

Latest

## Strong Presence at ITU Study Groups



LS telcom has a long-standing commitment to regularly attend ITU Study Groups.

Currently, LS telcom staff attend 3 Study Groups: WP 3K (point-to-area propagation), WP 4A (efficient orbit/spectrum utilization for FSS and BSS) and WP 6A (terrestrial broadcasting). Through its attendance at these study groups, LS telcom is present at the source of information and thus able to provide its clients with the latest know-how and experience out of ITU Study Groups. Besides, LS telcom also participates regularly at CEPT and ABU conferences. ←

## RAI enlarged CHIRplus\_BC CITRIX-System

In order to further advance flexible and decentralised planning of digital broadcasting networks, RAI - the national broadcaster in Italy - purchased further licences of the radio planning software CHIRplus\_BC. The software solution will be provided online via CITRIX to its outlets. ←

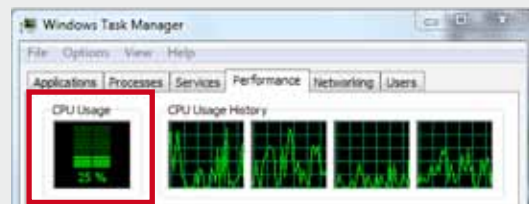
## Hyper-fast Broadcast Planning by parallel Computing

“Like parallel Computing on our Desktop“  
CHIRplus\_BC, the market leading planning and coordination tool for analogue and digital broadcast networks, has taken the next innovation leap. With the latest version 5.4.0, CHIRplus\_BC provides its users with ultimate performance for the simulation of the most composite calculation scenarios.

Modern network planning requires complex calculations for large transmitter networks (often now Single Frequency Networks) that may include interfering stations as well. Detailed raster terrain data became economically viable for a broader number of users and therefore the demand for superior calculation performance has increased in the last years.

Already in the past, CHIRplus\_BC addressed this issue by distributing field strength calculations among different hardware resources (licence-equipped “cloud” of PCs).

At the PC level, the manufacturers have pushed the chip miniaturisation and voltage used to the limits, so that maximum clock speed is now at stagnation. Implementing a multi-core processor became the answer to the quest for performance - opening another way of parallelisation. Today a computer store offers state-of-the-art models ranging from dual-core to quad-core and even more will be made available in the future.

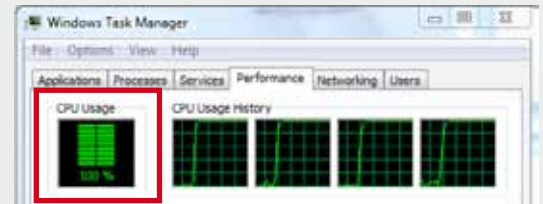


The amount of performance gained by the use of a multi-core processor largely depends on the application algorithms and implementation. The gains are limited by the portion of the software that can be parallelised to run on multiple cores simultaneously.

For a software application that does not address all the processor cores, an under “Performance” can be seen in the “Task Manager” of the operating system. In spite of the workload being distributed between the different cores, the “CPU Usage” does never reach the 100 % mark. The experience is that - even though all the cores are used - it effectively offers only the performance of one core. So for a quad-core PC, 25 % as “CPU Usage” will be reached with a standard application.

Not so with the new CHIRplus\_BC 5.4.0! CHIRplus\_BC exploits all the cores of the CPU at the same time. When performing calculations for a large broadcast network with

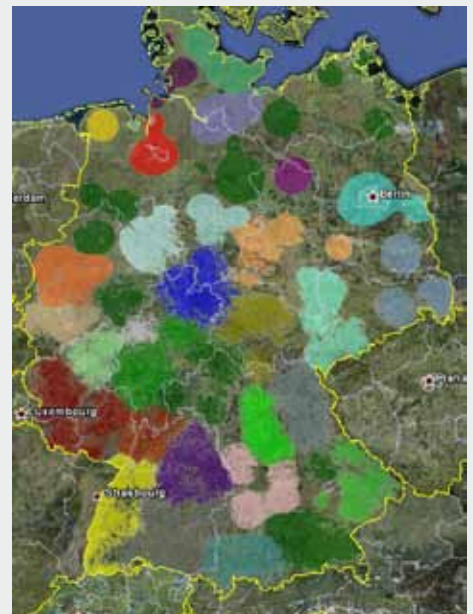
many transmitters, several field strength calculations run in parallel. With large networks and large areas, the speed-up factor gets very close to the number of the CPU cores, compared to a single-core PC or to software which does not support multi-threading capability.



