3GPP TSG SA WG4 Meeting #120eS4-221037r03

17th – 26th August 2022

**Source:** Samsung Electronics Co., Ltd.

**Title:** On MR split rendering information

**Document for** Discussion and Agreement

**Agenda item** 9.5

# Introduction

Mixed Reality split rendering is believed to present a richer experience in addition to the AR split rendering in the sense of enabling use cases like virtual objects hit and bounce off from a wall, virtual participants occluded by a desk in a multi-party call, or decorate a real room with virtual party supplies, based on occlusion and interaction effect with real surroundings of a user.

The PD text for MeCAR groups the media capability of the terminal into categories such as camera, video, and runtime in clause 5.1. Clause 5.2 provides 2D media oriented capabilities for the video category. Clause 6.2 provides view-related information as data types relates to Sensor and user environment data types. Currently there is no explicit information or data type relates to user surroundings.

A MR renderer should require 3D geometry data describing a user's surroundings to customise rendered view to be fit and interact with real environments. A terminal may identify its capability on generating user surroundings with available data type such as 2D RGB, depth, point cloud, mesh and etc.

This contribution proposes parameters identifying capability of a terminal on providing user surroundings data. Additionally, parameters on identifying data type of the user surroundings are proposed. MR split rendering service provider may determine AR-only or MR-enabled service for a terminal with the capability then provision relevant processes.

# Proposed information for MR split rendering

6.X User surroundings information

The device may generate data stream related to user's surrounding geometry. User surroundings is a structural and geometric representation of user's environment with primitives. The examples of primitives are meshes, planes and objects. The information on the user surrounding is listed as follows.

* User surroundings information
  + Primitive (including mesh, plane, and other shape of objects. For example, XR\_FB\_triangle\_mesh [https://registry.khronos.org/OpenXR/specs/1.0/html/xrspec.html#XR\_FB\_triangle\_mesh](https://registry.khronos.org/OpenXR/specs/1.0/html/xrspec.html" \l "XR_FB_triangle_mesh) and XR\_MSFT\_scene\_understanding [https://registry.khronos.org/OpenXR/specs/1.0/html/xrspec.html#XR\_MSFT\_scene\_understanding](https://registry.khronos.org/OpenXR/specs/1.0/html/xrspec.html" \l "XR_MSFT_scene_understanding))
  + Level of detail (for example, [https://registry.khronos.org/OpenXR/specs/1.0/html/xrspec.html#XrMeshComputeLodMSFT](https://registry.khronos.org/OpenXR/specs/1.0/html/xrspec.html" \l "XrMeshComputeLodMSFT))

# Proposal

We propose to consider user surrounding information in clause 2 and document it in the 6. Sensor and user environment section of PD for MeCAR.