom completed "train-the-trainer" training for radio unit operators. This means the operators can train other SAPS terminal users.

Base Station Testing Made Easy

Looking for a test solution covering TETRA base stations? Capable of testing everything needed, yet portable?

Weighing just 4 kg, with a large, high-contrast screen and optional battery operation – the new 2305 Stabilock is optimized for measurements at TETRA base stations:

- Wide output level range for sensitivity and blocking measurements
- Wide input level range, suitable for base stations transmitting at high power
- Supporting separate transmit and receive ports
- Synchronizes with BS over antenna or external signal
- Bit error rate measurements with T1 signal

Thanks to options for mobile radio testing including DMO, the 2305 Stabilock is a flexible and future-proof investment.

In addition, production and lab tests are best covered with the 3920 Radio Test Set!

Willtek is now Aeroflex! This combination provides you with the cumulative competency regarding TETRA measurements.

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TETRA

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(Left to right) TETRA instructors Alastair Scott, Murray Wynter, Kerry-Lynn Thomson, Shaun Vincent and Dalenca Pottas.

In addition to the short-term training needs, the role of the university is to provide training as part of its formal IT and engineering qualifications and to afford students exposure to a live network while they are studying. During 2010, the university began to train students registered for bachelor of technology degrees in electrical engineering and information technology in aspects of radio communications systems based on the TETRA standard. This option of using the center to train university students will make a major contribution to providing future employees with the necessary skills to install and maintain TETRA-based radio communications networks in the Eastern Cape Province and further afield. This will be crucial to the success of using this technology in South Africa.

Furthermore, the university's postgraduate students can conduct research and development (R&D) projects in the environment. Some mission-critical communications themes that overlap with the NMMU's School of Information and Communications Technology (ICT) areas of expertise include user experience and security.

The formal courses could include a broader spectrum of professional mobile radio (PMR) technologies, but the laboratory environment is used to demonstrate TETRA technology. Broadband technology is not available in the lab for demonstration purposes, but is included in the theoretical content taught to students and demonstrated through the discussion of relevant case studies.

Benefits to South Africa

Public safety requires effective communications and response. To achieve this, specialist technology systems are required together with a skilled workforce to operate the systems effectively. The TETRA Academy can effect skills transfer in radio communications systems, both in TETRA-based and other systems, to students completing qualifications in particular areas of specialization, such as electrical engineering and ICT.

Students will be exposed to operations and/or maintenance training in the state-of-the-art academy. They will exit the university with the required knowledge and skills to implement and maintain radio communications systems. This increases their marketability and employability in critical scarce skills areas. A skilled workforce is a crucial success factor in enabling effective communications and response systems used in various markets such as public safety, transportation and utilities. The academy further provides rich opportunities and a practical environment for R&D projects for students from third year to doctoral levels.

Potential mission-critical communications markets in South Africa include the maritime, ports and airports security, and transportation sectors. The country has other existing TETRA networks, and the technology represents a lucrative and growing field for South Africa. The increasing PMR market will certainly ensure continued growth and expansion of the services of the center.

Although there are many amateur RF technicians in South Africa, there is a definite need for qualified RF technicians, and this is where NMMU can play an important role. In fact, South Africa is experiencing a shortage of skills in critical communications areas. To meet national needs and to be globally competitive, South Africa needs highly skilled manpower and state-of-the-art technology. The TETRA Academy will contribute to this challenge by producing well-qualified IT professionals, engineers and technologists with high-tech knowledge in radio communications and related fields. At the same time, the academy can serve the training needs of companies and agencies deploying TETRA networks to serve their radio communications needs. ■

The TETRA Academy will contribute to this challenge by producing well-qualified IT professionals, engineers and technologists with high-tech knowledge in radio communications and related fields.

Professor Dalenca Pottas is director of the School of Information and Communications Technology (ICT) and line manager responsible for the TETRA Academy at the Nelson Mandela Metropolitan University (NMMU) in Port Elizabeth, South Africa. She holds a doctorate in computer science from the Rand Afrikaans University (now the University of Johannesburg). After working five years as an IT technologist in the petrochemical industry, she started lecturing in IT at Technikon South Africa (now the University of South Africa). She was appointed at the NMMU in 2002. Pottas also leads the health informatics research group at the NMMU. E-mail comments to dalenca@nmmu.ac.za.

