TETRA NEWS

INFORMATION FROM THE TETRA MOU GROUP • WWW.TETRAMOU.COM 2 / 2004

TETRA World Congress 2004

Austria Center, Vienna, 22 – 25 November 2004

The dates and venue have now been confirmed for this year's TETRA World Congress. Still in Vienna, the confirmed date has moved one week later than originally advertised and the event will now be held in the prestigious Austria Center, close to the sites and amenities of this wonderful city on the banks of the River Danube. As always, the World Congress is the world's largest TETRA conference and exhibition. It will be the key meeting place for TETRA users, manufacturers, network operators, application developers and systems integrators.

Call for papers

Submissions for presentation topics are welcomed from all interested parties. Priority will be given to user presentations and case studies of operational systems. Provisional themes for this year's event include:

TETRA Growth & Development – Expanding TETRA deployment, usage and functionality

- Benefits of TETRA for users
- Operational experiences
- Innovative TETRA applications
- New markets for TETRA
- Customisation and scalability of TETRA
- TETRA Release 2

Potential speakers are invited to submit abstracts of up to 300 words for review and selection by the TETRA World Congress Planning Committee. This can be done via the congress website at **www.iir-tetra.com** or by email to **tdavies@iir-conferences.com**. The closing date for submissions is Friday May 7th.

Picture supplied courtesy of Austria Center, Vienna

Sweden choose TETRA for their nationwide radio network

A consortium, led by Saab and including Nokia and Swedia, has won a contract from the Swedish government to build a professional mobile radio network for the shared use of all Swedish public safety organizations. The consortium will provide and operate a single nationwide TETRA-based network that will replace the large number of separate systems currently in use by the Swedish authorities. Sweden is Europe's third largest country. When completed, Nokia say the network should be the largest shared TETRA public safety network yet.

The Swedish government has allocated some 250 million Euros for the 'Radio communication for effective public safety' project (known by its Swedish acronym RAKEL). Nokia will provide its complete TETRA system, Saab will carry out the system integration and Swedia will provide system maintenance.

University Research Highlights the Strengths of TETRA over GSM

One of the top two downloads from the MoU's website at the moment is a research based thesis by Simon Riesen from the Helsinki University of Technology. The thesis looks at the 'usage of mainstream technologies for Public Safety and Security (PSS) networks'. It compares the performance of two ETSI-standardized technologies, TETRA and GSM with ASCI functionalities, focussing particularly on group call related aspects. For PSS network users, group call is probably the most significant operational and performance requirement.

Economic as well as technical analyses

The technical analysis of the thesis concentrates on the air interface specifications and points out whether certain functionalities are supported or not. Capacity requirements have been calculated based on a typical user profile and a countrywide network for Germany. The economic analysis takes into account the network's capital and operating expenses and the technology risk of each solution. In the case of GSM, theoretically the

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University Research Highlights the Strengths of TETRA over GSM, continued from page 1

services could be offered based on an existing network platform and, therefore, major savings in the network costs could be expected. However, in practice this is not the situation as there are many more factors to take into account.

TETRA judged to be the best solution

Taking into account the results of the research, the thesis concludes that TETRA appears to clearly have better performance, not only on a technical but also on an economic level. The main reasons for this conclusion are the non-existence of shifting area group calls, long call set-up times and the relatively small cell sizes for GSM. The combination of these restrictions result in significantly higher network capacity requirements for GSM compared to similar TETRA solutions. The additional capacities have a direct impact on the network costs. Currently, the TETRA standard offers the most economic and reliable group call services for customers with unpredictable mobility patterns like PSS users.

The thesis, available in English and German, can be downloaded from **www.tetramou.com** by going to the Market page of the TETRA FACTS section.

Is it too easy to make the wrong decision?

