Here, in regard to NAV setting based on a response frame, for example, the following have been under consideration: determining, by a station device (hereinafter referred to as "station (STA)" for convenience), whether or not a response frame is a signal of the own BSS, and setting an NAV in accordance with a result of the determination.

[0006]

Here, a frame format of a response frame does not include a transmitting station address field. Consequently, for example, in the case where a certain STA receives a response frame transmitted to another STA by an access point device (hereinafter referred to as "access point (AP)" for convenience), it cannot determine whether or not the response frame is a signal of the own BSS on the basis of whether or not address information of an AP is set in the transmitting station address field.

[0007]

In addition, measures such as providing a new field including BSS identification information in a frame format of a response frame cannot ensure downward compatibility. That is, an STA supporting a low order version cannot appropriately process a response frame having the frame format.

[0008]

Hence, in view of the above circumstances, embodiments of the present invention provide a novel and improved communication device, communication control method, and program that enable the communication device that has received a response frame to determine whether or not the response frame is a signal of the own BSS, while ensuring downward compatibility.

Solution to Problem

[0009]

According to a first aspect of the present invention, there is provided a communication device including: a processor configured to generate, for transmission to a receiving station, a response frame prescribed in IEEE802.11to have a receiving station address field that includes a first part and a second part, wherein the first part includes a

portion of a media access control (MAC) address of the receiving station, wherein the second part replaces a remainder of the MAC address of the receiving station and includes: a first value corresponding to a basic service set (BSS) to which the communication device belongs; and a second value used to distinguish the receiving station from another receiving station having a portion of a corresponding MAC address that is identical to the portion of the MAC address of the receiving station; and a transmitter configured to transmit the response frame to the receiving station.

[0010]

According to a second aspect of the present invention, there is provided a communication control method executed by a computer, the method including: generating, for transmission to a receiving station, a response frame prescribed in IEEE802.11, the response frame having a receiving station address field that includes a first part and a second part, wherein the first part includes a portion of a media access control (MAC) address of the receiving station, wherein the second part replaces a remainder of the MAC address of the receiving station and includes: a first value corresponding to a basic service set (BSS) to which the communication device belongs; and a second value used to distinguish the receiving station from another receiving station having a portion of a corresponding MAC address that is identical to the portion of the MAC address of the receiving station; and transmitting the response frame to the receiving station.

[0011]

According to a third aspect of the present invention, there is provided a non-tangible program causing a computer to implement the method of the second aspect.

[0012]

[0013]

[0014]

Advantageous Effects of Invention

[0015]

According to embodiments of the present invention as described above, the communication device that has received a response frame can determine whether or not the response frame is a signal of the own BSS, while downward compatibility is ensured.

[0016]

Note that the effects described above are not necessarily limitative. With or in the place of the above effects, there may be achieved any one of the effects described in this specification or other effects that may be grasped from this specification.

Brief Description of Drawings

[0017]

[FIG. 1] FIG. 1 illustrates a configuration of a wireless LAN system according to an embodiment of the present disclosure.

[FIG. 2] FIG. 2 illustrates a frame format of an RTS.

[FIG. 3] FIG. 3 illustrates a frame format of a CTS.

[FIG. 4] FIG. 4 illustrates communication control using one type of NAV.

[FIG. 5] FIG. 5 illustrates communication control using two types of NAVs.

[FIG. 6] FIG. 6 illustrates a problem of the communication control using two types of NAVs.

[FIG. 7] FIG. 7 illustrates a problem of the communication control using two types of NAVs.

[FIG. 8] FIG. 8 illustrates configurations of an STA and an AP according to an embodiment of the present disclosure.

[FIG. 9] FIG. 9 illustrates an example of information set in a receiving station address of a response frame.

[FIG. 10] FIG. 10 illustrates communication control using two types of NAVs in an embodiment of the present disclosure.

[FIG. 11] FIG. 11 is a flowchart illustrating operation when an STA according to an embodiment of the present disclosure receives a response frame.

CLAIMS

1. A communication device comprising:

a processor configured to generate, for transmission to a receiving station, a response frame prescribed in IEEE802.11to have a receiving station address field that comprises a first part and a second part,

wherein the first part includes a portion of a media access control (MAC) address of the receiving station,

wherein the second part replaces a remainder of the MAC address of the receiving station and comprises:

a first value corresponding to a basic service set (BSS) to which the communication device belongs; and

a second value used to distinguish the receiving station from another receiving station having a portion of a corresponding MAC address that is identical to the portion of the MAC address of the receiving station; and

a transmitter configured to transmit the response frame to the receiving station.

2. The communication device according to claim 1, wherein the second part further includes IEEE802.11 version information.

3. The communication device according to claim 1, wherein the response frame is a clear to send (CTS) frame generated in response to a request to send (RTS) frame received by the communication device.

4. A communication control method executed by a computer, the method comprising:

generating, for transmission to a receiving station, a response frame prescribed in IEEE802.11, the response frame having a receiving station address field that comprises a first part and a second part,

wherein the first part includes a portion of a media access control (MAC) address of the receiving station,

wherein the second part replaces a remainder of the MAC address of the receiving station and comprises:

a first value corresponding to a basic service set (BSS) to which the communication device belongs; and

a second value used to distinguish the receiving station from another receiving station having a portion of a corresponding MAC address that is identical to the portion of the MAC address of the receiving station; and

transmitting the response frame to the receiving station.

5. A non-tangible program causing a computer to implement the method of claim 4.