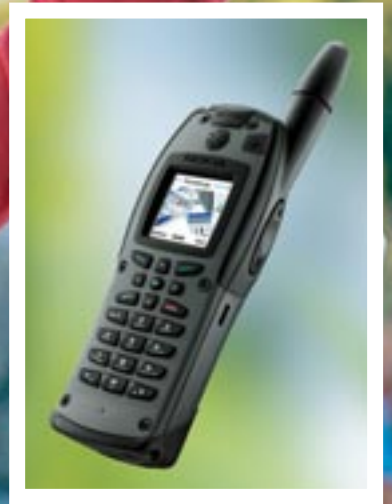


TETRA Touch

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With Nokia TETRA to help, the Belgian authorities made sure Tour de France got off to a good start.

→ Read more on page

10

EDITORIAL

3 Spectacular events need special communications

IN THE LINE OF DUTY

13 Working for the police - a personal view

NEW PRODUCTS

5 The new Nokia THR880i hand portable radio

SOLUTIONS

16 How to choose a consultant
21 Using data in the field just got easier

TETRA IN USE

6 Nokia TETRA out in front at Bahrain Grand Prix
10 TETRA keeps the wheels turning
12 Private ambulance service opts for ASTRID
15 Irish TETRA network helps Bush have happy landing
19 Hungarian trial proves early success

APPLICATIONS

18 Keeping operations on the record

NEWS

4 Nokia TETRA radios made an impact in Athens
13 Busy rally weekend for Jyväskylä
14 Peak performance in Argentina
14 Brazil goes digital with first system
14 Russian type approval comes in
17 Vital Chinese rail link uses TETRA
20 Nokia TETRA goes underground in Paris
20 Better communications for French motorways
23 Belgian Federal Police to use Nokia terminals
24 Put yourself on the TETRA map

TECHNOLOGY

8 Standards learning from each other
23 News from the TETRA MoU

FEEDBACK

22 Build your TETRA know-how

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New Nokia THR880i lets users benefit from the latest mobile innovations. **5**



Nokia TETRA in Athens - Nokia TETRA technology proved its superb quality. **4**



Looking to use a consultant? Discover what advice consultants themselves would give to customers. **16**



Spectacular events need special communications

By their nature, major sporting, entertainment and political events attract intense media interest. And it is this high profile that makes it vital to organise, manage and secure these occasions without a hitch. After all, a big incident during an important event would be flashed around the world as hot news. Organisers using TETRA as part of their day-to-day communications have a head start.

In this issue of TETRA Touch, we take a look at how TETRA can help those responsible for managing big events and ensuring their security.

Big, spectacular events draw huge crowds that demand large numbers of personnel to manage them. Security is a top priority for event organisers and although the Police will often make up a large proportion of the security force, there will also be many private security personnel in place, often supported by an army of volunteers.

TETRA proves its value

More and more event organisers are turning to TETRA to help them coordinate the efforts of all these people. Some recent events that used TETRA communications to ensure their smooth running include the Bahrain Formula 1 Grand Prix, the Neste Rally, the Tour de France and the Olympic Games in Athens – read about these successes inside this issue.

TETRA lets event organisers stay in touch. Bringing lots of people into a small area can easily cause major congestion in public communication networks. In such a situation, a TETRA network will be available when ordinary telephone networks – mobile or otherwise – cannot guarantee uninterrupted communications.

Short-term gains

Another big advantage of TETRA for event organisers is that it enables temporary talk groups to be set up easily. Security teams that only come together for an event and which are populated by a wide range of personnel, from professional security officers to eager volunteers, can have an effective communications system ‘built’ to their needs. Information can be shared effectively and instantly. Any radio user can reach other group members and the dispatcher with a voice call or data message. And with Nokia TETRA terminals being as familiar and easy to use as a mobile phone, even the most inexperienced radio user will need minimal training to be able to communicate like a pro.

All in all, with Nokia TETRA, temporary security teams can communicate as effectively and efficiently as any long-established permanent organization.

Big events have special needs that demand effective communications. Nokia TETRA is ready.

Matti Peltola
Senior Vice President
Professional Mobile Radio

Nokia TETRA radios made an impact in Athens

Since the middle of August, Nokia's TETRA THR880 radios have been a familiar sight on the streets of Athens, as the city played host to the world's most important sporting event. Police officers patrolling the streets and event venues have carried the radio on their shoulder attached to its active holder or on their belt, or simply held it in their hands, listening and reporting, asking and replying, ensuring that the traffic runs smoothly and general order is maintained in the city.

The presence of hundreds of thousands of athletes and other team members, event visitors, reporters and officials set the city's pulse racing to almost extreme levels and kept the local authorities busy and on their toes around the clock. The most important task for Greek authorities during the last two weeks in August was to secure the safety of visitors and residents and ensure the smooth running of competition events as well as regular life. Reliable, effective and easy to use communications technology was clearly of paramount importance. The TETRA technology, based on an open standard, has proved its superb quality in Athens. Feedback from the Greek capital also shows that interoperability has been implemented reliably in the Nokia terminals without compromising on user comfort.

The radio comes with a Greek user interface

In November 2003, Nokia was awarded an agreement for the delivery of more than 20,000 TETRA terminals to the Greek authorities. The agreement involved Nokia THR880 handportable radios and Nokia TMR880 mobile radios with accessories to be used by the police, fire departments, ambulances and other public safety personnel during the competition in August 2004 and also after the event by the public authorities' nationwide communications network. Some of the mobile radios used by the authorities have been connected to a positioning system, which enables the monitoring of vehicles fitted with these devices from command and control.

Customer feedback has been positive, thanks to Nokia terminals' ease of use and their numerous cutting-edge features. The radios' user interface with voice feedback, a keypad and screen texts in the Greek language allows the users, for example, to browse group lists on their radios or compose text messages in their own language. All this made TETRA easy to introduce and increased the system's operating reliability in the heat of the arrangements during the games in Athens.



The new Nokia THR880i radio knows its place

Nokia complements its TETRA terminal product range with a new hand portable model, the Nokia THR880i. The new product was introduced for the first time at the Safety and Security exhibition 1st – 3rd September in Tampere, Finland.

The new Nokia THR880i handportable radio combines a robust, easy-to-use TETRA radio with many of the latest advances in mobile devices. It follows the success of the Nokia THR880, the preferred choice of public safety professionals around the world. The sturdy construction, two-sided design and voice feedback have already proved their usefulness in actual field work. With integrated GPS receiver, new user interface and display and enhanced memory capacity the Nokia THR880i is ready adapt to new tasks, just as its users.

