

What is claimed is:

1. A method of determining uplink and downlink transmission configuration, applied to a User Equipment (UE), comprising:

5 determining a correspondence relationship between a start position of uplink and downlink transmission period and a start position of radio frame, based on uplink and downlink transmission configuration parameters configured by a base station,

 wherein the uplink and downlink transmission configuration parameters comprise one set of uplink and downlink transmission configuration parameters or
10 two sets of uplink and downlink transmission configuration parameters, and each set of uplink and downlink transmission configuration parameters comprises an uplink and downlink transmission period;

characterized in that,

in the case that the uplink and downlink transmission configuration parameters
15 comprise two sets of uplink and downlink transmission configuration parameters, an
 uplink and downlink transmission period in a first set of uplink and downlink
 transmission configuration parameters is X, an uplink and downlink transmission
 period in a second set of uplink and downlink transmission configuration parameters
 is Y, and the uplink and downlink transmission periods in the two sets of uplink and
20 downlink transmission configuration parameters constitute a combined period X+Y for
 transmission;

the determining the correspondence relationship between the start position of
 uplink and downlink transmission period and the start position of radio frame
 comprises:

25 acquiring a number of a predefined and aligned radio frame, wherein a start
 position of the radio frame corresponding to the number is aligned with a start
 position of a predetermined period in the combined period;

or

in the case that the uplink and downlink transmission configuration parameters
30 comprise two sets of uplink and downlink transmission configuration parameters, an
 uplink and downlink transmission period in a first set of uplink and downlink
 transmission configuration parameters is X, an uplink and downlink transmission
 period in a second set of uplink and downlink transmission configuration parameters
 is Y, and the uplink and downlink transmission periods in the two sets of uplink and

downlink transmission configuration parameters constitute a combined period $X+Y$ for transmission;

the determining the correspondence relationship between the start position of uplink and downlink transmission period and the start position of radio frame comprises:

determining that a start position of a first radio frame at a time interval T is the same as a start position of a predetermined period in the combined period;

wherein the time interval T is predefined, or the time interval T is determined based on a period of a synchronization signal block.

2. The method according to claim 1, wherein in the case that the uplink and downlink transmission configuration parameters comprise one set of uplink and downlink transmission configuration parameters, a length of a radio frame is capable of including K complete uplink and downlink transmission periods, wherein K is a positive integer;

the determining the correspondence relationship between the start position of uplink and downlink transmission period and the start position of radio frame comprises:

determining that a start position of a first uplink and downlink transmission period of the K uplink and downlink transmission periods is aligned with a start position of the radio frame.

3. The method according to claim 1, wherein in the case that the uplink and downlink transmission configuration parameters comprise two sets of uplink and downlink transmission configuration parameters, an uplink and downlink transmission period in a first set of uplink and downlink transmission configuration parameters is X , an uplink and downlink transmission period in a second set of uplink and downlink transmission configuration parameters is Y , and the uplink and downlink transmission periods in the two sets of uplink and downlink transmission configuration parameters constitute a combined period $X+Y$ for transmission, and a length of a radio frame is capable of including A complete combined periods, wherein A is a positive integer;

the determining the correspondence relationship between the start position of uplink and downlink transmission period and the start position of radio frame comprises:

determining that a start position of a first combined period of the A combined periods is aligned with a start position of the radio frame.

4. The method according to claim 1, wherein in the case that the uplink and downlink transmission configuration parameters comprise two sets of uplink and downlink transmission configuration parameters, an uplink and downlink transmission period in a first set of uplink and downlink transmission configuration parameters is X , an uplink and downlink transmission period in a second set of uplink and downlink transmission configuration parameters is Y , and the uplink and downlink transmission periods in the two sets of uplink and downlink transmission configuration parameters constitute a combined period $X+Y$ for transmission;

the determining the correspondence relationship between the start position of uplink and downlink transmission period and the start position of radio frame comprises:

determining that a number of a radio frame of which a start position is aligned with a start position of a predetermined period in the combined period satisfies $SFN \bmod N_c = M$, wherein SFN is the number of the radio frame, $\bmod$ is a remainder function, N_c is a ratio of T_c to a length of the radio frame, T_c is a least common multiple of the combined period and the length of the radio frame, and M is a positive integer ranging from 0 to N_c-1 .

