3GPP TSG-RAN WG2 Meeting #128 R2-24xxxxx

Orlando, USA, 18th – 22nd of November 2024

**Agenda item: 7.4.1**

**Source: Nokia**

**Title: Report from [AT128][103][MOB] (Nokia)**

**WID/SID: NR\_Mob\_enh2-Core - Release 18**

**Document for: Discussion and Decision**

# 1 Introduction

This is to discuss the following aspects:

 **[AT128][103][MOB] (Nokia)**

 **Scope:** Discuss R2-2410442 and R2-2410449 and update 38.300 if needed. Note 38.300 CR will be updated based on the endorsed version.

 **Intended outcome:** 38.300 CR in R2-24010925. Email approval is applied.

**Deadline: Until Thursday CB session.**

The details are given in the following sections.

# 2 Discussion

## 2.1 Stage 2 changes in R2-2410442

[1] continues on the topic which has been discussed at RAN2#127bis regarding the RAN4 requirements when it comes to L1-RSRP reporting to the NW prior to Early TA acquisition or TCI state activation for LTM. As noticed in [1], Figure 9.2.3.5.2-1 and the corresponding description in TS 38.300 are not aligned with RAN4 requirements which state the following:

* TCI state activation can be done only for a known TCI state (i.e. UE has recently reported L1-RSRP for the RS associated to the TCI state) or, in case of FR1, for an unknown TCI state if the UE has reported L3 measurement result with the associated SSB index of the TCI state
* PDCCH-ordered RACH requirements in TS 38.133 apply only for the UE that has provided L1- or L3-RSRP report (for FR1) or L1-RSRP report (for FR2).

During the discussion at RAN2#127bis [3] companies were reluctant to insert too many RAN4-related details into TS 38.300. Thus, [1] now suggests just to add a reference to TS 38.133 to the description of steps 4a and 4b underneath Figure 9.2.3.5.2-1.

Companies are invited to share their view on this simple update below Figure 9.2.3.5.2-1.

**Question 1: Do you agree to introduce a reference to TS 38.133 to the description of steps 4a and 4b underneath Figure 9.2.3.5.2-1, as suggested in R2-2410442?**

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| **Company** | **Answer (Yes/No)** | **Comments** |
| LGE | Yes |  |
| Huawei, HiSilicon | No? | There are many places in 38.300 where, from a stage 3 perspective, 38.133 is applicable so it looks a little strange to add such a reference only there. Also, we are not sure it really helps for anything. That said, we don’t have a very strong view on this. |
| Ericsson | No strong view | Having just a reference with says “TS 38.133” maybe is not really helpful, but we can go with majority. |
| ZTE | No strong view  |  |
| Nokia | Proponent | Having a reference to 38.133 is nothing unusual in Stage-2. We have plenty of references pointing to Stage-3 details (e.g. to 38.331). We are fine not to provide a detailed description in 38.300 (as we suggested in our paper to RAN2#127bis), but we believe it is beneficial to at least point to associated requirements in RAN4 specs (as it is not so straightforward with the early UL/DL sync, there needs to be a preceding reporting). So at least the reference would be nice to have.  |
| CATT | No strong view | Slightly prefer to NO |
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**Summary for Q1:**

* **Not too many companies had a strong opinion on this subject**
* **Rapporteur’s suggestion is to pursue these changes and merge them with the existing Stage-2 CR which has to be revised at RAN2#128**

**Proposal 1: Introduce a reference to TS 38.133 to the description of steps 4a and 4b underneath Figure 9.2.3.5.2-1, as suggested in R2-2410442.**

## 2.2 Stage 2 changes in R2-2410449

The authors of [2] discuss the coexistence of Conditional Handover (CHO) and LTM for SCG. The topic has been also discussed at RAN2#127bis [3] and it was agreed we do not pursue changes for suspending the evaluation of execution conditions for CHO when LTM for SCG is triggered. Now the authors of [2] changed the TP and suggest to agree that “simultaneous execution of CHO (e.g. CHO without SCG configuration, CHO with SCG configuration, CHO with candidate SCG) and Intra-CU SCG LTM is not supported in Rel-18. (see TP for TS37.340)”. As can be noticed, the change is proposed to TS 37.340, not TS 38.300. Thus, if agreed, should be merged with the CR discussed in another thread.

Companies are invited to express their view on whether such change is correct and needed in TS 37.340, as shown in [2].

