

## CLAIMS

1. A transmission mode determining method, applied to a terminal device, wherein the method comprises:

5 determining, based on a preset parameter comprised in first preset information, a transmission mode for a physical downlink shared channel PDSCH scheduled by one downlink control information DCI; wherein

the first preset information is carried in at least one of radio resource control RRC, a media access control control element MAC CE, and the DCI;

10 wherein the preset parameter comprises a first parameter and a third parameter, the first parameter is the number of slot-based repetitions of the PDSCH in time domain, and the third parameter is the number of transmission configuration indicator TCI states indicated by the DCI scheduling the PDSCH;

15 wherein the determining, based on a preset parameter comprised in first preset information, a transmission mode for a physical downlink shared channel PDSCH scheduled by one downlink control information DCI comprises:

when a value of the first parameter is greater than 1 and a value of the third parameter is 1, determining that the transmission mode for the PDSCH is an eleventh preset transmission scheme.

2. The method according to claim 1, wherein

20 the preset parameter further comprises at least one of a second parameter, a fourth parameter, and a fifth parameter, wherein the second parameter is a frequency-domain division mode for the PDSCH, the fourth parameter is the number of mini-slot based repetitions of the PDSCH in time domain, and the fifth parameter is the number of demodulation reference signal DMRS code division multiplexing groups CDM groups of the PDSCH.

3. The method according to claim 2, wherein

the preset parameter comprises the second parameter, and before the determining, based on a preset parameter comprised in first preset information, a transmission mode for the PDSCH, the method further comprises:

receiving fourth preset information from a network device, wherein the fourth preset information is used for configuring the second parameter, and the fourth preset information is carried in RRC; and

determining, based on the fourth preset information, the second parameter.

5        4. The method according to claim 2 or 3, wherein

a value of the second parameter is one of a first value, a second value, and a third value, wherein

the first value indicates that the frequency-domain division mode for the PDSCH is a first preset mode, wherein the first preset mode is a division mode that  
10        uses no frequency division multiplexing FDM transmission scheme;

the second value indicates that the frequency-domain division mode for the PDSCH is a second preset mode, wherein the second preset mode is one division mode in a preset frequency division multiplexing FDM transmission scheme; and

the third value indicates that the frequency-domain division mode for the  
15        PDSCH is a third preset mode, wherein the third preset mode is another division mode in the preset FDM transmission scheme.

5. The method according to claim 4, wherein

the determining, based on a preset parameter comprised in first preset information, a transmission mode for a physical downlink shared channel PDSCH  
20        scheduled by one downlink control information DCI further comprises at least one of the following determining methods:

when a value of the first parameter is 1, the value of the second parameter is the first value, a value of the third parameter is 1, and a value of the fourth parameter is 1, determining that the transmission mode for the PDSCH is a first  
25        preset transmission scheme;

when a value of the first parameter is 1, the value of the second parameter is the first value, a value of the third parameter is greater than 1, a value of the fourth parameter is 1, and a value of the fifth parameter is greater than 1, determining that the transmission mode for the PDSCH is a second preset transmission scheme;

when a value of the first parameter is 1, the value of the second parameter is the first value, a value of the third parameter is greater than 1, a value of the fourth parameter is greater than 1, and a value of the fifth parameter is greater than 1, determining that the transmission mode for the PDSCH is a third preset  
5 transmission scheme;

when a value of the first parameter is 1, the value of the second parameter is the first value, a value of the third parameter is greater than 1, a value of the fourth parameter is greater than 1, and a value of the fifth parameter is 1, determining that the transmission mode for the PDSCH is a fourth preset transmission scheme;

10 when a value of the first parameter is 1, the value of the second parameter is the first value, a value of the third parameter is greater than 1, and a value of the fourth parameter is 1, determining that the transmission mode for the PDSCH is a fifth preset transmission scheme;

when a value of the first parameter is 1, the value of the second parameter is  
15 the first value, a value of the third parameter is greater than 1, and a value of the fourth parameter is greater than 1, determining that the transmission mode for the PDSCH is a sixth preset transmission scheme;

when a value of the first parameter is 1, the value of the second parameter is the second value, a value of the third parameter is greater than 1, and a value of the  
20 fourth parameter is 1, determining that the transmission mode for the PDSCH is a seventh preset transmission scheme;

when a value of the first parameter is 1, the value of the second parameter is the second value, a value of the third parameter is greater than 1, and a value of the  
25 fourth parameter is greater than 1, determining that the transmission mode for the PDSCH is an eighth preset transmission scheme;

when a value of the first parameter is 1, the value of the second parameter is the third value, a value of the third parameter is greater than 1, and a value of the  
fourth parameter is 1, determining that the transmission mode for the PDSCH is a ninth preset transmission scheme;

