LS telcom SPECTRUM

LS telcom

Summer 2005

LS telcom customer news magazine

Conference Program LS Summit 2005

09:00 – 09:30
Welcome and Introduction to the LS Summit 2005
Dr.-Ing. Manfred Lebherz, Dr.-Ing. Georg Schöne, Roland Götz

09:30 – 10:00
Reconciling Spectrum Pricing with Government Revenue Desires
Richard Womersley, InterConnect Communications Ltd., United Kingdom

10:00 – 10:30
Software Defined Radio – Modern Spectrum Management – Cognitive Radio: New Directions in Communications
Dr.-Ing. Holger Jäkel, Institut für Nachrichtentechnik, University of Karlsruhe, Germany

10:30 – 11:00 **Coffee Break**

11:00 – 11:30
Mobile TV over UMTS and DVB-H
Dr.-Ing. Alfred Baier, Vodafone D2 GmbH, Germany

11:30 – 12:00
Radio Planning of Hybrid DVB-H/UMTS Networks
Prof. Dr.-Ing. Thomas Kürner, Institut für Nachrichtentechnik, University of Braunschweig, Germany

12:00 – 13:30 **Lunch Break**

13:30 – 14:00
3G Rollout: Vision, Challenge and Solutions
Bernard Breton, Marconi Wireless, Canada

14:00 – 14:30
Planning Future Heterogenous Wireless Networks
Dr.-Ing. Xuemin Huang, LS telcom AG, Lichtenau, Germany

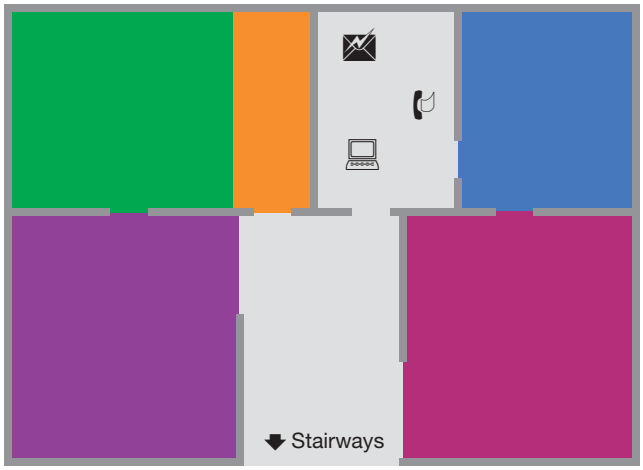
14:30 – 15:00 **Coffee Break**

15:00 – 15:30
The Implementation of HDTV in European Digital TV Environment
Stefan Wallner, Harris Broadcast Europe, Austria

15:30 – 16:00
Vegetation Effects of Broadband Propagation
Joseph Bae, Radio Research Laboratory, Ministry of Information & Communication, Korea

16:00 **End of Official Conference Program**

Exhibiton Categories



Dear Readers,

This issue of our customers magazine SPECTRUM is completely focused on our already 10th LS Summit which is taking place at our headquarter in Lichtenau, on 8th June. As you would see in the conference program also this year we managed to win reputable speakers for our international conference.

At the exhibition (see floorplan on this page) taking place at the same time our guests have the opportunity to experience firsthand how our software solutions can make their daily work easier. In addition they could thorougly discuss their current needs with our consultants.

But also for those of you who cannot visit our LS Summit this SPECTRUM offers a lot of information from the world of telecommunication and Spectrum Management. We invite you to read our reports about the latest trends and developments all around our product range and services.

R. Götz, M. Lebherz, G. Schöne
Board of Directors

LS summit 2005
10th Annual Seminar Day

DRM - a further step into the digital broadcast future

Since its official inauguration during WRC03, Digital Radio Mondial (DRM) is gaining more and more importance in the general switchover process from analog to digital broadcasting.

