CLAIMS

1. A wireless communication device (10; 100; 300) configured for operation in a wireless communication system,

wherein the wireless communication device (10; 100; 300) is configured with an uplink, UL, carrier of a first radio access technology, RAT,

wherein the wireless communication device (10; 100; 300) is configured with a downlink, DL, carrier of the first RAT,

wherein the wireless communication device (10; 100; 300) is configured to transmit the UL carrier of the first RAT in an uplink frequency channel overlapping with the uplink frequency channel of a second RAT,

wherein the wireless communication device (10; 100; 300) is configured to receive and demodulate and/or decode the DL carrier of the first RAT in a frequency channel of the first RAT that is higher than the frequency channel of the second RAT.

2. The wireless communication device of claim 1, wherein the wireless communication device (10; 100; 300) is configured to transmit uplink control information in an uplink, UL, control channel of the UL carrier of the first RAT in the uplink frequency channel overlapping with the uplink frequency channel of the second RAT.

3. The wireless communication device of claim 2, wherein the uplink control information is related to the DL carrier.

4. The wireless communication device of any of the claims 1 to 3, wherein the first RAT is a 5G or NX RAT, and/or the second RAT is a RAT based on Long Term Evolution, LTE.

5. The wireless communication device of any of the claims 1 to 4, wherein the wireless communication device (10; 100; 300) is configured to transmit the UL carrier of the first RAT in at least one specific part of the uplink frequency channel of the second RAT.

6. The wireless communication device of claim 5, wherein the wireless communication device (10; 100; 300) is configured to transmit the UL carrier of the first RAT in at least one guard band of the uplink frequency channel of the second RAT.

7. The wireless communication device of claim 5 or 6, wherein the wireless communication device (10; 100; 300) is configured to transmit the UL carrier of the first RAT in at least one dedicated part of the uplink frequency channel of the second RAT inside the transmission bandwidth of the frequency channel.

8. The wireless communication device of any of the claims 5 to 7, wherein the wireless communication device (10; 100; 300) is configured to receive configuration information indicating the at least one specific part of the uplink frequency channel of the second RAT to enable configuration of the wireless communication device for transmission of the UL carrier of the first RAT in the at least one specific part of the frequency channel.

9. The wireless communication device of any of the claims 1 to 8, wherein the wireless communication device (10; 100; 300) is also configured with a DL carrier and/or an UL carrier of the second RAT, based on Dual Connectivity or Multi-Connectivity procedures.

10. The wireless communication device of any of the claims 1 to 9, wherein the wireless communication device (10; 100; 300) comprises a processor (110; 310) and a memory (120; 320), said memory comprising instructions executable by the processor, whereby the processor is operative to enable the operation of the wireless communication device.

11. A method of operating a wireless communication device (10; 100; 300) in a wireless communication system, wherein the method comprises:

- receiving and demodulating and/or decoding (S1) downlink, DL, signaling in a DL carrier of a first radio access technology, RAT, in a frequency channel of the first RAT that is higher than the frequency channel of a second RAT,
- preparing (S2) uplink, UL, signaling for transmission in an uplink, UL, carrier of the first RAT, and
- transmitting (S3) the UL signaling in the UL carrier of the first RAT in an uplink frequency channel overlapping with the uplink frequency channel of the second RAT.

12. The method of claim 11, wherein uplink control information is transmitted in an uplink, UL, control channel of the UL carrier of the first RAT in the uplink frequency channel overlapping with the uplink frequency channel of the second RAT.

13. The method of claim 12, wherein the uplink control information is related to the DL carrier.

14. The method of any of the claims 11 to 13, wherein the first RAT is a 5G or NX RAT, and/or the second RAT is a RAT based on Long Term Evolution, LTE.

15. The method of any of the claims 11 to 14, wherein the UL carrier of the first RAT is transmitted in at least one specific part of the uplink frequency channel of the second RAT.

16. The method of claim 15, wherein the UL carrier of the first RAT is transmitted in at least one guard band of the uplink frequency channel of the second RAT.

17. The method of claim 15 or 16, wherein the UL carrier of the first RAT is transmitted in at least one dedicated part of the uplink frequency channel of the second RAT inside the transmission bandwidth of the frequency channel.

18. The method of any of the claims 15 to 17, wherein the wireless communication device (10; 100; 300) also receives configuration information indicating the at least one specific part of the uplink frequency channel of the second RAT to enable configuration of the wireless communication device for transmission of the UL carrier of the first RAT in the at least one specific part of the frequency channel.

19. The method of any of the claims 11 to 18, wherein at least part of the uplink frequency channel of the second RAT is shared in a time-multiplexed manner between the first RAT and the second RAT.

20. A network unit (20; 200; 300) configured for operation in a wireless communication system,

wherein the network unit (20; 200; 300) is a base station of a first radio access technology, RAT,

wherein the network unit (20; 200; 300) is configured to receive and demodulate and/or decode an uplink, UL, carrier of the first RAT in an uplink frequency channel overlapping with the uplink frequency channel of a second RAT, and

wherein the network unit (20; 200; 300) is configured to transmit a downlink, DL, carrier of the first RAT in a frequency channel of the first RAT that is higher than the frequency channel of the second RAT.

