

Editorial

Dear Readers,
We wish you a Happy and Successful New Year 2011!
At LS telcom we are looking ahead with the usual confidence and are pleased to announce the latest developments:
Last year we took some significant steps forward in the implementation of highly integrated and automated spectrum management and monitoring systems. The integration of these systems, online frequency assignment and e-payment have brought increases in efficiency as never before. But our confidence is not only based on major contracts in this area. We are also proud to announce the release of our new transmission network planning software CHIRplus_FX. The application is based on latest software architecture and includes sophisticated engineering methods and technology. It should revolutionise the planning process of transmission networks.
Finally, the next **LS Summit** will take place on Wednesday, **6th of July 2011!** We look forward to welcoming you at this event to present you the latest novelties!
In the meantime we hope you enjoy reading this edition of **SPECTRUM!**



Roland Götz, Dr. Manfred Leberz, Dr. Georg Schöne
Members of the Board

Latest

Telecommunications Regulatory Authority (TRA) of the Sultanate of Oman orders a SPECTRA Enterprise System Solution for their Frequency Management

On 19th October the Telecommunications Regulatory Authority (TRA) of the Sultanate of Oman has signed a major contract with OHI, LS telcom's local partner in Oman, to replace its existing spectrum management system.

The deal includes the delivery of software and hardware in addition to a five-year maintenance contract. The SPECTRA Enterprise system from LS telcom, which will be installed at the authority of the Sultanate of Oman, is one of the most modern spectrum management systems in the world in providing online services.

To be continued on page 2...



LS telcom to provide an Integrated Spectrum Management and Monitoring System to the Kingdom of Bahrain

The Telecommunications Regulatory Authority (TRA) of the Kingdom of Bahrain has signed a contract for around 9.2 million US Dollars for the supply and 5-year maintenance of a fully integrated and automated spectrum management and monitoring solution from LS telcom.

At the heart of the contract, LS telcom will not only provide its spectrum management system SPECTRA Enterprise, but will also replace the nationwide civil monitoring system with new system technology.

Antennas, cable connections, receivers and software will be upgraded at several sites. Part of the delivery is also a measurement vehicle, the installation of a new monitoring system at the monitoring headquarters and several portable monitoring units for indoor measurements, as well as inspection equipment to ensure systems are installed and configured in



compliance with licence conditions. For parts of the monitoring system LS telcom will be partnering with Rohde & Schwarz.

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The automated software solution allows for greatest efficiency and transparency in the licence application process. All licence requests and most of the frequency assignments can be made online. Frequencies are checked immediately upon the online data entry of the licence request. Licence attribution periods are thus reduced to a minimum. Licence amendments and cancellations can be carried out just as quickly.

“We chose to work with LS telcom as we believe that their spectrum management solution and their professionalism are the best fit to support the TRA in its mission to be the most efficient and effective organisation in Oman, enabling the provision of world-class telecommunications services to



all”, explained Yousuf al Belushi, Head of Spectrum Management at the TRA, with obvious delight. Seamless integration and data exchange is guaranteed between the different administrative and technical system components as well as remote and third party software systems. The superior system design offers unprecedented flexibility to the TRA of Oman.

“This contract is a further excellent reference for us in the Middle East. At the same time it shows the progressiveness and willingness in Arab countries to automate administrative processes and services”, states Dr. Manfred Leberherz, CEO of LS telcom, visibly pleased. “We are very optimistic that this contract will generate more business for us in the region.” ←

LS telcom plans TETRA Network for Saudi Aramco (Saudi Arabian Oil Company)

LS telcom plans the TETRA network for Saudi Aramco in the Eastern Provinces of Saudi Arabia on behalf of Sumitomo Corporation. During the planning, particular attention is paid to assure continuous network coverage at operational sites, including refineries, administrative sites, on- and offshore oil-production sites and along pipelines.



Photo: Photocase

The existing analogue network will be replaced by a highly available and secure TETRA network.

The complete project, which is managed by the Japanese Company Sumitomo Coporation, includes the planning, design, installation and launch of the new network, as well as the migration from the existing analogue network to the newly designed TETRA network. The indoor coverage of operational sites and tunnel systems, data transmission and special requirements for end-user terminals are another focus of the project.

The first phase of the project involves the determination of planning objectives and specifications, the coordination of planning parameters and the definition of outdoor and indoor coverage goals.

