

Automated and Integrated Frequency Application and Licence Management for Network Operators



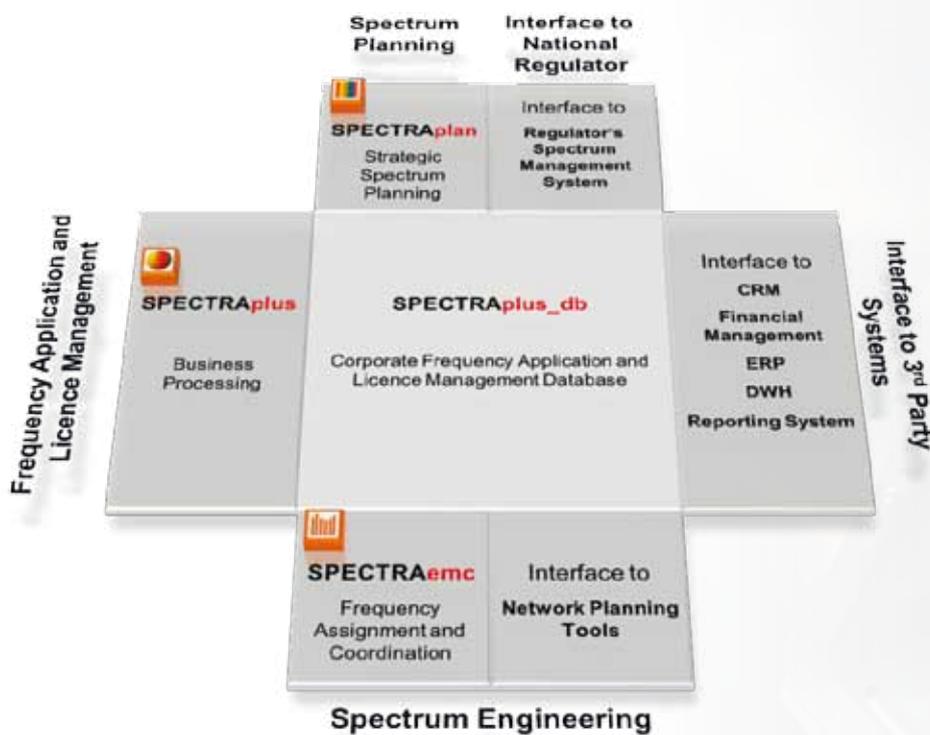
The Challenges of Frequency Application and Licence Management

Wireless network operators manage a large range of frequencies and thousands of stations and links across a vast territory. The maintenance of these, including the renewal of frequency licences and licence payments, constitutes a repetitive administration effort. Just as important is the huge rise in the operators' demand for new frequency licences that comes with LTE or other 4G technologies, as the microwave backhaul network has to be updated to support the new capacity needs of LTE.

With the increase in frequency applications and licence volumes, the effective and reliable management of these is indispensable for the successful and cost-effective deployment of 4G technologies.

At LS telcom we have twenty years of worldwide experience in the spectrum management and licensing business. Our SPECTRA System is an integrated and automated solution for optimised network wide frequency application and licence management.

It consists of the powerful database engine SPECTRAplus_db and the different task specific software modules:



SPECTRAplus_db

stores and centralises all application and licence data to give you a single corporate view of your applications and licences.

SPECTRAplus

supports all underlying business and administrative processes for the efficient network wide management of applications and licences.

SPECTRAplan

is your strategic spectrum planning tool designed to manage all types of frequency licences, microwave links, area-wide, regionally and nationally.

SPECTRAemc

is used for interference analysis, coordination and frequency assignment. It guarantees interference-free and optimised spectrum usage.

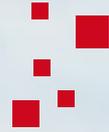
Interfaces

The SPECTRA System interfaces with network planning systems, enterprise resource planning, and data warehousing as well as financial and customer relationships management systems.

The SPECTRA Solution centralises all relevant data and automates the underlying processes for frequency application, licence and licence cost management. The integrated workflow management speeds up the frequency application processes. Its extensive data mining capabilities allow for simulation, KPI-based controlling and reporting.

The Benefits of the SPECTRA Solution

Optimised Licence Costs and Greater Efficiency with Central Frequency Application & Licence Management



Automated End-to-End Workflows for Corporate-Wide Licence Management

With our SPECTRA System, application and licence management can be standardised on a corporate level and all underlying business processes are automated. The integrated central workflow management allows for corporate-wide process coordination and standardisation. It links the activities of the different business units and enables smooth collaboration between them. Business processes within the different departments are supported by automated workflows. They take the user step-by-step through their tasks, whether the user deals

with frequency applications, licensing or licence cost management. For each service or licence type you can create a workflow to guide you through repetitive processes. This guarantees data consistency and eases data comparison.

The system includes extensive user profile management and task-oriented information access, as well as history-of-change management and is the foundation of your digital office.

Your licence application at the push of a button

The complete frequency application form with all relevant data is created at the push of a button. The system makes sure that there is no data missing in the application form sent to the regulatory authority. This way the frequency request can be cleared much faster by the regulator and you reduce the time to receive your frequency licence.

Optimise your licences through intelligent decision-making

You need a corporate view of all frequency applications and licences in order to manage them efficiently on a network wide basis. In SPECTRA all relevant application and licence data is stored in one database. The integrated business logic and business intelligence functions allow you to make queries for intelligent decision making. It enables you, for example, to bundle several licence application requests from various business units and check different licence scenarios in order to streamline the

licence application that is sent to the regulator. You can also check whether it is more cost-effective to apply for several location licences, or to bundle these into an area, regional or nationwide frequency licence. Among many other query possibilities, you can check if the re-use of an existing site in another business unit is preferential to implementing a new site or if a licence request is already covered internally by another business unit.

