

**Joint Video Experts Team (JVET)
of ITU-T SG 16 WP 3 and ISO/IEC JTC 1/SC
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Title: Non-CE3: CCLM table reduction and bit range control

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Purpose: Proposal

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Abstract

This contribution proposes a method to reduce the CCLM bit range and table size. It is asserted that the VTM3.0 CCLM has two problems: (i) that the current design requires the use of two, large tables and (ii) that the precision of the entries in these tables necessitates high bit-depth multiplication.

Specifically, it is observed that the VTM-3.0 CCLM employs two tables, each with 512 elements and where each element is 17 bits. This table is designed to avoid a division operation during the derivation process. However, when the internal bit depth of the decoded sample values is 10 bits, it is asserted that this design results in a 28 bit multiplication and 37 bit accumulation for the gradient a and intercept b , respectively, in the CCLM algorithm. It is argued that it would be desirable to reduce the calculation bit-depth to fit within 16 bits, which would have a benefit of both reducing the complexity of the calculation as well as the reducing the memory required for storing any needed tables.

Here, it is proposed to use a single table with 16 elements and with 3 bits per element. Furthermore, experimental results show that the proposed change preserved the almost same compression efficiency as the current VTM-3.0.

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<http://vexpertise.stbit.ru/documents/JVET-M0064>

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Non-CE3: CCLM table reduction and bit range control

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ABSTRACT

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MEETING NOTES

external meeting notes

https://www.itu.int/wftp3/av-arch/jvet-site/2019_01_M_Marrakech/JVET-M_Notes_dH.docx

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1 Summary

MEETING NOTES

[JVET-M0064](#) Non-CE3: CCLM table reduction and bit range control [Y. Yasugi, F. Bossen, E. Sasaki (Sharp)]

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