onduration needs to be skipped. The frequentness at which the power-saving signal WUS skips the onduration may be 1 or an integer greater than 1. That is, every one or more DRX cycles corresponds to one power-saving signal.

[00226] As shown in FIG. 5, for the frequentness N (that is, a corresponding ratio of the power-saving signal to the DRX cycle is 1:N) compared with the frequentness 1, signaling overhead may be saved but a great delay may also be caused. In addition, there may be an improvement of the 1:N mapping relationship. For example, when a power-saving signal is received, N DRX durations are continuously monitored; but when no power-saving signal is received, only one DRX duration is skipped, etc. This method is more suitable for services with strict delay requirements.

[00227] The terminal monitoring the power-saving signal includes the following keypoints.

[00228] The WUS configuration provided in the system information includes a time offset between the first PO among the plurality of POs and an end moment of WUS. The UE listens to these POs and uses the time offset to calculate a start time of a subframe.

[00229] 1. For a scenario where the DRX is configured, the UE may be informed of the above time offset value through a signal;

[00230] 2. For a scenario where the eDRX is configured, if the eDRX long offset value (timeoffset-eDRX-Long) is not broadcast, the UE may be informed of the eDRX short offset value (timeoffset-eDRX-Short);

[00231] 3. For a scenario where the eDRX is configured, it is determined as shown in the following Table 1 whether to broadcast the long offset value:

Table 1 Determining the offset value between WUS and PO

		eDRX long offset value	
		1000ms	2000ms
The minimum offset reported by the UE	40ms or none	eDRX short offset value	eDRX short offset value
	240ms	eDRX long offset value	eDRX short offset value
	1000ms	eDRX long offset value	eDRX long offset value
	2000ms	eDRX short offset value	eDRX long offset value

[00232] The time offset here is used to determine the actual subframe g0, that is, g0=PO - time offset, where the PO is a paging occasion of the subframe.

[00233] For the UE using ~~eERX~~eDRX, when WUS occurs within the paging time window, the same time offset is applied between the end moment of WUX and the first PO.

[00234] In the power saving project, for the connected state, the terminal needs to report the following auxiliary information to the network for determining the configuration of the power-saving signal:

[00235] Whether the UE supports a power-saving signal;

[00236] 2. The start and end time configuration of the power-saving signal may be a time offset relative to a certain reference point, such as an ~~seven-point~~ offset value relative to the DRX onduration.

[00237] The offset supported by the UE may be specified in the following Table 2.

Table 2 Offset supported by UE

SCS /kHz	The minimum offset /slots	
	The first value	The second value
15	1	3
30	1	6
60	1	12
120	2	24

[00238] Indications of the two offset values are given in the Table 2, respectively.

[00239] When power saving in the idle state and/or inactive state is considered, the WUS may also be configured before the PO. At this time, the offset value between the WUS and the PO needs to satisfy the Automatic Gain Control (AGC) as well as real-time frequency domain resource synchronization between the terminal and the network. Therefore, the connected state is not necessarily applicable to the idle state, so the methods according to the embodiments of the present disclosure may be used.

[00240] For the Reduced Capacity UE, it is referred to as NR-Lite or Redcap UE for short. This type of device is similar to an IoT device in LTE. Based on the requirements in 5G NR-lite, it needs to meet:

[00241] 1. Low cost and low complexity;

[00242] 2. Enhanced coverage to a certain extent;

[00243] 3. Power saving.

[00244] For the Redcap UE, power saving in the idle state and/or inactive state is very important, and the power-saving signal mechanism may be utilized. Therefore, it is necessary to define a process for using power-saving signals in an idle state and/or an inactive state for the Redcap UE.

[00245] In an embodiment of the present disclosure, the following method for configuring a power-saving signal is provided.

[00246] 1. The network device configures configuration information of a power-saving signal for a specific type of terminal, and the terminal monitors a paging message in an idle state and/or an inactive state based on the configuration information. The specific type of terminal may be a terminal with low power consumption requirements, such as an eMBB UE, a Redcap UE, and the like.

[00247] 2. The network device may determine the configuration information of the power-

[00277] In the embodiments of the present disclosure, the offset values configured by the base station may be configured for different types of terminals respectively.

[00278] For example, the first DRX offset value is configured for the eMBB UE in the DRX mode and the second DRX offset value is configured for the Redcap UE in the DRX mode. The first eDRX short offset is configured for the eMBB UE in the eDRX mode and the second eDRX short offset value is configured for the Redcap UE in the eDRX mode.

