**Source: Intel, Nokia Corporation**

**Title: use case of Multiple Video Sources in UE**

**Agenda Item: 10.10**

**Document for: Discussion and Agreement**

1. **Introduction**

In this contribution, we would like to introduce a use case where a UE has multiple video sources.

It covers the cases where WebRTC-enabled UE has Multiple Video Sources covering different areas such as 360 degrees of view. In some cases, not all of the current UE’s field-of-view (FoV) is necessary to be streamed or the receiver-side UE does not care what’s behind source’s current FoV. This contribution was previously discussed in the SA4#121 meeting.

1. **Multiple Video Sources and zone allocations**

Figure. X-2.1 illustrates a common use case when a UE has multiple video sources (e.g. 2D/3D-capable). Each camera may have a fixed Field-of-View (FoV) or varied FoV. Each camera may support the same set of video capabilities such as codec support.

A camera ID or zone ID is assigned for each camera. By assigning a zone number, the UE has the flexibility to signal each source by its source ID (e.g. SSRC in case of RTP) or zone/camera ID.

The zone ID may be assigned with a priority based on the areas it covers and may consist of one or more cameras. For example, the area covered by cameras in zone-1 may be more important than the ones located in zone-2 and zone-3 since it covers the front FoV of the UE. This is important information since it enables UE to signal the essential zone areas or high-priority zones. In some cases, all of the zones have to be treated equally, then all the zone will have the same priority assignment.



Figure. X-2.1 Multiple Video Sources With different zone allocations in UE

*Note: the number of cameras and the size of UE, i.e., the entire coverage of all cameras, can vary.*

In this use case, there are a couple of possible scenarios.

For example, UE-A has multiple media sources under its control. UE-A is communicating with UE-B:

1. Each media source belonging to UE-A is able to produce an individual media stream. To set up the media stream with UE-B, UE-A identifies the source of the media (e.g., by camera ID) and exchanges information about the media.
2. In each zone, media produced by the sources in the zone may be processed and combined into a new media. UE-A identifies (the source of) the combined media (e.g., by zone ID) and exchanges information about the media.
3. Media produced by the sources in all zones may be combined into a new media stream. UE-A identifies (the source of) the combined media and exchanges information about the media.
4. The zone IDs or camera IDs may be associated to particular pose information of UE-B when the UE-A is creating or sending immersive content. Streams from individual camera or cameras in certain zones can be paused/resumed depending on the viewing orientation of the receiver UE-B (i.e., for viewport-dependent media). In this case the streams do not have to be combined.

1. **Proposal**

It is proposed d to add clause 2 into C.x of the FS\_eiRTCW permanent document and work on session management-related procedures for this use case.