CLAIMS

1. A communication method, comprising:

determining a first frequency hopping unit, wherein the first frequency hopping unit comprises a first time unit and first switching time, the first time unit is used to transmit a reference signal, and the first time unit and the first switching time do not overlap in time domain, wherein the first frequency hopping unit belongs to one of N frequency hopping units in a time window; and

receiving the reference signal in the first time unit.

2. The method according to claim 1, wherein the first switching time is used by a terminal device to switch from a first frequency to a second frequency.

3. The method according to claim 2, wherein receiving the reference signal in the first time unit comprises: receiving the reference signal at the first frequency in the first time unit; and

the method further comprises: receiving the reference signal at the second frequency in a second time unit, wherein the second time unit is comprised in a second frequency hopping unit, the second frequency hopping unit belongs to one of the N frequency hopping units in the time window and the second time unit is used to transmit the reference signal, and wherein the second frequency hopping unit further comprises second switching time, and the second time unit and the second switching time do not overlap in time domain.

4. The method according to any one of claims 1 to 3, wherein the first time unit is F symbols, and F is determined based on a length of the first frequency hopping unit and the first switching time.

5. The method according to claim 4, wherein F satisfies:

F=length of the first frequency hopping unit–first switching time.

6. The method according to any one of claims 1 to 5, wherein the length of the first frequency hopping unit is determined based on one or more of the following:

a processing capability of the terminal device;

a storage capability of the terminal device;

switching duration of the terminal device;

a repetition interval of the reference signal, wherein the repetition interval is a time interval between two adjacent repeated transmissions;

a subcarrier spacing of the reference signal; or

a time interval between different hops of the reference signal.

7. The method according to any one of claims 1 to 5, wherein the length of the first frequency

hopping unit or a periodicity of the first frequency hopping unit is determined based on a configuration of the reference signal.

8. The method according to any one of claims 1 to 7, wherein a start location of the first frequency hopping unit in the time window is determined based on the configuration of the reference signal.

9. The method according to any one of claims 1 to 8, wherein a quantity N_{hop} of hops of the terminal device in the time window does not exceed N.

10. The method according to claim 9, wherein the quantity N_{hop} of hops of the terminal device in the time window is related to one or more of the following:

N;

a maximum or minimum quantity of times that the reference signal resource falls within the N frequency hopping units, wherein a quantity of times that the reference signal resource repeatedly falls within one frequency hopping unit is 1;

a quantity of repetitions of the reference signal resource;

a minimum value of the quantity of repetitions of the reference signal and N;

a minimum value of a maximum value of a quantity of hops supported by the terminal device, N, and the quantity of repetitions of the reference signal;

the repetition interval of the reference signal, wherein the repetition interval is the time interval between two adjacent repeated transmissions;

a maximum value of the quantity of hops supported by the terminal device;

the length of the first frequency hopping unit;

$N3$, wherein $N3$ indicates a time length that is for processing the reference signal and that is supported by the terminal device;

a length of the time window;

a length of radio frequency switching time of the time window;

the start location of the first frequency hopping unit; or

the length of the first time unit.

11. The method according to claim 10, wherein the terminal device needs to complete measurement on a plurality of frequencies, reference signal resource duration in each time window periodicity in a reference signal resource validity periodicity is different, and a quantity $N_{hop,k,j}$ of hops of the terminal device at a kth frequency in a jth time window satisfies the following formula:

$$N_{hop,k,j} = min\left(N_{hops,effect,k,j}, N_{store,k,j}, N_{hop,max,k}\right), \text{ wherein}$$

$N_{hops,effect,k,j}$ is a quantity of hops determined by the terminal device in the jth time window

of a kth frequency layer based on a configuration of the reference signal and radio frequency switching time, $N_{hop,max,k}$ is a maximum value of a quantity of hops supported by the terminal device at the kth frequency layer, $N_{store,k,j}$ is related to one or more of the following: *N3*, $L_{per-hop,k,j}$, or $L_{per-hop,k,j,n}$, $L_{per-hop,k,j}$ is reference signal resource duration in a first time unit in a first frequency hopping unit in the jth time window in a reference signal resource validity periodicity $T_{available_PRS,\text{k}}$ of the kth frequency layer, and $L_{per-hop,k,j,n}$ is reference signal resource duration in an nth frequency hopping unit/a first time unit in an nth hop in the jth time window in the reference signal resource validity periodicity $T_{available_PRS,\text{k}}$ of the kth frequency layer.