TETRA

CASE STUDY

Improve User Safety, Effectiveness and Confidence

Sepura TETRA Gateway provides cost-effective solution to extend coverage.

In many police stations the custody suite is shrouded in more concrete and steelwork than any other offices — proving a challenge for radio coverage. Officers working can be isolated, out of touch with the control room and the rest of the station. But at around £60,000, adding a second TETRA antenna to extend network coverage is prohibitively expensive, especially for a large force with many stations and custody suites.

By strategically locating a Sepura SRG gateway radio near the entrance to the custody suite, you can effectively create an in-building wireless solution that brings communications to the custody suite at a fraction of the cost — less than 10% — and disruption of installing a second antenna.

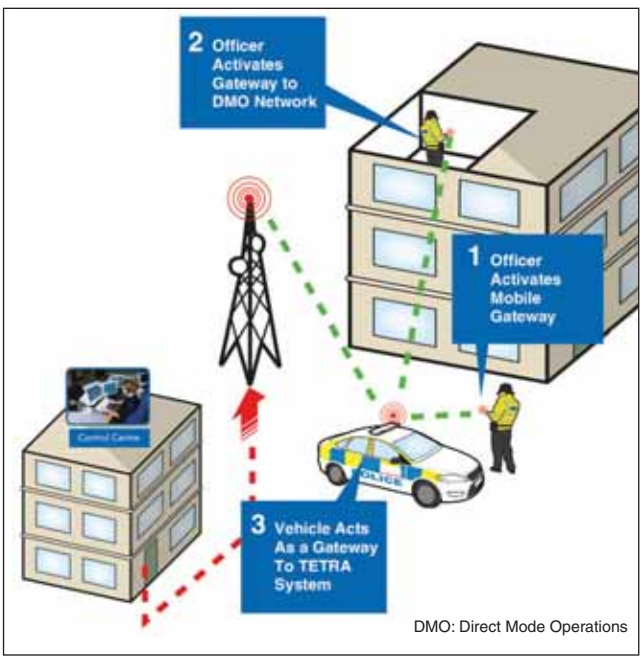
Officers maintain unbroken contact with the control room simply by switching their hand-helds to gateway mode as they enter the custody suite. If there's a problem they don't have to handle the situation alone, they can call for assistance; and they will be more aware of what is going on elsewhere in the station. And because the control room can contact them directly, it can quickly and efficiently redeploy them if necessary.

According to the TETRA deployment manager at one police force where the solution is already in use: "The option of using a Sepura gateway allowed an effective, straightforward and speedy answer at a fraction of the cost of other solutions."

Stay Safe in Unknown Territory

When blue light services attend an incident in a building or "dead" zone that does not have TETRA network coverage, they lose contact with the control room: they can't report progress, or request assistance if the situation deteriorates. This can jeopardise user safety and the quality of response.

Many public buildings, like shopping centres and sports arenas may invest in a TETRA antenna to avoid this situation, but many buildings will be left without coverage. In-vehicle Sepura SRG gateway radios can be used to provide an easy-to-use mobile communication system that 'goes with the user' to the incident. Radio users arriving at the building in question select Direct Mode Operation (DMO), this can be triggered by a switch on the dashboard, the removal of the vehicle's ignition key, by the on-board computer or even by remote signalling from the control room. Once inside the building, they can have voice and data communications with the control room and each other through the gateway. Releasing the handbrake on leaving the scene automatically switches the SRG back to Trunked Mode Operation (TMO).



DMO: Direct Mode Operations

Sepura radios give your officers communications capabilities that are second to none. Sepura SRG gateway radios can transmit at 10 Watts, and Sepura hand-held radios up to 1.8 Watts — providing the greatest operational range of any TETRA terminal on the market today. The GPS capability in Sepura radios makes it much easier to pinpoint an officer's location and so target support more effectively — adding an extra layer of confidence and safety.