In addition to the optimised speed of field strength calculations, the network processor has also undergone a total structural re-design which makes it significantly faster than before, even on single-core PCs. The network analysis process is ideally suited for parallelisation by dividing the analysis area in a number of sub-areas. Data loading, data processing and result storage can be distributed to multiple “threads” as well.

An innovative progress window informs the user where and what the network processor is processing right now.

Those at the LS User Group meeting in June who had the chance to try the new multi-core calculation have given positive feedback about this latest and significant step in performance enhancement of CHIRplus\_BC. ←



## Service Portfolio for Broadcast Operators and Regulators

Professional services from neutral competent hands. To make it work – on schedule and budget-conscious!

### ■ Design Phase (Pre-planning)

- Feasibility & requirement studies
- Technical and economical audits
- Assessment of network scenarios
- Migration concepts
- Business case evaluation
- Cost assignments and estimation
  - CAPEX, OPEX

### ■ Broadcast Network Planning

- Spectrum planning and coordination
  - Spectrum strategy & planning
  - Development, evaluation & review of migration plans
  - Coordination analysis according ITU recommendations and plans
- Initial coverage planning
  - Design & analysis of country-wide and regional networks
  - Re-use of existing infrastructure
  - Radio planning of SFN's & MFN's
  - Interference investigations
  - GE-06 conformity evaluation
- Detailed coverage planning
  - Site survey
  - Antenna design
  - EMC calculation
  - Final coverage planning and coordination

### ■ Transmission Network Planning

- Microwave planning
  - Topology planning
  - Capacity planning
  - Microwave link design
- Satellite planning
  - Uplink & downlink
  - International coordination
- Lease line planning
  - Capacity and cost optimisation
- Synchronisation concept

### ■ Procurement Process

- Preparation of procurement documents (tender and RFP)
  - Quantity structure
  - Tender specification document
  - Decision making matrix
- Tender evaluation assistance
  - Bid and equipment evaluation
  - Vendor pre-selection

### ■ Project Implementation and Monitoring Phase

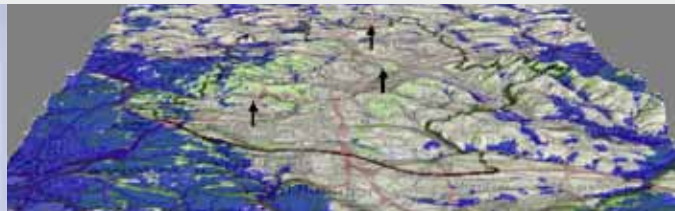
- Roll-out planning
- Project management and supervision
- Commissioning and acceptance testing
- Coverage measurements
- Comparison of measured and predicted coverage
- Documentation

### ■ Optimisation Phase

- Coverage and quality measurements
  - Fixed, mobile, portable indoor/outdoor
  - Field strength, BER, MER, impulse response
- Comparison predicted and measured coverage
  - Wave propagation model tuning
  - Adaption of planning parameters
- Network optimisation
  - Delay optimisation
  - Gap filler planning
  - Interference minimisation
  - Power (ERP) optimisation

### Technologies:

- **Digital:** DVB-T, DVB-T2, ATSC, ISDB-T, T-DAB, DAB+, DRM+
- **Mobile:** DVB-H, DVB-SH, T-DMB, MediaFLO
- **Analogue:** FM, TV, LF, MF, HF



## CSA on the road to CITRIX

Conseil Supérieur de l'Audiovisuel (CSA), the French Broadcast Regulator, has been using CHIRplus\_BC since 2005. CSA has acquired a substantial number of licences, based on licence server as well as hardware dongle for internal use in their premises in Paris.

