

CLAIMS

What is claimed is:

1. A method for reception mode switching, applied to a terminal and comprising:

5 switching a reception mode of the terminal from a first reception mode to a second reception mode if a reception mode switching event occurs, wherein the first reception mode corresponds to a first quantity of receiving elements of the terminal, and the second reception mode corresponds to a second quantity of receiving elements of the terminal;

10 wherein, the switching a reception mode of the terminal from a first reception mode to a second reception mode if a reception mode switching event occurs comprises:

15 if a wake-up signal WUS received by the terminal indicates the terminal to monitor a physical downlink control channel PDCCH within a connected state discontinuous reception CDRX onduration timer, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode;

or

20 if a connected state discontinuous reception-inactivity timer CDRX-Inactivity timer of the terminal is started, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode;

or

25 if the terminal receives, within a predetermined time, scheduling information carried by a target PDCCH, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode;

or

if a WUS received by the terminal indicates the terminal to monitor a corresponding paging message, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode;

5 or

if a WUS received by the terminal indicates the terminal to monitor a corresponding paging message and the paging message that is received is related to the terminal, determining that the reception mode switching event occurs;

10 or

if a default downlink bandwidth part default Downlink BWP-related timer of the terminal expires, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode;

15 or

if the terminal enters an idle state or an inactive state from an RRC connected state, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode;

20 or

if the terminal enters the RRC connected state from the idle state or the inactive state, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode;

25 or

if a measurement quantity for a target signal by the terminal is less than a preset threshold, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode;

or

if an initial signal (initial signal) of a new radio unlicensed NRU system is detected by the terminal, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode.

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

skipping switching the reception mode of the terminal if the reception mode switching event does not occur.

~~3. The method according to claim 1, wherein,~~

~~the switching a reception mode of the terminal from a first reception mode to a second reception mode if a reception mode switching event occurs comprises at least one of the following:~~

~~if a default downlink bandwidth part (default Downlink BWP)-related timer of the terminal expires, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode;~~

~~if a wake-up signal (WUS) received by the terminal indicates the terminal to monitor a physical downlink control channel (PDCCH) within a connected state discontinuous reception (CDRX) onduration timer, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode;~~

~~if a connected state discontinuous reception inactivity timer (CDRX Inactivity timer) of the terminal is started, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode;~~

~~if the terminal receives, within a predetermined time, scheduling information carried by a target PDCCH, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode;~~

~~if the terminal receives a paging message and the paging message is related to the terminal, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode;~~

5 ~~if a WUS received by the terminal indicates the terminal to monitor a corresponding paging message, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode;~~

10 ~~if a WUS received by the terminal indicates the terminal to monitor a corresponding paging message and the paging message that is received is related to the terminal, determining that the reception mode switching event occurs;~~

15 ~~if the terminal enters an idle state or an inactive state from an RRC connected state, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode;~~

20 ~~if the terminal enters the RRC connected state from the idle state or the inactive state, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode;~~

25 ~~if a measurement quantity for a target signal by the terminal is less than a preset threshold, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode;~~

30 ~~if an initial signal (initial signal) of a new radio unlicensed NRU system is detected by the terminal, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode.—~~

43. The method according to claim 2, wherein,

the skipping adjusting the reception mode of the terminal if the reception mode switching event does not occur comprises at least one of the following:

5 if the wake-up signal (WUS) received by the terminal indicates the terminal not to monitor the PDCCH within the CDRX onduration timer, or the terminal does not receive the WUS that indicates the terminal to monitor the PDCCH within the CDRX onduration timer, determining that the reception mode switching event does not occur, and skipping adjusting the reception mode of the terminal;

10 if the CDRX-inactivity timer of the terminal is not started, determining that the reception mode switching event does not occur, and skipping adjusting the reception mode of the terminal;

if the terminal does not receive, within the predetermined time, the scheduling information carried by the target PDCCH, determining that the reception mode switching event does not occur, and skipping adjusting the reception mode of the terminal;

15 ~~if the terminal does not receive the paging message, or the terminal receives the paging message and the received paging message is not related to the terminal, determining that the reception mode switching event does not occur, and skipping adjusting the reception mode of the terminal;~~

20 if the WUS received by the terminal indicates the terminal not to monitor a corresponding paging message, or the terminal does not receive the WUS that indicates the terminal to monitor the corresponding paging message, determining that the reception mode switching event does not occur, and skipping adjusting the reception mode of the terminal;

