**3GPP TSG-SA WG6 Meeting #38-e S6-201040**

**e-meeting, 20th – 31st July 2020**

**Source: Tencent**

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

**Spec: 3GPP R 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?

The FAA is paying a great attention on ASTM WK63418, the “New Specification for Service provided under UAS Traffic Management (UTM)”. This will give SA6 more guidance how UAV application layer may communicate with a USS/UTM server, besides the existing FAA LANNC program.

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

A UAV UE may be connected to one USS/UTM at a time and there maybe a need to hand off to a different service supplier due to service coverage or reasons related to traffic management. Such handoff may have impacts on performance provided by 3GPP network as described in Clause 7 of stage 1 TS 22.125.

Hence, it is required to study the following:

- Whether application design should consider USS/UTM service handoff.

- How UAV application enabler can assist service handoff in order to fulfil the performance requirement.

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