Emergency services anywhere in the world are the ones who are called upon to respond to incidents and help restore normality at times of crisis or disaster. Interoperable TETRA communications helped save lives and deliver efficient emergency response at recent, dreadful incidents in Spain and in Finland. The public safety communication systems were praised by their users who benefited from group communications with instant, secure access and with the flexibility to include other work teams and services into their operations as dictated by events on the ground.

Could another technology have provided the same level of service? This edition of TETRA News has articles reviewing independent analyses that have again highlighted the deficiencies of cellular based solution for emergency services; lack of proper group call facilities, slow call set-up, low level security are just some of the issues identified. Evidence from one of the recent appalling disasters showed that the cellular network simply couldn't cope because it was overwhelmed with calls. Alongside this communication failure, the TETRA solution performed without fault. What would it have been like if the emergency services were using the cellular system instead?

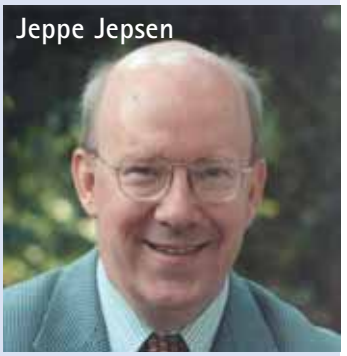
Germany's lead on interoperability

Interoperability on dedicated networks was first recognized by Germany back in 1976, when the government passed a law mandating common technology on common spectrum. The TETRA MoU congratulates the German Ministry of Interior in its continued efforts to implement inter-agency and cross-border Emergency Services communications. Germany has since been the unrivalled leader in Europe for interoperability of Public Protection and Disaster Relief (PPDR) Communications.

The need for interoperable communication systems was recognised in the Schengen Treaty as a cross-border communication tool when the internal borders were abolished. Since then, field trials have been conducted in the border area between the Netherlands, Belgium and Germany. The Steering Group for these trials again saw Germany in a lead role – taking the role as Chairman of the work.

The cost of compliance

The European Community has recently recognized the need for effective inter-agency and cross border communication between its security agencies in its report 'Research for a Secure Europe'. With public funds limited, the best balance between performance and investment comes from choosing a genuinely multi-vendor supported open standard. It ensures competitive economic solutions and gives peace of mind to users that they have more than one source of supply.


Jeppe Jepsen

Whatever the source, the interoperability of terminals working on common spectrum means that providing support across borders is not fraught with technical or operational barriers.

For those countries that are still in the process of defining their chosen solutions for national emergency service networks, I hope that the efficient response to disasters by TETRA users will point decision makers and regulators in a direction that avoids a disastrous response to their national public safety communication needs.

Jeppe Jepsen – Vice Chair, TETRA Association


Dr Ferenc Valter – President, Hungarian TETRA Forum

Hungary starts its own TETRA Forum

This new local focus group formed in Hungary aims to help the flow of information to interested parties, to grow the interest in TETRA and to accelerate its use. The founding President of the Forum, Dr Ferenc Valter was eager to move forward in his new role; "The Hungarian TETRA Forum has been formed to help promote the benefits of TETRA to professional radio users and regulators throughout Hungary. I am very pleased to be the first President of this new Forum and I am looking forward to seeing TETRA grow in Hungary."

Next MoU Board Meeting to be held in Hungary

The MoU's own Board will hold its next Board Meeting in Budapest in June. It is anticipated that some Board Members will then stay on to support the first public activity of the Hungarian Forum – a TETRA seminar for potential users, regulators and commercial organisations in Hungary. When finalised, dates will be posted in the Events Diary on the Association's website.

✱ New Contracts Review

Contract growth continues around the world for TETRA. Here is a selection of new contracts.

South Africa – Peacekeeping forces from South Africa are using TETRA on active service. The OTE TETRA 380-400 MHz Transportable single site system ordered in January is now in use by SANF for their peacekeeping mission in the Congo.

Lebanon – The Lebanon Interior Security Forces have ordered more of OTE's award-winning new TETRA hand-portable, the PUMA T3. Operating on an OTE TETRA Infrastructure, they will be in use in the first half of 2004.

