LS telcom
Tomorrow's Communication Designed Today.

Aeronautical Spectrum and Frequency Management Solutions

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Aeronautical Spectrum and Frequency Management with SPECTRAair

Air traffic is growing rapidly on a global scale, new airports are being built and existing ones extended to accommodate more traffic. In parallel to the increase in air traffic, demand for already scarce frequencies is rising for air traffic control as well as for other safety services.
Efficiency in aeronautical spectrum management combined with aeronautical frequency measurement and monitoring is key, if you want to maximise the use of aeronautical frequencies and guarantee safety and security in air traffic. You need to know what's really going on in the spectrum environment in the vicinity of airports to avoid harmful interference from other services and to optimise frequency assignments and reuse.

The EU Regulation from 7th July 2011 on air traffic management (ATM) goes in the same direction. It envisages the optimal use of scarce aeronautical frequency resources by providing the necessary framework for better coordination between countries, as well as the measurement of real frequency use.

This is where we come in

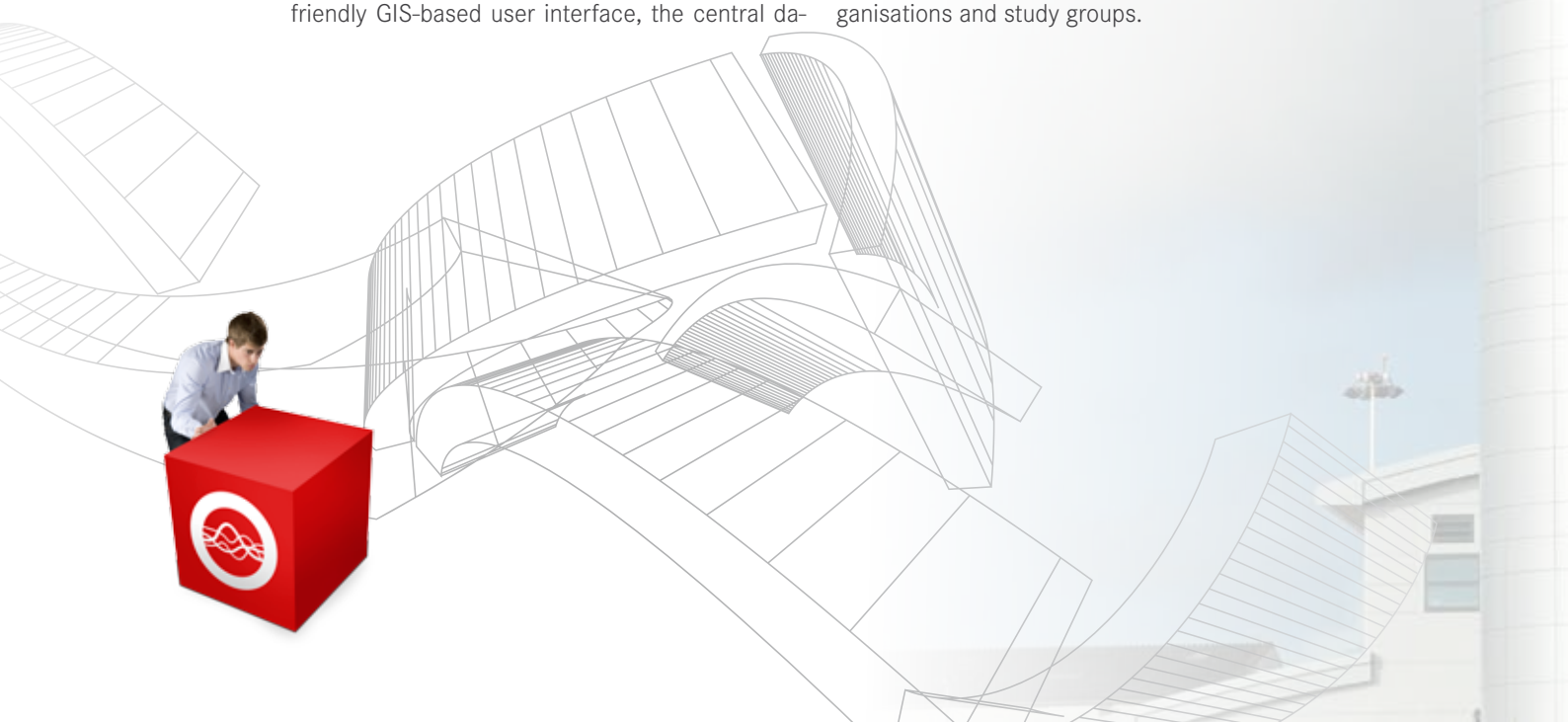
LS telcom has been in business since the very beginning of automated spectrum management and has grown with the market. Today customers in over 90 countries across all continents rely on our expertise in spectrum management and monitoring.

