

CLAIMS

1. A communication method, comprising:

determining, by a terminal device, beam correspondence information, wherein the beam correspondence information indicates a beam correspondence between an uplink transmitting beam and a downlink receiving beam of the terminal device; and

transmitting, by the terminal device, a radio resource control, RRC, signaling to a network device, wherein the RRC signaling comprises the beam correspondence information and capability information of the terminal device, the beam correspondence information and the capability information of the terminal device are carried in different indication domains of the RRC signaling, and the capability information of the terminal device comprises information of uplink transmitting beam groups of the terminal device, wherein the information of the uplink transmitting beam groups comprises a number of the uplink transmitting beam groups and a number of uplink transmitting beams comprised in each of the uplink transmitting beam groups.

2. The communication method according to claim 1, wherein the beam correspondence is one of a plurality of beam correspondence, and the plurality of beam correspondence comprise that beam correspondence holds and beam correspondence does not hold.

3. The communication method according to claim 1 or 2, wherein the method further comprises:

transmitting, by the terminal device, a first message to the network device, wherein the first message comprises the beam correspondence information, and the first message is a message in which the terminal device transmits a random access preamble signal to the network device in a random access procedure.

4. The communication method according to any one of claims 1 to 3, wherein the method further comprises:

transmitting, by the terminal device, a second message to the network device,

wherein the second message comprises the beam correspondence information, and the second message is a message in which the terminal device transmits a terminal device identifier to the network device in a random access procedure.

5 5. The communication method according to any one of claims 1 to 4, wherein the method further comprises:

transmitting, by the terminal device, a media access control, MAC, control element, CE, to the network device, wherein the MAC CE comprises the beam correspondence information.

10 6. The communication method according to claim 5, wherein the MAC CE further comprises at least one of information of the uplink transmitting beam or information of an uplink transmitting beam group of the terminal device.

15 7. The communication method according to claim 6, wherein the information of the uplink transmitting beam comprises a number of the uplink transmitting beam, and the information of the uplink transmitting beam group further comprises a total number of uplink transmitting beams comprised in the uplink transmitting beam group.

8. The communication method according to any one of claims 1 to 7, wherein the determining, by a terminal device, beam correspondence information comprises:

20 determining, by the terminal device, that the beam correspondence information indicates that beam correspondence at the terminal device holds if at least one of the following conditions is satisfied:

the terminal device is capable of determining the uplink transmitting beam for uplink transmission based on a measurement by the terminal device on at least one downlink receiving beam; or

25 the terminal device is capable of determining the downlink receiving beam for downlink transmission based on an indication from the network device, wherein the indication from the network device is obtained through a measurement by the network device on at least one uplink transmitting beam of the terminal device.

30 9. The communication method according to claim 1, wherein the transmitting, by the terminal device, the beam correspondence information to a network device

comprises:

reporting, by the terminal device, the beam correspondence information to the network device based on an indication from the network device.

10. A communication method, comprising:

5 receiving, by a network device, beam correspondence information transmitted by a terminal device, wherein the beam correspondence information indicates a beam correspondence between an uplink transmitting beam and a downlink receiving beam of the terminal device; and

determining, according to the beam correspondence information, a beam
10 correspondence at the terminal device;

wherein the receiving, by a network device, beam correspondence information transmitted by a terminal device, comprises:

receiving, by the network device, a radio resource control, RRC, signaling transmitted by the terminal device, wherein the RRC signaling comprises the beam
15 correspondence information and capability information of the terminal device, the beam correspondence information and the capability information of the terminal device are carried in different indication domains of the RRC signaling, and the capability information of the terminal device comprises information of uplink transmitting beam groups of the terminal device, wherein the information of the
20 uplink transmitting beam groups comprises a number of the uplink transmitting beam groups and a number of uplink transmitting beams comprised in each of the uplink transmitting beam groups.

11. The communication method according to claim 10, wherein the information of the uplink transmitting beam group further comprises a total number of uplink
25 transmitting beams comprised in the uplink transmitting beam group.

12. The communication method according to claim 10, wherein the receiving, by a network device, beam correspondence information transmitted by a terminal device comprises:

receiving, by the network device, the beam correspondence information reported
30 by the terminal device based on an indication from the network device.

13. A terminal device, comprising:

a determining module, configured to determine beam correspondence information, wherein the beam correspondence information indicates a beam correspondence between an uplink transmitting beam and a downlink receiving beam of the terminal device; and

a communicating module, configured to transmit a radio resource control, RRC, signaling to a network device, wherein the RRC signaling comprises the beam correspondence information and capability information of the terminal device, the beam correspondence information and the capability information of the terminal device are carried in different indication domains of the RRC signaling, and the capability information of the terminal device comprises information of uplink transmitting beam groups of the terminal device, wherein the information of the uplink transmitting beam groups comprises a number of the uplink transmitting beam groups and a number of uplink transmitting beams comprised in each of the uplink transmitting beam groups.

