

CLAIMS

1. A control channel receiving method, performed by a terminal, comprising:

determining a first time-domain symbol corresponding to a cell-specific reference signal (CRS), wherein the first time-domain symbol is part or all of time-domain symbols in time-domain resources where the CRS is located; and

determining, at least based on configuration information of the CRS, whether it is expected to receive a new radio physical downlink control channel (NR PDCCH) on the first time-domain symbol.

2. The method according to claim 1, wherein determining, at least based on the configuration information of the CRS, whether it is expected to receive the NR PDCCH on the first time-domain symbol comprises:

determining a number of a configured pattern of the CRS; and

determining that it is not expected to receive the NR PDCCH on the first time-domain symbol, in a case where the number of the configured pattern of the CRS is greater than or equal to a pattern number threshold.

3. The method according to claim 1, wherein determining, at least based on the configuration information of the CRS, whether it is expected to receive the NR PDCCH on the first time-domain symbol comprises:

determining a number of a configured pattern of the CRS and a number of ports corresponding to each configured pattern of the CRS respectively; and

determining that it is not expected to receive the NR PDCCH on the first time-domain symbol, in a case where the number of the configured pattern of the CRS is greater than or equal to a pattern number threshold, and a number of ports corresponding to at least one configured pattern of the CRS is greater than or equal to a port number threshold.

4. The method according to claim 1, wherein determining, at least based on the configuration information of the CRS, whether it is expected to receive the NR PDCCH on the first time-domain symbol comprises:

determining a number of resource elements (REs) occupied by the CRS on the first time-domain symbol and/or a first resource occupancy rate of the CRS on the first time-domain symbol based on the configuration information of the CRS; and

determining that it is not expected to receive the NR PDCCH on the first time-domain

symbol, in a case where the number of resource elements (REs) is greater than or equal to an RE number threshold, and/or the first resource occupancy rate is higher than or equal to a first occupancy rate threshold.

5. The method according to claim 4, wherein the RE number threshold and/or the first occupancy rate threshold are related to an NR PDCCH aggregation level and/or a format of downlink control information (DCI) in the NR PDCCH.

6. The method according to claim 1, wherein determining, at least based on the configuration information of the CRS, whether it is expected to receive the NR PDCCH on the first time-domain symbol comprises:

determining whether it is expected to receive the NR PDCCH on the first time-domain symbol based on the configuration information of the CRS and configuration information of the NR PDCCH.

7. The method according to claim 6, wherein determining whether it is expected to receive the NR PDCCH on the first time-domain symbol based on the configuration information of the CRS and the configuration information of the NR PDCCH comprises:

determining a number of a configured pattern of the CRS and an aggregation level of the NR PDCCH; and

determining that it is not expected to receive the NR PDCCH on the first time-domain symbol, in a case where the number of the configured pattern of the CRS is greater than or equal to a number threshold, and the aggregation level is less than or equal to a level threshold.

8. The method according to claim 6, wherein determining, at least based on the configuration information of the CRS, whether it is expected to receive the NR PDCCH on the first time-domain symbol comprises:

determining a second resource occupancy rate of the CRS in a control resource set (CORESET) of the NR PDCCH, wherein a second time-domain symbol in the CORESET overlaps the first time-domain symbol; and

determining that it is not expected to receive the NR PDCCH on the first time-domain symbol, in a case where the second resource occupancy rate is greater than or equal to a second occupancy rate threshold.

9. The method according to any one of claims 1 to 8, further comprising:

transmitting, to a network device, capability information used for indicating whether the terminal supports receiving the NR PDCCH on the first time-domain symbol in a case where the configuration information of the CRS meets a target configuration.

10. A control channel transmitting method, performed by a network device, comprising:
determining a first time-domain symbol corresponding to a cell-specific reference signal (CRS) configured for a terminal, wherein the first time-domain symbol is part or all of time-domain symbols in time-domain resources where the CRS is located; and

determining, at least based on configuration information of the CRS, whether to transmit a new radio physical downlink control channel (NR PDCCH) to the terminal on the first time-domain symbol.