Advanced positioning

Incorporating a highly sensitive GPS receiver, the new Nokia THR880i radio allows TETRA command and control to locate and track radio users, such as emergency services personnel.

Thanks to the XHTML browser and the new display technology of the Nokia THR880i, the radio users can also view digital maps in full colour on the radio display and check their own or their colleagues' position shown on the map, using a compatible WAP application. Alternatively, the radio can be connected to a laptop PC to view its position on a compatible map application.

Showing the coordinates, altitude, speed and direction on the radio display belong to the standard features of the new terminal. Radio users can also send their coordinates to a predefined destination by pressing the red key of the radio – a feature that can significantly contribute to the users' safety.

New user interface and display

The display of the Nokia THR880i radio, public safety users benefit from the latest improvements on usability of mobile devices. Active display, 4-way arrow keys, XHTML browser, and new short-cuts to essential radio functions make accessing and capturing information quicker and easier.

The display of the THR880i can show 65,356 colours on the 130 x 130 pixel display, meaning that users can view colour pictures, graphics and XHTML and HTML pages even in varying light conditions. The Nokia THR880i also features shortcuts to most common operations: the user only needs to press one arrow key to view groups or folders, access list of status messages or start writing a text message.

The Nokia THR880i will be available in three frequency bands. Deliveries for the 380- and 410-MHz bands will start during the 4th quarter of 2004 and for the 800-MHz band during the first quarter of 2005.

NOKIA THR880i

- Integrated GPS receiver
- Active TFT display with 130 x130 pixels and 65,536 colors
- XHTML color browser
- Support for true color pictures, such as jpeg and png
- Two-sided design
- Voice feedback
- Water and dust resistant, protected against shocks
- Frequency bands:
380 - 400 MHz
410 - 430 MHz
806 - 870 MHz



Nokia TETRA out in front

Serving a thousand users, a Nokia TETRA system took on the challenge of the Bahrain Grand Prix. The system turned in a strong performance and proved a winner at one of the world's highest profile and most important sporting events.

Attracting 40,000 visitors and watched worldwide by 500 million people, the recent Gulf Air Bahrain Grand Prix was the largest ever sporting event in the Middle East, a high profile stage for Nokia TETRA to cover its first ever Formula One race.

The government of Bahrain was determined that the event, the first Grand Prix to be held in the Middle East, would go off without a hitch and had marshaled a wide range of people from a variety of agencies and organizations. With tasks and responsibilities ranging from the race organizer's functions to race control, involving track marshals, fire, recovery and medical teams, the communication challenge was a big one.

Such a diverse range of users demanded a communications network that could allow them to co-operate quickly and effectively. Nokia TETRA was the answer.

Demanding users

Nokia set up a network of eight TETRA carriers around the spectacular Bahrain International Circuit, with four more at two adjacent base station sites to provide a complete service during the race.

The circuit itself obviously needed full radio coverage, but capacity was also a major issue. At peak times, there were more than 1,000 TETRA users at the race track, from several independent organizations, each running their own tasks and needing communications at all times. Race management was also a large

user group, operating more than 400 terminals and a separate control room.

In addition, in order to co-operate fully, these separate organizations needed to communicate with each other. The Nokia TETRA system can handle this, maintaining privacy of communications yet providing co-operative talk groups to allow communication between agencies when needed.

In control with security

Providing security for the event was also a major undertaking. Formula One races are massive public events, a fact which alone causes many requirements for security. In addition, such a high-profile event held in the Middle East region was considered a potential terrorist target.

As well as providing coverage and capacity, the Nokia TETRA system also matched the event's stringent security requirements. The TETRA TEA3 encryption provided radio users with absolute security from eavesdropping, a huge improvement on regular Formula One races, where race control organizations use analog open channels without encryption.

Training made easy

Because some of the users would be operating a TETRA terminal for the first time, a training period was needed. This saw several

The communications solution for the race was provided by the Kingdom of Bahrain's nationwide TETRA network, which has been in operation since January 2003.

at Bahrain Grand Prix

hundred civilians trained to use the terminals in a short time, thanks to the simple and intuitive user interface employed by Nokia TETRA terminals. The design of the Nokia dispatcher workstation (DWS) also allowed staff in the race control room to familiarize themselves very quickly and take advantage of the many features that give a user all the critical information he needs.

Scanning essential for Command and Control

The scanning functionality provided by Nokia was considered essential for command and control functions during the race. Formula One race control must have instant access radio communications for race safety. The choice of network also had implications far beyond the race itself - with millions of people watching the sport on live TV, problems with communications could have had far reaching commercial consequences.

TETRA's voice quality and ability to cut out background noise was another important factor - Formula One racing is extremely noisy. The clarity of TETRA's voice communication when near F1 cars roaring at full throttle surprised and delighted everyone.

Overall, Nokia TETRA proved a total success for the race and the security effort, providing an uninterrupted service throughout the event.

Race Control had to have instant communications for race safety.



This article is based on an interview with Maj. Mansoor Al Hajeri.



Standards learning from each other

TETRA and the US Project 25 are based on some of the same concepts, yet the American standard has a lot to learn from its European cousin.

Europe and the USA are separated by more than just the width of the Atlantic – they also have a different approach to professional radio. Although the two major digital trunked system standards, TETRA and Project 25, were both created to support Public Safety and Security operations in the field, they have evolved very differently.

Project 25, otherwise known as P25, has been standardizing digital PMR for US customers for the last 15 years, with the objectives of spectrum efficiency, interoperability between agencies, backward compatibility and scalability. TETRA standardization started at around the same time and sought to achieve the same targets, with the exception of interoperability with older analog networks and terminals. Another difference was TETRA's intention of promoting interoperability between manufacturers. Looking back from today's viewpoint, it is interesting to review how these efforts have borne fruit.

As the first US digital standard, P25 phase 1 originally supported only conventional digital communications, followed by proprietary trunking protocols. It used 12.5 kHz FDMA voice channels, doubling the spectral efficiency of the analog 25 kHz systems. Since then, P25 has been working to achieve the spectral efficiency of the existing TETRA 6.25kHz per voice channel. After first trying with FDMA and later a TETRA-like 4-slot TDMA, the Air Interface definition for a 2 slot TDMA in the 12.5kHz channel is expected to be accepted this year, achieving the same spectral efficiency reached by TETRA in 1996-7.