5. The method according to claim 1, wherein in the case that the uplink and downlink transmission configuration parameters comprise one set of uplink and downlink transmission configuration parameters, a length of a radio frame is capable of including K complete uplink and downlink transmission periods, wherein K is a positive integer;

the determining the correspondence relationship between the start position of uplink and downlink transmission period and the start position of radio frame comprises:

determining that a number of a radio frame of which a start position is aligned with a start position of the uplink and downlink transmission period satisfies $(N_{slot}^{frame, \mu} \cdot n_f + n_{s,f}^{\mu}) \bmod N = 0$, wherein μ is an index of a subcarrier interval, N is a quantity of slots with reference to a subcarrier interval corresponding to μ in a downlink transmission period, $n_{s,f}^{\mu}$ is a slot number in the radio frame, $N_{slot}^{frame, \mu}$ is a quantity of slots with reference to a subcarrier interval corresponding to μ in one radio frame, and n_f is a number of the radio frame.

6. The method according to claim 1, wherein in the case that the uplink and downlink transmission configuration parameters comprise two sets of uplink and downlink transmission configuration parameters, an uplink and downlink transmission period in a first set of uplink and downlink transmission configuration parameters is X , an uplink and downlink transmission period in a second set of uplink and downlink transmission configuration parameters is Y , and the uplink and downlink transmission periods in the two sets of uplink and downlink transmission configuration parameters constitute a combined period $X+Y$ for transmission;

the determining the correspondence relationship between the start position of uplink and downlink transmission period and the start position of radio frame comprises:

determining that a number of a radio frame of which a start position is aligned with a start position of a first uplink and downlink transmission period X in the combined period satisfies $(N_{slot}^{frame,\mu} \cdot n_f + n_{s,f}^{\mu}) \bmod (N_X + N_Y) = 0$, wherein μ is an index of a subcarrier interval, N_X is a quantity of slots with reference to a subcarrier interval corresponding to μ in the uplink and downlink transmission period X , N_Y is a quantity of slots with reference to a subcarrier interval corresponding to μ in the uplink and downlink transmission period Y , $n_{s,f}^{\mu}$ is a slot number in the radio frame, $N_{slot}^{frame,\mu}$ is a quantity of slots with reference to a subcarrier interval corresponding to μ in one radio frame, and n_f is a number of the radio frame;

and/or

determining that a number of a radio frame of which a start position is aligned with a start position of a second uplink and downlink transmission period Y in the combined period satisfies $(N_{slot}^{frame,\mu} \cdot n_f + n_{s,f}^{\mu}) \bmod (N_X + N_Y) = N_X$.

7. The method according to claim 1, wherein in the case that the uplink and downlink transmission configuration parameters comprise one set of uplink and downlink transmission configuration parameters, the determining the correspondence relationship between the start position of uplink and downlink transmission period and the start position of radio frame comprises:

acquiring a number of a predefined and aligned radio frame, wherein a start position of the radio frame corresponding to the number is aligned with a start position of the uplink and downlink transmission period.

8. ~~The method according to claim 1, wherein in the case that the uplink and downlink transmission configuration parameters comprise two sets of uplink and downlink transmission configuration parameters, an uplink and downlink transmission period in a first set of uplink and downlink transmission configuration parameters is~~
5 ~~X , an uplink and downlink transmission period in a second set of uplink and downlink transmission configuration parameters is Y , and the uplink and downlink transmission periods in the two sets of uplink and downlink transmission configuration parameters constitute a combined period $X+Y$ for transmission;~~

~~the determining the correspondence relationship between the start position of uplink and downlink transmission period and the start position of radio frame comprises:~~
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~~acquiring a number of a predefined and aligned radio frame, wherein a start position of the radio frame corresponding to the number is aligned with a start position of a predetermined period in the combined period.~~

98. The method according to claim 1, wherein in the case that the uplink and downlink transmission configuration parameters comprise one set of uplink and downlink transmission configuration parameters, the determining the correspondence relationship between the start position of uplink and downlink transmission period and the start position of radio frame comprises:
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20 receiving a number of an aligned radio frame sent by the base station, wherein a start position of the radio frame corresponding to the number is aligned with a start position of the uplink and downlink transmission period.

