CLAIMS

1. A method of wireless communication, comprising:

identifying, by a user equipment (UE), a wakeup signal resource associated with the UE based at least in part on a control channel search space resource associated with the UE, wherein the wakeup signal resource maps to the control channel search space resource and precedes the control channel search space resource;

monitoring, by the UE, the wakeup signal resource for an indication of whether to monitor the control channel search space resource; and

monitoring, by the UE, the control channel search space resource when the monitoring of the wakeup signal resource indicates that the control channel search space resource is to be monitored.

2. The method of claim 1,

wherein the UE is configured to sleep during a different control channel search space resource when a monitoring of a different wakeup signal resource indicates that the different control channel search space resource is not to be monitored.

3. The method of claim 1, wherein the wakeup signal resource maps to a plurality of control channel search space resources.

4. The method of claim 3, wherein the plurality of control channel search space resources are associated with the UE.

5. The method of claim 3, wherein the plurality of control channel search space resources are associated with a plurality of UEs.

6. The method of claim 1, wherein the wakeup signal resource is identified based at least in part on a periodicity or a time offset associated with the wakeup signal resource.

7. The method of claim 1, wherein the wakeup signal resource is identified based at least in part on at least one of:

a UE identifier associated with the UE,

a radio network temporary identifier (RNTI) associated with control channel

communications monitored by the UE,

a signal-to-noise ratio associated with the UE,

a maximum repetition level associated with the UE,

an actual repetition level associated with control channel communications for the UE,

a carrier index associated with the control channel search space resource, or

some combination thereof.

8. The method of claim 1, wherein the wakeup signal resource occurs before the control channel search space resource with no intervening wakeup signal resources associated with the UE.

9. The method of claim 1, wherein the wakeup signal resource occurs a number of subframes before the control channel search space resource.

10. The method of claim 9, wherein the number of subframes is identified based at least in part on at least one of:

a signal-to-noise ratio associated with the UE,

a maximum repetition level associated with the UE,

an actual repetition level associated with control channel communications for the UE, or

some combination thereof.

11. The method of claim 1, wherein the UE is configured to monitor the control channel search space resource when a wakeup signal is present in the wakeup signal resource, or wherein the UE is configured to skip monitoring of the control channel search space resource when the wakeup signal is absent from the wakeup signal resource.

12. The method of claim 1, wherein the wakeup signal resource corresponds to a number of resource elements associated with a wakeup signal that is transmitted over a plurality of resource elements; and

wherein the number of resource elements over which the UE is configured to monitor for the wakeup signal is determined based at least in part on a maximum repetition level of control channel communications or a signal-to-noise ratio associated with the UE.

13. The method of claim 12, wherein a length of the wakeup signal is configured

based at least in part on at least one of:

a maximum repetition level associated with a control channel that includes the control channel search space resource,

an actual repetition level associated with the control channel,

a determination of whether the wakeup signal is transmitted using transmit diversity,

a determination of whether the wakeup signal is transmitted using frequency hopping,

a discontinuous reception cycle length associated with the UE,

a radio resource control (RRC) configuration message, or

some combination thereof.

14. The method of claim 1, wherein the UE is configured to identify or monitor the wakeup signal resource based at least in part on a determination that the UE is associated with a repetition level or a signal-to-noise ratio that satisfies a condition.

15. The method of claim 1, wherein a payload size of a wakeup signal in the wakeup signal resource is less than a payload size used for legacy downlink control information in a control channel that includes the control channel search space resource, wherein the wakeup signal is also carried on a physical downlink control channel (PDCCH).

16. The method of claim 1, wherein a wakeup signal in the wakeup signal resource indicates one or more UEs that are to monitor the control channel search space resource.

17. The method of claim 1, wherein the wakeup signal resource is different for different UEs monitoring the same paging resource.

18. The method of claim 1, wherein the wakeup signal resource is identified or monitored based at least in part on a wakeup signal mode determined based at least in part on whether a wakeup signal is being used for connected mode discontinuous reception (CDRX).

