SPECTRUM 2023

News Magazine - Smart Spectrum Solutions for Airports

LS telcom
Smart Spectrum Solutions

Global Spectrum Experience

// Radio spectrum as basis for digital transformation

Professional spectrum management at Schiphol Airport

Ensuring a safe, interference- and incident-free radio environment while providing enough radio frequencies for all radio networks, services and applications is a challenge that airports in today's time of digitalization have to face. One of our success stories shows, how easy yet important it is to introduce professional spectrum management at an airport.

Amsterdam Airport Schiphol commissioned LS telcom for spectrum management & licensing. Together we developed a general licensing framework and introduced an automated spectrum management system including a central frequency database as well as radio monitoring capabilities.

Amsterdam Airport Schiphol now has full visibility of the used radio spectrum and infrastructure. They deliver their customers excellent, highly reliable, interference-free and safe radio services at the airport. The airport can detect incidents, misuse and illegal frequency use and react immediately. This contributes to the general safety at Schiphol Airport and improves overall passenger experience. ∎

mySPECTRA

mySPECTRA is LS telcom's holistic and proactive spectrum management system for the digitalization and automation of business processes.

- Spectrum resource planning based on a central database
- Consistent business processing based on digital workflows
- Automated radio-frequency compatibility analysis
- Digital dashboards with customer specific KPIs

ITU World Radiocommunication Conference 2023 (WRC-23)

The WRC-23 takes place in Dubai, United Arab Emirates, between 20 November to 15 December. The WRC is held to revise the Radio Regulations, the international treaty governing the use of the radio-frequency spectrum and satellite orbits.

Contact LS telcom for spectrum consulting prior to and after the conference. ∎

# What it takes to become a smart and connected airport!

Airport requirements and services are constantly growing which increases the demand for wireless communications, both landside and airside. Not only providing excellent passenger experience while offering mobile services like 4G/5G, WiFi or Bluetooth is what characterizes a smart and connected airport. Equally important is also to assure a flawless availability of critical communications (e.g. TETRA) in order to guarantee safety at all times. Additionally, there are also many other wireless services such as those linked to air traffic control (ATC), or dispatch, logistics, passenger flow control, autonomous operating baggage systems and other IoT applications. All these radio technologies and services need to be properly planned and implemented to assure ubiquitous connectivity and thus availability of service.

LS telcom supports airports in identifying, selecting and implementing appropriate radio technologies at airports. From the vision to the implementation and beyond. ◼

Consulting, planning and realization of radio networks – it's all on us!

We are an independent and neutral provider of consulting services and network components:

- Management and feasibility studies
- Spectrum acquisition
- Network design and planning
- Procurement of network components
- Integration and commissioning
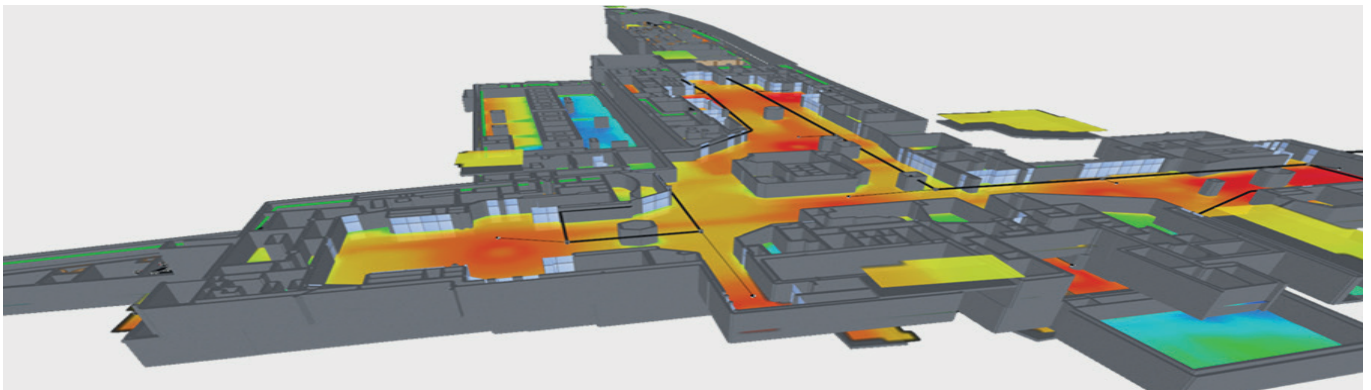
COLIBREX wins Navigational Aids (NavAid) project

COLIBREX, a 100% subsidiary of LS telcom, was contracted to supply a NavAidDrone System - a drone-based solution for performing specialized field measurements for ILS commissioning and regular inspection - to a major air traffic control authority.

The NavAidDrone System is a system that was designed and developed over a multi-year period together with a technology partner with experience in flight inspection and receiving/processing ILS/VOR signals and COLIBREX's experience in drone design, production and operation of UAS for RF signal measurement and monitoring purposed.

The client's objective with the procurement of COLIBREX technology is to modernize and optimize the efficiency of the country's Airspace Management improving the operation and safety of the navigation system. ◼

Technical background:

Navigation in the airspace must be highly precise to determine the aircraft's location in space. Radio frequency transmitter stations are installed on the ground to generate signals with special information for manual and automatic guidance of the aircraft, called RADIO AIDS.