14. The terminal device according to claim 13, wherein the beam correspondence is one of a plurality of beam correspondence, and the plurality of beam correspondence comprise that beam correspondence holds and beam correspondence does not hold.

15. The terminal device according to claim 13 or 14, wherein the communicating module is specifically configured to:

transmit a first message to the network device, wherein the first message comprises the beam correspondence information, and the first message is a message in which the terminal device transmits a random access preamble signal to the network device in a random access procedure.

16. The terminal device according to any one of claims 13 to 15, wherein the communicating module is further configured to:

receive a plurality of configuration information transmitted by the network device;

transmit a random access signal by using configuration information

corresponding to the beam correspondence; and

wherein the plurality of configuration information correspond to configuration information that is used by the terminal device to transmit the random access signal in the plurality of beam correspondence, wherein each configuration information
5 comprises at least one of the following:

information of a time domain resource for random access, information of a frequency domain resource for random access, or information of a preamble sequence for random access.

17. The terminal device according to claim 16, wherein the plurality of
10 configuration information comprise first configuration information and second configuration information, wherein the first configuration information and the second configuration information correspond to configuration information that is used by the terminal device to transmit the random access signal in a beam correspondence that
15 beam correspondence holds and a beam correspondence that beam correspondence does not hold respectively, wherein the communicating module is specifically configured to:

transmit the random access signal using at least one of information of a time domain resource for random access, information of a frequency domain resource for random access, or information of a preamble sequence for random access comprised
20 in the first configuration information if the beam correspondence information indicates that beam correspondence at the terminal device holds; or

transmit the random access signal using at least one of information of a time domain resource for random access, information of a frequency domain resource for random access, or information of a preamble sequence for random access comprised
25 in the second configuration information if the beam correspondence information indicates that beam correspondence at the terminal device does not hold.

18. The terminal device according to any one of claims 13 to 17, wherein the communicating module is specifically configured to:

transmit a media access control, MAC, control element, CE, to the network
30 device, wherein the MAC CE comprises the beam correspondence information.

19. The terminal device according to claim 18, wherein the MAC CE further comprises at least one of information of the uplink transmitting beam or information of an uplink transmitting beam group of the terminal device.

20. The terminal device according to claim 19, wherein the information of the uplink transmitting beam comprises a number of the uplink transmitting beam, and the information of the uplink transmitting beam group further comprises a total number of uplink transmitting beams comprised in the uplink transmitting beam group.

21. The terminal device according to any one of claims 13 to 20, wherein the determining module is specifically configured to:

10 determine that the beam correspondence information indicates that beam correspondence at the terminal device holds if at least one of the following conditions is satisfied:

15 the terminal device is capable of determining an uplink transmitting beam for uplink transmission based on a measurement by the terminal device on at least one downlink receiving beam; or

 the terminal device is capable of determining the downlink receiving beam for downlink transmission based on an indication from the network device, wherein the indication from the network device is obtained through a measurement by the network device on at least one uplink transmitting beam of the terminal device.

20 22. The terminal device according to claim 13, wherein the communicating module is further configured to:

 report the beam correspondence information to the network device based on an indication from the network device.

23. A network device, comprising:

25 a communicating module, configured to receive beam correspondence information transmitted by a terminal device, wherein the beam correspondence information indicates a beam correspondence between an uplink transmitting beam and a downlink receiving beam of the terminal device; and

 a determining module, configured to determine, according to the beam correspondence information, a beam correspondence at the terminal device;

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wherein the communicating module is specifically configured to:

5 receive a radio resource control, RRC, signaling transmitted by the terminal device, wherein the RRC signaling comprises the beam correspondence information and capability information of the terminal device, the beam correspondence
10 information and the capability information of the terminal device are carried in different indication domains of the RRC signaling, and the capability information of the terminal device comprises information of uplink transmitting beam groups of the terminal device, wherein the information of the uplink transmitting beam groups comprises a number of the uplink transmitting beam groups and a number of uplink
10 transmitting beams comprised in each of the uplink transmitting beam groups.

24. The network device according to claim 23, wherein the information of the uplink transmitting beam group further comprises a total number of uplink transmitting beams comprised in the uplink transmitting beam group.

15 25. The network device according to claim 23, wherein the communicating module is further configured to:

receive the beam correspondence information reported by the terminal device based on an indication from the network device.