

Spectrum

LS telcom Customer News Magazine

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Editorial

Dear Readers,
The LS Summit took place for the 20th time this year on 10th of June 2015 in Lichtenau. For its 20th anniversary, industry experts from 29 countries gathered to present and debate hot topics in spectrum management, radio regulations, and monitoring as well as critical communications. First-class presentations on indoor coverage, legal protection of telecommunication infrastructure, as well as opportunities and threats through the use of unmanned aerial vehicles were presented. Besides the agenda featured two panel discussions on hotly debated topics: the future use of the 700 MHz spectrum and Dynamic Spectrum Access. The use of the coveted 700 MHz spectrum was quite controversially discussed by representatives of broadcast, mobile communications and public safety, presenting and defending their position in a lively manner. In the debate about white spaces different scenarios, models and first experiences with white spaces were exchanged. Interested in the presentations? Find them here: lst.ag/summit

In this LS Spectrum edition, you will find complementary articles to the LS Summit topics and many more news. Read about the TV white space database for FCC, IMT spectrum demand models, and our latest mobile monitoring solution.

We hope you enjoy reading this magazine!

Latest

LS telcom operates TV white space database system in the USA

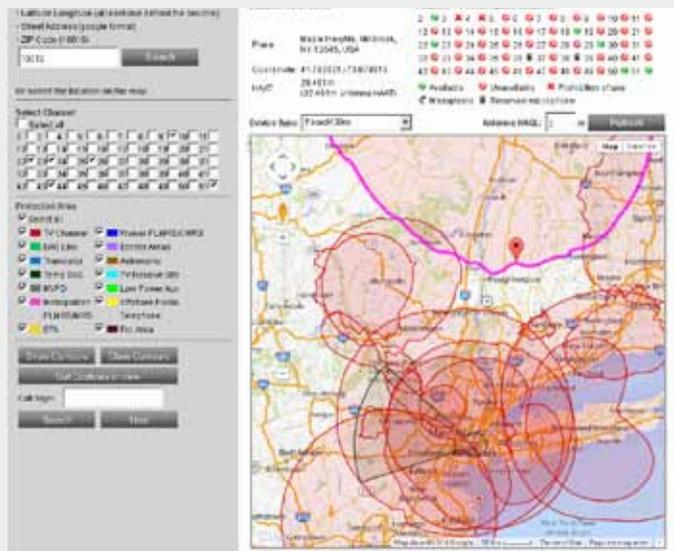
The frequency regulatory authority of the United States, the Federal Communications Commission (FCC), has authorised LS telcom to operate a TV bands database system to provide services to the public. The system will support FCC approved radio devices to transmit on unoccupied channels in the spectrum bands normally used by broadcast television, so called TV white spaces.

The radio devices are required to provide their geographic location to the database by means of an internet connection. The system will return a list of the channels available for operation by the device for its reported location and a given period of time.

Operators of MVPD (multichannel video programming distributors) receive sites, LP-AUX (wireless microphone) users, and operators of temporary fixed broadcast auxiliary services (BAS) can register their sites with the database to receive protection from TV bands devices as specified by the FCC.

The LS telcom TV white space database system synchronises with the four other authorised TV white space systems. Prior to receiving the full approval from the FCC, the LS telcom database underwent a rigorous forty-five-day real world testing period and specific interconnection testing.

Dr. Georg Schöne, CTO and member of the board at LS telcom, said, "LS telcom has been in the spectrum management business for over



twenty years. It is only natural for us to invest in white space management and dynamic spectrum access solutions. The approval of our TV bands database system by FCC legitimises our effort and know-how in the area."

More about LS telcom's expertise in dynamic spectrum access

LS telcom is at the forefront of dynamic spectrum access (DSA) issues worldwide. The US TV white space database system is the first national spectrum policy implemented for dynamic spectrum access in the TV bands. Dynamic spectrum access represents a complimentary spectrum management approach to those used for many years, and LS telcom's commitment to developing dynamic spectrum allocation databases such as the FCC autho-

vised TVWS database is an example of how DSA is becoming a reality for spectrum allocation.

