

**ISO/IEC JTC 1/SC 29/WG 11**

**Coding of moving pictures and audio**

**Convenorship: Japan (JISC)**

**ISO/IEC JTC 1/SC 29/WG 11 N19540**

**Document type: Approved WG 11 document**

**Title:** **Description of Exploration Experiment 13.39 for G-PCC on Bit count coding for predictive coding**

**Status: Draft**

**Date of document: 2020-07-17**

**Source: 3DG**

**Expected action:**

**No. of pages:**

**Email of acting convenor: ostermann@tnt.uni-hannover.de**

**Committee URL: http://isotc.iso.org/livelink/livelink/open/jtc1sc29**

**INTERNATIONAL ORGANISATION FOR STANDARDISATION**

**ORGANISATION INTERNATIONALE DE NORMALISATION**

**ISO/IEC JTC 1/SC 29/WG 11**

**CODING OF MOVING PICTURES AND AUDIO**

**ISO/IEC JTC 1/SC 29/WG 11 N19540**

**OnLine – June 2020**

|  |  |
| --- | --- |
| **Source:** | **3DG** |
| **Title:** | **Description of Exploration Experiment 13.39 for G-PCC: on Bit count coding for predictive coding** |

**Description of Exploration Experiment 13.39 for G-PCC: on Bit count coding for predictive coding**

# Abstract

This document provides a description of G-PCC Exploration Experiment (EE) 13.39 on Bit count coding for predictive coding.

# Introduction

The goal of EE13.39 is to investigate the bit count coding in m53538[1] on the quantisation of prediction residuals that was introduced in m54671[2] in terms of coding gain and complexity.

# Information about proposed tools

In 131th MPEG online meeting, bit count coding was proposed and adopted after applying recommendations in m54674[3] and harmonization of m53538 with m53618[4] where bit count coding was implemented for coding of residual values for both predictive geometry and predictive geometry with angular coding mode on a version of the predictive geometry coder software[4].

One of the changes introduced in this predictive geometry coder software was the signaling of qp offsets to enable quantization of prediction residuals, to be used in conjunction with source decimation to provide the lossy geometry codec configuration. It could be possible to make further improvements by extending bit count coding to take into consideration of quantization of prediction residuals.

# Experimental description

In this EE, the proposed bit count coding for predictive coding with quantization of prediction residuals method will be investigated in terms of coding gain and complexity.

## Mandates

Evaluate Mandates for this EE13.39 is to evaluate implementation and performance of Bit count coding for predictive coding with quantization of prediction.

## Participants

| **Name** | **Company** | **E-mail address** | **Type** |
| --- | --- | --- | --- |
| Loi Keng Liang | Panasonic | [kengliang.loi@sg.panasonic.com](file:///D:\Documents\01_業務\07_PCC\01_MPEG\01_document\2020_04_Alpbach\06_CEdescription\kengliang.loi@sg.panasonic.com) | Proponent |
|  |  |  |  |

## Information for conducting tests

Proposed method should be evaluated in both coding performance and compression efficiency in TMC13v11 with predictive geometry coding of the CTC setting.

### Software

TMC13v11 shall be used for this experiment. The proposed tool 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[4] with predictive geometry coding:

* C2 Lossy Geometry – Lossy Attributes
* CW Lossless Geometry – Lossless Attributes

## EE13.39 Coordinators

Loi Keng Liang ([kengliang.loi@sg.panasonic.com](mailto:kengliang.loi@sg.panasonic.com))

# Timeline:

* **2020-07-31**: Expected date for release of cross-verified TMC13v11 software and anchors
* **2020-09-04**: Deliver source code and results for cross check
* **2020-09-18**: Report of preliminary cross check results
* **2020-10-07**: MPEG document upload deadline

# References

1. [G-PCC] [New] EE13.8 related proposal on Predictive tree encoding modifications, ISO/IEC JTC1/SC29 WG11 Doc. m53538, Alpbach, AT, April 2020.
2. CE13.38 report on angular coding for the predictive geometry coder, ISO/IEC JTC1/SC29/WG11, m54671, Online, Apr. 2020.
3. CE13.39 review of predictive geometry residual magnitude coding, ISO/IEC JTC1/SC29 WG11 Doc. m54674, Online, April 2020.
4. [G-PCC][New proposal] Optimization of the predictive coding scheme for Spinning Lidars, ISO/IEC JTC1/SC29/WG11, 130th meeting, Alpbach, Tech. Rep. m53618, Apr. 2020.
5. CE13.38 software <http://mpegx.int-evry.fr/software/MPEG/PCC/CE/mpeg-pcc-tmc13/tree/mpeg130/ce13.38/predgeom+angular>
6. Common Test Conditions for PCC, ISO/IEC JTC1/SC29 WG11 Doc. N18665, Gothenburg, SE, July 2019.