CLAIMS

1. An apparatus for wireless communications, comprising:

a processing system configured to generate a frame comprising a preamble, a first header, and a second header, wherein the preamble and the first header are configured to be decoded by a first device operating according to a first protocol, the second header not being configured to be decoded by the first device, and wherein the preamble, the first header, and the second header are configured to be decoded by a second device operating according to a second protocol, wherein the first protocol includes a first set of available modulation coding schemes (MCS) and the second protocol includes a second set of available modulation coding schemes (MCS), the first set of MCS being different than the second set of MCS, wherein the processing system is further configured to modulate and code a first set of header data for the first header and a second set of header data for the second header of the frame using at least one of the MCS in the first set, wherein the frame comprises a first payload data appended to the second header, wherein the processing system is further configured to modulate and code the first payload data of the frame using the at least one of the MCS in the first set, wherein the frame further comprises a second payload data, and wherein the processing system is further configured to modulate and code the second payload data of the frame using one of the MCS in the second set of MCS; and

an interface configured to output the frame for transmission.

2. The apparatus of claim 1, wherein the first payload data appended to the second header includes a particular quantity of data to allow the second device receiving the frame to set up for receiving the second payload data while receiving the first payload data appended to the second header.

3. The apparatus of claim 1, wherein the second header comprises information indicating a length of the first payload data and the second payload data for one or more channels associated with the transmission of the frame.

4. The apparatus of claim 1, wherein the processing system is configured to generate the frame for transmission using an orthogonal frequency division multiplexing (OFDM) signal or a single carrier (SC) signal.

5. The apparatus of claim 4, wherein the first header comprises a first set of header data indicating whether the frame is configured for transmission via the OFDM signal or the SC signal.

6. The apparatus of claim 1, wherein the preamble comprises a first short training field (STF) and a first channel estimation field (CEF), wherein the frame further comprises a second short training field (STF) and a payload data.

7. The apparatus of claim 6, wherein the second STF and the payload data of the frame are configured to be modulated on a single carrier.

8. An apparatus for wireless communications, comprising:

a processing system configured to generate a frame comprising a preamble, a first header, and a second header, wherein the preamble and the first header are configured to be decoded by a first device operating according to a first protocol, the second header not being configured to be decoded by the first device, and wherein the preamble, the first header, and the second header are configured to be decoded by a second device operating according to a second protocol, wherein the preamble comprises a first short training field (STF) and a first channel estimation field (CEF), wherein the frame further comprises a second short training field (STF) and a payload data, wherein the second STF and the payload data of the frame are configured to be modulated on a single carrier, and wherein the first STF, the first CEF, the first header, and the second header of the frame are configured to be transmitted in a time aligned or time skewed manner via a plurality of channels, respectively; and

an interface configured to output the frame for transmission.

9. The apparatus of claim 8, wherein the frame comprises a second channel estimation field (CEF), and wherein the second CEF of the frame is configured to be modulated on the single carrier.

10. An apparatus for wireless communications, comprising:

a processing system configured to generate a frame comprising a preamble, a first header, and a second header, wherein the preamble and the first header are configured to be decoded by a first device operating according to a first protocol, the second header not being configured to be decoded by the first device, and wherein the preamble, the first header, and the second header are configured to be decoded by a second device operating according to a second protocol, wherein the preamble comprises a first short training field (STF) and a first channel estimation field (CEF), wherein the frame further comprises a second short training field (STF) and a payload data, wherein the frame comprises a second channel estimation field (CEF), and wherein the second CEF of the frame is configured to be modulated on a single carrier, and wherein the second STF, the second CEF, and the payload data of the frame are configured to be transmitted via a bonded channel comprising at least a portion of a plurality of channels; and

an interface configured to output the frame for transmission.

11. The apparatus of claim 10, wherein the second header comprises information specifying a number of the plurality of channels included in the bonded channel.

12. The apparatus of claim 10, wherein the second header comprises information identifying a lowest frequency of the plurality of channels included in the bonded channel.

