



G-PCC:

Review of slice point count signalling

Adoption of 129th meeting

“Number of points per slice: Further study. Apple, BlackBerry, Tencent and Qualcomm to sit together. Come back on topic at the end of the G-PCC review this meeting. Thu 17:25: Adopt to signal it at the beginning with fix length coding.

Seems clear, HLS was implemented in v9

But: It doesn't indicate the resolution of the discussion on constraints

Questions

- Is it mandatory that the signalled point count is exact?
 - A fixed width code was used to make it easier for an encoder to update
 - The current TM (v9.1) signals the exact value
- Should the signalling be at the start or end of the slice?
 - Something had to be adopted to fix what was there pending review

Background

Each slice has a point count: what can go wrong?

- Given a slice with `num_points =  $n$` , and an octree with p true points
- $n < p$: Signalled length too short. Should a decoder:
 - Truncate the output to n ? (impossible?)
 - Undefined (ie, prohibited)?
 - Crash? $\leftarrow$ TM Behaviour

Always bad
- $n > p$: Signalled length too long. Should a decoder:
 - Truncate the missing points? $\leftarrow$ TM Behaviour
 - Undefined (ie, prohibited)?

Acceptable

Does removal solve anything?

No

- num_points is not strictly required by geometry decoding (NB: caveat)
 - The level defines the maximum value of p (true point count)
 - Can assume $\text{num_points} = n = p$
- Doesn't help with the invalid stream case. An implementation **must** handle this
- Loss of system metadata: can't convey accurate point count without decoding

Where to signal?

At the **start** or **end** of a geometry data unit?

- Slice header (**start**)
 - Decoder immediately knows value before entire data unit arrives
 - But, (some) encoders cannot start writing until value is known
 - *cf. Is it mandatory that num_points is exact?*
- Slice footer (**end**)
 - Encoder doesn't need to buffer: signal at natural location
 - Decoder can either assume level limit, or wait to find true value

The question(s)

- Is it mandatory that num_points is exact?
 - Does it matter given a decoder must protect itself anyway?
- Should the signalling be at the start or end of the slice?
 - Doesn't appear to be any detriment to the end

