CLAIMS

1. A method for wireless communications by a user equipment (UE), comprising: identifying, within a subframe, a first search space to monitor for a transmission on a downlink control channel that occupies a first number of physical resource blocks (PRBs) that represents a narrowband within a system bandwidth comprising a plurality of narrowbands; monitoring at least the first search space for broadcast control information transmitted on the downlink control channel, wherein the broadcast control information comprises information for a paging message; and identifying the narrowband, used for the paging message, according to a UE-ID-to-narrowband mapping rule, wherein: the UE-ID-to-narrowband mapping rule maps a UE ID to a narrow band region for paging; and the narrowband is different from one or more other narrowbands of the plurality of narrowbands used for paging messages for one or more other UEs.

2. The method of claim 1, wherein the information for the paging message comprises paging information for multiple UEs and a UE ID for addressing the paging message to the UE, and wherein the information for the paging message comprises a paging radio network temporary identifier (P-RNTI).

3. The method of claim 1, further comprising receiving configuration information for the paging message in a system information block (SIB).

4. The method of claim 1, further comprising receiving an indication of a system information block (SIB) modification, wherein the SIB comprises information for decoding the broadcast control information.

5. The method of claim 4, wherein receiving the indication of the SIB modification comprises receiving the indication of the SIB modification in a master information block (MIB) transmitted on a physical broadcast channel (PBCH).

6. The method of claim 5, further comprising receiving signaling indicating how often the UE should acquire the MIB.

7. The method of claim 4, wherein receiving the indication of the SIB modification comprises receiving the indication of the SIB modification in the downlink control channel.

8. The method of claim 7, wherein different combinations of two bits in the downlink control channel indicate whether there is a SIB modification and whether there is paging information for the UE.

9. The method of claim 4, wherein the indication of the SIB modification comprises an indication of what fields in the SIB are modified and values of the fields in the SIB that are modified.

10. The method of claim 1, wherein the broadcast control information comprises a random access response (RAR) message.

11. The method of claim 10, wherein for contention based access the RAR message comprises at least one of a timing advance (TA), a grant for uplink (UL) transmissions, a temporary radio network temporary identifier (T-RNTI), or a preamble identifier.

12. The method of claim 11, wherein the RAR message further comprises a bundle size for the UL transmissions.

13. The method of claim 10, wherein for non-contention based access the RAR message comprises at least one of a cell radio network temporary identifier (C-RNTI), a timing advance (TA), or random access channel (RACH) configuration.

14. The method of claim 10, further comprising receiving configuration information for the RAR message in a system information block (SIB).

15. The method of claim 1, wherein the downlink control channel comprises at least one of a machine type communication physical downlink control channel (MPDCCH) or a narrow band physical downlink control channel (NB-PDCCH).

16. A method for wireless communications by a base station (BS), comprising: identifying, within a subframe, a first search space for transmitting on a downlink control channel that occupies a first number of physical resource blocks (PRBs) that represents a narrowband within a system bandwidth comprising a plurality of narrowbands; transmitting broadcast control information on the downlink control channel, to a user equipment (UE), using a decoding candidate in the first search space, wherein the broadcast control information comprises information for a paging message; and identifying the narrowband, used for the paging message, according to a UE-ID-to-narrowband mapping rule, wherein: the UE-ID-to-narrowband mapping rule maps a UE ID to a narrow band region for paging; and the narrowband is different from one or more other narrowbands of the plurality of narrowbands used for paging messages for one or more other UEs.

17. The method of claim 16, wherein the information for the paging message comprises paging information for multiple UEs and a UE ID for addressing the paging message to the UE, and wherein the information for the paging message comprises a paging radio network temporary identifier (P-RNTI).

18. The method of claim 16, further comprising transmitting configuration information for the paging message in a system information block (SIB).

19. The method of claim 16, further comprising transmitting an indication of a system information block (SIB) modification, wherein the SIB comprises information for decoding

the broadcast control information.

20. The method of claim 19, wherein transmitting the indication of the SIB modification comprises transmitting the indication of the SIB modification in a master information block (MIB) on a physical broadcast channel (PBCH).

21. The method of claim 20, further comprising transmitting signaling indicating how often the UE should acquire the MIB.