[00279] (2) In the eDRX scenario, the specific type of terminal determines the location of the power-saving signal based on the offset value between one power-saving signal configured by the network and the PO. The working mechanism is as follows:

[00280] As shown in FIG. 6, the eMBB UE determines the location of the power-saving signal based on the offset values (short offset value, long offset value) between one or two power-saving signals configured by the network and the PO. For the specific type of terminal, such as the Redcap UE, only one offset value is configured, such as an eDRX short offset value, the value of which may be several values selected from the reporting capability values of the specific terminal

[00281] Exemplarily, when the values reported by the Redcap UE are 3s and 4s, the configured eDRX short offset value takes the set {3s, 4} or its subset {4s}.

[00282] In an embodiment, as shown in FIG. 7, the eDRX short offset value configured by the base station is greater than or equal to reporting capabilities of all Redcap UEs. That is, the base station performs configuration based on the maximum capability, and all the Redcap UEs may be covered at this time. Thus, the terminal follows the configuration value of the base station, that is, the 4s Configuration in FIG. 47. In addition, the agreement defines that the offset value configured by the base station for the Redcap UE can have only one value, that is, the maximum reporting capability value.

[00283] In an embodiment, the eDRX short offset value configured by the base station is not greater than or equal to reporting capabilities of all the Redcap UEs. That is, the base station may cover the Redcap UEs with stronger capabilities at this time, and the eDRX short offset value configured by the network is used. For the terminals with weaker capabilities, fallback is performed based on the configuration value of the base station. The fallback value may be the eDRX short offset value or eDRX long offset value configured by the base station for the eMBB UE, or the power-saving signal is not monitored, as shown in 3s Configuration of FIG 7.

[00284] (3) In the eDRX scenario, the specific type of terminal determines the location of the power-saving signal based on the offset values (short offset value, long offset value) between the two power-saving signals configured by the network and the PO. Exemplarily, a mechanism similar to that used by the eMBB UE, for the Redcap UE, the short offset value cannot support Redcap UEs with weak capabilities, so the terminal falls back based on the configuration value of the base station, that is, falls back to the long offset value. The short offset value is not greater than the long

Claims

1. A method for information configuration, ~~applied to~~performed by a terminal, the method comprising:

receiving configuration information sent by a network device for configuring a power-saving signal, wherein the power-saving signal is configured for the terminal to monitor a paging message in at least one of an idle state ~~and/~~or an inactive state.

2. The method according to claim 1, wherein the terminal is a reduced-capability user equipment (Redcap UE) or an enhanced mobile broadband (eMBB) UE.

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

reporting auxiliary information to the network device, wherein the auxiliary information is configured for the network device to determine the configuration information.

4. The method according to claim 3, wherein the auxiliary information comprises at least one of:

information indicating whether the Redcap UE or the eMBB UE supports using the power-saving signal to monitor the paging message under discontinuous reception (DRX) or extended discontinuous reception (eDRX); or

information indicating a minimum offset value between a power-saving signal supported by the Redcap UE or the eMBB UE and a paging occasion (PO)~~,~~.

~~5. The method according to claim 4, wherein it is a required function that the Redcap UE supports using the power-saving signal to monitor the paging message under the DRX or eDRX.~~

~~6. The method according to claim 4,~~ wherein the auxiliary information further indicates at least one of~~comprises~~:

~~indicating~~ a first minimum offset value between the power-saving signal supported by the Redcap UE and the PO; and/or

~~indicating~~ a second minimum offset value between the power-saving signal supported by the eMBB UE and the PO,

wherein the first minimum offset value is greater than or equal to the second minimum offset value.

~~7. The method according to claim 4, wherein reporting the auxiliary information to the network device comprises:~~

~~reporting the auxiliary information to the base station by using UE capability information.~~

~~8~~5. The method according to any one of claims 1 to ~~7~~4, wherein the configuration information comprises:

an offset value between the power-saving signal and the PO, wherein the offset value is configured for the terminal to determine location information of the power-saving signal~~;~~ and

~~9. The method according to claim 8, wherein~~ the offset value is a value corresponding to a number of synchronization signal block (SSB) periods; or the offset value is a value of a duration unit.

~~10~~6. The method according to any one of claims 2 to ~~9~~5, further comprising:

monitoring the paging message based on the configuration information.

~~11~~7. The method according to claim ~~10~~6, wherein monitoring the paging message based on the configuration information comprises:

determining location information of the power-saving signal based on the configuration information; and

monitoring the paging message based on the location information of the power-saving signal.

