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**Email of convenor:** [**ostermann@tnt.uni-hannover.de**](mailto:ostermann@tnt.uni-hannover.de)

**Committee URL:** [**http://isotc.iso.org/livelink/livelink/open/jtc1sc29**](http://isotc.iso.org/livelink/livelink/open/jtc1sc29)

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

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| **Authors:** | **Rajan Joshi and Danillo Graziosi** |

# Introduction

This document provides a description of Exploratory Experiment EE4FE 2.6 on dynamic mesh generation and mesh coding with V-PCC.

# Mandates

The mandates for EE4FE 2.6 are as follows:

1. Collect dynamic mesh content.
2. Study methods for generation of dense and sparse meshes with per-vertex texture and texture maps
3. Study mesh coding extension to V-PCC.
4. Work towards eventual development of test model, anchors, and CTC.

# Participants

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| --- | --- | --- | --- |
| ***Participant*** | ***Contact*** | ***Email*** | ***Type*** |
| Samsung | Rajan Joshi  Madhukar Budagavi  Esmaeil Faramarzi | [r.joshi@samsung.com](mailto:r.joshi@samsung.com)  [m.budagavi@samsung.com](mailto:m.budagavi@samsung.com)  e.faramarzi@samsung.com | Participant |
| Apple | Khaled Mammou | [kmammou@apple.com](mailto:kmammou@apple.com) | Participant |
| Sony | Danillo.Graziosi | [Danillo.Graziosi@sony.com](mailto:Danillo.Graziosi@sony.com) | Participant |
| IMT | Chao Cao | [cao\_chao@telecom-sudparis.eu](mailto:cao_chao@telecom-sudparis.eu) | Participant |
| Futurewei | Vladyslav Zakharchenko | [vladyslav.zakharchenko@futurewei.com](mailto:vladyslav.zakharchenko@futurewei.com) | Participant |
| InterDigital | Pierre Andrivon | [Pierre.Andrivon@interdigital.com](mailto:Pierre.Andrivon@interdigital.com) | Participant |

# Description

## Generation of new mesh content

During MPEG131, mesh content generation methods for dense meshes with per-vertex texture [1] and sparse meshes with texture maps [2] were proposed. A new method for determination of normal orientation using cubmap projections [3] was also presented. During this exploration experiment, the combination of the mesh generation methods with the determination for normal orientation using cubemap projections will be investigated.

## Mesh coding using VPCC

During MPEG131, 32-frame lossless mesh coding results using the Edgebreaker mesh connectivity coding algorithm [4] on top of V-PCC TCM2-v8.0 were presented for the two proposed frameworks and compared with Google Draco [5]. In this exploration experiment, the extension of the method to lossy coding of point clouds will be explored.

# Timeline

* 2020-07-03 MPEG #131 meeting ends.
* 2020-07-17 Expected date for release of finalized EE description and CTC.
* 2020-10-07 Document deadline for contributions related to EE4FE-2.6
* 2020-10-12 MPEG #131 meeting starts.

# References

1. Esmaeil Faramarzi, Rajan Joshi, and Madhukar Budagavi, “[V-PCC] Report on CE 0.2: Generation of dense and sparse meshes with per-vertex color”, ISO/IEC JTC1/SC29 WG11 (MPEG) m54688, June 2020.
2. Danillo Graziosi, Ali Tabatabai, and Alexandre Zaghetto, “V-PCC][EE2.6-related] Sparse mesh generation with high-resolution texture maps,” ISO/IEC JTC1/SC29 WG11 (MPEG) m54262, June 2020.
3. Danillo Graziosi, Ali Tabatabai, and Alexandre Zaghetto, “[V-PCC][EE2.6-related] Normal orientation using cubemap projections,” ISO/IEC JTC1/SC29 WG11 (MPEG) m54263, June 2020.
4. Esmaeil Faramarzi, Rajan Joshi, and Madhukar Budagavi, “[V-PCC] Report on EE4FE 2.6 mesh coding with V-PCC”, ISO/IEC JTC1/SC29 WG11 (MPEG) m54687, June 2020.
5. Google Draco mesh codec software, <https://github.com/google/draco>.