With the upcoming release 4.4.0, **CHIRplus_BC** offers extended support for planning of DRM networks in the long and medium wave bands. This includes MFN as well as SFN configurations while modelling the relevant propagation mechanisms for this frequency bands. Depending on the selected DRM mode and channel model, the software will suggest the minimum required field strength and automatically apply the relevant protection ratios according to ITU-R BS 1615 recommendation. The guard intervals for the different robustness modes are based on the ETSI specification for the DRM system. Several locking mechanisms and synchronisation strategies have been implemented, looking only at the ground wave signal, only at the sky-wave signal or considering both propagation modes simultaneously. The additional delay time introduced by the sky-wave is modelled by simulating an E-layer reflection, where the height of the E-layer is adjustable by the user. For the ground-wave propagation, a curve based version of the ground-wave model has been added that allows much faster calculations even when using Millington's approach for mixed conductivity paths. For the coordination of DRM transmitters within the GE75 plan, the 'Rules of procedure' can be applied where simplified protection ratios are defined for the compatibility calculations between analog and digital stations.

New RRC06 planning module for CHIRplus_BC

To support its customers during the intersessional period of RRC04/06, **CHIRplus_BC** now offers a sophisticated allotment planning module which allows to make compatibility calculations between the digital requirements of different countries or even within a certain country. The module includes all the reference networks and reception conditions as given in the Report of the first session for the various DVB-T and T-DAB network configurations. Graphical tools for creation or modification of allotment areas furthermore complete the set of tools that make **CHIRplus_BC** the best broadcast planning software available on the market.

Vodafone selects LS telcom for DVB-H study

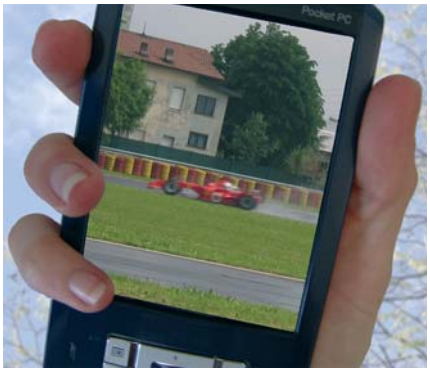
LS telcom carried out a DVB-H concept study for world-wide largest mobile operator Vodafone. For the DVB-H network planning and coverage predictions, the LS telcom broadcast specialists used **CHIRplus_BC**, the state of the art broadcast planning and coordination tool, which already fulfils the new DVB-H planning requirements.

DVB-H - Mobile Broadcast Convergence

The often conjured convergence between broadcast and mobile radio as well as the multi mediality of mobile terminals is to become true by introducing DVB-H.

The multi medial contents of the broadband one-to-many system broadcast and the possibility of interactivity of the one-to-one principle of mobile radio offer completely new combined services. LS telcom is already prepared for DVB-H and besides consultancy, corresponding feasibility studies and network planning, a new seminar "DVB-H – Mobile Broadcast Convergence" is now available at the LS telcom Training Calendar.

By numerous studies and workshops regarding the introduction of DVB-T on the one hand as well as many projects in the mobile business on the other hand, LS telcom has already combined the two worlds of Broadcast and Mobile.



This unique constellation makes it possible to develop interesting solutions, allowing our clients to be up to date at any time according to our motto "tomorrows communication designed today".

Wireless Broadband with WiMAX Technology

Also the private sector tends to wideband data connections. Besides a cable bound connection with DSL there are more and more wireless systems planned. Aside from Wireless LAN (WiFi) which is basically used for coverage inside of buildings WiMAX is more and more in the public eye.

WiMAX systems are based on the standard IEEE 802.16 and can be used for wireless bridging of the last mile between the end customer and the network of the internet provider. For this purpose the teminal positions at the customer communicate by radio with a central base station. Compared to the microwave link no tightly installed roof antennas are needed; the antennas built-in in the customer terminals enable an easy plug and play installation by the user himself.

Owing to the adaptive transmission technology it is, however, possible to obtain sufficiently large coverage areas in order to facilitate an economical use of the technology.

To make use of WiMAX systems in the best possible way radio technical planning is necessary by means of which the coverage areas of the individual base stations are determined and coordinated with each other.

LS telcom provides a broad spectrum of planning and consultancy services for WiMAX networks, like business case verifications, network design and vendor selection. **MULTIlink,** our fixed network planning tool, offers the funcitionality to plan WiMAX networks and to optimize them regarding their coverage areas and their capacity.

