**3GPP TSG-SA3 Meeting #115AdHoc-e *S3-241380r2***

Electronic meeting, online, 15 - 19 April 2024

**Source: Huawei, HiSilicon, InterDigital**

**Title: New key issue for security enhancements to NEF services** **in support of multiple USSs**

**Document for: Approval**

**Agenda Item: 5.11**

# 1 Decision/action requested

***Approve to include the PCR for the TR 33.759***

# 2 References

# 3 Rationale

The contribution proposes a new key issue for this study.

# 4 Detailed proposal

pCR

\*\*\* BEGINNING OF 1st CHANGES \*\*\*

## X.1 Key issue # X: security enhancements to NEF services in support of multiple USSs

### X.1.1 Key issue details

In the TR 23.700-59 [x1], a key issue has been included to enhance NEF services to support service exposure and interactions between MNOs and UTM functions, e.g. pre-mission flight planning and in-mission flight monitoring for UAVs and supporting multiple USSs serving different geographical areas corresponding to the UAV flight path. The UTM, taking the role of AF and interacting with the MNO, can be a third-party entity. ~~Therefore, it should be studied how to secure the interactions for services newly introduced between the thrid-party AF and the MNO through an NEF. In addition,~~The enhancements to the security procedures to support multiple USSs need to be studied to ensure security of UUAA and pairing authorization etc, since UAV is currently allowed to be served by single USS (see TS 33.256 [x], clause 5.2).

### X.1.2 Threats

~~If UTMs, taking the role of a thrid-party AFs, are not authenticated or authorized, a compromised third-party UTM may mis-use NEF services, tamper with flight plans and monitor UAV in-mission flights etc.~~

If security procedures, e.g UUAA and paring authorization etc, are not adapted to support multiple USSs, the security procedures may fail in the multiple USS scenarios. For example, if a UAV is only authenticated and authorized by one USS, the UAV will be rejected by a second USS when the UAV flies into a different geographical areaserved by the second USS as the UAV was not authenticated or authorized by the second USS. In addtion, the second USS can not perform flight monitoring of the entering UAV if the second USS is not authorized beforehand (since only the one USS is authenticated and authorized). This may become a risk for other UAVs and for public safety.

### X.1.3 Potential security requirements

~~The 5G system shall secure interactions between a third-party UTM and the NEF for enhancements of NEF services.~~

The 5G system shall ensure the security procedures support multiple USS scenarios.

 \*\*\* END OF 1st CHANGES \*\*\*

 \*\*\* BEGINNING OF 2nd CHANGES \*\*\*

# 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non‑specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[x1] 3GPP TR 23.700-59: "Study on architecture enhancements of UAS, UAV and UAM; Phase 3"

[x] 3GPP TS 33.256: "Security aspects of Uncrewed Aerial Systems (UAS)"

 \*\*\* END OF 2nd CHANGES \*\*\*