

CLAIMS

What is claimed is:

1. A method for transmitting a random access message, executed by a terminal device and comprising:

determining a valid transmission occasion from transmission occasions of a random access message, wherein the random access message is a message A (MsgA), the random access message corresponds to a at least one of physical random access channel (PRACH) ~~or and a~~ physical uplink shared channel (PUSCH); and

transmitting the random access message on the valid transmission occasion.

2. The method according to claim 1,

wherein the transmission occasion ~~s~~ corresponds to ~~at least one of a one or more~~ PRACH transmission occasions ~~or and a one or more~~ PUSCH transmission occasions, and the one or more PRACH transmission occasions are associated with the one or more PUSCH transmission occasions;

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3. The method according to claim 1, wherein ~~the~~ determining ~~a the~~ valid transmission occasion from the transmission occasions of ~~a the~~ random access message comprises:

determining the valid transmission occasion from the transmission occasions of the random access message based on at least one of a slot format indicated in first configuration information, ~~a slot format indicated in second configuration information, or and~~ a synchronization signal block (SSB) occasion, wherein

the first configuration information comprises cell-specific time division duplex (TDD) configuration information; ~~and.~~

2. The method according to claim 1, wherein determining the valid transmission occasion from the transmission occasions of the random access message further comprises:

determining the valid transmission occasion from the transmission occasions of the random access message further based on a slot format indicated in second configuration information, wherein

the second configuration information comprises UE-specific TDD configuration information.

43. The method according to ~~any one of claims 1 to 3~~claim 1 or 2, wherein the determining a valid transmission occasion from transmission occasions of a random access message comprises:

if a transmission occasion of the random access message is located in an uplink symbol indicated by the first configuration information, determining that the transmission occasion is a valid transmission occasion, ~~wherein~~

~~the first configuration information comprises cell-specific TDD configuration information.~~

54. The method according to ~~any one of claims 1 to 3~~claim 1 or 2, wherein the determining a valid transmission occasion from transmission occasions of a random access message comprises:

if a transmission occasion of the random access message meets at least one of preset conditions, determining that the transmission occasion is a valid transmission occasion, wherein the preset conditions comprise:

in one slot, the transmission occasion does not precede an SSB occasion;

a time gap between the transmission occasion and a first preset occasion is greater than or equal to a first preset value, wherein the first preset occasion is a time domain location of a latest downlink symbol before the transmission occasion; and

a time gap between the transmission occasion and a second preset occasion is greater than or equal to a first preset value, wherein the second preset occasion is a latest SSB occasion before the transmission occasion.

65. The method according to claim 54, wherein the, if a transmission occasion of the random access message meets at least one of preset conditions, determining that the transmission occasion is a valid transmission occasion comprises:

if the transmission occasion of the random access message is located in an uplink symbol or a flexible symbol indicated by second configuration information and meets at least one of the preset conditions, determining that the transmission occasion is a valid transmission occasion, wherein

the second configuration information comprises UE-specific TDD configuration information.

76. The method according to claim 1, wherein the determining a valid transmission occasion from transmission occasions of a random access message further comprises:

if the terminal device works in an unlicensed band and a transmission occasion of the random access message falls within a discovery reference signal (DRS) time window, determining that the transmission occasion is an invalid transmission occasion.

[87](#). The method according to claim 1, wherein the determining a valid transmission occasion from transmission occasions of a random access message comprises:

if the terminal device works in an unlicensed band and preset conditions are met, determining that a transmission occasion of the random access message is a valid transmission occasion, wherein

the preset conditions comprise:

in one slot, the transmission occasion of the random access message does not precede a third preset occasion; and

a time gap between the transmission occasion of the random access message and the third preset occasion is greater than or equal to a second preset value; wherein

the third preset occasion comprises a candidate SSB or DRS occasion.

[98](#). The method according to claim 1, wherein the determining a valid transmission occasion from transmission occasions of a random access message comprises:

if the terminal device works in an unlicensed band and preset conditions are met, determining that a transmission occasion of the random access message is a valid transmission occasion, wherein

the preset conditions comprise:

in one slot, the transmission occasion of the random access message does not precede a fourth preset occasion; and

a time gap between the transmission occasion of the random access message and the fourth preset occasion is greater than or equal to a second preset value; wherein

the fourth preset occasion comprises an actual SSB or DRS occasion.

[109](#). The method according to claim [54](#), [87](#), or [98](#), wherein at least one of the first preset value or the second preset value is:

predefined; or

determined based on an uplink timing advance TA and a preset value.

