Claims

1. A method for wireless communication at a user equipment (UE), comprising:

identifying a configuration for communication using a secondary cell in a shared frequency spectrum band, wherein transmissions via the secondary cell are subject to a listen-before-talk (LBT) procedure for a shared frequency channel;

receiving a transmission from the secondary cell comprising a plurality of subframes; and

determining a reference signal configuration for at least one subframe of the transmission based at least in part on a cross-subframe indicator received in a reference subframe, the cross-subframe indicator indicating a value of a subframe offset between the reference subframe and the at least one subframe.

2. The method of claim 1, wherein the cross-subframe indicator is received over a different secondary cell of the shared frequency spectrum band.

3. The method of claim 1, wherein the cross-subframe indicator is received over a licensed cell operating in a dedicated frequency spectrum band.

4. The method of claim 3, wherein the cross-subframe indicator comprises a field of a downlink control information (DCI) format received via a downlink control channel of the licensed cell.

5. The method of claim 1, wherein the cross-subframe indicator is received over the secondary cell in an indicator channel or a field of a downlink control information (DCI) format received via a downlink control channel of the secondary cell.

6. The method of claim 1, further comprising:

identifying that the at least one subframe has asynchronous symbol timing relative to a licensed cell operating in a dedicated frequency spectrum band; and

determining one or more symbol positions within the at least one subframe for at least one reference signal based on a detected symbol preamble associated with the transmission.

7. An apparatus for wireless communication at a user equipment (UE), comprising:

means for identifying a configuration for communication using a secondary cell in a shared frequency spectrum band, wherein transmissions via the secondary cell are subject to a listen-before-talk (LBT) procedure for a shared frequency channel;

means for receiving a transmission from the secondary cell comprising a plurality of subframes; and

means for determining a reference signal configuration for at least one subframe of the transmission based at least in part on a cross-subframe indicator received in a reference subframe, the cross-subframe indicator indicating a value of a subframe offset between the reference subframe and the at least one subframe.

8. The apparatus of claim 7, wherein the means for determining identifies a set of initially transmitted subframes associated with at least one reference signal configuration.

9. The apparatus of claim 7, wherein the cross-subframe indicator is received over a different secondary cell of the shared frequency spectrum band.

10. The apparatus of claim 7, further comprising:

means for identifying that the at least one subframe has asynchronous symbol timing relative to a licensed cell operating in a dedicated frequency spectrum band; and

means for determining one or more symbol positions within the at least one subframe for at least one reference signal based at least in part on a detected symbol preamble associated with the transmission.

11. An apparatus for wireless communication at a user equipment (UE), comprising:

a processor;

memory in electronic communication with the processor; and

instructions stored in the memory and operable, when executed by the processor, to cause the apparatus to:

receive a configuration for communication using a secondary cell in a shared frequency spectrum band, wherein transmissions via the secondary cell are subject to a listen-before-talk (LBT) procedure for a shared frequency channel;

identify a transmission from the secondary cell comprising a plurality of subframes; and

determine a reference signal configuration for at least one subframe of the transmission based at least in part on a cross-subframe indicator received in a reference subframe, the cross-subframe indicator indicating a value of a subframe offset between the reference subframe and the at least one subframe.

12. The apparatus of claim 11, wherein the cross-subframe indicator is received over a different secondary cell of the shared frequency spectrum band.

13. The apparatus of claim 11, wherein the instructions are operable, when executed by the processor, to cause the apparatus to:

identify that the at least one subframe has asynchronous symbol timing relative to a licensed cell operating in a dedicated frequency spectrum band; and

determine one or more symbol positions within the at least one subframe for at least one reference signal based at least in part on a detected symbol preamble associated with the transmission.

14. A non-transitory computer-readable medium storing code for wireless communication at a user equipment (UE), the code comprising instructions executable to:

identify a configuration for communication using a secondary cell in a shared frequency spectrum band, wherein transmissions via the secondary cell are subject to a listen-before-talk (LBT) procedure for a shared frequency channel;

receive a transmission from the secondary cell comprising of a plurality of subframes; and

determine a reference signal configuration for at least one subframe of the transmission based at least in part on a cross-subframe indicator received in a reference subframe, the cross-subframe indicator indicating a value of a subframe offset between the reference subframe and the at least one subframe.

