

# COMMUNICATION METHOD, NETWORK EQUIPMENT, AND TERMINAL EQUIPMENT

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## TECHNICAL FIELD

The disclosure relates to the field of communication, and more particularly to a communication method, a network device and a terminal device.

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## BACKGROUND

Along with development of a communication technology, in 5th Generation  
15 (5G), a 5G system may support multiple configuration parameters. A terminal capability of a terminal device is related to a configuration parameter supported by the terminal device. For example, for a Long Term Evolution (LTE) system, a subcarrier width (15kHz) and symbol length ( $1/15\text{kHz}=66.67\mu\text{s}$ ) included in a basic parameter set are fixed. A 5G system may support various types of basic parameter sets and a  
20 terminal device in the 5G system may also support various types of basic parameter sets. For different basic parameter sets, the terminal device also has different terminal capabilities. However, in a conventional art, a terminal device, when reporting terminal capability information, does not consider how to report a terminal capability when the terminal device supports multiple configuration parameters, which may  
25 bring influence to communication efficiency.

## SUMMARY

30 The disclosure provides a communication method, a network device and a terminal device, so as to improve communication efficiency.

A first aspect provides a communication method, which may include that: a terminal device generates terminal capability information, the terminal capability information indicating a terminal capability of the terminal device under the condition  
35 that a first parameter is configured and/or a support capability of the terminal device for a second parameter; and the terminal device sends the terminal capability

information to a network device.

The terminal device sends the terminal capability information to the network device and the terminal capability information may indicate a terminal capability of the terminal device under the condition that different first parameters are configured and/or the support capability of the terminal device for the second parameter, so that more pertinent scheduling of the terminal device by a network is facilitated and communication efficiency and system scheduling efficiency of the network are improved.

In combination with the first aspect, in a first possible implementation mode of the first aspect, the first parameter may include at least one of first basic parameter sets or first carrier bandwidths, and/or the second parameter may include at least one of second basic parameter sets or second carrier bandwidths.

In combination with the first possible implementation mode of the first aspect, in a second possible implementation mode of the first aspect, the second basic parameter set may include M basic parameter sets, the terminal capability information may include first information and the first information may be configured to indicate a support capability of the terminal device for each set of the M basic parameter sets.

In combination with the first or second possible implementation mode of the first aspect, in a third possible implementation mode of the first aspect, the second carrier bandwidth may include N carrier bandwidths, the terminal capability information may include second information and the second information may be configured to indicate a support capability of the terminal device for each of the N carrier bandwidths.

In combination with any abovementioned possible implementation mode of the first aspect, in a fourth possible implementation mode of the first aspect, the terminal capability information may include third information, the third information may be configured to indicate a support capability of the terminal device for a second parameter combination and the second parameter combination may include the following parameters: the second basic parameter set and the second carrier bandwidth.

In combination with any abovementioned possible implementation mode of the first aspect, in a fifth possible implementation mode of the first aspect, the terminal capability information may include fourth information, the fourth

information may be configured to indicate a terminal capability of the terminal device under the condition that a first parameter combination is configured and the first parameter combination may include the following parameters: the first basic parameter set and the first carrier bandwidth.

5           In combination with the first aspect or any abovementioned possible implementation mode of the first aspect, in a sixth possible implementation mode of the first aspect, the operation that the terminal device sends the terminal capability information to the network device may include that: the terminal device sends the terminal capability information through Radio Resource Control (RRC) signaling.

10           A second aspect provides a communication method, which may include that: a network device sends an indication message to a terminal device, the indication message indicating the terminal device to send a terminal capability of the terminal device under the condition that a first parameter is configured and/or a support capability of the terminal device for a second parameter; and the network device  
15 receives terminal capability information from the terminal device, the terminal capability information indicating the terminal capability of the terminal device under the condition that the first parameter is configured and/or the support capability of the terminal device for the second parameter.

          The network device sends the indication message to the terminal device to  
20 indicate the terminal device to send the terminal capability of the terminal device under the condition that the first parameter is configured and/or the support capability of the terminal device for the second parameter to enable the network device to perform system scheduling or a related operation according to the terminal capability information, so that communication efficiency and system scheduling efficiency are  
25 improved.

          In combination with the second aspect, in a first possible implementation mode of the second aspect, the method is characterized in that the first parameter may include at least one of first basic parameter sets or first carrier bandwidths, and/or the second parameter may include at least one of second basic parameter sets or second  
30 carrier bandwidths.

          In combination with the first possible implementation mode of the second aspect, in a second possible implementation mode of the second aspect, the second basic parameter set may include M basic parameter sets, the indication message may

include first indication information and the first indication information may be configured to indicate the terminal device to send a support capability for each set of the M basic parameter sets.

5 In combination with the first or second possible implementation mode of the second aspect, in a third possible implementation mode of the second aspect, the second carrier bandwidth may include N carrier bandwidths, the indication message may include second indication information and the second indication information may be configured to indicate the terminal device to send a support capability for each of the N carrier bandwidths.

10 In combination with any abovementioned possible implementation mode of the second aspect, in a fourth possible implementation mode of the second aspect, the indication message may include third indication information, the third indication information may be configured to indicate the terminal device to send a support capability for a second parameter combination and the second parameter combination  
15 may include the following parameters: the second basic parameter set and the second carrier bandwidth.

In combination with any abovementioned possible implementation mode of the second aspect, in a fifth possible implementation mode of the second aspect, the indication message may include fourth indication information, the fourth indication  
20 information may be configured to indicate the terminal device to send a terminal capability of the terminal device under the condition that a first parameter combination is configured and the first parameter combination may include the following parameters: the first basic parameter set and the first carrier bandwidth.

