

CLAIMS

1. An information receiving method, comprising:

receiving, by a terminal device, indication information sent by a network device,
wherein the indication information indicates a beam corresponding to a downlink
5 transmission channel determined by the network device from multiple pieces of
configuration information, the beam corresponding to the downlink transmission channel
is used to transmit the downlink transmission channel, and each piece of the multiple
pieces of configuration information comprises at least one of: information of at least one
transmitting beam, information of a receiving beam corresponding to the at least one
10 transmitting beam, and resource mapping information, wherein the resource mapping
information indicates a resource available or unavailable for downlink transmission;

determining, by the terminal device, a receiving beam corresponding to the downlink
transmission channel according to the indication information; and

receiving, by the terminal device, the downlink transmission channel through the
15 receiving beam corresponding to the downlink transmission channel;

wherein the downlink transmission channel comprises a data channel, the beam
corresponding to the downlink transmission channel comprises a transmitting beam
corresponding to the data channel; and

wherein:

20 the receiving, by the terminal device, the indication information sent by the network
device comprises:

receiving, by the terminal device, a physical downlink control channel, PDCCH,
sent by the network device through a beam in a beam group, wherein an indication
field of the PDCCH comprises the indication information, the indication information
25 comprises a number for the transmitting beam corresponding to the data channel, the
indication information specifically indicates that the network device sends the data
channel by using the transmitting beam corresponding to the number in a beam group,
configuration information of the multiple pieces of configuration information
corresponds to the latter beam group, the configuration information is configuration
30 information pre-configured by the network device for the terminal device to receive
the data channel; and

the determining, by the terminal device, the receiving beam corresponding to the

downlink transmission channel according to the indication information comprises:

determining, by the terminal device, a receiving beam corresponding to the transmitting beam according to the transmitting beam corresponding to the number; and

5 receiving the data channel through the receiving beam corresponding to the transmitting beam.

2. The method according to claim 1, wherein each piece of configuration information corresponds to one beam group, and information of each transmitting beam among the information of the at least one transmitting beam comprises at least one of the following:

10 identification information of each transmitting beam, resource occupying information specific to each transmitting beam, and a number for each transmitting beam in the beam group corresponding to each piece of configuration information.

3. The method according to claim 1 or 2, wherein the information of the receiving beam corresponding to the at least one transmitting beam comprises identification
15 information of the receiving beam corresponding to the at least one transmitting beam.

4. The method according to any one of claims 1 to 3, wherein the resource mapping information comprises at least one piece of data transmission resource mapping information, each piece of data transmission resource mapping information indicates a resource available or unavailable for downlink transmission of the at least one
20 transmitting beam.

5. The method according to any one of claims 2 to 4, wherein the receiving, by the terminal device, the indication information sent by the network device comprises:

receiving, by the terminal device, a PDCCH sent by the network device through a beam in a first beam group, wherein a first indication field of the PDCCH comprises the
25 indication information, the indication information comprises a number for the transmitting beam corresponding to the data channel, the indication information specifically indicates that the network device sends the data channel by using the transmitting beam corresponding to the number in the first beam group, first configuration information of the multiple pieces of configuration information corresponds to the first
30 beam group, the first configuration information is configuration information pre-configured by the network device for the terminal device to receive the data channel;

the determining, by the terminal device, the receiving beam corresponding to the downlink transmission channel according to the indication information comprises:

determining, by the terminal device, a receiving beam corresponding to the

transmitting beam according to the transmitting beam corresponding to the number; and
receiving the data channel through the receiving beam corresponding to the
transmitting beam.

6. The method according to claim 5, further comprising:

5 receiving, by the terminal device, a first signaling sent by the network device,
wherein the first signaling comprises first configuration indication information, and the
first configuration indication information indicates that the network device sends the data
channel by using the first configuration information of the multiple pieces of
configuration information.

10 7. The method according to claim 6, wherein the first signaling is a radio resource
control, RRC, signaling or downlink control information, DCI.

