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| *Title:* | SCE1: Crosscheck report of SCE1.1 on Color Gamut and Bit-Depth Scalability (JCTVC-P0128) | | |
| *Status:* | Input Document to JCT-VC | | |
| *Purpose:* | Proposal | | |
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# Abstract

This contribution reports the crosschecking results for JCTVC-P0128 on color gamut and bit-depth scalability. The simulation results reportedly matched those provided by the proponents.

# Introduction

JCTVC-P0128 presents SCE1 test 1.1 results on lookup table based color gamut scalability.

The lookup table is derived by following steps.

1. The 8 vertices of every octant are computed independently for each octant. The color conversion is locally modelled as a linear function (1), and the parameters (ai, bi, ci, oi)i=0,..2 are derived by minimizing the distortion between the down-sampled picture from the EL input and the reconstructed BL picture.

(1)

Then the vertex values are computed using the linear function (1). If there is no enough input source YUV samples, the step 1 is iterated for the parent octant recursively.

1. The vertices of neighboring octants (neighboring octants are sharing same vertices) are merged by weighting with the number of input source YUV samples in the octants.

The lookup table is signaled in the PPS extension.

At decoder side, the color conversion is performed for each octant by formula (1) with reconstructed BL picture as input.

# Experimental results

We received the source code from the proponents, implemented in SHM-4.0 SCE1 anchor, and did a code study to verify that the proposed method was implemented as described. We ran simulations for the cases of AI-2x, RA-2x with SCE4 test sequences [1].

The results matched what were provided by the proponents and are summarized as follows

## Use case 1



## Use case 2



# Conclusion

In this contribution, we have presented the results of our cross-check of JCTVC-P0128. The implemented algorithm is in line with the proponent’s description, and the simulation results also match those provided by the proponents.

# References

1. P. Bordes, Y. Ye, E. Alshina, X. Li, S.-H. Kim, A. Duenas, K. Ugur, K. Sato, “Description of HEVC Scalable Extensions Core Experiment SCE1: Color Gamut and Bit-Depth Scalability”, JCTVC-O1101, Oct. 2013, CH