P25 behind on interoperability

Interoperability between Public Safety networks is another key topic in P25 standardization. This is an especially important issue, as P25 networks are typically used in smaller regions and for single organizations, in marked contrast to the European countrywide shared multi-agency TETRA networks, such as Virve in Finland, ASTRID in Belgium, C2000 in the Netherlands, and Airwave in the United Kingdom.

Network interconnection requires a well-defined intersystem or inter-subsystem interface, such as the TETRA ISI. P25 has now completed this interface definition for basic functions. The related Interoperability Profile specifications with interoperability certification test plans and process still need to be established.

Experience has shown that the time taken to complete a complex multi-vendor interface like the ISI is an effort of many years - with the technical requirements for the corresponding P25 Inter-Subsystem Interface (ISSI) still under debate in the subcommittees, it can be seen that the TETRA ISI is several years ahead of the P25 ISSI. With TETRA, Nokia is ready to start interoperability testing - with the P25 ISSI, it's a matter of wait and see.

The TETRA standard was originally built to support both voice and data in the same network efficiently, as were the product implementations. On the other hand, the US tradition has emphasised separate networks for voice and data. While IP packet data has been used in

| In May 2004, TETRA had users in 65 countries. |





TETRA networks for a number of years, the first IP data pilots in P25 networks appear to have taken place only last year.

We can see other differences in the next evolutionary phase of data transmission standards. While the US groups specified a separate high speed data standard for use in the new 700 MHz wideband data channels, TETRA specified Multi-slot IP Packet Data in the same air interface as voice, and the coming TEDS wideband data is designed to be integrated in the same network as TETRA Release 1. For the European user community, it was clear from the beginning that high speed data and voice must co-exist.

Common standards for manufacturers

Interoperability between manufacturers has had greater emphasis in the development of TETRA from the beginning. Semi-proprietary product solutions have not gained ground in the TETRA market and practical interoperability was ensured by setting up a certification process that produces specifications (TETRA Interoperability Profile – TIP), detailed test plans, industry wide test sessions and official publicly available certificates.

As a result, open standard, open market, interoperable products and genuine competition form the strongest drivers of today's TETRA mar-

ket. P25 technology would probably need a certification regime independent of manufacturers for it to develop in the same direction.

The near future will no doubt see the P25 standard providing the capability for services that have been standardized in TETRA for years and which have already been implemented in TETRA systems by Nokia, Motorola and other TETRA manufacturers. If the initiative some years ago to include a 4-slot TDMA variant into the P25 phase standards 2 suite, in line with TETRA, had been successful, the gap between times to market would today be narrower.

Today, the US Homeland Security programmes are putting extensive effort and funds into improving the communications environment of first responders and law enforcement agencies, with "interoperability" often stated as a key objective of these investments - quite understandably. This situation will likely highlight the need for aligned functionality, accurately standard-compliant product implementations, accuracy in the functionality definitions in the standards, and a well-developed interoperability certification process.

Developing and implementing a cross-industry process for a technically complex task tends to take several years, but using the models of and experiences from the TETRA Interoperability certification process could help the US do things first time right.

Europe and the USA are separated by more than just the width of the Atlantic - they also have a different approach to professional radio.

TETRA keeps the wheels

Managing the Tour de France is a mammoth task. But with TETRA to help, the Belgian authorities made sure the spectacular race got off to a good start.

TETRA played a vital role this year during the early stages of one of the world's biggest and most famous sporting events, the Tour de France. The race attracted 1,200 journalists, 75 television channels broadcasting to 170 countries and an amazing 15 million spectators lining the roads. Managing an event on this scale clearly takes some doing, demanding the very best in communications.

Which is why public safety officials in Belgium decided they needed the efficiency and reliability of the country's ASTRID network based on TETRA. The three week race started in Liège in Belgium on 3rd July 2004 and spent four days winding through the Wallonia region before speeding into France.

Three Belgian cities, Charleroi, Mons and Namur, featuring in the race's early stages, used the ASTRID network to help provide the safety and security needed. The simplicity and efficiency of TETRA communications proved a big success.

A race against time

It was just five days before the race hit Namur that the local police officially introduced 292 new ASTRID terminals. Yet they were deployed on the network and in full use ready for the big day on 5th July.

How much of a challenge was this last minute deployment and how well did the equipment perform?

Chief Inspector Eric De Gent answers: "We did not have the least concern. Our force used the system during the Walloon Festival last September, but of course the Tour de France was quite another experience because of the number of persons involved. Everything went as planned; we were completely satisfied with the radios both in terms of performance and ease of use.

"Three talk groups were programmed into the radios: one for personnel patrolling the Tour, one for officers securing the royal visit and a third shared with the fire services. The users were delighted with the system".

The local police in Charleroi and Mons were also highly satisfied with their TETRA communications. When the Tour crossed the Flanders region on 6th July, Mr Eric Van der Linden, Chief Inspector of the local police in Geraardsbergen, witnessed faultless operation even during heavy traffic. "The Tour traverses around 20 km within the Geraardsbergen limits. We have used ASTRID for three years, and, of course, for the famous Tour of Flanders event. With such good experience from the Tour of Flanders, we were confident that the Tour de France would also be a success".

TETRA's more advanced capabilities are particularly useful for the motorcycle police. Scanning of several talk groups provides early notice of an incident. "With scanning, we can anticipate a need for assistance even before the actual request arrives. We just have to confirm that

turning

we are on the way and can save a considerable amount of time,” says Mr Olivier Maatlia of the Namur police motorised brigade. “For us, the SDS short messages are very interesting. On a bike, it is impossible to take notes. So, our headquarter can send us messages by SDS with the name of a person or an address for example.”

Red Cross support

But it was not just the police that benefited from ASTRID during the event. In Liège, ASTRID made available a dozen portable radios for the Red Cross. These were used as command tools by the organisation’s field staff and operational command.

“ASTRID is a really capable tool and the equipment is easy to use,” explains Mr Joël Reynen, who managed the Liège rescue zone. “We started using the radios without knowing what to expect from them. At the end of the first day, everyone was delighted”.

Meanwhile in Charleroi, nearly 20 portable TETRA terminals were used by ambulance crews at the rescue posts. “The initial goal was to back up our analogue network with the ASTRID network. Because of the quality of the coverage of ASTRID, we ended up using the ASTRID network as the working frequency,” says Mr Christian De Prijck, in charge of the Red Cross Hainaut-Est rescue zone in Charleroi.



Olivier Maatlia of the Namur police motorised brigade.



Tour de France - Namur police.

photo: Laurence Mossial - Police de Namur



Chief Inspector Eric De Gent



Private ambulance service opts for ASTRID

A Belgian ambulance company has become the first private organization to place its faith in ASTRID, the Belgian TETRA-based Public Safety network.

