**Source: Tencent**

**Title: MeCAR and OpenXR**

**Agenda Item: 9.5**

**Document for: Agreement**

1. Introduction

In the context of the Work Item on “Media Capabilities for Augmented Reality” (MeCAR), extensive work on the definition of the XR device architecture has been and is still being done.

The baseline XR device architecture contains at least the following:

* an **XR application**: a software application that integrates audio-visual content into the user’s real-world environment
* an **XR Runtime**: a set of functions that interface with a platform to perform commonly required operations, such as accessing the controller/peripheral state, getting current and/or predicted tracking positions, performing spatial computing, and submitting rendered frames to the display processing unit.
* a **Media Access Function**: A set of functions that enables access to media and other XR-related data that is needed in the ***Scene manager*** or ***XR Runtime*** to provide an XR experience.
* a **Scene Manager**: a set of functions that supports the application in arranging the logical and spatial representation of a multisensorial scene based on support from the ***XR Runtime***.

The **XR Runtime** holds the device-specific features and interfaces them to the ***XR Application***, ***Scene Manager,*** and ***Media Access Function***. A reference interface is provided for the OpenXR API. This interface has been specified by the Khronos group. It is understood that several other APIs exist but those will not be addressed at this stage. A more detailed introduction to OpenXR is available under clause 4.6.4.1 of 3GPP TR 26.998 “Support of 5G Glass-type Augmented Reality / Mixed Reality (AR/MR) devices”.

OpenXR can be viewed as a reference XR-Runtime API providing access to a comprehensive set of device functionalities.

While it is understood that 3GPP SA4 will not restrict the design of the XR device architecture and the definition of associated media capabilities to the use of OpenXR, using OpenXR as a reference API, to which 3GPP XR specifications are compatible, is considered essential.

The mapping to other runtimes may be addressed by 3GPP SA4 at the time when concrete input is provided.

1. Proposal

We propose to agree on the following statement:

* The 3GPP media capabilities for AR developed within the MeCAR work item are intended to be generic and not restricted to one particular API, such as OpenXR.
* During the development of MeCAR work, OpenXR will be used as a reference instantiation of the API for the XR runtime. This means that it should be possible to realize the MeCAR XR runtime with a complete set or an identified subset of OpenXR functionalities.
* Proponents providing technical contributions should provide information on how their solution would work when realized using OpenXR as the runtime API. If that is not possible, the proponents should provide any necessary information of how the technical contribution will be utilized.