WHAT IS CLAIMED IS:

1. A method of decoding multi-layer video data, the method comprising:

obtaining the multi-layer video data, wherein the multi-layer video data comprises at least a first layer and a second layer;

determining a layer identification value for the first layer and a layer identification value for the second layer, wherein the layer identification value for the second layer is higher than the layer identification value for the first layer;

storing decoded pictures of the first layer and decoded pictures of the second layer in a decoded picture buffer; and

in response to determining that an instantaneous decoding refresh (IDR) picture belongs to the second layer, removing from the decoded picture buffer, all decoded pictures of the second layer while leaving in the decoded picture buffer all decoded pictures of the first layer.

2. The method of claim 1, wherein the first layer comprises an independently decodable layer.

3. The method of claim 1, wherein the second layer depends on the first layer.

4. The method of claim 1, wherein the multi-layer video data further comprises a third layer, the method comprising:

determining a layer identification value for the third layer, wherein the layer identification value for the third layer is higher than the layer identification value for the second layer;

storing decoded pictures of the third layer in the decoded picture buffer;

in response to determining that the IDR picture belongs to the second layer, removing from the decoded picture buffer, all decoded pictures of the second layer and all decoded pictures of the third layer, while leaving in the decoded picture buffer all decoded pictures of the first layer; and

after removing from the decoded picture buffer all of the decoded pictures of the second layer and all of the decoded pictures of the third layer, retrieving a copy of a decoded picture of the first layer to predict a block of a current picture of the multi-layer video data.

5. The method of claim 4, further comprising:

extracting from the multi-layer video data a decodable bitstream that includes the first layer and the third layer without the second layer.

6. The method of claim 1, further comprising:

wherein obtaining the multi-layer video data comprising at least the first layer and the second layer comprises receiving a first access unit comprising first pictures of one or more layers and receiving a second access unit comprising second pictures of the one or more layers.

7. The method of claim 6, further comprising:

in response to determining (1) that a video coding layer (VCL) network abstraction layer (NAL) unit of the second access unit has a layer identification smaller than a layer identification of an immediately preceding picture in decoding order and (2) that the VCL NAL unit of the second access unit has a picture order count (POC) value different than a POC value for the immediately preceding picture in the decoding order, determining that the VCL NAL unit of the second access unit corresponds to a start of the second access unit; and

in response to determining that the VCL NAL unit of the second access unit corresponds to the start of the second access unit, determining that the second pictures of the second access unit are associated with a same time output.

8. The method of claim 7, wherein a NAL unit received between the VCL NAL unit of the second access unit and a last VCL NAL unit of the immediately preceding picture comprises an access unit delimiter NAL unit.

9. The method of claim 1, wherein obtaining the multi-layer video data comprises storing the multi-layer video data in a memory of a wireless communication device, the method further comprising:

encoding the multi-layer video data with one or more processors of the wireless communication device; and

transmitting the encoded multi-layer video data from a transmitter of the wireless communication device.

10. The method of claim 9, wherein the wireless communication device comprises a telephone handset and wherein transmitting the multi-layer video data at the transmitter of the wireless communication device comprises modulating, according to a wireless communication standard, a signal comprising the multi-layer video data.

11. The method of claim 1, wherein obtaining the multi-layer video data comprises receiving the multi-layer video data at a receiver of a wireless communication device, the method further comprising:

storing the multi-layer video data in a memory of the wireless communication device; and

decoding the multi-layer video data with one or more processors of the wireless communication device.

12. The method of claim 11, wherein the wireless communication device comprises a telephone handset and wherein receiving the multi-layer video data at the receiver of the wireless communication device comprises demodulating, according to a wireless communication standard, a signal comprising the multi-layer video data.

13. A device for decoding multi-layer video data, the device comprising:
a memory configured to store the multi-layer video data; and
one or more processors implemented in circuitry and configured to:

obtain the multi-layer video data, wherein the multi-layer video data comprises at least a first layer and a second layer;

determine a layer identification value for the first layer and a layer identification value for the second layer, wherein the layer identification value for the second layer is higher than the layer identification value for the first layer;

store decoded pictures of the first layer and decoded pictures of the second layer in a decoded picture buffer; and

in response to determining that an instantaneous decoding refresh (IDR) picture belongs to the second layer, remove from the decoded picture buffer, all the decoded pictures of the second layer while leaving in the decoded picture buffer all the decoded pictures of the first layer.