In combination with the second aspect or any abovementioned possible  
25 implementation mode of the second aspect, in a sixth possible implementation mode of the second aspect, the operation that the network device receives the terminal capability information from the terminal device may include that: the network device receives the terminal capability information through RRC signaling.

A third aspect provides a terminal device, which may include: a generation  
30 module, configured to generate terminal capability information, the terminal capability information indicating a terminal capability of the terminal device under the condition that a first parameter is configured and/or a support capability of the terminal device for a second parameter; and a sending module, configured to send the

terminal capability information to a network device.

A fourth aspect provides a network device, which may include: a sending module, configured to send an indication message to a terminal device, the indication message indicating the terminal device to send a terminal capability of the terminal device under the condition that a first parameter is configured and/or a support capability of the terminal device for a second parameter; and a receiving module, configured to receive terminal capability information from the terminal device, the terminal capability information indicating the terminal capability of the terminal device under the condition that the first parameter is configured and/or the support capability of the terminal device for the second parameter.

A fifth aspect provides a terminal device, which includes: a memory, configured to store a program; a transceiver, configured to communicate with another device; and a processor, configured to execute the program in the memory. When the program is executed, the processor is configured to generate terminal capability information, the terminal capability information indicating a terminal capability of the terminal device under the condition that a first parameter is configured and/or a support capability of the terminal device for a second parameter, and is configured to send, through the transceiver 620, the terminal capability information to a network device.

A sixth aspect provides a network device, which includes: a memory, configured to store a program; a transceiver, configured to communicate with another device; and a processor, configured to execute the program in the memory. When the program is executed, the processor is configured to send, through the transceiver, an indication message to a terminal device, the indication message indicating the terminal device to send a terminal capability of the terminal device under the condition that a first parameter is configured and/or a support capability of the terminal device for a second parameter, and is configured to receive, through the transceiver, terminal capability information from the terminal device, the terminal capability information indicating the terminal capability of the terminal device under the condition that the first parameter is configured and/or the support capability of the terminal device for the second parameter.

A seventh aspect provides a computer chip, which includes an input interface, an output interface, at least one processor and a memory. The processor is configured

to execute a code in the memory. When the code is executed, the processor may implement each process executed by a terminal device in a communication method in the first aspect and each implementation mode.

5 An eighth aspect provides a computer chip, which includes an input interface, an output interface, at least one processor and a memory. The processor is configured to execute a code in the memory. When the code is executed, the processor may implement each process executed by a network device in a communication method in the second aspect and each implementation mode.

10 A ninth aspect provides a computer-readable storage medium, which stores a program, the program enabling a terminal device to execute any communication method in the first aspect and each implementation mode thereof.

A tenth aspect provides a computer-readable storage medium, which stores a program, the program enabling a network device to execute any communication method in the second aspect and each implementation mode thereof.

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## **BRIEF DESCRIPTION OF DRAWINGS**

20 In order to describe the technical solutions of the embodiments of the disclosure more clearly, the drawings required to be used in the embodiments of the disclosure will be simply introduced below. It is apparent that the drawings described below are only some embodiments of the disclosure. Other drawings may further be obtained by those of ordinary skill in the art according to these drawings without creative work.

25 FIG. 1 is a schematic diagram of an application scenario according to an embodiment of the disclosure.

FIG. 2 is a schematic diagram of a communication method according to an embodiment of the disclosure.

30 FIG. 3 is a schematic diagram of a communication method according to another embodiment of the disclosure.

FIG. 4 is a schematic structure diagram of a terminal device according to another embodiment of the disclosure.

FIG. 5 is a schematic structure diagram of a network device according to an embodiment of the disclosure.

FIG. 6 is a schematic structure diagram of a terminal device according to another embodiment of the disclosure.

FIG. 7 is a schematic structure diagram of a network device according to another embodiment of the disclosure.

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## DETAILED DESCRIPTION

The technical solutions in the embodiments of the disclosure will be clearly  
10 and completely described below in combination with the drawings in the  
embodiments of the disclosure. It is apparent that the described embodiments are not  
all embodiments but part of embodiments of the disclosure. All other embodiments  
obtained by those of ordinary skill in the art on the basis of the embodiments in the  
disclosure without creative work shall fall within the scope of protection of the  
15 disclosure.

It is to be understood that the technical solutions of the embodiments of the  
disclosure may be applied to various communication systems, for example, a Global  
System of Mobile Communication (GSM), a Code Division Multiple Access (CDMA)  
system, a Wideband Code Division Multiple Access (WCDMA) system, a General  
20 Packet Radio Service (GPRS), an LTE system, an LTE Frequency Division Duplex  
(FDD) system, LTE Time Division Duplex (TDD), a Universal Mobile  
Telecommunication System (UMTS), a Worldwide Interoperability for Microwave  
Access (WiMAX) communication system, a 5G system or a New Radio (NR) system.

In the embodiments of the disclosure, terms "network" and "system" are often  
25 used alternately and their meanings may be understood by those skilled in the art. A  
terminal device involved in the embodiments of the disclosure may include various  
handheld devices, vehicle-mounted devices, wearable devices, computing devices or  
other processing devices connected to wireless modems, which have a wireless  
communication function, as well as User Equipment (UE), Mobile Stations (MSs),  
30 terminals, terminal devices and the like in various forms. For convenient description,  
the devices mentioned above are collectively referred to as terminal devices in the  
embodiments of the disclosure.