~~12~~8. The method according to claim ~~11~~7, wherein the configuration information comprises: at least one offset value between the power-saving signal and the PO;

wherein determining the location information of the power-saving signal based on the configuration information comprises:

determining the location information of the power-saving signal based on a minimum offset value supported by the Redcap UE or the eMBB UE and an offset value configured in the configuration information.

~~13. The method according to claim 12, wherein the at least one offset value comprises: an offset value configured for the Redcap UE or the eMBB UE;~~

~~wherein determining the location information of the power-saving signal based on the minimum offset value supported by the Redcap UE or the eMBB UE and the offset value configured in the configuration information, comprises:~~

~~in response to the minimum offset value supported by the Redcap UE or the eMBB UE being greater than the offset value configured in the configuration information, determining the location information of the power-saving signal based on the offset value configured in the configuration information; or~~

~~in response to the minimum offset value supported by the Redcap UE or the eMBB UE being greater than the offset value configured in the configuration information, monitoring the paging message; or~~

~~in response to the minimum offset value supported by the Redcap UE or the eMBB UE being less than or equal to an offset value configured in the configuration information, determining the location information of the power-saving signal based on the offset value configured in the configuration information.~~

~~14. The method according to claim 13, wherein in response to the minimum offset value supported by the Redcap UE or the eMBB UE being greater than the offset value configured in~~

~~the configuration information, monitoring the paging message comprises:~~

~~in response to the minimum offset value supported by the Redcap UE or the eMBB UE being greater than the offset value configured in the configuration information, skipping monitoring of the power-saving signal based on a protocol and monitoring the paging message.~~

~~15~~9. The method of claim ~~12~~8, wherein the at least one offset value comprises:

a common offset value configured for the Redcap UE and the eMBB UE; or

an offset value configured for the Redcap UE and an offset value configured for the eMBB UE independently.

~~16. The method according to claim 12, wherein the at least one offset value comprises: an offset value configured for the Redcap UE or at least one offset value configured for the eMBB UE;~~

~~wherein determining the location information of the power-saving signal based on the minimum offset value supported by the Redcap UE or the eMBB UE and the offset value configured in the configuration information, comprises:~~

~~in response to the minimum offset value supported by the Redcap UE being less than or equal to the offset value configured for the Redcap UE, determining the location information of the power-saving signal based on the offset value; or~~

~~in response to the minimum offset value supported by the Redcap UE being greater than the offset value configured for the Redcap UE, determining the location information of the power-saving signal based on an offset value configured for the eMBB UE to which the Redcap UE falls back.~~

~~17. The method of claim 12, wherein the at least one offset value comprises: a short offset value and a long offset value configured for the Redcap UE, in which the short offset value is less than or equal to the long offset value;~~

~~wherein determining the location information of the power-saving signal based on the minimum offset value supported by the Redcap UE and the offset value configured in the configuration information comprises:~~

~~in response to the minimum offset value supported by the Redcap UE being less than or equal to the short offset value, determining the location information of the power-saving signal based on the short offset value; or~~

~~in response to the minimum offset value supported by the Redcap UE being less than or equal to the long offset value, determining the location information of the power-saving signal based on the long offset value; or~~

~~in response to the minimum offset value supported by the Redcap UE being greater than the long offset value, determining the location information of the power-saving signal based on the~~

~~long offset value and/or the short offset value.~~

~~18. The method according to claim 12, wherein determining the location information of the power-saving signal based on the minimum offset value supported by the Redcap UE and the offset value configured in the configuration information comprises:~~

~~determining an offset value matching the minimum offset value supported by the Redcap UE from at least one offset value configured in the configuration information, and determining the location information of the power-saving signal based on the matched offset value.~~

~~19~~10. A method for information configuration, ~~applied to~~performed by a base station, the method comprising:

sending configuration information for configuring a power-saving signal to a terminal, wherein the power-saving signal is configured for the terminal to monitor a paging message in at least one of an idle state ~~and/~~or an inactive state.

~~20~~11. The method according to claim ~~19~~10, wherein the terminal is a reduced-capability user equipment (Redcap UE) or an enhanced mobile broadband (eMBB) UE.

~~21~~12. The method according to claim ~~20~~11, further comprising:

receiving auxiliary information reported by the Redcap UE or eMBB UE;

wherein sending the configuration information for configuring the power-saving signal to the Redcap UE or the eMBB UE comprises:

sending the configuration information to the Redcap UE or the eMBB UE based on the auxiliary information.

