

Spectrum

LS telcom Customer News Magazine

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Editorial

Dear Readers,

With this LS Spectrum edition, we are happy to announce the 21st Annual Spectrum Summit, taking place on 13th July 2016 in Lichtenau, Baden.

"Spectrum on the move" is this year's motto. Listen to leading experts about spectrum requirements for 5G and the use of higher frequencies, the future of the UHF band, the impact of WRC-15 and what needs to be done to get to the WRC-19, as well as spectrum's role in transport and telematics, supporting safer and more efficient transportation.

This year's event is organised in association with PolicyTracker. In addition to the conference you can visit our exhibition and see live demonstrations.

Numerous spectrum regulatory authorities, network operators and other industry stakeholders from 30 countries came together last year. Join them this year to exchange experience and to participate in the debate on Spectrum on the move. Don't miss this event!

We hope you enjoy reading this magazine to get a foretaste of the event!

Latest

LS telcom conducts study for the European Commission on repurposing the 700 MHz spectrum

LS telcom together with its partner VVA has completed a study for the European Commission (EC) on repurposing the 700 MHz spectrum. The report of the study 'Economic and Social Impact of Repurposing the 700 MHz band for Wireless Broadband Services in the European Union' was published by the European Commission on 23 February 2016. The analysis provided in the study is informing work by the EC on developing a proposal for a decision of the European Parliament and of the Council on the use of the 470-790 MHz frequency band across the European Union.

The study examined various policy options for the future use of the UHF television band including the so-called 700 MHz band (694-790 MHz) which was identified for IMT usage at the recent ITU World Radiocommunication Conference. It followed a report in Europe authored by Pascal Lamy, who had proposed a number of options for the band with varying degrees of flexibility in the use of the spectrum below the 700 MHz band, ranging from retaining its use for digital television, to converting the whole band for mobile broadband use.

Andreas Geiss, head of the Commission's spectrum policy unit said, "We chose the LS telcom and VVA consulting team for this project as we could see that they had the

necessary experience to complete the project in the necessary time-scales. We were very confident that LS telcom together with VVA would deliver the quality and quantity of data we needed to inform our decisions for new regulations on the use of the 470-790 MHz frequency band in the EU."

LS telcom and VVA examined different technical options for continuing DTT services without the 700 MHz band and concluded that without detailed multi-lateral negotiations between neighbouring EU countries, there was virtually no likelihood that existing services could be accommodated in the remaining UHF spectrum. Instead, the LS telcom and VVA study team proposed a move of all EU countries to the use of the DVB-T2 standard using either MPEG-4 or HEVC video encoding and calculated the associated costs. From a consumer perspective the move to a new standard requires the replacement of any non-compliant set-top boxes. Some countries are already using DVB-T2/MPEG-4 and many television receivers being sold already have this capability. Therefore, the costs of replacing the remaining non-compliant receivers are heavily dependent upon the timing of any change over.

Notwithstanding the above, the social and economic impact on the

broadcasting industry was also considered. The implementation of a policy which provides security of tenure for broadcasting services in the UHF band has definite benefits for the industry and would continue to encourage innovation.

The option that spectrum could be used in a flexible way, either for broadcasting or wireless broadband services, if carefully defined (e.g. through a CEPT report) may offer broadcasters further benefits in being able to integrate broadcasting and broadband services into the same spectrum.

The impact on PMSE services using the UHF band was also assessed. In any of the options under consideration, some PMSE uses (e.g. radio microphones and in-ear monitors) would be displaced and require updated equipment. The social and economic impact to the PMSE industry could be mitigated to a large extent, if alternative spectrum can be found for their continued operation. For the wireless broadband industry, all of the options open up the 700 MHz band for new services across the EU, providing the opportunity for services with wide area coverage. ←

www.lstelcom.com/news



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

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Join us for the 21st Annual Spectrum Summit on July 13th 2016!
For more information and to register visit
www.spectrum-summit.com

21st Annual
**Spectrum
summit**

WRC-15 and LS telcom

*As an ITU sector member LS telcom was present with a stand throughout the four weeks of the World Radiocommunication Conference 2015. A team of LS telcom experts, two of them were part of the German Delegation, attended the conference. Around 3300 participants from 162 countries (out of ITU's 193 Member States) attended the 2015 conference to review and revise the Radio Regulations. Some 500 participants representing 130 other entities, including industry, also attended the conference as observers.**

IMT Spectrum

LS telcom helped inform evidence-based decision making at the WRC through its extensive studies and analyses on the licensing and usage of worldwide international mobile telecommunications (IMT) spectrum and the ITU model for the forecast of IMT spectrum demand.