LS telcom supplies Spectrum Management System for the Regulating Authority of Madagascar

In Madagascar, LS telcom is currently installing a National Spectrum Management System at the OMERT (Office Malagasy d'Etudes et de Régulation des Télécommunications). The project is split up in two phases. The first phase includes a Spectrum Management System allowing to fulfill all technical and administrative Spectrum management tasks including a central database. In addition, monitoring equipment for the National Control Centre, two fixed and one mobile station will be supplied by the leading company ROHDE & SCHWARZ, Munich. The project includes installation, adaptation and training in Madagascar.

With this project LS telcom and Rhode & Schwarz further strengthen their position in French speaking Africa.

SPECTRA3000: Productivity First

The market leading tool in Spectrum Management systems, LS telcom's **SPECTRAplus** solution has been totally revised during the past twelve months. Committed to customers' satisfaction and highest productivity, the LS SPECTRA team has migrated the complete administrative ERP shell to ORACLE 10g, bringing full Java flexibility to the GUI. As a result, WEB-enabling for intranet solutions or via secure VPN tunnels is easily possible. Also the GUI now allows for much more enhanced XP like look-and-feel, reducing the integration effort of new staff.

Based on the unbreakable ORACLE 10g technology, SPECTRA3000 allows for dramatically reduced deployment time, especially in large-scale systems. Important for LINUX environments: With this new step, database and administrative solution are capable of working in all operation system platforms, where ORACLE can be operated.

Being based on more than 10 years of experience within over 40 Spectrum Management projects, SPECTRA3000 forms heart and backbone of LS telcom's comprehensive solutions for civilian, military and private spectrum regulators.

Wizard technology now available in most LS tools

Two years ago, the famous **CHIRplus_BC**, LS telcom's high-end system for all kinds of analog and digital BC/FM/AM Network planning and coordination was the first to introduce a complete programming environment for the end user. With scripts and a train mode, wizards for simplifying the monotonous daily work can be created on a finger press.

Today, based on input from users, this meanwhile mature concept has been optimized. As a first platform for the refurbished Wizard solution, the cross service solution **SPECTRAemc** has been selected. Based on a modern XML script editor, comprehensive-programming sequences can be compiled to a wizard macro easily start-able even by youngsters.

This technology enhances dramatically the productivity of an organization, as key personal may set up standard procedures to be used by less qualified clerks or run automatically in the background. Given that about 60% of the daily work is of a repetitive kind, efficiency can be enlarged extremely while the error rate can drop in parallel. Check it out, boost your efficiency!

Training Center News

Principles of Radio Spectrum Management
(20 to 24 June 2005 - 5 days)

This training gives an overview of the tasks and goals of a Regulatory Authority. Solutions will be shown to carry out workflows in accordance with the standards of the ITU. Another topic is the international coordination with foreign countries and the notification of the different services. How to handle the ITU software, the radio regulations and recommendations will be explained in detail. An introduction in spectrum planning and frequency management will be discussed as well as the radio services and their types of operation.

Technical Issues of Radio Spectrum Management
(25 to 29 July 2005 - 5 days)

This training gives an overview of the possibilities and difficulties of wireless communication. Starting with the basics of wave propagation and the different kinds of modulation up to the electromagnetic compatibility, the seminar will reflect the transmission technology. Different services in the different frequency ranges, interference calculations and technical possibilities to avoid harmful interferences will complete this subject. Finally the attendees will get basic knowledge about radio monitoring and spectrum scanning techniques.

WiMAX for Wireless Broadband Access
(20 July 2005 - 1 day)

New Seminar

WiMAX promises to fill the gap between Wireless LANs and wide area networks and claims to be a cost-effective fixed wireless alternative to conventional wire-line DSL and cable connections. The seminar will analyze technical and operational aspects of WiMAX and discuss possible applications to get to the bottom of industry's promises. After the training the trainees will be qualified to assess the usefulness of WiMAX for their own business.