Secure, reliable communications that are both fast and save costs are the main attractions of TETRA technology for a private ambulance service in Belgium. All these benefits surfaced during the Van Damme private ambulance company's recent trial of the nationwide government-owned ASTRID network.

The company's owner, Alain Van Damme, conducted a trial of the Nokia TETRA based network in the Tournai area of western Belgium and liked what he saw: "Because we had problems with the reliability of our analog network, I first thought that public CB radio would be a solution, but, because privacy cannot be guaranteed with CB radio, I soon gave up that possibility and tried complementing the analog network with public cellular services", says Van Damme.

"Using the cellular phones, however, costs the company between 400 and 500 Euros per month. Switching over to the ASTRID system would easily reduce that cost and during the three week test, my GSM invoicing was reduced by 200 Euros.

"The ASTRID connection seems to offer only advantages for me. Besides the privacy from eavesdropping, the network is very reliable and the quality of voice is excellent. And the money I save can be invested in ambulance materials, not an unimportant benefit," Van Damme adds.

Reliable ASTRID improves efficiency

Van Damme found the ASTRID-network to be much better than the analog network that he currently uses. "For example, ASTRID works in elevators and basements. Also, ASTRID is highly available, unlike the public cellular network, where GSM calls may be interrupted or blocked at times, even though it does have 100 percent radio coverage," says Van Damme.

The test proved to ambulance drivers and to Van Damme just how quick a TETRA call connection could be. "I just have to press one key to be in contact with the driver of the ambulance. This feature



Alain Van Damme is looking forward to a permission to join the ASTRID-network permanently.

enables us to confirm to hospitals immediately that a requested service is available."

The capability to follow up calls in a very simple way enables Van Damme to manage tasks better and improve the quality of the work that his service provides.

Less stress

Another major point is the reduced stress - the mobile is not ringing all the time, and there is practically no waiting time for establishing a connection. "With the current network, we have to wait a long time for the drivers to acknowledge the call to service," says Van Damme. "Our cellular phones ring at least 40 times per day. This stress will be gone if we switch to using ASTRID. Thanks to the talk groups, I can get in touch with all my ambulance drivers at one time and get an immediate answer."

"After the test, we reluctantly had to go back to using our analog network", admits Van Damme. "We are looking forward to permission to join the ASTRID-network permanently, and I for one will dedicate my efforts to ensuring that we can become users as soon as possible."



The ASTRID management - contract stipulates that non-public organizations supplying a rescue or security service to the Belgian public are allowed to join the ASTRID public safety network. Non-subsidized companies such as private ambulance services, money transportation and security services can also apply for a permission to use the digital ASTRID network. The Belgian council of ministers has granted yet to grant its final approval in July.

Working for the police – a personal view

TETRA Touch interviews Mr. Hannu Suokas, a highly experienced Finnish police officer, to find out what impact TETRA communications has made on his force's daily work. Hannu also reveals some interesting thoughts about being a policeman.

With 23 years of police work behind him, Mr. Hannu Suokas knows well the pressures that today's police forces face and how their work has changed over the years.

"It's busier today, with more time spent on administrative tasks, says Hannu. "Work has become international with more foreigners living in Finland today than 20 years ago. Also, the work is more technical, thanks to the revolution in information technology. Yet the human aspect of the job has remained very much the same. Police officers must be aware of the law and its technicalities, but ultimately it's about people. Human relations make up a great deal of the job," he explains.

One of the most recent and important changes to the technology the Finnish police uses is the nationwide VIRVE communications network based on TETRA. In the Jyväskylä district, where Hannu works, the police have used VIRVE and Nokia THR880 hand portable radios since February this year. Over the past months, they have used the new network mainly for their own operations and for communication with the emergency rescue center.

At the same time, working models for co-operation between authorities have been developed, as the shared network enables seamless communication with fire departments, paramedic units as well as social and health care. This will fundamentally strengthen the authorities' ability to provide more effective and better organised operations.

Practical radios

Being responsible for planning and managing field operations in the Jyväskylä district, Hannu has a good overview of the police's use of the new TETRA radios. Furthermore, despite his administrative workload, Hannu finds time to gain hands-on experience during patrol.

So, how have the Nokia radios been received by the users? The short answer is very well indeed, says Hannu. "The audibility and coverage area have really good also indoors. The radios are like GSM phones to use and have many of the same features. It's quick and easy to learn how to use them. Users can also modify settings such as the display backlight, which is an added bonus."



The radio's flexibility in adapting to the demands of police work is a big benefit, believes Mr. Hannu Suokas of the Finnish Police.

This ease of use is something that Hannu stresses as being vital to the sensitive and pressured role of police officers. "We need a wide range of features in our radios, yet they must be easy to use even in stressful situations. The audibility must be good and loud, but on the other hand the user must be able to mute the radio immediately to prevent outsiders from hearing confidential information. The Nokia THR880 radios fulfill these requirements very well."

"In daily operation, our officers use 4-5 talk groups. When carrying the radio on their shoulder, they can easily toggle between the two recently used groups by a short press of the back key in the middle of the group selector without detaching or looking at the radio. By a longer key press they can get back to the home group. This is a very handy feature in the daily work. Voice feedback confirms their selection, which is very useful," says Hannu.

Hannu is clearly highly committed to his job and enjoys it. Yet, the work has some negative aspects too that make it feel sometimes rather futile. "We can prevent or sort out a problem such as vandalism or violence, but know we'll meet the same players and same problems again soon enough."

With the right tools, such as advanced TETRA radios, the police can be far more efficient in dealing with even the most difficult situations.

Busy rally weekend for Jyväskylä

Finland's WRC Neste Rally took place this year during the first weekend of August in Central Finland. The rally weekend meant extra work for Jyväskylä's police, with part of their staff fully engaged in rally-related tasks.

The rally brought significantly more traffic to the roads than during normal weekends. Therefore, extra police resources were needed for keeping the traffic moving, and avoiding jams by advising spectators and others on the move on the best routes, as well as helping the rally drivers travel from one special stage to another. Police also caught

some spectators who were so fascinated with the race that they wanted to try it themselves among the daily traffic.

In addition to the rally itself, the police also had to manage their normal duties, which were increased as the town was crowded by partying rally fans.

However, the police had everything under control and thanks to the VIRVE radio network, communication between the units involved – police, rescue and paramedics – was fast and fluent. Rather like the race of the winning driver Marcus Grönholm.

