Spectrum Utilization and Harmonization Training Workshop

ZICTA
ZAMBIA INFORMATION AND COMMUNICATIONS TECHNOLOGY AUTHORITY

TRAINING WORKSHOP OUTLINE

Title:	Spectrum Utilization and Harmonization
Dates:	8th – 12th June 2015
Duration:	5 Days
Venue:	Lusaka, Zambia
Fee:	US$1,200 AFRALTI Members
	US$1,440 Non-AFRALTI Members

Course Overview: Spectrum is the blood of the mobile and wireless industry. But unfortunately spectrum is a limited and scarce resource that requires careful global, regional and national planning and regulation. To continue to offer benefits to the users and societies, the mobile communication industry requires continued availability of radio spectrum in sufficient quantity within suitable bands and arranged in a consistent and harmonized manner. This will facilitate global roaming and enable economies of scale that produce high cost efficiencies.

At the same time, except the introduction of the new spectrum, we also need to focus on another important direction such as how to increase spectral efficiency and how to make full use of fragment spectrum.

Allocating spectrum for mobile telecommunications according to internationally harmonized band plans minimizes radio interference along borders, facilitates international roaming and reduces the cost of mobile devices. Spectrum harmonisation is a major objective of the International Telecommunication Union (ITU), national regulators and the whole of the mobile industry. It refers to the uniform allocation of radio frequency bands across entire regions — not just individual countries. Spectrum harmonization is key to broadband uptake.

Target Audience: Telecom regulators, operators, and government representatives who are responsible for national policies on growth and development.

The workshop is aimed at people who either work for regulators or a commercial organisation which needs to understand the principles of spectrum utilization and harmonization. The programme is particularly relevant for the following fields: mobile; broadcasting; wireless broadband; and public sector spectrum users.

The content is well suited to three groups of people:

▪ staff wanting a solid grounding in all aspects of spectrum management
▪ those experienced in one aspect of spectrum management seeking to broaden their knowledge
▪ staff wanting to familiarise themselves with the latest thinking in the field

Pre-requisite/s: Basic understanding of radio frequency and spectrum utilization

Pain Points: Spectrum is an extremely scarce but valuable resource. It needs to be carefully planned. New services and applications are always being introduced as technology evolves. Allocation of frequency bands to various uses can be very challenging as issues such as availability, cost, affordability and flexibility are important parameters that need to be considered. Future frequency requirements need to be thoroughly considered and reserved in order not to be taken by surprise by the dynamic nature of the evolving technology and its impact on the spectrum requirements.

With the rapid development of Mobile Broadband (MBB) and quick adaptation of Machine-to-Machine (M2M) in the practical applications, mobile networks capacity is expected to face great challenges because existing spectrum resources cannot meet the exponentially growing demand of MBB services. According to forecast, at least additional 500MHz of spectrum would be needed to be added by the end of 2020.

Value Proposition: This course will help participants appreciate the intricacies and difficulties in ensuring efficient spectrum utilization and harmonization in the face of advancing technologies and the challenges they pose for accommodating new services and applications that come with it. Participants will get a useful insight into the available frequency bands and their relative advantages and disadvantages that go with it for various applications and services.

Methodology: Instructor-led with presentations, interactive discussions and Country examples

Workshop Objectives:

- Understand the relevance of harmonizing frequency allocation,
- Appreciate the need for agreements for coordination and interference
- Understand the use of Automated Spectrum Management System for managing the utilization of Radio Frequency Spectrum
- Identify possible new applications and services that will require the spectrum
- Identify possible frequency bands for the new applications and services Identify the advantages of TDD and investigate the TDD Spectrum Application

Workshop Contents/Topics:

Background
- Economic benefits of IMT
- Importance of coordinating framework

The need for spectrum
- Spectrum requirement
- Service development prediction

Spectrum map
- Existing spectrum
- Future outlook
  - ✓ Analysis on additional frequency bands
  - ✓ Views on additional frequency bands
  - ✓ Detailed band-by-band analysis and position

Spectrum utilization & harmonization
- Global spectrum for small cell
- SDL (supplemental downlink)
- LTE carrier aggregation
  - ✓ CA with same mode
  - ✓ CA with mixed mode
  - ✓ Conclusion for CA
- LTE roaming

TDD spectrum application
- TDD spectrum
- TDD synchronization

Spectrum Change
- Making Spectrum Change
- Modern spectrum management is much about change.
- Investigating how users find spectrum for new applications and ideas like re-farming and band sharing:
  - ✓ Specifying spectrum blocks for new services
  - ✓ Finding spectrum for emerging applications
  - ✓ Spectrum re-planning, re-farming and change

Introduction to White Space

The term "White Space" refers to frequencies that are not being used by existing licensees at all times or at all locations or to spectrum which is made available by changes in use. This session will introduce the main concepts behind white space:
- What is White Space?
- Why White Spaces?
- What are the applications of White Space?
- Regulatory aspects of White Spaces?
- The most typical example of White Spaces arises from the move to digital TV and analogue switch-off referred to as TVWS:
  - ✓ Overview of TV terrestrial broadcasting frequency planning.
  - ✓ How much spectrum is available?
  - ✓ What services can be provided?
  - ✓ What are the co-existence challenges?

Current Issues in Spectrum Management
- An overview of current priority areas in spectrum use and management.
- The National Broadband Plan
- National priorities: Public safety & wireless broadband
- Re-allocations, relocations, and spectrum sharing
- TV white spaces
- Software-defined and cognitive radios

For more information, please contact us on

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