After an intensive testing period, CSA recently completed the migration of several CHIRplus\_BC licences to a new CITRIX server. Two regional offices have now access to CHIRplus\_BC and are able to run calculations through a CITRIX connection. In order to optimise the administration of the servers, CSA is now running additional tests in order to couple CITRIX with VMware solutions for the virtualisation of the working stations.



## ABU – Digital Broadcast Symposium 2010 COO Roland Götz makes a speech at the Conference

At the ABU Digital Broadcasting Symposium in Kuala Lumpur LS telcom-COO Roland Götz has given a lecture.

Under the title "First steps towards a more efficient planning" Roland Götz described among others migration strategies, network types and propagation concepts. Afterwards he was available for questions for the 550 industry experts. During the several days lasting conference LS telcom was once again represented with a booth. The symposium hosted by the Asian-Pacific-Broadcasting Union (ABU) each year focuses the latest developments in the

broadcast field and is a platform for representatives of authorities and companies at the same time. The association founded in 1964 understands itself as a non-commercial, governmental-independent holding organisation for broadcast organisations and currently counts 200 member institutions from 58 countries. Their concern is the broadcast development in the Asia-Pacific area. The ABU is considered to be the third largest of the worldwide eight broadcast organisations; geographically-seen it is worldwide even the largest organisation. Already in 2008 LS telcom was admitted as member. ←

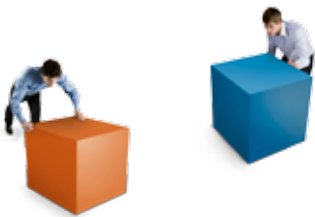


## LS telcom to plan Montenegro DTT Transmitter Network

Montenegro's public enterprise Radiodifuzni Centar which provides transmission services to broadcasters has signed an agreement with Germany's LS telcom for the design of the country's digital terrestrial TV transmission network. The project should be followed by a tender for the procurement of equipment. ←

## Broadcast Planning Software for Multichoice

Just in time for the World Cup preparation, our long standing customer Multichoice of South Africa implemented the radio planning software CHIRplus\_BC. CHIRplus\_BC is used mainly for planning and optimisation of FM and DVB-T/H locations. ←



## Planning of DVB-T2 Networks (White Paper)

The White Paper provides an overview of major techniques used in DVB-T2 and their impact on service planning and operation of this new transmission technology.

It outlines the increase in capacity through robustness gain achieved by rotated constellations and Q-delay.

A study using the broadcast planning tool CHIRplus\_BC illustrates the feasibility of large scale SFNs (Single Frequency Networks). Based on the DVB-T network in southern Germany the coverage for a fixed reception scenario and for a portable reception scenario is evaluated.

Furthermore the White Paper uses a simplistic example to show how MISO (Multiple Input Single Output) makes better use of the "SFN Gain" and how it can increase coverage.

The paper closes with an evaluation of the new flexibility gained from the improved robustness when planning DVB-T2. It points out how DVB-T2 can reduce the transmission cost per programme or how it can make delivery of HD services economically viable. Additionally the white paper provides a table comparing DVB-T and DVB-T2.

Generally DVB-T2 provides data rates between 50 % and 90 % higher than DVB-T for the same level of robustness.

The increase results from the following advances:

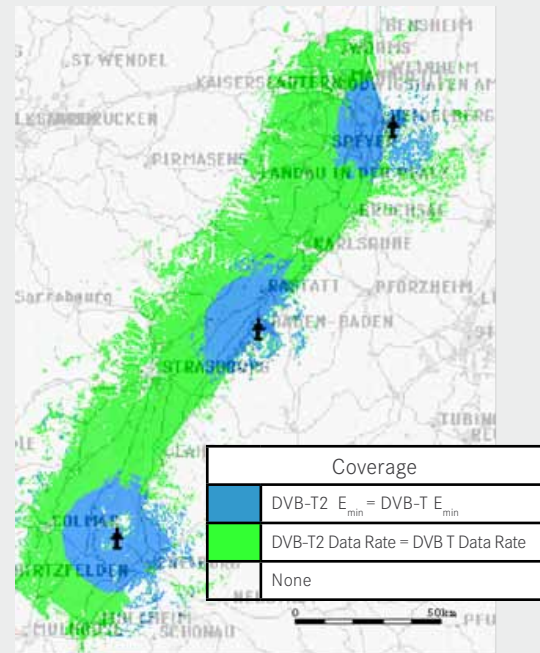
- Improved FEC
- Rotated constellation and Q-delay
- Greater choice for guard interval
- Higher FFT modes (number of carriers)
- Larger SFNs
- Flexible pilot pattern
- MISO

