**3GPP TSG RAN WG2#113e draft-R2-2102040**

**Online meeting, 25 January – 05 February, 2021**

Title: [Draft] Reply LS on AN-PDB and PER targets for satellite access

Response to: R2-2100067/S2-2009225

Release: Release 17

Source: Qualcomm Inc. [to be RAN2]

To: SA2, RAN1

Cc: RAN3

**Contact Person:**

Name: Bharat Shrestha

E-mail Address: bshrestha@qti.qualcomm.com

**Send any reply LS to: 3GPP Liaisons Coordinator,** [**mailto:3GPPLiaison@etsi.org**](mailto:3GPPLiaison@etsi.org)

Attachments: None

**1. Overall Description:**

RAN2 would like to thank SA2 for the LS on AN-PDB and PER targets for satellite access and provide following answers.

**SA2 Question 1:** SA2 would like to ask RAN1, and RAN2 to indicate what is the expected “lower” and “higher” AN-PDB values when the different RAT types for satellite access is used?

**RAN2 answer:**

As documented in TR 38.821, the worst-case impact on the round-trip propagation delay in NTN with transparent payload is 541.46 ms for GEO, 41.77 ms for LEO at 1200km, and 25.77 ms for LEO at 600km compared to TN. RAN2 understands the round-trip propagation delay in HAPS based NTN with transparent payload would be similar to that in terrestrial network. The ase where gNB is co-located at the NTN-GW is considered with priority in RAN2, in which the propagation delay between NTN-GW and the gNB can be ignored.The RTD can be used to determine PDB based on number of retransmissions and value of PER.

[Samsung] We are fine with the answer text. We would like SA2 to consider supporting different QoS for different NTN Types so that a given NTN Type is not constrained by the worst-case NTN Type.

[OPPO] We are fine with the answer.

[CMCC] We are fine with the reply.

[Thales] We propose some corrections because the values above corresponds to the propagation delay contribution (Forward and return) to the RTD.

[Lenovo] We are fine with the reply. Suggest to add “propagation” in round-trip delay for accuracy.

[ZTE] Since the AN-PDB represents the delay between UE and the 5G-AN and we undersand the 5G-AN would be the gNB on earth, it is worth to mention that the delay between gNB and NTN-GW can be ignored as RAN2 consider the case where gNB is co-located at the NTN-GW with priority.

[Ericsson] We prefer using RTT instead of RTD and to write it out as round trip time to make it clearer. We do not think it is relevant to mention the if GW and gNB are co-located, like what ZTE proposed. Also see proposal in bubble comment on the last sentence.

**SA2 Question 2:** SA2 would like to ask RAN1, and RAN2 to indicate what is the expected upper bound of PER when the different RAT types for satellite access is used?

**RAN2 answer:**

RAN2 expects the same TN upper bound of PER to be applicable in NTN.

[Samsung] We are fine with the answer text. We would like SA2 to consider supporting different QoS for different NTN Types so that a given NTN Type is not constrained by the worst-case NTN Type. We further observe that a higher PER target will give more flexibility to NTN operators in offering diverse services. For example, instead of just 1% PER for voice services, 1% to 3% PER would provide more flexibility.

[OPPO] We are fine with the answer.

[CMCC] We are fine with the reply.

[Thales] We are fine with the reply.

[Lenovo] We are fine with the reply.

[Ericsson] We are fine with the reply.

**2. Actions:**

**To** **SA2:**

**ACTION:** RAN2 respectfully asks SA2 to take the above information into account.

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

TSG-RAN WG2#113bis-e April 12th – April 20th, 2021 Online meeting