Conformance specification for ITU-T H.264 advanced video coding

# 1 Scope

This Recommendation | International Standard[[1]](#footnote-1) specifies a set of tests and procedures designed to indicate whether encoders or decoders meet the normative requirements specified in ITU‑T H.264 | ISO/IEC 14496‑10.

NOTE – This edition includes the text approved 03/2005, its Corrigendum 1 approved 09/2005, conformance tests for professional profiles (approved 06/2008) and conformance tests for the Constrained Baseline, scalable and multiview profiles (approved 04/2010).

# 2 Normative references

## 2.1 General

The following Recommendations and International Standards contain provisions which, through reference in this text, constitute provisions of this Recommendation | International Standard. At the time of publication, the editions indicated were valid. All Recommendations and Standards are subject to revision, and parties to agreements based on this Recommendation | International Standard are encouraged to investigate the possibility of applying the most recent edition of the Recommendations and Standards listed below. Members of IEC and ISO maintain registers of currently valid International Standards. The Telecommunication Standardization Bureau of the ITU maintains a list of currently valid ITU-T Recommendations.

## 2.2 Identical Recommendations | International Standards

– None.

## 2.3 Paired Recommendations | International Standards equivalent in technical content

– ITU-T H.264 (in force), *Advanced video coding for generic audiovisual services*.

ISO/IEC 14496-10: in force, *Information technology – Coding of audio-visual objects – Part 10: Advanced Video Coding*.

– ITU-T H.264.2 (in force), *Reference software for H.264 advanced video coding*.

ISO/IEC 14496-5: in force, *Information technology – Coding of audio-visual objects – Part 5: Reference software*.

## 2.4 Additional references

– None*.*

# 3 Definitions

For the purposes of this Recommendation | International Standard, the terms, definitions, abbreviations and symbols specified in ITU-T H.264 | ISO/IEC 14496-10 (particularly in clauses 3, G.3, and H.3) apply. The following terms are further clarified for purposes herein as follows.

**3.1 bitstream**: An ITU-T H.264 | ISO/IEC 14496-10 video bitstream. A bitstream may contain IDR, I, P, B, SI, SP, EI, EP, and EB slices.

**3.2 decoder**: An ITU-T H.264 | ISO/IEC 14496-10 video decoder, i.e., an embodiment of the decoding process specified by ITU-T H.264 | ISO/IEC 14496-10. The decoder does not include the display process, which is outside the scope of this Recommendation | International Standard.

**3.3 reference software decoder**: The software decoder contained in ITU‑T H.264.2 | ISO/IEC 14496‑5.

**3.4 TemporalIdMax**: Maximum value of temporal\_id in the NAL unit header extension for SVC of the coded slice NAL units or prefix NAL units of an ITU-T H.264 | ISO/IEC 14496-10 video bitstream.

# 4 Abbreviations and acronyms

For the purposes of this Recommendation | International Standard, relevant abbreviations and acronyms are specified in clause 4 of ITU-T H.264 | ISO/IEC 14496-10.

# 5 Conventions

For the purposes of this Recommendation | International Standard, relevant conventions are specified in clause 5 in ITU‑T H.264 | ISO/IEC 14496-10.

# 6 Conformance for ITU-T H.264 | ISO/IEC 14496-10

## 6.1 Introduction

The following clauses specify the normative tests for verifying conformance of video bitstreams as well as decoders. Those normative tests make use of test data (bitstream test suites) provided as an electronic annex to this Recommendation | International Standard and the reference software decoder with source code included in electronic format.

## 6.2 Bitstream conformance

The bitstream conformance of ITU-T H.264 | ISO/IEC 14496-10 is specified by clause C.3, G.12, H.12, or I.12 of ITU‑T H.264 | ISO/IEC 14496-10.

## 6.3 Decoder conformance

The decoder conformance of ITU-T H.264 | ISO/IEC 14496-10 is specified by clause C.4, G.12, H.12, or I.12 of ITU‑T H.264 | ISO/IEC 14496-10.

## 6.4 Procedure to test bitstreams

A bitstream that claims conformance with ITU‑T H.264 | ISO/IEC 14496‑10 shall pass the following normative test:

The bitstream shall be decoded by processing it with the reference software decoder. When processed by the reference software decoder, the bitstream shall not cause any error or non‑conformance messages to be reported by the reference software decoder. This test should not be applied to bitstreams that are known to contain errors introduced by transmission, as such errors are highly likely to result in bitstreams that lack conformance to ITU-T H.264 | ISO/IEC 14496‑10.

Successfully passing the reference software decoder test provides only a strong presumption that the bitstream under test is conforming to the video layer, i.e., that it does indeed meet all the requirements for the video layer (except Annexes C, D and E and clauses G.12, H.12 and I.12) specified in ITU-T H.264 | ISO/IEC 14496-10 that are tested by the reference software decoder.

Additional tests may be necessary to more thoroughly check that the bitstream properly meets all the requirements specified in ITU-T H.264 | ISO/IEC 14496-10 including the hypothetical reference decoder (HRD) conformance (based on Annexes C, D and E and clauses G.12, H.12 and I.12). These complementary tests may be performed using other video bitstream verifiers that perform more complete tests than those implemented by the reference software decoder.

ITU-T H.264 | ISO/IEC 14496-10 contains several informative recommendations that are not an integral part of that Recommendation | International Standard. When testing a bitstream for conformance, it may also be useful to test whether or not the bitstream follows those recommendations.

To check correctness of a bitstream, it is necessary to parse the entire bitstream and to extract all the syntax elements and other values derived from those syntactic elements and used by the decoding process specified in ITU‑T H.264 | ISO/IEC 14496-10.

A verifier may not necessarily perform all stages of the decoding process specified in ITU‑T H.264 | ISO/IEC 14496-10 in order to verify bitstream correctness. Many tests can be performed on syntax elements in a state prior to their use in some processing stages.

## 6.5 Procedure to test decoder conformance

### 6.5.1 Conformance bitstreams

A bitstream has values of profile\_idc, level\_idc, and constraint\_setX\_flag (where X is a number in the range of 0 to 6, inclusive) corresponding to a set of specified constraints on a bitstream for which a decoder conforming to a specified profile and level is required in Annex A, clause G.10, H.10, or I.10 of ITU-T H.264 | ISO/IEC 14496-10 to properly perform the decoding process.

### 6.5.2 Contents of the bitstream file

The conformance bitstreams are included in this Recommendation | International Standard as an electronic attachment. The following information is included in a single zipped file for each such bitstream.

– bitstream;

– decoded pictures or hashes of decoded pictures (may not be present);

– short description of the bitstream;

– trace file (the bitstream in ASCII format).

In cases where the decoded pictures or hashes of decoded pictures are not available, the reference software decoder shall be used to generate the necessary reference decoded pictures from the bitstream.

### 6.5.3 Requirements on output of the decoding process and timing

Two classes of decoder conformance are specified:

– output order conformance; and

– output timing conformance.

The output of the decoding process is specified in clauses 8, G.8, G.12, H.8, H.12, I.8, I.12 and Annex C of ITU‑T H.264 | ISO/IEC 14496-10.

For output order conformance, it is a requirement that all of the decoded pictures specified for output in Annex C, clause G.12, H.12, or I.12 of ITU‑T H.264 | ISO/IEC 14496-10 shall be output by a conforming decoder in the specified order and that the values of the decoded samples in all of the pictures that are output shall be (exactly equal to) the values specified in clause 8, clause G.8, H.8, or I.8 of ITU-T H.264 | ISO/IEC 14496-10.

For output timing conformance, it is a requirement that a conforming decoder shall also output the decoded samples at the rates and times specified in Annex C, clause G.12, H.12, or I.12 of ITU-T H.264 | ISO/IEC 14496-10.

The display process, which ordinarily follows the output of the decoding process, is outside the scope of this Recommendation | International Standard.

### 6.5.4 Recommendations (informative)

This clause does not form an integral part of this Recommendation | International Standard.

In addition to the requirements, it is desirable that conforming decoders implement various informative recommendations specified in ITU-T H.264 | ISO/IEC 14496-10 that are not an integral part of that Recommendation | International Standard. This clause lists some of these recommendations.

It is recommended that a conforming decoder be able to resume the decoding process as soon as possible after the loss or corruption of part of a bitstream. In most cases it is possible to resume decoding at the next start code or slice header. It is recommended that a conforming decoder be able to perform concealment for the macroblocks or video packets for which all the coded data has not been received.

### 6.5.5 Static tests for output order conformance

Static tests of a video decoder require testing of the decoded samples. This clause will explain how this test can be accomplished when the decoded samples at the output of the decoding process are available. It may not be possible to perform this type of test with a production decoder (due to the lack of an appropriate accessible interface in the design at which to perform the test). In that case this test should be performed by the manufacturer during the design and development phase. Static tests are used for testing the decoding process. The test will check that the values of the samples decoded by the decoder under test shall be identical to the values of the samples decoded by the reference decoder. When a hash of the values of the samples of the decoded pictures is attached to the bitstream file, a corresponding hash operation performed on the values of the samples of the decoded pictures produced by the decoder under test shall produce the same results.

### 6.5.6 Dynamic tests for output timing conformance

Dynamic tests are applied to check that all the decoded samples are output and that the timing of the output of the decoder's decoded samples conforms to the specification of clauses 8, G.8, G.12, H.8, H.12, I.8 and I.12; and Annex C of ITU‑T H.264 | ISO/IEC 14496-10, and to verify that the HRD models (as specified by the CPB and DPB specification in Annex C, clause G.12, H.12, or I.12 of ITU-T H.264 | ISO/IEC 14496-10) are not violated when the bits are delivered at the proper rate.

The dynamic test is often easier to perform on a complete decoder system, which may include a systems decoder, a video decoder and a display process. It may be possible to record the output of the display process and to check that display order and timing of fields or frames are correct at the output of the display process. However, since the display process is not within the normative scope of ITU-T H.264 | ISO/IEC 14496-10, there may be cases where the output of the display process differs in timing or value even though the video decoder is conforming. In this case, the output of the video decoder itself (before the display process) would need to be captured in order to perform the dynamic tests on the video decoder. In particular the field or frame order and timing shall be correct.

If buffering period SEI and picture timing SEI are included in the test bitstream, HRD conformance shall be verified using the values of initial\_cpb\_removal\_delay, initial\_cpb\_removal\_delay\_offset, cpb\_removal\_delay and dpb\_removal\_delay that are included in the bitstream.

If buffering period SEI and picture timing SEI are not included in the bitstream, the following inferences shall be made to generate the missing parameters:

– fixed\_frame\_rate\_flag shall be inferred to be 1.

– low\_delay\_hrd\_flag shall be inferred to be 0.

– cbr\_flag shall be inferred to be 0.

– The frame rate of the bitstream shall be inferred to be the frame rate value specified in the corresponding table of clause 6.7, where the bitstream is listed. If this is missing, then a frame rate of either 25 or 30000 ÷ 1001 can be inferred.

– time\_scale shall be set to 90,000 and the value of num\_units\_in\_tick shall be computed based on field rate (twice the frame rate).

– The bit rate of the bitstream shall be inferred to be the maximum value for the level specified in Table A‑1 in ITU-T H.264 | ISO/IEC 14496-10.

– CPB and DPB sizes shall be inferred to be the maximum value for the level specified in Table A-1 in ITU‑T H.264 | ISO/IEC 14496-10.

With the above inferences, the HRD shall be operated as follows.

– The CPB is filled starting at time t = 0, until it is full, before removal of the first access unit. This means that the initial\_cpb\_removal\_delay shall be inferred to be equal to the total CPB buffer size divided by the bit rate divided by 90000 (rounded downwards) and initial\_cpb\_removal\_delay\_offset shall be inferred to be equal to zero.

– The first access unit is removed at time t = initial\_cpb\_removal\_delay ÷ 90000 and subsequent access units are removed at intervals based on the frame distance, i.e., 2 \* (90000 ÷ num\_units\_in\_tick) or the field distance, i.e., (90000 / num\_units\_in\_tick), depending on whether the access unit is coded as a frame picture or field picture.

– Using these inferences, the CPB will not overflow or underflow and the DPB will not overflow.

### 6.5.7 Decoder conformance test of a particular profile-and-level

In order for a decoder of a particular profile-and-level to claim output order conformance to ITU‑T H.264 | ISO/IEC 14496-10 as specified by this Recommendation | International Standard, the decoder shall successfully pass the static test specified in clause 6.5.5 with all the bitstreams of the normative test suite specified for testing decoders of this particular profile-and-level.

In order for a decoder of a particular profile and level to claim output timing conformance to ITU‑T H.264 | ISO/IEC 14496-10 as specified by this Recommendation | International Standard, the decoder shall successfully pass both the static test specified in clause 6.5.5 and the dynamic test specified in clause 6.5.6 with all the bitstreams of the normative test suite specified for testing decoders of this particular profile-and-level. Tables 1 through 5 specify the normative test suites for each profile-and-level combination. The test suite for a particular profile‑and level combination is the list of bitstreams that are marked with an 'X' in the column corresponding to that profile‑and‑level combination.

'X' indicates that the bitstream is designed to test both the dynamic and static conformance of the decoder.

The bitstream column specifies the bitstream used for each test.

A decoder that conforms to the Constrained Baseline profile at a specific level shall be capable of decoding the specified bitstreams in Tables 1 and 4.

A decoder that conforms to the Baseline, Extended, or Main profile at a specific level shall be capable of decoding the specified bitstreams in Table 1. A decoder that conforms to the Baseline, Extended, or Main profile shall also be capable of decoding all bitstreams that are required to be decoded by a Constrained Baseline profile decoder of the same level. In addition to the specified bitstreams in Table 1, a decoder that conforms to the Baseline, Extended, or Main profile shall be capable of decoding the bitstreams in Table 4 that correspond to this requirement.

A decoder that conforms to the High, High 10, or High 4:2:2 profile at a specific level shall be capable of decoding the specified bitstreams in Table 2. A decoder that conforms to the High, High 10, or High 4:2:2 profile shall also be capable of decoding all bitstreams that are required to be decoded by a Constrained Baseline or Main profile decoder of the same level. A decoder that conforms to the High 10 or High 4:2:2 profile shall also be capable of decoding all bitstreams that are required to be decoded by a High 10 Intra profile decoder of the same level. A decoder that conforms to the High 4:2:2 profile shall also be capable of decoding all bitstreams that are required to be decoded by a High 4:2:2 Intra profile decoder of the same level. In addition to the specified bitstreams in Table 2, a decoder that conforms to the High, High 10, or High 4:2:2 profile shall be capable of decoding the bitstreams in Tables 1, 3 and 4 that correspond to these requirements.

A decoder that conforms to the High 10 Intra profile at a specific level shall be capable of decoding the specified bitstreams in Tables 3 and 4.

A decoder that conforms to the High 4:2:2 Intra, High 4:4:4 Intra, High 4:4:4 Predictive, or CAVLC 4:4:4 Intra profile at a specific level shall be capable of decoding the specified bitstreams in Table 3. A decoder that conforms to the High 4:2:2 Intra, High 4:4:4 Intra, or High 4:4:4 Predictive profile shall also be capable of decoding all bitstreams that are required to be decoded by a High 10 Intra profile decoder of the same level. A decoder that conforms to the High 4:4:4 Predictive profile shall also be capable of decoding all bitstreams that are required to be decoded by a Constrained Baseline, Main, or High profile decoder of the same level. In addition to the specified bitstreams in Table 3, a decoder that conforms to the High 4:2:2 Intra, High 4:4:4 Intra, or High 4:4:4 Predictive profile shall be capable of decoding the bitstreams in Tables 1, 2, and 4 that correspond to these requirements.

A decoder that conforms to the Scalable Baseline profile at a specific level shall be capable of decoding the specified bitstreams in Table 4. A decoder that conforms to the Scalable Baseline profile shall also be capable of decoding all bitstreams that are required to be decoded by a Constrained Baseline profile decoder of the same level. In addition to the specified bitstreams in Table 4, a decoder that conforms to the Scalable Baseline profile shall be capable of decoding the bitstreams in Table 1 that correspond to this requirement.

A decoder that conforms to the Scalable High profile at a specific level shall be capable of decoding the specified bitstreams in Table 4. A decoder that conforms to the Scalable High profile shall also be capable of decoding all bitstreams that are required to be decoded by a Constrained Baseline, Main, or High profile decoder of the same level. In addition to the specified bitstreams in Table 4, a decoder that conforms to the Scalable High profile shall be capable of decoding the bitstreams in Tables 1 and 2 that correspond to this requirement.

A decoder that conforms to the Scalable High Intra profile at a specific level shall be capable of decoding the specified bitstreams in Table 4.

A decoder that conforms to the Multiview High or Stereo High profile at a specific level shall be capable of decoding the specified bitstreams in Table 5. A decoder that conforms to the Multiview High or Stereo High profile shall also be capable of decoding all bitstreams that are required to be decoded by a Constrained Baseline profile decoder of the same level. A decoder that conforms to the Stereo High profile shall also be capable of decoding all bitstreams that are required to be decoded by a Main or High profile decoder of the same level. In addition to the specified bitstreams in Table 5, a decoder that conforms to the Multiview High or Stereo High profile shall be capable of decoding the bitstreams in Tables 1, 2 and 4 that correspond to these requirements.

A decoder that conforms to the Multiview Depth High profile at a specific level shall be capable of decoding the specified bitstreams in Table 6. A decoder that conforms to the Multiview Depth High profile shall also be capable of decoding all bitstreams that are required to be decoded by a Main or High profile decoder of the same level. In addition to the specified bitstreams in Table 6, a decoder that conforms to the Multiview Depth High profile shall be capable of decoding the bitstreams in Tables 1, 2 and 4 that correspond to these requirements.

## 6.6 Specification of the test bitstreams

Some characteristics of each bitstream listed in Tables 1 through 5 are specified in this clause. In Tables 1 through 5, the value "29.97" shall be interpreted as an approximation of an exact value of 30000 ÷ 1001 and the value "59.94" shall be interpreted as an approximation of an exact value of 60000 ÷ 1001.

### 6.6.1 Test bitstreams – General

#### 6.6.1.1 Test bitstream #AVCNL-1, #AVCNL-2

**Specification**: All slices are coded as I slices. Each picture contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU-T H.264 | ISO/IEC 14496-10.

**Functional stage**: Decoding of I slices.

**Purpose**: Check that the decoder can properly decode I slices.

#### 6.6.1.2 Test bitstream #AVCNL-3, #AVCNL-4

**Specification**: All slices are coded as I or P slices. Each picture contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU-T H.264 | ISO/IEC 14496-10.

**Functional stage**: Decoding of P slices.

**Purpose**: Check that the decoder can properly decode P slices.

#### 6.6.1.3 Test bitstream #AVCBA-1

**Specification**: All slices are coded as I slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU-T H.264 | ISO/IEC 14496-10.

**Functional stage**: Decoding of I slices with the deblocking filter process enabled.

**Purpose**: Check that the decoder can properly decode I slices with the deblocking filter process enabled.

#### 6.6.1.4 Test bitstream #AVCBA-2

**Specification**: All slices are coded as I slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 2. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU-T H.264 | ISO/IEC 14496-10.

**Functional stage**: Decoding of I slices with the deblocking filter process enabled.

**Purpose**: Check that the decoder can properly decode I slices with the deblocking filter process enabled.

#### 6.6.1.5 Test bitstream #AVCBA-3

**Specification**: All slices are coded as I or P slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU-T H.264 | ISO/IEC 14496-10.

**Functional stage**: Decoding of P slices with the deblocking filter process enabled.

**Purpose**: Check that the decoder can properly decode P slice with the deblocking filter process enabled.

#### 6.6.1.6 Test bitstream #AVCBA-4

**Specification**: All slices are coded as I or P slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 2. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU-T H.264 | ISO/IEC 14496-10.

**Functional stage**: Decoding of P slices with the deblocking filter process enabled.

**Purpose**: Check that the decoder can properly decode P slices with the deblocking filter process enabled.

#### 6.6.1.7 Test bitstream #AVCBA-5, #AVCBA-6

**Specification**: All slices are coded as I or P slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU-T H.264 | ISO/IEC 14496-10.

**Functional stage**: Decoding of P slices with the deblocking filter process enabled.

**Purpose**: Check that the decoder can properly decode P slices with the deblocking filter process enabled.

#### 6.6.1.8 Test bitstream #AVCBA-7

**Specification**: All slices are coded as I or P slices. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 2. Macroblock/sub-macroblock partition size is limited to 8x8 and above. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU-T H.264 | ISO/IEC 14496-10.

**Functional stage**: Decoding of P slices with the deblocking filter process enabled.

**Purpose**: Check that the decoder can properly decode P slices with the deblocking filter process enabled.

#### 6.6.1.9 Test bitstream #AVCMQ-1

**Specification**: All slices are coded as I slices. Each picture contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 1. mb\_qp\_delta is equal to a non-zero value to change the quantizer scale at each MB. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496-10.

**Functional stage**: Decoding of I slices with mb\_qp\_delta not equal to 0.

**Purpose**: Check that the decoder can properly decode I slices with mb\_qp\_delta not equal to 0.

#### 6.6.1.10 Test bitstream #AVCMQ-2

**Specification**: All slices are coded as I or P slices. Each picture contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 1. mb\_qp\_delta is equal to a non-zero value to change the quantizer scale at each MB. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496-10.

**Functional stage**: Decoding of P slices with mb\_qp\_delta not equal to 0.

**Purpose**: Check that the decoder can properly decode P slices with mb\_qp\_delta not equal to 0.

#### 6.6.1.11 Test bitstream #AVCMQ-3

**Specification**: All slices are coded as I slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 1. Spatial direct prediction is used for direct prediction. mb\_qp\_delta is equal to a non-zero value to change the quantizer scale at each MB. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of I slices with mb\_qp\_delta not equal to 0.

**Purpose**: Check that the decoder can properly decode I slices with mb\_qp\_delta not equal to 0.

#### 6.6.1.12 Test bitstream #AVCMQ-4

**Specification**: All slices are coded as I or P slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 1. Spatial direct prediction is used for direct prediction. mb\_qp\_delta is equal to a non-zero value to change the quantizer scale at some MBs. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU-T H.264 | ISO/IEC 14496-10.

**Functional stage**: Decoding of P slices with mb\_qp\_delta not equal to 0.

**Purpose**: Check that the decoder can properly decode P slices with mb\_qp\_delta not equal to 0.

#### 6.6.1.13 Test bitstream #AVCSL-1

**Specification**: All slices are coded as I or P slices. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 2. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU-T H.264 | ISO/IEC 14496-10.

**Functional stage**: Decoding of I and P slices.

**Purpose**: Check that the decoder can properly decode pictures with multiple slices.

#### 6.6.1.14 Test bitstream #AVCSL-2

**Specification**: All slices are coded as I or P slices. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU-T H.264 | ISO/IEC 14496-10.

**Functional stage**: Decoding of I and P slices.

**Purpose**: Check that the decoder can properly decode pictures with multiple slices.

#### 6.6.1.15 Test bitstream #AVCSQ-1

**Specification**: All slices are coded as I slices. Each picture contains 20 slices. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. Spatial direct prediction is used for direct prediction. slice\_qp\_delta is equal to a non-zero value to change the quantizer scale at each slice. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU-T H.264 | ISO/IEC 14496-10.

**Functional stage**: Decoding of I slices with non-zero values of slice\_qp\_delta.

**Purpose**: Check that the decoder can properly decode I slices with non-zero values of slice\_qp\_delta.

#### 6.6.1.16 Test bitstream #AVCFM-1

**Specification**: All slices are coded as I or P slices. The number of slices and slice groups is greater than 1 in each picture. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496-10. Multiple parameter sets are included in the bitstream.

**Functional stage**: Slice groups.

**Purpose**: Check that the decoder handles multiple slice groups and parameter sets.

#### 6.6.1.17 Test bitstream #AVCFM-2

**Specification**: All slices are coded as I or P slices. The number of slices and slice groups is greater than 1 in each picture. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496-10.

**Functional stage**: Slice groups.

**Purpose**: Check that the decoder handles multiple slice groups and parameter sets.

#### 6.6.1.18 Test bitstream #AVCFM-3

**Specification**: All slices are coded as I or P slices. The number of slices and slice groups is greater than 1 in each picture. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 2. Recovery point SEI is included in this bitstream. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU-T H.264 | ISO/IEC 14496-10.

**Functional stage**: Slice groups.

**Purpose**: Check that the decoder handles multiple slice groups and parameter sets.

#### 6.6.1.19 Test bitstream #AVCCI-1

**Specification**: All slices are coded as I or P slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. constrained\_intra\_pred\_flag is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496-10.

**Functional stage**: Constrained intra prediction.

**Purpose**: Check that the decoder handles constrained intra prediction.

#### 6.6.1.20 Test bitstream #AVCCI-2

**Specification**: All slices are coded as I or P slices. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. constrained\_intra\_pred\_flag is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU-T H.264 | ISO/IEC 14496-10.

**Functional stage**: Constrained intra prediction.

**Purpose**: Check that the decoder handles constrained intra prediction.

#### 6.6.1.21 Test bitstream #AVCCI-3

**Specification**: All slices are coded as I or P slices. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 2. constrained\_intra\_pred\_flag is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU-T H.264 | ISO/IEC 14496-10.

**Functional stage**: Constrained intra prediction.

**Purpose**: Check that the decoder handles constrained intra prediction.

#### 6.6.1.22 Test bitstream #AVCFC-1

**Specification**: All slices are coded as I or P slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. Decoded pictures are cropped with frame\_croping\_flag equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496-10.

**Functional stage**: Decoding of I and P slices with frame cropping.

**Purpose**: Check that the decoder can properly decode I and P slices with frame cropping.

#### 6.6.1.23 Test bitstream #AVCAUD-1

**Specification**: All slices are coded as I slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. Access unit delimiter NAL units are included in the bitstream. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496-10.

**Functional stage**: Decoding of I slices with Access unit delimiter NAL units.

**Purpose**: Check that the decoder can properly decode I slices with Access unit delimiter NAL units.

#### 6.6.1.24 Test bitstream #AVCMIDR-1

**Specification**: All slices are coded as I or P slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. IDR is inserted in every two frames. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of I slices and more than one IDR.

**Purpose**: Check that the decoder can properly decode I slices with more than IDR in bitstream.

#### 6.6.1.25 Test bitstream #AVCNRF-1

**Specification**: All slices are coded as I or P slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. Two non-reference pictures are present. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496-10.

**Functional stage**: Decoding of I and P slices with non-reference pictures.

**Purpose**: Check that the decoder can properly decode I and P slices with non-reference pictures.

#### 6.6.1.26 Test bitstream #AVCMPS-1

**Specification**: All slices are coded as I or P slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. Multiple parameter sets are included in this bitstream. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496-10.

**Functional stage**: Decoding of I and P slices with multiple parameter set.

**Purpose**: Check that the decoder can properly decode I and P slices with multiple parameter set.

#### 6.6.1.27 Test bitstream #AVCBS-1

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU-T H.264 | ISO/IEC 14496-10.

**Functional stage**: Decoding of B slices with temporal direct prediction.

**Purpose**: Check that the decoder can properly decode B slices with temporal direct prediction.

#### 6.6.1.28 Test bitstream #AVCBS-2

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. Spatial direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU-T H.264 | ISO/IEC 14496-10.

**Functional stage**: Decoding of B slices with spatial direct prediction.

**Purpose**: Check that the decoder can properly decode B slices with spatial direct prediction.

#### 6.6.1.29 Test bitstream #AVCBS-3

**Specification**: All slices are coded as I, P or B slices. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU-T H.264 | ISO/IEC 14496-10.

**Functional stage**: Decoding of B slices with temporal direct prediction.

**Purpose**: Check that the decoder can properly decode B slices with temporal direct prediction.

#### 6.6.1.30 Test bitstream #AVCBS-4

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. Spatial direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU-T H.264 | ISO/IEC 14496-10.

**Functional stage**: Decoding of B slices with spatial direct prediction.

**Purpose**: Check that the decoder can properly decode B slices with spatial direct prediction.

#### 6.6.1.31 Test bitstream #AVCBS-5

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. Spatial direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU-T H.264 | ISO/IEC 14496-10.

**Functional stage**: Decoding of B slices with spatial direct prediction.

**Purpose**: Check that the decoder can properly decode B slices with spatial direct prediction.

### 6.6.2 Test bitstreams – I\_PCM

#### 6.6.2.1 Test bitstream #AVCPCM-1, AVCPCM-2

**Specification**: All slices are coded as I slices. Each picture contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. mb\_type is equal to I\_PCM for some macroblocks. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU-T H.264 | ISO/IEC 14496-10.

**Functional stage**: Decoding of macroblocks with mb\_type equal to I\_PCM.

**Purpose**: Check that the decoder can properly decode macroblocks with mb\_type equal to I\_PCM.

### 6.6.3 Test bitstreams – Memory management control operation

#### 6.6.3.1 Test bitstream #AVCMR-1

**Specification**: All slices are coded as I or P slices. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 1. Reference picture list reordering and memory management control operations are used. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU-T H.264 | ISO/IEC 14496-10.

**Functional stage**: Reference picture list reordering and memory management control operations.

**Purpose**: Check that the decoder handles reference picture list reordering and memory management control operations.

#### 6.6.3.2 Test bitstream #AVCMR-2

**Specification**: All slices are coded as I or P slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 2. Reference picture list reordering and memory management control operations are used. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Reference picture list reordering and memory management control operations.

**Purpose**: Check that the decoder handles reference picture list reordering and memory management control operations.

#### 6.6.3.3 Test bitstream #AVCMR-3

**Specification**: All slices are coded as I or P slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 2. gaps\_in\_frame\_num\_value\_allowed\_flag is equal to 1. Reference picture list reordering and various memory management control operations are used. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Reference picture list reordering and memory management control operations.

**Purpose**: Check that the decoder handles gaps in frame\_num, reference picture list reordering and memory management control operations.

#### 6.6.3.4 Test bitstream #AVCMR-4

**Specification**: All slices are coded as I or P slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. gaps\_in\_frame\_num\_value\_allowed\_flag is equal to 1. Reference picture list reordering and various memory management control operations are used. The decoding order is different from the output order. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Reference picture list reordering, memory management control operations and non-increasing PicOrderCnt values.

**Purpose**: Check that the decoder handles reference picture list reordering and memory management control operations. Test output order conformance for non-increasing PicOrderCnt values.

#### 6.6.3.5 Test bitstream #AVCMR-5

**Specification**: All slices are coded as I or P slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 1. gaps\_in\_frame\_num\_value\_allowed\_flag is equal to 1. Reference picture list reordering and various memory management control operations are used. The decoding order is different from the output order. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Reference picture list reordering, memory management control operation and non-increasing PicOrderCnt values.

**Purpose**: Check that the decoder handles gaps\_in\_frame\_num\_value\_allowed\_flag equal to 1, reference picture list reordering and memory management control operation. Test output order conformance for non-increasing PicOrderCnt values.

#### 6.6.3.6 Test bitstream #AVCMR-6

**Specification**: All slices are coded as I or P slices. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. Reference picture list reordering is used. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Reference picture list reordering.

**Purpose**: Check that the decoder handles reference picture list reordering.

#### 6.6.3.7 Test bitstream #AVCMR-7

**Specification**: All slices are coded as I or P slices. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. Memory management control operations are used. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Memory management control operations.

**Purpose**: Check that the decoder handles memory management control operations.

#### 6.6.3.8 Test bitstream #AVCMR-8, #AVCMR-9

**Specification**: All slices are coded as I or P slices. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 1. Reference picture list reordering and memory management control operations are used. direct\_8x8\_inference\_flag is equal to 1. Each slice is a coded field. VUI is included in the bitstream. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Reference picture list reordering and memory management control operations.

**Purpose**: Check that the decoder handles reference picture list reordering and memory management control operations.

#### 6.6.3.9 Test bitstream #AVCMR-10

**Specification**: All slices are coded as I, P or B slices. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 1. Reference picture list reordering and memory management control operations are used. Temporal direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is equal to 1. Each slice is a coded field. VUI is included in the bitstream. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Reference picture list reordering and memory management control operations.

**Purpose**: Check that the decoder handles reference picture list reordering and memory management control operations.

#### 6.6.3.10 Test bitstream #AVCMR-11, #AVCMR-12

**Specification**: All slices are coded as I or P slices. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. Reference picture list reordering and memory management control operations are used. Each slice is a coded frame. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Reference picture list reordering and memory management control operations.

**Purpose**: Check that the decoder handles reference picture list reordering and memory management control operations.

### 6.6.4 Test bitstreams – Weighted sample prediction process

#### 6.6.4.1 Test bitstream #AVCWP-1

**Specification**: All slices are coded as I or P slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 2. weighted\_pred\_flag is equal to 1. Plural reference indices are assigned to each reference picture. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Weighted sample prediction process for P slices with plural reference indices.

**Purpose**: Check that the decoder handles weighted sample prediction for P slices with plural reference indexes.

#### 6.6.4.2 Test bitstream #AVCWP-2

**Specification**: All slices are coded as I or P slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 2. weighted\_pred\_flag is equal to 1. All NAL units are encapsulated into the byte stream specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Weighted sample prediction process for P slices.

**Purpose**: Check that the decoder handles weighted sample prediction for P slices.

#### 6.6.4.3 Test bitstream #AVCWP-3

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. Spatial direct prediction is used for direct prediction. weighted\_bipred\_idc is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Weighted sample prediction process for B slices with temporal direct prediction.

**Purpose**: Check that the decoder handles weighted sample prediction for B slices with temporal direct prediction.

#### 6.6.4.4 Test bitstream #AVCWP-4

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. Spatial direct prediction is used for direct prediction. weighted\_bipred\_idc is equal to 2. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Weighted sample prediction process for B slices with temporal direct prediction.

**Purpose**: Check that the decoder handles weighted sample prediction for B slices with temporal direct prediction.

### 6.6.5 Test bitstreams – Slice of coded field

#### 6.6.5.1 Test bitstream #AVCFI-1

**Specification**: All slices are coded as I or P slices. Each picture contains only one slice. Each slice is a coded field. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Slices of coded fields.

**Purpose**: Check that the decoder handles I and P slices of coded fields.

#### 6.6.5.2 Test bitstream #AVCFI-2

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. Each slice is a coded field. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. Spatial direct prediction is used for direct prediction. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Slices of coded fields with spatial direct prediction.

**Purpose**: Check that the decoder handles B slices of coded fields with spatial direct prediction.

#### 6.6.5.3 Test bitstream #AVCFI-3

**Specification**: All slices are coded as I or P slices. Each picture contains only one slice. Each slice is a coded field. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Slices of coded fields.

**Purpose**: Check that the decoder handles I and P slices of coded fields.

#### 6.6.5.4 Test bitstream #AVCFI-4

**Specification**: All slices are coded as I or P slices. Each picture contains only one slice. Each slice is a coded field. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Slices of coded fields.

**Purpose**: Check that the decoder handles I and P slices of coded fields.

#### 6.6.5.5 Test bitstream #AVCFI-5

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. Each slice is a coded field. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 1. Spatial direct prediction is used for direct prediction. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Slices of coded fields.

**Purpose**: Check that the decoder handles B slices of coded fields.

#### 6.6.5.6 Test bitstream #AVCFI-6

**Specification**: All slices are coded as I or P slices. Each picture contains more than one slice. Each slice is a coded field. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Slices of coded fields.

**Purpose**: Check that the decoder handles I and P slices of coded fields.

#### 6.6.5.7 Test bitstream #AVCFI-7

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. Each slice is a coded field. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU-T H.264 | ISO/IEC 14496-10.

**Functional stage**: Slices of coded fields with temporal direct prediction.

**Purpose**: Check that the decoder handles B slices of coded fields with temporal direct prediction.

#### 6.6.5.8 Test bitstream #AVCFI-8

**Specification**: All slices are coded as I slices. Only one slice is contained in each picture. Each slice is a coded field. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Slices of coded fields.

**Purpose**: Check that the decoder handles I slices of coded fields.

#### 6.6.5.9 Test bitstream #AVCFI-9

**Specification**: All slices are coded as I or P slices. Each picture contains only one slice. Each slice is a coded field. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Slices of coded fields.

**Purpose**: Check that the decoder handles I and P slices of coded fields.

#### 6.6.5.10 Test bitstream #AVCFI-10

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. Each slice is a coded field. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Slices of coded fields with temporal direct prediction.

**Purpose**: Check that the decoder handles B slices of coded fields with temporal direct prediction.

#### 6.6.5.11 Test bitstream #AVCFI-11

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. Each slice is a coded field. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. Spatial direct prediction is used for direct prediction. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Slices of coded fields with spatial direct prediction.

**Purpose**: Check that the decoder handles B slices of coded fields with spatial direct prediction.

#### 6.6.5.12 Test bitstream #AVCFI-12

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. The number of motion vectors per two consecutive MBs is equal to the maximum value specified in item m in clause A.3.1 in ITU-T H.264 | ISO/IEC 14496‑10. No intra, skip and direct MBs are included in P and B slices. Each slice is a coded field. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Slices of coded fields.

**Purpose**: Check that the decoder can properly decode slices of coded fields with maximum number of motion vectors per consecutive MBs.

### 6.6.6 Test bitstreams – Frame/field coding

#### 6.6.6.1 Test bitstream #AVCPA-1

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 1. Spatial direct prediction is used for direct prediction. Each slice is either a coded frame or a coded field. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Slices of coded frames/fields.

**Purpose**: Check that the decoder can properly decode slices of coded frames and fields.

#### 6.6.6.2 Test bitstream #AVCPA-2

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. Each slice is either a coded frame or a coded field. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Slices of coded frames/fields.

**Purpose**: Check that the decoder can properly decode slices of coded frames and fields.

#### 6.6.6.3 Test bitstream #AVCPA-3

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. Spatial direct prediction is used for direct prediction. Each slice is either a coded frame or a coded field. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Slices of coded frames/fields.

**Purpose**: Check that the decoder can properly decode slices of coded frames and fields.

### 6.6.7 Test bitstreams – Macroblock adaptive frame/field coding

#### 6.6.7.1 Test bitstream #AVCMA-1

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. Spatial direct prediction is used for direct prediction. mb\_adaptive\_frame\_field\_coding is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Macroblock adaptive frame field decoding.

**Purpose**: Check that the decoder can properly decode slices with mb\_adaptive\_frame\_field\_flag=1.

#### 6.6.7.2 Test bitstream #AVCMA-2

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. mb\_adaptive\_frame\_field\_coding is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Macroblock adaptive frame field decoding.

**Purpose**: Check that the decoder can properly decode slices with mb\_adaptive\_frame\_field\_flag=1.

#### 6.6.7.3 Test bitstream #AVCMA-3

**Specification**: All slices are coded as I slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. mb\_adaptive\_frame\_field\_coding is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Macroblock adaptive frame field decoding.

**Purpose**: Check that the decoder can properly decode slices with mb\_adaptive\_frame\_field\_flag=1.

#### 6.6.7.4 Test bitstream #AVCMA-4

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. Spatial direct prediction is used for direct prediction. mb\_adaptive\_frame\_field\_coding is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Macroblock adaptive frame field decoding.

**Purpose**: Check that the decoder can properly decode slices with mb\_adaptive\_frame\_field\_flag=1.

#### 6.6.7.5 Test bitstream #AVCMA-5

**Specification**: All slices are coded as I or P slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. mb\_adaptive\_frame\_field\_coding is equal to 1. mb\_qp\_delta is equal to a non-zero value to change the quantizer scale at some MBs. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Macroblock adaptive frame field decoding.

**Purpose**: Check that the decoder can properly decode slices with mb\_adaptive\_frame\_field\_flag=1.

#### 6.6.7.6 Test bitstream #AVCMA-6

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. mb\_adaptive\_frame\_field\_coding is equal to 1. mb\_qp\_delta is equal to a non-zero value to change the quantizer scale at some MBs. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Macroblock adaptive frame field decoding.

**Purpose**: Check that the decoder can properly decode slices with mb\_adaptive\_frame\_field\_flag=1.

#### 6.6.7.7 Test bitstream #AVCMA-7

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is equal to 1. Some slices are coded as a coded field. mb\_adaptive\_frame\_field\_coding is equal to 1 in the rest of the frames. mb\_qp\_delta is equal to a non-zero value to change the quantizer scale at some MBs. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Macroblock adaptive frame field decoding and slices of a coded field.

**Purpose**: Check that the decoder can properly decode both slices of a coded frame with mb\_adaptive\_frame\_field\_flag=1 and slices of a coded field.

#### 6.6.7.8 Test bitstream #AVCMA-8

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. Spatial direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is equal to 1. mb\_adaptive\_frame\_field\_coding is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Macroblock adaptive frame field decoding.

**Purpose**: Check that the decoder can properly decode slices with mb\_adaptive\_frame\_field\_flag=1.

#### 6.6.7.9 Test bitstream #AVCMA-9

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. The number of motion vectors per two consecutive MBs is equal to the maximum value specified in item m of clause A.3.1 in ITU-T H.264 | ISO/IEC 14496‑10. No intra, skip and direct MBs are included in P and B slices. mb\_adaptive\_frame\_field\_coding is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Macroblock adaptive frame field decoding.