15. A method for wireless communication at a user equipment (UE), comprising:

identifying a plurality of cells in a transmission from a base station on a shared frequency spectrum band, wherein the transmission is subject to a listen-before-talk (LBT) procedure for a shared frequency channel;

identifying a first scheduling configuration for a first, initially transmitted set of subframes of the transmission, the first scheduling configuration comprising one or more search spaces of a first set of cells configured for carrying individual grants for respective cells of the plurality of cells; and

identifying a second scheduling configuration for a second set of subframes of the transmission subsequent to the first set of subframes, the second scheduling configuration comprising at least one joint search space of a second set of cells configured for carrying joint grants for the second set of cells.

16. The method of claim 15, further comprising:

determining a subset of the plurality of cells having associated frequency channels successfully reserved for the transmission.

17. The method of claim 16, further comprising:
determining the second set of cells from the subset of the plurality of cells based at least in part on a UE-specific identifier.

18. The method of claim 15, wherein the second set of cells comprises a licensed cell operating in a dedicated frequency spectrum band.

19. An apparatus for wireless communication at a user equipment (UE), comprising:

means for identifying a plurality of cells in a transmission from a base station on a shared frequency spectrum band, wherein the transmission is subject to a listen-before-talk (LBT) procedure for a shared frequency channel;

means for identifying a first scheduling configuration for a first, initially transmitted set of subframes of the transmission, the first scheduling configuration comprising one or more search spaces of a first set of cells configured for carrying individual grants for respective cells of the plurality of cells; and

means for identifying a second scheduling configuration for a second set of subframes of the transmission subsequent to the first set of subframes, the second scheduling configuration comprising at least one joint search space of a second set of cells configured for carrying joint grants for the second set of cells.

20. The apparatus of claim 19, further comprising:
means for determining a subset of the plurality of cells having associated frequency channels successfully reserved for the transmission.

21. The apparatus of claim 20, further comprising:
means for determining the second set of cells from the subset of the plurality of cells based at least in part on a UE-specific identifier.

22. An apparatus for wireless communication at a user equipment (UE), comprising:
a processor;
memory in electronic communication with the processor; and
instructions stored in the memory and operable, when executed by the processor, to cause the apparatus to:

identify a plurality of cells in a transmission from a base station on a shared frequency spectrum band, wherein the transmission is subject to a listen-before-talk (LBT) procedure for a shared frequency channel;

identify a first scheduling configuration for a first, initially transmitted set of subframes of the transmission, the first scheduling configuration comprising one or more search spaces of a first set of cells configured for carrying individual grants for respective cells of the plurality of cells; and

identify a second scheduling configuration for a second set of subframes of the transmission subsequent to the first set of subframes, the second scheduling configuration comprising at least one joint search space of a second set of cells configured for carrying joint grants for the second set of cells.

23. The apparatus of claim 22, wherein the instructions are operable, when executed by the processor, to cause the apparatus to:

determine a subset of the plurality of cells having associated frequency channels successfully reserved for the transmission.

24. The apparatus of claim 23, wherein the instructions are operable, when executed by the processor, to cause the apparatus to:

determine the second set of cells from the subset of the plurality of cells based at least in part on a UE-specific identifier.

25. A non-transitory computer-readable medium storing code for wireless communication at a user equipment (UE), the code comprising instructions executable to:

identify a plurality of cells in a transmission from a base station on a shared frequency spectrum band, wherein the transmission is subject to a listen-before-talk (LBT) procedure for a shared frequency channel;

identify a first scheduling configuration for a first, initially transmitted set of subframes of the transmission, the first scheduling configuration comprising one or more search spaces of a first set of cells configured for carrying individual grants for respective cells of the plurality of cells; and

identify a second scheduling configuration for a second set of subframes of the transmission subsequent to the first set of subframes, the second scheduling configuration comprising at least one joint search space of a second set of cells configured for carrying joint grants for the second set of cells.