The SRG3900 gateway is the latest generation of Sepura's SRG3000 mobile radio series. It is a flexible, adaptable and fully-featured mobileTETRA radio designed to meet the demanding needs of users within the Transport, Utility and Public Safety markets.

sepura

For more information, visit www.sepura.com

Product Expo: Mobile and Portable Radios

Datron World Communications

Datron's Guardian II radios offer VHF, UHF and triband portable options with keypad programming, interoperability

with all frequency bands and audio quality using the AMBE +2 vocoder to provide first responder, federal agency and public-safety users with the features and options needed for efficient and reliable Project 25 (P25) digital and analog communications. The units have multiple faceplate configurations, adjustable display layouts, internal optional GPS receivers and up to 10 programmable auxiliary buttons. Options to support federal, state and local public-safety agencies include advanced encryption standard (AES), data encryption standard output feedback (DES-OFB), FIPS-certified encryption, trunking, GPS, over-the-air rekeying (OTAR) and enhanced emergency response software.

www.dtwc.com

Giant International

Olympia P324 business two-way radio is

a UHF radio that features 1- or 4-watt selectable power output and 32 programmable channel memories. Additional features include a Li-ion battery pack, drop-in charger, hands-free operation and audible low-battery alert. The radio is fully programmable for use of fixed frequencies. For users who use itinerant frequencies, the first 10 channels come preprogrammed on the common itinerant frequencies.

www.giantintl.com

GRE America

GRE's Project 25 (P25) digital decoding scanners, the PSR-500 and PSR-600, are scanners designed for ease of use for public safety. Common data entry, browsing and control methods are used

for nontrunked conventional channels. Other features include trunked talk groups, search configurations and Spectrum Sweeper setups. The radio can start with a small-sized configuration and then expand when needed.

www.greamerica.com

HME

The DX121 wireless intercom system plugs into the intercom headset jack of most hardwired intercom stations, extending range to 305 meters. The single channel product features 2.4 GHz with relay capabilities to access multi-channels in matrix.

Eight systems can be used at the same location. The system is ideal for one to four users and to expand wireless support at large venues.

The CL200 call light actuator is a complement to HME's recently introduced WS200 wireless speaker station with full-duplex, two-way communications capability. The CL200 sends a visual call signal to the WS200, as well as an audio call signal to all wireless communicators. It can also be used as a call indicator to interface the BS200 to any two-wired intercom call function. The portable speaker station does not need to be hardwired to a master station, and is designed for easy transportation, company executives said.

www.hme.com

Holzberg Communications

Model DB-ANDY is a dual-band, compact portable radio that operates in 136 – 174 and 420 – 490 MHz. The radio features 4 watts and 100 channels, and comes with

a rapid rate desktop charger, 1.5 ampere-hour (Ah) Li-ion battery, antenna and belt clip. Other features include priority scan, wide/narrow bandwidth, FM radio, dual-watch operation, alphanumeric display, CTCSS/DCS, voice scrambler, built-in voice operated transmit (VOX) function, busy channel lockout and alarm function. Optional accessories include a heavy-duty remote speaker microphone, two-wire acoustic tube kit with microphone and earphone, and leather and nylon carrying cases.

www.holzberg.com

Hytera Communications

Built to the Digital Mobile Radio (DMR) standard, the PD702 delivers compre-

hensive digital functions in a rugged design and enables efficient digital migration, company officials said. The radio is ideal for public and private security personnel, construction workers and public utility workers. The IP57 rating means the radio is capable of remaining submersed in up to 1 meter of water for up to 30 minutes. The radio is part of the company's DMR portfolio, which also includes the recently released PD782 display radio.

www.hytera.us

Icom

Icom's IC-F3160/F4160 series and IC-F5060/F6060 series are 5-watt portable

and 25- to 50-watt mobile complementary radios combining analog FM and IDAS digital dual mode. The IDAS digital mode uses 6.25-kilohertz narrowband FDMA technology and offers a flexible choice of NXDN digital protocol (North America) or the European Telecommunications Standards

MobilitySound

Your Best Partner in Two Way Radio

Bluetooth Adapter for Radios Hands Free and GPSMic for Life Safety, easily integrated with exiting two way radios.

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www.mobilitysound.com
info@mobilitysound.com

Institute (ETSI) dPMR protocol (Europe), with common hardware. IDAS is designed to coexist with analog radio systems; receiving both digital and analog modes, the radio switches the transmitting mode accordingly. The radio offers analog features including built-in two/five tone, CTCSS, DTCS, MDC 1200, basic logic trunked radio (LTR) trunking, multiple scan functions and inversion-type voice scrambler. While in digital mode the radio offers digital voice and data applications including selective calling, status message, short data message, digital voice scrambler and IP network connectivity.
www.icom.co.jp/world

Kenwood Communications

Kenwood's TK-2360/3360 portable offers

a rich feature set including enhanced Kenwood audio quality, 5-watt output power, UHF 70 megahertz wideband coverage, built-in MDC-1200 signaling and three different staff safe functions (man-down, stationary and motion detection). The compact, lightweight radio is IP54/55 water resistant, company officials said.
www.kenwood.com

