

WHAT IS CLAIMED IS:

1. A method for transmitting data, applicable to a terminal with grant-free scheduling, comprising:

obtaining a set of transmission parameters;

receiving downlink control information comprising an information field;

determining a target number of n for times of repeated transmissions based on the set of transmission parameters and the information field, where n is a positive integer; and

transmitting data, in a target transmission resource, based on a target transmission mode for the target number of n for times of repeated transmissions.

2. The method as claimed in claim 1, wherein the set of transmission parameters comprises at least one candidate number of repeated transmissions, and

wherein determining the target number of n for times of repeated transmissions based on the set of transmission parameters and the information field comprises:

determining a target candidate number of repeated transmissions in the set of transmission parameters based on the information field as the target number of n for times of repeated transmissions.

3. The method as claimed in claim 2, further comprising:

receiving, a first configuration signaling for configuring the set of transmission parameters, from a base station;

wherein the first configuration signaling comprises at least one of: a radio resource control (RRC) signaling, a media access control (MAC) control element (CE) signaling or a physical layer signaling.

4. The method as claimed in claim 2, wherein obtaining the set of transmission parameters comprises:

obtaining a first reference parameter and a first set of factors; and

determining the set of transmission parameters based on the first reference parameter and the first set of factors.

5. The method as claimed in claim 4, wherein determining the set of transmission

parameters based on the first reference parameter and the first set of factors comprises:

determining the set of transmission parameters based on a product of the first reference parameter and each factor in the first set of factors;

or

determining the set of transmission parameters based on a sum of the first reference parameter and each factor in the first set of factors.

6. The method as claimed in claim 4 or 5, further comprising:

receiving, a second configuration signaling for configuring the first reference parameter, from a base station, wherein the second configuration signaling comprises at least one of: a radio resource control (RRC) signaling, a media access control (MAC) control element (CE) signaling or a physical layer signaling;

or,

determining the first reference parameter based on a pre-configured number of repeated transmissions, wherein the pre-configured number of repeated transmissions is a number of repeated transmissions configured by the base station when performing grant-free scheduling;

or,

determining the first reference parameter based on a configured number of repeated transmissions.

7. The method as claimed in claim 4 or 5, further comprising:

receiving, a third configuration signaling for configuring the first set of factors, from a base station, wherein the third configuration signaling comprises at least one of: a radio resource control (RRC) signaling, a media access control (MAC) control element (CE) signaling or a physical layer signaling;

or,

determining the first set of factors by pre-defining of a protocol.

8. The method as claimed in claim 1, wherein the set of transmission parameters comprises a second set of factors and the second set of factors comprises at least one factor parameter; and

wherein determining the target number of n for times of repeated transmissions based on the set of transmission parameters and the information field comprises:

obtaining a second reference parameter;
determining a target factor from the second set of factors based on the information field;
determining a reference number of repeated transmissions based on the target factor and the second reference parameter; and
determining the target number of n for times of repeated transmissions based on the reference number of repeated transmissions.

9. The method as claimed in claim 8, wherein the factor parameter comprises at least one of a product factor and a difference factor;

the reference number of repeated transmissions is a product of the target factor and the second reference parameter in response to that the target factor is the product factor,

or,

the reference number of repeated transmissions is a sum of the target factor and the second reference parameter in response to that the target factor is the difference factor.

10. The method as claimed in claim 8, wherein the set of transmission parameters comprises a set of target numbers of repeated transmissions,

determining the target number of n for times of repeated transmissions based on the reference number of repeated transmissions comprises:

determining the target number of n for times of repeated transmissions based on the reference number of repeated transmissions and the set of target numbers of repeated transmissions,

wherein the target number of n for times of repeated transmissions is a value, in the set of target numbers of repeated transmissions, that is greater than or equal to the reference number of repeated transmissions and has a smallest difference from the reference number of repeated transmissions, and the set of target numbers of repeated transmissions comprises at least one candidate target number of repeated transmissions.

11. The method as claimed in claim 10, wherein,
each candidate target number of repeated transmissions in the set of target numbers of repeated transmissions is an integer power of 2;

or,

each candidate target number of repeated transmissions in the set of target numbers of repeated transmissions is a multiple of a preset value.

12. The method as claimed in any one of claims 8 to 11, further comprising:

receiving, a second configuration signaling for configuring the second reference parameter, from a base station, wherein the second configuration signaling comprises at least one of: a radio resource control (RRC) signaling, a media access control (MAC) control element (CE) signaling or a physical layer signaling;

or,

determining the second reference parameter based on a pre-configured number of repeated transmissions, wherein the pre-configured number of repeated transmissions is a number of repeated transmissions configured by the base station when performing grant-free scheduling;

or,

determining the second reference parameter based on a configured number of repeated transmissions.

