CLAIMS

1. A method of transmitting to two or more wireless communication devices, the method comprising:

transmitting (3105) a first section of a preamble according to a first format, the first section of the preamble containing information informing devices compatible with the first format to defer to the transmission;

transmitting (3110) a second section of the preamble according to a second format, the second section of the preamble containing tone allocation information, the tone allocation information identifying two or more wireless communication devices; and

transmitting (3115) data to the two or more wireless communication devices simultaneously, the data contained on two or more sub-bands.

2. The method of claim 1, wherein the first section of the preamble includes a one-bit code on a Q-rail which indicates a presence of the second section of the preamble.

3. The method of claim 1, wherein the second section of the preamble comprises a signal field using the second format, the signal field comprised of at least three orthogonal frequency-division multiplexing symbols, and wherein a third symbol of the three symbols is a rotated signal, relative to a first symbol of the three symbols, which indicates a presence of the second section of the preamble.

4. The method of claim 1, wherein the transmitting the second section of the preamble comprises transmitting one or more training fields according to the second format to each of the two or more wireless communication devices, the one or more training fields each configured to be used for accurate frequency offset estimation, time synchronization, and channel estimation.

5. The method of claim 4, further comprising assigning one or more spatial streams to each of the two or more wireless communication devices, and wherein transmitting one or more training fields comprises transmitting one training field according to the second format to each of the two or more wireless communication devices, the number of training fields based on a number of spatial streams assigned to the respective wireless communication device.

6. The method of claim 4, further comprising assigning one or more spatial streams to each of the two or more wireless communication devices, and wherein transmitting one or more training fields comprises transmitting a number of training fields to each of the two or more wireless communication devices, the number of training fields based on a number of spatial streams assigned to the wireless communication device which is assigned a highest number of spatial streams.

7. The method of claim 1, wherein the second section of the preamble contains information sufficient to inform devices of a tone allocation granularity of the transmission.

8. The method of claim 7, wherein the information sufficient to inform devices of a tone allocation granularity of the transmission comprises a bandwidth of the transmission, from which devices compatible with the second format may determine the tone allocation granularity of the transmission.

9. The method of claim 1, wherein the second section of the preamble comprises a signal field according to the second format, and wherein a first symbol of the signal field is transmitted in duplicate in each of a plurality of channels and contains information identifying an entire bandwidth, and wherein a subsequent symbol of the signal field is transmitted using the entire bandwidth.

10. An apparatus (202) for wireless communication, comprising:
a transmitter (210) configured to transmit over a bandwidth, transmitting comprising:
transmit (3105) a first section of a preamble according to a first format, the first section of the preamble containing information informing devices compatible with the first format to defer to the transmission;
transmit (3110) a second section of the preamble according to a second format, the second section of the preamble containing tone allocation information, the tone allocation information identifying two or more wireless communication devices; and
transmit (3115) data to the two or more wireless communication devices simultaneously, the data contained on two or more sub-bands.

11. The apparatus of claim 10, wherein the first section of the preamble includes a one-bit code on a Q-rail which indicates a presence of the second section of the preamble to devices compatible with the second format.

12. The apparatus of claim 10, wherein the second section of the preamble comprises a signal field using the second format, the signal field comprising at least three orthogonal frequency-division multiplexing symbols, and wherein a third symbol of the three symbols is a rotated signal, relative to a first symbol of the three symbols, which indicates the presence of the second format signal field.

13. The apparatus of claim 10, the transmitter configured to transmit the second section of the preamble, comprising transmitting one or more training fields according to the second format to each of the two or more wireless communication devices, the one or more training fields each configured to be used for accurate frequency offset estimation, time synchronization, and channel estimation.

14. The apparatus of claim 10, wherein the second section of the preamble comprises a second format signal field, and wherein a first symbol of the second format signal field is transmitted in duplicate in each of a plurality of channels and contains information identifying an entire bandwidth, and wherein a subsequent symbol of the second format signal field is transmitted using the entire bandwidth.

15. A computer program comprising executable instructions for causing at least one computer to perform a method according to one of the claims 1 to 9 when executed.