One of the Radio aids used for air navigation is the Very High-Frequency Omnidirectional Radio Beacon (VOR) that facilitates the approach and departure of an aircraft, as well as an en-route navigation guide with an efficient margin of safety.

The second Radio aid considered important is the Instrument Landing System, ILS, which transmits a signal into space with which the pilot can guide the aircraft manually or by connecting the Autopilot.

The NavAidDrone System supports Air Traffic Control Authorities in the commissioning, verification or regular maintenance of instrument landing systems ILS/VOR and navigation aids.

LS OBSERVER automated spectrum monitoring and geolocation system at Karlsruhe / Baden-Baden Airport

Four LS OBSERVER fixed monitoring units (FMU) are installed around the Karlsruhe/Baden-Baden Airport which is close to LS telcom's headquarters in Germany.

The monitoring units are networked and can be controlled remotely from a cloud-based operation center.

This setup features time difference of arrival (TDOA) and gain ration of arrival (GROA+®) based localization of RF emissions. Once a suspicious emission like interference is on air the system automatically sends out an alert and the source location can be calculated.

From the Central Monitoring Software (CMS) software the user can manage the system, perform various kind of analysis on live and stored data and program automation. The system works in the frequency range from 9kHz up to 6GHz. It monitors the VHF spectrum, NAVAIDS, TETRA, GNSS, cellular systems and additional radio services and is capable to detect interference, jamming and system failures. With this proactive 24/7 monitoring approach airports can immediately react to interference and problems ensuring safe and reliable wireless communications. ■

Localization of emissions using GROA+®

Localization of emissions using TDOA technology

LS OBSERVER

LS OBSERVER is LS telcom's monitoring system for preventive and sustainable radio protection. With LS OBSERVER, a variety of network-based processes are assured

- 24/7 spectrum surveillance (VHF, UHF, SHF)
- Automated detection of spectrum interference
- Real-time localization of radio interferers
- AI-based analysis of measurement data

LS OBSERVER FMU at Karlsruhe/Baden-Baden Airport

Private wireless networks for airports

For digital networking to function smoothly and trouble-free, airports need a reliable network that promises bandwidth, security and data sovereignty.

The requirements for such a network must be individually adapted and tailor-made. Large volumes of data must be transported securely and reliably. Sounds complicated and almost impossible at first - but it is not. The solution: a private wireless network.

The great advantage of such a private wireless network is the independence from the network operator, which allows the "exclusive" use of the network and thus exclusive access to the full network capacity. This ensures a high level of security - a factor that is indispensable today, especially at a location like an airport where ubiquitous connectivity needs to be guaranteed at all times.

Do you want to know if a private wireless network is for you?

Are you not quite sure, how the implementation of such a private wireless network can be done at your location?

We are happy to help! Our experts will support and guide you on every step of the way – from consulting, to planning, to implementation. Leave it with us! ■

Reasons for a private wireless network:

- Exclusive radio spectrum assuring high quality of networks
- Availability of full network capacity
- Radio network design based on airport specific requirements
- High level of security with full access control
- Exploit advantages of 5G technology

We are back!

LS telcom is present at at the following exhibitions and conferences::

- **Airspace World**
  Geneva / Switzerland | 08. - 10.03.2023
- **PTE – Passenger Terminal Expo**
  Amsterdam / Netherlands | 14. - 16.03.2023
- **Critical Communications World**
  Helsinki / Finland | 23 - 25.05.2023
- **PMR Expo**
  Cologne / Germany | 28. - 30.11.2023

To coordinate a meeting with our staff, please contact Isabelle Gärtner at: IGaertner(at)LStelcom.com.

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 Training courses:

- Measurements of Human Exposure to RF Electromagnetic Fields at 5G NR Base Stations 22.03.2023 (online)
- Spectrum Monitoring - Measurements and Techniques
  08. - 09.05.2023

Save the date

27th Annual Spectrum Summit

Lichtenau/Germany | 28.06.2023
LS telcom is proud to host the annual Spectrum Summit. We feel honored to welcome a yearly growing number of industry experts from the regulatory and industry sector to present and debate hot topics and trends in spectrum management, radio regulations, and monitoring as well as broadcast, private wireless networks and critical communications.

www.spectrum-summit.com

LS telcom partners with Ranplan Wireless

LS telcom has signed a global reseller partnership agreement with Ranplan Wireless, an independent provider of network planning and optimisation software solutions.

LS telcom will incorporate Ranplan's pioneering indoor wireless network planning software featuring advanced 3D building modelling, automatic network optimisation and 3D RF propagation simulations into its portfolio.

The complexity of new wireless technologies and the array of use cases requiring dependable connectivity necessitates the use of accurate network planning software to deliver the expected service. The new partnership between LS telcom and Ranplan will support an ecosystem of companies to conquer the growing challenges of delivering reliable 5G, 4G, IoT, Wi-Fi, Public Safety and Private Wireless connectivity to a mixture of indoor and outdoor environments. ■

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

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