METHOD AND APPARATUS FOR CALCULATING PATH LOSS FOR POWER CONTROL

TECHNICAL FIELD

The disclosure relates to the technical field of wireless communication, and in particular to a method and an apparatus for calculating a path loss for power control.

BACKGROUND

At present, in order to avoid interference to uplink communication of a user equipment when the user equipment performs sidelink communication, a transmit power value of the sidelink communication of the user equipment can be controlled according to a size of a downlink path loss. For example, when the user equipment moves to a position farther from a base station, the user equipment can perform the sidelink communication with a higher transmit power value, and when the user equipment moves to a position closer to the base station, the user equipment can perform the sidelink communication with a lower transmit power value. It can be seen that the transmit power value of the user equipment in sidelink communication may be a variable value.

Since the reference signal power value measured by the user equipment needs to be measured by the high layer, a weighted average of multiple measurement results in a long period of time is required. Different from the process of power control in the uplink communication process, in which the transmit power value of the base station is constant, in sidelink communication, the transmit power value used by the user equipment as the transmitting end is variable, it is difficult to obtain a correct path loss estimate based on the reference signal power value returned by the user equipment as the receiving end after high layer filtering, which will affect the effect of power control in sidelink communication.

SUMMARY

In order to overcome problems existing in the related art, embodiments of the disclosure provide a method and an apparatus for calculating a path loss for power control.

According to a first aspect of embodiments of the disclosure, a method for calculating a path loss for power control is provided. The method is applied to a sender device of unicast sidelink communication, and includes:

determining a target transmit power value according to at least one transmit power value

WHAT IS CLAIMED IS:

1. A method for calculating a path loss for power control, performed by a sender device, comprising:

determining a target transmit power value according to at least one transmit power value used in unicast sidelink communication with a receiver device;

receiving a current target reference signal received power (RSRP) value returned by the receiver device; wherein, the target RSRP value is an RSRP value obtained by the receiver device through high layer filtering;

determining a target path loss value according to the target transmit power value and the current target RSRP value.

2. The method of claim 1, wherein the at least one transmit power value comprises at least one transmit power value within a specified time period.

3. The method of claim 2, wherein the specified time period comprises:

a time period from a time point when a last target RSRP value returned by the receiver device is received to a time point when the current target RSRP value returned by the receiver device is received.

4. The method of any one of claims 1-3, wherein, determining the target transmit power value according to at least one transmit power value used in unicast sidelink communication with the receiver device, comprises:

determining a last transmit power value used before the current target RSRP returned by the receiver device is received, as the target transmit power value.

5. The method of any one of claims 1-3, wherein, determining the target transmit power value according to at least one transmit power value used in unicast sidelink communication with the receiver device, comprises:

calculating an arithmetic mean value of the at least one transmit power value, and determining the arithmetic mean value as the target transmit power value.

6. The method of any one of claims 1-3, wherein, determining the target transmit power value according to at least one transmit power value used in unicast sidelink communication with the receiver device, comprises:

obtaining a weighted average value corresponding to first N transmit power values by

filtering the at least one transmit power value based on a preset filtering parameter value according to a chronological order;

determining the weighted average value corresponding to all transmit power values before a time point when the current target RSRP value returned by the receiver device is received, as the target transmit power value.

7. The method of claim 6, wherein obtaining the weighted average value corresponding to first N transmit power values by filtering the at least one transmit power value based on the preset filtering parameter value according to a chronological order comprises:

calculating a first difference between 1 and the filtering parameter value;

calculating a first product of the first difference and a weighted average corresponding to first (N-1) transmit power values;

calculating a second product of the filtering parameter value and the Nth transmit power value;

determining the weighted average value corresponding to the first N transmit power values as a sum of the first product and the second product.

8. The method of claim 1, wherein determining the target path loss value according to the target transmit power value and the current target RSRP value comprises:

obtaining the target path loss value by calculating a difference between the target transmit power value and the current target RSRP value.

9. A sender device, comprising:

a processor;

a memory configured to store instructions executable by the processor,

wherein the processor is configured to:

determine a target transmit power value according to at least one transmit power value used in unicast sidelink communication with a receiver device;

receive a current target reference signal received power (RSRP) value returned by the receiver device; wherein, the target RSRP value is an RSRP value obtained by the receiver device through high layer filtering;

determine a target path loss value according to the target transmit power value and the current target RSRP value.

10. The sender device of claim 9, wherein the at least one transmit power value comprises at least one transmit power value within a specified time period.

11. The sender device of claim 10, wherein the specified time period comprises:

a time period from a time point when a last target RSRP value returned by the receiver device is received to a time point when the current target RSRP value returned by the receiver device is received.

12. The sender device of claim 9, wherein the processor is configured to:

determine a last transmit power value used before the current target RSRP returned by the receiver device is received, as the target transmit power value.

13. The sender device of claim 9, wherein the processor is configured to:

calculate an arithmetic mean value of the at least one transmit power value, and determine the arithmetic mean value as the target transmit power value.

14. The sender device of claim 9, wherein the processor is configured to:

obtain a weighted average value corresponding to first N transmit power values of the at least one transmit power value by filtering the at least one transmit power value based on a preset filtering parameter value according to a chronological order;

determine the weighted average value corresponding to all transmit power values before a time point when the current target RSRP value returned by the receiver device is received, as the target transmit power value.

15. The sender device of claim 14, wherein the processor is configured to:

calculate a first difference between 1 and the filtering parameter value;

calculate a first product of the first difference and a weighted average corresponding to first (N-1) transmit power values;

calculate a second product of the filtering parameter value and the Nth transmit power value;

determine the weighted average value corresponding to the first N transmit power values as a sum of the first product and the second product.

16. The sender device of claim 9, wherein the processor is configured to:

obtain the target path loss value by calculating a difference between the target transmit power value and the current target RSRP value.