(www.lstelcom.com/en/news/)

WRC-15 allocated and identified IMT globally harmonized bands in the UHF and L- (1427-1518 MHz) bands, while fully protecting the other services currently operated in these bands. "WRC-15 took a key decision that will provide enhanced capacity for mobile broadband in the 694-790 MHz frequency band in ITU Region-1 (Europe, Africa, the Middle East and Central Asia) and a globally harmonized solution for the implementation of the digital dividend. Full protection has been given to television broadcasting as well as to the aeronautical radio navigation systems operating in this frequency band."*

LS telcom has extensive experience in assuring interference-free co-existence of all services in these bands. Our experts have worked with a number of countries to calculate the potential impact that new LTE networks will have on DTT services

and they can identify the optimum mitigation techniques and assist regulators in setting LTE licence conditions.

5G

WRC-15 also laid the first milestone towards establishing the roadmap for the development of 5G mobile or IMT-2020.

LS telcom experts help institutional, academic, commercial and regulatory organisations answer fundamental questions around 5G: How will 5G impact spectrum demand? Will 5G be a new technology (and air-interface) or will it be a system of different technologies each playing to their own strengths? Our consultants have carried out numerous spectrum demand studies and can model and shed light on how growth in data demand impacts upon demand for radio spectrum. We provide spectrum demand studies, sharing studies and independent reviews of existing studies and forecasts. Also check out our training courses on 5G which provide you with the necessary skills to critically scrutinise conflicting statements and



views by different parties involved. (www.lstelcom.com/training)

PPDR

WRC-15 identified spectrum in the 694-894 MHz frequency band to facilitate mobile broadband communications for robust and reliable mission critical emergency services in public protection and disaster relief (PPDR), such as police, fire, ambulances and disaster response teams.* The development of user scenarios, the determination of capacity and spectrum requirements, the selection of the most appropriate technology and the design and procurement of networks is where LS telcom's expertise can support organisations with the move to new PPDR networks and technologies. ←

*Source: ITU

German Ministry visits LS telcom at MWC in Barcelona

A Delegation of Germany's Federal Ministry of Transport and Digital Infrastructure visited LS telcom during the Mobile World Congress 2016.

The Delegation was interested in LS telcom's Smart Spectrum Solutions, consisting of software and hardware systems as well as consulting and engineering services assuring the efficient use of the available radio spectrum for new technologies and future radio communication networks. ←



Algeria Telecom chooses CHIRplus_FX

Algeria Telecom selected LS telcom's CHIRplus_FX software for the planning and engineering of its microwave network.

After a rigorous international consultation of several renowned software tools for microwave planning, Algeria Telecom decided in favour of CHIRplus_FX because of its robustness, its advanced technical features and its ergonomic user interface.

The leading operator in the Algerian market acquired CHIRplus_FX to industrialise its microwave network planning studies and to be able to increase productivity and efficiency, particularly in a context of rapidly

evolving mobile technology and the advent of 4G which requires the deployment of an ever-important microwave network.

The software delivery comes along with theoretical and practical training to ensure the best use of the software. The training will take place in Algeria. Algeria Telecom is the incumbent operator in Algeria, which offers fixed, mobile and internet services as well as satellite communications. ←

RF-Measurement solution for ARSAT

ARSAT, the national state company responsible for developing the Argentine geostationary satellite telecommunication system, has contracted LS telcom for supplying a RF-Measurement solution. The contract also included user training for the delivered measurement solution. ←

Customisation project for NBTC

NBTC, the regulatory authority of Thailand and a long-term user of LS telcom's Spectrum Management Systems, has embarked on a major customisation project to adapt their spectrum management solution to NBTC's new system requirements that have among others been incurred by process changes. ←

Study on „Coexistence of GSM-R with other communication systems“ for the European Railway Agency

LS telcom is working for the European Railway Agency (ERA) on a study to analyse the possibility of using the ER/R-GSM spectrum by other radio communication systems for railway use in coexistence with the existing GSM-R system operated in that frequency band.