Kirisun Electronics

The PT-7200 is Kirisun's latest radio. The unit's durable construction is resistant to

shock and vibration and can be used in the rain, company executives said. The password protection, scrambler encryption and enhanced multiple two and five tone make communications secure. Other features include a wide frequency coverage range, loud and clear audio, built-in signaling, customizable alerts and optional GPS.
http://en.kirisun.com

Klein Electronics

Klein Electronics introduced the new Blackbox+ series professional two-way

radio. The palm-sized, compact design with all metal chassis makes the radio ideal for security and public safety. The radio now features louder sound and noise cancellation. Other features include UHF/VHF, 16 channels with scan, priority scan, IP54 water resistant, two-tone encode/decode, software-enabled voice-operated transmission (VOX), voice enunciation for each channel and a Li-ion battery.
www.blackboxradios.com

Midland Radio

Midland Radio offers a variety of VHF and UHF Project 25 (P25) mobile and portable radios with varying watts and configurations. The radios, designed for

government, public-safety and business applications provide digital, analog and multimode capability to meet P25 Common Air Interface (CAI) standard for compatibility with other P25 radios. The radios are fully backward compatible with conventional FM systems. Syn-Tech III portables and mobiles have 999 channels/255 zones with tactical grouping, are field programmable and meet or exceed Mil-Std-810C/D/E/F. The products are available with optional encryption, P25 trunking and over-the-air rekeying (OTAR).
www.midlandradio.com

Satel

SATELLINE-EASy is a transceiver radio modem that provides a compact and flexible solution for many different long-range applications such as differential GPS (dGPS) and supervisory control and data acquisition (SCADA) applications. The radio modem is equipped with a wide 70 megahertz tuning range, allowing the

end-user to select the operational frequency within 403 – 473 MHz. Only one version is needed in stock, and all channels are available. The channel spacing 12.5, 20 or 25 kilohertz is software selectable, and either 3 – 9 VDC or 6 – 30 VDC ranges ensure low-power consumption. With an output power of 1 watt, the modem offers extensive, long-range network coverage and is compatible with the SATELLINE-3AS(d) radio modem line. The units can be included in systems based on other manufacturers' protocols.
www.satel.com

Sepura

The STP8200 hand-portable TETRA radio combines ruggedness and high performance with a streamlined user interface. The radio ranges from traditional voice-only professional mobile radio (PMR) to enhanced personal safety and information security. The portable was designed to perform in physically challenging environments where users

demand ruggedness and durability. The portable offers water and dust resistance. The RF power is fully customizable up to 1.8 watts in trunked mode operation (TMO), direct mode operation (DMO) and when used as a DM repeater. The radio offers the largest front-facing loudspeaker available in a TETRA hand-portable and provides clear audio in noisy environments, company officials said. The radio features GPS and man-down functionality, secure encryption and extensive data service support.
www.sepura.com

Simoco

Simoco's SRP9180 Xmode portable radio series and SRM9000 Xmode mobile radio series feature multimode radio operation.

Supported radio modes are Project 25 (P25) conventional and trunked, MPT 1327 analog trunked and full LMR (PMR) mode with Selcall and FFSK signaling. Other features include text messaging, GPS and packet data in P25 modes, while analog modes support GPS and data with FFSK. The portable radio offers a full keypad and function keys, VHF and UHF bands, and is available in waterproof IP67. The SRM9000 mobile radio control head options include a console mount head, full keypad handheld controller and function key handheld controller. Radio bands include VHF, UHF and 800 MHz. Multiple control heads are supported on a single radio.

www.simoco.com.au

Tait Radio Communications

Tait TP8100 portables and TM8000 mobiles have a range of flexible, easily-deployed worker safety features ideal for utility organizations, Tait officials said.

Features include man down, lone worker, alarm calls, GPS location and radio ruggedness.

www.taitradio.com

Teltronic

The HTT-500 handheld features 3 watts of RF output, 1 watt of audio and more than 18 hours of battery power. The handheld can support features such as Bluetooth connectivity, a tamper-proof E2EE module, a wireless application protocol (WAP) browser, GPS and man-down capability. The radio is small and lightweight. The graphical color interface is easy to learn and efficient in emergencies, Teltronic officials said.

www.teltronic.es

Thales Communications

The Liberty multiband two-way radio enables interoperable communications across public-safety bands 136 – 174, 380 – 520, 700 and 800 MHz in a single portable radio.

