CLAIMS

1. A method for wireless communications at a user equipment (UE), comprising: generating a first single carrier frequency division multiple access (SC-FDMA) physical uplink shared channel (PUSCH) signal from the UE using at least one interleaved signal, wherein each interleaved signal of the at least one interleaved signal occupies a set of non-consecutive frequency resources such that each frequency resource in the set is separated from a neighboring frequency resource in the set by a fixed number of frequency resources outside of the set, and wherein the at least one interleaved signal increases nominal bandwidth occupancy in an unlicensed spectrum relative to a non-interleaved signal; and transmitting the generated first SC-FDMA PUSCH signal from the UE in the unlicensed spectrum, wherein the first SC-FDMA PUSCH signal from the UE is transmitted in the unlicensed spectrum concurrently with a second SC-FDMA signal from the UE in a licensed spectrum, wherein the generated first SC-FDMA PUSCH signal is confined to the at least one interleaved signal.

2. The method of claim 1, wherein the at least one interleaved signal comprises at least one interleaved orthogonal frequency division multiplexing (I-OFDM) waveform.

3. The method of claim 1, wherein the at least one interleaved signal comprises at least one interleaved frequency division multiplexing (IFDM) waveform.

4. The method of claim 1, further comprising: receiving a first orthogonal frequency-division multiple access (OFDMA) signal from a base station in a licensed spectrum; and receiving, concurrently with the reception of the first OFDMA signal, a second OFDMA signal from the base station in an unlicensed spectrum; wherein the reception of the second OFMDA signal in the unlicensed spectrum is time-synchronized with the first OFDMA signal in the licensed spectrum, with a fixed offset between a frame structure of the first OFDMA communications signal and a frame structure of the second OFDMA communications signal.

5. The method of claim 1, wherein the set of non-consecutive frequency resources comprises a set of non-consecutive subcarriers.

6. An apparatus for wireless communications at a user equipment (UE), comprising: means for generating a first single carrier frequency division multiple access (SC-FDMA) physical uplink shared channel (PUSCH) signals from the UE using at least one interleaved signal, wherein each interleaved signal of the at least one interleaved signal is based on a set of non-consecutive frequency resources such that each frequency resource in the set is separated from a neighboring frequency resource in the set by a fixed number of frequency resources outside of the set, and wherein the at least one interleaved signal increases nominal bandwidth occupancy in an unlicensed spectrum relative to a non-interleaved signal; and means for transmitting the generated first SC-FDMA PUSCH signal from the UE in the unlicensed spectrum, wherein the first SC-FDMA PUSCH signal from the UE is transmitted in the unlicensed spectrum concurrently with a second SC-FDMA signal from the UE in a licensed spectrum, wherein the generated first SC-FDMA PUSCH signal is confined to the at least one interleaved signal.

7. The apparatus of claim 6, wherein the at least one interleaved signal comprises at least one interleaved orthogonal frequency division multiplexing (I-OFDM) waveform.

8. The apparatus of claim 6, wherein the at least one interleaved signal comprises at least one interleaved frequency division multiplexing (IFDM) waveform.

9. The apparatus of claim 6, further comprising: means for receiving a first orthogonal frequency-division multiple access (OFDMA) signal from a base station in a licensed spectrum; and means for receiving, concurrently with the reception of the first OFDMA signal, a second OFDMA signal from the base station in an unlicensed spectrum; wherein the reception of the second OFMDA signal in the unlicensed spectrum is time-synchronized with the first OFDMA signal in the licensed spectrum, with a fixed offset between a frame structure of the first OFDMA communications signal and a frame structure of the second OFDMA communications signal.

10. The apparatus of claim 6, wherein the set of non-consecutive frequency resources comprises a set of non-consecutive subcarriers.

11. An apparatus for wireless communications at a user equipment (UE), comprising: a processor; memory in electronic communication with the processor; and instructions stored in the memory, the instructions being executable by the processor to: generate a first single carrier frequency division multiple access (SC-FDMA) physical uplink shared channel (PUSCH) signal from the UE using at least one interleaved signal, wherein each interleaved signal of the at least one interleaved signal occupies a set of non-consecutive frequency resources such that each frequency resource in the set is separated from a neighboring frequency resource in the set by a fixed number of frequency resources outside of the set, and wherein the at least one interleaved signal increases nominal bandwidth occupancy in an unlicensed spectrum relative to a non-interleaved signal; and transmit the generated first SC-FDMA PUSCH signal from the UE in the unlicensed spectrum, wherein the first SC-FDMA PUSCH signal from the UE is transmitted in the unlicensed spectrum concurrently with a second SC-FDMA signal from the UE in a licensed spectrum, wherein the generated first SC-FDMA PUSCH signal is confined to the at least one interleaved signal.