8. The method according to claim 3 or 4, wherein the beam corresponding to the
downlink transmission channel comprises a receiving beam corresponding to the data
channel, and the receiving, by the terminal device, the indication information sent by the
15 network device comprises:

receiving, by the terminal device, a PDCCH sent by the network device through a
beam in a second beam group, wherein a second indication field of the PDCCH comprises
the indication information, the indication information comprises identification
information of the receiving beam corresponding to the data channel, the indication
20 information specifically indicates that the terminal device receives the data channel by
using a receiving beam corresponding to the identification information.

9. The method according to any one of claims 1 to 4, wherein the receiving, by the
terminal device, the indication information sent by the network device comprises:

receiving, by the terminal device, a PDCCH sent by the network device through a
25 beam in a third beam group, wherein a third indication field of the PDCCH comprises the
indication information, the indication information comprises a number for a transmitting
beam corresponding to the data channel in a fourth beam group, the indication
information specifically indicates that the network device sends the data channel by using
the transmitting beam corresponding to the number in the fourth beam group, second
30 configuration information of the multiple pieces of configuration information
corresponds to the fourth beam group, the second configuration information is
configuration information pre-configured by the network device for the terminal device
to receive the data channel;

the determining, by the terminal device, the receiving beam corresponding to the

downlink transmission channel according to the indication information comprises:

determining, by the terminal device, a receiving beam corresponding to the transmitting beam according to the transmitting beam corresponding to the number; and

5 receiving the data channel through the receiving beam corresponding to the transmitting beam.

10. The method according to claim 9, further comprising:

receiving, by the terminal device, a second signaling sent by the network device, wherein the second signaling comprises second configuration indication information, and the second configuration indication information indicates that the network device sends
10 the data channel by using the second configuration information of the multiple pieces of configuration information.

11. The method according to claim 10, wherein the second signaling is radio resource control, RRC, signaling or downlink control information, DCI.

12. The method according to any one of claims 1 to 4, further comprising:

15 receiving, by the terminal device, a PDCCH sent by the network device, wherein the PDCCH comprises third configuration indication information, and the third configuration indication information indicates configuration information used by the network device for sending a data channel.

13. The method according to any one of claims 4 to 12, wherein the at least one piece
20 of data transmission resource mapping information comprises multiple pieces of data transmission resource mapping information, the method further comprises:

receiving, by the terminal device, a PDCCH sent by the network device, wherein the PDCCH comprises a fourth indication field, and the fourth indication field indicates data transmission resource mapping information used by the network device for transmitting
25 the downlink transmission channel.

14. The method according to any one of claims 2 to 4, wherein the receiving, by the terminal device, the indication information sent by the network device comprises:

receiving, by the terminal device, a PDCCH sent by the network device through a beam in a fifth beam group, wherein a fifth indication field of the PDCCH comprises the
30 indication information, the indication information comprises a number for a transmitting beam corresponding to the data channel in a sixth beam group, the indication information specifically indicates that the network device sends the data channel by using the transmitting beam corresponding to the number in the sixth beam group, and the fifth beam group is a beam group associated with the sixth beam group;

the determining, by the terminal device, the receiving beam corresponding to the downlink transmission channel according to the indication information comprises:

determining, by the terminal device, a receiving beam corresponding to the transmitting beam according to the transmitting beam corresponding to the number; and

5 receiving the data channel through the receiving beam corresponding to the transmitting beam.

15. The method according to any one of claims 1 to 14, further comprising:

receiving, by the terminal device, the multiple pieces of configuration information sent by the network device.

10 16. A network device, comprising:

a transceiving unit, configured to send indication information to a terminal device, wherein the indication information indicates a beam corresponding to a downlink transmission channel determined by the network device from multiple pieces of configuration information, the beam corresponding to the downlink transmission channel
15 is used to transmit the downlink transmission channel, and each piece of the multiple pieces of configuration information comprises at least one of: information of at least one transmitting beam, information of a receiving beam corresponding to the at least one transmitting beam, and resource mapping information, wherein the resource mapping information indicates a resource available or unavailable for downlink transmission of
20 the at least one transmitting beam; and

the transceiving unit is further configured to: transmit the downlink transmission channel through the beam corresponding to the downlink transmission channel;

wherein the downlink transmission channel comprises a data channel, the beam corresponding to the downlink transmission channel comprises a transmitting beam
25 corresponding to the data channel; and

wherein:

the transceiving unit is further configured to:

send a physical downlink control channel, PDCCH, to the terminal device through a beam in a beam group, wherein an indication field of the PDCCH
30 comprises the indication information, the indication information comprises a number for the transmitting beam corresponding to the data channel, the indication information specifically indicates that the network device sends the data channel by using the transmitting beam corresponding to the number in a beam group, configuration information of the multiple pieces of configuration information

corresponds to the latter beam group, the configuration information is configuration information pre-configured by the network device for the terminal device to receive the data channel.