Norway – The Norwegian Army has selected Sepura's SRP2000 handportable terminal as part of a new TETRA battlefield system.

France – Through sales partners Delta Communications, Motorola has announced its first contract for a TETRA system in France for the international petroleum company, ELF. Niros' ATEX i.s. portables and Motorola's MTM800 mobiles will be used on the system.

Slovenia – More good news for OTE was the contract in December 2003 by the Slovenian Ministry of Interior for additional equipment to extend the existing infrastructure for their national TETRA network.

Russia – The national Russian Electricity Company, FSK EES, has awarded OTE a contract for a 410-430 MHz TETRA system. For deployment in the Middle Volga regions, the first phase will be delivered during the first half 2005.

Russia – The Sakhalin Island petrochemical complex has placed a contract with Motorola to supply a TETRA system.

Azerbaijan – Motorola has been chosen to provide the first TETRA network for the Caucasus and Central Asia regions, which will be operational by the end of 2004. The network will be used by the Special State Protection Service.

Turkmenistan – Motorola has won a contract to supply TETRA systems to petrochemical production facilities in the region.

UK – Sepura's latest TETRA terminal, the SRP2000 sGPS handportable with integral GPS module has been chosen by Staffordshire Police for use by their officers on the Airwave network.

UK – Kent, Norfolk and Northamptonshire Police Forces have chosen Motorola's newest TETRA terminal, the MTH800, which features colour display and integral GPS.

Ireland – Sigma Wireless has been awarded a contract to supply the Garda (the Irish Police) with Motorola portable & mobile radios.

Isle of Man TETRA system handed-over ahead of time

The Hon Phil Braidwood (right), the Isle of Man's Minister for Home Affairs, accepted his new TETRA system from Motorola's VP, Carlos Sartorius in March 2004. The Minister said, "The introduction of the new TETRA system together with the implementation of our new Emergency Services Joint Control Room form the key elements of the Government's strategic policy in respect of communications."

Nokia provides a TETRA network to Ningqi Railway in China

Nokia has been chosen to provide Ningqi Railway Co., Ltd. with a digital TETRA network for its new rail line between the cities of Nanjing and Qidong in Jiangsu province. In conjunction with the Shanghai Railway Communication Equipment Factory, the system integrator for the project, they will jointly construct the TETRA network and provide applications for the end user.

Mr. Miu Weizhong, Head of Shanghai Railway Communication Equipment Factory, commented that Nokia's TETRA Network has the innovative mobile communication functions that meet the needs of railway operators. Deliveries have already started and the entire network will be put into operation in June 2004.

TETRA helps to save lives again!

The Finnish public safety network, Virve, faced one of its biggest challenges in the most serious road accident in Finnish history, in Konginkangas, Central Finland. A heavy truck and a bus crashed early in the morning of Friday, 19 March 2004. As a result 23 people were killed and 16 injured, many of them severely. The TETRA network, supplied by Nokia, showed its worth in this tragic accident.

According to local reporters, the operation of Virve speeded up the rescue work significantly. All the different authorities involved could use the same communications network to maintain contact, both within the rescue teams, and also between the agencies, thus helping coordination.

Temporary talk groups improved response

One of the special features of the network is the possibility to establish temporary talk groups to address different tasks. In Konginkangas, a talk group was established to let the doctors in the field communicate with patient transport as necessary so the situation was in control at all times. Additionally, the forces in the field could keep the Jyväskylä central hospital up to date with the situation so they were ready to receive the first casualties who arrived within half an hour of the incident.

Antwerp's TETRA network is officially handed over at the ASTRID Users' Day

An audience of nearly 900 from a wide range of Belgium's Public Safety services attended the handover ceremony in March for the newest section of the ASTRID TETRA network, the section supporting the province of Antwerp. The wide range of public and private user organisations at the event was a perfect example of the benefits of a shared communications solution in practice. Guests from Luxemburg, The Netherlands, England, Germany, Denmark and Finland also attended.