22. The method of claim 19, wherein transmitting the indication of the SIB modification comprises transmitting the indication of the SIB modification in the downlink control channel.

23. The method of claim 22, wherein different combinations of two bits in the downlink control channel indicate whether there is a SIB modification and whether there is paging information for the UE.

24. The method of claim 19, wherein the indication of the SIB modification comprises an indication of what fields in the SIB are modified and values of the fields in SIB that are modified.

25. The method of claim 16, wherein the broadcast control information comprises a random access response (RAR) message.

26. The method of claim 25, wherein for contention based access the RAR message comprises at least one of a timing advance (TA), a grant for uplink (UL) transmissions, a temporary radio network temporary identifier (T-RNTI), or a preamble identifier.

27. The method of claim 26, wherein the RAR message further comprises a bundle size for the UL transmissions.

28. The method of claim 25, wherein for non-contention based access the RAR message comprises at least one of a cell radio network temporary identifier (C-RNTI), a timing advance (TA), or random access channel (RACH) configuration.

29. The method of claim 25, further comprising transmitting configuration information for the RAR message in a system information block (SIB).

30. The method of claim 16, wherein the downlink control channel comprises at least one of a machine type communication physical downlink control channel (MPDCCH) or a narrow band physical downlink control channel (NB-PDCCH).

31. An apparatus for wireless communications by a user equipment (UE), comprising: at least one processor; and a memory coupled with the at least one processor, comprising instructions

executable by the at least one processor to cause the apparatus to: identify, within a subframe, a first search space to monitor for a transmission on a downlink control channel that occupies a first number of physical resource blocks (PRBs) that represents a narrowband within a system bandwidth comprising a plurality of narrowbands; monitor at least the first search space for broadcast control information transmitted on the downlink control channel, wherein the broadcast control information comprises information for a paging message; and identify the narrowband, used for the paging message, according to a UE-ID-to-narrowband mapping rule, wherein: the UE-ID-to-narrowband mapping rule maps a UE ID to a narrow band region for paging; and the narrowband is different from one or more other narrowbands of the plurality of narrowbands used for paging messages for one or more other UEs.

32. The apparatus of claim 31, wherein the information for the paging message comprises paging information for multiple UEs and a UE ID for addressing the paging message to the UE, and wherein the information for the paging message comprises a paging radio network temporary identifier (P-RNTI).

33. The apparatus of claim 31, wherein the memory further comprises instructions executable by the at least one processor to cause the apparatus to receive an indication of a system information block (SIB) modification, wherein the SIB comprises information for decoding the broadcast control information.

34. The apparatus of claim 33, wherein the memory further comprises instructions executable by the at least one processor to cause the apparatus to receive the indication of the SIB modification in a master information block (MIB) transmitted on a physical broadcast channel (PBCH).

35. The apparatus of claim 33, wherein the indication of the SIB modification comprises an indication of what fields in the SIB are modified and values of the fields in the SIB that are modified.

36. The apparatus of claim 31, wherein the broadcast control information comprises a random access response (RAR) message.

37. The apparatus of claim 36, wherein for contention based access the RAR message comprises at least one of a timing advance (TA), a grant for uplink (UL) transmissions, a temporary radio network temporary identifier (T-RNTI), or a preamble identifier.

38. The apparatus of claim 36, wherein for non-contention based access the RAR message comprises at least one of a cell radio network temporary identifier (C-RNTI), a timing advance (TA), or random access channel (RACH) configuration.

39. An apparatus for wireless communications by a base station (BS), comprising: at least one processor; and a memory coupled with the at least one processor, comprising instructions executable by the at least one processor to cause the apparatus to: identify, within a subframe,

a first search space for transmitting on a downlink control channel that occupies a first number of physical resource blocks (PRBs) that represents a narrowband within a system bandwidth comprising a plurality of narrowbands; and a transmitter configured to transmit broadcast control information on the downlink control channel, to a user equipment (UE), using a decoding candidate in the first search space, wherein the broadcast control information comprises information for a paging message; and the memory further comprising instructions executable by the at least one processor to cause the apparatus to identify the narrowband, used for the paging message, according to a UE-ID-to-narrowband mapping rule, wherein: the UE-ID-to-narrowband mapping rule maps a UE ID to a narrow band region for paging; and the narrowband is different from one or more other narrowbands of the plurality of narrowbands used for paging messages for one or more other UEs.

