CLAIMS

1. A method of encoding video data, comprising:

obtaining, at an encoding device, video data, the video data including parameters describing a piecewise linear function for dynamic range adjustment of colors in a portion of a video frame, wherein the parameters divide a range of input values to the piecewise linear function into a plurality of non-overlapping ranges, the plurality of non-overlapping ranges including a first range and a set of ranges, wherein the first range has a first length and each range of the set of ranges has a second length that is different from the first length;

generating a data structure for the parameters;

setting an indicator in the data structure to indicate that the plurality of non-overlapping ranges includes the set of ranges with each range having the second length;

based on the plurality of non-overlapping ranges including the set of ranges with each range having the second length, setting a first value in the data structure to indicate the second length for the set of ranges; and

generating encoded video data from the video data, wherein the data structure is included with the encoded video data.

2. The method of claim 1, wherein the first value indicates the second length as a difference between an end value and a start value of each of the set of ranges.

3. The method of claim 1, wherein the first value indicates the second length by indicating a difference between a fixed value and the second length.

4. The method of claim 1, further comprising:

setting a second value in the data structure to indicate the first length.

5. The method of claim 1, wherein the first range includes a first set of input values from a beginning of the range of input values, and wherein the set of ranges include a second set of input values, from the range of input values, that follow the first set of input values.

6. The method of claim 1, wherein the parameters further include scale factors associated with each of the plurality of non-overlapping ranges, and further comprising:

adding the scale factors to the data structure.

7. The method of claim 1, further comprising:

including the data structure in a Supplementary Enhancement Information (SEI) message, a slice header, or a parameter set.

8. An encoding device, comprising:

a memory configured to store video data, the video data including parameters describing a piecewise linear function for dynamic range adjustment of colors in a portion of a video frame, wherein the parameters divide a range of input values to the piecewise linear function into a plurality of non-overlapping ranges, the plurality of non-overlapping ranges including a first range and a set of ranges, wherein the first range has a first length and each range of the set of ranges has a second length that is different from the first length; and

a processor configured to:

generate a data structure for the parameters;

set an indicator in the data structure to indicate that the plurality of non-overlapping ranges includes the set of ranges with each range having the second length;

based on the plurality of non-overlapping ranges including the set of ranges with each range having the second length, set a first value in the data structure to indicate the second length for the set of ranges; and

generate encoded video data from the video data, wherein the data structure is included with the encoded video data.

9. The encoding device of claim 8, wherein the first value indicates the second length as a difference between an end value and a start value of each of the set of ranges.

10. The encoding device of claim 8, wherein the first value indicates the second length by indicating a difference between a fixed value and the second length.

11. The encoding device of claim 8, wherein the processor is further configured to:

set a second value in the data structure to indicate the first length.

12. The encoding device of claim 8, wherein the first range includes a first set of input values from a beginning of the range of input values, and wherein the set of ranges include a second set of input values, from the range of input values, that follow the first set of input

values.

13. The encoding device of claim 8, wherein the parameters further include scale factors associated with each of the plurality of non-overlapping ranges, and wherein the processor is further configured to:

add the scale factors to the data structure.

14. The encoding device of claim 8, wherein the processor is further configured to:

include the data structure in a Supplementary Enhancement Information (SEI) message, a slice header, or a parameter set.

15. The encoding device of claim 8, further comprising:

a camera for capturing video data.

16. The encoding device of claim 8, wherein the encoding device comprises a mobile device.

17. A method for decoding video data, comprising:

obtaining encoded video data;

determining, for a portion of a video frame from the encoded video data, a data structure including parameters describing a piecewise linear function for dynamic range adjustment of colors in the portion of the video frame, wherein the parameters divide a range of input values to the piecewise linear function into a plurality of non-overlapping ranges;

determining, from an indicator in the data structure, that the plurality of non-overlapping ranges include a first range and a set of ranges, wherein the first range has a first length and each range of the set of ranges has a second length that is different from the first length;

determining, using a first value in the data structure, the second length, the first value being included in the data structure based on the plurality of non-overlapping ranges including the set of ranges with each range having the second length;

determining the first length using the data structure;

reconstructing the piecewise linear function using the first length, the second length, and scale factors associated with each of the plurality of non-overlapping ranges, wherein the scale factors are included in the data structure;

decoding the portion of the video frame; and

applying the piecewise linear function to the colors in the portion of the video frame to perform dynamic range adjustment.

18. The method of claim 17, wherein the first value provides the second length and wherein a second value in the data structure provides the first length.

19. The method of claim 17, wherein the first value indicates the second length by indicating a difference between a fixed value and the second length.

20. The method of claim 17, wherein a second value in the data structure provides the first length, and further comprising:

determining from an index associated with the second value that the first range includes a first set of input values from a beginning of the range of input values, and wherein the set of ranges include a second set of input values, from the range of input values, that follow the first set of input values.

21. The method of claim 17, wherein the parameters are included in a Supplementary Enhancement Information (SEI) message, a slice header, or a parameter set.

22. A decoding device, comprising:

a memory configured to store encoded video data; and

a processor configured to:

determine, for a portion of a video frame from the encoded video data, a data structure including parameters describing a piecewise linear function for dynamic range adjustment of colors in the portion of the video frame, wherein the parameters divide a range of input values to the piecewise linear function into a plurality of non-overlapping ranges;

determine, from an indicator in the data structure, that the plurality of non-overlapping ranges include a first range and a set of ranges, wherein the first range has a first length and each range of the set of ranges has a second length that is different from the first length;

determine, using a first value in the data structure, the second length, the first

value being included in the data structure based on the plurality of non-overlapping ranges including the set of ranges with each range having the second length;

determine the first length using information provided by the data structure;

reconstruct the piecewise linear function using the first length, the second length, and scale factors associated with each of the plurality of non-overlapping ranges, wherein the scale factors are included in the data structure;

decode the portion of the video frame; and

apply the piecewise linear function to the colors in the portion of the video frame to perform dynamic range adjustment.

23. The decoding device of claim 22, wherein the first value provides the second length and wherein a second value in the data structure provides the first length.

24. The decoding device of claim 22, wherein the first value indicates the second length by indicating a difference between a fixed value and the second length.

25. The decoding device of claim 22, wherein a second value in the data structure provides the first length, and wherein the processor is further configured to:

determine from an index associated with the second value that the first range includes a first set of input values from a beginning of the range of input values, and wherein the set of ranges include a second set of input values, from the range of input values, that follow the first set of input values.

26. The decoding device of claim 22, wherein the parameters are included in a Supplementary Enhancement Information (SEI) message, a slice header, or a parameter set.

27. The decoding device of claim 22, further comprising:

a camera for capturing video data.

28. The decoding device of claim 22, further comprising:

a display for displaying decoded video data.

29. The decoding device of claim 22, wherein the decoding device comprises a mobile device.