~~11~~10. A terminal device, comprising a memory, a processor, and a program stored in the memory and capable of running on the processor, wherein when the program is executed by the processor, the following steps are implemented:

determining a valid transmission occasion from transmission occasions of a random access message, wherein the random access message is a message A (MsgA), the random access message corresponds to ~~at least one of a~~ physical random access channel (PRACH) ~~or and~~ physical uplink shared channel (PUSCH); and

transmitting the random access message on the valid transmission occasion;

~~12. The terminal device according to claim 11,~~ wherein the transmission occasions corresponds to ~~at least one of one or more~~ a PRACH transmission occasions ~~or and a one or more~~ PUSCH transmission occasions, and the one or more PRACH transmission occasions are associated with the one or more PUSCH transmission occasions;

~~13. The terminal device according to claim 11,~~

wherein ~~the~~ determining ~~a the~~ valid transmission occasion from ~~the~~ transmission occasions of ~~a the~~ random access message comprises:

determining the valid transmission occasion from the transmission occasions of the random access message based on at least one of a slot format indicated in first configuration information ~~and, a slot format indicated in second configuration information, or~~ a synchronization signal block (SSB) occasion, wherein

the first configuration information comprises cell-specific time division duplex (TDD) configuration information; ~~and,~~

11. The terminal device according to claim 10, wherein, determining the valid transmission occasion from the transmission occasions of the random access message further comprises:

determining the valid transmission occasion from the transmission occasions of the random access message further based on a slot format indicated in second configuration information, wherein

the second configuration information comprises UE-specific TDD configuration information.

~~14~~12. The terminal device according to ~~any one of claims 11 to 13~~claim 10 or claim 11, wherein the determining a valid transmission occasion from transmission occasions of a random access message comprises:

if a transmission occasion of the random access message is located in an uplink symbol indicated by the first configuration information, determining that the transmission occasion is a valid transmission occasion, ~~wherein~~

~~the first configuration information comprises cell-specific TDD configuration information.~~

~~1513.~~ The terminal device according to ~~any one of claims 11 to 13~~ claim 10 or claim 11, wherein the determining a valid transmission occasion from transmission occasions of a random access message comprises:

if a transmission occasion of the random access message meets at least one of preset conditions, determining that the transmission occasion is a valid transmission occasion, wherein the preset conditions comprise:

in one slot, the transmission occasion does not precede an SSB occasion;

a time gap between the transmission occasion and a first preset occasion is greater than or equal to a first preset value, wherein the first preset occasion is a time domain location of a latest downlink symbol before the transmission occasion; and

a time gap between the transmission occasion and a second preset occasion is greater than or equal to a first preset value, wherein the second preset occasion is a latest SSB occasion before the transmission occasion.

~~1614.~~ A computer readable storage medium, wherein the computer readable storage medium stores a computer program, and when the computer program is executed by a processor, the following steps are implemented:

determining a valid transmission occasion from transmission occasions of a random access message, wherein the random access message is a message A (MsgA), the random access message corresponds to ~~at least one of a~~ physical random access channel (PRACH) ~~or and 1~~ physical uplink shared channel (PUSCH); and

transmitting the random access message on the valid transmission occasion.

~~17. The computer readable storage medium according to claim 16,;~~

wherein the transmission occasions corresponds to ~~at least one of a one or more~~ PRACH transmission occasions ~~or and one or more a~~ PUSCH transmission occasions, and the one or more PRACH transmission occasions are associated with the one or more PUSCH transmission occasions.

~~18. The computer readable storage medium according to claim 16,~~

wherein the determining a valid transmission occasion from transmission occasions of a random access message comprises:

determining the valid transmission occasion from the transmission occasions of the random access message based on at least one of a slot format indicated in first configuration information; ~~a slot format indicated in second configuration information, or~~and a synchronization signal block (SSB) occasion, wherein

the first configuration information comprises cell-specific time division duplex (TDD) configuration information;~~and~~.

15. The computer readable storage medium according to claim 14, wherein

determining the valid transmission occasion from the transmission occasions of the random access message further comprises:

determining the valid transmission occasion from the transmission occasions of the random access message further based on a slot format indicated in second configuration information, wherein the second configuration information comprises UE-specific TDD configuration information.

~~19~~16. The computer readable storage medium according to ~~any one of claims 16 to 18~~claim 14 or claim 15, wherein the determining a valid transmission occasion from transmission occasions of a random access message comprises:

if a transmission occasion of the random access message is located in an uplink symbol indicated by the first configuration information, determining that the transmission occasion is a valid transmission occasion;~~wherein~~

~~the first configuration information comprises cell-specific TDD configuration information.~~

~~20~~17. The computer readable storage medium according to ~~any one of claims 16 to 18~~claim 14 or claim 15, wherein the determining a valid transmission occasion from transmission occasions of a random access message comprises:

if a transmission occasion of the random access message meets at least one of preset conditions, determining that the transmission occasion is a valid transmission occasion, wherein the preset conditions comprise:

in one slot, the transmission occasion does not precede an SSB occasion;

a time gap between the transmission occasion and a first preset occasion is greater than or equal to a first preset value, wherein the first preset occasion is a time domain location of a latest downlink symbol before the transmission occasion; and

a time gap between the transmission occasion and a second preset occasion is greater than or equal to a first preset value, wherein the second preset occasion is a latest SSB occasion before the transmission occasion.