

CLAIMS

1. A synchronization signal transmission method, applied to a terminal side, comprising:

transmitting or receiving a sidelink synchronization signal block,

wherein the sidelink synchronization signal block comprises: a primary sidelink synchronization signal PSSS and a secondary sidelink synchronization signal SSSS, the PSSS and the SSSS being distributed in orthogonal frequency division multiplexing OFDM symbols occupied by the sidelink synchronization signal block according to a preset rule;

wherein the preset rule comprises: one of the PSSS and the SSSS is located in a third symbol of a sidelink synchronization signal block, and the other of the PSSS and the SSSS is located in a fifth symbol of the sidelink synchronization signal block.

~~2. The synchronization signal transmission method according to claim 1, wherein the PSSS and the SSSS are distributed in the OFDM symbols occupied by the sidelink synchronization signal block according to a preset rule.~~

~~32. The synchronization signal transmission method according to claim 21, wherein when one slot comprises candidate time domain locations of at least two sidelink synchronization signal blocks, the preset rule comprises at least one of the following:~~

~~one of the PSSS and the SSSS is located in the second symbol of a sidelink synchronization signal block, and the other of the PSSS and the SSSS is located in the fifth symbol of the sidelink synchronization signal block;~~

~~one of the PSSS and the SSSS is located in the second symbol of a sidelink synchronization signal block, and the other of the PSSS and the SSSS is located in the sixth symbol of the sidelink synchronization signal block;~~

~~one of the PSSS and the SSSS is located in the third symbol of a sidelink synchronization signal block, and the other of the PSSS and the SSSS is located in the sixth symbol of the sidelink synchronization signal block;~~

~~one of the PSSS and the SSSS is located in the fourth symbol of a sidelink synchronization signal block, and the other of the PSSS and the SSSS is located in the sixth symbol of the sidelink synchronization signal block; and~~

~~one of the PSSS and the SSSS is located in the third symbol of a sidelink synchronization signal block, and the other of the PSSS and the SSSS is located in the fifth symbol of the sidelink synchronization signal block.~~

~~43. The synchronization signal transmission method according to claim 32, wherein when one slot comprises candidate time domain locations of two sidelink synchronization signal blocks, an OFDM symbol index corresponding to the a first symbol of candidate time domain locations of each of the two sidelink synchronization signal blocks is $14n$ or $7+14n$,~~

wherein $0 \leq n < m$; m is a maximum number of slots occupied by sidelink synchronization signal block; and $n=0$ corresponds to ~~the a~~ first OFDM symbol of the first slot comprising candidate time domain locations of a sidelink synchronization signal block.

~~5. The synchronization signal transmission method according to claim 3, wherein when the number of OFDM symbols occupied by a sidelink synchronization signal block is greater than or equal to 5, the preset rule is:~~

~~one of the PSSS and the SSSS is located in the second symbol of a sidelink synchronization signal block, and the other of the PSSS and the SSSS is located in the fifth symbol of the sidelink synchronization signal block.~~

~~6. The synchronization signal transmission method according to claim 3, wherein when the number of OFDM symbols occupied by a sidelink synchronization signal block is greater than or equal to 6, the preset rule is at least one of the following:~~

~~one of the PSSS and the SSSS is located in the second symbol of a sidelink synchronization signal block, and the other of the PSSS and the SSSS is located in the sixth symbol of the sidelink synchronization signal block;~~

~~one of the PSSS and the SSSS is located in the third symbol of a sidelink synchronization signal block, and the other of the PSSS and the SSSS is located in the sixth symbol of the sidelink synchronization signal block; and~~

~~one of the PSSS and the SSSS is located in the fourth symbol of a sidelink synchronization signal block, and the other of the PSSS and the SSSS is located in the sixth symbol of the sidelink synchronization signal block.~~

~~74.~~ The synchronization signal transmission method according to claim ~~32~~, wherein when the subcarrier spacing is a first spacing, and one slot comprises candidate time domain locations of two sidelink synchronization signal blocks, an OFDM symbol index corresponding to ~~the a~~ first symbol of candidate time domain locations of each of the two sidelink synchronization signal blocks is $14n$ or $7+14n$,

wherein $0 \leq n < m$; m is a maximum number of slots occupied by sidelink synchronization signal block; and $n=0$ corresponds to ~~the a~~ first OFDM symbol of the first slot comprising candidate time domain locations of a sidelink synchronization signal block.

