Terms for MPEG-Immersive 3DoF+ Standard Work

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Contributions on 3DoF+

- w17726 - Common Test Conditions (CTC) on 3DoF+
- w17759 - Reference View Synthesizer (RVS) manual
- w17760 - ERP WS-PSNR software manual
- m43504 – Outperforming 3DoF+ anchors: first evidence
- w17761 - 3DoF+ software platform description
- w17724 - Draft call for proposals on 3DoF+
Common Test Conditions (CTC) on 3DoF+

- **Common Test Conditions (CTC)**
  - Conditions for the experiment including parameters for the test sequence

- **Test sequence**
  - Test materials used in the experiment
  - In 3DoF+, 3 test sequences are provided

Class A
ClassroomVideo (4096x2048), 360\(^\circ\) x 180\(^\circ\) FOV ERP, 30fps, 120frames, 15 source views

Class B
TechnicolorMuseum (2048x2048), 180\(^\circ\) x 180\(^\circ\) FOV ERP, 30fps, 300frames, 24 source views

Class C
TechnicolorHijack (4096x4096), 180\(^\circ\) x 180\(^\circ\) FOV ERP, 30fps, 300frames, 10 source views
Common Test Conditions (CTC) on 3DoF+

- **Texture**
  - Made of picture which contains the color information

- **Depth**
  - Represents the distance between the camera and the objects shown in texture

- **Source view**
  - Video provided by the test sequence, includes both texture and depth

- **Intermediate view**
  - Video which is not provided by the test sequence
  - Virtually synthesized from source views

Texture of ClassroomVideo

Depth of ClassroomVideo
Common Test Conditions (CTC) on 3DoF+

- **Non-coded source view**
  - A view generated from anchor view whose position is one of the source view

- **Anchor view**
  - A subset of source views to be used in view synthesis
  - In 3DoF+, it is encoded and decoded with HEVC

Definition of the anchor
Reference View Synthesizer (RVS) manual

- Reference View Synthesizer (RVS)
  - Software used to synthesize a view in 3DoF+

- 3D warping
  - Pixel movement between viewpoints of the same world coordinates

(a) Input view  
(b) Obtained view after synthesizing view and depth
Reference View Synthesizer (RVS) manual

- View blending
  - Blending all of the synthesized images

- Hole
  - Area of the synthesized view which did not filled by the source views

- Inpainting
  - Filling the hole with the nearest pixel

(a): Blending by argmax
(b): Weighted mean
(c): Multi-spectral blending: argmax - high frequencies
     weighted mean - low frequencies
ERP WS-PSNR software manual

- WS-PSNR
  - Uniform weight in sphere PSNR
  - Designed to evaluate the coded omnidirectional video

Weight map of WS-PSNR
Outperforming 3DoF+ anchors: first evidence

- **Central view**
  - A view which contains most of the information of the source views
  - The position of the central view is the most frequently used position

- **Sparse view**
  - A view only carries a particular information of its own
  - Generated by removing redundancy between source views and central view

Visualization of the central view and the source views
3DoF+ software platform description

- Source view pruning
  - Generates the sparse view with the central view and the source views
  - Removes the pixels which the central view already contains

- Partitioning & packing
  - Divides the sparse views and discard the empty spaces
  - Merges all of the partitions and generates additional information
Draft call for proposals on 3DoF+

- **Viewport**
  - A rectangular image which the user sees
  - Has a field of view of 90°x90°, rectilinear projection format

- **Pose trace**
  - Information about the user’s viewport