JCTVC-AC0031: ON COVERAGE SIGNALLING FOR OMNIDIRECTION VIDEO

R. Skupin, Y. Sanchez

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Problem Description: Coverage Signalling

- Coverage signalling in JCTVC-AB1005 is projection dependent
  - ERP: Azimuth and elevation range, CMP: RWP

- Unified signalling preferable for content authors (cp. OMAF)

- JCTVC-AC0024 proposes sphere coverage SEI message
  - Four great circles or two great and two small circles.

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Problem Description: Coverage Signalling

■ CMP: no accurate description of decoded picture samples

   ■ Samples outside coverage may be present

■ When multiple streams are offered in a streaming system (e.g. tiles), client cannot recognize:

   ■ trivial union of the decoded picture forms a continuous omnidirection picture
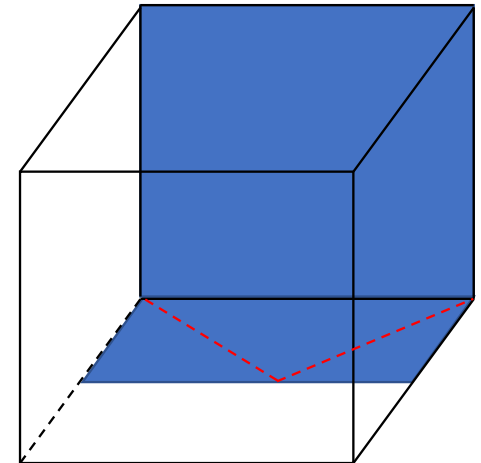
- - - - - +/- 45° great circle intersection with bottom face

Samples present in the decoded picture

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Proposal

Overview

- Extent potential sphere coverage SEI message (cp. JCTVC-AC0024) with a flag (sphere_coverage_exact_match_flag) to indicate that no decoded sample positions are outside the indicated coverage range

- Client could recognize that further parsing of adidtional information is necessary (such as RWP for CMP)

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Proposal

Syntax and semantics

sphere_coverage(payloadSize) {	Descriptor
[...]	
sphere_coverage_reserved_zero_~~6~~5bits	u(~~6~~5)
sphere_coverage_exact_match_flag	u(1)
[...]	
}	

sphere_coverage_exact_match_flag equal to 1 specifies that all decoded picture samples that lie within the indicated sphere coverage are present and that no decoded picture samples lie outside the indicated sphere coverage.

sphere_coverage_exact_match_flag equal to 0 specifies that all decoded picture samples that lie within the indicated sphere coverage are present but further samples may also be present.

NOTE 1 – When sphere_coverage_exact_match_flag is equal to 1 in the sphere coverage SEI messages of multiple bitstreams that cover disjunct but spherically adjacent subsections of an omnidirectional video, the decoded pictures of the multiple streams can be combined to a continuous spherical image without overlap or gaps.

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