~~8. The synchronization signal transmission method according to claim 3, wherein when the subcarrier spacing is a first spacing, and a number of OFDM symbols occupied by a sidelink synchronization signal block is greater than or equal to 5, the preset rule is:~~

~~one of the PSSS and the SSSS is located in the second symbol of a sidelink synchronization signal block, and the other of the PSSS and the SSSS is located in the fifth symbol of the sidelink synchronization signal block.~~

~~9. The synchronization signal transmission method according to claim 3, wherein when the subcarrier spacing is a first spacing, and a number of OFDM symbols occupied by a sidelink synchronization signal block is greater than or equal to 6, the preset rule is at least one of the following:~~

~~one of the PSSS and the SSSS is located in the second symbol of a sidelink synchronization signal block, and the other of the PSSS and the SSSS is located in the sixth symbol of the sidelink synchronization signal block;~~

~~one of the PSSS and the SSSS is located in the third symbol of a sidelink synchronization signal block, and the other of the PSSS and the SSSS is located in the sixth symbol of the sidelink synchronization signal block; and~~

~~one of the PSSS and the SSSS is located in the fourth symbol of a sidelink synchronization signal block, and the other of the PSSS and the SSSS is located in the sixth symbol of the sidelink synchronization signal block.~~

~~105.~~ The synchronization signal transmission method according to claim ~~32~~, wherein when the subcarrier spacing is a second spacing, and one slot comprises candidate time domain locations of two sidelink synchronization signal blocks, an OFDM symbol index corresponding to ~~the a~~ first symbol of candidate time domain locations of each of the two sidelink synchronization signal blocks is $x+14n$ or $y+14n$,

wherein $0 \leq n < m$; m is a maximum number of slots occupied by a sidelink synchronization signal block; and $n=0$ corresponds to ~~the a~~ first OFDM symbol of the first slot comprising candidate time domain locations of a sidelink synchronization signal block, a value of x is set to 0, and a value of y is set to 6 or 7.

~~11. The synchronization signal transmission method according to claim 3, wherein when the subcarrier spacing is a second spacing, and a number of OFDM symbols occupied by a sidelink synchronization signal block is greater than or equal to 6, the preset rule is at least one of the following:~~

~~one of the PSSS and the SSSS is located in the third symbol of a sidelink synchronization signal block, and the other of the PSSS and the SSSS is located in the sixth symbol of the sidelink synchronization signal block; and~~

~~one of the PSSS and the SSSS is located in the fourth symbol of a sidelink synchronization signal block, and the other of the PSSS and the SSSS is located in the sixth symbol of the sidelink synchronization signal block.~~

~~126.~~ The synchronization signal transmission method according to claim ~~32~~, wherein when the subcarrier spacing is 120 kHz, and a number of OFDM symbols occupied by a sidelink synchronization signal block is greater than or equal to 5, the preset rule comprises:

one of the PSSS and the SSSS is located in the third symbol of a sidelink synchronization signal block, and the other of the PSSS and the SSSS is located in the fifth symbol of the sidelink synchronization signal block.

~~13. The synchronization signal transmission method according to claim 2, wherein the preset rule comprises:~~

~~one of the PSSS and the SSSS is located in the third symbol of a sidelink synchronization signal block, and the other of the PSSS and the SSSS is located in the fifth symbol of the sidelink synchronization signal block.~~

~~14. The synchronization signal transmission method according to claim 2, wherein when one slot comprises candidate time domain locations of a sidelink synchronization signal block, the preset rule comprises at least one of the following:~~

~~one of the PSSS and the SSSS is located in the third and fourth OFDM symbols of one slot, and the other of the PSSS and the SSSS is located in the eleventh and twelfth OFDM symbols of one slot;~~

~~one of the PSSS and the SSSS is located in the second and third OFDM symbols of one slot, and the other of the PSSS and the SSSS is located in the twelfth and thirteenth OFDM symbols of one slot;~~

~~one of the PSSS and the SSSS is located in the fifth and seventh OFDM symbols of one slot, and the other of the PSSS and the SSSS is located in the tenth and twelfth OFDM symbols of one slot;~~

