suppressed.

Citation List

Patent Literature

[0006]

Patent Literature 1: JP 2015-511077T

Disclosure of Invention

Technical Problem

[0007]

However, the communication method disclosed in Patent Literature 1 is a method belonging to a so-called control access scheme in which UL transmission of the STA is controlled in accordance with a notification given from the AP. For this reason, UL communication of a so-called random access scheme in which the STA arbitrarily performs UL transmission is not a subject thereof.

[0008]

In this regard, the present disclosure proposes a communication apparatus and a communication method, which are novel and improved and capable of suppressing a decrease in communication efficiency in the UL communication of the random access scheme.

Solution to Problem

[0009]

According to a first aspect of the present disclosure, there is provided a communication apparatus for wireless communication in a wireless local area network, said communication apparatus including a communication unit configured to: transmit a trigger frame including wireless communication resource information specifying uplink resources and attribute information related to transmission of a response uplink frame; receive the response uplink frame transmitted as a response to the trigger frame, the response uplink frame including buffered data information; and the response uplink frame being transmitted using at least one resource unit selected from a group of resource units specified in the wireless communication resource information; transmit an uplink transmission permission frame including resource allocation information indicating allocated uplink transmission resources in response to the uplink resource frame including the buffered data information; and receive a data frame being transmitted using the allocated uplink data transmission resources in accordance with the uplink transmission permission frame.

[0010]

According to a second aspect of the present disclosure, there is provided a communication apparatus for wireless communication in a wireless local area network, said communication apparatus including a communication unit configured to: receive a trigger frame including wireless communication resource information specifying uplink resources and attribute information related to transmission of a response uplink frame; transmit the response uplink frame as a response to the trigger frame, the response uplink frame including buffered data information; and the response uplink frame being transmitted using at least one resource unit selected from a group of resource units specified in the wireless communication resource information; receive an uplink transmission permission frame including resource allocation information indicating allocated uplink transmission resources in response to the uplink resource frame including the buffered data information; and transmit a data frame being transmitted using the allocated uplink data transmission resources in accordance with

the uplink transmission permission frame.
[0011]

According to a third aspect of the present disclosure, there is provided a communication method for wireless communication in a wireless local area network, said communication method including: transmitting a trigger frame including wireless communication resource information specifying uplink resources and attribute information related to transmission of a response uplink frame; and receiving the response uplink frame being transmitted as a response to the trigger frame, the response uplink frame including buffered data information; and the response uplink frame being transmitted using at least one resource unit selected from a group of resource units specified in the wireless communication resource information; transmitting an uplink transmission permission frame including resource allocation information indicating allocated uplink transmission resources in response to the uplink resource frame including the buffered data information; and receiving a data frame being transmitted using the allocated uplink data transmission resources in accordance with the uplink transmission permission frame.
[0012]

According to a fourth aspect of the present disclosure, there is provided a communication method for wireless communication in a wireless local area network, said communication method including: receiving a trigger frame including wireless communication resource information in which resources selectable as uplink resources are specified from a plurality of resources and attribute information related to transmission of a response uplink frame; and transmitting the response uplink frame as a response to the trigger frame, the response uplink frame including buffered data information; and the response uplink frame being transmitted using at least one resource unit selected from a group of resource units specified in the wireless communication resource information; receiving an uplink transmission permission frame including resource allocation information indicating allocated uplink transmission resources in response to the uplink resource frame including the buffered data information; and transmitting a data frame being transmitted using the allocated uplink data transmission resources in accordance with the uplink transmission permission frame.

Advantageous Effects of Invention

[0013]

As described above, according to the present disclosure, a communication apparatus and a communication method which are capable of suppressing a decrease in communication efficiency in the UL communication of the random access scheme are provided. Note that the above advantageous effects are not necessarily limiting. In addition to or instead of the above advantageous effects, any of the advantageous effects described in the present specification or other advantageous effects apparent from the present specification may be provided.

Brief Description of Drawings

[0014]

[FIG. 1] FIG. 1 is a diagram illustrating an example of a configuration of a communication system according to an embodiment of the present disclosure.

[FIG. 2] FIG. 2 is a diagram illustrating an example of a frame exchange sequence in

CLAIMS

1. A communication apparatus for wireless communication in a wireless local area network, said communication apparatus comprising a communication unit configured to:

transmit a trigger frame including wireless communication resource information specifying uplink resources and attribute information related to transmission of a response uplink frame;

receive the response uplink frame transmitted as a response to the trigger frame, the response uplink frame including buffered data information; and

the response uplink frame being transmitted using at least one resource unit selected from a group of resource units specified in the wireless communication resource information;

transmit an uplink transmission permission frame including resource allocation information indicating allocated uplink transmission resources in response to the uplink resource frame including the buffered data information; and

receive a data frame being transmitted using the allocated uplink data transmission resources in accordance with the uplink transmission permission frame.