11. The method according to claim 10, wherein determining, at least based on the configuration information of the CRS, whether to transmit the NR PDCCH to the terminal on the first time-domain symbol comprises:

determining a number of a configured pattern of the CRS; and

determining not to transmit the NR PDCCH to the terminal on the first time-domain symbol, in a case where the number of the configured pattern of the CRS is greater than or equal to a pattern number threshold.

12. The method according to claim 10, wherein determining, at least based on the configuration information of the CRS, whether to transmit the NR PDCCH to the terminal on the first time-domain symbol comprises:

determining a number of a configured pattern of the CRS and a number of ports corresponding to each configured pattern of the CRS respectively; and

determining not to transmit the NR PDCCH to the terminal on the first time-domain symbol, in a case where the number of the configured pattern of the CRS is greater than or equal to a pattern number threshold, and a number of ports corresponding to at least one configured pattern of the CRS is greater than or equal to a port number threshold.

13. The method according to claim 10, wherein determining, at least based on the configuration information of the CRS, whether to transmit the NR PDCCH to the terminal on the first time-domain symbol comprises:

determining a number of resource elements (REs) occupied by the CRS on the first time-domain symbol and/or a first resource occupancy rate of the CRS on the first time-domain

symbol based on the configuration information of the CRS; and

determining not to transmit the NR PDCCH to the terminal on the first time-domain symbol, in a case where the number of resource elements (REs) is greater than or equal to an RE number threshold, and/or the first resource occupancy rate is higher than or equal to a first occupancy rate threshold.

14. The method according to claim 13, wherein the RE number threshold and/or the first occupancy rate threshold are related to an NR PDCCH aggregation level and/or a format of downlink control information (DCI) in the NR PDCCH.

15. The method according to claim 10, wherein determining, at least based on the configuration information of the CRS, whether to transmit the NR PDCCH to the terminal on the first time-domain symbol comprises:

determining whether to transmit the NR PDCCH to the terminal on the first time-domain symbol based on the configuration information of the CRS and configuration information of the NR PDCCH.

16. The method according to claim 15, wherein determining whether to transmit the NR PDCCH to the terminal on the first time-domain symbol based on the configuration information of the CRS and the configuration information of the NR PDCCH comprises:

determining a number of a configured pattern of the CRS and an aggregation level of the NR PDCCH; and

determining not to transmit the NR PDCCH to the terminal on the first time-domain symbol, in a case where the number of the configured pattern of the CRS is greater than or equal to a number threshold, and the aggregation level is less than or equal to a level threshold.

17. The method according to claim 15, wherein determining, at least based on the configuration information of the CRS, whether to transmit the NR PDCCH to the terminal on the first time-domain symbol comprises:

determining a second resource occupancy rate of the CRS in a control resource set (CORESET), wherein a second time-domain symbol in the CORESET overlaps the first time-domain symbol; and

determining not to transmit the NR PDCCH to the terminal on the first time-domain symbol, in a case where the second resource occupancy rate is greater than or equal to a

second occupancy rate threshold.

18. The method according to any one of claims 10 to 17, further comprising:

receiving capability information transmitted by the terminal; and

determining whether to transmit the NR PDCCH on the first time-domain symbol, in a case where it is determined based on the capability information that the configuration information of the CRS meets a target configuration.

19. A communication device, comprising:

a processor; and

a memory configured to store a computer program,

wherein the processor is configured to execute the computer program to implement the control channel receiving method according to any one of claims 1 to 9 or the control channel transmitting method according to any one of claims 10 to 18.

20. A computer-readable storage medium, configured to store a computer program, wherein when the computer program is executed by a processor, the control channel receiving method according to any one of claims 1 to 9 or the control channel transmitting method according to any one of claims 10 to 18 is implemented.