[6] Non-limiting examples facilitate providing communication apparatuses and communication methods for persistent allocation in context of EHT WLAN.

[7] According to an example of the present disclosure, there is provided a communication apparatus, comprising: circuitry, which, in operation, a first transmission signal including user information of a plurality of users for a downlink MU-MIMO allocation, each indicating a user-specific allocation, and further generates a second transmission signal comprising a common field, a user-specific field and a data field, the data field containing a transmission of the downlink MU-MIMO allocation and a transmitter, which, in operation, transmits the first transmission signal and the second transmission signal, wherein the user-specific allocation of the downlink MU-MIMO allocation is determined to be persistent or not.

[7a] In one aspect, the present disclosure refers to a communication device comprising a transmitter that transmits a first frame of a trigger frame that allocates transmission opportunities (TXOP) to a first station and a second station, wherein the trigger frame includes an uplink user-specific persistent allocation, and the uplink user-specific persistent allocation includes identification information and user-specific resource allocation, and a receiver that receives a first plurality of physical layer protocol data units (PPDUs) from each of the first station and the second station within the TXOP, wherein the transmitter transmits a second frame requesting repeated transmission of the user-specific resource allocation, and the receiver receives a second plurality of PPDUs from each of the first station and the second station within the TXOP, and the second frame includes the identification information but does not include the user-specific resource allocation.

[8] According to another example of the present disclosure, there is provided a communication method comprising generating a first transmission signal including user information of a plurality of users for a downlink MU-MIMO allocation, each indicating a user-specific allocation; generating a second transmission signal comprising a common field, a user-specific field and a data field, the data field containing a transmission of the downlink MU-MIMO allocation and transmitting the first transmission signal and the second

transmission signal, wherein the user-specific allocation of the downlink MU-MIMO allocation is determined to be persistent or not.

[8a] In another aspect, the present disclosure refers to a communication method comprising a process in which a communication device transmits a first frame of a trigger frame that allocates transmission opportunities (TXOP) to a first station and a second station, wherein the trigger frame includes an uplink user-specific persistent allocation, and the uplink user-specific persistent allocation includes identification information and user-specific resource allocation, a process in which the communication device receives a first plurality of physical layer protocol data units (PPDUs) from each of the first station and the second station within the TXOP, a process in which the communication device transmits a second frame requesting repeated transmission of the user-specific resource allocation, and a process in which the communication device receives a second plurality of PPDUs from each of the first station and the second station within the TXOP, wherein the second frame includes the identification information but does not include the user-specific resource allocation.

[8b] In yet another aspect, the present disclosure refers to an integrated circuit that controls a process in which a first frame of a trigger frame is transmitted, allocating transmission opportunities (TXOP) to a first station and a second station, wherein the trigger frame includes an uplink user-specific persistent allocation, and the uplink user-specific persistent allocation includes identification information and user-specific resource allocation, a process in which a first plurality of physical layer protocol data units (PPDUs) is received from each of the first station and the second station within the TXOP, a process in which a second frame requesting repeated transmission of the user-specific resource allocation is transmitted, a process in which a second plurality of PPDUs is received from each of the first station and the second station within the TXOP, wherein the second frame includes the identification information but does not include the user-specific resource allocation.

[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 the disclosed examples will become apparent from the specification and drawings. The benefits and/or advantages may be individually obtained by the various examples and features of the specification and drawings, which need not all be provided in order to obtain one or more of such benefits and/or advantages.

BRIEF DESCRIPTION OF THE DRAWINGS

CLAIMS

1. A communication device comprising:

a transmitter that transmits a first frame of a trigger frame that allocates transmission opportunities (TXOP) to a first station and a second station, wherein the trigger frame includes an uplink user-specific persistent allocation, and the uplink user-specific persistent allocation includes identification information and user-specific resource allocation; and

a receiver that receives a first plurality of physical layer protocol data units (PPDUs) from each of the first station and the second station within the TXOP,

wherein the transmitter transmits a second frame requesting repeated transmission of the user-specific resource allocation, and the receiver receives a second plurality of PPDUs from each of the first station and the second station within the TXOP, and

the second frame includes the identification information but does not include the user-specific resource allocation.

2. The communication device according to claim 1,

wherein the communication device performs error recovery related to the TXOP.

3. The communication device according to claim 1,

wherein the trigger frame includes duration information related to the TXOP.

4. The communication device according to claim 3,

wherein the duration information indicates the period from the reception of the duration information at the first station to the end of the TXOP.

5. A communication method comprising:

a process in which a communication device transmits a first frame of a trigger frame that allocates transmission opportunities (TXOP) to a first station and a second station, wherein the trigger frame includes an uplink user-specific persistent allocation, and the uplink user-specific persistent allocation includes identification information and user-specific resource allocation;

a process in which the communication device receives a first plurality of physical layer protocol data units (PPDUs) from each of the first station and the second station within the TXOP;

a process in which the communication device transmits a second frame requesting repeated transmission of the user-specific resource allocation; and

a process in which the communication device receives a second plurality of PPDUs from each of the first station and the second station within the TXOP,

wherein the second frame includes the identification information but does not include the user-specific resource allocation.

6. An integrated circuit that controls:

a process in which a first frame of a trigger frame is transmitted, allocating transmission opportunities (TXOP) to a first station and a second station, wherein the trigger frame includes an uplink user-specific persistent allocation, and the uplink user-specific persistent allocation includes identification information and user-specific resource allocation;

a process in which a first plurality of physical layer protocol data units (PPDUs) is received from each of the first station and the second station within the TXOP;

a process in which a second frame requesting repeated transmission of the user-specific resource allocation is transmitted; and

a process in which a second plurality of PPDUs is received from each of the first station and the second station within the TXOP,

wherein the second frame includes the identification information but does not include the user-specific resource allocation.