The LS telcom white space solution

The LS telcom white space management solution consists of the database containing assignments, registration and authorisation, and the spectrum license database, including the spectrum license data of incumbent users and protected spectrum. The system is based on over twenty years of radio spectrum software, system and database development, and includes the feedback and input of regulatory authorities in over 90 countries worldwide. ←



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

TRA Oman wins His Majesty Award for eGovernment services with LS telcom's advanced and automated spectrum management system



The Telecommunications Regulatory Authority (TRA) of the Sultanate of Oman won the web award for the best eGovernment service provided to the private sector, during the traditional December ceremony aimed to present Sultan Qaboos Awards for Excellence in eGovernment services.

TRA's complete spectrum management life cycle is based on LS telcom's Advanced Automated Spectrum Management System (AASMS). The system is one of the most modern spectrum management systems in the world providing online services. 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 system processes 60 different commercial transactions in addition to a tremendous amount of technical data analyses. The Portal for Online Radio Licence Services makes

life much more convenient for licence applicants. It considerably reduces the time span from licence application data entry, to compliance checks and technical calculation, to licence payment and finally the licence award. The application for new licences, as well as modification, cancellation and replacement of existing licences and payment can be done online. There is no more tedious and repetitive data entry in paper format anymore, as the licence applicant's data is safely stored under its user account and can be accessed at any time.

François Rancy, Director, ITU Radio-communication Bureau, commented: "I would like to congratulate the Sultanate of Oman and TRA for this major achievement. To my knowledge this achievement has no precedent in the world, consisting in the overall scope and ambition in the software and I'm sure it will be used by many other countries, following this successful implementation." ←

LS telcom published report on IMT spectrum demand forecasts

LS telcom published the report "Mobile spectrum requirements estimates: getting the inputs right".

The report, written in association with TMF Associates, examines in detail the model developed by ITU WP5D in producing a forecast for IMT spectrum demand. The report finds that the inputs currently used to calculate the spectrum requirements (as documented in ITU-R Report M.2290) are far in excess of any realistic scenario, and thus the results of the model, as it stands, must be taken into question. By comparing traffic density figures used in the model with figures from the UMTS Forum and CISCO, it has been

discovered that the traffic density figures currently used in the ITU model are at least two orders of magnitude (i.e. a factor of hundred or more times) higher than any other forecasts. Richard Womersley, Director of Spectrum Consulting at LS telcom and the co-author of the report, concludes that the ITU model's results should not currently be used by regulators to inform any decisions on spectrum demand until the inputs are fully reviewed and calibrated to more realistic levels. However, he states that "the ITU spectrum

demand model itself uses a logical methodology which is more reliable than many other alternatives, because it considers the different network architectures used in different service environments, rather than simply taking the unrepresentative figure for an entire country." He suggests that the inputs to the ITU spectrum demand model should be revised to achieve accurate results of IMT spectrum requirements.

lst.ag/PR-IMT ←

LS telcom analyses worldwide licensing and usage of IMT spectrum

LS telcom published its study about worldwide licensing and usage of IMT (international mobile telecommunications) spectrum.

LS telcom found that in most regions of the world at least 30% of harmonised spectrum for IMT services is not yet licensed.

From within that which is licensed almost a quarter is not yet in service, the situation being worse for TDD spectrum than FDD spectrum. Amongst other figures, the study finds that most countries should be able to find at least another 150 MHz of additional IMT spectrum from within that which is regionally harmonised. In addition, almost every country should be able to find a further 200 MHz of spectrum that is identified by the ITU for IMT but which may require effort to make it available (e.g. through re-far-

ming). The analysis also shows that the 700 MHz band still remains to be licensed in most parts of the world and that the 2600 MHz bands, which represent nearly 200 MHz of IMT spectrum, remain to be licensed virtually everywhere with the exception of Europe. Richard Womersley, Director of Spectrum Consulting at LS telcom and author of the study concludes that "before further spectrum is identified for IMT services at WRC-15, there is clearly a need for operators to work with regu-

lators to push forward with the licensing of already identified IMT spectrum, and for operators to put their entire licensed spectrum into use." LS telcom analysed the licensing data of over 90 countries and the responses by 20 regulators to a survey on the use of licensed IMT spectrum. This data has been compared to the amount of spectrum, which should be easily licensed as it is fully harmonised, and to the amount of spectrum identified by the ITU for IMT, which therefore could be licensed and put to use.

