CLAIMS

1. A prediction method for decoding, comprising:

acquiring reference samples adjacent to at least one side of a decoding block;

determining a reference point from the at least one side and determining reference sample positions to be selected corresponding to the at least one side according to a preset number of samples;

selecting reference samples corresponding to the reference sample positions to be selected from the reference samples based on the reference sample positions to be selected; and

performing prediction decoding on the decoding block based on the selected reference samples.

2. The method of claim 1, wherein the at least one side comprises at least one of a left side or an upper side of the decoding block.

3. The method of claim 1, wherein determining the reference point from the at least one side comprises:

based on a length of the at least one side, responsive to that the midpoint of the at least one side is at a middle position between two reference samples, determining a first reference sample position on the right of the middle position as the reference point of the at least one side, or determining a first reference sample position on the left of the middle position as the reference point of the at least one side.

4. The method of claim 1, wherein determining the reference point from the at least one side comprises:

based on the length of the at least one side, responsive to that the midpoint of the at least one side is at a middle position between two reference samples, determining a first

reference sample position lower than the middle position as the reference point of the at least one side, or determining a first reference sample position upper than the middle position as the reference point of the at least one side.

5. The method of claim 1, wherein determining the reference point from the at least one side and determining the reference sample positions to be selected corresponding to the at least one side according to the preset number of samples comprises:

calculating a first sampling interval based on the preset number of samples and the length of the at least one side; and

determining the reference point from the at least one side, and determining the reference sample positions to be selected corresponding to the at least one side according to the first sampling interval.

6. The method of claim 5, wherein determining the reference point from the at least one side and determining the reference sample positions to be selected corresponding to the at least one side according to the first sampling interval comprises:

calculating a midpoint value of the at least one side based on the length of the at least one side;

calculating reference sample positions according to the midpoint value and the first sampling interval; and

when the midpoint value is non-integral, rounding down a reference sample position on a left side of the midpoint value and determining the rounded reference sample position as a reference sample position to be selected, rounding up a reference sample position on a right side of the midpoint value and determining the rounded reference sample position as a reference sample position to be selected.

7. The method of claim 5, wherein determining the reference point from the at least one side and determining the reference sample positions to be selected corresponding to the at least one side according to the first sampling interval comprises:

calculating a midpoint value of the at least one side based on the length of the at least one side;

calculating reference sample positions according to the midpoint value and the first sampling interval; and

when the midpoint value is non-integral, rounding up a reference sample position on the left side of the midpoint value and determining the rounded reference sample position as a reference sample position to be selected, rounding down a reference sample position on the right side of the midpoint value and determining the rounded reference sample position as a reference sample position to be selected.

8. The method of claim 5, further comprising:

regulating the first sampling interval to obtain a second sampling interval; and

determining the reference point from the at least one side, and determining the reference sample positions to be selected corresponding to the at least one side according to the second sampling interval.

9. The method of claim 8, further comprising:

determining the reference point from the at least one side, determining a reference sample position to be selected corresponding to a left side of the reference point according to the first sampling interval, and determining a reference sample position to be selected corresponding to a right side of the reference point according to the second sampling interval.

10. The method of claim 5, wherein calculating the first sampling interval based on the preset number of samples and the length of the at least one side comprises:

calculating the first sampling interval based on the preset number of samples and the length of the at least one side by using the formula (1):

$$\Delta = length / (N_2 / 2) \tag{1}$$

where Δ represents the first sampling interval, *length* represents a length of the at least one side, and N_2 represents the preset number of samples;

determining the reference point from the at least one side and determining the reference sample positions to be selected corresponding to the at least one side according to the first sampling interval comprises:

calculating a starting position of reference samples to be selected according to the first sampling interval by using the formula (2); and

determining the reference sample positions to be selected corresponding to the at least one side according to a starting position of reference samples to be selected and the first sampling interval;

$$shift = \Delta / 2 \tag{2}$$

where *shift* represents a starting position of the reference samples to be selected.

11. The method of claim 10, wherein determining the reference sample positions to be selected corresponding to the at least one side according to the starting position of the reference samples to be selected and the first sampling interval comprises:

determining the reference sample positions to be selected corresponding to the at least one side to be 2, 6, 10 and 14 when the starting position of the reference samples to be selected is 2 and the sampling interval is 4.

12. The method of claim 1, wherein determining the reference point from the at least one side and determining the reference sample positions to be selected corresponding to the at least one side according to the preset number of samples comprises:

determining, when a length of the at least one side is 8 and the preset number of samples is 2, the reference sample positions to be selected corresponding to the at least one side to be 2 and 6, or 1 and 5, or 1 and 6, or 2 and 5.

13. The method of claim 1, wherein determining the reference point from the at least one side and determining the reference sample positions to be selected corresponding to the at least one side according to the preset number of samples comprises:

determining the reference point from the at least one side, and determining continuous reference sample positions near the reference point as reference sample positions to be selected according to the preset number of samples, the reference point being at a middle position of the reference sample positions to be selected.

14. The method of claim 13, further comprising:

determining, when a length of the at least one side is 8 and the preset number of samples is 3, the reference sample positions to be selected corresponding to the at least one side to be 2, 3 and 4, or 3 ,4 and 5.

15. The method of any one of claims 1-14, wherein the decoding block comprises a square decoding block or a non-square decoding block.

16. The method of claim 1, wherein determining the reference point from the at least one side and determining the reference sample positions to be selected corresponding to the at least one side according to the preset number of samples comprises:

acquiring, from the reference samples, remaining reference samples except reference samples corresponding to a starting position and ending position of the at least one side; and

determining the reference point from the at least one side, and determining the reference sample positions to be selected based on the remaining reference samples and the preset number of samples.

17. The method of any one of claims 1-16, wherein performing prediction decoding on the decoding block based on the selected reference samples comprises:

determining model parameters based on the selected reference samples;

establishing a prediction model according to the model parameters, the prediction model being configured to represent a prediction relationship between a first colour component and a second colour component corresponding to each sample in the decoding block; and

performing prediction decoding on the decoding block based on the prediction model.

18. The method of claim 17, wherein determining the model parameters based on the selected reference samples comprises:

determining, from the selected reference samples, a maximum $L_{\max}$ and minimum $L_{\min}$ of first colour component neighbouring reference values and second colour component neighbouring reference values $C_{\max}$ and $C_{\min}$ corresponding to reference samples at positions corresponding to $L_{\max}$ and $L_{\min}$; and

calculating model parameters according to $L_{\max}$, $L_{\min}$, $C_{\max}$ and $C_{\min}$ by using the formula (3):

$$\begin{cases} \alpha = \dfrac{L_{\max} - L_{\min}}{C_{\max} - C_{\min}} \\ \beta = L_{\min} - \alpha \cdot C_{\min} \end{cases} \tag{3}$$

where α and β represent model parameters.

19. A prediction device for decoding, comprising:

an acquisition unit, configured to acquire reference samples adjacent to at least one side of a decoding block;

a determination unit, configured to determine a reference point from the at least one side and determine reference sample positions to be selected corresponding to the at least one side according to a preset number of samples;

a selection unit, configured to select reference samples corresponding to the reference

sample positions to be selected from the reference samples based on the reference sample positions to be selected; and

a decoding unit, configured to perform prediction decoding on the decoding block based on the selected neighbouring reference samples.

20. A computer storage medium, storing a prediction program for decoding, wherein the prediction program for decoding is executed by at least one processor to implement operations of the method of any one of claims 1-18.