

storage medium is, for example, a read-only memory (Read-Only Memory, ROM), a random access memory (Random Access Memory, RAM), a magnetic disk, or an optical disc.

[00334] As shown in FIG. 10, an embodiment of this disclosure further provides
5 a terminal 1000, where the terminal is a receiving end, including:

a first receiving module 1001, configured to receive first information sent by a sending end; where

the first information is used to assist the receiving end in determining whether to perform hybrid automatic repeat request HARQ feedback; and

10 the first information includes at least one of the following: a communication range indicator, a correspondence between side lengths of geographical zones and communication ranges, a geographical zone division rule, and a coverage area identifier of a control node serving the sending end.

[00335] Optionally, the communication range indicator is used for indicating a
15 receiving-end zone for which HARQ feedback is required.

[00336] The communication range indicator is used for indicating at least one of the following:

a layer index of a geographical zone adjacent to a geographical zone in which the sending end is located;

20 a layer index of a geographical zone covered by a control node, where the geographical zone is adjacent to a geographical zone that is covered by the control node and in which the sending end is located;

a geographical distance between the sending end and the receiving end; and

25 a relationship between a geographical zone identifier of the sending end and that of the receiving end.

[00337] Optionally, the communication range indicator includes one first target codepoint.

[00338] The first target codepoint is one of at least one first preset codepoint, and each codepoint in the at least one first preset codepoint corresponds to one communication range.

[00339] Optionally, when the first information includes the communication
5 range indicator; or when the first information includes: the correspondence between side lengths of geographical zones and communication ranges, and the geographical zone division rule,

the first information further includes: a geographical zone identifier of the sending end and auxiliary indication information within a communication range,
10 where the auxiliary indication information is used for determining at least one target zone within the communication range.

[00340] Optionally, when the first information includes the communication range indicator, and the first information further includes a geographical zone identifier of the sending end, after the first receiving module 1001 receives the first
15 information sent by the sending end, the terminal further includes:

a first determining module, configured to determine a geographical zone identifier of the receiving end according to a target division rule of geographical zone.

[00341] Further, the target division rule includes:

20 a correspondence between geographical zone division granularities and target communication ranges; and

a geographical zone identifier calculation manner; where

the target communication range is at least one fixed value prescribed by a protocol.

25 **[00342]** Optionally, when the first information includes the correspondence between side lengths of geographical zones and communication ranges and the geographical zone division rule; or when the first information includes the correspondence between side lengths of geographical zones and communication ranges and the geographical zone division rule, and the first information further

includes auxiliary indication information within a communication range, the first information further includes: a geographical zone identifier of the sending end; and

after the first receiving module 1001 receives the first information sent by the sending end, the terminal 1000 further includes:

5 a second determining module, configured to determine a geographical zone identifier of the receiving end according to the geographical zone division rule.

[00343] Further, the geographical zone division rule is determined by a communication range of each transmission.

[00344] The geographical zone division rule includes:

10 side length indication information of a geographical zone;

per-dimension reuse factor indication information of the geographical zone; and

a geographical zone identifier calculation manner.

[00345] Optionally, the auxiliary indication information includes:

15 a second target codepoint; where

the second target codepoint is one of at least one second preset codepoint, and each codepoint in the at least one second preset codepoint corresponds to one target zone within a communication range.

[00346] Optionally, when the first information includes the communication
20 range indicator, and the first information further includes a geographical zone identifier of the sending end, after the first receiving module 1001 receives the first information sent by the sending end, the terminal further includes:

25 a first judgment module, configured to: based on the geographical zone identifier of the sending end and the communication range indicator, determine whether the receiving end is located within a range indicated by the communication range indicator; and

a first execution module, configured to: if the receiving end is located within the range indicated by the communication range indicator, perform HARQ feedback.

[00347] Optionally, when the first information includes the communication range indicator, and the first information further includes a geographical zone identifier of the sending end and auxiliary indication information within a communication range, after the first receiving module 1001 receives the first information sent by the sending end, the terminal further includes:

a first judgment module, configured to: based on the geographical zone identifier of the sending end and the communication range indicator, determine whether the receiving end is located within a range indicated by the communication range indicator;

10 a second judgment module, configured to: if the receiving end is located within the range indicated by the communication range indicator, determine, based on the auxiliary indication information within the communication range, whether the receiving end is located within a range indicated by the auxiliary indication information within the communication range; and

15 a second execution module, configured to: if the receiving end is located within the range indicated by the auxiliary indication information within the communication range, perform HARQ feedback.

