

CLAIMS

1. A method for power saving mode switching, applied to a terminal, comprising:

switching the terminal from a first power saving mode to a second power saving mode when an event for power saving mode switching occurs;

wherein before the switching the terminal from a first power saving mode to a second power saving mode when an event for power saving mode switching occurs, the method further comprises:

receiving configuration information for a power saving mode from a network device, wherein the configuration information comprises one or more parameters corresponding to the power saving mode, and the configuration information comprises one or more of the following:

a first field, wherein a value of the first field corresponds to a plurality of parameters associated with power consumption of the terminal;

a second field, wherein a value of the second field corresponds to one or more parameters associated with a power saving mode or a power saving level of the terminal; and

a third field, wherein the third field comprises one or more bit strings, a value of each bit string corresponds to one parameter associated with power consumption of the terminal.

2. The method according to claim 1, wherein after the switching the terminal from a first power saving mode to a second power saving mode, the method further comprises:

reporting to the network device that the terminal has switched to the second power saving mode.

3. The method according to claim 1, wherein an event for power saving mode switching occurs comprises one or more of the following:

that a wake-up signal WUS is detected, wherein the WUS indicates that the terminal needs to monitor a physical downlink control channel PDCCH in a running period of a connected discontinuous reception CDRX on duration timer, wherein the WUS is received in the first power saving mode, and the WUS is associated with the PDCCH in the running period of the on duration timer;

that a connected discontinuous reception-inactivity timer CDRX-inactivity timer is started;

that scheduled information carried in a target PDCCH is not received within predetermined time in an active bandwidth part BWP;

that the terminal receives a paging message associated with the terminal;

that a WUS received by the terminal indicates that the terminal needs to monitor a corresponding paging message, wherein the WUS is received in the first power saving mode, and the WUS is before a paging occasion PO;

that a WUS received by the terminal indicates that the terminal needs to monitor a corresponding paging message, and a paging message received is associated with the terminal, wherein both the WUS and the paging message are received in the first power saving mode, and the WUS is before a paging occasion PO;

that the terminal does not receive scheduled information carried in a PDCCH within predetermined time in radio resource control RRC connected state;

that the terminal enters an idle state or an inactive state from an RRC connected state;

that the terminal enters an RRC connected state from an idle state or an inactive state;

that the terminal detects an initial signal from a new radio unlicensed NRU system;

that the terminal has transmitted information carried in a random access channel RACH;

that the terminal determines to transmit information carried in a RACH;

that the terminal has transmitted a scheduling request SR; and

that the terminal determines to transmit an SR.

4. The method according to claim 1, further comprising:

skipping performing power saving mode switching on the terminal when an event for power saving mode switching does not occur.

5. The method according to claim 4, wherein the no occurrence of a power saving mode switching event comprises one or more of the following:

that no WUS is detected, wherein the WUS indicates that the terminal does not need to monitor PDCCH in a running period of a CDRX on duration timer, the WUS is received in the first power saving mode, and the WUS is associated with the PDCCH in the running period of the on duration timer;

that a CDRX-inactivity timer is not started;

that scheduled information carried in a target PDCCH is received within predetermined time in an active BWP;

that the terminal receives no paging message;

that the terminal receives a paging message not associated with the terminal;

that a WUS received by the terminal does not indicate the terminal to monitor a corresponding paging message;

that the terminal receives no WUS for indicating the terminal to monitor a corresponding paging message;

that a WUS received by the terminal indicates the terminal to monitor a corresponding paging message, but a paging message received is not associated with the terminal;

that the terminal is in an RRC connected state and receives scheduled information carried in a PDCCH within predetermined time;

that the terminal detects no initial signal from an NRU system;

that the terminal is not to transmit information carried in a RACH; and

that the terminal is not to transmit an SR.

6. The method according to claim 1, wherein the configuration information further comprises value(s) of the parameter(s) corresponding to the power saving mode.

7. The method according to claim 1, wherein the value of the first field further corresponds to values of the plurality of parameters associated with power consumption of the terminal;

and/or,

the value of the second field further corresponds to a value of the one or more parameters associated with the power saving mode or the power saving level of the terminal;

and/or,

the value of each bit string in the third field further corresponds to a value of the one parameter associated with power consumption of the terminal.

8. The method according to claim 1, wherein the plurality of parameters associated with power consumption of the terminal, the one or more parameters associated with the power saving mode or the power saving level of the terminal, or the one parameter associated with power consumption of the terminal comprises one or more of the following:

the number of transmit antennas or transmit channels;

- the number of receive antennas or receive channels;
- uplink component carriers that are activated simultaneously;
- downlink component carriers that are activated simultaneously;
- a time gap between a physical downlink control channel PDCCH and a physical downlink shared channel PDSCH scheduled by the PDCCH;
- a time gap between a PDSCH and an acknowledgment ACK or a negative acknowledgment NACK;
- a time gap between a PDCCH and a physical uplink shared channel PUSCH scheduled by the PDCCH;
- a delay for PDSCH processing;
- a delay for PUSCH preparation;
- the maximum number of downlink multiple-input multiple-output MIMO layers; and
- the maximum number of uplink MIMO layers.