The radio provides all modes standardized for public-safety use, including analog FM and Project 25 (P25) conventional and trunked. The radio takes advantage of existing infrastructure but can also operate without infrastructure, company officials said. Full encryption includes data encryption standard (DES),

advanced encryption standard (AES) and over-the-air rekeying (OTAR). Rugged and submersible, the radio is supported by a full line of accessories, such as the AA Clamshell Battery and new Battery Management Software.
www.thalesliberty.com

Unimo Technology

PZ series radios are ideal for public-safety purposes as well as many industrial applications, Unimo executives said. PZ-100NW and PZ-400NW support 512 channels with graphic display and feature voice equalizer, whisper mode, wireless cloning, programmable home channel, scrambler and descrambler, remote stun and revive, and emergency function. The radio operates in 136 – 174 and 400 – 470 MHz, offers output power of 2/4/5 watts, 2.2 ampere hour (Ah) Li-ion battery, or an optional 2.6 Ah. Other features include optional Bluetooth and GPS. The radios are FCC and CE complaint and IP54 and IP67 waterproof.

www.unimo.co.kr/eng

Vertex Standard

The VX-450 series portable radio is built for users needing efficient coordination to maintain productivity, jobsite safety and responsiveness to production problems or injuries, company executives said. The series features emergency and lone-worker safety alerts built in with man-down alert and intrinsically safe radios as options. Channel announcement, 700 megawatts (mW) loud audio output and voice-operated transmission (VOX) capabilities are also built in for expanded responsiveness and productivity, executives said. Additional features include voice inversion encryption, MDC-1200 encode/decode and two-/five-tone encode/decode. The radios are available in three models: no keypad, limited keypad and featured full keypad.

www.vertexstandard.com/lmr

Intrinsically Safe Radio

Cassidian launched the THR9 Ex radio that combines certification for operation in explosive-prone areas with a robust user-friendly design and advanced features to enhance user safety. With an IP65 classification and ATEX/IEC certification for gas and dust, the radio is suitable for use in explosion-prone areas and in places where inflammable substances are produced, processed, transported or stored. The radio's large display features a red signal that warns if the 2-ampere hour (Ah) radio battery is running empty or if the TETRA network coverage is diminishing. The dedicated information field on top of the display shows a selected talk group in all situations, and distinctive coloring makes is easy to recognize whether the radio is operating in trunked or direct mode. Operating in the 380 – 430 MHz band, the radio offers a choice of more than 20 user interface languages, and a Lifeguard feature recognizes if the radio stops moving or if it remains horizontal for a given period of time.

www.cassidian.com

Platform Radio System

The Platform Personal Role Radio (PRR) system from **Selex Communications** is designed to be fitted in a wide range of hard-skinned and soft-skinned military vehicles and in rotary-winged aircrafts. Interfacing with a platform's harness system, the product provides communications between the crew and transported, mounted, dismounting/dismounted troops equipped with PRR or Enhanced Encrypted (EZ) PRR. The system can be used in a variety of configurations to match specific platform types, roles and operational scenarios. Installations are based on a core set of standard fittings that can be readily customized for each platform, enabling rapid solutions to be delivered with minimal training, Selex executives said.

www.selex-comms.com

P25 Fixed Station Interface

Daniels Electronics enhanced its Project 25 (P25) Digital Fixed Station Interface (DFSI) in accordance with the Telecommunications Industry Association (TIA) P25 Fixed Station Interface (FSI) standard. The interface interconnects the fixed station to a console or RF subsystem. Features include local repeat functionality, call alerts, radio checks, radio stun/revive, radio monitor and emergency alert. The digital universal interface card (UIC) provides the P25 DFSI connection via Ethernet from the company's MT-4 P25 radio system to other LMR subsystems.