[00348] Further, when the communication range indicator is used for indicating a layer index of a geographical zone adjacent to a geographical zone in which the sending end is located, the first judgment module is configured to implement one of the following:

25 if the layer index is zero and a geographical zone identifier of the receiving end is the same as the geographical zone identifier of the sending end, the receiving end is located within the range indicated by the communication range indicator;

if the layer index is zero and the geographical zone identifier of the receiving end is different from the geographical zone identifier of the sending end, the receiving end is located beyond the range indicated by the communication range indicator; and

[00375] Optionally, in a case that there are at least two geographical zones within a coverage range of one control node, the control node 1100 further includes:

5 a third sending module, configured to send a division rule of geographical zones within coverage of the control node and a division rule of geographical zones within coverage of each of neighboring control nodes.

[00376] Optionally, the control node further includes:

a fifth determining module, configured to determine a geographical zone identifier of the terminal based on location information of the terminal; and

10 a fourth sending module, configured to send the geographical zone identifier to the terminal.

[00377] An embodiment of this disclosure further provides a control node, including a processor, a memory, and a computer program stored in the memory and capable of running on the processor. When the computer program is executed
15 by the processor, the processes of the foregoing embodiment of the information sending method applied to the control node can be implemented, with the same technical effects achieved. To avoid repetition, details are not described herein again.

[00378] An embodiment of this disclosure further provides a computer-readable
20 storage medium, where a computer program is stored in the computer-readable storage medium. When the computer program is executed by a processor, the processes of the foregoing embodiment of the information sending method applied to the control node are implemented, with the same technical effects achieved. To avoid repetition, details are not described herein again. The computer-readable
25 storage medium is, for example, a read-only memory (Read-Only Memory, ROM), a random access memory (Random Access Memory, RAM), a magnetic disk, or an optical disc.

[00379] FIG. 12 is a structural diagram of a control node according to an embodiment of this disclosure. The control node is capable of implementing details
30 of the foregoing information sending method, with the same effects achieved. As

CLAIMS

What is claimed is:

1. An information sending method, applied to a sending end and comprising:
sending first information to a receiving end; wherein

5 the first information is used to assist the receiving end in determining whether
to perform hybrid automatic repeat request (HARQ) feedback; and

the first information comprises at least one of the following: a communication
range indicator, a correspondence between side lengths of geographical zones and
communication ranges, a geographical zone division rule, and a coverage area
10 identifier of a control node serving the sending end.

2. The information sending method according to claim 1, wherein the first
information is indicated by using at least one of the following manners:

physical sidelink control information;

direct communication interface radio resource control information; and

15 a medium access control control element.

3. The information sending method according to claim 1, wherein when the first
information comprises the communication range indicator; or when the first
information comprises: the correspondence between side lengths of geographical
zones and communication ranges, and the geographical zone division rule,

20 the first information further comprises: a geographical zone identifier of the
sending end and auxiliary indication information within a communication range,
wherein the auxiliary indication information is used for determining at least one
target zone within the communication range.

4. The information sending method according to claim 1, wherein the
25 communication range indicator is used for indicating a receiving-end zone for which
HARQ feedback is required; and

the communication range indicator is used for indicating at least one of the
following:

a layer index of a geographical zone adjacent to a geographical zone in which the sending end is located;

a layer index of a geographical zone covered by a control node, wherein the geographical zone is adjacent to a geographical zone that is covered by the control
5 node and in which the sending end is located;

a geographical distance between the sending end and the receiving end; and

a relationship between a geographical zone identifier of the sending end and that of the receiving end.

5. The information sending method according to claim 1, wherein the
10 communication range indicator comprises one first target codepoint; and

the first target codepoint is one of at least one first preset codepoint, and each codepoint in the at least one first preset codepoint corresponds to one communication range.

6. The information sending method according to claim 1, wherein when the first
15 information comprises the correspondence between side lengths of geographical zones and communication ranges and the geographical zone division rule; or when the first information comprises the correspondence between side lengths of geographical zones and communication ranges and the geographical zone division rule, and the first information further comprises auxiliary indication information
20 within a communication range, the first information further comprises: a geographical zone identifier of the sending end; and

a manner of determining the geographical zone identifier of the sending end comprises:

determining the geographical zone identifier of the sending end according to the
25 geographical zone division rule.

7. The information sending method according to claim 1 or 6, wherein the geographical zone division rule is determined by a communication range of each transmission; and

the geographical zone division rule comprises:

30 side length indication information of a geographical zone;

per-dimension reuse factor indication information of the geographical zone; and
a geographical zone identifier calculation manner.