lst.ag/IMT-Report ←

LS telcom delivers state-of-the-art Mobile Monitoring Station to ARPT Guinea

LS telcom has recently completed the delivery of an advanced Mobile Monitoring Station (MMS) for the monitoring and direction finding of radio-electric signals to the Regulatory Authority of Post and Telecommunications (ARPT) Guinea.

With its electrically operated 8m mast, ample internal space, modified 4x4 and double-rear wheels for difficult terrain, expanded fuel tank, sleek internal design, and many other options, the Mobile Monitoring Station combines the best of electronic equipment, RF performance, level of comfort for long missions, and robustness for operations in difficult environmental and terrain conditions.

The MMS is as impressive from the outside as it is comfortable and easy to operate inside. It is compatible with the equipment already in operation at ARPT. This will allow - through software upgrades of the previously deployed stations at ARPT - to operate a Control Center with simultaneous direction finding from several stations, dramatically enhancing the enforcement capabilities of ARPT. ←



Namibia: LS telcom carries out countrywide broadcast site audits via remotely piloted aircraft (RPA)

The Communications Regulatory Authority of Namibia (CRAN) chose LS telcom to perform audits of 25 broadcast transmission sites in representative areas across Namibia.

LS telcom carried out these audits by means of remotely piloted aircraft (RPA), which include a measurement and sensor system as well as a camera onboard.

The objective of the project was to determine the radio frequency (RF) performance characteristics of identified sites and masts, installed antennas per mast and the operational broadcasting services on every antenna, including the assessment of spectrum usage.

LS telcom delivered the measurement and media footage results of all the sites to CRAN in December 2014.

In contrast to other measurement services, the site auditing procedures via remotely piloted aircraft took place

without affecting operational services and without direct involvement of network operators. The detailed measurements and recordings as well as capturing detailed visuals of site and mast infrastructure via the RPA, does not require core site or building entry, service disruption or power reduction of services.

CRAN's Chief Operating Officer, Jochen Traut, commented: "The site audit produced very detailed and informative results. This is the introduction of an exciting phase of efficient telecommunication regulation in Namibia." CRAN will now incorporate the results into their central database for future referencing and compliance assessment. ←



Aviation Spectrum Resources (ASRI) acquires LS OBSERVER portable monitoring from LS telcom

ASRI, the US regulatory authority for aeronautical spectrum, acquired the LS OBSERVER portable monitoring solution.

According to Martine Charles of LS telcom Inc, "LS telcom's Portable Monitoring Unit (PMU) was chosen for its ease of use and data storage capabilities. ASRI's intent is to continuously monitor FC015 data, as percentage of channel occupancy licenses issuance thresholds."

LS OBSERVER monitors the entire frequency spectrum, captures everything all the time, all data is stored and any

data can be retrieved at any time for instant intelligent decision-making. ASRI is responsible for managing the Aeronautical Enroute VHF Spectrum 128.825 - 132.00 MHz and 136.500 - 136.975 MHz and the Long Distance Operational Control (LDOC) HF spectrum in the United States.