Sharing the ER/R-GSM bands with a new radio communication technology will possibly impact both the operation of the GSM-R-System and the additional radio system. Therefore a careful analysis of the effects, their impact on the existing GSM-R system and possible mitigation methods are required. The over-

arching scope of the study can thus be summarised by the following question: Can the new system share the ER/R-GSM band or is new spectrum needed?

Depending on the answer to this question ERA may need to take further steps and the results of the study may be used by ERA to inform

the Commission and the European Communication Committee about future spectrum needs for a successor to GSM-R. ←

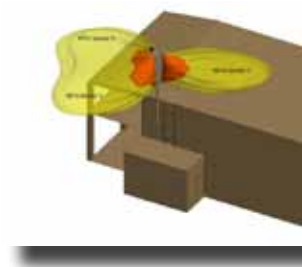
EMF measurements and ICNIRP compliance study for Ericsson

LS telcom carries out EMF (electromagnetic field) studies and compliance surveys for Ericsson in South Africa.

The study consists of EMF simulations, which form the main input into the Site Safety Compliance Report according to the ICNIRP (International Commission on Non-Ionizing Radiation Protection) standard.

LS telcom assesses all types of sites, such as indoor and outdoor, rooftop and greenfield sites. Since September 2015, LS telcom has already examined 125 sites across South Africa.

The compliance report covers exclusion zones and recommendations for appropriate signage and access control to sites to ensure protection against over exposure. For sites initially not-compliant, LS telcom experts will give recommendations on measures to be taken to make the sites compliant. All sites are then re-assessed for compliancy. ←



LS telcom carries out wireless survey for the Internet of Things

LS telcom performed a wireless survey for SIGFOX, a leading provider of dedicated connectivity for the Internet of Things (IoT).

The SIGFOX's network operates in the available license-free frequency bands. LS telcom selected the sites and completed more than 30 mea-

surements around the cities of Pretoria, Johannesburg and Port Elizabeth. The survey proved that SIGFOX radio technology can op-

erate in excellent conditions and deliver optimal communication services for the Internet of Things within the country. ←

ARCOTEL Ecuador acquires CHIRplus_BC

...and signs maintenance contract.

ARCOTEL (Agency for the Regulation and Control of Telecommunications), the new regulatory authority of Ecuador, formed through the merger of Ecuador's two former bodies SENATEL (Regulation) and SUPERTEL (Control), is taking over and using the LS telcom SPECTRA system that has

been in operation at SENATEL since 2009. ARCOTEL has also signed a maintenance contract for the system. Since the newly formed regulatory authority will also be responsible for regulating broadcasting services, ARCOTEL has extended the system with LS telcom's broadcast network

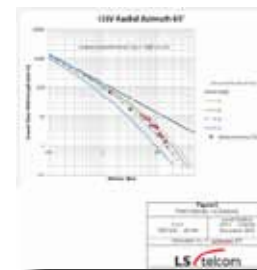
planning and coordination tool suite CHIRplus_BC. In addition to the software delivery, LS telcom carries out the broadcast legacy data migration into SPECTRAplus_DB and gives user training. ←

Proof of AM Service Performance for CJLV Canada

CJLV, a French-language Canadian radio station located near Montreal, contracted LS telcom to assess all AM directional

stations to ensure the antenna pattern directivity and validate the service performance. The scope of work comprised the execution of

field measurements and retuning as it was required to ensure optimal performance. ←



Winner of benchmark of broadcast network planning software: CHIRplus_BC by LS telcom

Telenor Broadcast Norkring AS, Norway, a long-standing customer of LS telcom using CHIRplus_BC for many years, has carried out an extensive technical and commercial benchmark of standard broadcast network planning software.

