CLAIMS

1. A method for video decoding, applicable to a decoding device, the method comprising:

decoding a coded block of a video image frame to determine a target intra prediction mode corresponding to the coded block;

tracking a predefined subset of intra prediction modes among available intra prediction modes rather than all of the available intra prediction modes, a number of the predefined subset of intra prediction modes being less than a total number of the available intra prediction modes;

maintaining a most probable intra prediction mode list;

determining whether simplified frequency-based intra mode coding needs to be used for a corresponding coded block according to at least one of a value of an index identifier comprised in a sequence header corresponding to a video image frame sequence, or a value of an index identifier comprised in an image header corresponding to the video image frame;

in response to determining that the simplified frequency-based intra mode coding needs to be used, determining whether the target intra prediction mode belongs to the predefined subset of intra prediction modes;

in response to the target intra prediction mode belonging to the predefined subset of intra prediction modes, updating statistical values of the predefined subset of intra prediction modes;

updating the most probable intra prediction mode list according to the updated statistical values of the predefined subset of intra prediction modes; and

decoding another coded block of the video image frame based on the updated most probable intra prediction mode list.

2. The method for video decoding according to claim 1, wherein the predefined subset of intra prediction modes comprise at least two intra prediction modes among a horizontal prediction mode, a vertical prediction mode, a bilinear prediction mode, a DC prediction mode, a quasi-horizontal prediction mode, and a quasi-vertical prediction mode, an angle offset value between the quasi-horizontal prediction mode and the horizontal prediction mode being less than a first threshold, and an angle offset value between the quasi-vertical prediction mode and the vertical prediction mode being less than a second threshold.

3. The method for video decoding according to claim 2, wherein the predefined subset of intra prediction modes comprise at least a quasi-horizontal prediction mode and a quasi-vertical prediction mode, the quasi-horizontal prediction mode comprising one of mode 56 to mode 59, mode 23, and mode 25 in predefined AV3 intra prediction modes; and the quasi-vertical prediction mode comprising one of mode 42 to mode 45, mode 11, and mode 13 in the predefined AV3 intra prediction modes.

4. The method for video decoding according to claim 1, wherein the predefined subset of intra prediction modes comprise:

a horizontal prediction mode and a vertical prediction mode; or

a horizontal prediction mode, a vertical prediction mode, and a bilinear prediction mode; or

a horizontal prediction mode, a vertical prediction mode, a bilinear prediction mode, and a DC prediction mode.

5. The method for video decoding according to claim 1, wherein the predefined subset of intra prediction modes comprise: at least two intra prediction modes of mode 0 to mode 33 in predefined AV3 intra prediction modes.

6. The method for video decoding according to claim 1, wherein an initial intra prediction mode in the most probable intra prediction mode list belongs to the predefined subset of intra prediction modes.

7. The method for video decoding according to claim 1, wherein the most probable intra prediction mode list comprises two initial intra prediction modes, and the two initial intra prediction modes comprise:

a horizontal prediction mode and a vertical prediction mode; or

a horizontal prediction mode and a bilinear prediction mode; or

a vertical prediction mode and a bilinear prediction mode.

8. The method for video decoding according to claim 1, wherein updating the statistical values of the predefined subset of intra prediction modes comprises:

increasing a statistical value of a target specified intra prediction mode corresponding to the target intra prediction mode by a set step size.

9. The method for video decoding according to claim 1, wherein updating the most probable intra prediction mode list according to the updated statistical values of the predefined subset of intra prediction modes comprises:

selecting, in descending order of the statistical values based on a number of intra prediction modes comprised in the most probable intra prediction mode list, intra prediction modes matching the number from the predefined subset of intra prediction modes to replace the intra prediction modes comprised in the most probable intra prediction mode list.

10. The method for video decoding according to claim 1, wherein

in response to the value of the index identifier comprised in the sequence header corresponding to the video image frame sequence being a first value, the simplified frequency-based intra mode coding is used for each coded block in the video image frame sequence; or

in response to the value of the index identifier comprised in the image header corresponding to the video image frame being a second value, the simplified frequency-based intra mode coding is used for each coded block in the video image frame.

