**3GPP TSG RAN WG2#121-bis-e *R2-230xxxx***

**Online, 17th – 26th April, 2023**

Title: DRAFT LS to RAN1 on unchanged PCI

Response to: -

Release: Release 18

**Work Item: NR\_NTN\_enh-Core**

Source: CATT (to be RAN2)

To: RAN1

Cc:

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Attachments: None

**1. Overall Description:**

For mobility enhancement in Rel-18 NR NTN, in quasi-earth fixed cell case, RAN2 has discussed unchanged PCI scenario, including hard satellite switch (non-overlapping satellite coverage at switching time) and soft satellite switch (overlapping satellite coverage at switching time).

RAN2 has agreed that, in quasi-earth fixed cell case, for hard satellite switching in the same SSB frequency and same gNB (no key change), satellite switching without PCI change (not requiring L3 mobility) can be supported in Rel-18. RAN2 understands that the standard impact includes that the UE may be notified to re-acquire DL/UL synchronization with the serving cell after the satellite switching, and it is still under RAN2 discussion whether RACH-less can be supported in this scenario.

RAN2 understands that the feasibility of soft satellite switch without PCI change (not requiring L3 mobility) is more relevant to RAN1 aspects, and would like to check its feasibility with RAN1.

**2. Actions:**

**To** **RAN1**

**ACTION:** RAN2 kindly requests RAN1 to take into account above RAN2 agreements on hard satellite switch without PCI change, and provide feedback on the feasibility to support soft satellite switch without PCI change.

**3. Date of Next RAN2 Meetings:**

TSG-RAN WG2#122 2023-05-22 to 2023-05-26 Incheon, KR

TSG-RAN WG2#123 2023-08-21 to 2023-08-25 Toulouse, FR