AMENDMENTS TO THE CLAIMS:

This listing of claims replaces all prior versions and listings of claims in the application:

1. (Currently Amended) A ~~coding~~ method~~, applied to a first communications device, wherein the method comprises~~ comprising:

obtaining a first information bit sequence;

determining a first frozen bit sequence based on a probability distribution value P_1 of the first information bit sequence;

determining a check bit sequence based on a second information bit sequence, wherein the second information bit sequence is the first information bit sequence or a sequence obtained after a pre-transformation operation is performed on the first information bit sequence;

obtaining a first bit sequence based on the second information bit sequence, the check bit sequence, and the first frozen bit sequence, wherein the first bit sequence comprises bits in the second information bit sequence, bits in the check bit sequence, and bits in the first frozen bit sequence;

performing polar coding on the first bit sequence to obtain a second bit sequence; and

outputting the second bit sequence.

2. (Original) The method according to claim 1, wherein

if the probability distribution value P_1 is not equiprobable distribution, the second information bit sequence is the sequence obtained after the pre-transformation operation is performed on the first information bit sequence; or

if the probability distribution value P_1 is equiprobable distribution, the second information bit sequence is the first information bit sequence.

3. (Original) The method according to claim 2, wherein if $|P_1 - 0.5| \leq \in$, the probability distribution value P_1 is equiprobable distribution, wherein $\in$ is a preset value.

4. (Currently Amended) The method according to claim 1, wherein check bit locations in

the first bit sequence are bit locations corresponding to rows whose sums are 1 in $\mathbf{G}(a)$, $\mathbf{G}(a)$ is a matrix ~~consisting of~~ comprising rows and columns in a set a in a polar matrix ~~$\mathbf{G}$, the polar matrix $\mathbf{G}$ is a polar matrix used~~ for the polar coding, the set a is an information bit set~~, and the information bit set comprises~~ comprising information bit locations and the check bit locations in the first bit sequence.

5. (Original) The method according to claim 1, wherein at least one check bit in the check bit sequence is located in the bits comprised in the second information bit sequence.

6. (Currently Amended) The method according to claim 1, wherein the determining a first frozen bit sequence based on a probability distribution value P_1 of the first information bit sequence comprises:

selecting a probability distribution value P_0 ~~in a probability distribution value set $\mathbf{P}$ based on the probability distribution value P_1 of the first information bit sequence, wherein the probability distribution value P_0 is a probability distribution value~~ that is closest to the probability distribution value P_1 in [[the]]a probability distribution value set $\mathbf{P}$, [[and]]wherein one probability distribution value in the probability distribution value set $\mathbf{P}$ corresponds to one frozen bit sequence mapping manner; and

determining the first frozen bit sequence based on a frozen bit sequence mapping manner corresponding to the probability distribution value P_0.

7. (Original) The method according to claim 6, wherein the first frozen bit sequence is determined based on a basic sequence corresponding to the probability distribution value P_0, and the basic sequence is determined based on a quantity of probability distribution values comprised in the probability distribution value set $\mathbf{P}$.

8. (Currently Amended) The method according to claim 6, wherein the first frozen bit sequence is determined based on one of an m-sequence, a Gold sequence, or a pseudo-random sequence corresponding to the probability distribution value P_0.

9. (Currently Amended) The method according to claim 1, wherein the method further comprises:

sending a probability distribution reference value range or a probability distribution reference value to a second communications device once every N information bit sequences, wherein N is an integer greater than 1.

10. (Currently Amended) The method according to claim 1, wherein the check bit[[s]] sequence comprise at least one of cyclic redundancy check (CRC) bits [[and/]]or parity check PC bits.