For the population of the Antwerp region and the many commercial organisations based there, ASTRID's efficient and reliable communications are vital. It helps with the protection of a city and region that has one of the largest harbours in Europe, is the world's second largest petrochemical centre and is Belgium's most industrialised area.

Practical demonstrations of inter-Province communications

After the official handover, the wide area power of the TETRA network was demonstrated with calls between users in different provinces of Belgium. Phil Godfrey attended the ceremony on behalf of the TETRA MoU and presented an up-to-date vision of TETRA's worldwide success as well as an insight in to the way in which its data power is harnessed with specific applications.

In the afternoon, a series of workshops for delegates covered medical applications, paging, location services, data services and dispatching. These were supported by representatives from the TETRA product and services manufacturers. Visitors also heard first hand reports of successful user experiences on ASTRID from Police and Fire Chiefs from several Belgian regions.

Latin American market development activities –

TETRA Association at Telexpo 2004

As part of the ETSI @LIS Programme to promote the uptake and exchange of technologies between Europe and Latin America, the TETRA MoU was flying the TETRA flag in March at one of the premier international conferences for Southern and Latin America – Telexpo 2004.

A high proportion of large telecommunications equipment manufacturers, service providers and potential users have their Latin American head offices in Sao Paulo, the city hosting the event. This, along with the overall stature of the event meant that Telexpo 2004 was a large, well attended event. There were many visitors to the TETRA MoU Association stand who showed great interest in TETRA as a possible solution for their organisations.

ADDRESSING THE WHOLE LATIN AMERICA MARKET

The number of non-Brazilian, South American visitors to the Association's stand represented the quality of the visitor base. With such a good profile at the event, it represented an excellent opportunity to address the whole Latin American market which is economically very large. The largest professional segments are public safety, military and transportation. It also represented a real opportunity for the EC/ETSI to provide an impact on a market traditionally dominated by North American suppliers.

The Madrid tragedy

In the aftermath of disaster, communications are the key to efficient response

Wherever there is a major human disaster, our thoughts go out to the families of those who have died or been injured and our thanks go to those Emergency Service personnel who respond so selflessly. For those who take the responsibility to plan for these responses to terrorism or natural disasters, it is a comfort that their vision and confidence in the TETRA technology platform for a public safety communications network to help the response has been shown to be a wise decision.

Following the terrorist attack in Madrid in March, Mr. Javier Quiroga, SAMUR (Madrid Municipality Medical Services) Operations Director, explained on Spanish TV the critical role played by their TETRA communication system. He observed that, unlike the cellular network which did not handle the situation due to a communications overload, the TETRA system worked very well.

The system, supplied by Motorola, handled over 180,000 calls by the Police and Ambulance services during the first day of the rescue operation. Mr Quiroga further stated that it was clear to their public safety organisations that they needed a dedicated, secure private communication network in order to deal with life threatening situations, day in day out. The recent attacks by terrorists have re-enforced this belief and Mr Quiroga said he was pleased that they made the right decision back in 2001 and had chosen TETRA.

German visibility of TETRA stays high at CeBIT

TETRA was clearly on view to visitors to Germany's largest annual technology fair, CeBIT, held in March of 2004. Visitors saw TETRA widely promoted by a number of manufacturers including DeTeWe, Nokia, Motorola, R&S Bick Mobilfunk, Sigma Wireless and Teltronic. The fair always attracts international visitors, but most significantly, a large number of representatives from German public safety organisations were able to see that TETRA is the only technology capable of fulfilling their operational needs and providing genuine choice in a multivendor market.

