**3GPP TSG-SA3 Meeting #104e ad-hoc *S3-213369r1***

**e-meeting, 27 – 30 September 2021** Revision of S3-20xxxx

**Source: Huawei, HiSilicon, InterDigital**

**Title: Pairing Authorization**

**Document for: Approval**

**Agenda Item: 4.7 ID\_UAS**

# 1 Decision/action requested

***Approve the proposed pCR as normative text***

# 2 References

[1]

# 3 Rationale

This contribution proposes the Pairing Authorization procedure based on the agreed principle in the study. It is in-line with SA2’s procedure as well.

# 4 Detailed proposal

pCR

\*\*\* BEGINNING OF CHANGES (all text are new) \*\*\*

### 5.X Pairing Authorization for UAV and UAVC

### 5.X.1 UAV pairing Authorization with UAVC in 5GS

Pairing authorization in 5GS shall be performed during either PDU Session Establishment/Modification Procedure. Pairing authroization may be either performed after a successful UAA between the UAV and the USS/UTM or during PDU Session Establishement.

UAV pairing authorization during the PDU session establishment/modification procedure is described as follows.



Figure 5.X.1-1: UAV pairing authorization during PDU Session Establishment

1. When the UAV needs a new dedicated PDU session for connectivity to the UAV-C, the UE initiates a PDU Session establishment procedure. When the UAV modifies a PDU session for connectivity to the UAV-C, the UE initiates a PDU Session modification procedure. The UE shall include the following IEs in the PDU session establishment/modification request: a CAA-Level UAV ID, a DNN/S-NSSAI implying dedicated connectivity to UAV-C, UAV pairing information if available.

The pairing information includes the CAA-level UAV IDs of the requesting UAV and also includes identification information of UAV-C to pair. The pairing authorization which is included in a transparent container, shall be integrity protected. The USS may also use its locally configured pairing information for UAV and UAV-C pairing authorization which takes precedence over UAV provided pairing information.

NOTE: The integrity protection is performed by the USS, e.g. using the USS public key, and is not in scope of 3GPP system.

2. The SMF determines whether the UAV pairing authorization is required based on UAV’s aerial subscription, presence of CAA-Level UAV ID, and DNN/S-NSSAI indicating the UAV service, as step 7 in clause 5.2.1.1.

The SMF invokes the authorization procedure with the USS (via UAS-NF) as described in clause 5.2.1.3.

The USS determines the authorization results as follows:

* If pairing information is included in the authorization request as configured in the USS, the USS verifies the pairing information. If passed verification, the USS may determine the pairing is authorized based on its local policy. The USS determines the GPSI based on identification information of UAV-C, if available.
* If pairing information is not included in the authorization request as configured in the USS, the USS determines the paired UAV-C based on its locally configured pairing information and the corresponding GPSI, if available

The USS and informs the SMF of the authorization results. The authorization information includes UAV-C, IP address and a transparent container. The transparent container contains UAS security information. The content of UAS security information (e.g., key material to help establish security between the UAV and UAV-C) is not in 3GPP scope.

For a UAV with aerial subscription, if the SMF determines based on the requested DNN/S-NSSAI that the authorization procedure with the USS is required, but if the UAV has not provided the CAA-Level UAV ID, the SMF rejects the PDU session establishment with a cause indicating that USS authorization is required.

3. The SMF informs the UE the paring authorization result in the PDU Session Accept or Reject message. The authorization result may include a new CAA-level UAV ID. The UE should store the Pairing authorization result and authorization information.

The PDU Session establishment continues and completes.

The UAV pairing authorization can be revoked by the USS at any time. Besides, the paired UAV-C can be replaced by a new UAV-C by the USS at any time.

Editor's Note: UAV pairing authorization during PDU Session Modification is FFS.

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