In the conventional handover control method, however, UEs deliver reports to eNBs with reference to only PCIs of CSG cells. Therefore, if two or more CSG cells that use the same PCI are present in the macro cell for example, the macro eNB may transmit HO requests to more than one home eNB in response to the measurement report sent from the UE. In such a case, there may be wasteful signaling to home eNBs different from the home eNB on which the UE actually measured the reception quality. Further, home eNBs, which are different from the home eNB on which the UE actually measured the reception quality, may reserve unnecessary resources for the UE.

Summary of Invention

Technical Problem

[0013]

Embodiments of tThe present invention arehas been made under such circumstances. EmbodimentsIt is an object of the invention to provide a radio transmitting/receiving apparatus capable of suppressing wasteful signaling and preventing unnecessary resources from being reserved even when two or more CSG cells that use the same PCI are present in the macro cell.

Solution to Problem

[0014]

According to a first aspect, there is provided a wireless communication apparatus comprising: a reception unit configured to receive, from a macrocell base station, a control message including a network policy regarding handover to femto cells included in a macrocell and configured to receive, from a femto cell base station, a pilot channel signal for reception quality measurement at the femto cells and a synchronization channel signal for synchronization; a storage unit configured to store a list indicative of accessible femto cells among the femto cells included in the macrocell; a determination unit configured to determine whether the femto cells are positionally accessible based on information related to the accessible femto cells included in the list in reference to the received network policy; a measurement report creation unit configured to create a report, the report including information related to whether the femto cells are positionally accessible as determined by the determination unit; and a transmission unit configured to transmit the created report to the macrocell base station; wherein the reception unit receives the network policy, which is referenced to determine whether the macrocell supports handover to the femto cells, before the transmission unit transmits the report to the macrocell station.

According to a second aspect, there is provided a wireless communication method executed in a wireless

communication apparatus, the method comprising: receiving, from a macrocell base station, a control message including a network policy regarding handover to femto cells included in a macrocell and receiving, from a femto cell base station, a pilot channel signal for reception quality measurement at the femto cells and a synchronization channel signal for synchronization; storing a list indicative of accessible femto cells among the femto cells included in the macrocell; determining whether the femto cells are positionally accessible based on information related to the accessible femto cells included in the list in reference to the received network policy; creating a report, the report including information related to whether the femto cells are positionally accessible as determined in the determining step; and transmitting the created report to the macrocell base station; wherein the receiving step of receiving the network policy, which is referenced to determine whether the macrocell supports handover to the femto cells, occurs before the transmitting step of transmitting the report to the macrocell base station.

~~One aspect of the invention is a radio transmitting/receiving apparatus, and the radio transmitting/receiving apparatus comprises: a reception unit for receiving, from a macro cell base station, an instruction for handover to a femto cell contained in a macro cell and receiving, from a femto cell base station,~~

~~a pilot channel signal for reception quality measurement at the femto cell and a synchronization channel signal for synchronization; a storage unit for storing a list indicative of an accessible femto cell among femto cells contained in the macro cell; a determination unit for determining whether or not a femto cell of handover destination is accessible based on a physical cell ID of the femto cell acquired from the received synchronization channel and the list; a measurement report creating unit for adding a physical cell ID and a unique cell ID to a measurement report indicative of a result of measurements taken by means of the pilot channel signal, the physical cell ID being acquired from the synchronization channel and being indicative of a femto cell from which a signal is being received and the unique cell ID being for uniquely identifying a femto cell contained in the macro cell and being indicative of the femto cell of handover destination determined to be accessible; and a transmission unit for transmitting the measurement report to the macro cell.~~

[0015]

Claims:

1. A wireless communication apparatus comprising:

a reception unit that receives, from a macrocell base station, a control message including a network policy for handover to femto cells included in a macrocell and that receives, from a femto cell base station, a pilot channel signal for reception quality measurement in the femto cells and a synchronization channel signal for synchronization;

a storage unit that stores a list indicating accessible femto cells among the femto cells included in the macrocell;

a determination unit that determines whether the femto cells are positionally accessible based on information related to the accessible femto cells included in the list when the network policy is received;

a measurement report creation unit that creates a report for notifying the macrocell base station, the report including information that is a determination result of the determination unit and that is related to whether the femto cells are positionally accessible;

a transmission unit that transmits the created report to the macrocell base station.

