SPECTRUM

2022

News Magazine - Special Edition Broadcast

LS telcom
Smart Spectrum Solutions

Global Spectrum Experience

// Countrywide network deployment

LS telcom wins large FM project in Asia

LS telcom now has the full capability to perform all aspect related to planning, installation and commissioning of DTT, T-DAB and FM network deployment worldwide.

LS telcom recently won a FM tender in an Asian country. The tender was to provide, project-manage, install and commission a large number of transmitter stations with transmitter equipment. More than half of the transmitter stations had to be provided with new antenna systems as well. The transmitter configurations varied from N+1 to 1+1 to dual exciter configurations. This tender is not just a supply and installation of the transmitter equipment. LS telcom also had to set up a Network Operations Centre in the capital that can communicate with all transmitter stations throughout the country to constantly display the statuses of the transmitters on a real time basis.
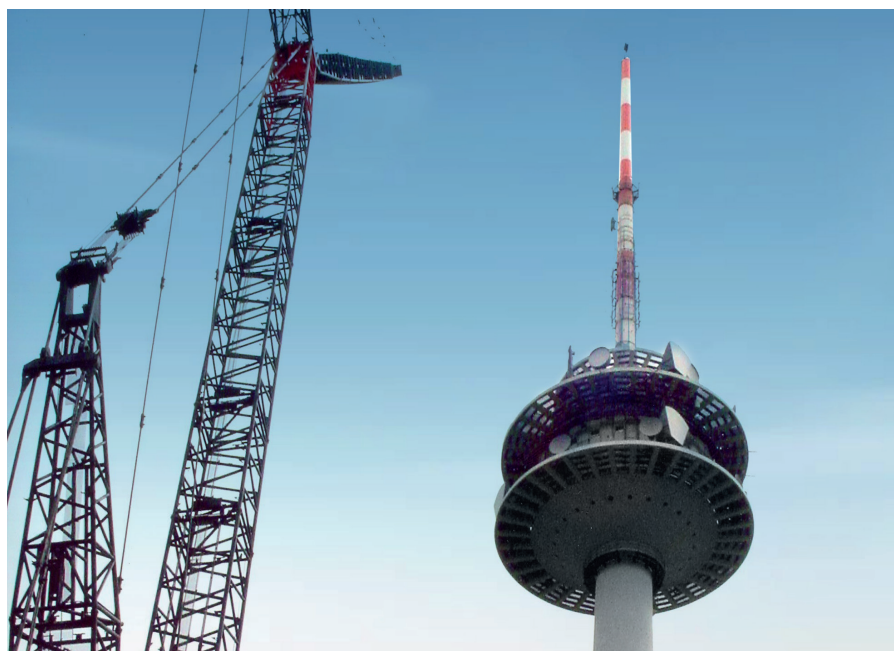
The different transmitter configurations also asked for the transmitter configuration switching during certain fault conditions. LS telcom therefore had to design the logics for all the transmitter configurations switching and test such configurations.

The project also asked for audio program feed arrangements that had to be set-up. No informa-

tion was available on the formats and coding of the different audio streams.

This project is LS telcom's largest FM radio project ever performed and proves LS telcom's

capabilities to do the design and integration of broadcast transmitters and associated equipment on a manufacturer agnostic basis. ∎
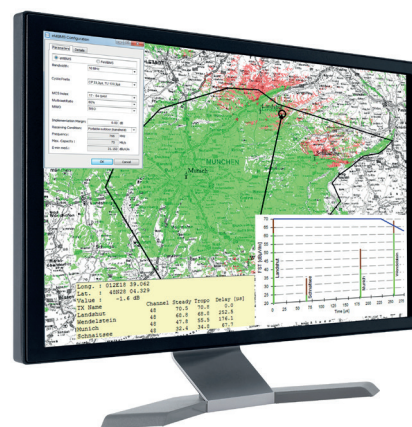

