

CLAIMS

1. An apparatus for wireless communications, comprising:
a processing system configured to generate a frame comprising:
a first portion for transmission on separate channels; and
a second portion for transmission using channel bonding, wherein:
the second portion includes:
a training field including first complementary sequences;
a first channel estimation field (CEF) including second complementary sequences; and
a shifted CEF, different from the first CEF, including one of the first complementary sequences of the training field and a subset of the second complementary sequences of the first CEF, wherein the shifted CEF is at least partially included within the training field; and
an interface for outputting the frame for transmission.
2. The apparatus of claim 1, wherein a last of the first complementary sequences of the training field is a same as a last of the second complementary sequences of the first CEF, both forming a cyclic pattern.
3. The apparatus of claim 2, wherein a second to the last of the first complementary sequences of the training field is a same as a last of the subset of the second complementary sequences of the shifted CEF, both forming a cyclic pattern.
4. The apparatus of claim 1, wherein the second portion of the frame is output for transmission as a single carrier (SC) transmission using the channel bonding.
5. The apparatus of claim 1, wherein the second portion of the frame is output for transmission as an orthogonal frequency division multiplexing (OFDM) transmission with the channel bonding.
6. The apparatus of claim 1, wherein the first complementary sequences of the training field

and the second complementary sequences of the first CEF comprise Golay code sequences.

7. The apparatus of claim 1, wherein:

the one of the first complementary sequences included in the shifted CEF comprises a last complementary sequence of the training field; and

the last complementary sequence of the training field comprises a Ga Golay code sequence.

8. The apparatus of claim 1, wherein the processing system is configured to determine lengths of at least one of the first or second complementary sequences based on a width of the channel bonding.

9. The apparatus of claim 1, wherein the shifted CEF at least partially overlaps the training field in time.

10. A wireless station, comprising:

at least one antenna;

a processing system configured to generate a frame comprising:

a first portion for transmission on separate channels; and

a second portion for transmission using channel bonding, wherein:

the second portion includes:

a training field including first complementary sequences;

a first channel estimation field (CEF) including second complementary sequences; and

a shifted CEF, different from the first CEF, including one of the first complementary sequences of the training field and a subset of the second complementary sequences of the first CEF, wherein the shifted CEF is at least partially included within the training field; and

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

11. An apparatus for wireless communications, comprising:

an interface configured to obtain a frame, wherein:

a first portion of the frame is obtained on separate channels, a second portion of the frame is obtained using channel bonding and

the second portion includes:

a training field including first complementary sequences;

a first channel estimation field (CEF) including second complementary sequences; and

a shifted CEF, different from the first CEF, including one of the first complementary sequences of the training field and a subset of the second complementary sequences of the first CEF, wherein the shifted CEF is at least partially included within the training field; and

a processing system configured to perform channel estimation based on at least one of the first CEF or the second CEF.

12. The apparatus of claim 11, wherein the processing system is further configured to determine whether to base the channel estimation on the shifted CEF or the first CEF, based on one or more conditions.

13. The apparatus of claim 12, wherein the one or more conditions relate to at least one of available processing resources of the apparatus or latency requirements.

14. The apparatus of claim 13, wherein:

the latency requirements call for the apparatus to generate a response to the frame within a time period after obtaining the frame; and

the processing system is configured to

determine the channel estimation is to be based on the shifted CEF if the time period is less than or equal to a threshold value; or

determine the channel estimation is to be based on the first CEF if the time period is greater than the threshold value.

15. The apparatus of claim 11, further comprising at least one antenna via which the frame is received, wherein the apparatus is configured as a wireless station.