**3GPP TSG-SA3 Meeting #115AdHoc-e *draft\_S3-241365-r1***

Electronic meeting, online, 15 - 19 April 2024 merge of S3-241317, S3-241471, S3-241365

**Source: Nokia, Intel, Huawei, Xiaomi**

**Title: KI Authentication of UE in Non-3GPP Access**

**Document for: Approval**

**Agenda Item: 5.15**

# 1 Decision/action requested

***It is requested to approve the KI in TR 33.754***

# 2 References

[i] 3GPP TR 33.754: "Study on security aspects for multi-access (dualSteer + ATSSS Ph-4)"

[ii] 3GPP TR 23.700-54: "Study on Multi-Access (DualSteer and ATSSS\_Ph4)"

[iii] 3GPP TS 33.501: " Security architecture and procedures for 5G system"

# 3 Rationale

This pCR introduces a new Key Issue for the study TR 33.754 [i].

# 4 Detailed proposal

**\*\*\*\*** START OF 1st CHANGE **\*\*\*\***

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".

[ii] 3GPP TR 23.700-54: "Study on Multi-Access (DualSteer and ATSSS\_Ph4)"

[iii] 3GPP TS 33.501: " Security architecture and procedures for 5G system"

**\*\*\*\*** END OF 1st CHANGE **\*\*\*\***

**\*\*\*\*** START OF 2nd CHANGE **\*\*\*\***

## X.Y Key Issue #Y: Authentication of UE in ATSSS over Non-Integrated Non-3GPP Access

### X.Y.1 Key issue details

As specified in TS 33.501 [iii], authentication of UE for non-3GPP access is implicated done by the successfully running the primary authentication. However, TR 23.700-54 [ii] introduces the concept of Non-Integrated Non-3GPP Access (NIN3A), a type of non-3GPP access network that provides direct IP connectivity between the UE and the UPF without any intermediate NF such as Non-3GPP Interworking Function (N3IWF) and Trusted Non-3GPP Gateway Function (TNFG). Here, UE does not register to the 5GC over this Non-Integrated Non-3GPP Access. However, the UE is still able to access 5G resources, i.e. UPF, SMF. NIN3A leverages direct connections between UE and UPF to streamline connectivity.

This Key Issue focuses on the security challenges associated with direct connectivity, particularly in the absence of N3IWF/TNGF. The primary concerns include:

- Authentication: Ensuring the UE's identity is securely verified and authenticated before establishing a direct connection to the UPF.

- Privacy and Identity Protection: Protecting the UE's identity during the connectivity process.

Editor’s note: The definition of UE identity in this context is FFS.

### X.Y.2 Security threats

Non-Integrated Non-3GPP Access (NIN3A) exposes a new IP communication endpoint in the 5G Core (UPF) to be reachable directly by the UE. The absence of authentication between the UE and UPF introduces significant security risks and threats, potentially compromising the UPF network element and the entire 5G Core. Here are some of those threats:

- Unauthorized Access: The lack of authentication would allow unauthorized UEs to gain access and connect directly to the UPF, compromising the network resources and potentially launching further attacks.

- Impersonation: Attackers can spoof the identify of legitimate UEs or masquerade as trusted entities to gain access to the network.

- Denial of Service (DoS) Attacks: Attackers can exploit the lack of authentication to launch DoS attacks against the UPF, overwhelming network resources and disrupting legitimate services.

### X.Y.3 Potential security requirements

The 5G System should support the means to authenticate a UE accessing the network via Non-Integrated Non-3GPP Access (NIN3A).

The authentication mechanism should not compromise the privacy of the UE.

**\*\*\*\*** END OF 2nd CHANGE **\*\*\*\***