

CLAIMS

1. A method for determining a time domain resource, comprising:

determining, by a terminal device, a first slot set in a first period according to a first time division duplexing, TDD, configuration in radio resource control, RRC, signaling or a second TDD configuration in a physical sidelink broadcast channel, PSBCH; and

selecting, by the terminal device, a part of slots from the first slot set according to a first bitmap, wherein the part of slots forms a time domain resource of a resource pool.

~~2. The method according to claim 1, wherein determining the first slot set in the first period comprises:~~

~~determining the first slot set in the first period as follows:~~

$$\mathbf{t}^{SL} = \{t_0^{SL}, t_1^{SL}, \dots, t_{I_{max}}^{SL}\};$$

~~where $0 \leq t_i^{SL} < M \times 2^\mu$, M is a number of subframes in the first period and μ is determined based on a subcarrier spacing, SCS, on a bandwidth part, BWP.~~

~~3. The method according to claim 2, wherein when the terminal device is a terminal device in coverage of a base station, the first slot set comprises all slots other than the following slots in the first period:~~

~~a first type of slots, the first type of slots being slots configured as sidelink synchronization signal block, S-SSB, resources;~~

~~a second type of slots, the second type of slots being slots in which a number of uplink symbols indicated by the first TDD configuration in the RRC signaling is less than N , and N being a positive integer;~~

~~a third type of slots, the third type of slots being full uplink slots, other than a second uplink slot set, in a first uplink slot set, the first uplink slot set being an uplink slot set indicated by the first TDD configuration in the RRC signaling, and the second uplink slot set being an uplink slot set indicated by the second TDD configuration in the PSBCH; and~~

~~a fourth type of slots, the fourth type of slots being reserved slots.~~

~~4. The method according to claim 3, wherein that the second type of slots being the slots in which the number of uplink symbols indicated by the first TDD configuration in the RRC signaling is less than N comprises:~~

~~for a normal cyclic prefix, CP, length, the second type of slots are slots in which the number of uplink symbols indicated by the first TDD configuration in the RRC signaling is less than 14; or,~~

~~for an extension CP length, the second type of slots are slots in which the number of uplink symbols indicated by the first TDD configuration in the RRC signaling is less than 12.~~

~~5. The method according to claim 2, wherein when the terminal device is a terminal device in coverage of a base station, the first slot set comprises all slots other than the following slots in a second uplink slot set in the first period, the second uplink slot set being an uplink slot set indicated by the second TDD configuration in the PSBCH:~~

~~a first type of slots, the first type of slots being slots configured as S-SSB resources; and~~

~~a fourth type of slots, the fourth type of slots being reserved slots.~~

~~6. The method according to any one of claims 3-5, further comprising:~~

~~determining, by the terminal device, that a carrier presently used for sidelink communication allows PSBCH transmission, or the resource pool is used for sidelink communication between the terminal device in the coverage of the base station and a terminal device outside the coverage of the base station.~~

~~7. The method according to claim 2, wherein when the terminal device is a terminal device in coverage of a base station, the first slot set comprises all slots other than the following slots in the first period:~~

~~a first type of slots, the first type of slots being slots configured as S-SSB resources;~~

~~a fifth type of slots, the fifth type of slots being slots in which Y continuous symbols starting from a symbol X are not full uplink symbols, X and Y being positive integers; and~~

~~a fourth type of slots, the fourth type of slots being reserved slots.~~

~~8. The method according to claim 7, wherein~~

~~values of X and Y are determined based on RRC configuration parameters; or,~~

~~the values of X and Y are determined based on preconfigured parameters.~~

~~9. The method according to claim 7 or 8, further comprising:~~

determining, by the terminal device, that the carrier presently used for sidelink communication does not allow PSBCH transmission, or the resource pool is not used for sidelink communication between the terminal device in the coverage of the base station and a terminal device outside the coverage of the base station.

10. The method according to claim 2, wherein when the terminal device is a terminal device outside coverage of a base station, the first slot set comprises all slots other than the following slots in a second uplink slot set in the first period, the second uplink slot set being an uplink slot set indicated by the second TDD configuration in the PSBCH:

a first type of slots, the first type of slots being slots configured as S-SSB resources;
and

a fourth type of slots, the fourth type of slots being reserved slots.