~~22~~13. The method according to claim ~~21~~12, wherein the auxiliary information comprises at least one of:

information indicating whether the Redcap UE or the eMBB UE supports using the power-saving signal to monitor the paging message under discontinuous reception (DRX) or extended discontinuous reception (eDRX); or

information indicating a minimum offset value between a power-saving signal supported by the Redcap UE or the eMBB UE and a paging occasion (PO),~~.~~

~~23. The method according to claim 21, wherein it is a required function that the Redcap UE supports using the power-saving signal to monitor the paging message under the DRX or eDRX.~~

~~24. The method according to claim 21, wherein~~ the auxiliary information further indicates at least one of ~~comprises~~:

~~indicating~~ a first minimum offset value between the power-saving signal supported by the Redcap UE and the PO; and/or

~~indicating~~ a second minimum offset value between the power-saving signal supported by the eMBB UE and the PO,

wherein the first minimum offset value is greater than or equal to the second minimum offset value.

~~25. The method according to claim 21, wherein receiving the auxiliary information reported by the terminal comprises:~~

~~receiving the auxiliary information reported by the Redcap UE or the eMBB UE by using UE capability information.~~

~~26~~14. The method according to claim ~~21~~12, further comprising:

reporting the auxiliary information to a core network by using a terminal release message; or

reporting the auxiliary information to a core network by using a UE capability information notification message, wherein the core network is configured to carry the auxiliary information in a paging message and send the paging message to a radio access network (RAN).

~~27~~15. The method according to any one of claims ~~19~~ 10 to ~~26~~14, wherein the configuration information comprises:

an offset value between the power-saving signal and the PO, wherein the offset value is configured for the terminal to determine location information of the power-saving signal; and~~.~~

~~28. The method according to claim 27, wherein~~ the offset value is a value corresponding to a number of synchronization signal block (SSB) periods; or the offset value is a value of a duration unit.

~~29~~16. The method according to any one of claims ~~20~~ 11 to ~~28~~15, wherein sending the configuration information for configuring power-saving signal to the Redcap UE or the eMBB UE comprises:

sending to the Redcap UE or the eMBB UE, an offset value between the power-saving signal and the PO and corresponding to a type of the terminal~~.~~

~~30. The method according to claim 29,~~ wherein sending to the Redcap UE or the eMBB UE, the offset value between the power-saving signal and the PO and corresponding to the type of the terminal comprises:

sending to the Redcap UE, an offset value in a value range of a same configuration information multiplexed with the eMBB UE; or

sending to the Redcap UE, an offset value in a dedicated configuration information, wherein the dedicated configuration information is different from configuration information of the eMBB UE.

~~31. The method according to claim 19, wherein sending the configuration information for configuring the power-saving signal to the Redcap UE or the eMBB UE comprises:~~

~~sending to the Redcap UE or the eMBB UE, a mapping relationship between a power-saving signal and a paging occasion (PO) and corresponding to a type of the terminal.~~

~~32. The method according to claim 19, wherein sending the configuration information for configuring the power-saving signal to the Redcap UE or the eMBB UE comprises:~~

~~sending to the Redcap UE or the eMBB UE, a power offset value between a power-saving signal and a reference symbol and corresponding to a type of the terminal, wherein a power offset value configured for the Redcap UE is greater than a power offset value configured for the eMBB UE.~~

~~33. An apparatus for information configuration, applied to a terminal, the apparatus comprising:~~

~~a first receiving module, configured to receive configuration information sent by a network device for configuring a power-saving signal, wherein the power-saving signal is configured for the terminal to monitor a paging message in an idle state and/or an inactive state.~~

~~34. An apparatus for information configuration, applied to a base station, the apparatus comprising:~~

~~a sending module, configured to send configuration information for configuring a power-saving signal to a predetermined type of terminal, wherein the power-saving signal is configured for the terminal to monitor a paging message in an idle state and/or an inactive state.~~

~~35~~17. A communication device, comprising ~~at least~~:

a processor; and

a memory for storing executable instructions able to be running on the processor,

wherein when the ~~executable~~ instructions are executed by the processor, ~~the steps of~~ the method for information configuration according to any one of claims 1 to ~~18~~ 9 or claims ~~19~~ 10 to ~~32~~ 16 are implemented.

~~36~~18. A non-transitory computer-readable storage medium having ~~computer-executable~~ instructions stored thereon that, ~~wherein~~ when ~~the computer-executable instructions are~~ executed by a processor of a communication device, ~~the steps of~~ the method for information configuration according to any one of claims 1 to ~~18~~ 9 or claims ~~19~~ 10 to ~~32~~ 16 are implemented.