9. The method according to claim 8, wherein the plurality of parameters associated with power consumption of the terminal, the one or more parameters associated with the power saving mode or the power saving level of the terminal, or the one parameter associated with power consumption of the terminal further comprises one or more of the following:

- an index of a configured control resource set CORESET;
- an index of a configured search space;
- a PDCCH monitoring periodicity;
- a PDCCH monitoring offset;
- PDCCH monitoring duration;
- an identity ID of a BWP;
- a maximum uplink transmission rate;
- a maximum downlink transmission rate;
- a discontinuous reception DRX cycle;
- a bandwidth of a bandwidth part BWP;
- the number of channel state information CSI reports simultaneously processed by the terminal;
- the number of beam management reports simultaneously processed by the terminal;

the number of measurement resources simultaneously received or processed by the terminal;

a delay associated with CSI report; and

a delay associated with beam management report.

10. A method for power saving mode configuration, applied to a network device, comprising:

transmitting configuration information for a power saving mode to a terminal, to cause the terminal to switch from a first power saving mode to a second power saving mode when an event for power saving mode switching occurs; wherein the configuration information comprises one or more parameters corresponding to the power saving mode, and the configuration information comprises one or more of the following:

a first field, wherein a value of the first field corresponds to a plurality of parameters associated with power consumption of the terminal;

a second field, wherein a value of the second field corresponds to one or more parameters associated with a power saving mode or a power saving level of the terminal; and

a third field, wherein the third field comprises one or more bit strings, and a value of each bit string corresponds to one parameter associated with power consumption of the terminal.

11. The method according to claim 10, wherein the configuration information further comprises value(s) of the parameter(s) corresponding to the power saving mode.

12. The method according to claim 10, wherein after transmitting configuration information for a power saving mode, the method further comprises:

receiving indication information from the terminal, wherein the indication information indicates that the terminal has performed power saving mode switching.

13. The method according to claim 10, wherein the value of the first field further corresponds to values of the plurality of parameters associated with power consumption of the terminal ;

and/or,

the value of the second field further corresponds to a value of the one or more parameters associated with a power saving mode or a power saving level of the terminal;

and/or,

the value of each bit string in the third field further corresponds to a value of the one parameter associated with power consumption of the terminal.

14. The method according to claim 10, wherein the plurality of parameters associated with power consumption of the terminal, the one or more parameters associated with the power saving mode or the power saving level of the terminal, or the one parameter associated with power consumption of the terminal comprises one or more of the following:

- the number of transmit antennas or transmit channels;
- the number of receive antennas or receive channels;
- uplink component carriers that are activated simultaneously;
- downlink component carriers that are activated simultaneously;
- a time gap between a PDCCH and a PDSCH scheduled by the PDCCH;
- a time gap between a PDSCH and an ACK or a NACK;
- a time gap between a PDCCH and a PUSCH scheduled by the PDCCH;
- a delay for PDSCH processing;
- a delay for PUSCH preparation;
- the maximum number of downlink MIMO layers; and
- the maximum number of uplink MIMO layers.

15. The method according to claim 14, wherein the plurality of parameters associated with power consumption of the terminal, the one or more parameters associated with the power saving mode or the power saving level of the terminal, or the one parameter associated with power consumption of the terminal further comprises one or more of the following:

- an index of a configured CORESET;
- an index of a configured search space;
- a PDCCH monitoring periodicity;
- a PDCCH monitoring offset;
- PDCCH monitoring duration;
- an ID of a BWP;
- a maximum uplink transmission rate;
- a maximum downlink transmission rate;
- a discontinuous reception DRX cycle;

- a bandwidth of a BWP;
- the number of CSI reports simultaneously processed by the terminal;
- the number of beam management reports simultaneously processed by the terminal;
- the number of measurement resources simultaneously received or processed by the terminal;
- a delay associated with CSI report; and
- a delay associated with beam management report.

16. A terminal, comprising:

- a processing module, configured to switch the terminal from a first power saving mode to a second power saving mode when an event for power saving mode switching occurs; and

- a first receiving module, configured to: before switching the terminal from the first power saving mode to the second power saving mode when the event for power saving mode switching occurs, receive configuration information for a power saving mode from a network device,

- wherein the configuration information comprises one or more parameters corresponding to the power saving mode, and the configuration information comprises one or more of the following:

- a first field, wherein a value of the first field corresponds to a plurality of parameters associated with power consumption of the terminal;

- a second field, wherein a value of the second field corresponds to one or more parameters associated with a power saving mode or a power saving level of the terminal; and

- a third field, wherein the third field comprises one or more bit strings, a value of each bit string corresponds to one parameter associated with power consumption of the terminal.

17. A network device, comprising:

- a transmission module, configured to transmit configuration information for a power saving mode to a terminal, to cause the terminal to switch from a first power saving mode to a second power saving mode when an event for power saving mode switching occurs, wherein

- the configuration information comprises one or more parameters corresponding to the power saving mode, and the configuration information comprises one or more of the following:

a first field, wherein a value of the first field corresponds to a plurality of parameters associated with power consumption of the terminal;

a second field, wherein a value of the second field corresponds to one or more parameters associated with a power saving mode or a power saving level of the terminal; and

a third field, wherein the third field comprises one or more bit strings, a value of each bit string corresponds to one parameter associated with power consumption of the terminal.