

CLAIMS

1. A method for wireless communication, comprising:
 - identifying a first tone spacing scheme indicating a tone spacing for radio resource control (RRC) signaling;
 - transmitting an indication of the tone spacing for the RRC signaling via system information;
 - identifying a second tone spacing scheme indicating different tone spacings for uplink communications;
 - transmitting an indication of one or more tone spacings of the second tone spacing scheme via an RRC message according to the tone spacing for the RRC signaling; and
 - communicating with a wireless device according to the one or more tone spacings of the second tone spacing scheme.
2. The method of claim 1, further comprising:
 - selecting the second tone spacing scheme from a plurality of available tone spacing schemes.
3. The method of claim 1, wherein communicating with the wireless device comprises:
 - using one or more different tone spacings for each stage of different stages of wireless communications in accordance with the first and second tone spacing schemes.
4. The method of claim 3, wherein communicating with the wireless device comprises:
 - participating in a random access channel (RACH) procedure with the wireless device in accordance with the first tone spacing scheme, wherein a tone spacing for the RACH procedure is different from a tone spacing for other stages of communication with the wireless device.
5. The method of claim 3, wherein communicating with the wireless device comprises:
 - participating in data communications with the wireless device in accordance with

the second tone spacing scheme, wherein a tone spacing for the data communications is different from a tone spacing for other stages of communication with the wireless device.

6. The method of claim 1, wherein communicating with the wireless device comprises:

communicating with the wireless device using one or more different tone spacings for each type of different wireless communication channel types in accordance with the second tone spacing scheme.

7. The method of claim 6, wherein communicating with the wireless device comprises:

communicating via one or more control channels with the wireless device in accordance with the second tone spacing scheme, wherein a tone spacing for the one or more control channels is different from a tone spacing for other types of communication with the wireless device.

8. The method of claim 1, wherein:
a tone spacing of at least one synchronization signal is different from other channels of communication.

9. The method of claim 8, wherein:
the at least one synchronization signal comprises a primary synchronization signal (PSS), a secondary synchronization signal (SSS), a physical broadcast channel (PBCH), or combinations thereof.

10. The method of claim 8, wherein:
the tone spacing of the at least one synchronization signal is different from at least one other synchronization signal.

11. The method of claim 1, wherein communicating with the wireless device comprises:

including an indication of the second tone spacing scheme via a synchronization channel, a control channel a physical broadcast channel (PBCH), the RRC message, a master information block (MIB), a system information block, or combinations thereof.

12. The method of claim 11, wherein:
the system information block comprises minimum system information or other system information.
13. The method of claim 1, wherein communicating with the wireless device comprises:
indicating the second tone spacing scheme via a characteristic of a primary synchronization signal (PSS), a secondary synchronization signal (SSS), a reference signal, or combinations thereof.
14. The method of claim 13, wherein the characteristic comprises a number of repetitions, a number of tones, a pattern of tones, or combinations thereof.
15. The method of claim 1, wherein communicating with the wireless device comprises:
indicating the second tone spacing scheme for either a current subframe or a future subframe.
16. A method for wireless communication, comprising:
identifying a first tone spacing scheme indicating a tone spacing for radio resource control (RRC) signaling;
transmitting an indication of the tone spacing for the RRC signaling via system information;
identifying a second tone spacing scheme indicating tone spacing for a current subframe, a future subframe, or a combination thereof;
transmitting an indication of one or more tone spacings of the second tone spacing scheme via an RRC message according to the tone spacing for the RRC signaling; and
communicating with a wireless device according to the one or more tone spacings of the second tone spacing scheme.
17. The method of claim 16, further comprising:
selecting the second tone spacing scheme from a plurality of available tone spacing schemes.

18. The method of claim 16, wherein communicating with the wireless device comprises:

using one or more different tone spacings for each stage of different stages of wireless communications in accordance with the first and second tone spacing schemes.

19. The method of claim 18, wherein communicating with the wireless device comprises:

participating in a random access channel (RACH) procedure with the wireless device in accordance with the first tone spacing scheme, wherein a tone spacing for the RACH procedure is different from a tone spacing for other stages of communication with the wireless device.

20. The method of claim 18, wherein communicating with the wireless device comprises:

participating in data communications with the wireless device in accordance with the second tone spacing scheme, wherein a tone spacing for the data communications is different from a tone spacing for other stages of communication with the wireless device.

21. The method of claim 16, wherein communicating with the wireless device comprises:

communicating with the wireless device using one or more different tone spacings for each type of different wireless communication channel types in accordance with the second tone spacing scheme.

22. The method of claim 21, wherein communicating with the wireless device comprises:

communicating via one or more control channels with the wireless device in accordance with the second tone spacing scheme, wherein a tone spacing for the one or more control channels is different from a tone spacing for other types of communication with the wireless device.

23. The method of claim 16, wherein communicating with the wireless device comprises:

including an indication of the second tone spacing scheme via a synchronization channel, a control channel, a physical broadcast channel (PBCH), the RRC message, or a system information block (SIB).

24. The method of claim 16, wherein communicating with the wireless device comprises:

indicating the second tone spacing scheme via a characteristic of a primary synchronization signal (PSS), a secondary synchronization signal (SSS), or a reference signal.

25. The method of claim 16, wherein communicating with the wireless device comprises:

indicating the second tone spacing scheme for either an uplink communication, a downlink communication, or a sidelink communication.