~~109. The method according to claim 1, wherein in the case that the uplink and downlink transmission configuration parameters comprise two sets of uplink and downlink transmission configuration parameters, an uplink and downlink transmission period in a first set of uplink and downlink transmission configuration parameters is~~
25 ~~X , an uplink and downlink transmission period in a second set of uplink and downlink transmission configuration parameters is Y , and the uplink and downlink transmission periods in the two sets of uplink and downlink transmission configuration parameters constitute a combined period $X+Y$ for transmission;~~
30

~~the determining the correspondence relationship between the start position of uplink and downlink transmission period and the start position of radio frame comprises:~~

receiving a number of an aligned radio frame sent by the base station, wherein a start position of the radio frame corresponding to the number is aligned with a start position of a predetermined period in the combined period;

wherein the predetermined period in the combined period is the uplink and
5 downlink transmission period corresponding to the first set of uplink and downlink transmission configuration parameters of the two sets of uplink and downlink transmission configuration parameters, or the predetermined period in the combined period is the uplink and downlink transmission period corresponding to the second set of uplink and downlink transmission configuration parameters of the two sets of
10 uplink and downlink transmission configuration parameters.

~~11. The method according to claim 1, wherein in the case that the uplink and downlink transmission configuration parameters comprise two sets of uplink and downlink transmission configuration parameters, an uplink and downlink transmission period in a first set of uplink and downlink transmission configuration parameters is X , an uplink and downlink transmission period in a second set of uplink and downlink transmission configuration parameters is Y , and the uplink and downlink transmission periods in the two sets of uplink and downlink transmission configuration parameters constitute a combined period $X+Y$ for transmission;~~

~~the determining the correspondence relationship between the start position of uplink and downlink transmission period and the start position of radio frame comprises:~~

~~determining that a start position of a first radio frame at a time interval T is the same as a start position of a predetermined period in the combined period;~~

~~wherein the time interval T is predefined, or the time interval T is configured by the base station, or the time interval T is determined based on a period of a synchronization signal block.~~

~~1210. A method of configuring uplink and downlink transmission, applied to a base station, characterized by comprising:~~

~~sending a number of an aligned radio frame, in the case that uplink and downlink transmission configuration parameters comprise two sets of uplink and downlink transmission configuration parameters, an uplink and downlink transmission period in a first set of uplink and downlink transmission configuration parameters is X , an uplink and downlink transmission period in a second set of uplink and downlink transmission configuration parameters is Y , and the uplink and downlink transmission~~

periods in the two sets of uplink and downlink transmission configuration parameters constitute a combined period $X+Y$ for transmission, wherein a start position of the radio frame corresponding to the number is aligned with a start position of a predetermined period in the combined period~~sending a number of an aligned radio frame, in the case that uplink and downlink transmission configuration parameters configured by the base station comprise one set of uplink and downlink transmission configuration parameters, wherein a start position of the radio frame corresponding to the number is aligned with a start position of an uplink and downlink transmission period.~~

11. A User Equipment (UE), comprising:

a processor, configured to determine a correspondence relationship between a start position of uplink and downlink transmission period and a start position of radio frame, based on uplink and downlink transmission configuration parameters configured by a base station,

wherein the uplink and downlink transmission configuration parameters comprise one set of uplink and downlink transmission configuration parameters or two sets of uplink and downlink transmission configuration parameters, and each set of uplink and downlink transmission configuration parameters comprises an uplink and downlink transmission period;

characterized in that the processor is further configured to:

in the case that the uplink and downlink transmission configuration parameters comprise two sets of uplink and downlink transmission configuration parameters, an uplink and downlink transmission period in a first set of uplink and downlink transmission configuration parameters is X , an uplink and downlink transmission period in a second set of uplink and downlink transmission configuration parameters is Y , and the uplink and downlink transmission periods in the two sets of uplink and downlink transmission configuration parameters constitute a combined period $X+Y$ for transmission,

acquire a number of a predefined and aligned radio frame, wherein a start position of the radio frame corresponding to the number is aligned with a start position of a predetermined period in the combined period;

or

the processor is further configured to:

in the case that the uplink and downlink transmission configuration parameters comprise two sets of uplink and downlink transmission configuration parameters, an uplink and downlink transmission period in a first set of uplink and downlink transmission configuration parameters is X , an uplink and downlink transmission period in a second set of uplink and downlink transmission configuration parameters is Y , and the uplink and downlink transmission periods in the two sets of uplink and downlink transmission configuration parameters constitute a combined period $X+Y$ for transmission,

determine that a start position of a first radio frame at a time interval T is the same as a start position of a predetermined period in the combined period;

wherein the time interval T is predefined, or the time interval T is determined based on a period of a synchronization signal block.