Peak performance in Argentina

A Nokia TETRA network for an Argentinean gold mine has become the highest TETRA network in the world, operating at an altitude of up to 4,600 meters.

The network for the Veladero gold mine, located in Argentina's San Juan province, is the first Nokia TETRA project in operation in Latin America and will cover the exploitation area in the Veladero mine and the road between the mine and Argentina's San Juan city.

Ordered by Minera Argentina Gold, S.A. (MAGSA), the Argentinian subsidiary of Barrick Gold Corporation, the network was supplied by OMNILOGIC Telecomunicaciones and includes one control and switching centre (DXT), eight base stations (TBS) with the corresponding radiant systems, and two work stations. One is used for dispatching for communications and technical management, and the other for automatic vehicle location (AVL); as well as the necessary interfaces to allow simultaneous communications between the TETRA system and the PSTN/PABX fixed networks. Mine workers will use the latest TETRA terminals – Nokia THR880 hand portables, and the Nokia TMR800 for vehicles.

“We chose Nokia's TETRA system because of its excellent functionality and features which bring value to our demanding subscribers,” says Jorge Galleguillos, Superintendent IT/CS of MAGSA. “TETRA holds the market-leading position in trunking systems, reflecting the system reliability required in large mining operations.”

Brazil goes digital with first system

Companies in Brazil's three major cities of Sao Paulo, Rio de Janeiro and Brasilia are now experiencing the benefits of the country's first TETRA system.

Professional mobile radio operator Telcom Telecomunicações do Brasil Ltda (Telcom) has chosen the Nokia TETRA system to service public service agencies, municipalities, traffic control, transportation services, public utilities, enterprises, oil and gas companies, and seaport authorities.

Already delivered and operational, the Nokia TETRA system comprises TETRA switching equipment, TETRA base stations, and a dispatcher workstation.

“With the implementation of TETRA digital technology in Brazil, Telcom is now prepared to offer new solutions to address increasing customer demands for more advanced voice and data applications,” says Mr. Jorge Brandão, General Manager of Telcom Telecomunicações do Brasil Ltda. “TETRA outperforms analog radio systems in many ways, greatly enhancing user experience.”

Says Alexandre Braha, Senior Account Manager, Nokia: “Providing our advanced Nokia TETRA system to Telcom will enable it to enter the digital professional mobile radio world with all its advantages.

“In addition, this contract clearly represents an opening of the TETRA market in Brazil, and a significant step for Nokia towards leadership in the market.”

Russian type approval comes in

Russian operators may soon be setting up Nokia TETRA networks in the 412 - 417 MHz and 422 - 427 MHz bands, following the granting of a conformity certificate to the Nokia TETRA system.

Awarded by the Russian Federation Ministry of Communications and Informatization, the certificate also grants the right to use Nokia TETRA in the public network, both as the PABX and as the Local Exchange. The certified Nokia TETRA system also meets the Lawful Interception requirements demanded by the national security organizations.

The work needed to achieve certification was undertaken by Nokia's Value Added Reseller, T-Helper, which acts as the system integrator for Nokia TETRA System in Russia and CIS countries. T-Helper has a wide network of dealers offering support, products and services.

“We will be happy to provide our Russian clients with modern telecommunications in the form of the Nokia TETRA System,” says Boris Bogdanoff, Senior Account Manager of Nokia PMR's Channel Sales department.

“Nokia TETRA is a fast and reliable system that will help Russian companies solve their professional radio communications problems, giving them a high level of security and confidence. The Nokia TETRA system could also be a reliable solution in the TETRARUS project.”

Nokia is continuing the certification process in other frequency bands, including 300 - 344 MHz.

Irish TETRA network helps Bush have happy landing

Visiting heads of state certainly pose a security challenge for the police force of the host nation and none more so than President George Bush when he visited the Republic of Ireland earlier this year.

As well as 6,000 police officers and soldiers, the Irish security forces also had another powerful ally – a Nokia supplied TETRA network that has been providing communications for the Dublin Gardai since early 2002. President Bush flew into Ireland for a short summit meeting with Irish premier Bertie Ahern in June this year. The TETRA network ensured that the security forces had one of the most advanced communications systems available to assist them in policing the visit.

The Gardai's TETRA network has been used operationally since it was rolled out, providing communications for Gardai in Dublin as well as other specialist groups in the Dublin Metropolitan Region. The network has employed several models of Nokia terminal, including the Nokia TMR400 mobile, THR420 hand portable, and recently the THR880 hand portable radio.

Four years in the making

The story starts in 2000, when the Gardai began looking for a digital radio system that would improve the security of its communications. The Gardai in Dublin made tests with equipment from a number of manufacturers, one of which was Nokia.

Encouraging initial results led the Gardai to run a full pilot project. In 2001, it evaluated several systems as the basis for the six month pilot, with the overall winner being the Nokia TETRA system. A rapid roll out saw the Dublin Gardai using the system only five months after the start of the project.

Following the pilot, the Gardai decided to take the system into full operational use, since when it has shown its reliability and security on many special occasions. These included the recent May Day parade - attracting some 200,000 spectators, the parade saw the addition of 250 new TETRA users to police the event, when again the Nokia supplied TETRA System had a major role to play.





How to choose a consultant

Companies are increasingly looking to consultancies to add a dash of extra expertise or knowledge to a project, or the extra resources to take the strain off their own staff. Organizations looking to improve their telecommunications are no different and several consultants offer services for TETRA related projects. Nokia TETRA Touch approached some of the major consulting companies to discover what advice they would give to customers looking to use a consultant.

The big issues

When considering employing a consultant, the first item on the potential customer's agenda is to get a clear idea of how and where the consultant can help. The better the task at hand is defined, the easier it will be for a consultant to deliver satisfactory results and, just as important, for the customer to evaluate the quality of the consultant's work.

Once the customer knows what he is looking for, he can switch his attention to investigating the track record of the candidate consultants in similar assignments. Their experience and skills in the area are crucial, bearing in mind that the needs and technologies of PMR and TETRA users are quite different from those of cellular consumers.

Remember also the practical, day to day implications of choosing a particular consultant: "Ask yourself, can I work with this person? You could be about to enter a lengthy relationship," says Peter Prater of Hyder Consulting.

Yet, an impressive track record, wide experience and good skills do not alone guarantee success. It is equally important to evaluate the human factors. Look at the person offered by the consultancy to do the job - how well do they fit in to the team and to the organizational culture? A consultant in many cases acts more like a catalyst, helping the customer achieve his set goals. Will the person offered fill this role?