In the embodiments of the disclosure, a network device may be a device  
configured to communicate with the terminal device. The network device may be a

Base Transceiver Station (BTS) in the GSM or the CDMA, may also be a NodeB (NB) in the WCDMA system, may also be an Evolutional Node B (eNB or eNodeB) in the LTE system and may further be a wireless controller in a Cloud Radio Access Network (CRAN) scenario, or the network device may be a relay station, an access point, a vehicle-mounted device, a wearable device, a network device in the future 5G network, a network device in the future evolved PLMN or the like. There are no limits made in the embodiments of the disclosure.

It is to be understood that a basic parameter set in the embodiments of the disclosure may also be called a numerology and it may refer to most basic parameters of a communication system (for example, a cellular system). For example, for an LTE system or a 5G system, numerology may include a system subcarrier spacing, a symbol width and the like.

FIG. 1 is a schematic diagram of an application scenario of a communication method according to an embodiment of the disclosure. As shown in FIG. 1, the application scenario may include a network device and a terminal device. The network device may communicate with the terminal device through a radio link.

FIG. 2 illustrates a communication method 200 according to an embodiment of the disclosure. The method 200 may be executed by a terminal device. The method 200 includes the following steps.

In S201, the terminal device generates terminal capability information, the terminal capability information indicating a terminal capability of the terminal device under the condition that a first parameter is configured and/or a support capability of the terminal device for a second parameter.

In a wireless network, different technologies have different requirements on the terminal device. For example, for a carrier aggregation technology in an LTE system, the number of carriers supported by a terminal for aggregation includes: two-carrier aggregation, three-carrier aggregation and the like, and different carrier aggregation and carrier numbers involved therein are supported on different bands. Therefore, the terminal device is required to report its support capabilities for various technologies to a network side, namely reporting a terminal capability. For example, for the carrier aggregation technology, the terminal device is required to report the number of carriers supported on various bands for aggregation (the number of carriers to be aggregated) and carrier aggregation types (uplink or downlink) to a network

device.

Each of the first parameter and the second parameter may include one or more parameters. The terminal device may have different corresponding terminal capabilities (UE capabilities) under the condition that different first parameters are configured and, meanwhile, the terminal device may support one or more second parameters. For example, the same terminal device may support multiple basic parameter sets and, under the condition that different basic parameter sets are configured for the terminal device, the terminal device also has different terminal capabilities. The terminal device may report the corresponding terminal capability of the terminal device when each basic parameter set is configured through the terminal capability information. Or, the terminal device may report support capabilities of the terminal device for different basic parameter sets through the terminal capability information.

Optionally, the first parameter may include at least one of first basic parameter sets or first carrier bandwidths. And/or the second parameter may include at least one of second basic parameter sets or second carrier bandwidths. It is to be understood that the first parameter and the second parameter may be parameters which are at least partially the same. Or, the first parameter and the second parameter may also be different parameters. For example, the first basic parameter set and the second basic parameter set may be basic parameter sets which are at least partially the same or different and the first carrier bandwidth and the second carrier bandwidth may also be carrier bandwidths which are at least partially the same or different.

Optionally, the first basic parameter set and the first carrier bandwidth may be a basic parameter set and carrier bandwidth supported by the terminal device. The first basic parameter set and the first carrier bandwidth may refer to one or more basic parameter sets and one or more carrier bandwidths. The first basic parameter set and the second carrier bandwidth may be all basic parameter sets and all carrier bandwidths supported by the terminal device and may also be part of basic parameter sets and part of carrier bandwidths supported by the terminal device.

Optionally, the terminal capability of the terminal device under the condition that the first parameter is configured may be a corresponding terminal capability under the condition that the first basic parameter set and/or the first carrier bandwidth are/is configured for the terminal device. For example, the terminal capability of the

terminal device under the condition that the first parameter is configured may be a terminal capability of the terminal device under the condition that each basic parameter set in multiple basic parameter sets is configured, or a terminal capability of the terminal device under the condition that each carrier bandwidth in multiple carrier bandwidths is configured, or a terminal capability of the terminal device under the condition that a combination of the first basic parameter set and the first carrier bandwidth is configured.

It is to be understood that the terminal device corresponds to different terminal capabilities under the condition that different basic parameter sets are configured. The terminal device also corresponds to different terminal capabilities (for example, carrier aggregation support capabilities) under the condition that different carrier bandwidths are configured.

Optionally, the terminal capability information may further include information about the support capability of the terminal device for the second parameter. For example, the terminal capability information may include information indicating a support capability of the terminal device for the second basic parameter set and/or the second carrier bandwidth.

Optionally, the terminal capability may also be called a UE capability.

In S202, the terminal device sends the terminal capability information to a network device.

In the embodiment of the disclosure, the terminal device sends the terminal capability information to the network device and the terminal capability information may indicate a terminal capability of the terminal device under the condition that different first parameters are configured and/or the support capability of the terminal device for the second parameter, so that more pertinent scheduling of the terminal device by a network is facilitated and communication efficiency and system scheduling efficiency of the network are improved.

Optionally, in the method 200, before the terminal device receives the terminal capability information, the terminal device may receive an indication message sent by the network device, the indication message indicating the terminal device to send the terminal capability of the terminal device under the condition that the first parameter is configured and/or the support capability of the terminal device for the second parameter. The terminal device sends the terminal capability information to the

network device according to the indication message.

Optionally, in the method 200, the second basic parameter set may include M basic parameter sets, the terminal capability information includes first information for indicating a support capability of the terminal device for each set of the M basic parameter sets, wherein  $M \geq 1$ .

In the embodiment of the disclosure, the terminal device may indicate basic parameter sets supported and/or not supported by the terminal device in the terminal capability information to improve the communication efficiency of the terminal device.