2. The communication apparatus according to claim 1,

wherein the communication unit comprises a control unit configured to determine whether or not permission for data transmission of a data size indicated by the buffered data information is given.

3. The communication apparatus according to claim 1 or 2,

wherein the communication unit comprises a control unit configured to allocate the uplink transmission resources in which data transmission of the data size notified through the response uplink frame can be performed based on the buffered data information included in the response uplink frame.

4. The communication apparatus according to any preceding claim,

wherein the wireless communication resource information includes information related to a frequency resource and information related to a spatial stream.

5. The communication apparatus according to any preceding claim,

wherein the attribute information related to the transmission of the response uplink frame includes attribute information of a transmission apparatus performing the transmission of the response uplink frame.

6. The communication apparatus according to claim 5,

wherein the attribute information of the transmission apparatus includes information related to presence or absence of an uplink communication request; in particular wherein the uplink communication request includes a data transmission request and/or a communication connection request.

7. The communication apparatus according to claim 6,

wherein the response uplink frame includes information related to content of the uplink communication request.

8. The communication apparatus according to any of claims 5 to 7,

wherein the attribute information of the transmission apparatus includes information related to a communication state of the transmission apparatus; in particular wherein the communication state includes information related to a communication quality and/or information related to a state of a communication channel.

9. The communication apparatus according to claim 8,

wherein the response uplink frame includes information related to content of the communication state of the transmission apparatus.

10. The communication apparatus according to any preceding claim,

wherein the attribute information related to the transmission of the response uplink frame includes information related to an attribute of the response uplink frame; in particular,

wherein the attribute of the response uplink frame includes a type of frame.

11. The communication apparatus according to any preceding claim,

wherein the communication resource information includes information indicating information requested to be stored in the response uplink frame transmitted in response to the trigger frame.

12. A communication apparatus for wireless communication in a wireless local area network, said communication apparatus comprising a communication unit configured to:

receive a trigger frame including wireless communication resource information specifying uplink resources and attribute information related to transmission of a response uplink frame;

transmit the response uplink frame as a response to the trigger frame, the response uplink frame including buffered data information; and

the response uplink frame being transmitted using at least one resource unit selected from a group of resource units specified in the wireless communication resource information;

receive an uplink transmission permission frame including resource allocation information indicating allocated uplink transmission resources in response to the uplink resource frame including the buffered data information; and

transmit a data frame being transmitted using the allocated uplink data transmission resources in accordance with the uplink transmission permission frame.

13. The communication apparatus according to claim 12,

wherein the attribute information related to the transmission of the response uplink frame includes attribute information of a transmission apparatus performing the transmission of the response uplink frame, and

the communication unit transmits the response uplink frame in a case where the attribute information of the communication apparatus corresponds to the attribute information of the transmission apparatus and/or the communication unit transmits a frame in which an attribute of the frame corresponds to an attribute of the response uplink frame as the response uplink frame.

14. A communication method for wireless communication in a wireless local area network, said communication method comprising:

transmitting a trigger frame including wireless communication resource information specifying uplink resources and attribute information related to transmission of a response uplink frame; and

receiving the response uplink frame being transmitted as a response to the trigger frame, the response uplink frame including buffered data information; and the response uplink frame being transmitted using at least one resource unit selected from a group of resource units specified in the wireless communication resource information;

transmitting an uplink transmission permission frame including resource allocation information indicating allocated uplink transmission resources in response to the uplink resource frame including the buffered data information; and receiving a data frame being transmitted using the allocated uplink data transmission resources in accordance with the uplink transmission permission frame.

15. A communication method for wireless communication in a wireless local area network, said communication method comprising:

receiving a trigger frame including wireless communication resource information in which resources selectable as uplink resources are specified from a plurality of resources and attribute information related to transmission of a response uplink frame; and

transmitting the response uplink frame as a response to the trigger frame, the response uplink frame including buffered data information; and the response uplink frame being transmitted using at least one resource unit selected from a group of resource units specified in the wireless communication resource information;

receiving an uplink transmission permission frame including resource allocation information indicating allocated uplink transmission resources in response to the uplink resource frame including the buffered data information; and transmitting a data frame being transmitted using the allocated uplink data transmission resources in accordance with the uplink transmission permission frame.