

**Joint Video Experts Team (JVET)
of ITU-T SG 16 WP 3 and ISO/IEC JTC 1/SC
29/WG 11**

Document: JVET-AC0002

MPEG: m61608

29th Meeting, by teleconference, 11-20 January 2023

Title: **JVET AHG report: Draft text and test model algorithm description editing (AHG2)**

Status: Input document to JVET

Purpose: Proposal

**Author(s) or
Contact(s):** [B. Bross](mailto:benjamin.bross@hhi.fraunhofer.de) | benjamin.bross@hhi.fraunhofer.de
[C. Rosewarne](mailto:chris.rosewarne@canon.com.au) | chris.rosewarne@canon.com.au
[F. Bossen](mailto:frank.bossen@me.com) | frank.bossen@me.com
[Jill Boyce](mailto:jill.boyce@nokia.com) | jill.boyce@nokia.com
[A. Browne](mailto:adrian.browne@sony.com) | adrian.browne@sony.com
[S. Kim](mailto:seunghwan3.kim@lge.com) | seunghwan3.kim@lge.com
[Shan Liu](mailto:shanl@global.tencent.com) | shanl@global.tencent.com
[Jens-Rainer Ohm](mailto:ohm@ient.rwth-aachen.de) | ohm@ient.rwth-aachen.de | submitter
[Gary J. Sullivan](mailto:gary.sullivan@dolby.com) | gary.sullivan@dolby.com
[Alexis Tourapis](mailto:atourapis@apple.com) | atourapis@apple.com
[Ye-Kui Wang](mailto:yekui.wang@bytedance.com) | yekui.wang@bytedance.com
[Y. Ye](mailto:yan.ye@alibaba-inc.com) | yan.ye@alibaba-inc.com

Source: B. Bross, C. Rosewarne (co-chairs), F. Bossen, J. Boyce, A. Browne, S. Kim, S. Liu, J.-R. Ohm, G. J. Sullivan, A. Tourapis, Y.-K. Wang, Y. Ye (vice-chairs)

HEADER EXCERPT FROM SOURCE DOCUMENT

Abstract

This document reports on the work of the JVET ad hoc group on Draft text and test model algorithm description editing (AHG2) between the 28th meeting in Mainz, DE, (20 – 28 October 2022) and the 29th meeting by teleconference, (11 – 20 January 2023).

Mandates

At the 28th meeting of the ITU-T/ISO/IEC Joint Video Experts Team (JVET), an ad hoc group on Draft text and test model algorithm description editing (AHG2) was established with the following mandates:

Produce and finalize draft text outputs of the meeting (JVET-AB1008, JVET-AB2002, JVET-AB2006, and JVET-AB2027).

Collect reports of errata for the VVC, VSEI, HEVC, AVC, CICP, the codepoint usage TR specification and the published HDR-related technical reports and produce the JVET-AB1004 errata output collection.

Built from JVET-AC0002-v1.docx

LINKS

CARD

JVET-AC0002

<http://vexpertise.stbit.ru/documents/JVET-AC0002>

JVET Search

B. Bross

C. Rosenzweig

F. Bossen

J.H. Boyce

A. Browne

S. Kim

Shan Liu

Jens-Rainer Ohm

JVET AHG report: Draft text and test model algorithm description editing (AHG2)

Authors:

ABSTRACT

MEETING NOTES

ARCHIVE

archive

https://jvet-experts.org/doc_end_user/documents/29_Teleconference/wg11/JVET-AC0002-v1.zip

Archive

DOC

JVET-AC0002-v1.docx

SOURCE

external source

https://jvet-experts.org/doc_end_user/current_document.php?id=12243

JVET

User

Preview document JVET-AC0002

Document Information

Submitted by

Title

Authors

Document

Comments

Associated Resources

MEETING NOTES

external meeting notes

http://vexpertise.stbit.ru/meeting-notes/source/meeting_29_ac

Joint Video Experts Team (JVET)
of ITU-T SG21 WP3/21 and ISO/IEC JTC 1/SC 29
29th Meeting: by teleconference, DE, January 202

Document: JVET-AC0002

Title:

Meeting Report of the 41st Meeting of the Joint Video Experts Team

Status:

Report document from the chair of JVET

Purpose:

Report

1 Summary

MEETING NOTES

[JVET-AC0002](#) JVET AHG report: Draft text and test model algorithm description editing (AHG2) [B. Bross, C. Rosewarne (co-chairs), F. Bossen, J. Boyce, A. Browne, S. Kim, S. Liu, J.-R. Ohm, G. J. Sullivan, A. Tourapis, Y.-K. Wang, Y. Ye (vice-chairs)]

Output documents produced

JVET-AB1004 - Errata report items for VVC, VSEI, HEVC, AVC, Video CICC, and CP Usage TR

Incorporated items at the JVET-AB meeting:

- For VVC, incorporated the following items:
 - JVET-AB0223: Text improvement for Timing / DU information SEI message in HEVC and VVC
 - Added a NOTE in the HRD text to mention that "leading pictures" associated with a DRAP picture may not be correctly decodable, per the discussion of JVET-AB0055 (On leading pictures design in DRAP SEI Message).
 - Added a NOTE to mention that the definition of IRAP in VSEI covers the case of GDR with `ph_recovery_poc_cnt` equal to 0, per the discussion of JVET-AB0057 (On the associated IRAP for DRAP and EDRAP pictures).
 - Tickets [#1564](#), [#1568](#), [#1569](#), and [#1572](#) (some of them need more confirmation)
 - JVET-AB0120: Addition of interpolation for "initial CPB removal delay offset"
- For HEVC, incorporated the following items:
 - JVET-AB0223: Text improvement for Timing / DU information SEI message in HEVC and VVC
 - On conformance indication of the Multiview Main, Scalable Main, Scalable Main 10, and 3D Main profiles (resulted from a discussion between Alexis Tourapis and Gary Sullivan – thanks!)
 - On inference of `high_precision_offsets_enabled_flag` (resulted from a discussion between [Andy Fu](#) and Gary Sullivan – thanks!)
 - On a redundant sentence in the definition of `next_bits( n )` from Gary Sullivan
 - On addition the parenthetic abbreviation TB to the text in clause 9.3.3.1 (suggested by [Cliff Reader](#) – thanks!)
 - On indentation of item 3 in the paragraph just below Equation 8-14 in clause 8.4.1 (reported and suggested by [Cliff Reader](#) – thanks!)
 - On redundant call to clause 8.6.1 (reported by [Cliff Reader](#) – thanks!)
 - JVET-AB0120: Addition of interpolation for "initial CPB removal delay offset"
- For AVC, incorporated the following items:
 - JVET-AB0120: Addition of interpolation for "initial CPB removal delay offset"

JVET-AB1008 - Additional colour type identifiers for AVC and HEVC

This document contains the draft text for the specification of additional colour type identifiers for AVC (Rec. ITU-T H.264 | ISO/IEC 14496-10), HEVC (Rec. ITU-T H.265 | ISO/IEC 23008-2), and CICC (Rec. ITU-T H.273 | ISO/IEC 23091-2). Text modifications are provided for specification of code point identifiers for YCgCo-R colour representation with equal luma and chroma bit depths and for Draft SMPTE ST 2128. The

new code points for YCgCo-R are referred to as YCgCo-Re and YCgCo-Ro, where the number of bits added to a source RGB bit depth is 2 (i.e., even) and 1 (odd), respectively. Draft SMPTE ST 2128 specifies a colour representation referred to as ITP. Revision marking is provided to show modifications relative to the basis texts (based on the 2021-08 edition of Rec. ITU-T H.264 (the most recent edition), the 2020 edition of ISO/IEC 23008-2 (not the 5th edition currently under preparation), and ISO/IEC DIS 23091-2:202x (3rd Ed.), respectively). Equation numbers and their cross-references that are maintained automatically have been updated without revision marking.