12. The method according to claim 11, wherein

$N_{store,k,j} = \left\lfloor \frac{N3}{L_{per-hop,k,j}} \right\rfloor$, or $N_{store,k,j}$ is maximum $N_{store,k,j}$ that satisfies $\sum_{n=1}^{N_{store,k,j}} L_{per-hop,k,j,n} \leq N3$, wherein

$L_{per-hop,k,j}$ is a maximum value of all $L_{per-hop,k,j,n}$(n=1, 2, 3, ...) in the jth time window in the reference signal resource validity periodicity $T_{available_PRS,\text{k}}$ of the kth frequency layer; or

$L_{per-hop,k,j}$ is any value of all $L_{per-hop,k,j,n}$(n=1, 2, 3, ...) in the jth time window in the reference signal resource validity periodicity $T_{available_PRS,\text{k}}$ of the kth frequency layer; or

$L_{per-hop,k,j}$ is a maximum value of all $L_{per-hop,k,j,n}$(n=1, 2, 3, ...) in all time windows in the reference signal resource validity periodicity $T_{available_PRS,\text{k}}$ of the kth frequency layer.

13. A communication method, comprising:

sending a reference signal in a first time unit comprised in a first frequency hopping unit, wherein the first frequency hopping unit comprises the first time unit and first switching time, the first time unit is used to transmit the reference signal, and the first time unit and the first switching time do not overlap in time domain, wherein the first frequency hopping unit belongs to one of N frequency hopping units in a time window.

14. The method according to claim 13, wherein the method further comprises:

sending configuration information, wherein the configuration information comprises one or more of the following: a length of the first frequency hopping unit, a start location of the first frequency hopping unit, a periodicity of the first frequency hopping unit, or a quantity of first frequency hopping units.

15. The method according to claim 13 or 14, wherein the length of the first frequency hopping unit is determined based on one or more of the following:

a processing capability of a terminal device;

a storage capability of the terminal device;

duration required by the terminal device to perform radio frequency switching;

a repetition interval of the reference signal, wherein the repetition interval is a time interval between two adjacent repeated transmissions;

a subcarrier spacing of the reference signal; or

a time interval between different hops of the reference signal.

16. The method according to any one of claims 13 to 15, wherein the length of the first frequency hopping unit or the periodicity of the first frequency hopping unit is determined based on a configuration of the reference signal.

17. The method according to any one of claims 13 to 16, wherein the first switching time is used by a terminal device to switch from a first frequency to a second frequency.

18. The method according to claim 17, wherein receiving the positioning reference signal in the first time unit comprises: receiving the positioning reference signal at the first frequency in the first time unit; and

the method further comprises: receiving the positioning reference signal at the second frequency in a second time unit, wherein the second time unit is comprised in a second frequency hopping unit, the second frequency hopping unit belongs to one of the N frequency hopping units in the time window, and the second time unit is used to transmit the positioning reference signal, and wherein the second frequency hopping unit further comprises second switching time, and the second time unit and the second switching time do not overlap in time domain.

19. A communication apparatus, configured to perform the method according to any one of claims 1 to 12 or the method according to any one of claims 13 to 18.

20. A computer-readable storage medium, wherein the computer-readable storage medium stores a computer program or instructions, and the computer program or the instructions are used to implement the method according to any one of claims 1 to 12 or the method according to any one of claims 13 to 18.

21. A computer program product, wherein the computer program product comprises a computer program, and when the computer program runs a computer, the computer is enabled to perform the method according to any one of claims 1 to 12 or the method according to any one of claims 13 to 18.