Our SPECTRAair system is an automated and integrated solution for spectrum and frequency management of aeronautical radio services. It supports the processes for domestic licence as well as incoming foreign coordination requests including frequency assignment and coordination with foreign countries. It also enables you to plan new stations of aeronautical navigation and communication systems.

The software architecture along with the user-friendly GIS-based user interface, the central database, and, the ruggedised calculation engine make up the core foundation of the system. It is completed by the task-specific software modules for administration of licences and frequency plans, frequency assignment and compatibility calculations as well as coordination and monitoring.

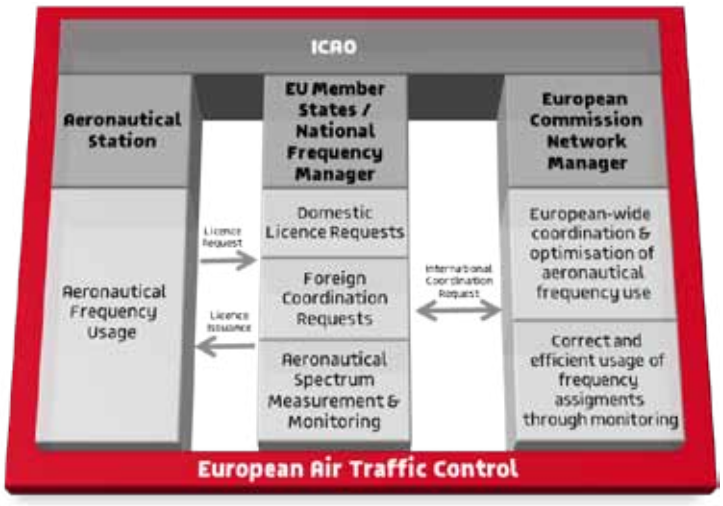
The database contains all administrative and technical aeronautical frequency data including notification data and frequency plans. The system also interfaces with ITU BR IFIC, SAFIRE, and EFIS to provide spectrum availability and use capabilities for efficient frequency assignment.

SPECTRAair is based on two decades of expert research and development and in addition benefits from our proximity to customers as well as our active participation in national and international organisations and study groups.



Your main benefits using SPECTRAair

The new EU Regulation on ATM stipulates that a centralised Network Manager should coordinate strategic spectrum aspects with the national frequency managers to optimise the use and occupancy of radio spectrum by general air traffic in Europe. This includes the undertaking of specific frequency searches and the performance of monitoring to ensure the correct and efficient usage of frequencies. All radio frequency data, including operational use of frequency assignments, should be stored in a central register. The Network Manager will also coordinate member states' contributions to international forums, such as ITU (International Telecommunication Union) and CEPT (European Conference of Postal and Telecommunications Administrations).



Our SPECTRAair system supports all underlying processes for central and national frequency planning, coordination, registration and optimisation.

Ease of Use and Efficient Workflows

"Automated Wizards" take you step-by-step through the complete frequency assignment and coordination process. Save time, be consistent, and standardise processes through the creation of wizards. The system allows you to create your own workflows for domestic licence and foreign coordination requests. Workflows can be added or modified at any time. They run smoothly through the different task-specific software modules and allow for seamless integration and data exchange between administrative and technical user departments.

