3GPP TSG-RAN WG3 Meeting #127bis R3-252347

Wuhan, CN, 7-11 April, 2025

**Agenda item: 10.2**

**Source: ZTE Corporation**

**Title: (TP for SON BLCR 38.300) MRO for LTM- outdated TA**

**Document for: Approval**

# 1Introduction

This contribution, we provide TP based on the outcome of LTM failure due to outdated TA.

LTM failure due to outdated TA

**MRO will cover the scenario that RACH-less LTM fails including outdate TA and UE performs RACH based LTM.**

**RAN3 will not consider the case of LTM cell switch failure due to outdated TA calculated by UE.**

**For PDCCH order triggered early TA acquisition, RAN3 consider the case of RACH-less LTM fails due to outdate TA and UE performs RACH-based LTM failure recovery to the same cell or RRC re-establishment to the same cell (FFS).**

**Stage 2 TP for LTM failure due to outdated TA.**

# 2 Discussion

**<< First Change >>**

##### 15.5.2.2.2 Connection failure due to intra-system mobility

One of the functions of Mobility Robustness Optimization is to detect connection failures that occur due to Too Early or Too Late Handovers, or Handover to Wrong Cell. These problems are defined as follows:

- Intra-system Too Late Handover: an RLF occurs after the UE has stayed for a long period of time in the cell; the UE attempts to re-establish the radio link connection in a different cell.

- Intra-system Too Early Handover: an RLF occurs shortly after a successful handover from a source cell to a target cell or a handover failure occurs during the handover procedure; the UE attempts to re-establish the radio link connection in the source cell.

- Intra-system Handover to Wrong Cell: an RLF occurs shortly after a successful handover from a source cell to a target cell or a handover failure occurs during the handover procedure; the UE attempts to re-establish the radio link connection in a cell other than the source cell and the target cell.

- LTM failure due to outdated TA: an RLF occurs during the RACH-less based LTM cell switch procedure from source to target cell which is triggered by network via sending the Cell switch Command with included TA value to UE, the UE successfully attempts to re-establish to the same target cell withRACH-based access with new TA value*.*

**<< Second Change >>**

**Detection mechanism**

A failure indication may be initiated after a UE attempts to re-establish the radio link connection at NG-RAN node B after a failure at NG-RAN node A. NG-RAN node B may initiate the Failure Indication procedure towards multiple NG-RAN nodes if they control cells which use the PCI signalled by the UE during the re-establishment procedure. The NG-RAN node receiving this selects the UE context that matches the received Failure Cell ID and C-RNTI, and, if available, uses the shortMAC-I to confirm this identification, by calculating the shortMAC-I and comparing it to the received IE.

A failure indication may also be sent to the node last serving the UE when the NG-RAN node fetches the RLF REPORT from UE by triggering:

- The Failure Indication procedure over Xn;

- The Uplink RAN configuration transfer procedure and Downlink RAN configuration transfer procedure over NG.

The detailed detection mechanisms for too late handover, too early handover, handover to wrong cell and LTM failure due to outdate TA are carried out through the following in the NG-RAN node that served the UE before the reported connection failure:

- Intra-system Too Late Handover: there is no recent handover for the UE prior to the connection failure e.g. the UE reported timer is absent or larger than the configured threshold (e.g. Tstore\_UE\_cntxt), or if CHO/LTM or CHO with candidate SCG(s) is configured but the CHO/LTM execution is not initiated for the UE prior to the connection failure, e.g. the UE reported timer is absent or larger than the configured threshold (e.g. Tstore\_UE\_cntxt).

- Intra-system Too Early Handover: there is a recent handover/LTM cell switch for the UE prior to the connection failure e.g. the UE reported timer is smaller than the configured threshold (e.g. Tstore\_UE\_cntxt), and the first re-establishment attempt cell/the successful re-connect cell/the cell UE attempts LTM recovery is the cell that served the UE at the last handover/LTM initialisation or fall back to the source cell configuration in case of DAPS HO.

- Intra-system Handover to Wrong Cell: there is a recent handover/LTM cell switch for the UE prior to the connection failure e.g. the UE reported timer is smaller than the configured threshold (e.g. Tstore\_UE\_cntxt), and the first re-establishment attempt cell/ the cell UE attempts to re-connect/the cell UE attempts CHO recovery/the cell UE attempts LTM recovery is neither the cell that served the UE at the last handover/LTM initialisation nor the cell that served the UE where the RLF happened or the cell that the handover/LTM was initialized toward.

- LTM failure due to outdated TA: there is a recent RACH-less LTM cell switch for the UE from source to target cell triggered by network triggered via sending the Cell switch Command with included TA value to UE prior to the connection failure e.g. the the UE successfully attempts to connect to the same target cell withRACH-based access via LTM recovery/re-establishment procedure with new TA value provided from network in RAR message*.*.

**<< End of Change >>**