**Question 2: Do you agree to capture in TS 37.340 that simultaneous execution of CHO (e.g. CHO without SCG configuration, CHO with SCG configuration, CHO with candidate SCG) and Intra-CU SCG LTM is not supported in Rel-18, as shown in R2-2410449?**

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| **Company** | **Yes/No** | **Comments** |
| MediaTek | No | We have not captured similar aspect for legacy PSCell change + CHO, so there is no need to capture it for SCG LTM + CHO either.Practical UE implementation can be assumed to perform single mobility procedure at a time, not execute them in parallel, as discussed during RAN2#125. Also, in general, the network should ensure that the UE configurations are reasonable, in terms of procedures which may not co-exist successfully.[Lenovo] In TS37.340, While executing CPC, UE will stop evaluating CHO condition. (see below).*TS37.340:**While executing CPC, the UE is not required to continue evaluating the execution condition of other candidate PSCell(s) or PCell(s).* |
| LGE | No | It is very rare that simultaneous execution of CHO and Intra-CU SCG LTM happens. This means that a failure due to the simultaneous execution rarely happens. For this rare case, RRC connection re-establishment is sufficient.[Lenovo] There are many co-existence cases in Rel-18. The co-existence of CHO and SCG LTM is one of them. But other co-existence cases have been captured/addressed in 3GPP specification. For example, simultaneous execution of MCG LTM and SCG LTM is not allowed. |
| Huawei, HiSilicon | No | In Rel-16, if the UE is configured with CHO (and not CPC), reconfiguration with sync of the SCG triggered by an RRC message also does not release the CHO configuration, so it could be triggered and there is no text like what is now proposed for SCG LTM. |
| Ericsson | No |  |
| Lenovo | Proponent | Last meeting, we proposed that UE should stop evaluating CHO once SCG LTM is triggered based on the assumption that simultaneous execution of CHO and SCG LTM is not allowed. But some companies would like to support simultaneous execution. So, we propose to discuss whether simultaneous execution is allowed or not. |
| ZTE | No | Share the same view with Huawei.  |
| Nokia | No | We see no need to define these coexistence rules.  |
| CATT | No | In Rel-17, if the UE is configured with CHO with MRDC (and not CPC), PSCell change triggered via RRC does not initiate it to release the CHO configuration as well. |
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**Summary for Q2:**

* **Nobody besides the proponent thinks the changes in R2-2410449 are needed**
* **It is suggested not to pursue what R2-2410449 proposes.**

## 2.3 Issues with in-principle-agreed CR (R2-2409936)

During online discussion there were few comments raised regarding IPA CR [4]. E.g. it was underlined that “Consequences if not approved” are filled incorrectly. It was also pointed out that some rewording might be needed to other suggested changes. Thus, we would like to ask companies to share what kind of changes are needed to IPA CR (R2-2409936).

**Question 3: What kind of changes, besides updating “Consequences if not approved” are required for IPA CR (R2-2409936)?**

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| **Company** | **Comments** |
| Huawei, HiSilicon | 1. While the UE has stored LTM candidate configurations the UE can also execute any L3 handover except for DAPS handover. In the RRC message which the UE applies for any L3 handover (except DAPS), the LTM candidate configurations can be added/modified/released by the target cell.

Here, “the” can only be used to refer to LTM candidate configurations that were previously mentioned, but the only candidate configurations that were mentioned before is the stored ones, so “the LTM candidate configurations can be added” makes no sense.Besides, there is nothing in the “reason for change” to explain the motivation of this addition and the text looks correct and clear without any change.1. The overall procedure for LTM is shown in Figure 9.2.3.5.2-1 below. Subsequent LTM is done by repeating the early synchronization, LTM cell switch execution, and LTM cell switch completion steps without releasing, reconfiguring, or adding other LTM candidate configurations after each LTM cell switch completion.

Some change can be done but:* The motivation should be in the “reason for change” e.g., “the intention of subsequent LTM is not only that the candidate LTM configurations that were not executed can be kept, but that they also don’t need to be reconfigured or replaced by new ones”.
* “Clarified that if there is a subsequent LTM, the LTM candidate configuration should not be released, reconfigured, or added.” seems to say that the network is not allowed to release, reconfigure or add configurations after executions, which is not correct.

Such a confusion could be avoided like:1. The overall procedure for LTM is shown in Figure 9.2.3.5.2-1 below. Subsequent LTM is done by repeating the early synchronization, LTM cell switch execution, and LTM cell switch completion steps without the need to release~~ing~~, reconfigure, or add other LTM candidate configurations after each LTM cell switch completion.

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**Summary for Q3:**

* **“the” from “In the RRC message which the UE applies for any L3 handover (except DAPS), the LTM candidate configurations can be added/modified/released by the target cell.” will be removed.**
* **“the need to” will be added to “without releasing, reconfiguring, or adding other LTM candidate configurations after each LTM cell switch completion.”**
* **Cover page will be updated accordingly.**

# 3 Conclusion

In this document the following proposals have been made:

# References

1. R2-2410442 *Miscellaneous Rel-18 LTM Aspects and Corrections* 3GPP TSG-RAN WG2 Meeting #128 Orlando, USA, 18th – 22nd of November 2024
2. R2-2410449 *Stage 2 TP for simultaneous execution of CHO and SCG LTM* 3GPP TSG-RAN WG2 Meeting #128 Orlando, USA, 18th – 22nd of November 2024
3. R2-2409356 *Report from [AT127b][104][MOB] (Nokia)* 3GPP TSG-RAN WG2 Meeting #127bis Hefei, China, 14th – 18th of October 2024
4. R2-2409936 *Misc state 2 corrections for LTM mobility*  3GPP TSG-RAN WG2 Meeting #128 Orlando, USA, 18th – 22nd of November 2024