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# Introduction

Version "d40\_withProfiles" of the V-PCC draft specification [1], Enhanced Occupancy Map mode is excluded from the basic profile (asps\_enhanced\_occupancy\_map\_for\_depth\_flag forced to 0) but present in the Full (or Advanced) profile. It was asserted that, when present, EOM (attributes) patch requires additional syntax parsing and additional image decoding (the portion of the attribute frame containing the EOM attributes) although one decoder would not consider EOM coded points for reconstruction i.e. without consideration for the optional conformance point B.

This contribution proposes EOM constraints to address said decoding concern.

# Proposal

It is allegedly claimed that EOM is a tool particularly competitive when it comes to carry the original point cloud as only one map/layer (with EOM activated) against two maps/layers.

Typically, considering current implementation of the V-PCC codec (TMC2 v7), it is asserted that one map/layer with EOM activated covers between 30 to 40% of all coded points for a typical loss of few percents of bitrate when compared to a two maps/layers solution. Per the current implementation, points that would be not coded via EOM would be coded in raw mode, with performance penalty. Consequently, EOM may be a tool of interest for implementation of 1 map/layer configuration as 1 layer/map is currently premitted by the Basic profile.

The intent of this proposal is to provide a set of restrictions on syntax elements that may allow enabling EOM with Basic profile -- conformance point A -- when it is combined with Rec1 and possibly Rec Unconstrained reconstruction profiles component (still disallowing the tool with Rec0) -- conformance point B -- while addressing technical comment. Proposed restrictions result in placing EOM attributes in a separate video which may be discarded by the V-PCC decoder (typically for the profile V-PCC Basic Rec Unconstrained). It is noted that, by design, in case of EOM presence, the decoding of geometry is not impacted compared to its non presence.

The proposition consists of one constraint release and two restrictions:

- remove asps\_enhanced\_occupancy\_map\_for\_depth\_flag = 0 from table A.4, so that EOM may be permitted with Basic profile in conjunction with Rec1 and possibly Rec Unconstrained.

- set to 1 the value of vpcc\_raw\_patch\_enabled\_flag in table A.4 (discrepency between V-PCC draft specification and reference software - see contribution [2] to understand why this flag actually acts upon EOM separate video mode)

- set to 1 the value of epdu\_patch\_in\_eom\_video\_flag if it exists (see [2] for clarifications)

It is worth noting that levels also limit EOM mode usage as specified in table A.8 of [1].

# References

[1] Draft V-PCC specification, CD stage, revision d40

[2] m50860, On separate video for EOM/raw modes, P. Andrivon et al, MPEG128, Geneva