However, when the radio backhaul link and the access link are operated in the time division scheme in a small-cell base station, the latency for relaying traffic will be increased, which leads to reduction in the use efficiency of radio resources. In addition, the memory size necessary for a small-cell base station to buffer the traffic will be increased. To solve this, an idea of full-duplex radio communications is introduced to the small-cell base station to allow the radio backhaul link and the access link to be operated simultaneously on the same channel as disclosed in Non-Patent Literature 3, thereby utilizing efficiently radio resources. In the small-cell base station, the self-interference due to sneak of transmission signals can be removed by applying the self-interference cancellation (SIC) technique as disclosed in Non-Patent Literature 3. However, when the ratio of power of an interference signal to power of a desired signal is not small, the self-interference is not sufficiently removed by the SIC technique, and thus the full-duplex radio communication does not function well.

[0008]

~~An object of the technology according to the present disclosure is to achieve~~Embodiments of the present invention disclose a mechanism to address at least one of the above-mentioned problems and to utilize radio resources more efficiently in the environment where a small cell is operated.

Solution to Problem

[0009]

According to ~~the present disclosure~~ a first aspect of the present invention, there is provided a communication control apparatus including: a communication unit configured to communicate with a radio communication apparatus being connected to a base station via a radio backhaul link and being connected to one or more terminals via an access link; and a control unit configured to, when a reception on the radio backhaul link and a transmission on the access link, or a reception on the access link and a transmission on the radio backhaul link are executed on an identical channel simultaneously in the radio communication apparatus, adjust a power ratio between a reception signal and a transmission signal in order to support the radio communication apparatus in removing self-interference due to a sneak of the transmission signal from the

reception signal.

[0010]

According to ~~the present disclosure~~ a second aspect of the present invention, there is provided a communication control method including: adjusting a power ratio between a reception signal and a transmission signal in a processor of a communication control apparatus communicating with a radio communication apparatus in order to support the radio communication apparatus in removing self-interference due to a sneak of the transmission signal from the reception signal when a reception on a radio backhaul link and a transmission on an access link, or a reception on the access link and a transmission on the radio backhaul link are executed on an identical channel simultaneously in the radio communication apparatus being connected to a base station via the radio backhaul link and being connected to one or more terminals via the access link.

[0011]

According to ~~the present disclosure~~ a third aspect of the preset invention, there is provided a communication control apparatus including: a radio communication unit configured to communicate with a base station via a radio backhaul link and to communicate with one or more terminals via an access link; a self-interference processing unit configured to, when a reception on the radio backhaul link and a transmission on the access link, or a reception on the access link and a transmission on the radio backhaul link are executed on an identical channel simultaneously in the radio communication unit, remove self-interference due to a sneak of a transmission signal from a reception signal; and a control unit configured to allow the radio communication unit to use a power ratio between the reception signal and the transmission signal, the power ratio being adjusted in order to support removal of the self-interference.

[0012]

According to ~~the present disclosure~~ a fourth aspect of the present invention, there is provided a communication control method including: executing a reception on a radio backhaul link and a transmission on an access link, or a reception on the access link and a transmission on the radio backhaul link on an identical channel simultaneously in a radio communication apparatus being configured to communicate with a base station via

the radio backhaul link and to communicate with one or more terminals via the access link; and removing self-interference due to a sneak of a transmission signal from a reception signal. A power ratio between the reception signal and the transmission signal is adjusted in such a way that the self-interference is removable from the reception signal.

Advantageous Effects of Invention

[0013]

According to ~~the technology according to the present disclosure~~ embodiments of the present invention, it is possible to utilize radio resources more efficiently in the environment where a small cell is operated.

Note that the effects described above are not necessarily limited, and along with or instead of the effects, any effect that is desired to be introduced in the present specification or other effects that can be expected from the present specification may be exhibited.

Brief Description of Drawings

[0014]

[FIG.1] FIG. 1 is an explanatory diagram illustrated to describe an overview of a communication control system according to one embodiment.

[FIG. 2A] FIG. 2A is an explanatory diagram illustrated to describe the self-interference in the FD mode of a downlink.

[FIG. 2B] FIG. 2B is an explanatory diagram illustrated to describe the self-interference in the FD mode of an uplink.

[FIG. 3] FIG. 3 is a block diagram illustrating an example of the logical configuration of a communication control apparatus according to one embodiment.

[FIG. 4] FIG. 4 is an explanatory diagram illustrated to describe a first example of the distribution of radio resources to a backhaul link and an access link.

[FIG. 5] FIG. 5 is an explanatory diagram illustrated to describe a second example of the distribution of radio resources to the backhaul link and the access link.

[FIG. 6] FIG. 6 is an explanatory diagram illustrated to describe an example of the