13. The apparatus of claim 10, wherein a first power level for transmission of the second STF, the second CEF, and the payload data is equal to or higher than a second power level for transmission of the first STF, the first CEF, the first header, and the second header.

14. The apparatus of claim 13, wherein the second header comprises information indicating a power difference between the first power level and the second power level.

15. The apparatus of claim 13, wherein the first header comprises information indicating a power difference between the first power level and the second power level, wherein the power difference information is not specified in the first protocol.

16. An apparatus for wireless communications, comprising:

a processing system configured to generate a frame comprising a preamble, a first header, and a second header, wherein the preamble and the first header are configured to be decoded by a first device operating according to a first protocol, the second header not being configured to be decoded by the first device, and wherein the preamble, the first header, and the second header are configured to be decoded by a second device operating according to a second protocol, wherein the frame further comprises a first payload data, wherein the first header and the second header include header data modulated and coded using a modulation coding scheme (MCS) specified in the first protocol, wherein the processing system is configured to modulate and code the first payload data of the frame using a first modulation coding scheme (MCS) specified in the second protocol; and

an interface configured to output the frame for transmission.

17. The apparatus of claim 16, wherein the frame further comprises a third header having a same configuration as the second header, the third header including information different than that of the second header, wherein the preamble and the first header are configured to be redundantly transmitted in a time aligned or time skewed manner via first and second channels, and the second header and the third header are configured to be transmitted in a time aligned or time skewed manner via the first and second channels, respectively.

18. The apparatus of claim 16, wherein the frame further comprises a second payload data, the second payload data of the frame is modulated and coded with a second modulation coding scheme (MCS) specified in the second protocol, the second MCS being different than the first MCS, wherein the preamble and the first header are configured to be redundantly transmitted in a time aligned or time skewed manner via first and second channels, and wherein the first payload data and the second payload data are configured to be transmitted in a time aligned or time skewed manner via the first and second channels, respectively.

19. The apparatus of claim 18, wherein the first payload data comprises a first set of one or more coded data blocks, the second payload data comprises a second set of one or more coded data blocks, the first set of one or more coded data blocks being different than the second set of one or more coded data blocks.

20. The apparatus of claim 16, wherein the frame further comprises a second payload data, the second payload data of the frame is modulated and coded using the first MCS specified in the second protocol, wherein the preamble, the first header, the second header are configured to be redundantly transmitted in a time aligned or time skewed manner via first and second channels, and wherein the first payload data and the second payload data are configured to be transmitted in a time aligned or time skewed manner via the first and second channels, respectively.

21. The apparatus of claim 20, wherein the first and second payload data comprise a plurality of coded data blocks, wherein first and second portions of the coded data blocks are configured to be transmitted via the first and second channels, respectively.

22. An apparatus for wireless communications, comprising:

a processing system configured to generate a frame comprising a preamble, a first header, and a second header, wherein the preamble and the first header are configured to be decoded by a first device operating according to a first protocol, the second header not being configured to be decoded by the first device, and wherein the preamble, the first header, and the second header are configured to be decoded by a second device operating according to a second protocol, wherein the preamble comprises a first short training field (STF) and a first channel estimation field (CEF), the frame further comprises a second channel estimation field (CEF) and a payload data, wherein the first STF, the first CEF, the first header, the second header, and the second CEF sequence are configured to be transmitted via a first set of channels, and the payload data is configured to be transmitted via a first bonded channel including the first set of channels, and wherein the first bonded channel is associated with a first spatial transmission; and

an interface configured to output the frame for transmission.

23. The apparatus of claim 22, wherein the first STF, the first CEF, the first header, the second header, and the second CEF are configured to be transmitted via a second set of channels, the payload data is configured to be transmitted via a second bonded channel including the second set of channels, the transmission of the first STF, first CEF and first header of the second set of channels being skewed from the transmission of the first STF, first CEF, and first header of the second set of channels, wherein the second bonded channel is associated with a second spatial transmission.