25 if the WUS received by the terminal indicates the terminal not to monitor the corresponding paging message, or the terminal does not receive the WUS that indicates the terminal to monitor the corresponding paging message, or the WUS received by the terminal indicates the terminal to monitor the corresponding paging message, but the paging message that is received is not related to the terminal,

determining that the reception mode switching event does not occur, and skipping adjusting the reception mode of the terminal;

if the default downlink BWP-related timer of the terminal does not expire, determining that the reception mode switching event does not occur, and skipping
5 adjusting the reception mode of the terminal;

if the measurement quantity for the target signal by the terminal is greater than the preset threshold, determining that the reception mode switching event does not occur, and skipping adjusting the reception mode of the terminal;

if the initial signal of the NR-U system is not detected by the terminal,
10 determining that the reception mode switching event does not occur, and skipping adjusting the reception mode of the terminal.

~~54.~~ The method according to claim ~~31~~, wherein the measurement quantity comprises at least one of reference signal received power (RSRP), reference signal received quality (RSRQ), and signal to interference plus noise ratio (SINR).

~~65.~~ The method according to claim ~~31~~, wherein cyclic redundancy check (CRC) of the target PDCCH is scrambled by a cell radio network temporary identifier (C-RNTI) or a configuration scheduling radio network temporary identifier (CS-RNTI).

~~76.~~ The method according to claim ~~31~~, wherein that the paging message is
20 related to the terminal comprises at least one of the following:

information transmitted on a PDCCH or PDSCH for the paging message comprises information related to an identifier ID of the terminal, the paging message indicates a system information update, the paging message indicates an earthquake and tsunami warning system (ETWS), and the paging message indicates a
25 commercial mobile alarm system (CMAS); ~~and~~

~~that the paging message is not related to the terminal excludes any one of the following:~~

~~the information transmitted on the PDCCH or PDSCH for the paging message comprises the information related to the ID of the terminal, the paging message~~

~~indicates the system information update, the paging message indicates the ETWS, and the paging message indicates the CMAS.~~

87. The method according to any one of claims 1 to 76, wherein after the switching the reception mode of the terminal from the first reception mode to the second reception mode, the method further comprises:

transmitting related information of the second reception mode to a network side.

98. The method according to any one of claims 1 to 76, wherein ~~the first reception mode corresponds to a first quantity of receiving elements of the terminal, and the second reception mode corresponds to a second quantity of receiving elements of the terminal; wherein~~

the receiving element is a receive antenna, a receive antenna port, a receiving port, a receiving channel, a receiving radio frequency channel, or a receive antenna panel.

109. A terminal, comprising a processor, a memory, and a program stored in the memory and capable of running on the processor, wherein when the program is executed by the processor, the processor is configured to implement following step:

switching a reception mode of the terminal from a first reception mode to a second reception mode if a reception mode switching event occurs, wherein the first reception mode corresponds to a first quantity of receiving elements of the terminal, and the second reception mode corresponds to a second quantity of receiving elements of the terminal;

wherein, the switching a reception mode of the terminal from a first reception mode to a second reception mode if a reception mode switching event occurs comprises:

if a wake-up signal WUS received by the terminal indicates the terminal to monitor a physical downlink control channel PDCCH within a connected state discontinuous reception CDRX onduration timer, determining that the

reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode;

or

if a connected state discontinuous reception-inactivity timer CDRX-Inactivity timer of the terminal is started, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode;

or

if the terminal receives, within a predetermined time, scheduling information carried by a target PDCCH, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode;

or

if a WUS received by the terminal indicates the terminal to monitor a corresponding paging message, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode;

or

if a WUS received by the terminal indicates the terminal to monitor a corresponding paging message and the paging message that is received is related to the terminal, determining that the reception mode switching event occurs;

or

if a default downlink bandwidth part default Downlink BWP-related timer of the terminal expires, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode;

or

if the terminal enters an idle state or an inactive state from an RRC connected state, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode;

or

if the terminal enters the RRC connected state from the idle state or the inactive state, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode;

or

if a measurement quantity for a target signal by the terminal is less than a preset threshold, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode;

or

if an initial signal (initial signal) of a new radio unlicensed NRU system is detected by the terminal, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode.

~~11~~10. The terminal according to claim ~~109~~, the processor is configured to implement following step:

skipping switching the reception mode of the terminal if the reception mode switching event does not occur.