Optionally, the indication message received by the terminal device from the network device may include first indication information and the first indication information may be configured to indicate the terminal device to send the support capability of the terminal device for each set of the M basic parameter sets.

For example, the terminal device may send the terminal capability information through RRC signaling. For example, the terminal device may report the basic parameter sets supported by the terminal device through the RRC signaling in an enumeration manner. Or, the terminal device may also report the terminal capability information to the network device in a bitmap form according to a basic parameter set list configured by the network device in advance. Each table entry in the list may represent a basic parameter set which may be supported by the network device and the terminal device may determine each basic parameter set supported or not supported by the terminal device in the list and indicate the basic parameter sets supported and/or not supported by the terminal device to the network device through a bitmap, each bit in the bitmap corresponding to a basic parameter set in the list. For example, when a bit is set to be 1, it may be indicated that the terminal device supports the basic parameter set corresponding to the bit and, when the bit is set to be 0, it may be indicated that the terminal device does not support the basic parameter set corresponding to the bit. Or, another method may be adopted to send the terminal capability information to the network device. There are no limits made thereto in the embodiment of the disclosure.

Optionally, in the method 200, the terminal capability information may include information about the corresponding terminal capability of the terminal device under the condition that the first basic parameter set is configured. For example, as shown in

Table 1, the terminal device may report the corresponding terminal capability of the terminal device under the condition that the first basic parameter set is configured to the network device according to Table 1.

Table 1

| Numerology   | UE capability |
|--------------|---------------|
| Numerology 1 |               |
| Numerology 2 |               |
| ...          | ...           |

5            Optionally, in the method 200, the second carrier bandwidth may include N carrier bandwidths, the terminal capability information includes second information for indicating a support capability of the terminal device for each of the N carrier bandwidths, wherein  $N \geq 1$ .

10           In the embodiment of the disclosure, the terminal device may indicate carrier bandwidths supported and/or not supported by the terminal device in the terminal capability information to enable the network device to perform system scheduling or another operation according to the terminal capability information, so that the communication efficiency is improved.

15           Optionally, the indication message received by the terminal device from the network device may include second indication information and the second indication information may be configured to indicate the terminal device to send the support capability of the terminal device for each of the N carrier bandwidths.

20           For example, the terminal device may also adopt the RRC signaling to send the second carrier bandwidth supported by the terminal device to the network device in the enumeration manner. Or, similar to the above, the terminal device may also indicate a support capability of the terminal device for the second carrier bandwidth to the network device through a bitmap according to a list configured by the network device. For example, each table entry in the list may represent a carrier bandwidth supported by the network device and each bit in the bitmap may correspond to a carrier bandwidth in the list. A bit may be assigned with 1 or 0 to indicate whether the terminal device supports the corresponding carrier bandwidth or not.

25           Optionally, in the method 200, the terminal capability information may include information about the corresponding terminal capability of the terminal device under the condition that the first carrier bandwidth is configured. For example, as shown in

Table 2, the terminal device may report the corresponding terminal capability of the terminal device under the condition that the first carrier bandwidth is configured to the network device according to Table 2.

Table 2

| Carrier bandwidth   | UE capability |
|---------------------|---------------|
| Carrier bandwidth i |               |
| ...                 | ...           |
| Carrier bandwidth j |               |

5            Optionally, in the method 200, the terminal capability information includes third information for indicating a support capability of the terminal device for a second parameter combination and the second parameter combination includes the second basic parameter set and the second carrier bandwidth.

10           In the embodiment of the disclosure, the terminal device may indicate combinations of basic parameter sets and carrier bandwidths supported and/or not supported by the terminal device in the terminal capability information to enable the network device to perform system scheduling or another operation according to the terminal capability information, so that the communication efficiency is improved.

15           Optionally, the indication message received by the terminal device from the network device may include third indication information, the third indication information may be configured to indicate the terminal device to send a support capability of the terminal device for a second parameter combination and the second parameter combination includes the second basic parameter set and the second carrier bandwidth.

20           For example, the terminal device may also adopt the RRC signaling to send the combination of the second basic parameter set and second carrier bandwidth supported by the terminal device to the network device in the enumeration manner. Or, the terminal device may also indicate a support capability of the terminal device for the combination of the second basic parameter set and the second carrier bandwidth to  
25           the network device through a bitmap according to a list configured by the network device. For example, a table entry in the list may represent a second parameter set supported by the network device and each bit in the bitmap may correspond to a second parameter set in the list. A bit may be assigned with 1 or 0 to indicate whether the terminal device supports the corresponding second parameter set or not.

Optionally, in the method 200, the terminal capability information includes fourth information for indicating a terminal capability of the terminal device under the condition that a first parameter combination is configured and the first parameter combination includes the first basic parameter set and the first carrier bandwidth.

5 In the embodiment of the disclosure, the terminal device may indicate the terminal capability of the terminal device under the condition that the first parameter combination is configured in the terminal capability information to enable the network device to perform system scheduling or another operation according to the terminal capability information, so that the communication efficiency is improved.

10 Optionally, the indication message received by the terminal device from the network device may include fourth indication information, the fourth indication information may be configured to indicate the terminal device to send a support capability of the terminal device for the first parameter combination and the first parameter combination includes the first basic parameter set and the first carrier  
15 bandwidth.

When different combinations of basic parameter sets and carrier bandwidths are configured, the terminal device has different support capabilities for a certain terminal capability. For example, 1024QAM may be supported by the terminal device only when a specific combination of a basic parameter set and a carrier bandwidth is  
20 configured for the terminal device. Therefore, as shown in Table 3, the terminal device may report terminal device capabilities for different combinations of basic parameter sets and carrier bandwidths. For example, for some specific technologies supported by the terminal device, the terminal device may report terminal capabilities of the terminal device under different combinations of basic parameter sets and carrier  
25 bandwidths to the network device in a form of Table 3.