19. A method of wireless communication, comprising:

identifying, by a base station, a wakeup signal resource associated with a user equipment (UE) based at least in part on a control channel search space resource associated with the UE, wherein the wakeup signal resource maps to the control channel search space resource and precedes the control channel search space resource;

determining, by the base station, that a control channel search space, associated with the control channel search space resource, is to include control information associated with the UE; and

transmitting, by the base station, a wakeup signal in the wakeup signal resource based at least in part on determining that the control channel search space is to include control information associated with the UE, wherein the wakeup signal indicates whether the UE is to initiate a wakeup procedure to monitor the control channel search space resource or sleep during the control channel search space resource.

20. The method of claim 19, wherein the wakeup signal resource maps to a plurality of control channel search space resources.

21. The method of claim 20, wherein the plurality of control channel search space resources are associated with the UE.

22. The method of claim 20, wherein the plurality of control channel search space resources are associated with a plurality of UEs.

23. The method of claim 19, wherein the wakeup signal resource is identified based at least in part on a periodicity or a time offset associated with the wakeup signal resource and indicated to the UE.

24. The method of claim 19, wherein the wakeup signal resource is identified based at least in part on at least one of:

a UE identifier associated with the UE,

a radio network temporary identifier (RNTI) associated with control channel communications monitored by the UE,

a signal-to-noise ratio associated with the UE,

a maximum repetition level associated with the UE,

an actual repetition level associated with control channel communications for the UE,

a carrier index associated with the control channel search space resource, or

some combination thereof.

25. The method of claim 19, wherein the wakeup signal resource occurs before the

control channel search space resource with no intervening wakeup signal resources associated with the UE.

26. The method of claim 19, wherein the wakeup signal resource occurs a number of subframes before the control channel search space resource.

27. The method of claim 26, wherein the number of subframes is identified based at least in part on at least one of:

a signal-to-noise ratio associated with the UE,

a maximum repetition level associated with the UE,

an actual repetition level associated with control channel communications for the UE, or

some combination thereof.

28. The method of claim 19, wherein the base station is configured to skip transmission ofa different wakeup signal when a different control channel search space is not to include control information associated with the UE.

29. The method of claim 19, wherein a length of the wakeup signal is configured based at least in part on at least one of:

a maximum repetition level associated with a control channel that includes the control channel search space resource,

a determination of whether the wakeup signal is transmitted using transmit diversity,

a determination of whether the wakeup signal is transmitted using frequency hopping,

a discontinuous reception cycle length associated with the UE,

a radio resource control (RRC) configuration message, or

some combination thereof.

30. The method of claim 19, wherein a payload size of the wakeup signal is less than a payload size used for legacy downlink control information in a control channel that includes the control channel search space resource.

31. The method of claim 19, wherein the wakeup signal indicates one or more UEs that are to monitor the control channel search space resource.

32. A user equipment (UE) for wireless communication, comprising:

memory; and

one or more processors coupled to the memory, the memory and the one or more processors configured to:

identify a wakeup signal resource associated with the UE based at least in part on a control channel search space resource associated with the UE, wherein the wakeup signal resource maps to the control channel search space resource and precedes the control channel search space resource;

monitor the wakeup signal resource for an indication of whether to monitor the control channel search space resource; and

monitor the control channel search space resource when the monitoring of the wakeup signal resource indicates that the control channel search space resource is to be monitored.

33. A base station for wireless communication, comprising:

memory; and

one or more processors coupled to the memory, the memory and the one or more processors configured to:

identify a wakeup signal resource associated with a user equipment (UE) based at least in part on a control channel search space resource associated with the UE, wherein the wakeup signal resource maps to the control channel search space resource and precedes the control channel search space resource;

determine that a control channel search space, associated with the control channel search space resource, is to include control information associated with the UE; and

transmit a wakeup signal in the wakeup signal resource based at least in part on determining that the control channel search space is to include control information associated with the UE, wherein the wakeup signal indicates whether the UE is to initiate a wakeup procedure to monitor the control channel search space resource or sleep during the control channel search space resource.

34. The base station of claim 33 wherein the wakeup signal resource maps to a plurality of control channel search space resources.