3GPP TSG RAN WG 2 Meeting #121bis electronic TDoc R2-2304553

17th - 26th April, 2023

**Title: Reply LS on L1 measurement RS configuration and** **PDCCH ordered RACH for LTM**

**Response to: LS R2-2302412/R1-2302194 on L1 measurement RS configuration and PDCCH ordered RACH for LTM from RAN1**

**Release: Release 18**

**Work Item: NR\_mob\_enh2-Core**

**Source: RAN2**

**To: RAN1, RAN3**

**Cc: RAN4**

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

**Attachments:** **None**

# 1 Overall description

RAN2 thanks RAN1 for their LS on L1 measurement RS configuration and PDCCH ordered RACH for LTM.

Based on the discussion in RAN2, RAN2 would like to provide the following feedback for RAN1’s question on PDCCH ordered RACH:

*RAN 1 respectfully asks RAN2 and RAN3 to check the feasibility and potential impact on specs of RAN2 and RAN 3 of all options, i.e. with RAR (from serving or candidate cell) and without RAR, in the agreement described in section B.*

1. From RAN2 perspective, the following options are feasible:
* PDCCH ordered-RACH without RAR
* PDCCH ordered-RACH with RAR and the RAR is received from the serving cell
1. For early TA acquisition and L1 measurements, RAN2 achieves the following agreements in RAN2#121bis-e meeting.

<Early TA acquisition>

* From RAN2 perspective, to enable shared preamble resource among multiple UEs, it is beneficial that the information that identifies the allocated CFRA resource (i.e., SS/PBCH index, RACH occasion, and Random Access Preamble index) can be indicated in the PDCCH order (as legacy intra-cell PDCCH order).
* RRC RACH configuration for early TA acquisition (e.g., including whether RAR needs to be received) is specific per target cell and is signalled separately (separate IEs) from the candidate cell configuration (the part that need to be applied at cell switch).
* R2 assumes that Early TA RACH option 3 (with RAR from candidate cell) is not needed in Rel-18.

<L1 measurements>

Initial agreements, from RAN2 point of view (may be dep on RAN1 progress).

* The location of RS configuration for SSB-based measurements of candidate cells is external to the ServingCellConfig(s) of current serving cells and external to the configuration of the LTM candidate cells. The RS configuration, per RAN1 agreement, can include PCI or logical ID, SMTC location, frequency location, and SCS.
* RAN2 assumes that the location of configurations of TCI states for the candidate cells (used before/at cell switch) is external to the ServingCellConfig(s) of current serving cells and external to the configuration of the LTM candidate cells (same location as RS configuration).
* RAN2 assumes that For L1 measurements of LTM candidate cells, the reporting configuration is placed inside the ServingCellConfig of current serving cell(s).

 *Chair: the agreements above may need to be further evaluated, e.g. wrt subsequent LTM switches.*

* RAN2 assumes that whether filtering, hysteresis, and time-to-trigger are needed for LTM specific L1 measurements is up to RAN1.
* FFS if the LTM specific L1 measurements of an LTM candidate SCell is independent of its activation status.
* Whether to assume L1/L2 signaling to control or change L1 measurement/reporting for LTM needs further discussion (parts may be discussed in RAN1). RAN2 assumes that such control would be limited to certain aspect that need frequent update and restricted by RRC configuration.

# 2 Actions

**To RAN1 and RAN3 groups**

**ACTION:** RAN2 kindly asks RAN1 and RAN3 to take the above feedback into consideration.

# 3 Dates of next TSG RAN WG 2 meetings

TSG RAN WG2 Meeting #122 22 – 26 May 2023 Incheon, KR

TSG RAN WG2 Meeting #123 21 – 25 August 2023 Toulouse, FR