11. The method according to any one of claims 7-10, further comprising:

expecting, by the terminal device, that a first uplink slot set indicated by the first TDD configuration in the RRC signaling is the same as a second uplink slot set indicated by the second TDD configuration in the PSBCH; or,

expecting, by the terminal device, that the first uplink slot set indicated by the first TDD configuration in the RRC signaling is able to be indicated by the PSBCH.

122. The method according to ~~any one of claims 1-11~~ claim 1, further comprising:

determining, by the terminal device, a reserved resource interval based on a number of slots available for sidelink communication in a statistical period; and

indicating, by the terminal device, the reserved resource interval through sidelink control information, SCI.

133. The method according to claim 122, wherein determining, by the terminal device, the reserved resource interval based on the number of slots available for sidelink communication in the statistical period comprises:

determining, by the terminal device, the reserved resource interval in the following mode:

$$P'_{\text{rsvp_TX}} = \left\lceil P_{\text{rsvp_TX}} * \frac{P_{\text{step}}}{T} \right\rceil;$$

where $P'_{\text{rsvp_TX}}$ represents the resource reservation interval in slots, $P_{\text{rsvp_TX}}$ represents

an absolute resource reservation period in milliseconds, T represents the statistical period, and P_{step} represents the number of slots available for sidelink communication in the statistical period.

~~14. The method according to claim 12, wherein determining, by the terminal device, the reserved resource interval based on the number of slots available for sidelink communication in the statistical period comprises:~~

~~determining, by the terminal device, the reserved resource interval in the following mode:~~

$$P'_{\text{resvp_TX}} = n \times l;$$

~~where $P'_{\text{resvp_TX}}$ represents the resource reservation interval, l represents a length of the first bitmap, n is a positive integer enabling $n \times l$ to be closest to $P_{\text{resvp_TX}} \times \frac{P_{\text{step}}}{T}$, $P_{\text{resvp_TX}}$ represents an absolute resource reservation period, T represents the statistical period, and P_{step} represents the number of slots available for sidelink communication in the statistical period.~~

~~154. The method according to any one of claims 1-141-3, when the terminal device is a terminal device in coverage of a base station, the method further comprises:~~

~~determining, by the terminal device, the second TDD configuration in the PSBCH according to the first TDD configuration in the RRC signaling; and~~

~~transmitting, by the terminal device, the PSBCH, wherein the PSBCH carries the second TDD configuration.~~

~~165. The method according to claim 154, wherein the second TDD configuration comprises at least one of the following:~~

~~first indication information used to indicate a number of patterns;~~

~~second indication information used to indicate a pattern period; and~~

~~third indication information used to indicate a number of full uplink slots in the first pattern and/or the second pattern.~~

~~17. The method according to claim 16, wherein~~

~~the third indication information indicates the number of full uplink slots in the first~~

pattern through m bits $\{b_s, \dots, b_{s+m-1}\}$, and indicates the number of full uplink slots in the second pattern through n bits $\{b_{s+m}, \dots, b_{s+m+n-1}\}$;

wherein $m + n = N$, and N represents a total number of bits used for indicating the number of full uplink slots in each pattern.

18. The method according to claim 17, wherein when a number of the patterns indicated by the first TDD configuration in the RRC signaling is 2 and a period of the first pattern and a period of the second pattern are not all 10ms,

in condition that there are no full uplink slots in the first pattern or all slots in the second pattern are full uplink slots, the first indication information in the PSBCH indicates that the number of the patterns is 1, and the second indication information indicates a sum of the period of the first pattern and the period of the second pattern.

19. The method according to claim 17, wherein when a number of the patterns indicated by the first TDD configuration in the RRC signaling is 2 and a period of at least one of the first pattern or the second pattern is 10ms,

the first indication information in the PSBCH indicates that the number of the patterns is 2.

20. The method according to claim 17, wherein when a number of the patterns indicated by the first TDD configuration in the RRC signaling is 2, and there is at least one full uplink slot in the first pattern, and slots in the second pattern are not all full uplink slots,

the first indication information in the PSBCH indicates that the number of the patterns is 2.

21. The method according to claim 19 or 20, wherein when the first indication information in the PSBCH indicates that the number of the patterns is 2, the method further comprises:

determining, by the terminal device, values of m and n in the following mode:

$$m = \lfloor \log_2(P_1 \times 2^{\#}) \rfloor, n = N - m;$$

where P_1 represents the period of the first pattern in milliseconds.

22. The method according to claim 21, wherein

a number of full uplink slots in the first pattern is equal to a decimal representation

value corresponding to the m bits plus 1; and

a number of full uplink slots in the second pattern is equal to a decimal representation value corresponding to the n bits.

