**3GPP TSG-RAN WG3 Meeting #119 R3-230811**

**Athens, Greece, 27 Feb – 03 Mar 2023**

**Title: [DRAFT]** Reply LS on proposed method for time synchronization status reporting to UE(s)

**Response to:** R3-230037 / S2-2301463

**Release:** Release 18

**Work Item:** FS\_TRS\_URLLC

**Source:** RAN3

**To:** SA2, RAN2

**Cc:** -

**Contact Person:**

#### Name: Sean Kelley

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

**Attachments:** -

**1. Overall Description:**

RAN3 would like to thank SA2 for the LS on proposed method for time synchronization status reporting to UE(s). RAN3 has evaluated the questions asked by SA2, and would like to provide the following answers:

**For the question**: “*SA2 would like to kindly request RAN2 and RAN3 to provide feedback whether both scopes (group of cells per gNB, group of cells across gNBs) can be beneficial and supported.*”

**RAN3 answer**:

- Depending on gNB topology, clock quality information can be the same for some or all cells of a gNB. Also, topologies can exist where clock quality information is different between “groups of cells within a single gNB” (e.g. cells served by different gNB-DUs).

- RAN3 understands that it shall be possible for NG-RAN to ensure that UEs are kept in RRC\_IDLE or RRC\_INACTIVE state when moving between cells of a gNB with the same clock quality. From RAN3 point of view, this can be supported by using “Event ID” that has gNB scope.

- RAN3 does not see a need to support “group of cells across gNBs” in Release 18, considering its limited applicability and the likely specification effort (e.g. coordination of the reference report ID over the Xn interface).

**For the question**: “*SA2 would like to kindly request RAN3 to provide feedback whether the following attributes are available in RAN: time source, traceability to UTC or GNSS, synchronization state, clock accuracy, clock frequency stability, PTP clockClass.*”

**RAN3 answer**:

- The attributes “time source”, “synchronization state”, and “clock accuracy” are available at the gNB.

- The attribute “*clock frequency stability*” is available at the gNB, under the assumption that it is *offsetScaledLogVariance* as defined in TS 23.501 or similar definition.

- The attribute “*traceability to UTC or GNSS*” is available at the gNB, under the assumption that the value is true or false, e.g. whether time is traceable to the reference time source (e.g. UTC).

- The attribute “PTP clockClass” is available at the gNB, under the assumption that the gNB receives time using PTP.

- RAN3 assumes that a gNB may report (to UE and AMF) all, some, or none of the attributes based on the gNB implementation, i.e. gNB makes the final decision on whether it performs time status reporting. Encoding details for these attributes require further RAN3 discussion and will be determined during the work item phase. RAN3 assumes that SA2 will align to RAN3 when it comes to the attributes and encoding.

**2. Actions:**

**To SA2, RAN2.**

**ACTION:** RAN3 respectfully asks SA2 and RAN2 to consider the above feedback.

**3. Date of Next TSG-RAN WG3 Meeting:**

RAN3#119-bis-e from 2023-04-17 to 2023-04-26 Online

RAN3#120 from 2023-05-22 to 2023-05-26 Incheon