ASRI's frequency management selects frequencies and holds licenses for use by airlines and other aircraft operators

for use in operational control of aircraft. ASRI is a member of the US Aeronautical Frequency Committee. ←

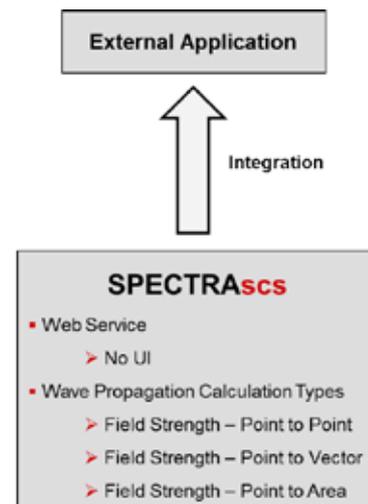
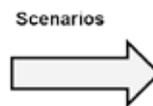
NEW in SPECTRA: Smart Calculation Service "SPECTRAscs"

Are you looking for qualified field strength calculations but you don't need the numerous other capabilities of SPECTRAemc? Then our Smart Calculation Service (SPECTRAscs) provides the ideal solution for you.

SPECTRAscs is a RESTful service utilising the calculation engine of SPECTRAemc. Its versatile and customizable interface can be adapted especially to customers needs. Based on the technical data and preconfigured SPECTRAemc scenarios, field strength predictions within your application just as in SPECTRAemc can be run.

Beyond typical spectrum monitoring

tasks such as comparison of measured and predicted data many more application possibilities are conceivable. ←



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our Booth...

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Brazil**
25th - 27th August 2015

**Middle East & North
Africa Spectrum
Management Confe-
rence, Rabat/Morocco**
28th August 2015

**IBC, Amsterdam/
Netherlands**
11th - 15th September 2015

**ITU Telecom World,
Budapest/Hungary**
12th - 15th October 2015



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Spectrum consulting: white space management and digital switchover for the Caribbean Telecommunications Union

In the framework of the Harmonized Caribbean Spectrum Planning and Management Project, the Caribbean Telecommunications Union (CTU) chose LS telcom to carry out spectrum consulting services.

The CTU is a Caribbean intergovernmental organisation dedicated to facilitating the development of the regional information and communications (ICT) sector and a sub-group of the ITU.

LS telcom will provide consulting services on harmonized technical and policy approaches for the Caribbean digital broadcast switchover; and develop a proposal for harmonized white space management for the region.

First, LS telcom will assess and analyse the situation in each participating CTU member country. Based on these analyses, the consultants will develop policy recommendations for a harmonized approach and a proposal for white space management. A workshop will take place at the end of the project to present the results and recommendations to all participating countries. Capacity building sessions will conclude the project. ←

Training for Thai regulatory authority

The LS telcom Training Academy welcomed 27 participants from the NBTC, the Thai regulatory authority, for a full week "Advanced Course on Spectrum Monitoring from the Perspective of ITU Regulation". The audit group of NBTC confirmed on the last day of training that they were "very satisfied with the course".



Upcoming Training Courses

LS telcom Training Academy, Lichtenau/Germany

- Spectrum Monitoring Measurements & Techniques: October 20-21, 2015
- Practical Spectrum Monitoring Measurements: October 22-23, 2015
- Managing and Regulating The Radio Spectrum: November 9-13, 2015
- Technical Issues in Radio Spectrum Management: November 16-20, 2015

...and many more!

Download the calendar on www.LST.AG/Training. Alternatively you may contact Ms Sabrina Kautz by email to SKautz@LStelcom.com or by phone: +49 7227 9535 488 for further information on our seminars or for our customised training programmes. ←



SPOT ON:

M2M Licence application for Indonesian Telecommunications Regulatory Authority (SDPPI)

In 2014 LS telcom successfully finished the online installation of all radio services for the regulatory authority of Indonesia. Frequency users in Indonesia can now apply and manage their licences for all radio services online. The system is now approaching full automation for licence, invoice, and payment management. In 2015 machine-to-machine (M2M) communication will be implemented between the major mobile operators of the country and the regulator. This way the application, renewal, modification, and cancellation of mobile operators' licences will be fully automated, without any human intervention.

System upgrade for regulatory authority, Vietnam

ARFM Vietnam has decided for a full system upgrade with LS telcom. At the end of the upgrade, they will have a fully automated e-licensing system for the management of frequency applications, renewal, modification, and cancellation.

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