www.danelec.com

Remote Communications System

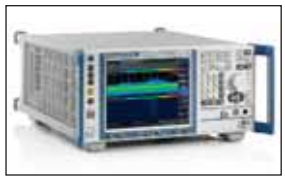
TriaGnoSys released an integrated system that enables telecom network operators to deploy GSM and 3G communications networks in areas where communications are otherwise impossible. The system uses ip.access hardware and Quortus core network infrastructure, combined with TriaGnoSys' backhaul and remote management software and compression technology. The system, which can use both satellite and landline connections, is expected to provide communications for three main uses: in areas where traditional infrastructure isn't practical, in areas immediately after natural emergencies when local infrastructure has been damaged or destroyed, and for a number of governmental and military applications. Under a new agreement, TriaGnoSys is a distributor of ip.access picocell and femtocells for land deployment, including remote areas and emergency use. TriaGnoSys will use the Quortus SoftCore network for remote switching, which provides future-proofed IP technology and enables the integration of VoIP and Internet data systems.

http://triagnosys.com

Spectrum Analyzers

Rohde & Schwarz introduced the R&S FSVR line, real-time spectrum analyzers that offer the functions of an all-purpose

signal and spectrum analyzer. In real-time mode, the analyzer detects everything from sporadic events to untrashort signals, and the instrument captures RF



signals with a bandwidth of up to 40 MHz, computes up to 250,000 spectra per second and displays the results graphically. Many display modes and measurement functions are available to visually and metrologically analyze the results, including a persistence mode and spectrogram function. The analyzers are now available in three models — up to 7, 13 and 30 GHz.
www.rohde-schwarz.com

Industrial Transceiver

Circuit Design released a 335 MHz version of the industrial-use radio transceiver module STD-302N-R for the Indian market. The company already offers versions for use in Japan, China, Europe and Korea. The pin assignment in all frequency versions is the same, so that changing the PLL frequency program allows manufacturers to switch between

versions according to their market. The narrowband RF transceiver is resistant to mechanical vibration and impact and offers a double superheterodyne receiver circuit to ensure high receiver sensitivity. The higher-grade model, LMD-400-R, is available in FCC Part 90 and EN 300 113 compliant versions and offers the same interfaces as the STD-302N-R.
www.circuitdesign.jp

Radio Interface

MiMOMax Wireless released a Diff III

dual asynchronous serial RS232 interface compatible with all MiMOMax radios operating in 12.5- or 25-kilohertz channels with QPSK/16/64/256QAM modulations. The instrument can support Async data rates from 300 bits per second (bps) to 57.6 kilobits per second (kbps) and supports Mirrored Bits Standard. The device enables a single MiMOMax link end to directly support up to two remote terminal units (RTUs) in the same bandwidth radio channel, and significantly reduces hardware needs. The interface supports Terminal Server software to provide a communications path between remote RS232 connected equipment and local Ethernet connected equipment. The product was primarily designed to improve efficiency and effectiveness of mission-critical supervisory control and data acquisition (SCADA) and IP networks, company officials said.
www.mimomax.com

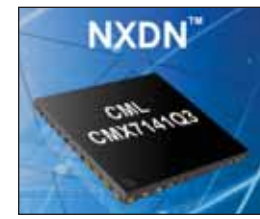
Tone Remote Controller and Adapter

Midian Electronics' PTA-16 offers two

modes of operation as a tone remote controller or as a parallel tone remote adapter. As a tone remote controller, the product can generate 2175 hertz keying tones to key a remote tone remote adapter equipped base station. The controller can also receive audio from the base station, making it ideal for phone patches and paging terminals remotely located from the base station. As a parallel tone remote adapter, a remote controller or console can control up to 16 PT-16 equipped radios in parallel on one dedicated line. The 16 radios can be addressed individually (F1-F16) or in simulcast (F17).
www.midians.com

NXDN Function Image

CML Microcircuits released a function image for the CMX7131 and CMX7141 ICs supporting the development of NXDN-compatible digital voice radio equipment. The products are digital professional mobile radio (PMR) processors built on the company's FirmASIC technology suitable for use in digital radio systems, including NXDN. The product features a high-performance 4FSK data pump supporting soft-decision coding mode; autonomous AFSD; voice codec for microphone/speaker paths; and integrated auxiliary functions.



The company also launched the CMX138A audio scrambler and sub-audio signaling processor to its line of analog two-way radio ICs. The device provides a user programmable frequency inversion audio scrambler with signal processing functions, CTCSS, DCS and in-band tones, allowing comprehensive voice processing and tone control.

