INTERFERENCE MANAGEMENT IN WIRELESS SYSTEMS

TECHNICAL FIELD

This patent document is directed generally to wireless communications.

BACKGROUND

Mobile communication technologies are moving the world toward an increasingly connected and networked society. The rapid growth of mobile communications and advances in technology have led to greater demand for capacity and connectivity. Other aspects, such as energy consumption, device cost, spectral efficiency, and latency are also important to meeting the needs of various communication scenarios. Various techniques, including new ways to provide higher quality of service, longer battery life, and improved performance are being discussed.

SUMMARY

This patent document describes, among other things, techniques for managing remote interferences caused by phenomena such as the atmospheric ducting phenomenon. The disclosed techniques allow wireless communication nodes to effectively mitigate such interference without negatively impacting the system performance.

In a first aspect, the present disclosure provides a method of wireless communication, comprising: transmitting, by a first communication node, a first reference signal that includes an interference status information in response to remote interference experienced by the first communication node, wherein the remote interference is between the first communication node and a second communication node, wherein the first reference signal is transmitted in preconfigured time periods, wherein the first reference signal is transmitted at multiple occasions in each preconfigured time period, wherein transmissions of the first reference signal in the multiple occasions carry an ID information of the first communication node, wherein the ID information is a same ID information in each of the multiple occasions, wherein the ID information is an identifier of a set to which the first communication node belongs, wherein the interference status information includes a first message that indicates to the second communication node that no further interference mitigation action is needed, or the

interference status information includes a second message that indicates to the second communication node to further perform interference cancellation, and wherein each occasion of the multiple occasions corresponds to a periodicity of transition between uplink and downlink communications of the first communication node.

In a second aspect, the present disclosure provides a method of wireless communication, comprising: receiving, by a second communication node, a first reference signal that includes an interference status information about remote interference between a first communication node and the second communication node, wherein the first reference signal is received in preconfigured time periods, wherein the first reference signal is received at multiple occasions in each preconfigured time period, wherein receptions of the first reference signal in the multiple occasions carry an ID information of the first communication node, wherein the ID information is a same ID information in each of the multiple occasions, wherein the ID information is an identifier of a set to which the first communication node belongs, wherein the second communication node performs no further interference mitigation action in response to the interference status information including a first message that indicates to the second communication node that no further interference mitigation action, or the second communication node further performs interference cancellation in response to the interference status information including a second message that indicates to the second communication node to further perform interference cancellation, and wherein each occasion of the multiple occasions corresponds to a periodicity of transition between uplink and downlink communications of the first communication node.

In one example, a wireless communication method is disclosed. The method includes receiving, at a first communication node, interference status information indicative of a remote interference between the first communication node and a second communication node, and performing, by the first communication node, subsequent communications to the second communication node by implementing a backoff based on a granularity.

In another example, another method of wireless communication is disclosed. The method includes transmitting, by a first communication node, a first reference signal indicative of presence of remote interference between the first communication node and a second communication node, wherein time domain positions of the first reference signal includes one of a last symbol before a maximum downlink transmission boundary for transmissions between the

first communication node and the second communication node, or an Nth symbol prior to the transmission boundary, where N is an integer greater than 1.

CLAIMS

What is claimed is:

1. A method of wireless communication, comprising:

transmitting, by a first communication node, a first reference signal that includes an interference status information in response to remote interference experienced by the first communication node, wherein the remote interference is between the first communication node and a second communication node,

wherein the first reference signal is transmitted in preconfigured time periods,

wherein the first reference signal is transmitted at multiple occasions in each preconfigured time period,

wherein transmissions of the first reference signal in the multiple occasions carry an ID information of the first communication node,

wherein the ID information is a same ID information in each of the multiple occasions,

wherein the ID information is an identifier of a set to which the first communication node belongs,

wherein the interference status information includes a first message that indicates to the second communication node that no further interference mitigation action is needed, or the interference status information includes a second message that indicates to the second communication node to further perform interference cancellation, and

wherein each occasion of the multiple occasions corresponds to a periodicity of transition between uplink and downlink communications of the first communication node.

2. The method of claim 1, wherein the first reference signal is a remote interference management reference signal (RIM-RS).

3. A method of wireless communication, comprising:

receiving, by a second communication node, a first reference signal that includes an interference status information about remote interference between a first communication node

and the second communication node,

wherein the first reference signal is received in preconfigured time periods,

wherein the first reference signal is received at multiple occasions in each preconfigured time period,

wherein receptions of the first reference signal in the multiple occasions carry an ID information of the first communication node,

wherein the ID information is a same ID information in each of the multiple occasions,

wherein the ID information is an identifier of a set to which the first communication node belongs,

wherein the second communication node performs no further interference mitigation action in response to the interference status information including a first message that indicates to the second communication node that no further interference mitigation action, or the second communication node further performs interference cancellation in response to the interference status information including a second message that indicates to the second communication node to further perform interference cancellation, and

wherein each occasion of the multiple occasions corresponds to a periodicity of transition between uplink and downlink communications of the first communication node.

4. The method of claim 3, wherein the first reference signal is a remote interference management reference signal (RIM-RS).

5. A wireless communication apparatus, comprising a processor configured to implement a method recited in any one or more of claims 1 to 4.

6. A computer program product having code stored thereon, the code, when executed by a processor, causing the processor to implement a method recited in any one or more of claims 1 to 4.