23. The method according to claim 19 or 20, wherein when the first indication information in the PSBCH indicates that the number of the patterns is 2, the method further comprises:

determining, by the terminal device, values of m and n in the following mode:

if $P_1 \leq P_2$, $m = \lfloor \log_2(P_1 \times 2^{\#}) \rfloor$, $n = N - m$;

if $P_1 > P_2$, $m = N - \lfloor \log_2(P_2 \times 2^{\#}) \rfloor$, $n = N - m$;

where P_1 represents the period of the first pattern in milliseconds, and P_2 represents the period of the second pattern in milliseconds.

24. The method according to claim 23, wherein

if $P_1 \times 2^{\#} \leq 2^m$, a number of full uplink slots in the first pattern is equal to a decimal representation value corresponding to the m bits plus 1, if $P_1 \times 2^{\#} > 2^m$, the number of full uplink slots in the first pattern is equal to the decimal representation value corresponding to the m bits plus 1 and then multiplied by k_1 ; or,

if $P_2 \times 2^{\#} \leq 2^n$, a number of full uplink slots in the second pattern is a decimal representation value corresponding to the n bits, if $P_2 \times 2^{\#} > 2^n$, the number of full uplink slots in the second pattern is the decimal representation value corresponding to the n bits multiplied by k_2 ;

wherein k_1 is a smallest integer enabling $P_1 \times 2^{\#} \leq k_1 \times 2^m$ and k_2 is a smallest integer enabling $P_2 \times 2^{\#} \leq k_2 \times 2^n$.

256. The method according to claim 165, wherein

the third indication information indicates the number of full uplink slots in the first pattern and/or the second pattern through N bits $\{b_5, \dots, b_{5+N-1}\}$;

wherein N represents a total number of bits used for indicating the number of full uplink slots in each pattern.

267. The method according to claim 256, when a number of the patterns indicated by the first TDD configuration in the RRC signaling is 2, the method comprises:

determining, by the terminal device, a decimal representation value of the N bits in the PSBCH in the following mode:

$$D = \lfloor a \times 2^{\mu_{\text{ref}} - \mu_{\text{PSBCH}}} \rfloor \times (P_2 \times 2^{\mu_{\text{ref}}} + 1) + \lfloor b \times 2^{\mu_{\text{ref}} - \mu_{\text{PSBCH}}} \rfloor;$$

where D represents the decimal representation value of the N bits in the PSBCH, a represents the number of full uplink slots in the first pattern, b represents the number of full uplink slots in the second pattern, μ_{ref} represents a reference SCS index, and μ_{PSBCH} represents a configured or pre-configured SCS index on a BWP where the PSBCH is located.

278. The method according to claim 267, wherein μ_{ref} is determined in the following mode:

when a sum of the period of the first pattern and the period of the second pattern is less than 4ms or not greater than 2.5ms, $\mu_{\text{ref}} = \mu_{\text{PSBCH}}$; or,

when the sum of the period of the first pattern and the period of the second pattern is 4ms or 5ms, $\mu_{\text{ref}} = \min(\mu_{\text{PSBCH}}, 2)$; or,

when the sum of the period of the first pattern and the period of the second pattern is 10ms, $\mu_{\text{ref}} = \min(\mu_{\text{PSBCH}}, 1)$; or,

when the sum of the period of the first pattern and the period of the second pattern is 20ms, $\mu_{\text{ref}} = 0$.

~~28. The method according to claim 26, wherein μ_{ref} is determined in the following modes:~~

~~when a sum of the period of the first pattern and the period of the second pattern is not greater than 5ms, $\mu_{\text{ref}} = \min(\mu_{\text{PSBCH}}, 2)$; or,~~

~~when the sum of the period of the first pattern and the period of the second pattern is greater than 5ms, $\mu_{\text{ref}} = 0$.~~

~~29. The method according to claim 26, wherein μ_{ref} is determined in the following mode:~~

$$\mu_{\text{ref}} = 0.$$

~~30. The method according to any one of claims 1-29, wherein the first period is a system frame number, SFN, period or a direct frame number, DFN, period.~~

319. An apparatus for determining a time domain resource, applied to a terminal device, the apparatus comprising:

a determination unit, configured to determine a first slot set in a first period according

to a first time division duplexing, TDD, configuration in radio resource control, RRC, signaling or a second TDD configuration in a physical sidelink broadcast channel, PSBCH; and

a selection unit, configured to select a part of slots from the first slot set according to a first bitmap, wherein the part of slots forms a time domain resource of a resource pool.

