CLAIMS

[Claim 1]

A communication apparatus capable of establishing a connection with other one communication apparatus via a first frequency channel and a second frequency channel, the communication apparatus comprising:

first transmission means configured to transmit a beacon frame at predetermined transmission intervals; and

second transmission means configured to transmit a FILS discovery frame or an unsolicited probe response frame at predetermined transmission intervals shorter than when the beacon frame is transmitted,

wherein in a case where a connection is established with the other one communication apparatus via the first frequency channel and the second frequency channel, the beacon frame transmitted using the first frequency channel by the first transmission means includes information for communication using the second frequency channel, and the FILS discovery frame or the unsolicited probe response frame transmitted using the first frequency channel by the second transmission means does not include the information.

[Claim 2]

The communication apparatus according to Claim 1, further comprising determination means configured to determine a communication load between the communication

apparatus and the other one communication apparatus in a case where the connection is established with the other one communication apparatus via the first frequency channel and the second frequency channel,

wherein in a case where the determination means determines that the communication load is high, the beacon frame transmitted using the first frequency channel by the first transmission means includes information for communication using the second frequency channel, and the FILS discovery frame or the unsolicited probe response frame transmitted using the first frequency channel by the second transmission means does not include the information.

[Claim 3]

The communication apparatus according to Claim 2, wherein the determination means determines the communication load based on a size of the FILS discovery frame in a case where the information is stored in the FILS discovery frame or the unsolicited probe response frame,

and in a case where the determination means determines that the size of the FILS discovery frame or the unsolicited probe response frame is larger than a predetermined value, the beacon frame transmitted using the first frequency channel by the first transmission means includes information for communication using the second frequency channel, and the FILS discovery frame or the unsolicited probe response

frame transmitted using the first frequency channel by the second transmission means does not include the information.

[Claim 4]

The communication apparatus according to Claim 2 or 3, wherein the determination means determines the communication load based on a number of frequency channels in the connection established between the communication apparatus and the other one communication apparatus,

and in a case where the determination means determines that the number of frequency channels is greater than a predetermined value, the beacon frame transmitted using the first frequency channel by the first transmission means includes information for communication using the second frequency channel, and the FILS discovery frame or the unsolicited probe response frame transmitted using the first frequency channel by the second transmission means does not include the information.

[Claim 5]

The communication apparatus according to one of Claims 2 to 4, wherein the determination means determines the communication load based on the transmission interval of the FILS discovery frame or the unsolicited probe response frame transmitted by the second transmission means,

and in a case where the determination means determines that the transmission interval of the FILS discovery frame

or the unsolicited probe response frame is smaller than a predetermined value, the beacon frame transmitted using the first frequency channel by the first transmission means includes information for communication using the second frequency channel, and the FILS discovery frame or the unsolicited probe response frame transmitted using the first frequency channel by the second transmission means does not include the information.

[Claim 6]

The communication apparatus according to one of Claims 1 to 5, wherein the information is included in an RNR (Reduced Neighbor Report) element of the beacon frame.

[Claim 7]

The communication apparatus according to one of Claims 1 to 6, wherein the FILS discovery frame or the unsolicited probe response frame or the beacon frame includes information on a network constructed by a communication apparatus that transmits the frame.

[Claim 8]

The communication apparatus according to one of Claims 1 to 7, wherein the first frequency channel and the second frequency channel are each one of channels of the 2.4 GHz, 5 GHz, and 6 GHz bands.

[Claim 9]

The communication apparatus according to one of Claims

1 to 8, wherein the communication apparatus operates as an AP (Access Point) according to IEEE 802.11 series standards.

[Claim 10]

A communication method capable of establishing a connection with other one communication apparatus via a first frequency channel and a second frequency channel, the communication method comprising:

performing a first transmission process to transmit a beacon frame at predetermined transmission intervals; and

performing a second transmission process to transmit a FILS discovery frame or an unsolicited probe response frame at predetermined transmission intervals shorter than when the beacon frame is transmitted,

wherein in a case where a connection is established with the other one communication apparatus via the first frequency channel and the second frequency channel, the beacon frame transmitted using the first frequency channel by the first transmission process includes information for communication using the second frequency channel, and the FILS discovery frame or the unsolicited probe response frame transmitted using the first frequency channel by the second transmission process does not include the information.

[Claim 11]

A program for causing a computer to function as each means of the communication apparatus according to one of

Claims 1 to 9.