**Purpose**: Check that the decoder can properly decode slices with mb\_adaptive\_frame\_field\_flag=1 and with maximum number of motion vectors per consecutive MBs.

### 6.6.8 Test bitstreams – S picture

#### 6.6.8.1 Test bitstream #AVCSP-1

**Specification**: All slices are coded as I, P and SP slices. Each picture contains more than one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 1. memory\_management\_operation is set to 5 on SP slice. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of SP slices.

**Purpose**: Check that the decoder can properly decode SP slices.

#### 6.6.8.2 Test bitstream #AVCSP-2

**Specification**: All slices are coded as I, P and SP slices. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 1. memory\_management\_operation is set to 5 on SP slice. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of SP slices.

**Purpose**: Check that the decoder can properly decode SP slices with deblocking filter.

### 6.6.9 Test bitstreams – Long sequence

#### 6.6.9.1 Test bitstream #AVCLS-1

**Specification**: All slices are coded as I or P slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of picture order count for long sequence.

**Purpose**: Check that the decoder can properly decode picture order count for long sequence.

### 6.6.10 Test bitstreams – SEI/VUI

#### 6.6.10.1 Test bitstream #AVCSE-1

**Specification**: All slices are coded as I or P slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. SEI (Buffering period SEI and Picture timing SEI with pic\_struct) and VUI are included in the bitstream. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of SEI/VUI.

**Purpose**: Check that the decoder can properly decode SEI/VUI.

#### 6.6.10.2 Test bitstream #AVCSE-2

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is equal to 1. SEI (Buffering period SEI and Picture timing SEI with pic\_struct) and VUI are included in the bitstream. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of SEI/VUI.

**Purpose**: Check that the decoder can properly decode SEI/VUI.

#### 6.6.10.3 Test bitstream #AVCSE-3

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is equal to 1. SEI (Buffering period SEI and Picture timing SEI with pic\_struct) and VUI are included in the bitstream. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of SEI/VUI.

**Purpose**: Check that the decoder can properly decode SEI/VUI.

### 6.6.11 Test bitstreams – CABAC: Basic features

#### 6.6.11.1 Test bitstream #AVCCANL-1

**Specification**: All slices are coded as I slices. Each picture contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 2. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of I slices with CABAC parsing.

**Purpose**: Check that the decoder can properly decode I slices with CABAC parsing.

#### 6.6.11.2 Test bitstream #AVCCANL-2

**Specification**: All slices are coded as I slices. Each picture contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of I slices with CABAC parsing.

**Purpose**: Check that the decoder can properly decode I slices with CABAC parsing.

#### 6.6.11.3 Test bitstream #AVCCANL-3

**Specification**: All slices are coded as I or P slices. Each picture contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of P slices with CABAC parsing.

**Purpose**: Check that the decoder can properly decode P slices with CABAC parsing.

#### 6.6.11.4 Test bitstream #AVCCANL-4

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Spatial direct prediction is used for direct prediction. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of B slices with CABAC parsing.

**Purpose**: Check that the decoder can properly decode B slices with CABAC parsing.

#### 6.6.11.5 Test bitstream #AVCCANL-5

**Specification**: All slices are coded as I slices. Each picture contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 2. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of I slices with CABAC parsing.

**Purpose**: Check that the decoder can properly decode I slices with CABAC parsing.

#### 6.6.11.6 Test bitstream #AVCCANL-6

**Specification**: All slices are coded as I slices. Each picture contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of I slices with CABAC parsing.

**Purpose**: Check that the decoder can properly decode I slices with CABAC parsing.

#### 6.6.11.7 Test bitstream #AVCCANL-7

**Specification**: All slices are coded as I or P slices. Each picture contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of P slices with CABAC parsing.

**Purpose**: Check that the decoder can properly decode P slices with CABAC parsing.

#### 6.6.11.8 Test bitstream #AVCCANL-8

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Spatial direct prediction is used for direct prediction. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of B slices with CABAC parsing.

**Purpose**: Check that the decoder can properly decode B slices with CABAC parsing.

#### 6.6.11.9 Test bitstream #AVCCABA-1

**Specification**: All slices are coded as I slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of I slices with the deblocking filter process enabled and CABAC.

**Purpose**: Check that the decoder can properly decode I slices with CABAC parsing.

#### 6.6.11.10 Test bitstream #AVCCABA-2

**Specification**: All slices are coded as I or P slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of P slices with CABAC parsing.

**Purpose**: Check that the decoder can properly decode P slices with CABAC parsing.

#### 6.6.11.11 Test bitstream #AVCCABA-3

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of B slices with CABAC parsing.

**Purpose**: Check that the decoder can properly decode B slices with CABAC parsing.

#### 6.6.11.12 Test bitstream #AVCCABA-4

**Specification**: All slices are coded as I or P slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of P slices with CABAC parsing.

**Purpose**: Check that the decoder can properly decode P slices with CABAC parsing.

#### 6.6.11.13 Test bitstream #AVCCABA-5

**Specification**: All slices are coded as I slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of I slices with the deblocking filter process enabled and CABAC.

**Purpose**: Check that the decoder can properly decode I slices with CABAC parsing.

#### 6.6.11.14 Test bitstream #AVCCABA-6

**Specification**: All slices are coded as I or P slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of P slices with CABAC parsing.

**Purpose**: Check that the decoder can properly decode P slices with CABAC parsing.

#### 6.6.11.15 Test bitstream #AVCCABA-7

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of B slices with CABAC parsing.

**Purpose**: Check that the decoder can properly decode B slices with CABAC parsing.

#### 6.6.11.16 Test bitstream #AVCCABA-8

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of B slices with CABAC parsing.

**Purpose**: Check that the decoder can properly decode B slices with CABAC parsing.

### 6.6.12 Test bitstreams – CABAC: Initialization

#### 6.6.12.1 Test bitstream #AVCCAIN-1

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is equal to 0. cabac\_init\_idc is equal to 0, 1, or 2 at slice header. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Initialization of CABAC.

**Purpose**: Check that the decoder can initialize CABAC with cabac\_init\_idc=0, 1, or 2.

### 6.6.13 Test bitstreams – CABAC: MB QP Delta

#### 6.6.13.1 Test bitstream #AVCCAQP-1

**Specification**: All slices are coded as I slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 1. mb\_qp\_delta is equal to non-zero value to change the quantizer scale at each MB. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of I slices with mb\_qp\_delta not equal to 0.

**Purpose**: Check that the decoder can properly decode I slices with mb\_qp\_delta not equal to 0.

#### 6.6.13.2 Test bitstream #AVCCAQP-2

**Specification**: All slices are coded as I, P or B slices. Each picture contains more than one slice. Each slice has a different size. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. mb\_qp\_delta is equal to non-zero value to change the quantizer scale at each MB. disable\_deblocking\_filter\_idc is equal to 2. chroma\_qp\_index\_offset is equal to non-zero value. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of I, P, and B slices with mb\_qp\_delta not equal to 0.

**Purpose**: Check that the decoder can properly decode I slices with mb\_qp\_delta not equal to 0, disable\_deblocking\_filter\_idc equal to 2, and non-zero chroma\_qp\_index\_offset.

### 6.6.14 Test bitstreams – CABAC: Slice

#### 6.6.14.1 Test bitstream #AVCCASL-1

**Specification**: All slices are coded as I, P or B slices. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is equal to 0. Each picture contains more than one slice. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of different slice types in a picture with CABAC parsing.

**Purpose**: Check that the decoder can properly decode different slice types in a picture with CABAC parsing.

#### 6.6.14.2 Test bitstream #AVCCASL-2

**Specification**: All slices are coded as I, P or B slices. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is equal to 0. Slices with different slice types are included in a picture. Stored B slices are included in the bitstream. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of different slice types in a picture with CABAC parsing.

**Purpose**: Check that the decoder can properly decode different slice types in a picture with CABAC parsing.

### 6.6.15 Test bitstreams – CABAC: I\_PCM

#### 6.6.15.1 Test bitstream #AVCCAPCM-1

**Specification**: All slices are coded as I slices. Each picture contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. mb\_type is equal to I\_PCM at some Macroblocks. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of Macroblock with mb\_type equal to I\_PCM.

**Purpose**: Check that the decoder can properly decode Macroblock with mb\_type equal to I\_PCM.

#### 6.6.15.2 Test bitstream #AVCCAPCM-2

**Specification**: All slices are coded as I slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. mb\_type is equal to I\_PCM at some Macroblocks. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of Macroblock with mb\_type equal to I\_PCM.

**Purpose**: Check that the decoder can properly decode Macroblock with mb\_type equal to I\_PCM.

#### 6.6.15.3 Test bitstream #AVCCAPCM-3

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is equal to 1. mb\_type is equal to I\_PCM at some Macroblocks. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of Macroblock with mb\_type equal to I\_PCM.

**Purpose**: Check that the decoder can properly decode macroblocks with mb\_type equal to I\_PCM.

### 6.6.16 Test bitstreams – CABAC: Memory management control operation

#### 6.6.16.1 Test bitstream #AVCCAMR-1

**Specification**: All slices are coded as I, P or B slices. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 1. Reference picture list reordering and memory management control operations are used. Temporal direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is equal to 1. Each slice is a coded frame. mb\_adaptive\_frame\_field\_coding is equal to 1. VUI is included in the bitstream. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Reference picture list reordering and memory management control operations.

**Purpose**: Check that the decoder handles reference picture list reordering and memory management control operations.

#### 6.6.16.2 Test bitstream #AVCCAMR-2

**Specification**: All slices are coded as I, P or B slices. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Reference picture list reordering and memory management control operations are used. Spatial direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is equal to 1. Each slice is a coded frame. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Reference picture list reordering and memory management control operations.

**Purpose**: Check that the decoder handles reference picture list reordering and memory management control operations.

### 6.6.17 Test bitstreams – CABAC: Weighted sample prediction process

#### 6.6.17.1 Test bitstream #AVCCAWP-1

**Specification**: All slices are coded as I or P slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 2. weighted\_pred\_flag is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Weighted sample prediction process for P slices.

**Purpose**: Check that the decoder handles weighted sample prediction for P slices.

#### 6.6.17.2 Test bitstream #AVCCAWP-2

**Specification**: All slices are coded as I or P slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 2. weighted\_pred\_flag is equal to 1. Plural reference indices are assigned to each reference picture. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Weighted sample prediction process for P slices with plural reference indices.

**Purpose**: Check that the decoder handles weighted sample prediction for P slices with plural reference indexes.

### 6.6.18 Test bitstreams – CABAC: Field coding

#### 6.6.18.1 Test bitstream #AVCCAFI-1

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is equal to 1. Each slice is a coded field. Stored B slices are included in the bitstream. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of coded fields.

**Purpose**: Check that the decoder can properly decode slices of coded fields including stored B slices.

#### 6.6.18.2 Test bitstream #AVCCAFI-2

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Spatial direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is equal to 0. Each slice is a coded field. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of coded fields.

**Purpose**: Check that the decoder can properly decode slices of coded fields.

#### 6.6.18.3 Test bitstream #AVCCAFI-3

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is equal to 1. Each slice is a coded field. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of coded fields.

**Purpose**: Check that the decoder can properly decode slices of coded fields.

### 6.6.19 Test bitstreams – CABAC: Frame/field decoding

#### 6.6.19.1 Test bitstream #AVCCAPA-1

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 1. Spatial direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is equal to 1. Each slice is either a coded frame or a coded field. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Picture adaptive frame/field decoding.

**Purpose**: Check that the decoder can properly decode slices of coded frames and fields with direct\_8x8\_inference\_flag=1.

#### 6.6.19.2 Test bitstream #AVCCAPA-2

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is equal to 1. Each slice is either a coded frame or a coded field. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Picture adaptive frame/field decoding.

**Purpose**: Check that the decoder can properly decode slices of coded frames and fields with direct\_8x8\_inference\_flag=1.

#### 6.6.19.3 Test bitstream #AVCCAPA-3

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is equal to 1. Each slice is either a coded frame or a coded field. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Picture adaptive frame/field decoding.

**Purpose**: Check that the decoder can properly decode slices of coded frames and fields with direct\_8x8\_inference\_flag=1.

### 6.6.20 Test bitstreams – Macroblock adaptive frame/field decoding

#### 6.6.20.1 Test bitstream #AVCCAMA-1

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Spatial direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is equal to 1. mb\_adaptive\_frame\_field\_coding is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Macroblock adaptive frame field decoding.

**Purpose**: Check that the decoder can properly decode slices with mb\_adaptive\_frame\_field\_flag=1.

#### 6.6.20.2 Test bitstream #AVCCAMA-2

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is equal to 1. mb\_adaptive\_frame\_field\_coding is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Macroblock adaptive frame field decoding.

**Purpose**: Check that the decoder can properly decode slices with mb\_adaptive\_frame\_field\_flag=1.

#### 6.6.20.3 Test bitstream #AVCCAMA-3

**Specification**: All slices are coded as I or P slices. Each picture contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. num\_ref\_frames is equal to 1. mb\_adaptive\_frame\_field\_coding is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Macroblock adaptive frame field decoding.

**Purpose**: Check that the decoder can properly decode slices with mb\_adaptive\_frame\_field\_flag=1.

#### 6.6.20.4 Test bitstream #AVCCAMA-4

**Specification**: All slices are coded as I or P slices. Each picture contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. mb\_adaptive\_frame\_field\_coding is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Macroblock adaptive frame field decoding.

**Purpose**: Check that the decoder can properly decode slices with mb\_adaptive\_frame\_field\_flag=1.

#### 6.6.20.5 Test bitstream #AVCCAMA-5

**Specification**: All slices are coded as I slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. mb\_adaptive\_frame\_field\_coding is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Macroblock adaptive frame field decoding.

**Purpose**: Check that the decoder can properly decode slices with mb\_adaptive\_frame\_field\_flag=1.

#### 6.6.20.6 Test bitstream #AVCCAMA-6

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Spatial direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is equal to 1. mb\_adaptive\_frame\_field\_coding is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Macroblock adaptive frame field decoding.

**Purpose**: Check that the decoder can properly decode slices with mb\_adaptive\_frame\_field\_flag=1.

#### 6.6.20.7 Test bitstream #AVCCAMA-7

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is equal to 1. mb\_adaptive\_frame\_field\_coding is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Macroblock adaptive frame field decoding.

**Purpose**: Check that the decoder can properly decode slices with mb\_adaptive\_frame\_field\_flag=1.

#### 6.6.20.8 Test bitstream #AVCCAMA-8

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is equal to 1. mb\_adaptive\_frame\_field\_coding is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Macroblock adaptive frame field decoding.

**Purpose**: Check that the decoder can properly decode slices with mb\_adaptive\_frame\_field\_flag=1.

#### 6.6.20.9 Test bitstream #AVCCAMA-9

**Specification**: All slices are coded as I, P or B slices. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is equal to 1. mb\_adaptive\_frame\_field\_coding is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Macroblock adaptive frame field decoding.

**Purpose**: Check that the decoder can properly decode slices with mb\_adaptive\_frame\_field\_flag=1.

#### 6.6.20.10 Test bitstream #AVCCAMA-10

**Specification**: All slices are coded as I, P or B slices. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. direct\_8x8\_inference\_flag is equal to 1. mb\_adaptive\_frame\_field\_coding is equal to 1. constrained\_intra\_pred\_flag is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Macroblock adaptive frame field decoding.

**Purpose**: Check that the decoder can handle constrained intra prediction with mb\_adaptive\_frame\_field\_flag=1.

#### 6.6.20.11 Test bitstream #AVCCAMA-11

**Specification**: All slices are coded as I, P or B slices. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. direct\_8x8\_inference\_flag is equal to 1. mb\_adaptive\_frame\_field\_coding is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Macroblock adaptive frame field decoding.

**Purpose**: Check that the decoder can properly decode slices with mb\_adaptive\_frame\_field\_flag=1.

#### 6.6.20.12 Test bitstream #AVCCAMA-12 and AVCCAMA-13

**Specification**: All slices are coded as I, P or B slices. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. The number of motion vectors per two consecutive MBs is equal to the maximum value specified in item m in clause A.3.1 in ITU‑T H.264 | ISO/IEC 14496‑10. No intra, skip and direct MBs are included in P and B slices. mb\_adaptive\_frame\_field\_coding is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Macroblock adaptive frame field decoding.

**Purpose**: Check that the decoder can properly decode slices with mb\_adaptive\_frame\_field\_flag=1 and with maximum number of motion vectors per consecutive MBs.

#### 6.6.20.13 Test bitstream #AVCCAPAMA-1

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. Both coded frames and coded fields are included in the bitstream. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is equal to 1. mb\_adaptive\_frame\_field\_coding is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Macroblock adaptive frame field decoding and slices of a coded field.

**Purpose**: Check that the decoder can properly decode both slices of a coded frame with mb\_adaptive\_frame\_field\_flag=1 and slices of a coded field.

#### 6.6.20.14 Test bitstream #AVCCAPAMA-2

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is equal to 1. The first field of the first frame only contains I slice and the second field only contains P slice. mb\_adaptive\_frame\_field\_coding is equal to 1 in the rest of the frames. The indicated display of this bitstream is bottom field first. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Macroblock adaptive frame field decoding and slices of a coded field.

**Purpose**: Check that the decoder can properly decode both slices of a coded frame with mb\_adaptive\_frame\_field\_flag=1 and slices of a coded field.

#### 6.6.20.15 Test bitstream #AVCCAPAMA-3

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is equal to 1. The first field of the first frame only contains I slice and the second field only contains P slice. mb\_adaptive\_frame\_field\_coding is equal to 1 in the rest of the frames. The indicated display of this bitstream is top field first. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Macroblock adaptive frame field decoding and slices of a coded field.

**Purpose**: Check that the decoder can properly decode both slices of a coded frame with mb\_adaptive\_frame\_field\_flag=1 and slices of a coded field.

#### 6.6.20.16 Test bitstream #AVCCAPAMA-4

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is equal to 1. The first field of the first frame only contains I slice and the second field only contains P slice. mb\_adaptive\_frame\_field\_coding is equal to 1 in the rest of the frames. The indicated display of this bitstream is top field first. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Macroblock adaptive frame field decoding and slices of a coded field.

**Purpose**: Check that the decoder can properly decode both slices of a coded frame with mb\_adaptive\_frame\_field\_flag=1 and slices of a coded field.

#### 6.6.20.17 Test bitstream #AVCCAMV-1

**Specification**: The bitstream conforms to MP@L3. Frame size is 720x480. All slices are coded as I, P or B slices. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is equal to 1. In P slices, each macroblock is coded as sixteen 4x4 blocks. Each block has one motion vector in 1/4 sample position. In B slices, each macroblock is coded as eight 8x4 blocks. Each block has two motion vectors, one for list0 the other for list1. Both vectors are in 1/4 sample position. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Prediction bandwidth.

**Purpose**: Check that the decoder handles the worse case of prediction bandwidth. Prediction bandwidth is at maximum due to largest number of motion vectors (in 1/4 sample position) per macroblock pair (32 as specified in standard). Non‑integer position motion vectors require using 6‑tap filter always.

#### 6.6.20.18 Test bitstream #AVCCVCANLMA-1

**Specification**: All slices are coded as I or P slices. Each picture contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. Both entropy\_coding\_mode\_flag equal to 0, specifying the CAVLC parsing process, and entropy\_coding\_mode\_flag equal to 1, specifying the CABAC parsing process are present within the bitstream. pic\_order\_cnt\_type is equal to 0. mb\_adaptive\_frame\_field\_coding is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Macroblock adaptive frame field decoding using both CAVLC and CABAC.

**Purpose**: Check that the decoder can properly decode slices with mb\_adaptive\_frame\_field\_flag=1. Check that the decoder can properly decode both CABAC and CAVLC.

### 6.6.21 Test bitstreams – Fidelity Range Extensions: 4:2:0 8 bit

#### 6.6.21.1 Test bitstream #FREH-1, #FREH-28

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. Spatial direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is equal to 0. Transform mode is set to 8x8 block size only. seq\_scaling\_matrix\_present\_flag and pic\_scaling\_matrix\_flag are set to 1. Scaling lists are included in the sequence parameter set and the picture parameter set. Each slice is a coded frame. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Tests loading of scaling list in the sequence parameter set and the picture parameter set. Tests 8x8 block size transform mode. Tests decoding of level prefix more than 16 bits in CAVLC entropy coding. Tests deblocking for 8x8 transform.

**Purpose**: Check that a decoder can properly decode slices of coded frames with 8x8 block size transform for CAVLC and check that scaling list is implemented correctly for frame only coding.

#### 6.6.21.2 Test bitstream #FREH-2, #FREH-29

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is set equal to 0. Both 4x4 and 8x8 block size transform modes are used. seq\_scaling\_matrix\_present\_flag and pic\_scaling\_matrix\_flag are set to 1. Scaling lists are included in the sequence parameter set and the picture parameter set. Each slice is a coded frame. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Tests 4x4 and 8x8 block size transform modes in CABAC entropy coding. Tests loading of scaling list in the sequence parameter set and the picture parameter set. Tests deblocking for 4x4 and 8x8 transform.

**Purpose**: Check that a decoder can properly decode slices of coded frames with both 4x4 and 8x8 block size transform modes and check that scaling list is implemented correctly for CABAC entropy coding for frame only coding.

#### 6.6.21.3 Test bitstream #FREH-3, #FREH-30

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. The value of cabac\_init\_idc is adaptively changed in slice header. Spatial direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is set equal to 1. Both 4x4 and 8x8 block size transform modes are used. seq\_scaling\_matrix\_present\_flag is set to 1 and default scaling lists are used. Each slice is a coded frame or a coded field. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Tests 4x4 and 8x8 block size transform modes in CABAC entropy coding.

**Purpose**: Check that a decoder can properly decode slices of coded frames and fields with both 4x4 and 8x8 block size transform modes.

#### 6.6.21.4 Test bitstream #FREH-4, #FREH-31

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. The value of cabac\_init\_idc is adaptively changed in slice header. pic\_order\_cnt\_type is equal to 0. Spatial direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is set equal to 1. Both 4x4 and 8x8 block size transform modes are used. seq\_scaling\_matrix\_present\_flag is set to 1 and default scaling lists are used. Each slice is either a coded frame or a coded field. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Tests 4x4 and 8x8 block size transform modes in CABAC entropy coding.

**Purpose**: Check that a decoder can properly decode slices of coded frames and fields with both 4x4 and 8x8 block size transform modes.

#### 6.6.21.5 Test bitstream #FREH-5, #FREH-32

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. The value of cabac\_init\_idc is adaptively changed in slice header. pic\_order\_cnt\_type is equal to 0. Spatial direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is set equal to 1. Both 4x4 and 8x8 block size transform modes are used. seq\_scaling\_matrix\_present\_flag is set to 1 and default scaling lists are used. Each slice is a coded frame. mb\_adaptive\_frame\_field\_coding is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Macroblock adaptive frame field decoding and slices of a coded frame with both 4x4 and 8x8 block size transform modes in CABAC entropy coding.

**Purpose**: Check that a decoder can properly decode slices of coded frames with mb\_adaptive\_frame\_field\_flag=1 and with both 4x4 and 8x8 block size transform modes.

#### 6.6.21.6 Test bitstream #FREH-6, #FREH-33

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is equal to 1. Transform mode is set to 8x8 block size only. seq\_scaling\_matrix\_present\_flag and pic\_scaling\_matrix\_flag are set to 1. Scaling lists are included in the sequence parameter set and the picture parameter set. Each slice is either a coded frame or a coded field. mb\_adaptive\_frame\_field\_coding is equal to 1 in coded frames. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Tests loading of scaling list in the sequence parameter set and the picture parameter set. Tests 8x8 block size transform mode. Tests decoding of level prefix more than 16 bits in CAVLC entropy coding. Tests deblocking for 8x8 transform.

**Purpose**: Check that a decoder can properly decode slices of coded frames with 8x8 block size transform for CAVLC and check that scaling list is implemented correctly for both slices of a coded frame with mb\_adaptive\_frame\_field\_flag=1 and slices of a coded field.

#### 6.6.21.7 Test bitstream #FREH-7, #FREH-34

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is set equal to 1. Both 4x4 and 8x8 block size transform modes are used. seq\_scaling\_matrix\_present\_flag and pic\_scaling\_matrix\_flag are set to 1. Scaling lists are included in the sequence parameter set and the picture parameter set. Each slice is either a coded frame or a coded field. mb\_adaptive\_frame\_field\_coding is equal to 1 in coded frames. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Tests 4x4 and 8x8 block size transform modes in CABAC entropy coding. Tests loading of scaling list in the sequence parameter set and the picture parameter set. Tests deblocking for 4x4 and 8x8 transform.

**Purpose**: Check that a decoder can properly decode slices of coded frames with both 4x4 and 8x8 block size transform modes and check that scaling list is implemented correctly for CABAC entropy coding for both slices of a coded frame with mb\_adaptive\_frame\_field\_flag=1 and slices of a coded field.

#### 6.6.21.8 Test bitstream #FREH-8

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is set equal to 1. Both 4x4 and 8x8 block size transform modes are used. Both seq\_scaling\_matrix\_present\_flag and pic\_scaling\_matrix are set to 0. Each slice is a coded frame. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Tests 4x4 and 8x8 block size transform modes in CABAC entropy coding.

**Purpose**: Check that a decoder can properly decode slices of coded frames with both 4x4 and 8x8 block size transform modes.

#### 6.6.21.9 Test bitstream #FREH-9

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is set equal to 1. Both 4x4 and 8x8 block size transform modes are used. Both seq\_scaling\_matrix\_present\_flag and pic\_scaling\_matrix are set to 0. Each slice is a coded frame. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Tests 4x4 and 8x8 block size transform modes in CABAC entropy coding.

**Purpose**: Check that a decoder can properly decode slices of coded frames with both 4x4 and 8x8 block size transform modes.

#### 6.6.21.10 Test bitstream #FREH-10

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is set equal to 1. Both 4x4 and 8x8 block size transform modes are used. Both seq\_scaling\_matrix\_present\_flag and pic\_scaling\_matrix are set to 0. Each slice is a coded field. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Tests 4x4 and 8x8 block size transform modes in CABAC entropy coding.

**Purpose**: Check that a decoder can properly decode slices of coded fields with both 4x4 and 8x8 block size transform modes.

#### 6.6.21.11 Test bitstream #FREH-11

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is set equal to 1. Both 4x4 and 8x8 block size transform modes are used. Both seq\_scaling\_matrix\_present\_flag and pic\_scaling\_matrix are set to 0. Each slice is a coded field. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Tests 4x4 and 8x8 block size transform modes in CABAC entropy coding.

**Purpose**: Check that a decoder can properly decode slices of coded fields with both 4x4 and 8x8 block size transform modes.

#### 6.6.21.12 Test bitstream #FREH-12, #FREH-39

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is set equal to 0. Both 4x4 and 8x8 block size transform modes are used. seq\_scaling\_matrix\_present\_flag is set to 1 and default scaling lists are used. Each slice is a coded frame. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Tests 4x4 and 8x8 block size transform modes in CABAC entropy coding.

**Purpose**: Check that a decoder can properly decode slices of coded frames with both 4x4 and 8x8 block size transform modes.

#### 6.6.21.13 Test bitstream #FREH-13, #FREH-14, #FREH-15

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is set equal to 1. Both 4x4 and 8x8 block size transform modes are used. seq\_scaling\_matrix\_present\_flag is set to 1 and default scaling lists are used. Each slice is a coded frame. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Tests 4x4 and 8x8 block size transform modes in CABAC entropy coding.

**Purpose**: Check that a decoder can properly decode slices of coded frames with both 4x4 and 8x8 block size transform modes.

#### 6.6.21.14 Test bitstream #FREH-16

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is equal to 1. 8x8 block size transform mode is used. seq\_scaling\_matrix\_present\_flag is set to 1. Scaling lists are included in the sequence parameter set. Each slice is a coded frame. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Tests loading of scaling list in the sequence parameter set. Tests 8x8 block size transform mode.

**Purpose**: Check that a decoder can properly decode slices of a coded frame with 8x8 block size transform for CABAC. Check that scaling list is implemented correctly for frame only coding. Check that a decoder can handle temporal direct mode with direct\_8x8\_inference\_flag=1 for coded frames with 8x8 block size transform.

#### 6.6.21.15 Test bitstream #FREH-17

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is equal to 1. 8x8 block size transform mode is used. seq\_scaling\_matrix\_present\_flag is set to 1. Scaling lists are included in the sequence parameter set. Each slice is either a coded frame or a coded field. mb\_adaptive\_frame\_field\_coding is equal to 1 in coded frames. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Tests loading of scaling list in the sequence parameter set. Tests 8x8 block size transform mode.

**Purpose**: Check that a decoder can properly decode slices of a coded frame with 8x8 block size transform for CABAC. Check that scaling list is implemented correctly for field coding and MBAFF. Check that a decoder can handle temporal direct mode with direct\_8x8\_inference\_flag=1 for coded frames with 8x8 block size transform.

#### 6.6.21.16 Test bitstream #FREH-18

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is set equal to 1. Both 4x4 and 8x8 block size transform modes are used. Both seq\_scaling\_matrix\_present\_flag and pic\_scaling\_matrix are set to 0. Each slice is a coded frame. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Tests 4x4 and 8x8 block size transform modes in CAVLC entropy coding.

**Purpose**: Check that a decoder can properly decode slices of coded frames with both 4x4 and 8x8 block size transform modes.

#### 6.6.21.17 Test bitstream #FREH-19

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is set equal to 1. Both 4x4 and 8x8 block size transform modes are used. Both seq\_scaling\_matrix\_present\_flag and pic\_scaling\_matrix are set to 0. Each slice is a coded frame. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Tests 4x4 and 8x8 block size transform modes in CAVLC entropy coding.

**Purpose**: Check that a decoder can properly decode slices of coded frames with both 4x4 and 8x8 block size transform modes.

#### 6.6.21.18 Test bitstream #FREH-20

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is set equal to 1. Both 4x4 and 8x8 block size transform modes are used. Both seq\_scaling\_matrix\_present\_flag and pic\_scaling\_matrix are set to 0. Each slice is a coded field. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Tests 4x4 and 8x8 block size transform modes in CAVLC entropy coding.

**Purpose**: Check that a decoder can properly decode slices of coded fields with both 4x4 and 8x8 block size transform modes.

#### 6.6.21.19 Test bitstream #FREH-21

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is set equal to 1. Both 4x4 and 8x8 block size transform modes are used. Both seq\_scaling\_matrix\_present\_flag and pic\_scaling\_matrix are set to 0. Each slice is a coded field. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Tests 4x4 and 8x8 block size transform modes in CAVLC entropy coding.

**Purpose**: Check that a decoder can properly decode slices of coded fields with both 4x4 and 8x8 block size transform modes.

#### 6.6.21.20 Test bitstream #FREH-22

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. Spatial direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is set equal to 1. Both 4x4 and 8x8 block size transform modes are used. seq\_scaling\_matrix\_present\_flag is set to 1 and default scaling lists are used. Each slice is a coded field. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Tests 4x4 and 8x8 block size transform modes in CAVLC entropy coding.

**Purpose**: Check that a decoder can properly decode slices of coded fields with both 4x4 and 8x8 block size transform modes.

#### 6.6.21.21 Test bitstream #FREH-23

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. Spatial direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is set equal to 1. Both 4x4 and 8x8 block size transform modes are used. seq\_scaling\_matrix\_present\_flag is set to 1 and default scaling lists are used. Each slice is either a coded frame or a coded field. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Tests 4x4 and 8x8 block size transform modes in CAVLC entropy coding.

**Purpose**: Check that a decoder can properly decode slices of coded fields with both 4x4 and 8x8 block size transform modes.

#### 6.6.21.22 Test bitstream #FREH-24

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. Spatial direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is set equal to 1. Both 4x4 and 8x8 block size transform modes are used. seq\_scaling\_matrix\_present\_flag is set to 1 and default scaling lists are used. mb\_adaptive\_frame\_field\_coding is equal to 1. Each slice is a coded frame. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Tests 4x4 and 8x8 block size transform modes in CAVLC entropy coding.

**Purpose**: Check that a decoder can properly decode slices of coded frames with both 4x4 and 8x8 block size transform modes.

#### 6.6.21.23 Test bitstream #FREH-25

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is set equal to 1. Both 4x4 and 8x8 block size transform modes are used. seq\_scaling\_matrix\_present\_flag is set to 1. Scaling lists are included in the sequence parameter set. Each slice is a coded frame. chroma\_format\_idc is equal to 0, specifying monochrome chroma format. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU-T H.264 | ISO/IEC 14496-10.

**Functional stage**: Tests monochrome chroma format in CAVLC entropy coding.

**Purpose**: Check that a decoder can properly decode slices of coded frame for monochrome chroma format.

#### 6.6.21.24 Test bitstream #FREH-26

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is set equal to 1. Both 4x4 and 8x8 block size transform modes are used. seq\_scaling\_matrix\_present\_flag is set to 1. Scaling lists are included in the sequence parameter set. Each slice is a coded frame. chroma\_format\_idc is equal to 0, specifying monochrome chroma format. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Tests monochrome chroma format in CABAC entropy coding.

**Purpose**: Check that a decoder can properly decode slices of coded frame for monochrome chroma format.

#### 6.6.21.25 Test bitstream #FREH-27

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is set equal to 1. Both 4x4 and 8x8 block size transform modes are used. seq\_scaling\_matrix\_present\_flag is set to 1. Scaling lists are included in the sequence parameter set. Each slice is a coded frame. second\_chroma\_qp\_index\_offset is equal to 2. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Tests second\_chroma\_qp\_index\_offset.

**Purpose**: Check that a decoder can properly decode slices of coded frame with second\_chroma\_qp\_index\_offset.

#### 6.6.21.26 Test bitstream #FREH-35

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is set equal to 1. Both 4x4 and 8x8 block size transform modes are used. Both seq\_scaling\_matrix\_present\_flag and pic\_scaling\_matrix\_flag are set to 1. Scaling lists are included in the sequence parameter set and the picture parameter set. Each slice is a coded frame. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Tests 4x4 and 8x8 block size transform modes in CABAC entropy coding.

**Purpose**: Check that a decoder can properly decode slices of coded frames with both 4x4 and 8x8 block size transform modes.

#### 6.6.21.27 Test bitstream #FREH-36

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is set equal to 1. Both 4x4 and 8x8 block size transform modes are used. Both seq\_scaling\_matrix\_present\_flag and pic\_scaling\_matrix\_flag are set to 1. Scaling lists are included in the sequence parameter set and the picture parameter set. Each slice is a coded frame. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Tests 4x4 and 8x8 block size transform modes in CABAC entropy coding.

**Purpose**: Check that a decoder can properly decode slices of coded frames with both 4x4 and 8x8 block size transform modes.

#### 6.6.21.28 Test bitstream #FREH-37

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is set equal to 1. Both 4x4 and 8x8 block size transform modes are used. Both seq\_scaling\_matrix\_present\_flag and pic\_scaling\_matrix\_flag are set to 1. Scaling lists are included in the sequence parameter set and the picture parameter set. Each slice is a coded field. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Tests 4x4 and 8x8 block size transform modes in CABAC entropy coding.

**Purpose**: Check that a decoder can properly decode slices of coded fields with both 4x4 and 8x8 block size transform modes.

#### 6.6.21.29 Test bitstream #FREH-38

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Temporal direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is set equal to 1. Both 4x4 and 8x8 block size transform modes are used. Both seq\_scaling\_matrix\_present\_flag and pic\_scaling\_matrix\_flag are set to 1. Scaling lists are included in the sequence parameter set and the picture parameter set. Each slice is a coded field. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Tests 4x4 and 8x8 block size transform modes in CABAC entropy coding.

**Purpose**: Check that a decoder can properly decode slices of coded fields with both 4x4 and 8x8 block size transform modes.

#### 6.6.21.30 Test bitstream #FREH-40, #FREH-41

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Spatial direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is set equal to 1. Both 4x4 and 8x8 block size transform modes are used. Both seq\_scaling\_matrix\_present\_flag and pic\_scaling\_matrix\_flag are set to 0. Reference picture list reordering and memory management control operations are used. Each slice is a coded frame. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Reference picture list reordering and memory management control operations.

**Purpose**: Check that a decoder handles reference picture list reordering and memory management control operations.

#### 6.6.21.31 Test bitstream #FREH-42

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Spatial direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is set equal to 1. Both 4x4 and 8x8 block size transform modes are used. Both seq\_scaling\_matrix\_present\_flag and pic\_scaling\_matrix\_flag are set to 0. Reference picture list reordering and memory management control operations are used. mb\_adaptive\_frame\_field\_coding is equal to 1. Each slice is a coded frame. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Reference picture list reordering and memory management control operations.

**Purpose**: Check that a decoder handles reference picture list reordering and memory management control operations.

#### 6.6.21.32 Test bitstream #FREH-43

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Spatial direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is set equal to 1. Both 4x4 and 8x8 block size transform modes are used. Both seq\_scaling\_matrix\_present\_flag and pic\_scaling\_matrix\_flag are set to 0. mb\_adaptive\_frame\_field\_coding is equal to 1. Each slice is a coded frame. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Tests 4x4 and 8x8 block size transform modes in CABAC entropy coding.

**Purpose**: Check that a decoder can properly decode slices of coded frames with both 4x4 and 8x8 block size transform modes.

#### 6.6.21.33 Test bitstream #FREH-44

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. Spatial direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is set equal to 1. Both 4x4 and 8x8 block size transform modes are used. Both seq\_scaling\_matrix\_present\_flag and pic\_scaling\_matrix\_flag are set to 0. mb\_adaptive\_frame\_field\_coding is equal to 1. Each slice is a coded frame. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Tests 4x4 and 8x8 block size transform modes in CAVLC entropy coding.

**Purpose**: Check that a decoder can properly decode slices of coded frames with both 4x4 and 8x8 block size transform modes.

#### 6.6.21.34 Test bitstream #FREH-45

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Spatial direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is set equal to 1. Both 4x4 and 8x8 block size transform modes are used. seq\_scaling\_matrix\_present\_flag is set to 1 and pic\_scaling\_matrix\_flag is set to 0. Memory management control operations are used. Each slice is a coded frame. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Memory management control operations.

**Purpose**: Check that a decoder handles memory management control operations.

### 6.6.22 Test bitstreams – Fidelity Range Extensions: 4:2:0 10 bit

#### 6.6.22.1 Test bitstream #FREH10-1

**Specification**: All slices are coded as I slices. Each picture contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. frame\_mbs\_only\_flag is equal to 1. chroma\_format\_idc is equal to 1. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are set equal to 2. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of I slices for 4:2:0 10-bit.

**Purpose**: Check that a decoder can properly decode I slices for 4:2:0 10-bit.

#### 6.6.22.2 Test bitstream #FREH10-2

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. frame\_mbs\_only\_flag is equal to 1. chroma\_format\_idc is equal to 1. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are set equal to 2. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of I, P, and B slices for 4:2:0 10-bit.

**Purpose**: Check that a decoder can properly decode I, P and B slices for 4:2:0 10-bit.

### 6.6.23 Test bitstreams – Fidelity Range Extensions: 4:2:2

#### 6.6.23.1 Test bitstream #FREH422-1

**Specification**: All slices are coded as I or P slices. Each picture contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. chroma\_format\_idc is equal to 2, specifying 4:2:2 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are set equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of P slices for 4:2:2 8 bit.

**Purpose**: Check that a decoder can properly decode P slices for 4:2:2 8 bit.

#### 6.6.23.2 Test bitstream #FREH422-2

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. Direct prediction is not used in this bitstream. chroma\_format\_idc is equal to 2, specifying 4:2:2 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are set equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of B slices for 4:2:2 8 bit.

**Purpose**: Check that a decoder can properly decode B slices for 4:2:2 8 bit.

#### 6.6.23.3 Test bitstream #FREH422-3

**Specification**: All slices are coded as I or P slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. chroma\_format\_idc is equal to 2, specifying 4:2:2 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are set equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of P slices for 4:2:2 8 bit.

**Purpose**: Check that a decoder can properly decode P slices with deblocking filter for 4:2:2 8 bit.

#### 6.6.23.4 Test bitstream #FREH422-4

**Specification**: All slices are coded as I slices. Each picture contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. chroma\_format\_idc is equal to 2, specifying 4:2:2 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are set equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of I slices for 4:2:2 8 bit.

**Purpose**: Check that a decoder can properly decode I slices for 4:2:2 8 bit without deblocking filter.

#### 6.6.23.5 Test bitstream #FREH422-5

**Specification**: All slices are coded as I or P slices. Each picture contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. chroma\_format\_idc is equal to 2, specifying 4:2:2 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are set equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of P slices for 4:2:2 8 bit.