8. The information sending method according to claim 1, when the first
information comprises the coverage area identifier of the control node serving the
5 sending end; or when the first information comprises the coverage area identifier of
the control node serving the sending end and the communication range indicator; or
when the first information comprises the coverage area identifier of the control node
serving the sending end and the communication range indicator, and the first
information further comprises a geographical zone identifier of the sending end, in a
10 case that a coverage range of one control node belongs to one geographical zone,
before the sending first information to a receiving end, further comprising:

receiving information about a coverage area identifier of a control node that is
sent by the control node by using second information.

9. The information sending method according to claim 1, when the first
15 information comprises the coverage area identifier of the control node serving the
sending end; or when the first information comprises the coverage area identifier of
the control node serving the sending end and the communication range indicator; or
when the first information comprises the coverage area identifier of the control node
serving the sending end and the communication range indicator, and the first
20 information further comprises a geographical zone identifier of the sending end, in a
case that there are at least two geographical zones within a coverage range of one
control node, before the sending first information to a receiving end, further
comprising:

receiving a division rule of geographical zones within coverage of the control
25 node and a division rule of geographical zones within coverage of each of
neighboring control nodes, wherein the division rules are sent by using second
information by the control node.

10. The information sending method according to claim 1, wherein when there
is at least one communication range for a multiplexed service packet in one transport

block, the communication range indicator satisfies at least one of the following conditions:

if at least one communication range is the same, the communication range indicator is used for indicating one communication range;

- 5 if at least part of the at least one communication range is different, the communication range indicator is used for indicating a minimum value of the at least one communication range;

if at least part of the at least one communication range is different, the communication range indicator is used for indicating a maximum value of the at least one communication range;

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if at least part of the at least one communication range is different, the communication range indicator is used for indicating an average value of the at least one communication range;

- if at least part of the at least one communication range is different, the communication range indicator is used for indicating a communication range value that is closest to an average value of the at least one communication range; and
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a communication range indicated in the communication range indicator is determined based on a service quality parameter.

11. An information receiving method, applied to a receiving end and comprising:
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receiving first information sent by a sending end; wherein

the first information is used to assist the receiving end in determining whether to perform hybrid automatic repeat request (HARQ) feedback; and

- the first information comprises at least one of the following: a communication range indicator, a correspondence between side lengths of geographical zones and communication ranges, a geographical zone division rule, and a coverage area identifier of a control node serving the sending end.
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12. The information receiving method according to claim 11, wherein the communication range indicator is used for indicating a receiving-end zone for which HARQ feedback is required; and
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the communication range indicator is used for indicating at least one of the following:

a layer index of a geographical zone adjacent to a geographical zone in which the sending end is located;

5 a layer index of a geographical zone covered by a control node, wherein the geographical zone is adjacent to a geographical zone that is covered by the control node and in which the sending end is located;

a geographical distance between the sending end and the receiving end; and

a relationship between a geographical zone identifier of the sending end and
10 that of the receiving end.

13. The information receiving method according to claim 11 or 12, wherein when the first information comprises the communication range indicator; or when the first information comprises the geographical zone division rule and the correspondence between side lengths of geographical zones and communication
15 ranges, the first information further comprises: a geographical zone identifier of the sending end and auxiliary indication information within a communication range, wherein the auxiliary indication information is used for determining at least one target zone within the communication range.

14. The information receiving method according to claim 11, when the first
20 information comprises the communication range indicator, and the first information further comprises a geographical zone identifier of the sending end, after the receiving first information sent by a sending end, further comprising:

determining a geographical zone identifier of the receiving end according to a target division rule of geographical zone;

25 or,

when the first information comprises the correspondence between side lengths of geographical zones and communication ranges and the geographical zone division rule, and the first information further comprises a geographical zone identifier of the sending end; or when the first information comprises the correspondence between
30 side lengths of geographical zones and communication ranges and the geographical

zone division rule, and the first information further comprises a geographical zone identifier of the sending end and auxiliary indication information within a communication range, after the receiving first information sent by a sending end, further comprising:

- 5 determining a geographical zone identifier of the receiving end according to the geographical zone division rule.

15 15. The information receiving method according to claim 11, wherein when the first information comprises the communication range indicator, and the first information further comprises a geographical zone identifier of the sending end, after
10 the receiving first information sent by a sending end, the information receiving method further comprises:

 determining, based on the geographical zone identifier of the sending end and the communication range indicator, whether the receiving end is located within a range indicated by the communication range indicator; and

- 15 if the receiving end is located within the range indicated by the communication range indicator, performing HARQ feedback.