Table 3

| Numerology   | Carrier bandwidth   | UE capability |
|--------------|---------------------|---------------|
| Numerology 1 | Carrier bandwidth i |               |
|              | ...                 |               |
|              | Carrier bandwidth j |               |
| Numerology 2 | Carrier bandwidth m |               |
|              | ...                 |               |

|     |                     |     |
|-----|---------------------|-----|
|     | Carrier bandwidth n |     |
| ... | ...                 | ... |

FIG. 3 illustrates a communication method 300 according to an embodiment of the disclosure. The method may be executed by a network device. Contents the same as or similar to FIG. 2 in the method shown in FIG. 3 may refer to related descriptions about the method of FIG. 2 and will not be elaborated herein. The method 300 includes the following steps.

In S301, the network device sends an indication message to a terminal device, the indication message indicating the terminal device to send a terminal capability of the terminal device under the condition that a first parameter is configured and/or a support capability of the terminal device for a second parameter.

In S302, the network device receives terminal capability information from the terminal device, the terminal capability information indicating the terminal capability of the terminal device under the condition that the first parameter is configured and/or the support capability of the terminal device for the second parameter.

In the embodiment of the disclosure, the network device sends the indication message to the terminal device to indicate the terminal device to send the terminal capability of the terminal device under the condition that the first parameter is configured and/or the support capability of the terminal device for the second parameter to enable the network device to perform system scheduling or a related operation according to the terminal capability information, so that communication efficiency and system scheduling efficiency are improved.

Optionally, the first parameter includes at least one of first basic parameter sets or first carrier bandwidths, and/or the second parameter includes at least one of second basic parameter sets or second carrier bandwidths.

Optionally, the second basic parameter sets include M basic parameter sets, the indication message includes first indication information for indicating the terminal device to send a support capability for each set of the M basic parameter sets.

Optionally, the second carrier bandwidths include N carrier bandwidths, the indication message includes second indication information for indicating the terminal device to send a support capability for each of the N carrier bandwidths.

Optionally, the indication message includes third indication information for indicating the terminal device to send a support capability for a second parameter

combination and the second parameter combination includes the second basic parameter set and the second carrier bandwidth.

Optionally, the indication message includes fourth indication information for indicating the terminal device to send a terminal capability of the terminal device under the condition that a first parameter combination is configured and the first parameter combination includes the first basic parameter set and the first carrier bandwidth.

Optionally, the operation that the network device receives the terminal capability information from the terminal device includes that: the network device receives the terminal capability information through RRC signaling.

The communication method of the embodiments of the disclosure is described above in combination with FIG. 1 to FIG. 3, and a terminal device and network device of the embodiments of the disclosure will be described below in combination with FIG. 4 to FIG. 7 in detail.

FIG. 4 is a schematic block diagram of a terminal device according to an embodiment of the disclosure. The terminal device may be configured to execute the steps executed by the terminal device in the method 200 or the method 300. The terminal device 400 shown in FIG. 4 includes a generation module 410 and a sending module 420.

The generation module 410 is configured to generate terminal capability information, the terminal capability information indicating a terminal capability of the terminal device 400 under the condition that a first parameter is configured and/or a support capability of the terminal device 400 for a second parameter.

The sending module 420 is configured to send the terminal capability information to a network device.

In the embodiment of the disclosure, the terminal device sends the terminal capability information to the network device and the terminal capability information may indicate a terminal capability of the terminal device under the condition that different first parameters are configured and/or the support capability of the terminal device for the second parameter, so that more pertinent scheduling of the terminal device by a network is facilitated and communication efficiency and system scheduling efficiency of the network are improved.

Optionally, the first parameter includes at least one of first basic parameter

sets or first carrier bandwidths, and/or the second parameter includes at least one of second basic parameter sets or second carrier bandwidths.

Optionally, the second basic parameter sets include M basic parameter sets, the terminal capability information includes first information for indicating a support  
5 capability of the terminal device 400 for each set of the M basic parameter sets.

Optionally, the second carrier bandwidths include N carrier bandwidths, the terminal capability information includes second information for indicating a support capability of the terminal device 400 for each of the N carrier bandwidths.

Optionally, the terminal capability information includes third information for  
10 indicating a support capability of the terminal device 400 for a second parameter combination and the second parameter combination includes the second basic parameter set and the second carrier bandwidth.

Optionally, the terminal capability information includes fourth information for indicating a terminal capability of the terminal device 400 under the condition that a  
15 first parameter combination is configured and the first parameter combination includes the first basic parameter set and the first carrier bandwidth.

Optionally, the sending module 420 is specifically configured to send the terminal capability information through RRC signaling.

FIG. 5 is a schematic block diagram of a network device according to an  
20 embodiment of the disclosure. The network device may be configured to execute the steps executed by the network device in the method 200 or the method 300. The network device 500 shown in FIG. 5 includes a sending module 510 and a receiving module 520.

The sending module 510 is configured to send an indication message to a  
25 terminal device, the indication message indicating the terminal device to send a terminal capability of the terminal device under the condition that a first parameter is configured and/or a support capability of the terminal device for a second parameter.

The receiving module 520 is configured to receive terminal capability  
information from the terminal device, the terminal capability information indicating  
30 the terminal capability of the terminal device under the condition that the first parameter is configured and/or the support capability of the terminal device for the second parameter.

