

CLAIMS

1. A method for data transmission, comprising:

detecting, by a terminal device, Downlink Control Information, DCI, transmitted by a network device and configured to schedule data;

determining, by the terminal device, a numerology configured to transmit the data according to the detected DCI; and

by the terminal device, detecting the data transmitted by the network device or transmitting the data to the network device, according to the numerology and the DCI,

wherein determining, by the terminal device, the numerology configured to transmit the data according to the detected DCI comprises:

determining, by the terminal device, the numerology configured to transmit the data according to a Cyclic Redundancy Check, CRC, code of the detected DCI,

wherein the numerology comprises at least one of the following parameters:

a subcarrier spacing,

a number of subcarriers under a specific bandwidth,

a number of subcarriers in a Physical Resource Block, PRB,

an Orthogonal Frequency Division Multiplexing, OFDM, symbol length,

a number of points of Fourier transform or inverse Fourier transform configured to generate an OFDM signal,

a number of OFDM symbols in a Transmission Time Interval, TTI,

a number of TTIs in a specific time length, or

a length of a signal prefix.

2. The method of claim 1, wherein determining, by the terminal device, the numerology configured to transmit the data according to the detected DCI comprises:

determining, by the terminal device, the numerology configured to transmit the data from multiple predefined basic numerologies according to the detected DCI.

3. The method of claim 1 or 2, wherein determining, by the terminal device, the numerology configured to transmit the data according to the detected DCI comprises:

determining, by the terminal device, the numerology configured to transmit the data according to a DCI format of the detected DCI and a mapping relationship between

DCI formats and basic numerologies.

4. The method of claim 3, before determining, by the terminal device, the numerology configured to transmit the data according to the detected DCI, further comprising:

receiving, by the terminal device, indication information transmitted by the network device, the indication information being configured to indicate the mapping relationship between the DCI formats and the basic numerologies.

5. The method of claim 3 or 4, wherein at least one of the following applies:

different DCI formats correspond to different control information lengths, or
DCI format indication bits in different DCI formats indicate different information.

6. The method of claim 3 or 4, wherein, when different DCI formats correspond to different basic numerologies and the different DCI formats comprise a same control information field, at least one of the following applies:

the same control information field occupies different numbers of bits in different DCI formats; or

the same control information field indicates different contents in the different DCI formats.

7. The method of claim 6, wherein the control information field comprises at least one of the following:

a control information field configured to indicate physical resource allocation,
a control information field configured to indicate an Acknowledgment, ACK,/Negative Acknowledgment, NACK, feedback timing,

a control information field configured to indicate frequency hopping configuration,

a control information field configured to indicate a Modulation Coding Scheme, MCS,

a control information field configured to indicate a subframe structure, or

a control information field configured to indicate Demodulation Reference Signal, DMRS, configuration.

8. A terminal device, comprising:

- a detection module, configured to detect Downlink Control Information, DCI, transmitted by a network device and configured to schedule data;

- a determination module, configured to determine a numerology configured to transmit the data according to the DCI detected by the detection module; and

- a transmission module, configured to detect the data transmitted by the network device or transmit the data to the network device, according to the numerology determined by the determination module and the DCI detected by the detection module,

 - wherein the determination module is configured to:

 - determine the numerology configured to transmit the data according to a Cyclic Redundancy Check, CRC, code of the detected DCI,

 - wherein the numerology comprises at least one of the following parameters:

 - a subcarrier spacing,

 - a number of subcarriers under a specific bandwidth,

 - a number of subcarriers in a Physical Resource Block, PRB,

 - an Orthogonal Frequency Division Multiplexing, OFDM, symbol length,

 - a number of points of Fourier transform or inverse Fourier transform configured to generate an OFDM signal,

 - a number of OFDM symbols in a Transmission Time Interval, TTI,

 - a number of TTIs in a specific time length, or

 - a length of a signal prefix.

9. The terminal device of claim 8 wherein the determination module is configured to:

- determine the numerology configured to transmit the data from multiple predefined basic numerologies according to the detected DCI.

10. The terminal device of claim 8 or 9, wherein the determination module is configured to:

- determine the numerology configured to transmit the data according to a DCI format of the detected DCI and a mapping relationship between DCI formats and basic numerologies.

11. The terminal device of claim 10, wherein, before the determination module determines the numerology configured to transmit the data according to the detected DCI, the transmission module is further configured to:

receive indication information transmitted by the network device, the indication information being configured to indicate the mapping relationship between the DCI formats and the basic numerologies.

12. The terminal device of claim 10 or 11, wherein at least one of the following applies:

different DCI formats correspond to different control information lengths, or
DCI format indication bits in different DCI formats indicate different information.

13. The terminal device of claim 10 or 11, wherein, when different DCI formats correspond to different basic numerologies and the different DCI formats comprise the same control information field, at least one of the following applies:

the same control information field occupies different numbers of bits in different DCI; or

the same control information field indicates different contents in the different DCI formats.

14. The terminal device of claim 13, wherein the control information field comprises at least one of the following:

a control information field configured to indicate physical resource allocation,
a control information field configured to indicate an Acknowledgment, ACK,/Negative Acknowledgment, NACK, feedback timing,

a control information field configured to indicate frequency hopping configuration,

a control information field configured to indicate a Modulation Coding Scheme, MCS,

a control information field configured to indicate a subframe structure, or

a control information field configured to indicate Demodulation Reference Signal, DMRS, configuration.