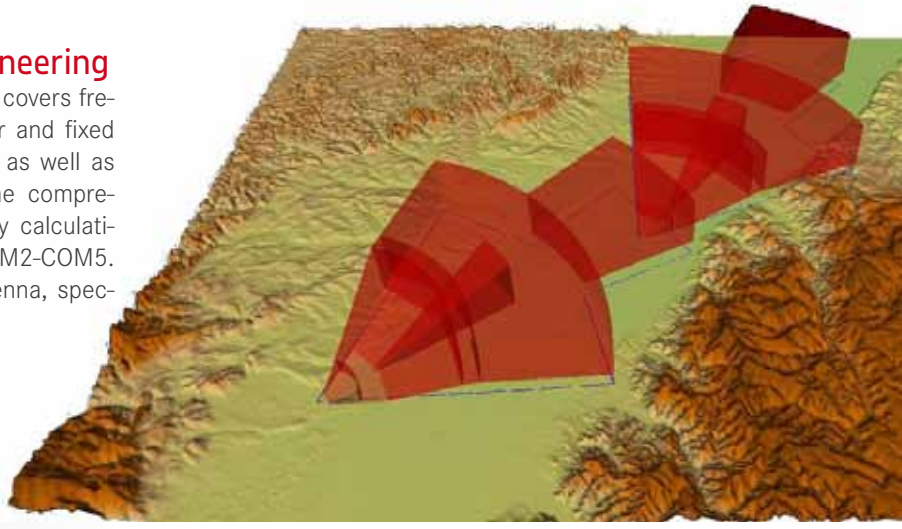
Smooth cooperation through Interfaces and Data Exchange Capabilities

Smooth cooperation and coordination between the different stakeholders of aeronautical frequency management is facilitated by the system's interfaces with SAFIRE, ITU BR-IFIC and EFIS as well as its compatibility with ICAO. It also features extensive data exchange and report capabilities. The reporting possibilities comprise document management, report design, statistics, graphical workflows as well as 3D views, visualisation of calculation results and of technical data on maps.

The flexible user-access and history-of-change management guarantees data integrity and security. Data can be modified or viewed only according to specific users or attributed tasks.

Fully-fledged & Sound Engineering

The system's engineering functionality covers frequency assignment calculations, radar and fixed link planning, interference calculation as well as coverage prediction and planning. The comprehensive coordination and compatibility calculations are based on ICAO rules - ICAO COM2-COM5. In addition, calculations consider antenna, spectrum and terrain information.



Frequency protected service volume of two LLZ about 60km apart from each other.

Connect your spectrum management system with the LS OBSERVER monitoring system

Protect your airports from harmful interference

In particular airports and their vicinity need to be protected from interference through unwanted signals as smooth communication related to air traffic control operations and safety is indispensable. For example, a landing system suffering from breaks in reception may be made unusable for a landing aircraft. You need to track down immediately what causes the interference. Above all, the risk of harmful interference is increasing in line with the continued growth of wireless communication systems.

Guarantee a safe spectrum environment around airports with our monitoring system LS OBSERVER. LS OBSERVER "observes" the whole frequency range and detects even the shortest frequency use interfering with air traffic communication 24 hours a day 365 days a year, automatically. The system also includes geo-location, which enables you to locate illegal transmitters around the airport straight away, speeding the response to remove the source quickly and efficiently.