14. The device of claim 13, wherein the first layer comprises an independently decodable layer.

15. The device of claim 13, wherein the second layer depends on the first layer.

16. The device of claim 13, wherein the multi-layer video data further comprises a third layer, and the one or more processors are further configured to:

determine a layer identification value for the third layer, wherein the layer identification value for the third layer is higher than the layer identification value for the second layer;

store decoded pictures of the third layer in the decoded picture buffer;

in response to determining that the IDR picture belongs to the second layer, remove from the decoded picture buffer, all decoded pictures of the second layer and all decoded pictures of the third layer, while leaving in the decoded picture buffer all decoded pictures of the first layer; and

after removing from the decoded picture buffer all the decoded pictures of the second layer and all the decoded pictures of the third layer, retrieve a copy of a decoded picture of the first layer to predict a block of a current picture of the multi-layer video data.

17. The device of claim 16, wherein the one or more processors are further configured to:

extract from the multi-layer video data a decodable bitstream that includes the first layer and the third layer without the second layer.

18. The device of claim 13, wherein to obtain the multi-layer video data comprising at least the first layer and the second layer, the one or more processors are further configured to receive a first access unit comprising first pictures of one or more layers and receiving a second access unit comprising second pictures of the one or more layers.

19. The device of claim 18, wherein the one or more processors are further configured to:

in response to determining (1) that a video coding layer (VCL) network abstraction layer (NAL) unit of the second access unit has a layer identification smaller than a layer identification of an immediately preceding picture in decoding order and (2) that the VCL NAL unit of the second access unit has a picture order count (POC) value different than a POC value for the immediately preceding picture in decoding order, determine that the VCL NAL unit of the second access unit corresponds to a start of the second access unit; and

in response to determining that the VCL NAL unit of the second access unit corresponds to the start of the second access unit, determine that the second pictures of the second access unit are associated with a same time output.

20. The device of claim 19, wherein a NAL unit received between the VCL NAL unit of the second access unit and a last VCL NAL unit of the immediately preceding picture comprises an access unit delimiter NAL unit.

21. The device of claim 13, wherein the device comprises a wireless communication device, further comprising a receiver configured to receive the multi-layer video data.

22. The device of claim 21, wherein the wireless communication device comprises a telephone handset and wherein the receiver is configured to demodulate, according to a wireless communication standard, a signal comprising the multi-layer video data.

23. The device of claim 13, further comprising:

a display configured to display decoded multi-layer video data.

24. The device of claim 13, wherein the device comprises one or more of a camera, a computer, a mobile device, a broadcast receiver device, or a set-top box.

25. A computer-readable storage medium storing instructions that when executed by one or more processors cause the one or more processor to:

obtain the multi-layer video data, wherein the multi-layer video data comprises at least a first layer and a second layer;

determine a layer identification value for the first layer and a layer identification value for the second layer, wherein the layer identification value for the second layer is higher than the layer identification value for the first layer;

store decoded pictures of the first layer and decoded pictures of the second layer in a decoded picture buffer; and

in response to determining that an instantaneous decoding refresh (IDR) picture belongs to the second layer, remove from the decoded picture buffer, all decoded pictures of the second layer while leaving in the decoded picture buffer all decoded pictures of the first layer.

26. An apparatus for decoding multi-layer video data, the apparatus comprising:

means for obtaining the multi-layer video data, wherein the multi-layer video data comprises at least a first layer and a second layer;

means for determining a layer identification value for the first layer and a layer identification value for the second layer, wherein the layer identification value for the second layer is higher than the layer identification value for the first layer;

means for storing decoded pictures of the first layer and decoded pictures of the second layer in a decoded picture buffer;

means for removing from the decoded picture buffer, all decoded pictures of the second layer while leaving in the decoded picture buffer all decoded pictures of the first layer in response to determining that an instantaneous decoding refresh (IDR) picture belongs to the second layer.