13. The method as claimed in any one of claims 8 to 11, further comprising:

receiving, a third configuration signaling for configuring the second set of factors, from a base station, wherein the third configuration signaling comprises at least one of: a radio resource control (RRC) signaling, a media access control (MAC) control element (CE) signaling or a physical layer signaling;

or,

determining the second set of factors by pre-defining of a protocol.

14. The method as claimed in claim 1, wherein the downlink control information further comprises a retransmission instruction; and

the method further comprises:

resetting the target number of n for times of repeated transmissions based on the retransmission instruction.

15. A method for receiving data, applicable to a base station, comprising:

transmitting downlink control information comprising an information field, wherein a terminal is configured to determine a target number of n for times of repeated transmissions

based on a set of transmission parameters and the information field; and
receiving data from the terminal within a preset time and frequency.

16. The method as claimed in claim 15, further comprising:
transmitting a first configuration signaling for configuring the set of transmission parameters to the terminal;

wherein the first configuration signaling comprises at least one of: a radio resource control (RRC) signaling, a media access control (MAC) control element (CE) signaling or a physical layer signaling.

17. The method as claimed in claim 16, wherein the set of transmission parameters is obtained based on a reference parameter and a set of factors.

18. The method as claimed in claim 17, further comprising:
transmitting a second configuration signaling for configuring the reference parameter to the terminal,

wherein the second configuration signaling comprises at least one of: a RRC signaling, a MAC CE signaling or a physical layer signaling.

19. The method as claimed in claim 18, further comprising:
transmitting a third configuration signaling for configuring the set of factors to the terminal,

wherein the third configuration signaling comprises at least one of: a RRC signaling, a MAC CE signaling or a physical layer signaling.

~~20. An apparatus for transmitting data, comprising:
a processing module configured to obtain a set of transmission parameters;
a receiving module configured to receive downlink control information comprising an information field;~~

~~the processing module further configured to determine a target number of n for times of repeated transmissions based on the set of transmission parameters and the information field, where n is a positive integer; and~~

~~a transmitting module configured to transmit data, in a target transmission resource, based~~

~~on a target transmission mode for the target number of n for times of repeated transmissions.~~

~~21. The apparatus as claimed in claim 20, wherein,~~

~~the processing module is configured to determine a target candidate number of repeated transmissions in the set of transmission parameters based on the information field as the target number of n for times of repeated transmissions.~~

~~22. The apparatus as claimed in claim 21, wherein the set of transmission parameters comprises at least one candidate number of repeated transmissions,~~

~~wherein the receiving module is configured to receive a first configuration signaling for configuring the set of transmission parameters from a base station;~~

~~wherein the first configuration signaling comprises at least one of: a radio resource control (RRC) signaling, a media access control (MAC) control element (CE) signaling or a physical layer signaling.~~

~~23. The apparatus as claimed in claim 22, wherein,~~

~~the processing module is configured to obtain a first reference parameter and a first set of factors; and~~

~~the processing module is configured to determine the set of transmission parameters based on the first reference parameter and the first set of factors.~~

~~24. The apparatus as claimed in claim 23, wherein,~~

~~the processing module is configured to determine the set of transmission parameters based on a product of the first reference parameter and each factor in the first set of factors;~~

~~or~~

~~determine the set of transmission parameters based on a sum of the first reference parameter and each factor in the first set of factors.~~

~~25. The apparatus as claimed in claim 23 or 24, wherein,~~

~~the receiving module is configured to receive a second configuration signaling for configuring the first reference parameter from a base station, wherein the second configuration signaling comprises at least one of: a RRC signaling, a MAC CE signaling or a physical layer signaling;~~

or,

the processing module is configured to determine the first reference parameter based on a pre-configured number of repeated transmissions, wherein the pre-configured number of repeated transmissions is a number of repeated transmissions configured by the base station when performing grant free scheduling;

or,

the processing module is configured to determine the first reference parameter based on a configured number of repeated transmissions.

26. The apparatus as claimed in claim 23 or 24, wherein,

the receiving module is configured to receive a third configuration signaling for configuring the first set of factors from a base station, wherein the third configuration signaling comprises at least one of: a RRC signaling, a MAC CE signaling or a physical layer signaling;

or,

determine the first set of factors by pre-defining of a protocol.

27. The apparatus as claimed in claim 20, wherein the set of transmission parameters comprises a second set of factors and the second set of factors comprises at least one factor parameter; and

the processing module is configured to obtain a second reference parameter;

the processing module is configured to determine a target factor from the second set of factors based on the information field;

the processing module is configured to determine a reference number of repeated transmissions based on the target factor and the second reference parameter; and

the processing module is configured to determine the target number of n for times of repeated transmissions based on the reference number of repeated transmissions.

28. The apparatus as claimed in claim 27, wherein the factor parameter comprises at least one of a product factor and a difference factor;

the reference number of repeated transmissions is a product of the target factor and the second reference parameter in response to that the target factor is the product factor;

or,

the reference number of repeated transmissions is a sum of the target factor and the second

reference parameter in response to that the target factor is the difference factor.