Finally, when all the factors above are in place, make sure that the consultant is motivated to provide the best result - that he is truly independent.

When it pays to use a consultant

Generally, a consultant can be thought of as a gap filler, whether the gap is in skills, resources, experience or a need for a third party opinion.

One of the most crucial contributions a consultant can make is in the feasibility study phase, "the most important part of a PMR project," according to Seppo Seitsonen of JP-Epstar.

The success or failure in building the business case or conducting a feasibility study for a project – possibly including market research - determines the scope and a good deal of the outcome of the entire project. A good consultant with an understanding of cost estimation and budgetary requirements, in addition to technical knowledge, can help the customer make good decisions, ones that can have a huge impact on the future success of the project. Says Phil Godfrey of RCC: "A reputable consultant will provide his client with an independent and considered opinion. This can be used as a valuable input to the decision making process."

Another, almost equally important, stage is procurement, which is becoming ever more complicated. A consultant with a good knowledge of public procurement practices and the ability to prepare the technical requirements, as well as providing independent analysis and quality control of tender evaluation procedures, can help avoid accusations of bias from unsuccessful tenderers.

As Duncan Swan of Mason points out: "A non-stakeholder managing a project can gain the trust and respect of all parties."

It may also be very beneficial to use a consultant to look at the quality of delivered services, such as coverage or available functions, and compare them with the requirements stipulated in the contract.

Consultants can provide very good management and leadership skills in projects within their special expertise - yet if you hope to use one, you need to plan ahead and investigate potential consultants well in advance, as they usually have more than enough work on hand.

This article was compiled with the help of consultants Hyder Consulting, JP-Epstar, Mason and RCC.

A checklist

When choosing a consultant to help you in your TETRA project, make sure you follow these essential stages as a minimum:

1. Start the selection process early
2. Define the scope of the consultancy work required
3. Review the track record of prospective consultants
4. Is a good working relationship between the organizations possible?
5. Will the consultant's personnel fit in with your team?
6. Give the consultant the independence to do his job well
7. Measure the consultant's work against your project definition

Vital Chinese rail link uses TETRA

One of China's most important rail infrastructure projects, the Ningqi Railway, is using communications provided by a Nokia TETRA system. An impressive ceremony marked the new rail line's entry into service in April 2004.

The end-to-end TETRA network solution, which also included new Nokia THR880 handheld and TMR880 mobile terminals, as well as training and technical support, was completed in February 2004, just a few months after contracts were signed by Nokia and Ningqi railway Co Ltd in September 2004. Since it entered service in February, the Nokia TETRA network has played a key role in the dispatching and command communication system that has supported the construction and management of the Ningqi railway.

Fast and reliable

"We are pleased to provide our advanced TETRA system for the benefit of Ningqi Railway. Nokia's TETRA system is fast and reliable and will help Ningqi Railway handle its demanding communication needs safely, reliably, and comfortably," says Zhang Shaohong, Deputy Sales Director, Professional Mobile Radio Asia Pacific and Greater China, Nokia.

The Ningqi Railway runs between the cities of Nanjing and Qidong in Jiangsu province, which is one of the most prosperous provinces in China. It provides a trunk route along the Yangtze River from Nanjing, the capital of Jiangsu province, to the coastal area of the East China Sea neighbouring Shanghai – China's economic capital. The railway's completion is expected to accelerate economic development in east China.



Keeping operations on the

Much like an airliner's "black box" flight recorder, a new system for recording all multimedia communications taking place over a TETRA network is promising to improve accountability and forward planning for many public service organisations.

Being able to analyse incidents and uncover why an operation developed in a particular way is important for many emergency services.

Traceability is an increasingly important function for many emergency services. Being able to analyse incidents and uncover why an operation developed in a particular way is a crucial demand for many forces. So says NICE Systems, a developer of multimedia digital recording systems.

According to NICE, public accountability is becoming an overriding factor in the delivery of services and the need for authorities to keep accurate records of incidents and communications is often a legal requirement. Yet until recently, recording systems have been unable to capture all the voice and data messages from technologically advanced systems, such as TETRA networks.

The answer, NICE believes, lies in Digital Multimedia Recording technology and the company has launched its DMRs recording platform which records directly from the TETRA switch. The system offers the ability to record all communications and associated data including SDS messages, from all radios, all talk groups and all zones.

Easy to find recordings

Not only is the system claimed to be able to capture 100% of communications, but it also organizes the way that recordings are processed and stored according to preset parameters. This means that operators need only access a single call database to locate and recover radio traffic and re-run whole-event sequences, as they happen.



record

Retrieval and analysis of captured information is simplified by a function called Scenario Replay™. Scenario Replay can provide information and evidence quickly for digital trunk radio environments using an advanced graphical timeline view of calls, with simple filters offering customized views by radio I.D, user name, talk group, location, as well as additional status information on radio emergency calls.

Using voice and data enables precise incident investigation; as scenarios can be reconstructed quickly. The DMRs acts as a search, rescue and replay tool which allows users to locate recordings in a matter of seconds from archive sources. The benefit of these high-speed data channels are that they allow interference-free voice, data and image transmission and extensive radio coverage across essential areas for emergency operations. For the Police, DMRs have profound implications for their ability to scrutinise large-scale disorder and even to ascertain the identity of a suspect from an e-fit image.

A part of the whole

NICE Systems has also recognised the need for total integration of its system into the control room environment, including CAD, command and control, call switching and routing, MIS and databases. Its seamless platform allows third parties to choose the way that they use total recording to suit their own needs.

Additionally, recordings can be distributed electronically to multiple sites from a single source, which is an effective delivery process. This information can then be used to turn post-event recordings into a proactive resource to help develop and plan future operations.

Interoperability between different vendor's terminals and networks is also catered for by the system. As NICE puts it: "DMRs enables flexible interoperability between geographically and operationally diverse sets of users. This is a prime factor for public sector organisations when looking at installing recording systems."

The market for such systems is wide – NICE is aiming its DMR system at TETRA operators such as police forces, ambulance services, fire & rescue, underground rail operators, mass rapid transit operators and others.

A member of TWISP, Nokia's TETRA wireless application developer program, NICE Systems also offers third party client training on Nokia's recording, playback and analysis systems.

→ www.nice.com **NICE**

Hungarian trial proves early success

A Nokia TETRA system is proving an early success in a trial in Hungary for the Budapest Fire Department. Encouraging levels of SDS use, a smooth connection to the fire department's existing analogue system and the effectiveness of GPS-enabled TETRA terminals in fire engines are all signs of the system's usefulness.