2. The wireless communication apparatus according to claim 1, wherein

the storage unit stores physical cell IDs of the accessible femto cells, and

the determination unit determines whether the femto cells are positionally accessible based on whether the physical cell ID of the femto cell acquired from the received synchronization channel signal is included in the list.

3. The wireless communication apparatus according to claim 1 or 2, wherein

the network policy is to support the handover to the femto cells by the macrocell base station.

4. The wireless communication apparatus according to claim 2 or 3, wherein

the measurement report creation unit creates a report including reception quality of the femto cells and the physical cell IDs of the femto cells.

5. A wireless communication method executed in a wireless communication apparatus, the method comprising:

receiving, from a macrocell base station, a control message including a network policy for handover to femto cells included in a macrocell and receiving, from a femto cell base station, a pilot channel signal for reception quality measurement in the femto cells and a synchronization channel signal for synchronization;

storing a list indicating accessible femto cells among the femto cells included in the macrocell;

determining whether the femto cells are positionally accessible based on information related to the accessible femto cells included in the list when the network policy is received;

creating a report for notifying the macrocell base station, the report including information that is a determination result in the determining and that is related to whether the femto cells are positionally accessible; and

transmitting the created report to the macrocell base station.

6. The wireless communication method according to claim 5, wherein

physical cell IDs of the accessible femto cells are stored, and

whether the femto cells are positionally accessible is determined based on whether the physical cell ID of the femto cell acquired from the received synchronization channel signal is included in the list.

7. The wireless communication method according to claim 5 or 6, wherein

the network policy is to support the handover to the femto cells by the macrocell base station.

8. The wireless communication method according to claim 6 or 7, wherein

a report including reception quality of the femto cells and the physical cell IDs of the femto cells is created.

CLAIMS:

1. A wireless communication apparatus comprising:

a reception unit configured to receive, from a macrocell base station, a control message including a network policy regarding handover to femto cells included in a macrocell and configured to receive, from a femto cell base station, a pilot channel signal for reception quality measurement at the femto cells and a synchronization channel signal for synchronization;

a storage unit configured to store a list indicative of accessible femto cells among the femto cells included in the macrocell;

a determination unit configured to determine whether the femto cells are positionally accessible based on information related to the accessible femto cells included in the list in reference to the received network policy;

a measurement report creation unit configured to create a report, the report including information related to whether the femto cells are positionally accessible as determined by the determination unit; and

a transmission unit configured to transmit the created report to the macrocell base station;

wherein the reception unit receives the network policy, which is referenced to determine whether the macrocell supports handover to the femto cells, before the transmission unit transmits the report to the macrocell station.

2. The wireless communication apparatus according to claim 1, wherein

the storage unit is configured to store physical cell IDs of the accessible femto cells in the list, and

the determination unit is configured to determine whether the femto cells are positionally accessible based on whether the physical cell ID of the femto cell acquired from the received synchronization channel signal is included in the list.

3. The wireless communication apparatus according to claim 2, wherein the measurement report creation unit is configured to create a report including reception quality of the femto cells and the physical cell IDs of the femto cells.

4. A wireless communication method executed in a wireless communication apparatus, the method comprising:

receiving, from a macrocell base station, a control message including a network policy regarding handover to femto cells included in a macrocell and receiving, from a femto cell base station, a pilot channel signal for reception quality measurement at the femto cells and a synchronization channel signal for synchronization;

storing a list indicative of accessible femto cells among the femto cells included in the macrocell;

determining whether the femto cells are positionally accessible based on information related to the accessible femto cells included in the list in reference to the received network policy;

creating a report, the report including information related to whether the femto cells are positionally accessible as determined in the determining step; and

transmitting the created report to the macrocell base station;

wherein the receiving step of receiving the network policy, which is referenced to determine whether the macrocell supports handover to the femto cells, occurs before the transmitting step of transmitting the report to the macrocell base station.

5. The wireless communication method according to claim 4, wherein

the storing step stores physical cell IDs of the accessible femto cells in the list, and

the determining step determines whether the femto cells are positionally accessible based on whether the physical cell ID of the femto cell acquired from the received synchronization channel signal is included in the list.

6. The wireless communication method according to claim 5, wherein the creating step creates a report including reception quality of the femto cells and the physical cell IDs of the femto cells.