

What is claimed is:

1. A transmission method of feedback acknowledge information, comprising:

receiving, by a terminal device, downlink control information sent by an access network device, wherein the downlink control information comprises a first information field and a second information field, the first information field is used for indicating timing of feedback acknowledge information corresponding to the downlink control information, and the second information field is used for indicating a downlink assignment index;

determining, by the terminal device, a first bit number of feedback acknowledge information to be transmitted in a target transmission unit according to the first information field and the second information field; and

transmitting, by the terminal device, the feedback acknowledge information in the target transmission unit according to the first bit number;

wherein the first bit number is a maximum bit number, the first bit number comprises:

a maximum bit number of feedback acknowledge information corresponding to all Component Carriers.

2. The method according to claim 1, wherein the timing of feedback acknowledge information corresponding to the downlink control information comprises:

a time interval between downlink data scheduled through the downlink control information and feedback acknowledge information corresponding to the downlink data; or,

a time interval between the downlink control information and feedback acknowledge information corresponding to the downlink control information.

3. The method according to claim 1 or claim 2, wherein the determining, by the terminal device, the first bit number of feedback acknowledge information to be transmitted in the target transmission unit according to the first information field and the second information field, comprises:

when the terminal device receives first downlink control information, calculating the first bit number of the feedback acknowledge information to be transmitted in the target transmission unit through a following formula:

$$N=C*(K+1) \text{ or } N = C*K;$$

wherein a value of the second information field of the first downlink control information is a preset value, the C is a first preset value, the K is a value corresponding to the first

information field in the first downlink control information, and both C and K are positive integers;

or,

when the terminal device receives first downlink control information, calculating the first
5 bit number of the feedback acknowledge information to be transmitted in the target transmission unit through a following formula:

$$N=C*(K-T);$$

wherein a value of the second information field of the first downlink control information is a preset value, the C is a first preset value, the K is a value corresponding to the first
10 information field in the first downlink control information, the T is a second preset value, the C, T, and K are positive integers, and T is less than K;

or,

determining the first bit number of feedback acknowledge information to be transmitted in the target transmission unit according to the first information field and the second information
15 field of the second downlink control information when the terminal device does not receive first downlink control information and receives second downlink control information;

wherein a value of the second information field of the first downlink control information is a preset value, and the second downlink control information is downlink control information other than the first downlink control information.

20 4. The method according to claim 3, wherein when the terminal device does not receive the first downlink control information and receives the second downlink control information, the determining the first bit number of the feedback acknowledge information to be transmitted in the target transmission unit according to the first information field and the second information field of the second downlink control information, comprises:

25 when the terminal device does not receive the first downlink control information and receives the second downlink control information, calculating the first bit number of the feedback acknowledge information transmitted in the target transmission unit through a following formula:

$$N=C*(K'+P) \text{ or } N=C * (K'+P-1);$$

30 wherein the C is a first preset value, K' is a value corresponding to the first information field in the second downlink control information, the P is a value corresponding to the second

information field in the second downlink control information, and C, K', and P are all positive integers;

or,

5 when the terminal device does not receive the first downlink control information and receives the second downlink control information, the determining the first bit number of the feedback acknowledge information to be transmitted in the target transmission unit according to the first information field and the second information field of the second downlink control information, comprises:

10 when the terminal device does not receive the first downlink control information and receives the second downlink control information, calculating the first bit number of the feedback acknowledge information transmitted in the target transmission unit through a following formula:

$$N=C*(K'+P-T);$$

15 wherein the C is a first preset value, the K' is a value corresponding to the first information field in the second downlink control information, the P is a value corresponding to the second information field in the second downlink control information, the T is a second preset value, and C, K', P, and T are all positive integers.