32. The apparatus according to claim 31, wherein the determination unit is configured to determine the first slot set in the first period as follows:

$$t^{SL} = \{t_0^{SL}, t_1^{SL}, \dots, t_{I_{\max}}^{SL}\};$$

where $0 \leq t_i^{SL} < M \times 2^\mu$, M is a number of subframes in the first period and μ is determined based on a subcarrier spacing, SCS, on a bandwidth part, BWP.

33. The apparatus according to claim 32, wherein when the terminal device is a terminal device in coverage of a base station, the first slot set comprises all slots other than the following slots in the first period:

a first type of slots, the first type of slots being slots configured as sidelink synchronization signal block, S-SSB, resources;

a second type of slots, the second type of slots being slots in which the number of uplink symbols indicated by the first TDD configuration in the RRC signaling is less than N , and N being a positive integer;

a third type of slots, the third type of slots being full uplink slots, other than a second uplink slot set, in a first uplink slot set, the first uplink slot set being an uplink slot set indicated by the first TDD configuration in the RRC signaling, and the second uplink slot set being an uplink slot set indicated by the second TDD configuration in the PSBCH; and

a fourth type of slots, the fourth type of slots being reserved slots.

34. The apparatus according to claim 33, wherein the second type of slots being the slots in which the number of uplink symbols indicated by the first TDD configuration in the RRC signaling is less than N comprises:

for a normal cyclic prefix, CP, length, the second type of slots are slots in which the number of uplink symbols indicated by the first TDD configuration in the RRC signaling is less than 14; or,

for an extension CP length, the second type of slots are slots in which the number of

~~uplink symbols indicated by the first TDD configuration in the RRC signaling is less than 12.~~

~~35. The apparatus according to claim 32, wherein when the terminal device is a terminal device in coverage of a base station, the first slot set comprises all slots other than the following slots in the second uplink slot set in the first period, the second uplink slot set being an uplink slot set indicated by the second TDD configuration in the PSBCH:~~

~~a first type of slots, the first type of slots being slots configured as S-SSB resources;~~
~~and~~

~~a fourth type of slots, the fourth type of slots being reserved slots.~~

~~36. The apparatus according to any one of claims 33-35, wherein the determination unit is further configured to determine that a carrier presently used for sidelink communication allows PSBCH transmission, or a resource pool is used for sidelink communication between the terminal device in the coverage of the base station and a terminal device outside the coverage of the base station.~~

~~37. The apparatus according to claim 32, wherein when the terminal device is a terminal device in coverage of a base station, the first slot set comprises all slots other than the following slots in the first period:~~

~~a first type of slots, the first type of slots being slots configured as S-SSB resources;~~
~~a fifth type of slots, the fifth type of slots being slots in which Y continuous symbols starting from a symbol X are not all uplink symbols, X and Y being positive integers; and~~
~~a fourth type of slots, the fourth type of slots being reserved slots.~~

~~38. The apparatus according to claim 37, wherein~~

~~values of X and Y are determined based on RRC configuration parameters; or,~~
~~the values of X and Y are determined based on preconfigured parameters.~~

~~39. The apparatus according to claim 37 or 38, wherein the determination unit is further configured to determine that the carrier presently used for sidelink communication does not allow PSBCH transmission, or a resource pool is not used for sidelink communication between the terminal device in the coverage of the base station and a terminal device outside the coverage of the base station.~~

~~40. The apparatus according to claim 32, wherein when the terminal device is a terminal device outside coverage of a base station, the first slot set comprises all slots other than the following slots in a second uplink slot set in the first period, the second uplink slot set being an uplink slot set indicated by the second TDD configuration in the PSBCH:~~

~~a first type of slots, the first type of slots being slots configured as S-SSB resources;~~
and

~~a fourth type of slots, the fourth type of slots being reserved slots.~~

~~41. The apparatus according to any one of claims 37-40, wherein~~

~~the terminal device expects that a first uplink slot set indicated by the first TDD configuration in the RRC signaling is the same as a second uplink slot set indicated by the second TDD configuration in the PSBCH; or,~~

~~the terminal device expects that the first uplink slot set indicated by the first TDD configuration in the RRC signaling is able to be indicated by the PSBCH.~~