**Purpose**: Check that a decoder can properly decode P slices for 4:2:2 8 bit without deblocking filter.

#### 6.6.23.6 Test bitstream #FREH422-6

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. Spatial direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is equal to 1. chroma\_format\_idc is equal to 2, specifying 4:2:2 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are set equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of B slices for 4:2:2 8 bit.

**Purpose**: Check that a decoder can properly decode B slices for 4:2:2 8 bit without deblocking filter.

#### 6.6.23.7 Test bitstream #FREH422-7

**Specification**: All slices are coded as I or P slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. chroma\_format\_idc is equal to 2, specifying 4:2:2 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are set equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of P slices for 4:2:2 8 bit.

**Purpose**: Check that a decoder can properly decode P slices for 4:2:2 8 bit with deblocking filter.

#### 6.6.23.8 Test bitstream #FREH422-8

**Specification**: All slices are coded as I slices. Each picture contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. chroma\_format\_idc is equal to 2, specifying 4:2:2 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are set equal to 2, specifying 10 bit video. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of I slices for 4:2:2 10 bit.

**Purpose**: Check that a decoder can properly decode I slices for 4:2:2 10 bit without deblocking filter.

#### 6.6.23.9 Test bitstream #FREH422-9

**Specification**: All slices are coded as I or P slices. Each picture contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. chroma\_format\_idc is equal to 2, specifying 4:2:2 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are set equal to 2, specifying 10 bit video. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of P slices for 4:2:2 10 bit.

**Purpose**: Check that a decoder can properly decode P slices for 4:2:2 10 bit without deblocking filter.

#### 6.6.23.10 Test bitstream #FREH422-10

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. Spatial direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is equal to 1. chroma\_format\_idc is equal to 2, specifying 4:2:2 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are set equal to 2, specifying 10 bit video. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of B slices for 4:2:2 10 bit.

**Purpose**: Check that a decoder can properly decode B slices for 4:2:2 10 bit without deblocking filter.

#### 6.6.23.11 Test bitstream #FREH422-11

**Specification**: All slices are coded as I or P slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. chroma\_format\_idc is equal to 2, specifying 4:2:2 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are set equal to 2, specifying 10 bit video. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of P slices for 4:2:2 10 bit.

**Purpose**: Check that a decoder can properly decode P slices for 4:2:2 10 bit with deblocking filter.

#### 6.6.23.12 Test bitstream #FREH422-12

**Specification**: All slices are coded as I slices. Each picture contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. chroma\_format\_idc is equal to 2, specifying 4:2:2 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are set equal to 0. Both 4x4 and 8x8 block size transform modes are used. seq\_scaling\_matrix\_present\_flag is set to 1 and default scaling lists are used. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of I slices for 4:2:2 8 bit.

**Purpose**: Check that a decoder can properly decode I slices for 4:2:2 8 bit without deblocking filter.

#### 6.6.23.13 Test bitstream #FREH422-13

**Specification**: All slices are coded as I or P slices. Each picture contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. chroma\_format\_idc is equal to 2, specifying 4:2:2 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are set equal to 0. Both 4x4 and 8x8 block size transform modes are used. seq\_scaling\_matrix\_present\_flag is set to 1 and default scaling lists are used. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of P slices for 4:2:2 8 bit.

**Purpose**: Check that a decoder can properly decode P slices for 4:2:2 8 bit without deblocking filter.

#### 6.6.23.14 Test bitstream #FREH422-14

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. disable\_deblocking\_Filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Spatial direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is equal to 0. chroma\_format\_idc is equal to 2, specifying 4:2:2 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are set equal to 0. Both 4x4 and 8x8 block size transform modes are used. seq\_scaling\_matrix\_present\_flag is set to 1 and default scaling lists are used. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of B slices for 4:2:2 8 bit.

**Purpose**: Check that a decoder can properly decode B slices for 4:2:2 8 bit without deblocking filter.

#### 6.6.23.15 Test bitstream #FREH422-15

**Specification**: All slices are coded as I slices. Each picture contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. chroma\_format\_idc is equal to 2, specifying 4:2:2 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are set equal to 2, specifying 10 bit video. Both 4x4 and 8x8 block size transform modes are used. seq\_scaling\_matrix\_present\_flag is set to 1 and default scaling lists are used. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of I slices for 4:2:2 10 bit.

**Purpose**: Check that a decoder can properly decode I slices for 4:2:2 10 bit without deblocking filter.

#### 6.6.23.16 Test bitstream #FREH422-16

**Specification**: All slices are coded as I or P slices. Each picture contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. chroma\_format\_idc is equal to 2, specifying 4:2:2 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are set equal to 2, specifying 10 bit video. Both 4x4 and 8x8 block size transform modes are used. seq\_scaling\_matrix\_present\_flag is set to 1 and default scaling lists are used. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of P slices for 4:2:2 10 bit.

**Purpose**: Check that a decoder can properly decode P slices for 4:2:2 10 bit without deblocking filter.

#### 6.6.23.17 Test bitstream #FREH422-17

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Spatial direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is equal to 0. chroma\_format\_idc is equal to 2, specifying 4:2:2 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are set equal to 2, specifying 10 bit video. Both 4x4 and 8x8 block size transform modes are used. seq\_scaling\_matrix\_present\_flag is set to 1 and default scaling lists are used. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of B slices for 4:2:2 10 bit.

**Purpose**: Check that a decoder can properly decode B slices for 4:2:2 10 bit without deblocking filter.

#### 6.6.23.18 Test bitstream #FREH422-18

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Spatial direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is equal to 0. chroma\_format\_idc is equal to 2, specifying 4:2:2 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are set equal to 2, specifying 10 bit video. Both 4x4 and 8x8 block size transform modes are used. seq\_scaling\_matrix\_present\_flag is set to 1. Scaling lists are included in the sequence parameter set and the picture parameter set. Each slice is a coded field. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of B slices for 4:2:2 10 bit.

**Purpose**: Check that a decoder can properly decode B slices of coded fields for 4:2:2 10 bit.

#### 6.6.23.19 Test bitstream #FREH422-19

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Spatial direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is equal to 0. chroma\_format\_idc is equal to 2, specifying 4:2:2 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are set equal to 2, specifying 10 bit video. Both 4x4 and 8x8 block size transform modes are used. seq\_scaling\_matrix\_present\_flag is set to 1. Scaling lists are included in the sequence parameter set and the picture parameter set. Each slice is a coded frame. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of B slices for 4:2:2 10 bit.

**Purpose**: Check that a decoder can properly decode B slices of coded frames for 4:2:2 10 bit.

#### 6.6.23.20 Test bitstream #FREH422-20

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Spatial direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is equal to 0. chroma\_format\_idc is equal to 2, specifying 4:2:2 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are set equal to 2, specifying 10 bit video. Both 4x4 and 8x8 block size transform modes are used. seq\_scaling\_matrix\_present\_flag is set to 1. Scaling lists are included in the sequence parameter set and the picture parameter set. Each slice is either a coded frame or a coded field. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of B slices for 4:2:2 10 bit.

**Purpose**: Check that a decoder can properly decode B slices of coded frames and fields for 4:2:2 10 bit.

#### 6.6.23.21 Test bitstream #FREH422-21

**Specification**: All slices are coded as I, P or B slices. Each picture contains only one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Spatial direct prediction is used for direct prediction. direct\_8x8\_inference\_flag is equal to 0. chroma\_format\_idc is equal to 2, specifying 4:2:2 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are set equal to 2, specifying 10 bit video. Both 4x4 and 8x8 block size transform modes are used. seq\_scaling\_matrix\_present\_flag is set to 1. Scaling lists are included in the sequence parameter set and the picture parameter set. Each slice is a coded frame. mb\_adaptive\_frame\_field\_coding is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of B slices for 4:2:2 10 bit.

**Purpose**: Check that a decoder can properly decode B slices with mb\_adaptive\_frame\_field\_flag=1 for 4:2:2 10 bit.

### 6.6.24 Auxiliary coded picture

#### 6.6.24.1 Test bitstream #FREAUX-1

**Specification**: Coded slices of an auxiliary coded picture are included in this bitstream. The rest of the slices are coded as either an I slice or a P slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of coded slices of an auxiliary coded picture.

**Purpose**: Check that the decoder can properly handle coded slices of an auxiliary coded picture.

### 6.6.25 Test bitstreams – Professional Profiles: High 4:4:4 Predictive Profile

#### 6.6.25.1 Test bitstream #PPH444P-1

**Specification**: All slices are coded as I or P slices. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. chroma\_format\_idc is equal to 3, specifying the 4:4:4 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are equal to 6, specifying 14 bit luma and chroma sample bit depths. separate\_colour\_plane\_flag is equal to 0. Each picture is a coded frame. The NAL units are encapsulated in the byte stream format specified in Annex B of ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of I and P slices for 4:4:4 14 bit frames with separate\_colour\_plane\_flag equal to 0, using CAVLC.

**Purpose**: Check that a decoder can properly decode I and P slices of 4:4:4 14 bit coded frames with separate\_colour\_plane\_flag equal to 0, using CAVLC.

#### 6.6.25.2 Test bitstream #PPH444P-2

**Specification**: All slices are coded as I or P slices. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. chroma\_format\_idc is equal to 3, specifying the 4:4:4 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are equal to 6, specifying 14 bit luma and chroma sample bit depths. separate\_colour\_plane\_flag is equal to 0. Each picture is a coded frame. The NAL units are encapsulated in the byte stream format specified in Annex B of ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of I and P slices for 4:4:4 14 bit frames with separate\_colour\_plane\_flag equal to 0, using CABAC.

**Purpose**: Check that a decoder can properly decode I and P slices of 4:4:4 14 bit coded frames with separate\_colour\_plane\_flag equal to 0, using CABAC.

#### 6.6.25.3 Test bitstream #PPH444P-3

**Specification**: All slices are coded as I, P or B slices. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. chroma\_format\_idc is equal to 3, specifying the 4:4:4 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are equal to 6, specifying 14 bit luma and chroma sample bit depths. separate\_colour\_plane\_flag is equal to 0. Each picture is a coded frame. The NAL units are encapsulated in the byte stream format specified in Annex B of ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of I, P and B slices for 4:4:4 14 bit frames with separate\_colour\_plane\_flag equal to 0, using CAVLC.

**Purpose**: Check that a decoder can properly decode I, P and B slices of 4:4:4 14 bit coded frames with separate\_colour\_plane\_flag equal to 0, using CAVLC.

#### 6.6.25.4 Test bitstream #PPH444P-4

**Specification**: All slices are coded as I, P or B slices. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. chroma\_format\_idc is equal to 3, specifying the 4:4:4 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are equal to 6, specifying 14 bit luma and chroma sample bit depths. separate\_colour\_plane\_flag is equal to 0. Each picture is a coded frame. The NAL units are encapsulated in the byte stream format specified in Annex B of ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of I, P and B slices for 4:4:4 14 bit frames with separate\_colour\_plane\_flag equal to 0, using CABAC.

**Purpose**: Check that a decoder can properly decode I, P and B slices of 4:4:4 14 bit coded frames with separate\_colour\_plane\_flag equal to 0, using CABAC.

#### 6.6.25.5 Test bitstream #PPH444P-5

**Specification**: All slices are coded as I, P or B slices. Each picture contains more than one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. chroma\_format\_idc is equal to 3, specifying the 4:4:4 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are equal to 6, specifying 14 bit luma and chroma sample bit depths. separate\_colour\_plane\_flag is equal to 0. Each picture is a coded frame. The NAL units are encapsulated in the byte stream format specified in Annex B of ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of I, P and B slices for 4:4:4 14 bit frames with separate\_colour\_plane\_flag equal to 0, without deblocking filter.

**Purpose**: Check that a decoder can properly decode I, P and B slices of 4:4:4 14 bit coded frames with separate\_colour\_plane\_flag equal to 0, without deblocking filter.

#### 6.6.25.6 Test bitstream #PPH444P-6

**Specification**: All slices are coded as I or P slices. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. chroma\_format\_idc is equal to 3, specifying the 4:4:4 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are equal to 6, specifying 14 bit luma and chroma sample bit depths. separate\_colour\_plane\_flag is equal to 1. Each picture is a coded frame. The NAL units are encapsulated in the byte stream format specified in Annex B of ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of I and P slices for 4:4:4 14 bit frames with separate\_colour\_plane\_flag equal to 1, using CAVLC.

**Purpose**: Check that a decoder can properly decode I and P slices of coded frames for 14 bit 4:4:4 coded frames with separate\_colour\_plane\_flag equal to 1, using CAVLC.

#### 6.6.25.7 Test bitstream #PPH444P-7

**Specification**: All slices are coded as I or P slices. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. chroma\_format\_idc is equal to 3, specifying the 4:4:4 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are equal to 6, specifying 14 bit luma and chroma sample bit depths. separate\_colour\_plane\_flag is equal to 1. Each picture is a coded frame. The NAL units are encapsulated in the byte stream format specified in Annex B of ITU‑T Rec. H. H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of I and P slices for 4:4:4 14 bit frames with separate\_colour\_plane\_flag equal to 1, using CABAC.

**Purpose**: Check that a decoder can properly decode I and P slices of 4:4:4 14 bit coded frames with separate\_colour\_plane\_flag equal to 1, using CABAC.

#### 6.6.25.8 Test bitstream #PPH444P-8

**Specification**: All slices are coded as I, P or B slices. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. chroma\_format\_idc is equal to 3, specifying the 4:4:4 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are equal to 6, specifying 14 bit luma and chroma sample bit depths. separate\_colour\_plane\_flag is equal to 1. Each picture is a coded frame. The NAL units are encapsulated in the byte stream format specified in Annex B of ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of I, P and B slices for 4:4:4 14 bit frames with separate\_colour\_plane\_flag equal to 1, using CAVLC.

**Purpose**: Check that a decoder can properly decode I, P and B slices of 4:4:4 14 bit coded frames with separate\_colour\_plane\_flag equal to 1, using CAVLC.

#### 6.6.25.9 Test bitstream #PPH444P-9

**Specification**: All slices are coded as I, P or B slices. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. chroma\_format\_idc is equal to 3, specifying the 4:4:4 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are equal to 6, specifying 14 bit luma and chroma sample bit depths. separate\_colour\_plane\_flag is equal to 1. pic\_order\_cnt\_type is equal to 0. direct\_8x8\_inference\_flag is equal to 1. Each picture is a coded frame. The NAL units are encapsulated in the byte stream format specified in Annex B of ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of I, P and B slices for 4:4:4 14 bit frames with separate\_colour\_plane\_flag equal to 1, using CABAC.

**Purpose**: Check that a decoder can properly decode I, P and B slices of 4:4:4 14 bit coded frames with separate\_colour\_plane\_flag equal to 1, using CABAC.

#### 6.6.25.10 Test bitstream #PPH444P-10

**Specification**: All slices are coded as I, P or B slices. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. chroma\_format\_idc is equal to 3, specifying the 4:4:4 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are equal to 6, specifying 14 bit luma and chroma sample bit depths. qpprime\_y\_zero\_transform\_bypass\_flag is equal to 1, specifying transform-bypass coding for macroblocks having QP'Y equal to 0. Each picture is a coded frame. The NAL units are encapsulated in the byte stream format specified in Annex B of ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of I, P and B slices for 4:4:4 14 bit frames with qpprime\_y\_zero\_transform\_bypass\_flag equal to 1.

**Purpose**: Check that a decoder can properly decode I, P and B slices of 4:4:4 14 bit coded frames with qpprime\_y\_zero\_transform\_bypass\_flag equal to 1.

### 6.6.26 Test bitstreams – Professional Profiles: High 10 Intra Profile

#### 6.6.26.1 Test bitstream #PPH10I-1

**Specification**: All pictures are IDR pictures. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. chroma\_format\_idc is equal to 1, specifying the 4:2:0 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are equal to 2, specifying 10 bit luma and chroma bit depths. separate\_colour\_plane\_flag is equal to 0. Each picture is a coded frame. The NAL units are encapsulated in the byte stream format specified in Annex B of ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of 4:2:0 10 bit IDR frames with separate\_colour\_plane\_flag equal to 0, using CAVLC.

**Purpose**: Check that a decoder can properly decode 4:2:0 10 bit IDR frames with separate\_colour\_plane\_flag equal to 0, using CAVLC.

#### 6.6.26.2 Test bitstream #PPH10I-2

**Specification**: All pictures are IDR pictures. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. chroma\_format\_idc is equal to 1, specifying the 4:2:0 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are equal to 2, specifying 10 bit luma and chroma bit depths. separate\_colour\_plane\_flag is equal to 0. Each picture is a coded frame. The NAL units are encapsulated in the byte stream format specified in Annex B of ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of 4:2:0 10 bit IDR frames with separate\_colour\_plane\_flag equal to 0, using CABAC.

**Purpose**: Check that a decoder can properly decode 4:2:0 10 bit IDR frames with separate\_colour\_plane\_flag equal to 0, using CABAC.

#### 6.6.26.3 Test bitstream #PPH10I-3

**Specification**: All pictures are IDR pictures. deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. chroma\_format\_idc is equal to 1, specifying the 4:2:0 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are equal to 2, specifying 10 bit luma and chroma bit depths. separate\_colour\_plane\_flag is equal to 0. Each picture is a coded frame. The NAL units are encapsulated in the byte stream format specified in Annex B of ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of 4:2:0 10 bit IDR frames with separate\_colour\_plane\_flag equal to 0, using CABAC.

**Purpose**: Check that a decoder can properly decode 4:2:0 10 bit IDR frames with separate\_colour\_plane\_flag equal to 0, using CABAC.

#### 6.6.26.4 Test bitstream #PPH10I-4

**Specification**: All pictures are IDR pictures. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. chroma\_format\_idc is equal to 1, specifying the 4:2:0 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are equal to 2, specifying 10 bit luma and chroma bit depths. separate\_colour\_plane\_flag is equal to 0. Some pictures are coded frames and some are coded fields. The NAL units are encapsulated in the byte stream format specified in Annex B of ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of 4:2:0 10 bit IDR frames and fields with separate\_colour\_plane\_flag equal to 0, using CAVLC.

**Purpose**: Check that a decoder can properly decode 4:2:0 10 bit IDR frames and fields with separate\_colour\_plane\_flag equal to 0, using CAVLC.

#### 6.6.26.5 Test bitstream #PPH10I-5

**Specification**: All pictures are IDR pictures. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. chroma\_format\_idc is equal to 1, specifying the 4:2:0 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are equal to 2, specifying 10 bit luma and chroma bit depths. separate\_colour\_plane\_flag is equal to 0. Some pictures are coded frames and some are coded fields. The NAL units are encapsulated in the byte stream format specified in Annex B of ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of 4:2:0 10 bit IDR frames and fields with separate\_colour\_plane\_flag equal to 0, using CABAC.

**Purpose**: Check that a decoder can properly decode 4:2:0 10 bit IDR frames and fields with separate\_colour\_plane\_flag equal to 0, using CABAC.

#### 6.6.26.6 Test bitstream #PPH10I-6

**Specification**: All pictures are IDR pictures. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. chroma\_format\_idc is equal to 1, specifying the 4:2:0 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are equal to 2, specifying 10 bit luma and chroma bit depths. separate\_colour\_plane\_flag is equal to 0. Each picture is a coded frame with mb\_adaptive\_frame\_field\_flag equal to 1. The NAL units are encapsulated in the byte stream format specified in Annex B of ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of 4:2:0 10 bit IDR frames with macroblock adaptive frame/field coding.

**Purpose**: Check that a decoder can properly decode 4:2:0 10 bit IDR frames with macroblock adaptive frame/field coding.

#### 6.6.26.7 Test bitstream #PPH10I-7

**Specification**: All pictures are IDR pictures. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. chroma\_format\_idc is equal to 1, specifying the 4:2:0 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are equal to 2, specifying 10 bit luma and chroma bit depths. separate\_colour\_plane\_flag is equal to 0. Each picture is a coded frame with mb\_adaptive\_frame\_field\_flag equal to 1. The NAL units are encapsulated in the byte stream format specified in Annex B of ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of 4:2:0 10 bit IDR frames with macroblock adaptive frame/field coding.

**Purpose**: Check that a decoder can properly decode 4:2:0 10 bit IDR frames with macroblock adaptive frame/field coding.

### 6.6.27 Test bitstreams – Professional Profiles: High 4:2:2 Intra Profile

#### 6.6.27.1 Test bitstream #PPH422I-1

**Specification**: All pictures are IDR pictures. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. chroma\_format\_idc is equal to 2, specifying the 4:2:2 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are equal to 2, specifying 10 bit luma and chroma bit depths. separate\_colour\_plane\_flag is equal to 0. Each picture is a coded frame. The NAL units are encapsulated in the byte stream format specified in Annex B of ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of 4:2:2 10 bit IDR frames with separate\_colour\_plane\_flag equal to 0, using CAVLC.

**Purpose**: Check that a decoder can properly decode 4:2:2 10 bit IDR frames with separate\_colour\_plane\_flag equal to 0, using CAVLC.

#### 6.6.27.2 Test bitstream #PPH422I-2

**Specification**: All pictures are IDR pictures. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. chroma\_format\_idc is equal to 2, specifying the 4:2:2 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are equal to 2, specifying 10 bit luma and chroma bit depths. separate\_colour\_plane\_flag is equal to 0. Each picture is a coded frame. The NAL units are encapsulated in the byte stream format specified in Annex B of ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of 4:2:2 10 bit IDR frames with separate\_colour\_plane\_flag equal to 0, using CABAC.

**Purpose**: Check that a decoder can properly decode 4:2:2 10 bit IDR frames with separate\_colour\_plane\_flag equal to 0, using CABAC.

#### 6.6.27.3 Test bitstream #PPH422I-3

**Specification**: All pictures are IDR pictures. deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. chroma\_format\_idc is equal to 2, specifying the 4:2:2 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are equal to 2, specifying 10 bit luma and chroma bit depths. separate\_colour\_plane\_flag is equal to 0. Each picture is a coded frame. The NAL units are encapsulated in the byte stream format specified in Annex B of ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of 4:2:2 10 bit IDR frames with separate\_colour\_plane\_flag equal to 0, using CABAC.

**Purpose**: Check that a decoder can properly decode 4:2:2 10 bit IDR frames with separate\_colour\_plane\_flag equal to 0, using CABAC.

#### 6.6.27.4 Test bitstream #PPH422I-4

**Specification**: All pictures are IDR pictures. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. chroma\_format\_idc is equal to 2, specifying the 4:2:2 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are equal to 2, specifying 10 bit luma and chroma bit depths. separate\_colour\_plane\_flag is equal to 0. Some pictures are coded frames and some are coded fields. The NAL units are encapsulated in the byte stream format specified in Annex B of ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of 4:2:2 10 bit IDR frames and fields with separate\_colour\_plane\_flag equal to 0, using CAVLC.

**Purpose**: Check that a decoder can properly decode 4:2:2 10 bit IDR frames and fields with separate\_colour\_plane\_flag equal to 0, using CAVLC.

#### 6.6.27.5 Test bitstream #PPH422I-5

**Specification**: All pictures are IDR pictures. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. chroma\_format\_idc is equal to 2, specifying the 4:2:2 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are equal to 2, specifying 10 bit luma and chroma bit depths. separate\_colour\_plane\_flag is equal to 0. Some pictures are coded frames and some are coded fields. The NAL units are encapsulated in the byte stream format specified in Annex B of ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of 4:2:2 10 bit IDR frames and fields with separate\_colour\_plane\_flag equal to 0, using CABAC.

**Purpose**: Check that a decoder can properly decode 4:2:2 10 bit IDR frames and fields with separate\_colour\_plane\_flag equal to 0, using CABAC.

#### 6.6.27.6 Test bitstream #PPH422I-6

**Specification**: All pictures are IDR pictures. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. chroma\_format\_idc is equal to 2, specifying the 4:2:2 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are equal to 2, specifying 10 bit luma and chroma bit depths. separate\_colour\_plane\_flag is equal to 0. Each picture is a coded frame with mb\_adaptive\_frame\_field\_flag equal to 1. The NAL units are encapsulated in the byte stream format specified in Annex B of ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of 4:2:2 10 bit IDR frames with macroblock adaptive frame/field coding.

**Purpose**: Check that a decoder can properly decode 4:2:2 10 bit IDR frames with macroblock adaptive frame/field coding.

#### 6.6.27.7 Test bitstream #PPH422I-7

**Specification**: All pictures are IDR pictures. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. chroma\_format\_idc is equal to 2, specifying the 4:2:2 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are equal to 2, specifying 10 bit luma and chroma bit depths. separate\_colour\_plane\_flag is equal to 0. Each picture is a coded frame with mb\_adaptive\_frame\_field\_flag equal to 1. The NAL units are encapsulated in the byte stream format specified in Annex B of ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of 4:2:2 10 bit IDR frames with macroblock adaptive frame/field coding.

**Purpose**: Check that a decoder can properly decode 4:2:2 10 bit IDR frames with macroblock adaptive frame/field coding.

### 6.6.28 Test bitstreams – Professional Profiles: High 4:4:4 Intra Profile

#### 6.6.28.1 Test bitstream #PPH444I-1

**Specification**: All pictures are IDR pictures. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. chroma\_format\_idc is equal to 3, specifying the 4:4:4 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are equal to 6, specifying 14 bit luma and chroma bit depths. separate\_colour\_plane\_flag is equal to 0. Each picture is a coded frame. The NAL units are encapsulated in the byte stream format specified in Annex B of ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of 4:4:4 14 bit IDR frames with separate\_colour\_plane\_flag equal to 0.

**Purpose**: Check that a decoder can properly decode 4:4:4 14 bit IDR frames with separate\_colour\_plane\_flag equal to 0.

#### 6.6.28.2 Test bitstream #PPH444I-2

**Specification**: All pictures are IDR pictures. deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. chroma\_format\_idc is equal to 3, specifying the 4:4:4 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are equal to 6, specifying 14 bit luma and chroma bit depths. separate\_colour\_plane\_flag is equal to 0. Each picture is a coded frame. The NAL units are encapsulated in the byte stream format specified in Annex B of ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of 4:4:4 14 bit IDR frames with separate\_colour\_plane\_flag equal to 0, without deblocking filter.

**Purpose**: Check that a decoder can properly decode 4:4:4 14 bit IDR frames with separate\_colour\_plane\_flag equal to 0, without deblocking filter.

#### 6.6.28.3 Test bitstream #PPH444I-3

**Specification**: All pictures are IDR pictures. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. chroma\_format\_idc is equal to 3, specifying the 4:4:4 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are equal to 6, specifying 14 bit luma and chroma bit depths. separate\_colour\_plane\_flag is equal to 0. Both seq\_scaling\_matrix\_present\_flag and pic\_scaling\_matrix\_present\_flag are equal to 1. A different scaling matrix is applied to each colour plane. Each picture is a coded frame. The NAL units are encapsulated in the byte stream format specified in Annex B of ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of 4:4:4 14 bit IDR frames with separate\_colour\_plane\_flag equal to 0, applying a different scaling matrix for each colour plane.

**Purpose**: Check that a decoder can properly decode 4:4:4 14 bit IDR frames with separate\_colour\_plane\_flag equal to 0, applying a different scaling matrix for each colour plane.

#### 6.6.28.4 Test bitstream #PPH444I-4

**Specification**: All pictures are IDR pictures. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. chroma\_format\_idc is equal to 3, specifying the 4:4:4 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are equal to 6, specifying 14 bit luma and chroma bit depths. separate\_colour\_plane\_flag is equal to 1. Each picture is a coded frame. The NAL units are encapsulated in the byte stream format specified in Annex B of ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of 4:4:4 14 bit IDR frames with separate\_colour\_plane\_flag equal to 1.

**Purpose**: Check that a decoder can properly decode 4:4:4 14 bit IDR frames with separate\_colour\_plane\_flag equal to 1.

#### 6.6.28.5 Test bitstream #PPH444I-5

**Specification**: All pictures are IDR pictures. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. chroma\_format\_idc is equal to 3, specifying the 4:4:4 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are equal to 6, specifying 14 bit luma and chroma bit depths. separate\_colour\_plane\_flag is equal to 1. seq\_scaling\_matrix\_present\_flag is equal to 1 and pic\_scaling\_matrix\_present\_flag is equal to 0. A different scaling matrix is applied to each colour plane. Each picture is a coded frame. The NAL units are encapsulated in the byte stream format specified in Annex B of ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of 4:4:4 14 bit IDR frames with separate\_colour\_plane\_flag equal to 1, applying a different scaling matrix for each colour plane.

**Purpose**: Check that a decoder can properly decode 4:4:4 14 bit IDR frames with separate\_colour\_plane\_flag equal to 1, applying a different scaling matrix for each colour plane.

#### 6.6.28.6 Test bitstream #PPH444I-6

**Specification**: All pictures are IDR pictures. Each picture contains more than one slice. Slices having different values of colour\_plane\_id are interleaved with each other. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. chroma\_format\_idc is equal to 3, specifying the 4:4:4 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are equal to 6, specifying 14 bit luma and chroma bit depths. separate\_colour\_plane\_flag is equal to 1. Each picture is a coded frame. The NAL units are encapsulated in the byte stream format specified in Annex B of ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of 4:4:4 14 bit IDR frames with separate\_colour\_plane\_flag equal to 1, using slice-level interleaving of colour\_plane\_id values within an access unit.

**Purpose**: Check that a decoder can properly decode 4:4:4 14 bit IDR frames with separate\_colour\_plane\_flag equal to 1, using slice-level interleaving of colour\_plane\_id values within an access unit.

#### 6.6.28.7 Test bitstream #PPH444I-7

**Specification**: All pictures are IDR pictures. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. chroma\_format\_idc is equal to 3, specifying the 4:4:4 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are equal to 6, specifying 14 bit luma and chroma bit depths. qpprime\_y\_zero\_transform\_bypass\_flag is equal to 1, specifying transform-bypass coding for macroblocks having QP'Y equal to 0. Each picture is a coded frame. The NAL units are encapsulated in the byte stream format specified in Annex B of ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of 4:4:4 14 bit IDR frames with qpprime\_y\_zero\_transform\_bypass\_flag equal to 1.

**Purpose**: Check that a decoder can properly decode 4:4:4 14 bit IDR frames with qpprime\_y\_zero\_transform\_bypass\_flag equal to 1.

### 6.6.29 Test bitstreams – Professional Profiles: CAVLC 4:4:4 Intra Profile

#### 6.6.29.1 Test bitstream #PPCV444I-1

**Specification**: All pictures are IDR pictures. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. chroma\_format\_idc is equal to 3, specifying the 4:4:4 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are equal to 6, specifying 14 bit luma and chroma bit depths. separate\_colour\_plane\_flag is equal to 0. Each picture is a coded frame. The NAL units are encapsulated in the byte stream format specified in Annex B of ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of 4:4:4 14 bit IDR frames with separate\_colour\_plane\_flag equal to 0, using CAVLC.

**Purpose**: Check that a decoder can properly decode 4:4:4 14 bit IDR frames with separate\_colour\_plane\_flag equal to 0, using CAVLC.

#### 6.6.29.2 Test bitstream #PPCV444I-2

**Specification**: All pictures are IDR pictures. deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. chroma\_format\_idc is equal to 3, specifying the 4:4:4 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are equal to 6, specifying 14 bit luma and chroma bit depths. separate\_colour\_plane\_flag is equal to 0. Each picture is a coded frame. The NAL units are encapsulated in the byte stream format specified in Annex B of ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of 4:4:4 14 bit IDR frames with separate\_colour\_plane\_flag equal to 0, without deblocking filter, using CAVLC.

**Purpose**: Check that a decoder can properly decode 4:4:4 14 bit IDR frames with separate\_colour\_plane\_flag equal to 0, without deblocking filter, using CAVLC.

#### 6.6.29.3 Test bitstream #PPCV444I-3

**Specification**: All pictures are IDR pictures. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. chroma\_format\_idc is equal to 3, specifying the 4:4:4 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are equal to 6, specifying 14 bit luma and chroma bit depths. separate\_colour\_plane\_flag is equal to 0. Both seq\_scaling\_matrix\_present\_flag and pic\_scaling\_matrix\_present\_flag are equal to 1. A different scaling matrix is applied to each colour plane. Each picture is a coded frame. The NAL units are encapsulated in the byte stream format specified in Annex B of ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of 4:4:4 14 bit IDR frames with separate\_colour\_plane\_flag equal to 0, applying a different scaling matrix for each colour plane, using CAVLC.

**Purpose**: Check that a decoder can properly decode 4:4:4 14 bit IDR frames with separate\_colour\_plane\_flag equal to 0, applying a different scaling matrix for each colour plane, using CAVLC.

#### 6.6.29.4 Test bitstream #PPCV444I-4

**Specification**: All pictures are IDR pictures. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. chroma\_format\_idc is equal to 3, specifying the 4:4:4 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are equal to 6, specifying 14 bit luma and chroma bit depths. separate\_colour\_plane\_flag is equal to 1. Each picture is a coded frame. The NAL units are encapsulated in the byte stream format specified in Annex B of ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of 4:4:4 14 bit IDR frames with separate\_colour\_plane\_flag equal to 1, using CAVLC.

**Purpose**: Check that a decoder can properly decode 4:4:4 14 bit IDR frames with separate\_colour\_plane\_flag equal to 1, using CAVLC.

#### 6.6.29.5 Test bitstream #PPCV444I-5

**Specification**: All pictures are IDR pictures. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. chroma\_format\_idc is equal to 3, specifying the 4:4:4 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are equal to 6, specifying 14 bit luma and chroma bit depths. separate\_colour\_plane\_flag is equal to 1. seq\_scaling\_matrix\_present\_flag is equal to 1 and pic\_scaling\_matrix\_present\_flag is equal to 0. A different scaling matrix is applied to each colour plane. Each picture is a coded frame. The NAL units are encapsulated in the byte stream format specified in Annex B of ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of 4:4:4 14 bit IDR frames with separate\_colour\_plane\_flag equal to 1, applying a different scaling matrix for each colour plane, using CAVLC.

**Purpose**: Check that a decoder can properly decode 4:4:4 14 bit IDR frames with separate\_colour\_plane\_flag equal to 1, applying a different scaling matrix for each colour plane, using CAVLC.

#### 6.6.29.6 Test bitstream #PPCV444I-6

**Specification**: All pictures are IDR pictures. Each picture contains more than one slice. Slices having different values of colour\_plane\_id are interleaved with each other. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. chroma\_format\_idc is equal to 3, specifying the 4:4:4 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are equal to 6, specifying 14 bit luma and chroma bit depths. separate\_colour\_plane\_flag is equal to 1. Each picture is a coded frame. The NAL units are encapsulated in the byte stream format specified in Annex B of ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of 4:4:4 14 bit IDR frames with separate\_colour\_plane\_flag equal to 1, using slice-level interleaving of colour\_plane\_id values within an access unit, using CAVLC.

**Purpose**: Check that a decoder can properly decode 4:4:4 14 bit IDR frames with separate\_colour\_plane\_flag equal to 1, using slice-level interleaving of colour\_plane\_id values within an access unit, using CAVLC.

#### 6.6.29.7 Test bitstream #PPCV444I-7

**Specification**: All pictures are IDR pictures. Each picture contains more than one slice. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. chroma\_format\_idc is equal to 3, specifying the 4:4:4 chroma format. Both bit\_depth\_luma\_minus8 and bit\_depth\_chroma\_minus8 are equal to 6, specifying 14 bit luma and chroma bit depths. qpprime\_y\_zero\_transform\_bypass\_flag is equal to 1, specifying transform-bypass coding for macroblocks having QP'Y equal to 0. Each picture is a coded frame. The NAL units are encapsulated in the byte stream format specified in Annex B of ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of 4:4:4 14 bit IDR frames with qpprime\_y\_zero\_transform\_bypass\_flag equal to 1, using CAVLC.

**Purpose**: Check that a decoder can properly decode 4:4:4 14 bit IDR frames with qpprime\_y\_zero\_transform\_bypass\_flag equal to 1, using CAVLC.

### 6.6.30 Test bitstreams – SVC Profiles: Scalable Baseline Profile 4:2:0 8 bit

#### 6.6.30.1 Test bitstream #SVCBC-1

**Specification**: All slices are coded as I, P, EI, EP or EB slices. Each layer representation contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 0 for layer representations with dependency\_id equal to 0, specifying the CAVLC parsing process; and entropy\_coding\_mode\_flag is equal to 1 for layer representations with dependency\_id equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. gaps\_in\_frame\_num\_value\_‌allowed\_flag is equal to 1. Reference picture list reordering and memory management control operations are used. transform\_8x8\_mode\_flag is equal to 1 for layer representations with dependency\_id equal to 1, specifying that 8x8 transform decoding process may be in use. DependencyIdMax is equal to 1, TemporalIdMax is equal to 4 and DQIdMax is equal to 16. extended\_spatial\_scalability is equal to 0. SpatialResolutionChangeFlag is equal to 0. no\_inter\_layer\_pred\_flag is equal to 0. use\_ref\_base\_pic\_flag is equal to 0, specifying that reference base pictures are not used as reference pictures for the inter prediction process. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_header\_restriction\_flag is equal to 0 and store\_ref\_base\_pic\_flag is equal to 0, specifying that the reference base picture are not stored. slice\_skip\_flag is equal to 0. adaptive\_base\_mode\_flag is equal to 1, specifying that inter-layer motion and inter-layer intra prediction are enabled. adaptive\_motion\_prediction\_flag is equal to 1, specifying that inter-layer motion prediction is enabled. adaptive\_residual\_prediction\_flag is equal to 1, specifying that inter-layer residual prediction is enabled. inter\_layer\_deblocking\_filter\_control\_present\_flag is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Gaps in frame\_num, reference picture list reordering, memory management control operations and decoding of EI, EP and EB coded slices of a quality enhancement layer, 8x8 transform size with inter-layer motion, intra and residual prediction and CABAC parsing.

**Purpose**: Check that the decoder can properly handle gaps in frame\_num, reference picture list reordering, memory management control operations and EI, EP and EB coded slices of a quality enhancement layer, 8x8 transform size with inter-layer motion, intra and residual prediction and CABAC parsing.

#### 6.6.30.2 Test bitstream #SVCBM-1

**Specification**: All slices are coded as I, P, EI or EP slices. Only the first frame is coded as an IDR access unit and each dependency representation contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 2. DependencyIdMax is equal to 0, TemporalIdMax is equal to 0, and DQIdMax is equal to 1. extended\_spatial\_scalability is equal to 0, SpatialResolutionChangeFlag is equal to 0, chroma\_phase\_x\_plus1\_flag is equal to 1, and chroma\_phase\_y\_plus1 is equal to 1. no\_inter\_layer\_pred\_flag is equal to 0, slice\_header\_restriction\_‌flag is equal to 0, scan\_idx\_start is equal to 0, and scan\_idx\_end is equal to 15. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_skip\_flag is equal to 0, adaptive\_base\_mode\_flag is equal to 0 (with default\_base\_mode\_flag equal to 1), adaptive\_motion\_prediction\_flag is equal to 0 (with default\_motion\_prediction\_flag equal to 1), and adaptive\_residual\_prediction\_flag is equal to 1. disable\_inter\_layer\_deblocking\_filter\_idc is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of EI and EP coded slices of a quality enhancement layer.

**Purpose**: Check that the decoder can properly handle EI and EP coded slices of a quality enhancement layer.

#### 6.6.30.3 Test bitstream #SVCBM-2

**Specification**: All slices are coded as I, P, EI or EP slices. Each layer representation contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. DependencyIdMax is equal to 0, TemporalIdMax is equal to 0 and DQIdMax is equal to 1. extended\_spatial\_scalability is equal to 0. SpatialResolutionChangeFlag is equal to 0. no\_inter\_layer\_pred\_flag is equal to 0. adaptive\_tcoeff\_level\_prediction\_flag is equal to 0, specifying that an alternative inter-layer prediction process is applied for the whole sequence. slice\_header\_restriction\_flag is equal to 1. slice\_skip\_flag is equal to 0. default\_base\_mode\_flag is equal to 1, specifying inter-layer motion and intra prediction. default\_residual\_prediction\_flag is equal to 0. inter\_layer\_deblocking\_filter\_control\_present\_flag is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of EI and EP coded slices of a quality enhancement layer, using an alternative inter-layer prediction process for translation to an AVC bitstream.

**Purpose**: Check that the decoder can properly handle EI and EP coded slices of a quality enhancement layer, using an alternative inter-layer prediction process for translation to an AVC bitstream.