26. An apparatus for wireless communication, in a system 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 first tone spacing scheme indicating a tone spacing for radio resource control (RRC) signaling;

transmit an indication of the tone spacing for the RRC signaling via system information;

identify a second tone spacing scheme indicating different tone spacings for uplink communications;

transmit an indication of one or more tone spacings of the second tone spacing scheme via an RRC message according to the tone spacing for the RRC signaling; and

communicate with a wireless device according to the one or more tone spacings of the second tone spacing scheme.

27. The apparatus of claim 26, wherein the instructions are further executable by the processor to:

select the second tone spacing scheme from a plurality of available tone spacing schemes.

28. The apparatus of claim 26, wherein the instructions are further executable by the processor to:

use one or more different tone spacings for each stage of different stages of wireless communications in accordance with the first and second tone spacing schemes.

29. The apparatus of claim 28, wherein the instructions are further executable by the processor to:

participate in a random access channel (RACH) procedure with the wireless device in accordance with the first tone spacing scheme, wherein a tone spacing for the RACH procedure is different from a tone spacing for other stages of communication with the wireless device.

30. The apparatus of claim 28, wherein the instructions are further executable by the processor to:

participate in data communications with the wireless device in accordance with the second tone spacing scheme, wherein a tone spacing for the data communications is different from a tone spacing for other stages of communication with the wireless device.

31. The apparatus of claim 26, wherein the instructions are further executable by the processor to:

communicate with the wireless device using one or more different tone spacings for each type of different wireless communication channel types in accordance with the second tone spacing scheme.

32. The apparatus of claim 31, wherein the instructions are further executable by the processor to:

communicate via one or more control channels with the wireless device in accordance with the second tone spacing scheme, wherein a tone spacing for the one or more control channels is different from a tone spacing for other types of communication with the wireless device.

33. The apparatus of claim 26, wherein:
a tone spacing of at least one synchronization signal is different from other channels of communication.

34. The apparatus of claim 33, wherein:
the at least one synchronization signal comprises a primary synchronization signal (PSS), a secondary synchronization signal (SSS), a physical broadcast channel (PBCH), or combinations thereof.

35. The apparatus of claim 33, wherein:
the tone spacing of the at least one synchronization signal is different from at least one other synchronization signal.

36. The apparatus of claim 26, wherein the instructions are further executable by the processor to:
include an indication of the second tone spacing scheme via a synchronization channel, a control channel a physical broadcast channel (PBCH), the RRC message, a master information block (MIB), a system information block, or combinations thereof.

37. The apparatus of claim 36, wherein:
the system information block comprises minimum system information or other system information.

38. The apparatus of claim 26, wherein the instructions are further executable by the processor to:
indicate the second tone spacing scheme via a characteristic of a primary synchronization signal (PSS), a secondary synchronization signal (SSS), a reference signal, or combinations thereof.

39. The apparatus of claim 38, wherein the characteristic comprises a number of repetitions, a number of tones, a pattern of tones, or combinations thereof.

40. The apparatus of claim 26, wherein the instructions are further executable by the processor to:

indicate the second tone spacing scheme for either a current subframe or a future subframe.

41. An apparatus for wireless communication, in a system 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 first tone spacing scheme indicating a tone spacing for radio resource control (RRC) signaling;
- transmit an indication of the tone spacing for the RRC signaling via system information;
- identify a second tone spacing scheme indicating tone spacing for a current subframe, a future subframe, or a combination thereof;
- transmit an indication of one or more tone spacings of the second tone spacing scheme via an RRC message according to the tone spacing for the RRC signaling; and
- communicate with a wireless device according to the one or more tone spacings of the second tone spacing scheme.

42. The apparatus of claim 41, wherein the instructions are further executable by the processor to:

- select the second tone spacing scheme from a plurality of available tone spacing schemes.

43. The apparatus of claim 41, wherein the instructions are further executable by the processor to:

- use one or more different tone spacings for each stage of different stages of wireless communications in accordance with the first and second tone spacing schemes.

44. The apparatus of claim 43, wherein the instructions are further executable by the processor to:

- participate in a random access channel (RACH) procedure with the wireless

device in accordance with the first tone spacing scheme, wherein a tone spacing for the RACH procedure is different from a tone spacing for other stages of communication with the wireless device.

45. The apparatus of claim 43, wherein the instructions are further executable by the processor to:

participate in data communications with the wireless device in accordance with the second tone spacing scheme, wherein a tone spacing for the data communications is different from a tone spacing for other stages of communication with the wireless device.

46. The apparatus of claim 41, wherein the instructions are further executable by the processor to:

communicate with the wireless device using one or more different tone spacings for each type of different wireless communication channel types in accordance with the second tone spacing scheme.

47. The apparatus of claim 46, wherein the instructions are further executable by the processor to:

communicate via one or more control channels with the wireless device in accordance with the second tone spacing scheme, wherein a tone spacing for the one or more control channels is different from a tone spacing for other types of communication with the wireless device.

48. The apparatus of claim 41, wherein the instructions are further executable by the processor to:

include an indication of the second tone spacing scheme via a synchronization channel, a control channel, a physical broadcast channel (PBCH), the RRC message, or a system information block (SIB).

49. The apparatus of claim 41, wherein the instructions are further executable by the processor to:

indicate the second tone spacing scheme via a characteristic of a primary synchronization signal (PSS), a secondary synchronization signal (SSS), or a reference signal.

50. The apparatus of claim 41, wherein the instructions are further executable by the processor to:

indicate the second tone spacing scheme for either an uplink communication, a downlink communication, or a sidelink communication.