5 17. The network device according to claim 16, wherein each piece of configuration information corresponds to one beam group, and information of each transmitting beam among the information of the at least one transmitting beam comprises at least one of the following:

10 identification information of each transmitting beam, resource occupying information specific to each transmitting beam, and a number for each transmitting beam in the beam group corresponding to each piece of configuration information.

18. The network device according to claim 16 or 17, wherein the information of the receiving beam corresponding to the at least one transmitting beam comprises identification information of the receiving beam corresponding to the at least one transmitting beam.

15 19. The network device according to any one of claims 16 to 18, wherein the resource mapping information comprises at least one piece of data transmission resource mapping information, each piece of data transmission resource mapping information indicates a resource available or unavailable for downlink transmission of the at least one transmitting beam.

20 20. The network device according to any one of claims 17 to 19, wherein the transceiving unit is further configured to:

25 send a PDCCH to the terminal device through a beam in a first beam group, wherein a first indication field of the PDCCH comprises the indication information, the indication information comprises a number for the transmitting beam corresponding to the data channel, the indication information specifically indicates that the network device sends the data channel by using the transmitting beam corresponding to the number in the first beam group, first configuration information of the multiple pieces of configuration information corresponds to the first beam group, the first configuration information is configuration information pre-configured by the network device for the terminal device
30 to receive the data channel.

21. A terminal device, comprising:

a receiving unit, configured to receive indication information sent by a network device, wherein the indication information indicates a beam corresponding to a downlink transmission channel determined by the network device from multiple pieces of

configuration information, the beam corresponding to the downlink transmission channel is used to transmit the downlink transmission channel, and each piece of the multiple pieces of configuration information comprises at least one of: information of at least one transmitting beam, information of a receiving beam corresponding to the at least one transmitting beam, and resource mapping information, wherein the resource mapping information indicates a resource available or unavailable for downlink transmission; and

5 a determining unit, configured to determine a receiving beam corresponding to the downlink transmission channel according to the indication information;

the receiving unit is further configured to: receive the downlink transmission channel

10 through the receiving beam corresponding to the downlink transmission channel;

wherein the downlink transmission channel comprises a data channel, the beam corresponding to the downlink transmission channel comprises a transmitting beam corresponding to the data channel; and

wherein:

15 the receiving unit is further configured to:

receive a physical downlink control channel, PDCCH, sent by the network device through a beam in a beam group, wherein an indication field of the PDCCH comprises the indication information, the indication information comprises a number for the transmitting beam corresponding to the data channel, the indication

20 information specifically indicates that the network device sends the data channel by using the transmitting beam corresponding to the number in a beam group, configuration information of the multiple pieces of configuration information corresponds to the latter beam group, the configuration information is configuration information pre-configured by the network device for the terminal device to receive

25 the data channel;

the determining unit is specifically configured to:

determine a receiving beam corresponding to the transmitting beam according to the transmitting beam corresponding to the number; and

the receiving unit is specifically configured to:

30 receive the data channel through the receiving beam corresponding to the transmitting beam.

22. The terminal device according to claim 21, wherein each piece of configuration information corresponds to one beam group, and information of each transmitting beam among the information of the at least one transmitting beam comprises at least one of the

following:

identification information of each transmitting beam, resource occupying information specific to each transmitting beam, and a number for each transmitting beam in the beam group to which each transmitting beam belongs.

5 23. The terminal device according to claim 21 or 22, wherein the information of the receiving beam corresponding to the at least one transmitting beam comprises identification information of the receiving beam corresponding to the at least one transmitting beam.