Technology, innovation and applications on show

A variety of applications demonstrated the rich and varied capabilities and benefits of TETRA for the users. New portable and mobile terminals with colour displays were on show from a number of manufacturers. Live demonstrations included colour image transmission, Bluetooth connectivity, location applications, task management and dispatching and much more. In the field of TETRA network technology several new base station solutions were presented including portable TETRA base stations and one manufacturer's solution that, according to them, should significantly increase the handheld coverage in a system.

Meeting the requirements of the BSI

The German security organisation Bundesamt für Sicherheit in der Informationstechnologie (BSI) stated that TETRA is a technology that can fulfil the German security requirements, including end-to-end encryption. So, not only can TETRA deliver the practical benefits to German users, it can do so whilst maintaining the security they need as well.

TETRA advances in China

With so much potential, China represents one of the largest growth markets for TETRA. Nokia has reported some big wins in the region.

Beijing municipal government contract may be the largest yet

Nokia (China) Investment Co., Ltd. and Beijing Just Top Network Communications Company Limited have signed a major contract for delivery of portable and mobile TETRA terminals for the Beijing Government Shared TETRA Network. According to Nokia, it is the biggest TETRA terminal contract ever awarded in China.

Deliveries have started during the first quarter of 2004. Beijing's municipal government departments and the Beijing police will be the primary users on the network. The first construction phase has been completed covering the entire Beijing metropolitan area, nearby key counties and major parts of the main highways. It will be put to use in the first half of 2004, serving as many as 50,000 subscribers.

TETRA on track for Chinese transportation

The Shenzhen Metro Co., Ltd. has started

the acceptance of TETRA equipment from Nokia following the award of a contract for a system to serve the Shenzhen Metro train network, which carries four million commuters a year in the Shenzhen Special Economic Area.

TETRA terminology explained

The two terms **interoperability** and **interworking** are frequently used in the description of technical compatibility between communications systems. The following definitions of these terms may be helpful when evaluating technical performance capabilities of different systems or defining operational requirements.

Interworking describes the connection of two or more networks of **different technologies** to system-specific terminals. The user can only use his terminal within the radio coverage of his network, but can communicate with users of other networks via a network connection. This technical solution is generally applied for interconnection between different technologies including migration from analogue to digital radio systems.

Interoperability describes the capability of radio terminals to operate on a variety of networks of the **same technology** so that all the necessary functions can be made available to users in each different network. Operationally, this is similar to roaming. Networks connected to each other function like a single, overall network comprised of various parts. The practical benefit of this means that a police officer from one country can continue using his radio terminal in a neighbouring country without interruption. He can communicate with his own control room and his colleagues as well as with the control room and his colleagues in a neighbouring country.

Nanjing Metro chooses Nokia for TETRA roll-out

Nokia has been selected as the sole supplier of a digital TETRA professional mobile radio system for Nanjing Metro Corporation in Jiangsu province, China. The Nokia system will provide TETRA voice and data service to staff operating Nanjing Metro's urban rail system, which serves the city of Nanjing's six million inhabitants.

Growing choice demonstrated by latest test certificates

Interoperability testing (IOP certification testing) for TETRA terminals and infrastructures is fundamental to the multi-vendor market for TETRA. For users, this practical process of certification is one of the most significant confidence factors for them as evidence of the benefit of an open standard in action.

Live tests between TETRA terminals and TETRA infrastructures are carried out by ISCTI, the independent Italian State Radiocommunications Laboratory responsible for IOP performance evaluations. Products passing the tests are awarded an Interoperability Certificate as evidence of the product meeting the TIP (TETRA Interoperability Profile) standards for interoperability.

Over 30 certificates published in January and February

Thanks to the extensive multi-vendor support for TETRA and the rate at which innovative new TETRA terminals are being developed, more and more TIP certificates are being issued. Following the latest series of technical tests, over thirty have been published so far in 2004. Certificates can be downloaded from the Association's website via the Interoperability page of the TETRA Facts section from the home page at **www.tetramou.com**.