~~12. The terminal according to claim 10, wherein,~~

~~the switching a reception mode of the terminal from a first reception mode to a second reception mode if a reception mode switching event occurs comprises at least one of the following:~~

~~if a default downlink bandwidth part (default Downlink BWP)-related timer of the terminal expires, determining that the reception mode switching event occurs,~~

and switching the reception mode of the terminal from the first reception mode to the second reception mode;

if a wake up signal (WUS) received by the terminal indicates the terminal to monitor a physical downlink control channel (PDCCH) within a connected state discontinuous reception (CDRX) onduration timer, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode;

if a connected state discontinuous reception inactivity timer (CDRX Inactivity timer) of the terminal is started, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode;

if the terminal receives, within a predetermined time, scheduling information carried by a target PDCCH, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode;

if the terminal receives a paging message and the paging message is related to the terminal, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode;

if a WUS received by the terminal indicates the terminal to monitor a corresponding paging message, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode;

if a WUS received by the terminal indicates the terminal to monitor a corresponding paging message and the paging message that is received is related to the terminal, determining that the reception mode switching event occurs;

if the terminal enters an idle state or an inactive state from an RRC connected state, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception

mode;

~~if the terminal enters the RRC connected state from the idle state or the inactive state, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception~~

5 ~~mode;~~

~~if a measurement quantity for a target signal by the terminal is less than a preset threshold, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode;~~

10 ~~if an initial signal (initial signal) of a new radio unlicensed NRU system is detected by the terminal, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode.~~

~~1311.~~ The terminal according to claim ~~11~~10, wherein,

15 the skipping adjusting the reception mode of the terminal if the reception mode switching event does not occur comprises at least one of the following:

if the wake-up signal (WUS) received by the terminal indicates the terminal not to monitor the PDCCH within the CDRX onduration timer, or the terminal does not receive the WUS that indicates the terminal to monitor the PDCCH within the

20 CDRX onduration timer, determining that the reception mode switching event does not occur, and skipping adjusting the reception mode of the terminal;

if the CDRX-inactivity timer of the terminal is not started, determining that the reception mode switching event does not occur, and skipping adjusting the reception mode of the terminal;

25 if the terminal does not receive, within the predetermined time, the scheduling information carried by the target PDCCH, determining that the reception mode switching event does not occur, and skipping adjusting the reception mode of the terminal;

~~if the terminal does not receive the paging message, or the terminal receives the~~

~~paging message and the received paging message is not related to the terminal, determining that the reception mode switching event does not occur, and skipping adjusting the reception mode of the terminal;~~

5 if the WUS received by the terminal indicates the terminal not to monitor a corresponding paging message, or the terminal does not receive the WUS that indicates the terminal to monitor the corresponding paging message, determining that the reception mode switching event does not occur, and skipping adjusting the reception mode of the terminal;

10 if the WUS received by the terminal indicates the terminal not to monitor the corresponding paging message, or the terminal does not receive the WUS that indicates the terminal to monitor the corresponding paging message, or the WUS received by the terminal indicates the terminal to monitor the corresponding paging message, but the paging message that is received is not related to the terminal, determining that the reception mode switching event does not occur, and skipping
15 adjusting the reception mode of the terminal;

if the default downlink BWP-related timer of the terminal does not expire, determining that the reception mode switching event does not occur, and skipping adjusting the reception mode of the terminal;

20 if the measurement quantity for the target signal by the terminal is greater than the preset threshold, determining that the reception mode switching event does not occur, and skipping adjusting the reception mode of the terminal;

if the initial signal of the NR-U system is not detected by the terminal, determining that the reception mode switching event does not occur, and skipping adjusting the reception mode of the terminal.

25 ~~1412~~. The terminal according to claim ~~129~~, wherein the measurement quantity comprises at least one of reference signal received power (RSRP), reference signal received quality (RSRQ), and signal to interference plus noise ratio (SINR).

~~1513~~. The terminal according to claim ~~129~~, wherein cyclic redundancy check (CRC) of the target PDCCH is scrambled by a cell radio network temporary

identifier (C-RNTI) or a configuration scheduling radio network temporary identifier (CS-RNTI).

