5G Enhancements in 3GPP R17

TPR1061x | Expert-Led Live | 5G Access | Expert
Course Duration: 4 hours

5G Release 17 features augment the existing 5G R15 and R16 features to achieve improved system performance and address new verticals and deployment scenarios. This training explores 5G R17 enhancements as well as new features for devices, radio networks, and core networks of 5G. Improved coverage, enhanced mobility performance, extended device battery life, support for Reduced Capability (RedCap) devices, and Non-Terrestrial Networks (NTN) are among the notable improvements.

Intended Audience

This course is intended for planning, engineering, and system integration teams.

Objectives

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

- Identify the driving factors for 5G R17 enhancements
- Describe 5G R17 coverage improvement features
- Explain 5G R17 UE battery power-saving features
- Describe 5G R17 RedCap and Multi-USIM devices
- Describe 5G R17 network-focused enhancements
- Explain 5G R17 network capabilities - NTN and MBS

Outline

1. 5G R17 Enhancements - What and Why?
1.1 Drivers for 5G R17 enhancements
1.2 Device-focused features in 5G roadmap
1.3 Network-focused features in 5G roadmap
2. Uplink Coverage Improvement Features
2.1 Enhanced PUSCH Repetition Type A
2.2 PUSCH Repetition Type A for Msg 3
2.3 Dynamic PUCCH repetition indication
2.4 PUSCH process over Multiple Slots (TBoMS)
Exercise: Knowledge check
3. RedCap (NR-Light) and Multi-USIM devices
3.1 5G R17 - RedCap device - What and Why?
3.2 UE complexity reduction features
3.3 5G network support for RedCap devices
3.4 5G R17 Multi-USIM UE - What and Why?
3.5 Paging enhancements for MUSIM devices
3.6 Network switching for MUSIM devices
Exercise: Knowledge check
4. 5G R17 UE Battey Power Saving Features
4.1 Power-efficient paging reception
4.2 Small data transmission in inactive mode
4.3 Relaxed RLM/BFD measurements
4.4 Reduced PDCCH monitoring for active UE
Exercise: Knowledge check
5. 5G R17 Network Performance Enhancements
5.1 Network slicing enhancements
5.2 MEC network enhancements
5.3 Private 5G network enhancements
Exercise: Knowledge check
6. Non-Terrestrial Network (NTN)
6.1 NTN - what and why?
6.2 Platforms for Non-Terrestrial Network
6.3 Satellite-based 5G network architecture
6.4 Opportunities and challenges for 5G NTN
6.5 NTN 5G NR air interface capabilities
6.6 NTN use cases
Exercise: Knowledge check
7. 5G Multicast Broadcast Service (5G MBS)
7.1 5G MBS - what and why?
7.2 5G MBS architecture
7.3 5G MBS use cases
Exercise: Knowledge check