This definitely makes it the first choice when introducing DTT or adding HD services to the terrestrial platform. However, accurate definition of the key parameters of the DVB-T2 system is more critical in planning DVB-T2 networks than it is for DVB-T.

The industry's leading broadcast planning tool CHIRplus\_BC is being constantly refined to provide accurate calculation for selection of the right SFN size and other DVB-T2 core parameters that will be vital for successful operation of DVB-T2 networks.

LS telcom offers consulting services to find the right parameter set to optimally match your business case.

The White Paper can be downloaded from our website [www.LStelcom.com](http://www.LStelcom.com) in the section download/white papers. ←



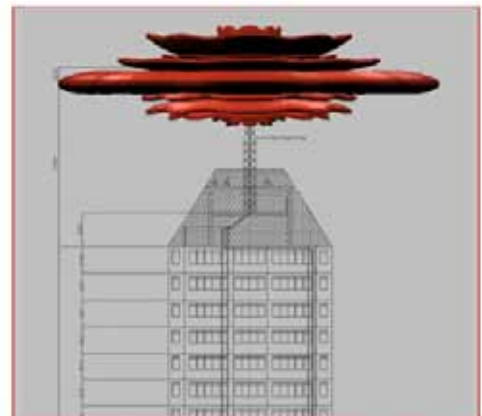
## LS South Africa exploits new Business Opportunities

Traditionally LS South Africa has mostly been involved in the business of radio frequency planning consultancy, RF frequency planning software testing, site inspections, software sales and client support.

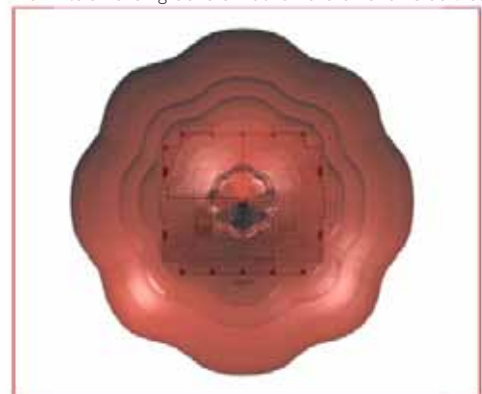
LS telcom has now exploited its opportunities by getting involved in DVB-T/H transmitter installations and commissioning in Africa and in particular in South Africa. During the last years, employees have been sent for training to renowned equipment manufacturers in order to improve their knowledge in the new digital broadcast technologies. The extensive experience in analogue FM transmitter installations/RF planning and associated services in the company is now extended by DVB-T/H turnkey installations. LS South Africa has performed over the last two years. The transmitter installation capability of DVB-T2 is currently being strengthened through additional training.

LS South Africa already has experience to perform DVB-T2 RF coverage and spectrum planning.

LS South Africa is now offering its own software for mobile measurements of digital and analogue field strength coverage using market leading measurement equipment. Also antenna pattern measurements of TX and RX antennas on its fixed and mobile mast facilities can be performed. The results of the measurements include vertical and horizontal antenna patterns, antenna gain and antenna polarisation discrimination. This is also backed up by safety zone predictions and reports for planned and installed radio services. The current staff component of 12 people will be increased in the next year. The intention is to expand its capability to offer pre-build transmitter container installations for all different technologies in FM / DVB-T/H for existing and new clients in Africa and elsewhere.



Rahimtula Building General Public Hazard Zone - Side View



Rahimtula Building General Public Hazard Zone - Top View

Visit us at  
our Booth.....