12. The apparatus of claim 11, wherein the at least one interleaved signal comprises at least one interleaved orthogonal frequency division multiplexing (I-OFDM) waveform.

13. The apparatus of claim 11, wherein the at least one interleaved signal comprises at least one interleaved frequency division multiplexing (IFDM) waveform.

14. The apparatus of claim 11, wherein the instructions are further executable by the processor to: receive a first orthogonal frequency-division multiple access (OFDMA) signal from a base station in a licensed spectrum; and receive, concurrently with the reception of the first OFDMA signal, a second OFDMA signal from the base station in an unlicensed spectrum; wherein the reception of the second OFMDA signal in the unlicensed spectrum is time-synchronized with the first OFDMA signal in the licensed spectrum, with a fixed offset between a frame structure of the first OFDMA communications signal and a frame structure of the second OFDMA communications signal.

15. The apparatus of claim 11, wherein the set of non-consecutive frequency resources comprises a set of non-consecutive subcarriers.

16. A computer program product for communications by a wireless communications apparatus in a wireless communications system, the computer program product comprising a non-transitory computer-readable medium storing instructions executable by a processor to cause the wireless communications apparatus to: generate, at a user equipment (UE), a first single carrier frequency division multiple access (SC-FDMA) physical uplink shared channel (PUSCH) signal from the UE using at least one interleaved signal, wherein each interleaved signal of the at least one interleaved signal occupies a set of non-consecutive frequency resources such that each frequency resource in the set is separated from a neighboring frequency resource in the set by a fixed number of frequency resources outside of the set, and wherein the at least one interleaved signal increases nominal bandwidth occupancy in an unlicensed spectrum relative to a non-interleaved signal; and transmit the generated first SC-FDMA PUSCH signal from the UE in the unlicensed spectrum, wherein the first SC-FDMA PUSCH signal from the UE is transmitted in the unlicensed spectrum concurrently with a second SC-FDMA signal from the UE in a licensed spectrum, wherein the generated first SC-FDMA PUSCH signal is confined to the at least one interleaved signal.

17. The computer program product of claim 16, wherein the at least one interleaved signal comprises at least one interleaved orthogonal frequency division multiplexing (I-OFDM) waveform.

18. The computer program product of claim 16, wherein the at least one interleaved signal comprises at least one interleaved frequency division multiplexing (IFDM) waveform.

19. The computer program product of claim 16, wherein the instructions are further executable by the processor to: receive a first orthogonal frequency-division multiple access (OFDMA) signal from a base station in a licensed spectrum; and receive, concurrently with the reception of the first OFDMA signal, a second OFDMA signal from the base station in an unlicensed spectrum; wherein the reception of the second OFMDA signal in the unlicensed spectrum is time-synchronized with the first OFDMA signal in the licensed spectrum, with a fixed offset between a frame structure of the first OFDMA communications signal and a frame structure of the second OFDMA communications signal.

20. The computer program product of claim 16, wherein the set of non-consecutive frequency resources comprises a set of non-consecutive subcarriers.

21. A method for wireless communications at a base station, comprising: receiving, in an unlicensed spectrum, a first single carrier frequency division multiple access (SC-FDMA) physical uplink shared channel (PUSCH) signal from a user equipment (UE) using at least one interleaved signal, wherein each interleaved signal of the at least one interleaved signal occupies a set of non-consecutive frequency resources such that each frequency resource in the set is separated from a neighboring frequency resource in the set by a fixed number of frequency resources outside of the set, and wherein the at least one interleaved signal increases nominal bandwidth occupancy in the unlicensed spectrum relative to a non-interleaved signal; and receiving, concurrently with the first SC-FDMA signal, a second SC-FDMA signal from the UE in a licensed spectrum, wherein the first SC-FDMA PUSCH signal is confined to the at least one interleaved signal.

22. The method of claim 21, wherein the at least one interleaved signal comprises at least one interleaved orthogonal frequency division multiplexing (I-OFDM) waveform.

23. The method of claim 21, wherein the at least one interleaved signal comprises at least one interleaved frequency division multiplexing (IFDM) waveform.

24. The method of claim 21, further comprising: transmitting a first orthogonal frequency-division multiple access (OFDMA) signal to the UE in a licensed spectrum; and transmitting, concurrently with the transmission of the first OFDMA communications signal, a second OFDMA signal to the UE in an unlicensed spectrum; wherein the second OFDMA signal in the unlicensed spectrum is time-synchronized with the first OFDMA signal in the licensed spectrum, with a fixed offset between a frame structure of the first OFDMA communications signal and a frame structure of the second OFDMA communications signal.

