**3GPP TSG-SA WG4 Meeting #127** **S4-240424**

**Sophia-Antipolis, France, 29 January - 2 February 2024**

**Source: Interdigital Europe Ltd**

**Title: [MeCAR] PCR Trackable pose information format**

**Spec: 3GPP TS 26.119 v0.4.0**

**Agenda item: 9.5**

**Document for: Discussion and agreement**

**1. Introduction**

This contribution proposes to add a trackable pose information format related to Augmented Reality (AR) anchors to the Metadata formats in a sub section of section 6.2.

**2. Reason for Change**

An AR experience may require anchoring dedicated virtual content at several places of the user’s real environment.

For example, the SA1 TR 22.856 has identified the two following use cases requiring multiple anchoring for an AR application:

* A localized mobile Metaverse service (section 5.1 of TR 22.856) where a user has access to virtual content anchored to the location of some retail stores and restaurants within a station (e.g., store’s opening hours, personalized message)
* A spatial anchor enabler (section 5.4 of TR 22.856) where dedicated information is anchored to each ware of a seller

The support of multiple AR anchors is provided in the MPEG-I Scene Description by attaching the MPEG\_anchor extension to the root nodes of a graph representing the XR scene. The device types supporting the SD-Rendering-glTF-Ext2 profile for the scene processing capabilities are then able to retrieve the anchor-related information to properly configure the XR Runtime for the detection and the tracking of the trackables related to the anchors.

Each trackable defines a XR space in which the virtual objects are positioned. The pose of that XR space (i.e., that trackable) may be retrieved from the XR Runtime by relying for example on the Khronos OpenXR xrLocateSpace() function. This function provides the physical location of a trackable in a base space at a specified time.

The proposed trackable pose information format may be used to transmit the poses of these trackables for example in the case of a shared XR scene between several users and/or in the case of a split rendering UE architecture.

It is proposed to change the name of the format of section 6.2.2 from “pose information to “view pose information” for a sake a clarity.

It is also proposed to add a reference to the AMD2 of MPEG-I Scene description, the definition of a XR space, and the definition of trackable and anchor objects as defined in MPEG-I Scene Description.

**3. Proposal**

It is proposed to agree the following changes to 3GPP TS 26.119.

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

# 3 Definitions of terms, symbols and abbreviations

## 3.1 Terms

For the purposes of the present document, the terms given in 3GPP TR 21.905 [1] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in 3GPP TR 21.905 [1].

Anchor: is a virtual element for which its position, orientation, scale and other properties are expressed in the trackable space defined by the trackable. A virtual asset’s position, orientation, scale and other properties are expressed in relation to an anchor.

**Frame of Reference**: an abstract coordinate system whose origin, orientation, and scale are specified by a set of reference points

**Reference Points**: geometric points whose position is identified both mathematically and physically.

**Trackable**: a real-world object that can be tracked by the XR runtime.Each trackable provides a local reference space, also known as a trackable space, in which an anchor can be expressed.

**XR Application**: application running on an XR Device which offers an XR experience based on an XR Runtime

**XR Device**: a device capable of offering an XR experience.

**XR Runtime**: Set of functions provided by the XR Device to the XR Application in order to create XR experiences.

**XR Runtime API**: the API to communicate with an XR Runtime

**XR Session**: an application’s intention to present XR content to the user.

**XR Space**: a frame of reference in which the 3D coordinates of objects are expressed.

**XR System**: a collection of resources and capabilities from the XR Runtime exposed to the XR Application for the duration of the XR Session.

**XR View**: a rendered view of the scene generated by the XR Application and passed on to the XR Runtime during a running XR Session

\* \* \* End of First Change \* \* \* \*

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