5G NR Planning Advance

2 Hr. 30 Min.

LEARNING OBJECTIVE:

Upon completing the course, the participant will be able to:

➢ Discuss what we are set to achieve in 5G technological requirements
➢ Understanding the planning procedure in detail
➢ Discuss the 5G NR Link Budget and Different gains and losses
➢ Look at the IMT- 2020 template for 5G NR Link Budget.
➢ Look at the cell range calculation
➢ Understand the parameter planning.

COURSE OBJECTIVE:

This Course covers the 5G The basic Planning procedure and the concepts related to coverage and capacity Dimensioning Coverage dimensioning - Understand Link Budget in detail with aim to evaluate the MAPL, including gains and losses and additional features that may impact the pathloss.

WHO SHOULD ATTEND:

This course is designed to provide a in-depth knowledge about the 5G Planning focusing on Coverage dimensioning procedure so telecommunications professionals, network professionals and others who plan to work and gain knowledge can come on board. However the participant should have knowledge of 5G Fundamentals and Air interface.

TARGET AUDIENCE:

RF Engineers, 5G Planners and Optimizers.

INSTRUCTIONAL METHODS:

Lectures in Classroom, Virtual Classroom trainings, discussion, Questions & Answers. All participants will also receive comprehensive course materials.

COURSE OUTLINE :

1. Introduction

1.1 What do we set to achieve

1.2 5G key features

1.3 New air interface components

1.4 Where did our work begin?

1.5 5G spectrum Architecture

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2. 5G Network Planning

2.1 Necessity of Network planning

2.2 Planning procedure

2.3 Different network Planning methods

2.4 Traffic estimation

2.5 Subscriber Population

2.6 Traffic Model

2.7 5G network Dimensioning Procedure

2.8 5G network Planning Overview

2.9 General process of Network Plan simulation

3. 5G NR Link Budget

3.1 Link Budget – What is it?

3.2 Guidelines from ITU

3.3 Link budget Basics

3.4 5G NR mmWave coverage prediction methodology

3.5 Link Budget Factors

3.6 Differences between 5G and 3G/4G link budgets

3.7 Statistical Propagation Model

3.8 Evaluation parameters for UMI-street canyon and UMa scenarios

3.9 Evaluation parameters for indoor-office scenarios

4. Losses and Margins

4.1 Penetration Loss

4.2 Foliage loss

4.3 Rain Attenuation Margin

4.4 Body Block Loss

4.5 Interference Margin

5. IMT-2020 – Link Budget

5.1 Transmitter Characteristics

5.2 Receiver Characteristics

5.3 Calculation of Overheads

5.4 5G DL and UL Overheads

5.5 3GPP standard deviation of Shadow fading

5.6 Transmitter characteristics of UE Power class

5.7 Cell Range Calculation

6. Parameter Planning

6.1 PCI Planning

6.2 Introduction

6.3 PCI Mod 4 vs PCI mod 3

6.4 4G vs 5G PCI comparison

6.5 An Example

6.6 PRACH Planning

6.7 PRACH Introduction

6.8 PRACH Format

6.9 Difference between 4G and 5G root sequences

6.10 Root ZC Sequence Planning Procedure

6.11 Calculation of Number of root Sequences Groups

Evaluation and feedback of the participants

Maximum number of participants:	15
Duration:	2 Hr. 30 Min.