The network is then planned step by step going through different design reviews until the network design is finalised.

Based on this final network design the sites and necessary infrastructure are prepared in the second project phase. The base stations and repeaters are constructed and put into operation. Finally more than 7.600 end-user terminals are connected to the new TETRA network.

A peculiarity for radio network planners is the network design in Shaybah, one of the world's major crude oil and gas producing regions. It is situated in the South East of Saudi Arabia and borders on the United Arab Emirates (UAE). The whole region is made up of solidified desert and sand dunes. The production sites are located 70 metres above sea level in salt flats, so-called „Sabkhas“ forming along arid coastlines. They are all surrounded by dunes which are between 180 and 200 metres high. 95 % of network coverage for this area will now be provided by base stations and outdoor repeaters. Several drive tests at an outdoor temperature of 50 degrees Celsius were necessary in order to guarantee meticulous network planning. Shaybah

is one of the hottest desert areas in Saudi Arabia.

Saudi Aramco is a state-owned oil company of the Kingdom of Saudi Arabia. The Saudi Aramco story began in May

1933 with signing a concession agreement between the government of Saudi Arabia and the Standard Oil Company of California (Socal). The company was then owned by four American oil-producing companies. The company name was changed to Arabian American Oil Company (Aramco) in 1944. Between 1973 and 1980, the Saudi Arabian government acquired an economic interest in Aramco's operations in stages. In 1980, essentially all of Aramco's assets were transferred to the government. In 2000 Saudi Aramco was declared for the eleventh time the largest crude oil production company in the world by the trade journal Petroleum Intelligence Weekly. ←



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“Following a rigorous review of tenders from a number of suppliers, TRA determined that LS telcom was the organisation most capable of supporting TRA to realise its vision of a modern and efficient integrated spectrum management and monitoring system. The system will greatly enhance the level of service and responsiveness of the spectrum management and monitoring function in Bahrain and as well enhance the effi-

ciency of spectrum use which in turn will support the realisation of Bahrain’s 2030 vision for economic development of the Kingdom”, remarked Dr. Mohammed Al Amer, Acting General Director and Chairman of the Board, at TRA.

The technology to be implemented is one of the most advanced technologies available on the market. The seamless interface between the licensing and monitoring systems will allow TRA and the Directorate of Wireless Licensing, Frequency and Monitoring (DWLF&M) to compare radio frequency survey results in real-time with information stored in the SPECTRA Enterprise system. This

enables a rapid response to unlicensed use of spectrum and to inference complaints, thus maintaining the value of radio spectrum and quality of service for spectrum users. Further, the SPECTRA Enterprise solution to be installed includes a comprehensive web-based service for efficient and interactive licence application processing.

“This deal reinforces our leadership position and confirms our reputation of being able to integrate sophisticated systems supporting complex workflows and maximising efficiency in spectrum management and monitoring”, stated Dr. Manfred Leberherz, CEO of LS telcom. ←



New Department 'System Integration' at LS telcom

A new business unit 'system integration' has been created at LS telcom.

Hardware, software and other system components have to be coordinated and adjusted to guarantee a secured system environment and maximum combined operational efficiency of spectrum management and radio monitoring systems.

The system integration team of LS telcom, headed by Michael Braun, covers the complete system life cycle and assists customers in system design and development, production, installation, operation,

maintenance and support, and system modernisation.

Spectrum management and monitoring systems are very complex and have to be customised to fit the customer’s needs best. Perfect integration of these systems is vital to always have real time measurement data available for optimal spectrum management, licence attribution and calculations.

The new System Integration team at LS telcom consists of experts dedicated to integrating monitoring vehicles and fixed and portable sta-

tions with spectrum management to assure smooth operation and data flow between the different system components.

Michael Braun has over 28 years of international experience in the detection, measurement and analysis of radio signals as well as in civil and military monitoring systems. Prior to joining LS telcom in February 2010, he worked in monitoring at Rohde & Schwarz for 12 years. ←



TETRA-Coverage in Buildings and Tunnel Systems

In order to guarantee consistent communication everywhere and at all times at the premises of Saudi Aramco (also see article page 2 on the left-hand side), a great number of buildings and tunnel systems have to be equipped with TETRA indoor-systems.

