

CLAIMS

What is claimed is:

1. A communication method, wherein the method comprises:
 - determining a first uplink carrier; and
 - 5 determining a first cell and/or a first downlink carrier based on the first uplink carrier;
wherein the first uplink carrier is used for uplink communication, and the first downlink carrier is used for downlink communication; and
 - wherein the determining a first cell further comprises:
 - determining that the first uplink carrier is the first cell;
 - 10 determining that the first uplink carrier and at least one uplink carrier are a cell;
 - determining that the first uplink carrier and the first downlink carrier are a cell; or
 - determining that the first uplink carrier, at least one uplink carrier, and the first downlink carrier are a cell; and
 - the determining a first downlink carrier comprises:
 - 15 determining that the first uplink carrier and the first downlink carrier are associated carriers;
 - determining that the first uplink carrier, the at least one uplink carrier, and the first downlink carrier are associated carriers;
 - determining that the first cell and a second cell are associated cells, wherein the second cell comprises the first downlink carrier; or
 - 20 determining that the first uplink carrier, the at least one uplink carrier, and the first downlink carrier are associated carriers, and determining that a second downlink carrier is used for downlink measurement, wherein the second downlink carrier is configured to be bound to the first uplink carrier to perform uplink transmission and downlink transmission;
 - wherein the determining a first uplink carrier comprises:
 - 25 determining the first uplink carrier when a first condition is met, wherein
 - the first condition comprises at least one of the following:
 - channel quality of a third downlink carrier is less than or equal to a threshold K1, and the third downlink carrier is used for downlink communication before the first uplink carrier is determined;
 - 30 channel quality of the downlink signal on the first uplink carrier is greater than or equal to a

threshold K2; and

channel quality of the second downlink carrier is greater than or equal to a threshold K3, and the second downlink carrier is configured to be bound to the first uplink carrier to perform uplink transmission and downlink transmission and is currently used for downlink measurement.

5 2. The method according to claim 1, wherein before the determining a first uplink carrier, the method further comprises:

receiving a message 1, wherein the message 1 indicates to support at least one of the following carrier configurations:

all resources of an uplink carrier are used for uplink transmission;

10 a part of resources of the uplink carrier are used for downlink transmission; and

the uplink carrier and a downlink carrier are configured to be bound for uplink transmission and downlink transmission.

3. The method according to claim 1 or 2, wherein the determining a first uplink carrier comprises:

15 determining the first uplink carrier based on a message 2 received from a network device, wherein the message 2 indicates configuration information of the first uplink carrier;

determining the first uplink carrier based on a downlink signal received on the first uplink carrier; or

20 determining the first uplink carrier based on a downlink signal received on the second downlink carrier corresponding to the first uplink carrier.

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

releasing a second uplink carrier, wherein the releasing a second uplink carrier comprises:

receiving a message 3, wherein the message 3 indicates to release a second uplink carrier;

releasing a second uplink carrier when a second condition is met; or

25 sending a message 4, wherein the message 4 is used to request to release a second uplink carrier, wherein

the second uplink carrier is used for uplink communication before the first uplink carrier is determined; and

the second condition comprises at least one of the following:

30 a quantity of uplink carriers available for uplink communication is greater than or equal to a threshold L1;

the channel quality of the third downlink carrier is less than or equal to a threshold L2, and the third downlink carrier is used for downlink communication before the first uplink carrier is determined;

channel quality of the first downlink carrier is greater than or equal to a threshold L3;

5 the channel quality of the first downlink carrier is greater than or equal to a threshold L4 and less than or equal to a threshold L5;

the channel quality of the downlink signal on the first uplink carrier is greater than or equal to a threshold L6; and

10 the channel quality of the second downlink carrier is greater than or equal to a threshold L7, and the second downlink carrier is configured to be bound to the first uplink carrier for uplink transmission and downlink transmission, and is currently used for downlink measurement.

5. The method according to any one of claims 1 to 4, wherein the determining a first uplink carrier comprises:

determining the first uplink carrier as an uplink carrier for uplink measurement;

15 determining the first uplink carrier as an uplink carrier available for uplink transmission; or determining the first uplink carrier as an uplink carrier for uplink transmission.

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

adding a third uplink carrier, and updating the first cell;

changing a third uplink carrier to the first uplink carrier, and updating the first cell; or

20 deleting the first uplink carrier, and updating the first cell.