**IBC Amsterdam 2010,  
Netherlands**

10<sup>th</sup> - 14<sup>th</sup> September 2010,  
Stand No. 8.E39

**EMC Europe Sympo-  
sium & Exhibition,  
Wroclaw, Poland**

14<sup>th</sup> - 16<sup>th</sup> September 2010

**PMR Expo 2010,  
Cologne, Germany**

23<sup>rd</sup> - 25<sup>th</sup> November 2010

A softcopy of the complete  
Training Calendar can be  
downloaded from our website :  
[www.LStelcom.com](http://www.LStelcom.com)



Training Calendar  
July 2010-December 2011

LS telcom



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on tel: **+49 7227 9535 482**  
for further information on our  
seminars or for our customised  
training programmes

## LS Training & Competence Centre

For more than 9 years, the *LS Training & Competence Centre* offers a constantly growing programme of first-class broadcast, telecommunications and spectrum management training, seminars and best practice education to professionals of all levels.

Our training is designed to help customers help themselves, with the focus on actionable knowledge and hands-on practice.

Our standard programme lets you choose from a comprehensive selection of seminars, training and workshops for all your training needs, including expert training on broadcast and radio network planning, seminars on spectrum management and the latest radio technologies, as well as basic and advanced training

on LS telcom's software solutions. We are up-to-date – the content of all our seminars are permanently checked and revised. New facts and latest amendments will immediately be taken into account.

We guarantee up-to-date know-how especially with respect to recommendations, regulations and standards. We ensure that you will leave us fully satisfied, enriched by extensive knowledge and favourable impressions. The core of *LS Training & Competence Centre* is a group of professional lecturers and specialists covering a wide range of expert knowledge and practical experience. The training process is based on modern training methods and computer based training. ←



## Upcoming Training Courses and Seminars

### Broadcast

**Broadcast Planning Basic**  
19<sup>th</sup> - 20<sup>th</sup> October 2010

**Broadcast Planning Advanced**  
21<sup>st</sup> - 22<sup>nd</sup> October 2010

**DVB-T2 - 2<sup>nd</sup> Generation Digital  
Video Broadcast**  
9<sup>th</sup> - 10<sup>th</sup> November 2010

**Recommendation  
ITU-R P.1546 - 1812**  
11<sup>th</sup> - 12<sup>th</sup> November 2010

### Spectrum Management

**Military Frequency Management**  
12<sup>th</sup> - 14<sup>th</sup> October 2010

**Spectrum Monitoring Measurements &  
Techniques** 19<sup>th</sup> - 20<sup>th</sup> October 2010

**Practical Spectrum Monitoring  
Measurements** 21<sup>st</sup> - 22<sup>nd</sup> October 2010

**Technical Issues of Radio Spectrum  
Management** 25<sup>th</sup> - 29<sup>th</sup> October 2010

**Strategies for Modern Spectrum  
Management** 2<sup>nd</sup> - 5<sup>th</sup> November 2010

**Measurements of Human Exposure to  
RF Electromagnetic Fields** (incl. practical  
measurements) 22<sup>nd</sup> - 24<sup>th</sup> November 2010

## Now available – Latest Version of LS telcom's Training Calendar published

The new Training Calendar with proven, revised and new courses e.g. Practical Spectrum Monitoring Measurements, V-SAT as well as many more seminars is now available.

The validity of the new Training Calendar has been extended in order to give you more flexibility to find the most suitable schedule.

You can download the Training Calendar from our homepage [www.LStelcom.com](http://www.LStelcom.com).

If you would like to receive a paper version or for any questions please feel free to contact Ms. Sandra Lahm via email [SLahm@LStelcom.com](mailto:SLahm@LStelcom.com) or via phone: +49 7227 9535 482. ←

## BNetzA trained by LS telcom

LS telcom won a tender published by the German regulator BNetzA regarding Broadcast Seminars in order to train their staff on the new digital terrestrial TV-system DVB-T2 and the latest ITU recommendations ITU-R P. 1546/1812.

About 20 BNetzA experts will now be trained in the upcoming autumn by LS telcom's Training Centre.

## Impressum

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