4412. The UE according to claim 4311, wherein the processor is further configured to:

in the case that the uplink and downlink transmission configuration parameters comprise one set of uplink and downlink transmission configuration parameters, a length of a radio frame is capable of including K complete uplink and downlink transmission periods,

determine that a start position of a first uplink and downlink transmission period of the K uplink and downlink transmission periods is aligned with a start position of the radio frame, wherein K is a positive integer.

4513. The UE according to claim 4311, wherein the processor is further configured to:

in the case that the uplink and downlink transmission configuration parameters comprise two sets of uplink and downlink transmission configuration parameters, an uplink and downlink transmission period in a first set of uplink and downlink transmission configuration parameters is X , an uplink and downlink transmission period in a second set of uplink and downlink transmission configuration parameters is Y , and the uplink and downlink transmission periods in the two sets of uplink and downlink transmission configuration parameters constitute a combined period $X+Y$ for transmission, and a length of a radio frame is capable of including A complete combined periods,

determine that a start position of a first combined period of the A combined periods is aligned with a start position of the radio frame, wherein A is a positive integer.

14. The UE according to claim 13, wherein the processor is further configured to:

in the case that the uplink and downlink transmission configuration parameters comprise two sets of uplink and downlink transmission configuration parameters, an uplink and downlink transmission period in a first set of uplink and downlink transmission configuration parameters is X , an uplink and downlink transmission period in a second set of uplink and downlink transmission configuration parameters is Y , and the uplink and downlink transmission periods in the two sets of uplink and downlink transmission configuration parameters constitute a combined period $X+Y$ for transmission,

determine that a number of a radio frame of which a start position is aligned with a start position of a predetermined period in the combined period satisfies $SFN \bmod Nc=M$, wherein SFN is the number of the radio frame, $\bmod$ is a remainder function, Nc is a ratio of Tc to a length of the radio frame, Tc is a least common multiple of the combined period and the length of the radio frame, and M is a positive integer ranging from 0 to $Nc-1$.

15. The UE according to claim 13, wherein the processor is further configured to:

in the case that the uplink and downlink transmission configuration parameters comprise one set of uplink and downlink transmission configuration parameters, a length of a radio frame is capable of including K complete uplink and downlink transmission periods,

determine that a number of a radio frame of which a start position is aligned with a start position of the uplink and downlink transmission period satisfies $(N_{slot}^{frame,\mu} \cdot n_f + n_{s,f}^{\mu}) \bmod N=0$, wherein μ is an index of a subcarrier interval, N is a quantity of slots with reference to a subcarrier interval corresponding to μ in a downlink transmission period, $n_{s,f}^{\mu}$ is a slot number in the radio frame, $N_{slot}^{frame,\mu}$ is a quantity of slots with reference to a subcarrier interval corresponding to μ in one radio frame, and n_f is a number of the radio frame, wherein K is a positive integer.

1816. The UE according to claim 1311, wherein the processor is further configured to:

in the case that the uplink and downlink transmission configuration parameters comprise two sets of uplink and downlink transmission configuration parameters, an uplink and downlink transmission period in a first set of uplink and downlink transmission configuration parameters is X , an uplink and downlink transmission period in a second set of uplink and downlink transmission configuration parameters is Y , and the uplink and downlink transmission periods in the two sets of uplink and downlink transmission configuration parameters constitute a combined period $X+Y$ for transmission,

determine that a number of a radio frame of which a start position is aligned with a start position of a first uplink and downlink transmission period X in the combined period satisfies $(N_{slot}^{frame,\mu} \cdot n_f + n_{s,f}^{\mu}) \bmod (N_X + N_Y) = 0$, wherein μ is an index of a subcarrier interval, N_X is a quantity of slots with reference to a subcarrier interval corresponding to μ in the uplink and downlink transmission period X , N_Y is a quantity of slots with reference to a subcarrier interval corresponding to μ in the uplink and downlink transmission period Y , $n_{s,f}^{\mu}$ is a slot number in the radio frame, $N_{slot}^{frame,\mu}$ is a quantity of slots with reference to a subcarrier interval corresponding to μ in one radio frame, and n_f is a number of the radio frame;

and/or

determine that a number of a radio frame of which a start position is aligned with a start position of a second uplink and downlink transmission period Y in the combined period satisfies $(N_{slot}^{frame,\mu} \cdot n_f + n_{s,f}^{\mu}) \bmod (N_X + N_Y) = N_X$.