24. The apparatus of claim 22, wherein the first STF, the first CEF, the first header, the second header, and a conjugate of the second CEF are configured to be transmitted via a second set of channels, the payload data is configured to be transmitted via a second bonded channel including the second set of channels, and the second bonded channel is associated with a second spatial transmission.

25. The apparatus of claim 24, wherein the second CEF and the conjugate of the second CEF are configured to be transmitted in a substantially time aligned manner.

26. The apparatus of claim 22, wherein the first STF, the first CEF, the first header, the second header, and a third CEF are configured to be transmitted via a second set of channels, the payload data is configured to be transmitted via a second bonded channel including the second set of channels, wherein the second bonded channel is associated with a second spatial transmission, and wherein the second CEF and the third CEF use different orthogonal sequences, respectively.

27. An apparatus for wireless communications, comprising:

a processing system configured to generate a frame comprising a preamble, a first header, and a second header, wherein the preamble and the first header are configured to be decoded by a first device operating according to a first protocol, the second header not being configured to be decoded by the first device, and wherein the preamble, the first header, and the second header are configured to be decoded by a second device operating according to a second protocol, wherein the frame further comprises a payload data, wherein the preamble, the first header, and the

second header are configured to be transmitted via a first set of channels, wherein the first set of channels are associated with a first transmission, wherein the preamble, the first header, and the second header are configured to be transmitted via a second set of channels, wherein the second set of channels are associated with a second transmission, and the second transmission is skewed from the first transmission by a time interval; and

an interface configured to output the frame for transmission.

28. The apparatus of claim 27, wherein the payload data associated with the first set of channels and the payload data associated with the second set of channels are configured to be transmitted in a substantially time aligned manner.

29. The apparatus of claim 27, wherein the preamble comprises a first channel estimation field (CEF), wherein the frame comprises a second channel estimation field (CEF), wherein the second CEF is configured to be transmitted via the first set of channels, and wherein a conjugate of the second CEF is configured to be transmitted via the second set of channels.

30. A method for wireless communications, comprising:

generating a frame comprising a preamble, a first header, and a second header, wherein the preamble and the first header are configured to be decoded by a first device operating according to a first protocol, the second header not being configured to be decoded by the first device, and wherein the preamble, the first header, and the second header are configured to be decoded by a second device operating according to a second protocol, wherein the first protocol includes a first set of available modulation coding schemes (MCS) and the second protocol includes a second set of available modulation coding schemes, the first set of MCS being different than the second set of MCS, wherein the first header includes a first set of header data and the second header includes a second set of header data, wherein the first set of header data and the second set of header data are modulated and coded using at least one of the MCS in the first set, wherein the frame comprises a first payload data appended to the second header, wherein the first payload data of the frame is modulated and coded using the at least one of the MCS in the first set, and wherein the frame further comprises a second payload data, wherein the

second payload data of the frame is modulated and coded using one of the MCS in the second set of MCS; and

outputting the frame for transmission.

31. The method of claim 30, wherein the first payload data appended to the second header includes a particular quantity of data to allow the second device receiving the frame to set up for receiving the second payload data while receiving the first payload data appended to the second header.

32. The method of claim 30, wherein the second header comprises information indicating a length of the first payload data and the second payload data for all one or more channels associated with the transmission of the frame.

33. The method of claim 30, wherein the frame is configured for transmission using an orthogonal frequency division multiplexing (OFDM) signal or a single carrier (SC) signal.

34. The method of claim 33, wherein the first header comprises information indicating whether the frame is configured for transmission via the OFDM signal or the SC signal.

35. The method of claim 30, wherein the preamble comprises a first short training field (STF) and a first channel estimation field (CEF), wherein the frame further comprises a second short training field (STF) and a payload data.

36. The method of claim 35, wherein the second STF and the payload data of the frame are configured to be modulated by a single carrier.

