SUMMARY

[6] A non-limiting example facilitates providing apparatuses for MIMO channel estimation in context of EHT WLAN.

[7] In one aspect, there is provided a communication apparatus comprising: a circuitry, which, in operation, sets a number of Extremely High Throughput Long training field (EHT-LTF) symbols in an physical layer protocol data unit (PPDU) for multi user transmission based on an initial number of EHT-LTF symbols that is specified by a number of spatial streams (Nss) of the PPDU, wherein the number of EHT-LTF symbols is set to be equal to or larger than the initial number of EHT-LTF symbols; and a transmitter, which, in operation, transmits the PPDU, wherein the Nss is larger than 8.

[8] In another aspect,, there is provided a communication method comprising: setting a number of Extremely High Throughput Long training field (EHT-LTF) symbols in an physical layer protocol data unit (PPDU) for multi user transmission based on an initial number of EHT-LTF symbols that is specified by a number of spatial streams (Nss) of the PPDU, wherein the number of EHT-LTF symbols is set to be equal to or larger than the initial number of EHT-LTF symbols; and transmitting the PPDU, wherein the Nss is larger than 8.

[8a] In another aspect, there is provided a communication apparatus comprising: a circuitry, which, in operation, sets a number of Extremely High Throughput Long training field (EHT-LTF) symbols in a trigger based physical layer protocol data unit (TB PPDU) based on an initial number of EHT-LTF symbols that is specified by a number of spatial streams (Nss) of the TB PPDU, wherein the number of EHT-LTF symbols is set to be equal to or larger than the initial number of EHT-LTF symbols; a transmitter, which, in operation, transmits a trigger frame that solicits the TB PPDU; and a receiver, which, in operation, receives the TB PPDU, wherein the Nss is larger than 8.

[9] It should be noted that general or specific examples may be implemented as a system, a method, an integrated circuit, a computer program, a storage medium, or any selective combination thereof.

[10] Additional benefits and advantages of examples in this disclosure will become apparent from the specification and drawings. The benefits and/or advantages may be individually obtained by the various examples and features

CLAIMS

1. A communication apparatus comprising:

circuitry, which, in operation, sets a number of Extremely High Throughput Long training field (EHT-LTF) symbols in an physical layer protocol data unit (PPDU) for multi user transmission based on an initial number of EHT-LTF symbols that is specified by a number of spatial streams (Nss) of the PPDU, wherein the number of EHT-LTF symbols is set to be equal to or larger than the initial number of EHT-LTF symbols; and

a transmitter, which, in operation, transmits the PPDU,

wherein the Nss is larger than 8.

2. The communication apparatus according to claim 1, wherein the number of EHT-LTF symbols is set to be larger than the initial number of EHT-LTF symbols.

3. The communication apparatus according to claim 1, wherein the number of EHT-LTF symbols is determined from a number of EHT-LTF determination tables predetermined and stored in both the communication apparatus and a reception apparatus.

4. The communication apparatus according to claim 1, wherein the PPDU comprises a preamble that indicates the number of EHT-LTF symbols.

5. The communication apparatus according to claim 1, wherein the Nss is defined for each of resource units (RUs) allocated in the PPDU.

6. The communication apparatus according to claim 1, wherein:

in a first case that the Nss is an even number, the initial number of EHT-LTF symbols is equal to the Nss; and

in a second case that the Nss is an odd number other than one, the initial number of EHT-LTF symbols is equal to 1 plus the Nss.

7. The communication apparatus according to claim 1, wherein the number of EHT-LTF symbols is set based on a format of the PPDU.

8. A communication method comprising:

setting a number of Extremely High Throughput Long training field (EHT-LTF) symbols in an physical layer protocol data unit (PPDU) for multi user transmission based on an initial number of EHT-LTF symbols that is specified by a number of spatial streams (Nss) of the PPDU, wherein the number of EHT-LTF symbols is set to be equal to or larger than the initial number of EHT-LTF symbols; and

transmitting the PPDU,

wherein the Nss is larger than 8.

9. A communication apparatus comprising:

circuitry, which, in operation, sets a number of Extremely High Throughput Long training field (EHT-LTF) symbols in a trigger based physical layer protocol data unit (TB PPDU) based on an initial number of EHT-LTF symbols that is specified by a number of spatial streams (Nss) of the TB PPDU, wherein the number of EHT-LTF symbols is set to be equal to or larger than the initial number of EHT-LTF symbols;

a transmitter, which, in operation, transmits a trigger frame that solicits the TB PPDU; and

a receiver, which, in operation, receives the TB PPDU,

wherein the Nss is larger than 8.

10. The communication apparatus according to claim 9, wherein the trigger frame indicates the number of EHT-LTF symbols.