5G RF Planning and Design Part 2: Throughput and Capacity in 5G

5G_229d | On-Demand | 5G Access | Expanded
Course Duration: 4 hours

This is the second course in a four-course set of self-paced courses encompassing 5G RF Planning and Design. In this course, you will learn about downlink and uplink throughput and capacity of a 5G cell and how it is influenced by the 5G NR air interface capacity. You will also learn about device capabilities and how they can affect user throughputs and how to develop a call model to calculate capacity of a cell. Each course in this four-course set can stand on its own or can be combined with other courses as necessary to meet your learning objectives.

Intended Audience

RF planning and design and performance optimization engineers

Objectives

After completing this course, the learner will be able to:

- Identify key 5G RF design inputs
- Calculate the downlink and uplink cell capacity and throughput
- Describe the influence of the 5G NR air interface on capacity
- Explore user throughput relative to device capabilities and bandwidths

Course Prerequisites

5G NR Air Interface

Outline

1. Capacity Planning
1.1 Capacity Planning Process
1.2 Capacity Planning Inputs and Assumptions
1.3 Capacity Considerations - Band, CA, DC

2. Network and Device Capacity
2.1 CORESET Configurations
2.2 5G Device Capabilities and Parameters
2.3 Capacity Estimation

3. Downlink and Uplink Cell Capacity
3.1 Downlink Cell Capacity
3.2 Uplink Cell Capacity
Exercise: Capacity Calculation Exercise

4. Throughput Calculations
4.1 Estimating User Throughputs
4.2 Mid-band Throughput Calculations
Exercise: Throughput Calculation Exercise

Final Assessment

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