Transmitter installation

New features of LS telcom's broadcast planning tool CHIRplus_BC

Coming up this fall, the new release of a CHIRplus_BC software version will be available and provide substantial improvements to its users. The automatic processing capabilities of the tool were optimized by increasing and enhancing the functions available via macro commands. Repetitive and recurring processes for example may be automated significantly reducing the time needed to perform certain actions. To keep field strength prediction models up to date, the tool now offers the most recent revisions of the respective ITU Recommendations. To predict field strength in certain areas, version 6 of ITU-R Recommendation 1812 was added. To support in the planning of feeder links, the propagation model based on Recommendation ITU-R P.530 has been updated to the most recent version 18. In addition, the associated propagation model based on Recommendation ITU-R P.452 runs now on the most recent version 17.

To support 5G broadcast planning, our experts have revised the powerful network processor to support transmitters up to Release 17. Network simulations for cyclic prefixes of 300 μs (to support rooftop reception with inter site distances of around 125 km), 200 μs (for an inter site distance of around 15 km), 100 μs (to support high mobility scenarios with mobiles up to 250 km/h), 33.3 μs, 16.7 μs and 4.7 μs are possible. Beside the standard mobile bandwidth values, the fall release also supports the standard broadcast channel bandwidth values of 6, 7 and 8 MHz introduced for the radio access network with Release 17. As starting and reference parameters, the tool offers the 4 receiving conditions outlined in EBU TR 034 (fixed, portable outdoor handheld, portable indoor handheld and portable indoor with a theoretical antenna) as well as the 6 receiving conditions outlined in EBU TR 063 (fixed, portable outdoor handheld, portable indoor, portable indoor handheld, mobile with a car mounted antenna and mobile

with a handheld receiver inside the car). Of course, user defined parameters for the receiving conditions are possible as well.

Complete information about new features implemented in CHIRplus_BC are provided in our regular Update Notes. ∎

ORS: 5G Broadcast "Ready for Commercial Deployment"

On June 29th, 2022, the 26th annual Spectrum Summit has been hosted at LS telcom AG, online, co-organized by LS telcom and Policy Tracker. Besides the wider spectrum management discussions, in Panel 2 on Specialized 5G Applications, there has been a presentation by panelist Michael Wagenhofer, managing director of ORS, Austria's largest broadcast operator, linked to public broadcaster ORF.

He emphasized, while on-demand services, which require internet connection, are catching up, linear TV is still at 65 % in media surveys, TV at 77.4 % (includes time-shifted / streaming

/ on demand TV), according to polls of GfK in Austria 2022.

With 5G Broadcast, one step more in convergence between mobile and broadcast communications is being reached. Demonstrations of 5G Broadcast distribution have taken place on several occasions this year - for the first time in Vienna in February using the 5G Broadcast testbed of ORS. "Ready for commercial deployment" has been the conclusion of an ORS video shown on the matter. ORS is - besides many other broadcasters and industry stakeholders, member of 5G Media Action Group (5G MAG, www.5g-mag.com).

Mr. Wagenhofer emphasized as a strength of broadcasting, as a one-to-many service, that offloading from Content Distribution Networks (CDN) to 5G Broadcast in peak times can be utilized to reduce congestion and reduce streaming distribution cost, for example in stadiums. Safety aspects are receiving more attention lately and as part of an infrastructure to respond to disaster or crisis, he suggested 5G Broadcast as a resilient audiovisual alarm and warning channel, offering even live streams to battery powered devices, without even the need for a SIM-card. ∎