25. The method of claim 21, wherein the set of non-consecutive frequency resources comprises a set of non-consecutive subcarriers.

26. An apparatus for wireless communications at a base station, comprising: means for receiving, in an unlicensed spectrum, a first single carrier frequency division multiple access (SC-FDMA) physical uplink shared channel (PUSCH) signal from a user equipment (UE) using at least one interleaved signal, wherein each interleaved signal of the at least one interleaved signal is based on a set of non-consecutive frequency resources such that each frequency resource in the set is separated from a neighboring frequency resource in the set by a fixed number of frequency resources outside of the set, and wherein the at least one interleaved signal increases nominal bandwidth occupancy in an unlicensed spectrum relative to a non-interleaved signal; and means for receiving, concurrently with the first SC-FDMA signal, a second SC-FDMA signal from the UE in a licensed spectrum, wherein the first SC-FDMA PUSCH signal is confined to the at least one interleaved signal.

27. The apparatus of claim 26, wherein the at least one interleaved signal comprises at least one interleaved orthogonal frequency division multiplexing (I-OFDM) waveform.

28. The apparatus of claim 26, wherein the at least one interleaved signal comprises at least one interleaved frequency division multiplexing (IFDM) waveform.

29. The apparatus of claim 26, wherein the set of non-consecutive frequency resources comprises a set of non-consecutive subcarriers.

30. An apparatus for wireless communications at a base station, comprising: a processor; memory in electronic communication with the processor; and instructions stored in the memory, the instructions being executable by the processor to: receive, in an unlicensed spectrum, a first single carrier frequency division multiple access (SC-FDMA) physical uplink shared channel (PUSCH) signal from a user equipment (UE) using at least one interleaved signal, wherein each interleaved signal of the at least one interleaved signal occupies a set of non-consecutive frequency resources such that each frequency resource in the set is separated from a neighboring frequency resource in the set by a fixed number of frequency resources outside of the set, and wherein the at least one interleaved signal increases nominal bandwidth occupancy in the unlicensed spectrum relative to a non-interleaved signal; and receive, concurrently with the first SC-FDMA signal, a second SC-FDMA

signal from the UE in a licensed spectrum, wherein the first SC-FDMA PUSCH signal is confined to the at least one interleaved signal.

31. The apparatus of claim 30, wherein the at least one interleaved signal comprises at least one interleaved orthogonal frequency division multiplexing (I-OFDM) waveform.

32. The apparatus of claim 30, wherein the at least one interleaved signal comprises at least one interleaved frequency division multiplexing (IFDM) waveform.

33. The apparatus of claim 30, wherein the instructions are further executable by the processor to: transmit a first orthogonal frequency-division multiple access (OFDMA) signal to the UE in a licensed spectrum; and transmit, concurrently with the transmission of the first OFDMA signal, a second OFDMA signal to the UE in an unlicensed spectrum; wherein the second OFDMA signal in the unlicensed spectrum is time-synchronized with the first OFDMA signal in the licensed spectrum, with a fixed offset between a frame structure of the first OFDMA communications signal and a frame structure of the second OFDMA communications signal.

34. The apparatus of claim 30, wherein the set of non-consecutive frequency resources comprises a set of non-consecutive subcarriers.

35. A computer program product for communications by a wireless communications apparatus in a wireless communications system, the computer program product comprising a non-transitory computer-readable medium storing instructions executable by a processor to cause the wireless communications apparatus to: receive, in an unlicensed spectrum, a first single carrier frequency division multiple access (SC-FDMA) physical uplink shared channel (PUSCH) signals from a user equipment (UE) using at least one interleaved signal, wherein each interleaved signal of the at least one interleaved signal occupies a set of non-consecutive frequency resources such that each frequency resource in the set is separated from a neighboring frequency resource in the set by a fixed number of frequency resources outside of the set, and wherein the at least one interleaved signal increases nominal bandwidth occupancy in the unlicensed spectrum relative to a non-interleaved signal; and receive, concurrently with the first SC-FDMA signal, a second SC-FDMA signal from the

UE in a licensed spectrum, wherein the first SC-FDMA PUSCH signal is confined to the at least one interleaved signal.

36. The computer program product of claim 35, wherein the at least one interleaved signal comprises at least one interleaved orthogonal frequency division multiplexing (I-OFDM) waveform.

37. The computer program product of claim 35, wherein the at least one interleaved signal comprises at least one interleaved frequency division multiplexing (IFDM) waveform.

38. The computer program product of claim 35, wherein the set of non-consecutive frequency resources comprises a set of non-consecutive subcarriers.