30 when a value of the first parameter is 1, the value of the second parameter is the third value, a value of the third parameter is greater than 1, and a value of the

fourth parameter is greater than 1, determining that the transmission mode for the PDSCH is a tenth preset transmission scheme;

when a value of the first parameter is greater than 1, the value of the second parameter is the first value, a value of the third parameter is greater than 1, a value of the fourth parameter is 1, and a value of the fifth parameter is 1, determining that the transmission mode for the PDSCH is a twelfth preset transmission scheme;

when a value of the first parameter is greater than 1, the value of the second parameter is the first value, a value of the third parameter is greater than 1, a value of the fourth parameter is 1, and a value of the fifth parameter is greater than 1, determining that the transmission mode for the PDSCH is a thirteenth preset transmission scheme;

when a value of the first parameter is greater than 1, the value of the second parameter is the second value, a value of the third parameter is greater than 1, and a value of the fourth parameter is 1, determining that the transmission mode for the PDSCH is a fourteenth preset transmission scheme; and

when a value of the first parameter is greater than 1, the value of the second parameter is the third value, a value of the third parameter is greater than 1, and a value of the fourth parameter is 1, determining that the transmission mode for the PDSCH is a fifteenth preset transmission scheme.

6. The method according to claim 5, wherein the transmission scheme for the PDSCH satisfies at least one of the following:

the first preset transmission scheme is that one DCI schedules one PDSCH with no repetition in time domain, or that one DCI in a transmission scheme of scheduling multiple PDSCHs by multiple DCIs schedules one PDSCH;

the second preset transmission scheme is scheme 1a with no repetition in time domain;

the third preset transmission scheme is a scheme combining scheme 1a and scheme 3;

the fourth preset transmission scheme is scheme 3;

the fifth preset transmission scheme is scheme 1a;

the sixth preset transmission scheme is scheme 3;

the seventh preset transmission scheme is scheme 2a;

the eighth preset transmission scheme is a scheme combining scheme 2a and scheme 3;

5 the ninth preset transmission scheme is scheme 2b;

the tenth preset transmission scheme is a scheme combining scheme 2b and scheme 3;

the eleventh preset transmission scheme is that one DCI schedules one PDSCH with no repetition in time domain, or that one DCI in a transmission  
10 scheme of scheduling multiple PDSCHs by multiple DCIs schedules one PDSCH;

the twelfth preset transmission scheme is scheme 4;

the thirteenth preset transmission scheme is a scheme combining scheme 1a and scheme 4;

the fourteenth preset transmission scheme is a scheme combining scheme 2a  
15 and scheme 4; and

the fifteenth preset transmission scheme is a scheme combining scheme 2b and scheme 4.

7. The method according to claim 4, wherein

the determining, based on preset parameter comprised in first preset  
20 information, a transmission mode for a physical downlink shared channel PDSCH scheduled by one downlink control information DCI further comprises:

determining, based on the preset parameter, transmission configuration information of the PDSCH.

8. The method according to claim 7, wherein

25 the transmission configuration information comprises TCI states, and the determining, based on the preset parameter, transmission configuration information of the PDSCH comprises:

when a value of the first parameter is greater than 1, the value of the second parameter is the first value, a value of the third parameter is greater than 1, and a

value of the fourth parameter is 1, determining, based on preset TCI state sequence information, a TCI state for each slot-based repetitive transmission of the PDSCH in time domain; or

5 when a value of the first parameter is 1, the value of the second parameter is the first value, a value of the third parameter is greater than 1, and a value of the fourth parameter is greater than 1, determining, based on preset TCI state sequence information, a TCI state for each mini-slot-based repetitive transmission of the PDSCH in time domain.

10 9. The method according to claim 8, wherein before the determining, based on the preset parameter, transmission configuration information of the PDSCH, the method further comprises:

receiving second preset information from the network device, wherein the second preset information is used for configuring the preset TCI state sequence information; and

15 determining, based on the second preset information, the preset TCI state sequence information.

10. The method according to claim 9, wherein

20 if the preset TCI state sequence information comprises multiple TCI state sequences, before the determining, based on the preset parameter, transmission configuration information of the PDSCH, the method further comprises:

receiving third preset information from the network device, wherein the third preset information is used to indicate a target TCI state sequence, and the target TCI state sequence is one of the multiple TCI state sequences;

25 the determining, based on preset TCI state sequence information, a TCI state for each slot-based repetitive transmission of the PDSCH in time domain comprises: determining, based on the target TCI state sequence, a TCI state for each slot-based repetitive transmission of the PDSCH in time domain; and

the determining, based on preset TCI state sequence information, a TCI state for each mini-slot-based repetitive transmission of the PDSCH in time domain

comprises: determining, based on the target TCI state sequence, a TCI state for each mini-slot-based repetitive transmission of the PDSCH in time domain.