#### 6.6.30.4 Test bitstream #SVCBM-3

**Specification**: All slices are coded as I, P or EP slices. Each layer representation contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. DependencyIdMax is equal to 0, TemporalIdMax is equal to 0 and DQIdMax is equal to 1. extended\_spatial\_scalability is equal to 0. SpatialResolutionChangeFlag is equal to 0. no\_inter\_layer\_pred\_flag is equal to 0. tcoeff\_level\_prediction\_flag is equal to 1, specifying that an alternative inter-layer prediction process is applied on a macroblock basis. slice\_header\_restriction\_flag is equal to 1. slice\_skip\_flag is equal to 0. default\_base\_mode\_flag is equal to 1, specifying inter-layer motion and intra prediction. default\_residual\_prediction\_flag is equal to 0. inter\_layer\_deblocking\_filter\_control\_present\_flag is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of EI and EP coded slices of a quality enhancement layer, enabling an alternative inter-layer prediction process by macroblock for translation to an AVC bitstream.

**Purpose**: Check that the decoder can properly handle EI and EP coded slices of a quality enhancement layer, enabling an alternative inter-layer prediction process by macroblock for translation to an AVC bitstream.

#### 6.6.30.5 Test bitstream #SVCBM-4

**Specification**: All slices are coded as I, P, EI or EP slices. Each layer representation contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. DependencyIdMax is equal to 0, TemporalIdMax is equal to 0 and DQIdMax is equal to 2. extended\_spatial\_scalability is equal to 0. SpatialResolutionChangeFlag is equal to 0. no\_inter\_layer\_pred\_flag is equal to 0. tcoeff\_level\_prediction\_flag is equal to 1 for the layer representation with quality\_id equal to 1, specifying that an alternative inter-layer prediction process is applied on a macroblock basis. For the layer representation with quality\_id equal to 2 tcoeff\_level\_prediction\_flag is equal to 0. slice\_header\_restriction\_flag is equal to 1. slice\_skip\_flag is equal to 0. default\_base\_mode\_flag is equal to 1, specifying inter-layer motion and intra prediction. default\_residual\_prediction\_flag is equal to 0. inter\_layer\_deblocking\_filter\_control\_present\_flag is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of EI and EP coded slices of a quality enhancement layer and of a quality enhancement layer enabling an alternative inter-layer prediction process by macroblock for translation to an AVC bitstream.

**Purpose**: Check that the decoder can properly handle EI and EP coded slices of a quality enhancement layer and of a quality enhancement layer enabling an alternative inter-layer prediction process by macroblock for translation to an AVC bitstream.

#### 6.6.30.6 Test bitstream #SVCBM-5

**Specification**: All slices are coded as I, P, EI, or EP slices. Each layer representation contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 0 for layer representations with quality\_id equal to 0, specifying the CAVLC parsing process. entropy\_coding\_mode\_flag is equal to 1 for layer representations with quality\_id greater than 0, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. gaps\_in\_frame\_num\_value\_allowed\_flag is equal to 1. Reference picture list reordering and memory management control operations are used. transform\_8x8\_mode\_flag is equal to 1 for layer representation with quality\_id greater than 0, specifying that 8x8 transform decoding process may be in use. mb\_qp\_delta is equal to 0. DependencyIdMax is equal to 0, TemporalIdMax is equal to 4 and DQIdMax is equal to 3. extended\_spatial\_scalability is equal to 0. SpatialResolutionChangeFlag is equal to 0. no\_inter\_layer\_pred\_flag is equal to 0. use\_ref\_base\_pic\_flag is equal to 1 for access units with temporal\_id equal to 0, specifying that reference base pictures may be used as reference pictures for the inter prediction process. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_header\_restriction\_flag is equal to 0 and store\_ref\_base\_pic\_flag is equal to 1 for access units with temporal\_id equal to 0, specifying that reference base pictures are stored for these access units. slice\_skip\_flag is equal to 0. default\_base\_mode\_flag is equal to 1 for layer representations with quality\_id greater than 1, specifying inter-layer motion and intra prediction. default\_residual\_prediction\_flag is equal to 1 for layer representations with quality\_id greater than 1. inter\_layer\_deblocking\_filter\_control\_present\_flag is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Gaps in frame\_num, reference picture list reordering, memory management control operations and decoding of EI and EP slices of quality enhancement layers, using key pictures and transform coefficient fragmentation, 8x8 transform size with inter-layer motion and intra prediction.

**Purpose**: Check that the decoder can properly handle gaps in frame\_num, reference picture list reordering, memory management control operations and EI and EP coded slices of quality enhancement layers, using key pictures and transform coefficient fragmentation, 8x8 transform size with inter-layer motion and intra prediction.

#### 6.6.30.7 Test bitstream #SVCBCT-1

**Specification**: All slices are coded as I, P, EI, EP or EB slices. Each layer representation contains only one slice. disable\_deblocking\_filter\_idc is equal to 0. entropy\_coding\_mode\_flag is equal to 0 for layer representation with dependency\_id equal to 0, specifying the CAVLC parsing process, and entropy\_coding\_mode\_flag is equal to 1 for layer representation with dependency\_id equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. gaps\_in\_frame\_num\_value\_allowed\_flag is equal to 1. Reference picture list reordering and memory management control operations are used. transform\_8x8\_mode\_flag is equal to 1 for layer representation with dependency\_id equal to 1, specifying that 8x8 transform decoding process may be in use. DependencyIdMax is equal to 1, TemporalIdMax is equal to 4 and DQIdMax is equal to 16. extended\_spatial\_scalability is equal to 0. SpatialResolutionChangeFlag is equal to 0. no\_inter\_layer\_pred\_flag is equal to 0. use\_ref\_base\_pic\_flag is equal to 1, specifying that reference base pictures are not used as reference pictures for the inter prediction process. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_header\_restriction\_flag is equal to 0 and store\_ref\_base\_pic\_flag is equal to 0, specifying that reference base picture are not stored. slice\_skip\_flag is equal to 0. adaptive\_base\_mode\_flag is equal to 1, specifying that inter-layer motion and inter-layer intra prediction is enabled. adaptive\_motion\_prediction\_flag is equal to 1, specifying that inter-layer motion prediction is enabled. adaptive\_residual\_prediction\_flag is equal to 1, specifying that inter-layer residual prediction is enabled. inter\_layer\_deblocking\_filter\_control\_present\_flag is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Gaps in frame\_num, reference picture list reordering, memory management control operations and decoding of EI, EP and EB coded slices of a quality and temporal enhancement layer, 8x8 transform size with inter-layer motion, intra and residual prediction and CABAC parsing.

**Purpose**: Check that the decoder can properly handle gaps in frame\_num, reference picture list reordering, memory management control operations and EI, EP and EB coded slices of a quality and temporal enhancement layer, 8x8 transform size with inter-layer motion, intra and residual prediction and CABAC parsing.

#### 6.6.30.8 Test bitstream #SVCBMT-1

**Specification**: All slices are coded as I, P, EI or EP slices. Only the first frame is coded as an IDR access unit and each dependency representation contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 2. Reference picture list reordering is used. DependencyIdMax is equal to 0, TemporalIdMax is equal to 3, and DQIdMax is equal to 1. extended\_spatial\_scalability is equal to 0, SpatialResolutionChangeFlag is equal to 0, chroma\_phase\_x\_plus1\_flag is equal to 1, and chroma\_phase\_y\_plus1 is equal to 1. no\_inter\_layer\_pred\_flag is equal to 0, slice\_header\_restriction\_flag is equal to 0, scan\_idx\_start is equal to 0, and scan\_idx\_end is equal to 15. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_skip\_flag is equal to 0, adaptive\_base\_mode\_flag is equal to 0 (with default\_base\_mode\_flag equal to 1), adaptive\_motion\_prediction\_flag is equal to 0 (with default\_motion\_prediction\_flag equal to 1), and adaptive\_residual\_prediction\_flag is equal to 1. disable\_inter\_layer\_deblocking\_filter\_idc is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Reference picture list reordering and decoding of EI and EP coded slices of a quality enhancement layer.

**Purpose**: Check that the decoder can properly handle reference picture list reordering and EI and EP coded slices of a quality enhancement layer.

#### 6.6.30.9 Test bitstream #SVCBMT-2

**Specification**: All slices are coded as I, P, EI or EP slices. Only the first frame is coded as an IDR access unit and each dependency representation contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 2. Reference picture list reordering and memory management control operations are used. DependencyIdMax is equal to 0, TemporalIdMax is equal to 3, and DQIdMax is equal to 1. extended\_spatial\_scalability is equal to 0, SpatialResolutionChangeFlag is equal to 0, chroma\_phase\_x\_plus1\_flag is equal to 1, and chroma\_phase\_y\_plus1 is equal to 1. no\_inter\_layer\_pred\_flag is equal to 0, slice\_header\_restriction\_flag is equal to 0, scan\_idx\_start is equal to 0, and scan\_idx\_end is equal to 15. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_skip\_flag is equal to 0, adaptive\_base\_mode\_flag is equal to 0 (with default\_base\_mode\_flag equal to 1), adaptive\_motion\_prediction\_flag is equal to 0 (with default\_motion\_prediction\_flag equal to 1), and adaptive\_residual\_prediction\_flag is equal to 1. disable\_inter\_layer\_deblocking\_filter\_idc is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Reference picture list reordering, memory management control operations, and decoding of EI and EP coded slices of a quality enhancement layer.

**Purpose**: Check that the decoder can properly handle reference picture list reordering, memory management control operations, and EI and EP coded slices of a quality enhancement layer.

#### 6.6.30.10 Test bitstream #SVCBMT-3

**Specification**: All slices are coded as I, P, EI or EP slices. Only the first frame is coded as an IDR access unit and each dependency representation can contain more than one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 2. Reference picture list reordering and memory management control operations are used. slice\_qp\_delta is equal to a non-zero value to change the quantizer scale at each slice and mb\_qp\_delta is equal to a non-zero value to change the quantizer scale at some macroblocks. DependencyIdMax is equal to 0, TemporalIdMax is equal to 3, and DQIdMax is equal to 1. extended\_spatial\_scalability is equal to 0, SpatialResolutionChangeFlag is equal to 0, chroma\_phase\_x\_plus1\_flag is equal to 1, and chroma\_phase\_y\_plus1 is equal to 1. no\_inter\_layer\_pred\_flag is equal to 0, slice\_header\_restriction\_flag is equal to 0, scan\_idx\_start is equal to 0, and scan\_idx\_end is equal to 15. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_skip\_flag is equal to 0, adaptive\_base\_mode\_flag is equal to 0 (with default\_base\_mode\_flag equal to 1), adaptive\_motion\_prediction\_flag is equal to 0 (with default\_motion\_prediction\_flag equal to 1), and adaptive\_residual\_prediction\_flag is equal to 1. disable\_inter\_layer\_deblocking\_filter\_idc is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Reference picture list reordering, memory management control operations, and decoding of EI and EP coded slices of a quality enhancement layer, with non-zero values of slice\_qp\_delta and mb\_qp\_delta.

**Purpose**: Check that the decoder can properly handle reference picture list reordering, memory management control operations, and EI and EP coded slices of a quality enhancement layer, with non-zero values of slice\_qp\_delta and mb\_qp\_delta.

#### 6.6.30.11 Test bitstream #SVCBMT-4

**Specification**: All slices are coded as I, P, EI or EP slices. Only the first frame is coded as an IDR access unit and each dependency representation can contain more than one slice. disable\_deblocking\_filter\_idc is equal to 2, specifying enabling of deblocking filter process (without slice boundary deblocking). Additionally, slice\_alpha\_c0\_offset\_div2 and slice\_beta\_offset\_div2 are not equal to 0. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 2. Reference picture list reordering and memory management control operations are used. slice\_qp\_delta is equal to a non-zero value to change the quantizer scale at each slice and mb\_qp\_delta is equal to a non-zero value to change the quantizer scale at some macroblocks. DependencyIdMax is equal to 0, TemporalIdMax is equal to 3, and DQIdMax is equal to 1. extended\_spatial\_scalability is equal to 0, SpatialResolutionChangeFlag is equal to 0, chroma\_phase\_x\_plus1\_flag is equal to 1, and chroma\_phase\_y\_plus1 is equal to 1. no\_inter\_layer\_pred\_flag is equal to 0, slice\_header\_restriction\_flag is equal to 0, scan\_idx\_start is equal to 0, and scan\_idx\_end is equal to 15. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_skip\_flag is equal to 0, adaptive\_base\_mode\_flag is equal to 0 (with default\_base\_mode\_flag equal to 1), adaptive\_motion\_prediction\_flag is equal to 0 (with default\_motion\_prediction\_flag equal to 1), and adaptive\_residual\_prediction\_flag is equal to 1. disable\_inter\_layer\_deblocking\_filter\_idc is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Reference picture list reordering, memory management control operations, and decoding of EI and EP coded slices of a quality enhancement layer, with non-zero values of slice\_qp\_delta and mb\_qp\_delta, using deblocking filter.

**Purpose**: Check that the decoder can properly handle reference picture list reordering, memory management control operations, and EI and EP coded slices of a quality enhancement layer, with non-zero values of slice\_qp\_delta and mb\_qp\_delta, using deblocking filter.

#### 6.6.30.12 Test bitstream #SVCBMT-5

**Specification**: All slices are coded as I, P, EI or EP slices. Only the first frame is coded as an IDR access unit and each dependency representation can contain more than one slice and slice groups greater than 1. disable\_deblocking\_filter\_idc is equal to 2, specifying enabling of deblocking filter process (without slice boundary deblocking). Additionally, slice\_alpha\_c0\_offset\_div2 and slice\_beta\_offset\_div2 are not equal to 0. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. Reference picture list reordering is used. slice\_qp\_delta is equal to a non-zero value to change the quantizer scale at each slice and mb\_qp\_delta is equal to a non-zero value to change the quantizer scale at some macroblocks. DependencyIdMax is equal to 0, TemporalIdMax is equal to 3, and DQIdMax is equal to 1. extended\_spatial\_scalability is equal to 0, SpatialResolutionChangeFlag is equal to 0, chroma\_phase\_x\_plus1\_flag is equal to 1, and chroma\_phase\_y\_plus1 is equal to 1. no\_inter\_layer\_pred\_flag is equal to 0, slice\_header\_restriction\_flag is equal to 0, scan\_idx\_start is equal to 0, and scan\_idx\_end is equal to 15. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_skip\_flag is equal to 0, adaptive\_base\_mode\_flag is equal to 0 (with default\_base\_mode\_flag equal to 1), adaptive\_motion\_prediction\_flag is equal to 0 (with default\_motion\_prediction\_flag equal to 1), and adaptive\_residual\_prediction\_flag is equal to 1. disable\_inter\_layer\_deblocking\_filter\_idc is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Reference picture list reordering, memory management control operations, and decoding of EI and EP coded slices of a quality enhancement layer, with non-zero values of slice\_qp\_delta and mb\_qp\_delta, using deblocking filter and slice groups.

**Purpose**: Check that the decoder can properly handle reference picture list reordering, memory management control operations, and EI and EP coded slices of a quality enhancement layer, with non-zero values of slice\_qp\_delta and mb\_qp\_delta, using deblocking filter and slice groups.

#### 6.6.30.13 Test bitstream #SVCBMT-6

**Specification**: All slices are coded as I, P, EI or EP slices. Only the first frame is coded as an IDR access unit and each dependency representation can contain more than one slice. disable\_deblocking\_filter\_idc is equal to 2, specifying enabling of deblocking filter process (without slice boundary deblocking). Additionally, slice\_alpha\_c0\_offset\_div2 and slice\_beta\_offset\_div2 are not equal to 0. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. Reference picture list reordering is used. slice\_qp\_delta is equal to a non-zero value to change the quantizer scale at each slice and mb\_qp\_delta is equal to a non-zero value to change the quantizer scale at some macroblocks. DependencyIdMax is equal to 0, TemporalIdMax is equal to 3, and DQIdMax is equal to 1. extended\_spatial\_scalability is equal to 0, SpatialResolutionChangeFlag is equal to 0, chroma\_phase\_x\_plus1\_flag is equal to 1, and chroma\_phase\_y\_plus1 is equal to 1. no\_inter\_layer\_pred\_flag is equal to 0, slice\_header\_restriction\_flag is equal to 0, scan\_idx\_start is equal to 0, and scan\_idx\_end is equal to 15. seq\_tcoeff\_level\_prediction\_flag is equal to 1 (with adaptive\_tcoeff\_level\_prediction\_flag equal to 0). slice\_skip\_flag is equal to 0, adaptive\_base\_mode\_flag is equal to 0 (with default\_base\_mode\_flag equal to 1), adaptive\_motion\_prediction\_flag is equal to 0 (with default\_motion\_prediction\_flag equal to 1), and adaptive\_residual\_prediction\_flag is equal to 1. disable\_inter\_layer\_deblocking\_filter\_idc is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Reference picture list reordering, memory management control operations, and decoding of EI and EP coded slices of a quality enhancement layer, using an alternative inter-layer prediction process for translation to an AVC bitstream, with non-zero values of slice\_qp\_delta and mb\_qp\_delta, using deblocking filter.

**Purpose**: Check that the decoder can properly handle reference picture list reordering, memory management control operations, and EI and EP coded slices of a quality enhancement layer, using an alternative inter-layer prediction process for translation to an AVC bitstream, with non-zero values of slice\_qp\_delta and mb\_qp\_delta, using deblocking filter.

#### 6.6.30.14 Test bitstream #SVCBMT-7

**Specification**: All slices are coded as I, P, EI or EP slices. Only the first frame is coded as an IDR access unit and each dependency representation can contain more than one slice. disable\_deblocking\_filter\_idc is equal to 2, specifying enabling of deblocking filter process (without slice boundary deblocking). Additionally, slice\_alpha\_c0\_offset\_div2 and slice\_beta\_offset\_div2 are not equal to 0. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. Reference picture list reordering is used. slice\_qp\_delta is equal to a non-zero value to change the quantizer scale at each slice and mb\_qp\_delta is equal to a non-zero value to change the quantizer scale at some macroblocks. DependencyIdMax is equal to 0, TemporalIdMax is equal to 3, and DQIdMax is equal to 1. extended\_spatial\_scalability is equal to 0, SpatialResolutionChangeFlag is equal to 0, chroma\_phase\_x\_plus1\_flag is equal to 1, and chroma\_phase\_y\_plus1 is equal to 1. no\_inter\_layer\_pred\_flag is equal to 0, slice\_header\_restriction\_flag is equal to 0, scan\_idx\_start is equal to 0, and scan\_idx\_end is equal to 15. seq\_tcoeff\_level\_prediction\_flag is equal to 1 (with adaptive\_tcoeff\_level\_prediction\_flag equal to 1). slice\_skip\_flag is equal to 0, adaptive\_base\_mode\_flag is equal to 0 (with default\_base\_mode\_flag equal to 1), adaptive\_motion\_prediction\_flag is equal to 0 (with default\_motion\_prediction\_flag equal to 1), and adaptive\_residual\_prediction\_flag is equal to 1. disable\_inter\_layer\_deblocking\_filter\_idc is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Reference picture list reordering, memory management control operations, and decoding of EI and EP coded slices of a quality enhancement layer, enabling an alternative inter-layer prediction process by macroblock for translation to an AVC bitstream, with non-zero values of slice\_qp\_delta and mb\_qp\_delta, using deblocking filter.

**Purpose**: Check that the decoder can properly handle reference picture list reordering, memory management control operations, and EI and EP coded slices of a quality enhancement layer, enabling an alternative inter-layer prediction process by macroblock for translation to an AVC bitstream, with non-zero values of slice\_qp\_delta and mb\_qp\_delta, using deblocking filter.

#### 6.6.30.15 Test bitstream #SVCBMT-8

**Specification**: All slices are coded as I, P, EI or EP slices. Only the first frame is coded as an IDR access unit and each dependency representation can contain more than one slice. disable\_deblocking\_filter\_idc is equal to 2, specifying enabling of deblocking filter process (without slice boundary deblocking). Additionally, slice\_alpha\_c0\_offset\_div2 and slice\_beta\_offset\_div2 are not equal to 0. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. chroma\_qp\_index\_offset is not equal to 0. pic\_order\_cnt\_type is equal to 2. Reference picture list reordering and memory management control operations are used. slice\_qp\_delta is equal to a non-zero value to change the quantizer scale at each slice and mb\_qp\_delta is equal to a non-zero value to change the quantizer scale at some macroblocks. DependencyIdMax is equal to 0, TemporalIdMax is equal to 3, and DQIdMax is equal to 1. extended\_spatial\_scalability is equal to 0, SpatialResolutionChangeFlag is equal to 0, chroma\_phase\_x\_plus1\_flag is equal to 1, and chroma\_phase\_y\_plus1 is equal to 1. no\_inter\_layer\_pred\_flag is equal to 0, slice\_header\_restriction\_flag is equal to 0, scan\_idx\_start is equal to 0, and scan\_idx\_end is equal to 15. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_skip\_flag is equal to 0, adaptive\_base\_mode\_flag is equal to 0 (with default\_base\_mode\_flag equal to 1), adaptive\_motion\_prediction\_flag is equal to 0 (with default\_motion\_prediction\_flag equal to 1), and adaptive\_residual\_prediction\_flag is equal to 1. disable\_inter\_layer\_deblocking\_filter\_idc is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Reference picture list reordering, memory management control operations, and decoding of EI and EP coded slices of a quality enhancement layer, with non-zero values of slice\_qp\_delta and mb\_qp\_delta, using deblocking filter, and non-zero chroma\_qp\_index\_offset.

**Purpose**: Check that the decoder can properly handle reference picture list reordering, memory management control operations, and EI and EP coded slices of a quality enhancement layer, with non-zero values of slice\_qp\_delta and mb\_qp\_delta, using deblocking filter, and non-zero chroma\_qp\_index\_offset.

#### 6.6.30.16 Test bitstream #SVCBMT-9

**Specification**: All slices are coded as I, P, EI or EP slices. Only the first frame is coded as an IDR access unit and each dependency representation can contain more than one slice. disable\_deblocking\_filter\_idc is equal to 2, specifying enabling of deblocking filter process (without slice boundary deblocking). Additionally, slice\_alpha\_c0\_offset\_div2 and slice\_beta\_offset\_div2 are not equal to 0. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 2. Reference picture list reordering and memory management control operations are used. slice\_qp\_delta is equal to a non-zero value to change the quantizer scale at each slice and mb\_qp\_delta is equal to a non-zero value to change the quantizer scale at some macroblocks. DependencyIdMax is equal to 0, TemporalIdMax is equal to 3, and DQIdMax is equal to 1. extended\_spatial\_scalability is equal to 0, SpatialResolutionChangeFlag is equal to 0, chroma\_phase\_x\_plus1\_flag is equal to 1, and chroma\_phase\_y\_plus1 is equal to 1. no\_inter\_layer\_pred\_flag is equal to 0, slice\_header\_restriction\_flag is equal to 0, scan\_idx\_start is equal to 0, and scan\_idx\_end is equal to 15. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_skip\_flag is equal to 0, adaptive\_base\_mode\_flag is equal to 0 (with default\_base\_mode\_flag equal to 1), adaptive\_motion\_prediction\_flag is equal to 0 (with default\_motion\_prediction\_flag equal to 1), and adaptive\_residual\_prediction\_flag is equal to 1. disable\_inter\_layer\_deblocking\_filter\_idc is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Reference picture list reordering, memory management control operations, and decoding of EI and EP coded slices of a quality enhancement layer, with non-zero values of slice\_qp\_delta and mb\_qp\_delta, using deblocking filter with CABAC parsing.

**Purpose**: Check that the decoder can properly handle reference picture list reordering, memory management control operations, and EI and EP coded slices of a quality enhancement layer, with non-zero values of slice\_qp\_delta and mb\_qp\_delta, using deblocking filter with CABAC parsing.

#### 6.6.30.17 Test bitstream #SVCBMT-10

**Specification**: All slices are coded as I, P, EI or EP slices. Only the first frame is coded as an IDR access unit and each dependency representation can contain more than one slice. disable\_deblocking\_filter\_idc is equal to 2, specifying enabling of deblocking filter process (without slice boundary deblocking). Additionally, slice\_alpha\_c0\_offset\_div2 and slice\_beta\_offset\_div2 are not equal to 0. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 2. Reference picture list reordering and memory management control operations are used. slice\_qp\_delta is equal to a non-zero value to change the quantizer scale at each slice and mb\_qp\_delta is equal to a non-zero value to change the quantizer scale at some macroblocks. DependencyIdMax is equal to 0, TemporalIdMax is equal to 3, and DQIdMax is equal to 1. extended\_spatial\_scalability is equal to 0, SpatialResolutionChangeFlag is equal to 0, chroma\_phase\_x\_plus1\_flag is equal to 1, and chroma\_phase\_y\_plus1 is equal to 1. no\_inter\_layer\_pred\_flag is equal to 0, slice\_header\_restriction\_flag is equal to 0, scan\_idx\_start is equal to 0, and scan\_idx\_end is equal to 15. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_skip\_flag is equal to 1. disable\_inter\_layer\_deblocking\_filter\_idc is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Reference picture list reordering, memory management control operations, and decoding of EI and EP skipped slices of a quality enhancement layer, with non-zero values of slice\_qp\_delta and mb\_qp\_delta, using deblocking filter.

**Purpose**: Check that the decoder can properly handle reference picture list reordering, memory management control operations, and EI and EP skipped slices of a quality enhancement layer with non-zero values of slice\_qp\_delta and mb\_qp\_delta, using deblocking filter.

#### 6.6.30.18 Test bitstream #SVCBMT-11

**Specification**: All slices are coded as I, P, EI or EP slices. The first frame and some other frames are coded as IDR access unit and each dependency representation can contain more than one slice. disable\_deblocking\_filter\_idc is equal to 2, specifying enabling of deblocking filter process (without slice boundary deblocking). Additionally, slice\_alpha\_c0\_offset\_div2 and slice\_beta\_offset\_div2 are not equal to 0. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 2. Reference picture list reordering and memory management control operations are used. slice\_qp\_delta is equal to a non-zero value to change the quantizer scale at each slice and mb\_qp\_delta is equal to a non-zero value to change the quantizer scale at some macroblocks. DependencyIdMax is equal to 0, TemporalIdMax is equal to 3, and DQIdMax is equal to 1. extended\_spatial\_scalability is equal to 0, SpatialResolutionChangeFlag is equal to 0, chroma\_phase\_x\_plus1\_flag is equal to 1, and chroma\_phase\_y\_plus1 is equal to 1. no\_inter\_layer\_pred\_flag is equal to 0, slice\_header\_restriction\_flag is equal to 0, scan\_idx\_start is equal to 0, and scan\_idx\_end is equal to 15. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_skip\_flag is equal to 0, adaptive\_base\_mode\_flag is equal to 0 (with default\_base\_mode\_flag equal to 1), adaptive\_motion\_prediction\_flag is equal to 0 (with default\_motion\_prediction\_flag equal to 1), and adaptive\_residual\_prediction\_flag is equal to 1. disable\_inter\_layer\_deblocking\_filter\_idc is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Reference picture list reordering, memory management control operations, and decoding of EI and EP coded slices of a quality enhancement layer, with non-zero values of slice\_qp\_delta and mb\_qp\_delta, using deblocking filter and more than one IDR.

**Purpose**: Check that the decoder can properly handle reference picture list reordering, memory management control operations, and EI and EP coded slices of a quality enhancement layer, with non-zero values of slice\_qp\_delta and mb\_qp\_delta, using deblocking filter and more than one IDR.

#### 6.6.30.19 Test bitstream #SVCBMT-12

**Specification**: All slices are coded as I, P, EI or EP slices. The first frame and some other frames are coded as IDR access unit and each dependency representation can contain more than one slice. disable\_deblocking\_filter\_idc is equal to 2, specifying enabling of deblocking filter process (without slice boundary deblocking). Additionally, slice\_alpha\_c0\_offset\_div2 and slice\_beta\_offset\_div2 are not equal to 0. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 2. Reference picture list reordering and memory management control operations are used. slice\_qp\_delta is equal to a non-zero value to change the quantizer scale at each slice and mb\_qp\_delta is equal to a non-zero value to change the quantizer scale at some macroblocks. DependencyIdMax is equal to 0, TemporalIdMax is equal to 3, and DQIdMax is equal to 1. extended\_spatial\_scalability is equal to 0, SpatialResolutionChangeFlag is equal to 0, chroma\_phase\_x\_plus1\_flag is equal to 1, and chroma\_phase\_y\_plus1 is equal to 1. no\_inter\_layer\_pred\_flag is equal to 0, slice\_header\_restriction\_flag is equal to 0, scan\_idx\_start is equal to 0, and scan\_idx\_end is equal to 15. use\_ref\_base\_pic\_flag is equal to 1 and store\_ref\_base\_pic\_flag is equal to 1. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_skip\_flag is equal to 0, adaptive\_base\_mode\_flag is equal to 0 (with default\_base\_mode\_flag equal to 1), adaptive\_motion\_prediction\_flag is equal to 0 (with default\_motion\_prediction\_flag equal to 1), and adaptive\_residual\_prediction\_flag is equal to 1. disable\_inter\_layer\_deblocking\_filter\_idc is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Reference picture list reordering, memory management control operations, and decoding of EI and EP coded slices of a quality enhancement layer, with non-zero values of slice\_qp\_delta and mb\_qp\_delta, using deblocking filter, more than one IDR and key pictures.

**Purpose**: Check that the decoder can properly handle reference picture list reordering, memory management control operations, and EI and EP coded slices of a quality enhancement layer, with non-zero values of slice\_qp\_delta and mb\_qp\_delta, using deblocking filter, more than one IDR and key pictures.

#### 6.6.30.20 Test bitstream #SVCBMT-13

**Specification**: All slices are coded as I, P, EI or EP slices. Only the first frame is coded as an IDR access unit and each dependency representation contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. Reference picture list reordering is used. DependencyIdMax is equal to 0, TemporalIdMax is equal to 3, and DQIdMax is equal to 2. extended\_spatial\_scalability is equal to 0, SpatialResolutionChangeFlag is equal to 0, chroma\_phase\_x\_plus1\_flag is equal to 1, and chroma\_phase\_y\_plus1 is equal to 1. no\_inter\_layer\_pred\_flag is equal to 0, slice\_header\_restriction\_flag is equal to 0, scan\_idx\_start is equal to 0, and scan\_idx\_end is equal to 15. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_skip\_flag is equal to 0, adaptive\_base\_mode\_flag is equal to 0 (with default\_base\_mode\_flag equal to 1), adaptive\_motion\_prediction\_flag is equal to 0 (with default\_motion\_prediction\_flag equal to 1), and adaptive\_residual\_prediction\_flag is equal to 1. disable\_inter\_layer\_deblocking\_filter\_idc is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Reference picture list reordering, memory management control operations, and decoding of EI and EP coded slices of two quality enhancement layers.

**Purpose**: Check that the decoder can properly handle reference picture list reordering, memory management control operations, and EI and EP coded slices of two quality enhancement layers.

#### 6.6.30.21 Test bitstream #SVCBS-1

**Specification**: All slices are coded as I, P, EI or EP slices. Only the first frame is coded as an IDR access unit and each dependency representation contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 2. DependencyIdMax is equal to 1, TemporalIdMax is equal to 0, and DQIdMax is equal to 16. extended\_spatial\_scalability is equal to 0, SpatialResolutionChangeFlag is equal to 1, chroma\_phase\_x\_plus1\_flag is equal to 1, and chroma\_phase\_y\_plus1 is equal to 1. constrained\_intra\_resampling\_flag is equal to 0, no\_inter\_layer\_pred\_flag is equal to 0, slice\_header\_restriction\_flag is equal to 0, scan\_idx\_start is equal to 0, and scan\_idx\_end is equal to 15. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_skip\_flag is equal to 0, adaptive\_base\_mode\_flag is equal to 1, adaptive\_motion\_prediction\_flag is equal to 0 (with default\_motion\_prediction\_flag equal to 1), and adaptive\_residual\_prediction\_flag is equal to 1. disable\_inter\_layer\_deblocking\_filter\_idc is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of EI and EP coded slices of a spatial enhancement layer.

**Purpose**: Check that the decoder can properly handle EI and EP coded slices of a spatial enhancement layer.

#### 6.6.30.22 Test bitstream #SVCBS-2

**Specification**: All slices are coded as I, P, EI or EP slices. Only the first frame is coded as an IDR access unit and each dependency representation can contain more than one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 2. DependencyIdMax is equal to 1, TemporalIdMax is equal to 0, and DQIdMax is equal to 16. extended\_spatial\_scalability is equal to 0, SpatialResolutionChangeFlag is equal to 1, chroma\_phase\_x\_plus1\_flag is equal to 1, and chroma\_phase\_y\_plus1 is equal to 1. constrained\_intra\_resampling\_flag is equal to 0, no\_inter\_layer\_pred\_flag is equal to 0, slice\_header\_restriction\_flag is equal to 0, scan\_idx\_start is equal to 0, and scan\_idx\_end is equal to 15. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_skip\_flag is equal to 0, adaptive\_base\_mode\_flag is equal to 1, adaptive\_motion\_prediction\_flag is equal to 0 (with default\_motion\_prediction\_flag equal to 1), and adaptive\_residual\_prediction\_flag is equal to 1. disable\_inter\_layer\_deblocking\_filter\_idc is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of EI and EP coded slices of a spatial enhancement layer.

**Purpose**: Check that the decoder can properly handle EI and EP coded slices of a spatial enhancement layer.

#### 6.6.30.23 Test bitstream #SVCBS-3

**Specification**: All slices are coded as I, P, EI or EP slices. Each dependency representation contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. num\_ref\_frames is equal to 1. DependencyIdMax is equal to 1, TemporalIdMax is equal to 0 and DQIdMax is equal to 16. extended\_spatial\_scalability is equal to 0. SpatialResolutionChangeFlag is equal to 1. no\_inter\_layer\_pred\_flag is equal to 0. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_header\_restriction\_flag is equal to 1. slice\_skip\_flag is equal to 0. adaptive\_base\_mode\_flag is equal to 1, specifying enabling inter-layer motion and intra prediction. adaptive\_motion\_prediction\_flag is equal to 1, specifying enabling an alternative motion vectors prediction process. adaptive\_residual\_prediction\_flag is equal to 1, specifying enabling inter-layer residual prediction. inter\_layer\_deblocking\_filter\_control\_present\_flag is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of EI and EP coded slices of a spatial enhancement layer, using inter-layer motion, intra and residual prediction.

**Purpose**: Check that the decoder can properly handle EI and EP coded slices of a spatial enhancement layer in the bitstream, using inter-layer motion, intra and residual prediction.

#### 6.6.30.24 Test bitstream #SVCBS-4

**Specification**: All slices are coded as I, P, EI or EP slices. Each dependency representation contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. num\_ref\_frames is equal to 1. DependencyIdMax is equal to 1, TemporalIdMax is equal to 0 and DQIdMax is equal to 16. extended\_spatial\_scalability is equal to 0. SpatialResolutionChangeFlag is equal to 1. no\_inter\_layer\_pred\_flag is equal to 0. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_header\_restriction\_flag is equal to 1. slice\_skip\_flag is equal to 0. adaptive\_base\_mode\_flag is equal to 1, specifying enabling inter-layer motion and intra prediction. adaptive\_motion\_prediction\_flag is equal to 1, specifying enabling an alternative motion vectors prediction process. adaptive\_residual\_prediction\_flag is equal to 1, specifying enabling inter-layer residual prediction. inter\_layer\_deblocking\_filter\_control\_present\_flag is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of EI and EP coded slices of a spatial enhancement layer, using inter-layer motion, intra and residual prediction.

**Purpose**: Check that the decoder can properly handle EI and EP coded slices of a spatial enhancement layer in the bitstream, using inter-layer motion, intra and residual prediction.

#### 6.6.30.25 Test bitstream #SVCBS-5

**Specification**: All slices are coded as I, P, EI or EP slices. Each dependency representation contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. num\_ref\_frames is equal to 1. DependencyIdMax is equal to 1, TemporalIdMax is equal to 0 and DQIdMax is equal to 16. extended\_spatial\_scalability is equal to 0. SpatialResolutionChangeFlag is equal to 1. no\_inter\_layer\_pred\_flag is equal to 0. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_header\_restriction\_flag is equal to 1. slice\_skip\_flag is equal to 0. adaptive\_base\_mode\_flag is equal to 1, specifying enabling inter-layer motion and intra prediction. adaptive\_motion\_prediction\_flag is equal to 1, specifying enabling an alternative motion vectors prediction process. adaptive\_residual\_prediction\_flag is equal to 1, specifying enabling inter-layer residual prediction. inter\_layer\_deblocking\_filter\_control\_present\_flag is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of EI and EP coded slices of a spatial enhancement layer, using inter-layer motion, intra and residual prediction.

**Purpose**: Check that the decoder can properly handle EI and EP coded slices of a spatial enhancement layer in the bitstream, using inter-layer motion, intra and residual prediction.

#### 6.6.30.26 Test bitstream #SVCBS-6

**Specification**: All slices are coded as I, P, EI or EP slices. Each dependency representation contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. num\_ref\_frames is equal to 1. DependencyIdMax is equal to 2, TemporalIdMax is equal to 0 and DQIdMax is equal to 32. extended\_spatial\_scalability is equal to 0. SpatialResolutionChangeFlag is equal to 1. no\_inter\_layer\_pred\_flag is equal to 0. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_header\_restriction\_flag is equal to 1. slice\_skip\_flag is equal to 0. adaptive\_base\_mode\_flag is equal to 1, specifying enabling inter-layer motion and intra prediction. adaptive\_motion\_prediction\_flag is equal to 1, specifying enabling an alternative motion vectors prediction process. adaptive\_residual\_prediction\_flag is equal to 1, specifying enabling inter-layer residual prediction. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of EI and EP coded slices of two spatial enhancement layers, using inter-layer motion, intra and residual prediction.

**Purpose**: Check that the decoder can properly handle EI and EP coded slices of two spatial enhancement layers in the bitstream, using inter-layer motion, intra and residual prediction.

#### 6.6.30.27 Test bitstream #SVCBS-7

**Specification**: All slices are coded as I, P, EI or EP slices. Each dependency representation contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. pic\_order\_cnt\_type is equal to 0. num\_ref\_frames is equal to 1. DependencyIdMax is equal to 1, TemporalIdMax is equal to 0 and DQIdMax is equal to 16. extended\_spatial\_scalability is equal to 0. SpatialResolutionChangeFlag is equal to 1. no\_inter\_layer\_pred\_flag is equal to 1, specifying disabling inter-layer prediction. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_header\_restriction\_flag is equal to 1. inter\_layer\_deblocking\_filter\_control\_present\_flag is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of EI and EP coded slices of a spatial enhancement layer without inter-layer prediction.

**Purpose**: Check that the decoder can properly handle EI and EP coded slices of a spatial enhancement layer without inter-layer prediction.

#### 6.6.30.28 Test bitstream #SVCBS-8

**Specification**: All slices are coded as I, P, EI, EP or EB slices. Each dependency representation contains only one slice. disable\_deblocking\_filter\_idc is equal to 0. entropy\_coding\_mode\_flag is equal to 0 for dependency layer with dependency\_id equal to 0, specifying the CAVLC parsing process, and entropy\_coding\_mode\_flag is equal to 1 for dependency layer with dependency\_id equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. gaps\_in\_frame\_num\_value\_allowed\_flag is equal to 1. Reference picture list reordering and memory management control operations are used. transform\_8x8\_mode\_flag is equal to 1 for dependency layer with dependency\_id equal to 1, specifying that 8x8 transform decoding process may be in use. DependencyIdMax is equal to 1, TemporalIdMax is equal to 4 and DQIdMax is equal to 16. extended\_spatial\_scalability is equal to 1. SpatialResolutionChangeFlag is equal to 1. no\_inter\_layer\_pred\_flag is equal to 0. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_header\_restriction\_flag is equal to 0. slice\_skip\_flag is equal to 0. adaptive\_base\_mode\_flag is equal to 1, specifying that inter-layer motion and inter-layer intra prediction are enabled. adaptive\_motion\_prediction\_flag is equal to 1, specifying that inter-layer motion prediction is enabled. adaptive\_residual\_prediction\_flag is equal to 1, specifying that inter-layer residual prediction is enabled. inter\_layer\_deblocking\_filter\_control\_present\_flag is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Gaps in frame\_num, reference picture list reordering, memory management control operations and decoding of EI, EP and EB coded slices of a spatial enhancement layer, using 8x8 transform size with inter-layer motion, intra and residual prediction and CABAC parsing.

**Purpose**: Check that the decoder can properly handle gaps in frame\_num, reference picture list reordering, memory management control operations and EI, EP and EB coded slices of a spatial enhancement layer, using 8x8 transform size with inter-layer motion, intra and residual prediction and CABAC parsing.

