

TRAINING ON WIRELESS ACCESS SYSTEMS : LMDS

DATES : OBJECTIVES

1 session / month This course is specially designed for new operators and radio network planners. Its targets is to show the radio parameters impact on Local Multipoint Distribution Service (LMDS) design. Various mechanism are described in the simple way.

Main objective is to give a comprehensive view of this wide subject.
This course takes into account the last improvement of technical documentation.

Training goes on with practice of a Geographical Information System (GIS) for the preliminary design, and of a Radio Network Planning tool (RNP) for the detailed design.

TRAINING METHODS

Theoretical lessons and slides presentation
Practical exercises, Practical training on using a GIS software and a LMDS planing tool.

DURATION

This training programme is for 2 days.

DAY 1

INTRODUCTION TO RADIO ASPECTS

Frequency band - Spectrum
Difference between LMDS, Mobile and Point Multipoint traditional systems

UTILIZATION OF SPECTRUM

What are the available bandwidths for what applications ?
Frequency plan sample for some foreign countries
What about international frequency coordination ?

APPLICABLE STANDARDS AND RECOMMENDATIONS

What are the basic papers to keep in mind for designing LMDS ?
ITU Recommendations
ETSI standards
ERC Documentation
Influence of US context : IEEE communication

PROPAGATION

Propagation models to be used
Rain effect
Polarisation choice
Cross polarisation phenomena
Path clearance, Fresnel Zone

FREQUENCY REUSE PATTERN

What is the best pattern to deploy a network :
In dense area ?
In low density area ?
Control radio station sectorisation
C/I Influence
How a pattern works ?

CHOISING ANTENNA

What type of antenna at Radio Base Station, at Subscriber Terminal Station ?
What application for class 2 antenna ?
How to point and tilt RBS antenna ?
Quick view of existing antenna

POWER BUDGET

Main items of power budget
Typical values
Cell radius calculation

SITE SELECTION

Criteria for "search for site"
Method to select the proper site

DAY 2

DEPLOYMENT STRATEGY

Deployment based on traffic or coverage ?
How to densify a classical network or networks with multi layers ?
How to use the cross polarisation ?
How to connect "ORPHAN" subscribers ?

COEXISTENCE QUESTIONS

Coexistence with others products : microwave point to point, earth satellite receiving stations ...
Coexistence between operators
How to start coexistence calculations ?
Use of guard bands

PRELIMINARY DESIGN WITH SIMULATION

Data input for a preliminary design
GIS operation with customer traffic database
Estimation of number of station and radio channels
Difference between professional and residential subscribers
Expansion scenario

DETAILED DESIGN WITH SIMULATION

Data transfer from preliminary design
Utilization of building database for Site selection and interference calculation with a Radio Network Planning tool RNP

DISCUSSIONS, QUESTIONS TRAINING EVALUATION



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