**3GPP TSG-RAN WG2 Meeting #123bis *R2-231xxxxx***

**Xiamen, China, 9th – 13th October 2023**

**Title: LS on UE Location Information for NB-IoT NTN**

**Release: Rel-18**

**Work Item: IoT\_NTN\_enh**

**Source: RAN2**

**To: CT1, SA2**

**Cc: RAN3**

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# 1 Overall description

A number of satellite operators as well as other members of the NTN community have reinstated in R2-2310192 the relevance and urgency of supporting a suitable UE coarse location reporting method for early NB-IoT deployments.

RAN2 discussed whether and how location reporting for an NB-IoT UE in NTN can be supported.

The original proposal calls for an AS-based solution to support reporting of Coarse UE location, to the granularity of a terrestrial cell, with the understanding that, as previously noted by RAN2 in Release 17, for NB-IoT UEs, AS layer security cannot be assumed.

Some companies in RAN2 have the understanding that reporting of UE location to the granularity of a terrestrial cell does not pose any additional privacy or security concerns compared to existing TN specification and deployments.

Other companies in RAN2 still have concerns with reporting the coarse UE location via AS layer with no security context. RAN2 also discussed the possibility to provide location information via NAS layer as an alternative to delivering the location information via AS layer. At least for the moment, a NAS layer-based solution seems promising.

RAN2 would like to ask SA2 and CT1 to consider the following:

* + Study and specify a NAS layer based solution for an NB-IoT UE in NTN to report its location to the network via NAS message:
    - NAS security activation is assumed
    - UE location report should be provided as early as possible during the initial NAS procedures
    - The mechanism should be applicable for NB-IoT with CP solution for both EDT and non-EDT
    - A mechanism should also be specified for the network to efficiently request a new UE location report to all or groups of UEs in a cell or cell group
    - Whether a mechanism needs to be considered for periodic reporting or when the UE location changes, if enabled by the network.

# 2 Actions

**To CT1**

**ACTION:** RAN2 asks SA2 and CT1 to take the above into account, to confirm the feasibility and, if feasible, to study and specify a NAS layer based solution for an NB-IoT UE in NTN to report its location to the network as early as possible during the initial registration procedure.

# 3 Dates of next TSG RAN WG2 meetings

RAN2#124 13th – 17th November 2023 F2F meeting

RAN2#125 26th February – 1st March 2024 F2F meeting