#### 6.6.30.29 Test bitstream #SVCBST-1

**Specification**: All slices are coded as I, P, EI or EP slices. Only the first frame is coded as an IDR access unit and each dependency representation can contain more than one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 2. Reference picture list reordering and memory management control operations are used. slice\_qp\_delta is equal to a non-zero value to change the quantizer scale at each slice and mb\_qp\_delta is equal to a non-zero value to change the quantizer scale at some macroblocks. SEI messages are included in the bitstream. DependencyIdMax is equal to 1, TemporalIdMax is equal to 3, and DQIdMax is equal to 16. extended\_spatial\_scalability is equal to 0, SpatialResolutionChangeFlag is equal to 1, chroma\_phase\_x\_plus1\_flag is equal to 1, and chroma\_phase\_y\_plus1 is equal to 1. constrained\_intra\_resampling\_flag is equal to 0, no\_inter\_layer\_pred\_flag is equal to 0, slice\_header\_restriction\_flag is equal to 0, scan\_idx\_start is equal to 0, and scan\_idx\_end is equal to 15. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_skip\_flag is equal to 0, adaptive\_base\_mode\_flag is equal to 1, adaptive\_motion\_prediction\_flag is equal to 0 (with default\_motion\_prediction\_flag equal to 1), and adaptive\_residual\_prediction\_flag is equal to 1. disable\_inter\_layer\_deblocking\_filter\_idc is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Reference picture list reordering, memory management control operations, and decoding of SEI messages, EI and EP coded slices of a spatial enhancement layer, with non-zero values of slice\_qp\_delta and mb\_qp\_delta.

**Purpose**: Check that the decoder can properly handle reference picture list reordering, memory management control operations, SEI messages, EI and EP coded slices of a spatial enhancement layer, with non-zero values of slice\_qp\_delta and mb\_qp\_delta.

#### 6.6.30.30 Test bitstream #SVCBST-2

**Specification**: All slices are coded as I, P, EI or EP slices. Only the first frame is coded as an IDR access unit and each dependency representation can contain more than one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 2. Reference picture list reordering and memory management control operations are used. slice\_qp\_delta is equal to a non-zero value to change the quantizer scale at each slice and mb\_qp\_delta is equal to a non-zero value to change the quantizer scale at some macroblocks. SEI messages are included in the bitstream. DependencyIdMax is equal to 1, TemporalIdMax is equal to 3, and DQIdMax is equal to 16. extended\_spatial\_scalability is equal to 0, SpatialResolutionChangeFlag is equal to 1, chroma\_phase\_x\_plus1\_flag is equal to 1, and chroma\_phase\_y\_plus1 is equal to 1. constrained\_intra\_resampling\_flag is equal to 0, no\_inter\_layer\_pred\_flag is equal to 0, slice\_header\_restriction\_flag is equal to 0, scan\_idx\_start is equal to 0, and scan\_idx\_end is equal to 15. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_skip\_flag is equal to 0, adaptive\_base\_mode\_flag is equal to 1, adaptive\_motion\_prediction\_flag is equal to 1, and adaptive\_residual\_prediction\_flag is equal to 1. disable\_inter\_layer\_deblocking\_filter\_idc is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Reference picture list reordering, memory management control operations, and decoding of SEI messages, EI and EP coded slices of a spatial enhancement layer, with non-zero values of slice\_qp\_delta and mb\_qp\_delta, using adaptive inter-layer motion prediction.

**Purpose**: Check that the decoder can properly handle reference picture list reordering, memory management control operations, SEI messages, EI and EP coded slices of a spatial enhancement layer, with non-zero values of slice\_qp\_delta and mb\_qp\_delta, using adaptive inter-layer motion prediction.

#### 6.6.30.31 Test bitstream #SVCBST-3

**Specification**: All slices are coded as I, P, EI or EP slices. Only the first frame is coded as an IDR access unit and each dependency representation can contain more than one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 2. Reference picture list reordering and memory management control operations are used. slice\_qp\_delta is equal to a non-zero value to change the quantizer scale at each slice and mb\_qp\_delta is equal to a non-zero value to change the quantizer scale at some macroblocks. SEI messages are included in the bitstream. DependencyIdMax is equal to 1, TemporalIdMax is equal to 3, and DQIdMax is equal to 16. extended\_spatial\_scalability is equal to 0, SpatialResolutionChangeFlag is equal to 1, chroma\_phase\_x\_plus1\_flag is equal to 1, and chroma\_phase\_y\_plus1 is equal to 1. constrained\_intra\_resampling\_flag is equal to 1, no\_inter\_layer\_pred\_flag is equal to 0, slice\_header\_restriction\_flag is equal to 0, scan\_idx\_start is equal to 0, and scan\_idx\_end is equal to 15. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_skip\_flag is equal to 0, adaptive\_base\_mode\_flag is equal to 1, adaptive\_motion\_prediction\_flag is equal to 0 (with default\_motion\_prediction\_flag equal to 1), and adaptive\_residual\_prediction\_flag is equal to 1. disable\_inter\_layer\_deblocking\_filter\_idc is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Reference picture list reordering, memory management control operations, and decoding of SEI messages, EI and EP coded slices of a spatial enhancement layer, with non-zero values of slice\_qp\_delta and mb\_qp\_delta, and constrained\_intra\_resampling\_flag equal to 1.

**Purpose**: Check that the decoder can properly handle reference picture list reordering, memory management control operations, SEI messages, EI and EP coded slices of a spatial enhancement layer, with non-zero values of slice\_qp\_delta and mb\_qp\_delta, and constrained\_intra\_resampling\_flag equal to 1.

#### 6.6.30.32 Test bitstream #SVCBST-4

**Specification**: All slices are coded as I, P, EI or EP slices. Only the first frame is coded as an IDR access unit and each dependency representation can contain more than one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 2. Reference picture list reordering and memory management control operations are used. slice\_qp\_delta is equal to a non-zero value to change the quantizer scale at each slice and mb\_qp\_delta is equal to a non-zero value to change the quantizer scale at some macroblocks. SEI messages are included in the bitstream. DependencyIdMax is equal to 1, TemporalIdMax is equal to 3, and DQIdMax is equal to 16. extended\_spatial\_scalability is equal to 0, SpatialResolutionChangeFlag is equal to 1, chroma\_phase\_x\_plus1\_flag is equal to 1, and chroma\_phase\_y\_plus1 is equal to 1. constrained\_intra\_resampling\_flag is equal to 1, no\_inter\_layer\_pred\_flag is equal to 0, slice\_header\_restriction\_flag is equal to 0, scan\_idx\_start is equal to 0, and scan\_idx\_end is equal to 15. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_skip\_flag is equal to 0, adaptive\_base\_mode\_flag is equal to 1, adaptive\_motion\_prediction\_flag is equal to 0 (with default\_motion\_prediction\_flag equal to 1), and adaptive\_residual\_prediction\_flag is equal to 1. disable\_inter\_layer\_deblocking\_filter\_idc is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Reference picture list reordering, memory management control operations, and decoding of SEI messages, EI and EP coded slices of a spatial enhancement layer, with CABAC parsing, non-zero values of slice\_qp\_delta and mb\_qp\_delta, and constrained\_intra\_resampling\_flag equal to 1.

**Purpose**: Check that the decoder can properly handle reference picture list reordering, memory management control operations, SEI messages, EI and EP coded slices of a spatial enhancement layer, with CABAC parsing, non-zero values of slice\_qp\_delta and mb\_qp\_delta, and constrained\_intra\_resampling\_flag equal to 1.

#### 6.6.30.33 Test bitstream #SVCBST-5

**Specification**: All slices are coded as I, P, EI or EP slices. Only the first frame is coded as an IDR access unit and each dependency representation can contain more than one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 2. Reference picture list reordering and memory management control operations are used. slice\_qp\_delta is equal to a non-zero value to change the quantizer scale at each slice and mb\_qp\_delta is equal to a non-zero value to change the quantizer scale at some macroblocks. SEI messages are included in the bitstream. DependencyIdMax is equal to 1, TemporalIdMax is equal to 3, and DQIdMax is equal to 16. extended\_spatial\_scalability is equal to 0, SpatialResolutionChangeFlag is equal to 1, chroma\_phase\_x\_plus1\_flag is equal to 1, and chroma\_phase\_y\_plus1 is equal to 1. constrained\_intra\_resampling\_flag is equal to 1, no\_inter\_layer\_pred\_flag is equal to 0, slice\_header\_restriction\_flag is equal to 0, scan\_idx\_start is equal to 0, and scan\_idx\_end is equal to 15. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_skip\_flag is equal to 1. disable\_inter\_layer\_deblocking\_filter\_idc is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Reference picture list reordering, memory management control operations, and decoding of SEI messages, EI and EP skipped slices of a spatial enhancement layer, with CABAC parsing, non-zero values of slice\_qp\_delta and mb\_qp\_delta, and constrained\_intra\_resampling\_flag equal to 1.

**Purpose**: Check that the decoder can properly handle reference picture list reordering, memory management control operations, SEI messages, EI and EP skipped slices of a spatial enhancement layer, with CABAC parsing, non-zero values of slice\_qp\_delta and mb\_qp\_delta, and constrained\_intra\_resampling\_flag equal to 1.

#### 6.6.30.34 Test bitstream #SVCBST-6

**Specification**: All slices are coded as I, P, EI or EP slices. Only the first frame is coded as an IDR access unit and each dependency representation can contain more than one slice. disable\_deblocking\_filter\_idc is equal to 2, specifying enabling of the deblocking filter process (without slice boundary deblocking). entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 2. Reference picture list reordering and memory management control operations are used. slice\_qp\_delta is equal to a non-zero value to change the quantizer scale at each slice and mb\_qp\_delta is equal to a non-zero value to change the quantizer scale at some macroblocks. SEI messages are included in the bitstream. DependencyIdMax is equal to 1, TemporalIdMax is equal to 3, and DQIdMax is equal to 16. extended\_spatial\_scalability is equal to 0, SpatialResolutionChangeFlag is equal to 1, chroma\_phase\_x\_plus1\_flag is equal to 1, and chroma\_phase\_y\_plus1 is equal to 1. constrained\_intra\_resampling\_flag is equal to 1, no\_inter\_layer\_pred\_flag is equal to 0, slice\_header\_restriction\_flag is equal to 0, scan\_idx\_start is equal to 0, and scan\_idx\_end is equal to 15. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_skip\_flag is equal to 0, adaptive\_base\_mode\_flag is equal to 1, adaptive\_motion\_prediction\_flag is equal to 0 (with default\_motion\_prediction\_flag equal to 1), and adaptive\_residual\_prediction\_flag is equal to 1. disable\_inter\_layer\_deblocking\_filter\_idc is equal to 2. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Reference picture list reordering, memory management control operations, and decoding of SEI messages, EI and EP coded slices of a spatial enhancement layer, with CABAC parsing, non-zero values of slice\_qp\_delta and mb\_qp\_delta, using deblocking filter and constrained\_intra\_resampling\_flag equal to 1.

**Purpose**: Check that the decoder can properly handle reference picture list reordering, memory management control operations, SEI messages, EI and EP coded slices of a spatial enhancement layer, with CABAC parsing, non-zero values of slice\_qp\_delta and mb\_qp\_delta, using deblocking filter and constrained\_intra\_resampling\_flag equal to 1.

#### 6.6.30.35 Test bitstream #SVCBST-7

**Specification**: All slices are coded as I, P, EI or EP slices. Only the first frame is coded as an IDR access unit and each dependency representation can contain more than one slice. disable\_deblocking\_filter\_idc is equal to 0, specifying enabling of the deblocking filter process (with slice boundary deblocking). entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 2. Reference picture list reordering and memory management control operations are used. slice\_qp\_delta is equal to a non-zero value to change the quantizer scale at each slice and mb\_qp\_delta is equal to a non-zero value to change the quantizer scale at some macroblocks. SEI messages are included in the bitstream. DependencyIdMax is equal to 1, TemporalIdMax is equal to 3, and DQIdMax is equal to 16. extended\_spatial\_scalability is equal to 0, SpatialResolutionChangeFlag is equal to 1, chroma\_phase\_x\_plus1\_flag is equal to 1, and chroma\_phase\_y\_plus1 is equal to 1. constrained\_intra\_resampling\_flag is equal to 0, no\_inter\_layer\_pred\_flag is equal to 0, slice\_header\_restriction\_flag is equal to 0, scan\_idx\_start is equal to 0, and scan\_idx\_end is equal to 15. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_skip\_flag is equal to 0, adaptive\_base\_mode\_flag is equal to 1, adaptive\_motion\_prediction\_flag is equal to 0 (with default\_motion\_prediction\_flag equal to 1), and adaptive\_residual\_prediction\_flag is equal to 1. disable\_inter\_layer\_deblocking\_filter\_idc is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Reference picture list reordering, memory management control operations, and decoding of SEI messages, EI and EP coded slices of a spatial enhancement layer, with CABAC parsing, non-zero values of slice\_qp\_delta and mb\_qp\_delta, and use of deblocking filter.

**Purpose**: Check that the decoder can properly handle reference picture list reordering, memory management control operations, SEI messages, EI and EP coded slices of a spatial enhancement layer, with CABAC parsing, non-zero values of slice\_qp\_delta and mb\_qp\_delta, using deblocking filter.

#### 6.6.30.36 Test bitstream #SVCBST-8

**Specification**: All slices are coded as I, P, EI or EP slices. Only the first frame is coded as an IDR access unit and each dependency representation can contain more than one slice. disable\_deblocking\_filter\_idc is equal to 3, specifying enabling of the deblocking filter process (with second pass slice boundary deblocking). Additionally, slice\_alpha\_c0\_offset\_div2 and slice\_beta\_offset\_div2 are not equal to 0. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 2. Reference picture list reordering and memory management control operations are used. slice\_qp\_delta is equal to a non-zero value to change the quantizer scale at each slice and mb\_qp\_delta is equal to a non-zero value to change the quantizer scale at some macroblocks. SEI messages are included in the bitstream. DependencyIdMax is equal to 1, TemporalIdMax is equal to 3, and DQIdMax is equal to 16. extended\_spatial\_scalability is equal to 0, SpatialResolutionChangeFlag is equal to 1, chroma\_phase\_x\_plus1\_flag is equal to 1, and chroma\_phase\_y\_plus1 is equal to 1. constrained\_intra\_resampling\_flag is equal to 1, no\_inter\_layer\_pred\_flag is equal to 0, slice\_header\_restriction\_flag is equal to 0, scan\_idx\_start is equal to 0, and scan\_idx\_end is equal to 15. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_skip\_flag is equal to 0, adaptive\_base\_mode\_flag is equal to 1, adaptive\_motion\_prediction\_flag is equal to 0 (with default\_motion\_prediction\_flag equal to 1), and adaptive\_residual\_prediction\_flag is equal to 2. disable\_inter\_layer\_deblocking\_filter\_idc is equal to 2. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Reference picture list reordering, memory management control operations, and decoding of SEI messages, EI and EP coded slices of a spatial enhancement layer, with CABAC parsing, non-zero values of slice\_qp\_delta and mb\_qp\_delta, using two pass deblocking filter and constrained\_intra\_resampling\_flag equal to 1.

**Purpose**: Check that the decoder can properly handle reference picture list reordering, memory management control operations, SEI messages, EI and EP coded slices of a spatial enhancement layer, with CABAC parsing, non-zero values of slice\_qp\_delta and mb\_qp\_delta, using two pass deblocking filter and constrained\_intra\_resampling\_flag equal to 1.

#### 6.6.30.37 Test bitstream #SVCBST-9

**Specification**: All slices are coded as I, P, EI or EP slices. Only the first frame is coded as an IDR access unit and each dependency representation can contain more than one slice. disable\_deblocking\_filter\_idc is equal to 6, specifying enabling of the deblocking filter process for the luma samples (with second pass slice boundary deblocking). Additionally, slice\_alpha\_c0\_offset\_div2 and slice\_beta\_offset\_div2 are not equal to 0. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 2. Reference picture list reordering and memory management control operations are used. slice\_qp\_delta is equal to a non-zero value to change the quantizer scale at each slice and mb\_qp\_delta is equal to a non-zero value to change the quantizer scale at some macroblocks. SEI messages are included in the bitstream. DependencyIdMax is equal to 1, TemporalIdMax is equal to 3, and DQIdMax is equal to 16. extended\_spatial\_scalability is equal to 0, SpatialResolutionChangeFlag is equal to 1, chroma\_phase\_x\_plus1\_flag is equal to 1, and chroma\_phase\_y\_plus1 is equal to 1. constrained\_intra\_resampling\_flag is equal to 1, no\_inter\_layer\_pred\_flag is equal to 0, slice\_header\_restriction\_flag is equal to 0, scan\_idx\_start is equal to 0, and scan\_idx\_end is equal to 15. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_skip\_flag is equal to 0, adaptive\_base\_mode\_flag is equal to 1, adaptive\_motion\_prediction\_flag is equal to 0 (with default\_motion\_prediction\_flag equal to 1), and adaptive\_residual\_prediction\_flag is equal to 2. disable\_inter\_layer\_deblocking\_filter\_idc is equal to 2. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Reference picture list reordering, memory management control operations, and decoding of SEI messages, EI and EP coded slices of a spatial enhancement layer, with CABAC parsing, non-zero values of slice\_qp\_delta and mb\_qp\_delta, using two pass deblocking filter for luma samples and constrained\_intra\_resampling\_flag equal to 1.

**Purpose**: Check that the decoder can properly handle reference picture list reordering, memory management control operations, SEI messages, EI and EP coded slices of a spatial enhancement layer, with CABAC parsing, non-zero values of slice\_qp\_delta and mb\_qp\_delta, using two pass deblocking filter for luma samples and constrained\_intra\_resampling\_flag equal to 1.

#### 6.6.30.38 Test bitstream #SVCBST-10

**Specification**: All slices are coded as I, P, EI or EP slices. Only the first frame is coded as an IDR access unit and each dependency representation can contain more than one slice. disable\_deblocking\_filter\_idc is equal to 2, specifying enabling of the deblocking filter process (without slice boundary deblocking). entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 2. Reference picture list reordering and memory management control operations are used. slice\_qp\_delta is equal to a non-zero value to change the quantizer scale at each slice and mb\_qp\_delta is equal to a non-zero value to change the quantizer scale at some macroblocks. transform\_8x8\_mode\_flag is equal to 1, specifying that 8x8 transform decoding process may be in use. SEI messages are included in the bitstream. DependencyIdMax is equal to 1, TemporalIdMax is equal to 3, and DQIdMax is equal to 16. extended\_spatial\_scalability is equal to 0, SpatialResolutionChangeFlag is equal to 1, chroma\_phase\_x\_plus1\_flag is equal to 1, and chroma\_phase\_y\_plus1 is equal to 1. constrained\_intra\_resampling\_flag is equal to 1, no\_inter\_layer\_pred\_flag is equal to 0, slice\_header\_restriction\_flag is equal to 0, scan\_idx\_start is equal to 0, and scan\_idx\_end is equal to 15. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_skip\_flag is equal to 0, adaptive\_base\_mode\_flag is equal to 1, adaptive\_motion\_prediction\_flag is equal to 0 (with default\_motion\_prediction\_flag equal to 1), and adaptive\_residual\_prediction\_flag is equal to 1. disable\_inter\_layer\_deblocking\_filter\_idc is equal to 2. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Reference picture list reordering, memory management control operations, and decoding of SEI messages, EI and EP coded slices of a spatial enhancement layer, using 8x8 transform size, with non-zero values of slice\_qp\_delta and mb\_qp\_delta, and also using deblocking filter and constrained\_intra\_resampling\_flag equal to 1.

**Purpose**: Check that the decoder can properly handle reference picture list reordering, memory management control operations, SEI messages, EI and EP coded slices of a spatial enhancement layer, using 8x8 transform size, with non-zero values of slice\_qp\_delta and mb\_qp\_delta, and also using deblocking filter and constrained\_intra\_resampling\_flag equal to 1.

#### 6.6.30.39 Test bitstream #SVCBST-11

**Specification**: All slices are coded as I, P, EI or EP slices. Only the first frame is coded as an IDR access unit and each dependency representation can contain more than one slice. disable\_deblocking\_filter\_idc is equal to 2, specifying enabling of the deblocking filter process (without slice boundary deblocking). entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 2. Reference picture list reordering and memory management control operations are used. slice\_qp\_delta is equal to a non-zero value to change the quantizer scale at each slice and mb\_qp\_delta is equal to a non-zero value to change the quantizer scale at some macroblocks. weighted\_pred\_flag is equal to 1. SEI messages are included in the bitstream. DependencyIdMax is equal to 1, TemporalIdMax is equal to 3, and DQIdMax is equal to 16. extended\_spatial\_scalability is equal to 0, SpatialResolutionChangeFlag is equal to 1, chroma\_phase\_x\_plus1\_flag is equal to 1, and chroma\_phase\_y\_plus1 is equal to 1. constrained\_intra\_resampling\_flag is equal to 1, no\_inter\_layer\_pred\_flag is equal to 0, slice\_header\_restriction\_flag is equal to 0, scan\_idx\_start is equal to 0, and scan\_idx\_end is equal to 15. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_skip\_flag is equal to 0, adaptive\_base\_mode\_flag is equal to 1, adaptive\_motion\_prediction\_flag is equal to 0 (with default\_motion\_prediction\_flag equal to 1), and adaptive\_residual\_prediction\_flag is equal to 1. disable\_inter\_layer\_deblocking\_filter\_idc is equal to 2. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Weighted sample prediction process for EP slices, reference picture list reordering, memory management control operations, and decoding of SEI message, EI and EP coded slices of a spatial enhancement layer, with non-zero values of slice\_qp\_delta and mb\_qp\_delta, using deblocking filter and constrained\_intra\_resampling\_flag equal to 1.

**Purpose**: Check that the decoder can properly handle weighted sample prediction process for EP slices, reference picture list reordering, memory management control operations, SEI messages, EI and EP coded slices of a spatial enhancement layer, with non-zero values of slice\_qp\_delta and mb\_qp\_delta, using deblocking filter and constrained\_intra\_resampling\_flag equal to 1.

#### 6.6.30.40 Test bitstream #SVCBST-12

**Specification**: All slices are coded as I, P, EI or EP slices. Only the first frame is coded as an IDR access unit and each dependency representation can contain more than one slice and slice groups greater than 1. disable\_deblocking\_filter\_idc is equal to 3, specifying enabling of the deblocking filter process (with second pass slice boundary deblocking). Additionally, slice\_alpha\_c0\_offset\_div2 and slice\_beta\_offset\_div2 are not equal to 0. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Reference picture list reordering is used. slice\_qp\_delta is equal to a non-zero value to change the quantizer scale at each slice and mb\_qp\_delta is equal to a non-zero value to change the quantizer scale at some macroblocks. SEI messages are included in the bitstream. DependencyIdMax is equal to 1, TemporalIdMax is equal to 3, and DQIdMax is equal to 16. extended\_spatial\_scalability is equal to 0, SpatialResolutionChangeFlag is equal to 1, chroma\_phase\_x\_plus1\_flag is equal to 1, and chroma\_phase\_y\_plus1 is equal to 1. constrained\_intra\_resampling\_flag is equal to 1, no\_inter\_layer\_pred\_flag is equal to 0, slice\_header\_restriction\_flag is equal to 0, scan\_idx\_start is equal to 0, and scan\_idx\_end is equal to 15. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_skip\_flag is equal to 0, adaptive\_base\_mode\_flag is equal to 1, adaptive\_motion\_prediction\_flag is equal to 0 (with default\_motion\_prediction\_flag equal to 1), and adaptive\_residual\_prediction\_flag is equal to 2. disable\_inter\_layer\_deblocking\_filter\_idc is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Reference picture list reordering, memory management control operations, and decoding of SEI messages, EI and EP coded slices of a spatial enhancement layer, with non-zero values of slice\_qp\_delta and mb\_qp\_delta, using deblocking filter, constrained\_intra\_resampling\_flag equal to 1, and slice groups.

**Purpose**: Check that the decoder can properly handle reference picture list reordering, memory management control operations, SEI messages, EI and EP coded slices of a spatial enhancement layer, with non-zero values of slice\_qp\_delta and mb\_qp\_delta, using deblocking filter, constrained\_intra\_resampling\_flag equal to 1, and slice groups.

#### 6.6.30.41 Test bitstream #SVCBST-13

**Specification**: All slices are coded as I, P, EI or EP slices. Only the first frame is coded as an IDR access unit and each dependency representation can contain more than one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Reference picture list reordering is used. slice\_qp\_delta is equal to a non-zero value to change the quantizer scale at each slice and mb\_qp\_delta is equal to a non-zero value to change the quantizer scale at some macroblocks. SEI messages are included in the bitstream. DependencyIdMax is equal to 1, TemporalIdMax is equal to 3, and DQIdMax is equal to 16. extended\_spatial\_scalability is equal to 0, SpatialResolutionChangeFlag is equal to 1, chroma\_phase\_x\_plus1\_flag is equal to 1, and chroma\_phase\_y\_plus1 is equal to 1. constrained\_intra\_resampling\_flag is equal to 1, no\_inter\_layer\_pred\_flag is equal to 0, slice\_header\_restriction\_flag is equal to 0, scan\_idx\_start is equal to 0, and scan\_idx\_end is equal to 15. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_skip\_flag is equal to 0, adaptive\_base\_mode\_flag is equal to 1, adaptive\_motion\_prediction\_flag is equal to 1, and adaptive\_residual\_prediction\_flag is equal to 1. disable\_inter\_layer\_deblocking\_filter\_idc is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Reference picture list reordering, memory management control operations, and decoding of SEI messages, EI and EP coded slices of a spatial enhancement layer with SpatialResolutionChangeFlag equal to 3, CABAC parsing, non-zero values of slice\_qp\_delta and mb\_qp\_delta, and constrained\_intra\_resampling\_flag equal to 1.

**Purpose**: Check that the decoder can properly handle reference picture list reordering, memory management control operations, SEI messages, EI and EP coded slices of a spatial enhancement layer with SpatialResolutionChangeFlag equal to 3, CABAC parsing, non-zero values of slice\_qp\_delta and mb\_qp\_delta, and constrained\_intra\_resampling\_flag equal to 1.

#### 6.6.30.42 Test bitstream #SVCBST-14

**Specification**: All slices are coded as I, P, EI or EP slices. Only the first frame is coded as an IDR access unit and each dependency representation can contain more than one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. Reference picture list reordering is used. DependencyIdMax is equal to 2, TemporalIdMax is equal to 3, and DQIdMax is equal to 32. extended\_spatial\_scalability is equal to 0, SpatialResolutionChangeFlag is equal to 1 for the dependency layer with dependency\_id equal to 1, and SpatialResolutionChangeFlag is equal to 1 for the dependency layer with dependency\_id equal to 2. chroma\_phase\_x\_plus1\_flag is equal to 1, and chroma\_phase\_y\_plus1 is equal to 1. constrained\_intra\_resampling\_flag is equal to 0, no\_inter\_layer\_pred\_flag is equal to 0, slice\_header\_restriction\_flag is equal to 0, scan\_idx\_start is equal to 0, and scan\_idx\_end is equal to 15. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_skip\_flag is equal to 0, adaptive\_base\_mode\_flag is equal to 1, adaptive\_motion\_prediction\_flag is equal to 0 (with default\_motion\_prediction\_flag equal to 1), and adaptive\_residual\_prediction\_flag is equal to 1. disable\_inter\_layer\_deblocking\_filter\_idc is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10

**Functional stage**: Reference picture list reordering, memory management control operations, and decoding of EI and EP coded slices of spatial enhancement layers with SpatialResolutionChangeFlag equal to 1 and 3.

**Purpose**: Check that the decoder can properly handle reference picture list reordering, memory management control operations, EI and EP coded slices of spatial enhancement layers with SpatialResolutionChangeFlag equal to 1 and 3.

#### 6.6.30.43 Test bitstream #SVCBST-15

**Specification**: All slices are coded as I, P, EI or EP slices. Only the first frame is coded as an IDR access unit and each dependency representation can contain more than one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 2. Reference picture list reordering and memory management control operations are used. slice\_qp\_delta is equal to a non-zero value to change the quantizer scale at each slice and mb\_qp\_delta is equal to a non-zero value to change the quantizer scale at some macroblocks. SEI messages are included in the bitstream. DependencyIdMax is equal to 2, TemporalIdMax is equal to 3, and DQIdMax is equal to 32. extended\_spatial\_scalability is equal to 0, SpatialResolutionChangeFlag is equal to 1 for the enhancement layers, chroma\_phase\_x\_plus1\_flag is equal to 1, and chroma\_phase\_y\_plus1 is equal to 1. constrained\_intra\_resampling\_flag is equal to 0, no\_inter\_layer\_pred\_flag is equal to 0, slice\_header\_restriction\_flag is equal to 0, scan\_idx\_start is equal to 0, and scan\_idx\_end is equal to 15. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_skip\_flag is equal to 0, adaptive\_base\_mode\_flag is equal to 1, adaptive\_motion\_prediction\_flag is equal to 1 for the dependency layer with dependency\_id equal to 1, adaptive\_motion\_prediction\_flag is equal to 0 (with default\_motion\_prediction\_flag equal to 1) for the dependency layer with dependency\_id equal to 2, and adaptive\_residual\_prediction\_flag equal to 1. disable\_inter\_layer\_deblocking\_filter\_idc is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Reference picture list reordering, memory management control operations and decoding of SEI messages, EI and EP coded slices of spatial enhancement layers, with non-zero values of slice\_qp\_delta and mb\_qp\_delta, using adaptive inter-layer motion prediction for layer 1.

**Purpose**: Check that the decoder can properly handle reference picture list reordering, memory management control operations, SEI messages, EI and EP coded slices of spatial enhancement layers, with non-zero values of slice\_qp\_delta and mb\_qp\_delta, using adaptive inter-layer motion prediction for layer 1.

#### 6.6.30.44 Test bitstream #SVCBST-16

**Specification**: All slices are coded as I, P, EI or EP slices. Only the first frame is coded as an IDR access unit and each dependency representation can contain more than one slice. disable\_deblocking\_filter\_idc is equal to 3, specifying enabling of the deblocking filter process (with second pass slice boundary deblocking). entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 2. Reference picture list reordering and memory management control operations are used. slice\_qp\_delta is equal to a non-zero value to change the quantizer scale at each slice and mb\_qp\_delta is equal to a non-zero value to change the quantizer scale at some macroblocks. SEI messages are included in the bitstream. DependencyIdMax is equal to 2, TemporalIdMax is equal to 3, and DQIdMax is equal to 32. extended\_spatial\_scalability is equal to 0, SpatialResolutionChangeFlag is equal to 1 for the enhancement layers, chroma\_phase\_x\_plus1\_flag is equal to 1, and chroma\_phase\_y\_plus1 is equal to 1. constrained\_intra\_resampling\_flag is equal to 0, no\_inter\_layer\_pred\_flag is equal to 0, slice\_header\_restriction\_flag is equal to 0, scan\_idx\_start is equal to 0, and scan\_idx\_end is equal to 15. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_skip\_flag is equal to 0, adaptive\_base\_mode\_flag is equal to 1, adaptive\_motion\_prediction\_flag is equal to 1, and adaptive\_residual\_prediction\_flag is equal to 1. disable\_inter\_layer\_deblocking\_filter\_idc is equal to 2. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Reference picture list reordering, memory management control operations, and decoding of SEI messages, EI and EP coded slices of spatial enhancement layers, with non-zero values of slice\_qp\_delta and mb\_qp\_delta, using two pass deblocking filter and adaptive inter-layer motion prediction.

**Purpose**: Check that the decoder can properly handle reference picture list reordering, memory management control operations, SEI messages, EI and EP coded slices of spatial enhancement layers, with non-zero values of slice\_qp\_delta and mb\_qp\_delta, using two pass deblocking filter and adaptive inter-layer motion prediction.

#### 6.6.30.45 Test bitstream #SVCBST-17

**Specification**: All slices are coded as I, P, EI or EP slices. Only the first frame is coded as an IDR access unit and each dependency representation can contain more than one slice. disable\_deblocking\_filter\_idc is equal to 3, specifying enabling of the deblocking filter process (with second pass slice boundary deblocking). entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 2. Reference picture list reordering and memory management control operations are used. slice\_qp\_delta is equal to a non-zero value to change the quantizer scale at each slice and mb\_qp\_delta is equal to a non-zero value to change the quantizer scale at some macroblocks. SEI messages are included in the bitstream. DependencyIdMax is equal to 2, TemporalIdMax is equal to 3, and DQIdMax is equal to 32. extended\_spatial\_scalability is equal to 0, SpatialResolutionChangeFlag is equal to 1 for the enhancement layers, chroma\_phase\_x\_plus1\_flag is equal to 1, and chroma\_phase\_y\_plus1 is equal to 1. constrained\_intra\_resampling\_flag is equal to 0, no\_inter\_layer\_pred\_flag is equal to 0, slice\_header\_restriction\_flag is equal to 0, scan\_idx\_start is equal to 0, and scan\_idx\_end is equal to 15. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_skip\_flag is equal to 0, adaptive\_base\_mode\_flag is equal to 1, adaptive\_motion\_prediction\_flag is equal to 0 (with default\_motion\_prediction\_flag equal to 1) for the dependency layer with dependency\_id equal to 1, adaptive\_motion\_prediction\_flag is equal to 1 for the dependency layer with dependency\_id equal to 2, and adaptive\_residual\_prediction\_flag is equal to 1. disable\_inter\_layer\_deblocking\_filter\_idc is equal to 2. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Reference picture list reordering, memory management control operations, and decoding of SEI messages, EI and EP coded slices of spatial enhancement layers, with CABAC parsing, non-zero values of slice\_qp\_delta and mb\_qp\_delta, using two pass deblocking filter and adaptive inter-layer motion prediction for layer 2.

**Purpose**: Check that the decoder can properly handle reference picture list reordering, memory management control operations, SEI messages, EI and EP coded slices of spatial enhancement layers, with CABAC parsing, non-zero values of slice\_qp\_delta and mb\_qp\_delta, two pass deblocking filter and adaptive inter-layer motion prediction for layer 2.

#### 6.6.30.46 Test bitstream #SVCBST-18

**Specification**: All slices are coded as I, P, EI or EP slices. Only the first frame is coded as an IDR access unit and each dependency representation can contain more than one slice. disable\_deblocking\_filter\_idc is equal to 3, specifying enabling of the deblocking filter process (with second pass slice boundary deblocking). entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 2. Reference picture list reordering and memory management control operations are used. slice\_qp\_delta is equal to a non-zero value to change the quantizer scale at each slice and mb\_qp\_delta is equal to a non-zero value to change the quantizer scale at some macroblocks. weighted\_pred\_flag is equal to 1 and base\_pred\_weight\_table\_flag is equal to 1. SEI messages are included in the bitstream. DependencyIdMax is equal to 2, TemporalIdMax is equal to 3, and DQIdMax is equal to 32. extended\_spatial\_scalability is equal to 0, SpatialResolutionChangeFlag is equal to 1 for the enhancement layers, chroma\_phase\_x\_plus1\_flag is equal to 1, and chroma\_phase\_y\_plus1 is equal to 1. constrained\_intra\_resampling\_flag is equal to 0, no\_inter\_layer\_pred\_flag is equal to 0, slice\_header\_restriction\_flag is equal to 0, scan\_idx\_start is equal to 0, and scan\_idx\_end is equal to 15. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_skip\_flag is equal to 0, adaptive\_base\_mode\_flag is equal to 1, adaptive\_motion\_prediction\_flag is equal to 0 (with default\_motion\_prediction\_flag equal to 1) for the dependency layer with dependency\_id equal to 1, adaptive\_motion\_prediction\_flag is equal to 1 for the dependency layer with dependency\_id equal to 2, and adaptive\_residual\_prediction\_flag is equal to 1. disable\_inter\_layer\_deblocking\_filter\_idc is equal to 2. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Weighted sample prediction process for EP slices, inference of weighted prediction variables for EP slices, reference picture list reordering, memory management control operations, and decoding of SEI messages, EI and EP coded slices of spatial enhancement layers, with CABAC parsing, non-zero values of slice\_qp\_delta and mb\_qp\_delta, using two pass deblocking filter and adaptive inter-layer motion prediction for layer 2.

**Purpose**: Check that the decoder can properly handle weighted sample prediction process for EP slices, inference of weighted prediction variables for EP slices, reference picture list reordering, memory management control operations, SEI messages, EI and EP coded slices of spatial enhancement layers, with CABAC parsing, non-zero values of slice\_qp\_delta and mb\_qp\_delta, using two pass deblocking filter and adaptive inter-layer motion prediction for layer 2.

#### 6.6.30.47 Test bitstream #SVCBST-19

**Specification**: All slices are coded as I, P, EI, EP or EB slices. Each dependency representation contains only one slice. disable\_deblocking\_filter\_idc is equal to 0. entropy\_coding\_mode\_flag is equal to 0 for dependency layer with dependency\_id equal to 0, specifying the CAVLC parsing process, and entropy\_coding\_mode\_flag is equal to 1 for dependency layer with dependency\_id equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. gaps\_in\_frame\_num\_value\_allowed\_flag is equal to 1. Reference picture list reordering and memory management control operations are used. transform\_8x8\_mode\_flag is equal to 1 for dependency layer with dependency\_id equal to 1, specifying that 8x8 transform decoding process may be in use. DependencyIdMax is equal to 1, TemporalIdMax is equal to 4 and DQIdMax is equal to 16. extended\_spatial\_scalability is equal to 1. SpatialResolutionChangeFlag is equal to 1. no\_inter\_layer\_pred\_flag is equal to 0. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_header\_restriction\_flag is equal to 0. slice\_skip\_flag is equal to 0. adaptive\_base\_mode\_flag is equal to 1, specifying that inter-layer motion and inter-layer intra prediction are enabled. adaptive\_motion\_prediction\_flag is equal to 1, specifying that inter-layer motion prediction is enabled. adaptive\_residual\_prediction\_flag is equal to 1, specifying that inter-layer residual prediction is enabled. inter\_layer\_deblocking\_filter\_control\_present\_flag is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Gaps in frame\_num, reference picture list reordering, memory management control operations and decoding of EI, EP and EB coded slices of a spatial and temporal enhancement layer, using 8x8 transform size with inter-layer motion, intra and residual prediction and CABAC parsing.

**Purpose**: Check that the decoder can properly handle gaps in frame\_num, reference picture list reordering, memory management control operations and EI, EP and EB coded slices of a spatial and temporal enhancement layer, using 8x8 transform size with inter-layer motion, intra and residual prediction and CABAC parsing.

#### 6.6.30.48 Test bitstream #SVCBST-20

**Specification**: All slices are coded as I, P, EI, EP or EB slices. Each dependency representation contains only one slice. disable\_deblocking\_filter\_idc is equal to 0, specifying enabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. slice\_qp\_delta is equal to a non-zero value to change the quantizer scale at each slice. DependencyIdMax is equal to 1, TemporalIdMax is equal to 1 and DQIdMax is equal to 16. extended\_spatial\_scalability is equal to 1, specifying sending geometrical parameters in the sequence parameter set. SpatialResolutionChangeFlag is equal to 1. no\_inter\_layer\_pred\_flag is equal to 0. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_skip\_flag is equal to 0. adaptive\_base\_mode\_flag is equal to 1, specifying enabling inter-layer motion and intra prediction. adaptive\_motion\_prediction\_flag is equal to 1, specifying enabling an alternative motion vectors prediction process. adaptive\_residual\_prediction\_flag is equal to 1, specifying enabling inter-layer residual prediction. disable\_inter\_layer\_deblocking\_filter\_idc is equal to 0, specifying enabling of the deblocking filter process for inter-layer intra prediction. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of EI, EP and EB coded slices of a spatial enhancement layer, using inter-layer motion, intra and residual prediction, sequence level geometrical parameters, deblocking filter for inter-layer intra prediction, non-zero values of slice\_qp\_delta.

**Purpose**: Check that the decoder can properly handle decoding of EI, EP and EB coded slices of a spatial enhancement layer, using inter-layer motion, intra and residual prediction, sequence level geometrical parameters, deblocking filter for inter-layer intra prediction, non-zero values of slice\_qp\_delta.

#### 6.6.30.49 Test bitstream #SVCBMST-1

**Specification**: All slices are coded as I, P, EI or EP slices. Only the first frame is coded as an IDR access unit and each dependency representation can contain more than one slice. disable\_deblocking\_filter\_idc is equal to 3. entropy\_coding\_mode\_flag is equal to 0. pic\_order\_cnt\_type is equal to 2. Reference picture list reordering and memory management control operations are used. SEI messages are included in the bitstream. DependencyIdMax is equal to 1, TemporalIdMax is equal to 3, and DQIdMax is equal to 16. extended\_spatial\_scalability is equal to 0, SpatialResolutionChangeFlag is equal to 1, chroma\_phase\_x\_plus1\_flag is equal to 1, and chroma\_phase\_y\_plus1 is equal to 1. constrained\_intra\_resampling\_flag is equal to 0, no\_inter\_layer\_pred\_flag is equal to 0, slice\_header\_restriction\_flag is equal to 0, scan\_idx\_start is equal to 0, and scan\_idx\_end is equal to 15. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_skip\_flag is equal to 0, adaptive\_base\_mode\_flag is equal to 1, adaptive\_motion\_prediction\_flag is equal to 0 (with default\_motion\_prediction\_flag equal to 1), and adaptive\_residual\_prediction\_flag is equal to 1. disable\_inter\_layer\_deblocking\_filter\_idc is equal to 2. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Reference picture list reordering, memory management control operations, and decoding of SEI messages, EI and EP coded slices of quality and spatial enhancement layers, using deblocking filter.