~~42~~10. The apparatus according to ~~any one of claims 31-41~~claim 9, wherein

the determination unit is further configured to determine a reserved resource interval based on the number of slots available for sidelink communication in a statistical period;

~~the apparatus further comprises an indication unit configured to indicate the reserved resource interval through sidelink control information, SCI.~~

~~43~~11. The apparatus according to claim ~~42~~10, wherein the determination unit is configured to determine the reserved resource interval in the following mode:

$$P'_{\text{rsvp_TX}} = \left\lceil P_{\text{rsvp_TX}} * \frac{P_{\text{step}}}{T} \right\rceil;$$

where $P'_{\text{rsvp_TX}}$ represents the resource reservation interval in slots, $P_{\text{rsvp_TX}}$ represents an absolute resource reservation period in milliseconds, T represents the statistical period, and P_{step} represents the number of slots available for sidelink communication in the statistical period.

~~44. The apparatus according to claim 42, wherein the determination unit is configured to determine the reserved resource interval in the following mode:~~

$$P_{\text{rsvp_tx}}^* = n \times l;$$

where $P_{\text{rsvp_tx}}^*$ represents the resource reservation interval, l represents a length of the first bitmap, n is a positive integer enabling $n \times l$ to be closest to $P_{\text{rsvp_tx}} * \frac{P_{\text{step}}}{T}$, $P_{\text{rsvp_tx}}$ represents an absolute resource reservation period, T represents the statistical period, and P_{step} represents the number of slots available for sidelink communication in the statistical period.

4512. The apparatus according to any one of claims 31-449-11, wherein when the terminal device is a terminal device in coverage of a base station,

the determination unit is further configured to determine the second TDD configuration in the PSBCH according to the first TDD configuration in the RRC signaling; and

the apparatus further comprises a transmission unit configured to transmit the PSBCH, wherein the PSBCH carries the second TDD configuration.

4613. The apparatus according to claim 4512, wherein the second TDD configuration comprises at least one of the following:

first indication information used to indicate a number of patterns;

second indication information used to indicate a pattern period; and

third indication information used to indicate a number of full uplink slots in the first pattern and/or the second pattern.

47. The apparatus according to claim 46, wherein

the third indication information indicates the number of full uplink slots in the first pattern through m bits $\{b_s, \dots, b_{s+m-1}\}$, and indicates the number of full uplink slots in the second pattern through n bits $\{b_{s+m}, \dots, b_{s+m+n-1}\}$;

wherein $m + n = N$, N represents a total number of bits used for indicating the number of full uplink slots in each pattern.

48. The apparatus according to claim 47, wherein when a number of the patterns indicated by the first TDD configuration in the RRC signaling is 2 and a period of the first pattern and a period of the second pattern are not all 10ms,

in condition that there are no full uplink slots in the first pattern or all slots in the second pattern are full uplink slots, the first indication information in the PSBCH indicates that the number of the patterns is 1, and the second indication information indicates a sum of the period of the first pattern and the period of the second pattern.

49. The apparatus according to claim 47, wherein when a number of the patterns indicated by the first TDD configuration in the RRC signaling is 2 and a period of at least one of the first pattern and the second pattern is 10ms,

the first indication information in the PSBCH indicates that the number of the patterns is 2.

50. The apparatus according to claim 47, wherein when a number of the patterns indicated by the first TDD configuration in the RRC signaling is 2, and there is at least one full uplink slot in the first pattern, and slots in the second pattern are not all full uplink slots,

the first indication information in the PSBCH indicates that the number of the patterns is 2.

51. The apparatus according to claim 49 or 50, wherein when the first indication information in the PSBCH indicates that the number of the patterns is 2,

the determination unit is further configured to determine values of m and n in the following mode:

$$m = \lfloor \log_2(P_1 \times 2^N) \rfloor, n = N - m;$$

where P_1 represents the period of the first pattern in milliseconds.

52. The apparatus according to claim 51, wherein

a number of full uplink slots in the first pattern is equal to a decimal representation value corresponding to the m bits plus 1; and

a number of full uplink slots in the second pattern is equal to a decimal representation value corresponding to the n bits.

53. The apparatus according to claim 49 or 50, wherein when the first indication information in the PSBCH indicates that the number of the patterns is 2,

the determination unit is further configured to determine values of m and n in the

following mode:

if $P_1 \leq P_2$, $m = \lfloor \log_2(P_1 \times 2^{\#}) \rfloor$, $n = N - m$;

if $P_1 > P_2$, $m = N - \lfloor \log_2(P_2 \times 2^{\#}) \rfloor$, $n = N - m$;

where P_1 represents the period of the first pattern in milliseconds, and P_2 represents the period of the second pattern in milliseconds.

