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# Abstract

This document provides a description of G-PCC Exploration Experiment (EE) 13.44 on residual coding for attribute coding

# Introduction

The goal of EE 13.44 is to investigate the residual coding for predicting transform and RAHT transform

# Information about related proposals

In m53672 [1], a method is proposed to modify the coefficient coding of lifting-transform for improved coding efficiency. The method aims to leverage on the correlation between chroma channel transform coefficient values. In m54655 [2], with modified encoder algorithm, the coding performance has been significantly improved. The average BD-rate savings are -0.6%, -0.6%, -2.8% for C1 and -0.6%, -0.6%, -3.6% for C2 coding conditions, respectively.

# Experimental description

In this EE, we intend to apply the similar chroma residual coding techniques as described in [1] and [2] to predicting transform residuals and RAHT coefficients and evaluate the coding efficiency.

## Mandates

1. To study the applicability of the proposed method for chroma residual coding of RAHT under C1/C2 coding conditions (YCbCr color-space)
2. To study the applicability of the proposed method for chroma residual coding of Predicting transform under CW coding condition (YCoCg-R color-space).

## Information for conducting tests

### Participants

| **Name** | **Company** | **E-mail address** | **Type** |
| --- | --- | --- | --- |
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|  |  |  |  |

### Software

TMC13v11 shall be used for these experiments. The proposed tools shall be implemented on top of TMC13v11.

### Test configurations

Parameters and configurations for TMC13v11 software will be provided by the proponent.

### Evaluation Method

The point cloud test material will be tested under the following conditions of the CTC [5]:

RAHT

* C1 Lossless Geometry - Lossy Attributes
* C2 Lossy Geometry - Lossy Attributes

Predicting-Transform

* CW Lossless Geometry - Lossless Attributes

## CE.13.44 Coordinators

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# Timeline:

* **2020-07-27**: Expected date for TMC13v11 release;
* **2020-09-04**:Source code and results to cross-checkers;
* **2020-09-18:** Preliminary feedback from cross-checkers;
* **2020-10-07**: MPEG document upload deadline.

# References

1. Improved residual coding for lifting-transform, ISO/IEC JTC1/SC29 WG11 m53672, Brussels, BE, January 2020.
2. [GPCC] EE 13.44 Report on Chroma Residual Coding for Lifting Transform, ISO/IEC JTC1/SC29 WG11 m54655, online, June 2020.
3. G-PCC codec description, ISO/IEC JTC1/SC29 WG11 w19331, Alpbach, AUT, April 2020.
4. G-PCC Test Model v11, ISO/IEC JTC1/SC29/WG11 w19517, online, June 2020.
5. Common Test Conditions for G-PCC, ISO/IEC JTC1/SC29 WG11 w19584, online, June 2020.