secondary use is allowed, in advance.

Citation List

Patent Literature

[0004]

Patent Literature 1: JP 2010-193433A

Summary of Invention

Technical Problem

[0005]

However, the new introduction of an arrangement for sensing the communication state requires correspondingly high cost. If the adverse interference can be prevented by using an existing arrangement at low cost instead of the above sensing, the secondary use of a frequency channel can be promoted, resulting in an increase in network efficiency.

[0006]

~~Under the above circumstances, it is an object of the technology according to the present disclosure to~~ Embodiments of the present invention prevent the adverse interference by using an existing arrangement when a frequency channel is secondarily used.

Solution to Problem

[0007]

According to a first aspect of the present ~~disclosure~~invention, there is provided a communication control device including: an obtaining unit configured to, in a radio communication system including a primary base station to which a primary terminal is connected, and a secondary base station to which a secondary terminal is connected by secondarily using a frequency channel for the primary base station, obtain at least one of a quality report containing a communication quality indicator measured by the primary terminal and a quality report containing a communication quality indicator measured by the secondary terminal; and an interference control unit configured to instruct the secondary base station to reduce transmission power, when it is

determined that adverse interference is present in the radio communication system, based on the communication quality indicator contained in the quality report obtained by the obtaining unit.

[0008]

According to a second aspect of the present ~~disclosure~~invention, there is provided a communication control method executed by a communication control device in a radio communication system including a primary base station to which a primary terminal is connected, and a secondary base station to which a secondary terminal is connected by secondarily using a frequency channel for the primary base station, the communication control method including: obtaining at least one of a quality report containing a communication quality indicator measured by the primary terminal and a quality report containing a communication quality indicator measured by the secondary terminal; determining whether or not adverse interference is present in the radio communication system, based on the communication quality indicator contained in the obtained quality report; and instructing the secondary base station to reduce transmission power, if determining that the adverse interference is present.

[0009]

According to a third aspect of the present ~~disclosure~~invention, there is provided a radio communication system including: a primary base station to which a primary terminal is connected; a secondary base station to which a secondary terminal is connected by secondarily using a frequency channel for the primary base station; and a cooperation manager configured to instruct the secondary base station to reduce transmission power, if it is determined that adverse interference is present in the system, based on a communication quality indicator contained in at least one of a quality report containing the communication quality indicator measured by the primary terminal and a quality report containing the communication quality indicator measured by the secondary terminal.

[0010]

According to a fourth aspect of the present ~~disclosure~~invention, there is provided a terminal device operable in a radio communication system including a primary base station to which a primary terminal is connected, and a secondary base station to which a secondary

terminal is connected by secondarily using a frequency channel for the primary base station, the terminal device including: a control unit configured to generate a quality report containing a communication quality indicator used by a control node configured to determine whether or not adverse interference is present in the radio communication system, the communication quality indicator being used for the determination; and a radio communication unit configured to transmit the quality report generated by the control unit to a base station to which the terminal device is connected.

Advantageous Effects of Invention

[0011]

~~The technology according to the present disclosure~~ Embodiments of the present invention provides an arrangement that can prevent the adverse interference when a frequency channel is secondarily used, at low cost.

Brief Description of Drawings

[0012]

[FIG. 1] FIG. 1 is an explanatory diagram for explaining an overview of a radio communication system according to an embodiment.

[FIG. 2A] FIG. 2A is an explanatory diagram for explaining first example secondary use of a frequency channel.

[FIG. 2B] FIG. 2B is an explanatory diagram for explaining second example secondary use of a frequency channel.

[FIG. 2C] FIG. 2C is an explanatory diagram for explaining third example secondary use of a frequency channel.

[FIG. 2D] FIG. 2D is an explanatory diagram for explaining fourth example secondary use of a frequency channel.

[FIG. 3A] FIG. 3A is a first explanatory diagram for explaining a duty ratio in the TDD scheme.

[FIG. 3B] FIG. 3B is a second explanatory diagram for explaining a duty ratio in the TDD scheme.