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

**CODING OF MOVING PICTURES AND AUDIO**

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**Alpbach, AT – April 2020**

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# Abstract

This document provides a description of Core Experiment 13.31 on nearest neighbour search for spatial scalability.

# Introduction

The goal of Core Experiment 13.31 is to evaluate the nearest neighbour search method for the lifting scheme for the spatial scalability.

The performance of the technique m53443[3] are evaluated in the scope of the CE 13.31, in terms of RD performance, on top of TMC13 release-v10.0[1] with CTC condition [2].

# Mandates

The mandates for CE are as follows:

1. To evaluate the coding performance compared with the anchor scalable lifting algorithm
2. To investigate the methods for density estimation

# Participants

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# Methods to be evaluated

In contribution m53443[3], the method to compute maximum nearest neighgour range for spatial scalable lifting scheme was proposed. The proposed method is to use estimated density with equation below.

According to the density\_destimation value, the maximum NN range is determined.

# Evaluation

## Test condition

Following test conditions will be evaluated under CTC[2] enabling spatial scalability.

* *C1 AI lossless geometry – (lossy attribute)*
* *C2 AI, lossy geometry – (lossy attribute)*

## Test model, anchors and CTC

The proposed tools shall be implemented on top of TMC13v10.

All tests are to be performed on categories 1 and 3 datasets.

The configuration are same as the CTC except to set enable spatial scalability and disable QtBt.

To enable spatial scalability, the following option will be set.

* aps\_scalable\_enable\_flag=1

In MPEG 130, we decided QtBt shall be disable if scalable lifting scheme is enable. Therefore, the configuration for QtBt will be disable with the following options.

* max\_num\_implicit\_qtbt\_before\_ot=0
* min\_implicit\_qtbt\_size\_log2=0

Full and partial decoding will be performed with the following decoding options:

* skipOctreeLayers=0 (no skip)
* skipOctreeLayers=1 (skip 1 LoD)

Results shall be reported relative to the anchors enabling spatial scalability.

# Timeline

* 2020-05-15: Expected date for release of cross-verified TMC13v10 software and anchors
* 2020-05-29: CE Software and results are released to cross-checkers
* 2020-06-06: Preliminary feedback from cross-checkers to proponents
* 2020-06-24: MPEG document upload deadline

# References

1. “G-PCC Test Model v10”, ISO/IEC JTC1/SC29/WG11 Doc. N19323, Alpbach, AT, April 2020
2. “Common Test Conditions for PCC” ISO/IEC JTC1/SC29/WG11 N19324, Alpbach, AT, April 2020
3. “[G-PCC][CE13.31 related] A method to compute maximum NN range for spatial scalability”, ISO/IEC JTC1/SC29 WG11 (MPEG) input document m53443, Alpbach, AT, April 2020