~~one of the PSSS and the SSSS is located in the third and sixth OFDM symbols of one slot, and the other of the PSSS and the SSSS is located in the ninth and twelfth OFDM symbols of one slot;~~

~~one of the PSSS and the SSSS is located in the second and ninth OFDM symbols of one slot, and the other of the PSSS and the SSSS is located in the fifth and twelfth OFDM symbols of one slot;~~

~~one of the PSSS and the SSSS is located in the second and ninth OFDM symbols of one slot, and the other of the PSSS and the SSSS is located in the sixth and thirteenth OFDM symbols of one slot;~~

~~one of the PSSS and the SSSS is located in the third and tenth OFDM symbols of one slot, and the other of the PSSS and the SSSS is located in the sixth and thirteenth OFDM symbols of one slot;~~

~~one of the PSSS and the SSSS is located in the fourth and eleventh OFDM symbols of one slot, and the other of the PSSS and the SSSS is located in the sixth and thirteenth OFDM symbols of one slot;~~

~~one of the PSSS and the SSSS is located in the third and ninth OFDM symbols of one slot, and the other of the PSSS and the SSSS is located in the sixth and twelfth OFDM symbols of one slot;~~

~~one of the PSSS and the SSSS is located in the fourth and tenth OFDM symbols of one slot, and the other of the PSSS and the SSSS is located in the sixth and twelfth OFDM symbols of one slot; and~~

~~one of the PSSS and the SSSS is located in the third and tenth OFDM symbols of one slot, and the other of the PSSS and the SSSS is located in the fifth and twelfth OFDM symbols of one slot.~~

~~15. The synchronization signal transmission method according to claim 14, when the preset rule is: one of the PSSS and the SSSS is located in the third and fourth OFDM symbols of one slot, and the other of the PSSS and the SSSS is located in the eleventh and twelfth OFDM symbols of one slot; or~~

~~when one of the PSSS and the SSSS is located in the second and third OFDM symbols of one slot, and the other of the PSSS and the SSSS is located in the twelfth and thirteenth OFDM symbols of one slot, the sixth and ninth OFDM symbols of one slot is used for transmitting or receiving a demodulation reference signal.~~

~~16. The synchronization signal transmission method according to claim 14, wherein when the subcarrier spacing is a third spacing, the preset rule is at least one of the following:~~

~~one of the PSSS and the SSSS is located in the third and sixth OFDM symbols of one slot, and the other of the PSSS and the SSSS is located in the ninth and twelfth OFDM symbols of one slot;~~

~~one of the PSSS and the SSSS is located in the second and ninth OFDM symbols of one slot, and the other of the PSSS and the SSSS is located in the fifth and twelfth OFDM symbols of one slot;~~

~~one of the PSSS and the SSSS is located in the second and ninth OFDM symbols of one slot, and the other of the PSSS and the SSSS is located in the sixth and thirteenth OFDM symbols of one slot;~~

~~one of the PSSS and the SSSS is located in the third and tenth OFDM symbols of one slot, and the other of the PSSS and the SSSS is located in the sixth and thirteenth OFDM symbols of one slot; and~~

~~one of the PSSS and the SSSS is located in the fourth and eleventh OFDM symbols of one slot, and the other of the PSSS and the SSSS is located in the sixth and thirteenth OFDM symbols of one slot.~~

~~17. The synchronization signal transmission method according to claim 14, wherein when the~~

subcarrier spacing is a fourth spacing, the preset rule is at least one of the following:

~~one of the PSSS and the SSSS is located in the third and fourth OFDM symbols of one slot, and the other of the PSSS and the SSSS is located in the eleventh and twelfth OFDM symbols of one slot;~~

~~one of the PSSS and the SSSS is located in the third and ninth OFDM symbols of one slot, and the other of the PSSS and the SSSS is located in the sixth and twelfth OFDM symbols of one slot;~~

~~one of the PSSS and the SSSS is located in the fourth and tenth OFDM symbols of one slot, and the other of the PSSS and the SSSS is located in the sixth and twelfth OFDM symbols of one slot; and~~

~~one of the PSSS and the SSSS is located in the third and tenth OFDM symbols of one slot, and the other of the PSSS and the SSSS is located in the fifth and twelfth OFDM symbols of one slot.~~