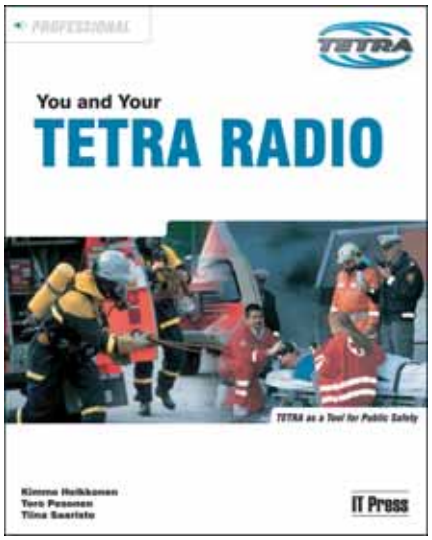
German Bluelight Services in Hamburg have a special Digital Day

Very much focussed on the future implementation of the Digital PMR for the German Bluelight Services, the 10th Hamburger Kommunikationstag was well attended by visitors from local and national police, security and emergency service organisations. Organised by BESCom Elektronik GmbH, the event attracted various international manufacturers and system integrators as exhibitors and speakers who were eager to collect up-to-date information about PMR and, specifically, TETRA.

Complicated situation

Guenter Krebs, head of the Hamburg-based BOS-Project Group, explained the situation of the German BOS communication network for the Hamburg area pointing out the various complicated and time consuming steps which are necessary due to the federal structure of the organisations involved.

The next steps in Germany will be the signing of a frame agreement between the government and the federal states to enable the establishment of groups such as steering committees and project management teams. Presently the Ministry of the Interior and their consultants are working on the development of tender documents which will be published this year



You and Your TETRA Radio

TETRA as a tool for Public Safety and how to make the most of your TETRA radio terminal

An enterprising group of Finns with a wealth of knowledge and experience of TETRA have cooperated to produce a new book that, according to them, is an answer to a loud cry from public safety professionals for a straightforward, down-to-earth explanation of TETRA technology and what it offers to its users. The book provides a comprehensive guide to using a TETRA radio terminal and not only focuses on features already in use in TETRA networks, but also introduces upcoming features for both networks and terminals.

The joint authors Kimmo Heikkonen, Tiina Saaristo and Tero Pesonen have an extensive background in TETRA and the telecommunications industry. For more information about the book, contact the publishers at **www.itpress.biz.**

UK TETRA Industry Group publishes 'TETRA Base Stations and Safety' leaflet

As part of the continuous process of educating and informing users, a new leaflet is being published by the TETRA Industry Group (TIG) which looks at the Health and Safety debate concerning TETRA Base Stations. The leaflet covers a variety of topics including the operational need for base stations and the process behind network planning as well as listing a host of relevant information sources for those wishing to know more.

Helping people understand the facts

Base station signalling processes is one of the common misunderstandings corrected by the leaflet. It points out that TETRA base stations emit a continuous signal at either 400 or 800 MHz (400 or 800 million cycles per second), depending on the part of the world in which they are used. They do not pulse as some people have claimed, and this has been confirmed by the recent report by AGNIR (Advisory Group on Non Ionising Radiation).

The leaflet is in English and is expected to be published by early May 2004. MoU Association Members will automatically receive copies when published. Non members may obtain a copy by contacting the MoU Secretariat by email at secretary@tetramou.com.

South African Police choose TETRA for their new network

Alcom Systems has been awarded the South African Police Service (SAPS) tender for the supply, delivery, installation, commissioning and testing of a complete Digital Terrestrial Trunked Radio (TETRA) communications network system for Gauteng. According to Alcom, this is the largest radio communications contract ever awarded on the African continent, is valued in excess of 500 million Rand (just over €62 million) and will be allocated over the three year period of the roll-out.

Alcom works extensively with Motorola in South Africa and will be installing Motorola's state-of-the-art Dimetra TETRA system for SAPS. They successfully installed the first TETRA public safety system in Africa – a Motorola TETRA system for the City of Cape Town.