54. The apparatus according to claim 53, wherein

if $P_1 \times 2^{\#} \leq 2^m$, a number of full uplink slots in the first pattern is equal to a decimal representation value corresponding to the m bits plus 1, if $P_1 \times 2^{\#} > 2^m$, the number of full uplink slots in the first pattern is equal to the decimal representation value corresponding to the m bits plus 1 and then multiplied by $k1$; or,

if $P_2 \times 2^{\#} \leq 2^n$, a number of full uplink slots in the second pattern is a decimal representation value corresponding to the n bits, if $P_2 \times 2^{\#} > 2^n$, the number of full uplink slots in the second pattern is the decimal representation value corresponding to the n bits multiplied by $k2$;

wherein $k1$ is a smallest integer enabling $P_1 \times 2^{\#} \leq k1 \times 2^m$ and $k2$ is a smallest integer enabling $P_2 \times 2^{\#} \leq k2 \times 2^n$.

5514. The apparatus according to claim 4613, wherein

the third indication information indicates the number of full uplink slots in the first pattern and/or the second pattern through N bits $\{b_5, \dots, b_{5+N-1}\}$;

wherein N represents a total number of bits used for indicating the number of full uplink slots in each pattern;

5615. The apparatus according to claim 5514, wherein when a number of the patterns indicated by the first TDD configuration in the RRC signaling is 2,

the determination unit is further configured to determine a decimal representation value of the N bits in the PSBCH in the following mode:

$$D = \lfloor a \times 2^{\mu_{\text{ref}} - \mu_{\text{PSBCH}}} \rfloor \times (P_2 \times 2^{\mu_{\text{ref}}} + 1) + \lfloor b \times 2^{\mu_{\text{ref}} - \mu_{\text{PSBCH}}} \rfloor;$$

where D represents the decimal representation value of the N bits in the PSBCH, a represents the number of full uplink slots in the first pattern, b represents the number of full uplink slots in the second pattern, μ_{ref} represents a reference SCS index, and μ_{PSBCH}

represents a configured or pre-configured SCS index on a BWP where the PSBCH is located.

5716. The apparatus according to claim 5615, wherein μ_{ref} is determined in the following mode:

when a sum of the period of the first pattern and the period of the second pattern is less than 4ms or not greater than 2.5ms, $\mu_{\text{ref}} = \mu_{\text{PSBCH}}$; or,

when the sum of the period of the first pattern and the period of the second pattern is 4ms or 5ms, $\mu_{\text{ref}} = \min(\mu_{\text{PSBCH}}, 2)$; or,

when the sum of the period of the first pattern and the period of the second pattern is 10ms, $\mu_{\text{ref}} = \min(\mu_{\text{PSBCH}}, 1)$; or,

when the sum of the period of the first pattern and the period of the second pattern is 20ms, $\mu_{\text{ref}} = 0$.

~~58. The apparatus according to claim 56, wherein μ_{ref} is determined in the following mode:~~

~~when a sum of the period of the first pattern and the period of the second pattern is not greater than 5ms, $\mu_{\text{ref}} = \min(\mu_{\text{PSBCH}}, 2)$; or,~~

~~when the sum of the period of the first pattern and the period of the second pattern is greater than 5ms, $\mu_{\text{ref}} = 0$.~~

~~59. The apparatus according to claim 56, wherein μ_{ref} is determined in the following mode:~~

~~$\mu_{\text{ref}} = 0$.~~

~~60. The apparatus according to any one of claims 31-59, wherein the first period is a system frame number, SFN, period or a direct frame number, DFN, period.~~

6117. A terminal device, comprising: a processor and a memory, wherein the memory is configured to store a computer program, and the processor is configured to call and run the computer program stored in the memory to execute the method according to any one of claims 1-301-8.

6218. A chip, comprising: a processor, configured to call and run a computer program from a memory, to enable a device provided with the chip to execute the method according to any one of claims 1-81-30.

6319. A computer readable storage medium, configured to store a computer program, wherein the computer program enables a computer to execute the method according to any one of claims 1-81-30.

6420. A computer program product, comprising a computer program instruction, wherein the computer program instruction enables a computer to execute the method according to any one of claims 1-81-30.

~~65. A computer program, enabling a computer to execute the method according to any one of claims 1-30.~~