~~18. The synchronization signal transmission method according to claim 1, wherein the PSSS employs an M-sequence, and the M-sequence comprises:~~

~~a sequence formed according to an equation:-;~~

~~wherein — is the M-sequence; — is an index of the M-sequence, and ; — is an index of the sequence , and , — is a group ID of a sidelink synchronization ID, — is a cyclic shift; and — is obtained by using the equation—.~~

~~197.~~ The synchronization signal transmission method according to claim 1, wherein when at least two candidate time domain locations of sidelink synchronization signal blocks are consecutive in time domain, and sidelink synchronization signal blocks have been transmitted or received on at least the candidate time domain locations of the sidelink synchronization signal blocks, transmission directions of the sidelink synchronization signal blocks on the candidate time domain locations of the at least two sidelink synchronization signal blocks are the same.

~~208.~~ The synchronization signal transmission method according to claim 1, wherein the sidelink synchronization signal block is transmitted or received within one time window.

~~249.~~ The synchronization signal transmission method according to claim 1, wherein the sidelink synchronization signal block is transmitted or received within a preset time window.

~~2210.~~ A terminal, comprising:

a transmission module, configured to transmit or receive a sidelink synchronization signal block,

wherein the sidelink synchronization signal block comprises: a primary sidelink synchronization signal PSSS and a secondary sidelink synchronization signal SSSS, the PSSS and the SSSS being distributed in orthogonal frequency division multiplexing OFDM symbols

occupied by the sidelink synchronization signal block according to a preset rule;

wherein the preset rule comprises: one of the PSSS and the SSSS is located in a third symbol of a sidelink synchronization signal block, and the other of the PSSS and the SSSS is located in a fifth symbol of the sidelink synchronization signal block.

11. The terminal according to claim 10, wherein one slot comprises candidate time domain locations of at least two sidelink synchronization signal blocks.

12. The terminal according to claim 11, wherein when one slot comprises candidate time domain locations of two sidelink synchronization signal blocks, an OFDM symbol index corresponding to a first symbol of candidate time domain locations of each of the two sidelink synchronization signal blocks is $14n$ or $7+14n$,

wherein $0 \leq n < m$; m is a maximum number of slots occupied by sidelink synchronization signal block; and $n=0$ corresponds to a first OFDM symbol of the first slot comprising candidate time domain locations of a sidelink synchronization signal block.

13. The terminal according to claim 11, wherein when the subcarrier spacing is a first spacing, and one slot comprises candidate time domain locations of two sidelink synchronization signal blocks, an OFDM symbol index corresponding to a first symbol of candidate time domain locations of each of the two sidelink synchronization signal blocks is $14n$ or $7+14n$,

wherein $0 \leq n < m$; m is a maximum number of slots occupied by sidelink synchronization signal block; and $n=0$ corresponds to a first OFDM symbol of the first slot comprising candidate time domain locations of a sidelink synchronization signal block.

14. The terminal according to claim 11, wherein when the subcarrier spacing is a second spacing, and one slot comprises candidate time domain locations of two sidelink synchronization signal blocks, an OFDM symbol index corresponding to a first symbol of candidate time domain locations of each of the two sidelink synchronization signal blocks is $x+14n$ or $y+14n$,

wherein $0 \leq n < m$; m is a maximum number of slots occupied by a sidelink synchronization signal block; and $n=0$ corresponds to a first OFDM symbol of the first slot comprising candidate time domain locations of a sidelink synchronization signal block, a value of x is set to 0, and a value of y is set to 6 or 7.

15. The terminal according to claim 11, wherein when the subcarrier spacing is 120 kHz, and a number of OFDM symbols occupied by a sidelink synchronization signal block is greater than or equal to 5, the preset rule comprises:

one of the PSSS and the SSSS is located in the third symbol of a sidelink synchronization signal block, and the other of the PSSS and the SSSS is located in the fifth symbol of the sidelink synchronization signal block.

16. A terminal, comprising a memory, a processor, and a computer program stored in the

memory and capable of running on the processor, wherein when the computer program is executed by the processor, the steps of the synchronization signal transmission method according to any one of claims 1 to ~~21~~9 are implemented.

5 ~~24~~17. 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 steps of the synchronization signal transmission method according to any one of claims 1 to ~~21~~9 are implemented.