Equipment and services for the trial have been supplied by Nokia and Sepura, and Antenna Hungaria (Hungarian Broadcasting and Telecommunications Company) supports the success of the trial operation by running the application center and giving core assistance to the users.

The trial has been implemented by Nokia, Nokia, Antenna Hungaria, Sepura and BHG-Com, with Nokia also installing one base station in the Buda hills to provide coverage.



Nokia TETRA goes underground in Paris

Personnel working on the famous Paris Metro are to use a Nokia TETRA system for their daily communications following the award of a network modernisation contract. The new private mobile radio network will provide mobile voice and data connectivity for more than 10,000 staff, including conductors, maintenance crews and security personnel.

The Parisian public transport agency (RATP) awarded the contract to Alcatel, which will deploy Nokia TETRA equipment to cover Paris' extensive Metro, express line and bus system. The project is due for completion in 2007 and will improve the efficiency, continuity of services and security of the transport system.

The TETRA network will comprise six Nokia TETRA switches and about 500 TETRA base stations, as well as operator consoles developed by Alcatel using Nokia's open interfaces, and Alcatel's mass transit-specific applications.

"TETRA as an open standard brings the benefit of competition in the market place. We are glad to have been able to provide the most suitable solution for RATP and Alcatel," says Hans Holmberg, Vice President, TETRA Sales and Marketing, Nokia. "RATP users will be certain to benefit from the many secure solutions in our TETRA system".



© RATP - Mauboussin Jean François

Better communications for French motorways

Nokia TETRA has broken into a new market with an agreement with a French motorway operator.

French holiday makers heading out of Paris and towards Lyons and the Alps should find the journey a little less stressful thanks to a new agreement to sell Nokia TETRA to a French motorway builder and operator.

SAPRR (Société des Autoroutes Paris-Rhin-Rhône), has a license to construct a network of more than 2000 kilometers of motorways and road works, including the prestigious Paris-Lyon motorway.

As well as the construction of motorways, SAPRR also operates them, ensuring a free flow of traffic and providing security and services to more than 18 million travelers a year.

To ensure it can provide the best possible services to its motorway users, SAPRR has decided to replace its analog PMR systems with a digital Nokia TETRA system.

Special motorway needs

Olivier Sauquet, Solution Manager from Nokia says: "Should everything go wrong, due to a natural disaster for instance, the radio communication system must remain up and running. It is a key element in allowing SAPRR to safeguard its users. The Nokia TETRA system is designed for just this kind of challenge."

To cover those 2000 kilometers of motorway, SAPRR needs a secure system that will enable it to provide reliable, high-quality PMR services over a large area. In addition, the system must enable a smooth integration of special motorway applications. Nokia TETRA System meets these needs exactly and is being supplied along with Nokia TETRA Neat, a package especially designed for transport companies and utilities.

The Nokia TETRA system is already partly in operational use by the company's security personnel, who need to have their own communication system, independent of commercial services. These staff, who make up around 11 % of the company's total personnel, are responsible for safety and security on the motorways, including handling traffic accidents and natural disasters. Administrative and technical personnel will also benefit from TETRA's advantages, such as group communication and security features.

When the system is fully operational, motorway drivers will know that, whatever their journey throws at them – congestion, accidents or extreme weather – someone will always know what is going on and can be there to help.

Using data in the field just got easier

A new Nokia system allows TETRA users to harness the power of the Internet while out and about to access a vast amount of online content.

Increasingly worried about crime, the public often bemoans the lack of a “police presence” on their streets. What is keeping police officers off the beat and away from the public eye?

Surprisingly, one of the reasons is officers’ increasing need for information - yet, until recently, the only way to access vital data was by asking for it over the radio, returning to a station or carrying another device specifically designed to access data. This cuts down the amount of time that officers can spend out on the streets doing their job.

And it is not just the police force. Many of today’s emergency services personnel are using ever increasing amounts of data. As well as higher volumes, this data is increasing in its usefulness, as well as the level of support it gives employees.

E-mail, calendar schedules, intranets and web based information sources have become as vital to public bodies as they have to the world’s leading banks. Information flow is critical to cases being followed up and new initiatives being communicated - it is also important for providing access to criminal records and other national records databases.

Information to go

Access to this wealth of information has now been greatly improved, with a system that allows Nokia TETRA handset users to access huge amounts of data on the move. One of several Nokia products supporting business mobility, Nokia One Business Server is a mobile e-mail solution that allows governments to select combinations of devices, delivery options and deployment methods to meet the requirements of their public service authorities.

Nokia One Business Server provides a link between mobile devices and original source content. Using Nokia technology, e-mail, attachments, embedded live intranet and Internet links, calendars, contacts, tasks and notes can be accessed quickly and in a format perfectly suited for the screen size of any device.

Sitting on a purpose built security platform, the Nokia EM6600, the business server is deployed in-house, allowing the IT department to maintain control over mobile applications. Installed behind the organization’s firewall, it can be deployed in just a few hours and complements existing security infrastructure, desktop applications, and mobile devices currently used. Licensed employees simply select a secure URL and they’re mobile.

Usable worldwide

The system can be used by organizations in many different countries as it has downloadable documentation in all the major European and Asian languages, including English, French, German, Spanish, Chinese, Japanese, Korean and more. Several languages can be supported from one server.

As well as usability, security is also given a high priority. Organizations can continue to use all their existing network security protection. As well as arranging access privileges to reflect the structure of the organization, administrators can allow content to be retained on devices or alternatively choose not to allow it.

The system also supports strong encryption for connections to TETRA mobile devices as well as online e-mail access with common authentication methods and client certificates, including RADIUS, LDAP, NT Domains, Microsoft Active Directory 2000, Kerberos, NIS, and SecurID.

A sensible investment

Because it can provide access to the organization’s resources from any TETRA device with a browser and data service, public safety authorities can make the most of their investment in databases. Another advantage is that no new devices are required – the system is compatible with the organization’s existing TETRA devices.

Convenient web-based administration and control allows the user organization to specify permissions for groups and/or individuals, create batched user accounts, upgrade software easily and log and report usage.

Designed for high reliability, the EM6600 is also supported by a global network of technical support centers, as well as a comprehensive spares stock and on site service support.

Build your TETRA know-how

Instant knowledge: Tetra Touch zeroes in on some useful and interesting facts about TETRA in general and Nokia TETRA systems in particular. Spend a few minutes reading this section to build your TETRA know-how.

Do you know...

...the benefits of Nokia TETRA's seamless operation?

