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# Abstract

This document provides a description of Core Experiment 13.15 on LoD generation for spatial scalability.

# Introduction

The goal of Core Experiment 13.15 is to evaluate the Level of Details generation method for the lifting scheme for the spatial scalability.

The performance of the technique [3] is evaluated in the scope of the CE 13.15, in terms of RD performance and computational complexity.

# Mandates

The mandates for CE are as follows:

1. To study the coding performance compared with the anchor scalable lifting algorithm
2. To study the complexity (e.g. decoding time) of the proposed method for the spatial scalability
3. To evaluate the visual quality for the lower resolution point cloud with the common rendering software

# Participants

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(P=proponent, C=crosss checker)

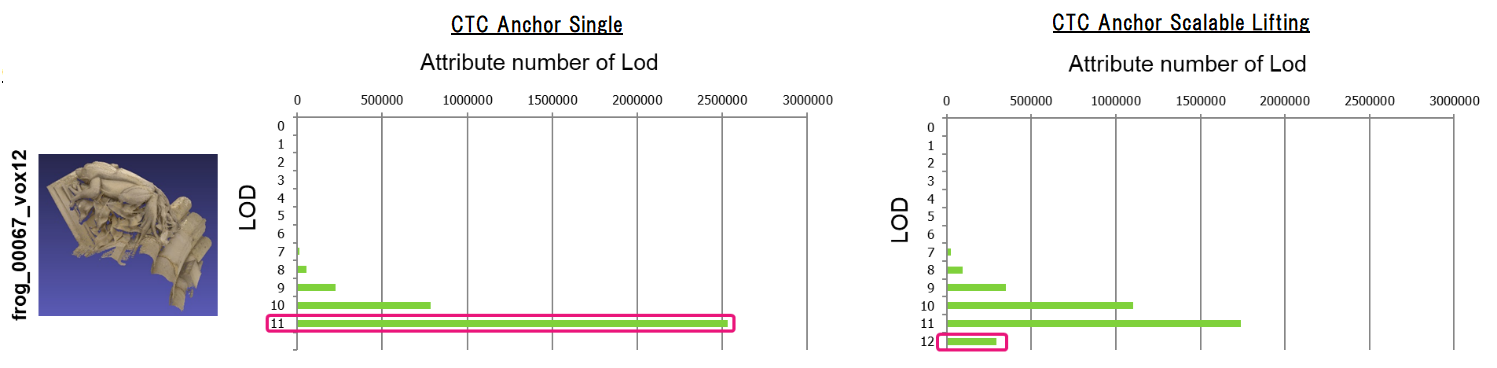
# Methods to be evaluated

## m49044 [G-PCC] CE13.15 Related on improved spatial scalable lifting

The proposed method modifies the LoD generation for the lifting reference structure.

## Lifting reference modification

To improve the coding efficiency, in the scalable lifting, the anchor LoD generation is modified. The proposal method handles the bottom LoDs as a same group. Figure 1 right shows an example of the proposal. By the proposed modification, the Lod12 and the Lod11 is handled as the same LoD (i.e. the reference structure and the weight values are same).



**Figure 1 the number of attribute node in LoD**

**(Left: Lifting LoD w/o Spatial scalability, Right: the anchor Lifting LoD with Spatial scalability)**

# Evaluation method

## Test condition

Following conditions will be studied under CTC[2].

1. CTC anchor (w/o Spatial scalability)
2. anchor spatial scalability coding (in TMC13 release-v7.0[1])
3. spatial scalability coding described in Section 4.1

## performance evaluation

For the full resolution point cloud, BDRate in the CTC spreadsheet is evaluated.

For the lower resolution point cloud, the visual quality of the decoded lower resolution point cloud is evaluated.

# Timeline

* 2019-08-12: Expected date for release of cross-verified TMC13v7 software and anchors
* 2019-09-18: CE Software and results are released to cross-checkers
* 2019-09-25: Preliminary feedback from cross-checkers to proponents
* 2019-10-02: MPEG document upload deadline

# References

1. “G-PCC Test Model 7”, ISO/IEC JTC1/SC29/WG11 MPEG2019 Doc. w18664, Goteborg, Sweden, July 2019
2. “Common Test Conditions for PCC” ISO/IEC JTC1/SC29 WG11 MPEG2019”, ISO/IEC JTC1/SC29/WG11 MPEG2019 Doc. w18665, Goteborg, Sweden, July 2019
3. “[G-PCC] CE13.15 Related on improved spatial scalable lifting”, ISO/IEC JTC1/SC29 WG11 (MPEG) input document m49044, Gothenburg, SE, July 2019