**3GPP TSG-SA3 Meeting #108Adhoc-e draft\_S3-222476-r3**

**e-meeting, 10th – 14th October, 2022 merger of S3-222476, S3-222867, S3-222581**

**Source:**  **Huawei, HiSilicon, Xiaomi**

**Title:** **key issue on coverage information protection with discontinuous satellite coverage**

**Document for: Approval**

**Agenda Item: 5.25**

# 1 Decision/action requested

***It is proposed to approve the change described in this document.***

# 2 References

[1] 3GPP TR 23.700-28.

# 3 Rationale

As defined in TS 23.700-28 [1], the mobility management enhancement and power saving enhancement for UE in discontinuous coverage are discussed in SA2. Security work is required to analysis whether additional work is needed for protecting enhanced architecture supporting discontinuous coverage with satellite access.

# 4 Detailed proposal

\*\*\* 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*.

[xx] 3GPP TR 23.700-28: " Study on Integration of satellite components in the 5G architecture; Phase 2".

[y] 3GPP TS 36.331: "Evolved Universal Terrestrial Radio Access (E-UTRA); Radio Resource Control (RRC); Protocol specification".

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

\*\*\* 2nd CHANGE \*\*\*

## 5.X Key Issue #X: Protection of satellite coverage information protection used by the UE

### 5.X.1 Key issue details

In 3GPP 23.700-28[xx], satellite coverage information (e.g. ephemeris data) is to be provided to UE to support power consumption optimization under discontinuous satellite coverage. Coverage information may be provided relying on broadcast of satellite ephemeris data as per TS 36.331 [y]. SIB protection investigation is performed in the study on enhancement against false base stations. As alternatives, control plane or user plane solutions relying on the support of 5GC/EPC or an external server may also be used for sending the coverage information.

Editor’s note: the description will be revisited based on the conclusion in SA2.

With the different potential sources provisioning satellite coverage information to the UE (e.g. RAN, 5GC/EPC or an external server), how the UE verifies the authenticity and integrity of the satellite coverage information, probably with assistance of the network, needs further study.

### 5.X.2 Security threats

Without verification by the UE, if the satellite coverage information is modified by attackers or falsified by unauthorized provisioning sources, the integrity or authenticity of satellite coverage information used by the UE cannot be ensured. Then the UE may determines to remain in no service and enter power saving mode when in coverage of satellite while wake up when out of coverage. Both cases are a type of DoS attack on the UE.

### 5.X.3 Potential security requirements

The 5GS/EPS shall provide a means for the UE to verify the authenticity or integrity of the received satellite coverage information.

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