 16. The information receiving method according to claim 11, wherein when the first information comprises the communication range indicator, and the first information further comprises a geographical zone identifier of the sending end and
20 auxiliary indication information within a communication range, after the receiving first information sent by a sending end, the information receiving method further comprises:

 determining, based on the geographical zone identifier of the sending end and the communication range indicator, whether the receiving end is located within a
25 range indicated by the communication range indicator;

 if the receiving end is located within the range indicated by the communication range indicator, determining, based on the auxiliary indication information within the communication range, whether the receiving end is located within a range indicated by the auxiliary indication information within the communication range; and

if the receiving end is located within the range indicated by the auxiliary indication information within the communication range, performing HARQ feedback.

17. The information receiving method according to claim 15 or 16, wherein
5 when the communication range indicator is used for indicating a geographical distance between the sending end and the receiving end, the determining, based on the geographical zone identifier of the sending end and the communication range indicator, whether the receiving end is located within a range indicated by the communication range indicator comprises one of the following:

10 determining a first distance and a second distance based on positioning information of the receiving end and the geographical zone identifier of the sending end, wherein if the first distance is less than the geographical distance between the sending end and the receiving end, the receiving end is located within the range indicated by the communication range indicator, or if the second distance is less than
15 the geographical distance between the sending end and the receiving end, the receiving end is located within the range indicated by the communication range indicator, or if an average value of the first distance and the second distance is less than the geographical distance between the sending end and the receiving end, the receiving end is located within the range indicated by the communication range
20 indicator, wherein the first distance is greater than the second distance;

obtaining a first target distance based on the positioning information of the receiving end and a first reference point of the geographical zone in which the sending end is located, wherein if the first target distance is less than the geographical distance between the sending end and the receiving end, the receiving
25 end is located within the range indicated by the communication range indicator;

obtaining a second target distance based on a second reference point of a geographical zone in which the receiving end is located and a third reference point of the geographical zone in which the sending end is located, wherein if the second target distance is less than the geographical distance between the sending end and the

receiving end, the receiving end is located within the range indicated by the communication range indicator; and

obtaining a first reference value based on a geographical zone identifier of the receiving end and the geographical zone identifier of the sending end, wherein if the
5 first reference value is less than the geographical distance between the sending end and the receiving end, the receiving end is located within the range indicated by the communication range indicator;

or,

when the communication range indicator is used for indicating a relationship
10 between a geographical zone identifier of the sending end and that of the receiving end, the determining, based on the geographical zone identifier of the sending end and the communication range indicator, whether the receiving end is located within a range indicated by the communication range indicator comprises one of the following:

15 when the relationship between the geographical zone identifier of the sending end and that of the receiving end is a difference threshold for the geographical zone identifiers, if an absolute value of a difference between the geographical zone identifier of the sending end and that of the receiving end is less than the difference threshold, the receiving end is located within the range indicated by the
20 communication range indicator; and

when the relationship between the geographical zone identifier of the sending end and that of the receiving end is a first threshold obtained through a modular operation on geographical zone identifiers, and if a result of a modular operation on the geographical zone identifiers of the sending end and the receiving end meets a
25 requirement of the first threshold, the receiving end is located within the range indicated by the communication range indicator.

18. A terminal, wherein the terminal is a sending end and comprises:

a first sending module, configured to send first information to a receiving end, wherein

the first information is used to assist the receiving end in determining whether to perform hybrid automatic repeat request (HARQ) feedback; and

the first information comprises at least one of the following: a communication range indicator, a correspondence between side lengths of geographical zones and communication ranges, a geographical zone division rule, and a coverage area identifier of a control node serving the sending end.

19. A terminal, wherein the terminal is a receiving end and comprises:

a first receiving module, configured to receive first information sent by a sending end; wherein

the first information is used to assist the receiving end in determining whether to perform hybrid automatic repeat request (HARQ) feedback; and

the first information comprises at least one of the following: a communication range indicator, a correspondence between side lengths of geographical zones and communication ranges, a geographical zone division rule, and a coverage area identifier of a control node serving the sending end.

20. A computer-readable storage medium, wherein a computer program is stored in the computer-readable storage medium, and when the computer program is executed by a processor, the steps of the information sending method according to any one of claims 1 to 10 are implemented, or the steps of the information receiving method according to any one of claims 11 to 17 are implemented.