**Purpose**: Check that the decoder can properly handle reference picture list reordering, memory management control operations, SEI messages, EI and EP coded slices of quality and spatial enhancement layers, using deblocking filter.

#### 6.6.30.50 Test bitstream #SVCBMST-2

**Specification**: All slices are coded as I, P, EI or EP slices. Only the first frame is coded as an IDR access unit and each dependency representation can contain more than one slice. disable\_deblocking\_filter\_idc is equal to 3. entropy\_coding\_mode\_flag is equal to 1. pic\_order\_cnt\_type is equal to 2. Reference picture list reordering and memory management control operations are used. SEI messages are included in the bitstream. DependencyIdMax is equal to 1, TemporalIdMax is equal to 3, and DQIdMax is equal to 16. extended\_spatial\_scalability is equal to 0, SpatialResolutionChangeFlag is equal to 1, chroma\_phase\_x\_plus1\_flag is equal to 1, and chroma\_phase\_y\_plus1 is equal to 1. constrained\_intra\_resampling\_flag is equal to 0, no\_inter\_layer\_pred\_flag is equal to 0, slice\_header\_restriction\_flag is equal to 0, scan\_idx\_start is equal to 0, and scan\_idx\_end is equal to 15. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_skip\_flag is equal to 0, adaptive\_base\_mode\_flag is equal to 1, adaptive\_motion\_prediction\_flag is equal to 0 (with default\_motion\_prediction\_flag equal to 1) for the DQ layer with dq\_id equal to 1, adaptive\_motion\_prediction\_flag is equal to 1 for the DQ layer with dq\_id equal to 16, and adaptive\_residual\_prediction\_flag is equal to 1. disable\_inter\_layer\_deblocking\_filter\_idc is equal to 2. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Reference picture list reordering, memory management control operations, and decoding of SEI messages, EI and EP coded slices of a quality enhancement layer and a spatial enhancement layer, using CABAC parsing, deblocking filter, and adaptive inter-layer motion prediction for the spatial enhancement layer.

**Purpose**: Check that the decoder can properly handle reference picture list reordering, memory management control operations, SEI messages, EI and EP coded slices of a quality enhancement layer and a spatial enhancement layer, using CABAC parsing, deblocking filter, and adaptive inter-layer motion prediction for the spatial enhancement layer.

#### 6.6.30.51 Test bitstream #SVCBMST-3

**Specification**: All slices are coded as I, P, EI, EP or EB slices. Each layer representation contains only one slice. disable\_deblocking\_filter\_idc is equal to 0. entropy\_coding\_mode\_flag is equal to 0 for layer representation with DQId equal to 0, specifying the CAVLC parsing process. entropy\_coding\_mode\_flag is equal to 1 for layer representation with DQId equal to 1 and 16, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. transform\_8x8\_mode\_flag is equal to 1 for layer representation with DQId equal to 1 and 16, specifying that 8x8 transform decoding process may be in use. DependencyIdMax is equal to 1, TemporalIdMax is equal to 4 and DQIdMax is equal to 16. extended\_spatial\_scalability is equal to 1. SpatialResolutionChangeFlag is equal to 1 for dependency representation with dependency\_id equal to 1. no\_inter\_layer\_pred\_flag is equal to 0. use\_ref\_base\_pic\_flag is equal to 1 for layer representation with dependency\_id equal to 0 in access units with temporal\_id equal to 0, specifying that reference base pictures may be used as reference pictures for the inter prediction process. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_header\_restriction\_flag is equal to 0. store\_ref\_base\_pic\_flag is equal to 1 for layer representation with dependency\_id equal to 0 in access units with temporal\_id equal to 0, specifying that the reference base pictures are stored. slice\_skip\_flag is equal to 0. slice\_header\_restriction\_flag is equal to 0. adaptive\_base\_mode\_flag is equal to 1, specifying that inter-layer motion and inter-layer intra prediction are enabled. adaptive\_motion\_prediction\_flag is equal to 1, specifying that inter-layer motion prediction is enabled. adaptive\_residual\_prediction\_flag is equal to 1, specifying that inter-layer residual prediction is enabled. inter\_layer\_deblocking\_filter\_control\_present\_flag is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of EI, EP and EB coded slices of a quality enhancement layer using key pictures and a spatial enhancement layer, with inter-layer motion, intra and residual prediction, using CABAC parsing.

**Purpose**: Check that the decoder can properly handle EI, EP and EB coded slices of a quality enhancement layer using key pictures and a spatial enhancement layer, with inter-layer motion, intra and residual prediction, using CABAC parsing.

#### 6.6.30.52 Test bitstream #SVCBCTS-1

**Specification**: All slices are coded as I, P, EI, EP or EB slices. Each layer representation contains only one slice. deblocking\_filter\_idc is equal to 0. entropy\_coding\_mode\_flag is equal to 0 for dependency representation with dependency\_id equal to 0 and 1, specifying the CAVLC parsing process. entropy\_coding\_mode\_flag is equal to 1 for dependency representation with dependency\_id equal to 2, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. transform\_8x8\_mode\_flag is equal to 1 for dependency representation with dependency\_id equal to 2, specifying that 8x8 transform decoding process may be in use. DependencyIdMax is equal to 2, TemporalIdMax is equal to 1 and DQIdMax is equal to 32. extended\_spatial\_scalability is equal to 0 for dependency representation with dependency\_id equal to 1. extended\_spatial\_scalability is equal to 1 for dependency representation with dependency\_id equal to 2. SpatialResolutionChangeFlag is equal to 0 for dependency representation with dependency\_id equal to 1. SpatialResolutionChangeFlag is equal to 1 for dependency representation with dependency\_id equal to 2. no\_inter\_layer\_pred\_flag is equal to 0. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_header\_restriction\_flag is equal to 1. slice\_skip\_flag is equal to 0. adaptive\_base\_mode\_flag is equal to 1, adaptive\_motion\_prediction\_flag is equal to 1 and adaptive\_residual\_prediction\_flag is equal to 1 for dependency representation with dependency\_id equal to 1 and 2, specifying enabling inter-layer motion, intra and residual prediction. inter\_layer\_deblocking\_filter\_control\_present\_flag is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of EI, EP and EB coded slices of spatial enhancement layers, with inter-layer motion, residual and intra prediction, using CAVLC and CABAC parsing, 8x8 transform size.

**Purpose**: Check that the decoder can properly handle EI, EP and EB coded slices of spatial enhancement layers, with inter-layer motion, residual and intra prediction, using CAVLC and CABAC parsing, 8x8 transform size.

#### 6.6.30.53 Test bitstream #SVCBCTS-2

**Specification**: All slices are coded as I, P, EI, EP or EB slices. Each layer representation contains only one slice. disable\_deblocking\_filter\_idc is equal to 0. entropy\_coding\_mode\_flag is equal to 0 for dependency representation with dependency\_id equal to 0 and 1, specifying the CAVLC parsing process. entropy\_coding\_mode\_flag is equal to 1 for dependency representation with dependency\_id equal to 2, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. transform\_8x8\_mode\_flag is equal to 1 for dependency representation with dependency\_id equal to 2, specifying that 8x8 transform decoding process may be in use. DependencyIdMax is equal to 2, TemporalIdMax is equal to 1 and DQIdMax is equal to 32. extended\_spatial\_scalability is equal to 0 for dependency representation with dependency\_id equal to 1. extended\_spatial\_scalability is equal to 1 for dependency representation with dependency\_id equal to 2. SpatialResolutionChangeFlag is equal to 0 for dependency representation with dependency\_id equal to 1. SpatialResolutionChangeFlag is equal to 1 for dependency representation with dependency\_id equal to 2. no\_inter\_layer\_pred\_flag is equal to 0. discardable\_flag is equal to 1 for dependency representation with dependency\_id equal to 1. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_header\_restriction\_flag is equal to 1. slice\_skip\_flag is equal to 0. adaptive\_base\_mode\_flag is equal to 1, adaptive\_motion\_prediction\_flag is equal to 1 and adaptive\_residual\_prediction\_flag is equal to 1 for dependency representation with dependency\_id equal to 1 and 2, specifying enabling inter-layer motion, intra and residual prediction. inter\_layer\_deblocking\_filter\_control\_present\_flag is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of EI, EP and EB coded slices of spatial enhancement layers, with inter-layer motion, residual and intra prediction, using CAVLC and CABAC parsing, 8x8 transform size, with discardable\_flag equal to 1.

**Purpose**: Check that the decoder can properly handle EI, EP and EB coded slices of spatial enhancement layers, with inter-layer motion, residual and intra prediction, using CAVLC and CABAC parsing, 8x8 transform size, with discardable\_flag equal to 1.

#### 6.6.30.54 Test bitstream #SVCBCTS-3

**Specification**: All slices are coded as I, P, EI, EP or EB slices. Each layer representation contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. DependencyIdMax is equal to 2, TemporalIdMax is equal to 3 and DQIdMax is equal to 32. extended\_spatial\_scalability is equal to 0. SpatialResolutionChangeFlag is equal to 0 for dependency representation with dependency\_id equal to 1. SpatialResolutionChangeFlag is equal to 1 for dependency representation with dependency\_id equal to 2. no\_inter\_layer\_pred\_flag is equal to 0. tcoeff\_level\_prediction\_flag is equal to 1 for dependency representation with dependency\_id equal to 1, specifying that an alternative inter-layer prediction process is applied on a macroblock basis. seq\_tcoeff\_level\_prediction\_flag is equal to 0 for dependency representation with dependency\_id equal to 2. slice\_header\_restriction\_flag is equal to 1. slice\_skip\_flag is equal to 0. slice\_header\_restriction\_flag is equal to 1. default\_base\_mode\_flag is equal to 1, specifying inter-layer motion and intra prediction. default\_residual\_prediction\_flag is equal to 0. inter\_layer\_deblocking\_filter\_control\_present\_flag is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of EI, EP and EB coded slices of spatial enhancement layers, enabling either an alternative inter-layer prediction process by macroblock for translation to an AVC bitstream or inter-layer motion and intra prediction.

**Purpose**: Check that the decoder can properly handle EI, EP and EB coded slices of spatial enhancement layers, enabling either an alternative inter-layer prediction process by macroblock for translation to an AVC bitstream or inter-layer motion and intra prediction.

#### 6.6.30.55 Test bitstream #SVCBSTC-1

**Specification**: All slices are coded as I, P, EI, EP or EB slices. Each layer representation contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. pic\_order\_cnt\_type is equal to 0. DependencyIdMax is equal to 2, TemporalIdMax is equal to 3 and DQIdMax is equal to 32. extended\_spatial\_scalability is equal to 0. SpatialResolutionChangeFlag is equal to 1 for dependency representation with dependency\_id equal to 1. SpatialResolutionChangeFlag is equal to 0 for dependency representation with dependency\_id equal to 2. no\_inter\_layer\_pred\_flag is equal to 0. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_header\_restriction\_flag is equal to 1. slice\_skip\_flag is equal to 0. slice\_header\_restriction\_flag is equal to 1. default\_base\_mode\_flag is equal to 1, specifying inter-layer motion and intra prediction. adaptive\_residual\_prediction\_flag is equal to 1, specifying enabling inter-layer residual prediction. inter\_layer\_deblocking\_filter\_control\_present\_flag is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of EI, EP and EB coded slices of spatial enhancement layers, using inter-layer motion and intra prediction and inter-layer residual prediction in transform and spatial domain.

**Purpose**: Check that the decoder can properly handle EI, EP and EB coded slices of spatial enhancement layers, using inter-layer motion and intra prediction and inter residual prediction in transform and spatial domain.

### 6.6.31 Test bitstreams – SVC Profiles: Scalable High Profile 4:2:0 8 bit

#### 6.6.31.1 Test bitstream #SVCHM-1

**Specification**: All slices are coded as I, P, EI, EP or EB slices. Each layer representation contains only one slice. disable\_deblocking\_filter\_idc is equal to 0. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. gaps\_in\_frame\_num\_value\_allowed\_flag is equal to 1. Reference picture list reordering and memory management control operations are used. mb\_qp\_delta is equal to 0. transform\_8x8\_mode\_flag is equal to 1, specifying that 8x8 transform decoding process may be in use. DependencyIdMax is equal to 0, TemporalIdMax is equal to 4 and DQIdMax is equal to 3. extended\_spatial\_scalability is equal to 0. SpatialResolutionChangeFlag is equal to 0. no\_inter\_layer\_pred\_flag is equal to 0. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_header\_restriction\_flag is equal to 0. slice\_skip\_flag is equal to 0. adaptive\_base\_mode\_flag is equal to 1 for layer representations with quality\_id equal to 1, specifying that inter-layer motion and inter-layer intra prediction are enabled. adaptive\_motion\_prediction\_flag is equal to 1 for layer representation with quality\_id equal to 1, specifying that an alternative motion vectors prediction process is enabled. default\_base\_mode\_flag is equal to 1 for layer representations with quality\_id equal to 2 and 3, specifying inter-layer motion and intra prediction. adaptive\_residual\_prediction\_flag is equal to 1 for layer representation with quality\_id equal to 1, specifying enabling inter-layer residual prediction. default\_residual\_prediction\_flag is equal to 1 for layer representations with quality\_id equal to 2 and 3. inter\_layer\_deblocking\_filter\_control\_present\_flag is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Gaps in frame\_num, reference picture list reordering, memory management control operations and decoding of EI, EP and EB coded slices of quality enhancement layers, using key pictures, transform coefficient fragmentation and either an alternative motion vectors prediction process with inter-layer residual prediction or inter-layer motion and intra prediction, with non-zero values of mb\_qp\_delta, using 8x8 transform size CABAC parsing.

**Purpose**: Check that the decoder can properly handle gaps in frame\_num, reference picture list reordering, memory management control operations, EI, EP and EB coded slices of quality enhancement layers, using key pictures, transform coefficient fragmentation and either an alternative motion vectors prediction process with inter-layer residual prediction or inter-layer motion and intra prediction, with non-zero values of mb\_qp\_delta, using 8x8 transform size and CABAC parsing.

#### 6.6.31.2 Test bitstream #SVCHM-2

**Specification**: All slices are coded as I, P, EI, EP or EB slices. Each layer representation contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Reference picture list reordering and memory management control operations are used. transform\_8x8\_mode\_flag is equal to 1, specifying that 8x8 transform decoding process may be in use. DependencyIdMax is equal to 0, TemporalIdMax is equal to 2 and DQIdMax is equal to 1. extended\_spatial\_scalability is equal to 0. SpatialResolutionChangeFlag is equal to 0. no\_inter\_layer\_pred\_flag is equal to 0. adaptive\_tcoeff\_level\_prediction\_flag is equal to 0, specifying that an alternative inter-layer prediction process is applied for the whole sequence. slice\_header\_restriction\_flag is equal to 1. slice\_skip\_flag is equal to 0. default\_base\_mode\_flag is equal to 1, specifying inter-layer motion and intra prediction. default\_residual\_prediction\_flag is equal to 0. inter\_layer\_deblocking\_filter\_control\_present\_flag is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Reference picture list reordering, memory management control operations and decoding of EI, EP and EB coded slices of a quality enhancement layer, using an alternative inter-layer prediction process for translation to an AVC bitstream, with 8x8 transform size CABAC parsing.

**Purpose**: Check that the decoder can properly handle reference picture list reordering, memory management control operations and decoding of EI, EP and EB coded slices of a quality enhancement layer, using an alternative inter-layer prediction process for translation to an AVC bitstream, with 8x8 transform size CABAC parsing.

#### 6.6.31.3 Test bitstream #SVCHM-3

**Specification**: All slices are coded as I, P, EI, EP or EB slices. Each layer representation contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Reference picture list reordering and memory management control operations are used. transform\_8x8\_mode\_flag is equal to 1, specifying that 8x8 transform decoding process may be in use. DependencyIdMax is equal to 0, TemporalIdMax is equal to 2 and DQIdMax is equal to 1. extended\_spatial\_scalability is equal to 0. SpatialResolutionChangeFlag is equal to 0. no\_inter\_layer\_pred\_flag is equal to 0. tcoeff\_level\_prediction\_flag is equal to 1, specifying that an alternative inter-layer prediction process is applied on a macroblock basis. slice\_header\_restriction\_flag is equal to 1. slice\_skip\_flag is equal to 0. default\_base\_mode\_flag is equal to 1, specifying inter-layer motion and intra prediction. default\_residual\_prediction\_flag is equal to 0. inter\_layer\_deblocking\_filter\_control\_present\_flag is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Reference picture list reordering, memory management control operations and decoding of EI, EP and EB coded slices of a quality enhancement layer, enabling an alternative inter-layer prediction process by macroblock for translation to an AVC bitstream, with 8x8 transform size CABAC parsing.

**Purpose**: Check that the decoder can properly handle reference picture list reordering, memory management control operations and decoding of EI, EP and EB coded slices of a quality enhancement layer, enabling an alternative inter-layer prediction process by macroblock for translation to an AVC bitstream, with 8x8 transform size CABAC parsing.

#### 6.6.31.4 Test bitstream #SVCHM-4

**Specification**: All slices are coded as I, P, EI, EP or EB slices. Each layer representation contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Reference picture list reordering and memory management control operations are used. transform\_8x8\_mode\_flag is equal to 1, specifying that 8x8 transform decoding process may be in use. DependencyIdMax is equal to 0, TemporalIdMax is equal to 2 and DQIdMax is equal to 2. extended\_spatial\_scalability is equal to 0. SpatialResolutionChangeFlag is equal to 0. no\_inter\_layer\_pred\_flag is equal to 0. tcoeff\_level\_prediction\_flag is equal to 1 for layer representation with quality\_id equal to 1, specifying that an alternative inter-layer prediction process is applied on a macroblock basis. seq\_tcoeff\_level\_prediction\_flag is equal to 0 for layer representation with quality\_id equal to 2. slice\_header\_restriction\_flag is equal to 1. slice\_skip\_flag is equal to 0. default\_base\_mode\_flag is equal to 1, specifying inter-layer motion and intra prediction. default\_residual\_prediction\_flag is equal to 0. inter\_layer\_deblocking\_filter\_control\_present\_flag is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Reference picture list reordering, memory management control operations and decoding of EI, EP and EB coded slices of quality enhancement layers, either enabling an alternative inter-layer prediction process by macroblock for translation to an AVC bitstream or using inter-layer motion and intra prediction, with 8x8 transform size CABAC parsing.

**Purpose**: Check that the decoder can properly handle reference picture list reordering, memory management control operations and decoding of EI, EP and EB coded slices of quality enhancement layers, either enabling an alternative inter-layer prediction process by macroblock for translation to an AVC bitstream or using inter-layer motion and intra prediction, with 8x8 transform size CABAC parsing.

#### 6.6.31.5 Test bitstream #SVCHS-1

**Specification**: All slices are coded as I, P, EI, EP or EB slices. Each dependency representation contains only one slice. disable\_deblocking\_filter\_idc is equal to 0, specifying enabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 0 for the dependency representation with dependency\_id equal to 0, specifying the CAVLC parsing process. entropy\_coding\_mode\_flag is equal to 1 for the dependency representation with dependency\_id equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Reference picture list reordering and memory management control operations are used. transform\_8x8\_mode\_flag is equal to 1 for the dependency representation with dependency\_id equal to 1, specifying that 8x8 transform decoding process may be in use. slice\_qp\_delta is equal to a non-zero value to change the quantizer scale at each slice. DependencyIdMax is equal to 1, TemporalIdMax is equal to 3 and DQIdMax is equal to 16. extended\_spatial\_scalability is equal to 2, specifying sending geometrical parameters in slice headers. SpatialResolutionChangeFlag is equal to 1. no\_inter\_layer\_pred\_flag is equal to 0. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_header\_restriction\_flag is equal to 1. slice\_skip\_flag is equal to 0. adaptive\_base\_mode\_flag is equal to 1, specifying enabling inter-layer motion and intra prediction. adaptive\_residual\_prediction\_flag is equal to 1, specifying enabling of inter-layer residual prediction. disable\_inter\_layer\_deblocking\_filter\_idc is equal to 0, specifying enabling of the deblocking filter process for inter-layer intra prediction. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Reference picture list reordering, memory management control operations, decoding of EI, EP and EB coded slices of a spatial enhancement layer, using inter-layer motion, intra and residual prediction, picture level geometrical parameters, deblocking filter for inter-layer intra prediction, with CABAC parsing, 8x8 transform size and non-zero values of slice\_qp\_delta.

**Purpose**: Check that the decoder can properly handle decoding of reference picture list reordering, memory management control operations, EI, EP and EB coded slices of a spatial enhancement layer, using inter-layer motion, intra and residual prediction, picture level geometrical parameters, deblocking filter for inter-layer intra prediction, with CABAC parsing, 8x8 transform size and non-zero values of slice\_qp\_delta.

#### 6.6.31.6 Test bitstream #SVCHS-2

**Specification**: All slices are coded as I, P, B, EI, EP or EB slices. Each dependency representation contains only one slice. disable\_deblocking\_filter\_idc is equal to 0, specifying enabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Reference picture list reordering and memory management control operations are used. transform\_8x8\_mode\_flag is equal to 1, specifying that 8x8 transform decoding process may be in use. slice\_qp\_delta is equal to a non-zero value to change the quantizer scale at each slice. mb\_adaptive\_frame\_field\_coding is equal to 1 for dependency representation with dependency\_id equal to 1. DependencyIdMax is equal to 1, TemporalIdMax is equal to 3 and DQIdMax is equal to 16. extended\_spatial\_scalability is equal to 1, specifying sending geometrical parameters in the sequence parameter set. SpatialResolutionChangeFlag is equal to 1. no\_inter\_layer\_pred\_flag is equal to 0. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_header\_restriction\_flag is equal to 1. slice\_skip\_flag is equal to 0. adaptive\_base\_mode\_flag is equal to 1, specifying enabling inter-layer motion and intra prediction. adaptive\_residual\_prediction\_flag is equal to 1, specifying enabling of inter-layer residual prediction. disable\_inter\_layer\_deblocking\_filter\_idc is equal to 0, specifying enabling of the deblocking filter process for inter-layer intra prediction. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Progressive-to-interlace inter-layer prediction with mb\_adaptive\_frame\_field\_coding=1, reference picture list reordering, memory management control operations, decoding of EI, EP and EB coded slices of a spatial enhancement layer, using inter-layer motion, intra and residual prediction, sequence level geometrical parameters, deblocking filter for inter-layer intra prediction, with CABAC parsing, 8x8 transform size and non-zero values of slice\_qp\_delta.

**Purpose**: Check that the decoder can properly handle decoding of progressive-to-interlace inter-layer prediction with mb\_adaptive\_frame\_field\_coding=1, reference picture list reordering, memory management control operations, EI, EP and EB coded slices of a spatial enhancement layer, using inter-layer motion, intra and residual prediction, sequence level geometrical parameters, deblocking filter for inter-layer intra prediction, with CABAC parsing, 8x8 transform size and non-zero values of slice\_qp\_delta.

#### 6.6.31.7 Test bitstream #SVCHST-1

**Specification**: All slices are coded as I, P, EI, EP or EB slices. Each layer representation contains only one slice. disable\_deblocking\_filter\_idc is equal to 0. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. gaps\_in\_frame\_num\_value\_allowed\_flag is equal to 1. Reference picture list reordering and memory management control operations are used. transform\_8x8\_mode\_flag is equal to 1, specifying that 8x8 transform decoding process may be in use. DependencyIdMax is equal to 2, TemporalIdMax is equal to 2 and DQIdMax is equal to 32. extended\_spatial\_scalability is equal to 0. SpatialResolutionChangeFlag is equal to 1. no\_inter\_layer\_pred\_flag is equal to 0. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_header\_restriction\_flag is equal to 1. slice\_skip\_flag is equal to 0. adaptive\_base\_mode\_flag is equal to 1, specifying enabling inter-layer motion and intra prediction. adaptive\_residual\_prediction\_flag is equal to 1, specifying enabling inter-layer residual prediction. inter\_layer\_deblocking\_filter\_control\_present\_flag is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Gaps in frame\_num, reference picture list reordering, memory management control operations and decoding of EI, EP and EB coded slices of spatial and temporal enhancement layers, enabling inter-layer motion, intra and residual prediction, using 8x8 transform size with CABAC parsing.

**Purpose**: Check that the decoder can properly handle gaps in frame\_num, reference picture list reordering, memory management control operations and decoding of EI, EP and EB coded slices of spatial and temporal enhancement layers, enabling inter-layer motion, intra and residual prediction, using 8x8 transform size with CABAC parsing.

#### 6.6.31.8 Test bitstream #SVCHST-2

**Specification**: All slices are coded as I, P, EI, EP or EB slices. Each layer representation contains only one slice. disable\_deblocking\_filter\_idc is equal to 0. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. gaps\_in\_frame\_num\_value\_allowed\_flag is equal to 1. Reference picture list reordering and memory management control operations are used. transform\_8x8\_mode\_flag is equal to 1, specifying that 8x8 transform decoding process may be in use. DependencyIdMax is equal to 2, TemporalIdMax is equal to 2 and DQIdMax is equal to 32. extended\_spatial\_scalability is equal to 0. SpatialResolutionChangeFlag is equal to 0. no\_inter\_layer\_pred\_flag is equal to 0. discardable\_flag is equal to 1 for dependency representation with dependency\_id equal to 1. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_header\_restriction\_flag is equal to 1. slice\_skip\_flag is equal to 0. adaptive\_base\_mode\_flag is equal to 1 for dependency representation with dependency\_id equal to 1, specifying enabling inter-layer motion and intra prediction. adaptive\_residual\_prediction\_flag is equal to 1 for dependency representation with dependency\_id equal to 1, specifying enabling inter-layer residual prediction. inter\_layer\_deblocking\_filter\_control\_present\_flag is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Gaps in frame\_num, reference picture list reordering, memory management control operations and decoding of EI, EP and EB coded slices of spatial enhancement layers, enabling inter-layer motion, intra and residual prediction, using 8x8 transform size with CABAC parsing, with discardable\_flag equal to 1.

**Purpose**: Check that the decoder can properly handle gaps in frame\_num, reference picture list reordering, memory management control operations and decoding of EI, EP and EB coded slices of spatial enhancement layers, enabling inter-layer motion, intra and residual prediction, using 8x8 transform size with CABAC parsing, with discardable\_flag equal to 1.

#### 6.6.31.9 Test bitstream #SVCHST-3

**Specification**: All slices are coded as I, P, B, EI, EP or EB slices. Each dependency representation contains only one slice. disable\_deblocking\_filter\_idc is equal to 0, specifying enabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Reference picture list reordering and memory management control operations are used. transform\_8x8\_mode\_flag is equal to 1, specifying that 8x8 transform decoding process may be in use. slice\_qp\_delta is equal to a non-zero value to change the quantizer scale at each slice. mb\_adaptive\_frame\_field\_coding is equal to 1 for dependency representation with dependency\_id equal to 0. DependencyIdMax is equal to 2, TemporalIdMax is equal to 4 and DQIdMax is equal to 32. extended\_spatial\_scalability is equal to 1. SpatialResolutionChangeFlag is equal to 1. no\_inter\_layer\_pred\_flag is equal to 0. discardable\_flag is equal to 1 for dependency representation with dependency\_id equal to 1. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_header\_restriction\_flag is equal to 1. slice\_skip\_flag is equal to 0. adaptive\_base\_mode\_flag is equal to 1, specifying enabling inter-layer motion and intra prediction. adaptive\_motion\_prediction\_flag is equal to 1, specifying enabling inter-layer motion prediction. adaptive\_residual\_prediction\_flag is equal to 1, specifying enabling inter-layer residual prediction. inter\_layer\_deblocking\_filter\_idc is equal to 0, specifying enabling of the deblocking filter process for inter-layer intra prediction. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Interlace-to-progressive inter-layer prediction with mb\_adaptive\_frame\_field\_coding=1, reference picture list reordering, memory management control operations and decoding of EI, EP and EB coded slices of spatial enhancement layers, enabling inter-layer motion, intra and residual prediction, sequence level geometrical parameters, deblocking filter for inter-layer intra prediction, using 8x8 transform size with CABAC parsing and non-zero values of slice\_qp\_delta.

**Purpose**: Check that the decoder can properly handle interlace-to-progressive inter-layer prediction with mb\_adaptive\_frame\_field\_coding=1, reference picture list reordering, memory management control operations and decoding of EI, EP and EB coded slices of spatial enhancement layers, enabling inter-layer motion, intra and residual prediction, sequence level geometrical parameters, deblocking filter for inter-layer intra prediction, using 8x8 transform size with CABAC parsing and non-zero values of slice\_qp\_delta.

#### 6.6.31.10 Test bitstream #SVCHST-4

**Specification**: All slices are coded as I, P, B, EI, EP or EB slices. Each dependency representation contains only one slice. disable\_deblocking\_filter\_idc is equal to 0, specifying enabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Reference picture list reordering and memory management control operations are used. transform\_8x8\_mode\_flag is equal to 1, specifying that 8x8 transform decoding process may be in use. slice\_qp\_delta is equal to a non-zero value to change the quantizer scale at each slice. mb\_adaptive\_frame\_field\_coding is equal to 1 for dependency representation with dependency\_id equal to 0. DependencyIdMax is equal to 2, TemporalIdMax is equal to 2 and DQIdMax is equal to 32. extended\_spatial\_scalability is equal to 1. SpatialResolutionChangeFlag is equal to 1. no\_inter\_layer\_pred\_flag is equal to 0. discardable\_flag is equal to 1 for dependency representation with dependency\_id equal to 1. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_header\_restriction\_flag is equal to 1. slice\_skip\_flag is equal to 0. adaptive\_base\_mode\_flag is equal to 1, specifying enabling inter-layer motion and intra prediction. adaptive\_motion\_prediction\_flag is equal to 1, specifying enabling inter-layer motion prediction. adaptive\_residual\_prediction\_flag is equal to 1, specifying enabling inter-layer residual prediction. inter\_layer\_deblocking\_filter\_idc is equal to 0, specifying enabling of the deblocking filter process for inter-layer intra prediction. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Interlace-to-progressive inter-layer prediction with mb\_adaptive\_frame\_field\_coding=1, reference picture list reordering, memory management control operations and decoding of EI, EP and EB coded slices of spatial enhancement layers, enabling inter-layer motion, intra and residual prediction, sequence level geometrical parameters, deblocking filter for inter-layer intra prediction, using 8x8 transform size with CABAC parsing and non-zero values of slice\_qp\_delta.

**Purpose**: Check that the decoder can properly handle interlace-to-progressive inter-layer prediction with mb\_adaptive\_frame\_field\_coding=1, reference picture list reordering, memory management control operations and decoding of EI, EP and EB coded slices of spatial enhancement layers, enabling inter-layer motion, intra and residual prediction, sequence level geometrical parameters, deblocking filter for inter-layer intra prediction, using 8x8 transform size with CABAC parsing and non-zero values of slice\_qp\_delta.

#### 6.6.31.11 Test bitstream #SVCHMTS-1

**Specification**: All slices are coded as I, P, EI, EP or EB slices. Each layer representation contains only one slice. disable\_deblocking\_filter\_idc is equal to 0. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. gaps\_in\_frame\_num\_value\_allowed\_flag is equal to 1. Reference picture list reordering and memory management control operations are used. transform\_8x8\_mode\_flag is equal to 1, specifying that 8x8 transform decoding process may be in use. SEI messages are included in the bitstream. DependencyIdMax is equal to 1, TemporalIdMax is equal to 2 and DQIdMax is equal to 16. extended\_spatial\_scalability is equal to 0. SpatialResolutionChangeFlag is equal to 0 for layer representations with dependency\_id equal to 0 and quality\_id equal to 1 and 2, and for layer representation with dependency\_id equal to 1 and quality\_id equal to 1. SpatialResolutionChangeFlag is equal to 1 for layer representations with dependency\_id equal to 1 and quality\_id equal to 0. no\_inter\_layer\_pred\_flag is equal to 0. use\_ref\_base\_pic\_flag may be equal to 1, specifying that reference base pictures may be used as reference pictures for the inter prediction process. discardable\_flag is equal to 1 for layer representations with dependency\_id equal to 1 and quality\_id equal to 1 and for layer representations with dependency\_id equal to 0 and quality\_id equal to 2. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_header\_restriction\_flag is equal to 0 and store\_ref\_base\_pic\_flag may be equal to 1, specifying that the reference base picture may be used for inter prediction of following pictures in decoding order. slice\_skip\_flag is equal to 0. adaptive\_base\_mode\_flag is equal to 1, specifying enabling inter-layer motion and intra prediction. adaptive\_residual\_prediction\_flag is equal to 1, specifying enabling inter-layer residual prediction. inter\_layer\_deblocking\_filter\_control\_present\_flag is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Gaps in frame\_num, reference picture list reordering, memory management control operations and decoding of EI, EP and EB coded slices of quality, spatial and temporal enhancement layers, with quality layer information SEI messages and key pictures, enabling inter-layer motion, intra and residual prediction, using 8x8 transform size with CABAC parsing, with discardable\_flag equal to 1.

**Purpose**: Check that the decoder can properly handle gaps in frame\_num, reference picture list reordering, memory management control operations and decoding of EI, EP and EB coded slices of quality, spatial and temporal enhancement layers, with quality layer information SEI messages and key pictures, enabling inter-layer motion, intra and residual prediction, using 8x8 transform size with CABAC parsing, with discardable\_flag equal to 1.

#### 6.6.31.12 Test bitstream #SVCHMTS-2

**Specification**: All slices are coded as I, P, EI, EP or EB slices. Each layer representation contains only one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Reference picture list reordering and memory management control operations are used. transform\_8x8\_mode\_flag is equal to 1, specifying that 8x8 transform decoding process may be in use. DependencyIdMax is equal to 1, TemporalIdMax is equal to 2 and DQIdMax is equal to 16. extended\_spatial\_scalability is equal to 0. SpatialResolutionChangeFlag is equal to 0 for layer representation with dependency\_id equal to 0 and quality\_id equal to 1. SpatialResolutionChangeFlag is equal to 1 for layer representation with dependency\_id equal to 1 and quality\_id equal to 0. no\_inter\_layer\_pred\_flag is equal to 0. seq\_tcoeff\_level\_prediction\_flag is equal to 0. tcoeff\_level\_prediction\_flag is equal to 1, specifying that an alternative inter-layer prediction process is applied on a macroblock basis. slice\_header\_restriction\_flag is equal to 1. slice\_skip\_flag is equal to 0. default\_base\_mode\_flag is equal to 1, specifying inter-layer motion and intra prediction. default\_residual\_prediction\_flag is equal to 0. inter\_layer\_deblocking\_filter\_control\_present\_flag is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Reference picture list reordering, memory management control operations and decoding of EI, EP and EB coded slices of quality and spatial enhancement layers, using either an alternative inter-layer prediction process by macroblock for translation to an AVC bitstream or inter-layer motion and intra prediction, using 8x8 transform size with CABAC parsing.

**Purpose**: Check that the decoder can properly handle gaps in frame\_num, reference picture list reordering, memory management control operations and decoding of EI, EP and EB coded slices of quality and spatial enhancement layers, using either an alternative inter-layer prediction process by macroblock for translation to an AVC bitstream or inter-layer motion and intra prediction, using 8x8 transform size with CABAC parsing.

#### 6.6.31.13 Test bitstream #SVCHCTS-1

**Specification**: All slices are coded as I, P, EI, EP or EB slices. Each dependency representation contains only one slice. disable\_deblocking\_filter\_idc is equal to 0. entropy\_coding\_mode\_flag is equal to 1 for dependency\_id representations with dependency\_id greater than 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. Reference picture list reordering and memory management control operations are used. transform\_8x8\_mode\_flag is equal to 1 for dependency\_id representations with dependency\_id greater than 1, specifying that 8x8 transform decoding process may be in use. DependencyIdMax is equal to 5, TemporalIdMax is equal to 2 and DQIdMax is equal to 80. extended\_spatial\_scalability is equal to 0. SpatialResolutionChangeFlag is equal to 0 for dependency\_id representations with dependency\_id equal to 1, 2 and 4. SpatialResolutionChangeFlag is equal to 1 for dependency representations with dependency\_id equal to 5. no\_inter\_layer\_pred\_flag is equal to 1 for dependency representations with dependency\_id equal to 3. discardable\_flag is equal to 1 for dependency representations with dependency\_id equal to 2, 4 and 5. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_header\_restriction\_flag is equal to 1. slice\_skip\_flag is equal to 1 for dependency\_id representations with dependency\_id equal to 1. Adaptive\_base\_mode\_flag is equal to 1, enabling inter-layer motion and intra prediction. adaptive\_residual\_prediction\_flag is equal to 1, specifying enabling inter-layer residual prediction. inter\_layer\_deblocking\_filter\_control\_present\_flag is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Reference picture list reordering, memory management control operations and decoding of EI, EP and EB coded slices of spatial enhancement layers, using inter-layer motion, intra and residual prediction, using 8x8 transform size with CABAC parsing, no\_inter\_layer\_pred\_flag and discardable\_flag equal to 1.

**Purpose**: Check that the decoder can properly handle gaps in frame\_num, reference picture list reordering, memory management control operations and decoding of EI, EP and EB coded slices of spatial enhancement layers, using inter-layer motion, intra and residual prediction, using 8x8 transform size with CABAC parsing, no\_inter\_layer\_pred\_flag and discardable\_flag equal to 1.

#### 6.6.31.14 Test bitstream #SVCHSTC-1

**Specification**: All slices are coded as I, P, EI, EP or EB slices. Each layer representation contains only one slice. deblocking\_filter\_control\_present\_flag is equal to 0. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. DependencyIdMax is equal to 2, TemporalIdMax is equal to 3 and DQIdMax is equal to 32. extended\_spatial\_scalability is equal to 0. SpatialResolutionChangeFlag is equal to 1 for dependency representation with dependency\_id equal to 1. SpatialResolutionChangeFlag is equal to 0 for dependency representation with dependency\_id equal to 2. no\_inter\_layer\_pred\_flag is equal to 0. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_header\_restriction\_flag is equal to 0. slice\_skip\_flag is equal to 0. default\_base\_mode\_flag is equal to 1, specifying inter-layer motion and intra prediction. adaptive\_residual\_prediction\_flag is equal to 1, specifying enabling inter-layer residual prediction. inter\_layer\_deblocking\_filter\_control\_present\_flag is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of EI, EP and EB coded slices of spatial enhancement layers, using inter-layer motion and intra prediction and inter-layer residual prediction in transform and spatial domain, with 8x8 transform size and CABAC parsing.

**Purpose**: Check that the decoder can properly handle EI, EP and EB coded slices of spatial enhancement layers, using inter-layer motion and intra prediction and inter residual prediction in transform and spatial domain, with 8x8 transform size and CABAC parsing.

### 6.6.32 Test bitstreams – SVC Profiles: Scalable High Intra Profile 4:2:0 8 bit

#### 6.6.32.1 Test bitstream #SVCHIS-1

**Specification**: All slices are coded as IDR, or EIDR slices. Each dependency representation can contain more than one slice. disable\_deblocking\_filter\_idc is equal to 1, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. transform\_8x8\_mode\_flag is equal to 1, specifying that 8x8 transform decoding process may be in use. pic\_order\_cnt\_type is equal to 0. DependencyIdMax is equal to 2, TemporalIdMax is equal to 0 and DQIdMax is equal to 32. extended\_spatial\_scalability is equal to 0. SpatialResolutionChangeFlag is equal to 1. no\_inter\_layer\_pred\_flag is equal to 0. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_skip\_flag is equal to 0. adaptive\_base\_mode\_flag is equal to 1, specifying enabling inter-layer motion and intra prediction. adaptive\_motion\_prediction\_flag is equal to 1, specifying enabling inter-layer motion prediction. adaptive\_residual\_prediction\_flag is equal to 1, specifying enabling inter-layer residual prediction. inter\_layer\_deblocking\_filter\_control\_present\_flag is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of EIDR coded slices of spatial enhancement layers, 8x8 transform size with inter-layer intra prediction, using CABAC parsing.

**Purpose**: Check that the decoder can properly handle EIDR coded slices of spatial enhancement layers, 8x8 transform size with inter-layer intra prediction, using CABAC parsing.

