The course introduces the need for spectrum management. It highlights spectrum as a limited national resource and the need for spectrum management. The course focuses on the functions that consist of spectrum management including planning, engineering, authorisation, monitoring and enforcement. Other key spectrum management considerations follow including government policy and technical considerations are covered followed by key spectrum management methods including administrative ‘command and control’, spectrum trading and the role of a national regulator.

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Overview

The first part of the course introduces the need for spectrum management, highlighting the concept of spectrum as a limited national resource and the need for spectrum management. The course proceeds to describe "typical" national uses/users of spectrum and typical functions that consist of spectrum management including planning, engineering, authorization, monitoring and enforcement. Other key spectrum management considerations follow including government policy and technical considerations are covered followed by key spectrum management methods including administrative ‘command & control’, spectrum trading and the role of a national regulator.

The second part of the course is more ‘practical’ covering planning stages, planning considerations, radiowave propagation, frequency planning methods/assignments types, frequency allocation tables, and the impact of new technologies like WiMAX/LTE.

Objectives

This training course is meant to attract some benefits both to the delegates and their respective organisations. Delegates are therefore expected upon completion of the course to:
- Understanding the need for spectrum management
- Typical national users and uses of spectrum
- Spectrum management functions
- Other key spectrum management considerations
- Spectrum management methods, e.g. spectrum trading
- The role of a national spectrum regulator
- Introducing the ‘practicalities’ of frequency planning & spectrum management.

Target Audience

This course will comfortably attract participants from the following category:
- Telecommunication engineers and technologist
- Licensing and radio regulation personnel
- Departmental heads
- Senior managers

Course outline

Section One: Spectrum Management

Need for Spectrum Management
- What is “spectrum”?
- Spectrum as a limited national resource
- Economic resource
- Technical resource
- Need for spectrum management
- National and international regulation

Spectrum Utilisation
- Broadcast
- Telecommunications
- Defence
- Science and research
- Future?

Spectrum management functions
- Policy options for spectrum management
- Planning spectrum use
- What frequencies for what purposes?
- Short term and long term considerations
- Spectrum engineering - spectrum management technologies and systems that are used in other countries and which once are effective
- Aligning old and new technologies for better efficiency in the system
- Electromagnetic compatibility theories and regulation
- Authorization - allocating and assigning licenses
- Formulating best practice frequency assignment problems
- Monitoring and enforcement
- Occupancy measurements
- Inspection of transmitting sources
- Detection of illegal transmissions
- Resolving spectrum conflicts

Spectrum Management Considerations
- Economic considerations
- Technical considerations
- Government policy
- Stakeholders
- End service users
- Commercial service providers
- Public service providers (governments and civil agencies)
- Equipment manufacturers
- Others

Spectrum Management Methods
- Traditional (administrative method)
- Spectrum trading (market method)
- Unlicensed spectrum
- The role of the regulator
Section Two: Frequency Planning

Planning Stages
- Determining spectrum requirements
- Determining spectrum availability
- Generating spectrum plan
- Implementing spectrum plan

Planning Considerations
- Short term and long term
- Knowledge of current spectrum use
- Future spectrum use

Radio Wave Propagation
- Propagation in frequency bands
- Propagation modelling
- Interference

Frequency Planning Methods
- Ad-hoc frequency distribution
- A priori frequency distribution

Frequency Assignment Types
- Exclusive access assignment
- Geographical sharing assignment
- Band sharing assignment

Frequency Allocation Tables
- Allocation, allotment, assignment

Impact of new technologies
- Technological changes
- Next generation networks
- Finding spectrum for new technologies
- Dynamic spectrum usage
- Spectrum re-allocation and re-farming
- Frequency planning and spectrum management tools

Trainer profile

Dr Eustace Tameh

Dr Eustace Tameh has over 12 years experience of working in the wireless planning industry. He holds a PhD in radio communications from Bristol University, and has been involved in telecommunications and the radio industry since 1994. He led the design and frequency planning of the first urban WiMAX network in the United Kingdom, and has worked on a number of radio network design and planning projects internationally. He was involved in the design and commercialization of one of them earliest advanced WiMAX frequency planning and optimization software products. He has experience of working with telecommunications standardisation bodies, network operators, equipment vendors, national regulators, academic institutions and research and development departments. He has presented his work at international conferences and published extensively in international journals and magazines.

He is also an expert in spectrum monitoring and measurements. During 2010, Dr Tameh delivered a well received PDT course which also included spectrum monitoring and measurements in Bamenda, Cameroon.
Registration Form

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REGISTRATION DEADLINE
31 Jan 2018

3 SIMPLE WAYS TO REGISTER!
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Frequency Planning & Spectrum Management
29 January - 2 February 2018, Johannesburg, South Africa

More information at www.cto.int or email us programmes@cto.int