10 24. The terminal device according to any one of claims 21 to 23, wherein the resource mapping information comprises at least one piece of data transmission resource mapping information, each piece of data transmission resource mapping information indicates a resource available or unavailable for downlink transmission of the at least one transmitting beam.

15 25. The terminal device according to any one of claims 22 to 24, wherein the receiving unit is further configured to:

receive a PDCCH sent by the network device through a beam in a first beam group, wherein a first indication field of the PDCCH comprises the indication information, the indication information comprises a number for the transmitting beam corresponding to the data channel, the indication information specifically indicates that the network device
20 sends the data channel by using the transmitting beam corresponding to the number in the first beam group, first configuration information of the multiple pieces of configuration information corresponds to the first beam group, the first configuration information is configuration information pre-configured by the network device for the terminal device to receive the data channel;

25 the determining unit is specifically configured to:

determine a receiving beam corresponding to the transmitting beam according to the transmitting beam corresponding to the number; and

the receiving unit is specifically configured to:

30 receive the data channel through the receiving beam corresponding to the transmitting beam.

26. The terminal device according to claim 25, wherein the receiving unit is further configured to:

receive a first signaling sent by the network device, wherein the first signaling comprises first configuration indication information, and the first configuration indication

information indicates that the network device sends the data channel by using the first configuration information of the multiple pieces of configuration information.

27. The terminal device according to claim 26, wherein the first signaling is a radio resource control, RRC, signaling or downlink control information, DCI.

5 28. The terminal device according to claim 23 or 24, wherein the beam corresponding to the downlink transmission channel comprises a receiving beam corresponding to the data channel, and the receiving unit is further configured to:

10 receive a PDCCH sent by the network device through a beam in a second beam group, wherein a second indication field of the PDCCH comprises the indication information, the indication information comprises identification information of the receiving beam corresponding to the data channel, the indication information specifically indicates that the terminal device receives the data channel by using a receiving beam corresponding to the identification information.

15 29. The terminal device according to any one of claims 21 to 24, wherein the receiving unit is further configured to:

20 receive a PDCCH sent by the network device through a beam in a third beam group, wherein a third indication field of the PDCCH comprises the indication information, the indication information comprises a number for a transmitting beam corresponding to the data channel in a fourth beam group, the indication information specifically indicates that the network device sends the data channel by using the transmitting beam corresponding to the number in the fourth beam group, second configuration information of the multiple pieces of configuration information corresponds to the fourth beam group, the second configuration information is configuration information pre-configured by the network device for the terminal device to receive the data channel.

25 30. The terminal device according to claim 29, wherein the receiving unit is further configured to:

30 receive a second signaling sent by the network device, wherein the second signaling comprises second configuration indication information, and the second configuration indication information indicates that the network device sends the data channel by using the second configuration information of the multiple pieces of configuration information.

31. The terminal device according to claim 30, wherein the second signaling is a radio resource control, RRC, signaling or downlink control information, DCI.

32. The terminal device according to any one of claims 21 to 24, wherein the receiving unit is further configured to:

receive a PDCCH sent by the network device, wherein the PDCCH comprises third configuration indication information, and the third configuration indication information indicates configuration information used by the network device for sending a data channel.

33. The terminal device according to any one of claims 24 to 32, wherein the at least
5 one piece of data transmission resource mapping information comprises multiple pieces of data transmission resource mapping information, and the receiving unit is further configured to:

receive a PDCCH sent by the network device, wherein the PDCCH comprises a
fourth indication field, and the fourth indication field indicates data transmission resource
10 mapping information used by the network device for transmitting downlink transmission channel.

34. The terminal device according to any one of claims 22 to 24, wherein the receiving unit is further configured to:

receive a PDCCH sent by the network device through a beam in a fifth beam group,
15 wherein a fifth indication field of the PDCCH comprises the indication information, the indication information comprises a number for a transmitting beam corresponding to the data channel in a sixth beam group, the indication information specifically indicates that the network device sends the data channel by using the transmitting beam corresponding to the number in the sixth beam group, and the fifth beam group is a beam group
20 associated with the sixth beam group.

35. The terminal device according to any one of claims 21 to 34, wherein the receiving unit is further configured to:

receive the multiple pieces configuration information sent by the network device.