

interference. Furthermore, Patent Document 2 discloses a technique for determining the transmission power or the like of each of a plurality of terminals on the basis of reports about the measurement of interference that a base station has obtained from the plurality of terminals.

CITATION LIST

PATENT DOCUMENT

[0004]

Patent Document 1: Japanese Patent Application Laid-Open No. 2013-183221

Patent Document 2: Japanese National Publication of International Patent Application No. 2015-534418

SUMMARY OF THE INVENTION

PROBLEMS TO BE SOLVED BY THE INVENTION

[0005]

However, interference with another system has failed to be appropriately prevented in some cases. For example, in the technique of Patent Document 1, a transmission source apparatus that is about to transmit a signal can avoid interference detected by the local apparatus, but fails to grasp an interference state of a transmission destination apparatus. Thus, there is a possibility that the transmission destination apparatus receives an influence of interference and this will result in a failure in communication.

[0006]

Accordingly, embodiments of the present disclosure have been made in view of the foregoing, and provide a

communication apparatus and a communication system that are capable of appropriately preventing interference with another system and that are novel and have been improved.

SOLUTIONS TO PROBLEMS

[0007]

According to a first aspect of the present disclosure, there is provided a first communication apparatus including: a receiver configured to receive power from a first system; a controller configured to determine, based on the received power, one of a presence or an absence of first interference with the first system; and a transmitter configured to transmit first interference information associated with the first interference to a second communication apparatus, wherein the first interference information includes information indicating a value of the received power, a reception time of the power, an arrival direction of the power, and information related to an attribute of the first interference, and the attribute of the first interference indicates at least one of a type of the first system, a communication scheme of the first system, or a version of the first system.

[0008]

According to a second aspect of the present disclosure, there is provided a first communication apparatus including: a receiver configured to: receive power from a first system, and receive first interference information associated with first interference from a second communication apparatus, wherein the second communication apparatus: receives the power from the first system, and determines, based on the received power,

one of a presence or absence of the first interference with the first system, the first interference information includes information indicating a value of the power received by the second communication apparatus, a reception time of the power received by the second communication apparatus, an arrival direction of the power received by the second communication apparatus, and information related to an attribute of the first interference, and the attribute of the first interference indicates at least one of a type of the first system, a communication scheme of the first system, or a version of the first system; and a controller configured to control communication of the first communication apparatus based on the first interference information.

[0009]

According to a third aspect of the present disclosure, there is provided a communication system, including: a first communication apparatus; and a second communication apparatus, wherein the first communication apparatus includes: a first receiver configured to receive power from a first system; a first controller configured to determine, based on the received power, one of a presence or absence of first interference with the with the first system; and a transmitter configured to transmit first interference information associated with the first interference to the second communication apparatus, wherein the first interference information includes information indicating a value of the received power, a reception time of the power, an arrival direction of the power, and information relating to an attribute of first interference, and the attribute of the

first interference indicates at least one of a type of the first system, a communication scheme of the first system, or a version of the first system, and the second communication apparatus includes: a second receiver configured to receive the first interference information from the first communication apparatus; and a controller configured to control communication based on the first interference information.

EFFECTS OF THE INVENTION

[0010]

As described above, according to embodiments of the present disclosure, interference with another system can be appropriately prevented.

[0011]

Note that the effect described above is not necessarily restrictive, and any of the effects described in the description or other effects that can be grasped from the description may be exhibited in addition to the effect described above or instead of the effect described above.

BRIEF DESCRIPTION OF DRAWINGS

[0012]

Fig. 1 is a diagram explaining the background of the present disclosure.

Fig 2 is a diagram illustrating a configuration of a communication system according to the present

CLAIMS

1. A first communication apparatus comprising:
 - a receiver configured to receive power from a first system;
 - a controller configured to determine, based on the received power, one of a presence or an absence of first interference with the first system; and
 - a transmitter configured to transmit first interference information associated with the first interference to a second communication apparatus, wherein
 - the first interference information includes information indicating a value of the received power, a reception time of the power, an arrival direction of the power, and information related to an attribute of the first interference, and
 - the attribute of the first interference indicates at least one of a type of the first system, a communication scheme of the first system, or a version of the first system.
2. The first communication apparatus according to claim 1, wherein the first system includes a wireless communication system,
 - the first communication apparatus and the second communication apparatus are associated with a second system, and
 - the communication scheme of the first system is different from a communication scheme of the second system.
3. The first communication apparatus according to claim 1, wherein the receiver is further configured to receive second

interference information associated with the second interference detected by the second communication apparatus.