7. The method according to any one of claims 1 to 6, wherein the first downlink carrier and the third downlink carrier are a same uplink carrier.

8. The method according to any one of claims 1 to 7, wherein before the determining a first uplink carrier, the method further comprises:

25 receiving the message 1, wherein the message 1 comprises at least one of the following: a carrier frequency, a carrier index, a carrier identifier of the at least one uplink carrier, a random access configuration parameter, a reference signal configuration, and timing advance group TAG information.

30 9. The method according to any one of claims 1 to 8, wherein before the determining a first uplink carrier, the method further comprises:

accessing the network device, wherein an uplink carrier used by the terminal to communicate

with the network device is the second uplink carrier, and a downlink carrier used by the terminal to communicate with the network device is the third downlink carrier, wherein

the third downlink carrier is used for downlink communication before the first uplink carrier is determined, or the third downlink carrier is used to receive a downlink signal/downlink information before the first uplink carrier is determined.

10. The method according to any one of claims 1 to 9, wherein the determining a first uplink carrier specifically further comprises:

sending a preamble signal or a reference signal to at least one uplink carrier; and

receiving the message 4 by using the third downlink carrier; and determining, based on the message 4, that the at least one uplink carrier is the first uplink carrier.

11. The method according to any one of claims 1 to 10, wherein the message 2 or the message 4 comprises at least one of the following: carrier information of the at least one uplink carrier, a timing advance TA value, a path loss, a path loss range, signal strength, a signal strength range, channel quality, and a channel quality range.

12. The method according to any one of claims 1 to 11, wherein the method further comprises: receiving a message 5, wherein the message 5 comprises a configuration of a measurement carrier;

receiving a message 6, wherein the message 6 comprises a configuration of an activated carrier; and/or

receiving a message 7, wherein the message 7 comprises a configuration of an operating carrier, wherein

the measurement carrier is a carrier for uplink signal measurement or downlink signal measurement;

the activated carrier is a carrier capable of supporting concurrent transmission of the terminal;

and

the operating carrier is a carrier on which the terminal sends uplink information or a carrier on which the terminal sends uplink data.

13. The method according to any one of claims 9 to 11, wherein the method further comprises: sending a preamble signal or an uplink signal to the activated carrier based on received configuration information of the activated carrier;

performing uplink synchronization with the activated carrier;

performing uplink power control adjustment with the activated carrier;

performing uplink synchronization and uplink power control adjustment with the activated carrier;

performing random access on the activated carrier to implement uplink synchronization; or

5 performing random access on the activated carrier to implement uplink synchronization and uplink power control adjustment.

14. The method according to any one of claims 9 to 12, wherein the method further comprises:

sending the uplink information or the uplink data on the operating carrier based on the received configuration information of the operating carrier.

10 15. The method according to any one of claims 1 to 14, wherein the method further comprises:

receiving a message 9, wherein the message 9 comprises configuration information of at least one activated carrier, and indicates the terminal to perform uplink data transmission by using the at least one activated carrier.

16. The method according to any one of claims 1 to 15, wherein the method further comprises:

15 sending the uplink signal on the uplink carrier, the measurement carrier, the activated carrier, or the operating carrier, to perform uplink measurement.

17. The method according to any one of claims 1 to 16, wherein the method further comprises:

after updating the first uplink carrier, determining that the first uplink carrier is a cell or determining the first downlink carrier;

20 receiving a tenth message, wherein the tenth message indicates that the at least one third uplink carrier is a second cell, or the at least one third uplink carrier and the first downlink carrier are associated carriers; or

25 sending an eleventh message, wherein the eleventh message indicates that the at least one third uplink carrier is a second cell, or the at least one third uplink carrier and the first downlink carrier are associated carriers.

18. A communication apparatus, wherein the communication apparatus is configured to perform the method according to any one of claims 1 to 17.

19. A communication apparatus, wherein the communication apparatus comprises a processor and a storage medium; the storage medium stores instructions; and when the instructions are
30 executed by the processor, the method according to any one of claims 1 to 17.

20. A computer-readable storage medium, wherein the computer-readable storage medium

comprises instructions; and when the instructions are executed by a processor, the method according to any one of claims 1 to 17.

21. A computer program product, wherein the computer program product comprises instructions; and when the instructions are executed by a processor, the method according to any

5 one of claims 1 to 17.