In the embodiment of the disclosure, the network device sends the indication

message to the terminal device to indicate the terminal device to send the terminal capability of the terminal device under the condition that the first parameter is configured and/or the support capability of the terminal device for the second parameter to enable the network device to perform system scheduling or a related operation according to the terminal capability information, so that communication efficiency and system scheduling efficiency are improved.

Optionally, the first parameter includes at least one of first basic parameter sets or first carrier bandwidths, and/or the second parameter includes at least one of second basic parameter sets or second carrier bandwidths.

Optionally, the second basic parameter sets include M basic parameter sets, the indication message includes first indication information for indicating the terminal device to send a support capability for each set of the M basic parameter sets.

Optionally, the second carrier bandwidths include N carrier bandwidths, the indication message includes second indication information for indicating the terminal device to send a support capability for each of the N carrier bandwidths.

Optionally, the network device is characterized in that the indication message includes third indication information for indicating the terminal device to send a support capability for a second parameter combination and the second parameter combination includes the second basic parameter set and the second carrier bandwidth.

Optionally, the indication message includes fourth indication information for indicating the terminal device to send a terminal capability of the terminal device under the condition that a first parameter combination is configured and the first parameter combination includes the first basic parameter set and the first carrier bandwidth.

Optionally, the receiving module is specifically configured to receive the terminal capability information through RRC signaling.

FIG. 6 is a schematic block diagram of a terminal device according to an embodiment of the disclosure. The terminal device may be configured to execute the steps executed by the terminal device in the method 200 or the method 300. The terminal device 600 shown in FIG. 6 includes a memory 610, a transceiver 620 and a processor 630.

The memory 610 is configured to store a program.

The transceiver 620 is configured to communicate with another device.

The processor 630 is configured to execute the program in the memory 610. When the program is executed, the processor 630 is configured to generate terminal capability information, the terminal capability information indicating a terminal capability of the terminal device 600 under the condition that a first parameter is  
5 configured and/or a support capability of the terminal device 600 for a second parameter, and is configured to send, through the transceiver 620, the terminal capability information to a network device.

In the embodiment of the disclosure, the terminal device sends the terminal capability information to the network device and the terminal capability information  
10 may indicate a terminal capability of the terminal device under the condition that different first parameters are configured and/or the support capability of the terminal device for the second parameter, so that more pertinent scheduling of the terminal device by a network is facilitated and communication efficiency and system scheduling efficiency of the network are improved.

15 Optionally, the first parameter includes at least one of first basic parameter sets or first carrier bandwidths, and/or the second parameter includes at least one of second basic parameter sets or second carrier bandwidths.

Optionally, the second basic parameter sets include M basic parameter sets, the terminal capability information includes first information for indicating a support  
20 capability of the terminal device 600 for each set of the M basic parameter sets.

Optionally, the second carrier bandwidths include N carrier bandwidths, the terminal capability information includes second information for indicating a support capability of the terminal device 600 for each of the N carrier bandwidths.

Optionally, the terminal capability information includes third information for  
25 indicating a support capability of the terminal device 600 for a second parameter combination and the second parameter combination includes the second basic parameter set and the second carrier bandwidth.

Optionally, the terminal capability information includes fourth information for indicating a terminal capability of the terminal device 600 under the condition that a  
30 first parameter combination is configured and the first parameter combination includes the first basic parameter set and the first carrier bandwidth.

Optionally, the processor 630 is specifically configured to send, through the transceiver 620, the terminal capability information through RRC signaling.

FIG. 7 is a schematic block diagram of a network device according to an embodiment of the disclosure. The network device may be configured to execute the steps executed by the network device in the method 200 or the method 300. The network device 700 shown in FIG. 7 includes a memory 710, a transceiver 720 and a processor 720.

The memory 710 is configured to store a program.

The transceiver 720 is configured to communicate with another device.

The processor 730 is configured to execute the program in the memory 710. When the program is executed, the processor 730 is configured to send, through the transceiver 720, an indication message to a terminal device, the indication message indicating the terminal device to send a terminal capability of the terminal device under the condition that a first parameter is configured and/or a support capability of the terminal device for a second parameter, and is configured to receive, through the transceiver 720, terminal capability information from the terminal device, the terminal capability information indicating the terminal capability of the terminal device under the condition that the first parameter is configured and/or the support capability of the terminal device for the second parameter.

In the embodiment of the disclosure, the network device sends the indication message to the terminal device to indicate the terminal device to send the terminal capability of the terminal device under the condition that the first parameter is configured and/or the support capability of the terminal device for the second parameter to enable the network device to perform system scheduling or a related operation according to the terminal capability information, so that communication efficiency and system scheduling efficiency are improved.

Optionally, the first parameter includes at least one of first basic parameter sets or first carrier bandwidths, and/or the second parameter includes at least one of second basic parameter sets or second carrier bandwidths.

Optionally, the second basic parameter sets include M basic parameter sets, the indication message includes first indication information for indicating the terminal device to send a support capability for each set of the M basic parameter sets.

Optionally, the second carrier bandwidths include N carrier bandwidths, the indication message includes second indication information for indicating the terminal device to send a support capability for each of the N carrier bandwidths.

Optionally, the indication message includes third indication information for indicating the terminal device to send a support capability for a second parameter combination and the second parameter combination includes the second basic parameter set and the second carrier bandwidth.

5            Optionally, the indication message includes fourth indication information for indicating the terminal device to send a terminal capability of the terminal device under the condition that a first parameter combination is configured and the first parameter combination includes the first basic parameter set and the first carrier bandwidth.

10           Optionally, a receiving module is specifically configured to receive the terminal capability information through RRC signaling.