20 5. The method according to any one of claims 1-4, wherein if the terminal device receives first downlink control information, the terminal device determines a first bit number of feedback acknowledge information to be transmitted in a target transmission unit according to a first information field and a second information field of the first downlink control information, and a value of the second information field of the first downlink control information is 1.code block

6. A transmission apparatus of feedback acknowledge information, comprising:

25 a receiving module, configured to receive downlink control information sent by an access network device, wherein the downlink control information comprises a first information field and a second information field, the first information field is used for indicating timing of feedback acknowledge information corresponding to the downlink control information, and the second information field is used for indicating a downlink assignment index;

30 a determining module, configured to determine a first bit number of feedback acknowledge information to be transmitted in a target transmission unit according to the first information field and the second information field; and

a transmitting module, configured to transmit the feedback acknowledge information in the target transmission unit according to the first bit number;

wherein the first bit number is a maximum bit number, the first bit number comprises:

5 a maximum bit number of feedback acknowledge information corresponding to all Component Carriers.

7. The apparatus according to claim 6, wherein the timing of feedback acknowledge information corresponding to the downlink control information comprises:

a time interval between downlink data scheduled through the downlink control information and feedback acknowledge information corresponding to the downlink data; or,

10 a time interval between the downlink control information and feedback acknowledge information corresponding to the downlink control information.

8. The apparatus according to claim 6 or 7, wherein the determining module is further configured to calculate the first bit number of the feedback acknowledge information to be transmitted in the target transmission unit through a following formula when the terminal
15 device receives the first downlink control information:

$$N=C*(K+1) \text{ or } N = C*K;$$

wherein a value of the second information field of the first downlink control information is a preset value, the C is a first preset value, the K is a value corresponding to the first information field in the first downlink control information, and both C and K are positive
20 integers;

or,

the determining module is further configured to calculate the first bit number of the feedback acknowledge information to be transmitted in the target transmission unit through a following formula when the terminal device receives the first downlink control information:

25
$$N=C*(K-T);$$

wherein a value of the second information field of the first downlink control information is a preset value, the C is a first preset value, the K is a value corresponding to the first information field in the first downlink control information, the T is a second preset value, the C, T, and K are positive integers, and T is less than K;

30 or,

the determining module is further configured to determine the first bit number of the

feedback acknowledge information to be transmitted in the target transmission unit according to the first information field and the second information field of the second downlink control information when the terminal device does not receive first downlink control information and receives second downlink control information;

5 wherein a value of the second information field of the first downlink control information is a preset value, and the second downlink control information is downlink control information other than the first downlink control information.

9. The apparatus according to claim 8, wherein the determining module is further configured to calculate the first bit number of the feedback acknowledge information to be transmitted in the target transmission unit through a following formula when the terminal device does not receive the first downlink control information and receives the second downlink control information:

$$N=C*(K'+P) \text{ or } N=C * (K'+P-1);$$

15 wherein the C is a first preset value, K' is a value corresponding to the first information field in the second downlink control information, the P is a value corresponding to the second information field in the second downlink control information, and C, K', and P are all positive integers;

or,

20 the determining module is further configured to calculate the first bit number of the feedback acknowledge information to be transmitted in the target transmission unit through a following formula when the terminal device does not receive the first downlink control information and receives the second downlink control information:

$$N=C*(K'+P-T);$$

25 wherein the C is a first preset value, the K' is a value corresponding to the first information field in the second downlink control information, the P is a value corresponding to the second information field in the second downlink control information, the T is a second preset value, and C, K', P, and T are all positive integers.

10. The apparatus according to claim 8 or 9, wherein if the receiving module receives first downlink control information sent by the access network device, the determining module determines a first bit number of feedback acknowledge information to be transmitted in a target transmission unit according to a first information field and a second information field of the first downlink control information, and a value of the second information field of the first

downlink control information is 1.

11. The apparatus according to claim 8 or 9, wherein the second preset value is used for indicating a minimum delay for transmitting the feedback acknowledge information.

12. The apparatus according to claim 8 or 9, wherein the first preset value comprises:

5 a first constant; or,

a value preconfigured by the access network device; or,

a maximum number of transport blocks; or,

a product of the maximum number of transport blocks and a number of code block groups;

or,

10 a number of Component Carriers.

13. The apparatus according to claim 8 or 9 or 11, wherein the second preset value comprises:

a second constant; or

a value predefined through a communication protocol; or,

15 a value preconfigured by the access network device.