After the benchmark Norkring extends its trust to the winner of the benchmark, LS telcom, and continues to use CHIRplus_BC for the planning of its nationwide DTT, DAB and FM services in Norway as well as various other countries Norkring is operating in. Telenor Norkring engineers join training courses on broad-

cast network technology and software at the LS Training Academy on a regular basis. The new contract signed by Norkring extends over several years and includes the software, a licence server, upgraded propagation models as well as on-site support and commissioning. Norkring is the leading provider of

terrestrial broadcasting services in Norway and operates one of the largest networks in Europe. The company is the owner of 48 main transmitter sites and approximately 1750 smaller sites spread throughout Norway. ←

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AFCEA, Bonn/Germany

27th - 28nd April 2016

UTC Telecom & Technology, Denver/USA

3rd - 6th May 2016

Critical Communications World, Amsterdam/Netherlands

31st May - 2nd June 2016

BroadcastAsia, Singapore

31st May - 3rd June 2016

Eurosatory, Paris/France

13th - 17th June 2016

Save the date for the

21st Annual
Spectrum Summit
Lichtenau, Germany
13th July 2016



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Upcoming training courses

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- DVB-T2 – Measurement Technology in Theory and Practice
- Wireless Systems for Industrial Applications

Contact us on Training@LStelcom.com for more information!

Don't forget to look at our new training week bundles at special prices! ←



ARCT Burundi chooses spectrum monitoring equipment from LS telcom

LS telcom won the tender to deliver portable monitoring equipment to the regulatory authority of telecommunications ARCT, Burundi. ARCT will soon receive the portable monitoring unit LS OBSERVER PMU160 including a set of associated antennas. The monitoring unit will be used to measure spectrum occupancy and to locate interference. The remote access to the PMU provides convenient and fast data transfer and data analysis. ←

New in CHIRplus_BC: ATSC 3.0

CHIRplus_BC now supports the ATSC 3.0 standard.

Product launch and demo at the NAB show, 18-21 April in Las Vegas. ←

LS telcom in the Media:

„Gutes über Drohnen - Messungen an terrestrischen Funkantennen mit RPAs“

http://www.pmev.de/fileadmin/user_upload/Presse/NET/1509_pmr.pdf

„Colibrex Develops Radio Frequency Surveillance on its UAV“

<http://www.defaiya.com/search/node/LStelcom>

“LS telcom Offers Radio Monitoring, Spectrum Management Systems in the Middle East”

<http://www.defaiya.com/search/node/LStelcom>

“Somos pioneros en software de planificacion de redes de telecomunicaciones y radiodifusion”

<http://www.diariorta.com/edicion-digital/2015/agosto/>

AUSA blog “LS telcom’s Full Spectrum Superiority During Out-of-Area Operations”

<http://www.miltechmag.com/2015/10/ausa-2015-ls-telcoms-full-spectrum.html>

MILIPOL blog “LS telcom Develops Swarm Mission Planning Tool for Vehicular Ad-Hoc Communication and Remote Sensor Network”

<http://www.miltechmag.com/2015/11/milipol-2015-ls-telcom-develops-swarm.html>

Check our website <http://www.lstelcom.com/en/news/> for further NEWS!

SPOT ON:

Knowledge transfer for Irish regulatory authority

The Irish frequency regulatory authority, the Commission for Communications Regulation, has signed up for an extensive knowledge transfer programme. The programme consists of several customised training sessions, taking place at the regulator's premises in Ireland. Last year LS telcom held training sessions about microwave link planning, and a series of several broadcast planning courses started earlier this year. The basic to advanced broadcast training includes ITU regulations, antennas for radio networks, digital radio and DVB-T2 technology.

LS telcom delivers training programme to Colombian regulator ANE

LS telcom's Training Academy provided a knowledge transfer programme in the discipline of spectrum engineering to ANE's spectrum engineers onsite in Bogota. The first course focussed on EMC Analysis Principles while the second course dealt with Planning & Coordination of Microwave Links and Antennas for Radio Networks.

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