**3GPP TSG-SA WG4 Meeting #131S4-250183**

**Geneva, Switzerland, 17 – 21 February 2025**

**Source: InterDigital Canada**

**Title: [FS\_ARSpatial] Pseudo-CR on Related Standardization Work**

**Spec: 3GPP TR 26.819**

**Agenda item: 9.9**

**Document for: Agreement**

**1. Introduction**

During MPEG 149, new parameters have been added to the MPEG\_anchor extension in MPEG-I Scene Description. These parameters are included in the CDAM 1 of the 2nd edition of ISO/IEC 23090-14 and provide a set of recommended parameters which could be used for the configuration of the XR Spatial Computing Functions.

**2. Reason for Change**

Support for AR anchoring has been defined in TS 26.119 based on the MPEG\_anchor glTF extension. New parameters have been added in *MPEG\_anchor* which could be used for the configuration of the XR Spatial Functions. Clause 5.2.3 “Related Standardization Work” needs to be updated to reflect this relevant information.

**3. Proposal**

It is proposed to agree the following changes to 3GPP TR 26.819.

\* \* \* First Change \* \* \* \*

5.2.3 MPEG

The MPEG-I Part 14 Scene Description (ISO/IEC 23090-14) [24] standard specifies how to reference and position 2D and 3D assets within a scene, enabling proper rendering and creating rich 3D scenes with real-time media delivery and interactivity. It defines several extensions to the Khronos glTF 2.0 specifications, related to the inclusion of dynamic and temporal media, interactivity and augmented reality.

In this context, the MPEG\_anchor extension enables a content creator to describe the spatial relationships between the virtual objects and particular real-world locations based on the definition of AR anchor and trackable objects. To support a variety of indoor and outdoor AR experiences, several types of trackables are defined, such as controller-based, floor, viewer, horizontal, or vertical planes, 2D or 3D marker, geospatial coordinates or application specific.

The MPEG\_anchor extension consists of Trackable and Anchor objects. In an amendment to the 2nd edition of ISO/IEC 23090-14 (WG03N01454), a *recommendedSpatialComputingConfig* object is added to the Anchor object defined in the MPEG\_anchor extension. This new object provides a set of recommended parameters which could be used for the configuration of the XR spatial computing functions. The object contains the following parameters:

|  |  |
| --- | --- |
| **Parameter** | **Function** |
| scanOptions | Array of options (enumeration) for the scan computation (PLANE, PLANAR\_MESH, VISUAL\_MESH, COLLIDER\_MESH, FREE\_VOLUME, BOUNDING\_BOX, TEXTURED\_MESH). |
| scanDetails | Specifies the required level of detail for the mesh (quantity of the geometric primitives and texture resolution of textured mesh). |
| scanUpdate | Specifies the frequency at which the spatial description must be updated. |
| scanVolumes | Array of bounding volumes that determine the spaces where scanned objects must be provided. Real scanned objects that intersect one or more of the bounding volumesshould be provided, and all other objects ignored. Possible types of bounding volumes are SPHERE, BOX and FRUSTUM. |
| realSemantic | Semantic descriptions of nodes that are needed (“table”, “room”, “chair”, “wall”, “light”, “freespace”, etc.). |
| lightOptions | Array of options (enumeration) for light extraction (DIRECTIONAL\_LIGHT, ENV\_LIGHT, POINT\_LIGHT, SPOT\_LIGHT, AREA\_LIGHT). |
| lightUpdate | Specifies the frequency at which the extraction of real light must be updated. |

When processing the MPEG\_anchor extension, if a *recommendedSpatialComputingConfig* object is present, the Presentation Engine checks if it can retrieve the recommended spatial description, specified in the parameters in *recommendedSpatialComputingConfig*. If all the recommended parameters are not satisfied, the rendering can continue with the available spatial description, but possibly with a degraded XR experience.

As part of its glTF 2.0 extensions, Khronos has defined a set of static light sources for use with glTF 2.0 scenes. These extensions include the KHR\_lights\_punctual, EXT\_lights\_ies, and EXT\_lights\_image\_based extensions. As part of its second edition, ISO/IEC 23090-14 expand these light extensions to describe dynamic lighting of a scene. It includes the MPEG\_lights\_texture\_based extension (for Image Based Light) and the MPEG\_lights\_punctual extension (for Punctual light) [24].

\* \* \* End of Changes \* \* \* \*