             It is to be understood that the processor in the embodiment of the disclosure may be an integrated circuit chip and has a signal processing capability. In an implementation process, each step of the method embodiments may be completed by  
15           an integrated logical circuit of hardware in the processor or an instruction in a software form. The processor may be a universal processor, a Digital Signal Processor (DSP), an Application Specific Integrated Circuit (ASIC), a Field Programmable Gate Array (FPGA) or another programmable logical device, discrete gate or transistor logical device and discrete hardware component. Each method, step and logical block  
20           diagram disclosed in the embodiments of the disclosure may be implemented or executed. The universal processor may be a microprocessor or the processor may also be any conventional processor and the like. The steps of the methods disclosed in combination with the embodiments of the disclosure may be directly embodied to be executed and completed by a hardware decoding processor or executed and completed  
25           by a combination of hardware and software modules in the decoding processor. The software module may be located in a mature storage medium in this field such as a Random Access Memory (RAM), a flash memory, a Read-Only Memory (ROM), a Programmable ROM (PROM) or Electrically Erasable PROM (EEPROM) and a register. The storage medium is located in a memory, and the processor reads  
30           information in the memory, and completes the steps of the methods in combination with hardware.

             It can be understood that the memory in the embodiment of the disclosure may be a volatile memory or a nonvolatile memory, or may include both the volatile and

nonvolatile memories. wherein the nonvolatile memory may be a ROM, a PROM, an Erasable PROM (EPROM), an EEPROM or a flash memory. The volatile memory may be a RAM, and is used as an external high-speed cache. It is exemplarily but unlimitedly described that RAMs in various forms may be adopted, such as a Static  
5 RAM (SRAM), a Dynamic RAM (DRAM), a Synchronous DRAM (SDRAM), a Double Data Rate SDRAM (DDRSDRAM), an Enhanced SDRAM (ESDRAM), a Synchlink DRAM (SLDRAM) and a Direct Rambus RAM (DR RAM). It is to be noted that the memory of a system and method described in the disclosure is intended to include, but not limited to, memories of these and any other proper types.

10 Those of ordinary skill in the art may realize that the units and algorithm steps of each example described in combination with the embodiments disclosed in the disclosure may be implemented by electronic hardware or a combination of computer software and the electronic hardware. Whether these functions are executed in a hardware or software manner depends on specific applications and design constraints  
15 of the technical solutions. Professionals may realize the described functions for each specific application by use of different methods, but such realization shall fall within the scope of the disclosure.

Those skilled in the art may clearly learn about that specific working processes of the system, device and unit described above may refer to the corresponding  
20 processes in the method embodiment and will not be elaborated herein for convenient and brief description.

In some embodiments provided by the application, it is to be understood that the disclosed system, device and method may be implemented in another manner. For example, the device embodiment described above is only schematic, and for example,  
25 division of the units is only logic function division, and other division manners may be adopted during practical implementation. For example, multiple units or components may be combined or integrated into another system, or some characteristics may be neglected or not executed. In addition, coupling or direct coupling or communication connection between each displayed or discussed  
30 component may be indirect coupling or communication connection, implemented through some interfaces, of the device or the units, and may be electrical and mechanical or adopt other forms.

The units described as separate parts may or may not be physically separated,

and parts displayed as units may or may not be physical units, and namely may be located in the same place, or may also be distributed to multiple network units. Part or all of the units may be selected to achieve the purpose of the solutions of the embodiments according to a practical requirement.

5           In addition, each function unit in each embodiment of the disclosure may be integrated into a processing unit, each unit may also exist independently, and two or more than two units may also be integrated into a unit.

          When being realized in form of software functional unit and sold or used as an independent product, the function may also be stored in a computer-readable storage  
10       medium. Based on such an understanding, the technical solutions of the disclosure substantially or parts making contributions to the conventional art or part of the technical solutions may be embodied in form of software product, and the computer software product is stored in a storage medium, including a plurality of instructions configured to enable a computer device (which may be a personal computer, a server,  
15       a network device or the like) to execute all or part of the steps of the method in each embodiment of the disclosure. The abovementioned storage medium includes: various media capable of storing program codes such as a U disk, a mobile hard disk, a ROM, a RAM, a magnetic disk or an optical disk.

          The above is only the specific implementation mode of the disclosure and not  
20       intended to limit the scope of protection of the disclosure. Any variations or replacements apparent to those skilled in the art within the technical scope disclosed by the disclosure shall fall within the scope of protection of the disclosure. Therefore, the scope of protection of the disclosure shall be subject to the scope of protection of the claims.

25

## CLAIMS

- 5     1. A communication method, comprising:  
generating, by a terminal device, terminal capability information, the terminal  
capability information indicating a terminal capability of the terminal device under  
the condition that a first parameter is configured and/or a support capability of the  
terminal device for a second parameter; and  
10         sending, by the terminal device, the terminal capability information to a  
network device.
2. The communication method of claim 1, wherein the first parameter comprises at  
least one of first basic parameter sets or first carrier bandwidths, and/or the second  
15     parameter comprises at least one of second basic parameter sets or second carrier  
bandwidths.
3. The communication method of claim 2, wherein the second basic parameter sets  
comprise M basic parameter sets, the terminal capability information comprises first  
20     information for indicating a support capability of the terminal device for each set of  
the M basic parameter sets.
4. The communication method of claim 2 or 3, wherein the second carrier bandwidths  
comprise N carrier bandwidths, the terminal capability information comprises second  
25     information for indicating a support capability of the terminal device for each of the N  
carrier bandwidths.
5. The communication method of any one of claims 2-4, wherein the terminal  
capability information comprises third information for indicating a support capability  
30     of the terminal device for a second parameter combination and the second parameter  
combination comprises the second basic parameter set and the second carrier  
bandwidth.
6. The communication method of any one of claims 2-5, wherein the terminal

capability information comprises fourth information for indicating a terminal capability of the terminal device under the condition that a first parameter combination is configured and the first parameter combination comprises the first basic parameter set and the first carrier bandwidth.