1917. The UE according to claim 1311, wherein the processor is further configured to: in the case that the uplink and downlink transmission configuration parameters comprise one set of uplink and downlink transmission configuration parameters,

acquire a number of a predefined and aligned radio frame, wherein a start position of the radio frame corresponding to the number is aligned with a start position of the uplink and downlink transmission period.

~~20. The UE according to claim 13, wherein the processor is further configured to:—~~

~~in the case that the uplink and downlink transmission configuration parameters comprise two sets of uplink and downlink transmission configuration parameters, an uplink and downlink transmission period in a first set of uplink and downlink transmission configuration parameters is X , an uplink and downlink transmission period in a second set of uplink and downlink transmission configuration parameters is Y , and the uplink and downlink transmission periods in the two sets of uplink and downlink transmission configuration parameters constitute a combined period $X+Y$ for transmission,~~

~~acquire a number of a predefined and aligned radio frame, wherein a start position of the radio frame corresponding to the number is aligned with a start position of a predetermined period in the combined period.~~

~~2218.~~ The UE according to claim ~~1311~~, further comprising a transceiver configured to: in the case that the uplink and downlink transmission configuration parameters comprise one set of uplink and downlink transmission configuration parameters, receive a number of an aligned radio frame sent by the base station, wherein a start position of the radio frame corresponding to the number is aligned with a start position of the uplink and downlink transmission period.

~~2219.~~ The UE according to claim ~~1311~~, further comprising a transceiver configured to: in the case that the uplink and downlink transmission configuration parameters comprise two sets of uplink and downlink transmission configuration parameters, an uplink and downlink transmission period in a first set of uplink and downlink transmission configuration parameters is X , an uplink and downlink transmission period in a second set of uplink and downlink transmission configuration parameters is Y , and the uplink and downlink transmission periods in the two sets of uplink and downlink transmission configuration parameters constitute a combined period $X+Y$ for transmission, receive a number of an aligned radio frame sent by the base station, wherein a start position of the radio frame corresponding to the number is aligned with a start position of a predetermined period in the combined period;

wherein the predetermined period in the combined period is the uplink and downlink transmission period corresponding to the first set of uplink and downlink transmission configuration parameters of the two sets of uplink and downlink transmission configuration parameters, or the predetermined period in the combined period is the uplink and downlink transmission period corresponding to the second set

of uplink and downlink transmission configuration parameters of the two sets of uplink and downlink transmission configuration parameters.

23. ~~The UE according to claim 13, wherein the processor is further configured to: in the case that the uplink and downlink transmission configuration parameters~~
5 ~~comprise two sets of uplink and downlink transmission configuration parameters, an~~
~~uplink and downlink transmission period in a first set of uplink and downlink~~
~~transmission configuration parameters is X , an uplink and downlink transmission~~
~~period in a second set of uplink and downlink transmission configuration parameters~~
~~is Y , and the uplink and downlink transmission periods in the two sets of uplink and~~
10 ~~downlink transmission configuration parameters constitute a combined period $X+Y$ for~~
~~transmission;~~

~~determine that a start position of a first radio frame at a time interval T is the~~
~~same as a start position of a predetermined period in the combined period;~~

~~wherein the time interval T is predefined, or the time interval T is configured~~
15 ~~by the base station, or the time interval T is determined based on a period of a~~
~~synchronization signal block.~~

2420. A base station, comprising a transceiver configured to send a number of
an aligned radio frame, in the case that uplink and downlink transmission
configuration parameters comprise two sets of uplink and downlink transmission
20 configuration parameters, an uplink and downlink transmission period in a first set of
uplink and downlink transmission configuration parameters is X , an uplink and
downlink transmission period in a second set of uplink and downlink transmission
configuration parameters is Y , and the uplink and downlink transmission periods in
the two sets of uplink and downlink transmission configuration parameters constitute
25 a combined period $X+Y$ for transmission, wherein a start position of the radio frame
corresponding to the number is aligned with a start position of a predetermined period
in the combined periods~~send a number of an aligned radio frame, in the case that~~
~~uplink and downlink transmission configuration parameters configured by the base~~
~~station comprise one set of uplink and downlink transmission configuration~~
30 ~~parameters, wherein a start position of the radio frame corresponding to the number is~~
~~aligned with a start position of an uplink and downlink transmission period.~~