Indoor coverage objectives are already taken into account when the overall outdoor network is planned. This way indoor coverage for many of the buildings can be provided through the initial outdoor network infrastructure.

However, outdoor network infrastructure quickly meets the limits when it comes to the indoor coverage needs of explosion-proof buildings, bunker- and tunnel systems. These structures often have to be equipped with repeater systems to ensure seamless indoor

communication.

Whether additional indoor infrastructure for a certain site is necessary is determined during the overall outdoor network planning and is based on computer simulations and measurements. Possible interferences or repercussions of indoor radio communication on the overall outdoor network are analysed at the same time. The complete planning, dimensioning and implementation of indoor systems are realised by experts of LS telcom. ←



Photo: Photocase

Successful Installation of Spectrum Management System in Macedonia

The Macedonian Regulatory Authority AEC (Agency of Electronic Communication) in Skopje signed the final acceptance for the procurement of the spectrum management system supplied by LS telcom.

The scope of delivery included the complete SPECTRA Professional System with an additional interface to monitoring systems as well as CHIRplus_BC for digital broadcast planning and coordination. The administrative and technical spectrum

management including the charging of fees and billing is now entirely based on integrated processes and workflows. LS telcom also provided extensive training around the software. ←

Costa Rican Regulator acquires CHIRplus_FX

The recently established new Regulator in Costa Rica, SUTEL, has awarded LS telcom a contract for the delivery of LS telcom’s software solution for planning and coordinating fixed wireless service networks, CHIRplus_FX, including related data migration and training/support services. The project has been successfully delivered and completed in November 2010 in cooperation with LS telcom’s local partner EBIS. ←

Visit us at
our Booth.....

TETRA Association Congress Abu Dhabi, UAE

25th January 2011
Stand 15

ABU Digital Broadcasting Symposium 2011 Kuala Lumpur, Malaysia

9th - 11th March 2011
Stand 20

TETRA World Congress Budapest, Hungary

24th - 27th May 2011
Stand C102

A softcopy of the complete
Training Calendar can be
downloaded from our website:
www.LStelcom.com



Training Calendar
July 2010-December 2011

LS/telcom



Alternatively you may contact
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for further information on our
seminars or for our customised
training programmes

The Telecommunications Authority of the United Arab Emirates implements E-Payment

The Telecommunications Authority of the United Arab Emirates (TRA) is the first LS telcom customer who has implemented an e-payment portal with its spectrum management solution SPECTRA Enterprise.

LS telcom integrated the Etisalat Payment Gateway (EPG) for credit-card based online payments. This included the development of the user interface for the solution and the integration of the portal into the workflows of the

SPECTRA Enterprise solution. The licence applicant is now able to fill in the licence request in SPECTRAweb and immediately pay the licence online by credit card. The Etisalat Payment Gateway guarantees real-time authorisation of payment transactions from Visa, MasterCard and American Express. The licence is attributed upon payment and verification through a TRA administrator. ←

Upcoming Training Courses and Seminars

Spectrum Management

Spectrum Monitoring Measurements Training Week
22nd-23th March 2011
(Spectrum Monitoring Measurements & Techniques)
24th-25th March 2011 (Practical Spectrum Monitoring Measurements)

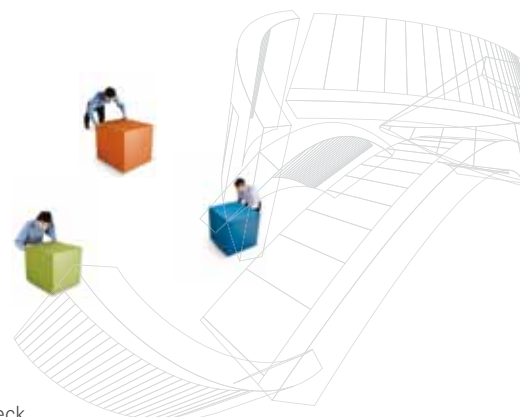
Measurements of Human Exposure to RF Electromagnetic fields
4th-6th April 2011

Mobile & Microwave

PMR/TETRA Training Week
28th-29th March 2011
(PMR - Professional Mobile Radio)
30th March - 1st April 2011
(Radio Network Planning for PMR/TETRA Networks)

Broadcast

DVB-T2 - 2nd Generation Digital Video Broadcast
12th-13th April 2011



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