

Claims

1. A method for decoding a video signal with a decoding apparatus, comprising:
 - obtaining, from the video signal, a syntax element indicating whether a constrained intra prediction is used;
 - determining an intra prediction mode of a current block in the video signal;
 - constructing reference samples of the current block; and
 - generating a prediction block of the current block based on the intra prediction mode and the constructed reference samples,wherein the constructed reference samples include left reference samples and right reference samples,
 - wherein the left reference samples belong to a reconstructed block adjacent to a left of the current block and are adjacent to a left boundary of the current block, and the right reference samples belong to a reconstructed block adjacent to a right of the current block and are adjacent to a right boundary of the current block,
 - wherein generating the prediction block of the current block comprises generating a prediction sample of a current sample in the current block using a specific number of reference samples among the constructed reference samples when the intra prediction mode is a non-directional mode,
 - wherein the specific number is determined as 5,
 - wherein the specific number of reference samples include a top reference sample, two of the left reference samples, and one of the right reference samples,
 - wherein the two of the left reference samples include a bottom-most reference sample among the left reference samples, and
 - wherein a position of the bottom-most reference sample is $(-1, H-1)$ relative to a top-left sample of the current block, the H referring to a height of the current block.
2. The method of claim 1, wherein constructing the reference samples of the current block comprises determining an availability of the reference samples.
3. The method of claim 2, wherein at least one of the reference samples is determined to be unavailable when the at least one of the reference samples is located outside a picture boundary, the at least one of the reference samples is not contained in a same tile as the current block, or decoding of the at least one of the reference samples is not completed.
4. The method of claim 3, wherein when the constrained intra prediction is used, the

availability of the left reference sample is determined based on a coding mode of a reference sample candidate block adjacent to a left of the current block, and the availability of the right reference sample is determined based on a coding mode of a reference sample candidate block adjacent to a right of the current block.

5. The method of claim 1, wherein the specific number of reference samples include first reference samples determined based on a position of the current sample within the current block and second reference samples determined based on a width or a height of the current block.

6. The method of claim 5, wherein the prediction sample of the current sample is generated using an arbitrary sample and the first reference samples determined based on the position of the current sample among the specific number of reference samples, and

wherein the arbitrary sample is obtained by a weighted sum of the second reference samples among the specific number of reference samples.

7. The method of claim 6, wherein the prediction sample of the current sample is generated by applying a weight to the arbitrary sample and the first reference samples, respectively.

8. The method of claim 7, the weight is determined based on the position of the current sample in the current block.

9. A method of encoding a video signal with an encoding apparatus, comprising:
encoding a syntax element indicating whether a constrained intra prediction is used;
determining an intra prediction mode of a current block in the video signal;
constructing reference samples of the current block; and

generating a residual block of the current block using a prediction block, the prediction block being generated based on the intra prediction mode and the reference samples,

wherein the constructed reference samples include left reference samples and right reference samples,

wherein the left reference samples belong to a reconstructed block adjacent to a left of the current block and are adjacent to a left boundary of the current block, and the right reference samples belong to a reconstructed block adjacent to a right of the current block and are adjacent to a right boundary of the current block,

wherein generating the prediction block of the current block comprises generating a prediction sample of a current sample in the current block using a specific number of reference samples among the constructed reference samples when the intra prediction mode is a non-

directional mode,

wherein the specific number is determined as 5,

wherein the specific number of reference samples include a top reference sample, two of the left reference samples, and one of the right reference samples,

wherein the two of the left reference samples include a bottom-most reference sample among the left reference samples, and

wherein a position of the bottom-most reference sample is $(-1, H-1)$ relative to a top-left sample of the current block, the H referring to a height of the current block.