11. (Currently Amended) A ~~decoding~~ method~~, applied to a second communications device, wherein the method comprises~~ comprising:

step 1: obtaining a ~~to-be-decoded~~ sequence to be decoded;

step 2: setting i=1;

step 3: decoding the ~~to-be-decoded~~ sequence based on an i^{th} probability distribution value in a probability distribution value set $\mathbf{P}$ and a frozen bit sequence corresponding to the i^{th} probability distribution value, to obtain a [[third]] bit sequence corresponding to the i^{th} probability distribution value, wherein the [[third]] bit sequence comprises bits in a [[third]] information bit sequence, check bits, and bits in the frozen bit sequence corresponding to the i^{th} probability distribution value;

step 4: checking the [[third]] information bit sequence;

step 5: if the checking [[on]] the [[third]] information bit sequence succeeds, obtaining a first information bit sequence based on the [[third]] information bit sequence, and stopping decoding, wherein the first information bit sequence is the [[third]] information bit sequence or the first information bit sequence is a sequence obtained after polar coding is performed on the [[third]] information bit sequence;

step 6: if the checking [[on]] the [[third]] information bit sequence fails and i is less than x, setting i=i+1, and returning to step 3, wherein x is a quantity of probability distribution values comprised in the probability distribution value set $\mathbf{P}$; and

step 7: if the checking [[on]] the [[third]] information bit sequence fails and i is equal to x:

stopping decoding; or

obtaining another ~~fourth~~ information bit sequence based on a target information bit sequence, and stopping decoding, wherein the target information bit sequence is one of x [[third]] information bit sequences corresponding to the probability distribution value set $\mathbf{P}$, and the ~~fourth~~ another information bit sequence is the target information bit sequence or a sequence obtained after polar coding is performed on the target information bit sequence.

12. (Currently Amended) The method according to claim 11, wherein

if the i^{th} probability distribution value is not equiprobable distribution, the first information bit sequence is the sequence obtained after polar coding is performed on the [[third]] information bit sequence; or

if the i^{th} probability distribution value is equiprobable distribution, the first information bit sequence is the [[third]] information bit sequence.

13. (Original) The method according to claim 12, wherein if $\left|P_{i,r}-0.5\right| \leq \in$, the i^{th} probability distribution value is equiprobable distribution, wherein $\in$ is a preset value, and $P_{i,r}$ is the i^{th} probability distribution value.

14. (Original) The method according to claim 11, wherein a decoding order of probability distribution values in the probability distribution value set $\mathbf{P}$ is determined based on information entropies corresponding to the probability distribution values in the probability distribution value set $\mathbf{P}$.

15. (Original) The method according to claim 14, wherein an information entropy corresponding to the i^{th} probability distribution value is greater than or equal to an information entropy corresponding to an $(i+1)^{th}$ probability distribution value.

16. (Original) The method according to claim 11, wherein a decoding order of probability

distribution values in the probability distribution value set **P** is determined based on historical probability distribution values of a transmitting end.

17. (Original) The method according to claim 11, wherein the method further comprises:

receiving a probability distribution reference value range or a probability distribution reference value sent by a first communications device every N information bit sequences, wherein N is an integer greater than 1, wherein

a decoding order of probability distribution values in the probability distribution value set **P** is determined based on the probability distribution reference value range or the probability distribution reference value.

18. (Currently Amended) The method according to claim 11, wherein the target information bit sequence is a [[third]] information bit sequence corresponding to equiprobable distribution in the probability distribution value set **P**.

19. (Currently Amended) The method according to claim 18, wherein check bit locations in [[the]]a [[third]] bit sequence are bit locations corresponding to rows whose sums are 1 in **G**(a), **G**(a) is a matrix ~~consisting of~~ comprising rows and columns in a set a in a polar matrix **G**~~, the polar matrix **G** is a polar matrix used~~ for the polar coding, the set a is an information bit set~~, and the information bit set comprises~~ comprising information bit locations and the check bit locations in the [[third]] bit sequence.

20. (Currently Amended) The method according to claim 19, wherein at least one of the check bits is located in the bits comprised in the [[third]] information bit sequence.