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7. The communication method according to any one of claims 1-6, wherein sending, by the terminal device, the terminal capability information to the network device comprises:

10 sending, by the terminal device, the terminal capability information through Radio Resource Control (RRC) signaling.

8. A communication method, comprising:

15 sending, by a network device, an indication message to a terminal device, the indication message indicating the terminal device to send a terminal capability of the terminal device under the condition that a first parameter is configured and/or a support capability of the terminal device for a second parameter; and

20 receiving, by the network device, terminal capability information from the terminal device, the terminal capability information indicating the terminal capability of the terminal device under the condition that the first parameter is configured and/or the support capability of the terminal device for the second parameter.

25 9. The communication method of claim 8, wherein the first parameter comprises at least one of first basic parameter sets or first carrier bandwidths, and/or the second parameter comprises at least one of second basic parameter sets or second carrier bandwidths.

30 10. The communication method of claim 9, wherein the second basic parameter sets comprise M basic parameter sets, the indication message comprises first indication information for indicating the terminal device to send a support capability for each set of the M basic parameter sets.

11. The communication method of claim 9 or 10, wherein the second carrier bandwidths comprise N carrier bandwidths, the indication message comprises second

indication information for indicating the terminal device to send a support capability for each of the N carrier bandwidths.

12. The communication method of any one of claims 9-11, wherein the indication message comprises third indication information for indicating the terminal device to send a support capability for a second parameter combination and the second parameter combination comprises the second basic parameter set and the second carrier bandwidth.

13. The communication method of any one of claims 9-12, wherein the indication message comprises fourth indication information for indicating the terminal device to send a terminal capability of the terminal device under the condition that a first parameter combination is configured and the first parameter combination comprises the first basic parameter set and the first carrier bandwidth.

14. The communication method according to any one of claims 8-13, wherein receiving, by the network device, the terminal capability information from the terminal device comprises:

receiving, by the network device, the terminal capability information through Radio Resource Control (RRC) signaling.

15. A terminal device, comprising:

a generation module, configured to generate terminal capability information, the terminal capability information indicating a terminal capability of the terminal device under the condition that a first parameter is configured and/or a support capability of the terminal device for a second parameter; and

a sending module, configured to send the terminal capability information to a network device.

16. The terminal device of claim 15, wherein the first parameter comprises at least one of first basic parameter sets or first carrier bandwidths, and/or the second parameter comprises at least one of second basic parameter sets or second carrier bandwidths.

17. The terminal device of claim 16, wherein the second basic parameter sets  
comprise M basic parameter sets, the terminal capability information comprises first  
information for indicating a support capability of the terminal device for each set of  
5 the M basic parameter sets.

18. The terminal device of claim 16 or 17, wherein the second carrier bandwidths  
comprise N carrier bandwidths, the terminal capability information comprises second  
information for indicating a support capability of the terminal device for each of the N  
10 carrier bandwidths.

19. The terminal device of any one of claims 16-18, wherein the terminal capability  
information comprises third information for indicating a support capability of the  
terminal device for a second parameter combination and the second parameter  
15 combination comprises the second basic parameter set and the second carrier  
bandwidth.

20. The terminal device of any one of claims 16-19, wherein the terminal capability  
information comprises fourth information for indicating a terminal capability of the  
20 terminal device under the condition that a first parameter combination is configured  
and the first parameter combination comprises the first basic parameter set and the  
first carrier bandwidth.

21. The terminal device of any one of claims 15-20, wherein the sending module is  
25 specifically configured to send the terminal capability information through Radio  
Resource Control (RRC) signaling.

22. A network device, comprising:

a sending module, configured to send an indication message to a terminal  
30 device, the indication message indicating the terminal device to send a terminal  
capability of the terminal device under the condition that a first parameter is  
configured and/or a support capability of the terminal device for a second parameter;  
and

a receiving module, configured to receive terminal capability information from the terminal device, the terminal capability information indicating the terminal capability of the terminal device under the condition that the first parameter is configured and/or the support capability of the terminal device for the second  
5 parameter.

23. The network device of claim 22, wherein the first parameter comprises at least one of first basic parameter sets or first carrier bandwidths, and/or the second  
10 parameter comprises at least one of second basic parameter sets or second carrier bandwidths.

24. The network device of claim 23, wherein the second basic parameter sets comprise M basic parameter sets, the indication message comprises first indication information for indicating the terminal device to send a support capability for each set  
15 of the M basic parameter sets.

25. The network device of claim 23 or 24, wherein the second carrier bandwidths comprise N carrier bandwidths, the indication message comprises second indication information for indicating the terminal device to send a support capability for each of  
20 the N carrier bandwidths.

26. The network device of any one of claims 23-25, wherein the indication message comprises third indication information for indicating the terminal device to send a support capability for a second parameter combination and the second parameter  
25 combination comprises the second basic parameter set and the second carrier bandwidth.

27. The network device of any one of claims 23-26, wherein the indication message comprises fourth indication information for indicating the terminal device to send a  
30 terminal capability of the terminal device under the condition that a first parameter combination is configured and the first parameter combination comprises the first basic parameter set and the first carrier bandwidth.

28. The network device of any one of claims 22-27, wherein the receiving module is specifically configured to receive the terminal capability information through Radio Resource Control (RRC) signaling.