~~1614~~. The terminal according to claim ~~129~~, wherein that the paging message is related to the terminal comprises at least one of the following:

5 information transmitted on a PDCCH or PDSCH for the paging message comprises information related to an identifier ID of the terminal, the paging message indicates a system information update, the paging message indicates an earthquake and tsunami warning system (ETWS), and the paging message indicates a commercial mobile alarm system (CMAS); ~~and~~

10 ~~that the paging message is not related to the terminal excludes any one of the following:~~

~~the information transmitted on the PDCCH or PDSCH for the paging message comprises the information related to the ID of the terminal, the paging message indicates the system information update, the paging message indicates the ETWS, and the paging message indicates the CMAS.~~

15 ~~1715~~. The terminal according to any one of claims ~~10-9~~ to ~~1614~~, wherein after the switching the reception mode of the terminal from the first reception mode to the second reception mode, the processor is further configured to implement following step:

20 transmitting related information of the second reception mode to a network side.

~~1816~~. The terminal according to any one of claims ~~10-9~~ to ~~1614~~, wherein ~~the first reception mode corresponds to a first quantity of receiving elements of the terminal, and the second reception mode corresponds to a second quantity of receiving elements of the terminal; wherein~~

25 the receiving element is a receive antenna, a receive antenna port, a receiving port, a receiving channel, a receiving radio frequency channel, or a receive antenna panel.

4917. A computer-readable storage medium, wherein a computer program is stored in the computer-readable storage medium, and when the computer program is executed by a processor, the processor is configured to implement following step:

switching a reception mode of the terminal from a first reception mode to a second reception mode if a reception mode switching event occurs, wherein the first reception mode corresponds to a first quantity of receiving elements of the terminal, and the second reception mode corresponds to a second quantity of receiving elements of the terminal;

wherein, the switching a reception mode of the terminal from a first reception mode to a second reception mode if a reception mode switching event occurs comprises:

if a wake-up signal WUS received by the terminal indicates the terminal to monitor a physical downlink control channel PDCCH within a connected state discontinuous reception CDRX onduration timer, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode;

or

if a connected state discontinuous reception-inactivity timer CDRX-Inactivity timer of the terminal is started, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode;

or

if the terminal receives, within a predetermined time, scheduling information carried by a target PDCCH, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode;

or

if a WUS received by the terminal indicates the terminal to monitor a corresponding paging message, determining that the reception mode

switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode;

or

if a WUS received by the terminal indicates the terminal to monitor a corresponding paging message and the paging message that is received is related to the terminal, determining that the reception mode switching event occurs;

or

if a default downlink bandwidth part default Downlink BWP-related timer of the terminal expires, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode;

or

if the terminal enters an idle state or an inactive state from an RRC connected state, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode;

or

if the terminal enters the RRC connected state from the idle state or the inactive state, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode;

or

if a measurement quantity for a target signal by the terminal is less than a preset threshold, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode;

or

if an initial signal (initial signal) of a new radio unlicensed NRU system is detected by the terminal, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode.

5 ~~20. The computer-readable storage medium according to claim 19, wherein when the computer program is executed by the processor, the processor is configured to implement at least one of the following:~~

10 ~~if a default downlink bandwidth part (default Downlink BWP)-related timer of the terminal expires, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode;~~

15 ~~if a wake-up signal (WUS) received by the terminal indicates the terminal to monitor a physical downlink control channel (PDCCH) within a connected state discontinuous reception (CDRX) onduration timer, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode;~~

20 ~~if a connected state discontinuous reception inactivity timer (CDRX Inactivity timer) of the terminal is started, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode;~~

~~if the terminal receives, within a predetermined time, scheduling information carried by a target PDCCH, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode;~~

25 ~~if the terminal receives a paging message and the paging message is related to the terminal, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode;~~

~~if a WUS received by the terminal indicates the terminal to monitor a corresponding paging message, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode;~~

5 ~~if a WUS received by the terminal indicates the terminal to monitor a corresponding paging message and the paging message that is received is related to the terminal, determining that the reception mode switching event occurs;~~

10 ~~if the terminal enters an idle state or an inactive state from an RRC connected state, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode;~~

15 ~~if the terminal enters the RRC connected state from the idle state or the inactive state, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode;~~

20 ~~if a measurement quantity for a target signal by the terminal is less than a preset threshold, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode;~~

20 ~~if an initial signal (initial signal) of a new radio unlicensed NRU system is detected by the terminal, determining that the reception mode switching event occurs, and switching the reception mode of the terminal from the first reception mode to the second reception mode.~~