40. The apparatus of claim 39, wherein the information for the paging message comprises paging information for multiple UEs and a UE ID for addressing the paging message to the UE, and wherein the information for the paging message comprises paging radio network temporary identifier (P-RNTI).

41. The apparatus of claim 39, wherein the transmitter is further configured to transmit an indication of a system information block (SIB) modification, wherein the SIB comprises information for decoding the broadcast control information.

42. The apparatus of claim 41, wherein the indication of the SIB modification comprises an indication of what fields in the SIB are modified and values of the fields in SIB that are modified.

43. The apparatus of claim 39, wherein the broadcast control information comprises a random access response (RAR) message.

44. The apparatus of claim 43, wherein for contention based access the RAR message comprises at least one of a timing advance (TA), a grant for uplink (UL) transmissions, a temporary radio network temporary identifier (T-RNTI), or a preamble identifier.

45. The apparatus of claim 43, wherein for non-contention based access the RAR message comprises at least one of a cell radio network temporary identifier (C-RNTI), a timing advance (TA), or random access channel (RACH) configuration.

46. An apparatus for wireless communications by a user equipment (UE), comprising: means for identifying, within a subframe, a first search space to monitor for a transmission on a downlink control channel that occupies a first number of physical resource blocks (PRBs) that represents a narrowband within a system bandwidth comprising a plurality of narrowbands; means for monitoring at least the first search space for broadcast control information transmitted on the downlink control channel, wherein the broadcast control information comprises information for a paging message; and means for identifying the narrowband, used for the paging message, according to a UE-ID-to-narrowband mapping

rule, wherein: the UE-ID-to-narrowband mapping rule maps a UE ID to a narrow band region for paging; and the narrowband is different from one or more other narrowbands of the plurality of narrowbands used for paging messages for one or more other UEs.

47. An apparatus for wireless communications by a base station (BS), comprising: means for identifying, within a subframe, a first search space monitored by a user equipment (UE) for transmitting on a downlink control channel that occupies a first number of physical resource blocks (PRBs) that represents a narrowband within a system bandwidth comprising a plurality of narrowbands; means for transmitting broadcast control information on the downlink control channel, to a user equipment (UE), using a decoding candidate in the first search space, wherein the broadcast control information comprises information for a paging message; and means for identifying the narrowband, used for the paging message, according to a UE-ID-to-narrowband mapping rule, wherein: the UE-ID-to-narrowband mapping rule maps a UE ID to a narrow band region for paging; and the narrowband is different from one or more other narrowbands of the plurality of narrowbands used for paging messages for one or more other UEs.

48. A non-transitory computer-readable medium, comprising code which is executable by at least one processor, the code comprising: code to identify, within a subframe, a first search space to monitor for a transmission on a downlink control channel that occupies a first number of physical resource blocks (PRBs) that represents a narrowband within a system bandwidth comprising a plurality of narrowbands; code to monitor at least the first search space for broadcast control information transmitted on the downlink control channel, wherein the broadcast control information comprises information for a paging message; and code to identify the narrowband, used for the paging message, according to a UE-ID-to-narrowband mapping rule, wherein: the UE-ID-to-narrowband mapping rule maps a UE ID to a narrow band region for paging; and the narrowband is different from one or more other narrowbands of the plurality of narrowbands used for paging messages for one or more other UEs.

49. A non-transitory computer-readable medium, comprising code which is executable by at least one processor, the code comprising: code to identify, within a subframe, a first search space for transmitting on a downlink control channel that occupies a first number of physical resource blocks (PRBs) that represents a narrowband within a system bandwidth comprising a plurality of narrowbands; code to transmit broadcast control information on the downlink control channel, to a user equipment (UE), using a decoding candidate in the first search space, wherein the broadcast control information comprises information for a paging message; and code to identify the narrowband, used for the paging message, according to a UE-ID-to-narrowband mapping rule, wherein identifying the first search space is based at least in part on the identified narrowband, wherein: the UE-ID-to-narrowband mapping rule maps a UE ID to a narrow band region for paging; and the narrowband is different from one or more other narrowbands of the plurality of narrowbands used for paging messages for one or more other UEs.