**3GPP TSG-SA WG6 Meeting #38-e**

**S6-20xxxx\_was S6-201040**

**e-meeting, 20th – 31st July 2020**

**Source: Tencent, Motorola Mobility, Lenovo**

**Title: Pseudo-CR on key issue x: UTM/USS service handoff**

**Spec: 3GPP TR 23.755**

**Agenda item: 8.5**

**Document for: Approval**

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**1. Introduction**

A UAV may need to obtain flight authorization from a connected USS/UTM service while doing pre-flight before take-off. However, USS or UTM service might need to be handed off to different USS/UTM server while UAV is airborne following a specific fly path. In either case, decision-making on a USS/UTM service selection/handoff may need to take into consideration for UAV UE.

Per UAS traffic management requirement specified in TS 22.125:

* [R-5.2.1-001] The 3GPP system shall provide a mechanism for a UTM to provide route data, along with flight clearance, to a UAV.
* [R-5.2.1-002] The 3GPP system shall be able to deliver route modification information received from a UTM to a UAS with a latency of less than 500ms.
* [R-5.2.1-003] The 3GPP system shall be able to deliver the notifications received from a UTM to a UAV controller with a latency of less than 500ms.

The USS/UTM for a UAV flight operation may have significant impact on service performance provided by 3GPP network. There are a few scenarios where service handoff may happen:

* An initial USS/UTM connection during pre-flight, that means while UAV is on the ground, Or
* A pre-assigned USS/UTM service a UAV MUST connect after airborne, Or
* A dynamic USS/UTM change while a UAV fly into a new USS/UTM service converge area. Or
* There are multiple USS/UTM services at the same area, which one to choose?

This pCR proposes a key issue on UTM/USS service handoff.

**2. Reason for Change**

In the general aviaiton, flight service handoff happens often when aircraft is outside of the current ATC controlled area. Image a UAV flight a long distance mission following a path preset by a USS/UTM service supplier. A service handoff may happen when UAV is outside of its current USS/UTM’s service area. Therefore, a study on service handoff is necessary.

**3. Conclusions**

**4. Proposal**

It is proposed to agree the following changes to 3GPP TR 23.755

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

## 5.x Key issue #X: USS/UTM service handoff

USS/UTM Service handoff may happen any time after UAV’s initial authentication through 3GPP network.  Certain QoS requirement and service continuity may be affected during USS/UTM service handoff.

Hence, it is required to study the following:

* Whether USS/UTM service handoff has QoS implications
* How to enable connection migration between a UAV and a new USS/UTM while preserving application service?
* What UAE/SEAL capabilities are required to accommodate QoS impacts as a result of USS/UTM service handoff

NOTE: SA2 is responsible for UAV flight authorization and authentication after a proper USS/UTM service is chosen