11. The method according to claim 7, wherein

the transmission configuration information comprises TCI states, and the  
5 determining, based on the preset parameter, transmission configuration information of the PDSCH comprises:

when a value of the first parameter is greater than 1, the value of the second parameter is the second value, and a value of the third parameter is greater than 1, determining that multiple TCI states indicated by a same DCI are used for each  
10 repetitive transmission of the PDSCH in time domain; or

when a value of the first parameter is greater than 1, the value of the second parameter is the third value, and a value of the third parameter is greater than 1, determining that multiple TCI states indicated by a same DCI are used for each repetitive transmission of the PDSCH in time domain; or

15 when the value of the second parameter is the second value, a value of the third parameter is greater than 1, and a value of the fourth parameter is greater than 1, determining that multiple TCI states indicated by a same DCI are used for each repetitive transmission of the PDSCH in time domain; or

when the value of the second parameter is the third value, a value of the third  
20 parameter is greater than 1, and a value of the fourth parameter is greater than 1, determining that multiple TCI states indicated by a same DCI are used for each repetitive transmission of the PDSCH in time domain.

12. The method according to claim 7, wherein

the transmission configuration information comprises TCI states, and the  
25 determining, based on the preset parameter, transmission configuration information of the PDSCH comprises:

when a value of the first parameter is 1, the value of the second parameter is the first value, a value of the third parameter is greater than 1, a value of the fourth parameter is 1, and a value of the fifth parameter is greater than 1, determining that

the TCI states for transmission of the PDSCH correspond to the DMRS CDM groups in the fifth parameter; or

when a value of the first parameter is 1, the value of the second parameter is the first value, a value of the third parameter is greater than 1, a value of the fourth parameter is greater than 1, and a value of the fifth parameter is greater than 1, determining that the TCI states for each repetitive transmission of the PDSCH in time domain correspond to the DMRS CDM groups in the fifth parameter; or

when a value of the first parameter is greater than 1, the value of the second parameter is the first value, a value of the third parameter is greater than 1, a value of the fourth parameter is 1, and a value of the fifth parameter is greater than 1, determining that the TCI states for each repetitive transmission of the PDSCH in time domain correspond to the DMRS CDM groups in the fifth parameter.

13. The method according to claim 12, wherein

a correspondence between the TCI states for the PDSCH and the DMRS CDM groups in the fifth parameter is configured by the network device; or

a correspondence between the TCI states for the PDSCH and the DMRS CDM groups of the in the fifth parameter is a preset one-to-one correspondence.

14. The method according to claim 7, wherein

the transmission configuration information comprises TCI states, and the determining, based on the preset parameter, transmission configuration information of the PDSCH comprises:

when a value of the first parameter is 1, the value of the second parameter is the second value, a value of the third parameter is greater than 1, and a value of the fourth parameter is 1, determining that the TCI states for each repetitive transmission of the PDSCH in time domain correspond to multiple frequency-domain resources; or

when a value of the first parameter is 1, the value of the second parameter is the second value, a value of the third parameter is greater than 1, and a value of the fourth parameter is greater than 1, determining that the TCI states for each

repetitive transmission of the PDSCH in time domain correspond to multiple frequency-domain resources; or

when a value of the first parameter is 1, the value of the second parameter is the third value, a value of the third parameter is greater than 1, and a value of the fourth parameter is 1, determining that the TCI states for each repetitive transmission of the PDSCH in time domain correspond to multiple frequency-domain resources; or

when a value of the first parameter is 1, the value of the second parameter is the third value, a value of the third parameter is greater than 1, and a value of the fourth parameter is greater than 1, determining that the TCI states for each repetitive transmission of the PDSCH in time domain correspond to multiple frequency-domain resources; or

when a value of the first parameter is greater than 1, the value of the second parameter is the second value, a value of the third parameter is greater than 1, and a value of the fourth parameter is 1, determining that the TCI states for each repetitive transmission of the PDSCH in time domain correspond to multiple frequency-domain resources; or

when a value of the first parameter is greater than 1, the value of the second parameter is the third value, a value of the third parameter is greater than 1, and a value of the fourth parameter is 1, determining that the TCI states for each repetitive transmission of the PDSCH in time domain correspond to multiple frequency-domain resources.

15. The method according to claim 14, wherein

a correspondence between the TCI states for the PDSCH and the multiple frequency-domain resources is configured by the network device; or

a correspondence between the TCI states for the PDSCH and the multiple frequency-domain resources is a preset one-to-one correspondence.

16. A terminal device, comprising a memory, a processor, and a wireless communication program stored in the memory and capable of running on the processor, wherein when the wireless communication program is executed by the

processor, the steps of the method according to any one of claims 1 to 15 are implemented.