

type of the reference signal included in the TCI states of the at least two downlink signals;

[00168] determine the receiving scheme of the at least two downlink signals based on a type of the reference signal with QCL type D included in the TCI states of the at least two downlink signals;

[00169] determine the receiving scheme of the at least two downlink signals based on a mapping type of the at least two downlink signals; and/or

[00170] determine the receiving scheme of the at least two downlink signals based on a duration of the at least two downlink signals.

[00171] Optionally, in a possible implementation of the embodiments, the transmission information includes the information carried in the at least two downlink signals, and the receiving scheme determination unit 320 can be specifically configured to:

[00172] determine the receiving scheme of the at least two downlink signals based on whether system information is carried in the at least two downlink signals or not; and/or

[00173] determine the receiving scheme of the at least two downlink signals based on whether high-layer signaling is carried in the at least two downlink signals or not.

[00174] Optionally, in a possible implementation of the embodiments, the receiving scheme determination unit 320 can be specifically configured to determine a priority of each of the at least two downlink signals based on the transmission information of the at least two downlink signals, and determine the receiving scheme of the at least two downlink signals based on the priority of each downlink signal.

[00175] Specifically, the receiving scheme determination unit 320 can be specifically configured to:

[00176] determine to receive the downlink signal with a higher priority and not to receive the downlink signal with a lower priority; and/or

[00177] determine to receive the at least two downlink signals by using the transmission configuration of the downlink signal with the higher priority.

[00178] Optionally, in a possible implementation of the embodiments, the receiving scheme determination unit 320 can be specifically configured to determine the receiving scheme of the at least two downlink signals based on the number of antenna panels in the terminal device and the transmission information of the at least two downlink signals.

[00179] In a specific implementation, the receiving scheme determination unit 320 can be configured to select a number K of downlink signals with the highest priorities from a number N of downlink signals based on the transmission information of the N downlink signals if the number K of the antenna panels is less than the number N of the at least two downlink signals, and determine to receive the K downlink signals by using the transmission configurations of the K downlink signals, respectively.

[00180] In another specific implementation, the receiving scheme determination unit 320 can be specifically configured to determine to receive the N downlink signals by using the transmission configurations of the N downlink signals, respectively, if the number K of the antenna panels is greater than or equal to the number N of the at least two downlink signals.

[00181] It should be noted that the method performed by the terminal device in the embodiment shown in FIG. 2 can be applied to implement the corresponding functions implemented by the terminal device in the foregoing methods. For detailed description, reference can be made to the related content in the embodiment shown in FIG. 2, which will not be repeated here.

[00182] In the embodiment, the terminal device determines, by the reception schedule determination unit, that at least two downlink signals are to be received in the first detection window, and determines, by the receiving scheme determination unit, the receiving scheme of the at least two downlink signals based on the transmission information of the at least two downlink signals, so that the downlink signal receiving unit can receive at least one of the at least two downlink signals in the first detection window in the receiving scheme of the at least two downlink signals, thereby realizing the reception of the multiple downlink signals by the terminal device.

[00183] FIG. 4 is a schematic structural diagram of a communication device 400 according to an embodiment of the present disclosure. The communication device 400 shown in FIG. 4 includes a processor 410 which can invoke and execute a computer program from a memory to perform the methods in the embodiments of the present disclosure.

[00184] Optionally, as shown in FIG. 4, the communication device 400 can further include a memory 420. The processor 410 can invoke and execute the computer program

WHAT IS CLAIMED IS:

1. A downlink signal transmission method, comprising:

determining, by a terminal device, that at least two downlink signals are to be received in a first detection window;

determining, by the terminal device, a receiving scheme of the at least two downlink signals based on transmission information of the at least two downlink signals, wherein the transmission information comprises at least one of schedule information of the at least two downlink signals, transmission configurations of the at least two downlink signals, and information carried in the at least two downlink signals; and

receiving, by the terminal device, at least one downlink signal of the at least two downlink signals in the first detection window based on the receiving scheme of the at least two downlink signals.

2. The method according to claim 1, wherein:

physical resources occupied by different downlink signals in the at least two downlink signals overlap;

reference signals included in TCI states of different downlink signals in the at least two downlink signals are different;

reference signals with Quasi Co-Located (QCL) type D included in the TCI states of different downlink signals in the at least two downlink signals are different; and/or

the reference signals with QCL type D included in the TCI states of different downlink signals in the at least two downlink signals are not Quasi-Co-Located.

3. The method according to claim 1, wherein the transmission information comprises the scheduling information of the at least two downlink signals, and determining, by the terminal device, the receiving scheme of the at least two downlink signals based on the transmission information of the at least two downlink signals comprises:

determining, by the terminal device, the receiving scheme of the at least two downlink

signals based on a receiving order of DCIs that schedule the at least two downlink signals;

determining, by the terminal device, the receiving scheme of the at least two downlink signals based on a DCI format of the DCIs that schedule the at least two downlink signals;

determine, by the terminal device, the receiving scheme of the at least two downlink signals based on a scrambling scheme of Cyclic Redundancy Check (CRC) of the DCIs that schedule the at least two downlink signals;

determining, by the terminal device, the receiving scheme of the at least two downlink signals based on a search space or a control resource set including the DCIs that schedule the at least two downlink signals; and/or

determining, by the terminal device, the receiving scheme of each downlink signal of the at least two downlink signals based on a time offset between the DCI that schedules each downlink signal of the at least two downlink signals and the downlink signal scheduled by the DCI.