In a seamless network the user organisation need not bother about the physical structure of the network when planning its operations or co-operative processes. And with a Virtual Private Network (VPN) an organisation's users experience the network as if it were dedicated to their use.

Organizations sharing a TETRA network may have very different operational areas. For example, a rescue organization may serve an entire city and its suburbs, while in the same area, there are several police sub-organisations. When communication services are seamless, each organisation can plan its operational areas to best suit its purposes, such as according to city limits or areas of population, instead of the location of TETRA switches or base stations.

Do you know...

...how clear TETRA voice communications can be?

Many users new to TETRA are often surprised by how clearly they can hear their colleagues over their terminal. The reason is that TETRA networks are digital – they convert the analogue voice into a digital format. Not only is digital clearer than crackly old analogue systems, but it is also possible to filter out background noise. No matter how noisy the environment, such as a police motorcycle in heavy traffic with its siren blaring, the user's voice will be clearly heard over the radio.

TETRA's voice clarity was put to perhaps the ultimate background noise test this year when the Flemish Red Cross borrowed some ASTRID radio equipment for use during a rave party. "In spite of the din on the dance floor, we could use the handheld radios even without an earpiece," radio users said.

Do you know...

...what the maximum number of users is in a regular group call in Nokia TETRA?

A question often asked is how many people could be reached with a single group call via a TETRA network. Well, if all the users in an organisation were programmed into one talk group, it would be possible to select that talk group, press the push-to-talk key and talk to them all. The Nokia TETRA system has no limit on the talk group size.

To make an important announcement, a person with sufficient rights would also be able to make a pre-emptive call to a big talk group. Such a call would be heard at everyone's terminal, even if they were engaged in another, lower priority call at the time.

Furthermore, because Nokia TETRA radio terminals and dispatcher stations can send SDS (text) messages to a talk group, it is possible to pass an important message to every terminal in the system.

Do you know...

...how easy it is to manage rights in Nokia TETRA?

In Nokia TETRA, a radio user's rights do not depend on the mobile terminal number, which gives organisations more flexibility in defining their numbering schemes. If a terminal user needs more extensive rights, an authorised dispatcher can grant the rights permanently if necessary, without changing the user's terminal number.

Do you know...

...that Nokia TETRA Terminals talk your language?

Today, the Nokia THR880 and TMR880 TETRA terminals support a wide choice of user interface languages: English, French, German, Dutch, Spanish, Italian, Greek, Arabic, Swedish, Finnish, Catalan, Bulgarian, Chinese simplified and Chinese traditional.

Once selected, the language is used for the text on the terminal display as well as for voice feedback, which guides the user in talk group selection and activation of the Fast Menu functions.



TETRA MoU News

Brainstorming the TETRA MoU and IOP testing

After two days of intense discussion at their annual workshop in Brussels, the TETRA MoU board and more than 30 representatives from MoU Members organizations came up with over 50 ideas for developing the association and the TETRA World Congress. So successful was the meeting that, without exception, participants supported the proposal to repeat the workshop in 2005.

Immediately after the TETRA MoU Members Workshop, the traditional TF-OUA joint meeting gathered to discuss the focus areas for TETRA interoperability work for the coming year. On the positive side it was recognized that the vast majority of TETRA functionality has a TETRA Interoperability Profile (TIP) specification. However, the community is late with IOP test plans. The main focus now is to achieve IOP certification capability with the existing specifications.

Additionally, work is needed to renew the appearance of IOP certificates as well as the testing and certification process. The main goal is to provide

TETRA users with easier to understand and more accurate information about the abilities and functions of IOP-tested TETRA products.

Nokia completes IOP testing

Meanwhile, Nokia TETRA System Release 4.0 was officially tested for IOP certification at the end of June.

This latest Nokia TETRA System introduces many new features for IOP testing, helping to enrich the open TETRA standard and give greater freedom of choice. The two most essential features are support for pre-emptive priority call and seamless handover - also known as type 1 handover.

"Once again features are first introduced by Nokia and immediately included as part of TETRA interoperability," says Janne Nohkola, Nokia TETRA IOP testing manager. "It is a matter of honour for us to ensure our products are interoperable."

The new IOP certificates are expected to be awarded by the TETRA MoU testing and certification body ISCTI during autumn 2004.



Belgian Federal Police to use Nokia terminals

The Belgian Federal Police has awarded AEG Belgium a contract for the delivery of TETRA terminals from Nokia. The deal, the biggest-ever terminal contract for the ASTRID public safety network, involves the delivery of a significant number of Nokia THR880 hand portable radios to various operational units of the Belgian national police force.

The majority of the terminals are intended for judicial police forces in the provinces of Oost-Vlaanderen, Antwerp, Hainaut, and the city of Brussels. The contract also includes the delivery of large quantity of car kits and their installation in federal police force vehicles.

The order follows an intensive evaluation process by the federal police, after which the Nokia THR880 was found to be the terminal that best met the operational needs of the force.

The Belgian Federal Police Force has around 12,500 staff and collaborates extensively with local police forces around the country. The federal force is responsible for coordinating both specialized missions and those that cover a broader area than any one local force can handle.

The deal strengthens the position of Nokia TETRA terminals in Belgium, where Nokia is a market leader. More than 50 federal, provincial, and local police forces and fire brigades are already equipped with Nokia terminals.

AEG Belgium is Nokia's value-added distributor of TETRA terminals in Belgium. In addition to sales, the company provides after-sales services such as installation and maintenance.



Put yourself on the TETRA map

TETRA World Congress 2004

22-25 November 2004

Austria Center, Vienna

In professional mobile radio communications, it's vital to stay informed of the latest developments. The most important event of the year for TETRA is on the horizon – the TETRA World Congress 2004. And it's here that you can see what the fast-developing world of TETRA has to offer.

Unmissable TETRA event

The TETRA World Congress is simply the world's biggest TETRA event. With TETRA going from strength to strength, this year's theme of realizing the business benefits of TETRA makes the event even more vital.

Be our guest

Nokia invites you to attend the TETRA World Congress. As our guest you will qualify for the fast track registration process, saving you time. And as an existing Nokia partner or customer, you are entitled to a 25% discount. Plus, if you are already a TETRA user, you can claim user discounts – see the registration form.

The answers you need

At the event, you can learn from the experiences of more than 100 presenters, and at the Nokia stand, you will see how we can meet the demands of users. Come and see why organizations regard us as their preferred TETRA partner.

Plan ahead, stay ahead

Why not register today? Simply fill in and return the registration form at www.nokia.com/twc

And see how Nokia can answer your needs.

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