

5G NR Air Interface Overview - Part II

5G promises to enable a variety of new services, ranging from high-speed, high-capacity broadband access to ultra reliable low-latency communications to massive machine-type communications. To deliver on these promises, the wireless network must change, including the devices, the radio interface, the radio access network (RAN), and the core network. Part I of this self-paced course offers a high-level technical overview of 5G NR (New Radio) air interface. Part II covers the flexible numerologies, channels and frame/slot structure, and steps through the life of a 5G UE, concluding with how the technologies and standards converge to meet the performance goals set for 5G.

Intended Audience

This course is designed for a broad audience of wireless network engineers. This includes those in RF, RAN planning, engineering, operations, troubleshooting and support groups.

Objectives

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

- Identify key channels and their usage in the downlink and uplink
- Step through the life of a 5G UE at a high level in non-standalone architecture
- Step through the life of a 5G UE at a high level in standalone architecture
- Identify ways in which 5G NR meets the performance goals of 5G

What You Can Expect

- Self-Paced Duration: 1 HOUR

Outline

1. Key Signals and Channels of 5G NR

- 1.1 Downlink signals and channels
- 1.2 Uplink signals and channels

2. Life of a 5G UE

- 2.1 NSA vs. SA operations
- 2.2 Non-Standalone operations
- 2.3 Network acquisition
- 2.4 Attach
- 2.5 Data transfer
- 2.6 Standalone Operations
- 2.7 Network acquisition
- 2.8 Registration
- 2.9 PDU session setup
- 2.10 Data transfer

3. Meeting 5G Performance Goals

- 3.1 Ways to achieve higher data rates
- 3.2 Ways to achieve lower latency
- 3.3 Ways to achieve higher connection density

Putting It All Together