**3GPP TSG-SA3 Meeting #108Adhoc-e draft\_S3-222476-r7**

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

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

**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 integrity of the satellite coverage information, probably with assistance of the network, needs further study.

### 5.X.2 Security threats

If false satellite coverage information is used by the UE, the UE may be misled to deactivate its AS functions when it is still in satellite coverage, leading to service interruption; or the UE may be misled to keep active with AS functions when it is already out of coverage, leading to unnecessary power consumption. Both cases are a type of DoS attack on the UE.

Such attack caused by false satellite coverage information may be due to various threats:

- Satellite coverage information falsified by the provisioning source is received and used by the UE.

- Satellite coverage information tampered during transmission is received and used by the UE.

### 5.X.3 Potential security requirements

TBA

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