11. A method for video encoding, applicable to an encoding device, the method comprising:

determining a target intra prediction mode corresponding to a coding block of a video image frame;

tracking a predefined subset of intra prediction modes among available intra prediction modes rather than all of the available intra prediction modes, a number of the predefined subset of intra prediction modes being less than a total number of the available intra prediction modes;

maintaining a most probable intra prediction mode list;

determining whether simplified frequency-based intra mode coding needs to be used for a corresponding coded block according to at least one of a value of an index identifier comprised in a

sequence header corresponding to a video image frame sequence, or a value of an index identifier comprised in an image header corresponding to the video image frame;

in response to determining that the simplified frequency-based intra mode coding needs to be used, determining whether the target intra prediction mode belongs to the predefined subset of intra prediction modes;

in response to the target intra prediction mode belonging to a predefined subset of intra prediction modes, updating respective statistical values of the predefined subset of intra prediction modes;

updating the most probable intra prediction mode list according to the updated statistical values of the predefined subset of intra prediction modes; and

encoding another coding block of the video image frame based on the updated most probable intra prediction mode list.

12. An electronic device, comprising a memory for storing computer instructions and a processor configured to execute the computer instructions to:

decode a coded block of a video image frame to obtain a target intra prediction mode corresponding to the coded block;

track a predefined subset of intra prediction modes among available intra prediction modes rather than all of the available intra prediction modes, a number of the predefined subset of intra prediction modes being less than a total number of the available intra prediction modes;

maintain a most probable intra prediction mode list;

determine whether simplified frequency-based intra mode coding needs to be used for a corresponding coded block according to at least one of a value of an index identifier comprised in a sequence header corresponding to a video image frame sequence, or a value of an index identifier comprised in an image header corresponding to the video image frame;

in response to determining that the simplified frequency-based intra mode coding needs to be used, determine whether the target intra prediction mode belongs to the predefined subset of intra prediction modes;

in response to the target intra prediction mode belonging to a predefined subset of intra prediction modes, update statistical values of the predefined subset of intra prediction modes;

update the most probable intra prediction mode list according to the updated statistical values of the predefined subset of intra prediction modes; and

decode another coded block of the video image frame based on the updated most probable intra prediction mode list.

13. The electronic device according to claim 12, wherein the predefined subset of intra prediction modes comprise at least two intra prediction modes among a horizontal prediction mode, a vertical prediction mode, a bilinear prediction mode, a DC prediction mode, a quasi-horizontal prediction mode, and a quasi-vertical prediction mode, an angle offset value between the quasi-horizontal prediction mode and the horizontal prediction mode being less than a first threshold, and an angle offset value between the quasi-vertical prediction mode and the vertical prediction mode being less than a second threshold.

14. The electronic device according to claim 12, wherein the predefined subset of intra prediction modes comprise:

a horizontal prediction mode and a vertical prediction mode; or

a horizontal prediction mode, a vertical prediction mode, and a bilinear prediction mode; or

a horizontal prediction mode, a vertical prediction mode, a bilinear prediction mode, and a DC prediction mode.

15. The electronic device according to claim 12, wherein

initial statistical values of prediction modes among the predefined subset of intra prediction modes are same; or

initial statistical values of prediction modes among the predefined subset of intra prediction modes are different.

16. The electronic device according to claim 12, wherein updating the statistical values of the predefined subset of intra prediction modes comprises:

increasing a statistical value of a target specified intra prediction mode corresponding to the target intra prediction mode by a set step size, wherein intra prediction modes among the predefined

subset of intra prediction modes correspond to a same or different set step sizes.

17. The electronic device according to claim 12, wherein updating the most probable intra prediction mode list according to the updated statistical values of the predefined subset of intra prediction modes comprises:

selecting, in descending order of the statistical values based on a number of intra prediction modes comprised in the most probable intra prediction mode list, intra prediction modes matching the number from the predefined subset of intra prediction modes to replace the intra prediction modes comprised in the most probable intra prediction mode list.