4. The first communication apparatus according to claim 3, wherein the transmitter is further configured to transmit the second interference information to a third communication apparatus different from the second communication apparatus.

5. The first communication apparatus according to claim 3, wherein the controller is further configured to control first communication based on one of the first interference information or the second interference information.

6. The first communication apparatus according to claim 5, wherein the transmitter is further configured to transmit, to the second communication apparatus, at least one of first information related to the transmissions of the first interference information, second information related to the reception of the second interference information, or third information related to the control of the first communication.

7. The first communication apparatus according to claim 5, wherein the receiver also is further configured to receive, from the second communication apparatus, at least one of:

first information related to capability of the second communication apparatus to receive the first interference information,

second information related to capability of the second communication apparatus to transmit the second interference information, or

third information related to capability of the second communication apparatus to control second communication.

8. The first communication apparatus according to claim 7, wherein in a case where the second communication apparatus has the capability to receive the first interference information, in a case where the second communication apparatus has the capability to receive the second interference information, or in a case where the second communication apparatus has the capability to control the second communication, the transmitter is further configured to transmit the first interference information to the second communication apparatus.

9. A first communication apparatus comprising:
a receiver configured to:

- receive power from a first system, and
- receive first interference information associated with first interference from a second communication apparatus, wherein

- the second communication apparatus:

- receives the power from the first system, and
 - determines, based on the received power, one of a presence or absence of the first interference with the first system,

- the first interference information includes information indicating a value of the power received by the second communication apparatus, a reception time of the power received by the second communication apparatus, an arrival direction of the power received by the second communication apparatus, and information related to an attribute of the first interference, and

- the attribute of the first interference indicates at least one of a type of the first system, a communication scheme of the first system, or a version of the first system; and

a controller configured to control communication of the first communication apparatus based on the first interference information.

10. The first communication apparatus according to claim 9, wherein

the first system includes a wireless communication system, the first communication apparatus and the second communication apparatus are associated with a second system, and

the communication scheme of the first system is different from a communication scheme of the second system.

11. The first communication apparatus according to claim 9, wherein

the controller is further configured to at least one of:
distinguish, based on the first interference information, a plurality of first systems from each other, or

distinguish a plurality of apparatuses from each other based on the first interference information, and
the plurality of apparatuses is associated with the first system of the plurality of first systems.

12. The first communication apparatus according to claim 9, wherein the controller is further configured to change, based on the first interference information, settings related to transmission specific information.

13. The first communication apparatus according to claim 9, wherein the controller is further configured to change at least one of a transmission rate, a transmission power value, a

communication band, or a transmission destination apparatus.

14. The first communication apparatus according to claim 9, wherein the controller is further configured to change, based on the first interference information, settings relating to reception of specific information.

15. The first communication apparatus according to claim 14, wherein the controller is further configured to change a power detection threshold associated with detection of the power.

16. The first communication apparatus according to claim 15, wherein the controller is further configured to reduce the power detection threshold based on:

- the determination of the presence of the first interference by the second communication apparatus; and
- a local apparatus that fails to detect the first interference.

17. The first communication apparatus according to claim 9, wherein the controller is further configured to:

- determine one of a presence or an absence of second interference between a local apparatus and the first system based on the power received by the receiver, and
- control the communication based on second interference information associated with the second interference.

18. A communication system, comprising:

- a first communication apparatus; and
- a second communication apparatus, wherein the first communication apparatus includes:

- a first receiver configured to receive power

from a first system;

a first controller configured to determine, based on the received power, one of a presence or absence of first interference with the with the first system; and

a transmitter configured to transmit first interference information associated with the first interference to the second communication apparatus, wherein

the first interference information includes information indicating a value of the received power, a reception time of the power, an arrival direction of the power, and information relating to an attribute of first interference, and

the attribute of the first interference indicates at least one of a type of the first system, a communication scheme of the first system, or a version of the first system, and

the second communication apparatus includes:

a second receiver configured to receive the first interference information from the first communication apparatus; and

a controller configured to control communication based on the first interference information.