LS telcom is celebrating a special year

In January 1992, Dr. Manfred Lebherz and Dr. Georg Schöne founded the company "L&S Hochfrequenztechnik", which over time has become "LS telcom". 30 years and many valuable experiences, successes, ups and downs later, LS telcom has developed into a true one-stop-shop for telecom regulators as well as public and private network operators. The product portfolio nowadays ranges from software solutions

to hardware systems and strategic consulting to professional engineering addressing spectrum management, radio monitoring, telecommunications and broadcasting. With 14 offices around the globe, we work side by side with our customers, from developing their vision to implementing the solution and beyond. We are proud of what we have achieved so far, and thanks to everyone who invests their work and time in us,

we are looking towards an exciting, successful and bright future. ∎

Study on the Operation of Digital Audio Broadcasting (DAB+) in Cyprus

LS telcom was awarded by the Department of Electronic Communications (DEC) in Cyprus with a contract for a study, which includes the development of a regulatory framework, technical design, and the economic viability of a DAB+ network in Cyprus.
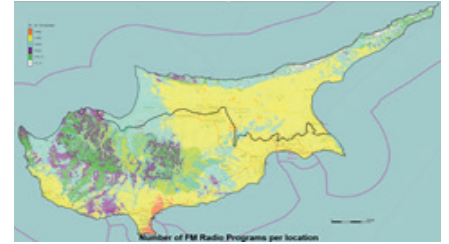The key activities are:
▪ Preparation of a technical plan based on the GE06 frequency plan and ITU-R BS 2214;
▪ Development of regulatory and licensing frameworks (based on the good practices observed in other European countries that have adopted DAB/+);
▪ Assessment of a number of introduction scenarios for DAB+ within Cyprus and consideration of their economic viability (again based on the good practices observed in other European countries that have adopted DAB/+).

The study will help to inform decisions taken by the Deputy Minister and the Council of Ministers regarding the introduction of DAB+ within Cyprus. ∎

DAB+ network simulation

The importance of UAS Broadcast Measurement for ATSC 3.0 Networks

As the over the air broadcast television market in the United States moves forward after the recent repack, there is a growing momentum among broadcasters to transition the networks from the existing ATSC 1.0 standard to ATSC 3.0. With ATSC 3.0, broadcasters move to an all-IP infrastructure and with it the chance to expand their markets beyond standard content broadcast. A number of markets are emerging to leverage the available IP bandwidth available across the broad coverage area.

The transition to ATSC 3.0 is not without its challenges. The high tower, high power infrastructure of the ATSC 1.0 deployments in the United States does not fit the ideal architectural model for a high density Single-Frequency-Network (SFN). To maximize usage, multi-site deployments are required to maximize the available IP throughput capability of the ATSC 3.0 technology. This is driving a densification of ATSC 3.0 sites and in turn requiring more sophisticated testing methods to verify network performance. The tighter tolerances and interference mitigation in the ATSC 3.0 infrastructure make it imperative to have a complete understanding of the network performance from each site. With this information, networks can be tuned properly to deliver the maximum bandwidth across the coverage area.

Responding to this requirement, LS telcom has adapted the award winning UAS Broadcast Measurement service to include specific measurements and data collection related to ATSC 3.0 operation. While the traditional UAS Broadcast Measurement provides the pattern, power level, and down tilt verification, the newly added measurement procedures add in capabilities specific to the ATSC 3.0 operation. The specific payload provides collection of and demodulation of ATSC 3.0 signals allowing broadcasters to measure the signals at the antenna site as well as perform spot check measurements from ground level to hundreds of feet above the ground. The data allows broadcasters to measure the site performance as well as verify the balance of signals and timing at various points in the network. When combined with the CHIRplus_BC toolset, broadcasters can overlay the measured ASTC 3.0 performance of the network with the projected performance. By comparing the data sets, the network configuration and resulting IP throughput can be optimized thereby maximizing the value of the ATSC 3.0 operation. ∎

Drone-based broadcast measurements

DAB+ Bid Evaluation in the Netherlands

Stichting Regionale Publieke Omroep (RPO) is the cooperation and co-ordination body for regional Public Media Services in the Netherlands. The Dutch regional DAB+ networks will be switched to a new frequency plan (Layer 4) by moving from the existing 5 regional allotments to 7 allotments, a design which better matches the needs of the regional broadcasters. Therefore, the networks needed to be tendered to select a new network operator for each of the seven allotments.

