



Training Course

Causes, Detection and Mitigation of Radio Interference in Practice



This two-day training program is designed to strengthen the skills and practical capabilities of spectrum monitoring engineers, radio communication specialists, and mid-level managers from spectrum management and regulatory authorities.

Delivered in English, the course combines theoretical sessions, demonstrations, and field-based practical exercises to introduce participants to the fundamentals of radio interference - its causes, detection, and mitigation - while developing practical skills in spectrum monitoring, signal identification, and interference hunting.

The training course will be held in person at Eksporta street 5, Riga, Latvia. It will take place in spring 2026, with participants able to select their preferred dates in the application form.

After this training program, you will be able to:

- Understand the physical and technical fundamentals of radio spectrum and signal propagation.
- Identify and classify types and sources of radio interference.
- Operate spectrum analyzers and direction-finding systems effectively.
- Perform interference localization ("hunting") in real operational environments.
- Apply standardized methods for interference reporting and mitigation.

Day 1

Radio Spectrum, Signals and Spectrum Monitoring

Radio Spectrum Fundamentals and Management

- Structure and segmentation of the radio frequency spectrum
- Role of national administrations in efficient spectrum use
- Overview of ITU, CEPT and ECC functions in spectrum management
- Key international principles of allocation and coordination

This module provides an overview of how the radio spectrum is structured, managed and utilised globally. Participants will learn about the responsibilities of regulatory authorities, frequency allocation frameworks, and international coordination principles.

Electromagnetic Field and Modulation Principles

- Electromagnetic field fundamentals in radiocommunications
- Types of modulation: amplitude, frequency, phase, digital modulation schemes
- Overview of radio communication systems and their operational characteristics

This module explains the physical basis of radio communication through electromagnetic wave propagation and modulation. Participants will gain an understanding of how information is transmitted and how modulation impacts signal quality and spectrum occupancy.

Signal Propagation and Undesired Emissions

- Principles of radio wave propagation
- Environmental factors affecting propagation (terrain, buildings, weather)
- Physical properties of different frequency bands (HF, VHF, UHF, SHF)
- Types of signals and characteristics (bandwidth, power, modulation)
- Spurious and unwanted emissions

This module covers the mechanisms of radio signal propagation and the origins of unwanted emissions. Understanding these concepts is essential for identifying and analysing interference patterns in practical monitoring scenarios.

Practical Spectrum Monitoring and Signal Analysis

- Operation of spectrum analyzers and monitoring receivers
- Identification and analysis of real-world signals (FM, DVB-T, GSM, LTE, etc.)
- Use of monitoring software (e.g. "SKUDRA") for live signal observation and data logging

Participants will carry out hands-on exercises to identify various radio signals and understand their spectral signatures. The module introduces monitoring software interfaces and demonstrates data collection and logging for post-analysis.

Day 2

Radio Interference Identification and Localisation

Understanding Radio Interference and Its Causes

- Definition and types of radio interference
- Classification by origin: natural, industrial, intentional
- Impact of interference on communication quality and reliability

This module introduces the concept of radio interference, presenting typical causes and their influence on communication networks and critical infrastructure. Examples of both civilian and military interference events are discussed.

Classification and Case Studies of Interference

- Interference categories (in-band, out-of-band, harmonics, intermodulation)
- Experience from international incidents and large-scale exercises
- Strategic communication systems and their protection requirements

This module presents classification schemes for interference sources and includes case studies based on real experience during international military exercises and large-scale spectrum disruptions.

Monitoring Equipment and Direction-Finding Techniques

- Overview of monitoring receivers, spectrum analysers, and DF systems
- Antenna types and configurations for interference detection
- Direction-finding (DF) principles and methods
- Mobile and stationary monitoring setups

Participants will gain a comprehensive understanding of the equipment and techniques used for locating interference sources. Theoretical explanations are supported by demonstrations of DF equipment operation and antenna system behaviour.

Practical Interference Hunting (“Fox Hunting”)

- Step-by-step methodology for locating interference sources
- Search preparation: tips and best practices before starting field work
- Interference detection using stationary monitoring stations
- Mobile laboratory field operations and final-stage localisation (“last mile” detection)
- Data collection, documentation and verification

The highlight of the training — participants will perform a practical interference hunting exercise. Using monitoring receivers, DF systems and mobile labs, teams will locate and verify real interference sources in a field scenario. This module concludes with data review, Q&A and feedback.

Closing Session

Summary, Q&A and Feedback Discussion.

Final reflections, review of key learning points and discussion of lessons learned from the practical exercises. Certificates of completion will be presented to participants.



Reserve Your Spot

Fee: 2190 EUR (including VAT).

It includes:

- A comprehensive 2-day in person training program;
- Expert lectures, demonstrations, case studies;
- On-site practical experience;
- Access to necessary professional equipment;
- Digital training materials;
- Coffee breaks.

About Electronic Communications Office of Latvia.

(in Latvian - SIA "Elektroniskie sakari").

Electronic Communications Office of Latvia is a state-owned capital company that manages a strategically important national resource – the radio frequency spectrum and numbering. The company ensures a reliable and secure radio communications environment, which is essential for national security, defense, and critical infrastructure.

It maintains and develops modern technical infrastructure, carries out radio frequency spectrum planning and monitoring, and provides electromagnetic compatibility and other professional services. Electronic Communications Office of Latvia cooperates with state institutions, industry organizations, and international bodies (ITU, CEPT, EC RSC, RSPG, ETSI), providing innovative solutions for both civil and defense needs.

Competencies & Advantages

Engineering capacity

Highly qualified and experienced radio communications engineers with specialized knowledge in radio frequency management (planning and monitoring) and in the development and maintenance of specialized information systems.

Modern infrastructure

A technological base that meets modern requirements, which is essential for effective radio frequency spectrum management and includes appropriate solutions that allow for accurate radio frequency spectrum planning, monitoring and providing quality services to customers.

International representation

Regular participation in the work of international radiocommunications institutions (ITU, CEPT, RSPG, ETSI, etc.) and in the development of regulations, recommendations and technical documents, ensuring access to spectrum resources and defending the interests of Latvian frequency users.

Techritory Partnership Network

A broad and trusted network of contacts within the Techritory platform, connecting policymakers, industry, academia and security structures, facilitating information exchange and partnership building, including in the field of defense communications



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For additional information, please contact the service manager:

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