CHAPTER

25 CONCLUDING REMARKS

This book has covered wireless access, starting from the 4G/LTE technology and continuing into 5G. Future wireless networks will handle a wide range of use cases, beyond the mobile broadband services targeted by the original LTE specifications in release 8. In essence, 5G should be seen as a platform enabling wireless connectivity to all kinds of services, existing as well as future not-yet-knows services. Clearly, mobile broadband will continue to be an important use case for wireless communication, but it will not be the only one. Connectivity will be provided essentially anywhere, anytime to anyone and anything.

Since the emergence in release 8, LTE has evolved considerably as seen in the previous chapters covering up to and including release 13. Support for new technologies and use cases have been added and the mobile-broadband performance capabilities have been increased considerably. Direct device-to-device communication and machine-type communication enhancements are examples of enhancements allowing LTE to address new use cases. Operation in unlicensed spectrum, dynamic TDD operation, and full-dimension MIMO are examples of enhancements to address the increasing needs in terms of capacity and data rates for mobile broadband. Clearly, this evolution will continue for several years, and work on enhanced FD-MIMO, latency reduction, improved carrier aggregation, and support for uplink in LAA are examples of work already initiated for release 14.

At the same time, there are scenarios which LTE may not be able to efficiently handle, for example, requirements of extremely low latency or exploitation of higher-frequency bands. Therefore, standardization activities for a new radio-access scheme complementing LTE have started in release 14, targeting initial commercial deployments around 2020. The overall process and the technical solutions for this new radio-access scheme were discussed in the previous chapter.

Together, the LTE evolution and the new wireless-access scheme will form the foundation of wireless access in the 5G era. The extensive application of wireless access beyond mobile broadband will have a profound impact on the society and the coming years will be highly interesting—not only from a technical perspective.

4G, LTE-Advanced Pro and The Road to 5G. http://dx.doi.org/10.1016/B978-0-12-804575-6.00025-X