DVB-H – Mobile Broadcast Convergence
(20 to 21 July 2005 - 2 days)

New Seminar

DVB-Handheld will allow a wide range of new broadband multi-media and attractive mobile-broadcast services. This workshop, describing the features and principals of DVB-H, gives an overview of the DVB-H system, the different versions as well as the planning consequences.

The course will be of interest for mobile operators, broadcasters and regulatory bodies.

LStelcom provides Spectrum Management System to Indonesian Regulator POSTEL

POSTEL, the Indonesian regulator located in Jakarta, decided to go with LS telcom for the implementation of a new spectrum management system. It is based on LS telcom's leading edge **SPECTRAplus SMS** (Spectrum Management System) solution including planning modules for fixed service (**MULTIlink**), satellite service (**CHIRplus_SAT**) and broadcast service (**CHIRplus_BC**).

In a country almost as large as Western Europe with more than 200 million inhabitants, spectrum management is a challenging task. The rapid evolving telecommunications market needs a flexible and fast possibility of spectrum licensing and co-ordination achieved with LS telcom's system.

In the implementation phase various adaptations according to POSTEL's needs, including highly complex fee calculation and specific Indonesian frequency plans, have been implemented successfully within the given timeframe.

End of March 2005 the final acceptance of the system was signed, documenting the successful implementation of the entire system. LS telcom will continue cooperation with POSTEL by maintaining the system in future.

Spot on

Advanced Publishing and Reporting Capabilities within SPECTRAweb

LS telcom's e-licensing tool for internet/intranet applications now incorporates enhanced functionality allowing clients to design their own reporting and publishing templates by using Crystal Reports.

Satellite earth stations coordination according to AP7 in SPECTRAemc

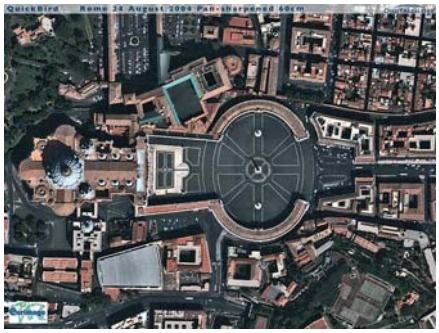
The ITU coordination procedure for satellite earth stations according to AP57 will be integrated soon also in **SPECTRAemc**. By this integration, **SPECTRAemc** will provide even more functions for terrestrial stations within its modern GUI.

High Resolution Terrain Data for State-of-the-Art Network Planning

New communication technologies such as WiMAX and UMTS with their micro- respectively their pico-coverage cells require in their planning phase very detailed and extremely high resolution terrain data in order to simulate wave propagation ways. Ortho images with a resolution of 60cm to 1m per pixel, digital surface models (DSM) or digital city models (DCM) with a resolution of 1m to 5m per pixel are nowadays a solid basis for the construction of new networks.

New computer based valuation procedures regarding the image processing make it now possible to create precise and less cost intensive 3D-height models (DSM and DCM) from high resolution stereo images of IKONOS or Quickbird satellites. The accuracy of the data in horizontal direction is about 1m to 2m. In vertical direction it is smaller than 1m and hence in the field of the classical aerial image valuation.

LS telcom provides high-resolution terrain data from IKONOS and Quickbird with world-wide coverage and short-term availability.



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Engineering Services for Private Mobile Radio (PMR)

Mobile communication has become an essential part of our today's society. Besides the public mobile network, the private mobile radio (PMR) plays an important role. To guarantee a smooth and safe operation many businesses like coverage companies and transport services make use of PMR radio technology.

The analog service and trunked radio was for a long time an essential pillar for this kind of company internal communication. Meanwhile the previously used technologies have reached their limits or the current requirements cannot be achieved by this analog technology any more.

Instead of maintaining or extending the old systems it can be less cost extensive to use a new technology. Using public mobile network is, however, often not an equivalent substitute for a company owned radio network; digital trunked radio systems like TETRA or TETRAPOL allow tailor made solutions with the requested flexibility.

As neutral consultant LS telcom offers support regarding the requirement analysis, assists when working out tender documents, supervises tender procedures and judges technical offers. Services in the field of radio planning and network design round off our service spectrum.

Impressum

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