Check the real frequency use around your airport for better frequency assignment

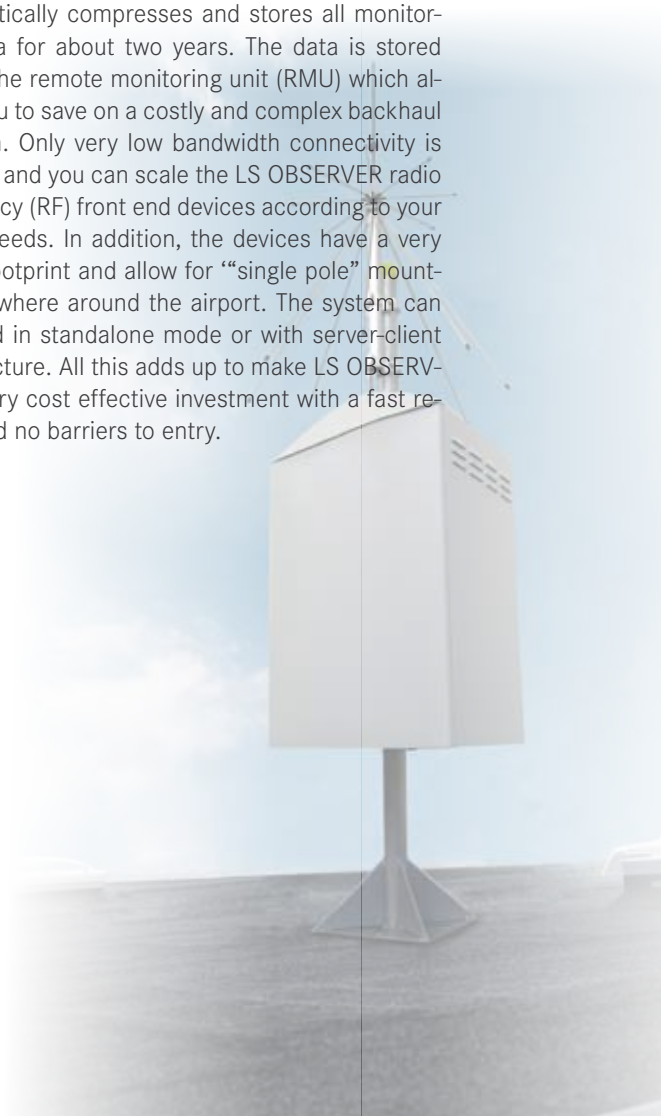
With the permanent monitoring of ATC frequencies and nearby ATC frequencies (as for example TV broadcast and FM) around the airport, you obtain a "fingerprint" of the electromagnetic environment in and around airport facilities. This enables you to immediately realise any new or unknown emissions and you can take action straight away.

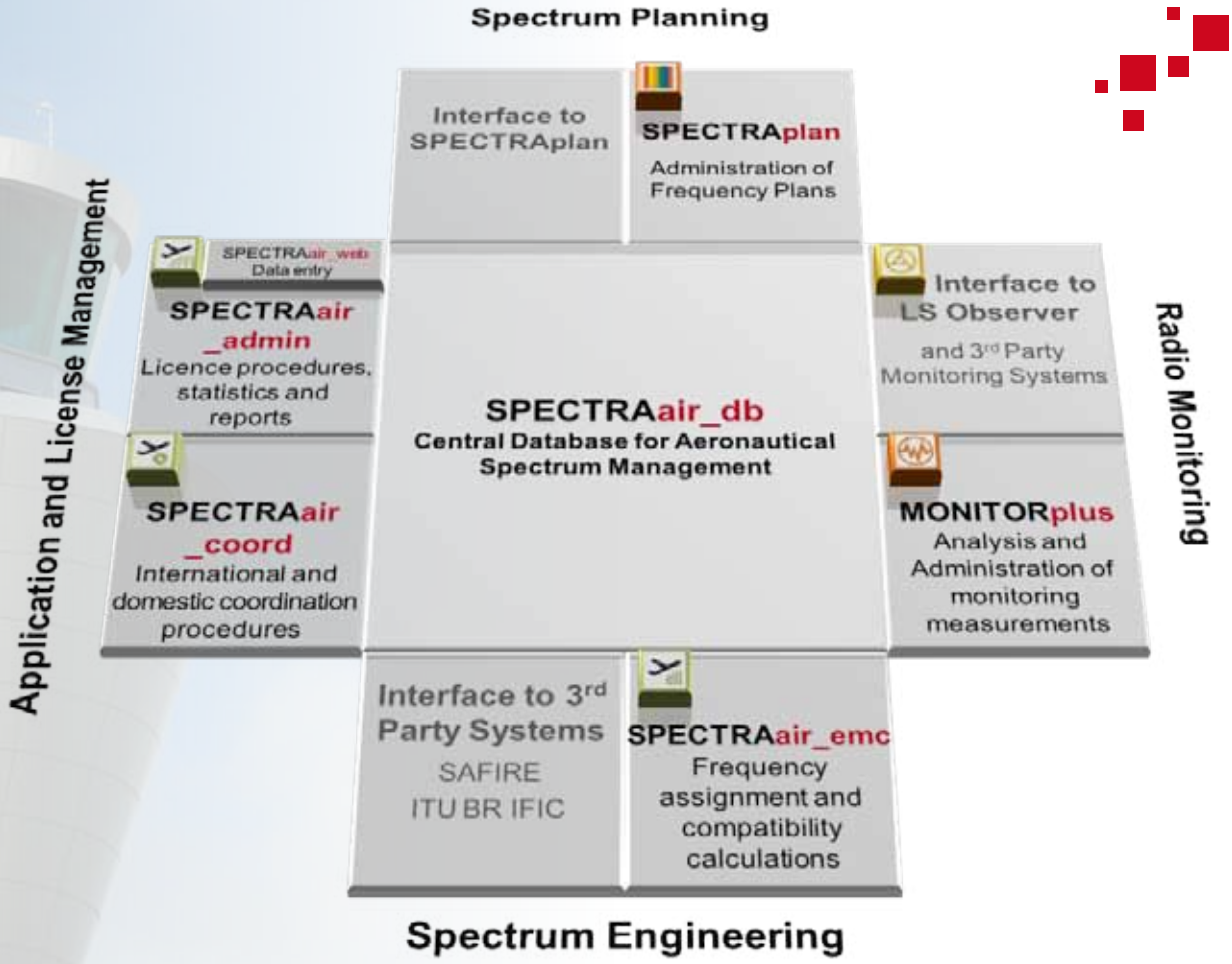
In addition, you can guarantee that any newly assigned frequency to an airport is absolutely safe from interference.