#### 6.6.32.2 Test bitstream #SVCHIS-2

**Specification**: All slices are coded as IDR, or EIDR slices. Each dependency representation can contain more than one slice. deblocking\_filter\_control\_present\_flag is equal to 0. entropy\_coding\_mode\_flag is equal to 0, specifying the CAVLC parsing process. transform\_8x8\_mode\_flag is equal to 1, specifying that 8x8 transform decoding process may be in use. pic\_order\_cnt\_type is equal to 0. DependencyIdMax is equal to 2, TemporalIdMax is equal to 0 and DQIdMax is equal to 32. extended\_spatial\_scalability is equal to 1, specifying sending geometrical parameters in the sequence parameter set. SpatialResolutionChangeFlag is equal to 1 for the dependency representation with dependency\_id equal to 1. SpatialResolutionChangeFlag is equal to 1 for the dependency representation with dependency\_id equal to 2. no\_inter\_layer\_pred\_flag is equal to 0. seq\_tcoeff\_level\_prediction\_flag is equal to 0. slice\_skip\_flag is equal to 0. adaptive\_base\_mode\_flag is equal to 1, specifying enabling inter-layer motion and intra prediction. adaptive\_motion\_prediction\_flag is equal to 1, specifying enabling inter-layer motion prediction. adaptive\_residual\_prediction\_flag is equal to 1, specifying enabling inter-layer residual prediction. inter\_layer\_deblocking\_filter\_control\_present\_flag is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of EIDR coded slices of spatial enhancement layers, 8x8 transform size with inter-layer intra and residual prediction, sequence level geometrical parameters, with CAVLC parsing.

**Purpose**: Check that the decoder can properly handle EIDR coded slices of spatial enhancement layers, 8x8 transform size with inter-layer intra, sequence level geometrical parameters, with CAVLC parsing.

#### 6.6.32.3 Test bitstream #SVCHIS-3

**Specification**: All slices are coded as IDR, or EIDR slices. Each dependency representation can contain more than one slice. deblocking\_filter\_control\_present\_flag is equal to 0, specifying disabling of the deblocking filter process. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. transform\_8x8\_mode\_flag is equal to 1, specifying that 8x8 transform decoding process may be in use. pic\_order\_cnt\_type is equal to 0. DependencyIdMax is equal to 2, TemporalIdMax is equal to 0 and DQIdMax is equal to 32. extended\_spatial\_scalability is equal to 1, specifying sending geometrical parameters in the sequence parameter set. SpatialResolutionChangeFlag is equal to 1 for the dependency representation with dependency\_id equal to 1. SpatialResolutionChangeFlag is equal to 1 for the dependency representation with dependency\_id equal to 2. no\_inter\_layer\_pred\_flag is equal to 1, specifying disabling inter-layer prediction. seq\_tcoeff\_level\_prediction\_flag is equal to 0. inter\_layer\_deblocking\_filter\_control\_present\_flag is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of EIDR coded slices of spatial enhancement layers, without inter-layer prediction, sequence level geometrical parameters using 8x8 transform size with CABAC parsing.

**Purpose**: Check that the decoder can properly handle EIDR coded slices of spatial enhancement layers, without inter-layer prediction, sequence level geometrical parameters using 8x8 transform size with CABAC parsing.

#### 6.6.32.4 Test bitstream #SVCHICS-1

**Specification**: All slices are coded as IDR, or EIDR slices. Each dependency representation contains only one slice. deblocking\_filter\_control\_present\_flag is equal to 0. entropy\_coding\_mode\_flag is equal to 1, specifying the CABAC parsing process. pic\_order\_cnt\_type is equal to 0. DependencyIdMax is equal to 2, TemporalIdMax is equal to 0 and DQIdMax is equal to 32. extended\_spatial\_scalability is equal to 0. SpatialResolutionChangeFlag is equal to 0 for dependency representations with dependency\_id equal to 1 and 3. SpatialResolutionChangeFlag is equal to 1 for the dependency representation with dependency\_id equal to 2. no\_inter\_layer\_pred\_flag is equal to 0. tcoeff\_level\_prediction\_flag is equal to 1 for dependency representation with dependency\_id equal to 1, specifying that an alternative inter-layer prediction process is applied on a macroblock basis. seq\_tcoeff\_level\_prediction\_flag is equal to 1 for dependency representation with dependency\_id equal to 2 and 3. slice\_header\_restriction\_flag is equal to 0. slice\_skip\_flag is equal to 0. default\_base\_mode\_flag is equal to 1, specifying inter-layer intra prediction. adaptive\_residual\_prediction\_flag is equal to 1, specifying inter-layer residual prediction. inter\_layer\_deblocking\_filter\_control\_present\_flag is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496‑10.

**Functional stage**: Decoding of EIDR coded slices of quality enhancement layers, using an alternative inter-layer prediction process by macroblock for translation to an AVC bitstream, and spatial enhancement layers, using inter-layer intra and residual prediction, with deblocking filter for inter-layer intra prediction and CABAC parsing.

**Purpose**: Check that the decoder can properly handle EIDR coded slices of quality enhancement layers, using an alternative inter-layer prediction process by macroblock for translation to an AVC bitstream, and spatial enhancement layers, using inter-layer intra and residual prediction, with deblocking filter for inter-layer intra prediction and CABAC parsing.

### 6.6.33 Test bitstreams – Multiview High Profile

#### 6.6.33.1 Test bitstream #MVCDS-1

**Specification**: All slices are coded as I slices. Only the first picture is coded as an IDR access unit. Each view component contains only one slice. num\_views\_minus1 is equal to 1. num\_anchor\_refs\_lX and num\_non\_anchor\_refs\_lX are equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU-T H.264 | ISO/IEC 14496-10.

**Functional stage**: Decoding of two views without inter-prediction or inter-view prediction.

**Purpose**: Check that the decoder can properly decode multiple view components.

#### 6.6.33.2 Test bitstream #MVCDS-2

**Specification**: All slices are coded as I, P or B slices. Only the first picture is coded as an IDR access unit. Each view component contains only one slice. num\_views\_minus1 is equal to 1. num\_anchor\_refs\_lX and num\_non\_anchor\_refs\_lX are equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU-T H.264 | ISO/IEC 14496-10.

**Functional stage**: Decoding of two views with inter-prediction, but without inter-view prediction.

**Purpose**: Check that the decoder can properly decode multiple view components with inter-prediction.

#### 6.6.33.3 Test bitstream #MVCDS-3

**Specification**: All slices are coded as I or P slices. Only the first picture is coded as an IDR access unit with all subsequent pictures coded as anchor access units. Each view component contains only one slice. num\_views\_minus1 is equal to 1. num\_anchor\_refs\_l0 is equal to 1, num\_anchor\_refs\_l1 is equal to 0, and num\_non\_anchor\_refs\_lX is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU-T H.264 | ISO/IEC 14496-10.

**Functional stage**: Decoding of two views with inter-view prediction in anchor pictures, but without inter-prediction within views.

**Purpose**: Check that the decoder can properly decode multiple view components with inter-view prediction in anchor pictures.

#### 6.6.33.4 Test bitstream #MVCDS-4

**Specification**: All slices are coded as I, P or B slices. Only the first picture is coded as an IDR access unit. Each view component contains only one slice. num\_views\_minus1 is equal to 1. num\_anchor\_refs\_l0 is equal to 1, and num\_non\_anchor\_refs\_l0 is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU-T H.264 | ISO/IEC 14496-10.

**Functional stage**: Decoding of two views with inter-prediction, and inter-view prediction in anchor pictures.

**Purpose**: Check that the decoder can properly decode multiple view components with inter-prediction, as well as inter‑view prediction in anchor pictures.

#### 6.6.33.5 Test bitstream #MVCDS-5

**Specification**: All slices are coded as I, P or B slices. Only the first picture is coded as an IDR access unit. Each view component contains only one slice. num\_views\_minus1 is equal to 1. num\_anchor\_refs\_l0 and num\_non\_anchor\_refs\_l0 are equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU-T H.264 | ISO/IEC 14496-10.

**Functional stage**: Decoding of two views with inter-prediction, and inter-view prediction in both anchor pictures and non-anchor pictures.

**Purpose**: Check that the decoder can properly decode multiple view components with inter-prediction, as well as inter-view prediction in both anchor and non-anchor access units.

#### 6.6.33.6 Test bitstream #MVCDS-6

**Specification**: All slices are coded as I, P or B slices. Only the first picture is coded as an IDR access unit. Each view component contains only one slice. num\_views\_minus1 is equal to 1. num\_anchor\_refs\_l0 and num\_non\_anchor\_refs\_l0 are equal to 1. inter\_view\_flag is equal to 0 for a subset of non-anchor view components of the base view. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU-T H.264 | ISO/IEC 14496-10.

**Functional stage**: Decoding of two views with inter-prediction, and inter-view prediction in both anchor pictures and non-anchor pictures.

**Purpose**: Check that the decoder can properly decode multiple view components with inter-prediction, as well as inter-view prediction in both anchor and non-anchor access units, with different settings of inter\_view\_flag in different view components.

#### 6.6.33.7 Test bitstream #MVCNV-1

**Specification**: All slices are coded as I, P or B slices. Only the first picture is coded as an IDR access unit. Each view component contains only one slice. num\_views\_minus1 is equal to 2, and the views are denoted as A, B, and C, where view A is the base view, and views B and C are non-base views. View B refers to view A, and view C refers to view B. num\_anchor\_refs\_l0 and num\_non\_anchor\_refs\_l0 for view B and C are equal to 1, respectively. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU-T H.264 | ISO/IEC 14496-10.

**Functional stage**: Decoding of three views with inter-prediction and inter-view prediction in anchor access units and non-anchor pictures.

**Purpose**: Check that the decoder can properly decode three views with inter-prediction, as well as inter-view prediction in anchor access units.

#### 6.6.33.8 Test bitstream #MVCNV-2

**Specification**: All slices are coded as I, P or B slices. Only the first picture is coded as an IDR access unit. Each view component contains only one slice. num\_views\_minus1 is equal to 7, and the views are denoted as A, B, C, D, E, F, G, H, where view A is the base view, and other views are non-base views. View C refers to view A, view B refers to view A and view C, view E refers to view C, view D refers to view C and view E, view G refers to view E, view F refers to view E and view G, and view H refers to view G. num\_anchor\_refs\_l0 and num\_non\_anchor\_refs\_l0 for view C, E, G, and H are equal to 1, respectively, and num\_anchor\_refs\_lX (X=0,1) and num\_non\_anchor\_refs\_lX (X=0,1) for view B, D, and F are equal to 1, respectively. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU-T H.264 | ISO/IEC 14496-10.

**Functional stage**: Decoding of eight views with inter-prediction and inter-view prediction in anchor access units and non-anchor pictures.

**Purpose**: Check that the decoder can properly decode eight views with inter-prediction, as well as inter-view prediction in anchor access units.

#### 6.6.33.9 Test bitstream #MVCNV-3

**Specification**: All slices are coded as I, P or B slices. Only the first picture is coded as an IDR access unit. Each view component contains only one slice. num\_views\_minus1 is equal to 2, and the views are denoted as A, B, and C, where view A is the base view, and views B and C are non-base views. View B refers to view A, and view C does not refer to either view A or B, i.e., it is an independently coded non-base view. num\_anchor\_refs\_l0 and num\_non\_anchor\_refs\_l0 for view C is equal to 1. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496-10.

**Functional stage**: Decoding of three views including a base view with inter-prediction, a non-base view with inter-prediction but no inter-view prediction, and a non-base view with inter-view prediction from the base view and non-base view without inter-view prediction.

**Purpose**: Check that the decoder can properly decode a bitstream including a mix of non-base views with and without inter-view prediction.

#### 6.6.33.10 Test bitstream #MVCNV-4

**Specification**: All slices are coded as I or P slices. Only the first picture is coded as an IDR access unit with all subsequent pictures coded as anchor access units. Each view component contains only one slice. num\_views\_minus1 is equal to 3, and the views are denoted as A, B, C, and D, where view A is the base view, and views B, C and D are non-base views. View B refers to view A, view C refers to view B, and view D refers to view C. num\_anchor\_refs\_l0 is equal to 1, num\_anchor\_refs\_l1 is equal to 0, and num\_non\_anchor\_refs\_lX is equal to 0. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU-T H.264 | ISO/IEC 14496-10.

**Functional stage**: Decoding of four views with inter-view prediction in anchor pictures and subsequent predictions over the views, but without inter-prediction within views.

**Purpose**: Check that the decoder can properly decode multiple view components with inter-view prediction in anchor pictures for a higher number of views.

#### 6.6.33.11 Test bitstream #MVCRP-1

**Specification** All slices are coded as I, P or B slices. Only the first picture is coded as an IDR access unit. Each view component contains only one slice. num\_views\_minus1 is equal to 1. pic\_order\_cnt\_type is equal to 0. Reference picture list reordering is used without reordering\_of\_pic\_nums\_idc equal to 4 or 5. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU-T H.264 | ISO/IEC 14496-10.

**Functional stage**: Reference picture list reordering of reference pictures used for inter-prediction.

**Purpose**: Check that the decoder handles reference picture list reordering of reference pictures used for inter-prediction.

#### 6.6.33.12 Test bitstream #MVCRP-2

**Specification**: All slices are coded as I, P or B slices. Only the first picture is coded as an IDR access unit. Each view component contains only one slice. num\_views\_minus1 is equal to 1. pic\_order\_cnt\_type is equal to 0. Memory management control operations are used. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU-T H.264 | ISO/IEC 14496-10.

**Functional stage**: Memory management control operations in context of decoding multiple view components.

**Purpose**: Check that the decoder handles memory management control operations.

#### 6.6.33.13 Test bitstream #MVCRP-3

**Specification** All slices are coded as I or P slices. Only the first picture is coded as an IDR access unit. Each view component contains only one slice. num\_views\_minus1 is equal to 1. pic\_order\_cnt\_type is equal to 0. Reference picture list reordering is used including reordering\_of\_pic\_nums\_idc equal to 4 and 5. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU-T H.264 | ISO/IEC 14496-10.

**Functional stage**: Reference picture list reordering of reference pictures used for both inter-prediction and inter-view prediction.

**Purpose**: Check that the decoder handles reference picture list reordering of reference pictures used for both inter-prediction and inter-view prediction.

#### 6.6.33.14 Test bitstream #MVCRP-4

**Specification** All slices are coded as I, P or B slices. Only the first picture is coded as an IDR access unit. Each view component contains only one slice. num\_views\_minus1 is equal to 1. pic\_order\_cnt\_type is equal to 2. Reference picture list reordering including reordering\_of\_pic\_nums\_idc equal to 4 and 5, and memory management control operations, are used. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496-10.

**Functional stage**: Reference picture list reordering for both inter-prediction and inter-view prediction, and memory management control operations.

**Purpose**: Check that the decoder handles reference picture list reordering and memory management control operations.

#### 6.6.33.15 Test bitstream #MVCRP-5

**Specification** All slices are coded as I, P or B slices. Only the first picture is coded as an IDR access unit. Each view component contains only one slice. num\_views\_minus1 is equal to 1. pic\_order\_cnt\_type is equal to 2. gaps\_in\_frame\_num\_value\_allowed\_flag is equal to 1. Reference picture list reordering including reordering\_of\_pic\_nums\_idc equal to 4 and 5, and memory management control operations, are used. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU-T H.264 | ISO/IEC 14496-10.

**Functional stage**: Reference picture list reordering and memory management control operations.

**Purpose**: Check that the decoder handles gaps in frame\_num, reference picture list reordering and memory management control operations.

#### 6.6.33.16 Test bitstream #MVCRP-6

**Specification**: All slices are coded as I or P or B slices. Only the first picture is coded as an IDR access unit. Each view component contains only one slice. num\_views\_minus1 is equal to 1. pic\_order\_cnt\_type is equal to 0. gaps\_in\_frame\_num\_value\_allowed\_flag is equal to 1. Reference picture list reordering including reordering\_of\_pic\_nums\_idc equal to 4 and 5, and memory management control operations, are used. The decoding order is different from the output order. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU-T H.264 | ISO/IEC 14496-10.

**Functional stage**: Reference picture list reordering, memory management control operations and non-increasing PicOrderCnt values.

**Purpose**: Check that the decoder handles reference picture list reordering and memory management control operations. Test output order conformance for non-increasing PicOrderCnt values.

#### 6.6.33.17 Test bitstream #MVCSPS-1

**Specification**: All slices are coded as I or P slices. Only the first picture is coded as an IDR access unit. Each view component contains only one slice. num\_views\_minus1 is equal to 1. Value of syntax elements in sequence parameter sets for each view vary. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU‑T H.264 | ISO/IEC 14496-10.

**Functional stage**: Decoding of multiple views with different values of syntax elements in sequence parameter sets.

**Purpose**: Check that the decoder handles variation in sequence parameter sets for each view.

#### 6.6.33.18 Test bitstream #MVCSPS-2

**Specification**: All slices are coded as I or P slices. Only the first picture is coded as an IDR access unit. Each view component contains only one slice. num\_views\_minus1 is equal to 7, but only two views in the bitstream. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU-T H.264 | ISO/IEC 14496-10.

**Functional stage**: Decoding of sub-bitstream where num\_views\_minus1 does not correspond to actual number of views in bitstream.

**Purpose**: Check that the decoder handles bitstreams that have undergone sub-bitstream extraction process.

### 6.6.34 Test bitstreams – Stereo High Profile

#### 6.6.34.1 Test bitstream #MVCICT-1

**Specification**: All slices are coded as I, P or B slices. Only the first picture is coded as an IDR access unit. Each view component contains only one slice. num\_views\_minus1 is equal to 1. num\_anchor\_refs\_l0 and num\_non\_anchor\_refs\_l0 are equal to 1. field\_pic\_flag is equal to 1 for each picture. Reference picture list reordering is used with reordering\_of\_pic\_nums\_idc equal to 4 or 5. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU-T H.264 | ISO/IEC 14496-10.

**Functional stage**: Decoding of two views with inter-prediction, and each view component is coded as a field picture.

**Purpose**: Check that the decoder handles reference picture list reordering for field pictures.

#### 6.6.34.2 Test bitstream #MVCICT-2

**Specification**: All slices are coded as I, P or B slices. Only the first picture is coded as an IDR access unit. Each view component contains only one slice. num\_views\_minus1 is equal to 1. num\_anchor\_refs\_l0 and num\_non\_anchor\_refs\_l0 are equal to 1. mb\_adaptive\_frame\_field\_flag is equal to 1. field\_pic\_flag is equal to 0 for each picture. Reference picture list reordering is used with reordering\_of\_pic\_nums\_idc equal to 4 or 5. All NAL units are encapsulated into the byte stream format specified in Annex B in ITU-T H.264 | ISO/IEC 14496-10.

**Functional stage**: Decoding of two views with inter-prediction, and each view component is coded as a mbaff frame picture.

**Purpose**: Check that the decoder handles reference picture list reordering for mbaff frame pictures.

## 6.7 Normative test suites for ITU‑T H.264 | ISO/IEC 14496‑10

*Legend:*

X – Bitstream is for static and dynamic test

| Table 1 – Bitstreams for the Constrained Baseline, Baseline, Extended and Main profiles | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Categories | Bitstream | Donated by | File name | Constrained Baseline | Baseline | Extended | Main | Level | Frame rate (Frames/sec) |
| General | AVCNL-1 | Sony | NL1\_Sony\_D | X | X | X | X | 1.2 and higher | 15 |
|  | AVCNL-2 | SVA | SVA\_NL1\_B | X | X | X | X | 2.1 and higher | 29.97 |
|  | AVCNL-3 | Sony | NL2\_Sony\_H | X | X | X | X | 3.1 and higher | 15 |
|  | AVCNL-4 | SVA | SVA\_NL2\_E | X | X | X | X | 2.1 and higher | 29.97 |
|  | AVCBA-1 | Sony | BA1\_Sony\_D | X | X | X | X | 1.2 and higher | 15 |
|  | AVCBA-2 | SVA | SVA\_BA1\_B | X | X | X | X | 2.1 and higher | 29.97 |
|  | AVCBA-3 | Sony | BA2\_Sony\_F | X | X | X | X | 3.1 and higher | 15 |
|  | AVCBA-4 | SVA | SVA\_BA2\_D | X | X | X | X | 2.1 and higher | 29.97 |
|  | AVCBA-5 | MCubeworks | BA\_MW\_D | X | X | X | X | 1 and higher | 15 |
|  | AVCBA-6 | MCubeworks | BANM\_MW\_D | X | X | X | X | 1 and higher | 15 |
|  | AVCBA-7 | France Telecom | BA1\_FT\_C | X | X | X | X | 2 and higher | 25 |
|  | AVCMQ-1 | JVC | NLMQ1\_JVC\_C | X | X | X | X | 2 and higher | 25 |
|  | AVCMQ-2 | JVC | NLMQ2\_JVC\_C | X | X | X | X | 2 and higher | 25 |
|  | AVCMQ-3 | JVC | BAMQ1\_JVC\_C | X | X | X | X | 2 and higher | 25 |
|  | AVCMQ-4 | JVC | BAMQ2\_JVC\_C | X | X | X | X | 2 and higher | 25 |
|  | AVCSL-1 | SVA | SVA\_Base\_B | X | X | X | X | 2.1 and higher | 29.97 |
|  | AVCSL-2 | SVA | SVA\_FM1\_E | X | X | X | X | 2.1 and higher | 29.97 |
|  | AVCSQ-1 | Sony | BASQP1\_Sony\_C | X | X | X | X | 2.1 and higher | 15 |
|  | AVCFM-1 | British Telecom | FM1\_BT\_B |  | X | X |  | 1 and higher | 5 |
|  | AVCFM-2 | SVA | FM2\_SVA\_C |  | X | X |  | 2.1 and higher | 15 |
|  | AVCFM-3 | France Telecom | FM1\_FT\_E |  | X | X |  | 2 and higher | 25 |
|  | AVCCI-1 | MCubeworks | CI\_MW\_D | X | X | X | X | 1 and higher | 15 |
|  | AVCCI-2 | SVA | SVA\_CL1\_E | X | X | X | X | 2.1 and higher | 29.97 |
|  | AVCCI-3 | France Telecom | CI1\_FT\_B | X | X | X | X | 2 and higher | 25 |
|  | AVCFC-1 | Sony | CVFC1\_Sony\_C | X | X | X | X | 3.1 and higher | 29.97 |
|  | AVCAUD-1 | Mcubeworks | AUD\_MW\_E | X | X | X | X | 1 and higher | 15 |
|  | AVCMIDR-1 | Mcubeworks | MIDR\_MW\_D | X | X | X | X | 1 and higher | 15 |
|  | AVCNRF-1 | Mcubeworks | NRF\_MW\_E | X | X | X | X | 1 and higher | 15 |
|  | AVCMPS-1 | Mcubeworks | MPS\_MW\_A | X | X | X | X | 1.1 and higher | 15 |
|  | AVCBS-1 | Sony | CVBS3\_Sony\_C |  |  | X | X | 1.2 and higher | 15 |
|  | AVCBS-2 | SVA | BA3\_SVA\_C |  |  | X | X | 2.1 and higher | 29.97 |
|  | AVCBS-3 | SVA | SL1\_SVA\_B |  |  |  | X | 2.1 and higher | 29.97 |
|  | AVCBS-4 | SVA | NL3\_SVA\_E |  |  | X | X | 1.1 and higher | 29.97 |
|  | AVCBS-5 | Motorola | cavlc\_mot\_frm0\_full\_B |  |  | X | X | 3 and higher | 29.97 |
| I\_PCM | AVCPCM-1 | SVA | CVPCMNL1\_SVA\_C | X | X | X | X | 4 and higher | 29.97 |
|  | AVCPCM-2 | SVA | CVPCMNL2\_SVA\_C | X | X | X | X | 4 and higher | 60 |
| MMCO | AVCMR-1 | British Telecom | MR1\_BT\_A | X | X | X | X | 1.1 and higher | 20 |
|  | AVCMR-2 | Tandberg | MR2\_Tandberg\_E |  | X | X |  | 3.1 and higher | 29.97 |
|  | AVCMR-3 | Tandberg | MR3\_Tandberg\_B |  | X | X |  | 3.1 and higher | 29.97 |
|  | AVCMR-4 | Tandberg | MR4\_Tandberg\_C |  | X | X |  | 3.1 and higher | 29.97 |
|  | AVCMR-5 | Tandberg | MR5\_Tandberg\_C |  | X | X |  | 3.1 and higher | 29.97 |
|  | AVCMR-6 | Mcubeworks | MR1\_MW\_A | X | X | X | X | 1.1 and higher | 15 |
|  | AVCMR-7 | Mcubeworks | MR2\_MW\_A | X | X | X | X | 1.1 and higher | 15 |
|  | AVCMR-8 | British Telecom | MR6\_BT\_B |  |  | X | X | 2.1 and higher | 25 |
|  | AVCMR-9 | British Telecom | MR7\_BT\_B |  |  | X | X | 2.1 and higher | 25 |
|  | AVCMR-10 | British Telecom | MR8\_BT\_B |  |  | X | X | 2.1 and higher | 25 |
|  | AVCMR-11 | HHI | HCBP1\_HHI\_A | X | X | X | X | 3.1 and higher | 29.97 |
|  | AVCMR-12 | HHI | HCBP2\_HHI\_A | X | X | X | X | 3.1 and higher | 29.97 |
| WP | AVCWP-1 | Toshiba | CVWP5\_TOSHIBA\_E |  |  | X | X | 2 and higher | 7.5 |
|  | AVCWP-2 | Toshiba | CVWP1\_TOSHIBA\_E |  |  |  | X | 2 and higher | 7.5 |
|  | AVCWP-3 | Toshiba | CVWP2\_TOSHIBA\_E |  |  |  | X | 2 and higher | 7.5 |
|  | AVCWP-4 | Toshiba | CVWP3\_TOSHIBA\_E |  |  |  | X | 2 and higher | 7.5 |
| Field coding | AVCFI-1 | Sony | CVNLFI1\_Sony\_C |  |  | X | X | 3.1 and higher | 29.97 |
|  | AVCFI-2 | Sony | CVNLFI2\_Sony\_H |  |  | X | X | 3.1 and higher | 29.97 |
|  | AVCFI-3 | Sharp Labs | Sharp\_MP\_Field1\_B |  |  | X | X | 3 and higher | 29.97 |
|  | AVCFI-4 | Sharp Labs | Sharp\_MP\_Field2\_B |  |  | X | X | 3 and higher | 29.97 |
|  | AVCFI-5 | Sharp Labs | Sharp\_MP\_Field3\_B |  |  | X | X | 3 and higher | 29.97 |
|  | AVCFI-6 | Sony | CVFI1\_Sony\_D |  |  | X | X | 3.1 and higher | 29.97 |
|  | AVCFI-7 | Sony | CVFI2\_Sony\_H |  |  |  | X | 3.1 and higher | 29.97 |
|  | AVCFI-8 | Sony | FI1\_Sony\_E |  |  | X | X | 2.1 and higher | 29.97 |
|  | AVCFI-9 | SVA | CVFI1\_SVA\_C |  |  |  | X | 3 and higher | 29.97 |
|  | AVCFI-10 | SVA | CVFI2\_SVA\_C |  |  | X | X | 3 and higher | 29.97 |
|  | AVCFI-11 | Motorola | cavlc\_mot\_fld0\_full\_B |  |  | X | X | 2.2 and higher | 29.97 |
|  | AVCFI-12 | Motorola | CVMP\_MOT\_FLD\_L30\_B |  |  | X | X | 3 and higher | 29.97 |
| Frame/field coding | AVCPA-1 | Sharp Labs | Sharp\_MP\_PAFF\_1r2 |  |  | X | X | 3 and higher | 29.97 |
|  | AVCPA-2 | Toshiba | CVPA1\_TOSHIBA\_B |  |  | X | X | 2.1 and higher | 25 |
|  | AVCPA-3 | Motorola | cavlc\_mot\_picaff0\_full\_B |  |  | X | X | 2.2 and higher | 29.97 |
| MBAFF | AVCMA-1 | Toshiba | CVMANL1\_TOSHIBA\_B |  |  | X | X | 2.1 and higher | 25 |
|  | AVCMA-2 | Toshiba | CVMANL2\_TOSHIBA\_B |  |  | X | X | 2.1 and higher | 25 |
|  | AVCMA-3 | Sony | CVMA1\_Sony\_D |  |  | X | X | 3.1 and higher | 29.97 |
|  | AVCMA-4 | Toshiba | CVMA1\_TOSHIBA\_B |  |  | X | X | 2.1 and higher | 25 |
|  | AVCMA-5 | Sony | CVMAQP2\_Sony\_G |  |  | X | X | 3.1 and higher | 29.97 |
|  | AVCMA-6 | Sony | CVMAQP3\_Sony\_D |  |  | X | X | 2.1 and higher | 29.97 |
|  | AVCMA-7 | Sony | CVMAPAQP3\_Sony\_E |  |  | X | X | 3.1 and higher | 29.97 |
|  | AVCMA-8 | Motorola | cavlc\_mot\_mbaff0\_full\_B |  |  | X | X | 2.2 and higher | 29.97 |
|  | AVCMA-9 | Motorola | CVMP\_MOT\_FRM\_L31\_B |  |  | X | X | 3.1 and higher | 29.97 |
| S Picture | AVCSP-1 | British Telecom | SP1\_BT\_A |  |  | X |  | 1 and higher | 10 |
|  | AVCSP-2 | British Telecom | SP2\_BT\_B |  |  | X |  | 1 and higher | 20 |
| Long sequence | AVCLS-1 | SVA | LS\_SVA\_D | X | X | X | X | 1.3 and higher | 29.97 |
| SEI/VUI | AVCSE-1 | Sony | CVSE2\_Sony\_B |  |  | X | X | 2.1 and higher | 15 |
|  | AVCSE-2 | Sony | CVSE3\_Sony\_H |  |  | X | X | 2.1 and higher | 15 |
|  | AVCSE-3 | Sony | CVSEFDFT3\_Sony\_E |  |  | X | X | 2.1 and higher | 15 |
| CABAC | AVCCANL-1 | Toshiba | CANL1\_TOSHIBA\_G |  |  |  | X | 1.2 and higher | 29.97 |
|  | AVCCANL-2 | Sony | CANL1\_Sony\_E |  |  |  | X | 2.1 and higher | 15 |
|  | AVCCANL-3 | Sony | CANL2\_Sony\_E |  |  |  | X | 2.1 and higher | 15 |
|  | AVCCANL-4 | Sony | CANL3\_Sony\_C |  |  |  | X | 1.2 and higher | 15 |
|  | AVCCANL-5 | SVA | CANL1\_SVA\_B |  |  |  | X | 2.1 and higher | 29.97 |
|  | AVCCANL-6 | SVA | CANL2\_SVA\_B |  |  |  | X | 2.1 and higher | 29.97 |
|  | AVCCANL-7 | SVA | CANL3\_SVA\_B |  |  |  | X | 2.1 and higher | 29.97 |
|  | AVCCANL-8 | SVA | CANL4\_SVA\_B |  |  |  | X | 2.1 and higher | 29.97 |
|  | AVCCABA-1 | Sony | CABA1\_Sony\_D |  |  |  | X | 2.1 and higher | 15 |
|  | AVCCABA-2 | Sony | CABA2\_Sony\_E |  |  |  | X | 2.1 and higher | 15 |
|  | AVCCABA-3 | Sony | CABA3\_Sony\_C |  |  |  | X | 1.2 and higher | 15 |
|  | AVCCABA-4 | Toshiba | CABA3\_TOSHIBA\_E |  |  |  | X | 1.2 and higher | 29.97 |
|  | AVCCABA-5 | SVA | CABA1\_SVA\_B |  |  |  | X | 2.1 and higher | 29.97 |
|  | AVCCABA-6 | SVA | CABA2\_SVA\_B |  |  |  | X | 2.1 and higher | 29.97 |
|  | AVCCABA-7 | SVA | CABA3\_SVA\_B |  |  |  | X | 2.1 and higher | 29.97 |
|  | AVCCABA-8 | Motorola | cabac\_mot\_frm0\_full |  |  |  | X | 3 and higher | 29.97 |
| CABAC: Initialization | AVCCAIN-1 | Sony | CABACI3\_Sony\_B |  |  |  | X | 2.1 and higher | 15 |
| CABAC: MB QP Delta | AVCCAQP-1 | Sony | CAQP1\_Sony\_B |  |  |  | X | 1.2 and higher | 15 |
|  | AVCCAQP-2 | Sony | CACQP3\_Sony\_D |  |  |  | X | 2.1 and higher | 15 |
| CABAC: Slice | AVCCASL-1 | Sony | CABAST3\_Sony\_E |  |  |  | X | 2.1 and higher | 29.97 |
|  | AVCCASL-2 | Sony | CABASTBR3\_Sony\_B |  |  |  | X | 2.1 and higher | 29.97 |
| CABAC: I\_PCM | AVCCAPCM-1 | Broadcom | CAPCMNL1\_Sand\_E |  |  |  | X | 4 and higher | 29.97 |
|  | AVCCAPCM-2 | Broadcom | CAPCM1\_Sand\_E |  |  |  | X | 4 and higher | 29.97 |
|  | AVCCAPCM-3 | Sony | CAPM3\_Sony\_D |  |  |  | X | 2.1 and higher | 15 |
| CABAC: MMCO | AVCCAMR-1 | British Telecom | MR9\_BT\_B |  |  |  | X | 2.1 and higher | 25 |
|  | AVCCAMR-2 | HHI | HCMP1\_HHI\_A |  |  |  | X | 3 and higher | 29.97 |
| CABAC: WP | AVCCAWP-1 | Toshiba | CAWP1\_TOSHIBA\_E |  |  |  | X | 2 and higher | 7.5 |
|  | AVCCAWP-2 | Toshiba | CAWP5\_TOSHIBA\_E |  |  |  | X | 2 and higher | 7.5 |
| CABAC: Field coding | AVCCAFI-1 | Broadcom | CABREF3\_Sand\_D |  |  |  | X | 4 and higher | 29.97 |
|  | AVCCAFI-2 | SVA | CAFI\_SVA\_C |  |  |  | X | 3 and higher | 29.97 |
|  | AVCCAFI-3 | Motorola | cabac\_mot\_fld0\_full |  |  |  | X | 2.2 and higher | 29.97 |
| CABAC: Frame/field coding | AVCCAPA-1 | Sharp Labs | Sharp\_MP\_PAFF\_2r |  |  |  | X | 3 and higher | 29.97 |
|  | AVCCAPA-2 | Toshiba | CAPA1\_TOSHIBA\_B |  |  |  | X | 2.1 and higher | 25 |
|  | AVCCAPA-3 | Motorola | cabac\_mot\_paff0\_full |  |  |  | X | 2.2 and higher | 29.97 |
| CABAC: MBAFF | AVCCAMA-1 | Toshiba | CAMANL1\_TOSHIBA\_B |  |  |  | X | 2.1 and higher | 25 |
|  | AVCCAMA-2 | Toshiba | CAMANL2\_TOSHIBA\_B |  |  |  | X | 2.1 and higher | 25 |
|  | AVCCAMA-3 | Sony | CANLMA2\_Sony\_C |  |  |  | X | 3.1 and higher | 29.97 |
|  | AVCCAMA-4 | Sony | CANLMA3\_Sony\_C |  |  |  | X | 3.1 and higher | 29.97 |
|  | AVCCAMA-5 | Sony | CAMA1\_Sony\_C |  |  |  | X | 3.1 and higher | 29.97 |
|  | AVCCAMA-6 | Toshiba | CAMA1\_TOSHIBA\_B |  |  |  | X | 2.1 and higher | 25 |
|  | AVCCAMA-7 | Broadcom | CAMANL3\_Sand\_E |  |  |  | X | 4 and higher | 29.97 |
|  | AVCCAMA-8 | Broadcom | CAMA3\_Sand\_E |  |  |  | X | 4 and higher | 29.97 |
|  | AVCCAMA-9 | Sony | CAMASL3\_Sony\_B |  |  |  | X | 2.1 and higher | 29.97 |
|  | AVCCAMA-10 | Sony | CAMACI3\_Sony\_C |  |  |  | X | 2.1 and higher | 29.97 |
|  | AVCCAMA-11 | Motorola | cabac\_mot\_mbaff0\_full |  |  |  | X | 2.2 and higher | 29.97 |
|  | AVCCAMA-12 | Motorola | CAMP\_MOT\_MBAFF\_L30 |  |  |  | X | 3 and higher | 29.97 |
|  | AVCCAMA-13 | Motorola | CAMP\_MOT\_MBAFF\_L31 |  |  |  | X | 3.1 and higher | 29.97 |
|  | AVCCAPAMA-1 | Broadcom | CAPAMA3\_Sand\_F |  |  |  | X | 4 and higher | 29.97 |
|  | AVCCAPAMA-2 | VideoTele.com | CAMA1\_VTC\_C |  |  |  | X | 3 and higher | 29.97 |
|  | AVCCAPAMA-3 | VideoTele.com | CAMA2\_VTC\_B |  |  |  | X | 3 and higher | 25 |
|  | AVCCAPAMA-4 | VideoTele.com | CAMA3\_VTC\_B |  |  |  | X | 3 and higher | 25 |
| CABAC: Prediction bandwidth | AVCCAMV-1 | Broadcom | MV1\_BRCM\_D |  |  |  | X | 3 and higher | 29.97 |
| CABAC/ CAVLC | AVCCVCANLMA‑1 | Sony | CVCANLMA2\_Sony\_C |  |  |  | X | 3.1 and higher | 29.97 |