21. A network unit (30; 200; 300) configured for operation in a wireless communication system,

wherein the network unit (30; 200; 300) is a base station of a second radio access technology, RAT,

wherein the network unit (30; 200; 300) is configured to receive and demodulate and/or decode an uplink, UL, carrier of a first RAT in an uplink frequency channel overlapping with the uplink frequency channel of the second RAT,

wherein the network unit (30; 200; 300) is further configured to forward information related to the uplink, UL, carrier of the first RAT to a base station of the first RAT.

22. The network unit of claim 20 or 21, wherein the network unit (20; 30; 200; 300) is configured to receive and demodulate and/or decode uplink control information in an uplink, UL, control channel of the UL carrier of the first RAT in the uplink frequency channel overlapping with the uplink frequency channel of the second RAT.

23. The network unit of claim 22, wherein the uplink control information is related to a DL carrier of the first RAT.

24. The network unit of any of the claims 20 to 23, wherein the first RAT is a 5G or NX RAT, and/or the second RAT is a RAT based on Long Term Evolution, LTE.

25. The network unit of any of the claims 20 to 24, wherein the network unit (20; 30; 200; 300) is configured to receive and demodulate and/or decode the UL carrier of the first RAT in at least one specific part of the uplink frequency channel of the second RAT.

26. The network unit of claim 25, wherein the network unit (20; 30; 200; 300) is configured to receive and demodulate and/or decode the UL carrier of the first RAT in at least one guard band of the uplink frequency channel of the second RAT.

27. The network unit of claim 25 or 26, wherein the network unit (20; 30; 200; 300) is configured to receive and demodulate and/or decode the UL carrier of the first RAT in at least one dedicated part of the uplink frequency channel of the second RAT inside the transmission bandwidth of the frequency channel.

28. The network unit of any of the claims 25 to 27, wherein the network unit (20; 30; 200; 300) is configured to transmit configuration information indicating the at least one specific part of the uplink frequency channel of the second RAT to at least one associated wireless communication device to enable configuration of the wireless communication device(s) for transmission of the UL carrier of the first RAT in the at least one specific part of the frequency channel.

29. The network unit of any of the claims 20 to 28, wherein the network unit (20; 30; 200; 300) comprises a processor (210; 310) and a memory (220; 320), said memory comprising instructions executable by the processor, whereby the processor is operative to enable the operation of the network unit.

30. A method of operating a network unit (20; 200; 300) in a wireless communication system, wherein the network unit is a base station of a first radio access technology, RAT, and the method comprises:

- receiving and demodulating and/or decoding (S11) an uplink, UL, carrier of the first RAT in an uplink frequency channel overlapping with the uplink frequency channel of a second RAT, and
- transmitting (S12) a downlink, DL, carrier of the first RAT in a frequency channel of the first RAT that is higher than the frequency channel of the second RAT.

31. A method of operating a network unit (30; 200; 300) in a wireless communication system, wherein the network unit is a base station of a second radio access technology, RAT, and the method comprises:

- receiving and demodulating and/or decoding (S21) an uplink, UL, carrier of a first RAT in an uplink frequency channel overlapping with the uplink frequency channel of the second RAT,
- forwarding (S22) information related to the uplink, UL, carrier of the first RAT to a base station of the first RAT.

32. The method of claim 30 or 31, wherein uplink control information is received and demodulated and/or decoded in an uplink, UL, control channel of the UL carrier of the first RAT in the uplink frequency channel overlapping with the uplink frequency channel of the second RAT.

33. The method of claim 32, wherein the uplink control information is related to a DL carrier of the first RAT.

34. The method of any of the claims 30 to 33, wherein the first RAT is a 5G or NX RAT, and/or the second RAT is a RAT based on Long Term Evolution, LTE.

35. A computer program (325; 335) comprising instructions, which when executed by at least one processor, cause the at least one processor to:

- effectuate configuration(s) of a wireless communication device (10) such that the wireless communication device is configured with an uplink, UL, carrier of a first radio access technology, RAT, for transmission of the UL carrier in an uplink frequency channel overlapping with the uplink frequency channel of a second RAT, and
- effectuate configuration(s) of the wireless communication device (10) such that the wireless communication device is configured with a downlink, DL, carrier of the first RAT, for reception and demodulation and/or decoding of the DL carrier in a frequency channel of the first RAT that is higher than the frequency channel of the second RAT.

36. A computer program (325; 335) comprising instructions, which when executed by at least one processor, cause the at least one processor to:

- effectuate configuration(s) of a network unit (20; 30) such that the network unit is configured for reception and demodulation and/or decoding of an uplink, UL, carrier of a first radio access technology, RAT in an uplink frequency channel overlapping with the uplink frequency channel of a second RAT.

37. A computer-program product comprising a computer-readable medium (320; 330) having stored thereon a computer program (325; 335) of any of the claims 35 or 36.