But not only this: With the frequency footprint of every airport, frequency assignment can be optimised at a national and international level and will be the foundation for real efficiency in aeronautical spectrum management.

How is this possible? And why LS OBSERVER?

LS OBSERVER is the next generation of monitoring and has many advantages over traditional monitoring systems. It captures all frequencies at all times, automatically compresses and stores all monitoring data for about two years. The data is stored within the remote monitoring unit (RMU) which allows you to save on a costly and complex backhaul solution. Only very low bandwidth connectivity is needed and you can scale the LS OBSERVER radio frequency (RF) front end devices according to your exact needs. In addition, the devices have a very small footprint and allow for '"single pole" mounting anywhere around the airport. The system can be used in standalone mode or with server-client architecture. All this adds up to make LS OBSERVER a very cost effective investment with a fast return and no barriers to entry.





SPECTRAair_db

is the system's central database and stores all aeronautical spectrum management data, such as administrative licence data, technical data, coordination data, frequency plans and tool interfaces.

SPECTRAair_admin

is the complete solution for the administration of aeronautical radio data and for the licensing of aeronautical radio services.

SPECTRAair_coord

is the tool for domestic and foreign aeronautical coordination procedures and data according to ICAO COM2-COM4 with direct import from SAFIRE export.

SPECTRAplan

is dedicated to the administration of frequency plans.

SPECTRAair_emc

supports electromagnetic compatibility analysis, aeronautical frequency assignment, coordination based on ICAO rules, interference calculations and calculations for paired frequency assignments (e.g. ILS, MLS and DME).

MONITORplus

The module MONITORplus is the system interface between the SPECTRAair system licence data and the current market radio monitoring systems. The tool covers in-depth analyses features and administration of monitoring data.

SPECTRAair_web

facilitates data entry of licensing data.

LS OBSERVER

is the next generation monitoring system for extremely fast data capture and automatic and long-term monitoring data storage. It is the foundation for real optimisation in aeronautical frequency assignment and usage.

Manage and monitor your aeronautical frequency spectrum with SPECTRAair & LS OBSERVER

SPECTRAair

is an automated and integrated software solution supporting all underlying processes for the management of all aeronautical radio services:

- use calculation methods based on ICAO rules as well as very precise calculations considering antenna, spectrum and terrain data
- optimise process flows for domestic licence as well as incoming foreign requests
- guarantee up-to-date and consistent data as well as smooth data exchange between all stakeholders

LS OBSERVER

"observes" the whole frequency range around airports:

- guarantee that your airport's radio communication services are interference-free at all times
- make sure that a newly assigned service is absolutely safe from interference
- optimise frequency attribution at airport level, and at national and international level

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