

CLAIMS

1. A communication method, comprising:

sending configuration information of a reference signal; and

receiving the reference signal via M antenna ports based on the configuration information,

5 wherein M is an integer greater than 0, the M antenna ports comprise at least one first antenna port, a comb occupied by the first antenna port is determined based on at least a first offset, and the first offset is determined based on at least a time domain resource occupied by the first antenna port and/or a frequency domain resource occupied by the first antenna port.

2. A communication method, comprising:

10 receiving configuration information of a reference signal; and

sending the reference signal via M antenna ports based on the configuration information,

wherein M is an integer greater than 0, the M antenna ports comprise at least one first antenna port, a comb occupied by the first antenna port is determined based on at least a first offset, and the first offset is determined based on at least a time domain resource occupied by the first antenna port and/or a frequency domain resource occupied by the first antenna port.

15 3. The communication method according to claim 1 or 2, wherein the first offset comprises a first random number and/or a fifth random number, the first random number is determined based on at least the time domain resource occupied by the first antenna port, and the fifth random number is determined based on at least the frequency domain resource occupied by the first antenna port.

20 4. The communication method according to claim 3, wherein that the first random number is determined based on at least the time domain resource occupied by the first antenna port comprises: the first random number is determined based on one of a plurality of first correspondences and the time domain resource occupied by the first antenna port, and the first correspondence comprises a correspondence between at least one first random number and at least one time domain resource.

25 5. The communication method according to claim 4, wherein one frequency hopping periodicity comprises at least one time of reference signal sending, and the correspondence between at least one first random number and at least one time domain resource comprises: a correspondence between the at least one first random number and a relative number of the at least one time of reference signal sending in the frequency hopping periodicity.

30 6. The communication method according to claim 4, wherein the correspondence between at least one first random number and at least one time domain resource comprises: a correspondence between the at least one first random number and an index of at least one frequency hopping periodicity.

7. The communication method according to claim 3, wherein that the first random number is determined based on at least the time domain resource occupied by the first antenna port comprises:

the first random number is determined based on the time domain resource occupied by the first antenna port and a pseudo-random sequence.

8. The communication method according to claim 7, wherein the first random number is further determined based on one or more of the following parameters: a quantity of slots comprised in each system frame, a quantity of OFDM symbols comprised in each slot, a comb quantity, and a comb offset, wherein the comb quantity is a quantity of combs comprised in a transmit bandwidth of the reference signal, and the comb offset is a reference quantity of combs occupied by the reference signal.

9. The communication method according to claim 7 or 8, wherein the first random number satisfies:

$$Q_1 = (\sum_{m=0}^7 c(8(n_f N_{\text{slot}}^{\text{frame}} N_{\text{symb}}^{\text{slot}} + n_{s,f}^{\mu} N_{\text{symb}}^{\text{slot}} + l_0 + l') + m) \cdot 2^m) \bmod K_{TC};$$

$$Q_1 = (\sum_{m=0}^7 c(8(n_{s,f}^{\mu} N_{\text{symb}}^{\text{slot}} + l_0 + l') + m) \cdot 2^m) \bmod K_{TC};$$

$$Q_1 = \sum_{m=0}^7 c(8(n_f N_{\text{slot}}^{\text{frame}} N_{\text{symb}}^{\text{slot}} + n_{s,f}^{\mu} N_{\text{symb}}^{\text{slot}} + l_0 + l') + m) \cdot 2^m; \text{ or}$$

$$Q_1 = \sum_{m=0}^7 c(8(n_{s,f}^{\mu} N_{\text{symb}}^{\text{slot}} + l_0 + l') + m) \cdot 2^m,$$

wherein Q_1 represents the first random number, a mathematical symbol $\sum$ represents summation, a mathematical symbol mod represents a modulo operation, $c()$ is the pseudo-random sequence, n_f represents a system frame number corresponding to the first antenna port, $N_{\text{slot}}^{\text{frame}}$ represents the quantity of slots in each system frame, $N_{\text{symb}}^{\text{slot}}$ represents the quantity of OFDM symbols in each slot, $n_{s,f}^{\mu}$ represents a slot number corresponding to the first antenna port, l_0 represents an index of a start OFDM symbol in one or more OFDM symbols comprised in the time domain resource occupied by the first antenna port, l' represents a relative index of one OFDM symbol in the one or more OFDM symbols comprised in the time domain resource occupied by the first antenna port, and K_{TC} represents the comb quantity.

10. The communication method according to any one of claims 3 to 9, wherein that the fifth random number is determined based on at least the frequency domain resource occupied by the first antenna port comprises: the fifth random number is determined based on one of a plurality of second correspondences and the frequency domain resource occupied by the first antenna port, and the second correspondence comprises a correspondence between at least one fifth random number and at least one frequency domain resource.

11. The communication method according to any one of claims 3 to 9, wherein that the fifth random number is determined based on at least the frequency domain resource occupied by the first antenna port comprises:

the fifth random number is determined based on the frequency domain resource occupied by the first antenna port and a pseudo-random sequence.

12. A communication apparatus, wherein the communication apparatus comprises a unit or a module configured to perform the method according to any one of claims 1 to 11.

5 13. A communication apparatus, wherein the communication apparatus comprises a processor, and the processor is configured to perform the communication method according to any one of claims 1 to 11.

10 14. A computer-readable storage medium, wherein the computer-readable storage medium stores a computer program or instructions; and when the computer program is run or the instructions are run on a computer, the communication method according to any one of claims 1 to 11 is performed.

15 15. A computer program product, wherein the computer program product comprises a computer program or instructions; and when the computer program is run or the instructions are run on a computer, the communication method according to any one of claims 1 to 11 is performed.