Simulation, Controlling and Reporting

The SPECTRA System's powerful database engine and data mining capabilities together with the standardisation of processes and data consistency on a corporate level allow for extensive simulation, controlling and KPI-based reporting.

You can imagine several use cases

- Simulate your licence costs for different technical and licence scenarios before applying for the most adapted frequency ("what if" scenarios)
- Restructure your network and re-allocate your frequencies for regional or network wide cost savings
- Follow and report the evolution of overall licence costs for future cost controlling

Network Wide Cost Optimisation, Budget and Frequency Planning

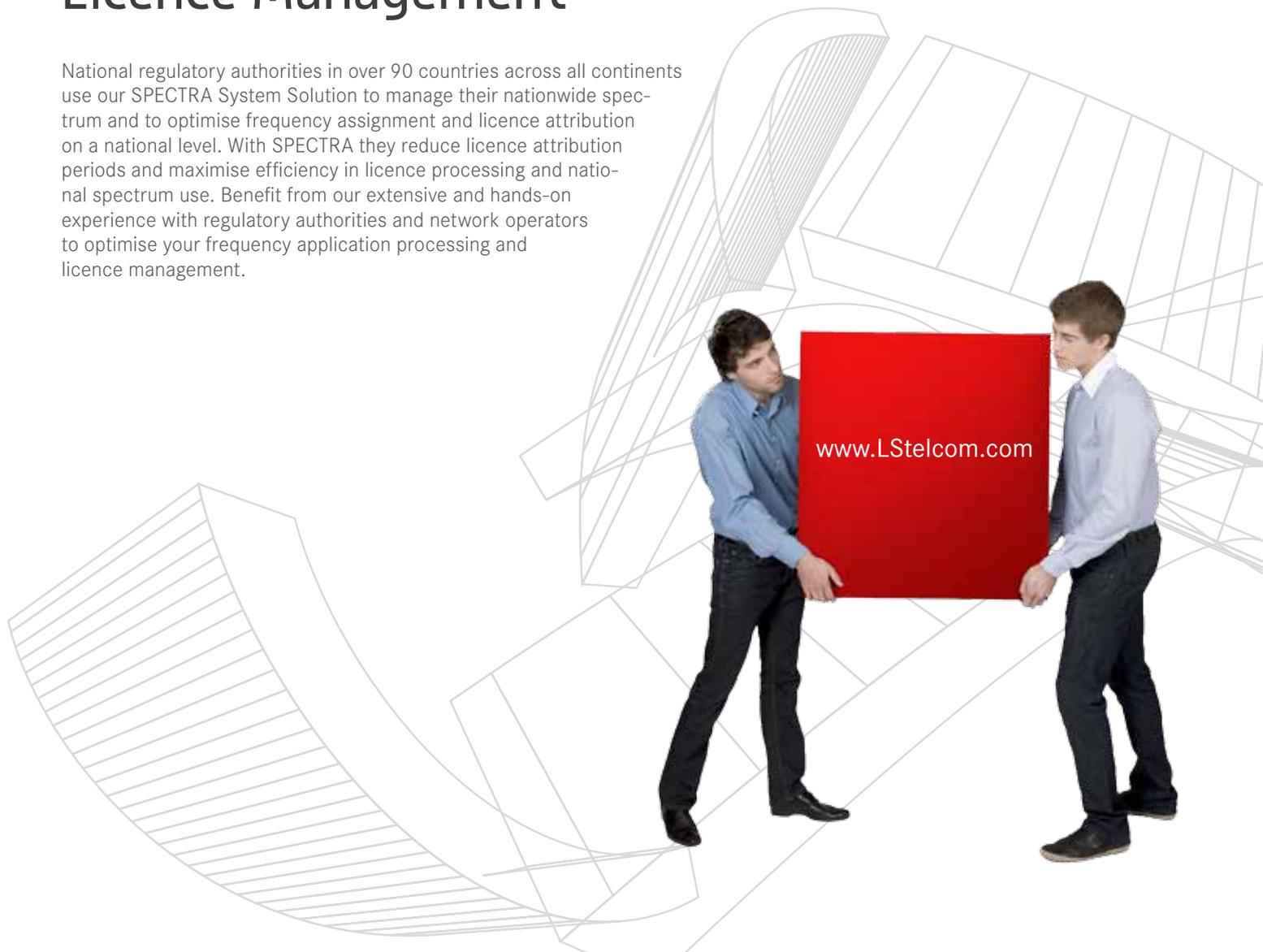
Take it one step further in countries where regulation allows closer cooperation between the operator and the regulator.

A direct access to the relevant part of the regulator's database to pre-check which frequency is actually available and interference free in a certain region, will allow you to pre-select the most adapted frequency for a certain link or area and to immediately calculate the corresponding costs

and changes in technical parameters which may occur. Having compatible and synchronised systems on both, the regulator's and the operator's side, makes the frequency management and licensing processes less time consuming and leads to a more efficient use of nationwide spectrum, technically and economically speaking. This will not only be to the benefit of the regulator and operator, but also furthers the interests of the general public.

LS telcom: 20 years of Excellence in Spectrum and Frequency Licence Management

National regulatory authorities in over 90 countries across all continents use our SPECTRA System Solution to manage their nationwide spectrum and to optimise frequency assignment and licence attribution on a national level. With SPECTRA they reduce licence attribution periods and maximise efficiency in licence processing and national spectrum use. Benefit from our extensive and hands-on experience with regulatory authorities and network operators to optimise your frequency application processing and licence management.



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