**3GPP TSG-SA3 Meeting #100bis-e *S3-202392r2***

**e-meeting, 12 - 16 October 2020** Revision of S3-20xxxx

**Source: Huawei, HiSilicon, Lenovo, Motorola Mobility**

**Title: pCR – Address EN on UAS registration Accept in Sol #1**

**Document for: Approval**

**Agenda Item: 2.7**

# 1 Decision/action requested

***Approve this contribution to add a solution in TR33.854***

# 2 References

[1]

# 3 Rationale

The contribution address in one EN on UAS registration Accept in solution 1.

# 4 Detailed proposal

pCR

\*\*\* BEGINNING OF CHANGES \*\*\*

## 6.1 Solution #1: UAS Authentication and Authorization

### 6.1.1 Solution overview

This solution address the key issue #1.

This solution assumes each UAV or UAVC is provisioned with a PLMN UE ID (SUPI) and the corresponding credential so that it can be authenticated (primary authentication) by the PLMN as a normal UE. In addition, UAV or UAVC is provisioned with a UAS ID and corresponding credentials to perform UAS authentication and authorization (UAA) with USS/UTM.

The UAA is mandatory for UAA or UAVC and is based on EAP framework, where AMF is taking the role of the transparent Authenticator.

### 6.1.2 Solution details

The call flow of this solution is shown in the figure below.



**Figure 6.X.2-1: UAA procedure**

1. UAV (or UAVC) sends registration request to AMF. It may indicate that this is a registration for UAS.
2. AMF initiates Primary authentication as a normal UE
3. After successful Primary authentication, AMF checks whether UAV (or UAVC) requires UAA. This may be based on the subscription information retrieved from UDM in step 2
4. UAA starts with EAP message exchanges.
   1. AMF may optionally request UAS ID from UE.
   2. UAV (or UAVC) responses with UAS ID. It may indicate whether this is a UAV or UAVC.
   3. AMF sends UAA requests with UAS-ID and UAV or UAVC indicator in the EAP message. In addition, UAA request contains GPSI for USS/UTM to identify the UAV. GPSI shall be bound to UAS-ID.
   4. USS/UTM response with EAP messages accordingly
   5. EAP messages may continue based on the EAP method used.
   6. …

Note: the EAP authentication method used by UTM is out of scope of 3GPP

1. Based on the EAP authentication outcome, USS/UTM sends the results to AMF. If successful, USS/UTM sends the EAP-Success message, together with UAV/UAVC’s GPSI and UAS-ID that can uniquely identity the UAV/UAVC.
2. AMF stores the results, together with SUPI (converted from GPSI), UAS-ID, and UAV/UAVC indicator
3. AMF sends UAS registration complete message to UE. The message ~~may~~ includes the UAS-ID and~~/or~~ may include an indication it is for a UAV (or UAVC), if needed ~~indicator~~.

Editor's note:  The UAS Registration IE may be used to determine that UAA is requested, what information in the IE provided by the UE is FFS.

Editor's note:  Whether the UUA steps are executed within or outside the Registration procedure is FFS and in coordination with SA2

Editor's note:  Which core network function(s) (AMF, and/or others) and messaging will be used in the UAV authentication and authorization by USS/UTM procedure is FFS and in coordination with SA2

Editor's note:  How authorization revocation is supported should be marked as FFS

### 6.1.3 Solution evaluation

TBC

\*\*\* END OF CHANGES \*\*\*