29. The apparatus as claimed in claim 27, wherein the set of transmission parameters comprises a set of target numbers of repeated transmissions;

wherein the processing module is configured to determine the target number of n for times of repeated transmissions based on the reference number of repeated transmissions and the set of target numbers of repeated transmissions;

wherein the target number of n for times of repeated transmissions is a value, in the set of target numbers of repeated transmissions, that is greater than or equal to the reference number of repeated transmissions and has a smallest difference from the reference number of repeated transmissions, and the set of target numbers of repeated transmissions comprises at least one candidate target number of repeated transmissions.

30. The apparatus as claimed in claim 29, wherein,

each candidate target number of repeated transmissions in the set of target numbers of repeated transmissions is an integer power of 2;

or;

each candidate target number of repeated transmissions in the set of target numbers of repeated transmissions is a multiple of a preset value.

31. The apparatus as claimed in any one of claims 27 to 30, wherein,

the receiving module is configured to receive a second configuration signaling for configuring the second reference parameter from a base station, wherein the second configuration signaling comprises at least one of: a radio resource control (RRC) signaling, a media access control (MAC) control element (CE) signaling or a physical layer signaling;

or;

the processing module is configured to determine the second reference parameter based on a pre-configured number of repeated transmissions, wherein the pre-configured number of repeated transmissions is a number of repeated transmissions configured by the base station when performing grant-free scheduling;

or;

the processing module is configured to determine the second reference parameter based on a configured number of repeated transmissions.

~~32. The apparatus as claimed in any one of claims 27 to 30, wherein,
the receiving module is configured to receive a third configuration signaling for
configuring the second set of factors from a base station, wherein the third configuration
signaling comprises at least one of: a radio resource control (RRC) signaling, a media access
control (MAC) control element (CE) signaling or a physical layer signaling;~~

~~or;~~

~~determine the second set of factors by pre-defining of a protocol.~~

~~33. The apparatus as claimed in claim 20, wherein the downlink control information
further comprises a retransmission instruction; and~~

~~wherein the processing module is configured to reset the target number of n for times of
repeated transmissions based on the retransmission instruction.~~

~~34. An apparatus for receiving data, comprising:~~

~~a transmitting module configured to transmit downlink control information comprising an
information field, wherein a terminal is configured to determine a target number of n for times
of repeated transmissions based on a set of transmission parameters and the information field;
and~~

~~a receiving module configured to receive data from the terminal within a preset time and
frequency.~~

~~35. The apparatus as claimed in claim 34, wherein,~~

~~the transmitting module is configured to transmit a first configuration signaling for
configuring the set of transmission parameters to the terminal;~~

~~wherein the first configuration signaling comprises at least one of: a radio resource control
(RRC) signaling, a media access control (MAC) control element (CE) signaling or a physical
layer signaling.~~

~~36. The apparatus as claimed in claim 35, wherein the set of transmission parameters is
obtained based on a reference parameter and a set of factors.~~

~~37. The apparatus as claimed in claim 36, wherein,~~

~~the transmitting module is configured to transmit a second configuration signaling for configuring the reference parameter to the terminal,~~

~~wherein the second configuration signaling comprises at least one of: a RRC signaling, a MAC CE signaling or a physical layer signaling.~~

~~38. The apparatus as claimed in claim 36, wherein,~~

~~the transmitting module is configured to transmit a third configuration signaling for configuring the set of factors to the terminal,~~

~~wherein the third configuration signaling comprises at least one of: a RRC signaling, a MAC CE signaling or a physical layer signaling.~~

~~39~~20. A computer device, comprising:

a processor; and

a memory,

wherein the memory is configured to store at least one instruction, at least one program, a set of codes and a set of instructions, and the at least one instruction, the at least one program, the set of codes and the set of instructions are loaded and executed by the processor to perform the method for transmitting data as claimed in any one of claims 1 to 14.

~~40~~21. A computer device, comprising:

a processor; and

a memory,

wherein the memory is configured to store at least one instruction, at least one program, a set of codes and a set of instructions, and the at least one instruction, the at least one program, the set of codes and the set of instructions are loaded and executed by the processor to perform the method for receiving data as claimed in any one of claims 15 to 19.

~~41~~22. A computer-readable storage medium for storing at least one instruction, at least one program, a set of codes and a set of instructions, and the at least one instruction, wherein the at least one program, the set of codes and the set of instructions are loaded and executed by a processor to perform the method for transmitting data as claimed in any one of claims 1 to 14.

4223. A computer-readable storage medium for storing at least one instruction, at least one program, a set of codes and a set of instructions, and the at least one instruction, wherein the at least one program, the set of codes and the set of instructions are loaded and executed by a processor to perform the method for receiving data as claimed in any one of claims 15 to 19.