CLAIMS

1. A Wi-Fi transmitter station (110; 120) for orthogonal frequency division multiplexing, OFDM, based communication with a Wi-Fi receiver station (120; 110) via a wireless channel (130), wherein the Wi-Fi transmitter station (110; 120) is configured to:

generate a signal carrying a physical-layer protocol data unit, PPDU, (700), wherein the PPDU (700) comprises a preamble part (700a) and a data part (700b), and wherein the signal carrying the PPDU (700) is modulated over a plurality of subcarriers spanning a plurality of OFDM symbols; and

transmit the signal to the Wi-Fi receiver station (120; 110), wherein the preamble part (700a) of the PPDU (700) further comprises a dedicated field (710) comprising one or more OFDM symbols with a guard interval, GI, duration larger than a GI duration of the plurality of OFDM symbols of the data part (700b).

2. The Wi-Fi transmitter station (110; 120) of claim 1, wherein the Wi-Fi transmitter station (110; 120) is configured to transmit the signal with a carrier frequency above 40 GHz.

3. The Wi-Fi transmitter station (110; 120) of claim 1 or 2, wherein the preamble part (700a) of the PPDU (700) includes one or more bits indicative of the GI duration of each OFDM symbol of the data part (700b) being larger than 100 nanoseconds.

4. The Wi-Fi transmitter station (110; 120) of claim 3, wherein the preamble part (700a) of the PPDU (700) includes one or more bits indicative of the GI duration of each OFDM symbol of the data part (700b) being about 200, 400 or 500 nanoseconds.

5. The Wi-Fi transmitter station (110; 120) of claim 1, wherein the duration of the GI inserted between each consecutive pair of OFDM symbols of the data part (700b) of the PPDU (700) is not larger than a quarter of the duration of each one of the OFDM symbols.

6. The Wi-Fi transmitter station (110; 120) of claim 5, wherein the dedicated field (710) is a channel shortening training field (710) and wherein the one or more OFDM symbols of the dedicated field (710) comprises a channel shortening training sequence (600), wherein based on the channel shortening training sequence (600) the Wi-Fi receiver station (120; 110) is configured to apply a channel shortening filter for suppressing components of the wireless channel (130) having delays larger than the GI duration of the OFDM symbols in the data part (700b) of the PPDU (700).

7. The Wi-Fi transmitter station (110; 120) of claim 6, wherein the channel shortening training sequence (600) comprises a training OFDM symbol and at least one complete or partial copy of the training OFDM symbol.

8. The Wi-Fi transmitter station (110; 120) of claim 6 or 7, wherein in the preamble part (700a) of the PPDU (700) the channel shortening training field (710) is arranged between a very high throughput, VHT, short training field, STF, (705) and a VHT long training field, LTF, (706) or between fields corresponding to the VHT-STF and/or the VHT-LTF in other Wi-Fi standards.

9. The Wi-Fi transmitter station (110; 120) of claim 8, wherein the channel shortening training field (710) replaces the VHT-LTF or a field corresponding to the VHT-LTF in other Wi-Fi standards.

10. The Wi-Fi transmitter station (110; 120) of claim 6 or 7, wherein in the preamble part (700a) of the PPDU (700) the channel shortening training field (710) is arranged after a legacy signal field, L-SIG, (703) and the format of the preamble part (700a) preserves the legacy part; or wherein in the preamble part (700a) of the PPDU (700) the channel shortening training field (710) is arranged between a legacy long training field, L-LTF, (702) and a legacy signal field, L-SIG, (703); or wherein in the preamble part (700a) of the PPDU (700) the channel shortening training field (710) is arranged between a legacy short training field, L-STF, (701) and a legacy long training field, L-LTF, (702); or wherein in the preamble part (700a) of the PPDU (700) the channel shortening training field (710) replaces the legacy long training field, L-LTF.

11. The Wi-Fi transmitter station (110; 120) of any one of claims 6 to 10, wherein the PPDU (700) further comprises an indication indicative of the channel shortening training field (710).

12. The Wi-Fi transmitter station (110; 120) of claim 11, wherein the indication is further indicative of the number of copies and/or the duration of the training OFDM symbol of the channel shortening training sequence (600).

13. The Wi-Fi transmitter station (110; 120) of any one of claims 6 to 12, wherein the Wi-Fi transmitter station (110; 120) is configured to transmit a plurality of signals to the Wi-Fi receiver station (120; 110) and wherein the Wi-Fi transmitter station (110; 120) is configured to include the channel shortening training sequence (600) in all of the plurality of signals.

14. The Wi-Fi transmitter station (110; 120) of any one of claims 6 to 12, wherein the Wi-Fi transmitter station (110; 120) is configured to transmit a plurality of signals to the Wi-Fi receiver station (120; 110) and wherein the Wi-Fi transmitter station (110; 120) is configured to include the channel shortening training sequence (600) periodically in at least two of the plurality of signals.