| Table 2 – Bitstreams for the High, High 10, and High 4:2:2 profiles | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Categories | Bitstream | Donated by | File name | High | High 10 | High 4:2:2 | Level | Frame rate (Frames/sec) |
| 4:2:0 8 bit | FREH-1 | Panasonic Singapore Lab. | FRExt1\_Panasonic\_D | X | X | X | 2.1 and higher | 29.97 |
|  | FREH-2 | Panasonic Singapore Lab. | FRExt3\_Panasonic\_E | X | X | X | 2.1 and higher | 29.97 |
|  | FREH-3 | HHI | HCAFR1\_HHI\_C | X | X | X | 3 and higher | 15 |
|  | FREH-4 | HHI | HCAFF1\_HHI\_B | X | X | X | 3 and higher | 15 |
|  | FREH-5 | HHI | HCAMFF1\_HHI\_B | X | X | X | 3 and higher | 15 |
|  | FREH-6 | Panasonic Singapore Lab. | FRExt2\_Panasonic\_C | X | X | X | 2.1 and higher | 29.97 |
|  | FREH-7 | Panasonic Singapore Lab. | FRExt4\_Panasonic\_B | X | X | X | 2.1 and higher | 29.97 |
|  | FREH-8 | Broadcom | HPCANL\_BRCM\_C | X | X | X | 4 and higher | 29.97 |
|  | FREH-9 | Broadcom | HPCA\_BRCM\_C | X | X | X | 4 and higher | 29.97 |
|  | FREH-10 | Broadcom | HPCAFLNL\_BRCM\_C | X | X | X | 4 and higher | 29.97 |
|  | FREH-11 | Broadcom | HPCAFL\_BRCM\_C | X | X | X | 4 and higher | 29.97 |
|  | FREH-12 | HHI | HCAFR2\_HHI\_A | X | X | X | 2 and higher | 15 |
|  | FREH-13 | HHI | HCAFR3\_HHI\_A | X | X | X | 3 and higher | 15 |
|  | FREH-14 | HHI | HCAFR4\_HHI\_A | X | X | X | 3 and higher | 15 |
|  | FREH-15 | Broadcom | HPCADQ\_BRCM\_B | X | X | X | 4 and higher | 29.97 |
|  | FREH-16 | Broadcom | HPCALQ\_BRCM\_B | X | X | X | 4 and higher | 29.97 |
|  | FREH-17 | Broadcom | HPCAMAPALQ\_BRCM\_B | X | X | X | 4 and higher | 29.97 |
|  | FREH-18 | Broadcom | HPCV\_BRCM\_A | X | X | X | 4 and higher | 29.97 |
|  | FREH-19 | Broadcom | HPCVNL\_BRCM\_A | X | X | X | 4 and higher | 29.97 |
|  | FREH-20 | Broadcom | HPCVFL\_BRCM\_A | X | X | X | 4 and higher | 29.97 |
|  | FREH-21 | Broadcom | HPCVFLNL\_BRCM\_A | X | X | X | 4 and higher | 29.97 |
|  | FREH-22 | Sony | HVLCFI0\_Sony\_B | X | X | X | 3.1 and higher | 29.97 |
|  | FREH-23 | Sony | HVLCPFF0\_Sony\_B | X | X | X | 3.1 and higher | 29.97 |
|  | FREH-24 | Sony | HVLCMFF0\_Sony\_A | X | X | X | 3.1 and higher | 29.97 |
|  | FREH-25 | Broadcom | HPCVMOLQ\_BRCM\_B | X | X | X | 4 and higher | 29.97 |
|  | FREH-26 | Broadcom | HPCAMOLQ\_BRCM\_B | X | X | X | 4 and higher | 29.97 |
|  | FREH-27 | Broadcom | HPCAQ2LQ\_BRCM\_B | X | X | X | 4 and higher | 29.97 |
|  | FREH-28 | Broadcom | brcm\_freh1\_B | X | X | X | 3 and higher | 29.97 |
|  | FREH-29 | Broadcom | brcm\_freh2\_B | X | X | X | 3 and higher | 29.97 |
|  | FREH-30 | Broadcom | brcm\_freh3 | X | X | X | 3 and higher | 29.97 |
|  | FREH-31 | Broadcom | brcm\_freh4 | X | X | X | 3 and higher | 29.97 |
|  | FREH-32 | Broadcom | brcm\_freh5 | X | X | X | 3 and higher | 29.97 |
|  | FREH-33 | Broadcom | brcm\_freh6 | X | X | X | 3 and higher | 29.97 |
|  | FREH-34 | Broadcom | brcm\_freh7\_B | X | X | X | 3 and higher | 29.97 |
|  | FREH-35 | Broadcom | brcm\_freh8 | X | X | X | 3 and higher | 29.97 |
|  | FREH-36 | Broadcom | brcm\_freh9 | X | X | X | 3 and higher | 29.97 |
|  | FREH-37 | Broadcom | brcm\_freh10 | X | X | X | 3 and higher | 29.97 |
|  | FREH-38 | Broadcom | brcm\_freh11 | X | X | X | 3 and higher | 29.97 |
|  | FREH-39 | Broadcom | brcm\_freh12\_B | X | X | X | 3 and higher | 29.97 |
|  | FREH-40 | HHI | HCHP1\_HHI\_B | X | X | X | 2.1 and higher | 29.97 |
|  | FREH-41 | HHI | HCHP2\_HHI\_A | X | X | X | 3.1 and higher | 29.97 |
|  | FREH-42 | HHI | HCHP3\_HHI\_A | X | X | X | 4.1 and higher | 29.97 |
|  | FREH-43 | JVC | FREXT01\_JVC\_D | X | X | X | 3.1 and higher | 29.97 |
|  | FREH-44 | JVC | FREXT01\_JVC\_C | X | X | X | 3.1 and higher | 29.97 |
|  | FREH-45 | Sony | FREXT\_MMCO4\_Sony\_B | X | X | X | 3.1 and higher | 29.97 |
| 4:2:0 10 bit | FREH10-1 | Dolby | FREH10-1 |  | X | X | 4 and higher | 24 |
|  | FREH10-2 | Dolby | FREH10-2 |  | X | X | 4 and higher | 24 |
| 4:2:2 10 bit | FREH422-1 | Tandberg | FREXT1\_TANDBERG\_A |  |  | X | 2.1 and higher | 29.97 |
|  | FREH422-2 | Tandberg | FREXT2\_TANDBERG\_A |  |  | X | 2.1 and higher | 29.97 |
|  | FREH422-3 | Tandberg | FREXT3\_TANDBERG\_A |  |  | X | 2.1 and higher | 29.97 |
|  | FREH422-4 | Sony | Hi422FREXT1\_Sony\_A |  |  | X | 3.1 and higher | 29.97 |
|  | FREH422-5 | Sony | Hi422FREXT2\_Sony\_A |  |  | X | 3.1 and higher | 29.97 |
|  | FREH422-6 | Sony | Hi422FREXT3\_Sony\_A |  |  | X | 3.1 and higher | 29.97 |
|  | FREH422-7 | Sony | Hi422FREXT4\_Sony\_A |  |  | X | 3.1 and higher | 29.97 |
|  | FREH422-8 | Sony | Hi422FREXT6\_Sony\_A |  |  | X | 3.1 and higher | 29.97 |
|  | FREH422-9 | Sony | Hi422FREXT7\_Sony\_A |  |  | X | 3.1 and higher | 29.97 |
|  | FREH422-10 | Sony | Hi422FREXT8\_Sony\_A |  |  | X | 3.1 and higher | 29.97 |
|  | FREH422-11 | Sony | Hi422FREXT9\_Sony\_A |  |  | X | 3.1 and higher | 29.97 |
|  | FREH422-12 | Sony | Hi422FREXT10\_Sony\_A |  |  | X | 3.1 and higher | 29.97 |
|  | FREH422-13 | Sony | Hi422FREXT11\_Sony\_A |  |  | X | 3.1 and higher | 29.97 |
|  | FREH422-14 | Sony | Hi422FREXT12\_Sony\_A |  |  | X | 3.1 and higher | 29.97 |
|  | FREH422-15 | Sony | Hi422FREXT13\_Sony\_A |  |  | X | 3.1 and higher | 29.97 |
|  | FREH422-16 | Sony | Hi422FREXT14\_Sony\_A |  |  | X | 3.1 and higher | 29.97 |
|  | FREH422-17 | Sony | Hi422FREXT15\_Sony\_A |  |  | X | 3.1 and higher | 29.97 |
|  | FREH422-18 | Sony | Hi422FREXT16\_Sony\_A |  |  | X | 4 and higher | 29.97 |
|  | FREH422-19 | Sony | Hi422FREXT17\_Sony\_A |  |  | X | 4 and higher | 29.97 |
|  | FREH422-20 | Sony | Hi422FREXT18\_Sony\_A |  |  | X | 4 and higher | 29.97 |
|  | FREH422-21 | Sony | Hi422FREXT19\_Sony\_A |  |  | X | 4 and higher | 29.97 |
| Auxiliary coded picture | FREAUX-1 | Apple | alphaconformanceG | X | X | X | 2.1 and higher | 29.97 |

| Table 3 – Bitstreams for the High 10 Intra, High 4:2:2 Intra, High 4:4:4 Intra, High 4:4:4 Predictive, and CAVLC 4:4:4 Intra profile | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Categories | Bitstream | Donated by | File name | High 10 Intra | High 4:2:2 Intra | High 4:4:4 Intra | High 4:4:4 Predictive | CAVLC 4:4:4 Intra | Level | Frame rate (Frames/sec) |
| 4:4:4 14 bit Predictive | PPH444-P1 | Thomson | PPH444P1\_Thomson\_A |  |  |  | X |  | 4.1 and higher | 29.97 |
|  | PPH444-P2 | Thomson | PPH444P2\_Thomson\_A |  |  |  | X |  | 4.1 and higher | 29.97 |
|  | PPH444-P3 | Thomson | PPH444P3\_Thomson\_A |  |  |  | X |  | 4.1 and higher | 29.97 |
|  | PPH444-P4 | Thomson | PPH444P4\_Thomson\_A |  |  |  | X |  | 3.2 and higher | 59.94 |
|  | PPH444-P5 | Thomson | PPH444P5\_Thomson\_A |  |  |  | X |  | 3.2 and higher | 59.94 |
|  | PPH444-P6 | Mitsubishi | PPH444P6\_Mitsubishi\_A |  |  |  | X |  | 4.1 and higher | 29.97 |
|  | PPH444-P7 | Mitsubishi | PPH444P7\_Mitsubishi\_A |  |  |  | X |  | 4.1 and higher | 29.97 |
|  | PPH444-P8 | Mitsubishi | PPH444P8\_Mitsubishi\_A |  |  |  | X |  | 4.1 and higher | 29.97 |
|  | PPH444-P9 | Mitsubishi | PPH444P9\_Mitsubishi\_A |  |  |  | X |  | 4.1 and higher | 59.94 |
|  | PPH444-P10 | Sejong Univ | PPH444P10\_SejongUniv\_A |  |  |  | X |  | 3.2 and higher | 59.94 |
| 4:2:0 10 bit Intra | PPH10-1 | Panasonic | PPH10I1\_Panasonic\_A | X | X | X | X | X | 3.2 and higher | 59.94 |
|  | PPH10-2 | Panasonic | PPH10I2\_Panasonic\_A | X | X | X | X |  | 3.2 and higher | 59.94 |
|  | PPH10-3 | Panasonic | PPH10I3\_Panasonic\_A | X | X | X | X |  | 3.2 and higher | 59.94 |
|  | PPH10-4 | Panasonic | PPH10I4\_Panasonic\_A | X | X | X | X | X | 4.1 and higher | 29.97 |
|  | PPH10-5 | Panasonic | PPH10I5\_Panasonic\_A | X | X | X | X |  | 4.1 and higher | 29.97 |
|  | PPH10-6 | Panasonic | PPH10I6\_Panasonic\_A | X | X | X | X | X | 4.1 and higher | 29.97 |
|  | PPH10-7 | Panasonic | PPH10I7\_Panasonic\_A | X | X | X | X |  | 4.1 and higher | 29.97 |
| 4:2:2 10 bit Intra | PPH422I-1 | Panasonic | PPH422I1\_Panasonic\_A |  | X | X | X | X | 3.2 and higher | 59.94 |
|  | PPH422I-2 | Panasonic | PPH422I2\_Panasonic\_A |  | X | X | X |  | 3.2 and higher | 59.94 |
|  | PPH422I-3 | Panasonic | PPH422I3\_Panasonic\_A |  | X | X | X |  | 3.2 and higher | 59.94 |
|  | PPH422I-4 | Panasonic | PPH422I4\_Panasonic\_A |  | X | X | X | X | 4.1 and higher | 29.97 |
|  | PPH422I-5 | Panasonic | PPH422I5\_Panasonic\_A |  | X | X | X |  | 4.1 and higher | 29.97 |
|  | PPH422I-6 | Panasonic | PPH422I6\_Panasonic\_A |  | X | X | X | X | 4.1 and higher | 29.97 |
|  | PPH422I-7 | Panasonic | PPH422I7\_Panasonic\_A |  | X | X | X |  | 4.1 and higher | 29.97 |
| 4:4:4 14 bit Intra | PPH444I-1 | Thomson | PPH444I1\_Thomson\_A |  |  | X | X |  | 3.2 and higher | 59.94 |
|  | PPH444I-2 | Thomson | PPH444I2\_Thomson\_A |  |  | X | X |  | 3.2 and higher | 59.94 |
|  | PPH444I-3 | Thomson | PPH444I3\_Thomson\_A |  |  | X | X |  | 3.2 and higher | 59.94 |
|  | PPH444I-4 | Mitsubishi | PPH444I4\_Mitsubishi\_A |  |  | X | X |  | 4.1 and higher | 29.97 |
|  | PPH444I-5 | Mitsubishi | PPH444I5\_Mitsubishi\_A |  |  | X | X |  | 4.1 and higher | 29.97 |
|  | PPH444I-6 | Mitsubishi | PPH444I6\_Mitsubishi\_A |  |  | X | X |  | 4.1 and higher | 29.97 |
|  | PPH444I-7 | Sejong Univ | PPH444I7\_SejongUniv\_A |  |  | X | X |  | 3.2 and higher | 59.94 |
| CAVLC 4:4:4 14 bit Intra | PPCV444I-1 | Thomson | PPCV444I1\_Thomson\_A |  |  |  | X | X | 3.2 and higher | 59.94 |
|  | PPCV444I-2 | Thomson | PPCV444I2\_Thomson\_A |  |  |  | X | X | 3.2 and higher | 59.94 |
|  | PPCV444I-3 | Thomson | PPCV444I3\_Thomson\_A |  |  |  | X | X | 3.2 and higher | 59.94 |
|  | PPCV444I-4 | Mitsubishi | PPCV444I4\_Mitsubishi\_A |  |  |  | X | X | 4.1 and higher | 29.97 |
|  | PPCV444I-5 | Mitsubishi | PPCV444I5\_Mitsubishi\_A |  |  |  | X | X | 4.1 and higher | 29.97 |
|  | PPCV444I-6 | Mitsubishi | PPCV444I6\_Mitsubishi\_A |  |  |  | X | X | 4.1 and higher | 29.97 |
|  | PPCV444I-7 | Sejong Univ | PPCV444I7\_SejongUniv\_A |  |  |  | X | X | 3.2 and higher | 59.94 |

| Table 4 – Bitstreams for the Constrained Baseline, High, High 10 Intra, Scalable Baseline, Scalable High, and Scalable High Intra profiles | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Categories | Bitstream | Donated by | File name | Constrained Baseline | High | High 10 Intra | Scalable Baseline | Scalable High | Scalable High Intra | Level | Frame rate (Frames/sec) |
| CGS | SVCBC-1 | HHI | SVCBC-1-L0 | X | X |  | X | X |  | 1.3 and higher | 29.97 |
|  | SVCBC-1 | HHI | SVCBC-1-L1 |  |  |  | X |  |  | 2.1 and higher | 29.97 |
| MGS | SVCBM-1 | Vidyo | SVCBM-1-L0 | X | X |  | X | X |  | 1.3 and higher | 29.97 |
|  | SVCBM-1 | Vidyo | SVCBM-1-L1 |  |  |  | X |  |  | 1.3 and higher | 29.97 |
|  | SVCBM-2 | Sharp | SVCBM-2-L0 | X | X |  | X | X |  | 1.3 and higher | 29.97 |
|  | SVCBM-2 | Sharp | SVCBM-2-L1 |  |  |  | X |  |  | 1.3 and higher | 29.97 |
|  | SVCBM-3 | Sharp | SVCBM-3-L0 | X | X |  | X | X |  | 1.3 and higher | 29.97 |
|  | SVCBM-3 | Sharp | SVCBM-3-L1 |  |  |  | X |  |  | 1.3 and higher | 29.97 |
|  | SVCBM-4 | Sharp | SVCBM-4-L0 | X | X |  | X | X |  | 1.3 and higher | 29.97 |
|  | SVCBM-4 | Sharp | SVCBM-4-L1 |  |  |  | X |  |  | 1.3 and higher | 29.97 |
|  | SVCBM-4 | Sharp | SVCBM-4-L2 |  |  |  | X |  |  | 2.1 and higher | 29.97 |
|  | SVCBM-5 | HHI | SVCBM-5-L0 | X | X |  | X | X |  | 1.3 and higher | 29.97 |
|  | SVCBM-5 | HHI | SVCBM-5-L1 |  |  |  | X |  |  | 2.1 and higher | 29.97 |
|  | SVCBM-5 | HHI | SVCBM-5-L2 |  |  |  | X |  |  | 3 and higher | 29.97 |
|  | SVCBM-5 | HHI | SVCBM-5-L3 |  |  |  | X |  |  | 3 and higher | 29.97 |
|  | SVCBCT-1 | HHI | SVCBCT-1-L0 | X | X |  | X | X |  | 1.3 and higher | 29.97 |
| CGS/ Temporal | SVCBCT-1 | HHI | SVCBCT-1-L1 |  |  |  | X |  |  | 2.1 and higher | 29.97 |
| MGS/ Temporal | SVCBMT-1 | Vidyo | SVCBMT-1-L0 | X | X |  | X | X |  | 1.3 and higher | 29.97 |
|  | SVCBMT-1 | Vidyo | SVCBMT-1-L1 |  |  |  | X |  |  | 1.3 and higher | 29.97 |
|  | SVCBMT-2 | Vidyo | SVCBMT-2-L0 | X | X |  | X | X |  | 1.3 and higher | 29.97 |
|  | SVCBMT-2 | Vidyo | SVCBMT-2-L1 |  |  |  | X |  |  | 1.3 and higher | 29.97 |
|  | SVCBMT-3 | Vidyo | SVCBMT-3-L0 | X | X |  | X | X |  | 1.3 and higher | 29.97 |
|  | SVCBMT-3 | Vidyo | SVCBMT-3-L1 |  |  |  | X |  |  | 1.3 and higher | 29.97 |
|  | SVCBMT-4 | Vidyo | SVCBMT-4-L0 | X | X |  | X | X |  | 1.3 and higher | 29.97 |
|  | SVCBMT-4 | Vidyo | SVCBMT-4-L1 |  |  |  | X |  |  | 1.3 and higher | 29.97 |
|  | SVCBMT-5 | Vidyo | SVCBMT-5-L0 | X | X |  | X | X |  | 1.3 and higher | 29.97 |
|  | SVCBMT-5 | Vidyo | SVCBMT-5-L1 |  |  |  | X |  |  | 1.3 and higher | 29.97 |
|  | SVCBMT-6 | Vidyo | SVCBMT-6-L0 | X | X |  | X | X |  | 1.3 and higher | 29.97 |
|  | SVCBMT-6 | Vidyo | SVCBMT-6-L1 |  |  |  | X |  |  | 1.3 and higher | 29.97 |
|  | SVCBMT-7 | Vidyo | SVCBMT-7-L0 | X | X |  | X | X |  | 1.3 and higher | 29.97 |
|  | SVCBMT-7 | Vidyo | SVCBMT-7-L1 |  |  |  | X |  |  | 1.3 and higher | 29.97 |
|  | SVCBMT-8 | Vidyo | SVCBMT-8-L0 | X | X |  | X | X |  | 1.3 and higher | 29.97 |
|  | SVCBMT-8 | Vidyo | SVCBMT-8-L1 |  |  |  | X |  |  | 1.3 and higher | 29.97 |
|  | SVCBMT-9 | Vidyo | SVCBMT-9-L0 | X | X |  | X | X |  | 1.3 and higher | 29.97 |
|  | SVCBMT-9 | Vidyo | SVCBMT-9-L1 |  |  |  | X |  |  | 2.2 and higher | 29.97 |
|  | SVCBMT-10 | Vidyo | SVCBMT-10-L0 | X | X |  | X | X |  | 1.3 and higher | 29.97 |
|  | SVCBMT-10 | Vidyo | SVCBMT-10-L1 |  |  |  | X |  |  | 1.3 and higher | 29.97 |
|  | SVCBMT-11 | Vidyo | SVCBMT-11-L0 | X | X |  | X | X |  | 1.3 and higher | 29.97 |
|  | SVCBMT-11 | Vidyo | SVCBMT-11-L1 |  |  |  | X |  |  | 1.3 and higher | 29.97 |
|  | SVCBMT-12 | Vidyo | SVCBMT-12-L0 | X | X |  | X | X |  | 1.3 and higher | 29.97 |
|  | SVCBMT-12 | Vidyo | SVCBMT-12-L1 |  |  |  | X |  |  | 1.3 and higher | 29.97 |
|  | SVCBMT-13 | Vidyo | SVCBMT-13-L0 | X | X |  | X | X |  | 1.3 and higher | 29.97 |
|  | SVCBMT-13 | Vidyo | SVCBMT-13-L1 |  |  |  | X |  |  | 1.3 and higher | 29.97 |
|  | SVCBMT-13 | Vidyo | SVCBMT-13-L2 |  |  |  | X |  |  | 2.1 and higher | 29.97 |
| Spatial | SVCBS-1 | Vidyo | SVCBS-1-L0 | X | X |  | X | X |  | 1.3 and higher | 29.97 |
|  | SVCBS-1 | Vidyo | SVCBS-1-L1 |  |  |  | X |  |  | 1.3 and higher | 29.97 |
|  | SVCBS-2 | Vidyo | SVCBS-2-L0 | X | X |  | X | X |  | 1.3 and higher | 29.97 |
|  | SVCBS-2 | Vidyo | SVCBS-2-L1 |  |  |  | X |  |  | 3 and higher | 29.97 |
|  | SVCBS-3 | ETRI | SVCBS-3-L0 | X | X |  | X | X |  | 1.3 and higher | 29.97 |
|  | SVCBS-3 | ETRI | SVCBS-3-L1 |  |  |  | X |  |  | 3 and higher | 29.97 |
|  | SVCBS-4 | ETRI | SVCBS-4-L0 | X | X |  | X | X |  | 1.3 and higher | 29.97 |
|  | SVCBS-4 | ETRI | SVCBS-4-L1 |  |  |  | X |  |  | 3 and higher | 29.97 |
|  | SVCBS-5 | ETRI | SVCBS-5-L0 | X | X |  | X | X |  | 1.3 and higher | 29.97 |
|  | SVCBS-5 | ETRI | SVCBS-5-L1 |  |  |  | X |  |  | 3 and higher | 29.97 |
|  | SVCBS-6 | ETRI | SVCBS-6-L0 | X | X |  | X | X |  | 1.1 and higher | 29.97 |
|  | SVCBS-6 | ETRI | SVCBS-6-L1 |  |  |  | X |  |  | 1.3 and higher | 29.97 |
|  | SVCBS-6 | ETRI | SVCBS-6-L2 |  |  |  | X |  |  | 3 and higher | 29.97 |
|  | SVCBS-7 | ETRI | SVCBS-7-L0 | X | X |  | X | X |  | 1.1 and higher | 29.97 |
|  | SVCBS-7 | ETRI | SVCBS-7-L1 |  |  |  | X |  |  | 1.3 and higher | 29.97 |
|  | SVCBS-8 | HHI | SVCBS-13-L0 | X | X |  | X | X |  | 1.3 and higher | 29.97 |
|  | SVCBS-8 | HHI | SVCBS-13-L1 |  |  |  | X |  |  | 3 and higher | 29.97 |
| Spatial/ Temporal | SVCBST-1 | Vidyo | SVCBST-1-L0 | X | X |  | X | X |  | 1.3 and higher | 29.97 |
|  | SVCBST-1 | Vidyo | SVCBST-1-L1 |  |  |  | X |  |  | 4 and higher | 29.97 |
|  | SVCBST-2 | Vidyo | SVCBST-2-L0 | X | X |  | X | X |  | 1.3 and higher | 29.97 |
|  | SVCBST-2 | Vidyo | SVCBST-2-L1 |  |  |  | X |  |  | 4 and higher | 29.97 |
|  | SVCBST-3 | Vidyo | SVCBST-3-L0 | X | X |  | X | X |  | 1.3 and higher | 29.97 |
|  | SVCBST-3 | Vidyo | SVCBST-3-L1 |  |  |  | X |  |  | 4 and higher | 29.97 |
|  | SVCBST-4 | Vidyo | SVCBST-4-L0 | X | X |  | X | X |  | 1.3 and higher | 29.97 |
|  | SVCBST-4 | Vidyo | SVCBST-4-L1 |  |  |  | X |  |  | 4 and higher | 29.97 |
|  | SVCBST-5 | Vidyo | SVCBST-5-L0 | X | X |  | X | X |  | 1.3 and higher | 29.97 |
|  | SVCBST-5 | Vidyo | SVCBST-5-L1 |  |  |  | X |  |  | 4 and higher | 29.97 |
|  | SVCBST-6 | Vidyo | SVCBST-6-L0 | X | X |  | X | X |  | 1.3 and higher | 29.97 |
|  | SVCBST-6 | Vidyo | SVCBST-6-L1 |  |  |  | X |  |  | 4 and higher | 29.97 |
|  | SVCBST-7 | Vidyo | SVCBST-7-L0 | X | X |  | X | X |  | 1.3 and higher | 29.97 |
|  | SVCBST-7 | Vidyo | SVCBST-7-L1 |  |  |  | X |  |  | 4 and higher | 29.97 |
|  | SVCBST-8 | Vidyo | SVCBST-8-L0 | X | X |  | X | X |  | 1.3 and higher | 29.97 |
|  | SVCBST-8 | Vidyo | SVCBST-8-L1 |  |  |  | X |  |  | 4 and higher | 29.97 |
|  | SVCBST-9 | Vidyo | SVCBST-9-L0 | X | X |  | X | X |  | 1.3 and higher | 29.97 |
|  | SVCBST-9 | Vidyo | SVCBST-9-L1 |  |  |  | X |  |  | 4 and higher | 29.97 |
|  | SVCBST-10 | Vidyo | SVCBST-10-L0 | X | X |  | X | X |  | 1.3 and higher | 29.97 |
|  | SVCBST-10 | Vidyo | SVCBST-10-L1 |  |  |  | X |  |  | 4 and higher | 29.97 |
|  | SVCBST-11 | Vidyo | SVCBST-11-L0 | X | X |  | X | X |  | 1.3 and higher | 29.97 |
|  | SVCBST-11 | Vidyo | SVCBST-11-L1 |  |  |  | X |  |  | 4 and higher | 29.97 |
|  | SVCBST-12 | Vidyo | SVCBST-12-L0 | X | X |  | X | X |  | 1.3 and higher | 29.97 |
|  | SVCBST-12 | Vidyo | SVCBST-12-L1 |  |  |  | X |  |  | 4 and higher | 29.97 |
|  | SVCBST-13 | Vidyo | SVCBST-13-L0 | X | X |  | X | X |  | 4 and higher | 29.97 |
|  | SVCBST-13 | Vidyo | SVCBST-13-L1 |  |  |  | X |  |  | 5 and higher | 29.97 |
|  | SVCBST-14 | Vidyo | SVCBST-14-L0 | X | X |  | X | X |  | 3 and higher | 29.97 |
|  | SVCBST-14 | Vidyo | SVCBST-14-L1 |  |  |  | X |  |  | 4 and higher | 29.97 |
|  | SVCBST-14 | Vidyo | SVCBST-14-L2 |  |  |  | X |  |  | 5 and higher | 29.97 |
|  | SVCBST-15 | Vidyo | SVCBST-15-L0 | X | X |  | X | X |  | 1.3 and higher | 29.97 |
|  | SVCBST-15 | Vidyo | SVCBST-15-L1 |  |  |  | X |  |  | 3 and higher | 29.97 |
|  | SVCBST-15 | Vidyo | SVCBST-15-L2 |  |  |  | X |  |  | 4 and higher | 29.97 |
|  | SVCBST-16 | Vidyo | SVCBST-16-L0 | X | X |  | X | X |  | 1.3 and higher | 29.97 |
|  | SVCBST-16 | Vidyo | SVCBST-16-L1 |  |  |  | X |  |  | 3 and higher | 29.97 |
|  | SVCBST-16 | Vidyo | SVCBST-16-L2 |  |  |  | X |  |  | 4 and higher | 29.97 |
|  | SVCBST-17 | Vidyo | SVCBST-17-L0 | X | X |  | X | X |  | 1.3 and higher | 29.97 |
|  | SVCBST-17 | Vidyo | SVCBST-17-L1 |  |  |  | X |  |  | 3 and higher | 29.97 |
|  | SVCBST-17 | Vidyo | SVCBST-17-L2 |  |  |  | X |  |  | 4 and higher | 29.97 |
|  | SVCBST-18 | Vidyo | SVCBST-18-L0 | X | X |  | X | X |  | 1.3 and higher | 29.97 |
|  | SVCBST-18 | Vidyo | SVCBST-18-L1 |  |  |  | X |  |  | 3 and higher | 29.97 |
|  | SVCBST-18 | Vidyo | SVCBST-18-L2 |  |  |  | X |  |  | 4 and higher | 29.97 |
|  | SVCBST-19 | HHI | SVCBST-19-L0 | X | X |  | X | X |  | 1.3 and higher | 29.97 |
|  | SVCBST-19 | HHI | SVCBST-19-L1 |  |  |  | X |  |  | 3 and higher | 29.97 |
|  | SVCBST-20 | Thomson | SVCBST-20-L0 | X | X |  | X | X |  | 1.1 and higher | 14.98 |
|  | SVCBST-20 | Thomson | SVCBST-20-L1 |  |  |  | X |  |  | 3 and higher | 29.97 |
| MGS/ Spatial/ Temporal | SVCBMST-1 | Vidyo | SVCBMST-1-L0 | X | X |  | X | X |  | 1.3 and higher | 29.97 |
|  | SVCBMST-1 | Vidyo | SVCBMST-1-L1 |  |  |  | X |  |  | 1.3 and higher | 29.97 |
|  | SVCBMST-1 | Vidyo | SVCBMST-1-L2 |  |  |  | X |  |  | 4 and higher | 29.97 |
|  | SVCBMST-2 | Vidyo | SVCBMST-2-L0 | X | X |  | X | X |  | 1.3 and higher | 29.97 |
|  | SVCBMST-2 | Vidyo | SVCBMST-2-L1 |  |  |  | X |  |  | 1.3 and higher | 29.97 |
|  | SVCBMST-2 | Vidyo | SVCBMST-2-L2 |  |  |  | X |  |  | 4 and higher | 29.97 |
|  | SVCBMST-3 | HHI | SVCBMST-3-L0 | X | X |  | X | X |  | 1.3 and higher | 29.97 |
|  | SVCBMST-3 | HHI | SVCBMST-3-L1 |  |  |  | X |  |  | 2.1 and higher | 29.97 |
|  | SVCBMST-3 | HHI | SVCBMST-3-L2 |  |  |  | X |  |  | 3.1 and higher | 29.97 |
|  | SVCBCTS-1 | Orange | SVCBCTS-1-L0 | X | X |  | X | X |  | 1.2 and higher | 12.5 |
|  | SVCBCTS-1 | Orange | SVCBCTS-1-L1 |  |  |  | X |  |  | 1.3 and higher | 25 |
|  | SVCBCTS-1 | Orange | SVCBCTS-1-L2 |  |  |  | X |  |  | 3 and higher | 25 |
|  | SVCBCTS-2 | Orange | SVCBCTS-2-L0 | X | X |  | X | X |  | 1.2 and higher | 12.5 |
|  | SVCBCTS-2 | Orange | SVCBCTS-2-L1 |  |  |  | X |  |  | 1.3 and higher | 25 |
|  | SVCBCTS-2 | Orange | SVCBCTS-2-L2 |  |  |  | X |  |  | 3 and higher | 25 |
|  | SVCBCTS-3 | Sharp | SVCBCTS-3-L0 | X | X |  | X | X |  | 1.3 and higher | 25 |
|  | SVCBCTS-3 | Sharp | SVCBCTS-3-L1 |  |  |  | X |  |  | 1.3 and higher | 25 |
|  | SVCBCTS-3 | Sharp | SVCBCTS-3-L2 |  |  |  | X |  |  | 3 and higher | 25 |
|  | SVCBSTC-1 | Sharp | SVCBSTC-1-L0 | X | X |  | X | X |  | 1.3 and higher | 25 |
|  | SVCBSTC-1 | Sharp | SVCBSTC-1-L1 |  |  |  | X |  |  | 3 and higher | 25 |
|  | SVCBSTC-1 | Sharp | SVCBSTC-1-L2 |  |  |  | X |  |  | 3.1 and higher | 25 |
| MGS | SVCHM-1 | HHI | SVCHM-1-L0 |  | X |  |  | X |  | 1.3 and higher | 29.97 |
|  | SVCHM-1 | HHI | SVCHM-1-L1 |  |  |  |  | X |  | 1.3 and higher | 29.97 |
|  | SVCHM-1 | HHI | SVCHM-1-L2 |  |  |  |  | X |  | 3 and higher | 29.97 |
|  | SVCHM-1 | HHI | SVCHM-1-L3 |  |  |  |  | X |  | 3 and higher | 29.97 |
|  | SVCHM-2 | Sharp | SVCHM-2-L0 |  | X |  |  | X |  | 3 and higher | 25 |
|  | SVCHM-2 | Sharp | SVCHM-2-L1 |  |  |  |  | X |  | 3 and higher | 25 |
|  | SVCHM-3 | Sharp | SVCHM-3-L0 |  | X |  |  | X |  | 3 and higher | 25 |
|  | SVCHM-3 | Sharp | SVCHM-3-L1 |  |  |  |  | X |  | 3 and higher | 25 |
|  | SVCHM-4 | Sharp | SVCHM-4-L0 |  | X |  |  | X |  | 3 and higher | 25 |
|  | SVCHM-4 | Sharp | SVCHM-4-L1 |  |  |  |  | X |  | 3 and higher | 25 |
|  | SVCHM-4 | Sharp | SVCHM-4-L2 |  |  |  |  | X |  | 3.1 and higher | 25 |
| Spatial | SVCHS-1 | Thomson | SVCHS-1-L0 | X | X |  | X | X |  | 2.1 and higher | 25 |
|  | SVCHS-1 | Thomson | SVCHS-1-L1 |  |  |  |  | X |  | 3.1 and higher | 25 |
|  | SVCHS-2 | Thomson | SVCHS-2-L0 |  | X |  |  | X |  | 1.3 and higher | 25 |
|  | SVCHS-2 | Thomson | SVCHS-2-L1 |  |  |  |  | X |  | 3.1 and higher | 25 |
| Spatial/ Temporal | SVCHST-1 | Orange | SVCHST-1-L0 |  | X |  |  | X |  | 3 and higher | 25 |
|  | SVCHST-1 | Orange | SVCHST-1-L1 |  |  |  |  | X |  | 3.2 and higher | 50 |
|  | SVCHST-1 | Orange | SVCHST-1-L2 |  |  |  |  | X |  | 5 and higher | 50 |
|  | SVCHST-2 | Orange | SVCHST-2-L0 |  | X |  |  | X |  | 3 and higher | 25 |
|  | SVCHST-2 | Orange | SVCHST-2-L1 |  |  |  |  | X |  | 3.2 and higher | 50 |
|  | SVCHST-2 | Orange | SVCHST-2-L2 |  |  |  |  | X |  | 4.2 and higher | 50 |
|  | SVCHST-3 | Thomson | SVCHST-3-L0 |  | X |  |  | X |  | 3.1 and higher | 25 |
|  | SVCHST-3 | Thomson | SVCHST-3-L1 |  |  |  |  | X |  | 5 and higher | 50 |
|  | SVCHST-4 | Thomson | SVCHST-4-L0 |  | X |  |  | X |  | 3 and higher | 25 |
|  | SVCHST-4 | Thomson | SVCHST-4-L1 |  |  |  |  | X |  | 3.1 and higher | 50 |
| MGS/ Temporal/ Spatial | SVCHMTS-1 | Orange | SVCHMTS-1-L0 |  | X |  |  | X |  | 3 and higher | 25 |
|  | SVCHMTS-1 | Orange | SVCHMTS-1-L1 |  |  |  |  | X |  | 3 and higher | 25 |
|  | SVCHMTS-1 | Orange | SVCHMTS-1-L2 |  |  |  |  | X |  | 3.1 and higher | 25 |
|  | SVCHMTS-1 | Orange | SVCHMTS-1-L3 |  |  |  |  | X |  | 3.1 and higher | 50 |
|  | SVCHMTS-1 | Orange | SVCHMTS-1-L4 |  |  |  |  | X |  | 3.1 and higher | 50 |
|  | SVCHMTS-1 | Orange | SVCHMTS-1-L5 |  |  |  |  | X |  | 4.2 and higher | 25 |
|  | SVCHMTS-2 | Sharp | SVCHMTS-2-L0 |  | X |  |  | X |  | 1.3 and higher | 29.97 |
|  | SVCHMTS-2 | Sharp | SVCHMTS-2-L1 |  |  |  |  | X |  | 1.3 and higher | 29.97 |
|  | SVCHMTS-2 | Sharp | SVCHMTS-2-L2 |  |  |  |  | X |  | 3.1 and higher | 29.97 |
| CGS/ Temporal/ Spatial | SVCHCTS-1 | Orange | SVCHCTS-1-L0 |  | X |  |  | X |  | 1.2 and higher | 12.5 |
|  | SVCHCTS-1 | Orange | SVCHCTS-1-L1 |  |  |  |  | X |  | 1.3 and higher | 25 |
|  | SVCHCTS-1 | Orange | SVCHCTS-1-L2 |  |  |  |  | X |  | 3 and higher | 25 |
|  | SVCHCTS-1 | Orange | SVCHCTS-1-L3 |  |  |  |  | X |  | 3 and higher | 25 |
|  | SVCHCTS-1 | Orange | SVCHCTS-1-L4 |  |  |  |  | X |  | 3.1 and higher | 50 |
|  | SVCHCTS-1 | Orange | SVCHCTS-1-L5 |  |  |  |  | X |  | 3.1 and higher | 50 |
|  | SVCHCTS-1 | Orange | SVCHCTS-1-L6 |  |  |  |  | X |  | 4 and higher | 50 |
|  | SVCHCTS-1 | Orange | SVCHCTS-1-L7 |  |  |  |  | X |  | 4 and higher | 50 |
| Spatial/ Temporal/ CGS | SVCHSTC-1 | Sharp | SVCHSTC-1-L0 |  | X |  |  | X |  | 1.3 and higher | 29.97 |
|  | SVCHSTC-1 | Sharp | SVCHSTC-1-L1 |  |  |  |  | X |  | 1.3 and higher | 29.97 |
|  | SVCHSTC-1 | Sharp | SVCHSTC-1-L2 |  |  |  |  | X |  | 3.1 and higher | 29.97 |
| Spatial | SVCHIS-1 | Thomson | SVCHIS-1-L0 |  | X | X |  | X | X | 2.1 and higher | 25 |
|  | SVCHIS-1 | Thomson | SVCHIS-1-L1 |  |  |  |  | X | X | 3.1 and higher | 25 |
|  | SVCHIS-1 | Thomson | SVCHIS-1-L2 |  |  |  |  | X | X | 4 and higher | 25 |
|  | SVCHIS-2 | Thomson | SVCHIS-2-L0 |  | X | X |  | X | X | 3 and higher | 25 |
|  | SVCHIS-2 | Thomson | SVCHIS-2-L1 |  |  |  |  | X | X | 3.1 and higher | 25 |
|  | SVCHIS-2 | Thomson | SVCHIS-2-L2 |  |  |  |  | X | X | 4.2 and higher | 25 |
|  | SVCHIS-3 | Thomson | SVCHIS-3-L0 |  | X | X |  | X | X | 3 and higher | 25 |
|  | SVCHIS-3 | Thomson | SVCHIS-3-L1 |  |  |  |  | X | X | 3.1 and higher | 25 |
|  | SVCHIS-3 | Thomson | SVCHIS-3-L2 |  |  |  |  | X | X | 4 and higher | 25 |
| CGS/ Spatial | SVCHICS-1 | Sharp | SVCHICS-1-L0 |  | X | X |  | X | X | 1.3 and higher | 29.97 |
|  | SVCHICS-1 | Sharp | SVCHICS-1-L1 |  |  |  |  | X | X | 1.3 and higher | 29.97 |
|  | SVCHICS-1 | Sharp | SVCHICS-1-L2 |  |  |  |  | X | X | 3.1 and higher | 29.97 |
|  | SVCHICS-1 | Sharp | SVCHICS-1-L3 |  |  |  |  | X | X | 3.1 and higher | 29.97 |

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| Table 5 – Bitstreams for the Multiview High and Stereo High profiles | | | | | | | |
| Categories | Bitstream | Donated by | File Name | Multiview High | Stereo High | Level | Frame Rate (Frame/Sec) |
| Dependency Structure | MVCDS-1 | NTT | MVCDS-1 | X | X | 3 and higher | 29.97 |
|  | MVCDS-2 | NTT | MVCDS-2 | X | X | 3 and higher | 29.97 |
| MVCDS-3 | NTT | MVCDS-3 | X | X | 3 and higher | 29.97 |
| MVCDS-4 | Mitsubishi | MVCDS-4 | X | X | 3.1 and higher | 25 |
| MVCDS-5 | Mitsubishi | MVCDS-5 | X | X | 3.1 and higher | 25 |
| MVCDS-6 | Mitsubishi | MVCDS-6 | X | X | 3.1 and higher | 25 |
| Number of Views | MVCNV-1 | NTT | MVCNV-1 | X |  | 3 and higher | 29.97 |
| MVCNV-2 | Mitsubishi | MVCNV-2 | X |  | 4 and higher | 25 |
| MVCNV-3 | Mitsubishi | MVCNV-3 | X |  | 3.1 and higher | 25 |
| MVCNV-4 | NTT | MVCNV-4 | X |  | 3 and higher | 29.97 |
| Reference Picture List Construction | MVCRP-1 | Qualcomm | MVCRP-1 | X | X | 3 and higher | 25 |
| MVCRP-2 | Qualcomm | MVCRP-2 | X | X | 3 and higher | 25 |
| MVCRP-3 | Qualcomm | MVCRP-3 | X | X | 3 and higher | 25 |
| MVCRP-4 | Qualcomm | MVCRP-4 | X | X | 3 and higher | 25 |
| MVCRP-5 | Qualcomm | MVCRP-5 | X | X | 3 and higher | 25 |
| MVCRP-6 | Qualcomm | MVCRP-6 | X | X | 3 and higher | 25 |
| Subset SPS | MVCSPS-1 | Mitsubishi | MVCSPS-1 | X | X | 3.1 and higher | 25 |
| MVCSPS-2 | Mitsubishi | MVCSPS-2 | X |  | 3.1 and higher | 25 |
| Interlaced Coding Tools | MVCICT-1 | Panasonic | MVCICT-1 |  | X | 3.1 and higher | 29.97 |
| MVCICT-2 | Panasonic | MVCICT-2 |  | X | 3.1 and higher | 29.97 |
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| Table 6 – Bitstreams for the Multiview Depth High profiles | | | | | | | |
| Categories | Bitstream | Donated by | File Name | Multi-view Depth High |  | Level | Frame Rate (Frame/Sec) |
| Depth Resolution |  |  |  | X |  |  |  |
|  |  |  |  | X |  |  |  |
|  |  |  | X |  |  |  |
|  |  |  | X |  |  |  |
|  |  |  | X |  |  |  |
|  |  |  | X |  |  |  |
| Views Configuration |  |  |  | X |  |  |  |
|  |  |  | X |  |  |  |
|  |  |  | X |  |  |  |
|  |  |  | X |  |  |  |
| Inter View Prediction |  |  |  | X |  |  |  |
|  |  |  | X |  |  |  |
|  |  |  | X |  |  |  |
|  |  |  | X |  |  |  |
|  |  |  | X |  |  |  |
|  |  |  | X |  |  |  |
| Inter Prediction |  |  |  | X |  |  |  |
|  |  |  | X |  |  |  |
| Interlaced Coding Tools |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

1. This Recommendation | International Standard includes an electronic attachment containing the conformance bitstreams identified within the text. The bitstreams can also be downloaded from the ITU-T Test Signal Database. [↑](#footnote-ref-1)