4. The method according to claim 3, wherein determining, by the terminal device, the receiving scheme of each downlink signal of the at least two downlink signals based on the time offset between the DCI that schedules each downlink signal of the at least two downlink signals and the downlink signal scheduled by the DCI comprises:

determining, by the terminal device, the receiving scheme of each downlink signal of the at least two downlink signals based on whether the time offset between the DCI that schedules each downlink signal of the at least two downlink signals and the downlink signal scheduled by the DCI is greater than a first preset time threshold or not.

5. The method according to claim 1, wherein the transmission information comprises the transmission configurations of the at least two downlink signals, and determining, by the terminal device, the receiving scheme of the at least two downlink signals based on the transmission information of the at least two downlink signals comprises:

determining, by the terminal device, the receiving scheme of the at least two downlink signals based on whether TCI states of the at least two downlink signals include a reference

signal with QCL type D or not;

determining, by the terminal device, the receiving scheme of the at least two downlink signals based on a type of a reference signal included in the TCI states of the at least two downlink signals;

determining, by the terminal device, the receiving scheme of the at least two downlink signals based on a type of the reference signal with QCL type D included in the TCI states of the at least two downlink signals;

determining, by the terminal device, the receiving scheme of the at least two downlink signals based on a mapping type of the at least two downlink signals;

determining, by the terminal device, the receiving scheme of the at least two downlink signals based on a duration of the at least two downlink signals;

determining, by the terminal device, the receiving scheme of the at least two downlink signals based on whether system information is carried in the at least two downlink signals or not; and/or

determining, by the terminal device, the receiving scheme of the at least two downlink signals based on whether high-layer signaling is carried in the at least two downlink signals or not.

6. The method according to claim 1, wherein determining, by the terminal device, the receiving scheme of the at least two downlink signals based on the transmission information of the at least two downlink signals comprises:

determining, by the terminal device based on the transmission information of the at least two downlink signals, whether to receive at least one of the at least two downlink signals; and/or

determining, by the terminal device, the transmission configuration for receiving the at least one of the at least two downlink signals based on the transmission information of the at least two downlink signals.

7. The method according to any one of claims 1 to 6, wherein determining, by the

terminal device, the receiving scheme of the at least two downlink signals based on the transmission information of the at least two downlink signals comprises:

determining, by the terminal device, a priority of each of the at least two downlink signals based on the transmission information of the at least two downlink signals; and

determining, by the terminal device, the receiving scheme of the at least two downlink signals based on the priority of each downlink signal,

wherein determining the receiving scheme of the at least two downlink signals based on the priority of each downlink signal comprises:

determining, by the terminal device, to receive the downlink signal with a higher priority and not to receive the downlink signal with a lower priority; and/or

determining, by the terminal device, to receive the at least two downlink signals by using the transmission configuration of the downlink signal with the higher priority.

8. The method according to any one of claims 1 to 6, wherein determining, by the terminal device, the receiving scheme of the at least two downlink signals based on the transmission information of the at least two downlink signals comprises:

determining, by the terminal device, the receiving scheme of the at least two downlink signals based on a number of antenna panels in the terminal device and the transmission information of the at least two downlink signals.

9. The method according to claim 8, wherein determining, by the terminal device, the receiving scheme of the at least two downlink signals based on the number of antenna panels in the terminal device and the transmission information of the at least two downlink signals comprises:

selecting, by the terminal device, a number K of downlink signals with highest priorities from a number N of downlink signals based on the transmission information of the N downlink signals when the number K of the antenna panels is less than the number N of the at least two downlink signals, and determining to receive the K downlink signals by using the transmission configurations of the K downlink signals, respectively, or

determining, by the terminal device, to receive the N downlink signals by using the transmission configurations of the N downlink signals, respectively, when the number K of the antenna panels is greater than or equal to the number N of the at least two downlink signals.

10. The method according to any one of claims 1 to 9, wherein the transmission configuration comprises:

a receiving beam used for receiving a corresponding downlink signal;

a reference signal with QCL type D used for receiving the corresponding downlink signal;

a TCI state used for receiving the corresponding downlink signal;

a mapping type assumed for receiving the corresponding downlink signal; and/or

a time window used for receiving the corresponding downlink signal.

11. The method according to any one of claims 1 to 9, wherein the downlink signal comprises a Physical Downlink Shared Channel (PDSCH), a Physical Downlink Control Channel (PDCCH) or a Channel State Information Reference Signal (CSI-RS).

12. The method according to any one of claims 1 to 9, wherein each of the at least two downlink signals is scheduled by a separate DCI.

13. The method according to any one of claims 1 to 9, wherein the first detection window comprises:

a slot;

at least two slots;

an Orthogonal Frequency Division Multiplexing (OFDM) symbol; or

at least two OFDM symbols.

14. A terminal device, comprising:

a reception scheduling determination unit configured to determine that at least two downlink signals are to be received in a first detection window;

a receiving scheme determination unit configured to determine a receiving scheme of the at least two downlink signals based on transmission information of the at least two downlink signals, wherein the transmission information comprises at least one of schedule information of the at least two downlink signals, transmission configurations of the at least two downlink signals, and information carried in the at least two downlink signals; and

a downlink signal receiving unit configured to receive at least one of the at least two downlink signals in the first detection window based on the receiving scheme of the at least two downlink signals.

15. A computer-readable storage medium for storing a computer program that causes a computer to perform the method according to any one of claims 1-13.