JVET-AB2002 - Algorithm description for Versatile Video Coding and Test Model 19 (VTM19)

The JVET established the VVC Test Model 19 (VTM19) algorithm description and encoding method at its 28th meeting (20 – 28 October 2022, Mainz). This document serves as a source of general tutorial information on the VVC design and also provides an encoder-side description of VTM19. The VVC has been developed by a joint collaborative team of ITU-T and ISO/IEC experts known as the Joint Video Experts Team (JVET), which is a partnership of ITU-T Study Group 16 Question 6 (known as VCEG) and ISO/IEC JTC 1/SC 29/WG 11 (known as MPEG). This draft new standard has been designed with two primary goals. The first of these is to specify a video coding technology with a compression capability that is substantially beyond that of the prior generations of such standards, and the second is for this technology to be highly versatile for effective use in a broadened range of applications. Some key application areas for the use of this standard particularly include ultra-high-definition video (e.g., with 3840×2160 or 7620×4320 picture resolution and bit depth of 10 or 12 bits as specified in Rec. ITU-R BT.2100), video with a high dynamic range and wide colour gamut (e.g., with the perceptual quantization or hybrid log-gamma transfer characteristics specified in Rec. ITU-R BT.2100), and video for immersive media applications such as 360° omnidirectional video projected using a common projection format such as the equirectangular or cubemap projection format, in addition to the applications that have commonly been addressed by prior video coding standards.

Ed. Notes:

VVC Test Model 19 (VTM19) algorithm description and encoding method v2

- Incorporated JVET-AB0072: VTM Encoder Implementation for Green-MPEG SEI Messaging

VVC Test Model 19 (VTM19) algorithm description and encoding method v1

- Incorporated JVET-AA0110 and JVET-AB0267: phase indication SEI
- Incorporated JVET-AB0070: post-filter hint SEI
- Incorporated JVET-AA0102, JVET-AA0101, JVET-AB0051, and JVET-AB0069: processing order SEI
- MTS signalling bug fix in section 3.5.2
- Incorporated JVET-AB0080 and JVET-AB0081: RPR controls and filters
- Incorporated JVET-V0078; QP control for very smooth blocks

JVET-AB2006 - Additional SEI messages for VSEI (Draft 3)

This document contains the draft text for changes to the versatile supplemental enhancement information messages for coded video bitstreams (VSEI) standard (Rec. ITU-T H.274 | ISO/IEC 23002-7), to specify additional SEI messages, including the shutter interval information SEI message, neural-network post-filter characteristics SEI message, neural-network post-filter activation SEI message, phase indication SEI message, and post-filter hint SEI message.

JVET-AB2027 - SEI processing order SEI message in VVC (Draft 2)

This document contains the draft text for changes to the Versatile Video Coding (VVC) standard (Rec. ITU-T H.266 | ISO/IEC 23090-3), to specify the SEI processing order SEI message.

Related input contributions

It is noted that document JVET-AC0275 contains comments of the Finnish NB on the ISO/IEC 23090-3 DAM1 ballot that were missing from the Summary of Voting ballot response document [m61833](#).

Remaining bug tickets

- [#1564](#) Intra prediction ref pixel array bounds too small for wide angle
- [#1572](#) Sub clause C.1 -- Regarding number of bitstream conformance tests to be performed

Recommendations

The AHG recommended to:

- Approve JVET-AB1004, JVET-AB1008, JVET-AB2002, JVET-AB2006, and JVET-AB2027 documents as JVET outputs,
- Compare the VVC documents with the VVC software and resolve any discrepancies that may exist, in collaboration with the software AHG,
- Encourage the use of the issue tracker to report issues with the text of both the VVC specification text and the algorithm and encoder description,
- Continue to improve the editorial consistency of VVC text specification and Test Model documents,
- Ensure that, when considering changes to VVC, properly drafted text for addition to the VVC Test Model and/or the VVC specification text is made available in a timely manner,
- Review bug tickets, and other AHG2 related inputs and act on them if found to be necessary.

(It is noted that some of the recommendations should be formulated more generally, also covering other standards than VVC).

CITATION

B. Bross, C. Rosewarne, F. Bossen, J. Boyce, A. Browne, S. Kim, S. Liu, J.-R. Ohm, G. J. Sullivan, A. Tourapis, Y.-K. Wang, Y. Ye, "JVET AHG report: Draft text and test model algorithm description editing (AHG2)", JVET-AC0002, 29th Meeting: by teleconference, DE, January 2023.