37. A method for wireless communications, comprising:

generating a frame comprising a preamble, a first header, and a second header, wherein the preamble and the first header are configured to be decoded by a first device operating according to a first protocol, the second header not being configured to be decoded by the first device, and wherein the preamble, the first header, and the second header are configured to be

decoded by a second device operating according to a second protocol, wherein the preamble comprises a first short training field (STF) and a first channel estimation field (CEF), wherein the frame further comprises a second short training field (STF) and a payload data, wherein the second STF and the payload data of the frame are configured to be modulated by a single carrier, wherein the first STF, the first CEF, the first header, and the second header of the frame are configured to be transmitted in a time aligned or time skewed manner via a plurality of channels, respectively; and

outputting the frame for transmission.

38. The method of claim 37, wherein the frame comprises a second channel estimation field (CEF), and wherein the second CEF of the frame is configured to be modulated by the single carrier.

39. A method for wireless communications, comprising:

generating a frame comprising a preamble, a first header, and a second header, wherein the preamble and the first header are configured to be decoded by a first device operating according to a first protocol, the second header not being configured to be decoded by the first device, and wherein the preamble, the first header, and the second header are configured to be decoded by a second device operating according to a second protocol, wherein the preamble comprises a first short training field (STF) and a first channel estimation field (CEF), wherein the frame further comprises a second short training field (STF) and a payload data, wherein the frame comprises a second channel estimation field (CEF), and wherein the second CEF of the frame is configured to be modulated by a single carrier, wherein the second STF, the second CEF, and the payload data of the frame are configured to be transmitted via a bonded channel comprising at least a portion of a plurality of channels; and

outputting the frame for transmission.

40. The method of claim 39, wherein the second header comprises information specifying the number of the plurality of channels included in the bonded channel.

41. The method of claim 39, wherein the second header comprises information identifying a lowest frequency one of the plurality of channels included in the bonded channel.

42. The method of claim 39, wherein a first power level for transmission of the second STF, the second CEF, and the payload data is equal to or higher than a second power level for transmission of the first STF, the first CEF, the first header, and the second header.

43. The method of claim 42, wherein the second header comprises information indicating a power difference between the first power level and the second power level.

44. The method of claim 42, wherein the first header comprises information indicating a power difference between the first power level and the second power level, wherein the power difference information is not specified in the first protocol.

45. A method for wireless communications, comprising:

generating a frame comprising a preamble, a first header, and a second header, wherein the preamble and the first header are configured to be decoded by a first device operating according to a first protocol, the second header not being configured to be decoded by the first device, and wherein the preamble, the first header, and the second header are configured to be decoded by a second device operating according to a second protocol, wherein the frame further comprises a first payload data, wherein the first header and the second header of the frame include header data modulated and coded using a modulation coding scheme (MCS) specified in the first protocol, wherein the first payload data of the frame is modulated and coded using a first modulation coding scheme (MCS) specified in the second protocol; and

outputting the frame for transmission.

46. The method of claim 45, wherein the frame further comprises a third header having a same configuration as the second header, the third header including information different than that of the second header, wherein the preamble and the first header are configured to be transmitted in a time aligned or time skewed manner via first and second channels, and the

second header and the third header are configured to be transmitted in a time aligned or time skewed manner via the first and second channels, respectively.

47. The method of claim 45, wherein the frame further comprises a second payload data, the second payload data of the frame is modulated and coded with a second modulation coding scheme (MCS) specified in the second protocol, the second MCS being different than the first MCS, wherein the preamble and the first header are configured to be transmitted in a time aligned or time skewed manner via first and second channels, and wherein the first payload data and the second payload data are configured to be transmitted in a time aligned or time skewed manner via the first and second channels, respectively.

48. The method of claim 47, wherein the first payload data comprises a first set of one or more coded data blocks, the second separate payload data comprises a second set of one or more coded data blocks, the first set of one or more coded data blocks being different than the second set of one or more coded data blocks.

49. The method of claim 45, wherein the frame further comprises a second payload data, the second payload data of the frame is modulated and coded using the first MCS specified in the second protocol, wherein the preamble, the first header, the second header are configured to be transmitted in a time aligned or time skewed manner via first and second channels, and wherein the first payload data and the second payload data are configured to be transmitted in a time aligned or time skewed manner via the first and second channels, respectively.