CML Microcircuits also developed a marine automatic identification system (AIS) Class B demonstrator package to address increasing market requirements.
www.cmlmicro.com

Solar Regulators

The Imark SR solar regulators for use with remote area power systems from **Imark Communications** are pulse width modulation shunt regulators for efficiency, and use heavy-duty low-loss diodes and MOSFET power components. The units are available in three models for 48, 120

and 240 VDC (nominal) systems with nominal power capabilities of 5, 12 and 60 kilowatts. The regulators feature LEDs to show system operational status and illuminated panel meters to show battery voltage, charge current and battery temperature. The battery-over-voltage protection circuit and the heatsink over temperature protection will trip the heavy-duty PV input circuit breaker if the respective settings are exceeded. The cabinet can be wall or rack mounted.
www.imark.com.au

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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 _____

Q410

EU Legislation Could Get eCall on Track

By Lindsay A. Gross

Europe's eCall in-vehicle manual and automatic emergency calling project has stalled over the years because of lack of standards and the high cost of the infrastructure. But eCall may be able to gain momentum if the European Union (EU) passes legislation mandating the project, says Dominique Bonte, practice director of telematics and navigation for ABI Research.

"Standards across the board should help keep costs down," Bonte says.

The original target date to equip each new vehicle with the technology was 2010. "Even though that won't happen, I'm still optimistic that we will still reach our goal; just a little bit later than anybody had anticipated."

When an incident occurs, the eCall system calls the nearest public-safety answering point (PSAP) using the European emergency number 1-1-2. The system enables vehicle occupants to communicate with a trained emergency center operator, while at the same time, essential data about the accident such as time, precise location and vehicle identification is transmitted. When eCall is fully deployed, it is likely to save an estimated 2,500 lives every year or one life saved every four hours, Bonte says.

In August 2004, the EU issued an eCall memorandum of understanding (MoU) to invite all stakeholders to actively investigate feasible and sustainable eCall solutions and potential business cases. Fifteen of 27 EU member states have signed the MoU, as well as 79 industry organizations, telematics vendors, hardware providers, OEMs and carriers. The GSM Association (GSMA) signed the MoU in September 2009, which was a huge step, Bonte says. "The main adaptation carriers will have to implement is related to the handling of eCalls, with an eCall indicator flag to be activated in order to identify which national PSAP the calls should be routed to," he says.

According to Bonte, the Netherlands, Finland and Sweden have made the most progress in their implementations of PSAP infrastructure. Non-EU countries Norway, Iceland and Switzerland joined the early phase. Belgium, Bulgaria, Hungary, Luxembourg, Romania and Poland haven't signed the MoU but have expressed support for the initiative. Ireland, Denmark, Latvia and Malta have not signed the MoU because they simply lack the budgets to implement the infrastructure, Bonte says. France and the United Kingdom are the most notable countries that haven't signed the MoU.

PSA Peugeot Citroen, one of the pioneers of European consumer telematics since 2002, offers a proprietary system similar to eCall, but with notable differences. That system is available in 700,000 vehicles and nine countries, including France. Bonte attributes France's hesitation to sign the MoU on its allegiance to the PSA solution. PSA's solution is a subscriber identity module (SIM) card-based device with sequential voice and data transmission and two-stage qualification; the EU solution doesn't include a SIM but instead transmits voice and data on the same channel and directly relays calls to PSAPs.

The integration of propriety solutions with the EU solution may remove the barrier for countries such as France to join eCall, Bonte says. Even though other types of proprietary emergency call services have been available in Europe in high-end cars for at least a decade, less than 0.4 percent of vehicles have them. However, in member states where there is an agreement to support proprietary services with similar quality of service as the pan-European eCall, the vehicle manufacturer could choose the type of system supported.

The United Kingdom's two-level PSAP system and different business model sets it apart from the solution proposed by eCall. Ford and BMW are the only OEMs offering emergency calling compatible with the U.K.'s telematics protocol. PSA has not rolled out its service because of the high costs that an adaptation to the U.K. system would require, Bonte says. "Basically, it will cost a lot of money for the United Kingdom to change from their existing system," he says.

"It's not quite certain what regulatory path the EU will decide on, but even with the obstacles of France and the United Kingdom, eCall is going to happen, and I believe once it's adopted, will save a lot of lives." — Dominique Bonte, ABI Research

"It's not quite certain what regulatory path the EU will decide on, but even with the obstacles of France and the United Kingdom, eCall is going to happen, and I believe once it's adopted, will save a lot of lives," Bonte says. ■

Lindsay A. Gross is managing editor of *RadioResource International*. E-mail comments to lgross@RRMediaGroup.com.

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