**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:

**Contact Person:**

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Attachments: None

**1. Overall Description:**

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

From RAN2 perspective, 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, and this was formulated as a working assumption in RAN2 #121 meeting. 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. Thus, RAN2 respectively asks RAN1 to take the above information into account and provide feedback, if RAN1 sees any issue.

RAN2 would also like to ask RAN1 about the feasibility of soft satellite switch without PCI change (not requiring L3 mobility).

**2. Actions:**

**To** **RAN1**

**ACTION:** RAN2 kindly requests RAN1 to provide feedback regarding keeping the same PCI in soft and hard satellite switching scenarios.

**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