50. The method of claim 49, wherein the first and second payload data comprise a plurality of coded data blocks, wherein first and second portions of the coded data blocks are configured to be transmitted via the first and second channels, respectively.

51. A method for wireless communications, comprising:

generating a frame comprising a preamble, a first header, and a second header, wherein the preamble and the first header are configured to be decoded by a first device operating according to a first protocol, the second header not being configured to be decoded by the first

device, and wherein the preamble, the first header, and the second header are configured to be decoded by a second device operating according to a second protocol, wherein the preamble comprises a first short training field (STF) and a first channel estimation field (CEF), the frame further comprises a second channel estimation field (CEF) and a payload data, wherein the first STF, the first CEF, the first header, the second header, and the second CEF sequence are configured to be transmitted via a first set of channels, and the payload data is configured to be transmitted via a first bonded channel including the first set of channels, and wherein the first bonded channel is associated with a first spatial transmission; and

outputting the frame for transmission.

52. The method of claim 51, wherein the first STF, the first CEF, the first header, the second header, and the second CEF are configured to be transmitted via a second set of channels, the payload data is configured to be transmitted via a second bonded channel including the second set of channels, the transmission of the first STF, first CEF and first header of the second set of channels being skewed from the transmission of the first STF, first CEF, and first header of the second set of channels, wherein the second bonded channel is associated with a second spatial transmission.

53. The method of claim 51, wherein the first STF, the first CEF, the first header, the second header, and a conjugate of the second CEF are configured to be transmitted via a second set of channels, the payload data is configured to be transmitted via a second bonded channel including the second set of channels, and the second bonded channel is associated with a second spatial transmission.

54. The method of claim 53, wherein the second CEF and the conjugate of the second CEF are configured to be transmitted in a substantially time aligned manner.

55. The method of claim 51, wherein the first STF, the first CEF, the first header, the second header, and a third CEF are configured to be transmitted via a second set of channels, the payload data is configured to be transmitted via a second bonded channel including the second set of channels, wherein the second bonded channel is associated with a second spatial

transmission, and wherein the second CEF and the third CEF use different orthogonal sequences, respectively.

56. A method for wireless communications, comprising:

generating a frame comprising a preamble, a first header, and a second header, wherein the preamble and the first header are configured to be decoded by a first device operating according to a first protocol, the second header not being configured to be decoded by the first device, and wherein the preamble, the first header, and the second header are configured to be decoded by a second device operating according to a second protocol, wherein the frame further comprises a payload data, wherein the preamble, the first header, and the second header are configured to be transmitted via a first set of channels, wherein the first set of channels are associated with a first transmission, wherein the preamble, the first header, and the second header are configured to be transmitted via a second set of channels, wherein the second set of channels are associated with a second transmission, and the second transmission is skewed from the first transmission by a time interval; and

outputting the frame for transmission.

57. The method of claim 56, wherein the payload data associated with the first set of channels and the payload data associated with the second set of channels are configured to be transmitted in a substantially time aligned manner.

58. The method of claim 56, wherein the preamble comprises a first channel estimation field (CEF), wherein the frame comprises a second channel estimation field (CEF), wherein the second CEF is configured to be transmitted via the first set of channels, and wherein a conjugate of the second CEF is configured to be transmitted via the second set of channels.

59. A wireless node, comprising:

at least one antenna;

a processing system configured to generate a frame comprising a preamble, a first header, and a second header, wherein the preamble and the first header are configured to be decoded by a first device operating according to a first protocol, the second header not being configured to be

decoded by the first device, and wherein the preamble, the first header, and the second header are configured to be decoded by a second device operating according to a second protocol, wherein the frame further comprises a first payload data, wherein the first header and the second header include header data modulated and coded using a modulation coding scheme (MCS) specified in the first protocol, wherein the processing system is configured to modulate and code the first payload data of the frame using a first modulation coding scheme (MCS) specified in the second protocol; and

a transmitter configured to transmit the frame via the at least one antenna.