On behalf of RPO, LS telcom performed a comprehensive bid evaluation regarding DAB+ operations for the new Layer 4 allotments in the Netherlands. Specifically, LS telcom analyzed the bidder's proposals to confirm whether they met the given requirements for mobile outdoor as well as portable indoor coverage. In addition, a conformity check was performed by LS telcom on all proposed networks to verify their compliance with all current bi-lateral agreements with neighboring countries and/or the ITU Geneva 2006 (GE06) Plan. ■

DAB+ allotments in the Netherlands

LS telcom is a member of…

Latest NEWS

LS telcom developed its own transmission test facilities for T-DAB as well as DVB-T2 and recently opened its own anechoic chamber for performance compliance testing. Contact us for further information. ■

Anechoic chamber

LS Training Academy

Visit our LS Training Academy. Whether online training, classroom training, e-learning sessions or free web seminars - we have something for everyone! Even a „Customized Training" tailored to your needs is no problem - just ask!

Contact: IGaertner@LStelcom.com
Download the Trainings Calendar on our website:
https://www.lstelcom.com/en/ls-training-academy

Upcoming Broadcast Training courses:
- Broadcast Planning Tool CHIRplus_BC – on request
- FM, DAB, TV and 5G Broadcast Antennas (14.11.2022)
- DVB-T2 – 2nd Generation Digital Video Broadcast (15. – 17.11.2022)
- DVB-T2 – Measurement Technology in Theory and Practice (17. – 18.11.2022)

Save the date
Lichtenau/Germany | 28.06.2023

27th Annual
Spectrum
summit

For more information on products and solutions, please visit our website at www.LStelcom.com or contact us:

LS telcom AG
Im Gewerbegebiet 31-33
77839 Lichtenau
Germany

📠 +49 7227 9535 600
🖨 +49 7227 9535 605
Info@LStelcom.com
www.LStelcom.com

Find us on

LS telcom
Smart Spectrum Solutions

Our worldwide subsidiaries:

Colibrex GmbH, Winnipeg Avenue B 112/A5, 77836 Rheinmünster, Germany | **LS telcom UK Limited**, 18 King William Street, London EC4N 7BP, United Kingdom | **LS telcom a RadioSoft operation**, 5021 Howerton Way, Suite E Bowie, Maryland 20715, USA | **LS telcom Australia Pty Ltd**, Level 6, 1 Chifley Square, Sydney NSW, Australia | **LS of South Africa Radio Communications (Pty) Ltd.**, 131 Gelding Ave, Ruimsig, Roodepoort, 1724 Johannesburg, South Africa | **LS telcom SAS**, 47, boulevard de Sébastopol 75001 Paris, France | **LS telcom Limited**, 1145 Hunt Club Road, Suite 100 Ottawa, ON, K1V 0Y3, Canada | **RadioSoft Inc.**, 194 Professional Park Clarkesville, Georgia 30523, USA | **LST Middle East FZ-LLC**, Office 2118 (21st Floor), Dubai Media City, Dubai, United Arab Emirates | **Vision2Comm GmbH**, Im Gewerbegebiet 33, 77839 Lichtenau, Germany | **NG Networks Co., Ltd,** Room 1001, Buildung 3, No. 209, Zhuyuan Road, 215011 Suzhou, China | **LS telcom AG MKK,** Köztársaság út 11-13, 2600 Vác, Hungary | **LS Spectrum Solutions PVT Ltd.,** 712, Palm Spring Centre, Link Road, Malad (W), Mumbai- 400064, India | **Smart Spectrum Solutions Providers S.A.L.,** Office C83, Palm Plaza Center, Mtayleb – El-Maten, Lebanon