RUPA article highlights the strengths of TETRA for shared systems

The Italian government technical body working on the global communications network for Public Administrations in the country has compared a range of digital technology options in two 'families' – trunked professional radio and GSM based services for government, municipal and commercial users who need to upgrade their communications. It says 'upgrades are necessary to manage (maintain and update) the networks and the now obsolete technological solutions which do not meet the growing requirements of the users'.

The article published in its technical magazine refers to the benefits of TETRA solutions that are installed or planned for several Italian regions including Emilia Romagna and the Piemonte region. It points out that thanks to the rationalisation processes of a single network, there is a significant opportunity to reduce the number of antenna sites (from 500 to approximately 80 in one example).

TETRA addresses the special needs of public safety

The GSM/GPRS/UMTS family of technologies is defined as addressing a mass market, whilst trunked professional radio such as TETRA addresses the 'more restricted market with very particular and stringent requirements, guaranteeing communications where GSM/GPRS/UMTS turns out to be inadequate.'

Yet again, the shortcomings of cellular based solution for public safety are identified as the article says 'It is necessary to again emphasise that the needs characterising private networks are not to date being matched by the conditions being determined in public networks both from the point of view of the scale of cells and due to the inadequacy of these systems in making group calls.'

Motorola's TETRA terminals now support the Chinese and Korean languages

Norway's TETRA Forum hold national TETRA seminar near Oslo's Gardermoen airport - one of the TETRA's earliest users

With interest in TETRA high and the signs positive from government sources, approximately 140 visitors attended the recent Forum's Norwegian seminar. Opening remarks from the Chair of the Forum were followed by a variety of presentations including a view from the TETRA Association's Vice Chair, Jeppe Jepsen.

The parliamentary representative Einar Holstad was very positive and anticipated that the government would give a 'green light' to the next stage by August. Thor Helge Lyngstøl, project team leader in the Justice Department, indicated that a requirements' specification would be announced this year.

Users impatient for a solution

Following successful trials in Norway last year, there is an ever growing interest fuelled by progress reports from national TETRA solutions from elsewhere in the Nordic region and Europe. Lasse Hermansen and Bjørn Egeli, representatives from the Norwegian user groups, made it very clear that the time for waiting is over, they need it NOW! This desire was also heightened by the expectation of news from Sweden. The anticipation was fully justified as a few weeks later, on April 1st, Sweden announced its decision to implement a nationwide TETRA network.

News from the Secretariat

The Association is delighted to welcome three new members since the last issue of TETRA News

- Team Telecommunications Limited (UK)
- City of Helsinki Rescue (Finland)
- TETRA Forum Hungary (Hungary)

There are a growing number of TETRA related conferences and exhibitions where the Association will be represented. Please keep an eye on the Events page of the website which you can access via the MoU section of the site.

Website changes and improvements

We have recently made a number of changes which have substantially improved the speed of access to the pages. Please update your 'Favourites' file in your browser to ensure you have the latest URL's for the improved operation. The website continues to be a very popular source of TETRA information, with 16,000 visitors in January and February.

TETRA Events Diary 2004

Event	Date	Venue	Information
BAPCO Conference & Exhibition	21 – 22 April	The Design Centre, Islington, London	www.bapco.co.uk
TETRA Networks 2004	28 – 30 April	Strand Palace Hotel, London	www.iir-tetra.com
Building a Unified Mobile Radio TETRA-Standard Network	29 April	Moscow	http://ccc.ru/tetrarus/indexeng.html
TETRA MoU Association Middle East Workshop	18 May	Intercontinental Hotel, Dubai	www.tetramou.com/events
All Russian TETRA Conference & Exhibition	4 – 6 October	Moscow	www.tetraforum.ru
7th TETRA World Congress	22 – 25 November	The Austria Center Vienna, Austria	www.iir-tetra.com

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